MEISTER SCALE

P-47 BUILD MANUAL

Written by: P.J. ASH

TO MY FATHER
CAPT. STEVEN P. ASH USAIRWAYS

……Thank you for giving me the dream to fly, the passion to create and the tools to soar!

To you Dad!

NOTE FROM THE AUTHOR

I want to be the first to take the opportunity to thank you for purchasing a Meister Scale P-47. I believe that this airplane will be one of your favorites to build and fly. I know it is for me. This step by step manual will guide you through the basic understanding of building this wonderful plane. Many details are left to you the modeler. What I mean is, the basic construction of the airplane is covered, but many details like how to hinge the control surfaces, how to mount servos, etc. are left to the builder. Why? We wanted to leave that up to you. There are many different styles when it comes to the details in building. We all seem to have that perfect style that works for us. We hope this manual reduces or even eliminates time spent over the plans with a big question mark over your head.

The P-47 that is being built during this manual is the exact P-47 I participated with during my first Top Gun competition. I can't begin to tell you how gentle this plane flies and how wonderful she looks and feels in the air. With the wide gear, semi-flat bottom wing, and great outline, you will not find a better flying "heavy metal" warbird out there.

Please take time to look over the plans and over this manual before you start your construction. This manual is designed as a guide and should only be used to help you build your model. You the modeler are totally responsible for your airplane. I am very confident that you will better understand some of the complexities in building this plane by using our step-by-step manual.

I wrote a thread on RCUniverse titled "Meister Scale P-47 to Top Gun or Bust" where I outline my build on this P-47. You might want to reference this by going to the link provided:
http://www.rcuniverse.com/forum/m_5372214/anchors_5372214/mpage_1/key_top%252Cgun%252Cbust/anchor/tm.htm#5372214

Once again, I do feel that you will love building and flying this plane. If you have any questions during the build, please feel free to contact my direct email at pilotpj@gmail.com.

Good luck and keep em' flying!
P.J. Ash
aka. lovetoflyguy
Meister Scale

Republic

P-47

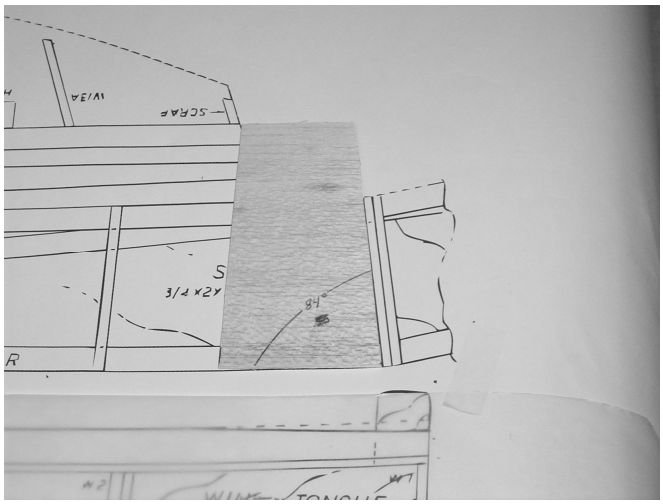
Parts List

- W1 – W14 (2 each)
- W2A (2 each)
- W5A (2 each)
- Fh2 (2 each)
- Gear Plate (2 each)
- Wing Tongue (2 each)
- Tip 2 (2 each)
- Tip 1 (1)
- G (2 each)
- F (2 each)
- GT (2 each)
- FT (2 each)
- H (2 each)
- Wing Tip Block (1)
- ¼ x ¼ Balsa Strip (2 each)
- 1/8 x 3/8 Balsa Strip (2 each)
- ½ x ¼ Balsa Strip (6 each)
- ½ x ¼ Balsa Strip (2 each)
- 3/8 x ¾ Balsa Strip (4 each)
  Cut for Spar and Aileron back plate
- ½ x ½ Balsa Strip (2 each)
  Flap Header

Note:

It is always important to gather all of your wood and lay it out according to the list. We will be referring to this parts list over the build of the wing.

Step1

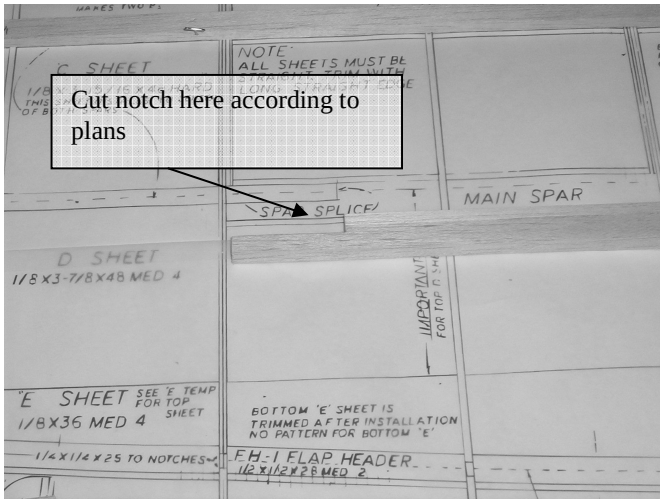


1. Use a scrap piece of wood and make a “wing Dihedral Template of 85 degrees.
2. Use the plans as a template. After it is constructed, lay to the side for later use.

Step2

1. Lay ½ x ¼ bottom front wing stringer
   - start at wing root, work towards wingtip
   - Cut stringer between W9-W10 shown on plans
   - Lay second ½ x ¼ bottom front stringer glue where you cut
   - Cut second stringer slightly past W14 (can sand down later)

Step3



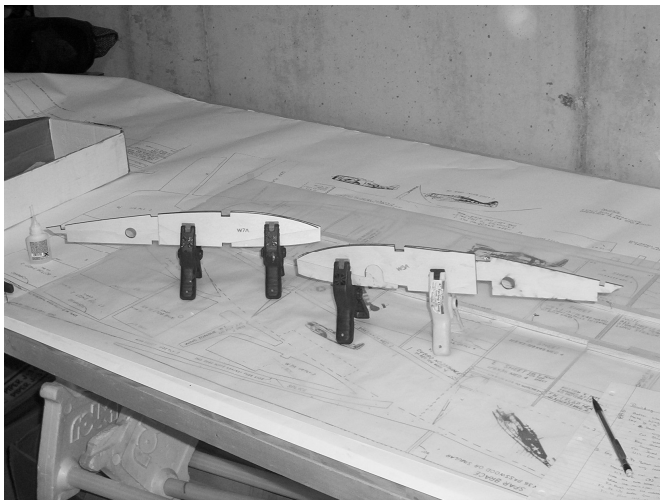
1. Lay 3/8 x ¾ bottom wing spar
   - Start at wing root work towards wingtip
   - Measure and cut spar splice between W6 – W7

Note: The outer bottom wing spar will set below the main spar. Its okay. It will fit flush with the notches from W7 – W13

Step 4

1. Fit 3/8 x ¼ bottom spar in the spar splice and fit to plan. When you are happy with the fit, glue the two pieces together.
2. Cut the bottom spar at W13 according to plans.

Step 5



1. Glue W5 to W5A and W7 to W7A
   - This is the doublers for your gear plate (installed separately)
   - Make sure you glue to the correct side and double check with the plans! W5A and W7A have to be on the correct side to insure the gear plate will fit correctly!

Step 6

1. Test fit W1 on the plan
   - You will have to trim your bottom main spar 84 degrees to set flush with W1
   - Use your template you made in step 1 and glue W1 into place

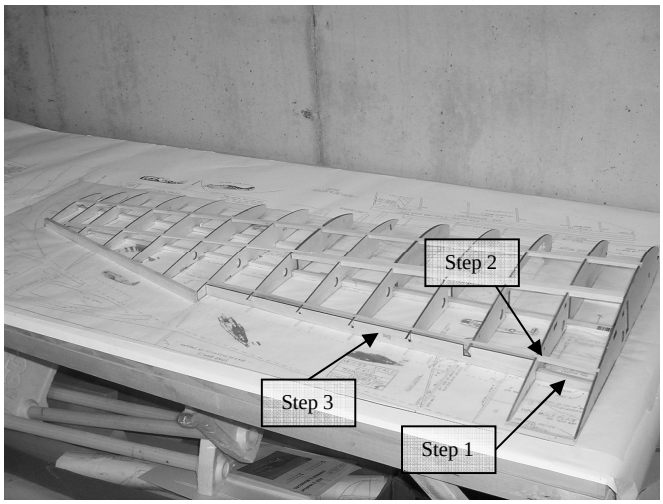
Step 7

1. Cut Rib W3 where dashed lines are

Step 8

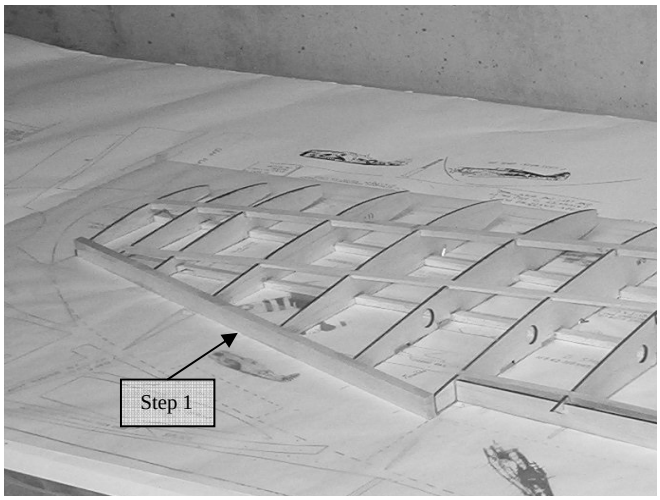
1. Place Ribs W1-W14 on plans and glue in place.
   - Make sure ribs fit all the way on your main spar and front Stringer. This will align your ribs.

Step 9



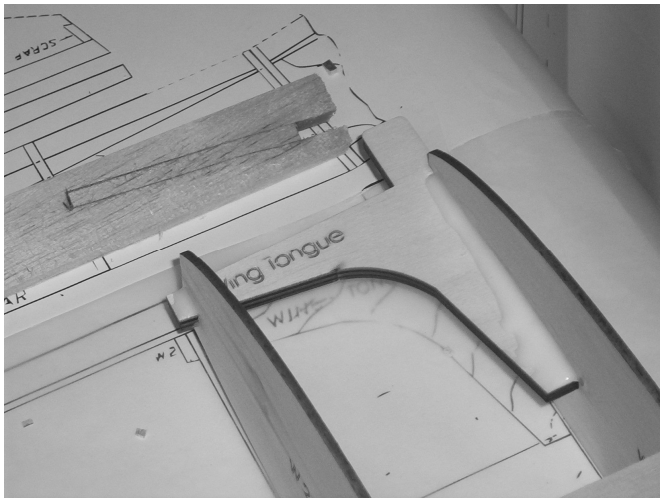
1. Cut your ½ x ½ balsa strip to fit on the trailing edge bottom notch from W1-W5 glue into place.
2. Cut your ¼ x ¼ hard wood strip to place on the top trailing edge notch from W1-W5 Glue into place.
3. Place Fh2 to the trailing edge between W2-W5. This will fit against the ½ x ½ balsa strip you previously glued into place.

Step 10



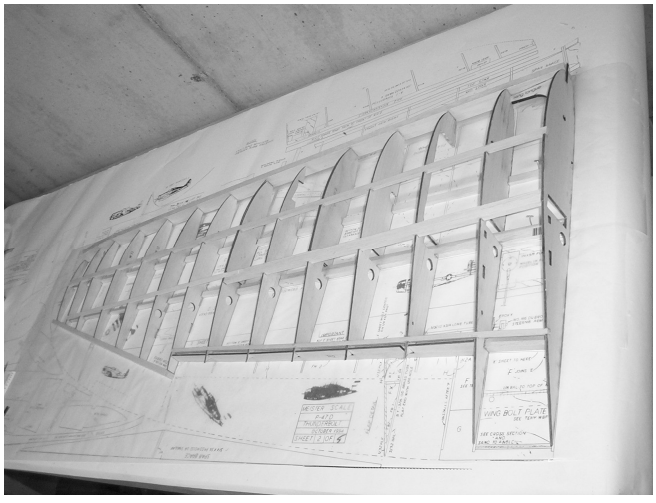
1. Locate 3/8 x ¾ balsa strip
   - Place between W8-W14 trailing edge
   - Trim according to fit between W8-W14 and match with plans. You want the strip to match the contour of the wing.
   - Glue into place

Step 11



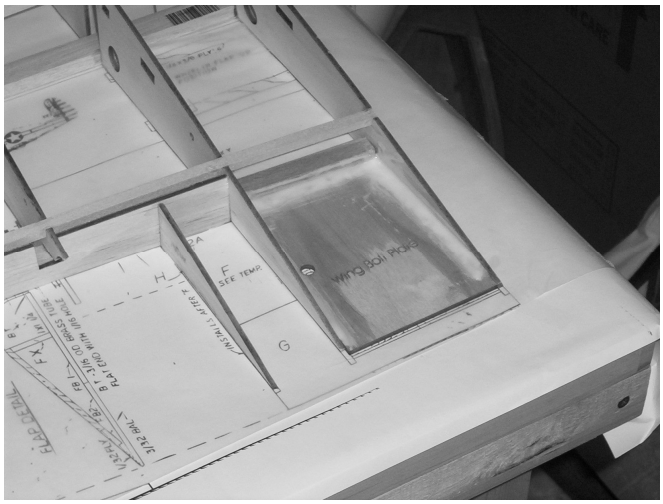
1. Locate your ½ x ¼ leading edge strip and a sheet of 3/32 balsa sheeting
   - Measure and cut and glue the sheeting to one side of your leading edge strip.
   - Notice on the plans how this thickens your leading edge strip.
   - Cut a notch out of the leading edge strip so the wing tongue will slip through when glued into place.
2. Glue your wing tongue between W1-W2

Step 12



1. Test fit the leading edge strip and mark at rib W12 and W13 where you will need to cut.
   - This will help in the contour of the wing
2. Glue the leading edge strip to the leading edge of W1-W14.
   - Note-if you do not have sufficient balsa use scrap but Make sure you use enough to trim off later!

Step 13

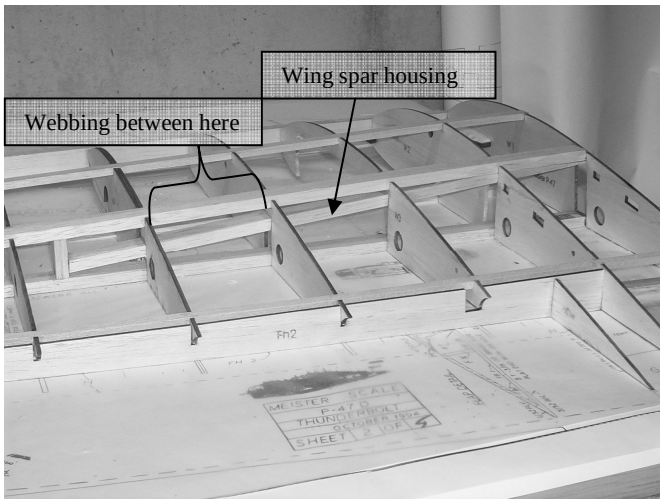


1. Fit and glue the wing bolt plate between W1-W2. This area needs to be strong! Use 30 min. Epoxy and Micro-Balloons.
2. Glue W2A next to W2 shown on plans.

Step 14

1. Test fit your main spar by sliding it into your spar notches.
   - This might take some sanding and re-fitting.
   - Take your time, you want it to fit snug, but be able to slide in and out freely.

Step 15



1. Use 3/8 x ¾ balsa strip to make your wing spar housing.
2. Constantly re-fit your main spar to make sure everything fits right.
3. Use 3/32 wood sheeting and make your wing spar webbing between your ribs shown on the plans.

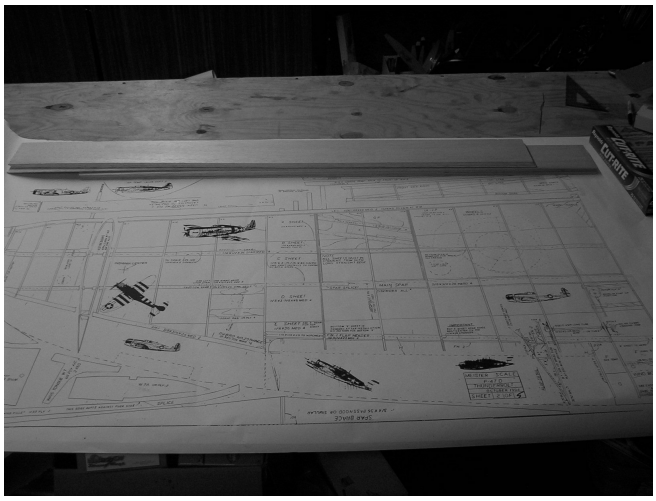
Step 16

1. Once you have cut your webbing and are happy with each fit, use a raiser plane to shape everything to fit the contour of the wing, then sand to final shape.

Step 17

1. Fit the gear plate into position between W5-W7
   - You want this to be strong. Glue with 30 minute epoxy and micro balloons.

Step 18

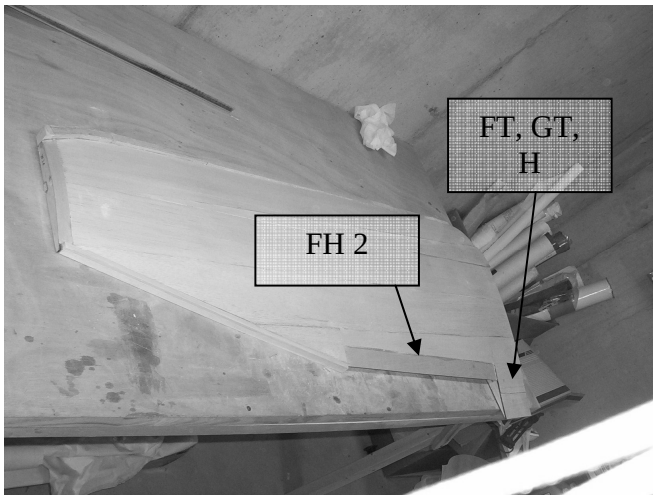


1. Check your plans and locate the lines where the sheeting will lay next to each other.
2. Gather your 1/8th sheeting
3. You will need to lengthen some of the sheeting so you have a little extra from the wing root to the wing tip.

Step 19

1. Lay the first sheet of 1/8 x ¼ sheeting between the main spar and the front spar from the wing root to the wing tip. Glue into place
2. Lay the second sheeting against the leading edge block on the front of the wing ribs.
   - You will have to shape this sheeting along the wing-tip as the leading edge at the wingtip starts to curve. Glue into place

Step 20



1. Sheet the rest of the top wing according to plans as shown.
2. Locate FT, GT, and H. Test fit and glue on the trailing edge of W1-W2a according to plans.
3. Locate FH 2 hardwood sheet. You will need to glue this to a piece of 3/32 sheeting and glue into place according to plans.
   - Once you glue into place, you will notice that it is Flush with the 1/8th sheeting.
   - This gives extra strength in this area of the wing.

Step 21

1. Test fit your retract so it sets flush and you are happy with the fit.
2. Sheet the bottom of the wing according to plans.
3. Follow plan outline to cut out your gear if you choose to use gear doors.
    - Since there is no real method for cutting out the gear, use whatever method (depending if you are going to use gear doors or not) you like.

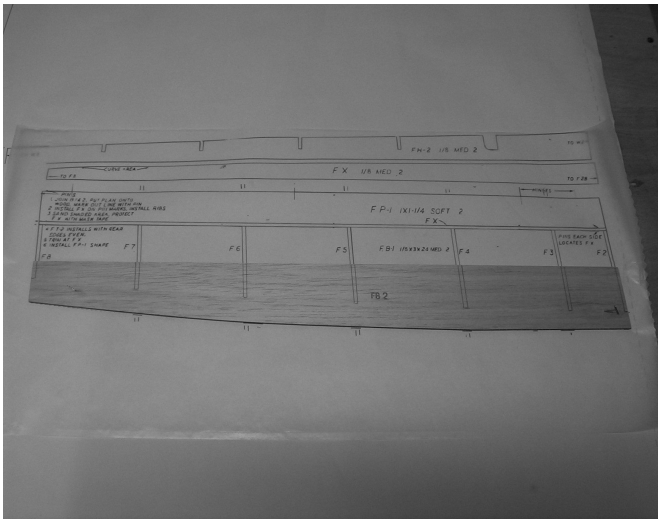
Step 22

1. Glue your wingtip block into place, shape to desired thickness and start sanding!
2. If you stick to the plans, the wing WILL fit into the saddle of the fiberglass fuse. without any problems.

Parts List

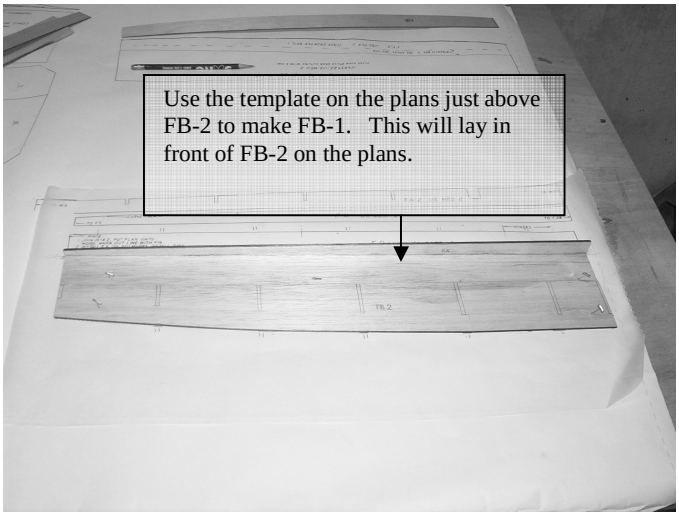
- FT-2
- Flp2-Flp8
- FB-2
- FX

Step1



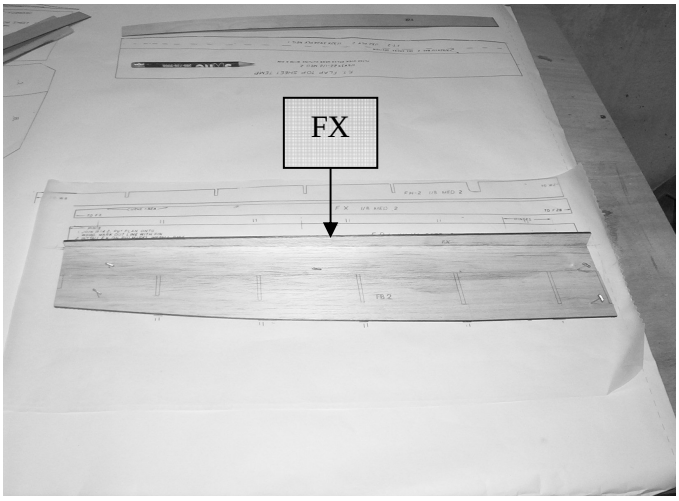
1. Lay FB-2 on the plan and secure into place

Step2



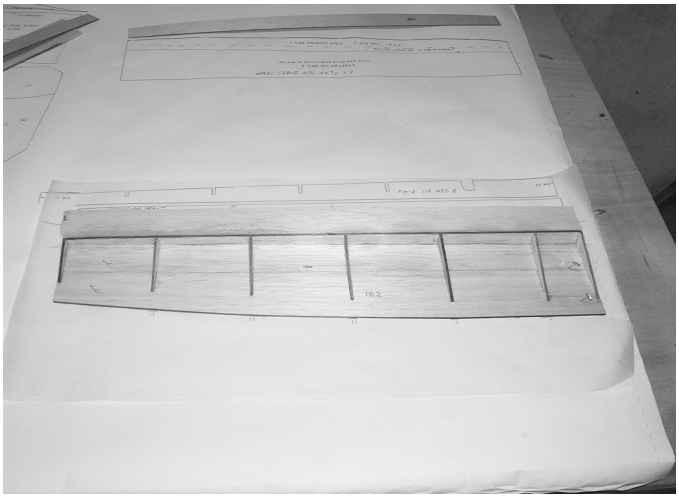
1. Lay 1 piece of 1/8x3x24 balsa sheet in front on the plans to make FB-1. Measure and cut, then fit into place. (lay the rest of the sheet aside. You will use it in step 7.

Step3



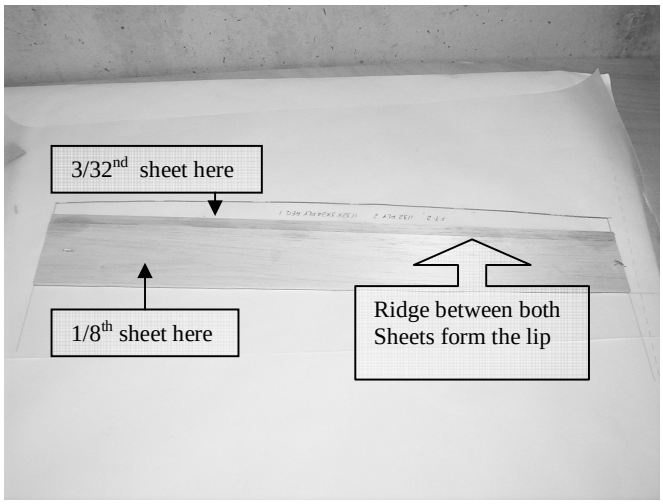
1. Lay FX in front of FB-1

Step4



1. Lay F2-F8 ribs according to the plans.
2. Measure the 1x2 balsa block on the plans in front of FX. This will be your leading edge.

Step5



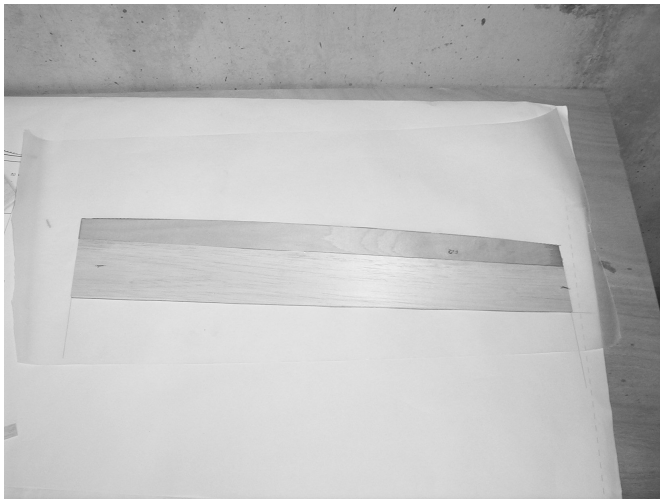
1. Lay the remaining piece of 1/8x3x24 you used in step 3 on the plans where it is labeled "F.T. Flap Top Sheet Temp." Measure according to plan and cut to shape.

Step 5 continued

1. Lay the 3/32x3x36 sheet in front of the piece you just cut. Out of this you will make a ½ inch lip for FT-2 to lay on. Measure according to plans and cut.
2. Glue the 3/32x1/2 sheet in front of the 1/8 flap top sheet.

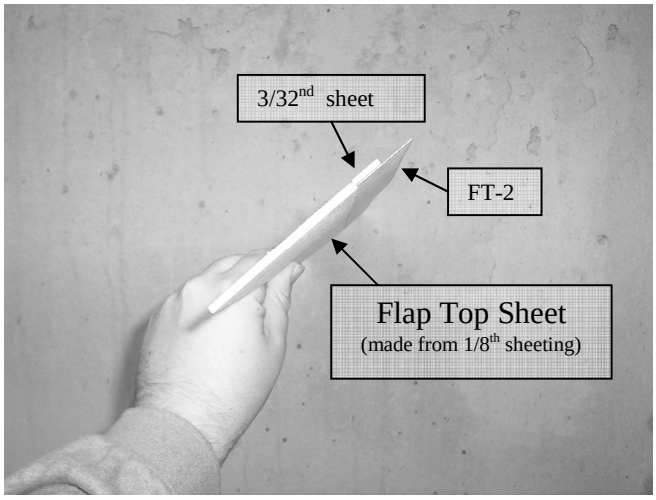
***Make sure that both pieces lay flat on the bench so that you have a very small ridge between the two sheets!**

Step 6



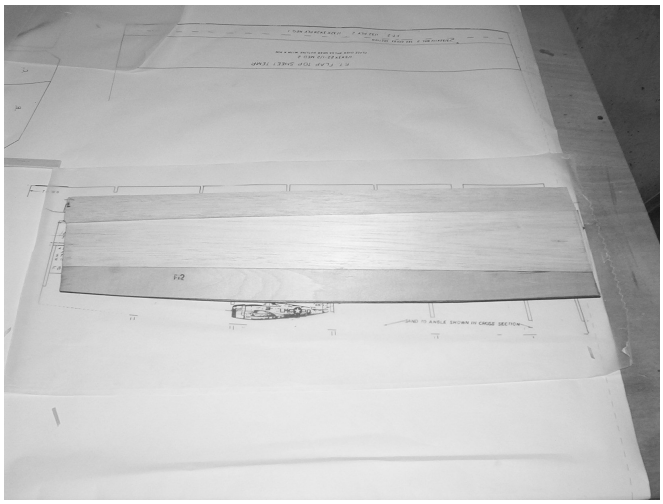
1. Glue FT-2 on top of the 2/32 lip and glue against the flap top sheet.

Step 6 continued



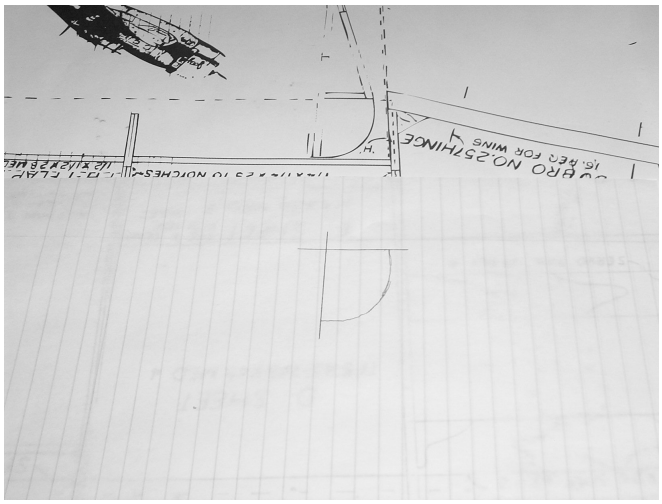
1. If done correctly this should create a flush line between the flap top sheet and FT-2

Step 7



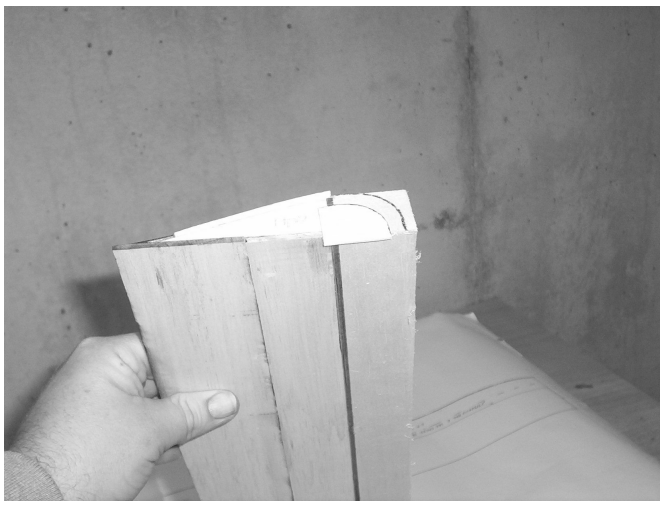
1. Glue the flap top you made on steps 5 and 6 to the flap bottom you made on steps 1-4

Step 8



1. Using the plans near the flap, trace the side template for your leading edge of the flap.

Step9



1. Use the template on both sides of the leading edge block and sand to shape.
2. Sand the flap to reach the desired smoothness.

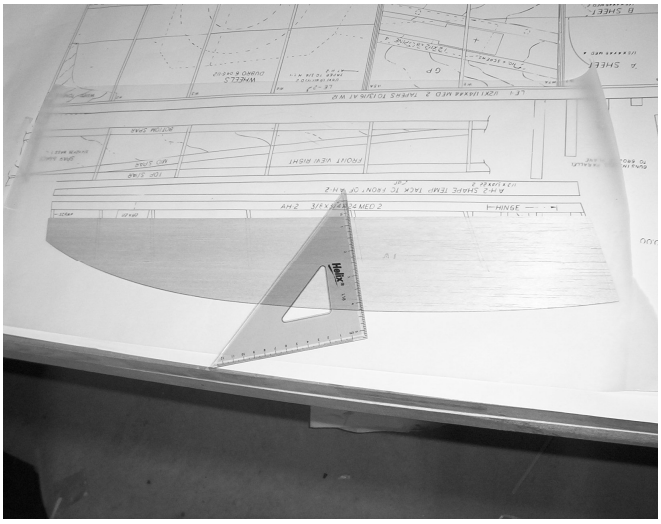
Step10

1. Repeat the steps for the other flap, but make sure you make the opposite side. You will have to mirror this flap. In this example, we made the left flap. The right flap will look the opposite. Don't just set everything on the plans and make another left flap! Yes, its been done before….

Parts List

- A1 (4 pieces)
- W80,W90,W100,W110,W120,W130 (2 pieces each)
- AH-2 (3/8x3/4x24 (2 pieces))

Step1



1. Draw extension lines on A1 and label where W80-W130 will go. You will not see them on the plans with A1 in place.

Step2

1. Make a template for AH-2 and lay it overtop your 3/8x3/4x24 balsa. Cut out to make AH-2.

Step3

1. Secure A1 into place, glue AH-2 with the thin side towards the tip.
2. Glue W80-W130 in place according to where you drew the extension lines in step 1.
3. Depending on your hinging, lay your hinge blocks out of scrap balsa

Step4

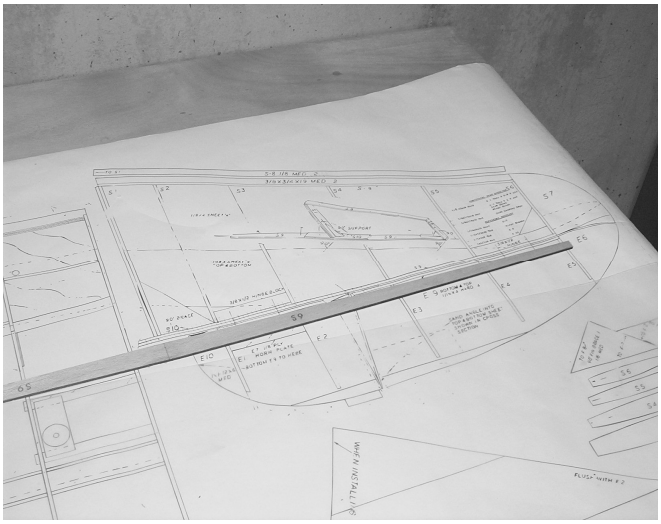
1. Glue the second A1 overtop and sand to shape.

***Note: Wait until you have the flap and wing done so you can sand everything to match!**

Parts List

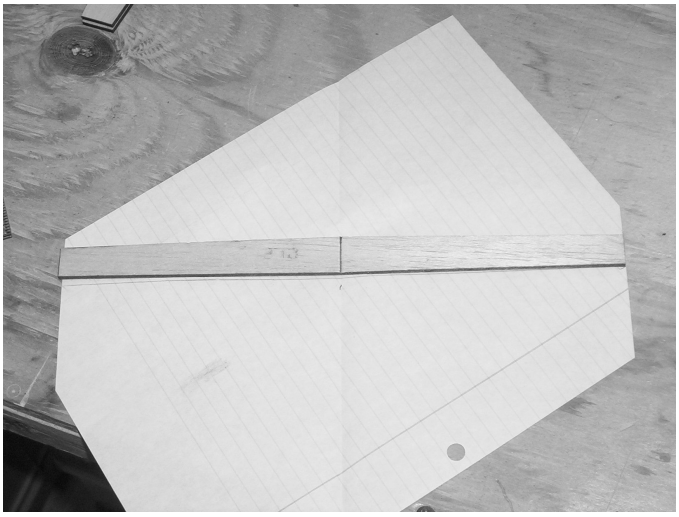
- S1-S6 Ribs (2)
- S7 Wing tip blocks (2)
- S8 Leading edge strip (2)
- S9 Trailing edge Strip (2)
- S10 Trailing edge doubler
- 3/8 x ¾ x19 Leading edge block

Step1



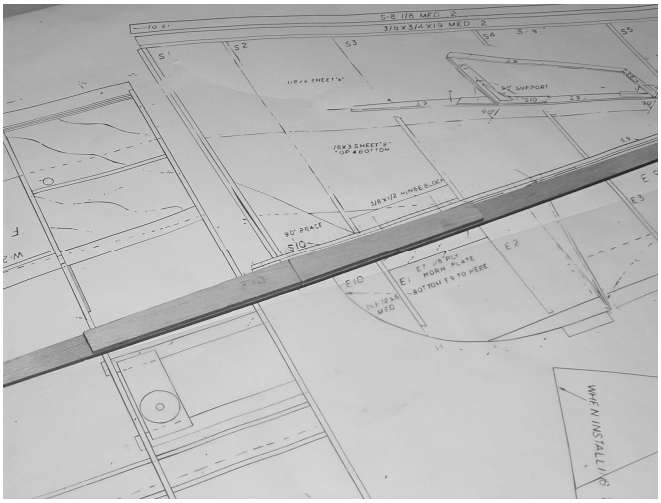
1. Glue S9 end to end shown on the plans

Step2



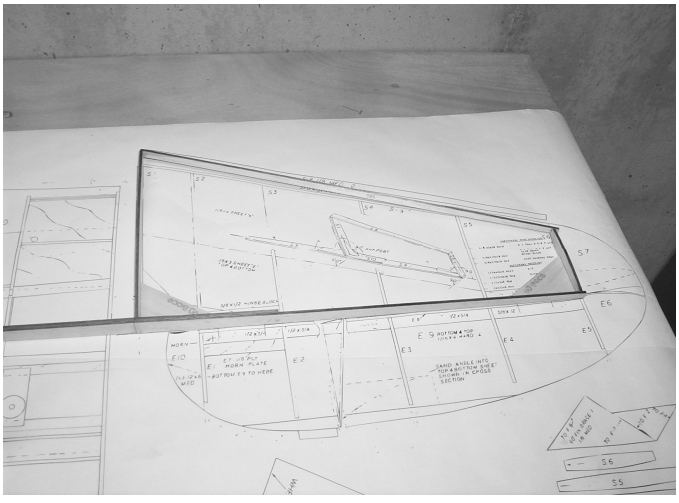
1. Prepare S10
   - Draw a template of S10 on a piece of paper
   - Fold the paper so the two ends meet
   - Lay S10 on your template and make a center line where the crease of the paper is.

Step3



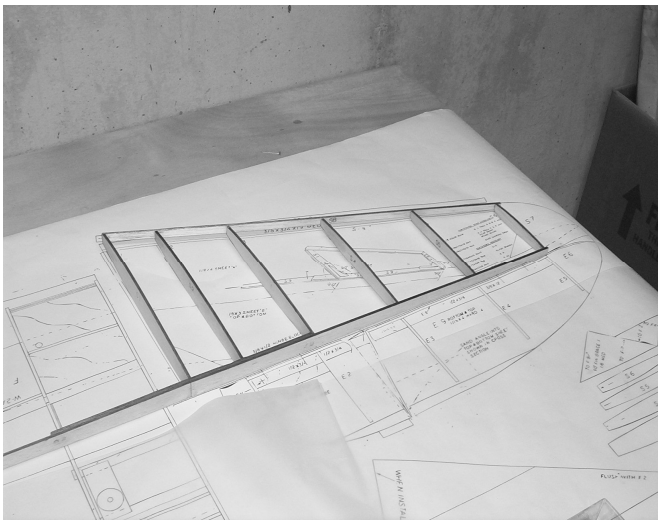
1. Glue S10 to S9. Match the centerline of S10 to the centerline of S9

Step4



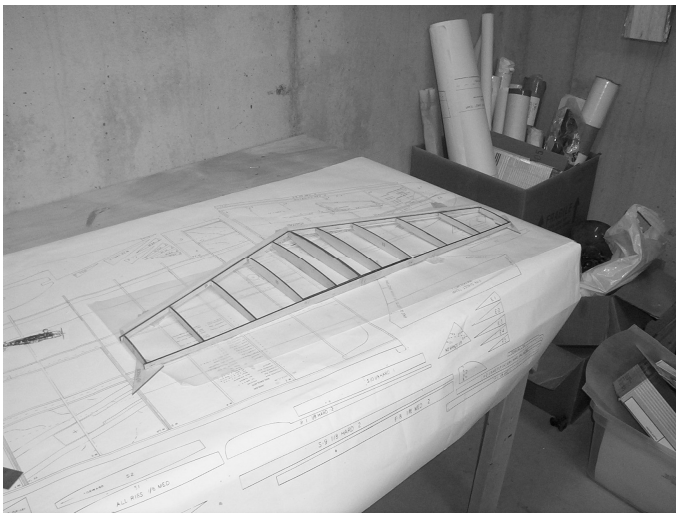
1. Us the 90 brackets to fit and glue S1 to S10 and S6 to S9
2. Glue S8 leading edge strip to S1 and S6 making sure everything is level.

Step 5



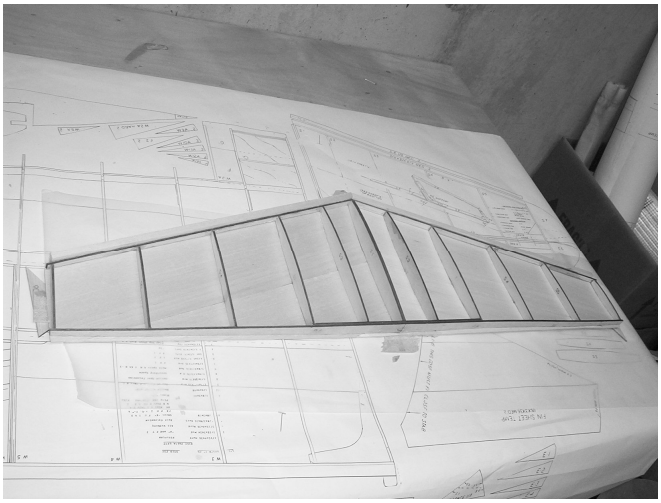
1. Glue the rest of S2-S5 according to the plans.
2. Repeat steps 1-5 on the opposite side

Step 6



1. Glue the 3/8x3/4x19 leading edge block to S8
2. Lay the horizontal stab on a flat surface. With the center section on the table shim the wingtips so the horizontal stab is snug and secure. T-pin everything into place.

Step7



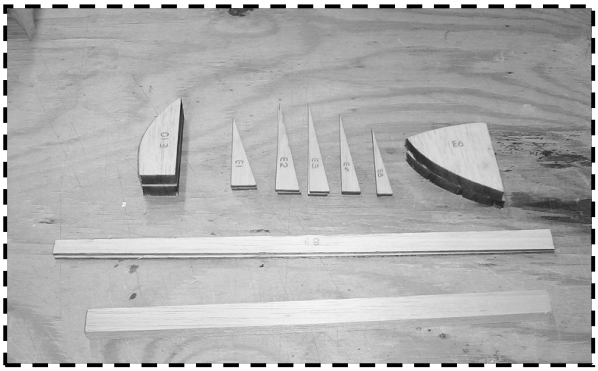
1. Sheet the top of the stab with 1/8th sheeting. When you are complete, turn the stab over and t-pin into place.
2. Make sure everything is snug and will not move on you when you sheet the bottom.

Step 8

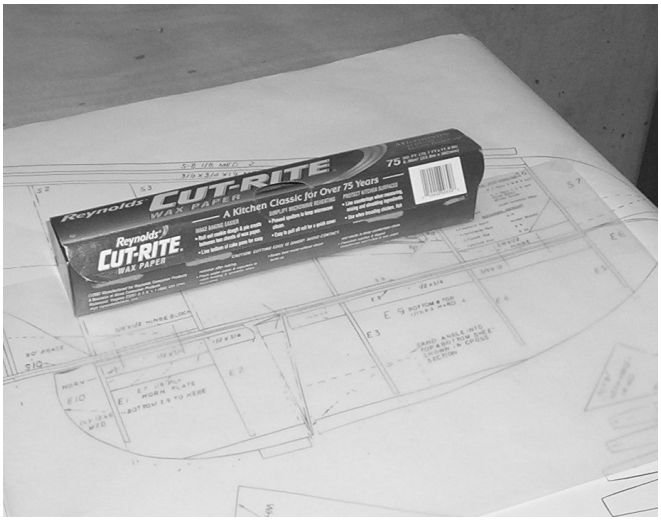
1. Glue S7 (wing tip blocks) on your horizontal stab.
2. Once you are happy with the fit, sand everything to shape.

Parts List

- E1-E5 Ribs (2 sets)
- E10 Tip (2)
- E6 Tip (2)
- E8 Leading Edge
- ½ x ¾ balsa block
- 1/16 x 3 (4) sheeting (hard wood)



Step1



1. Use wax paper and lay over the elevator portion of the plan.

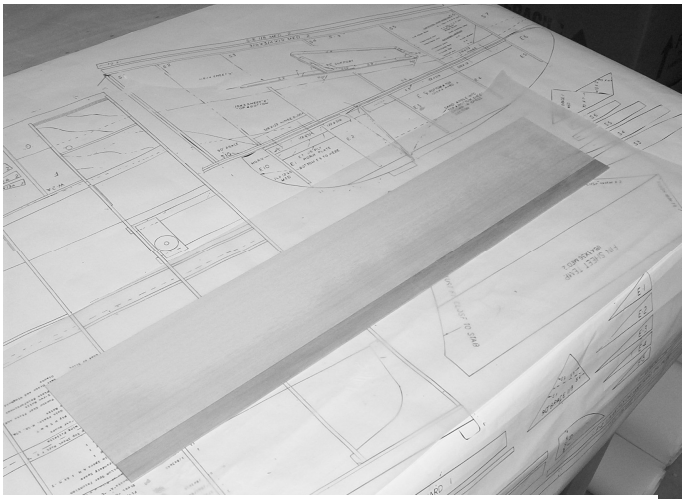
Step2

1. Trace where you will be sheeting from E1-E5.
2. Cut to make a template. (This template will be used to cut your sheeting that will cover the elevator)

Step3

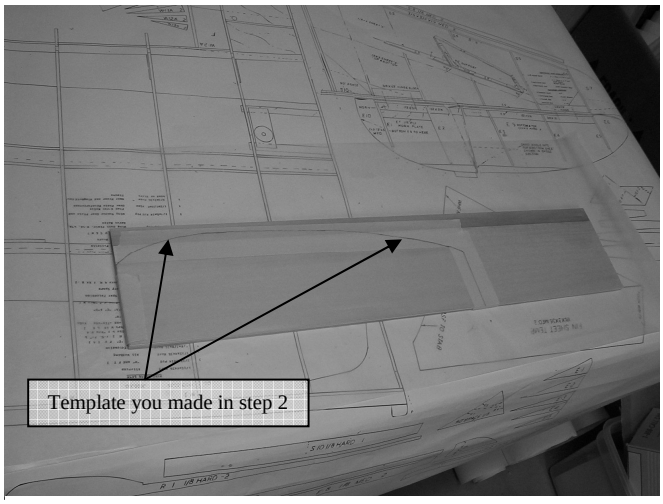
1. Use 1 1/16x3 hard wood sheeting and cut 4 half inch sheets lengthwise.

Step4



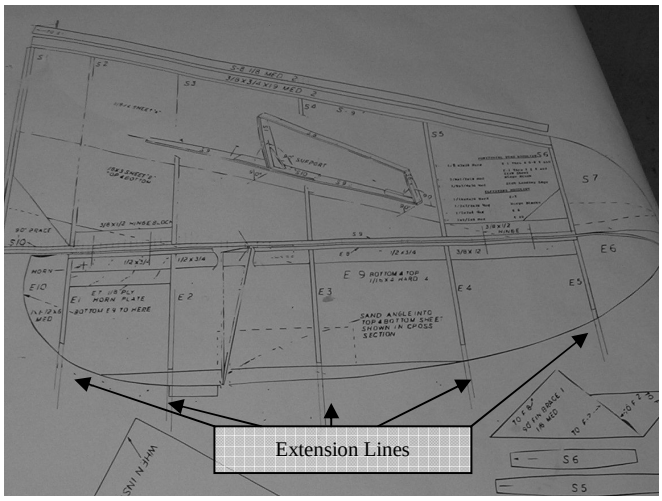
1. Glue these strips on 4 of the remaining 1/16x3 hardwood sheeting.

Step5



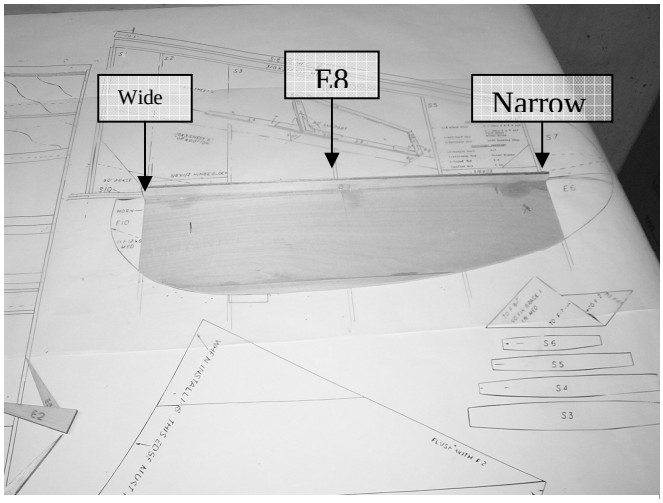
1. Tack glue all 4 sheets together and tape your template to the sheets.
2. Cut along your template line. This will make four identical sheets that will cover your elevator.

Step6



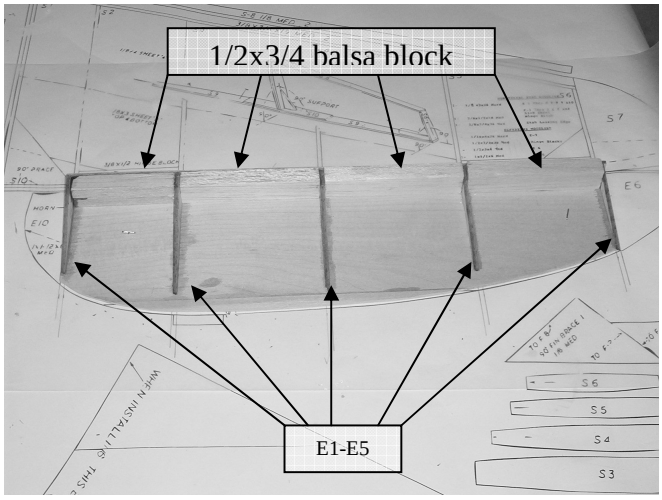
1. Draw extension lines on the plans from E1-E5 extending past the boarder of the elevator. This allows you to see where to lay E1-E5 after you lay the bottom sheeting on the plans

Step7



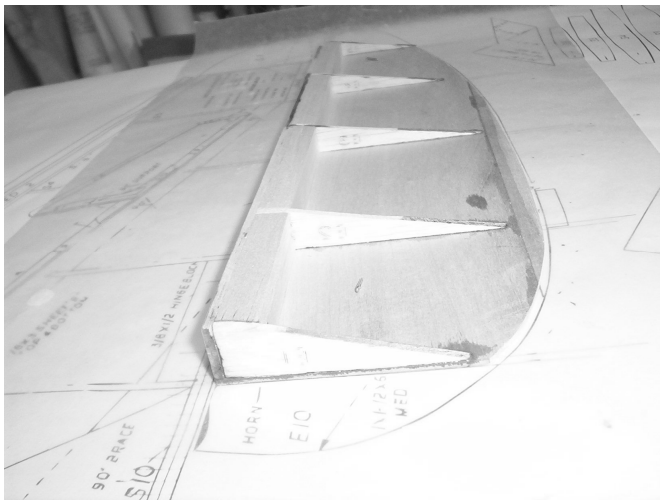
1. Lay 1 of the 4 elevator sheets you made in step 1-5 on the plans as shown.
   ***NOTE – make sure to lay down wax paper so the glue will not stick to the plans during construction.**
2. Glue E8 in place on the leading edge of the elevator sheeting. Make sure the wider side is on the inner part of the elevator. You want the width to get narrow towards the tip.

Step8



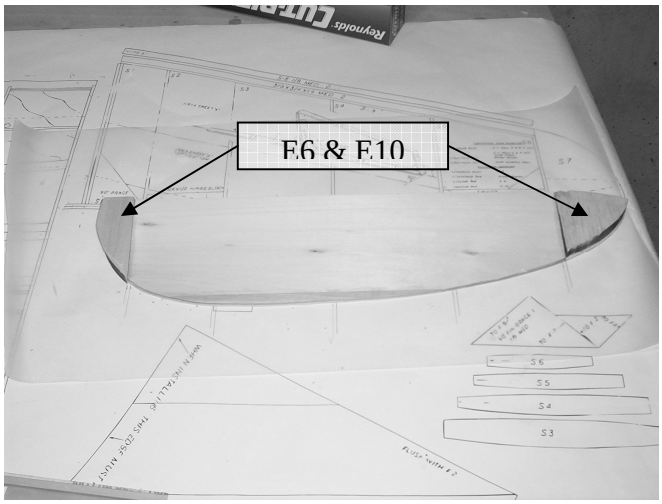
1. Glue E1-E5 according to the plans
2. Measure and cut blocks from the 1/2x3/4 balsa block glue them in between E1-E5. This gives extra wood for your hinges. You might want extra if you think you might fly this at warp speed!

Step9



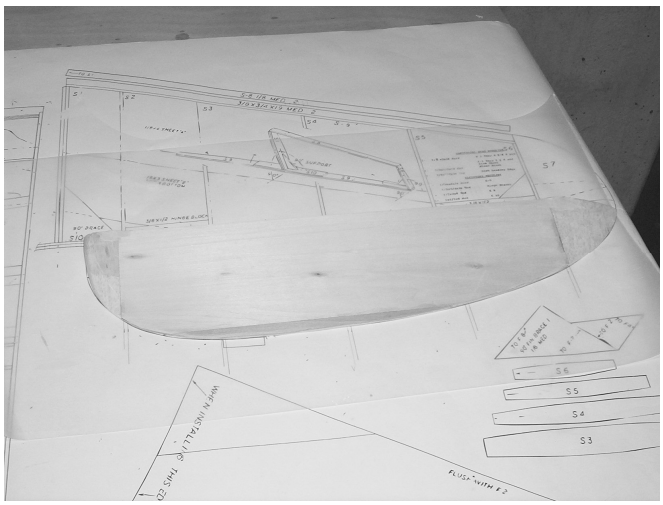
1. Use a razor plane and sander to make your blocks line up with the edge of E1-E5

Step10



1. Glue 1/16 sheeting (elevator template) on top (Make sure you take out your T-pins before you do this)
2. Glue E6 and E10 Tip in place

Step11



1. Sand down smooth.

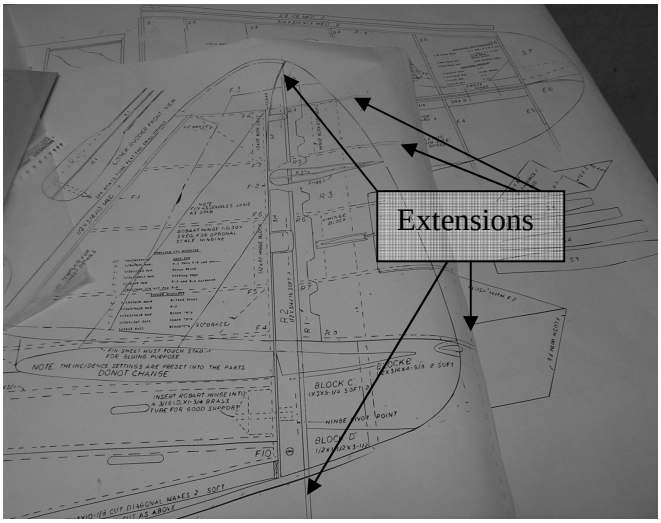
Final Thoughts

- You will need to sand down the leading edge for the movement of the elevator. You can find ideas on the plans depending on how scale you make your model.
- Follow the same steps to produce the other elevator

Parts List

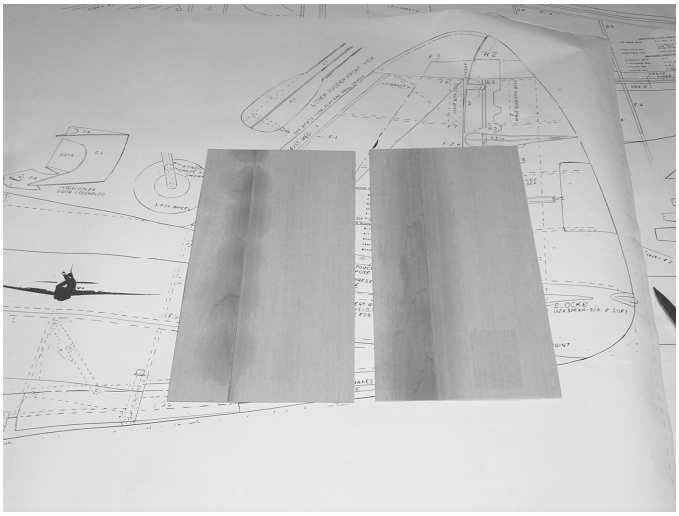
- R1
- R2 (1/2x3/4x16 soft balsa block)
- R3 (2 pieces)
- R4-R8 (2 pieces each)
- Bottom balsa block (2 pieces)
- Top balsa block
- 3/32 balsa

Step1



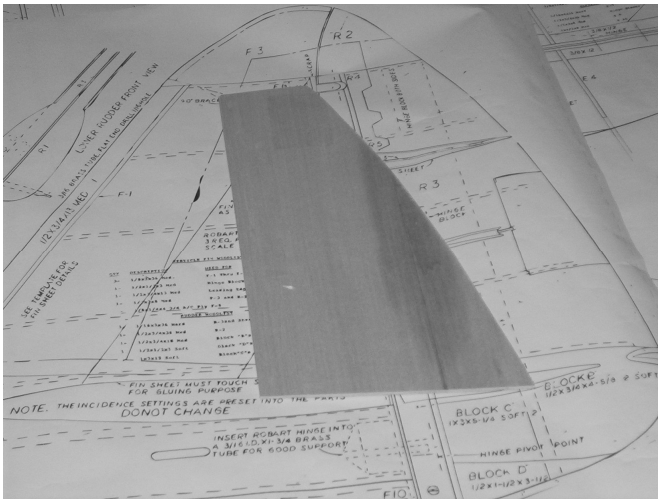
1. Draw extensions on the plans where shown
2. Draw extensions from R4-R8 leading past the rudder.

Step2



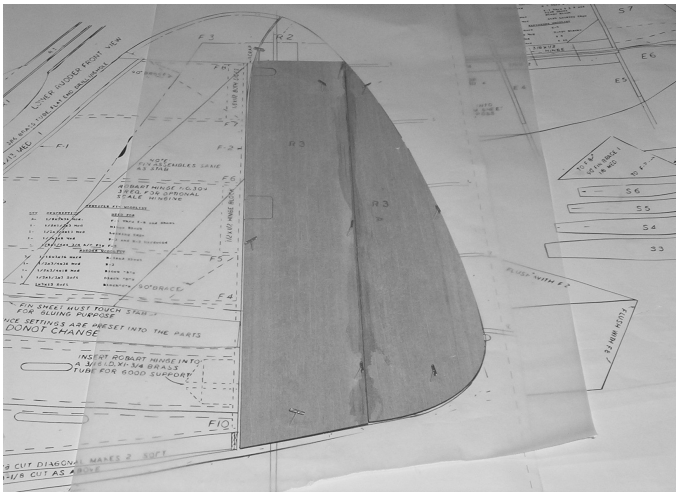
1. Cut two sheets of 3/32 balsa in half by the width.
2. Cut one of the sheets in half by the length and glue to make the pieces shown.

Step3



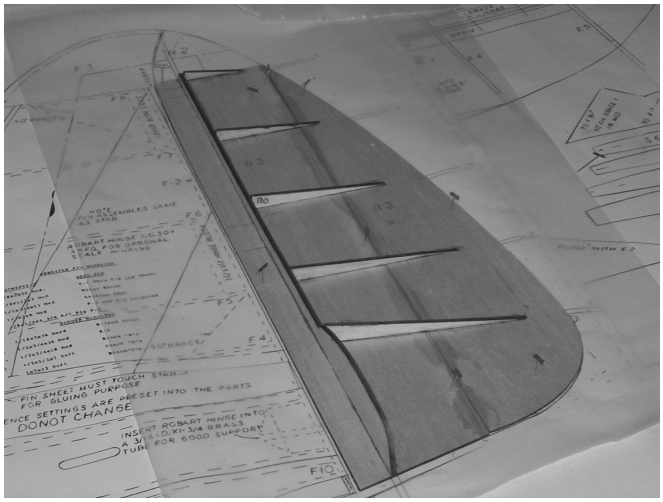
1. Use the plans and make a template from the two balsa sheets you made in step 2. This template will be the outside sheeting for the rudder.

Step4



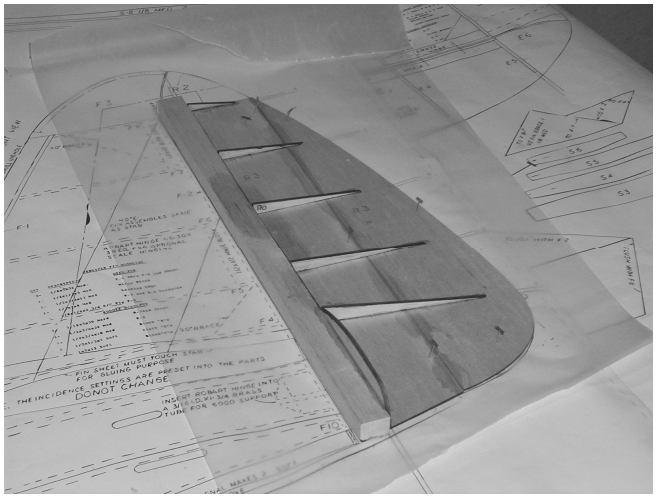
1. Lay both R3s on the plans as shown

Step5



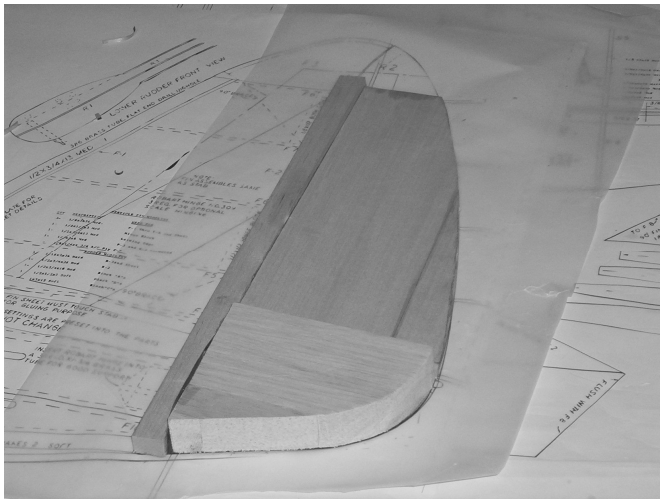
1. Glue R1 into place. Use the lines you drew in step one as a guide.
2. Glue R4-R8 into place using the lines you drew in step one as a guide.

Step6



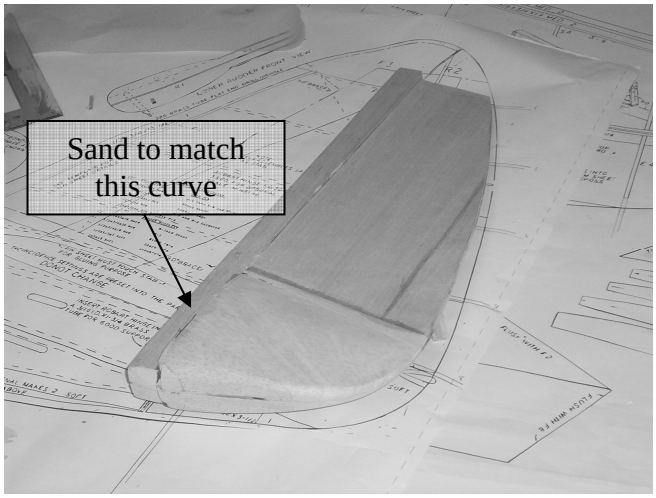
1. Glue R2 balsa block in place

Step7



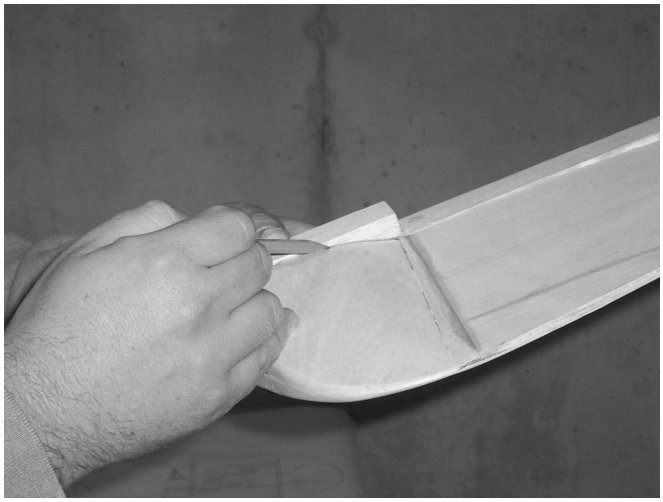
1. Glue the bottom balsa block into place

Step8



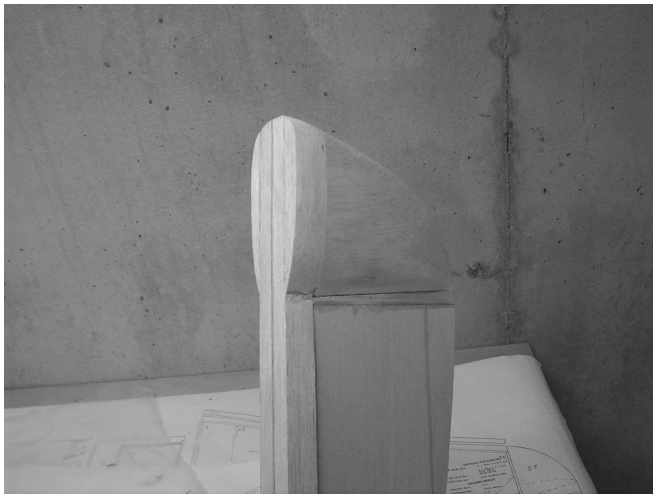
1. Sand the bottom balsa block to match with R1

Step9



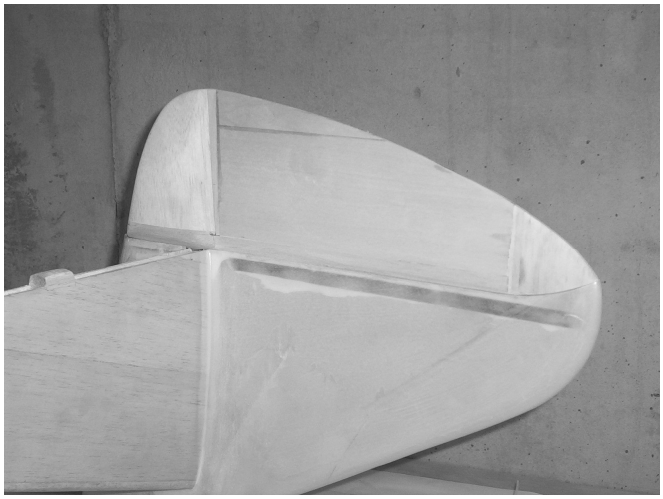
1. Use scrap balsa and line it up with the curve in R1 and the bottom of the rudder. Draw a line around the balsa, cut the balsa to shape and glue into place

Step10



1. Sand to shape. Repeat steps 1-9 for the other side.

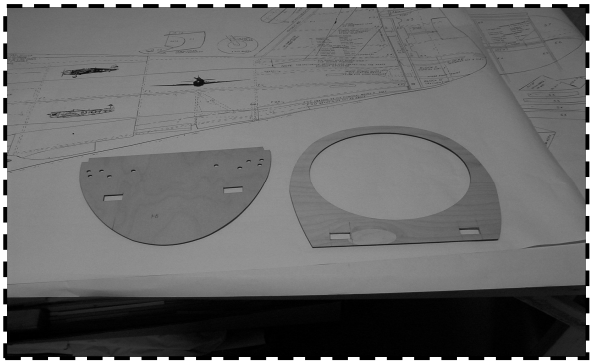
Step 11



1. Glue the top balsa block in place and sand everything to match the tail.

Parts List

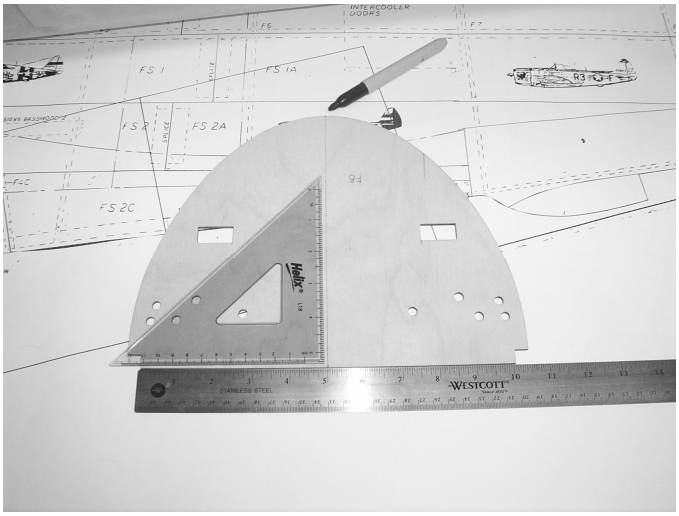
- F4
- F5
- ½ x 1 Hardwood wing block



Step1

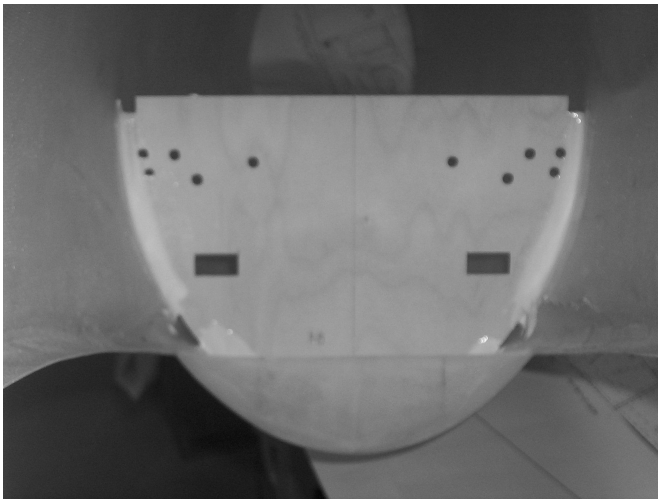
1. Measure 1 3/8 from the bottom edge of the wing saddle on the fuse. and make a mark.

Step2



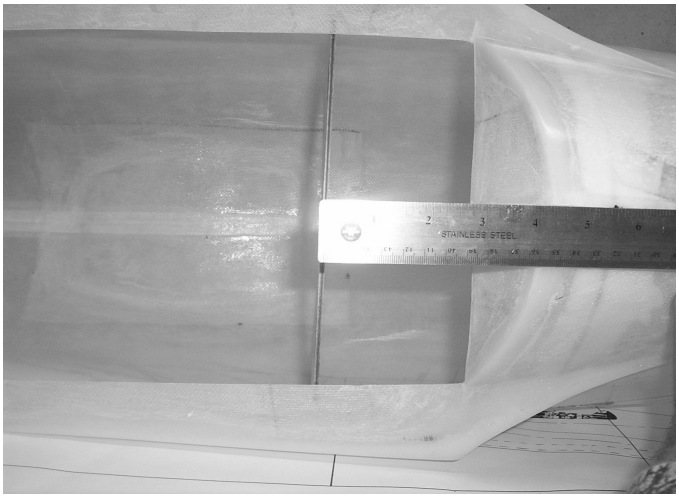
1. From the bottom of F5 make a mark at 5 inches (center). Use a straight edge to make a line that divides F5 into two identical pieces.

Step3



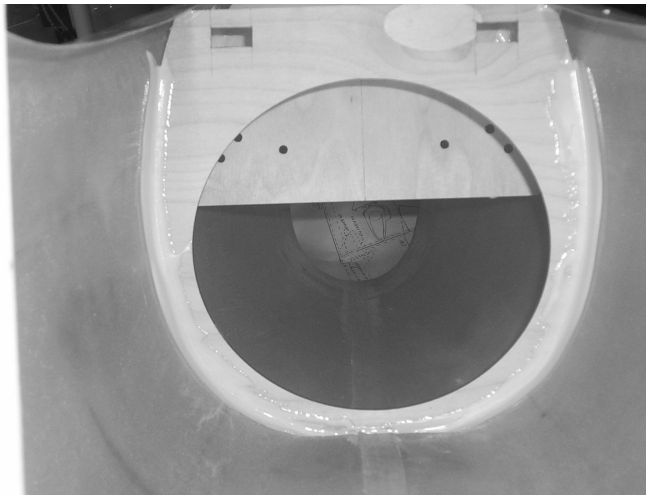
1. Glue F5 into place so the line you drew in step 2 meets the mark you made on step 1.

Step4



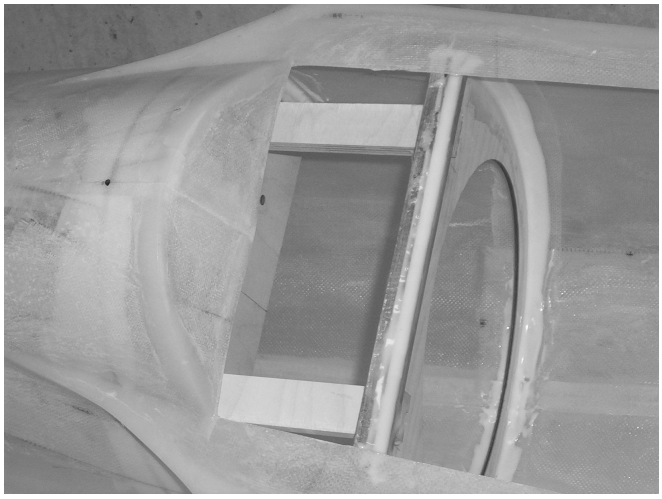
1. Measure 4 ¼ from the bottom edge of the wing saddle on the fuse. install F4 and tack glue into place.

Step5



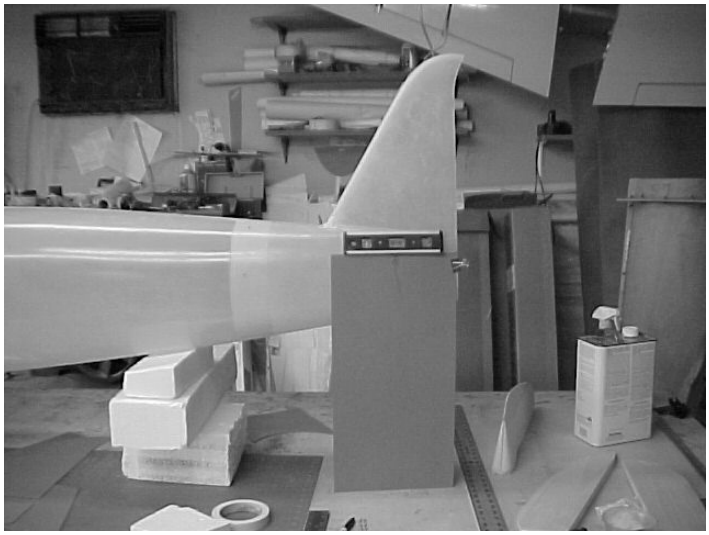
1. When you are happy with the alignment, glue F4 into place.

Step6



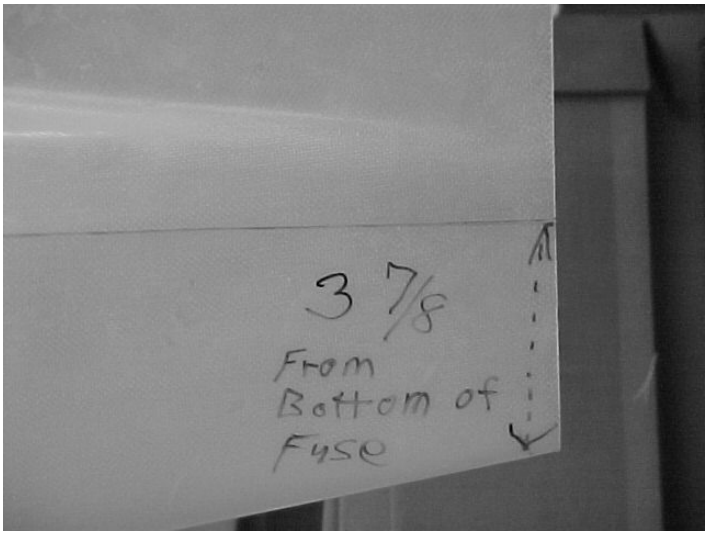
1. Glue your 1/2x1 hard wood wing blocks into place.
2. Lay your wing on top and drill a hole according to your plans. Use 1/4x20 blind nuts to secure bolts in place.

Step1



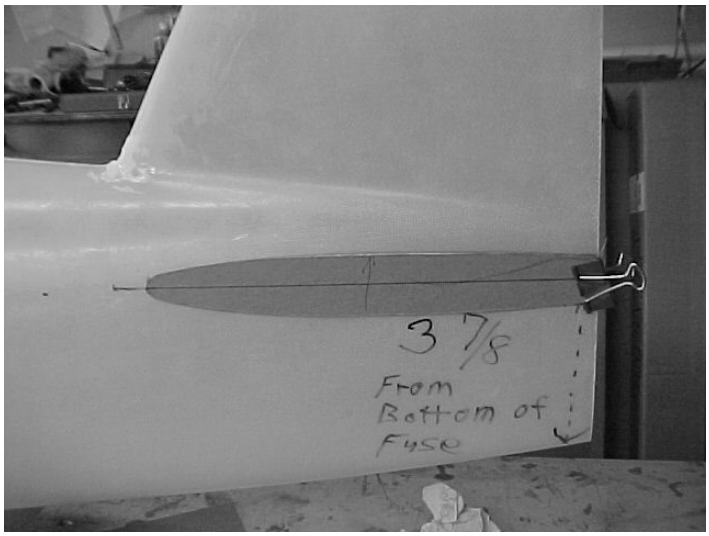
Bolt the wing to the fuse. Set the wing level and at ZERO. Hold fuse together with tape. Drill some holes in the slip joint and use sheet metal screws to temp hold. Wing & Tail are both ZERO. Mark up from the bottom of tail post 3-7/8". This will be your centerline. Cut a piece of thin (square) cardboard and clip to the side of fuse. Set a level on top. Make sure its square and level. Trace the line across. This will establish your centerline

Step 2



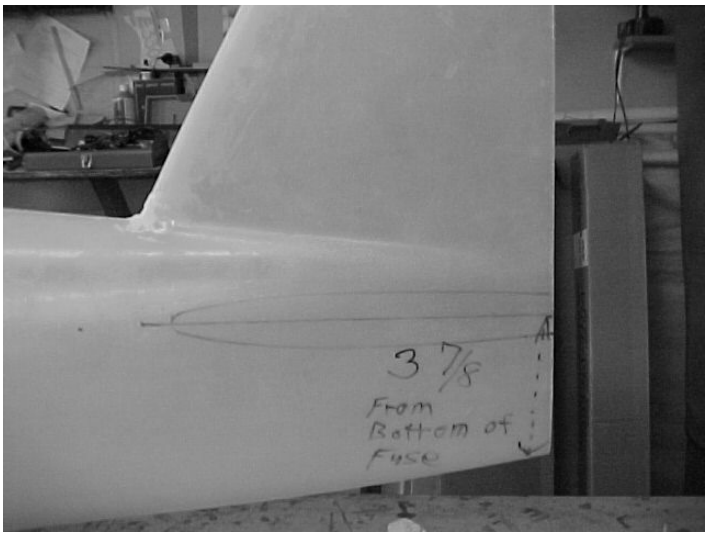
Measure up 3-7/8" from the rear of the tail post and mark.

Step 3



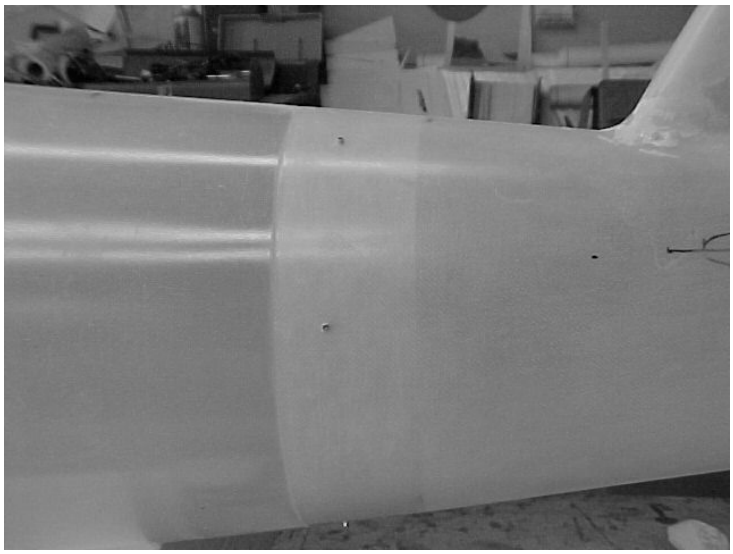
Make a Horiz. Stab template from plans. Draw a centerline on the template. Then tape template on the centerline on fuse. Be sure the two lines match with each other and trace around top and bottom of template. This will be cut out lines for stab.

Step 4



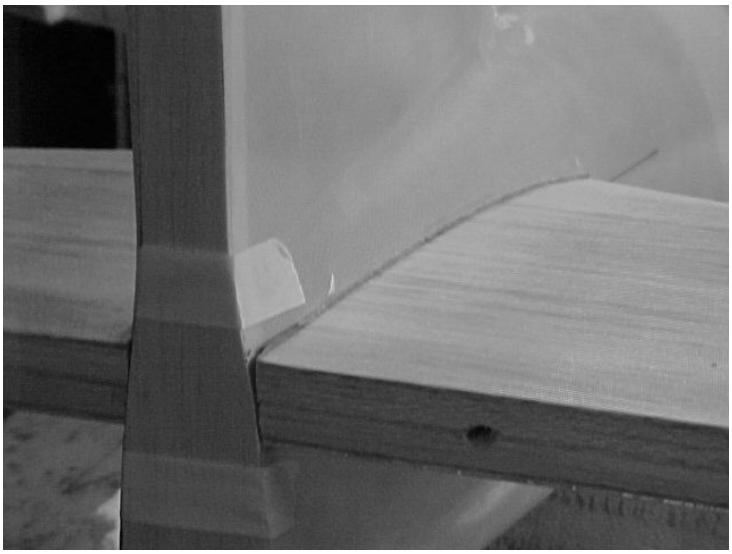
Drill a 1/8" dia. hole at front and rear on centerline and pass a steel rod through fuse and see if they line up with the wing and also with each other. If they do, go ahead and cut stab holes to the line. If not, it means one side of stab centerline is low and needs to be corrected. The stab should be level with the wing. Measure from the tips of the stab to the tip of the vertical stab. The stab lines should be equal.

Step5



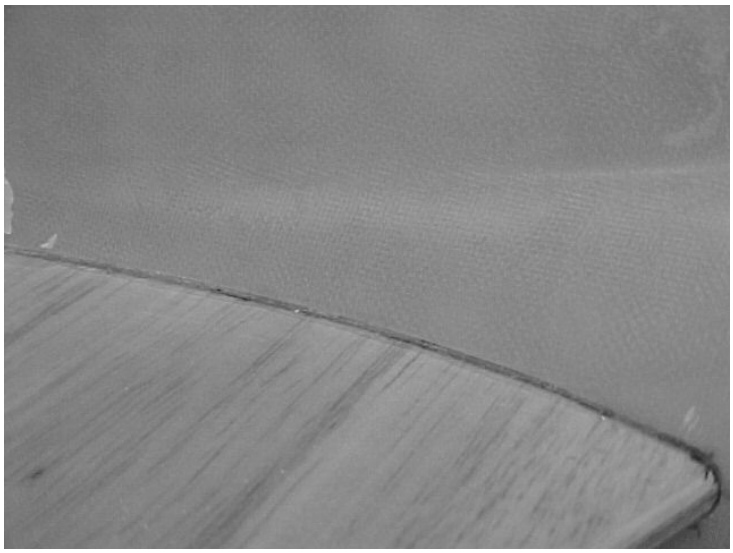
Small Sheet metal screws to hold tail section on.

Step 6



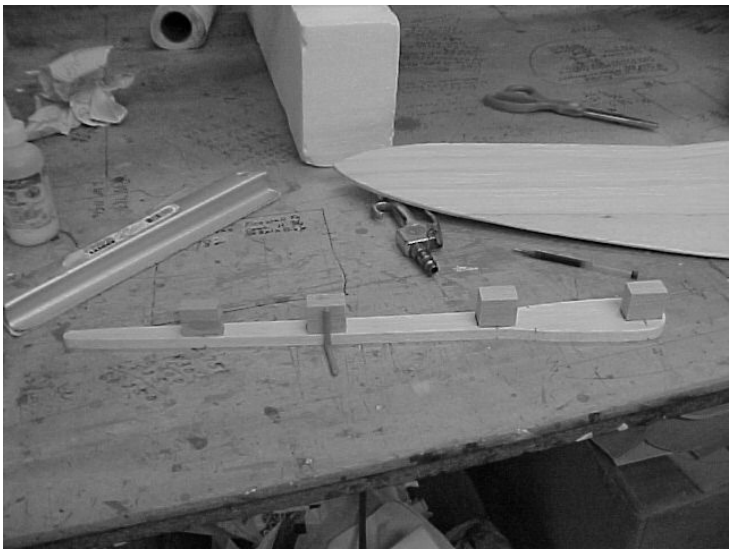
Read building notes on sliding the stab in place. Once you are satisfied with the alignment of the stab and tail post, tack glue using thick CA and some milled fiber filler. After tack gluing in place, remove the tail post and apply a thin coat of 30 min. Epoxy and tape back into place. **NOTE:** Do not glue the stab in place without the tail post being installed temporarily.
Also while gluing in the stab, be careful not to get glue on the post. Take your time and get it right!! You don't get a second chance. Make sure to install the hinge blocks on the front side of the post before installing to the fuse. Do NOT align the blocks in the way of the stab!

Step 7



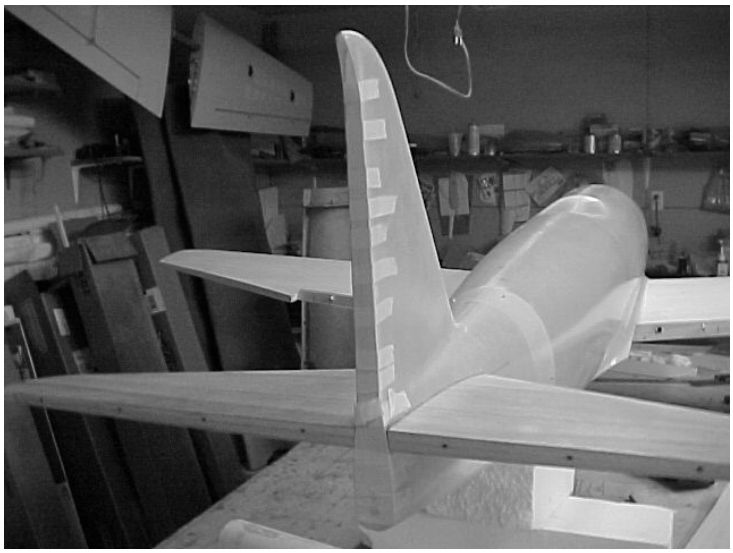
Here is the stab installed in the fuse with thick CA and milled glass fibers. All gaps are filled with thick CXA and fiberglass fibers.

Step 8



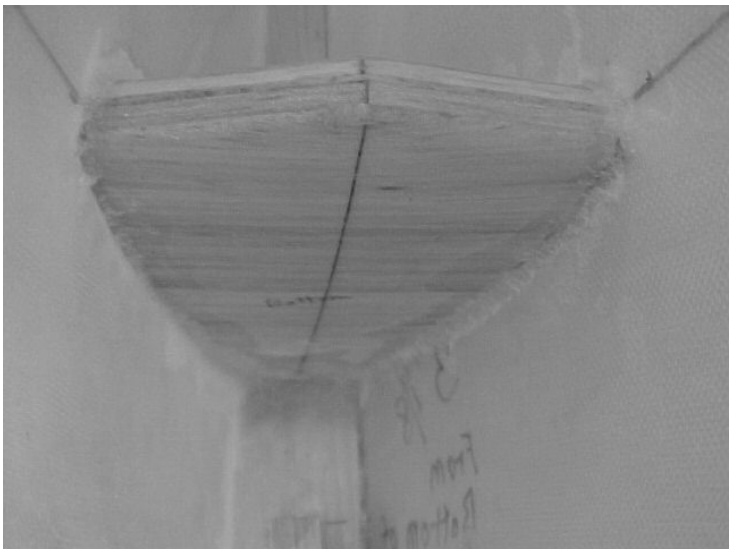
Tail post with the hinge blocks in place. Watch for alignment!!!

Step9



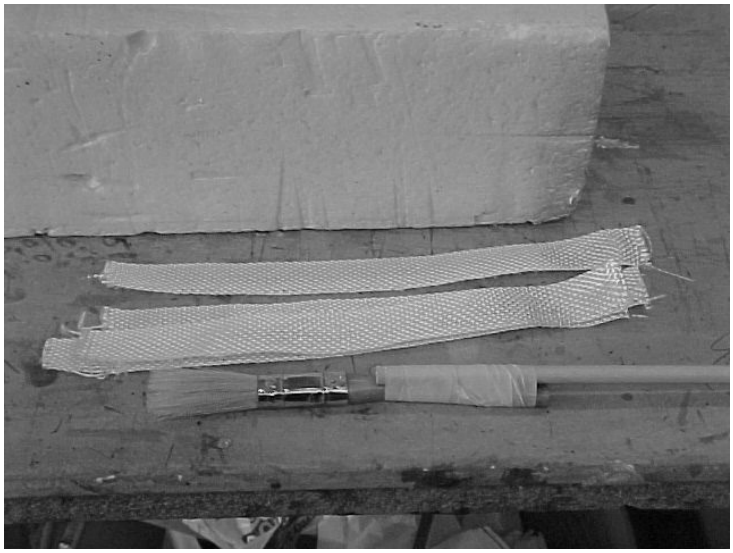
Now your tail should look like this. Stab and tail post installed. After you have installed the stab and post, remove the tail section from the front fuse section. Be careful not to break any glue joints!

Step 10



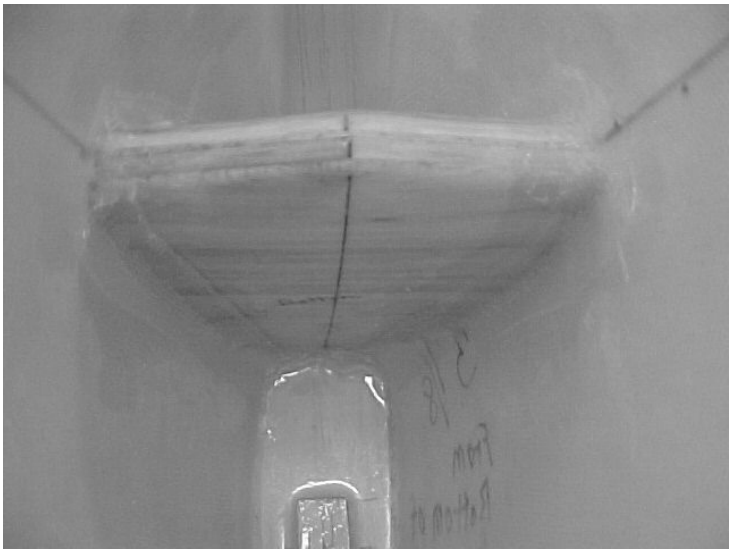
Looking at the stab from the inside of the tail section. Ready for to be fiber glassed. **NOTE**: When using CA on fiberglass, do NOT use CA accelerator as it heats up the glass and may Distort or melt the fuse.

Step 11

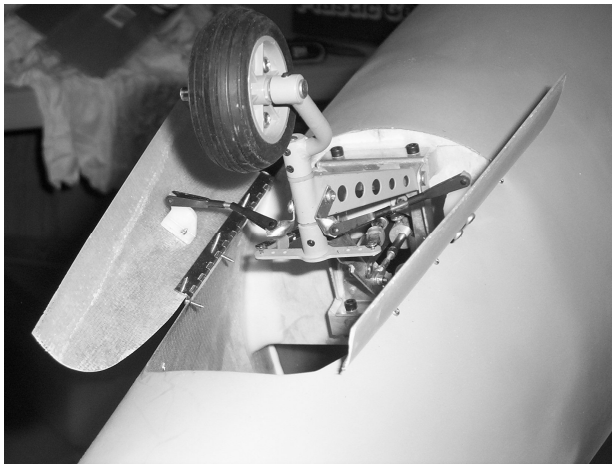


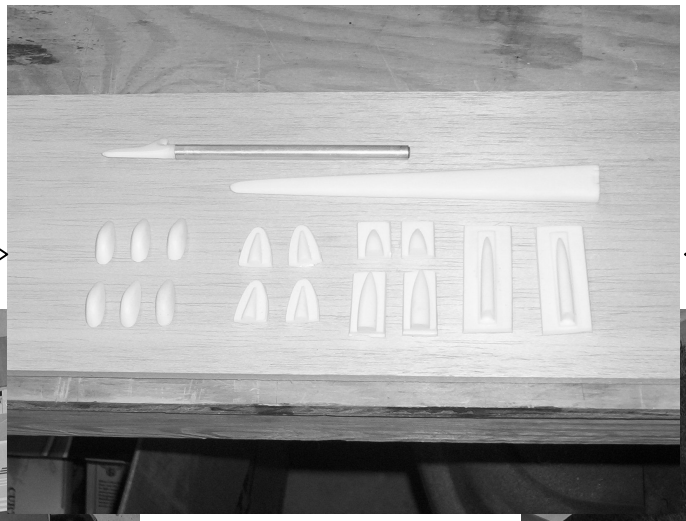
Cut 1” fiberglass extensions for the next step. You can use a disposable brush and a dowel to reach the stab.

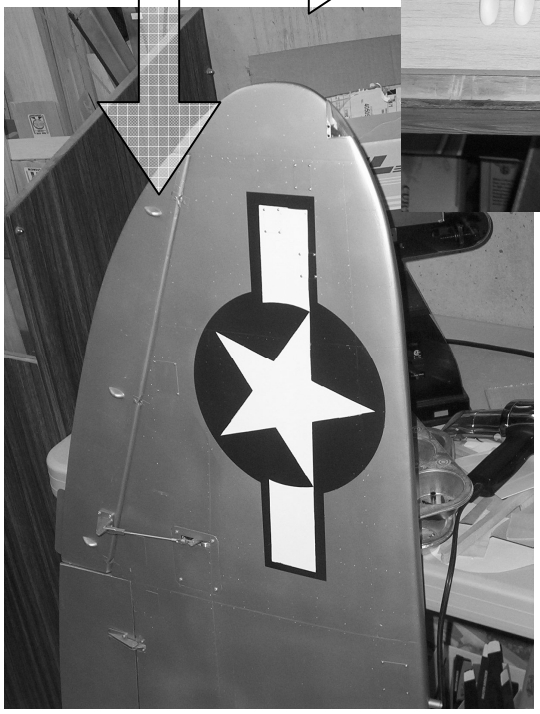
Step 12

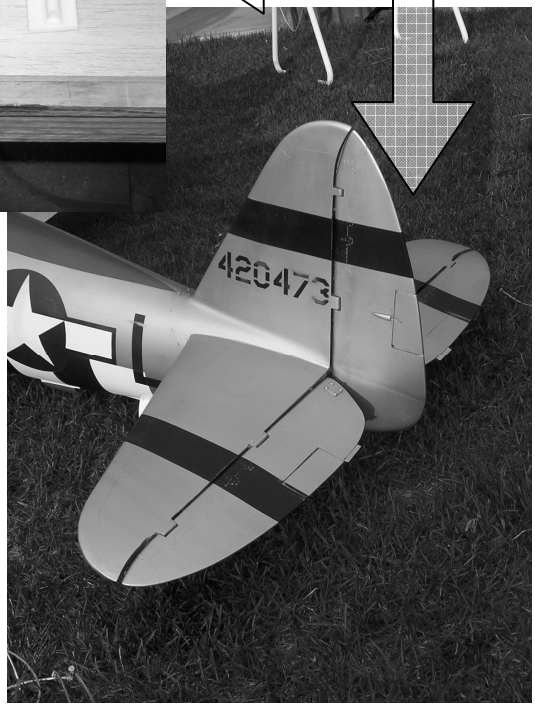


Epoxy the 1” strips on the top and bottom of the stab, fuse and rudder post. After you have finished the stab, install the tail wheel former. Be careful not to get any glue residue on the slip joint areas.





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