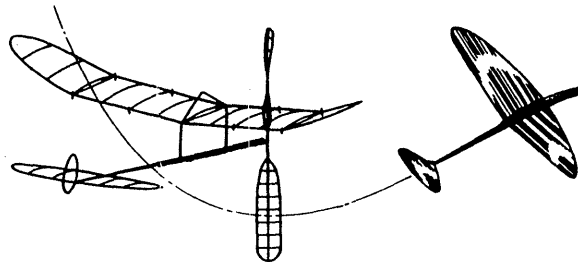


INDOOR



#20 & 21

SPECIAL
DOUBLE
ISSUE

NEWS and VIEWS

Editor: Bud Tenny · Box 545 · Richardson, Texas · 75080

THIS ISSUE ~ RICHARD & MELODY DOIG ~ 6 CANARY HILL DR. PONTIAC, MI 48055

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1986 FAI INDOOR TEAM SELECTION FINALS

GOODYEAR AIRDOCK, AKRON, OHIO - AUGUST 31, SEPTEMBER 1 & 2, 1985

CONTESTANTS	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	ROUND 6	ROUND 7	ROUND 8	ROUND 9	TOTAL BEST 2	FINALS POINTS	BEST LOCAL + REGIONAL	TOTAL POINTS
1. Cezar Banks	41:21	42:59	-	-	34:40	32:02	40:02	40:03	24:20	84:20	1000.00	110.00	1110.00
2. Bob Randolph	30:12	ATT.	ATT.	38:14	40:45	37:01	20:32	43:15	11:27	84:00	996.05	109.54	1105.59
3. Larry Cailliau	36:20	17:30	9:29	35:25	35:07	11:35	37:45	42:29	36:49	80:14	951.38	110.00	1061.38
4. Bud Romak	38:01	25:33	36:12	11:59	41:32	36:30	39:20	ATT.	38:04	80:52	958.89	100.00	1058.89
5. Richard Doig	15:11	22:46	13:49	39:40	3:28	10:50	37:06	40:01	ATT.	79:41	944.86	110.00	1054.86
6. Ray Harlan	-	-	12:21	32:25	38:00	41:16	-	ATT.	11:47	79:16	939.92	110.00	1049.92
7. Lew Gitlow	ATT.	33:01	35:46	38:58	39:12	23:26	13:47	35:20	36:00	78:10	926.88	109.54	1036.42
8. Sal Cannizzo	-	35:34	42:00	ATT.	12:58	20:01	36:56	30:19	36:12	78:56	935.97	75.00	1010.97
9. Bill Hulbert	14:21	8:50	37:49	34:04	12:27	36:48	35:42	ATT.	22:35	74:37	884.78	102.19	986.97
10. Dick Obarski	ATT.	-	31:14	36:49	35:18	13:00	33:13	33:29	35:11	72:07	855.14	110.00	965.14
11. Walt VanGorder	26:55	30:51	31:38	32:12	36:32	10:52	33:21	34:20	35:29	72:01	853.95	110.00	963.95
12. Manny Radoff	ATT.	25:46	29:25	22:07	ATT.	32:23	38:02	-	33:40	71:42	850.20	107.84	958.04
13. Bob Gibbs	-	28:57	32:43	32:19	27:24	33:55	13:47	32:47	37:28	71:23	846.44	104.34	950.78
14. Stan Chilton	29:31	13:05	10:18	27:58	32:44	37:11	8:57	22:39	18:55	69:55	829.05	110.00	939.05
15. Paul Tryon	20:54	25:35	32:40	34:00	12:00	34:29	28:46	33:44	13:51	68:29	812.06	97.64	909.70
16. Larry Loucka	26:28	34:00	9:10	32:24	30:18	9:28	-	-	-	66:24	787.35	102.55	889.90
17. Ron Ganser	ATT.	31:13	1:10	20:56	ATT.	29:01	29:47	30:42	32:02	63:15	750.00	103.95	853.95
18. Jon Harlan	24:49	-	27:54	28:55	29:30	34:44*	28:23	-	24:30	64:14	761.66	79.08	840.74
19. Dan Belieff	21:05	26:55	28:22	3:16	33:00	-	15:48	-	-	61:22	727.67	107.08	834.75
20. Jim Richmond	-	-	-	22:10	-	-	11:09	-	-	33:19	395.06	110.00	505.06

U.S. FAI INDOOR TEAM

The FAI Indoor Team selection Finals were held over Labor Day weekend, August 31, September 1 & 2, 1985 at the Goodyear Airdock in Akron, Ohio. Twenty of the best FAI Indoor fliers gathered to determine the team to represent the U.S. at the World Championships in 1986.

The competition was extremely tough with team positions up for grabs through the last round on day three.

Earlier this Spring when it appeared that Lakehurst would not be available for flying, the team selection committee voted that the Finals should be held at Akron as a suitable alternate site. All the competitors agree that Akron is a challenging site. The Airdock is used as a stamping plant and both short and long term storage yard. Several interior buildings jut out into the airdock and the piles of stock, scraped out machinery, and cyclone fences make for some interesting obstacles. Plus as with many large buildings the drift can be considerable and must be contended with. On the first day several flights drifted into the doors and then were blown down the clamshells ending their flights. This past

winter the center section of the roof was recovered eliminating the leaks and new vents replaced the original ones which had rusted shut. As a result the center section of the building was found to be a better area for flying than it ever had been in the past. Also this session a couple of doors were closed that had never been closed before, one needed a fork-lift to get it unstuck and the other needed three people and a sledgehammer.

Round one started out with a bang. Any thoughts of putting up safe flights on the first day were dashed when Cezar Banks first flight was 41:21, the high time of the round. Bud Romak and Paul Tryon collided early in the round and Romak came back with a 38:01 reflight for the second high time of the round. Four other fliers could only muster attempts at flights and three skipped the round completely. Round two was a repeat with Banks having the high flight at 42:59 and Romak had another collision. In round three Sal Cannizzo got a flight of 42:00, the first other than Banks to go over the 40 minute mark. At the end of day one, Banks had first place sewn up with Cannizzo second and Romak third. (Based on flight times and figured points.)

Even though the second day had better weather, no one broke 40 minutes until the fifth round. The high time in found four was a respectable 39:40 by Richard Doig. In mid afternoon Bob Randolph broke 40 minutes (40:45) and Romak had high time of the round at 41:32. This got Banks to get the models back out of the box. Round six had the most action. Cannizzo hit a wire ending his flight at 20:01 and Larry Loucka hung in the girders at 9:28 ending his flying. While at the other extreme, Jon Harlan was setting a new Junior CAT IV record at 34:44 for FAI Indoor and Hand Launched Stick. Father, Ray was also doing well as his flight of 41:16 was high time in the round.

Jim Richmond was also doing some interesting flying, though not officially part of the contest. Early in the afternoon he flew an old FAI Indoor model to which he attached a set of landing floats so he could R.O.W., the model did over 27 minutes which he intends to submit to the FAI as a new World rubber powered Seaplane record. Later in the afternoon he got out his Variable Diameter Propeller and put up a flight of 40:43 under 100 feet. Because Richmond is current World Champ, he is allowed to attend the next World Championships as defending champion without being a member of the U.S. team, and as a result did not do much serious flying. (He placed last of the 20 contestants in the official competition.)

At the end of the second day Cezar Banks was still in first place with Ray Harlan in second place and Bob Randolph in third. (Based on figuring points.)

The weather on day three was still sunny and warmer with five flights over 40 minutes. In round seven Larry Cailliau started to make his move with a flight of 37:45 that had a shaky start, almost flying into a machine. While Banks once again had high flight at 40:02. Round eight conditions were the best of the three days and all those in contention were making their moves. Richard Doig tried for a team spot with a flight of 40:01 and Larry Cailliau secured a team place with a 42:29 flight. Randolph gained a team position with the high flight of the contest at 43:15. In round nine Banks hoped to up his times but hung his last flight at 24:20 and Doig blew up two models while trying to duplicate his 40 minute flight. Ray Harlan also had a good flight going late in the round, until it hung at 11:47. High time of the round was 38:04 by Romak.

In the final standings there is a gap between second and third place and another gap between eighth and ninth place, with first through sixth places all breaking 40 minutes.

The team of Cezar Banks, Bob Randolph, and Larry Cailliau with Bud Romak managing should make a strong showing at the next World Championships. With Jim Richmond attending as defending World Champion I would not be surprised to see them place first, second, third, and fourth. The exact order though I'll not predict.

We would like to thank the people at Goodyear Aerospace who were most cooperative. On Saturday morning several supervisors came out with a forklift to rearrange the stamping parts-in-progress to give us as large a clear floor space as possible and to close several doors. Security appreciated our sending someone out to bring back lunch to those who wanted food.

Contest Director Ed Stoll did an excellent job ably assisted by Melody Doig. Many, many thanks also go to non-flying timers Tony Becker, Jack Carter, Jack Henry, Joe Hervat, Jerry Nolin, and Herb Robbins.

The preceding article, written by Melody and Richard Doig, was submitted as the official account of the Finals for publication in Model Aviation. We include it in this issue of INAV for our subscribers who do not receive the A.M.A. magazine, especially those overseas.

FAI INDOOR FINALS

Now we will get to what you really want to know, the technical things, who flew what type of model and other important details.

Except for Stan Chilton's 43 inch long almost tandem and Bob Randolph's all boron tail, there were no radically new and different designs at this Finals. Chilton's long model was beautifully built, stab span about 60 cm with short wing tip dihedral, but it did not fly as well as he had hoped. Problem was in getting the nose up to slow the prop down and get the model to float. Randolph's boron tail section had a truss work boom out of boron with boron stab and rudder outlines. He was heard muttering about glueing the boron with Hot Stuff (CyA glue) next time since it kept coming apart.

Considering the amount of boron Randolph uses in his models you would think he owns stock in the company that makes the filament. Even in his more traditional looking models his rudder outlines and prop outlines are of boron. Banks, Doig, and Romak also used boron extensively in their models.

Models in general were 30 to 36 inches long, 5 rib wings with 8 to 9 inch chord and 3 rib stabs, except for Radoff whose stab had 4 ribs. Most had suspended stabs - stab completely in back of tail boom - and Banks' had an arrangement with a socket around the bracing post and one brace wire so that the incidence setting could be changed. Rodemsky film was most commonly used. Props that did the best were high pitch, 40 inch pitch and 23 inch diameter was about the largest. Some, especially Banks and Cannizzo, also had a large blade area. Competitors who brought more than one size model used the smaller size. The larger models had trouble climbing, especially through the layer that forms at the windows, and they did not float well, overall result was short flights. Rich Doig managed to get his flights through the layer hitting the roof in 4 to 5 minutes. He lengthened the time out to 8 to 9 minutes to the roof by rebuilding a couple props at the site on the second morning before official flying started. Banks' models really floated and even though many of his flights topped out at the windows (about 130 feet) it sure did not hurt his times - 4 flights over 40 minutes. He also used fairly short motors, 16 inch motors on 16 inch sticks. Most models were down to weight or real close, no real heavies, with one of Randolph's and a couple of Gitlow's being right at one gram. One of Gitlow's models in particular needed ballasting with a pin. His planes were a pain to process in the drafty site.

For those of you who fly the airlines to contests here is a way of getting one model there and intact. Both Banks and Cailliau had a model box containing one complete model that fit into the overhead compartment of the airliner. Both used folding wing posts to conserve space. The rest of their models went in with the luggage.

There was nothing new in support equipment with everyone using their usual set ups. Chilton had a countdown timer to help him keep track of how many minutes were left in the round and Banks brought a different trail mix (fruit and nut combination) to munch on. (It was bananas at West Baden in 1983.)

The best flights were done on motors of Pirelli even though some used FAI rubber. The general scuttlebutt is the Pirelli is running out and several are quite concerned. (See article on Pirelli by Tony Italiano in this issue.) Most fliers use O-rings on their motors of one sort or another. Small (size 002 and 003) Buna-N O-rings are popular as are rings of nylon tubing or nylon cut from push rod sleeves. One hundred percent of the competitors wound motors on torque meters and then transferred the wound motor onto the model. The old red torque meters built by Dennis Jaacks (sold by Ron Plotzky during the 1970's) are still the most popular. Several fliers used Kujawa torque meters or have made their own version.

There are some new trends in rubber lubes. Radoff still uses castor oil and Chilton uses his glycerin concoction, while most of the rest use lubes bought from Micro-X or other model suppliers. The new trend is using vinyl preservatives bought in auto supply stores. Rich Doig started using ArmorAll brand protectant 3 years ago and found he could get more turns into a motor. And treated motors left lying around are still good 6 months to a year later. The only problem was the knots (Richmond style thread knots) started coming apart. A redesigned all rubber knot solved that problem. Bill Hulbert used a product called Pizazz! also intended for vinyl car tops. This product is a different formula and feels slicker to the touch, but it also works.

Because of the cluttered floor in Akron many flights needed a short steer at the end of the flight so the model could land on the floor. Some even needed a long steer! A few flights needed a steer at the beginning when the modeler missed the launch and the model headed for an obstacle. (There was alot of drift at floor level.) Many fliers use a plastic (1 inch diameter) tube between the balloon and the line. Cailliau started this in 1983 and it caught on quickly because it is almost impossible to foul the prop. However, it is possible to rip the film off the prop. Most inflate the tube, Harlan even uses a small auxillary balloon to keep the tube inflated, even though the increased drag makes the balloon slower to maneuver. Doig prefers to use the tube deflated and flat.

Probably the most noteworthy aspect of the Finals had nothing to do with the models, but rather with the flying experience of the contestants. The first through third place finishers all had access to monthly flying sessions at Santa Ana (CAT IV). Fourth place has regular access to the Cow Palace (CAT III). While the fifth and sixth place finishers drove 1000 miles apiece over the past 2 years to their half dozen flying opportunities in both CAT III and CAT IV sites. The monthly flying sessions at Santa Ana produced our 1986 FAI Indoor Team. A big thank you goes to Curt Stevens who is the site contact for Santa Ana and the Contest Director for many of these sessions.

Product notes:

- Plastic steering tubes are available from Ray Harlan 15 Happy Hollow Rd, Wayland, MA 01778
- Jaecks torque meters are no longer available, but Jim Jones sells a similar model 36631 Ledgestone Dr, Mt. Clemens, MI 48043
- Kujawa torque meters are currently not available.
- Rodemsky microfilm 1600 Rockspring Pl, Walnut Creek, CA 94596
- Micro-X, Box 1063, Lorain, OH 44055
- Indoor Model Supply, Box 39, Garberville, CA 95440

1986 WORLD CHAMPIONSHIPS

Next year's World Championships are set for Cardington, England on Sunday, August 24 and Monday, August 25. Hanger 1 or 2 will be used depending on availability as both are "working sheds" as the English put it. The schedule has Friday, August 22 for arrival and registration, Saturday the 23 for practice. Sunday and Monday will have 3 contest flights each day between 12 noon and 6 pm, the banquet will follow at 9 pm. Departure will be Tuesday the 26 before noon. Supporters and/or spectators are welcome at a cost of £107.48p each. Daily costs for spectators will be £26.29p for accommodations and three meals. The banquet will cost £6.00. With Laurie Barr the overall director of the competition, it will be a well run event given his considerable experience. U.S. supporters wishing to travel with the team can do so by making arrangements through A.M.A. HQ before May 1, 1986, after this date arrangements will have to be made with the World Champs organizers.

OTHER 1986 WORLD CHAMPIONSHIPS TEAMS

- British team: 1. Bernard Hunt
2. Dave Pymm
3. Bernard Aslett
4. Laurie Barr (team manager ?)
- West Germany: 1. Werner Nimptsch
2. Rainer Lotz
3. Helmut Jakob

FIFTH U.S.I.C.

NFFS and NIMAS are going ahead with plans for the Fifth U.S.I.C. at the Niagara Falls Convention Center Tuesday, June 17 through Thursday, June 19, 1986. Tentative schedule is very similar to last year's, with the banquet on Wednesday evening. Also plans are in the works for a A.M.A. Cub build and fly session on Monday, but we will need lots of help. Also considering some "classes" in such topics as pouring microfilm, covering techniques, rolled tubes, etc. If you have an idea for a topic or would volunteer to conduct a class please let Tony or us know.

N.I.M.A.S. INDOOR SUPPLIES

From time to time we get indoor modeling supplies which we will make available to the indoor flier for free or at a nominal cost. Currently we have Kevlar, a very fine fiber, good for bracing when using a single strand. To obtain approximately 15 feet of Kevlar tow (a tow is hundreds of strands) on a cardboard spindle, send a SASE to 6 Canary Hill Dr, Pontiac, MI 48055.

INAV MAILING LISTS

From time to time we get requests for someone's address or the entire INAV mailing list. Currently the mailing list is not in a form that is easy to run off copies. However if you need only a couple of addresses that is no problem. We also have a personal address file of several hundred entries, including many outdoor fliers and various others.

OBITUARIES

Unfortunately this may become a regular column if the last year was any indication.

Joe Sovo from Youngstown, Ohio passed away suddenly July 1, 1985. Joe and his son Tom competed in many local and national meets in the Midwest during the 1970's. Those of us who knew him will miss him.

Roman Szymula of the M.I.A.M.A. club lost his fight with lung cancer on October 26, 1985. Roman was a microfilm flier and many time Florida state champion. Our condolences to his wife and children.

When Pete Andrews did not show at the Team Finals we all knew it was because his wife Georgia was not up to the trip. Jack Carter bought a get well card which we all signed and sent to her. Two weeks later we received a note from them asking that the following be put in INAV " My thanks to all my friends for the 'get well card'. Perhaps in the future I can thank each of you personally. Good luck to the team. Your friend, Georgia Andrews "

Unfortunately she did not get to thank many of the senders as she lost her fight with cancer on October 22, 1985. This was a gutsy lady who did not let her stroke or cancer defeat her. Georgia attended every contest that Pete attended and she will be greatly missed.

THE SUSPENDED STAB

At the U.S. Team Finals, Banks, Romak, Doig, and Richmond all used versions of the "suspended stab". Figure 1 shows the version used by Banks. It features adjustable tail incidence to allow quick trimming.

Figure 2 shows the tail used by Doig at the Finals. It is similar to the arrangement first worked out by Jim Richmond in 1982, but has been strengthened by running the rudder's rear post through the boom rather than gluing the rudder on the side.

Figure 3 shows an improved version of the Doig stab allowing adjustable incidence.

Figure 4 shows the construction detail of the boom/stab connecting joint on the Doig stab.

All these versions offer about a 10 % weight savings over conventional boom-to-back-of-stab construction.

Figure 1

ADJUSTABLE INCIDENCE SUSPENDED STAB

as flown by Cezar Banks at 1985 Finals

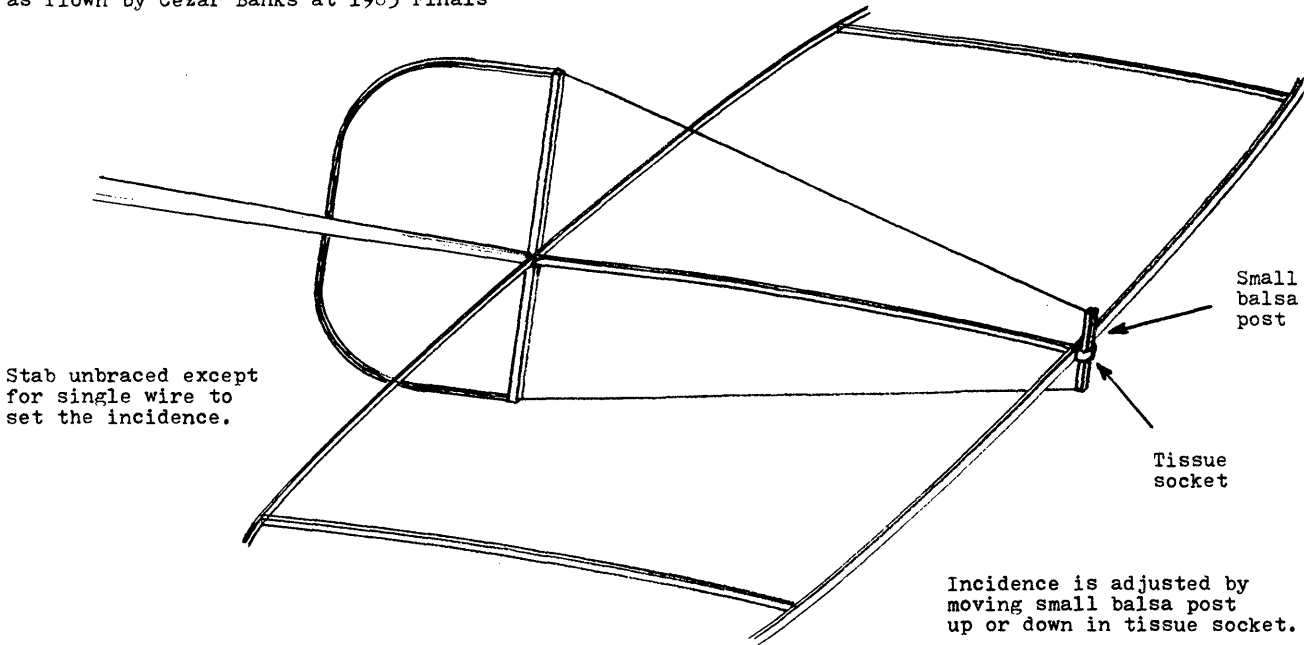


Figure 2

FULLY BRACED SUSPENDED STAB

as flown by Rich Doig at 1985 Finals.

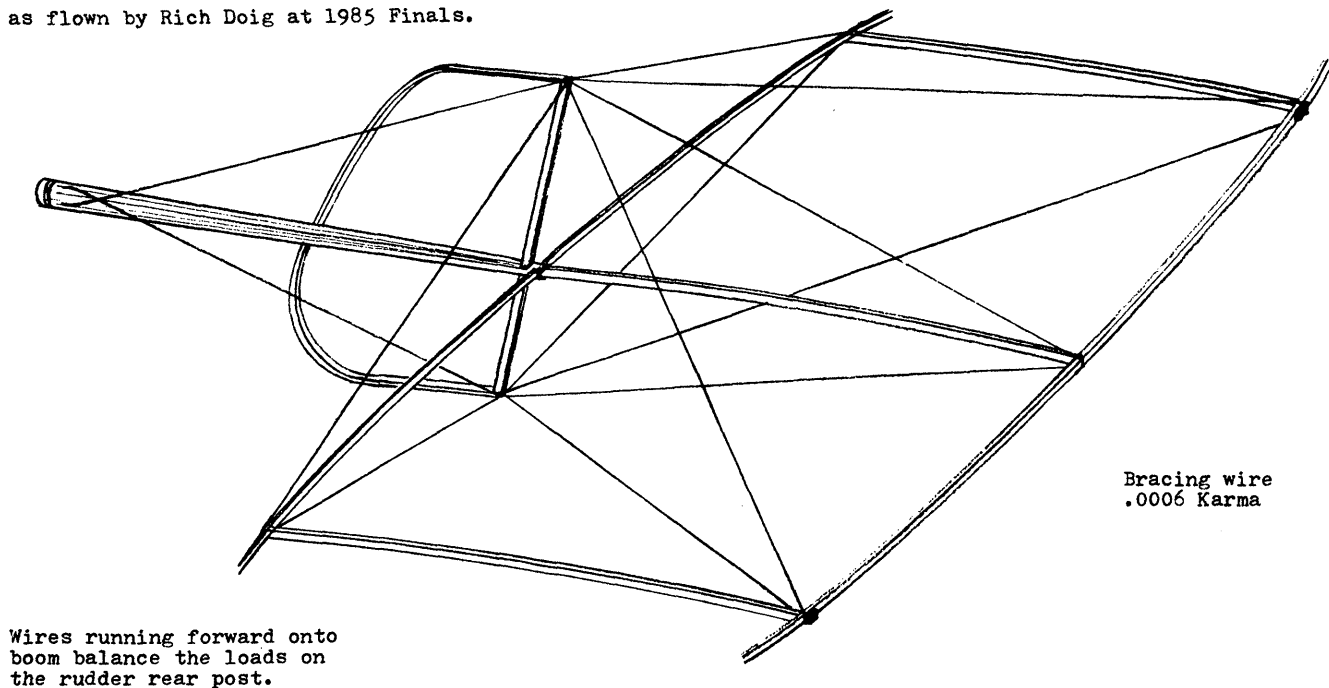


Figure 3

DOIG SUSPENDED STAB

Rebuilt to add adjustable
incidence setting after
seeing Banks' models at Finals.

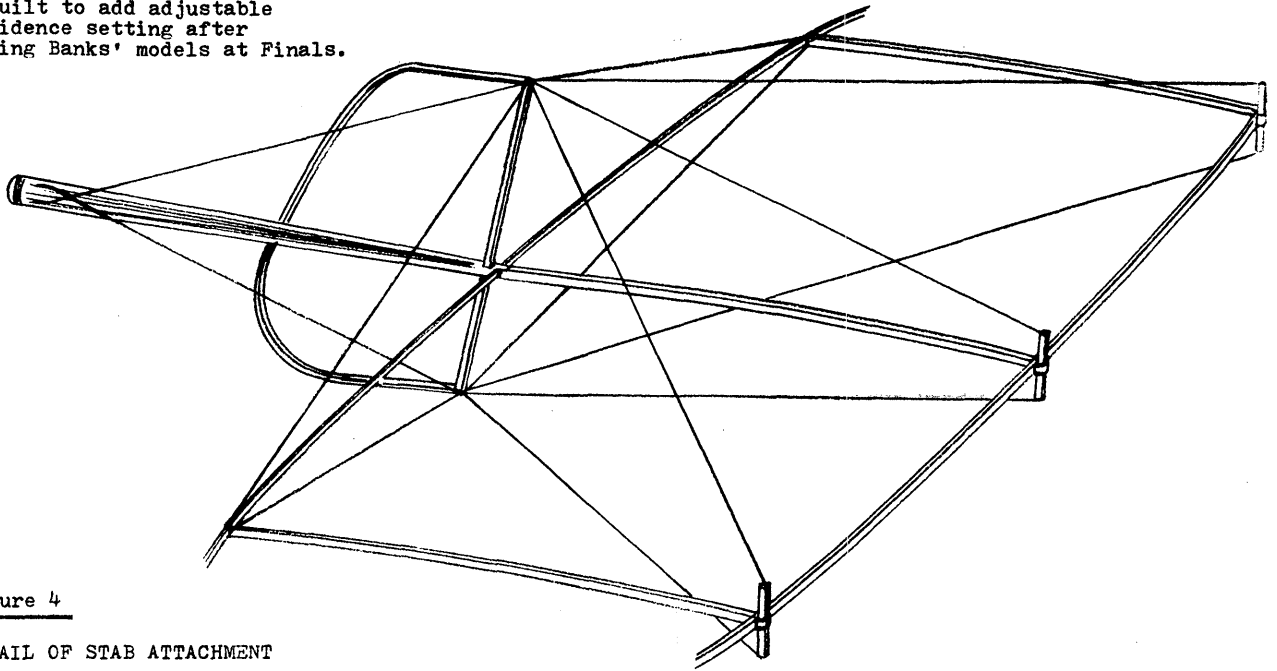


Figure 4

DETAIL OF STAB ATTACHMENT

as built by Rich Doig

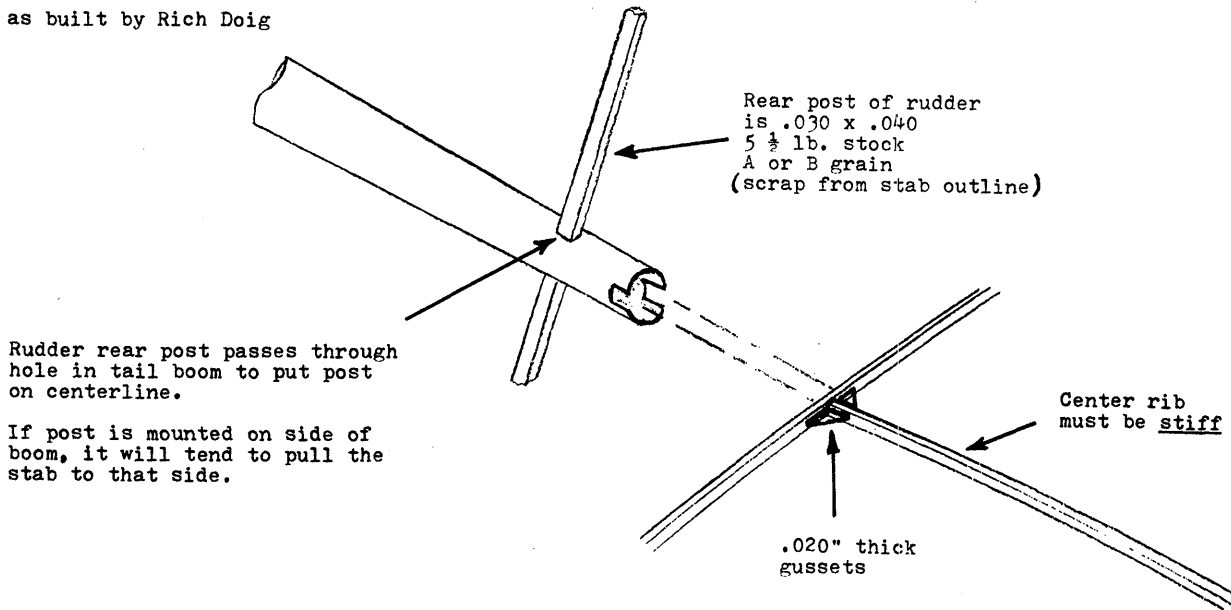
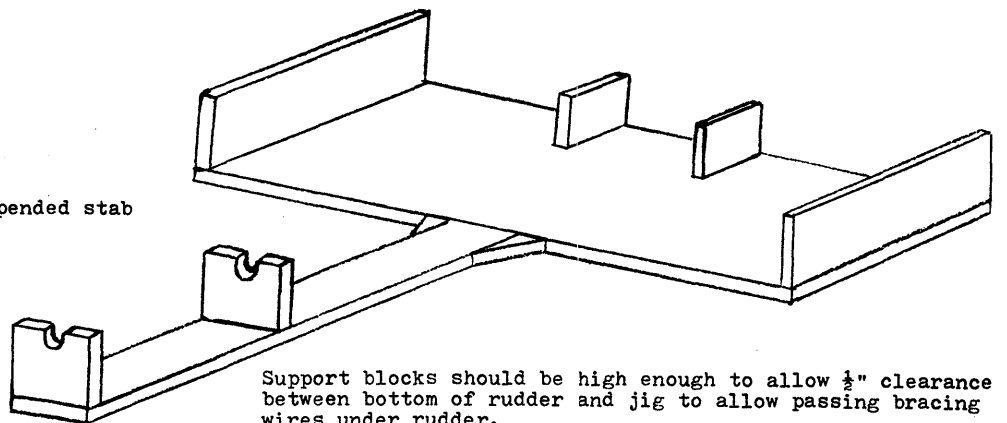


Figure 5

STAB BRACING JIG

for Doig fully braced suspended stab

3/16" balsa
8 lb. "RC" stock
stiff & straight
built with "Hot Stuff"



Support blocks should be high enough to allow 1/2" clearance
between bottom of rudder and jig to allow passing bracing
wires under rudder.

REPORT ON AVAILABILITY OF PIRELLI RUBBER

By Anthony J. Italiano

I went to Europe on April 25, 1985. I visited London and had an opportunity to meet with Ian Kaynes, a very fine gentleman and rubber flyer and active participant in CIAM activities. He was not aware of any rubber source other than FAI supply.

Eventually, I landed in Florence, Italy - home of Modellissimo, (Italian Model Magazine). Coincidentally, the magazine operation was only located approximately four blocks from my sister's home. I had a most enjoyable visit with Mr. Chiodo (Editor/Publisher). He also has a model shop located three doors away, which is operated by his son. Mr. Chiodo was eager to help me try to find out the facts regarding the whereabouts of Pirelli machinery for the fabrication of the rubber. All he knew was that he could not get any and all were using FAI supply. One contact was the original representative for Pirelli in Varese, Italy. Upon contact, he knew nothing or said so to get us off his back. He thought the rubber was made at Bergamo by an affiliate - Ditta Filati Lastex Elastofil Spa, Via Guslin, Italy.

It is interesting to note that the Modelissimo Magazine is produced by two people, i.e., Mr. Chiodo and his attractive assistant. Art work is performed by an outside free lancer, as also any translation effort. Photo reductions and final set-up are done outside as well as printing and mailing. Circulation is in the neighborhood of 18,000. It appears that Mr. Chiodo is very efficient in maintaining costs to a very minimum.

I visited a hobby shop outside of Florence and learned from "Hobby-Model" (Sesto Fiorentino) that they procure their rubber from Ditta Aereopiecole, Corso Monto Cucco, 87, Torino, Italy. The last batch was purchased approximately two months ago. I procured a small sample of 1/4 x 1/8 rubber. Color was a very dark grey (almost black), but also had a textured surface as if rubber was pressed between two coarse cloths. Samples were acquired for test purposes. Hobby-Model states that they have never been without any rubber. Upon ordering they have received delivery.

On 5/16/85, I visited with Piero Pecchioli at his place of business. His business is manufacturing various lighting fixtures for the home and business, as well as bedsteads. Most of the very high grade products are fabricated from brass and glass. Piero has been building and flying F1B for the last 12 years, since he broke his leg in a skiing accident. He is unaware of any new production Pirelli. The last batch he used was over two years ago, but was not good for F1B. He stated that it gave a good power burst for approximately 5 to 10 seconds and then just flattened out completely without any further climb. He and all of the Italian flyers use FAI supply rubber. He stated that from what he knew was that Pirelli has the equipment and expects that in the future Pirelli would produce it, but the quantity sold is too small to be economical. He also stated that they heard that the Israelis produce some, but for their own use. (Piero does not speak any English.)

Since my command of the Italian language is more of a comedy than it is practical, I enlisted the aide of Professor G. Anzilotti, (University of Florence, and also my sister) to perform the direct communication honours. (Notice-fancy for honor.) The Professor had to really push very hard to get the contacts to talk and give meaningful information. Without her I am sure I would not have been able to get at the facts, (such as they are).

Between 5/13 and 5/16 many contacts were made with the "Pirelli" organizations to seek out the true facts. The initial problem was to locate the Pirelli factory that actually produced the rubber. Approximately four phone calls later it was decided that we were not in contact with the right people. But, on another final call we were finally put in contact with a Pirelli engineer, who worked at Pirelli for the last 20 years and was somewhat familiar with the

rubber and knew some history. Signore Moltini offered the following information:

Pirelli at Milan made the sheet rubber. Filati at Gergamo did the stripping. Elio Broggi was Filati's representative at Varese.

Title of the rubber is - Filo Elastico Through a number of phone calls, I finally determined that the Pirelli rubber formula is in the possession of a gentleman that works with rubber products. Contact with him verified this fact. He stated that he was no having very much luck producing a good batch of our favorite gum bands. He had to process a minimum of 200 kg of rubber in order to get a fairly homogenous batch. The problem that he was facing was that with all the failures, he was getting to the point where he could not afford any more experimentation, and resultant failures. He had hopes and good intentions, but he needed a break-through.

As of July 5, 1985, he stated that he has produced acceptable "Pirelli" rubber. He stated that he will send me an amount for testing. I hope it gets here soon so tests can be run and performance compared against FAI stock and old Pirelli.

As the opportunity permitted, I visited model shops in England and Italy. Radio control is supreme on the shelves. Engines in the display cases were mostly over .25 cu. in. in displacement. Balsa wood grade was as we see in USA model shops (heavy). There seemed to be more ship model kits on the shelves than in the USA. The biggest influence in kits and supplies was Graupner. There was some American influence, but decidedly below 10 % of the total.

So ends the first chapter on the "Search for Pirelli Rubber".

NEW PIRELLI RUBBER UPDATE

Tony Italiano did receive some sample rubber recently made in Italy and sent samples to various modelers for testing and comment. Fred Pierce tested the rubber out at approximately 1800 ft lbs/lb. (Most good Pirelli is over 3500 ft lbs/lb.) This is slightly worse than the Filati of 1974. Tony advised me not to waste my time testing my sample and I have followed his advise. One modeler described it as looking like an old shoelace. Hope they have better luck with the next batch. I do not think it can be any worse!

INAV SUBSCRIPTION RATE CHANGE

With last year's U.S. Postal rate increase both for domestic and overseas mail we have changed the INAV subscription rate to \$5 for 10 issues for U.S. and Canadian subscribers. Overseas surface mail is \$6.50 and overseas airmail is \$7.25, both for 10 issues. Existing subscriptions will be pro-rated (more or less).

The number in the upper right corner of your mailing label is the last issue of your subscription. Renewal reminders are sent in the next to last issue of each subscription. Renewals can be made to either address on the masthead.

INAV SAMPLE COPIES

For your modeling friends who do not subscribe, we will send out sample copies of the most recent issue printed. To obtain send a SASE business size (#10) envelope to 6 Canary Hill Dr, Pontiac, MI 48055.

OTHER NEWSLETTERS

New York Indoor Times: For 10 issues send your name & address including zip with a \$5 check (make check payable to "ED WHITTEN") to Ed Whitten, P.O. Box 176, Wall Street Station, New York, NY 10005

BORON FILAMENT UPDATE

I personally have received some challenges in my positions on the Indoor Contest Board and FAI Indoor Team Selection Committee. They amount to: "You're the Team Selection chairman, when are you going to do something about Boron?"

Well, here is what was done. At the U.S.I.C. we circulated a survey and 37 modelers responded. Only two things had strong support.

1. The vote was 2:1 against any kind of ban.
2. There was a trend to limit its use to certain events. However the feeling is that it should be limited solely to produce a certain kind of model, but not for safety reasons.
3. At least two people felt the survey was slanted towards a ban which was not intentional.

In related items, I spoke to Stan Chilton at Akron over the 4th of July. He told me that when his thumb went numb after the Boron injury reported in INAV #18, that the numbness was actually caused by a pinched nerve in his neck, not by the Boron as he previously thought.

I recently bought some Boron from Ray Harlan. This is a carbon core filament. Curt Steven's Boron is a tungsten core. The carbon core Boron seems to cut easier with less shattering than the tungsten core Boron. Also, Ray packages it in 2 foot lengths inside a clear plastic tube, capped at both ends. This makes the Boron much easier to handle.

I built four new models for the 1985 team finals with Harlan's carbon core Boron on motorsticks, tail booms, and wing posts. Almost 30 feet of it and I did not get stuck once. I ran only 4 feet of the tungsten core Boron two years ago, and got stuck three times, including several months later. I think the carbon core Boron is a lot safer as far as shattering.

Here is how I cut my Boron now without losing pieces.

1. Put on your safety glasses
2. Hold the Boron between the thumb and first finger of your left hand about $\frac{1}{4}$ inch from where you want to cut it.
3. Stick your hand down inside a waste basket, box, or coffee can.
4. Cut the Boron using a pair of right-handed scissors. The shearing action of the scissors throws the pieces down and your thumb and forefinger damp out the shock waves that would normally shatter the filament about $\frac{1}{4}$ " to $\frac{3}{8}$ " from the cut. (At least most of the time. Coating the inside of the can with sticky both sides tape will catch and adhere the pieces. To dispose of the can, just snap on the lid.

The biggest thing we've found in discussing the safety hazards of Boron is not that Boron is particularly dangerous, but some of the other materials we use are even worse. Examples:

Cyanoacrylate glues (Hot Stuff, Zap): they can glue your eyes shut or cause a multitude of injuries. Also there are an increasing number of allergic reactions to these glues as reported in the safety column of Model Aviation.

Acetone, Methyl ethyl ketone, Toluene, Toluol: all poisons - all will absorb through the skin.

Spray contact cement: if you breathe the spray it can coat the insides of your lungs. Yuck.

Micro-film solution: the fumes are toxic.

Polyester resin catalyst: if it splashes in your eyes it can cause instant blindness. If mixed in the wrong proportions, it can ignite and even explode. Fun Stuff.

Balsa wood: Yes, even balsa. Do not breathe the dust if you sand it.

Razor blades and X-acto knives: I think the hazards are obvious but very real.

The list goes on and on. The message is "BE CAREFUL" Safety goggles and disposable dust masks are available at all hardware stores. Buy them and use them. If possible, don't build if you are alone. Always have someone available to help you if you get hurt, including taking you to the hospital emergency room if the injury is bad.

Share your experiences with us, both good and bad.

The latest I read is that soft drinks containing Aspartame (marketed as Nutrasweet) can impair hand-eye coordination in some people. Boy, life is dangerous all over.

NATIONAL FREE FLIGHT SOCIETY

DEDICATED TO THE INTERESTS OF FREE FLIGHT MODELING

NFFS ANNOUNCES A REALLY BIG DEAL

We are promoting an exciting, new membership plan...

3 NEW members sign up at the same time (in the same envelope), and the fee will be \$13.50 each (one year). This amounts to a 10 % discount.

4 NEW members..@ \$12.00 each (one yr.) 20 % discount.

5 NEW members..@ \$10.00 each (one yr.) 33 % discount. (or more)

DO IT NOW!! OFFER IS GOOD THRU FEBRUARY 28, 1986.

There are bigger benefits possible in the future, i.e. if we get over 250 new members by March 1, 1986, the membership fee for all will be adjusted downward.

NFFS MEMBERSHIP AND RENEWAL APPLICATION

Mail to:

NFFS

8383 Zancanaro Ct.

Citrus Heights, CA 95610

Make checks payable

to the

National Free Flight Society

Subscription rates include annual fee of \$.50 for membership in the National Free Flight Society. The balance of the fee in each category is for Subscription to FREE FLIGHT, the NFFS Digest. Subscriptions are not available without membership.

MEMBERSHIP FEES AND SUBSCRIPTION RATES (1 and 2 yr.)

Age 19 & over and residents of foreign countries.	1 yr. \$15.00 (\$1.00 membership fee plus \$14.00 subscription)
	2 yr. \$27.00 (\$1.00 membership fee plus \$26.00 subscription)
Age 18 & under.	1 yr. \$7.50 (\$.50 membership fee plus \$7.00 subscription)
	2 yr. \$13.50 (\$.50 membership fee plus \$12.50 subscription)

Subscriptions are not available without membership.

Ages are as of July 1 of the current year. Please circle applicable fees.

New member ☐ Renewal ☐ Address change ☐

Current expiration date: Mo. Yr.

Name AMA #

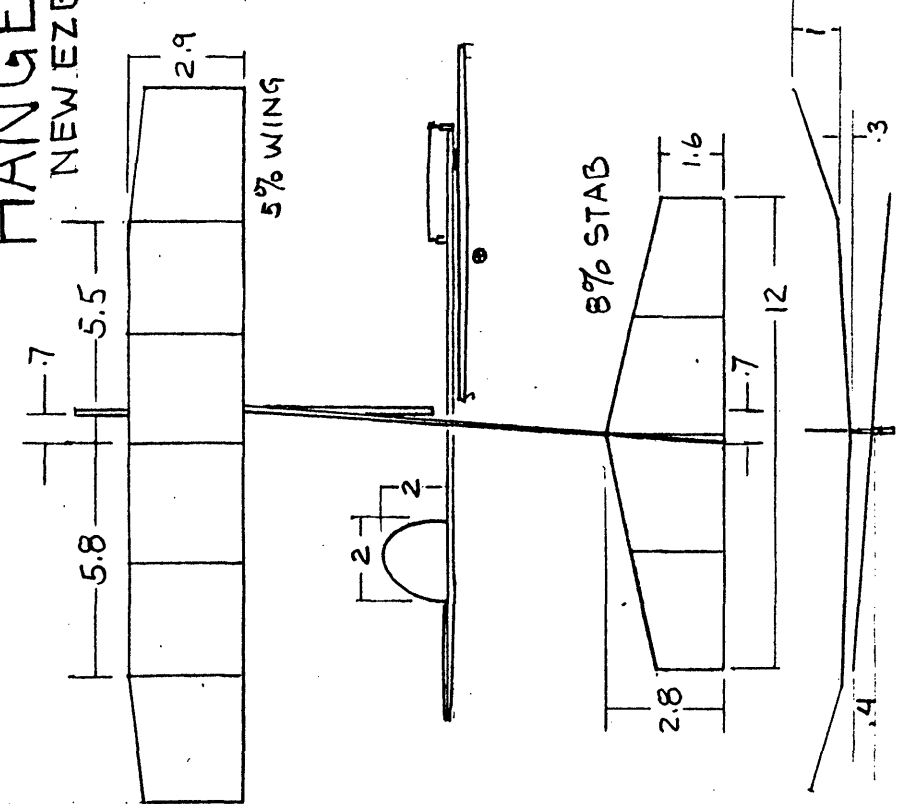
Address

City, State Zip

G. R. NOLIN
FAIRBORN, OHIO
9 MAY 85

HANGER WRASH

NEW EZB CONFIGURATION



AIRFRAME DISTORTION FROM THE FULLY-WOUND RUBBER MOTOR IS THE PLAQUE OF THE CONVENTIONAL EZB LAYOUT.

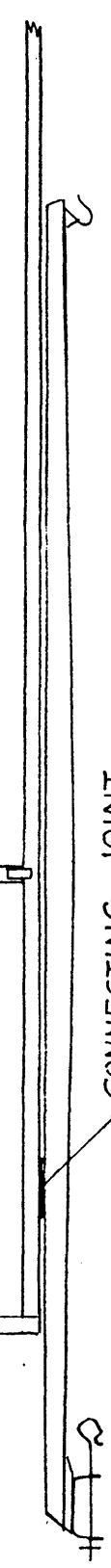
WITH THIS DESIGN, THE MOTOR STICK IS SEPARATED FROM THE AIRFRAME, WHICH IS THEN FREE FROM THE TWISTING EFFECT OF THE TIGHTLY WOUND MOTOR.

A. WING TWIST CAN BE ADJUSTED BY MOVING THE CONNECTING JOINT FORWARD OR AFT.

B. THE C.G. IS ADJUSTED BY MOVING THE MOTOR STICK FORWARD OR AFT.

C. TURN IS ADJUSTED BY SKEWING THE TAILBOOM AND/OR THE MOTOR STICK. ALSO BY WING OFFSET.

- NOTES:
1. THE WING POSTS AREN'T NECESSARY. CEMENT THE WING SPARS DIRECTLY TO THE TAILBOOM. ADJUST AT REAR OF STAB. USE A TUBE SOCKET IN THE TAILBOOM.
 2. THE CONNECTING JOINT IS NOT NEEDED. JUST PUT A DROP OF CEMENT IN THE RIGHT SPOT.
 3. A MUCH LIGHTER MOTOR STICK CAN BE USED.
- BUILT IN NOVEMBER 1984 FROM OLD PARTS. INTRODUCED AT 12-13 JAN 85 MEET AT McDILL AFB FLA.



TAILBOOM - 15.1 x .095 x .090 → .095 x .025
MOTOR STICK - 8.8 x .105 x .150 ↔ .115 x .085

(APOLOGIES TO DICK HARDCASTLE)

A.M.A. NATIONALS

It all started on the first day of the 1985 NATS at Westover A.F.B. when Pennyplane, Easy B, and Manhattan Cabin were scheduled from 9 am - 2 pm. Advance entries had 42 in Pennyplane, 52 in Easy B, and 21 in Manhattan Cabin. Now 5 hours is too short a time for 115 event entries to fly three events, especially if all take all their 5 official flights. Several modelers brought this to headquarters' attention in early July before the contest and yet nothing was done in the way of extending the flying time.

When congestion problems occurred at the NATS as some had predicted it would, along with some other problems, this really aggravated several fliers.

Ed Whitten in the first issue (#33 Sept 15) of his newsletter, New York Indoor Times, after the NATS, published some of what had occurred. But more importantly he was appealing to modelers to get busy writing letters for the 1986 NATS planning meeting to be held on September 28, 1985.

In Whitten's next issue (#34 Oct 22) he published 5 pages of comments on the 85 Indoor NATS from modelers who had been there. We did not attend but from reading the comments and hearing some directly, there were more problems in 85 than just congestion.

Because of all the complaints NATS management and HQ received it was decided that NFFS (National Free Flight Society), as the recognized Free Flight special interest group, should be a part of the 86 NATS planning meeting. Tony Italiano, President of NFFS, could not attend because of the Midwest States Indoor Championships in Rantoul, IL that same weekend. So Tony asked if we could attend the meeting as indoor representative of NFFS. But we were going to Rantoul also. In the end Hardy Brodersen, Executive Director of NFFS, attended the meeting carrying what seemed like reams of paperwork we had prepared for him.

As a result of that meeting NFFS and NIMAS will have a continuing role in NATS planning and in the actual running of the contest.

Also from that meeting, a letter was circulated within the indoor community with a proposed schedule. Approximately 40 letters were sent out. This is the first time I have been on the receiving end since I have been on the Indoor Contest Board. (I have been on the ICB since it's inception in 1982.) The initial schedule worked out by Homer Smith, Hardy Brodersen, and Sandy Frank at the meeting was a great improvement over what has been used in recent years: 6 hours for Pennyplane and Novice Pennyplane, 6 hours for Easy B and Paper Stick, 6 hours for FAI Indoor and Hand Launch Stick, 6 hours for FAI Indoor and ROG Cabin, 6 hours for Hand Launch Glider, 4 hours for Scale (not enough) and 4 hours for Manhattan Cabin (too much). Plus test flying time. The letter also wanted input on which of 2 indoor sites to use, Lake Charles Civic Center or Burton Coliseum. The problem with Burton is the floor is to be concreted some time in 1986 and with our luck it will happen during NATS week. The question is, do we take a chance on the dirt floor? Or do we take a chance on the building not being available the end of July, because the concrete work is being done then?

Because the letter invited comment several of us got out the typewriters and went to work. Ed Whitten sent 3 pages plus the next issue (#34) of New York Indoor Times with his comments. We wrote 3 pages plus 2 pages of alternate schedules, minor changes to balance the time allocations. And Ray Harlan was another who replied in detail.

Indoor NATS planning with Homer Smith at its head, gave consideration to all the comments received and responded with a revised schedule. Homer felt a 50 % response was really good, however we are appalled at such a low rate. The decision to commit to the site will be delayed until June 1, 1986. The schedule had some problems, mostly with conflicts with Outdoor Free Flight as a result of AMA plans to have a 50 th NATS anniversary celebration at the end of NATS week.

These conflicts with Outdoor were quickly brought to NATS planning attention by Whitten in another letter and phone calls from others including ourselves.

As a result the schedule has been modified once again to have as few conflicts with Outdoor Free Flight events as possible. Here is the schedule:

Saturday, July 26	8 am - 1 pm Hand Launch Glider
	1 pm - 9 pm FAI Indoor
	Hand Launch Stick
Sunday, July 27	8 am - 9 am Test flying
	10 am Scale model turn in
	deadline for judging
	9 am - 3 pm Novice Pennyplane
	Pennyplane
	3 pm - 9 pm FAI Indoor (4-10)*
	R.O.G. Cabin
Monday, July 28	8 am - 1 pm AMA Scale, Peanut
	1 pm - 4 pm Manhattan Cabin
	4 pm - 10 pm Intermediate Stick
	Easy B (3-9)*

Monday Outdoor FF events: A/1, C Gas, Payload
judge scale events

Note: This schedule was confirmed by Homer in a phone call on January 12, 1986 and takes the place of all previously published schedules. The NATS entry blank official schedule has 2 printing errors, shown above by the asterisks, the above schedule is what will be followed.

We and Ed Whitten also addressed the other problems at the NATS dealing with interference by onlookers, improper or incomplete model processing, proper floor etiquette by contestants, timers, contest officials, and spectators, etc. Most of these problems are a result of non-indoor fliers running the Indoor NATS. In our contact with Homer Smith both by letter and phone, we are confident that these will be dealt with for the 86 NATS.

NATS 1987

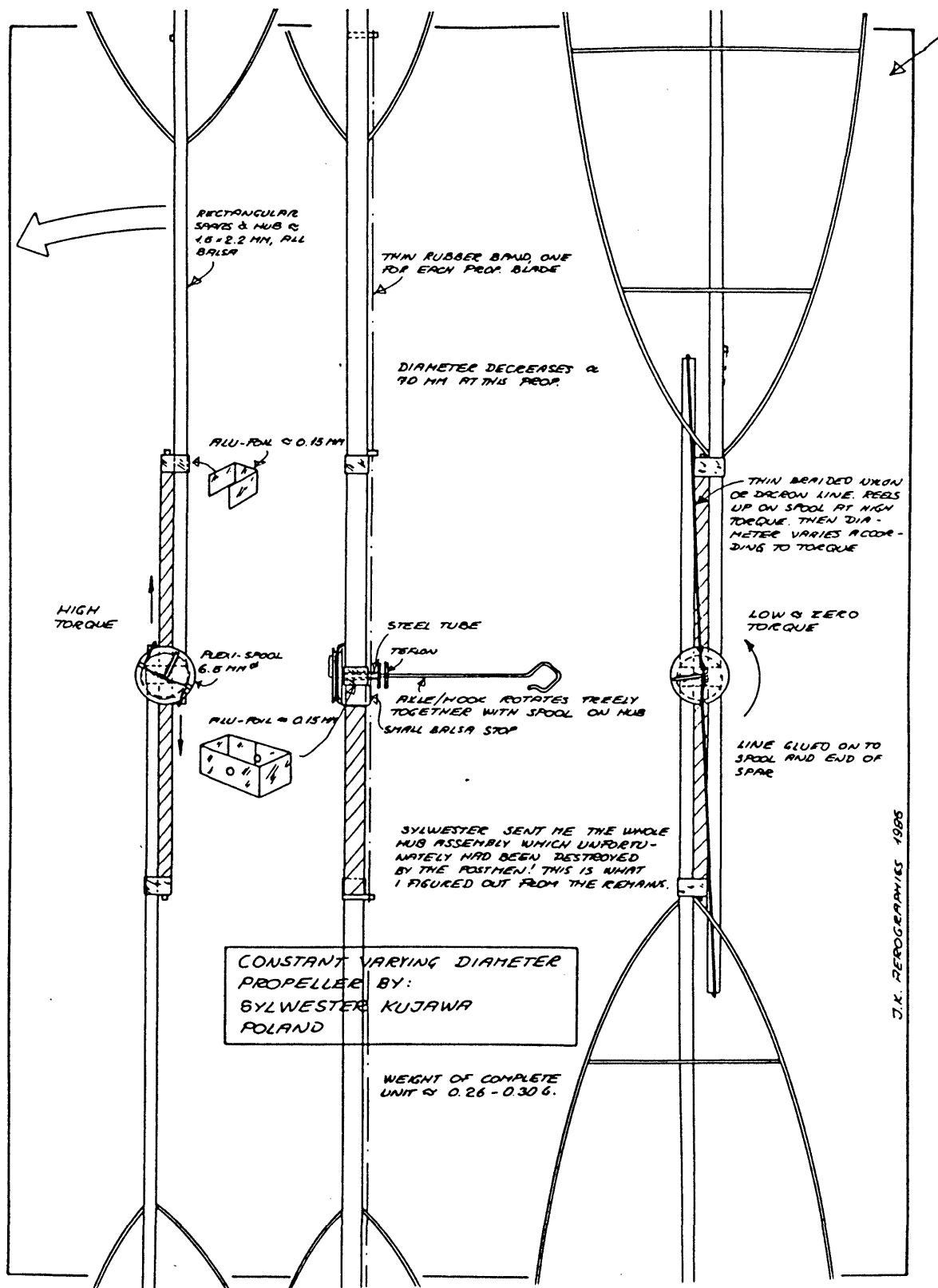
Would you believe we are also working on the 1987 NATS? NATS planning has to be done further in advance of the actual event than most fliers realize, and that included us.

AMA District VII Vice President Pete Waters is very interested in putting together a NATS package in western Michigan for 1987. Because Pete is not an indoor flier, he called us asking for our opinion and help. From our viewpoint this is highly unusual and long overdue. We strongly feel that local Contest Board and Team Selection committee members, in all categories, should be consulted when selecting NATS sites.

We had to make a trip to Chicago at Christmas and we used both drives to check out potential sites. Then in early January we spent one Saturday and almost 400 miles checking out additional sites. So far we have not found a suitable indoor site in western Michigan. Our recommendation is to use a proven good contest site in either Detroit or Chicago, as everything else we have seen would be second rate. If you know of a good site, especially an obscure one, please let us know. It may come to the point where we ask your opinion on site A or site B. Until then we will keep you posted.

THIS ISSUE

Since the last issue #19, Rich had major knee reconstructive surgery (Oct. 1), the recovery & necessary physical therapy have occupied most of our free time. The knee is progressing well & on schedule. In addition we have: flown in 5 contests, 3 indoor & 2 outdoor, run 3 contests, been in on 1986 NATS planning & scheduling, searched for an indoor site for 1987 NATS and finished the administrative paperwork for the 1985-86 FAI Indoor Team. No wonder we have been busy. With this double issue, INAV is now caught up.



A PROPELLER WITH CONSTANTLY VARYING DIAMETER

from Sylwester Kujawa by Jørgen Korsgaard

In September I got a letter from Sylwester containing the hub and some part of the blades of his newly developed C.V.D. prop. Unfortunately the postal services had been rather brutal to the envelope, so quite a lot of bits and pieces fell out, when I opened it! I tried to put the prop together again, and on the drawing you can see, what I figured out.

Editor's Note: Bud Romak was in Romania this autumn and saw Kujawa's props up close. He says that Korsgaard's drawing is correct. This prop appears to be much easier to build than the hinged versions by Richmond or Doig.

This drawing was stolen from Jørgen Korsgaard's newsletter, Indoor News. Jørgen is doing a good job and makes beautiful drawings as you can see. He started the newsletter for his Danish modelling buddies and it has grown to cover most indoor activities in Europe with some from the U.S. and Australia.

The newsletter is published 3 times a year, about March, July and November. Subscription rates are:
Scandinavia Dkr. 45,-
Europe Dkr. 50,-
Overseas Air Dkr. 60,-
Send name and complete address to:
Jørgen Korsgaard
Ahornweg 5
D-2397 Ellund-Handewitt
West Germany

On January 1, 1986 the event Paper Stick becomes Intermediate Stick. The only real change is that commercially available plastic coverings (not micro-film) are now allowed on these models. The following directions for applying Ultrafilm, a plastic film, make the job easy, they also work well for applying condenser paper.

APPLYING ULTRAFILM WITH SPRAY CEMENTS

by Ray Harlan

With proper care, spray cements can provide a lighter, more uniform adhesive for Ultrafilm (and other plastics and condenser paper) than any brushed on coating. Brushed-on adhesives are difficult to control and take much longer to apply. A light spray adhesive will add less than .00012 oz. per sq. in., or less than .0002 oz. for an Easy B wing. One of the best features of spray cement is that it allows repositioning of the film if a mistake is made while covering.

The first step is to choose the right product. Many spray cements (such as 3-M Spray-ment) produce a cream-colored lacy pattern that is too heavy and is not uniform. Much more suitable are 3M Super 77 and 75, and Grumbacher 548 with fine, transparent sprays. The Super 77 is a high-tack adhesive that now comes with an extra fan-spray nozzle ideal for indoor models. For the lightest covering, Number 75 is best. It has a lower, but more than adequate tack, and is formulated for temporary bonds. The air loads on indoor models are so low that this adhesive is essentially permanent. Grumbacher 548 sprays uniformly, has moderate tack, but is heavier than No. 75. It has an orange tint that makes it easier to see.

When setting up to cover a model, two essential items must not be overlooked. First, be sure the room is well ventilated. This means open windows and fresh air. Second, cover the floor where you will spray with lots of newspapers, at least three feet beyond each edge of the largest frame you will spray. You don't want gummy furniture. Spraying in a large, open-top box will help contain the overspray.

To help see where you are spraying, try this: shine a flashlight horizontally across the spray zone a few inches above the floor. Turn out all other lights when you spray. The aerosol droplets will reflect light from the flashlight so you can see them more easily. This is a good way to estimate how much

cement you are applying, and where. A black plastic background also helps you see the droplets and can be cleaned with paint thinner.

Use just one pass on a narrow wing, and no more than two on a wider wing (one each for the leading and trailing edges). For No. 75 and 548, hold the can 12 to 24 inches above the frame. For No. 77, use 24 to 36 inches. Spray at about one foot per second. You will be surprised how little adhesive is required. Remember, less is lighter.

The best covering method is to borrow a microfilm technique: cover the wing flat and add dihedral later. If the sprayed frame is put over a traced outline on the board, it can be adjusted to eliminate skew and wiggly outlines. You may need to tack glue it to the board if it doesn't want to stay in place. There is no rush; the spray adhesive will stay tacky enough for several hours.

Ultrafilm can be applied either from a light balsa hoop larger than the frame to be covered, or two people can hold it with a hand at each corner. A little practice will get smooth coverings without crushing curved ribs. If you make a mistake, carefully peel back the covering and rework it. Lightly press on the outline to secure the Ultrafilm. Then cut it out with a pencil soldering iron (a 23 to 47 watt iron with a thin chisel tip is good). Not only is this much easier than trying to use a razor blade, it seals the film edge and prevents rips that might propagate readily. After cutting off the excess film, turn the frame over and press the ribs to secure the film to them.

Dihedral in wings can be added at this stage. The film near dihedral ribs will loosen. To draw it tighter, wet a small brush in spray cement (from a spot sprayed on paper) and lightly coat the film on top of the rib. You may want to thin the cement with some toluene (Elmer's contact cement solvent) to make it brush easier. When the coat gets tacky, gently nudge the loose film against it with a thin flat (but dull) tool, or balsa sliver, from below the wing. Be careful not to push too much film onto the cement strip or the dihedral rib will bow excessively. If this happens, pull the film apart and rework it. This technique requires some practice. But remember, loose film is not too detrimental to long flights.

These covering suggestions should get you well on your way to indoor modelling without the frustrations encountered with paper and other plastic covering materials. Soon you will be devising your own special techniques to further simplify the job.

EDITOR'S NOTE: Plastic film coverings are not allowed in current Easy B rules.

The spray cements mentioned in the above article can be found in artist's supply stores.

For the black plastic background, use a garbage bag and throw it out when you are finished.

NATIONAL FREE FLIGHT SOCIETY

DEDICATED TO THE INTERESTS OF FREE FLIGHT MODELING

The National Free Flight Society is accepting nominations for the following:

10 Models of the Year (1986)

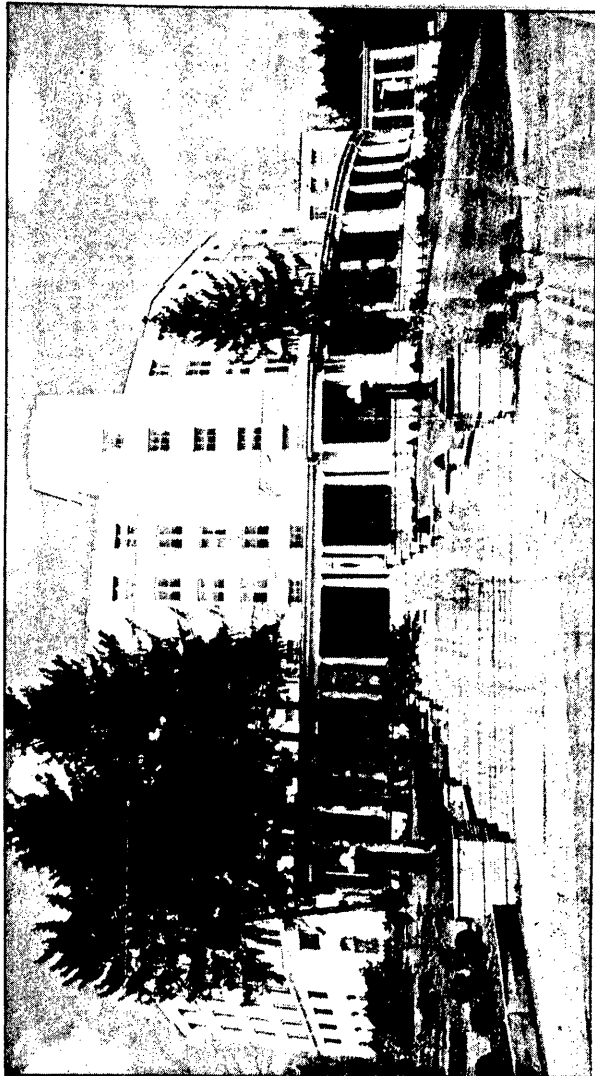
Send to: Gil Morris
2810 Brackley Rd.
Columbus, OH 43220

Free Flight Hall of Fame (1986)

Send to: Anthony J. Italiano
1655 Revere Dr.
Brookfield, WI 53005

Have your information in by January 1, 1986

Thank You for your assistance.



Renovation underway at historic West Baden Springs Hotel

WEST BADEN UPDATE

In September we received word via Tony Italiano that the West Baden Springs hotel building has been bought by Eugene MacDonald. Indoor model flying in the Atrium are not in his plans. Tony is optimistic that all is not lost forever. Now it is January and we hear that MacDonald has sold the building, we do not know if this is good or bad. We will keep you posted.

UPDATE ON THE UPDATE

On January 18, 1986 we received this newspaper clipping from Stan Chilton, concerning West Baden. Bedford, Indiana is a few miles down the road from West Baden. (Notice the misprint in the paper's date, actual publication date was January 2, 1986.)

Hotel

From page 1

Instituted until Jan. 1987, this was the impetus that permitted the sale of our tax-sheltered credits and allowed work to continue on the hotel," he added.

MacDonald, a veteran of over 40 years in the hotel business, has been searching for a syndicator for the hotel property ever since leasing it from Northwood Institute in the fall of 1983. He had originally hoped to have the hotel in operation by the spring of 1984, but plans were delayed.

The 1942 French Lick High School graduate received a degree in hotel and restaurant management in 1949 from Michigan State University, and

did additional study in hotel management at Cornell University.

Northwood Institute operated the hotel in West Baden as a college campus from 1967 until the end of the 1982-83 school year. The original West Baden Springs Hotel was destroyed by fire June 14, 1901, but owner Lee Sinclair rebuilt the structure, reopening it on June 14, 1902.

Sinclair later sold the hotel to Ed Ballard, who operated it until it was forced to close its doors in the fall of 1931. Ballard sold the building in 1934 for \$1 to the Society of Jesus, and it became a seminary to train students for the priesthood. In 1955, the Jesuits moved to Chicago, where the seminary became part of Loyola University.

Renovated hotel at West Baden will employ 500

By Claude Parsons
Times-Mail Executive Editor

WEST BADEN — The long-awaited renovation of the historic West Baden Springs Hotel is now underway following purchase of the 84-year-old structure by a partnership headed by a California firm.

"When the revamped hotel is completed, it will employ an estimated 500 persons from the Springs Valley area," stated Gene MacDonald, president of MacDonald Hotels Management Corp., which will lease and manage the building.

In addition, a \$2.5 million ski resort is being planned with the Paoli Peaks organization, "and when the resort is completed, it will employ another 200 persons," MacDonald added.

"Preliminary renovation has begun and we are now preparing for the installation of new facilities in the building," stated MacDonald. Marlin Properties, a real estate syndication firm based in Beverly Hills, purchased the hotel and surrounding 250 acres for \$1.5 million through the partnership it heads, according to MacDonald. The sale was finalized last Friday.

MacDonald said his corporation is leasing the property from the partnership for a 45-year period, and that the hotel operation will be under his direction. The partnership has raised \$5 million of a planned \$12 million so far, and loans are expected to cover the remainder of the \$25 million planned for the project.

"There will be 425 new rooms, see Hotel page 2

shops and stores in the hotel, along with conference room facilities, and we hope to be open to the public by spring or late summer," MacDonald pointed out.

The rooms will surround the 60,000-square-foot, 130-foot-high domed atrium. There will be two restaurants, two bars, a men's shop, a ladies shop, gift shop, beauty shop, flower shop, candy store, sundry shop, and others, MacDonald added.

"Also planned at the hotel are spa facilities, a golf course, and tennis courts, and we hope to have them in operation — as well as the ski facility, to be known as Mount Aris Ski Resort — by the end of 1986," MacDonald said.

"We want to include all of the amenities to make the structure into a four-star hotel," the French Lick native added.

He pointed out that the heating, ventilating and air conditioning contract has been awarded to Goff Refrigeration of Bedford, and that work is nearly completed. Roofing of the entire hotel is three-quarters done, MacDonald added, and four new elevators have been ordered and will be installed by AB Elevator in Louisville.

"The main thing that helped the project was the indecisiveness of Congress regarding the proposed new tax bill," said MacDonald. "This made investors hesitant to invest in tax-sheltered rehabilitation projects."

"When the bill failed to materialize and apparently will not be

1986 AMA RULEBOOK

Miracle of miracles we received our advance copy of the new rulebook on December 12, 1985. By now the general membership should have received their copies. HQ has told us that some copies went out with blank pages. If you get one of these a simple phone call to HQ will correct the problem.

The only mistakes or omissions are that there are no page numbers for the individual sections in the Table of Contents and the Scale Score sheets are missing. Other than that everything for Indoor seems to be there. The Scale Score sheets will appear in an upcoming issue of Model Aviation.

NEW INDOOR CONTEST BOARD MEMBER

We welcome Charlie Sotich as the new District VI (Illinois, Indiana, Kentucky, Missouri) Indoor Contest Board member. His long experience in indoor modelling will be a welcome addition to the board.

EASY B ALTITUDE CONTEST

Yes, you read it right. An Easy B contest for altitude to be held April 19 & 20, 1986 in the 130 meter high atrium of the Shinjuku NS building in Tokyo, Japan. This building claims to have the highest atrium in the world - at 130 meters it is more than twice the height of the Akron Airdock. Competition sponsors will pay three days meals and lodging if you can get to Tokyo. There may also be proxy flying and an endurance competition. For more details contact Jim Kagawa, 1910 W. 181st Street, Torrance, CA 90504 or call (213) 324-0570 after 7 pm Pacific time.

CONTEST CALENDER

CALIFORNIA- SAN DIEGO

San Diego Orbiteer's indoor flying after monthly business meeting on 2nd Friday of each month and also on 4th Friday of each month. Start 7:30 pm at Colina Del Sol Community Center, 5319 Orange Av. Contact Program Chairman Don Murin.

CALIFORNIA - TUSTIN

FAI Indoor team selection contests in Hanger #1 on Tustin M.C.A.F. the first weekend of each month. CAT IV. To gain admittance to the base, contact Curt Stevens, 25108 Marguerite Pwy, #B-160, Mission Viejo, CA 92692 or (714) 586-5779.

COLORADO - DENVER

Denver area Indoor Model Airplane Association funflays at Martha B. Crawford Elementary School gym, 17th Av. & Florence St. near downtown Aurora. Friday evenings from 6:30 pm - 9:30 pm (start at 7:30 pm during January and February) scheduled thru mid-April. Easy B, Glider and Peanut Scale - also permitted. Bostonian, Embryo, Helicopters, Ornithopters. Juniors are welcome, children 12 and under must be accompanied by an adult. For more info call: Richard John (303) 477-5564 or Jeff Pakiz (303) 366-6580.

CONNECTICUT - GLASTONBURY

Glastonbury Modelers indoor flying at Glastonbury High School gym. CAT II. Feb. 2, 8 am - 5 pm Contest, March 2, 8 am - 12:30 pm funfly, April 6 8 am - 5 pm contest, May 4 8 am - 12:30 pm funfly. Contact George Armstead, 89 Harvest Ln, Glastonbury, CT 06033 or call (203) 633-7836.

FLORIDA - M.I.A.M.A.

Indoor contests at Miami Dade South College, 11011 S.W. 104th St. CAT II. Feb 9 meet #5, April 13 World Pistachio Inter-Gnats (Postal proxy contest for the world's smallest indoor scale models). Flying on Feb 23, March 23, and May 18 to be announced. Contact John "Doc" Martin 2180 Tigertail Av, Miami, FL 33133 or (305) 858-6363.

ILLINOIS - CHICAGO

Flying at Richard L. Jones (Washington Park) Armory, 51st St. & Cottage Grove. CAT III. Feb 16 IMAC Contest - Hand Launch Glider, Novice Pennyplane, Pennyplane, Easy B, Bostonian, Profile Scale Mass Launch, Kit Plan Scale. CD: George Flemming, 2819 E. 103rd St, Chicago, IL 60617 or (312) 768-4970.

April 12-13 Chicago Aeronuts' Midwest States Indoor Championships - FAI Indoor, Intermediate Stick, Easy Pennyplane, Novice Pennyplane, Hand Launch Glider, Manhattan Cabin, Bostonian, Peanut Scale, Kit Plan Scale. CD: Don Lindley 420 Tupelo, Naperville, IL 60540 or (312) 355-9674.

INDIANA - INDIANAPOLIS

The Indianapolis Free Flight Fellowship had such a good response to their first indoor contest that they will schedule another one in March. The site is the Heritage Christian School Gym, 6401 East 75th St. For more info contact: M.J. Whittemore, R.R. #1, Box 296, New Palestine, IN 46163

KANSAS - WICHITA

Fun flays on February 2, & March 2 in a CAT I gym, 18 ft. Contact Jim O'Reilly, 4760 N. Battin, Wichita, KS 67220 or (316) 744-0851.

LOUISIANA - LAKE CHARLES

A.M.A. INDOOR NATS on Saturday, July 26 through Monday, July 28. See the article on 1986 NATS in this issue for the schedule and Model Aviation for more info on other details.

MASSACHUSETTS - CAMBRIDGE (BOSTON)

Tech Model Aircrafter's Indoor flying sessions at M.I.T. DuPont Gym, Vassar St. & Massachusetts Av. CAT II. First Saturday of each month (2/1, 3/1, 4/5, 5/3) from 6 pm - 10 pm. For information & site availability contact Ray Harlan (617) 358-4013 or 258-4137 or 15 Happy Hollow, Wayland, MA 01778

MINNESOTA - BURNSVILLE (MINNEAPOLIS)

Minneapolis Modelers Indoor flying at Burnsville High School gym, 600 E. Highway 13. Contact D. Mendenhall 5100 50th Av, N., Crystal, MN 55429 or (612) 535-2976.

NEW JERSEY - GLASSBORO

Southern New Jersey Indoor Model Flyers contest at Glassboro State College, Route 322, Student Center Ballroom on February 25, 1986 from 9:30 am - 4 pm. No-Cal Scale, HLG, EZB, Peanut Scale & Novice Pennyplane. Contact CD: Al Mkitarian (609) 829-6973 or Larry Peters (609) 881-1404.

NEW JERSEY - LAKEHURST

No flying dates yet.

NEW JERSEY - MIDDLESEX

Middlesex Modelers flying sessions at Middlesex High School, Route 28. CAT I. Contact Al Gentzel (201) 231-0515 or Gene Sellers (201) 725-4186.

NEW JERSEY - PRINCETON

Princeton University M.A.C. contest in Jadwin Gym on May 11, 1986. CAT III. Contact David Aronstein 50 Pasture Ln, Poughkeepsie, NY 12603

NEW YORK - CHAPPAQUA

Somers R/C Club indoor flying session at Horace Greeley High School Gym, CAT I. Contact Dave Acton (914) 628-0526.

NEW YORK - NEW YORK

Columbia Indoor Model Airplane Society flying in Columbia University Low Library Rotunda. CAT III. Contact Ed Whitten for dates and events, P.O. Box 176 Wall St. Station, New York, NY 10005 or (212) 724-0282.

NEW YORK - NIAGARA FALLS

Possible contest in early May, contact Jack Brown 1446 Red Jacket Rd, Grand Island, NY 14072 or (716) 773-5674.

FIFTH UNITED STATES INDOOR CHAMPIONSHIPS at Niagara Falls Convention Center on June 17-19, 1986. Meet flyer will be in an upcoming issue of INAV.

OHIO - AKRON

FAI Indoor Team Selection contests and Record Trials in Goodyear Airdock, CAT IV, third weekend in May, July 4th weekend, & Labor Day weekend. You must contact CD in advance, Bill Hulbert, 174 Castle Blvd. Akron, OH 44313 or (216)864-8030.

OHIO - BROOK PARK (CLEVELAND)

Cleveland Free Flight Society Annual Indoor Contest for CAT I at Brook Park Armory on February 16. 5 pm - 10:30 pm. Easy B, Peanut Scale, Scraps & mites, Jetco ROG, FAC P-Nut, FAC No-Cal, FAC WW I. Contact M. Zand, 7055 Seven Hills Blvd, Seven Hills, OH 44131 or (216)524-3480.

OKLAHOMA - OKLAHOMA CITY

Okie Free Flight Flyer sponsored indoor flying at 23rd Street Armory, CAT II. February 9 record trials. March 9 contest for HLG, EZB, Pennyplane, Manhattan Cabin, Ornithopter, 14 gram Bostonian, Peanut, AMA Scale, local rule 5 gram ROG, Profile Scale. Contact Bill Baker, 1902 Peter Pan St, Norman, OK 73072 (405)329-1018.

PENNSYLVANIA - PHILADELPHIA

Delaware Valley Federation of Model Airplane Clubs sponsored flying sessions at Memorial Hall in Fairmont Park near the zoo. CAT II. Saturday sessions about every 4 weeks. For the next date contact Joe Krush 409 Warner Rd., Wayne, PA 19087 or (215)688-3927 or Doug Barber 146 Stratton House, Maple Shade, NJ 08052 or (609)235-5318.

TEXAS - BEDFORD (DALLAS/FORT WORTH)

Monthly flying sessions at Bedford Boy's Ranch gym on Forrest Ridge at Harwood, CAT I. For dates and events contact Jesse Shepperd, 2713 Summit View, Bedford, TX 76021 or (817)282-3770.

VIRGINIA - CHRISTIANSBURG

Montgomery County Model Aviation Club's first ever Indoor contest for CAT I at Christiansburg Armory on Jan 26. Hopefully this will be the first of many contests. Contact R. Lefrancois, 465 Chinquapin Trail, Christiansburg, VA 24073 or (703) 382-2816.

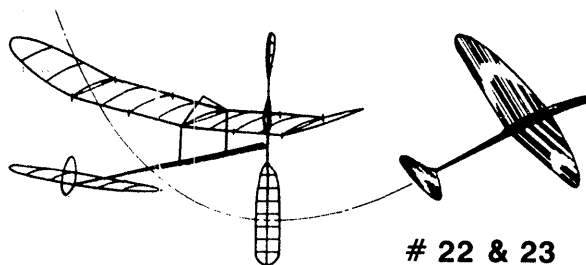
WISCONSIN - DELAFIELD (MILWAUKEE/ MADISON)

Bong Eagles indoor contest at St. John's Military Academy gym, CAT I, on April 6, 1986. HLG, Novice Pennyplane, Scale. Contact Gil Graunke, 15260 Heather Hill, Brookfield, WI 53005 or (414)781-7087.

Indoor flying sessions every Tuesday night at Hamilton High School. Contact Gordy Wisniewski, 4790 Stratford Dr, Greendale, WI 53129 or (414)421-3696.

INDOOR

NEWS and VIEWS



Editors: Richard & Melody Doig - 6 Canary Hill Drive, Pontiac, MI 48055 (313) 373-5374

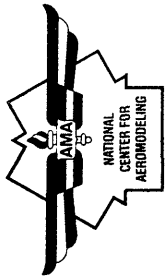
!! INDOOR NATS MOVED TO MIDWEEK - DETAILS ON PAGE 2 !!

Indoor Events schedule for 1986 NATS at Lake Charles Civic Center,

Tuesday, July 29	Wednesday, July 30	Thursday, July 31
8 am		
9 am Site not available until after 2 pm.	A.M.A. Scale	Unofficial events Ornithopter Autogiro Helicopter Bostonian Rubber Speed, etc.
10 am	Peanut Scale	
11 am		
12 noon		
1 pm		
2 pm		
3 pm See note below	Easy B	Novice Pennyplane } enter one only
*4 pm	Intermediate Stick	Pennyplane
5 pm		
6 pm Hand Launch Glider - all wood only		Manhattan Cabin
7 pm		
8 pm & Scale judging 7 pm turn in deadline	FAI Indoor (F1D)	FAI Indoor (F1D)
9 pm	Hand Launch Stick	R.O.G. Cabin
10 pm		
11 pm		
12 pm		

NOTE: This 3 hour gap is to allow time to set up the scoreboard shroud and because I don't think they will have the building cleaned up from the event (Wrestlemania) the night before by 2 pm.

*4 pm: All Outdoor Free Flight events are scheduled to end at 4 pm. This gives those modelers who fly both indoor and outdoor events a chance to do so at this NATS. Driving time between the sites is about 20 minutes.



ACADEMY OF MODEL AERONAUTICS

1810 Samuel Morse Drive
Reston, Virginia 22090
703-435-0750

TO: Vince Mankowski, NATS General Manager
Homer Smith, Free Flight Events Manager
John Guenther, Scale Events Director
Indoor and Free Flight Newsletter Editors
Indoor Contest Board
Indoor Modelers

FROM: Richard Doig, NATS Indoor Contest Director

DATE: June 1, 1986

SUBJECT: Indoor Events at 1986 NATS

From the beginning of NATS 1986 planning, Burton Coliseum was the preferred indoor site with the Lake Charles Civic Center as an alternate site. An alternate site was planned from the beginning as Burton Coliseum was to get its floor concreted during 1986 and last Fall the exact timetable for this was not known. In mid-March we found out that the Lake Charles Civic Center had disregarded the tentative hold for the dates during NATS week and rented the building out to other parties for both weekends (July 26-28 and August 1-3). This meant that we had to go with Burton Coliseum with no backup site. In mid-April we found out that the Burton Coliseum renovations (new lights and service catwalks along with concrete floor) were delayed and the contract would not be let until May. If we were to use the building in July, we would be able to do so only if the contractors would agree. In early May we found that some of the sub-contractors would not give permission for us to use Burton Coliseum as there would be two cranes in the building along with other construction equipment.

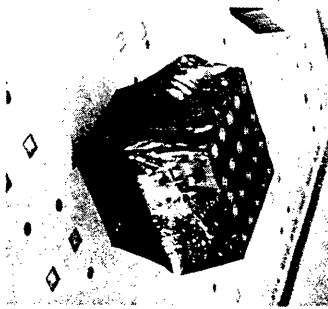
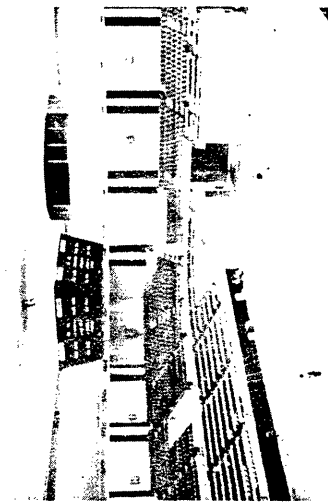
Now a mad scramble to find an indoor site began. With Vince Mankowski at A.M.A. headquarters doing all the negotiations and contacting all the individual sites, Homer Smith, Richard Doig, Tony Italiano, and Hardy Brodersen began feeding him suggestions. Sites within 500 miles of Lake Charles were considered, including:

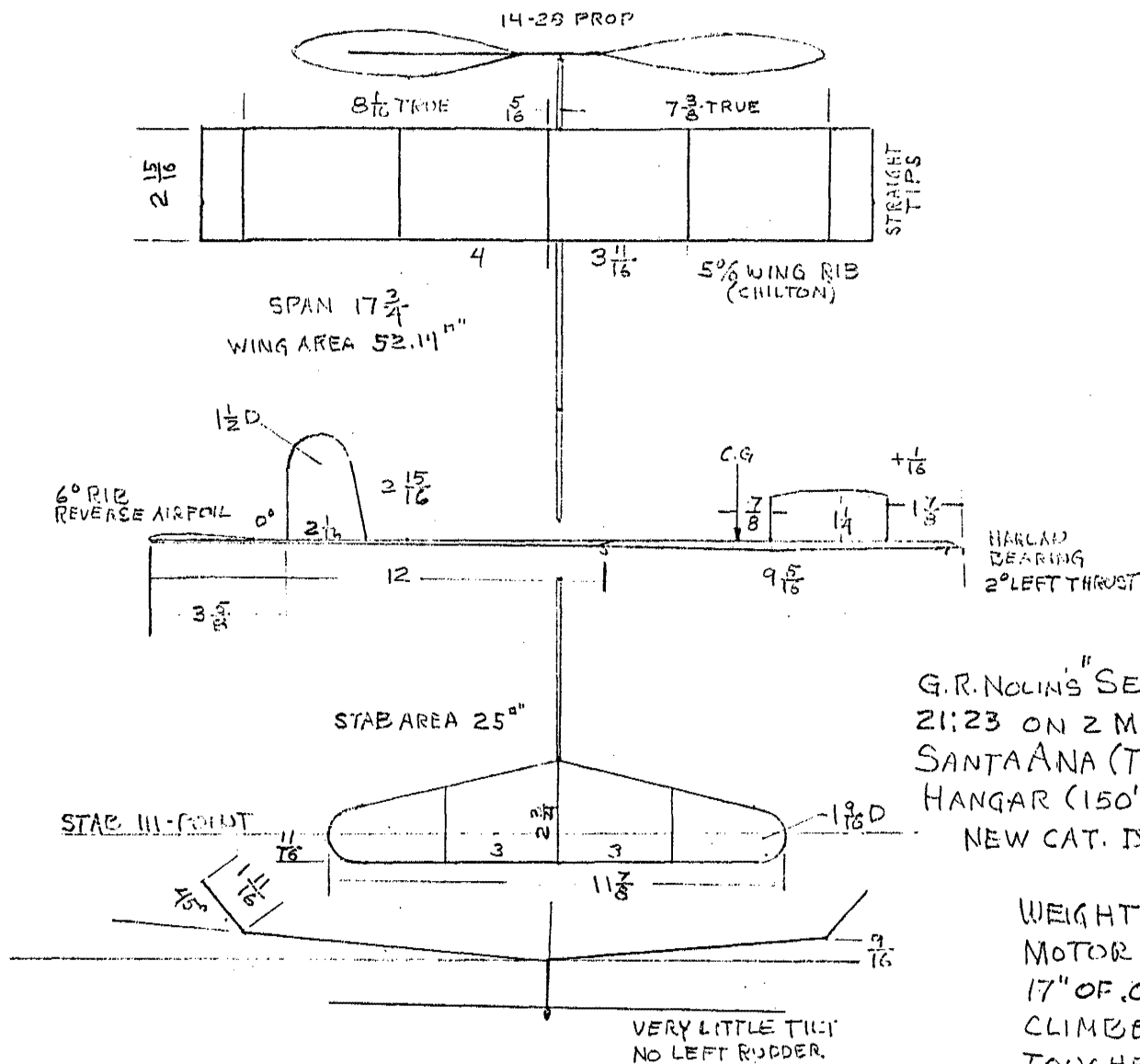
- University of Southwestern Louisiana in Lafayette - booked
- Louisiana State University in Baton Rouge - booked
- Superdome in New Orleans - booked (and expensive!)
- Goodyear Hangar in Spring, Texas - building new blimp in hangar this summer.
- Houston, Texas area - no sites or motels available as pre-Olympic trials are that week.
- Site (30') in Galveston, Texas - available but the 200 mile drive for 30 feet was unacceptable.

At this point consideration was given to having no Indoor events at the NATS, or having the events at a different site and time. I suggested that as a final effort we should see if the Civic Center or the Lafayette site were available evenings during the week. As it turned out the Lake Charles Civic Center was available mid week and on May 28, Vince Mankowski decided to go with this rather than cancel the indoor events. The Civic Center is available Tuesday afternoon, July 29, all day Wednesday, July 30 and all day Thursday, July 31. Vince contacted me so that a suitable schedule could be worked out. I contacted John Guenther, Scale Events Director, who is responsible for the Indoor A.M.A. Scale and Peanut Scale events, as we had to work around when he could get Scale judges and when the Indoor Scale Contest Director would be available. The following schedule is what was worked out and has been approved by Homer Smith and Vince Mankowski. Events were scheduled to minimize conflicts between Indoor and Outdoor Free Flight events, and this is why most of the events were shifted to the afternoon and evening. Also having flown in the Civic Center in 1975 until midnight, I personally know that the conditions should be good until after midnight.

The Lake Charles Civic Center is 55 feet, arena style floor surrounded by stands, with sealed concrete floor and acoustic tile ceiling. The only hanging obstructions are a scoreboard, which will be shrouded with plastic and one speaker enclosure which models cannot get inside.

Photos reprinted from Indoor News and Views, August 1974 and August 1975.





G.R. NOLIN'S "SERENDIPITY"
21:23 ON 2 MARCH 1986 AT
SANTA ANA (TUSTIN) BLIMP
HANGAR (150')
NEW CAT. IX RECORD

WEIGHT .039 OZ.
MOTOR .029 OZ.
17" OF .040 PIRELLI
CLIMBED 140', NEVER
TOUCHED.
DID IT TWICE! 21:20
21:23

AMA 12306

5 MAR '86

G.R. NOLIN, FAIRBORN, OHIO

SERENDIPITY EASY B

THIS ISSUE

This issue is late! No sooner did we get 20 & 21 mailed than a staph infection set into Richard's rebuilt knee, requiring immediate surgery, one week in the hospital, a month of intravenous medication, followed by another operation to remove the screws from the operation last October. Even after all of this the infection is gone and the knee is doing remarkably well, but we lost almost three months. We are done making predictions about being caught up.

So most of this issue is material provided by others including some pretty neat stuff. At least one subscriber complained that issue 20 & 21 was too much reading all at once. (Too bad, Charlie.) This issue has lots of pictures. The double issue format seems to be more convenient for us to work with at the present time.

To everyone who submitted items to us, thank you. Your items may not get used right away, but we will use them eventually if Richard can stay out of the hospital. So keep them coming.

Jerry Nolin has become the man to beat in high ceiling Easy B flying having broken the CAT IV record three different times, twice in Santa Ana on March 2 and the latest a flight of 22:01 in the Akron Airdock on May 18. We just received a letter from Jerry describing the attempt and he tells the story better than we could.

"You've probably heard that Larry Mzik touted me into a 'hopeless' attempt at a new record just before quitting time at Akron. Conditions were like in the old movie 'The Birth of Frankenstein'. Wind, lightning, torrential rain, deepening gloom. I had been working on the high torque performance of my new ship. Up to then it hadn't been good at all.

As luck would have it everything worked perfectly. The ship got right up to the roof and stayed there until nearly 15 minutes passed. I think it lost significant power at about 130 feet, but due to the neutral trim it just glided down very slowly, prop ticking over and hit some boxes about 3 feet off the floor. I'd got 22:01!

I've decided to change the name from "Serendipity" to "SERENDIPITY!".

F1D WORLDWIDE

F1D in Holland

sent to us by Thedo André

F1D Semi-finals on June 1, 1985 & Finals on March 8, 1986 at Schipol Hangar - 25 meter ceiling clear.

1. Otto Rodenburg	34:45 + 34:15 = 69:00
2. Edmund Liem	32:29 + 28:40 = 61:09
3. Thedo André	30:09 + 29:46 = 59:55
4. Wm. Beekmeyer	29:21 + 26:24 = 55:45

Rodenburg's flights were made with a standard micro-film ship (190 mm wing chord) with no VP or VD props. He also had a 35 minute plus test flight. Liem and André, both had their first 30 minute plus flights at this meet.

André writes that they were somewhat lucky to get the March session in because of the hangar not being available and also running out of Helium.

So you see flying sites are hard to get all over the world.

F1D in Japan

From JIAC Indoor News - translation by George Honda

F1D Semi-finals, April 6 & 7, 1985 in Gout Gym- 14 meters (bad storm limited entries and 1 suspect lowered times, best times were during rounds 5 and 6)

1. Enomoto, Hideyo	27:57 + 29:34 = 57:31
2. Kihara, Kazumasa	26:28 + 27:10 = 53:38
3. Nonaka, Shigeyoshi	25:59 + 27:32 = 53:31
7. Ota, Kenichi	22:43 + 24:30 = 47:13

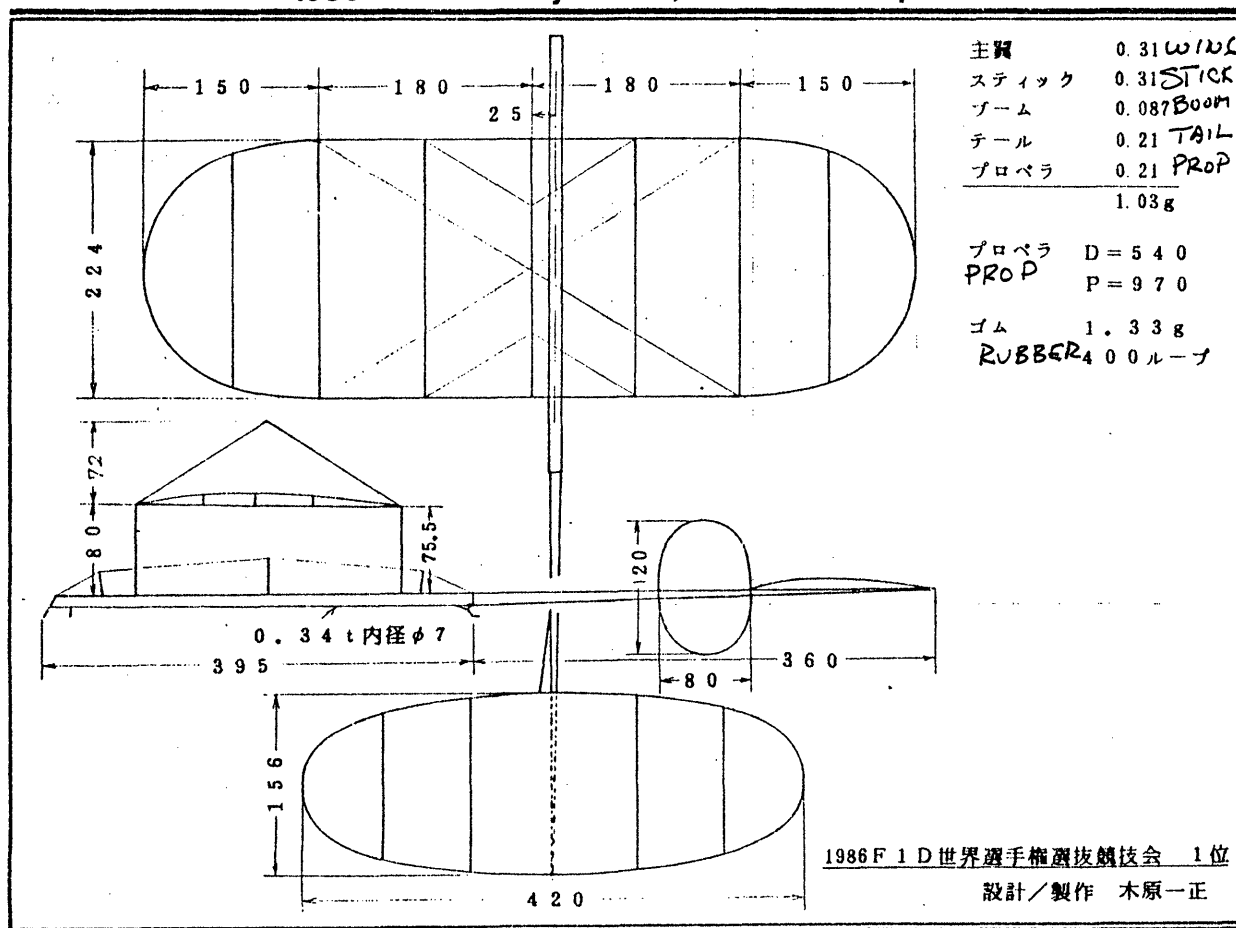
F1D Finals, August 18, 1985 in Ume-No-Jima - 25 meters (this site has a light fixture gridwork at 15 meters and no one has successfully flown through the gridwork and landed the flight)

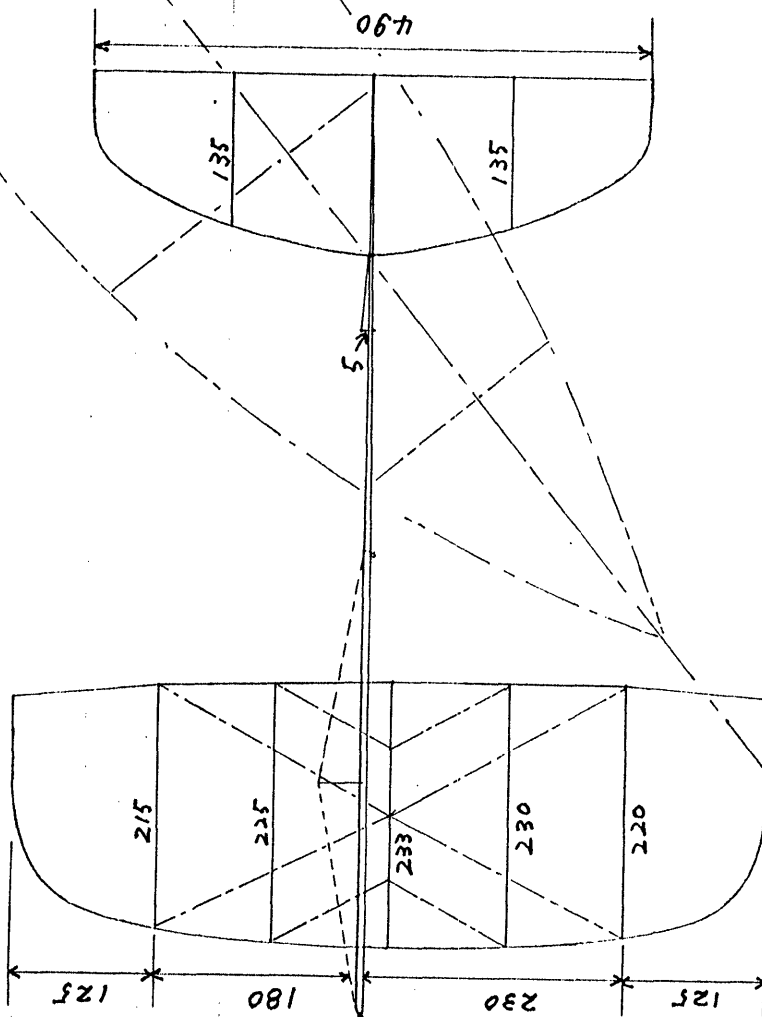
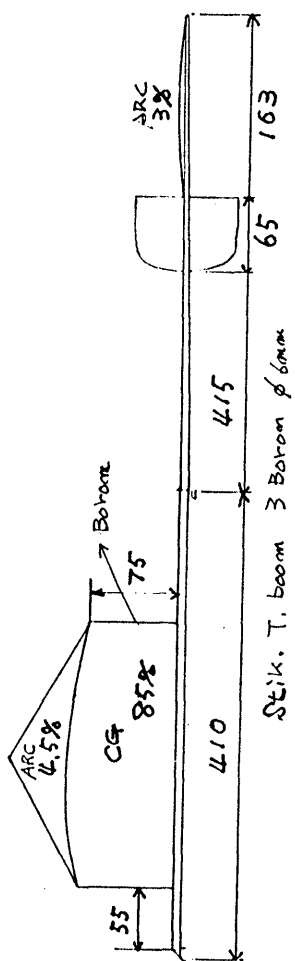
1. Kihara, Kazumasa	26:03 + 28:49 = 54:52
2. Enomoto, Hideyo	23:57 + 24:17 = 48:14
3. Ota, Kenichi	21:01 + 21:45 = 42:46

alternate: Nonaka, Shigeyoshi 16:41 + 21:34 = 38:15

Kihara is new to international competition and just may be one to watch. We will see how well he does in Cardington. The other three are all from the 1984 Japan World Championship Team.

1986 F1D Model by Kihara, Kazumasa (Japan)



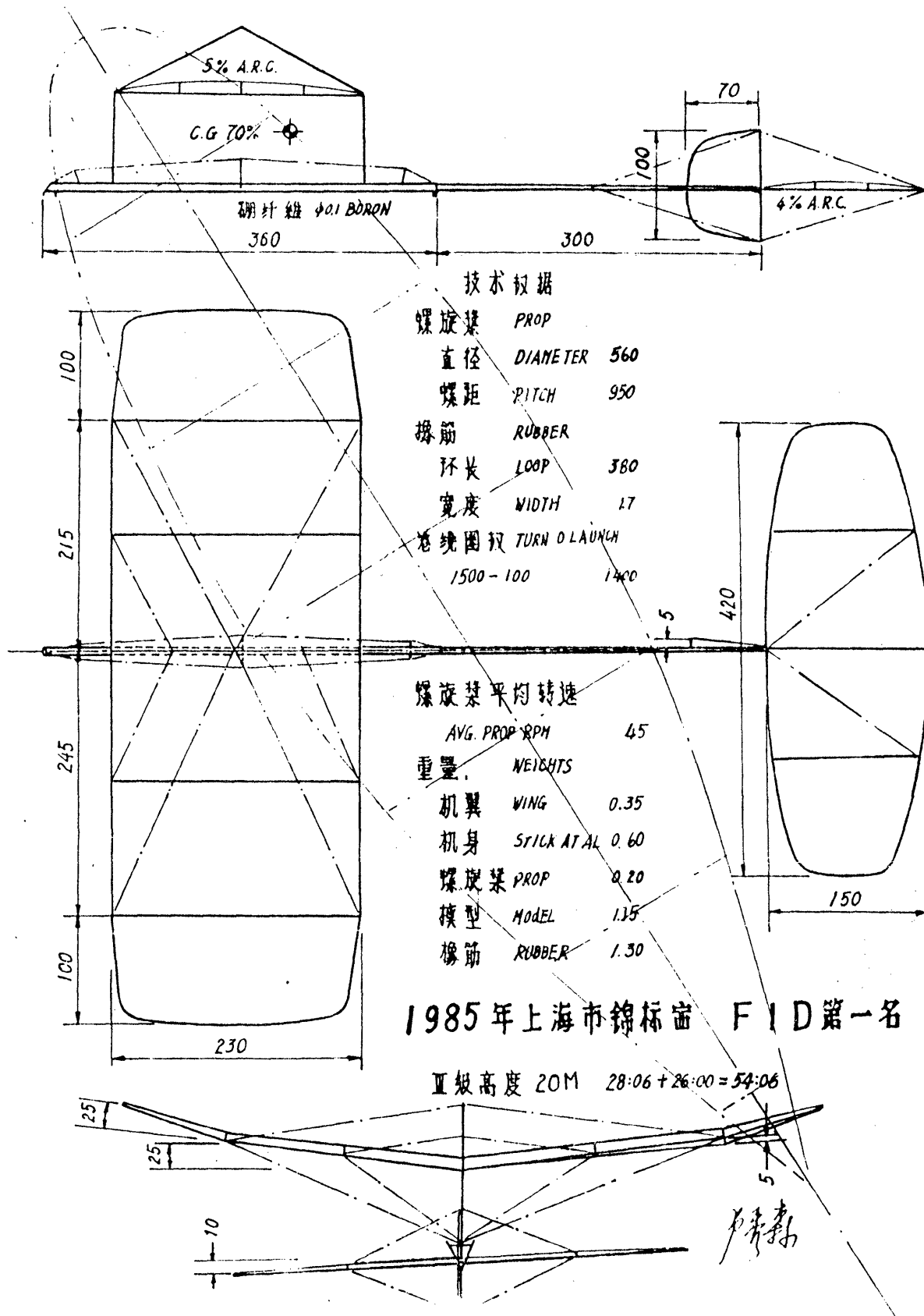


prop
530 Dia
930 pitch

Time Challenger
1985 by BAMBA

Wing 0.35g
Prop 0.16g
Stick 0.32g
Stab
T. boom 0.25g
1.08g

1985 F1D Model by Lu Xiu Sing of Shanghi, Peoples Republic of China

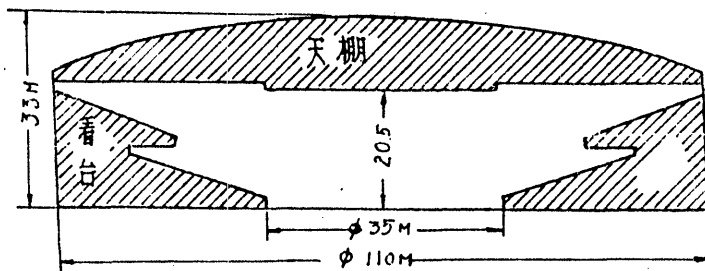


SHANGHAI INDOOR MODEL NEWS

Translation by Lu Xiu Sing, sent by Herb Robbins

All events of 1985 Shanghai aeromodel championships were finished on November 31st. F1D competition arranged on November 11 & 12 and on 6-9 for practice. The flying space was the Shanghai Sports Hall with 20.5 meters ceiling height (3rd class). At competition time it was very fine, inside air very stable. Organizers did not allow use of Hydrogen balloons and Helium is too expensive so all of the competitors could not steer. And then some of the hopeful flights landed on the spectator's platform. The results were better than in 1984. First place in 1984 was 23:48 + 23:02 = 46:50 and in 1985 it was 28:07 + 26:00 = 54:09.

Editor's Note: These times of 28:07 + 26:00 = 54:09 were made by Lu Xiu Sing, who is number one man on Chinese F1D team, the other two member's names were not translated.



上海体育馆示意图

INDOOR WORLD CHAMPIONSHIPS

Indoor World Championship 1986 Class F1D. to be held at Cardington Airship Hangers, Bedfordshire, England. 22nd. to 26th August 1986.

To help the organiser

Please send your entry with money, as soon as possible (but not later than 15th July 1986)

to: Laurie Barr,
4, Hasting Close, Bray, Berkshire, England.

Number of Supporters/Spectators is		x £107.48 ea	Total
All money must be pre-paid, in Sterling. Payable to Laurie Barr.			Grand Total

British National Indoor Model Championships to be held on Saturday 31st August & Sunday 1st September 1986. Entry and competition in this event is open to any model flyer from any Country, at Cardington Airship Hangers.

Saturday 31st August 1986

- Events: (1) E.Z.B.
(2) Peanut Duration
(3) Manhattan 4g & 6g
(4) C.O.2. Duration
(5) Novice Penny Plane

Note! Some Countries have different rules, but any EZB is allowed, but no wire bracing of flying surfaces is allowed.
(6) All in scale Contest. Any size, any power unit (i.e. C.O.2/Rubber is OK), flown to Miami rules, Contest Director Butch Hadland!

Sunday 1st September 1986

All Microfilm models

- Events: (7) Open
(8) F1D.
(9) 35 c.m. wingspan.

This is a special event for those wishing to either stay on to the week-end after the World Championships, or those who come just to fly the week-end 31st August - 1st September.

The same 1st class food & accommodation is available at £28 per person, as for the World Championships.

Send your entries as soon as possible to:

Laurie Barr,
4, Hasting Close,
Bray,
Berkshire.
England.

FAI RULE PROPOSALS

Any modeler wishing to submit a rule proposal must do so through their national aeroclub. In the U.S. proposals must be sent to A.M.A. headquarters, attention M. Madison by August 1, 1986. The proposal is then sent to the FAI Team Selection committee for review and voting on. This vote deadline is September 15, 1986. If passed by the committee, it then goes to the U.S. representative on the appropriate CIAM subcommittee, the A.M.A. President and the U.S. voting delegate for review before it can be submitted as an agenda item.

There is no official form for submitting proposals. Any proposal must refer to the appropriate sections and paragraphs in the FAI Sporting Code (1984). The exact wording of any change must be given and also a briefly stated reason for the change.

FAI RULES SEMINAR

On this very subject, Erv Rodemsky will host a session during the 1986 World Championships on F1D rules and what should be different and long range changes. Time and place to be announced.



Logo designed by Herb Robbins & friend

INVITATION

APRIL 1986

I have decided to serve the indoor scene with a collection of F1D drawings and sketches, and it is to be published and distributed at the World Champs in August 1986

But the collection will be nothing without your comprehensive cooperation so

ALL the competitors who are going to fly at Cardington are asked to contribute with

1:5 or 1:4 scale drawings of their models including

1:1 airfoils and details

wood sizes and densities

full prop details

rubber size

design comments, biographies and pictures are also welcome

Those who are not draftsmen should just send pencil drawings and I'll do the rest

Contributions can be sent to me at any time from now - the earlier the better - but not after the 15th July which is absolute deadline I also have to make preparations for my flights at the World Champs!!

My address is:

Jorgen Korsgaard
Ahornweg 5
D-2397 Ellund-Handewitt
W. Germany

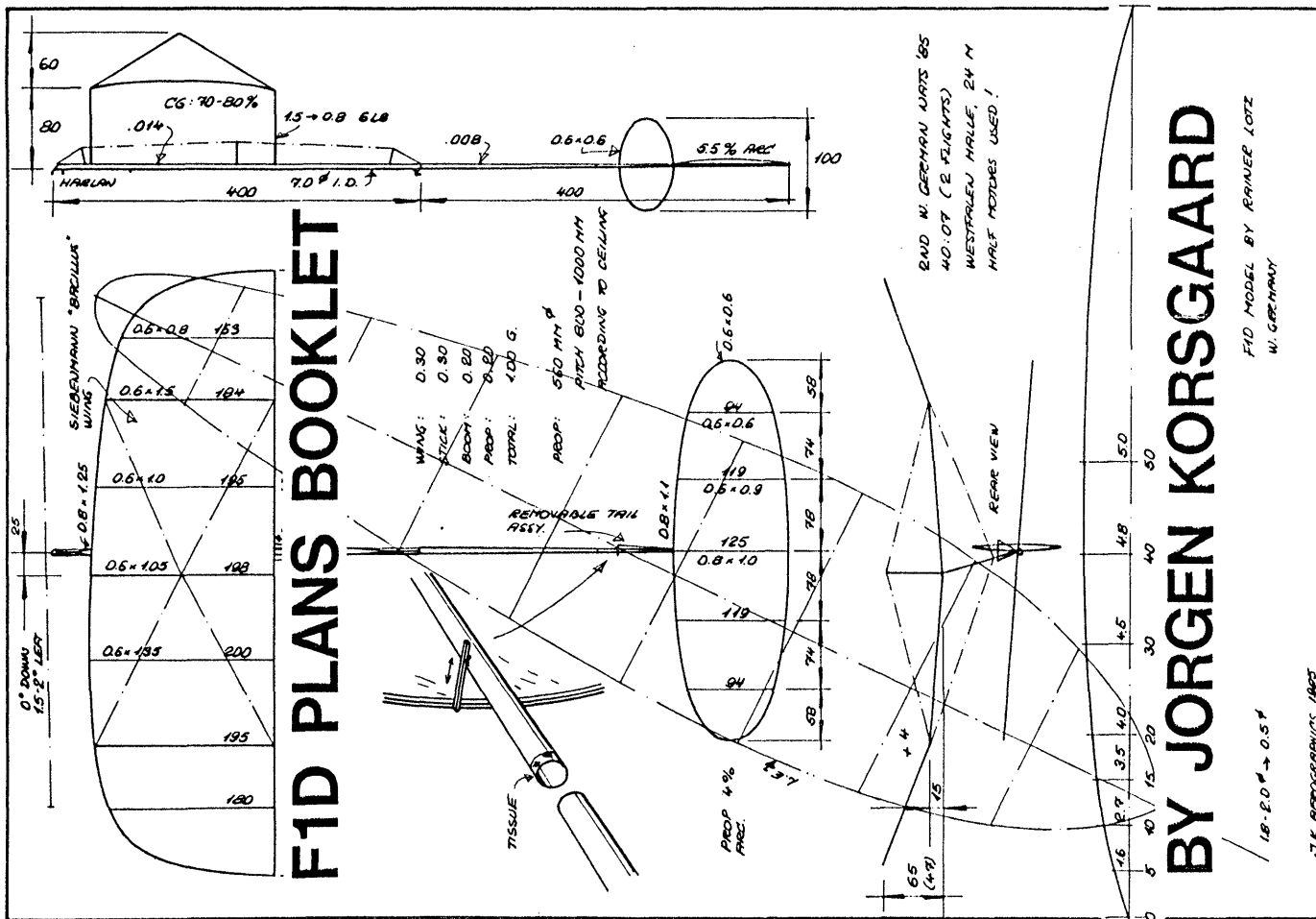
I'm convinced that such a collection of drawings etc. can be very helpful in getting more people to fly the beautiful F1D class, also it might serve as inspiration etc. for the "old foxes"

Yours sincerely

Jorgen Korsgaard

F1D fan, editor of
INDOOR NEWS etc....

Editor's note: Jorgen is taking on a large task with this plans booklet, but it is something we look forward to receiving. We hope all the World Championships' competitors submit their plans.



BY JORGEN KORSGAARD

F1D MODEL BY RANNEE LOTZ
W. GERMANY

18-20" x 0.5"

J.K. ROSS/CHAMPS 1985

2ND W. GERMAN NATS '85
40-07 (2 FLIGHTS)
WESTERLEN HALL, 24 M
HALF MODELS USED!

INAV ISSUES

Just how many issues of INAV have been printed? We have been asked this question and here is a listing of all the issues we know about - all 221. We are not offering to run complete sets of back issues. We are looking for others who have complete sets, who would be willing to share them - for photocopying - with the have nots. If you are missing a couple of issues we can fill out your set if you send us a large self-addressed envelope and 25¢ for each issue.

The first number after the date is the number of pages in my library

The letter following the number is a code as follows:

P Photocopy

O Original Printing

M Master is in our possession

1961	November	4	P	1966	January	5	P	1970	January	4	O	1974	May	4	O
	December	4	P		February	5	P		February	?			June	4	O
1962	January	4	P		March	4	P		March	4	O		July	5	O
	February	5	P		April	5	P		April	4	O		August	4	O
	March	5	P		May #1	4	P		May	4	O		September	4	O
	April	5	P		(labeled May Feb 1966)				June	4	O		October	4	O
	May	6	P		May #2	2	P		July	4	O		November	4	O
	June	5	P		May #3	2	P		August	5	O		December	4	O
	July	5	P		June	5	P		September	4	O	1975	January	4	O
	August	5	P		July	3	P		October	4	O		February	4	O
	September	5	P		August	4	P		November	4	O		March	4	O
	October	5	P		September	4	P		December	4	O		April-May	5	O
	November	5	P		October	5	P	1971	January	4	O		June	4	O
	December	4	P		November	5	P		February	4	P		July	4	O
1963	January	5	P		December	5	P		March	4	O		August	4	O
	February	6	P	1967	January	6	P		April	4	O		September	5	O
	March	5	P		February	6	P		May	4	O		October	4	O
	April	6	P		March	6	P		June	4	O		November	4	O
	May	6	P		April	5	P		July	3	O		December	4	O
	June	4	P		May	5	P		August	4	P		(dated February 1975)		
	July	4	P		June	5	P		September	3	O	1976	January	4	O
	August	5	P		July	4	P		October-November	4	O		February	3	O
	September	4	P		August	4	P		December	4	O		March	3	O
	October	5	P		September	4	P	1972	January	4	O		April-May	5	O
	November	5	P		October	4	P		February	4	O		June	5	O
	December	4	P		November	5	P		March	4	O		July	4	O
1964	January	4	P		December	5	P		April	4	O		August	4	O
	February	5	P	1968	January	4	P		May	4	O		September	4	O
	March	4	P		February	4	P		June	4	O		October	5	O
	April	4	P		March	4	P		July	4	O		(includes insert letter)		
	May	5	P		April	4	P		August	5	P		November	6	O
	June	4	P		(dated March 1968)				September	5	O		(includes 2 pg insert letter)		
	July	4	P		May	4	P		October	4	O		December	4	O
	August	4	P		June	4	P		November	5	O	1977	January	3	O
	September	4	P		July	4	P		December	4	O		February	4	O
	October	4	P		August	3	P	1973	January	4	O		March	4	O
	November	4	P		September	4	P		February	5	O		April	4	O
	December	4	P		October	4	P		March-April	5	O		May	3	O
1965	January	5	P		November	5	P		May	5	O		June-July	5	O
	February	5	P		December	4	P		June	4	O		August	3	O
	March	4	P	1969	January	4	P		July	4	O		September	4	O
	April	5	P		February	4	P		August	5	O		October	4	O
	May	5	P		(dated February 1964)				September	4	O		November-December	5	O
	June	5	P		March	4	P		October	4	O	1978	January-February	4	O
	July	4	P		April	4	P		November	5	O		March	?	
	August	5	P		May	4	P		December	4	O		April-May	5	O
	September	4	P		June	3	P	1974	January	4	O		June-July	5	O
	October	4	P		July-August	5	P		February	4	O		August-September	5	O
	November	5	P		September	5	P		March	4	O		October-November	5	O
	December	5	P		October	4	P		April	4	O		(includes VNART entry blank)		
					November	4	P								
					December	4	O								

1979 Dec-Jan 5 0
 (Includes scale score sheet)
 Feb-Mar 5 0
 Apr-May 5 0
 June-July 5 0
 Aug-Sept 5 0
 Oct-Nov 5 0

(Includes SNART entry blank)

December 4 0
 1980 Starting with the
 next issue, issues
 are numbered.

#1 August 1981 4 0
 #2 October 1981 4 0
 #3 January 1982 4 0
 #4 March 1982 5 0

(includes VIINART entry blank)

#5 April 1982 4 0
 #6 August 1982 5 0

(includes rule change form)

#7 September 1982 4 0
 #8 November 1982 4 0
 #9 May 1983 5 0

(includes ENART entry blank)

#10 July 1983 5 0
 #11 September 1983 4 0
 #12 October 1983 5 0

(includes USIC survey)

#13 June 1984 6 M

(includes USIC entry blank)

#14 August 1984 7 M
 (includes 3 pgs rule proposals)

#15 Oct-Nov 1984 17 M
 (includes 11 pgs rule proposals)

#16 December 1984 6 M
 #17 February 1985 9 M
 (includes 3 pg USIC entry blank)

#18 May 1985 6 M

#19 August 1985 7 M

#20-21 January 1986 14 M

NEW INDOOR CONTEST BOARD MEMBERS

We would like to welcome two new ICB members to the group. In District II (New York & New Jersey) Pete Andrews moved out of the District and Doug Barber has been appointed. In District XI (Alaska, Idaho, Montana, Oregon & Washington) Dave Hagan has resigned and Andy Tagliafico has replaced him.

PECK POLYMERS FIRE

The Peck Polymers factory burned down on Feb. 2, 1986. Sandy and Bob now have a new building and are delivering orders. They should be back to full production soon. The mailing address is the same as before: Peck Polymers, Box 2498, La Mesa, CA 92041 with a new telephone number (619) 488-1818. Catalog is \$2.00.



Anthony J. Italiano
 1655 Revere Drive
 Brookfield, WI 53005

NATIONAL FREE FLIGHT SOCIETY

DEDICATED TO THE INTEREST OF FREE FLIGHT AEROMODELING

May 10, 1986

PRESS RELEASE

PRESS RELEASE

PRESS RELEASE

The National Free Flight Society has announced the recipients of the Free Flight Hall of Fame for 1986. The Society is extremely proud to recognize their contributions to the development and continuity of free flight model airplane activities throughout the USA and the world.

Joseph W. Foster - Wakefield Team flyer (World Champion 1953), 1952 Grand Nats champion, Power champion, Indoor record holder, a real competitor!

Annie M. Gieskieng- (Deceased) NFFS administrator during the formative years in the 1960's.

William C. Hannan - Publisher of modeling books that are intriguing and excellent for young and old.

Robert L. Hatschek- Flyer of renown, tow hook experimenter and chronicler of concepts.

Awards will be held during the 1986 Nationals (Lake Charles, LA) at the NFFS Symposium on Tuesday, July 29, 1986.

Anthony J. Italiano, Chairman
 NFFS Hall of Fame Award Committee

40 MINUTE CLUB UPDATE

Please add these new members to the club:

<u>Name</u>	<u>Country</u>	<u>Time</u>	<u>Class</u>	<u>Year</u>	<u>Site</u>
Kalina, Jiri	CSSR	40:11	3	1975	Cardington
Gitlow, Lew	USA	40:52	2	1985	Santa Ana
		41:52	2	1985	Santa Ana
Randolph, Bob	USA	44:37	2	1986	Santa Ana

Class 1 - FAI, FAI 90 cm or AMA-D
 2 - FAI 65 cm - 1 gram
 3 - FAI 65 cm - no weight requirement

INAV SUBSCRIPTION RATES

Subscription rates including membership in the National Indoor Model Airplane Society are ten (10) issues for:

\$5.00 U.S., Canada, Mexico
 \$6.50 overseas surface mail
 \$7.25 overseas Air Mail

Please remit in U.S. dollars by cash, money order, U.S. Postal money order, or check drawn on a U.S. bank - payable to the order of Richard Doig.

Send to: Richard Doig
 6 Canary Hill Drive
 Pontiac, MI 48055 U.S.A.

FIFTH UNITED STATES INDOOR CHAMPIONSHIPS

June 17, 18, 19, 1986
At Niagara Falls International Convention Center Arena
Niagara Falls, New York



Sponsored by:
National Free Flight Society
National Indoor Model Airplane Society

Sanctioned AAAA by AMA
Category III
(Ceiling is 72')

	8 AM	9	10	11	NOON 12	1	2	3	4	5	6	7	8 PM
JUNE 17, 1986 TUESDAY	HAND	LAUNCHED GLIDER					F1D				OFN/	AUTOG/	BOSTON
							AMA	STICK					
											SPEED		
JUNE 18 WEDNESDAY		PP/NPH/MANH						F1D					
							ROG	CABIN					BANQUET
JUNE 19 THURSDAY		EASY B/INTER.STICK						PEANUT/AMA SCALE					
								GRAND PRIX					

SPECIAL instructional classes for TUBE ROLLING/FLIGHT ADJUSTING/ETC, will be held during the meet. See bulletin board for times, subject and lecturer.

NOTE: OPEN EVENTS WHICH HAVE LESS THAN 4 ENTRIES WILL BE CANCELLED!

F1D -NOT IN ROUNDS

NOTE: All models for scale judging are to be submitted by 9:00 a.m. June 18 or earlier (along with documentation and name of contestant).

All Senior and Open Flyers will be required to time flights and assist as called upon (be happy and VOLUNTEER!) Bring your own stopwatch.

On Monday, June 16 at 12:00 Noon to 5 PM, AMA and the USIC operation have joined efforts to promote a Delta Dart program with approximately 200 children. There is a need for 30 "instructors", (that's you!) Please volunteer and help tomorrow's modelers get started on 6/16/86.

NOTE: FOR DETAILS OF THE MIAMI PEANUT GRAND PRIX, SEND A LARGE SASE TO: Dr. J. Martin, 2180 Tigertail Ave. Miami, FL 33133

ENTRIES MUST BE POSTMARKED BY MAY 8, 1986- LATE FEE \$10.00 PAYABLE ON SITE.

(Ceiling- 72', Floor- 260'x310')

NOTE: ALL 1986/1987 AMA RULES APPLY. All rule change "proposals" DO NOT apply!

**CHAIRS AND TABLES WILL BE AVAILABLE
BRING YOUR OWN BALLOONS
(HELIUM AVAILABLE)**

Contest Directors:

H. Brodersen, A. Italiano
D. Lindley, C. Sotich
G. Wisniewski

BANQUET -WED. JUNE 18, 1986 - 8.00 p.m.

\$12.00 Per Person

BANQUET SPEAKER -- JACK BEILMAN

NO FAULT INSURANCE: Check your model before you come to the contest-- disqualified if your out of dimension model is due to lack of self discipline.

DOORS OPEN AT 7.00 A.M. FOR PRACTICE FLYING

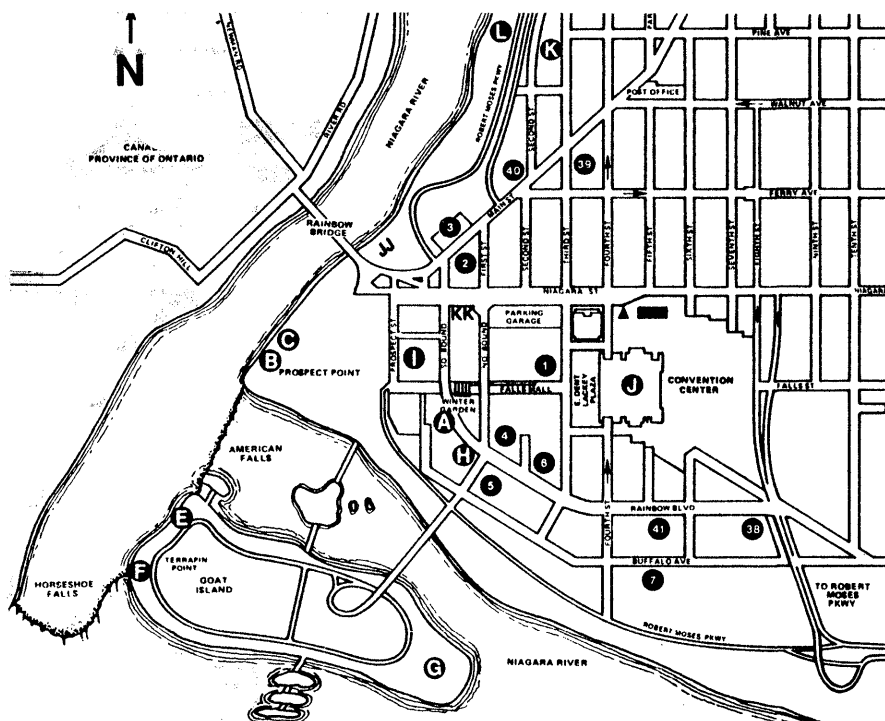
AWARDS TO 3rd PLACE		Includes One Event	Each Addl. Ev
OP	NFFS AND NIMAS MEMBER	\$12.00	\$4.00
	NON NFFS AND NIMAS MEMBER	\$30.00	\$5.00
JR		\$4.00	\$2.00
SR			

All entries must be AMA Member or their countries' governing body (contestant provides proof).

Send your entry payable to:

**USIC
1655 Revere Drive
Brookfield, WI 53005**

(414) 782-6256 (after 7 p.m.)



DOWNTOWN CONVENTION COMPLEX

▲ VISITOR INFORMATION
Welcome Center

■ BUS TERMINAL
Open Summer 1985

ATTRACTIONS

Shopping areas are shaded

- A. Turtle - Native American
- B. Prospect Point & Observation Tower
- C. Maid of the Mist
- K.K. Rainbow Centre Shopping Mall
- E. Cave of the Winds
- F. Terrapin Point

- G. Hellpoint
- H. Artisans Alley
- I. Niagara Wax Museum
- J. Convention Center
- K. Aquarium
- L. Schnettkopf Geological Museum
- JJ. Ammex Duty Free Shop

HOTELS AND MOTELS

- 1. Niagara Hilton Hotel
- 2. Quality Inn Intown
- 3. Howard Johnson's Motor Lodge
- 4. Hotel Niagara
- 5. Holiday Inn
- 6. Travelodge
- 7. Ramada Inn
- 38. Waldorf Niagara
- 39. Coachman Motel
- 40. Uptowner Motel
- 41. Rainbow Guest House

BOSTONIAN RULES:

- Maximum projected wingspan(s) 16" and chord(s) 3".
- Maximum propeller diameter 6".
- Maximum overall length w/o prop is 14".
- Minimum weight w/o motor(s) 7 grams (bi-planes - 14 g).
- Fuselage contains a "box" 1 1/2 x 2 1/2 x 3" (min.).
- Longerons must support the motor(s) and form "box".
- Fixed landing gear, two or more rotating 3/4" dia. min. wheels - model must ROG.
- Must have a windshield and a window on each side with min. of 1 sq. in. each.
- Charisma factor: Judge rates model on appeal to him, construction neatness, scale like details, uniqueness, etc. A 1.0 to 1.2 rating is used.
- Seven official flights over 20 seconds, total in full seconds of the best two flights multiplied by the charisma factor determines winner basis.

UNLIMITED RUBBER SPEED (BrokenSpar Event)

- Models must be rubber powered and propeller driven.
- Models must start from an unassisted ROG launch from a three-point sitting position.
- Model to be timed for two complete laps around two pylons set 20 feet apart.
- Flights will be disqualified if the model touches the pylon or ground after crossing the starting line.
- The timer will stand in line with the two pylons. Timing starts when the model crosses the line determined by the two pylons and ends when it crosses the line after completing two laps.
- Shortest time for two full laps determines winner.
- No limit to the number of models or launches.

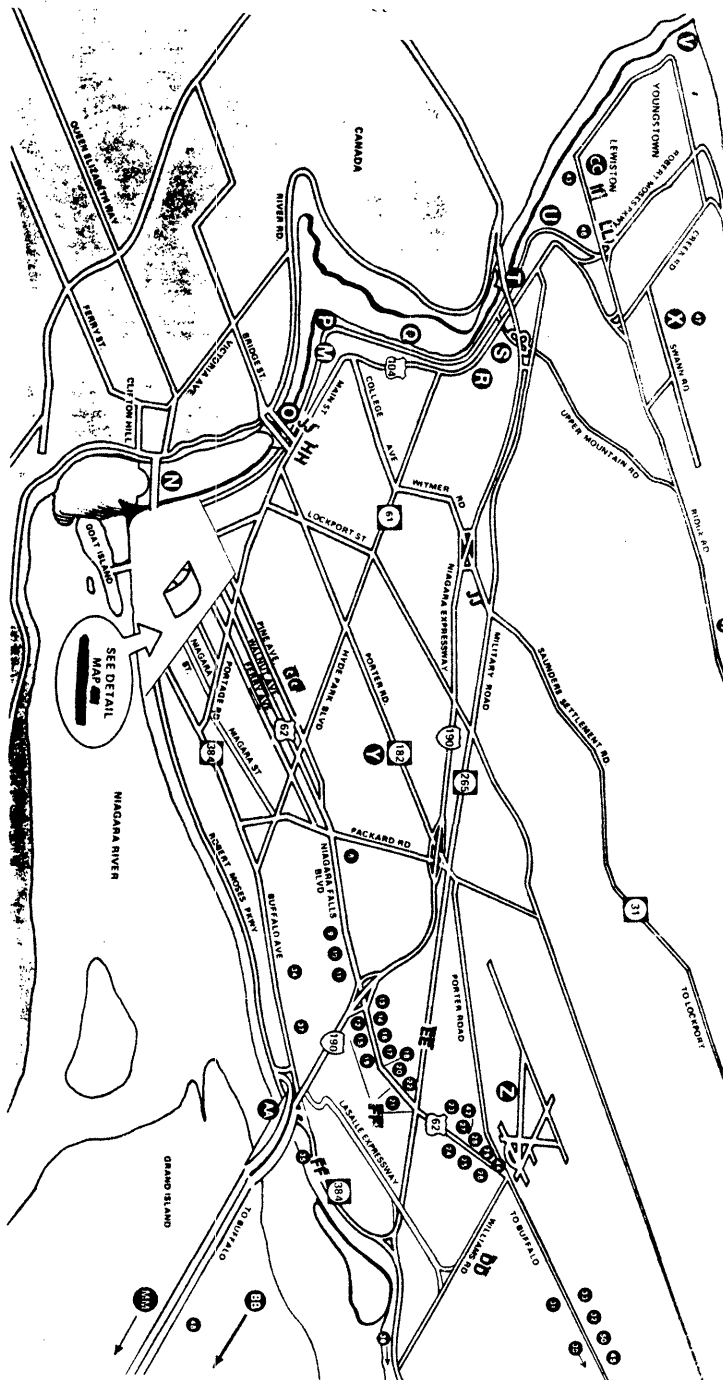
PEANUT SPEED

The Unlimited Rubber Speed rules apply except:

- The models are limited to Peanut Scale models.
- The models' scores will be the time in seconds for the model to fly two laps.
- The lowest time will determine the winner.

	JR	SR	OP
A W HLG	X	X	X
PAPER STICK	JR. & SR. (COMBINED)		X
ROG CABIN			X
FLD			X
EASY B	JR. & SR. (COMBINED)		X
PENNY PLANE	X	X	X
NOVICE PP	X	X	X
MANHAT.			X
BOSTONIAN			X
INDOOR STICK	JR. & SR. (COMBINED)		X
PEANUT SCALE	JR. & SR. (COMBINED)		X
AMA SCALE			X
PEANUT SPEED			X
UNLIMITED SPEED			X
ORNIHOPTER			X
AUTOGIRO			X

CASH PRIZES ONLY



GREATER NIAGARA FALLS AREA

HOTELS AND MOTELS

- ATTRACTIONS**
- M. Buechle-Casellani Art Gallery
 - N. Rainbow Bridge
 - O. Whirlpool Rapids Bridge
 - P. Whirlpool State Park
 - Q. Devil's Hole
 - R. Niagara University
 - S. Power Project Visitor Center
 - T. Lewiston-Queenston Bridge
 - U. Artpark
 - V. Old Fort Niagara
 - W. Four-Mile Creek State Park
 - X. Fatima Shrine
 - Y. Hyde Park Golf Course/Tennis
 - Z. Niagara Falls Airport
- SHOPPING AREAS**
- AA. Grand Island (Grand Island)
 - BB. Fantasy Island (Grand Island)
 - CC. McDonald's Frontier House
 - MM. Shea's Buffalo Theatre
- SHOPPING AREAS**
- DD. Summit Park Mall
 - EE. Factory Outlet Mall
 - FF. LaSalle Business District
 - GG. Pine Ave. Business District
 - HH. Main St. Business District
 - II. Lewiston Business District
 - JJ. Amherst Duty Free Shop
 - KK. Rainbow Centre Shopping Mall
 - LL. Lewiston Landina Country Store
- ROUTE 384**
- 23. Niagara Falls Motel
 - 24. Herwood's Motel
 - 25. Sands Motel
 - 26. A Star Motel
 - 27. Bel Air Motel
 - 28. Castle Motor Inn
 - 29. Bu O Park Motel
 - 30. Seafire Motel
 - 31. Duffwood Motel
 - 32. Equine Motel
 - 33. Summit Park Court Motel
 - 34. Caravan Motel
 - 35. Niagara Falls Motel
 - 36. Niagara Falls Motel
 - 37. Hobbes Travellers Lodge
 - 38. New Daisy Barn (campgrounds)
- CAMPGROUNDS**
- 34. Falls Motel
 - 35. Best Western Red Jacket
 - 36. Anchor Motel
 - 37. Hobbes Travellers Lodge
 - 38. New Daisy Barn (campgrounds)

These accommodations are at a special rate for USIC. When making reservations with these hotels/motels, you must mention USIC and the special rate will then be applicable.

		single	double	triple	quad
BEST WESTERN/RED JACKET INN	7001 Buffalo Ave Niagara Falls, NY 14303 (716) 283-7612	\$47.00	\$53.00	\$59.00	\$65.00
HOLIDAY INN	114 Buffalo Ave Niagara Falls, NY 14303 (716) 285-2521	\$54.00	\$60.00	\$66.00	\$72.00
TEL NIAGARA	201 Rainbow Blvd Niagara Falls, NY 14303 (716) 285-8240	\$52.00	\$57.00	\$65.00	\$73.00
NIAGARA HILTON	Third at Rainbow Mall Niagara Falls, NY 14303 (716) 285-3361	\$55.00	\$65.00	\$75.00	\$85.00
QUALITY INN	443 Main St. Niagara Falls, NY 14301 (716) 284-8801	\$52.00	\$57.00	\$65.00	\$73.00
RAMADA INN	401 Buffalo Ave Niagara Falls, NY 14303 (716) 285-2541	\$44.00	\$50.00	\$56.00	\$62.00

Also, special rates at these Inns:

Thundering Water Inn
5919 Niagara Falls Blvd.
(716) 283-9874

Castle Motor Inn
9802 Niagara Falls Blvd.
(716) 297-3730

Double bed- 2 person - \$24.00 + tax (extra person @ \$.3.00).
2 Double beds- 2 persons - \$29.00 + tax (extra person @ \$3.00)

(SEE OTHER SIDE)

A special Sightseeing Tour has been arranged for your visit to Niagara Falls. You will be picked up at the Niagara Falls Convention center at 9AM, tour the Falls on the American side, take a ride on the famous Maid of the Mist boat at the base of the Falls, travel down the Niagara River to the power vista and go through Fort Niagara at the mouth of the Niagara river. Now you will cross over the Queenston Lewiston Bridge to Canada, travel to Brooks Monument and Queenston Heights, one of the most historic sights in North America. Here you stop for lunch at the Park Restaurant, overlooking the lower Niagara River, continue up along the Canadian shore to the Floral Clock, Arco Car, whirlpool rapids and arrive at the brink of the Horseshoe Falls, in Queen Victoria Park. After touring the park you will go to the Thundering Waters of the Falls, and back across the Rainbow Bridge to your starting point at 4 PM. This deluxe tour includes admissions to Maid of the Mist ride, entrance to Fort Niagara and the Minolta Tower. Lunch at Queenston Heights is not included in Package. Net cost per person \$18.00 US ds. This tour will be on Tuesday, June 17, 1986. Reservations and payment are required by May 8, 1986.

A delightful change of pace describes a one day shopping trip to the most beautiful city in North America, TORONTO, ONTARIO CANADA. You will take an express bus from Niagara Falls direct to Toronto and the fabulous Eaton shopping center in the heart of downtown Toronto. You will be returned by express bus back to Niagara same evening. Besides the wonderful time you will experience an exchange rate of \$1.37 Canadian for each \$1.00 American. Cost to you for round trip \$16.95, US funds. Reservations required in advance. This trip will be available on Monday, June 16th only. Payment required with reservation. This offer is not available beyond 8, 1986.

FIFTH UNITED STATES INDOOR CHAMPIONSHIPS

June 17, 18, 19, 1986

Niagara Falls International
Convention Center Arena



Please Print

Name _____ AMA NO. _____
Last First Initial

Street _____

City _____ State _____ Zip _____

I hereby certify that I understand all of the rules under which I will compete and will diligently follow the official AMA safety code as well as any that may be established on site as well as apply the use of good accepted common sense in all my flying and affairs at the contest site.

JUNIOR _____ SENIOR _____ OPEN _____

Signature _____

CIRCLE EVENTS ENTERED

		Includes One Event	Each Additional Event
Open	NFFS or NIMAS Member	\$12.00	\$4.00
	Non NFFS and NIMAS Members	\$30.00	\$5.00
Junior Senior		\$4.00	\$2.00

1. Hand Launched Glider (All Wood)
2. Paper Stick
3. ROG Cabin
4. FID
5. Easy B
6. Pennyplane
7. Novice Pennyplane
8. Manhattan
9. Bostonian
10. Indoor Stick
11. Peanut Scale
12. AMA Scale
13. Peanut Speed
14. Unlimited Speed (Broken Spar Event)*
15. Ornithopter
16. Autogiro

BANQUET- No. of res. @ \$12.00 _____

NIAGARA FALLS TOUR- No. of res. @ \$18.00 _____

TORONTO TOUR- No. of res. @ \$16.95 _____

I VOLUNTEER TO INSTRUCT DELTA DART _____

In case of emergency please contact:

CASH AWARDS 13. Peanut Speed
14. Unlimited Speed (Broken Spar Event)*
15. Ornithopter
16. Autogiro

*Sponsored by Hardy Brodersen
\$5 per each m.p.h. over 6 m.p.h. to winner only (\$100 max.)

Check for \$ _____ is enclosed

NAME _____ PHONE _____

STREET _____ CITY _____ STATE _____ ZIP _____

Send fees payable to:
USIC
1655 Revere Drive
Brookfield, WI 53005

Contest Sponsors:
National Free Flight Society
National Indoor Model Airplane Society

Must be postmarked by May 8, 1986
Late entry fee of \$10.00 payable on site.

NOTE: You can join NFFS or NIMAS and
AMA on premises.

INTERMEDIATE STICK RECORDS

Judging by recent record applications there seems to be some misconception about Intermediate Stick and records. The Paper Stick records in effect as of December 31, 1985 became the Intermediate Stick records on January 1, 1986, since all Paper Stick models fit the Intermediate Stick rules. The fact that my notification of this to headquarters was not in writing until March is the reason that the spring record listing did not reflect the name change. The July issue of Model Aviation has an accurate listing for Intermediate Stick.

R.O.G. STICK

Bob Underwood (A.M.A.'s new Technical Director) was given the job of revising the contest calendar listing and sanction forms to provide for consistent event numbering to be used on all associated paperwork. This was a huge job and it was inevitable that some mistakes would creep in. Unfortunately R.O.G. Stick was one of those and it does not appear on sanction applications or in the contest calendar listing or in the rulebook Table of Contents. It has been assigned #214 and it will appear in revised forms shortly. The omission was simply an oversight.

CONTEST CALENDER

CALIFORNIA- SAN DIEGO

San Diego Orbiteer's indoor flying after monthly business meeting on 2nd Friday of each month and also on 4th Friday of each month. Start 7:30 pm at Colina Del Sol Community Center, 5319 Orange Av. Contact Program Chairman Don Munn.

CALIFORNIA - TUSTIN

FAI Indoor team selection contests in Hanger #1 on Tustin M.C.A.F. the first weekend of each month. CAT IV. To gain admittance to the base, contact Curt Stevens, 25108 Marguerite Pwy, #B-160, Mission Viejo, CA 92692 or (714)586-5779.

LOUISIANA - LAKE CHARLES

A.M.A. INDOOR NATS on Tuesday, July 29 through Thursday, July 31. See new Indoor schedule on cover of this issue and article on page 2. See Model Aviation for more info on other details.

NEW YORK - NIAGARA FALLS

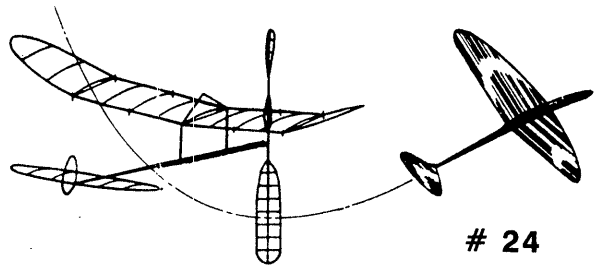
FIFTH UNITED STATES INDOOR CHAMPIONSHIPS at Niagara Falls Convention Center on June 17-19, 1986.

OHIO - AKRON

FAI Indoor Team Selection contests and Record Trials in Goodyear Airdock, CAT IV, third weekend in May, July 4th weekend, & Labor Day weekend. You must contact CD in advance, Bill Hulbert, 174 Castle Blvd. Akron, OH 44313 or (216)864-8030.

INDOOR

NEWS and VIEWS



Editors: Richard & Melody Doig - 6 Canary Hill Drive, Pontiac, MI 48055 (313) 373-5374

!! INDOOR NATS SCHEDULE CHANGED AGAIN !!

HAND LAUNCH GLIDER MOVED TO THURSDAY SCALE JUDGING MOVED TO CHENNAULT

ALL OTHER EVENTS UNCHANGED - SEE BACK PAGE (DOMESTIC ISSUES ONLY)

FIFTH UNITED STATES INDOOR CHAMPIONSHIPS

Niagara Falls, N.Y. June 17-19, 1986

HAND LAUNCH GLIDER - JR

1. D. Slusarczyk 63.4

HAND LAUNCH GLIDER - OP

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

HAND LAUNCH STICK - JR/SR

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

HAND LAUNCH STICK - OP

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

ORNITHOPTER

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

AUTOGIRO

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

UNLIMITED RUBBER SPEED

1. R. Higgs 14:55
2. C. Markos 10:12
3. J. Voorhees 9:88
4. C. Slusarczyk 8:14
5. H. Phillips 6:02
6. W. Henderson 5:46
7. H. Stewart 5:10

PEANUT RUBBER SPEED

1. J. Martin 17.11

INTERMEDIATE STICK - JR/SR

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

INTERMEDIATE STICK - OP

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

EASY B - JR/SR

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

EASY B - OP

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

R.O.G. CABIN

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

* New records set.

FAI INDOOR (F1D)

At-large
Regional
Points

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

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

BOSTONIAN

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

A.M.A. SCALE

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

PEANUT SCALE

Subject	Flight Scale	Ave. Points	Total
1. J. McGillivray	SE 5	94.85	28.65
			106.425
2. J. Miller	Santos 14	89.95	23.8
	Bis		107.1
3. D. Steeb	Fike E	92.25	20
			92.25
4. K. Fulmer	Lacey M 10	90	20
			90
5. K. Groves	Fike Dream	76	19
	E		76
6. J. Kortenbach	Langley	47.95	22
	Aerodrome		99
7. J. Martin	Voisin	43.5	21
	Hydroplane		94.5
8. D. Steeb	Wright Flyer	23.9	24.5
			110.25
9. L. Garber	Lacey M 10	64.8	18
			64.75
10. W. Henderson	Piper Pawnee	38.25	18
	Brave		81
11. J. Martin	Ambrosini	63	16
	SAI 207		56
12. D. Barber	Fred	47.1	16
			64
13. L. Leifer	Volksplane	53	18
	VPI		54
14. J. Kortenbach	Neuport 11	17.05	18.5
			64.75
15. H. Stewart	Bode BD 4	24.1	13
			52

NOVICE PENNYPLANE - JR

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

NOVICE PENNYPLANE - OP

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

PENNYPLANE - JR

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

PENNYPLANE - SR

1. R. Skrjanc	7:55
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PENNYPLANE - OP

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

MANHATTAN CABIN - OP

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



Column 1, photo 1: Hal Stewart, Jack Brown, & Ken Groves doing final assembly during AMA Cub session for 200 area school children.

1-2: Larry Loucka, Rich Doig, & Jack McGillivray surrounded by some of the 200 youngsters. Only 2 bottles of Super Glue.

1-3: Larry Loucka with Intermediate Stick.

2-1: Dan Belieff winds AMA Stick model. Higgs, Doig, & Belieff all broke site record.

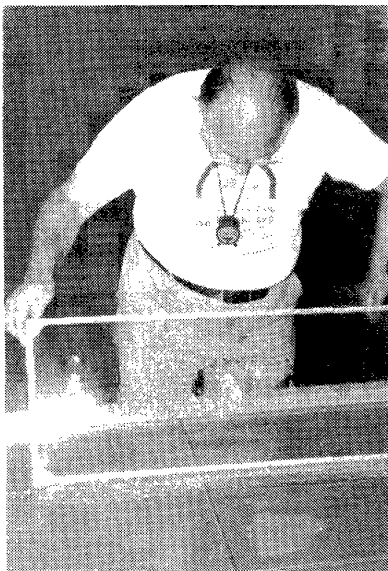
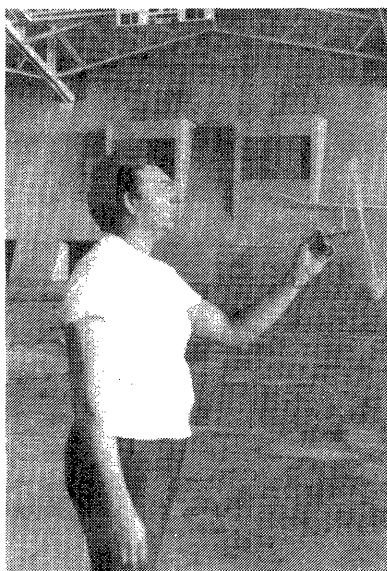
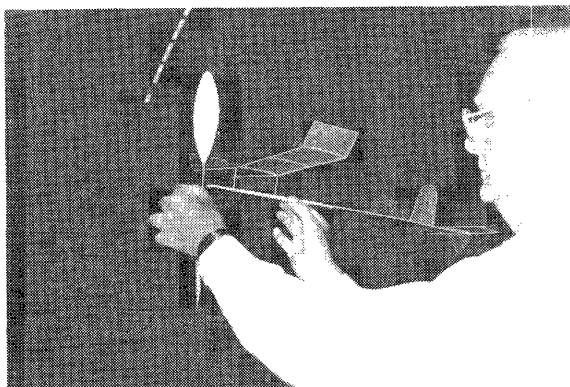
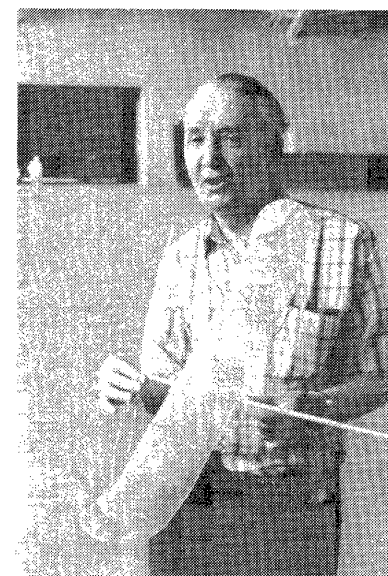
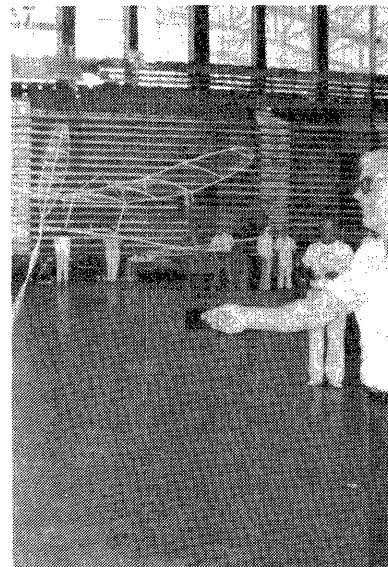
2-2: Gerry Nolin with winning Easy B (record model with new larger prop).

2-3: Rich Doig covering stab during microfilm pouring and covering demonstration.

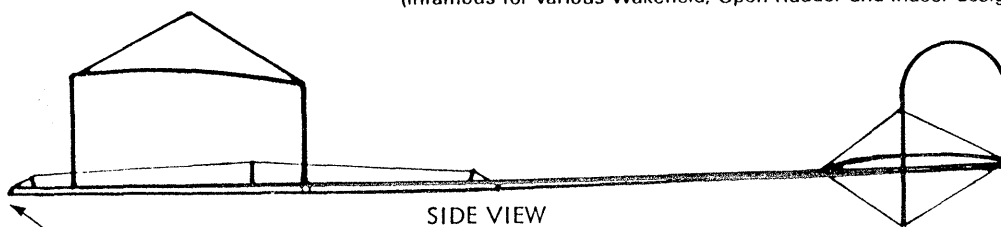
3-1: Ron Ganser's AMA Stick model sported a Variable Pitch Prop similar to Higgs'.

3-2: 1972 World Champion, Pete Andrews with Intermediate Stick model.

3-3: Under Rich Doig's direction John Voorhees lifts his first sheet of microfilm. "Hey, this is easy."



Free spirit holds the World Record for F1D category 1 (ceiling less than eight metres). A novel variable pitch prop is used. This was developed by Ron from original concept by Mike Thomas (infamous for various Wakefield, Open Rudder and Indoor designs).



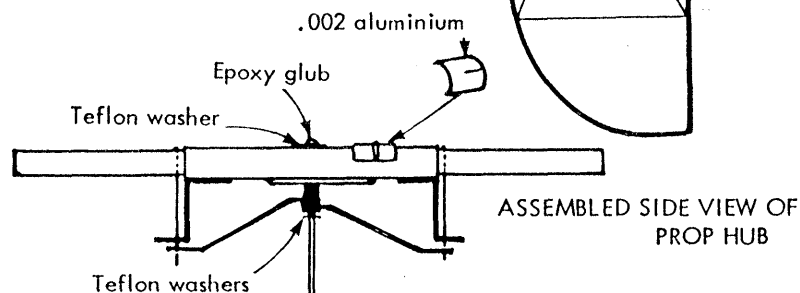
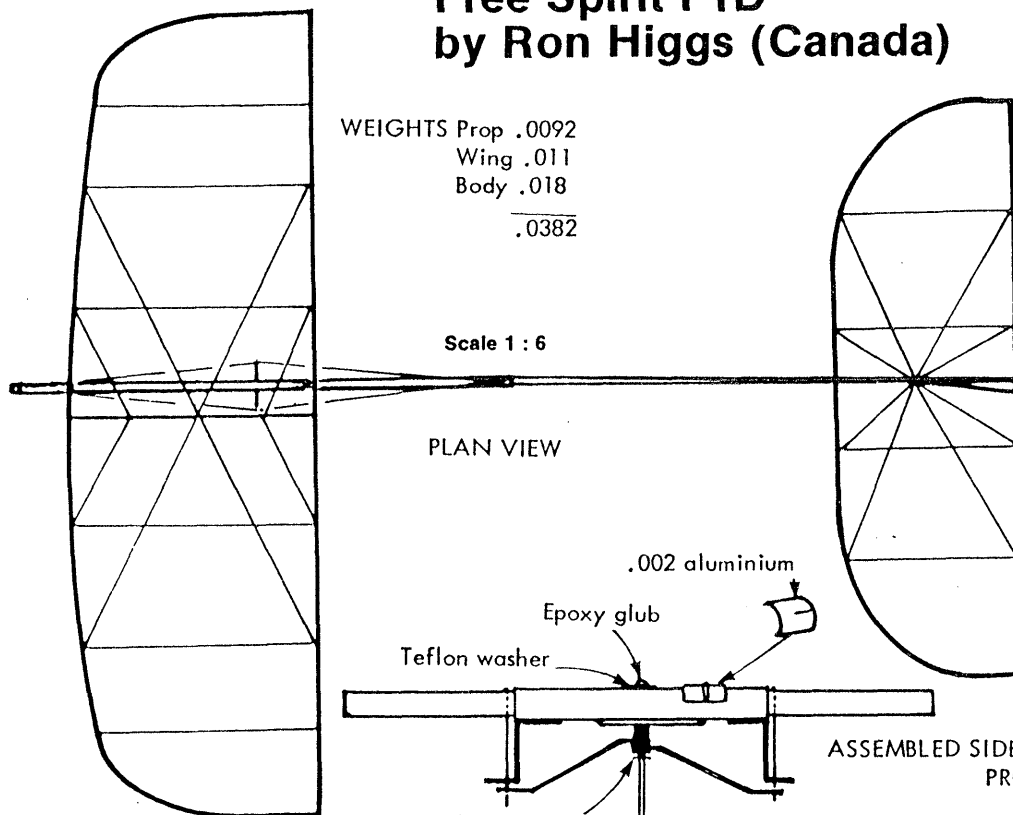
Propeller 22.25" dia., variable pitch
(see below)

Free Spirit F1D by Ron Higgs (Canada)

WEIGHTS Prop .0092
Wing .011
Body .018

 .0382

Scale 1 : 6



.002 aluminium

Epoxy glub

Teflon washer

Teflon washers

.013 prop shaft

.014" hole

Bell opening

Pivot tube

Chamfer edges

Centre tube

Balsa plug

Glue

.008" wire

25" .25" .25"
.75"

.31" .75"

.085" i.d.

.012 aluminium

Keeper

Spring

.17"

.009" wire

.128" .08"

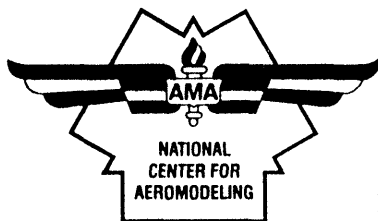
Gap to give 14"
pitch change

NOTE: Pivot and centre tubes are .004" thick
wall of paper.

Tubes to be a slip fit (without binding)
Prop shaft, torsion arm and spring are
soldered together

.011" wire

Torsion arm



1810 Samuel Morse Drive
Reston, Virginia 22090
703-435-0750

ACADEMY OF MODEL AERONAUTICS

TO: NATS Indoor Competitors
FROM: Richard Doig, NATS Indoor CD
DATE: July 10, 1986
SUBJECT: NATS Indoor Schedule Revision

Due to a relatively low number of advance entries in Indoor (only 28 as of July 9, 1986) and a high site rental, the Indoor events have been condensed into two days. The events will still be flown at the Lake Charles Civic Center. The events schedule is as follows:

Tuesday, July 29	Wednesday, July 30	Thursday, July 31
8 am	A.M.A. Scale Peanut Scale	Hand Launch Glider - all wood only
9 am		
10 am		
11 am		
12 noon		
1 pm	Easy B Intermediate Stick	Novice Pennyplane } enter Pennyplane } one only
2 pm		
3 pm		
4 pm		
5 pm		
6 pm Scale judging at NATS HQ -	FAI Indoor (F1D) Hand Launch Stick	Manhattan Cabin FAI Indoor (F1D) R.O.G. Cabin
7 pm 7 pm turn in deadline		
8 pm		
9 pm		
10 pm		
11 pm		
12 pm		

AMA Scale and Peanut Scale judging is at the same time, Tuesday, July 29 from 5 pm until they are finished (7 pm turn in deadline) only the location is changed to NATS Headquarters - Chenault Air Base gym.

You will note that the only change is moving Hand Launch Glider to Thursday morning and the unofficial events do not have their own time slot now. Unofficial events will be flown with other comparable events, see schedule at indoor site.

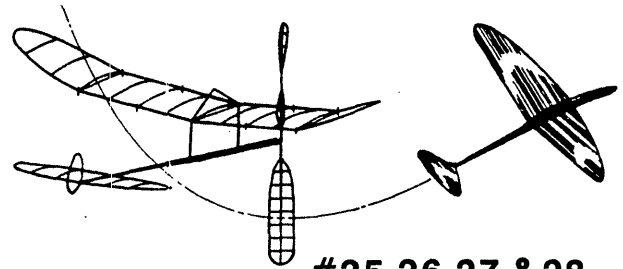
We are sorry for the short notice and inconvenience caused anyone, but the only other alternative was cancelling indoor which we really did not want to do.

This letter was mailed to all advance entrants and Nats workers. The bottom line is this. The change will save AMA about \$1,100 additional rent. Vince Mankowski was almost certain that without the change, the steering committee would turn thumbs down and cancel Indoor. With only 14 advance entries in Hand Launch Glider, this seemed a good compromise.

INDOOR

NEWS and VIEWS

Editors: Richard & Melody Doig - 6 Canary Hill Drive, Pontiac, MI 48055 (313) 373-5374



#25,26,27,&28

RESULTS FROM 1986 INDOOR WORLD CHAMPIONSHIPS

Contestant		1	2	3	4	5	6	TOTAL (BEST 2)
1. Jim Richmond	WCH	41:05	32:15	45:54	17:51	47:44	-	93:38
2. Cezar Banks	USA	41:36	13:06	41:37	45:48	3:58	1:40	87:25
3. Pentti Nore	FIN	30:35	41:36	44:01	7:36	8:38	-	85:37
4. Bob Randolph	USA	41:40	34:17	39:36	43:17	1:09	1:33	84:57
5. Dezső Orsovai	HUN	31:20	40:36	43:37	-	24:04	-	84:13
6. Dave Pymm	GB	19:02	41:57	42:03	38:00	-	0:53	84:00
7. Thedo André	NL	32:59	39:19	44:01	21:25	9:41	-	83:20
8. Dieter Siebenmann	CH	38:08	11:48	42:33	20:00	27:04	-	80:41
9. Bernard Hunt	GB	17:25	13:42	41:27	37:00	-	8:29	78:27
10. András Ree	HUN	35:57	8:33	42:06	28:40	14:55	-	78:03
11. Otto Rodenburg	NL	32:22	36:27	37:34	40:11	-	0:04	77:45
12. Leif Englund	FIN	35:27	36:58	37:56	8:51	37:39	1:45	75:35
13. Rene Butty	CH	32:55	42:30	31:37	15:39	14:47	12:39	75:25
14. Aurel Popa	RUM	37:55	30:18	36:48	10:43	4:19	3:10	74:43
15. Edmund Liem	NL	36:34	37:47	36:41	26:08	6:21	-	74:28
16. Larry Cailliau	USA	34:01	19:33	39:16	11:36	3:02	0:46	73:17
17. Sylwester Kujawa	POL	35:10	30:05	37:54	32:18	-	6:37	73:04
18. Edward Ciapala	POL	25:11	35:03	37:55	23:48	16:51	1:01	72:58
19. Hideyo Enomoto	JPN	35:14	36:33	34:50	25:00	35:54	-	72:27
20. Peter Keller	CH	30:50	34:54	16:00	16:53	37:06	3:47	72:00
21. Bernard Aslett	GB	36:36	15:38	27:02	30:49	34:17	7:30	70:53
22. László Ree	HUN	35:12	35:27	28:36	33:35	28:24	2:18	70:39
23. Robert Champion	FRA	32:07	32:18	31:51	25:34	37:21	16:58	69:39
24. Nicu Bezman	RUM	33:42	33:24	34:28	22:08	-	-	68:10
25. Jørgen Korsgaard	DEN	18:39	31:40	36:19	-	18:05	4:14	67:59
26. Iztok Zagar	YUG	34:55	33:00	32:34	31:38	-	32:31	67:55
27T. Milan Mastnak	YUG	26:14	28:55	36:36	31:08	27:25	10:28	67:44
27T. Werner Nimptsch	GER	26:04	24:03	38:19	29:25	17:20	0:18	67:44
29. Kazumasa Kihara	JPN	25:11	29:52	37:00	15:07	16:56	1:39	66:52
30. Carlo Cotugno	ITA	32:39	33:06	32:54	25:59	-	-	66:00
31. Carl Schueler	CAN	36:18	29:15	8:06	21:30	2:06	6:08	65:33
32. Mike Thomas	CAN	29:11	32:02	31:35	0:18	13:53	0:09	63:37
33. Guy Cognet	FRA	25:35	33:08	30:26	19:41	1:28	0:57	63:34
34. Ryszard Czechowski	POL	26:45	7:27	26:01	36:19	15:19	16:08	63:04
35. Ron Higgs	CAN	27:04	-	6:29	34:26	21:56	14:57	61:30
36. Eduardo Grippo	ARG	29:38	26:37	30:58	14:34	16:38	0:11	60:36
37. Frank Dahlin	DEN	18:48	28:22	31:43	24:22	19:22	3:49	60:05
38. Jean-Marie Chabot	FRA	13:43	28:57	30:32	16:28	20:50	-	59:29
39. Oton Velunsek	YUG	28:57	26:37	30:06	13:34	9:48	0:54	59:03
40. Rainer Lotz	GER	35:17	20:37	19:15	22:50	8:16	8:00	58:07
41. Sven Pontan	SWE	28:15	27:44	14:43	21:29	-	11:27	55:59
42. Peter Comet	SWE	19:14	21:58	25:53	13:35	29:46	10:11	55:39
43. Nereo Begiatti	ARG	15:19	26:28	26:56	16:50	12:50	1:30	53:24
44. Aurel Moraru	RUM	12:33	15:30	37:15	10:39	12:40	-	52:45
45. Giacomo De Angelini	ITA	23:30	-	-	2:39	27:25	-	50:55
46. Bernd-O. Mieke	GER	7:04	24:52	25:25	13:33	3:22	-	50:17
47. Hugo Ernst	DEN	11:49	20:24	29:24	7:42	3:40	-	49:48
48. Ken'ichi Ohta	JPN	17:21	20:42	-	28:04	-	-	48:46
49. Cycilo Edmundo	ARG	26:30	15:33	22:02	8:40	-	0:30	48:32
50. Harro Erofejeff	FIN	1:24	1:28	26:14	14:16	-	2:57	40:30
51. Luca Masciullo	ITA	12:29	25:16	13:33	13:10	4:22	0:09	38:49

TEAM STANDINGS

1. United States (USA)	4:05:39	10. France (FRA)	3:12:42
2. Netherlands (NL)	3:55:33	11. Canada (CAN)	3:10:40
3. Great Britain (GB)	3:53:20	12. Japan (JPN)	3:08:05
4. Hungary (HUN)	3:52:55	13. Denmark (DEN)	2:57:52
5. Switzerland (CH)	3:48:06	14. Germany (GER)	2:56:08
6. Poland (POL)	3:29:06	15. Argentina (ARG)	2:42:32
7. Finland (FIN)	3:21:42	16. Italy (ITA)	2:35:44
8. Romania (RUM)	3:15:38	17. Sweden (SWE)	1:51:38
9. Yugoslavia (YUG)	3:14:42		

1986 INDOOR WORLD CHAMPIONSHIPS

The 1986 World Champs were held in Cardington, England, on August 23 & 24. The following report by Cezar Banks is a letter Cezar wrote to Bernard Aslett, for the publication FREE FLIGHT NEWS. Cezar offered it to us for publication as well...

Dear Bernard:

My apologies in not getting this off sooner. Herewith, my observations and comments on the '86 F1D Wch:

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

SECOND CONTEST DAY: The weather? Well, it was raining, windy and cold (it was pretty bad outside too!). Still, the fourth round air wasn't all that bad, spotty perhaps, but rewarding if you caught it just right. Bob Randolph (43:17) and I (45:48) both did for our best flights of the contest. Richmond folded a wing on steer during his fourth round and this set the stage for his fifth round heroics. I guess my biggest claim to fame was doing well enough in the fourth round to force Jim to fly at all the second day. And fly he did! His astonishing fifth round flight of 47:44 will have to go down in the lore of this hobby as one of its' most dramatic events. Collisions with obstacles, updrafts and downdrafts, severe side drift, turbulence, rain avoidance, more than three minutes of steering; this flight had it all. Lucky? Well, maybe, but as Jim has demonstrated so many times now, his models in his hands are superbly capable. Just awesome, and without that capability, it couldn't have happened - so there you have it. Meanwhile, the weather slowly continued to deteriorate until about mid fifth round when the storm really shifted into high gear and essentially wrote "paid" to the contest. When my turn to fly the fifth round came, I launched into a strong side

wind. The model clawed its way up to about 50 feet and then encountered a series of gusts that literally beat it slowly but relentlessly into the ground for a total of 3:58. Definitely not the way to catch Richmond. The sixth round was even worse. Picture team manager Bud Romak with a Kleenex tissue dabbing at half a dozen rain drops that found a home on my stab while I try to figure a launch pattern that will skirt the rain puddles and avoid the worst ground turbulence. All I needed was about 48 minutes to win. Ludicrous - right? And so it was - I fell short by only 46 minutes as the model never got over ten feet high before staggering into the concrete in under two minutes. And that was that. Another way to view the second day weather is to look at the distribution of flights with times over 30 minutes for the two days as shown below. Interesting - what?

DURATION (MIN)	1st CONTEST DAY			2nd CONTEST DAY		
	RND1	RND2	RND3	RND4	RND5	RND6
45 plus	0	0	1	1	1	0
40 - 45	3	4	8	2	0	0
35 - 40	11	7	13	3	4	0
30 - 35	11	12	12	6	1	1
TOTAL FLIGHTS						
OVER 30 MINUTES	25	23	34	12	6	1

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

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

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

GENERAL COMMENTS: This was my third Wch now and they seem to get better and tougher each time. Each presents its own unique set of problems and surprises. Absolute solutions are as elusive as ever and maybe that's what makes the game so fascinating. There was not yet much sentiment expressed for rules changes which tells me our present rules, although they may be arguable, are certainly durable. Conventional planform tractors are still the ships to beat. Tandems, biplanes and canards

1986 WORLD CHAMPS

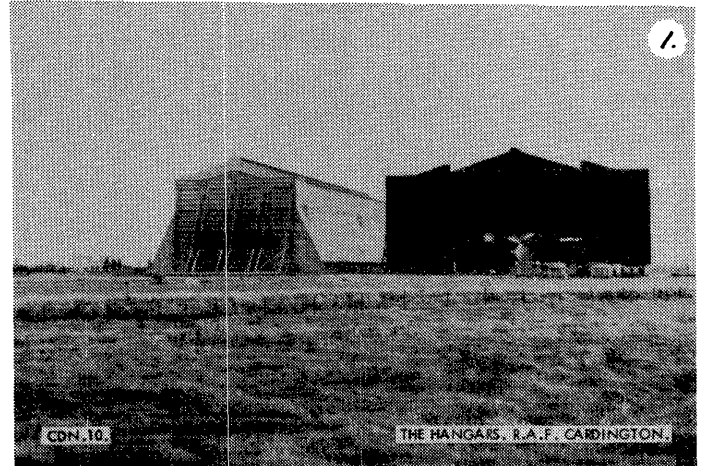
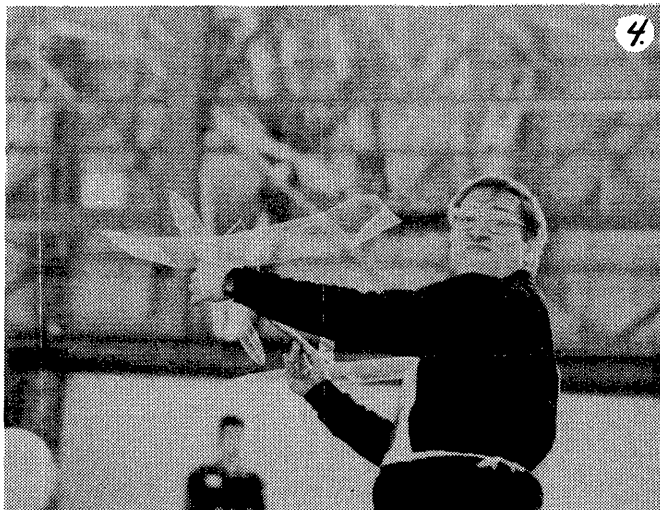
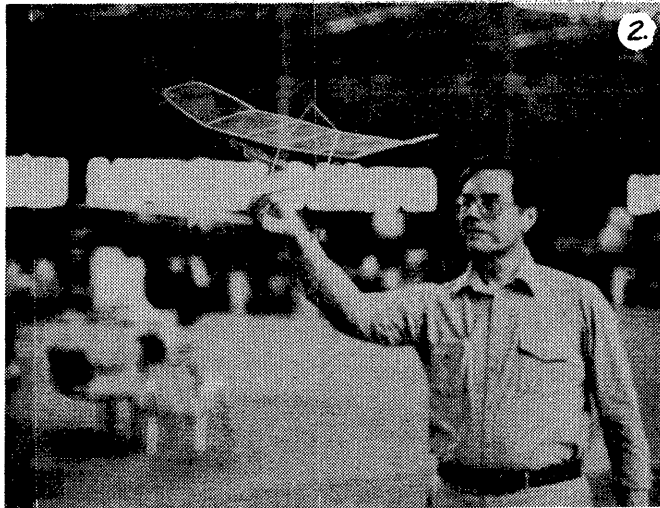
have not yet made the inroads sometimes projected for them although the jury is still out on variable geometry props. I myself, would like to see them outlawed for several reasons: 1) F1D could eventually become like F1A, B & C where incredibly complex and sophisticated gadgetry (almost none of it built by the flyer) is no longer a choice but a requirement; 2) These props tend to make record keeping by height categories meaningless; and 3) I think our hobby is purer art form without them. I realize these thoughts could be construed as "resisting progress" and I recognize the penchant of many modelers to develop "new things". I just think we should look down the road and carefully consider what direction we want our hobby to take. Well, so much for that. Besides, if we really want something to worry about in Indoor, worry about the vanishing supply of decent Pirelli. Now, there's a problem!

Sincerely,

Cezar J. Banks

2. Jim Richmond (USA) four time Indoor World Champion with "Film Flam 1986".

4. Bernard Hunt (GB) looks like he is about to launch Wakefield (F1B). Long motorstick of "Big Square" results in this launch position.

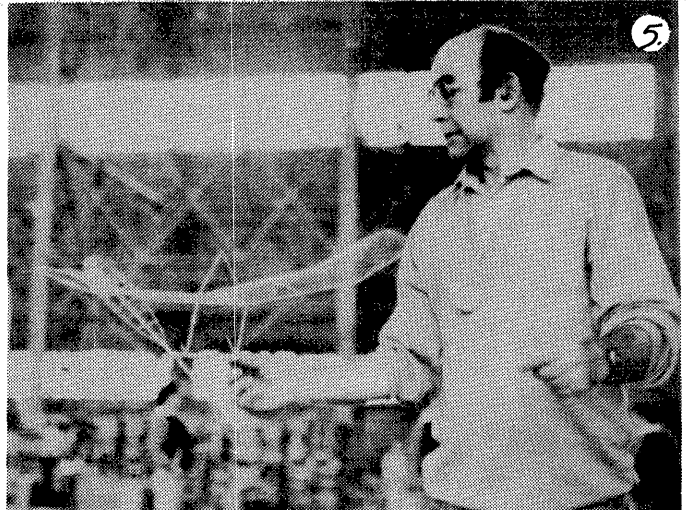


1986 WORLD CHAMPS

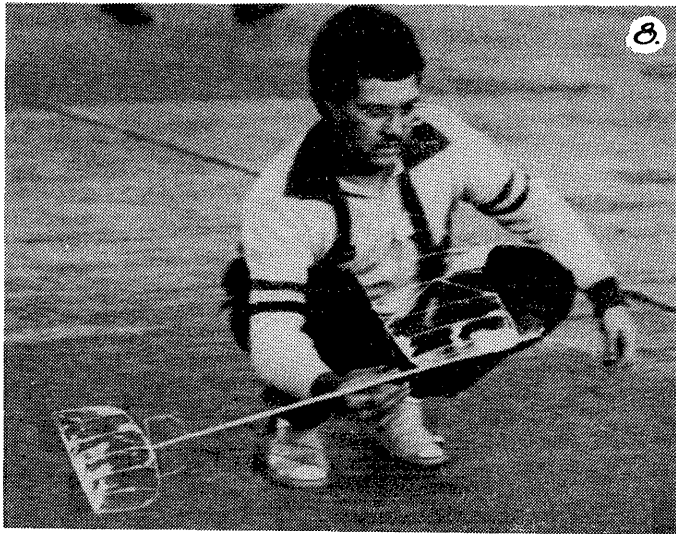
All Indoor World Champs photos are from Warren Williams including #1 which is a postcard he sent from England, of the Cardington airsheds.

3. Edward Ciapala (POL) perennial team member placed 18th.

5. Dave Pymm (GB) with "#20", top British flier placed 5th.



1986 WORLD CHAMPS



6. US Team Manager Bud Romak helps Cezar Banks (USA) when Banks' thrust bearing came unglued.

7. Who is this? Wearing French team jacket.

8. Rainer Lotz (GER) his model "Joker" needed all the altitude he could get.

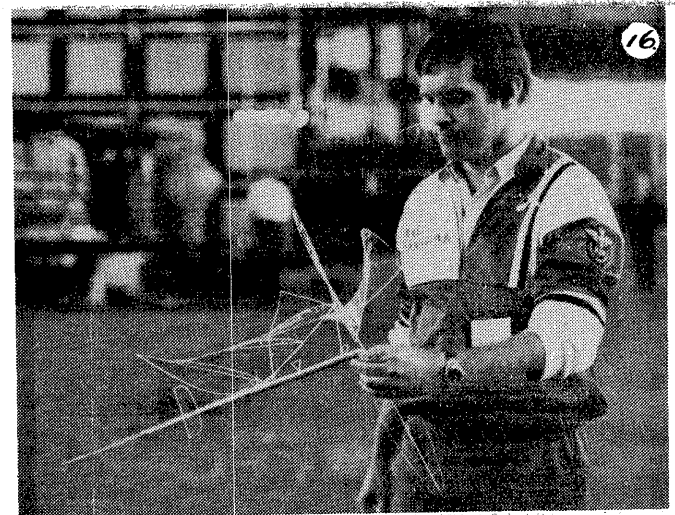
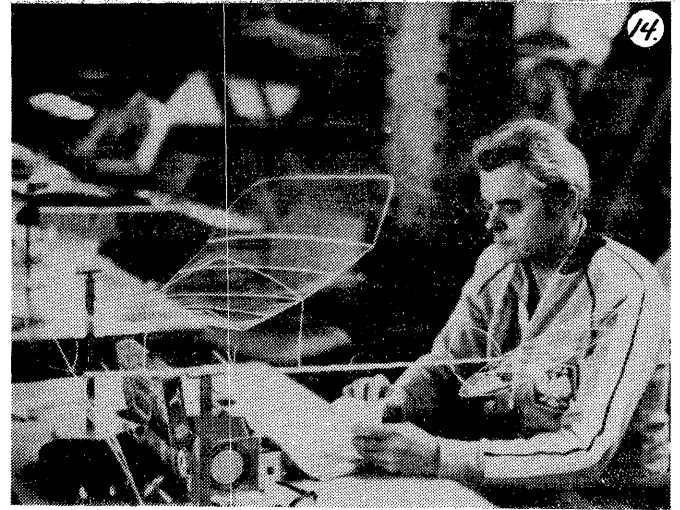
9. Dieter Siebenmann (CH) placed 8th.

10. Mike Thomas (CAN) watches as Edward Ciapala repairs Mike's model "Brutus" which Edward damaged with a steering pole.

11. Ciapala tries a high altitude launch.

12. Mastnak Milan (YUG) with "Sleepless", did the name come from many sleepless nights designing and building it?

1986 WORLD CHAMPS



13. Larry Cailliau (USA) concentrates as he launches his model.

14. Sylwester Kujawa (POL) studies his notes between flights.

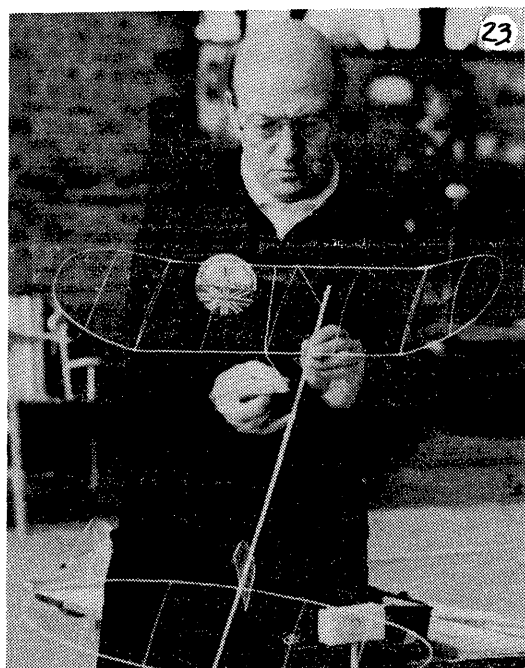
15. Leif Englund (FIN) with model "Joy 25".

16. Jørgen Korsgaard (DEN) with collapsed wing just before he went to launch model.

17. Dezső Orsovai (HUN) looks on as András Ree (HUN) launches "R 65/11" model.

18. Bernard Aslett (GB) finished 21st.

1986 WORLD CHAMPS



19. Edmund Liem (NL) selects prop to use on "Festina Lente II" (Make Haste Slowly).

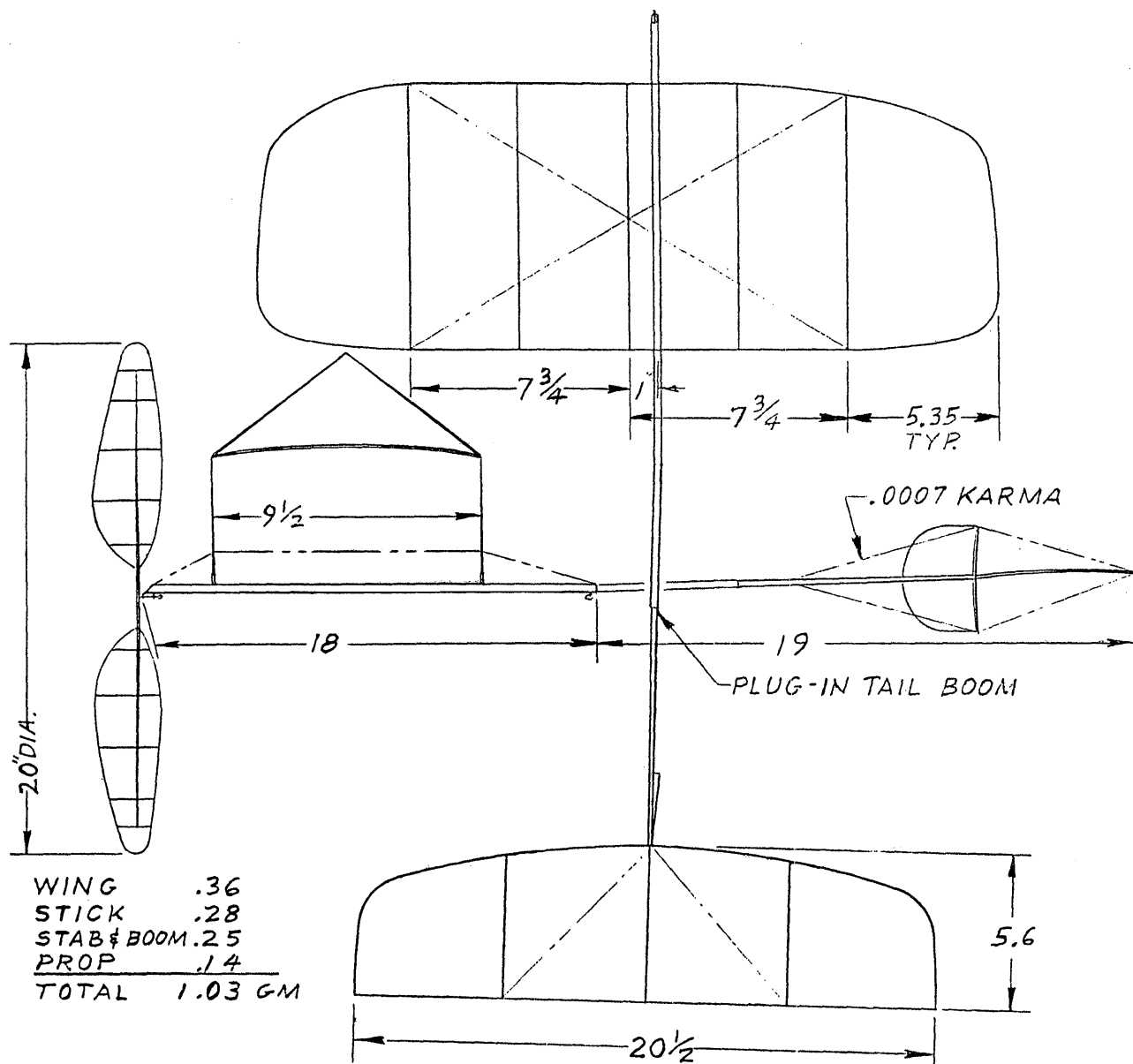
20. Thedo André (NL) adjusts thrust bearing.

21. Bob Randolph (USA) smiles his way to 4th place with current version of "Top Cat".

22. Victorious USA team of Banks, Randolph, Cailliau, & Romak.

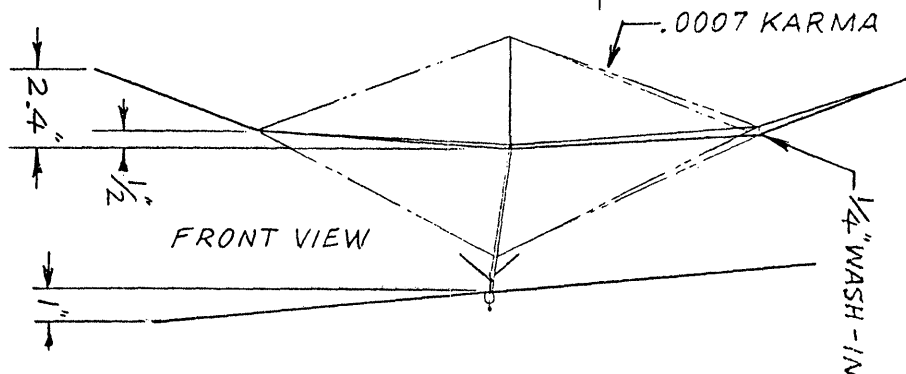
23. Bernard Aslett (GB) carefully assembles model.

24. This photo of Cezar Banks (USA) is Warren's comment on the weather conditions at Cardington. The umbrella is the result of darkroom trickery. This is the beginning of his 45:48 flight which he had to protect with an umbrella after the flight landed.



FILM-FLAM FAI by Jim Richmond

This is the version of "Film Flam" Richmond flew in the 1986 World Championships. It used a 20 in by 36 in pitch conventional prop.



KORSGAARD 1986 INDOOR WORLD CHAMPS PLAN BOOK

We have received our copy of Jørgen Korsgaard's FAI F1D plans book and as with his other publications it is top notch. It includes the 1986 Indoor World Champs program and the F1D model plans of 40 of the participants. The book costs \$5 U.S. and is well worth the price. Order from:

Jørgen Korsgaard
Ahornweg 5
D-2397 Ellund-Handewitt
West Germany

CUTTING BORON FILAMENT - SAFETY IDEA

This safety idea comes from "Hot Rod" magazine via Jim Clem. Using side cutters to cut wire, Boron or similar materials causes the cut-off pieces to fly. To prevent the cut pieces from flying: tape the cutter handles together and then fill the well of the cutters with silicone sealer. After it cures, take a single-edge razor blade and split the silicone down the center. Now when you use the cutters the silicone holds the little pieces until the handles are released.

A SPECTATORS VIEW OF THE 1986 WORLD CHAMPS

There is no better way to see indoor models fly than to attend the 1986 World Indoor Championships in Cardington, England. One day to visit friends and three days of flying. The weather was poor. It was windy, rainy, cold and damp, but the accommodations were excellent.

Seventeen countries participated. That made a total of fifty-one contestants flying three rounds per day for two days. This was a very tight schedule.

Team manager Bud Romak, our team of Cezar Banks, Bob Randolph, Larry Cailliau and our defending Champion Jim Richmond put on a great show by winning all the top prizes. Our team won the first place trophy and Jim took the individual trophy plus the high time trophy, as he retained his World Championship. Jim a true champion under the worst weather conditions and an obstical course that restricted flying to less than half of the hangar. When everyone was being blown away by the erratic winds and rain in the hangar during the fifth round, Jim maneuvers his model with a balloon, like a bow over violin strings. At that time he did 50:27 minus 3:23 for ballooning a new FAI record of 47:44.

The second day was devoted to test flying. Our group had to go up in rubber sizes due to the bad weather conditions in the hangar. On that day the silent ones met with a series of diasters as we were cramped for space. I counted fourteen models flying at the same time. During this time eight models collided and spiraled to the floor.

The third and fourth day was contest time. There were sixteen over forty minute flights during the first three rounds and only four the following day, from round four to six. As you can see, weather was the big factor.

I was amazed to see so many high quality models among all the countries. They are good flyers but lack the experience of flying in high facilities such as Cardington. Mother Nature was at her worst. It could of been anybody's race if the weather had not turned bad.

A fine banquet was held and found in our company, five past World Indoor Champions - Pete Andrews, Jim Richmond, Bud Romak, Irv Rodemsky and Romanian - Arrel Morar.

We thank Laurie Barr and his fine staff for a successful meeting, everything was in order except the weather.

Warren Williams

P.S. Bernard Hunt of the British team has started a new trend in design and building. His latest is a twenty two inch motorstick with a twenty seven inch loop of rubber (3500 winds) and a short low pitch prop. The wing is placed at 135% C.G. with a stab a half inch short of being a tandem. The construction consist of very little balsa and is reinforced with .002 Boron filament, including the ribs.

He uses a "witches brew" of boiling sulfuric and nitrate acid, to eat away .001 of the normal .004 Boron. He even goes further by tapering off the wing and stab spar Boron to .001. It sounds out of this world, but this process is a no-no, as its too dangerous to ever try.

EDITORS NOTE: We agree with W. Williams assessment that B. Hunt's method is a no-no. Unless you are a chemist stay away from boiling sulfuric and nitric acids.

This issue

This issue is finally off the ground. We warned everyone when we took over this newsletter that contests would always come first, but the last four months have been a marathon. We've attended or run six contests/flying sessions since the NATS. This issue is aimed at the World Champs, the Nats, and the upcoming winter season flying sessions. The best news of all is that we've been busy doing normal (?) stuff and Richard has managed to stay out of the hospital (but not out of trouble!).

New Layout

This is the first issue we've done on our new computer. We are going to have to experiment a bit to find the right format for this, so be patient for a couple of issues. We've also sometimes included extra sheets in the domestic issues concerning items soley (we thought) of domestic interest (such as rule proposals and USIC entry blanks). Several letters we've received tell us that this is not the case. So from now on, everyone will get everything. (Don't say we didn't warn you!) The format we are trying is based on getting out the largest number of sheets per postage stamp. The real limiting factor is the overseas mailings that have to go in envelopes and get weighed to the nearest half ounce. Did you ever try to fold seven sheets of paper in half, and then into thirds to fit in an airmail envelope? We did, but boy was it hard. So, we are buying some larger envelopes. Please give us your feedback about type styles as well since we have a large variety to choose from (if we can just figure out how to get them out of this machine!).

The original subscription structure of INAV used two sheets of paper, typed on both sides as one issue. Sometimes a third sheet was added with typing or plans on one side only. The numbering system is based on each two or three sheets counting as one issue. This is how we arrive at the issue numbers on the Masthead. Since INAV has now been officially turned over to us, we will be taking a close look at the current setup in the coming months in the hope of establishing a reasonable publication schedule and rates that we can stick to.

U.S. NATIONALS - 1986 LAKE CHARLES

You may already have read the magazine accounts of Indoor at the Nats. By and large they are pretty accurate. Since Melody and I were the CD's for Indoor it's hard to be objective, but here goes:

We spent our first day in Lake Charles (Monday) meeting with the site manager and his staff to arrange the site preparations. This has been a long neglected area of the Nationals and we intended to see that things were done differently. Since we had flown in the same site in 1974, and 1975, we had a pretty good idea of what to expect. However, when we arrived we found several new additions to the ceiling; two speakers hanging on cables, several deflated balloons and strings, and six missing ceiling tiles. All this in addition to the scoreboard and speaker enclosure that we knew about in advance.

On Tuesday I flew Wakefield, lost my model in a trashmover in round 6, finished fourteenth. At 3:00 pm we headed back to the indoor site to shroud the scoreboard. As we entered the arena I couldn't believe what we saw. They had a fire department ladder truck inside! The speakers were sitting on the floor, most of the balloon strings were gone, and they were fixing the missing tiles while sitting on the end of a 50ft ladder. Yes, it really is true that they used a fire truck to fix the ceiling! Our sincere thanks to Roger Gill of the Civic Center and the Lake Charles Fire Department unit #3-36 for their ingenuity and cooperation! With Mike Clem and Gordy Wisniewski helping, we proceeded to shroud the scoreboard. It was huge, taking a 100ft roll of 10ft wide plastic sheeting to cover the gap between the scoreboard and the ceiling. (This is approximately twice as much plastic as it took to shroud the bandstand/chandelier at West Baden.)

We arrived at 7:00 am Wednesday to get things set up and to assist the Scale CD, Dale Drew, as he was a last minute change from the original plans. As we walked in we were shocked to find the duct tape holding up the shroud had melted and the shroud had slipped down the support cables about 2 feet in the hot air. We had the Civic Center people quickly lower the scoreboard, and we pulled the shroud back up as best we could, since the tape had turned into a gooey mess. This time we secured it with electrical cable ties. On with the contest!

Our part of the NATS started at 1:00 pm with Easy B and Intermediate Stick. By and large the contest went very smoothly. David Brown won both Junior EZB and Intermediate Stick, while Charles Gagliano won the Senior events. Good to see some youngsters flying even though there should be more. Gordy Wisniewski took 2nd in both events; to Tony Becker in EZB (13:39) and Tony Sutter in Intermediate Stick (15:01). The Lake Charles Civic Center is a good flying site, especially when properly prepared.

Wednesday evening was time for the microfilm models of Hand Launch Stick and the first 3 flights of FAI Indoor. Rich stunned everyone with a winning Stick time of 27:07 (300 in² model, V/D prop), more than 4 minutes better than any previous flight in that site. Meanwhile in FAI Indoor he also had some good flights, even though he had broken his V/D prop and it didn't fold on any of the 3 FAI flights. Jim Clem and Dick Ganslen were also

having problems. In fact Dick's problems were such that he left early so he could make some major revisions to his models.

Wednesday night was very short as we did not leave the Indoor site until 12:50 am and we were back at the site shortly after 7:00 am so the glider fliers could warm up prior to official flying. Aaron Markos beat everyone in Senior HLG with a time higher than the winning Open time posted by his father, Chuck.

Thursday afternoon was more congested with both Pennyplane events and Manhattan Cabin, also the NFFS Unofficial Events. Aaron Markos once again did some excellent flying, his winning Senior Novice Pennyplane time of 10:07 would have placed 2nd place in Open (Jim Clem 10:23). Gordy Wisniewski's winning Pennyplane time of 13:12 was very good for a 55 ft. site.

Thursday evening was again microfilm time, with ROG Cabin and the last three flights of FAI Indoor. In ROG Cabin all the Juniors and Seniors were flying Manhattan Cabins, Bostonains or scale models which are legal as long as the cross-section and wheel diameter rules are satisfied. In Open ROG Cabin all three contestants flew very traditional models, no disk style. Tony Sutter won ROG Cabin and also the Stout Indoor trophy.

Meanwhile in FAI Indoor, Dick Ganslen solved his problems of the evening before, putting up three nice flights and Jim Clem improved his times. Rich repaired his V/D prop with impressive results; a high time of 29:11 to win the event and the Stout Commercial trophy. The time was 6 minutes more than the site record set in 1975. This was done with his fat FID model nicknamed "Garfield" after the fat cartoon character, which used a variable diameter propeller, cruising for 10:00 just below the ceiling. This model was named one of the Top 10 Models at the NATS, and will be featured in a future Model Aviation article. We have included its' plans in this issue.

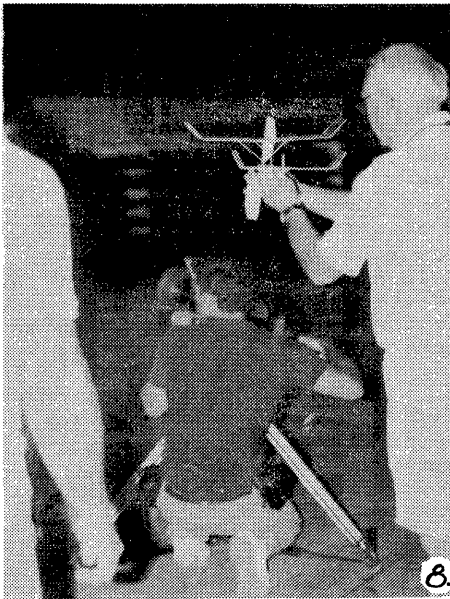
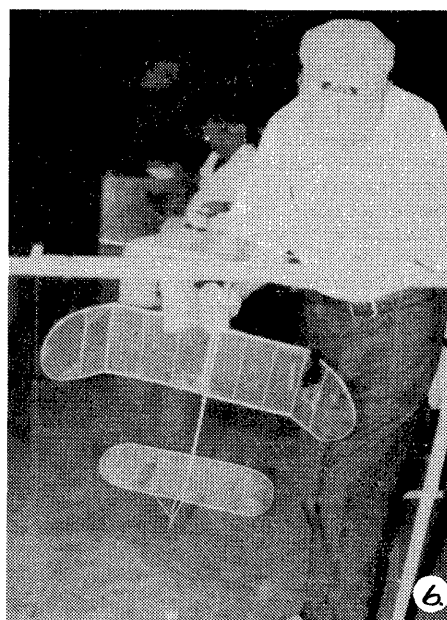
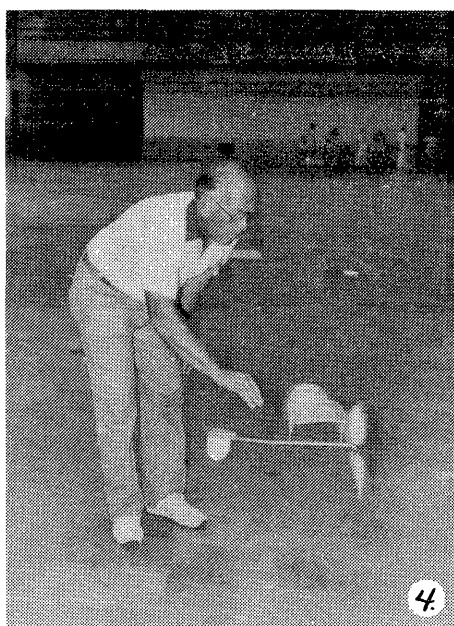
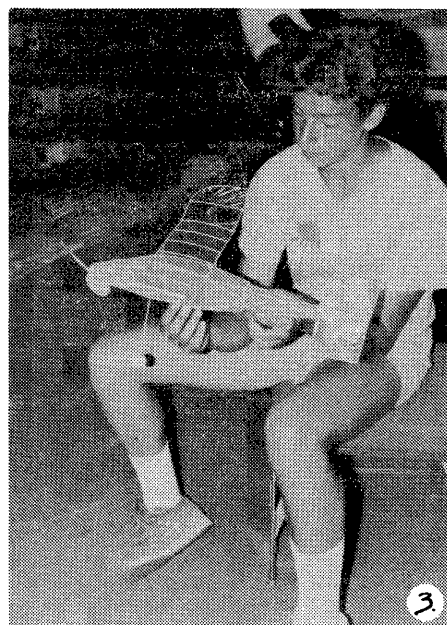
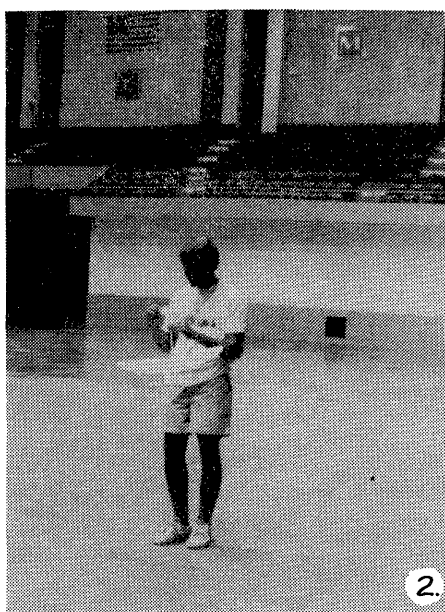
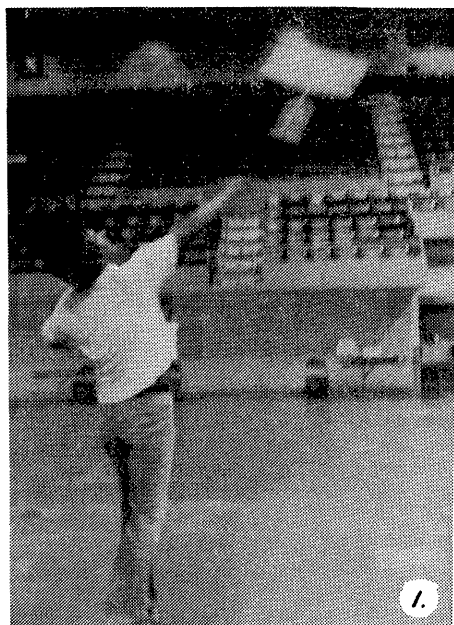
Friday morning we were back at the site to retrieve Marion Knight's Pennyplane which had spent the night stuck to the side of the scoreboard shroud, it was not damaged. Another Indoor NATS was over.

In retrospect, Indoor events being moved in both location and dates contributed to low attendance, but I could not help thinking on Thursday afternoon that we had a nice little contest going on. All in all, I think we did a good job with what we were given. On to 87.

NATIONAL GEOGRAPHIC

Many of you saw the outstanding article in the July 1986 issue of National Geographic Magazine covering the '85 Nationals. Well, the editors were so pleased that they sent a film crew to Lake Charles from their cable TV show "National Geographic Explorer", to film the Nats for early January showing. However, we understand that the show isn't going on cable, but on Public Broadcasting (PBS) on January 18, 1987 at 8:00 pm EST. Check your local listings to see if this is the correct time for your area. The crew spent a good deal of time filming indoor, since they were the only events slow enough for them to keep up with! The publicity can only help us get more places to fly.

1986 NATIONALS



1. Bob Dunham. 2nd in Hand Launch Glider.
2. Mike Clem re-adjusts HLG stab. Placed 3rd.
3. Charles Gagliano. 1st place Senior Manhattan Cabin.
4. Marion Knight, newcomer to Indoor with Pennyplane. Model spent night stuck to scoreboard - retrieved with no damage.
5. Bob Dunham untangles father's ROG Cabin model from Tony Sutter's after mid-air.
6. Jim Clem processing FAI Indoor model.
7. Moe Whittemore launching Manhattan Cabin.
8. Tony Becker launching NPP for National Geographic film crew. Placed 2nd in NPP.
9. Tony Sutter launches Manhattan. Placed 2nd.



10. Indoor CD Richard Doig processes R.J. Dunham's Manhattan. (Shown measuring side window area.)

Nats photos by Melody & Richard Doig

RESULTS FROM 1986 NATIONALS

Stout Indoor Trophy:
(High time Indoor Cabin,
regardless of age):
Tony Sutter 14:26

Stout Commercial Trophy:
(High single flight,
Hand Launch Stick or FAI
Indoor, regardless of age):
Richard Doig 29:11

NOVICE PENNYPLANE

Junior

1. Matt Gagliano 7:51

Senior

1. Aaron Markos 10:07
2. Charles Gagliano 9:17
3. Dana Wile 5:22

Open

1. Jim Clem 10:23
2. Tony Becker 9:51
3. Bob Nichols 9:05
4. Moe Whittemore 5:27

PENNYPLANE

Junior

1. David Brown 3:24

Senior - No Entries

Open

1. Gordy Wisniewski 13:12
2. Tony Italiano 9:33
3. Vito Gagliano 8:50
4. Marion Knight 8:32
5. Tony Sutter 8:25
6. Bob Perkins 7:07
7. Charlie Sotich 5:36

MANHATTAN CABIN

Junior - No Entries

Senior

1. Charles Gagliano 3:52
2. Dan Isaacks 2:40

Open

1. Chuck Markos 7:34
2. Tony Sutter 7:10
3. R. J. Dunham 5:50
4. Moe Whittemore 4:44

ROG CABIN

Junior

1. Lance Ferguson 1:08
2. David Brown 0:49

Senior

1. Dan Isaacks 2:41
2. Melanie Sanford 1:07

Open

1. Tony Sutter 14:26
2. R. J. Dunham 13:04
3. Richard Doig 12:48

HAND LAUNCH STICK

Junior

1. David Brown 6:21

Senior - No Entries

Open

1. Richard Doig 27:07
2. Jim Clem 13:23
3. Bob Perkins 10:30
4. Dick Ganslen 6:58

INTERMEDIATE STICK

Junior

1. David Brown 6:58
2. Tony Hutchins 2:47

Senior

1. Charles Gagliano 2:20

Open

1. Tony Sutter 15:01
2. Gordy Wisniewski 14:14
3. Charlie Sotich 13:17
4. Jim Clem 13:10

EASY B

Junior

1. David Brown 7:54
2. Matt Gagliano 1:12

Senior

1. Charles Gagliano 5:25
2. Dana Wile 0:15

Open

1. Tony Becker 13:39
2. Gordy Wisniewski 13:04
3. Jim Clem 11:24
4. Tony Sutter 11:22
5. Tony Schott 10:29
6. Vito Gagliano 9:56
7. Tony Italiano 8:52
8. Moe Whittemore 6:23
9. Dick Ganslen 1:24

FAI INDOOR

(J-S-O Combined)	1	2	Total
1. Richard Doig (O)	29:11	26:33	55:44
2. Jim Clem (O)	15:12	14:23	29:35
3. Dick Ganslen (O)	14:12	14:35	28:47
4. David Brown (J)	3:31	3:42	7:13

HAND LAUNCH GLIDER (ALL WOOD)

Junior	1	2	Total
1. David Brown	30.6	31.2	61.8
2. Tony Hutchins	32.0	28.8	60.8
3. Matt Gagliano	27.4	30.0	57.4

Senior

1. Aaron Markos	45.0	46.2	91.2
2. Mark Whitemore	34.6	33.2	67.8
3. Charles Gagliano	32.0	33.8	65.8
4. Dan Isaacks	31.2	31.8	63.0

Open

1. Chuck Markos	46.2	43.6	89.8
2. Bob Dunham	41.2	43.6	84.8
3. Mike Clem	34.2	36.0	70.2
4. Vito Gagliano	33.4	33.8	67.2
5. Moe Whitemore	27.6	31.6	59.2
6. Ed Tolkeikis	6.8	9.0	15.8

INDOOR RUBBER SCALE

Junior

1. Lance Ferguson	114.47
2. David Brown	106.00

Senior

1. Dan Isaacks	84.94
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Open

1. Larry Kruse	140.41
2. Curt Sanford	126.41
3. George Batiuk	56.74

INDOOR PEANUT SCALE

Junior

1. David Brown	145.48
2. Lance Ferguson	128.15
3. Matt Gagliano	126.23

Senior

1. Dan Isaacks	107.20
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Open

1. Curt Sanford	146.50
2. Tony Sutter	129.43
3. Vito Gagliano	102.42
4. George Batiuk	88.60
5. Ed Tolkeikis	58.35

1987 Nationals

We attended the Nats managers meeting in Chicago on October 25 & 26 to work out the schedule for next year's Nats (July 11 -19 in Lincoln, Nebraska). We've worked out a 2-day schedule that does NOT overlap outdoor free-flight. The schedule is similar to last year and goes with the hope that the air will stay flyable until very late into the evening. One notable change is the restriction against entering both Pennyplane and Novice Pennyplane has been dropped. I successfully argued that the very fact that National Records were held for NPP made it truly a separate event, and that the restriction just reduced entry.

On November 4, at my request, Walt Erbach and Arsene Fauquet measured Pershing Auditorium. The initial measurements were so close to the break between Cat II and Cat III that Walt arranged to make a special lightweight fabric tape measure that they calibrated under load. The results are that Pershing is Cat II, with an FAI ceiling measure of 49' 1 1/2". That's 1" below the maximum! Walt was so concerned about the accuracy that they measured the building at several places to confirm that they had the highest point. As expected, the roof has a few slopes and dips, but the highest point where you can inscribe the 15 meter diameter circle brings the site into Cat II. The highest single point in the building is 49' 10" (on the centerline) so there is very little curve to the roof since it drops only 8 1/2" over 7 1/2 meters. Many thanks to Walt and Arsene for taking the time to measure the building for us.

The word has just come back to me from Vince Mankowski (Nats Manager) that Pershing Auditorium will be very expensive to rent, something like \$1200 per day!. In view of declining entries in recent years, a large advance entry is MANDATORY or the events probably will be cancelled. I don't have an exact number, but my gut feel is that something like 50 to 60 advance entries will be necessary to insure holding the indoor events at Pershing as planned.

SCHEDULE FOR 1987 INDOOR NATIONALS

Sunday July 12:

8:00 am - 12:00 noon HLG-All Wood only
 12:00 noon - 7:00 pm PP, NPP, MAN Cabin
 7:00 pm - 12:00 mid HL Stick, FAI Indoor
 Scale turn-in deadline 5:00 pm @ Pershing

Monday July 13:

8:00 am - 1:00 pm AMA & Peanut Scale
 1:00 pm - 7:00 pm EZB, INT Stick
 7:00 pm - 12:00 mid ROG Cabin, FAI Indoor

FAI Indoor will be flown 3 flights per day, and will count as an at-large Team Selection Regional, providing there are at least 3 team selection entrants.

Future of Indoor at the Nationals

It is time to sit back and make some rational assessments of Indoor at the Nationals and toss out some rational (and irrational) solutions for dealing with the situation. The question keeps coming up; Why don't people attend the Nationals? We all know of several reasons, and here are some of the most popular:

1. I'm not going to drive 1000 miles just to fly in 50 feet.
2. AMA doesn't know how to run an Indoor contest.
3. The schedule stinks.
4. I got screwed the last time I went to the Nationals, and I'm not going back.
5. I don't have enough vacation time.
6. I can't afford it and the USIC too.
7. I'm not about to go to the hottest part of the country at the height of summer.

etc., etc, etc,

Now let's try and take a rational look at all of this:

Comment #1 reflects the fact that people expect a Nats site to be better than anything they could ever get access to at home. I don't think that's unreasonable, and it's a fact that 50 ft looks really good to someone who doesn't have a site at all, but it looks mediocre to someone who gets to fly in 150 ft once each month. You also have a built-in problem since most of the best flyers do have access to a pretty good site on a regular basis (that's how they got good). So, not only do the numbers drop, but the quality of the competition suffers due to their absence.

Comments #2, #3, & #4 have been dealt with to a great extent when the NFFS was asked to supply someone to run Indoor in 1986. Melody and I volunteered, and we ran what we hoped was perceived as a well run meet in 1986. We have also agreed to run Indoor again in 1987 (except scale events).

Comments #5, #6, & #7 actually reflect dis-satisfaction with the whole set-up. Nobody ever stayed home from West Baden because it was too hot, too far, or out of the way. They also reflect the perception that Indoor is not a high priority at the Nationals. Well, in many respects it isn't, but this is due to sheer lack of numbers and I don't think it really reflects malice on anyone's part.

Assessments: Where do we go from here?

Several ideas have been raised, and I'm not sure how I feel about most of them, but here goes:

1. Drop Indoor from the Nationals and pool the efforts into the United States Indoor Champs. This would primarily involve the two perpetual indoor trophies (the Stout and Stout Commercial trophies) and recognition by the Executive Council. Unfortunately, I doubt that we could talk AMA HQ out of any money towards the meet, but this is a viable

alternative. This reflects a basic difference in philosophy between the Nats and the USIC. The USIC is trying to find the best site we can afford, and then go back to the same place year after year. The Nats on the other hand tries to rotate from region to region, and run all events (Indoor, FF, RC, CL) in a relatively small geographic area. The result is usually less than perfect sites for all of the events, and in many cases, an out-of-the-way location with a site that isn't worth going out-of-your-way to fly in. The other side of the coin is the fact that the Nats is many times the only chance alot of RC and CL flyers ever have to attend an Indoor meet. Many of us feel that the best source of new Indoor flyers will come from other facets of modelling. At Lake Charles we had about 50 to 60 people watching four of us fly HL Stick and FAI Indoor on the first day.

2. Only hold Indoor at the Nats in years when a site can be had for a more reasonable cost, maybe \$500 per day or less. State laws are really different from state to state. In some cities, the Chamber of Commerce has the pull to get buildings FREE if you bring enough business to their city. In other states, this kind of influence is not only non-existent, it's illegal! This is due to something called a bed-and-board tax. Vince Mankowski explained it to me, and I'm not sure I really understand all of the ramifications, but it apparently makes a big difference.

3. Hold the Nationals in a warm part of the country in February when all of us in the snow belts want to get away. This sounds good on the surface, but is wrought with problems (like no dorms being available), but it is an interesting thought.

4. Split Nationals. A separate Indoor Nationals at a different site and date from the rest of the Nats, as was done in 1981. If this looks similar to idea #1, that's because it is. The big difference would be who paid the bills.

5. Forget the whole thing and take up golf.

OBITUARIES

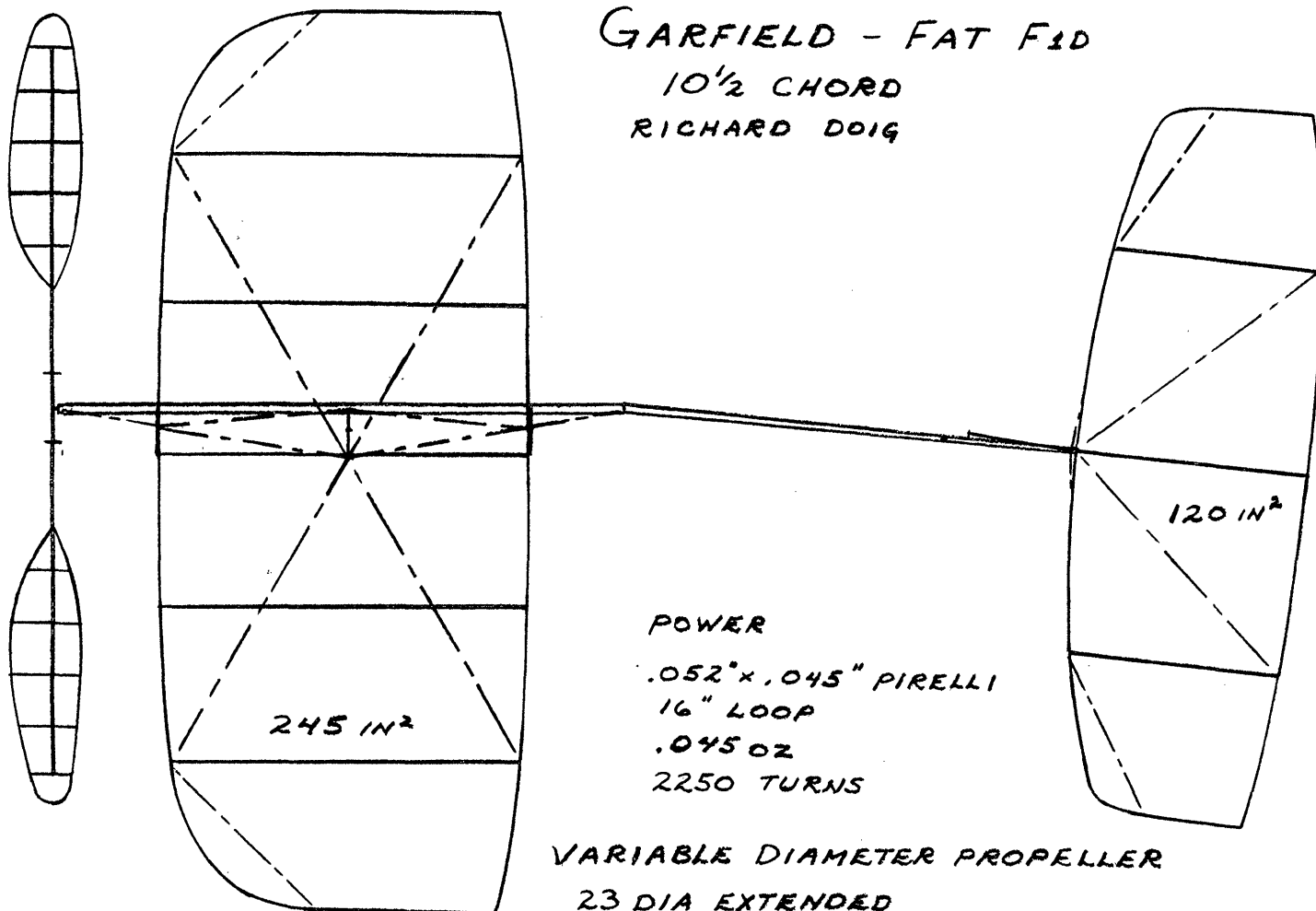
Ron Plotzke's wife, Sue, died in mid-September after a long illness. Our deepest sympathies to Ron and his sons Mike, and Tom.

Bill Hulbert's son, Mike, died shortly after a car accident in late August. Again, our deepest sympathies to Bill and his family.

Although not an indoor flyer, Bruno Markiewicz was like family to my club, the Detroit Balsa Bugs. He loved old timer FF, and suffered a heart attack and died while retrieving a fly-off flight in the last event of this year's SAM champs, in Chicopee, MA. Bruno attended every contest we ever ran, indoor and outdoor alike, and we miss him dearly. He was everything we love about free-flight, all in one package.

GARFIELD - FAT F1D

10 1/2" CHORD
RICHARD DOIG



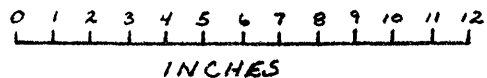
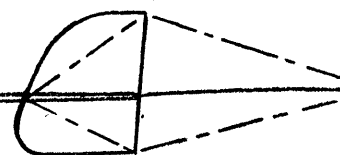
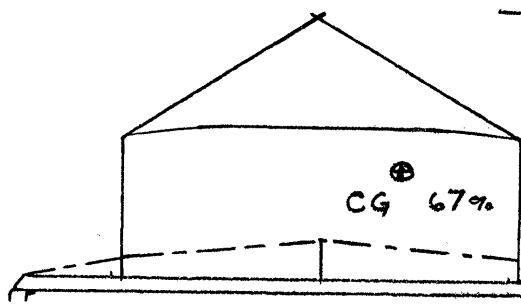
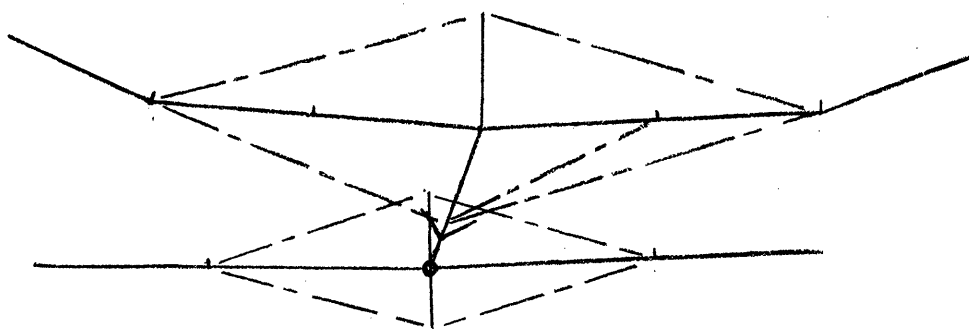
POWER

.052" x .045" PIRELLI
16" LOOP
.045 OZ
2250 TURNS

VARIABLE DIAMETER PROPELLER

23 DIA EXTENDED
19 DIA RETRACTED
36 INITIAL PITCH

WING .0160
STICK .0144
BOOM .0144
TAIL .0075
PROP .0109
TOTAL .0488 OZ



1ST PLACE 1986 NATIONALS
29:11 BEST FLIGHT
55 FT. CEILING

1987 UNITED STATES INDOOR CHAMPS

It's official! The USIC is moving to a new home in 1987. The dates are June 5, 6, & 7, and the new site is the Memorial Center at East Tennessee State University, in Johnson City, about 2 hours drive east of Knoxville. Tony Italiano found this place while on a business trip last spring.

The site is a domed football stadium which measures 118 ft high by FAI ceiling measure, with a peak of 122 ft. The clear floor area is about 265 ft x 420 ft. The field runs north and south, with grand stands on the east and west sides. There are no stands at the north and south ends. The roof is a shallow parabolic curve with the main arches running north and south, down the length of the field.

The east and west walls are vertical and the building has no windows. There are two speakers which hang down on cables to about 50 ft, one speaker over each set of grand stands. All of the lighting is recessed into the girders, so the entire space above the playing field is completely clear. With the shallow curve, the ceiling is almost identical to Niagara Falls, except that it is 50 ft higher.

Melody and I visited this place on our way home from the Nationals in August, only to find the building closed and locked. (It was Sunday.) Although no-one has flown in the site to date, everything I know about buildings tells me that this place should be spectacular.

The campus is fairly small, with parking, dorms, and cafeteria food nearby, all within walking distance. (The dorm and food arrangements were still being negotiated at press time.) Johnson City is a fairly large town, with a population of about 39,000, and as such there are motels and a number of restaurants within a mile or so of campus.

No site will ever replace West Baden with the on-site food and rooms, and in fact the FAI Finals at West Baden in '83 were a real letdown with having to stay in motels and eat in restaurants. So, we have to move on and recognize a super deal when we find one I think we just may have the ticket in Johnson City, Tennessee.

ON THE MEND

Jerry Nolin (Serendipity! EZB) suffered a heart attack in mid October. He is home now, and the doctors feel that he suffered minimal damage. When he started feeling lousy, he had the good sense to go to the Emergency Room at Wright Patterson Air Force Base, and the attack hit him while he was checking in at the desk. The right place, at the right time. I found out about it a week or so after it happened, and I called the hospital just to find out if they allowed flowers in his unit. They never did answer my question, instead, they put me on the phone with him! In Cardiac Care no less. I hope we cheered him up since they wouldn't let him build in bed! Drop him a note if you like:

Jerry Nolin
663 Woodhill Dr.
Fairborn, OH 45324

WORLD CHAMPS, 1988 & 1990

Ah, the rumor mill is cranking away. Two sites have been mentioned for the 1988 World Champs. One site is in Paris, the Centre Nationale des Industrie et Technologie in La Defense, and I know nothing about the details except that the people who came back from Cardington mentioned it as a possible site. The other is the Memorial Center in Johnson City, Tennessee. If this site turns out to be as good as we expect, the same folks who put together the West Baden World Champs plan to put together a similar package for Johnson City. This was the site the U.S. representatives had in mind when they made a tentative bid to the FAI to host the 1988 Indoor World Champs. We really couldn't say anything publicly until all of the details had been worked out for our first meet at the site, the 1987 USIC.

Herb Robbins also reports that at Cardington he asked one of the Romanian flyers when they planned to host the World Champs again. The reply was 1990, presumably at the Salt Mine in Slanic.

RULE PROPOSALS

As this issue goes to press, the initial votes are taking place for rules proposals for the 1988 flying season. A complete summary of all the surviving proposals will appear in the next issue. A recurrent theme in this rules cycle has been the need to come up with a better way to handle rules changes.

At the USIC in June, newly appointed indoor board member Doug Barber remarked that the right way to handle the rules was to:

1. Reduce the number of people on the board from the current 11 to something like 5 or 6
2. Arrange to collect all the proposals, including the emergency rulings and act on them at one session, once each year, in late November or early December.
3. Fly the board members to a motel conference room somewhere and lock them inside. When they have the rules done for the following year, then let them out.
4. If a situation arises that currently might justify an emergency proposal, let the guy continue to fly the thing for the rest of the season until the November meeting. Only in a case of safety could immediate enforcement be allowed.

Radical ideas? Maybe, but the more I've thought about it, the more it seems to make sense. It wouldn't require a new rulebook each year, but only a summarized sheet of changes to the existing book. The FAI currently does this with their international Sporting Code.

The unfortunate problem with this kind of system is that it would require a major overhaul of AMA bylaws and maybe it's constitution to accomplish, but no-one ever said it would be easy!

Let us know what you think!

NATIONAL FREE FLIGHT SOCIETY

Subject: "20th ANNIVERSARY OF THE NFFS
SYMPOSIUM"

The National Free Flight Society is accepting nominations for the following:

10 Models of the Year - (1987)

Send to: Jon Zeisloft
5411 W. October Way
W. Valley City, Utah 84120

Free Flight Hall of Fame (1987)

Send to: Anthony J. Italiano
1655 Revere Drive
Brookfield, WI 53005

Also, a call for papers for the 1987 Symposium. Please make your intentions known along with an overall outline to:

Don Lindley
420 Tupelo
Naperville, IL 60540
312-355-9674

Have your information in by February 1, 1987, at the very latest!

Thank you for your assistance.

Anthony J. Italiano
NFFS President

COMPUSERVE

When we got our computer, we got an accessory device called a modem, which converts computer talk into tones to allow your computer to converse with other computers over the phone lines. This allows us to tap into a national information service called CompuServe. Of interest to us is a group of special interest forums, one of which happens to be the Model Aviation Forum, "Modelnet".

Modelnet is moderated by Doug Pratt of AMA, and part of his job is to keep everything up to date. There are some definite advantages here, like the ability to see the Contest Calendar updates far sooner than you could see them in print (indoor contests are notorious for being scheduled at the last minute). There are also scheduled on-line conferences about every other week, which allow small groups (so far ranging from 6 to 22) to converse in depth on some topic. Last week we got to pick Bob Clemens' brain on shooting good photos of models, for example. December 11, I'm on the hook to talk about indoor.

So far, we've found one new flyer (a CL Aerobatics flyer) for our indoor sessions. He lives about 20 miles from here and he never would have found us without CompuServe. He found out about indoor through a service called the bulletin board, which allows you to leave messages addressed to a particular person, but posted for all to read. I intercepted a message addressed to Doug Pratt when the flyer asked about indoor flying in the Detroit area.

CompuServe has local telephone access numbers throughout the U.S. and parts of Canada, so you pay the price of a local phone call, plus \$6.25 per hour which CompuServe bills to your Mastercharge or Visa. CompuServe also offers electronic mail (for private correspondence), and loads of other services. (It's easy to get addicted!) If you're interested in subscribing, contact Doug Pratt at AMA Headquarters, or ask at your local computer store. The stores have sign up kits available that include a free usage credit of either \$15 or \$25 along with an ID number and password to get you started. In my case, the sign up kit was included with my computer at no extra charge.

If you're on line already, you can leave us messages or mail; my CompuServe ID is:

Richard Doig, 73767,32

CONTEST CALENDAR

CALIFORNIA - BURBANK

Blacksheep indoor flying sessions & contests 2nd Thursday of each month 7:00 pm - 10:00 pm CAT I (peak 34') Luther Burbank Jr. HS-Maple bet Jeffries & Burbank Blvd. Dec. 11 fun-fly light stuff & heavies. Blacksheep Exhibition Squadron flying activities for Juniors - all categories. Tony Naccarato, 2121 N. Hollywood Way, Burbank, CA 91505 or 818-842-5062

CALIFORNIA - LOMITA

Indoor flying sessions - 3rd Saturday of each month 7:00 pm - 10:00 pm. Call Contact for details: Lonnie Cope 213-214-1131

CALIFORNIA - SAN DIEGO

Indoor flying sessions and monthly meetings 2nd Friday-meeting, 4th Friday flying sessions 7:30 pm Colina Del Sol Community Center, 5319 Orange Av. San Diego Orbiteers also flying after meeting - call for schedule: Don Munn, Program Chairman, 13095 Wimberly Sq. #112, San Diego, CA 92128 or 619-276-2040

CALIFORNIA - SAN FRANCISCO

F1D Local Trials & Possible Flying Sessions Dec. 6 & 7, Other dates possible. CAT III Cow Palace. Joe Foster, 3771 Timberline, San Jose, CA 95121 or 408-274-5479

CALIFORNIA - SANTA MONICA

Indoor flying sessions - 2nd Sunday of each month 1:00 pm - 4:30 pm Paul Revere Jr. High School in Santa Monica. Flightmasters Bill Warner, 423-C San Vincente Bl, Santa Monica, CA 90402 or 213-393-2198

CALIFORNIA - TUSTIN

FAI Indoor Team Selection contests, Dec. 6-7, Jan. 3-4, Feb. 1-2. CAT IV. Hangar #1 on Tustin M.C.A.S. (H). FAI Indoor #203 M.C.A.S. (H) Microfilm Flyers. To gain admittance to Base you MUST contact CD Curt Stevens, 25108 Marguerite Pkwy, #B-160 Mission Viejo, CA 92692 or 714-240-8404

COLORADO - DENVER area

Indoor model flying sessions Dec. 5 & 6, and other Friday nights 5:30 pm - 9:30 pm. Balch Fieldhouse, C.U. campus. HLG, PP, Bostonian, Scale & Peanut - check with contact for exact schedule of events. Denver Area Indoor Model Airplane Association. Dec. dates assist in C.U. student project John Berryman, 1866 S. Sedalia Circle, Aurora, CO 80017 or 303-337-2936

FLORIDA - MIAMI

Indoor Fun fly, Sunday, Dec. 7, 9 am - 5 pm CAT II (27') Miami Dade South College, 11011 S.W. 104th St. Miami Indoor Aircraft Model Association (MIAMA) Dr. John Martin, 2180 Tigertail Av. Miami, FL 33133 or 305-858-6363

FLORIDA - TAMPA

King Orange International (AAA) Dec. 27, 28, 29 (Tentative). CAT III. Delta Hanger, Tampa Airport. Int. Stick, Manh. Cabin-EZB-PP-NPP, HLG-all wood, Peanut (JSO), Bostonian, Indoor FAC scale. Also CAT III outdoor FF, FAC, OT, & Nostalgia the following weekend at Melbourne (Jan 2-4). Dick Obarski, 2349 Barcelona Av SE, Fort Myers, FL, 33904 or 813-693-1996

GEORGIA - CUMMINGS (Atlanta)

A Christmas Special, Dec. 14. Forsythe County High School gym. EZB, HLG-all wood J(SO), (PP-NPP), 14g Bostonian, Perryman challenge: Heli, Ornithopter, Autogiro. Thermal Thumbers of Metro Atlanta. C. Purdy CD, 664 Tom Read Dr, Marietta, GA 30062-3357 or 404-428-1390

ILLINOIS - CHICAGO

Winter contest & other flying sessions, Feb. 15. CAT III. Richard L. Jones Armory, 51st & Cottage Grove. IMAC. Charlie Stotich, 3851 W. 62nd Place, Chicago, IL 60629 or 312-735-1353

KANSAS - WICHITA

Indoor flying sessions, 1st Saturday each month. Dec. 6, Jan. 3, Feb. 7, Mar. 7. 1 pm - 5 pm. CAT I (about 18' free of obstructions) Open fliers \$3, youngsters \$1, spectators free Jim O'Reilly, 4760 N. Battin, Wichita, KS 67220 or 316-744-0851

OAKLAND CLOUD DUSTERS CELEBRATE 50th YEAR

Postal Contest for R.O.G. Stick in any ceiling Category. Fly between January 1 & June 30, results due by August 20. Send \$5 entry fee with your flight times & ceiling category to:

MASSACHUSETTS - CAMBRIDGE (Boston)

Indoor model flying sessions, Dec. 6, Jan. 3, Feb. 7, Mar. 7, Apr. 4, May 2. Flying from 6:00 pm to 10:00 pm. CAT I. Dupont gym, Vassar St. & Massachusetts Av. Events flown on basis of interests. MIT Tech Model Aircrafters For info & confirm site availability call CD: Ray Harlan, 15 Happy Hollow Rd, Wayland, MA 01778 or 617-358-4013 or 617-258-1431 (work)

MICHIGAN - STERLING HEIGHTS (north of Detroit)

Indoor flying sessions, 1st and 3rd Fridays of each month. 7:30 pm - 10:30 pm. CAT I. Heritage Jr. HS - Dodge Park Dr. at 16 Mile Detroit Balsa Bugs. You MUST wear tennis shoes or similar. Rich Doig, 6 Canary Hill Dr, Ponitac, MI 48055 or 313-373-5374

MINNESOTA - BURNSVILLE (Minneapolis)

MMAC Indoor Meet (A), Dec. 7. Burnsville H.S. gym, 600 E. Highway 13. EZB, PP, Bostonian, Parlor Mite, HLG-all wood, Walnut & Peanut scale (modified FAC rules). Minneapolis Model Aero Club. D. Braun CD, 1011 Highland Av, S. St. Paul, MN 55075 or 612-457-2264

MINNESOTA - BURNSVILLE (Minneapolis)

MMAC Indoor Meet (A), Jan. 18. Burnsville H.S. gym, 600 E. Highway 13. EZB, PP, HLG-all wood, NoCal Scale, Bostonian, Peanut J(SO) & Walnut scale (modified FAC rules). Minneapolis Model Aero Club. G. Oakins CD, 291 Jay St, Birchwood, MN 55110 or 612-429-3150

MINNESOTA - BURNSVILLE (Minneapolis)

MMAC Indoor Meet (A), Feb. 22. Burnsville H.S. gym, 600 E. Highway 13. EZB, PP, Bostonian, Parlor Mite, HLG-all wood, Peanut J(SO) & Walnut scale (modified FAC rules). Minneapolis Model Aero Club. D. Monson CD, 131 W. Wentworth, W. St. Paul, MN 55118 or 612-457-2321

MINNESOTA - BURNSVILLE

MMAC Indoor Meet (A), April 12. CAT II. Burnsville H.S. gym - 600 E. Highway 13. EZB-PP, No-Cal Scale, HLG-all wood, Bostonian Walnut & Peanut scale (modified FAC rules). Minneapolis Model Aero Club. D. Mendenhall CD, 5100 50th Av. N, Crystal, MN 55429 or 612-535-2976

MISSOURI - ST. LOUIS

St. Louis Indoor Champs (AA), Dec. 7. CAT I. Forest Park Community College. HL Stick & FAI Indoor, INT Stick, Manh. Cabin-EZB-PP, Ornithopter, HLG-all wood, (AMA & Peanut scale). McDonnell F.F. Club. J. Bennett CD, 324 Helfenstein, St. Louis, MO 63119 or 319-962-5271

Bill Vanderbeek, 21199 Oro Grande Pl, Cupertino, CA 95014 (408-973-9687) All participants receive complete results, award certificate & Cloud Duster hat.

NEBRASKA - LINCOLN

NATS (AAAA), July 12 & 13. 8 am - 12 midnight.
CAT II - 1 inch under maximum for category.
Pershing Auditorium, 226 Centennial Mall Sq.
traditional events. AMA. Richard & Melody
Doig, Indoor CDs, 6 Canary Hill Drive,
Pontiac, MI 48055 or 313-373-5374

NEW YORK - NEW YORK

Indoor flying sessions and contests. CAT III.
Columbia University Low Library Rotunda.
Columbia Indoor Model Airplane Society.
Ed Whitten, Box 176, Wall Street Station,
New York, NY 10005 or 212-724-0282

OHIO - AKRON

F1D Team Selection & Record Trials. Tentative
dates late May & July 4 Weekend. CAT IV.
Goodyear Airdock at Akron Municipal Airport.
F1D Local in May, F1D Regional in July.
Airdock F1D Flyers. Must call Bill Hulbert for
Security Clearance at least 2 weeks in
advance. Bill Hulbert, 174 Castle Blvd,
Akron, OH, 44313 or 216-864-8030

OKLAHOMA - OKLAHOMA CITY

Indoor flying sessions and contests, Dec. 14,
Jan. 25, Feb. 22, Mar. 22. CAT II. 23rd Street
Armory. Jim Belson, 4933 NW 29th, Oklahoma
City, OK 73127 or 405-946-1093

TENNESSEE - JOHNSON CITY

6th United States Indoor Championships (AAAA)
June 5, 6, & 7. CAT IV (118FT). Memorial
Center - East Tennessee State University.
Traditional events. NFFS & NIMAS. Complete
flyer & entry form in future issue
Tony Italiano, 1655 Revere Dr, Brookfield, WI
53005 or 414-782-6256 after 7 pm EST

TEXAS - BEDFORD (Dallas/Ft. Worth)

Indoor flying sessions & contests. CAT I.
Bedford Boy's Ranch - Forrest Ridge @ Harwood.
For dates and events contact: Jesse Sheppard,
2713 Summit View, Bedford, TX 76021 or
817-282-3770

WISCONSIN - MILWAUKEE Area

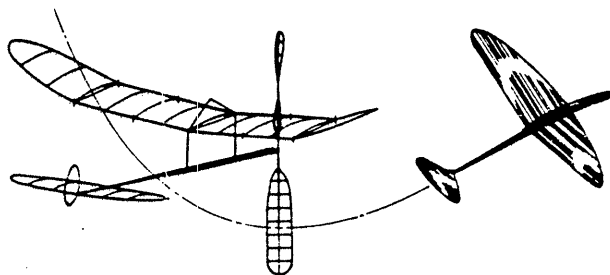
Indoor flying sessions. Bong Eagles.
Contact John for details on site & schedule
John Lorbiecki, 1508 Valley View Dr, Hubertus,
WI 53033 or 414-628-4296

UNKNOWN SITE as of this printing

FAI Indoor Team Selection Finals, Labor Day
weekend 1987. CAT IV. Tentative site Tustin,
CA M.C.A.S. (H). Site to be determined by T.S.
Committee in Spring 87. FAI Indoor (F1D)
(must qualify @ regionals). AMA. For info on
how to qualify contact: Richard Doig, F1D T.S.
Chairman, 6 Canary Hill Drive, Pontiac, MI
48055 or 313-373-5374

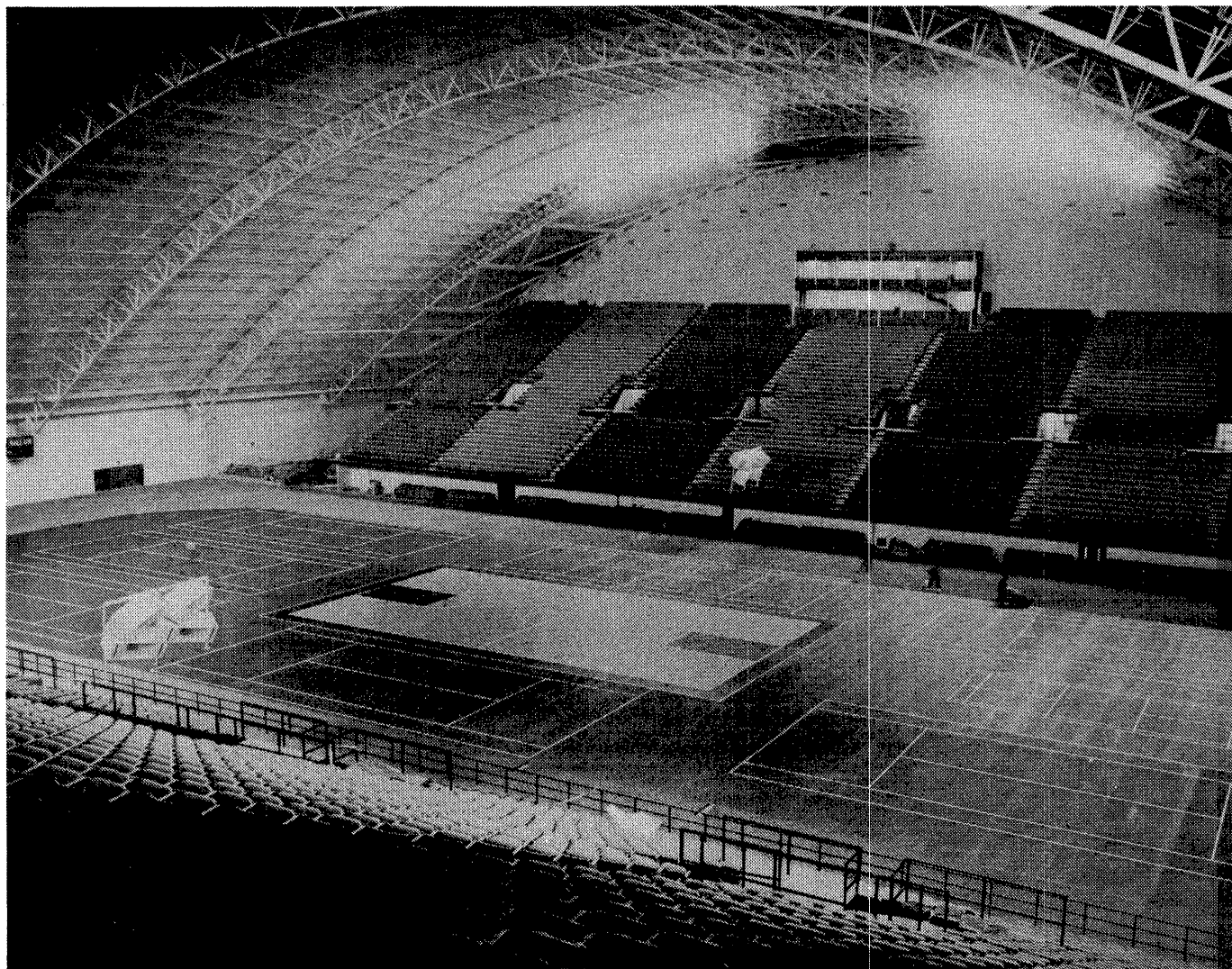
INDOOR

NEWS and VIEWS



#29,30,31,&32

Editors: Richard & Melody Doig - 6 Canary Hill Drive, Pontiac, MI 48055 (313) 373-5374



1987 UNITED STATES INDOOR CHAMPIONSHIPS

Yes, this is the interior of the "Mini-dome" at East Tennessee State University. As you can see this place is big! The rectangle in the center is a full size basketball court, and the rectangles surrounding it are full size tennis courts. The floor is about 260' x 425'. The two speakers and their cables are visible in this photo, but actually do not hang over the playing field, only over the stands. This looks like a spectacular indoor site.

Enclosed in this issue is the schedule, motel info, and entry blank for the 1987 USIC. It will be held on June 5, 6, & 7 at East Tennessee State University, in Johnson City, about 115 miles east of Knoxville, Tennessee. Many of you will already have received an

entry blank by direct mail; if so, please pass this one on to another modeler. We need everyone's support to make this meet a success, and that means entries!

CATAPULT GLIDER AT THE USIC

In addition to the events listed in the contest flyer, the Chicago Aeronuts will sponsor Catapult Glider as an unofficial event. It will be flown during HLG on Friday, June 5 (8 am-12 noon) using these rules:

Maximum wing span 12".
Maximum wing chord 3".
Maximum launching stick length 6".
Nine official flights.
Sum of best 2 flights determines winner.
\$1.00 event entry fee.

THIS ISSUE

After a three month marathon with my job (I was promoted to company President as of the first of the year) we finally have the time for another issue. It seems a sensible publication schedule for us will be four times per year, with each issue consisting of nine sheets. This works out to be just under 2 ounces when ready to mail.

This creates a problem in that these thicker issues do not go through the Post Office sorting machinery very well. Several copies of the last issue were returned, torn into pieces. So another change; envelopes for domestic subscribers. Foreign issues have always been in envelopes. However, the Post Office does not play favorites, since my January issue of New York Indoor Times was torn up as well and I only received part of the cover sheet.

The original INAV schedule that Bud Tenny used was a new 2 sheet issue (printed on both sides) every four weeks, or 24 sheets per year. However, postage rates have increased dramatically since then, and we cannot afford the luxury of issues that don't get the most information for a given amount of postage. Plus, my schedule does not allow us to publish as often as we'd like. So, we are going to attempt four 9 page issues this year, and see how it goes.

We will continue with the current subscription rates and numbering system for the time being. If we are able to pull off a third four-in-one issue around July or August, then we will revise the subscription rates accordingly.

Also, many of the foreign subscribers have asked that the overseas rate be an even amount, like \$10.00, since many of them send us the leftover American Dollars from their last trip abroad. We will look into this. It may seem trivial, but fully one fifth of all INAV subscribers live outside of the United States, and the bank charges for international money orders are sometimes more than the amount of the check!

GARFIELD - The Fat F1D

as built and flown by Richard Doig

Because of the many comments and questions received on the "Garfield" plans in the last issue, we are printing the entire article written for Model Aviation (MA used excerpts for the article "10 Best Designs - 1986 NATS", in the February 1987 issue)

This design got its start after the 1984 United States Indoor Championships, when I destroyed all my models except for a large (300 sq in) Hand Launch Stick body and tail section. With an FAI Local scheduled at Akron in 2 1/2 weeks I needed to build something fast or not be able to fly. After assessing the little time I had, I decided I only had time to build a wing, so why not size it to mate with the "300" stab I had? With the F1D rules limiting the wingspan to 65 cm this would mean an exceptionally wide chord, much larger than anyone had built for this event, in order to balance the extremely large stab

area (120 sq in) of the "300". The combination flew well enough (38:46) that I began to pursue it as a design all its own.

The model shown in the accompanying drawing is the 5th version and is specifically geared to low and medium ceilings. The wide chord gives exceptionally low wing loading in spite of the relatively high weight. (F1D has a minimum weight of 1 gram or 0.0353 ounces.) The second unique feature of this model is the Variable Diameter Propeller. The principle is from the propeller developed by four time World Champion Jim Richmond, but is built using a different hinge arrangement using Teflon washers for bearings instead of wire loops, thereby avoiding all the nifty little bent wire parts used in the Richmond design. This propeller took a mere 5 hours to build from start to finish, in a motel room no less, after its predecessor was destroyed on the first day of a three day contest. The close-up photos show the hinges and parallelogram linkage in the propeller. This type of prop allows flying on very small rubber sizes, while still having enough power for a long cruise after the prop folds. The power for the folding comes from a very tiny rubber band tied into the linkage. This version is very tricky to adjust and I am working on a version using springs in place of the rubber band.

Other state of the art features include:

1. adjustable stab incidence and twist.
2. fully suspended stab with no tail boom under the stab to save weight.
3. motorstick bracing is via the wingposts allowing the elimination of two more pieces of wood.
4. extensive use of Boron and Kevlar filaments to add strength and save weight.
5. plug in tail boom.

Plug on tails are nothing new, but this particular arrangement has been developed by myself over the last 5 years and allows the model to be packed in a very small box.

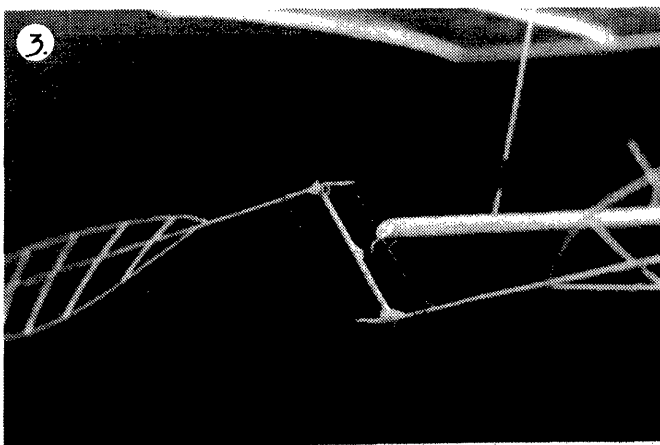
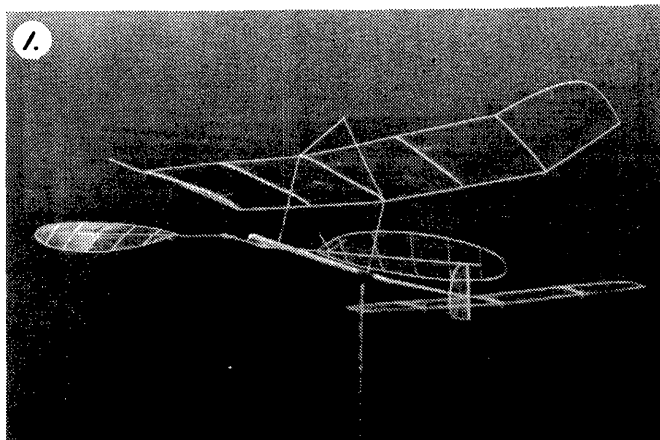
For the Lake Charles Civic Center the prop was set to fold to small diameter at about 7 minutes into the flight. The model took 3 1/2 minutes to climb to the 55' smooth ceiling where it began to tap the ceiling lightly. The prop folded while still gently scraping the ceiling and began it's long cruise at the small diameter. Because of the geometry of the hinge mechanism, reducing the diameter also lowers the pitch providing a terrific cruise. The flight required one steer to avoid the official's table on descent, landing at 29:11, breaking the site record by over 6 minutes. This combined with the number two flight of over 26 minutes gave a best 2 out of 6 flight total of over 55 minutes to easily win the event. This design seems to have tremendous potential and I am looking forward to great times from it in the future.

The preceding article was written last October.

Some additional notes on the design:

1. The CG is too far forward. That particular model required almost 1/2" of "up" elevator to float properly, and would not climb higher than about 90 feet without severe stalling during the climb. I've since moved the wing forward moving the CG to 74%, but I have not had the chance to fly this combination yet.

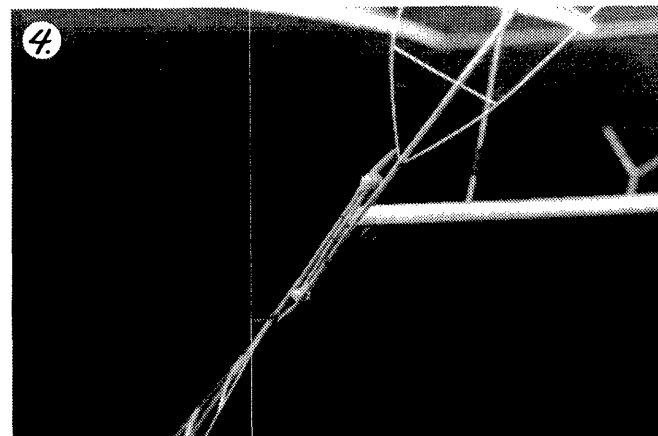
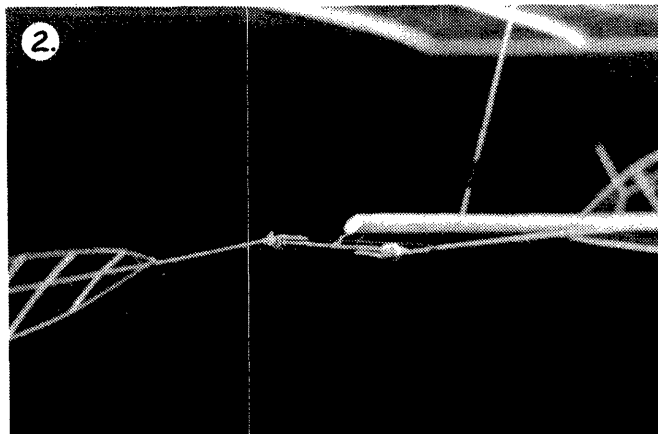
2. I have also built and flown a second version with an 18" motor stick. This model is balanced at 77% and I found the extra motorstick length was needed to get the wing far enough forward while still having adequate clearance between the prop and wing. The previous climb problems look like a thing of the past.



We also supplied some photos to Model Aviation with the article (these were not used, so we are presenting them here).

PHOTO CAPTIONS

1. Complete model - propeller fully extended.
2. Close-up of prop mechanism in fully extended position.
3. Close-up of prop mechanism half way through fold. The small rubber band has been removed from its hooks and is visible on the lower prop spar.
4. Close-up of prop hub assembly fully folded.



FIRE DESTROYS THE HOBBY COUNTER

The hobby store in Dallas, Texas owned by District 9 AMA Vice President Johnny Clemens, was destroyed by an arson fire on February 19.

The store and its contents were a total loss. The story is that the fire was started to cover the evidence of a burglary. An 18 year old Dallas man has been arrested for this and several other burglaries and is being held in lieu of a \$28,500.00 bond.

Clemens' neighbors and the Hobby Industry Association, which he helped organize 45 years ago, have come to his aid. A benefit concert has raised some cash and hobby suppliers are sending new stock. Clemens plans to reopen next door to the old store in about a month.

We send him our best wishes for a speedy recovery and a successful new Hobby Counter.

AMBROID LIVES!

I heard a rumor about four weeks ago that Ambroid had been discontinued. I had a brochure that Pete Waters picked up from the Ambroid booth at the Toledo show about 3 years ago, so I just called the phone number in the flyer. Here's what I found out:

I talked to a gentlemen at a company named Avanti, which is the company now handling the marketing for Ambroid. It seems that Ambroid ran into financial problems of some sort, and stopped shipping tube glue about 1 year ago. Many of the hobby stores told customers that they just couldn't get it anymore. Well, the good news is that Ambroid has had an investor pump in some much needed money, and they are producing tube glue again, and it should be back in the stores very soon. So, no need to panic. Ambroid is back in business!

USIC PHOTOGRAPHY

You will notice in the USIC flyer that Tony Italiano mentioned sodium arc type lamps, and suggests using appropriate filters. Well, I don't know anything about filters, so I asked Bob Clemens, noted scale flyer, and a staff photographer for Kodak, what he recommended for use with Kodak VR 1000 color print film:

Date: 27-Feb-87 23:49 EST
From: Bob Clemens [76337,3532]
Subj: Filters for USIC pix

TO: Richard Doig

I checked with some people at work re. your request for filter information for "sodium arc" lamps. Initial search found references only to "sodium vapor" lights, very heavy in yellow.

My STRONG recommendation is to forget filters, whatever the light, if you're using VR-1000. Shoot it without filters; let the processing lab make the needed color correction when the prints are made. Chances are, whatever filter pack that might be correct would only drop your effective film speed 'way down (because you'd have to open up two, three or more stops or slow down a like number of shutter speed steps to compensate for the light-blocking effect of the filters--sort of like sun glasses), negating the speed advantage of the 1000 film.

Black-and-white film would not need filtration either. Have you considered using flash? Hope this information is of use.

Bob

This letter was sent via EasyPlex electronic mail, over the CompuServe Information Service. Bob was able to give me an answer in about 2 days, in a form ready to use in preparing this newsletter. Those of you with computers should consider subscribing, since there is a lot of good info and services available. Modelnet, AMA's on-line forum on CompuServe, has a semi-regular schedule of computer conferences. The first conference I joined after buying my computer was on photographing models. By late November, we were fairly certain that we were going to Johnson City, so I asked Bob a couple of loaded questions about photographing indoor models:

Transcript of ModelNet COnference, 20 November 1986. The subject was PHOTOGRAPHING MODELS, and the special guest was Bob Clemens, noted Scale modeler and professional photographer for Kodak. (a segment is presented here, the full conference is about 5 pages)

(30,Richard W. Doig) I have two questions for Bob; #1 is about shooting in buildings with no windows and overhead lights. Any tips? #2 is on how to shoot overhead shots in buildings with windows overhead like West Baden. Any insights?

(30,Bob Clemens) Are we shooting color or BW?

(30,Richard W. Doig) Please talk about both.

(30,Bob Clemens) Well, color presents some unique problems if you're shooting indoors by overhead lights. If you're shooting color print film these problems are minimized. Let me explain: The overhead lights have a color of their own which they will impart to the film. Fluorescent lamps, generally, will give a green cast to pictures, even though, to the eye they look "normal". With print film this green cast can usually be filtered out during the printing step so you don't have to worry so long as the lab knows what they're doing. It doesn't hurt to include a note referring to the light source with your exposed film when you send it in. Of course, if you're using flash the overhead lights will not probably be a factor, since the flash is providing the light, and of the proper quality. If you're using transparency film, you'll have to use a filter over the camera lens to cancel out the green cast. Usually, a magenta-colored filter will do the trick. If the lights are tungsten, that is light bulbs, then you must use a tungsten-balanced film to get natural-looking results. Such films as Ektachrome 160 will do the trick. I've rattled on... where were we?

(30,Richard W. Doig) That answers the first one. It was a loaded question since it describes the new site the US Indoor Champs are going to next year. Now, what about windows in the roof?

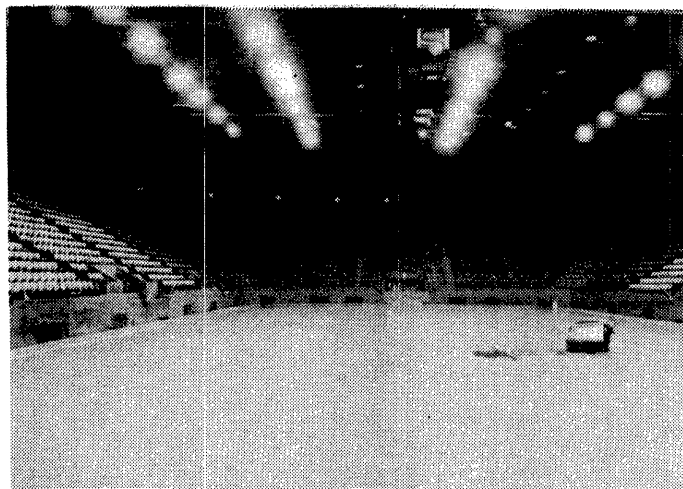
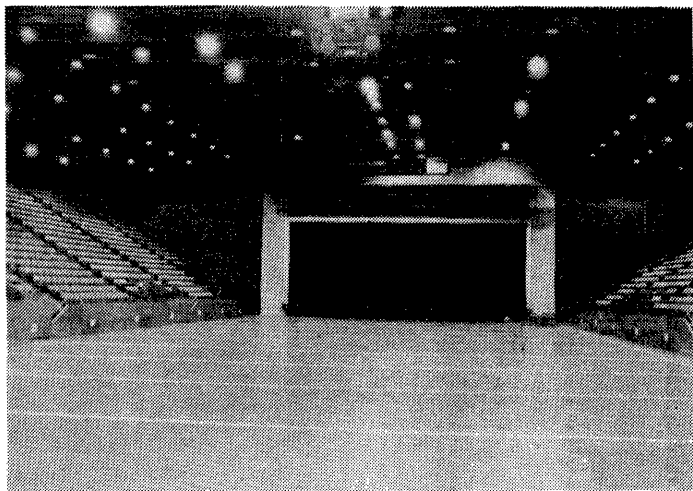
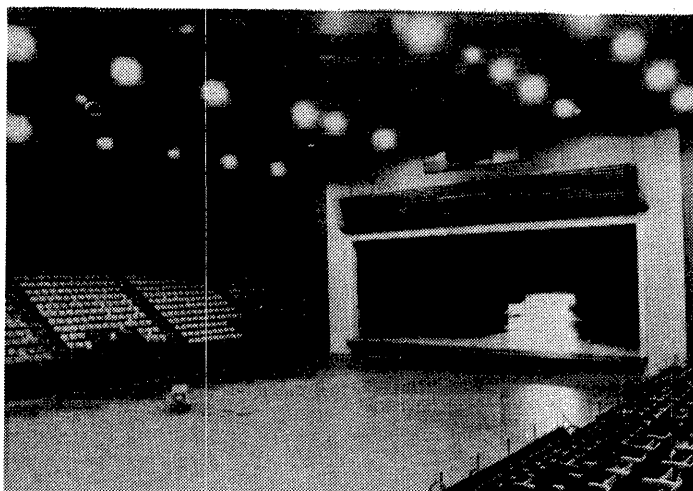
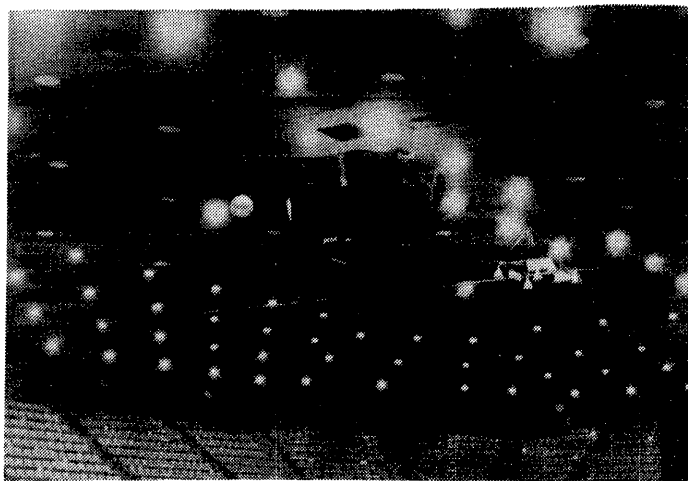
(30,Bob Clemens) Windows in the roof can cause a real problem with exposure determination. They form a bright background which can fool the camera's meter into underexposing the model flying overhead. It's best to take a meter reading in a position where it won't be affected by the windows and set this on the camera. Ignore the readings you get with them in the background. Also you can try, if possible (it was at West Baden) to let the model fly into a background area away from the windows maybe just a wall or some plain surface then shoot. A mike ship against a window isn't going to show up very well, as you well know, Rich.

(30,Richard W. Doig) Bob, is there any standard color reference disk available that you could shoot in the corner of the first photo on the roll to give the lab a color reference?

(30,Bob Clemens) Yes, there is such a reference. It's called the Kodakgray card, and is a standard value that a good lab could use to zero the color balance of photos made under non-standard lighting conditions. You can get a package of these cards at any photo store that caters to pros.

HUMAN POWERED FLIGHT ENDURANCE RECORD

Long time indoor flyer Mark Drela has moved on to larger subjects. He and his co-workers on Project Daedalus (sponsored by MIT & The Smithsonian) recently broke the time aloft record for human powered flight at a dry lake bed out in California. They flew for something over three hours. The next goal is to build a new plane for the flight from Crete to Greece (about 100 kilometers) as told in the myth of Daedalus & Icarus. We wish them the best of luck!



1987 NATIONALS

The 1987 AMA Nationals will be held in Lincoln Nebraska, July 11 through 19. The Indoor events will be at Pershing Auditorium, (the same site used in 1980 and '82), on Sunday and Monday, July 12 & 13. The Outdoor Free Flight events will begin on Tuesday, July 14.

Walt Erbach and Arsene Fauquet made very careful measurements back in November and found the site is Category II, with an FAI ceiling measure of 49ft 1 1/2in, which is just under the Category II limit. Recently I received a letter from one flier questioning whether the thermal expansion of the building in the summer might actually raise the ceiling the 1 inch or so that would move the site into Category III (Walt Erbach's measurements were made in November). My reaction is, "Gee, I hope not, but it is possible." All we can really do is try to get a re-measurement if the opportunity presents itself.

You will notice some hanging obstacles in the photos. Vince Mankowski (Nats General Manager) has assured me that their removal will be included in the rental agreement. The only item that will remain is the scoreboard, which is pretty small, maybe 8 feet square or

so. The ceiling is essentially smooth (corrugated sheet metal), with recessed lighting. Melody and I will be CD's for Indoor again this year, and we plan to meet with Pershing management on Friday morning, to insure that the ceiling really is cleaned off for us, while there is still time to do something about it, if they haven't. We will run all of the Indoor events except for AMA Scale and Peanut Scale, as the Nats is currently set up with all of the scale events, Indoor, R/C, CL, and FF, run by a group of scale contest directors.

Vince Mankowski has assured us that indoor at the Nats will definitely be held this year regardless of the number of advance entries. So, we are on for Lincoln!

If you are an Indoor flier and live within one or two hundred miles of Lincoln, PLEASE consider coming to and flying in the Nats. If you are an Outdoor flier and are coming anyway, and you have a Pennyplane or Scale model, etc. that you fly in the local gym during the winter, PLEASE bring it along and enter it. The more Indoor contestants we have, the better our bargaining position is in the future.

SOURCES FOR SUPPLIES:

I've been thinking about doing this article for some time now, so here goes. At almost every flying session or contest I attend, I'm asked where I bought some tool, where do I buy my film solution, who built my winder, etc. So, here is a list of sources for many of the items I use in building Indoor models, and how to go about obtaining them yourself. I'm really lazy in some respects, because I will buy anything I can, rather than spending time to build it, even though I have access to a machine shop. These are my personal opinions and as such, are totally biased, but I hope they are of value, especially to those new to indoor.

WOOD: This sounds silly, but buy wood whenever you can, from whomever has good stock. My primary source for wood was always Ron Plotzke, but as far as I know, he hasn't cut any wood in five or six years now. I still have some of his wood left. More recently, I've been buying wood from Jerry Skrjanc (pronounced "Scrantz"), of Micro-X. Jerry lives about 40 miles from the Akron Airdock, so I usually make arrangements to see him during a weekend visit to Akron. Jerry charges a premium if you hand pick the wood yourself, or ask for something very special, but the wait can be worth it, and no-one ever tries to return wood that they picked out themselves! I understand that many of the other flyers buy their wood from Lew Gitlow of Indoor Model Supply. That is, many of the flyers that are beating me!

I also have a strange collection of cast off pieces. A piece of 1/16 x 6 x 36 Midwest Balsa, that I use for wing posts, left over from a control line model I built in 1971. A piece of Sig Balsa that I use for rear hook supports, I think it is 1/16 thick. And I built about 15 stabilizers at one point using a piece of 1/32 Midwest Balsa for the outlines. I even have some Jem wood (cut by Walt Erbach, 20 or 30 years ago) that I bought from Phil Klintworth when he retired.

As a rule, the wood that is sawed to thickness will be far stronger than wood that is sanded to thickness. This is because wood is actually a bundle of little tubes, and when you sand the wood, you crush the tubes, weakening the structure. Plotzke, Skrjanc, and Gitlow all saw the wood to thickness. I think that Champion saws their outdoor sizes as well. I'm certain that Sig and Midwest sand their wood. I've never used any wood from Jim Jones or WAL, so I can't comment on their quality.

PROP SPAR WOOD: Micro-X saws tapered sheets for prop spars. I don't know if Indoor Model Supply saws tapered sheets or not. Many top flyers (myself included) use rectangular cross-section prop spars, only sanding a slight radius on one corner to glue the ribs on. When sliced with a Harlan stripper, you can tailor the flex to get even flexing with reduced weight, when compared to sanded spars.

RAZOR BLADES: I'm still using some blades that I bought from Ron Plotzke back around 1975 or so. I also have some good blades that I bought from Jim Jones. A few years ago Jim came across a large stock of Star brand razor blades. Jim still has some of these blades available and these are the best blades around. They are the traditional double edge blades that break off clean.

GLUE: I use good old Ambroid. I use it for all joints in my indoor models except for holding in the prop shafts and attaching covering. Available at your local hobby store. I apply it with a Grumbacher #7703 No.000 sable brush. I thin the glue in a Floquil 1 oz. mixing bottle. The bottles and brushes are available at art stores and hobby stores that specialize in plastic kits.

GLUE SOLVENT: Most people don't know it, but Ambroid Glue Solvent is available in one-pint cans. The local hobby wholesaler in Detroit stocks it, because Ford Motor Co. uses Ambroid to attach the dashboards in their cars! Ford normally buys direct from the factory, but every once in a while, the hobby wholesaler gets a panic call from Ford for 40 or 50 gallons of the stuff. What that means is that my local hobby store can order it for me. You can thin Ambroid indefinitely with it since it is the exact solvent mixture that they use to make the glue in the first place. Make sure you thin the glue in a glass bottle. It will dissolve almost anything else. If anyone is interested in getting some, I could probably order it for you.

PROP SHAFT GLUE: I attach my prop shafts with Goldberg Instant Jet. This is a thin Cyanoacrylate glue. Hot Stuff, and Zap work just as well. The local hobby stores stock Jet, so that's what I use. Besides, their bottle is a different shape than the other brands, and it's easy to hold onto. The Jet forms a strong waterproof, lubeproof bond.

COVERING ADHESIVES: I attach microfilm with water or spit. I attach Ultra-film with Scotch C-77 Spray Adhesive. It's available in this area at the hobby stores. The R/C guys use it to attach balsa planking to foam wing cores. It is also available at some art supply stores. I haven't built any condenser paper models in about four years, and I wasn't happy with the adhesive I used last time, so I think I'll just say that I'm going to try the C-77 next time.

MICROFILM SOLUTION: I use the film that Erv Rodemsky mixes up in his garage. I'm not sure what's in it, and I really don't care. It works. Almost all of the top flyers use his film.

MICROFILM SOLVENT: I cut my film using Aerogloss Dope Thinner. Honest! I use a Grumbacher #7706 No.1 camel hair brush dipped in the thinner to cut Rodemsky's film. This solvent doesn't shoot through the film the way straight acetone does. I carry one of the little 1 ounce bottles that are available at local hobby stores. The brushes are available at a local art store, and also at a local hobby store that specializes in plastic kits.

CONDENSER PAPER: All of the C-paper I have, I bought from Jerry Skrjanc (Micro-X) about 10 years ago. I think I have enough left for about four Easy B's so don't everyone get excited. It's not very much.

PLASTIC COVERINGS: The plastic to use is a polyester film sold by Ray Harlan called Ultra-film. This material is great, but tricky to handle. Ray ships a really good set of instructions with each roll, and the C-77 adhesive idea came from his instructions. Ray buys it from an industrial source in some huge quantity, and then repackages it into a usable size for our use.

TISSUE FOR WING SOCKETS: I'm still using some Sig Jap Tissue that I bought at Joe's Hobby Center in 1968. Champion Model Products currently has some pretty good Esaki Plyspan tissue. (I used Esaki to cover a Wakefield last year). One sheet will last a career if you only use it for wing sockets.

OTHER TISSUE: I also use some little pieces of lightweight silkspan in my designs to reinforce the area around the thrust bearing and rear hook. It's sold by K & S (the tubing people) and I buy it at my local hobby store. I use this same weight of silkspan to roll my motor sticks and tail booms. I don't remember the weight, but it's the lightest they sell.

PROP SHAFT & REAR HOOK WIRE: I use stainless steel wire that I buy from a company called Small Parts, Inc. in Miami, Florida. They package it in 25 ft. rolled lengths that are perfect for our purposes. I use .013" diameter for prop shafts and rear hooks for FAI and EZB, and .020" for Pennyplane. I also use their .014" wire for the torsion rod in my torque meter. Small Parts doesn't make anything. What they do is to buy the large industrial size quantities, and then repackage the items into small lots for people like you and me. They sell screws, wire, ball bearing races and all sorts of neat things.

PROP WASHERS: I use the standard size Teflon washer from Micro-X. Their ultra washers probably weigh less, but I can't see them anymore (even with my new glasses), so I use the larger ones. One washer on each prop shaft.

THRUST BEARINGS: I usually use the pigtail bearings from Ray Harlan, but I also have built some bent wire bearings as well. The Harlan bearings are fast and easy. They come in three sizes; one for FAI, one for EZB, and one for Pennyplane.

BRACING WIRE: On wings I'm currently using some .0012 Karma that I got from Ron Plotzke about 10 years ago. The spool must have been something like 500 feet or so, because it still looks full. I also use some Kevlar in the wings. On tails, I use .0006 Karma from Micro-X. I use .001 Tungsten from Micro-X on my motor sticks.

BORON FILAMENT: I use the boron that Ray Harlan sells. I also have a spool of the boron from Curt Stevens (Model Research Labs) but Harlan's seems to cut a little easier. It might be because Ray's boron has a carbon core, while Curt's has a tungsten core. In both cases, they each bought an industrial minimum order, (something like 40 miles or so) and they repackage it into sizes suitable for our use. Curt ships his on a spool, while Ray's is cut into 24" lengths and shipped inside a plastic tube, capped at both ends.

BALSA STRIPPER: I use one of Ray Harlan's micrometer strippers. I modified it by installing a slightly thicker (.020") backup piece. This is the single most important tool I use during building. Techniques with this stripper will be the subject of an upcoming article.

MOTOR STICK FORMS: I make them from K & S telescoping brass tubing. I usually take two 12" lengths, and telescope them onto one 12" length of the next smaller size. You run a bead of Jet down the small piece, and shove the two larger pieces over it. You now have an instant 24" long tube. K & S also makes some sizes in 36" long lengths, but most hobby stores don't stock them. It's great, because K & S makes their tubing in 1/32" increments, so you can make a form for a slightly larger or smaller size stick easily.

TAIL BOOM FORM: Ray Harlan makes a nifty aluminum tail boom form. I bought one from the first batch that he made. I also have an old Micro-Dyne form, but I don't use it any more since I bought the Harlan form. (Micro-Dyne was Lew Gitlow's company in the sixties. He got out of the supply business for a while, and then came back into business as Indoor Model Supply.)

MICROMETER: I use a Fowler Dial Thickness Gage that I bought in 1971. I have the standard spring in it, which is pretty light. It will not crush wood, and gives about .001" compression when measuring rubber. Similar devices are made by Starett, Browne & Sharpe, Mitutoyo, and other manufacturers of precision measuring equipment. Look for a supplier of machine shop tools to locate a dial thickness gage. Most of the places are geared to the industrial market, but will sell to anyone.

SCALE: I use a beam balance from Ray Harlan for building. It's the best scale around short of spending \$1500 for one of the electronic versions. Ray's current version uses a fiberglass beam with very low inertia, so the scale damps out rapidly. I also had one of Ray's earlier versions with the aluminum beam, and the new version is much better. Mine is an English version, from 0 to .0500 ounces, in .0002 ounce increments, and you can easily interpolate to .0001 ounce. It's the best.

OHAUS TRIPLE BEAM BALANCE: I use this to build outdoor models, but I'm constantly asked where I bought it. I bought it from the local Ohaus distributor in Detroit. Contact the Ohaus factory to find the local distributor in your area.

SCALE FOR WEIGHING RUBBER MOTORS: I use a homebuilt version that I made about six years ago, that uses a .011" diameter nickel-steel guitar string. I made about 40 of these which I sold to justify the expense of getting a photo-engraved version for myself. The original had rub-on numbers, which fell off after a couple of years. I had the photo-engraving done by a local company that makes the nameplates we use in our family business. (We build industrial machine control panels).

TORQUEMETER: I'm still using a beat up old torque meter that was built by Dennis Jaecks back around 1971 or so. Dennis built the red torque meters that Ron Plotzke sold during this period. Jim Jones now makes a similar meter. I also have a Kujawa torque meter, but a broken motor shot it about 15 feet across the room, and it has never been the same. I'll fix it one of these days. I have a special clip on the Jaecks meter that allows it to attach to the top of my model box. I machined the clip in the machine shop at our family business.

WINDER: The winder I use is the guts from a Wilder winder, mounted into a different case. I took out the counter gearing to reduce the size, and I machined a new case in the machine shop. Even Bob Wilder himself didn't recognize it. I use the 10:1 ratio version (I converted it from 20:1 about 1982 or so. This involved getting a different gear from Bob, and drilling some new holes in the case. It wasn't easy.)

This winder was the second indoor winder that Bob ever sold. Bill Shailor bought the first one on the same day back in 1974. This winder will last a long time! The counter only works correctly in the 20:1 version. If you get the 10:1 gears, the counter will read twice the amount you actually have in the rubber.

RUBBER STRIPPER: I have two. One was built by Ryzard Czechowski back around 1974. The other is one of Ray Harlan's. I prefer the Harlan stripper, but you must be careful because I've figured out how to cut myself on the blades while stripping. Even though it looks expensive, it's one of the best bargains around.

PRECISION FORCE GAGE FOR STRETCH TESTING

RUBBER: I use a Trim Series model T5P precision force gage manufactured by Ametek Corporation. This is a 0-5 pound range tension/compression gage with 0.1 pound graduations. It was about \$95 two years ago. Call the factory to find the local distributor in your area.

O-RINGS: I've used o-rings on my motors for many years to ease hookup, but lately I've had some problems with breakage. Anyway, I add the order onto one of the purchase orders at work, and then pay the company for them when they arrive. I use Parker O-rings, 70 durometer Buna-N, in size 002 or 003, depending on the size of the rubber. Part numbers are:

2-002 N 674-7 & 2-003 N 674-7

I've never used any of the other materials around, and more recently I've gone back to no o-rings at all.

RUBBER LUBE: Ah yes, witchcraft. The best lube I've ever used is the batch Ron Plotzke mixed up in 1971. I still have about 1/2 oz. left. Even the next batch that Plotzke made was different somehow. I'm not sure what's in it, but it will wash off completely with water, doesn't attack the rubber, and is light-weight. Jim Jones claims to have duplicated the formula, but Jim's smells different, and feels different. I've also used Micro-X, Indoor Model Supply, Armor-All, and some homebrew from a local outdoor flyer (it looks like Italian Salad Dressing!).

The Armor-All Protectant (sold in auto stores for cleaning vinyl car tops) works very well. The only problem with it is that it penetrates the rubber, and you can't really wash it off. The next session when you go to use the motor, it seems dead. I don't know if the rubber has been attacked, or if the lube worked so well the first time, that I killed the rubber by overwinding. I also found that knots that work fine with conventional lube, may come apart with Armor-All. I think it is because it has more slip than conventional lubes. Also, grapevining seems worse. Maybe more slip isn't better. Also, these observations

are with Pirelli. Armor-All won't penetrate FAI or Champion rubber, but then neither will anything else I've ever tried.

RUBBER: As far as I know, the only people making any kind of decent rubber these days is the factory that makes the rubber for FAI Model Supply and Champion Model Products. I think both of them come from the same factory. All of the rubber that comes in kits, Slick Streaks, and from Sig is all from the same factory as well. I understand that there is some rubber being produced over in Asia, but I don't have any info on it except for a small skein that Bamba of Japan sent me back in 1980. This sample is too thin to work with my stripper, so I've never really tested it. And there is a guy in Italy who is attempting to reproduce the Pirelli formula, but the latest samples & reports I've seen are not promising. I still have enough Pirelli to last for some time, but I conserve it, and I'm careful about storage. Unfortunately, the good to great Pirelli from 1979 to 1982 is better for indoor than anything else ever produced, so we'll just have to wait and see.

BALLOONS: I use 40" round balloons that I buy from a local novelty store. They might also be available at stores that advertise party supplies or Halloween costumes. Ray Harlan also sells the same size balloon. If they charge more than \$3.00 each, question the price. (I was once told \$6.50 each!)

STEERING TUBE: Ray Harlan sells a 40 ft long plastic tube for putting between the balloon, and the balloon string. Ray inflates his tube, but I prefer mine deflated since the balloon seems easier to maneuver. I put a strip of bright orange grosgrain ribbon inside the tube to increase visibility. I bought the ribbon at a local fabric/sewing store. What I really wanted was the fluorescent ribbon like they use on jogging clothes. Does anyone know where to get a 40 ft length of this stuff?

STEERING POLE: I bought a new telescoping pole from a local sporting goods store just last week. They had two different brands! These are actually fishing poles. I bought a Shakespeare Wonderpole #TP1050B-630. This is one of the fairly large diameter lightweight poles, 21 feet long. I was really surprised, since I hadn't seen one in a store since about 1980. The price was \$19.95. I have no idea where the Shakespeare offices and factories are located.

SUMMARY: As I said at the beginning, this is a biased article since it is strictly my own personal preference, however, I think it is probably of value since I've been able to locate a lot of unusual items over the years. If there is something of importance that I've missed, just drop us a line.

Addresses for Suppliers mentioned in this article:

ABS (Jim Jones)
36631 Ledgestone Drive
Mt. Clemens, Michigan 48043
Phone (313) 791-0651

Send self-addressed stamped envelope or call for catalog sheets & information.

Add \$2.00 shipping & handling for each of the following items:

Torquemeter \$14.00 (specify FAI/EZB or PP); Adjustable balsa stripper \$18.50; Fiberglass helical prop forms \$15.95 (specify 18", 24", 26", 28", 32", or 36" pitch).

Add \$1.50 shipping & handling for each of the following items:

Rubber lube 2 oz bottle \$1.00, 8 oz can \$4.00.

The following items are shipped postpaid:

Double edge razor blades \$10.00/100, limited supply; EZB prop assembly fixture \$8.50; Adjustable rib index for slicing ribs \$20.00; Boron 250 ft spool \$15.00; O-rings \$5.50/100 (specify size 001, 002, 003, or 006).

Also wood - guaranteed light, & lots of other nifty items.

AMETEK
Hunter Spring Division
Hatfield, Pennsylvania
(215) 822-2971

Trim series #T-5P precision force gage approximately \$100. Call to get name of local distributor in your area.

CHAMPION MODEL PRODUCTS
880 Carmen Court
La Verne, California 91750

Rubber, \$11.95/box (approx 1 lb.) postpaid. Available in 3/32", 1/8", 3/16", & 1/4" widths. 1/4" recommended for stripping. Also Jap Tissue, Wakefield & Coupe kits. Outdoor FF supplies. Send \$1.00 for complete catalog.

RICHARD DOIG
6 Canary Hill Drive
Pontiac, MI 48055

Kevlar bracing material. Free. Send self addressed stamped envelope.

FAI MODEL SUPPLY (Ed Dolby)
P.O. 3957
Torrance, California 90510

Rubber, \$12.00/box (approx 1 lb.). Available in 1/16", 3/32", 1/8", 3/16", & 1/4" widths. 1/4" recommended for stripping. Small box (approx 1/4 lb.) \$4.50. Add \$1.50 shipping and handling to orders under \$15.00. Also outdoor FF kits and supplies. Send \$1.00 for catalog.

FRED V. FOWLER CO., INC.
66 Rowe Street
P.O. Box 48
Newton, Massachusetts
(617) 332-7004

Model #52-545-000 pocket thickness gage or #52-550-005 dial thickness gage both approximately \$75.00. Call to get name of local distributor in your area.

RAY HARLAN
15 Happy Hollow Road
Wayland, MA 01778

Send self-addressed stamped envelope for catalog sheet & shipping rates.

Micrometer balsa stripper \$40.00 plus shipping; Indoor beam scale \$60.00 plus shipping (specify ounces or grams). Pigtail thrust bearings \$1.25 each plus postage - 3 or more postpaid - specify size (EZB, FAI, PP).

The following items are postpaid:

Rubber stripper \$88.00; Tailboom form \$12.50; Balloons \$2.50 each; Steering tube \$3.00 each; Ultrafilm - 10 ft \$7.25; O-rings (size 002) \$1.80/dozen \$10.00/100; Boron filament 200 ft cut into 2 ft lengths to ease handling \$10.00; Stick-on yardsticks \$1.00 each.

INDOOR MODEL SUPPLY (Lew Gitlow)
Box 39
Garberville, California 95440

Wood, kits, goodies, complete line. Too many items to list here. Send \$1.50 for complete catalog.

K & S ENGINEERING
6917 West 59th Street
Chicago, Illinois 60638
(312) 586-8503

Telescoping brass tubing, silkspan, and precision tools. Available at most hobby stores.

M-A-L (Model Aircraft Labs)
108 South Lee Street
Irving, Texas 75060

Wood, scale kits & plans. Send \$.50 for catalog.

MICRO-X (Jerry Skrjanc)
P.O. Box 1063
Lorain, Ohio 44055

Wood, kits, goodies, complete line. Too many items to list here. Send \$1.50 for complete Catalog

MODEL RESEARCH LABS (Curt Stevens)
25108 Marguerite Pkwy., B-160
Mission Viejo, California 92692

Boron filament 1000 ft spool \$25.00 ppd. Also Kevlar cloth, Carbon fiber sheet, all types of composites. Too many items to list here. Microfilm listed in catalog is from Erv Rodemsky. Send for catalog.

OHAUS SCALE CORPORATION
29 Hanover Road
Florham Park, New Jersey 07932
(201) 377-9000

Triple beam balance model #750-SW approximately \$100. Dust cover extra. Call to get name of local distributor in your area

PARKER HANNIFIN CORPORATION
O-Seal Division
10567 Jefferson Blvd.
Culver City, California 90230
(213) 837-5101

Industrial O-ring manufacturer. Call to get name of local distributor in your area. Also available from Ray Harlan and Jim Jones.

ERV RODEMSKY
1600 Rockspring Place
Walnut Creek, CA 94596

Microfilm solution; 4 ounce bottles.
1st bottle \$6.50 postpaid
2 bottles \$12.50 ppd
3 bottles \$18.00 ppd
add \$5.50 for each additional bottle.

SMALL PARTS, INC.
6901 N.E. Third Avenue
P.O. Box 381736
Miami, Florida 33238-1736
Phone (305) 751-0856

Stainless steel wire, all kinds of neat stuff. Send for catalog. I think the catalog is free.

BOB WILDER
2010 Boston
Irving, TX 75060

Indoor winder - 20:1 or 10:1 ratio - \$42.50 ea plus \$2.00 postage & handling. Indoor torque meter (attaches to winder) \$22.50 plus \$2.00 postage & handling. Get your name on his list, and when he makes his next run of parts, he'll include yours. Be patient. He also makes a Wakefield winder, wakefield hub assemblies, and the ultimate wakefield stooge.

FINAL VOTE ON AMA RULE PROPOSALS

Once again its time for Contest Board members to cast their final vote on this year's round of rule proposals. The ballots must be postmarked by May 1, 1987. If you have not already made your opinion known to your CB representative NOW is the time, or no complaints next year when the new rules go into effect.

To refresh your memory here are the proposals:

GEN-88-2 To clearly state that CD's must check for AMA licenses and where appropriate FAI stamps at all AMA sanctioned activities.

GEN-88-4 To clarify which events and circumstances require an AMA number on the wing of the model. (Indoor models are exempt)

GEN-88-5 To allow event officials to file a valid protest at any AMA sanctioned event.

For the indoor proposals here is the exact wording that will be used in the rulebook should they pass. These are only PROPOSALS. They are not rules at this time!

PROPOSED CHANGES: INDOOR RUBBER

IND-88-4 Change section 12 to read:

12. TIMING OF FLIGHTS. Time of flights starts the instant the model is launched by hand or released for take-off, and ends when the model touches the floor of the building, or when the model jettisons any parts. If an obstruction is met which stops the flight, the stopwatch shall be permitted to run for "20" seconds. If within that time the model frees itself, timing is to continue. If the model does not free itself within the "20" seconds allotted, the watch shall be stopped, "20" seconds deducted from the time indicated, and the result recorded. "A balloon, pole, or any other device may not be used to dislodge the model until after the end of the timing period." Situations involving

IND-88-6 Change section 8.2.f (Easy B section) to read:

"f. The model shall weigh at least one (1) gram."

IND-88-7 Change section 8.2.a (allow plastic covering in Easy B) to read:

"a. The Easy B model shall be a monoplane covered with any commercially available material sold in sheet form. Microfilm is not allowed."

IND-88-8 Add section 8.2.j as follows:

"j. The structural framework of the Easy B model shall be entirely of wood with adhesive for assembly only. Reinforcement utilizing boron, carbon fiber, kevlar or any other non-wood substance is not allowed. Tissue or thread wrap at the thrust bearing and rear hook is acceptable."

IND-88-11 Add to section 9.2.c.3 (Manhattan Cabin):

"If transparent covering is used on the fuselage, then the windshield and windows must be outlined in a contrasting color."

IND-88-14 Change section 12 to read:

"12. TIMING OF FLIGHTS.

a. Hand-Launched Events. Time of flights starts the instant the model is launched by hand and ends when the model comes to rest on the floor of the building (This is interpreted to mean "belly down"), or when the model jettisons any parts. Any model equipped with landing gear permitting taxi after touchdown shall not be permitted to enter hand-launched events.

b. R.O.G. Events. Time of flights starts the instant the model is released for take-off (time includes the take-off roll) and ends when the model touches the floor of the building or when the model jettisons any parts.

c. If an obstruction is met...."

IND-88-15 Add to section 8.2.1 (Easy B - changes ICB Interpretation to a numbered paragraph):

"It is not acceptable to use any material other than wood for the propeller blades and spars, one (1) wire for the propeller shaft, and adhesive for assembly. No gadgets of any kind (such as variable pitch or variable diameter mechanisms) are permitted as part of the propeller. Propeller hubs which permit blade replacement and manual pitch adjustment are acceptable."

PROPOSED CHANGES: INDOOR HAND-LAUNCHED GLIDER

IND-88-13 Change section 5 (combines All-Wood & High-Tech into a single event, with restrictions to eliminate folders & auto-surfaces. Drops all restrictions on materials) to read:

"5. CONSTRUCTION. All surfaces shall remain fixed except for changes of camber or incidence due to natural flexing of the surfaces. Folding wings and mechanically actuated incidence changes are strictly prohibited."

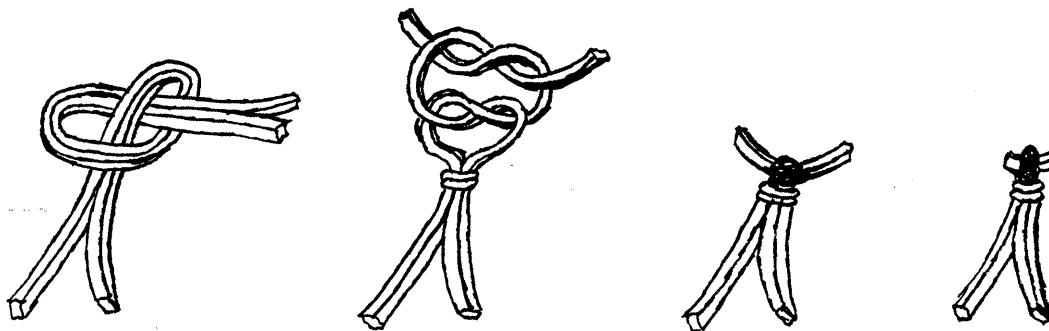
KNOTS

All of us who fly rubber powered models are faced with the same dilemma. Connecting the ends of a strip of rubber into a loop, or, the infamous knot. Here we present three different knots, with some pros & cons of each.

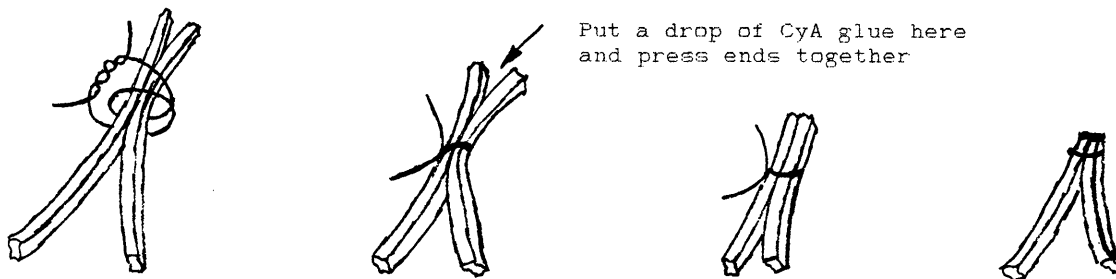
#1. The Classic Knot. This knot has been used for years. It works quite well, except that it tends to come untied, especially with really slippery lubes. Also, it is heavier than any of the other knots presented here. An added problem is that due to it's large size, it can rotate around and punch holes through your motor sticks. Just such an incident caused me to look seriously at other knots.

#2. The Thread knot. In a recent article I referred to this as a "Richmond style" knot. That's because Jim Richmond taught me how to tie this knot in 1982. I don't know who originated this knot, but it has been around for many years. It is favored by many because of it's light weight (.0005 -.0007 ounces). I used it for many years, but I ran into occasional problems with breakage at the knot.

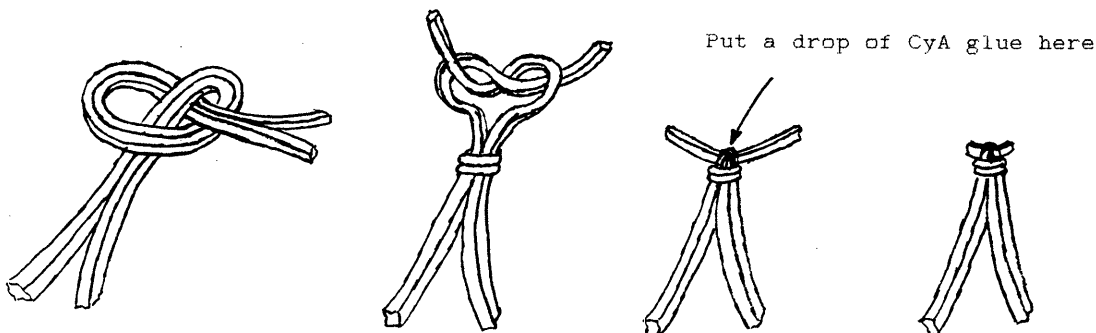
THE CLASSIC KNOT



THE THREAD KNOT



THE MODIFIED CLASSIC KNOT



After some careful observation, I realized that the rubber was actually sliding right through the thread, and when the glued section of the rubber slid through into the working part of the rubber, BANG! The rubber broke. When I began experimenting with alternate lubes, like Armor-All, the problem got worse.

The breakage peaked out when I bought a force gage and began to stretch test rubber. I found that this type of knot consistently came apart at about 3.6 to 3.8 pounds of stretch. Yet the Pierce formulas called for stretch up to about 4.7 pounds to test these particular samples. This is when I watched the knots carefully and discovered the slippage. After some experimenting, I came up with the modified knot as shown in #3.

#3 Modified Classic Knot. The basic problem with the Thread knot, is that the wrap of thread is static, and doesn't tighten up as the rubber is stretched. Both the Classic knot and the Modified knot have a wrap of rubber that stretches and tightens as the motor is stretched. The key to the Modified knot is that the CyA glue secures the backup knot into a shape like a bow-tie, so the backup knot can't slip through the wrap. This knot will take in excess of 5.0 pounds of stretch when tied in the same loops of rubber that broke the thread knots at 3.6 to 3.8 pounds. This knot is definitely stronger. My samples of the Modified Classic knot weighed between .0008 and .0009 ounces, which is a very small weight penalty when compared to the Thread knot.

CONTEST CALENDAR

CALIFORNIA - BURBANK

Blacksheep indoor flying sessions & contests 2nd Thursday of each month 7:00 pm - 10:00 pm CAT I (peak 34') Luther Burbank Jr. HS, Maple between Jeffries & Burbank Blvd. Blacksheep Exhibition Squadron flying activities for Juniors - all categories. Tony Naccarato, 2121 N. Hollywood Way, Burbank, CA 91505 or 818-842-5062

CALIFORNIA - LOMITA

Indoor flying sessions - 3rd Saturday of each month 7:00 pm - 10:00 pm. Call Contact for details: Lonnie Cope 213-214-1131

CALIFORNIA - SAN DIEGO

Indoor flying sessions and monthly meetings 2nd Friday meeting, 4th Friday flying sessions 7:30 pm Colina Del Sol Community Center, 5319 Orange Av. San Diego Orbiteers. Also flying after meeting - call for schedule: Don Munn, Program Chairman, 13095 Wimberly Sq. #112, San Diego, CA 92128 or 619-276-2040

CALIFORNIA - SAN DIEGO area

Indoor flying sessions on 3rd Friday of each month. Mostly Peanuts & west coast Bostonians but any indoor model is welcome. Sponsored by the Scale Staffel Club. For details contact: Tom Arnold, 325 F. Av, Coronado, CA 92118

CALIFORNIA - SAN FRANCISCO

Possible F1D Local trials & flying Sessions CAT III Cow Palace. Contact: Joe Foster, 3771 Timberline, San Jose, CA 95121 or 408-274-5479

CALIFORNIA - SANTA MONICA

Indoor flying sessions - 2nd Sunday of each month 1:00 pm - 4:30 pm Paul Revere Jr. High School in Santa Monica. Flightmasters Bill Warner, 423-C San Vincente Bl, Santa Monica, CA 90402 or 213-393-2198

CALIFORNIA - TAFT

United States Free Flight Championships (AAAA) Indoor events: Saturday, May 23. 6 - 11 pm Taft High School gym. CAT I EZB, NPP, HLG - Hi Tech & All wood combined, Mooney Indoor Peanut Scale. CD: Carlo Godel, 5726 Case Av, North Hollywood, CA 91601 or 818-980-6184

CALIFORNIA - TUSTIN

FAI Indoor Team Selection contests: Local & record trials on May 2-3, June 6-7, & Aug 1-2. Regional & record trials on July 3-5. CAT IV. Hangar #1 on Tustin M.C.A.S. (H). FAI Indoor #203 Sponsor: M.C.A.S. (H) Microfilm Flyers. To gain admittance to Base you MUST contact CD at least 3 days in advance. CD: Curt Stevens, 25108 Marguerite Pkwy, #B-160 Mission Viejo, CA 92692 or 714-240-8404

CALIFORNIA - TUSTIN

FAI Indoor Team Selection Finals, Labor Day weekend Sept 5-7, 1987. CAT IV. Hangar #1 on Tustin M.C.A.S. (H). FAI Indoor (F1D) You must qualify at a Regional contest to enter. For info on how to qualify contact: Richard Doig, F1D T.S. Chairman, 6 Canary Hill Drive, Pontiac, MI 48055 or 313-373-5374

COLORADO - DENVER area

Indoor model flying sessions on scheduled Friday nights 5:30 pm - 9:30 pm. Balch Fieldhouse, C.U. campus. HLG, PP, Bostonian, Scale & Peanut - check with contact for exact schedule of events. Denver Area Indoor Model Airplane Association. Contact: John Berryman, 1866 S. Sedalia Circle, Aurora, CO 80017 or 303-337-2936

CONNECTICUT - GLASTONBURY

Sunday fun fly on May 3, 1987 8 am - 12:30 pm in Glastonbury High School gym. Sponsored by the Glastonbury Aeromodelers. For more info contact: George Armstead 203-633-7836

FLORIDA - MIAMI

4th Annual World Pistachio Proxy Inter-Gnats May 16-17 at Miami Dade South College, 11011 S.W. 104th St. Miami Indoor Aircraft Model Association (MIAMA) Dr. John Martin, 2180 Tigertail Av. Miami, FL 33133 or 305-858-6363

GEORGIA - CUMMINGS (Atlanta)

Spring Indoor contest, April 26. Forsythe County High School gym in Cummings. CAT II EZB, NPP, PP, HLG-all wood, Perryman challenge, 14g Bostonian, Peanut Scale, AMA Scale, OT Indoor Flying Scale, JR HLG & JR Bostonian. Thermal Thumbers of Metro Atlanta. For info: Norm Purdy, 664 Tom Read Dr NE, Marietta, GA 30062-3357 or 404-428-1390

ILLINOIS - CHICAGO

Chicago Aeronauts Midwest States Indoor Championships. April 25 & 26 8 am - 4 pm CAT III. Richard L. Jones Armory, 51st & Cottage Grove. Sat: F1D, Inter. Stick, EZB. Sun: HLG-All Wood, HLG-Hi Tech, Catapult Glider, NPP, PP, Manhattan, Bostonian (7 gram), Peanut Scale, Kit Plan, No-Cal. CDs: Don Lindley, 420 Tupelo, Naperville, IL 60540 or 312-355-9674 & Del Ogren, 1579 Stratford Rd, Deerfield, IL 60015

MASSACHUSETTS - CAMBRIDGE (Boston)

Indoor model flying session; May 2. Flying from 6:00 pm to 10:00 pm. CAT I. Dupont gym, Vassar St. & Massachusetts Av. Events flown on basis of interests. MIT Tech Model Aircrafters. For info & to confirm site availability call CD: Ray Harlan, 15 Happy Hollow Rd, Wayland, MA 01778 or 617-358-4013 or 617-258-1431 (work)

MICHIGAN - DETROIT

Detroit Balsa Bugs Spring Indoor Contest May 3 8 am - 6 pm CAT III University of Detroit - Calihan Hall, McNichols at Livernois. HLG-All wood, Catapult Glider, Manhattan Cabin, Bostonian (7 grams), AMA Scale, Peanut Scale (1982-3 AMA rules), Blatter "40" (one design beginner event, plans in flyer), Embryo Endurance (FAC rules), EZB, NPP, Inter. Stick CD: Paul Crowley, 32604 Tecla, Warren, MI 48093 or 313-294-1236

MICHIGAN - STERLING HEIGHTS (north of Detroit)

Indoor flying sessions, 1st and 3rd Fridays of each month thru May. 7:30 pm - 10:30 pm. CAT I. Heritage Jr. HS - Dodge Park Dr. at 16 Mile Detroit Balsa Bugs. You MUST wear tennis shoes or similar. Rich Doig, 6 Canary Hill Dr, Pontiac, MI 48055 or 313-373-5374

NEBRASKA - LINCOLN

NATS (AAAA), July 12 & 13. 8 am - 12 midnight. CAT II - 1 inch under maximum for category. Pershing Auditorium, 226 Centennial Mall Sq. Traditional events. Send self addressed stamped business size envelope to AMA HQ for entry form. F1D event counts as Team Selection Regional. Richard & Melody Doig, Indoor CDs, 6 Canary Hill Drive, Pontiac, MI 48055 or 313-373-5374

NEW JERSEY - PALMYRA

Friday night flying sessions in Palmyra High School basketball gym. CAT I For info contact: Al Mkitarian, 2031 Harbour Drive, Palmyra, NJ 08065 or 609-829-6573

NEW JERSEY - PISCATAWAY

Edison Recreation M.A.C. Spring Contest, Saturday, May 9, 9 am - 5 pm. Louis Brown Athletic Center, Rutgers University, Piscataway Campus. Novice Pennyplane, Peanut Scale. Sneakers are REQUIRED footwear! CD: Bill Lindemann, 44 High St, Metuchen, NJ 08840 or 201-494-0993

NEW JERSEY - PISCATAWAY

FAI Local & Regional in conjunction with ERMAC contest, Saturday, May 9, 9 am - 5 pm. Louis Brown Athletic Center, Rutgers University, Piscataway Campus. Sneakers are REQUIRED footwear. ERMAC contest flights have right of way. Warning, there may be problems getting all of the blowers shut off. For info contact Manny Radoff, 61 Springbrook Rd, Livingston, NJ 07039, (201) 992-3307. CD for Team Selection Meet: Steven West, 13 North Terrace, Maplewood, NJ 07040, (201) 763-1024

NEW YORK - NEW YORK

Columbia Indoor Model Airplane Society contest May 3. CAT III. Columbia University Low Library Rotunda. Mooney HL Peanut, FAC No-Cal, Bostonian (7grams) and 10 cent Kit/Plan 1930's/40's Comet & Megow Scale*. Ed Whitten, Box 176, Wall Street Station, New York, NY 10005 or 212-724-0282 *Event info: Bob McDow, 305 Carle Rd, Westbury, NY 11590

OHIO - AKRON

F1D Team Selection & Record Trials. Tentative dates: May 16 & 17 and July 3-5. CAT IV. Goodyear Airdock at Akron Municipal Airport. F1D Local in May, F1D Regional in July. Airdock F1D Flyers. Must call Bill Hulbert for Security Clearance at least 2 weeks in advance. Bill Hulbert, 174 Castle Blvd, Akron, OH, 44313 or 216-864-8030

PENNSYLVANIA - PHILADELPHIA

Saturday, May 9 Memorial Hall, Fairmont Park. Contact: Al Mkitarian, 2031 Harbour Dr, Palmyra, NJ 08065 or 609-829-6573

TENNESSEE - JOHNSON CITY

6th United States Indoor Championships (AAAA) June 5, 6, & 7. CAT IV (118FT). Memorial Center - East Tennessee State University. Traditional events. F1D event counts as Team Selection Regional. Sponsored by NFFS & NIMAS. Complete flyer & entry form in this issue Tony Italiano, 1655 Revere Dr, Brookfield, WI 53005 or 414-782-6256 after 7 pm EST

TEXAS - BEDFORD (Dallas/Ft. Worth)

Indoor flying sessions & contests. CAT I. Bedford Boy's Ranch - Forrest Ridge @ Harwood. For dates and events contact: Jesse Sheppard, 2713 Summit View, Bedford, TX 76021 or 817-282-3770

SIXTH UNITED STATES INDOOR CHAMPIONSHIPS

JUNE 5, 6, 7, 1987
EAST TENNESSEE STATE UNIVERSITY
"MINI-DOME"
JOHNSON CITY, TN



Please Print

Name _____ AMA NO. _____
Last First Initial

Street _____

City _____ State _____ Zip _____

I hereby certify that I understand all of the rules under which I will compete and will diligently follow the official AMA safety code as well as any that may be established on site as well as apply the use of good accepted common sense in all my flying and affairs at the contest site.

JUNIOR _____ SENIOR _____ OPEN _____

Signature _____

		Includes One Event	Each Additional Event
Open	NFFS or NIMAS Member	\$14.00	\$4.00
	Non NFFS and NIMAS Members	\$30.00	\$5.00
Junior Senior		\$3.00	\$1.00

CIRCLE EVENTS ENTERED

1. Hand Launched Glider (All Wood)
2. Paper Stick
3. ROG Cabin
4. FID
5. Easy B
6. Pennyplane
7. Novice Pennyplane
8. Manhattan
9. Bostonian
10. Indoor Stick
11. Peanut Scale
12. AMA Scale
13. Peanut Speed
14. Unlimited Speed (BrokenSpar Event)*
15. Ornithopter
16. Autogiro
17. AJI OT Event

CASH AWARDS {
13. Peanut Speed
14. Unlimited Speed (BrokenSpar Event)*
15. Ornithopter
16. Autogiro
17. AJI OT Event

- A. Peanut Grand Prix **
B. Pistachio**

** Indicate interest but enter on site.

*Sponsored by Hardy Brodersen
\$5 per each m.p.h. over 6 m.p.h. to winner only (\$100 max.)

BANQUET- No. of res. @ \$13.00 _____

DORMITORY Reservation:

Single Double Couple

Check for \$_____ is enclosed

In case of emergency please contact:

NAME _____ PHONE _____

STREET _____ CITY _____ STATE _____ ZIP _____

Send fees payable to:
USIC
1655 Revere Drive
Brookfield, WI 53005

Contest Sponsors:
National Free Flight Society
National Indoor Model Airplane Society

Must be postmarked by May 10, 1987.
Late entry fee of \$10.00 payable on site.

NOTE: You can join NFFS or NIMAS and
AMA on premises.

SIXTH UNITED STATES INDOOR CHAMPIONSHIPS

JUNE 5, 6, 7, 1987
EAST TENNESSEE STATE UNIVERSITY
"MINI-DOME"
JOHNSON CITY, TN



NFFS

Category IV

Sanction No. 70094

Sponsored by:
National Free Flight Society
National Indoor Model Airplane Society

	AM 8	9	10	11	NOON 12	1	2	3	4	5	6	7	8	9	PM 10
JUNE 5 FRIDAY		HLG				ORNI	AUTO	SPEED			FLD (3 FLYS)		AMA	STICK	
JUNE 6 SATURDAY		EASY B			INT. STICK				BOST	PEANUT	AMA SCALE				BANQUET
JUL SUNDAY			PP/NPP	MANH					SPCL EVENT		FLD		ROG	CABIN	

NOTE: OPEN EVENTS WHICH HAVE LESS THAN 4 ENTRIES WILL BE CANCELLED

FLD - NOT IN ROUNDS

All models for scale judging are to be submitted by 2:00 P.M. June 5 or earlier (along with documentation and name of contestant).

(Ceiling- 122', Floor- 208'x420')

All Senior and Open Flyers will be required to time flights and assist as called upon (be happy and VOLUNTEER!) Bring your own stopwatch.

Helium available, bring your own balloons.
Note: Helium belongs to all flyers --please lend your balloon to others.

NOTE: For details of the MIAMI PEANUT GRAND PRIX, send a large SASE to: Dr. J Martin, 2180 Tigertail Ave. Miami, FL 33133

BANQUET - SAT. JUNE 6, 1987- 8:00 P.M.
\$13.00 Per Person

Banquet Speaker -

All 1986/87 AMA Rules apply. All rule change "proposals" DO NOT apply!

All entrants must be AMA Members or of their countries governing body. (Contestants provide proof).

Contest Directors:

H. Brodersen, A. Italiano
D. Lindley, C. Sotich
d. Wisniewski

Entries must be postmarked by MAY 10, 1987
Late fee \$10.00 payable on site.

Send your entry payable to:

NO FAULT INSURANCE: Check your model before you come to the contest for rule compliance.

USIC
1655 Revere Drive
Brookfield, WI 53005

DOORS OPEN BY 7:30 A.M. for practice flying.

(414) 782-6256 (after 7 P.M. Milwaukee time)

AWARDS TO 3rd PLACE		Includes One Event	Each Addl. Ev
OP	NFFS AND NIMAS MEMBER	\$14.00	\$4.00
	NON NFFS AND NIMAS MEMBER	\$30.00	\$5.00
JR SR		\$3.00	\$2.00

USIC GRAND CHAMPION (AJI award)

... you wish to participate in the Grand Champion Award, you must select a maximum of 7 events for score. Your declaration must be made before you fly any events whatsoever.

EVENTS ELIGIBLE: HLG, FID, AMA STK, RUB CAB, ORN, AUTO, EZB, INT, STK, P-NUT, AMA SC, PP, NPP, MAN, BOGT.

AJI OLD TIMER (OT) EVENT (Sponsored by Tony I.)

STICK ONLY (Microfilm covered). Design must have been widely published between 1/1/34 and 12/31/42 (bring proof). Construction must be in accordance with plan (balsa sizes may vary). No hi-tech material will be allowed, nor "new" devices such as variable pitch or diameter propeller. Event will be flown on Friday June 5 between 12 noon and 4 p.m. and on a non-interference basis with ornithopter, et al.

A W HLG	JR	SR	OP
INT STICK	X	X	X
RUB CABIN		JR. & SR. (COMBINED)	X
FID			X
EASY B		JR. & SR. (COMBINED)	X
PENNY PLANE	X	X	X
NOVICE PP	X	X	X
MANEAT.			X
BOSTONIAN			X
INDOOR STICK		JR. & SR. (COMBINED)	X
PEANUT SCALE		JR. & SR. (COMBINED)	X
AMA SCALE			X
PEANUT SPEED			X
UNLIMITED SPEED			X
ORNITHOPTER			X
AUTOGIRO			X
AJI OT			X

CASH PRIZES ONLY

NOTICE: Flying schedule may be modified during the contest. The absolute final/official/positively exact schedule will be that which is posted at the officials' table. It is your responsibility to check and know the start/stop times of the events. (It may be advantageous to overlap some events.)

CAMERAS: The arena lights are of the sodium arc type- it is suggested that you bring along the appropriate filter.

TABLES: If you are driving please do bring along a table or two. There will be very limited rented tables available. Share tables, please, and do not board from the first day to the third day. Chairs will be available. If you need close-in lighting, it is up to you to bring all equipments, including your own very long extension cord.

BOSTONIAN RULES:

- Maximum projected wingspan(s) 16" and chord(s) 3".
- Maximum propeller diameter 6", be rubber powered
- Maximum overall length w/o prop is 14".
- Minimum weight w/o motor(s) 7 grams (bi-planes - 14 g).
- Fuselage contains a "box" 1 1/2 x 2 1/2 x 3" (min).
- Longerons must support the motor(s) and form "box".
- Fixed landing gear, two or more rotating 3/4" dia. min. wheels - model must ROG.
- Must have a windshield and a window on each side with min. of 1 sq. in. each.
- Charisma factor: Judge rates model on appeal to him, construction neatness, scale like details, uniqueness, etc. A 1.0 to 1.2 rating is used.
- Seven official flights over 20 seconds, total in full seconds of the best two flights multiplied by the charisma factor determines winner basis.

PEANUT SPEED

- The Unlimited Rubber Speed rules apply except:
- The models are limited to Peanut Scale models.
 - The models' scores will be the time in seconds for the model to fly two laps.
 - The lowest time will determine the winner.

A "GATHERING OF BUTTERFLIES" EVENTS

Let's get some adrenalin flowing- A contest within the contest framework. At the USIC, for a special extra fee of \$10.00, you may enter the "GDB". This entry must be done before your first official flight. Only the USIC 2 highest time flights will be used (2 extra flights are allowed this special event). A separate score chart will be used to follow this event. The GDB event does not affect your USIC event standing. The GDB will be applicable only to EZB and PP but each are separately conducted. A minimum of 6 entries is required for EZB and 6 for PP.

AWARD SPLIT: 1st place-35 % of total GDB entry fees

2nd "	20 % of "	" "	" "
3rd "	15 % of "	" "	" "
4th "	10 % of "	" "	" "
5th "	5 % of "	" "	" "

85 % (remaining 15% is a "tax" by NFFS)

The first 5 flights are for USIC score. If you desire you may fly 2 additional flights, but they can only count towards the GDB event (in addition to the 5). If you desire to count less than 5 flights for USIC, you must declare so and all flights completed at that point close out your USIC scoring. (No inter-mixing allowed).

NO-CAL PROFILE SCALE (Sunday, June 7, @ 3-4 p.m.)

- A recognizable model of a full scale aircraft, with a wingspan not exceeding 16 inches.
- The weight of the model (excluding the rubber motor) shall be no less than 6.2 grams (two pennies).
- No fancy gadgets permitted- plastic prop is permitted. Balsa and Jap tissue shall be the main construction materials. Use of hi-tech materials such as carbon fibre, boron, et al is not at all permitted.
- Model must contain control surface outlines, window outline, and registration markings. Model must have full landing gear, ie., as the full scale aircraft (no profile gear). Same rubber must be used for all flying and no other part shall be replaced, dropped or removed.
- This is a fun event so please honor the intent of the rules. Judges decision will be final, as always.
- Event will be conducted on a mass hand launch basis. Heats will be run with last one down as the winner of each heat. Last heat will be composed only of heat winners.
- There will be approximately 5 minutes between heats.

UNLIMITED RUBBER SPEED (Broken Spar Event)

- Models must be rubber powered and propeller driven.
- Models must start from an unassisted ROG launch from a three-point sitting position.
- Model to be timed for two complete laps around two pylons set 20 feet apart.
- Flights will be disqualified if the model touches the pylon or ground after crossing the starting line.
- The timer will stand in line with the two pylons. Timing starts when the model crosses the line determined by the two pylons and ends when it crosses the line after completing two laps.
- Shortest time for two full laps determines winner.
- No limit to the number of models or launches.

LODGING

***BROADWAY MOTEL, INC.** - P.O. Box B-CRS, 37602, 2608 N. Roan St., 615-282-4011, 110 Units, Net rate to tour brokers.

***BUFFALO MOUNTAIN RESORT** - Rt. #2, Box 100, Unicoi, TN 37692, 615-928-6531, (B.L.), 69 Units.

***CAMARA INN - JOHNSON CITY** - Drawer K-CRS, 37602, 2312 Browns Mill Road, 615-282-2211, (B.C.L.D.), 150 Units, Commission to travel agents, Net rate to tour brokers. 1-800-T Camara / 1-800-9 Camara outside TN.

***CAPRI MOTEL** - P.O. Box 5114, 37605, 3008 W. Market St., 615-926-2952, 8 Units.

***CLEEK MOTEL** - 2700 W. Market St., 37601, 615-926-8145, 44 Units.

***11-E MOTOR COURT** - Rt. #3, P.O. Box 451, 37605, Hwy. 11-E, 615-928-2131, 16 Units.

***FOX MOTEL** - Rt. #3, Hwy. 11-E South, 37601, 615-928-0267, 31 Units with kitchen.

***GARDEN PLAZA HOTEL** - 211 Mockingbird Lane, 37601, 615-282-5550, 188 Units.

***HOLIDAY INN - JOHNSON CITY** - 2406 N. Roan St., 37601, 615-282-2161, (B.C.L.D.), 197 Units, Commission to travel agents, Net rate to tour brokers.

***JONESBOROUGH BED & BREAKFAST** - P.O. Box 722, Jonesborough, TN 37659, 615-753-9223, 8 Rooms.

***ECONOMY INN** - P.O. Box 629, 37605, 106 W. Millard St., 615-926-4131, (C.L.D.B.), 112 Units, Commission to travel agents, Net rate to tour brokers.

***SHERATON PLAZA HOTEL** - 101 W. Springbrook Dr., 615-282-4611, (C.L.D.B.), 205 Units.

***SUPER 8 MOTEL** - 108 Wesley Street, 37601, 615-282-8816, 63 Units.

*Denotes Chamber of Commerce Membership
C-Cocktails
L-Live Music
D-Dancing
B-Banquet Facilities

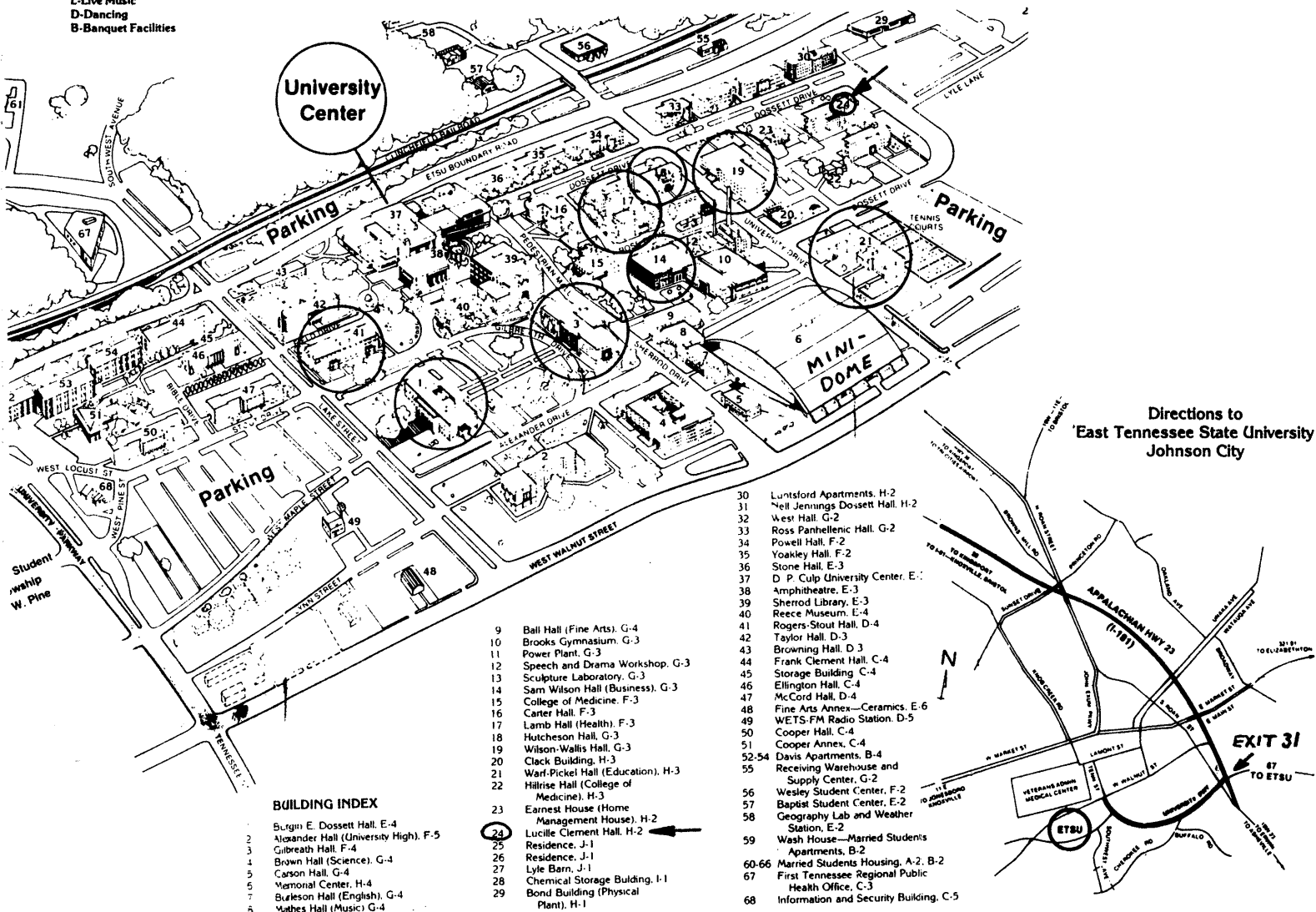
Name	Single	Double
Broadway Motel	\$30.00	\$35.00
Buffalo Mt. Resort	\$29.77	\$35.77
Camara Inn	\$40.00	\$48.00
Capri Motel	(no input)	
Cleek Motel	\$30.00	\$35.00
11-E Motor Ct.	(no input)	
Fox Motel	(no input)	
Garden Plaza	\$45.00	\$45.00
Holiday Inn	* \$42.00	\$48.00
Jonesborough B&B	\$35.00	\$40.00
Economy Inn	\$24.95	\$26.95
Sheraton Plaza	* * \$51.00	\$51.00
Super 8	\$31.00	\$37.00

Note: Above prices subject to change. Make your reservations early. All above prices DO NOT include TN room tax of 11-3/4 %.

JOHNSON CITY, TN, Population- 45,000

22 miles from Virginia/36 miles from North Carolina. Average summer temperature-80 F. Av. relative humidity @ 1:00 p.m. - 58 %. Altitude-1700 feet above sea level.

* Requires 10 room minimum.
** \$45.00 or D if min. of 20 rooms per nite.



DORMITORY: Air-conditioned. Room rate is \$10.00 plus 11-3/4% tax. This is a total of \$11.75 per person (double occupancy). If you want a room for yourself, alone, it is \$20.00 + tax. No linens are furnished. If you desire linens, they can be provided for \$5.00 per person for the period. This includes a set of towels. You must indicate your needs and pay USIC (not ETSU). USIC is being held responsible for the payment, so USIC must be kept informed of all plans and any change of plans.

NOTE: If you lose the room key or do not turn it back in, there is a \$25.00 charge! (A key ring might be helpful.)

ETSU will have an admissions person at the dormitory. Lavatory/shower facilities are located on each floor. The Dormitory is named at LUCILLE CLEMENT HALL (located at west end of Dossett Drive.

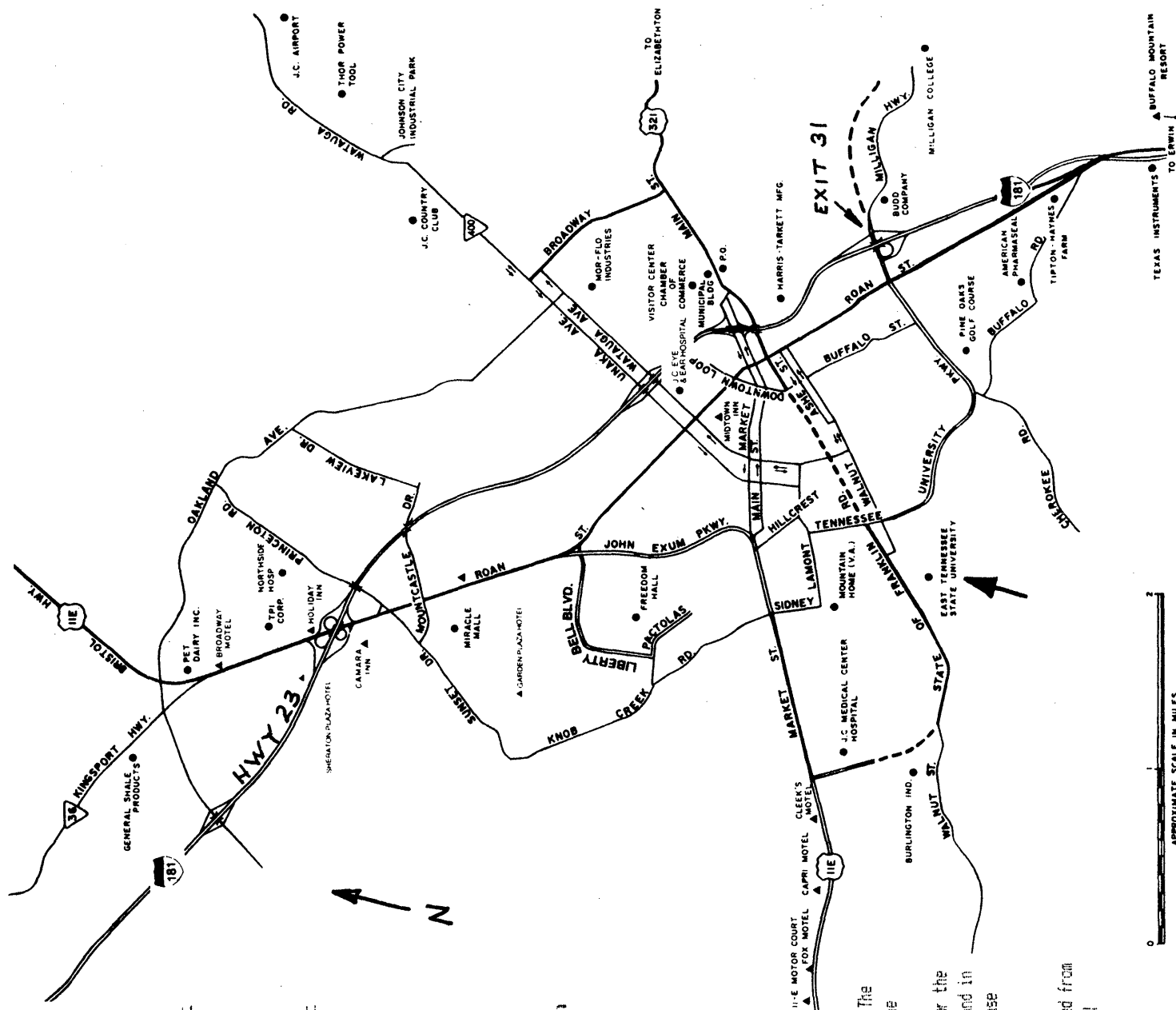
The dormitory provides special areas for married couples, so please indicate as needed.

ENTRANCE DOOR to the Mini-Dome will be on the lower level and marked. The door is on the west side of the Dome directly across the street from the parking areas.

WE NEED A PUBLIC ADDRESS SYSTEM... Do you have one that you can bring for the full 3 days? Or know of one that can be rented at a reasonable price and in operating condition and is good enough to use for the arena space? Please contact A.J. Italiano no later than April 15, 1987. (414-782-6256)

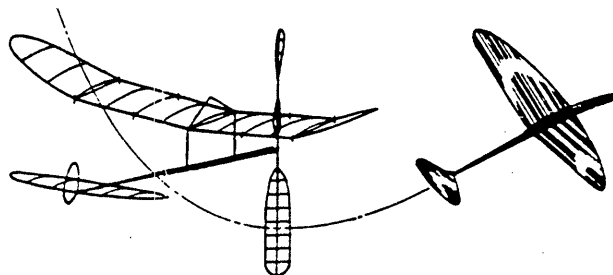
NOTICE: By law NO liquor or beer is allowed on the campus. **ABSOLUTELY NOT!!** If you break this rule, you will be fully disqualified from all events and forfeit all fees, and also be subject to any State of TN actions!

PLEASE watch for and adhere to posted speed limits on campus.



INDOOR

NEWS and VIEWS



#33,34,35,36

Editors: Richard & Melody Doig - 6 Canary Hill Drive, Pontiac, MI 48055 (313) 373-5374

THIS ISSUE

busy (biz'ē) adjective -ier -iest 1. Actively engaged in some form of work. 2. Crowded with activity.

In response to all of the letters about our whereabouts, we are still here, but we have just finished the busiest summer of our lives. Between all of the contests, my job, setting up a computer system at work in my spare time, a major illness in my family, and getting sick myself in August, time has just slipped away. I can't believe it is November already. We are still behind. Well, enough of that.

This issue contains the complete results from the United States Indoor Championships, the AMA Nationals, and the U.S. Team Selection Finals. Yes, we know most of it is old news. But this is the only place you will get a complete list.

SUBSCRIPTION INFO

Indoor News & Views is published approximately four times per year. Current rates are:

\$8.00 USA, Canada, & Mexico
\$9.00 Overseas Surface Mail
\$11.00 Air Mail, Europe & South America
\$12.00 Air Mail, Asia, Australia, New Zealand

Please make payment in U.S. Dollars by cash, money order, U.S. Postal money order, or check drawn on a U.S. bank. Make payable to the order of Richard Doig.

The number in the upper right-hand corner of the mailing label is the final issue of the current subscription.

OBITUARIES

Harold LaClair died suddenly, of an apparent heart attack, on September 20. Many of you met Harold at last year's USIC. Harold was just returning to modeling after a 20 year layoff. He was 71.

1988 AMA NATIONALS

There will be indoor at the 1988 Nationals. The events will be held at a place called the Scope Arena, in Norfolk, VA. The NATS are scheduled for July 23 - 31, 1988. We do not have the exact dates or schedule for indoor, since we didn't attend the planning meeting, but we'll pass them along as soon as they are available.

1988 INDOOR WORLD CHAMPIONSHIPS

The National Free Flight Society's bid to host the 1988 Indoor World Championships in Johnson City, Tennessee was approved by the AMA Executive Council at their October 25 meeting. This was the last step before presenting the proposal to the FAI at the December meeting in Paris. To my knowledge, this is the only bid for the '88 World Champs since I understand that the other rumored site in Paris has been withdrawn, and is no longer available for model flying. The tentative dates for the World Championships are:

Saturday May 28, 1988	Arrival
Sunday May 29, 1988	Testing
Monday May 30, 1988	Rounds 1, 2, & 3
Tuesday May 31, 1988	Rounds 4, 5, & 6
	Banquet

The reason for the early dates is very simple. The site is part of a University, and is only available to us during the break between semesters. So we have our choice of the week between Christmas and New Years, or the first week of June. At the end of summer term, about August 1st, the University closes for one month, until the start of school in September, and the site is unavailable. And since Christmas week in Eastern Tennessee is a good time to bring your snow skis, June is the only realistic choice.

1988 UNITED STATES INDOOR CHAMPIONSHIPS

The 1988 USIC will be held back to back with the proposed Indoor World Championships. This will make a one week long indoor bash. All foreign contestants are welcome to enter the USIC. The tentative schedule for the USIC is:

Wednesday, June 1	F1D (FAI Indoor)
Thursday, June 2	Ornithopter, Autogiro, Helicopter, ROG Stick
	HL Stick, ROG Cabin, Old Timer Stick
Friday, June 3	Bostonian, No-Cal Scale, Manhattan Cabin, Speed, Peanut Speed
	Intermediate Stick, Easy B
	Hand Launch Glider
Saturday, June 4	Novice Pennyplane, Pennyplane
	AMA Scale, Peanut Scale

RESULTS FROM SIXTH UNITED STATES INDOOR CHAMPIONSHIPS

June 5, 6, & 7, 1987 - Johnson City, Tennessee

Category IV - 114 1/2 ft Ceiling

HAND LAUNCH GLIDER - JUNIOR

1. Jim Buxton	45.0 + 44.2 = 89.2
2. Jeff Plassman	32.0 + 29.6 = 61.6
3. Joel Plassman	27.2 + 29.4 = 56.6
4. Mark Richmond	21.0 + 25.0 = 46.0

HAND LAUNCH GLIDER - SENIOR

1. Charles Gagliano	66.6 + 67.2 = 133.8
2. Paul Loucka	56.0 + 58.0 = 114.0
3. Don Slusarczyk	34.4 + 35.4 = 69.8

HAND LAUNCH GLIDER - OPEN

1. Bernie Boehm	69.0 + 69.6 = 138.6
2. Paul Shailor	66.6 + 66.4 = 133.0
3. Brian Pardue	59.4 + 60.4 = 119.8
4. Chuck Slusarczyk	55.8 + 51.0 = 106.8
5. Moe Whittemore	50.2 + 52.8 = 103.0
6. Bill Schlarb	50.8 + 50.2 = 101.0
7. Chuck Markos	50.0 + 47.2 = 97.2
8. Victor Gagliano	43.2 + 44.2 = 87.4
9. Gerald Plassman	43.0 + 42.2 = 85.2
10. Rex Powell	42.2 + 42.2 = 84.4
11. Jim Richmond	42.0 + 41.2 = 83.2
12. Fred Rash	36.8 + 36.0 = 72.8
13. Joe Nuzer	35.6 + 29.0 = 64.6
14. Larry Mzik	24.2 + 34.0 = 58.2
15. Jim Thornbery	27.2 + 30.2 = 57.4
Dan Belieff	
George Jensen	

BOSTONIAN - JUNIOR/SENIOR/OPEN

1. Jack McGillivray	368 x 1.2 = 441
2. John Marett	374 x 1.15 = 430
3. Les Garber	328 x 1.2 = 393
4. Hewitt Phillips	326 x 1.1 = 358
5. Ron Ganser	277 x 1.2 = 332.4
6. Chuck Markos	289 x 1.15 = 332.35
7. John Blair	305 x 1.05 = 320
8. Del Ogren	260 x 1.2 = 312
9. Keith Fulmer	265 x 1.15 = 304
10. Bill Henderson	229 x 1.15 = 263
11. Ed Konefes	233 x 1.10 = 256
12. Dave Erbach	228 x 1.1 = 250
Joe Macay	228 x 1.1 = 250
14. Ken Groves	199 x 1.2 = 238
15. Victor Gagliano	212 x 1.1 = 233
16. Tony Sutter	181 x 1.15 = 208
17. Richard Smith (Jr)	187 x 1.1 = 205
18. George Batiuk	174 x 1.15 = 200
19. Vance Gilbert	146 x 1.20 = 175
20. Richard Miller	149 x 1.05 = 156
21. John Voorhees	113 x 1.1 = 124
22. Bill Franklin	96 x 1.05 = 100
23. Dick Obarski	74 x 1.15 = 85
24. Charles Gagliano (Sr)	49 x 1.1 = 53
25. Mike Arak	42 x 1.2 = 50
Doug Barber	
Richard Ennis	
Jeff Plassman	
Joel Plassman	
Ralph Knight	
Don Lindley	
Rex Powell	
Charles Slater	
Moe Whittemore	

FAI INDOOR (F1D) - JUNIOR/SENIOR/OPEN

1. Rich Doig	38:19 + 34:44 = 73:03
2. Jim Richmond	36:14 + 34:43 = 70:57
3. Bud Romak	30:35 + 33:41 = 64:16
4. Don Slusarczyk (Sr)	28:23 + 29:35 = 57:58
5. Larry Mzik	27:28 + 28:57 = 56:25
6. Don Godfrey	29:44 + 25:56 = 55:40
7. Walt Van Gorder	27:28 + 27:16 = 54:44
8. Dan Belieff	26:45 + 26:44 = 53:29
9. Jesse Shepherd	1:10 + :00 = 1:10
Robert Butsch	
Bill Franklin	
Juergen Kortenbach	
Joe Krush	
Larry Loucka	
Robert Woody	
Chester Wrzos	

A.M.A. RUBBER SCALE - JUNIOR/SENIOR/OPEN

	Flight points	Scale points	Total
1. Ken Groves	90.0 +	96.5 =	186.5
2. Jack McGillivray	83.0 +	93.0 =	176.0
3. John Martin	85.5 +	83.0 =	168.5
3. Les Garber	86.5 +	75.5 =	162.0
4. John Schlagetter	90.0 +	69.5 =	159.5
5. Jim Miller (Bleriot)	64.4 +	93.0 =	157.4
6. Vance Gilbert	76.5 +	64.0 =	140.5
7. John Blair (Stinson)	74.0 +	61.0 =	135
8. George Batiuk	46.3 +	62.0 =	108.3
9. Kevin Smith	18.45 +	84.5 =	102.95
10. Bill Franklin	23.5 +	34.0 =	57.5
Jim Miller (Santos)		94.5	
Juergen Kortenbach		83.0	
Joel Plassman		69.0	
John Blair (Puss Moth)		63.5	
Dave Erbach			
Otto Klein			
Joe Krush			

PEANUT SCALE - JUNIOR/SENIOR

1. Jim Buxton	38 + 96.75 = 134.75
2. Jeff Plassman	13.3 + 59.5 = 72.8
Charles Gagliano	
Don Slusarczyk	

PEANUT SCALE - OPEN

1. Jim Miller (Voisin)	88.5 + 130.0 = 218.5
2. Bill Henderson	106.45 + 107.5 = 213.95
3. Ken Groves (Fike)	103.65 + 107.3 = 210.95
4. J McGillivray (Fury)	83.0 + 109.25 = 192.25
5. Chuck Markos	90.2 + 99.0 = 189.2
6. Les Garber (DH6)	94.5 + 94.5 = 188.5
7. Keith Fulmer	76.25 + 107.5 = 183.75
8. John Blair	69.5 + 92.5 = 162.0
9. Jim Miller	31.4 + 120.0 = 151.4
10. George Batiuk	65.95 + 83.25 = 149.2
11. Mike Arak	47.0 + 90.0 = 137
12. Doug Barber	53.0 + 83.25 = 136.25
13. Nancy Beitz (Waco)	63.2 + 72.0 = 135.2
14. Vance Gilbert	41.0 + 90.0 = 131.0
15. Tony Sutter	23.5 + 94.5 = 118
16. Patti Smith	37.85 + 70.0 = 107.85
17. Nancy Beitz (Scout)	30.5 + 76.0 = 106.5
John Martin (Twin)	104.0
Victor Gagliano	63.0
Dave Linstrum	52.5
Charles Slater	51.1
Otto Klein (Fokker)	45.0
Terry Hreno	
Juergen Kortenbach	
Ralph Knight	
Gerald Plassman	

AUTOGIRO - JUNIOR/SENIOR/OPEN

1. Larry Loucka	8:28
2. Otto Klein	:19
Don Slusarczyk	
John Martin	

INDOOR STICK - JUNIOR/SENIOR

1. Don Slusarczyk	27:04
2. Mark Richmond	10:46
3. Jim Buxton	6:02
4. Paul Loucka	5:36

INDOOR STICK - OPEN

1. Jim Richmond	41:36
2. Bud Romak	39:18
3. Dan Belieff	35:13
4. Rich Doig	34:25
5. Larry Loucka	32:35
6. Larry Mzik	28:42
7. Ron Ganser	26:53
8. Walt Van Gorder	24:20
9. Joe Nuszer	23:32
10. Gil Graunke	22:44
11. John Marett	18:53
12. John Voorhees	12:43
13. Bill Franklin	12:26
14. Robert Woody	att
Tony D'Alessandro	
Dave Erbach	
Don Godfrey	
Wally Mumper	
Chester Wrzos	

INTERMEDIATE STICK - JUNIOR/SENIOR

1. Don Slusarczyk	16:29
2. Mark Richmond	11:19
3. Paul Loucka	10:29
4. Richard Smith	8:05

INTERMEDIATE STICK - OPEN

1. Ron Ganser	25:11
2. Jack McGillivray	24:57
3. Dan Belieff	24:27
4. Larry Loucka	24:20
5. Dick Obarski	23:17
6. Harold LaClair	22:57
7. Tony D'Alessandro	21:04
8. Doug Barber	18:31
9. Les Garber	18:08
10. Tony Sutter	17:44
11. John Marett	17:36
12. Walt Van Gorder	17:07
Joe Nuszer	17:07
14. Joe Krush	17:02
15. Rex Powell	15:35
16. Jim Richmond	15:26
17. Carl Fries	14:52
18. John Voorhees	14:27
19. Gil Graunke	14:09
20. Bud Romak	13:52
21. Gary Underwood	13:06
22. Gordon Wisniewski	11:35
23. Wally Simmers	11:15
24. Ed Burke	10:24
25. Bill Franklin	10:15
26. Bill Henderson	8:33
27. Hewitt Phillips	5:19
George Jensen	
Wally Mumper	
Del Ogren	
Chuck Slusarczyk	
Bob Woody	
Chester Wrzos	

AJI OLD TIMER MICROFILM - JUNIOR/SENIOR/OPEN

1. Ron Ganser	19:49
2. Jerry Nolin	18:31
3. Joe Nuzer	15:30
4. Gil Graunke	13:21
5. Larry Loucka	3:59
Dan Belieff	
Don Slusarczyk	
Tony Sutter	

EASY B - JUNIOR/SENIOR

1. Don Slusarczyk	15:40
2. Charles Gagliano	14:15
3. Paul Loucka	14:10
4. Mark Richmond	11:09
5. Richard Smith	8:59
6. Jim Buxton	6:33
7. Jeff Plassman	4:21
Joel Plassman	

EASY B - OPEN

1. Jerry Nolin	18:40
2. Walt Van Gorder	18:32
3. Dick Obarski	18:21
4. Chuck Markos	18:11
5. Les Garber	17:50
6. Gordy Wisniewski	17:28
7. Wally Simmers	16:38
8. Ken Groves	16:09
9. Jesse Shepherd	16:06
10. Larry Loucka	15:59
11. Tony Becker	15:08
12. Jim Richmond	15:03
13. Jim Clem	14:55
14. Jack McGillivray	14:44
15. Richard Miller	14:27
16. Tony D'Alessandro	14:23
17. Gary Underwood	14:16
18. Doug Barber	14:15
19. Rich Doig	13:41
20. Dave Erbach	13:37
21. Chuck Slusarczyk	13:06
22. Charles Slater	12:47
23. George Jensen	12:39
24. John Marett	12:33
25. Joe Krush	12:14
26. Larry Mzik	12:03
27. Bill Franklin	11:46
28. Joe Nuszer	11:28
29. Carl Fries	10:54
30. Phillip Hartman	10:36
31. John Barker	10:18
32. John Voorhees	10:17
33. Victor Gagliano	10:10
34. Hewitt Phillips	10:04
35. Bill Henderson	9:41
36. Gil Graunke	9:30
37. Ed Konefes	8:48
38. Richard Ennis	8:42
39. Tony Sutter	8:28
40. Gerald Plassman	8:20
41. Avner Mandelman	7:20
42. Terry Hreno	6:38
43. Chester Wrzos	5:45
44. Moe Whittemore	5:14
45. Ed Berton	:48
George Batiuk	
Dave Erbach	
Jim Jones	
Otto Klein	
Don Krupp	
Rex Powell	
Steve Robbins	
Peter Staehling	
Bob Woody	

R.O.G. CABIN - JUNIOR/SENIOR/OPEN

1.	Larry Loucka	20:25
2.	Ron Ganser	17:20
3.	Don Slusarczyk	15:27
4.	Tony D'Alessandro	8:38
	Dan Belieff	Att
	Rich Doig	
	Bill Franklin	
	Joe Krush	
	Tony Sutter	

NOVICE PENNYPLANE - JUNIOR

1.	Richard Smith	9:49
2.	Mark Richmond	7:34
3.	Joel Plassman	4:49
4.	Jeff Plassman	4:26

NOVICE PENNYPLANE - SENIOR

1.	Paul Loucka	9:22
2.	Don Slusarczyk	8:28

NOVICE PENNYPLANE - OPEN

1.	Jim Clem	12:44
2.	Joe Macay	12:30
	Charles Slater	12:30
4.	Chuck Markos	12:19
	Jack McGillivray	12:19
6.	Ken Groves	11:59
7.	Jim Richmond	11:58
8.	Les Garber	11:56
9.	Richard Miller	11:42
10.	Doug Barber	11:41
11.	Bud Romak	11:25
12.	Ed Konefes	11:10
13.	Del Ogren	11:09
14.	Harold LaClair	11:05
15.	Vance Gilbert	10:55
16.	Jim Thornbery	10:53
17.	Keith Fulmer	10:47
18.	Phil Hartman	10:44
19.	Wally Simmers	10:43
20.	Otto Curth	10:28
21.	John Marett	10:27
22.	Tony D'Alessandro	10:18
	Bill Henderson	10:18
24.	John Barker	10:12
25.	Tony Becker	10:05
26.	Walt Van Gorder	10:04
27.	Ed Berton	9:56
28.	Joe Nuszer	9:42
29.	Rich Doig	9:39
30.	Tony Sutter	9:28
31.	Gary Underwood	9:18
32.	Bill Franklin	9:10
33.	Jerry Nolin	9:00
34.	George Jensen	8:55
35.	John Blair	8:35
36.	John Voorhees	8:28
37.	Jim Jones	8:12
38.	Mike Arak	8:02
39.	Carl Fries	7:51
40.	Carl Butsch	7:49
41.	Ron Ganser	7:36
42.	Moe Whittemore	6:58
43.	Robert Butsch	5:31
44.	Fred Rash	2:07

Ron Buffman
Carl Carlson
Gil Graunke
Otto Klein
Larry Loucka
Chuck Slusarczyk
Pete Staehling
Gordy Wisniewski
Chester Wrzos

MANHATTAN CABIN - JUNIOR/SENIOR/OPEN

1.	Walt Van Gorder	10:50
2.	Chuck Slusarczyk	10:12
3.	Don Slusarczyk (Sr)	9:51
4.	Chuck Markos	9:26
5.	Hewitt Phillips	9:17
6.	Plenny Bates	9:08
7.	Ken Groves	8:56
8.	John Marett	8:21
9.	Ron Ganser	7:42
10.	Joe Krush	6:41
11.	Joe Macay	6:39
12.	Tony Sutter	5:42
13.	George Jensen	5:27
14.	Jim Buxton (Jr)	4:31
15.	Moe Whittemore	2:26
	Ed Burke	
	Tony D'Alessandro	
	Keith Fulmer	
	Bill Henderson	
	Harold LaClair	
	Larry Loucka	
	Gerald Plassman	
	John Schlagetter	
	Chester Wrzos	

PENNYPLANE - JUNIOR

1.	Richard Smith	9:24
2.	Mark Richmond	7:55
3.	Jim Buxton	4:30

PENNYPLANE - SENIOR

1.	Paul Loucka	8:59
2.	Don Slusarczyk	2:54

PENNYPLANE - OPEN

1.	Gordon Wisniewski	15:11
2.	Larry Loucka	14:32
3.	John Voorhees	13:45
4.	Joe Nuszer	13:36
5.	Walt Van Gorder	13:21
6.	Doug Barber	12:42
7.	Joe Krush	12:23
8.	Ken Groves	12:08
9.	Jim Richmond	12:02
10.	Jack McGillivray	12:00
11.	Jim Clem	11:16
12.	Ron Ganser	11:13
13.	Chuck Markos	11:03
14.	Peter Staehling	10:46
15.	Rex Powell	10:06
16.	John Marett	9:59
17.	Bill Franklin	9:43
18.	George Jensen	8:49
19.	Tony Sutter	7:58
20.	Ed Burke	6:50
21.	Terry Hreno	6:22
22.	Carl Fries	5:45
	George Batiuk	
	Richard Ennis	
	Les Garber	
	Vance Gilbert	
	Jim Jones	
	Hewitt Phillips	
	Chuck Slusarczyk	
	Charlie Sotich	
	Chester Wrzos	

NO CAL - MASS LAUNCH - JUNIOR/SENIOR/OPEN

1.	John Marett
2.	Del Ogren
3.	Chuck Slusarczyk

ORNITHOPTER - JUNIOR/SENIOR/OPEN

1. Frank Kieser	10:33 *
2. Les Garber	7:02
3. Juergen Kortebach	6:44
4. Rex Powell	5:55
5. Joe Krush	5:11
6. Doug Barber	3:18
7. Terry Hreno	2:33
8. Hewitt Phillips	2:26
9. Peter Staehling	1:36

PEANUT SPEED - JUNIOR/SENIOR/OPEN

	seconds	mph
1. Bill Henderson	8.72	9.82
2. John Blair	13.57	6.27
3. Jeff Plassman (Jr)	16.11	5.32
John Martin		

UNLIMITED RUBBER SPEED - JUNIOR/SENIOR/OPEN

	seconds	mph
1. Jim Thornbery	5.92	14.47
2. Chuck Markos	6.58	13.01
3. John Voorhees	7.60	11.27
4. John Martin	8.40	10.19
5. Richard Ennis	8.71	9.83
6. Bill Henderson	8.88	9.64
7. John Marett	18.42	4.65
Doug Barber		
John Blair		
Victor Gagliano		
Charlie Sotich		
Gary Underwood		

U.S.I.C. GRAND CHAMPION SCORING

event	#1	#2	#3	#4	#5	#6	#7	Total
1. Ken Groves	86.5	53.8	100.0	96.1	94.1	79.9	82.5	592.5
2. Chuck Markos	70.0	97.5	74.7	86.9	71.7	96.7	87.1	584.6
3. John Marett	67.3	45.5	97.0	70.0	82.1	65.8	77.1	504.8
4. Les Garber	66.5	95.6	88.7	86.9	86.8	72.3	0.0	496.8
5. Jim Richmond	60.0	100.0	80.5	61.5	79.3	94.0	0.0	475.3
6. Larry Loucka	85.8	78.3	100.0	96.7	95.7	0.0	0.0	456.5
7. Bill Franklin	31.5	63.2	22.5	30.6	41.0	64.0	72.0	324.8

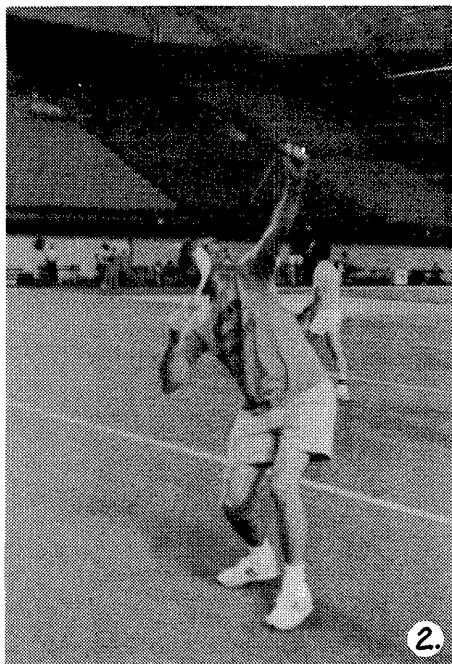
* Denotes National Record

USIC PHOTOS

- Hand launch glider winners compare models. Bill Schlarb (6th) with back to camera, Bernie Boehm (1st), & Paul Shailor (2nd).
- Jim Thornbery shows his catapult glider launch form.
- John Voorhees launches Unlimited Speed model to 3rd place finish.
- Ron Ganser with winning Oldtimer Microfilm model, a Walt Erbach design.



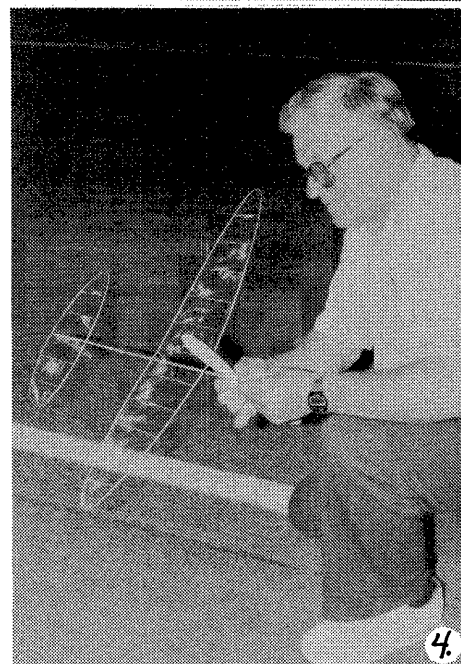
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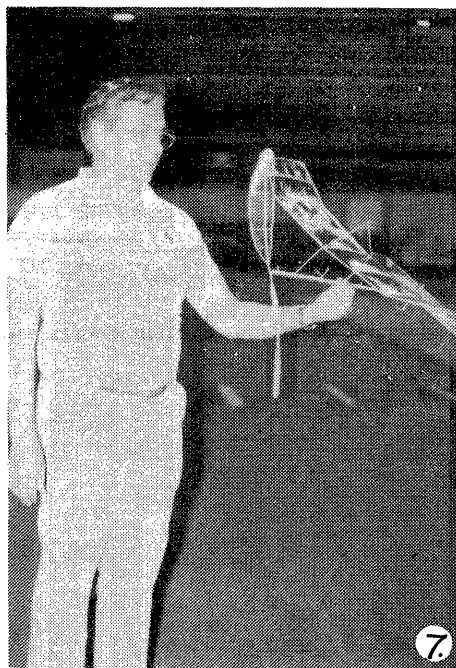
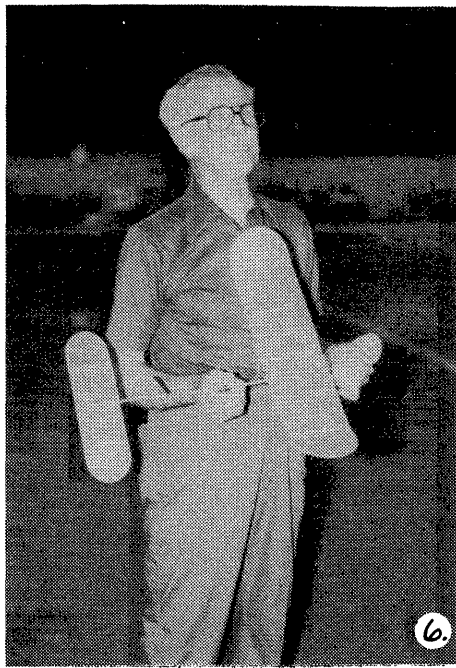
2.



3.



4.



5. Walt Van Gorder makes an adjustment to his Easy B.

6. NFPS co-founder, Carl Fries made it to this years' USIC after missing several.

7. World Champion Jim Richmond with F1D model. Placed 2nd!

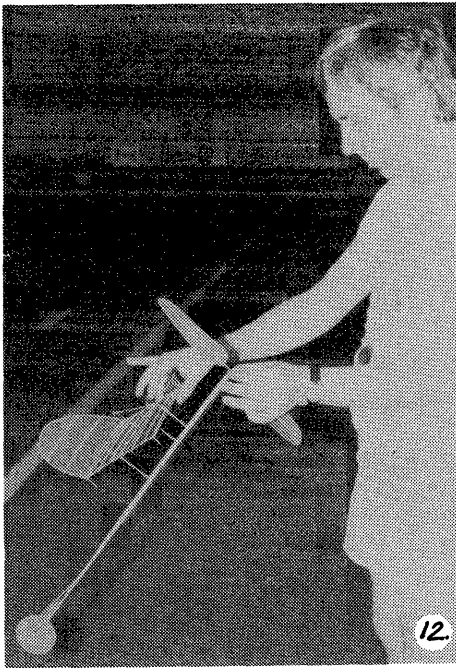
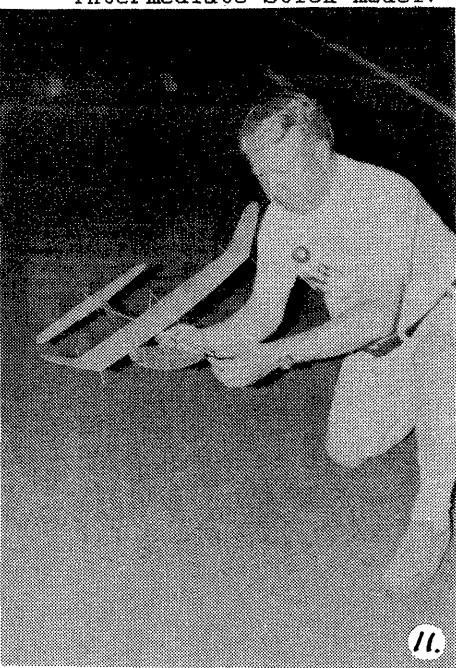
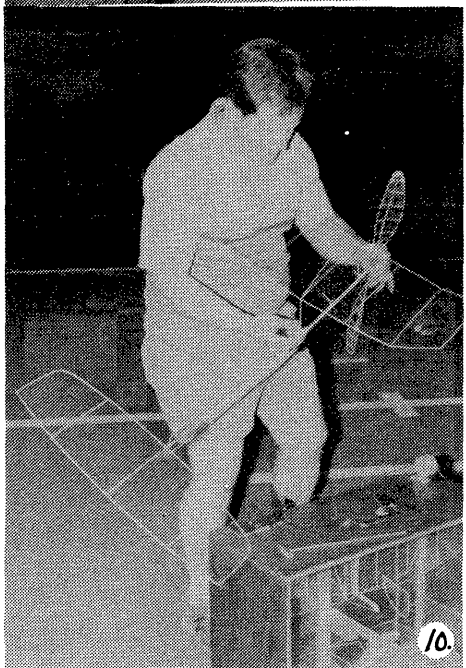
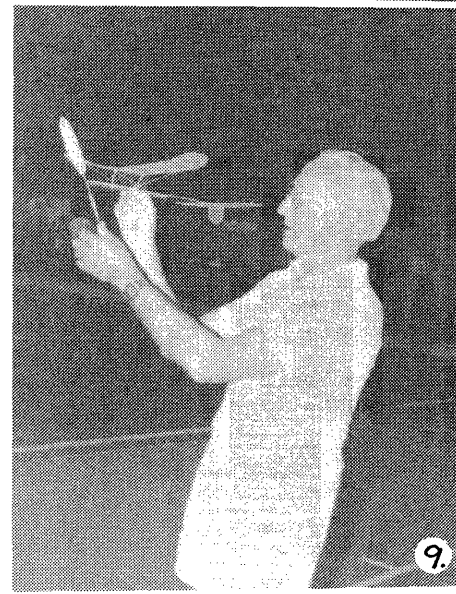
8. Jack McGillivray flies events other than scale as shown by this Easy B.

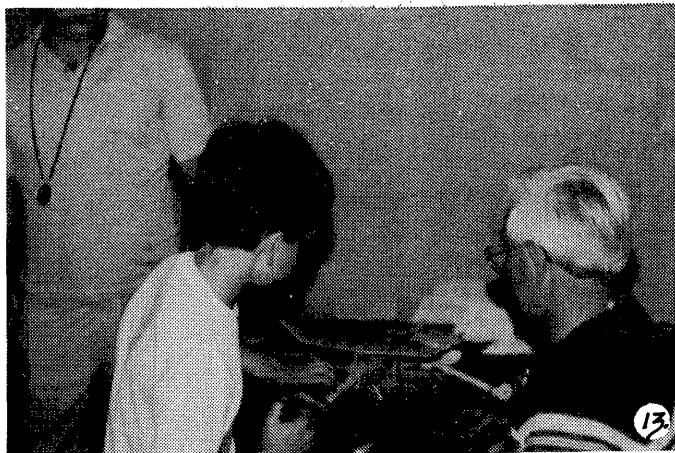
9. John Barker with Easy B at his first USIC.

10. Rich Doig with F1D winner "Garfield" - 10 1/2" chord.

11. Gil Graunke with Intermediate Stick model.

12. Dave Erbach adjusts Intermediate Stick model.





13. Richard Smith winds his Bostonian while his father & grandfather (r) look on.

14. Ed Berton looking over his Novice Pennyplane .

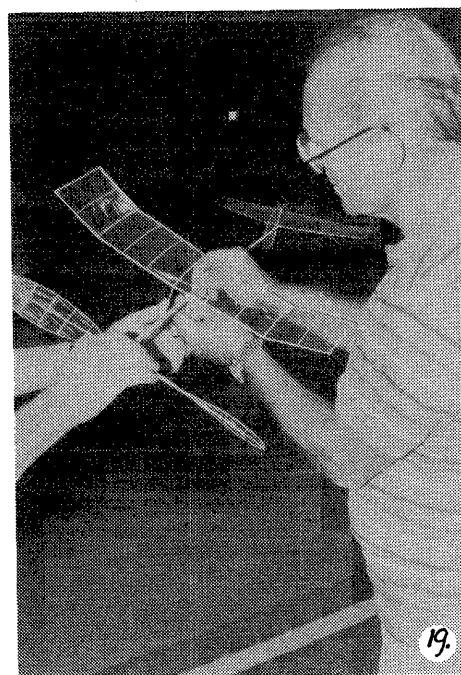
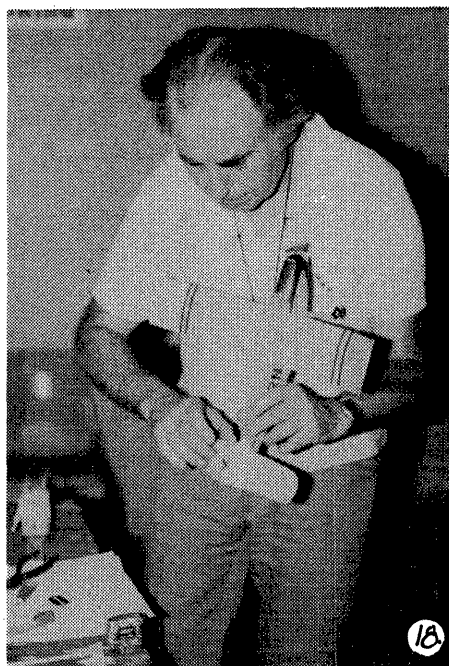
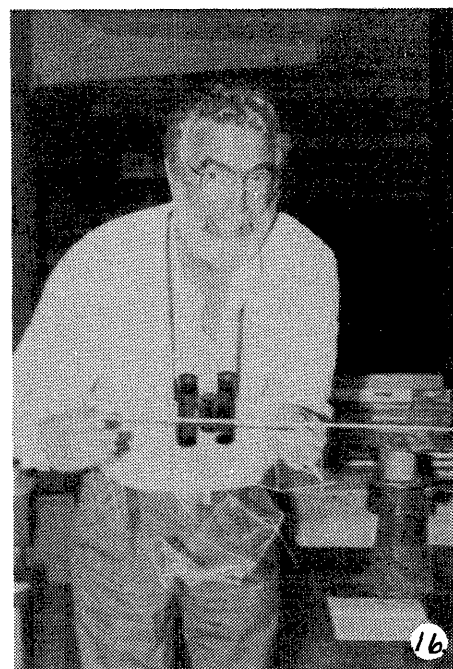
15. Charles Slater readies to launch Novice Pennyplane which placed 2nd.

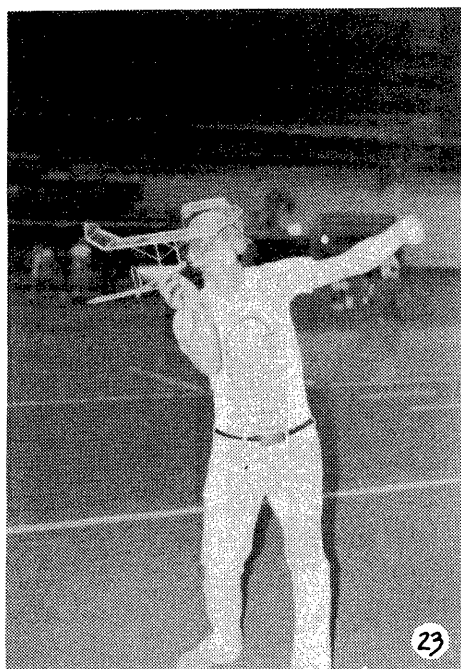
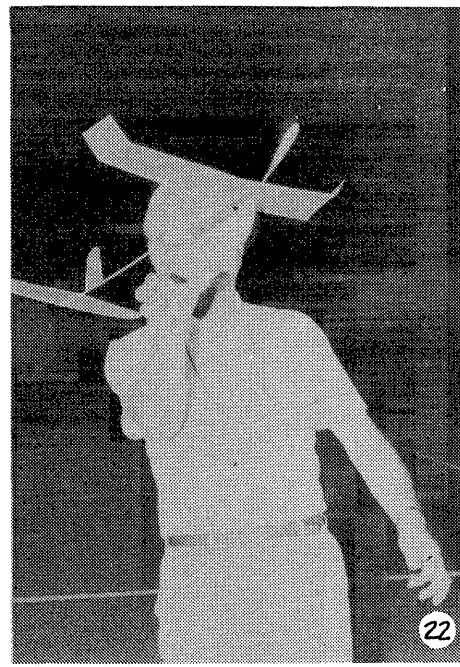
16. EGADS HARDY! What are you doing to that unidentified Intermediate Stick model? NFFS Exec. Hardy Brodersen

17. Scale judges Ray LeFrancois and George Leffler were kept busy with 15 AMA & 25 Peanut scale models.

18. John Marett makes an adjustments to his 2nd place Bostonian.

19. Bud Romak brought more than microfilm models as shown by this Intermediate Stick.





20. Tony Becker with Easy B model.

21. Walt Van Gorder launches Manhattan Cabin "Manhattan Pieces" on its way to 1st place.

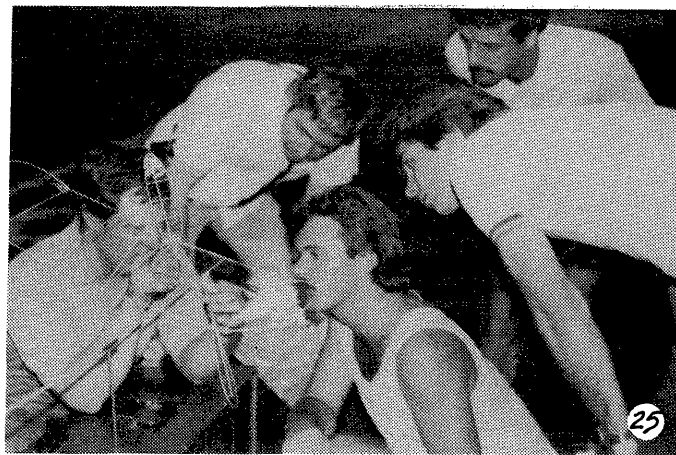
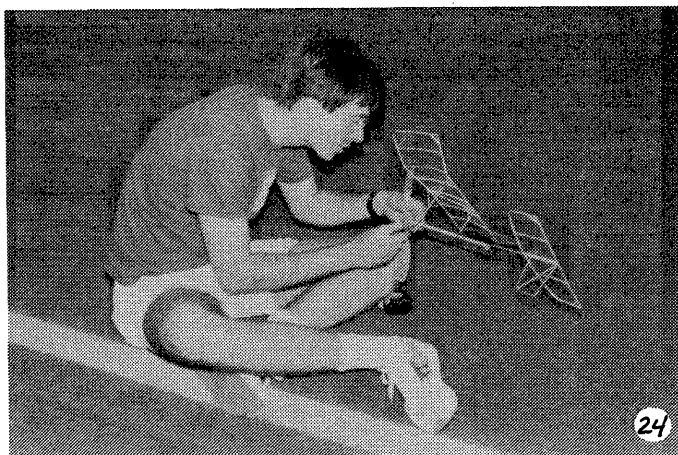
22. Jerry Nolin launches Easy B "Serendipity" on its way to winning the event. * Construction article appears in Jan. 1988 issue of Model Aviation magazine.

23. Del Ogren shows his launch form with his Novice Pennyplane - note unusual winglets.

24. Jim Thornbery found the Astro-Turf a comfortable seat to adjust his Novice Pennyplane.

25. Rich Doig explains how his Variable Diameter prop works to a interested crowd of Dave Erbach, Charles Slater, Juergen Kortebach, & Dennis Strega.

USIC photos by Melody & Richard Doig



1987 UNITED STATES INDOOR CHAMPIONSHIPS

I never thought I would fly in a site that was better than West Baden, but I think the Memorial Center is better. Careful measurement of the site yielded an FAI measurement of 114 1/2 feet, or 34.9 meters. Rather than a blow by blow account, I'd rather just share some thoughts and observations about the contest and the site.

The contest was well organized, well run, and a joy to fly in. At one point during Easy B, there were 43 airplanes airborne at one time. There were only a few mid-air, and minimal hangups. The speakers proved to be no problem at all, since they were raised up to the ceiling. The flags were a problem, and Tony Italiano is arranging to have them removed next year, if possible.

I flew four events, 21 official flights, and did not steer once. There was very little drift, and the models seemed to center. It was warm, with temperatures in the high 80's (31 degrees C).

The lighting turned out to be fine for color photos without special filters, but lighting around the sides was a problem since the stands overhang the field (floor?) about four feet, and most people set up their tables under the overhang, in the shadows. (Bring lights, power strips, and extension cords next year)

The Astro-Turf was marvelous. It was soft, quiet, and easy on the feet and knees. Many hand-launch gliders survived diving in without breaking. The micro-film flyers had some problem, since if a model landed on the turf, the bracing could snag, making it difficult to pick up the model.

I have flown in many sites, but never have we had so much room. There seemed to be an inversion layer at the roof. My own 38 minute flight in F1D didn't touch the girders, even though it spent almost 15 minutes within 5 feet of the roof. Richmond did 41 minutes flying a beautiful new record attempt model, with a 36 inch span 9 1/2 inch chord wing, and a large high aspect ratio stab. (He did 51:35 in Akron with the same model in July).

The contest drew 96 contestants, and all of us are looking forward to returning next year.

LOST & FOUND

Found at NATS: One scale tape measure.

Found at USIC: One balloon steering setup.

Contact us to claim them.

CATEGORY I WORLD RECORD

Thedo Andre' of The Netherlands has broken the Category I (up to 8 meters or approximately 26 ft 3in) World Record with a flight of 28:54 at the International Butterfly Meeting in the Goffertal, Nijmegen, The Netherlands, on June 6 & 7, 1987. Thedo has supplied us with a beautiful set of plans and an article which we'll include in the next issue.

DIFFERENCE BETWEEN USIC & NATS

One of the questions we get asked most often, is "What is the difference between the United States Indoor Champs, and the Nationals?" Here is the answer.

The AMA Nationals, or NATS, is an event run by the Headquarters Staff of the Academy of Model Aeronautics, along with a group of volunteers. The NATS attempts to run control-line, radio control, free flight, and indoor events, all during a one-week long contest in a relatively small geographic area. They like to limit the radius so all of the events are within a one-hour drive of each other. The net result is that indoor & outdoor free flight usually get moderate sites, but seldom anything spectacular. The NATS is moved to a different part of the country each year.

The United States Indoor Championships is run by the National Free Flight Society, which really means Tony Italiano and some dedicated volunteers. The USIC is indoor only, and is held in the very best site we can get for a reasonable cost, since there is no budget to support it like the NATS has. In the six USIC's held to date, we have had four different sites, with the worst building still producing flights over 30 minutes. The USIC was originally started at West Baden in 1982. When we lost West Baden in 1984, we searched to find a suitable replacement site, while still running a meet each year to keep the contest alive. We think we've found it at Johnson City.

1987 AMA NATIONALS

It's amazing what a difference a good site makes to attendance at an AMA NATS. Final count was 69 contestants. Pershing Auditorium really is Category II. A roller skating floor covered the concrete floor, so the site actually measured out at 48 1/2 feet.

Vince Mankowski from AMA had arranged to have the scoreboard removed and we managed to get the ceiling almost completely clean (three strings were missed). The result was a completely smooth and clean ceiling. Also, it was hot, about 95 degrees in the site, and the times reflect the temperature, resulting in new national records in 13 classes.

There were always spectators in the stands, and as many as 75 or 80 people came to watch in the evenings. And they got to see quite a show. Next year we will try to convince HQ to provide a portable booth and more literature at the indoor site. We did have copies of INAV #29 with the sources article and gave away something like 125 copies. I'm convinced that people who stroll in to watch, especially R/C and C/L fliers, are our best source of new indoor fliers. We must do a better job of promoting ourselves.

This is the first site we have had at a NATS in a long time that I thought was really worth the rent (about \$1200 per day). The only down side was parking space (there wasn't any), and the incomplete scale results (we didn't run scale). In light of the awful winds (43 mph during outdoor HLG), and poor outdoor free flight site (30 foot deep ravines), indoor turned out to be the shining star of the whole Nationals.

RESULTS A.M.A. NATIONALS - LINCOLN, NEBRASKA

JULY 12 & 13, 1987 CAT II (48 1/2')

HAND LAUNCH GLIDER (ALL WOOD) - JUNIOR

- | | |
|-----------------|--------------------|
| 1. James Buxton | 37.8 + 35.4 = 73.2 |
| 2. Don DeLoach | 27.0 + 31.0 = 58.0 |

HAND LAUNCH GLIDER (ALL WOOD) - SENIOR

- | | |
|---------------------|--------------------|
| 1. Charles Gagliano | 38.2 + 36.0 = 74.2 |
| 2. Don Slusarczyk | 35.4 + 36.8 = 72.2 |
| 3. David Brown | 25.6 + 26.0 = 51.6 |
| 4. Matthew Gagliano | 24.6 + 18.6 = 43.2 |

HAND LAUNCH GLIDER (ALL WOOD) - OPEN

- | | |
|---------------------|--------------------|
| 1. Paul Shailor | 46.8 + 48.0 = 94.8 |
| 2. Chuck Markos | 46.2 + 44.6 = 90.8 |
| 3. Chuck Slusarczyk | 45.6 + 44.4 = 90.0 |
| 4. Bill Schlarb | 42.2 + 42.2 = 84.4 |
| 5. Vic Cunningham | 41.6 + 39.0 = 80.6 |
| 6. Victor Gagliano | 38.8 + 39.2 = 78.0 |
| 7. Kevin Henderson | 38.0 + 39.8 = 77.8 |
| 8. Jerry Dubaka | 39.0 + 38.4 = 77.4 |
| 9. Bob Nichols | 37.4 + 38.6 = 76.0 |
| 10. Victor Nippert | 35.6 + 36.2 = 71.8 |
| 11. Hank Sperzel | 25.4 + 19.8 = 45.2 |
| 12. Bob Brown | 21.8 + 22.2 = 44.0 |
| Steven Bard | |
| Bruce Kimball | |
| Larry Kruse | |
| Tony Vaughan | |

FAI INDOOR (F1D) - JUNIOR/SENIOR/OPEN

- | | |
|------------------------|-----------------------|
| 1. Stan Chilton | 30:23 + 29:46 = 60:09 |
| 2. Rich Doig | 25:18 + 26:31 = 51:49 |
| 3. Don Slusarczyk (Sr) | 21:09 + 20:53 = 42:02 |
| 4. Jim Clem | 15:04 + 16:35 = 31:39 |
| 5. Jim Grant | 10:40 + 20:36 = 31:16 |
| 6. Walt Van Gorder | 5:57 + 12:58 = 18:55 |
| 7. David Brown (Jr) | 3:25 + 0:00 = 3:25 |

A.M.A. SCALE - JUNIOR

- | | scale | flight | = total |
|--------------------|--------|---------|----------|
| | points | points | |
| 1. Don DeLoach | 50.00 | + 53.39 | = 103.39 |
| 2. Summer Ferguson | 25.00 | + 52.04 | = 77.04 |
| 3. Lance Ferguson | 36.00 | + 39.11 | = 75.11 |
| 4. James Buxton | 58.00 | + 8.93 | = 66.93 |

A.M.A. SCALE - SENIOR

- | | scale | flight | = total |
|--------------------|--------|---------|---------|
| | points | points | |
| 1. Melaine Sanford | 32.00 | + 65.56 | = 97.56 |
| 2. David Brown | 49.00 | + 45.87 | = 94.87 |

A.M.A. SCALE - OPEN

- | | scale | flight | = total |
|----------------------|--------|---------|----------|
| | points | points | |
| 1. Jack McGillivray | 86.00 | + 90.00 | = 176.00 |
| 2. Ken Groves | 82.50 | + 90.00 | = 172.50 |
| 3. James Miller | 89.50 | + 76.40 | = 165.90 |
| 4. Larry Kruse | 73.50 | + 78.99 | = 152.49 |
| 5. Tom Norell | 77.00 | + 55.58 | = 132.58 |
| 6. Bob Willey | 75.00 | + 42.22 | = 117.22 |
| 7. John "Doc" Martin | 66.00 | + 48.00 | = 114.00 |
| 8. Curtis Sanford | 35.00 | + 64.48 | = 99.48 |
| 9. Ed DeLoach | 45.50 | + 48.41 | = 93.91 |
| 10. Clyde Norell | 16.50 | + 50.54 | = 67.04 |
| Michael Welshans | 45.50 | | |
| Richard Becks | | | |
| David Erbach | | | |

PEANUT SCALE - JUNIOR

- | | scale | flight | = total |
|--------------------|--------|---------|----------|
| | points | points | |
| 1. Lance Ferguson | 60.20 | + 59.40 | = 119.60 |
| 2. Don DeLoach | 50.40 | + 50.40 | = 100.80 |
| 3. James Buxton | 71.10 | + 27.30 | = 98.40 |
| 4. Summer Ferguson | 42.88 | + 42.88 | = 85.76 |

PEANUT SCALE - SENIOR

- | | scale | flight | = total |
|---------------------|--------|---------|----------|
| | points | points | |
| 1. Melaine Sanford | 65.54 | + 65.54 | = 131.08 |
| 2. Don Slusarczyk | 60.50 | + 60.50 | = 121.00 |
| 3. David Brown | 52.70 | + 52.70 | = 105.40 |
| 4. Kevin Fruehwirth | 42.00 | + 42.00 | = 84.00 |
| 5. Matthew Gagliano | 62.19 | + 19.60 | = 81.79 |
| Charles Gagliano | | | |

PEANUT SCALE - OPEN

- | | scale | flight | = total |
|-----------------------|--------|----------|------------|
| | points | points | |
| 1. Ken Groves | 100.08 | + 100.08 | = 200.16 |
| 2. James Miller | 114.45 | + 77.25 | = 191.70 |
| 3. Jack McGillivray | 99.04 | + 88.85 | = 187.89 |
| 4. Keith Fulmer | 84.57 | + 84.57 | = 169.14 |
| 5. Tom Norell | 93.35 | + 68.10 | = 161.45 |
| 6. Curtis Sanford | 70.12 | + 70.12 | = 140.24 |
| 7. Bob Willey | 85.50 | + 53.15 | = 138.65 |
| 8. Ed DeLoach | 71.60 | + 65.80 | = 137.40 |
| 9. Michael Welshans | 87.30 | + 37.65 | = 124.95 |
| 10. Clyde Norell | 80.76 | + 40.60 | = 121.36 |
| 11. John "Doc" Martin | 65.10 | + 50.50 | = 115.60 |
| 12. Louis Sutter | ? | + | ? = 106.44 |
| 13. Victor Gagliano | 51.63 | + 51.63 | = 103.26 |
| 14. Clarence Nelson | 33.95 | + 33.95 | = 67.90 |
| Ed Toleikis | 72.49 | | |
| Fred Anderson | | | |
| Richard Becks | | | |
| Arsene Fauquet | | | |
| Carl Raichle | | | |
| Brent Saulsbury | | | |
| Curt Smith | | | |
| Jorge Triana | | | |
| Robert Wilkosz | | | |

PENNYPLANE - JUNIOR

- | | |
|---------------|------|
| 1. Jim Buxton | 1:33 |
|---------------|------|

PENNYPLANE - SENIOR

- | | |
|---------------------|------|
| 1. Don Slusarczyk | 8:42 |
| 2. Matthew Gagliano | 7:36 |
| 3. David Brown | 7:32 |

PENNYPLANE - OPEN

- | | |
|----------------------|--------|
| 1. Gordon Wisniewski | 12:39* |
| 2. Walt Van Gorder | 11:24 |
| 3. Jim Clem | 9:30 |
| 4. Chuck Slusarczyk | 9:21 |
| 5. Ken Groves | 9:11 |
| 6. Tom Norell | 9:03 |
| 7. James Grant | 8:52 |
| 8. Charlie Sotich | 8:26 |
| 9. Tony Italiano | 8:00 |
| 10. Victor Gagliano | 7:44 |
| 11. Carl Fries | 7:33 |
| 12. Tony Sutter | 6:25 |
| Bob Nichols | |
| Bob Perkins | |

EASY B - JUNIOR

- | | | |
|----|-------------|------|
| 1. | Don DeLoach | 8:16 |
| 2. | Jim Buxton | 5:18 |

EASY B - SENIOR

- | | | |
|----|------------------|--------|
| 1. | Don Slusarczyk | 12:29* |
| 2. | Charles Gagliano | 10:27 |
| 3. | Matthew Gagliano | 9:34 |
| 4. | David Brown | 7:57 |
| | David Thompson | |

EASY B - OPEN

- | | | |
|-----|------------------|--------|
| 1. | Charles Markos | 16:30* |
| 2. | Jack McGillivray | 15:34 |
| 3. | Walt Van Gorder | 15:21 |
| 4. | Gordy Wisniewski | 15:10 |
| 5. | Jim Clem | 13:20 |
| 6. | Ken Groves | 13:16 |
| 7. | Stan Chilton | 12:58 |
| 8. | Chuck Slusarczyk | 12:53 |
| 9. | Victor Gagliano | 11:06 |
| 10. | Tom Norell | 10:47 |
| 11. | James Grant | 9:58 |
| 12. | Tony Sutter | 9:41 |
| 13. | Tony Italiano | 7:49 |
| 14. | Carl Fries | 5:53 |
| 15. | Richard Hawes | 4:36 |
| 16. | Hank Sperzel | 4:28 |
| | Ed Berton | |
| | Dave Erbach | |
| | Walt Erbach | |
| | Arsene Fauquet | |
| | Richard Miller | |
| | Joe Parrish | |
| | Bob Perkins | |
| | Curt Smith | |
| | Jorge Triana | |
| | Bob Willey | |

INTERMEDIATE STICK - JUNIOR

- | | | |
|----|------------|------|
| 1. | Jim Buxton | 2:17 |
|----|------------|------|

INTERMEDIATE STICK - SENIOR

- | | | |
|----|----------------|--------|
| 1. | Don Slusarczyk | 21:04* |
| 2. | Dave Brown | 6:20 |

INTERMEDIATE STICK - OPEN

- | | | |
|-----|------------------|--------|
| 1. | Jack McGillivray | 21:32 |
| 2. | Stan Chilton | 21:28* |
| 3. | John Marett | 17:35 |
| 4. | James Grant | 17:31 |
| 5. | Gordy Wisniewski | 15:06 |
| 6. | Walt Van Gorder | 14:37 |
| 7. | Tony Sutter | 14:14 |
| 8. | Charlie Sotich | 13:25 |
| 9. | Carl Fries | 11:01 |
| 10. | Jim Clem | 10:24 |
| | Chuck Slusarczyk | |

UNOFFICIAL EVENTS

AUTOGIRO - Bill Hannan
George Perryman

ORNIHOPTER - Frank Kieser 10:00 *
Roy White 7:50

* Denotes National Record

NOVICE PENNYPLANE - JUNIOR

- | | | |
|----|-------------|------|
| 1. | Jim Buxton | 5:09 |
| 2. | Don DeLoach | 5:01 |

NOVICE PENNYPLANE - SENIOR

- | | | |
|----|------------------|------|
| 1. | Matthew Gagliano | 7:49 |
| 2. | Charles Gagliano | 5:24 |
| 3. | David Brown | 2:03 |

NOVICE PENNYPLANE - OPEN

- | | | |
|-----|-------------------|--------|
| 1. | Walt Van Gorder | 10:38* |
| 2. | Richard Miller | 10:28 |
| 3. | Gordon Wisniewski | 10:24 |
| 4. | Chuck Markos | 10:14 |
| 5. | Ken Groves | 10:02 |
| 6. | Jim Clem | 9:33 |
| 7. | John Marett | 9:25 |
| 8. | Jack McGillivray | 9:04 |
| 9. | Keith Fulmer | 8:31 |
| 10. | Tony Sutter | 8:27 |
| 11. | Chuck Slusarczyk | 8:12 |
| 12. | Carl Fries | 8:11 |
| 13. | Ed Mate | 7:25 |
| 14. | Bob Nichols | 7:16 |
| 15. | Tony Italiano | 6:52 |
| 16. | Clyde Norell | 5:57 |
| 17. | Arsene Fauquet | 4:57 |
| 18. | Bob Willey | 4:52 |
| | Steven Bard | |
| | Carl Carlson | |
| | Victor Gagliano | |
| | Curt Smith | |

MANHATTAN CABIN - JUNIOR

- | | | |
|----|-------------|------|
| 1. | Don DeLoach | 2:35 |
| 2. | Jim Buxton | :26 |

MANHATTAN CABIN - SENIOR

- | | | |
|----|------------------|-------|
| 1. | Don Slusarczyk | 6:48* |
| 2. | Charles Gagliano | 6:01* |
| 3. | David Brown | 0:26 |

MANHATTAN CABIN - OPEN

- | | | |
|----|------------------|-------|
| 1. | Walt Van Gorder | 9:32* |
| 2. | John Marett | 9:01 |
| 3. | Keith Fulmer | 8:16 |
| 4. | Chuck Slusarczyk | 8:10 |
| 5. | Bob Nichols | 7:21 |
| 6. | Ken Groves | 6:55 |
| 7. | Tony Sutter | 6:34 |
| 8. | James Grant | 5:13 |
| | Dave Erbach | |
| | Ed Toleikis | |

HELICOPTER - Charlie Sotich 185 sec
George Perryman 112 "
"Doc" Martin 41 "
Bill Hannan 33 "
Larry Kruse 32 "

R.O.G. CABIN - JUNIOR

- | | |
|--------------------|------|
| 1. Summer Ferguson | 0:55 |
| 2. Lance Ferguson | 0:50 |

R.O.G. CABIN - SENIOR

- | | |
|--------------------|--------|
| 1. Don Slusarczyk | 17:37* |
| 2. Melaine Sanford | 0:59 |
| 3. Dave Brown | 0:55 |

R.O.G. CABIN - OPEN

- | | |
|-----------------|--------|
| 1. Bill Shailor | 21:57* |
| 2. James Grant | 17:15 |
| 3. Rich Doig | 15:14 |
| 4. Tony Sutter | 11:13 |
| 5. Walt Erbach | 9:37 |
| 6. Dave Erbach | 2:43 |

HAND LAUNCH STICK - JUNIOR

- | | |
|---------------|------|
| 1. Jim Buxton | 3:58 |
|---------------|------|

HAND LAUNCH STICK - SENIOR

- | | |
|-------------------|--------|
| 1. Don Slusarczyk | 23:16* |
| 2. Dave Brown | 4:14 |

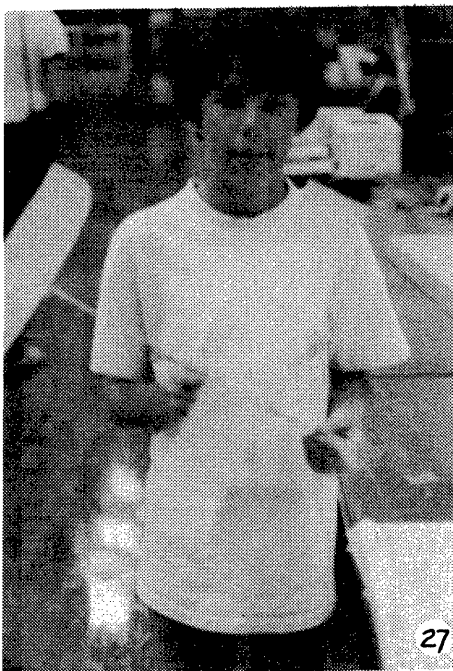
HAND LAUNCH STICK - OPEN

- | | |
|--------------------|-------|
| 1. Rich Doig | 29:41 |
| 2. Stan Chilton | 26:50 |
| 3. Jim Clem | 18:35 |
| 4. Walt Van Gorder | 18:15 |
| 5. Walt Erbach | 15:18 |
| 6. Dave Erbach | 14:32 |
| 7. James Grant | 11:11 |

Nats photos by Melody & Richard Doig



26. Senior Don Slusarczyk holds his record setting Intermediate Stick model.

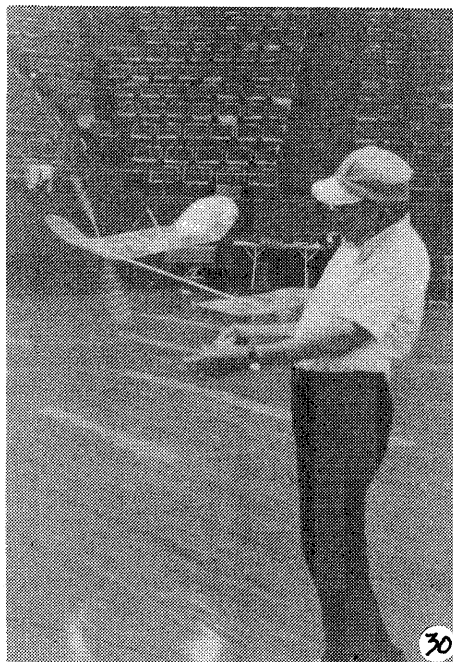
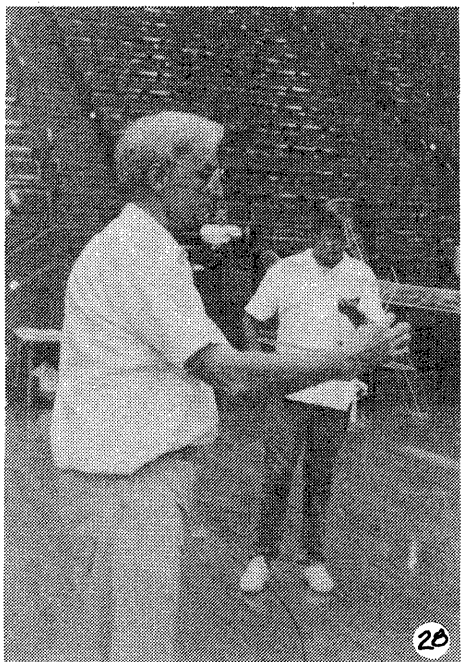


27. Junior Jim Buxton held still just long enough to get this photo. He flew 9 indoor events plus Outdoor Free Flight & CL Speed.

28. Stan Chilton with winning F1D model. Timer Bill Shailor checks the stopwatch.

29. James Grant, back into Indoor after many years, gets a helping hand with his microfilm model.

30. Jim Clem launches F1D. Jim had some bad luck with mid-air, more than a dozen, this meet.

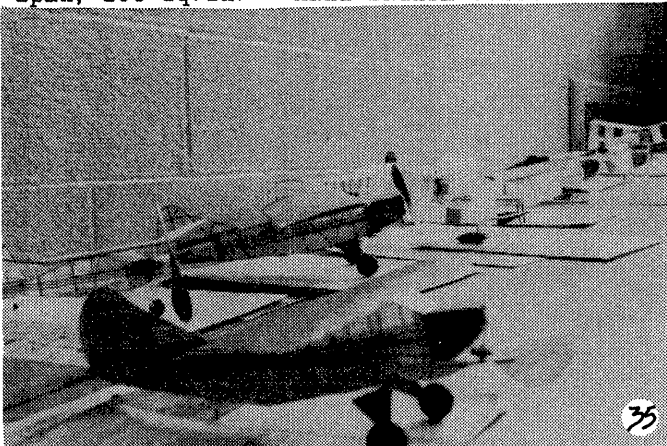




Chuck Slusarczyk shows the form that placed him 3rd in Hand Launch glider.



Rich Doig with monstrous - 5 wing ribs in 36" span, 296 sq.in. - Hand Launch Stick model.



Indoor scale models lined up for judging.



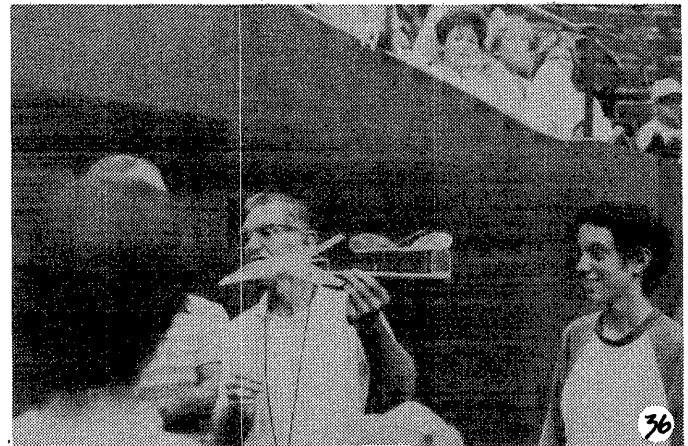
Indoor scale judges Ron Sears and Cliff Tacie (on right) hard at work.



Overview of Pershing Auditorium showing 1/3 of the contestants & typical crowd of spectators.



Richard Hawes with Easy B, at his first NATS.



Roy White explaining how his Ornithopter flies to a group of interested spectators.



Tony Sutter uses a winding stooze to wind and hold the parts while he assembles ROG Cabin.

COMPLETE RESULTS FROM 1987 INDOOR FINALS: USA Team for 1988 is Cezar Banks, Bud Romak, & Steve Brown. Bob Randolph is Team Manager, placing 4th.

CONTESTANT	ROUND 1	ROUND 2	ROUND 3	ROUND 4	ROUND 5	ROUND 6	ROUND 7	ROUND 8	ROUND 9	TOTAL BEST 2	FINALS POINTS	PRIOR POINTS	TOTAL POINTS	PLACE
Banks	<u>44:25</u>	<u>44:55</u>	10:51	-	42:25	38:53	-	22:53	-	89:20	1000.00	110.00	1110.00	1
Romak	38:22	43:35	<u>44:15</u>	43:23	<u>44:23</u>	38:18	36:01	ATT	1:55	88:38	992.16	97.50	1089.66	2
Brown	7:16	15:09	40:22	38:42	12:08	<u>41:18</u>	39:03	39:58	<u>45:25</u>	86:43	970.71	110.00	1080.71	3
Randolph	14:01	<u>43:04</u>	<u>43:09</u>	38:08	39:32	10:43	42:35	-	13:31	86:13	965.11	108.21	1073.32	4
Foster	39:21	<u>41:42</u>	39:27	35:23	38:15	37:36	<u>42:44</u>	29:12	40:02	84:26	945.15	99.42	1044.57	5
Cailliau	13:48	38:26	24:43	39:31	<u>40:18</u>	<u>40:01</u>	12:59	36:30	36:34	80:19	899.07	109.58	1008.65	6
Gitlow	ATT	<u>40:15</u>	29:38	32:30	<u>39:18</u>	9:10	18:56	25:45	-	79:33	890.49	99.61	990.10	7
Loucka	35:47	34:44	<u>38:21</u>	12:04	37:31	-	35:06	<u>39:10</u>	35:03	77:31	867.72	110.00	977.72	8
Hoffman	9:46	4:00	<u>37:23</u>	-	6:18	21:21	-	37:18	<u>38:19</u>	75:42	847.39	106.60	953.99	9
D. Stevens	30:13	<u>34:48</u>	<u>40:35</u>	8:31	17:19	-	-	-	-	75:23	843.84	101.57	945.41	10
Tagliafico	5:27	19:58	26:33	33:17	32:22	31:35	<u>34:54</u>	<u>37:04</u>	30:10	71:58	805.60	110.00	915.60	11
Harlan	<u>33:12</u>	31:24	10:39	29:03	<u>35:01</u>	ATT	-	33:08	6:05	68:13	763.62	110.00	873.62	12
Doig	ATT	<u>32:45</u>	ATT	ATT	<u>33:32</u>	ATT	ATT	-	-	66:17	741.98	110.00	851.98	13
Slusarczyk	24:47	27:20	-	-	<u>31:45</u>	25:04	<u>34:34</u>	30:26	15:42	66:19	742.35	87.14	829.49	14
Mather	<u>25:07</u>	-	<u>38:47</u>	19:24	-	24:30	-	-	-	63:54	715.30	103.13	818.43	15
Mzik	20:23	27:00	28:47	-	<u>30:29</u>	24:07	29:38	26:16	<u>32:18</u>	62:47	702.80	103.19	805.99	16
Belieff	25:58	-	<u>31:30</u>	1:40	22:23	30:34	22:59	-	<u>31:43</u>	63:13	707.65	96.54	804.19	17
Godfrey	<u>31:36</u>	<u>26:23</u>	11:54	17:23	20:04	24:43	4:01	22:00	21:35	57:59	649.07	86.65	735.72	18
Ganslen	16:14	15:54	12:58	5:48	20:01	13:37	16:09	<u>27:43</u>	<u>27:35</u>	55:18	619.03	100.00	719.03	19
Radoff	ATT	-	26:32	-	<u>26:42</u>	<u>28:51</u>	20:32	4:53	2:02	55:33	621.83	89.33	711.16	20

INDOOR TEAM SELECTION FINALS

We wrote the following article for Model Aviation Magazine. We are reprinting it here for the benefit of our foreign subscribers.

Twenty of the best indoor flyers in the country gathered in Tustin, California over the Labor Day weekend to choose the three man team for the 1988 Indoor World Championships. The giant 156 foot high airdocks at the Tustin Marine Corp Air Station (Helicopters), near Los Angeles, were host to some of the finest F1D flying ever witnessed. With temperatures in the low 80's and sunny skies, conditions were perfect. The team will join defending World Champion Jim Richmond at the Indoor World Championships next year. The location and dates for the World Championships will be decided at the CIAM meetings in December.

Day one began with contestants and workers arriving early, renewing old friendships with out-of-town contestants, and the ever present task of getting the large hanger doors closed. The three rounds per day, best two of nine flights format left little time for test flying since the site was not available the day before the contest. At the 11:00 am contestant meeting Contest Director Andy Faykun, Assistant CD Erv Rodemsky, and Program Chairman Rich Doig laid out all of the ground rules, including an accuracy check on all stopwatches used in the meet. The first three-hour round would start at noon.

Round 1 started off with a bang when Lew Gitlow was first off, but the motor stick collapsed just as he was releasing it, destroying the model. Earl Hoffman was next off, but he hung up high in the girders at 9:46. Randolph and Cailliau also hung up. Cezar Banks left no doubt that he was the man to beat with a spectacular flight of 44:25, for the only forty minute flight of the round.

Round 2 overlapped round 1, starting at 2:00 pm. Many of the flyers got their act together with 7 contestants putting up one of their two best flights in this round. Cezar Banks proved that round 1 was no fluke as he moved to the south end of the hanger for another spectacular flight, 44:55. But Banks had company as Randolph put up 43:04, Foster 41:42, Romak 43:35, and Gitlow 40:15. It seemed that spectacular had become order of the day.

Round 3 began at 5:00 pm, and the spectacular flights continued. Darryl Stevens put up 40:35, Steve Brown 40:22, Romak 44:15, and Randolph 43:09. So at the end of Day 1, there had been 10 flights over forty minutes, and it looked as though Banks, Romak, and Randolph had the three team slots locked up. But the best was yet to come.

Day 2 dawned with the smog rolling south from Los Angeles, but by noon the smog had lifted, and the weather was identical to Day 1, with temperature in the low 80's.

Round 4 is when the destruction really began as Doig began blowing up his models. But he was not alone as most flyers except for Banks demolished at least one model. There was only one forty minute flight in this round, with Romak putting up 43:23 to lead the way.

Round 5 saw three more forty minute flights with Romak at 44:23, Banks at 42:25, and Cailliau at 40:18. Banks lead doesn't seem nearly as secure as it did after Day 1. Doig and Harlan, two flyers who were expected to be near the top were having all kinds of problems, and ultimately neither really got a handle on this site. Both finished well down in the standings.

Round 6 saw only two forty minute flights, with Cailliau at 40:01, and Brown at 41:18. At this point nobody suspected how important Brown's flight would become. Rich Doig, Clarence Mather, and Darryl Stevens finished, destroying their last models in this round. Rich Doig sat up all night piecing one model together out of the wreckage. Standings were still Banks, Romak, and Randolph.

Day 3 dawned bright and sunny. Typical weather for southern California, I'm told. We understand that Darryl Stevens went sailing, and Clarence Mather went fishing. The rest of us returned to the site for three more rounds.

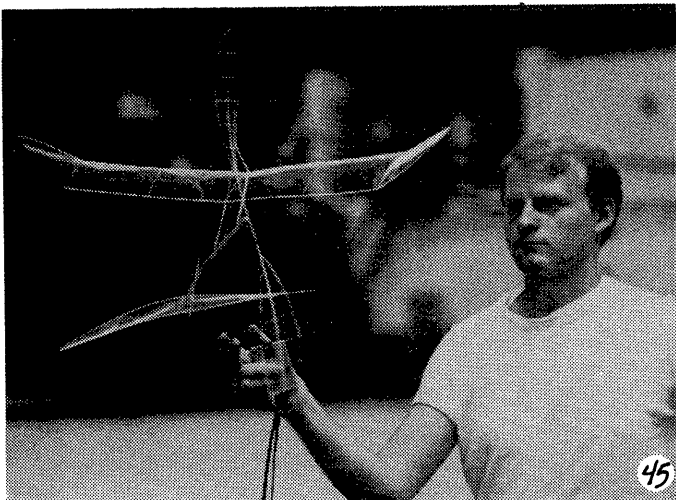
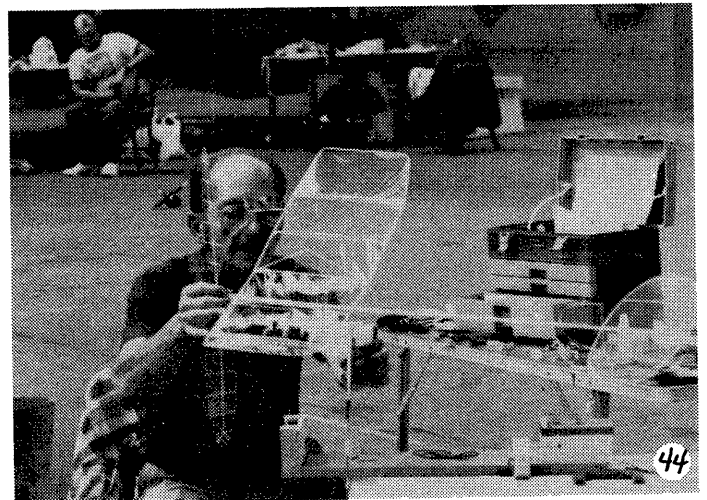
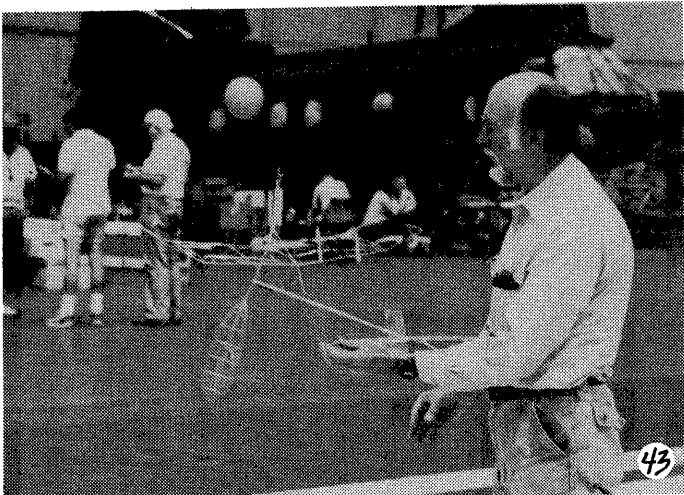
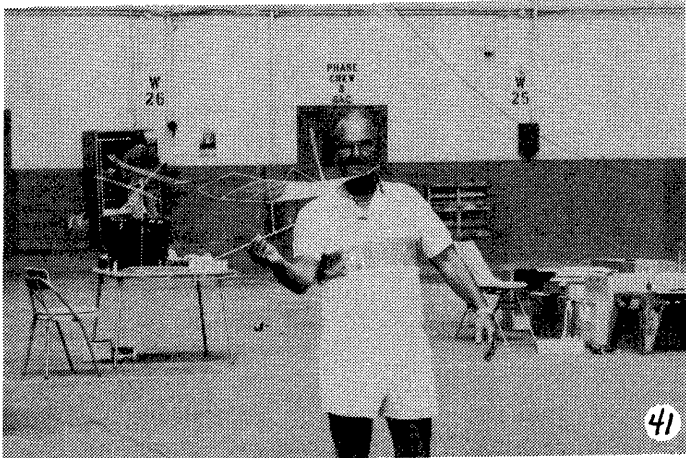
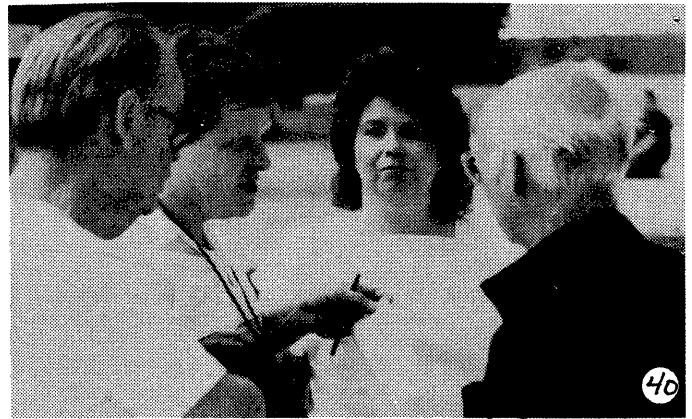
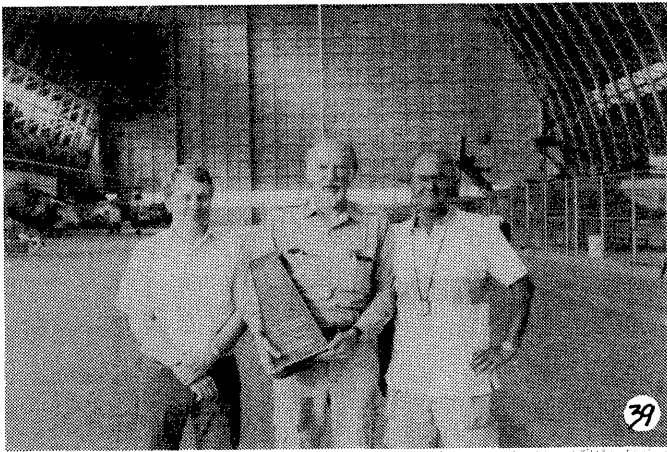
Round 7 started at 10:30. This was necessary because the Marines were expected to return to duty around 6:00 pm. The early start didn't seem to bother anyone with Randolph at 42:35 and Foster at 42:44, his highest time of the meet. Doig blew up the rebuilt model to end his contest.

Round 8 saw no forty minute flights, however Steve Brown did a respectable 39:58 to lead the round. The air seemed to be getting slightly better. This set the stage for round 9.

Round 9 saw only two forty minute flights. Foster put up 40:02. Then came THE FLIGHT. Steve Brown, a young protege of Bob Randolph, proved that he has learned his lessons well. After a shaky start, almost colliding with a helicopter, his model began it's long climb to the roof. The next time most of us looked up, Steve's model was descending slowly, still forty feet up, when it passed forty minutes. At the end of the flight, the model was heading into a fence, and Steve botched the steer, knocking the model into the fence, and falling down, barely missing the model. The watches read 45:25. Steve's two-flight total moved him ahead of Randolph into third place. But Randolph had not yet flown in Round 9.

Bob Randolph wound carefully, knowing that he needed a flight of 43:44 or better to move back into third place. The launch and climb were normal, but the model began to drift off center as it approached the roof. Bob steered the model out to the center, apparently successful. But it quickly became apparent that something was very wrong. It turned out that the left wing tip had been knocked out of alignment, and the bracing had snagged, causing the model to spiral down. That was it. Randolph finished fourth, and Steve Brown made the team in his first Indoor Finals. An incredible accomplishment.

The USA Indoor Team for the 1988 Indoor World Championships is Cezar Banks, Bud Romak, and Steve Brown. By placing fourth, Bob Randolph has been named as Team Manager, pending approval by the Team Selection Committee. Our many thanks to Curt Stevens, the site contact, and all of the other members of the Base Model Airplane Club that made this meet a success. On to the World Champs!



F1D Team Finals photos by Warren Williams, Melody & Richard Doig

89 1988 US F1D team. Steve Brown (left), Cezar Banks (holding Merrill C. Hamburg trophy) & Bud Romak (right).

40 Erv Rodemsky, Rich Doig, Melody Doig, & Andy Paykun talk over the meet's rules.

41 1976 World Champion Bud Romak made the team for the 4th time.

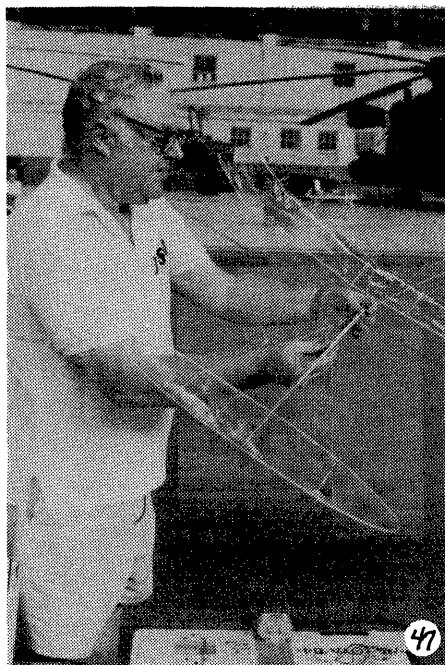
42 Former Wakefield World Champion Joe Foster, placed 5th just missing the team.

43 Cezar Banks seems to be always testing on 1/2 & 1/4 motors. But it works!

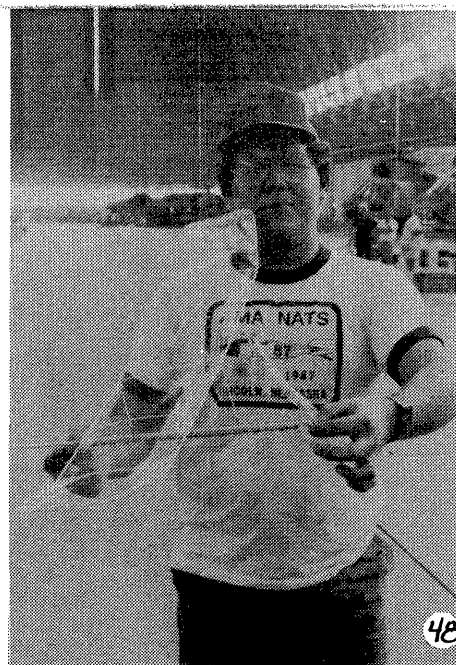
44 Lew Gitlow (Indoor Model Supply) placed 7th again.

45 Darryl Stevens launches his model. This photo makes a good argument for braced stabs.

46 Earl Hoffman had nicely built models - placed 9th.



47 Bob Randolph lost his team place in the last round. Bob will be team manager.



48 Youngest competitor, 15 year old Don Slusarczyk made a very good showing with only his 2nd & 3rd F1D models.

CONTEST CALENDAR

CALIFORNIA - BELLFLOWER (L.A. area)

Indoor flying sessions at Bellflower High School gym. CAT II (35' some obstructions) Tennis shoes required. Wed. Dec. 16 7 - 10 pm. Contact Barnaby Wainfan, 2503 Hardwick, Lakewood, CA 90712 or 213-630-4686

CALIFORNIA - BURBANK

Blacksheep indoor flying sessions & contests 2nd Thursday of each month 7 - 10 pm CAT I (peak 34') Luther Burbank Jr. HS, Maple between Jeffries & Burbank Blvd. Contact: Tony Naccarato, 2121 N. Hollywood Way, Burbank, CA 91505 or 818-842-5062

CALIFORNIA - SAN DIEGO

San Diego Orbiteers indoor flying sessions and monthly meetings: 2nd Friday meeting, 4th Friday flying sessions 7:30 pm Colina Del Sol Community Center, 5319 Orange Av. Also flying after meeting - call for schedule: Don Bartick Program Chairman, 13349 Via Stephen, Poway, CA 92064 or 619-748-8275

CALIFORNIA - SAN FRANCISCO

Possible F1D Local trials & flying sessions CAT III Cow Palace. Contact: Joe Foster, 3771 Timberline, San Jose, CA 95121 or 408-274-5479

CALIFORNIA - SANTA MONICA

Flightmasters indoor flying sessions - 2nd Sunday of each month 1:00 pm - 4:30 pm Paul Revere Jr. High School in Santa Monica. Contact: Bill Warner, 423-C San Vincente Bl, Santa Monica, CA 90402 or 213-393-2198

CALIFORNIA - TUSTIN

FAI Indoor Team Selection and Record Trials for CAT IV. First weekend each month. Hangar #1 on Tustin M.C.A.S. (H). Sponsor: M.C.A.S. (H) Microfilm Flyers. To gain admittance to Base you MUST contact CD at least 3 days in advance. CD: Curt Stevens, 25108 Marguerite Pkwy, #B-160 Mission Viejo, CA 92691 or 714-240-8404

COLORADO - BOULDER

Denver Area Indoor Model Airplane Association indoor flying sessions at Balch Fieldhouse, University of Colorado, Boulder. 8 - 11 pm. DAIMAA gets this site in return for teaching indoor modeling skills to Freshman Aerospace Engineering Science students. Schedule: Nov. 22, 1987: Student contest.. Dec. 4 & 18: DAIMAA fun fly. 1988 dates: Jan. 8 & 22, Feb. 12 & 26, March 11 & 25, April 8 & 22, May 6 & 20. Give your activity suggestions to Les Shaw, 995 McIntire St, Boulder, CO 80303 or 303-499-0946 or John Berryman, 1866 S. Sedalia Circle, Aurora, CO 80017 or 303-337-2936

CONNECTICUT - GLASTONBURY

For info on Glastonbury Aeromodelers flying sessions contact: George Armstead, 89 Harvest Ln, Glastonbury, CT 06037 or 203-633-7836.

FLORIDA - MIAMI

Miami Indoor Aircraft Model Association (MIAMA) fun fly on Nov. 28 at Youth Fair, 109th Av. & Coral Way. CAT I (smooth ceiling) You must confirm by calling Kevin Smith 305-251-7814 the night before the meet. Fun Fly on Dec. 6 at Miami Dade South College 9am-5 pm. Mass Launches: Pistachio, Peanut, and Federation Also Jan. 23 & March 19 fun fly or CAT I Record Trials, May 21 & 22 Pistachio Intergnats at Miami Dade South. Contact: Dr. John Martin, 2180 Tigertail Av. Miami, FL 33133 or 305-858-6363

FLORIDA - TAMPA

Indoor King Orange & MIAMA meet #2: a two day meet at two different sites. Jan.1 - practice & fun fly in Hangar 5 at MacDill AFB. Jan.2 - Contest at MacDill 9 am - 5 pm. Jan.3 - Contest in Delta maintenance hangar at Tampa Airport. Jan.4 - fun fly Delta Hangar. All events both Sat. & Sun., both sites. AMA, Peanut, & FAC Scale. Bostonian (7 grams), Indoor Embryo (10 grams), Pennyplane, EZB, Glider, Federation ROG (3.1 grams). Mass Launches: Sat. 4pm Golden Age, Sat. 5pm Federation, Sun. 4pm WWII. CD: Dick Obarski 2112 N. Halycon Dr, Sun City Center, FL 33570 or 813-634-8683 Also, at MacDill Feb.13 & 14 MIAMA meet #3, April 16 & 17 MIAMA meet #4, June 25 & 26 MIAMA meet #6

GEORGIA - CUMMINGS (Atlanta)

The Thermal Thumbers of Metro Atlanta's Dec. 13, 1987 contest at Forsyth County High School gym is cancelled because the site has been lost. They need your ideas to find another indoor site. Contact Clarence Purdy 404-445-7521

INDIANA - CARMEL (Indianapolis)

Indianapolis Free Flight Fellowship contest Dec. 6, 12 - 6pm, at Carmel Jr. High School gym, 300 S. Guilford Av. CAT I (25' to girders) Events: Hand launch glider, Easy B, Novice Pennyplane & Pennyplane combined, Manhattan Cabin, Profile Scale, Peanut Scale. Tennis shoes only on gym floor. Contact: Jim Richmond, 12112 Windsor Dr, Carmel, IN 46032 or 317-848-5312

MASSACHUSETTS - CAMBRIDGE (Boston)

MIT Tech Model Aircrafter's indoor model flying sessions 1st Saturday of each month thru May in Dupont gym, CAT I, Vassar St. & Massachusetts Av. 6 10 pm. For info call Ray Harlan, 15 Happy Hollow Rd, Wayland, MA 01778 or 617-358-4013 or 617-258-1431 (work)

MICHIGAN - COLUMBIAVILLE (NE of Flint)

Flint Balsa Termites flying sessions 1st & 3rd Tuesday of each month in Columbiaville Elementary School gym. Contact Dan Miles 9447 E. Coldwater Rd, Davison, MI 48423 or 313-653-2535

MICHIGAN - OTISVILLE (NE of Flint)

Contest Dec.6, 9am - 4pm, in Lakeville Middle School gym. CAT I. Events: Bostonian, Blatter "40", AMA & Peanut Scale, Hand launch glider, Easy B, Novice Pennyplane. Contact: Dan Miles 9447 E. Coldwater Rd, Davison, MI 48423 or 313-653-2535

MICHIGAN - STERLING HEIGHTS (north of Detroit)

Indoor flying sessions, 1st, 2nd & 3rd Fridays of each month thru May. 7 - 10:30 pm. CAT I. Contests: Dec.18 under 40 sq.in. rubber power, Feb. 5 Novice Pennyplane, March 11 Bostonian (7 gram). Heritage Jr. HS - Dodge Park Dr. at 16 Mile Detroit Balsa Bugs. You MUST wear tennis shoes or similar. Contact: Rich Doig, 6 Canary Hill Dr, Pontiac, MI 48055 or 313-373-5374

NEW JERSEY - GLASSBORO

Philadelphia Sky Pirates indoor contest April 24, 1988 Activities Center Ballroom, Glassboro State College CAT I-23' Contact Doug Barber 146 Stratton House, Maple Shade, NJ 08052 or 609-235-5318

NEW YORK - NEW YORK

Columbia Indoor Model Airplane Society contest CAT III in Columbia University Low Library Rotunda. Dec. 6, 1987 9 am - 5 pm "Heavy" models only. Events: 1. Peanut (Mooney rules) 2. Bostonian (usual 7 g US rules) 3. ISL-30 a new event by Ron Williams: Max wingspan 30", Max weight 20 g, full fuselages required (NO profiles), single surfaces ok, all hand launch (landing gear may retract), Mooney judging, Peanuts may be flown if not also entered in Peanut event. All events unlimited officials. Contact Ed Whitten, Box 176, Wall Street Station, New York, NY 10005 or 212-724-0282 or Ron Williams 212-722-5262

OKLAHOMA - OKLAHOMA CITY

Indoor flying sessions at Oklahoma City 23rd Street National Guard Armory. CAT II. Nov.29, Dec.20, Jan.17, Feb. ?, March ? contest. Contact: Jim Belson, 4933 NW 29th, Oklahoma City, OK 73127 or 405-946-1093

OREGON - ALBANY

Indoor flying on Jan. 10 & 31, 1988. For details contact Bob Stalick, 5066 NW Picadilly, Albany, OR 97321 or 503-928-8108

PENNSYLVANIA - PHILADELPHIA

For info on flying activities in Memorial Hall, Fairmont Park. Contact: Joe Krush, 409 Warner Rd, Wayne, PA 19087 or 215-688-3927

TEXAS - BEDFORD (Dallas/Ft. Worth)

Indoor flying sessions & contests. CAT I. Bedford Boy's Ranch - Forrest Ridge @ Harwood. For info contact: Jesse Sheppard, 2713 Summit View, Bedford, TX 76021 or 817-282-3770

UTAH - SALT LAKE CITY

Bi-monthly flying sessions. Contact Franklin Anderson, 6137 Dee Park Dr, Salt Lake City, UT 84118

WASHINGTON - SEATTLE

Indoor flying sessions and monthly contests. Jan.16, Feb.13 & 23, March 5 & 22, April 16 & 26, 1988. For details contact Kevin Collins, 2320 Sahalee Dr. E, Redmond, WA 98023 or 206-868-8273

WISCONSIN - MILWAUKEE Area

Bong Eagles indoor flying sessions every Tuesday (usually) at Hamilton High School, 2nd floor auditorium, 69th and Forest Home Av. 7 - 9 pm For info contact: Gordy Wisniewski, 4790 Stratford Dr, Greendale, WI 53129 Also, meetings 2nd Monday of every month in lower level, Wauwatosa Savings & Loan, 7500 W. State St. Contact Pete Baker 414-744-03773