

# Here's the Waco F-3

By Avrum Zier

Here's something new and interesting—the latest model from the Waco Company, the Waco F-3. This model is of such recent design that it is only with the kind cooperation of the company that we are able to present complete plans and directions for building a model of it this month. Get to work right away on the Waco F-3—and be the first to have a model of this new ship.

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IN the future, this department of FLYING ACES will have the kind cooperation of the aircraft companies whose models appear in this section. This month, in collaboration with the Waco Company of Troy, New York, we present plans for building an exact replica model of their latest model, the Waco F-3.

Due to the fact that the Waco F-3 is of recent design, it was impossible for us to obtain the usual complete data at the time of this writing.

## FUSELAGE

THE construction of the fuselage is clearly illustrated on sheet 1. Though this drawing is not accurate as to the placing of the formers and dimensions, it nevertheless serves to give the general method of how the fuselage should be constructed.

Obtain about 12 strips of 1/16" square balsa. Gluing Sheets 2 and 4 together, you will have a side and half the top view of the inside fuselage frame. Using the plan as a jig, construct two sides. While the jigs are drying, cut out the necessary formers from 1/16" sheet balsa. The formers are cut into four separate parts. These parts, after being made to form the contour of the formers shown on the plan, are glued around the frame.

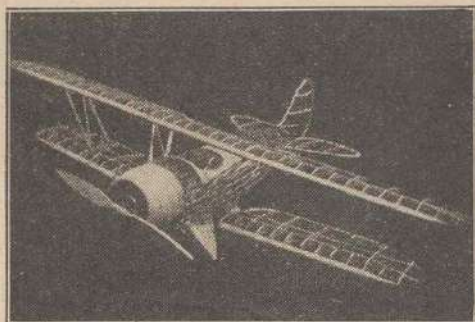
Formers 5 and 6 are constructed in a different manner. Instead of having the sides and bottom cut out of sheet balsa, they are shaped with 1/16" reed and reinforced with 1/16" braces.

Having glued all the formers in place, next glue the stringers in their proper place.

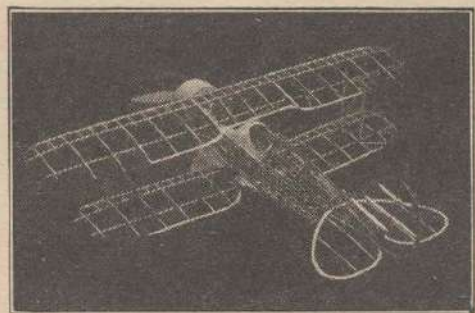
The stringers within the height of the frame are placed at 1/4" intervals. Top and bottom stringers are placed accordingly. The top and bottom stringers should not follow in a straight line, as do the side stringers, but should follow the shape of the fuselage down to the last former. Use 1/16" stringers cut from balsa on the side. At the top, 1/32" bamboo stringers are used.

## WINGS AND TAIL

THE construction of the wings follows along the same line as have the other models. Use a solid edge and



This picture of the uncovered Waco F-3 model built from the plans given here will help you in your building.



Another view of the framework of the completed Waco F-3. It's a beauty!



Here's a picture of the ship itself! Compare this Waco F-3 with the snapshots of the model above. Practically twins, aren't they?

two spars of 1/8" x 1/16" to obtain strength. Cut out the necessary ribs as shown. The ribs are all cut from 1/16" sheet stock. Pin down the bottom rear spar and place your ribs in their proper place.

Without sanding the leading and trailing edges, glue them in place. The tips are outlined with model-making pins. Bamboo is then bent around the pins to form the desired contour of the wing tip. Now glue the joints and set them away to dry. It would be advisable to trace the wings shown on the plan so that you will have both tops and bottoms to work with.

Ailerons may be made to move or to remain stationary. In both cases, cover them with 1/32" sheet balsa.

The construction of the tail is simple. The ribs are shaped. Dowels of 1/16" are used as spars, and the outline is bamboo. The stabilizer is attached to the passing stringers before the rudder is glued in place. Cover the complete tail with paper. Should you wish to make the rudder and elevator movable, you should use double spars connecting them with an aluminum sleeve.

## COWL AND LANDING GEAR

THE cowl is constructed of four separate pieces. These pieces are all glued together and sanded as one. The inside is cut out to house a 2-inch motor. The complete cowl is coated with banana oil and sanded.

The cowl is attached to the fuselage in the following manner. If you will notice on Sheet 1 (side view) that the cowl is cut away. The extending portion entering the rear of the cowl is cut to fit a 2-inch circular hole. This part should be cut out of 1/4" sheet balsa and glued to former 1.

In constructing the landing gear, you must take care to obtain the proper length of the struts. The main strut is constructed with three spars—front, rear, and cross. The spars are sanded so that, when covered, they will form a streamlined body.

The pants are then constructed. The inside of these is cut out so that a wheel of 1 1/2 inches can easily rotate. The wheels should contain eyelets. Coat the pants just as you have the cowl.

## ASSEMBLING THE MODEL

ATTACH the rear surfaces first. The leading edge of the stabilizer is raised about 1/32 of an inch. With the tail surface set in place, put on the landing gear so that the tail lies on a straight line from tip to top. While you are waiting for the landing gear to dry, you can carve the propeller out of the block shown on Sheet 6.

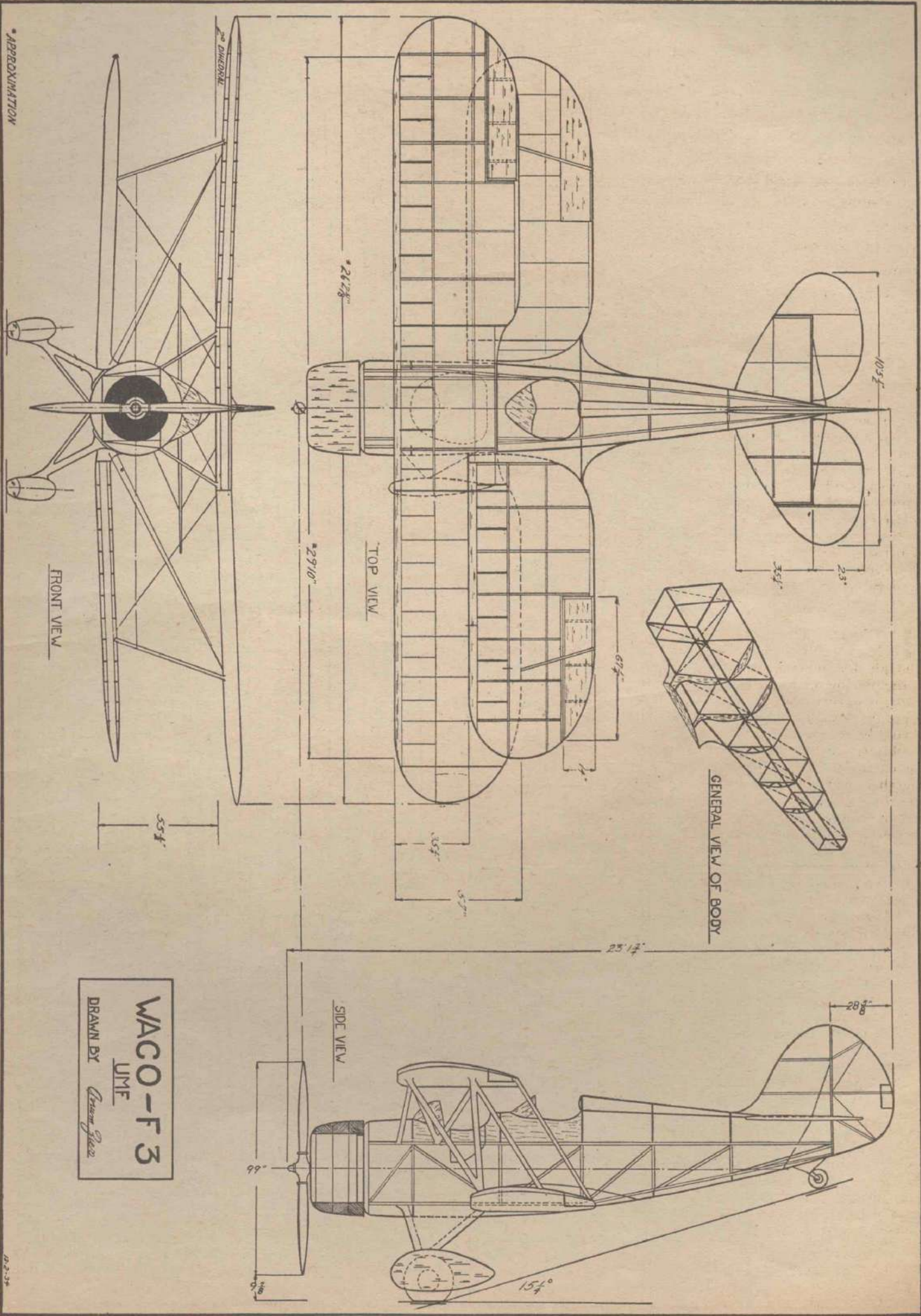
The center section is first glued in place and attached to the cabane struts. After this, glue on the two bottom wings, setting blocks under the tips so as to obtain the 2 degrees of dihedral that are necessary.

After the bottom wing has dried in place, construct your "N" strut and attach to the proper rib. When the "N" strut has dried in place, you can attach the top wing, which will also have a 2-degree dihedral angle. It will not be necessary to give the wings any angle of incidence. The cowl is then attached to the fuselage.

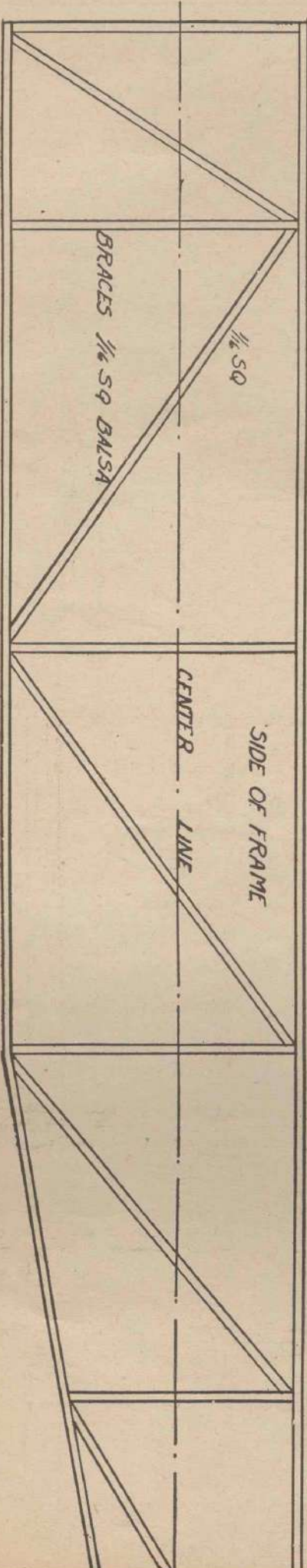
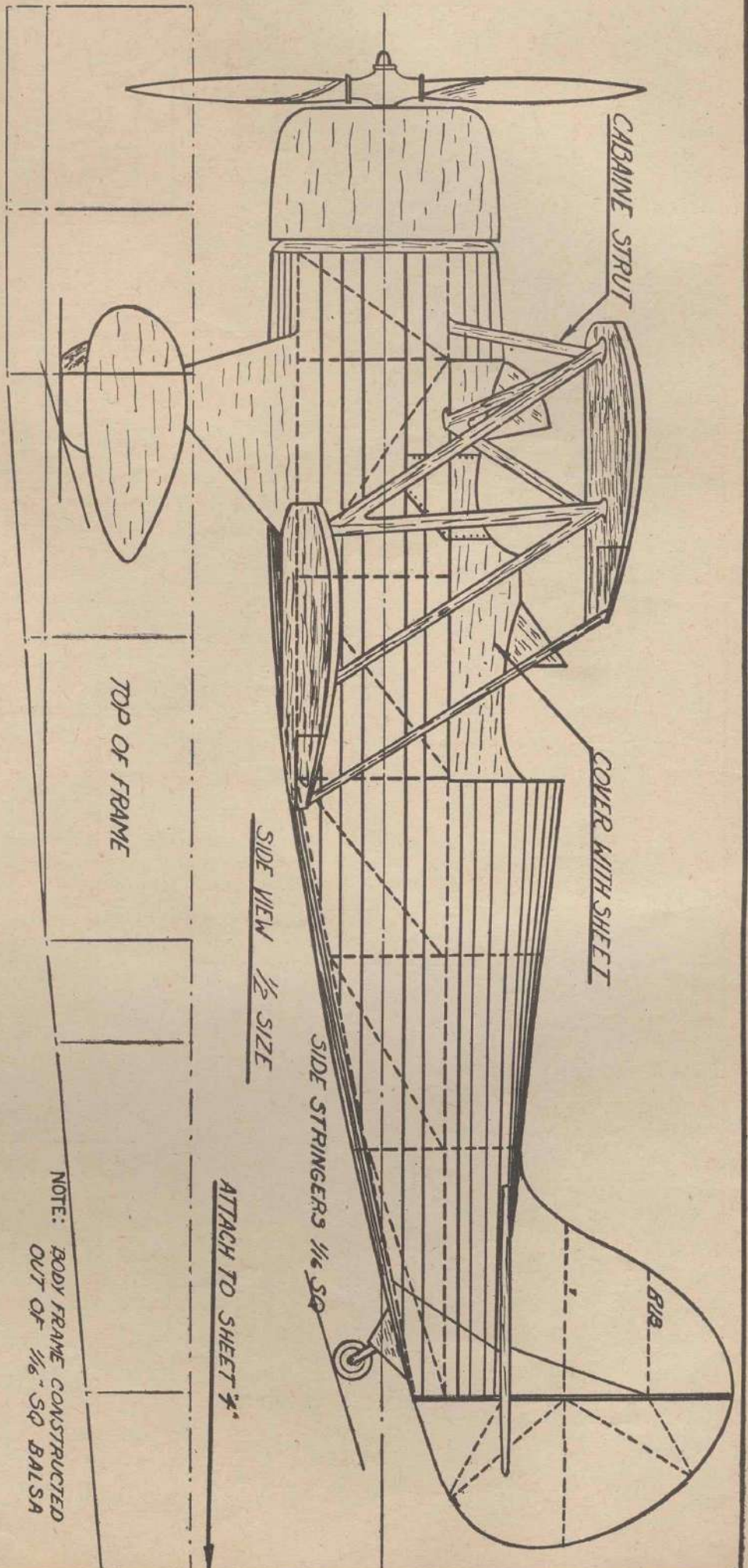
## POWER PLANT

THE propeller, after being carved, should be doped with clear banana oil and sanded. The shaft of the propeller is bent out of number 6 wire. It is inserted through the motor, then attached to the propeller. Four washers are necessary to prevent friction. After the propeller is attached to the 2-inch motor, glue the motor into the cowl, first attaching the rubber. Three loops of 3/16" flat rubber are sufficient.

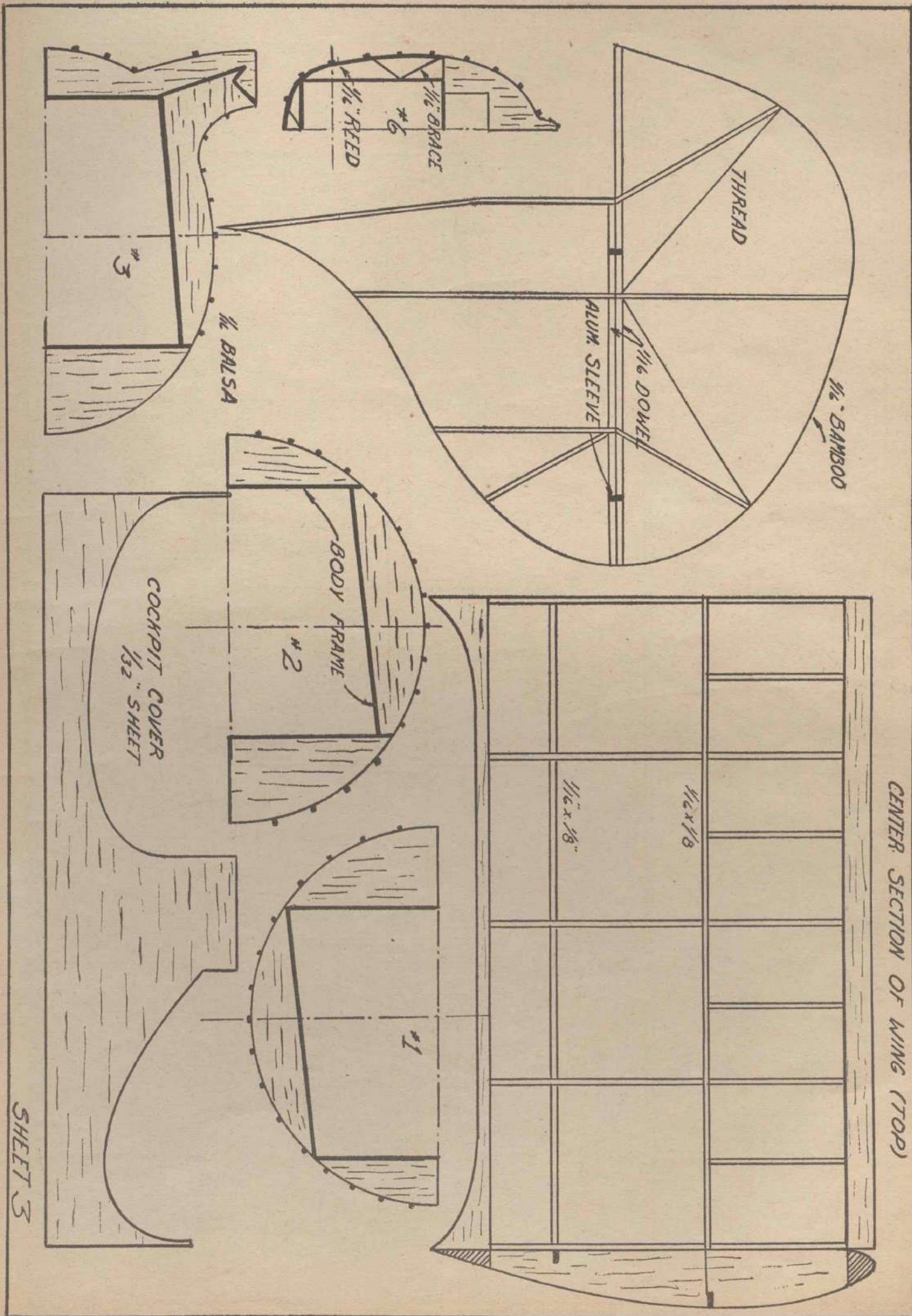
Cover the complete model with paper and spray with water. After the paper has been drawn tight, coat it with two coats of banana oil.

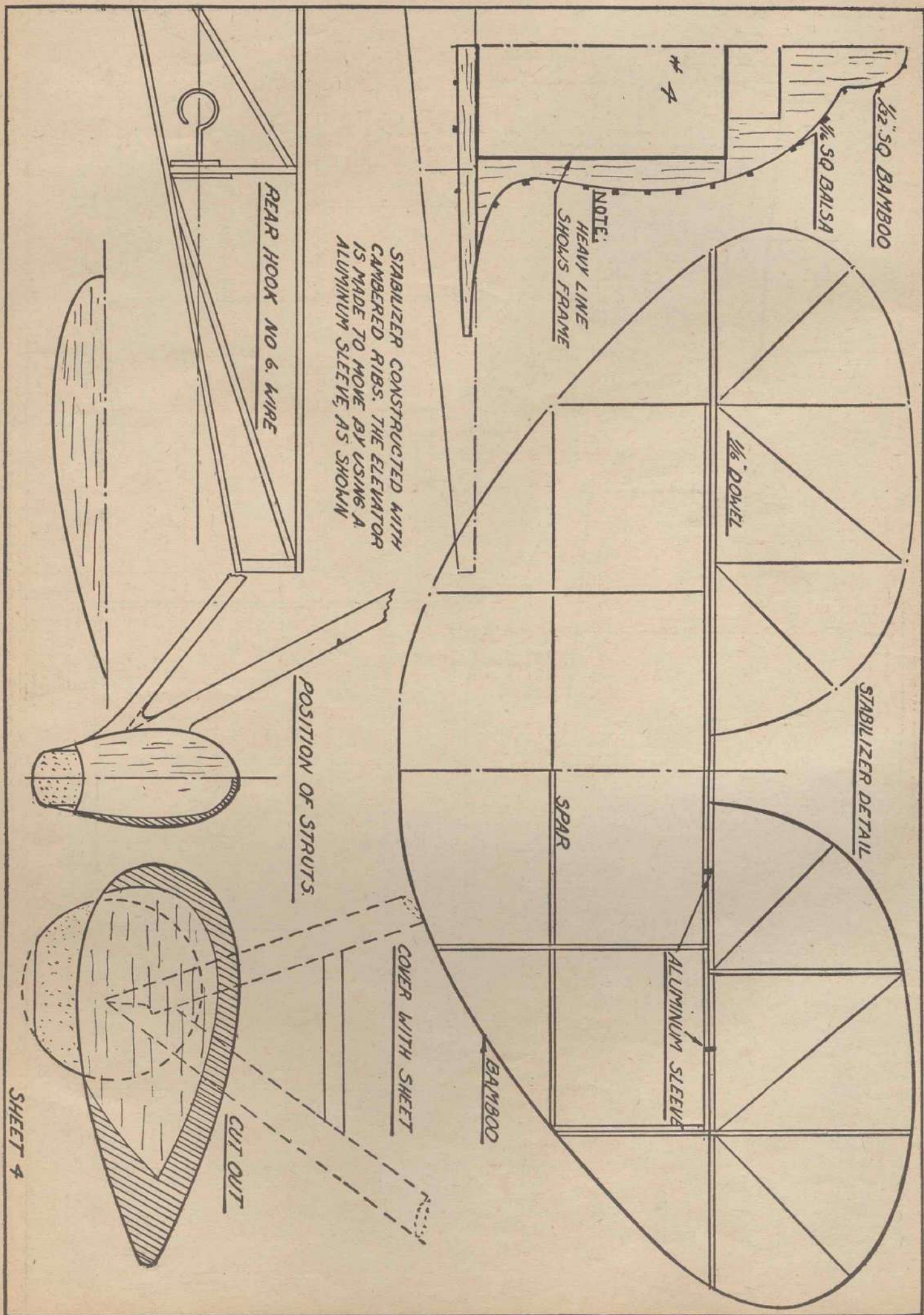


**WACO-F 3**  
 UMF  
 DRAWN BY *Armed Forces*

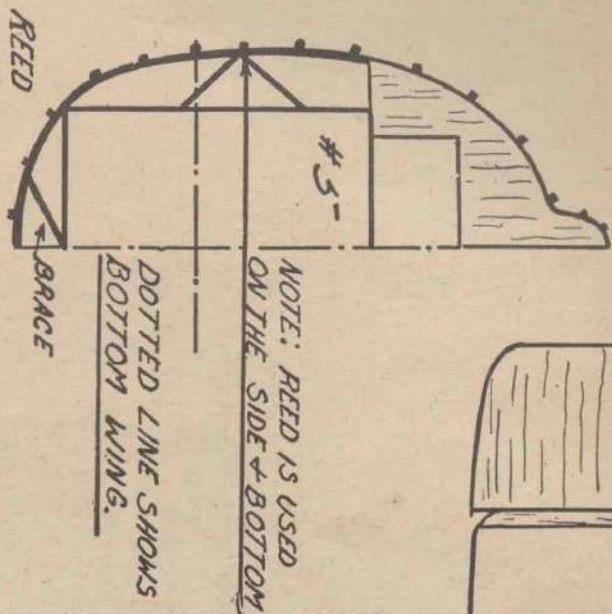
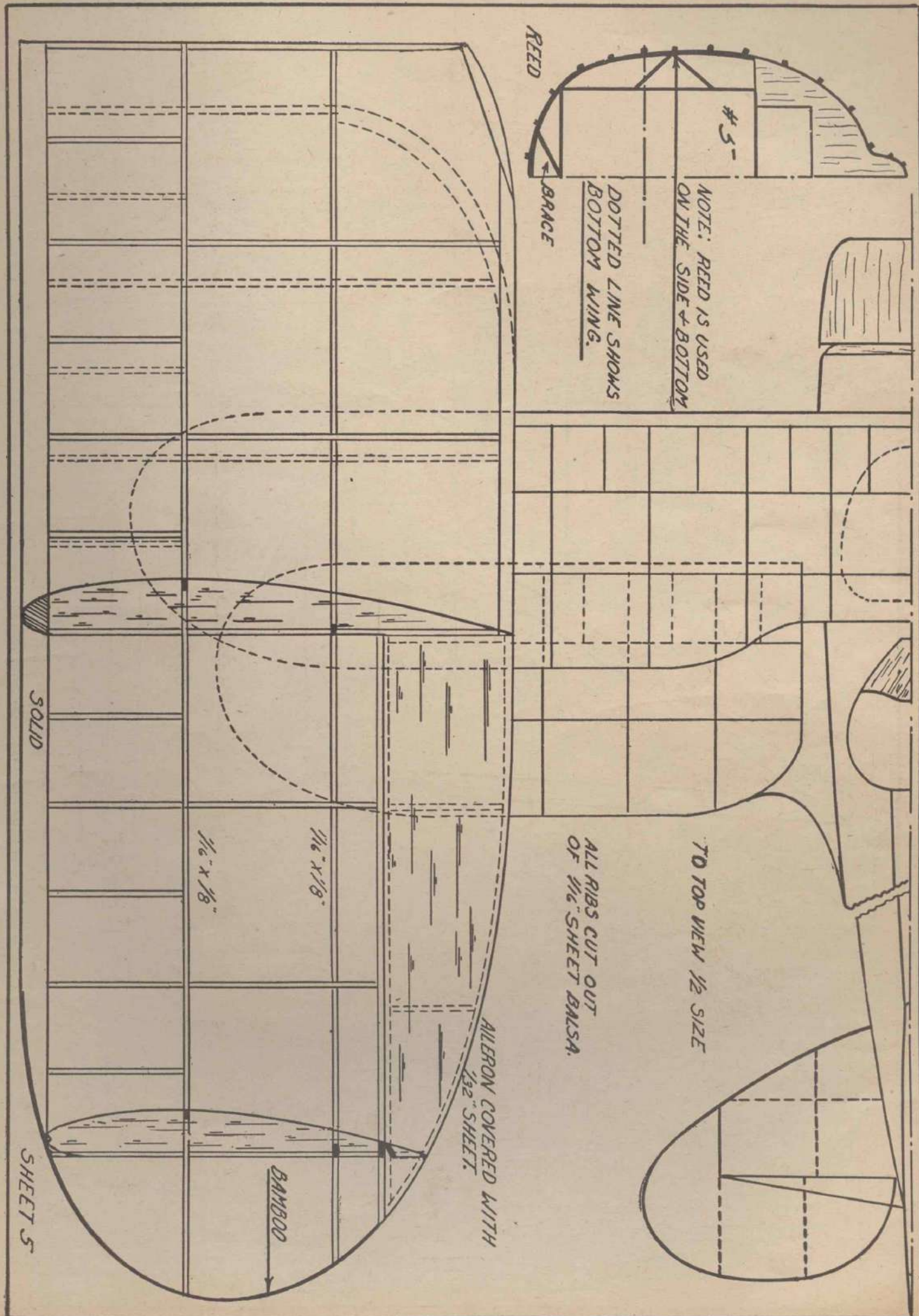


SHEET 2.





SHEET 4



NOTE: REED IS USED ON THE SIDE + BOTTOM

DOTTED LINE SHOWS BOTTOM WING.

ALL RIBS CUT OUT OF 1/16" SHEET BALSAA.

TO TOP VIEW 1/2 SIZE

ALIBRON COVERED WITH 1/32" SHEET.

BAHBOO

1/16" x 1/8"

1/16" x 1/8"

SOLID

SHEET 5

