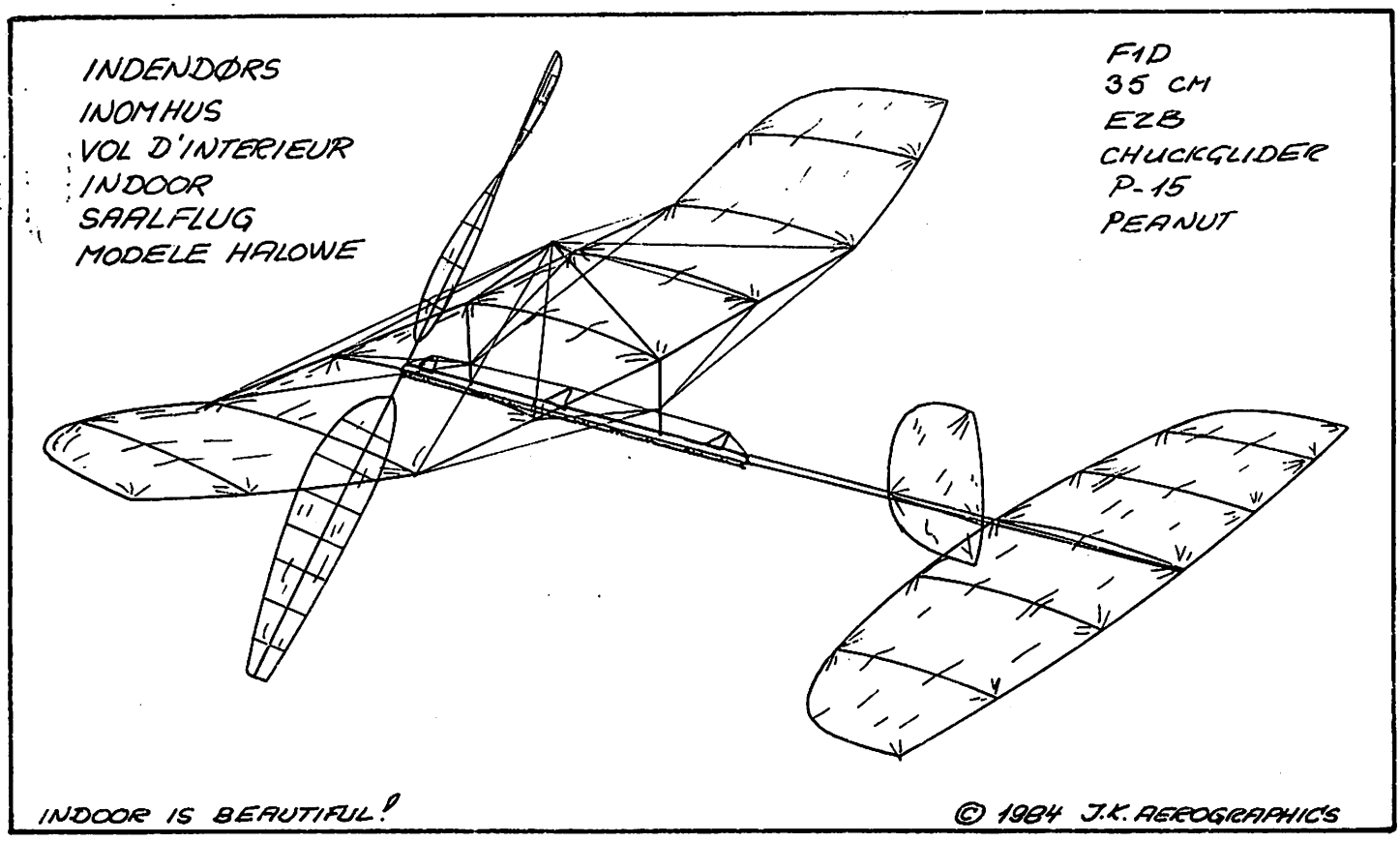


INDOOR NEWS · 2 · 1985

STOP PRESS: Bernard Aslett, UK, phoned me the other evening and told me that they were working hard to get the 1986 Indoor World Champs to Cardington. The authorities had reduced the entry fee considerably and accommodation should be possible nearby. I'm now already looking forward to 1986.

Kære ven,
Dette er indendørsnyt nr. 2, 1985 med lidt af hvert alle steder fra. Der har nemlig været mange, som har skrevet til mig, sendt artikler, tegninger m.m., og så er det dejligt at lave et lille blad! Der er nu omkring 70 abonnenter, hvoraf de 11 (!) er fra DK. Hvis du vil med til VM i 1986, så starter forberedelserne faktisk allerede nu.

Dear friend,
This issue is a result of contributions from many places. Thank you very much to those who sent me letters, articles, drawings etc.. This is the way to help and promote INDOOR, the most beautiful SPORT on Earth. Please, continue your efforts, the spot is in ELLUND!

We now have 70 subscripers from many countries .... I feel happy!!

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D-2397 Ellund-Handewitt
W. Germany

Phone 04608-6899

3 issues, will appear around March, July and November.
Scandinavia 45,- Dkr
Europe 50,- DKr
Airmail outside Europe 60,-Dkr

Manny Radoff of the USA is a new subscriper of this newsletter, and he has given me the permission to publish his "Wrinkles" which were printed in the FREE FLIGHT NEWS some years ago. But not all his efforts were brought, so I hope to find the rest and bring them here. Thanks to FFN for the typing!

Manny Wrinkle Number One - Tissue tubes for wing post sockets

What do you do with old, unusable microfilm solution? I'll tell you. Use it as glue when you are making tissue-tube sockets. Why? Because the plasticisers and amyl acetate therein make it dry more slowly than regular thinned model cements, so giving you time to work it around the wire.

I use a piece of 1/16 inch diameter wire about 5 inches long, which I taper or round at each end. The tissue I use is dampened tissue, left over from my Wakefield days, about ½ to ¾ inches wide by 4½ inches long. I prepare the wire by polishing it with very fine sandpaper and then I rub the whole length with waxed paper, making sure to use the waxed side, as many come with only one side coated!

To make the tissue tubes, I coat a strip ⅛ inch wide along one long side of the tissue. I lay this down on a smooth surface with 1/16 inch hanging over the edge of the surface. I lay the forming wire on the inner 1/16th of 'glue' and work the glued edge over the wire, making sure it is straight. Then I coat the remainder of the tissue with cement. Picking up the wire and tissue with the thumb and forefinger of one hand, and turning the wire with these two, the other hand's thumb and forefinger are used to guide the tissue to roll up on the wire. When fully rolled, I continue to twist and to work the left hand finger up and down the length of the formed tube twice. I then blow on the surface of the tube for about 10 seconds; this dries the outside surface of the tube, but leaves the inside still wet enough to slide off the wire. By holding the wire on one bare end with the left hand, the right hand thumb and forefinger can be placed about a ½ inch from the right hand end of the tube, and the tube can be pulled along gently, stopping at the end of the wire. The thumb and forefinger are moved back a ½ inch, and the process repeated. Finally, I push the whole tube off the end of the wire with tender loving care. The cement inside is still wet, so I put this tube away to dry and proceed with the next one. Using this method, I can make five or six tubes in less than one hour, and find that these provide a two year supply.

You will find that you may use most available tissues, but you may have to vary the width in order not to be too thick or thin when finished. I don't recommend condenser tissue. The 1/16th inch diameter tubes serve readily for wing post sockets for models like 'B' tissue, FAI and all AMA stick microfilm models except ROG. Cut the long tissue tubes to the length needed with a sharp blade.

Manny Wrinkle Number Two - Indoor Rubber size Gauging

How do you gauge your indoor rubber? All of you will tell me that you know your rubber size having measured its width, or take for granted what you bought is the size you got. But why don't you take into consideration its thickness? Pirelli I've bought in the past has varied anywhere from 0.038 to 0.046 inches thickness, which is a 20% variance. The same probably holds true with the Filati we get now.

Would the next step then be to say that your rubber has so much cross section? It would, except that we are going to go one step further and take into account the rubber's density. So the ultimate rubber size system for indoor modelling is "weight per unit length". It is a size gauge which encompasses the three variables; width, thickness and density.

For this most precise rubber gauging system, you must work with small rubber quantities. Let us adopt a 40 inch length, accurately measured and weighed. This length will make one motor for the average indoor duration model. When a rubber motor breaks and you want an equal replacement, all you have to do is search among your envelopes for rubber with the same weight per unit length, or as close as you can get. This way you look for just one number without worrying about matching thickness, width and density individually.

I got acquainted with the system at the '72 Indoor World Championships at Cardington while trying to borrow a piece of rubber from Bud Romak. I didn't give it much thought then, but in the intervening years I have noticed that motors made from spool of a given size did not result in the same model performance. Close examination revealed at the average width and thickness of each motor varied; as a result, so did the weight per unit length, which accounted for the different performance.

You may well have noticed that plans of most indoor models published these days include the weight of the motor used. Years back, only measurements were given - width and length. For many years, European plans have stated only length and weight. I have asked both Czechowski and Popa about the width of their rubber motors and have gotten a shrug of the shoulder, or an 'I don't know' answer in a letter. Now that I use the weight per unit length system, I can use my mini pocket calculator or slide rule and calculate what size was used in terms I can understand.

My contest kit is now stocked with rubber weighed in 40 inch lengths. As a cautious modeller, I have also measured the average width which is also marked on the envelope. Who knows but that I might need to borrow a length sometime, or give some to a friend.

Ray Harlan, 15 Happy Hollow RD, Wayland, Mass. 01778, USA, sells very nice tail boom formers in aluminium, dimensions 6,2 - 2,0 mm Ø 457 mm long. Price 15,- US dollars postpaid to Europe.

Manny Wrinkle Number Three - Microfilm hoops and storing cabinet

Most everyone I know uses hoops made of balsa, usually ¼" x ½". Balsa, I would guess, because it is easily available to model airplane enthusiasts, and small sizes of regular lumber are unavailable in most lumber yards. But hardwood/softwood does work, and if you've a circular saw, you can cut up some pine if you have some around.

Make three hoop lengths. In the US, where we build 'D' ships, the hoop needs to be 48 inches long, but smaller sizes, 36, 18 and 12 inches will do for FAI. The last size is useful for covering props, rudders, as patching material and other miscellaneous uses. Vary the hoops in width from about 9 inches to 12 inches. This will allow you to pick up some of the skimpily poured sheets. The little 12 inchers should be used to pick up from sheets that are only good in one section.

In order to keep the microfilm from collecting dust and to protect the sheets from curious visitors to my cellar, like the electric, gas and water meter readers plus the guy who delivers the salt for our water softener, I built a microfilm storage cabinet. It was made of a framework of ¾" x 1" pine. Use one or two doors depending on the size of

Then slowly change the hoop to a vertical position and let the water run off. If you have built a microfilm storage cabinet with V slot catches at the rear, you can place your sheet of film in there right away. If you have a cabinet with guides on top and bottom, let your sheets dry before sliding them in. Before I had a cabinet I used to insert bent pins on the end of the hoops and hang them on a line of string stretched across my cellar.

It is desirable to have some newspaper around onto which to discard sheets of film which are not suitable to pick up or those that break in the lifting procedure. Check your water temperature. Most articles I have read have recommended 68 to 70 degrees F. Have patience. You may pour a dozen sheets before you have learned to pour at a proper rate, or developed the technique for lifting the sheets out of the water. All of a sudden, things will get coordinated. In an hour or so, you can have fifteen or twenty sheets of film and find yourself wishing you had more hoops to fill, or more storage space.

MANNY'S WRINKLES - NO.6.
ROLLING INDOOR MOTOR STICKS AND BOOMS.

The innovative idea of rolling motor sticks and tail booms, rather than squeezing them around the form with one hand and winding a piece of gauze or similar stuff around the balsa to hold it in place, was the idea of Ernest Kopecky. He mentioned this at a bull session after an Indoor Nationals at Lakehurst in the 1950s to all of the attending modellers. It was new to all there and is now the universal method.

The main tool for rolling is high wet-strength paper. Use a piece three times the perimeter of your form. I like glass as my working surface as it does not absorb the water. To start the procedure, lay the wet tissue on the glass with about ⅛" overhanging along the edge. Place your rolling form (stick or boom) against the overhung glass edge and push the paper onto it. Make one complete wrap. Lay the water-soaked piece of balsa right in as close as you can to where the paper meets the form. Next, lay a straight metal piece along the back of the balsa form and gently push the balsa with the metal so that it meets the form evenly and with no bulges. This procedure makes for straight and even alignment with the form. Remove the metal piece and finish the rolling. Then bake at 250° for 15 minutes.

Booms seem harder to roll, but actually are not. Use the same procedure. The secret is to know where to place the boom blank on your tapered form. If there is no place where the wide and narrow ends of the boom will roll equally, then you make do.

I find it is more convenient to have a form that is a bit oversize rather than one that is too small. I've always done it that way: perhaps the slightly open seam makes it easier to see where the glue has gone.

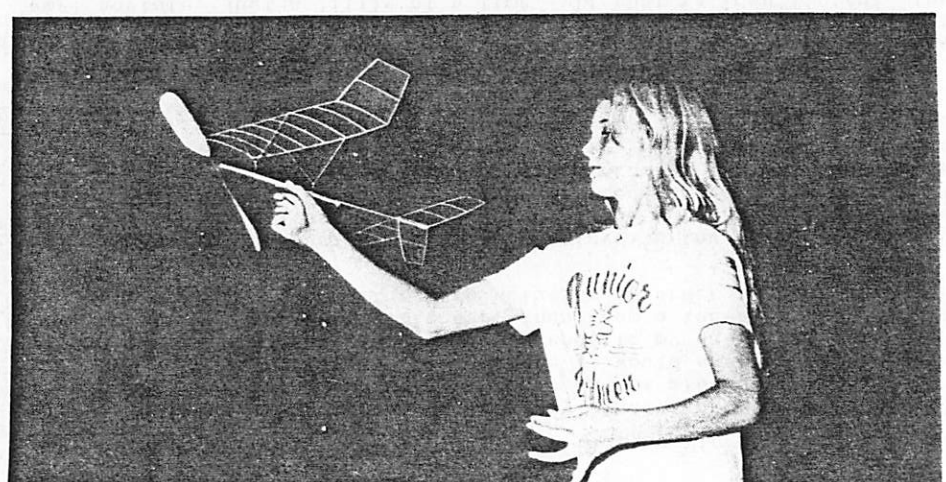
MANNY'S WRINKLES - NO.7.
GLUEING MOTOR STICKS AND BOOMS.

The trick is to get the seams straight and unbent from the contracting cement. If you can find a glue that doesn't shrink and is easily applied in a very fine line, then you've got it made. No curl, no bent sticks and booms. I've heard of modellers dissolving old negatives in acetone, or drying out their regular glue and redissolving the glue in acetone, and claiming the resulting product is non-shrinking. I have always used a regular commercial product, thinned with acetone until it had about the consistency of light sweet cream. I can only advise you to use as little glue as possible. The more glue you use, the more shrinking power the glue has to bend your final product.

Many ideas have come to mind with different indoor modellers for ways to glue a straight seam. The system that works for me is to carefully align the seam, spot glue both ends and the middle, and then finish the job. I like to work with a form inside. For the stick I use a rod that is a hair thinner than the inside diameter. When glueing, I apply glue for about ¼ to ⅜ inch at a time to one edge. With one thumb and forefinger I squeeze the seam together, and with the other forefinger I rub the glued part of the seam, lightly pressing down to the rod inside. In about five to six strokes the glue will be dry enough to proceed to the next section. After each section is glued, move the rod a bit to make sure you are not glueing to it. If you use motor sticks that are tapered at both ends, you will have to finish the job without the form inside.

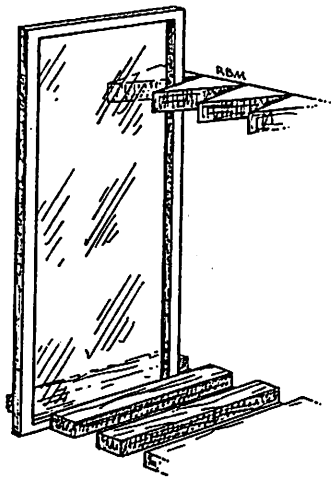
Tail booms are done essentially the same way if you have a good fitting tail boom form. When the boom form tapers too drastically, you will have to forget the spot glueing procedure and start glueing at the thin end, doing the best you know to keep the seam straight.

If possible, let the finished sticks and booms dry on the forms for a couple of hours. That helps to keep your shrinking glue from distorting them. Don't toss out your finished but imperfect product. If your glued stick is not bent too much so that the rubber motor won't rub against it, place your thrust bearing and rear hook so that they are in line with the 'belly'. Booms may be used flat, with the curve in line with the circle of flight, or the bend used to obtain negative tail incidence. (Does anyone use positive?)



Pennyplane (flown here by Marnie Meuser, Bob's granddaughter) now an FAI event?

your cabinet. In mine, the left side was made to house 48" hoops and the right, 36" with 12" above them. The floor can be most anything smooth. I do not use seperator guides on the top to hold the hoops in place. With such guides on top and bottom, it is necessary to slide the hoops in and out. This sliding procedure, with the accompanying rubbing has caused the ruin of far too many sheets of film. John Triolo devised a triangular holder system for the back of the cabinet which allows you to insert the hoop into the cabinet and gently place it within the floor seperators and the rear holder. If you use this system, remember to make the cabinet extra high to allow free movement of the hoop.



These is not much need for me to give hints on construction. Both hoops and the cabinet need sway prevention bars (diagonals). Tiny corner fillets will do for the hoops, because outside diagonals on the hoops don't permit you to use either side to pick up film. It is advisable to round all edges on the hoops to prevent piercing of the film when placing in position to lift. Microfilm will also stick better to hoops that are doped. If you can talk the woman of the house out of an old bedshhet or two, cover your microfilm cabinet with it. This will permit air to circulate and will help age (cure) your film. If no cloth is available, then thin flexible plastic from the variety store will do. Using plastic, you will have to leave your door(s) ajar for three to four weeks.

Manny Wrinkle Number Four - Microfilm Tanks

The larger the tank, the better the microfilm will spread. With this in mind, build the biggest tank you can store and handle. If you need smaller sheets or your film spreads too much, you can always block off your tank with a piece of wood.

The simplest tank to make, use, handle and store is a three-piece one, consisting of a flat surface, a wooden frame to rest on it, into which you cradle some thin sheet plastic to hold the water. The flat surface can be a table top, a sheet of plywood, or scraps of lumber you have about. The frame is best made of 1" x 3" lumber.

Since I work in my cellar, I fill my tank from the wash tub using a length of garden hose. I've tried syphoning to empty the tank, but that is too slow for me. Now I use a pan to scoop up the water into a dishpan, which I empty into the tub. Towards the end, I gather up all four ends of the plastic sheet, ball up the bit of remaining water then push the dishpan under it and carry the whole kit and kaboodle over to the tub! While the plastic is there, I rinse it off, then hang it over a line to dry. Later, it can be folded up for storage. The board and frame are stood up against the cellar wall til next time.

Manny Wrinkle Number Five - Pouring and Lifting Microfilm

Microfilm solutions have come a long way since I put some castor oil in my clear dope. After I dropped some in the middle of my filled bath tub I would grit my teeth and hope it would spread. These days I buy it ready made and it usually spreads to my satisfaction. At first I poured from the bottle cap, then from a teaspoon and later a tablespoon as I had need for more solution in order to make larger sheets.

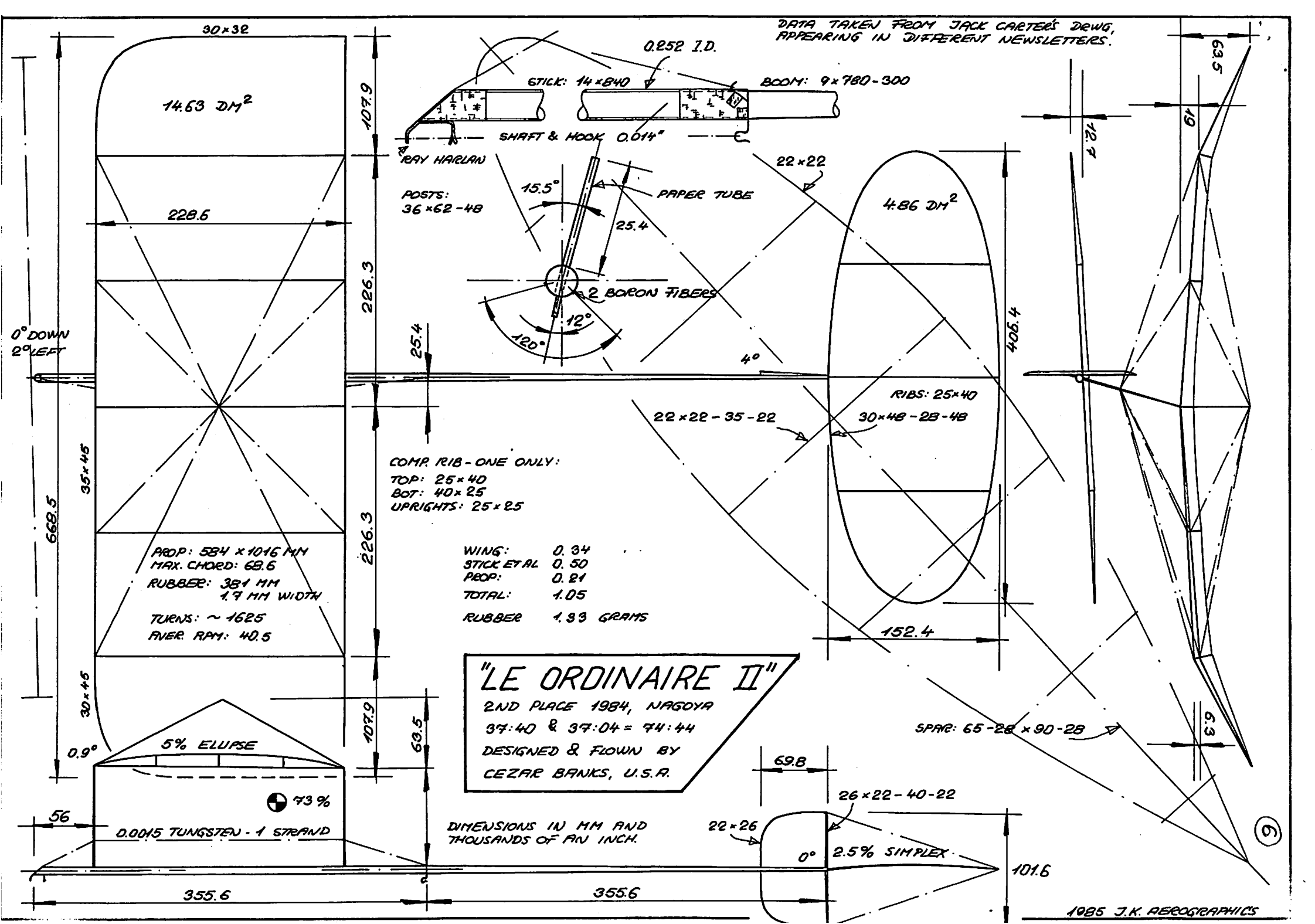
With the advent of the soft plastic bottle with the pointed nozzle cap, I turned to that. The latest technique is to put a hole in the middle of that plastic bottle and use a gravity feed instead of squeezing to force out the solution. The gravity feed permits the solution to fall gently onto the water, whereas the squeeze system frequently resulted in a fast pressure feedout. As a result the solution would be forced under the water, causing uneven and split sheets.

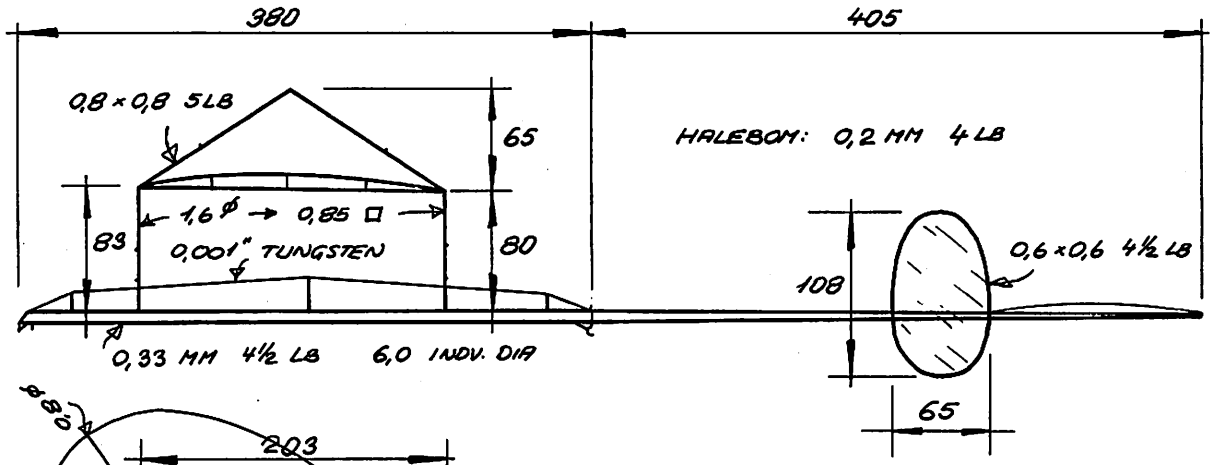
Now I don't just drop the film into the middle of the tank and hope it spreads. I help it spread. Initially, I pour it in a steady stream for the full length of the tank. If it doesn't spread in width, I add amyl acetate, just a little at a time. If that is insufficient, then I help the film spread by immediately pulling on the edges. If you have to use amyl acetate, be warned that it retards the drying and curing of the film, besides making it more tacky, so my advice is to use it sparingly. Friends who use home brew microfilm say that adding acetone will also make theirs' spread better.

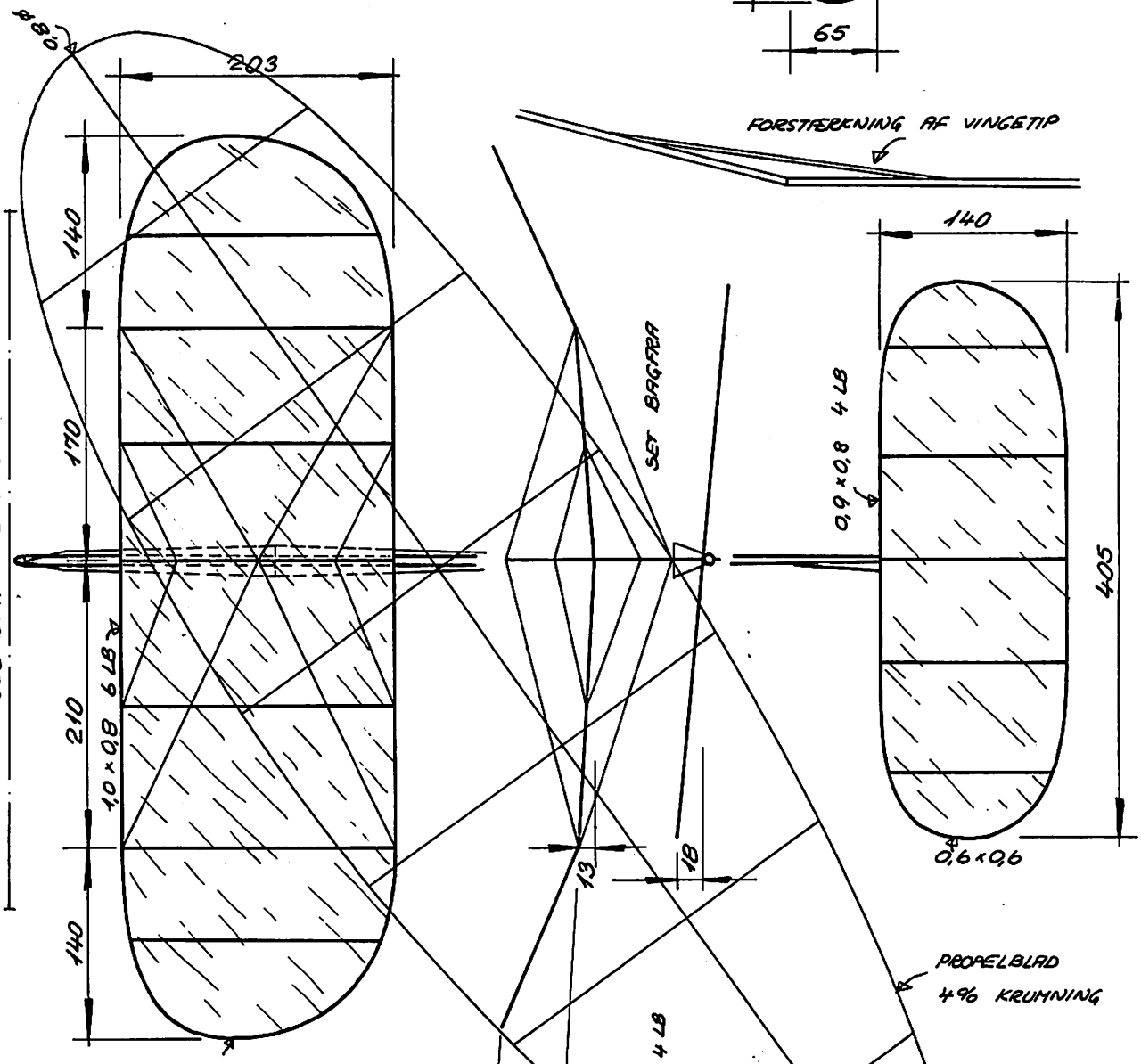
The thickness of microfilm is indicated by the colour. If it is colourless, it is too thick. Usable colours are green, blue, gold, named in the order they get thinner, with the next thinner colours, straw-brown and silver suitable only for experienced modellers. Such film is used on models built for record trials lately. With FAI models which must weigh one gram, Indoor men have not used the ultra-light films.

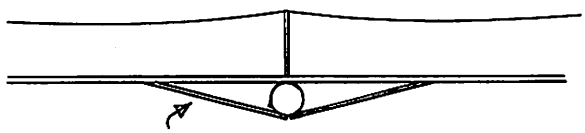
You will have to learn to control the rate at which you pour the solution on the water. I would recommend using the plastic bottle with the gravity feed system. Stay with a comfortable speed at which you move your hand along the tank when pouring, and change the pouring hole size to give you more or less flow rate. As the film dries on the water surface it will begin to wrinkle at the outer edges. You may blow on it to help it dry. Three to five minutes of drying time is sufficient.

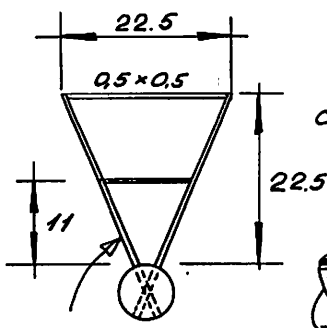
I use water moistened hoops to lift the film from the water. Spray-glueing of the hoops is expensive, a possible health hazard - and unnecessary, so why use it? Before you do anything else after the sheet has dried, carefully check the film on the water. Look for weak spots, creases, dirt and any possible flaws in the film. Select the largest hoop you can use, wet it, and gently lay it on the sheet of film. Now gently move the hoop and film to each side of the tank in order to push the film outside the hoop to about one inch from each edge. Next, start at one corner and lift that bit of film on the outside over the side of the hoop onto the top. Repeat this procedure about every two inches around the hoop, until completed. If your hoop is wet and doped as recommended in Wrinkle Number Three, you will find that the film adheres very well. As you put the edge of the film onto the hoop you will notice that one long side is occasionally weaker than the other. Choose the stronger side to start the lifting out of the water. Grip the ends of the strong side in a comfortable manner, and lift that edge out of the water with tender loving care. After the edge is out of the water, continue to lift with both a forward and upward motion (NB: forward means towards you!). When you get to the rear edge the hoop should be almost vertical. As the rear edge leaves the water continue the rotational motion until the microfilm sheet is upside down.

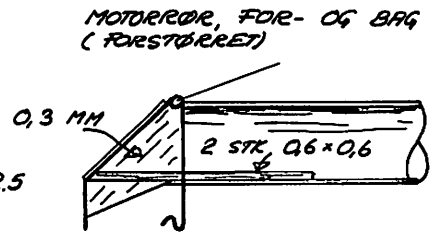

DATA TAKEN FROM JACK CARTER'S DRWG, APPEARING IN DIFFERENT NEWSLETTERS.
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2ND PLACE 1984, NAGOYA
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DESIGNED & FLOWN BY
CEZAR BANKS, U.S.A.
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14.63 DM²
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0.0015 TUNGSTEN - 1 STRAND
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STICK: 14×840
BOOM: 9×780-300
SHAFT & HOOK 0.014"
RAY HARLAN
POSTS:
36×62-48
15.5°
PAPER TUBE
25.4
2 BORON FIBERS
12°
120°
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4.86 DM²
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RIBS: 25×40
30×48-28-48
22×22-35-22
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COMP. RIB - ONE ONLY:
TOP: 25×40
BOT: 40×25
UPRIGHTS: 25×25
PROP: 584×1016 MM
MAX. CHORD: 68.6
RUBBER: 381 MM
1.7 MM WIDTH
TURNS: ~ 1625
AVER. RPM: 40.5
WING: 0.34
STICK ETAL 0.50
PROP: 0.21
TOTAL: 1.05
RUBBER 1.33 GRAMS
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69.8
26×22-40-22
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1985 J.K. AEROGRAPHICS
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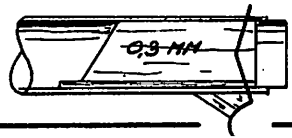












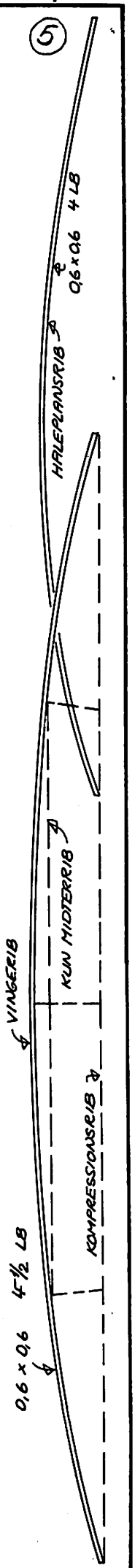
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"TATTOO"

F1D AF DERL MORLEY
UNITED KINGDOM



J.K.81

Ray Harlan about microfilmcovering ....

Covering with microfilm has become a very easy job, since the fifties, when put the wing on the film instead of vice versa.
Use your template to trace the outline on your building board, in pencil (the board should be smooth - not gloss or shiny plastic - and not absorb very much water). Also mark where the ribs should go, so the frame can be put down straight. Lay the frame over the outline and wet it with water, but don't wet the ribs. The water will make the frame stick to the board, so you can move it around and get it to the correct shape with the ribs pointing in the right direction. Keep the outline wet, but don't let water creep on the board inside the outline.
Use a wide brush - 1" - to wet a path around the frame, about 1/2" - 1" outside of it. Then place a backstop - you might have placed it before - see FIG. on the board, so that it will prevent the film hoop from sliding on the board and will allow this hoop to center over the frame. Put the long edge of the hoop against the backstop and cut the ends of the hoop - the film - dotted lines on FIG. free. Keep the long edge of the hoop that is close to you well above the board.
Then carefully lower it, pushing it slightly toward the backstop so as to bow the film. Blow on the film near the backstop until it hits the wet path on the board. Then lower the rest of the way to the board, adjusting the amount you push towards the backstop, so that ribs are not crushed by the film, but there isn't an excess of bowed and wrinkled film over the frame.
Once the near edge of the film is stuck to the board, you may need to blow on or touch the film near the tips. Usually the wet path pulls it in place. If any part of the frame has dried out and the film won't stick to it, you must put a pin hole in the film (just outside the frame) and use a small brush to introduce water to the frame again. It will creep along slowly and pull the film down - be patient here. It's also easy to rip the film with the brush, so be very careful.
Now let the whole thing dry - half an hour - then cut it out with a small soldering iron and finally wet the ribs to the film with a small long bristle brush.
That's all there is to it. You can do stabilizers and rudders this way, and then your shapes won't be a surprise when you have finished!

Bob Bailey/Jorgen Korsgaard about covering props ....

1. Put your prop on the jig - tack glue a spot or two.

2. Make small balsaframes from 1 x 2 mm soft balsa, each frame big enough to cover one prop blade and put film on to them.

3. Wet prop blade - outline and ribs - with water or saliva - and twist a filmframe on to the blade using pins to keep it in place.

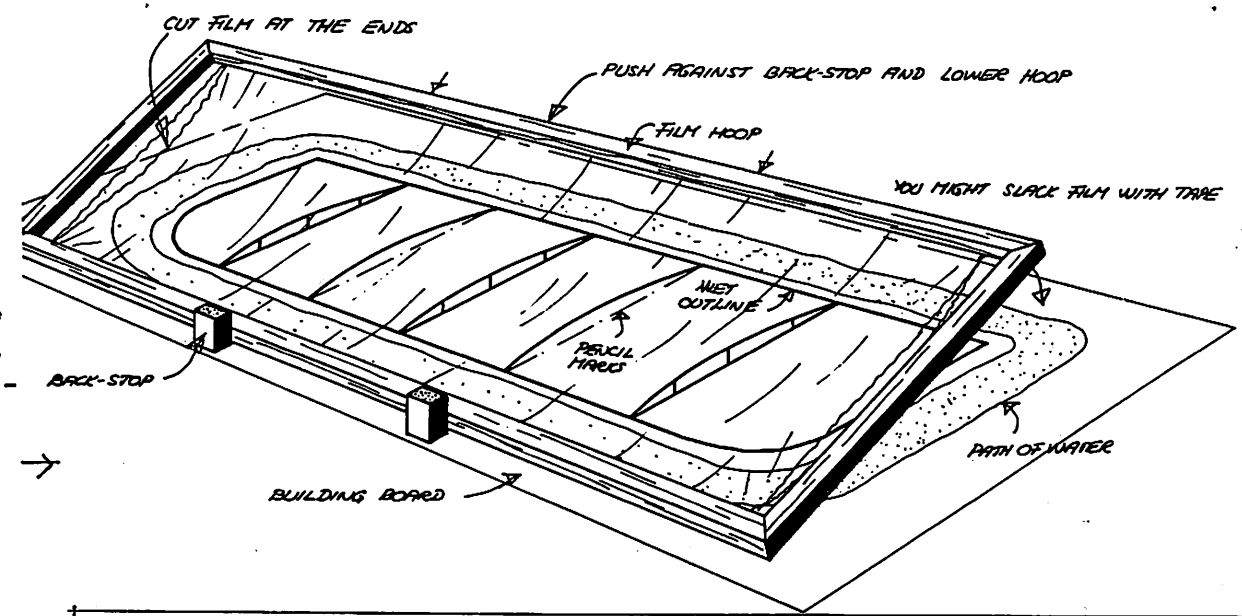
4. Blow the film in place, so that it touches everywhere.

5. Cut film and make the excess film stick to the outline with a wet brush.

6. Let it dry some hours on the jig - you now have a prop blade with true pitch.

7. Repeat process for the other blade.

NB. The wet outline might go away from the jig a little, then use pins to keep it down to the jig.



BAD NEWS:

One of the new subscripers - Boyd Felstead, Australia - had a serious car accident on the 7th June this year, causing heavy injuries. He wrote to the editor recently from the hospital, he expects to be out of action for three months. I wish him a speedy recovery. Cheer up, Boyd!

Calendar 1985:

Cardington:

1. 11th August, SMAE Indoor + SAM Fly-in
2. 24th & 25th August, F1D Team Trials
3. 15th September
4. 29th September

International:

1. 23rd & 25th August, Flemalle, Belgium - all classes
2. 9th - 13th October, Indoor Championships, Slanic, Rumania

Danish - Open to anybody

For the time being no contests planned, except for Saturday 30th November in Helsingør - contact Calle Andersen.

Dette er lidt pinligt, hvem finder en hal til vores indendørs-DM 1985? Henvendelse hurtigst muligt til Jørgen Korsgaard.

oooo

WANTED ..... WANTED ..... WANTED .....!

Building tips/sketches, drawings, theory, opinions, results, how it is going in your country etc. etc.

Milan Mastnak from Yugoslavia has sent me some letters .... Thanks

..... Now something about indoor flying in Yugoslavia:
We only fly two classes:

F 1 D - FAI rules

D-1: Max 35 cm span, covering free excepst microfilm
only solid materials
wood bracing allowed

everything else free.

We don't have a lot of fliers, but some of them are pretty good. Our big problem is halls enough high to fly and so we fly in the low halls. One of them is the sports hall in Karlovac where we hold Nats Champs every year. It is about 15 m high and like a handball place big with seats on two sides. Top is half circle made of beton (concrete?). Normally air is moving along the hall, because there are windows on the other two sides. Record of this hall is 26:07, but normally you can fly about 18 min. without thermal!! Near the top there are two balkons for reflectors and so we can steer the models with fishing rods. And now to the results form our 2oth Nats held on 27-28/4 1985.:

F 1D 12 entries:

1.	Velunsek Oton	21:59 + 20:12	= 42:11
2.	Matsnak Milan	21:10 + 20:15	= 41:25
3.	Zagar Iztok	18:06 + 19:02	= 37:08
4.	Lovric Ratko	17:36 + 18:00	= 35:36
5.	Kmoch Damir	15:23 + 18:55	= 34:18

D-1 Juniors 7 entries

1.	Kmoch Damir	9:26 + 8:29	= 17:55
2.	Gelo Hrvoje	7:42 + 8:42	= 16:28
3.	Mucak Zeljko	6:36 + 5:48	= 12:24

D-1 Seniors 20 entries

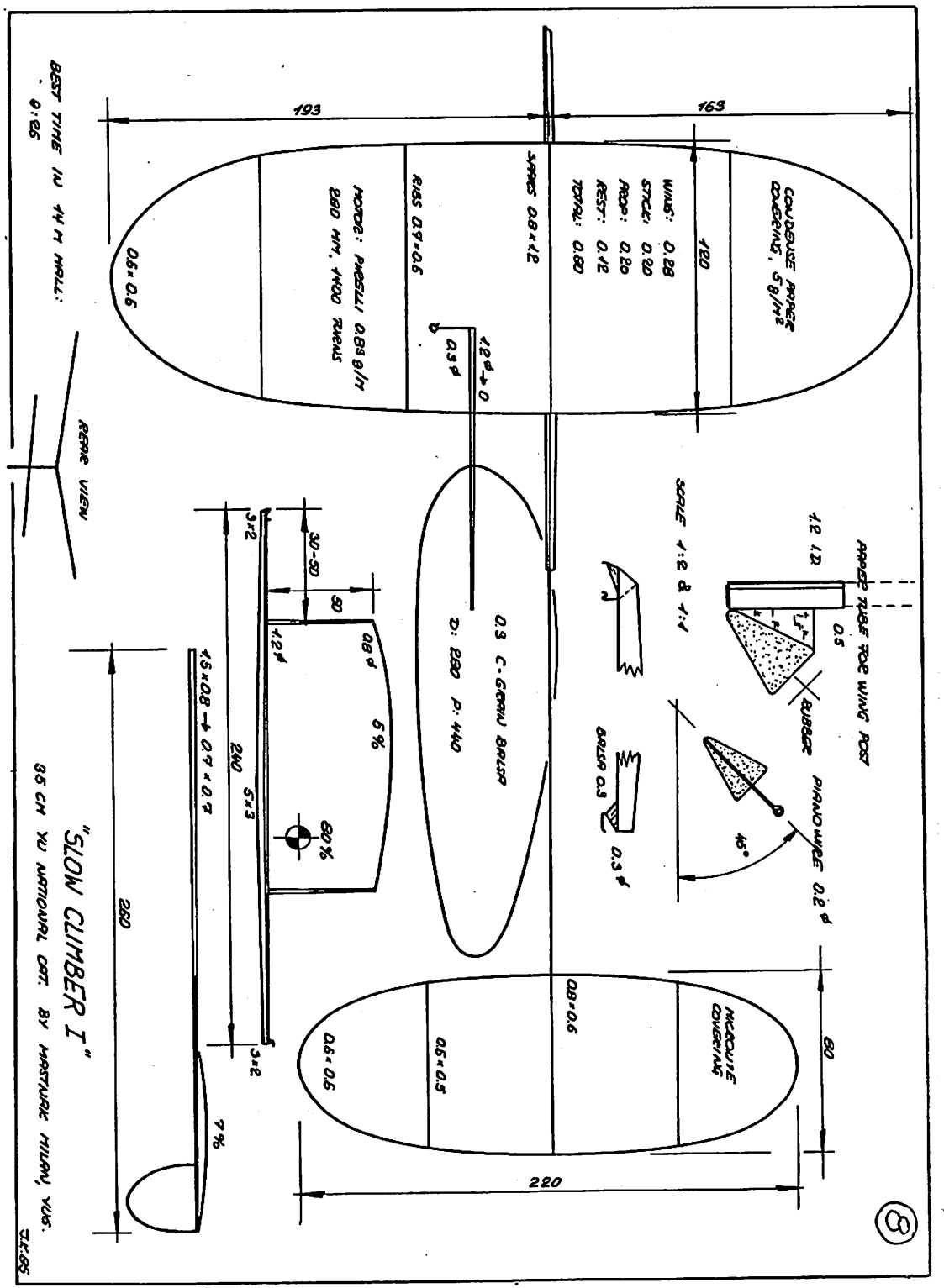
1.	Mastnak Milan	10:27 + 11:02	= 21:29
2.	Gelo Branko	10:16 + 9:54	= 20:10
3.	Kmoch Vilim	8:44 + 9:13	= 17:57
4.	Velunsek Oton	8:18 + 8:42	= 17:00
5.	Zagar Iztok	8:10 + 8:37	= 16:47

After the competition we have talked about changing the rules in F 1 D, and our suggestions are:

1. span max. 550 mm
legth of model max. 700 mm
min. weight: 1 gram

2. max. area of all flying surfaces for example: 12 -15 dm^2
max weight of rubber: 1 gram

Specially this second suggestion could change our models to be smaller, and so the boxes, too, but allow for free design in all ather parts, what can be very interesting. Think about them...I want to hear answers!!
.....



National Indoor Championships in Rumania, April 5-7 1985:

Aurel Popa writes: Coming back from Nagoya we had a short "holiday" in indoor, afterwards we had national champs in Slanic. In fact there were two separate contests - semifinals and finals, 12 official flights in 6 days. In semifinals entered 26 seniors and 16 juniors, for qualifying were required 50 min. for seniors and 30 min. for juniors, 15 seniors and 15(!) juniors entered the finals. The results are attached.
I used old models for the best flights - 185 wing chord, 140/420 tail, but big props (the same I used in Nagoya) and big rubber 1,65-1,75 g/m.
.....
The results:

Seniors:

1.	Popa Aurel	38:20 + 37:41 = 76:01
2.	Mangalea Cornel	33:45 + 33:56 = 67:41
3?	Niccara Vasile	33:35 + 33:47 = 67:22
4.	Bezman Nicu	35:15 + 30:40 = 65:55
5.	Fratean Daniel	31:57 + 30:35 = 62:12

Juniors:

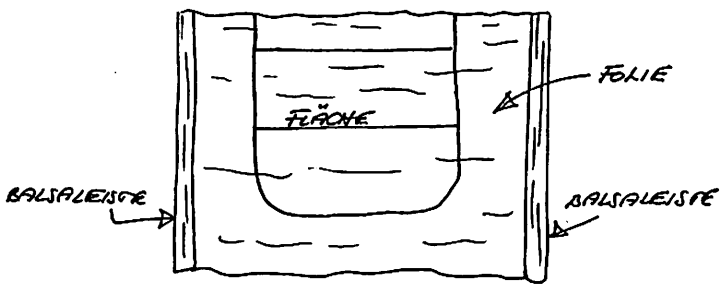
1.	Furjas Gyorgy	32:08 + 33:01 = 65:09
2.	Zontea Doru	27:30 + 27:30 = 55:00
3.	Grosu Eduard	27:35 + 26:06 = 53:40

Thank you very much for your letter, Aurel!

—·——·——·———

Uwe Bundesen, BRD, has found a new covering material, He writes:

..... Wir haben einige Versuche gestartet und haben von der Firma "Kalle" in Wiesbaden eine Polyesterfolie bekommen, die etwa 0,003 mm dick ist und ca. 4g/m² wiegt. Nach etlichen Klebeversuchen bin ich mir zufällig auf einen Textilkleber gekommen, der sich recht gut eignet. Es handelt sich um Gewebekleber "Praktikus", man bekommt ihn bei uns in den Supermärkten der Firma Neukauf, aber andere Fabrikate tun's vielleicht auch. Der Kleber ist wasserlöslich. Ich verdünne ihn etwas und bestreiche dann damit das Flächengerüst (noch auf der Helling). Die Folie wird dann darüber gelegt, und zwar mithilfe von zwei Balsaleisten, die ich vorher auf die beiden Gegenseiten der Folie geklebt habe:



Den Kleber lasse ich dann mindestens eine Nacht lang austrocknen und schneide dann die überstehende Folie mit einer neuen scharfen Rasierklinge ab. Die BORON-Rundungen - siehe "Si Halus" F1D Beginner - des Seitenleitwerks bestreiche ich mit verdünntem UHU-Hart, lasse ihn trocknen, lege dann das Seitenleitwerk auf die Folie und löse den UHU wieder mit Aceton an, trocknen lassen und die überstehende Folie mit der Rasierklinge abschneiden.
Ganz so schlimm, wie in der letzten Ausgabe Deiner Zeitschrift beschrieben, ist meines Erachtens BORON nicht, wenn man damit vorsichtig umgeht .....

Deutsche Wettbewerbe im Herbst:

21-22/9,	Spaichingen	BW
17/11,	Schorndorf	BW
24/11,	Lemgo	NI

Why do you always fly with half motors in Germany?????? Is a change to come?

Offenburger Saalflugwettbewerb 2/3 1985:

TH:

1.	Rainer Lotz	1056 sek.
2.	Uwe Bundesen	962
3.	Hanns Franke	880
4.	Claus Wöhr	853
5.	Günther Oudraczek	832

11 Teilnehmer

TH Jugend:

1.	Jörg Glöckner	687
2.	Thomas Merkt	667
3.	Robert Gröver	654
4.	Peter König	589
5.	Endru Bundesen	435

VIELEN DANK, UWE.!

6 Teilnehmer

F1D Beginner:

1.	Uwe Bundesen	1103
2.	Helmut Werfl	1043
3.	Hanns Franke	1039
4.	Rainer Lotz	897
5.	Richard Werfl	881

8 Teilnehmer

F1D Beginner, Jugend:

1.	Robert Gröver	864
2.	Peter König	612
3.	Thomas Merkt	588

Wer Schickt mir die Ergebnisse von den DM 1985 in Dortmund - und vielleicht ein Paar Kommentare?!

A NEW BOOK!

ALLES UBER SAALFLUG ..... a new indoor book by the Alfred Klinck:

48 pages, DIN A-4 size, containing lots of hints and tips about building and flying indoor models, from the small gym. model to the sofisticated F 1 D microfilmmodel, all step by step.
Like all existing books on the subject - very recommendable

Available at the bookshop, hobbyshop or direct:
Verlag für Technik und Handwerk, Postfach 1128, D-7570 Baden-Baden, West-Germany

Ray Harlan, USA, sent me a long letter in March.... Thanks a lot, Ray.

..... On to the good stuff (or bad stuff as Erv Rodemski thinks!).. Since I sell Boron I'm sure to be biased, but, like any new technology we have to learn how to make it work.

Boron is tedious but not impossible to apply (and keep it light), I don't aggree that our sport would be better off without it! By the way I just set a Cat II ornithopter record at 7:08 - in 35 feet! The wings were loaded with Boron and the model could not have done half the time without it.

If a material were excruciatingly difficult to work with, I think it would be worth eliminating to keep interest in the sport by a reasonably large group of people. If only a few were proficient at working with it, others would be discouraged and the sport would fail.

With Boron several techniques seem to work and the payoff can be substantial in several areas. Some people dope the fibre before applying it, maybe even a couple of times. Then thinner is used to soften the dope and adhere it to the wood. Others tack glue Boron every 1/4 inch and say that is adequate.

I have used epoxy with great success. I spread a very thin layer of epoxy on a plate of glass. Then I lay the Boron on it and pick it right up being careful not to rotate it. Apply it to the model part that is held in place on the work bench. If care is taken and tension is kept in the fibre, it can be laid exactly in place and tapped down with a finger. Don't slide a finger along as this can easily move the fibre sideways and spread the epoxy film too thin.

The most important thing is to glue it down well, especially at the ends. If the Boron comes loose the part becomes very weak at that point. If the ends are not well secured, particularly on motorsticks, they can pierce fingers and be very painful - when trying to get the piece out.

Cutting Boron to length can be a problem, I have used overly long pieces on model parts and then cut the excess off with diagonal cutting pliers. Sometimes a little piece breaks off in addition, but usually strength requirements are minimal at the ends. Just be sure the ends are glued well as mentioned above. You should keep track of all cut-off pieces and shards. One way is to work in a box that has no holes in the bottom or sides. This helps contain the Boron. If pieces get outside, pick them up with a piece of tape. It's the little pieces of 1/4" or less that pose a problem as they can easily get oriented toward your skin, and they are stiff enough to resist bending if forced against a hard surface. So your skin looses the battle and you are stuck!

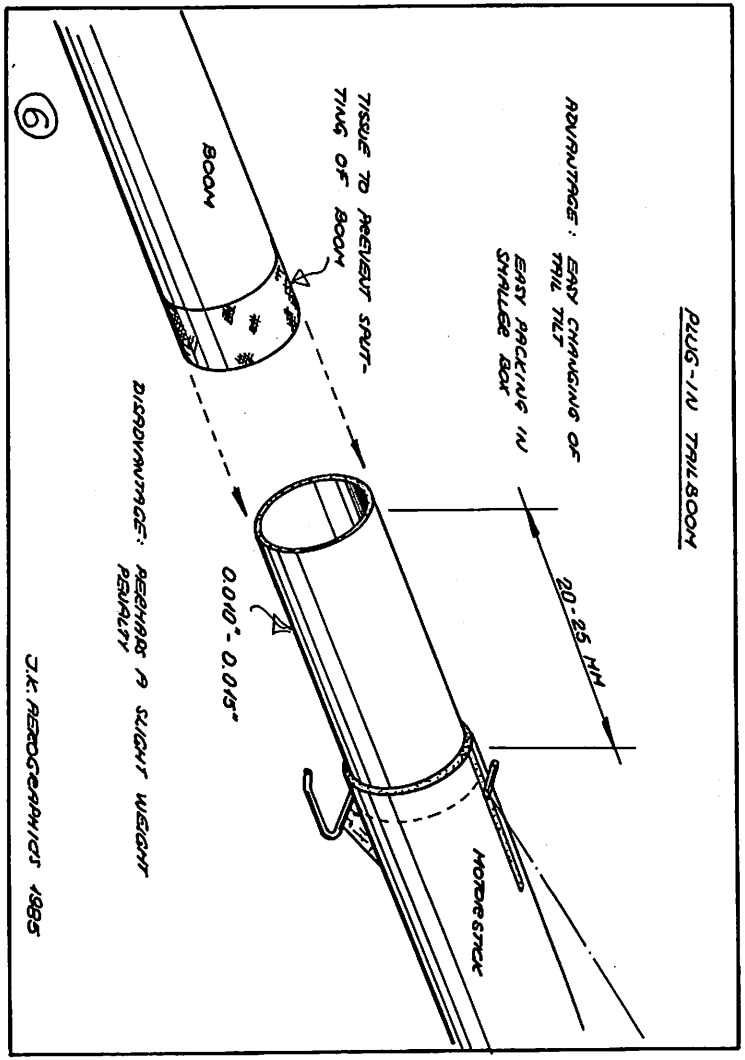
The REAL HORROR stories are from people who have stepped on Boron with bare feet. I know of two such individuals!! However that is the most stupid trick I've ever heard of. Anyone who uses Boron over a rug in a bedroom needs a good psychiatrist!! .... Enough on Boron.

Ray Harlan

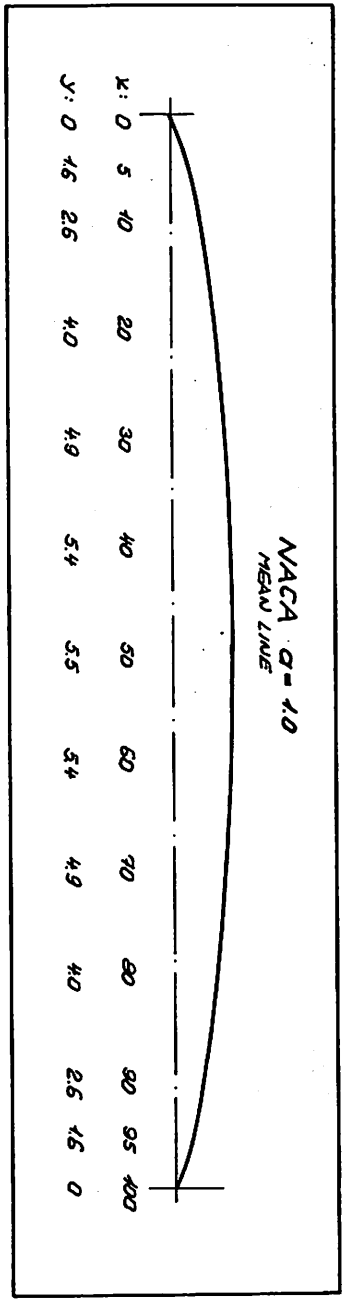
In issue no. 1/85 we haerd some other stories on Boron recommending a ban for this material, and with Ray's words you have had your PRO ET CONTRA, the rest is up to you now .....

BORON

BORON



READING STUFF EN MASSE!



NFFS Publications

The pile-up of back issues of Free Flight is wedging the Terzians out of house, home, and garage. The result is a once-in-a-lifetime opportunity for you to pick up back issues at bargain-basement prices.

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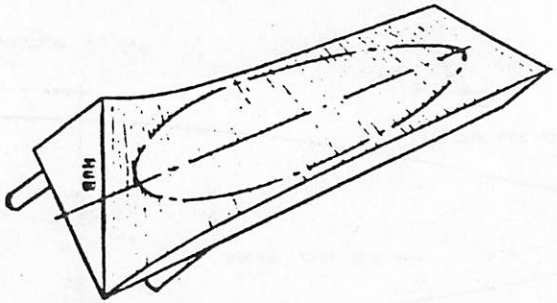
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Aids For Advanced Aeromodelling

14 UPPER CRAIGS. STIRLING FK8 2DG. SCOTLAND



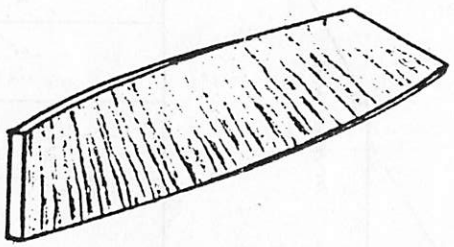
MICROFILM PROPELLER JIGS.

In these jigs, for building and repairing microfilm props, a mahogany block is machined on one side to the specified pitch. The reverse side is flat and parallel to the mean angle between the hub and the tip, allowing the block to lie at the most convenient angle for working. In addition, three removable legs lift the block above the work surface to give clearance for the other blade of the propeller.

The centre line of the jig face is a straight line from hub to tip. Slight machining marks at right angles to this line are useful for rib location.

The jig will take blade widths up to 3"(76mm), and propeller diameters up to 25"(630mm). Stock pitches are 32",34",36",38" & 40". Please enquire for other pitches.

Price £6.70 including packing and postage in the U.K.

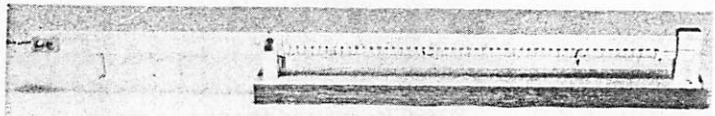


EZB FORM BLOCKS.

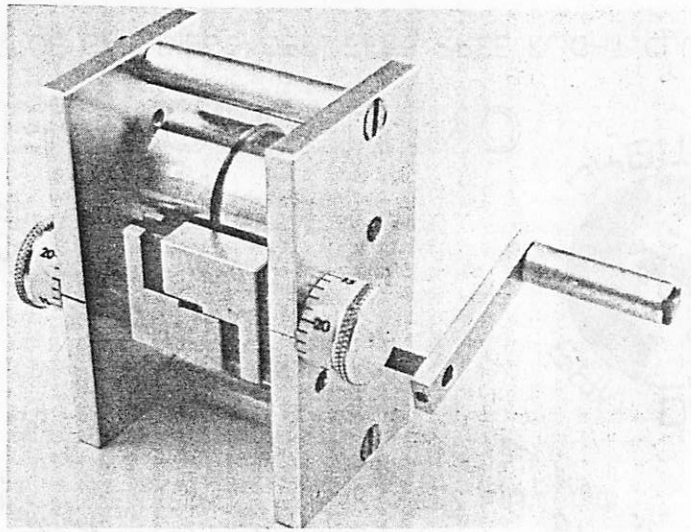
These blocks, for forming the blades of indoor propellers, are also machined in mahogany on our special machine. They are double sided, with a different pitch on either side. Instructions are given on how to form the blades, how to incorporate undercamber, and how to use the block as a propeller assembly jig. Foam pressure pads and binding rubber are included.

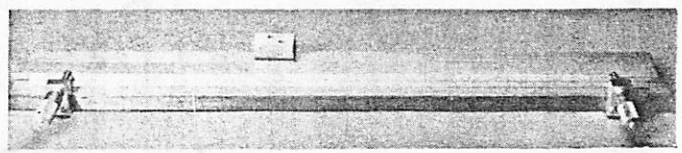
SPECIAL FORM BLOCKS.

I shall be pleased to manufacture specials to your specification. Please enquire for price.



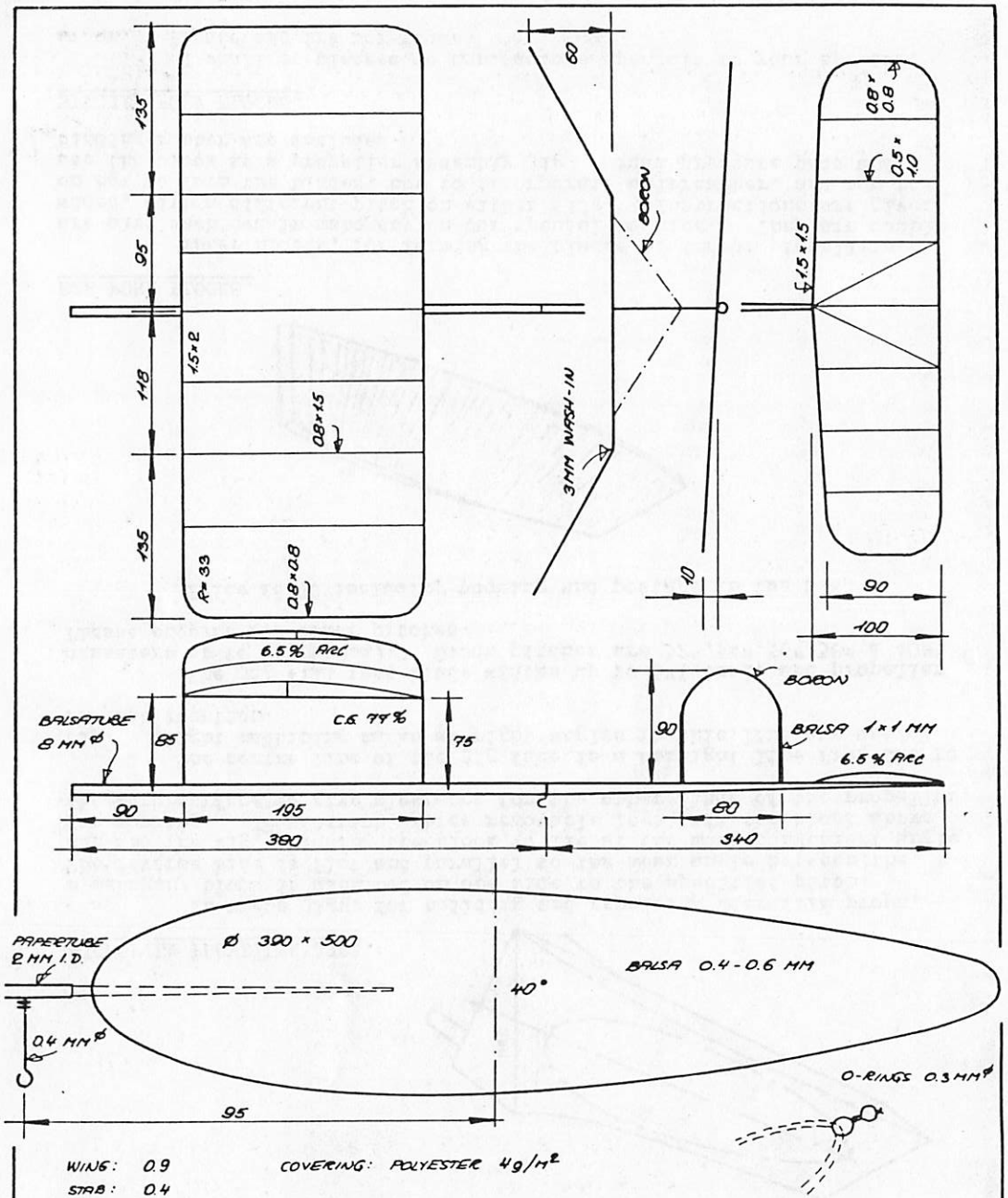
American indoor 'goodies' available from SAMS the indoor specialists. Above left: sensitive beam balance. Above right: super accurate balsa stripper. Below: the latest in rotary rubber strippers.





SAMS Indoor Offerings

Latest news from SAMS, 2, The Drive, Blackmore End, Wheathampstead, Herts ... three upmarket items for the indoor modeller. These are all from the precision hands of Ray Harlan in America and represent really top grade equipment but also with a top grade price! First is a 'Precision Rotary Rubber Stripper weighing in at £77.58. A beautiful piece of work and will certainly complement that special Pirelli rubber you have been hoarding away! Second at £42.24 is a sensitive Indoor Beam Balance, the metric version of which will read to 1.4 grams with 0.005 gram divisions ideal for weighing even the smallest of model parts. Thirdly, we have a Micrometer Balsa Stripper at £38.62. Length is two feet and includes two quality micrometers, a heavy aluminium straightedge and a precision blade holder to ensure square cuts, all mounted on a rather superior redwood base.



WING:	0.9	COVERING:	POLYESTER 4g/m²
STAB:	0.4		
PROP:	0.7	PERFORMANCE IN 8MM HALL:	9-10 MIN.
REST:	1.0		
TOTAL	3.0 g.		

MOTOR: 400 MM LOOP
≈ 1×1.9 MM, 15g
13-1400 TURNS

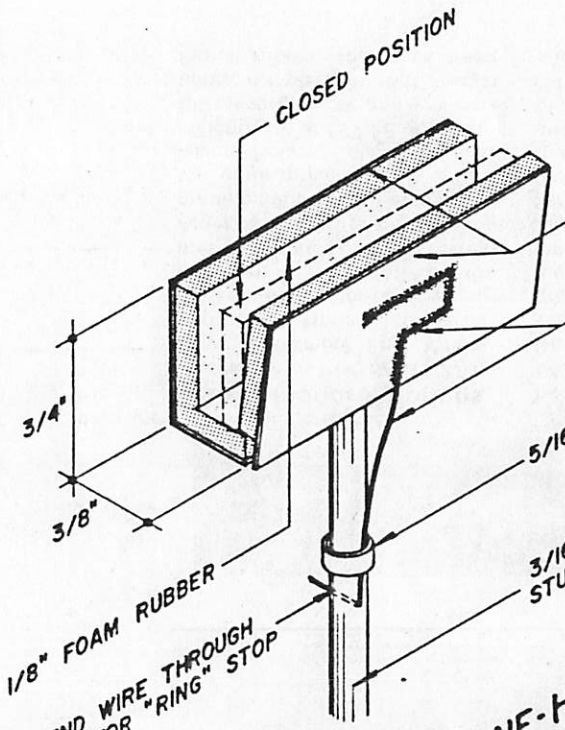
"SI HALUS"

F1D BEG.

BY UWE BUNDESEN
W. GERMANY

71% FULL SIZE
AND 1:5

J.K. 85



CEZAR BANK'S ONE-HAND RELEASE F1D MODEL HOLDING STAND

DRAWN BY: BILL BOOTH JR.

EL TORBELLINO

NEWSLETTER OF SAN DIEGO ORBITEERS FREE FLIGHT CLUB

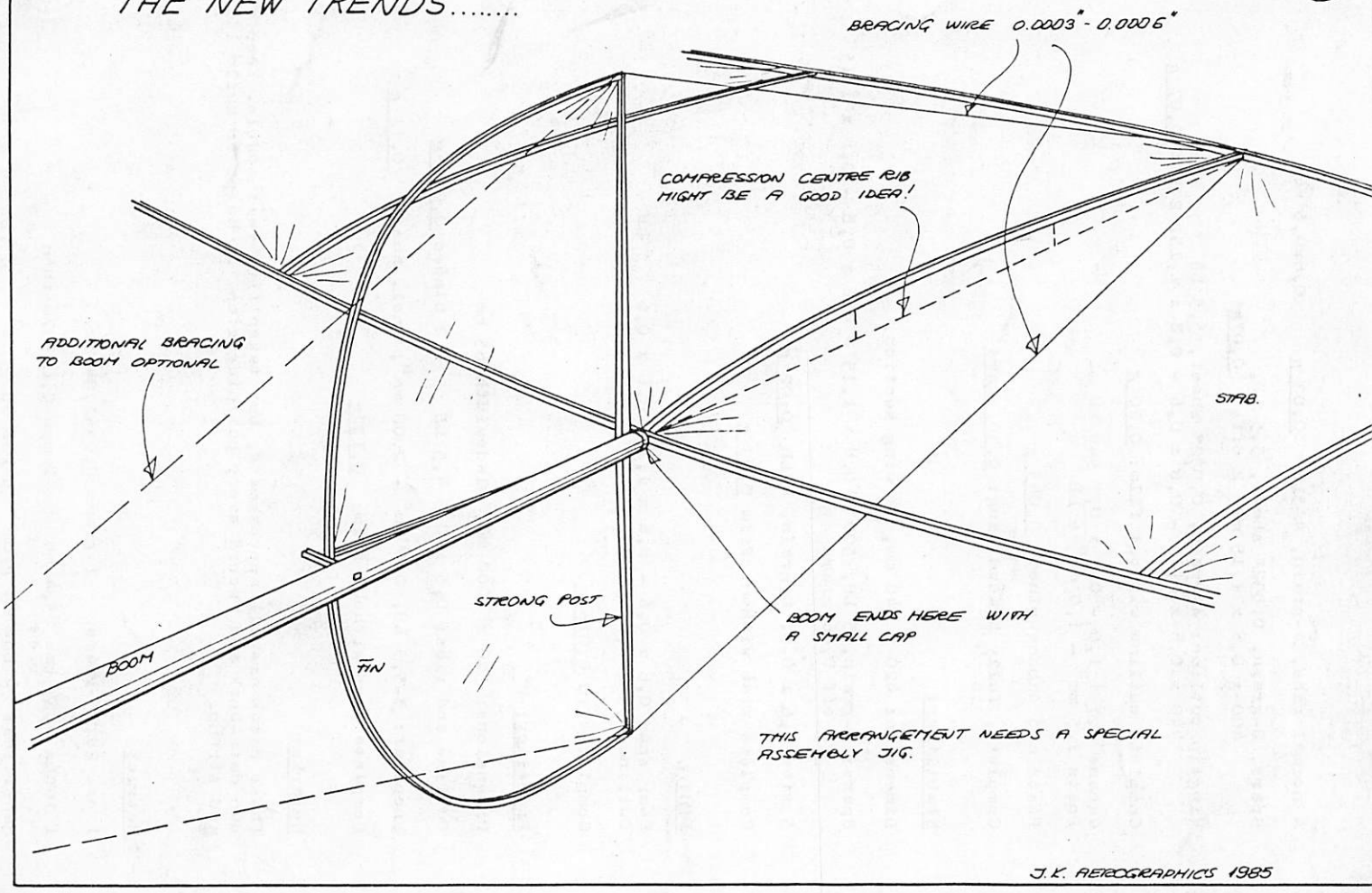
EL TORBELLINO - Howard Haupt, Editor
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INDOOR & OUTDOOR

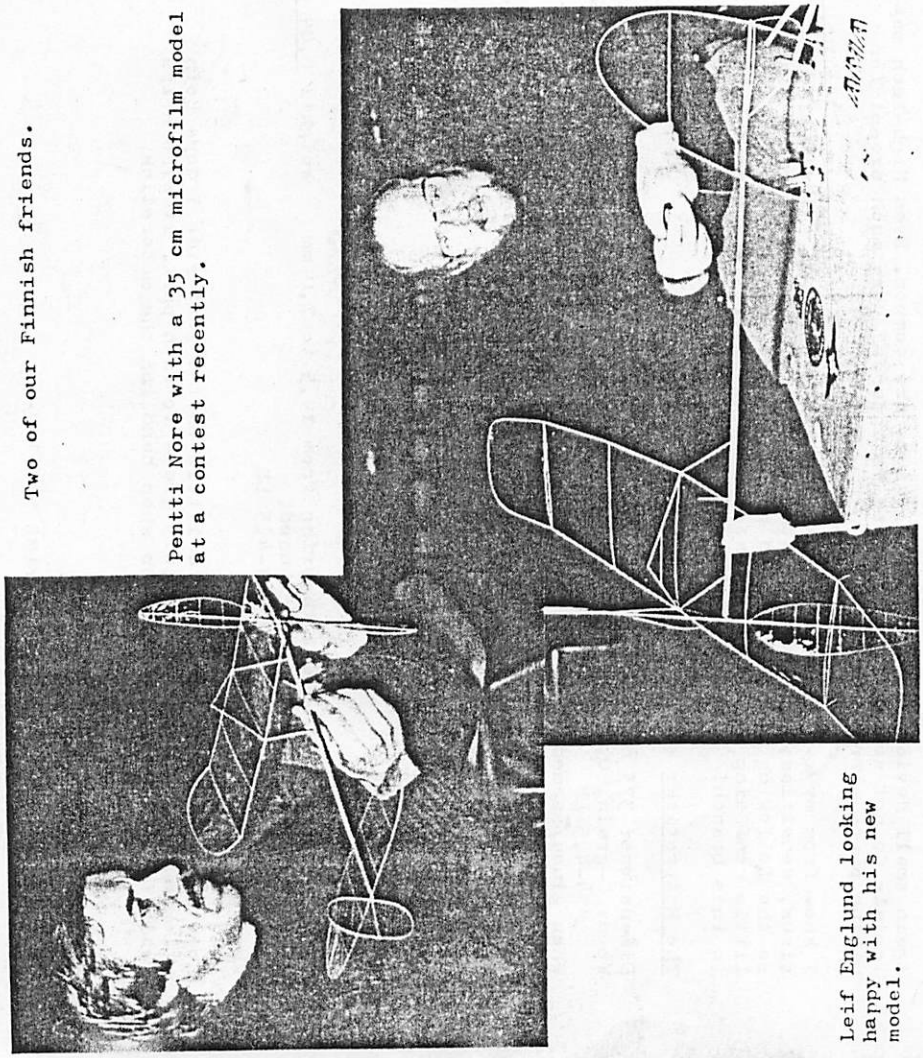
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THE NEW TRENDS.....



J.K. AEROGRAPHICS 1985



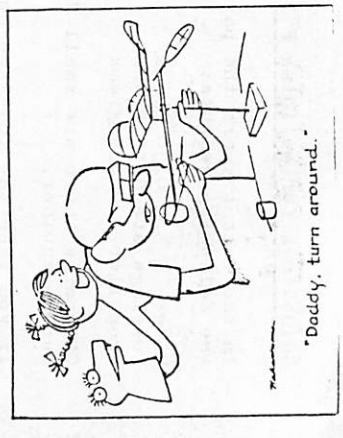
Two of our Finnish friends.

Pentti Nore with a 35 cm microfilm model at a contest recently.

Leif Englund looking happy with his new model.

SAN DIEGO ORBITEERS

Orbiteers SAN DIEGO



"Daddy, turn around."

Guidelines for building F 1 D models

In the recent years the parts of an F 1 D microfilmmodel seem to have the following weights:

Wing: 0,30 grams
Fuselage etc 0,50 grams
Propeller 0,20 grams

Of course there are small deviations from these values from one modeller to another.

If you take the fuselage consisting of motorstick, boom, fin and stabilizer, the average weights are around:

motorstick 0,30 grams
boom 0,08 grams
stabilizer 0,10 grams
fin 0,02 grams

Again small deviations from these values are common. Even High-Tech materials do not seem to affect these "standards" very much except for making parts stronger.

I know from my own experience that I missed a general guideline as for sizes, densities, cuts and weights when building my first F 1 D ships, so the following might be a good help for a newcomer. It will be a little confusing with inches/ounzes and millimetres/grams as is common in this branch!

The Motorstick:

Dimensions: 375 mm, 6,2 mm I.D.
Wood: C-grain, 0,013-0,014", cut into 375 x 21,0 mm Weight: 0,18 g
4-4,5 LB
When glued/seemed: 0,21 g

Bracing posts (from 5-6 LB balsa), webbing in both ends, bearing and hook, and bracing wires will weigh about 0,08 g.

Finished motorstick then comes to 0,29 grams, when mounted with the papertubes the weight will increase to 0,30 grams.

The Boom:

Dimensions: 375 mm, blank tapering from 19,5 to 7,0 mm Weight: 0,09 g
Ray Harlan former used.
Wood: C-grain, 0,008-0,009", 4-4,5 LB
When glued: 0,10 grams

Sometimes when the wood seems a little on the soft side I dope both stick and boom adding about 0,015 grams to each part. It also helps against sweaty hands or fingers when handling the motorstick.

The wing:

Dimensions: 660 x 200 mm, 5% wing section.

3 compressions ribs from: A-grain, 4-5 LB, 0,6x0,6 plus strut
0,6x0,6 - 0,6x1,2 - 0,6x0,6
Weight for all three 0,039 grams

4 normal ribs, A-grain, 4-5LB 0,03 g 0,6x0,6 mm

Spars, B-grain, 0,032" sheet, 5,5 LB,
400 x 0,8 x 1,15 mm 2 off 0,07g

Wingtip outline: A-grain, 0,032" sheet, 5,5 LB
440 x 0,8 x 1,15 - 0,6 x 0,6 - 0,8 x 1,15, 2 off 0,07 g

Complete outline without film: 0,20 g

Cabane 0,7 x 1,0 - 0,7 x 0,7 5-6 LB
Posts 1,5 mm$^{\varnothing}$ - 1,0 mm$^{\varnothing}$ 6 LB

Posts and cabane glued: 0,045 g

Complete, fully braced wing: 0,30 grams

Stabilizer:

Dimension: 420 x 140 mm, 3% wing section.

Spars: A-grain, 5 LB, 500 x 0,8 x 1,15 - 0,6 x 0,6 - 0,8 x 1,15
2 off 0,06 grams

5 ribs 0,6 x 0,6, C-grain, 4 LB 0,02 g

Complete stab without film 0,09 g

Fin:

Rear spar 0,6 x 0,6 - 0,6 x 1,1 - 0,6 x 0,6 5 LB
Outline 0,6 x 0,6 5 LB

Complete fin 0,016 g

Propeller:

Dimensions: 520 x 1000 mm, bladewidth 65 mm

Outline and ribs: 0,5 x 0,5 4,5 LB 2 blades 0,040 g

Propspar: 5-5,5 LB, 0,6 mm$^{\varnothing}$ - 2,00 mm$^{\varnothing}$, incl. shaft 0,11 g

Complete prop without film: 0,17 g

Remarks:

These datas are all approximate, but taken from real models. Keep your own data-book and record every building step. It helps to build light and strong.

Metric:

1 oz= 28,35 grams 1 gram= 0,0352734 oz.

1 inch= 2,54 cm= 25,4 mm 1 mm= 0,039370 inch

Densities: 4 LB= 64 g/dm^3 5 LB= 80 g/dm^3 6 LB= 96 g/dm^3