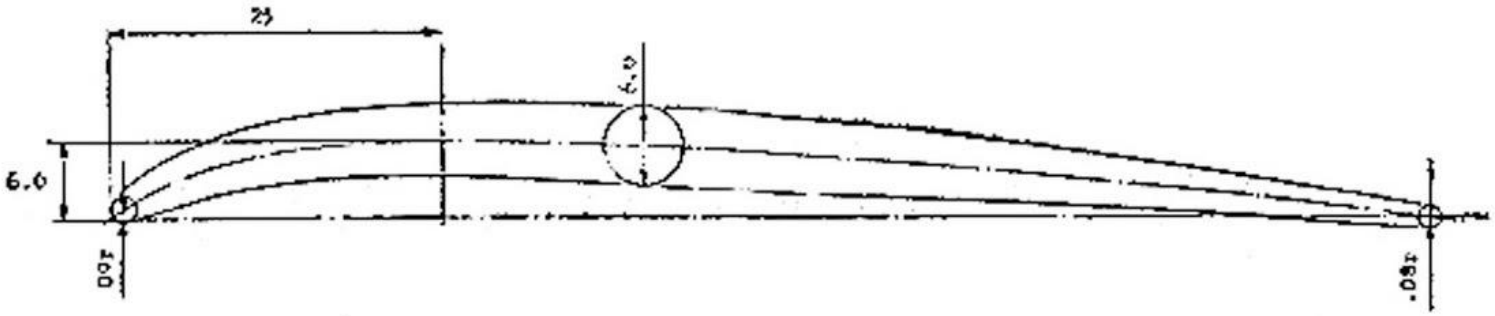
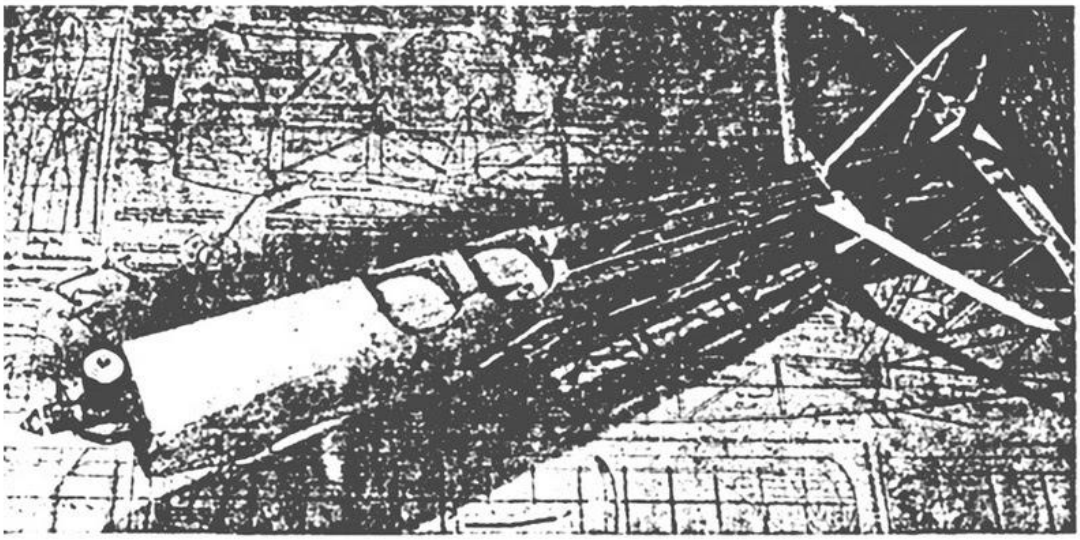


% C.	0	1.25	2.6	5	7.5	10	15	20	25	30	40	50	60	70	80	90	100
U	0.7	2.4	3.0	4.9	5.8	6.7	7.7	8.2	8.4	8.5	8.3	7.5	6.5	5.3	3.6	2.2	0
L	0.7	−.02	0	0.8	1.5	2.0	2.8	3.0	3.0	2.8	2.3	1.6	1.4	1.0	0.4	−0.3	0



FAULTLESS CHICK

by J. S. LUCK

IT has taken about three years to develop this little biplane. The *Faultless Chick* lays claim to being more than merely unorthodox as far as contest designs go; it is definitely on a par with any monoplane we have tried, from a performance standpoint, and can hold its own against the toughest competition.

Originally intended to be equipped with radio control, the model was carefully stressed for the extra weight. Although, somehow, installation of a radio receiver hasn't yet come about, there is every indication that it could be done and that it will prove very satisfactory. A *light* unit is all that is required; 12 ounces of ballast has been carried with ease on many tests, especially with glo-plug ignition. This weight is somewhat more than the all-up weight of a carefully designed receiver used with lightweight batteries.

This really is an exceptional ship, but it falls short in one thing: it is not the sort of model which, as the ads say, "can be built and flown in two hours." The special thin-airfoil wing requires careful, painstaking, exacting work. The cabane struts and trim tab adjusters require a craftsman's skill; haphazard butchery will only result in grief or, at best, difficulties in realizing precise flying trim. Careful workmanship will produce a model which may be adjusted to give any desired rate and angle of climb or glide. Turns may be varied with micrometer accuracy; and by keeping notes of the number of turns of the adjusting screws, and the wing incidence setting required for a certain flight pattern, it may be repeated as often as desired.

Construction is conventional with one new quirk added. The built-up structural angle used as main longerons is novel. The strength of this type section is many times that of a square section of equal weight. No matter how much doping may tauten the Silkpan there will be no "scalloping."

It is strongly recommended that a full size plan be used for building. This is available, and far more satisfactory from every standpoint than enlarging the very much reduced plate given with this text. This is particularly true of ribs, etc. which are of course accurately drawn full size on the original plan. For those who still would rather make their own layout the airfoil ordinates are given at top of this page.

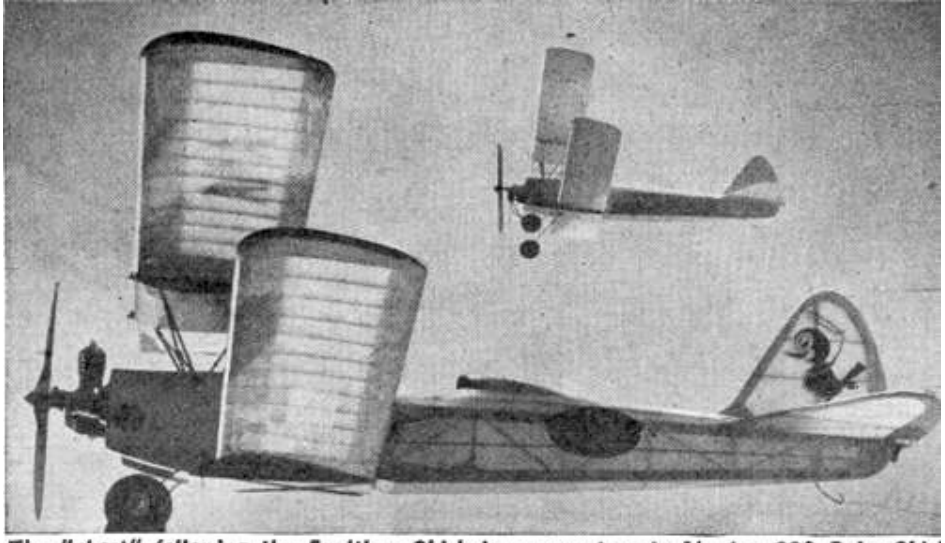
Incidentally, this particular section, under the NACA system of designation would be 6/2.5/06. It is based on the scientifically established parameters for low-speed (model) airfoils recommended by Prof. F. W. Schmitz. The wing is extremely "gust sensitive", a term which despite its somewhat negative sound describes a feature highly desirable in small models. It means, in common terms, that even a slight additional wind velocity is utilized to gain further altitude. Any violent or dangerous upsetting of stability is counteracted by a large stabilizer.

Ever see a ship climb just about O.O.S. before the motor had run its full 20 seconds? No? Well watch the *Faultless Chick*. Watch real close—better use binoculars. Or, is a straight climb at 15° to 30°, either at 10 or 30 mph more what the doctor ordered? The *Faultless Chick* will do it, after turning trib tab screw a few times and changing wing incidence. Like Phoebe Nebb's husband Willie, this ship can do *anything*—*except climb to the right.*

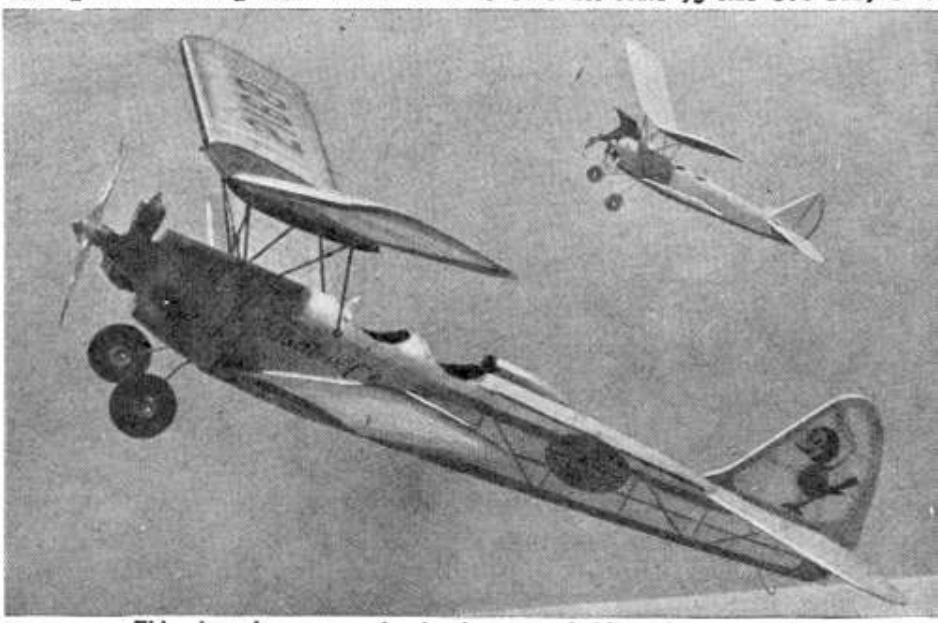
SPECIFICATIONS

Span.....47"
Total effective wing area...475 sq. in.
Weight (with Arden 199 and glo plug).....18 oz.
Wing loading .....3.8 oz./100 sq. in.
Max. load to be carried....14 oz.

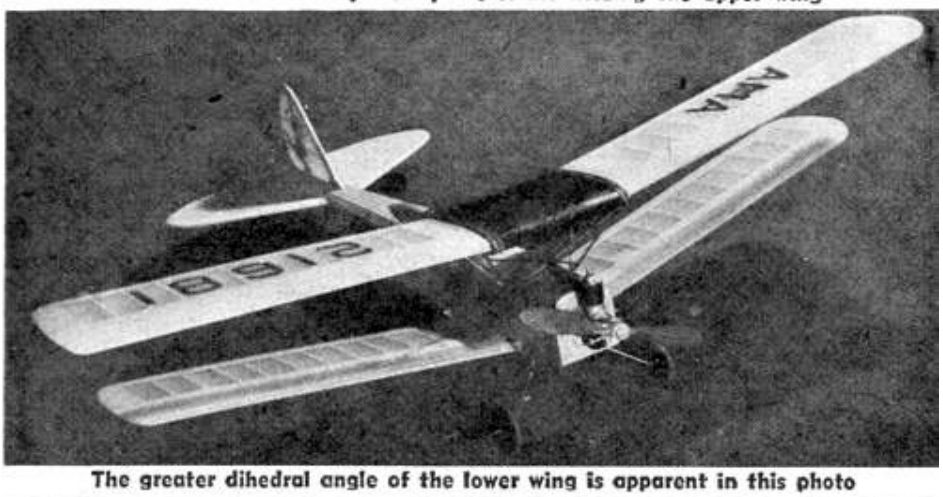
Heretofore biplanes have been just novelties—here's a contest performer!



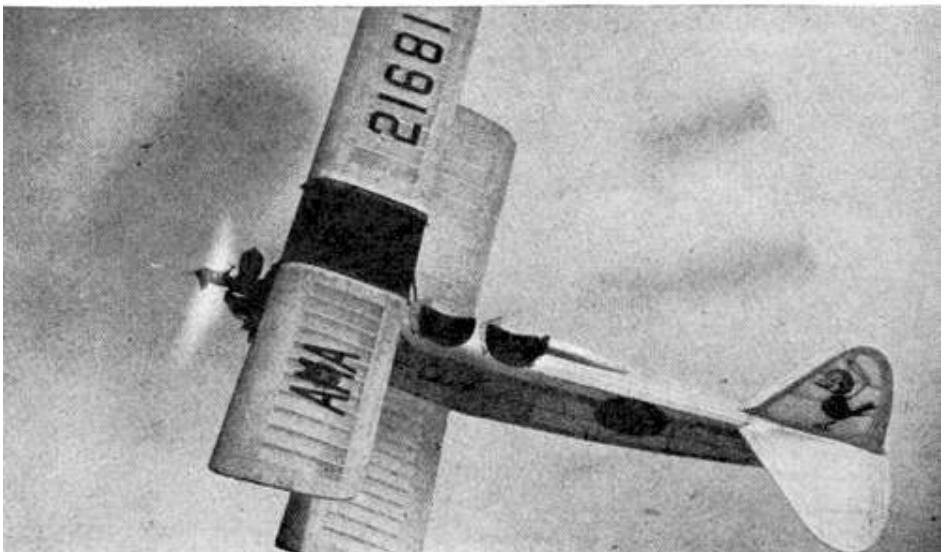
The "ghost" following the *Faultless Chick* is an exact scale 1/3 size CO2 *Baby Chick*



This view shows very clearly the struts holding the upper wing



The greater dihedral angle of the lower wing is apparent in this photo

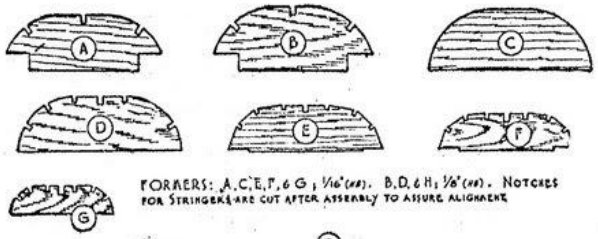


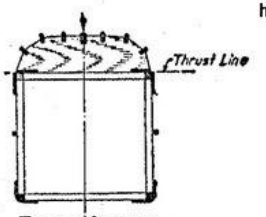
Faultless "Chick"

Class 'A' CONTEST BIPE.

N.B. Hardness of Balsa is given in brackets following Size. Code is same as that used for Pencils.

SCALE 0 ½ 1 2 3 4 5





TYPICAL SECTION

FORMERS: A, C, E, F, & G; 1/16" (2S). B, D, & H; 1/8" (3S). NOTCHES FOR STRINGERS ARE CUT AFTER ASSEMBLY TO ASSURE ALIGNMENT

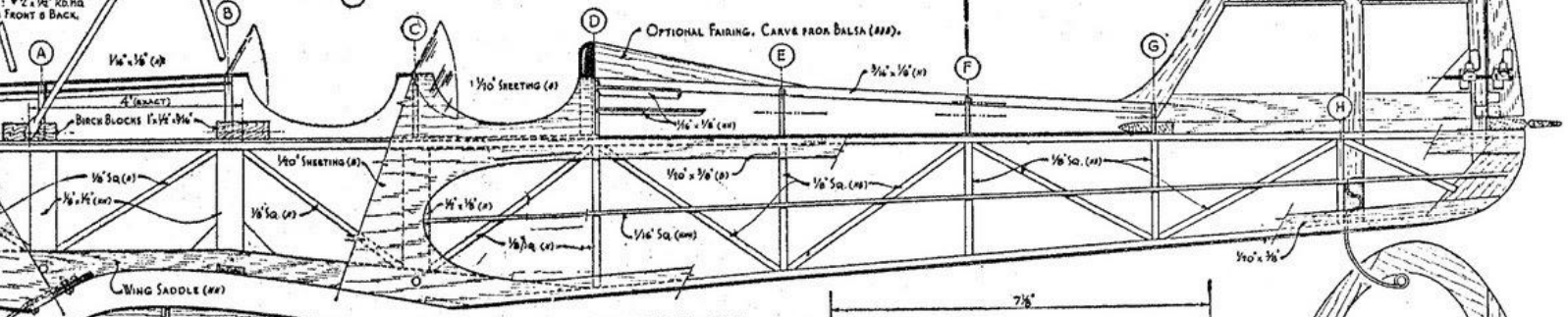
ELEVATOR OF FINISHED BLADE

PROPELLER BLANK - 10"D/5"P.
MATERIAL: 1⅛" x 3½" x 10" BIRCH

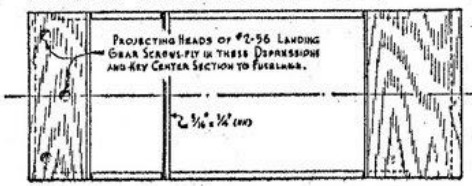
ALLOW ½" EXCESS FOR SECTION CARVER

INCIDENCE ADJUSTMENT
AS FRONT STRUT IS FASTENED TO SUCCESSIVE HOLES IN INCIDENCE PLATE, THE FOLLOWING WING INCIDENCES RESULT: 1½°, 2½°, 3°, 3½°, AND 4°

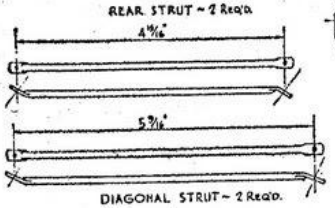
CABANE STRUT ATTACHMENT
1 TO PLATFORM: #2-56 x ¼" RD. HD. MACH. SCREW IN FRONT, AND #2-56 NUT IN REAR. USE LOCKWASHERS.
TO FUSELAGE: #2 x ½" RD. HD. WOOD SCREWS IN FRONT & BACK.



CENTER SECTION - BOTTOM WING. RIBS, 1/16" (2S). L.E. 1⅛" x 3/16" (1). T.E. 1¼" x 3/16" (1). SHEETING, 1/32" (2). NOTE: ATTACH WING PANELS BEFORE SHEETING.

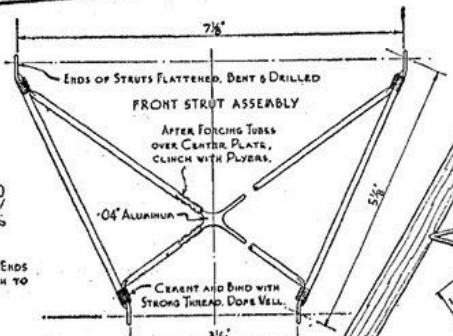


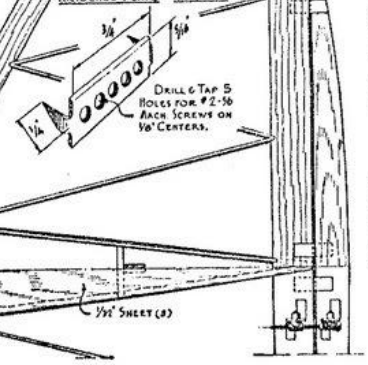
REAR STRUT - 2 REQ'D.



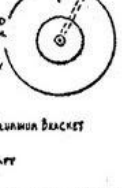
DIAGONAL STRUT - 2 REQ'D.

CABANE STRUTS: 1/8" O.D. ALUMINUM TUBING. ANNEAL ENDS BEFORE FLATTENING. USE DRILL JUST LARGE ENOUGH TO ALLOW #2 SCREWS FREELY THROUGH.

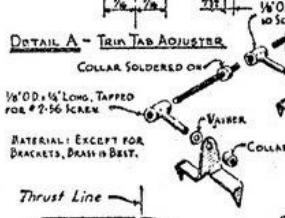




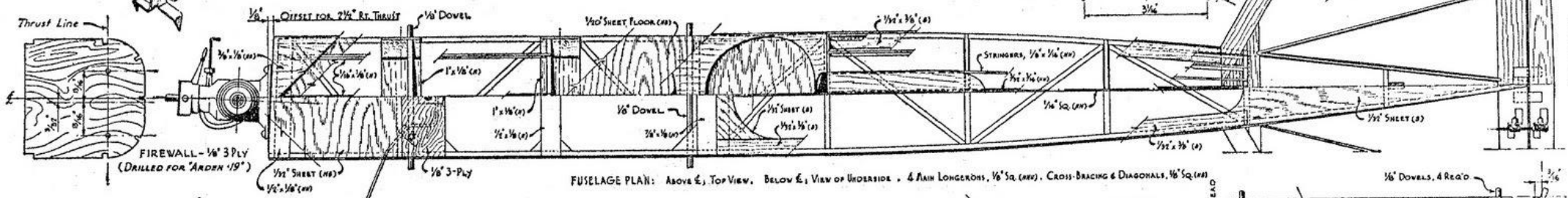
WHEELS ARE MADE UP OF TWO PIECES OF LAMINATED ¾6" SHEET (2). A RUBBER MODEL TYPE SHAFT BEARING IS USED.



DETAIL A - TRIM TAB ADJUSTER



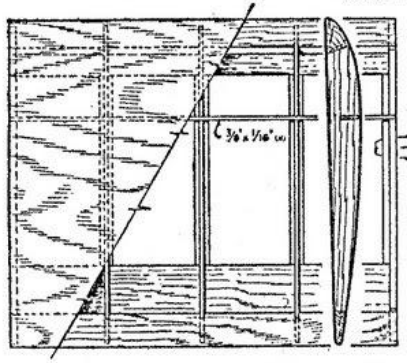
MATERIAL: EXCEPT FOR BRACKETS, BRASS IS BEST.



FIREWALL - 1/16" 3 PLY
(DRILLED FOR "ARDEN 19")

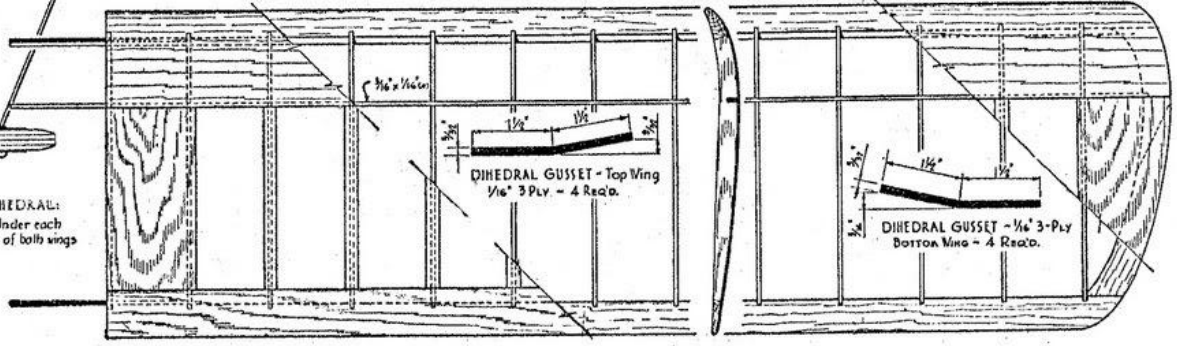
FUSELAGE PLAN: ABOVE ℄, TOP VIEW. BELOW ℄, VIEW OF UNDERSIDE. 4 MAIN LONGERONS, 1/16" SQ. (4S). CROSS-BRACING & DIAGONALS, 1/16" SQ. (2S)

STAB. & FIN: OUTLINE OF 1/4" (2). RIBS, 1/32" x 1/16" (4S). TRIM TABS, 1/8" (4S), HINGED WITH CLOTH HINGES. SEE DETAIL A FOR TRIM TAB ADJUSTER

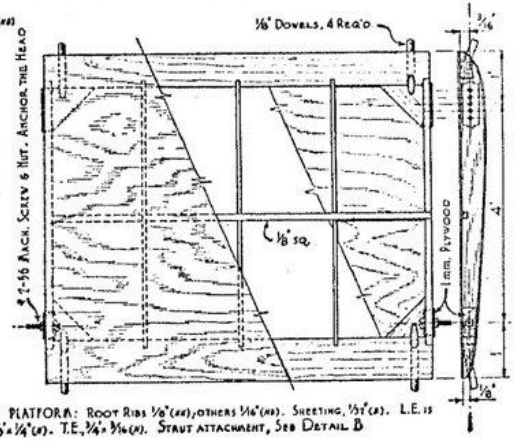


CENTER SECTION - TOP WING: ROOT RIBS 1/16" (4); OTHERS 1/16" (2S). SHEETING & ¼" CAP STRIPS, 1/32" (2). L.E. SPAR, 5/8" x 1/2". T.E. SPAR, 1/8" x 3/16" (2)

DIHEDRAL: 4" UNDER EACH TIP OF BOTH WINGS



WING PANELS: 2 PORT & 2 STBD. REQ'D. ROOT RIB 1/8" (4); ALL OTHERS 1/16" (2S). SHEETING & ¼" CAP STRIPS ARE 1/32" (2). L.E. SPAR, ¼" x ½" (2S). T.E. SPAR, 3/8" x 3/16" (2S)
IMPORTANT: TIPS OF BOTH WINGS GIVEN WASHOUT - ABOUT ⅛" UNDER T.E. AT TIP.



PLATFORM: ROOT RIBS 1/8" (4S), OTHERS 1/16" (2S). SHEETING, 1/32" (2). L.E. IS 3/8" x 1/4" (2). T.E. 3/4" x 3/16" (1). STRUT ATTACHMENT, SEE DETAIL B