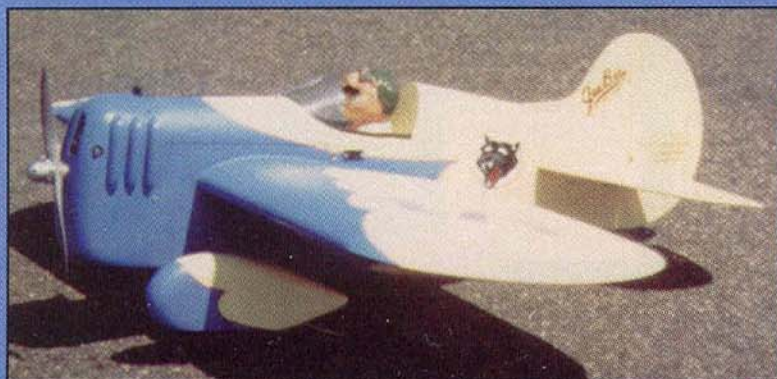


NEWBEE

**.25 POWERED SPORT FLIER WITH
"GOLDEN ERA" LOOKS**



By Adrian Page



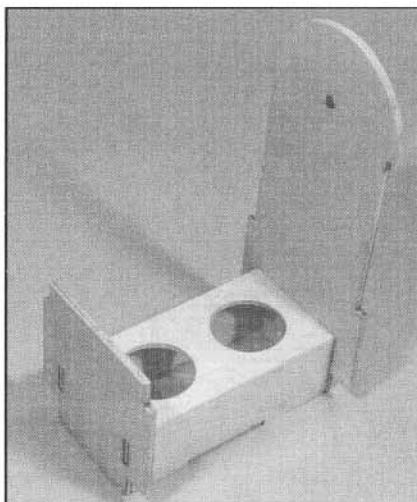
Author's daughter, Lauren, holding Dad's Newbee.



As you can see, I am a big fan of old cartoons from the 30's. This plane was inspired by the likes of Betty Boop, Mickey Mouse, and Felix the Cat. It shares nearly the same moments and proportions as my Gee Bee profile fun fly design. In other words, it not only **looks** like a cartoon plane, it flies like a cartoon plane.

You can putt around, slow and stable, or you can flip and flop and spin and loop with the best of them. In a breeze, it will hang motionless. In a **stiff** breeze, it will fly **backwards!** Rough runways are not a problem. It will land upright in fresh hay stubble.

A friend of mine teased me, "If it's not a Gee Bee, what's the point of flying it?" So I trimmed my Newbee to look like the Gee Bee model D sportster. Some of my other ideas for trim schemes are the Art Chester Jeep or maybe a P40 Warhawk. I have flown the prototype with a Thunder Tiger GP .25, and an O.S. .26 Surpass. They both work great, but with the little 4 stroke, it even **sounds** like a cartoon airplane! I am "currently" working on an electric version; I'll keep you posted. By the way, the pilot's name is "Monty Web" (you'll have to ask my daughter, I have no idea). Anyway, he weighs about the same as a ping pong ball, and if there is enough interest I'll try to make him available. (Excellent pilot — nerves of steel). The plastic cowl, wheel pants, and formed aluminum landing gear are available for \$18.00, also available is a laser cut parts pack for \$30.00 (the laser cut parts pack includes only the parts shown on sheet



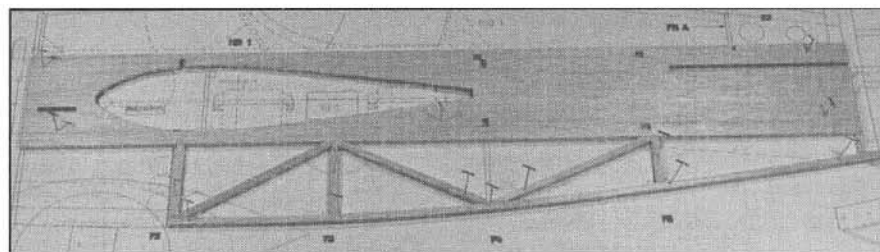
The firewall/landing gear box. Keep it square.

#2 of the plans). Both items available (including shipping) from: Adrian Page, R.R.#1, Berwick, Nova Scotia, B0P1E0, Canada, e-mail: page@glinx.com

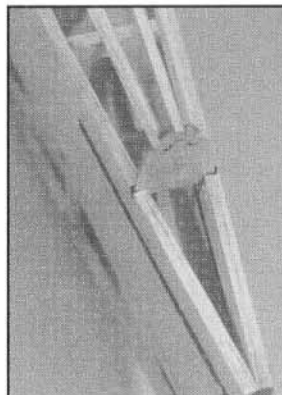
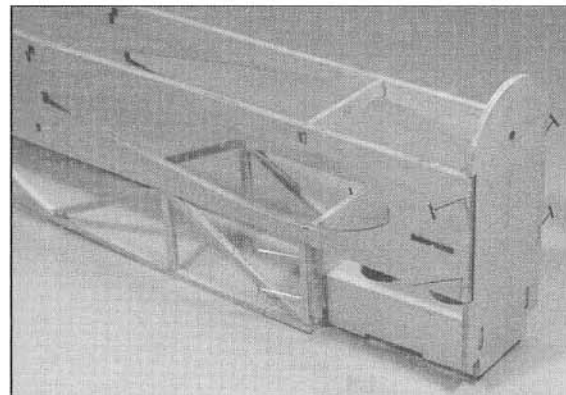
So now that you just "haft" to have one, let's get started. This is a one-piece airplane; the wing does not come off, and this is one of the things that makes it so tough. Fortunately, you can build whatever part you like first. I like to start with the fuselage.

Fuselage:

Build the lite ply firewall/landing gear/F2 unit. Make sure it is square — the rest of the fuselage alignment depends on this "box" being square. Put the blind nuts for the landing gear in before you can't get at them. The firewall is lite ply with a 1/16" aircraft ply doubler glued inside. Install your engine mount hardware before you build the box.



Fuselage side pinned over plan — make two.



LEFT: Attach fuselage sides to front "box." **RIGHT:** F4A and F5A bulkheads have a 1/16" gap at the edges to allow for the turtledeck sheeting.

NEWBEE

Designed by:

Adrian Page

TYPE AIRCRAFT

Sport

WINGSPAN

40 Inches

WING CHORD

12 Inches

TOTAL WING AREA

449 Sq. In.

WING LOCATION

Mid Fuselage

AIRFOIL

Symmetrical

WING PLANFORM

Constant Chord

DIHEDRAL, EACH TIP

0

OVERALL FUSELAGE LENGTH

29 Inches

RADIO COMPARTMENT SIZE

(L) 6" (W) 2-1/2" (H) 2-3/4"

STABILIZER SPAN

18 Inches

STABILIZER CHORD (inc. elev.)

6 Inches (Avg.)

STABILIZER AREA

108 Sq. In.

STAB AIRFOIL SECTION

Flat

STABILIZER LOCATION

Mid-Fuselage

VERTICAL FIN HEIGHT

4 Inches

VERTICAL FIN WIDTH (inc. rud.)

5 Inches (Avg.)

REC. ENGINE SIZE

.20 2-Stroke, .26 4-Stroke

FUEL TANK SIZE

4 Oz.

LANDING GEAR

Conventional

REC. NO. OF CHANNELS

4

CONTROL FUNCTIONS

Rud., Elev., Throt., Ail.

C.G. (from L.E.)

3 Inches

ELEVATOR THROWS

7/8" Up — 7/8" Down

AILERON THROWS

1/2" Up — 1/2" Down

RUDDER THROWS

1-1/4" Left — 1-1/4" Right

SIDETHRUST

0°

DOWNTHRUST/UPTHRUST

0°

BASIC MATERIALS USED IN CONSTRUCTION

Fuselage Balsa & Ply

Wing Balsa & Basswood

Empennage Balsa

Wt. Ready To Fly 48 Oz. (3 Lbs.)

Wing Loading 15.3 Oz./Sq. Ft.

Cut out the 3/16" balsa sides and pin one of them over the waxed paper covered plan. Build the 3/16" sq. stick side frame. Build the other one. This is one time you can make two rights or two lefts ... it makes no difference.

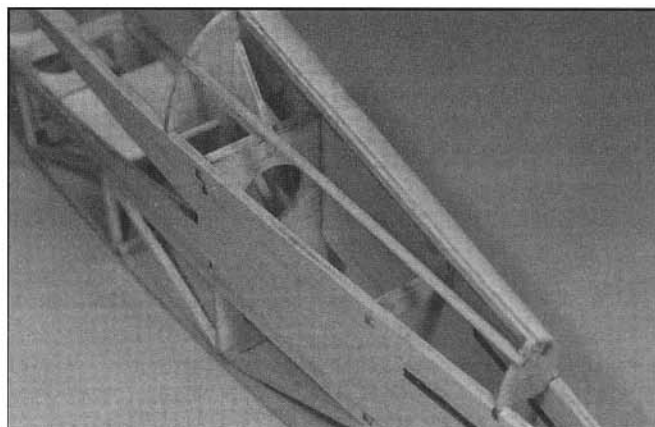
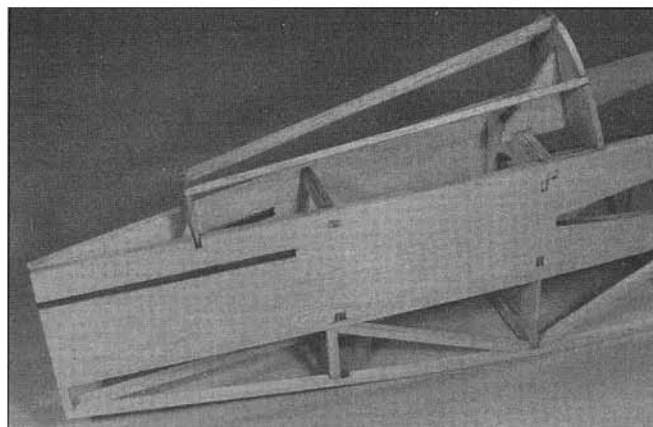
Mate the sides to the front "box" assembly, gluing at F2 and the firewall. Install the 1/2" sq. corner pieces to the lower edges of the "box."

Install bulkheads F3, F4, and F5. Don't glue yet. Hold the tail together with a rubber band, and put a 3/16" stick through the stabilizer slot. Adjust the tail end until the stick is parallel with the top of the fuselage, then CA the tail joint. Glue the bulkheads in place.

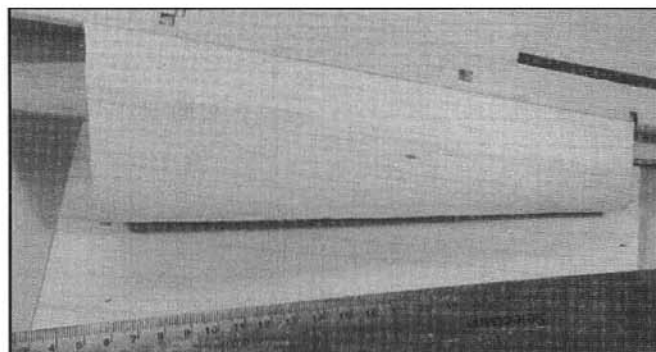
Install F4A and F6. **Note:** they do not reach the outer edge of the 3/16"

fuselage sides (1/16" gap). Use TDB to get the right angle on F4A.

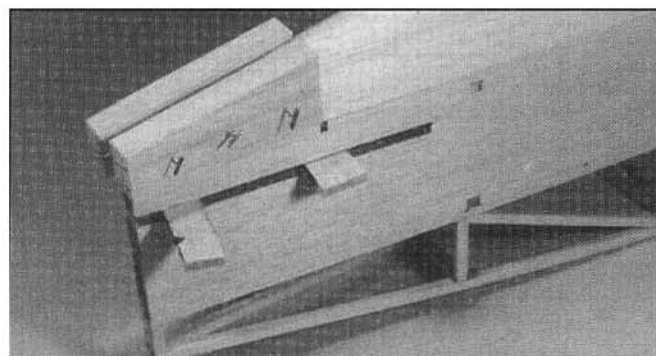
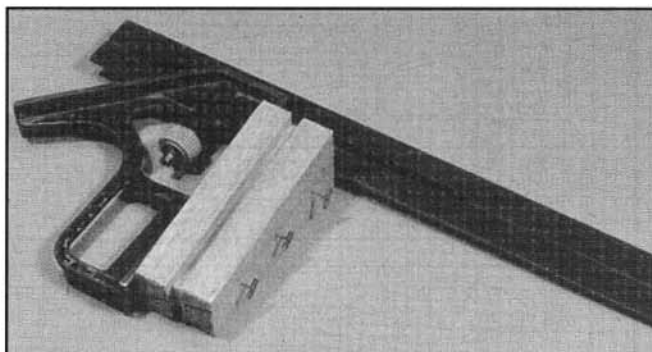
Sheet the turtledeck one side at a time. Cut a piece of 1/16" sheet slightly oversize, and glue it along the top edge of the fuselage. Roll it over the formers and mark where it needs to be cut to place the joint on the center of the top stringer. Trim the sheet to this size and glue it in place. Do the other side. Trim



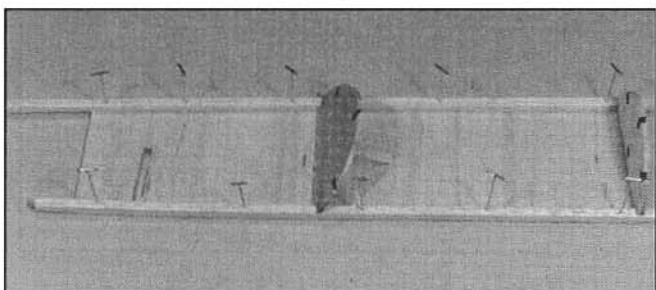
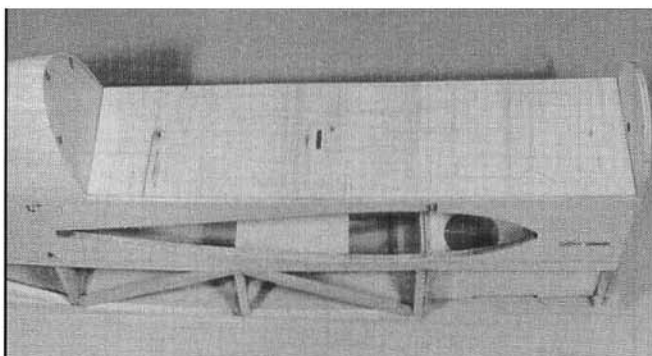
LEFT: Crosspieces and stringers in place. Note TDB holding the F4A bulkhead at the correct angle. **RIGHT:** Sheet the turtledeck one side at a time.



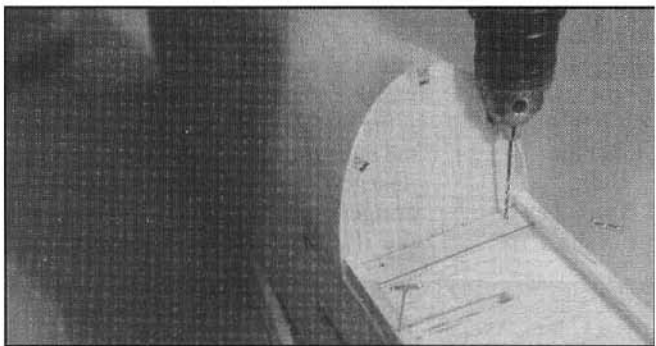
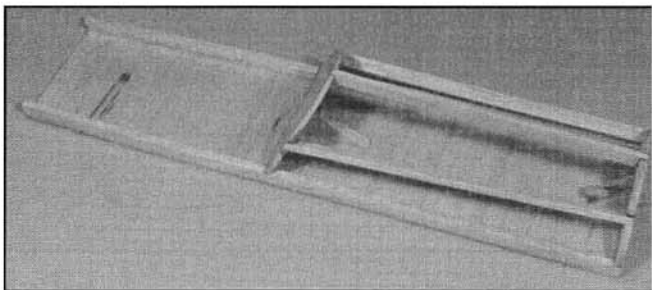
LEFT: Oversize sheet being trimmed after rolling into place for marking. Note that the bottom edge is glued in place already. **RIGHT:** Tail filler blocks being pinned together square. Note shim. (Use no glue).



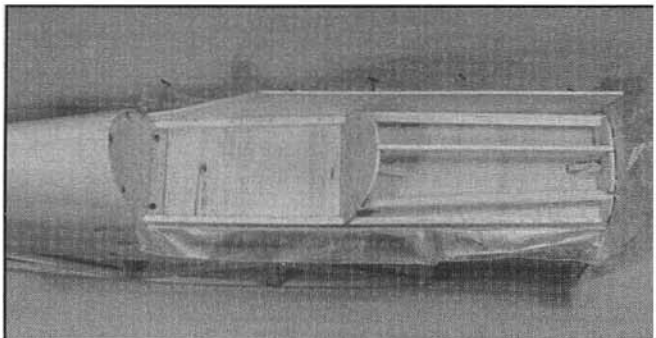
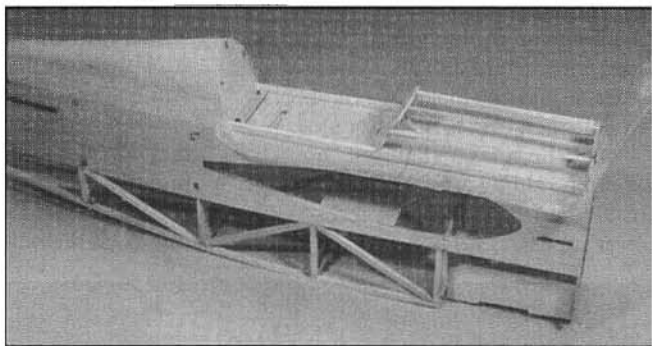
LEFT: Gluing the filler blocks in place. Don't get glue on the spacer shim. **RIGHT:** Fitting the hatch base. Note the 1/16" gap. This leaves room for the 1/16" sheeting.



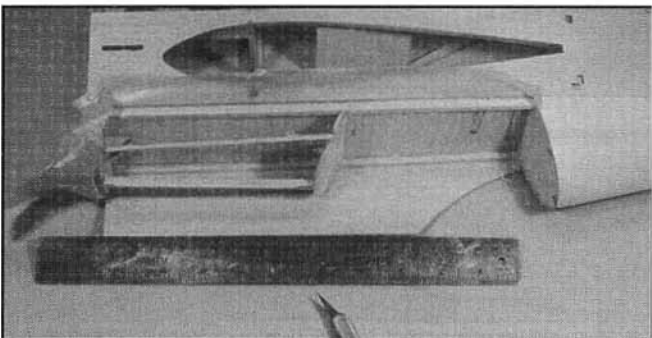
LEFT: Assemble the hatch parts on the building board. **RIGHT:** Hatch ready to fit to plane.

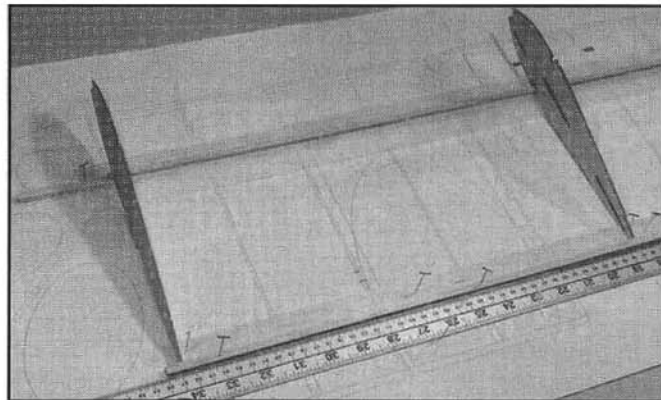
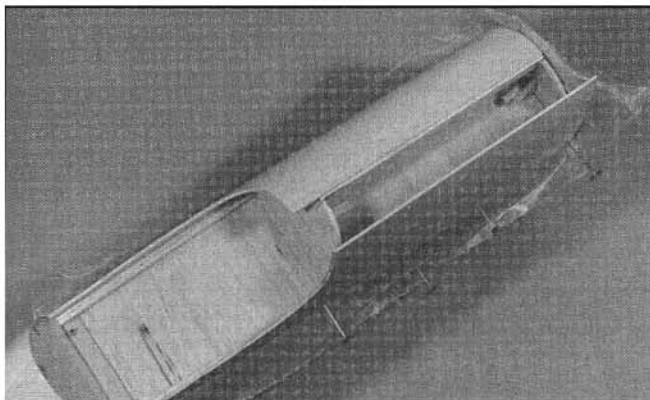


LEFT: Drilling the hatch hold-down bolts. **RIGHT:** Hatch screwed in place over a strip of wax paper.

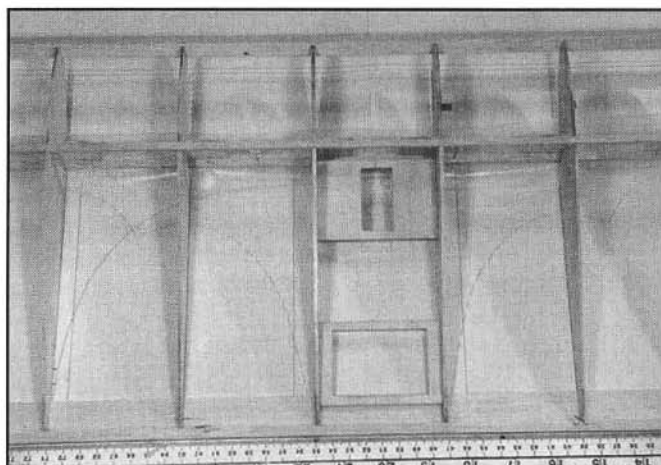
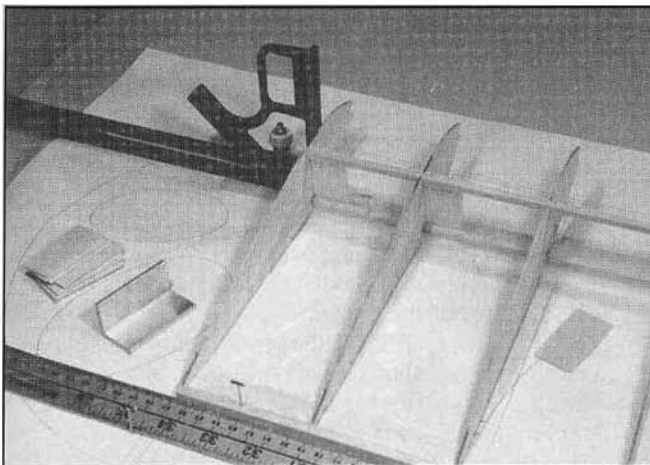


LEFT: Sheet the hatch one side at a time. Building the hatch in place will prevent it from getting twisted. **RIGHT:** Trimming hatch sheet.

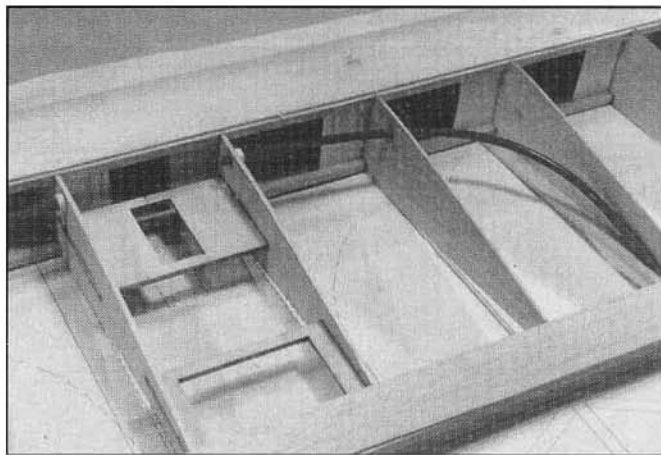
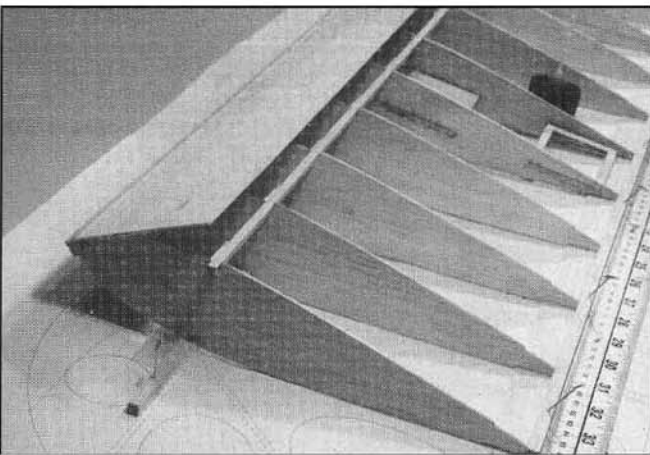




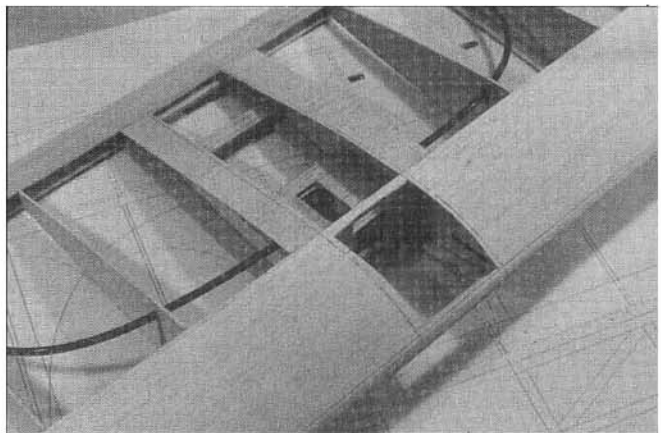
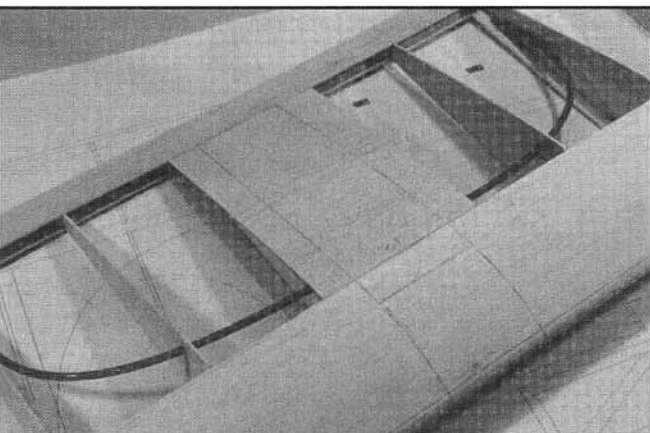
LEFT: Installing final piece of hatch sheeting. **RIGHT:** Straightedge is pinned to building board to keep T.E. straight. Note 1/4" shim under lower spar. The shim allows you to build a fully symmetrical wing without using tabs on the ribs.



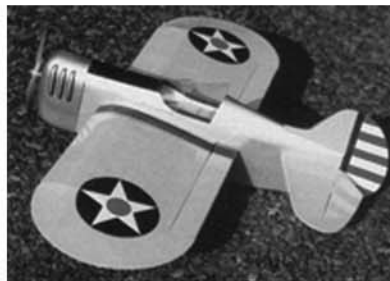
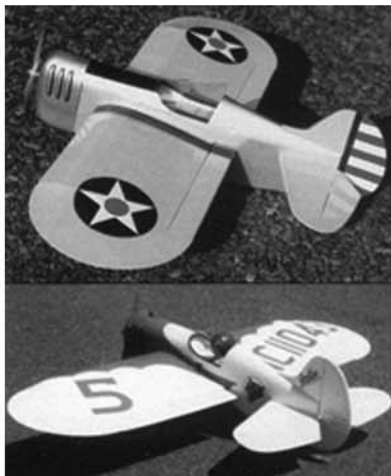
LEFT: Installing ribs and shear webs. I promise that the 1" webs are more than strong enough! **RIGHT:** Servo trays trial-fitted.



LEFT: Adding top wing sheeting. **RIGHT:** NyRods installed. Note the use of the rubber "nut" that comes with the rods.



LEFT: Center section sheeting marked out, ready for trimming. **RIGHT:** Center section sheeting trimmed.



From RCModeler Jan.2000

the sheeting flush at the ends.

Cut out the rudder fillet blocks, and pin them together with a piece of 3/16" scrap between them for a temporary spacer. Make sure the front edge is square in all directions. Don't worry about the back edge, it will be trimmed flush later. Put two pieces of 3/16" scrap into the stabilizer slot as spacers, to keep it from "squishing" shut, and glue the block assembly into place. Be very careful not to glue the scrap to anything. Carve, plane, and sand the blocks to shape. Leave the scrap in during carving, and even during covering, to protect this fragile area.

Fuselage Top Hatch:

Build the 1/16" hatch bottom with the grain going crossways. Now fit it to the top of the fuselage. You want an even 1/16" gap along both sides. When this has been achieved, pin the hatch base to your building board, and add the 3/16" sq. balsa rails, flush with the sides of the hatch base. Install HF2 using HB1 to set the angle. Add HF1 at 90° to the base. Install the hold-down dowel and its braces. Glue the 1/8" x 1/4" stringers in place. Glue the 1/16" ply screw reinforcement to the back edge of the hatch.

Fit a piece of 3/16" sq. hardwood to the back of the fuselage opening, for the hatch screws.

Pin the hatch in place and drill the screw holes; then screw the hatch in place over a strip of wax paper. Now for the tricky part: Glue the edge of the hatch sheeting to the side of the hatch assembly. Roll the sheet over into place and mark the center of the top stringer onto it at both ends. Using a straightedge, cut along the line, then glue the sheet into place. Do the same thing for the other side and you're finished. The hatch is built in place to keep it from getting a nasty twist in it.

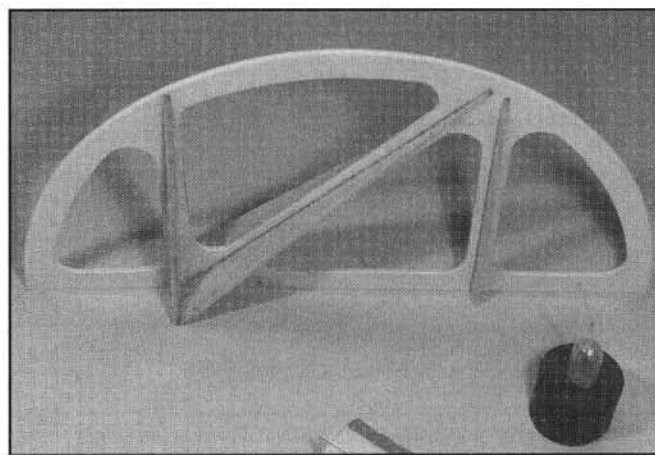
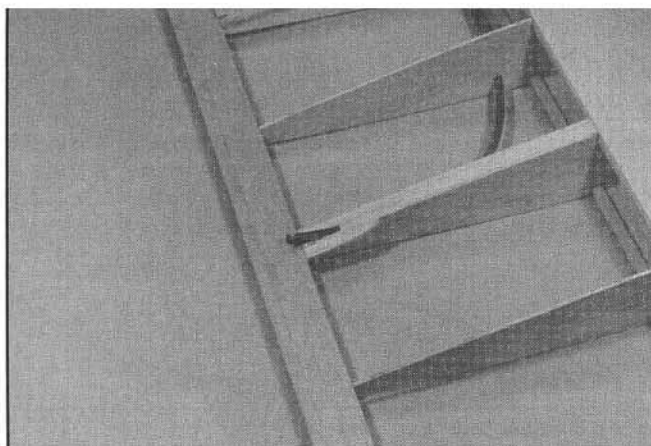
Wing:

Cover your plan with waxed paper. Pin down the 1/4" sq. trailing edge along a straightedge. I pinned my straightedge in place also.

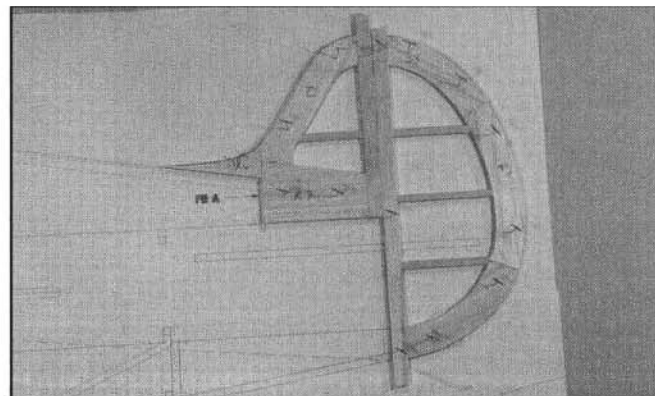
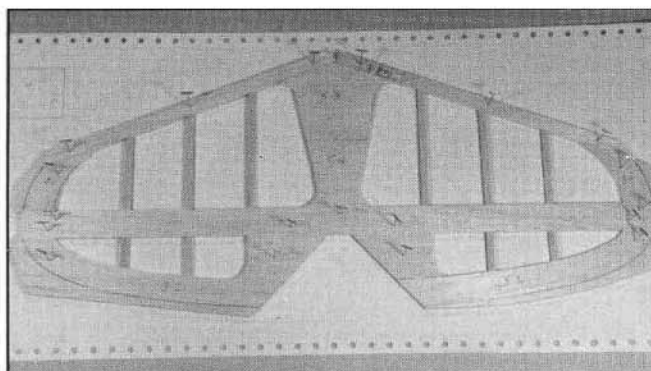
Glue the 3/4" x 1/16" T.E. sheet in place.

Pin a 1/4" sq. shim over the spar location on the plan. Use the ribs to get it located in the right position. Cover the shim with a strip of wax paper.

Place the lower spar on top of the shim and put the ribs in place. Glue the ribs to the T.E. Use a small square to keep everything lined up. Put the upper spar in place and install the 1" x 1/16" shear webs, gluing both the spars and the webs at the same time.



LEFT: NyRod exiting bottom of wing. Rough up the plastic with sandpaper and glue to side of rib with thick CA. **RIGHT:** Assembled wingtip — make two.



ABOVE AND RIGHT: Tail parts going together.

Install the 3/8" sq. leading edge, and glue on the top L.E. sheet. Unpin the wing, flip it over, and install the lower L.E. sheeting. Glue the T.E. sheet in place. You have to plane the T.E. to a slight bevel first.

Install the NyRods. You will have to add the 3/32" x 3/8" exit strips first (along the side of the 3rd rib out).

Now sheet the center section. Plane and sand the leading edge to shape.

Slide the wing into the fuselage, align it and pin it in place. Mark the **inside** of the fuselage outline onto the sheeting, leaving about 1/8" additional material. Remove the wing and cut away this material (top and bottom sides).

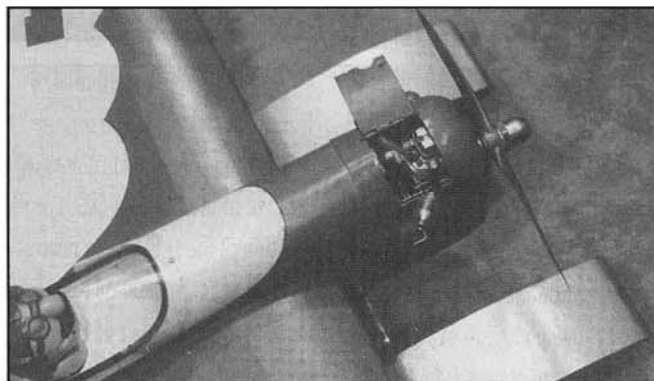
Install the servo trays. Don't

install the servo rails yet.

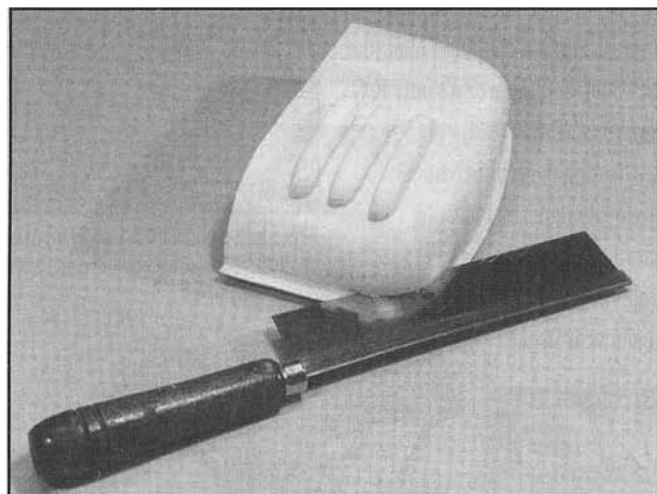
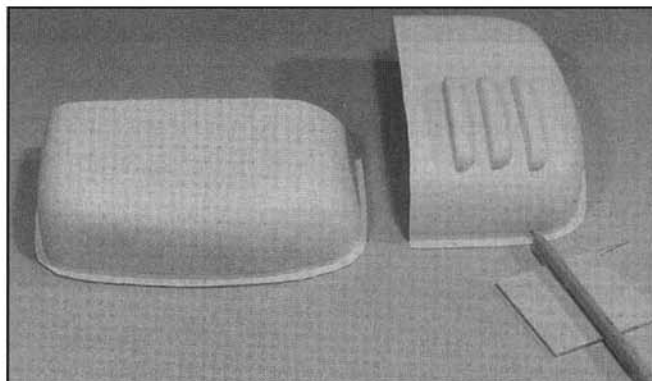
Make up a set of wingtips and a pair of ailerons but don't install either yet.

Incidentals And Assembly:

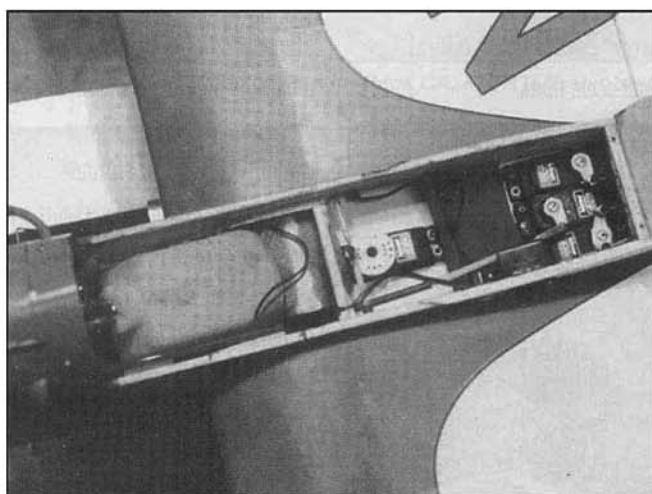
Now is a good time to trial-fit the engine, fuel tank, radio, pushrods, landing gear, etc. Once this is done, I would cover the fuselage, and do any fancy trim scheme on it, before you



LEFT: For the 4-stroke engine, I made this little hatch for engine access. **RIGHT:** Method of marking plastic parts for trimming. Cut off 1/4" (cut 1/8" from the pants).



LEFT: This is what I use for trimming. **RIGHT:** The fuel tank and R/C equipment is all accessible under the hatch.



glue the wing in. You can't pre-cover the wing, because it won't go through with the tips in place. Well, you could do one half, which may not be a bad idea.

Install the wing by first aligning it very carefully, and then gluing it in place. Add the wingtips and you can cover the wing.

I covered the tail parts, and hinged them, before I installed them. Be sure to cut the covering away where the parts are to be glued.

Join the plastic parts using CA, and reinforce the joint with fiberglass wing tape. I cut a hatch in the top of my cowl and hinged it like the hood of a car, using brass tube and wire for the hinge. This makes it easy to install needle valve extensions and the like. It also gives good access to the glow plug, fueling, etc.

Don't forget to balance the model as shown on the plan. I have noticed that a

lot of people will move the C.G. ahead of where the designer intends it to be, to make the plane "more stable." Or they will balance their pride and joy on a couple of fingertips. I have gone to great pains to find the location shown on the plan. Lots of test flights were flown to find the best compromise between maneuverability and stability. If the C.G. is too far forward, your model will glide poorly, and you will have trouble flaring for the landing. Too far aft, and your model will do a 6" loop or two, and then crash. Please feel free to experiment with the C.G. on your plane, but do try the recommended spot first. And, please, use some sort of balancing stand. In truth, the prototype's mass was so well centered about the wing's centerline, that I had trouble using a stand. It was like trying to balance an egg on a toothpick. In the end, I installed a screw eye at the

C.G., and I hung the model from a string. **Flying:**

This is a very forgiving "Sunday fun" kind of plane. It will fly slowly, with good control response, right up to the stall. The "dreaded" stall comes in the form of many tiny little stalls. A kind of 3" bump, bump, bump ... a touch of throttle, or down elevator, and you're off and flying again. It will do all the normal sport plane aerobatics. I am guessing the top speed is about 60 mph. At full throttle, the Newbee can do very large, round maneuvers. If you are into "hotdog" flying, you will be pleased with its repertoire of bizarre spins and tumbles ... you can almost turn it inside out. Landing is easy ... you can come in long and flat, or float in nose high, like a parachute. It's a great little plane for small fields. Have fun!

