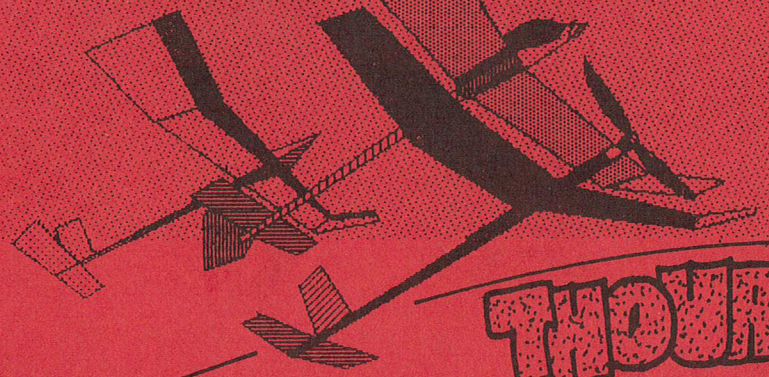
VOL LIBRE

FREE FLIGHT

FREIFLUG

ANDRÉ SCHANDEL



TOURS FRANCE

CHAMPIONNATS DU MONDE

WELTMEISTERSCHAFT

WORLD CHAMPIONSHIPS

FAI A PLAN

BC BOOK

BUCH

1991

1

FREIFLUG FREE FLIGHT VolLibre

SOMMAIRE

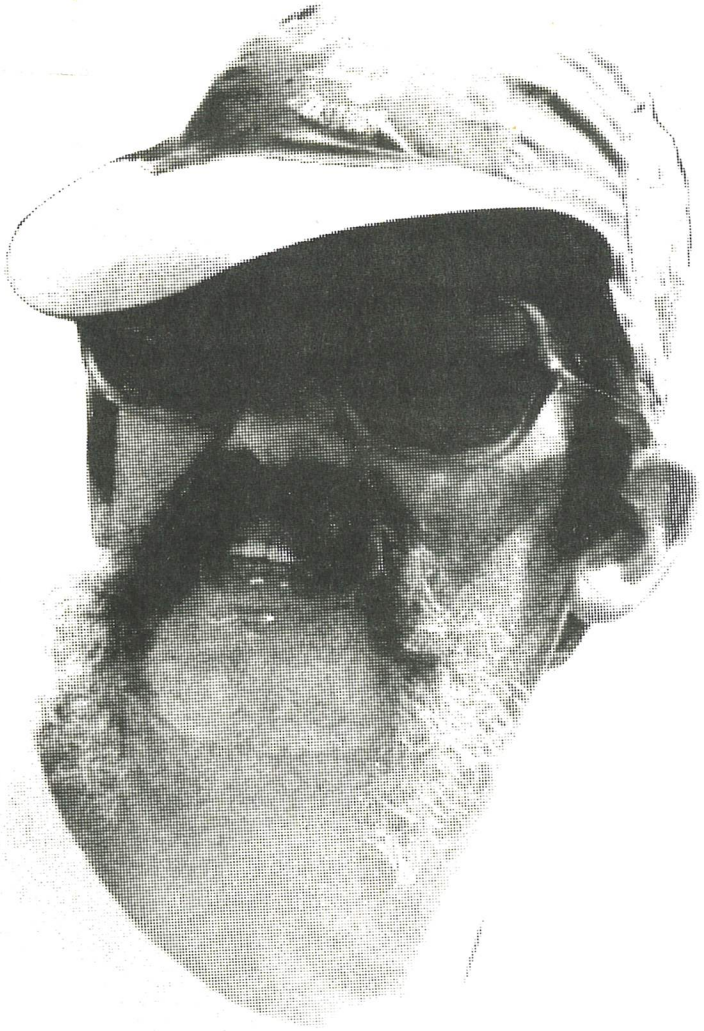


Photo- JEAN. BOOS. -

AVANT PROPOS
VORWORT
FOREWORD

La réalisation d'un recueil de plans ,des modèles utilisés aux Championnats du monde , par les modélistes à travers le monde ,est un travail de longue haleine, où il importe de se montrer tenace et persévérant.

En effet les adeptes du VOL LIBRE ne sont souvent pas en possession d'un plan trois vues de leurs modèles et encore moins de croquis de détails. Cela tente à prouver qu'ils agissent surtout empiriquement pour progresser ne consentant à reporter sur un plan que le produit final réussi. Par ailleurs chaque participant ayant droit à quatre modèles ,il n'est pas possible de reproduire tous les modèles et le plan proposé n'est pas forcément celui du dernier né ou du meilleur. Les plans remis sont souvent de mauvaise qualité ou incomplets à des échelles les plus diverses tout comme les unités de longueur. Cette compilation n'est donc pas le reflet fidèle du " nec plus ultra" ,en dernier ressort , mais plutôt l'image de la force tranquille du VOL LIBRE sur les dernières anneés.

Pour avoir un caractère homogène sur l'ensemble , j'ai redessiné une grande partie des plans, tout en ajoutant à tous une note spécifique VOL LIBRE. La part consacrée aux modèlistes eux-mêmes est relativement réduite et celle consacrée aux images s'efforce de montrer les trois champions sortants, quelques constructions particulières , des modélistes en "action " et des vues des cérémonies de ces Championnats du monde fort réussis.

André SCHANDEL

Es ist nicht leicht ein Planbuch der Freiflug W.M. heraus zu geben! Dies obwohl mit der Ausschreibung und vor der W.M. in VOL LIBRE das Unternehmen schon angesagt war. Die Teilnehmer hatten oft keine Zeit sich mit Zeichnungen von den Modellen zu befassen ! Es zeigt sich hier daß Freiflieger " pragmatisch und empirisch " vorgehen um weiter zu kommen und erst den Endprodukt "verzeichnen". Zu dem kommt noch , daß abgegeben Pläne schlecht verwendbar sind zum direketen Druck , daß manche sehr mager oder in wiedriger Skala gezeichnet sind. Dies alles verursachte ziemlich viele Arbeitsstunden für den Herausgeber . Anderseits sind nicht alle eingesetzten Modelle -vier- hier dargestellt und vieleicht sind es auch nicht die Besten und die Letzten, aber immerhin vermitteln sie ein Gesammtbild und ein Durchschnitt über die vergangenen Freiflugjahre. Dies ist von einer W.M. zur anderen durchaus sichtbar , obwohl es keine "Revolution " gibt. Ausser Plänen gibt es noch einige Bilder von Teilnehmern in "action " von ganz neu gestalteten Modellen -Bauart- und von den Zeremonien im Umfeld der W.M.

in Deutsch

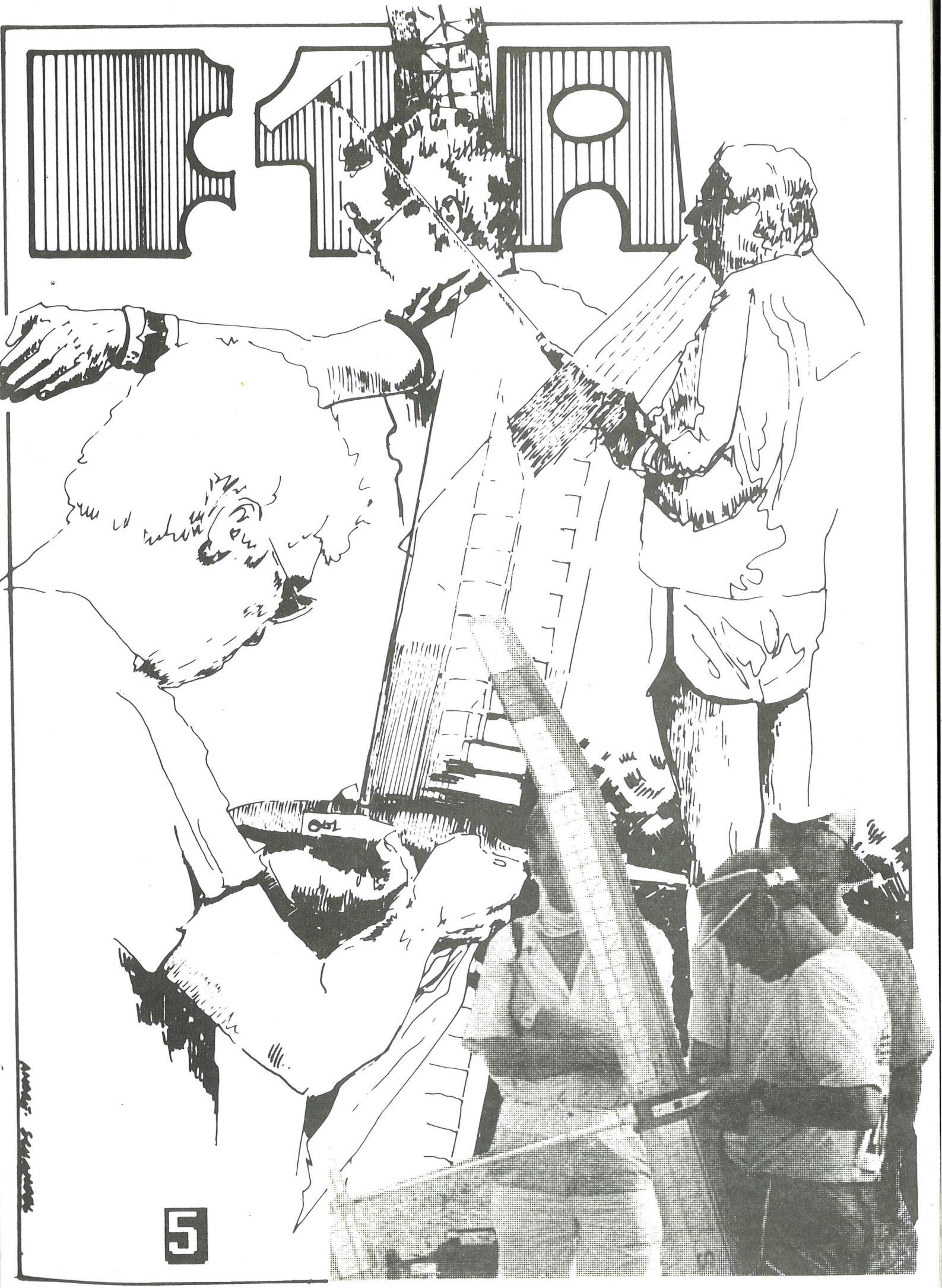
ENGLISH

A BIG JOB REALLY TO CARRY OUT A COMPILATION OF ALL THOSE MODELS USED BY THE MODELLERS WORLDWIDE FOR THAT, YOU HAVE TO BE BOTH TENACIOUS AND PERSEVERING

AS A MATTER OF FACT, THE FREE FLIGHT BUFFS, AS OFTEN AS NOT, ARE NOT ABLE TO SHOW OFF THREE VIEWS DRAWINGS OF THEIR MODELS, EVEN LESSER DETAIL SKETCHES - IT SUGGESTS THAT THEY ARE PROCEEDING STEP BY STEP, BEING RELUCTANT TO DELIVER ANY DRAWING UNLESS IT WERE THE SUCCESSFULL "END OF THE LINE" - ON THE OTHER HAND IT IS NOT POSSIBLE TO PROVIDE THE READER WITH ANY OF THE FOUR MODELS THE CONTESTANT IS ALLOWED TO MAKE USE OF. FURTHERMORE, THE PROPOSED PLANS DO NOT FORCEDLY REFER TO THE BEST, OR THE LATTER MODEL EITHER - AT LAST, THE PLANS ARE OFTEN OF BAD QUALITY, INCOMPLETE, ODDLY SCALED, AND USING DIFFERENT MEASURING SYSTEMS TOO - SO THE PRESENT PLANBOOK COULD NOT BE THE MOST ACCURATE ACCOUNT OF THE "STATE OF ART" YOU CAN DREAM OF, BUT RATHER, SAY, A SORT OF "HI LEVEL ROUTINE" STORY IN THE LATTER YEARS.

IN ORDER TO OBTAIN A HOMOGENEOUS PRESENTATION, I HAD TO RE-DRAWN MOST OF THE PLANS - THE PART DEVOTED TO THE MODELLERS THEMSELVES IS COMPARATIVELY REDUCED TO A MINIMUM - THE PICTURES FOCUSE ON THE THREE WORLD CHAMPIONS; ON PARTICULAR BUILDING TECHNIQUES; ON "IN ACTION" SHOTS AND, TO END ALL THAT, A PICTURIAL SURVEY OF THOSE VERY SUCCESSFUL WORLD CHAMPIONSHIPS

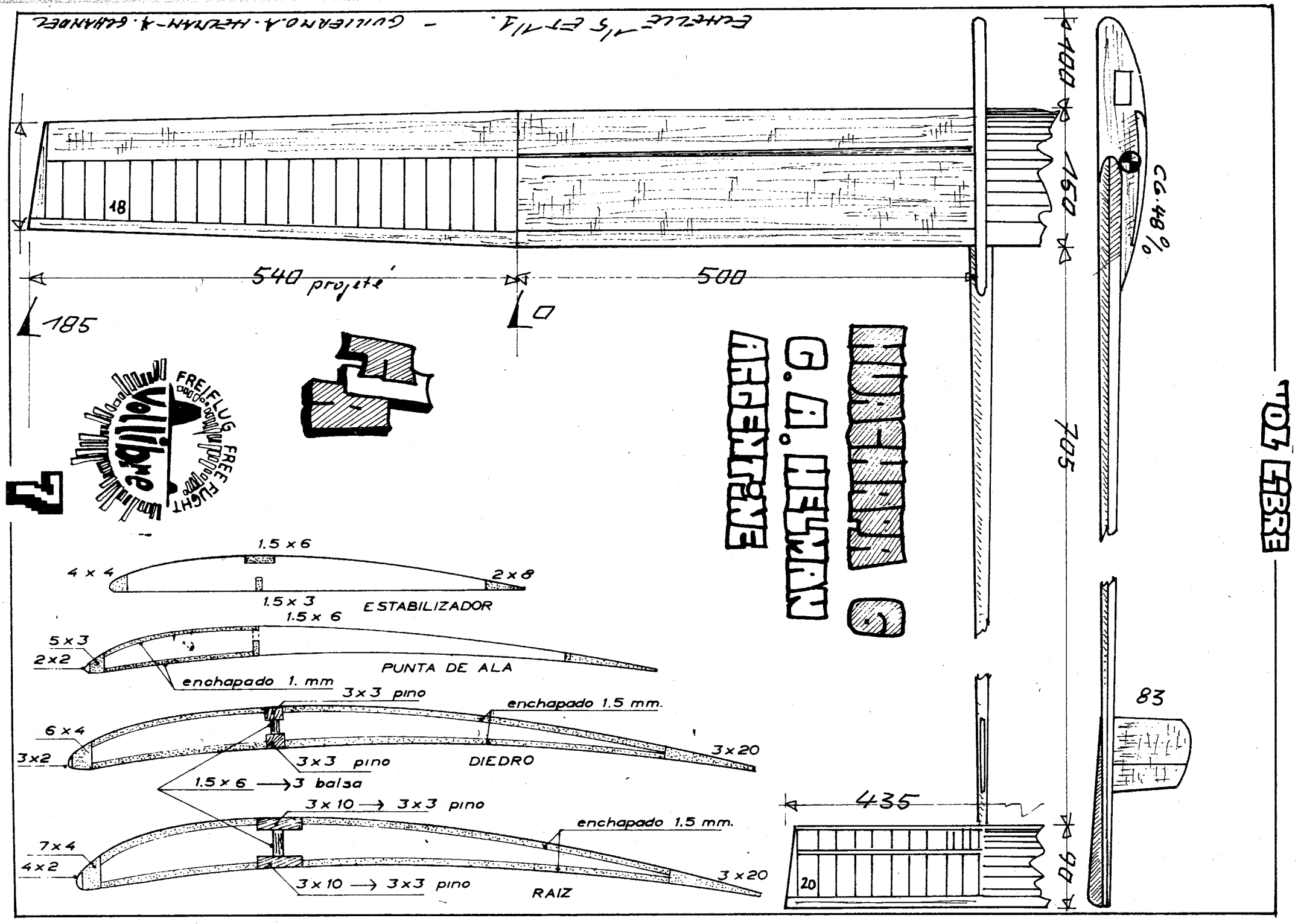
FIA



5

Victor **CHOP** (URSS) Champion du Monde F1A à Thouars (france) Après le succès au fly-off il est fêté par ses coéquipiers. Moment de concentration avant le fly-off en face de Verbitsky , autre grand de ces Championnats. Au courant de la journée un moment de détente.

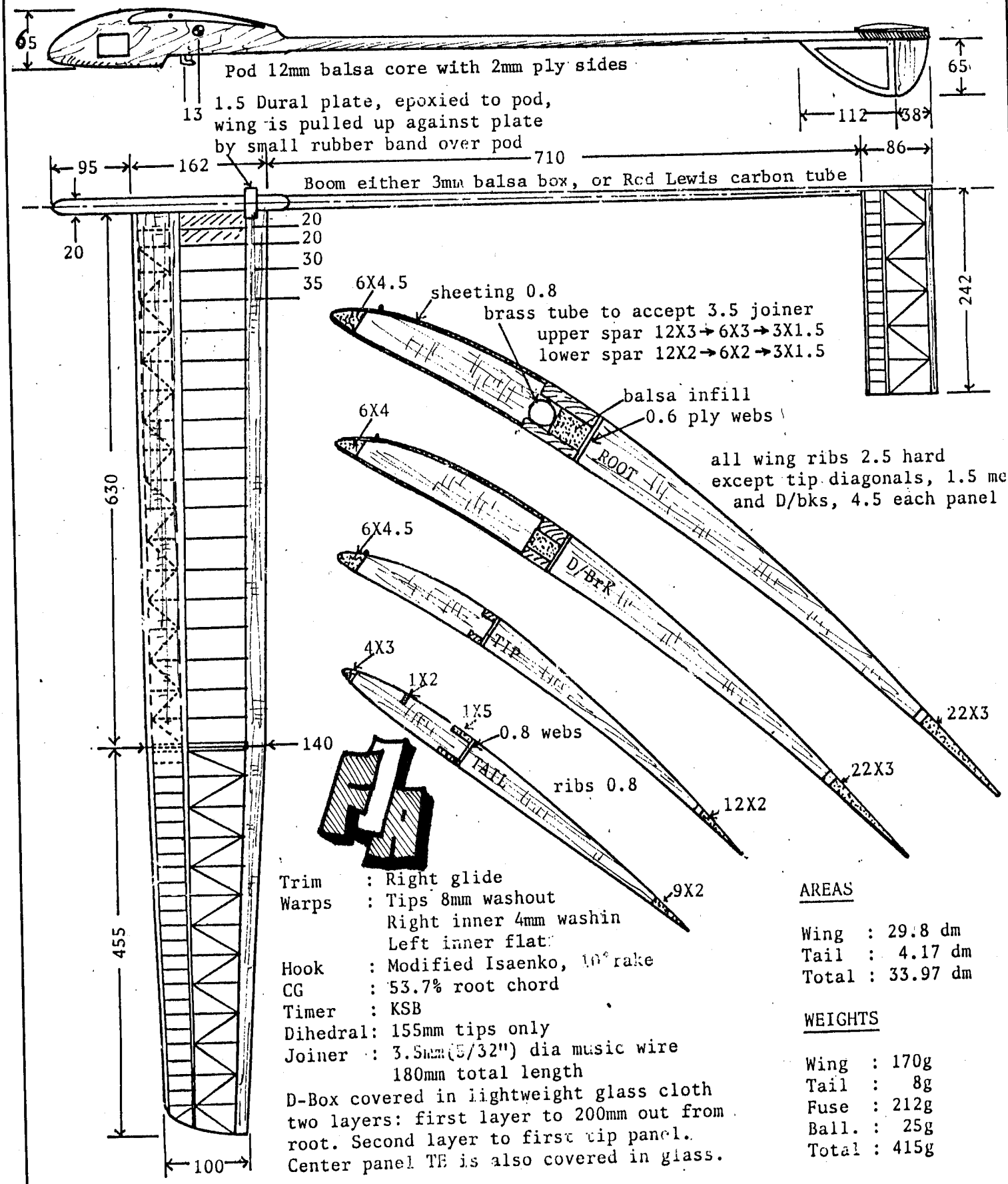
Photos. A. SCHANDEL


540 proyte
500
185
0
48
100
150
705
90
435
20
C.G. 48 %
83
1.5 x 6
4 x 4
2 x 8
1.5 x 3
ESTABILIZADOR
1.5 x 6
5 x 3
2x2
PUNTA DE ALA
enchapado 1. mm
3x3 pino
enchapado 1.5 mm.
6 x 4
3x2
3x3 pino
DIEDRO
3x20
1.5 x 6 → 3 balsa
3 x 10 → 3x3 pino
enchapado 1.5 mm.
7x4
4x2
3 x 10 → 3x3 pino
RAIZ
3 x 20
Vollibre
FREIFLUG
FREE FLIGHT
TOM LIBRE
G.A. HELMAN
ARGENTINE

RICHARD BLACKAM
AUSTRALIE

ESPRIT F1A

all dimensions in mm.



Trim : Right glide
Warps : Tips 8mm washout
Right inner 4mm washin
Left inner flat
Hook : Modified Isaenko, 10° rake
CG : 53.7% root chord
Timer : KSB
Dihedral: 155mm tips only
Joiner : 3.5mm(5/32") dia music wire
180mm total length

D-Box covered in lightweight glass cloth two layers: first layer to 200mm out from root. Second layer to first tip panel. Center panel TE is also covered in glass.

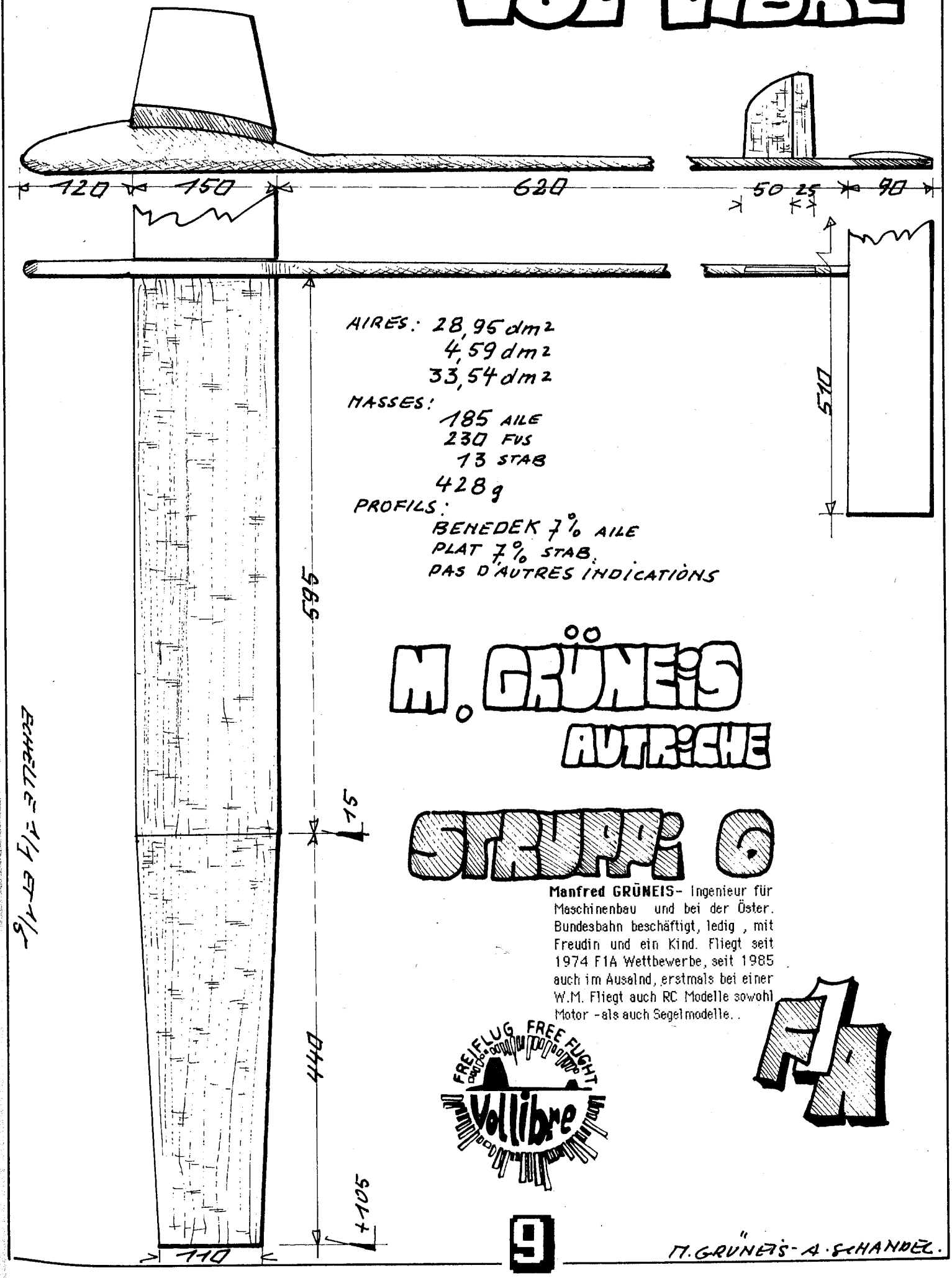
AREAS

Wing	: 29.8 dm
Tail	: 4.17 dm
Total	: 33.97 dm

WEIGHTS

Wing	: 170g
Tail	: 8g
Fuse	: 212g
Ball.	: 25g
Total	: 415g

VOL LIBRE



AIRES: 28,95 dm2
4,59 dm2
33,54 dm2

MASSES:
185 AILE
230 FUS
13 STAB
428 g

PROFILS:
BENEDEK 7% AILE
PLAT 7% STAB.
PAS D'AUTRES INDICATIONS

M. GRÜNEIS
AUTRICHE

STRUTZ 6

Manfred GRÜNEIS- Ingenieur für Maschinenbau und bei der Öster. Bundesbahn beschäftigt, ledig , mit Freudin und ein Kind. Fliegt seit 1974 F1A Wettbewerbe, seit 1985 auch im Ausalnd, erstmals bei einer W.M. Fliegt auch RC Modelle sowohl Motor -als auch Segelmodelle..

FREIFLUG FREE FLIGHT Vollibre

F1A

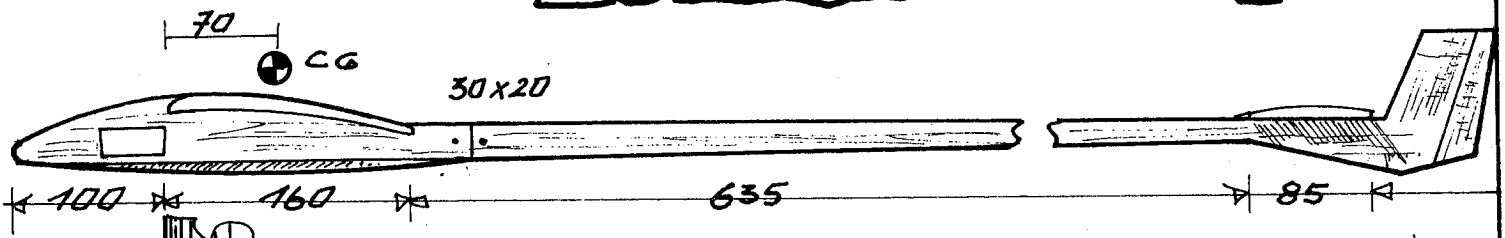
9

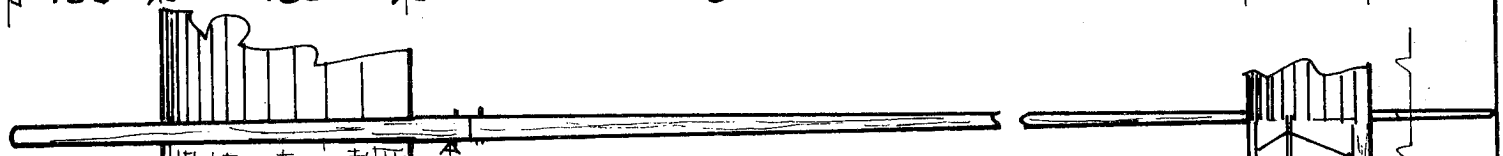
M. GRÜNEIS - A. SCHANDEL.

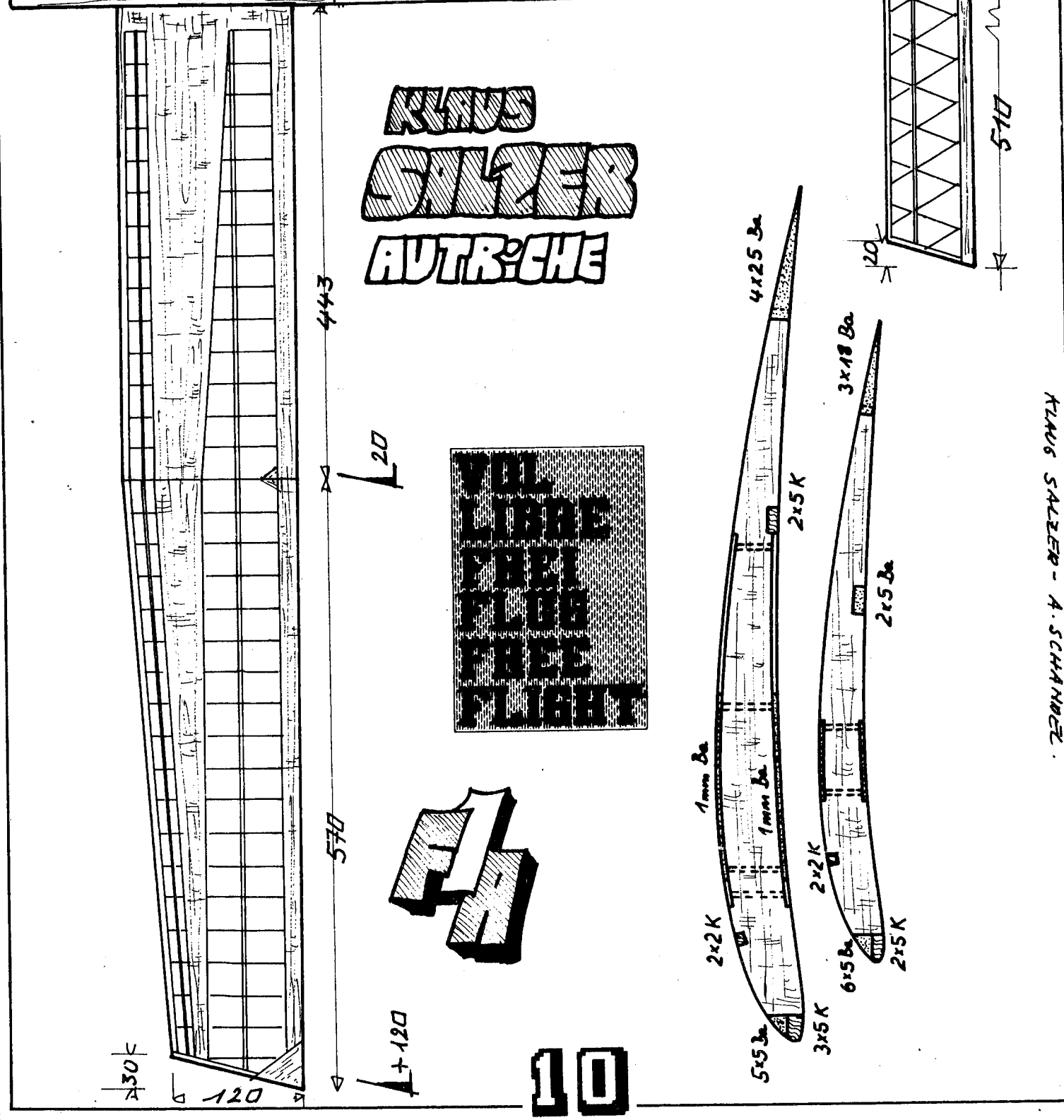
ECHELLE 1/5 ET 1/1.

VOL LIBRE

LOVEBIRD 4 1/2







KLAUS SALZER

AUTRICHE

VOL LIBRE

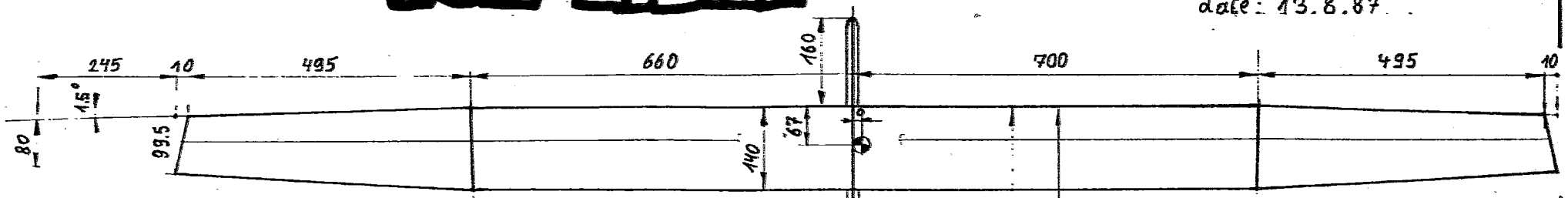
4

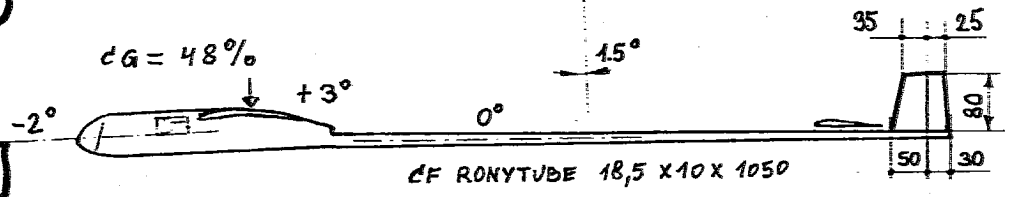
KLAUS SALZER - A. SCHANOCL.

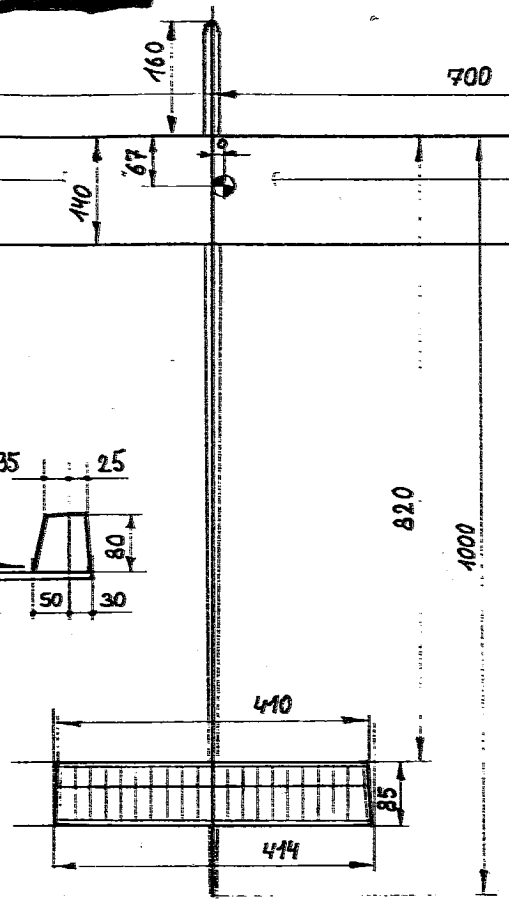
10

VOL LIBRE

MODEL NR 10S
date: 13.8.87



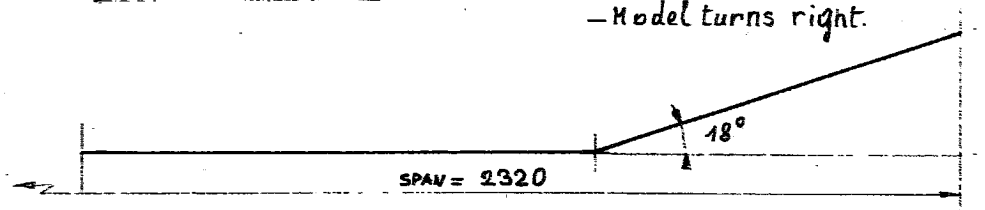


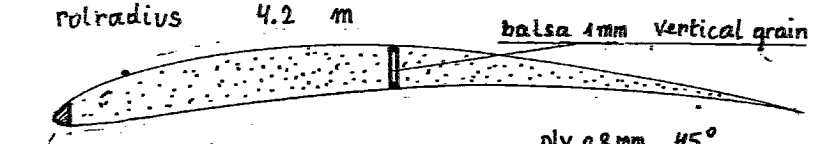


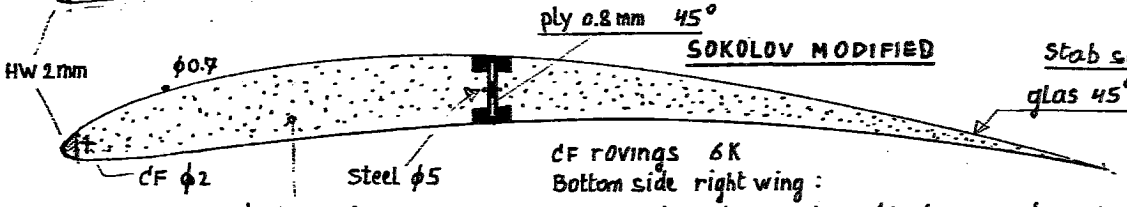
wing surface	30.44 dm^2	197 g
stab surface	3.50 dm^2	8 g
total surface	33.94 dm^2	465 g
fin surface	0.56 dm^2	
K - wing	0.0917	
$x_N - x_S$	21.2 mm	
$d C_{MS} / d C_A$	-0.1596	
pumpradius	9.1 m	
rolradius	4.2 m	

Special features:

- impuls type catapult hook
- assymetrical wing
- double timer
- beeper + 9V battery
- VI tail (up on tow)
- AR (4 positions)
- Dihedral breaks at -1.5°
- Model turns right.







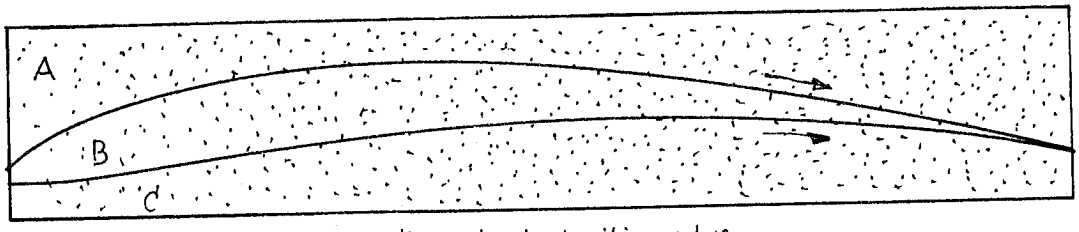
Stab section: bi convex 8% thick 2% curvature

CF rovings 6K
Bottom side right wing:
1X100 mm / 1 x 140 mm / 1 x 190 / 1 x 240 / 1 x 290
1 x 340 / 1 x 390 / 1 x 450 / 1 X 520 / 1 X 590
1 X 750 / 1 X 800 / 2 x 120
top side: identical

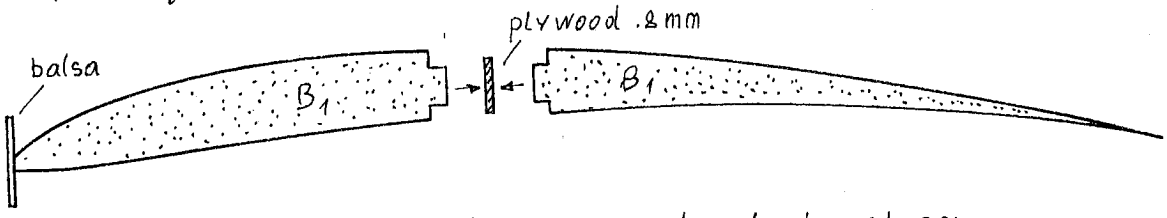
Dihedral details:
- 1mm epoxyglas gusset replacing ply 0.8
- continuing CF tows
- overlapping glasfiber

LEO PIVOT CEMOGS II

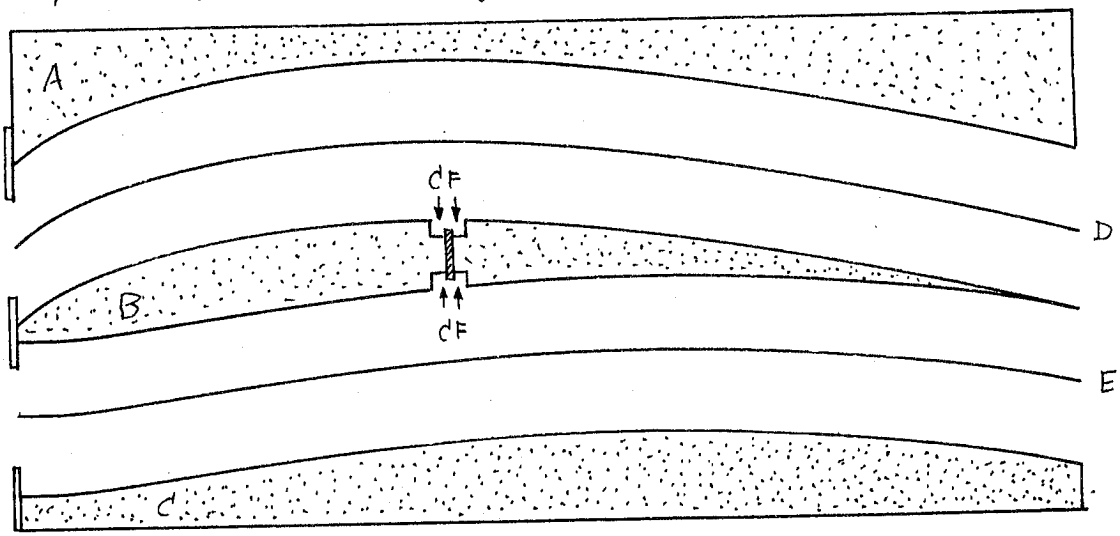
SOLID FOAM WING CONSTRUCTION:



Step 1: cut foam from leading edge to trailing edge.
Step 2: slightly sand all the surfaces.



Step 3: Cut wing with rasor blade. Cut away edges for tapered spar.
Step 4: Glue balsa strips (about 10x20 mm²) against leading edge of part A, B and C. Do so every 150 mm. Make sure they do not interfere. These strips will enable accurate repositioning of parts A, B and C.
Step 5: Glue parts B1 and B2 again together with plywood inbetween.

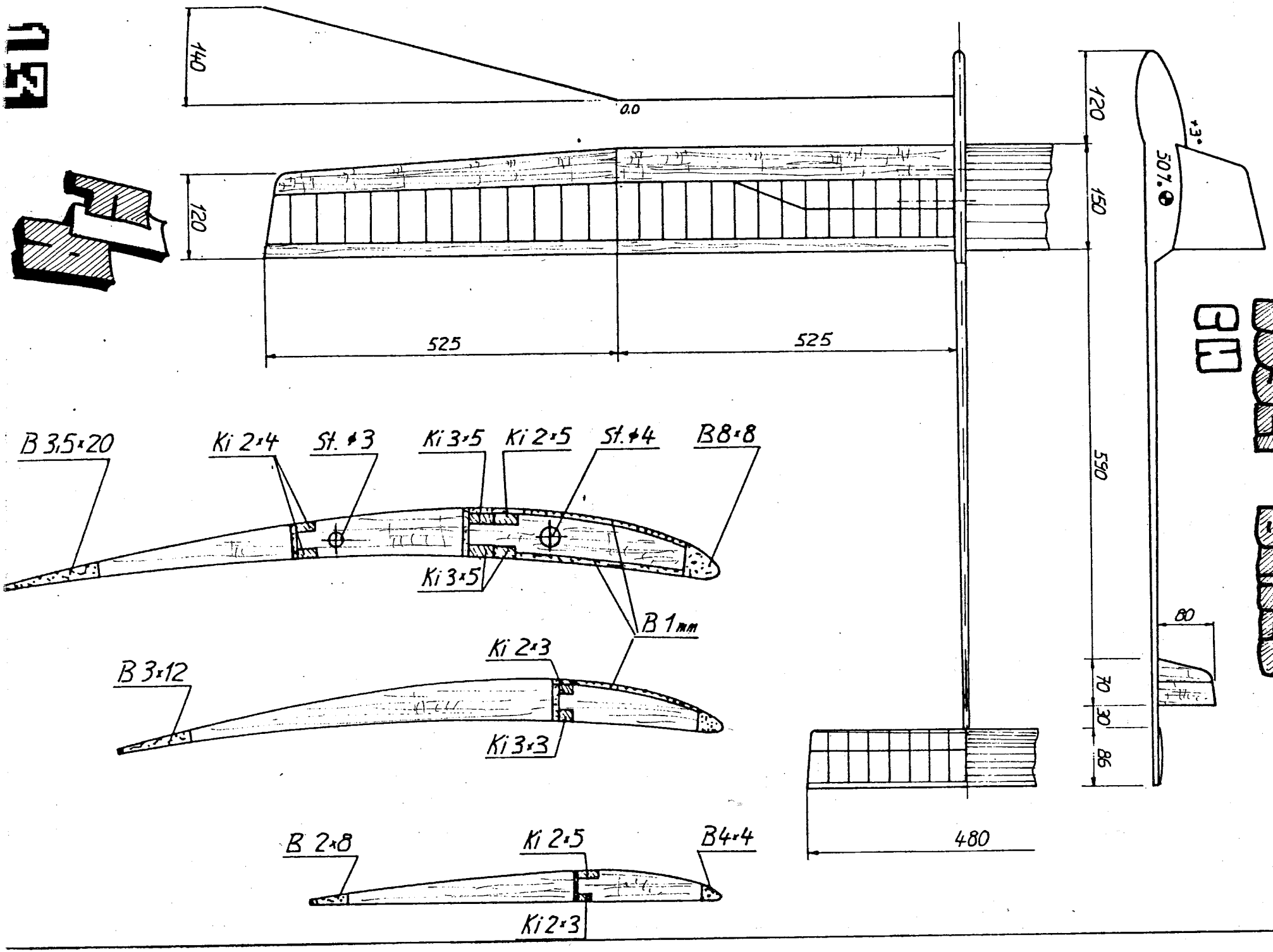


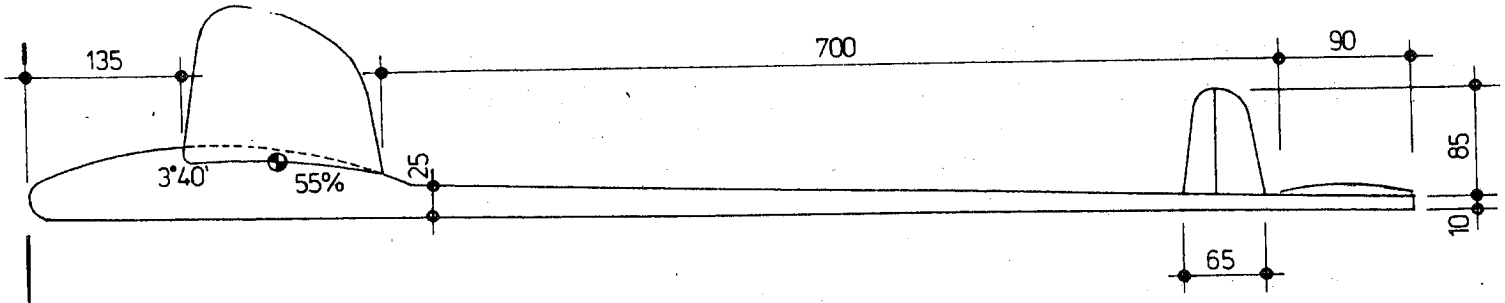
Step 6: Add wing joiner tubes, glue tip panels, and prepare everything needed to perform steps 7 through 13 within 4 hours maximum!
Step 7: Put freshly impregnated CF tows in bottom spar cutout.
Step 8: Prepare part E consisting of correctly cut polyester or PVC foil (0.2 mm) with freshly impregnated glasfiber on it.
Step 9: Put E on C. Then, put B on E
Step 10: Put freshly impregnated CF tows in top spar cutout
Step 11: Prepare part D (see step 8)
Step 12: Put D on B. Then, put A on D
Step 13: Put hole assembly in vacuum bag (−0,15 bar) and put on dihedral jig.
Step 14: When epoxy is hardened: remove part A and C. Cut away leading edge and replace with hardwood. Sand leading edge. Remove PVC foil. Saw or cut trailing edge up to correct wing cord.
Step 15: If to little epoxy is used, it is possible that the glas fibre is not properly glued to the foam. In this case correction can easily been done by reimpregnation with 50/50 epoxy/methanol. Remove excess with rags.

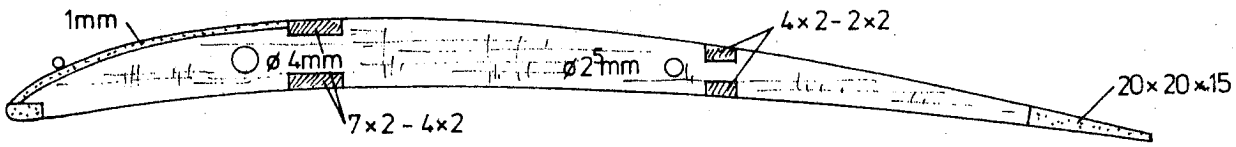
VOL LIBRE

KOBRA BETA

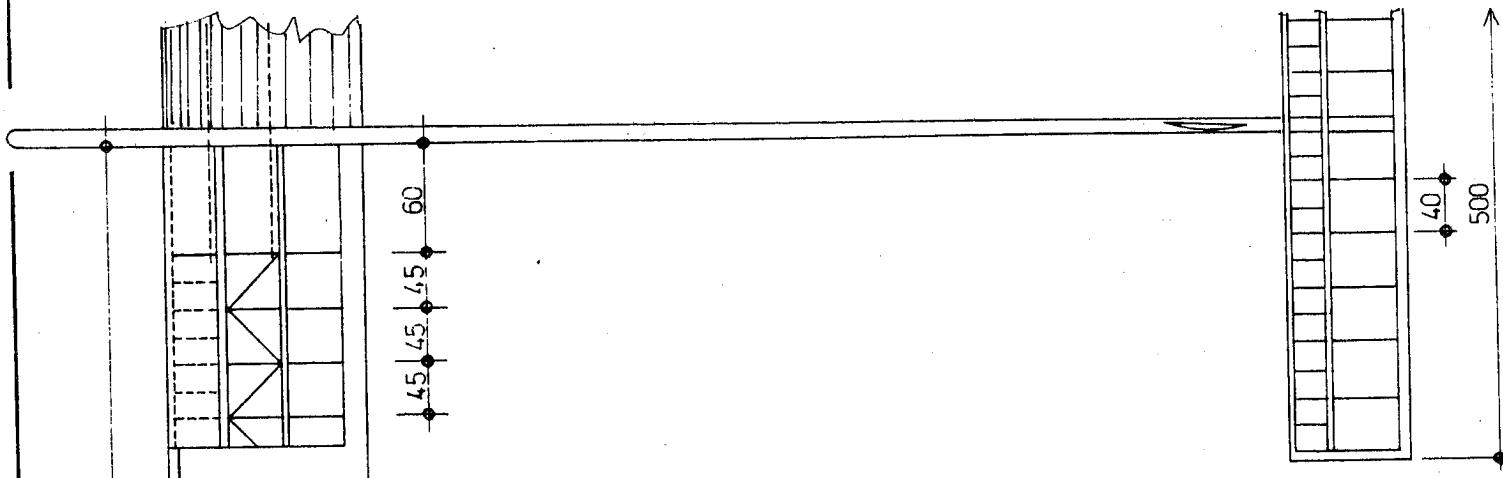
80

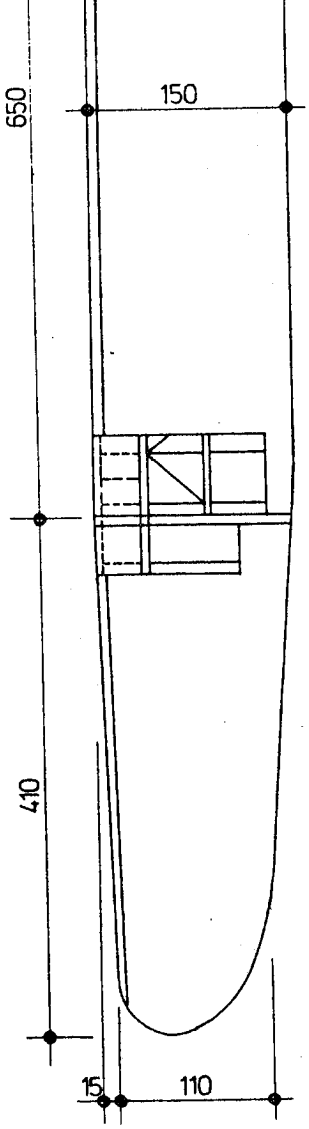


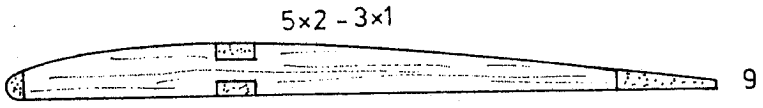




B - 6356-8





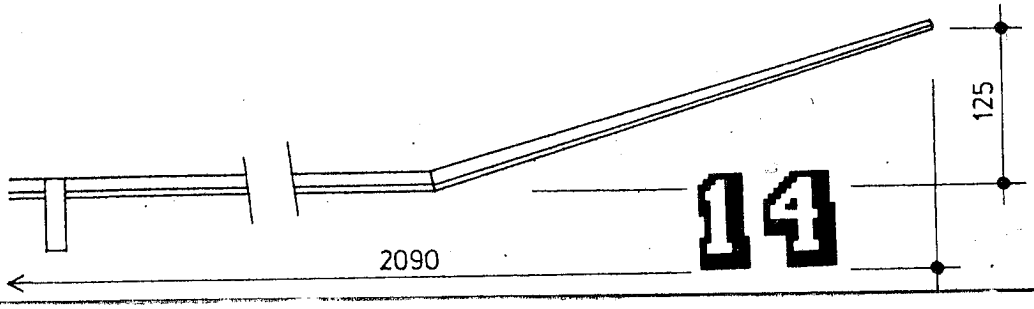


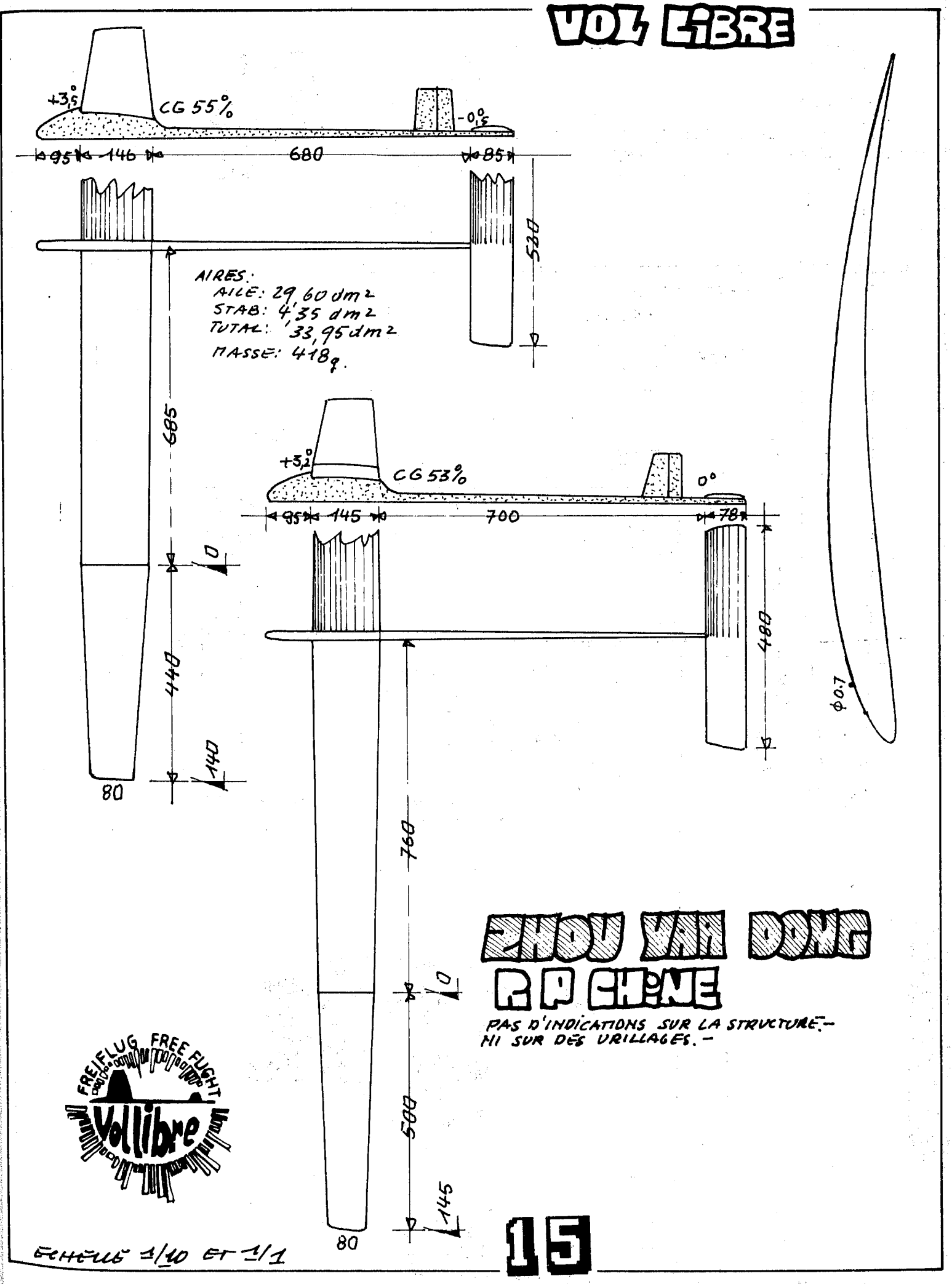
HERZ FLEUGER

GN

VOL LIBRE

Gewicht	=	425 g
Flügelgewicht	=	180 g
Höhensteuergewicht	=	10 g
Flügelfläche	=	29.36 dm^2
Höhensteuerfläche	=	4.53 dm^2





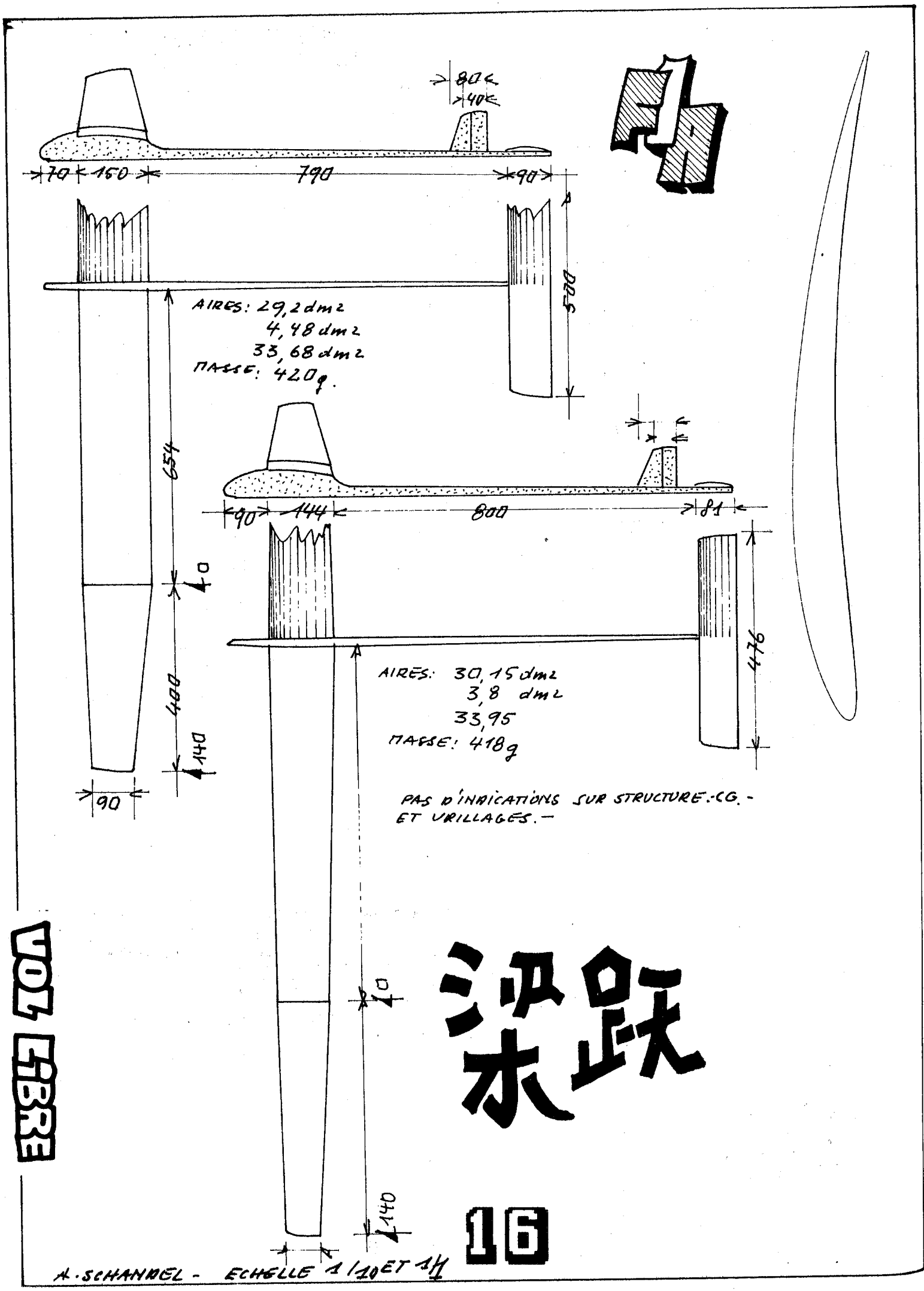
ZHOU YAN DONG

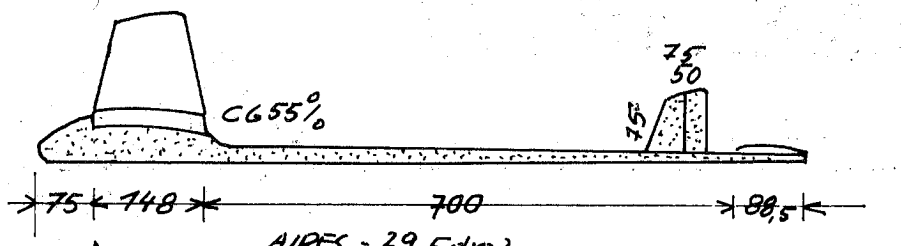
RP CHÊNE

PAS D'INDICATIONS SUR LA STRUCTURE.-
NI SUR DES VRILLAGES.-

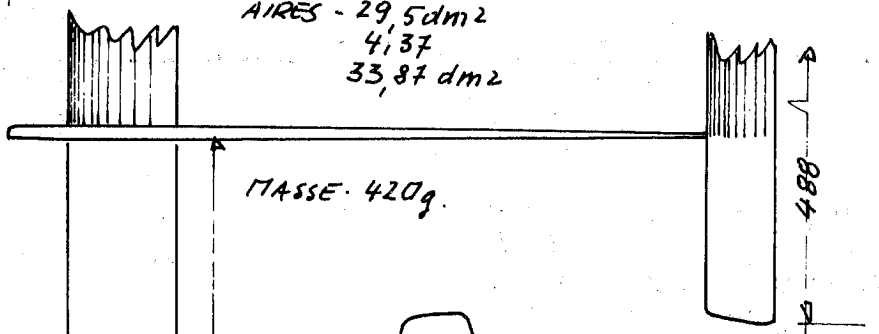
FREIFLUG FREE FLIGHT Vollibre

ECHELLE 1/10 ET 1/1

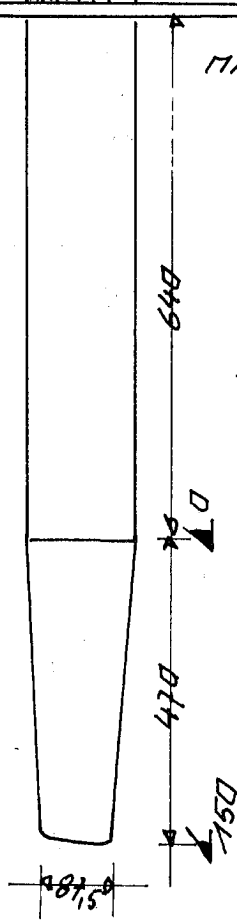

80
40
70
160
790
90
500
AIRES: 29,2 dm2
4,48 dm2
33,68 dm2
MASSE: 420g.
654
40
400
140
90
90
144
800
81
476
AIRES: 30,15 dm2
3,8 dm2
33,95
MASSE: 418g
PAS D'INDICATIONS SUR STRUCTURE: CG. - ET VRILLAGES. -
40
140
VOL LIBRE
16
A. SCHANDEL - ECHELLE 1/10 ET 1/1

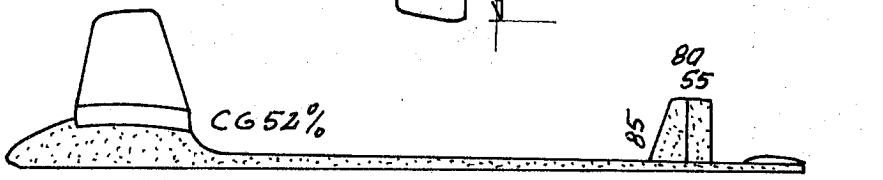


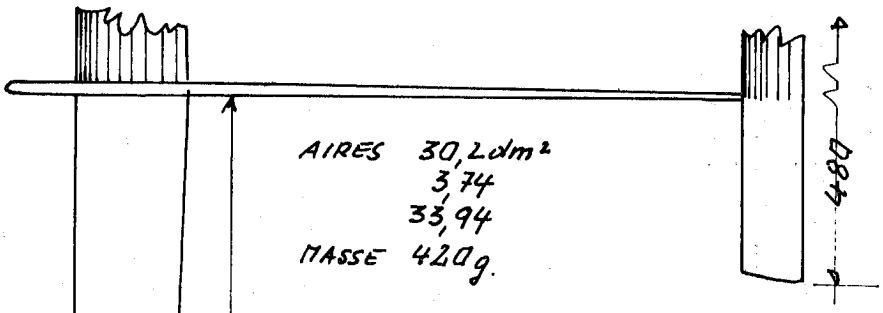
AIRES - 29,5 dm2
4,37
33,87 dm2



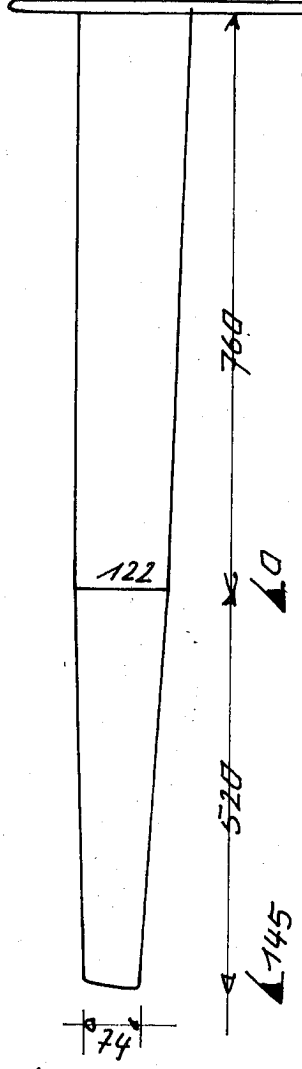
MASSE 420g.

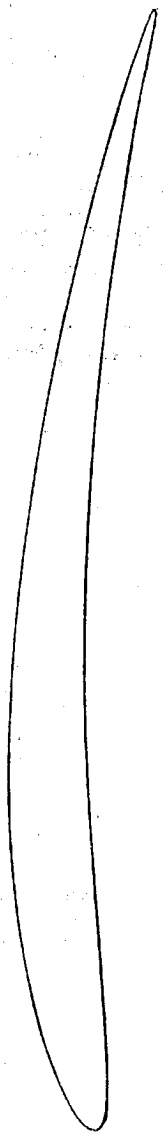






AIRES 30,2 dm2
3,74
33,94
MASSE 420g.





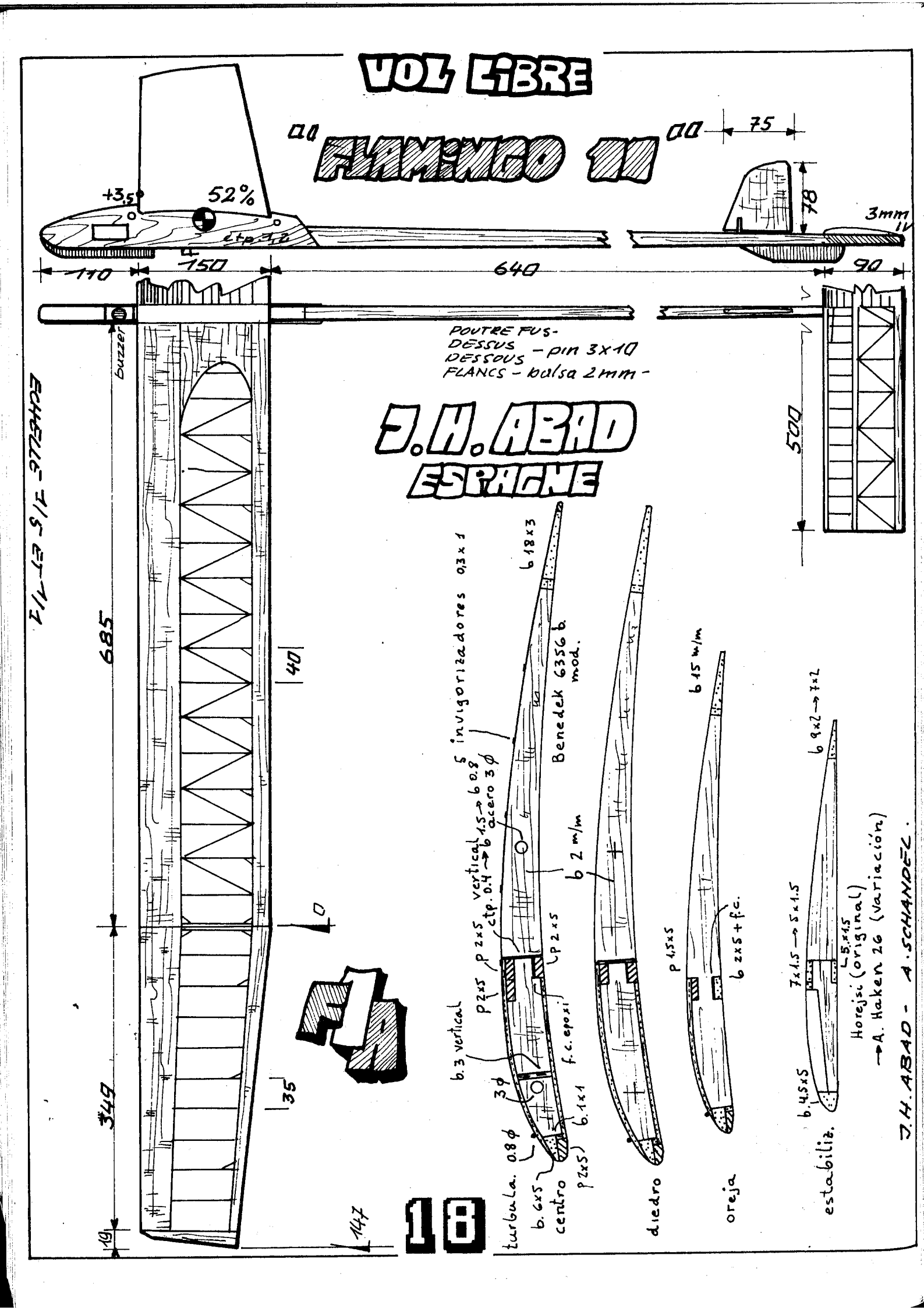
PAS D'INDICATION SUR LA STRUCTURE NI SUR DES VRILLAGES. -

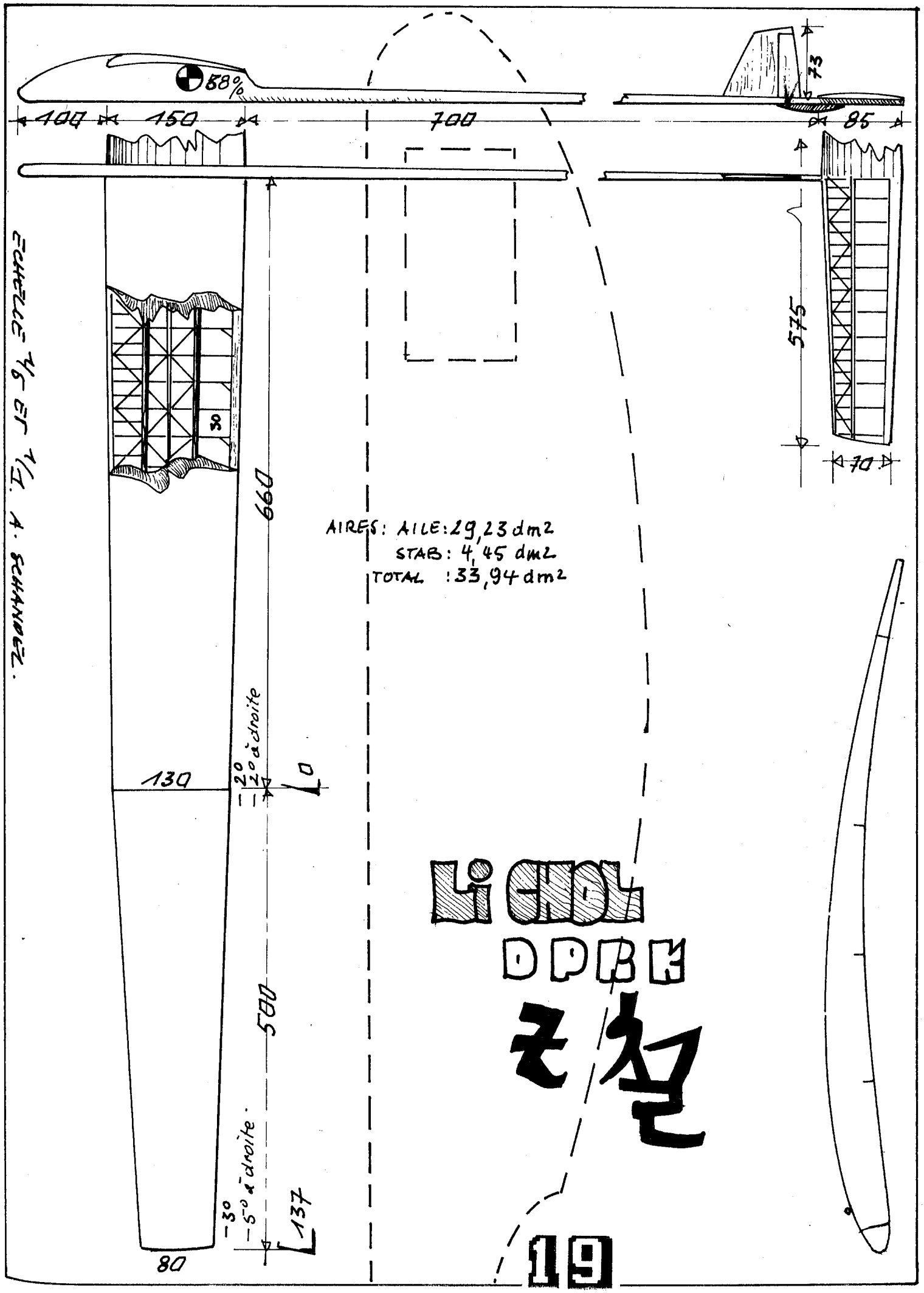
A. SCHANYAEL.

张荣杰

R.P. CHINE

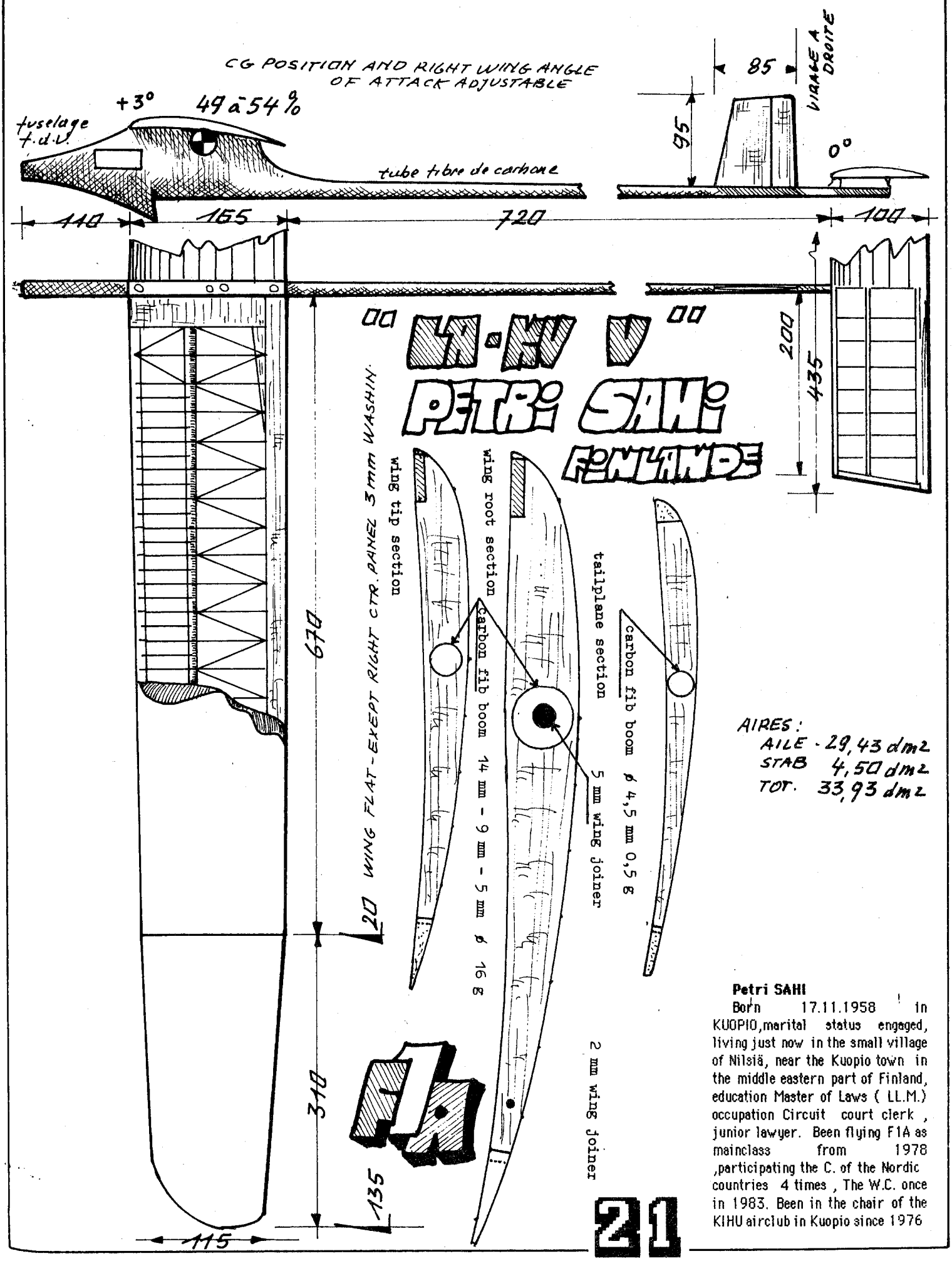
ECHELLE 1/10 ET 1/1


VOL LIBRE
"FLAMENCO II"
+3,5°
52%
ctp. 7,2
110
150
640
90
75
78
3mm
POUTRE FUS-
DESSUS - pin 3x10
DESSOUS
FLANCS - balsa 2mm -
Buzzer
685
349
19
40
35
147
500
J.H. ABAD
ESPAGNE
5 invigorizadores 0,3 x 1
b 18x3
Benedek 6356 b. mod.
vertical
ctp. 0.4 → b 1.5 → b 0.8
acero 3 ϕ
b 2 m/m
p 2x5
b.3 vertical
f.c. epoxi
3 ϕ
b.1x1
0.8 ϕ
b.6x5 centro
turbula.
diedro
b 15 m/m
p 4,5x5
b 2x5 + f.c.
oreja
b 9x2 → 7x2
7x1.5 → 5x1.5
b.5x1.5
b.4.5x5
estabiliz.
Horejsi (original)
→ A. Haken 26 (variación)
J.H. ABAD - A. SCHANDEL.
ECHELLE 1/5 ET 1/1
1
18


88%
100
150
700
85
73
575
70
660
30
130
20
2° à droite
0
500
-3°
-5° à droite
137
80
AIRES : AILE : 29,23 dm2
STAB : 4,45 dm2
TOTAL : 33,94 dm2
ECHELLE 1/5 EN 1/1. A. SCHANDEL.
LICHOL
DPBK
조철
19

ECHELLE 1/5 ET 1/1. MARKKU TAHKAPÄÄ.

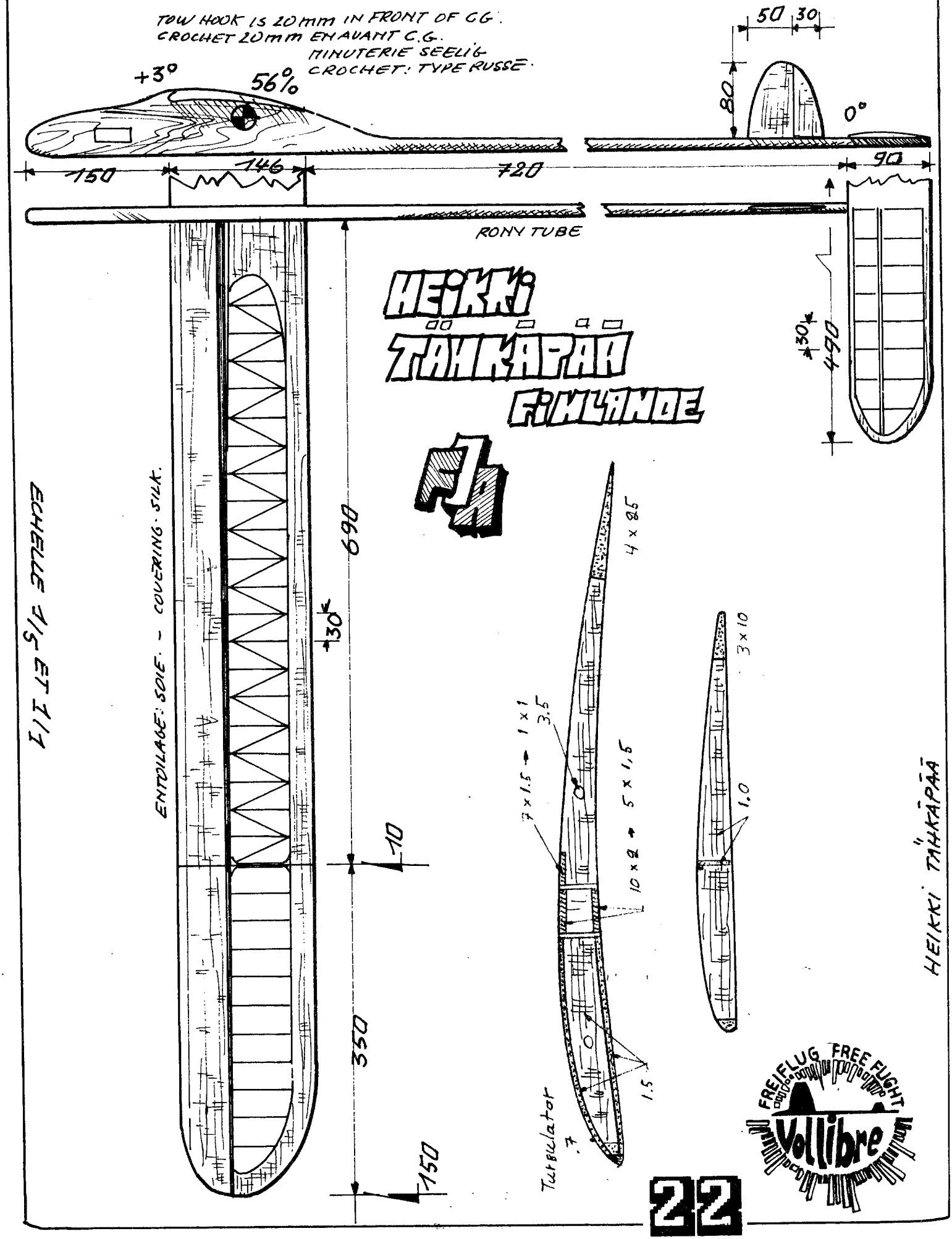
VOL LIBRE



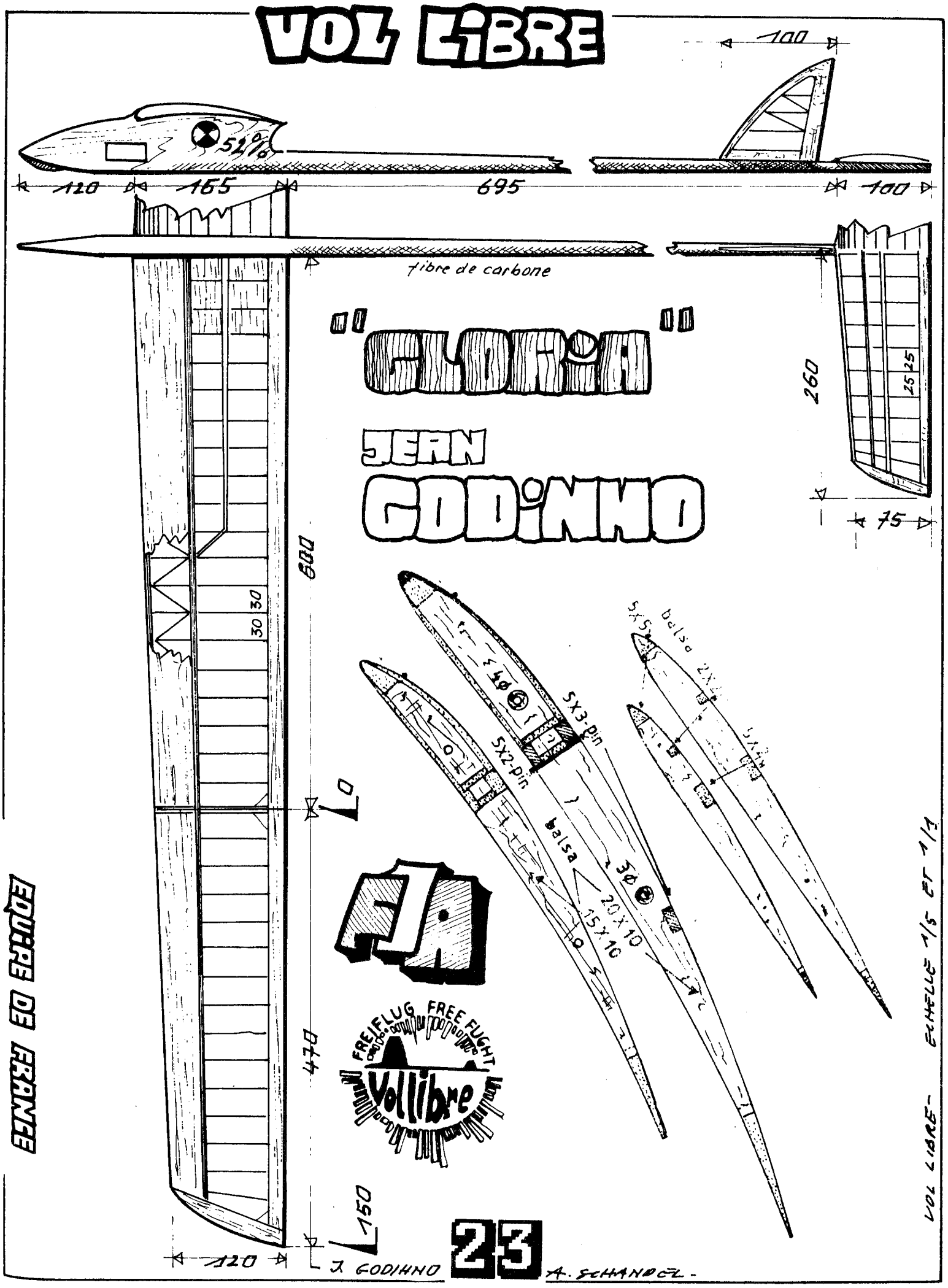
4.-IV "PETRI SAHI" FINLANDE

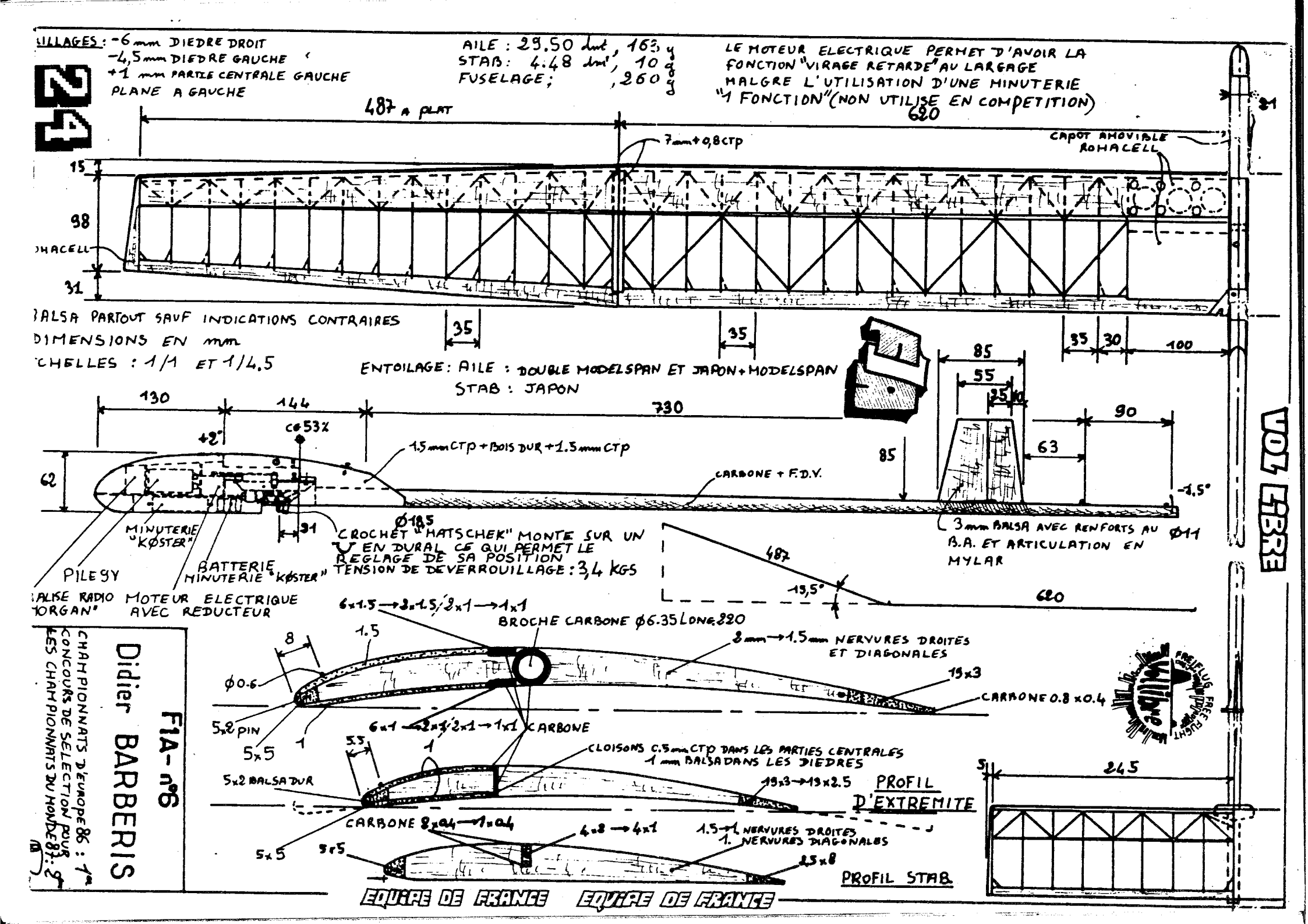
Petri SAHI

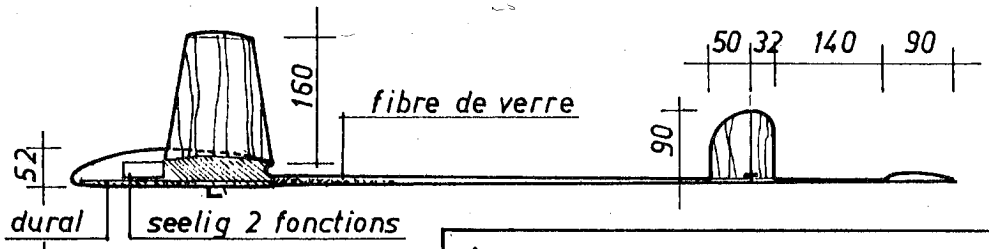
Born 17.11.1958 in KUOPIO, marital status engaged, living just now in the small village of Nilsiä, near the Kuopio town in the middle eastern part of Finland, education Master of Laws (LL.M.) occupation Circuit court clerk , junior lawyer. Been flying F1A as mainclass from 1978 ,participating the C. of the Nordic countries 4 times , The W.C. once in 1983. Been in the chair of the KIHU airclub in Kuopio since 1976


TOW HOOK IS 20 mm IN FRONT OF CG.
CROCHET 20 mm EN AVANT C.G.
MINUTERIE SEELIG
CROCHET: TYPE RUSSE.
+3°
56%
150
146
720
RONY TUBE
50
30
80
0°
90
30
490
HEIKKI
TAHKA-PÄÄ
FINLANDE
FJ
690
30
10
350
150
ENTOILAGE: SOIE. - COVERING: SILK.
ECHELLE 1/5 ET 1/1
4 x 8.5
3 x 10
1.0
7 x 1.5 → 1 x 1
3.5
10 x 2 → 5 x 1.5
1.5
Turbulator
.7
HEIKKI TAHKAPÄÄ
FREIFLUG FREE FLIGHT
Vollibre
22

VOL LIBRE


100
52%
120
165
695
100
fibre de carbone
"GLORIA"
JEAN
GODINNO
260
25 25
75
600
30 30
470
150
120
5X3-pin
5X2-pin
balsa
20X10
15X10
5X5
balsa 2X
5X4
FREIFLUG FREE FLIGHT
Vollibre
J. GODINNO
23
A. SCHANDEL -
VOL LIBRE - ECHELLE 1/5 ET 1/1
EQUERRE DE ERRNEE


24
ILLAGES : -6 mm DIEDRE DROIT
-4,5 mm DIEDRE GAUCHE
+1 mm PARTIE CENTRALE GAUCHE
PLANE A GAUCHE
AILE : 29.50 dm², 165 g
STAB : 4.48 dm², 10 g
FUSELAGE ; 260 g
LE MOTEUR ELECTRIQUE PERMET D'AVOIR LA FONCTION "VIRAGE RETARDE" AU LARGAGE MALGRE L'UTILISATION D'UNE MINUTERIE "1 FONCTION" (NON UTILISE EN COMPETITION)
487 A PLAT
620
7 mm + 0,8 CTP
CAPOT AMOVIBLE ROHACELL
15
98
31
ROHACELL
BALSA PARTOUT SAUF INDICATIONS CONTRAIRES
DIMENSIONS EN mm
ECHELLES : 1/1 ET 1/4.5
35
35
35
30
100
ENTOILAGE : AILE : DOUBLE MODELSPAN ET JAPON + MODELSPAN
STAB : JAPON
85
55
25
90
63
130
144
730
+2°
CG 53%
1.5 mm CTP + BOIS DUR + 1.5 mm CTP
CARBONE + F.D.V.
62
85
-1.5°
MINUTERIE "KOSTER"
31
Ø18.5
CROCHET "HATSCHEK" MONTE SUR UN U EN DURAL CE QUI PERMET LE REGLAGE DE SA POSITION
TENSION DE DEVERROUILLAGE : 3,4 KGS
3 mm BALSA AVEC RENFORTS AU B.A. ET ARTICULATION EN MYLAR
Ø11
PILE 9V
BATTERIE MINUTERIE "KOSTER"
BALISE RADIO "MORGAN"
MOTEUR ELECTRIQUE AVEC REDUCTEUR
487
19,5°
620
6x1.5 → 3x1.5 / 2x1 → 1x1
BROCHE CARBONE Ø6.35 LONG. 220
8
1.5
3 mm → 1.5 mm NERVURES DROITES ET DIAGONALES
Ø0.6
19x3
CARBONE 0.8 x 0.4
5x2 PIN
5x5
1
6x1 → 2x1 / 2x1 → 1x1 CARBONE
5.5
1
CLOISONS 0.5 mm CTP DANS LES PARTIES CENTRALES
1 mm BALSA DANS LES DIEDRES
5x2 BALSA DUR
19x3 → 19x2.5
PROFIL D'EXTREMITE
CARBONE 8x0.4 → 1x0.4
4x8 → 4x1
1.5 → 1 NERVURES DROITES
1. NERVURES DIAGONALES
5x5
5x5
25x8
PROFIL STAB
245
F1A - n°6
Didier BARBERIS
CHAMPIONNATS D'EUROPE 86 : 1er
CONCOURS DE SELECTION POUR LES CHAMPIONNATS DU MONDE 87 : 2e
EQUIPE DE FRANCE
EQUIPE DE FRANCE
VOL LIBRE
Vol libre
FREIFLUG
FREE FLIGHT

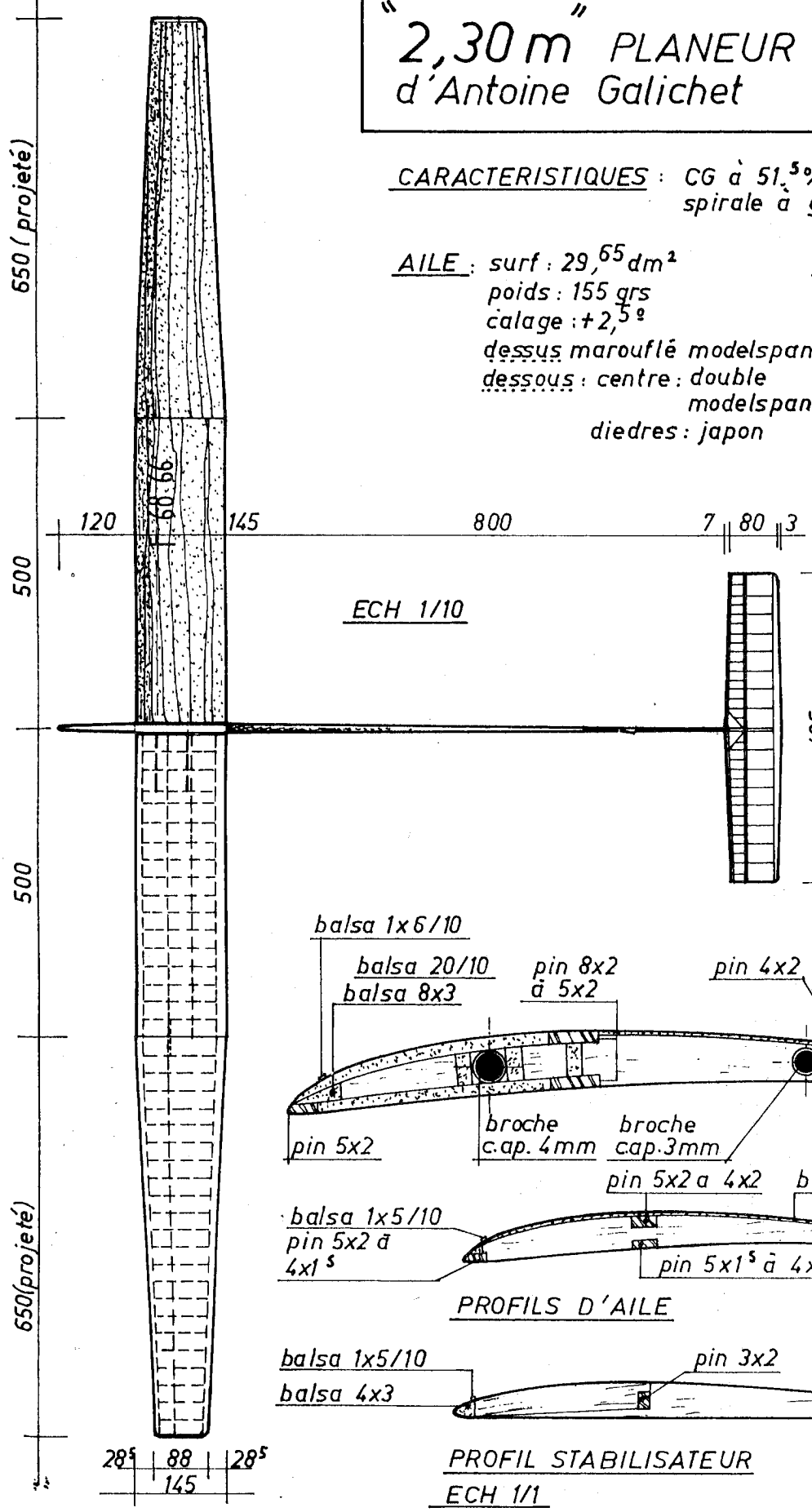


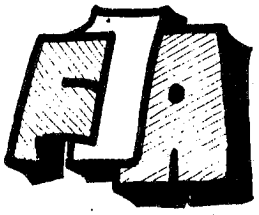
"2,30 m" PLANEUR A2
d'Antoine Galichet

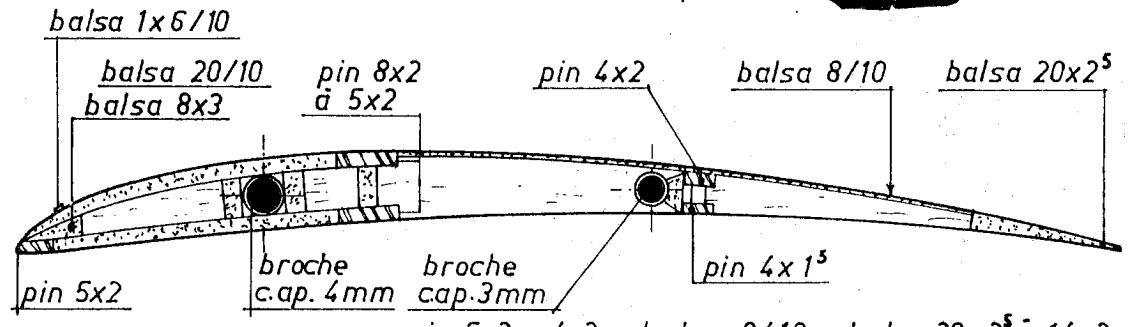
CARACTERISTIQUES : CG à 51,5% poids total 412 grs
spirale à gauche, crochet type russe

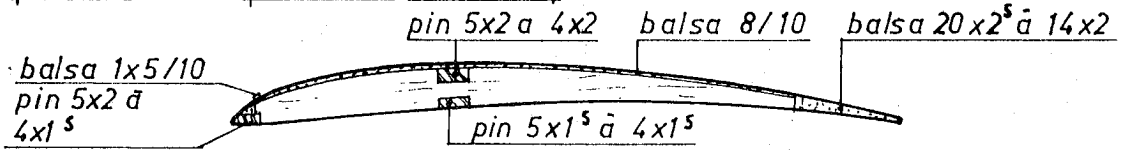
AILE : surf : 29,65 dm²
poids : 155 grs
calage : +2,5°
dessus marouflé modelspan
dessous : centre : double modelspan
diedres : japon

STABILO : surf : 4,20 dm²
poids : 7 grs
calage : – 1/2°
entoilé japon

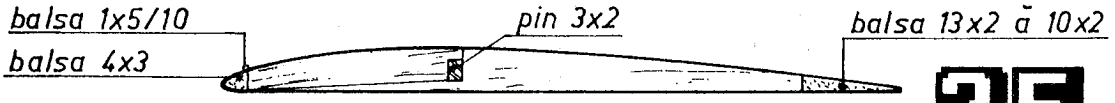








PROFILS D'AILE



PROFIL STABILISATEUR
ECH 1/1

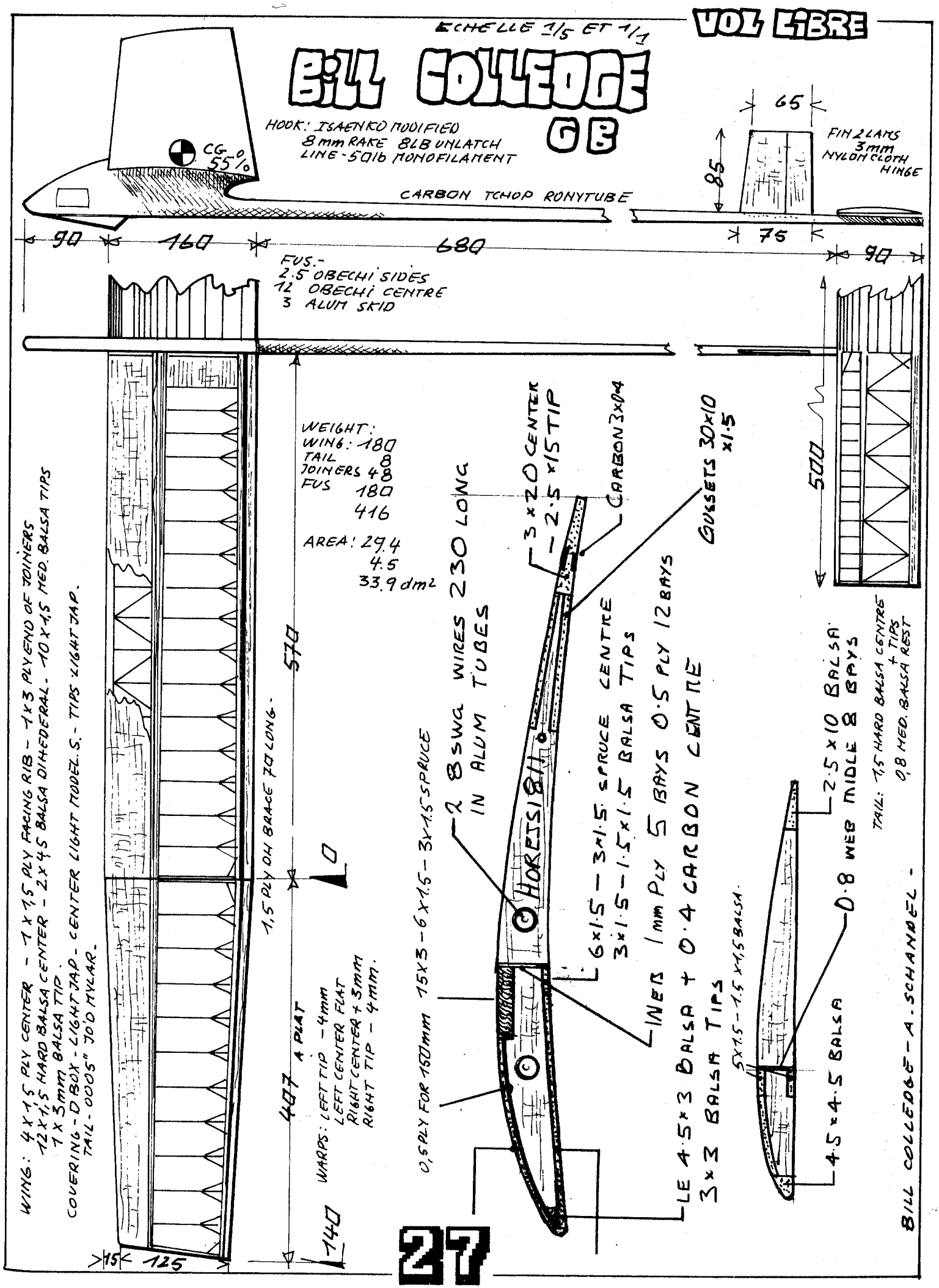
construit en 1980 / 81

ECHELLE 1/10 ET 1/1 ANTOINE GALICHET

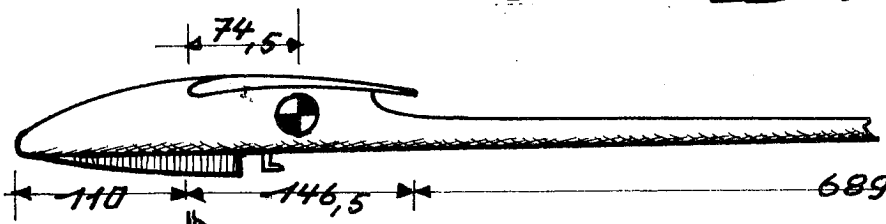
EQUIPE DE FRANCE

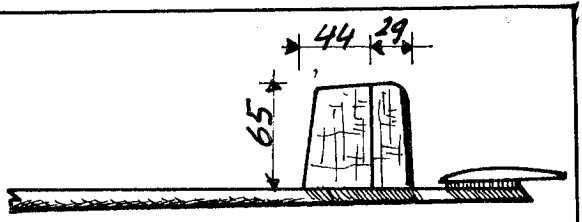
25

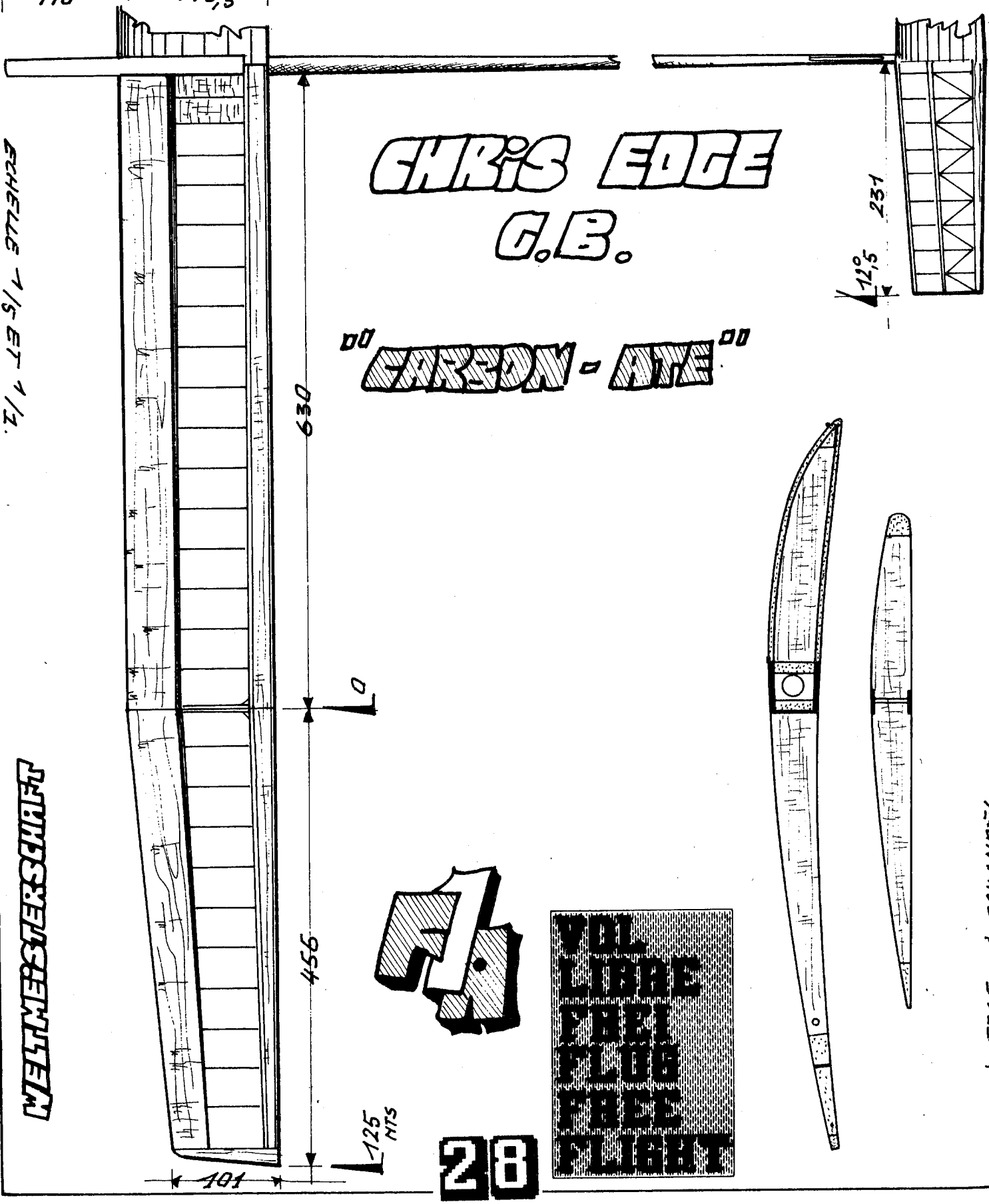
Un concurrent Chinois ,ils ne sont pas facile à reconnaître pour nous , en F1A avec un modèle classique et de finition parfaite. l'Américain Jim **Bradley** avec un modèle tout aussi classique à sous dérive , ce qui n'est cependant plus tellement courant. **Randy Weiler** (USA) modèle à dièdre central

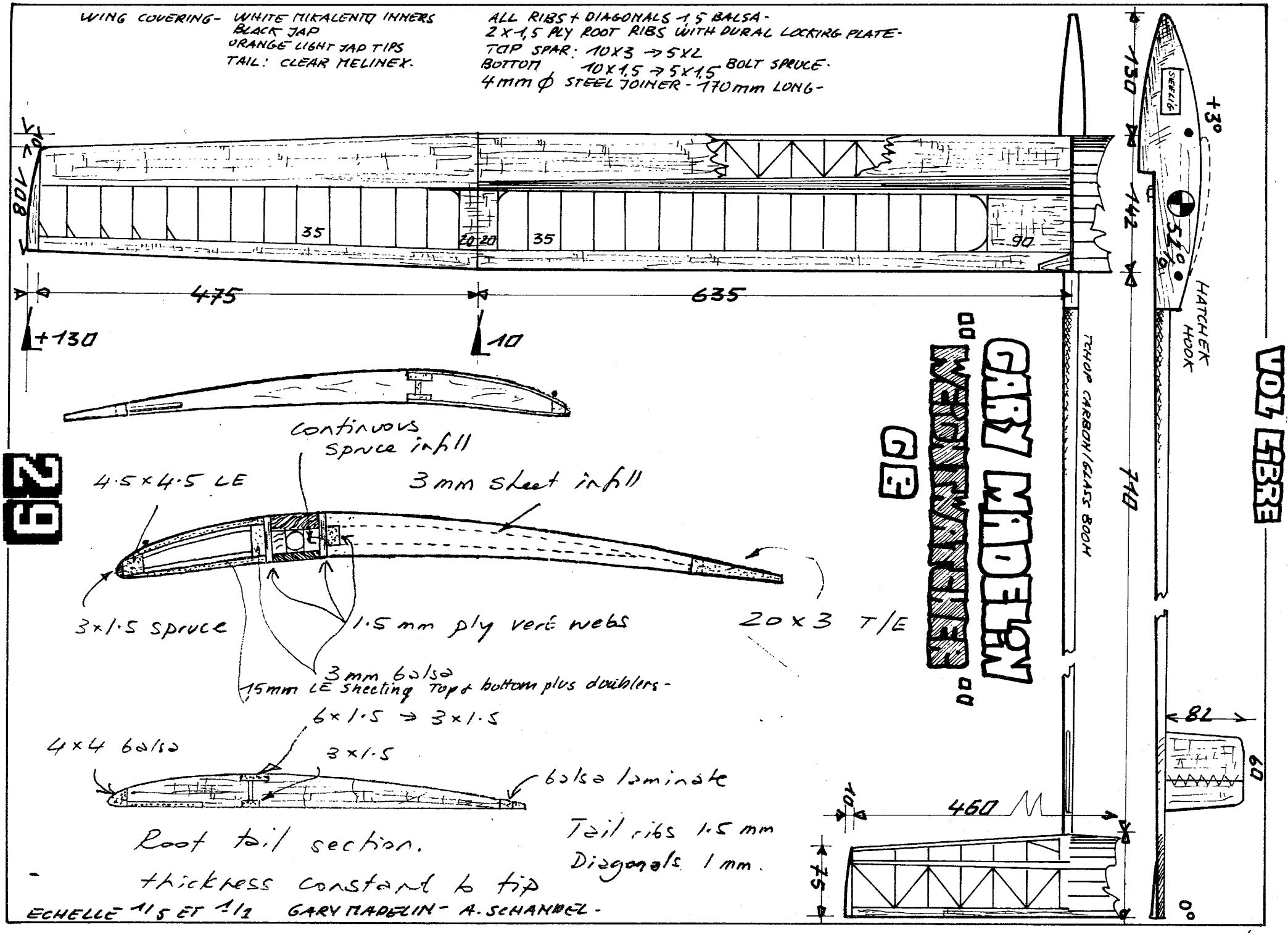

VOL LIBRE
ECHELLE 1/5 ET 1/1
BILL COLLEDGE
GB
HOOK: ISAENKO MODIFIED
8 mm RAKE 8LB UNLATCH
LINE - 50lb MONOFILAMENT
CG 55%
CARBON TCHOP RONYTUBE
FIN 2 LAMS
3mm
NYLON CLOTH
HINGE
65
85
75
90
160
680
90
FUS.-
2.5 OBECHI SIDES
12 OBECHI CENTRE
3 ALUM SKID
WEIGHT:
WING: 180
TAIL 8
JOINERS 48
FUS 180
416
AREA: 29.4
4.5
33.9 dm²
570
407
140
125
15
500
1,5 PLY DH BRACE 70 LONG.
A PLAT
WARPS: LEFT TIP - 4mm
LEFT CENTER FLAT
RIGHT CENTER + 3mm
RIGHT TIP - 4mm.
WING: 4 X 1,5 PLY CENTER - 1 X 1,5 PLY FACING RIB - 1 X 3 PLY END OF JOINERS
12 X 1,5 HARD BALSA CENTER - 2 X 4,5 BALSA DIHEDERAL - 10 X 1,5 MED. BALSA TIPS
1 X 3mm BALSA TIP.
COVERING - D BOX - LIGHT JAP. - CENTER LIGHT MODEL S. - TIPS LIGHT JAP.
TAIL - 0005" JO'D MYLAR.
0,5 PLY FOR 150mm 15X3 - 6 X 1,5 - 3 X 1,5 SPRUCE
2 8SWG WIRES 230 LONG
IN ALUM TUBES
HORETSIBI
3 X 20 CENTER
- 2.5 X 15 TIP
CARBON 3X04
GUSSETS 30X10
X1.5
6 X 1.5 - 3 X 1.5 SPRUCE CENTRE
3 X 1.5 - 1.5 X 1.5 BALSA TIPS
INER 1mm PLY 5 BAYS 0.5 PLY 12 BAYS
0.4 CARBON CENTRE
LE 4.5 X 3 BALSA + 0.4 CARBON
3 X 3 BALSA TIPS
5X1.5 - 1.5 X 1.5 BALSA.
2.5 X 10 BALSA
MIDLE 8 BAYS
0.8 WEB
4.5 X 4.5 BALSA
TAIL: 1,5 HARD BALSA CENTRE + TIPS
0,8 MED. BALSA REST
BILL COLLEDGE - A. SCHANDEL -
27

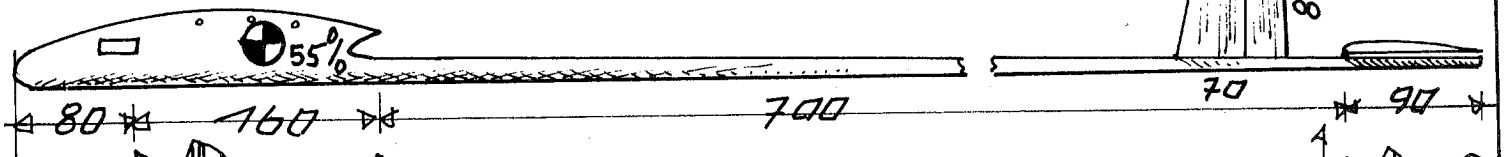
VOL LIBRE

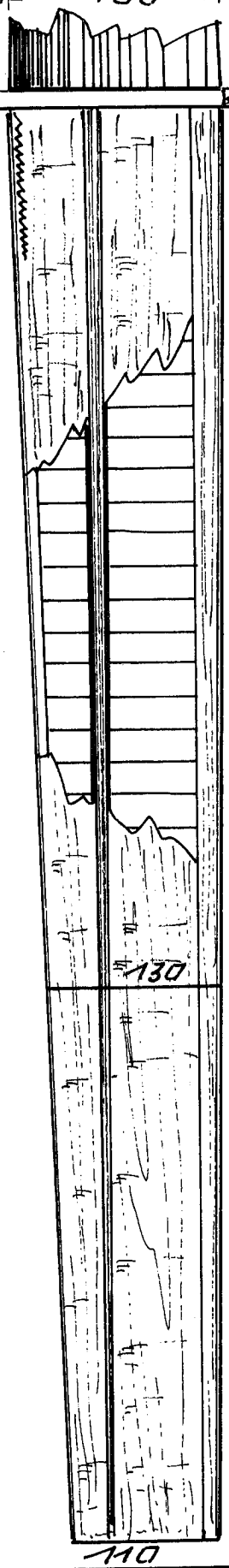

74,5
110
146,5
689

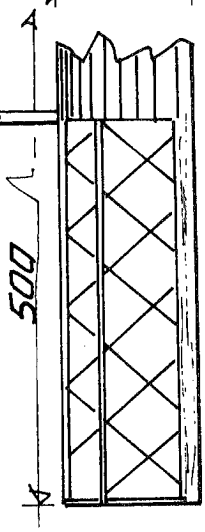

44
29
65
98


CHRIS EDGE
G.B.
"CARBON-ATE"
630
456
101
125 MTS
231
12°,5
0
ECHELLE 1/5 ET 1/2.
WELTMEISTERSCHAFT
CHRIS EDGE - A. BEHANDEL -


WING COVERING- WHITE MIKALENTO INNERS
BLACK JAP
ORANGE LIGHT JAP TIPS
TAIL: CLEAR MELINEX.
ALL RIBS + DIAGONALS 1,5 BALSA-
2 X 1,5 PLY ROOT RIBS WITH DURAL LOCKING PLATE-
TOP SPAR: 10X3 → 5X2
BOTTOM 10X1,5 → 5X1,5 BOLT SPRUCE.
4mm ϕ STEEL JOINER - 170mm LONG-
35
20 20
35
90
475
635
+130
10
continuous spruce infill
4·5×4·5 LE
3mm sheet infill
3×1·5 spruce
1·5 mm ply vert webs
20×3 T/E
3mm balsa
15mm LE sheeting Top & bottom plus doublers-
6×1·5 → 3×1·5
4×4 balsa
3×1·5
balsa laminate
Root tail section.
thickness constant to tip
Tail ribs 1·5 mm
Diagonals 1mm.
ECHELLE 1/5 ET 1/1 GARY MADELIN - A. SCHAMBEL -
GARY MADELIN
"MERLIN"
G3
TCHOP CARBON/GLASS BOOM
HATCHET HOOK
+3°
0°
130
142
740
460
75
10
82
60
VOL LIBRE
29





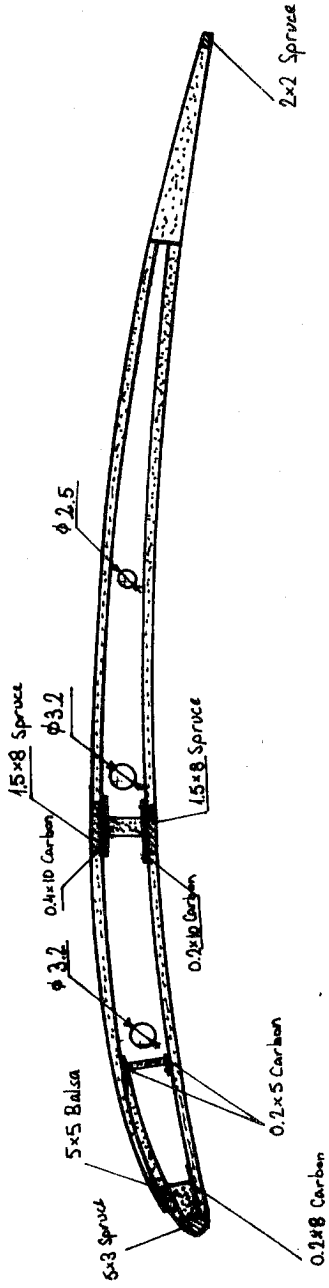


ZEBRA

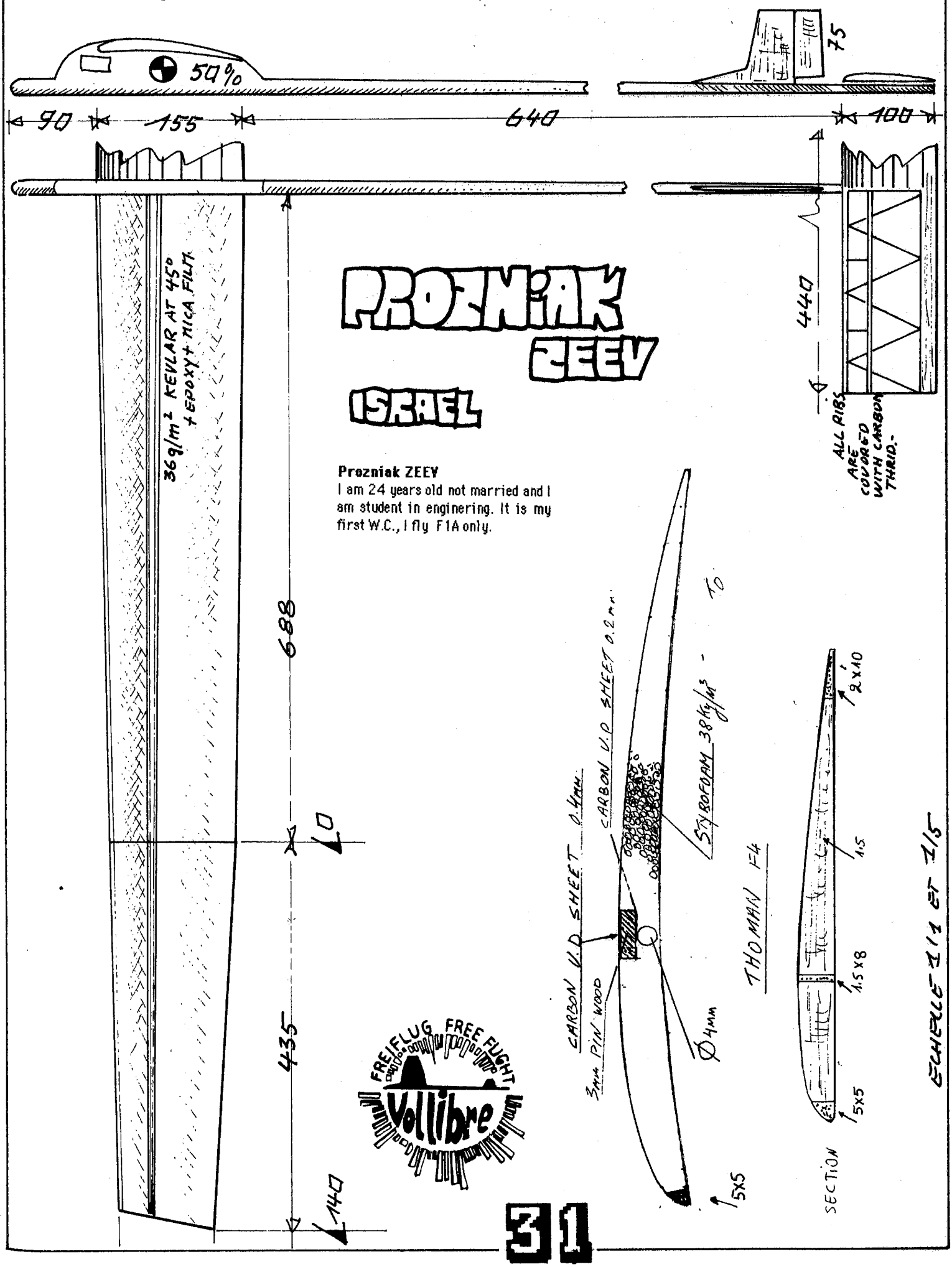
IGAL DRORI

ISRAEL

WING AREA. 29,41 dm2
STAB AREA.- 4,5 dm2
MASSE AILES 190 g.
TOWHOOK- HATCHEK
TIMER SEELIG- 3F-



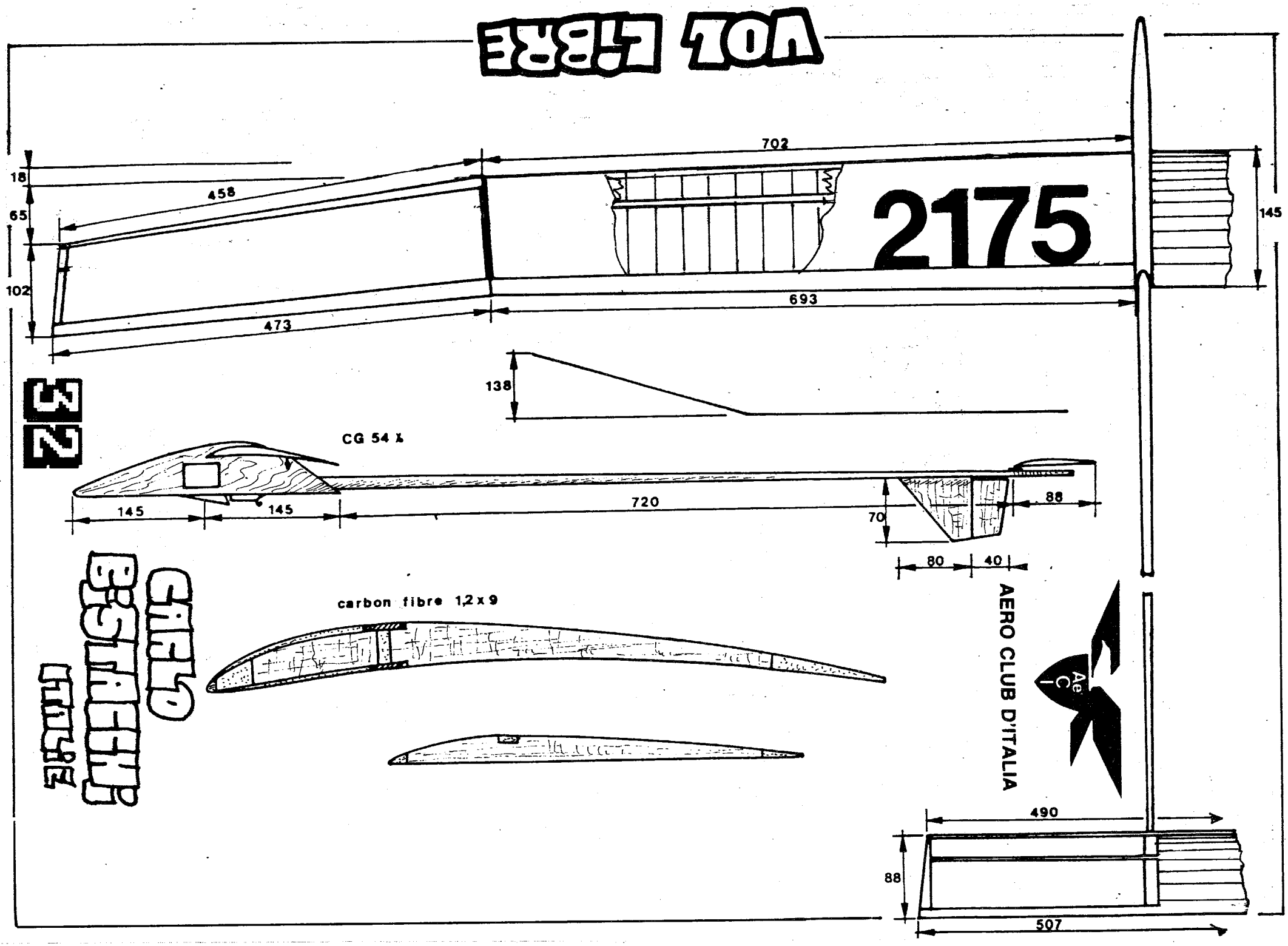
Igal DRORI 28 has been flying since he was teenager . He is married anf works as a sailsman in Kirgat Otta Haifa. He competed in the last two world champ. in 1983 and 1985. The model he is competting with is called Zebra which his original design.



PROZNIAK ZEEV

ISRAEL

Prozniak ZEEV
I am 24 years old not married and I am student in enginering. It is my first W.C., I fly F1A only.


VOL LIBRE
702
18
458
65
102
473
2175
145
693
138
CG 54 %
145
145
720
70
88
80
40
carbon fibre 1,2 x 9
AERO CLUB D'ITALIA
Ae C I
490
88
507
GIFLO
BASTARDA
ITALIA

AERO CLUB D'ITALIA

CG NON INDIQUÉ

100 150 660 90

60 100 100

500

MODELLO CELLI MOKE

VITTORIO BRUSSOLO ITALIE

FREIFLUG FREE FLIGHT Vollibre

660 400 165

ÉCHELLE 1/6

3,5×30 BALSA

2×5 PINO

TAVOLETTA 1 BALSA

7×10 BALSA

PROFILO ALARE BENEDEK 6356/b

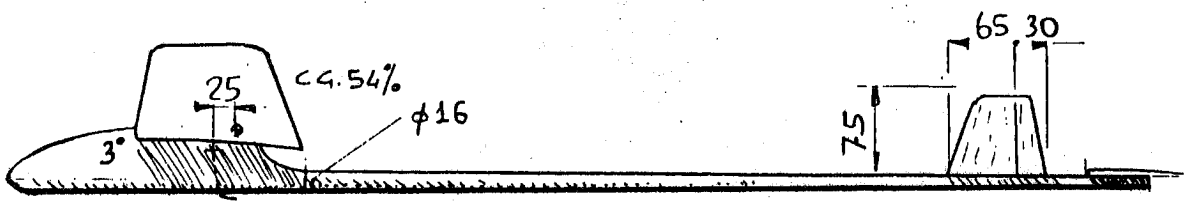
NON A L'ÉCHELLE 1/1

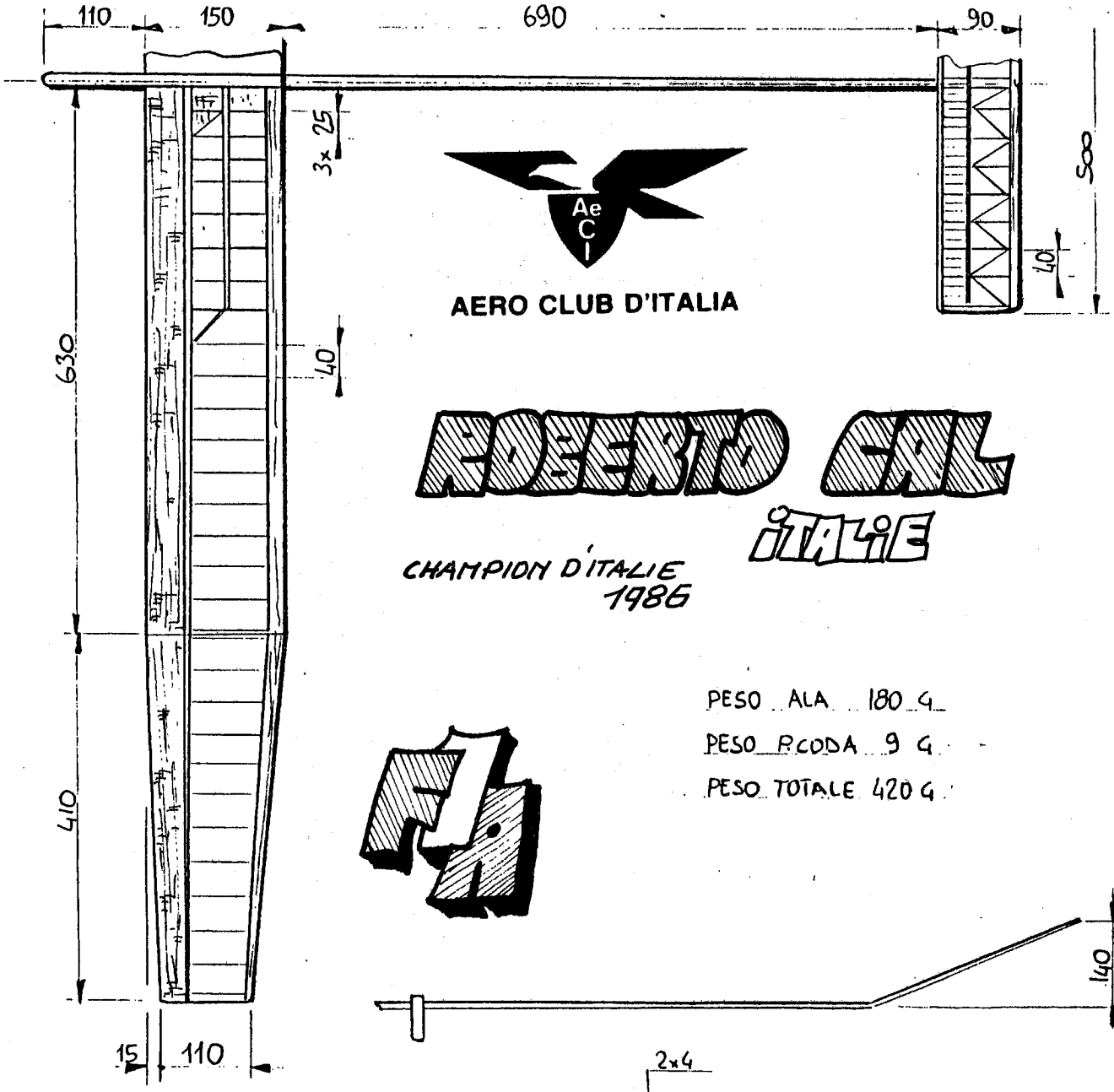
PROFILO TERMINALE ALA BENEDEK 6356/b 2 -3°

NO FULL SIZE

VITTORIO - BRUSSOLO -

VOL LIBRE





AERO CLUB D'ITALIA

ROBERTO CAL

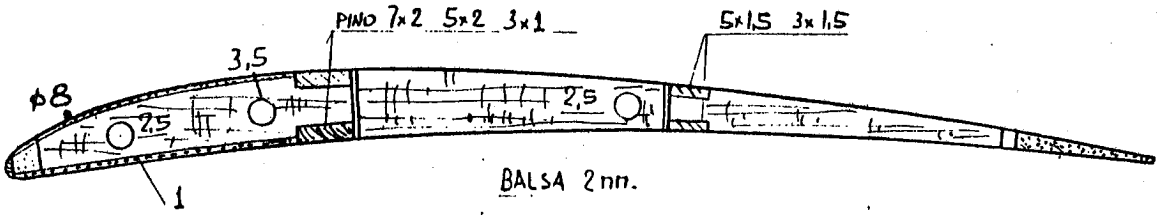
ITALIE

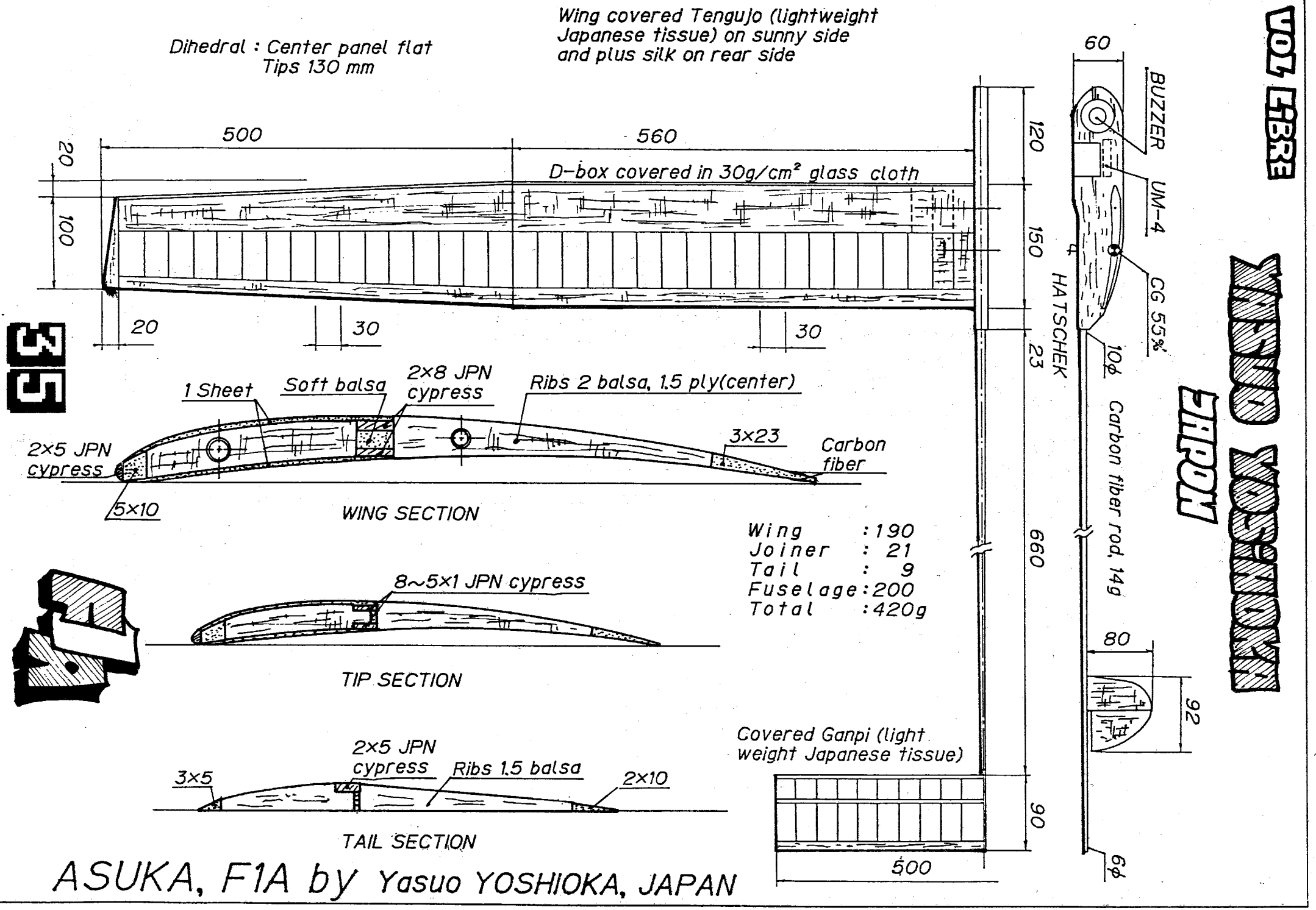
CHAMPION D'ITALIE 1986

PESO ALA 180 g

PESO P.CODA 9 g

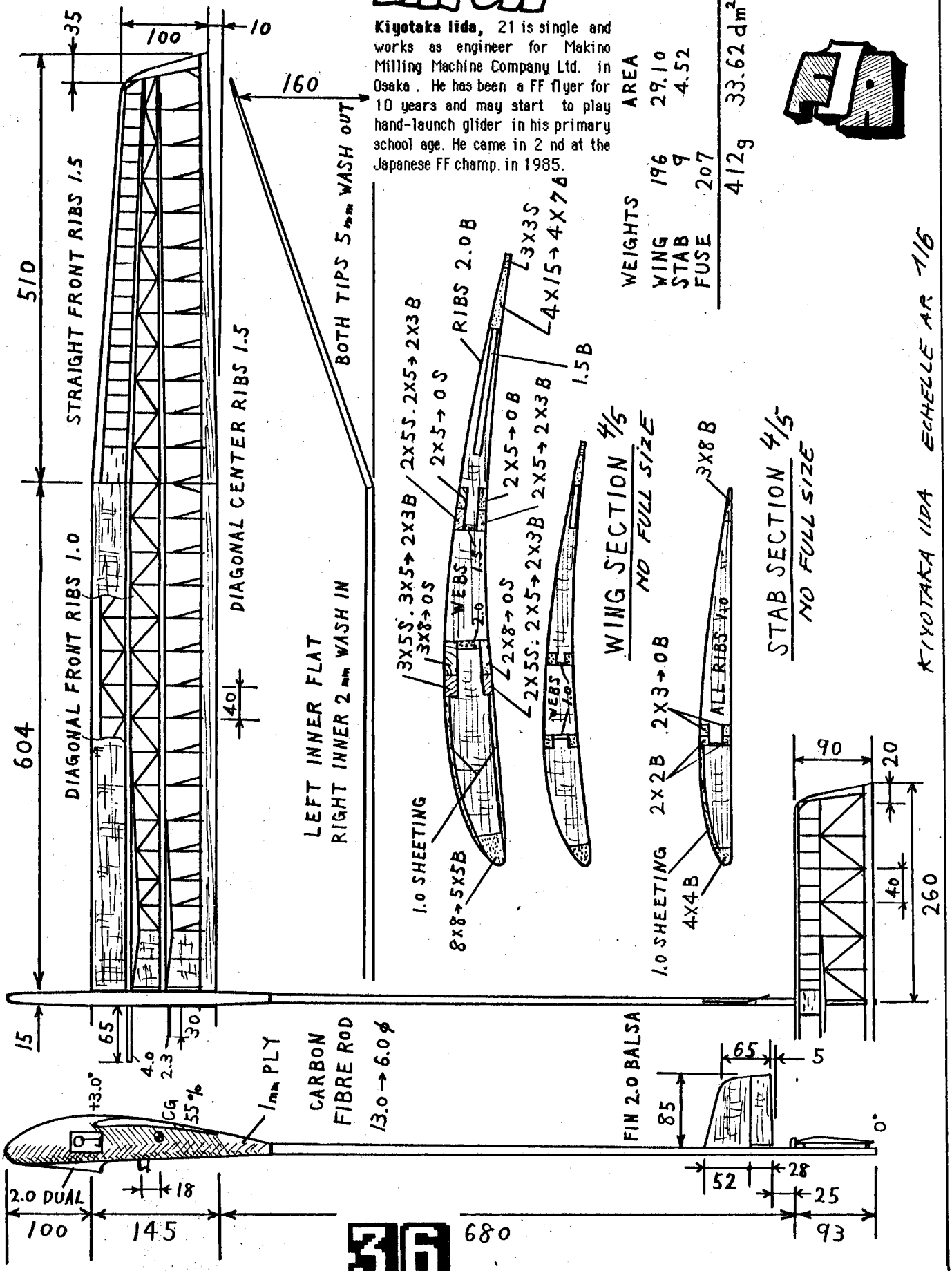
PESO TOTALE 420 g




VOL LIBRE
YASUO YOSHIOKA
EIRON
Dihedral : Center panel flat
Tips 130 mm
Wing covered Tengujo (lightweight Japanese tissue) on sunny side and plus silk on rear side
500
560
20
100
D-box covered in 30g/cm² glass cloth
20
30
30
120
150
23
660
90
500
60
BUZZER
UM-4
CG 55%
HATSCHEK
10φ
Carbon fiber rod, 14g
80
92
6φ
1 Sheet
Soft balsa
2x8 JPN cypress
Ribs 2 balsa, 1.5 ply(center)
2x5 JPN cypress
3x23
Carbon fiber
5x10
WING SECTION
Wing : 190
Joiner : 21
Tail : 9
Fuselage : 200
Total : 420g
8~5x1 JPN cypress
TIP SECTION
Covered Ganpi (light weight Japanese tissue)
2x5 JPN cypress
Ribs 1.5 balsa
3x5
2x10
TAIL SECTION
ASUKA, F1A by Yasuo YOSHIOKA, JAPAN

KIYOTAKA IIDA JAPON

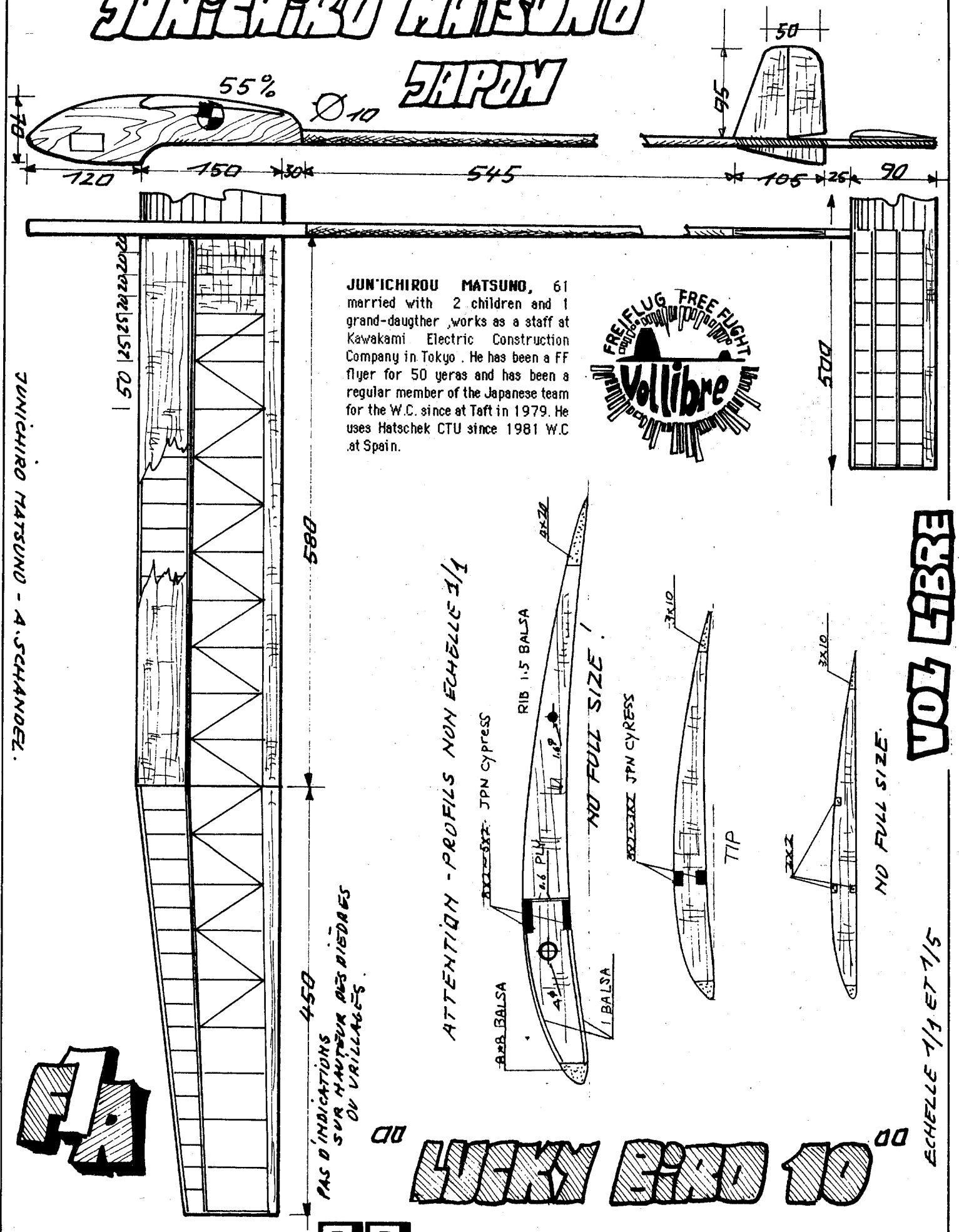
Kiyotaka Iida, 21 is single and works as engineer for Makino Milling Machine Company Ltd. in Osaka. He has been a FF flyer for 10 years and may start to play hand-launch glider in his primary school age. He came in 2 nd at the Japanese FF champ. in 1985.



WEIGHTS		AREA
WING	196	29.10
STAB	9	4.52
FUSE	207	
	412g	33.62 dm²

JUNICHIRO MATSUNO

JAPON



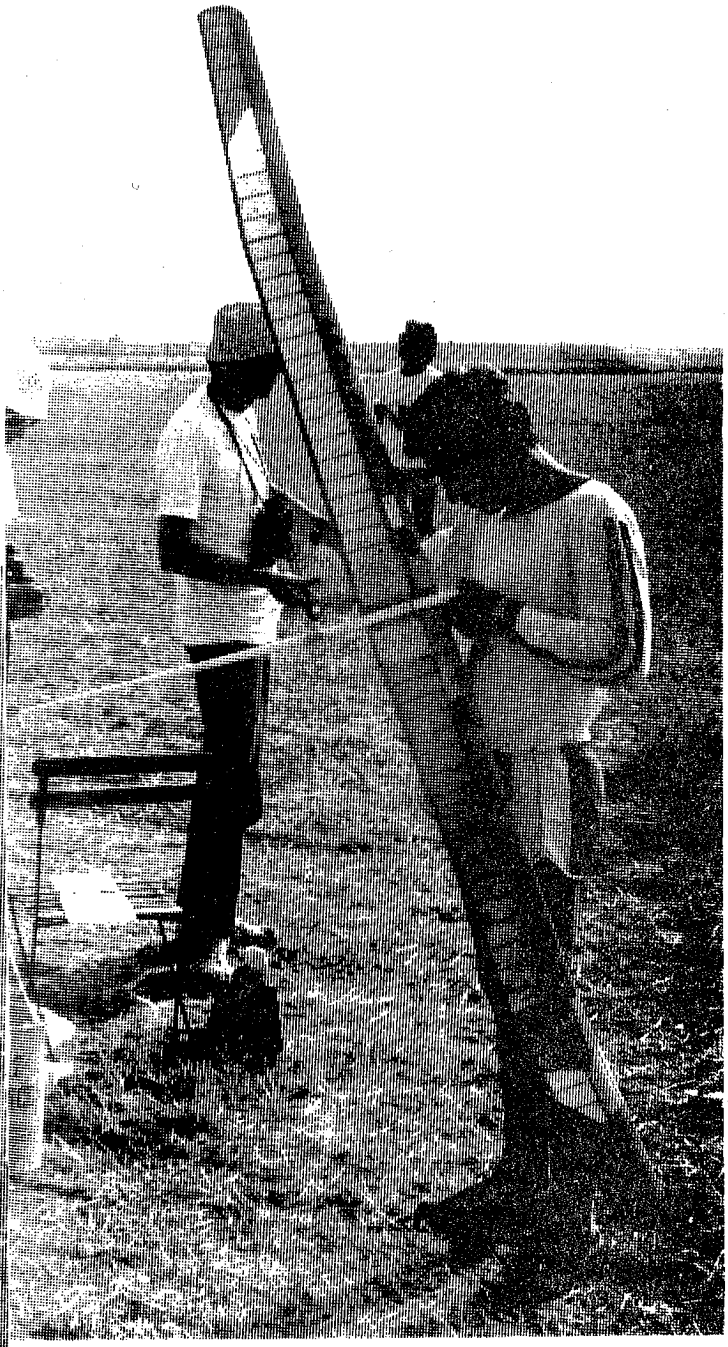
JUN'ICHIROU MATSUNO, 61 married with 2 children and 1 grand-daugther ,works as a staff at Kawakami Electric Construction Company in Tokyo . He has been a FF flyer for 50 yeras and has been a regular member of the Japanese team for the W.C. since at Taft in 1979. He uses Hatschek CTU since 1981 W.C .at Spain.

VOL LIBRE

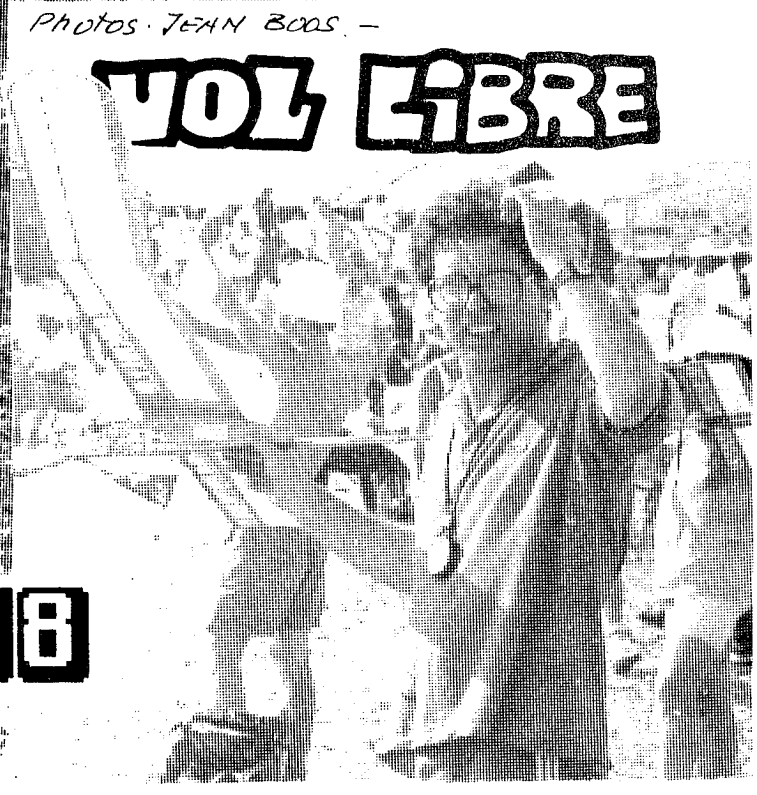
F1A

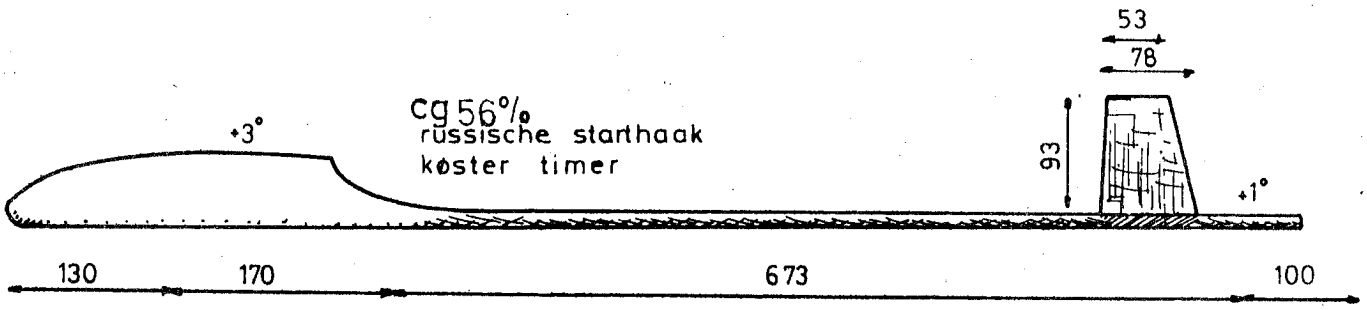
"LUCKY BIRD 10"

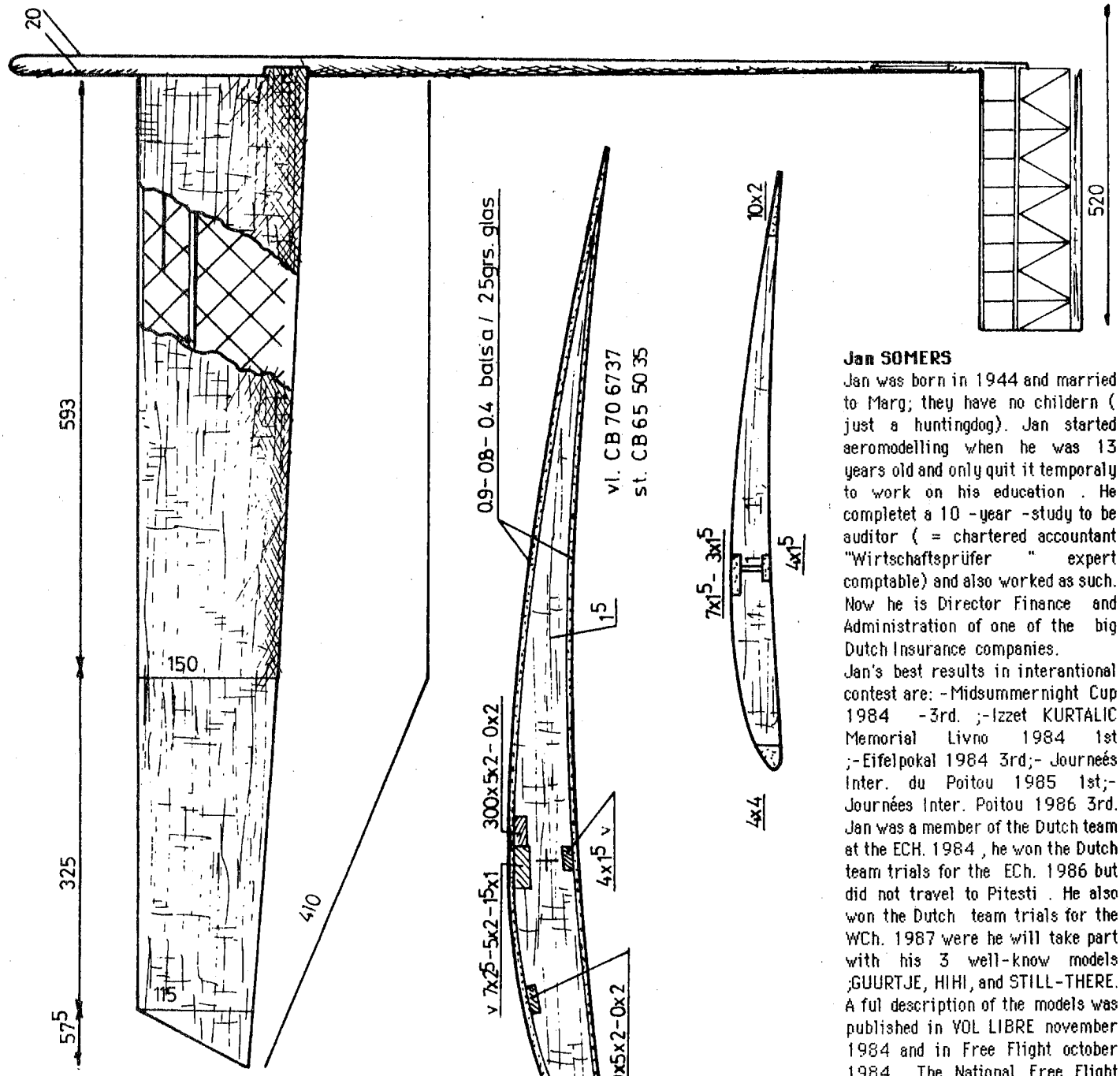
Stamov et Makarov, deux concurrents URSS ,qui n'ont pas tout à fait tenu les promesses, on peut cependant penser que l'équipe de l'URSS malgré sa contre performance collective est intrinsèquement parmi les meilleures sinon le meilleure, à remarquer le parfection dans les constructions avec une forte percée d'éléments de constructions en matériaux nouveaux. Une image sur la ligne de départ avec un aide inconnu semblant perplexe.



Photos · JEAN BOOS. –







GUURTJE

turb.draad 0,3 mm
plus 5 invigorators

Jan SOMERS

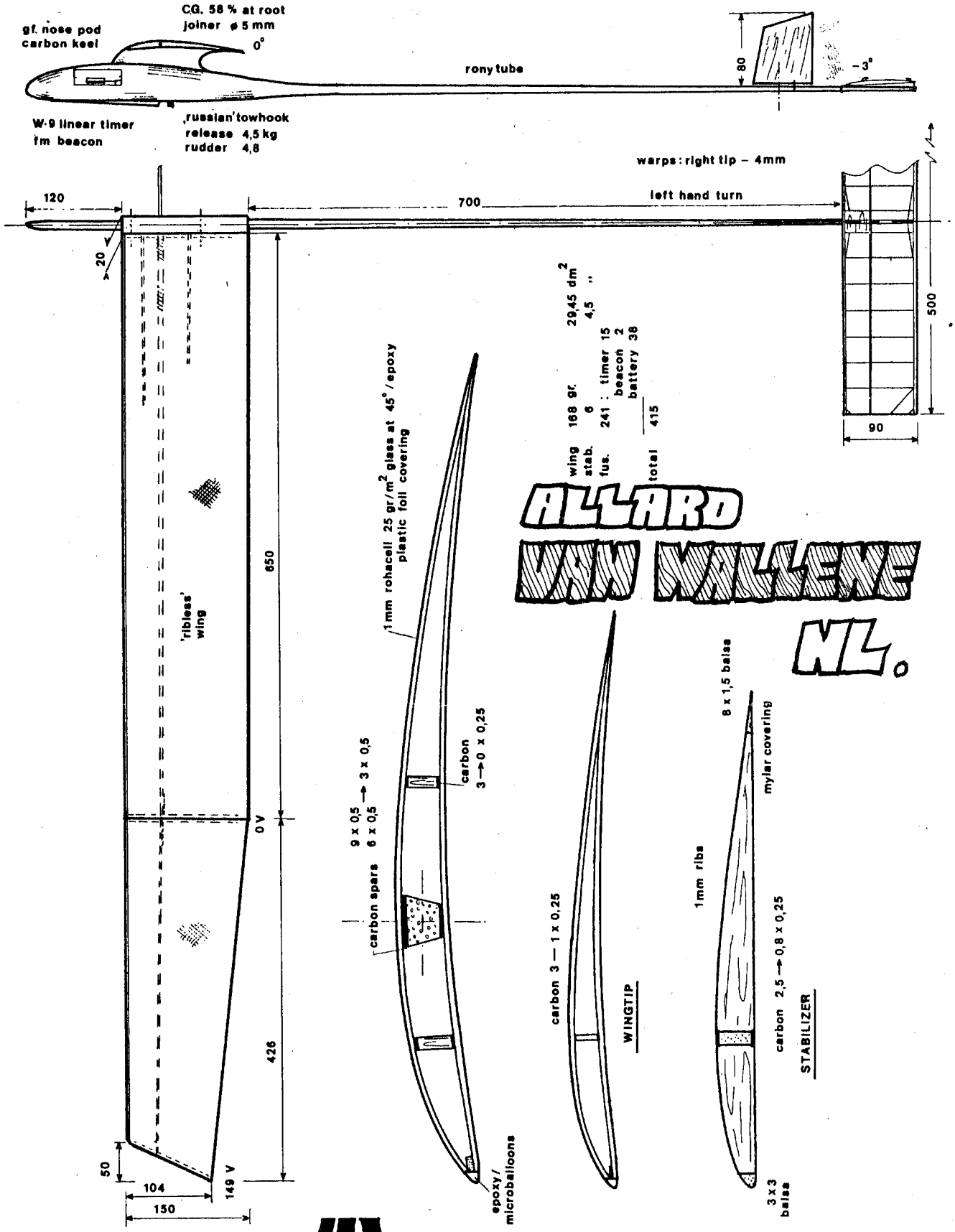
Jan was born in 1944 and married to Marg; they have no childern (just a huntingdog). Jan started aeromodelling when he was 13 years old and only quit it temporaly to work on his education . He completet a 10 -year -study to be auditor (= chartered accountant "Wirtschaftsprüfer " expert comptable) and also worked as such. Now he is Director Finance and Administration of one of the big Dutch Insurance companies.

Jan's best results in interantional contest are: -Midsummernight Cup 1984 -3rd. ;-Izzet KURTALIC Memorial Livno 1984 1st ;-Eifelpokal 1984 3rd;- Journeés Inter. du Poitou 1985 1st;- Journées Inter. Poitou 1986 3rd. Jan was a member of the Dutch team at the ECH. 1984 , he won the Dutch team trials for the ECh. 1986 but did not travel to Pitesti . He also won the Dutch team trials for the WCh. 1987 were he will take part with his 3 well-know models ;GUURTJE, HIHI, and STILL-THERE. A ful description of the models was published in VOL LIBRE november 1984 and in Free Flight october 1984. The National Free Flight Society of U.S.A presented his model HIHI with the "Model of the Year Award "1985.

spanw. 1971 mm.

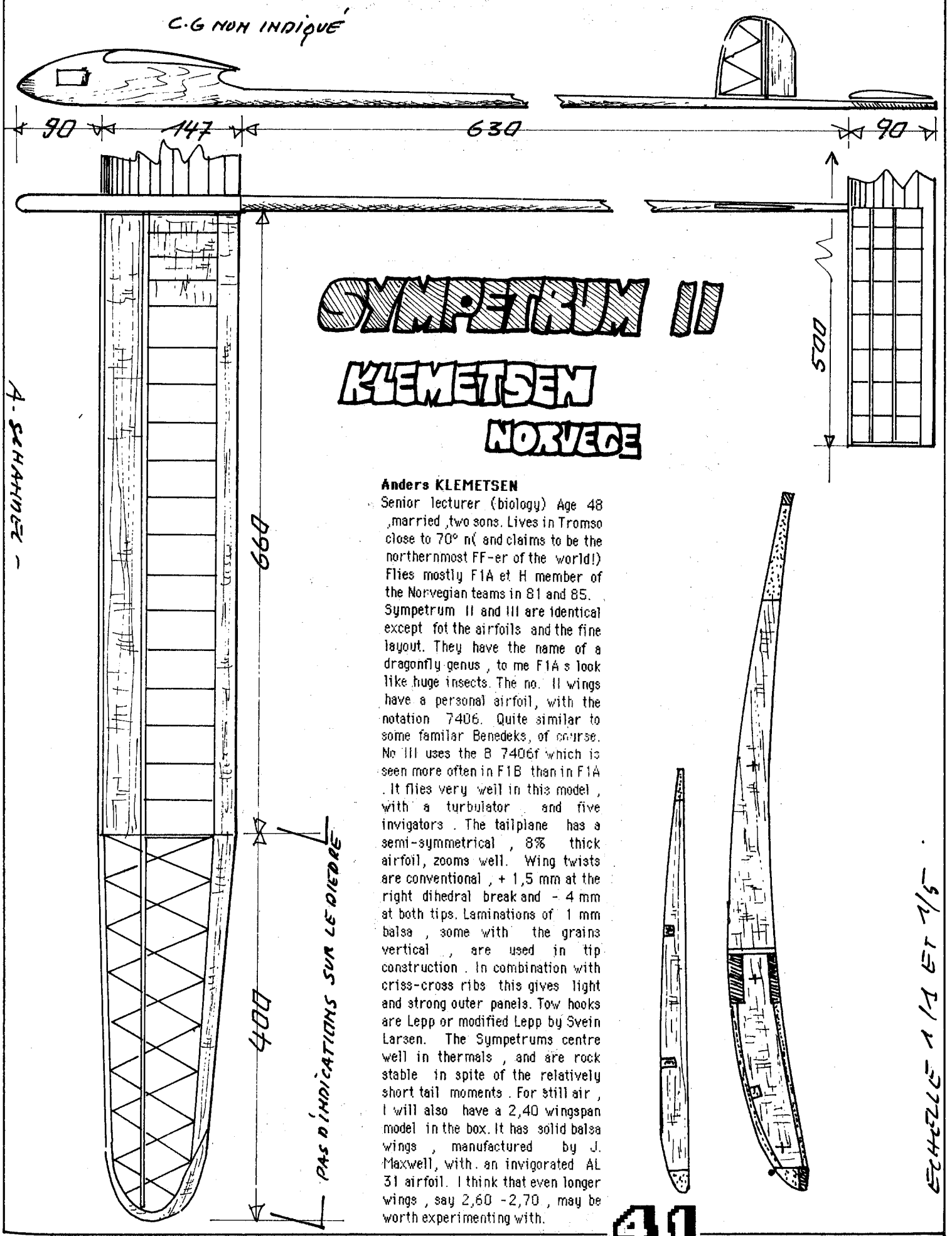
Jan Somers / Cenny Breeman

VOL LIBRE



ALLARD VAN WILLENE NL.

HABRID



SYMPETRUM II

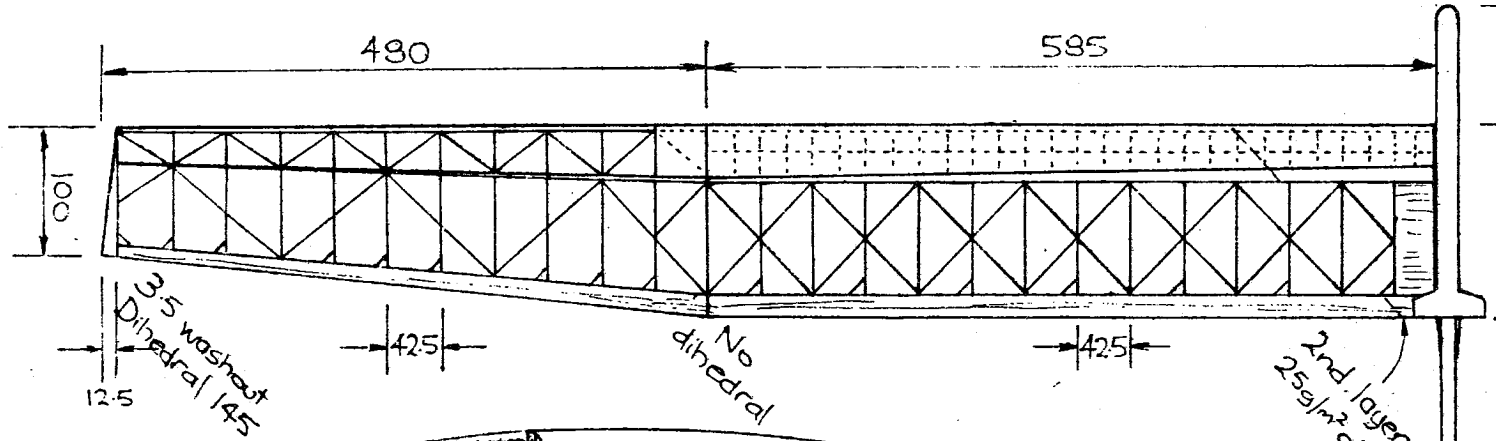
KLEMETSEN

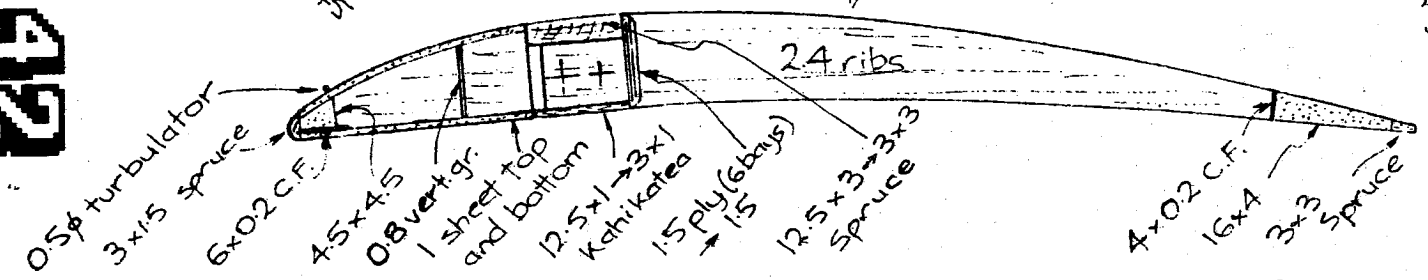
NORVEGE

Anders KLEMETSEN

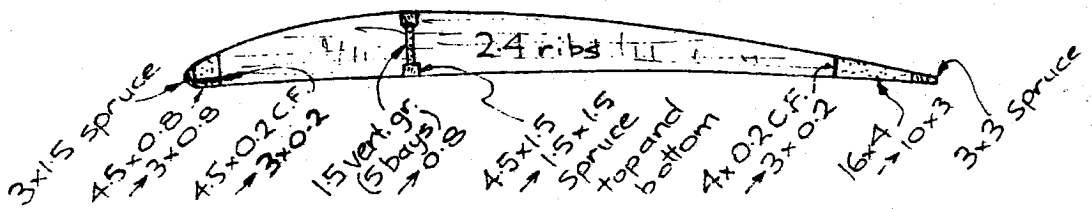
Senior lecturer (biology) Age 48 ,married ,two sons. Lives in Tromso close to 70° n(and claims to be the northernmost FF-er of the world!) Flies mostly F1A et H member of the Norvegian teams in 81 and 85. Sympetrum II and III are identical except fot the airfoils and the fine layout. They have the name of a dragonfly genus , to me F1A s look like huge insects. The no. II wings have a personal airfoil, with the notation 7406. Quite similar to some familar Benedeks, of course. No III uses the B 7406f which is seen more often in F1B than in F1A . It flies very well in this model , with a turbulator and five invigators . The tailplane has a semi-symmetrical , 8% thick airfoil, zooms well. Wing twists are conventional , + 1,5 mm at the right dihedral break and - 4 mm at both tips. Laminations of 1 mm balsa , some with the grains vertical , are used in tip construction . In combination with criss-cross ribs this gives light and strong outer panels. Tow hooks are Lepp or modified Lepp by Svein Larsen. The Sympetrums centre well in thermals , and are rock stable in spite of the relatively short tail moments . For still air , I will also have a 2,40 wingspan model in the box. It has solid balsa wings , manufactured by J. Maxwell, with an invigorated AL 31 airfoil. I think that even longer wings , say 2,60 -2,70 , may be worth experimenting with.

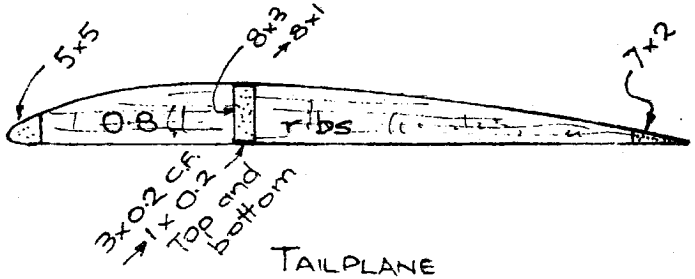
ROD LEWIS "GAMEY" NZ



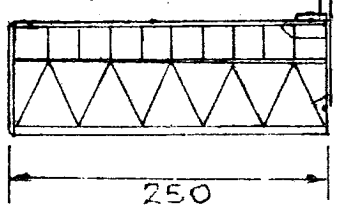


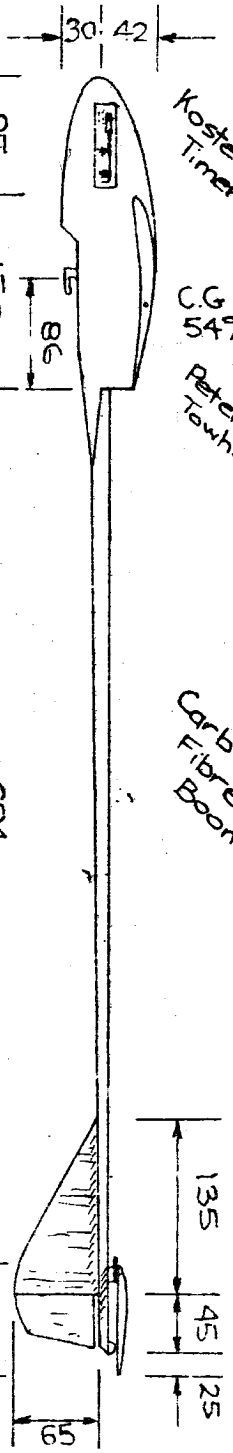
WING SECTIONS: Diagonals 1.5, riblets 0.8, joiners 140×4 φ fwd, 205×3 φ aft.





TAILPLANE





Weights

Fuselage:	225
Wings:	208
Joiners:	26
Tailplane:	9
Total:	468 g.

Areas:

Wings:	28.99
Fuselage:	0.30
Tailplane:	4.50
Total	33.79 dm²

Scales: 1:6 and full size

ROD LEWIS.

VOL FIBRE

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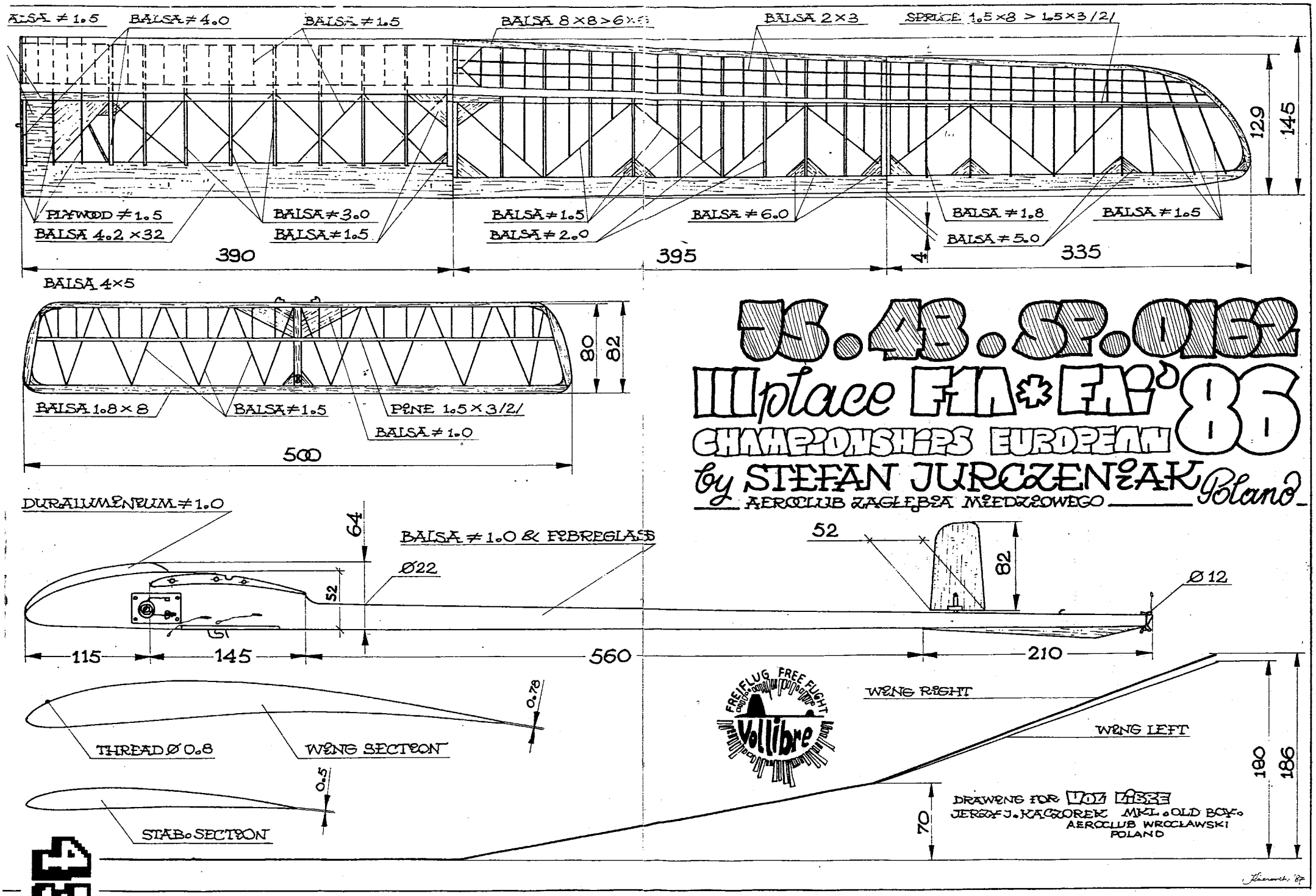


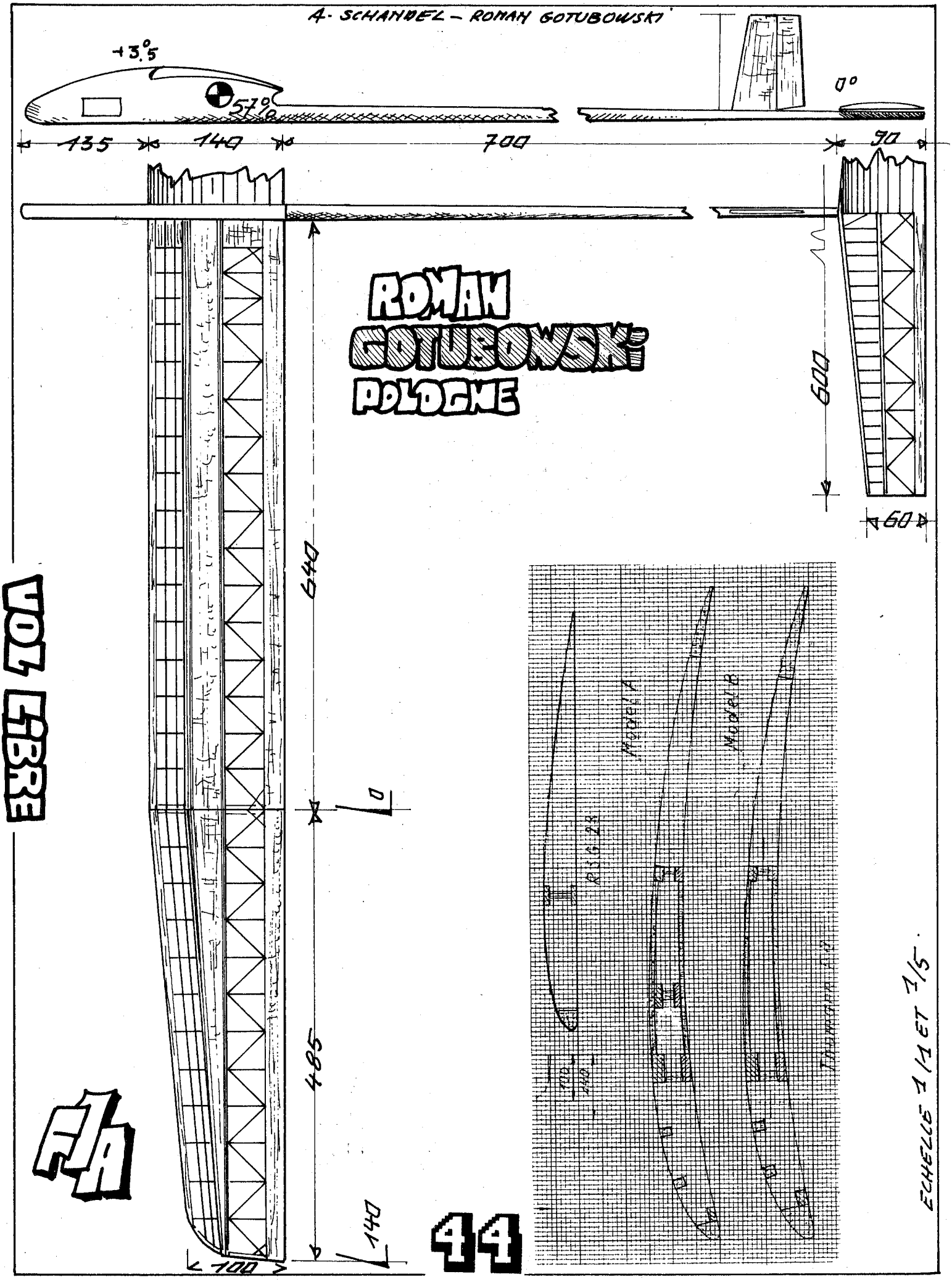
56.43.SF.012

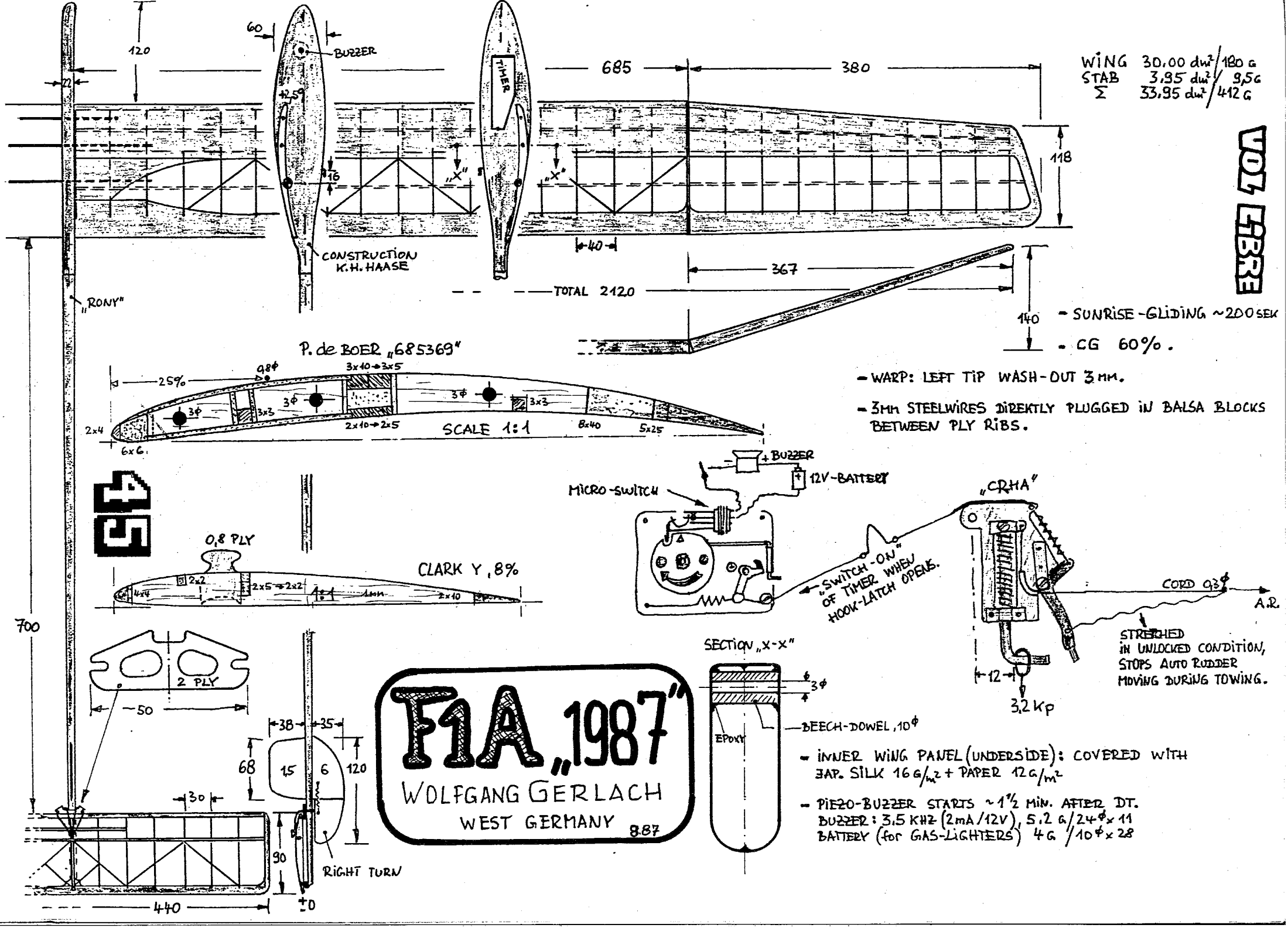
III place F1A ✱ FAI '86

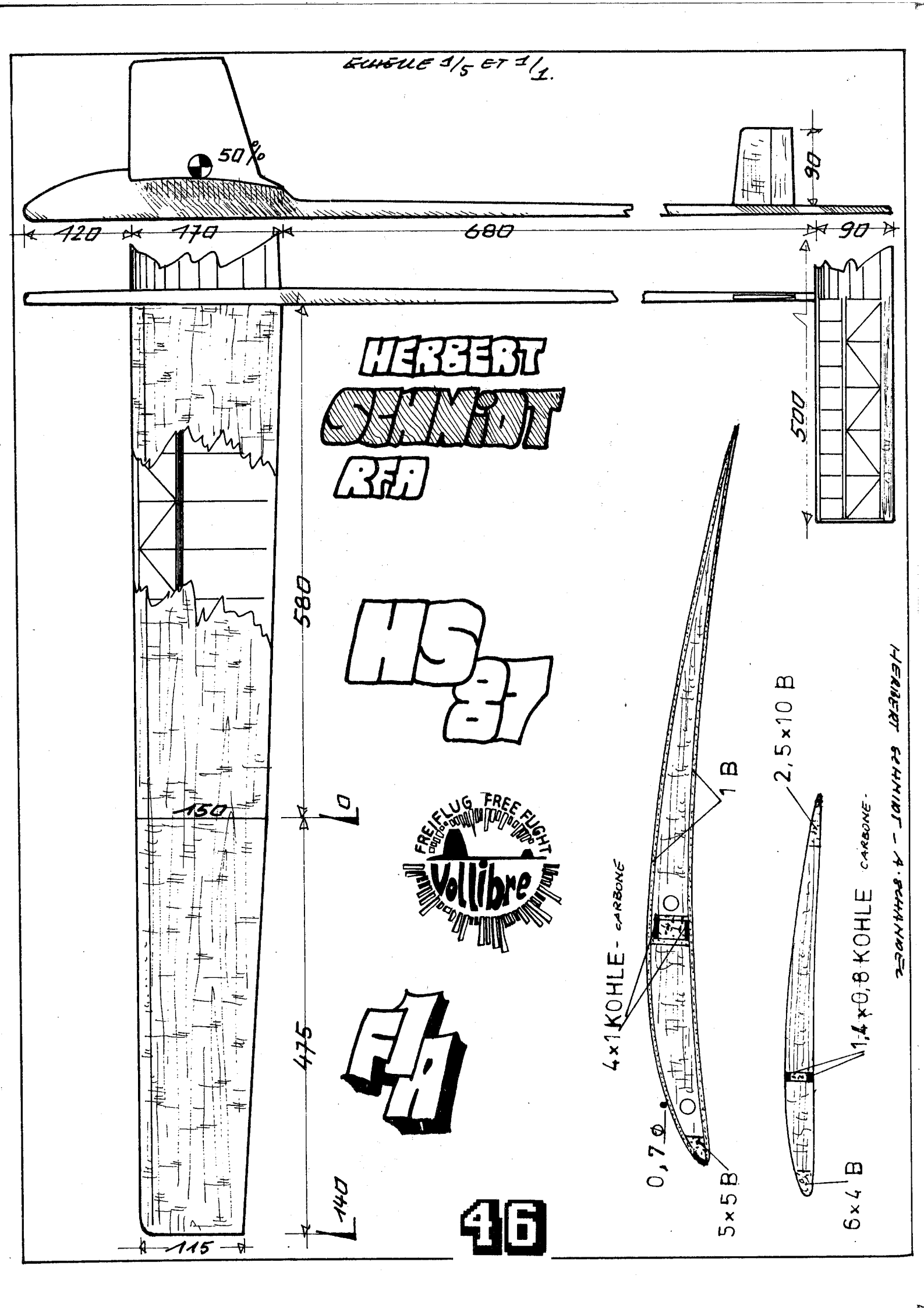
CHAMPIONSHIPS EUROPEAN

by STEFAN JURCZENIAK Poland

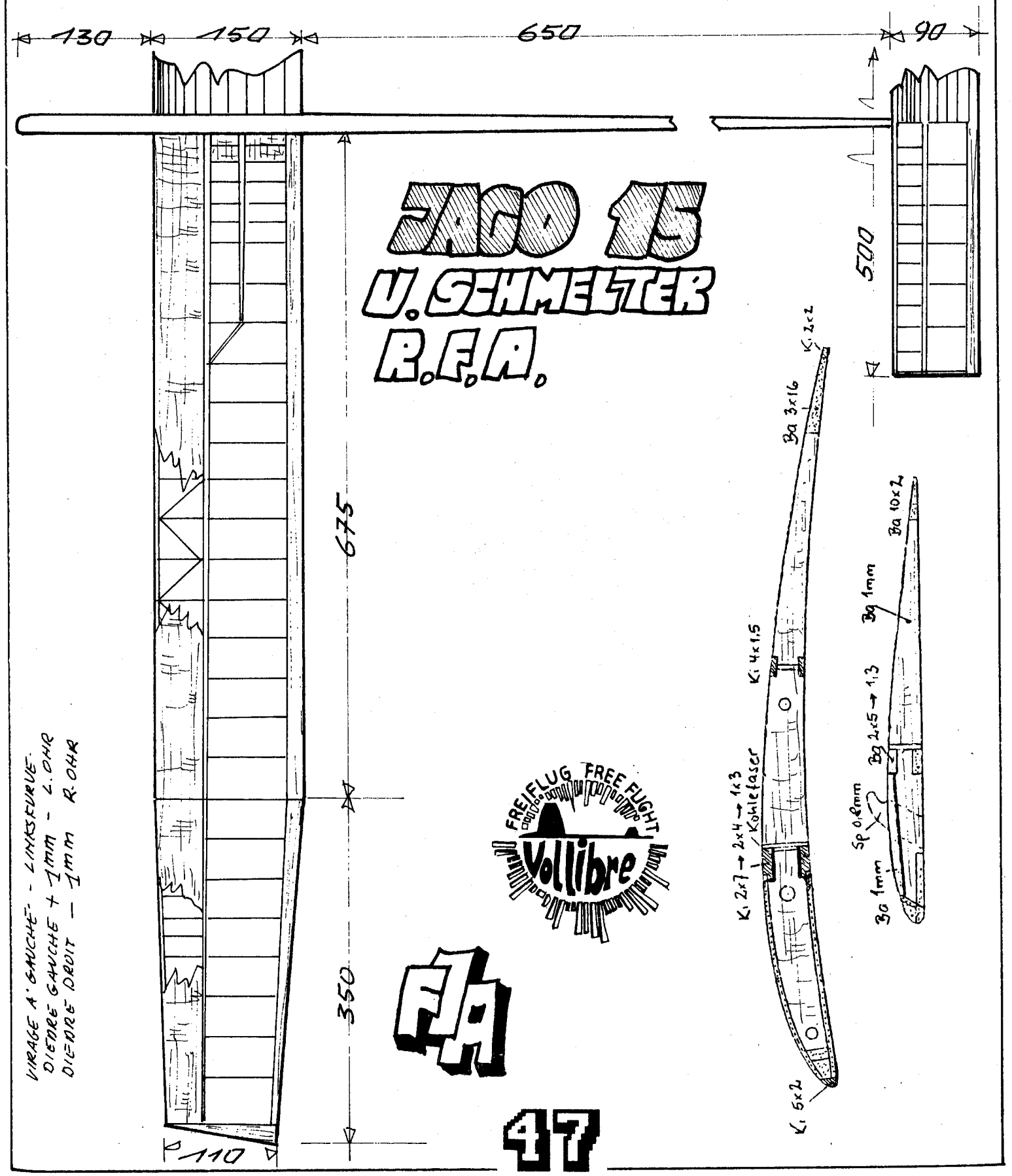
AEROCLUB ZAGŁĘBIA MIEDZIOWEGO


A. SCHANDEL – ROMAN GOTUBOWSKI
+3°5
57%
0°
135
140
700
90
600
60
640
485
140
100
ROMAN
GOTUBOWSKI
POLOGNE
VOL LIBRE
FIA
44
MODELE A
MODELE B
R 36.28
ECHELLE 1/1 ET 1/5


WING 30.00 dm²/180 G
STAB 3.95 dm²/ 9,5G
Σ 33.95 dm²/412 G
VOL LIBRE
- SUNRISE-GLIDING ~200 SEK
- CG 60%.
- WARP: LEFT TIP WASH-OUT 3 MM.
- 3MM STEELWIRES DIREKTLY PLUGGED IN BALSA BLOCKS BETWEEN PLY RIBS.
BUZZER
TIMER
CONSTRUCTION K.H. HAASE
"RONY"
TOTAL 2120
P. de BOER "685369"
SCALE 1:1
CLARK Y, 8%
0,8 PLY
2 PLY
MICRO-SWITCH
BUZZER
12V-BATTERY
"SWITCH-ON" OF TIMER WHEN HOOK-LATCH OPENS.
"CRHA"
CORD 0,3ϕ
A.R.
STRETCHED IN UNLOCKED CONDITION, STOPS AUTO RUDDER MOVING DURING TOWING.
3,2 Kp
SECTION "X-X"
BEECH-DOWEL, 10ϕ
EPOXY
RIGHT TURN
F1A "1987"
WOLFGANG GERLACH
WEST GERMANY
8.87
- INNER WING PANEL (UNDERSIDE): COVERED WITH JAP. SILK 16 G/m² + PAPER 12 G/m²
- PIEZO-BUZZER STARTS ~1½ MIN. AFTER DT.
BUZZER: 3.5 KHZ (2mA/12V), 5.2 G/24ϕ x 11
BATTERY (for GAS-LIGHTERS) 4 G /10ϕ x 28

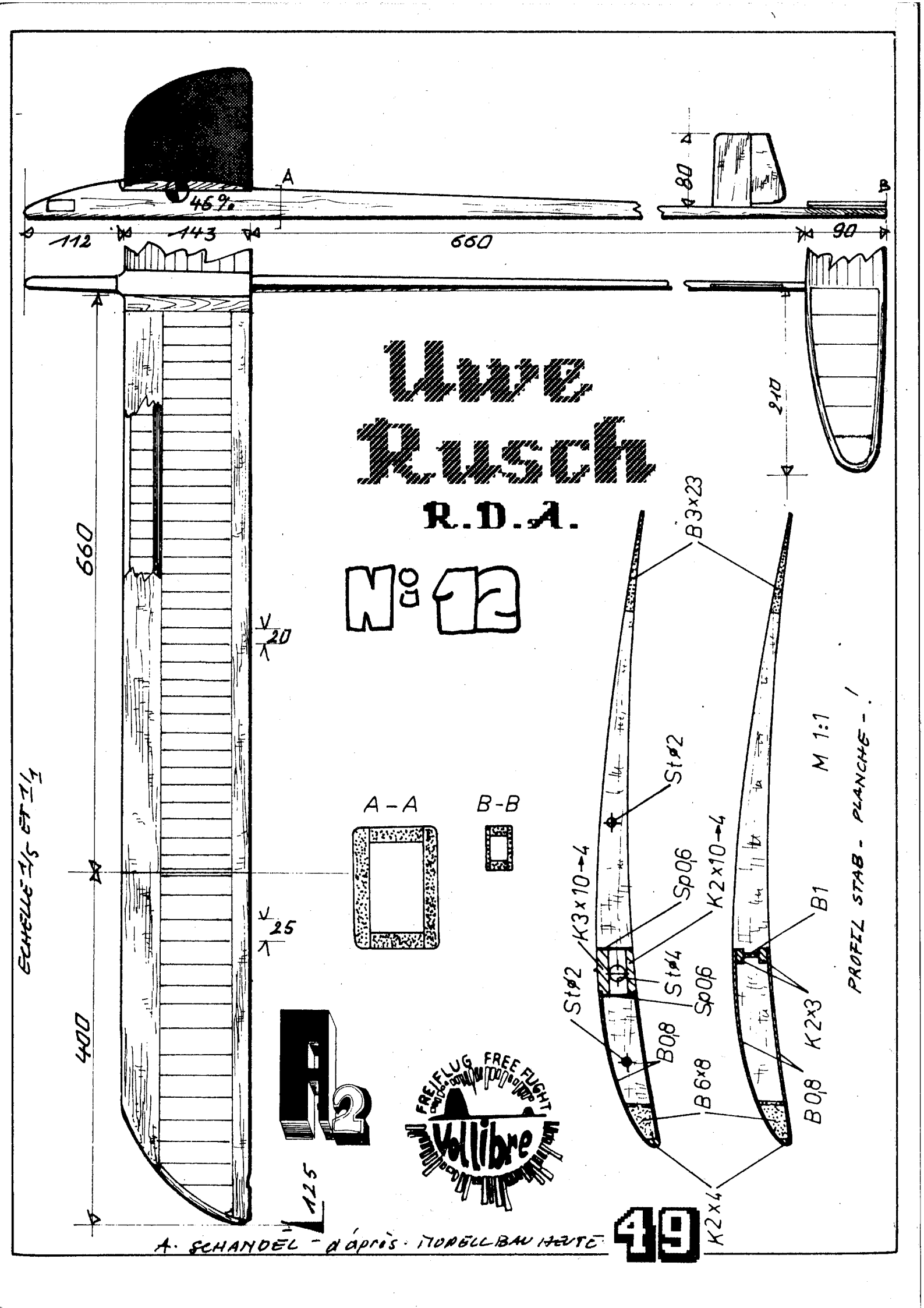

ECHELLE 1/5 ET 1/1.
50%
120
170
680
90
90
500
580
150
475
140
115
HERBERT
SCHMIDT
RFA
HS
37
FREIFLUG FREE FLIGHT
Vollibre
FFA
46
1 B
2,5×10 B
4×1 KOHLE - CARBONE
1,4×0,8 KOHLE CARBONE
0,7 Ø
5×5 B
6×4 B
HERBERT SCHMIDT - A. SCHMIDT

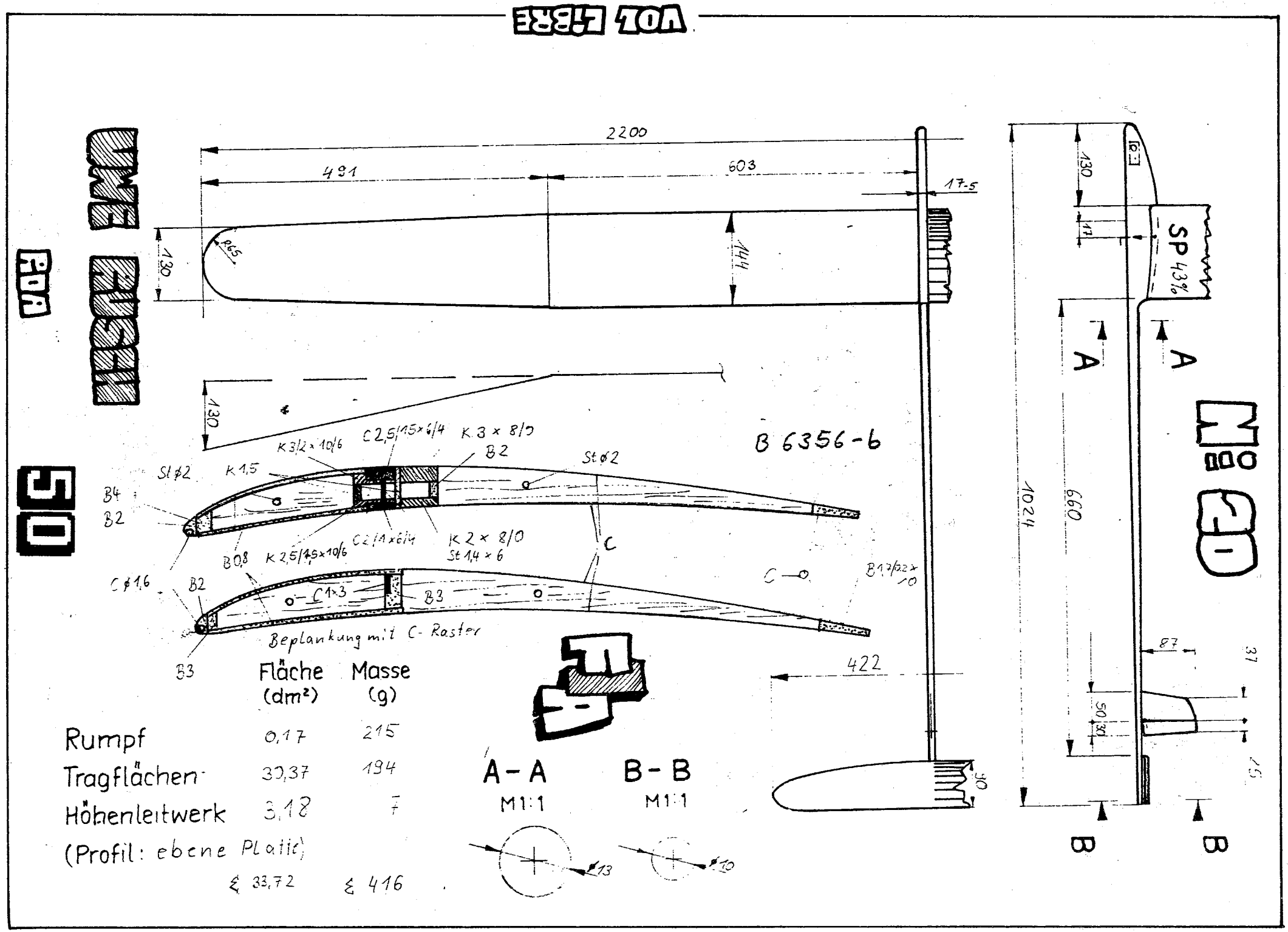
PAS D'INDICATIONS SUR LE FUSELAGE-
OHNE ANGABEN ÜBER RUMPF.



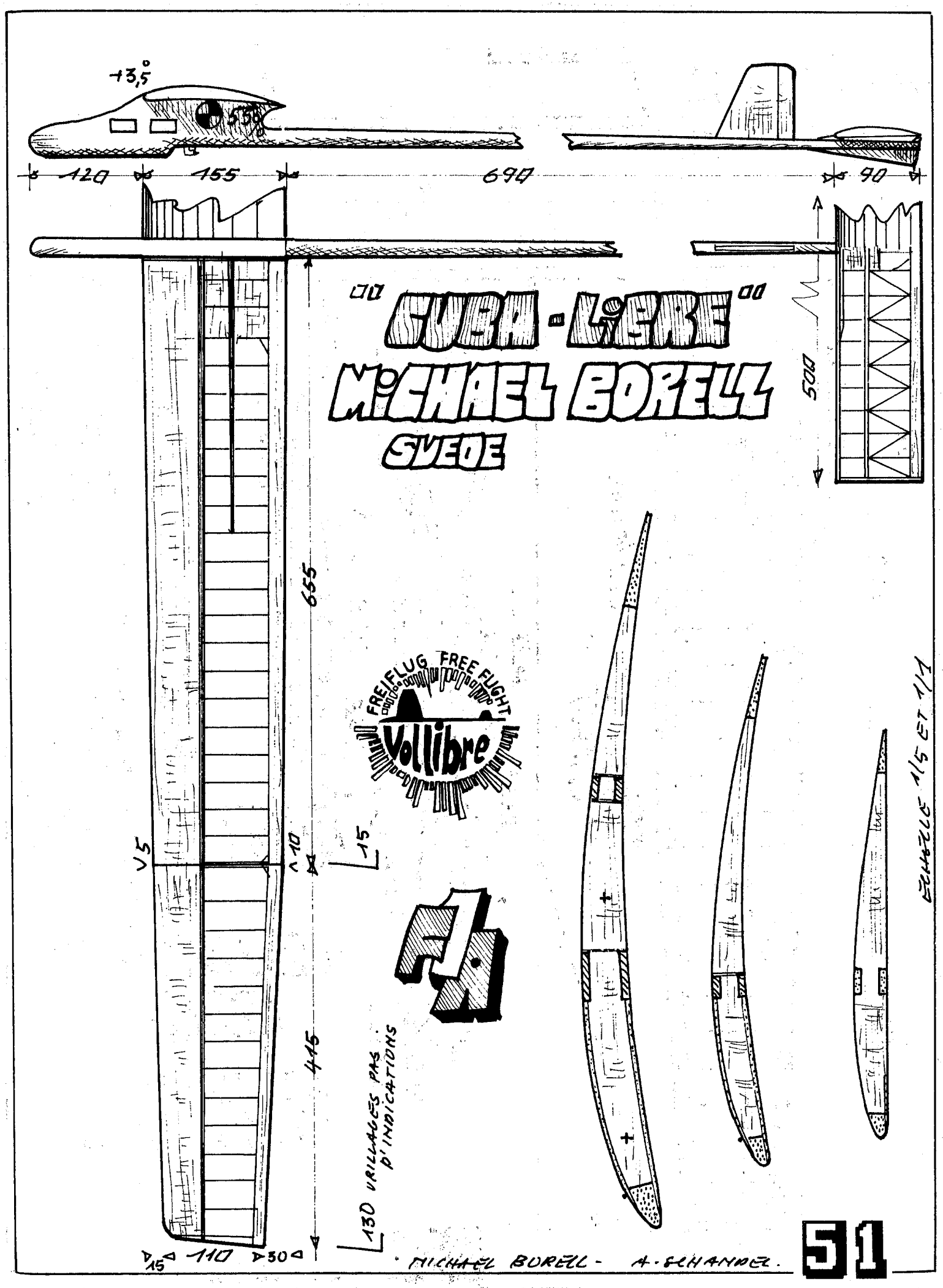
Page 48

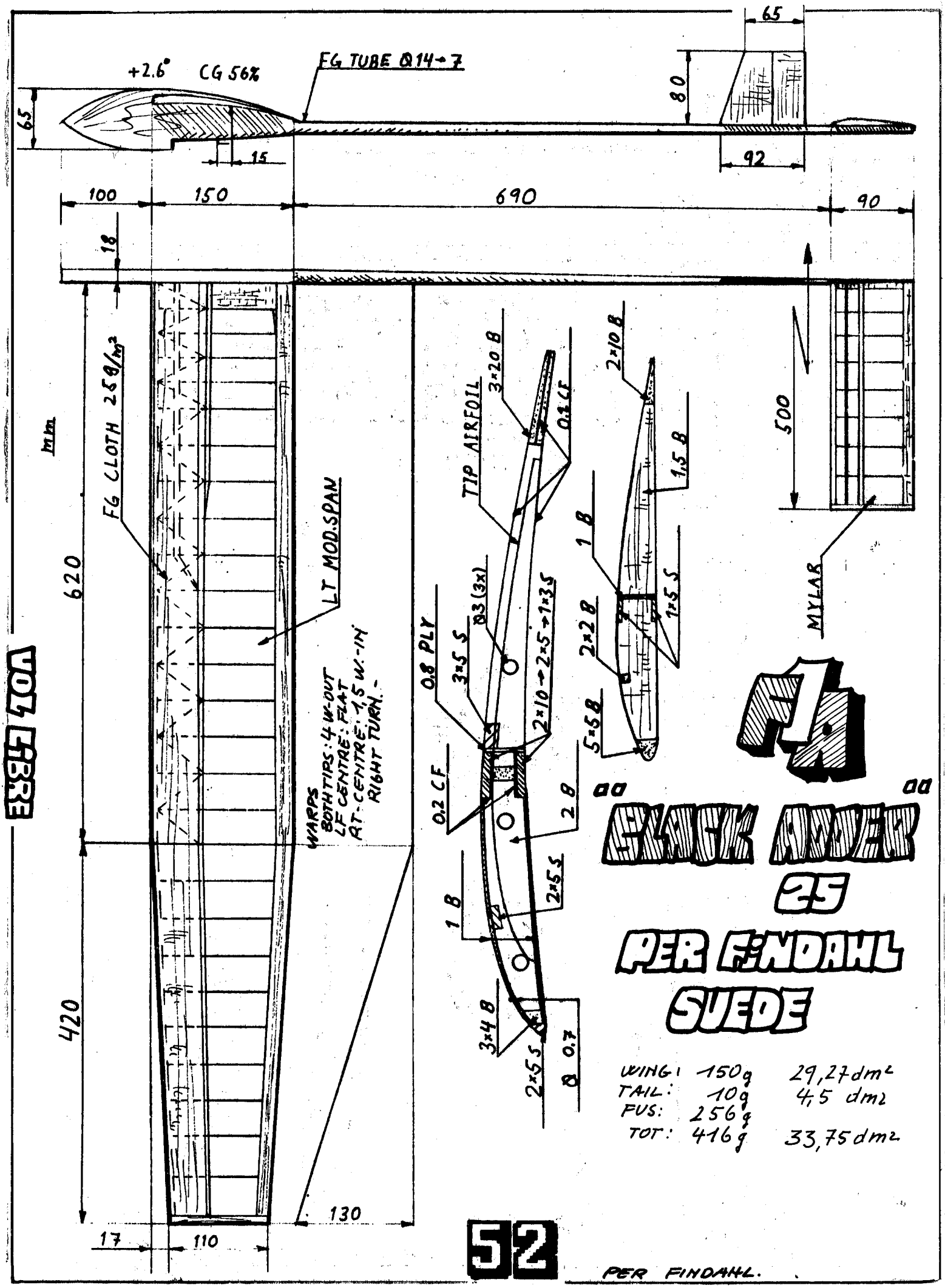
Un appareil de Jim Bradley tenu par un aide semblant très décontracté dans l'attente d'un prochain départ. reamrquer l'environnement sur les chaumes alentours.


Uwe Rusch
R.D.A.
N° 12
A2
46%
A
112
143
660
90
80
210
660
400
20
25
125
A-A
B-B
B3x23
St ø2
Sp06
K2x10→4
K3x10→4
St ø4
B1
K2x3
B0,8
B6x8
K2x4
M 1:1
PROFIL STAB - PLANCHE - 1
ECHELLE 1/5 ET 1/4
FREIFLUG FREE FLIGHT
Vollibre
A. SCHANDEL - d'après MODELLBAU HEUTE
49

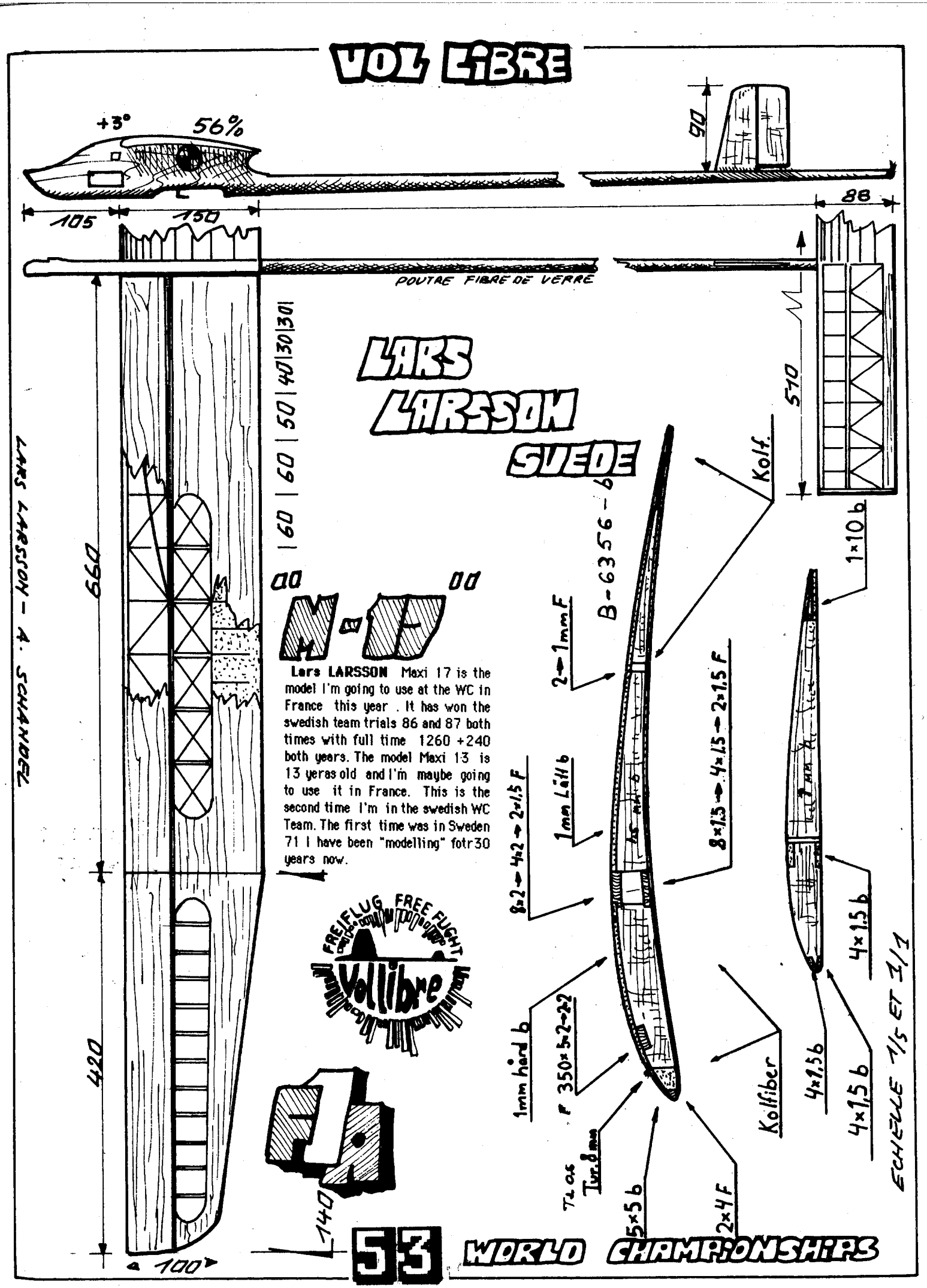


	Fläche (dm²)	Masse (g)
Rumpf	0,17	215
Tragflächen	30,37	194
Höhenleitwerk	3,18	7
(Profil: ebene Platte)		
	≈ 33,72	≈ 416


+3,5°
120
155
690
90
500
655
445
110
15
30
10
5
15
130
"CUCA-LISKE"
MICHAEL BORELL
SUEDE
FREIFLUG FREE FLIGHT
Vollibre
1/1
ECHELLE 1/5 ET 1/1
VRILLAGES PAS D'INDICATIONS
MICHAEL BORELL - A. SCHANDER.
51


+2.6°
CG 56%
FG TUBE Ø14→7
65
80
92
15
100
150
690
90
18
620
420
500
FG CLOTH 25 g/m²
LT MOD.SPAN
WARPS
BOTH TIPS: 4 W-OUT
LF CENTRE: FLAT
RT-CENTRE: 1,5 W.-IN
RIGHT TURN.-
TIP AIRFOIL
3×20 B
0.1 CF
0.8 PLY
3×5 S
Ø3 (3x)
2×10→2×5→1×3 S
0.2 CF
2 B
2×5 S
1 B
3×4 B
2×5 S
Ø 0.7
2×10 B
1.5 B
1 B
1×5 S
2×2 B
5×5 B
MYLAR
130
17
110
aa
aa
4
BLACK ARROW
25
PER FINDAHL
SUEDE
WING: 150g 29,27 dm²
TAIL: 10g 4,5 dm²
FUS: 256g
TOT: 416g 33,75 dm²
52
PER FINDAHL.
VOL FIBRE

VOL LIBRE



Lars LARSSON Maxi 17 is the model I'm going to use at the WC in France this year . It has won the swedish team trials 86 and 87 both times with full time 1260 +240 both years. The model Maxi 13 is 13 yeras old and I'm maybe going to use it in France. This is the second time I'm in the swedish WC Team. The first time was in Sweden 71 I have been "modelling" fotr 30 years now.

VOL LIBRE

zkroucení křídla

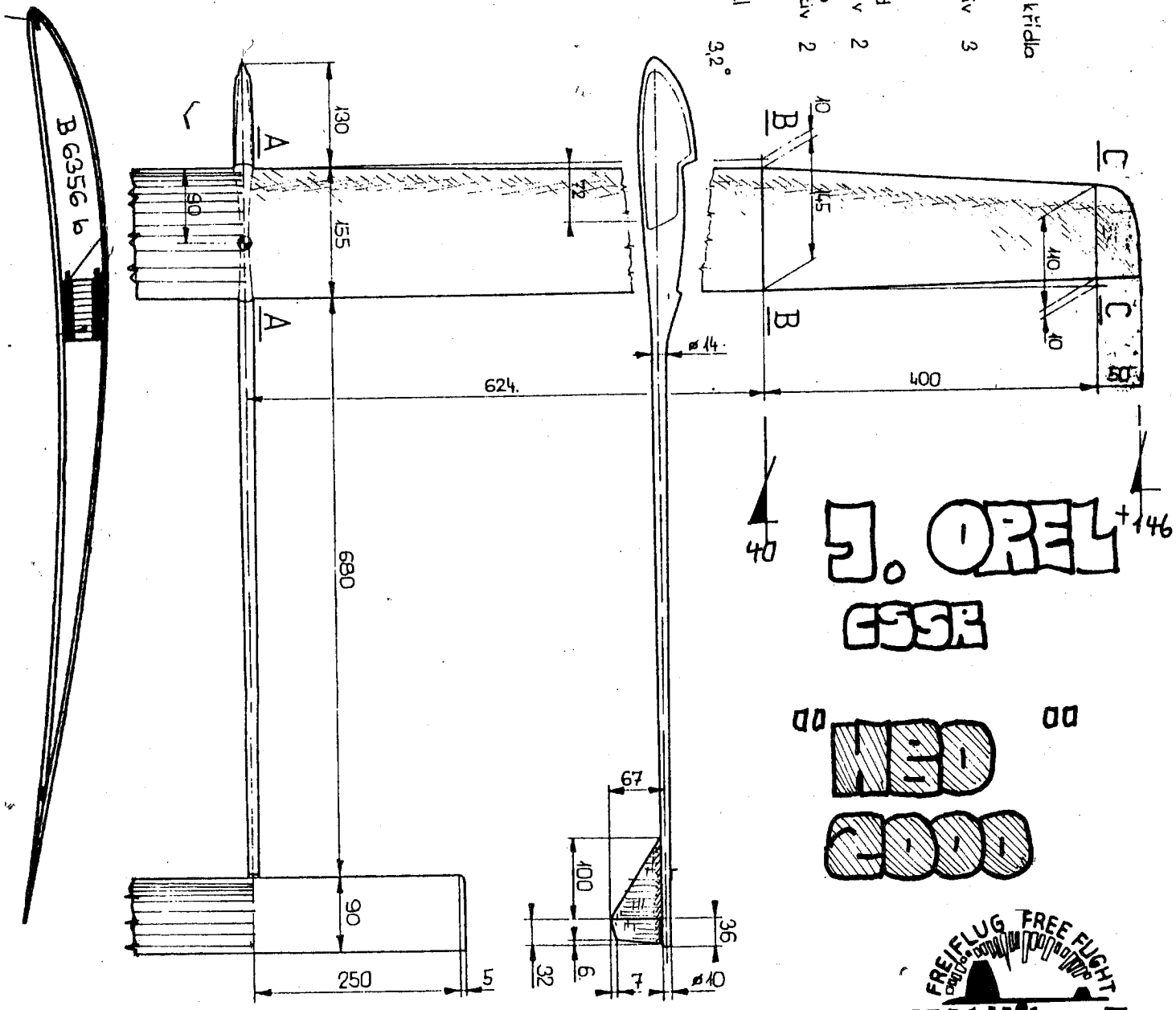
levé ucho negativ 3

levý střed rovný

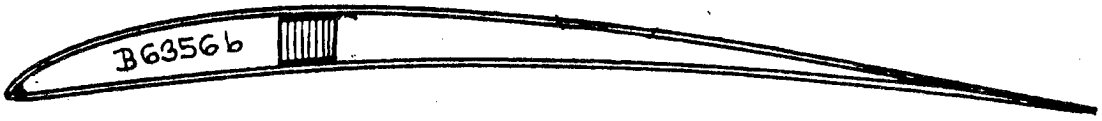
pravý střed pozitiv 2

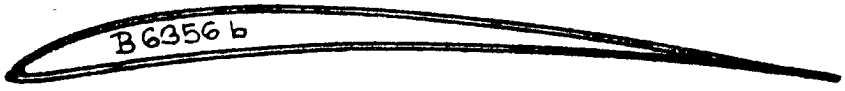
pravé ucho negativ 2

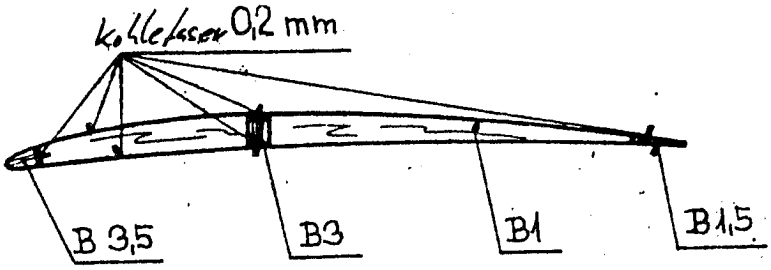
celkový úhel seřízení 3,2°



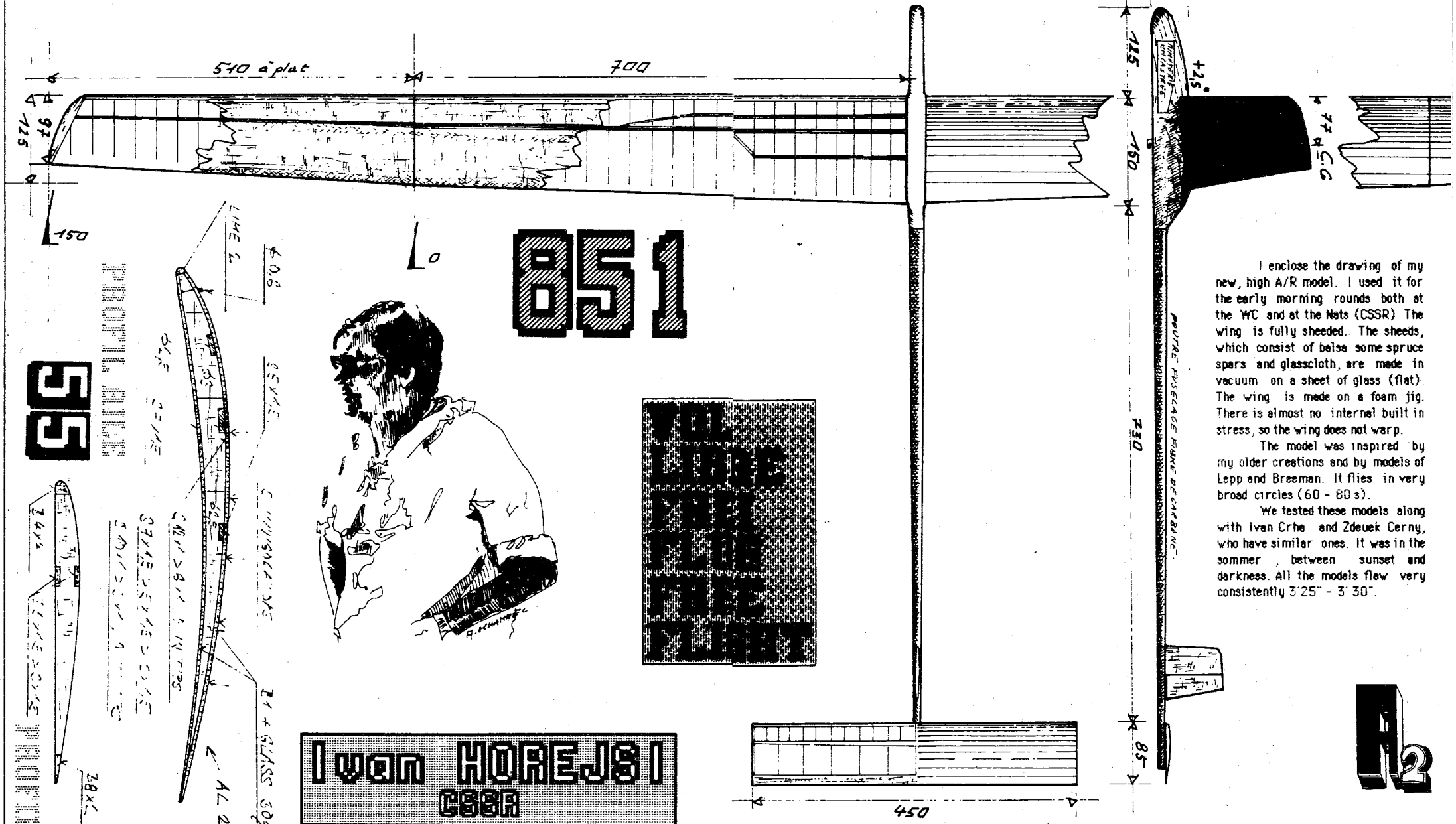
J. OREL
CSSR







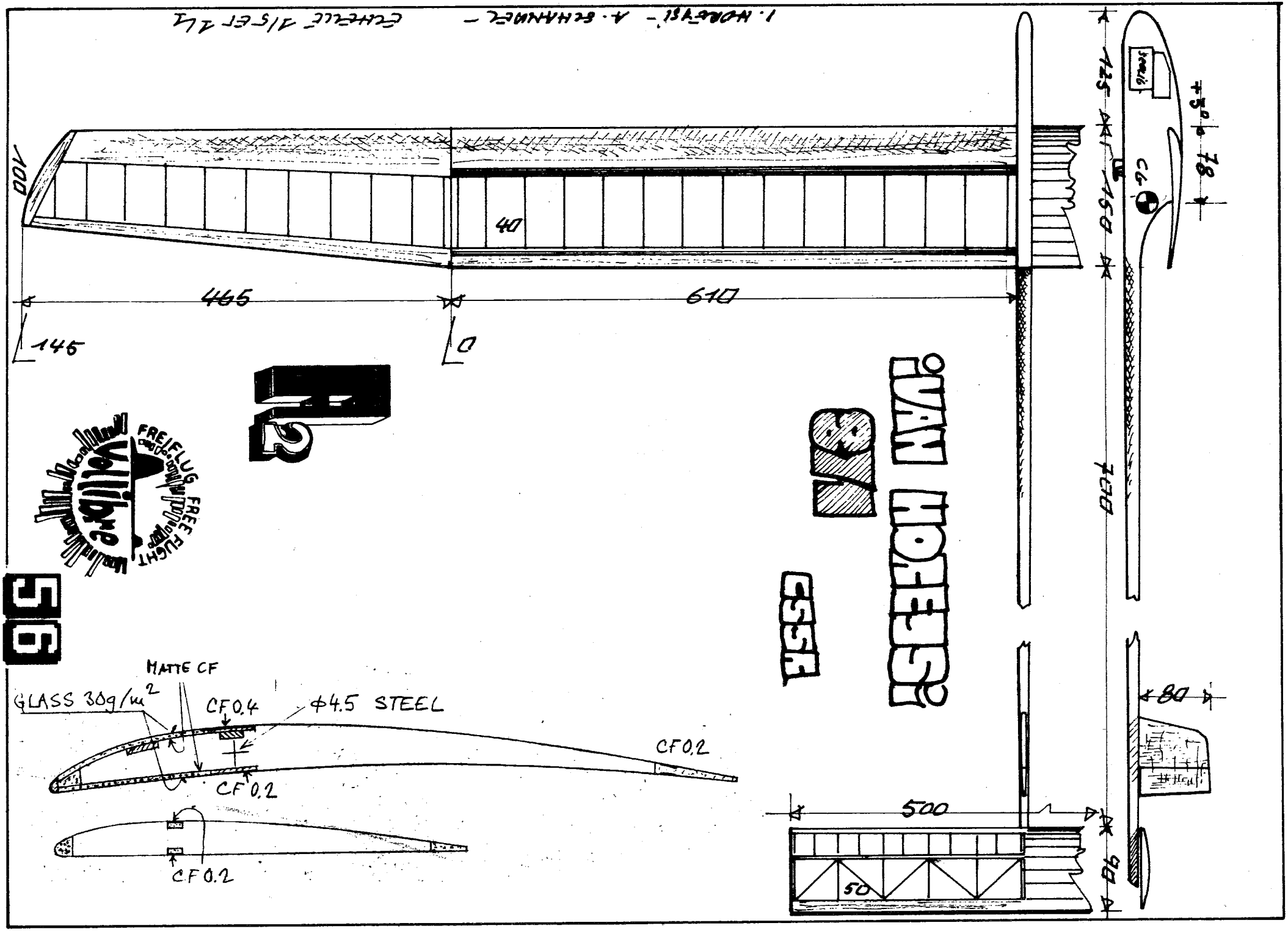
VOL LIBRE.



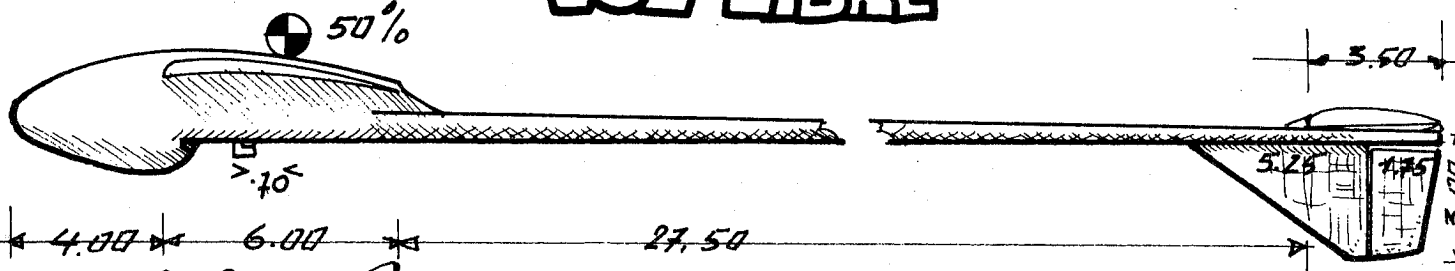
I enclose the drawing of my new, high A/R model. I used it for the early morning rounds both at the WC and at the Nats (CSSR) The wing is fully sheeded. The sheeds, which consist of balsa some spruce spars and glasscloth, are made in vacuum on a sheet of glass (flat). The wing is made on a foam jig. There is almost no internal built in stress, so the wing does not warp.

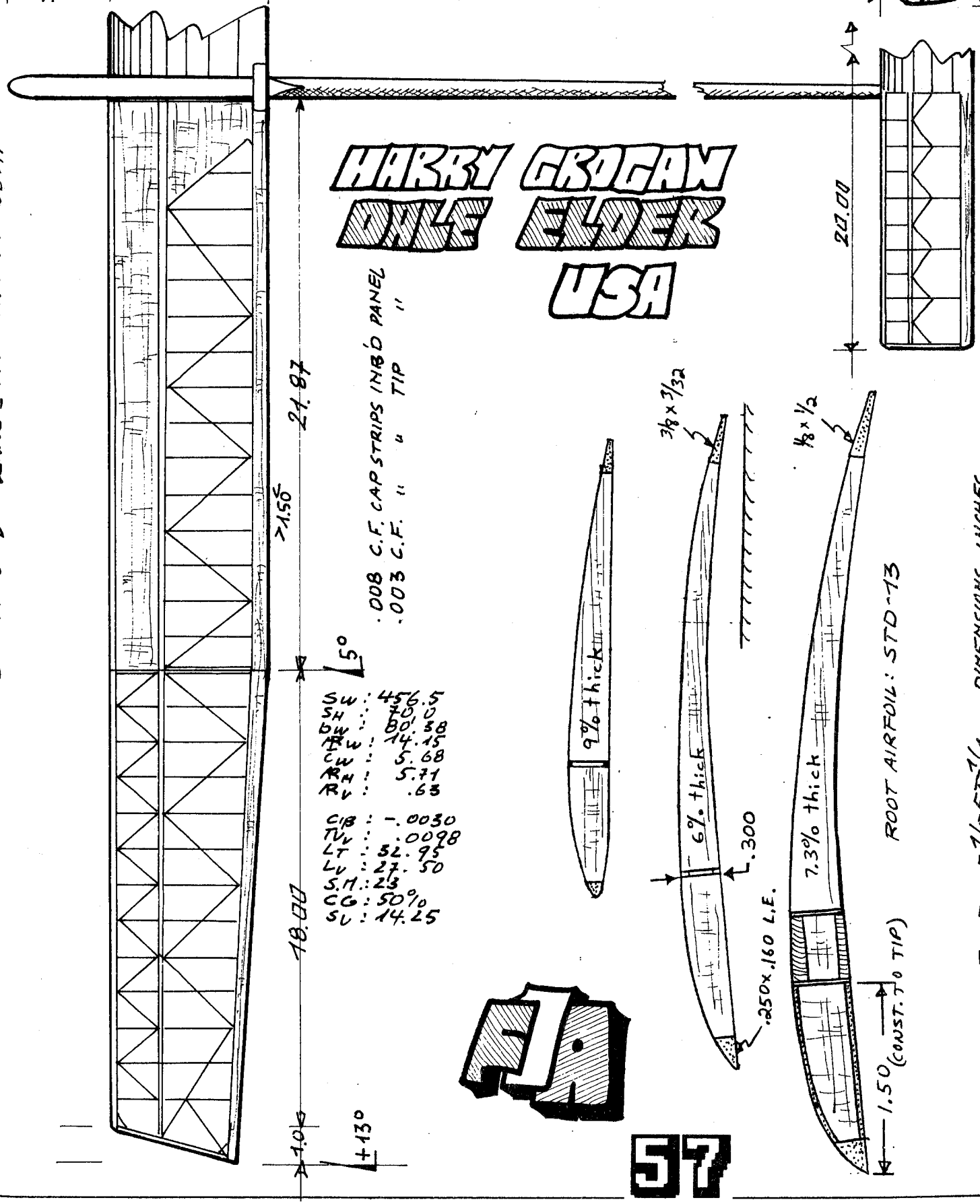
The model was inspired by my older creations and by models of Lepp and Breeman. It flies in very broad circles (60 - 80 s).

We tested these models along with Ivan Crhe and Zdeuek Cerny, who have similar ones. It was in the sommer , between sunset and darkness. All the models flew very consistently 3'25" - 3' 30".


ESSEX
Veliplane
FREIFLUG
FREE FLIGHT
59
MATTE CF
GLASS 30g/m2
CF0.4
Φ4.5 STEEL
CF0.2
CF0.2
CF0.2
465
610
145
0
100
40
500
50
90
80
760
145
160
78
CG

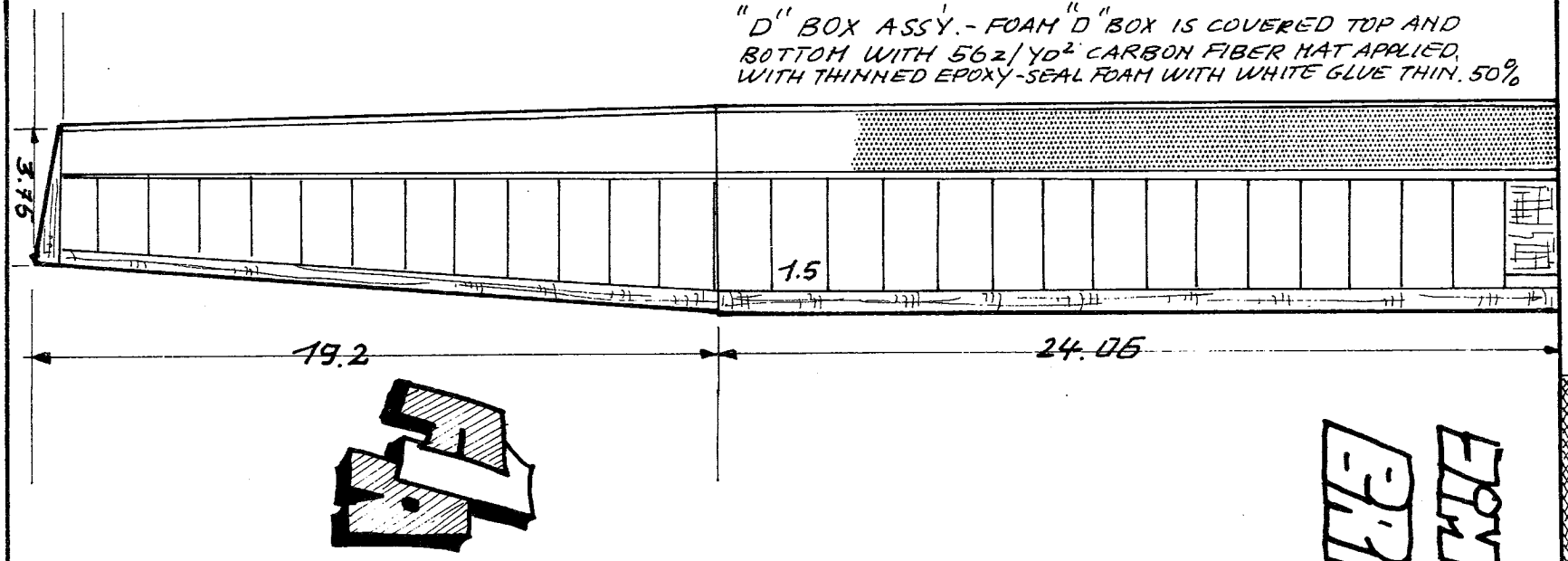
VOL LIBRE

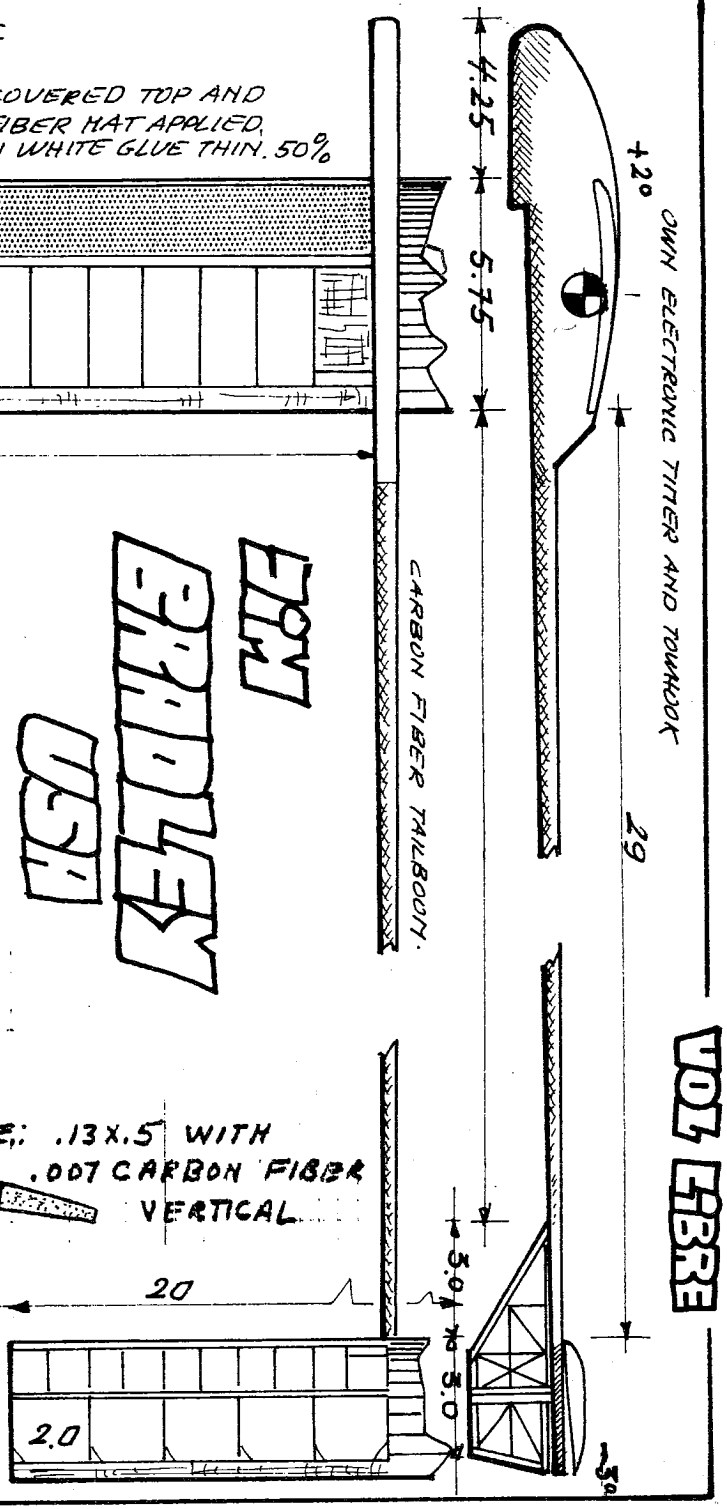

50%
>.70°
4.00
6.00
27.50
5.50
5.25
1.75
3.00


HARRY GROGAN
DALE ELDER
USA
HARRY GROGAN - DALE ELDER - A. SCHANDEL.
21.87
>1.50°
5°
18.00
1.0
+13°
20.00
.008 C.F. CAP STRIPS INBD PANEL
.003 C.F. " " TIP "
SW : 456.5
SH : 70.0
bW : 80.38
ARW : 14.15
CW : 5.68
ARH : 5.71
ARV : .63
CIB : -.0030
TVV : .0098
LT : 52.95
LV : 27.50
S.M. : 23
CG : 50%
SV : 14.25
9% thick
3/8 x 3/32
6% thick
.300
.250 x .160 L.E.
1/8 x 1/2
7.3% thick
ROOT AIRFOIL : STD-13
1.50 (CONST. TO TIP)
ECHELLE 1/5 FT 1/1
DIMENSIONS INCHES
1A
57

JIM BRADLEY - A. SCHANDEL

"D" BOX ASS'Y. - FOAM "D" BOX IS COVERED TOP AND BOTTOM WITH 5 oz/yd² CARBON FIBER MAT APPLIED WITH THINNED EPOXY - SEAL FOAM WITH WHITE GLUE THIN. 50%





ARLEY USA MK

VOL LIBRE

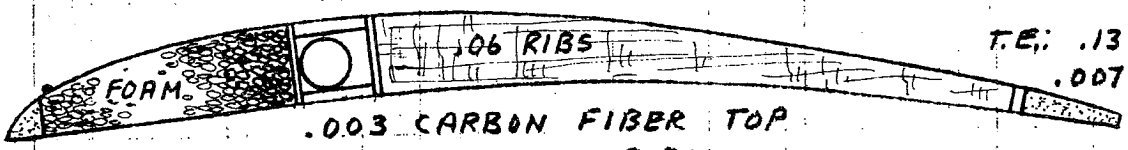
MAIN SPAR ASS'Y:
TOP SPAR: 0.6 CARBON FIBER, .38 → .13
BOTTOM SPAR: .06 SPRUCE - .38 → .13
WEBBING: .015 PLYWOOD TO DIEHEDRAL BREAK
TUBE: .281 ALUM. (.25 CARBON FIBER ROD).

58

TIP SPAR: .13 → .06 WITH .007 CARBON FIBER TOP & BOTTOM

T.E.: .5 → .38 WITH .007 CARBON FIBER VERTICAL

L.E.: .18² WITH .007 CARBON FIBER ON BOTTOM AND BACK

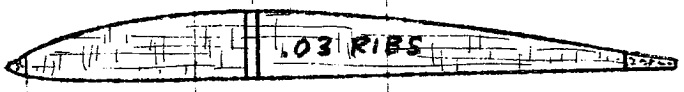


T.E.: .13 X .5 WITH .007 CARBON FIBER VERTICAL

.003 CARBON FIBER TOP AND BOTTOM OF RIBS

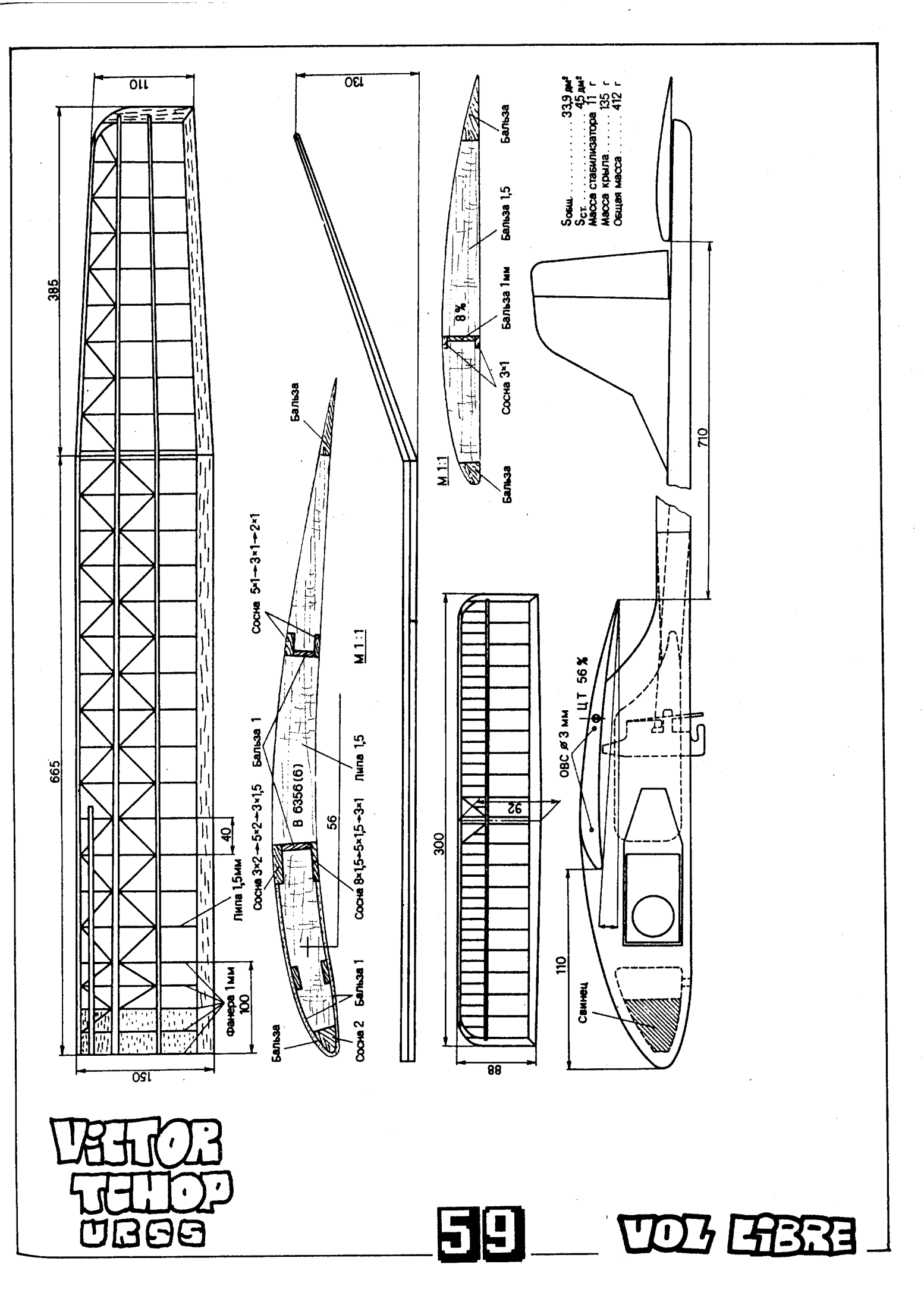
SPAR: .06 → .03 WITH .007 CARBON FIBER TOP & BOTTOM

L.E. .13²



T.E. .09 X .25

ECHELLE 1/5 - 1/1. DIMENSIONS EN INCHES



VICTOR TCHOP URSS

VOL LIBRE

JAVIER H. ABAD, 35 years old ,married, 4 years old daughter, approach controller at Tenerife Airport since 1974. Aeromodelling since 1965, flying F1A and F1C as a junior and F1A since 1969. Spanish junior champ in 1972 and several times senior champ. 1980 at Marigny 6° in fly-off- 1982 team Manager at the Euro Champs.- 84 runner-up spanish champs.- 85 spanish champ;-85 World Champs, 34° in Fly-off;-86 runner-up at the spanish champs.Introduced circle-tow in Sapin since 1974, after 6 month stay in U.K. Present time member of the CIAM F/F subcommittee.
Javier H.Abad -C/25 de Julio ,12;-38004 SANTA CRUZ DE TENERIFE SPAIN.

Rod LEWIS
Rod is 44 , a Manifesting Supervisor with N.Z. Couriers and has been aeromodelling since boyhood and presently flies most F.F. classes with F1A as favorite . He is married to Carole , who regulary supports him on the flying field, and they have two teenage children. After living for ten years in Papua New Guinea, the family circumnavigated on a 40' sailing ketch designed and built by Rod.and Carole. He is the present N.Z. record holder in F1A , the N.Z. Champion and Champ oof Champs. Also collected the 1984 Australian F.F. Champ. title when across ther for the last Trans Tasman Trophy event . He is currently editor oof FFoNZ New Z and a member of the committee of the Roskill Modellers club where he is very keen to encourage more young people into the sport. Other interest at the moment are psychokinesis, morphogenesis cats he is entangled in renovating an old villa. Also fascinated by recent advances in Man -powered flight and would love ti build a machine.
Rod's gliders are self-designed but based on Steffen Jensen 's "Frojax" and a airfoil influenced by Matt Gewain's "Pacer" series.

Heikki TAHKAPAA
39 , I am merried , 2 children ,living in Turku, been a modeller for 27 years . I have won Finlands Champs 4 times Nordic Champ in 1973 ,third place in Taft WC team. I am going to take 4 glider to the W.C. in France and probably I will use there the one shown in the enclosed drawing. I have built this model i, 129.78 for the Taft WC and ,have used it in Taft Burgos and Livnos W.Ch. and placed 5, 16, and 10 in those WC.
The modell is typical allweather model and if does not have a very high perfgormance . Howewer it is easy to handel , driving cirkular towing and it's very reliable After this model I have built 5 F1A glider ,and this one is still one of my best.

Michael BORELL
Age 36-Profession Process Eingineer;-family :Wife + 1 child.
I have been building and flying free-flight models since 1963 . Most of the time gliders but also some power modesl . Nowadays I concentrate on F1A . This will be the 4 th W.Ch. forme ? Best result 18 th in Burgos 1981. In 1971 i flew proxy for Australia (Allan Coppok) 25 th in WC 1969.
On of my models is called " Cuba Libre " It was designed in 1981 . The design is influenced by Ivan HOREJSI "732" from 1975 . The wing is built up as a D box. The wing profile is somewhat modified compared with the original . This design is supposed to have good prestanda but still able to fly in windy conditions . Cuba Libre has been built by 3 other club-members and has proved to be able for what it was meant for.
Lichael BORELL-Higgarvägen 7;-S-696 03 AMMEBERG Sweden.

Per FINDHAL
18 years old. I'm studying to be an engineer . I'm **not married** and have **no children** ! I stardet modelflying when I was 9 years old . Since then I have participated in many competitions in Sweden , 4 NM,2 EM and 1 WC ((84,85,86) Last EM we came on the 3 rd place in F1B competition My main class is F1A. Nr.25 is probably the best model I ever have built. I + helped me to get into the WCh. team this year.
Per FINDHAL Fagerstavägen 27;-778 00 Norberg Sweden.

Gary MADELIN
35 years old ,married with one young son . I am a surveyor and work for a London based building Contractor. I have been interest in aeromodelling since an early age and have flown FF contest models since 1970 . I have represented Great Britain on two Euro. ch . teams -in W. Germany 1978 where I plced 3rdand Romania in 1986 where I placed 7th . I was also resreve team member for the 1973 and 1975 W.Ch. and was British F1A Champ. in 1977 and 1978.

Bill COLLEDGE
35 yeras old,married with one daugther . Engineer with Jaquar Cars. I have been building models since I was about 12 , mostly control line when I was younger , folloved by a three year spell of flying radio , and finally progressing to free flight in 1981 . I have concentrated on flying F.A.I. glider but also enjoy flying Coupe d'Hiver . I have been moderately successful flying in British contests but the W.C. will be my first flying trip abroad. Oter interests include food, music, camping and cycling.

YASUO YOSHIOKA 52 married with a daugther , has been only 12 yeras in F.F. He is a professorin Musashi Institute oof Technology, Tohyo and he teaches the strength of materials but his models were sometimes broken by his over zooming . He also enjoys classic music, audio engineering and mountain climbing etc..His happy time is making a model with listening to Bach, but he is in difficulty that dust of balsa wood invade in his CD player? Asuka , the name of his glider , is an elegant expression of " flying bird" in Japanese and is also the nama af his daughter.

LUCIEN BRAIRE

51 ans- chef de fabrication de matériel médical
Champion de France F1C en 1962- 81-83-84-85 !
Aux CH d'Europe en 1978- 82 -84; aux CH. du Monde en 1963-65-69-81-85 et 87;

DIDIER BARBERIS

30 ans ,Ingénieur de Recherches à l'ONERA. Champion de France en F1A en 1983. Membre de l'équipe de France 1984. Champion d'Europe en 1986 à Pitesti, 3 éme par équipe . S'intéresse à toute chose concernant l'aéronautique.

ANTOINE GALICHET

47 ans -marié deux enfants- au PAM depuis 1957 Sélectionné aux Ch de France dès 1958. Pratique toutes les catégories VOL LIBRE avec plus ou moins de bonheur: planeur , wake, moto , CH, jetex etc. Pratiquatt également le Vol Circulaire et la RC (sélectionné une fois dans cette catégorie aux Ch. de France).
Champion de France en formule libre en 1969 ,champion de France en F1A en 1973. Sélectionné aux CH. d'Europe en 1974- 27 ème aux CH. du Monde de 1981;- 3 eme par équipe aux CH. d'Europe de 1986- 1er au concours inter. du Poitou 1981.

JEAN GODINHO

40 ans artisan ,pratique l'aéromodélisme depuis l'âge de 11 ans , où il a débuté par le vol circulmaire. Passionné d'aviation il aime aussi la photographie et le patinage -3 ème par équipe aux Ch. d'Europe 1986.

LOUIS DUPUIS

55 ans- Professeur de mathemathique et sciences physiques à Châtellerault A commencé le modèle réduit à 12 ans . Début de la compétition a 30 ans.
Club actuel :Vol Libre Moncontourois
Concours inter CH 1er à Halton 75 et Bern 83 et 85
Wake : 2 éme au premier Poitou plusieurs fois 2 éme à Marigny
Champion de France 68 en Monotype, en 76 et 79 Wake ,82 et 86 en CH.
7 fois en équipe de France wake 11 ème Ch du monde à Göteborg 1971- Plovdiv en 1975, Burgos en 1981 (10 ème et 1er par équipe) 87 Thouars.
Ch. d'Europe 80 Mostar (4 ème et 1er par équipe) 82 Zülpich- 84 Livno (8 ème et 1er par équipe).
Egalement passionné par tout ce qui concerne la montagne , se contente de la pratiquer en randonnée.

PHILIPPE LEPAGE

Commerçant à Paris.
Pratique avec bonheur le F1B. A été 1 er ,2 ème et 3 ème à Marigny Premier aux Journées Internationales du Poitou en 1984 -85 -et 86 !
Championnats du monde 1985 Livno 9 ème, championnats de France 1986 -3 ème Sélection Ch. du Monde 87 -3ème.

J.CLAUDE CHENERU

43 ans professeur de lycée technique ; Champion de France F1B en 1974 et en 1980. Champion de France CH en 1985 . Champion d'Europe F1B par équipe en 1980 et 1984 . 10 ème aux CH. d'Europe 1986. Pratique également le tennis , la planche à voile , l'aviation

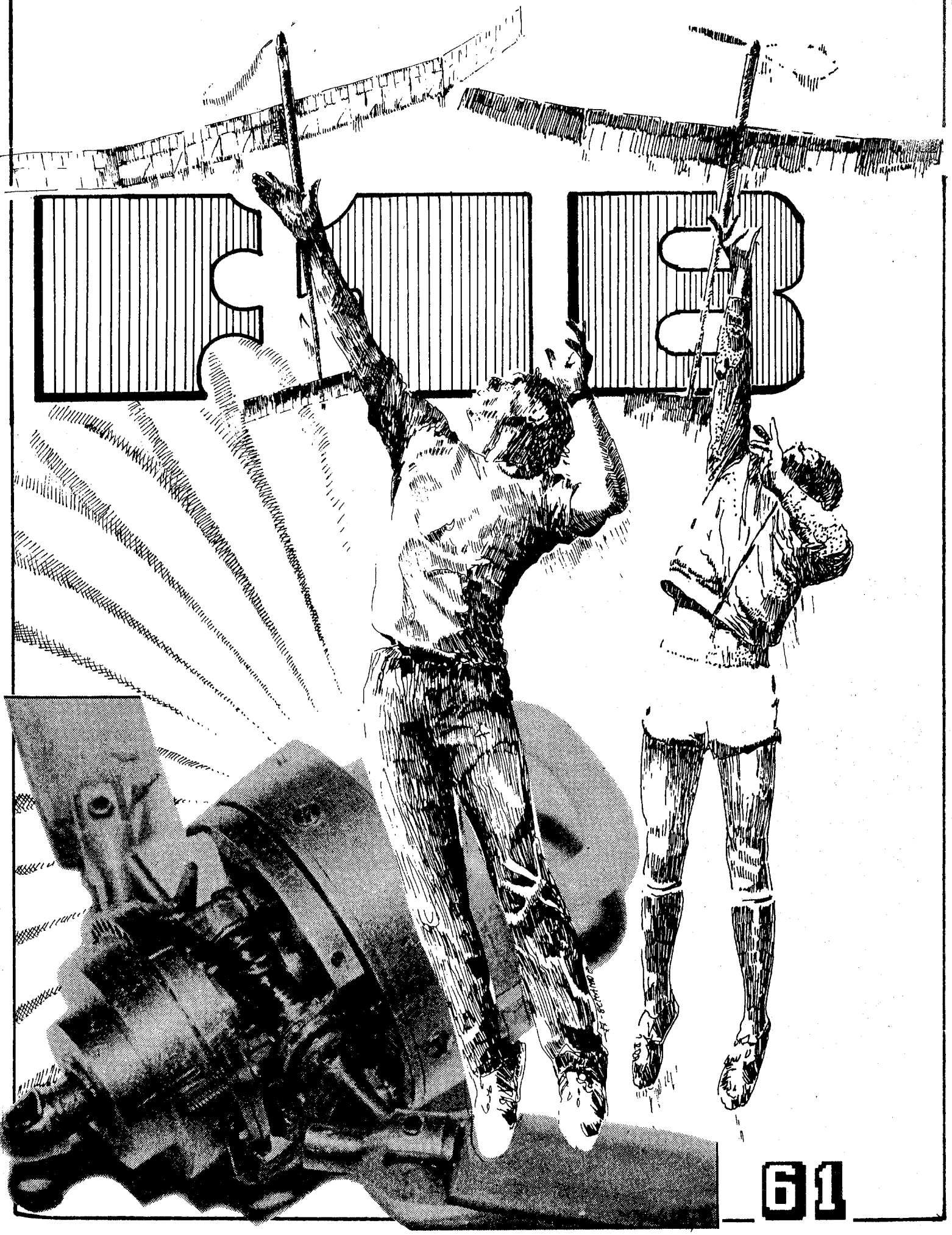
DENIS FERRERI

Employé à l'Aérospatiale de Toulouse Pratique en dehors de F1C le planeur fédéral et le A1 1er prix d'Aeromodélisme en Algérie 1961
A ete en 1973-76-79-82-84-85-86 ou bien 2 eme ou 3 ème en F1C aux Ch. de France 1er a marigny en 1974 et 2 ème en 1976 A Alicante et Lerida 2 ème en 73- 1er en 75 et 76- 2ème en 77 et 1er en 80 Au Poitou 2 ème en 1982 et 3 eme en 1984
3 eme par equipe aux Ch d'Europe en 1974
Championnats du Monde 1979 Taft (USA) 7 eme et 1er par equipe 12 selections pour les Ch du monde ou d'europe Europe 1974-76-78-80-82-84 Du Monde 1975-79-81-83-85-87

ALAIN BOUX

-37 ans - employé de la SNCF, spécialiste du motomodele Champion de France en 1977 et 1978. 5 fois en equipe de France Aime le football et la ski

André SCHANDEC - 1987

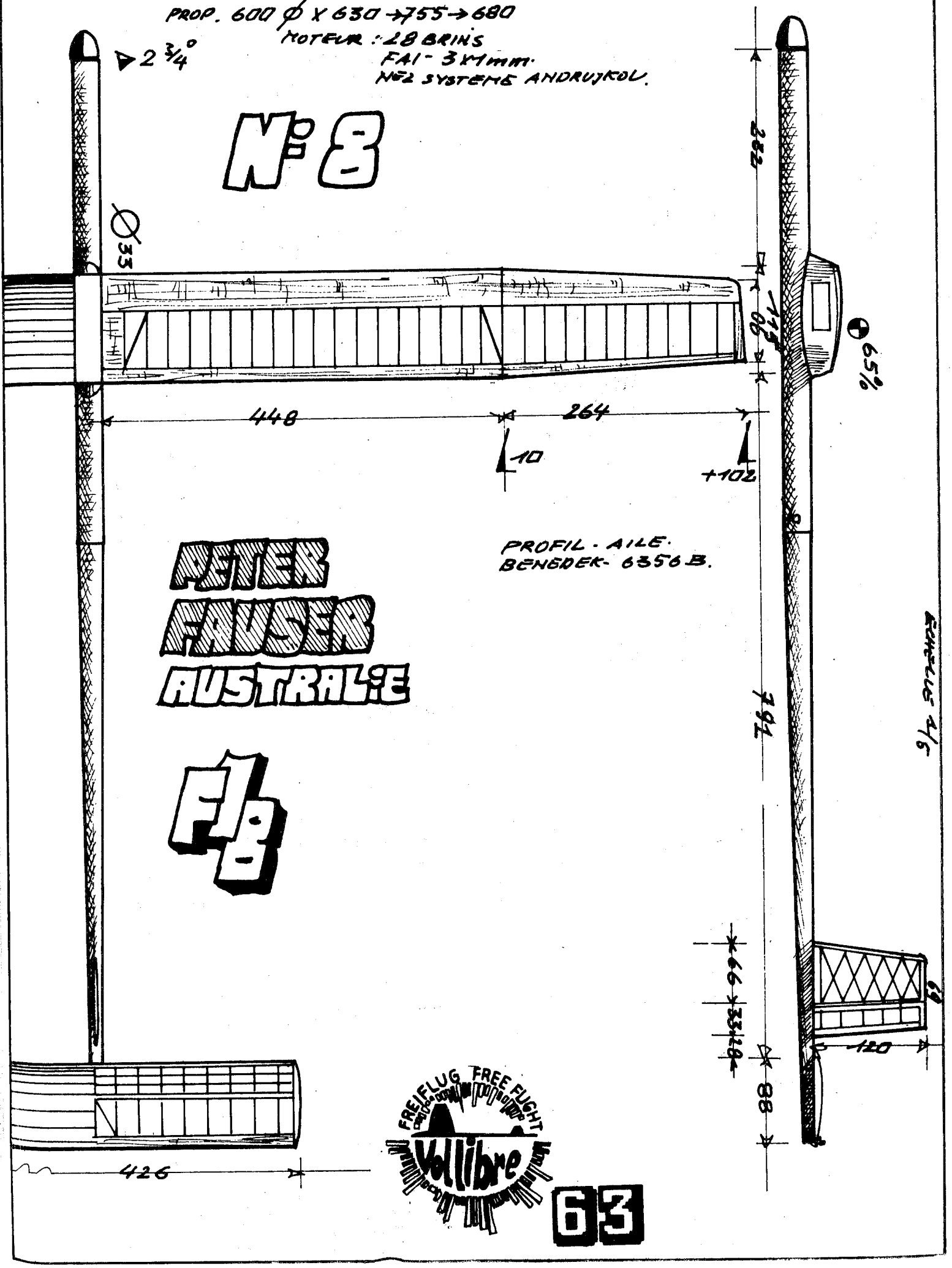


Deux vedettes russes : **Stefanchuk** dans une attitude classique de l'effort au moment du lancer. Noter l'impulsion au sol , terre soulevée, et les regards admiratifs de deux concurrent danois Kristense, et Jorgensen; Alexandre **Andrujkov,** observant avec une extrême attention les modèles évoluant au dessus de sa tête. Le modèle A 26 est utilisé par lui depuis plusieurs années.

Photos. JEAN. BOOS. –

PETER PAUSER - A. SCHANUEL.

PROP. 600 ⌀ X 630 → 755 → 680
MOTEUR : 28 BRINS
FAI - 3 X 1 mm.
NF2 SYSTEME ANDRUJKOV.

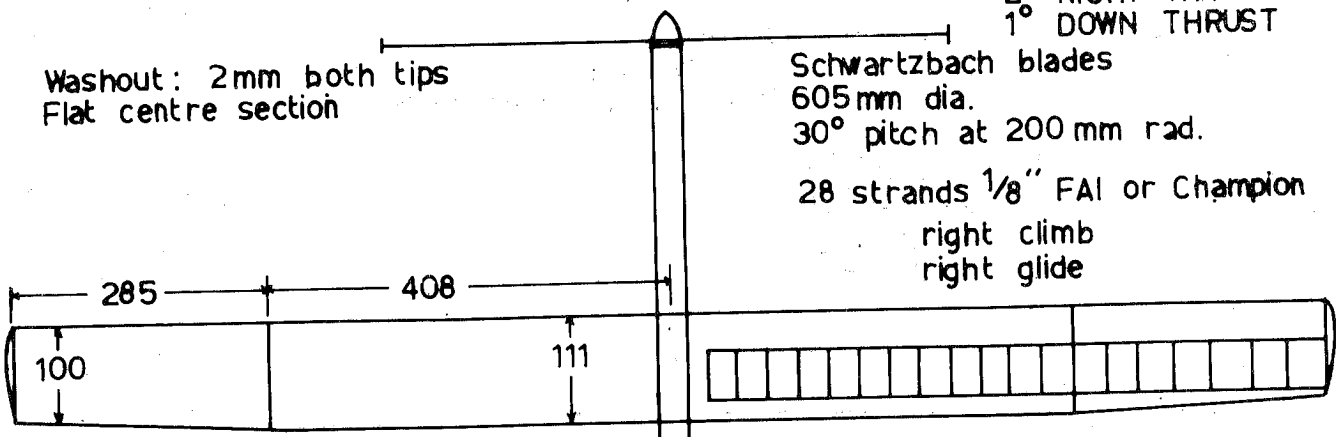


2° RIGHT THRUST
1° DOWN THRUST

Washout: 2mm both tips
Flat centre section

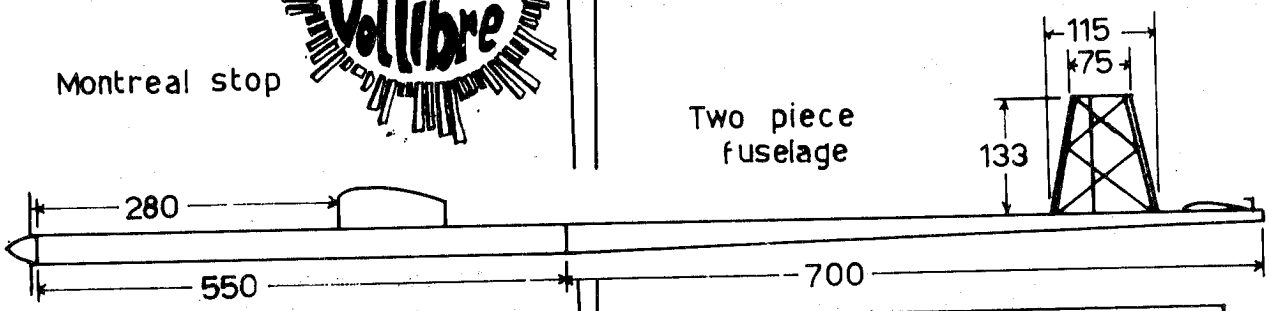
Schwartzbach blades
605mm dia.
30° pitch at 200 mm rad.

28 strands 1/8" FAI or Champion
right climb
right glide



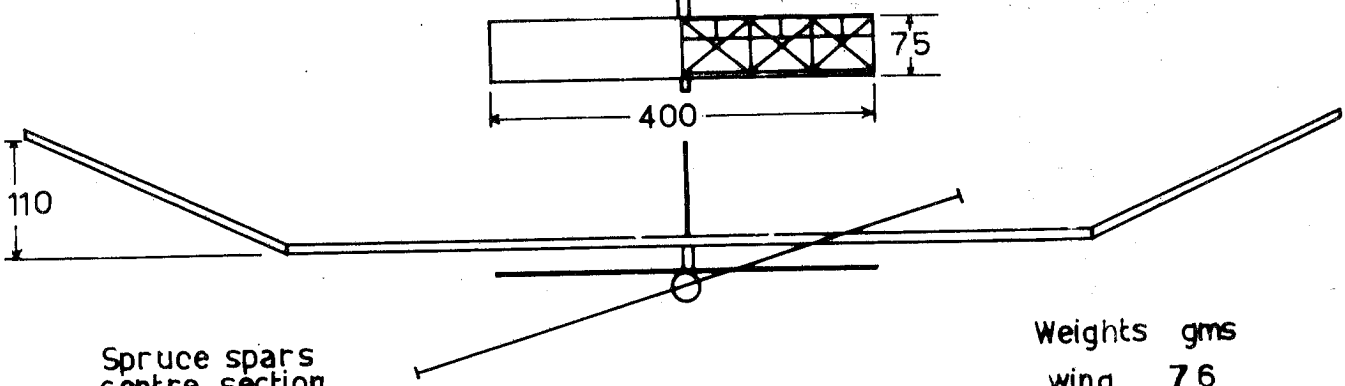
Montreal stop

Two piece
fuselage

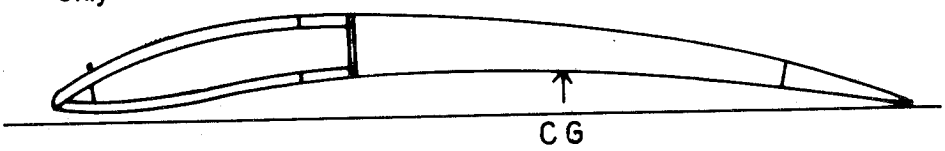


VIT 4sec -2mm
Auto rudder
all moving
4 sec -2 mm
prop stop -0·5 mm

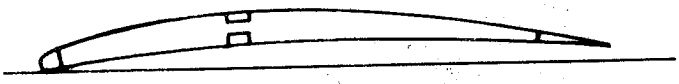
DACELO
P. Smith
Australia



Spruce spars
centre section
only



Datum parallel to
fuselage top



Full size wing & t.p. sections

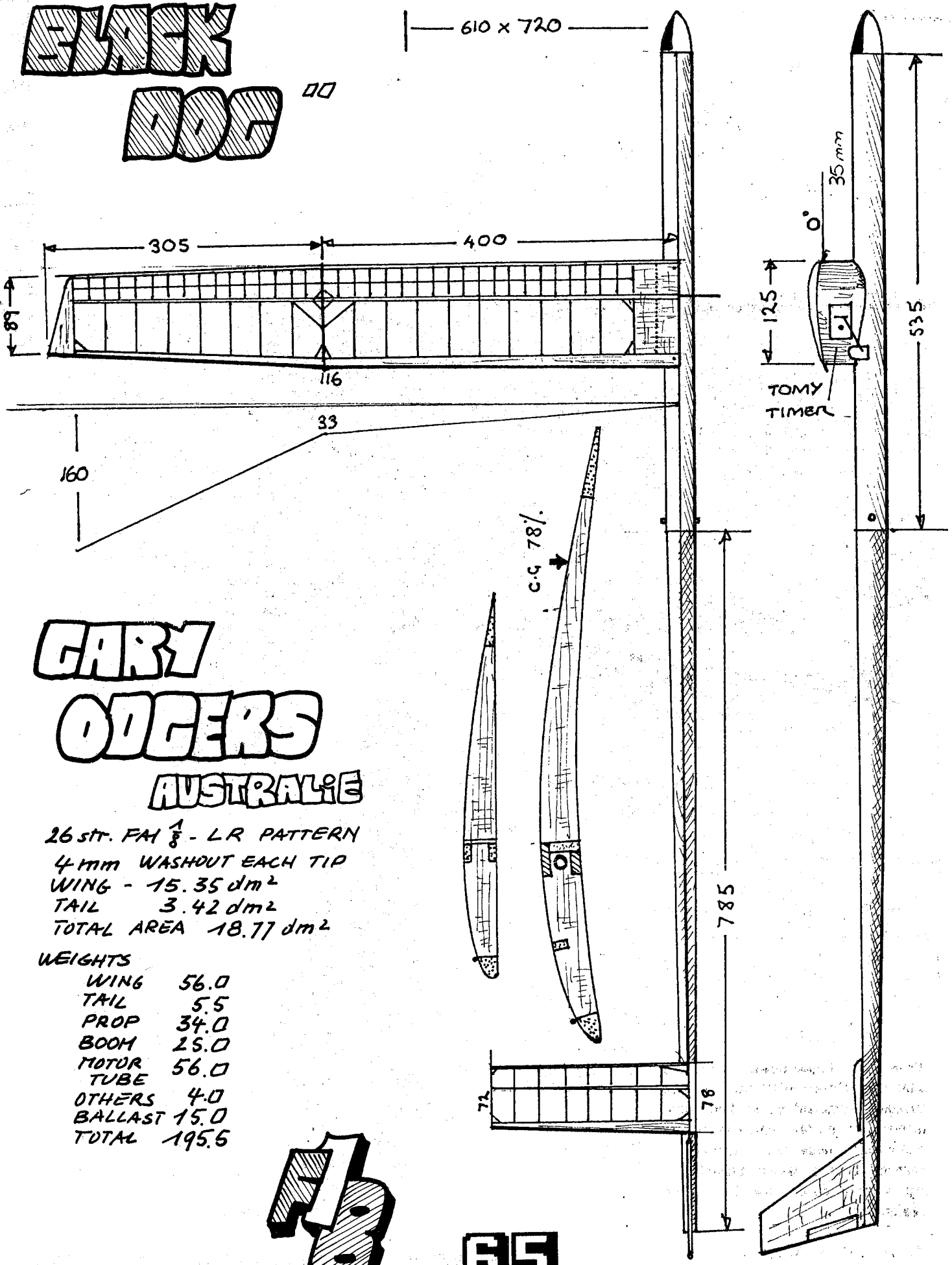
Weights	gms
wing	76
t.p.	8
fuse.	80
prop	44
total	208

Areas	sq dm
wing	15.4
t.p.	3.0
total	18.4

All dimensions mm

VOL LIBRE

"SNEK DOG"



GARY ODGERS

AUSTRALIE

26 str. FAI 1/8 - LR PATTERN
4 mm WASHOUT EACH TIP
WING - 15.35 dm²
TAIL 3.42 dm²
TOTAL AREA 18.77 dm²

WEIGHTS

WING	56.0
TAIL	5.5
PROP	34.0
BOOM	25.0
MOTOR TUBE	56.0
OTHERS	4.0
BALLAST	15.0
TOTAL	195.5

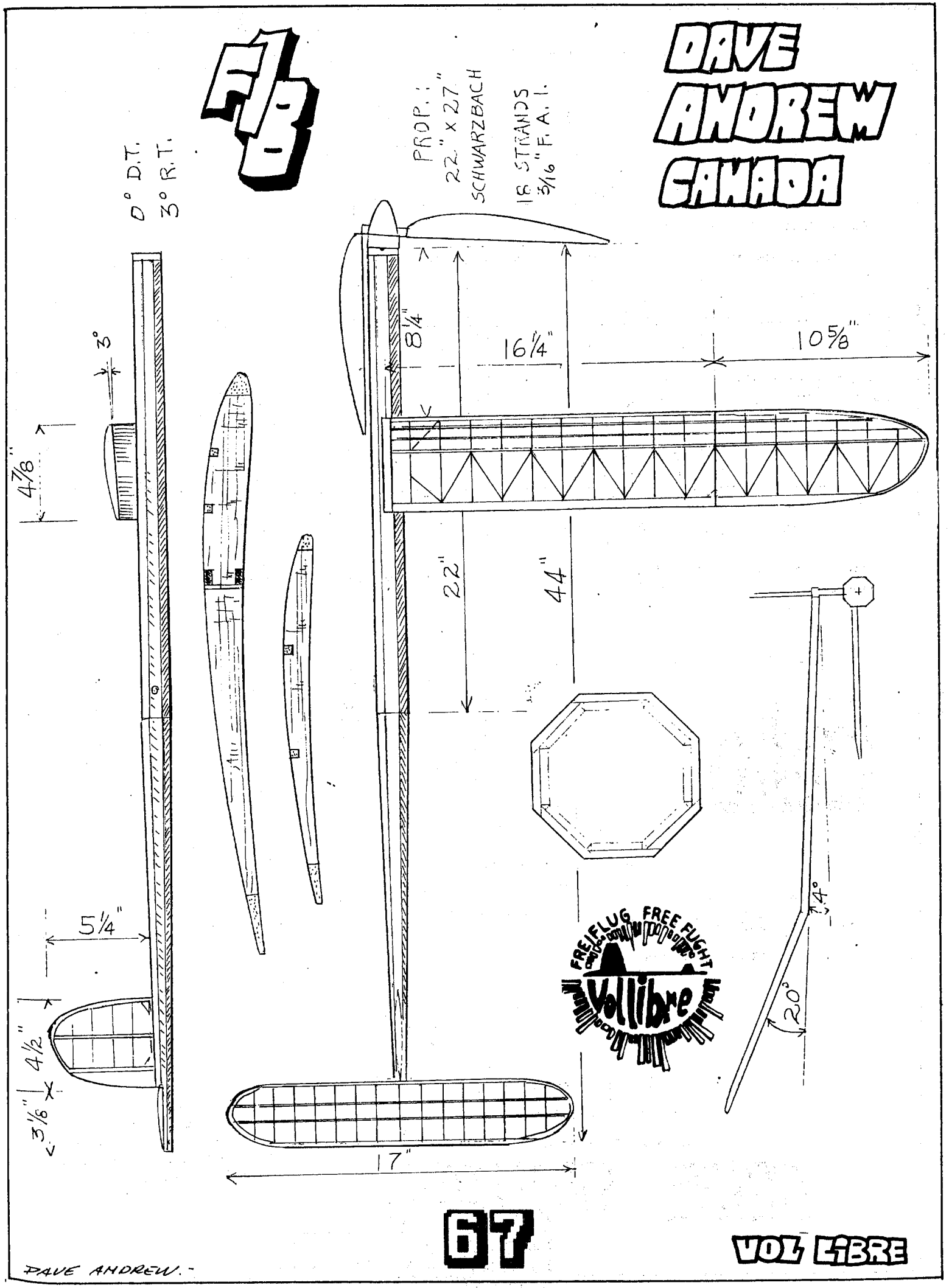
GARY ODGERS.-

François Taperneux (Suisse) dans une attitude d'attente, avec un visage , semblant venir d'un autre monde, un modèle entièrement en matériaux nouveaux, kevlar , carbone, bras de levier important , lignes très pures une très belle réalisation.

Photo. JEAN BOOS. -

F1-B

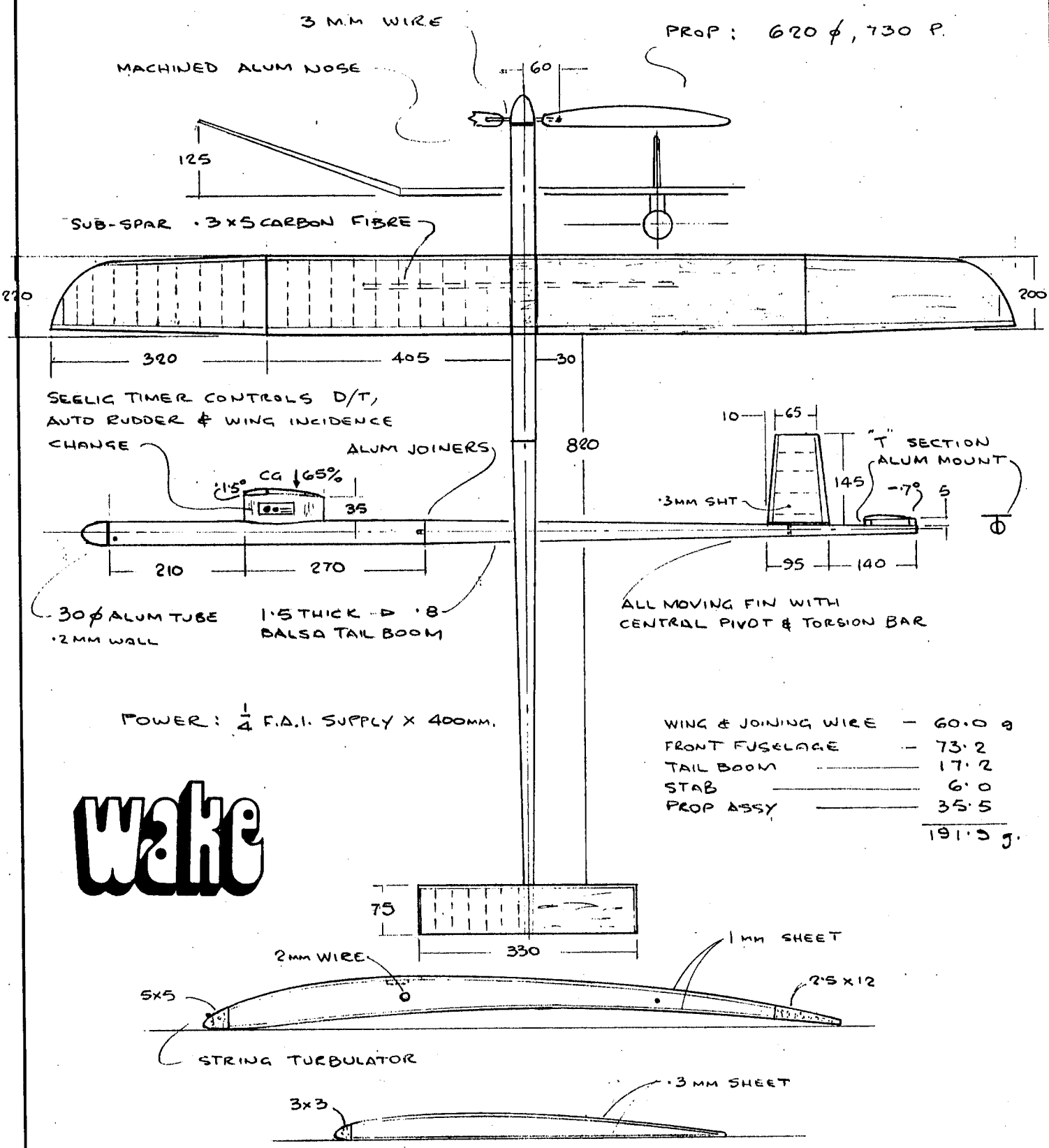
DAVE ANDREW CANADA



67

VOL LIBRE

DAVE ANDREW.-



POWER: ¼ F.A.I. SUPPLY × 400MM.

WING & JOINING WIRE	60·0 g
FRONT FUSELAGE	73·2
TAIL BOOM	17·2
STAB	6·0
PROP ASSY	35·5
	191·9 g.

wake

"THOMAGUN", F1B

1987 CANADIAN WAKEFIELD TEAM.

MIKE THOMAS TORONTO.

Mike THOMAS

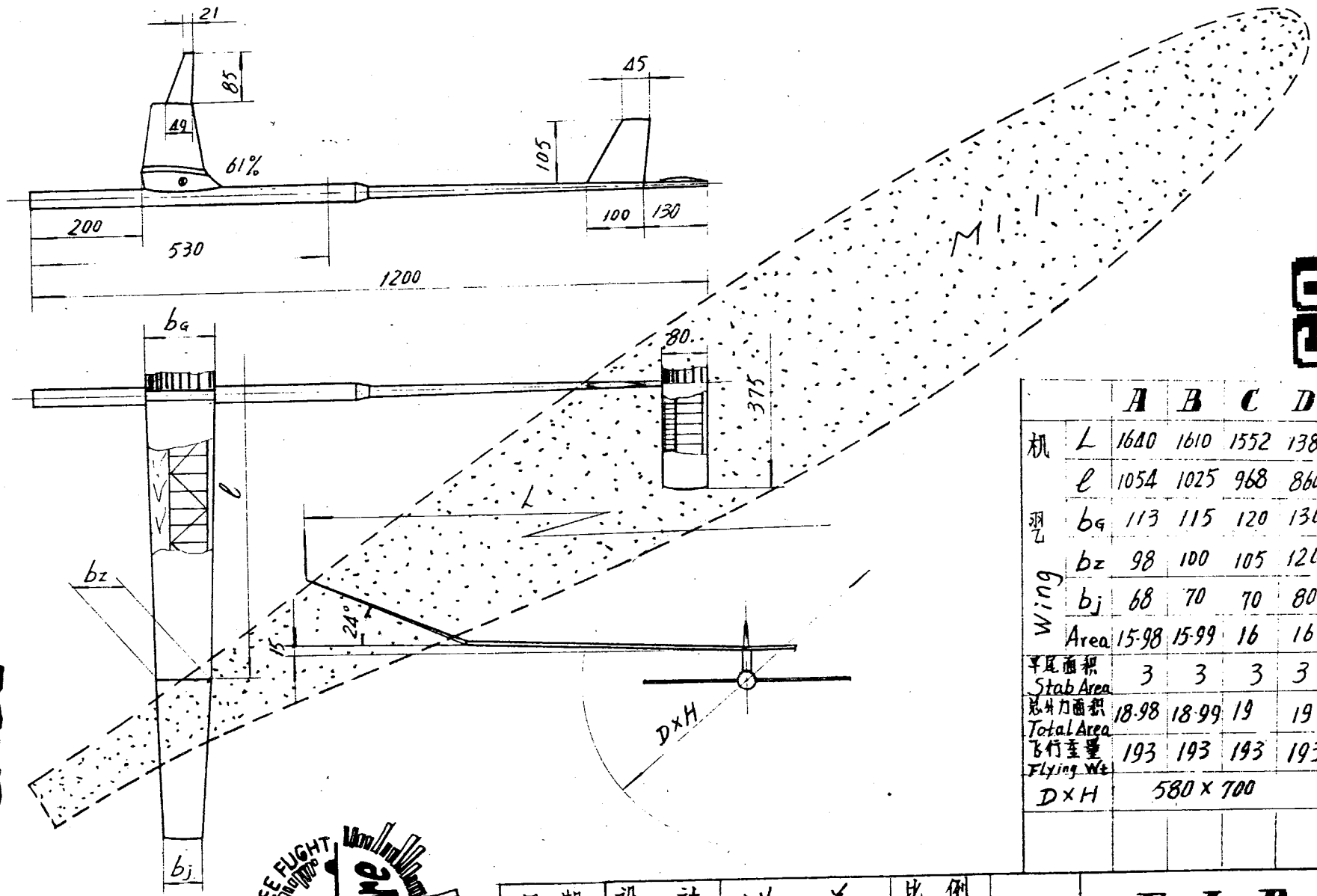
Age 54 ,married teacher ,building models since 1946 on british F1A team 1951 on canadian F1A team 1957, and several cacandian F1B and F1D teams since then.

MIKE THOMAS

68 CANADA

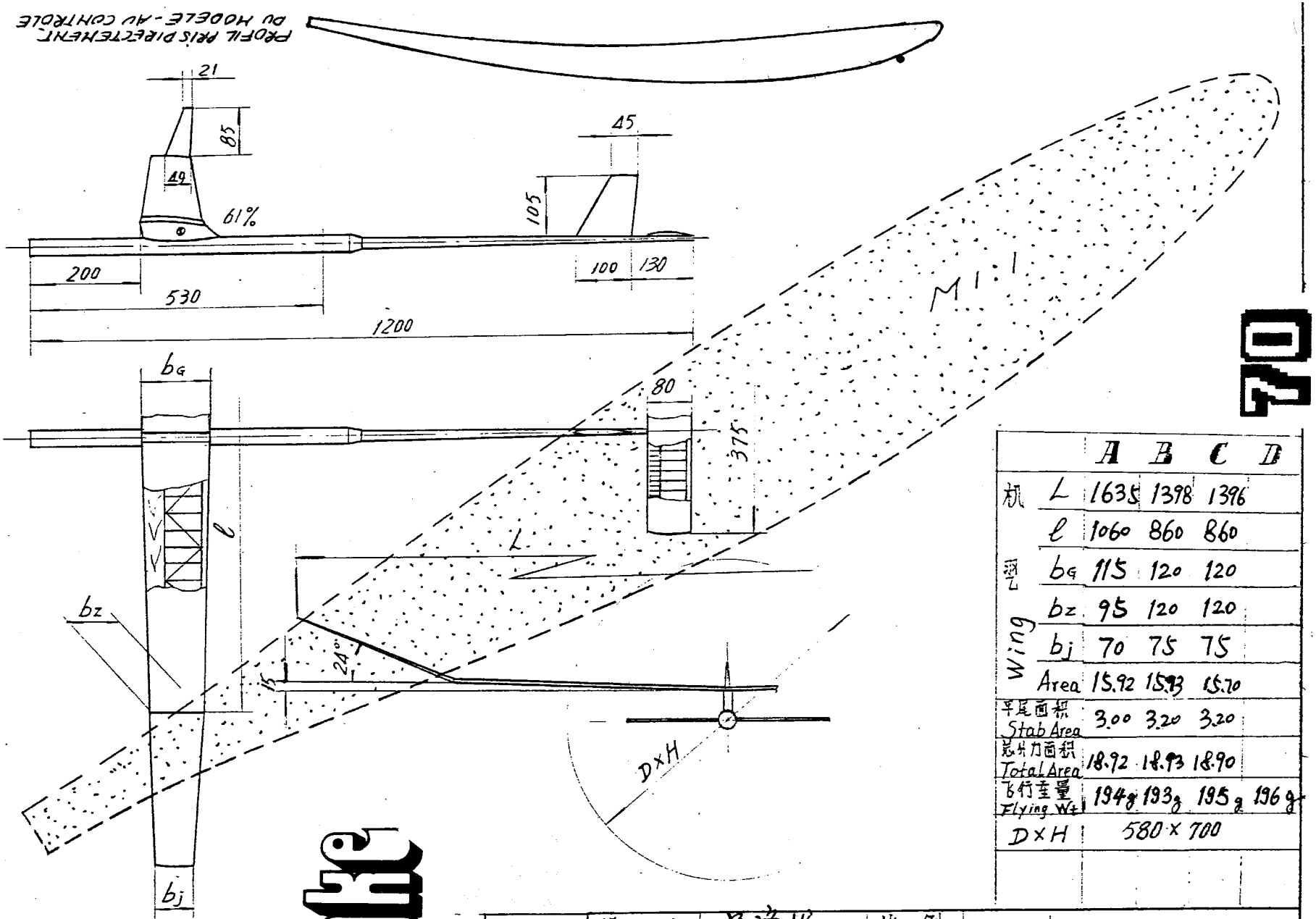
飞翼 FLYING WING

GREME



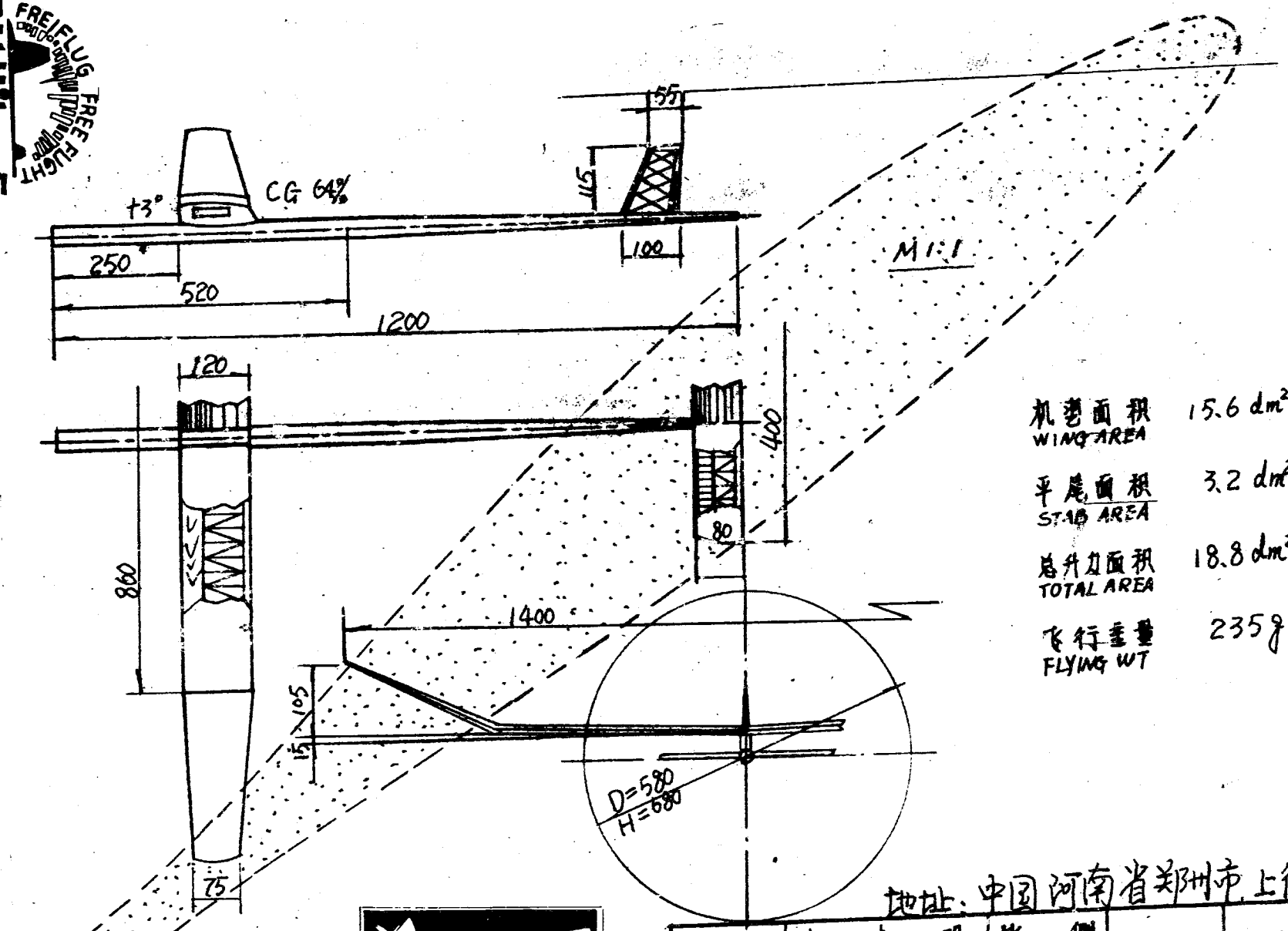
		A	B	C	D
机	L	1640	1610	1552	1385
	l	1054	1025	968	860
翼 Wing	bG	113	115	120	130
	bz	98	100	105	120
	bj	68	70	70	80
	Area	15.98	15.99	16	16
平尾面积 Stab Area		3	3	3	3
总升力面积 Total Area		18.98	18.99	19	19
飞行重量 Flying Wt		193	193	193	193
D×H		580 × 700			

日期 Date	设计 Designer	张文义	比例 Scale	1:10	FIB
1987.8	队别 Team	中华人民共和国航空模型队 Aeromodel Team of the People's Republic of China			



		A	B	C	D
机	L	1635	1398	1396	
	ℓ	1060	860	860	
翼 Wing	bG	115	120	120	
	bz	95	120	120	
	bj	70	75	75	
	Area	15.92	15.93	15.70	
平尾面积 Stab Area		3.00	3.20	3.20	
总升力面积 Total Area		18.92	18.93	18.90	
飞行重量 Flying Wt		194g	193g	195g	196g
D×H		580×700			

日期 Date	设计 Designer	吕济发 Lu Jifa	比例 Scale	M 1:10	FIB
1987.8	队别 Team	中华人民共和国航空模型队 Aeromodel Team of the People's Republic of China			



F1B

机翼面积 WING AREA	15.6 dm^2		
平尾面积 STAB AREA	3.2 dm^2		
总升力面积 TOTAL AREA	18.8 dm^2		
飞行重量 FLYING WT	235g.		

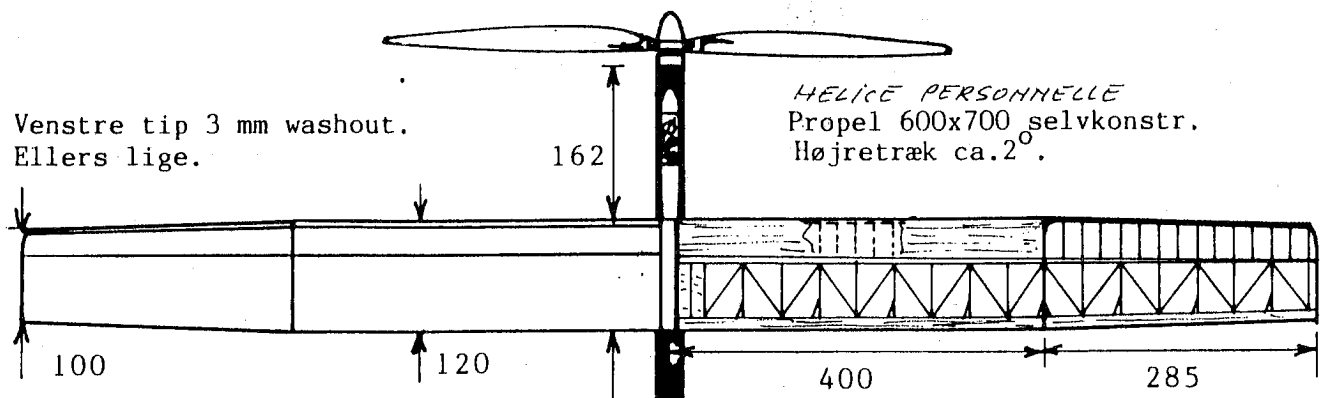
地址：中国河南省郑州市上街区航校

設計 DESIGNER	李志明 Li Zhi ming	比例 SCALE	M1:10	F1B
队别 TEAM	中华人民共和国航空模型队 AEROMODEL TEAM OF THE PEOPLES REPUDLIC OF CHINA			

VOL LIBRE

Venstre tip 3 mm washout.
Ellers lige.

HELICE PERSONNELLE
Propel 600x700 selvkonstr.
Højretræk ca.2°.

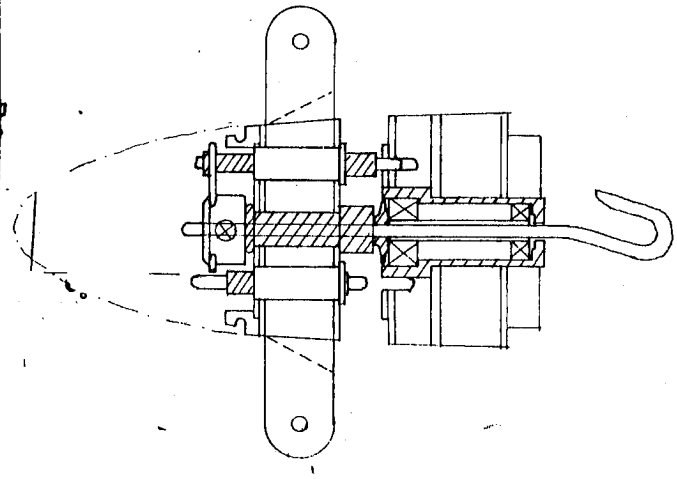


V-form: øresamling 25, tip 120.

Vægt:

forkrop	48,5	g	PORTE ECHEVEAU
bagkrop	14,7	g	POUTRE
timer	19,0	g	MINUTERIE
vinger	47,5	g	AILE
haleplan	3,9	g	STABILO
propel	45,4	g	HELICE
ballast	12,0	g	LEST
i alt	191,0	g	

808



J.B. KRISTENSEN
DK

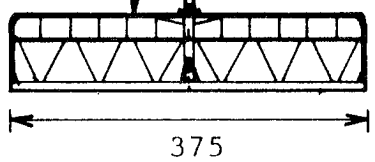
J.B.K.21

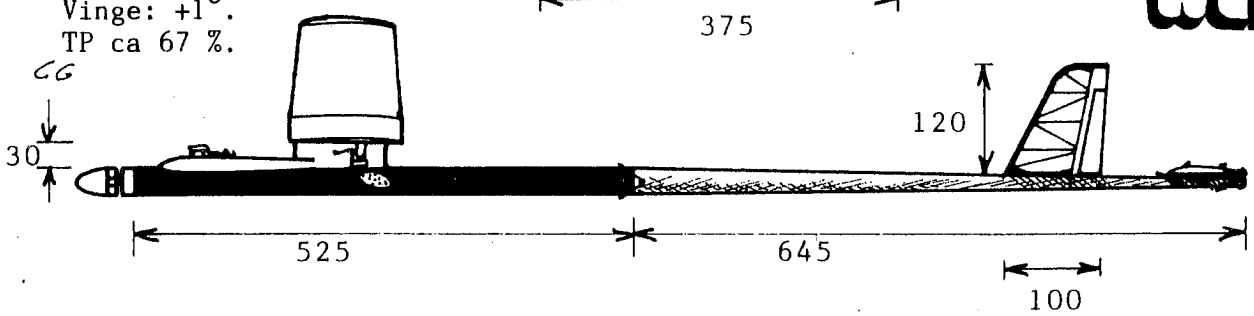
Sideror: svagt venstre 3 sek
neutral i resten af stig
svagt højre i glid.

Haleplan : ca 0° pendant i 4 sek.
-2° après derefter.

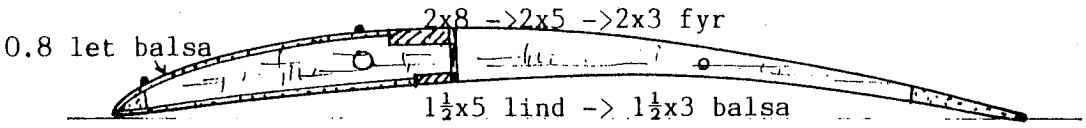
wake

AILE
Vinge: +1°.
TP ca 67 %.

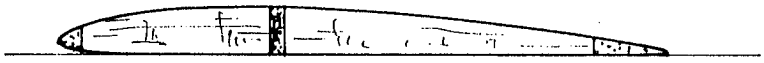




Forkrop 30 mm diameter kulfiberrør. Bagkrop 0.8 mm balsa/glasfiber.
PORTE ECHEVEAU FIBRE DE CARBONE POUTRE BALSA + TISSU F.D.V.

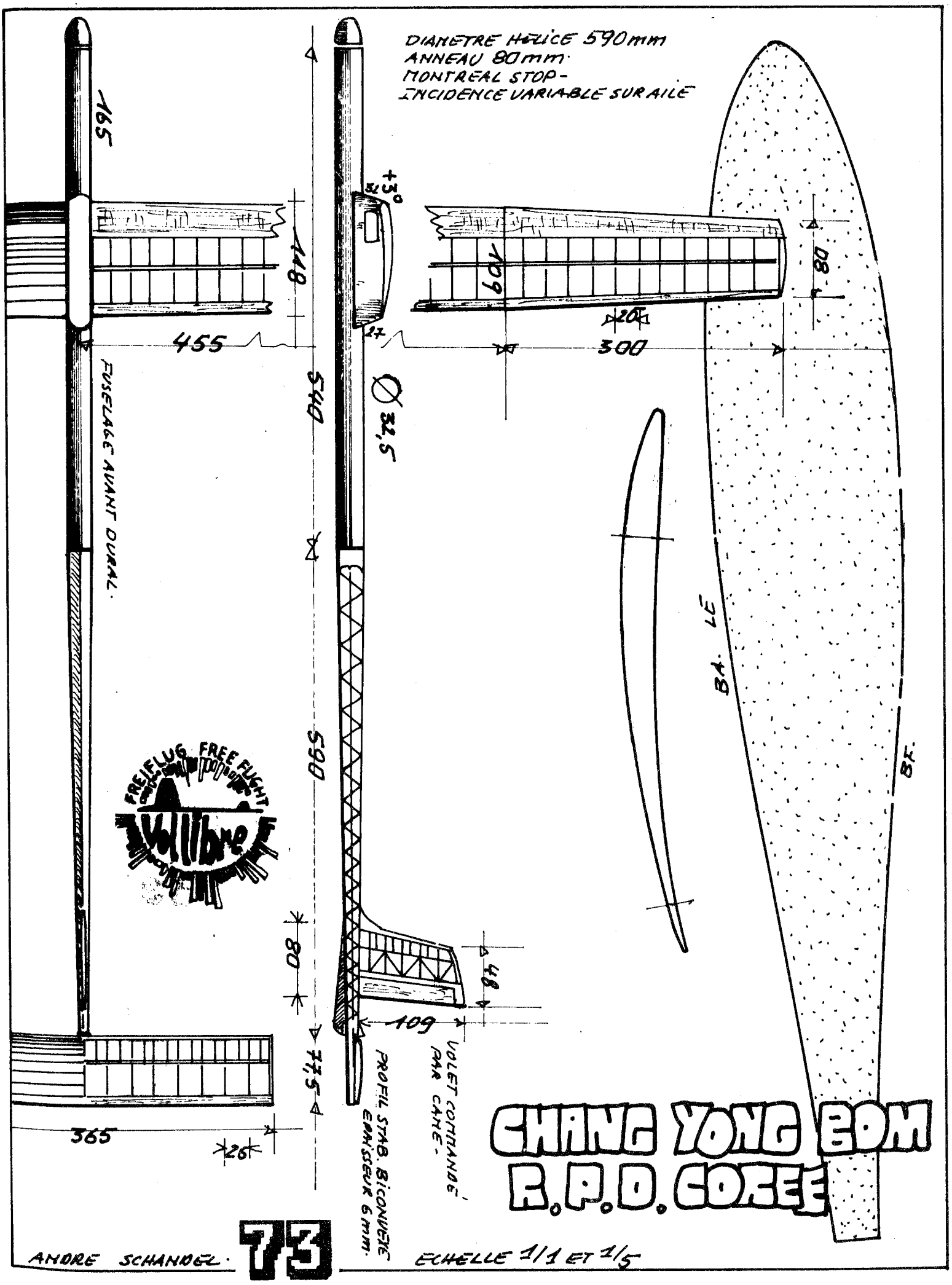


Vingeprofil : JBK 7/9-85-101
AILE



Haleplansprofil : Gö 795
STAB

JBK april-86.


DIAMETRE HELICE 590mm
ANNEAU 80mm
MONTREAL STOP-
INCIDENCE VARIABLE SUR AILE
165
140
455
FUSELAGE AVANT DURAL
510
590
80
77,5
365
26
+3°
52
27
Ø 32,5
190
20
300
80
84
LE
BF
48
109
VOLET COMMANDE PAR CANE
PROFIL STAB. BICONVEXE EPAISSEUR 6 mm
FREIFLUG FREE FLIGHT
Vollbre
CHANG YONG EDM
R.P.D. COREE
ANDRE SCHANDEL
73
ECHELLE 1/1 ET 1/5

VOL LIBRE

IYAN TAYLOR

"EUROSTYLE" is the desing I flew at Livno in 1985 and is a development of the eslier French influenced wakefield. The propeller remain the Korean , I have get to find a better one ! The solid wing is very stable and this lack of movement in hot or wet conditions gives added confidence with trim settings, the polystyrene has similar properties.

I am 40 yeras old, married with a 4 1/2 yeras old daugther. I have been building aeroplanes fer 30 yeras. Painting is my other hobby. This will be my third W.C.(1983/85/81) and it is 10 years since my first international . -The Pierre Trébod where I finished 3 rd in F1B.

Peter SMITH

40 ,married to Carole ,two children , Jodie and Kerry. Started modelling in the mid 60s in Western Australia initially concentrating on control lin being twice National Champion in aérobatics. Dabbled in free flight which became the main interest after moving to Canberra (ie from the west coast to the east coast of Australia) in 1970 . Took up F1B almost by accident when two F1B fuselages wrerbuilt for existing F1H wings and tailplanes to give something to fly on an otherwise free day during the 1971/72 Australian Nats. Managed second place with these model s whioch were also used to top the 1976 TransTasman contest against N.Z. The same basic design was used to top the 1980 Trans Tasman and the 1985/86 Australian Nats. The present design continues this theme but includes VIT and a three position all moving rudder to better match the torque curve of the originally used Pirelli. Also fly radio controlled (instructor in local club) and occasionally contro line models.

Peter SMITH
3 Brewster Place DUFFY ACT 2611 Australia.

ITZHAK BEN ITZHAK

The model "ALBATROSS I" was designed and constructed in 1980. It was one of my models in all international events since 1981.With time the modemt was improved and now I'm fluing the third version , but don't get it wrong I haven 't built three models. I just employ" TRANSPLANTATION TECHNIQUE" (the original nose block is still part oof th model)

Some boering biography:

My first name is Ttzhak but everyl knows me by my nick name Itzik. My last name is Ben-ITZHAK (and I have no middle name). I'm 35 yeras old and I'm building models since 1963. Best results :1 st W.C. Taft CA, USA 1979;- 7 th W.C. Burgos Spain 1981;- 6 th E.C. Zümpich W.Germany 1982 and few wins in Israel.

Ole TORGERSEN

Age 53;- married to Marit and have two daugthers (both have left the house) ;- Mechanical engineer working in the automotive part industry.

Was building models in my younger yeras ,won my first norwegian champs in 1952 (A long time ago !!!!....)Stardet aeromodelling again in 1969 flying F1B and F1A. Won F1B Nordic Champ's in 1976. Several Norwegian champ's in F1A and F1B I am doing some coaching in track and field athletics.

Ossi KILPELAINEN

Age 43 ,bachelor. Product development engineer at the Ahlstrom Savonlinna Engineering Works. Made models from the age of 6 , first contests in CL the n in all FF categories, mostly F1B . 7 times Finnish CH. twice CH. of the nordic Countries (FIN ,DEN,NOR,SWE.), 7 th at Goulburn WCh. ,5 th at Pitesti ECh. Some 2 nd and 3th placings in the Finish and Nordic CH.s in F1A and F1C. -25 years chairman of his club Salko and 10 years the FF committee of the Aviation Association of Finland. FF Editor of "Lennokki" the finnish model aviation magazin.

DAG EDUARD LARSEN

All my 4 models at the W.C was standard swedish "TILKA" with no auto functions , just a Graupner timer . I have been flying F F . since 74/75, but building models since 65/66. I have always been flying F1A , but start with F1B at autumn 85. I am beginner in tjis game.

Born 3 okt. 1957 ;-married with Liu KARI and no children. _I am educated as a master oainter , but bow I am working as manager for my familys coulor shop.

I am born and are living in Tynset , a small town with 25 000 people , placed 300 km north of Oslo. Tynset are one of north europa's coldest place , and the recoerd are just below - 50° c. In Norway wa are flying all our F.F. competitions on frozen lakes during the winther. Our first competition last winther wase held in - 27° c . It's "fun" flying wakefield under these conditions (come and thry) . In default of big enough summer fields , we must fly during the winther. I also have some otcher hobbies bessides F.F. I am playing Football for Tynset in the 4 div League . I also have a privat pilot licence since 80 , glider licence since 74 (Fying in ST. Girons France at IACE Meeting 75) ,and hang glider licen,ce since 77 . I have my own hang glider , and are a co-owner in a Piper Carokee for using my privat pilot licence.

Dag eduard LARSEN- Yinkelveien 3 ;-N 2500 TYNST NORGE.

GARY ODGERS

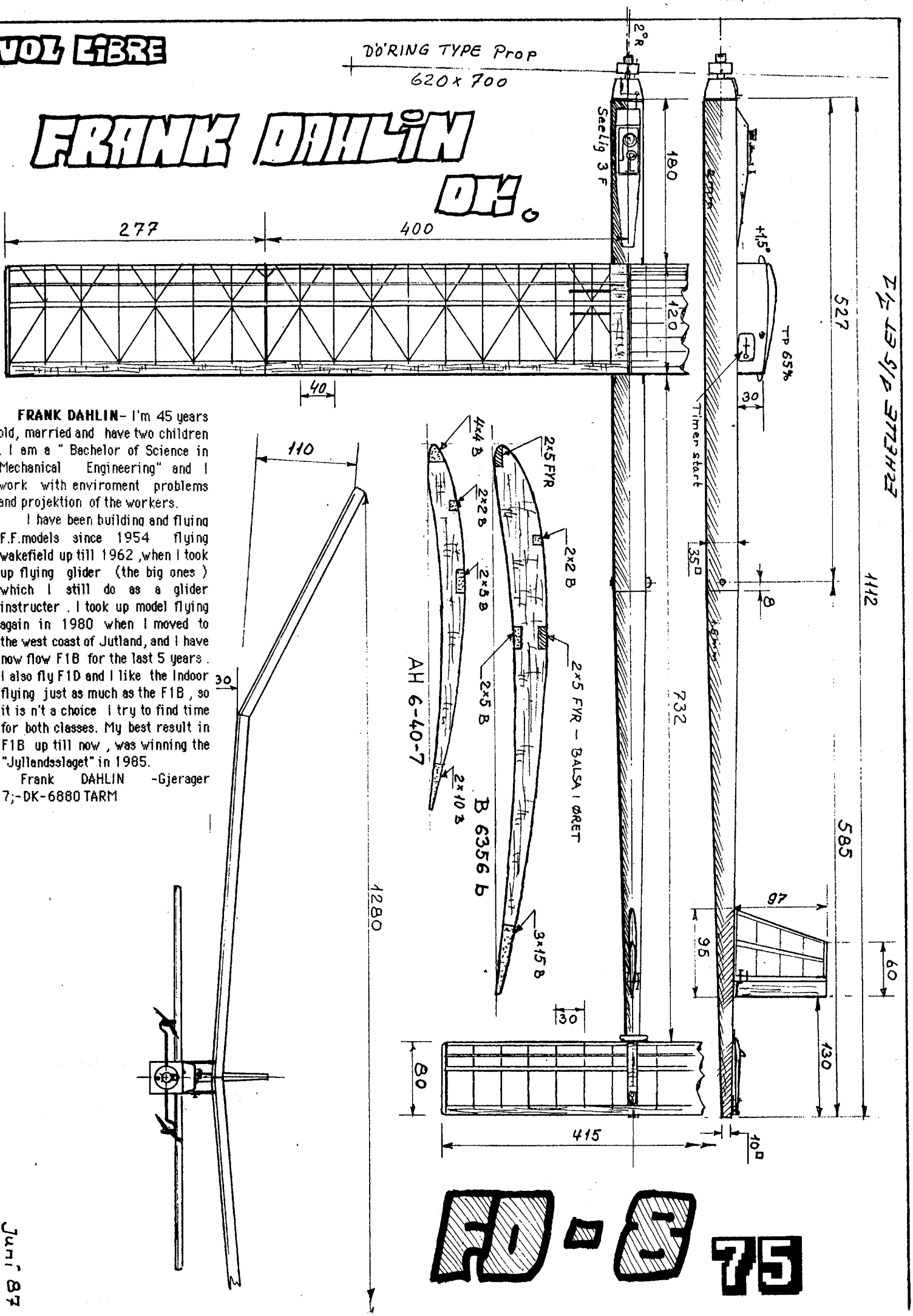
29;-Single;-Glaze technician in Ceramics Industry , 7 years building and flying, 5 years in rubber (4 years in F1B) ;- 1984 A.F.F.S champs 2st;- 1984 Victorian State Champs 1 st;- also in 1985 and 1987;- 1985/6 Naztionals 3 rd;-1985 Trans-Tasman Trials 1 st;- 1986 A.F.F.S champs 1 st.

I fly rather simpel models using a L/R trim ste-up (I am left handed and find it easier to launch and fly left) . I am taking 4 wakes and 1 Coupe, 2 wakes BLACK DOG and SHADOXFAX are L/R ,and the other 2 MAD DOG and FOXY LADY use A/R for a L/L pattern . My props are strognly based on Bob Whites design and airfoils developed around the GARD 6509. MY N°1 model is BLACK DOG and it is the simplest of my models , being designed built and flown in 2 1/2 weeks after loosing a model at the Nat's only one month before going to New Zealand for the Trans Tasman Challenge cup . My other modelling interst are OPEN RUBBER ,F/F scale and I am becoming interested in Power flying.

Gary ODGERS-39 Station ST. BELGRAVE VICTORIA - AUSTRALIA.

VOL LIBRE

FRANK DAHLIN DK



FRANK DAHLIN- I'm 45 years old, married and have two children . I am a " Bachelor of Science in Mechanical Engineering" and I work with enviroment problems and projektion of the workers.

I have been building and flying F.F.models since 1954 flying wakefield up till 1962 ,when I took up flying glider (the big ones) which I still do as a glider instructer . I took up model flying again in 1980 when I moved to the west coast of Jutland, and I have now flow F1B for the last 5 years . I also fly F1D and I like the Indoor flying just as much as the F1B , so it is n't a choice I try to find time for both classes. My best result in F1B up till now , was winning the "Jyllandsslaget" in 1985.

Frank DAHLIN -Gjerager 7;-DK-6880 TARM

VOL LIBRE

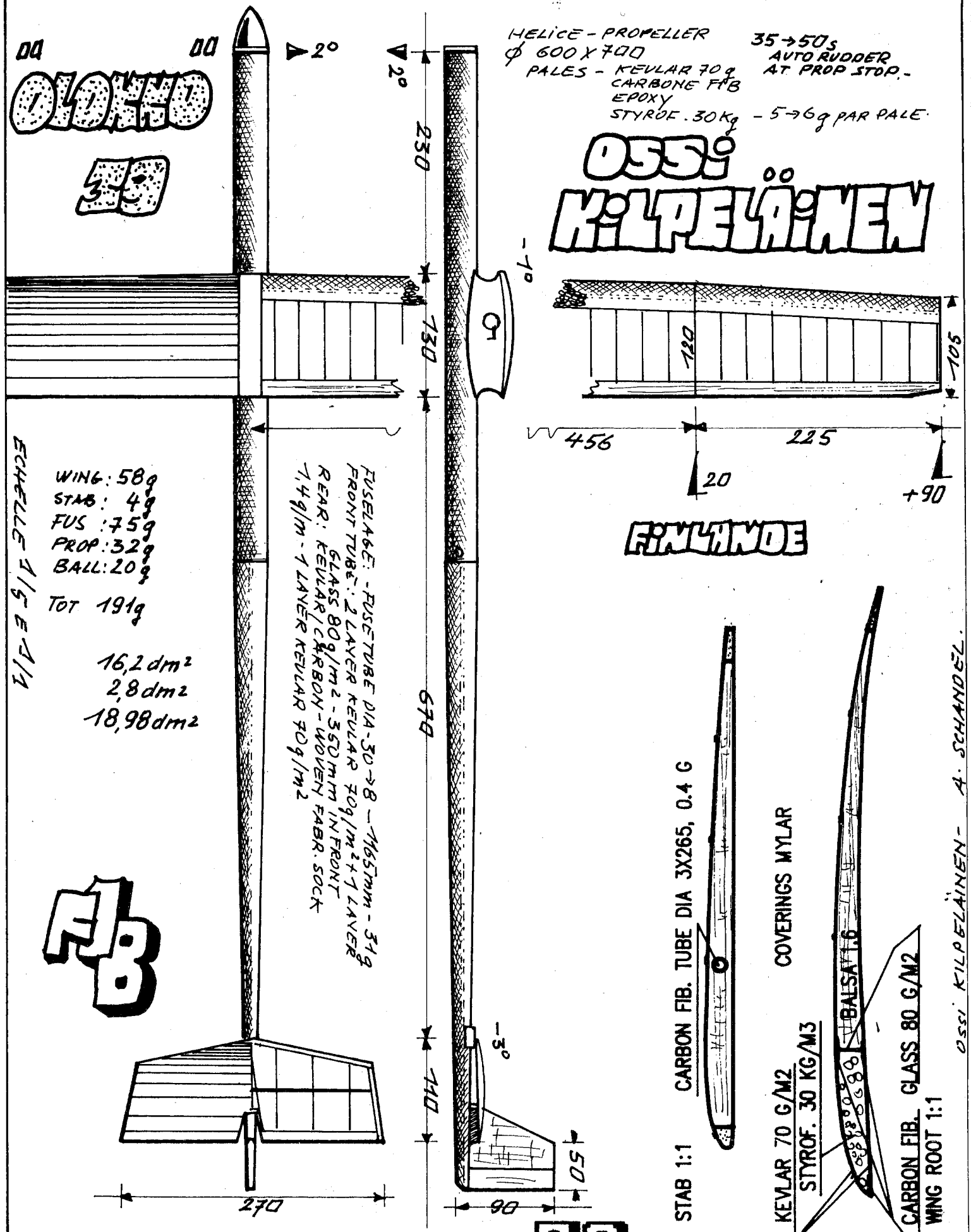
OLOKO 39

HELICE - PROPELLER
ϕ 600 X 700
PALES - KEVLAR 70 g
CARBONE FIB
EPOXY
STYROF. 30 Kg

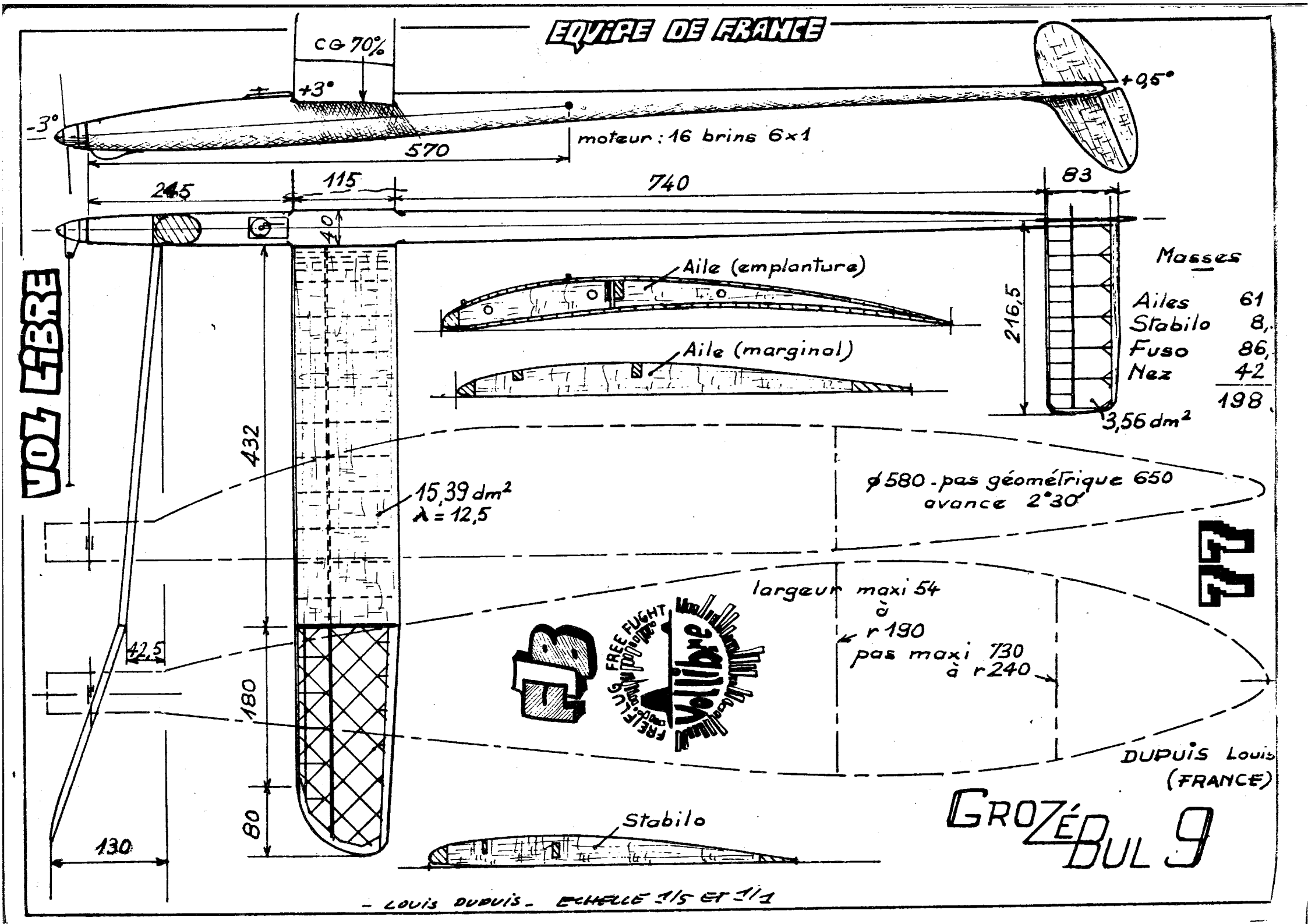
35 → 50 s
AVTO RUDDER
AT. PROP STOP. -

- 5 → 6 g PAR PALE

OSSI KILPELÄINEN
FINLANDE



WELTMEISTERSCHAFT FI ABC 76

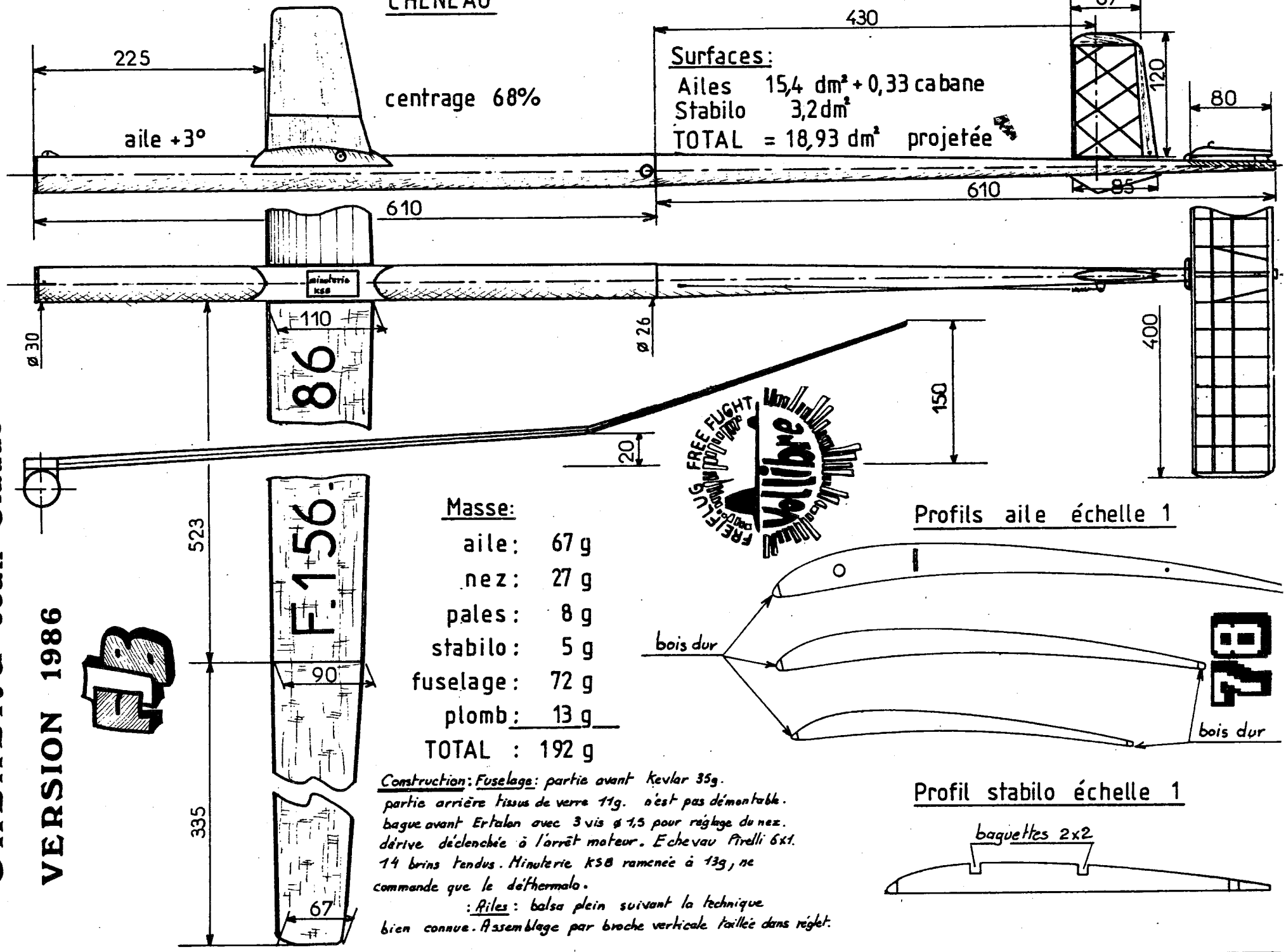

EQUIPE DE FRANCE
CG 70%
+3°
-3°
+0,5°
moteur : 16 brins 6x1
570
245
115
740
83
40
Aile (emplanture)
Aile (marginal)
216,5
Masses
Ailes 61
Stabilo 8,
Fuso 86,
Nez 42
198
3,56 dm²
VOL LIBRE
432
15,39 dm²
λ = 12,5
ø580 - pas géométrique 650
avance 2°30'
largeur maxi 54
à
r 190
pas maxi 730
à r 240
42,5
180
80
130
Stabilo
DUPUIS Louis
(FRANCE)
GROZÉBUL 9
- LOUIS DUPUIS - ECHELLE 1/5 ET 1/1

CHENEAU

VOL LIBRE

CHENEAU Jean-Claude

VERSION 1986



Surfaces:

Ailes 15,4 dm² + 0,33 cabane
Stabilo 3,2 dm²
TOTAL = 18,93 dm² projetée

Masse:

aile :	67 g
nez :	27 g
pales :	8 g
stabilo :	5 g
fuselage :	72 g
plomb :	13 g
TOTAL :	192 g

Profils aile échelle 1

bois dur

bois dur

Profil stabilo échelle 1

baguettes 2x2

Construction: Fuselage: partie avant Kevlar 35g. partie arrière tissus de verre 11g. n'est pas démontable. bague avant Ertalon avec 3 vis ø 1,5 pour réglage du nez. dérive déclenchée à l'arrêt moteur. Echevau Pirelli 6x1. 14 brins tendus. Minuterie KSB ramenée à 13g, ne commande que le déthermalo.

: Ailes : balsa plein suivant la technique bien connue. Assemblage par broche verticale taillée dans réglet.

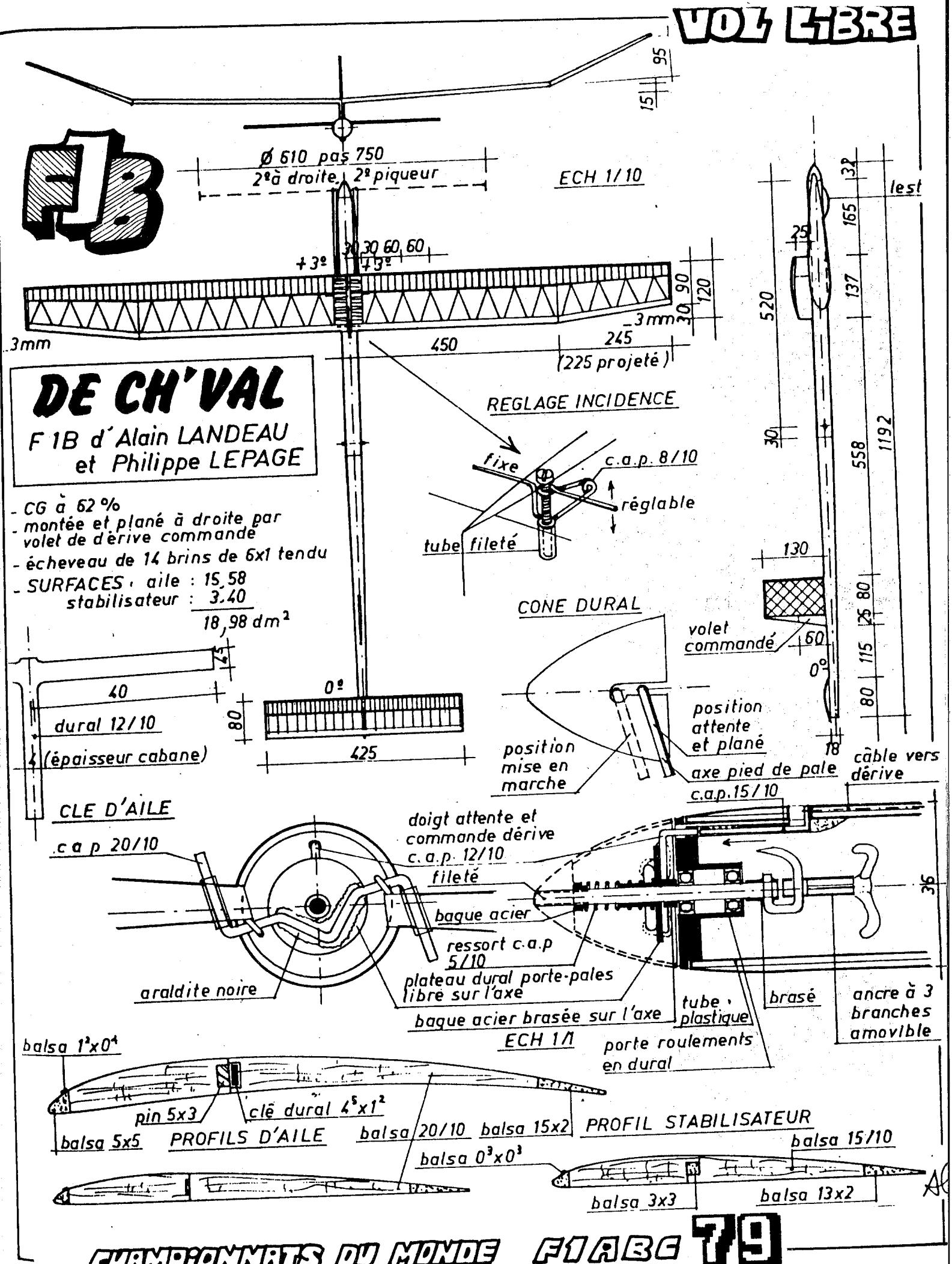

F1B
DE CH'VAL
F 1B d'Alain LANDEAU
et Philippe LEPAGE
- CG à 62 %
- montée et plané à droite par volet de dérive commandé
- écheveau de 14 brins de 6x1 tendu
- SURFACES : aile : 15,58
stabilisateur : 3,40
18,98 dm²
Ø 610 pas 750
2° à droite, 2° piqueur
ECH 1/10
+3°
+3°
30 30 60 60
90
120
30
3mm
3mm
450
245
(225 projeté)
95
15
lest
32
165
25
137
520
30
558
1192
130
80
25
115
60
0°
80
18
REGLAGE INCIDENCE
fixe
c.a.p. 8/10
réglable
tube fileté
CONE DURAL
volet commandé
position attente et plané
position mise en marche
axe pied de pale
c.a.p.15/10
câble vers dérive
0°
40
dural 12/10
4 (épaisseur cabane)
80
425
CLE D'AILE
c a p 20/10
doigt attente et commande dérive
c.a.p. 12/10
fileté
bague acier
ressort c.a.p 5/10
plateau dural porte-pales libre sur l'axe
araldite noire
bague acier brasée sur l'axe
tube plastique
brasé
ancre à 3 branches amovible
36
ECH 1/1
porte roulements en dural
balsa 1²x0⁴
pin 5x3
clé dural 4⁵x1²
balsa 5x5
PROFILS D'AILE
balsa 20/10
balsa 15x2
PROFIL STABILISATEUR
balsa 0³x0³
balsa 15/10
balsa 3x3
balsa 13x2

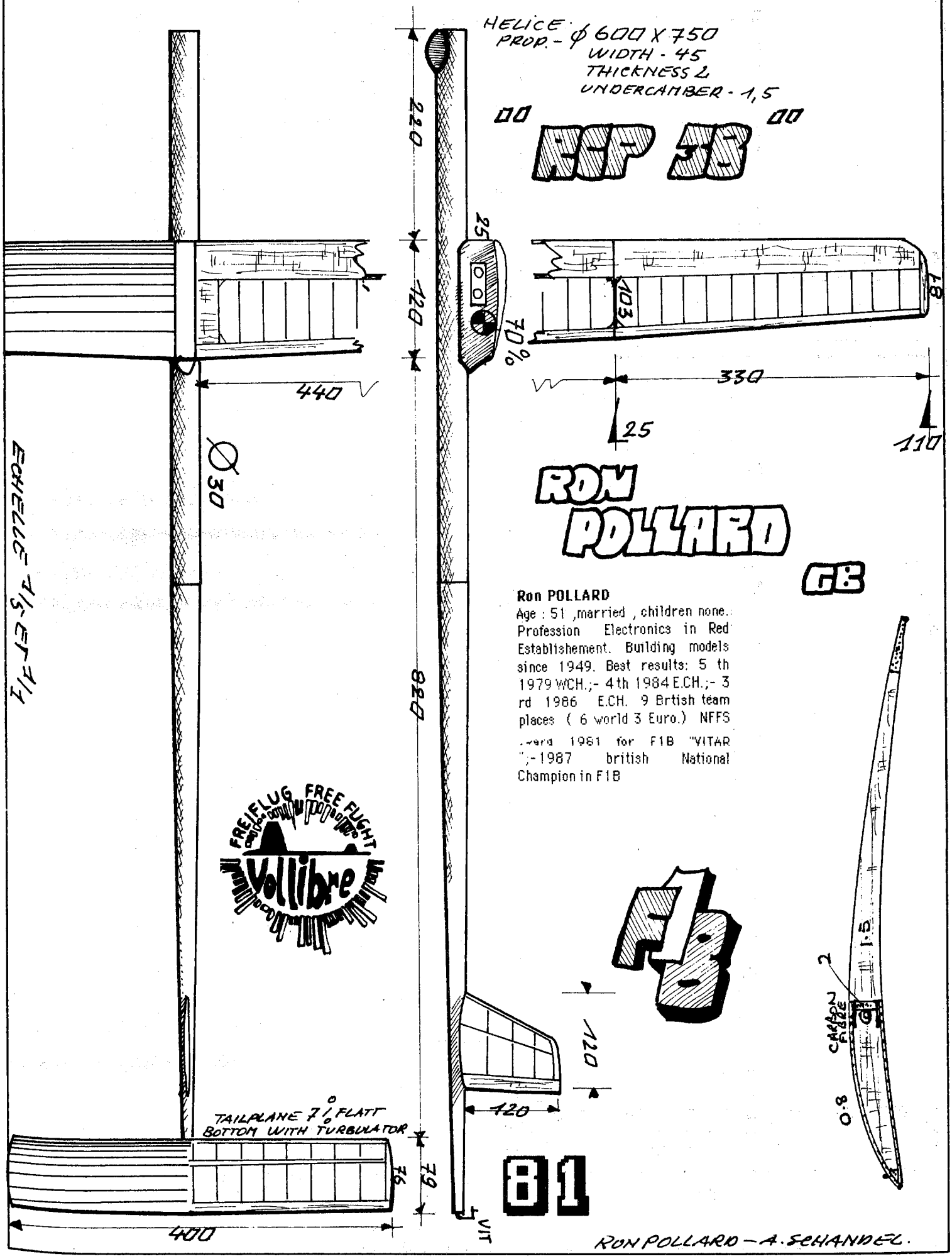
Photo JEAN BOOS.

Pietro **Zoppelli** ,un modèle des plus classiques, un des équipiers d'Italie à la moyenne d'âge relativement élevée en F1B.

VOL LIBRE

HELICE PROP. - ϕ 600 X 750
WIDTH - 45
THICKNESS 2
UNDERCAMBER - 1,5

AF 33



RON POLLARD

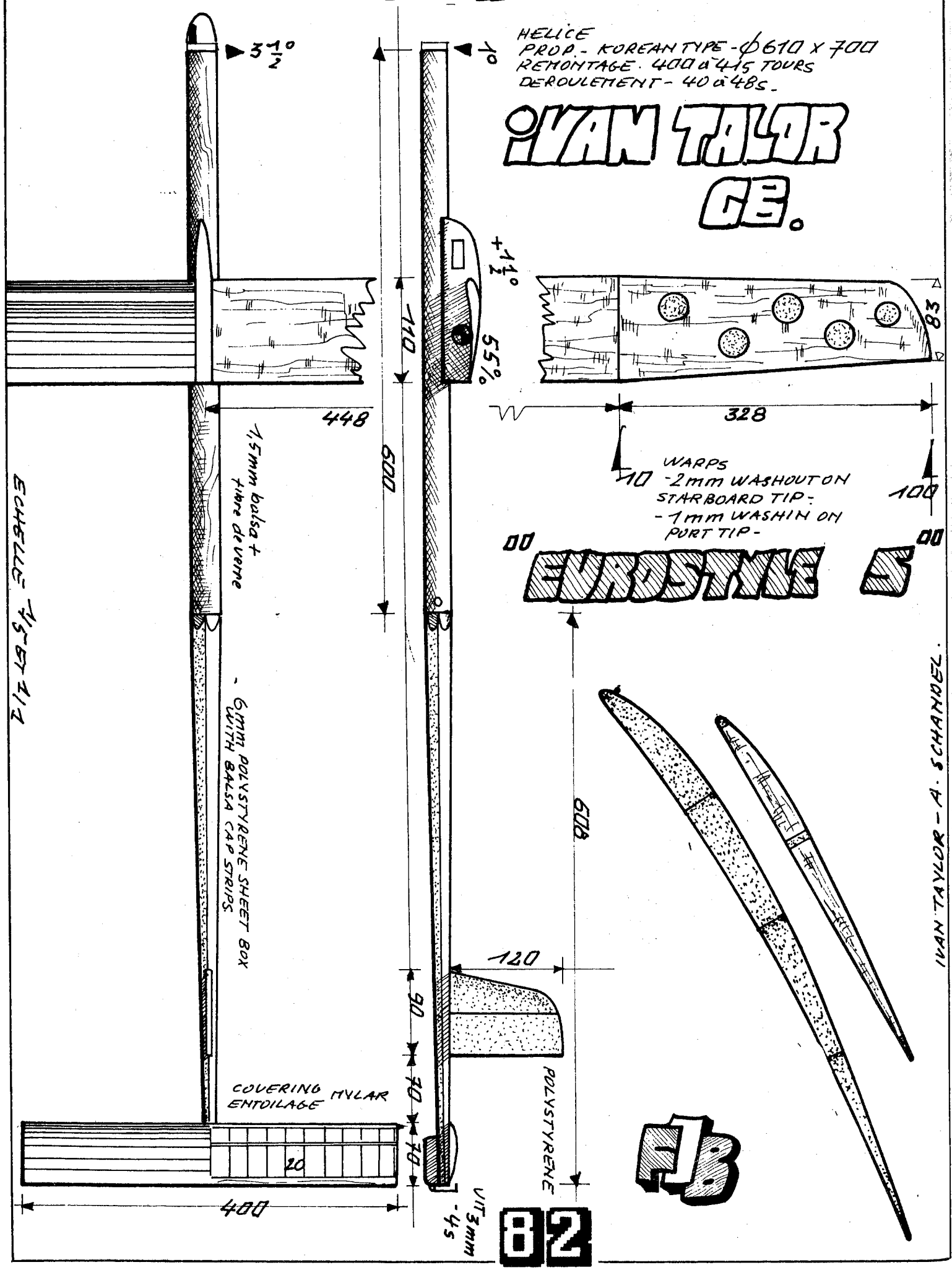
GB

Ron POLLARD
Age : 51 ,married , children none. Profession Electronics in Red Establishement. Building models since 1949. Best results: 5 th 1979 WCH.;- 4th 1984 E.CH.;- 3 rd 1986 E.CH. 9 Brtish team places (6 world 3 Euro.) NFFS award 1981 for F1B "VITAR";-1987 british National Champion in F1B

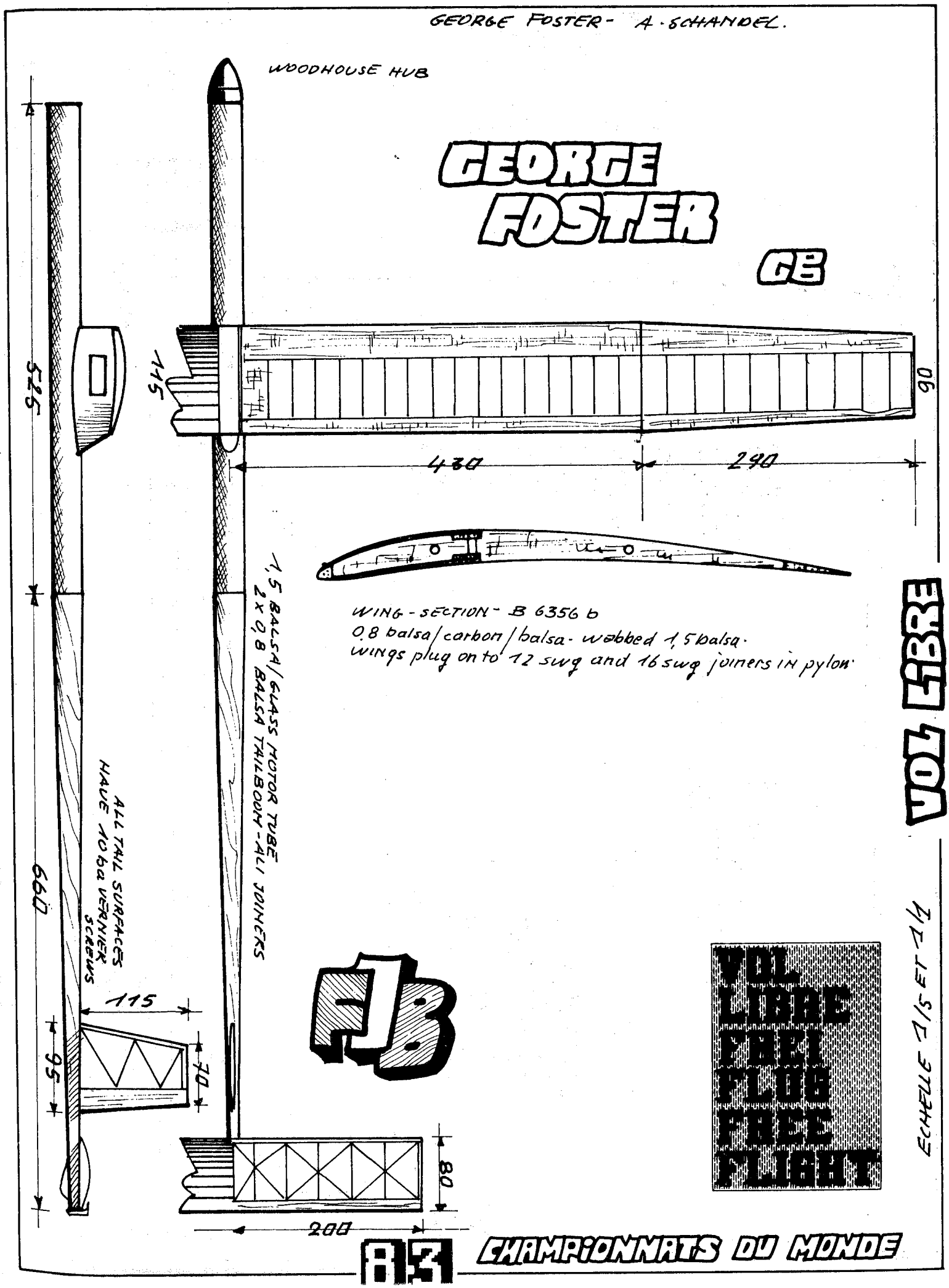
F1B

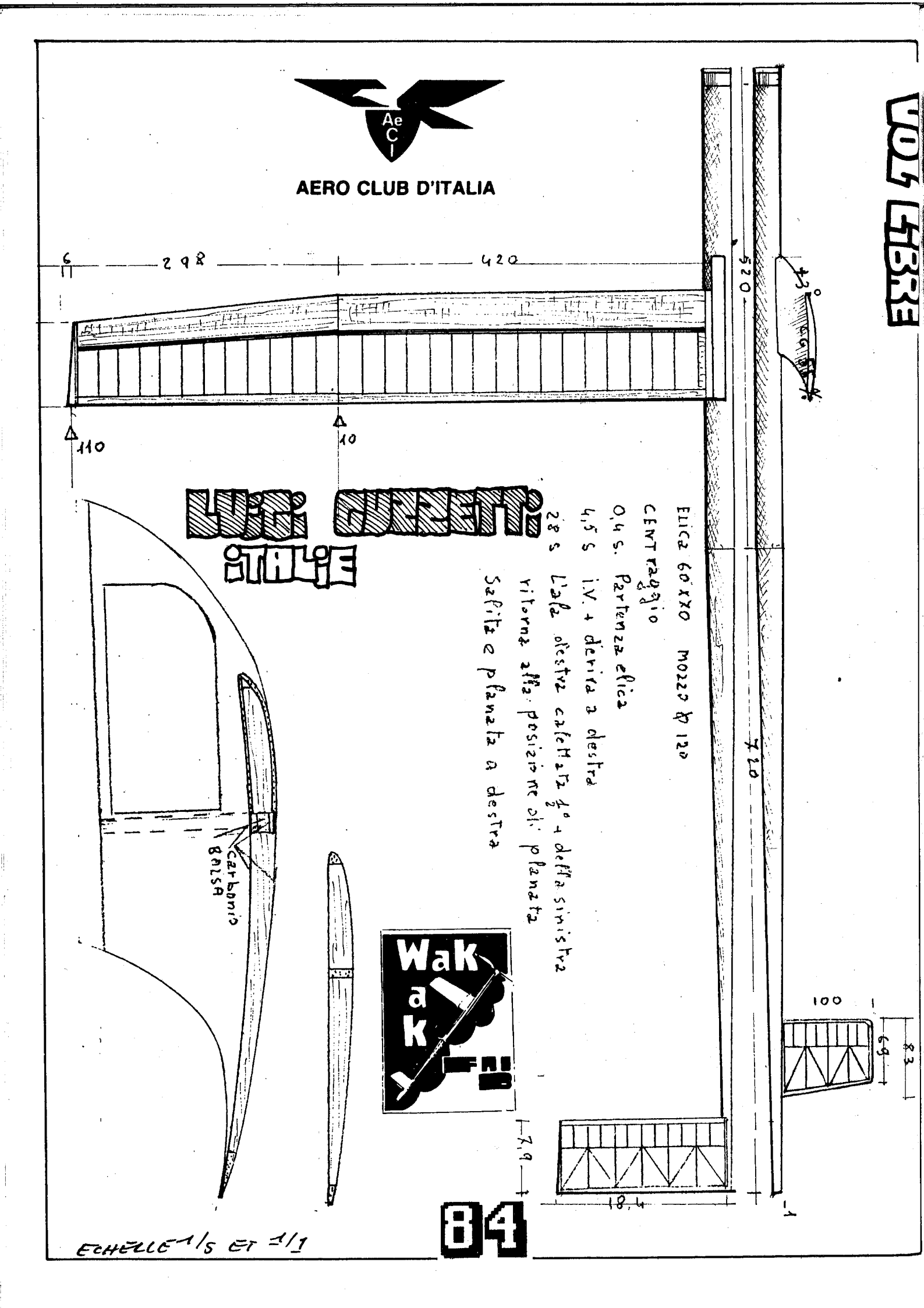
81

RON POLLARD — A. SCHANDEL.


HELICE
PROP. - KOREAN TYPE - ϕ610 x 700
REMONTAGE. 400 à 415 TOURS
DEROULEMENT - 40 à 48s.
IVAN TAYLOR
G3.
3 1/2°
0°
+1 1/2°
5%
110
600
448
1,5mm balsa + fibre de verre
6mm POLYSTYRENE SHEET BOX WITH BALSA CAP STRIPS
COVERING MYLAR
ENTOILAGE
20
400
90
70
70
VIT 3mm
45
120
600
POLYSTYRENE
328
83
WARPS
-2mm WASHOUT ON STARBOARD TIP-
-1mm WASHIN ON PORT TIP-
10
100
EVOLUTIVE
ECHELLE 1/5 ET 1/1
IVAN TAYLOR - A. SCHANDEL.
82

GEORGE FOSTER - A. SCHANDEL.



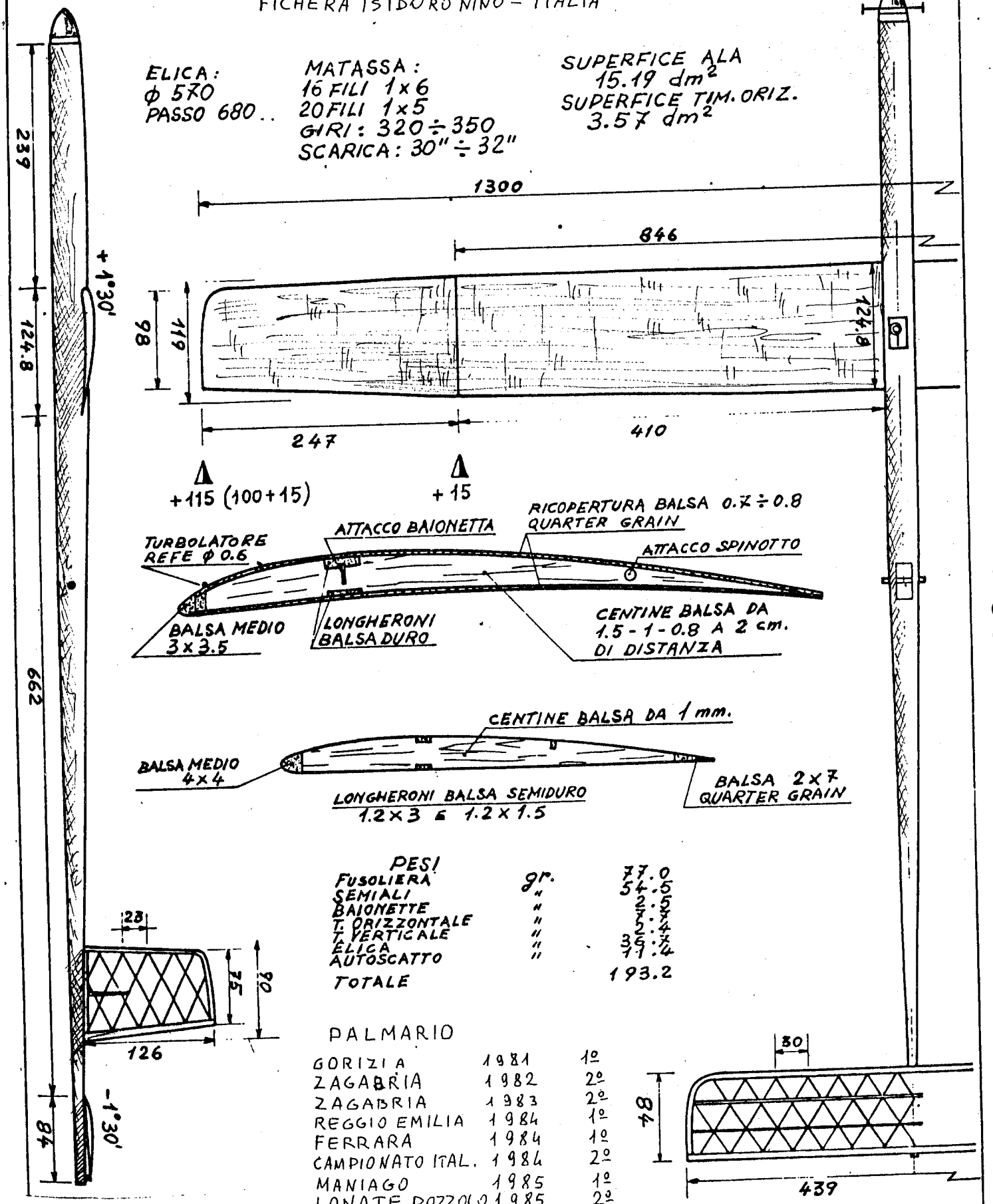

VOL LIBRE
AERO CLUB D'ITALIA
Ae C I
6
298
420
520
110
10
710
100
83
69
7,9
18,4
-1
LUIGI CURCETTI
ITALIE
ELICA 60x30 MOZZO Φ 120
CENTRAGGIO
0,45 S. Partenza elica
4,5 S I.V. + deriva a destra
28 S L'ala destra cabra ½° + delta sinistra
ritorna alla posizione di planata
Salita e planata a destra
carbonio
BALSA
Wak a k
84
ECHELLE 1/5 ET 1/1

FICHERA ISIDORO NINO – ITALIA

ELICA:
Φ 570
PASSO 680..

MATASSA:
16 FILI 1x6
20 FILI 1x5
GIRI: 320 ÷ 350
SCARICA: 30" ÷ 32"

SUPERFICE ALA
15.19 dm²
SUPERFICE TIM. ORIZ.
3.57 dm²



PESI

FUSOLIERA	gr.	77.0
SEMIALI	"	54.5
BAIONETTE	"	2.5
T. ORIZZONTALE	"	7.7
T. VERTICALE	"	2.4
ELICA	"	36.7
AUTOSCATTO	"	11.4
TOTALE		193.2

PALMARIO

GORIZIA	1981	1°
ZAGABRIA	1982	2°
ZAGABRIA	1983	2°
REGGIO EMILIA	1984	1°
FERRARA	1984	1°
CAMPIONATO ITAL.	1984	2°
MANIAGO	1985	1°
LONATE POZZOLO	1985	2°
CAMPIONATO ITAL.	1985	1°
ORENTANO	1986	2°
LEGNANO	1986	3°
REGGIO EMILIA	1986	2°
GORIZIA	1986	2°
MANIAGO	1986	3°
COPPA ITALIA	1986	1°
SIENA	1987	1°

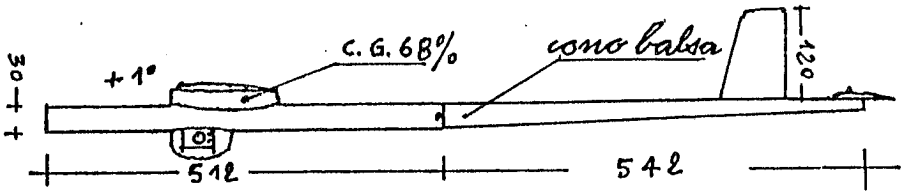
AERO CLUB D'ITALIA

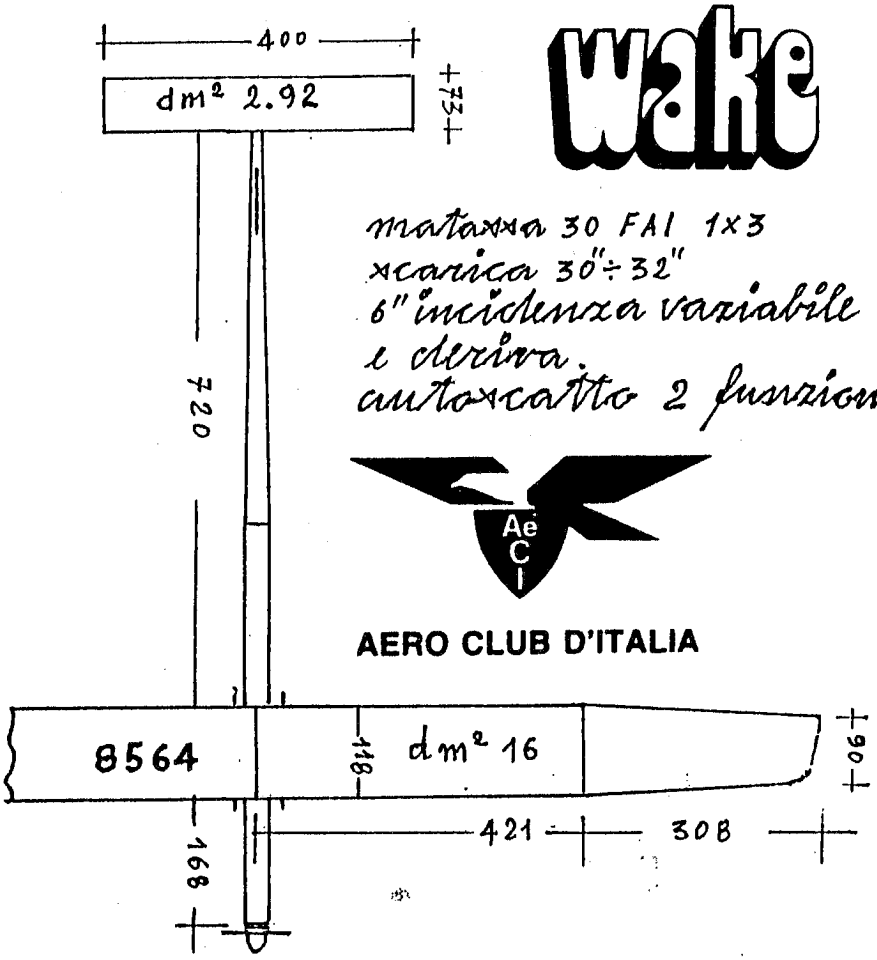
85

SCALA 1/5 - MISURE IN mm.

VOL LIBRE

PIETRO ZOPPELLI
ITALIE

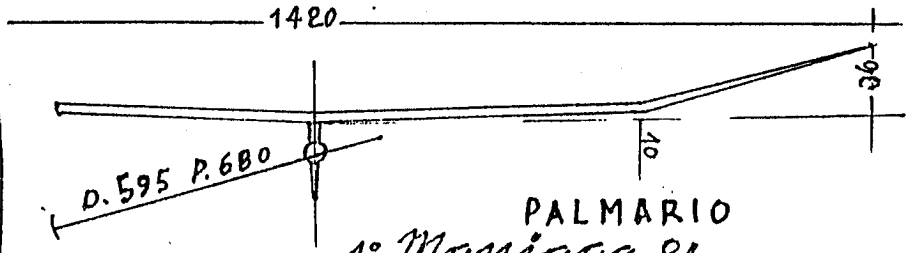


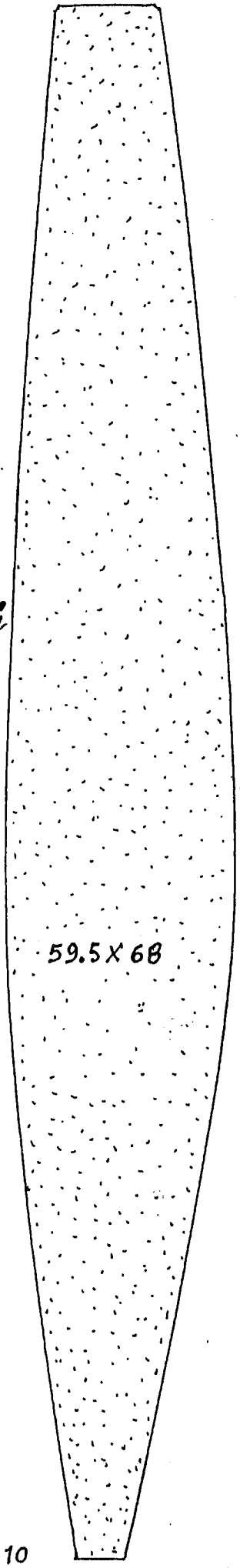


wake

matassa 30 FAI 1x3
scarica 30"÷32"
6" incidenza variabile
e deriva.
autoscatto 2 funzioni

AERO CLUB D'ITALIA

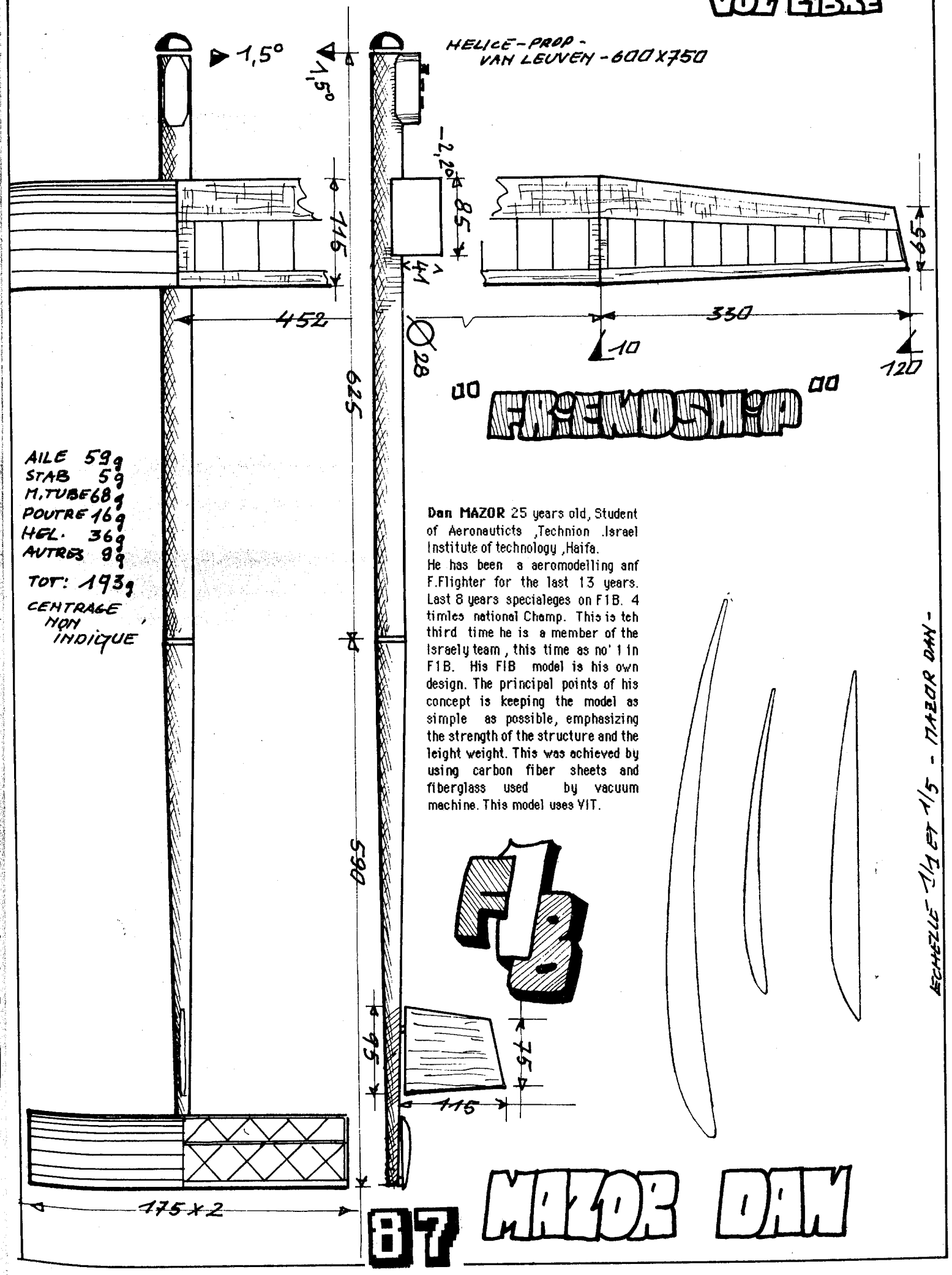




PALMARIO
1° Maniago 84
3° Reggio Emilia 84
1° Lonate Pozzolo 84
1° Reggio Emilia 85
1° Orbetano 86
5° Maniago 86
1° Reggio Emilia 86
1° Maniago 87

VOL LIBRE 86

SCALA 1:10



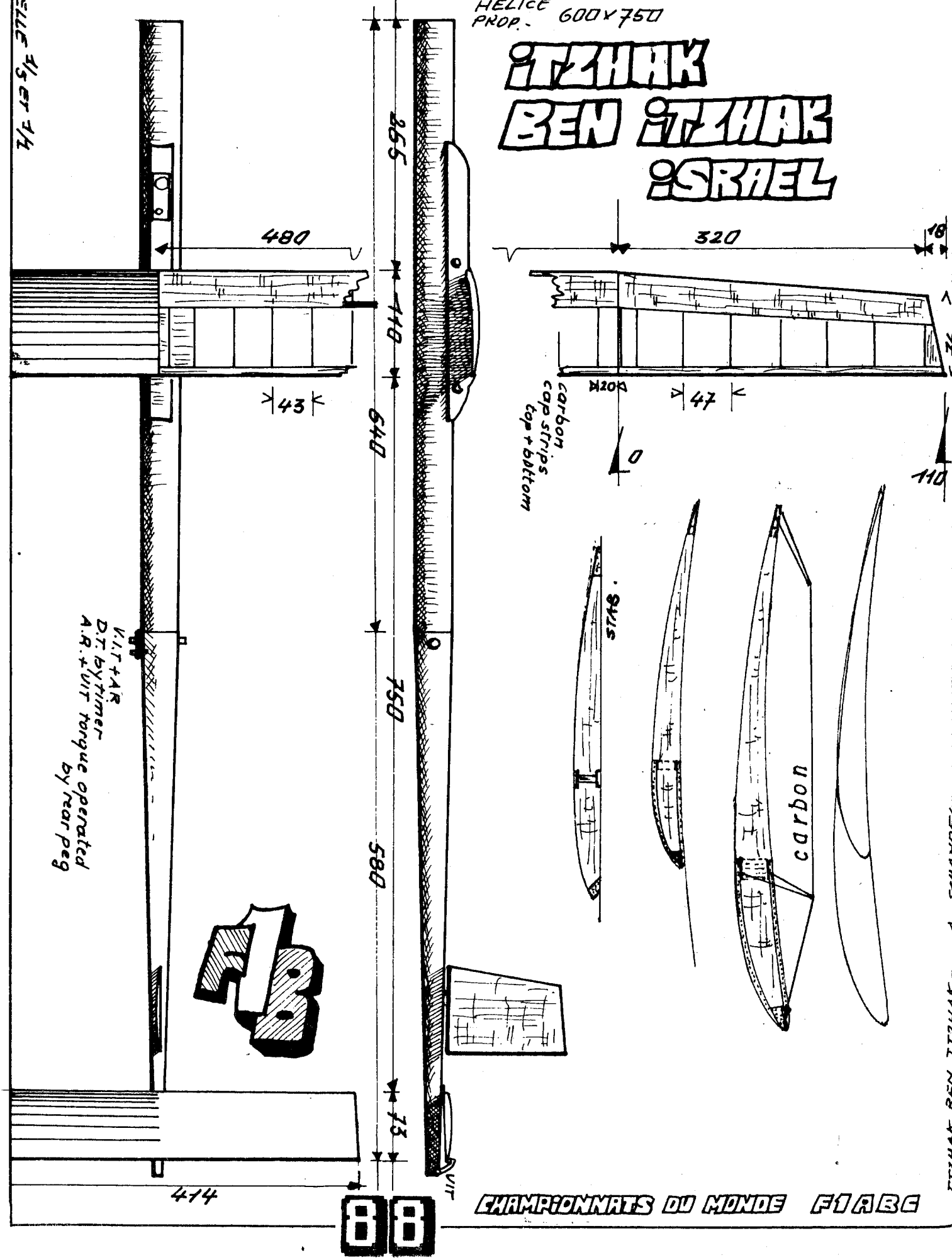
Dan MAZOR 25 years old, Student of Aeronauticts ,Technion .Israel Institute of technology ,Haifa.
He has been a aeromodelling anf F.Flighter for the last 13 years. Last 8 years specialeges on F1B. 4 timles national Champ. This is teh third time he is a member of the Israely team , this time as no' 1 in F1B. His FIB model is his own design. The principal points of his concept is keeping the model as simple as possible, emphasizing the strength of the structure and the leight weight. This was achieved by using carbon fiber sheets and fiberglass used by vacuum machine. This model uses VIT.

VOL LIBRE

ECHELLE 1/5 ET 1/4

HELICE PROP. 600 X 750

ITZHAK BEN ITZHAK ISRAEL



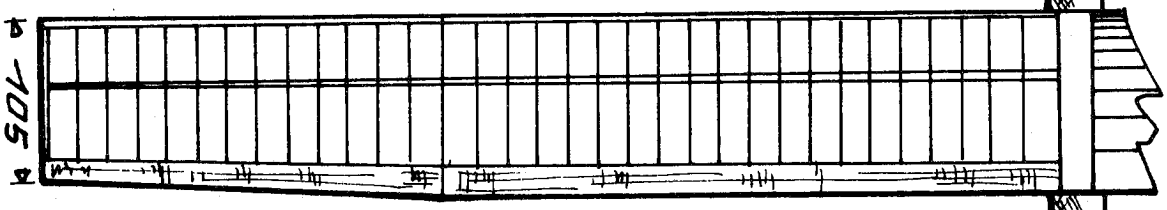
CHAMPIONNATS DU MONDE F1ABC

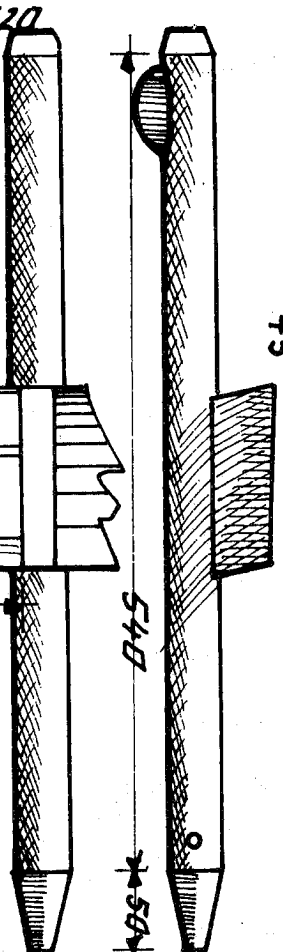
88

TAKASHI MAEDA

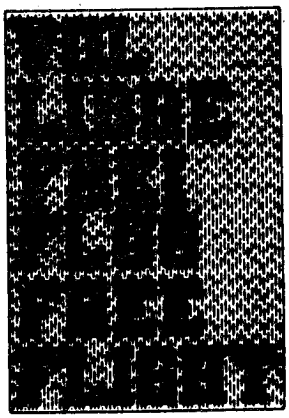
JAPON

HELICE 600X720
PROPELLER

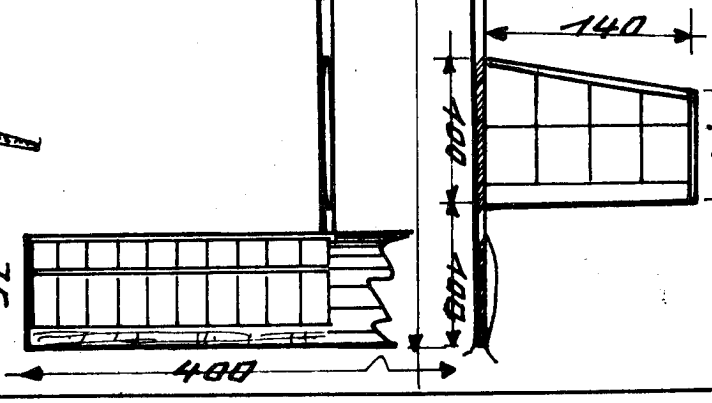




"PEGASUS"



TAKASHI MAEDA;- 57 married with 2 children , may start aeromodelling at age 11. He works as a manager for Nippon Electric Company (NEC) in Tojyo. He is a leader of FF in japan and has consecutively filled various FF tosts. i.e the chairman of Yoyogi Sky Friend which is a famous aeromodelers club in Tokyo and the vice-chairman of the FF committee in Japan Model Aeronautic Association etc. His competition placing are too numerous mention. Pegasus W, his Wakefield model , is the accomplished model which collected his ripe experience fo FF. He uses FAI and Champion rubbers.



TAKASHI MAEDA. - A. SCHANDEL.

ECHELLE 1/5 ET 1/4

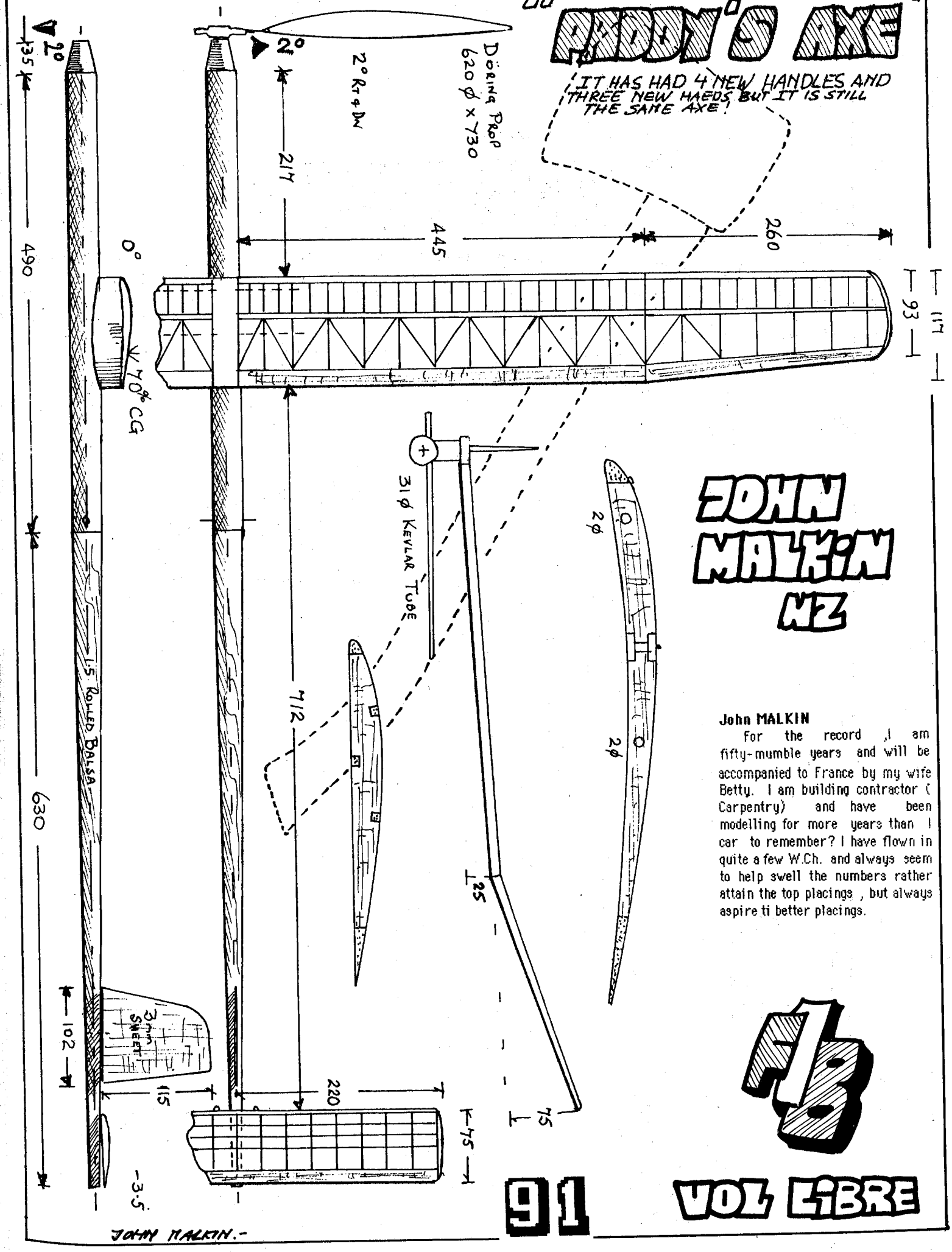
PHOTO - JEAN BOOS. -

Page 90

R. Schlesinger RFA avec un modèle sortant du classique. Ailes eu styropore en carbone. Stabilo surélevé, un des rares ssinon le seul dans cette catégorie. Un ensemble performant et réalisé dans une des voies nouvelles

ADDY'S AXE

'IT HAS HAD 4 NEW HANDLES AND THREE NEW HAEDS BUT IT IS STILL THE SAME AXE'



JOHN MALKIN NZ

John MALKIN

For the record ,I am fifty-mumble years and will be accompanied to France by my wife Betty. I am building contractor (Carpentry) and have been modelling for more years than I car to remember? I have flown in quite a few W.Ch. and always seem to help swell the numbers rather attain the top placings , but always aspire ti better placings.

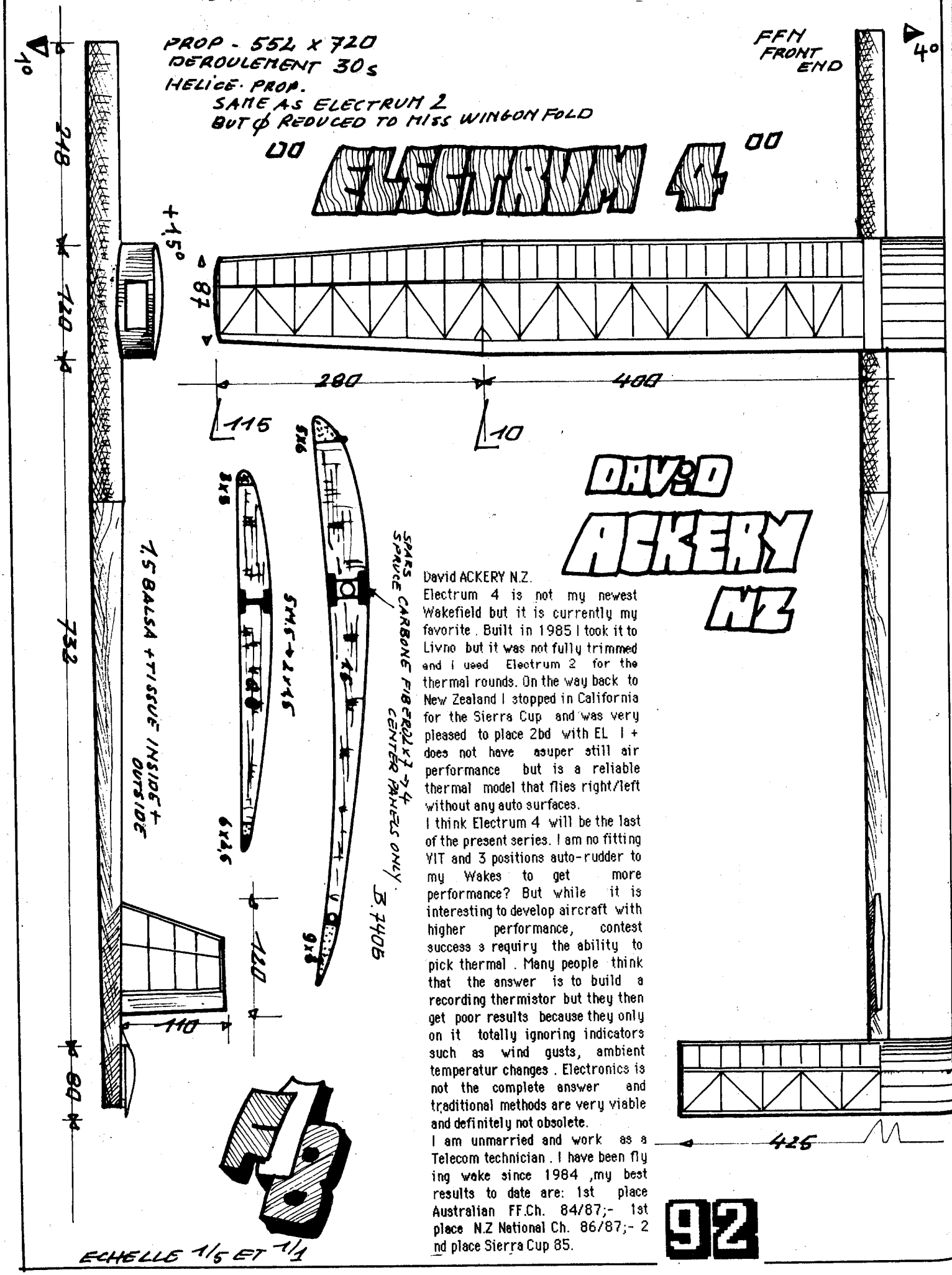
JOHN MALKIN.-

DAVID ACKERY - A. SCHANDEL

PROP - 552 x 720
DEROULEMENT 30s
HELICE. PROP.
SAME AS ELECTRUM 2
BUT ϕ REDUCED TO MISS WINGON FOLD

ELECTRUM 4

FFM FRONT END



DAVID ACKERY NZ

David ACKERY N.Z.
Electrum 4 is not my newest Wakefield but it is currently my favorite. Built in 1985 I took it to Livno but it was not fully trimmed and I used Electrum 2 for the thermal rounds. On the way back to New Zealand I stopped in California for the Sierra Cup and was very pleased to place 2bd with EL I + does not have asuper still air performance but is a reliable thermal model that flies right/left without any auto surfaces.
I think Electrum 4 will be the last of the present series. I am no fitting VIT and 3 positions auto-rudder to my Wakes to get more performance? But while it is interesting to develop aircraft with higher performance, contest success s requiry the ability to pick thermal. Many people think that the answer is to build a recording thermistor but they then get poor results because they only on it totally ignoring indicators such as wind gusts, ambient temperatur changes. Electronics is not the complete answer and traditional methods are very viable and definitely not obsolete.
I am unmarried and work as a Telecom technician. I have been fly ing wake since 1984, my best results to date are: 1st place Australian FF.Ch. 84/87;- 1st place N.Z National Ch. 86/87;- 2 nd place Sierra Cup 85.

ECHELLE 1/5 ET 1/1

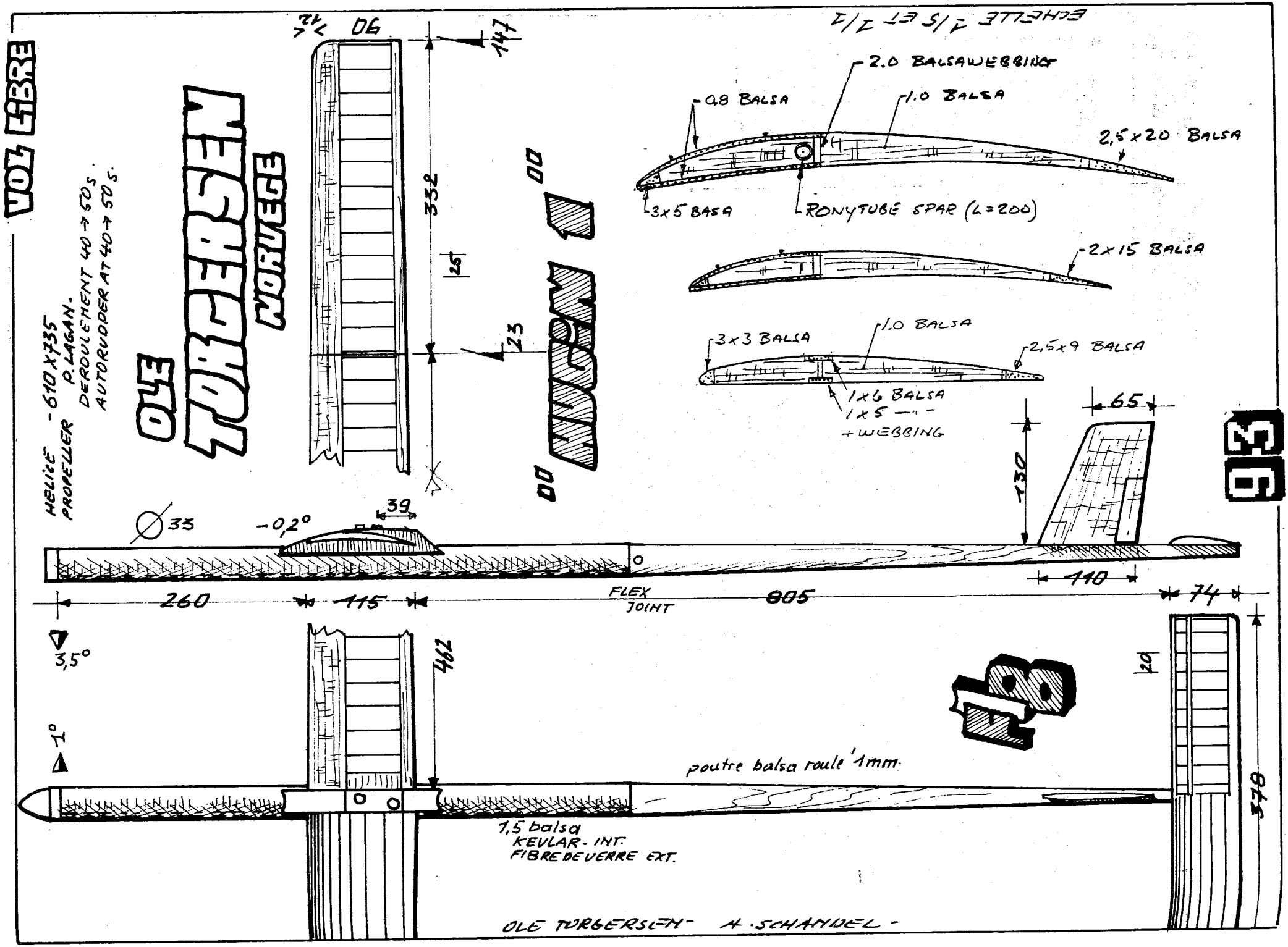

VOL LIBRE
OLE TORGERSEN
NORVEGE
HELICE - 610 X 735
PROPELLER
P. LAGAN-
DEROULEMENT 40 → 50 S.
AUTORUDDER AT 40 → 50 S.
ECHELLE 1/5 ET 1/2
2.0 BALSAWEBBING
0.8 BALSA
1.0 BALSA
2,5 x 20 BALSA
3x5 BALSA
RONYTUBE SPAR (L=200)
2x15 BALSA
3x3 BALSA
1.0 BALSA
2,5x9 BALSA
1x6 BALSA
1x5 —"—
+WEBBING
65
130
110
74
90
147
332
25
23
39
-0,2°
Ø33
260
115
FLEX JOINT
805
3,5°
1°
462
20
845
poutre balsa roule 1mm.
1,5 balsa
KEVLAR - INT.
FIBRE DE VERRE EXT.
OLE TORGERSEN - A. SCHAMBEL -

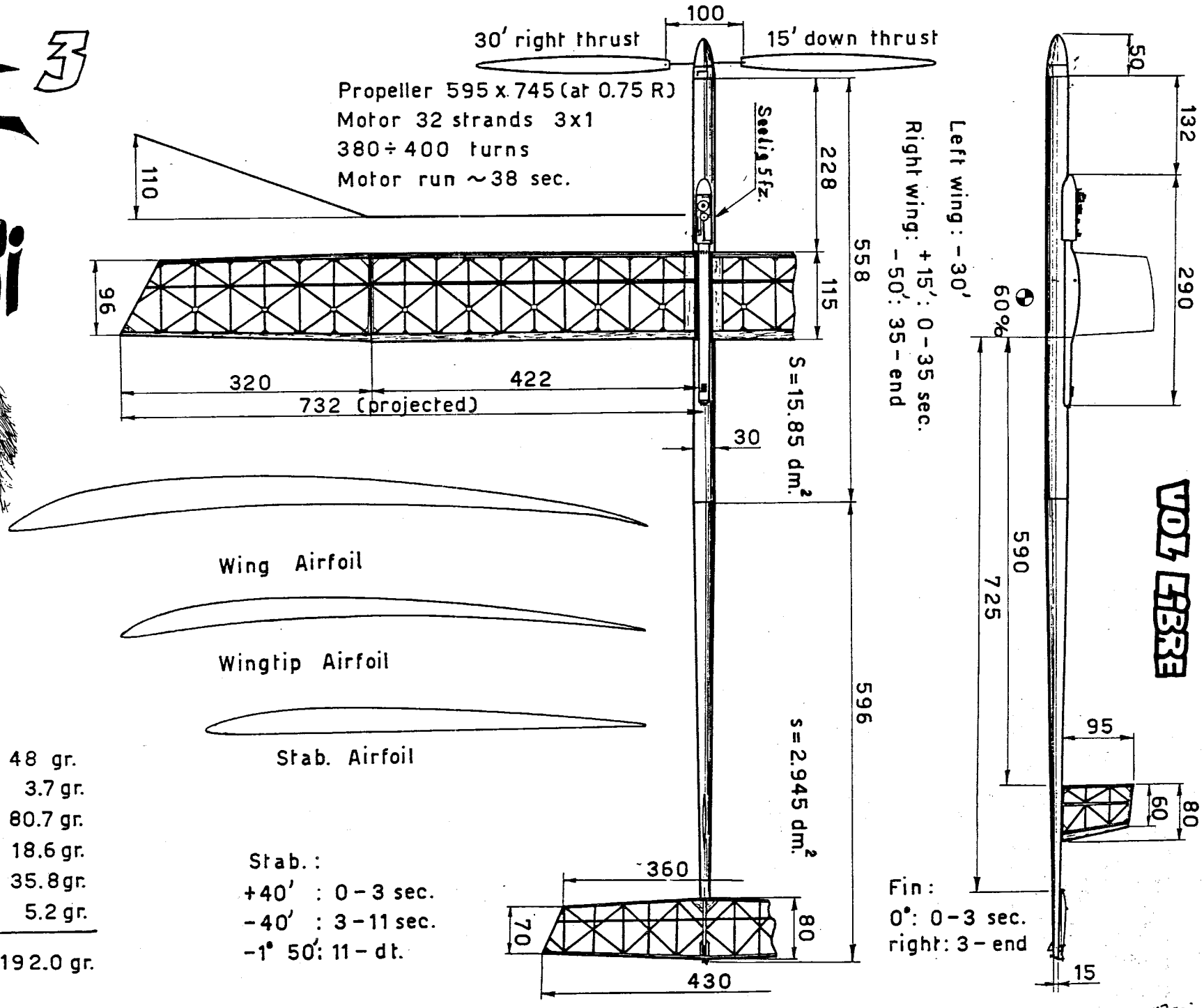
Photo. JEAN BOOS.—

Deux anciens Champions du Monde du passé **Lothar Döring** (1981 et 83) **Reiner Hofsäss** (1985) tous deux RFA et utilisant les fameux Espadas. Ici devant la valise magique. Lothar tenant une partie de son petit déjeuner en main, Reiner son dernier né Espada 87 en kevlar

RARA AVIS 3

56 ANSELMO ZERI

Propeller 595 x 745 (at 0.75 R)
Motor 32 strands 3x1
380 ÷ 400 turns
Motor run ~38 sec.



Weights:

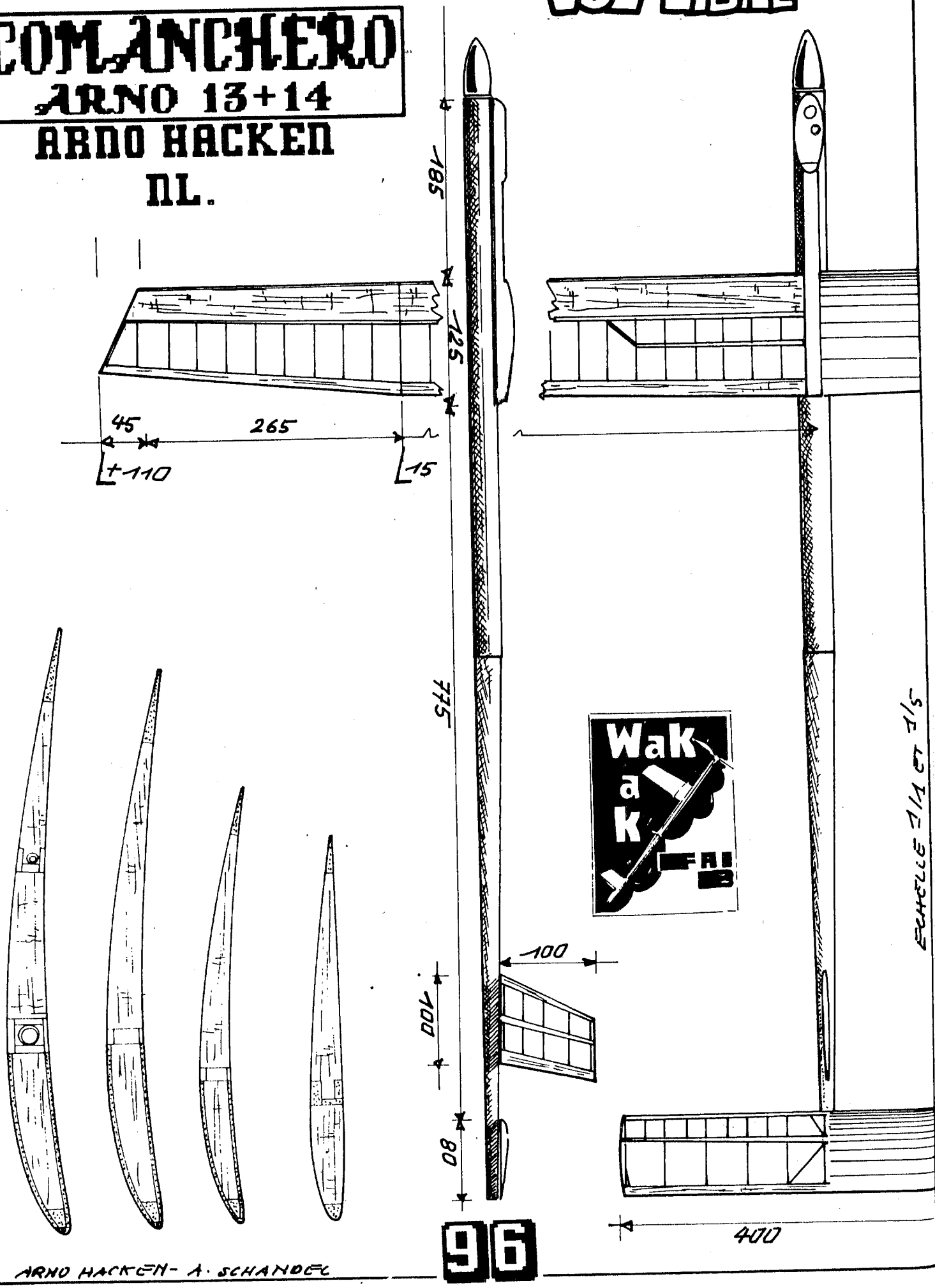
Wing + joiner	48 gr.
Stabilizator	3.7 gr.
Motor tube	80.7 gr.
Tail boom	18.6 gr.
Propeller	35.8 gr.
Ballast	5.2 gr.
Total	192.0 gr.

Stab.:
+40' : 0-3 sec.
-40' : 3-11 sec.
-1° 50': 11-dt.

Fin:
0°: 0-3 sec.
right: 3-end

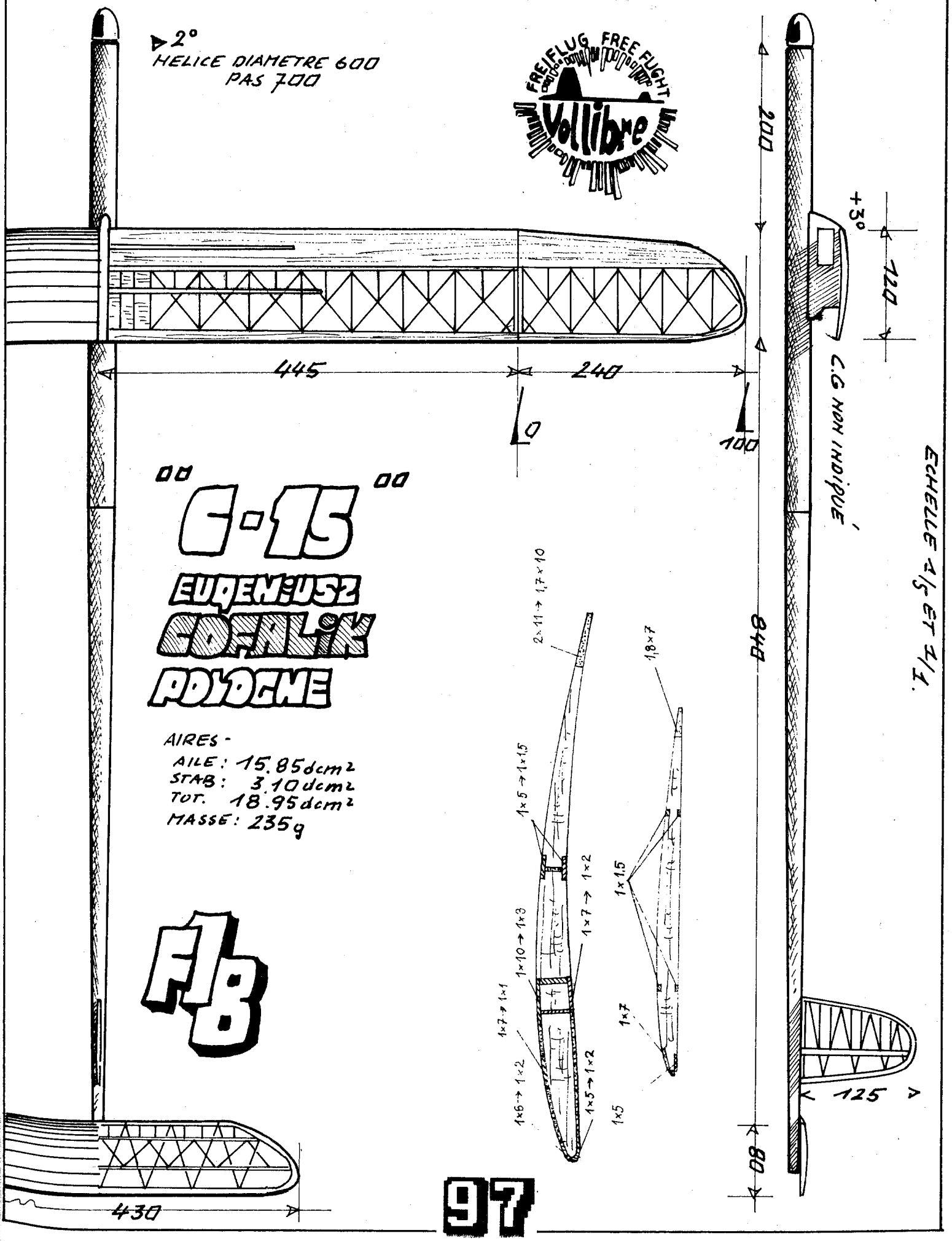
Azeri

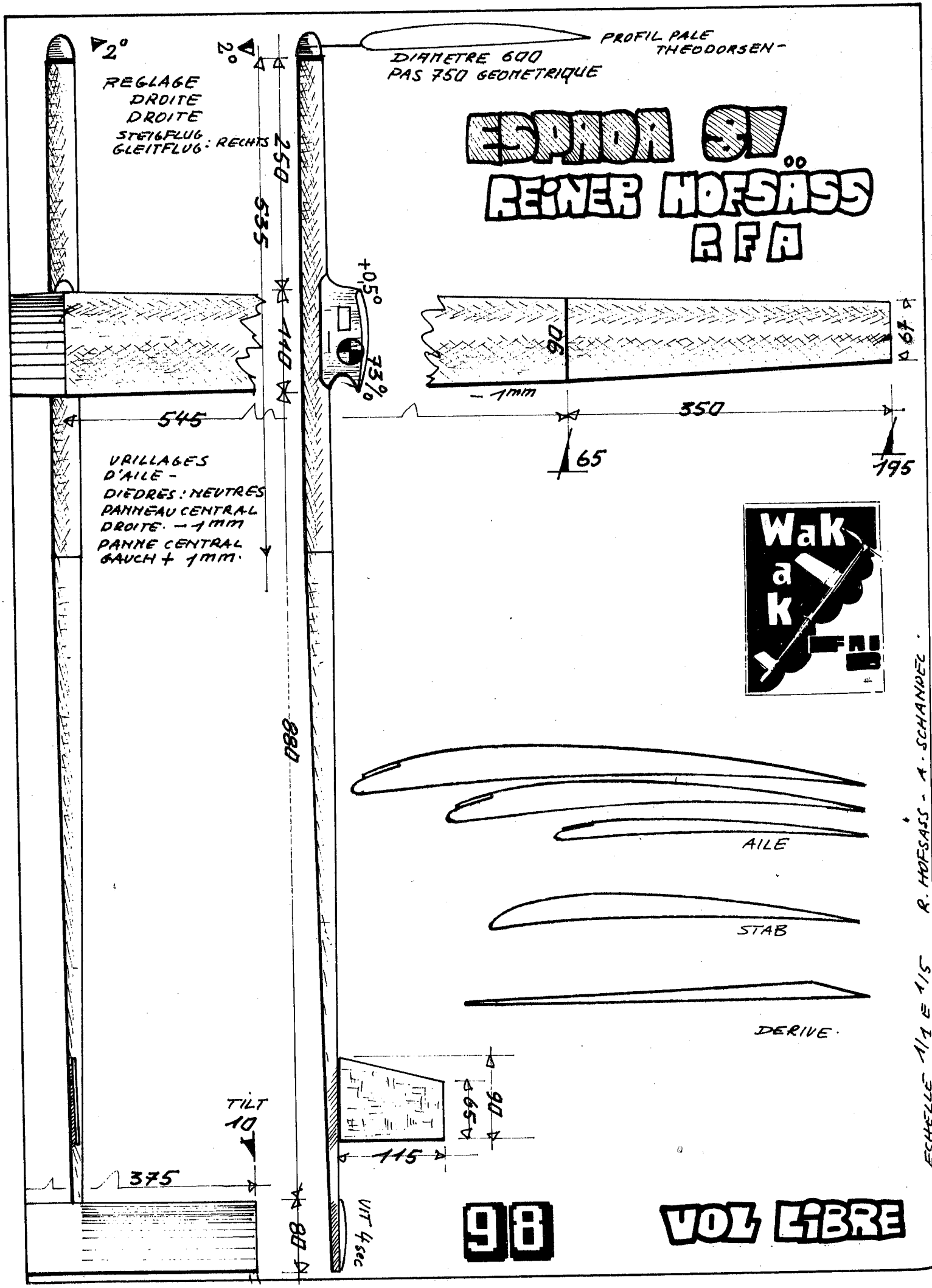
COMANCHERO
ARNO 13+14
ARNO HACKEN
NL.

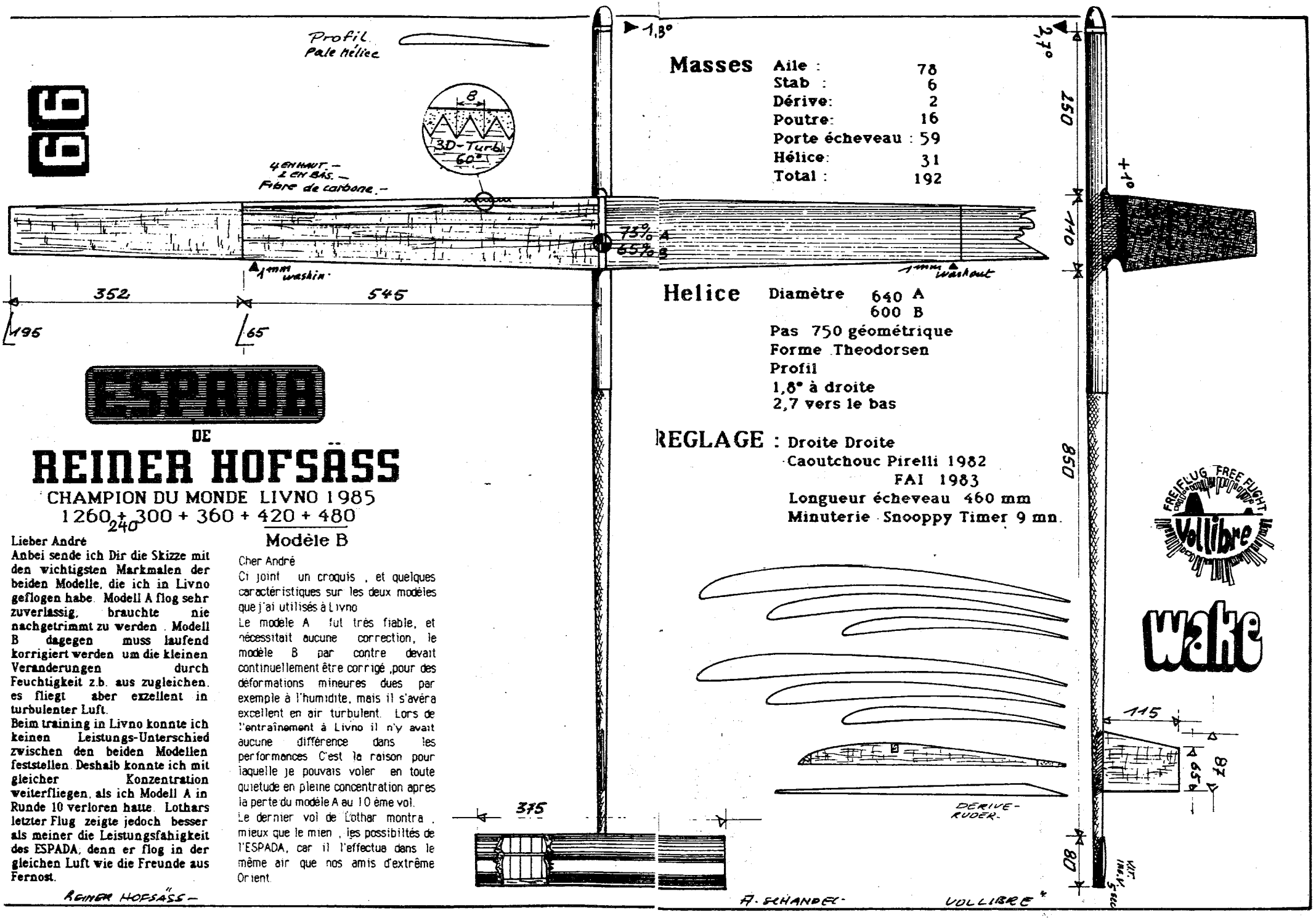


ARNO HACKEN - A. SCHANDEL

A. SCHANDEL - E. COFALIK




2°
2°
REGLAGE
DROITE
DROITE
STEIGFLUG
GLEITFLUG : RECHTS
PROFIL PALE
THEODORSEN -
DIAMETRE 600
PAS 750 GEOMETRIQUE
ESPACE
REINER HOFSÄSS
RFA
250
535
110
545
+0,5°
3,5°
90
67
- 1mm
350
65
195
VRILLAGES
D'AILE -
DIEDRES : NEUTRES
PANNEAU CENTRAL
DROITE - 1mm
PANNE CENTRAL
GAUCH + 1mm
880
Wak
a
k
AILE
STAB
DERIVE
TILT
10
375
80
UIT 4sec
65
90
115
98
VOL LIBRE
ECHELLE 1/1 E 1/5
R. HOFSASS - A. SCHANDEL



66

ESPADA

DE

REINER HOFSÄSS

CHAMPION DU MONDE LIVNO 1985

1260 + 300 + 360 + 420 + 480
240

Modèle B

Masses

Aile :	78
Stab :	6
Dérive:	2
Poutre:	16
Porte écheveau :	59
Hélice:	31
Total :	192

Helice

Diamètre 640 A
600 B

Pas 750 géométrique
Forme Theodorsen
Profil
1,8° à droite
2,7 vers le bas

REGLAGE : Droite Droite
Caoutchouc Pirelli 1982
FAI 1983
Longueur écheveau 460 mm
Minuterie Snooppy Timer 9 mn.

Lieber André
Anbei sende ich Dir die Skizze mit den wichtigsten Markmalen der beiden Modelle, die ich in Livno geflogen habe. Modell A flog sehr zuverlassig, brauchte nie nachgetrimmt zu werden. Modell B dagegen muss laufend korrigiert werden um die kleinen Veranderungen durch Feuchtigkeit z.b. aus zugleichen. es fliegt aber exzellent in turbulenter Luft.
Beim training in Livno konnte ich keinen Leistungs-Unterschied zwischen den beiden Modellen feststellen. Deshalb konnte ich mit gleicher Konzentration weiterfliegen, als ich Modell A in Runde 10 verloren hatte. Lothars letzter Flug zeigte jedoch besser als meiner die Leistungsfahigkeit des ESPADA, denn er flog in der gleichen Luft wie die Freunde aus Fernost.

Cher André
Ci joint un croquis, et quelques caractéristiques sur les deux modèles que j'ai utilisés à Livno
Le modèle A fut très fiable, et nécessitait aucune correction, le modèle B par contre devait continuellement être corrigé, pour des déformations mineures dues par exemple à l'humidité, mais il s'avéra excellent en air turbulent. Lors de l'entraînement à Livno il n'y avait aucune différence dans les performances. C'est la raison pour laquelle je pouvais voler en toute quietude en pleine concentration apres la perte du modèle A au 10 éme vol.
Le dernier vol de Lothar montra, mieux que le mien, les possibiltés de l'ESPADA, car il l'effectua dans le même air que nos amis d'extrême Orient.

610
260 90 260

5 Funkt.
Seelig

175

90 10

D 459

110

10

Linker Flügel beim
Steigflug 2° negativ
25 sec.

490 280

830

wake

BEND OFF

R.F.A.

FREIFLUG FREE FLIGHT
Vollibre

75

340

85

Leitwerk 2 Funkt.
3 sec. u. 8 sec.

115

+2° 68%

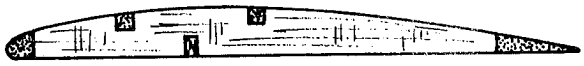
30

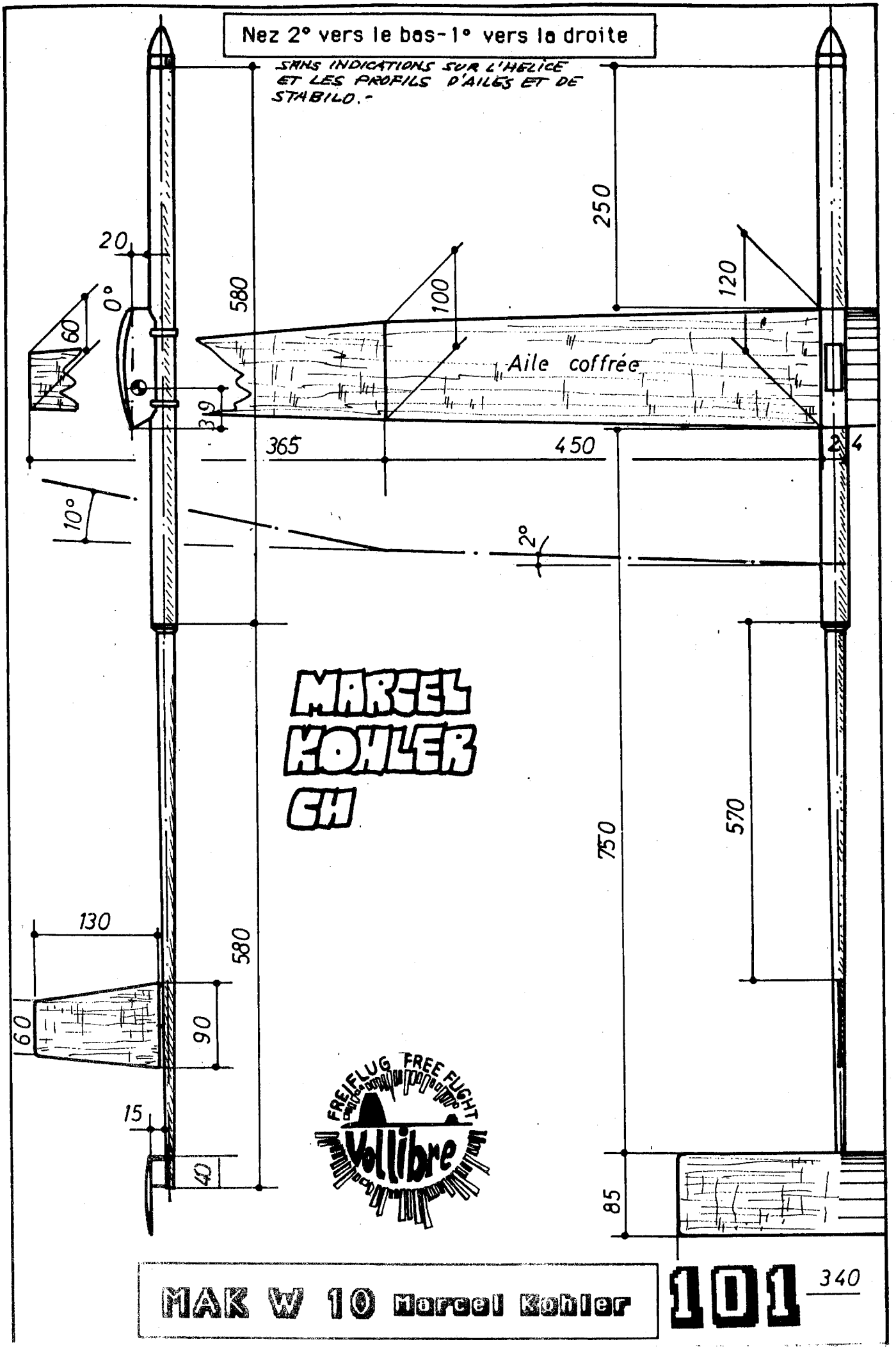
Kevlar

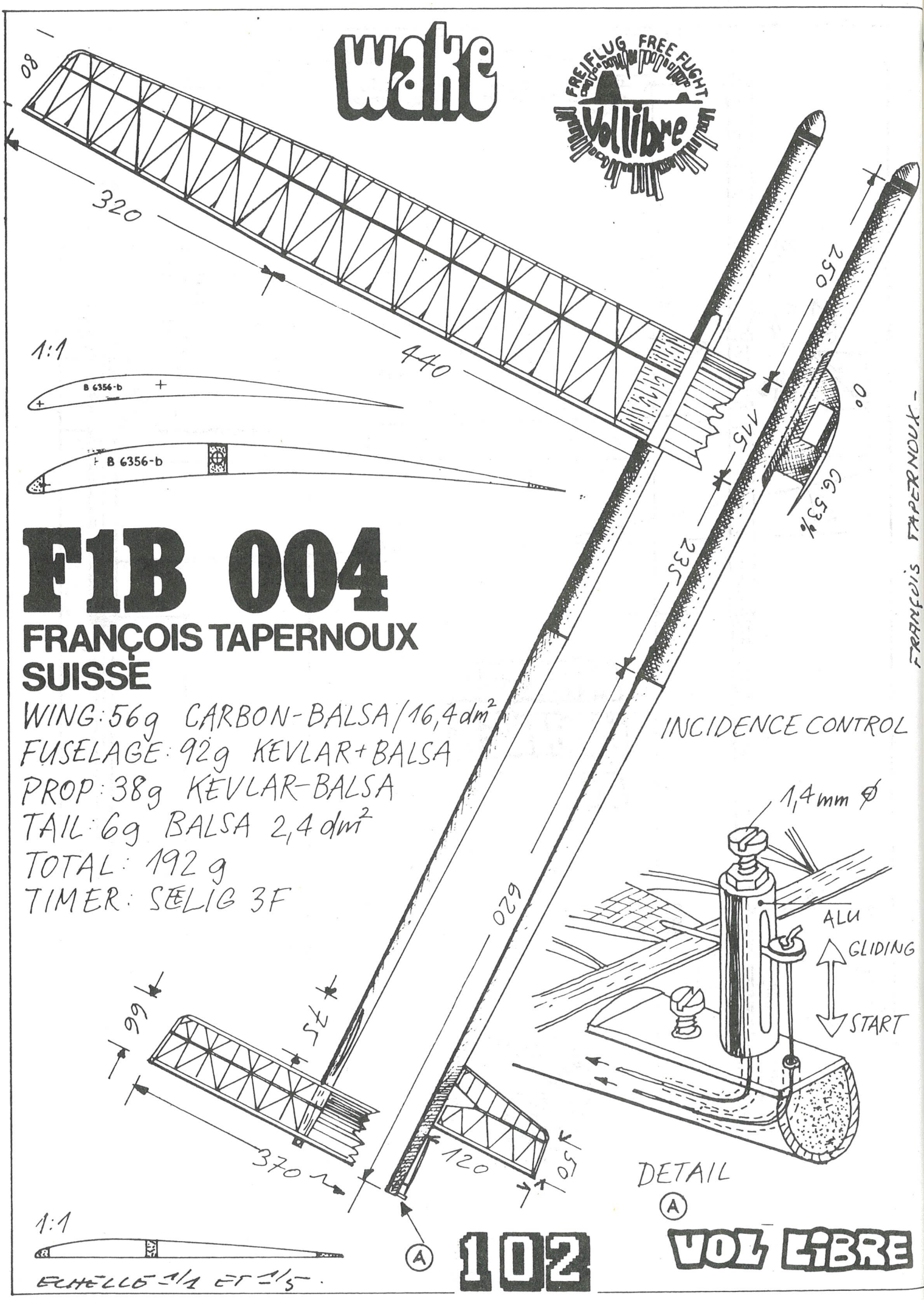
485 695

Balsa 1 mm Kohleholme 1,5 mm

Balsa




Nez 2° vers le bas-1° vers la droite
SANS INDICATIONS SUR L'HELICE ET LES PROFILS D'AILES ET DE STABILO.-
20
0°
60
580
100
250
120
Aile coffrée
39
365
450
24
10°
2°
MARCEL KOHLER CH
750
570
130
580
60
90
15
40
85
FREIFLUG FREE FLIGHT
Vollibre
MAK W 10 Marcel Kohler
101
340


wake
FREIFLUG FREE FLIGHT
Vollibre
80
320
440
1:1
B 6356-b
B 6356-b
250
115
235
66,53%
0°
620
99
75
370
120
50
1:1
ECHELLE 1/1 ET 1/5.
A
A
INCIDENCE CONTROL
1,4mm Ø
ALU
GLIDING
START
DETAIL
FRANÇOIS TAPERNOUX
F1B 004
FRANÇOIS TAPERNOUX
SUISSE
WING: 56g CARBON-BALSA/16,4dm²
FUSELAGE: 92g KEVLAR+BALSA
PROP: 38g KEVLAR-BALSA
TAIL: 6g BALSA 2,4dm²
TOTAL: 192g
TIMER: SELIG 3F
102
VOL LIBRE

Cher André, Merci beaucoup pour le édition VOL LIBRE , très terrible.....J'ai tant de plaisir à lire votre revue. De plus j'ai l'occasion de lire en Anglais et en Allemand, ce qui m'aide à ne pas trop oublier ces deux langues.....Merci pour la part de rêve que m'apporte la lecture de VOL LIBRE.. ..... Vol libre est toujours le meilleur.....VOL LIBRE semble faire un tabac, surtout sur le plan international. Je trouve très motivant de lire toutes ces contributions en autant de langues différentes.....Bravo pour votre revue et toutes mes félicitations pour les efforts que vous déplo[illegible] faveur du Vol Libre.....J'ai [illegible] plaisir à lire V.L. [illegible] .Quel plaisi[illegible]

[illegible] de "pub"votre publicat[illegible] moi un lien important qui me donne l'envie et l'impatience de recommencer..... Tous vos numéros représentent une véritable encyclopédie des réalisations actuelles et aussi du passé.....De toute façon , il ya 50 ans que je prends des revues aéromodélistes et je n'ai jamais trouvé une qui puisse rivaliser avec VOL LIBRE pour la discipline qui nous passionne.....J'espère que vous allez continuer le bon travail de publier ce magazine qui est le meilleur qui traite le sujet "Vol Libre ".... A la lecture de votre revue , je constate qu'elle est appréciée partout dans le monde et je vous en félicite.....

Bei dieser Gelegenheit möchte ich mich ganz herzlich für die vielen Vol Libre's bedanken .....Es ist wirklich die beste Modellflieger-Zeitschrift die ich kenne.....Ich möchte Ihnen meine herzlichsten Gratulationen übermitteln , für die Arbeit die Sie leisten um den "Geist " Freiflug weiterhin zu erhalten , er hat es nötig.....Zuerst darf ich Ihnen persönlich und der Zeitschrift "VOL LIBRE" ,viel Erfolg wünschen. VOL LIBRE gehört zu den interessantesten und Informativsten auf diesem Gebiet. Ganz besonders gefällt mir die Gestaltung.....Wieder einmal habe ich eine VOL

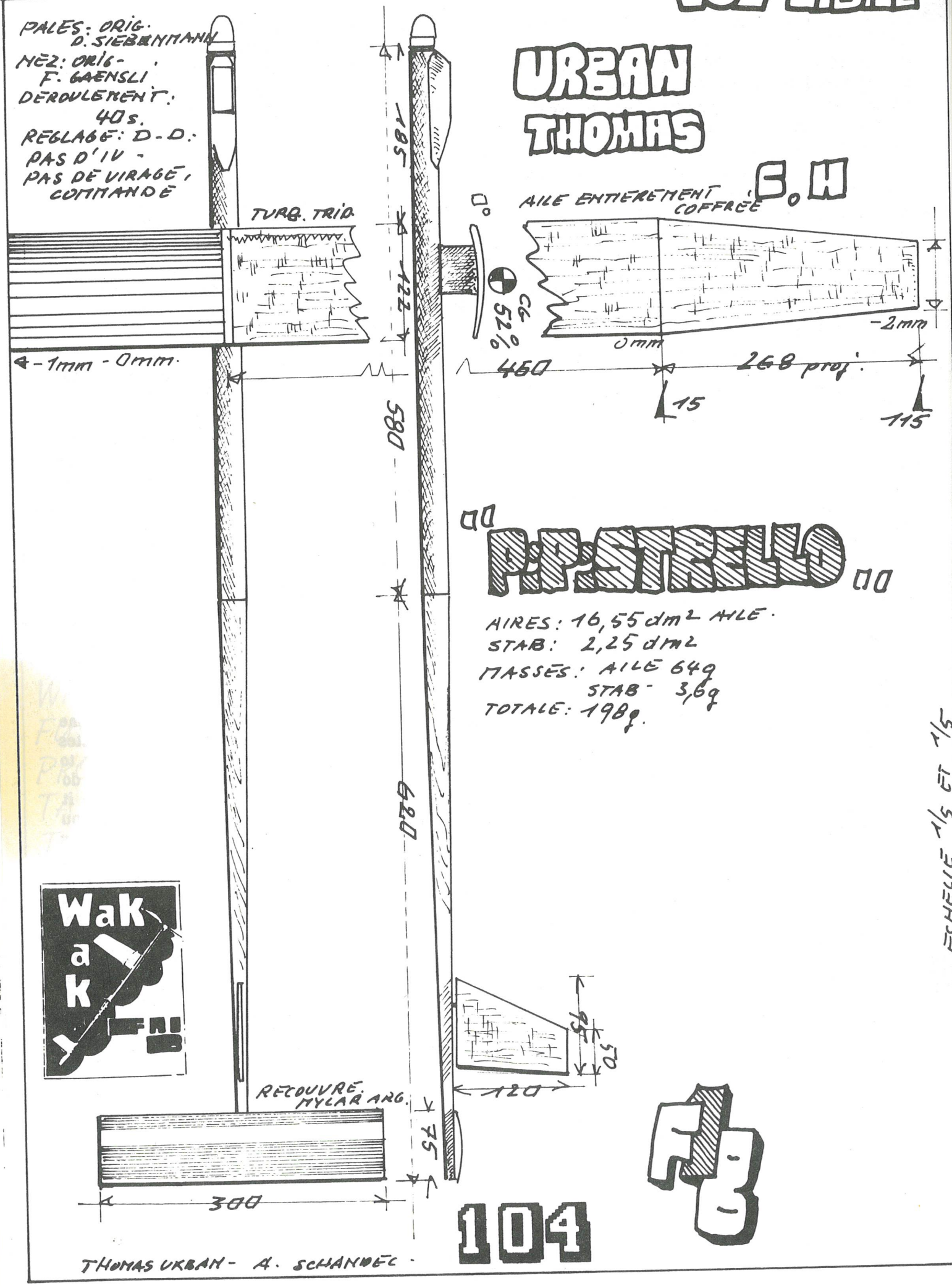
LIBRE erhalten und wie immer bin ich begeistert. Es ist ein hervorragendes Blatt ,und in Sachen [illegible]iflug ist nichts annähe[illegible] erhaltbar.....Es [illegible] Euch , und leichter [illegible]er macht weiter [illegible] darf ich mich für [illegible] immer noch dei [illegible]CHRIFT der [illegible] ist eine Welt für [illegible]ar Sprache der [illegible] wieder in mir [illegible]ch kann Ihnen [illegible] ,vielen schönen [illegible] ins Haus [illegible] hat ein so [illegible] aus Kunst und [illegible]reiflug , das [illegible]er ganzen [illegible] mich wieder [illegible]losen Initiator bedanken , [illegible] vielen schönen Stunden die uns diese Freiflug-Zeitschrift schenkt. Für mich ist "VOL LIBRE" immer noch die beste der Welt !

I like your variety of FAI plans and some indoor too. Details of the "Gadgets" captivates my interest.....May I take this opportunity to commend you for the outstanding work you do on the "VOL LIBRE "publication. May it continue to flourish. Dedicated people like you are an inspiration to us all.....Thank you for all the work the time , and the shear genius you put into VOL LIBRE . It is much appreciated... May I congratula te you on the fine work you are doing with VOL LIBRE. In my opinion it is the finest and most comprehensive publication of its kind in the world. Keep up the excellents work!.....Thank you for another yera of VOL LIBRE. You really must put a great deal of work into it -its allways fascinating and inspiring to read.....VOL LIBRE is the best in the world.....

VOL LIBRE

URBAN THOMAS

PALES: ORIG. D. SIEBENMANN
NEZ: ORIG. F. GAENSLI
DEROULEMENT: 40 s.
REGLAGE: D-D.
PAS D'IV -
PAS DE VIRAGE, COMMANDE



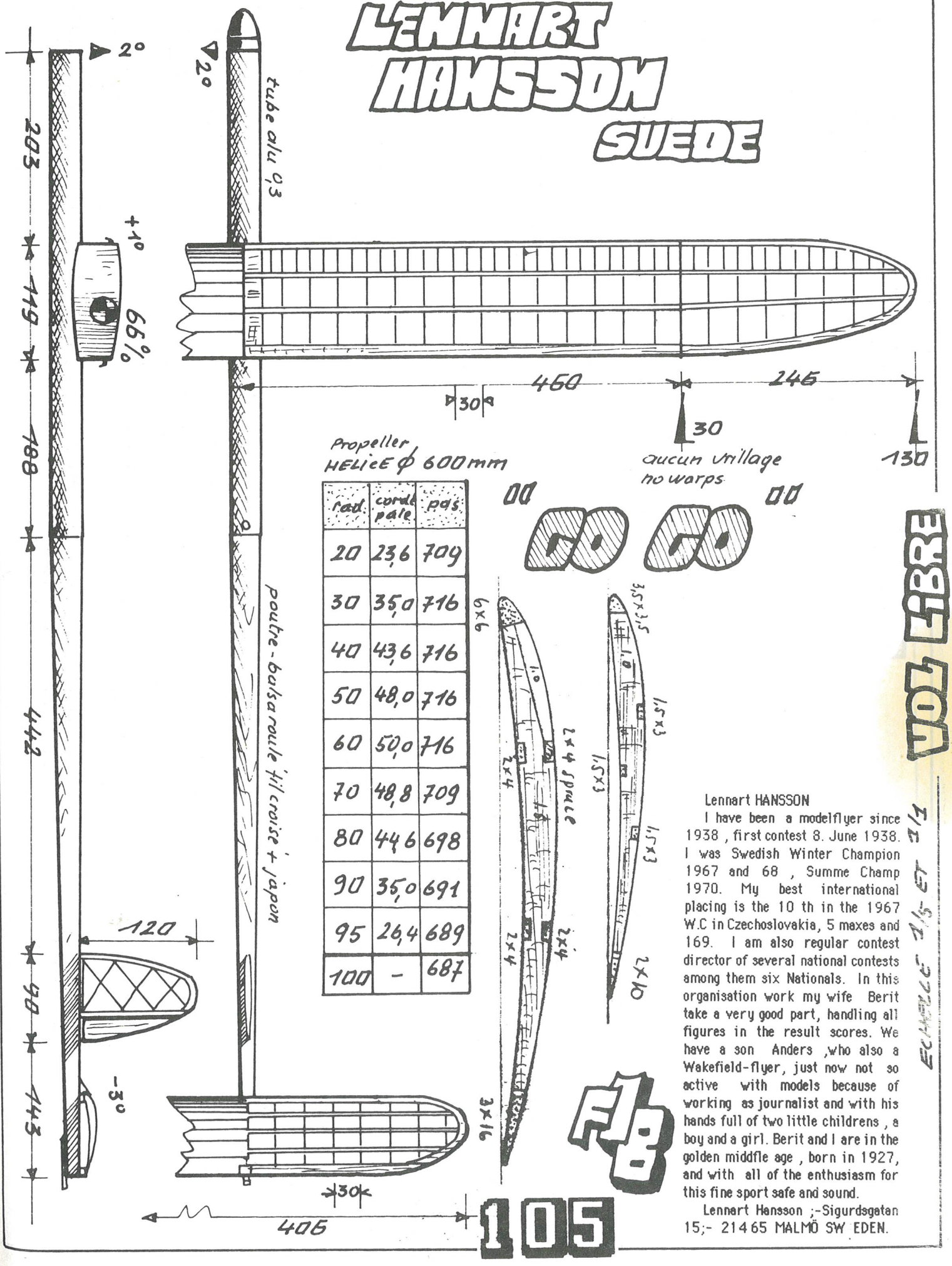
P.P. STRELLO

AIRES: 16,55 dm² AILE.
STAB: 2,25 dm²
MASSES: AILE 64g
STAB 3,6g
TOTALE: 198g.

THOMAS URBAN - A. SCHANDEC -

LENNART HANSSON - A. SCHANDEL.

LENNART HANSSON SUEDE



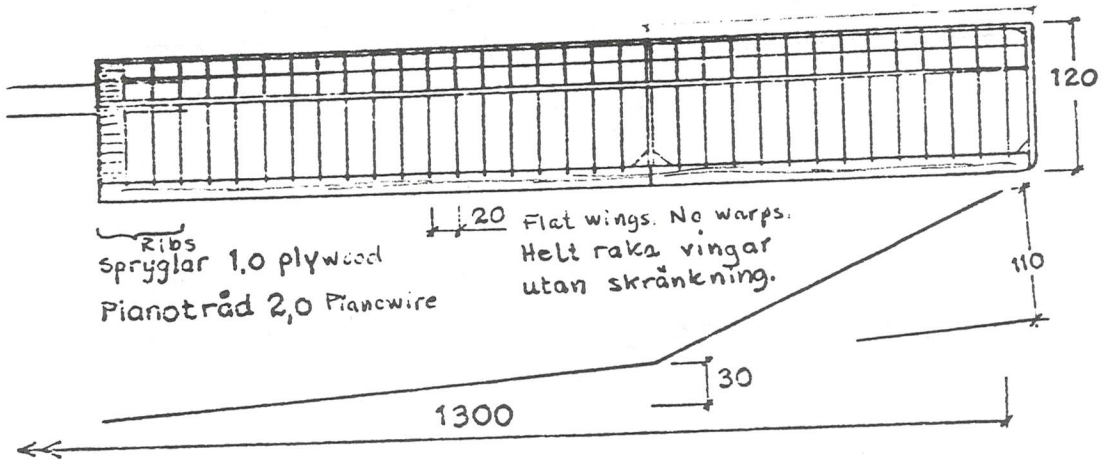
Propeller
HELICE ϕ 600mm

rad.	corde pale	pas
20	23,6	709
30	35,0	716
40	43,6	716
50	48,0	716
60	50,0	716
70	48,8	709
80	44,6	698
90	35,0	691
95	26,4	689
100	-	687

Lennart HANSSON

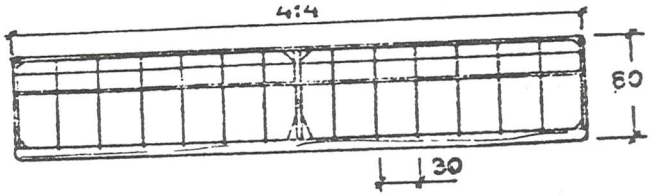
I have been a modelflyer since 1938, first contest 8. June 1938. I was Swedish Winter Champion 1967 and 68, Summe Champ 1970. My best international placing is the 10 th in the 1967 W.C in Czechoslovakia, 5 maxes and 169. I am also regular contest director of several national contests among them six Nationals. In this organisation work my wife Berit take a very good part, handling all figures in the result scores. We have a son Anders, who also a Wakefield-flyer, just now not so active with models because of working as journalist and with his hands full of two little childrens, a boy and a girl. Berit and I are in the golden middfle age, born in 1927, and with all of the enthusiasm for this fine sport safe and sound.

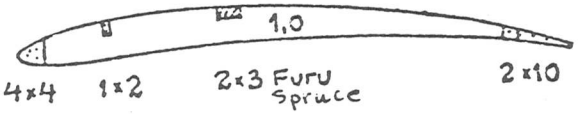
Lennart Hansson ;-Sigurdsgatan 15;- 214 65 MALMÖ SW EDEN.



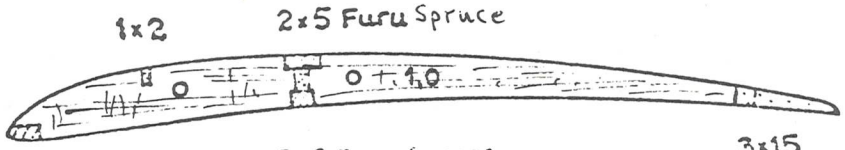
Ribs
Spryglar 1,0 plywood
Pianoträd 2,0 Pianowire

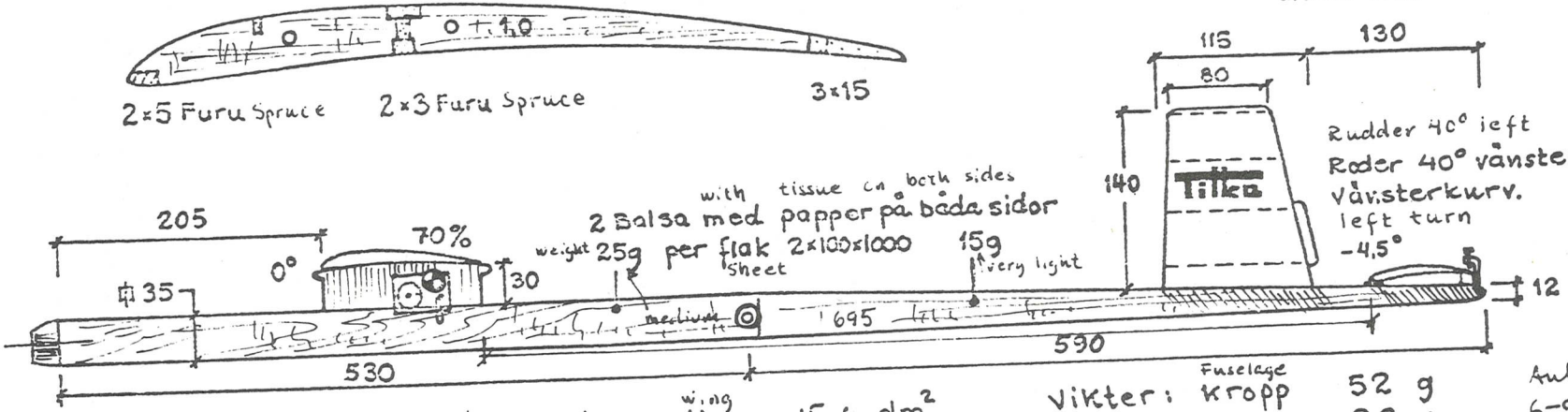
Flat wings. No warps.
Helt raka vingar utan skränkning.





Fin 11% symetric
Fena 11% symmetrisk.
0,8 Balsa på spryglar.
around ribs





with tissue on both sides
2 Balsa med papper på båda sidor
weight 25g per flak 2x100x1000 15g
Sheet
very light

Rudder 40° left
Roder 40° vänster.
Vårsterkurv.
left turn
-4,5°

Autostab -2°
6-9 sec.

Prop. axel: 4° höger right trust
shaft 1,5° ned down trust

Prop: Diam 600
Stign 720
Pitch

Motor: 16 str 6x1 320 varv.
18 str 6x1 280 varv
turns

Ytor: Vinge 15,6 dm²
Areas wing
Stab 3,3 "
Tot 18,9 dm²

Vikter: Weights

Fuselage kropp	52	g
timer	20	g
prop.	46	g
vinge wing	66	g
stab.	8	g
Total	192	g

Balsa if not stated otherwise.

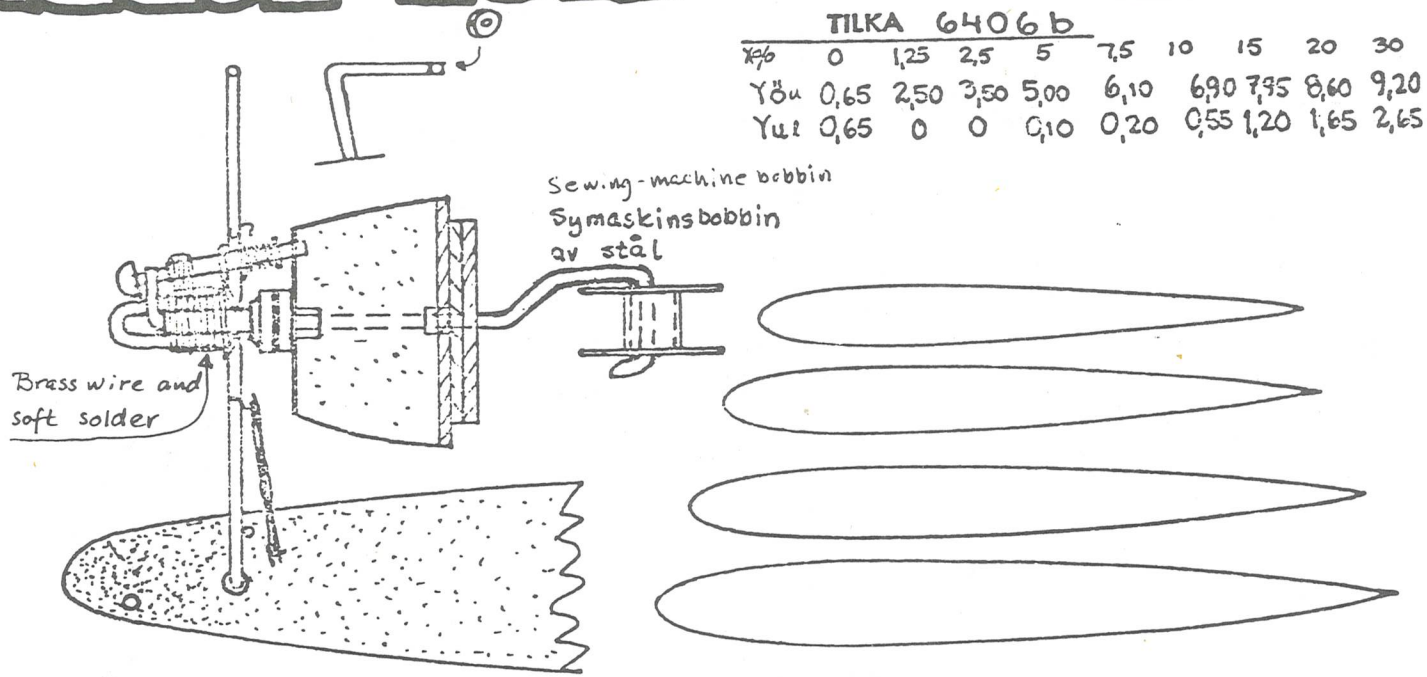
TILKA 106

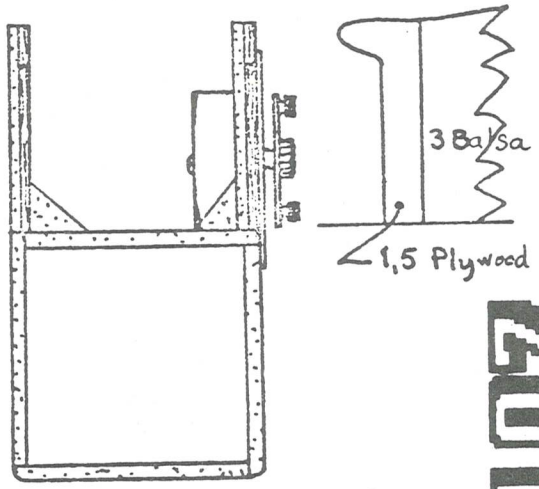
BROR EGMAR SWEDE

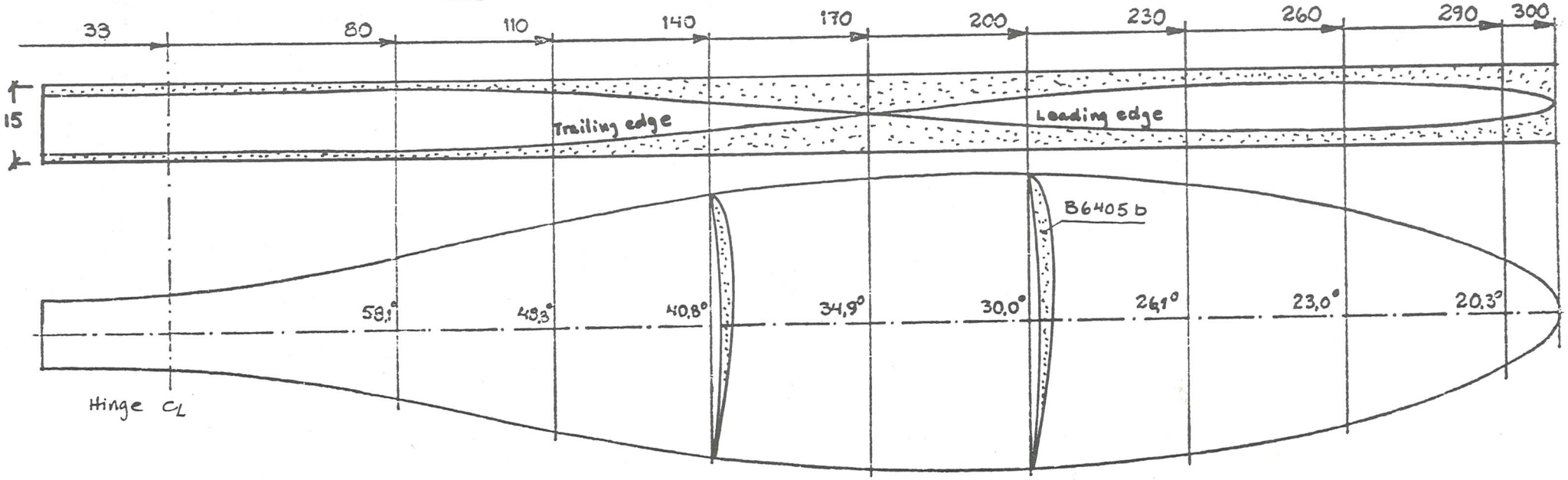
FREE FLIGHT

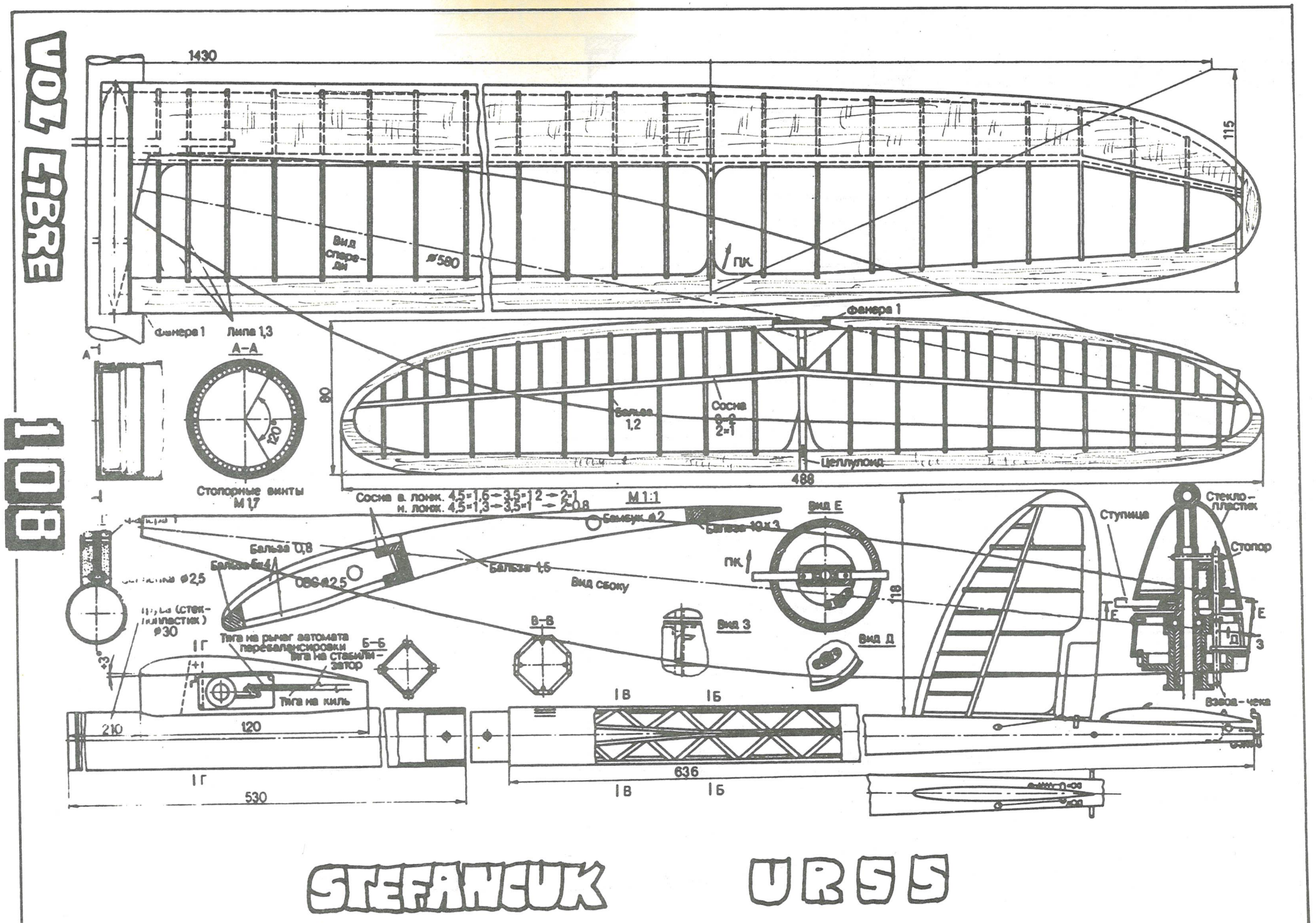
TILKA 6406 b

%	0	1,25	2,5	5	7,5	10	15	20	30	40	50	60	70	80	90	100
Yöu	0,65	2,50	3,50	5,00	6,10	6,90	7,95	8,60	9,20	9,20	8,65	7,90	6,60	5,00	3,10	0,80
Yul	0,65	0	0	0,10	0,20	0,55	1,20	1,65	2,65	3,35	3,55	3,35	2,90	2,10	1,10	0



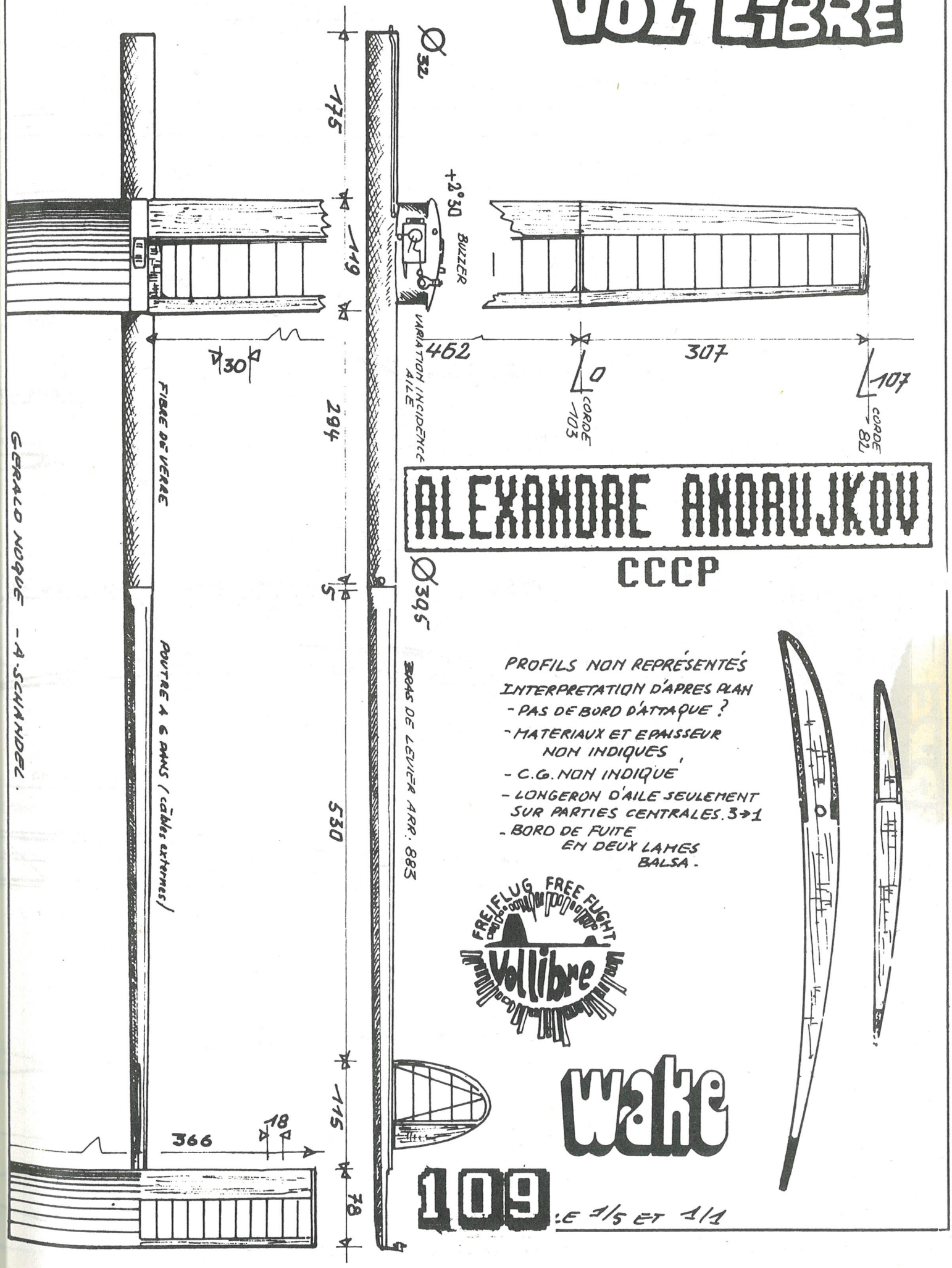






STEFANCUK URSS

VOL LIBRE



ALEXANDRE ANDRUJKOV

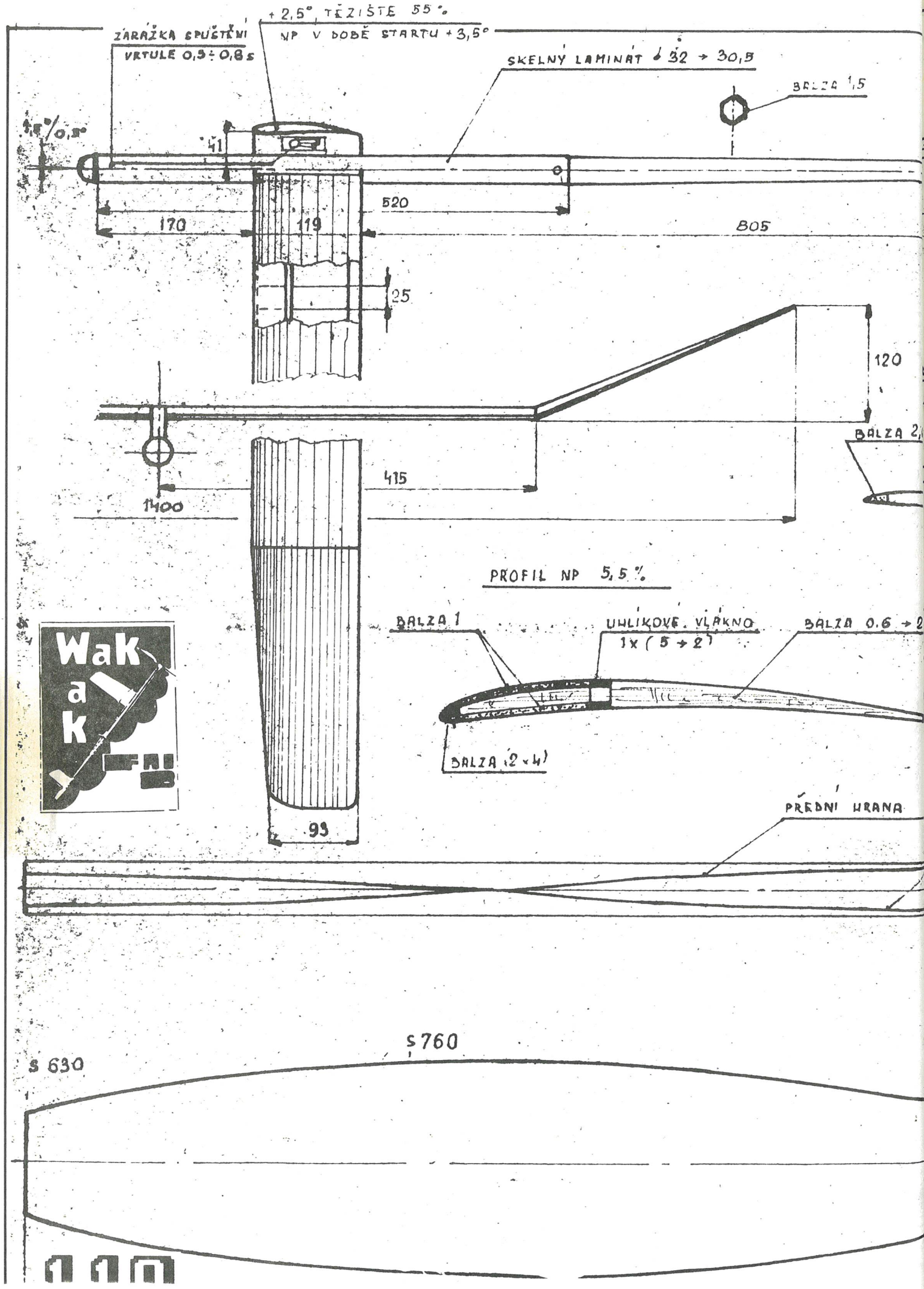
CCCP

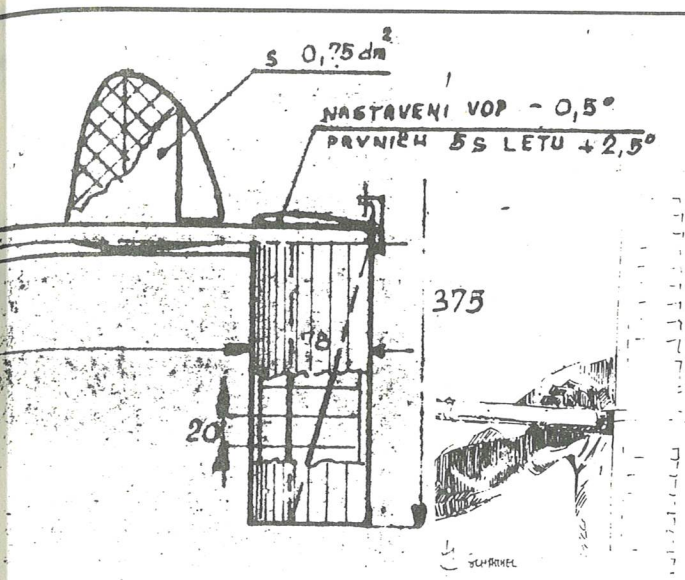
PROFILS NON REPRÉSENTÉS
INTERPRETATION D'APRES PLAN
- PAS DE BORD D'ATTAQUE ?
- MATERIAUX ET EPAISSEUR NON INDIQUES
- C.G. NON INDIQUE
- LONGERON D'AILE SEULEMENT SUR PARTIES CENTRALES. 3→1
- BORD DE FUITE EN DEUX LAMES BALSA.

wake

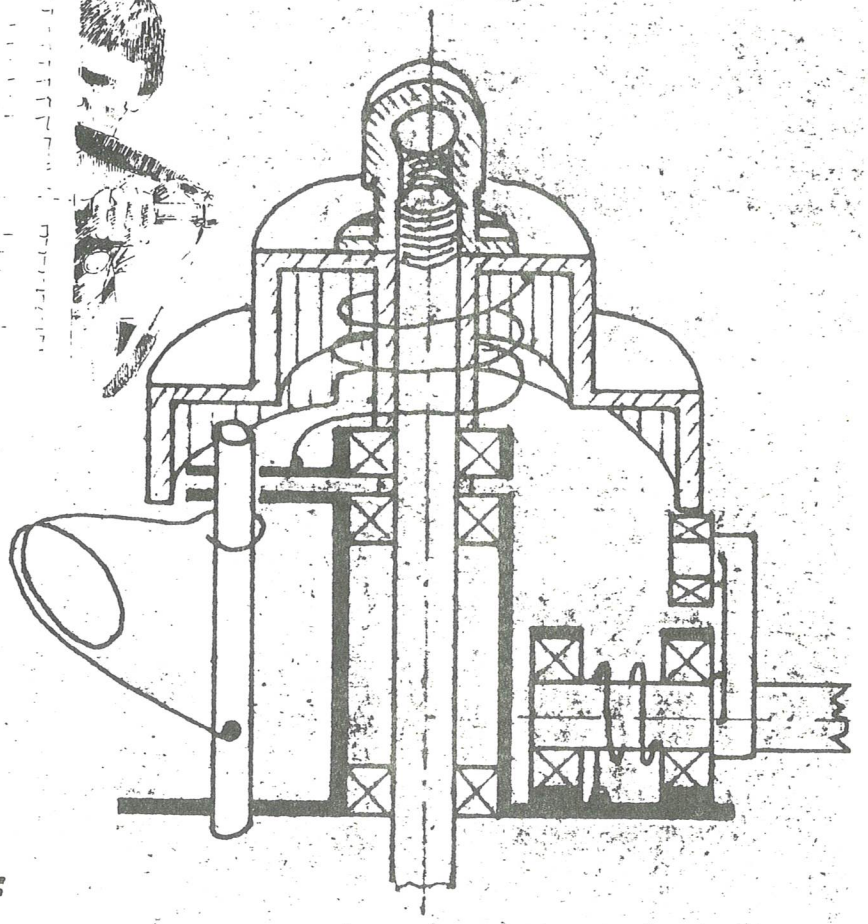
109

:E 1/5 ET 1/1

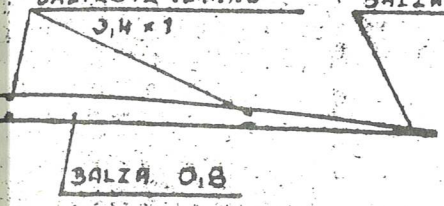

+2,5° TĚŽIŠTĚ 55 %
ZÁRAŽKA SPUŠTĚNÍ VRTULE 0,3 ÷ 0,8 s
NP V DOBĚ STARTU +3,5°
SKELNÝ LAMINÁT ø 32 → 30,5
BALZA 1,5
41
520
170
119
805
25
120
BALZA 2,
415
1400
PROFIL NP 5,5 %
BALZA 1
UHLÍKOVÉ VLÁKNO 1x (5 → 2)
BALZA 0.6 → 2
BALZA (2 × 4)
93
PŘEDNÍ HRANA
S 760
S 630



SCHEMA ZMĚNY POSTAVENÍ VRTULE



OFIL VOP 5%



MOTOR NA GUMU

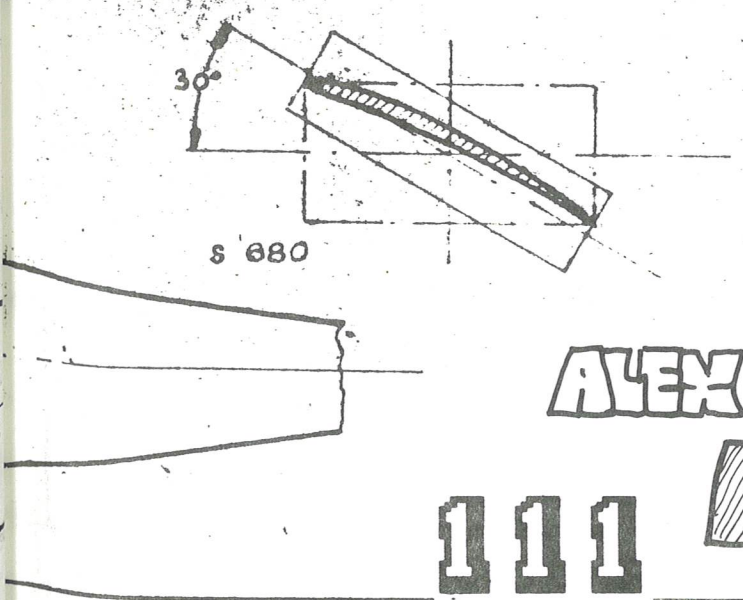
DOBA ROZTAČENÍ 30 - 38 s

34 ÷ 36 NITÍ „PIRELLI" 1 × 3, 1981 ROK

CELKOVĚ

NP	53 gr
VOP	3 "
VRTULE	52 "
TRUP PŘEDEK	52 "
TRUP ZADEK	16 "
ČASOVAČ	14 "

ZADNÍ HRANA



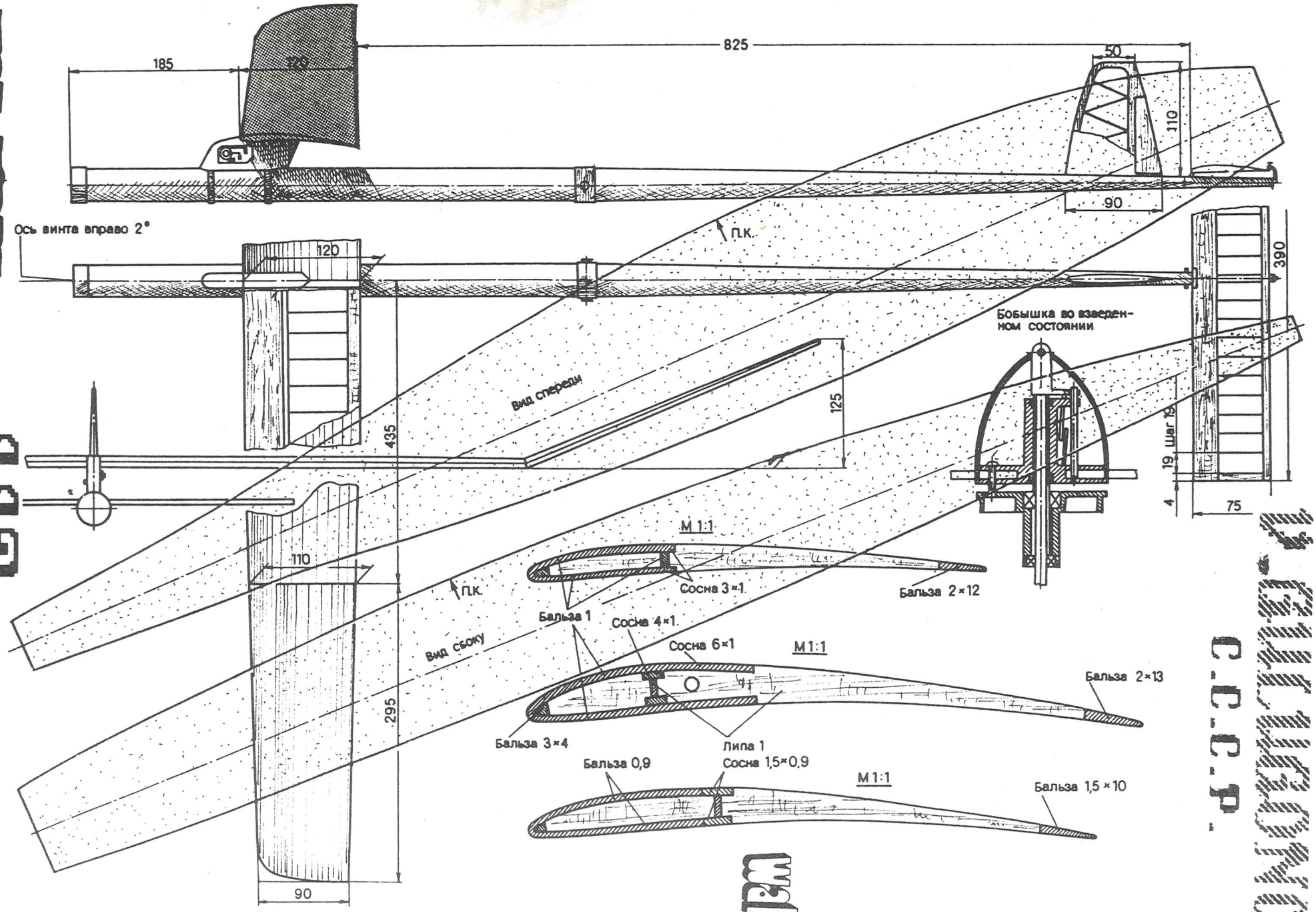
POVEL ČASOVAČE

ROZTAŽENÍ VRTULE	0,3 - 0,8 s
VOP	5 s
SOP	5 s
DOBA MOT. LETU	32 s
CELKOVÁ DOBA LETU	3 min, 2 s

VOL LIBRE

ALEXANDR ANDRUKOV

111 A.A. 7 URSS



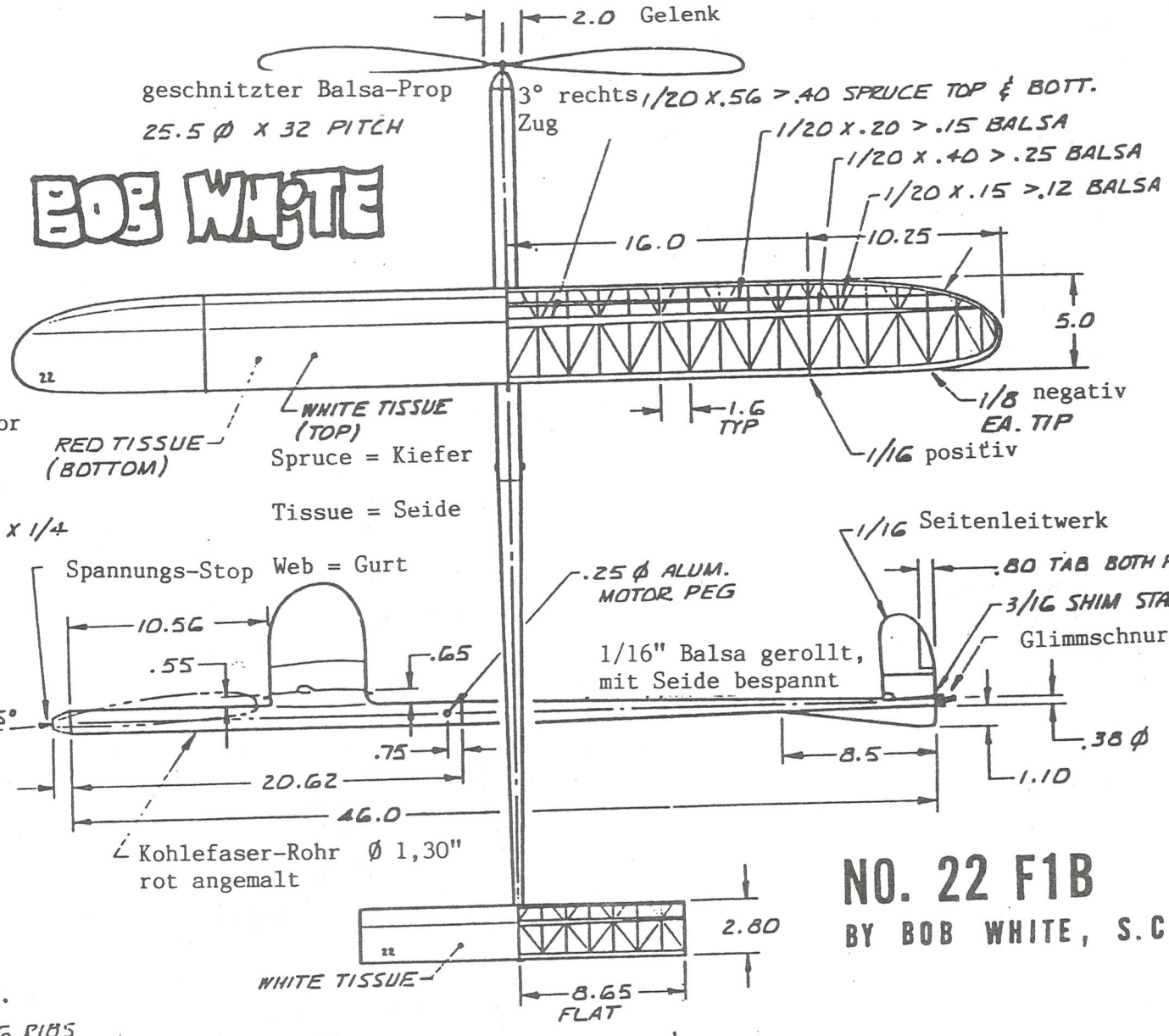
Чертеж модели мастера спорта СССР международного класса, чемпиона СССР, призера международных соревнований, члена сборной команды СССР Ю. Гулугонова (Украина).

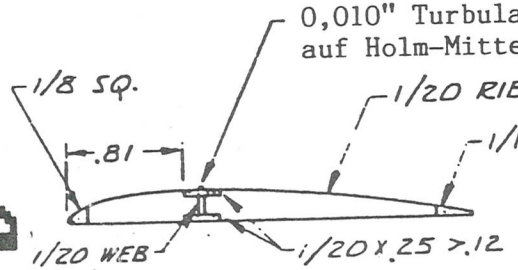
white	weiß
red	rot
bottom	unten
top	oben

Gewichte:

Flügel	57,7
Rumpf	78,1
Leitwerk	12,2
Kopf+Prop	35,8
vorderer Gummihaken	5,5
hintere Gummiaufhäng	2,0
Gesamt	191,3

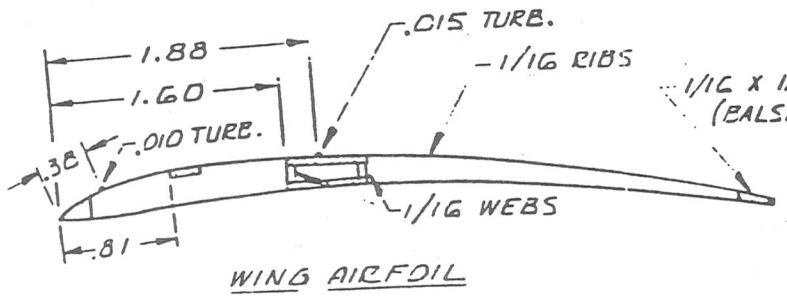
BOB WHITE





Flächen:

Flügel	15,37 dm²
Leitwerk	3,12 dm²
Gesamt	18,49 dm²



NO. 22 F1B

BY BOB WHITE, S.C.A.T.

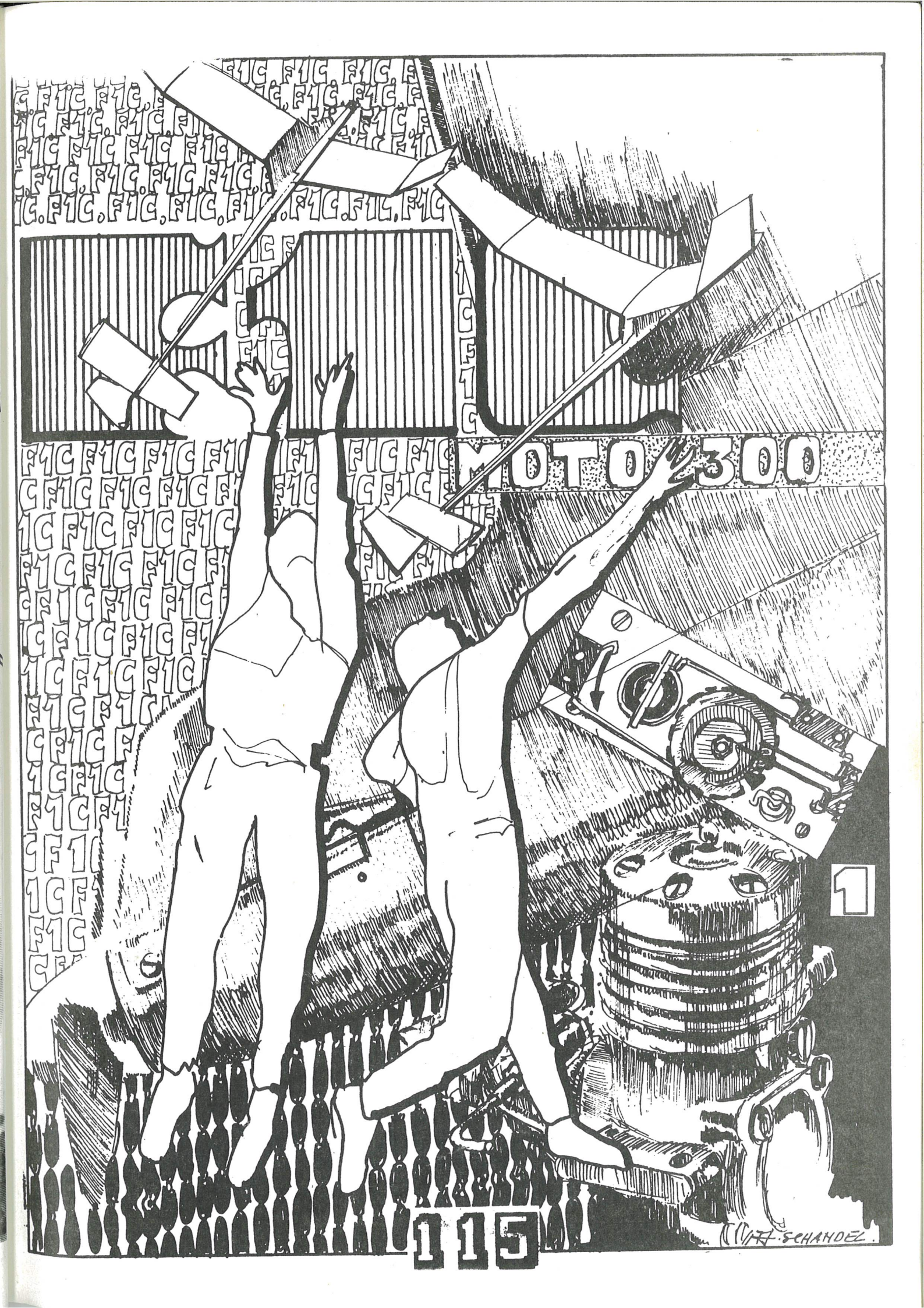
1 inch	=	25,4 mm
1/4	=	6,4
1/8	=	3,2
1/16	=	1,6

CHAMPION DU MONDE F1B 1987

VOL LIBRE

F1B

Bob WHITE Champion du Monde F1B 1987. Dans une position d'attente assez dubitative; recevant les premières félicitations de W. Ghio après son succès, moment d'émotion!

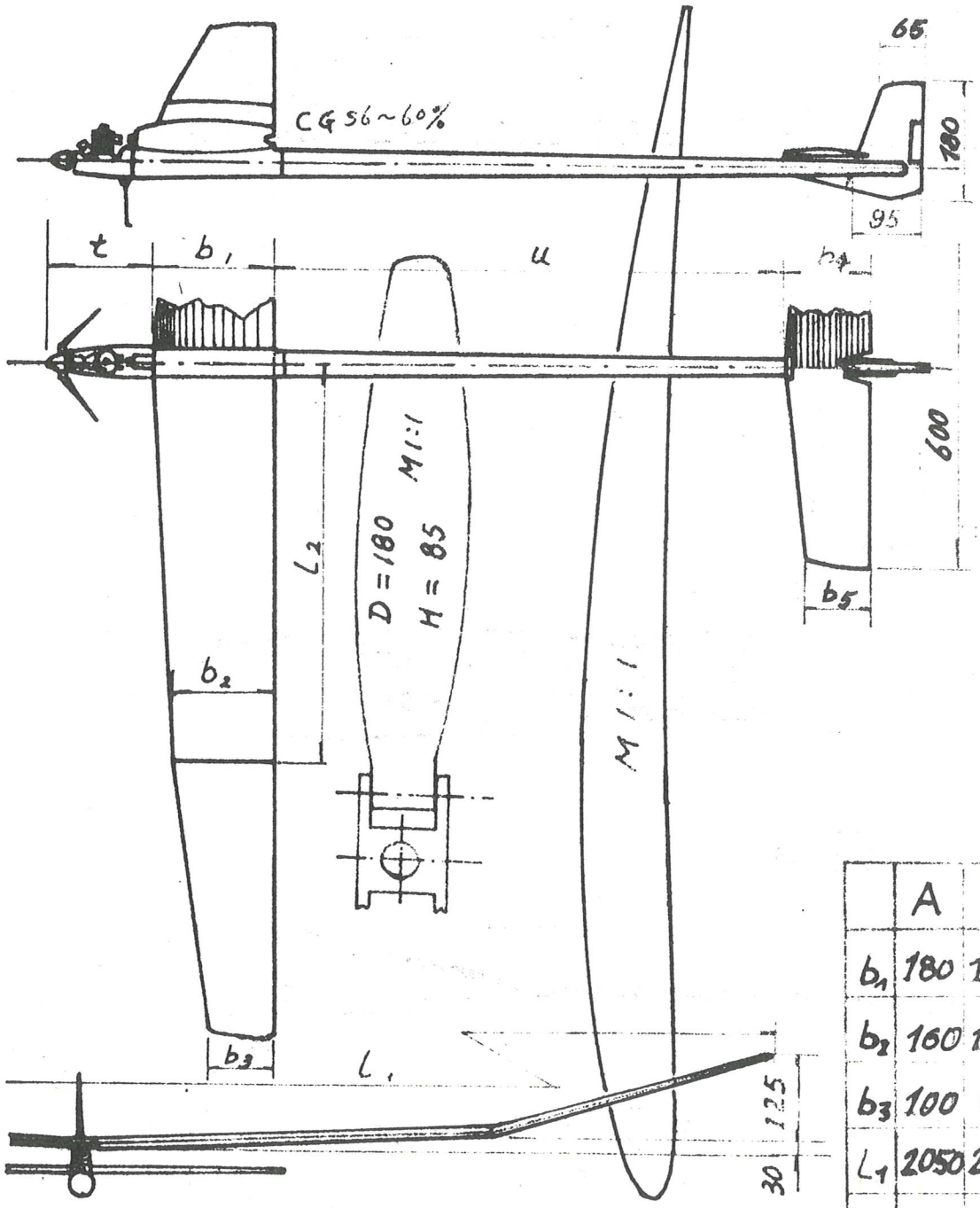

MOTO 2300
1
115
SCHAMDEL

Page 116

Kim Koster ,le petit grand frère du petit grand Thomes Koster. Un modèle construit en concert avec son frère , tout en matériaux nouveaux et muni d'une radio pour déthermalo et arrêt moteur. Nouveauté ..controversée...

WANG XIAN
CHINE

VOL LIBRE
VOL LIBRE

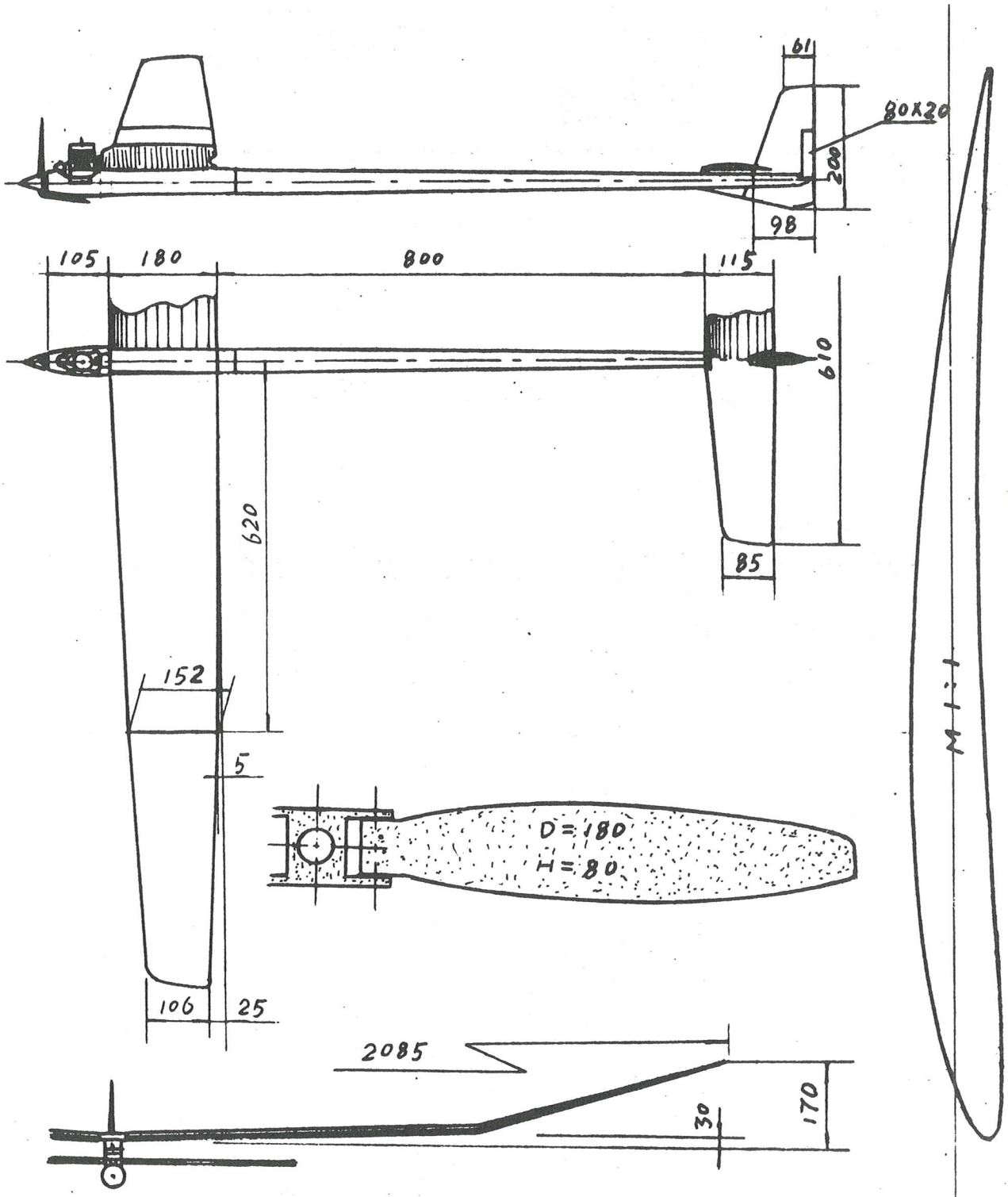


	A	B	C	D
b_1	180	175	180	180
b_2	160	155	160	160
b_3	100	95	100	100
L_1	2050	2120	2030	2030
L_2	612	625	600	600
b_4	115	115	125	125
b_5	90	90	95	95
t	135	135	150	150
u	790	790	765	765

设计 Designer	王显 Wang Xian	比例 Scale	M1:10	F I C
队别 Team	中华人民共和国航空模型队 Aeromodel Team of the Pe[illegible] of China			

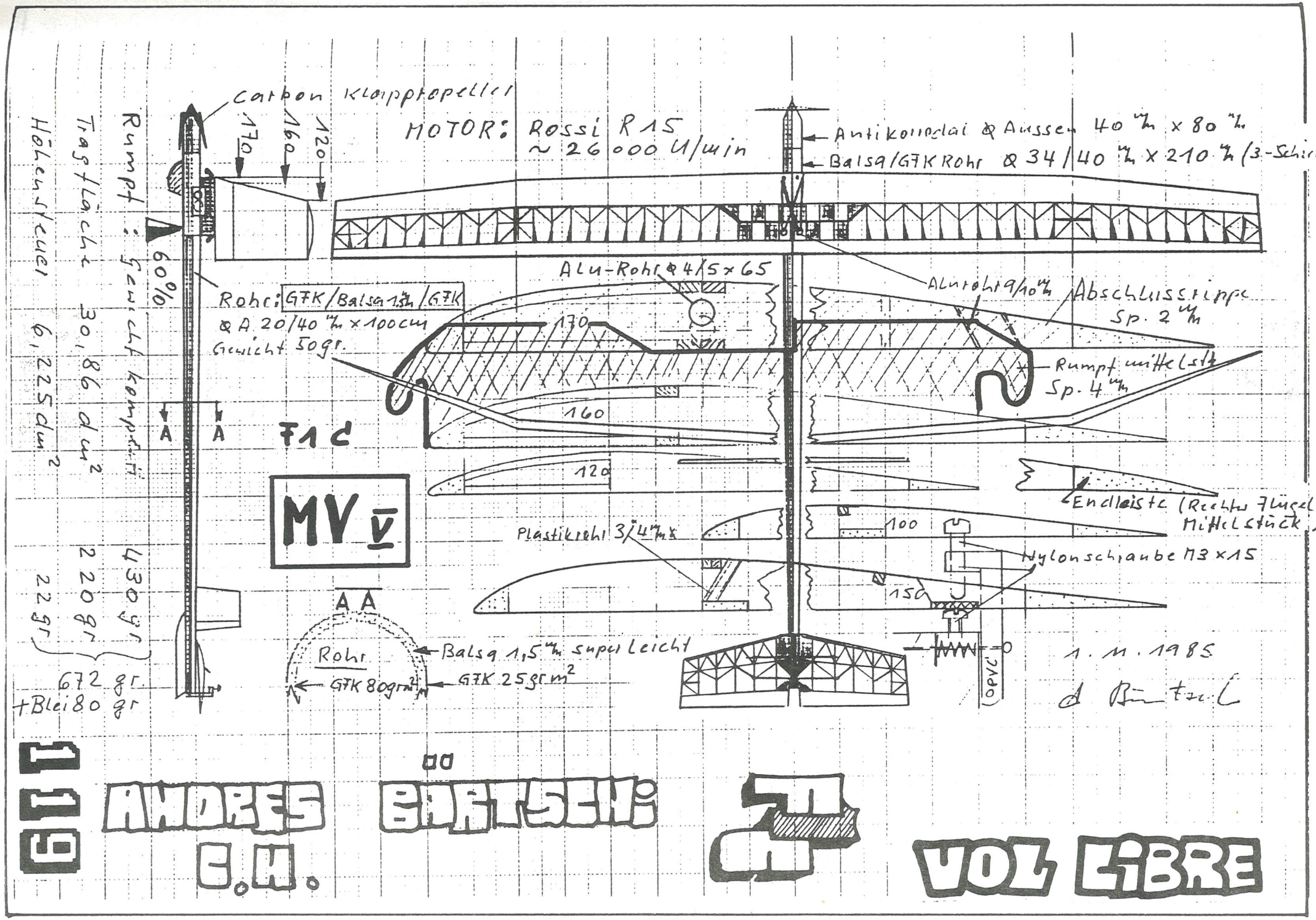
SIN SHU LIANG

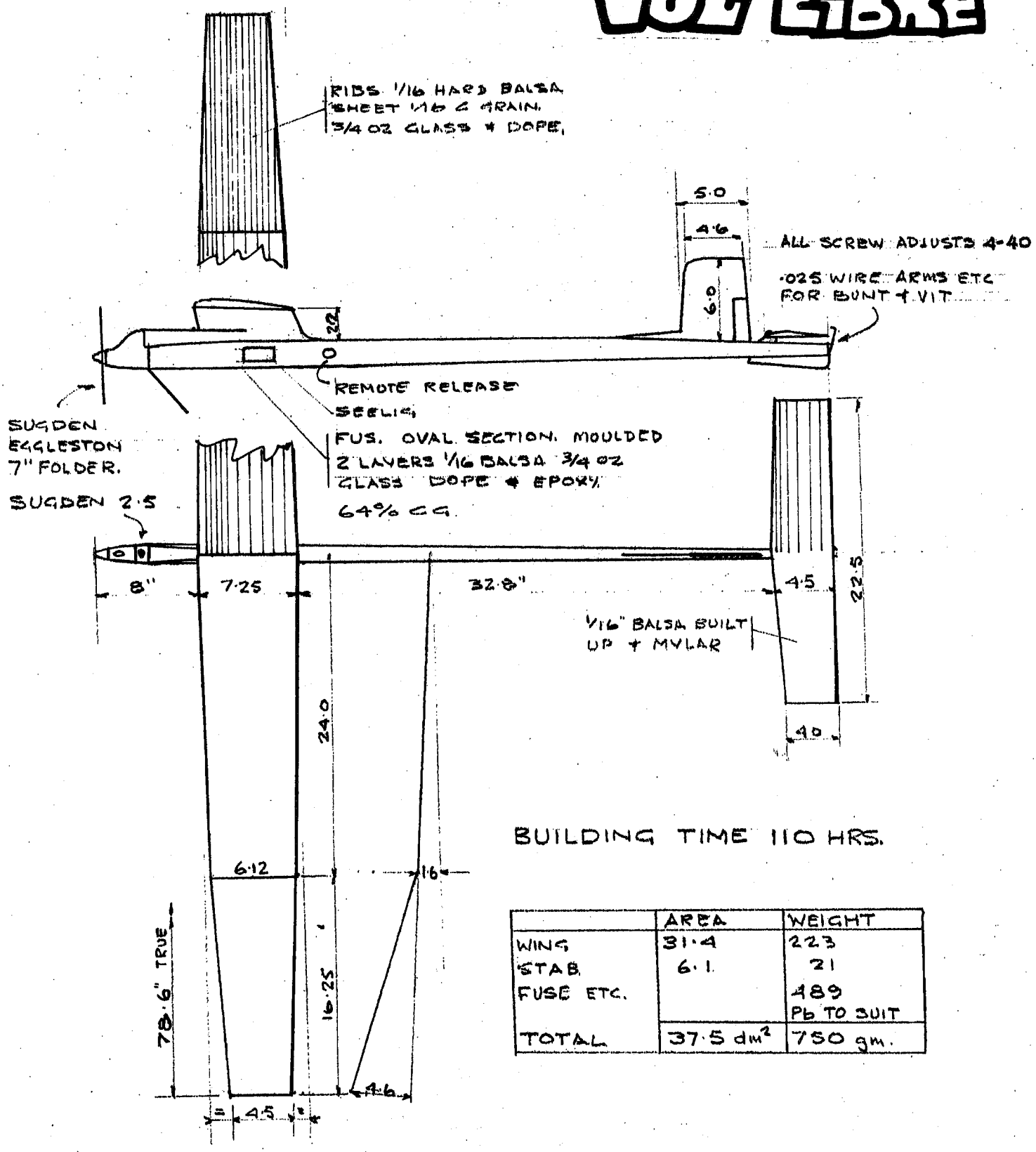
ENGINE



机翼面积 WING AREA	31.5 dm^2	发动机 ENGINE	NELSON15
平尾面积 STAB AREA	6.1 dm^2	飞行重量 FLYING WT	760 g

设计 Designer	孫树良 Sun Shu Liang	比例 Scale	M1:10	F1C
队别 Team	中华人民共和国航空模型队 Aeromodel Team of the People's Republic of China			


Carbon Klapppropeller
MOTOR: Rossi R15
~ 26 000 U/min
Antikorodal Ø Aussen 40 mm x 80 mm
Balsa/GFK Rohr Ø 34/40 mm x 210 mm (3-Schicht
170
160
120
Rumpf: Gewicht komplett 430 gr
Tragfläche 30,86 dm²
Höhenruder 6,225 dm²
60%
Rohr: GFK/Balsa 1,5 mm/GFK
Ø A 20/40 mm x 100 cm
Gewicht 50 gr.
Alu-Rohr Ø 4/5 x 65
Alurohr 9/10 mm
Abschlussrippe
Sp. 2 mm
Rumpf mittelstück
Sp. 4 mm
170
160
120
100
150
A
A
F1C
MV V
Endleiste (Rechter Flügel Mittelstück)
Plastikrohr 3/4 mm x
Nylonschraube M3 x 15
Rohr
Balsa 1,5 mm super leicht
GFK 80 gr/m²
GFK 25 gr/m²
672 gr
+Blei 80 gr
220 gr
22 gr
OPVC
1. 11. 1985
d. Bürtzel
GIT
ANDRES
C.H.
BARTSCHI
VOL LIBRE

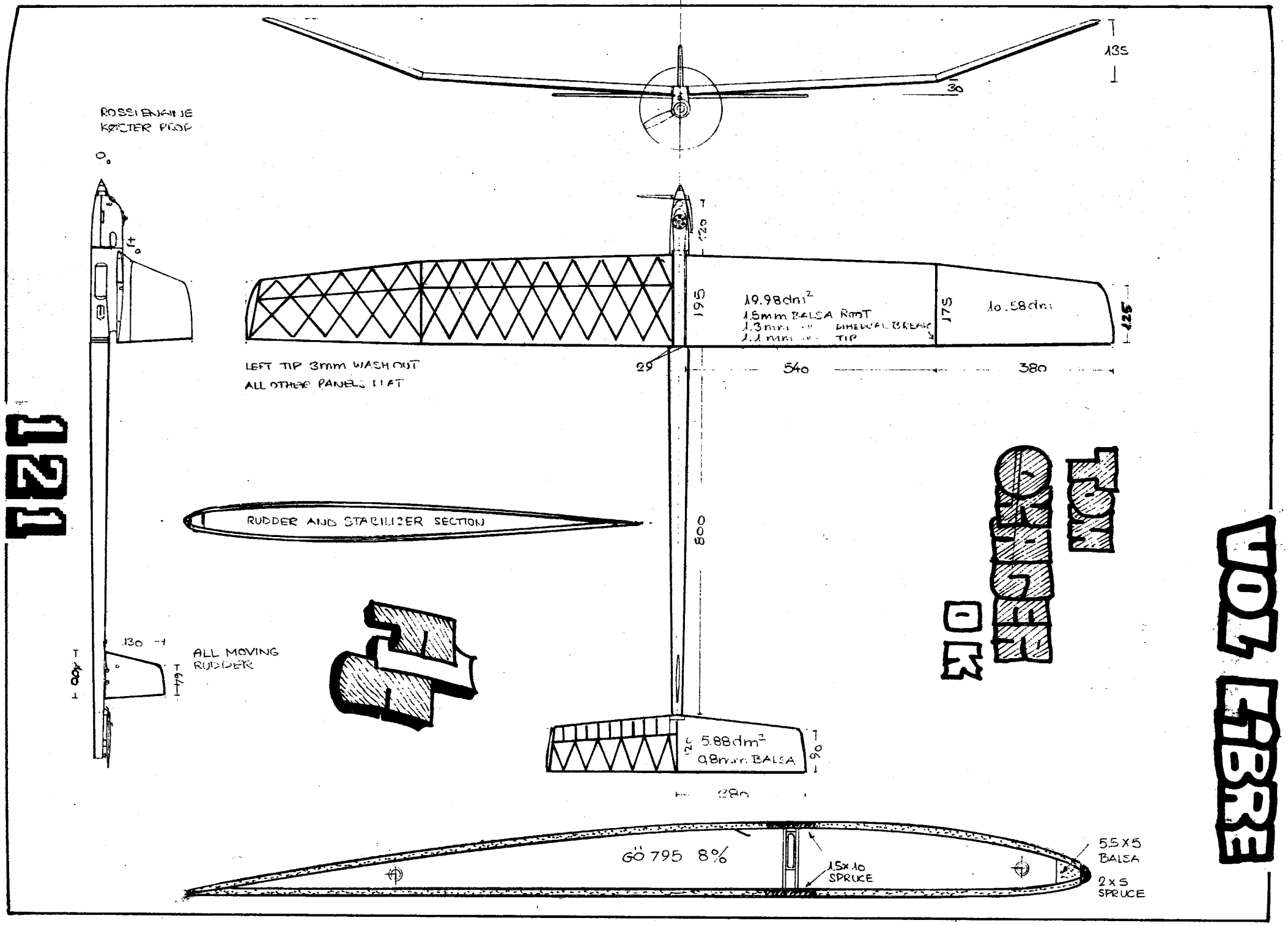


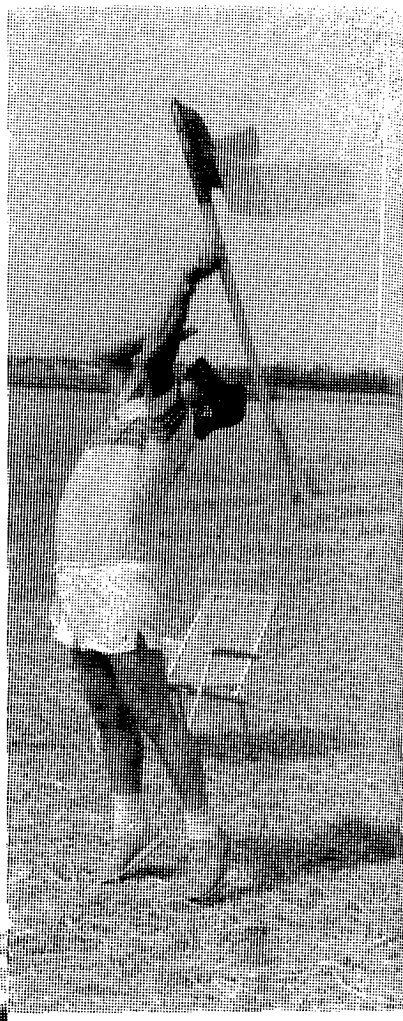
BUILDING TIME 110 HRS.

	AREA	WEIGHT
WING	31.4	223
STAB	6.1	21
FUSE ETC.		489
		Pb TO SUIT
TOTAL	37.5 dm²	750 gm.

DAVE SUGDEN CANADA

Dave SUGDEN - Canada.
Ex aero engineer; almost 30 years ago ! now dentist. Married , 2 children both university. still! Have been a modeller far almost 50 years ! Recent 1 st place sesults:- 1986 Toronto Intrenational ,1985 Max Mar Tafo ; 1981 Pierre Trébod France ; 1980 Sierre Cup Sacramento. My model is not sensitive to change in power propeller or weather conditions . Almost invariably any flight problem has been due to my poor flying technique. Over the years construction has been simplified to reduce building time so that I can devote probably halft of my space time , which is limited, to engine contruction.


VOL LIBRE
FOR
CRAFT
OK
121
ROSSI ENGINE
KOSTER PROP
135
30
0°
+1°
120
195
19.98dm²
1.5mm BALSA RIBT
1.3mm " DIHEDRAL BREAK
1.1mm " TIP
175
10.58dm²
125
LEFT TIP 3mm WASH OUT
ALL OTHER PANELS FLAT
29
540
380
RUDDER AND STABILIZER SECTION
800
130
ALL MOVING
RUDDER
100
64
5.88dm²
0.8mm BALSA
120
90
280
GÖ 795 8%
1.5x10
SPRUCE
5.5X5
BALSA
2x5
SPRUCE



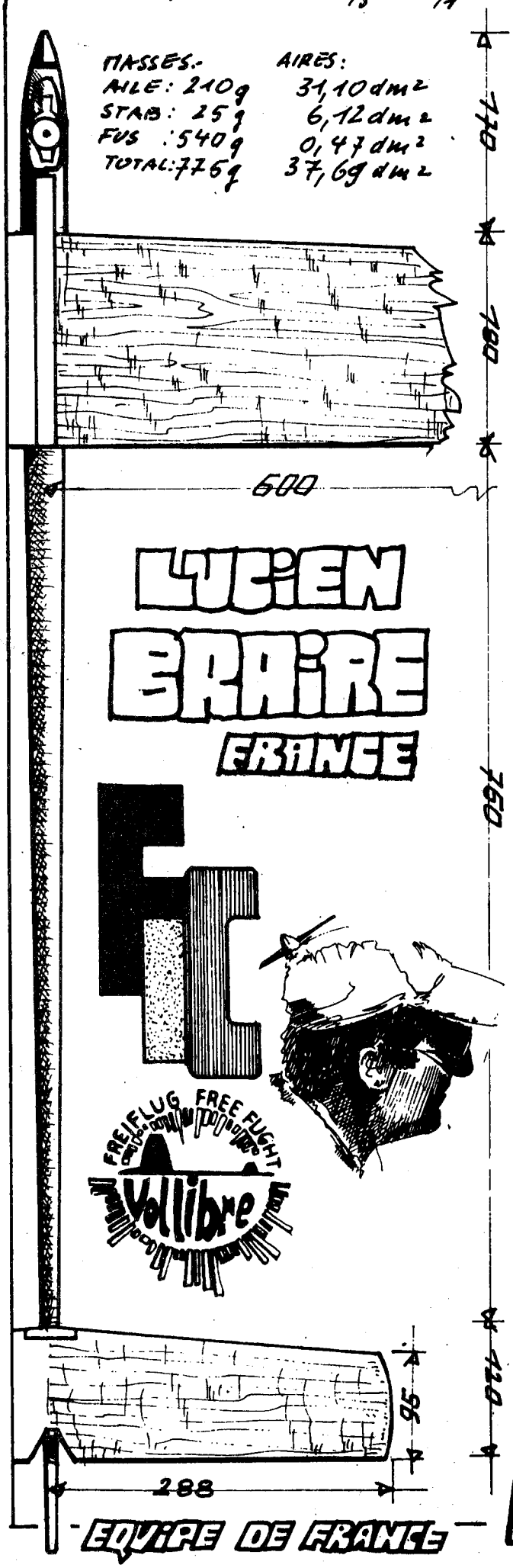
Tom Oxager (DK) avec un modèle de la même conception et famille que les frères Koster. R. **Truppe** (Autriche) homme d'allure aussi puissante que le modèle.....G. **Szengeller** (Hongrie) avec un modèle d'une grande élégance tout comme sa moustache .....

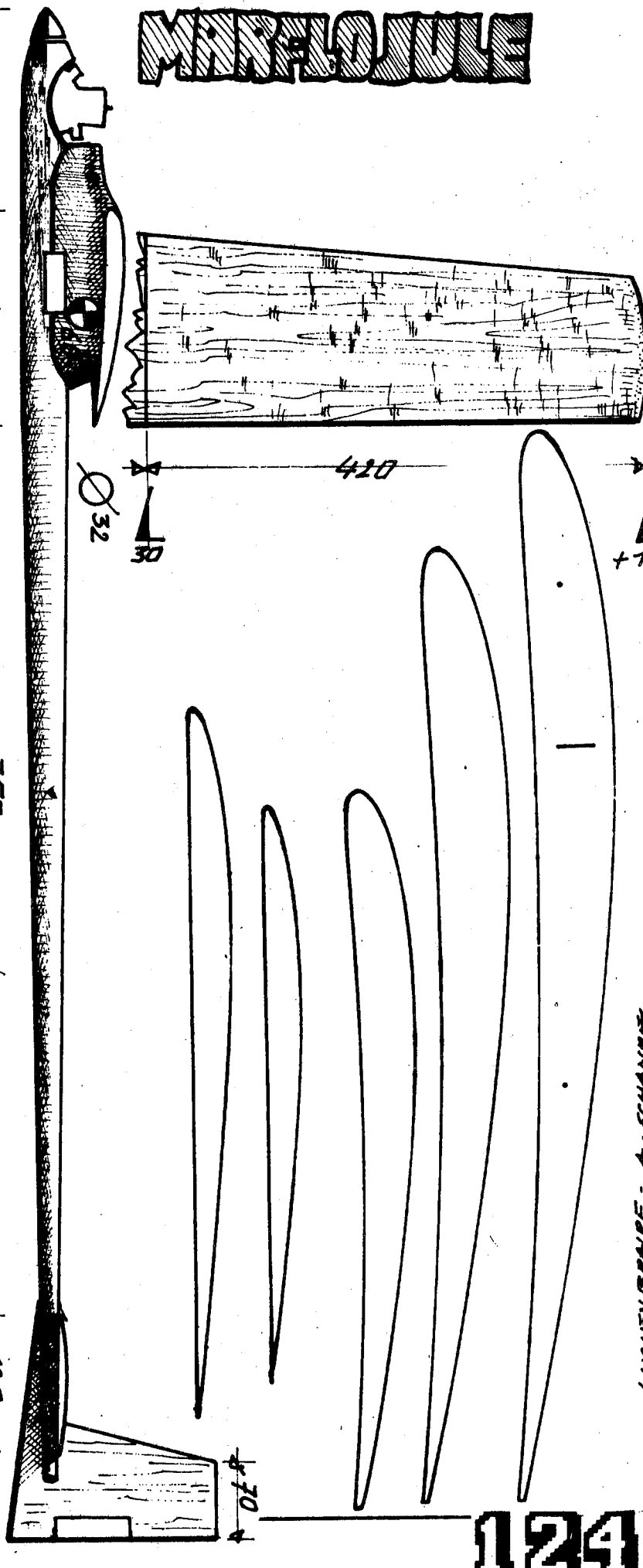
VOL LIBRE
SCHAMÈL
ALAIN ROUX
FRANCE
F1
123
A. ROUX - A. SCHANGEL
ECHELLE 1/1 ET 1/5
① Arrêt moteur
② Kika
③ Volet
④ Planer
⑤ Déterrage
595
403
594
145
30
+145
-2°
+3°
185
125
66
99

VOL LIBRE ECHELLE 1/5 ET 1/1

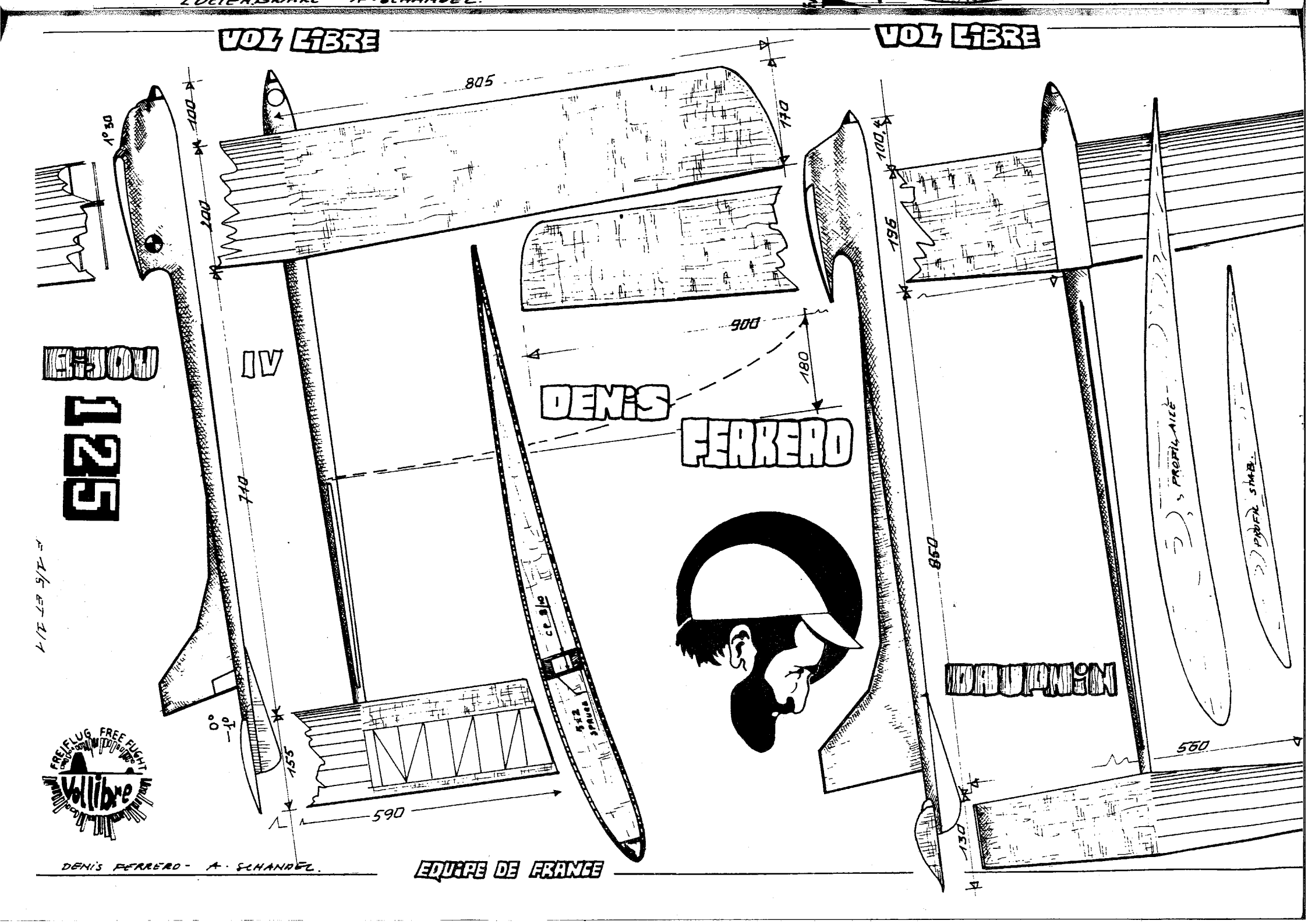
MARFLOUILLE

MASSES.-		AIRES:	
AILE:	210 g		31,10 dm²
STAB:	25 g		6,12 dm²
FUS:	540 g		0,47 dm²
TOTAL:	775 g		37,69 dm²

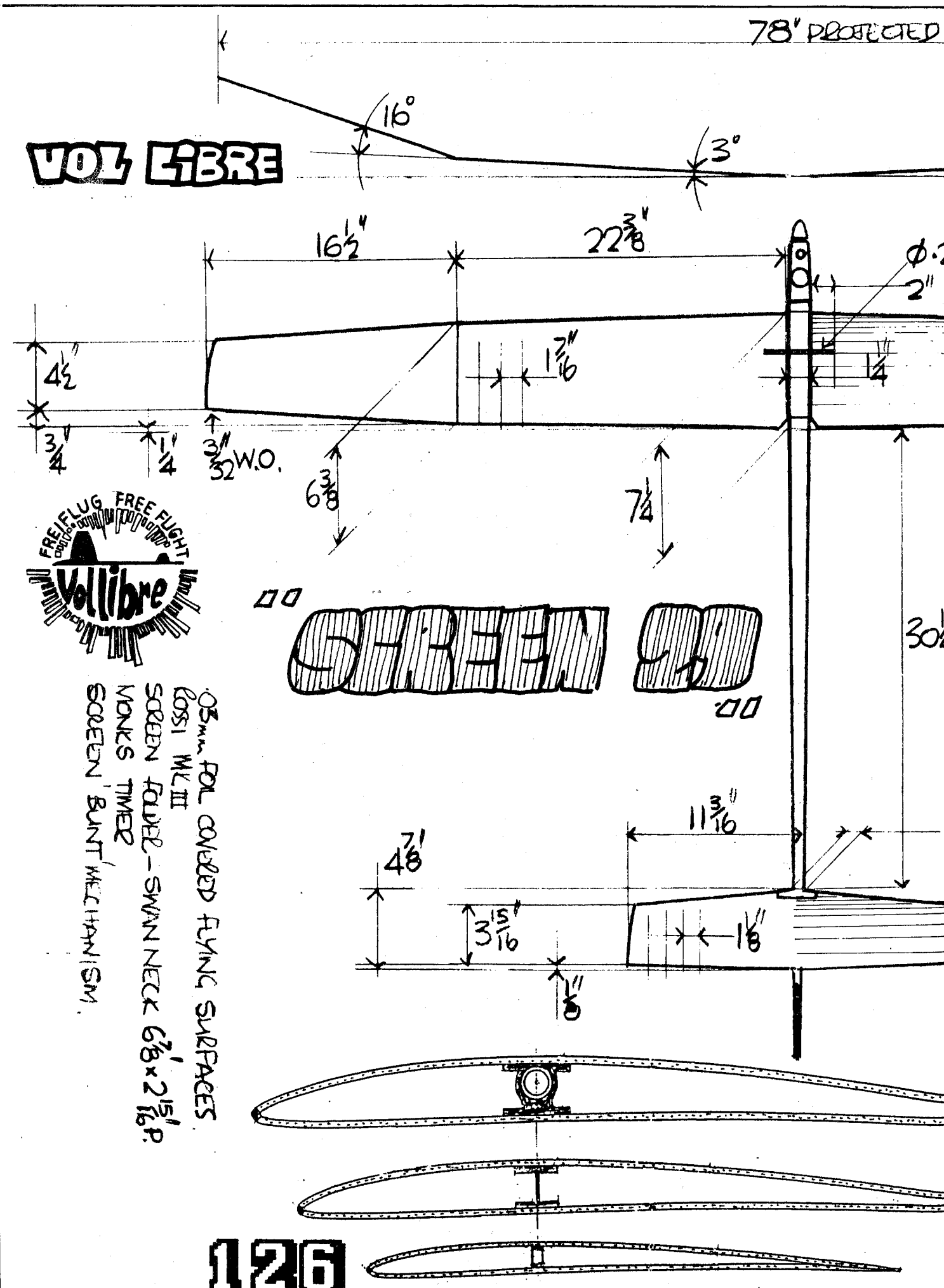




EQUIPE DE FRANCE


VOL LIBRE
VOL LIBRE
805
770
100
200
1°30
710
155
590
0°
1°
900
180
DENIS
FERRERO
IV
125
cr. 8/10
5x2 SPRUCE
100
195
860
130
560
PROFIL AILE
PROFIL STAB.
FREIFLUG FREE FLIGHT
Vollibre
DENIS FERRERO - A. SCHANDEL.
EQUIPE DE FRANCE

VOL LIBRE



FREIFLUG FREE FLIGHT Vollibre

"GREEN GO"

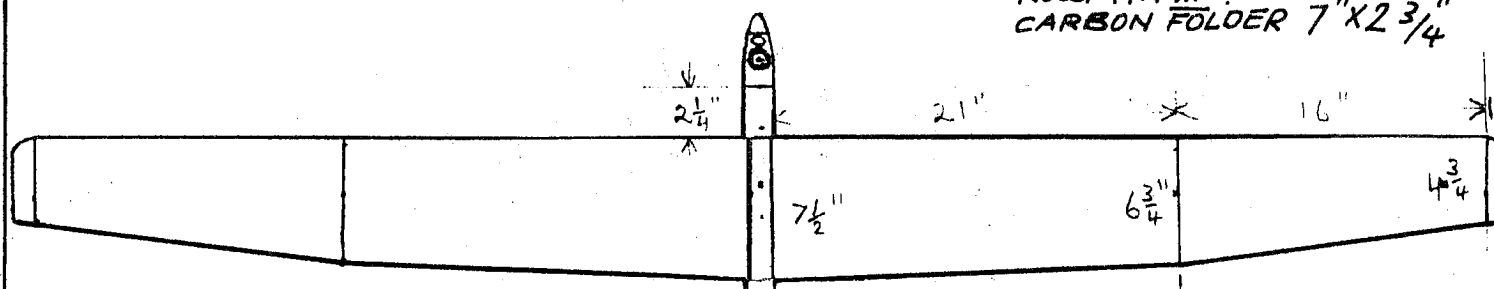
.05 mm FOIL COVERED FLYING SURFACES
LOSI MK III
SCREEN POWER - SWAN NECK 6⅞" x 2 15/16" P.
MONKS TIMER
SCREEN 'BUNT' MECHANISM.

CARBON STEEL JOINER.
ENGINE 0°
5½"
2¾°
G 68%
1 7/16"
1/16 W.O.
REAR EXHAUST
42½"
RECTANGULAR SECTION WITH CORNER RAD.
5/16"
1"
9⅝"
4¼"
2¾"
1⅛"
13/16
4 11/16"
0.03 mm Thick Aluminium Foil
Carbon T.E
2 mm Wire
1.5 balsa 5½/cu ft
CARBON FIBRE SPAR/GLASS CLOTH
ABS HOLD IS Q CLOTH
5 mm JOINER
Aluminium Tube 50 mm
10×1.3
2 mm Wire
Carbon
Carbon T.E
NOT FULL SIZE
1.3 balsa 5½/cu ft
CARBON FIBRE SPAR/GLASS CLOTH
0.4
4×1.0
Carbon
Carbon T.E
1.0 balsa 4½/cu ft
BALSA MIDDLE
Carbon Fibre Spar
3×0.8
Carbon
STAFFORD SCREEN
G3
WING-AILES-SECTIONS TYPE VERBITSKI
TAIL-STAB. SECTIONS

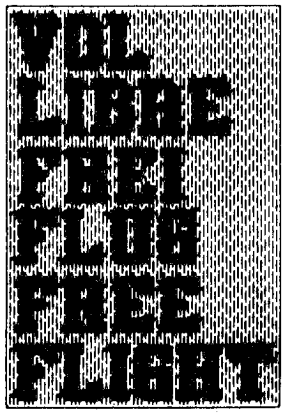
RJB 15

ROGER BAGGOTT

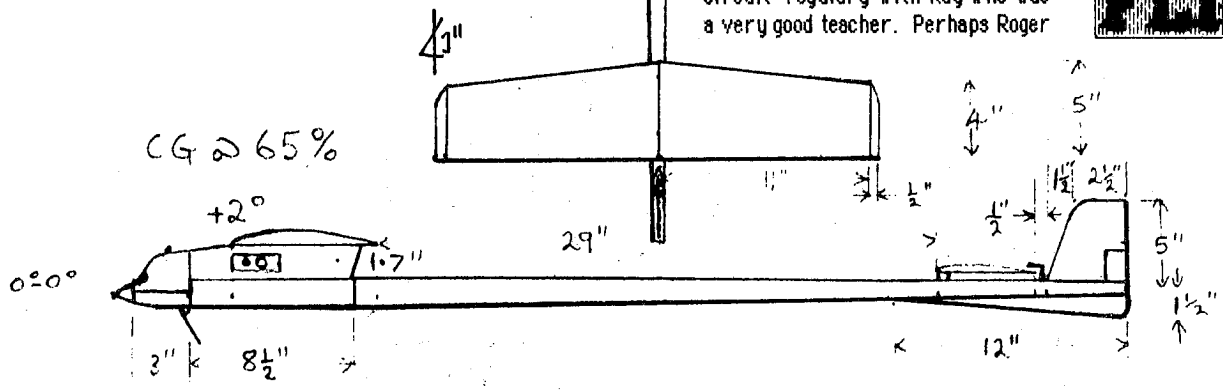
ROSSI MK III
CARBON FOLDER 7"X2 3/4"

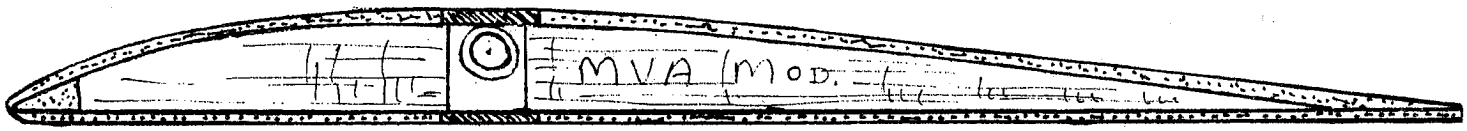


Roger BAGOTT 43 year old Managing Director of a Steel Stockholding and Processing Centre ,is married and has a14 year old daugther.
He has been aeromodeller for over 30 years and always F.F. He bcame interested in competition flying during his last years at school and managed to attend competitions by various means , such as aboard the Club coach , in a friend's car and even by bicycle -on occasions! On leaving school he met Ray MONKS and joined the Birmingham Club. He travelled around the competition circuit regulary with Ray who was a very good teacher. Perhaps Roger was not a very good pupil but he was keen. Eventually ,around the early seventies, Roger was placing in Open Power and F1C quite regulary at National level but due to a continuing run of minor disasters and excuses did not make British Team until 1978 for the E.C. Furthrt disaster and excuses on an annual basis kept him from follow-up until th E.C. in Rumania in 1986. Is this "third time lucky"?

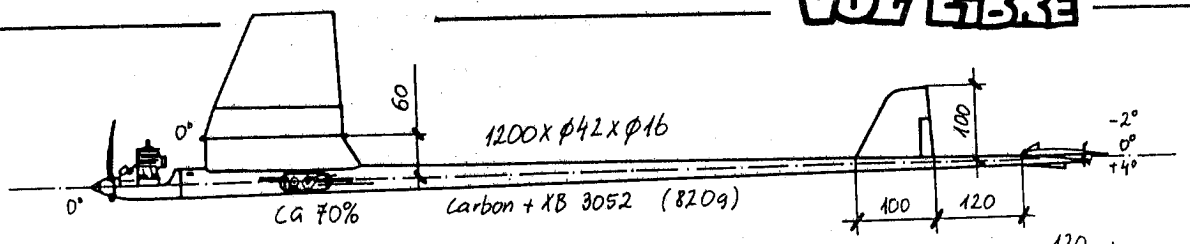


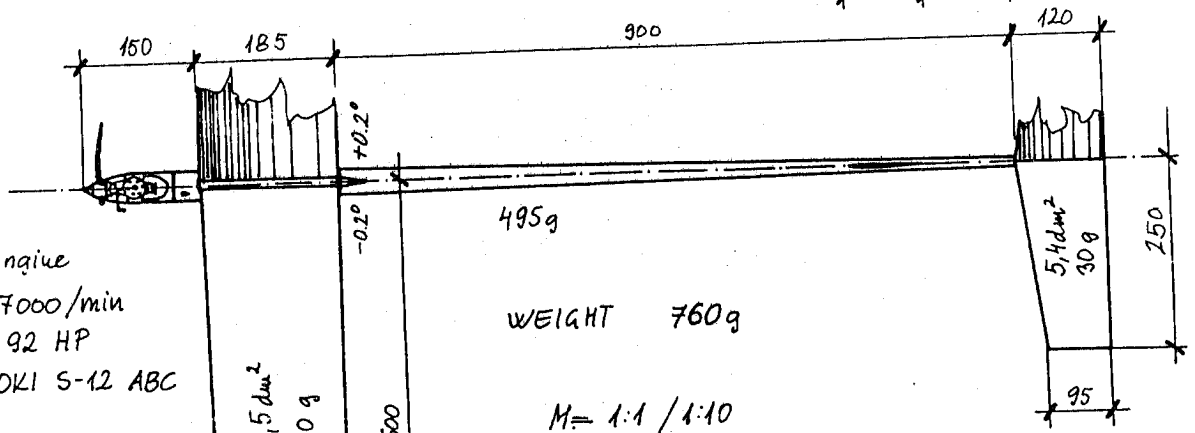
FUSELAGE: 1 5/8" DIA- ALUM. TUBE
MACHINED PAN - SCREWED ON
BOOM - FOIL/CARBON/BALSA/GLASS.-





SPARS SPRUCE - 1/2" x 1/16" → 1/2" x 1/16"
GLASS COVERED INNER PANNELS
JAP TISSUE ON TIPS & TAIL -
JOINER 5mm DIA.- EJECTOR PINS" IN 1/4" O/D ALUM.TUBE

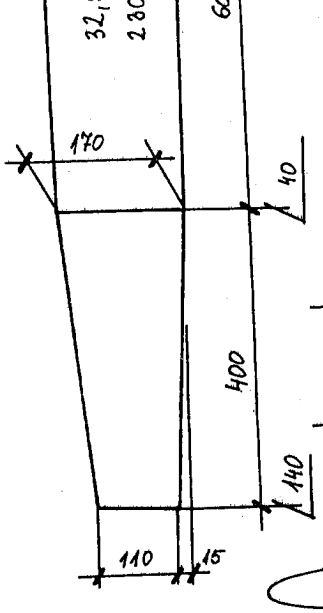




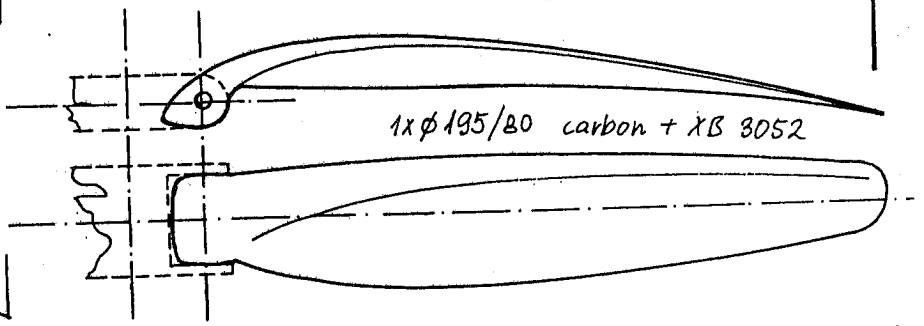
Engine
27000/min
0.92 HP
MOKI S-12 ABC

WEIGHT 760g

M= 1:1 / 1:10



GABOR ZSENGELLER
HONGRIE



Tail sect

2x 0.6 mm balsa + 25g/m² glasscloth + XB 3052

Modell A,B,C

2x 1mm balsa + 40g/m² glasscloth + XB 3052

Modell D ZS-5260

2x 1mm balsa + 0.33 duraluminium
(UHU-PLUS + methanol)

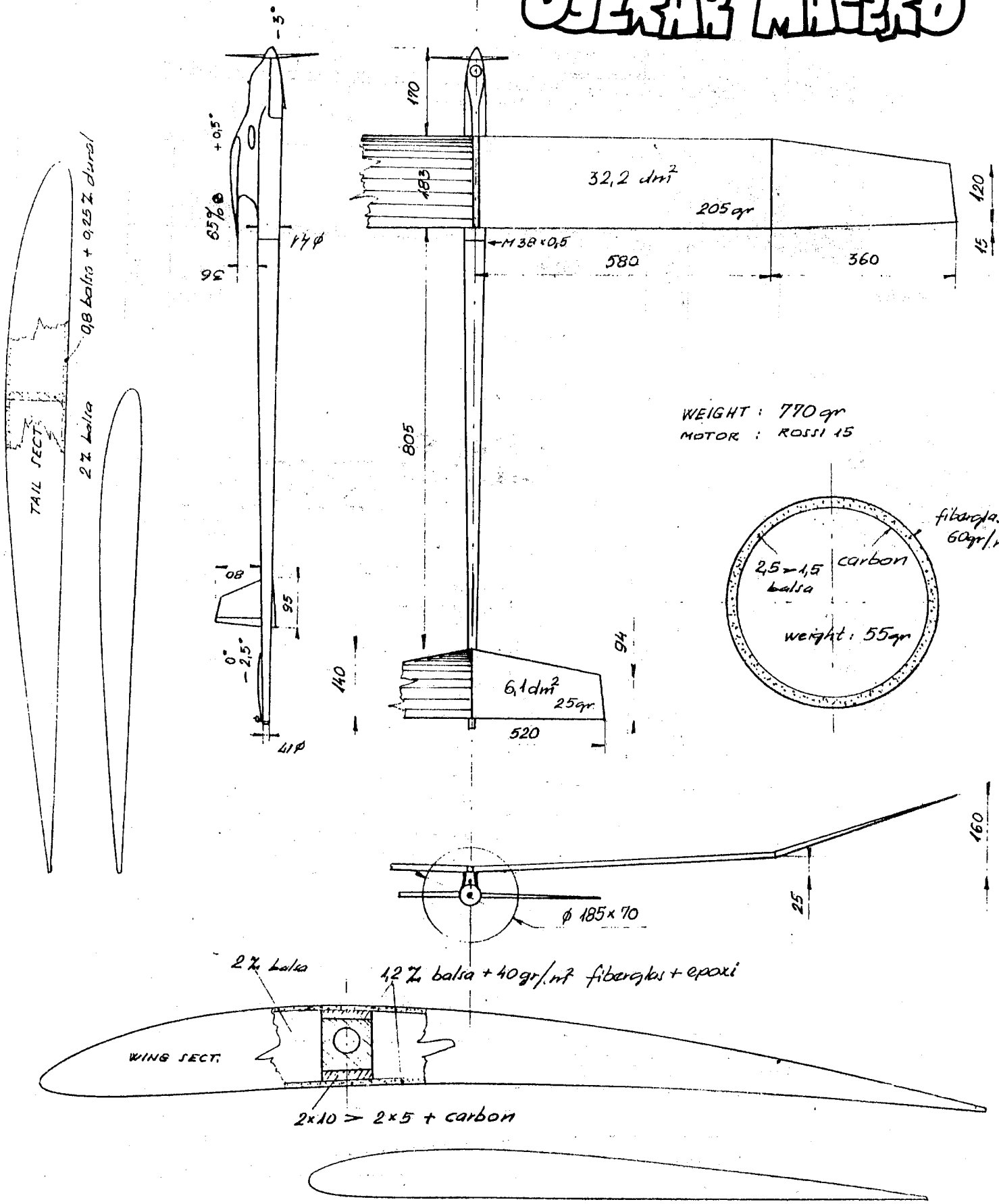
ZS-4860

ZS-4050

WINGROOT: 0.8x12 > 0.8x5 > 0.5x1 carbon + XB 3052

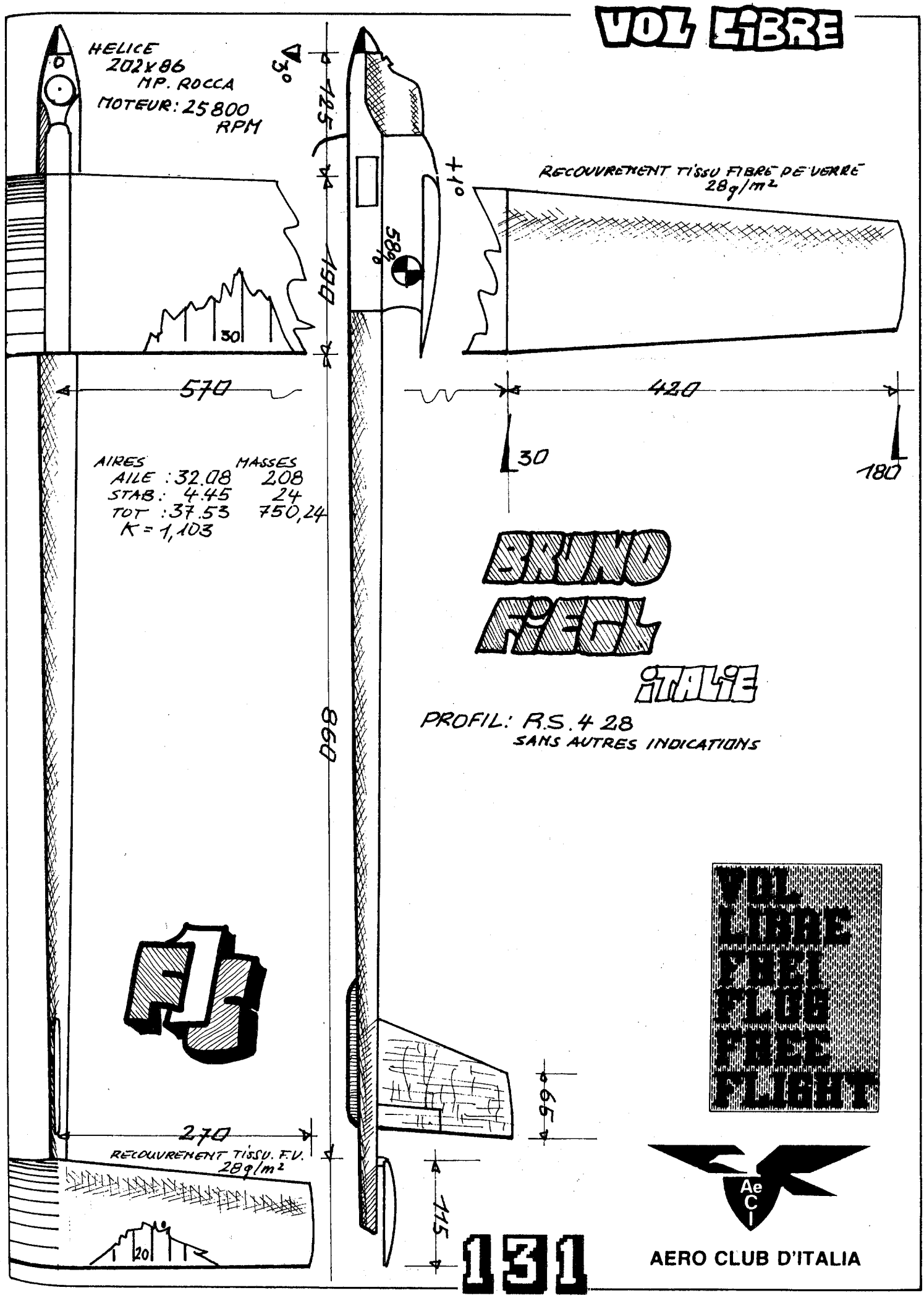
VOL LIBRE

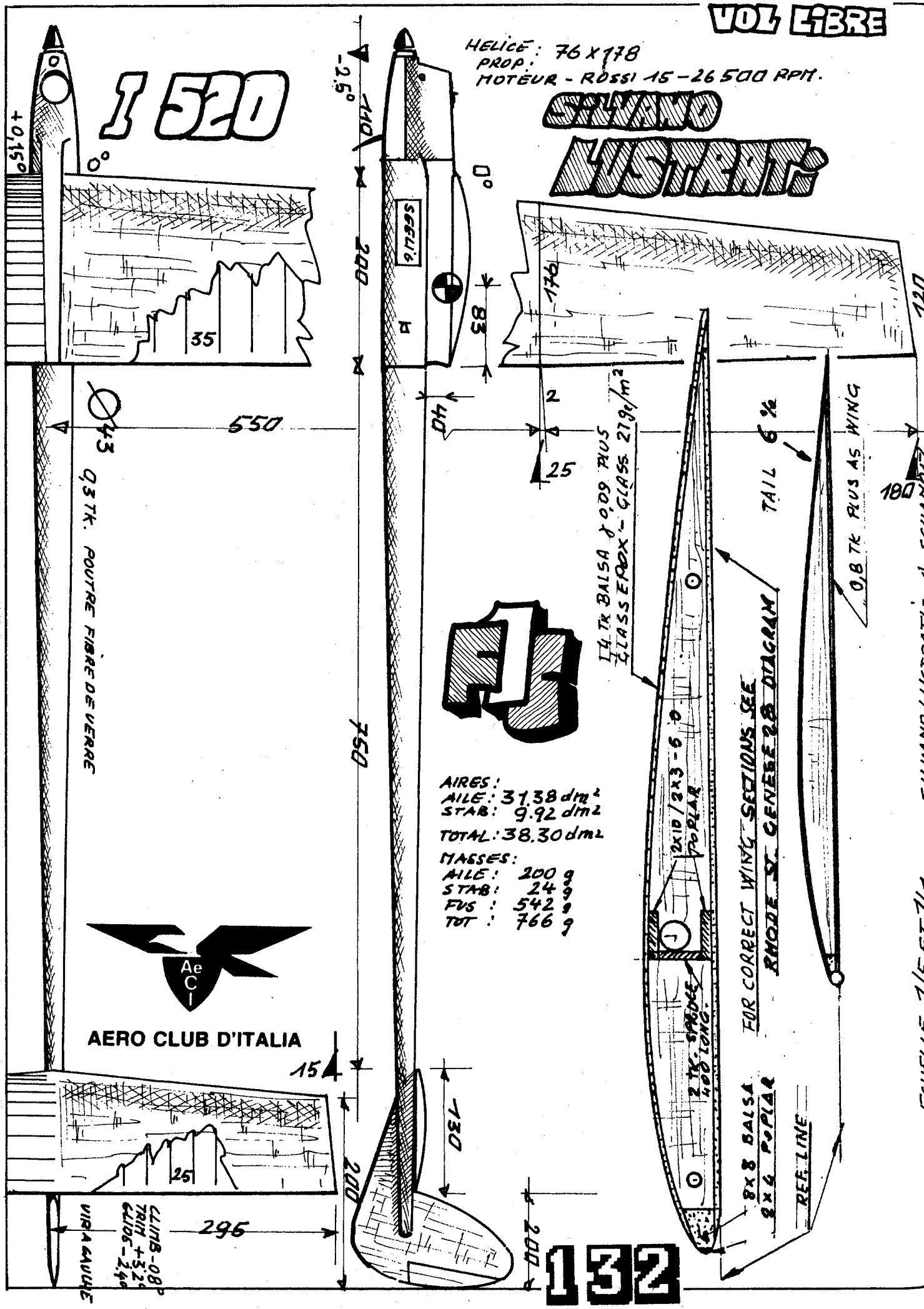
OSKAR MACEJKO

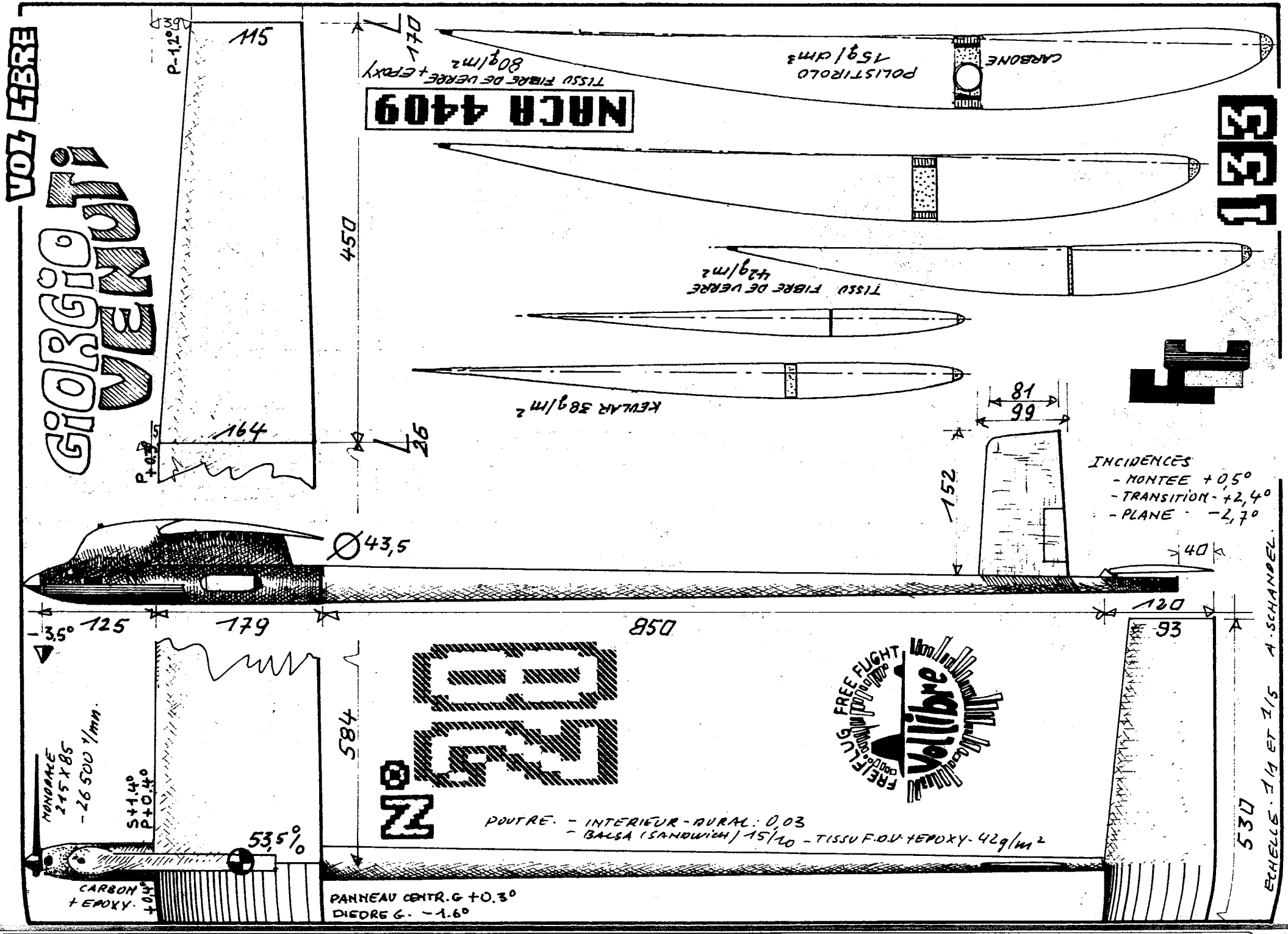


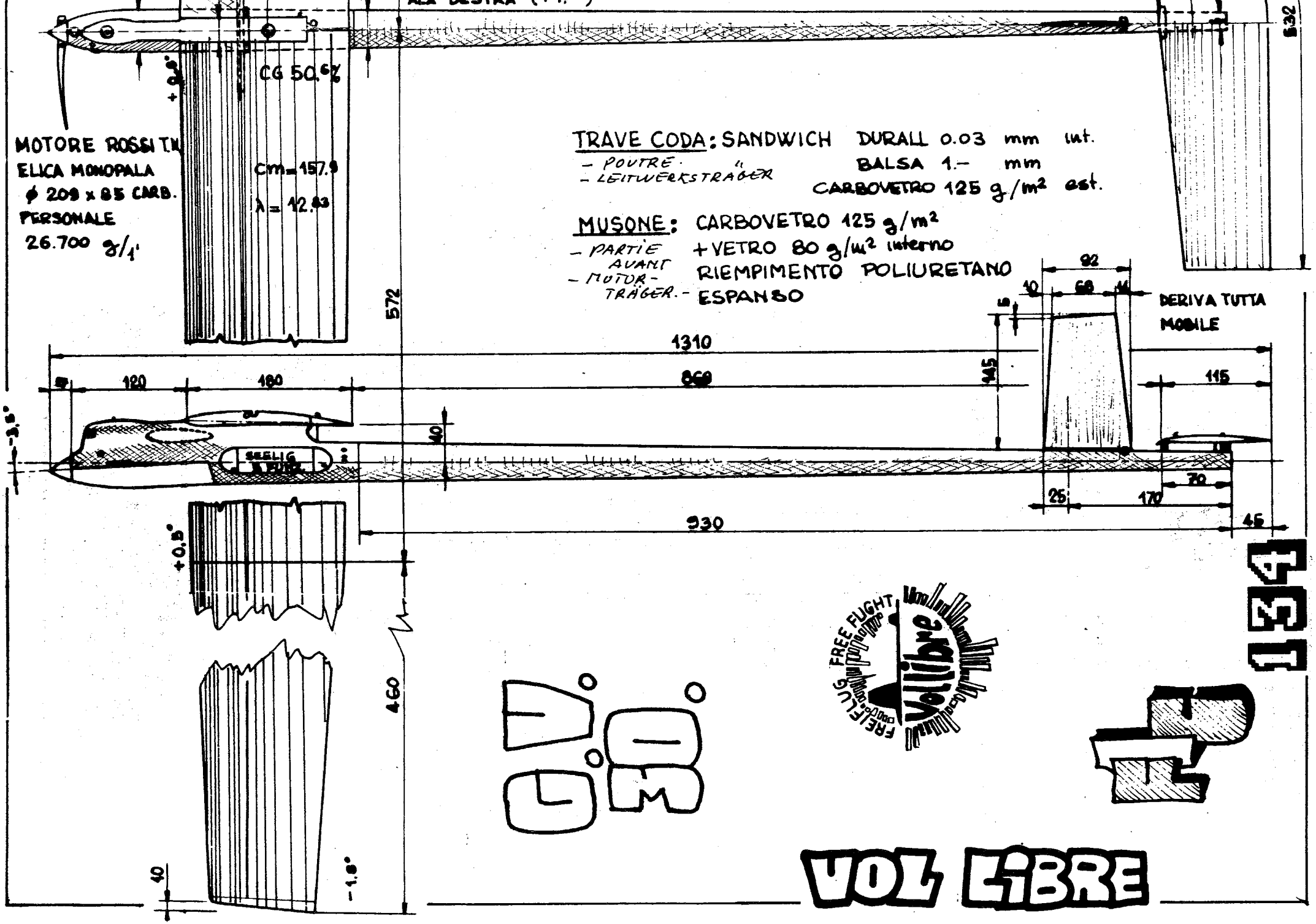
"SISYPHUS" 14 130 FC

VOL LIBRE

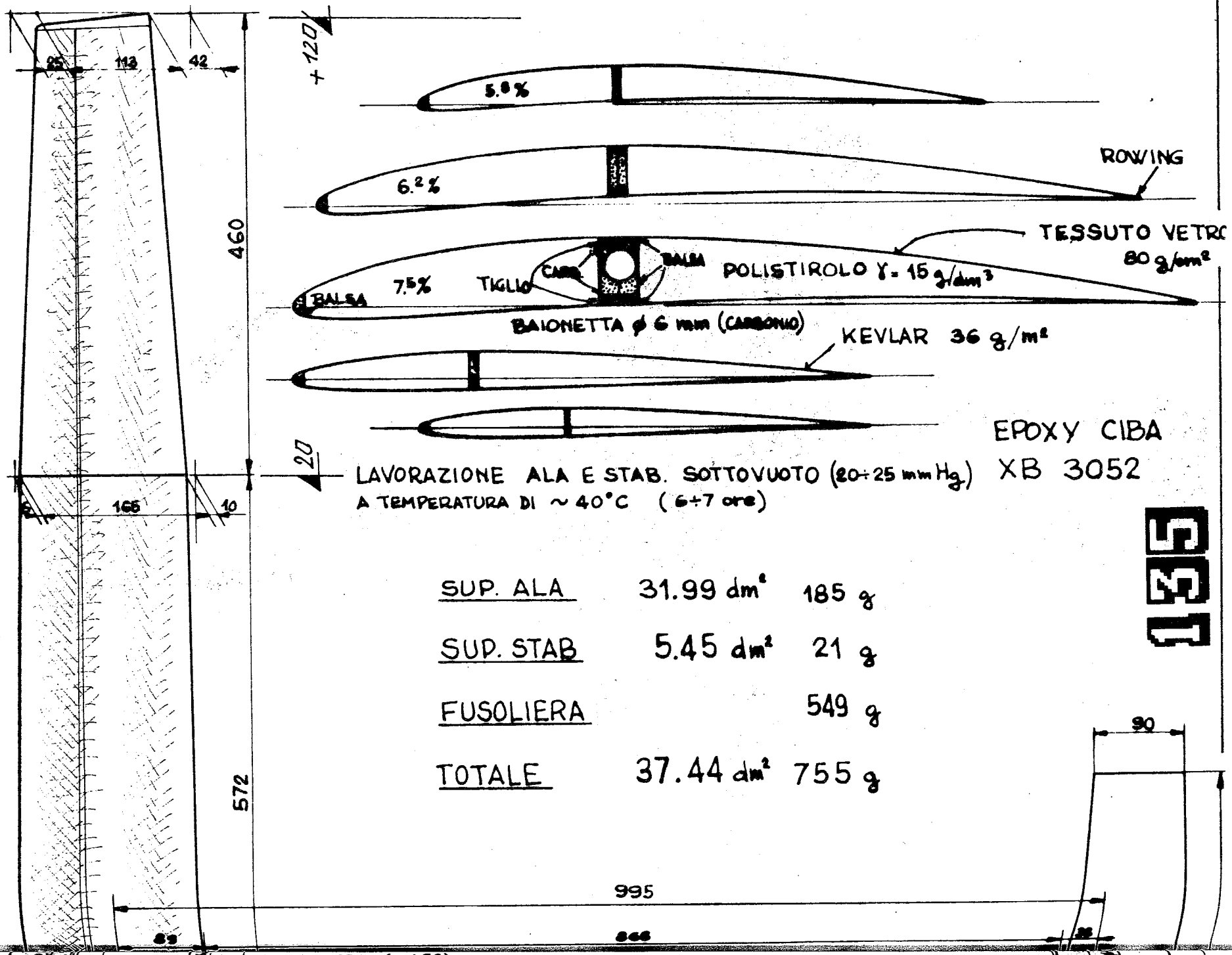

HELICE
202x86
MP. ROCCA
MOTEUR: 25800
RPM
30°
145
190
30
570
58%
+10°
RECOUVREMENT TISSU FIBRE DE VERRE
28g/m²
420
30
180
AIRES
AILE : 32.08
STAB.: 4.45
TOT : 37.53
K = 1,103
MASSES
208
24
750,24
GRAND PRIX
ITALIE
PROFIL: R.S. 4 28
SANS AUTRES INDICATIONS
860
270
RECOUVREMENT TISSU. F.V.
28g/m²
20
95
145
VOL LIBRE
AERO CLUB D'ITALIA
Ae C I
AERO CLUB D'ITALIA


VOL LIBRE
HELICE: 76 x 178
PROP.:
MOTEUR - ROSSI 15 - 26 500 RPM.
I 520
SEFELIÉ
AIRES:
AILE: 31.38 dm²
STAB: 9.92 dm²
TOTAL: 38.30 dm²
MASSES:
AILE: 200 g
STAB: 24 g
FUS: 542 g
TOT: 766 g
14 TK BALSA & 0.09 PLUS GLASS EPOXY - GLASS 27 g/m²
TAIL 6 %
0.8 TK PLUS AS WING
FOR CORRECT WING SECTIONS SEE RHODE St. GENEZE 2.8 DIAGRAM
2x10/2x3 - 6 POPLAR
2 TK. SPRUCE 400 LONG.
8x8 BALSA
8x4 POPLAR
REF. LINE
0.3 TK. POUTRE FIBRE DE VERRE
AERO CLUB D'ITALIA
CLIMB -0.8°
TRIM +3.2°
GLIDE -2.4°
VIRA CAVIAHE
132


VOL LIBRE
GIORGIO VENUTI
NACA 4409
TISSU FIBRE DE VERRE + EPOXY 80g/m²
POLISTIROLO 15g/dm³
CARBONE
TISSU FIBRE DE VERRE 42g/m²
KEVLAR 38g/m²
P-1,2°
P+0,3°
115
164
170
450
26
Ø43,5
-3,5°
125
179
850
120
93
530
584
152
81
99
40
INCIDENCES
- MONTEE +0,5°
- TRANSITION +2,4°
- PLANE -2,7°
MANDRAKE 215x85 -26 500 t/mn.
S+1,4°
P+0,4°
53,5%
CARBON + EPOXY
+0,3°
POUTRE. - INTERIEUR - RURAL: 0,03
- BALSA (SANDWICH) 15/10 - TISSU F.O.V. + EPOXY - 42g/m²
PANNEAU CENTR. G +0,3°
DIEDRE G. -1,6°
FREE FLIGHT
Vollibre
ECHELLE: 1/4 ET 1/5
A. SCHANDEL


CG 50.6%
MOTORE ROSSI TN
ELICA MONOPALA
ϕ 209 x 85 CARB.
PERSONALE
26.700 g/1'
cm = 157.9
λ = 12.83
TRAVE CODA: SANDWICH DURALL 0.03 mm int.
BALSA 1.- mm
CARBOVETRO 125 g/m² est.
- POUTRE
- LEITWERKSTRÄGER
MUSONE: CARBOVETRO 125 g/m²
+ VETRO 80 g/m² interno
RIEMPIMENTO POLIURETANO
ESPANSO
- PARTIE AVANT
- MOTOR-TRÄGER.-
DERIVA TUTTA MOBILE
1310
860
120
180
572
460
330
145
115
92
68
70
170
25
46
40
+0.5°
-3.5°
-1.5°
SEELIG
FREE FLIGHT
Vollibre
VOL LIBRE
134

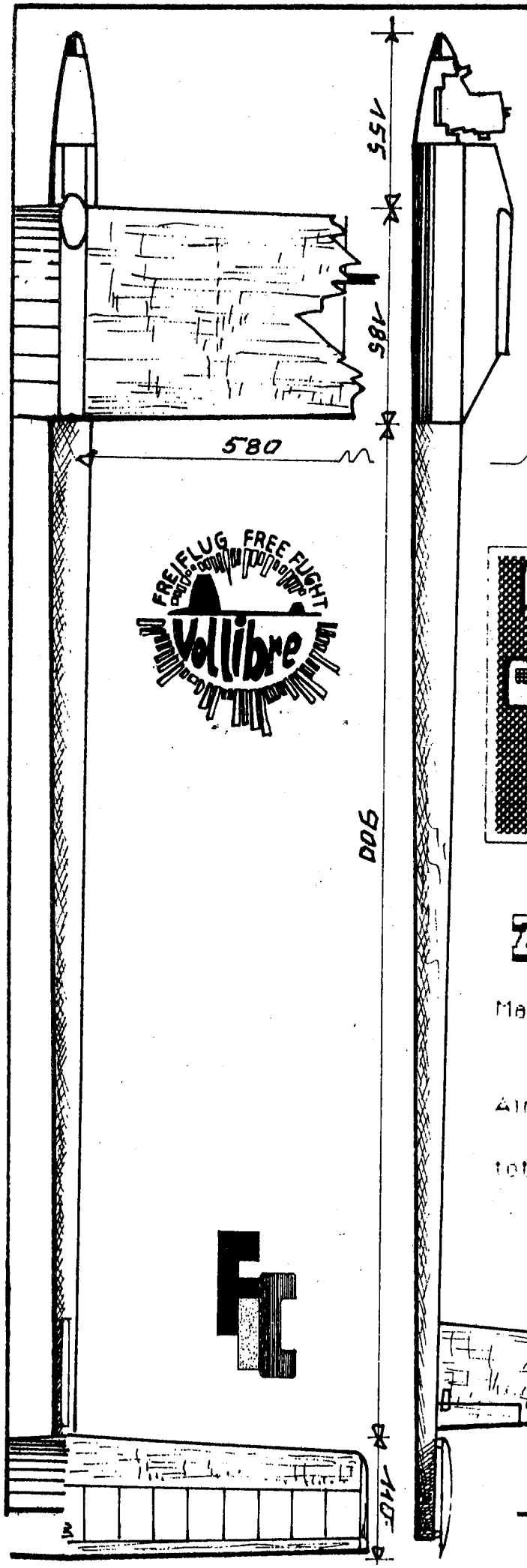
COLLA VENTO
UTILE

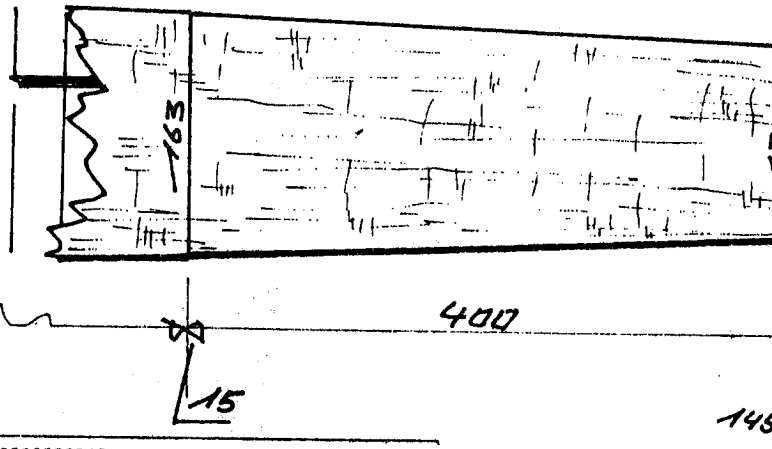


531

136


79





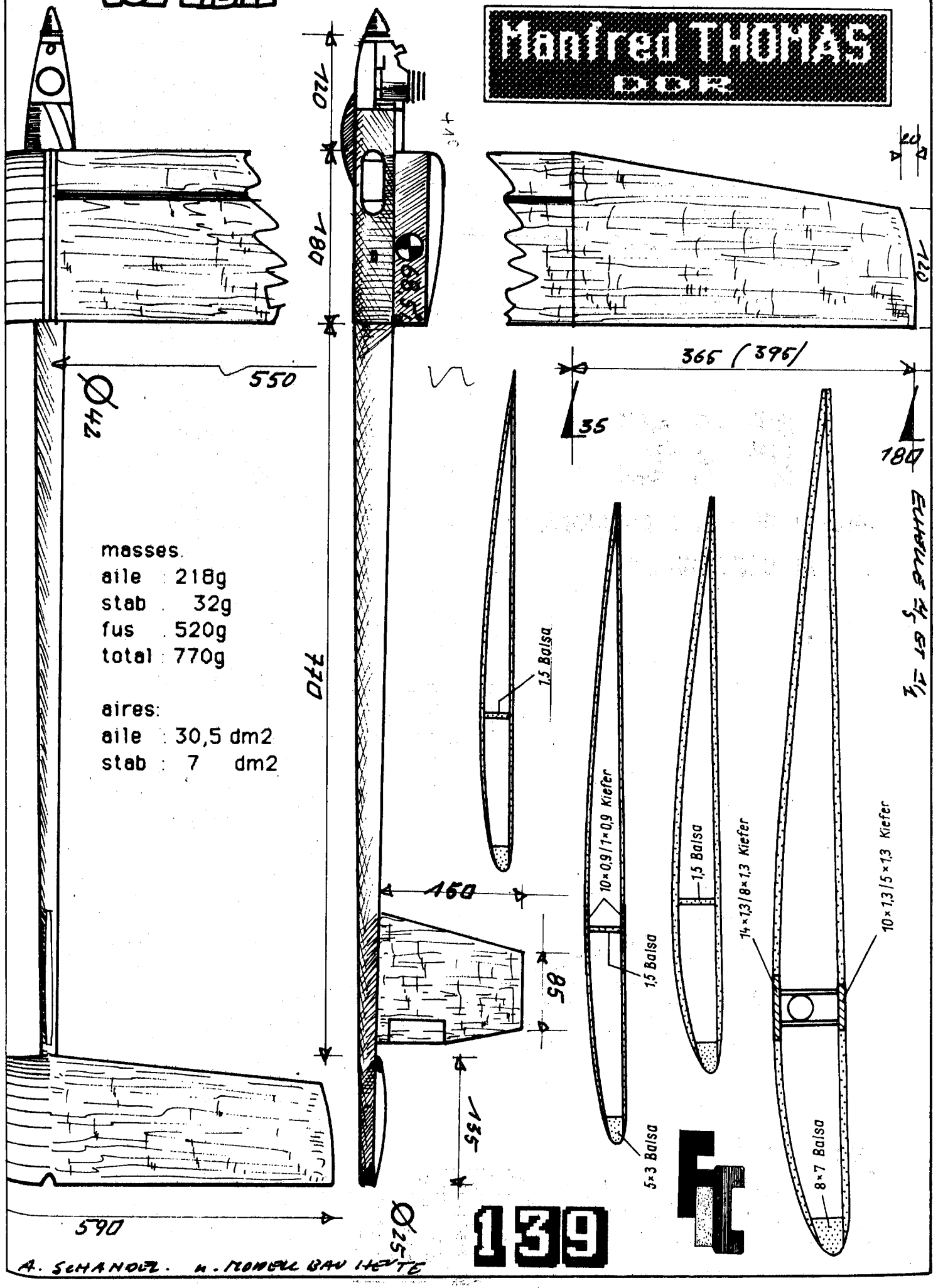
J.Z. 14

Jaroslaw ZIELINSKI

Masses	aile	215g
	stab	22g
	fus	558g
Aires	aile	31,90 dm2
	stab	4,94 dm2
total		36,84 dm2

A. SCHANDEL.

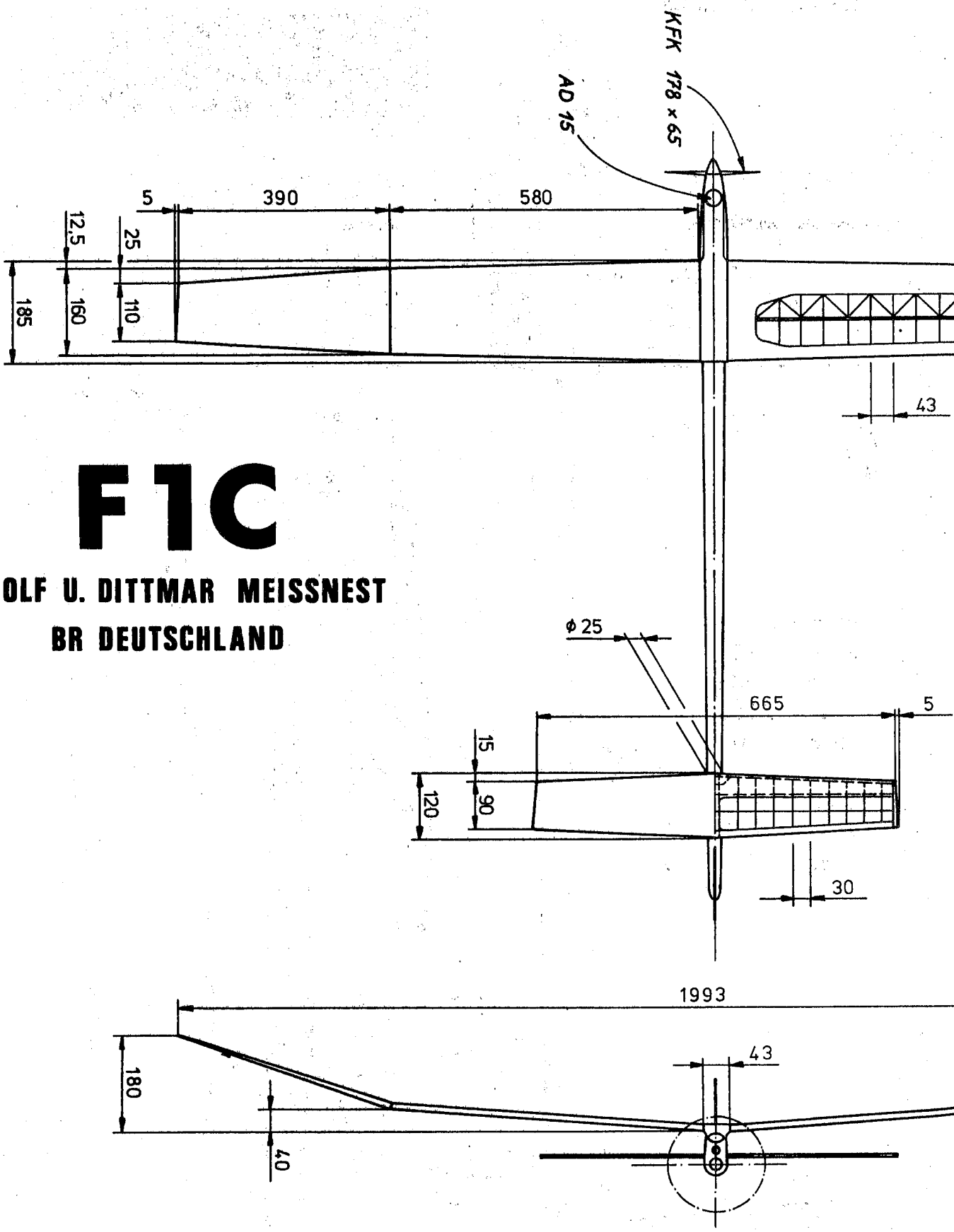
Manfred THOMAS



masses.
aile : 218g
stab : 32g
fus : 520g
total : 770g

aires:
aile : 30,5 dm2
stab : 7 dm2

A. SCHANDOR. M. MODELL BAU HEUTE



F1C

ROLF U. DITTMAR MEISSNEST

BR DEUTSCHLAND

B.

MVA 101 MOD.

X	0	1,25	2,5	5	7,5	10	15	20	30	40	50	60	70	80	90	95	100
Y_o	0,7	2,2	3,0	4,2	5,0	5,7	6,65	7,3	7,9	7,55	6,75	5,7	4,45	3,1	1,6	0,8	0
Y_u	0,7																

FLÄCHENINHALT: FLÜGEL 31,4 DM²
HLW 7,0 DM²
GESAMT 38,4 DM²

GESAMTMASSE: 780 G

OBERFLÄCHE:

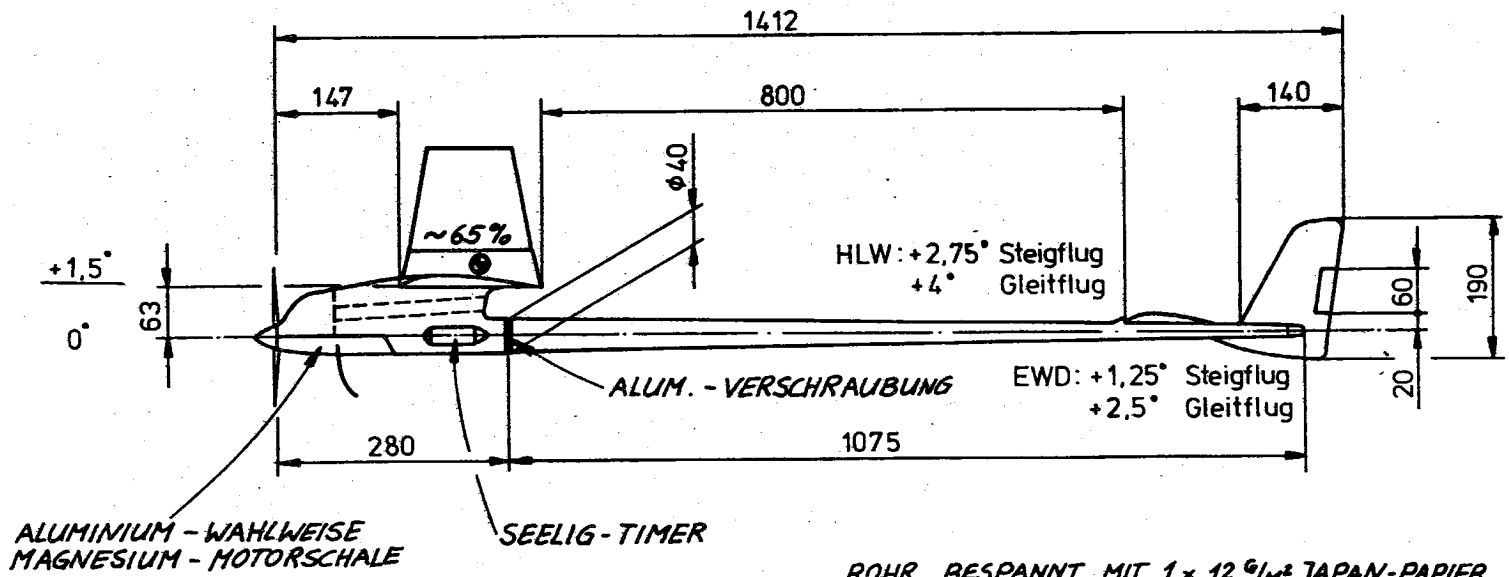
FLÜGEL

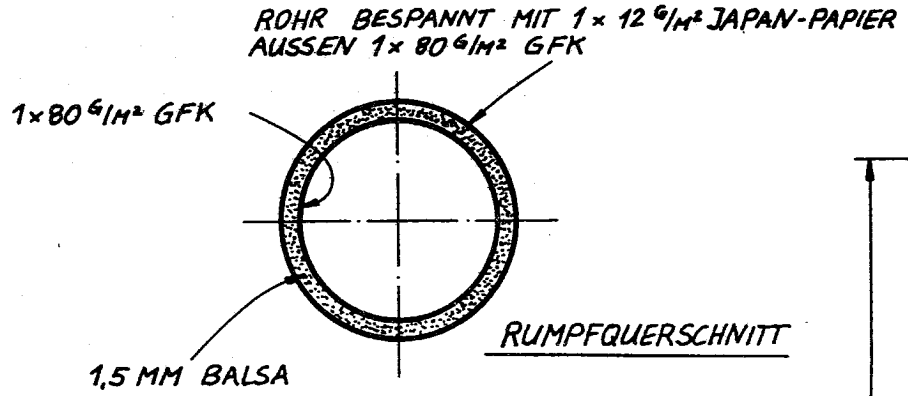
BEPLANKUNG 1 x 12 G/M² JAPANPAPIER

BESPANNUNG 2 x 12 G/M² JAPANPAPIER

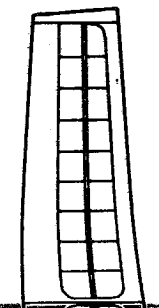
HLW

1 x 12 G/M² JAPANPAPIER

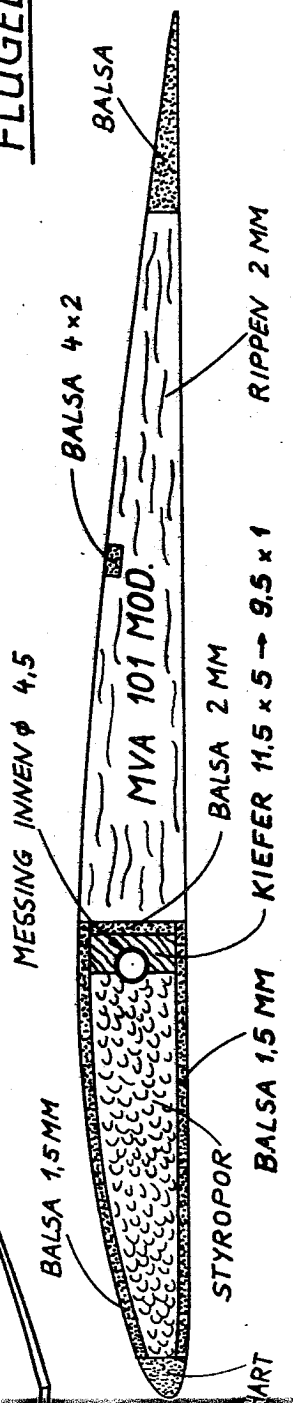


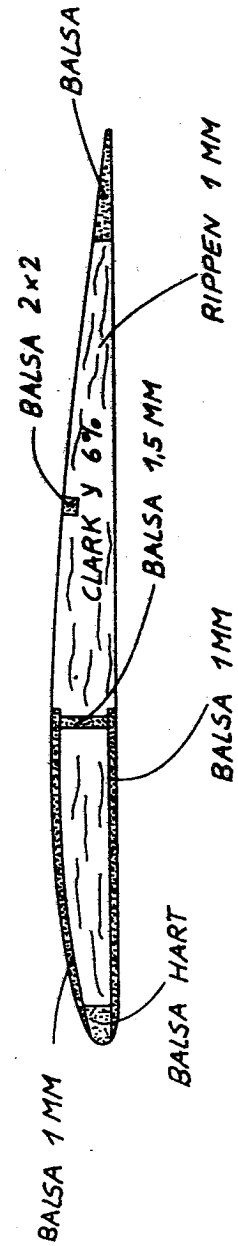


RUMPFQUERSCHNITT



FLÜGEL





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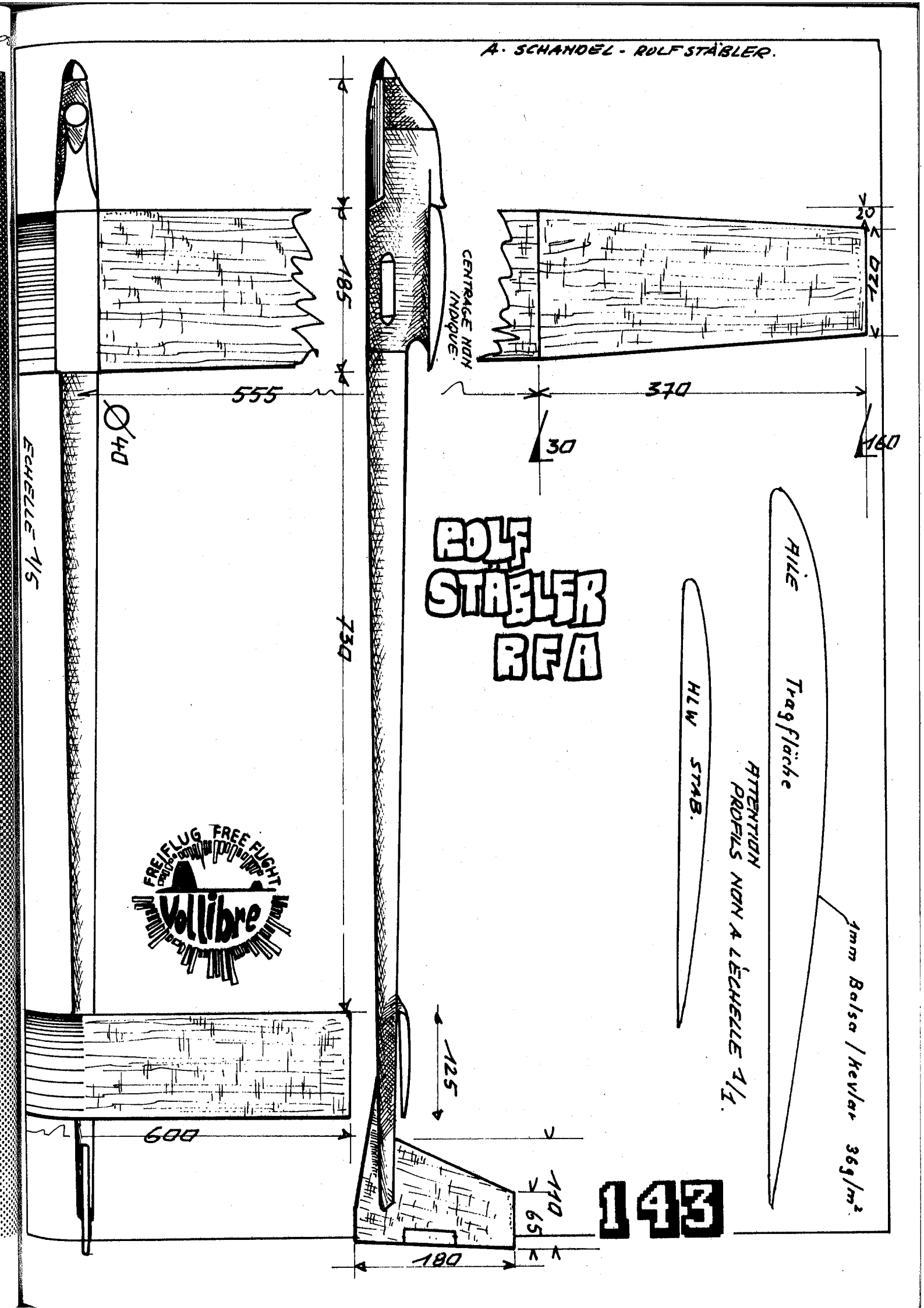
A. H.

Photo - JEAN BO

K.Wächtler (RDA) un des équipiers F1C de la RDA qui ont fait beaucoup parler d'eux, par leur performance derrière les Russes. Un image de la sobriété et de l'efficacité pour un modéliste F1C par rapport à d'autres qui utilisent une montagne d'accessoires.....

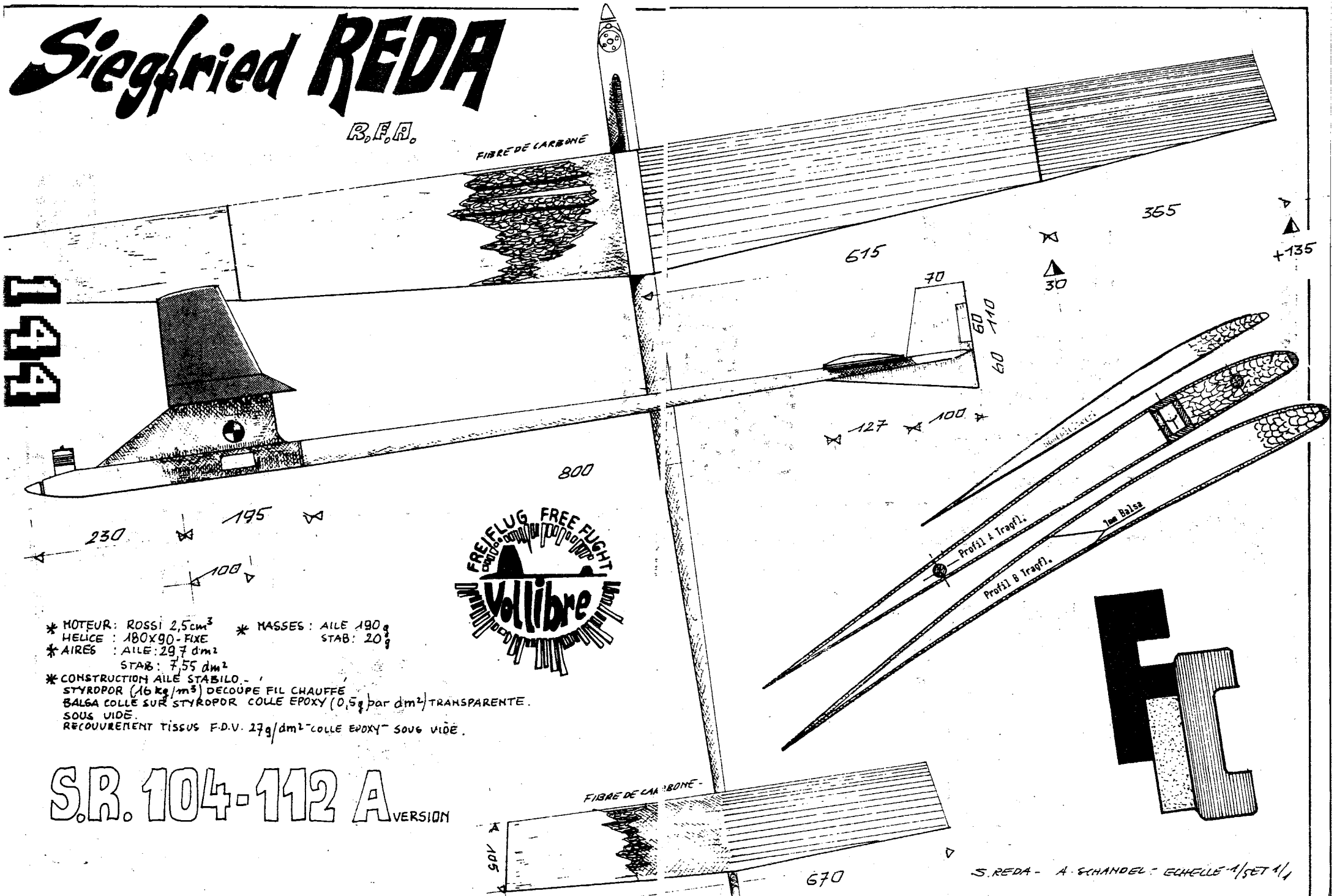
A. SCHANDEL - ROLF STÄBLER.



Siegfried REDA

R.F.R.

144



FREIFLUG FREE FLIGHT
Vollibre

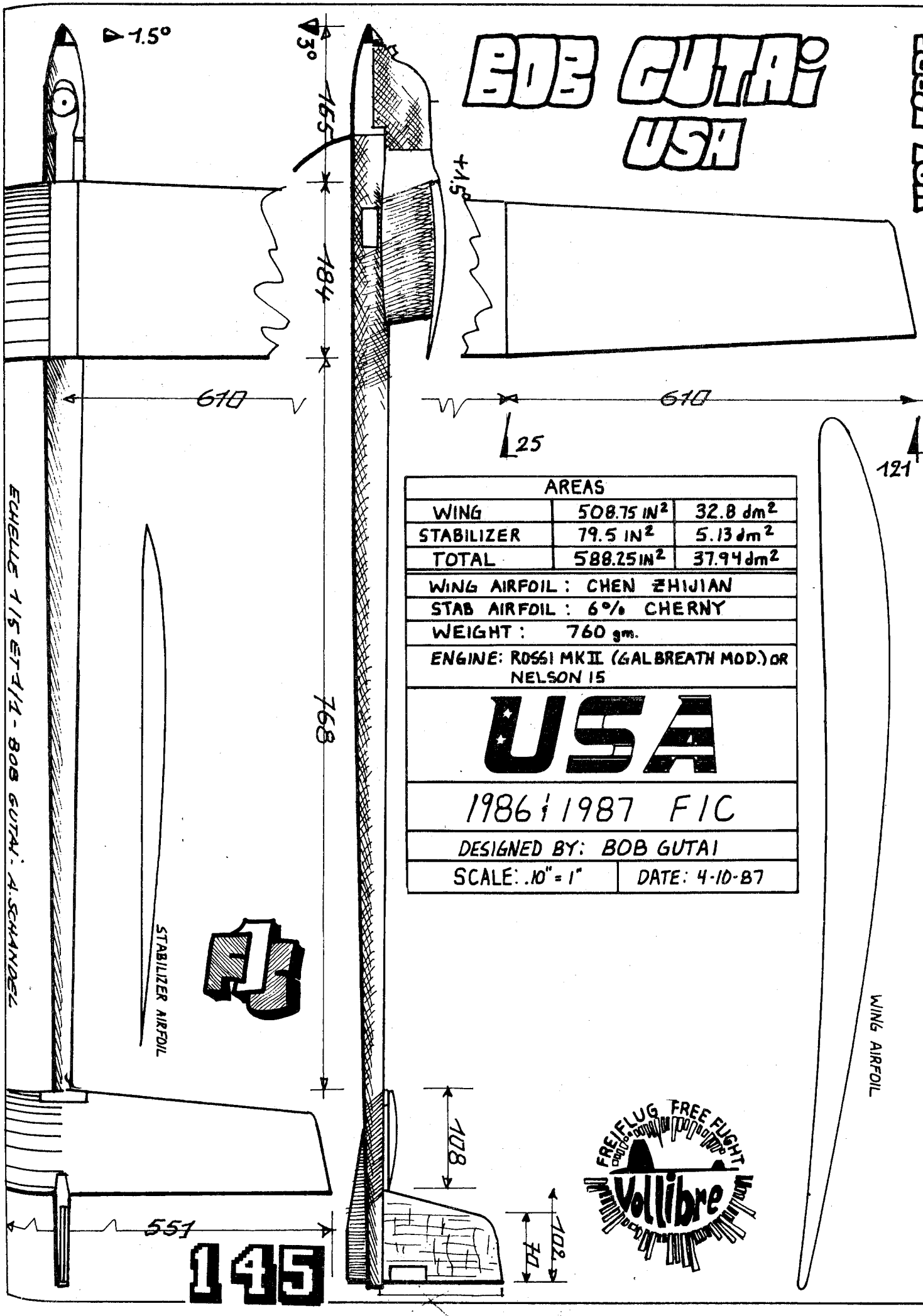
* MOTEUR : ROSSI 2,5cm³
  HELICE : 180x90 - FIXE
* AIRES : AILE : 29,7 dm²
  STAB : 7,55 dm²
* MASSES : AILE 190 g
  STAB : 20 g
* CONSTRUCTION AILE STABILO. -
  STYROPOR (16 kg/m³) DECOUPE FIL CHAUFFE
  BALSA COLLE SUR STYROPOR COLLE EPOXY (0,5 g par dm²) TRANSPARENTE.
  SOUS VIDE.
  RECOUVREMENT TISSUS F.D.V. 27 g/dm² - COLLE EPOXY - SOUS VIDE.

S.R. 104-112 A VERSION

S. REDA - A. SCHANDEL - ECHELLE 1/SET 1/1

BOB GUTAI USA

VOL LIBRE



AREAS		
WING	508.75 IN²	32.8 dm²
STABILIZER	79.5 IN²	5.13 dm²
TOTAL	588.25 IN²	37.94 dm²

WING AIRFOIL : CHEN ZHIJIAN

STAB AIRFOIL : 6% CHERNY

WEIGHT : 760 gm.

ENGINE: ROSSI MKII (GALBREATH MOD.) OR NELSON 15

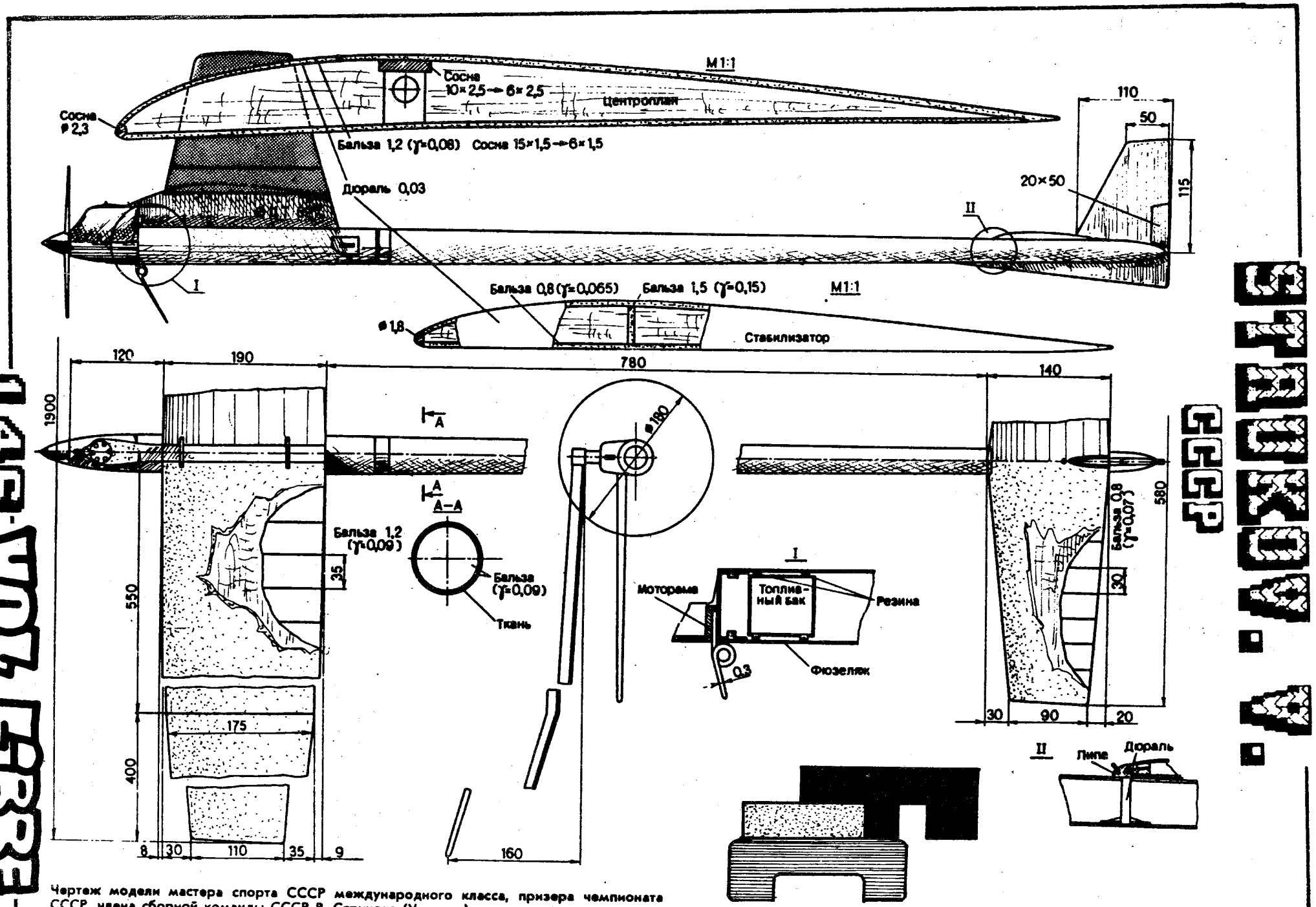
USA

1986 & 1987 FIC

DESIGNED BY: BOB GUTAI

SCALE: .10" = 1" | DATE: 4-10-87

FREIFLUG FREE FLIGHT Vollibre



Чертеж модели мастера спорта СССР международного класса, призера чемпионата СССР, члена сборной команды СССР В. Струкова (Украина).

V STRUKOV

HELICE Propeller diameter=178
Radius mm 19 29 39 49 59 69 79 89.
Angle deg 28.7 21.3 16.0 13.0 11.0 9.0 7.5 6.7
Pitch mm 65.4 71.0 70.3 71.1 72.1 68.7 65.4 65.7
2°
186
578
0,5° washout
424
30
+140
0,5° washout
920
98
48
87
240
123
67
1.2 sheet + .03 dural
AILE - COORDONNEES
Chord 0 2.5 5 10 15 20 25 30 40 50 60 70 80 90 100.
Upper 1.08 3.28 4.25 5.54 6.45 7.15 7.58 7.85 8.01 7.69 6.99 5.81 4.30 2.53 0.43
Lower 1.08 0.18 0.11 0.18 0.45 0.70 0.97 1.18 1.72 2.10 2.28 2.10 1.61 0.91 0.00
ECHELLE 1/1 - 4 SCHANDEL -
FREIFLUG FREE FLIGHT
Vollibre
147

FIA

Classement Classement

1	V Tchop	USSR	1260	+	240	+	300	+	360	+	237								
2	I Horejsi	CS	1260	+	240	+	300	+	360	+	206								
3	M Preuss	DDR	1260	+	240	+	300	+	360	+	187	+251							
4	L Reynders	B	1260	+	240	+	300	+	360	+	187	+218							
5	L Horak	CAN	1260	+	240	+	300	+	360	+	183								
6	Zhang Yingjie	CHN	1260	+	240	+	300	+	360	+	182								
7	K Itzharkov	IS	1260	+	240	+	300	+	360	+	177								
8	V Brussolo	I	1260	+	240	+	300	+	360	+	139								
9	E Sahinovic	YU	1260	+	240	+	300	+	360	+	136								
10	P Buchwald	DK	1260	+	240	+	300	+	349										
11	U Rusch	DDR	1260	+	240	+	300	+	322										
12	Liang Yue	W/C	1260	+	240	+	300	+	285										
13	C Bistacchi	I	1260	+	240	+	300	+	213										
14	L Larsson	S	1260	+	240	+	300	+	209										
15	Sun Kai	CHN	1260	+	240	+	300	+	189										
16	R Cal	I	1260	+	240	+	300	+	173										
17	H Bleuer	CH	1260	+	240	+	300	+	163										
18	J Bradley	USA	1260	+	240	+	300	+	153										
19	Li Chol	NKOR	1260	+	240	+	300	+	149										
20	E Dondero	ARG	1260	+	240	+	300	+	130										
21	W Colledge	GB	1260	+	240	+	300	+	119										
22	J Orel	CS	1260	+	240	+	300	+	68										
23	M Williams	AUS	1260	+	240	+	286												
24	P De Boer	NL	1260	+	240	+	196												
25	Zhou Yaodong	CHN	1260	+	240	+	186												
26	H Nyhegen	DK	1260	+	240	+	173												
27	K Salzer	A	1260	+	240	+	137												
28	H Tahkapaa	FN	1260	+	100														
29	R Rodriguez	SP	179	180	180	180	180	180	180	1259									
30	W Palmieri	ARG	179	180	180	175	180	180	180	1254									
31	C Edge	GB	180	180	173	180	180	180	180	1253									
32	N Karanovic	YU	167	180	180	180	180	180	180	1247									
33	G Curtis	NZ	165	180	180	180	180	180	180	1245									
34	H Schmidt	D	162	180	180	180	180	180	180	1242									
35	Kim Jong Sik	NKOR	161	180	180	180	180	180	180	1241									
36	J Benesch	CH	180	180	180	180	160	180	180	1240									
37	K Bleuer	CH	159	180	178	180	180	180	180	1237									
37	G MacKenzie	CAN	157	180	180	180	180	180	180	1237									
37	M Gruneis	A	157	180	180	180	180	180	180	1237									
40	A Klemetsen	N	177	156	180	180	180	180	180	1233									
41	C Ziober	PL	151	180	180	180	180	180	180	1231									
42	V Stamov	USSR	180	145	180	180	180	180	180	1225									
43	N Russev	BUL	144	180	180	180	180	180	180	1224									
44	R Weiler	USA	139	180	180	180	180	180	180	1219									
45	L Lutchev	BUL	137	180	180	180	180	180	180	1217									
45	A Van Wallene	NL	180	180	180	180	180	137	180	1217									
47	D Barberis	F	180	180	136	180	180	180	180	1216									
47	J Somers	NL	136	180	180	180	180	180	180	1216									
47	R Golubowski	PL	136	180	180	180	180	180	180	1216									
50	P Grunnet	DK	180	180	180	180	180	180	134	1214									
51	M Borell	S	180	180	172	180	180	180	141	1213									
52	J Godinho	F	180	131	180	180	180	180	180	1211									
52	P Findahl	S	180	180	180	180	180	131	180	1211									
54	V Morgan	AUS	180	180	180	180	180	180	127	1207									
55	G Madelin	GB	180	180	180	125	180	180	180	1205									
55	S Moore	NZ	128	180	180	180	180	180	177	1205									
55	F Georgi	DDR	125	180	180	180	180	180	180	1205									
58	P Petkov	BUL	176	180	126	180	180	180	180	1202									
59	D Elder	USA	132	180	180	164	180	180	180	1196									
60	A Abaunza	MEX	180	180	115	180	180	180	180	1195									
61	O Helman	ARG	175	180	180	180	117	180	180	1192									
62	J Nahlovski	CS	180	180	180	180	106	180	180	1186									
62	Y Yohioka	J	180	180	180	180	180	180	106	1186									
64	D Marin	YU	103	180	180	180	180	180	180	1183									
64	P Conejero	SP	180	107	180	180	180	176	180	1183									
66	Sahi Petri	FN	101	180	180	180	180	180	180	1181									
67	Choi Sung Gi	NKOR	180	180	180	180	180	180	95	1175									
68	Y Drori	IS	180	180	124	180	180	180	143	1167									
69	W Gerlach	D	163	165	110	180	180	180	180	1158									
70	A Galichet	F	180	73	180	180	180	180	180	1153									
71	P Reynders	B	140	180	180	112	180	180	180	1152									
72	S Makarov	USSR	180	180	96	180	153	180	180	1149									
73	S Jurczeniak	PL	164	180	180	180	84	180	180	1148									
74	K Iida	J	180	180	180	145	180	89	180	1134									
75	R Lewis	NZ	180	180	180	180	180	180	50	1130									
76	R Blackman	AUS	98	180	180	180	127	180	180	1125									
77	B Pereira	P	180	92	180	180	180	118	180	1110									
78	M Tahkapaa	FN	180	180	180	180	127	71	180	1098									
79	L Farkas	CAN	93	180	180	180	180	159	121	1093									
79	H Fuss	A	117	180	180	180	135	121	180	1093									
81	J Abad	SP	35	157	157	180	180	180	180	1069									
82	R Bertrand	GM	148	133	180	55	180	180	180	1056									
83	M Rios	MEX	110	56	147	180	180	180	180	1033									
84	M Olstad	N	121	180	180	180	180	120	70	1031									
85	A Coelho	P	101	180	180	180	123	180	82	1026									
86	V Schmelter	D	74	180	180	180	180	51	180	1025									
87	A Prozniak	IS	137	180	180	180	180	71	43	971									
88	J Masuno	J	115	180	180	22	102	180	180	959									
89	V Nereng	N	155	152	180	109	180	0	180	956									
90	A Monica	P	114	163	180	180	75	81	153	940									
91	F Nutini	BRZ	81	126	70	180	99	180	180	916									
	Number of maximums		51	78	79	83	79	78	78										
	Number of full scores		51	46	40	38	35	33	28										

EQUIPES

1	Italy	I	3780	1	1	1	1	1	1
2	China	CHN	3780	1	1	1	1	1	1
3	Switzerland	CH	3737	11	9	9	8	6	5
4	Denmark	DK	3734	1	1	1	1	1	1
5	East Germany	DDR	3725	14	13	11	10	8	6
6	Great Britain	GB	3718	1	1	6	11	9	8
7	Czechoslovakia	CS	3706	1	1	1	1	11	10
7	Argentina	ARG	3706	9	7	5	6	11	10
9	Netherlands	NL	3693	13	12	10	9	7	12
10	Yugoslavia	YU	3690	24	22	19	17	13	13
11	Sweden	S	3684	1	1	7	5	4	7
12	North Korea	NKOR	3676	10	8	8	7	5	4
13	USA	USA	3675	22	20	17	19	15	14
14	Bulgaria	BUL	3643	19	18	23	22	20	17
15	USSR	USSR	3634	1	10	22	21	21	18
16	Poland	PL	3595	22	20	17	16	22	19
17	Australia	AUS	3592	18	17	15	14	19	16
18	Canada	CAN	3590	25	23	21	20	16	15
18	Austria	A	3590	20	19	16	15	17	20
20	New Zealand	NZ	3580	16	15	13	12	10	9
20	France	F	3580	1	25	25	23	23	21
22	Finland	FN	3539	17	16	14	13	18	23
23	Spain	SP	3511	28	27	28	28	26	24
24	West Germany	D	3425	26	25	26	25	25	25
25	Israel	IS	3398	12	11	20	18	14	22
26	Japan	J	3279	15	14	12	27	27	26
27	Norway	N	3220	21	24	24	24	24	27
28	Portugal	P	3082	27	28	27	26	28	28
29	Belgium	B (2)	2412	29	29	29	29	29	29
30	Mexico	MEX (2)	2228	30	30	30	30	30	30
31	World Champ	W/C (1)	1260	31	31	31	31	31	31
32	Guatamala	GM (1)	1056	32	32	32	32	32	32
33	Brazil	BRZ (1)	916	33	33	33	33	33	33

CHALLENGE FRANCE

1	China	11297	11	Switzerland	10
2	USSR	11143	12	Yugoslavia	10
3	Sweden	11084	13	France	10
4	Great Britain	11049	14	Canada	10
5	U.S.A.	11033	15	Denmark	10
6	North Korea	10888	16	Argentina	10
7	Poland	10874	17	Australia	8
8	Italy	10760	18	Israel	7
9	W Germany	10654	19	Finland	7
10	Bulgaria	10638	20	E Germany	7

F1S Classement Classement

1	R White	USA	1260	+ 240	+ 300	+ 360	+ 295			
2	K Rozycki	PL	1260	+ 240	+ 300	+ 360	+ 175			
3	K Jusufbasic	YU	1260	+ 240	+ 300	+ 315				
4	Lu Jifa	CHN	1260	+ 240	+ 300	+ 277				
5	Zhang Wenyi	CHN	1260	+ 240	+ 300	+ 238				
6	Li Zhiming	CHN	1260	+ 240	+ 300	+ 232				
7	Z Alipiev	BUL	1260	+ 240	+ 300	+ 230				
8	Y Goulougonov	USSR	1260	+ 240	+ 300	+ 188				
9	R Hofsass	W/C	1260	+ 240	+ 269					
10	H Kucharski	PL	1260	+ 240	+ 243					
11	P Fauser	AUS	1260	+ 240	+ 216					
12	I Taylor	GB	1260	+ 240	+ 160					
13	L Guzzetti	I	1260	+ 198						
14	Chang Yong Bom	NKOR	1260	+ 161						
15	L Dupuis	F	1260	+ 108						
16	L Hansson	S	1260	+ 83						
17	Stefanchuk	USSR	175	180	180	180	180	180	180	1255
18	T Madea	J	180	180	170	180	180	180	180	1250
19	B Silz	D	180	176	180	180	180	180	165	1241
19	G Xenakis	USA	180	180	161	180	180	180	180	1241
21	M Kapetanobic	YU	159	180	180	180	180	180	180	1239
22	Li Jung Gwan	NKOR	180	180	180	180	156	180	180	1236
22	F Tapernoux	CH	180	180	156	180	180	180	180	1236
24	A Hacken	NL	171	180	180	180	180	164	180	1235
25	R Schlesinger	D	148	180	180	180	180	180	180	1228
25	J Kristensen	DK	148	180	180	180	180	180	180	1228
25	R Pollard	GB	148	180	180	180	180	180	180	1228
28	B Eimar	S	180	147	180	180	180	180	180	1227
29	S Yordanov	BUL	141	180	180	180	180	180	180	1221
30	A Andrukov	USSR	180	180	180	180	180	180	134	1214
31	L Doring	D	180	143	180	170	180	180	180	1213
32	T Urban	CH	130	180	180	180	180	166	180	1196
33	J Krasznai	H	180	180	180	180	168	118	180	1186
34	L Flodstrom	S	180	180	100	180	180	180	180	1180
35	S Ruyter	NL	180	180	180	180	99	180	180	1179
35	J Malkin	NZ	180	180	137	180	180	180	142	1179
37	G Foster	GB	180	96	180	180	180	180	180	1176
38	D Andrew	CAN	180	180	180	180	180	180	93	1173
38	M Varadi	H	180	168	180	112	180	173	180	1173
40	A Baruch	IS	151	180	180	180	180	180	120	1171
41	A Armesto	ARG	180	155	130	170	180	174	180	1169
41	E Garcia	P	180	180	180	180	180	180	89	1169
43	J Quinn	USA	180	180	180	180	85	180	180	1165
44	P Smith	AUS	164	180	180	180	180	180	85	1149
45	C Zold	H	129	180	112	180	180	180	180	1141
46	Chi Yong Chol	NKOR	120	120	180	180	180	180	180	1140
47	J Cheneau	F	180	180	147	89	180	180	180	1136
48	F Dahlin	DK	148	180	180	87	180	180	180	1135
49	O Kilpelainen	FN	128	149	180	180	136	180	180	1133
50	Mazor Oani	IS	110	180	114	180	180	180	180	1124
51	M Kiiskinen	FN	180	180	119	180	180	100	180	1119
52	B Jorgensen	DK	122	89	180	180	180	180	180	1111
53	A Zeri	NL	180	135	180	72	180	180	180	1107
54	J McGillivray	CAN	180	180	180	98	105	180	180	1103
55	H Maru	J	162	170	180	180	114	111	180	1097
56	O Torgensen	N	144	143	180	180	112	180	156	1095
57	G Odgers	AUS	180	123	180	180	180	180	63	1086
58	E Cofalik	PL	171	180	180	154	164	90	118	1057
59	I Ben Itzhak	IS	180	114	180	98	180	180	123	1055
60	A Mantere	FN	180	124	180	88	120	180	180	1052
61	P Lepage	F	180	180	180	112	106	103	180	1041
61	I Fichera	I	180	128	180	144	121	108	180	1041
63	D Ackery	NZ	180	91	180	180	180	100	129	1040
64	J Franic	YU	180	180	89	180	180	110	115	1034
65	S Zaballa	MEX	79	110	180	120	180	180	180	1029
66	M Kohler	CH	180	180	98	91	119	180	180	1028
67	P Zoppelli	I	180	180	128	78	104	180	157	1007
68	M Blitzman	ARG	144	148	81	180	89	180	180	1002
69	P Manzanero	SP	96	180	160	180	180	123	61	980
70	J Henson	NZ	180	77	139	180	180	180	37	973
71	M Thomas	CAN	180	180	74	95	180	180	80	969
72	P Jimenez	SP	180	180	104	87	128	180	79	938
73	R Alvarez	MEX	112	77	180	111	157	91	180	908
74	C Bastos	P	180	138	180	0	180	47	180	905
75	D Donelli	ARG	78	100	180	180	85	180	101	904
76	F Wutzljun	A	97	180	180	180	74	28	121	860
77	S Slavov	BUL	180	180	136	180	62	22	58	818
78	T Bjornstad	N	180	92	33	180	180	71	56	792
79	D Larsen	N	180	106	180	83	22	180	36	787
80	C Costa	P	50	66	52	180	0	0	0	348
	Number of maximums		54	54	59	60	58	61	56	
	Number of full scores		54	38	25	23	19	19	16	

EQUIPES

1	China	CHN	3780	1	1	1	1	1	1	1
2	USSR	USSR	3729	8	5	2	2	2	2	2
3	West Germany	D	3682	13	14	7	6	5	4	3
4	Sweden	S	3667	1	8	13	9	7	5	4
5	USA	USA	3666	1	1	4	3	8	6	5
6	Great Britain	GB	3664	13	16	14	10	9	7	6
7	North Korea	NKOR	3636	20	17	15	11	10	9	7
8	Poland	PL	3577	9	6	3	4	3	8	8
9	Yugoslavia	YU	3533	12	7	12	8	6	10	9
10	Netherlands	NL	3521	9	12	6	12	13	11	10
11	Hungary	H	3500	18	13	16	14	12	12	11
12	Australia	AUS	3495	11	14	7	5	4	3	12
13	Denmark	DK	3474	22	21	19	20	16	13	13
14	Switzerland	CH	3460	17	10	17	16	16	15	14
15	France	F	3437	1	1	5	13	14	16	15
16	Israel	IS	3350	21	19	20	21	18	14	16
17	Italy	I	3308	1	11	10	15	20	20	17
18	Finland	FN	3304	19	18	18	19	21	21	18
19	Bulgaria	BUL	3299	16	9	9	6	11	19	19
20	Canada	CAN	3245	1	1	11	17	19	17	20
21	New Zealand	NZ	3192	1	20	21	18	15	18	21
22	Argentina	ARG	3075	24	23	24	22	22	22	22
23	Norway	N	2674	15	22	22	23	23	23	23
24	Portugal	P	2422	23	24	23	24	24	24	24
25	Japan	J (2)	2347	25	25	25	25	25	25	25
26	Mexico	MEX (2)	1937	27	27	27	27	27	27	26
27	Spain	SP (2)	1918	26	26	26	26	26	26	27
28	World Champ	W/C (1)	1260	28	28	28	28	28	28	28
29	Austria	A (1)	860	29	29	29	29	29	29	29

F1C

1	E Verbitsky	USSR	1260	+ 240	+ 300	+ 360	+ 420	+ 480		
2	V Strukov	USSR	1260	+ 240	+ 300	+ 360	+ 420	+ 409		
3	M Thomas	DDR	1260	+ 240	+ 300	+ 360	+ 409			
4	A Mouchine	USSR	1260	+ 240	+ 300	+ 360	+ 360			
5	Sun Shuliang	CHN	1260	+ 240	+ 300	+ 348				
6	R Czerwinski	PL	1260	+ 240	+ 300	+ 280				
7	U Glissmann	DDR	1260	+ 240	+ 300	+ 246				
8	R Baggott	GB	1260	+ 240	+ 300	+ 171				
9	K Wachtler	DDR	1260	+ 240	+ 284					
10	T Oxager	DK	1260	+ 240	+ 264					
11	S Lustrati	I	1260	+ 240	+ 260					
12	G Napkori	H	1260	+ 240	+ 219					
13	Kim Dong Sik	NKOR	1260	+ 240	+ 212					
14	A Denkin	BUL	1260	+ 240	+ 210					
15	D Meissnest	D	1260	+ 240	+ 198					
16	G Zsemgeller	H	1260	+ 240	+ 178					
17	D Mateer	USA	1260	+ 229						
18	C Patek	CS	1260	+ 189						
19	Chen Zhijian	CHN	1260	+ 187						
20	R Gutai	USA	1260	+ 178						
21	V Patek	CS	1260	+ 166						
22	B Fiegl	I	1260	+ 162						
23	F Schlachta	CAN	1260	+ 146						
24	A Banos	ARG	1260	+ 115						
25	L Olofsson	S	180	180	180	180	180	180	176	1256
26	G Agren	S	180	172	180	180	180	180	180	1252
27	A Roux	F	170	180	180	180	180	180	180	1250
28	E Condon	CAN	164	180	180	180	180	180	180	1244
29	J Zielinski	PL	161	180	180	180	180	180	180	1241

Classement Classement

30	Carlsson	S	180	180	180	180	145	180	180	1225
31	D Thomas	AUS	180	180	180	144	180	180	180	1224
32	D Sugden	CAN	180	180	143	180	180	180	180	1223
33	O Vassilev	BUL	180	180	180	174	147	180	180	1221
34	Kim Jung Hi	NKOR	180	180	180	180	139	180	180	1219
35	Wang Xian	CHN	180	180	180	180	137	180	180	1217
36	S Slavov	BUL	180	180	170	180	145	180	180	1215
37	S Screen	GB	180	180	180	180	132	180	180	1212
38	O Maczko	H	180	180	180	131	180	180	180	1211
39	P Murer	CH	180	180	129	180	180	180	180	1209
40	R Truppe	A	180	180	180	180	122	180	180	1202
41	M Roman	PL	180	180	180	180	121	180	180	1201
42	J Kaiser	CS	180	180	180	180	180	180	120	1200
43	R Monks	GB	180	180	180	180	115	180	180	1195
43	M Pavlov	YU	179	180	180	143	153	180	180	1195
45	K Koster	DK	180	180	180	180	113	180	180	1193
46	R Stabler	D	180	180	180	180	180	103	173	1176
47	R Sifleet	USA	180	180	180	180	180	180	92	1172
48	A Bartschi	CH	137	128	180	180	180	180	180	1165
49	D Iele	ARG	180	163	137	180	180	142	180	1162
50	D Ferrero	F	180	180	176	180	180	83	180	1159
51	G Venuti	I	180	180	180	180	147	180	105	1152
52	L Braire	F	180	139	180	180	110	180	180	1149
53	D Varda	YU	180	180	132	123	180	143	180	1118
54	T Bortne	N	167	127	180	180	136	180	145	1115
55	S Reda	D	180	180	180	31	180	180	180	1111
56	M Zito	ARG	180	180	21	180	180	180	180	1101
57	Kim Song Hak	NKOR	180	17	180	180	180	180	180	1097
58	N Weisman	IS	180	180	180	115	95	180	147	1077
59	R Radovan	YU	109	176	157	180	180	180	87	1069
60	U Stalder	CH	122	126	180	180	180	180	80	1048
61	K Kuukka	FN	77	166	84	81	180	171	134	893
62	T Koster	DK	180	180	180	180	128	0	0	848
63	J Soares	P	139	73	70	180	0	0	0	462
Number of maximums			53	53	53	55	46	56	51	
Number of full scores			53	49	43	38	28	27	24	

EQUIPES

1	USSR	USSR		3780	1	1	1	1	1	1	1
2	East Germany	DDR		3780	1	1	1	1	1	1	1
3	China	CHN		3737	1	1	1	1	6	6	3
4	Sweden	S		3733	1	12	11	9	6	6	4
5	Hungary	H		3731	1	1	1	12	8	8	5
6	Canada	CAN		3727	16	13	14	13	9	9	6
7	Czechoslovakia	CS		3720	1	1	1	1	1	1	7
8	Poland	PL		3702	17	15	13	11	10	10	8
9	Bulgaria	BUL		3696	1	1	12	10	11	11	9
10	USA	USA		3692	1	1	1	1	1	1	10
11	Italy	I		3672	1	1	1	1	5	5	11
12	Great Britain	GB		3667	1	1	1	1	12	12	12
13	North Korea	NKOR		3576	1	18	17	16	16	13	13
14	France	F		3558	15	16	15	14	14	14	14
15	West Germany	D		3547	1	1	1	15	15	15	15
16	Argentina	ARG		3523	1	14	18	17	17	16	16
17	Switzerland	CH		3422	19	19	19	19	18	17	17
18	Yugoslavia	YU		3382	18	17	16	18	19	19	18
19	Denmark	DK		3301	1	1	1	1	13	18	19
20	Australia	AUS	(1)	1224	20	20	20	21	20	20	20
21	Austria	A	(1)	1202	20	20	20	20	21	21	21
22	Norway	N	(1)	1115	23	23	23	23	22	22	22
23	Israel	IS	(1)	1077	20	20	20	22	23	23	23
24	Finland	FN	(1)	893	25	24	24	25	24	24	24
25	Portugal	P	(1)	462	24	25	25	24	25	25	25

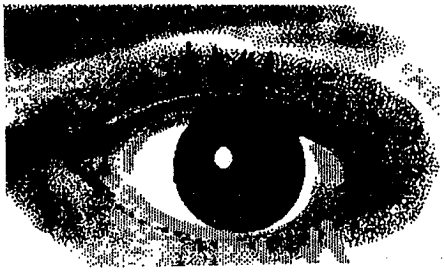


Photo. J. Boo

STEFANCHUK URSS

Photo. A-SCHANDEC

Les trophées, les plus importantes et les plus convoités, F1B ,F1A,F1C....

VOL LIBRE VOL LIBRE

Photos A. SCHANDEL

Page 152

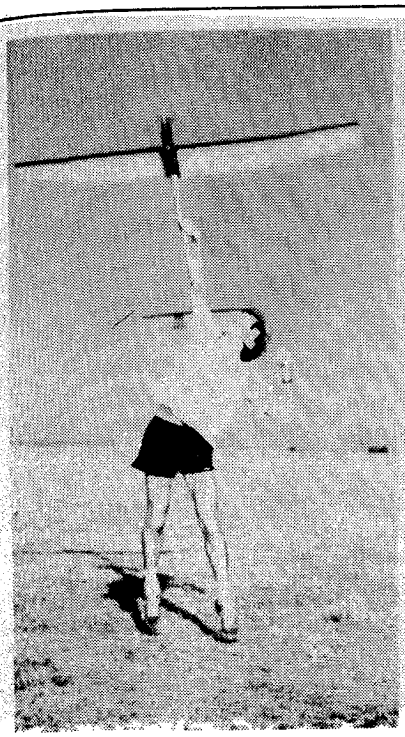
Pendant la cérémonie d'ouverture la tribune des officiels sous un soleil écrasant..... Defilé des équipes l'équipe de l'Union Soviétique.....
Le contrôle des modèles , Jim Bradley USA , F1A, sous l'oeil intéressé De J. Besnard; T. Schandel et T. Marilier.

Photo - A. SCHANDEL

L'ensemble de **l'équipe chinoise,** vainqueur du trophée de France , nouvellement créé. Cette équipe n'a pas remporté de titre individuel , a cependant été remarquable par sa solidarité, par son expérience, son entrainement , ensemble très sympathique qui avait souvent les faveurs du public.....

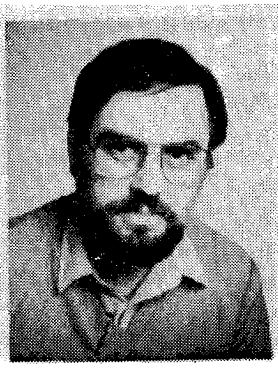
POLL LIBRE

Les Chinois en F1A, quatre concurrents avec des modèles semblables , efficaces.....



Dittmar MEISSNEST (RFA)

Javier ABAD (Espagne)



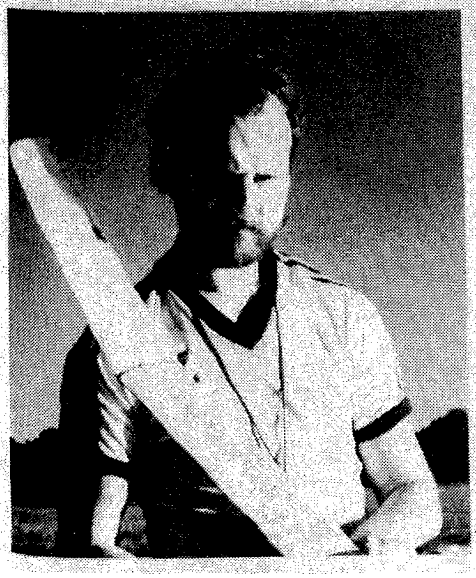
Frank DAHLIN (DK)

Itzhak BEN ITZHAK (Israel)

Takashi MAEDA (Japon)

H. TAKHAPAA (Finlande)

P. SAHI (FINLANDE)



I.MATSUNO (JAPON)

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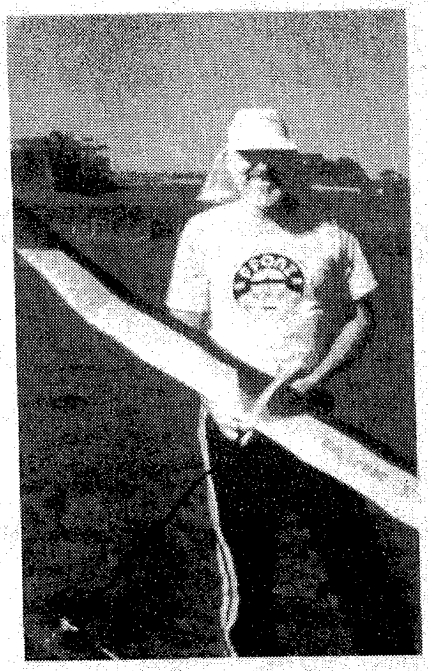

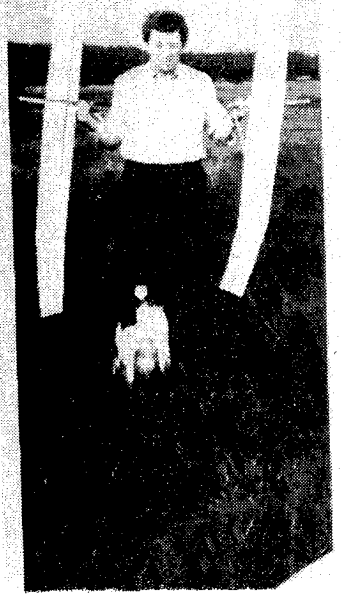

Hideo MARU (Japon)
David ACKERY (N.Z.)
Dan MAZOR (Israel)

Igal DRORI (Israel)
Rod LEWIS (NZ)
Abraham Baruch (Israel)

Jan SOMERS (NL.)
Tobi ITZHAKOV (Israel)

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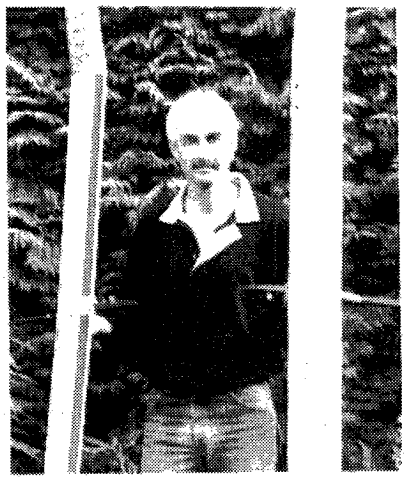
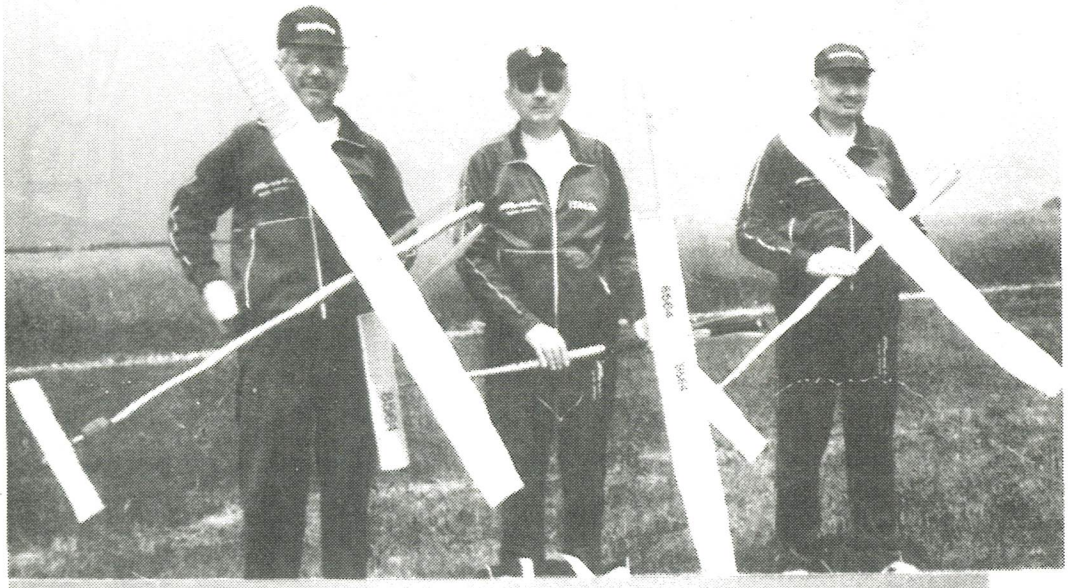
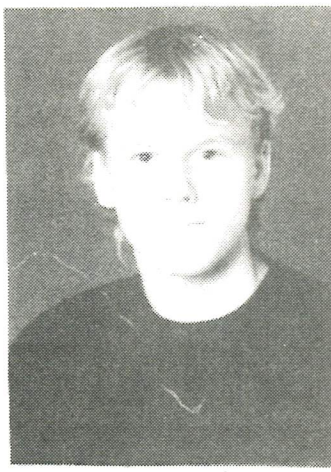
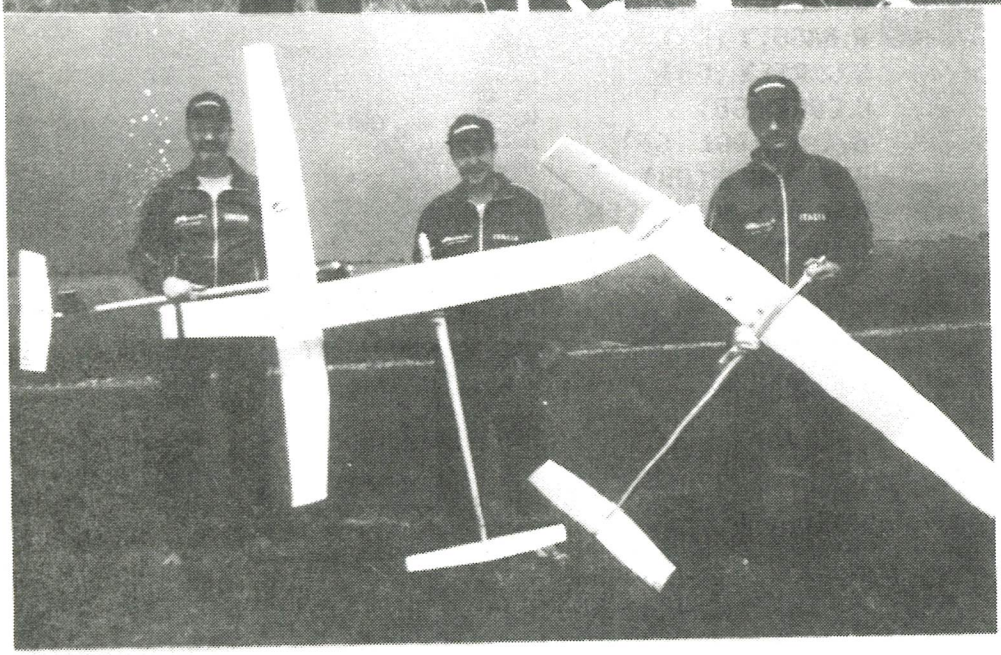
R. MONKS (GB)
R.BAGOTT (GB)
S.SCREEN (GB)
C.EDGE (GB)
B/COLLEDGE (GB)
G.MADELIN (GB)
O. KILPELAINEN (FN)
L.LARSSON (SUEDE)







P.FINDHAL (SUEDE)
B.EIMAR (SUEDE)



FREIFLUG FREE FLIGHT
Vollibre

BISTACHI Carlo, 45 ans né et résidant à Milan . Photographe .

BRUSSOLO Vittorio ,31 ans né et résidant à Tréviso. Em^ployé chez Benetton . A participé à quatre Championnats.

CAL Roberto ,30 ans , né et résidant à Tréviso. Expert mécanique , 4 ème aux Ch du monde du Burgos. Champ. d'Italie en 1986

GUZZETTI Luigi ,49 ans né résidant à Bologne. Mettalurgist a particip à 4 Champ. du Monde.

ZOPPELLI Pietro 58 ans , né résidant à treviso Médiateur. patricipé à duex Ch. du mon Champion d'Italie 1986 et 1er Maniago 1987.

FICHERA Isidoro Nino 51 ans , en Sicile et résidant à trév Maître. A ^participé à deux Ch. Monde

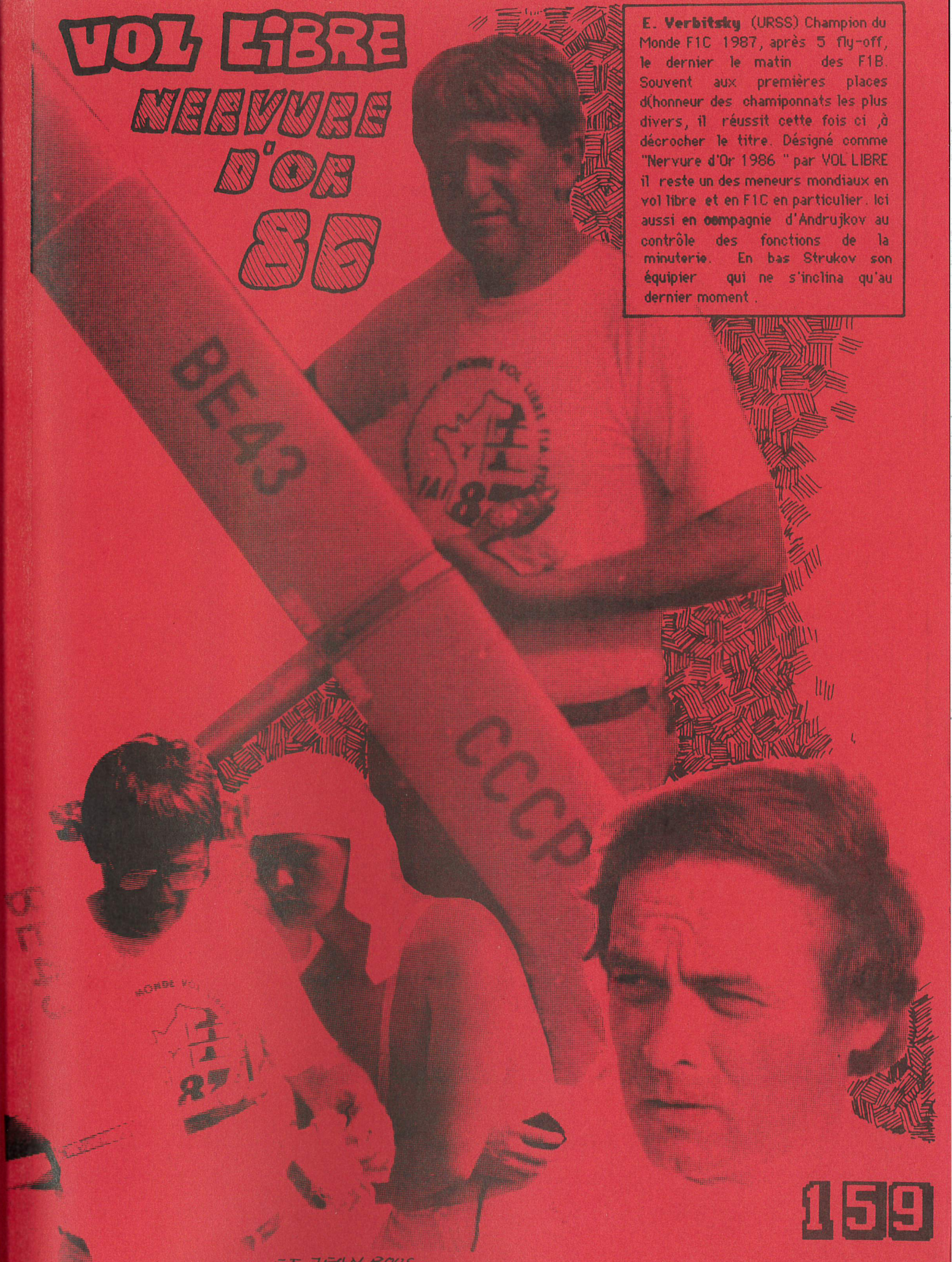
YENUTI Giorgio ,46 ans né résidant à Monfalcone. Employé c Italcantieri Monfalcone . Vice D'Europe 1986 1er à Zagreb 86 et à Maniago 1987.

FIEGL Bruno 47 ans , n Gorizia et résidant à Milan Employé chez Alfa Romeo participé à 6 championnats.

LUSTRATI Silvano ,59 ans né résidant à Rome. Igénieur, a Champion du Monde en Austr 1983.

VOL LIBRE

NERVURE D'OR 86



E. Verbitsky (URSS) Champion du Monde F1C 1987, après 5 fly-off, le dernier le matin des F1B. Souvent aux premières places d(honneur des chamiponnats les plus divers, il réussit cette fois ci ,à décrocher le titre. Désigné comme "Nervure d'Or 1986 " par VOL LIBRE il reste un des meneurs mondiaux en vol libre et en F1C en particulier. Ici aussi en compagnie d'Andrujkov au contrôle des fonctions de la minuterie. En bas Strukov son équipier qui ne s'inclina qu'au dernier moment .

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Photos: A. SCHANDEL ET JEAN BOUS.-

Reiner Hofsäss (RFA) champion sortant (1985 Livno YU) au départ , à remarquer que l'angle de montée de son ESPADA semble être bien inférieur à celui des concurrents Russes ,Chinois et autres .....les chronos semblent cependant impressionnés, et Eric Masson à un mouvement de recul .....