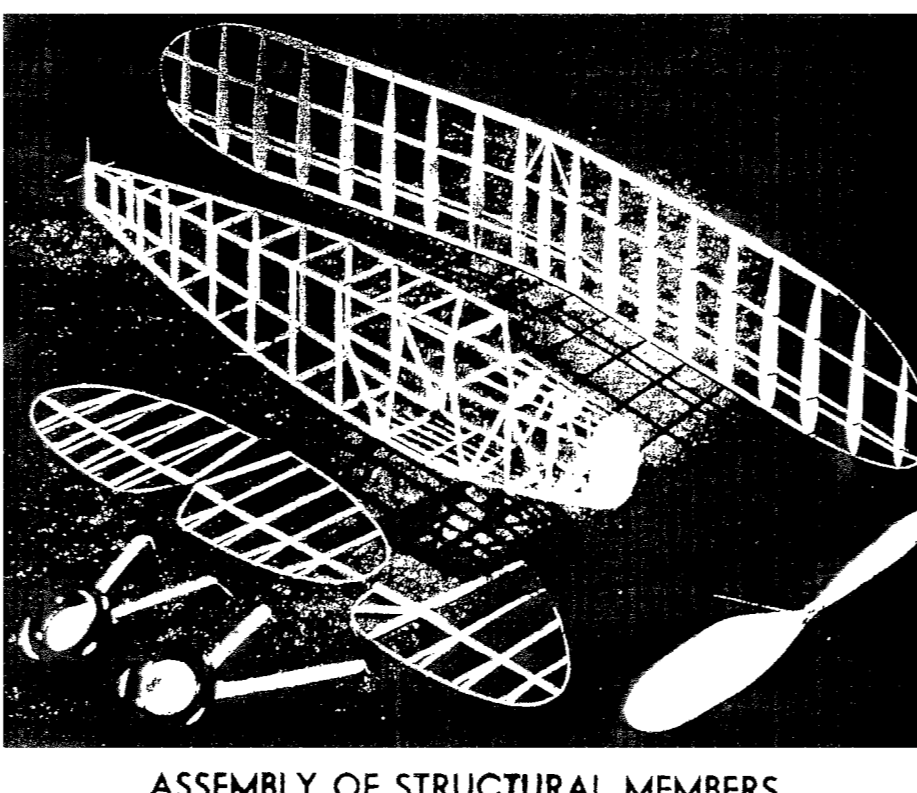


BILL OF MATERIAL

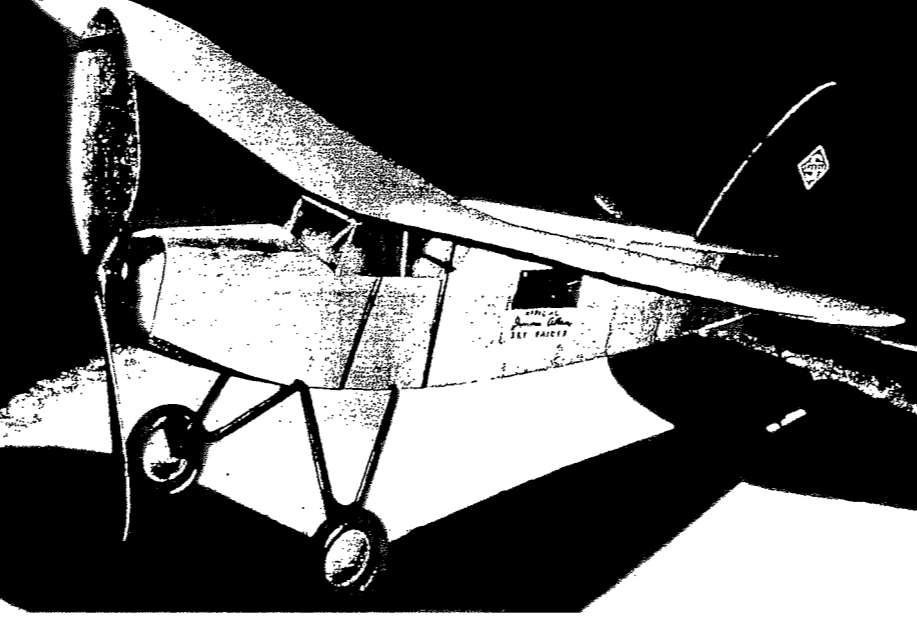
1. 21 ft. of 3/32" x 3/32" balsa
2. 14 ft. of 1/16" x 1/16" balsa
3. 3 ft. of 1/16" x 1/4" balsa
4. 1 piece of 1/16" balsa sheet
5. 1/16" x 2 x 5 1/2"
6. 1 printed rib sheet 1/32 x 1 x 16"
7. 1 printed rib sheet 1/32 x 1/2 x 16"
8. 1 propeller block 7/8 x 1 1/2 x 3"
9. 1 non-bulkhead propeller
10. 1-10" machine carved propeller
11. 1 brass washer
12. 1/2" aluminum tubing 1/16"
13. 0.5" for landing gear sockets
14. 1 piece 1 1/2" celluloid
15. 1-7/16" x 2 x 1 1/4" for rind
16. 1 piece 1 1/2" celluloid
17. 1 sheet wax paper
18. 1 instruction sheet and dop
19. 1 sheet aluminum tissue
20. 20" x 12" for fuselage
21. 1 sheet red tissue 54" x 10"
22. 1/2" blue tissue 24" x 6"
23. 1 pair 2" blue wheels
24. 1 bottle clear dope
25. 1 bottle Wood Weld Cement
26. 1 rubber motor 1/8" x 30"
27. 6 pieces shredded bamboo
28. 25g glue in rubber bands
29. 3 fine #14 steel wire
30. 1 sheet wax paper
31. 1 instruction sheet and dop

SPARE PARTS

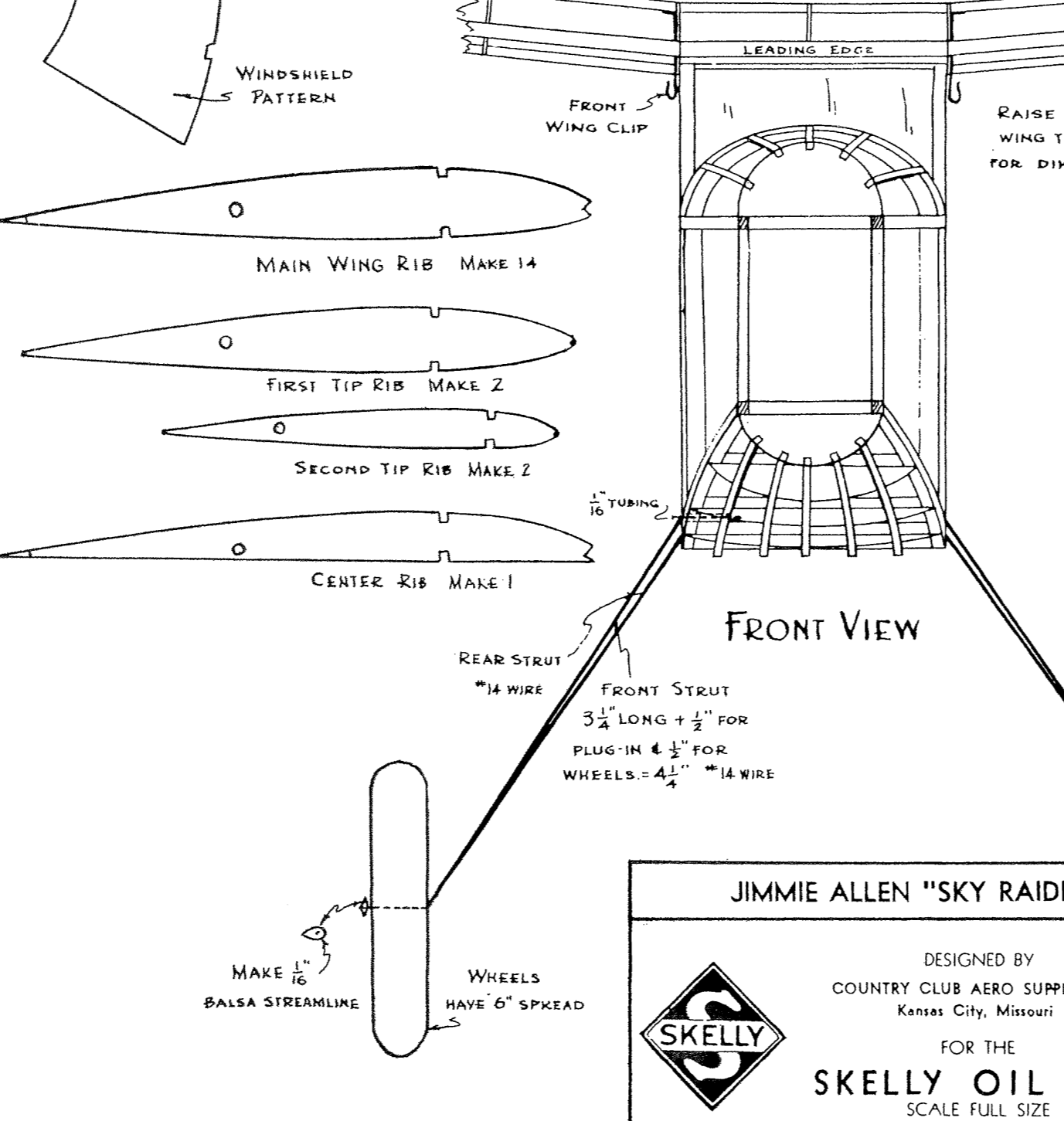
Spare parts, cement, dope, extra rubber motors and other accessories for this plane may be obtained from the Country Club Aero Supply Company, Kansas City Mo.



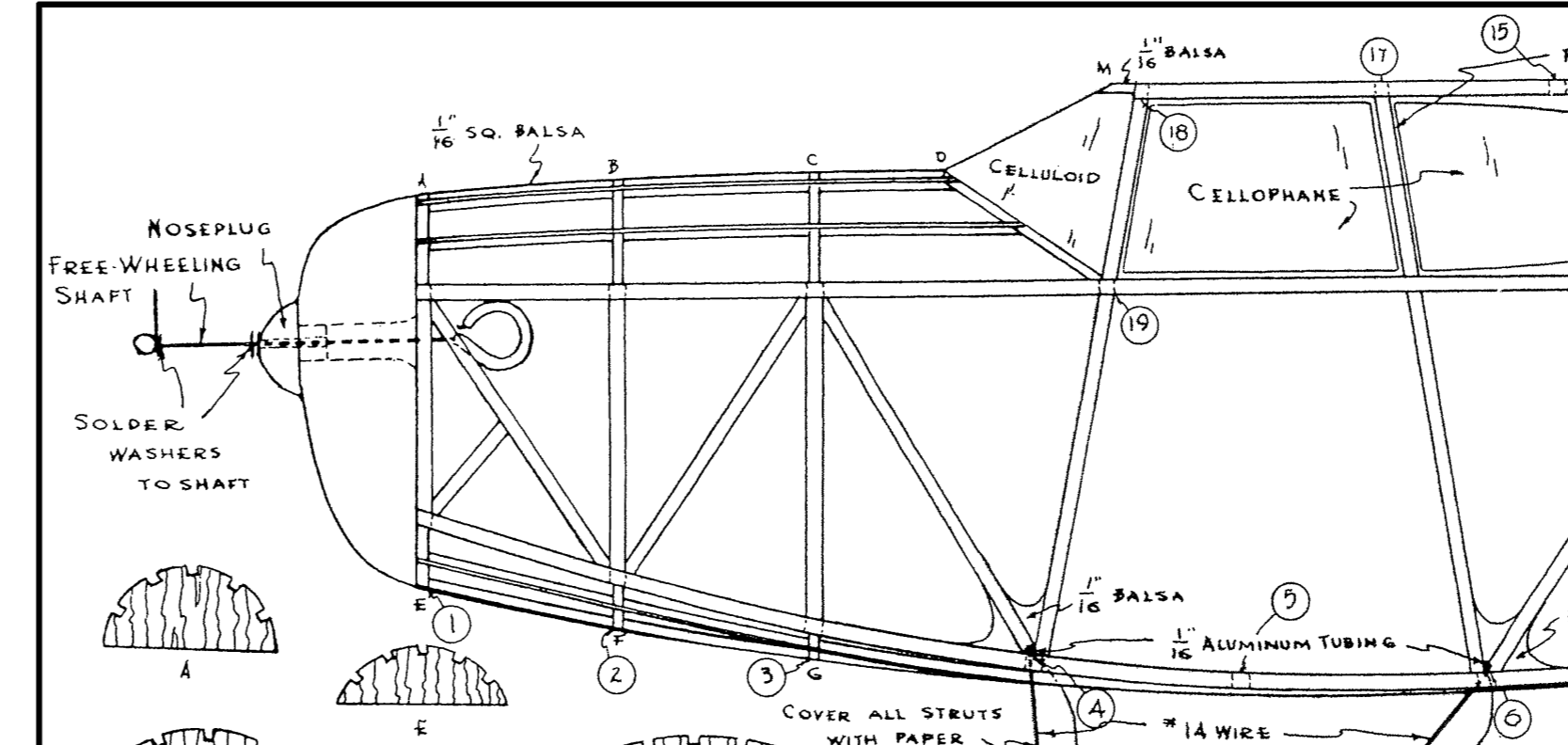
ASSEMBLY OF STRUCTURAL MEMBERS



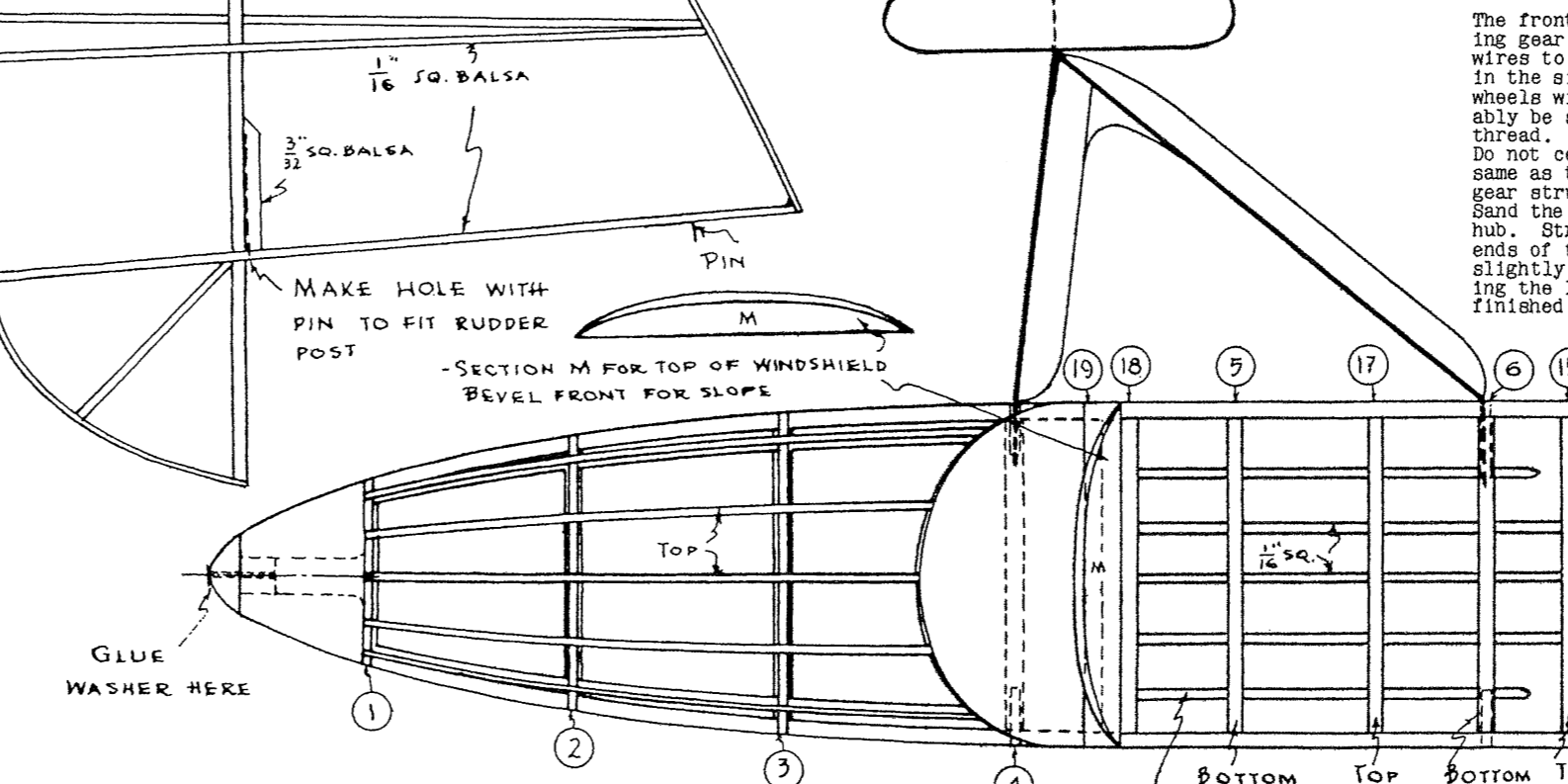
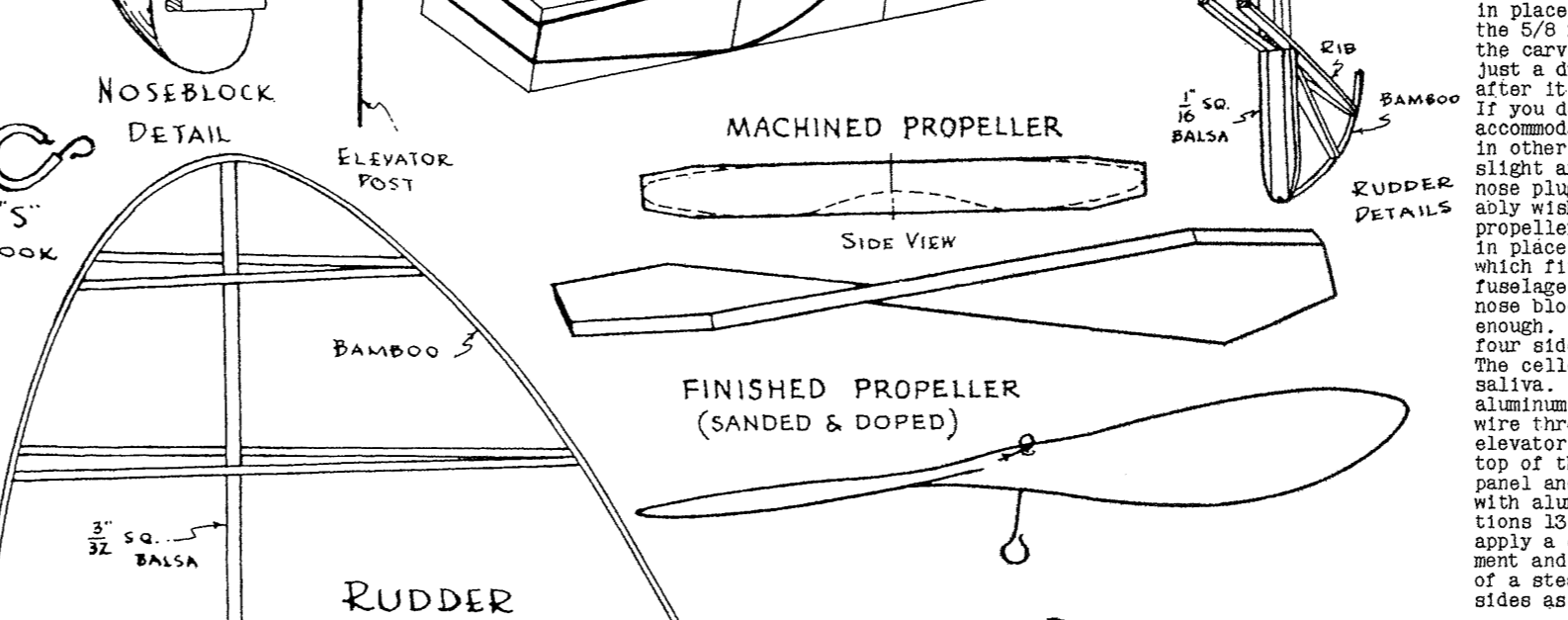
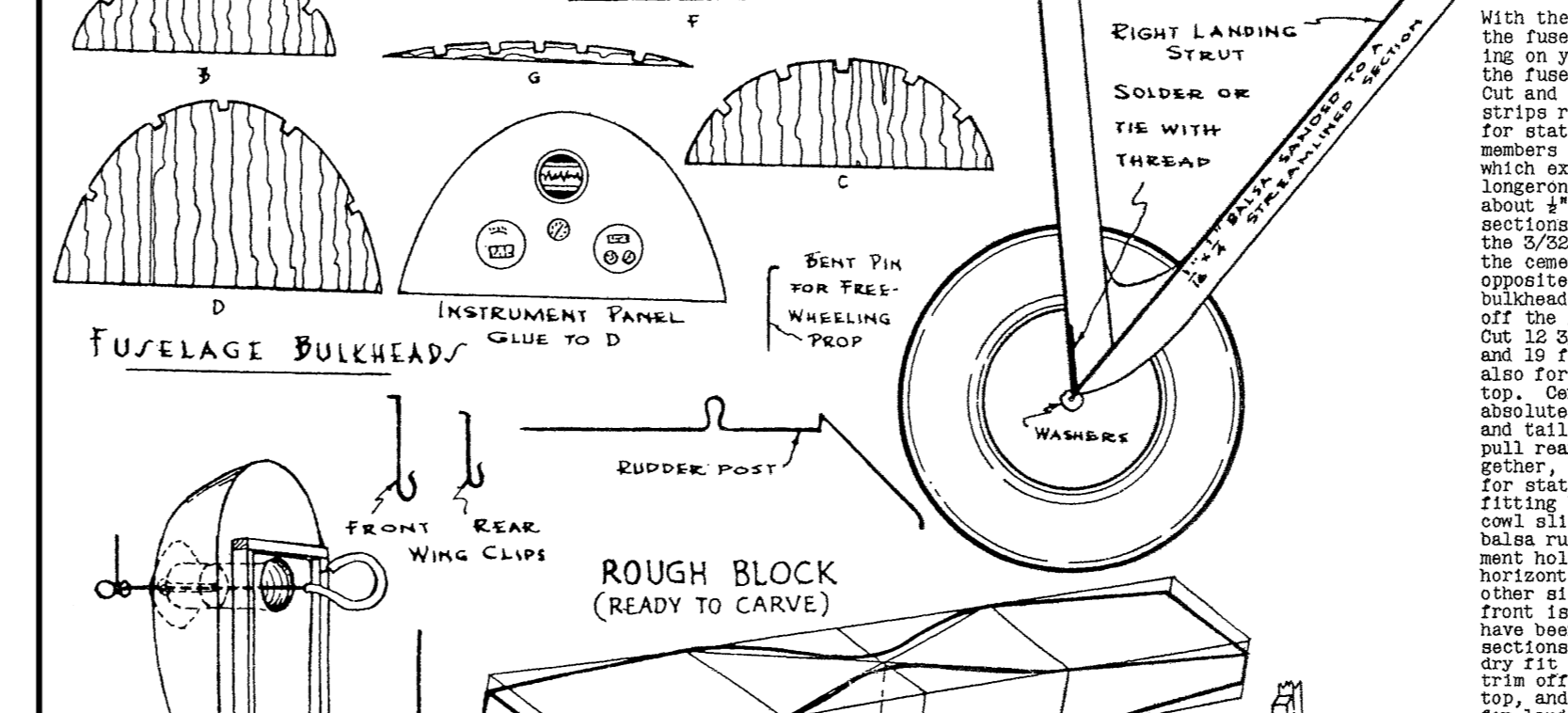
THE COMPLETED JIMMIE ALLEN "SKY RAIDER"



JIMMIE ALLEN "SKY RAIDER"
 DESIGNED BY
 COUNTRY CLUB AERO SUPPLY CO.
 Kansas City, Missouri
 FOR THE
 SKELLY OIL CO.
 SCALE FULL SIZE



SIDE VIEW



FUSELAGE
 With the exception of the 1/16" square trailing stripe, and the bulkheads, the fuselage is constructed entirely of 3/32" square balsa. Pin this drawing on your layout board, and cover side view with wax paper. Commence with the fuselage sides. Place pins along the fuselage outline top and bottom. Cut and lay in place the three fuselage longons; i.e., the three 3/32" strips running longitudinally. Cut and lay in place the vertical members for stations 1, 2, 3, 4, 6 and 7 to 14 inclusive. Notice that the vertical members at stations 4 and 6 are cut to accommodate the middle longon. The middle longon starts curving upward slightly at station 4 and ends at station A-B about 1" above the letter E on the drawing. Add the diagonal braces between sections 1 to 4 inclusive, and between 6 and 7. Insert and cement in place the 3/32" square balsa elevator adjustment fitting above station 12. When the cement is dry remove the fuselage side and repeat the operation for the opposite side. Cut out the bulkheads as indicated (see foreword). Use the bulkhead scrap for making triangular gussets at stations 2 and 6. Round off the gussets with sand paper wrapped around a pencil and cement in place. Cut 12 3/32" square cross members all the same length for stations 16 and 19 fuselage center, and for stations 4 to 8 inclusive, fuselage bottom, also for stations 15, 17, 15, and the top of stations 7 and 8 for fuselage top. Cement cross members in place taking care to see that the fuselage is absolutely true and not warped out of line. Bend combination rudder post and tail plate to size indicated from No. 14 wire when the fuselage is dry, pull rear together for shape, and cement vertical members at station 14 together, inserting the rudder post. Next add the top and bottom cross members for stations 9 to 15 inclusive. Insert the 3/32" square rudder adjustment fitting behind the top of station 12. Cut out the celluloid windshield oval slightly over-size. Use the celluloid scrap to cover the 3/32" square balsa rudder and elevator adjustment blocks. However, do not make the adjustment holes until later. Pull front of fuselage together to accommodate the horizontal cross members at section 2. See front view of fuselage on the other side of this drawing. Notice that the overall fuselage width at the front is one inch. When the front horizontal cross members top and bottom have been cemented in place, insert and cement the other cross members for sections 6-9 inclusive, and sections 14 to 19. Cement all the fuselage sides dry fit the 1/16" square stringers in place. Cut them a little long and trim them with sharp knife after they are dry. Cut a 3/16" wide aluminum tubing strip for the fuselage top, and five long ones in the bottom. Cut 4-1/2" pieces of aluminum tubing for landing gear sockets, smooth up edges and cement in place. Tube ends are flush with outer fuselage surface and tubes should be sanded slightly in place. Before they dry, clean out tube interiors with #14 wire. Cut the 5/8" x 1/4" nose block to length between A and B, in order to facilitate the carving of this block, cement it in place to bulkheads A and B. Use just a drop of cement as fast the block can be removed with a razor blade after it has been carved. Carve the block to shape and finish by sanding. If you desire to save weight, reduce the size of the block, cut hole to accommodate nose plug which should be inserted with a dowel, or in other words, so that the propeller shaft will be pointing down at a slight angle from the line of thrust of the rubber motor. Do not cement the nose plug into place until you have test flown your plane as you will probably wish to make some minor adjustments in its position (see remarks on propeller torque under wing assembly). Cut the nose block loose and cement in place the 3/32" square balsa members shown in the nose block detail, which fit snugly inside the 3/32" square members at the front end of the fuselage. Dress snaps may be added, if desired, to keep the detachable nose block in place although the tension of the rubber motor is usually enough. Cement celluloid windshield in place and trim to fit. Cover the four side windows with cellophane taken from a cigarette package wrapper. The cellophane for the rear windows is later partially covered with aluminum tissue cut out as shown. Insert a 1/32" straight piece of #14 wire through the center of the 3/32" square members at station 14, for the elevator post and cement in place. This wire is inserted 1/4" below the top of the fuselage and should be perfectly flat. Cut out the instrument panel and cement in place. Using dope as an adhesive, cover the fuselage with aluminum tissue, aluminum side on leaving the section between stations 13 and 14 open. Spray with water using a fine spray, and when dry, apply a coat of dope to the entire surface. Check the fuselage for alignment and if necessary correct by inserting the 1/16" wire back far enough of a steaming teakettle spout. Cement Sky Raider insignia to fuselage sides as indicated in picture.

FUSELAGE

LANDING GEAR

RUDDER

TOP VIEW

ELEVATORS AND RUDDER
 Cover the elevator drawing with wax paper. Bend the bamboo outline as shown and hold in place with pins. Insert the bottom 1/16" square cross members and cement in place. Cross members should be parallel. Next insert the 3/32" main spar and cement in place. Place 1/16" square cross members in place as before and cement to leading edge and spar. When dry, pull down to fit trailing edge and cement in place. The member next to the fuselage is 3/32" square, as is the diagonal trailing edge. Insert the 3/32" square balsa elevator anchor block and pierce with a pin to fit the elevator post. Make two bands in an ordinary dress pin, insert through the 3/32" vertical member at point indicated and cement in place for elevator adjustment. Pierce the celluloid adjusting plate with pin holes, spaced about 1/200" apart so that the elevator may be moved up or down for adjustment. Cover both sides with blue tissue, using dope as an adhesive. The grain in the paper should run lengthwise. Spray with water only, and DO NOT DOPE. The elevator must be perfectly flat, not warped, and when in position, must be securely fastened to the fuselage so that there is no danger of becoming detached while in flight. Follow the same procedure for the construction of the rudder, and when covered cement the two Skelly insignia to the sides as shown in the photograph. Study the view of the lower part of the rudder in the rudder detail. The diagonal brace is 3/32" square balsa as is also the rudder anchor block. The 3/32" square vertical spar runs straight through the entire rudder. There are eight cross members of 1/16" square balsa, spaced as shown. Do not overlook the two 1/16" square balsa braces which are cemented to the 3/32" spar as shown in the view of the rudder detail. The entire rudder outline can be formed from one piece of 1/2" shredded bamboo.

ELEVATORS AND RUDDER

PROPELLER AND RUBBER MOTOR

Included in this kit is a propeller block as well as a machine carved propeller. The machine carved propeller will give you good performance, but a good hand carved propeller is usually preferred. In order to finish the machine carved propeller, it should be trimmed to the size indicated in the side view. Referring to the side view, the top or flat side is the leading edge of the curved or trailing edge should be out or sanded to form an airfoil section similar to the end view of a wing. Sand propeller to a smooth finish for the propeller shaft should be made in the exact center of the propeller. In order to make the hole, push a long pin about 1/4" of the way through the propeller in the exact center. Hold the pin in one end of the propeller with your thumb, and the other end with your other hand. Move the pin slightly one way or another until the propeller rotates absolutely in line. Then push the pin in a little farther and repeat the operation until the pin is entirely through. Balance the propeller, using a pin of small diameter inserted in the hole. Sand the heavy side of the propeller until it balances, then apply several coats of dope, sanding lightly between each coat, and check again for balance.

PROPELLER AND RUBBER MOTOR

In carving the propeller block, first trim to the size outlined in the top and side view. The block must be cut accurately to the size outlined in the full size view. Carve the front of the blades first, keeping in mind that in flight, the propeller rotates clockwise when viewed from the cabin of plane. Do not cut closer to the tip or edge than 1/16" from the front of the propeller blade should be slightly convex, and the rear, slightly concave. The blade thickness should increase from about 1/16" at the tip to about 1/4" near the hub. Finish the propeller as outlined for the machine carved propeller, making it as light and still as strong as possible. The conventional size of propeller shaft may be bent from 30, 34 wire and the motor covered with rubber tubing, or you may wish to make free wheeling shaft as outlined in the fuselage side view. In making the free wheeling shaft, a 7/16" piece of aluminum tubing is inserted in the propeller hub, and the propeller is free to slide forward or backward on the shaft. A washer should be cemented to the front of the nose plug, and two washers should be soldered to the shaft at the points indicated. Notice that the shaft is provided, added an eye so that the hook of a winder can be inserted. A bent pin is cemented into the front of the propeller about 1/4" away from the hub, and this pin turns the propeller. However, when power runs down and the plane starts to turn, the propeller will be turned by the air resistance forces the propeller back and disengage the pin, and the propeller begins to "free-wheel", thus saving the motor and propeller from undue strain. If your plane is built light, weighing around an ounce with motor, it will fly satisfactorily on six strands of rubber in mid winter. If you are flying in mid winter, you will need to use ten miles per hour. You will generally get better performance by using four strands of rubber than using two. The rubber motor depends upon its age and condition. For best performance we recommend that your contest flights be made with fresh rubber. The following results were obtained in a test of old and new rubber, and show very clearly the importance of lubricating and stretching a rubber motor during the winding process.

SIZE OF MOTOR

6 Strands unlubricated and handwound	Applied at break-down	No. of Turns
6 Strands lubricated and stretched twice the length.	700 to 700	600 to 420
8 Strands lubricated and stretched twice the length.	750 to 850	700 to 450
6 Strands unlubricated and handwound	700 to 700	600 to 420
6 Strands lubricated and stretched twice the length.	750 to 850	700 to 450

SIZE OF MOTOR

6 Strands unlubricated and handwound	Applied at break-down	No. of Turns
6 Strands lubricated and stretched twice the length.	700 to 700	600 to 420
8 Strands lubricated and stretched twice the length.	750 to 850	700 to 450

SIZE OF MOTOR

6 Strands unlubricated and handwound	Applied at break-down	No. of Turns
6 Strands lubricated and stretched twice the length.	700 to 700	600 to 420
8 Strands lubricated and stretched twice the length.	750 to 850	700 to 450

SIZE OF MOTOR

6 Strands unlubricated and handwound	Applied at break-down	No. of Turns
6 Strands lubricated and stretched twice the length.	700 to 700	600 to 420
8 Strands lubricated and stretched twice the length.	750 to 850	700 to 450

SIZE OF MOTOR

6 Strands unlubricated and handwound	Applied at break-down	No. of Turns
6 Strands lubricated and stretched twice the length.	700 to 700	600 to 420
8 Strands lubricated and stretched twice the length.	750 to 850	700 to 450

ELEVATOR

TOP VIEW

SIDE VIEW

HAND-CARVED PROPELLER DETAILS

ELEVATOR