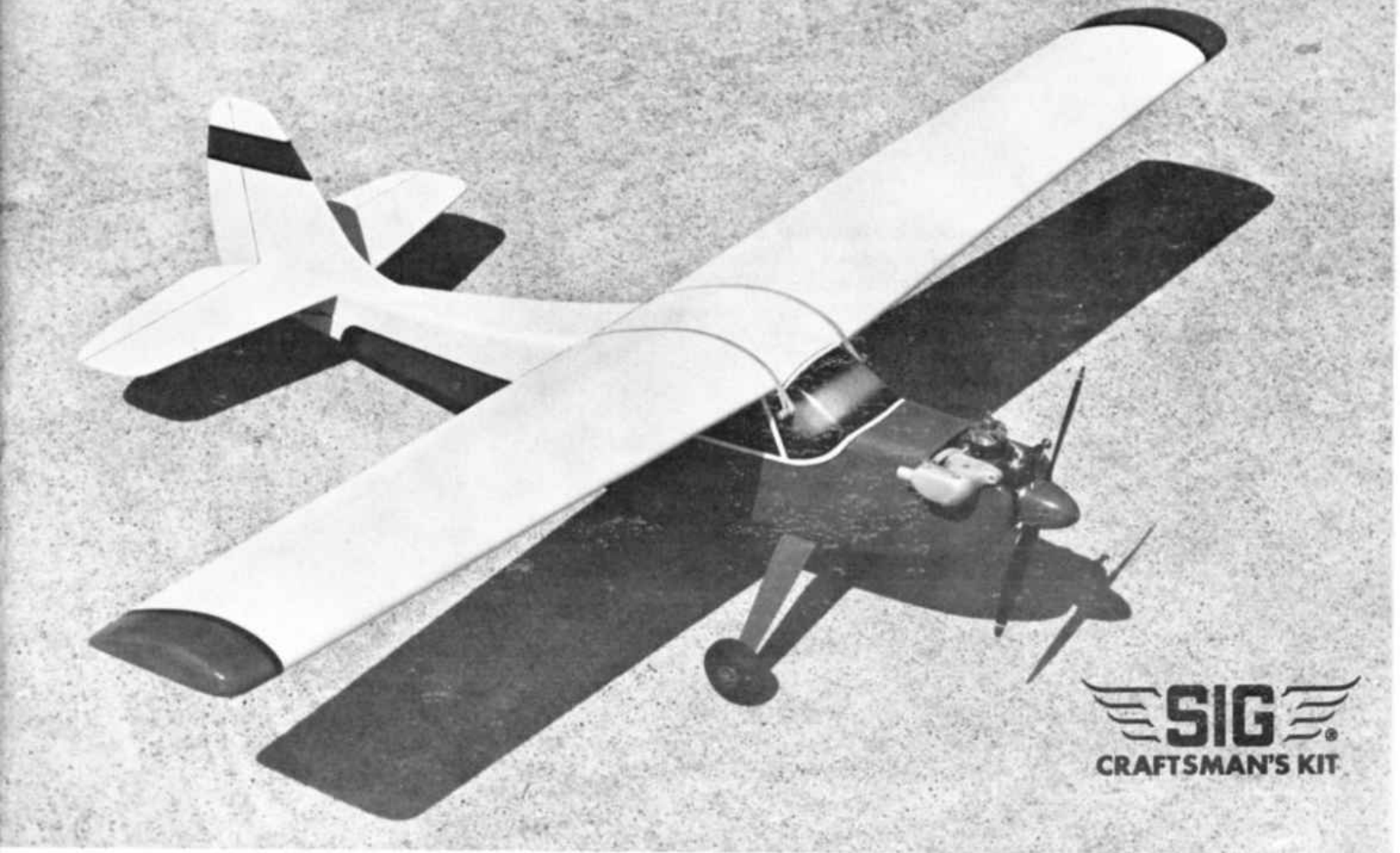
SCAMP

BUILDING AND FLYING INSTRUCTIONS



SIG
CRAFTSMAN'S KIT

SCAMP

KIT NO. RC-45

The Scamp is an easy to build 3-channel sport model designed with stable and docile flight characteristics tailored to the "Sunday flier". Although it is not recommended as a trainer, it can be handled by relatively inexperienced pilots with a low number of RC flying hours. Engines from .09 through .15 cu. in. are ideal for the Scamp.

For best results, we recommend that you install 3 channel radio equipment in your Scamp to operate the rudder, elevator, and engine throttle. Or you can install 4 or more channel equipment and use only 3 of the channels (see RADIO INSTALLATION section on page 13). The fuselage is large enough to carry a standard size battery pack and servos.

1 or 2 channel radio equipment could also be used in the Scamp but with much less flexibility in control (rudder and elevator with 2 channels, and rudder control alone with 1 channel equipment). We DO NOT RECOMMEND 1 or 2 channel operation except by fliers who are well experienced with that type of limited control.

A NOTE ABOUT BALSA WOOD

We do our best to put as good a grade of balsa in our kits as the supply situation permits. The world-wide increase in demand for balsa has made it impossible to obtain as high an average quality as used to be the case. Every piece of balsa supplied cannot be 100% perfect or kit prices would have to be greatly increased. Mineral stains or small knots do not seriously affect wood strength. Even with the very best grades of balsa, there is a natural tendency for some sticks or sheets to immediately bow upon being cut off from a perfectly square block because of built-in stresses. In most cases, these can be bowed back into alignment during building. True up the edges of bowed sheets by trimming, using a metal straightedge to cut against.

RECOMMENDED GLUES

The framework may be glued with either Sig-Bond resin type glue or Sig-Ment solvent type cement. In any joint involving plywood or hardwood, Sig-Bond is the best choice. Areas subjected to unusual strain, exposed to fuel or oil, or including metal pieces, should be glued with Sig Epoxy Glue or Sig Kwik-Set 5 minute type epoxy. Some specific pieces have other recommendations. You will find these in the directions concerning the part.

BEFORE BEGINNING CONSTRUCTION

A separate full size plan of the fuselage, showing the side and top views, is included with this kit. Cut the two sections of the plan apart, and carefully tape them together along the A-B break line. Use a straight edge along the fuselage datum line to insure they are taped together straight.

It is suggested that you read the entire instruction book and study the photos and drawings carefully before beginning to build. The quickest and most efficient way to build a model is to work on several pieces at the same time. While the glue is drying on one section you can work on another part. A preliminary study of the instructions and illustrations of the construction steps will help make it clear where several building operations may be completed at the same time.

Any reference to right or left refers to your right and left as if you were seated in the cockpit facing forward.

". . . . . read the book completely and study the full size plan before beginning to work."

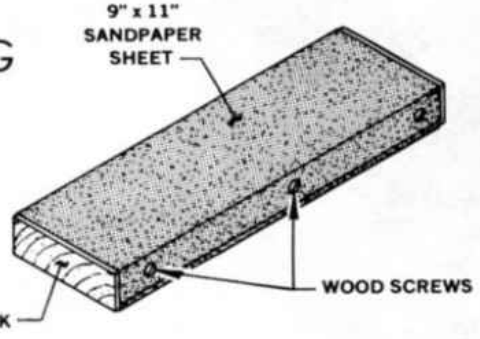
Cut all long pieces of balsa first, followed by medium lengths, before cutting any full length strips into short pieces. Remove the plywood die-cut pieces carefully. If difficulty is encoutered, do not force the part from the sheet. Use a modeling knife to cut it free.

A jig saw is best for cutting out the printed sheet parts. Cut just outside the lines, leaving all of the line on the part. When fitting a part into place in the structure or joining with an adjacent part, use the sanding block to bring the edges to an exact fit. If a jig saw is not available, a modeling knife may be used. Don't cut too close to the line, but leave enough margin to true up and finish the edge with a sanding block.

A piece of Celotex type wall board makes a handy building board, into which pins can be easily pushed. Lay the building board on a table with a flat and untwisted top. Pins can be pushed through all pieces of balsa in the kit without any lasting harm. The holes will fill during painting and sanding.

An indispensable tool for proper construction is a large sanding block, sized to take a full sheet of sandpaper. Use several screws along one edge to hold the sheet in place. The screws allow for easy replacement of the sandpaper. 80 grit garnet paper is recommended for use on the block during general construction.

SANDING BLOCK

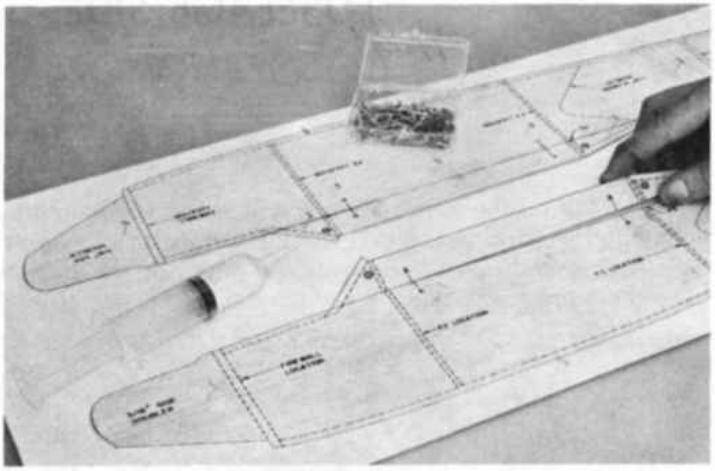


In addition to the large block, there are places where a smaller one is handy. Also, a sandpaper "file" can be made by gluing sandpaper to a flat stick of plywood or spruce for working in tight places.

(1.) PRINTED FUSELAGE SIDES

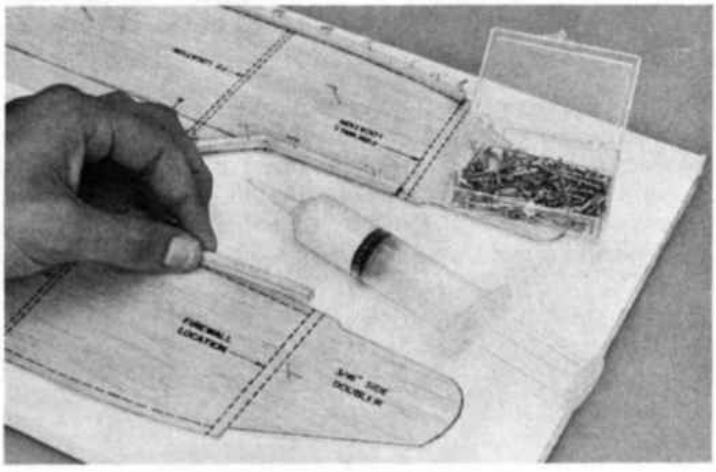
(a.) The internal framework of the fuselage is to be built directly on the 3/32" printed balsa sides. First cut out the right and left fuselage sides from the sheets. Don't cut into the printed outline, leave a little wood for trimming and sanding the side flush with the framework after it is glued in place.

(b.) Carefully join the two pieces that make up one fuselage side. When gluing these pieces together, use a piece of waxed paper or plastic wrap underneath the glue seam to keep it from sticking to the building board. Note that there is a distinct right and left fuselage side. Match the connecting key letters accordingly.



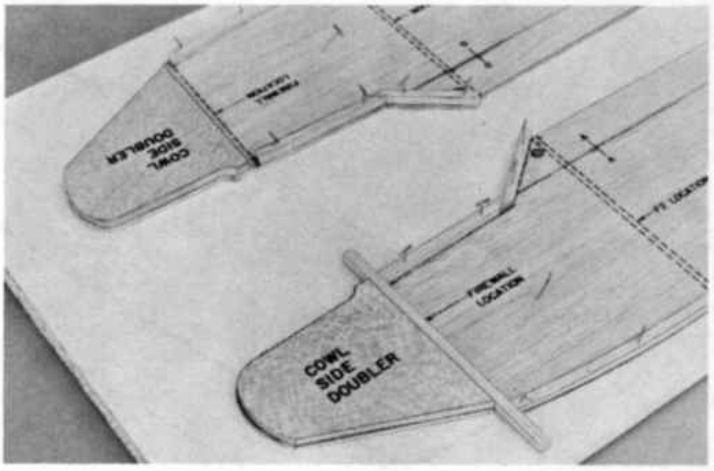
(2.) FUSELAGE SIDE CONSTRUCTION

(a.) Pin the fuselage sides down on the building board and glue the pieces of 3/16" square to the top and bottom of the fuse side. Note that the front 3/16" square pieces stop at the back of the firewall location.

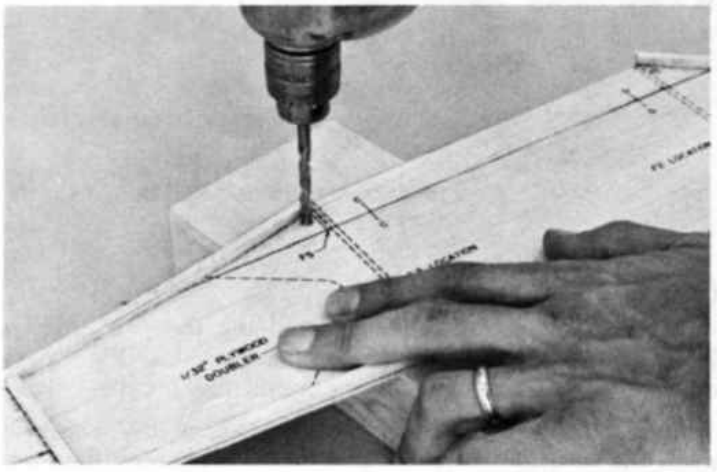


(b.) Add the vertical 3/16" square pieces.

(c.) Glue the 3/16" Cowl Side Doublers in place on the front of the fuselage side using epoxy. Use a piece of 3/16" scrap balsa as a spacer to obtain the correct distance for a proper fit of the firewall later.

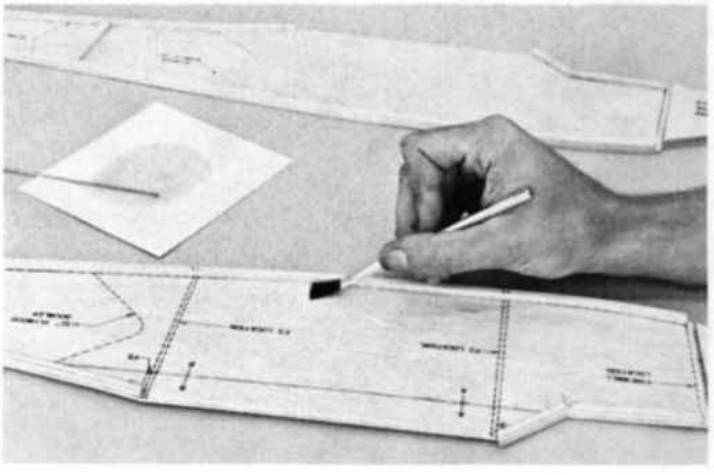


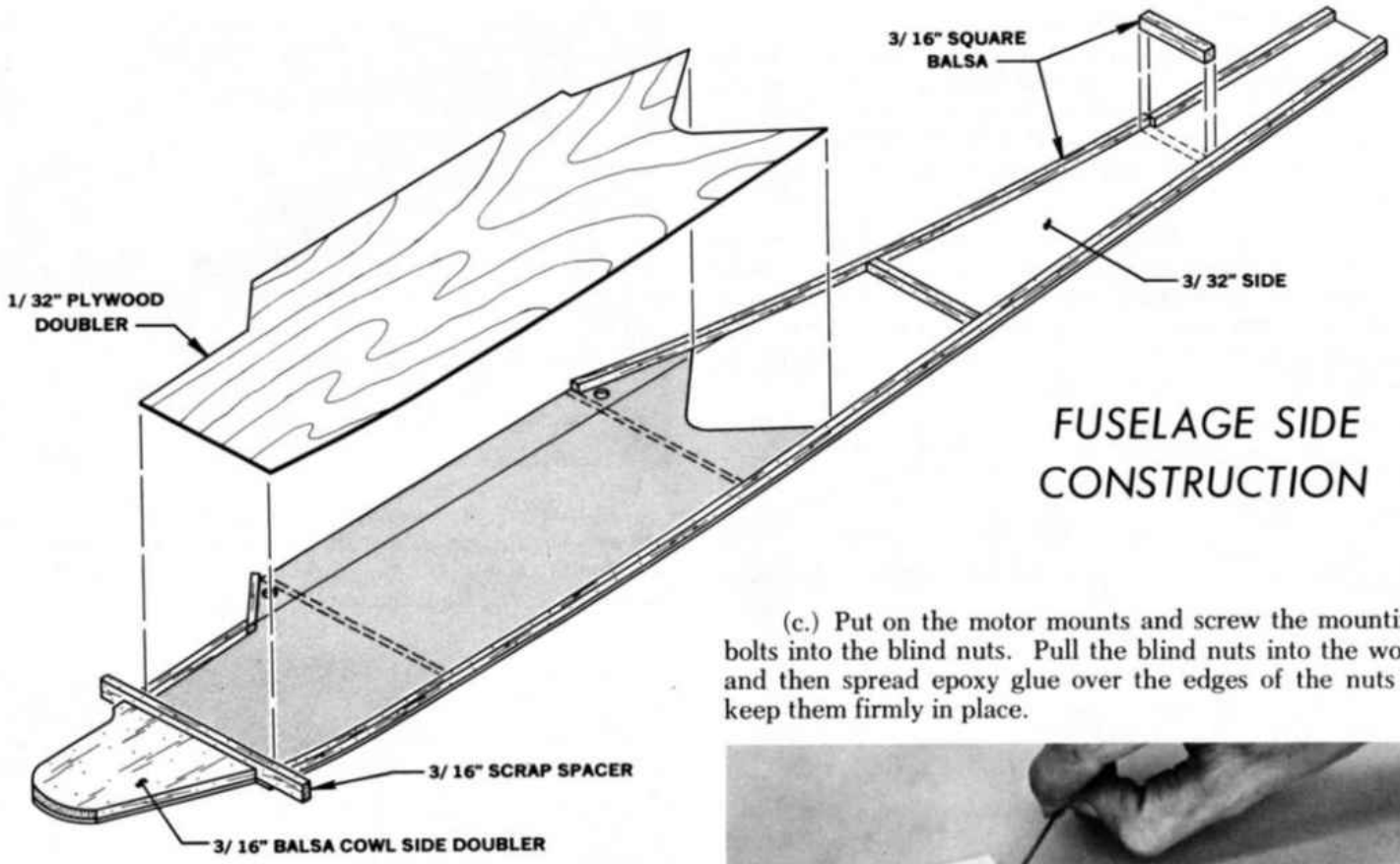
(d.) When dry, remove the sides from the board and drill a 3/16" diameter hole in each of the four marked positions for the wing hold down dowels. This marks the location for redrilling from the outside later.



(e.) Since the addition of the 1/32" plywood doublers will cover up the printed positions of the fuselage formers, the locations of these must be marked on the bottom 3/16" square pieces before the doublers are glued in place.

(f.) Again use a piece of 3/16" square scrap balsa as a spacer while gluing the 1/32" plywood doublers in place. Use epoxy glue - don't use Sig-Bond, white glue, or any other water base glue for this operation since the water in these glues may cause the parts to curl.



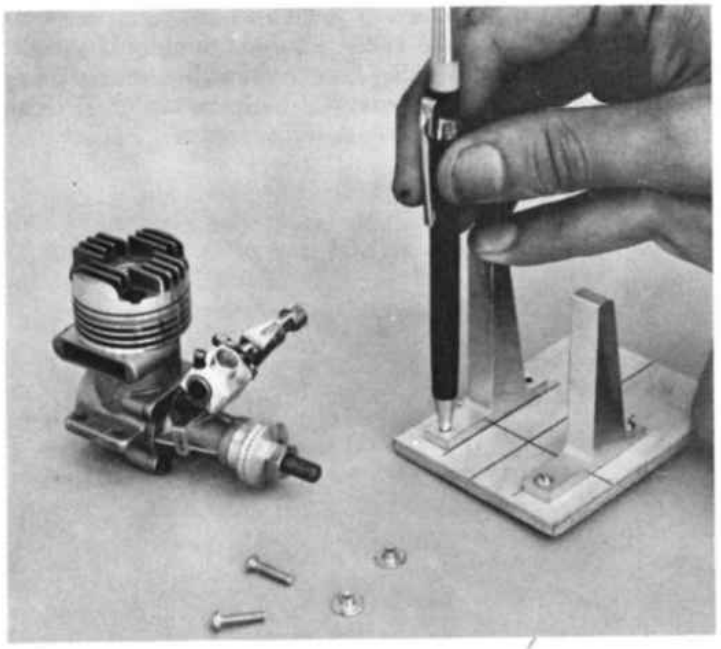


FUSELAGE SIDE CONSTRUCTION

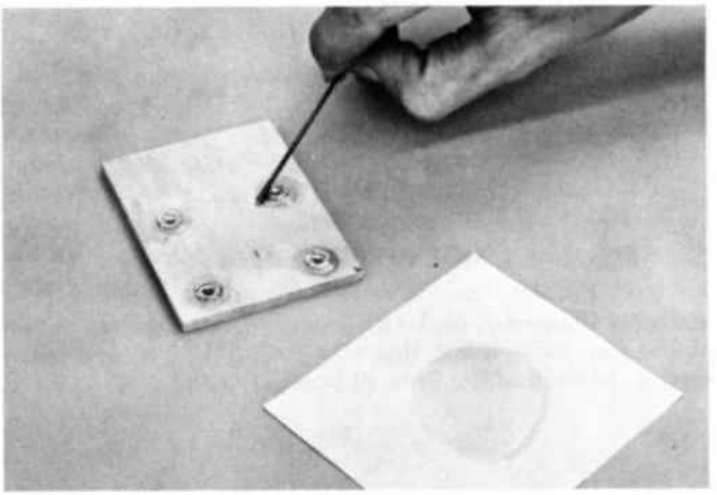
(3.) FIREWALL ASSEMBLY

(a.) The firewall is made by gluing the two 3/32" x 2-1/2" x 3-3/8" plywood pieces together. Use Sig Epoxy or Kwik-Set Epoxy for its strength and fuel-proof qualities.

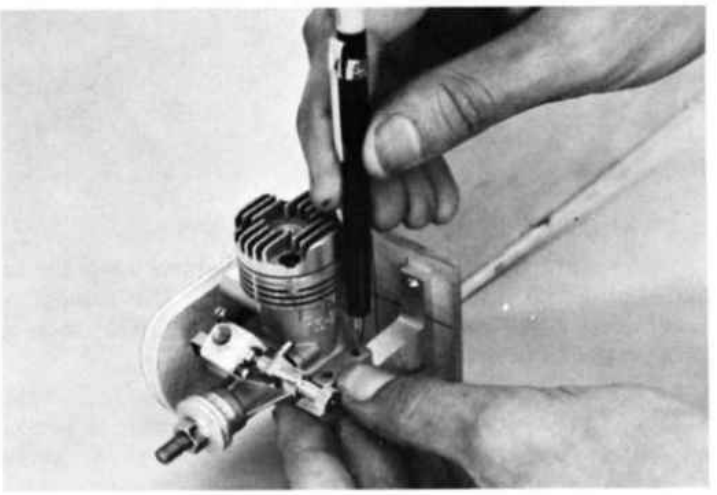
(b.) Using the full size pattern on page 8, locate and mark the vertical center line and the thrust line on the front of the firewall. Check the width of the engine that you intend to use and determine the exact spacing that will be needed between the engine mounts. Now locate the mounts on the firewall accordingly. Mark the locations of the mounting holes and drill them out to accept the 4-40 blind nuts.



(c.) Put on the motor mounts and screw the mounting bolts into the blind nuts. Pull the blind nuts into the wood and then spread epoxy glue over the edges of the nuts to keep them firmly in place.

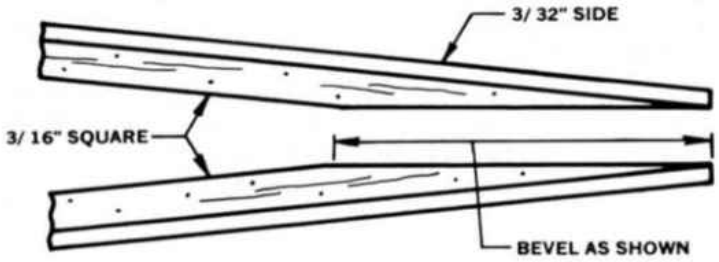


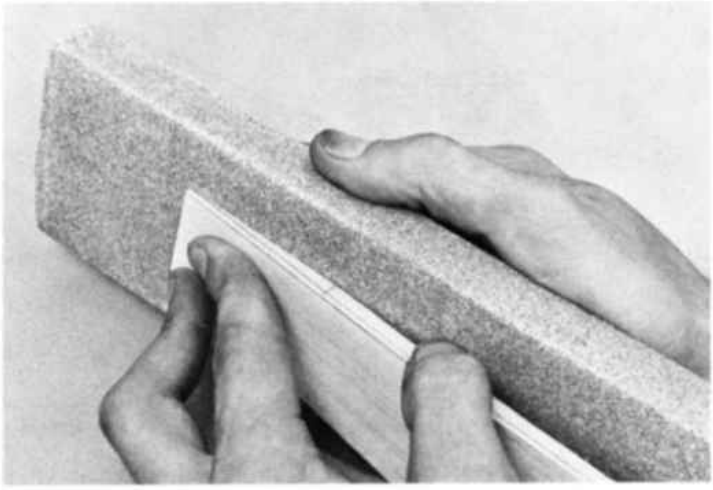
(d.) Using one of the fuselage sides as a guide, position the engine on the mounts so that the thrust washer (or spinner backplate, if used) sticks out 1/8" - 1/4" ahead of the side. Mark the engine mounting holes and remove the mounts from the firewall. Now they can be drilled with a No. 44 drill bit and threaded with a 4-40 size tap.



(4.) JOINING THE FUSELAGE SIDES

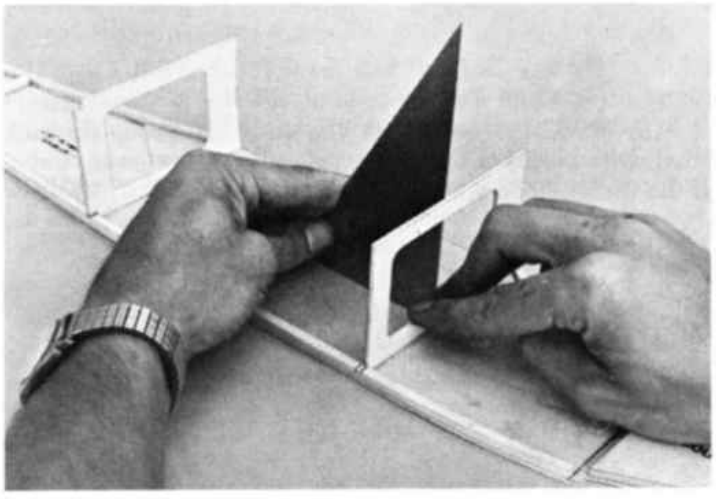
(a.) With a sanding block, bevel the rear ends of the fuselage sides as shown.



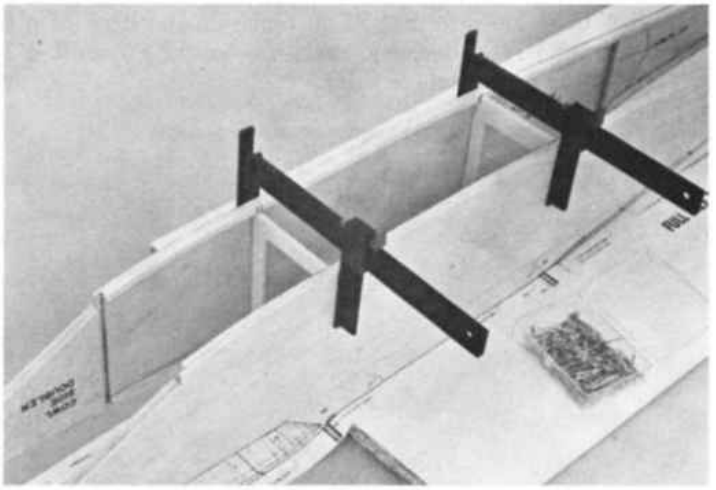


(b.) Position the full-size fuselage top view plan on your building board so that the fuselage sides forward of the front wing dowel will be sticking out over the edge of the board. Tape or pin the plan in this position.

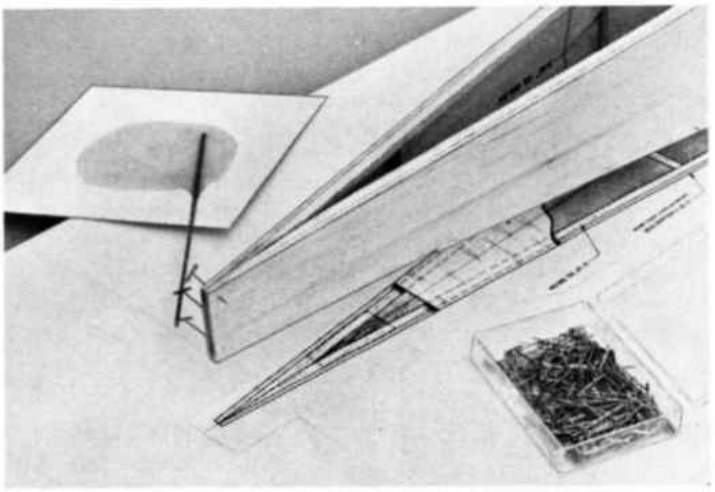
(c.) Glue the die-cut plywood formers F2 and F3 in place on ONE of the fuselage sides. Use Sig Kwik-Set epoxy and hold the formers in square position against a triangle or other 90° object until the glue dries.



(d.) Apply epoxy glue to formers F2 and F3 where they will contact the other fuselage side. Pin the sides to the building board upside down, with the wing saddle firmly against the plan. Double check and make sure that the sides and formers are square and properly aligned over the drawing before the glue dries. Clamps, masking tape, or pins can be used to hold the pieces in position.



(e.) Glue the rear ends of the fuselage sides together making sure the joint is directly over the center line of the drawing.

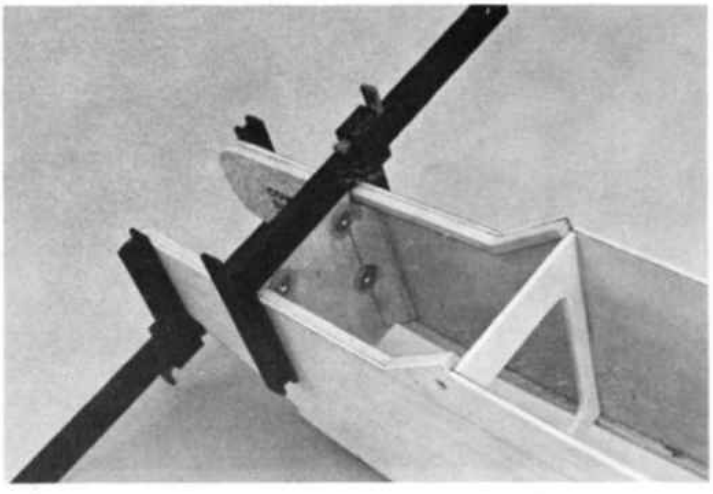


(f.) Cut to length and glue in place the two 3/16" sq. cross pieces that go in the rear of the fuselage.

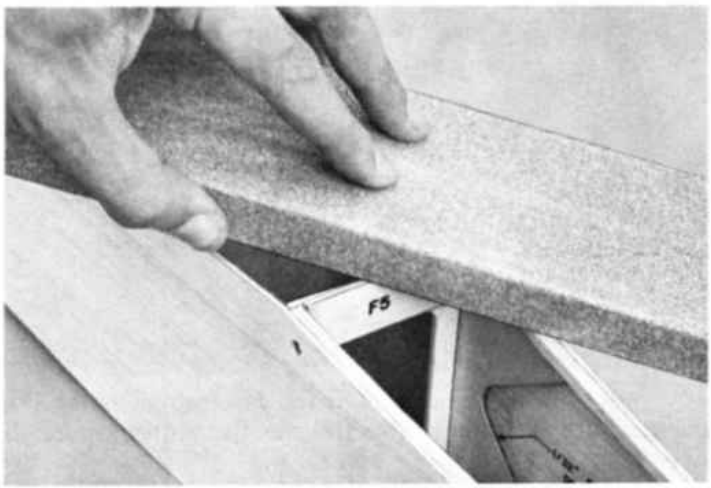
(g.) Unpin the fuselage from the plan and glue the firewall in place with epoxy. Hold the fuselage sides together tightly at the firewall until the epoxy is dry.

(5.) FINISHING THE FUSELAGE

(a.) Cut to length and glue in place the two 3/8" triangular firewall braces. Be careful not to let any excess epoxy get into the threads of the blind nuts.

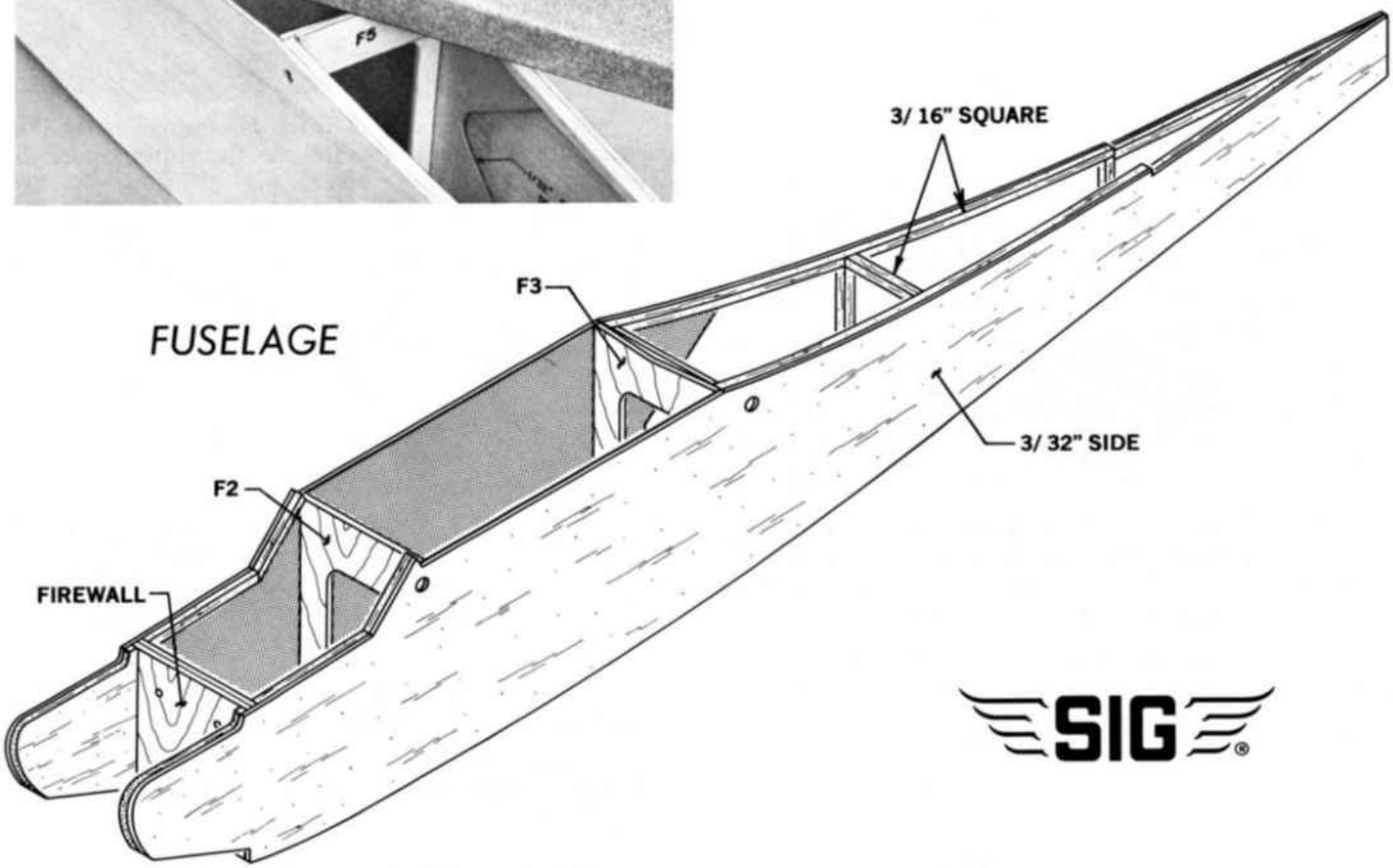


(b.) Glue balsa former F5 in place on the back of plywood former F3. When dry, sand the top of F5 until it is flush with the rear fuselage sides.

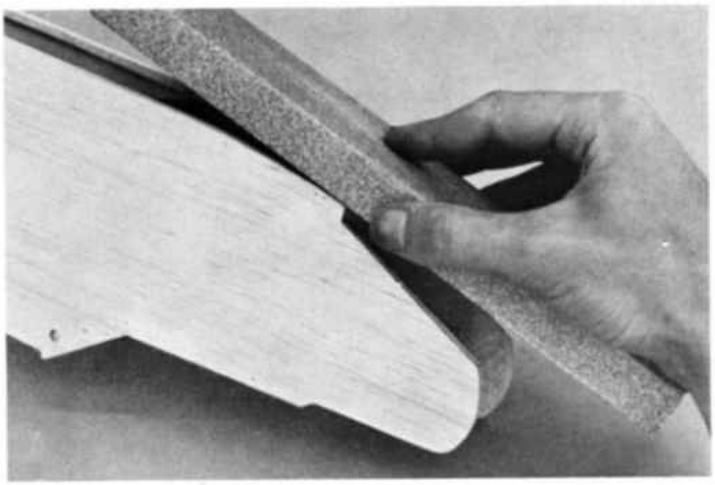


(d.) Glue the 3/16" x 2-1/2" x 4-1/2" balsa Cabin Floor Doubler in place between the fuselage sides. Check the fuselage plan carefully for the exact location. It will be necessary to taper the front of the doubler slightly with a sanding block since the fuselage sides start to narrow forward of former F2.

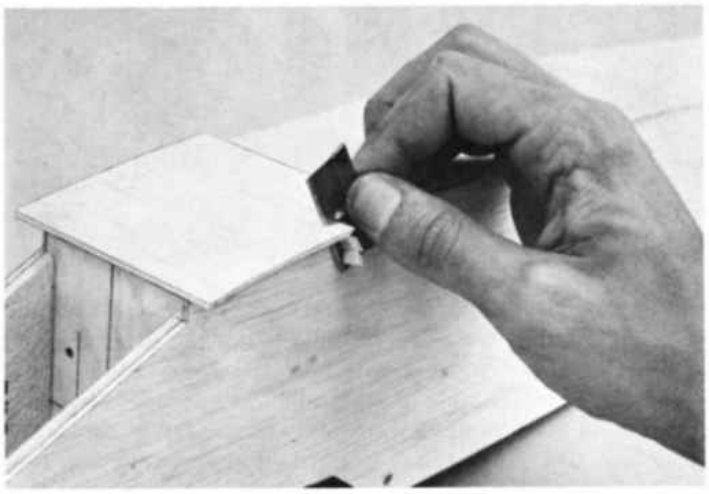
(e.) Epoxy the 3/32" x 2" x 3" plywood Landing Gear Mount in place on the bottom of the fuselage. Again, check the fuselage plan carefully for the exact location.



(c.) Bevel the bottom of the firewall to match the curvature of the bottom of the fuselage.

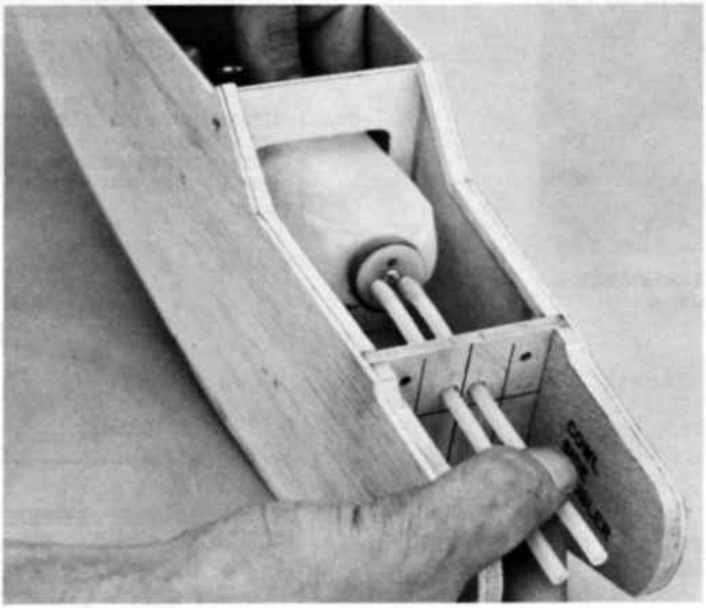


(f.) Sheet the bottom of the fuselage (from firewall to tail) with pieces of 3/32" balsa glued on cross-grain. Trim off the excess wood after the glue has dried.



(g.) Epoxy both 1/16" x 1" x 2-5/8" plywood Landing Gear Doublers in place - one in front and one in back of former F2.

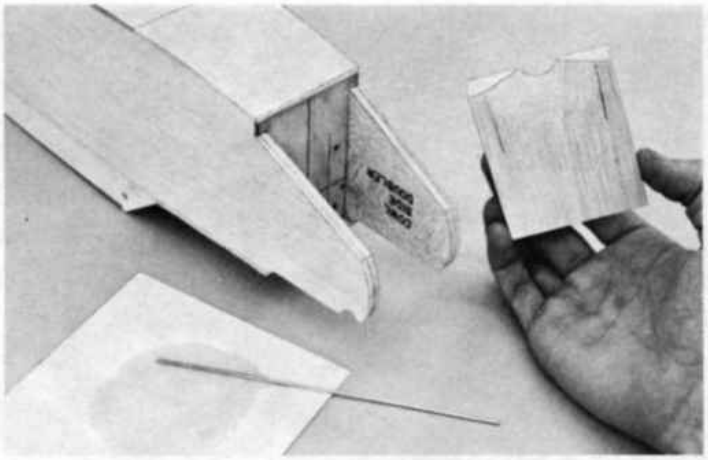
(h.) This is a good time, while easy access to the front of the fuselage is still possible, to trial fit the fuel tank and drill holes thru the firewall to pass the fuel lines. Refer to Section 11, page 13 for some tips on tank selection and installation.



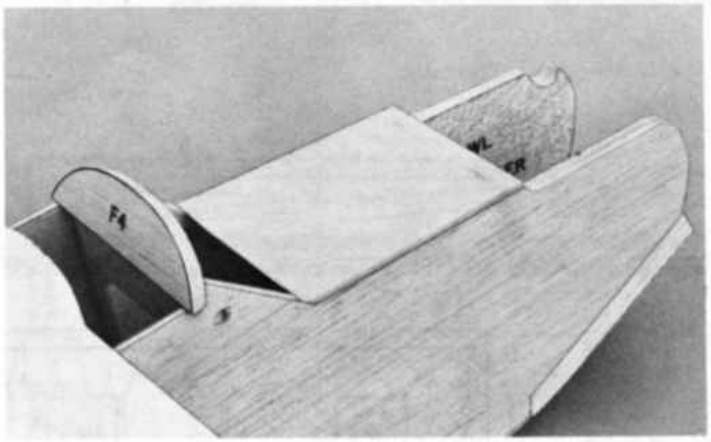
(i.) It is also handy to have access to the nose when installing the pushrod to the engine throttle. To complete this job, the engine and the servos must be mounted in place so that the pushrod position can be accurately located. Refer to the RADIO INSTALLATION section on page 14 for more information on throttle pushrods. The photo at the bottom of this page shows the installation of a simple music wire pushrod around the fuel tank.

(j.) Cover the top of the fuselage with 3/32" sheet balsa in the areas shown on the plan. Glue the sheeting on cross-grain as you did on the bottom. Trim off the excess wood after the glue has dried.

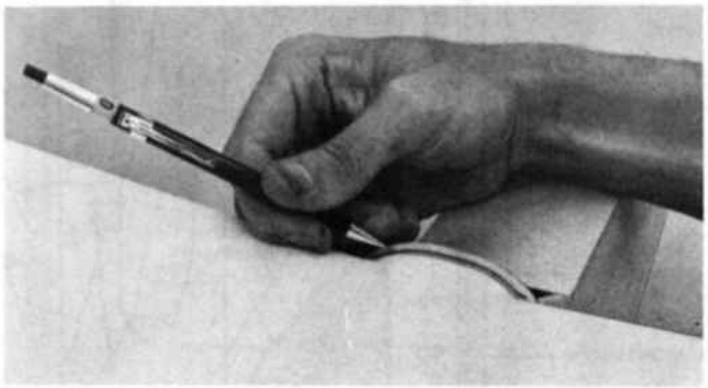
(k.) Bevel the rear edge of the 3/8" x 2-3/4" x 3-3/8" balsa Lower Cowl Block as necessary to fit flush against the firewall. Then make a cutout in the rear edge of the block to serve as a drainage opening for any fuel or oil that collects in the engine compartment. Hollow out the inside of the block slightly as shown to channel the oil to the opening. Now epoxy the block in place.

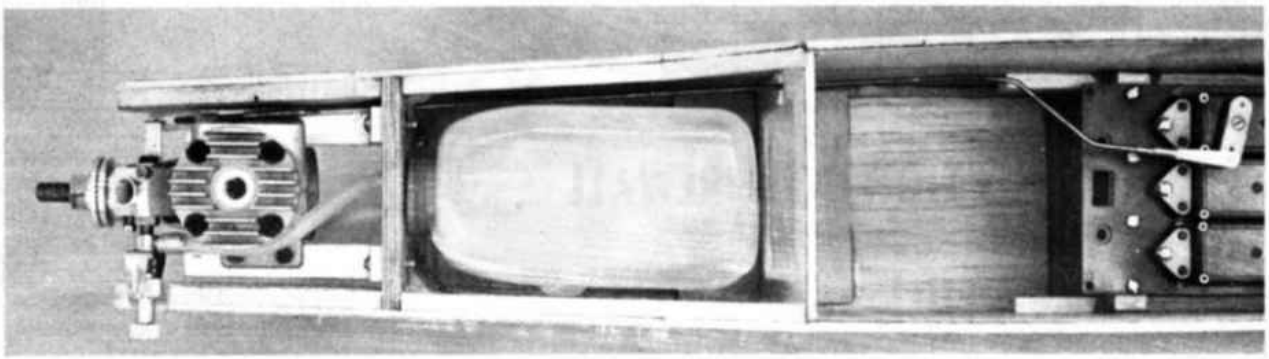


(l.) Bevel the bottom of balsa former F4 as necessary to achieve a good fit against the top of the fuselage and the wing's center fairing. Glue in place.



Note that F4 is slightly oversize to allow for exact shaping it to the center fairing. Trace around the fairing onto F4 to provide a guide line to carve the windshield by.

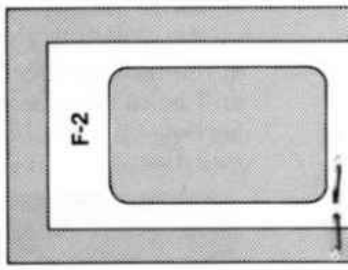




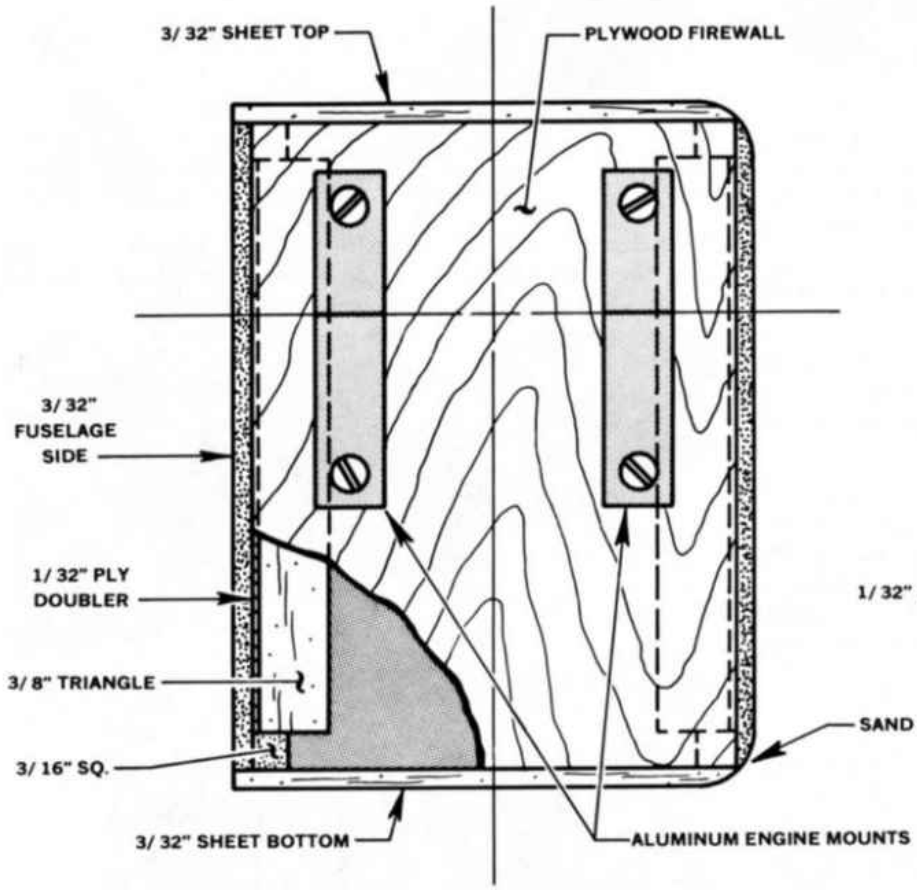
MAKE A PRELIMINARY INSTALLATION OF THE ENGINE, TANK, SERVOS, AND THROTTLE PUSHROD BEFORE SHEETING THE TOP OF THE FUSELAGE.

Prototype Scamp #1 on a landing approach. The wing on this model is painted with SIG PLASTINAMEL, and the fuselage and tail surfaces are painted with SIG SUPERCOAT DOPE. Power is an O.S. Max .15.

KEY TO PLYW



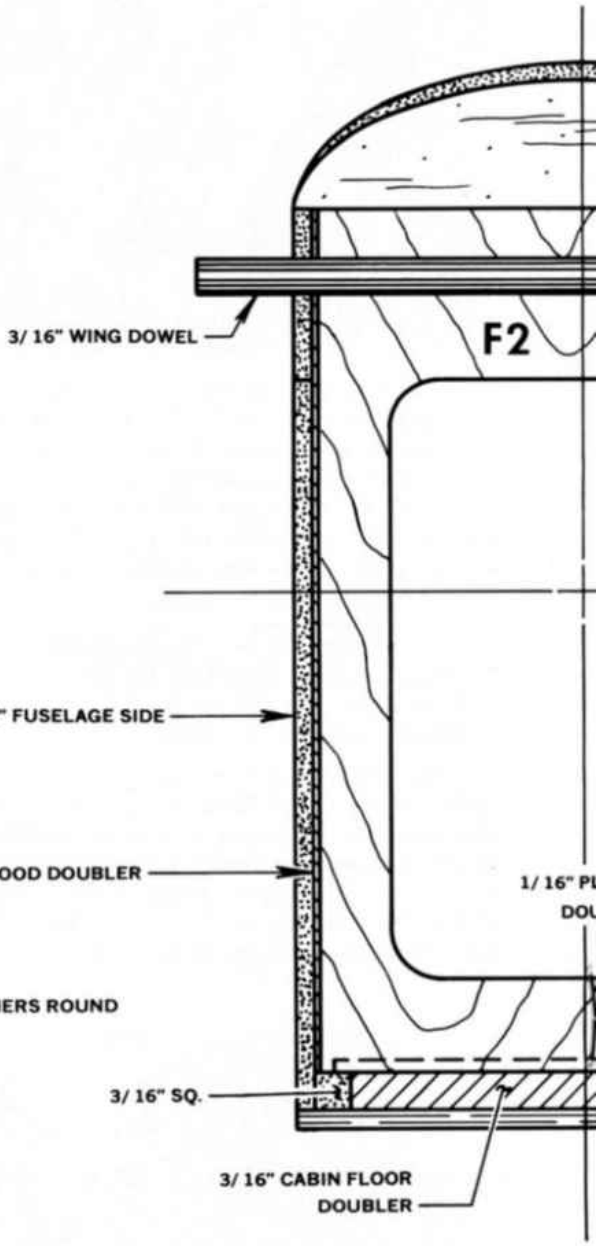
1 - 1/8" DIE-CUT FUSELAGE FORMERS
(Shown Above)
2 - 1/32" DIE-CUT FUSELAGE DOUBLERS
1 - 1/32" x 1" x 4-1/4" WING PAD



CROSS-SECTION AT FIREWALL

AS SEEN FROM THE FRONT

FULL SIZE

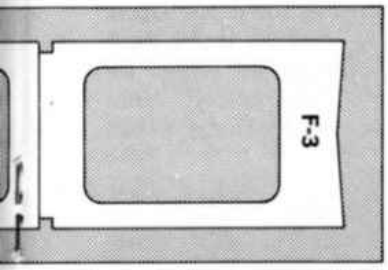


CROSS-SECT

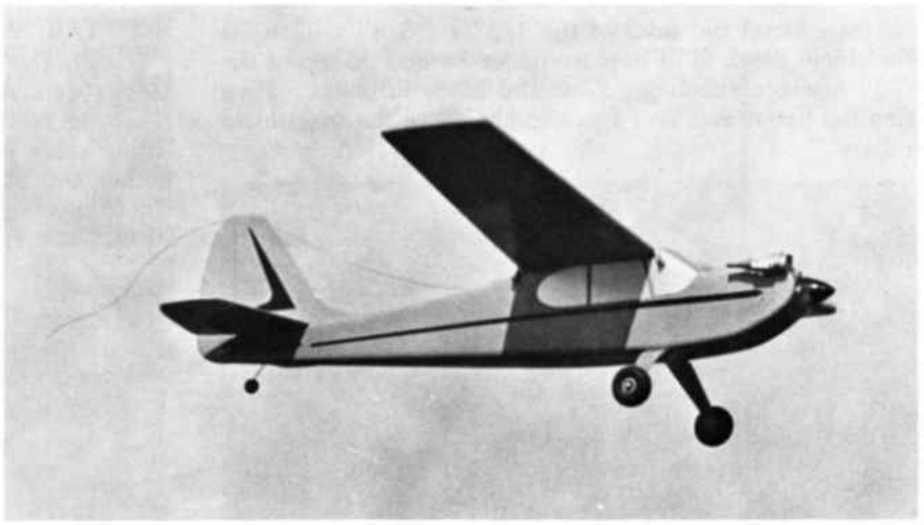
AS SEEN FROM

FULL

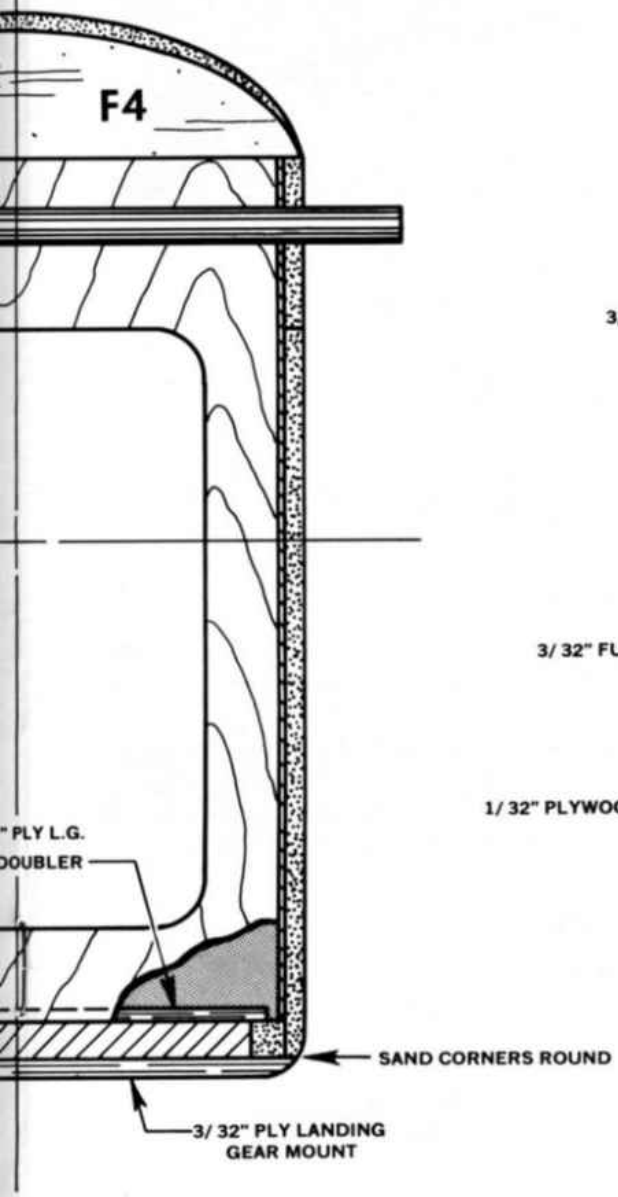
YWOOD PARTS



2 - 1/16" x 1" x 2-5/8" LANDING GEAR DOUBLERS
1 - 1/16" x 5/8" x 1-1/4" TAILWHEEL MOUNT
1 - 3/32" x 2" x 3" MAIN L.G. MOUNT
2 - 3/32" x 2-1/2" x 3-3/8" FIREWALLS



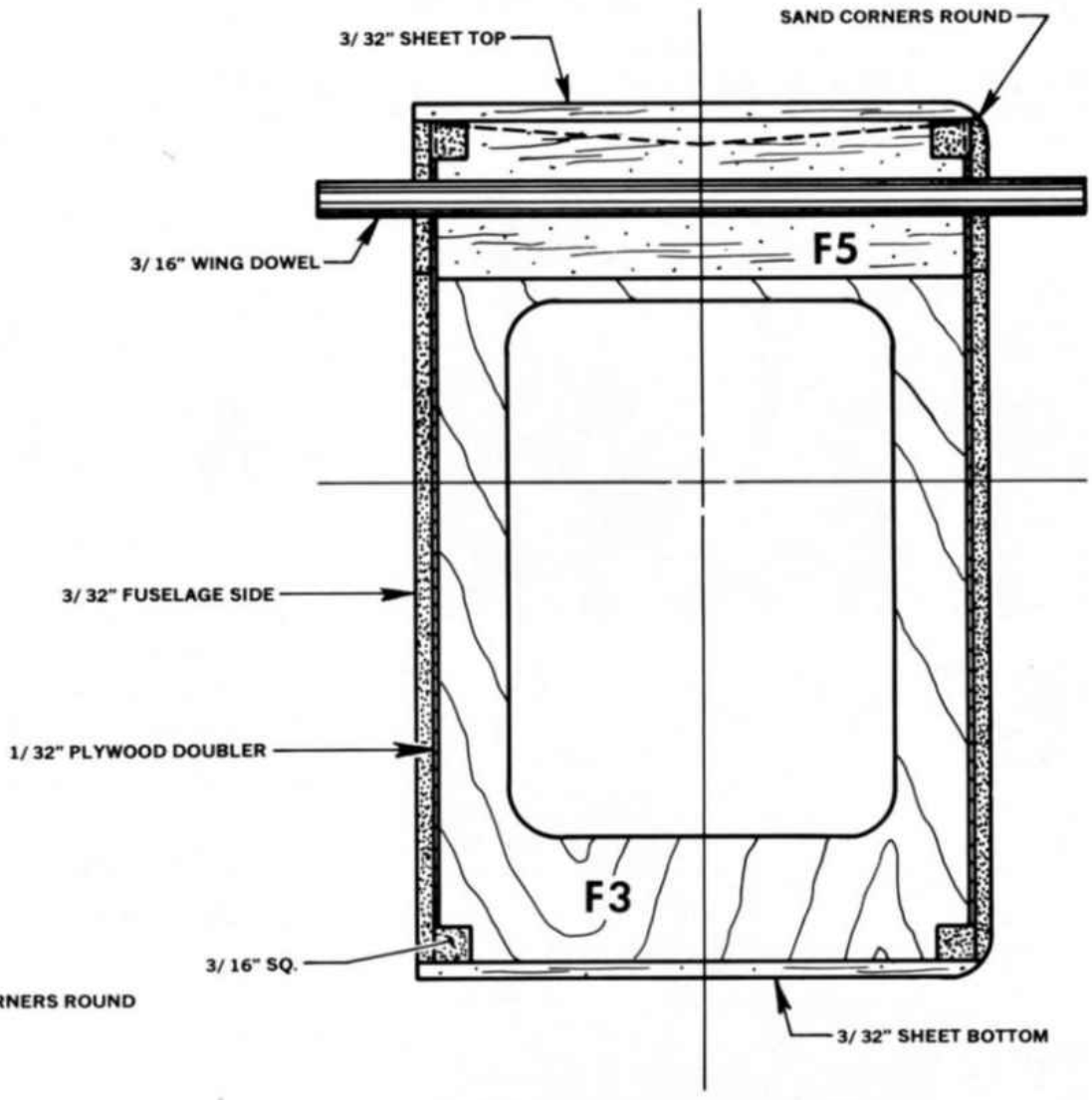
Prototype Scamp #2 on a fly-by. The entire model, including the foam wing, is covered with orange ECONO-KOTE, made by Top Flite. A FUJI .09 engine provides the power.



CTION AT F2

OM THE FRONT

SIZE

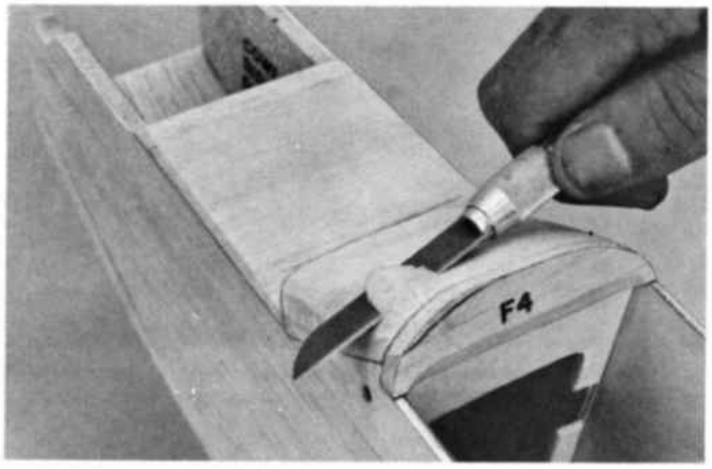


CROSS-SECTION AT F3

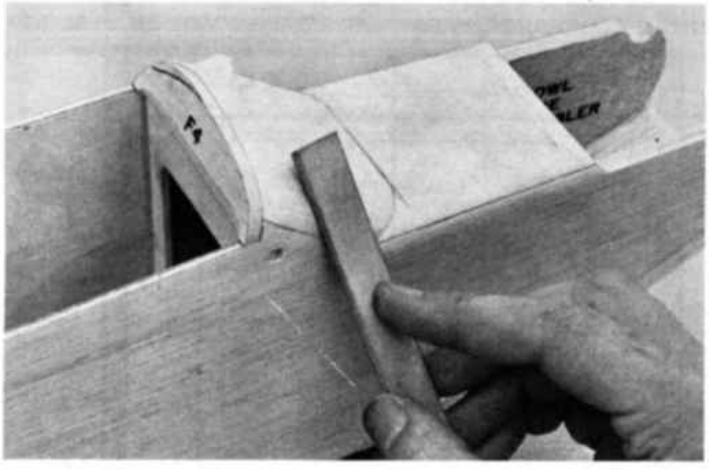
AS SEEN FROM THE REAR

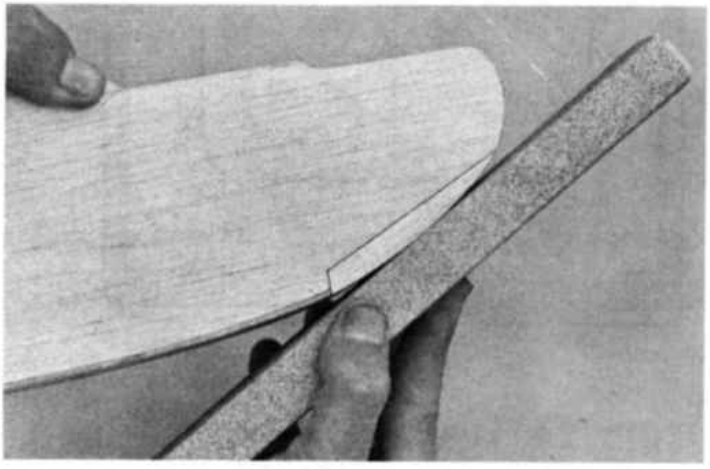
FULL SIZE

(m.) Bevel the sides of the 1/2" x 2-3/8" x 3" balsa Windshield Block to fit in place under F4 and on top of the 3/32" fuselage sheeting. Glue the block in place. Then using the line drawn on F4 as a guide, carve the windshield to shape.



(n.) Carefully carve and sand the entire fuselage to final shape. Refer to the full size cross-section drawings on page 8 and 9 and to photos of the finished prototype models to see how much shaping is desired.



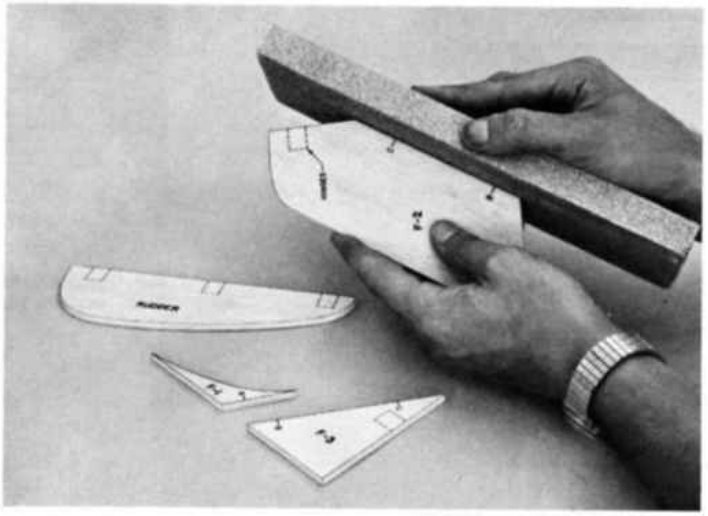


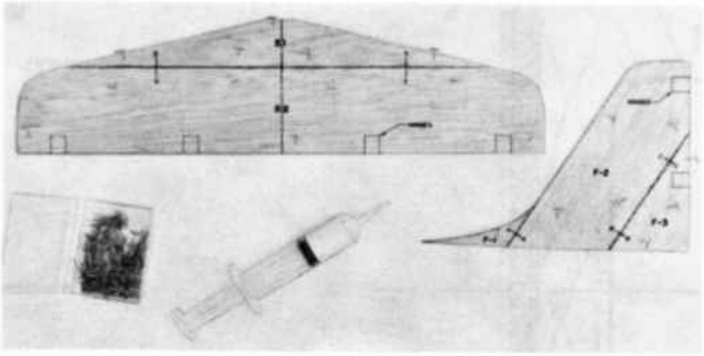
(o.) Drill out the 3/16" holes for the wing hold-down dowels. These were partly drilled earlier in the fuselage construction and covered up by the 1/32" plywood doublers. Drill very slowly so the wood will not split badly.

(p.) Epoxy the 3/16" wing dowels in place.

(6.) TAIL SURFACES

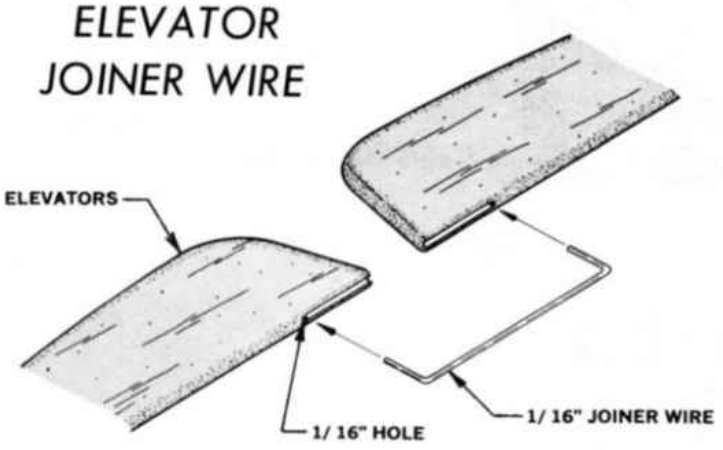
(a.) The parts of the tail surfaces are printed on 3/16" balsa sheets. A jig saw is best for cutting out the parts. Dress down the mating edges with a sanding block so that a neat fitting seam is achieved. Glue the appropriate pieces together and pin them down on a flat surface to dry. Note the connecting key letters which are on the patterns to aid identification and alignment.



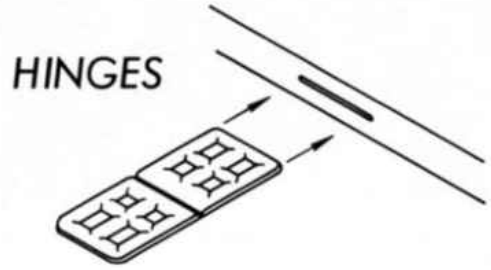


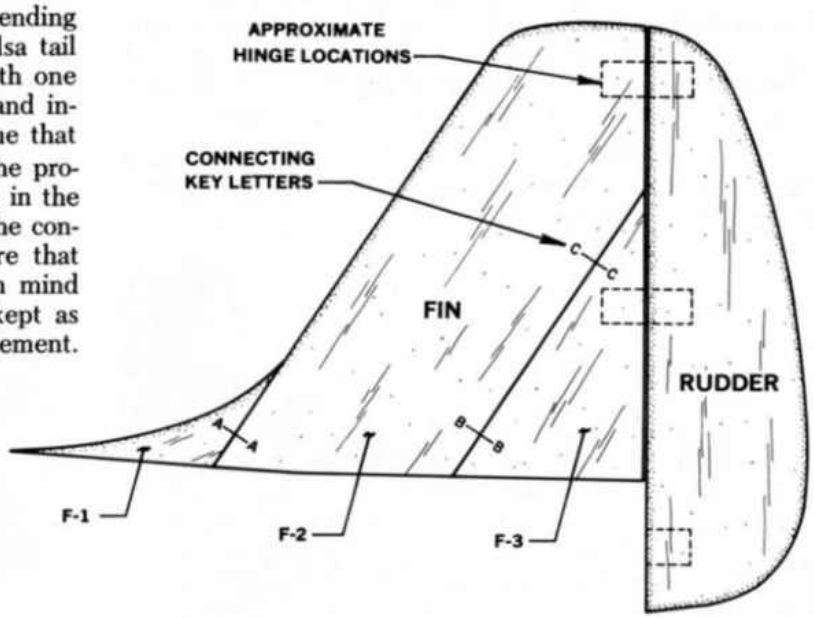
(b.) After the seams have thoroughly dried, sand the tail surfaces smooth and round all the outside edges. Do not round the trailing edges of the Fin and Stabilizer.

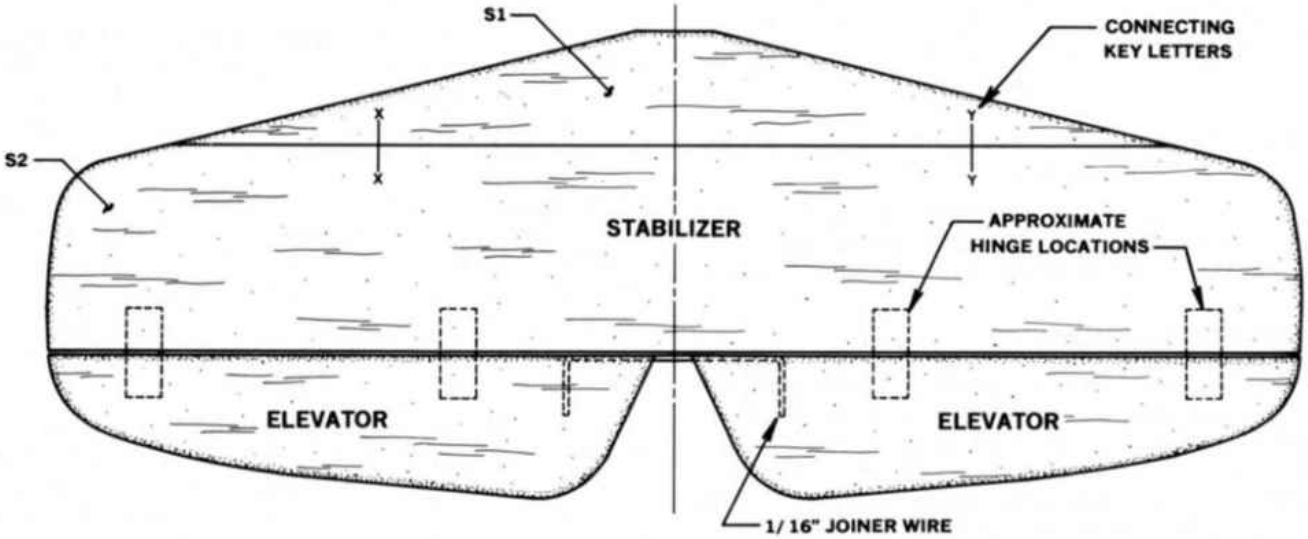
(c.) Join the two elevators with the 1/16" connector wire. Carefully drill a 1/16" hole in the leading edge of each elevator. Cut a groove from the holes to the inboard ends of the elevators and epoxy the connector wire in place.



(d.) Cut the molded hinges loose from their connecting sprue, and pre-flex each one at the center by bending it back and forth several times. Cut slots in the balsa tail surfaces to receive the molded hinges. Working with one tail surface at a time, fill the slots with epoxy glue and insert the hinge into the slot. Wipe off any excess glue that oozes out of the slot. After the glue has set, repeat the process to glue the other end of the hinge into the slots in the mating control surface. Before this glue dries, flex the control surface about 30° - 45° both directions to insure that there is a slight gap between the surfaces. Keep in mind that for best control response, the gaps should be kept as narrow as possible without causing a bind in the movement.







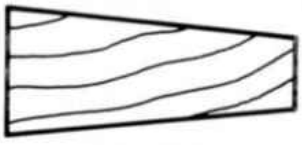
(7.) GLUING ON THE TAIL

(a.) With the wing in place on the fuselage, align the stabilizer by sighting from the front of the airplane. If it doesn't sit squarely on the tail platform of the fuselage, sand the platform until it does. Epoxy the stabilizer in place when you have the alignment correct.

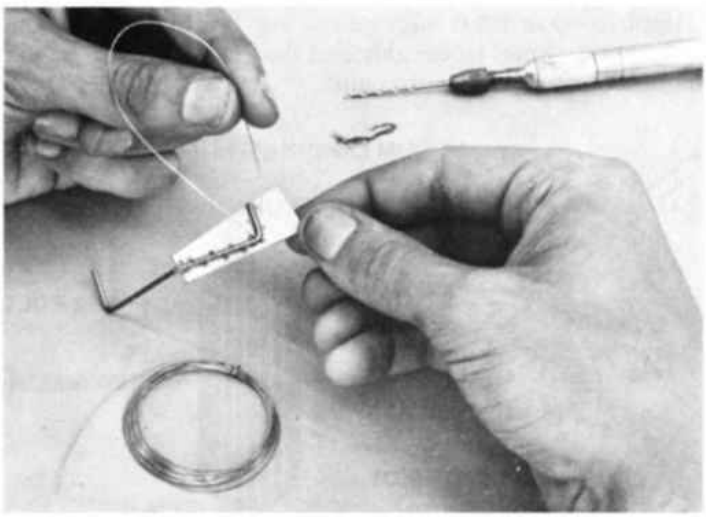
(b.) Draw a center line of the fuselage where the fin goes. Glue the fin in place on the stabilizer and fuselage. At the same time the bottom hinge of the rudder should be epoxied into the fuselage. Check the alignment carefully before the glue dries.

(8.) TAILWHEEL MOUNT

(a.) Taper the 1/16" x 5/8" x 1-1/4" plywood provided for the tailwheel mount to match the pattern below.

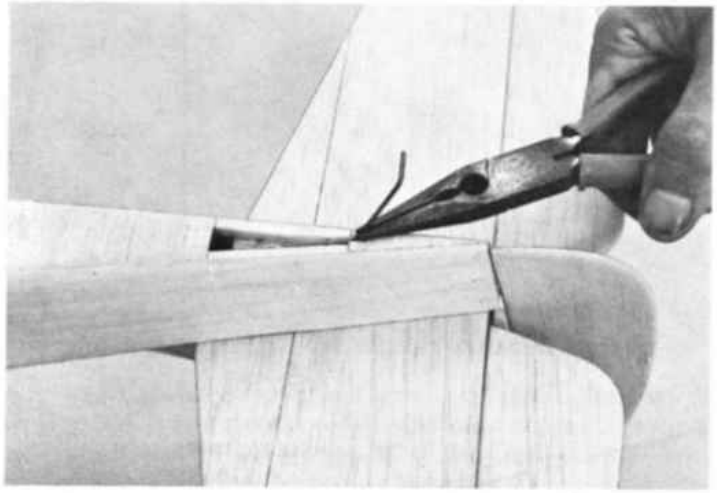


(b.) Place the tail wire on the plywood mount and mark its location with a pencil. Then drill a series of small holes around the outside of the wire's position. Lace the wire to the mount using soft wire such as Sig Copper Wire SH-330, not furnished.



(c.) With a sharp knife, carefully cut away the 3/32" fuselage bottom sheeting where the tailwheel mount must be installed. Save the piece of balsa sheeting to glue back on later. Smear the plywood mount and bindings with epoxy and glue in place on top of the 3/16" square stringers.

(d.) After the epoxy has dried, take a needle nose pliers and bend the wire leg as necessary to get the axle in correct alignment with the fuselage.



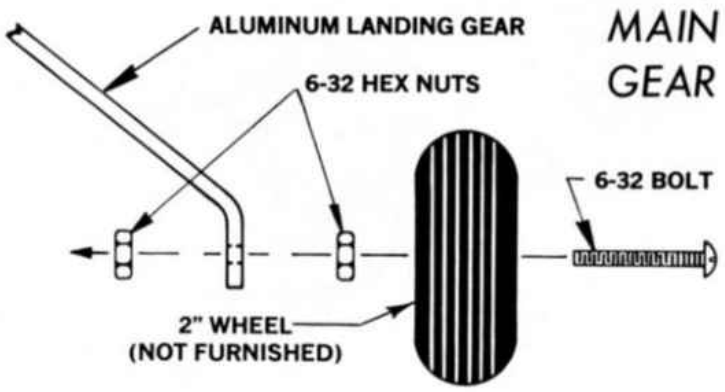
(e.) Glue the cutout balsa piece back in place. Resand where necessary with fine sandpaper.

(f.) The tailwheel can be retained on the axle wire with 1/16" wheel collars, or by soldering a small washer to the wire. Neither of these items are furnished in the kit.

(9.) MAIN LANDING GEAR

(a.) Hold the aluminum landing gear in position on the bottom of the fuselage and mark the locations of the three mounting holes. Make sure that the gear is properly positioned over the Plywood Landing Gear Mount. Drill completely through the Landing Gear Mount, the Balsa Cabin Floor Doubler, and the 1/16" Plywood Landing Gear Doublers. Use a drill bit large enough to accept the shanks of the 4-40 blind nuts. Epoxy the blind nuts in place after they have been tightened down. By using blind nuts, the landing gear can be removed and replaced easily when desired.

(b.) If you wish to paint your aluminum landing gear, as was that on the prototype model, use epoxy paint such as Hobbypoxy or K&B Superpoxy. For best paint adhesion, sand the aluminum thoroughly and then clean it with thinner before putting on the epoxy paint.



(c.) 2" diameter wheels are recommended. Assemble the wheels, axle bolts, and hex nuts to the aluminum gear as shown. After initial assembly, tighten both nuts securely against the aluminum gear leg, leaving enough length to the bolt so that the wheel can turn freely.

(10.) FINISHING

Remove the fuel tank, engine mounts, landing gear, etc. from the wooden airframe so it can be painted. Brush on one thin coat of epoxy glue, or add several extra coats of dope, to the engine compartment and firewall so that they are thoroughly fuel proofed.

All wood parts of the model should be covered with silkspan This not only strengthens the wood but it seals off the wood grain to give a better finish. It isn't necessary to have elaborate spraying equipment to put on a good finish. If you brush, just be sure to thin the dope or sanding sealer until it flows out smoothly. Many paint jobs are ruined by trying to brush dope without thinning properly.

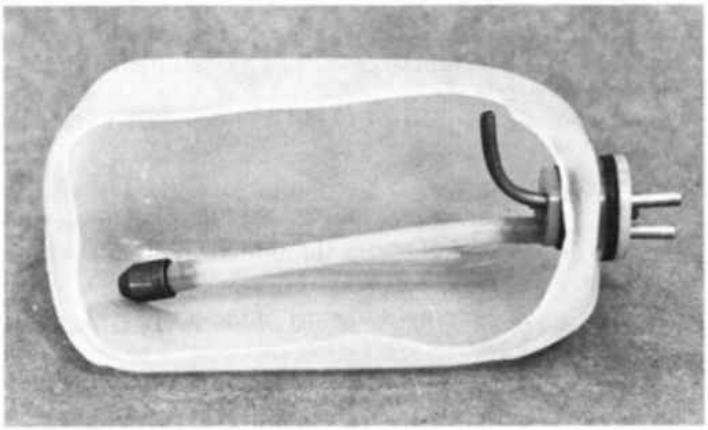
The wood parts are first prepared with two brushed on coats of Sig Lite-Coat (low-shrink) clear dope. Sand each coat when dry. Cut a piece of silkspan about 1" larger than the area to be covered. Dip in water and apply. Work around the edges, pulling out all the wrinkles and stretching it smooth. Brush around the edges with clear dope and it will soak through the covering and adhere to the dope underneath. After drying, trim off the edges with a sharp razor blade. Redope any loose edges that have not completely adhered. Apply two coats of unthinned clear dope to the covered parts. Sand lightly with fine sandpaper. Apply a coat of Sig Sanding Sealer.

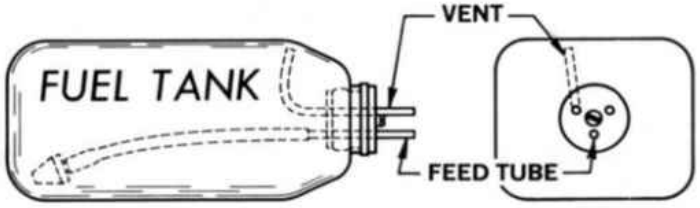
When dry, sand the majority of sanding sealer away with fine sandpaper. Hold the model up to a light occasionally while sanding and you can see the low spots appear. If you can't sand these spots away without sanding into the silkspan then you need another coat of sealer. Remember that the purpose of the sanding sealer is only to fill in the low spots, not to build up the high ones. With thorough surface preparation, two coats of Supercoat Color Dope will usually give good coverage. When the color scheme is complete, spray two coats of clear on top to seal the finish and add a gloss.

SEE PAGE 16 FOR INSTRUCTIONS ON FINISHING THE MOLDED FOAM WING!

(11.) TANK INSTALLATION

(a.) A 4 ounce plastic clunk-type R/C tank should be used. The Scamp's engine is not enclosed in a full cowling, so only one vent line is needed in the fuel tank. With a single vent set-up as shown here, refuel the tank by disconnecting the fuel feed line from the carburetor and put the fuel into the tank through it. When fuel runs out the vent tube, the tank is full.





(b.) After assembly of the tank, drill two 1/4" diameter holes in the firewall to allow the brass tank tubes to stick through. Keep the tank as high as possible in the Scamp's nose for best fuel draw characteristics. Use G.E. Silicone Seal, or a similar product, to seal around the tubes on the front of the firewall to prevent fuel seapage into the fuselage. Should it become necessary to remove the tank from the fuselage, the silicone can be broken loose and replaced when the tank is put back in.

(c.) Two cross-pieces of scrap balsa should be glued across the inside of the tank compartment to support the rear and bottom of the tank. These also can be easily broken out if the tank ever needs to be removed. By the way, if Sig Heat-Proof Silicone Tubing is used for the pickup line inside the tank, the tank will seldom, if ever, have to be removed as this fuel tubing will not deteriorate in glow fuel.

(12.) RADIO INSTALLATION

If your Scamp is going to be flown with 4 or more channel radio equipment, but you-re using only 3 channels for elevator, rudder and engine control as recommended, then plug the rudder servo into the receiver outlet usually used for the ailerons. With any 3 channel airplane like the Scamp, the rudder is the primary control surface for a normal right or left turn. With a 4 channel model, you turn with the ailerons. The Scamp's rudder servo should be plugged into the aileron outlet so that you will be using the same hand and stick for turning that you would be if you had ailerons on the model. Forget which control surface is doing the actual turning - the rudder on the Scamp performs the same function as ailerons would. If you have 3 channel radio equipment, obviously the only way to hook it up is the way the manufacturer recommends.

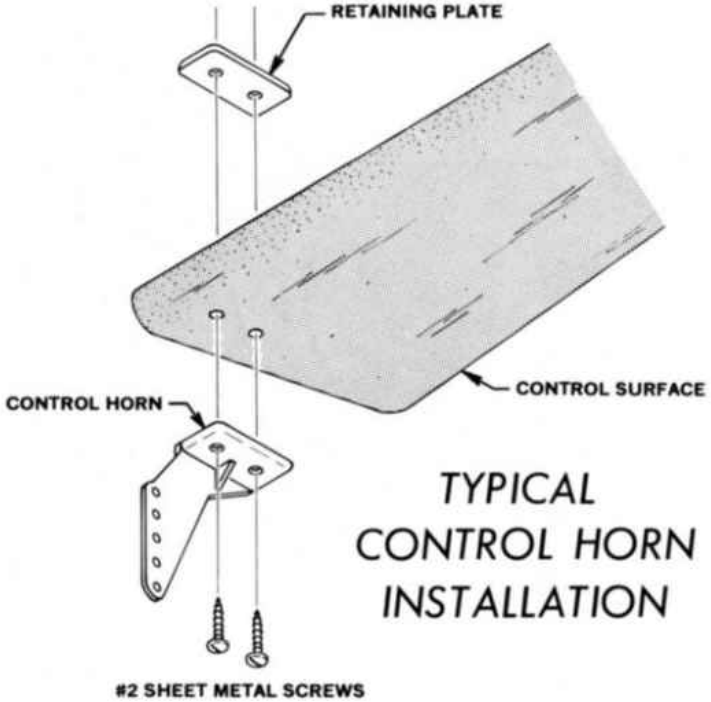
The receiver battery pack should be wrapped in foam rubber sheet, held on with rubber bands and placed as far forward as possible, preferably under the fuel tank. It is a good idea to put the package in a small plastic bag, taped shut around the battery cable to protect the battery from accidental fuel leakage.

The receiver should be similarly wrapped in foam to protect it from engine vibrations. Cover it with a plastic bag also. Stow this package just in front of the servos.

The most convenient method of installing servos is on the plastic mounts which most of the radio equipment manufacturers offer with their outfits or as an accessary. Servos for which plastic mounts are not available can be screwed directly to at least 3/8" square hardwood rails placed across the cabin, as shown in the accompanying drawing. With rubber grommets installed in the servo mounting holes, mark the spots for drilling pilot holes for screws. Space the servos at least 1/16" apart and do not have them contacting the hardwood mounting rails except on the grommets. Use a washer on the wood screws which hold the servos to the rails. Do not tighten the screws down against the grommets since this will cause vibration to be transferred to the servos. The washer should just rest against the grommet, just slightly compressing it.

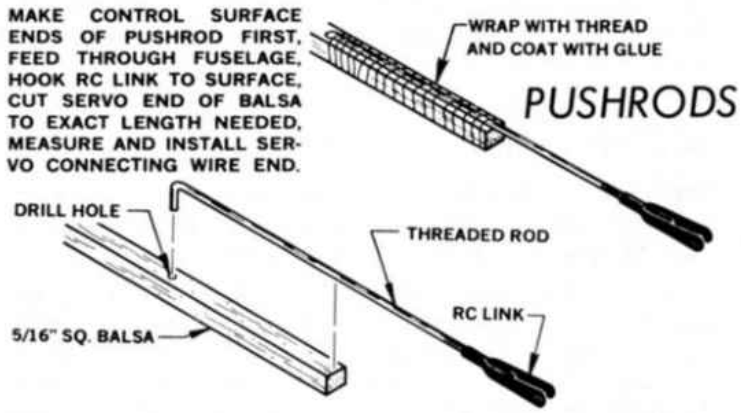
The nylon control horns for the rudder and elevator should be installed at this time. On the prototype model, the elevator pushrod and control horn are on the left side of the model, and the rudder pushrod and control horn are on the right. Your installation may be slightly different depending on your radio equipment. Determine which arrangement of servos and pushrods is easiest to hookup for your particular equipment, and mount the nylon control horns accordingly.

DRILL OUT THE HOLES IN THE NYLON CONTROL HORNS WITH A NO. 51 SIZE DRILL BEST FIT OF THE RC LINKS IN THE HOLES.



TYPICAL CONTROL HORN INSTALLATION

The pushrods for the rudder and elevator are pieces of firm 1/4" square balsa with 1/16" wire fittings bound to each end. The wire ends are wrapped with thread and coated with epoxy glue. Use threaded wires with adjustable R/C links at the tail end of the pushrod so that trimming adjustments can be quickly made. A variety of detachable pushrod retainers are available from the Sig catalog for retaining the other plain wire ends of the pushrods in the servo arms. Another method is to make a "Z" bend as shown. Always avoid metal-to-metal contact in linkages because this can cause harmful radio interference.

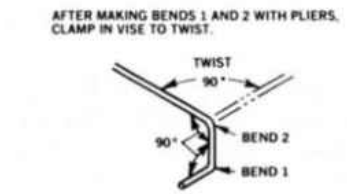


Cut a slot in the left fuselage side, about 1/4" x 1", in the approximate location shown in the photos. Bring the elevator pushrod through this slot. The rudder pushrod needs a similar slot on the right side. Make sure the slot lines up with the control horn before cutting.

The type of pushrod to use for the throttle hookup depends on your own preference and on the layout of your particular engine and radio equipment. If your throttle servo can be mounted on the same side of the fuselage as the engine's throttle arm is located, you might use a simple music wire pushrod as was done on the prototype models pictured. Or, if you have difficulty clearing the fuel tank with a solid wire pushrod, you should use a flexible cable pushrod such as Sig SH-559 (not furnished).

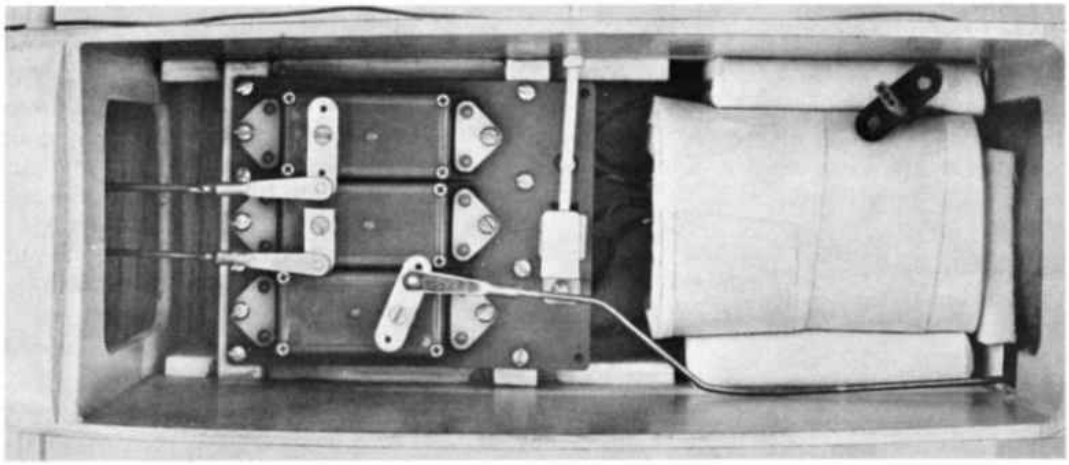
The radio on/off switch can be mounted wherever it is convenient through the side of the model, preferably on the side of the model, preferably on the side away from the engine exhaust.

NOTE: No servo mounting material or hardware is supplied in this kit.



"Z" BEND

SOLDER LINKS, 1/16" WHEEL COLLARS, SIG NYLON PUSHROD KEEPERS, or "Z" BENDS CAN BE USED TO FASTEN THE PUSHRODS TO THE SERVO ARMS.



TYPICAL 3 CHANNEL RADIO INSTALLATION

(13.) BALANCING AND PRE-FLIGHT

Be certain to carefully range check your radio equipment and see how it operates with the engine running before attempting test flights. A lot of problems can be avoided if the engine has been well broken-in and the idle adjustment perfected on a test block or in another airplane before installation in the model.

The Balance Point position is shown in the side view drawing from the center of this booklet. Do not balance any further back than this point even if lead must be added to the nose. Trying to fly with the Balance Point too far back is much more dangerous than the slight increase in wing loading caused by adding nose weight. Balance with an empty fuel tank. When slightly nose heavy the model will be a great deal more stable and less likely to stall or snap roll. The reaction to control movements is also less sensitive with a forward Balance Point so it is not so easy to overcontrol.

A properly balanced and aligned model with a reliable engine and radio is assured of successful flights.

RECOMMENDED CONTROL SURFACE MOVEMENTS

FOR TEST FLYING, THE FOLLOWING ARE SUGGESTED.

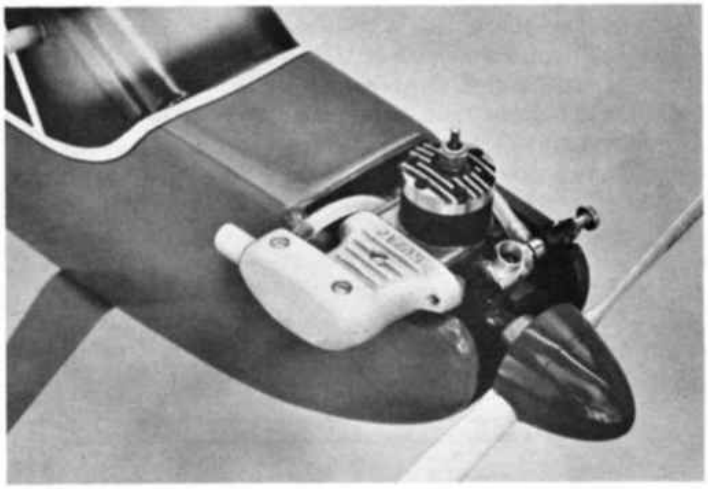
RUDDER - 7/16" each way from neutral
ELEVATOR - 1/2" each way from neutral

(14.) FLYING

As mentioned in the opening paragraph of this booklet, the Scamp is not intended for use as an RC trainer. If you are a newcomer to RC model flying, we strongly recommend that you not attempt flying without the assistance of an experienced RC flyer. Contact your local model club or ask your hobby dealer for the names of good flyers in your area and a suitable location for flying. Many hours of work are involved in the construction of a model and it can all be lost in a moment of beginner's indecision. A skilled flier can help you get past the first critical test flights without damaging the model and give needed instruction in proper control.

If a good, smooth takeoff surface is not available, the Scamp may be hand launched. We do not recommend that you attempt to launch your model with one hand and fly it at the same time. Enlist the aid of a modeler to launch your model so that you can have both hands free to concentrate on the control movements in the normal manner. The launcher should hold the model just behind the landing gear, run into the wind at a fast trot and thrust the model forward with the nose slightly down in a spear-throwing motion. It is not necessary to achieve a lot of velocity in the launch - it is more important that it be released smoothly and with wings level. The model may dip slightly and then should begin climbing at a slight angle. If it does not gegin to climb after about fifty feet apply a small amount of up elevator to lift the nose.

Use the rudder to keep the wings level and headed straight into the wind until about 75 feet of altitude is obtained. Keep first turns gentle and not steeply banked. Stay up wind of the transmitter. Use trim levers on your radio equipment where necessary to obtain straight and level flight with the control sticks in neutral position but don't attempt to make these adjustments until the model is at a good altitude. Throttle back at altitude to find out the model characteristics in a gliding condition so that some indication is seen of what to expect during the landing approach. It is a good idea to make several practice landing approaches at a good altitude to get the feel of the model for this approaching critical maneuver. Make your final and complete landing approach while your engine still has plenty of fuel remaining so that the engine is not liable to stop before completion of the flight. This will allow application of power if the approach is being undershot.



TYPICAL ENGINE INSTALLATION

O.S. MAX .15 WITH TATONE No. EM-4 MUFFLER SHOWN

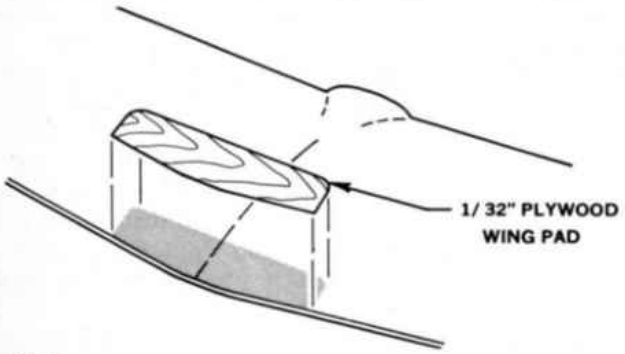
FOAM WING INSTRUCTIONS

CAUTION: Never let solvent base model cement, cyanoacrylate adhesive, dope, lacquer, or fiberglass resin come in contact with the foam wing. These products will all melt foam on contact. Epoxy glues can be used on the foam wing if repairs become necessary. Test all other products on a scrap of foam before use on the wing.

The wing is fuel resistant and could be left completely uncovered and unpainted. However, this is not recommended as finishing will greatly increase the life of the wing. Two different approaches to finishing a Scamp wing are outlined below - Method I discusses painting, and Method II uses an iron-on plastic covering material. Read about both methods before deciding which seems best for you.

Before finishing the wing by either method, use a sanding block with 250-400 grit sandpaper to remove any mold flash from the leading and trailing edges of the wing. Avoid sanding too long or too hard in one spot and changing the shape of the airfoil. Next very lightly sand over the entire wing surface with very fine 400-600 grit paper to knock off the tiny molding vent marks.

A piece of 1/32" x 1" x 4-1/4" plywood is provided to make a WING PAD, which reinforces the foam wing's trailing edge from the rubber bands that will be used to hold the wing onto the fuselage. Shape the plywood with a sanding block to match the pattern on the full size plan. Epoxy the pad in place on the top of the wing along the trailing edge.



METHOD I:

The wing of the first prototype model Scamp pictured on the label was painted with SIG PLASTINAMEL. This special paint is ideal for the wing since it is completely compatible with the foam and provides a glossy and fuel proof finish. After sanding, the entire wing was painted overall with a mixture of white and yellow PLASTINAMEL, which was hand mixed to match the Diana Cream Sig Dope that was used on the fuselage and tail. Plastinamel cannot be sprayed - the extra thinner needed for spraying will attack the foam. It must be brushed on, but it smoothes out readily after application. Two coats are usually desirable. Sand lightly with fine paper after the first coat to remove any bumps or "fuzz". The second coat will then go on perfectly smooth. Allow plenty of drying time between coats. Because of the beaded surface of the foam, masking tape does not work very well for applying trim colors. On the prototype model pictured, the red wing tips were brushed on freehand using a pencil guideline to get it fairly straight. After the paint was dry, 1/4" wide Black striping tape was used to cover up the irregular line. Another alternative is to use a "ruling pen" (as used in mechanical drawing) to outline the trim color area with Plastinamel and then fill in between the lines with a brush. Use a ruler and/or french curves to steady and guide the ruling pen.

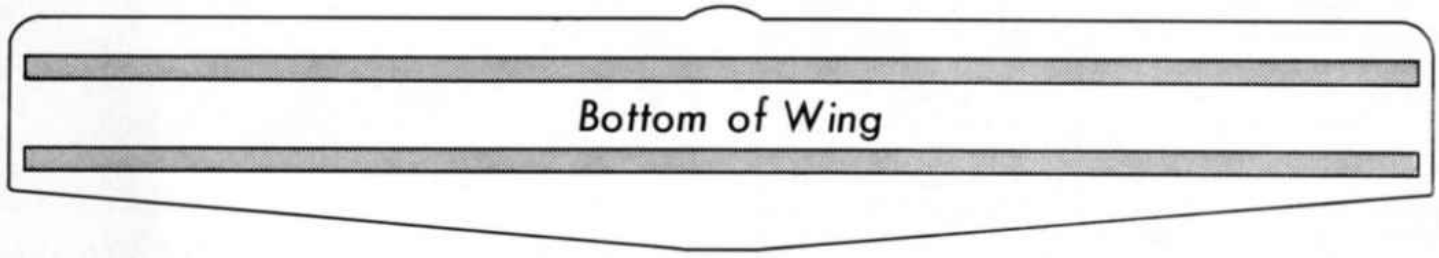
METHOD II:

A low heat iron-on covering material can be applied successfully on the molded foam wing if a few basic precautions are followed. Any covering material involving the use of heat over 150° F. should be used with EXTREME CAUTION, as this high heat can melt or warp the foam wing. ECONOKOTE by Top Flite is recommended. Do not use Super Monokote or Coverite. A small electric household iron or a Top Flite Sealing Iron are best for applying the covering material to the wing. Having your iron set at the correct working temperature is very important. Experiment until you reach the proper setting needed to bond the covering to the wing while not harming the foam. With Econokote, this is usually just below the "perma-press" setting on a household iron or at No. 1-1/2 on the Top Flite Sealing Iron.

The instructions with the Econokote explain the covering techniques very thoroughly, so they won't be repeated here. The only big difference in covering a Scamp foam wing as opposed to a balsa structure is that we do not recommend the use of a "heat gun" (or hair dryer) to shrink the Econokote after the edges have been sealed down. Our experience shows that it is very difficult when using a heat gun, to avoid putting too much heat too long in one area, causing the wing to warp. The sealing iron, set at low heat, takes slightly longer but is much safer to use in shrinking the covering. After getting all the wrinkles out, use the iron to bond the Econokote to the foam over the entire surface of the wing - not just around the edges as is often done with a balsa wing. Apply only slight pressure with the iron. Let the heat do the bonding.

Use Trim Monokote (sticky adhesive) to apply any trim markings over the Econokote.

IMPORTANT NOTE: For extra strength, two strips of 3/4" wide "Filament Tape" should be applied spanwise across the bottom of the wing as shown. See SIG catalog for "Nylon Filament Tape", SH-571, 3/4" x 18' roll. Other brands of non-stretchable, tear resistant tape (such as 3M "Scotch Filament Tape") would also be satisfactory. If you paint your wing as outlined above, do not apply the tape until after the painting is complete and dry. If you are covering your wing with Econokote, put the tape on before covering.



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