

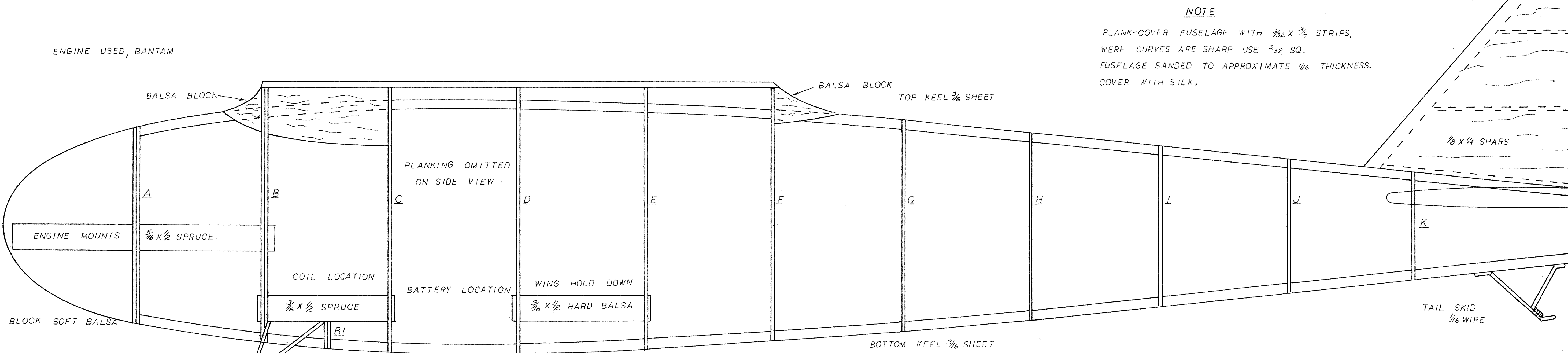
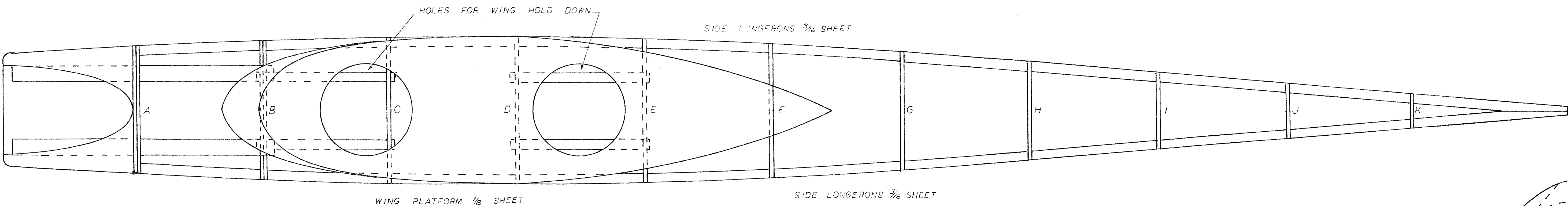
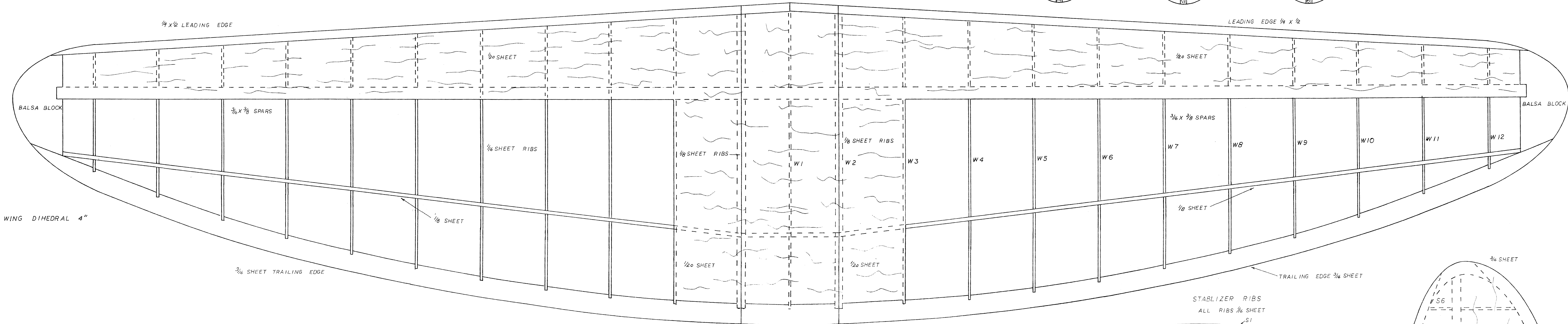
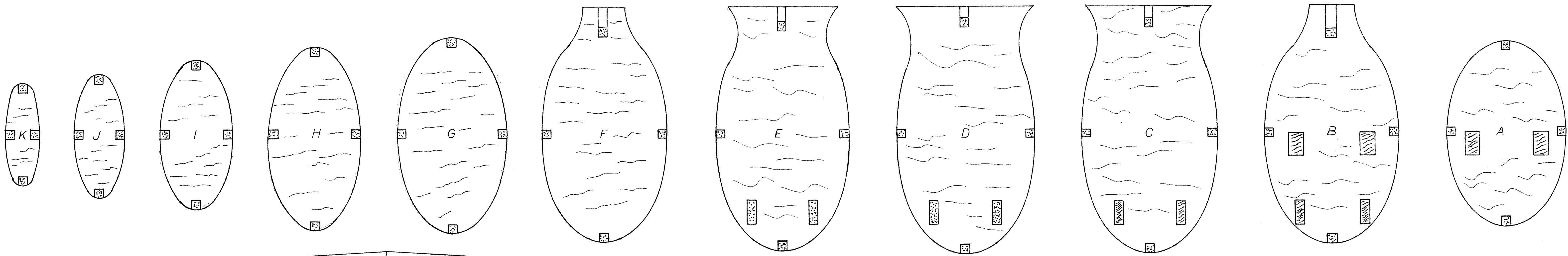
A Contest Gas Dandy—
“Miss Exchange Club”

Dedicated to the Exchange Clubs of America in appreciation of their active interest in the 1938 Nationals, this streamlined, four-foot gas model is one of the best-performing jobs we've ever printed for you. And the bill of materials, which you'll find on the opposite page, will be easy on even the skimmiest pocketbook. Need we say more?

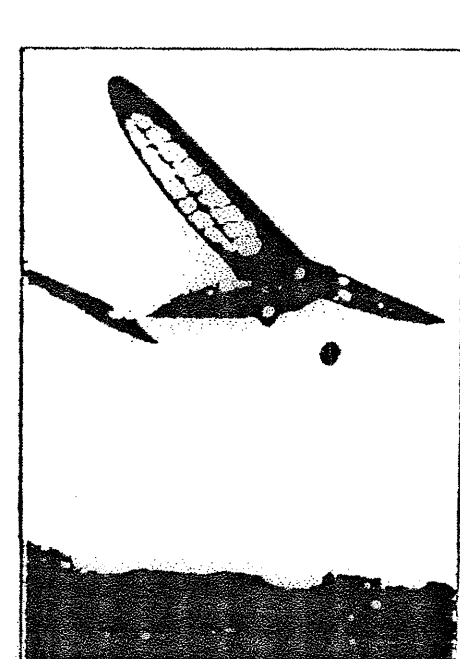
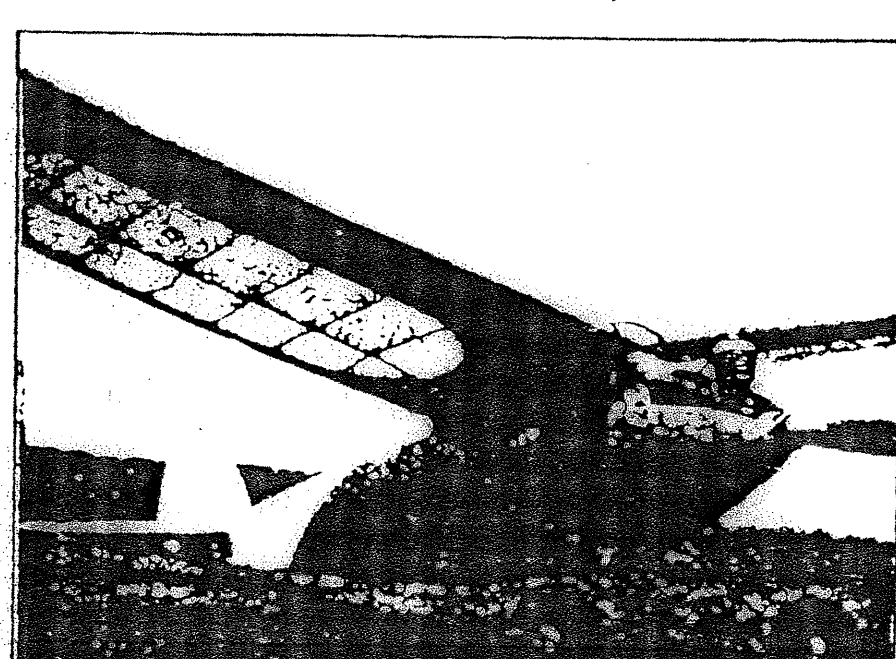
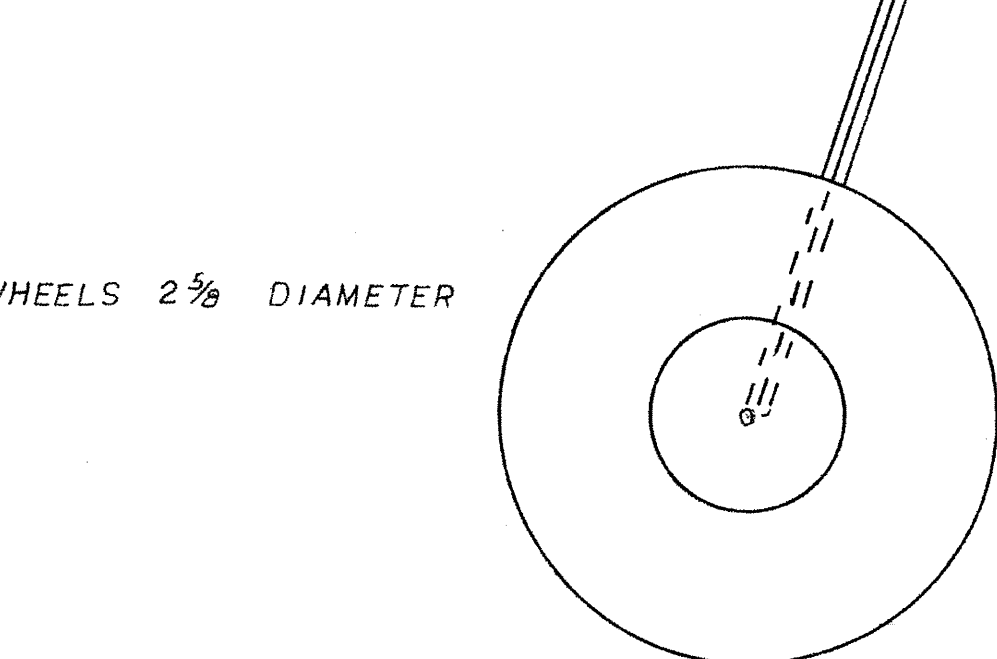
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By Ben Shereshaw

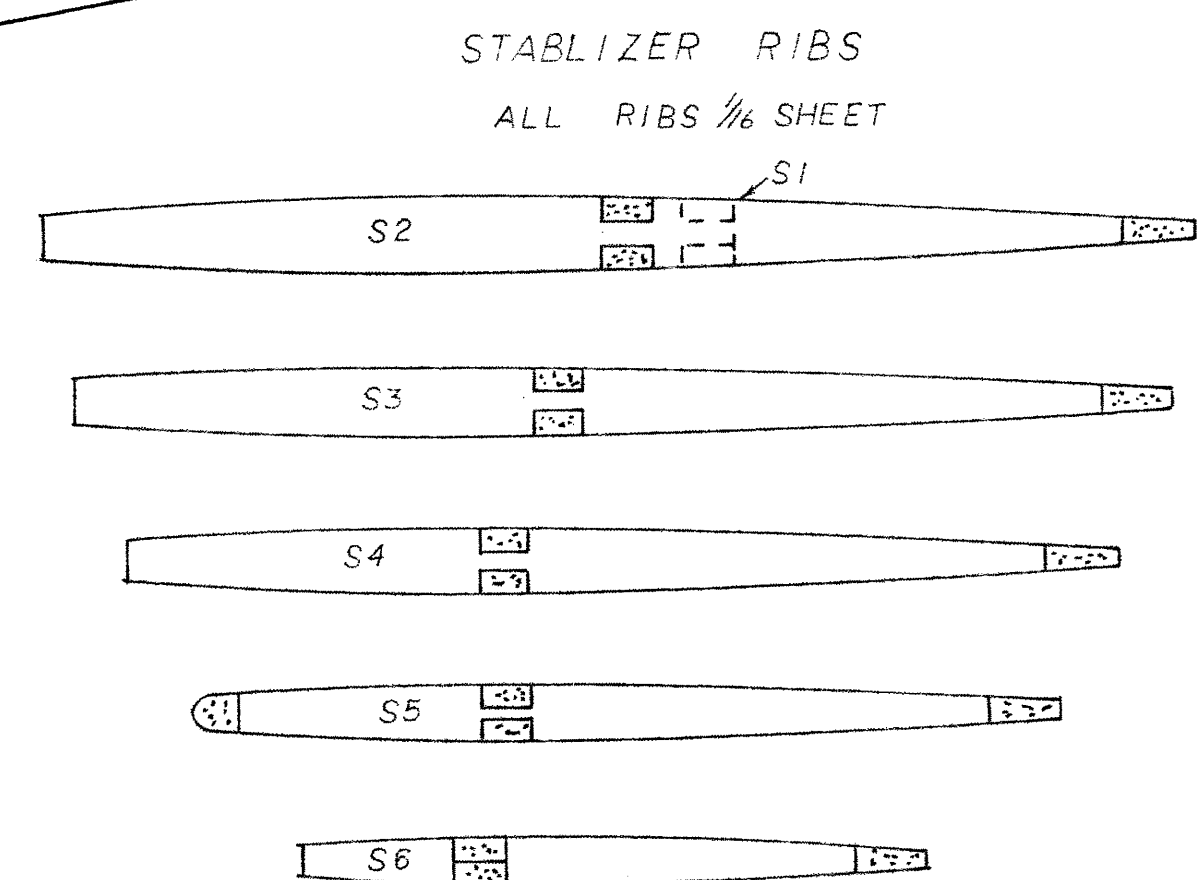
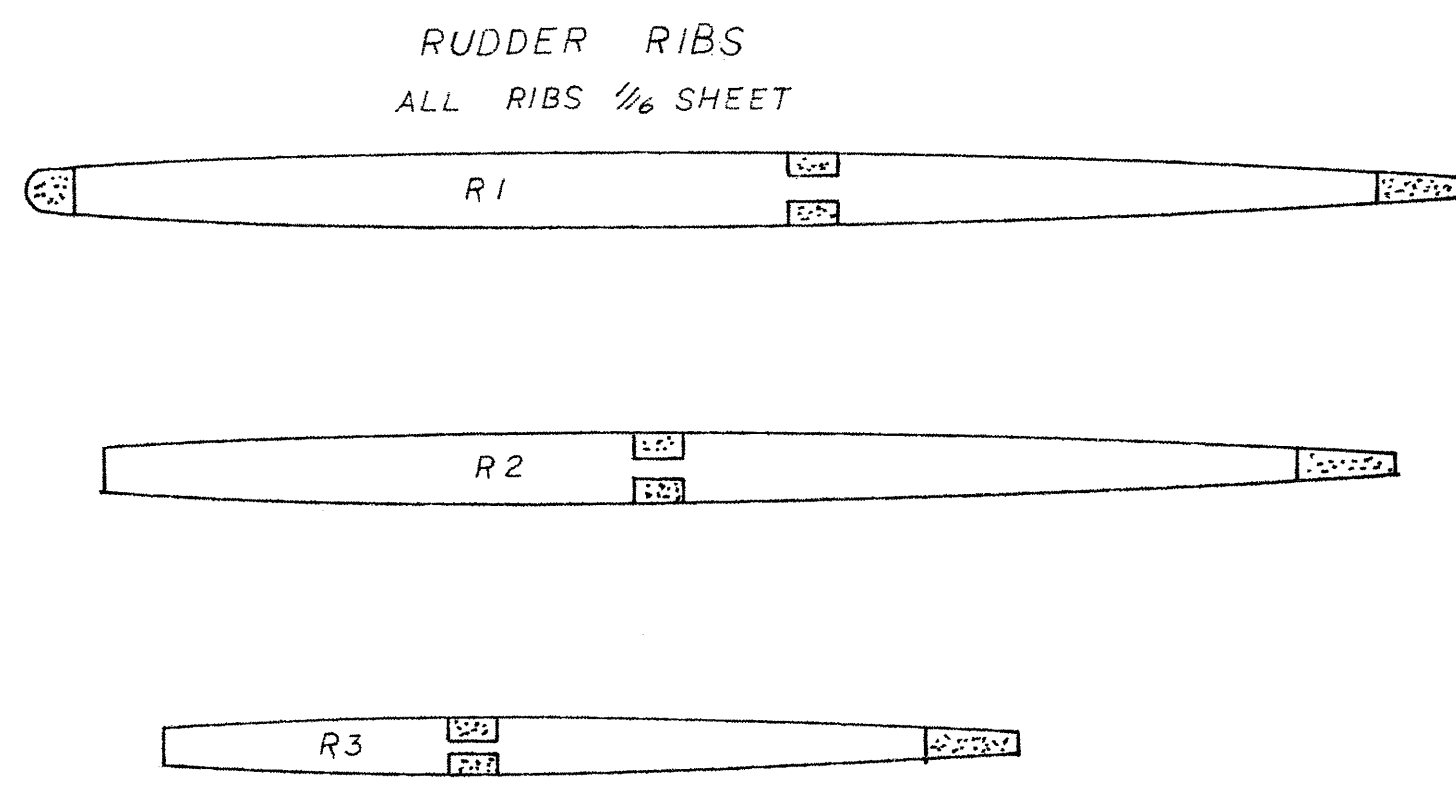
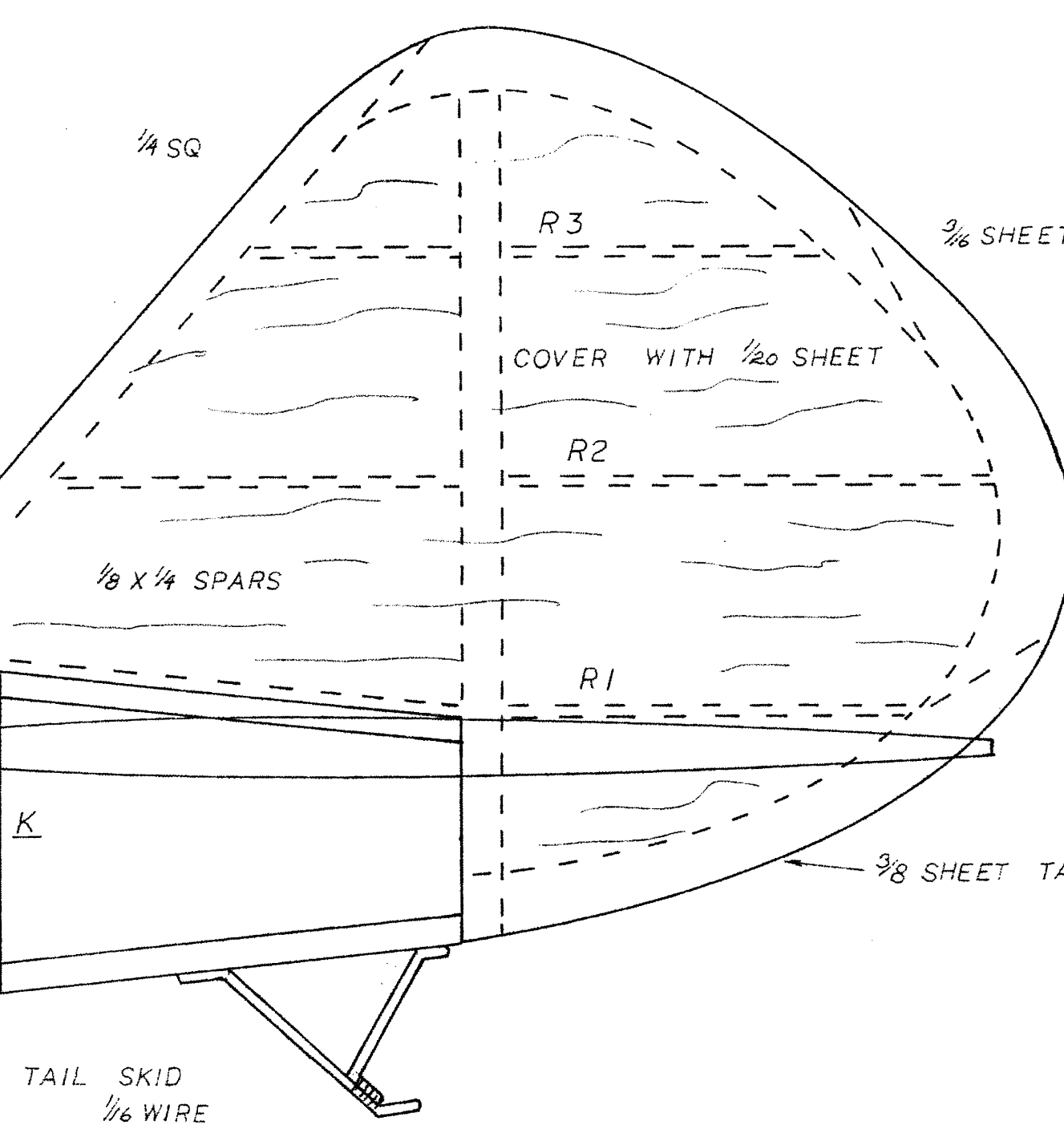
NOTE
ALL BULKHEADS $\frac{1}{16}$ SHEET BALSA
BULKHEADS "A" AND "B" 2 PLY SHEET
BALSA CROSS GRAIN.



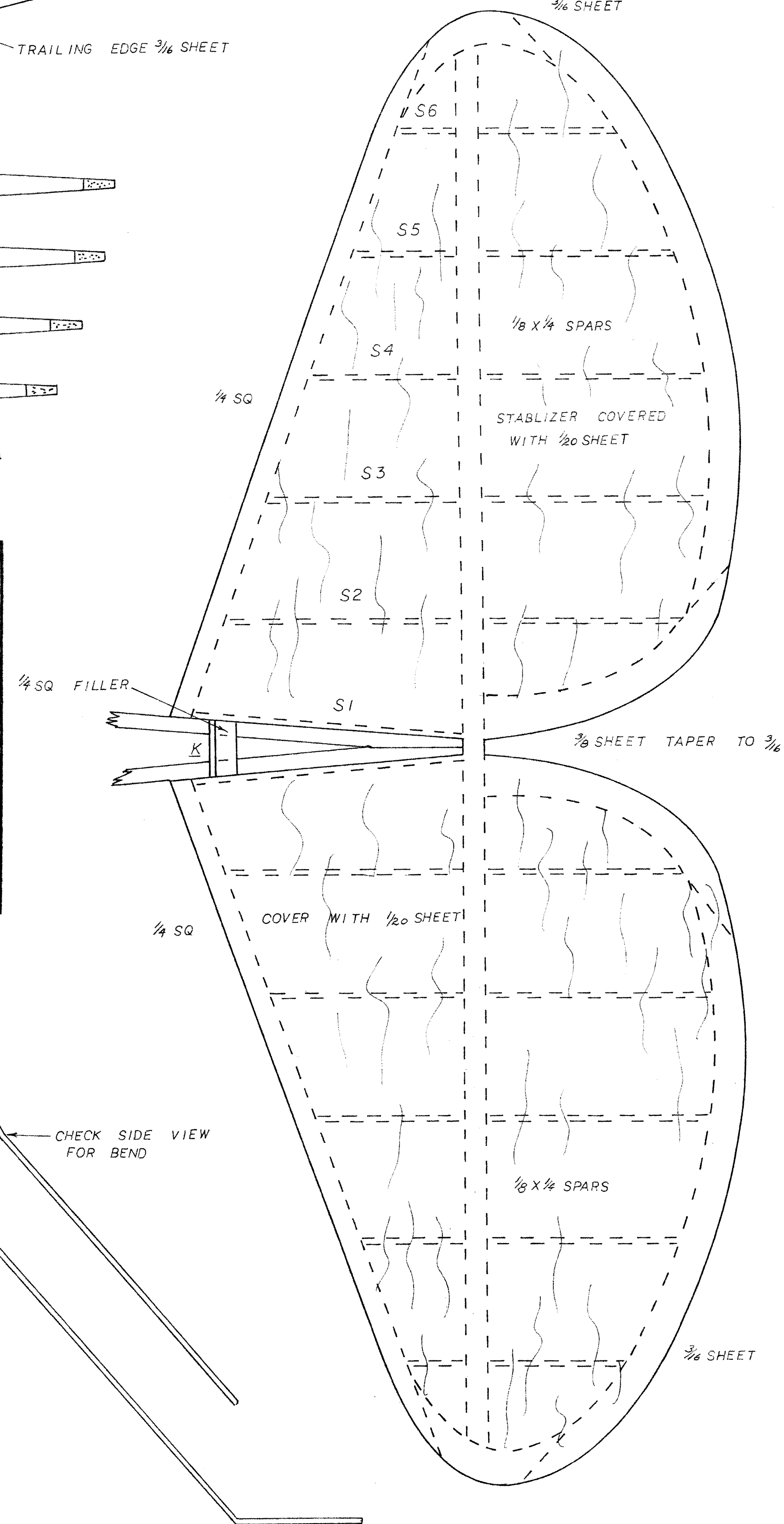
ENGINE USED, BANTAM
B1 - TWO PICES $\frac{1}{16}$ SHEET CROSS GRAIN
SAND INTO SHAPE AFTER GLUED IN PLACE

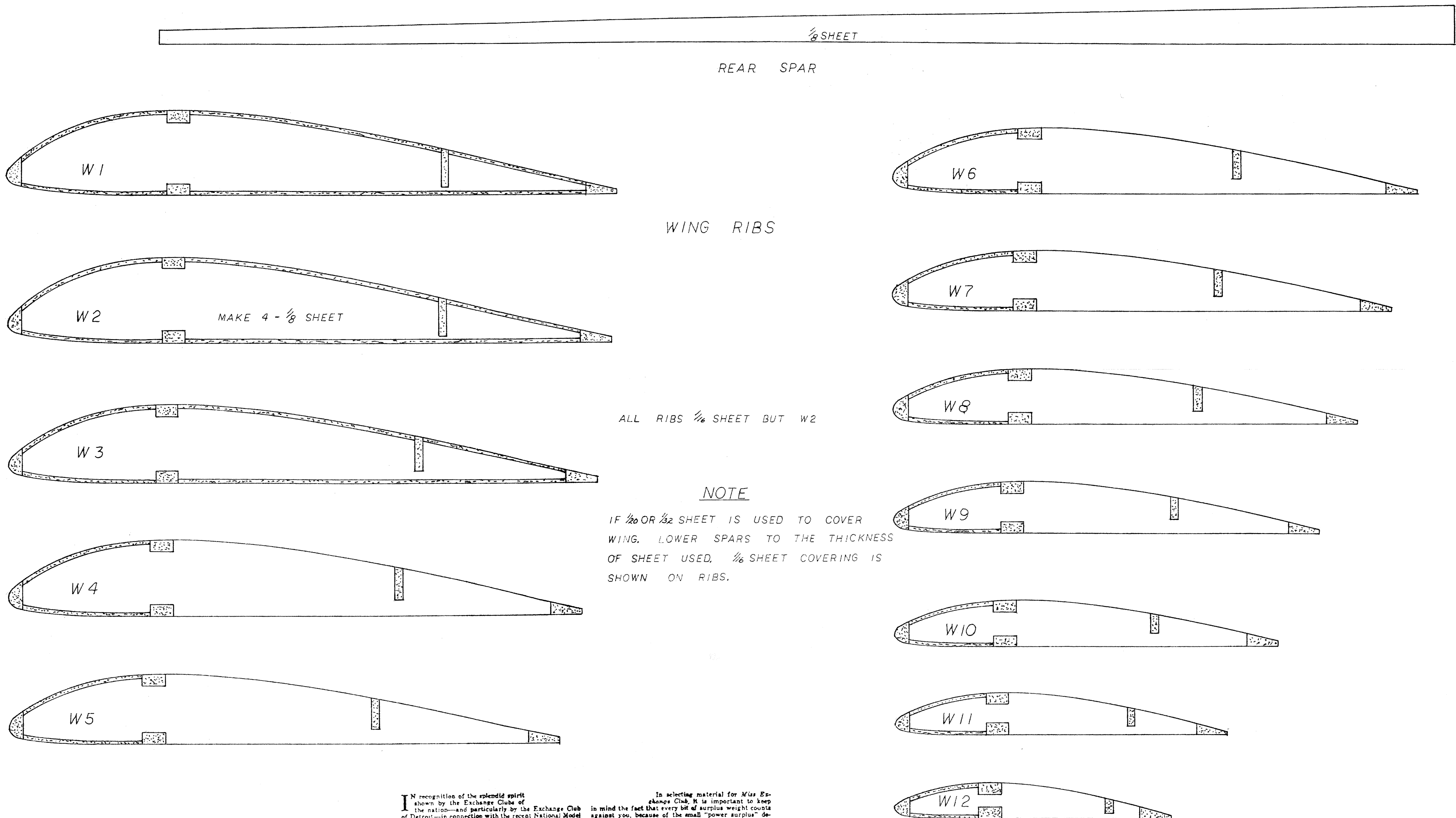


NOTE
PLANK-COVER FUSELAGE WITH $\frac{1}{16}$ x $\frac{3}{8}$ STRIPS,
WERE CURVES ARE SHARP USE $\frac{1}{32}$ SQ.
FUSELAGE SANDED TO APPROXIMATE $\frac{1}{16}$ THICKNESS.
COVER WITH SILK.



BILL OF MATERIALS
(Remaining plans will be found on the following pages)
Four sheets $\frac{1}{16}$ " by 8" by 24" balsa for bulkheads;
One piece $\frac{1}{8}$ " by 8" by 24" spruce or balsa for motor
mounts;
One length $\frac{3}{16}$ " by $\frac{1}{2}$ " by 24" hard balsa for wing heads
and landing gear;
One sheet $\frac{1}{16}$ " by 8" by 24" medium for wing platform;
One block $\frac{1}{2}$ " by $\frac{1}{2}$ " by $\frac{1}{2}$ " soft balsa for nose block;
Five sheets $\frac{1}{16}$ " by 8" by 24" medium for planking;
One sheet $\frac{1}{16}$ " by 8" by 24" medium hard for motor
rib;
Two pieces $\frac{1}{16}$ " by 8" by 24" medium for tail motor;
One sheet $\frac{1}{16}$ " by 8" by 24" medium for L and T wing tail;
Three sheets $\frac{1}{16}$ " by 8" by 24" medium for tail covering;
Five sheets $\frac{1}{16}$ " (cross-grain) medium for wing ribs;
Six pieces $\frac{1}{16}$ " by 8" by 24" medium hard for motor;
Three pieces $\frac{1}{16}$ " squares by 24" medium hard for
L and T;
Three pieces $\frac{3}{16}$ " by $\frac{1}{2}$ " by 24" medium hard for
Four sheets $\frac{1}{16}$ " by 8" by 24" medium hard for
wing covering;
One block $\frac{1}{2}$ " by 1" by 4" soft balsa for wing tips;
One sheet $\frac{1}{16}$ " by 8" by 24" hard sheet for spar
holders;
Two lengths .0025 wire for landing gear and wing
holders;
One pair 24" aluminum;
Tapestry tissue and silk, cement, dope, etc.





IN recognition of the splendid spirit shown by the Exchange Clubs of the nation—and particularly by the Exchange Club of Detroit—in connection with the recent National Model Airplane Meet, I have dedicated this 48" streamlined gas-powered model exclusively to the organization and have christened it by the most appropriate name—Miss Exchange Club.

Designed expressly to fly with miniature engines, the model showed great promise at the Nationals, and the few kinks that popped out at that time have been ironed out in this improved version built for FLYING ACE fans.

Several innovations have been tried successfully on this model. These include the new monostrut landing gear and the special device for attaching the wings to the fuselage.

In selecting material for Miss Exchange Club, it is important to keep in mind the fact that every bit of surplus weight counts against you, because of the small "power surplus" delivered by baby engines. Therefore be very careful in picking out your wood, especially the planking for the fuselage.

FUSELAGE

START by selecting a medium grade of 1/16" balsa sheet, slightly over-size for the bulkheads. For bulkheads A and B use two sheets of 1/16" balsa laminated together before the bulkheads are shaped. Then, working from the bulkhead plate on the opposite page, cut all of the bulkheads along with the longeron and motor bearer notches.

The longerons should be selected for grain and even bending qualities. Our first step in the assembly is to mark off on the longerons the distance between the bulkheads at their minor axes. A small, crutch-like jig can be built for the assembly over a full size layout of the top view of the fuselage (Plate 2). In this case we substitute strips of 3/16" scrap balsa for bulkheads. This assembly should be cemented lightly together.

When this has been completed, you will be able to slide the bulkheads in place between the horizontal longerons. The scrap cross-members should not be cut away until the longerons have been cemented in place. Check very carefully the alignment of the fuselage before the final coats of cement are applied.

The spruce motor mounts, landing gear brace, and wing hooks can next be inserted and cemented securely in position.

As you will note on the plans, the fuselage contains no stringers. It relies on the planking strips to hold the contours without sag. Do not attempt to sheet-cover the fuselage, for this will not give the desired resistance to dope and cracks. Plank-cover it with strips. The softest possible grade of sheet balsa should be selected for the purpose and stripped to the required dimensions.

Where curves are sharp, particularly about the fillet, strips about 3/32" by 3/32" should be used. Where the curve is shallow, strips of 3/32" by 1/2" can be used with safety.

Begin planking by cementing three or four planks about each longeron. Planks applied in this fashion will meet at the rear of the fuselage. As progress is made with the planking, it will become necessary to taper each succeeding plank to make it fit. Leave the lower sections of the fuselage unplanked to facilitate the attachment of the landing gear.

LANDING GEAR

THE landing gear on the Miss Exchange Club is of conventional pattern except for the rear strut. Begin by scaling up to full size the true length of landing gear members (Plate 2), which are best from .0625 music wire. The axle is steamed out easily.

In attaching the horizontal tail to the fuselage, a small section between Bulkhead K and the stern post is cut away to the contour of the tail rib, at the point of contact with the fuselage (see detail sketch on Plate 2). Next cement the tail in place, check for alignment, and allow to dry for at least an hour.

The small section which has been left over after cutting away for the tail anchorage is carved and fitted, then cemented again to the upper surface of the tail.

In constructing the rudder, the very same procedure is followed. When cementing the rudder in place, be sure to check for alignment both before and after the cement has dried. The entire surface of the rudder and tail assembly is covered with Jap tissue and doped lightly with two coats of thinned-out dope.

is formed as part of the front strut. The front strut can be lashed and cemented securely in place to members A, which are of 1/8" by 1/8" hard balsa. Between bulkheads B and C make the rear member according to the plans, and bind it also to members A.

The wire members can then be soldered and bound together with very light tin or copper wire every two inches along the length of the members. In forming the landing gear members, do not make sharp bends, as these are apt to weaken the metal.

Fixtures for the coil are built between Bulkheads B and C. For the batteries, they are built between Bulkheads C and D. A simple fixture for the coil can be made from 1/8" sheet balsa with holes cut through to the diameter of the coil. The lengths of these pins should be equal to the distance between the bulkheads, and one sheet on either side of the coil is all that is necessary. The fixture is first assembled outside the fuselage and is slipped in place between the bulkheads after the coil has been cemented into the holes.

The planking of the fuselage can now be completed and sanded smooth so that the approximate thickness of the planks is slightly over 1/16". The nose block of very soft balsa is next attached to Bulkhead A. It is carved and sanded to shape after being allowed to dry

for at least three hours.

To complete the fuselage lightly cement a wing platform of 1/8" sheet balsa to the top of the wing mount and cut the holes as illustrated on Plate 2. The cowling of course must be fitted to whatever motor is selected. In all cases, be sure to allow for the proper cooling of your motor.

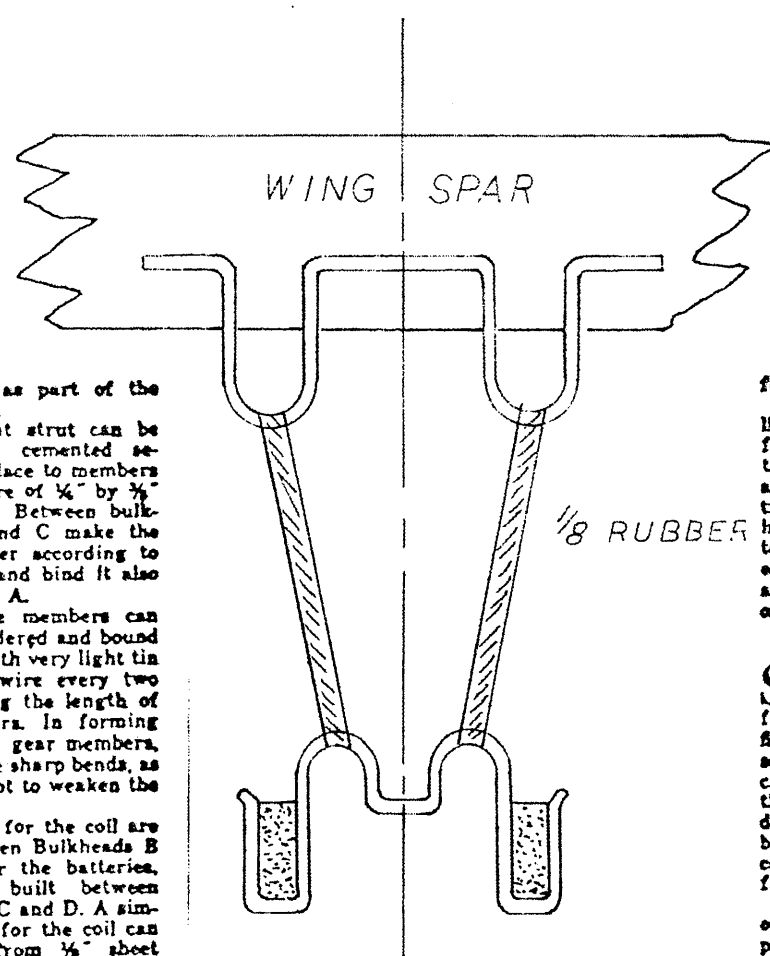
TAIL SURFACES

SCALE both the rudder and horizontal tail to full size. The basic rib profile on Plate 2 should be scaled down relative to its chordal dimensions on both the horizontal tail and rudder. Medium balsa should be used throughout the construction of the tail surfaces.

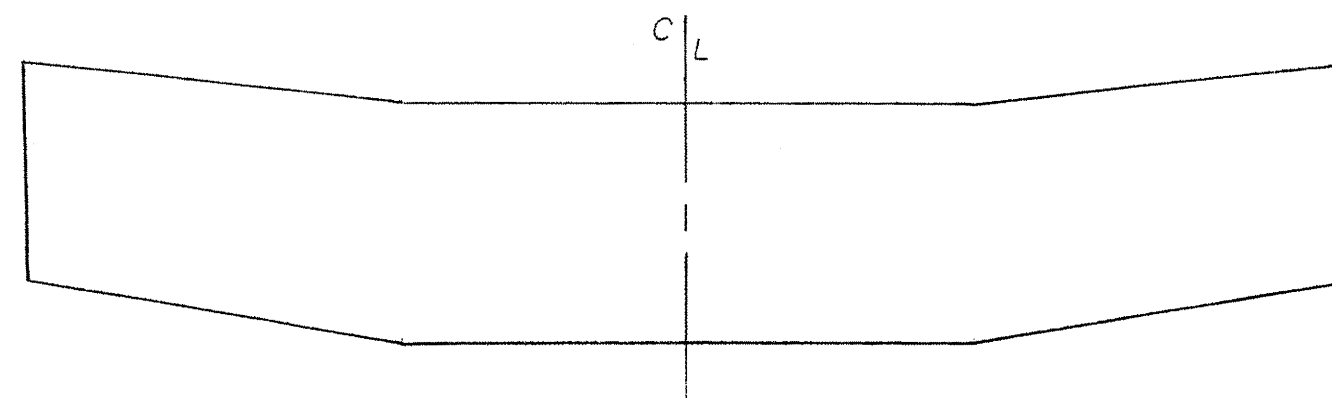
Over your full sized layout, lay the lower spars in place. Next, install the ribs over the spars and keep a sharp eye upon their forward-aft alignment. Now insert the upper spar. Before cementing, the assembly check again for rib alignment and make any necessary corrections.

The next step is to cement in place the roughed-out leading and trailing edges. Sand these to the contour of the ribs after they have been allowed to dry.

The tail surface is covered with 1/20" by 2" strips with the grain running along the span. After covering has been applied and allowed to dry, it is given a final check for alignment. If any distortion has set in it can



WING HOLD DOWN



WING DIHEDRAL BRACE
MAKE 2 - 1/8 PLYWOOD
4" DIHEDRAL AT TIP

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