# THE HANGAR PILOT

MIAMI INDOOR AIRCRAFT MODEL ASSOCIATION

29TH YEAR of PUBLICATION
INDOOR ISN'T FOR EVERYONE

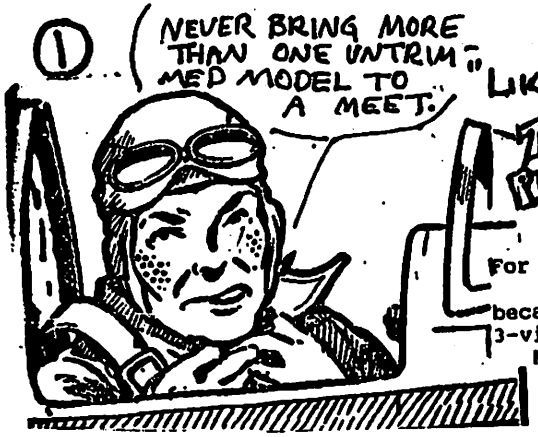
# ISSUE 210

THIS WEEK-

- MEET 2 - NOV. 18-19
  MAC DILL AFB 9-5
  305-858-6363
- ANNUAL KING ORANGE
  DELTA MAINT.
  HANGAR, TAMPA
  DEC. 30, 31
- 2ND WORLD TIME TRIAL
  TROPICANA
  FEB 3, 4
-




**Right: A poster for Colonial Air Transport showing a Tin Goose.**




The Hanger Pilot, edited by John Martin Jr., who is solely responsible for its content, is published 8 or 9 times a season for bunch of middle aged guys who refuse to grow up. MIAMA ( Miami Indoor Aircraft Model Association ) - AMA club 986. One of two active all indoor free flight clubs in AMA. For a mere $12.50 you will receive all of the published issues that year. We encourage reader contributions because, frankly, we need the material. Letters, plans, 3-views, complaints, gripes and compliments to: Dr.John Martin Jr., President / Editor, 2180 Tigertail Ave., Miami, FL 33133 USA. phone: 305-858-6363.

# MIAMA CLUB NEWS + MEET 1

The big news is WE'RE GETTING THE MAGNIFICENT ENCLOSED TROPICANA BASE BALL STADIUM AGAIN FOR OUR WORLD RECORD TRIALS. Mark your calendars now for the first week end in Feb. 2001. FEB. 3,4, From 9 to 5. This will be an INDEX OF PERFORMANCE competition for all rule book events INCLUDING SCALE EVENTS. Steve Noriega is working on the details which will be available next issue of Hangar Pilot. What kind of a plane do you build to fly to a 231 foot ceiling?It boggles the mind.

We welcome these 15 new hangar pilots who all joined MIAMA in October: George Spaulding of Safety Harbor,FL, Mike Palrang of Min.View, CA, William Wambold of Tacoma,WA, John Hodgkin of Winstead,Ct, Richard Nafe of Homestead,FL, Charlie Stiles of Phila. PA,James Richmond of Carmel,IN (Yes THE Jim Richmond who just finished 2nd at the Salt mine..he,s retired now, and says he'll be doing some future flying with MIAMA),George Ralph of Bradenton,FL, Dave Rosenberg,Henrietta,NY, Dave Duganne of Albuquerque,NM, Jennings Carter ofMonroeville,AL, Dan Garfinkel of Bradenton,FL, Ray Pech of Orchard Park,NY, Richard Antoszewski of Longwood, FL, and Stu Crane of Ft. Mead,MD. Welcome to all!

A great renewed interest in indoor. What gives? Well, Newt Bollinger wrote the piece,"Indoor-a well kept secret", that appeared in the last Hangar Pilot. Lin Reichel kindly published it in his Flying Aces newsletter. It also inspired Bud Tenny to do a plug for MIAMA in his November Model Aviation column. Mike Jordan put it in his FMA newsletter. Let's hope that among the thousands of R/C flyers, some would like to spend the winter months in indoor comfort.

Lots of new faces and new planes at meet 1 at the Coast Guard Hangar. The mass launch events are still very popular (We had 10 in Peanut) The results are misplaced and will be in the next issue. Meet 2 is at MacDill this week end Nov. 18,19. Tell the Guard at the main entrance (Dale-Mabry) " MODEL AIRPLANE MEET." He has a list of names. FAC Mass Launch is Biplanes. Bring out your peanuts,Coconuts, and WWII No-Cals for the other mass launchs

# 30TH SEASON STARTS - C/D STEVE NORIEGA

# MIAMA #1 US COAST GUARD OCT 28,29 2000

FLYING ACES PEANUT SCALE

| | Stat. | Best Fly | |
|---|---|---|---|
| 1.Doc Martin Bleriot 25 | 75 | 1:09.7 | 139.8 |
| 2.R.MacEntee Waco SRE | 74 | 1:09.2 | 138.5 |
| 3.Newt Bollinger Cougar | 61.2 | 1:24 | 133.2 |
| 4.G. Nunez TurboPorter | 61 | 1:10 | 126 |
| 5.S. Gilbert Lacey | 55 | 1:13 | 121.5 |
| 6.R. Osborne Merf.Rebel | 49.5 | :41 | 90.5 |
| 7.John Polento Hardly Able | 58 | :26 | 84 |
| 8. C.Nelson Cougar | 51 | :20 | 71 |
| 1st JR. JJ Nunez PT-19 | 68 | 1:01 | 128.9 |

FLYING ACES SCALE

| | | | |
|---|---|---|---|
| 1.R.Macentee Andreason | 74 | 1:03 | 135.5 |
| 2.G.Nunez Rumpler | 74 | 56.2 | 130.2 |
| 3.Doc Martin Waco E | 73.5 | 56.2 | 130.0 |
| 4.S.Gilbert Comper | 54 | 1.13 | 120.7 |
| 5.J. Wormley | 58 | 48.2 | 106.2 |

MIAMA PISTACHIO SCALE

| | | |
|---|---|---|
| 1.Doc Martin Goldwing | 1:00 | 1:10 |
| 2.S.Gilbert Fike | :39 | :38 |
| 1st Jr. JJ Nunez Sop. Tripe | :20 | :22 |

MIAMA MODEL OF A MODEL PISTACHIO

| | | |
|---|---|---|
| 1.S.Gilbert Pussy Cat | :56 | 1:02 |
| 2.R.Obarski Snuffy | :32 | :50 |
| 3.C.Nelson P.Cat | :17 | :20 |

MIAMA COCONUT SCALE

| | | | | | |
|---|---|---|---|---|---|
| 1.R. MacEntee Messer. M-20 | 2 | 1:54 | 1 | 3 | |
| 2. Doc Martin Lippisch | 2 | 1:45 | 2 | 4 | |
| 3.S. Noriega P.Porter | 1 | :58 | 5 | 6 | |
| 4.R. Choate Found 1000 | 3 | 1:05 | 4 | 7 | |
| 5.J.Polento P.Turbo Porter | 4 | 1:32 | 3 | 7 | |

FLYING ACES DIME SCALE

| | |
|---|---|
| 1.Rich MacEntee Comet Fokker D-7 | 403 |
| 2.D. Obarski Comet D-7 | 335 |
| 3.Doc Martin Burd Bear Cat | 190 |
| 4.C. Nrlson FokkerFl | 60 |

AMA BOSTONIAN

| | Charis. | |
|---|---|---|
| 1.N.Bollinger Colt 48 | 1.05 | 301 |
| 2.R.MacEntee Ol Yeller | 1.03 | 277 |
| 3.S. Gilbert 7-Up | 1.05 | 247 |
| 4.Robt. Osbone Colt 48 | 1.05 | 246 |
| 5.Doc Martin Anniver.-30 | 1.05 | 203 |
| 6.Buster Osborne Colt 48 | 1.05 | 166 |
| 7.J. Polento Pacific Ace | 1.10 | 147 |
| 8.John Wormley Bost. Knight | 1.19 | 125 |
| 9.Chas. Shaw 7-Up | 1.05 | 130 |
| 10.C.Nelson Pup | 1.05 | 60 |

AMA MINI STICK

| | |
|---|---|
| 1.N. Bollinger | 3:09 |
| 2.Doc Martin | 1:31 |

AMA Limited Penny

| | |
|---|---|
| 1.John Wormley | 5:20 |

CATAPULT GLIDER

| | | |
|---|---|---|
| 1.Chas. Nelson | :23 | :25 |

FLYING ACES NO-CAL

| | |
|---|---|
| 1.D.Obarski Mr. Smoothie | 3:42 |
| 2.R. MacEntee Fike | 2:58 |
| 3.John Wormley Grumman F4F | 1:49 |
| 4.Bob Shaw Zero | 1:47 |
| 5.Doc Martin Grumman F4F | :38 |

MASS LAUNCH EVENTS

WWII NO-CAL MASS LAUNCH

1.Bob Shaw
2.John Wormley
3.Doc Martin

COCONUT MASS LAUNCH

1.Doc Martin 4.R.Choate
2.R. MacEntee
3.J. Polento

MIAMA LEGAL EAGLE

| | | | |
|---|---|---|---|
| 1.D. Obarski SE-IV | 4:03 | 3:46 | 4:40 |
| 2.N.Bollinger Esquire | 4:00 | 3:57 | 4:02 |
| 3.R.MacEntee Ol Blue | 3:02 | 3:05 | 3:07 |
| 4.John Wormlet Esquire | 2:47 | 2:47 | 3:18 |
| 5.Sid Gilbert Maxi | 2:06 | 2:13 | 1:55 |
| 6.Randy Osborne Puss | 2:10 | 1:26 | 2:36 |

FLYING ACES EMBRYO ENDURANCE

| | | |
|---|---|---|
| L.N.Bollinger Colt 50 | 6 | 447 |
| 2.Buster Osborne Puma | 3 | 320 |
| 3.Randy Osborne Puma | 3 | 287 |
| 4.J. Polento Mr.Malcomb | 9 | 206 |
| 5.Sid. Gilbert Colt | 9 | 156 |
| 6.C. Nelson | 9 | 63 |

FLYIN' THE MIAMA MEETS : PUT IN MODEL BOX

**MIAMA INDOOR RULE SCORING SPECIFICS Revised 10/21/2000**

(3)

(See FAC & AMA for other details not covered below)

**PEANUT**

*Flight Points:* ***Single best flight*** (with **10 sec. bonus for ROG) out of 3** official flights.

*Max. of 82-1/2 flight points* awarded for each flight as follows:

| | |
|---|---|
| 0 - 60 sec. | 1 point/sec |
| 61 - 90 sec. | 1/2 point/sec |
| 91 - 120 sec. | 1/4 point/sec |
| over 120 sec. | 0 points |

*Scale Points:*

Construction and Details -- *Max* 30 points
Color and Markings ------- *Max* 20 points
Workmanship ---------- *Max* 12-1/2 points

*Bonus Points:*

| | |
|---|---|
| 0 | High Wing |
| 3 | Parasol |
| 5 | Shoulder, mid-wing, canard, tandem, and seaplane-with multiple floats |
| 10 | Low wing |
| 15 | Biplane and sesquiplane |

TOTAL SCORE = SCALE POINTS + BONUS POINTS + FLIGHT POINTS

**NO-CAL**

Weight of model (excluding rubber motor) shall be no less than ***6.2 grams*** (2 pennies).
Score based on ***best single (1) flight of five (5) flights*** (20 sec. min. & 2 attempts/flight)

**LEGAL EAGLE**

All flights **ROG**. Score based on sum of ***best three (3) of five (5) flights.***

**EMBRYO**

Weight of model shall be no less than ***6.2 grams***. All flights shall be **ROG**.
***Best three (3)*** **of** ***four (4)*** **official flights.**
***Bonus*** points added to **total** of flight points:

| | |
|---|---|
| 5 | Raised cabin or windscreen w/open cockpit & headrest |
| 3 | 3-dimensional wheel pants |
| 1 | 3-dimensional exhaust pipes |

*Total* score = Total of *three (3) flight points* + total *bonus* points

**BOSTONIAN**

All flights **ROG**. ***Best two (2)*** **flights out of** ***five(5)*** official flights.
Airframe, excluding rubber motor, shall weigh no less than *seven (7) grams* for monoplane (10 for others)
Maximum charisma:

| | |
|---|---|
| 3% | High wing mono with fuselage on its side ( x 1.03) |
| 5% | High wing mono ( x 1.05) |
| 12% | Recognizable simulation of actual aircraft ( x 1.12) |
| 15% | Biplane ( x 1.15) |
| 20% | Triplane or any complex airframe ( x 1.20) |

*Total* score = total of *two (2) flight points* multiplied by *charisma* factor

SUBMITTED BY N. BOLLINGER

## SMALLER IS BETTER? by Mike Nassise

TAILSPIN

**While reading the July 2000 issue of *Flying Models* I came across a letter written by Dave Stott (in Jim Alaback's great column) regarding the use of smaller props for flying scale models. Since Dave's comments were rather interesting, I thought I'd pass them along to those of you who don't read the magazine (you should if you're into F/F). Here's what Dave had to say.**

**"I've been trying to fly my models on smaller props and less cross-section of rubber lately. I like it better. The model is easier to trim and the extra turns you can store in the smaller cross-section of rubber makes up for the faster turning prop. Thrust seems not to suffer.**

**"The old approach was to hang a prop of 1/3 wingspan and add enough rubber to turn it up to get the thrust you want (which was usually more than you really needed).**

**"I'm getting the feeling that we have been oversize in props and, consequently, power. Lately I have been flying a 10-cent Comet 16-inch Luscombe 50 right off the field with a 4-inch Kaysun plastic prop, which I had always considered to be pretty worthless!**

**"The power used on the Luscombe is one loop of 3/32-inch Tan II ten inches long, turning the 4-inch Kaysun plastic prop. The model's all-up weight is 11.8 grams. A clay ball of about 5/32-inch diameter is carried as nose ballast."**

**Food for thought, don't you think? Dave's approach seems to be worth a try when you consider that the smaller the prop hanging on the nose the less drag is generated in the glide (freewheeling or not), and that the rubber motor, after it has unwound, is no more than dead weight that increases the rate at which your model returns to the ground. If there's a chance of getting your ship to perform equally well (or better) with less rubber and a smaller prop it would be foolish not to take advantage of the situation.**

Send your payment to:

(4)

**Peter Kearney**
372 Cedar Ave.,
London, Ontario
Canada N6G 1E7

Peter adds: "The best method of payment would be an international money order in Canadian dollars, but Canadian or US cash is also acceptable. I'm not aware of any other suitable payment methods, but if you'd like to make other arrangements, just let me know.

**Note: money orders should be made payable to Peter Kearney, NOT Indoor Flight International."**

HIGHLY RECOMMENDED -

### Other Indoor News

Some readers will be familiar with the European newsletter "Indoor News" which was started by Jorgen Korsgaard (Germany) in 1984. The publication was handed over to Thedo Andre in 1992, and Thedo produced a total of 33 issues in the last seven years.

Most recently Thedo elected to step down as the editor and publisher of the newsletter and called for a volunteer replacement. Peter Kearney (Canada) offered to assume the responsibility, and after a period of organizing and collecting material he has produced the first issue under his reign, Number 52, reflecting the continuation of the entire series.

Pete has changed the name to **Indoor Flight International**. It's a first class newsletter both in content and in appearance, and will continue to feature indoor news on a world-wide basis. Very professional in every way. Well done Peter!

Avid indoor modellers will want to be on the mailing list for this newsletter.

**Subscription rates: (for 6 issues/year)**

| | |
|---|---|
| Canada | $20 |
| US | $23 ($15 US) |
| International (airmail) | $26 |

SEND TO:

*Slanic-Prahova, Romania, 02 Oct.- 07 Oct. 2000*

(51)

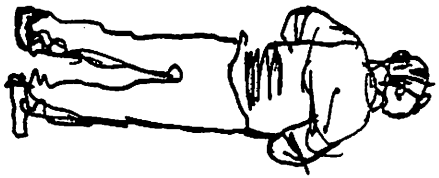
Final Results after Round 6 - **SENIORS**

INDIVIDUAL RESULTS FOR ALL COMPETITORS

| Place | # | Name | Country | Rnd 1 | Rnd 2 | Rnd 3 | Rnd 4 | Rnd 5 | Rnd 6 | Best Round | 2rd Best | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 38 | John Kagan | United States of America | 14:57 | 14:1 | 42:37 | 43:42 | 45:34 | 46:42 | Rnd 6 | Rnd 5 | 92:16 |
| 2 | 39 | Jim Richmond | United States of America | 45:31 | 44: 3 | 29:45 | 44:46 | 46:39 | 22:18 | Rnd 5 | Rnd 1 | 92:10 |
| 3 | 16 | John Tipper | United Kingdom | 9:58 | 29:5 | 33:11 | 41:20 | 37:36 | 47:21 | Rnd 6 | Rnd 4 | 88:41 |
| 4 | 37 | Steve Brown | World Champion 1998 | 21:53 | 42:2 | 37:52 | 44:29 | 34: 5 | 30:18 | Rnd 4 | Rnd 2 | 86:49 |
| 5 | 14 | Amoraritei Dan | Romania | 32:34 | 42:4 | 1:39 | 22:52 | 19: 1 | 43:31 | Rnd 6 | Rnd 2 | 86:12 |
| 6 | 35 | Orsovai Dezso | Hungary | 23: 5 | 41:5 | 41:39 | 44: 1 | 38: 6 | 39:53 | Rnd 4 | Rnd 2 | 85:51 |
| 7 | 34 | Ree Andras | Hungary | 41:35 | 40:1 | 14:21 | 12:16 | 40:19 | 42:26 | Rnd 6 | Rnd 1 | 84: 1 |
| 8 | 40 | Larry Coslick | United States of America | 42: 9 | 10:3 | 39:43 | 30: 9 | 7:50 | 37:43 | Rnd 1 | Rnd 3 | 81:52 |
| 9 | 50 | Mangalea Corneliu | Romania | 35:57 | 35:1 | 38: 3 | 31:18 | 43:29 | 18:44 | Rnd 5 | Rnd 3 | 81:32 |
| 10 | 15 | Bob Bailey | United Kingdom | 9:33 | 39:5 | 41:14 | 12:23 | 26:37 | 0: 0 | Rnd 3 | Rnd 2 | 81: 7 |
| 11 | 26 | Hideyo Enomoto | Japan | 39: 9 | 36: | 1:19 | 39:25 | 36:56 | 40:46 | Rnd 6 | Rnd 4 | 80:11 |
| 12 | 18 | Derek Richards | United Kingdom | 41: 2 | 38:1 | 31:42 | 16:51 | 35:51 | 36:32 | Rnd 1 | Rnd 2 | 79:41 |
| 13 | 32 | Popa Aurel | Romania | 12:37 | 21:7 | 38:59 | 34:41 | 35:50 | 39:40 | Rnd 6 | Rnd 3 | 78:39 |
| 14 | 36 | Sukosd Zoltan | Hungary | 35: 0 | 15:1 | 36:26 | 37: 1 | 32:27 | 34:47 | Rnd 4 | Rnd 5 | 73:27 |
| 15 | 31 | Ciapala Edward | Poland | 35:51 | 19:1 | 36:27 | 18:16 | 34:54 | 36:10 | Rnd 3 | Rnd 6 | 72:37 |
| 16 | 30 | Markiewicz Jerzy | Poland | 32:59 | 0: | 30:31 | 33:17 | 37:50 | 18:39 | Rnd 5 | Rnd 4 | 71: 7 |
| 17 | 292 | Silin Dimitro | Ukraina | 34:49 | 4:1 | 34: 1 | 0:30 | 32: 0 | 25:31 | Rnd 1 | Rnd 3 | 68:50 |
| 18 | 25 | Tellier Fred | Canada | 24:20 | 6:1 | 8:52 | 29: 2 | 34: 1 | 32:26 | Rnd 5 | Rnd 6 | 66:27 |
| 19 | 19 | Liem Edmund | Canada | 30:13 | 1:1 | 22:23 | 25:24 | 25:23 | 36:12 | Rnd 6 | Rnd 1 | 66:25 |
| 20 | 20 | Linardic Vladimir | Canada | 21:19 | 32:1 | 12:21 | 27:44 | 1:30 | 29:20 | Rnd 2 | Rnd 6 | 61:43 |
| 21 | 4 | Ran Miron | Israel | 2:50 | 21: | 2:46 | 27:49 | 0:14 | 23:17 | Rnd 4 | Rnd 6 | 51: 6 |
| 22 | 33 | Pukowiec Grzegorz | Poland | 19:14 | 28:1 | 17:14 | 18:47 | 14:48 | 22: 9 | Rnd 2 | Rnd 6 | 50:49 |
| 23 | 300 | Vileisky Vitaliy | Ukraina | 23:39 | 0: | 22: 8 | 0: 0 | 0:13 | 0: 0 | Rnd 1 | Rnd 3 | 45:47 |
| 24 | 296 | Steponenas Rimas | Lithuania | 2:12 | 0: | 0: 0 | 0: 0 | 0: 0 | 0: 0 | Rnd 1 | Rnd 2 | 2:12 |

FAI JURY
Pierre Chausseb[illegible]rg
Martin Dilly
Mihail Zanciu

Contest Dir[illegible]or,
Marius Conu



FEDERATIA AERONAUTICA INTERNATIONALA
FEDERATIA ROMANA DE MODELISM
4 CAMPIONATUL MONDIAL DE AEROMODELE INDOOR
SLANIC PRAHOVA ROMANIA 2000
F1D

FROM ORBITEERS

USA WINS WORLD FID INDOOR

UK 2ND

ROMANIA 3RD

## SLANIC WORLD CHAMPS REPORT - S.BROWN

FROM EL TORBELLINO (6)

| | | |
|---|---|---|
| 1. | John Kagan | 45:34+46:42=92:16 |
| 2. | Jim Richmond | 45:31+46:39=92:10 |
| 3. | John Tipper (ENG) | 41:20+47:21=88:41 |
| 4. | Steve Brown | 42:20+44:39=86:49 |
| 5. | Dan Amoraritei (ROM) | 42:41+43:31=86:12 |
| 6. | Dezso Orsovai (HUN) | 41:50+44:01= 85:51 |
| 7. | Andras Ree (HUN) | 41:35+42:26=84:01 |
| 8. | Larry Coslick | 42:29+39:43=81:52 |

Kagan flew the same model as at last year's team finals. He flew really well after starting out with two hangups. I think he grew a lot during the contest, basically winning after solving the problem of getting more turns into a motor with better winding technique (getting more turns into the same motor).

Richmond's was the outstanding model, flying on 16" of .065 rubber (5/99) rather than the .080 or so used by everyone else. His airplane was similar to the 1998 model except it had a 9" chord wing. He surprised me by saying that he was using my 1994 prop outline pushed into a flaring prop. The prop RPM was low and the mode was very smooth in flight. Most competitors had a climb to the roof of about 8-10 minutes. Richmond's climb to the same height was about 15 minutes. He put up a flight in the last round trying to better his second best flight to regain the lead but had to steer away from the wall at 22 minutes and couldn't get the model off the balloon string. Really tough luck. He said afterword that he couldn't see the model well enough even with two spotlights on it.

Tipper's 47 minute flight was the result of the classic indoor ploy of bombing the model to the roof and letting it bounce off whatever. In this case, it worked. The model was all over the ceiling and catwalks but it made it down to the ground. Probably not repeatable, but a great flight in any case. He used a small Hunt Stork-type model with a small low-pitch prop (18/30? I heard indirectly) and about 1.2 gm of rubber.

All my models were wrecked in transit. The contents of the box looked like they had been stirred with a stick. Two of the six were destroyed and not repairable. I spent the first two days assembling 3 flyable (barely) models from parts. I used six 8X10 sheets of patching film. During the entire contest I was plagued by invisible cracks in tailbooms, wing spars, etc. Also, wires detaching from their glue joints due to stress. I'm pretty happy with the results considering the amount of damage and the fact that any pre-existing adjustments disappeared during the rebuilding. Coslick never could get his models squared-away. He had climb problems and also drift-related hangups. He was ill during the whole week with an intestinal ailment.

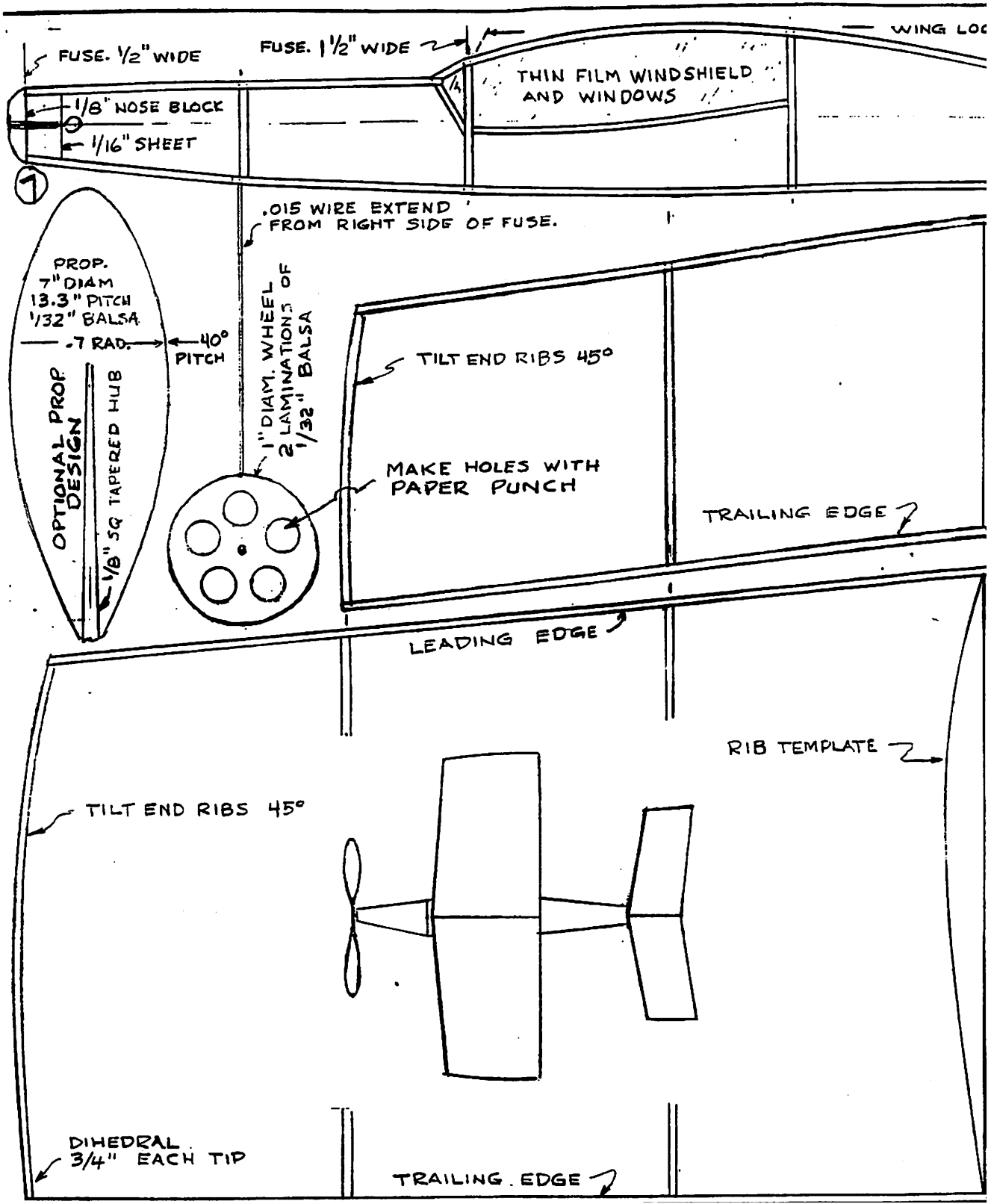
Most of the top competitors flew on 5/99 Tan II. I flew on 7/97. I think there may have been a small advantage to the 5/99 - more turns for equal weight. Many of the competitiors seemed to think 5/99 had to be cut wider and with a shorter loop length to get equal power to a comparable 7/97 loop. But Richmond flew 5/99 that was only about .002 wider at a 16" loop length.

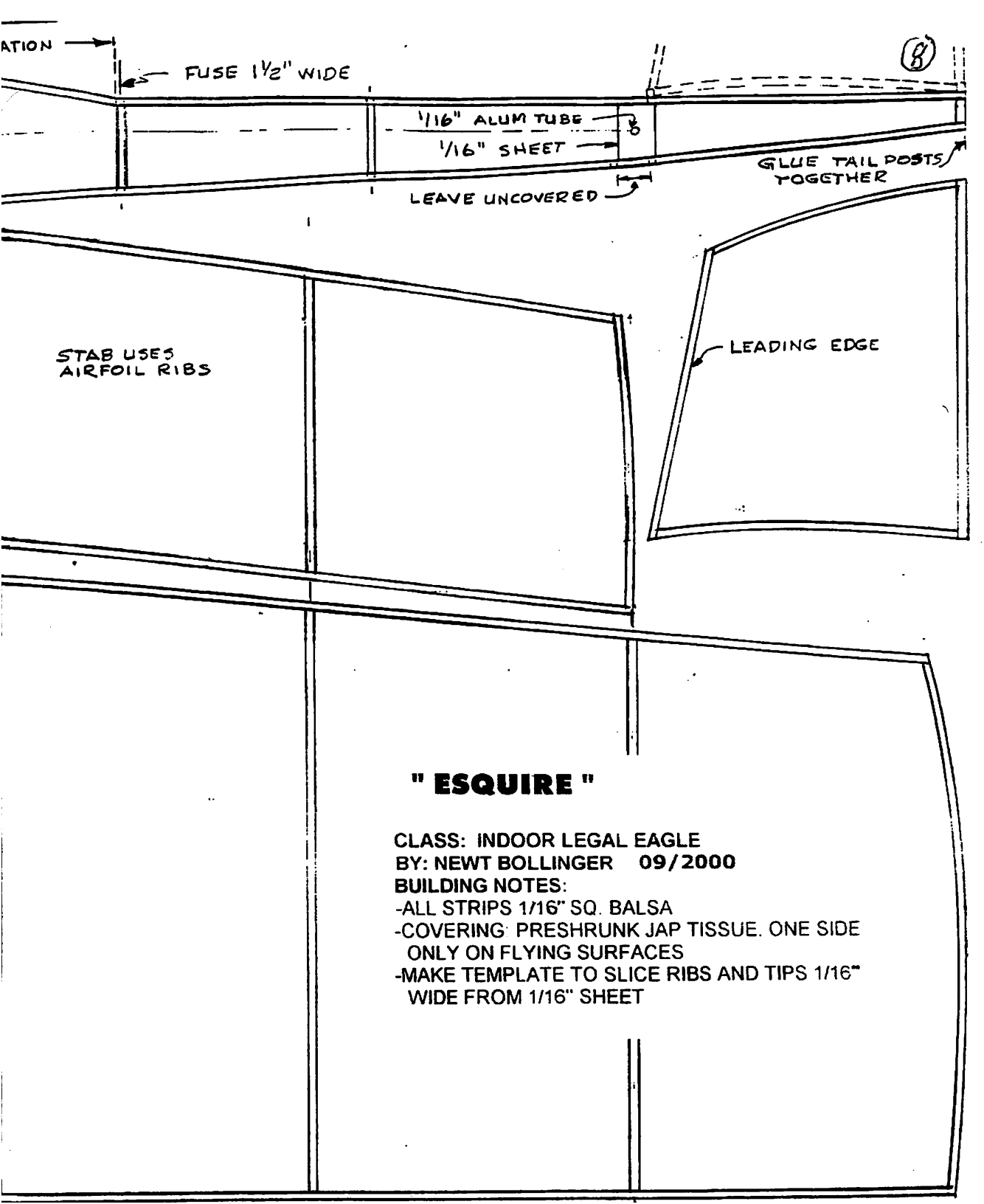
There was a little more drift than in 1998, particularly in the popular throat of the "L". Overall flight conditions were good with good contest administration and crowd control. Food and lodging were similar to 1998, but in my opinion showed improvement. Things are getting better in Romania (example: the hotel now has a computerized phone system and you can direct dial the US from the room!).

There was a lot of discussion of the new rules. Surprisingly, the eastern European flyers were the most vocal in their unhappiness. Particularly, the Romanians, whose representative voted for the rules in spite of the Romanian team's opposition. The 0.6gm motor limit is the source of everyone's dissatisfaction. There was also criticism about the rules-change process and of the way the 0.6gm motor limit was inserted at the last minute.

During the contest Ree voiced the opinion to me that the necessity to steer in the mine "proved" that 65cm's had "too much performance even for the Salt Mine." How he contrived this novel viewpoint is anyone's guess but I heard no one else say anything to that effect. Second-hand, I also heard that he said that he was unsatisfied with the 30 minute performance range of the 55cm rule models. They too "still had too much performance." There was considerable sentiment that Ree's views do not represent the majority of F1d flyers. The most common comment being that if 55cm was going to open up new flying sites where were all the bids for 2002? - already awared to Romania.

We all have a lot of challenges ahead to learn a new set of rules. I think it will be necessary to defend against even more draconian rules changes. One thing I can say: after Lufthansa's thrashing of my models plastic is looking better and better.


FUSE. 1/2" WIDE
FUSE. 1 1/2" WIDE
WING LOC
THIN FILM WINDSHIELD AND WINDOWS
1/8" NOSE BLOCK
1/16" SHEET
.015 WIRE EXTEND FROM RIGHT SIDE OF FUSE.
PROP. 7" DIAM 13.3" PITCH 1/32" BALSA
.7 RAD.
40° PITCH
OPTIONAL PROP DESIGN
1/8" SQ TAPERED HUB
1" DIAM. WHEEL 2 LAMINATIONS OF 1/32" BALSA
TILT END RIBS 45°
MAKE HOLES WITH PAPER PUNCH
TRAILING EDGE
LEADING EDGE
RIB TEMPLATE
TILT END RIBS 45°
DIHEDRAL 3/4" EACH TIP
TRAILING EDGE




# " ESQUIRE "

CLASS: INDOOR LEGAL EAGLE
BY: NEWT BOLLINGER 09/2000
**BUILDING NOTES:**
-ALL STRIPS 1/16" SQ. BALSA
-COVERING: PRESHRUNK JAP TISSUE. ONE SIDE ONLY ON FLYING SURFACES
-MAKE TEMPLATE TO SLICE RIBS AND TIPS 1/16" WIDE FROM 1/16" SHEET

(9)

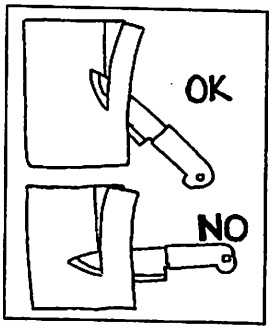
# Styrofoam for Indoor Scale Models

**Steve Gardner**

I hope you all have seen some of the wonderful foam models that have made their way into the various model magazines in the past two years or so. First in England, then all over the place appeared these unusual models. Scale models of subjects that are a bit out of the ordinary, like Lancaster bombers, TU-16 "Bear" bombers, sub-peanut Curtiss seaplane racers, and all sorts of others. They are made from the blue or pink foam that is commonly used for insulating homes. This material is very easy to work with so long as you use very sharp tools. It is extremely inexpensive, a TA-152 fighter with a span of 32 inches cost about a dollar to make. With the proper technique this foam can produce models of exceptional toughness while keeping them reasonably light. There are a large number of subjects that have very complex cross sections that make them difficult to model in stick and tissue. With this new stuff you will be looking for the ones you used to shy away from. You will not need blast tubes and there will be no more trying to match tissue colors to patch things up. Warps are not nearly so likely and are simple to deal with too. The stuff is really nice, but there are some things that are very different about the way you use the foam, so I have gathered together some of the things I have found out while messing around with foam this past year. I hope you find the ideas here helpful.

The foam we are talking about is the stuff called "Styrofoam" by Dupont. It has lots of other names depending on who is selling it. You can most easily find it in the large home improvement stores. The stuff is used to insulate between joists in the vertical walls of houses. We are not talking about the "expanded bead foam" that most people think of when the word "Styrofoam" is mentioned. The foam we are going to use is much finer in texture and also much stronger. It is about 1.5 pounds/ cubic foot, half again heavier than the beaded stuff, but of course much lighter than the finest, hardest to get balsa. I paid $14.00 for a 4'X8'X2" sheet that will make a very large number of models. You can find it in sheets as thin as 1/2" to as thick as 6", with the price going up very fast as the thickness does. Sheets half as thick as the widest fuselage you foresee making are what you want, since we will always be splitting the fuse down the centerline.

I am always asked what I used to cut the foam with. I have yet to need a hot wire setup, although I can see where it would make things simpler. To cut this foam you will need to have very sharp blades. I use a paring knife made by Chicago Cutlery that has a very slight curve to its edge. It is very easy to sharpen using a set of ceramic rods like those you get at good knife stores. When you cut the foam, draw the edge of the knife through the material at an angle, not with the edge at a perpendicular angle to the cut. SEE FIG.1




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There is a grain to the foam. The foam is less compressible in one direction than the other, so this will determine the orientation of the model parts when they are cut out. Wings especially should be cut out so that the least compressible direction runs span wise. This will allow the wings to be carved and sanded to a very thin, light section without becoming too flimsy. To cut wing and tail blanks out I use a band saw. A peanut might have a wing blank that is around 3/16" thick and this might go all the way up to 1/2" for a 36"

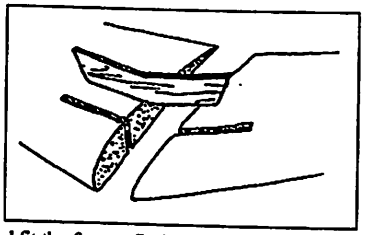
model. I do cut the basic taper into the wing blank thickness, but I always leave plenty of material to cut/sand off.

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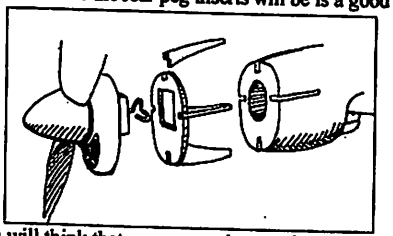
Shaping the foam is very easy with knife or sandpaper. If you have ever built any solid scale models you are going to take to this like a duck to water. Models can be built with this material very quickly. I built a four-gram FW-190 with a nine-inch span with blue foam in a single evening, paint, prop, and all. Once I had this particular model finished I discovered I had left far too much material when I hollowed out the fuse and had left the wings very thick. The model could have easily been a two and a half-gram model and still looked exactly like it does now. Remember, when in doubt, hollow it out. When shaping the model refer to your drawings as often as you need to so that the model comes out with the proper shape and cross section. I use a sharp knife for 90% of the shaping process. This is faster and actually easier than sanding even though the foam sands so very easily. Use a strong side light to make the shape of the piece you are carving stand out. This will make it much easier to see where you need to take material off and where you need to ovoid cutting. If you do happen to cut too deeply into the part you are making, you can simple splice a chunk of foam into the undercut area and reshape it!

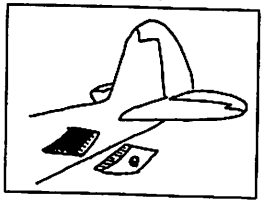
To mark the foam for carving I use a black permanent marker and mark the outline so that when the part is cut out the black outline will remain on the waste material. If you need to mark the foam in an area that will show on the finished model you should use a water based marker. These will tend to bead up on the foam and be a bit harder to see, but will come off of the foam much easier and help prevent you from having to cover black marks with paint.

Once you have the basic shape of the fuse carved out and sanded roughly to shape you can decide how you want to fit the wings. You can cut the wings to fit the fuse sides on the smaller models. This will allow a greater amount of clearance for rubber motors and is plenty strong enough for peanuts and smaller models. For large models you will probably join the wings with a simple joiner as shown in FIG. 2. With the wings



joined you will have to cut and fit the fuse to fit the wing surface. This is done before the fuse is hollowed out so that you will know where the fuse and wing meet and can leave an extra bit of foam around the joint. To hollow the fuse you simply split the fuse down the center where you joined the halves before shaping. I use a motor tool with a very small router bit to cut out foam from the inside of the fuse. I also use a 1/2" dia. sanding drum on a very low speed to cut out the excess foam. Leave most of the foam in the nose area that is not in the rubber motor's way since you will probably need the nose weight anyway. This will also make the front end easier to fasten the front former for the noseplug, see FIG.3. Leaving a very small bit of extra foam around where the rear peg inserts will be is a good idea. See FIG.4. Everywhere else cut lots of

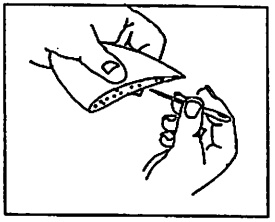




foam out. You will think that you are cutting out far to much material from how flimsy the fuse shell seams to get, but when you join them and fit the wing into the wing opening the fuse will get very stiff and strong. For a peanut the fuselage wall thickness should be about .050" or less. This will result in an

incredibly strong model. Even a 36" model should have a .075" or less average thickness from the middle of the wing on back. The more you take out now, the nicer a finish you can use, and the longer the model will fly. Use a nice strong light to see how thin the foam is getting so you do not cut through anyplace. Also, it is often a very good idea to cut the fin/rudder out as part of the fuse instead of separately. Unless the fin is extra thick it is not hollowed out, but left attached to one side or another during the hollowing step.

Gluing this material is easy. I use the odorless CA for all construction and the Foam Primer Pacer sells for using CA on foam. Epoxy can be used as well, but it is very heavy. White glues will work, but since the glue joints are made of a waterproof material, it may take a very long time for the water to leave the glue and so the glue may stay wet for a very long time. If you use water-based glues by all means apply them very thinly so that they can dry quickly. No matter which glue you decide to use is it best if you poke a pattern of pinholes into the foam where you are gluing so that the glue can get into the foam somewhat. I use a sewing needle, the longer taper to the point allows me to poke deeper and get the best glue joints. See FIG. 5.



The foam is finish sanded with 400 grit wet or dry, being very careful not to allow the corners of the paper to mark the foam. Very thin water based spackling may be used to seal the surface, but this can be extremely heavy if not done carefully and well. If use be sure to sand carefully so as not to cut through the sealer while sanding the very maximum amount off to save weight. I do not use any sealer. I just airbrush the appropriate colors onto the model with artist's acrylics. Go for simple coverage and not a super solid look since this paint is not all that light either. A very solid looking model is the result at any rate, especially if you are very much used to stick and tissue. I hand paint the markings on after the basic colors are dry. This is not at all hard, just give it a try. If a mistake is made you can wipe it right off with water. The foam can be found in pink as well as blue, and of course if you are building a model that will be red in the final form then starting with pink will be a good idea. If you must use blue and want the finished model to be red, first spray the whole model with white, then red as needed. The natural color of the foam is good for the underside of camouflaged fighters and the browns and greens cover it really easily too.

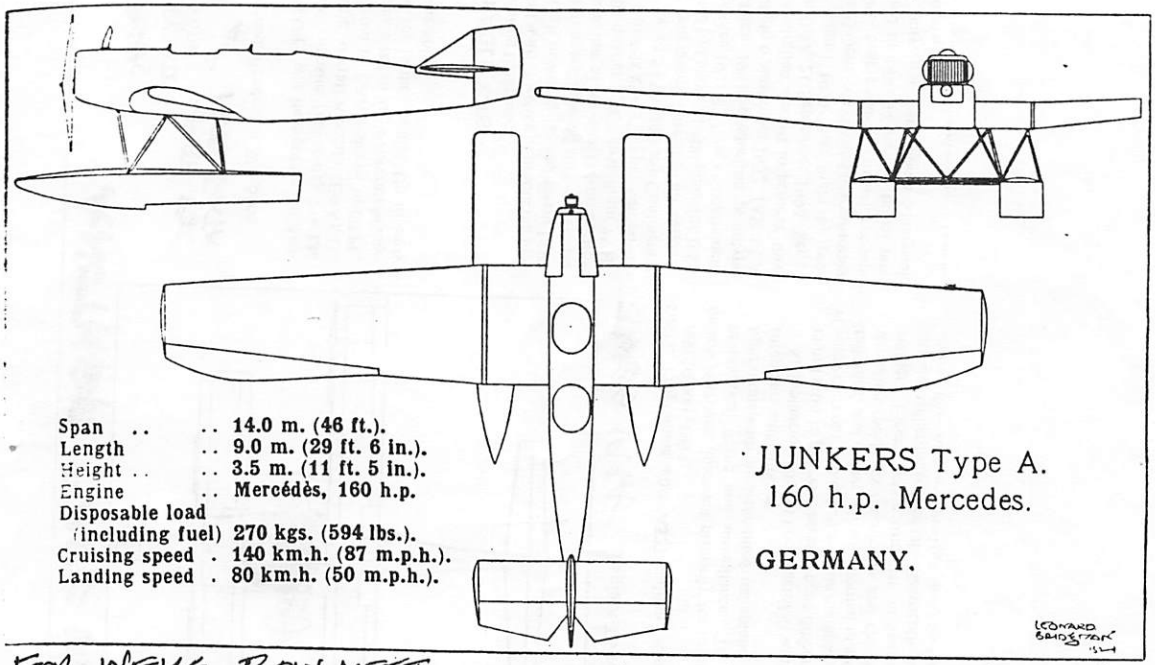
You are really going to like the toughness these foam models have. Bouncing off of walls and bleachers is nothing to worry about with these "Nerf" models. I just love the look on the faces of nearby flyers when I blow a motor inside one of my foam models. BLAM! Everybody cringes! No patching, no repairs, no weight build up, no lube soaking, it is just wonderful! These models are also very warp resistant, and you can cut the scale flight surfaces out to trim the model. Give this stuff a try!

# the INSIDERS

(12)

JANE'S 1924

## by Dave "VTO" Linstrum for the Hangar Pilot

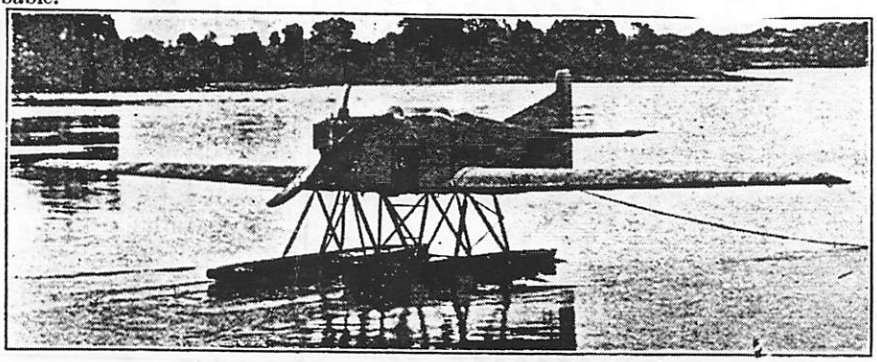



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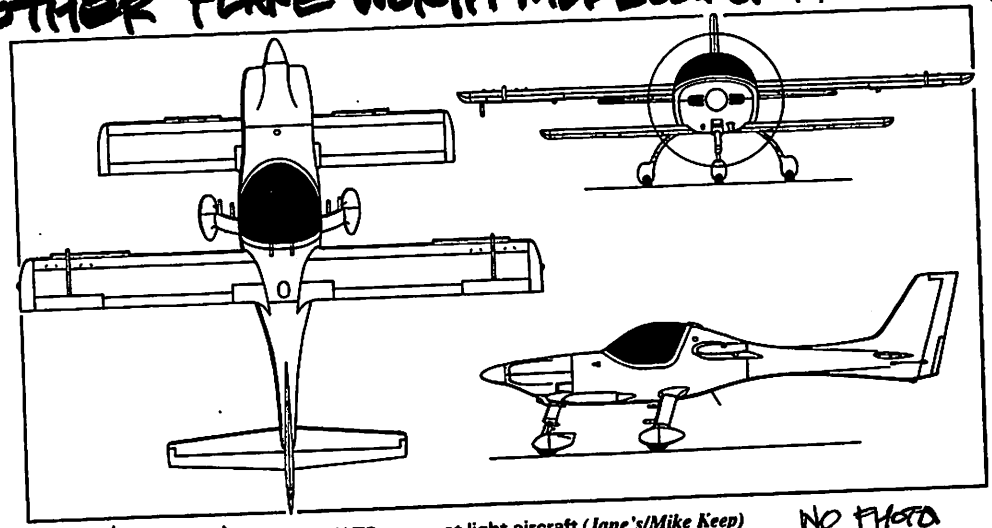
Eagle Aircraft Pty Ltd (EAPL) was incorporated in Australia on 18 June 1985 as Composite Technology Pty Ltd (CTPL), a subsidiary of Eagle Aircraft Australia (EAA). On 28 May 1993, with the buyout of EAA's shares in CTPL, ownership of EAPL was transferred to Eagle Aircraft Malaysia. See Malaysian section for further details. Up to early 1994, all activity in Australia only.

### EAPL EAGLE X-TS

TYPE: Two-seat general aviation lightplane.

PROGRAMME: Launched 1981 with objective of producing first all-composites light aircraft in Australia; single-seat POC (proof-of-concept) aircraft now displayed at Power House Museum, Sydney; construction of two-seat pre-production prototype started fourth quarter 1987; first flight (VH-XEG) Spring 1988, with 58 kW (78 hp) Aeropower engine, replaced later by 74.5 kW (100 hp) Continental O-200; 200 hour test programme, meeting all original design criteria, completed by October 1988; plans for 1989 production start aborted (see 1991-92 *Jane's*); component manufacture began March 1991; production prototype (VH-XEP) made first flight 6 November 1992; JAR-VLA certification (second Australian aircraft to achieve this) awarded by Australian CAA 21 September 1993. Series production launched August 1993; first flight by production X-TS made on 23 October 1993 and first customer delivery December 1993. Single standard model, not separate versions as stated in 1993-94 *Jane's*. Initial production in Australia only, but using some Malaysian manufactured components.

[illegible] Four pre-production aircraft completed by 1 January



JANE'S 1994 **Eagle X-TS two-seat light aircraft** *(Jane's/Mike Keep)* NO PHOTO

COSTS: Programme cost A$27 million, standard aircraft A$120,000 (1993).

DESIGN FEATURES: Intended primarily for *ab initio* training, recreational flying and surveillance. 'Tri-surface' configuration, with high-mounted mainplane, low-mounted foreplane, and tailplane.

Mainplane of tailored Roncz aerofoil section, thickness/chord ratio 16 per cent; no sweep; no dihedral or anhedral.

FLYING CONTROLS: Slotted ailerons on mainplane, elevators on tailplane, and rudder, all with normal manual/mechanical actuation (pushrods on ailerons and elevators, cables on rudder). Electric pitch trim (tab in starboard elevator), manual roll trim; rudder tab. Electrically actuated single-slotted flaps on foreplane (full span) and mainplane (part fences on mainplane, stall strips on foreplane. Highly developed flap and airflow control systems to achieve low stalling speed with relatively high wing loading, to provide good ride quality in turbulence.

STRUCTURE: Except for metal engine mounts and flight control rods, production X-TS built entirely of advanced composites. Wings, fuselage and all control surfaces are Nomex honeycomb or high density foams, sandwiched between multiple layers of carbonfibre; Kevlar reinforcement around wing leading-edges and shoulder of mainplane; cockpit is impact-resistant capsule of multi-layered Kevlar and carbonfibre; carbonfibre spars. Entire structure uses Eagle-designed vinylester resins for strength/longevity/impact resistance and to minimise 'wet environ-

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NOTE: D1 thru D8 are Dave Lindstrum designs kitted with his permission.

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