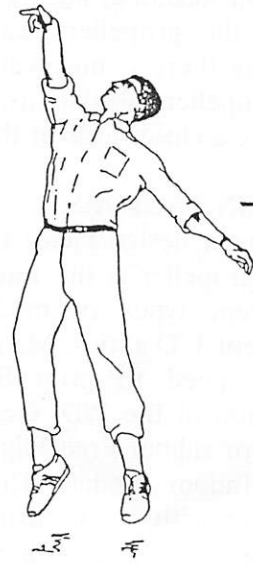
Indoor News

Issue 26 April 1994



DIARY

17 April Örebro Sweden	**Swedish Championships**, S.-O. Lindén, Hovstavägen 15, S-70363 Örebro, Sweden.
2-3-4 June Johnson City USA	**U.S. Indoor Championships**, All (well, almost all) classes, Phil Klintworth, 936 Lakewood Rd., Fairfield Glade, TN 38555, USA.
18-19 June Orleans France	**13th International Indoor**, F1D + Beginner + EZB, J. Delcroix, 7 Rue de Foncemange, 45000 Orleans, France, tel. +34 925 130923
25-28 Aug Liège Belgium	**18th International Indoor**, All classes, F. van Hauwaert, Rue de l'Ermitage, 8, B-4400 Flémalle, Belgium.
28-29 Aug Cardington England	**British Indoor Nationals**, Index over 2 days; 28th: EZB, Lim.PP, Catapult, 29th: F1D, LRS. L. Barr, Herries Cottage, Winter Hill Road, Pinkneys Green, Berks. SL6 6PJ, England. Ring Laurie the Friday before (tel. 0628 487544)!
20-25 Sept Slanic Romania	**1994 Indoor World Championships**, Federatia Romana de Modelism, Str Vasile Conta 16 Sect 2, 70139 Bucarest, Rumania. Tel. 40 131 20-160,fax 40 131 20161. See details in IN24.
26/27 Sept Slanic Romania	**F1D Open International**, Federatia Romana de Modelism, see above.

Indoor flying in Cardington

Indoor meetings to be held at Cardington in 1994: 10 April - LRS, 1 May - LPP, 22 May - EZB, 5 June - Int. Stick, 19 June - F1D, 3 July - LRS, 17 July - LPP, 31 July - EZB, 14 Aug - F1D, 28-29 Indoor Nationals - see diary, 11 September - F1D, 25 September - EZB. Index is flown on all dates.

Laurie Barr invites all readers to come to Cardington on any of the scheduled dates. Transportation can be arranged from Luton Airport (very close to Cardington) or from London Airport.

For those that are new to Cardington, it is situated on the A600 about 3 miles from Bedford. Drive through the gate next to the field, go between the hangars and turn left to reach the vehicle entrance to No.1 Hangar. We close the big door at 11am so if you want to park in the hangar get there before then. No.1 Hangar is huge (100ft by 300ft by 150ft high) so there is plenty of room for everyone to fly and fun flyers are most welcome. Remember to ring Laurie (tel. 0628 487544) the Friday or Saturday before a meeting to confirm the meeting is on.

COLOPHON

Indoor News is published at least four times a year and covers all types of indoor models, from peanuts to microfilm. Texts can be sent in Dutch, English, German and French (I can read the latter two, but not write them). Please type your texts on 12,5 cm width. Texts can be sent on floppy disk (3½ or 5¼) in Wordperfect or ASCII format.

I can make the drawings, if you are no draftsman. I prefer payment of subscriptions per six issues. Paying by Eurocheque, Postal Money Order or sending bank notes is free of handling charges to the recipient. Please bear the handling charges yourselves when paying by Eurogiro or with foreign cheques. The Eurogiro account number is 4406860.

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CAN FORMED LRS PROPELLER BLADES

by Kai K. Halsas (FIN)

GENERAL

Most of the published LRS (Mini-Stick) drawings, my own included, do not give detailed information about the propeller design. On a small size A4 drawing there is not even space enough for detailed propeller calculations. In the following I will try to have a closer look at the LRS propeller design.

DESIGN FACTORS

The main design factor in designing a can formed LRS propeller is the Pitch/Diameter ratio or P/D. Different types of model airplanes have quite different P/D ratios. Many factors, such as ratio of flight speed to prop RPM etc. determine the selection of the P/D. Generally it can be said that outdoor rubber Free Flight models have lower P/D than Indoor models. The P/D for indoor models can vary with eg. the flying site ceiling height. High ceiling lower P/D than the P/D when flying in a low ceiling site. Enclosed is a list of typical rubber model P/D's:

Model	P/D
F1B	1,2-1,3
Outdoor Scale	1,2-1,6
F1D	1,5-1,9
EZB	1,8-2,2
P-P	1,8-2,0
F1D-B	1,3-1,9
LRS	1,8-2,5
Peanut	1,1-1,5

I have also collected data for LRS propellers from some Indoor Newsletters:

Model/designer	D	P	P/D
Aoshima	6,22"	11,02"	1,76
Biscayne Baby	6,14"	11"	1,8
Stinky Stink II/S.Fink	6"	12"	2
L. Barr	6"	12"	2
Winner/Triolo	6"	12"	2
K777/Krush	7"	17"	2,42
Kinoshita	5,98"	15,75"	2,63

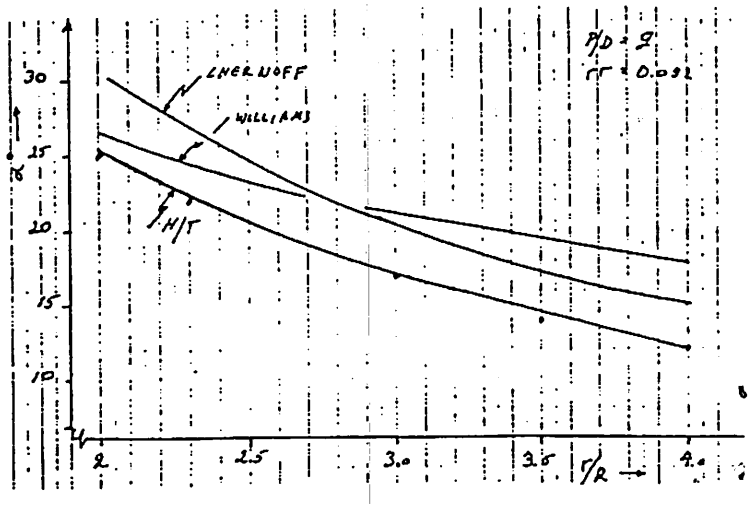
CAN FORMED PROPELLER BLADES

The LRS plane is. or should be, a fun plane. It should not be designed and built too complicated. The most difficult part to construct is the propeller. Curved pitch blocks are time consuming to make, and at least I am too lazy to carve 3 or 4 blocks for each different P/D to be tested. Can formed blades should be adequate for the LRS propellers. Can formed blades do of course not form a true helical pitch and the blade center line is not straight, but who can see (or measure) the difference in propeller performance?
Instead of a can one can use other curved surfaces. Jim Jones (1) supplies cylindrical form blocks made of cork. These are handier to use than cans. He also checked the difference in pitch of a can formed blade compared to a true helical pitch.

FORMULAE FOR DETERMINING THE BLADE ANGLE ON THE CAN

Chernoff (2) and Williams (3) have published formulae for calculating the can angle for propeller blades that extend to the propeller shaft. Henderson/Tenny (4) show a method to calculate the can angle for a propeller where the blade starts at a certain distance from the shaft. There might be some additional formulae, but these are the only ones that I have in my library.

We need another design factor, in addition to the P/D, to calculate the can angle. We need the ratio between the prop radius (r) and the can radius (R) or r/R. For the Henderson/Tenny we also need the root radius (rr). We have to know how far on the spar, from the hub, the blade starts.
The formulae and calculations are presented in Appendix No.1. I have converted the original formalae to a format suitable for computer calculation (Exel program). The calculations are made for a P/D range of 1,7-2,5. Fig.1 shows graphically how the can angle varies with r/R.



The can angle increases with smaller r/R (=larger can) and decreases with larger r/R (=smaller can). Too small r/R could result in excessive distortion and a too large r/R would probably result in excessive camber of the propeller blade.
I am using for my LRS model the European size Coke can. The Dia. of this can is 66mm (2,6"). The

Dia. of my propeller is 165mm (6,5"). The ratio r/R is then 3,25/1,3=2,5. A ratio of 3,0 would result in a can size of 3,25/3,0=1,08" or a 2,17" diameter can. This size can gives a camber of 13-14%, as we show in Appendix No.2 (probably too high camber?).
In the Henderson/Tenny formula I am using the blade length as r. The r/R is consequently 2,99/1,3=2,3. The tip angle and the root angle are "baked" in into the formulae. These angles are, however, calculated separately in Appendix No.2.
A comparison of the can angle for different design formulae shows the following (for a P/D of 2):

Chernoff	24°
Williams	23°
Henderson/Tenny	22°

THE HACKER FORMULA

W. Hacker (6) informed about a formula to calculate the radius of a curved surface, when propeller blade chord and camber are given. On my next propeller I will use a chord of 1" and a camber of 10%. The Hacker formula (Appendix No.2) gives a R of 1,3". It happens to be exactly the radius of my Coke can! A radius of 1" (can dia. 2") would give a camber of 13-14% (too much?).

THE SET-UP ANGLE

Most builders use some kind of propeller pitch gauge to install the blade on the propeller spar. The fixture can have a sliding angle bracket, the bracket cut for a 45° set up angle. The 45° angle is quite easy to make. You just cut a square along the diagonal. The position of the 45° angle varies with pitch, or P/D. In Appendix No.2 is shown the factor "f", with which you have to multiply the prop radius to get the location of the 45° set-up angle.
Ex.: Prop r=3,25 and P/D=2; 0,64x3,25=2,08" = location of 45° angle. Our propeller can now be described as a D=6,5" and P=13" propeller. we must remember, however, that we have the pitch 13" exactly only at the 45° station. The pitch differs slightly from the true helical towards the root and the tip.

SYMBOLS AND SPECIFICATION

D= prop diameter	= 165mm (6,5")
r= prop radius	= 83mm (3,25")
blade length	= 76mm (2,99")
R= can radius	= 33mm (1,3")
P= pitch	= 330mm (13")
P/D= Pitch/Dia ratio	= 2
r/R= prop/can radius ratio	= 2,5
α= blade angle on can	= 22°
rr= root radius (rr/r)	= 0,092
C= blade chord	= 25mm (1")
t= camber ratio	= 10%

f= factor for location of 45° angle = 0,64
radius for set-up angle = 0,64x83=53mm (2,09")
^ = symbol raised to the power

REFERENCES

(1) Jim Jones - Private correspondence, 1991-1992; Address: 36631 Ledgestone Dr., Clinton Twp., MI 48035 U.S.A..
(2) Max Chernoff - "Form bent propellers" 1964-1965 Model Aeronautical Year Book, Frank Zaic.
(3) Ron Williams - "Building and Flying Model Airplanes".
(4) Bud Tenny - "Free Flight Indoor", column in Model Aviation December 1989.
(5) W. Hacker - Private correspondence, 1993.

Can prop formulas

Appendix No 1

Chernoff

(ASIN((((90-(ATAN("P/D"/PI()))*180/PI())/"r/R")*2/(180/PI()))/2))*(180/PI())

α	P/D	r/R
25	1,7	2,5
25	1,8	2,5
24	1,9	2,5
24	2	2,5
23	2,1	2,5
23	2,2	2,5
22	2,3	2,5
22	2,4	2,5
21	2,5	2,5

Williams

ATAN((2/"P/D"*SIN((180-(ATAN("r/R"/PI()))*180/PI()+90))/2*PI()/180)))*180/PI()

α	P/D	r/R
27	1,7	2,5
26	1,8	2,5
25	1,9	2,5
23	2	2,5
22	2,1	2,5
22	2,2	2,5
21	2,3	2,5
20	2,4	2,5
19	2,5	2,5

Henderson/Tenny

90-((ACOS(((((ATAN("P/D"/PI()/"rr"))-(ATAN("P/D"/PI())))*(180/PI()))/360)*2*PI()/"r/R"))*(180/PI()))

α	P/D	r/R	r r
23	1,7	2,3	0,092
23	1,8	2,3	0,092
22	1,9	2,3	0,092
22	2	2,3	0,092
22	2,1	2,3	0,092
21	2,2	2,3	0,092
21	2,3	2,3	0,092
20	2,4	2,3	0,092
20	2,5	2,3	0,092

Appendix No 2
Hacker

(("C"/4/"t")+("t"/"C"))*("C"/2)

R	C	t
4,18	1	0,03
3,15	1	0,04
2,53	1	0,05
2,11	1	0,06
1,82	1	0,07
1,60	1	0,08
1,43	1	0,09
1,30	1	0,1
1,19	1	0,11
1,10	1	0,12
1,03	1	0,13
0,96	1	0,14

Root angle for different P/D ratios

(ATAN("P/D"/PI()/"rr"))*(180/PI())

Root angle	P/D	r r
80	1,7	0,092
81	1,8	0,092
81	1,9	0,092
82	2	0,092
82	2,1	0,092
83	2,2	0,092
83	2,3	0,092
83	2,4	0,092
83	2,5	0,092

45 degr set-up angle
"P/D"/PI()

"f"	P/D
0,54	1,7
0,57	1,8
0,60	1,9
0,64	2
0,67	2,1
0,70	2,2
0,73	2,3
0,76	2,4
0,80	2,5

Multiply prop radius by "f" to get location of 45 degr. set-up angle.

Tip angle fo diff P/D

(ATAN("P/D"/PI()))*(180,

Tip angle	P/D
28	1,7
30	1,8
31	1,9
32	2
34	2,1
35	2,2
36	2,3
37	2,4
39	2,5

1994 SCALE FLYER CALENDAR
INK SKETCHES/REDUCED BUILDING PLANS
A DOZEN PLANES WORTH MODELING!
$5 ppd CASH, CHECK OR M.O. TO:
DAVE LINSTRUM, 11530 WOODGLEN
JACKSONVILLE, FLORIDA 32223

RECORDS

36'40 F1D Microfilm Cat. I World Record
Bob Randolph (USA) January 9, 1994
It can't come as a surprise: Bob now also improved the Cat. I world record and now holds all International World Records in the F1D Microfilm class!

Exhibit VI: Description of Randolph 36 Min 40 Sec Record Attempt F1D 32a (Cat. I, -8 m)

January 9, 1994 was a partly cloudy day with a high temperature of only 66°F (18,9°C) with low humidity and light winds. The flying site was the Academy Elementary School Gym located in my home town of Loma Linda, California. This site used to be one of the best Cat. I sites in the world due to its 25'1" (7,65m) ceiling, good air, recessed lights, and solid wooden beams that made hang ups almost impossible. Its 85x105ft. (25,9x32m) floor area is surrounded by six basketball back-boards. Almost two years ago, the school installed row after row of 2x6 ft. sound proof hang down panels which lowered the effective ceiling to 23 ft. (7,01m). Worst of all, the bottom of the panels are very catchy on wing upper bracing wires.

My Super Cat II is a proven design that already has pending World Records for Cat II, III and IV. It features an asymmetrical cambered double tapered high aspect ratio wing. It has a very efficient VP propeller with boron ribs and outline and separate nylon adjusting screws for maximum high pitch and pre-load tension. The design is optimized to match the characteristics of the new more powerful Tan II rubber.

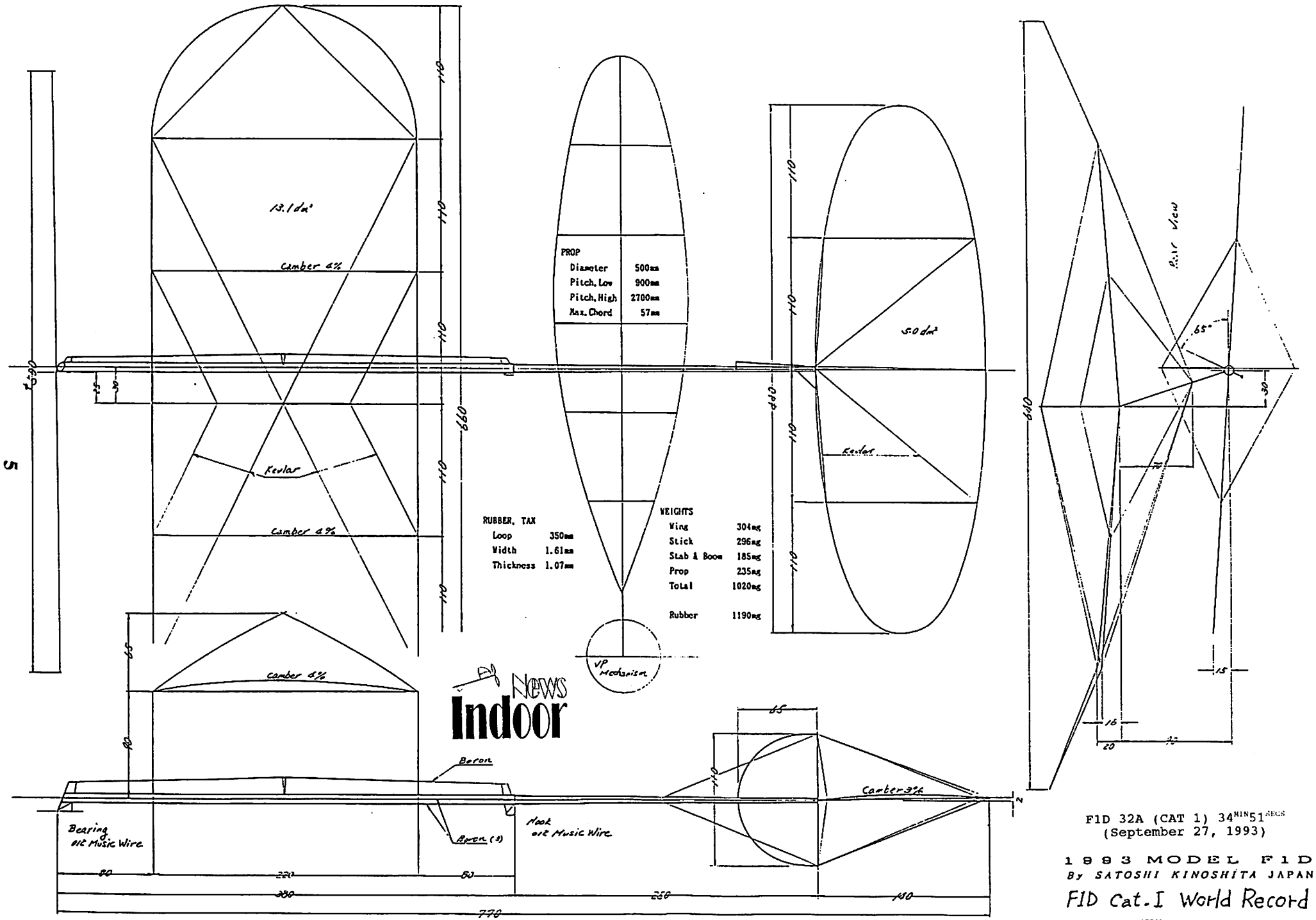
For the first three hours of the trials, the site had cold air turbulence that made flight adjustment difficult. I finally made several reasonably good half motor test flights of 20'32 and 20'29. I decided to attempt a full motor official flight at about 2:30 with a gym temperature of 66°F (18,9°C). I carefully wound 1740 turns into a 11.5x.061x.0435" (292x1.55x1.1mm) Tan II motor and backed off 60 turns for a launch torque of 34. Super Cat II was released about 3 ft. from the floor and it started a very slow but steady climb. It reached the bottom of the hang down panels at 13'27. The 9" long wing post extension helped the model below the panels and reasonably centered. However, many steers were still required because of the 50-75 contacts with the panels. Finally the ship levelled off and the last touch was at 29'12 into the flight. Super Cat II settled to the gym floor at 36'40. The turns remaining were determined to be 320, so the average RPM was 37.1.

In only the last five months, Super Cat II has broken by sizable amounts all four Indoor World Records. Perhaps the name I chose is too conservative.

Japanese Records

16'19 Open Easy Bee Cat. II
Satoshi Kinoshita October 11, 1993

41'24 F1D Microfilm Cat. II
Satoshi Kinoshita December 11, 1993



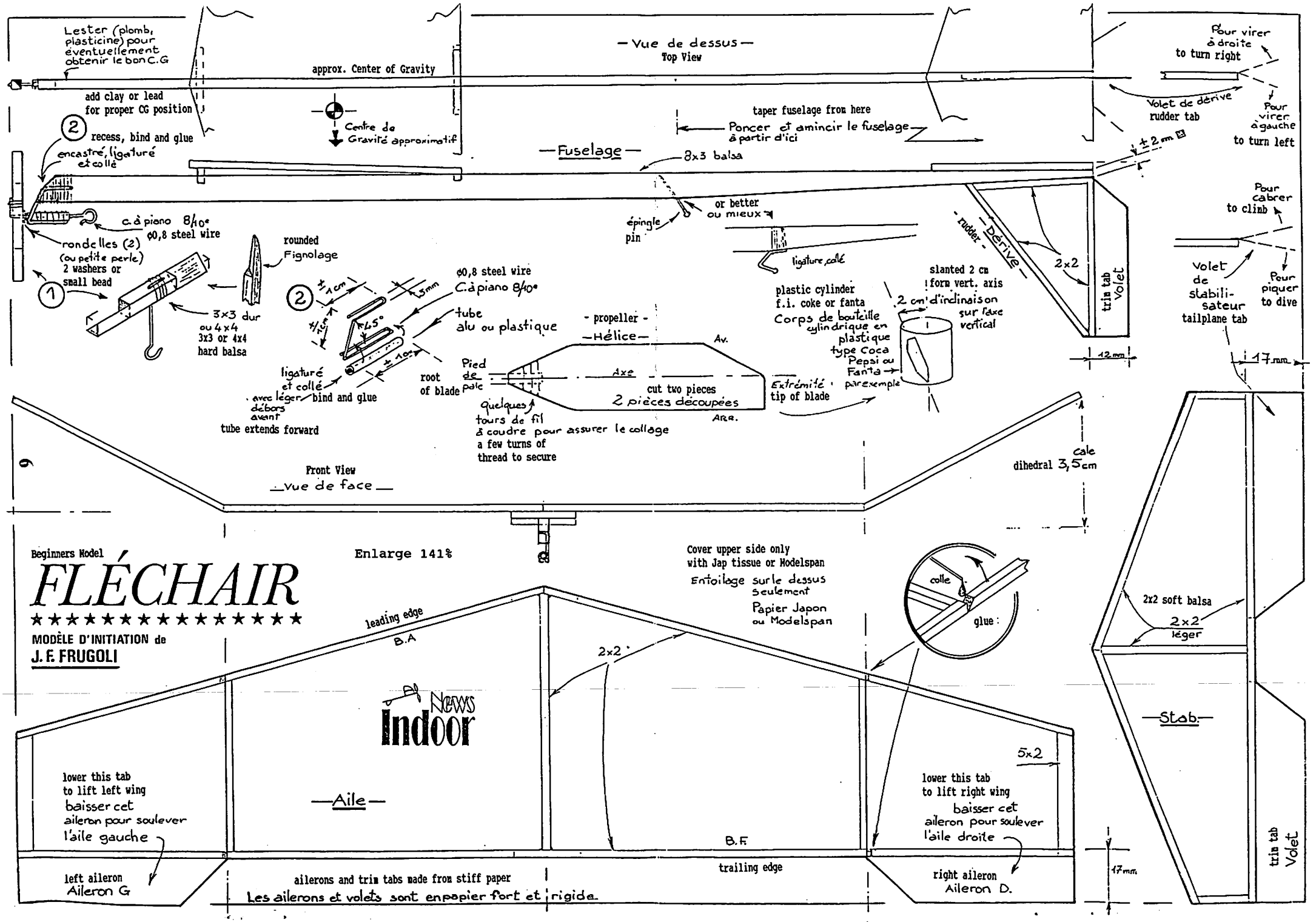
News
Indoor

F1D 32A (CAT 1) 34MIN51SECS
(September 27, 1993)

1993 MODEL F1D
By SATOSHI KINOSHITA JAPAN

F1D Cat.I World Record

APRIL 12, 1993 DRAWN BY: SATOSHI KINOSHITA


Lester (plomb, plasticine) pour éventuellement obtenir le bon C.G
approx. Center of Gravity
add clay or lead for proper CG position
Centre de Gravité approximatif
— Vue de dessus —
Top View
Pour virer à droite
to turn right
Volet de dérive
rudder tab
Pour virer à gauche
to turn left
taper fuselage from here
Poncer et amincir le fuselage à partir d'ici
± 2 mm
2 recess, bind and glue
encastré, ligaturé et collé
—Fuselage—
8x3 balsa
Pour cabrer
to climb
c. à piano 8/10e
ø0,8 steel wire
épingle
pin
or better
ou mieux
ligature collé
rondelles (2)
(ou petite perle)
2 washers or small bead
rounded
Fignolage
rudder
Dérive
2x2
trim tab
Volet
Volet de stabilisateur
tailplane tab
Pour piquer
to dive
1
3x3 dur
ou 4x4
3x3 or 4x4
hard balsa
2
± 1 cm
3mm
ø0,8 steel wire
C. à piano 8/10e
tube alu ou plastique
± 1 cm
65°
± 1 cm
plastic cylinder
f.i. coke or fanta
Corps de bouteille cylindrique en plastique type Coca Pepsi ou Fanta par exemple
slanted 2 cm form vert. axis
2 cm d'inclinaison sur l'axe vertical
- propeller -
—Hélice—
Av.
Axe
cut two pieces
2 pièces découpées
Arr.
Pied de pale
root of blade
Extrémité
tip of blade
ligaturé et collé
avec léger débord avant
bind and glue
tube extends forward
Quelques tours de fil à coudre pour assurer le collage
a few turns of thread to secure
12 mm
17 mm
Front View
—Vue de face—
cale dihedral 3,5cm
Beginners Model
FLÉCHAIR
★★★★★★★★★★★★★★★
MODÈLE D'INITIATION de
J. F. FRUGOLI
Enlarge 141%
Cover upper side only with Jap tissue or Modelspan
Entoilage sur le dessus seulement
Papier Japon ou Modelspan
colle
glue :
2x2 soft balsa
2x2
léger
leading edge
B.A
2x2
—Stab—
News
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—Aile—
5x2
lower this tab to lift left wing
baisser cet aileron pour soulever l'aile gauche
lower this tab to lift right wing
baisser cet aileron pour soulever l'aile droite
B.F
trailing edge
17mm
trim tab
Volet
left aileron
Aileron G
right aileron
Aileron D.
ailerons and trim tabs made from stiff paper
Les ailerons et volets sont en papier fort et rigide.

Fléchair

by Jean-Francis Frugoli (F)

"Fléchair" is a model that I designed for a class of young pupils (and their teacher) that did not have any experience with aeromodeling. The model requires a minimum amount of materials and tools. There is f.i. no need to buy a commercial plastic propeller.

A positive characteristic of this simple model is that the basic adjustments of an airplane around all its axes can be learned easily. Even when it is badly built, heavy or warped, it will still fly well in a small gym hall. Flights of more than one minute can be achieved by the best models, but duration is of secondary interest at this level. The reward of a job well done is in a couple of nice climbing turns to the ceiling. And damage, if it occurs, is easily repaired.

F1D for newcomers

Now that the very light Polymicro plastic film has become available the opportunity exists for easier to build F1D-like models. I have not yet heard of newcomers to F1D using Polymicro. Wood sizes probably have to be increased a little and the all-up weight will be around 1,5 gram. Who has experimented with Polymicro on a F1D size model or has a (detailed) plan of such a model?

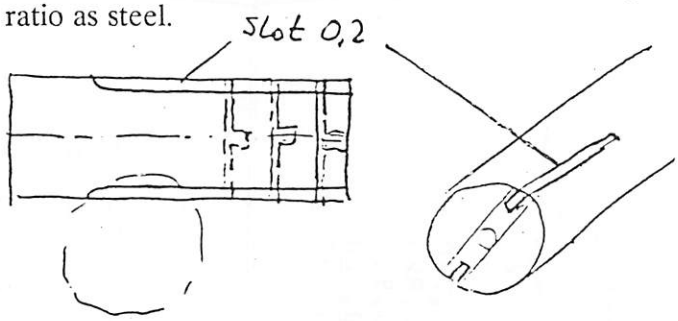
Laurie Barr (GB) recently gave the following comments:

"Regarding covering an F1D with Polymicro, we have not yet done this in the UK, but we do fly a lot of the American class called "Intermediate Stick", which is an ideal class of model, for a beginner. The rules are 100 sq. inch (6,45 dm^2) wing area maximum, no microfilm. Bernie Hunt has a design with elliptical wing and tail, that flew in Cardington last year for almost 38 minutes, surpassing the American record by 3 minutes plus! That design was beyond a beginner at the weight he made it (about 1 gram), but could be beefed up (larger wood sizes) and made suitable. I will try to get it drawn up for you!

As for covering, I find the best method is that described on the EZB plan (see IN25). It is more user friendly than spraying direct from the can, onto the wings, and it is much lighter and you have control of the weight of the adhesive and its handling much more effectively."

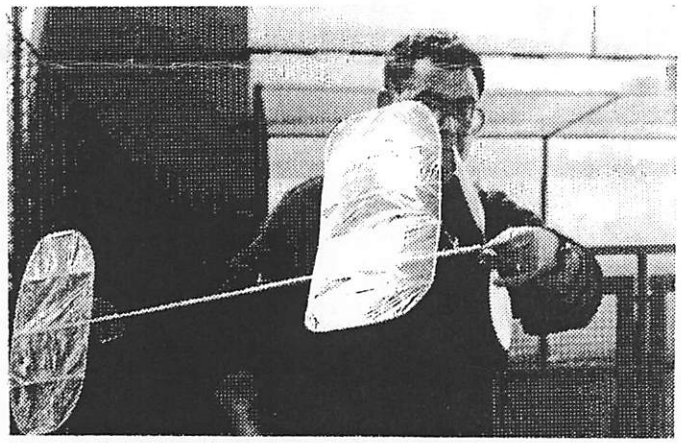
Butty VP-prop II

Several readers asked to clarify the purpose of the small cylinder on the drawing of René Butty's VP-prop (see IN 24). To solve the mystery: the cylinder is not a part of the actual mechanism. It illustrates the way René machines the torque arms from round stock aluminium. First the groove is grinded or sawn, the "disks" are turned on a lathe and these are then cut and filed into their final shape as a torque arm. Aluminium is choosen because a steel arm would have had too tiny dimensions. Aluminium has the same stiffness/weight ratio as steel.



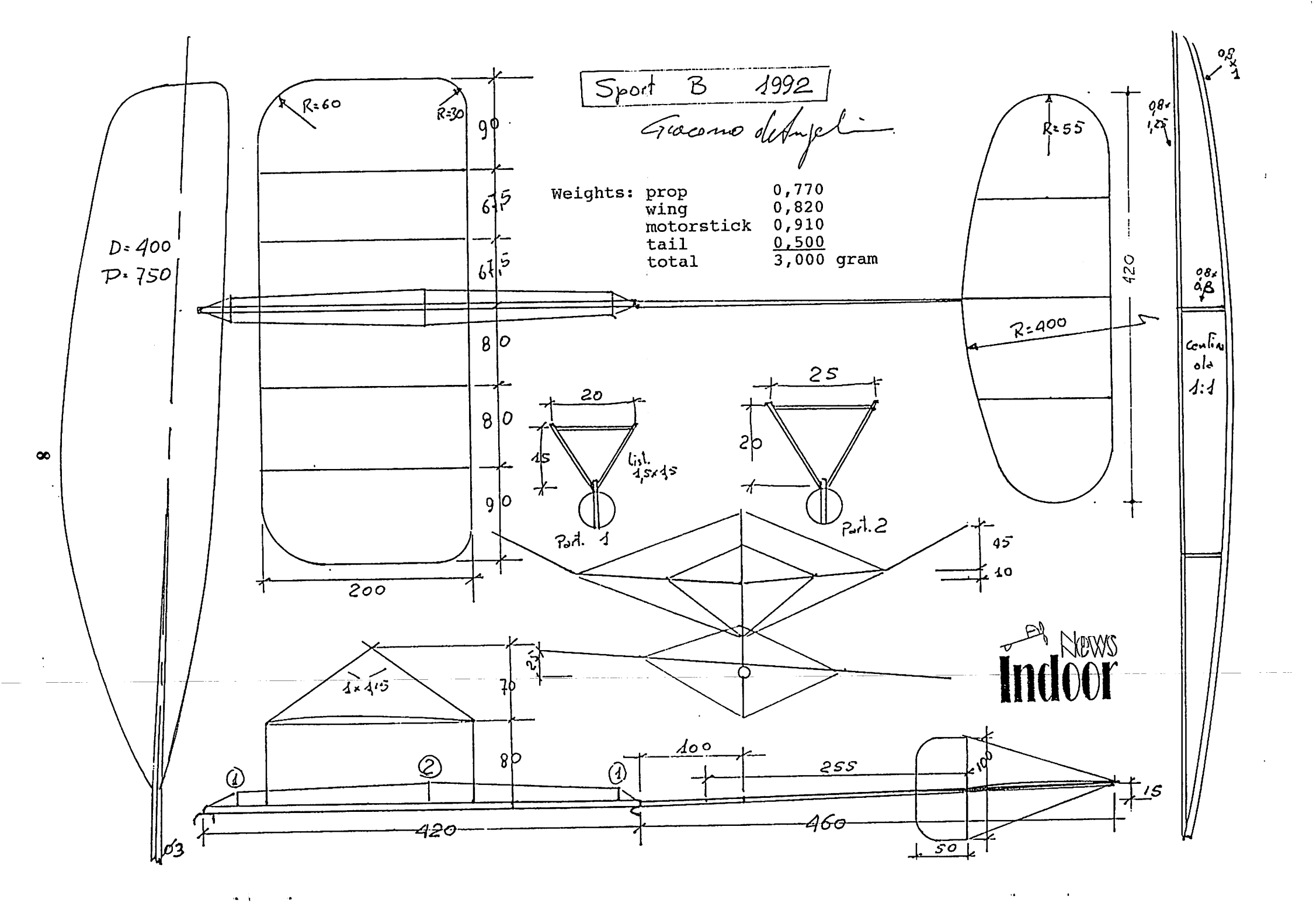
F1D BEGINNER - Sport B 1992

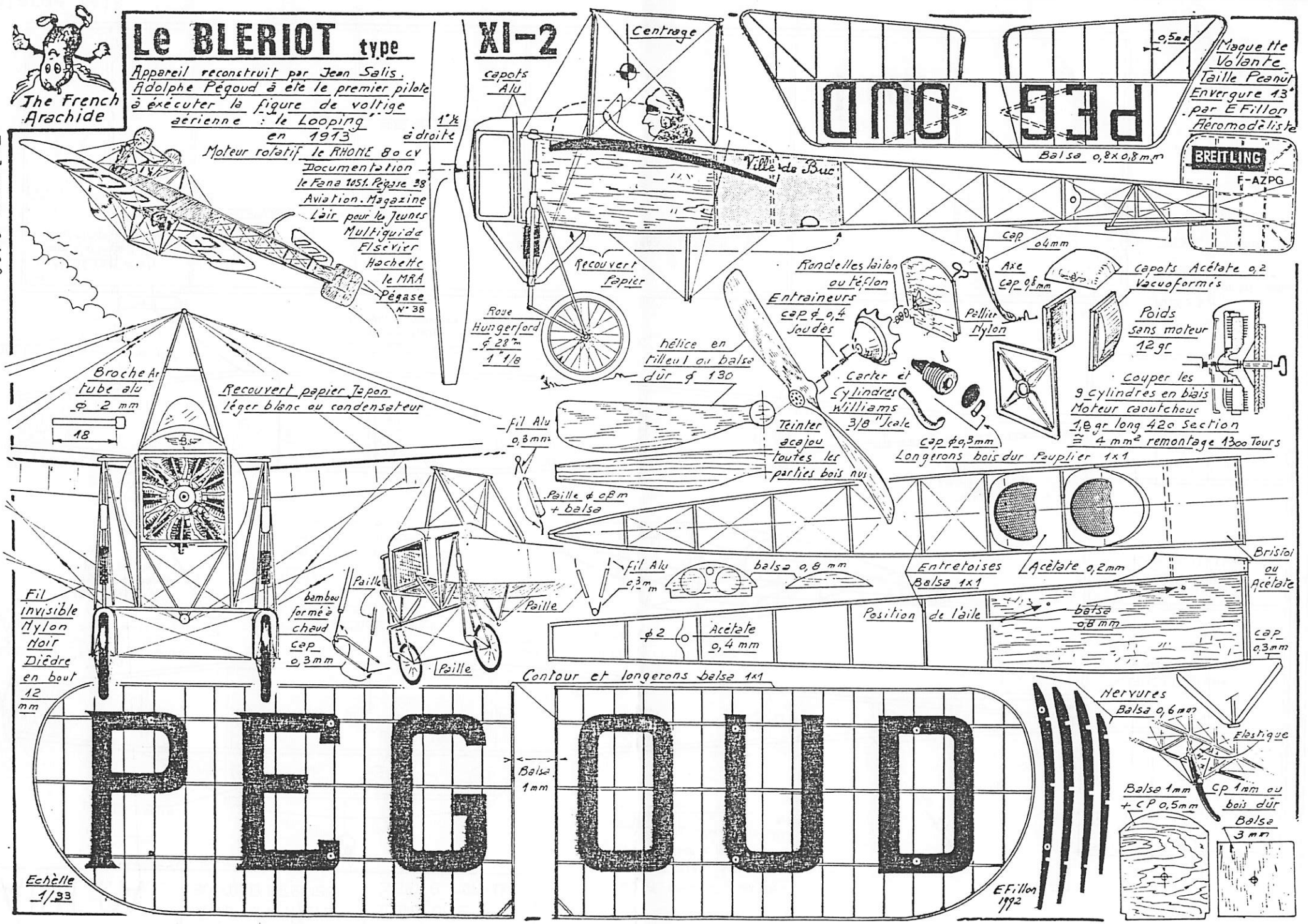
by Giacomo de Angelini (ITA)



Technical details:

Motor stick -Balsa 0,6 thick C-grain, density 80/90 gr/dm^3. Rolled around tube ϕ7 mm.
Tailboom - in two parts, one L=100mm, one L=255mm. Thickness 0,4 C- or B-grain, rolled around conical boom.
Wing and tail outline - balsa A-grain, density 100 gr/dm^3. Wing 1,15x1,0mm, tail 1,1x1,25mm.
Wing ribs - Cntr + dih.brk. built-up: rib 0,8x1 B, verticals 0,8x0,8 A, lower 1,25x0,8 A.
Tail ribs - 0,8x1 B.
Prop bearing - 0,6 dural.
Rear hook and prop shaft - ϕ0,5 piano wire.
Wing bracing - silk thread.
Fuselage bracing - ϕ0,1-0,15 dacron.
Wing posts - ϕ2mm in paper tube.
Propeller - balsa 0,6 thick, density 70/80 gr/dm^3, thinner towards edges.


Sport B 1992
Giacomo de Angeli
Weights: prop 0,770
wing 0,820
motorstick 0,910
tail 0,500
total 3,000 gram
D=400
P=750
R=60
R=30
R=55
R=400
420
200
90
65
65
80
80
90
20
15
List. 1,5x1,5
Part. 1
25
20
Part. 2
45
10
1x1,5
70
23
80
100
255
100
15
420
460
50
1
2
1
03
08x1
08x1,25
08x0,8
confini ala 1:1
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The French Arachide
Le BLERIOT type XI-2
Appareil reconstruit par Jean Salis. Adolphe Pégoud a été le premier pilote à exécuter la figure de voltige aérienne : le Looping en 1913
Moteur rotatif le RHONE 80 cv
Documentation
le Fana 1051. Pégase 38
Aviation. Magazine
Lair pour les Jeunes
Multiguide
Elsevier
Hachette
le MRA
Pégase N° 38
Centrage
Capots Alu
1°½ à droite
Ville de Buc
Maquette Volante Taille Peanut
Envergure 13"
par E Fillon
Aéromodéliste
Balsa 0,8x0,8 mm
BREITLING
F-AZPG
Cap ø4mm
Axe cap ø0,8mm
Capots Acétate 0,2 Vacuoformés
Rondelles laiton ou téflon
Entraineurs cap ø 0,4 soudés
Pellier Nylon
Poids sans moteur 12 gr
Couper les 9 cylindres en biais
Moteur caoutchouc 1,8 gr long 42o Section ≅ 4 mm² remontage 1300 Tours
Roue Hungerford ø 28mm 1"1/8
Recouvert Papier
Hélice en tilleul ou balsa dur ø 130
Carter et Cylindres Williams 3/8" Scale
Teinter acajou toutes les parties bois nus
Cap ø0,3mm
Longerons bois dur Peuplier 1x1
Broche Ar tube alu ø 2 mm
18
Recouvert papier Japon léger blanc ou condensateur
Fil Alu 0,3mm
Paille ø 0,8m + balsa
Fil invisible Nylon Noir Dièdre en bout 12 mm
Bambou formé à chaud
Cap 0,3mm
Paille
Fil Alu 0,3mm
balsa 0,8 mm
Entretoises Balsa 1x1
Acétate 0,2mm
Brisfol ou Acétate
Position de l'aile
ø2
Acétate 0,4 mm
balsa 0,8 mm
Cap 0,3mm
Contour et longerons balsa 1x1
PEGOUD
Balsa 1mm
Echelle 1/33
Nervures Balsa 0,6mm
Elastique
Balsa 1mm + CP 0,5mm
CP 1mm ou bois dur
Balsa 3mm
EFillon 1992

Enlarge 141%

SAINT-P.A.T.

Avion d'initiation au vol d'intérieur.

Catégorie Sainte Formule

initiation model indoor flight.

PARTIES VITREES

DERIVE: entoilée d'un seul coté

AILES ET STABILISATEUR: entoilés seulement sur le dessus.

Covering: Jap tissue.

Fin, tail, wings: only one side.

TOUT LE FUSELAGE
Longerons 1,5×1,5 mm

COLLER ICI la cale nécessaire pour le vol.

STABILISATEUR
Longerons 1,5×1,5 mm

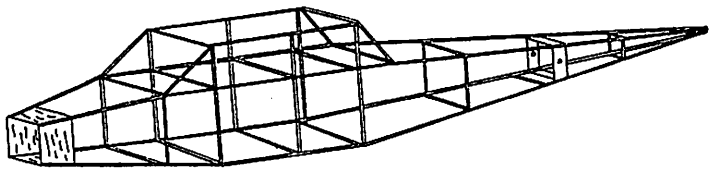
Noseblock "Peck-Polymers" 1/2" in-line, Ref :WB 402

Propeller "Peck-Polymers" 6"- Ref.:PA 015

ARRETS DE ROUES
Rondelles de papier + points de colle.

TRAIN D'ATTERRISSAGE: ligaturé (fil à coudre + colle)

Fuselage: max.entire length. 330 mm. with prop..tail and fin.



COLLES:
Bois: 2/3 UHU-Hart, 1/3 acetone
Entoilage: 1/2 colle blanche, 1/2 eau
Vitrages: bâton PRITT

DERIVE collée de ce côté pour virage à gauche.

Ø 0.8 mm

VUE DE DESSUS

Wheels: "Peck-Polymers" 3/4"- Ref.:PA 050

CROQUER et recoller ici pour le dièdre (25 mm sous les nervures d'extrémité)

CALE DE 3 mm sous le bord d'attaque.(vrillage pour virage à gauche)

NERVURES

BORD D'ATTAQUE

BORD DE FUITE

POID: ± 6 gr.
MOTEUR: 90 cm 1×1,5 mm
TEMPS DE VOL: ± 1'30"

Motor: 90cms,

1 · 1,5mm

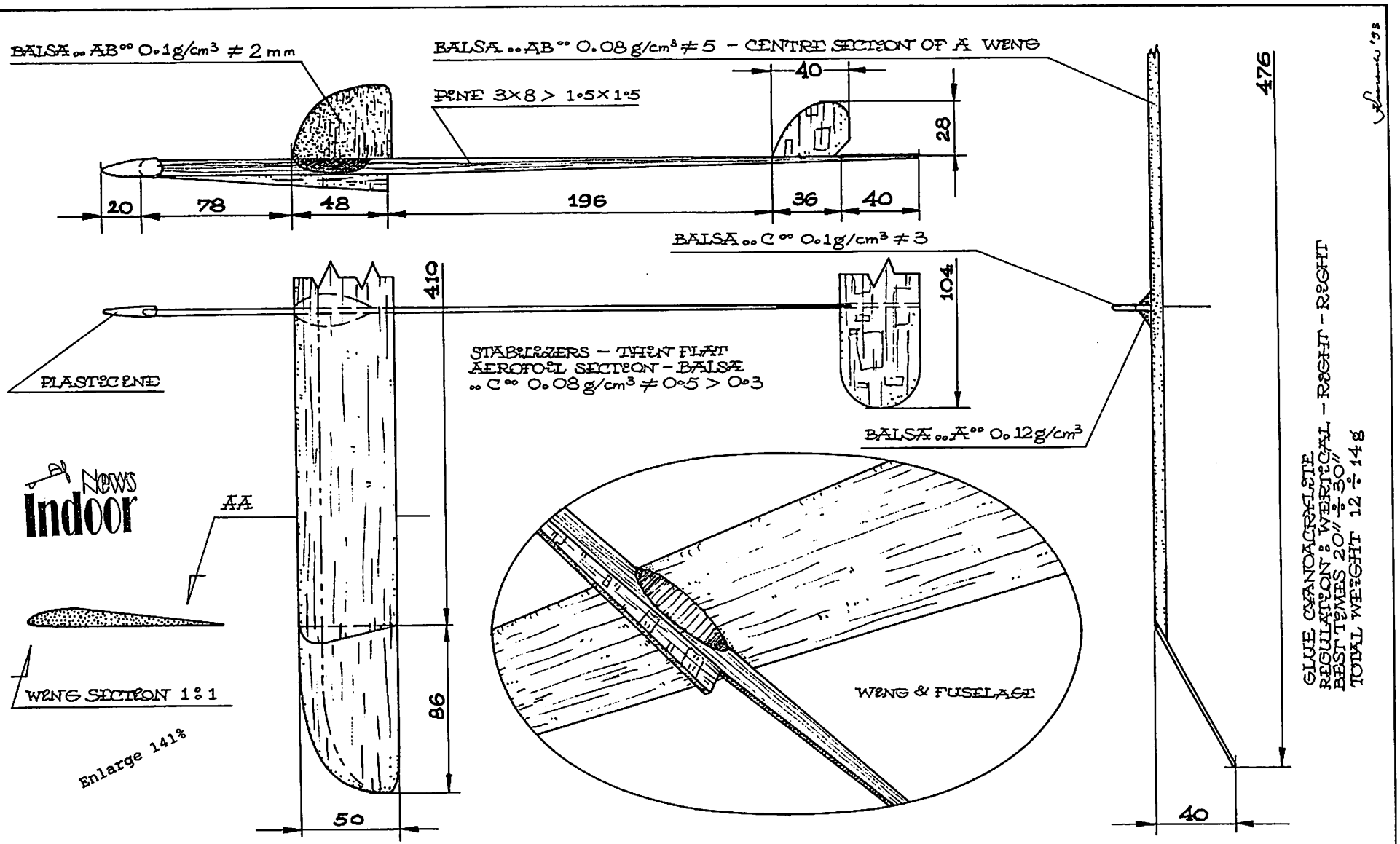
Drawing .
JOSE VIGNERONT POUR
LA P.A.T. FLEMALLE .

JV 11.7.93.

News Indoor

10

Enlarge 141%



INDOOR & OUTDOOR HAND LUNCH GLIDER for YOUNG ONLY

CONSTRUCTION IN ELEMENTARY SCHOOL NUMBER 15 /Wrocław. Poland/

∞ LITTLE STAR °°

by JERZY J. KACZOREK

WROCŁAW ● POLAND ● '93

DRAWING for ∞ INDOOR NEWS ∞ JERZY J. KACZOREK * POLAND

1993 Japan vs USA F1D Postal Contest

Report by Thomas Vallee (USA)

The 1993 Japan vs USA F1D Postal Contest has proved once again to be a strong contest. We had six flyers post 30 minute flights. The first place team honors were won by the Japan Kawasaki Team, followed closely by Bob Randolph's USA West Coast team.

Individual first place was won by Steve Brown with flights of 34'01 and 32'45. Satoshi Kinoshita of Japan was second with 32'10 and 31'53. Bob Randolph (32'20 and 30'20) placed third. New 30 minute flyers Stan Chilton, Shigeyoshi Nonaka and Kazumasa Kihara won 4th through 6th place honors. We have had a good contest.

Mr. Shigeyoshi Nonaka, the organizer for the Japanese side, has to be complemented for fine contest organization and the excellent team effort by the Japanese flyers. I would like to thank team captains Bob Randolph (USA West Coast) and Jesse Sheperd Jr. (USA Southwest). Their efforts were crucial for the American side of the contest.

I consider Jesse to be the unsung hero for this contest. The night before the contest all his models were destroyed in a freak handling accident. His model box was dropped in just the wrong way. In spite of the problems, Jesse was enthused by the 30 minute flying of team mate Stan Chilton and looks forward to flying in the next F1D Postal. Thanks also to Jim Clem who was a last minute substitute for Jesse Shepherd Sr. whose models were also destroyed in the accident.

Limiting the contest to Category I sites has allowed us to eliminate the fudge factors. The best time wins. We have shown that you can do the same time in a Cat. I room in Tokyo as you can in a Cat. I gym in California or Texas. In fact the results were much the same as what we would see if all the contestants were flying in the same room.

The idea is still new. However as more flyers see the possibilities of Postal Contests, my hope is that this contest will lead to expanded interest in F1D modeling.

JAPAN - UNITED STATES
F1d POSTAL CONTEST - 1993
Individual Standings

Contestant's Name	Side	1	2	3	4	5	6	Total	Standing
STEVE BROWN	USA	17:23	31:34	34:01	32:45	-----	-----	66:46	1
SATOSHI KINOSHITA	Japan	25:45	28:20	32:10	27:23	31:53	31:43	64:03	2
ROBERT RANDOLPH	USA	09:42	03:37	32.30	30:20	-----	-----	62:50	3
STANLEY CHILTON	USA	22:52	22:07	14:54	28:25	31:25	-----	59:50	4
SHIGEYOSHI NONAKA	Japan	17:44	32:24	27:10	23:13	-----	-----	59:34	5
KASZUMASA KIHARA	Japan	-----	18:53	27:46	27:15	25:25	31:03	58:49	6
THOMAS VALLEE	USA	26:15	25:28	23:29	27:50	8:05	-----	54:05	7
KENICHI OHTA	Japan	24:33	11:48	28:42	23:53	-----	24:55	53:37	8
T. OKADA	Japan	09:55	23:04	23:01	25:22	27:29	09:52	52:51	9
YASUTAKA TANAKA	Japan	15:43	08:06	05:32	21:32	26:04	22:26	48:30	10
PHILLIP KLEINERT	USA	03:40	----	23:28	20:14	22:42	----	46:10	11
RYOSUKE HARADA	Japan	09:58	11:11	08:41	18:32	21:44	24:10	45:54	12
DAN BELIEFF	USA	20:17	22:03	20:07	21:32	----	----	43:35	13
ROBERT GIBBS	USA	03:52	21:54	06:22	10:14	16:13	16:25	38:19	14
T. MATSUYAMA	Japan	07:36	14:18	17:35	-----	08:56	-----	31:53	15
S. TANAKA	Japan	09:34	18:23	-----	08:34	-----	07:20	27:57	16
JESSE SHEPHERD JR.	USA	09:42	09:42	10:21	14:31	-----	-----	24:52	17
JIM CLEM	USA	09:51	09:47	-----	-----	-----	-----	19:38	18

FORTY MINUTE CLUB

January 1994

NAME	COUNTRY	TIME	1*	2*	YEAR	SITE
RANDOLPH, BOB	USA	55:06	X		1993	SANTA ANA
ASLETT, BERNARD	ENGLAND	52:22	X		1983	CARDINGTON
RICHMOND, JIM	USA	52:14	X		1979	AKRON
KOWALSKI, DICK	USA	50:41	X		1976	AKRON
ROMAK, BUD	USA	49:35		X	1991	LAKEHURST
BANKS, CEZAR	USA	49:00		X	1991	LAKEHURST
BROWN, STEVE	USA	48:37		X	1993	AKRON
RICHMOND, JIM	USA	47:44		X	1986	CARDINGTON
BARR, LAURIE	ENGLAND	47:28		X	1982	CARDINGTON
HARLAN, RAY	USA	47:13		X	1980	AKRON
DOIG, RICHARD	USA	46:24	X		1983	AKRON
RODEMSKY, ERV	USA	45:50	X		1974	SANTA ANA
RIEKE, K. H.	W. GERMANY	45:40	X		1962	CARDINGTON
HUNT, BERNARD	ENGLAND	45:40		X	1992	CARDINGTON
RANDOLPH, BOB	USA	45:35		X	1993	AKRON
REDLIN, CARL	USA	45:17	X		1962	CARDINGTON
ANDREWS, PETE	USA	44:59		X	1979	AKRON
MATHER, CLARENCE	USA	44:44	X		1974	SANTA ANA
BUTTY, RENE	SWITZERLAND	44:44		X	1990	LAKEHURST
ASLETT, BERNARD	ENGLAND	44:37		X	1985	CARDINGTON
HACKLINGER, MAX	W. GERMANY	44:20	X		1961	CARDINGTON
DOIG, RICHARD	USA	44:06		X	1991	LAKEHURST
NORE, PENTTI	FINLAND	44:01		X	1986	CARDINGTON
ANDRE, THEDO	NETHERLANDS	44:01		X	1986	CARDINGTON
GIBBS, BOB	USA	43:43		X	1993	AKRON
KOPECKY, ERNIE	USA	43:42	X		1963	SANTA ANA
ORSOVAI, DEZSO	HUNGARY	43:37		X	1986	CARDINGTON
KUJAWA, SYLWESTER	POLAND	43:35		X	1992	WROCLAW
CUMMINGS, FRANK	USA	43:28	X		1963	SANTA ANA
ATWOOD, BILL	USA	43:17	X		1963	SANTA ANA
PLOTZKE, RON	USA	42:53	X		1969	LAKEHURST
FOSTER, JOE	USA	42:44		X	1987	SANTA ANA
LOUCKA, LARRY	USA	42:34		X	1991	AKRON
SIEBENMANN, DIETER	SWITZERLAND	42:33		X	1986	CARDINGTON
CAILLIAU, LARRY	USA	42:29		X	1985	AKRON
DOMINA, DAN	USA	42:25		X	1979	AKRON
CANNIZZO, SAL	USA	42:20		X	1983	LAKEHURST
REE, ANDRAS	HUNGARY	42:06		X	1986	CARDINGTON
PYMM, DAVE	ENGLAND	42:03		X	1986	CARDINGTON
ROMAK, BUD	USA	42:01	X		1965	MOFFETT NAS
OBARSKI, DICK	USA	41:30		X	1981	AKRON
FINCH, TOM	USA	41:27	X		1963	SANTA ANA
SLUSARCZYK, DON	USA	41:25		X	1990	AKRON
CHAMPINE, BOB	USA	41:23	X		1963	SANTA ANA
RODEMSKY, ERV	USA	41:23		X	1979	AKRON
STOLL, ED	USA	41:21	X		1963	SANTA ANA
HOFFMAN, EARL	USA	41:13		X	1987	SANTA ANA
CHILTON, STAN	USA	41:13		X	1993	AKRON
MATHER, CLARENCE	USA	40:54		X	1974	SANTA ANA
DRAPER, RON	ENGLAND	40:44	X		1962	CARDINGTON
HULBERT, BILL	USA	40:39		X	1983	AKRON
BILGRI, JOE	USA	40:37	X		1965	SANTA ANA
NONAKA, S.	JAPAN	40:36		X	1978	CARDINGTON
STEVENS, DARRYL	USA	40:35		X	1986	SANTA ANA
BAILEY, BOB	ENGLAND	40:25		X	1987	CARDINGTON
GITLOW, LEW	USA	40:15		X	1987	SANTA ANA
MCGILLIVRAY, JACK	CANADA	40:14		X	1988	JOHNSON CITY
KALINA, JIRI	CZECH	40:11		X	1975	CARDINGTON
RODENBURG, OTTO	NETHERLANDS	40:11		X	1986	CARDINGTON
TRIOLO, JOHN	USA	40:06	X		1974	LAKEHURST

* CLASS 1 – Over 65 cm
CLASS 2 – FAI 65 cm – 1 gram

Official and unofficial flights included
(best effort only, by individual, by class is shown).

For additions, corrections, etc. send details to: BOB GIBBS
22870 Springmist Drive, Moreno Valley, CA 92557 USA

F1d POSTAL CONTEST - 1993

Location - Mizumoto Sport Gym TEAM - JAPAN KAWASAKI

Contestant's Name	1	2	3	4	5	6	Total	Standing
SATOSHI KINOSHITA	25:45	28:20	32:10	27:23	31:53	31:43	64:03	
KAZUMASA KIHARA		18:53	27:48	27:15	25:25	31:03	58:49	
RYOSUKE HARADA	09:58	11:11	08:41	18:32	21:44	24:10	45:54	
TEAM TOTAL							168:46	1

Location - Loma Linda School Gym TEAM - USA WEST COAST

Contestant's Name	1	2	3	4	5	6	Total	Standing
STEVE BROWN	17:23	31:34	34:01	32:45			66:46	
ROBERT RANDOLPH	09:42	03:37	32.30	30:20			62:50	
ROBERT GIBBS	03:52	21:54	06:22	10:14	16:13	16:25	38:19	
TEAM TOTAL							167:55	2

Location - Mizumoto Sport Gym TEAM - JAPAN TOKYO

Contestant's Name	1	2	3	4	5	6	Total	Standing
SHIGEYOSHI NONAKA	17:44	32:24	27:10	23:13			59:34	
KENICHI OHTA	24:33	11:48	28:42	23:53		24:55	53:37	
YASUTAKA TANAKA	15:43	08:06	05:32	21:32	26:04	22:26	48:30	
TEAM TOTAL							161:41	3

Location - NASA Auditorium Greenbelt,MD TEAM - USA EAST COAST

Contestant's Name	1	2	3	4	5	6	Total	Standing
THOMAS VALLEE	26:15	25:28	23:29	27:50	8:05		54:05	
PHILLIP KLEINERT	03:40		23:28	20:14	22:42		46:10	
DAN BELIEFF	20:17	22:03	20:07	21:32			43:35	
TEAM TOTAL							143:50	4

Location - Aichi Kinrou Fukushi Kaikan TEAM - JAPAN - TOYOTA

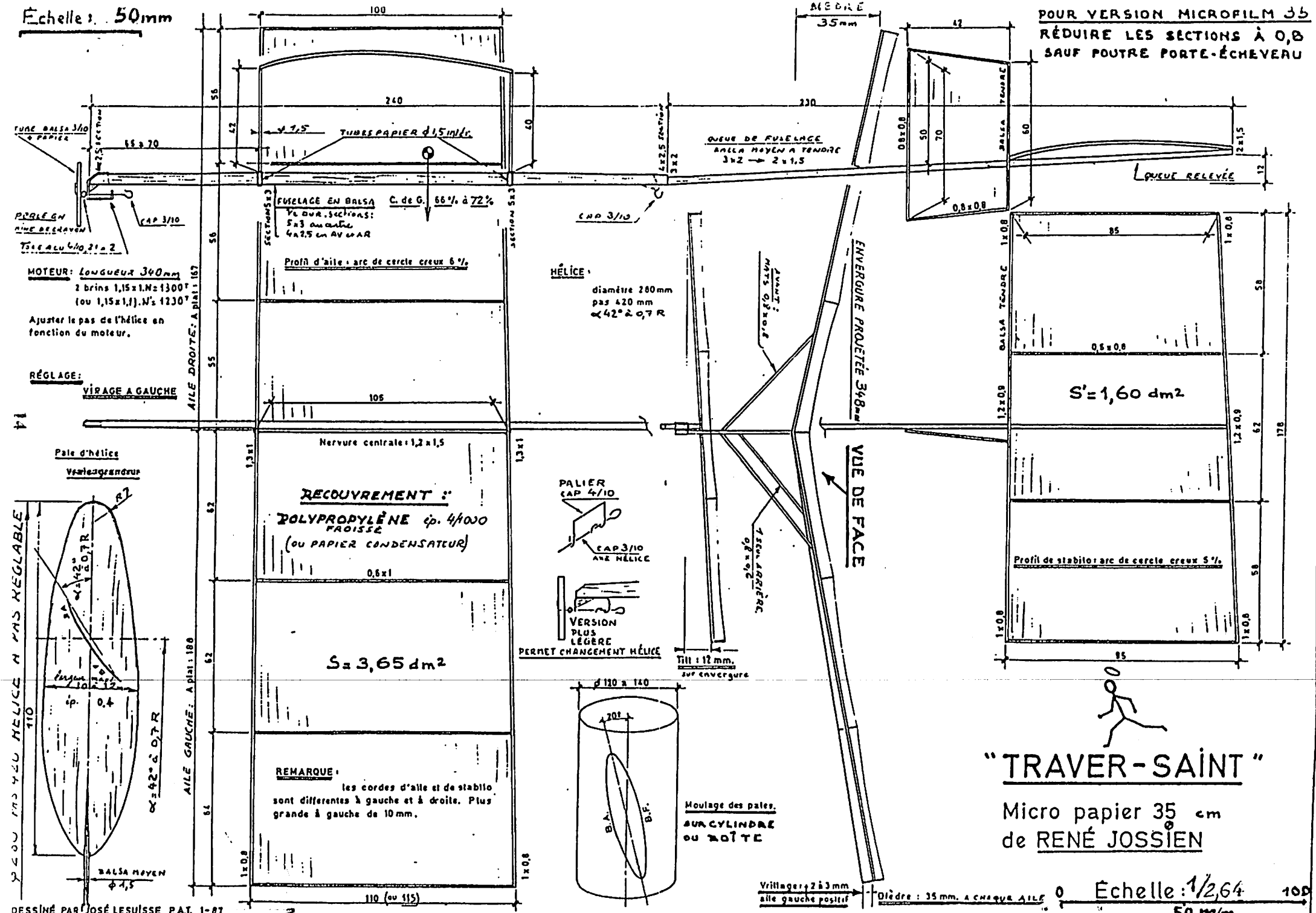
Contestant's Name	1	2	3	4	5	6	Total	Standing
T. OKADA	09:55	23:04	23:01	25:22	27:29	09:52	52:51	
T. MATSUYAMA	07:36	14:18	17:35		04:58		31:53	
S. TANAKA	09:34	16:23		08:34		07:20	27:57	
TEAM TOTAL							112:41	5

Location - Boys Ranch Gym, Bedford, TX TEAM - USA SOUTHWEST

Contestant's Name	1	2	3	4	5	6	Total	Standing
STANLEY CHILTON	22:52	22:07	14:54	28:25	31:25		59:50	
JESSE SHEPHERD JR.	09:42	09:42	10:21	14:31			24:52	
JIM CLEM	09:51	09:47					19:38	
TEAM TOTAL							104:20	6

Echelle : 50mm

POUR VERSION MICROFILM 35
RÉDUIRE LES SECTIONS À 0,8
SAUF POUTRE PORTE-ÉCHEVEAU



"TRAVER-SAINT"

Micro papier 35 cm
de RENÉ JOSSIEN

Échelle : 1/2,64
0 — 50 m/m — 100

DESSINÉ PAR JOSÉ LESUISSE P.A.T. 1-87

TOOLS FOR MODELERS

by Vernon Hacker (USA)

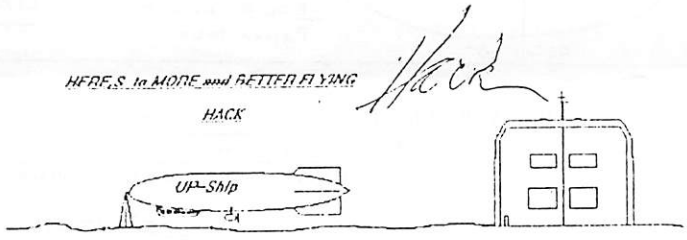
I herewith introduce you to a program of donation to the A.M.A. (Academy of Model Aeronautics) through me for the indoor fund. The following tools are available from me (postage paid) for the following donations. The small knives are eye scalpels and a donation of $5.00 will get the modeler three of these fine bladed knives. These are disposable instruments that have been resterilized after use in surgery. I find that they dull easily but also can be easily resharpened on a fine stone. The hot wire cautery is also a disposable tool but since we now have to buy them I must ask for a donation of $12.00. The cautery is the most handy tool to cut microfilm and plastic covering films. The drawing by Ray Harlan shows where to cut to replace the AA battery.

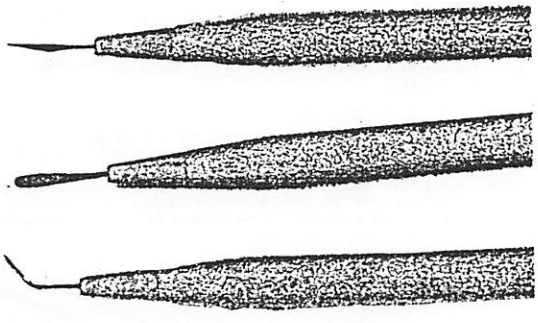
The long reach tools are rejects given to this program by Chuck Slater and Kevin Smith. They are both indoor flyers from Miami Fla. who manufacture the instruments for use in laproscopic surgery. My scale modeling friends find them very useful for removing broken rubber from the fuselages of their models. Each long reach tool costs $10.00 in the U.S.A. and $12.00 anywhere else.

It all started with a conversation with Ray Harlan when I sent him some of the knives and also a cautery. He suggested that since we were getting the tools free that the monies generated be given to the A.M.A.. And so it came to pass, that Slater and Smith upon seeing the announcement in one of the newsletters sent a box of tools to the 1992 U.S.I.C. for use in the program. The 1992 fund totaled over $3200.00 which we gave to the Indoor fund. The 1993 contributions totaled $2800.00 and was transfered to the A.M.A. junior fund and a little to the museum fund. I mention these figures not as a bit of bragging but really with amazement that there was so much demand. It is also interesting to note that many modellers sent extra money for the tools to increase the pot.

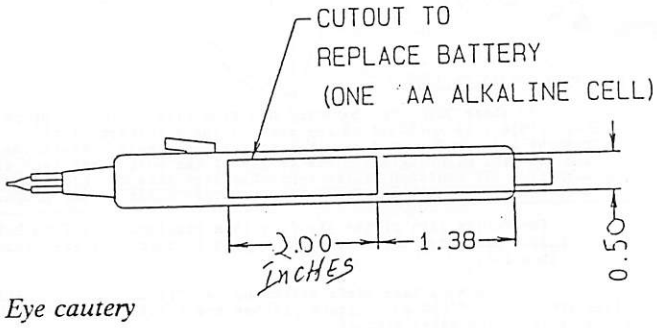
I hope that you will enjoy using these tools.

Vernon D. Hacker, 25599 Breckenridge Dr., Euclid, Ohio 44117-1807, U.S.A., Phone 216-486-4990.

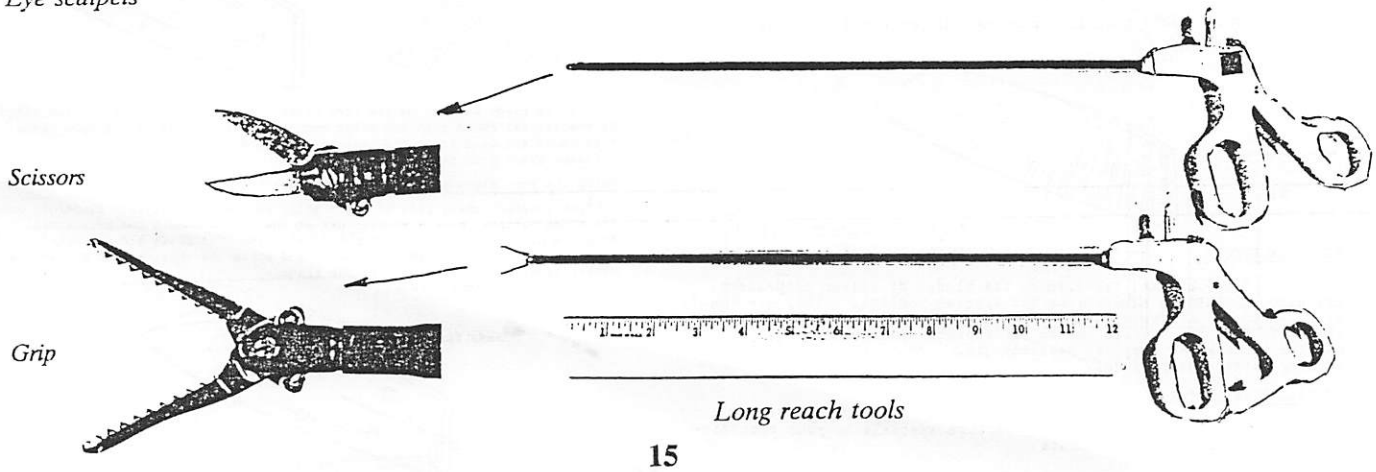




Eye scalpels



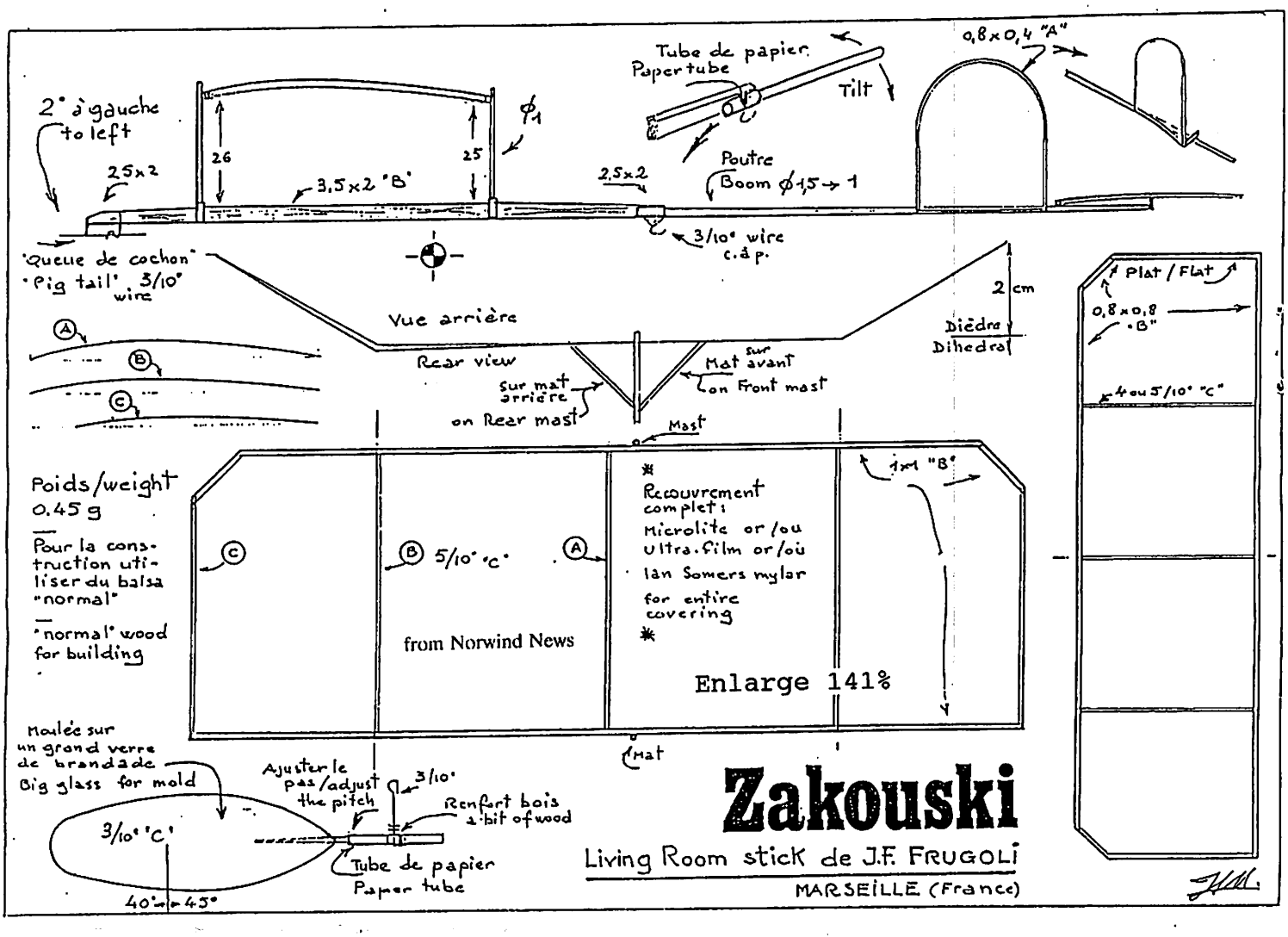
Eye cautery



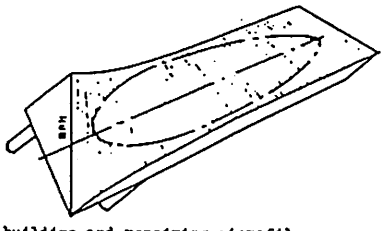
Scissors

Grip

Long reach tools



J. H. MAXWELL
Telephone Stirling (0786) 3524
Aids For Advanced Aeromodelling
14 UPPER CRAIGS, STIRLING FK8 2DG, SCOTLAND



Now obchi

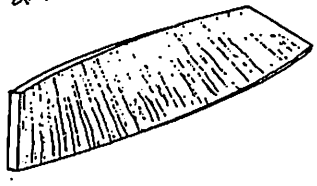
MICROFILM PROPELLER JIGS.

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~~ Now £9 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.

J. H. MAXWELL
Telephone: Stirling (0786)72524
Aids For Advanced Aeromodelling
14 UPPER CRAIGS, STIRLING FK8 2DG, SCOTLAND



Information Sheet No.2

FORMING INDOOR PROPELLER BLADES.

The following describes a method of forming and assembling the sheet balsa blades of indoor models such as EZB, Pennyplane, etc.

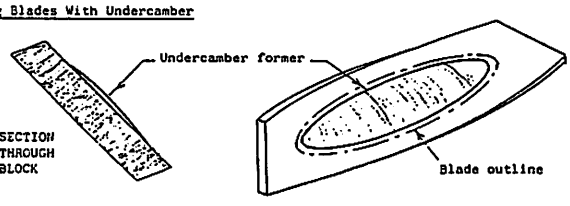
Items Required

A hardwood form block shaped to the desired pitch. The block should be sealed by lacquering or covering with cling film.
Pads of sponge foam, ½" thick.
Two pieces of sheet balsa cut to the blade outline shape.
Strip rubber.

Forming Blades with No Undercamber

1. Soak the blades in boiling water for 5 minutes.
2. Wipe off the surface moisture, then position both blades together on the form block.
3. Put a foam pad on top, and bind the whole with rubber.
4. Bake in an oven at 100°C for 30 minutes.
5. Leave for 24 hours to dry out thoroughly before undoing the binding.

Forming Blades With Undercamber



Mark the blade outline on the form block. Cut a piece of sheet balsa slightly smaller all round than the blade outline. Cement this on the form block, then carve and sand it to the undercamber shape.
Follow steps 1 to 5 above.

Using the Form Block as a Prop Assembly Jig

Lightly cement small pads of 1/16" balsa to the block at several points around the blade outline, plus a similar pad at the hub to locate the prop shaft. Attach a blade to the pads with pins. With the prop shaft already fixed to the prop spar, fit the spar into the blade and stick the shaft to its pad with adhesive tape. Cement the spar to the blade.
Repeat for the other blade.

