Staudacher S600
40%

WARNING! THIS IS NOT A TOY!

THIS IS NOT A BEGINNERS AIRPLANE

This R/C kit and the model you will build from it is not a toy! It is capable of serious bodily harm and property damage. It is your responsibility, and yours alone - to build this kit correctly, properly install all R/C. components and flying gear (engine, tank, radio, pushrods, etc. and to test the model and fly it only with experienced, competent help, using common sense and in accordance with all safety standards as set forth in the Academy of Model Aeronautics Safety Code. It is suggested that you join the AMA and become properly insured before attempting to fly this model. If you are just starting R/C modeling, consult your local hobby dealer or write to the Academy of Model Aeronautics to find an experienced instructor in your area.

Write to : Academy of Model Aeronautics, 5151 Memorial Dr, Muncie, IN 47302

LIMITED WARRANTY

Lanier R/C is proud of the care and attention that goes into the manufacture of parts for its model kits. The company warrants that for a period of 30 days, it will replace, at the buyers request, any parts or material shown to the company's satisfaction to have been defective in workmanship or material at the time of purchase.

No other warranty of any kind, expressed or implied, is made with respect to the merchandise sold by the company. The buyer acknowledges and understands that he is purchasing only a component kit from which the buyer will himself construct a finished flying model airplane. The company is neither the manufacturer of such a flying model airplane, nor a seller of it. The buyer hereby assumes the risk and all liability for personal or property damage or injury arising out of the buyers use of the components or the finished flying model airplane, whenever any such damage or injury shall occur.

Any action brought forth against the company, based on the breach of the contract of sale to the buyer, or on any alleged warranty there under, must be brought within one year of the date of such sale, or there after be barred. This one year limitation is imposed by agreement of the parties as permitted by the laws of the state of Georgia.

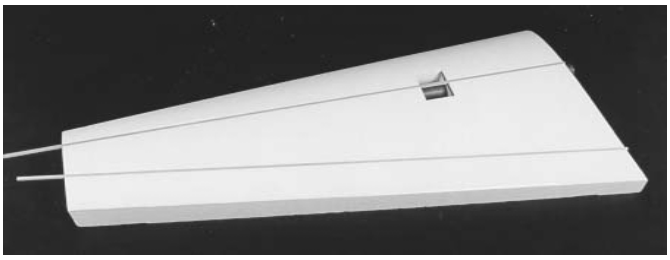
Staudacher S600 Lanier R/C Building Instructions

Before starting to build, we urge you to read through these instructions while reviewing the plans. They contain some important building sequence as well as instructions and warnings concerning the assembly and use of this model. At least read what we have to say and then make your own determination. It will save you some time. We expect that you have had building experience so, every minute detail is not covered. However the instructions and plans together will allow you to produce a first class model.

WING CONSTRUCTION

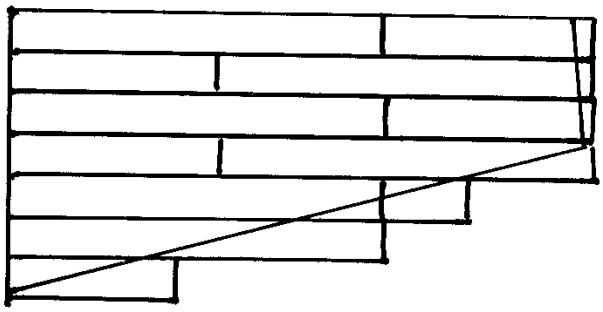
1. Remove the foam cores from their packing and inspect them. Hold up a panel and view it from the front leading edge. Notice that one surface is flat and the other is tapered. Lay a square on one surface. If the root is square to it, that's the top. Mark each panel once you have identified the top surface. Handle the cores carefully because of the sharp trailing edge. **Do not throw away the core packing shells.** They will be needed during the construction of the wing.
2. Sand the surfaces of the core lightly, if necessary, with 220 grit paper to remove any ridges and Irregularities you might find. Do not over-sand.

3. Locate and install the fiber spar tube in each wing core. Spread a thin coat of epoxy or white glue around the periphery and length where it comes in contact with the foam. Insert into the core with a twisting motion. Slip W2 over the end, with proper orientation before the tube is completely inserted against the wall of the cut out. Use epoxy to secure W2 to the foam and tube. Wipe off the excess glue around the exit point at the wing root allowing it to extend 3/16" minimum. It is important this area be free of glue so that W1 can be installed over the fiber tube. Allow the glue to cure thoroughly before continuing on with further construction. **Note: when working on a wing panel, always make sure it is resting in a packing to prevent warping.**



4. Locate the 8 - ¼" sq. hardwood spars and glue them in the spar slots with epoxy or white glue. Make sure they are seated in the groove and flush with the top surface. Put wax paper down on the packing and lay the wings back in. Place on a flat surface and add weights and allow to dry. If groove is too deep apply Balsa Magic on top of spar to make it flush with foam. It is easily sanded after it cures. We cannot control the tolerance on the hardwood strips. Work with the core in the packing to prevent warping.

5. Find W3 and W3A and epoxy them on the forward edge of the spar and against the tube in the square cut out area. W3A, on the bottom, has a slight taper so trial fit it first before gluing in.



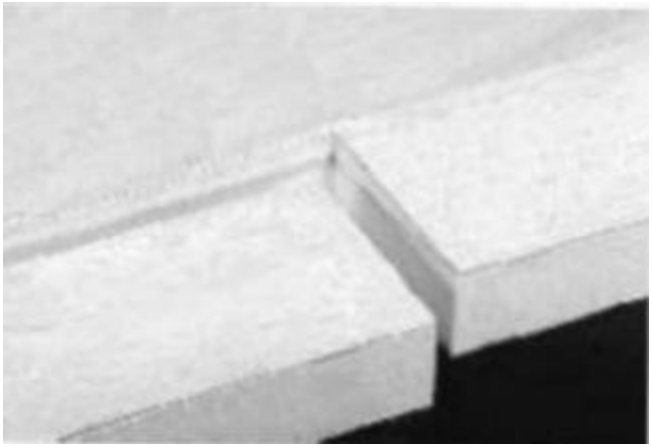
6. Locate 6 – 3/32" x 4" x 36" balsa sheet and 5 -3/32" x4" x24" . Cut one 24" sheet into a 18" piece and a 8" piece. Cut 4- 24" pieces down to 20". True up the edges on one side taking off the minimum of balsa, using a long straightedge. Tape the skins using a 36" piece and a 20" to make a 56" long skin. Stagger the joints on the 24" piece from one end to the other. When you have 4 of these taped together add the 36" piece and the the 8"

piece. Then add the 18" piece.You will have to make a top and bottom skin by gluing the last three sheets on the opposite side. Make up two sets of skins, see diagram above. Place a skin in the packing put down the wing core, put the top packing in place and mark the wing skin with a pencil around the edge. Remove from packing and using a straight edge cut to size. Cut all four skins, remember to make a top and bottom.

7. We recommend using Probond urethane glue. You can use epoxy if you prefer. With the pro bond there is no need to edge glue the sheets together, just tape them. Using a credit card or spreader, apply a lite even coat over the surface of the wing skin. There is no need to leave it puddle up on the surface,scrape it almost dry. Take a damp cloth and wipe the wing core down, the moisture helps the urethane set up. Place the skin in the padding align the wing core, place the top skin in place, add the top packing shell and then apply weight. The wing must be on a flat sturdy surface..

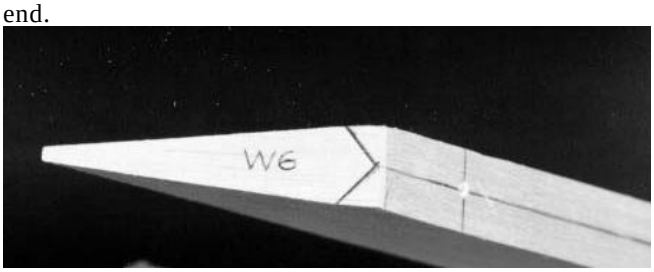
8. Check the packing and core for alignment and place a heavy board on it to distribute the weight. Concrete blocks or bricks work well. You will need about 200 lbs to firmly weight the wing down. Allow to cure over night before removing.

9. Trim and sand the leading edge sheeting flush with the foam core. Locate and install the ½ x 1-1/4" x 54" leading edge. This will be made up of a 48" piece and a 6" piece.Use white glue and masking tape to hold it in place.



11. Place the foam core in a packing and **tape it in place.** Strike a line at the aft edge of the rear spars on the trailing edge. Measure in 48" from the tip and draw a line perpendicular to the forward spar. Use a band saw if possible, to cut out the aileron. Leave the aileron taped to the packing and remove 1"

    from the leading edge and 3/16" from the inboard end.



12. Cap the aileron leading edge with a ½" x1 ¼" x 48" balsa stick. Use white glue and tape to hold it. When cured, trim and sand the ends flush with the foam. Also plane and sand the top and bottom flush with the sheeting. Locate (2) W6 and glue one on each end. Sand flush when cured. Locate the eight hinge holes, 2" from each end and equally spaced there after. The Robart hole locater is an excellent choice for finding the center and drilling the hole (3/16"). Mark the bevels, 40 degrees, on the end and saw with band saw. The angles can be planed and sanded if no band saw is available. Bevel both the leading edge of the ailerons

and the trailing edge of the wing.

13. Locate W5 and glue in place on the aileron inset inboard end. Cap trailing edge of wing with a ½" x 1 ½ x 48" balsa stick. Use white glue and tape in place. Plane and sand top, bottom, and tip end flush with surfaces. Locate hinge hole centers from the aileron. Note: be careful when planing and sanding the wing trailing edge.

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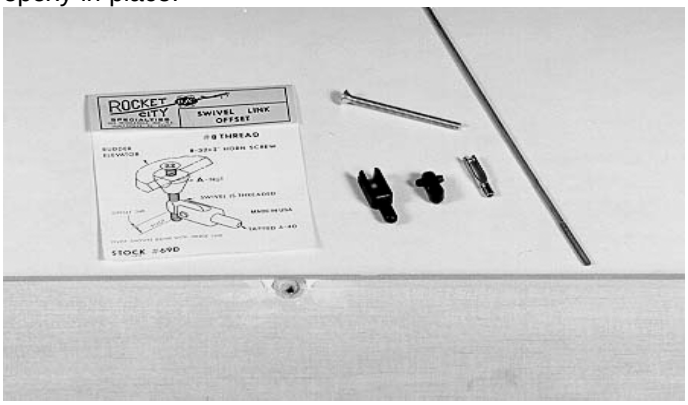
14. Glue on W4 with white glue and tape in place. Sand flush with mating surfaces. Plane and sand the leading edge to the configuration shown on the plans.

15. Locate the servo wells, on the bottom side .Measure in 8" from the both ends of the aileron and 2" forward of the hinge line.

. Layout the servo well, 7/8" x 2-5/16", with a ball point pen. Cut around the out side line with a sharp razor. Then use a flat blade screwdriver to dig out the foam to the bottom of the razor cut. Cut and dig some more until the servo fits below the foam surface. Locate the ¼" sq. hardwood servo rails. Cut four pieces 1 ½ long. Inset these into the foam, flush with the surface, and epoxy in place.



16. With the servo located in the well and the aileron temporarily installed with hinges, mark the point where the pushrod will align with it. Using a drill press and a ½ Forstner bit, drill a hole ½ back from the leading edge. Make sure the aileron is level, use the packing. Cut off a piece of ½ dowel to the required length. Now drill a #19 (.166) hole down through the center of the dowel. Epoxy the dowel in place and sand flush when cured. Countersink the hole on the topside of the aileron to fit the screw head. A 5/16" bit will work. Now run an 8-32 tap down through the hole. We recommend using Rocket City hardware. It's strong and has never failed us.

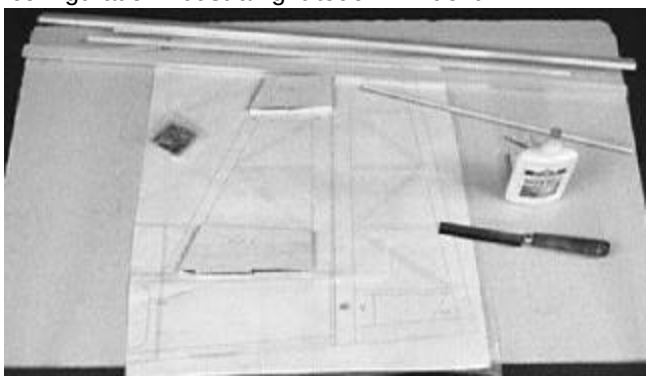
17. Sand off the sheeting at the wing root flush with the foam. Do not sand away much of the foam and change the angle. **Do not install W1** until the fuselage is complete and the wing is fitted to it on the spar. Now build the other wing panel as described above. Rough sand them and set aside for your friends to admire.

FIN/RUDDER CONSTRUCTION

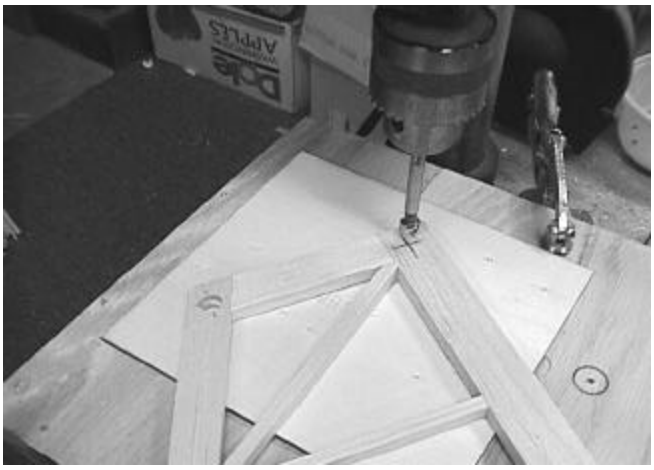
Before starting construction, it is best to gather up all the material needed to build the tail parts. Locate RUD1, RUD2, RUD3, STB1, STB2,STB2A, STB2B, STB3,and STB4. located on the laser cut balsa sheet .

1. Lay full size plans on a flat surface and place wax paper over them. Laminate two **STB1's**,**RUD1's, RUD2's**, and **RUD3's** , using CA or white glue. Pin

down the laminated STB1 and RUD1 on the plans. Measure, cut and fit the ½ x 7/8" and ½ X 1 ½ balsa sticks around the periphery of the fin and rudder. Pin down to hold them in place. Now glue in RUD2 and RUD3. The laser cut parts leave a charred surface and need a light sanding to adhere when glued. Do not take off so much that it changes the original configuration. Just a light touch will do it.



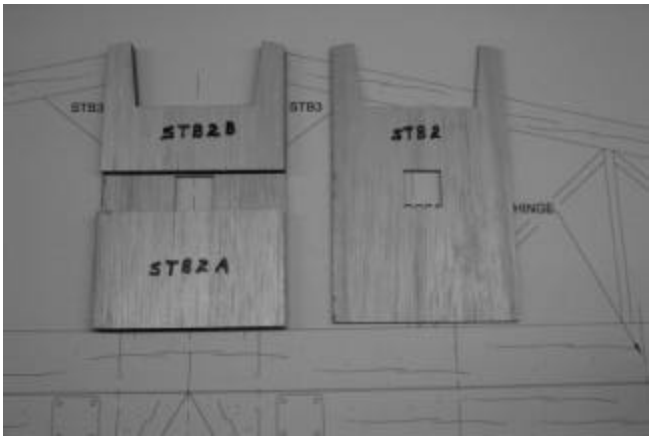
2. Measure, cut, and fit the ¼ x ½ cross and diagonal ribs. Glue them in place with CA or white glue. Make good square, tight joints for better gluing surfaces. When a joint is not fitted properly, it takes more glue to secure it. This in turn adds more weight to the model and wastes glue. Spend a little time and make sure the joints fit properly.



4. Locate the tail bracing hard points from the plans and drill a 3/8" hole, two places, with a Forstner drill bit. Use a backing to ensure a clean break through of the hole.
5. Using the 3/8" dowel, cut off two pieces slightly longer than the thickness of the fin. Epoxy these into the holes with 5-min epoxy. When cured, sand flush with surface on both sides.
6. Drill a 3/32" hole in the center of each dowel to accept a # 2 bolt required for the tail bracing bracket.
7. Lay aside for sanding, shaping, and hinging.

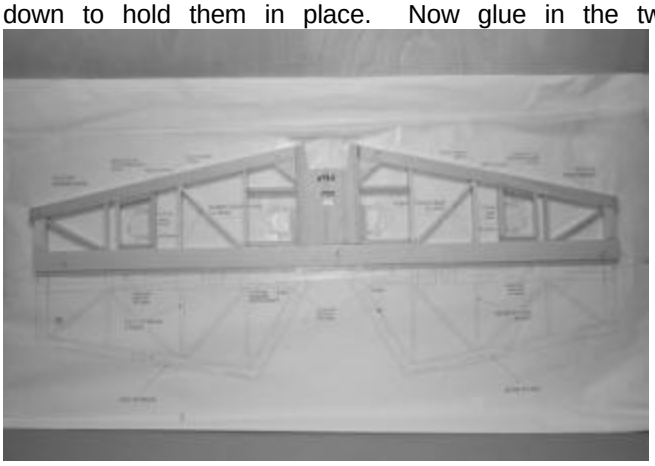
STAB/ELEVATOR CONSTRUCTION

1. Lay the full size plans on a flat surface and place wax paper over them. The center section is laminated to leave a slot in the center to pass the elevator wire from the outboard servo into the fuselage. Glue the STB2a and STB2b onto one of the STB2s leaving the gap in the center. Then glue the other STB2 on top forming the ½ center section.



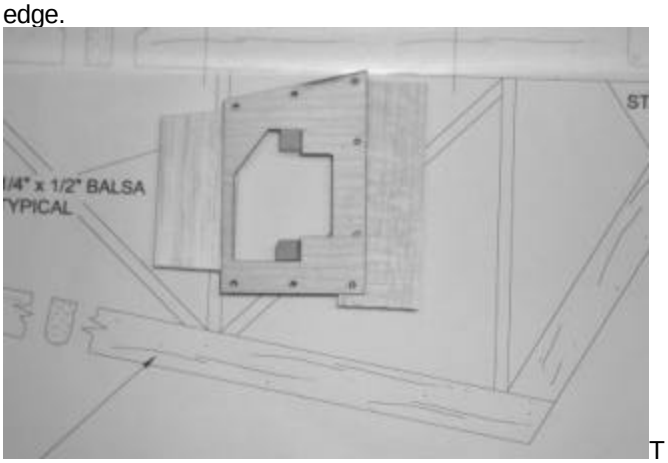
2. Pin down the laminated STB2 on the plans. Measure cut, and fit the ½ x 7/8" and ½ x 1 ½ balsa sticks around the periphery of the stab and elevators. Pin

down to hold them in place. Now glue in the two

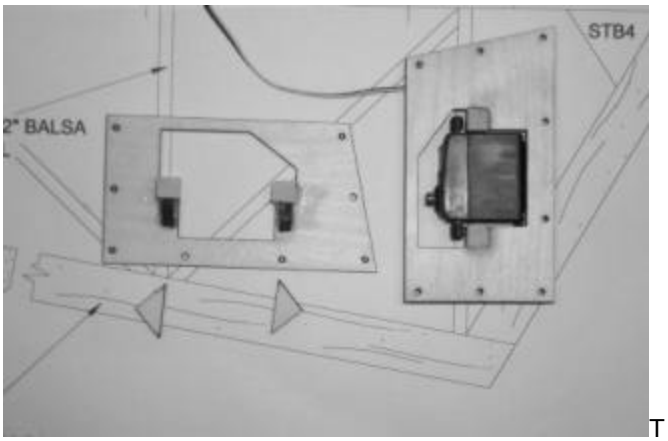


STB3,and two STB4.

3. Measure, cut, and fit the ¼" x ½" cross and diagonal ribs. Glue them in place with CA or white glue. Make good square cuts assuring better glue joints. The braces between the outboard servo and the center section will have to be built up to leave a slot in the middle for the servo wire to pass through. Cut 1/8" x ¼" balsa to form the bottom of the brace, then cut ¼" square pieces to form the center leaving the gap where indicated on the plans. Then glue another 1/8"x1/4" piece on top to form the top of the brace. This will give you the ½" thick brace with a slot in the middle for the wire. Now glue in the 3/8" x1/2" spruce servo mounts, one on the back of the leading edge and one on the front of the trailing edge and one from front to back between the leading edge and trailing edge.



The outboard servo is mounted on a 1/16" laser cut plywood plate. Cut two pieces of 3/8" square spruce ¾" long. Support the servo plate on each end on two pieces of balsa ½" thick. and place the 3/8" square spruce in the notches and sitting on the table. This will leave them 1/8" above the servo plate. Glue in place.



Turn the servo tray over and glue on the1/4" laser cut braces (part sr) against the 3/8" square spruce. Now make another tray but be sure to make a left and a right. The servo can be screwed to the mount then the mount can be screwed to the servo rails glued in the stab with 8 number 2 sheet metal screws. The servo arm will need to be installed before the servo is screwed down

4. When cured, lift the parts from the plans. Locate the tail bracing hard points from the plans and drill a 3/8" hole. 4 places, using a Forstner drill bit. Use a wood backing to promote a clean break through.

5.Using the 3/8" dowel, cut off four pieces slightly longer than the thickness of the stab. Epoxy these into the holes with 5-min epoxy. When cured, sand flush with surface on both sides. Using the ½" dowel , cut four pieces and drill hole and install these for the control horn hard point at the location shown on the plans. Glue the laser cut 1/16" plywood doublers on the elevators on both the top and bottom.

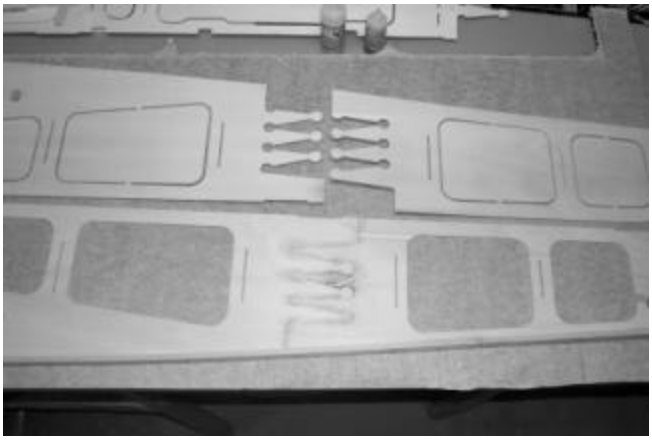
Completed tail parts ready for hinging**.** Locate the hinge positions as shown on the plans. Drill a 3/16" hole at each location using careful alignment between parts.

FUSELAGE CONSTRUCTION

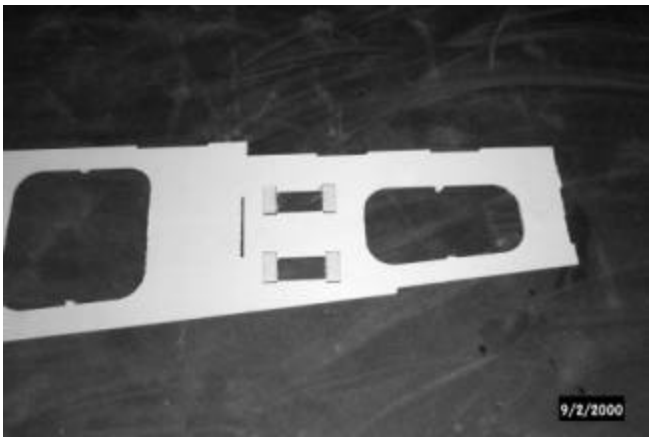
Before starting to build the fuselage it is necessary to prepare the sides, doublers, and top former by removing the excess wood pieces from them. In the lightening holes in the sides, typically use a razor saw and cut one or two of the lands holding the piece in. Now give it a twist. Sand off the stubs flush with the edge.

The tabs and notches in the sides, doublers, and top former are CNC routed and the router bit leaves a small radius instead of a sharp corner. Use a flat file and square up the small radii in all the parts. It only takes a couple of strokes on each one.

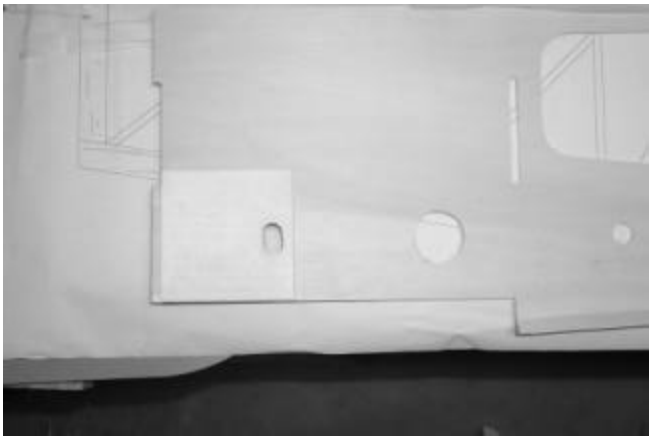
Sand the edges to eliminate the fuzz. Determine the outside surface of each side. **Note: the sides are routed with two good sides out**. Lightly sand all the slots for the tabs. The bulkhead tabs go through the slots at a slight angle so it is necessary to give them a light sanding. A piece of hard 1/16" balsa or ply about 1-1/2" wide with 100 grit paper bonded to both sides works well for this application. Generally make sure the sides are well sanded and clean of fuzz. It will save you time later on.



1. Lay the sides out on a flat surface, **opposite hand**, and bond the finger joints". After the fuselage is assembled you can glue a scrap piece of 1/8" lite ply ½ wide and 3" long over the joint at the top and bottom on the inside and then this bay may be removed to form a lightening hole. Using an exacto knife, remove the plywood from the lightning holes. Locate the ½ tri-stock. Glue a piece along the botttom edge of the side from the step in the front of the fuselage to the tail wheel step in the rear. Remember to make a right and a left.



2. Glue the servo mount doublers (D2) at the front and
3. rear of each servo cutout.
4. Glue the front gear plate doubler(laser cut part FD) to the front inside edge of the fuselage side flush with the bottom and inset from the front ¼" to clear the front bulkhead.

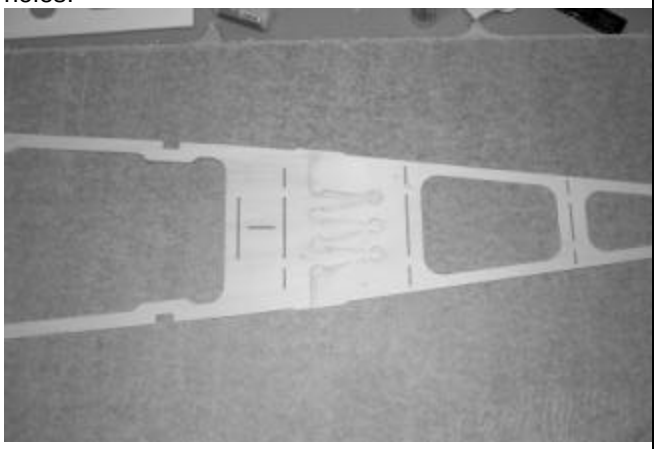


5. Take the aluminum angles and drill three holes for 8\32 counter sunk screws1/2" long and mount an aluminum angle on each fuselage side on the inside, flush with the bottom and ¼" back from the front. Counter sink the screws on the outside of the fuselage and fill the holes with putty. Use aircraft lock nuts on the inside.

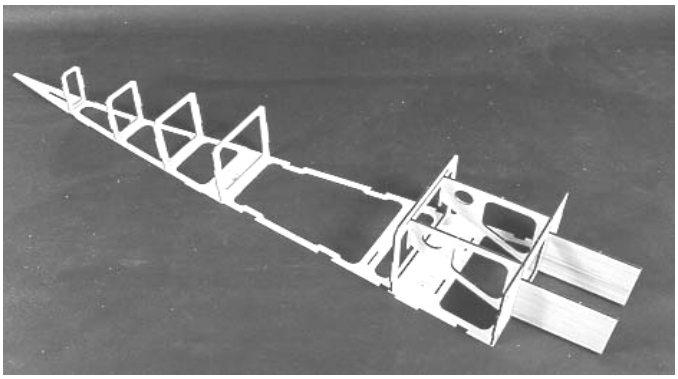
6. .

7. Locate the two EM1's and mount the other two aluminum angles on them flush with the bottom and aligned with the slot for F1 at the front. Use 8/32 screws and lock nuts.

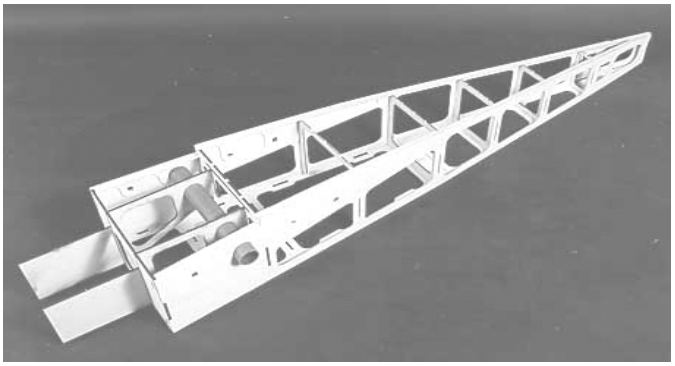
8. Lay the top former on a flat surface and glue the finger joints together. Use an exact knife and remove the plywood from the lightning holes.



. Place each bulkhead in the slot centering it from side to side. Place wax paper under all the slots where bulkheads are to be inserted. Locate formers F5 thru F8 in the laser cut lite-ply sheet.

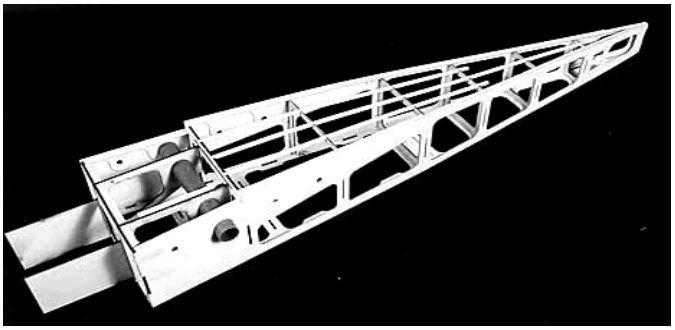


Tack glue, **only at the center,** with thick CA making sure they are all perpendicular. Locate F1, F3, and the two EM1's and remove them from the laser cut lit-ply sheet. Assemble them, in egg crate fashion, and place them in their respective slots. Tack glue F1 and F2 but let the two EM1's float. Make sure F1 is absolutely perpendicular. If you attempt to move the construction at this time to another location for more room to assemble the sides, handle it carefully. The structure is extremely weak between F3 and F5. Pick it up holding on to F5 and F1.

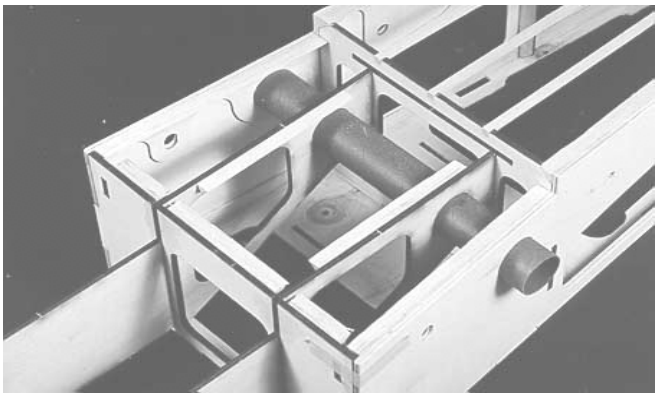


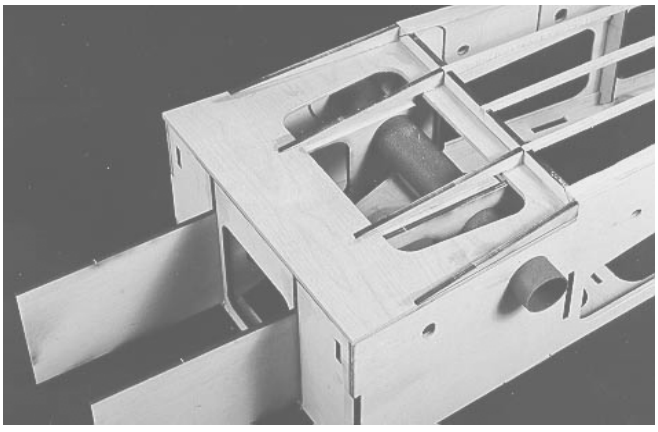
3. Trial fit one side to check assembly with bulkheads. Some sanding may be necessary to make the tabs insert into the slots because they go through at a slight angle. When satisfied with the fit tack glue each bulkhead to the side and the side to the top former in the middle of each side bay. Make sure the tabs are inserted completely into the slots. Now bring in the other side and trial fit as described above**. Don't forget to install F4!** Before tack gluing in place, slip the fiber wing spar tube through the wing spar hole to align the two EM1's with the sides. Here again it might be necessary to open up the holes in the two EM1's and the sides. The tube goes through the

sides at an angle. Tack glue the side on. Glue in the fiber tube. Now load your glue gun with white glue and lay a fillet of glue around all the joints, and both sides of each bulkhead.

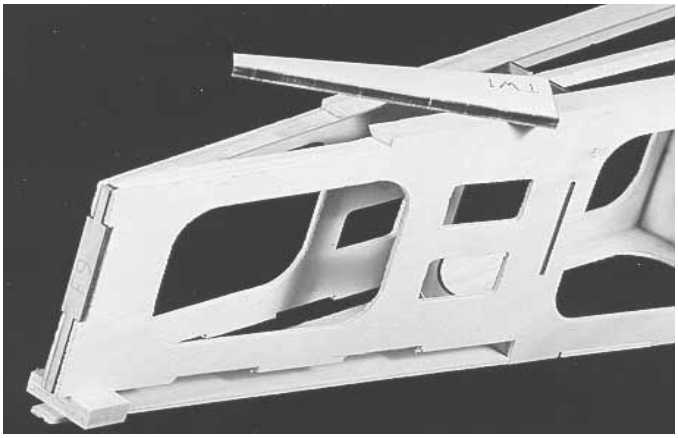


9. Locate the 48", ¼" sq. balsa stringers. Install them, as shown in the photo, on the bottom of the fuselage. The long center stringer ends at bulkhead F8.
10. Cut several pieces of ½ tri-stock and glue them in as shown in the photo. Even though the long pieces glued on the inside of the EM1's are not glued in total to the landing gear mount, they act as stiffeners spreading the load and strengthening the engine mounts.

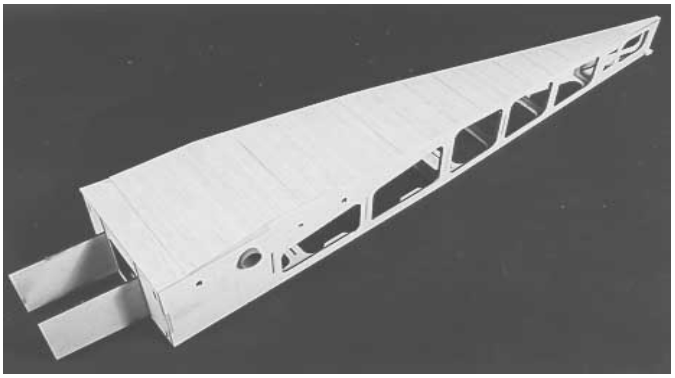




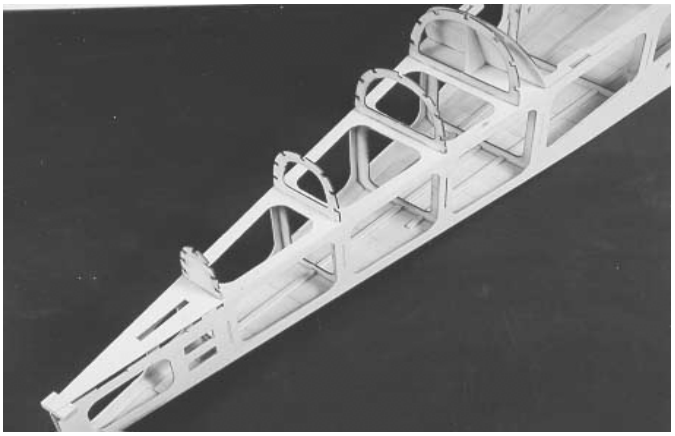
11. Find the landing gear mount LG1 and epoxy in place. Always trial fit first before gluing. Tape in place until cured. Cut out the four LG2's and epoxy them flush with the sides. Space the two center ones directly over the engine mounts.



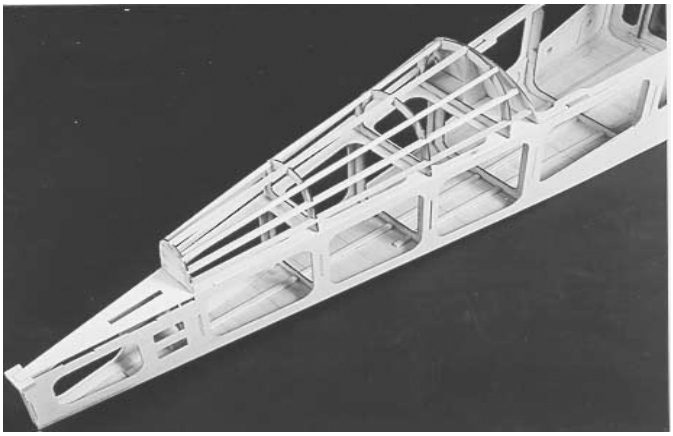
12. Notch out the ½ tri-stock flush to the edges of the fuselage sides. Glue in F9. Epoxy in TW1 and tape it in place until cured.



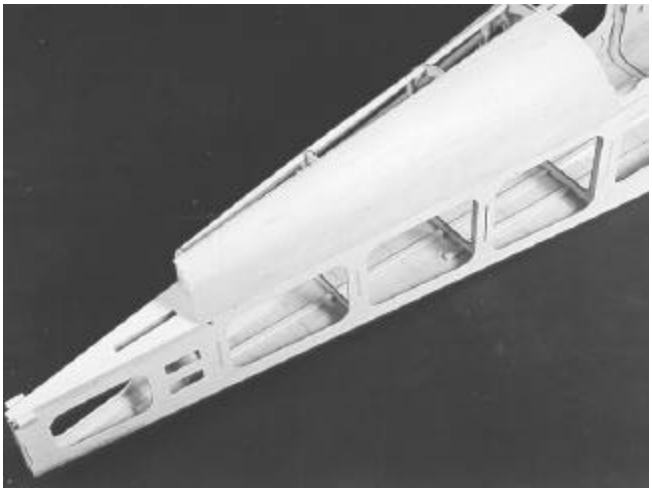
13. Sheet the entire bottom with 3/32" balsa sheet. Start at the forward edge of F3 and work back. Glue with thick CA. Now sheet the section over the landing gear mount.



14. Cut out bulkheads F5A, F5B, F6A, F7A, F8A, and the brace from the laser cut sheet. Glue them into the slots provided centering them side to side.

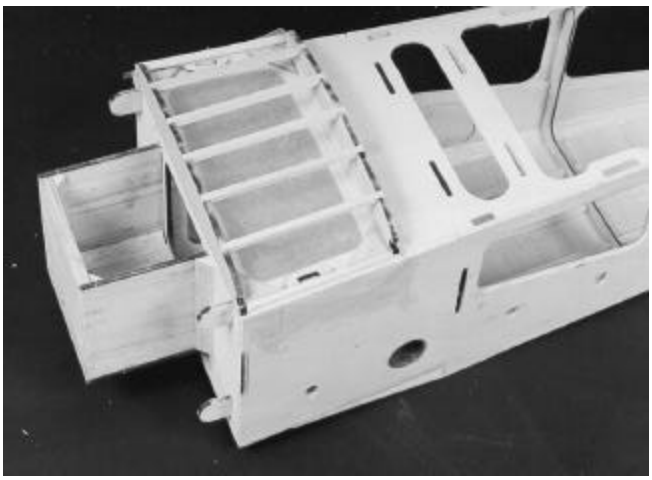


15. Glue in the ¼" stringers starting with the top center one. Just butt the stringers against F5A and glue. After stringers are installed sand the edge of F5A to conform with the slope of the turtledeck.

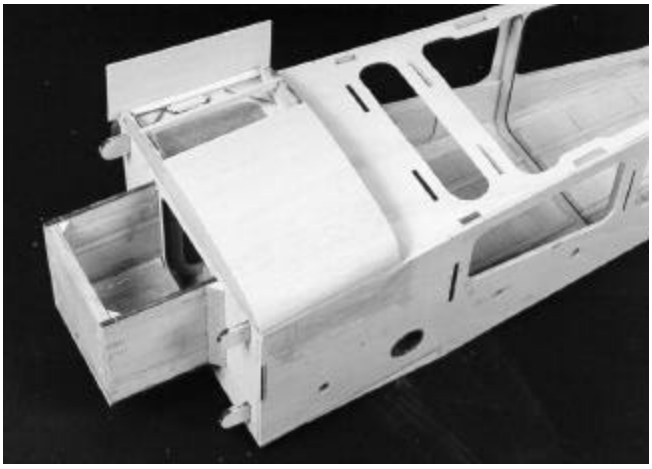


10. Locate three 3/32" x 3" x 36" balsa sheets. Edge glue three sheets together using thick CA. Now do the other three. Block sand both on one side. Add a small piece of sheet at the end near F5A, 1-1/2" x 5". Cut from the scrap piece removed from the wing leading edge. Edge glue one sheet against the formers to the top of the fuselage using thick CA. Mix ammonia with water and dampen sheet until in will form around curve. Apply thick CA on the stringers to the area to be glued. Form over and hold the sheet in place until cured. Sand both ends flush with the formers. Locate and install FT2 in the lower surface of the stab slot

11. Lay some wax paper over the edge of the forward section.. Find formers F1A, and F2 in the laser cut ¼" lite-ply sheet. Locate them in their respective slots. Lightly tack glue F1A and F2 in place. **Note: make sure that both formers are square to top fuselage former and F1A is flush and in the same plane with F1.** Cut



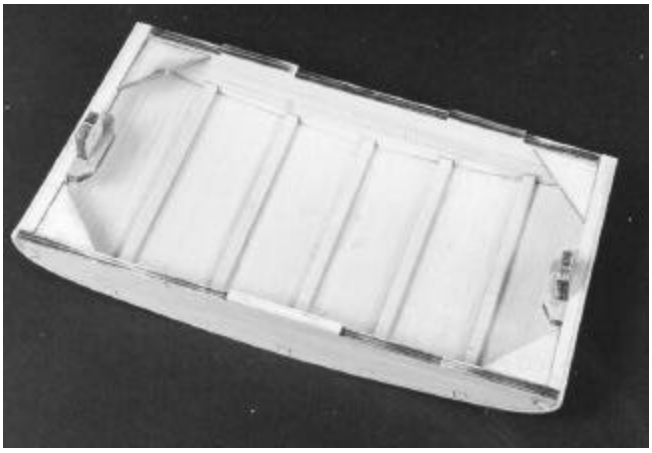
two ¼" sq. hardwood rails and glue them in between F1A and F2 on each side. They should be offset from the sides by 3/32". Find two C5's and glue them to the rails, centered over the square hole in the top former. Next, glue in the C3 and C4 gussets. Use a 1/8" shim under each to locate them flush with the rail. Locate the ¼"sq. balsa sticks and glue in the stringers. Sand the ends flush with the formers.



12. Select 3/32" sheet balsa that is straight grained to make the sharp bend on the sides. Make all the joints fall on a stringer. Cut a length of 3/32" x 3 sheet and glue it ,with thick CA, to rail flush with fuselage side. Mix ammonia with water and dampen sheet until in will form around curve. Apply thick CA on the stringers to the area to be glued. Form over and hold the sheet in place

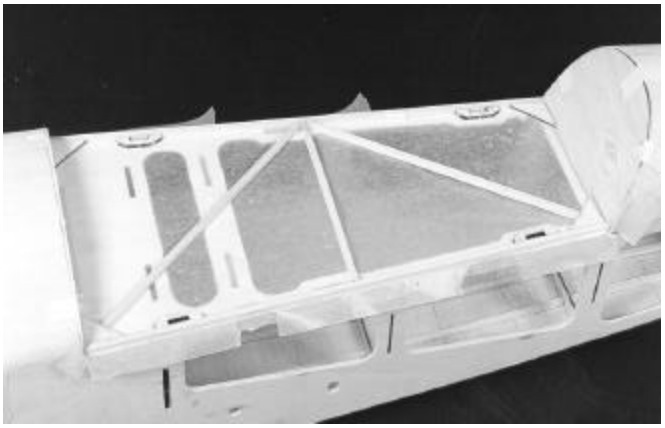
until cured. Make the sheet joints fall on a stringer for better support when gluing.

13. Cut out two C6 from the Laser cut ¼" lite-ply sheet. Epoxy them into the slots on C5. Note: glue a scrap piece of 3/32" sheet on the top of each C5. This will allow C6 to be inserted at the proper depth.



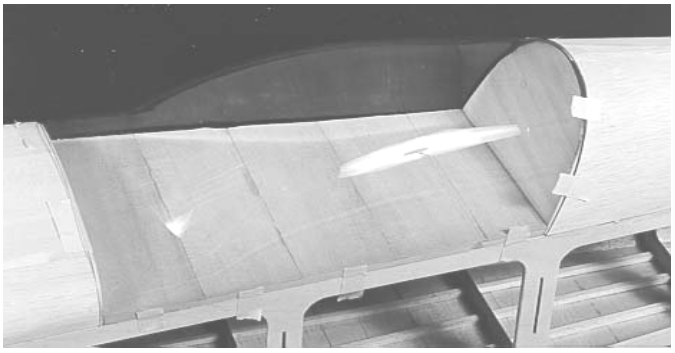
14. Locate the center of each C6 on the side of the fuselage with a mark. Add a piece of scrap 3/32" sheet shim to the outside face of each C6. Tape the hatch in place. Measure down 3/8" from the top of the fuselage side drill a #25 (.150) hole thru the side and C6.. Remove hatch and drill out the #25 holes with a 3/16" drill. Install the blind nuts with the flange facing out. CA around each flange to retain. More shimming may be necessary to center the hatch.

CANOPY CONSTRUCTION



1. Tape C1 to F3A and C2 to F5A. Both formers should be offset in (smaller) slightly by approx .040. If not, make them conform. Lay down wax paper along the fuselage side rails. Cut, fit, and glue in two ¼" sq. rails between C1 and C2. Inset them in from the fuselage side .040 to allow for canopy thickness Glue in the ¼" sq. hardwood cross brace. Cut, fit ,and glue in the ¼" sq. balsa diagonals. Install the C3 and C4 gussets. A scrap piece of 1/8" sheet under each will bring them to the proper height. Locate the four C5. Glue in with the slot centered over the slot in the fuselage top.

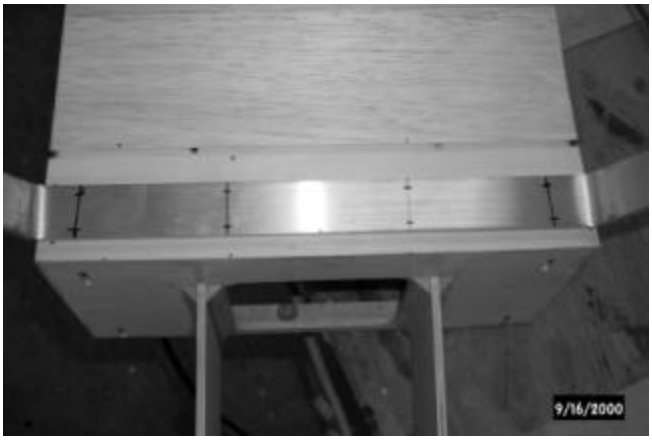
2. Sheet the top of the canopy base with 3/32" sheet. When cured, sand flush on both sides. Cut six C6 from the laser cut ¼" lit-ply sheet. Epoxy them into the slots on C5. Make sure they are aligned properly.



14. Locate the canopy and cut the ends out of it**. Do not remove more than the end pieces.** Mount the canopy base and tape it in place. Lay the canopy over the base and align. Now tape in place. Mark around the periphery of the base with a felt tip pen.. Remove and trim off the excess. Re-mount the canopy. Of course it doesn't fit. Keep trimming until it does. This is hard to do so take your time and make sure of a good fit.
When satisfied with the fit, lay it aside and think about how you are going to finish the interior. **Note: when gluing on the canopy, make sure the base is mounted on the fuselage and the formers at both ends are lightly taped against their adjacent formers.** This is a requirement for a good fit. Locate, drill, and install the blind nuts as stated on page 9, step 14. When mounting the base to glue on the canopy, install all six hold down bolts

LANDING GEAR

Layout the holes to mount the landing gear. Draw a line in the center of the gear. Measure over 2 ½ on each side and mark the first set of holes ¼" in from the front and back edge of the gear. Measure over 4" on the front edge of the gear and ¼" in from the edge for the front set of holes and 3 7/8" over from the center and ¼" in from the edge for the rear set of holes. Locate the gear on the fuselage ¼" behind the F1 former and drill the holes, they should go through the aluminum angles on the inside. Use 8-32 x 1" socket head cap screws with aircraft lock nuts on the inside. Holes for the wheel pants retaining bolts will also have to be drilled. Locate these holes ¾" from the axle hole on the centerline. Use a #28 drill to drill one hole in each strut.



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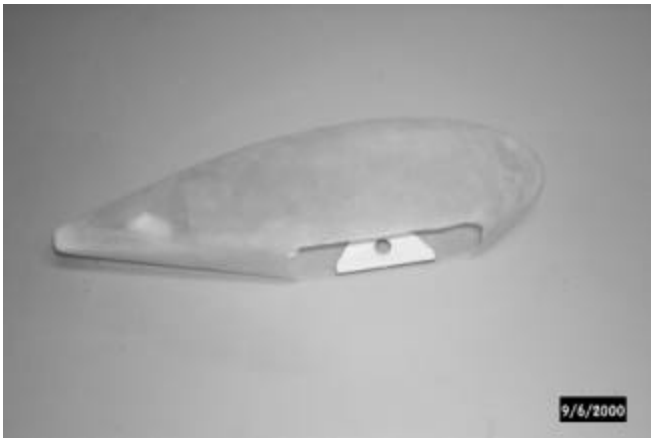
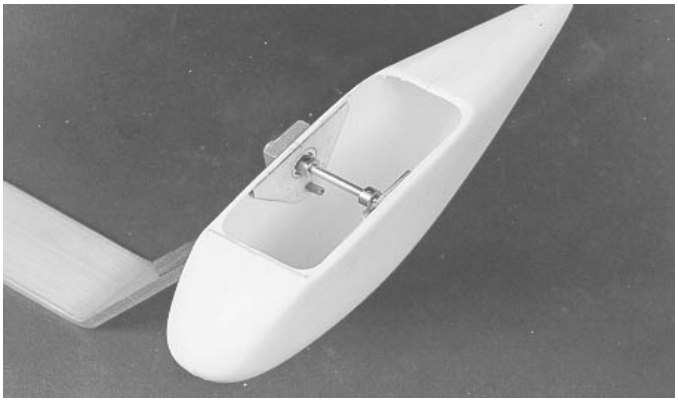
WHEEL PANT CONSTRUCTION

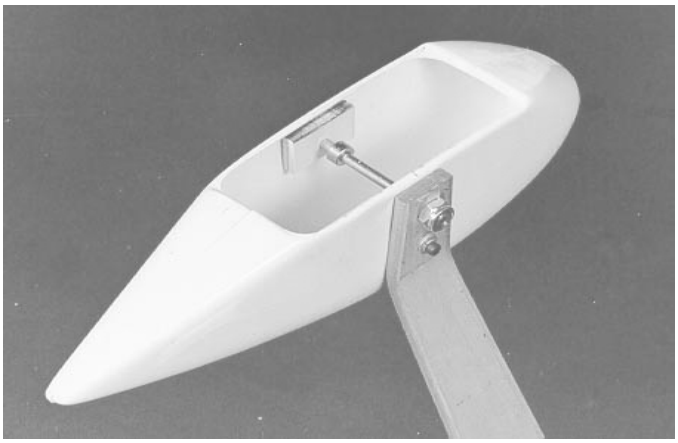
2. Locate the wheel pants and pair them up. You will need to make a LH and RH .



3. Locate the two WP1 and round off the bottom edge to fit the pant. Find the center of the wheel opening and thick CA in place. Remove the glass from the center of the hole. Remember to make a LH and RH .

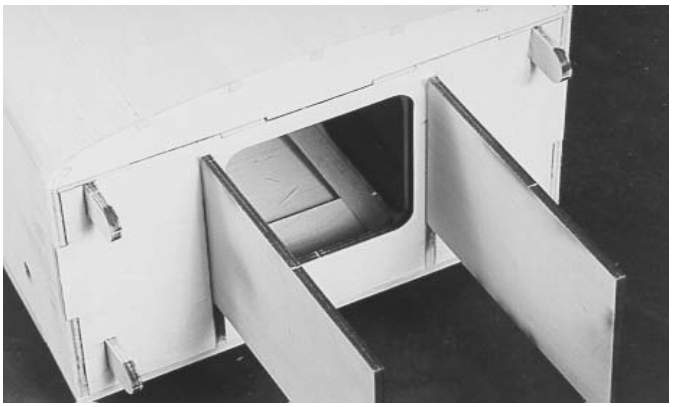


4. Locate the gear and install a wheel axle. Slide a wheel into the pant opening and slip the wheel and pant together on the axle. The hole in the pant should fit over the hex on the axle.

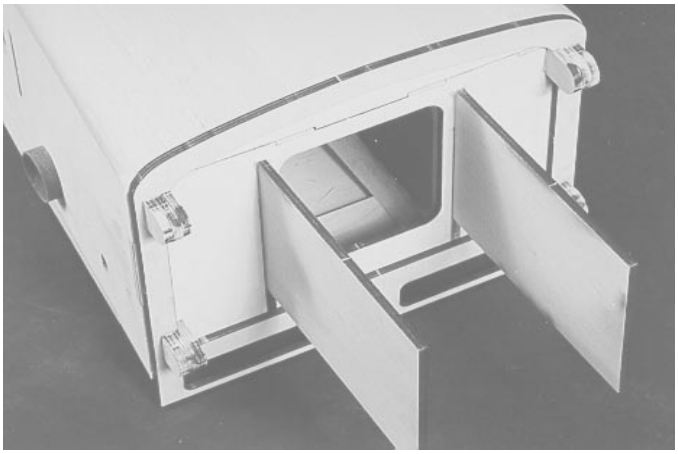


5. Mount the landing gear on the fuselage and block up the tail to flying position. Position the wheel pant so that it's level and match drill a 5/32" hole from the hole in the landing gear. Remove the wheel pant and install a 6-32 blind nut on the inside of the pant. Reassemble the pant and wheel with a WP2 mounted on the end of the axle. Secure with a 632 Soc. Hd. bolt with lock washer and plastic flat washer. Orient WP2 to fit against the side of the pant and thick CA in place. Note: when installing the pants after painting, use the wheel collars to space the wheels as shown on the plans.

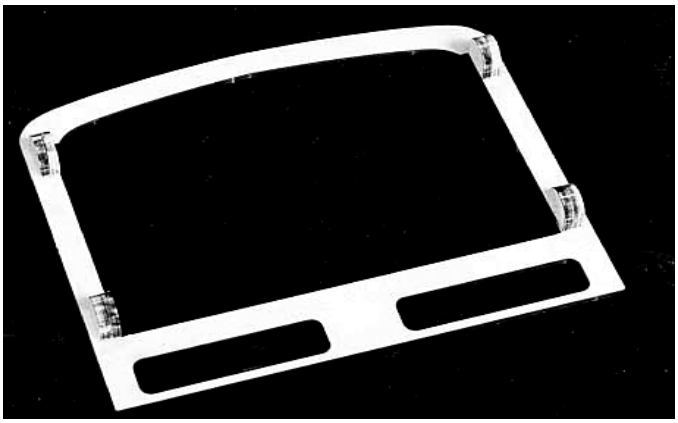
COWL CONSTRUCTION



1. Find the four CW2 cowl retainers. Epoxy into the four square holes in F1, flush with the back surface. Before the epoxy is completely cured, slip the cowl ring over them to make sure of a snug fit.
2. Laminate four CW1 retainers together with thick CA. Square up the ends to eliminate the char from the laser cutter. Slip the cowl ring over the CW2 retainers and tape in place. Now epoxy a laminated CW1 next to each



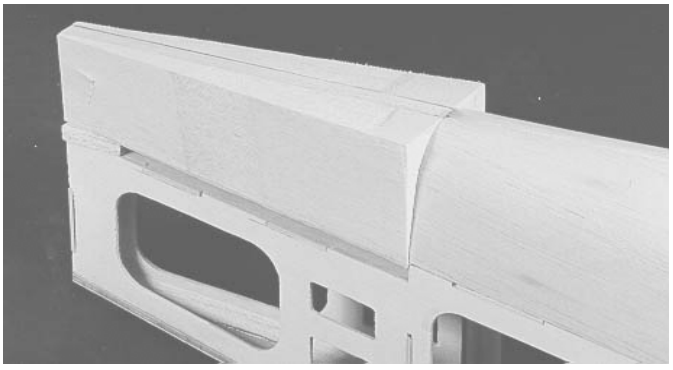
of the retainers. Apply epoxy to the outside edge of each CW1 so as not to glue them to CW2.



3. Remove ring before epoxy has completely cured and then re-glue around the outside edges. Reinstall on the fuselage and drill a 9/16" hole thru each cw1 into cw2. Install 6/32" blind nuts on the backside of cw2.

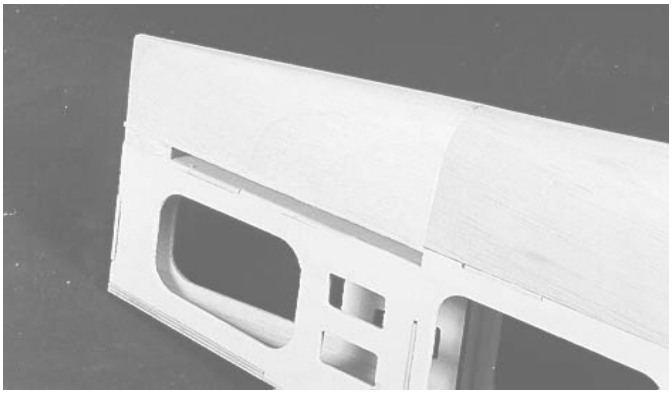
Trim the back edge of the fiberglass cowl to fit flush on the fuselage. Make sure it is square to the F1 former on both sides and that the nose ring is parallel to the F1 in front. Sight it from the side to make sure it is aligned with the hatch in the rear. You can now glue the cowl ring in the back and reinforce with cloth. Transfer the holes in the cw1 to the fiberglass cowl and drill out to ¼" The cowl can now be attached with four 6-32 x ¾ screws.

TAIL FILLET BLOCK CONSTRUCTION



1. .
Find the two large balsa blocks and tack glue two pieces of ½ scrap between them to space apart for the fin. Place on the fuselage and trace around the turtledeck and stab mount on the bottom. This will give you the

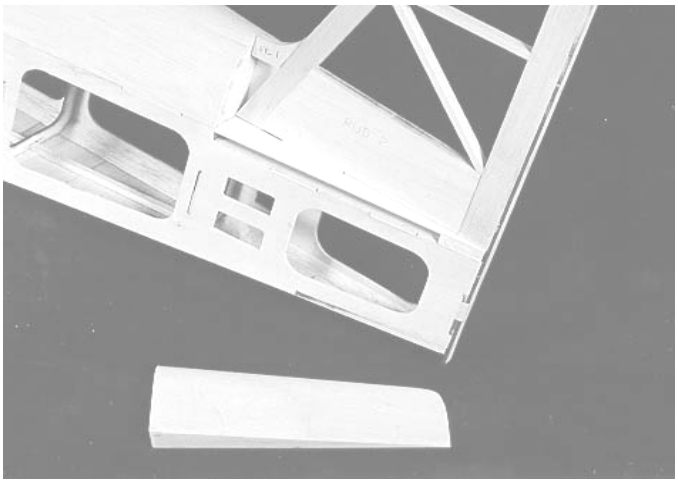
profile required. Saw to shape and tack glue on fuselage.



2. Shape the block to fit the fuselage. A small piece of ½" balsa tack glued in the stab slot will help hold things solid. When cured cut apart

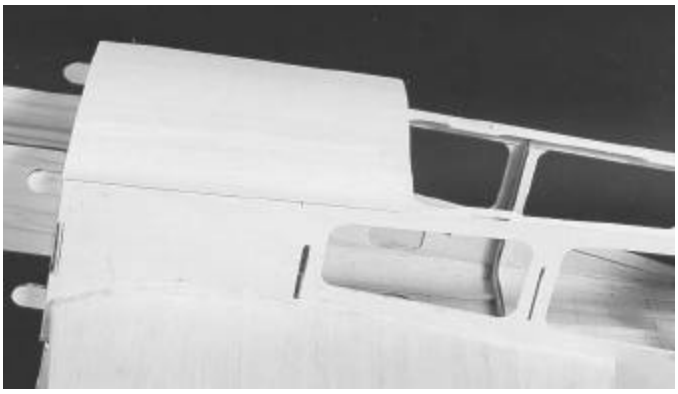
3. Glue the Fin Post on the back edge of the fin. Slide the fin in place and tape the Fin Post to the back of the fuselage. Now fit the Fillet in place and glue with thick CA. When covering, cover the tail blocks separately leaving a 1/8" flange all around them. Then glue block in place and iron flange down with trim iron. This is a great method used to hide the joint between the parts.

Hinge the fin and rudder as stated in the Wing Construction section, step 12. Also hinge the elevators to the stab. If you are one to install many hinges,



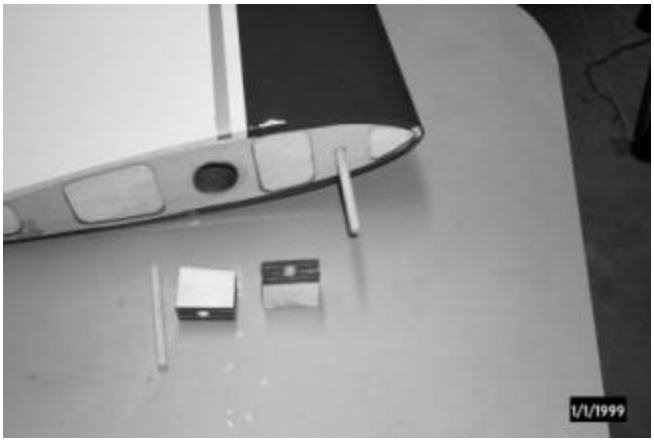
then add more hinges . We have test flown this model with those shown with no adverse results. It's your choice. Use epoxy to install them.

GLUING ON W1 WING ROOT



1. Place the aluminum wing spar in the fuselage. Make sure the sheeting and spars are flush with the foam wing root. Cut off the fiber spar tube so that it protrudes 1/8". Place the W1 root cap on the wing and slide the wing on to the spar up against the fuselage. Check the fit. It may not fit perfect all along the rib and wing. Apply epoxy where it does fit well against the wing. Now, pin W1 against the fuselage all around. Where there is a gap fill with a thick paste of micro balloons and epoxy. You have now custom fitted the wing to the fuselage. Do both wings. When cured, trim W1 flush with the wing sheeting.

GLUING IN THE ANTI-ROTATION PINS



1. Locate the four 3/8" x 4" dowel. Round off one end and sharpen the other end. These dowels must go in parallel to the wing spar **not the end rib surface.** To ensure they go in at the right angle, drill a 3/8" hole in a 2" piece of 2 x 4 near one end. Cut a 5-degree angle on the opposite surface. This will be your drill guide.

2. Now drill the holes in foam holding the guide flat against W1. Make sure you have it orientated properly. Apply epoxy to the dowel, insert it in the hole leaving ¾

extended. Carefully slip the gauge over the dowel to be ensure the angle is correct before the epoxy cures.

SETTING THE WING INCIDENCE

1. With the aluminum wing spar mounted in the fuselage, slide the horizontal stab into the slot at the tail. Block up the tail so the stab is level (in flying position). Carefully slide the wings on the spar and against the fuselage. Using a Robart Wing Incidence Indicator, zero out the wing and pin or tape it in place. Now locate a W7, and epoxy it in place over the 3/8" dowel taking care not to move the wing. When cured glue the other W7 in place over the forward wing dowel. **This is important and will adversely affect the flying of your model if both wings are not in the same plane or, have too much positive or negative incidence**

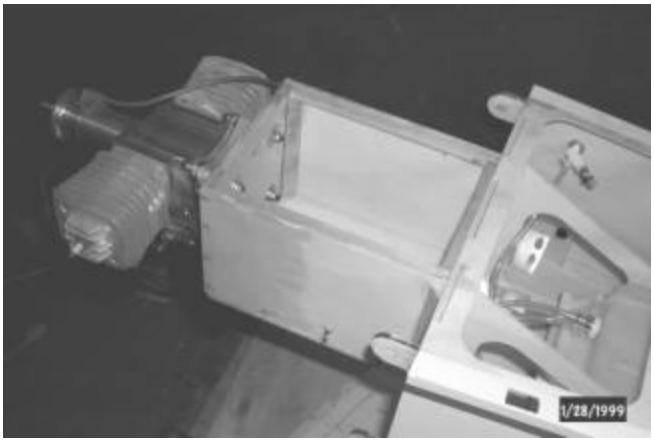
WING SERVO LEAD PASSAGE

1 Make a hole thru the wing from the root rib to each servo cutout. This is easily done with a ½ copper pipe about 48" long or a 12" piece of ½ brass tubing glued to the end of a ½ dowel 36" long. Use a propane torch to heat the end of the tubing and then simply burn a hole in.

MOUNTING THE ENGINE

1. When mounting the engine you must first determine the distance from the engine-mounting surface to the spinner back plate. Subtract this from the cowl length. The difference, plus the clearance between spinner back plate and cowl, is the dimension needed to cut off the EM1 engine mounts. Use a square and strike a line on each one. The right side will be shorter than the left for the 2 degrees of right thrust. Use a razor saw to trim them off.

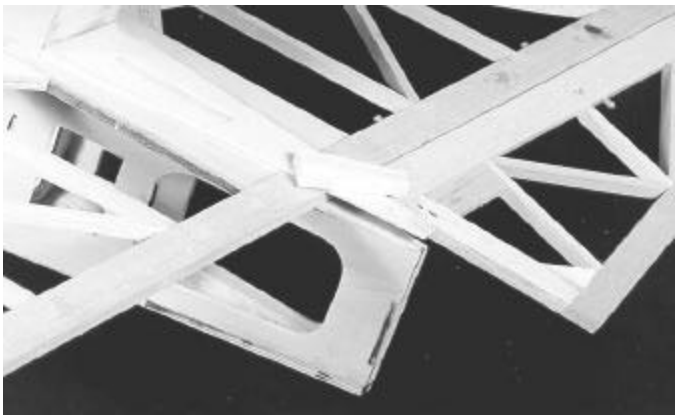
2. Locate the ½ x 6 3/8" x 7" firewall and epoxy in place. It should be at 0 degrees up or down thrust and 2 degrees right thrust.



2. Epoxy in the firewall flush with the two EM1's. Cut ,fit, and epoxy in the ½ tri-stock bracing on the sides ends and bottom. Using the 1/8" dowel, cut 6 pins, ¾ long and pin the sides to the firewall using epoxy. Locate the two MB1's, trim the length to fit, and epoxy the bottom Mb1 in place. The top Mb1 will be screwed in place to allow access to the front .

FILLER BLOCK

1. Behind the stab it will be necessary to fill in the slot with a filler block. Temporarily install the stab in the slot provided in the fuselage. Locate a scrap piece of ½" x 2" balsa, left over from building the tail parts, and trim to fit the open space. When installing the stab, after it has been covered, cover the edges of the filler block before epoxying it in place.



FINISHING AND RADIO INSTALLATION NOTES

1. We leave the covering and finishing up to you and what you have had experience with. In order to keep your Staudacher as light as possible we recommend you cover it with a film covering. Keep the paint down to a minimum, also heavy decals. With extra power up front you can cover it with Super Coverite or Super Shrink and paint it making the model more durable. But, expect it to weigh more. Keeping the model light will give you added performance with lesser power.
2. Our prototype's were covered with UltraCote with cowl and wheel pants painted. In the interest of keeping your Staudacher as light as possible, you might consider covering it with one of the popular film coverings. We recommend using Fommula U. K&B Superpoxy, Hobbypoxy, Perfect Paint, Coverite 21st Century or MonoKote paint
3. 3. Install the radio and batteries up forward. Wrap them in foam and tie them down to keep them from wandering around. You have plenty of room to shift them forward or aft to help offset any balance problems. The same for the fuel and smoke tank, if you decide to use one.

4. Make up the pushrods as shown on the plans. We have shown 4-40 threaded rods and hardware for stiffness. Use them for better control response. We recommend you install 90oz. servos or larger on all the control surfaces.

PRE-FLIGHT NOTES

Before the first flight, and to ensure some longevity in your Staudacher, you will do well to check out a few things before heading to the flying field.

1. Balance the Staudacher at the indicated CG point shown on the plans with the fuel tank empty. Depending on your type of flying you may want to adjust it forward some.
2. Check the control surface travels. We have given you a starting point however, they need to be fine tuned to meet your flying needs.
3. Run the engine and check the idle. Have it ready so you don't encounter any problems at the field.
4. Turn on the radio with the engine running to make sure there are no intermittent glitches. Give it a good range check.
5. Check all hardware to be sure it is secure. There is nothing worse than losing an airplane on the first flight because of a lose nut or clevis.
6. Hopefully by now you are ready. We know you will be thrilled with your first flight and that it will be most successful. From now on - Happy Fly'in!

Jerry Smith

MATERIAL LIST

FUSELAGE

lc = Laser cut cnc = Router cut

1. FS1 (2) cnc, (fuselage side front)
2. FS1a (2) cnc (fuselage side rear)
3. FT1 (1) cnc, (fuselage top front)
4. FT1a (1) cnc (fuselage top rear)
5. Aluminum angle (4) 11/2" x3"'
6. LG1 (1) cnc (landing gear mount)
7. EM1 (2) lc, (engine mount)
8. MB1 (2) lc, (engine mount top and bottom)
9. F1 (1) lc, (fuselage bulkhead)
10. F3 (1) lc, (fuselage bulkhead)
11. F4 (1) lc, " "
12. F5 (1) lc, " "
13.. F5A (1)lc, (fuselage former)
14.. F5B (1) lc, (fuselage former)
15. F6 (1) lc, (fuselage bulkhead)
16.. F6A (1) lc, (fuselage former)
17.. F7 (1) lc, (fuselage bulkhead)
18.. F7A (1) lc, (fuselage former)
19. F8 (1) lc, (fuselage bulkhead)
20. F8A (1) lc, (fuselage former)
21. F9 (1) lc, (fuselage bulkhead)
22.. LG2 (4) lc, (landing gear mount former)
23.. TW1 (1) lc, (tail wheel mount)
24. FT2 (1) lc, (tail end reinforcement)
25. BRACE lc, (1) (support for F5A)
26. FD2 (8) lc, (servo mount reinforcement)
27. Fuel tank mount (1) lc, (tank support)

WOOD STOCK

(5) ¼" X ¼" X 36" balsa stick, (fuselage stringers)
(7) 3/32" x 3 x 36" balsa sheet, (fuselage bottom)
(6) ½ x 36" tri-stock. (fuselage bottom rail, fwd. bracing)
(1) 1/8" x 6" dowel, (firewall pinning material)
(1) ½ x6"x 7" A/C ply, (fire wall)
(6) 3/32" x 3 x 36" balsa sheet (turtledeck)
(12) ¼" x ¼" x 36" balsa stringers (turtledeck)

MISC.

(1) 18" fiber tube, (wing spar support)

WING

Wing foam cores (LH and RH)

1. W1 (2) lc, (root wing rib)
2. W2 (2) lc, (wing spar support)
3. W3 (2) lc, (wing spar support)
4. W3A (2) lc, (wing spar support)
5. W4 (2) lc, (wing tip cap)
6. W5 (2) lc, (wing aileron inset cap)
7. W6 (4) lc, (aileron end cap)

WOOD STOCK

(2) ½x1 ¼x48 balsa, (leading edge)
(2) ½x1 ¼x6" balsa (leading edge)
(24) 3/32"x 4" x 36" balsa sheet, (wing sheeting)
(20) 3/32"x4"x24" balsa sheet(wing sheeting)
(8) ¼" x ¼" x 56" spruce , (wing spars)
(2) ½x1 ½x48" balsa, (wing trailing edge)
(2) ½x1 ¼x48" balsa (aileron leading edge)
(4) 3/8" x 4" hardwood dowel, (wing anti-rotation pin)
(1) ½ x 12" hardwood dowel, (control horn)
(1) ¼" sq. x 18" spruce, (servo rails)

MISC

(1) 1-1/2" x 48" OD aluminum wing spar with fiber tubes
(2) foam wing cores (LH and RH)

TAIL

1. STB1 (2) lc, (fin base)
2. RUD1 (2) lc, (rudder tip)
3. RUD2 (2) lc, (gusset)
4. RUD3 (2) lc, (gusset)
5. STB2 (2) lc, (horizontal stab center)
6. STB2a (1) lc (horizontal stab center)
7. STB2b (1) lc (horizontal stab center)
8. STB3 (4) lc, (gusset)
9. STB4 (4) lc (gusset)
10. SM4 (8) lc (servo mounts)
11. IB (2) lc (inboard stab servo mounts)
12. OB (2) lc (outboard stab servo mounts)
13. Doublers (8) lc (stab hardpoint reinforcements)
14. Doublers (2) lc (rudder hardpoint reinforcement)
15. Fillet (2) lc, (fin fillet with fuselage) 1 ½x4"x12"

WOOD STOCK

(8) ¼" X ½ X 36" balsa (cross and diagonal bracing)
(4) ½x7/8"x36" balsa (stab, fin rudder , elevators)
(3) ½x1 ½x48 balsa (stab t.e. fin l.e. elevators l.e.)
(2) 1 ½x4"x12" balsa block (fin, fuselage fairing)
(2)1/8"x1/4"x36 balsa (stab cross bracing for servo wire)
(1)3/8"x1/2"x48 spruce servo rails for stab
(2)1/4"x1/4"x36" balsa(stab cross bracing for servo wire)

FORWARD HATCH

1. F1A (1) lc, (hatch former, front)
2. F2 (1) lc, (hatch former , back) C3 (2) lc (gusset)
3. C4 (2) lc (gusset)
4. C5 (2) lc (retainer block reinforcement)
5. C6 (2) lc (retainer block)

WOOD STOCK
(1)¼" x ¼" x 36" balsa stick, (hatch stringers)
(1)3/32" x 3" x 36" balsa sheet, (sheeting)
(1) ¼" x ¼" x 12" spruce, (hatch rails)

CANOPY
1. C1 (1) lc, (front former)
2. C2 (1) lc, (aft former)
3. C3 (2) lc, (gusset)
4. C4 (2) lc, (gusset)
5. C5 (6) lc, (retainer block reinforcement)
6. C6 (6) lc, (retainer block)

WOOD STOCK
(2) ¼" x ¼" x 36" spruce, (canopy rail)
(1) ¼" x ¼" x 12" spruce, (canopy cross brace)
(3) 3/32" x 3" x 36" (canopy floor sheeting)
MISC.
1. canopy, clear plastic

COWL
1. Cowl ring (1) lc, (aft end former)
2. CW1 (8) lc, (cowl retainer block)
3. CW2 (4) lc, (cowl mounting block)

MISC.
Fiberglass cowl

WHEEL PANT
1. WP1 (2) lc, (wheel pant reinforcement)
2. WP2 (2) lc, (wheel axle support)

MISC.
1. pair wheel pant, fiberglass.
2. (1) Aluminum landing gear

SUGGESTED HARDWARE LIST
GENERAL
1. 6 channel radio
2. engine – 120cc to 150cc
3. Muffler –
4. Fuel tank – 50 oz, Sullivan
5. Propeller – suitable size to fit engine
6. Fuel line
7. 6" spinner – TruTurn
8. covering, paint and trim – your choice
9. 5" wheels Sullivan

FUSELAGE
1. ¼20 x 1 1/2" soc. hd. cap screw (4) (eng mount)
2. ¼" flat washer (8) (eng. mount/landing gear)
3. ¼20 aircraft lock nuts (engine mounting)
4. 6-32 x 5/8" soc. Hd. cap screw (12) (cowl, canopy and hatch)
5. # 6 flat washer (14) (cowl canopy, hatch, pants)
6. # 6 lock washer (14) (cowl, canopy, hatch, pants)
7. 10-32 x 1" soc. Hd. Screws and aircraft lock nuts for landing gear mounting.(8)
8. 3/16" axle (2) (DuBro #249) (landing gear)
9. 3/16" wheel collar (4) (DuBro #141) (landing gear)
10. # 6 blind nut (12) (canopy , hatch and cowl)
11 tailwheel (L) (1) (Ohio superstar Inc.)

WING
1. Rocket city #57 H.D. ball link (6)
2. threaded rod(6) (DuBro # 144) (aileron pushrod)
3. swivel link offset (6) (Rocket City Specialties # 69D) (aileron pushrod)
4. Robart Super Hinge (10) (aileron hinging)
5. # 6-32 x 1-1/2"soc. hd. cap. screw (2) (wing retainer)

TAIL
1. 2-56 rods and clevis for tail brace wires (8)
2. Robart Super Hinges (18) (rudder and elevator hinging)
3. Threaded rod(8) (DuBro # 144)
4. swivel link offset (8) (Rocket City Specialties # 69D)
5. Rocket city #57 H.D. ball link (8)