# THE HANGAR PILOT

MIAMI INDOOR AIRCRAFT MODEL ASSOCIATION — MIAMA

# ISSUE 193

- WARREN WILLIAMS LIMITED PENNY
- COSLICK'S TAN II TESTS
- SLUSARCZYK'S NO-CAL TIPS
- PAUL AVERY'S INDOOR EMBRYO

27TH YEAR OF PUBLICATION
INDOOR ISN'T FOR EVERYONE

## FOAMIES ARE HERE - NEW EVENT!

THE MIAMA ROUGH FLYERS




NEXT MIAMA MEET (NOT MARCH 14,15) IS APRIL 4,5 - TAMPA ARMORY

FAC MASS LAUNCH IS GOLDEN AGE




FAC CLUB #11

"LIKE A LETTER FROM HOME" Whelan

THE HANGER PILOT

The Hanger Pilot, edited by John Martin Jr., who is solely responsible for its content, is published 8 or 9 times a season for bunch of middle aged guys who refuse to grow up. MIAMA ( Miami Indoor Aircraft Model Association ) - AMA club [redacted]. 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, J-views, complaints, gripes and compliments to: Dr.John Martin Jr., President / Editor, 2180 Tigertail Ave., Miami, FL 33133 USA. phone: 305-858-6361.

3624

COVER PHOTO: First meet at Homer Hesterly Armory. Some of the Boys and Girls of MIAMA. Left to right: Gen Obarski, Dick Hardcastle, John Wormley, Bob Shaw, Bruce Knox,Dick Obarski, Jake Larson, Doc Martin, Joe Nuszer, Charlie Nelson, Sidney Gilbert, Rich MacEntee,Eileen Gilbert,Dean McGinnes and friend,, Don Brimmer, Walt Schlesinger, John Polento, Ric Choate. Photo by Gilbert/Polento Missing from photo: 64 Ghost Sqdn. members.

MIAMA MEET 4 REPORT AND OTHER CLUB STUFF

I guess"all my fears were foolish fancies,baby" (Melancholy Baby). The magnificent MIAMA men responded to the challenge and 15 flyers came out and flew and flew at the Armory,paid the $20.00 necessaey tokeep the club treasury from bleeding, and got in a great sixteen hours of flying. We not only broke even (The first Armory meet we lost 76 bucks),but actually came out ahead thanks to extra contributions from Hardcastle,Trivin,Barker, Rivers, MacEntee, and a bunch of pilots I forgot. Many thanks to all.

The mass launches are always great, and in the nine plane FAC peanut, Choate's Pottier prevailed over Bollinger's Cougar by less than one second. I timed the final at 1:i4. Golden age FAC mass launch somehow didn't get flown so we will fly Golden Age FAC in meet 5. The Coconut mass launch was really super this time. At the one minute mark there were still four planes circling the ceiling with no sign of coming down ! Choate's Found Cent.was the last to land after Polento's ever widening circles put his new Pilatus in the balcony. We will publish plans and documents in the near future for Ric's fine Pottier.

Dick Hardcastle is quietly rewriting our record book. Last year he wiped out Tony Becker's 11 year old Cat II Penny record. , and in November he broke Wayne Trivins Limited Penny record at 11:09. Last April he set the Dime Scale record with a Comet Fokker DVII at 7:i5., and he currently holds our Easy B record at an impressive 18:03.. At meet #4 (this meet) he won Catapult Glider,Penny,Limited Penny, and Easy B. He took a 3rd in Mini-Stick to prove he is human. Congratulations to John Voorhees who got his first Kanone in FAC No-Cal with a hard fought 2 second victory over Dick Obarski. Obarski is flying up a storm..this meet he flew in NINE events!
Check out MacEntee,armada of the air.. He's been on a building spree and has a model and a back up for almost every class. I particularly like his Dime Scale Comet Aeronca floatplane, and Megow Curtiss Falcon. Also a beautiful Waco Cabin biplane on floats. Bollinger flew in ONLY 4 events, but picked up plenty of points by winning 2 of them.

SEE PAGE FOR NEWS ABOUT NEXT MEET - #5

MIAMA MEET #4 TAMPA ARMORY FEB 14,15 1998. C/D Rich MacEntee 34' Cat II

(2)

FLYING ACES PEANUT

| | Scale Pts. | Air Time | Total |
|---|---|---|---|
| 1R. MacEntee-Currie Wot | 60.6/15 | 61.3 (1:02.7) | 136.9 |
| 2.Doc Martin-Ford 2-AT | 54/0 | 76.9 (1:36.9) | 130.9 |
| 3.Newt Bollinger-Cougar | 54/0 | 75.2 (1:31) | 129.2 |
| 4.Ric Choate-Pottier | 52.5/0 | 75.7 (1:33) | 128.2 |
| 5.Bob Shaw - D H-6 | 51/15 | 29 | 95.0 |
| 6.John Polento-SE-5 | 54/15 | 20 | 89 |
| 7.Charles Nelson-Pietenpol | 47/0 | 21 | 68 |

MINI-STICK

| | |
|---|---|
| 1.D.Obarski | 7:56 |
| 2.J.Barker | 7:44 |
| 3.D, Hardcastle | 7:07 |

AMA EASY-B

| | |
|---|---|
| 1.D.Hardcastle | 14:48 |
| 2.D. Obarski | 12:15 |
| 3.C.Nelson | :24 |

FLYING ACES SCALE

| | | | | |
|---|---|---|---|---|
| 1.R. MacEntee-Waco/Floats | 61.7/20 | :58 | | 139.7 |
| 2.Doc Martin-Vance Wing | 48/25 | 63.2 | (1:06) | 136.2 |
| 3.S. Gilbert-Comper Swift | 52/0 | 67.7 | (1:15) | 119.7 |
| 4.D.Obarski-Curtiss Robin | 40/0 | 78.5 | (1:44) | 118.5 |
| 5.Bruce Knox-Tailwind | 53/0 | 64.5 | (1:49) | 117.5 |
| 6.J. Polento-Fok D VII | 48/15 | 37 | | 100 |

AMA LIMITED PENNY PLANE

| | |
|---|---|
| 1.D.Hardcastle | 9:29 |
| 2.J. Barker | 8:49 |
| 3.C. Nelson | :20 |

PENNY PLANE

| | |
|---|---|
| L.D.Hardcastle | 9:23 |
| 2.D.Obarski | 7:10 |
| 3.Joe Nuszer | 6:11 |

MIAMA COCONUT SCALE

| | Rank | Fly | Fly Rank | |
|---|---|---|---|---|
| 1.Ric Choate-Found | 1 | 1:48 | 1 | 2 |
| 2.R. MacEntee - YO-50 | 1 | 1:44 | 3 | 4 |
| 3.Doc Martin-M 20-b | 2 | 1:41 | 2 | 4 |
| 4. J. Polento-Pilatus | 2 | 1:20 | 4 | 6 |

AMA CATAPULT GLIDER

| | | |
|---|---|---|
| 1.D.Hardcastle | 33.0 | 34.2 |
| 2.Carl Hedley | 29.0 | 29.0 |
| 3.C. Nelson | 24.0 | 26.7 |

MIAMA PISTACHIO

| | | |
|---|---|---|
| 1.Doc Martin-Stabiloplan | :22 | :18 |

MODEL OF A MODEL

| | | |
|---|---|---|
| 1.D. Obarski-Comet C-1 | 1:01 | 1:03 |
| 2. S. Gilbert-Pussy Cat | 1:03 | - |
| 3.C.Nelson-Pussy Cat | :29 | :31 |

MIAMA LEGAL EAGLE Sum of 3 flights ROG

| | | | | |
|---|---|---|---|---|
| 1.D.Obarski - Simple Eagle | 2:41 | 3:35 | 2:56 | 581 |
| 2.N.Bollinger-Pro Bono | 2:58 | 3:12 | 2:58 | 548 |
| 3.John Barker | 2:50 | 3:05 | 2:56 | 541 |
| 4.R. MacEntee - T Tail | 2:34 | 2:33 | 2:42 | 470 |
| 5.S. Gibert - Bronco | 1:57 | 2:10 | 2:22 | 389 |
| 6.Carl Hedley-Paper chase | 1:46 | 1:50 | 1:51 | 327 |

MIAMA DIME SCALE Total of 3 flights

| | |
|---|---|
| 1.1.D.Obarski-Comet Fok DVII | 334 |
| 2.R.MacEntee-Megow Vought Corsair | 326 |
| 3.John Barker-Comet C. Robin | 319 |
| 4.J. Wormley-Comet Curt. Robin | 287 |
| 5.J. Polento-Comet Stratoplane | 142 |

FLYING ACES NO-CAL

| | |
|---|---|
| L.John Voorhees Curtiss Seagull | 3:06 |
| 2.Dick Obarski Mr. Smoothie | 3:04 |
| 3.Rich MacEntee Lacey | 2:47 |
| 4.Doc Martin Dayton-Wright | 2:46 |
| 5.John Polento HE-100 D | 1:42 |
| 6.Carl Hedley | :58 |

AMA BOSTONIAN

| | | |
|---|---|---|
| 1.N. Bollinger Colt 48 | 2:58 | 2:38 |
| 2.John Barker-Romulus | 2:54 | 2:36 |
| 3.S.Gilbert-Rd. Runner | 2:00 | 1:45 |
| 4.D.Obarski | 2:19 | 1:09 |
| 5.C. Nelson - Pup | 1:30 | 1:01 |
| 6.J. Polento-Pacific Ace | 1:12 | 1:10 |

FLYING ACES EMBRYO ENDURANCE

| | |
|---|---|
| 1.Newt Bollinger-Colt 50 | 418 |
| 2.J. Barker-Swordfish 2 | 366 |
| 3.S. Gilbert - Colt | 363 |
| 4.J.Polento-Pacific Ace | 195 |
| 5.John Wormley | 114 |
| 6.Bruce Knox | 94 |
| 7.C. Nelson - Pup | 36 |

MASS LAUNCH EVENTS

| COCONUT SCALE | FLYING ACES PEANUT |
|---|---|
| 1.Ric Choate | 1.Ric Choate |
| 2.John Polento | 2.Newt Bollinger |
| 3.Rich MacEntee | 7 MORE |
| 4.Doc Martin | |

MASS LAUNCH SAT. 2:00 PM MASS L. P-NUT
5:00 FAC GOLDEN AGE
SUN. 2:00 COCONUT

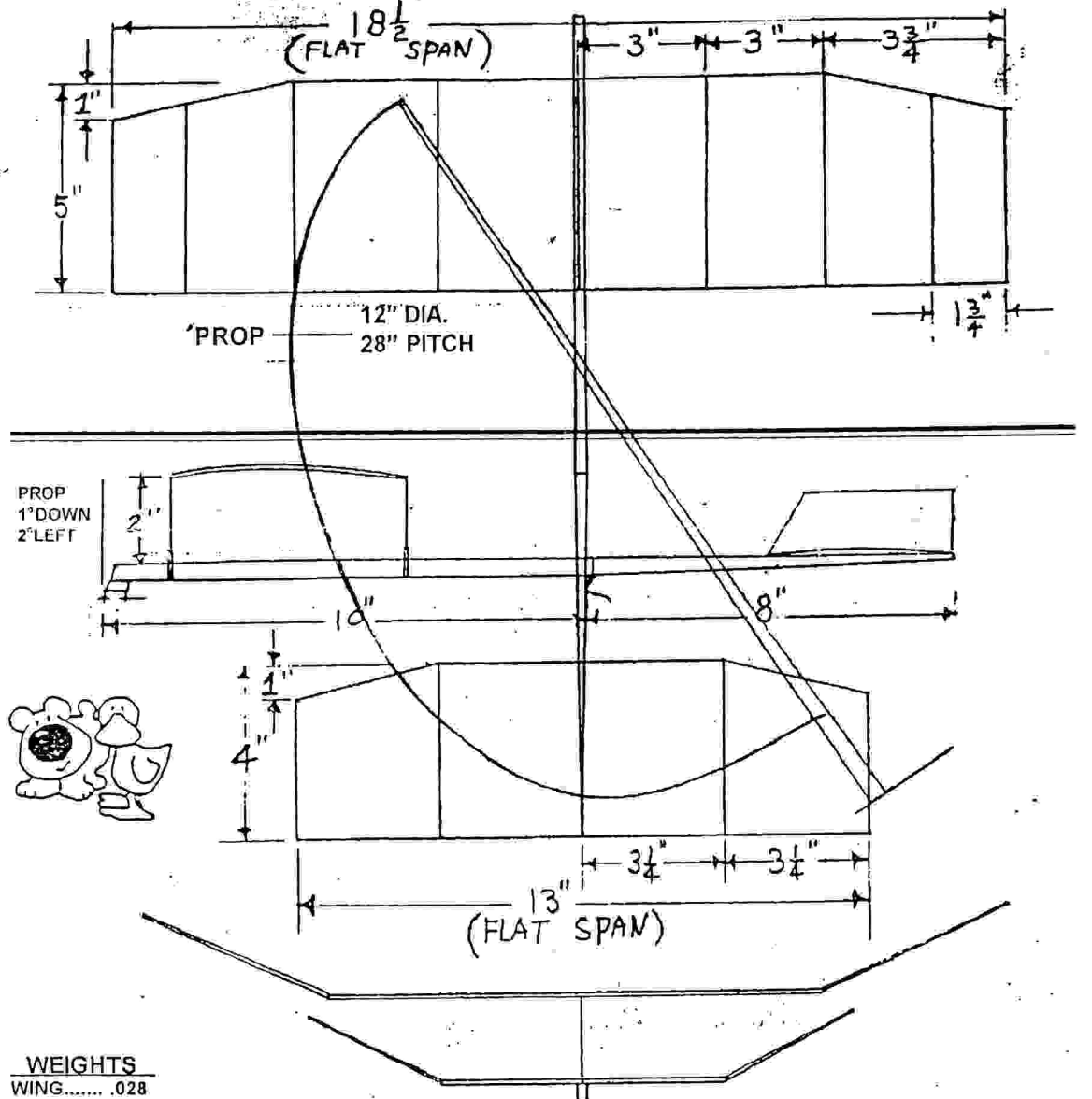
APRIL 4,5-ARMORY-MEET 5

3

# The Skipper

A Limited Penny Plane by.....WARREN WILLIAMS

SET NEW CAT. I RECORD






| WEIGHTS | |
|---|---|
| WING..... | .028 |
| PROP..... | .030 |
| REST..... | .052 |
| TOTAL | .110 |

To get proper dihedral: raise wing tips until the span is 18 inches and the stab tips until the span is 12 inches. The motor is .075 x 15.5 inches, wound to 2100 turns.

# ANNOUNCING A NEW (OH, NO!) INDOOR EVENT (4)

New indoor class...MIAMA - FLYING ACES FOAMIE ... Will be flown in meet 5

FAC scale rules apply to new indoor class of FOAMIES-EXCEPTIONS TO FAC:

(1) For models built completely or mostly from ~~Foam~~ sheet or blocks. You can still use some stick and tissue if you wish, but more than half your model must be foam to qualify as a FOAMIE.

(2)Undercamber is permitted in this class as it is basic for wing strength and lightness. These are indoor (Prop run) models whose glide is unimportant.

Go for it,pilots. Let's see some times, plans, and photos.

## MORE ABOUT FOAMIES

We had a real treat at meet 4. Peter Smart, Co-author of INDOOR FOAM SCALE FLYING MODELS had visited Jake Larson and Bruce Knox in the Tampa area. He left a tiny (9 3/16" span) P-51 Mustang with Bruce to demonstrate to us. A four blade plastic prop, Full Normandy Invasion marking on a camoflage finish airbrushed acrylic paint. Wt. 4.7 gm. without rubber, it did 34.6 sec. on 800 turns. Rock steady climbing left circles. VERY IMPRESSIVE, PILOTS.

New Indoor Class...MIAMA- FAC FOAMIES- will be flown starting in meet 5.

TOP HANGAR PILOTS AFTER 4 MEETS:

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1.Rich MacEntee | 108 | 8.John Polento | 41 | 15.George Nunez | 13 | | |
| 2.Dick Obarski | 97 | 9. John Wormley | 35 | 16.John Voorhees | 11 | | |
| 3.Sidney Gilbert | 77 | 10.Ric Choate | 28 | 17.John John Nunez | 10 | (Jr.) | |
| 4.Newt Bollinger | 72 | 11.Charles Nelson | 25 | 18.Joe Nuszer | 9 | | |
| 5.Doc Martin | 69 | 12.Carl Hedley | 20 | 19.Walt Schlesinger | 8 | | |
| 6.Dick Hardcastle | 65 | 13.Bruce Knox | 15 | 19.Millard Wells | 8 | | |
| 7.John Barker | 44 | 14.Don Brimmer | 14 | 21.Bob Shaw | 7 | | |
| | | | | 22.Jake Larson | 3 | | |

"Interested in Jetex flying, plans, fuel and engines? Join the more than 300 some already receiving the only newsletter designed for the promotion and preserving of Jetex flying. Subscribers as far away as Saudi Arabia, Switzerland and Australia are receiving this rag. Three views and full size plans are in each issue and all back issues are available. Many issues have a technical section and photo session of the creations. Brand new engines of an alluminum alloy have been developed as well as electrical ignition systems and provisions for new 150 size engines. Currently, we are on issue # 42. Notice below for prices for subscription rates":

United States - $10.00 Australian - $15.00 Env $18
Canada - $11.00 Japan - $15.00 Env $18
European - $14.00 Enveloped - $16.00

Back Issues - These prices are by Volume number!

United States - Vol 1, #'s 1-6 runs $7.00 Vol 3 through current - $10
Vol 2, #'s 7-12 runs $8.00

European - Vol 1, #'s 1-6 runs $10.00 Vol 3 through current - $14
Vol 2, #'s 7-12 runs $11.00

Japan/Australia Vol 1 - $13.00, Vol 2 - $14.00 and Vol 3 through current volumes runs $18.00 per volume.

Send replys to Roger L. Wathen Sr., P.O. Box 18251, Indpls, IN 46218, USA
Phone - 1-317-547-5963

MORE FROM ROGER →

"Individuals, teachers, youth groups and libraries, I have the following model aviation mags for sale: M.A.N., M.B., A.M., A.A.M., F.M., A.T., R.C.M., Flying Aces, and M.A. No complete set of mags (12 mags) will run more than $5.00 except A.M., A.T., M.B. and F.A. Send large SASE (two stamps) to Roger L. Wathen Sr., P.O. Box 18251, Indpls, IN. 46218 USA Phone - 1-317-547-5963".

# 8/93 TAN II VERSES 7/97 + 10/97 BY LARRY COSLICK

We just received the latest batch of Tan II which is labeled 10/97. Since 7/97 just came out, we needed to see if 7/97 & 10/97 is any better than 8/93. My latest way of comparing new rubber is to fly one batch against the other on ¼ motors. Through my limited testing it looks as though 7/97 and 10/97 are both better in cool weather than 8/93.

On this test I used a 9 gram EZB and stripped all rubber to weight. Each loop was made 3.5" long and weighed approximately .26 gram. They were within 1% of each other in weight. Each motor was pre wound twice to .15 in. oz. of torque and backed off with no rests between winds. The knot on each loop was marked with a different color marking pen to identify the batch. All of the test flights were done within a two hour period with the temperature at 72 degrees and 45% humidity and air less than perfect. On each flight the motors were wound to .3 in. oz. and backed off to .15 in. oz. Through out the entire test, the turns that were packed into the rubber was almost identical. This was a surprise, because I had not been able to get as many turns with the new rubber on previous days.

On the first flight, 8/93 took the model to around 33feet and landed at 4:48. 7/97 climbed to the same height but landed at 5:20. 10/97 only climbed to 27 feet and touched down at 5:11. On wind two, 8/93 climbed to 28 feet and did 4:53, while 7/97 climbed the same as 8/93 and did 5:18. 10/97 climbed the same as on flight one and did 5:05. On the last flight all of the modes climbed about the same as on the second flight and 8/93 posted 4:56, 7/97 —5:28 and 10/97— 5:14. One important fact that I have noticed in the past, is that when tying up motors using two over hand knots, there is chafing near the knot. This happens even after applying saliva to the knot. Here is a way to eliminate the chafing. Lubricate the rubber where the knot is to be tied with rubber lube. Not every knot will work, but John Lindernam showed me one that will. Tie one overhand knot at the length you want the loop to be. Snug the knot up, but not to tight. ¼ inch in front of that knot toward the loop end of the rubber tie another overhand knot but reverse the direction in which you tie the knot. Pull the second knot back into the first. Most of the time I forget about reversing the direction of the knots, and it doesn't seem to make any difference. The second knot will tighten as it is pulled against the first knot.

On close examination of all the rubber used, there were no chafe marks or any sign of fatigue.

The only thing that I don't like about 10/97 is that it sags about half through the climb while 7/97 pushes on.

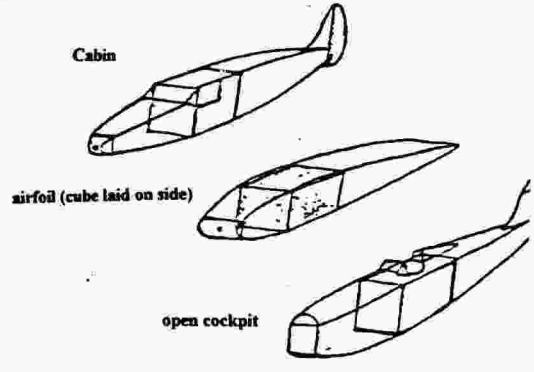
On further winding test, apart from the ones that were done of ¼ motors, several things were noted. 10/97 can be pushed hard, with very little damage to the rubber. 10/97 grapevines when winding if you come in too fast, while the knots stack neater on 7/97. 10/97 took 10% more turns when wound past .35in. oz. of torque, mostly because 7/97 broke at .5in. oz. 10/97 went past .6 in. oz. before breaking. In conclusion, it looks as though the record book is about to be rewritten, again. OAKLAND CLOUDBUSTERS



**EMBRYO ENDURANCE**

1. For rubber powered models with not over 50 square inches of wing area for monoplanes. For biplanes, not over 70 square inches, with 45 square inches maximum for the largest wing area. Stab area not to exceed 50% of the wing area.
2. Fuselage volume to enclose a space 1.25 x 1.50 x 3.00 inches or larger.
3. Wing and tail to be built up, covered on both side with Japanese tissue or equivalent.
4. Model must ROG from a card table top UNASSISTED from a three point rest. *
5. Landing gear legs must be in a conventional configuration and have 3/4 inch wheels or larger. (Example: two wheels on one landing gear is prohibited). Wheels must turn on their axles.
6. Unlimited attempts for three official rise off table top level flights.
7. A bonus for the following details will be given:
   5 points for a raised cabin or windscreen with an open cockpit and headrest. Raised cabin must have at least a 30 degrees windshield slant.
   3 points for 3 dimensional wheel pants.
   1 point for 3 dimensional exhaust pipes.
8. Highest flight total plus bonus points wins. Fly off to break ties. Bonus points once again added to the flight points.

KITS FROM PECK + MICRO-X

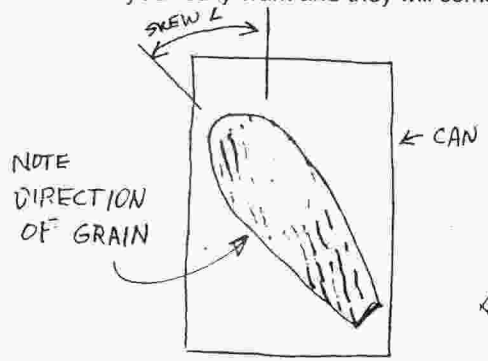



* IN MIAMA INDOOR MEETS WE JUST ROG FROM FLOOR.
- WE ALLOW 4 FLIGHTS + ADD YOUR BEST 3.
- FAC HAS NO WEIGHT RULE FOR OUTDOOR FLYING. MIAMA HAS ALWAYS FLOWN A 10 gm MINI TO KEEP THE KITS COMPETITIVE.

## SHOP 101 -- Laminated Prop Blades

When the Editor was bemoaning the fact his soaked-laminated-wrapped-around-a-can prop blades seemed to be slowly straightening out, he got a nice reply from the old master Clarence Mather:

Your curveless prop blades reminded me of the same problem I had years ago. I laminated blades of 1/32 sheet and used Titebond glue. The glue doesn't set real hard I guess. Anyhow the model, a Mulvihill, staggered around and fell out of the air! I've had fewer problems with the old plastic glues such as Ambroid and Sig. Also, the bent blades are really a compound curve. Cutting the blades so the wood grain is at an angle to the center line allows the blades to bend easier. Even so my blades spring back a little from the form. When you put them on the form skew them a little more than you really want and they will come out good.




FROM SCALE STAFFEL TOM ARNOLD

THE GRAIN DOES NOT HAVE TO BE EXACTLY ON THE CAN CENTERLINE BUT SOMEWHERE BETWEEN IT AND THE SKEW ANGLE



LISTEN IN WHEN

**G-8**

Reveals the hidden secrets of his greatest sky-war mission in

**THE PANTHER SQUADRON**

A complete novel written by Robert J. Hogan

*"Ja, a very good experiment," Gueren muttered. "You will go in there."*

*The shove that he gave G-8 pushed him all the way into the room. The place was about twenty feet long; men were sitting on benches around three sides. The fourth side consisted of heavy bars. Behind them were sleek, black forms—dozens of them. Black panthers! Some were fighting—some grinding their teeth on human bones—some were yowling at the moon in the open sky above them.*

*G-8 turned to the German on his right. "What is to happen to us?" he asked.*

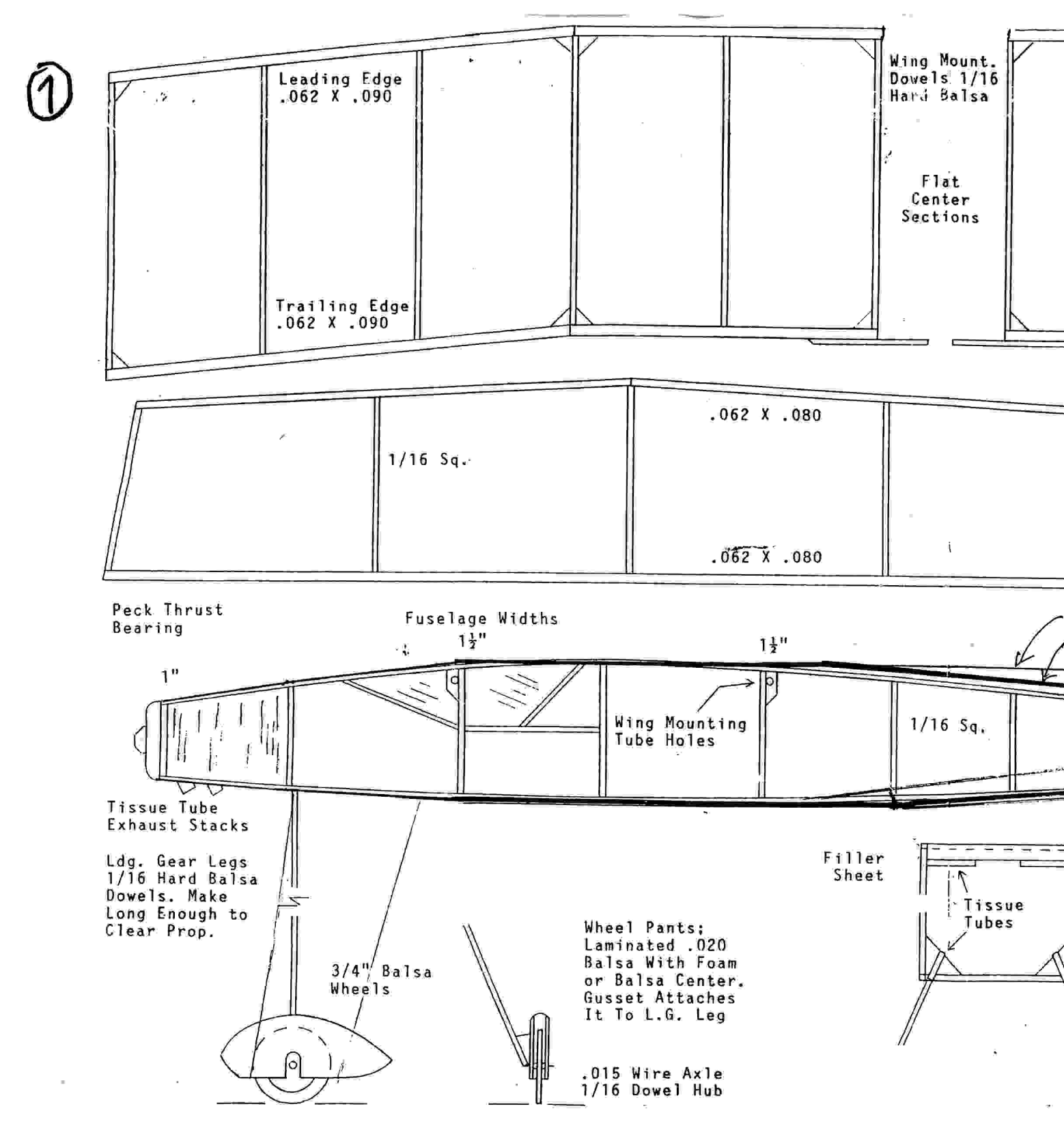
*The German merely looked at him, then glanced away.*

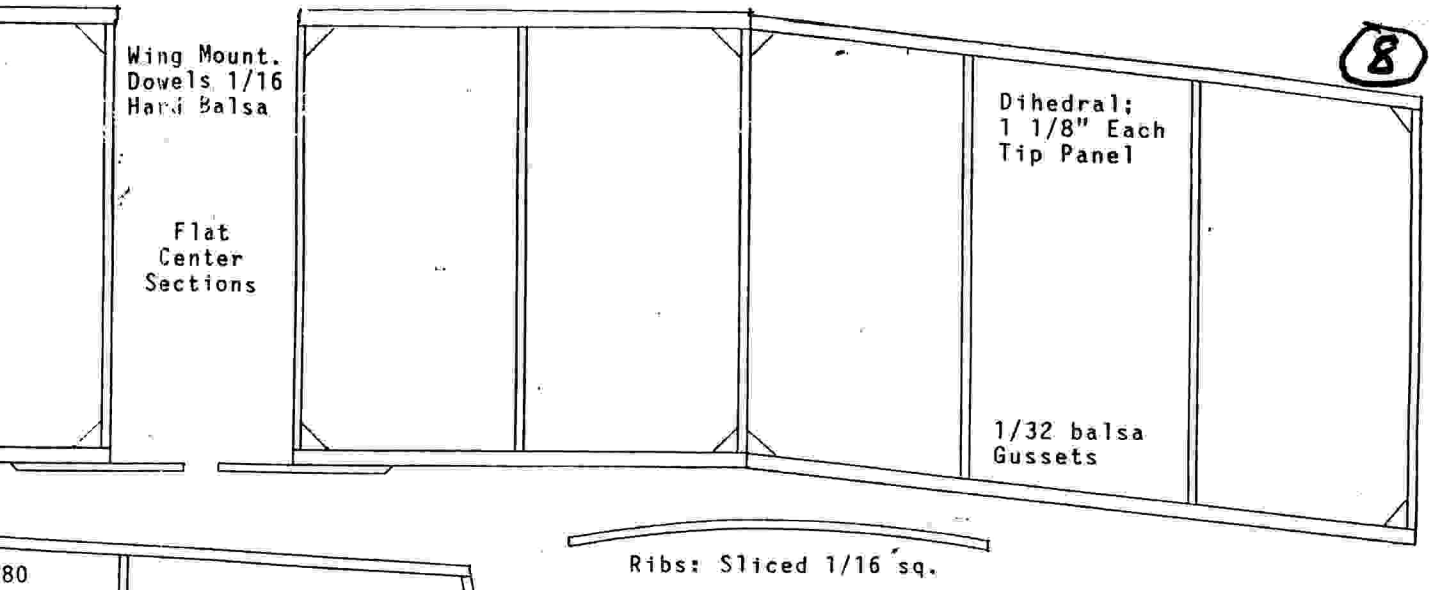
**Masquerading as a Boche, G-8 had gotten into the castle of the beasts. But what was going to happen now? Read this smashing war novel in**

**G-8 AND HIS BATTLE ACES** **On Sale Now!**

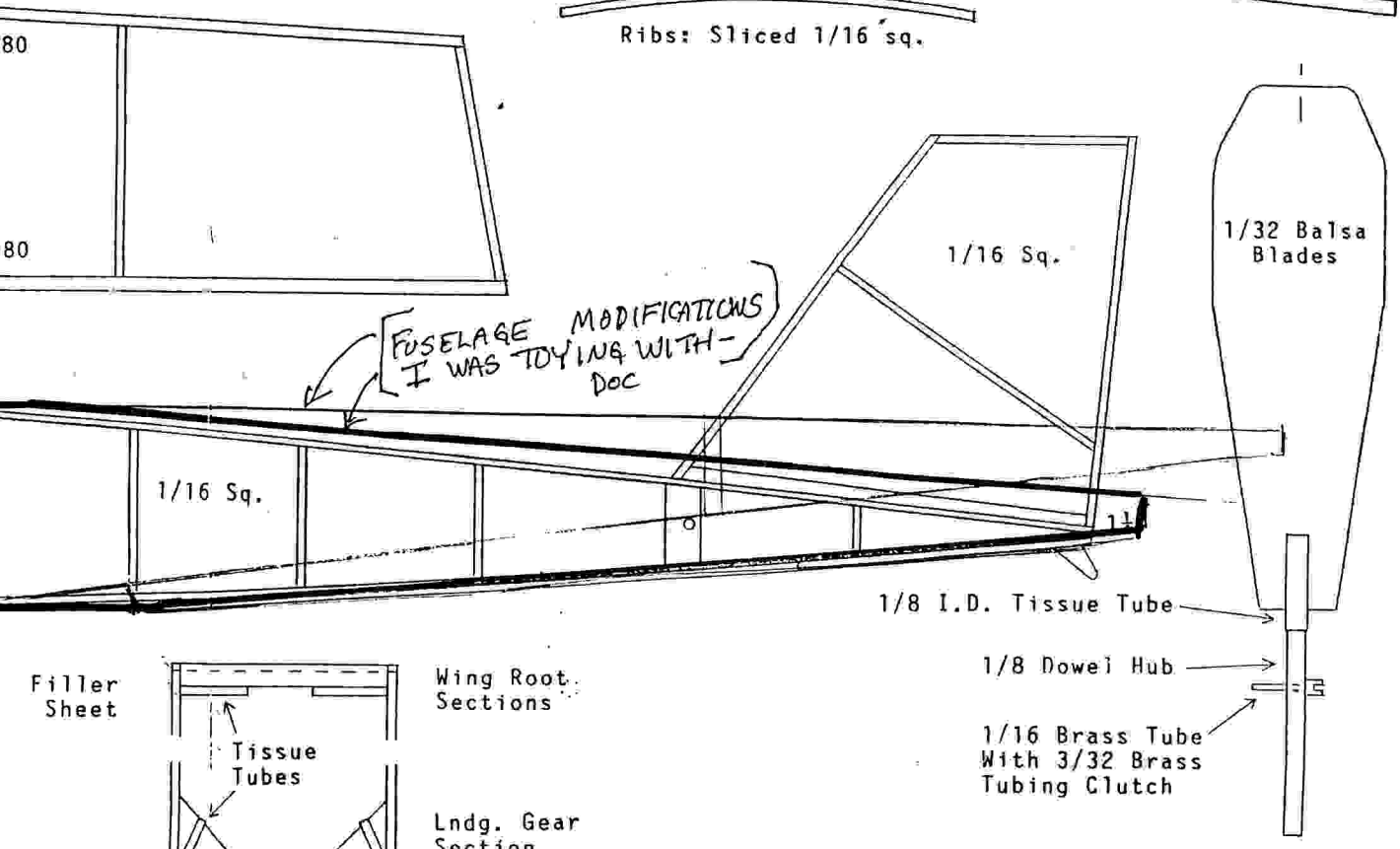
Doc, If this stuff interests you, you might want to see if your library loan service can get you a copy of "The Pulps" by T. Goodstone 1970 - Chelsea House or Random House Lib Cong. # 71-127013

Mike Coate


Leading Edge
.062 X .090
Trailing Edge
.062 X .090
Wing Mount.
Dowels 1/16
Hard Balsa
Flat
Center
Sections
1/16 Sq.
.062 X .080
.062 X .080
Peck Thrust
Bearing
Fuselage Widths
1½"
1½"
1"
Wing Mounting
Tube Holes
1/16 Sq.
Tissue Tube
Exhaust Stacks
Ldg. Gear Legs
1/16 Hard Balsa
Dowels. Make
Long Enough to
Clear Prop.
3/4" Balsa
Wheels
Wheel Pants;
Laminated .020
Balsa With Foam
or Balsa Center.
Gusset Attaches
It To L.G. Leg
.015 Wire Axle
1/16 Dowel Hub
Filler
Sheet
Tissue
Tubes




Ribs: Sliced 1/16 sq.







# EIGHT BALL

An Indoor Embryo
Designed and Drawn by Paul Avery

(9)

# No-Cal Building Techniques

by Don Slusarczyk

SAM 86 SPEAKS — DAN O'GRADY

This page is a by-product of the discussion which came about on the Free Flight mailing list concerning lightweight Indoor No-cals. It has been suggested, and/or implied, by some that we 'experts' are ruining 'beginner' events by taking the fun out of these events, and replacing it with competition. I personally will make no apologies for my competitive nature, but in return will provide and educate those who are willing to listen, with the techniques required.

**So you want to build a Contest Winning No-Cal?**

**Know the Rules:**

I think most of us are aware of the No-cal rules. The one thing you need to know is what weight rule No-cal you are building to. As far as I know there are three current No-cal weight classes: 6.2 grams and over, 5* grams and over, and no weight restriction. (Of course there is WW II combat, but that falls into the same weight categories). Once you decide which event you are flying, then you can choose the model you are going to build.

*MIAMA REQUIRES 6.2

**Choosing a subject** (How big should the wing be?):

The model selection is based on the event weight class you are going to build. For 6.2 grams and over, you will need a model with a wing around 80 sq. inches. For 5 grams and over, a model with around 65 sq. inches will work just fine. Unlimited No-cal works quite well with models in the 50 sq. inches of wing area range. Why is this?

Well, a 6.2 gram No- cal is actually a very heavyweight model. You can build a lot of structure for the weight you're allowed. This is why this event is now flooded with racers. Most racers have low aspect ratio wings with long bodies. This type of model could not be built very light because there is so much structure needed due to the overall large size of the model. But since you are allowed so much weight, a large fat- chorded model can be built without any penalty.

**Subject Examples: Bonzo, Chambermaid, Cassutt Racer**

5 gram No-cal is pretty much the same. Most people I know fly their 6.2 gram No-cal in this event because most of their models really weigh just under 6 grams and they carry some ballast to bring them up to weight. However, I think that a separate model should be built for this class. A slightly smaller model than what is used for the 6.2 gram event is ideal.

**Subject Examples: Fike, Lacey M-10**

Unlimited No-cal is the toughest one to decide on. A compromise has to be found between model size and final weight. If you pick a large long model, it may be too heavy to fly well (Chambermaid). If the wing is too small, (Found Centennial or Pilatus Porter) the wing loading is too high even though the model may be light. A good compromise is a model with around 40 to 50 sq. inches, and around 16 inches in length. Another thing to consider is landing gear. Retract gear airplanes do not require landing gear, so weight is saved by the absence of the landing gear.

**Subject Examples: Bede BD-4, Cessna Cardinal**

**Choosing a subject.** (What about motor stick and nose length?).

The nose and motor stick length of the No-cal subject is a major factor in determining the model's final weight. For example, the first model I built for 5 gram No-cal was a Farman biplane. Each wing was about 3" in chord which yielded about 80 sq. inches. However, the model has a short nose. The model complete weighed 3 grams. I added some nose weight to get it to glide and then reweighed the model. To my shock the model was now 5.5 grams. This 3.0 gram model needed 2.5 grams of nose weight to make it glide. Additional nose weight was needed to get the model to fly with a rubber motor. Because there was more motor behind the CG than in front of it, I needed to add additional weight to compensate for the motor. In this condition the model weighed 6.5 grams, 3.5 grams being nose weight. A quick calculation told me that for each 0.1 gram weight reduction in the tail, resulted in a 0.3 gram reduction in required nose weight. This meant if I made the tail 0.1 gram lighter, I could remove 0 .3 grams nose weight for a 0.4 gram total weight reduction. I removed some tail structure, 0.2 grams, and then removed 0.6 grams of nose weight and the model instantly dropped 0.8 grams, to 5.7 grams from 6.5 grams.

This is a good example of how choosing a subject can make or break your effort. If you are building any No-cal a good rule of thumb is to make sure the middle of the motor stick coincides with the CG location. The motor stick should also be 10" to 12" in length (for 5 gram and 6.2 gram), and 8" to 10" for unlimited No-cals. Using this rule, you can determine if the nose length for the subject you have chosen is long enough. If it is not, the rules of No-cal allow you to stretch the model's fuselage a little since the rules state the model must be a 'recognizable' model. So if the nose needs to be a half inch longer, so be it, the rules allow it.

The reason you want the motor stick balanced is so that when the motor is added to the model it will not move back the balance point. If it does, then more nose weight is needed to counteract the motor weight. In fact, on my real light No-cals, there is more motor in front of the CG than behind it. This allows the motor and motor stick to act as nose weight, which in turn lowers the total model weight. The BD-4 No-cal I have actually has 0.2 grams in tail weight because it was too nose heavy. My general rule of thumb is that an unlimited No-cal should have at least 60% of the motor stick located in front of the CG. Using this rule, No-cals can be built with the least amount of nose weight needed, in fact they may need

none at all, like my IL-2, WW II No-cal (1.8 grams). This model has an 8" motor stick, and with about 6" of that being in front of the CG, the motor acts as the model's nose weight. The reason I could do this is that the IL -2 has a long nose. I could not make a Jap Zero to this weight because the nose is much shorter, and it would need 1 gram in nose weight just to get the CG in the right location.

My final example to drive this point home even further is about the Clipped wing Spitfire WW II No-cal I used to have. When I built it, it weighed 2.8 grams with an 11" motor stick. This model required 0.5 grams in nose ballast. A year later I decided to shorten the motor stick, to 8". The reworked model no longer required the 0.5 grams of nose weight, since more motor hung in front of the CG than previously. The lighter motor stick also resulted in a weight reduction, and the new model weighed in at 2.2 grams, a 0.6 gram reduction just because the motor stick was shortened 3". All of the structure remained the same, but just the way the motor stick was positioned reduced the weight drastically.

**Choosing the right wood:**

Wood selection is also a critical factor in building a good No-cal. This wood can be purchased from Indoor Model Supply, or any other good indoor supplier. Some of the wood I use is from a local hobby shop. Most places do not care if you bring in a scale and quickly weigh the wood.

**5 gram and 6.2 gram models:**

| | | |
|---|---|---|
| fuselage outline: | .050" x .050" | 5.0# to 5.5# 'A' grain (do not rely on outline to provide support). |
| wing spars: | .065" x .080" | 6.0 # 'A' grain; |
| wing ribs: | .035" x .070" | 4.5# to 5.0# 'A' grain; |
| tail surfaces: | .035" x .065" | 5# to 5.5# 'A' grain; |
| motor stick: | .015" to .020" | 4.5# to 5.0# 'C' grain; 5/ 16" o.d. |
| tail boom: | .012" to .015" | 4.5# to 5.0# 'C' grain; 1/4" o.d. to 1/8" o.d. |

**Unlimited weight:**

| | | |
|---|---|---|
| fuselage outline: | .030" x .030" | 5.0# 'A' grain; |
| wing spars: | .030" x .065" | 5.5# to 6.0# 'A' grain; |
| wing ribs: | .030" x .060" | 4.0# to 5.0# 'A' grain; |
| tail surfaces: | .025" x .050" | 5.0# to 5.5# 'A' grain; |
| motor stick: | .010" to .012" | 4.0# to 5.0# 'C' grain, 1/4" o.d. |
| tail boom: | .008" to .010" | 4.0# to 5.0# 'C' grain, 3/16" o.d. to 1/8" o .d. |

**Choosing the right covering material:**

Covering material is based upon the weight class being flown. Unlimited No-cals should be covered with Ganpi tissue to keep the weight down as low as possible. For the 5 gram and 6.2 gram events Jap tissue can be used without much of a problem. If you feel that you are more comfortable building a model out of heavier wood, then you can use Ganpi tissue. Most Ganpi is about 3/4 the weight of Jap tissue, so the weight you save in covering can be turned into structure. This, by the way, is the method I prefer. I would rather have a stronger model with light covering than a weaker model with heavy covering.

**The propeller:**

The propeller of a model is many times the most overlooked part of the airplane. Many people spend hours building a model, but do not give the propeller the time it deserves. I am reminded of a story I was once told about a modeler who was having trouble trimming out a particular p-nut scale model. He got some help from a local p-nut guru during a flying session. The model was trimmed out and was flying quite well. About an hour later the guru saw this modeler launch his airplane and it flew horribly. The guru went over and asked and asked him what he had changed on the model. The modeler replied "Nothing, just the prop."

Care must be taken to ensure that you have a well-built, and well tracking prop. Heavy No-cals need to have prop blades made from .020" to .030", 5.0# 'C' grain wood. Light No-cals use .010" to .014", 4.0# to 5.0# 'C' grain. The prop spar needs to be rigid and stiff, 8.0# to 9.0# 'A' grain for heavy No-Cals and should be about .095" o.d. in the middle, tapering to .060" o.d. at the ends. The lightweights are made from 6.0# to 6.5# 'A' grain, and should taper from about .065" o.d. to .045" o.d.

The diameter of the props should be in the 10" to 12" range. The pitch should be about 1.2 to 1.5 times the diameter. The blades for all of my No-cals are formed on a 5" diameter can on about a 15 degree angle.

**Adhesives:**

When building your No-cal you should try to stay away from super glues, except for special areas. I use Duco Household cement diluted with acetone (40% glue, 60% acetone) for most of my gluing on all my models. It is quick drying, about 15 minutes, and is very light and strong. I only use super glue around the nose bearing, the rear hook, and for gluing the prop shaft to the spar. Super glue is quite heavy if used to build the entire aircraft. When covering the model, I quite often use 3M spray adhesive, or sometimes white glue and water (20% glue, 80% water). However under NO circumstance should clear dope be used for covering indoor No-Cals! You might as well put a coat of lead on the model and throw it out.

And that is it! No hocus! No pocus! I hope the information presented here helps out those who are looking for answers on No-cals. If you would like to ask specific questions please feel free to E-mail me:

Dslusarc@stratos.net

(11) MORE POSTALS FOR FLYOVER COUNTRY

# 1998 International Mini-Stick Postal Contest

The Brainbusters Free Flight Club invite all indoor flyers to take part in the 1998 International Mini-Stick Postal Contest to be held over the winter period. The rules for the contest will be as follows:

1. The contest is open to Indoor models that comply with the Living Room/Mini-Stick rules.
2. Contest flights are to made between 1 Jan 1998 and 31 Mar 1998
3. Any number of flights can be made at any number of sites.
4. All contest flights to be timed by someone other than the flyer.
5. All contest flights to be recorded on an official Results Form. On rear of this notice.
6. Best single flight time wins, after the flight time has been corrected for different ceiling heights. Ceiling height to be measured as per the FAI, but with 5 meter diameter circle. The correction factor is 627 divided by ( 167 plus 46 times the square root of the ceiling height in feet). The time in seconds will be multiplied by this to give the corrected time.
7. Prizes will be awarded dependent on the number of contestants.
8. All results Forms to be returned no later 10 April 1998 to the address in the next column
9. Entry is free to all contestants.
10. Results will be sent to all entries, provided a SASE is included with the Results Form.

Send your results to:

Brainbusters
112 Tillerson Dr
Newport News, Va
23602

## MINI-STICK MODEL RULES

| | |
|---|---|
| Monoplane. Max span | 7.0 in |
| Max Wing Chord | 2.5 in |
| Motor Stick Length | 5.0 in |
| Max Model Length less prop | 10. in |
| Stab/Tail area | Max 50% of wing |

Covering Plastic/Paper. No Microfilm.
Propeller. Wood prop, 7 in dia max
Minimum weight 0.43 gr/0.015 oz.

## FLYING

* Steering 4 Ten second
* Attempts 15 Seconds or less.

* Special rules for very small rooms only !
(Living Room flying.)

## Al Lidberg Announces Postal Event

This postal event is open to indoor and outdoor flyers, scheduled to run from December 15, 1997 to March 31, 1998. The rules are rather specific, so you should contact him if interested. Snail mail address is: A. A. Lidberg/mps, 1008 E. Baseline Rd., Suite 1074, Tempe, AZ 85283. By E-mail, he is at **aalMPS@aol.com**

While any plan by anybody is eligible, Al is offering his own No-cal plans at *one dollar* each, *postpaid*, or $18 postpaid for his entire set of 22 *plans*! Verily, he is losing money but making friends! Check his web site at **http://members.aol.com/aalmps** for a complete listing of the plans plus many other goodies.


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| FOAM SHEETS | | | |
|---|---|---|---|
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| White 2 x 24 x 48 | 6.30* | EPP 2 x 12 x 24 | 5.50 |
| White 4 x 12 x 24 | 3.50 | EPP 2 x 18 x 48 | 15.50* |
| White 4 x 24 x 48 | 12.75 | EPP 2 x 36 x 48 | 30.00* |
| Blue 2 x 12 x 24 | 3.65 | EPP 2 x 24 x 36 | 15.50* |

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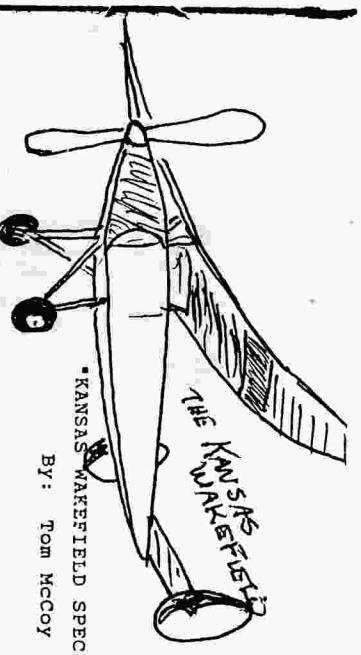
## SHORT ARMS AND SORE EYES

1997 (12)

The title sums it up. Most of us don't see so well. If you are so afflicted, you might want to go to your nearest full service book store and buy the September issue of "Fine Scale Modeler". I read the magazine on a regular basis because it has a lot of cool articles about scale subjects, how to's on this and that, and ads for neat tools and gadgets. Flying Aces types will find it very interesting.

The editor writes a good article about all the optical aids available for the visually challenged middle-aged folks out there. He critiques various kinds of magnifying visors, glasses, and scopes. Revealing stuff. One of their associate editors is an ophthalmologist and he discusses the medical side of things. Not much help there, guys. Basically, your eyes continue to get worse until you're in your fifties, then they level out to wherever you wind up. FSM is available at full service book stores everywhere.

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"KANSAS WAKEFIELD SPECIAL EVENT"

By: Tom McCoy

I am pleased to announce that Ernie Linn has agreed to attend the 1998 Sam Champs and present the awards to the winners of the Kansas Wakefield Special Event at a cocktail party and reception for all that build and fly his model to be held at the AMA Musieum.

To help recapture the great fun we have had with these special events this year we have designated Ernie Linn's Kansas Wakefield as our feature model. This will certainly be a great memory for Ernie and all of us.

If you are an O/t rubber flyer, build a Kansas Wakefield and come and have the time of your life. I am sure everyone who flies the event will be a winner. We will have decals and certificates for all who fly to commemorate the event.

We will fly 3 Wakefield events this year at the Sam Champs, 4 oz, 8 oz, and the Kansas Wakefield Special Event. If you build a Kansas Wakefield it is eligible to fly in the special event and also in 8 oz Wakefield and large rubber cabin.

This years Sam Champs will be held at the AMA field at Muncie, Ind. This will be a great opportunity to see this facility and flying field which belongs to all of us.

All information on the contest will be published in SAM SPEAKS in the offical entry blank, but I felt it is important that I get a little extra advanced advertisement on the event to give the modelers time to get one built and adjusted. A fine plan for the model is available from Ernis Linn (himself) at 3505 E.Mt. Vernon, Wichita, Ks 67218. $6.00 post paid.

(13)

WEIGHT IN GRAMS PER STANDARD 3 BY 36 SHEET

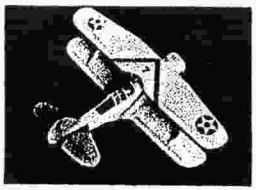
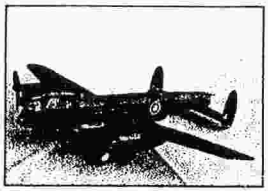
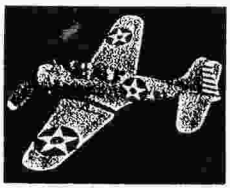
| | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1/32 | 3.5 | 4.4 | 5.3 | 6.2 | 7.1 | 8.0 | 8.8 | 10.6 | 12.4 | 14.2 | 15.9 | 17.7 |
| 1 MM | 4.5 | 5.6 | 6.7 | 7.8 | 8.9 | 10.0 | 11.1 | 13.4 | 15.6 | 17.8 | 20.1 | 22.3 |
| 1/20 | 5.7 | 7.1 | 8.5 | 9.9 | 11.3 | 12.8 | 14.2 | 17.0 | 19.8 | 22.7 | 25.5 | 28.3 |
| 1/16 | 7.1 | 8.9 | 10.6 | 12.4 | 14.2 | 15.9 | 17.7 | 21.3 | 24.8 | 28.3 | 31.9 | 35.4 |
| 3/32 | 10.6 | 13.3 | 15.9 | 18.6 | 21.3 | 23.9 | 26.5 | 31.9 | 37.2 | 42.5 | 47.8 | 53.2 |
| 1/8 | 14.2 | 17.7 | 21.2 | 24.8 | 28.3 | 31.9 | 35.4 | 42.5 | 49.6 | 56.7 | 63.7 | 70.9 |
| 3/16 | 21.3 | 26.6 | 31.8 | 37.2 | 42.5 | 47.8 | 53.1 | 63.8 | 74.3 | 85.0 | 95.6 | 106.3 |
| 1/4 | 28.3 | 35.4 | 42.4 | 49.6 | 56.7 | 63.8 | 70.7 | 85.0 | 99.1 | 113.4 | 127.4 | 141.7 |
| 3/8 | 42.5 | 53.2 | 63.6 | 74.4 | 85.0 | 95.7 | 106.1 | 127.6 | 148.6 | 170.1 | 191.2 | 212.6 |
| 1/2 | 56.7 | 70.9 | 84.8 | 99.2 | 113.4 | 127.6 | 141.5 | 170.1 | 198.2 | 226.8 | 254.9 | 283.5 |

Formula used: (thickness in thousandths X 3 X 36) X (Wt.in grams per cu.in.)
Grams per cu. in. calculated: (ounces per cu. ft.÷ 1728) X 28.35

1/32=.03125=3.375 cu.in. per 3 X 36 sheet.
1 MM=.03937=4.250
1/20=.05000=5.400
1/16=.06250=6.750
3/32=.09375=10.125
1/8=.12500=13.500
3/16=.18750=20.250
1/4=.25000=27.000
3/8=.37500=40.500
1/2=.50000=54.000

Calculations rounded to nearest 1/10 gram for practicality. Sheets are not precisely 3X36, not does everyone cut and sand to 1/1000 inch.

Bob Beecroft
San Diego Orbiteers


Curtiss Helldiver, Avro Lancaster, Douglas Dauntless and Spitfire, all carved from foam

**INDOOR FOAM SCALE FLYING MODELS, How to Build and Fly Them**
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This booklet presents detailed instructions for making indoor flying scale models of astonishing realism and high performance, from Pistachios to Walnuts.

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Pictures show such models as an Avro Lancaster, Supermarine Spitfire, Lavochkin LA-7, Curtiss Helldiver, Junkers JU88, Curtiss Schneider racer, Martin B-26, Douglas Dauntless and more.

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Note - The area code for Runway's telephone and FAX has been changed. Formerly 916, the new numbers are:
**Phone: (530) 873-6421 and FAX : (530) 873-6329**

## FAC Postal Contests

As you read this Skysters, this year's postal contest is underway. Once again we will have four wings (events). They are, Indoor Peanut, Outdoor Peanut, Indoor No-Cal and Outdoor No-Cal. To enter all you need do is fly your models and send the times in to GHQ, along with the date of your flight, the name of your model and the wing you flew it in. The contest will end on April 30, 1998. Entries postmarked after May 1, 1998 will not be accepted. Contest times also count. Send the times to; Flying Aces, GHQ, 3301 Cindy Lane, Erie, Pa. 16506.


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### FROM MIAMA RESEARCH DEPT:

Any modelers out there celebrating? A kanone, a great flight, or just being alive? Back in 1927, after the sensational endurance flights of Lindbergh and Clarence Chamberlin, New York bartenders concocted these two drinks to honor the men and their planes and their achievements. It is only fitting, then, when modelers are celebratin' we do it right:

**THE LINDY COCKTAIL:**

- Kinnalillet 50%
- Gin 50%
- 2 dash Orange Juice
- Apricot & Lemon peel

(What the heck is Kinnalillet?)

**THE CHAMBERLIN COCKTAIL :**

- Vodka 65%
- Dry Sherry 25%
- Dubonnet 10%
- 2 dashes Angostura

'ANS. A RED OR WHITE FRENCH VERMOUTH APERITIF WITH QUININE



WHAT'S ON IN SOUTH FLA. FREE FLIGHT 1998
Always call indoor hot line the night before the meet to be sure it's on. None of the dates are confirmed..the Armory puts us on a last minute notice. 305-858-6363

MIAMA meet 5 scheduled for Tampa March 14, 15 has been cancelled.
Mar. 7,8 Spring Opener,Palm Bay,Dave Platt
Mar.14 Miami Dade South College Fly in 9-5
Mar. 22 Record Trials - Palm Bay, Sharpton
Mar. 31 Deadline for Miama Inter-Gnats.
April 18- Trim session..Miami Dade South Col.
April 30 Deadline for FAC postal P-nut & no-Cal Send results to 3301 Cindy La. Erir,Pa. 16506

SPRING COAST GUARD MEET #5
April 4,5 Miama indoor meet #5 USCG St. Pete.
May 2,3 Palm Bay, Sam 46 Old Time Spring Meet and FIRST FLYING ACES SUMMER SERIES CONTEST. C/D Don Brimmer,John Tudor
May 9 Miami Dade South Col. Fly in
May 17 Palm Bay,Record trials,Sharpton
May 23,24,Tampa, MIAMA indoore meet #6 Armory
May 27 to 31. THE BIGGIE-AMA INDOOR NATS - JOHNSON CITY
June 6 Miami Dade South College Fly in.
June 20,21 Tampa, Armory, MIAMA final meet #7 Last meet & 100th Anniversary of Teddy Roosevelts Rough Riders.
JULY 17,18,19..Geneseo,NY FAC Nats #11 July 4,5 Fla,State Meet..Flying Aces Summer Series Meet 2,Hinson

MANY CHANGES HERE FROM ISSUE 192

# THE HANGAR PILOT

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33133



