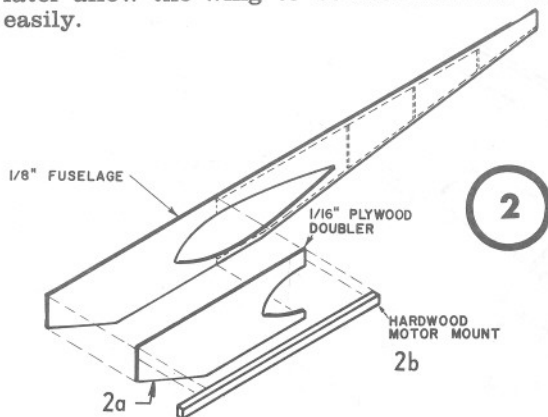


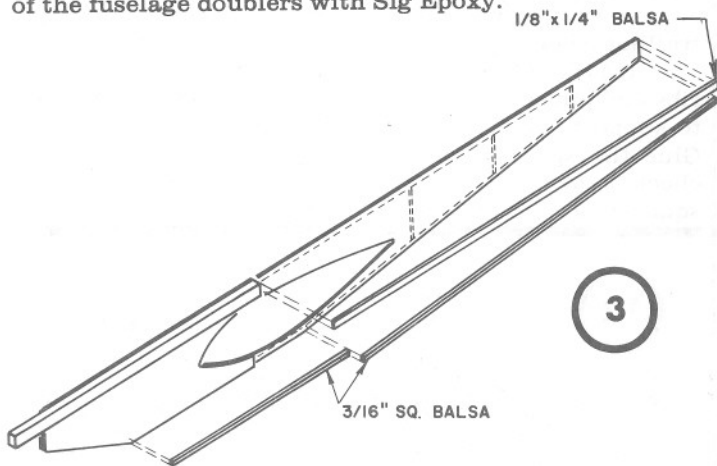
FUSELAGE CONSTRUCTION

(1.) Cut the fuselage sides out of the 1/8" printed balsa sheets. (See isometric view on the plan near the cowling). Note that there is a left and a right side. On one side cut to the dotted line of the wing cutout hole. This will later allow the wing to be inserted into the fuselage easily.



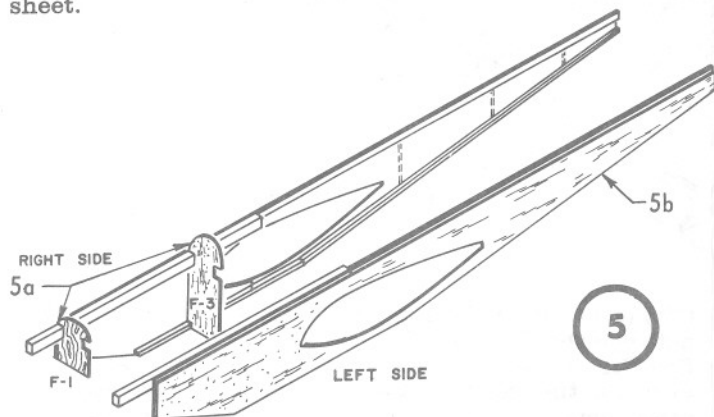
(2.) (a.) Glue the 1/16" plywood fuselage doublers to the inside of each side with Sig Epoxy Glue.

(b.) Next, glue the hardwood motor mounts on top of the fuselage doublers with Sig Epoxy.



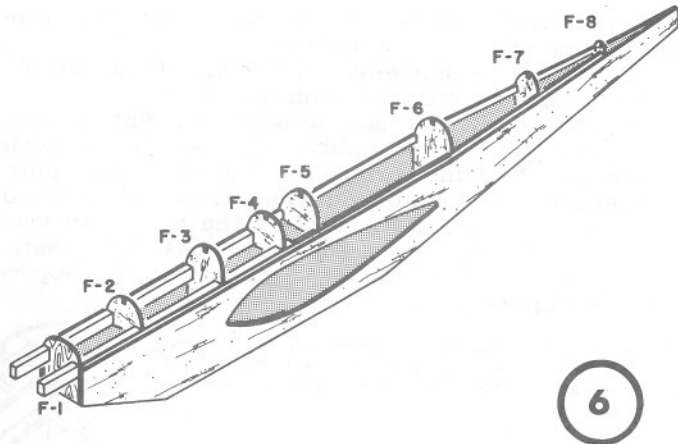
(3.) Glue the 1/8 x 1/4" balsa to the top of each fuselage half and the 3/16" square to the bottom.

(4.) Lay each side of the fuselage on the plan and mark the locations of F-1 through F-8 on the inside of each sheet.



(5.) (a.) Epoxy the plywood fuselage former F-1 and balsa former F-3 in place on one fuselage side.

(b.) After the glue has completely dried, attach the other fuselage side to F-1 and F-3. Use the top view of the model on the plan to help make certain the sides are parallel, square and properly aligned.



(6.) (a.) Pull the rear end of the fuselage together by gluing F-6, F-7 and F-8 in place.

(b.) Add the remaining fuselage formers, F-2, F-4 and F-5.

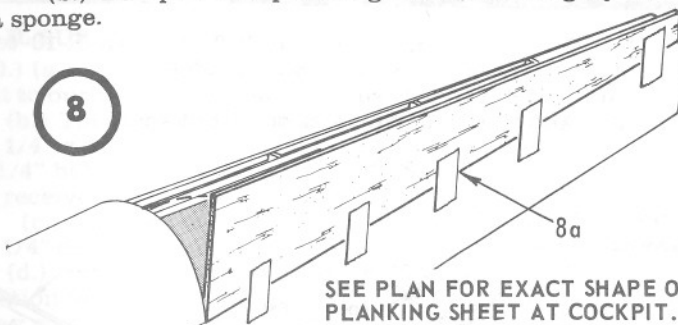
(c.) Glue the 3/16" top stringers into the former notches.

(7.) Install the tank in the model at this time. Cover the outlet tubes to keep out sawdust during the completion of the model. When installing planking leave large enough holes so fuel tubing can be put on the tank tubes later.

(8.) Note that the front and rear of the fuselage top are planked separately, then the cockpit section is added last.

(a.) Apply a seam of glue to the edge of the fuselage frame and tape the 1/8" sheet balsa planking in place. Allow to dry.

(b.) Dampen the planking sheet thoroughly with a sponge.

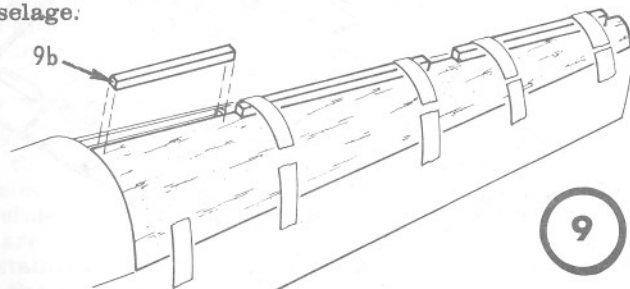


(9.) (a.) Apply glue to the formers and stringer.

(b.) Bend the sheet into position and secure with masking tape or pins. Taping 1/4" square pieces on the edge aids in forcing the sheet into place.

(c.) Using a straight edge, trim the planking sheet along the stringer so as to leave half of the stringer exposed for attachment of the opposite side planking.

(d.) Repeat the process on the other side of the fuselage.



(10.) Sand the bottom of the fuselage flat with a sanding block but do not put on the 1/8" bottom sheeting until after the wing is installed in the fuselage and the control hookup is completed.

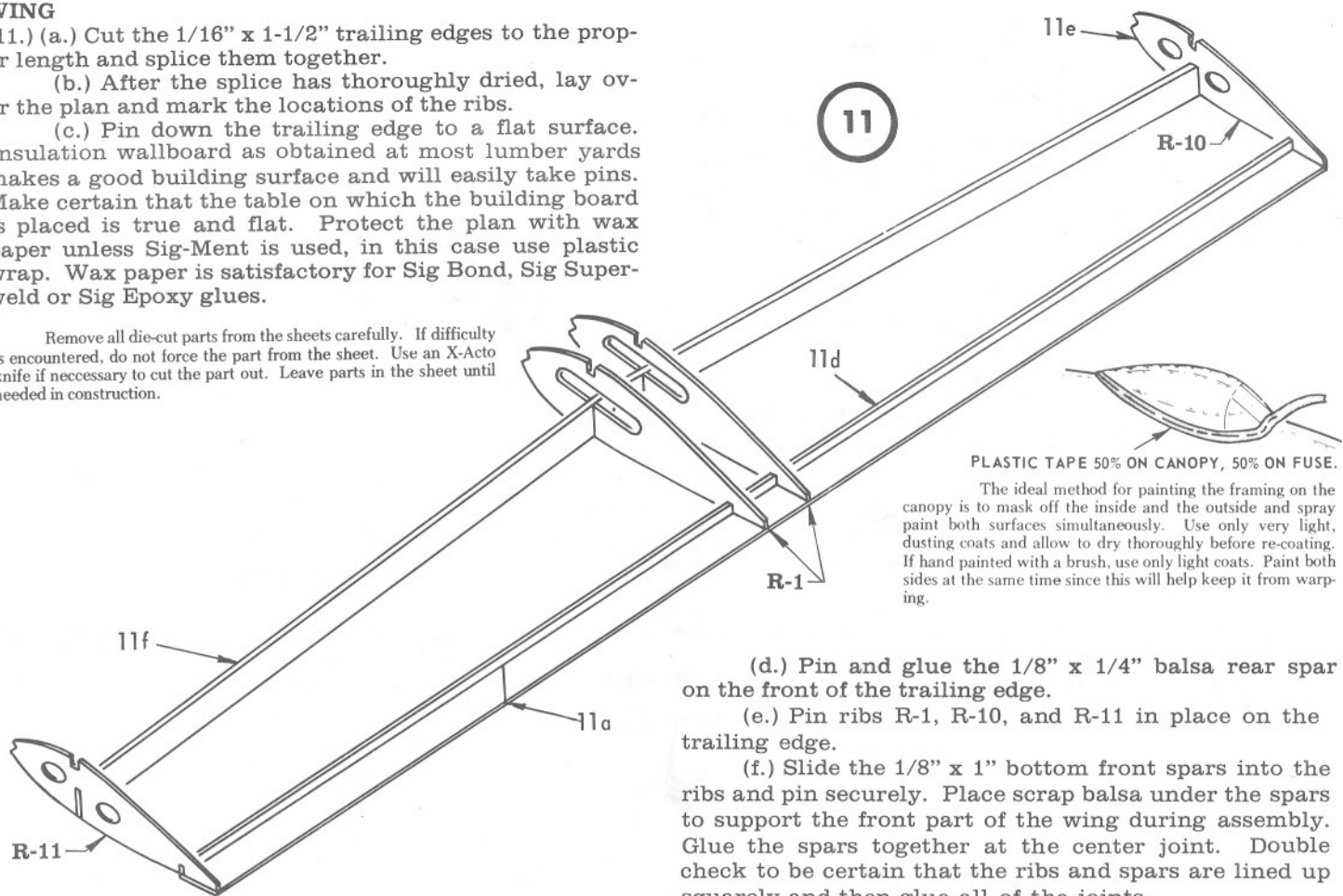
WING

(11.) (a.) Cut the 1/16" x 1-1/2" trailing edges to the proper length and splice them together.

(b.) After the splice has thoroughly dried, lay over the plan and mark the locations of the ribs.

(c.) Pin down the trailing edge to a flat surface. Insulation wallboard as obtained at most lumber yards makes a good building surface and will easily take pins. Make certain that the table on which the building board is placed is true and flat. Protect the plan with wax paper unless Sig-Ment is used, in this case use plastic wrap. Wax paper is satisfactory for Sig Bond, Sig Superweld or Sig Epoxy glues.

Remove all die-cut parts from the sheets carefully. If difficulty is encountered, do not force the part from the sheet. Use an X-Acto knife if necessary to cut the part out. Leave parts in the sheet until needed in construction.



(d.) Pin and glue the 1/8" x 1/4" balsa rear spar on the front of the trailing edge.

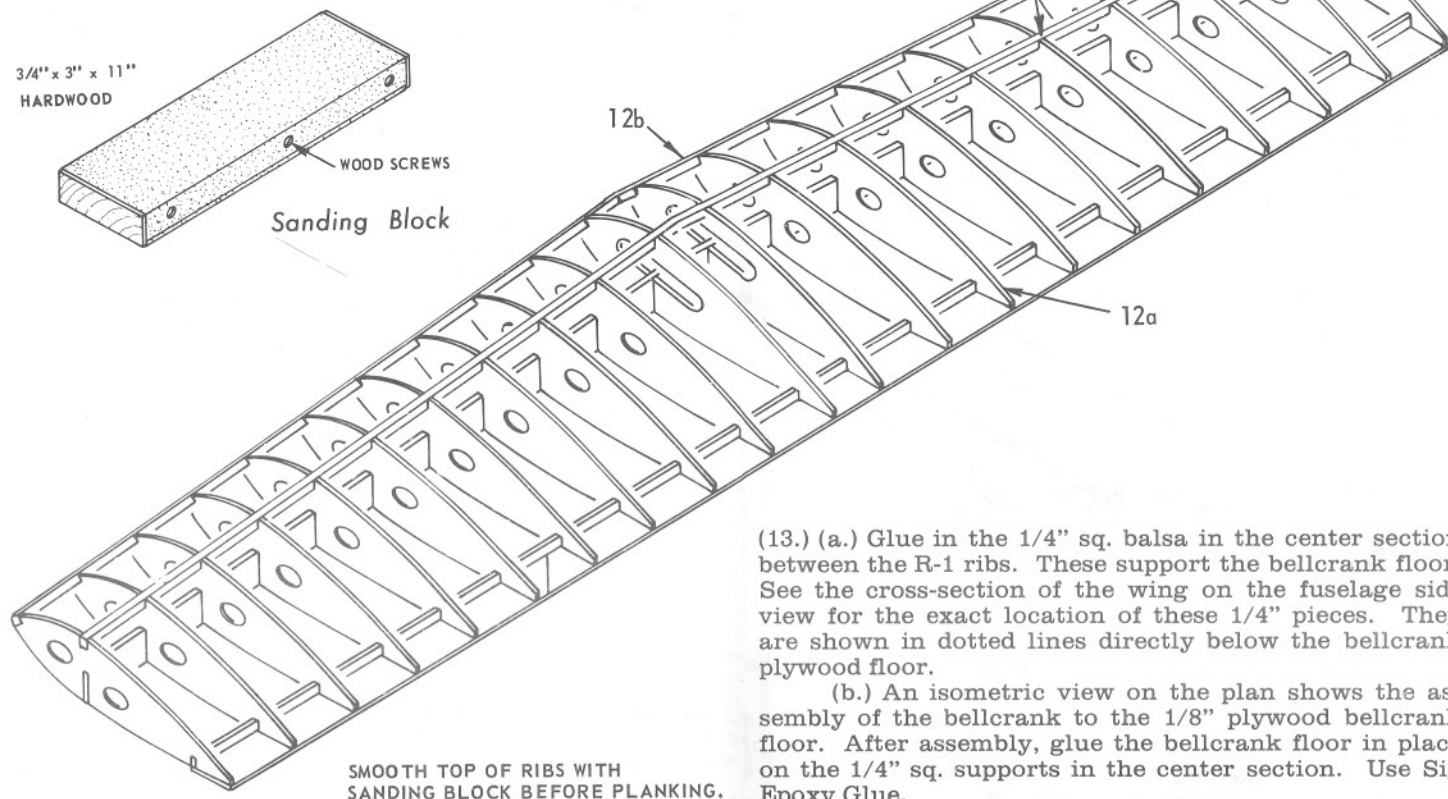
(e.) Pin ribs R-1, R-10, and R-11 in place on the trailing edge.

(f.) Slide the 1/8" x 1" bottom front spars into the ribs and pin securely. Place scrap balsa under the spars to support the front part of the wing during assembly. Glue the spars together at the center joint. Double check to be certain that the ribs and spars are lined up squarely and then glue all of the joints.

(12.) (a.) Glue the remaining ribs R-2 through R-10 to the bottom front spar and the trailing edge.

(b.) Install the 1/4" sq. leading edge.

(c.) Add the 3/16" sq. balsa top front spar.

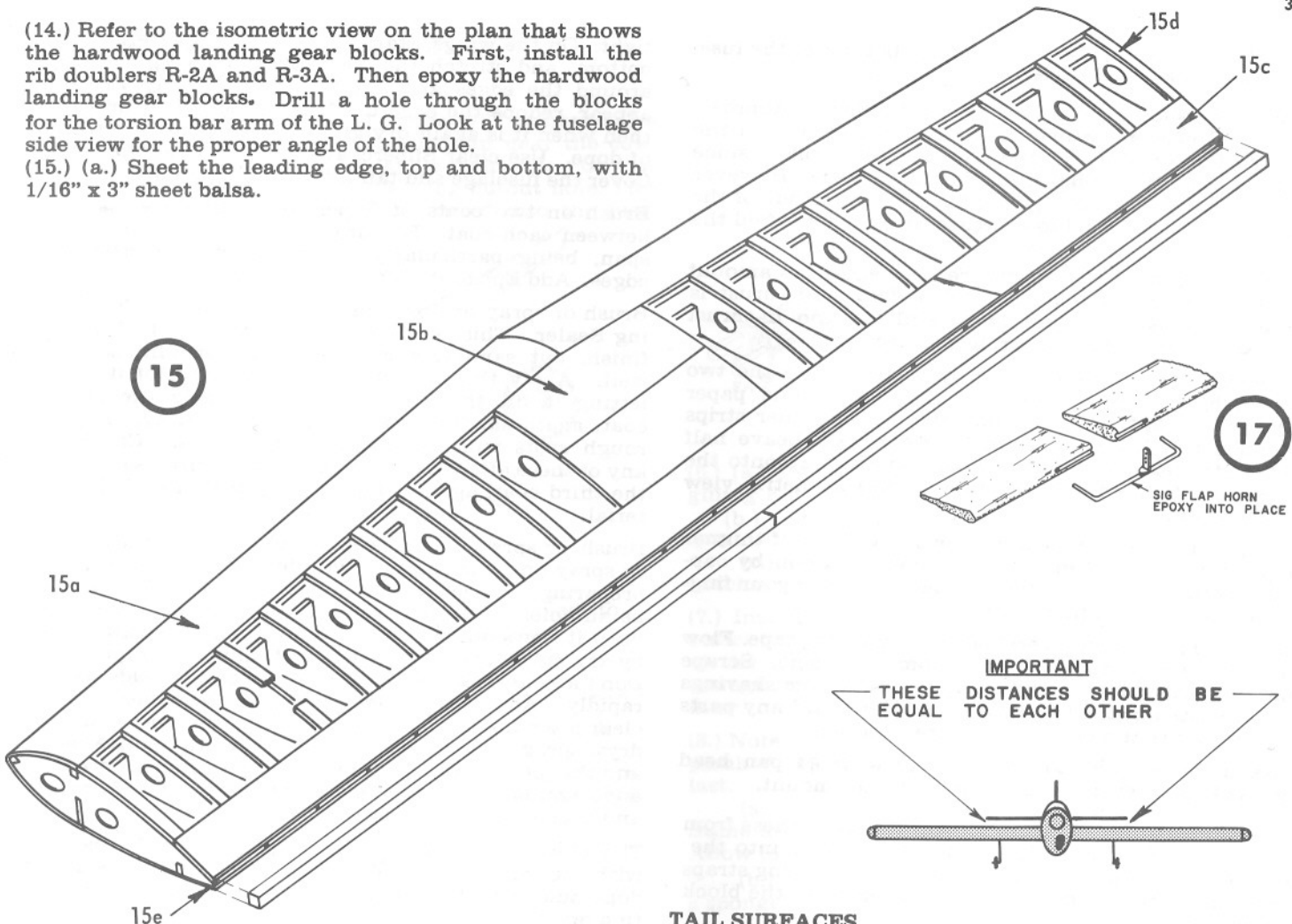


(13.) (a.) Glue in the 1/4" sq. balsa in the center section between the R-1 ribs. These support the bellcrank floor. See the cross-section of the wing on the fuselage side view for the exact location of these 1/4" pieces. They are shown in dotted lines directly below the bellcrank plywood floor.

(b.) An isometric view on the plan shows the assembly of the bellcrank to the 1/8" plywood bellcrank floor. After assembly, glue the bellcrank floor in place on the 1/4" sq. supports in the center section. Use Sig Epoxy Glue.

(14.) Refer to the isometric view on the plan that shows the hardwood landing gear blocks. First, install the rib doublers R-2A and R-3A. Then epoxy the hardwood landing gear blocks. Drill a hole through the blocks for the torsion bar arm of the L. G. Look at the fuselage side view for the proper angle of the hole.

(15.) (a.) Sheet the leading edge, top and bottom, with 1/16" x 3" sheet balsa.



(b.) Sheet the center section with 1/16" x 3" sheet balsa.

(c.) Sheet the top of the trailing edge with the previously prepared spliced pieces of 1/16" x 1-1/2" sheet balsa.

(d.) Cut and fit 1/16" x 1/4" cap strips to the top and bottom of each rib.

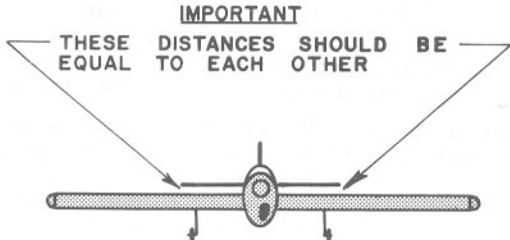
(e.) Sand the ends of the ribs and rear of the trailing edge planking with a sanding block so that a good match can be made with the 1/4" sq. trailing edge cap. Pin and glue the 1/4" sq. balsa trailing edge cap in place and splice at the center of the wing.

(16.) (a.) Glue on the 1" x 2" x 9" wing tip blocks.
(b.) Carve and sand them to airfoil shape.
(c.) Glue the leadout eyelets in place with Sig Epoxy.

(17.) 1/4" x 1-1/2" pieces of balsa wood are provided for the flaps. The isometric view shows how the Sig metal control horn is epoxied into the flaps. Drill a hole in the flaps to receive the control horn wire. The joined flaps are installed into the fuselage opening just before the wing is inserted.

(18.) Note particularly that the wing must be inserted before the flaps are attached to the wing. An isometric drawing above shows how the molded hinges are assembled and installed. You may want to cover the wing and flaps separately with Silkspan since they are easier to cover before they are joined. Or the flaps alone may be covered first and the wing covered after assembly in the fuselage.

(19.) Install the pushrod from the bellcrank to the flap control horn. Be sure a good solder connection is made to fasten the washers to the pushrods.



TAIL SURFACES

(20.) (a.) The stabilizer and fin are provided in the kit cut to outline shape.

(b.) The rudder and elevator are built up from pieces of 1/4" x 1/2" balsa for the outlines and pieces of 1/16" x 1/4" balsa for the ribs. Cut notches into the outlines to receive the 1/16" x 1/4" ribs.

(c.) The elevator halves are connected with a piece of 1/4" dowel.

(d.) Sand and shape the tail parts to airfoil cross-section by rounding the edges with a sanding block. You may want to cover the tail before hinging.

(e.) The nylon elevator horn is bolted to the elevator with the screws provided in the hardware pack. Hinge the elevators to the stabilizer and the rudder to the fin with the molded nylon hinges supplied.

FINAL ASSEMBLY

Slide the completed wing through the fuselage. As previously noted, the opening in the fuselage at the leading edge must be opened up to the dotted line to allow room. Tack glue the wing in place with Sig-Ment. Check carefully to insure that it is true and square with the fuselage. If it is not, correct. Then permanently glue in place with Sig Epoxy.

Working through the open bottom of the fuselage, install the long 3/32" wire pushrod from the flap horn to the elevator horn. Level the flaps at neutral position and slide the stabilizer back and forth until the elevators are also level and at the neutral position. Tack glue the stabilizer in place. After it has dried, check to see that the elevators are level with the flaps. Also check to see that the wings and stabilizer are straight in relationship to each other.

When correct, glue permanently.

Install the tail wheel unit. Cover the bottom of the fuselage with 1/8" sheet balsa.

Epoxy the rudder to the top of the fuselage. Approximate fin offset for proper line tension is shown on the plans. Don't put in an excessive amount of offset since this may result in bobbling during maneuvers. However be certain there is no opposite offset to the inside of the circle that would tend to decrease line tension. Add the 1/8" sheet balsa dorsal fin.

Install the motor of your choice. An excessive amount of outthrust is not required and in fact zero thrust is perfectly satisfactory but be careful that no in-thrust (toward the center of the circle) is introduced.

Assemble the engine cowling by matching up the two halves by gently rubbing over a sheet of sand paper laying on a flat surface. Hold the plastic joiner strips supplied in place on the inside of one half. Leave half of the strip extended over the edge so as to lap onto the other part half when it is attached (See isometric view on the plan).

Using a small pointed brush, flow a few drops of thinner under the edge. It will spread along the seam by capillary action. (Don't let the thinner get under your finger as it will leave a finger print).

Join the halves with several strips of masking tape. Flow butyrate thinner into the seam from the inside. Scrape and sand the seam. A putty may be made from shavings of the waste plastic dissolved in thinner to fill any parts of the seam that have not completely closed.

Attach the cowling to the fuselage with #4 pan head screws (2 each side). Screw into the motor mount.

Add balsa fairings to the landing gear. Make these from scrap balsa glued to the gear. Insert the gear into the groove of the landing gear block. Place retaining straps furnished in the hardware pack and secure to the block with screws.

FINISHING

Shape the model with a sanding block, rounding corners, etc., as shown on the cross sections.

Sand entire model carefully. Fill dents and seams with Sig Epoxolite and sand the entire model until all surfaces are smooth. Remember that you can't hide poor workmanship with paint.

Now give the entire model two coats of Sig Supercoat, brushed on. Sand each coat with fine Garnet paper or Tri-M-Ite paper.

Cover entire model with Silkspan. We have found that the best method is to apply the Silkspan wet. Cover in sections, cutting the paper just enough larger than the surface to be covered so that it can be pulled up

tight. On the wings, start with one half, preferably the bottom, and stretch the wet Silkspan up tight. Dope around the edges and allow to dry. If any wrinkles appear, redope the edge until it can be pulled up tight, then when it is again dry give the entire surface a coat of dope. Use clear Supercoat for all such applications. Cover the fuselage and tail in the same manner.

Brush on two coats of Supercoat clear dope, sanding between each coat. Be sure not to sand into the Silkspan, being particularly careful around corners and edges. Add Epoxolite fillets at this time.

Brush or spray on from one to three coats of Sig Sanding Sealer. This is the most important part of a good finish, but sanding sealer also adds weight, so sand well. Apply the first coat and sand most of it away, letting it fill the low areas, etc. Apply the second coat, again sanding the major portion away. Low or rough spots will appear as darker areas. Check for any of these after the second coat and if necessary apply the third coat, again sanding away the bulk of the material.

Brush or spray on one coat of clear dope, then brush or spray on your color. If you have done a good job of preparing your surface, one or two coats of color will be sufficient. If you brush, be sure to thin the dope until it flows out smoothly. Many paint jobs are ruined by trying to brush dope without thinning it properly. Don't add too many coats of color because it adds weight rapidly. Add trim colors. Spray a light mist coat of clear after the trim colors are dry. After the mist coat dries, spray a heavy coat of clear over the entire plane and the job is finished. The mist coat of clear is insurance against the coat of clear softening the trim colors and causing them to "bleed".

The plastic cowling and wheel pants may be painted with Sig Supercoat dope. Do not apply heavy coats of dope and allow the parts to dry thoroughly before putting on another coat.

FLYING

The Sig Akrobat should be flown on 60 ft. lines. Adjust the lines so that the elevators are in neutral when the control handle is straight up and down. Beginners to control line flying should hold the arm stiffly, without wrist movement. For level flight hold your arm parallel to the ground. To make the model climb, raise the arm. All movements should be done slowly and smoothly. Use of arm movement only avoids over control and steep climbs and dives that result from too much wrist movement. After you have gained experience flying the model, wrist movement can be tried in addition to arm movement for quicker maneuvers.

DECALS:

While the number decals may be applied in a sheet, it is generally possible to get a neater job by cutting each number out and applying them one at a time. Do the bottom of the wing first to acquire handling skill. Leave about 1/16" of clear around the edge of each number. Cut out centers with a razor knife. Put a pencil line-up mark at each end of the bottom of the area where the decals will be and use a piece of balsa between the marks as a straight edge check. Dip the decals in water for a few seconds, remove and allow the moisture to soak into the backing to completely loosen the glue. Don't try to slide the decal too soon or it may tear. Slide about 1/4" of decal at the bottom over the edge of the backing from underneath. Use a small paddle of 1/8" sheet balsa about 3/8" wide as a squeegee to remove excess water from under the decal. Hold down on one edge with a similar paddle while squeegeeing to prevent the decal from being moved. Allow plenty of time for the glue under the decal to dry before wiping away the excess glue remaining on the surface of the model with a damp cloth. The decals are fuel proof with most fuels but will dissolve in dope or cement. Do not try to dope over the decals. Some types of clear fuel proofer may be used over the decals to increase durability but test them in advance before applying.

