

U-CONTROL INSTALLATION —OPTIONAL—

1. Drill a 3/32" hole in 1/16" plywood bellcrank bed and plywood washers.
2. After completing step 3 of "Building the Fuselage Frame," cement the bellcrank bed into position.
3. Bend the wire push rod to fit the drawing on the plan.
4. Either tie nylon string to the bellcrank to act as "lead-outs" or use .025 music wire (obtainable at your hobby store). Leave the "lead-outs" a few inches longer than needed at this time.
5. With the push rod in the bellcrank hole and the "lead-outs" on the bellcrank, slip the rod through all the formers towards the rear and out the fuselage side as shown on the drawing. Also slip the "lead-outs" out between the formers. Place the plywood washer on the bellcrank bed and bolt the bellcrank into place. Proceed to finish the fuselage.
6. Make the stabilizer for the U-Control model as shown on the full size drawing as follows: Using the material furnished, make up the elevator and wire tie piece. Cement the two elevators together with the wire tie piece and cement the horn into position. Hinge the elevator to the stabilizer as shown and then cover the stabilizer with tissue.
- After the final doping, slip the push rod into the horn and cement the stabilizer to the fuselage.
8. The wing is built as instructed in "Building the Wing Frame." Before covering and doping, cement line guide into the wing at tip in the position shown on top view of model. The opposite or outside wing requires weight at the tip to compensate for the drag of the flying lines. About 1/4 to 3/8 ounce is needed.
9. Drill recommended bolt holes in the firewall and bolt the motor and the motor nut plate into place as shown. If motors other than that shown are used, drill holes to fit the particular motor and cement nuts at rear of firewall. When cement is dry, remove motor and cement plywood firewall to tissue covered wing.
10. Install the motor and plastic cowl as per "Installation of Glo-Engine" instructions.
11. The model can now be painted and finished as per the instructions on "Painting the Model."
12. Tie or bend loops on the end of the nylon or wire lead-outs with about 2" hanging over the tip of the wing. Add the gas engine propeller and plastic spinner (obtainable at your hobby store). Balance the model as shown with clay. Use the nylon lines and handle furnished in the kit making the lines about 25 feet long for best flying results.

MOTORS NOT FURNISHED IN KIT
—OBTAINABLE AT YOUR LOCAL HOBBY DEALER.

IMPORTANT NOTE ON PAINTS
DO NOT USE REGULAR CLEAR DOPES OVER DECALS BECAUSE IT WILL DAMAGE THEM. USE ONLY A CLEAR PLASTIC PAINT WHICH WILL ALSO FUEL-PROOF. FOR SPECIAL INSTRUCTIONS ABOUT CEMENTING AND PAINTING PLASTIC PARTS IN THIS KIT, SEE INFORMATION SUPPLIED IN MODEL KIT CIRCULAR.

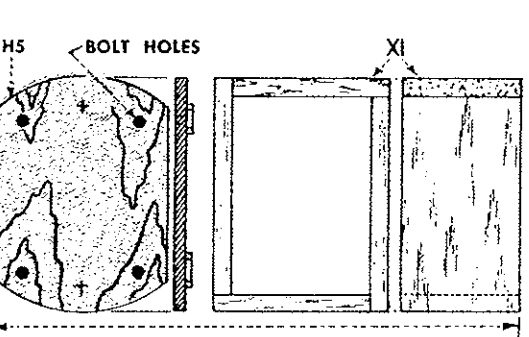
ENGINE INSTALLATION —OPTIONAL—

Sand the plywood firewall smooth and drill the four "1/4" bolt holes with a 3/32" drill. Mount the motor to the firewall with 1/2" long No. 2 bolts and nuts. (Available at your hobby store). Thoroughly cement the nuts to the firewall. When dry, remove the motor and cement firewall to front of the model. The firewall area should be thoroughly doped before the motor is installed. If the plastic cowl is used, make cutout for motor cylinder, propeller shaft, venturi and needle valve. Add extensions of

plastic tubing to the filler and overflow tubes on the tank. Also use a piece of plastic tubing as a needle valve extension. All these extensions must go through holes in the cowl. Locate and cut holes in the cowl for extensions and also cut a hole in the bottom of the cowl for oil drainage. Do not add clay to the inside of the cowl. The motor should be installed, extensions added and cowl cemented in place before painting.

ASSEMBLY OF ENGINE FIREWALLS —OPTIONAL— ENGINE CONVERSION ●

Without a starter springs on engines—cut two additional H1 parts from 3/32" balsa sheet stock, label these parts SS. Cement part SS between H1 and LE2 parts. Make one right and one left.

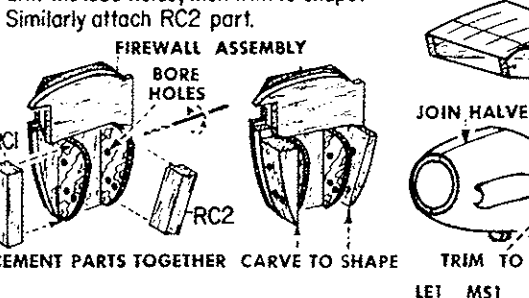


.020 Engine firewall parts. Make XI from scrap 3/32" balsa. Drill holes in H5 parts then cement nuts on back. Cement back of H5 to XI, then XI to H1. Make one right and one left.

VIEW OF LEFT NACELLE

REMOVABLE COWLS —OPTIONAL— ENGINE CONVERSION ●

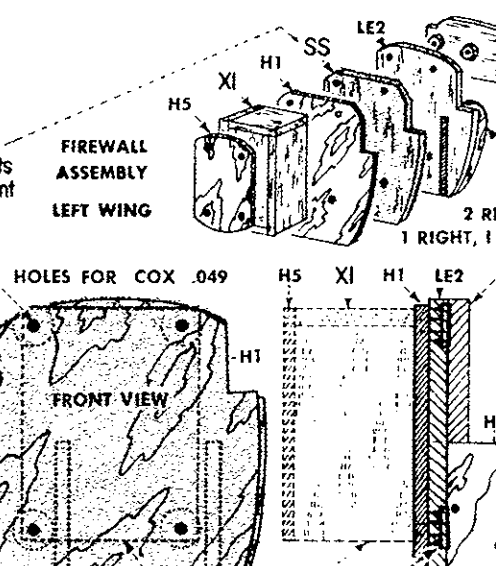
Complete the procedure shown below before attaching nacelles. Cement RC1 in place, drill the .035 holes, then trim to shape. Similarly attach RC2 part.



REMOVABLE COWL

Do NOT apply cement to cowls. After cementing nacelles to wings, add screws to cowls. Then cut the cowls apart from the nacelles.

VIEW OF LEFT NACELLE

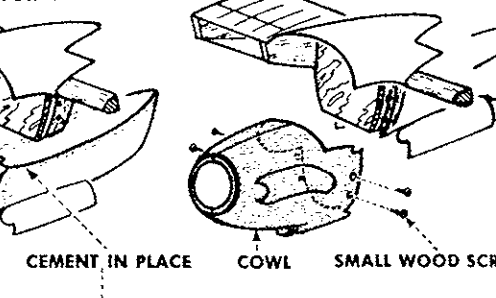


Placement of .049 engine. For .049 engines, imbed 2-56 blind nuts into back of LE2 parts.

VIEW OF LEFT NACELLE

REMOVABLE COWLS —OPTIONAL— ENGINE CONVERSION ●

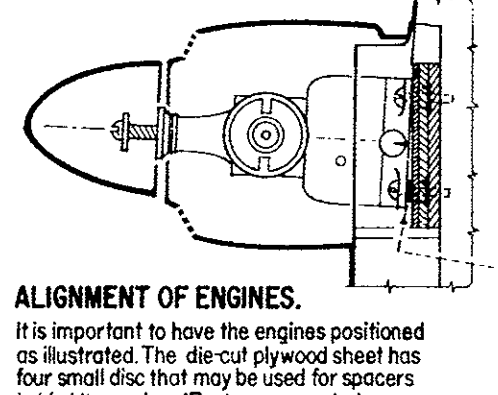
Complete the procedure shown below before attaching nacelles. Cement RC1 in place, drill the .035 holes, then trim to shape. Similarly attach RC2 part.



REMOVABLE COWL

Do NOT apply cement to cowls. After cementing nacelles to wings, add screws to cowls. Then cut the cowls apart from the nacelles.

VIEW OF LEFT NACELLE

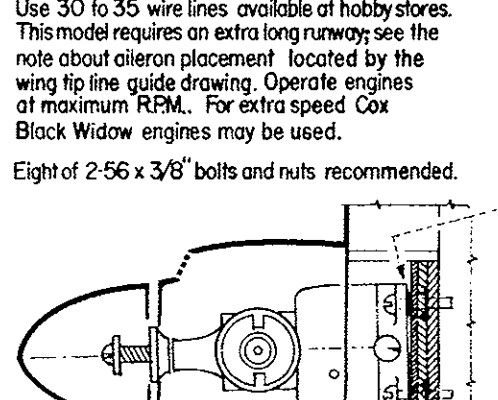


ALIGNMENT OF ENGINES.
It is important to have the engines positioned as illustrated. The die-cut plywood sheet has four small discs that may be used for spacers behind the engines if extra are needed.

INSTALLATION OF .049 ENGINES (Golden Bee or Black Widow engines.)

Recommended for advanced modelers only. Use 30 to 35 wire lines available at hobby stores. This model requires an extra long runway see the note about aileron placement located by the wing tip line guide drawing. Operate engines at maximum RPM. For extra speed Cox Black Widow engines may be used.

Eight of 2-56 x 3/8" bolts and nuts recommended.



VIEW OF LEFT NACELLE

Propeller 4.5" diameter x 2" pitch.

VIEW OF LEFT NACELLE

Propeller 5" diameter x 3" pitch—3 blade.

Cox spinner, not furnished.

Cox .049 engine.

2-56 x 3/8" Blind nuts and bolts. 8 Req. Not furnished. Imbed nuts into back of LE2 parts.

Plastic Nacelle

FUEL TUBE

H1 LE2

Plastic Nacelle

2-56 x 3/8" bolts and nuts.

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes.

Plastic Nacelle

LANDING GEAR

Cowl

Cox .020 engine. (Pee Wee)

2-56 x 3/8" bolts and nuts.

Cut slots here to drain fuel and exhaust fumes

KIT 804 DeHAVILLAND MOSQUITO MK-IV BUILDING INSTRUCTIONS

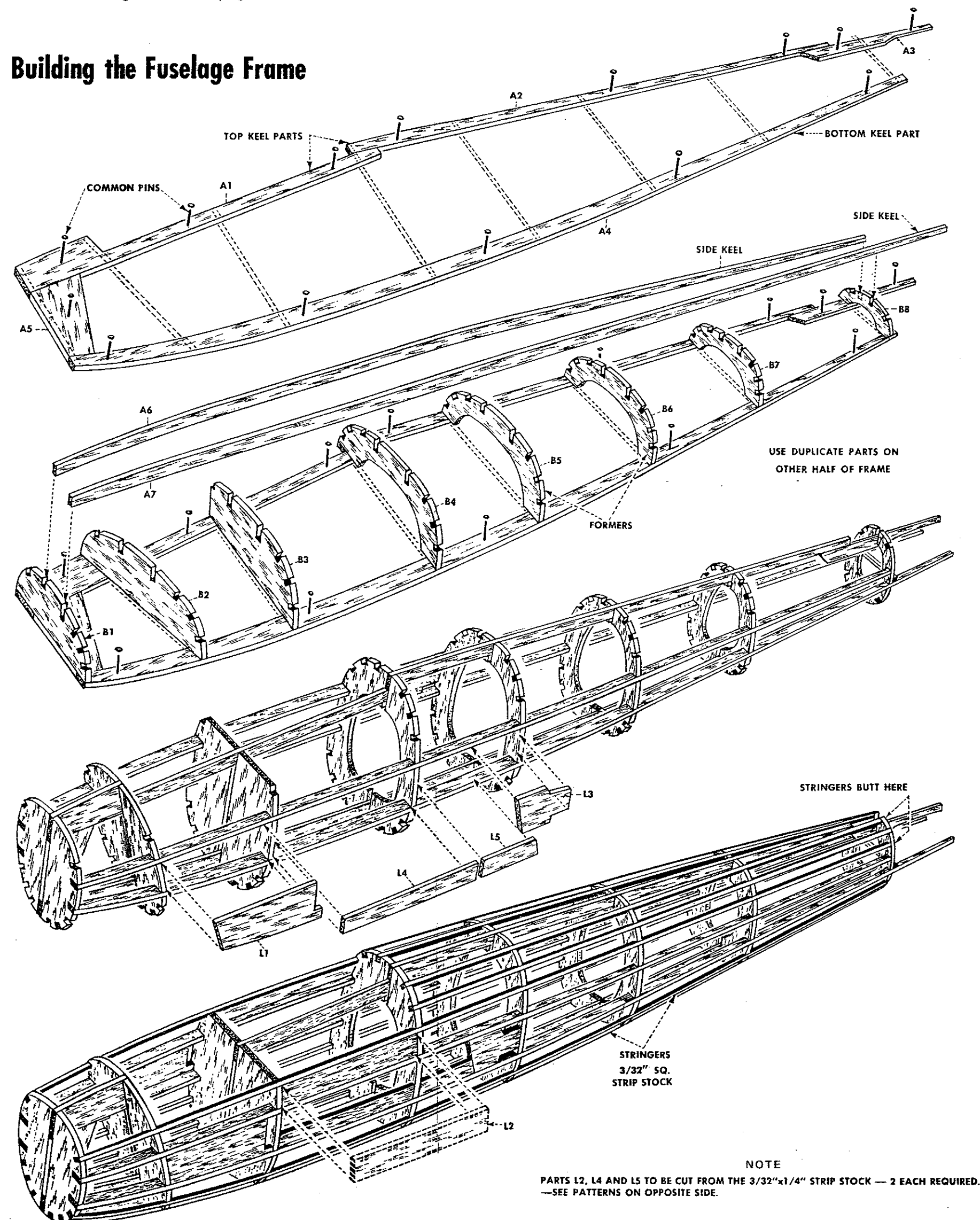
MR. MODEL BUILDER:

Before starting construction of your model, study the plan and construction procedure carefully so that you will have a complete understanding of the step-by-step method of building this airplane. Guillow engineering has provided you with the most up-to-date method for building a real scale flying model.

Only careful attention to detail will insure the success of your efforts. Most prize winning models are the result of patience and careful workmanship. You too, can achieve success by following the example of champion model builders—by working SLOWLY and CAREFULLY at all times. For converting to U-Con-

trol model see the special instructions on the front of the plan. Note: the basic model construction is similar, but the special construction details required for U-Control must be made during assembly as per the specific instructions given on the plans.

1. Building the Fuselage Frame

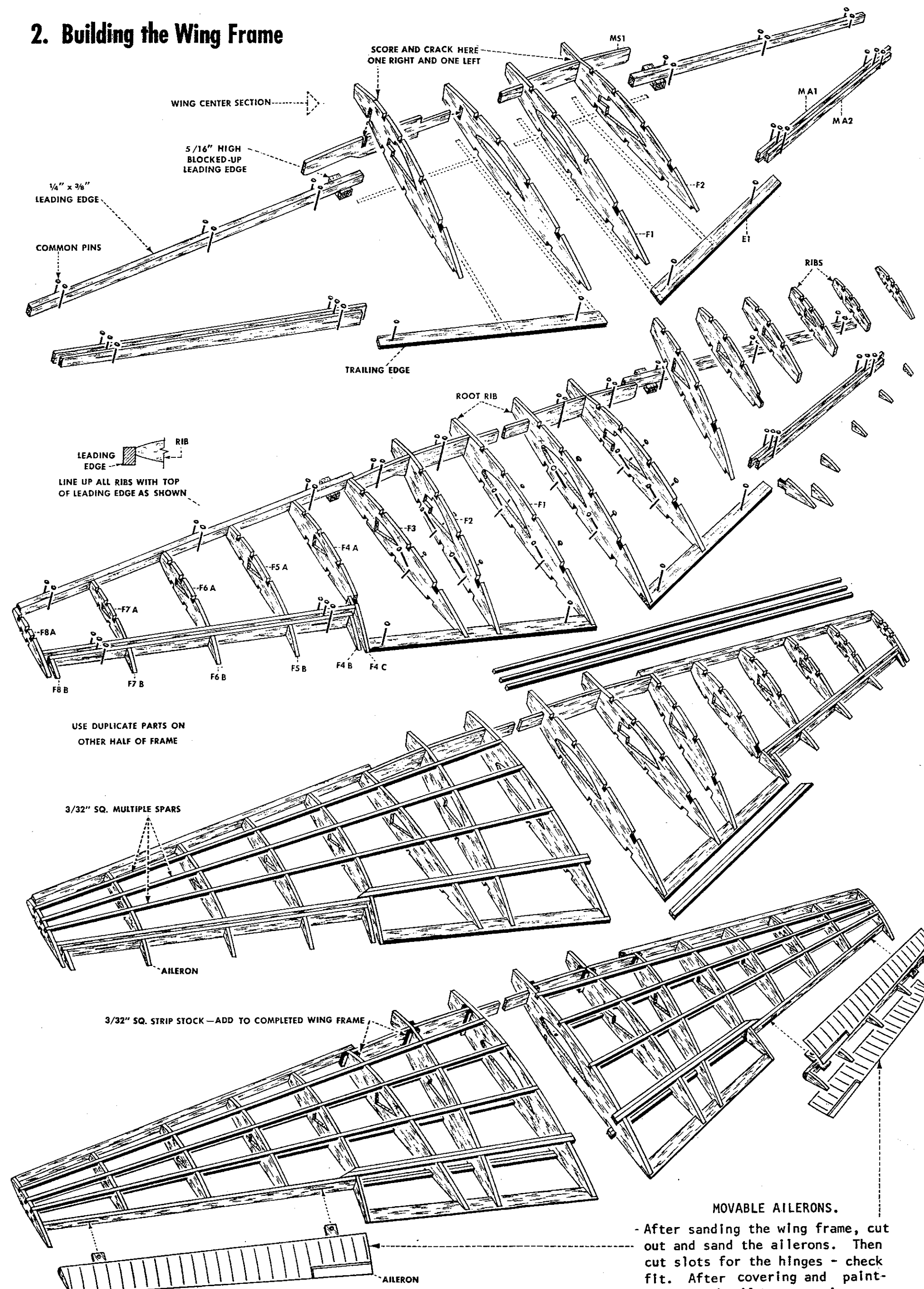


1. Pin the top and bottom keel parts "A1" and "A4" to plan. Cement "A2" "A3" and "A5" into position and pin to plan.
2. Cement one each of formers "B" into position on keels—be sure formers are at right angles to the keels "A." Cement side keels "A6" and "A7" into deep notches of formers "B."
3. When dry, remove the frame from plan. Cement the opposite halves of formers "B" to center keels

and to formers "B" already in position. Cement opposite side keels "A6" and "A7" into position. Cement the "L" parts into place. On some models part "L1" bends around the fuselage towards the bottom. Before cementing "L1" into position, soak in warm water as mentioned above to relieve tension. Note: Balsa can be cemented when it is still damp with water.

and fuselage perspective as an aid to stringer locations." To obtain uniform tension on fuselage during this stage of construction, cement the stringers alternately to the left and right sides. If certain stringers show too much tension, soak the stringer or stringers in warm water for a few minutes to "limber up" the fibers and they will follow "bold bends" with ease.

2. Building the Wing Frame



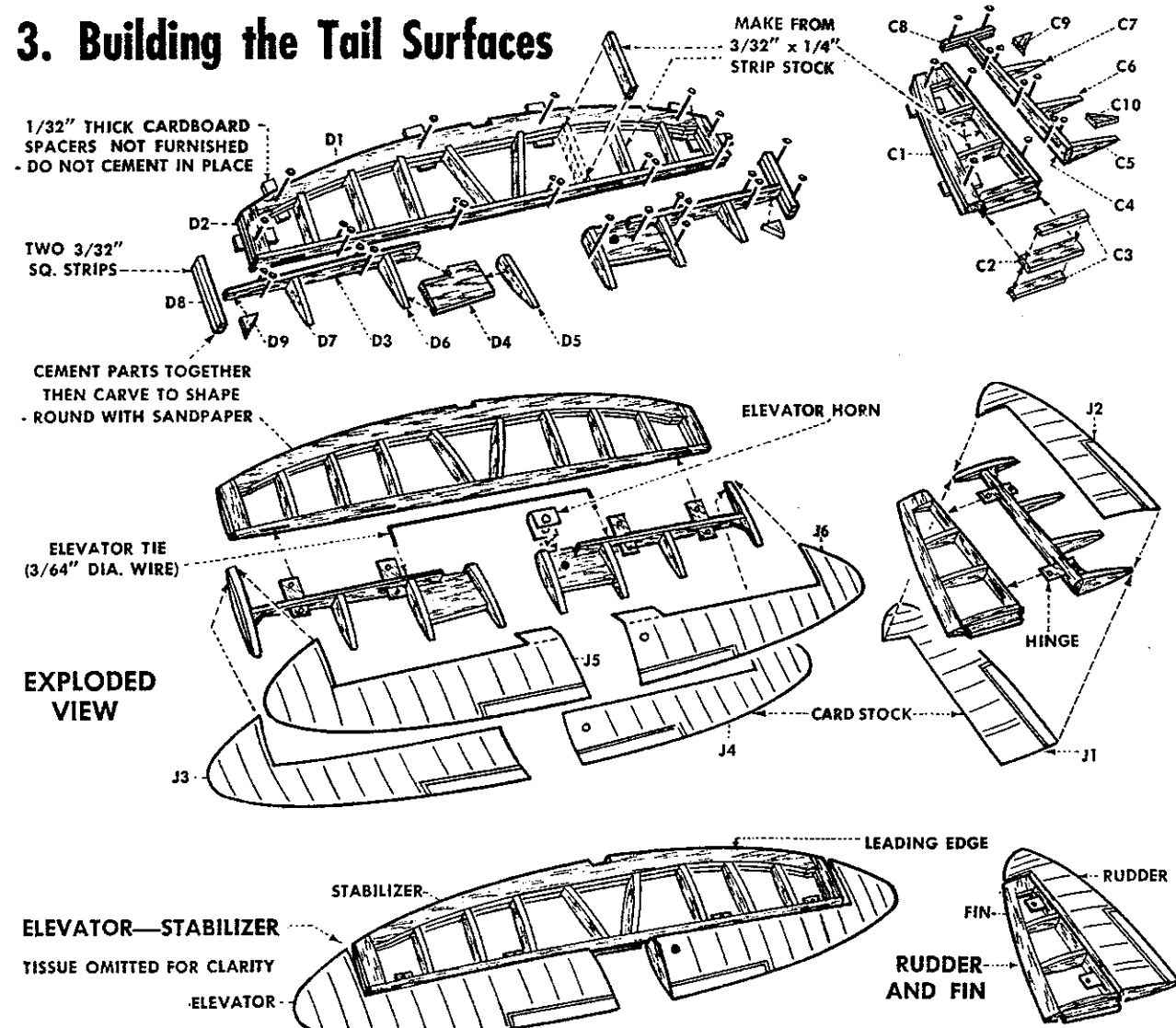
1. First assemble and cement the wing center section together. When completed, pin in place over the wing layout. Pin the leading edge and parts as shown into position on wing plan.

2. Cement all ribs "F" into position between leading and trailing edges.
3. When dry, cement all the top 3/32" square multiple spars into position on left and right wing.
4. When thoroughly dry, remove wing from plan and cement the bottom multiple spars into place,

5. When dry, using a razor blade or modelers knife, shape the leading edge to blend with the ribs as shown on the typical rib section drawing.
6. Lightly sand the wing to remove any balsa fuzz and excess cement.

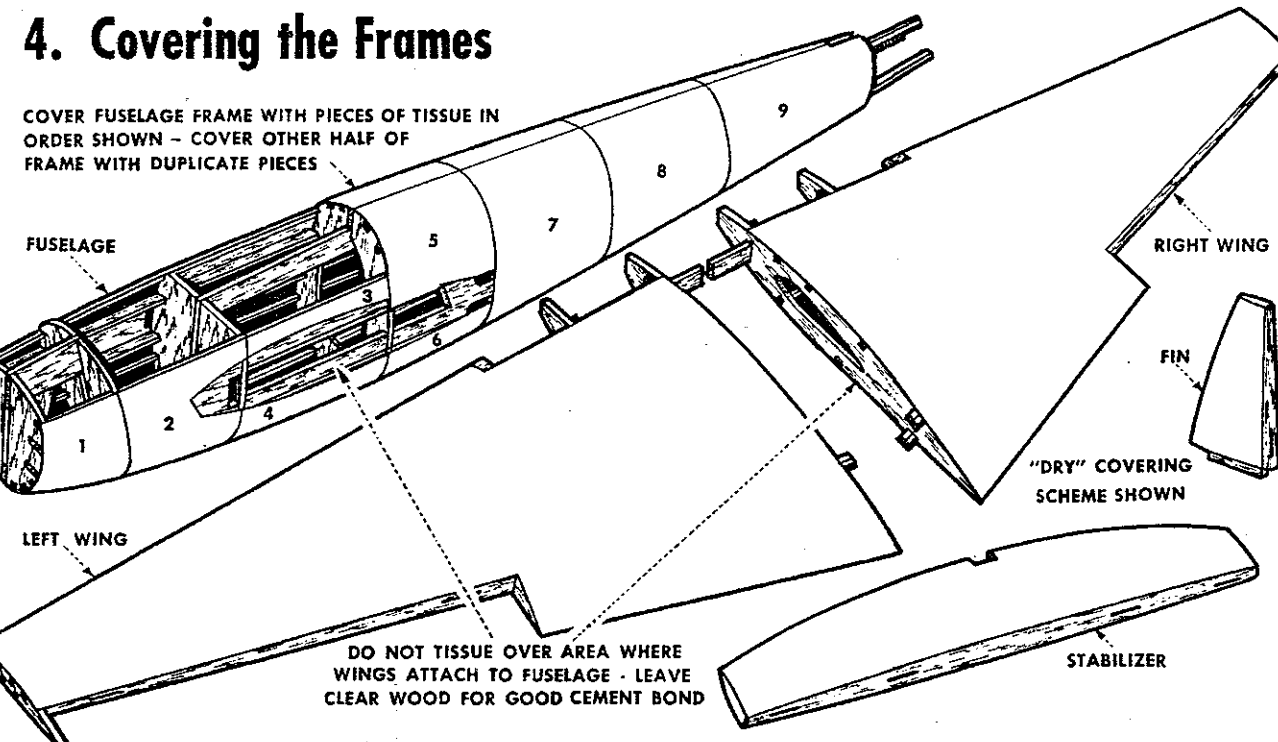
MOVABLE AILERONS.
After sanding the wing frame, cut out and sand the ailerons. Then cut slots for the hinges - check fit. After covering and painting, attach ailerons to wing.

3. Building the Tail Surfaces



1. Pin to plan and cement respectively to each other all of the "D" stabilizer - elevator parts. Cut to size and cement spars and cross members into place.
2. Build the fin-rudder frame in similar manner using "C" parts and members.
3. When dry, remove the frames from plan and round all edges. Sand lightly to remove fuzz and excess cement.

4. Covering the Frames



After all the frames have been sanded smooth, they must be "pre-doped" so that when you apply the tissue covering, the dope used to adhere the tissue to the frames will not be soaked up by the wood. This makes it much easier and faster to cover the model.

Because of the stringer and former construction, use a narrow $\frac{1}{4}$ " or $\frac{1}{2}$ " wide brush to dope with. Use dope thinned out 50% with thinner to about the consistency of milk so it will brush easy and dry fast.

The outside surface of all stringers, formers, ribs, leading edges, trailing edges, spars and tips should be given at least three coats of clear dope at which time you will note that the doped surfaces will begin to shine a little. This shows that you have sufficient build up of dope on the wood. Lightly sand wood between coats of dope.

There are two methods of covering a model with tissue. One is to cover with the tissue dry and the other is to cover with the tissue wet. When covering with dry tissue, smaller areas are covered at one time. Any area that is covered dry should be tried first to make sure it will not bunch up or wrinkle excessively before doping in place. The covering scheme shown on each plan is suggestive of dry covering. For dry covering, cut the tissue slightly larger than the area to be covered and after doping in place, trim excess tissue with a single edge razor blade.

Dry Covering the Frames
Fuselage: Cover the fuselage in sections as shown on scheme, starting from the front or former B1 and covering vertically between formers. The grain of the tissue should run lengthwise with the fuselage. (The grain of the tissue runs with the width of the tissue sheet as you receive it in the kit).

Wing: On straight tapered wings, you can cover the complete top and bottom of each wing panel between the dihedral break and the last tip rib with one piece of tissue. Use separate piece of tissue for top and bottom of the center section and the tips. The grain of the tissue must always run spanwise on the wing.

Tail surfaces: The top and bottom of each tail surface can be covered with one piece of tissue. The tissue grain should run spanwise on the stabilizer, and ver-

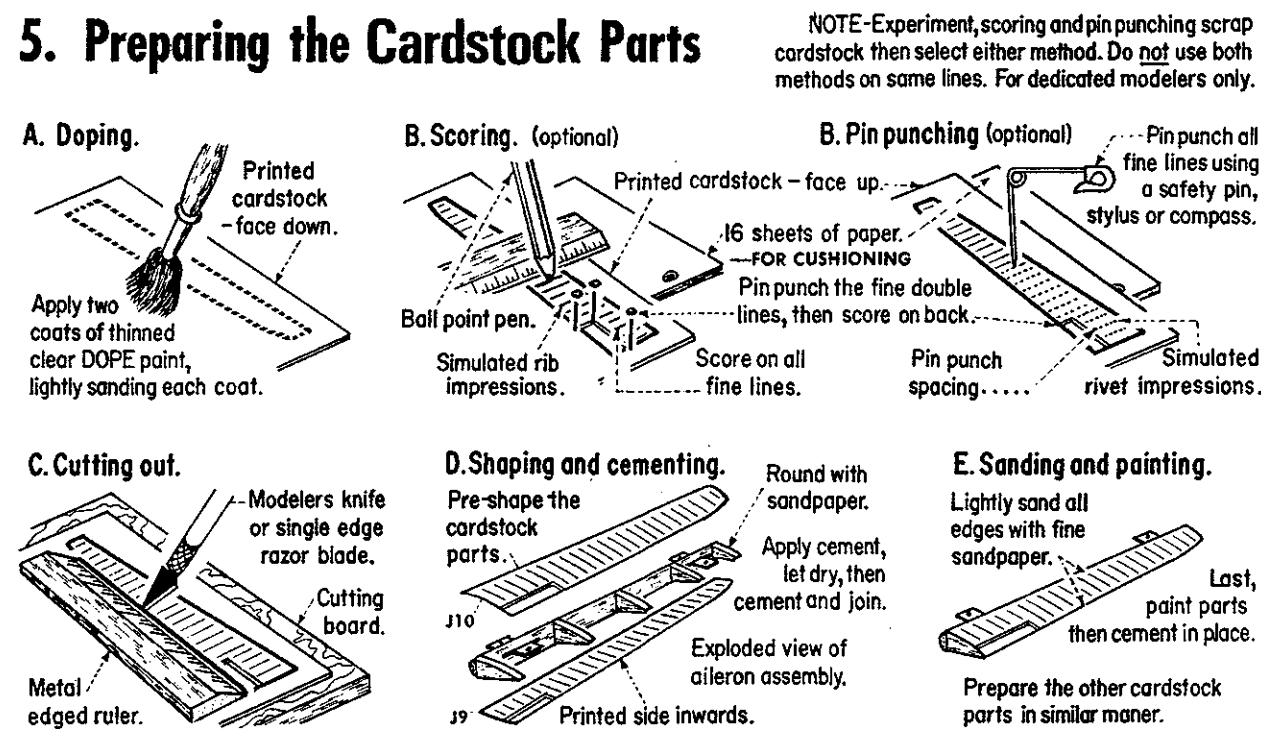
tical on the fin. After the frames are covered, they should be wet with water by using an atomizer or by using some of the tissue folded several times and used like a brush to lay the water onto the tissue. When the water has evaporated and the tissue has dried, the tissue will be taut. At this time, brush on one coat of dope over all of the covered parts.

Wet Covering the Frames
When covering with wet tissue, large and sometimes complete areas can be covered at one time. To prepare tissue for wet covering, cut tissue slightly larger than the area to be covered and either wet tissue under a faucet or in a pan with water. Have a face towel spread on the table - lay the wet tissue on the towel to rid of excess water and immediately proceed to cover the frame. Carefully lay the wet tissue over the area. Gently start drawing the tissue taut, not tight, in different directions, but always away and out from the center of the area. Work as fast as you can while the tissue is still wet or damp. You will note that the tissue follows compound curves because in wetting the tissue, you have relieved the tension on the fibers and they now will stretch a little. As soon as the tissue is smooth over the whole area, dope it on by doping over the wood areas only. The dope will go right through the wet tissue and stick the tissue to the wood. As the tissue dries, it will tighten up and the dope may turn white or "blush" at this time, but the blushing will disappear after the next coat of dope.

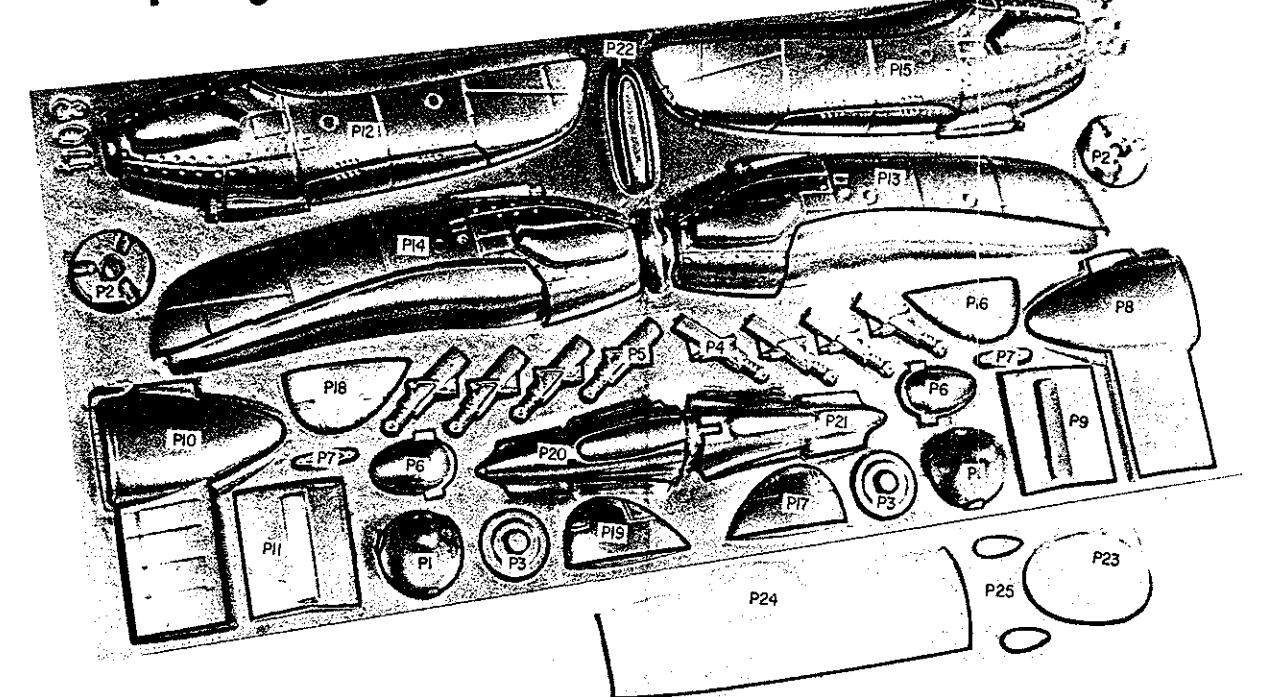
Areas to cover with wet tissue: Each vertical half of the fuselage can be covered in one piece from former "B1" to former "B6" and from former "B6" to the end of the fuselage. Each wing panel from the dihedral break out to the tip on the top or bottom can be covered with one piece of tissue. The top and bottom center section is covered with one piece of tissue. All surfaces of the tail can be covered with one piece of tissue.

After all frames are covered and dry, brush on at least three coats of thin dope or more, if necessary, until the tissue pores are filled and the tissue is starting to shine. Use a $\frac{1}{4}$ " $\frac{3}{4}$ " wide brush for doping. Sand with very fine sandpaper between coats of dope.

5. Preparing the Cardstock Parts



6. Preparing the Plastic Parts



IMPORTANT NOTE: Test paints and cements on scrap pieces of plastic before use on parts. Black lines indicate cutting areas.

The formed pieces on the vinyl plastic sheet should first be cut apart with scissors. Using the point of a modelers knife or a single edged razor blade, score the plastic part as close as you can at the trim points. The score should be deep but not through. Score twice if necessary. After scoring, gently bend the excess material back and forth until it breaks away. Now sand all the edges to smooth them off.

Use a plastic cement for joining of any matching halves. (Refer to note on plan about adhesives and dopes for plastic parts.)

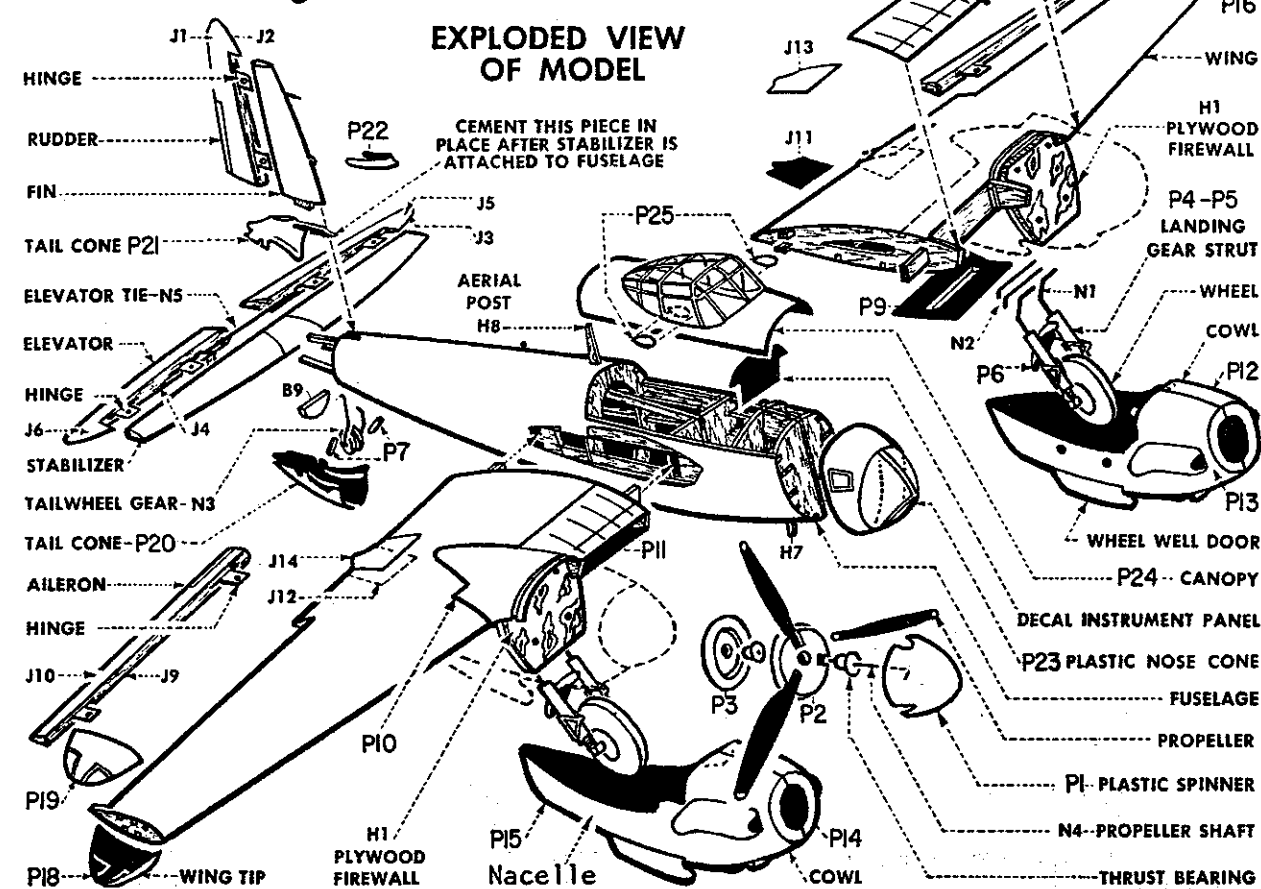
Sand finish joints after cement has dried. Except for any special cut-outs as mentioned in "Installation of Glo-Engine", the plastic parts are ready to be attached to

the model.

Most dopes and paints will invariably tend to soften the plastic if too much is applied at frequent intervals. When painting over plastic, work fast and let each coat of dope or paint dry at least $\frac{1}{2}$ hour.

The clear plastic canopy is made from acetate and is a different material than the other plastic parts. It is thinner and more easily softened than the vinyl plastic pieces. Extra special care should be taken when cementing the canopy in place and when painting in the window separation. If these suggestions are followed, you should have no problem with the attachment and painting of plastic parts thus insuring a neat appearing model.

7. Assembling the Model



Trim the plastic nose cone to shape. Refer to special instructions on "Plastic Parts Preparation". At this time, take the larger portion of the clay furnished in the kit and after making the clay soft and pliable by working it with your fingers, carefully press the clay into the inside front and bottom of the cone as shown in dotted lines on the side view of the model. Work the clay into position so that it fills the particular area. The remaining portion of the clay will be used later for final balance of the model.

Cement the plastic cone to the front former "B1" by first beading the immediate inside edge of the plastic cone with cement and also beading around the edge of "B1" former. Slip the cone onto the fuselage and after lining up the cone carefully, wipe off any excess cement. After the cement has dried, you will note that the edge of the cone has shrunk and blended itself into the fuselage. A light amount of sanding around the edge will smooth the joint.

Next, cement the stabilizer-elevator to the fuselage and then cement the fin-rudder into place. Line up care-

8. Painting the Model

There are two types of fast drying colored dopes you can use on your model. One is Nitrate and one is Butyrate fuel proof. The Butyrate is fuel resistant but the Nitrate is not. You can also use a plastic base type paint finish (see your hobby dealer) that is also fuel resistant and fast drying. You can use any of these three types for the rubber and non-flying scale version of the model, but you must use a fuel resistant type if you use a glo-plug engine, because the potent materials in the fuel will soften and dissolve the nitrate dope. This, of course, will spoil your finish.

Generally, the colors on the war planes were of a dull or semi-gloss finish. Most of the dopes are a glossy paint. Ask for and use a paint that has authentic dull finish and makes for real scale effect when used. The proper colors can be had by inter-mixing the paint colors. Also, the glossy paints can be used and dulled after they are dry by using an abrasive mixed with water, such as Bon-Ami powder. Rub the surface just enough to take away the high gloss and then wash the powder off with clear water.

The painted finish of your model will only be as good as

your preparation. The consistency of the paint should be such that it does not dry out while being applied and still not so thin as to run easily. Use a good $\frac{1}{4}$ " to $\frac{3}{4}$ " brush and, assuming that the model is clear doped, smooth and clean, proceed as follows: Paint all of the edges first. Paint one half of the fuselage at a time starting at the nose and proceeding to the rear.

Next, paint the top and bottom of one wing panel and stabilizer-elevator and one half of the fin-rudder. When dry, so you can handle the model, paint the remaining half of the model. On the fuselage, brush on all coats the length of the fuselage. On the wing and tail surfaces, brush each alternate coat on in opposite directions, finishing with the last coat running in the same direction as the fuselage.

Apply only enough colored paint to give complete coverage, as colored paint is heavy. Usually, two or three coats is enough. When more than one color is required on a model, finish the lightest color first and the darker color last, because dark colors cover over light better than light over dark. Allow sufficient time between coats for the paint to dry.

9. Completing the Model

After the model has been painted, ink in the control surface lines - refer to drawings for positions. Apply decals to model in positions shown following instructions on back of decals. Add finish details such as radio mast, struts, etc.

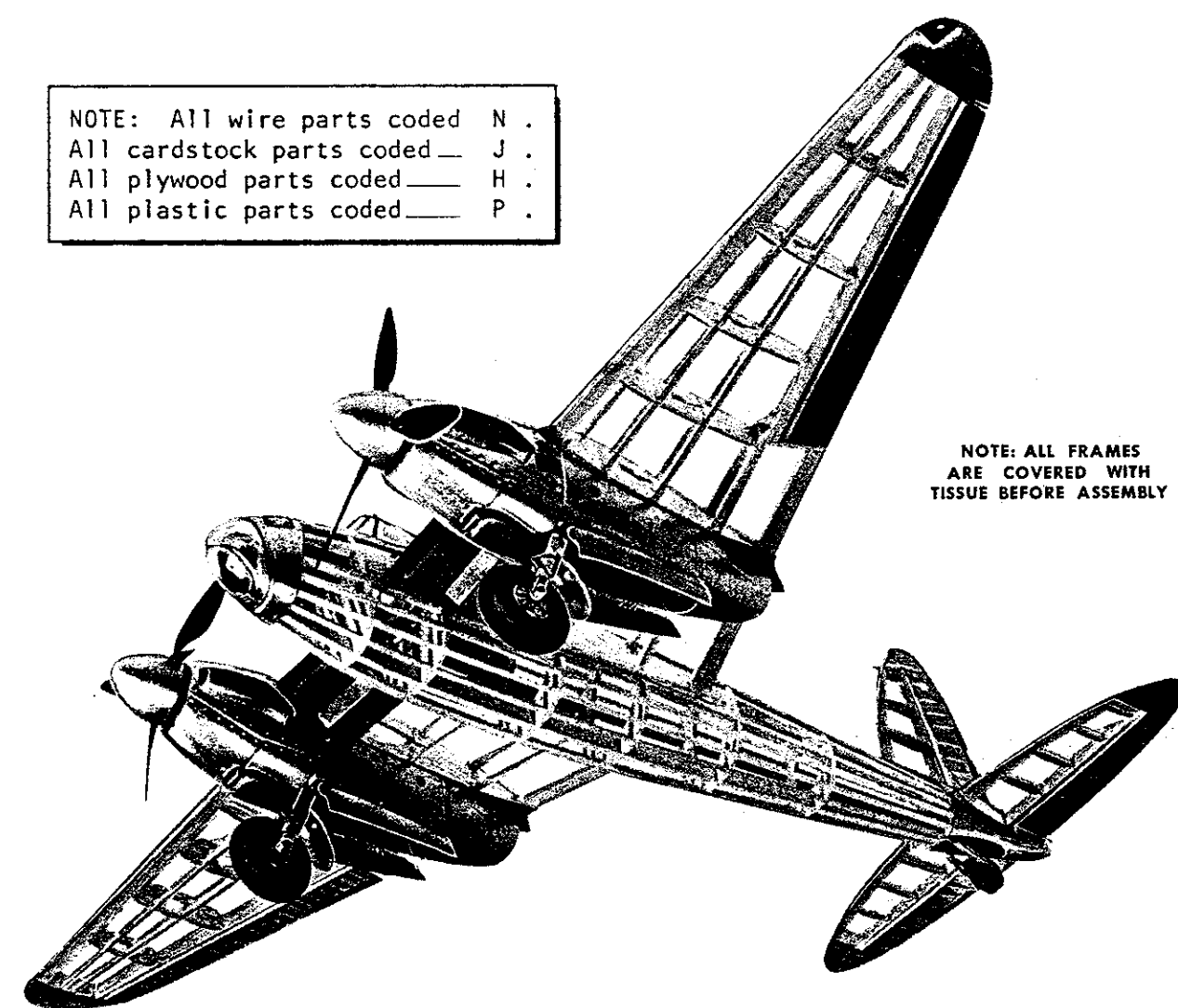
The model can now be balanced at the point shown on

the plan by adding the necessary amount of clay to the front and bottom of the cone. Soften the clay and smooth it on so that it blends with the cowl area. In the event that the model is nose heavy without the additional clay, you can add a small amount of clay to the rear of the model.

10. Adjusting the Model

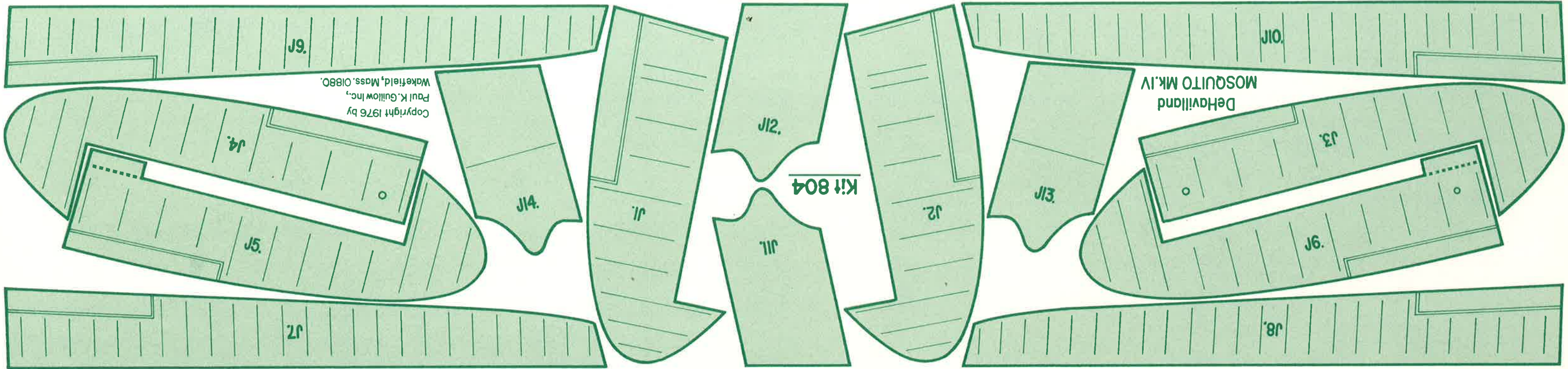
The wings and tail surfaces should be checked for possible warps. These can be detected by sighting the surfaces from the center of the model, either by looking from the front or the rear. If warps are apparent, follow this procedure in removing them. Warps can be removed by direct dry heat or by moist heat or steam from the spout of a water or teakettle. Steam is more effective for removing warps. With the kettle about half full of water, bring the water to a boil so steam is pouring out of the spout. Now, turn down the heat until the water is just at or above the boiling point and the steam is floating out of the spout rather than being forced out.

Holding the model in a manner that allows you to twist the warped surface and still keep your hands well away from the steam, proceed to remove "arp in this manner: Hold the warped area close to the steam and move the area over the steam and around in a circular pattern until you see the covering relaxing or even getting loose. Now, gently twist the surface in the opposite direction and a little more than is needed to remove the warp. Take the model away from the steam, still holding the surface in that state, and hold that way until the surface tightens up again. After releasing the surface, it should have removed the warp.



KIT 804 DeHAVILLAND MOSQUITO MK-IV
COPYRIGHT 1976 BY PAUL K. GUILLON, INC., WAKEFIELD, MASS. 01880

PRINTED IN U.S.A.



Kit 804

DeHavilland
MOSQUITO Mk.IV

Copyright 1976 by
Paul K. Gullow Inc.,
Wakefield, Mass. 01880.