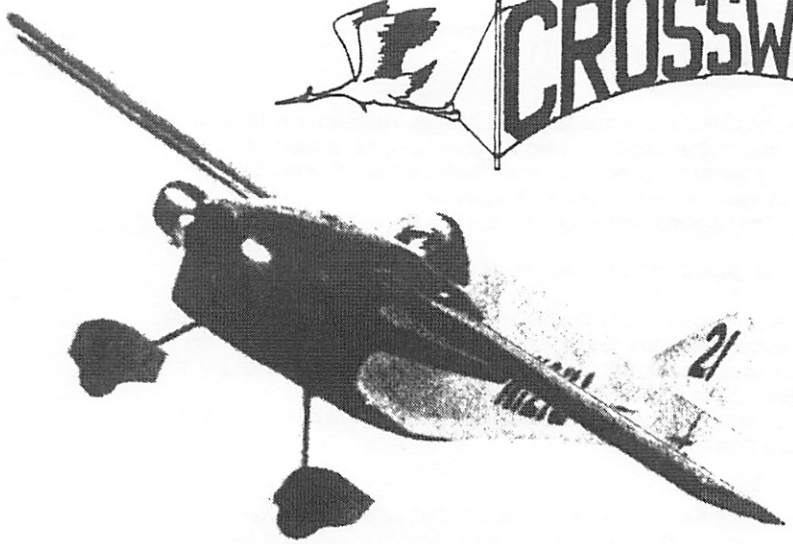
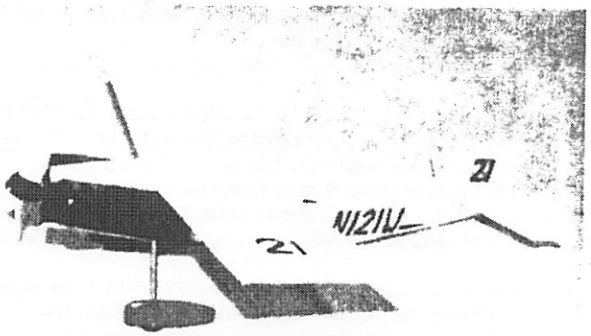
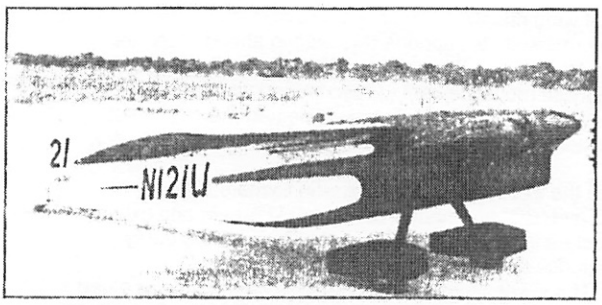
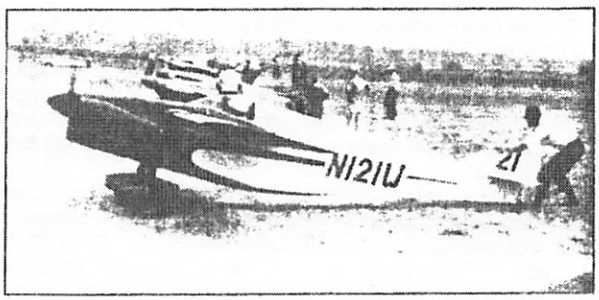
CROSSWINDS
CLEVELAND FREE FLIGHT SOCIETY
#124



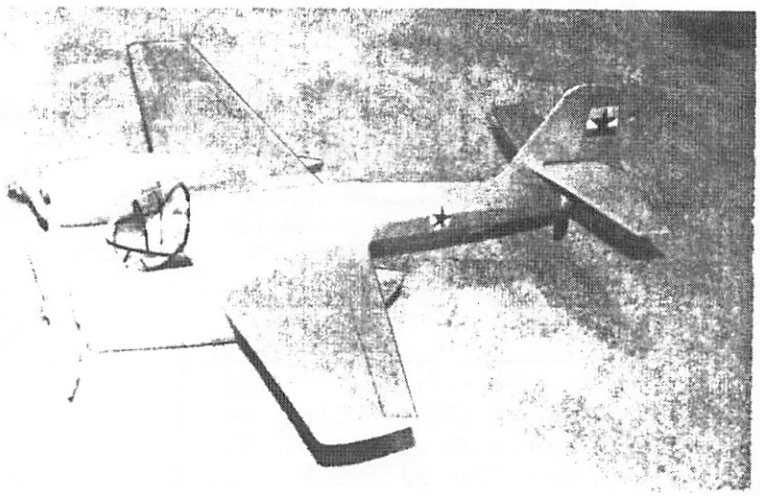






CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST, OH 44124

13" JIM WILSON'S "BABY CYCLONE" MIDGET RACER
AND
20" IKARUS TYPE 451 EXPERIMENTAL TWIN ENGINE



IKARUS "PIONIR" AND TYPE 451

The Ikarus B-5 "Pionir" was designed by Major Dragoljub Besline and built in the Ikarus factory at Zemun, Yugoslavia in 1939. It was powered by two 55 hp. Walter Mikron III engines. The Pionir was built of wood and weighed only 1,322 lbs. loaded. Its principal purpose was to conduct research on prone pilot positioning. No performance data is available for this little machine.
The Pionir was followed in 1951by the larger Ikarus type 451 which also featured the prone pilot position.
The 451 was powered by two 160 hp. Walter Minor 6-III engines. The fuselage section on both the B-5 and 451was just large enough to accommodate the pilot.
Max. speed was 208 m.p.h. and loaded weight was 2,665 lbs. Wing span: 21',11-3/4",; length: 14',11".

A Japanese photo, of the final version of the Ikara 451 being loaded into the Yugoslavian Aero museum at Belgrade shows a much different nose greenhouse blister than was shown in the earlier photos. I had no success forming the early 451 type blister in my home workshop and finally had to resort to a professional vacuum molding company for this Luckily this is not really necessary since the nose of the final version was simpler and had been redesigned to improve the pilot's vision.
The nose blister design shown in the Japanese photo and the three view drawing, sent to me by Luc Martin of Montreal, represents this final version and requires no special equipment for the model builder.

Construction of the model is conventional with a few exceptions – namely:

1. Cut former "A" oversize, to the broken lines, and trim it down after the framework is completed. Drill holes in the oversize former where the longerons and stringers are located and simply "plug" them into these holes to hold their positions and glue them in place. Former "A" should be scored, bent and glued at the crease shown on the former drawing. Its lower half is glued to the 1/16" sq. slanted uprights.
2. Formers "H" are best made by cutting the scrap from the upper surface of wing ribs #1 .
3. The Ring Former "RF" is added after the fuselage framework has been completed. Its supports (NS)extend ahead of former "A". "RF" is formed as a ring because it encompasses the pilot's cockpit. Remember, the pilot was laying prone in this plane! Make this former of three laminates of 1/32" x 1/4" balsa bonded together with model cement. I recommend you soak the balsa strips in water for a few minutes, pre bend them around a warm hair curling iron or similar round heated mandrel, then wrap them around a 1-3/4" diameter form. Let 'em dry then apply the cement, re wrap them around the form and let them dry, then sand to shape.
4. Make the three ring supports "NS" from firm 1/16" sheet and glue them in the three 1/8" deep notches in formers B and A. They extend forward to support the ring former "RF". Cover sheets "TC" and "BC" are made from light 1/32" sheet and extend from the shallow notches in former "A" to the ring former. Clear .010" acetate is applied later to the spaces between these covers to make the top and side windows and is also used for the front windows.
5. The rudder is made it two sections to allow the stabilizer to be inserted. The lower section, shown shaded on the plan, is glued to the fuselage after covering. Note the 1/16" x 1/8" rudder mount between the tops of fuselage formers "E", "F" and "G". After the stabilizer and rudder parts have been covered, glue the stabilizer to the lower rudder section at its spar, attach the upper part of the rudder and then insert the two .025" music wire stabilizer braces and glue them to the stabilizer spar and to the short balsa side strips between formers "F" and "G": with model cement or cyano. This allows the leading edge of the stab to be shimmed if necessary.
6. The nacelle construction is also conventional except that former N2 must be laminated into a bow to clear the rubber motor.
7. Formers N3 are slanted to conform to the wing leading edges, so you must make a right hand and left hand nacelle, and - -
8. The 1/16" x 1/8" wing rails shown on the nacelle plan represent the outboard side of the nacelles where the nacelles are deeper. The opposite side rails of each nacelle will have to be sanded or cut down so the nacelles will be perpendicular.in the front view. This is to allow for wing dihedral which is 7 degrees. Keep the inner rails parallel to the outer rails so the nacelles will mount securely to the wings. Turn formers N3 and N6 back to front to accomplish this for making the right and left nacelles.

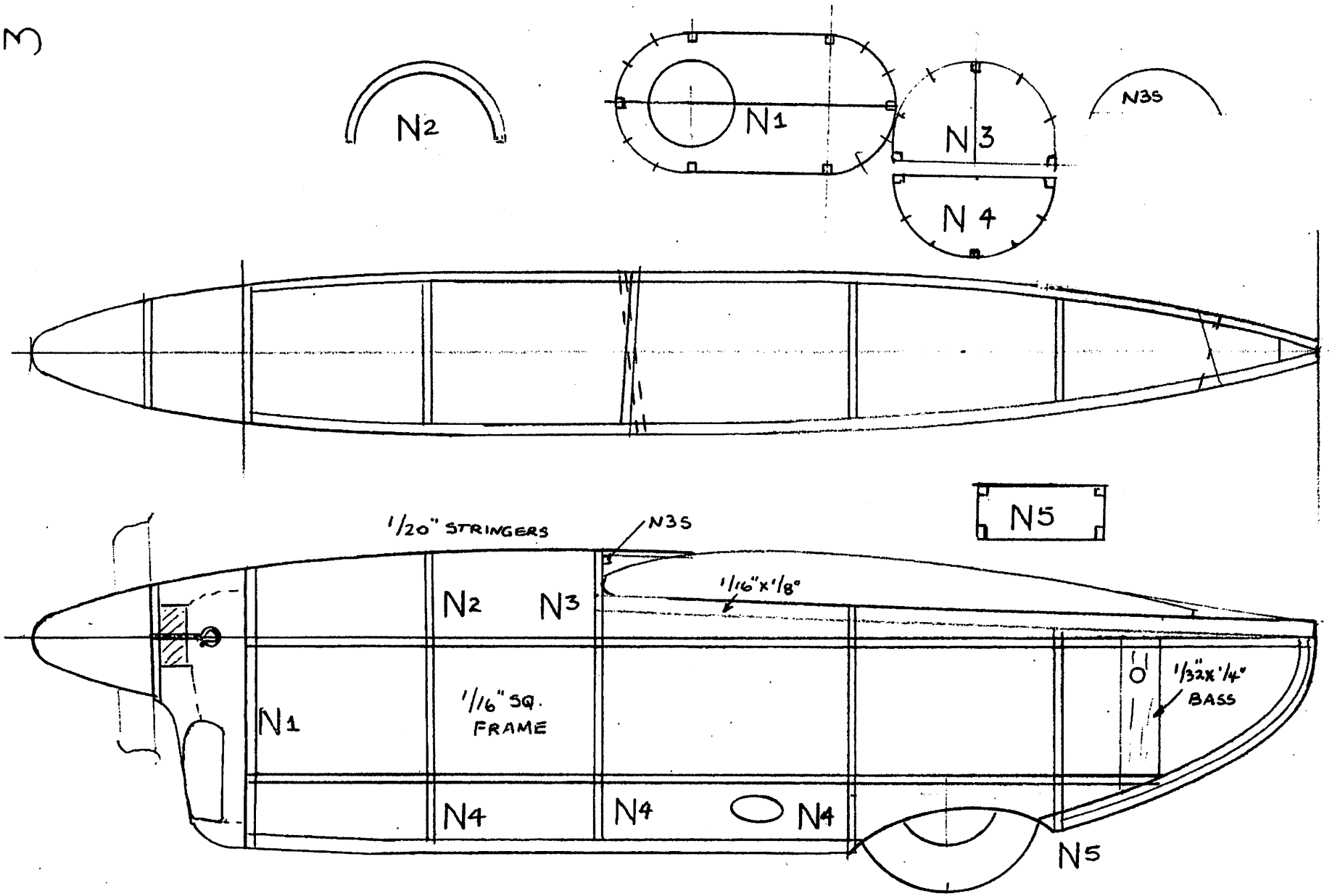
I suggest using contra rotating props to eliminate torque effects. The free wheeler design by George Nason is perfect for this application, because it does not require latching as most free wheelers do, and can easily be made for right and left hand prop rotation. Reinforce the sides of the balsa blades where the Nason free wheeler latch wires pass through with small pieces of 1/32" plywood.
I used 4 strands of .090" rubber braided into a 16" long loop made of a single piece of rubber 64" long for each motor. Don't forget to wind the motors for left and right rotation!
The motors will be easy to install with a stuffer stick if you cover the bottoms of the nacelles just behind the wheels with clear acetate so you can see the motor pegs while attaching the motors.
Make yourself a stooge for holding the model and allow for a platform of foam or plywood that can be plugged into the stooge and carried along with the model when it is to be launched. My Ikarus model climbed steeply and circled lazily right, then went into a fairly flat glide about 80 feet altitude. Flights of about one minute in still air are to be expected.

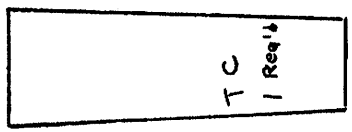
Thanks to Russ Brown and Luc Martin for the three view drawings of this plane. The three view provided by Luc Martin bears the source heading: "Glasnik Rvipvo" or Glasnik Grvipvo" (see the three view logo).
The various three view drawings I studied did not agree in all respects so I had to make decisions regarding which parts of each to use for the model design. Thanks again to Russ Brown for the original three view drawings from Flight Review, Sept. 1965 and The Flying Aces Club Plan which credits "Flightmaster 1955-56 – Janes "All the World's Aircraft" and to Luc Martin for the three views showing the final version of the Ikarus 451 in greater detail. Thanks to Russ Brown even once more for the photos from Koko Fan and "Flying Review" Vol. 21 No.1 Sept. '65, and to Rich Weber for additional black and white photos and one color photo of the model 451as well as the advice regarding winding/launching stooge design for multi engine models.

Steve Griebling for "Crosswinds"

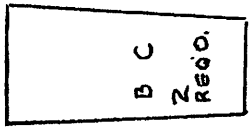
Form up a Missing Man formation as aviation leader Charles Tracy eternally wings West from a March 10, 2008 departure. Chuck flew in Multi-Engine WW II to China, and led the A-26 Wing in Cleveland, OH. Chuck was Aviation and MODEL AVIATION Editor of the Cleveland Press. He coordinated Jr. Air Race and Indoor flying and Model Shows here. Son Dan Tracy flew Wakefield FF and was employed in Aviation-Seattle.

3

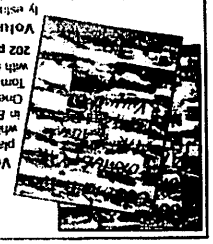




1/32" SHT.



Goodyear & Formula One Air Racing
by Robert S Hirsch



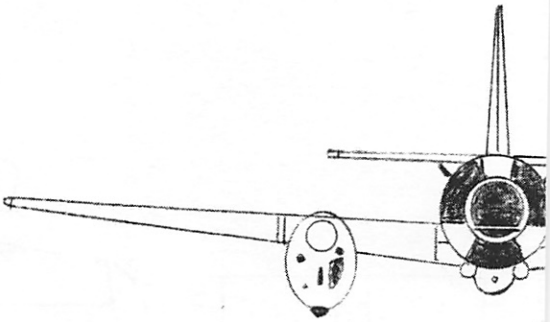
Volume One 1947-1967 — Learn how this exciting sport caught on, the early players and the governing organizations. This book tells technological developments which allowed faster speeds and greater safety. In 1947 Bill Brennand won at Cleveland in *Buster* at 165.857 mph. By 1960 Jim Miller in *Little Gem* was over 200 mph. Volume One covers the contributions of the early racers — Art Chester, Steve Wittman, Bill Falck, Tom Cassutt, Bob Downey, Bill Brennand and many others. Description of specific races with standings and speeds.
202 pgs, SB, 8.5 x 11, 569 photos, 68 scale drawings. $24.95

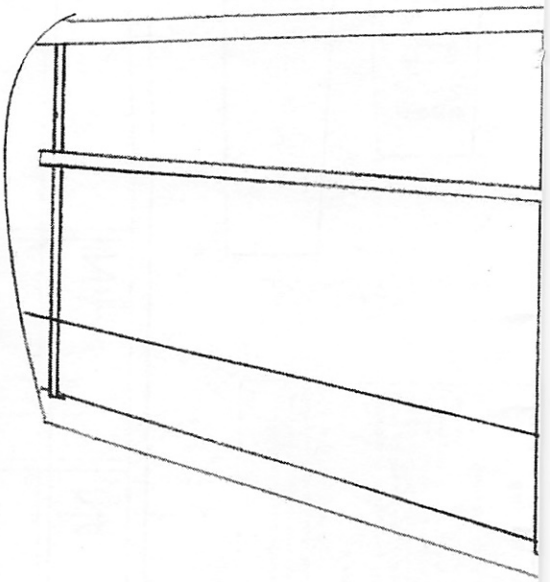
Volume Two 1967-1995 — Air racing had its ups and downs, but by 1967 it was firmly established as a sport here to stay. During this time, women pilots entered pylon racing, speeds continued to increase, and concerns about safety led to additional equipment requirements. Bill Falck, Ray Cote, Jim Miller, Jon Sharp, and others contributed so much to air racing's popularity, and air racing began to flourish in Europe.
170 pgs, SB, 8.5 x 11, 450 photos, 74 scale drawings. $24.95

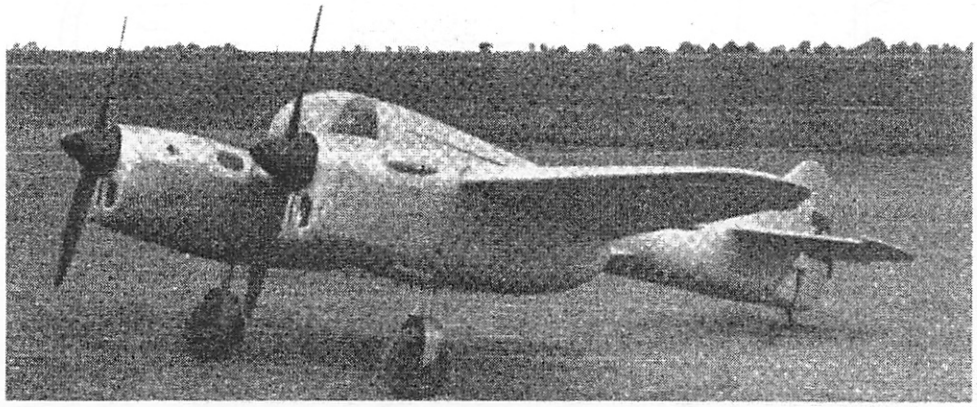
23

IKARUS PIONIR — YUGOSLAVIA

Designed by Major Dragoljub Besline and built by the Ikarus factory at Zemun, the Pionir was designed to participate in an extensive programme of prone-pilot research. Powered by two 55 h.p. Walter Mikron III engines, the Pionir weighs only 1,322 lb. loaded. Experience gained with this tiny machine resulted in the design and construction of the larger Type 451 which is of generally similar overall appearance. The Pionir was first flown in 1949 and is of all-wood construction. No details are available concerning the performance and dimensions of this experimental aircraft.



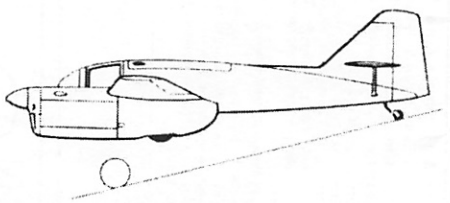




IKARUS TYPE 451 — YUGOSLAVIA

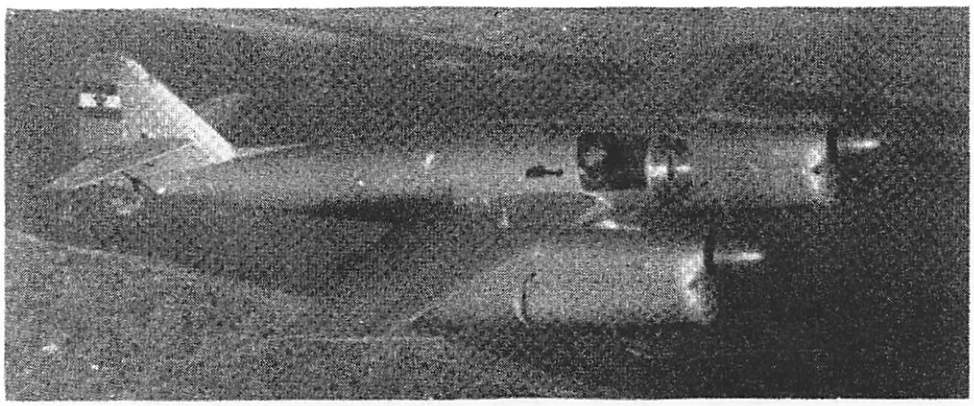
The Type 451 is an experimental aircraft powered by two 160 h.p. Walter Minor 6-III engines and designed by Major Dragoljub Beslin of the Yugoslav Air Force. Built in 1951 by the Ikarus factory, the Type 451 is essentially a scaled-up development of the previously-described Pionir, and was designed to continue the research programme into prone-pilot positioning inaugurated with the earlier machine. The fuselage diameter is exceptionally small, allowing just sufficient room for the pilot to lie prone.

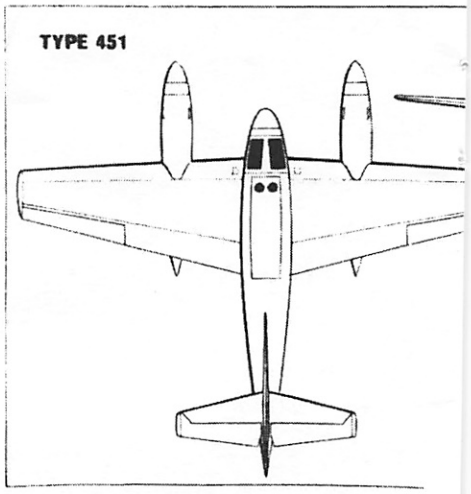
Max. speed, 208 *m.p.h.; loaded weight*, 2,665 *lb.; span*, 21 *ft.* 11¾ *in.; length*, 14 *ft.* 11 *in.*

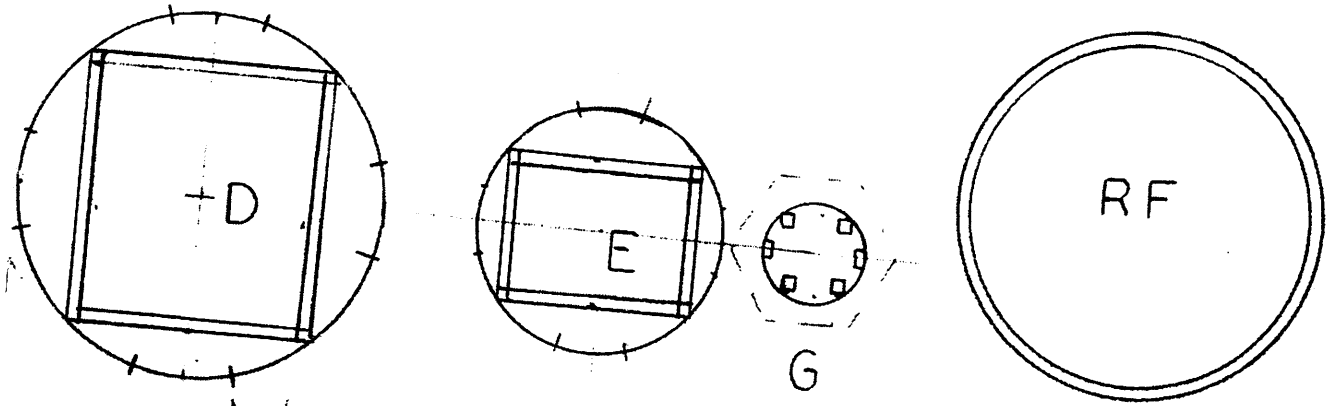


ユーコスラ
MUZEJ VAZDUH

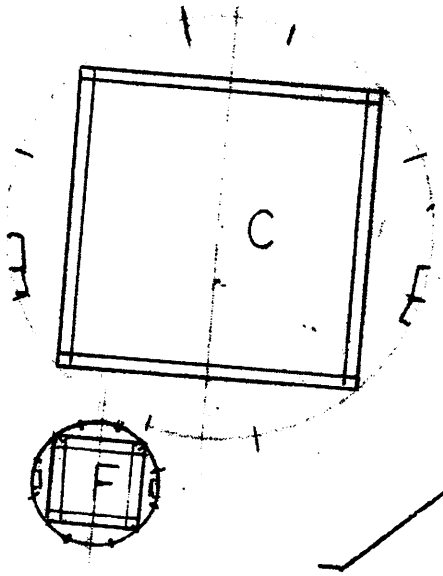
RAF FLYING REVIEW
VOL. 21 No. 1 & VOL. XV

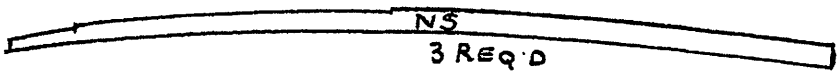






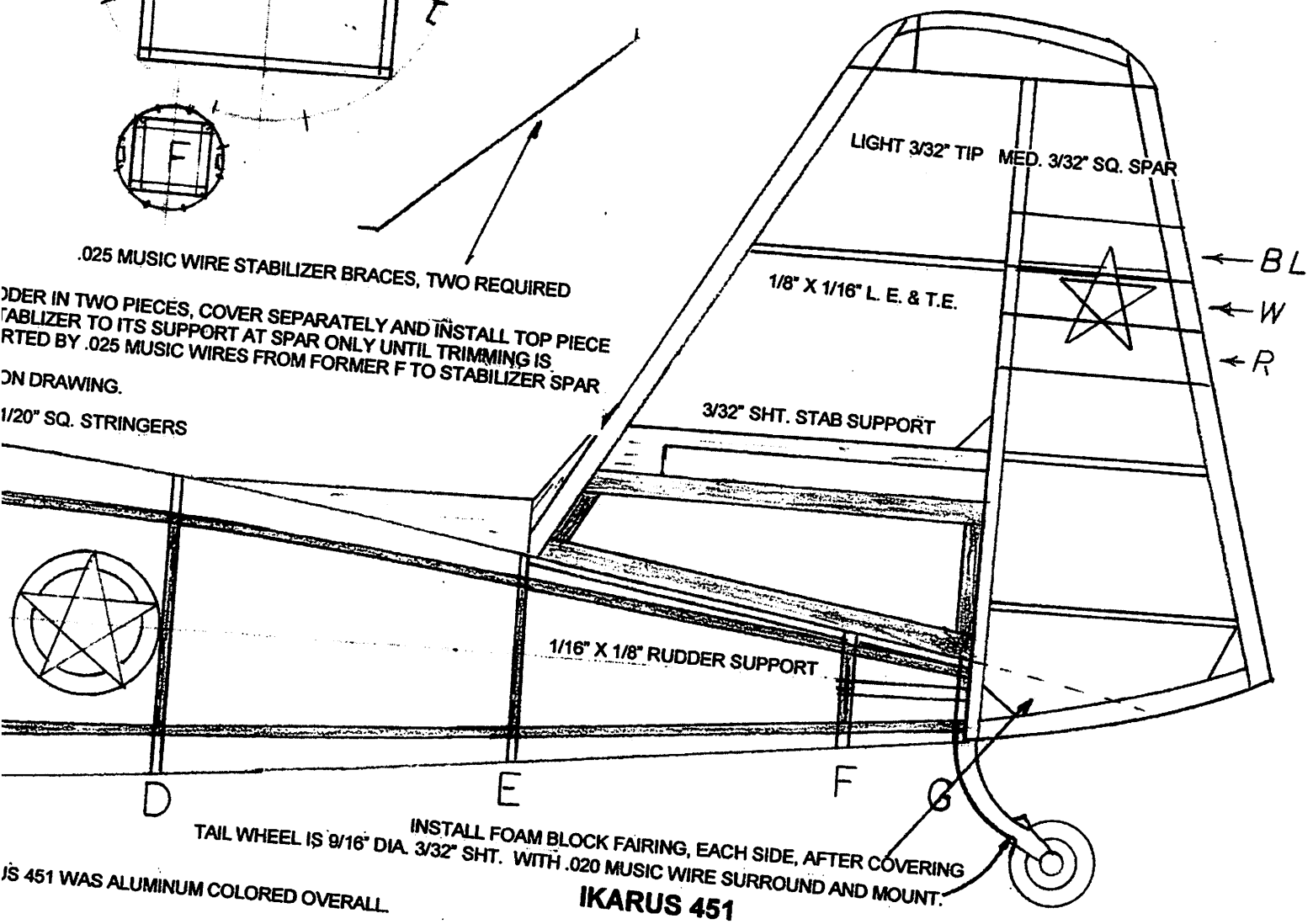
RF IS THREE LAMINATES OF 1/32" X 1/4" BALSA WRAPPED AROUND 1.75" DIA. FORM.





.025 MUSIC WIRE STABILIZER BRACES, TWO REQUIRED

ODER IN TWO PIECES, COVER SEPARATELY AND INSTALL TOP PIECE
TABLIZER TO ITS SUPPORT AT SPAR ONLY UNTIL TRIMMING IS
RTED BY .025 MUSIC WIRES FROM FORMER F TO STABILIZER SPAR
ON DRAWING.
1/20" SQ. STRINGERS



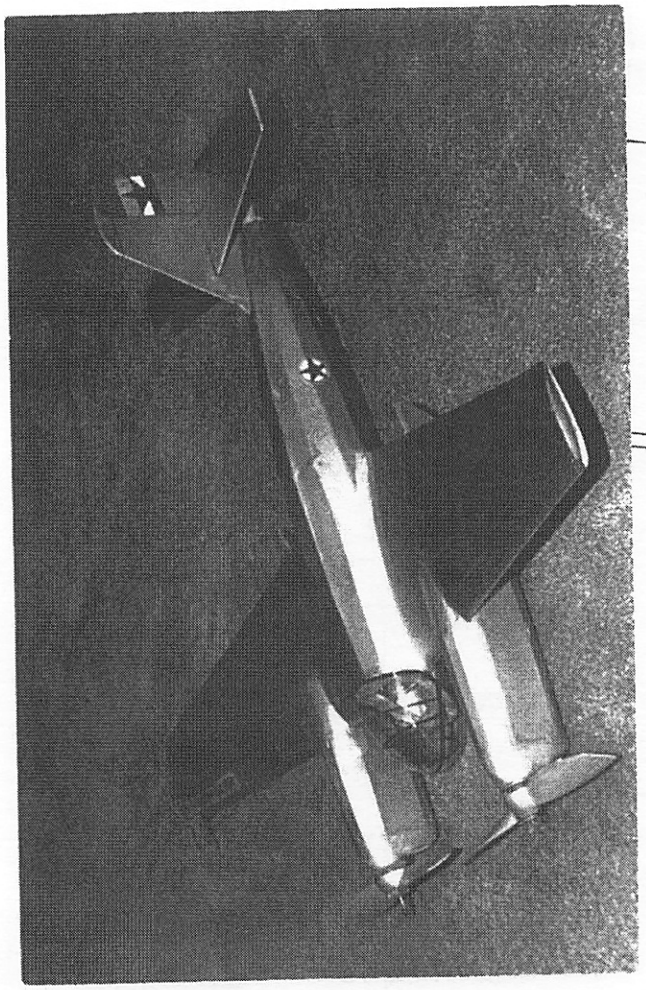
TAIL WHEEL IS 9/16" DIA. 3/32" SHT. WITH .020 MUSIC WIRE SURROUND AND MOUNT.

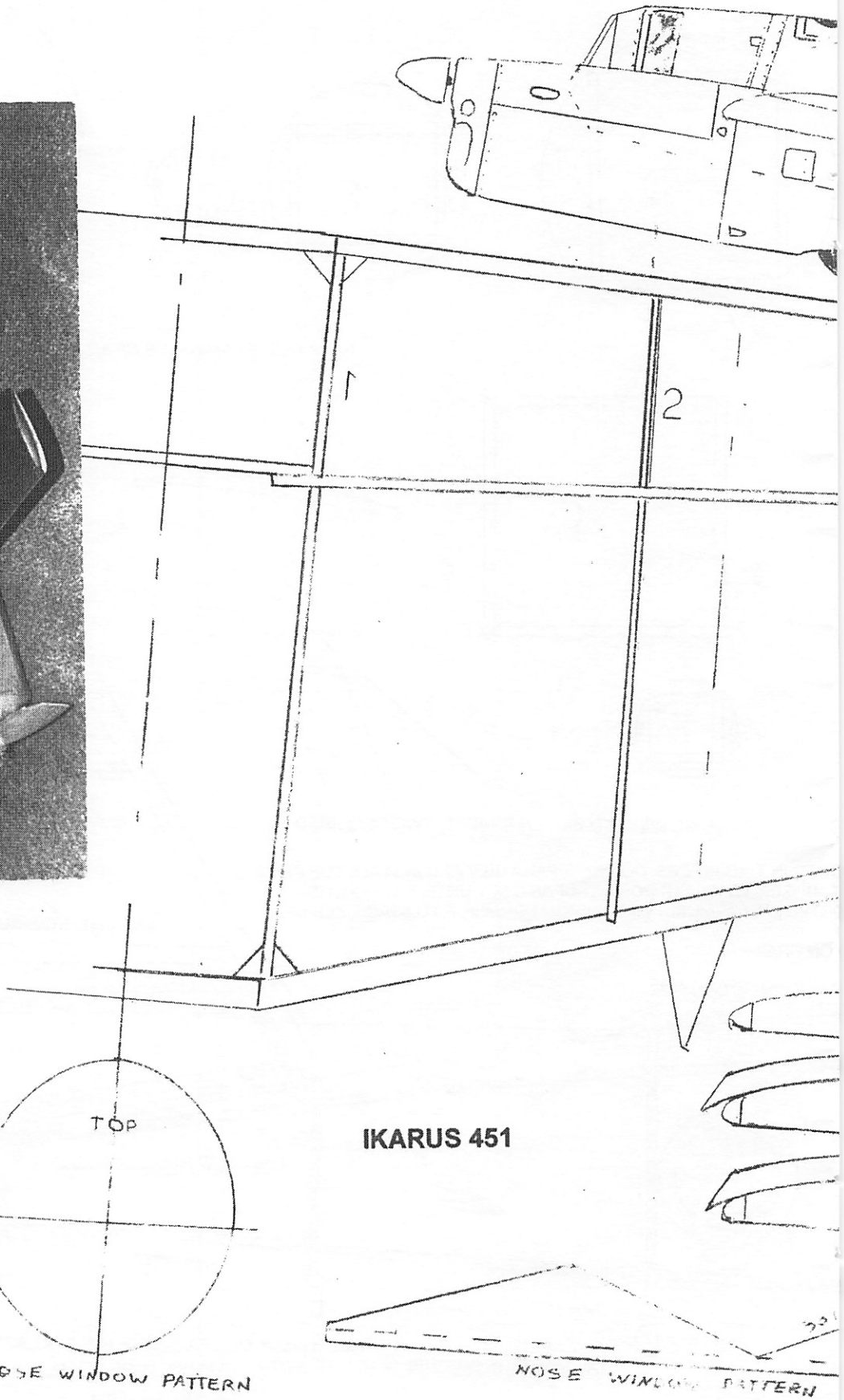
INSTALL FOAM BLOCK FAIRING, EACH SIDE, AFTER COVERING

JS 451 WAS ALUMINUM COLORED OVERALL.

IKARUS 451

MODEL DESIGN BY STEVE GRIEBLING
FOR CROSSWINDS

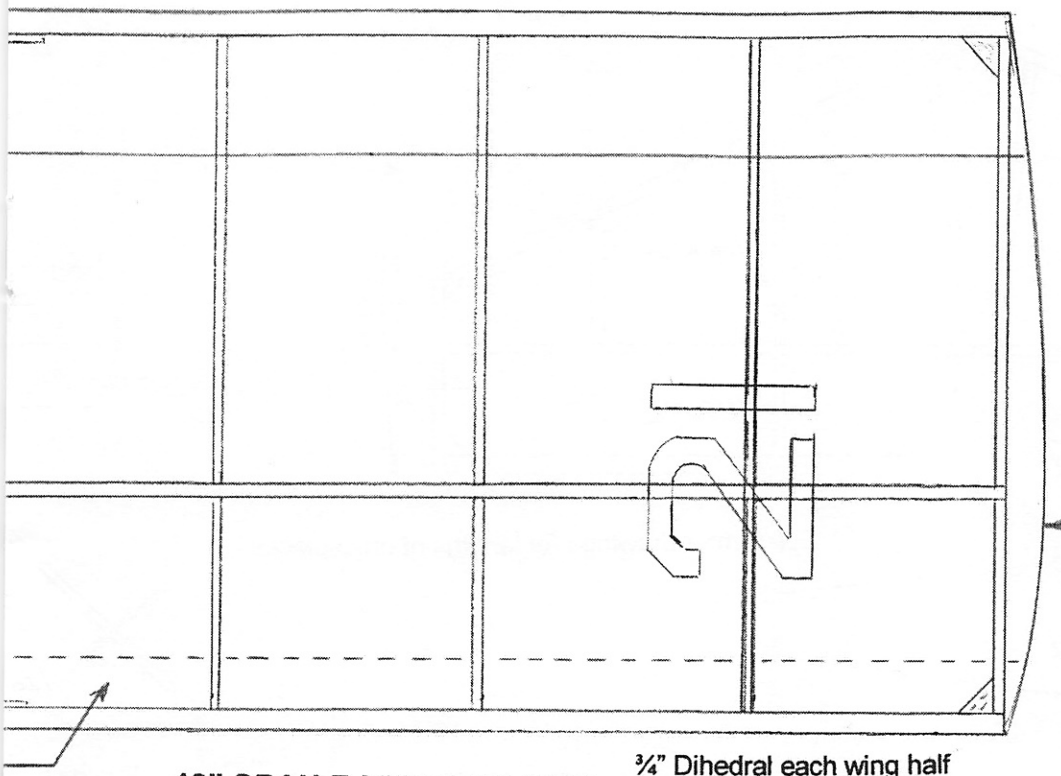


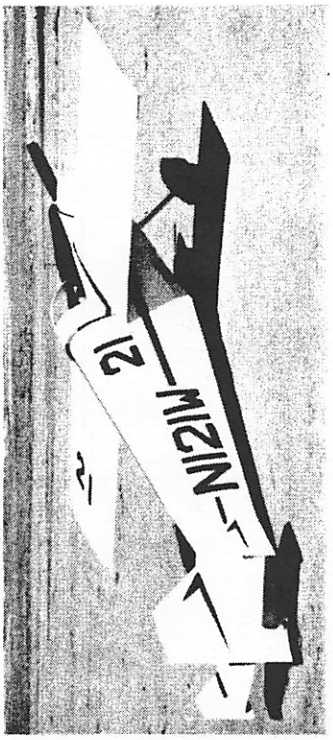


IKARUS 451

NOSE WINDOW PATTERN

NOSE WINDOW PATTERN





Baby Cyclone, built by Jim Wilson in 1959, had vertical deflectors on horizontal stabilizer tips. Jim qualified a disappointing 9th at Reno with 162.45 mph, took 6th and last in consolation. Deflector tips were later removed for eastern racing. Robert F. Pauley

13" SPAN BABY CYCLONE

¾" Dihedral each wing half

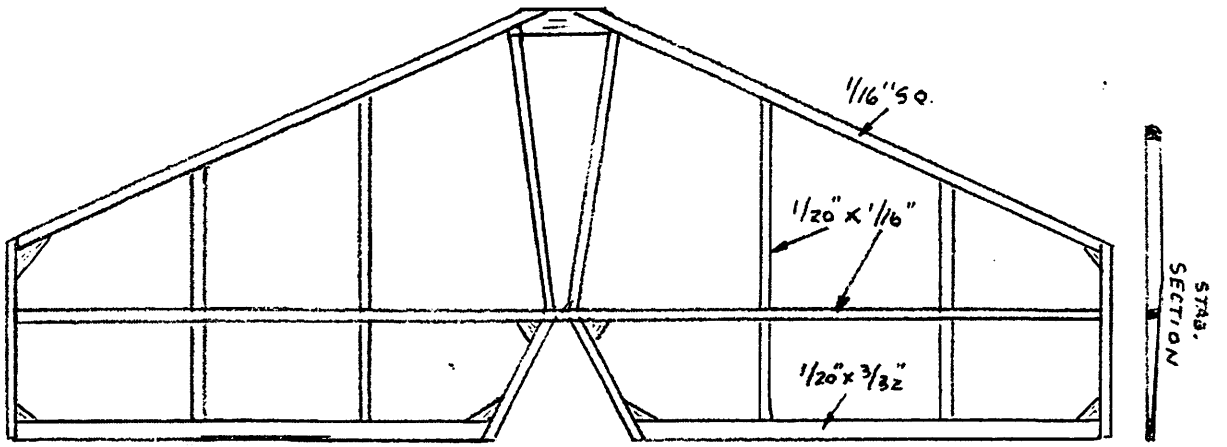
'66 RENO

Jim Wilson's Baby Cyclone Midget Racer

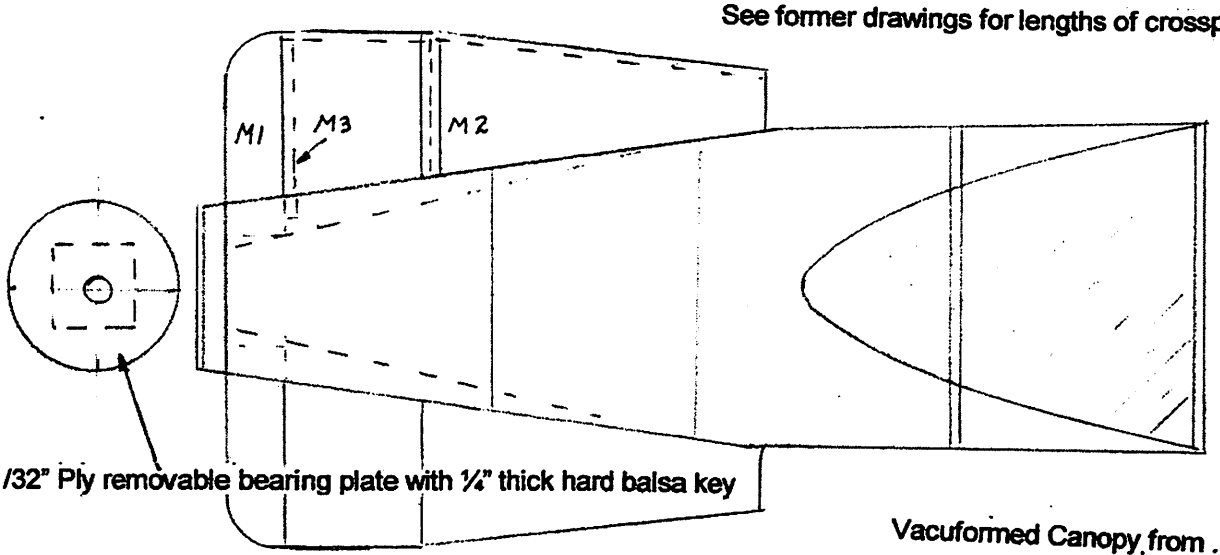
Stork Squadron guru, Russ Brown, sent me a three view of this rather obscure little racer by Jim Wilson. It appealed to both of us as a rubber powered model because of its rather high mounted wing, which permits the wing to be built in one piece and
still clear the rubber motor.
The model also has an interesting engine cowling whose location allows the front of the cowling to be glued to the rear surface of former "A" after the fuselage is covered.
The center section of the wing is flat to permit maximum clearance of the rubber
motor and its dihedral joints are reinforced with strips of 1/64" plywood.
The cowling is covered with light 1/32" balsa sheeting sanded to about 1/50" thickness. There must be a joint in the planking at former "C" so it's best to make a second former "C" to support the rear sheet at this joint.
After the 1/20" stringers are all in place, cut away the portion of formers "D" and "E" where the wing is be inserted then hot bend two strips of hard 1/20" sq. and attach them to the rear of the planking at former "D" and extend them to former "F". The bend in these pieces should conform to the rear portion of the airfoil.

Take your time and sand clearance a little at a time till the wing just slips in. It should be a snug fit, but should not cause any strain on the surrounding parts.
I made complete sub assemblies of the side cowlings. Make trial fitments before the fuselage is covered so you won't have to re-do anything after they are painted. Coat them with sanding sealer and paint them before they are installed.
The location of the side stringers are shown on the fuselage cross section drawings.
Use these drawings to cut the lengths of the cross pieces too. I marked only the locations of the center stringers, so each builder can determine how many and where other stringers are to be located. I suggest 3 each side of the rear deck and a total of three on the bottom. Note that the bottom center stringer ends at station "G" and the two side stringers on the bottom can end at "F". The side stringers extend to the rear 1/32" basswood motor mount.

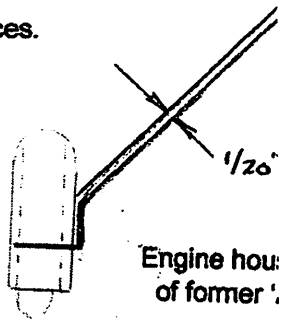
My completed model, with balsa prop and spinner but without rubber, weighed 14.5 grams. I suggest 4 strands of .080", 21" long rubber for power.



See former drawings for lengths of crosspieces.



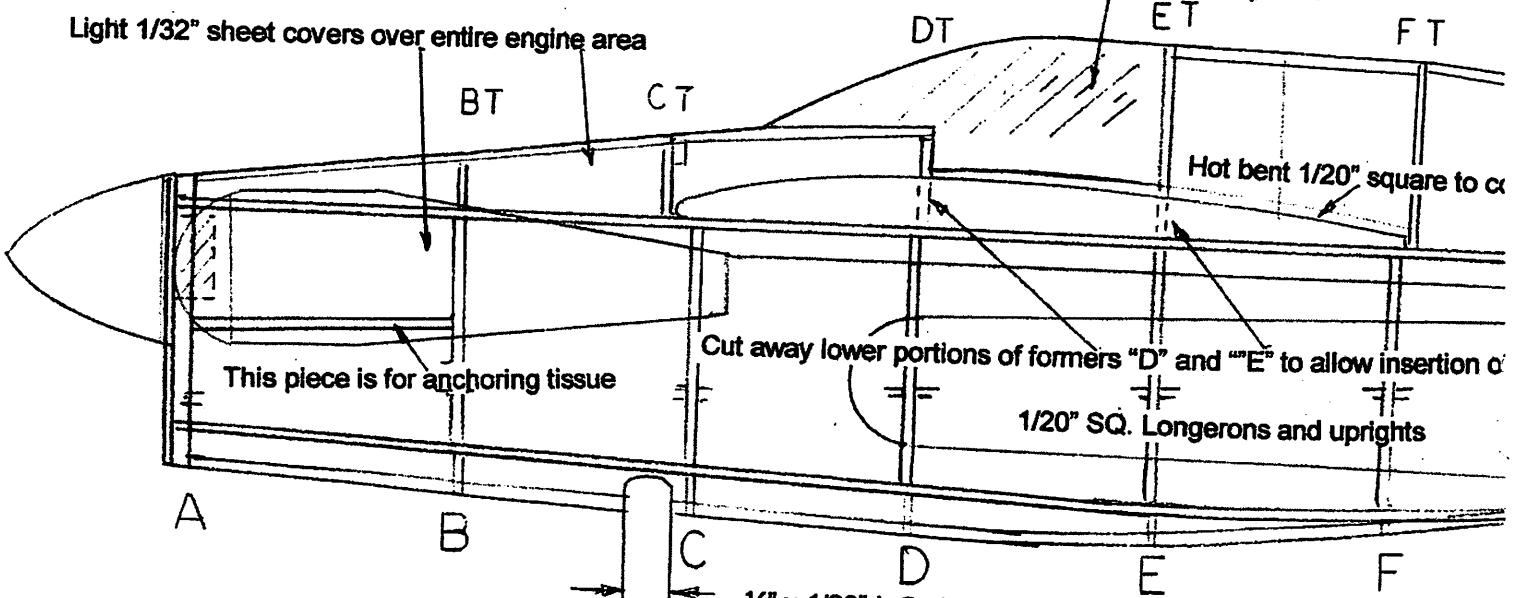
1/32" Ply removable bearing plate with ¼" thick hard balsa key



Engine hou
of former '

Vacuformed Canopy from .010" plastic

Light 1/32" sheet covers over entire engine area



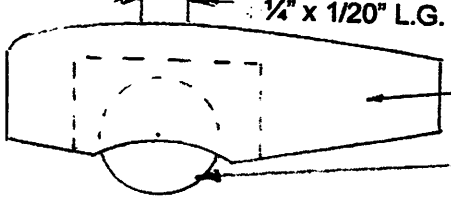
Hot bent 1/20" square to c

This piece is for anchoring tissue

Cut away lower portions of formers "D" and ""E" to allow insertion o

1/20" SQ. Longerons and uprights

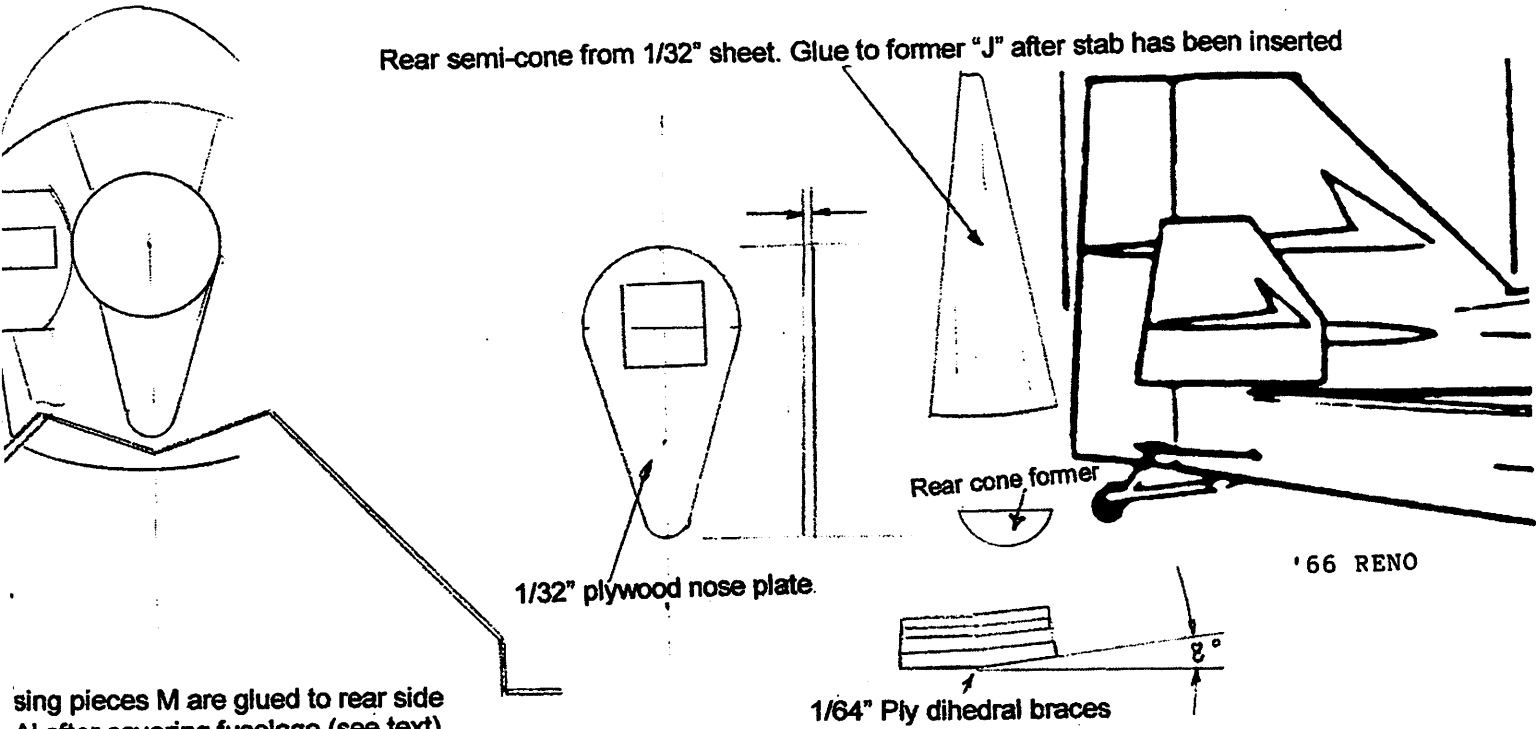
¼" x 1/20" L.G. Struts wrapped with tissue and glued to .025 wi

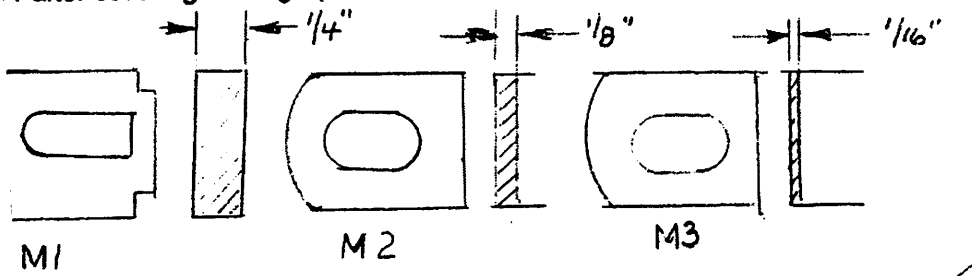


Light 3/16" sheet core; Med. 1/20" covers

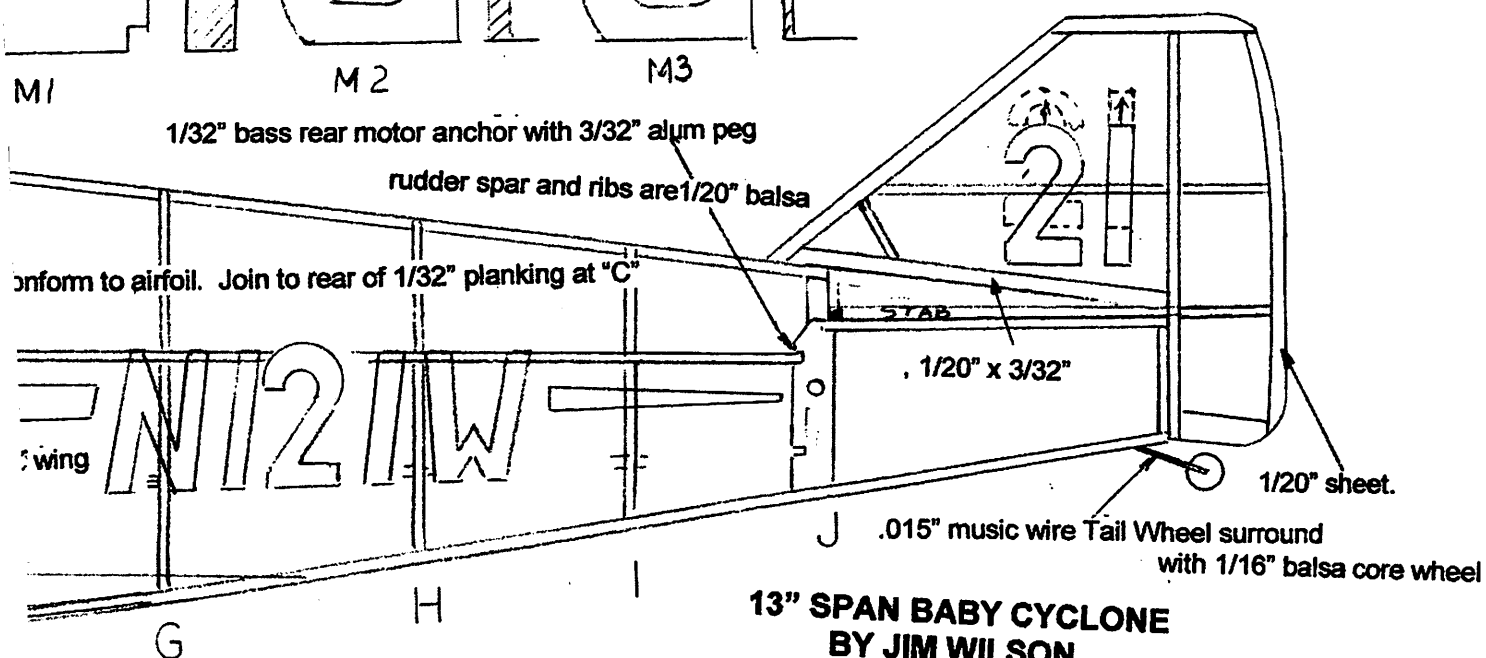
5/8" Dia. Balsa wheels, 1/8" thick

Jim Wilsons' Baby Cyclone #21 was rebuilt by Howard Terrill as N 95P, Race # 95 Poopsie Doll with a taper wing,in 1970.





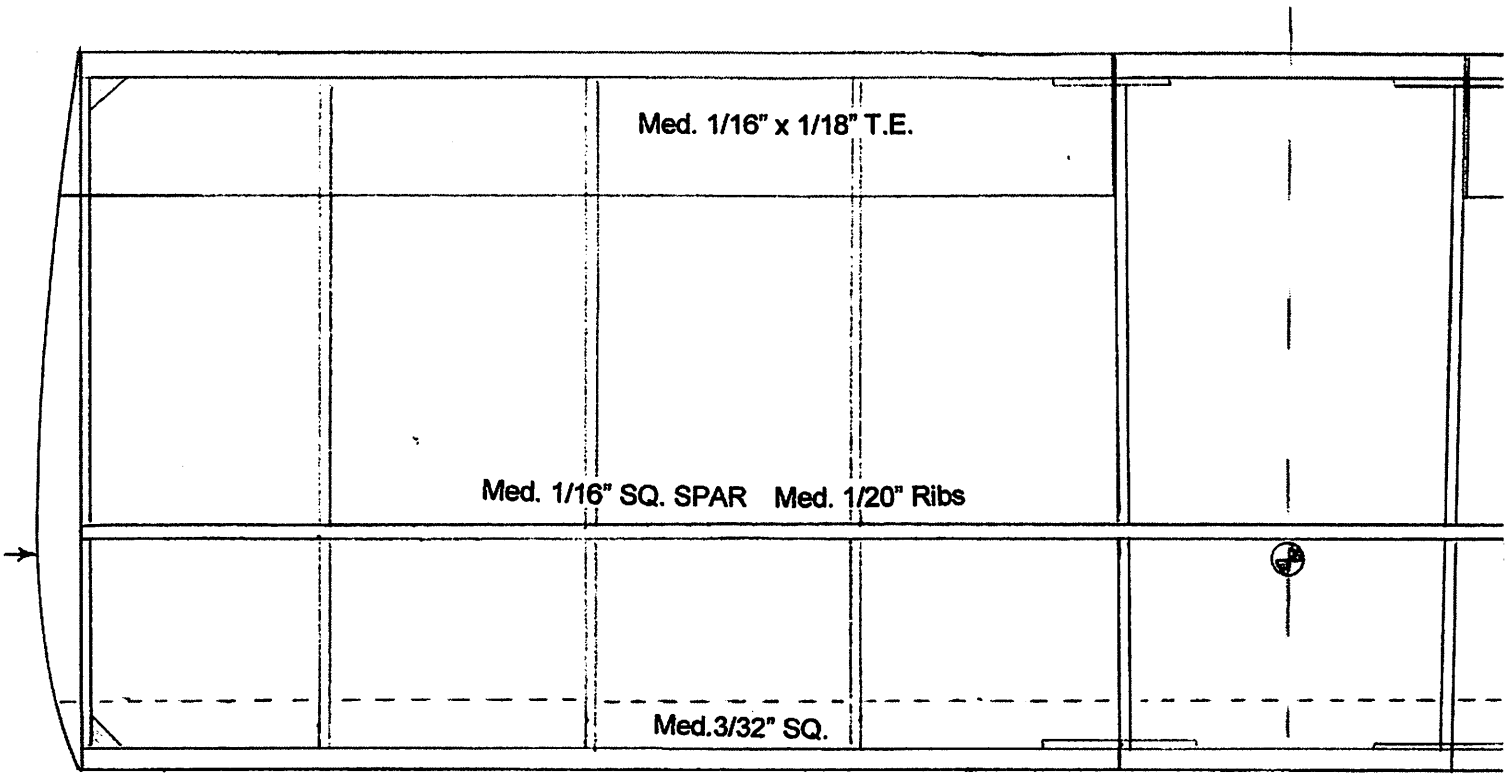
RENO 1965



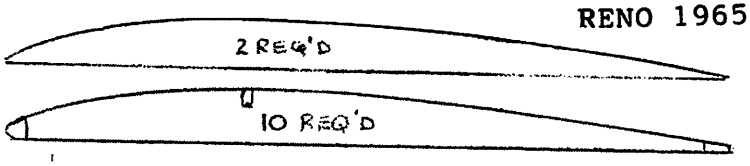
re armature.

13" SPAN BABY CYCLONE
BY JIM WILSON
Model Plan by Steve Griebling for Crosswinds

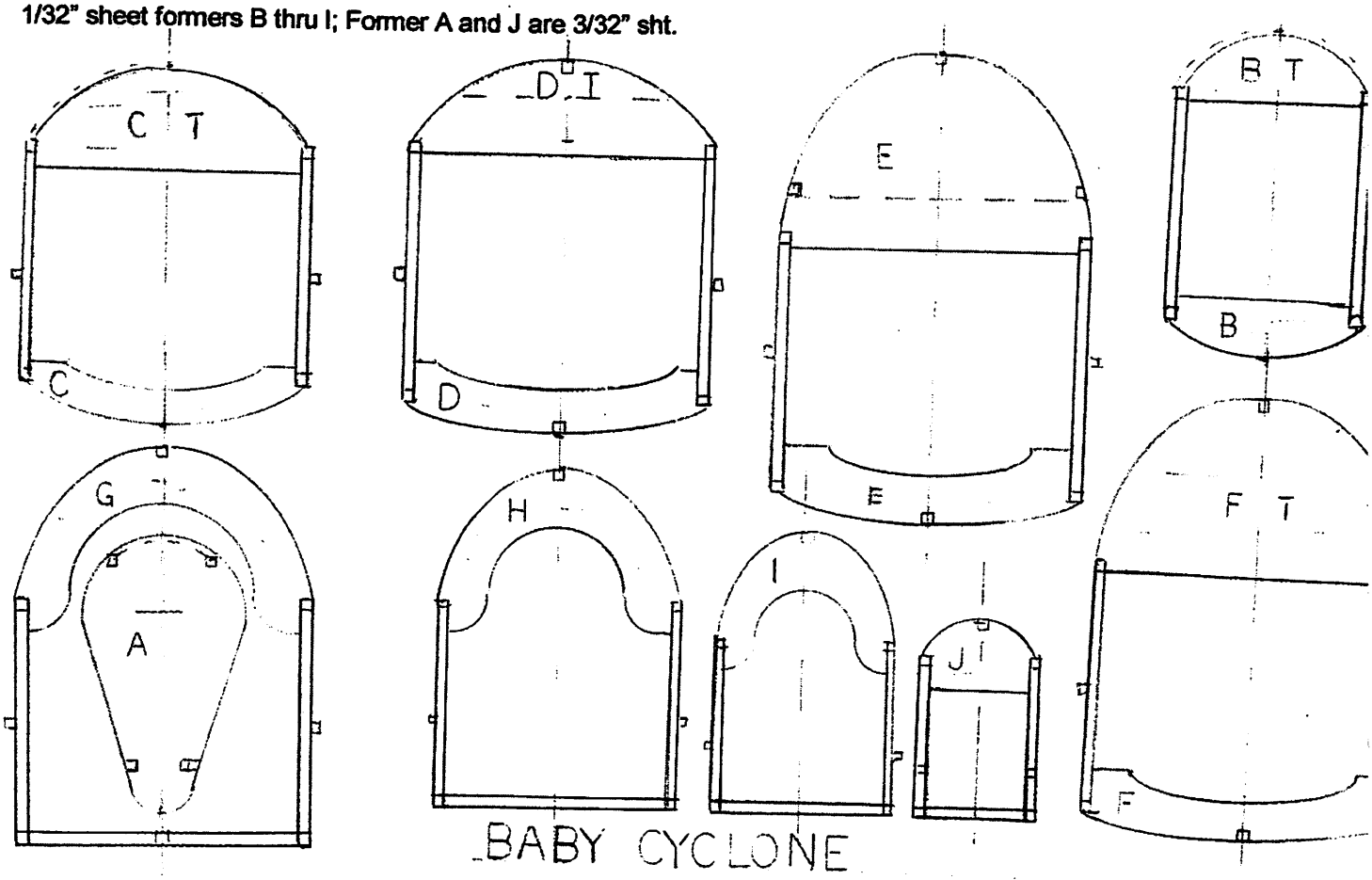
Plane was white with black trim and registration and red wheel pants



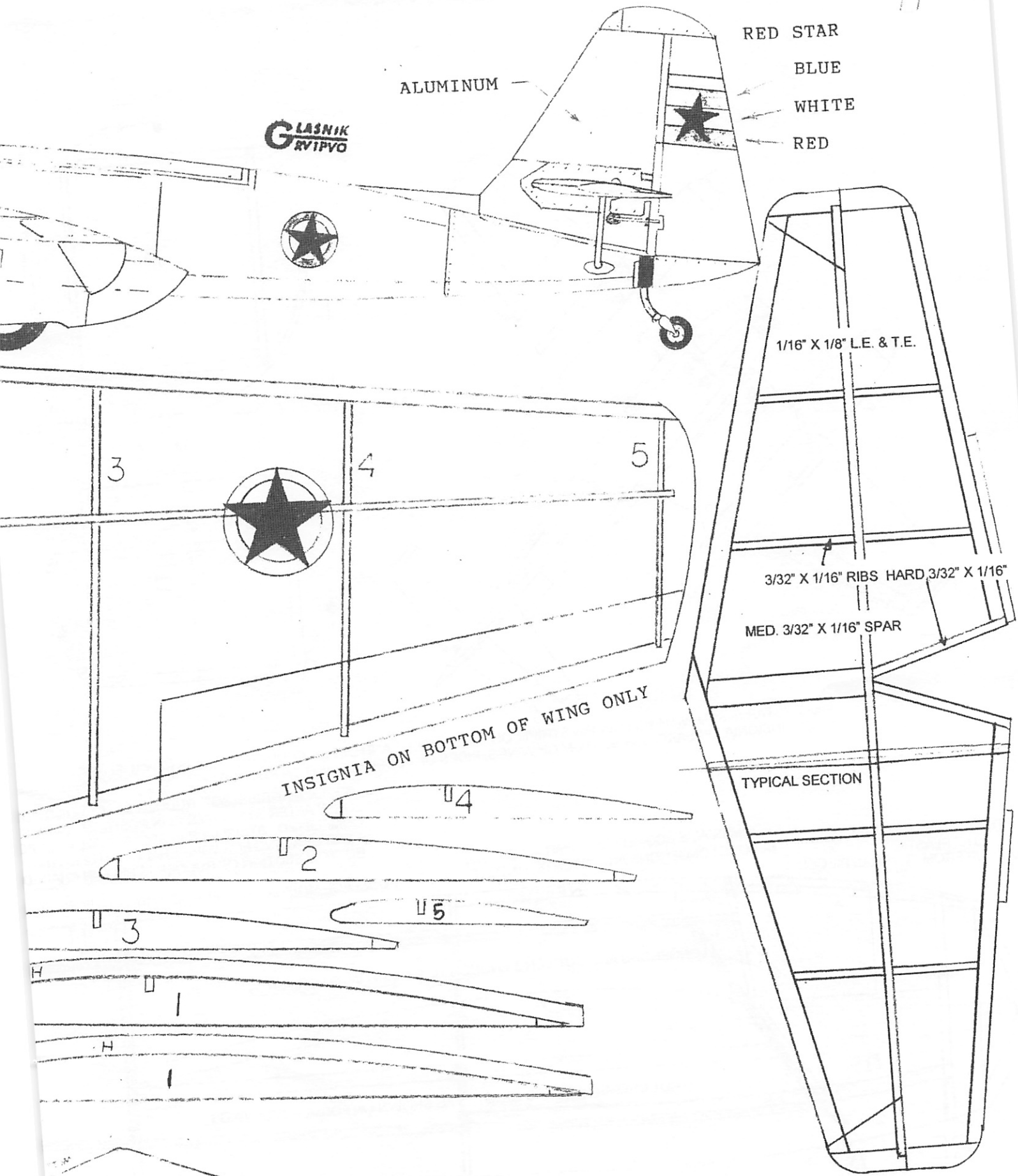
RENO 1965 L.E. TRIM, NOT ON '66 RENO

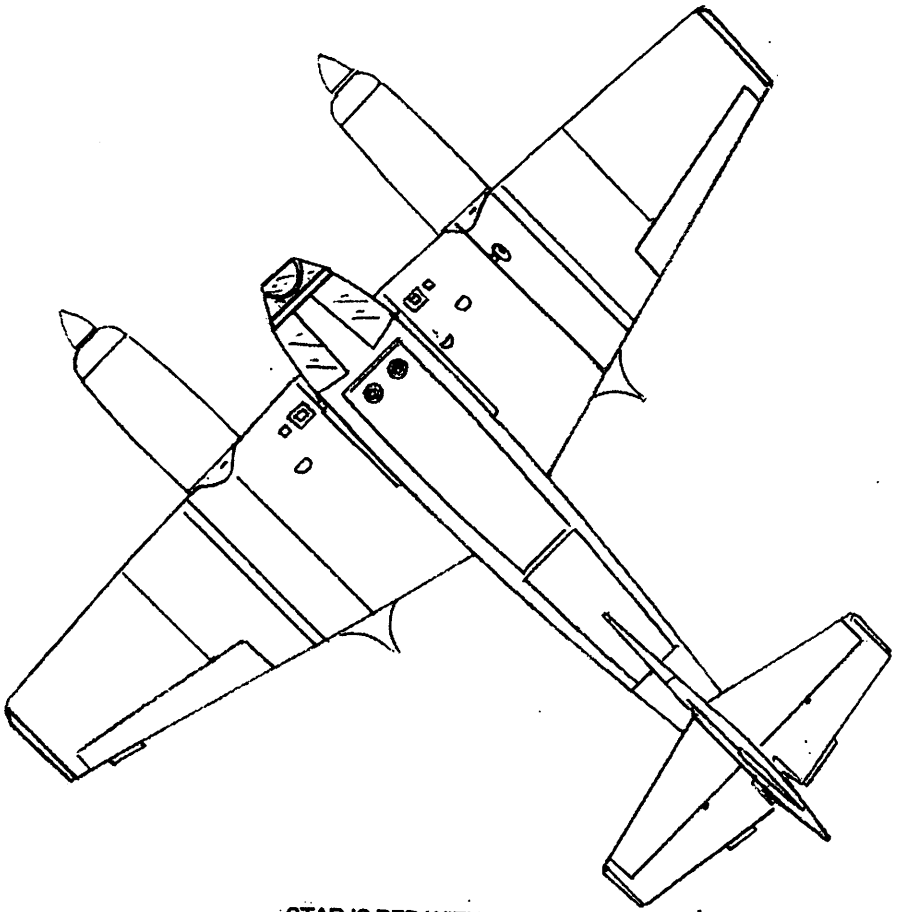


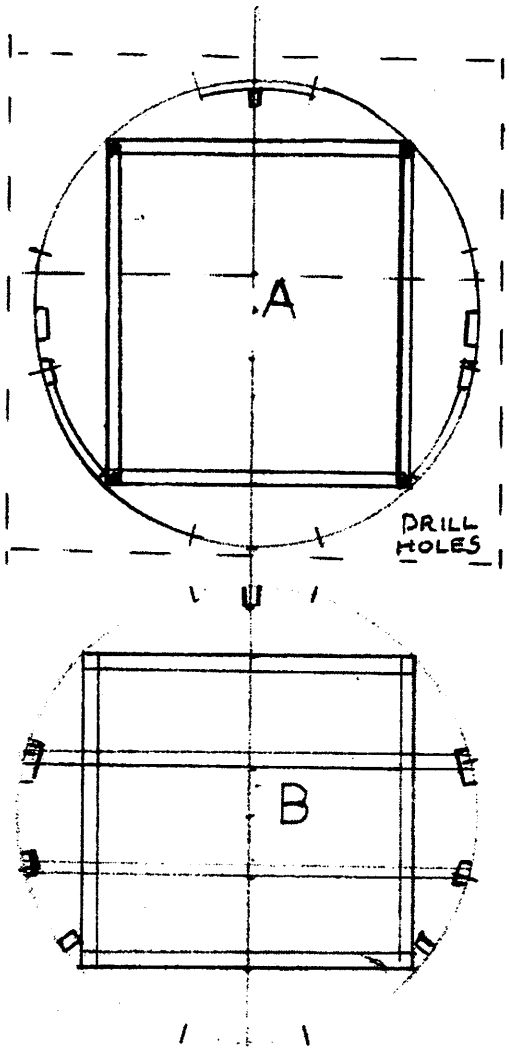
1/32" sheet formers B thru I; Former A and J are 3/32" sht.



BABY CYCLONE


RED STAR
BLUE
WHITE
RED
ALUMINUM
GLASNIK RV1PVO
1/16" X 1/8" L.E. & T.E.
3/32" X 1/16" RIBS HARD 3/32" X 1/16"
MED. 3/32" X 1/16" SPAR
TYPICAL SECTION
3
4
5
INSIGNIA ON BOTTOM OF WING ONLY
4
2
5
3
H
1
H
1





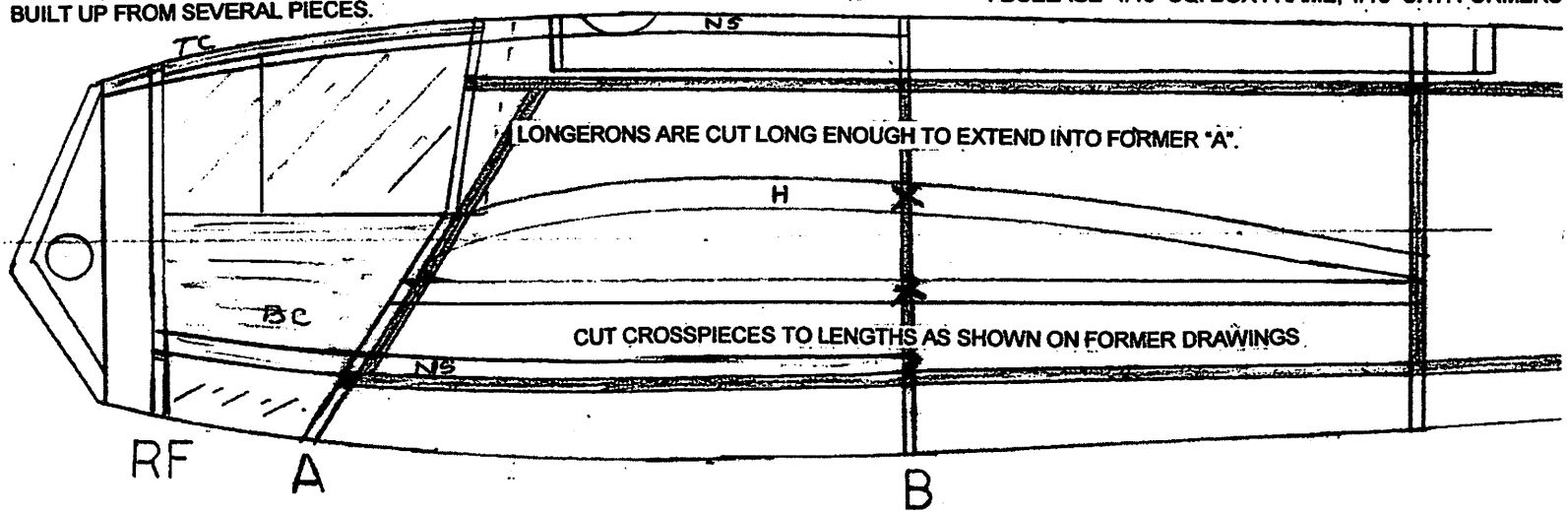
STAR IS RED WITH YELLOW PIN STRIPE; OUTLINE CIRCLE AND UPPER RUDDER STRIPE IS ROYAL BLUE
INSIGNIA APPEARED ON BOTTOM OF WINGS, SIDES OF FUSELAGE AND ON RUDDER,

3/32" X 1/16" RIBS 3/32" RUDDER BASE. BUILD RUI
ONLY AFTER STABILIZER IS IN POSITION. GLUE S
COMPLETED. STABILIZER IS ADDITIONALLY SUPPC
– SEE DRAWING FOR WIRE SHAPE AND LENGTH.
BOTTOM SECTION OF RUDDER IS SHOWN SHADED

THE NOSE BLISTER IS
010" PLASTIC
BUILT UP FROM SEVERAL PIECES.

FORMER"A" IS SCORED AND BENT AS SHOWN
BEFORE LONGERONS ARE INSERTED INTO IT.

FUSELAGE 1/16" SQ. BOX FRAME, 1/16" SHT. FORMERS



CUT AWAY VERTICALS AT STATION "B" AFTER FUSELAGE IS COMPLETED. NOTE ADDITIONAL CROSSPIECES AT THE
LOCATIONS "X" WHICH SHOULD BE INSERTED BEFORE THE WING SLOT IS CUT OUT.
SEE PHOTO OF CRANE LOADING PLANE INTO MUSEUM FOR APPEARANCE OF PROJECTION ON LEFT SIDE OF NOSE.

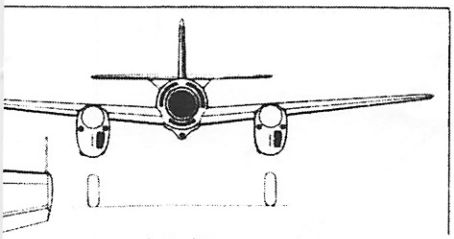
BLUE, RED WHITE YELLOW PIN STRIPE EDGE AROUND STAR.

WINGS: 1/8" X 3/16" MED. BALSA L.E. 3/16" X 1/16" T.E., NOTCHED FOR RIBS
RIBS ARE 1/16" SHEET, MED HARD 1/16" X 1/8" SPAR AND SPAR JOINER.

ニア航空博物館
OPLOVSTVA-SURCIN

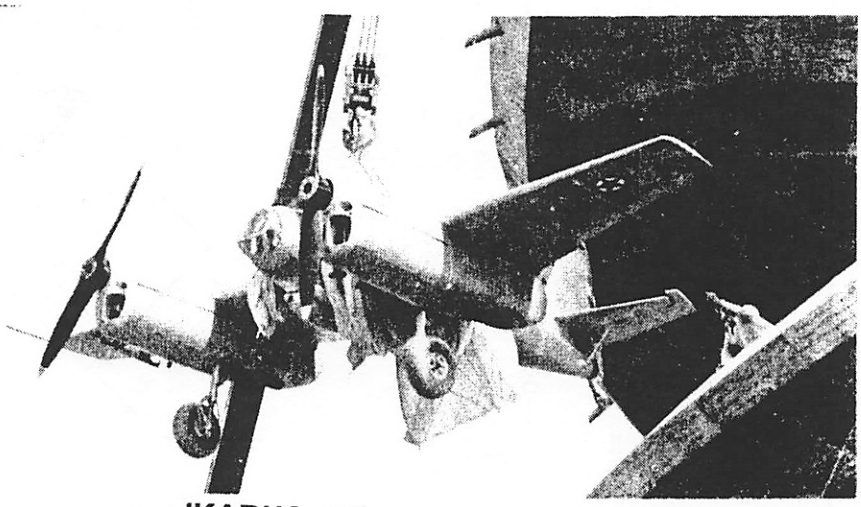
1 No. 3

▶ イカルス451試作攻撃機。1939年製作の木製試験機ヒオニールを拡大して1947～49年に2機製作された。垂直急降下の実験の意味もあって，伏臥式，160馬力のヴァルター・マイナー双発，20㎜機関砲1門とロケット弾4発を装備。背景は建築中の博物館である

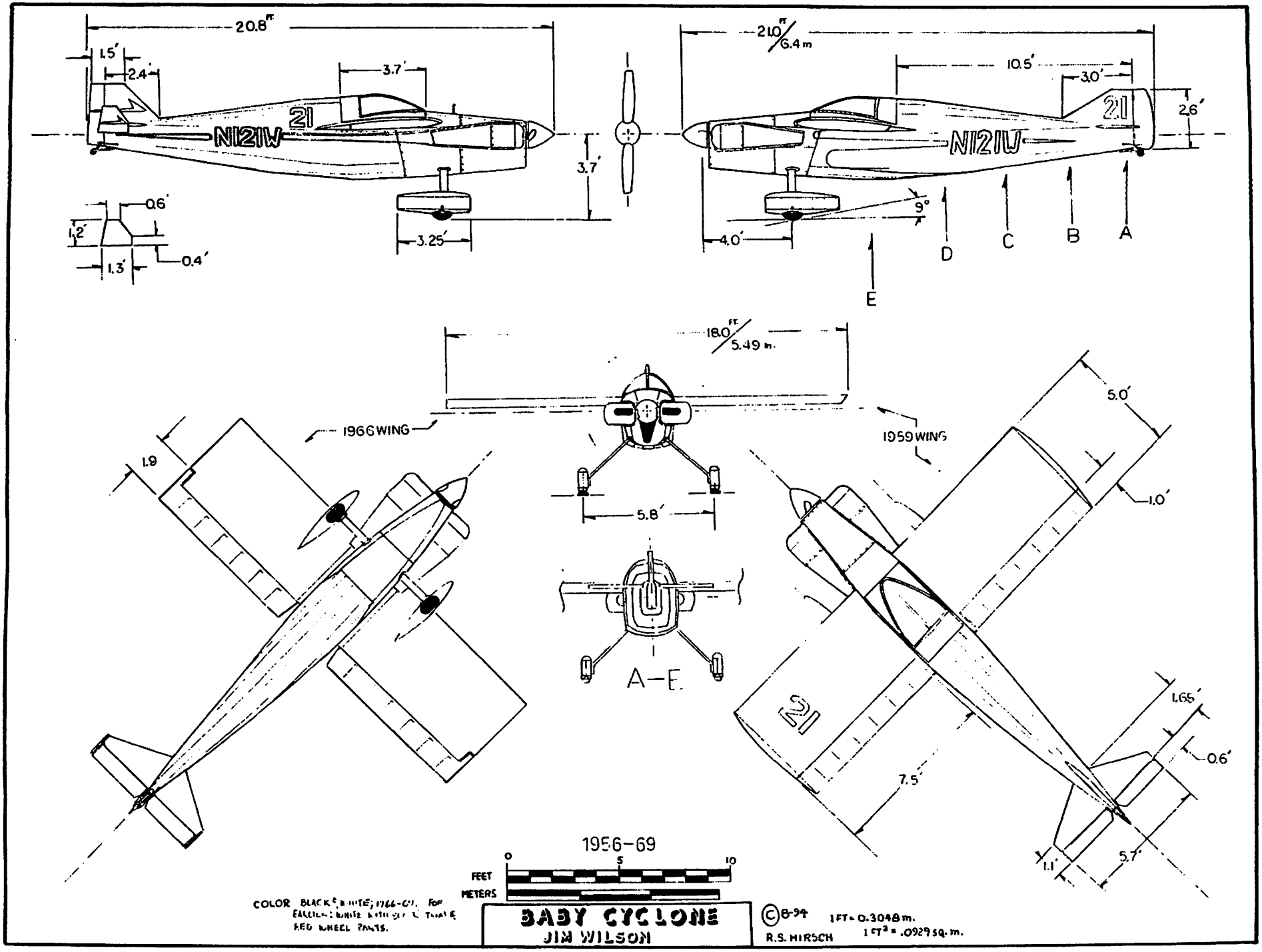


解説・手島　尚

KOKO-FAN MARCH, 1981

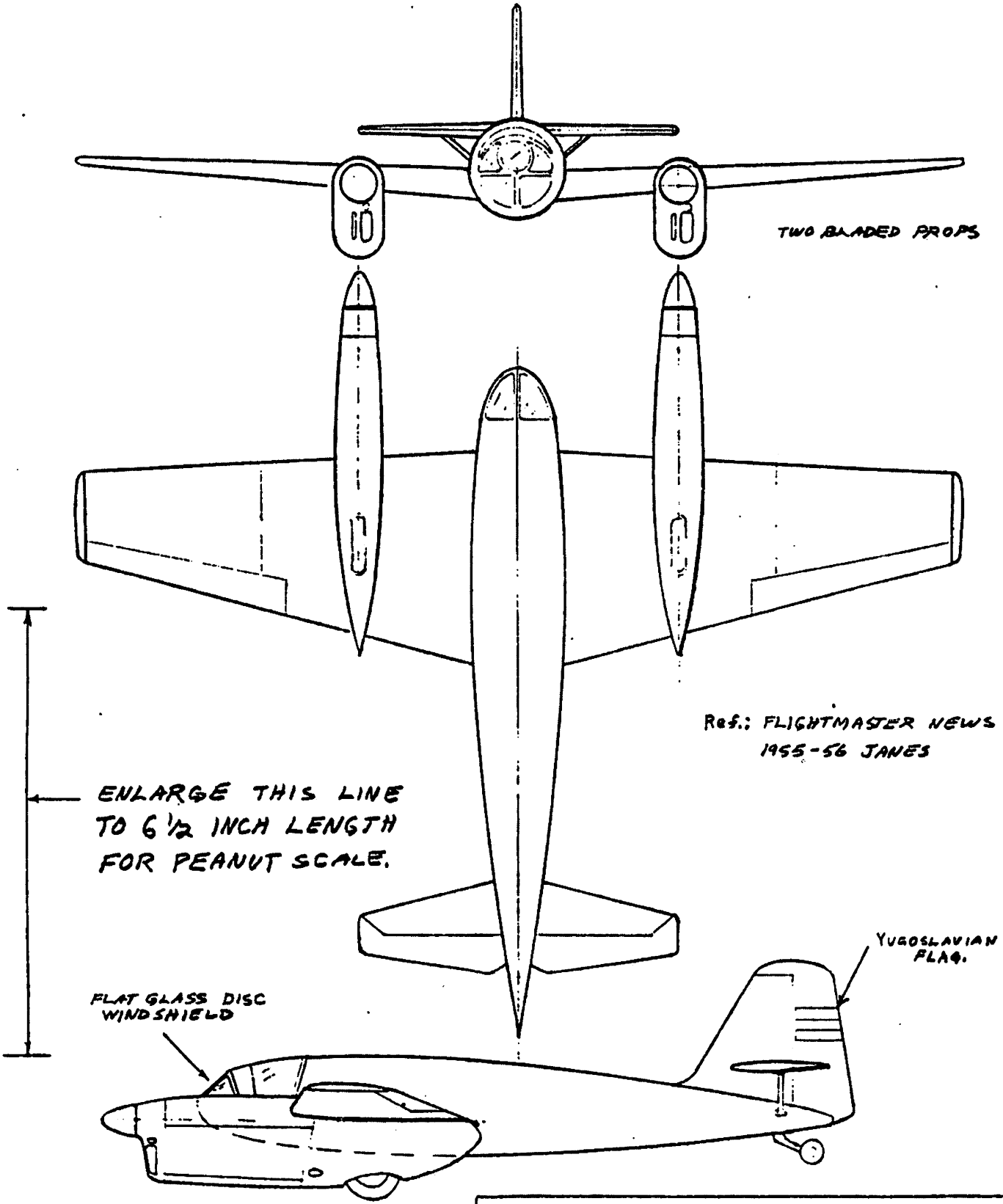


IKARUS 451



Courtesy Major Robert S. Hirsch, USAF Ret., AAHS, ARHS
GOODYEAR & FORMULA ONE AIR RACING Vol. Two $ 24.95 ea.
Wind Canyon Publishing P.O. Box 511 Brawley, CA 92227

COLORING SEEMS TO BE AN ALL-OVER LIGHT NON-REFLECTIVE SHADE. (GREY?) NO OTHER MARKINGS THAN FLAG.



Ref.: FLIGHTMASTER NEWS
1955-56 JANES

A FLYING ACES CLUB PLAN

R.A.B.

8-81

YUGOSLAVIAN STATE AIRCRAFT WORKS
TYPE 451 PRONE PILOT RESEARCH
CRAFT - 1955 160 H.P. WALTER ENGS.

16.

2008 CFFS CONTEST EVENTS AT LORAIN COMMUNITY COLLEGE FIELD
AT RT. 301S. ABBE RD. I-90 EXIT TO RT. 301S, HOAG RD. OR MAIN ENTRANCE, UPWIND

MAY 25 JULY 27 SEPT. 14		JUNE 15 AUGUST 10 OCTOBER 5	
1. FAC PEANUT SCALE, FULL POINTS		1. FAC PEANUT SCALE	
2. HIGH WING CABIN PEANUT		2. HIGH WING CABIN PEANUT	
3. FAC DIME SCALE		3. FAC DIME SCALE	
4. FAC RUBBER SCALE		4. FAC RUBBER SCALE	
5. EMBRYO ENDURANCE		5. EMBRYO ENDURANCE	
6. FAC TWO BIT O.T. RUBBER		6. FAC TWO BIT O.T. RUBBER	
7. FAC FICTION FLYER		7. FAC FICTION FLYERS	
8. GOLDEN AGE CIVIL		9. GOLDEN AGE MILITARY	
10. LOW WING MILITARY TRAINER		10.6 P-20 ENDURANCE	
11. NO.CAL. PROFILE		12. HAND LAUNCH GLIDER	
12. HAND LAUNCH GLIDER		13. 6" STICK CATAPULT GLIDER	
13. 6" STICK CATAPULT GLIDER			
14. FUNK & WACO MASS LAUNCH	11:30	14. FUNK & WACO MASS LAUNCH	11:30
15. GREVE INLINES RACE M.L.	12:30	17. BENDIX PRE WAR M.L	12:30
16. THOMPSON RADIALS M. L.	1:30	18. GOODYEAR, F1 RACE M.L	1:30
19. WW I MULTIWING PEANUT	2:30	21. WWII PEANUT COMBAT M.L	2:30
20. WWI FAC MULTIWING M.L	3:30	22. WWII FAC COMBAT M.L.	3:30
23. ALL SCALE FLYING HOARD M.L.	4:30	23. ALL SCALE FLYING HOARD M.L.	4:30

FAC rules apply, with inspection of No. Cal., Dime and Combat for minimum detail. O.T.'s must be built to plan with plan provided for inspection. No size change for 25" Max.per O.T. plan. Flier must pre-select event for multiple option models. Special events earn double credit for CFFS year end prize. **Mass launch events will start at posted clock times! Be ready!**

CROSSWINDS READERS WITH THE DREADED RED X AT ISSUE RENEWAL CODE #122 OR LOWER CAN SEND $16 PER YEAR TO RUSS BROWN 4909 N. SEDGEWICK, LYNDHURST, OH 44124 – U.S.A.

SPECIAL EVENTS FOR CFFS YEAR END PRIZE ARE:
We've got a new twist on our Special Events program this year. Four events have been designated as worthy of "Special Events" status. In order to encourage some model building out there, we'll be giving away some nice kits and other FF goodies. Here's the best part: all you have to do is enter the event to be eligible!

Every time you enter one of these events, your name goes into the hat. At the end of the day, we'll draw out the names of the winners. If you've made an official flight you can go home a winner, even if your model crashed or burned. Is that fun or what?

The four events for 2008 are: Embryo Endurance, Two Bit Old Time Rubber, Dime Scale and Goodyear Peanut. If you're wondering which model to build next, I hope we've provided some inspiration. There's still plenty of time left before the flying begins so head to the bench and start chopping balsa!

EVENTS LIST:
Sat. 4/5 CFFS Indoor@t Kent State U. 8 AM – 8 PM, FAC 9 AM – 4 PM, AMA 4/6
CD's. Mike Zand 216-524-3480 and Don Slusarczyk 440-918-0290.
Sun. 4/20 Cactus Squadron @Lakeland FL., Linder Field
4/20 or 4/27 Cloudbusters FF @ Broome Park, Flint, MI. CD. Chris Boehm 810-348-8675.
5/2-4 ARHS Air Racing Symposium @ Cleveland, OH Holiday Inn 440-234-2301.
Sat. 5/10 Cloudbusters @ Broome Park, Flint, MI Mike Welshans 248-545-7601.
Sat. 5/17 Kudzu Flying Corps @ Carolina Sod Farm, Raeford, NC.
Sun. 5/25 CFFS FAC & Duration FF @ Lorain Community College Elyria, OH. CD. Russ Brown 216-382-4821.
Thurs. 6/1 Cloudbusters @ Broome Park. Flint, MI Mike Welshans.
Sun.6/15 CFFS FAC & Endurance FF @ LCCC, Elyria, OH. CD. Jim Hyka 216-481-6525.
June 21-22 Dayton McCook FAC & Balsa Bugs I.-Cty @ Muncie, IN 437-832-3241.
June 27-29 WACO Fly-In @ Mt. Vernon, OH Wynkoop Field.
July 4-6 Taylorcraft Fly-In @ Alliance, OH, Barber Field.
July 17-19 (20) FAC Nats @ Geneseo, NY FAC GHQ 814-833-0314.
July 27 CFFS FAC & Duration FF @ LCCC. CD. Mike Zand 216-524-3480.
July 28-8/3 EAA Air Venture Oshkosh, WI.
Sat. Aug 9 or 16 Cloudbusters @ Broom Park, Flint, MI, Chris Boehm C.D.
Sat. Aug.10 CFFS FAC & Duration FF @ LCCC. CD. Peter Zbasnik 440-326-1005.
Sat. Aug. 23 FAC-GHQ @ Erie, PA Prangmore Field. CD. Lin Reichel 814-833-0314.
Aug. 30 – 9/1 Cleveland Air Show & Air Racing H.S., exhibit @ Burke Lakefront Airport.
9/5-7 FAC Outdoor Champs @ Muncie, IN Ralph Kuenz, 586-884-6919.
Sun. 9/14 CFFS FAC & Endurance FF @ LCCC, CD. Dan Kane/Shorty's Basement 740-223-7471.
Sat. 9/27 Cloudbusters @ Broome Park, Flint, MI CD. Mike Welshans.
Sun. 10/5 CFFS FAC & Duration FF @ LCCC , Elyria, OH. CD. Larry Mzik 440-357-7361.
?? CIA FAC Ted Dock Memorial FF @ Muncie, IN

CROSSWINDS Readers with the dreaded red X at issue renewal code #124 or lower can send $18 per year to Russ Brown 4909 N. Sedgewick, Lyndhurst, OH 44124 – U.S.A.