

Build the Curtiss Racer

A GOOD SCALE MODEL THAT'S ALSO A DARNED SWELL FLYER ---- THAT'S WHAT GETS THE MODEL FAN'S VOTE EVERY TIME. AND RIGHT HERE WE'VE GOT A GREAT "CANDIDATE" THAT CAN'T BE BEAT. IT'S THE PULITZER TROPHY WINNING CURTISS R-6 RACER, A FAMOUS SHIP THAT'LL COP THE ELECTION ON ANY MAN'S MODEL TARMAC. YOU'LL FIND IT A GRAND ADDITION TO YOUR LINE-UP OF POST-WAR PLANES.

By Cliff Cole

THIS trim little speed ship was produced by the Curtiss Company in conjunction with the U.S. military authorities in 1922. It was designated the Curtiss R-6 Racer. In this machine, wing radiators for racing purposes were used for the first time.



Is she a good flyer? Well, now that you've seen this "shot" of Mr. Cole's sleek model we won't have to answer that question—for you wouldn't ask it. The Curtiss Racer has everything. And since the picture tells the story better than words, we'll end this caption right here.

The radiators were faired into the wing beautifully. They eliminated the parasitic drag commonly caused by radiators of standard mounting.

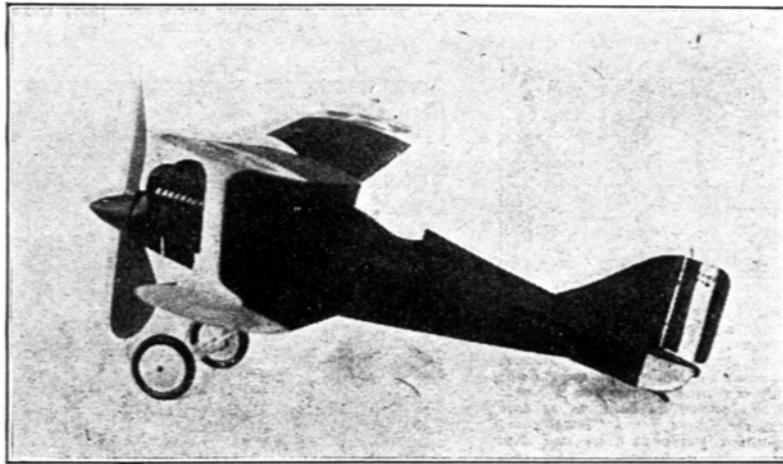
This early plane had many other fine features that are still in common use on speed planes, namely, "I" wing struts, single strut undercarriage, monocoque fuselage, etc. These refinements enabled this ship to walk away with the Pulitzer

Trophy Race that year, at 206 m.p.h.—at that time a new world's record.

The long and illustrious line of Army and Navy Curtiss Hawks may be directly traced from the results of the research on this ship, their famous prototype.

By carefully following the plans given here, a realistic, sturdy, and clean scale flying model may easily be made. (The scale is 1" equals 1').

This model will surprise and please you, with its powerful climb and speed enabled by the excellent streamlining that has been faithfully reproduced in the model.



No mistake about it—she's a prize ship! This Curtiss job boasts both strength and lightness, and when you get a combination like that in a ship like this you have a REAL flyer! Note the neat simplicity of its lines.

FUSELAGE AND LANDING GEAR

USING the patterns given, cut all formers from 1/16" sheet balsa. Cement 1/8" sq. stiffeners, as shown on front of former B. Next cut formers M, L, and J, from 1/32" sheet, making two of each. The fuselage is made in two halves, in the simple half-shell method of construction. After tracing a duplicate outline of the fuselage, so as to make a right and left side, we may start with the actual construction. Pin formers M, L, and J, on plans in proper positions. Next put 1/16" sq. balsa strips on the outlines of the fuselage, from former F to tail of fuselage. Now cement all formers in their proper positions, making sure you have right and left sides for the fuselage.

After the cement has set, put a 1/16" sq. stringer in center notches of formers, then continue applying 1/16" sq. stringers until completed. You may now trim all stringers off flush with tip and nose of fuselage, and cement the two sides together, holding the sides together with rubber bands. Now fill in between formers E and F with 1/32" sheet balsa to form cockpit enclosure, and finish by cementing a piece of string around rim of cockpit, to form bead. Cut and apply 1/60" sheet balsa over cowl and head rest to dotted lines, then sand smooth.

We are now ready for the landing gear. Make two N struts of 3/32" hard sheet balsa, streamline and cement in place against back of former B, and to sides of former L. Spread to 4 inch tread. Next put finished spreader bar in place and cement. Assemble shock caps Y, on spreader bar, and cement celluloid guides O, and place on struts. The axle is made of No. 14 piano wire and is bound to the center of the spreader bar with silk thread Wrap 1/32" thread rubber over axle between strut and shock cap. and tie. Place 2" hardwood wheels in place and cement washers on the end of the axle to hold them. Now brace struts with 1/20" bamboo, to formers A and D, as shown.

Cover fuselage, being sure to leave an opening for placing the lower wing in, using narrow strips of Superfine tissue to avoid wrinkles. You may now cement the celluloid windshield in place.

WINGS AND STRUTS

Cut eighteen ribs of 1/32" sheet and five ribs of 1/16" sheet, to rib pattern. Pin 3/32" sq. balsa to plan and assemble ribs and top spar, as designated. The leading edge is 3/32" sq. and the trailing edge is 1/16" by 3/16". It will be noted that the only difference in the upper and lower wing construction is the center rib placing. Leave spars, leading and trailing edges projecting to center on the lower wing panels. The wing tips are of 1/20" bamboo, bent by flame and inset as shown. Assemble two halves of the top wing, giving it 1" dihedral at each tip, and cement center rib in place. Now sand all leading and trailing edges to shape, and cover.

Cover each side of upper and lower wing panel with one piece of tissue, and decorate with stars.

Make two wing struts P, of 3/32" sheet balsa and streamline as shown.

Now make three cabane ribs to pattern—one of 1/32" sheet, two of 1/16" sheet. Cut leading and trailing edges of cabane, which are the same as the wing, and sand to shape.

To assemble wings, the author decided on the following method: Cement wing sockets K, to both sides of former J, lining them up with a piece of 3/32" sq. balsa. Trim 1/32" off of lower wing panel, leading and trailing edge, and bevel for dihedral. Insert wing spars and sockets, and blocking up for one inch dihedral, as top wing, cement. Cement wing struts P, on lower wing in proper position, and place the top wing in position. Cut leading and trailing edges of cabane, and insert; put cabane ribs in place, then cover with tissue.

TAIL ASSEMBLY

BEND 1/20" bamboo to shape with heat, and pin around outline of stabilizer; pin 1/16" by 1/8" spars in place, fit in 1/32" by 1/8" ribs, and after stabilizer is finished, sand ribs to streamline shape.

The same procedure is followed on the rudder, with the exception that it is hinged on thin sheet aluminum strips to secure an easy adjustment for torque.

The tail skid is constructed of 1/16" sheet, cut to pattern, and cemented on fuselage as shown.

Cover tail surfaces on tail skid with separate pieces of tissue for each side, and decorate the rudder with three vertical stripes of red, white and blue.<' Cement parts to fuselage as shown.

MOTOR AND NOSE

THE nose is carved from a piece of soft balsa 1" by 2 1/4" by 3 1/4". Glue lightly to former A and cut to shape, smoothing with sand paper. Cut nose loose and imbed three dress snaps in former A and nose, as shown.

Make the motor stick of two 1/16" by 1/8" by 13" strips, cementing them together to form a square stick thirteen inches long. Plug both ends with balsa, as shown, and cement stick into nose. Give stick two coats of dope to resist rubber lubricant.

Using the pattern shown, carve the propeller and spinner assembly in the usual manner. The propeller can be finished to a velvety gloss by applying three coats of dope, sanding between each coat.

The free wheeling assembly is very simple, the wire parts are No. 14 piano wire and an ordinary tire valve spring furnishes the disengaging unit.

Care should be taken to give the propeller negative thrust, as shown in plan. The punch dress snaps hold the shaft firmly in position and form an excellent wear-resisting bearing.

Bend rear hook to S shape of No. 14 piano wire. The motor mount is bent from No. 18 piano wire and is lashed to the rear of stick with silk thread. The model is powered with eight strands of 1/8" brown rubber.

Make twenty-four exhaust stack stubs of 5/32" balsa, dowel and cement in position. Intake R is cut from 3/32" sheet, as is the radiator inlet fairing Q. Cut and sand to shape and cement in designated positions. Rig the ship with heavy black carpet thread.

Shrinking and doping the paper is a favorite procedure; so do it your favorite way.

FLYING

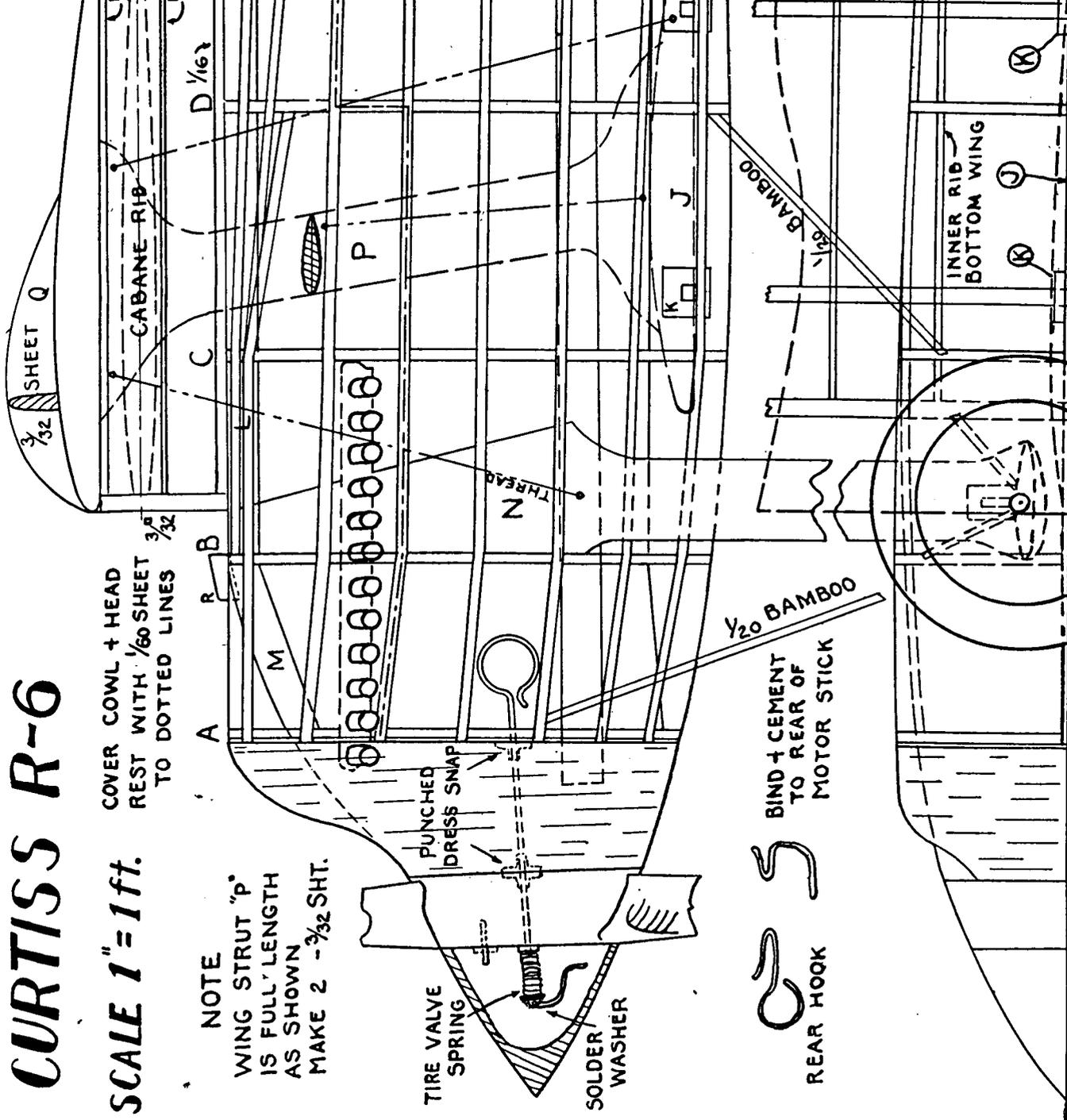
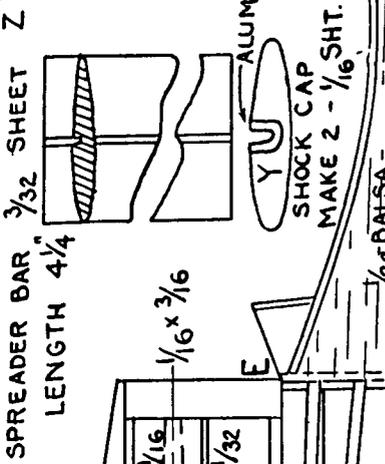
TEST your model for adjustment by gliding over deep grass until you secure the proper glide. If the model tends to stall, add a little weight to the nose until it has a long flat glide. Now set the rudder over 1/8" for a right turn, and hand-winding your model, launch it into the air on its maiden flight. With slack, well-lubricated rubber, five hundred turns may be put in with the winder, and durations of forty seconds and over are easily attained.

CURTISS R-6

SCALE 1" = 1ft.

COVER COWL + HEAD REST WITH $\frac{1}{60}$ SHEET TO DOTTED LINES

NOTE
WING STRUT "P"
IS FULL LENGTH AS SHOWN
MAKE 2 - $\frac{3}{32}$ SHT.



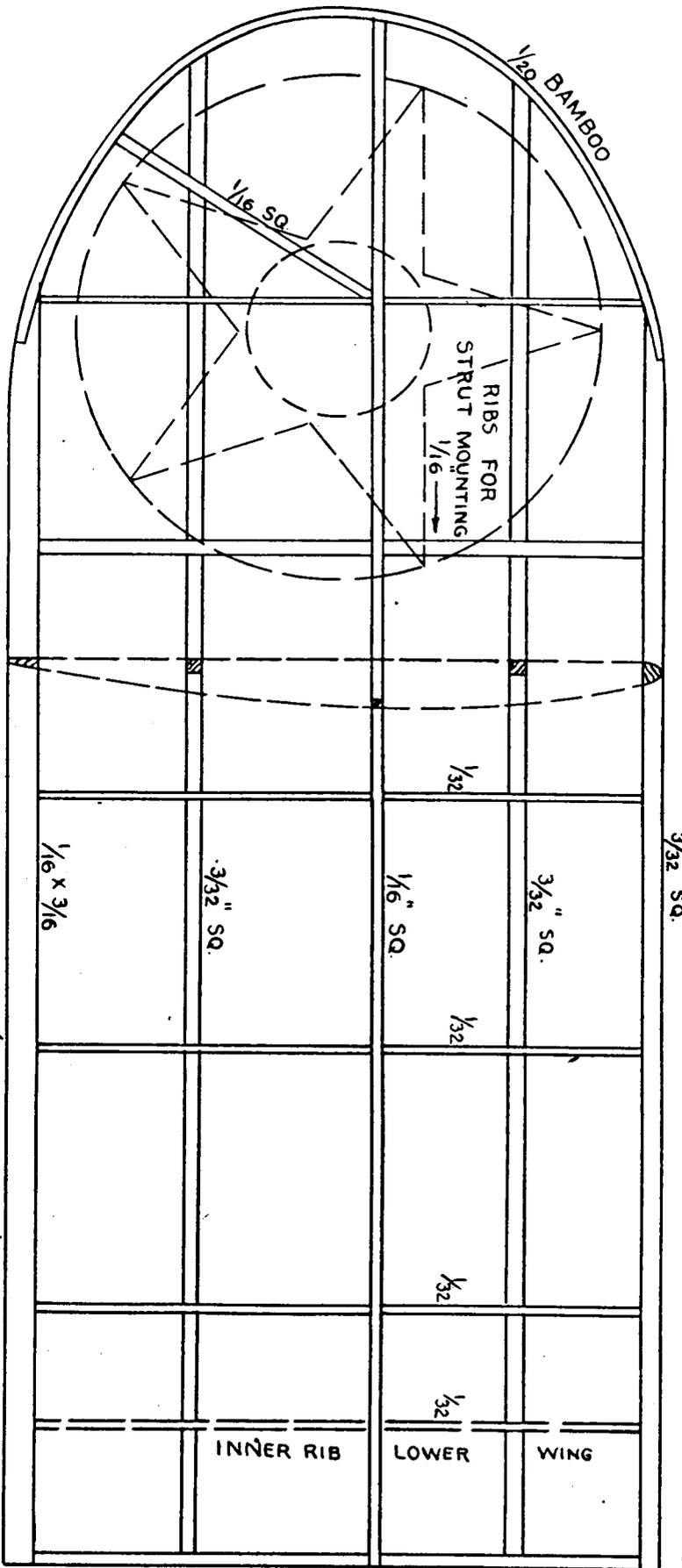
$\frac{1}{20}$ BAMBOO
BIND + CEMENT TO REAR OF MOTOR STICK



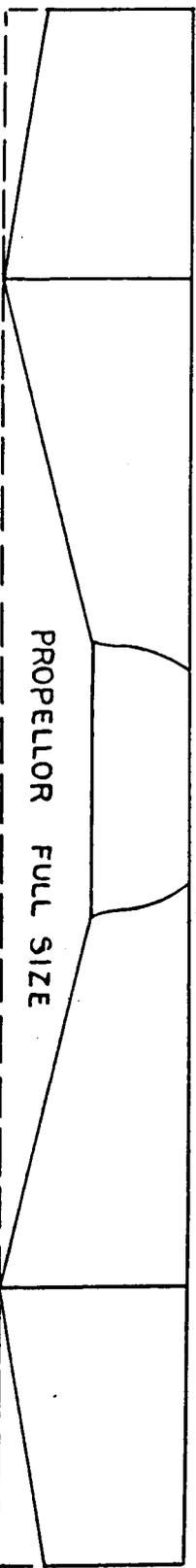
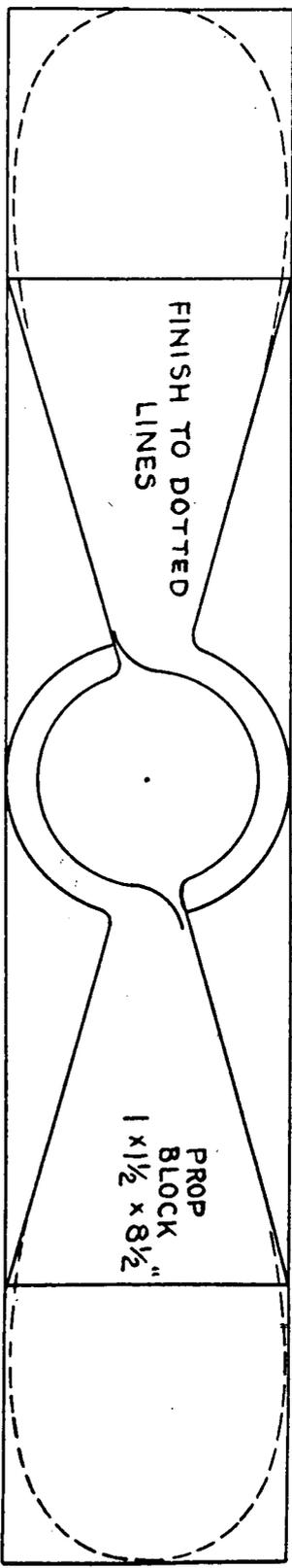
$\frac{1}{32}$ BAMBOO

INNER RIB
BOTTOM WING

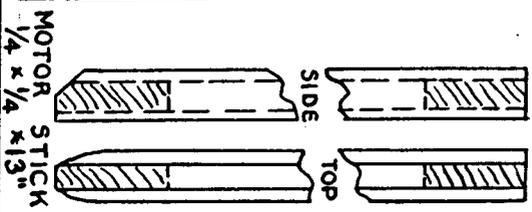
M
MAKE 2
 $\frac{1}{32}$ SHEET



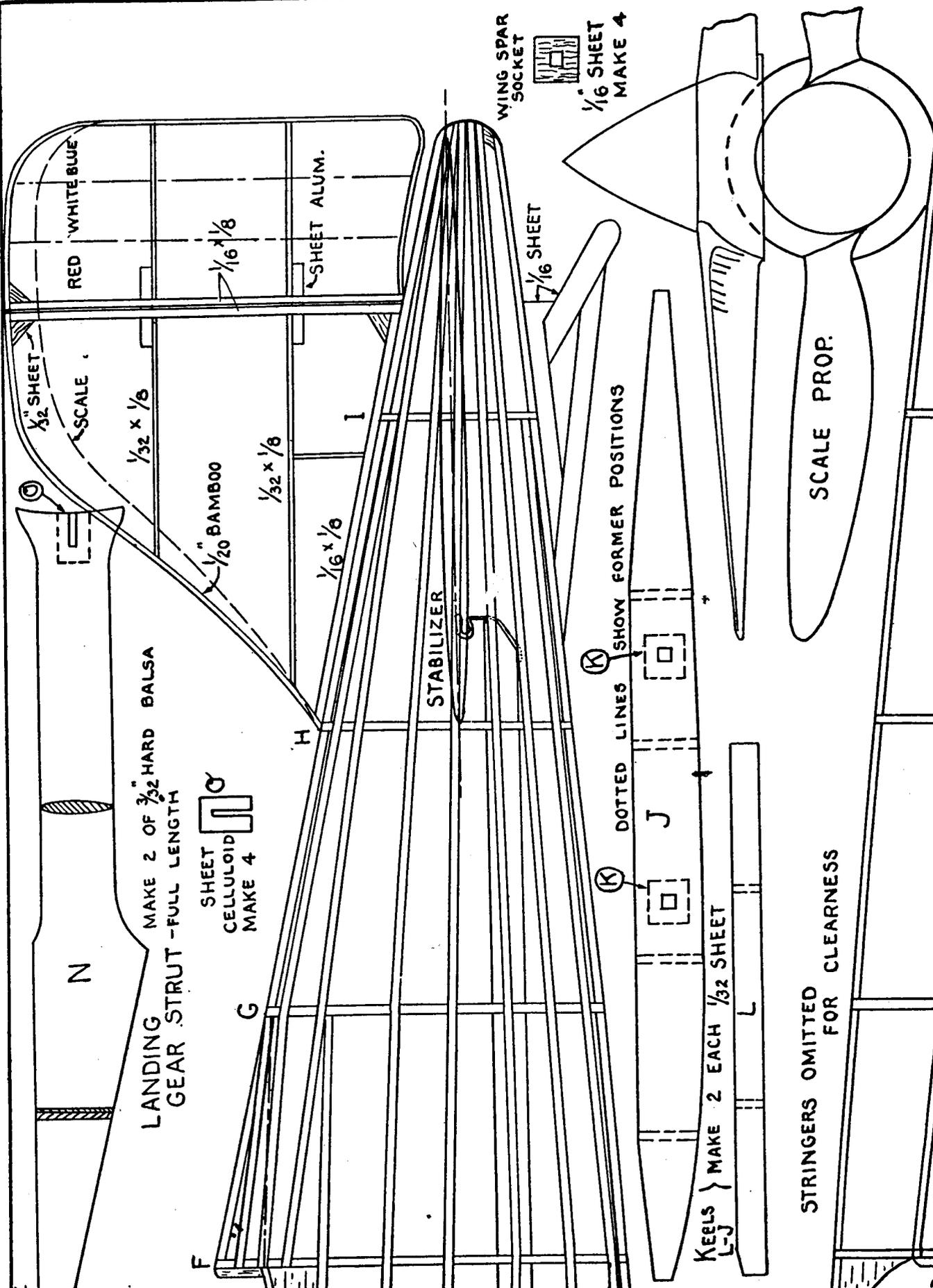
WING PANEL - MAKE 4 (2-LEFT 2-RIGHT)



FRONT



CENTER RIB TOP WING 1/16"



RED WHITE BLUE

1/2" SHEET

SCALE

1/32 x 1/8

1/20 BAMBOO

1/32 x 1/8

1/16 x 1/8

STABILIZER

1/16 SHEET

WING SPAR SOCKET

1/16 SHEET MAKE 4

DOTTED LINES SHOW FORMER POSITIONS

J

J

KEELS MAKE 2 EACH 1/32 SHEET L-J

STRINGERS OMITTED FOR CLEARNESS

SCALE PROP.

LANDING MAKE 2 OF 3/32 HARD BALSA GEAR STRUT - FULL LENGTH

SHEET CELLULOID MAKE 4

SHEET ALUM.

N

G

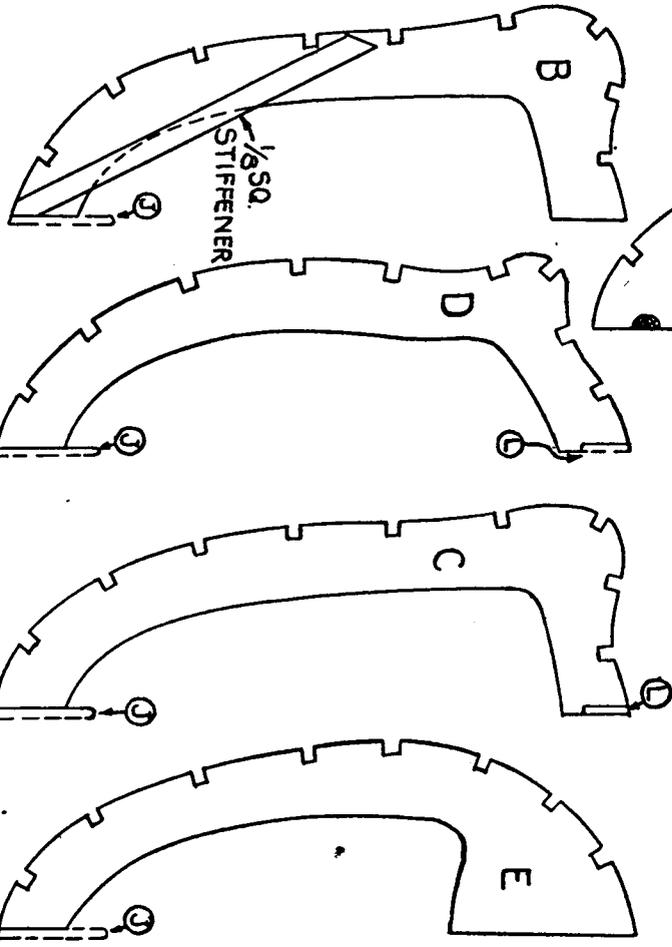
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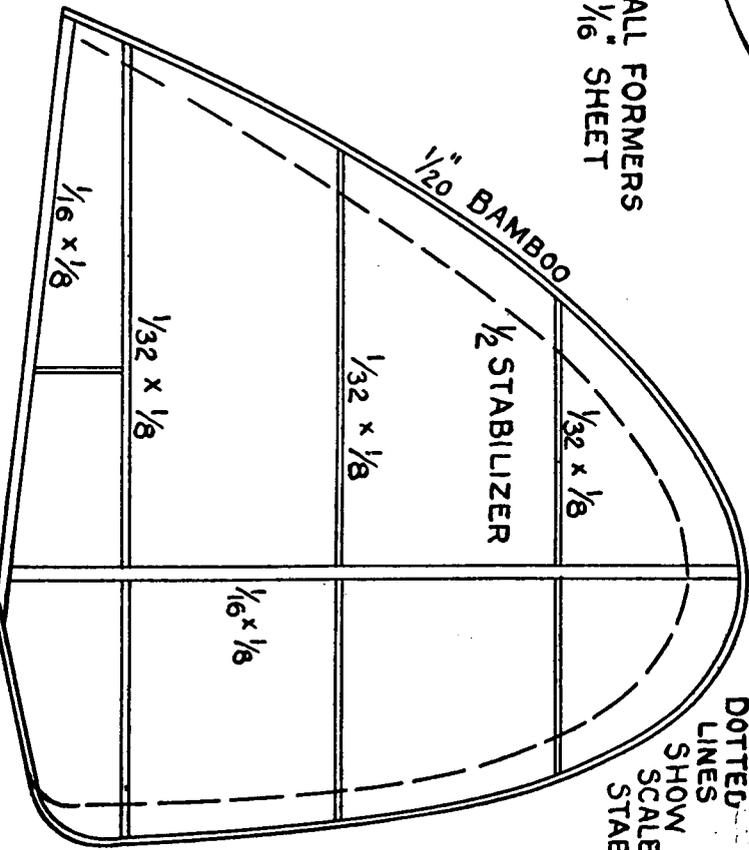
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DIHEDRAL 1" AT TIP



ALL FORMERS
1/16" SHEET



DOTTED LINES SHOW SCALE STAB.

