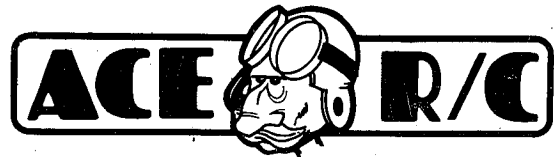


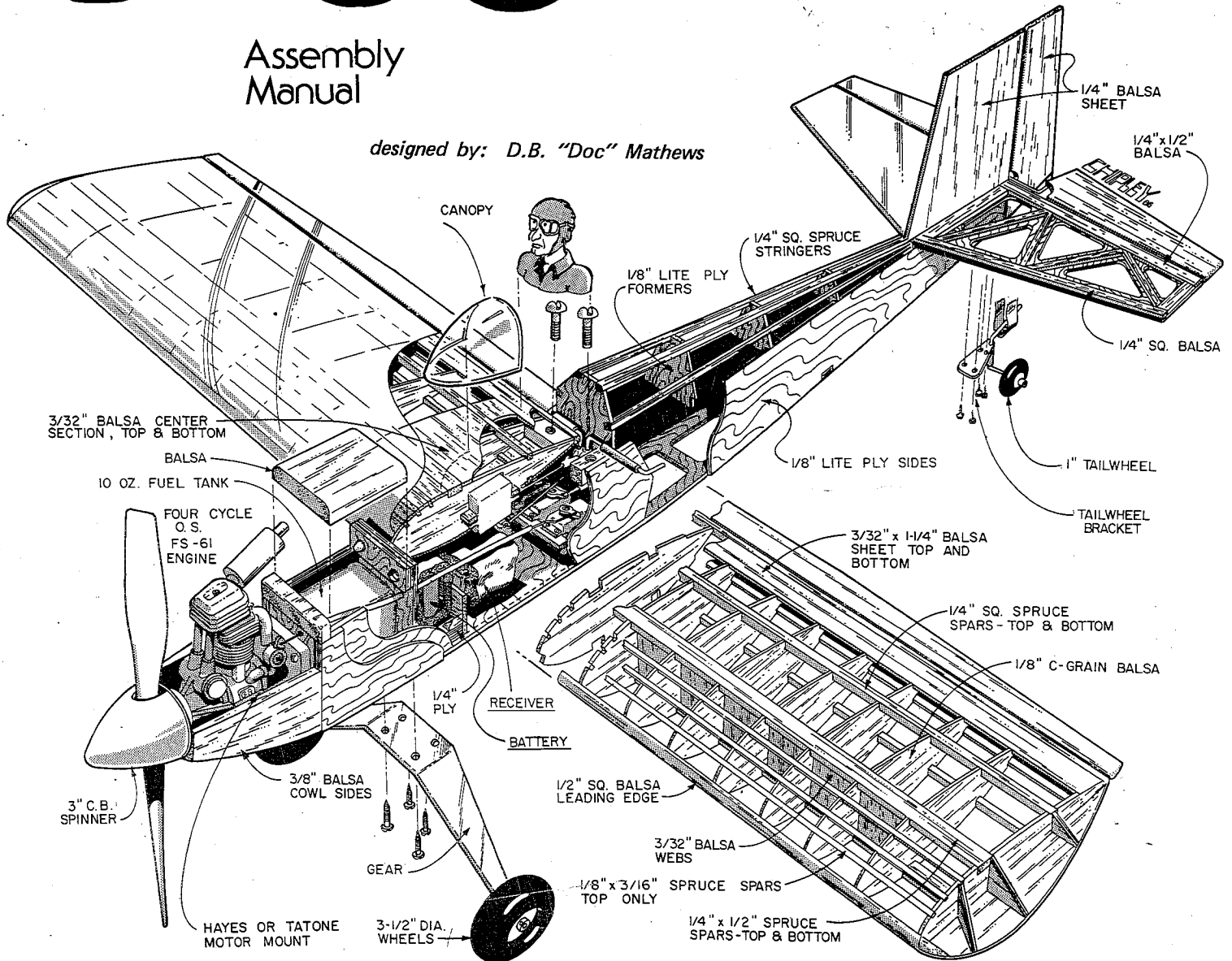
4-60



116 W. 19th St., P.O. Box 511, Higginsville, MO 64037 (816) 584-7121

Assembly Manual

designed by: D.B. "Doc" Mathews



INTRODUCTION

A fitting introduction is a few quotes from the designer's (D.B. Mathews) construction article that appeared in Model Aviation Magazine:

"The 4-60 retains all the virtues of the 4-40 and adds easier construction, higher strength, smoother aerobatics, and markedly improved visibility. The excellent ground handling and takeoff/landing qualities are retained in the larger version. More importantly, the 4-60 handles much better in moderate to high wind than the smaller 4-40.

"The 4-60's flight envelope is broad enough to allow docile trainer-like flying with a forward center of gravity; it becomes nicely aerobatic when the CG is moved rearward and the throws are increased. The model flies on its lifting surfaces (as an airplane should). It is not an overpowered projectile that uses brute power for flight. As a consequence, the maneuvers are slow and

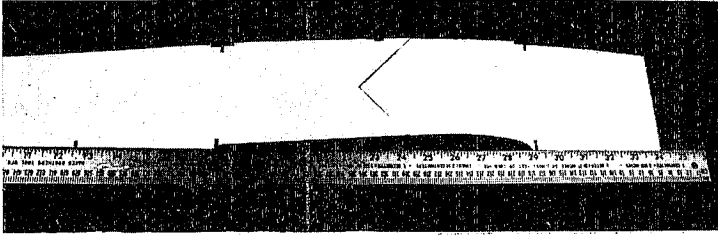
stately as opposed to abrupt and violent...the great success of the 4-40 seems to indicate that many other fliers prefer that sort of flying."

Now that we're sure you're anxious to start, we won't praise this airplane any more. You'll find out on the first flight what "Doc" Mathews is talking about!

Read through the instructions and familiarize yourself with the parts. Note that the wing is the only full size plan. Some have commented that they'd rather see full size plans and we can appreciate that but full size plans are certainly not necessary to build the plane and their printing cost is very high which would have to be reflected in the kit cost. The only reason for full size plans would be to cut out new parts in case of a crash. If you feel this may be your case, it may be wise to trace off all the parts and file them in case disaster strikes. Of course, we'll be glad to sell you a new kit as an alternative!

FUSELAGE CONSTRUCTION

Be careful when punching out the lite ply parts. Clean up the edges with a sanding block so you get a good fit.



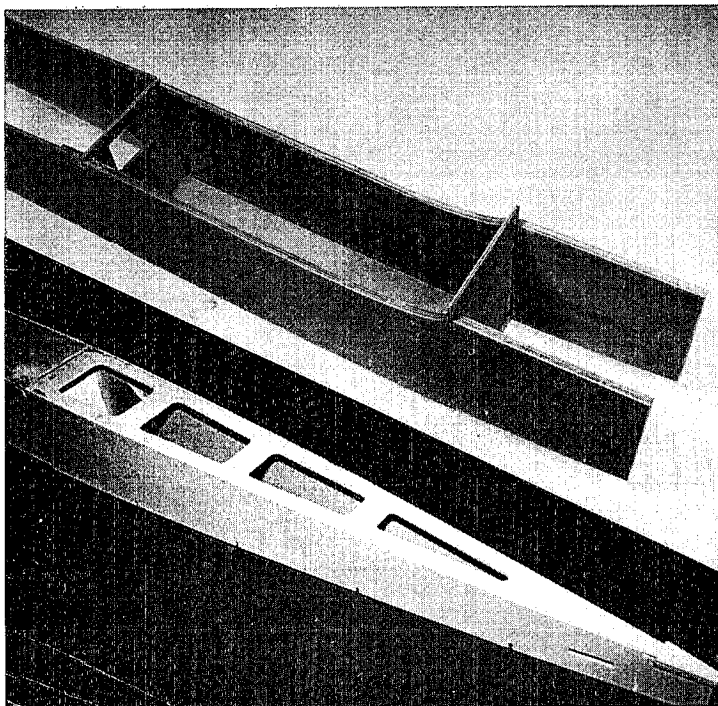
Using a straight edge to keep the top straight, glue the fuselage side parts together with thick CyA glue.



Inspect your fuselage sides. One outer surface may be better quality than the other so you would want that surface to be on the outside. Note also that there is some bow to the lite ply. This is normal and the self-locking construction will assure proper alignment as building proceeds.

Making a RIGHT AND A LEFT side, glue the doublers to the inside of both fuselage sides with 30 minute epoxy. Scraps of lite ply temporarily placed in the slots will maintain proper alignment and pins will hold the parts together as the glue sets. Make sure you remove the scraps before the glue sets!

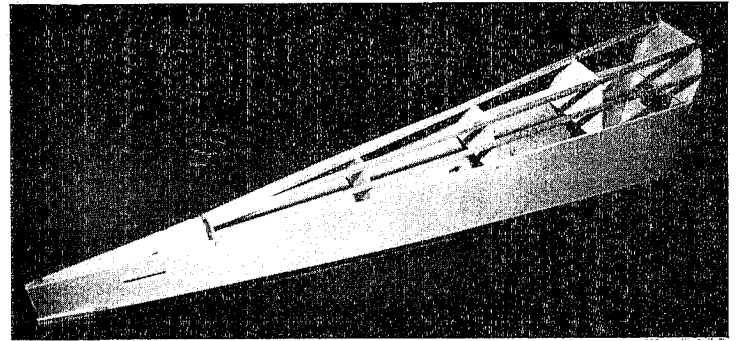
The following step is not shown in the photos but should be done at this point in time. Laminate F2B and F2A to the top front of F2 (the top has the longer tab). The top and the edges should be flush and the "tic marks" on F2A should be exposed. Using a drill press or a hand drill, drill two 1/4" holes where indicated by the "tic marks" through F2A, F2B, and F2. These are for the wing dowels.



Without glueing, fit the fuse sides, F2, F3, and the middle bottom together, noting that the tabs in the floor fit into the slots in the sides. Some slight trimming of the tabs may be necessary. The middle bottom holds the structure square. When satisfied with the fit, glue these parts together by tacking together with thin CyA in all the corners, then running a bead of thin CyA over all the joints to penetrate the joint, then reinforcing all the joints with a bead of thick CyA on the inside.

Fit the rear bottom into place; you will have to bevel the forward slot in the floor to clear the doubler. Clamp the rear of the fuselage together, keeping the edges lined up. Making sure the fuselage is square, spot glue the rear bottom in place; then run a bead of glue over all the joints, including where the sides join at the rear.

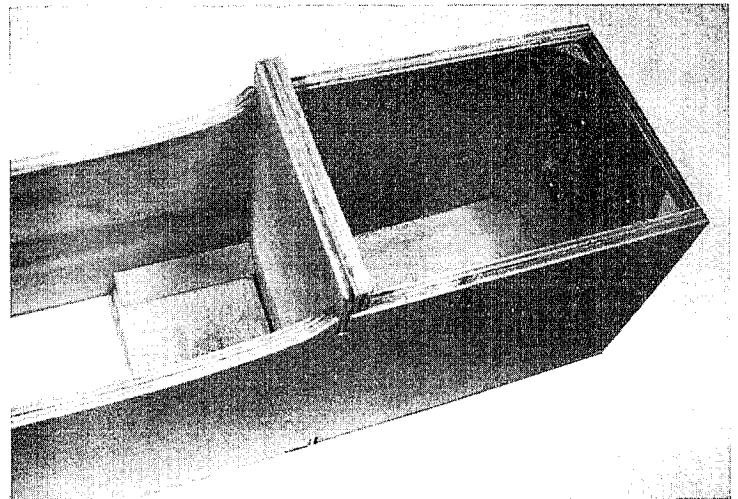
Laminate the two triangular lite ply tailwheel platform pieces together and glue in the notch at the rear of the fuselage. Note they hang out a bit; they are supposed to so they accomodate the nylon tailwheel bracket later.



Glue F3T on top of F3, using a scrap piece of lite ply about 3/8" X 3" on the rear to reinforce the joint. Make sure that F3T stays vertical.

Glue in F4, F5, F6, and F7.

Install the 3/16" sq. spruce stringers, gluing the side stringers in the slots in F3T and F7 and then affix them to F4, F5, and F6, making sure they stay straight. The top ones go in the cut-outs in F3T, F4, F5, F6, and rest on the top of F7, butted together at the center. The stringers are furnished longer than necessary and will need to be trimmed to length.



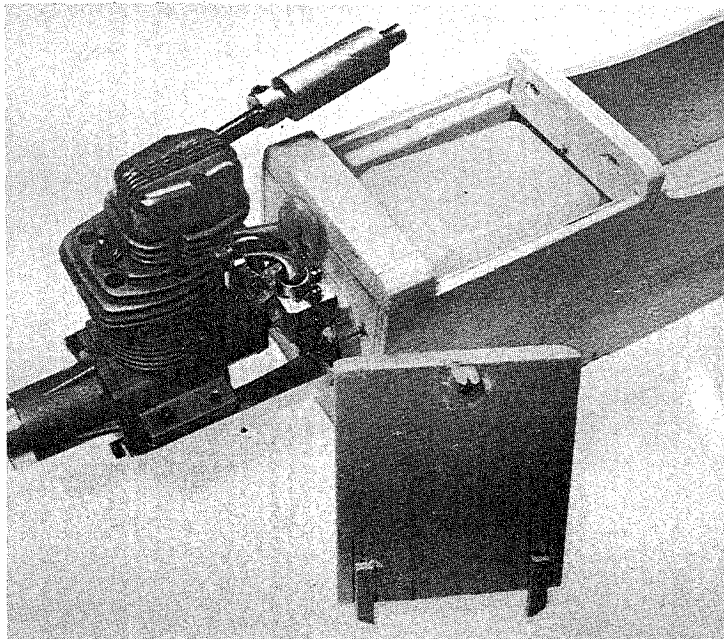
Using an 3/16" bit, drill the firewall for the motor mount. We recommend the Hayes AL-60 or a Tatone mount if you're using a 60 four stroke. The mount is centered left to right and the thrust line is 1 1/2" down from the top. Use 6-32 screws and blind nuts to mount. The holes for the throttle linkage and the fuel line can be drilled later.

Using epoxy, glue the firewall and 1/2" triangular hardwood braces to the fuselage (cut 3 3/4" pieces from the 15" length furnished). The firewall should be flush with the front edge of the fuse sides. Any excess height

should protrude beyond the bottom. When set, bevel the bottom of the firewall to match the fuse contour.

Install the front bottom.

Glue in the 1/4" ply landing gear mount inside the fuselage floor with the front edge butted against F2. Reinforce with 1/2" hardwood triangular stock (cut 2 1/4" lengths from the piece furnished).

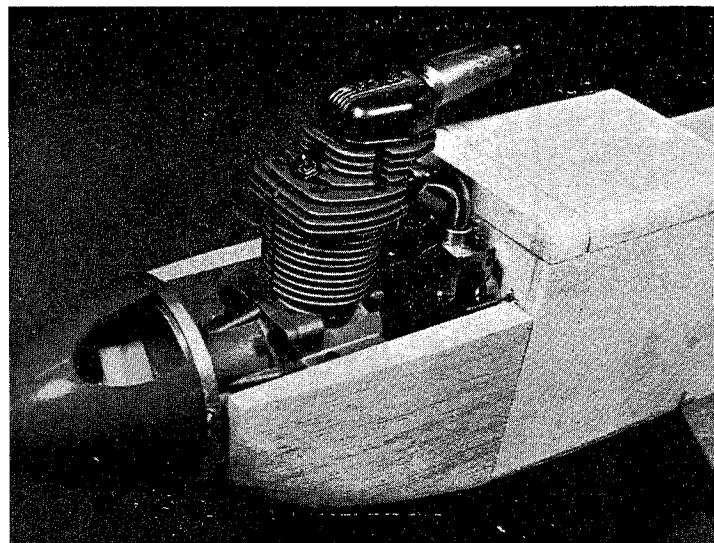
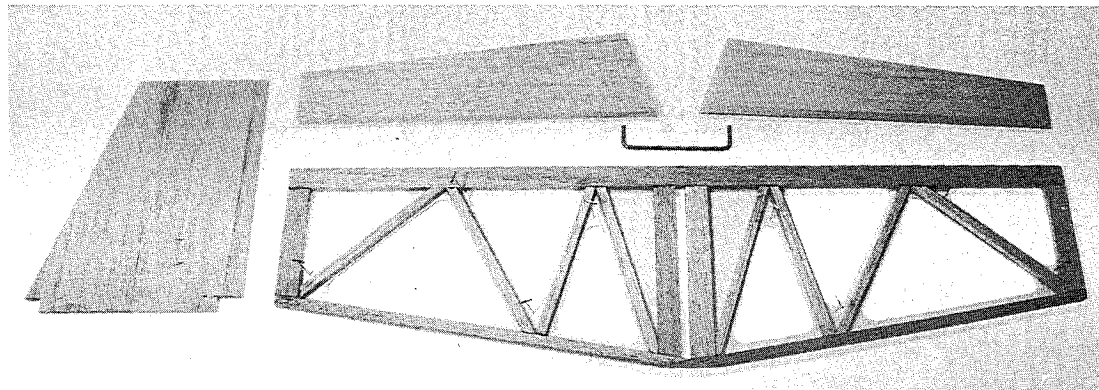


Using the 1/2" X 3 5/8" X 4 3/4" balsa hatch, glue the ONLY the front 3/4" of the hatch to the fuselage sides and firewall. Keep the rear edge of the hatch flush with the front of F2A. Shape the hatch as desired. Using a razor saw, cut the hatch in two, 3/4" from the front of the firewall. Keep the cut perpendicular to the sides.

Cut two 3/4" pieces of 3/16" X 1/4" spruce from the length supplied and glue them to either side of the bottom front of the hatch so they overhang the front about 1/4" and go up against the inside of the fuse sides to keep the hatch from moving side to side (measure in 1/4" from the edge of the hatch for the position); the overhang keeps the front of the hatch down...you may have to trim the pieces to clear the triangular firewall brace.

The rear is held on with a Goldberg "Angle Hold Down". To install it, first tack glue the nylon part in the center of the bottom of the hatch, 1/8" back from the rear edge. Thread a No. 4 (larger) self tap screw into the hole in the bracket that has the notch in it and position the hatch so the point of the screw marks F2A where the No. 2 shoulder screw is to go. Screw the No. 2 shoulder screw into F2A, leaving enough shank to engage the Hold Down. Snap the hatch into place. When you are satisfied with the fit, use two No. 2 self tap screws to secure the Hold Down to the hatch and thin CyA to glue it and the screw securely. A drop of thin CyA on the shoulder screw where it goes into the wood will help strengthen it, too.

We would suggest preparing and installing the fuel tank at this time. A Sullivan SS-10 tank is recommended. Both lines can come out the firewall. Position the tank as high as possible. Coat the inside of the tank compartment and the bottom of the hatch with epoxy before installing the tank. Use foam rubber to cradle the tank and hold it in position.

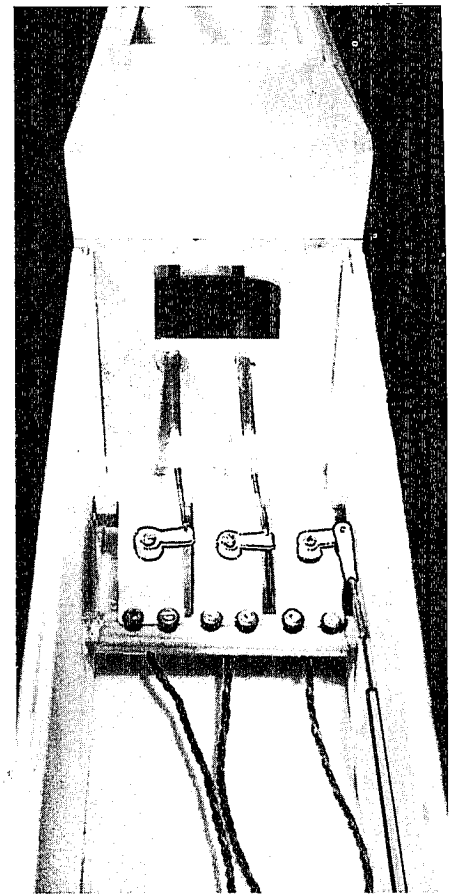
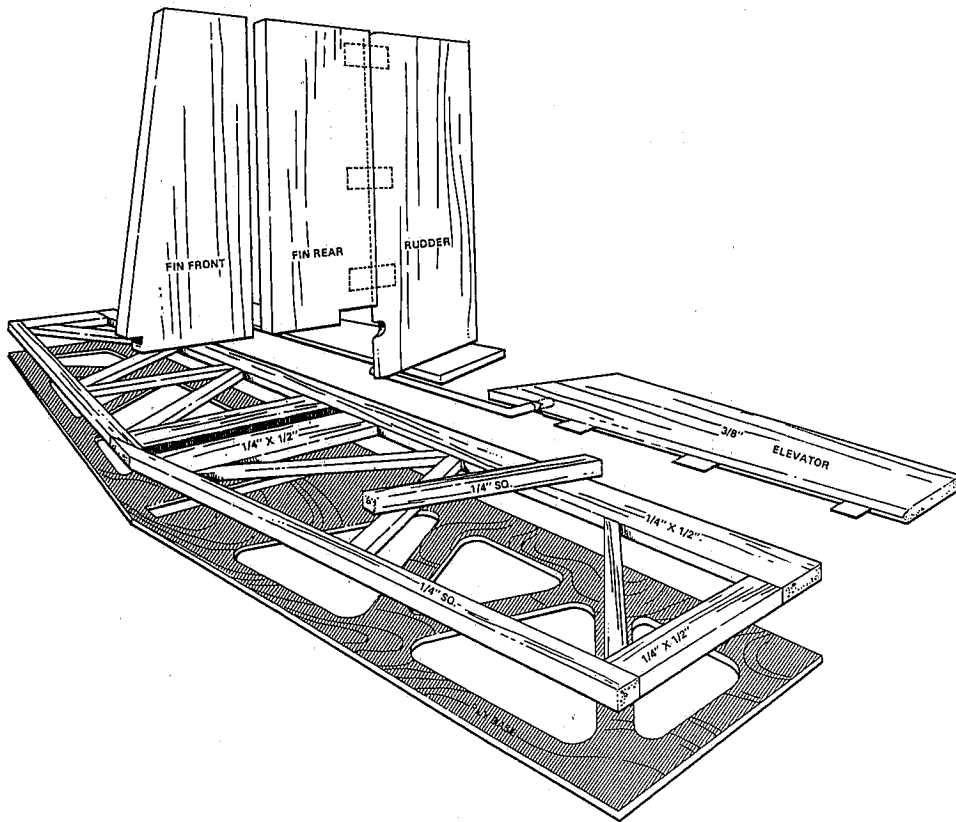


At this time, also install the throttle linkage. Temporarily install the engine and plan your linkage. An 18" length of inner Golden Rod (yellow) and 18" of .047" music wire are furnished for this purpose. Begin by drilling a 1/8" hole in the firewall at the appropriate location to line up with the carb. Another hole needs to be drilled in F2 so the linkage runs straight to the planned location of the throttle servo. Install the 18" length of inner (yellow) Golden Rod. Secure with thick CyA. Because the throttle arm on strokers is usually close to the firewall, we recommend simply bending an "L" in the .047" music wire to hook to the throttle arm. For the other end that hooks to the servo we have furnished a threaded coupler and clevis to solder to the music wire.

Glue the 1/2" side blocks onto the front of the airplane. Keep the bottom of the blocks flush with the bottom of the fuselage. They can be left square to the fuselage sides or slanted in somewhat. Check the length and make sure they don't extend beyond the spinner. Install the 1/2" filler block between the front of the side blocks vertically. (Trim as necessary to clear the engine.) Shape the nose of the fuselage as desired. You may want it to match the spinner contour at the bottom, or leave a "air scoop" effect the nose.

Assemble the tail parts as follows. (Refer to the photo on this page and the drawing on the next.) Glue the two 1/4" balsa fin halves together on a flat surface. Notch the bottom of the fin to accommodate the stab: use the 1/4" slot in the lite ply stab base as a gauge for this notch; make the notch 3/8" deep and such that when the fin is put in the stab slot, the trailing edges will line up. Trim and sand the fin, rounding the leading edge and keeping the trailing edge square.

Pin the lite ply stab base on a flat surface. Make sure it stays flat. The stab base is to be framed with 1/4" balsa as follows. Cut and glue a 1/4" X 1/2" piece of balsa along the trailing edge of the stab base. Follow



with two pieces of 1/4 sq. balsa for the leading edge, keeping it flush with the leading edge. Glue on the 1/4" X 1/2" tips and using the fin as a spacer, glue on the 1/4" X 1/2" center pieces. (Be careful not to glue the fin in place!) Follow with the 1/4" sq. diagonals, centering them on the lite ply. Trim and sand the stab, rounding the leading edge and tips and keep the trailing edge square.

Form the elevators by beveling the front edge about 30 degrees; you can either taper the elevators to 1/8" at the rear or simply round off the rear edge. Notch and drill for the 1/8" music wire elevator joiner, making sure the ends match the ends of the stab. Glue in the joiner securely.

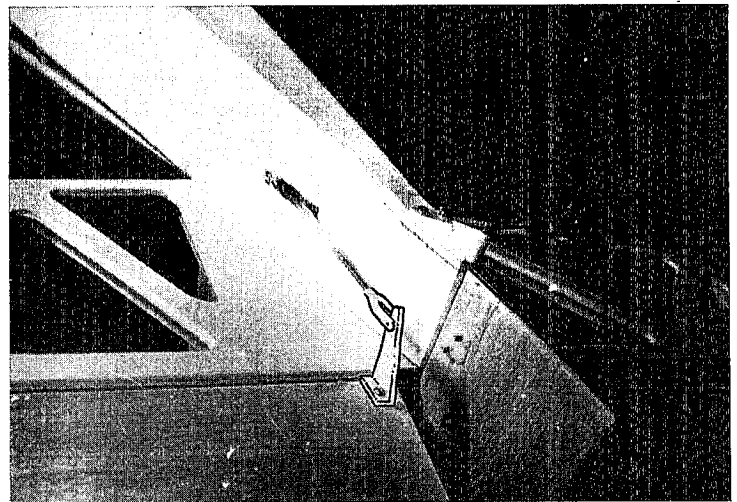
Bevel the front of the rudder 30 degrees and round off the rear.

Slot for the hinges and slip them together but do not glue the hinges until the parts are covered.

It is best now to locate and install the rudder, elevator, and throttle servos. 1/4" X 3/8" spruce is furnished for servo rails. Locate them in the rear section of the wing area, leaving enough room in front for the receiver and battery pack. Position them low enough so they don't interfere with the aileron servo and linkage.

With the servos in position, determine the proper location of the outer (red) Golden Rod in F3; it depends which side you need to come off the servo to get proper direction of travel of the control surfaces and the height of the servo. Drill a 3/16" hole in F3 for both the elevator and rudder outer Golden Rod. (Ace "Handrills" are very useful for this type work.) Roughen up the outer surface of the red tubing where it exits the fuselage and at F3 and install and glue. Note that the tubing crosses over at the rear. Trim off flush with the fuselage at the rear.

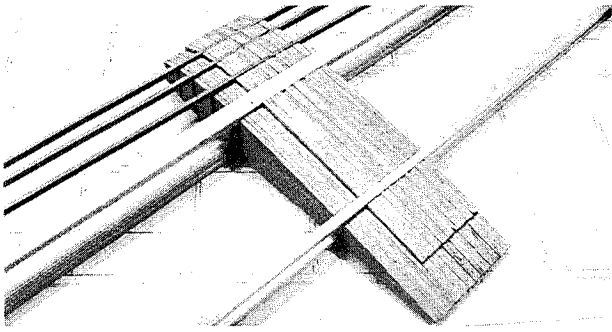
Temporarily position the stab/elevators on the fuse. You may want to tack glue it in place. Move the fin/rudder into place and cut a semi-circle in the rudder to clear the elevator joiner.



Using the full size template, the nylon tail wheel bracket, and the 1/16" music wire furnished, bend the tail wheel strut as shown. Make sure the wire is through the hole in the bracket when bending! Drill 1/16" pilot holes in the tail wheel mounting plate at the rear of the fuselage and mount the bracket in place with No. 2 X 3/8" self tap screws; the tail wheel strut should be up against the rear of the fuse. Sand off any overhang of the mounting plate place. Check fit and for proper rudder and elevator action. The arm of the tailwheel strut attaches to the rudder later after covering the rudder. Use a piece of thin fiberglass cloth and thin CyA to secure the strut arm at that time.

Install the control horns on the rudder and elevator, using 2-56 X 1/2" bolts. Install the inner control rods (yellow) using threaded studs and clevises to hook to the control horns and threaded rods to hook to the servos.

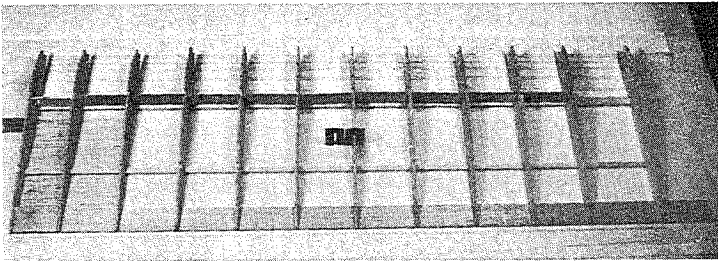
Now disassemble the tail section.



WING CONSTRUCTION

Begin by punching out the ribs from the die-cut sheets. Note there are two types of ribs: six inner ribs which are 3/32" smaller all around than the eighteen outer ribs. Using the main spars to align the ribs, sand the edges of the ribs smooth. Test fit all the spars in the stack of ribs and sand or trim as necessary for a good fit.

We prefer the Hot Stuff/3M Spray 77 pinless method of construction; that is, use Spray 77, lightly applied, to stick the plans to a flat, smooth work surface. Then spray the plans lightly and cover with waxed paper (not plastic wrap). Now a coat of Spray 77 on the wax paper and you can begin putting the parts down. When you need to remove the wing from the surface, work a thin steel straightedge between the wing and the wax paper and it will come off cleanly. If you prefer, conventional techniques can be used with pins and a soft work surface.



Build the wing one panel at a time. Begin by positioning the 3/32" X 1 1/4" balsa bottom trailing edge, the 1/4" X 1/2" spruce bottom main spar and the 1/4" sq. spruce bottom rear spar in place flat on the work surface. If they are too long, let the excess run out the tip of the wing. Use a few ribs to line them up. Note: the wing is flat from the main spar rearward.

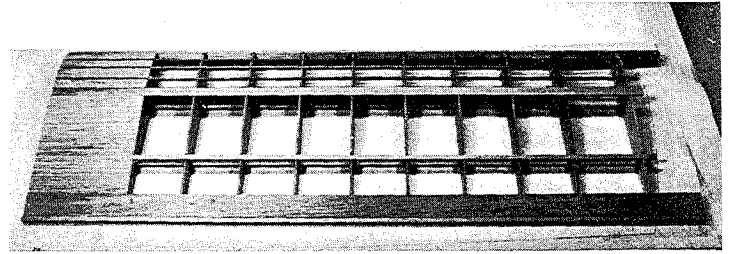
Glue the nine outer ribs into place, using thick CyA glue, keeping them perpendicular (a House of Balsa "Upright" is handy for this). Use two 3/32" X 3" X 5 1/2" balsa for the bottom rear center sheeting. Cut them to width to fit in between the bottom trailing edge, rear spar and main spar. Glue into place.

Allowing some room all around it, cut the Root Rib Angle Template from the last page of these instruction. Glue it to a piece of cardboard or a scrap piece of balsa. Now cut the template to exact size.

Glue in the three center ribs keeping the second and third rib perpendicular and use the angle template to slant the first rib (root rib) inward to accommodate the dihedral angle. Use the lite ply center webbing to space the second rib; note that it has one edge to accommodate the slant of the center rib.

Glue in the lite ply center webbing and the 1/8" balsa vertical grain webbing between the ribs (except the outermost bay), trimming to-fit and attaching them to the ribs and the bottom main spar. Center them on the spar. Note there is no web in the outermost bay.

Install the Tapered Hardwood Inset between the inner two ribs at the trailing edge. It should not extend beyond the top edges of the ribs.

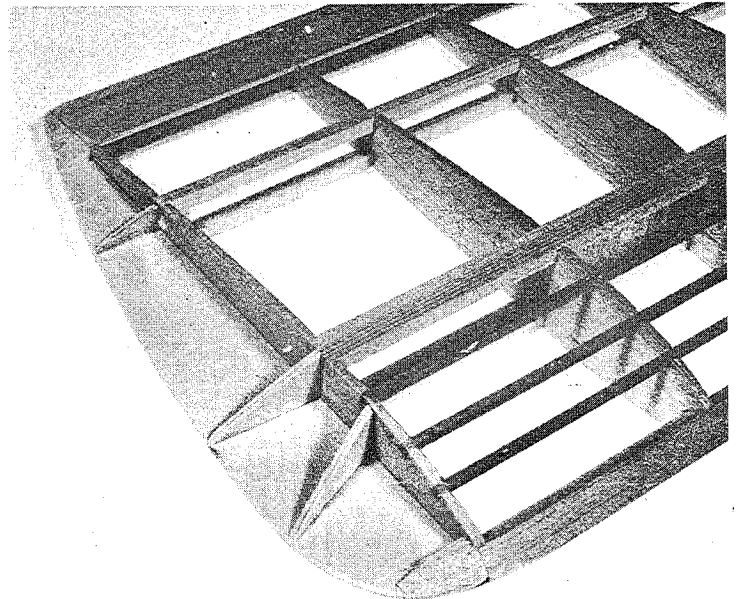


Now add the top main spar, top trailing edge, top rear spar, and the three 1/8" X 3/16" spruce top forward spars, and the 1/2" sq. balsa Leading Edge into place, making sure it is seated square in the ribs. Let the glue set completely.

Remove the panel from the work surface and, using a long, straight sanding block, true up the rear of the trailing edge sheets. Put the wing back down on the work surface and glue on the 1/4" X 5/16" balsa T.E. cap into place.

Add the 3/32" balsa top center sheeting. It fits between the spars.

Remove the panel from the work surface and add the remaining bottom sheeting from the main spar forward.



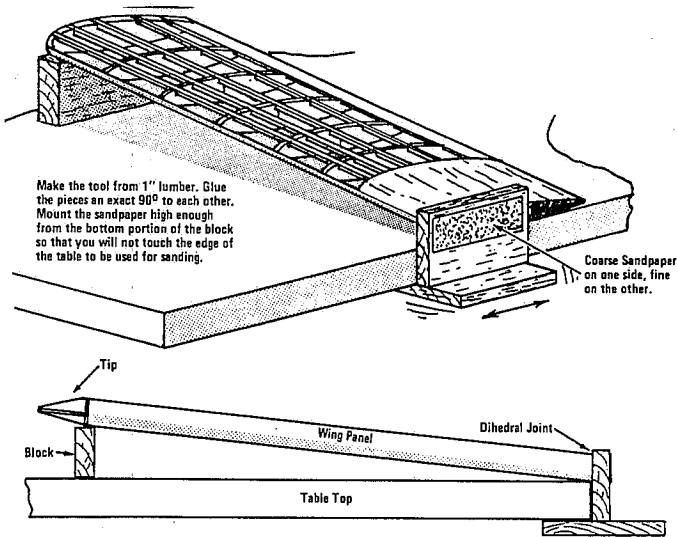
Trim off any excess material that extends from the center and the tip ribs. Block sand the end of the tip rib flat and glue the lite ply wing tip on. Run it on a line from the point of the leading edge to the center of the trailing edge keeping the rear edge flush with the trailing edge. Add the triangular tip braces; for each wing you have two large, two medium, and two small tip braces. One large one goes on the top of the tip straight out from the main spar, the other large one goes on the top, angled toward the leading edge, starting between the two rearmost small spars. The medium ones go on the bottom, opposite the large ones on top. The small ones go on the top and bottom straight out from the rear spar.

Some scrap 3/8" balsa is furnished to fill in the tip at the leading and trailing edge. Glue in place and carve to shape.

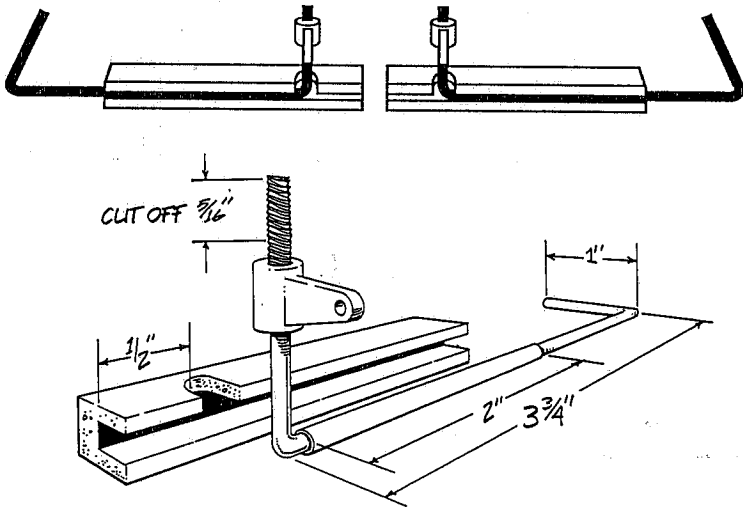
Sand the trailing edge cap to match the taper of the wing.

Sand the surface of the wing center sheeting so it is even with the spars.

Repeat the same construction for the other wing panel.

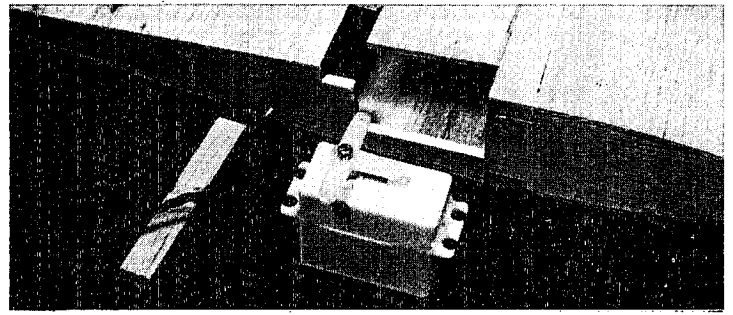


Refer to the Dihedral Sanding Detail and final sand the proper dihedral angle into the root ribs of both panels with the tip blocked up 1 1/2". Check to make sure that when the wing panels are joined, the total dihedral is 3".



Referring to the torque rod assembly drawing, make a LEFT and a RIGHT assembly with the materials furnished. Make sure the nylon tube is on the wire before bending it and make sure you make a right and a left assembly. If you grind a point on the end of the torque rod, it will aid insertion into the aileron later. Thread the nylon fitting all the way on the threaded portion of the rod and, using a side cutters or hacksaw, shorten the threaded portion by 5/16". This is to allow internal clearance in the fuselage. Apply some oil or Vaseline to the rod where it runs through the tubing. This will prevent glue from getting in later. Roughen up the outer surface of the nylon tubing with some fine sandpaper.

Notch the slotted hardwood aileron bearing block to clear the torque rod.



After notching the trailing edge cap to clear the torque rod, glue each torque rod assembly to the trailing edge of edge of each wing panel, making sure you don't get glue on the torque rod.

It is easiest to make the aileron servo/rail cutout while the wing is in two pieces; that way you can get to the center rib to cut it away and you don't have to cut through the fiberglass reinforcing material. Use the main spar to mount the front of the servo to and cutout for the 1/4" X 3/8" X 2 1/2" hardwood furnished for the rear rail.

Carefully epoxy the wing panels together; make sure the bottom of the wing panels line up from the main spar rearward.

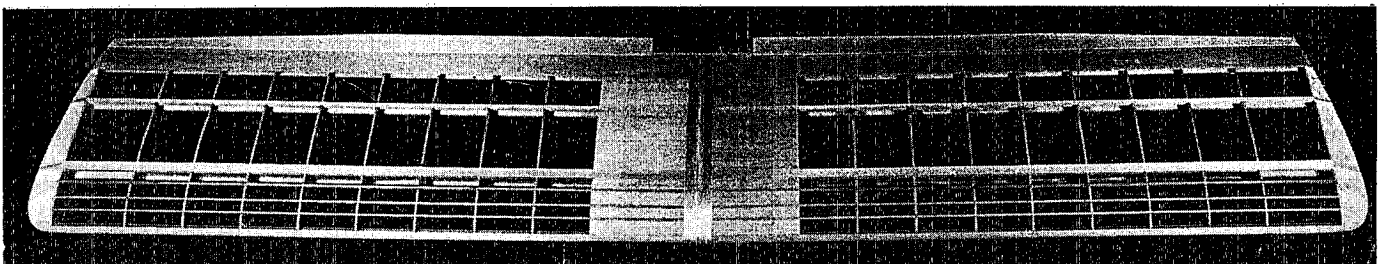
Carve to shape and sand the leading edge contour as shown in the side view. Note that it is fairly blunt.

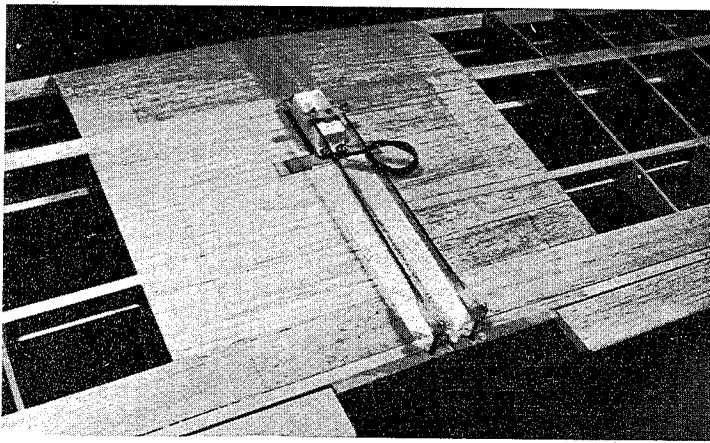
Using the wide woven fiberglass material furnished, reinforce the center section. This will require four pieces, 12" long. Overlap the material 1/2" at the center. An easy technique is to spray the fiberglass with 3M Spray 77 and apply it to the wing; trim to clear the aileron linkage and servo cutout. Then, impregnate the material with thin CyA. Be careful not to let glue wick into the aileron torque rod. Sand to remove the fuzz and smooth out.

Using the heavy 1 1/2" wide fiberglass cloth furnished, provide additional reinforcement for the center of the wing by applying it to the very center of the wing in two 12" pieces. The same technique will work fine for this material.

Prepare the two 1/4" X 1 1/4" aileron stock as follows. Cut to 30 5/8" long. Make a mark at the half way point (15 5/16") lengthwise and a mark at the half way point (5/8") widthwise. Using a metal straightedge, trim off the triangle formed by these marks. Bevel the leading edge of the stock at about 30 degrees; this will be the leading edge into which the hinges go. Round off the back other edge.

Position each aileron on the wing butted up against the outside end of the aileron bearing block. Making sure the torque rod is properly in its place, mark the hole location for the torque rod and the hinge locations on both the ailerons and the wing. Drill a 3/32" hole for the torque rod and cut a groove from this hole to the end to accommodate the torque rod. Slot the ailerons and the wing for the hinges. Temporarily install the ailerons but wait until the plane has been covered to glue the hinges in. Cut and form the outer end of each aileron to match the wing tip.





The aileron servo can now be temporarily mounted and the linkage constructed using 1/16" threaded rod and clevises furnished.

Now is the time to mount the wing hold down dowels in the wing. In order to line up the wing on the fuselage, mark a center line on the top of former F2. Measure out 1 13/16" from the center of the rear of the wing and make a mark on either side on the top; this marks where the outer edge of the fuselage sides should hit. Put the wing on the fuselage with the leading edge up against F2 and the center of the front of the wing lined up with the mark on F2. Check that the marks on the back of the wing are aligned to the fuse sides. While holding the wing in place, run a 1/4" drill bit through the two holes in F2 into the wing to start the holes. Remove the wing, and drill the holes the rest of the way, making sure the drill bit stays square to the wing and goes all the way through the lite ply center web (about 3 1/2" back from the leading edge). You will have to just barely chuck the drill bit in the drill so it reaches. An Ace 6" drill bit comes in handy here.

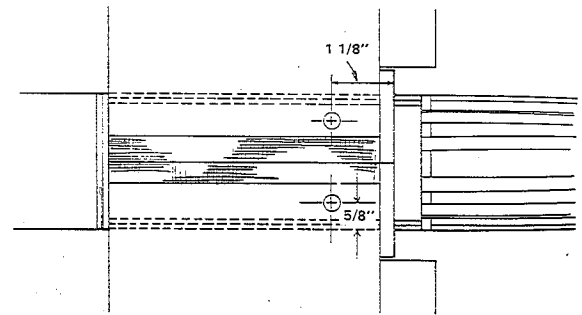
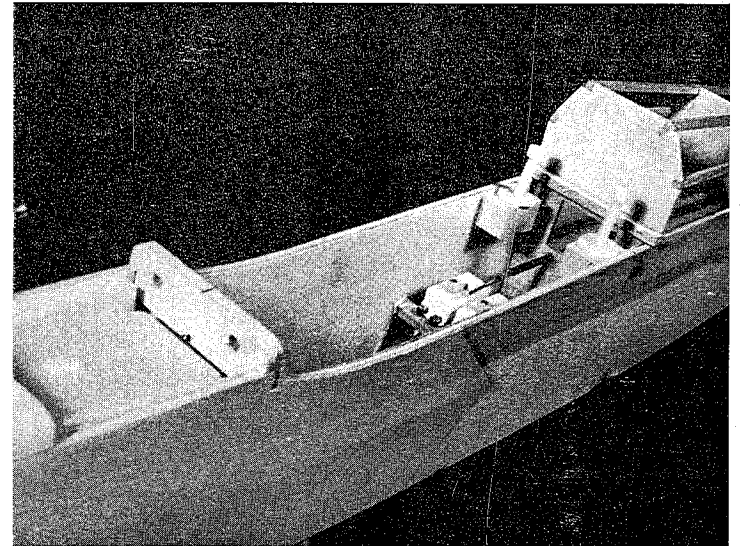
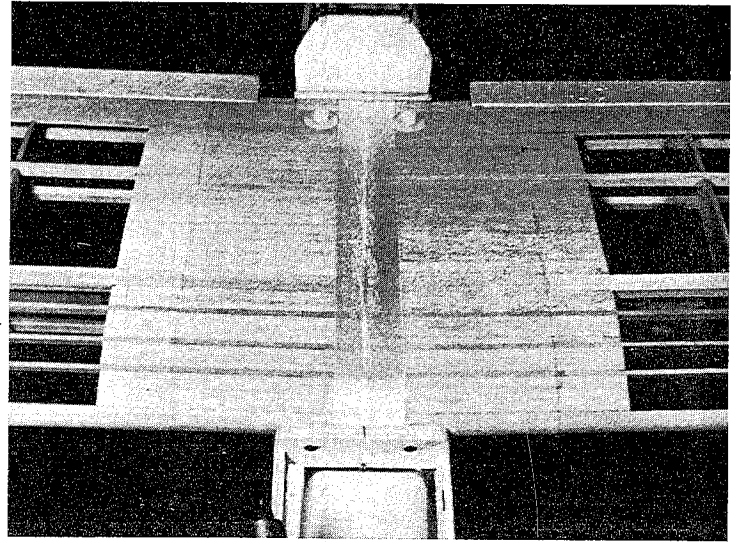
Round one end each of the 1/4" wing dowels and sharpen the other. Make sure the holes in F2 are such that the dowels go easily through them. Push the sharpened end into the holes in the leading edge and insert it so it goes through the ply web. Leave about 3/8" sticking out the front. Check fit on the fuse. If necessary, file out the hole in the leading edge so the wing will seat on the fuse.

Remove the wing and the dowels. Apply some Vaseline in the holes in F2 to prevent the epoxy from sticking to F2. Apply 5 minute epoxy to the dowels and put them back in the wing with 3/8" protruding. Put the wing back on the fuselage, making sure the dowels have slipped into the holes in F2 all or most of the way. Hold the wing in place while the epoxy sets.

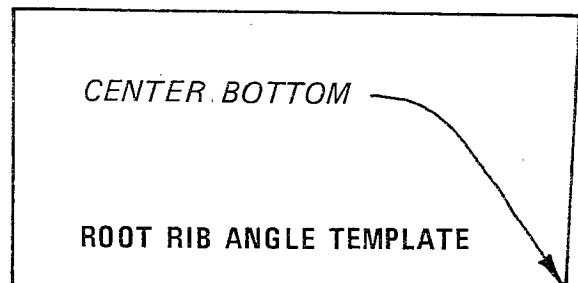
Securely glue the 3/4" X 3/4" X 1 1/4" hardwood wing hold down blocks to the inside of the fuselage with the rear edge 7/8" from the front of F3 and flush with the top edge of the wing saddle.

Mark the proper location for the wing bolts on the wing. To do this, extend your mark for the fuselage sides on up a bit, keeping it perpendicular to the trailing edge. Measure up 1 1/8" from the rear of the aileron block and 5/8" inward from this line. See Wing Bolt Detail. Put the wing on the fuselage and line it up properly. Drill a 3/16" hole through both the wing and the hold down block at the marks, keeping the drill perpendicular with the top surface of the wing. Remove the wing and tap the holes in the wing mounting blocks for 1/4-20 bolts and enlarge the holes in the wing to 1/4". The wing is held on with the nylon bolts and washers furnished.

Use a piece of scrap 1/4" sq. balsa glued to the fuselage to fill in the gap between trailing edge of the wing and F3.



This completes the wing construction. Final sand and cover the wing with Super Monokote. This material is highly recommended for the strength it adds to the lightweight structure.



FINAL ASSEMBLY

The fuselage and tail can be finished with your choice of covering materials and/or paints. Remember that a great deal of the 4-60's success is due to the light wing loading, so keep whatever finish you choose light.

After covering, install the main landing gear. It is mounted to the fuselage with four No. 6 X 1/2" self tap screws. Line up the straight edge of the gear with the front edge of the Middle Bottom piece, centering it from left to right on the fuse. Mark and drill 1/32" pilot holes for the screws. The wheels are attached to the landing gear with the axles and lock nuts furnished.

Glue in the hinges on all surfaces.

When gluing the tail assembly together, cut away the covering material where you're going to make a joint. Be careful not to cut into the wood or you'll weaken the joint. Glue the Fin/Rudder to the Stab/Elevators keeping them perpendicular. Glue the tail assembly to the fuselage making sure proper alignment is maintained. Brace the tail assembly to the fuse with the triangular stock furnished. Cover the triangular bracing after installation.

Secure the tailwheel strut to the rudder, using a small square of fiberglass and thin CyA.

Reinstall the control horns on the rudder and elevator and the control linkage. Complete the throttle linkage (bolt the engine in first). Install the battery pack and receiver according to the manufacturer's instructions.

Trim and glue the canopy to the wing with Wilhold RC-56 or thick CyA. Install a pilot of your choice (we, of course recommend our 1/6th scale "Cap'n Eddy" pilot figure... Ace P/N 60K63). Mylar stickers are furnished to put a large "4-60" on your choice of wing panels and two smaller ones on the fuse sides, rear of the wing. Also, "Cap't Eddy" looks good on both sides of the fin.

FLYING

Make sure the balance point (CG) is properly located; for first flights, at the middle of the main spar. Move back up to 3/4" for more maneuverability and better snap and spin characteristics.

For the maiden flight the suggested control deflections are as follows:

Rudder = 3/4" right, 3/4" left
Elevator = 1/2" up, 1/2" down
Ailerons = 3/8" up, 3/8" down
CG (balance point) at center of Main Spar

All throws are measured at the rear of the surface.

Again we'll let the designer describe the flight characteristics:

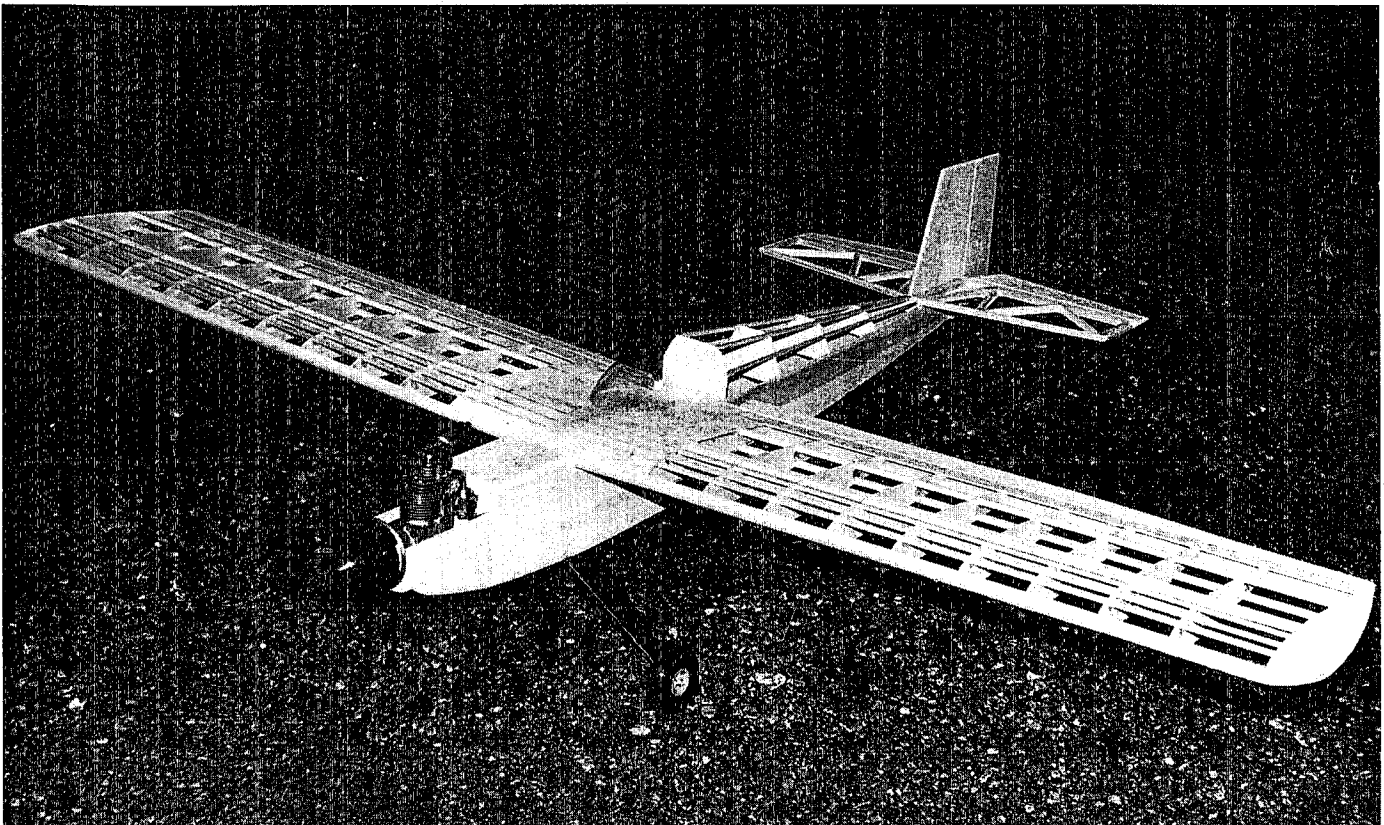
"Prop recommendation is to start with a 13 X 5 or 6. With a rearward CG (1/2-3/4" back from the center of the main spar) a 14 X 5 seems to work best. Each individual should experiment a bit to get the prop that best matches his engine, plane, and flying style.

"Start up the engine, point the model's nose into the wind, add just a touch of right rudder until the 4-60 gains a bit of speed and watch it take off on its own with no problem. This has to be about the easiest tail-dragger to take off and land as anyone has ever flown.

"The flier making a transition from a trainer with a flat-bottom airfoil will find the slowness of the flight envelope nearly ideal as he learns to execute outside loops, rolls, snap rolls, spins, inverted flight, and horizontal eights. As the flier's skill increases, the balance point can be moved rearward by adding some weight to the tail; aerobatic figures will tighten and become more brisk.

"The 4-60 and the 4-40 may be the most deceptive looking designs around. They look like trainers, but possess flying qualities that are satisfying to a wide range of experience levels."

We at Ace R/C hope you do enjoy building and flying your 4-60. We welcome your comments.



Kit Parts Listing

4-60 KIT #50K224 RUN #298

Note: When referring to a particular part, you must use the part number listed here.

This list supercedes all other numbers or parts that may be printed elsewhere.

QTY.	PART #	DESCRIPTION	MATERIAL
Continued			
4	HW003H	6-32 BLIND NUTS	
2	HW004H	8-32 AIRCRAFT LOCKING NUT	HARDWARE
2	HW019A	1/4" ID LARGE NYLON WING WASHER	
4	HW046	2-56 X 1/2" PH BOLTS	
4	HW091J	6-32 X 5/8 PH BOLTS	
2	HW108B	1/4-20 X 1-1/2" NYLON SHB	
15	HW113	#2 X 3/8 SELF TAPS	
1	HW113H	#4 X 3/8 SELF TAPS	
1	HW113J	#4 X 1/2 SELF TAP SCREW	HARDWARE
4	HW113N	#6 X 1/2 SELF TAP	
1	HW181	#2 SHOULDER SCREW	
1	HW254	2-56 BRASS THREADED COUPLER	
2	HW255	2-56 X 1 THREADED ROD	
4	MP1272	.078 DIA THREADED ROD	
2	MP8302	5/32" AXLES FOR KLETT GEAR	HARDWARE
2	PLA141A	3/32" AILERON HORN BRACKET	
5	PLA807A	SNAP LINK	
2	PLA816	LONG CONTROL HORN	
1	PLA817	ACE HINGE (SINGLE)	HARDWARE
1	PLA821	TAIL WHEEL BRACKET	HARDWARE
1	PLA823	ANGLE HATCH HOLD DOWN	HARDWARE
1	ZACMDC48	48" DIAL CORD	CLOTH
1	Z224MWMW01	1/8 MUSIC WIRE ELEVATOR JOINER	1/8 MUSIC WIRE
2	PLA817A	ACE HINGE SHOT	HINGES
1	TB808	AIL. TORQUE ROD TUBE 6"	HARDWARE
1	ZAFG24	1-1/2 X 24" GLASS CLOTH	CLOTH
1	ZAFG72	4" X 96" FIBERGLASS MATERIAL	CLOTH
2	ZAMP5801	AILERON RODS	HARDWARE
1	ZAMW10	1/16 X 6" MUSIC WIRE	MUSIC WIRE

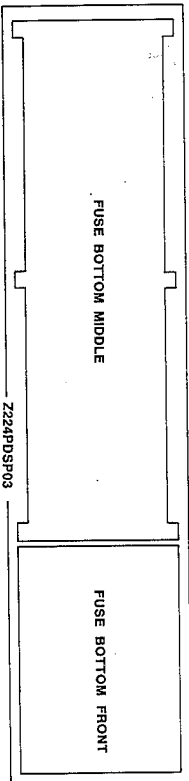
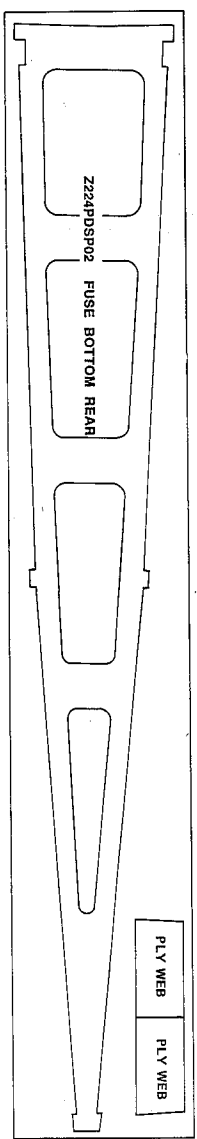
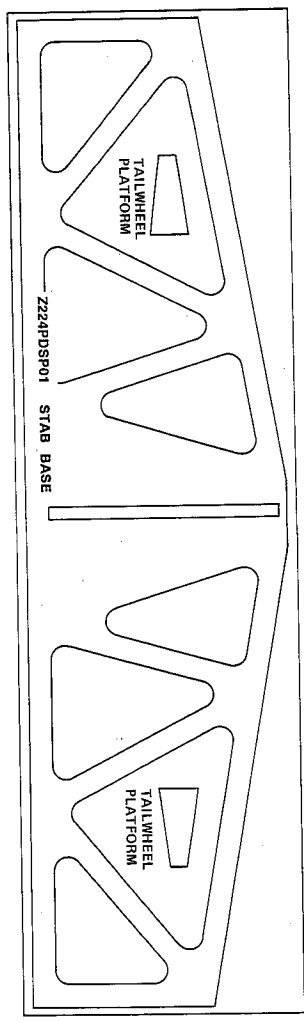
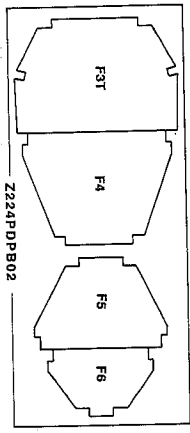
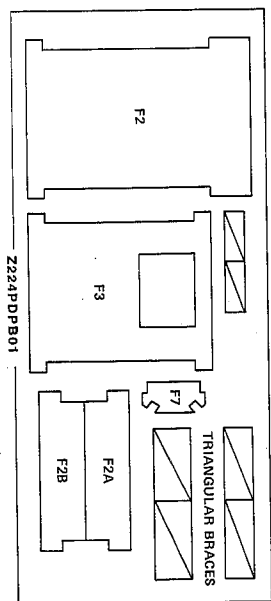
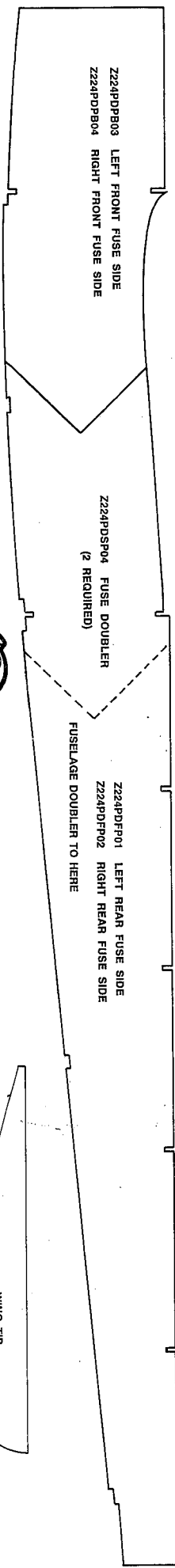
Kit Parts Listing

4-60 KIT #50K224 RUN #298

Note: When referring to a particular part, you must use the part number listed here.

This list supercedes all other numbers or parts that may be printed elsewhere.

QTY.	PART #	DESCRIPTION	MATERIAL
3	Z224BDBP01	1/8 X 3 X 36 MAIN RIBS	DIE CUT Balsa
1	Z224BDBP02	1/8 X 3 X 36 CENTER RIBS	DIE CUT Balsa
3	Z224BWBP01	3/32 X 3 X 24 WING PLANKING	Balsa SHEET
2	Z224BWBS01	1/4 X 1-1/4 X 31 AILERONS	Balsa SHEET
4	Z224BWBS02	3/32 X 1-1/4 X 34 TRAILING EDGE	Balsa SHEET
2	Z224BWBS03	1/2 X 1/2 X 34 LEADING EDGE	Balsa STICK
2	Z224BWBS04	1/4 X 5/16 X 34 TRAILING EDGE CAP	Balsa STICK
4	Z224SPHD01	1/4 X 1/2 X 34" SPARS	SPRUCE
6	Z224SPHD02	1/8 X 3/16 X 34" SPARS	SPRUCE
4	Z224SPHD03	1/4 SQ X 34" SPARS	SPRUCE
2	Z224BWEP01	3/8 X 2-5/8 X 10-1/2 ELEVATOR	Balsa SHEET
1	Z224BWEP02	1/4 X 3 X 7 FIN	Balsa SHEET
1	Z224BWEP03	1/4 X 4 X 7 FIN LEADING EDGE	Balsa SHEET
1	Z224BWEP04	1/4 X 3 X 9 RUDDER	Balsa SHEET
2	Z224BWP02	1/2 X 3 X 5-1/2 COWL SIDES	Balsa SHEET
1	Z224BWHP01	1/2 X 3-5/8 X 4-3/4 HATCH	Balsa SHEET
1	LB135	4-60 DECAL	
1	PLA8101	CANOPY	
1	PLALG15	MEDIUM KLETT FIBERGLASS LANDING GEAR	CLOTH
2	TB836NRI	36" INNER NYLON PUSHROD	
2	TB836NRO	36" OUTER NYLON PUSHROD	
1	YBA224	4-60 KIT, BOX TOP	CARDBOARD
1	YBA224B	4-60 KIT, BOX BOTTOM	CARDBOARD
1	YIM224	4-60 INSTRUCTION MANUAL	PRINTED
1	YLB224	BOX LABEL 4-60	
1	YPS2241	4-60 WING PLAN SHEET	
1	YPS2242	4-60 FUSE PLAN SHEET	PRINTED
1	Z223C21FCA	CENTURY 21 FABRIC COVERING MATERIAL ADDENDUM	PRINTED
1	Z223PN224A	STAB ADDENDUM	PRINTED
1	ZAMW418	.047 X 18" MUSIC WIRE	MUSIC WIRE
1	ZANRI18	18" INNER NYROD	NYLON
1	Z224PDPB01	3MM X 5-3/8 X 12-1/2 BULKHEAD #1	DIE CUT LITE PLY
1	Z224PDPB02	3MM X 4-1/8 X 9-1/4 BULKHEAD #2	DIE CUT LITE PLY
1	Z224PDPB03	3MM X 4-7/8 X 12-1/4 LEFT FUSE FRONT	DIE CUT LITE PLY
1	Z224PDPB04	3MM X 4-7/8 X 12-1/4 RIGHT FUSE FRONT	DIE CUT LITE PLY
1	Z224PDPF01	3 MM X 5 X 34 LEFT REAR FUSE SIDE	DIE CUT LITE PLY
1	Z224PDPF02	3MM X 5 X 34 RIGHT REAR FUSE SIDE	DIE CUT LITE PLY
1	Z224PDSP01	3MM X 6-1/4 X 22-1/2 STAB BASE	DIE CUT LITE PLY
1	Z224PDSP02	FUSE BOTTOM, REAR/DIHEDRAL BRACES	DIE CUT LITE PLY
1	Z224PDSP03	3MM X 3-7/8 X 17 FUSE BOTTOM, FRONT	DIE CUT LITE PLY
2	Z224PDSP04	3MM X 4-7/8 X 20 FUSE DOUBLER	DIE CUT LITE PLY
2	Z224BWST01	1/4 X 1/2 X 24" STAB T.E. AND TIPS	Balsa STICK
3	Z224BWST02	1/4 X 1/4 X 24 STAB BRACES	Balsa STICK
1	Z224BWST03	3/8 TRI. X 24 STAB BRACE	TRIANGLE Balsa STICK
4	Z224SPHD04	3/16 SQ X 22" LONGERONS	SPRUCE
1	Z224HDST01	1/2 TRIANGLE X 15" BRACES	BASSWOOD
1	Z224BWNA01	1/2 X 1-1/2 X 2-3/4 COWL BRACE	Balsa SHEET
18	Z224BWWB03	1/8 X 1-3/32 X 3 SHEAR WEBS	Balsa SHEET
2	Z224SPHD05	1/4 X 3/8 X 3-1/8 SERVO RAILS	SPRUCE
1	Z224SPHD06	1/4 X 3/8 X 2-1/2 AILERON SERVO RAILS	SPRUCE
1	Z224SPHD07	3/16 X 1/4 X 2 HATCH BRACE	SPRUCE
2	Z224SPHD08	1/4 SQ X 2-3/4" SLOTTED AILERON BLOCK	SPRUCE
1	Z224BPNA01	1/4 X 3-1/16 X 4 FIREWALL	BIRCH PLY
1	Z224BPNA02	1/4 X 2-1/4 X 3-1/16 LANDING GEAR BRACE	BIRCH PLY
2	Z224HDWB01	3/8 X 1-1/4 X 2-3/16 TAPERED WING T.E. BLOCK	BASSWOOD
2	Z224HDWB02	3/4 SQ X 1-1/4" WING HOLDOWN BLOCK	BASSWOOD
2	Z224DLWB01	1/4 X 4-1/4 WING HOLDOWN DOWEL	DOWEL



4060

PARTS ID SHEET

BINGO!/4-60/4-60 BIPE (P/N 50K232/224/230) ADDENDUM

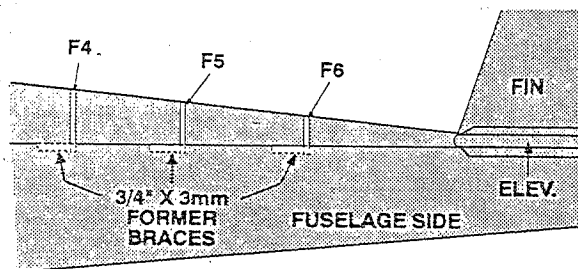
Horizontal Stab Reinforcement

In certain high stress situations, we have found it necessary to reinforce the Horizontal Stab, using the special fiberglass (Polymat) cloth that is furnished in your kit. This is easy to do and needs to be done **before** beginning **TAIL ASSEMBLY** in your Assembly Manual.

[] Locate the Stab Base and punch out the lightening holes **EXCEPT FOR THE FIN SLOT; GLUE IT IN PLACE**. Cut two 24" pieces of the 4" wide Polymat cloth and spray on a thin coat of Spray 77 contact cement to one side of the cloth. Working on a flat surface, apply a piece of the cloth to one surface of the stab base, starting at the rear edge and overlapping both ends. Butt up the other piece of Polymat so that it covers the front surface of the stab base; the whole stab base should now be covered with the cloth.

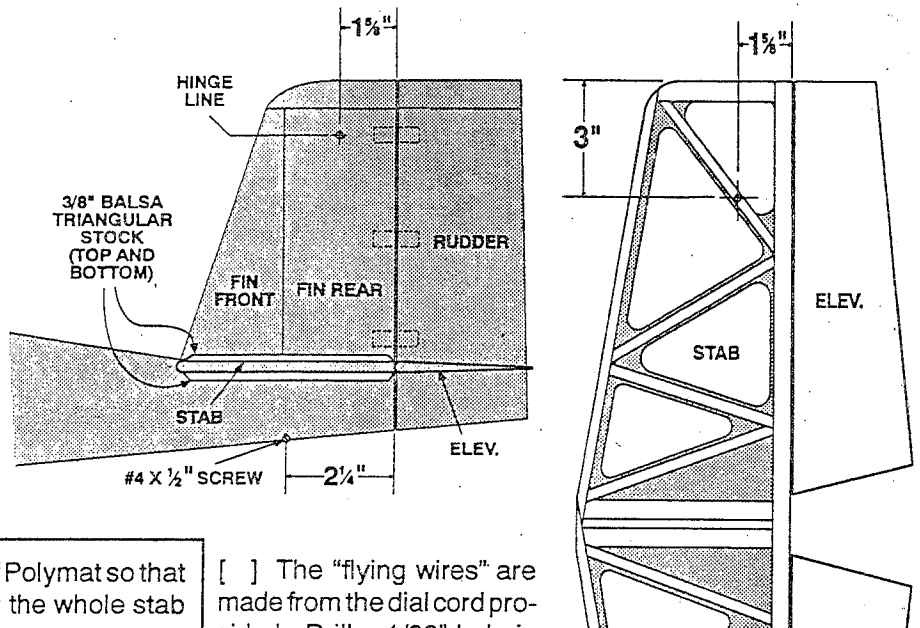
[] Pin the Polymat cloth covered stab base to a flat surface covered with waxed paper. Impregnate the cloth where it contacts the lite ply with thin CyA and let set....use good ventilation! After the smoke clears, trim the excess cloth from the stab base around the edges and in the lightening hole cutouts. Pin it back down to the flat surface with the cloth facing you.

[] Now you can proceed with building the Stab. When built, the Polymat cloth will be securely sandwiched between the lite ply stab base and the balsa wood framework, making the structure considerably stronger.



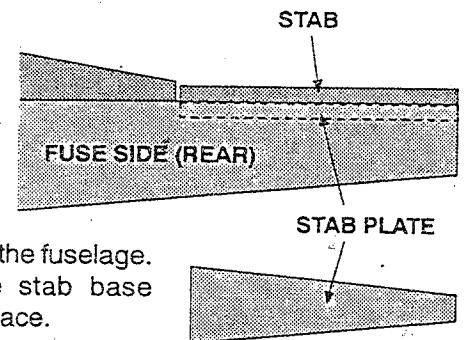
[] To strengthen the fuselage we recommend that you horizontally brace the fuselage in front of F4, F5, and F6. Cut 3mm x 3/4" lite ply braces from scrap die cut fuse side rear material. Fit these braces between the fuselage sides up against F4, F5, and F6, flushed up with the top of the lite ply fuselage sides. These braces will eliminate fuselage flexing.

To further reinforce the horizontal stab, we recommend the addition of "flying wires", a lite ply stab base mounting plate and 3/8" balsa triangular vertical fin braces.



[] The "flying wires" are made from the dial cord provided. Drill a 1/32" hole in the stab and fin at the positions indicated. Be sure to drill through the ply stab base and the balsa diagonal braces. Install the #4 x 1/2" screw in the fuse bottom. Securely tie the dial cord to the screw and loop the cord up through the stab, through the vertical fin and back down through the other side of the stab, and then back to the #4 x 1/2" screw. Tighten up the dial cord, maintaining alignment, then tie off. A drop of medium CyA in each of the holes and on the screw secures the "flying wires."

[] From the scrap die cut fuse side rear material, cut, fit and install the stab base mounting plate between the fuselage sides, flush with the top of the fuselage. Securely glue the stab base mounting plate in place.



[] The 3/8" balsa vertical fin triangular braces are added to the top of the horizontal stab, butted up against the fin to provide additional bracing. If the fin and stab have been covered, be sure to remove the covering so a wood-to-wood joint is maintained. Be careful not to cut the fin or stab as you will weaken the structure.

These modifications will greatly strengthen the tail surfaces of the plane.

116 W 19 ST, POB 472, HIGGINSVILLE,
MO, USA 64037-0472 • 816.584.7121

