



MEISTER SCALE
FOCKE-WULF 190

Introduction

Experience Level

Building the **Meister Scale** FW 190 requires only moderate experience with basic fiberglass and wood construction to complete the model. However, the need and understanding for proper *craftsmanship* is of utmost importance to realize the total process from opening the box to getting the model into the air. This is simply the nature of giant scale modeling. If you have some experience with *building* and *flying* models of this type you will have no problem with the construction of this model. If this is your first giant scale model, don't be afraid to seek help. As the builder of this model it is up to YOU to see to it that this model is properly constructed and operated.

About The Kit

The kit contents and this manual are arranged into sections or groups. These groups correspond with each other throughout the building process. The building process follows a sequence that is known to work. It is a logical and well thought out process. However, if you have the experience to go at it a different way, then we say "go for it". In any case it is strongly suggested that you spend a bit of time in the beginning to get familiar with the contents of the kit and how and where they are referred to in this manual and on the plans.

The plans are drawn on two sheets. You will find that these are not drawn to full size. After careful consideration it was seen that a smaller set of plans could greatly benefit the modeler. You can now refer to any spot on that drawing without the need of a separate table to lay the plans out completely. If unsure of a particular item or step, check and follow the instructions and/or the plans.

Landing Gear Option

To complete your model you will need to purchase a set of gear that are specifically designed for this model. These can be purchased directly from **Meister Scale**. Just as these gear are specially designed for our model, so too is the FW190 designed to accept these gear. If you decide to try and alter the gear type, you will also need to alter the model as well in the area associated with the gear. Any alterations or deviations are the sole responsibility of the modeler.

What Is Needed To Start

As we mentioned earlier, it is expected that the builder of this model possesses at least most of the skills necessary to construct a model of this type. With these skills comes knowledge of modeling tools that may be needed for a given procedure. For this reason we will not give a piece by piece count of every tool used during the construction of this model, rather from time to time we will mention the method and tools used to achieve a desired result on the factory prototypes. Our first model was built using very basic modeling tools, on an average size banquet table.

About Adhesives

The prototypes were built using a variety of adhesives throughout the process. Predominantly speaking, a good CA such as the Pacer ZAP line is a must. The fuselage is laid up with epoxy. CA is used in all wood-to-wood and wood to Fiberglass areas. Additional strength is gained at times from using fiberglass strips with an epoxy resin to bond wood formers to the fiberglass fuselage. Also, industrial strength glues such as **Meister Scale** Hysol Aero Poxly will provide tremendous strength and are suggested in some areas.

Hardware Selection

Along with the construction of the FW 190, you the modeler, will need to select, acquire and install, an engine and its associated hardware as well as the onboard radio gear, landing gear etc. We will make suggestions based upon our experience with the FW 190 as well as the experience gained with other models. The final selection and operation of this equipment is left entirely up to you and your experience.

Thank you

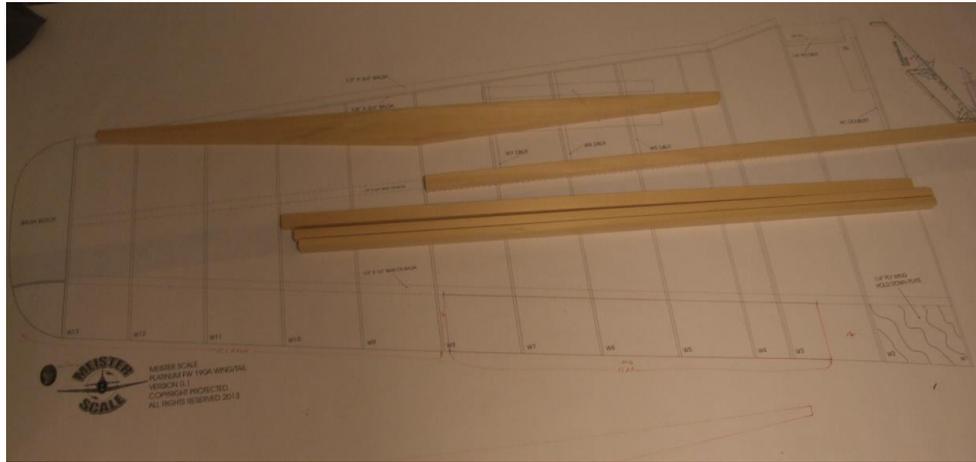
Dino Di Giorgio

President

Meister Scale Models

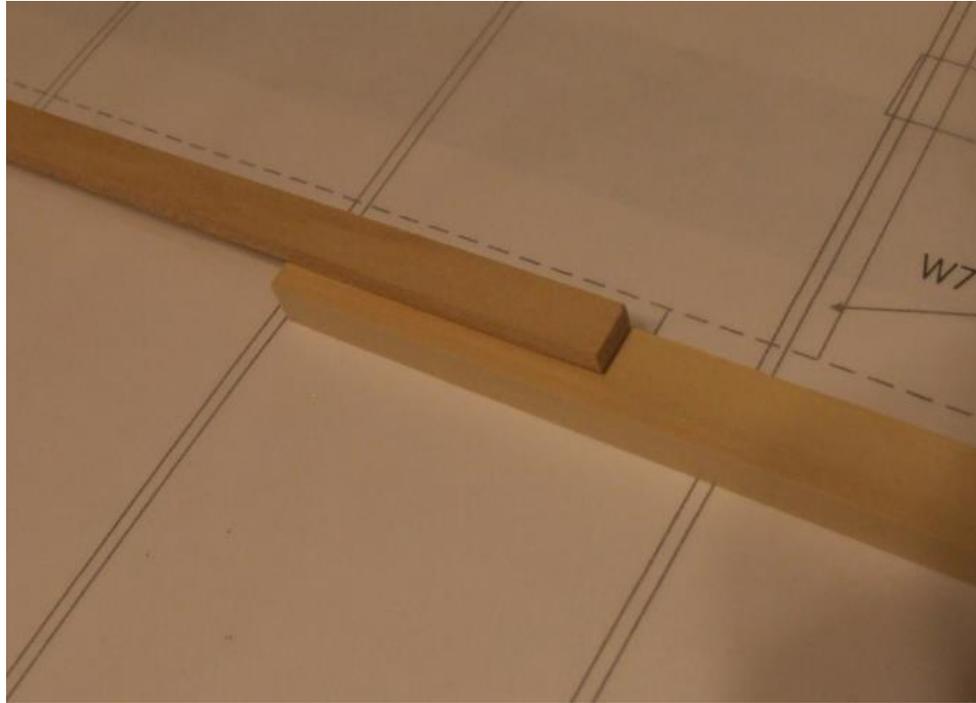
Build your main spar.

1. Splice Bottom Main Spar.
 - a. In this example we started with the left panel

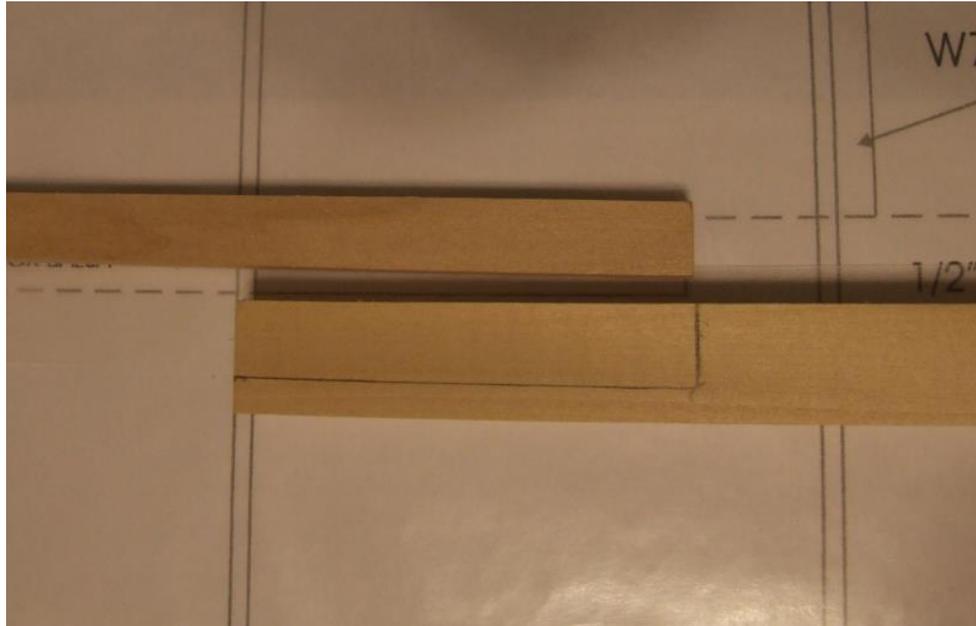


- b. Splice the $\frac{1}{4}$ x $\frac{1}{2}$ with the $\frac{1}{2}$ x $\frac{3}{4}$ spar material.
 - c. Overlap the $\frac{1}{4}$ x $\frac{1}{2}$ with the $\frac{1}{2}$ x $\frac{3}{4}$ spar material.

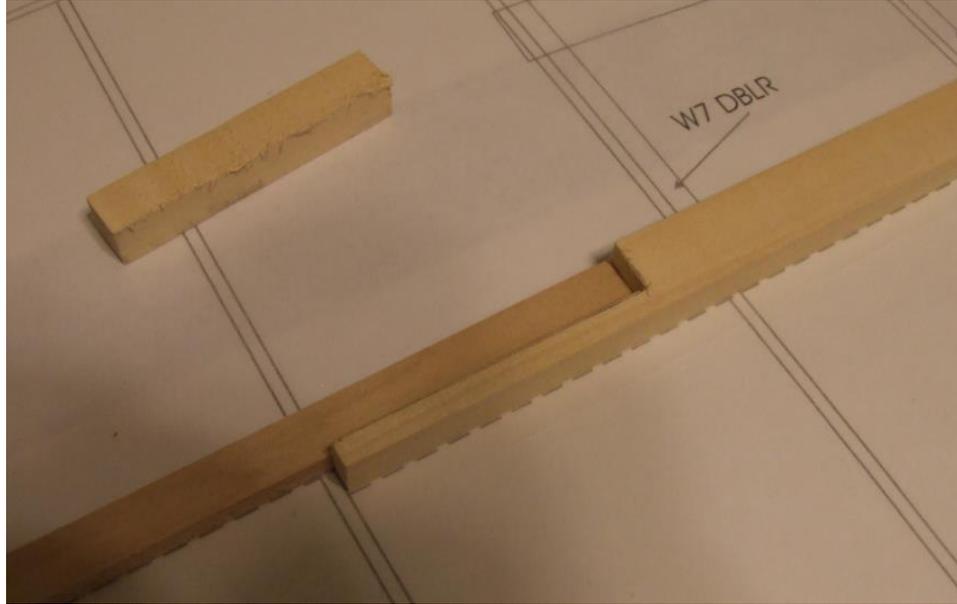




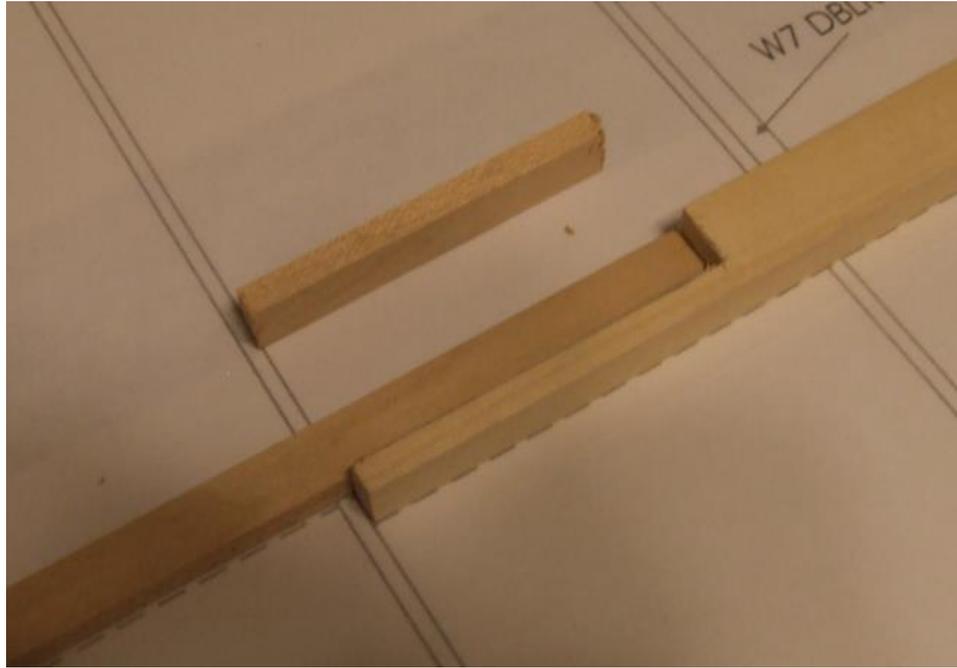
- d. Use the $\frac{1}{4} \times \frac{1}{2}$ spar material to trace the notch to be cut in the $\frac{1}{2} \times \frac{3}{4}$ spar material.

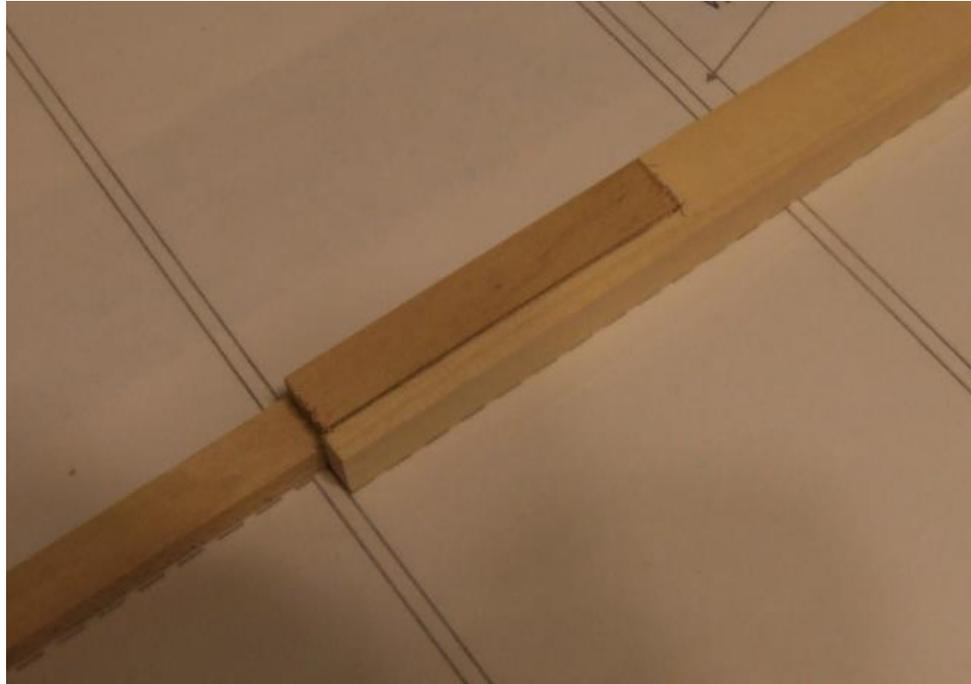


- e. Cut the notch in the $\frac{1}{2} \times \frac{3}{4}$ spar material.



f. Cut a piece of filler from scrap $\frac{1}{4}$ x $\frac{1}{2}$ spar material the same size as the notch.





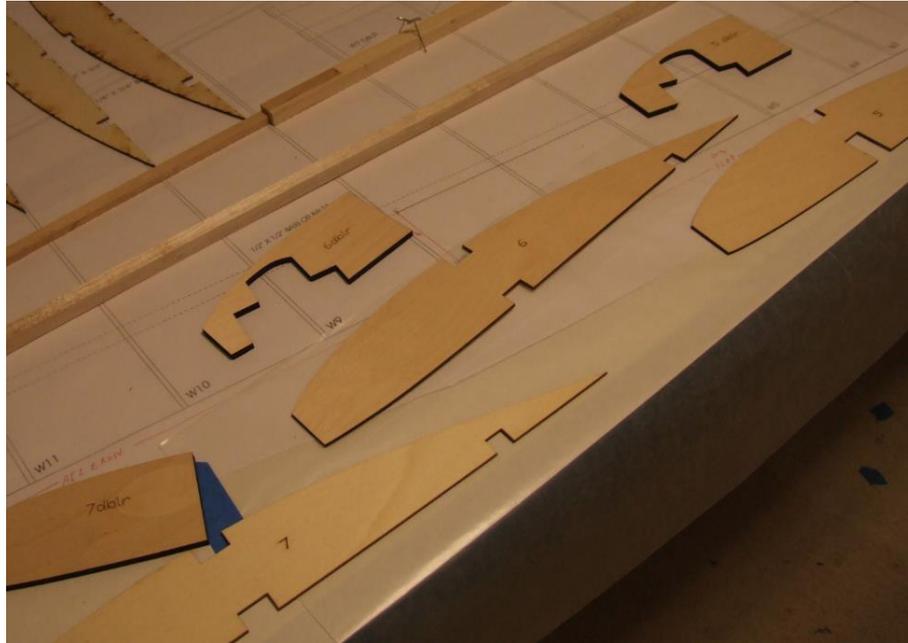
- g. Glue the bottom main spar together and pin it to the appropriate position on the plans.



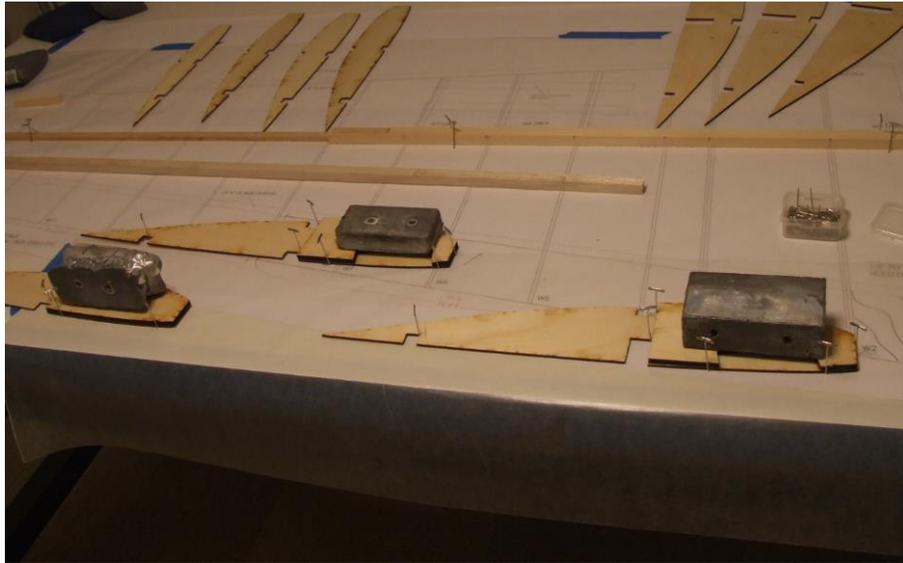
Building the Main Wing

- 2. Glue the doubles on to the appropriate side of RIB 5, 6, and 7

- a. Identify and gather the RIBs and doublers

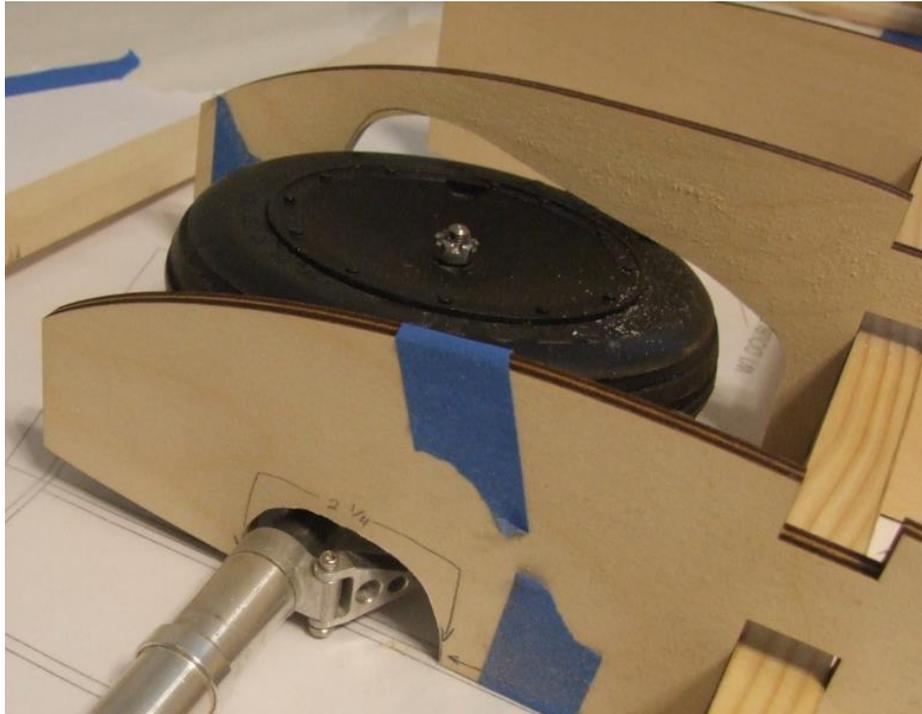
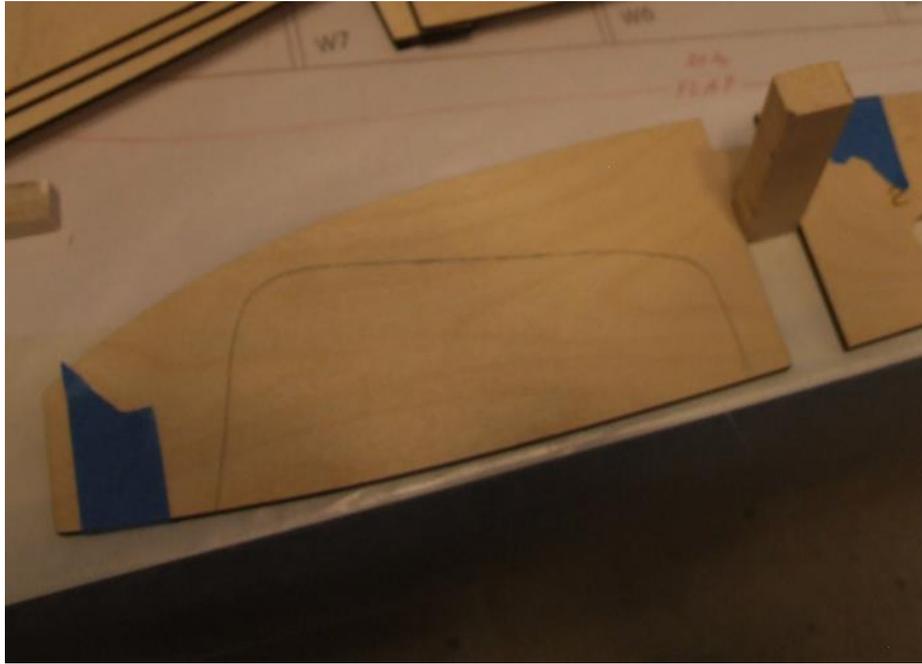


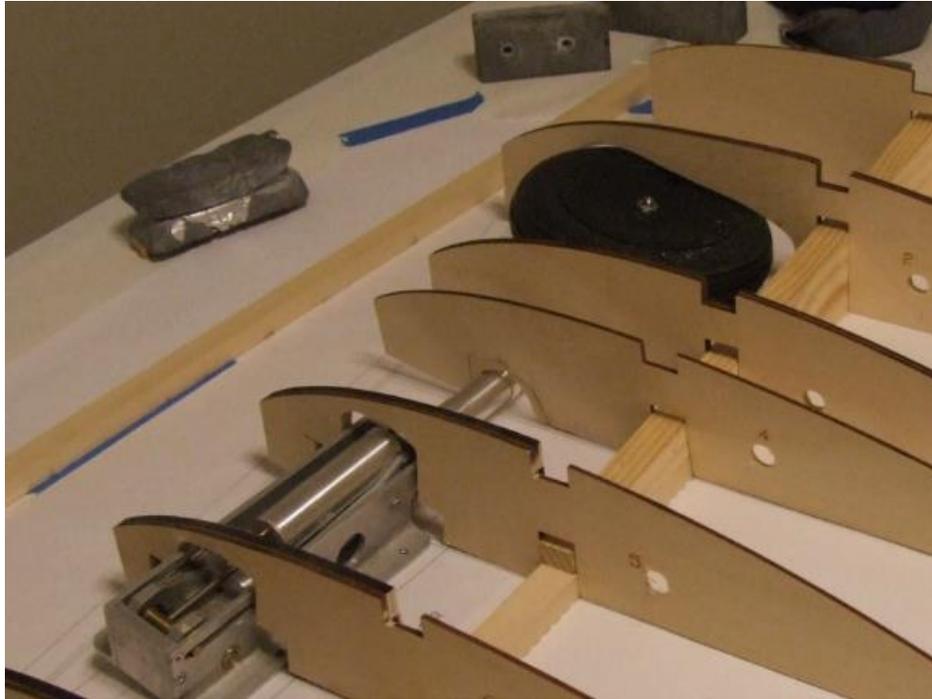
- b. Glue the doublers on to the appropriate side of RIB 5, 6, and 7



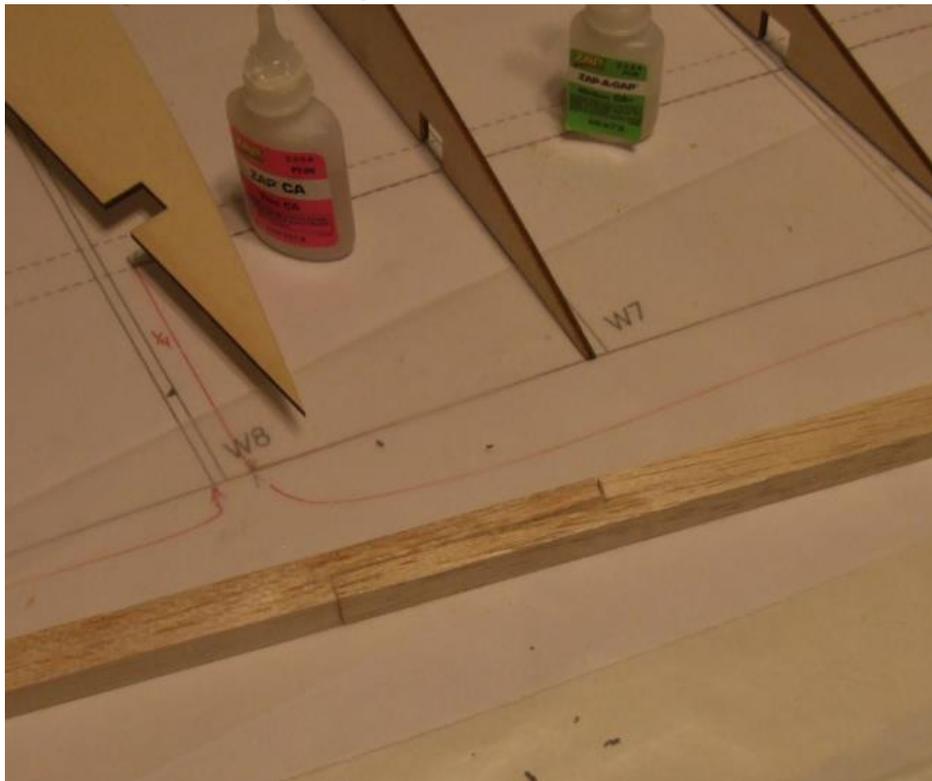
This would be a good time to use the doublers to cut out the relief for the landing gear blocks.

- c. At this time we chose to cut the space for the landing gear and tires in RIB 2, 3, and 4.

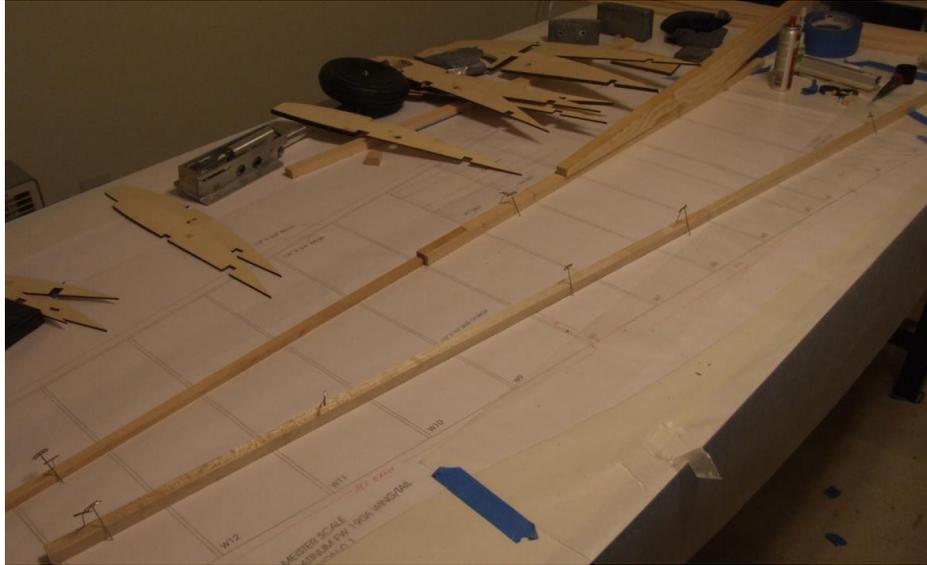




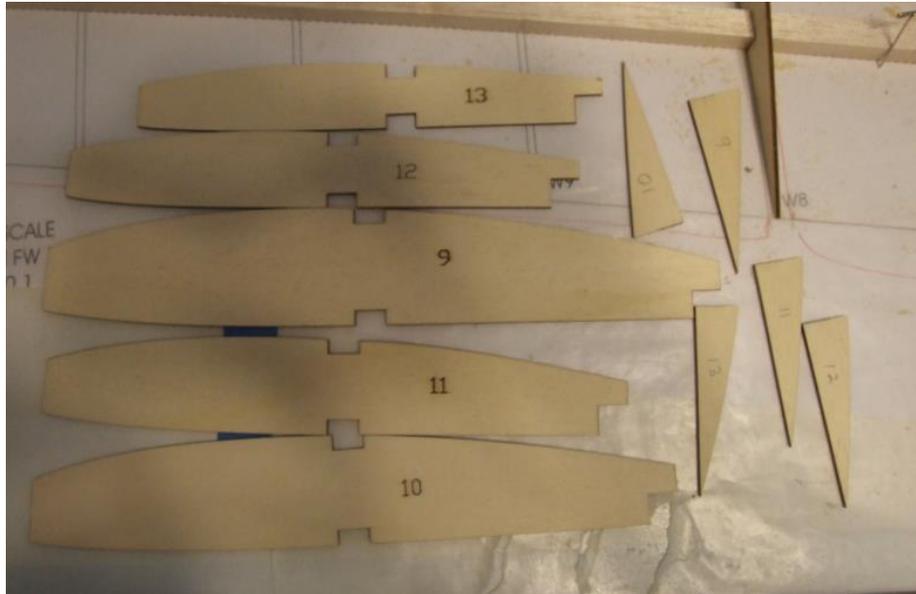
3. Splice the rear spar.
 - a. Splice the rear $\frac{1}{2} \times \frac{1}{2}$ balsa spar together



- b. Pin the rear $\frac{1}{2}$ x $\frac{1}{2}$ balsa spar to the plans in the appropriate location.



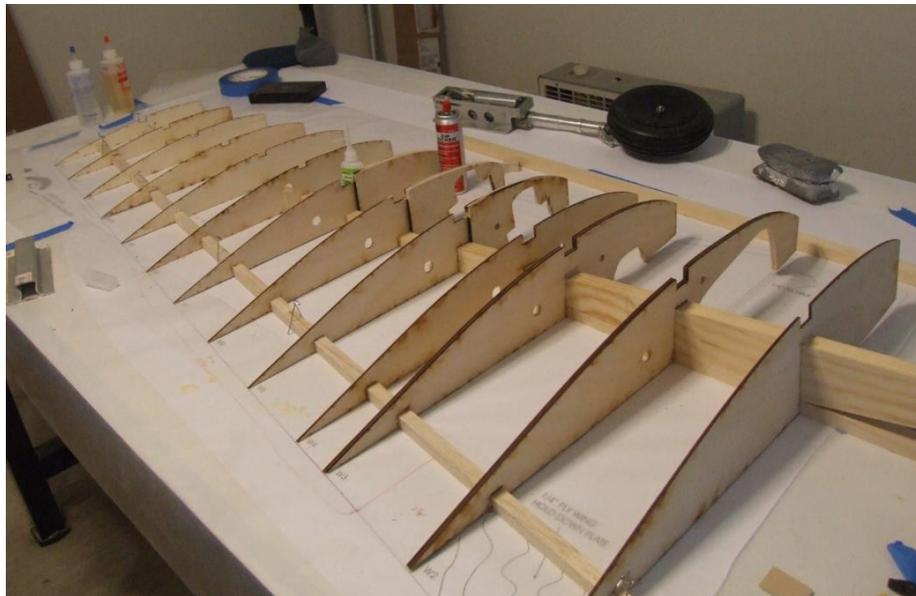
- c. **TEST FIT ALL OF YOUR RIBS BEFORE GLUEING THEM IN PLACE.**
d. Cut the ends off of RIB 9,10,11,12 and 13. This is the location of the aileron.



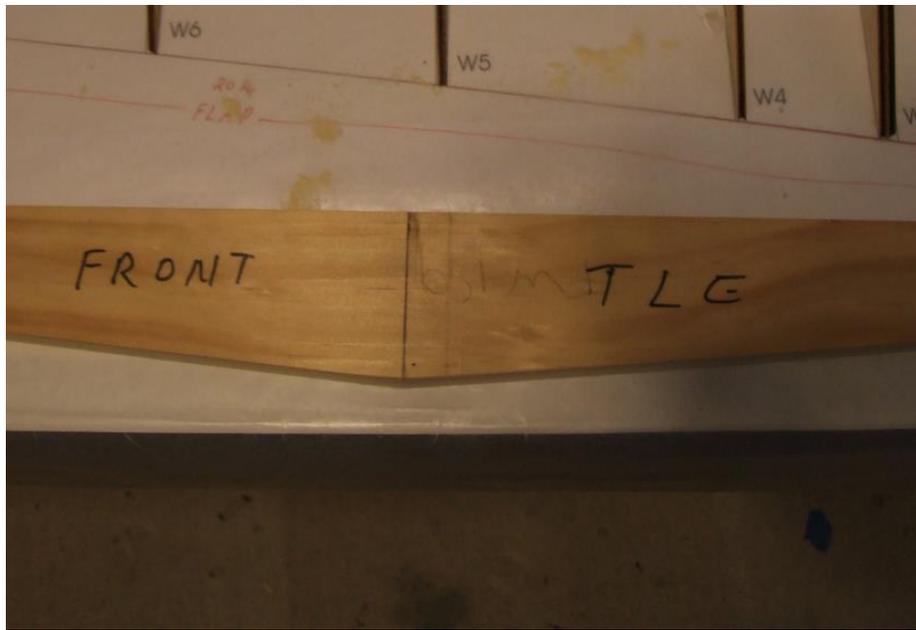
- e. Start gluing the RIBS in place starting with **RIB 2**. Ensure all RIBS are glued straight.



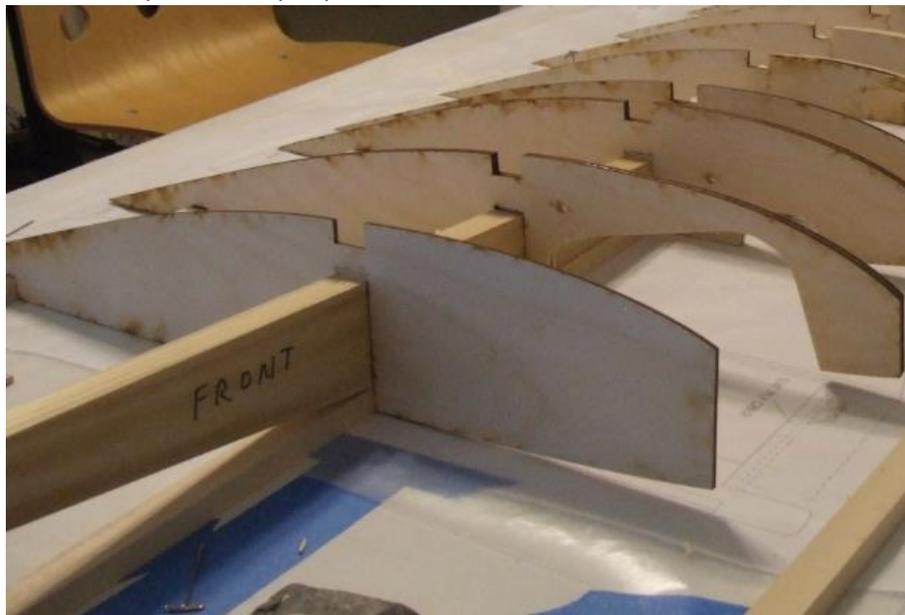
- f. Repeat this step for the rest of the RIBS out to the wing tip. **Do not Glue RIB 1 in place at this time.**



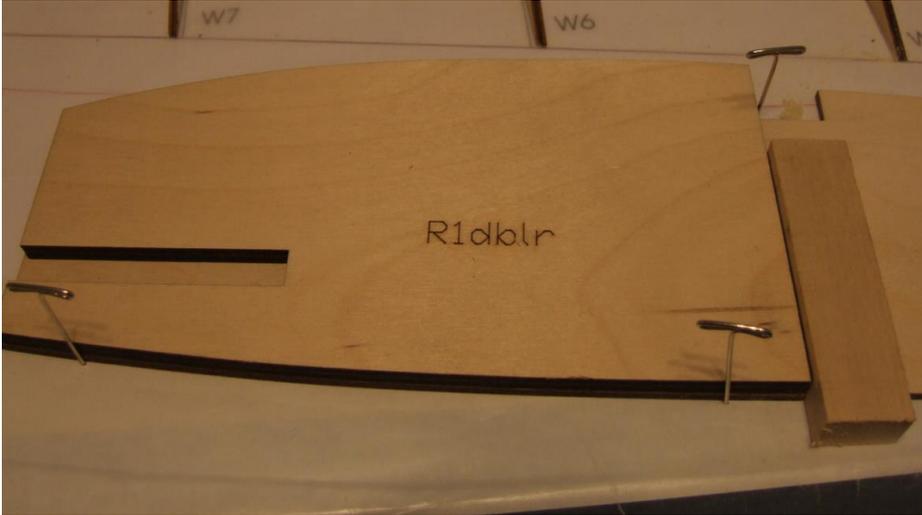
4. Build the main spar pocket
 - a. Mark the center of you main spar with a line and mark one side as the front or the back. **Always have your spar facing the same direction when you build your wing.**

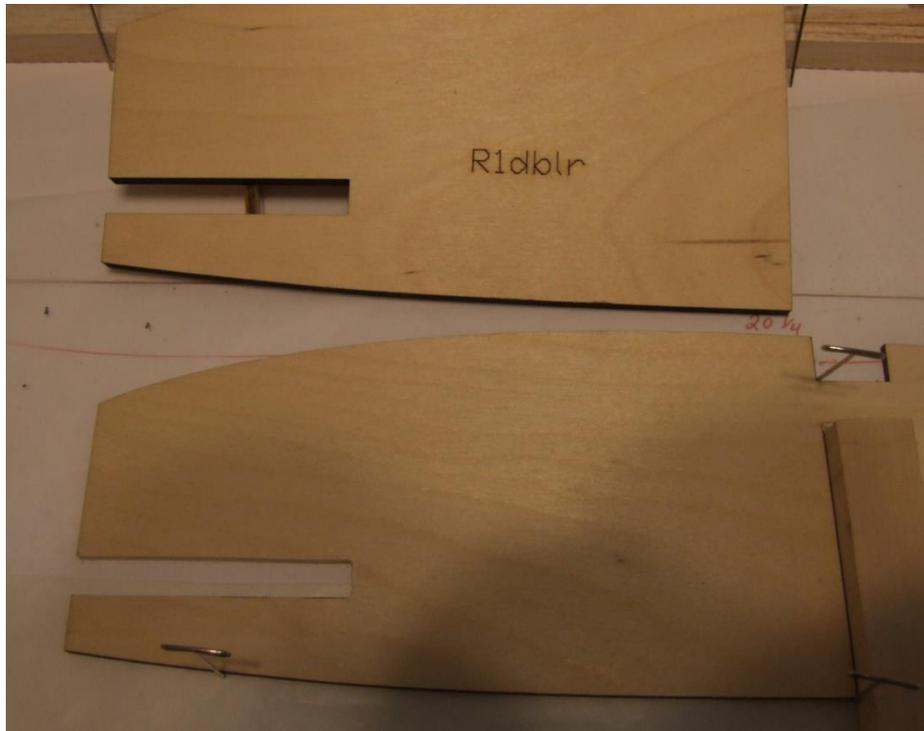


- b. Insert the main spar in the spar pocket in the RIBs.



c. Glue the RIB doubler on to RIB1.





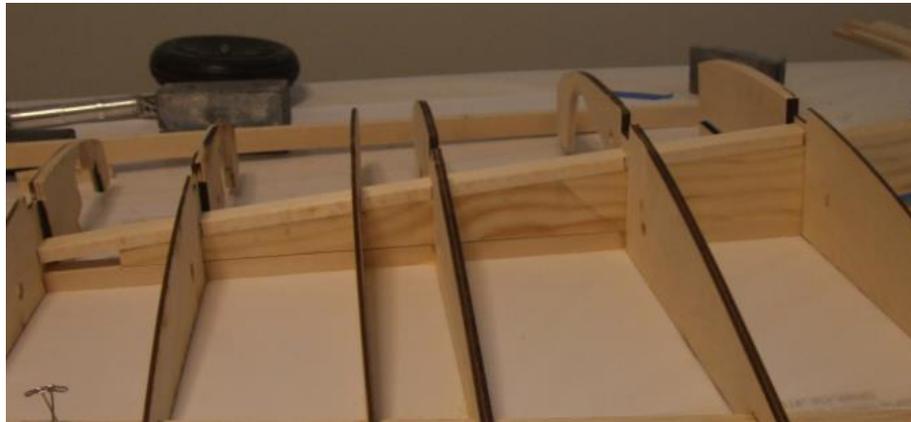
- d. Use the line scribed on the wing spar to tack RIB 1 in place on the bottom spar. We used a piece of wood to hold RIB1 in place to ensure it matched the scribed line.



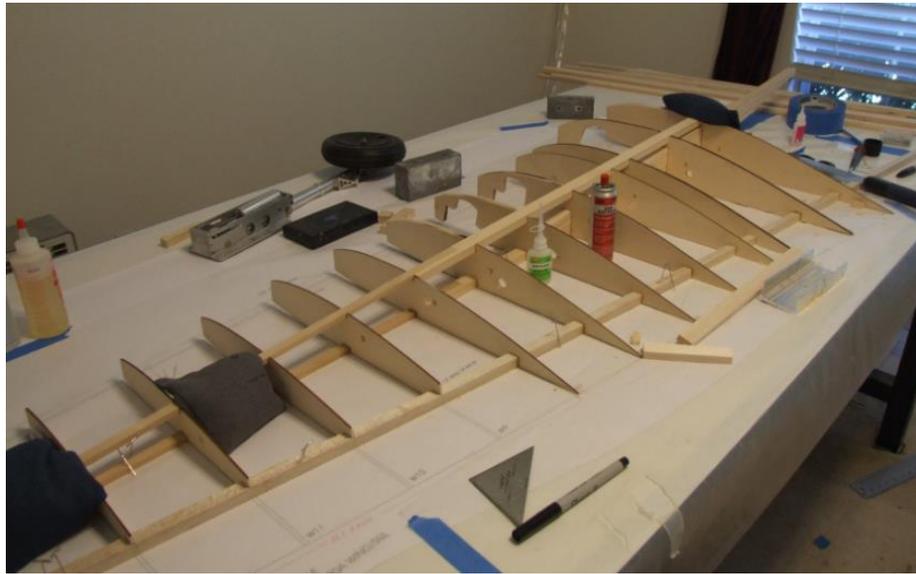
- e. Build your top spar using the same method that was used in the bottom spar. Do not glue in place. **However when you glue the spar together the $\frac{1}{4} \times \frac{1}{2}$ will be on the top side of the splice.**



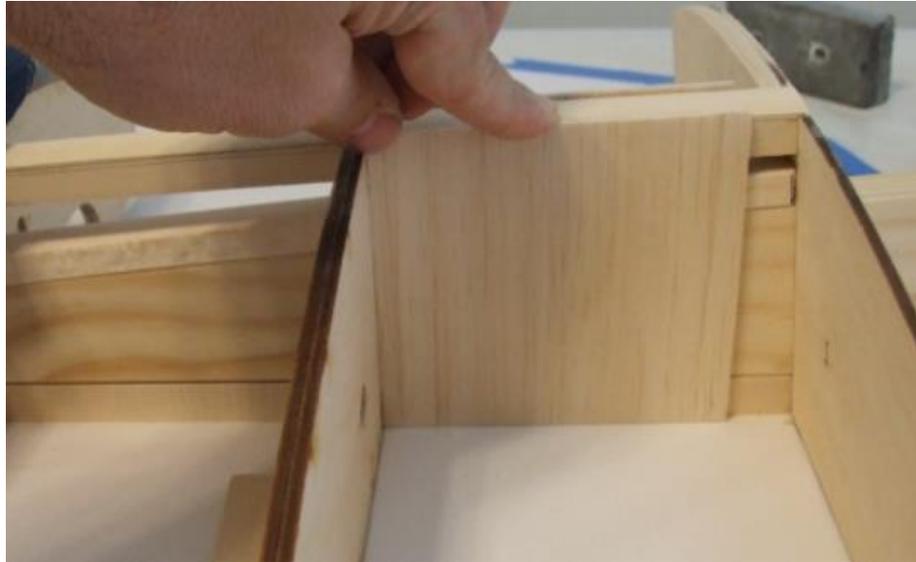
- f. Cut $\frac{1}{2} \times \frac{1}{4}$ balsa to create the main spar pocket. Glue them in place between the RIBs very carefully to ensure no glue get on the floating spar.



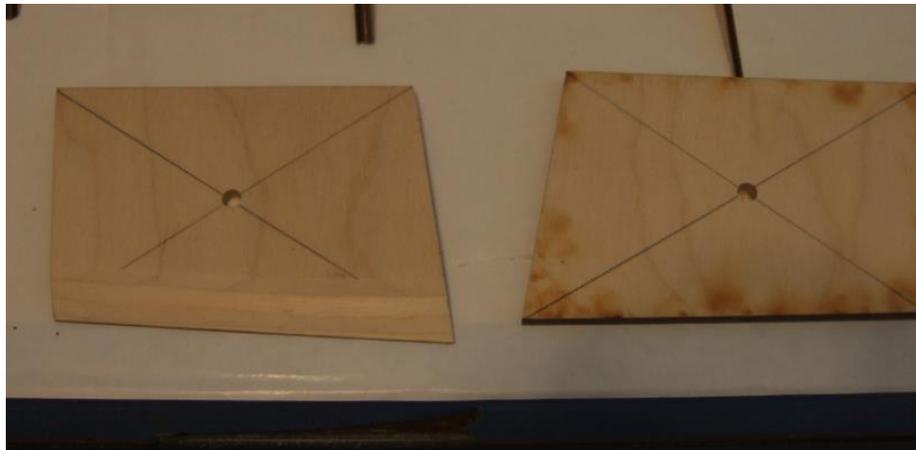
- g. Glue the top spar in place.



- h. Cut 1/8th balsa sheeting for sheer webbing. Glue them in place along the spar front and back. **Ensure no glue gets on the floating spar.**



- i. Locate the Wing bolt down plate. Use a ruler to draw an X from corner to corner. Drill a $\frac{1}{4}$ 20 hole where the lines intersect.



- j. Test fit this plate between RIB 1 and RIB 2 at the Trailing edge. We took the opportunity to ensure the trailing edge of the plate was shaped at this time.



- k. Glue the wing bolt hold down plate between RIB1 and RIB2 flat on the table. Fill in the gap between the wing bolt hold down plate and the top of the RIBs with scrap balsa.



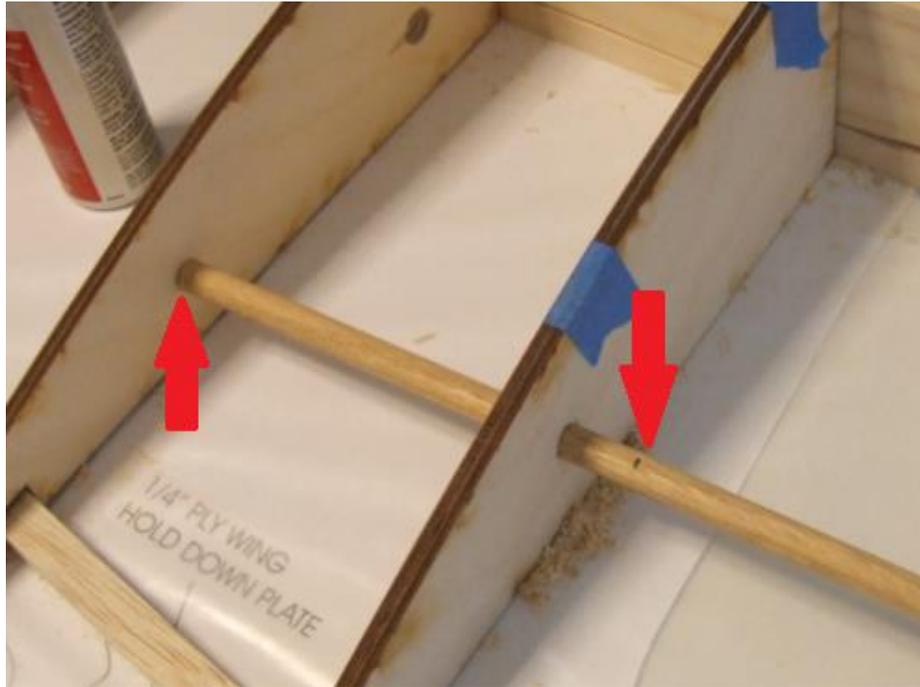
- I. Insert floating spar in framed up wing panel.



- m. Secure both RIB1s together with tape. Choose a location for the anti-rotation pin. Drill a 3/8th inch hole for the rotation pin.



- n. Test fit the $\frac{3}{8}$ th inch hardwood dowel mark the location on RIB2. Leave $\frac{3}{4}$ of an inch of doweling to be the anti-rotation pin into the opposite wing panel.

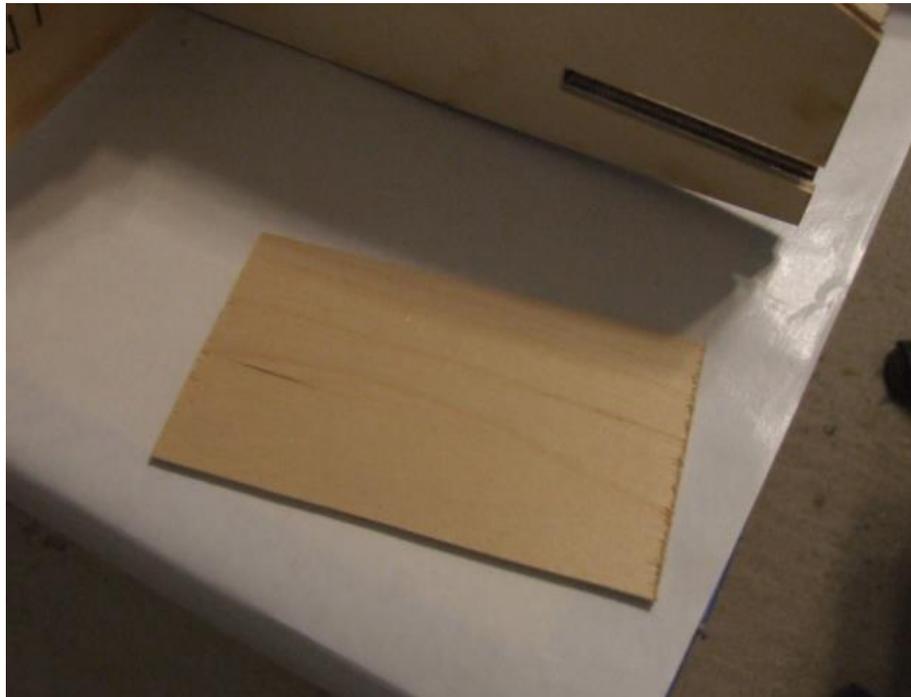


- o. Create a backer plate for RIB2 with a $\frac{3}{8}$ th inch hole in it made from $\frac{1}{4}$ inch ply. Reinforce the $\frac{3}{8}$ th inch hole in RIB1 with a $\frac{1}{8}$ th inch ply former.



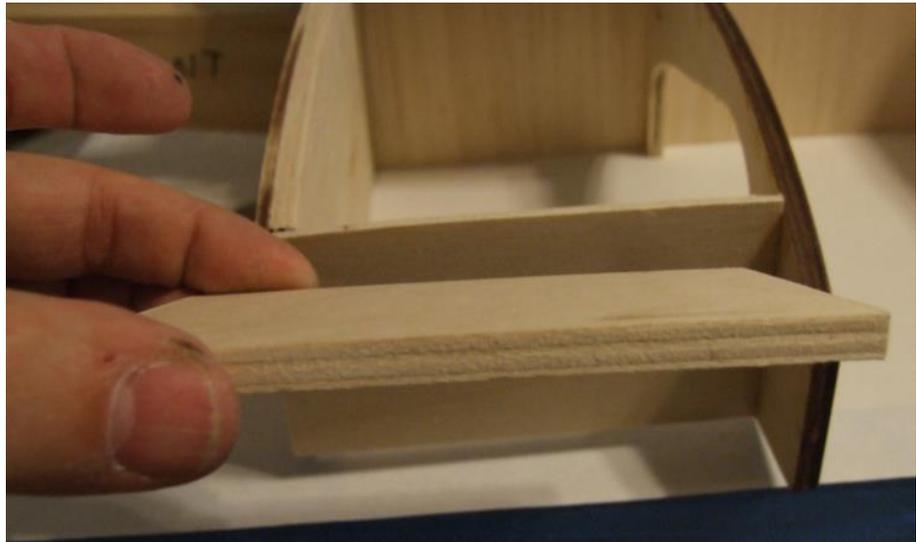


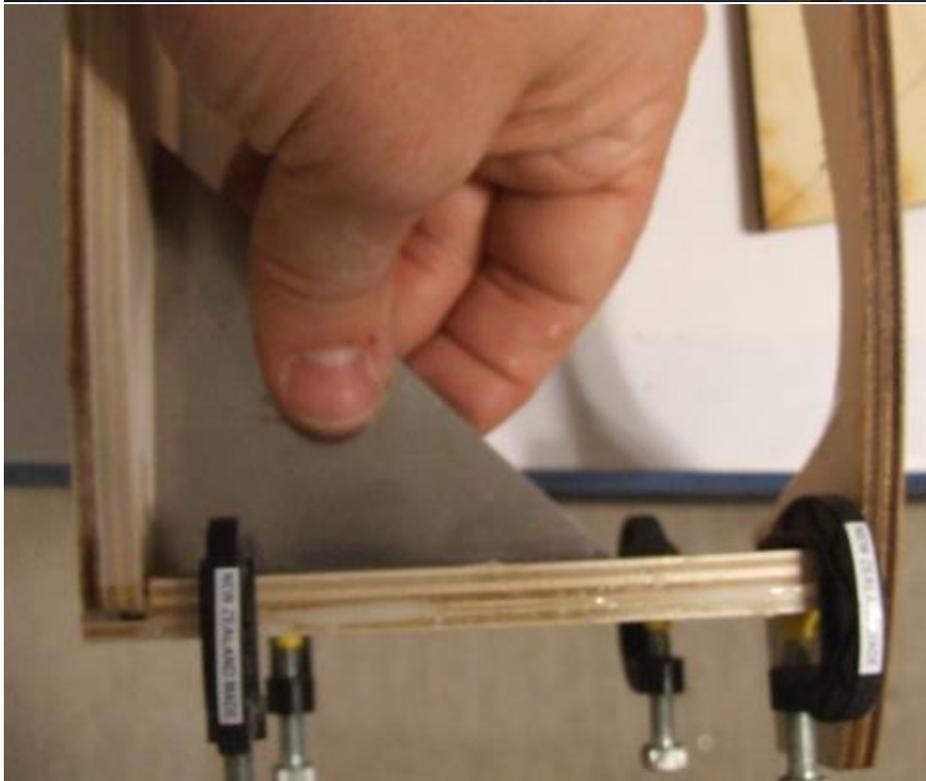
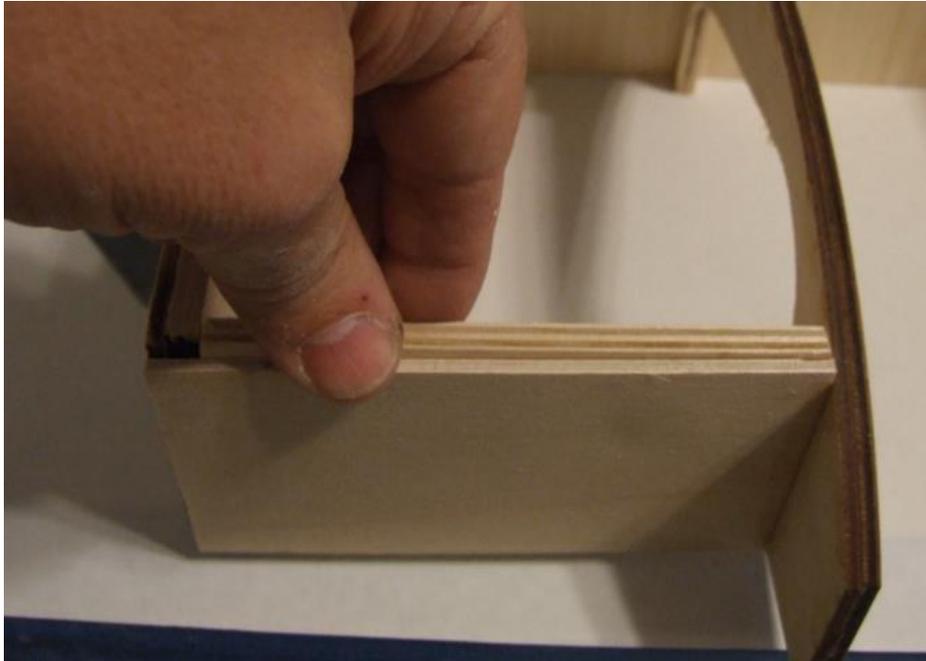
- p. Cut an appropriate sized 1/8th inch piece of ply for the front striker plate to be glued between RIB1 and RIB2.



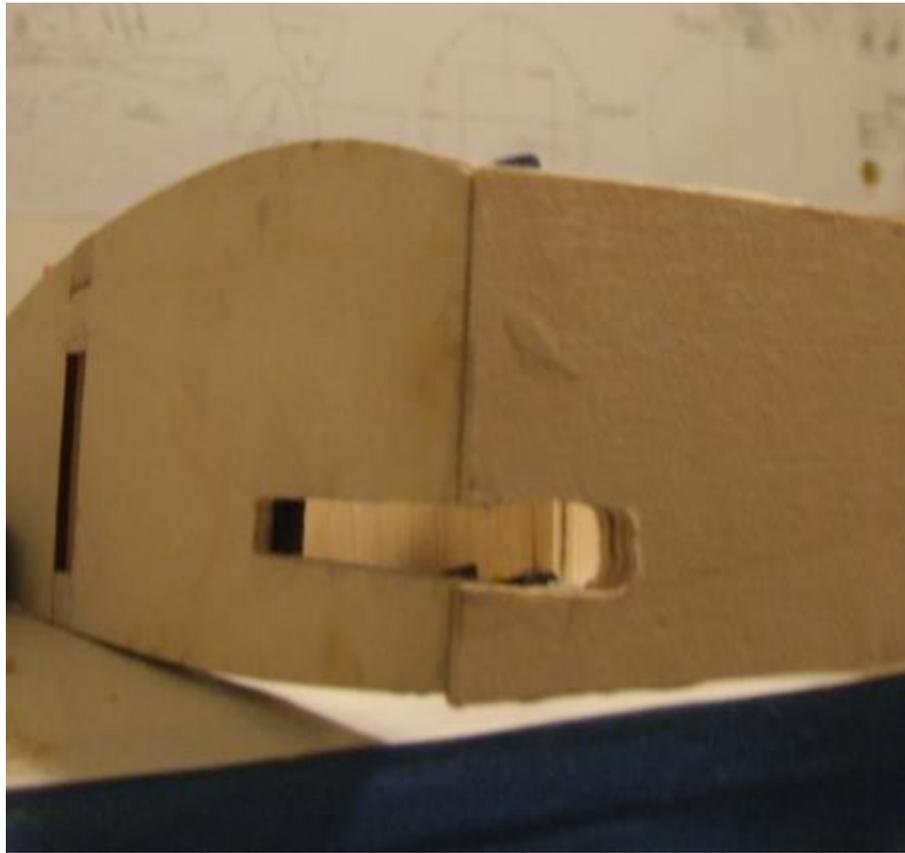


- q. Cut an additional piece of $\frac{1}{4}$ ply to be glued on the back side of the striker plate and Glue it in place between RIB1 and RIB2.

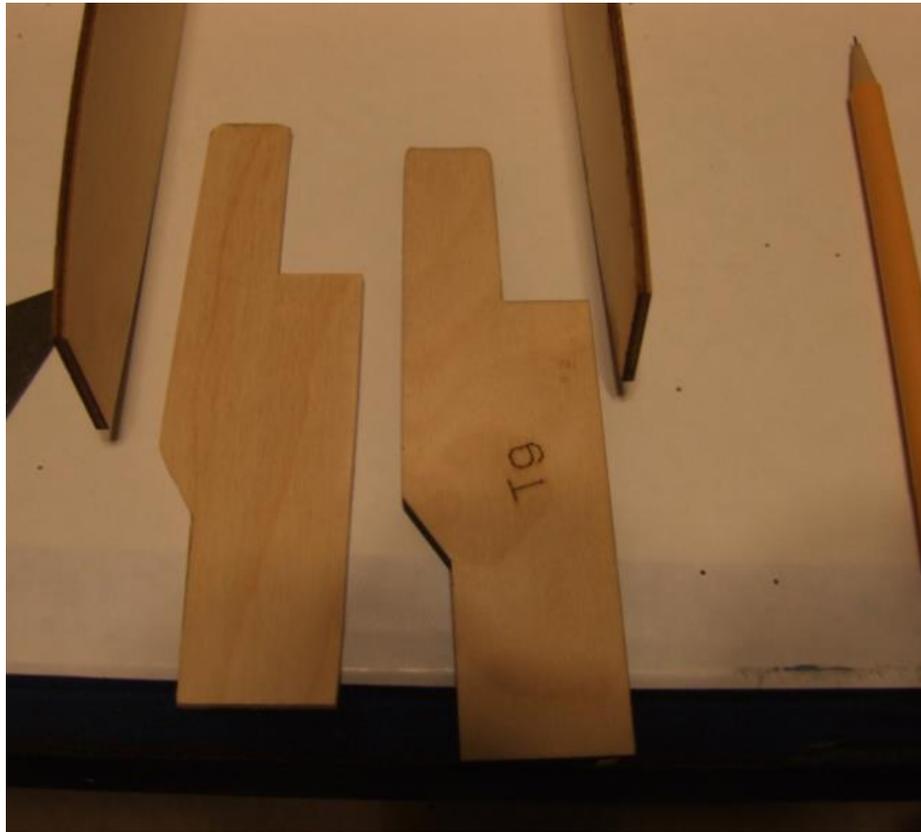




- r. Cut a hole to accept the wing tongue.

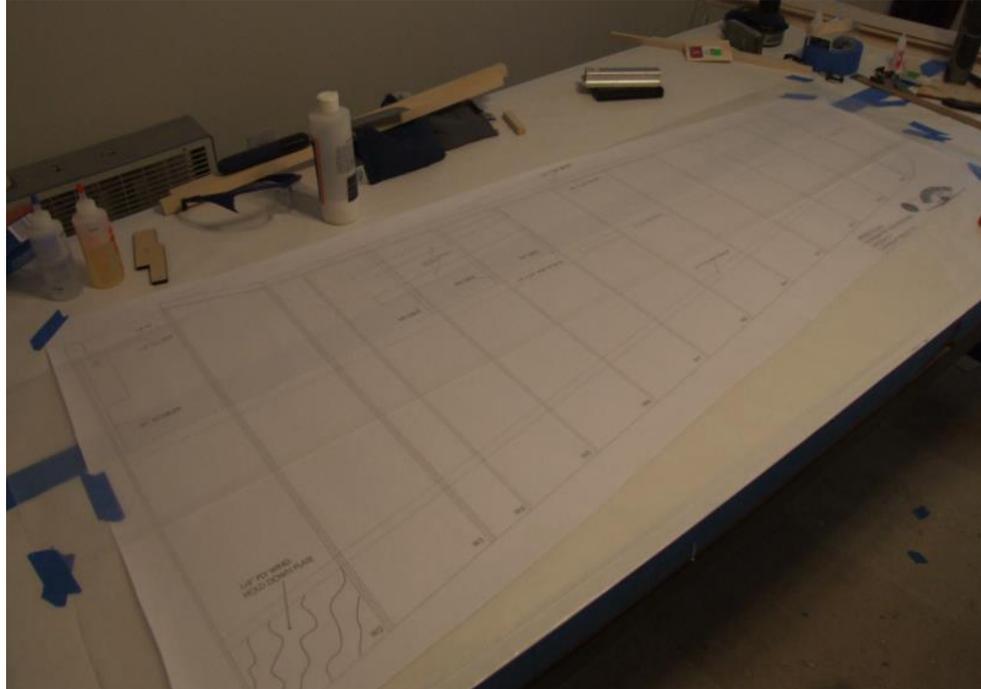


- s. Assemble the wing tongue and glue it in the wing panel.

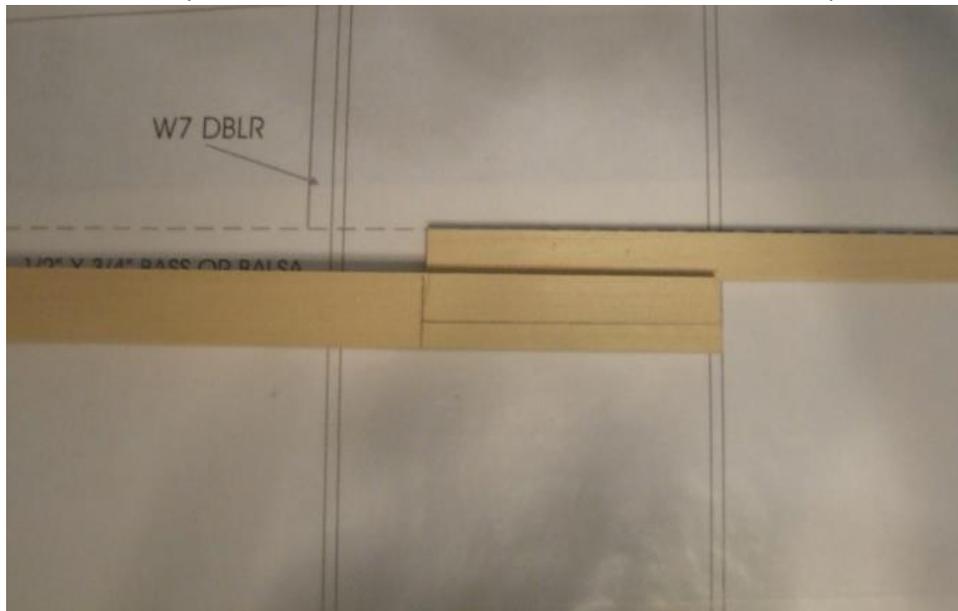


Build the other wing panel.

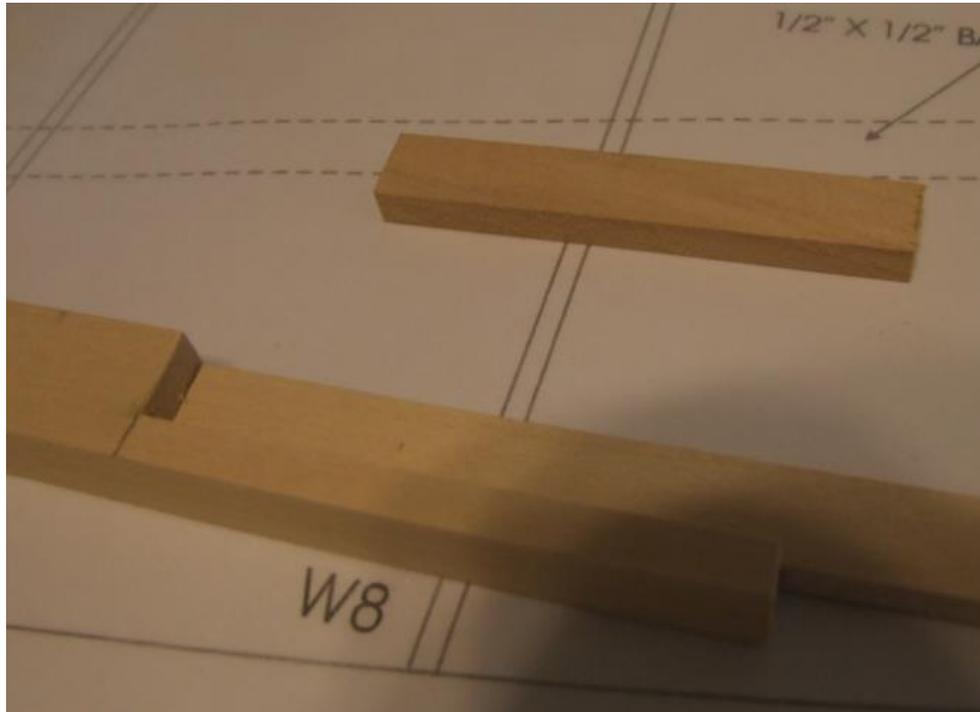
5. Splice Bottom Main Spar.
 - a. In this example we started with the right panel.



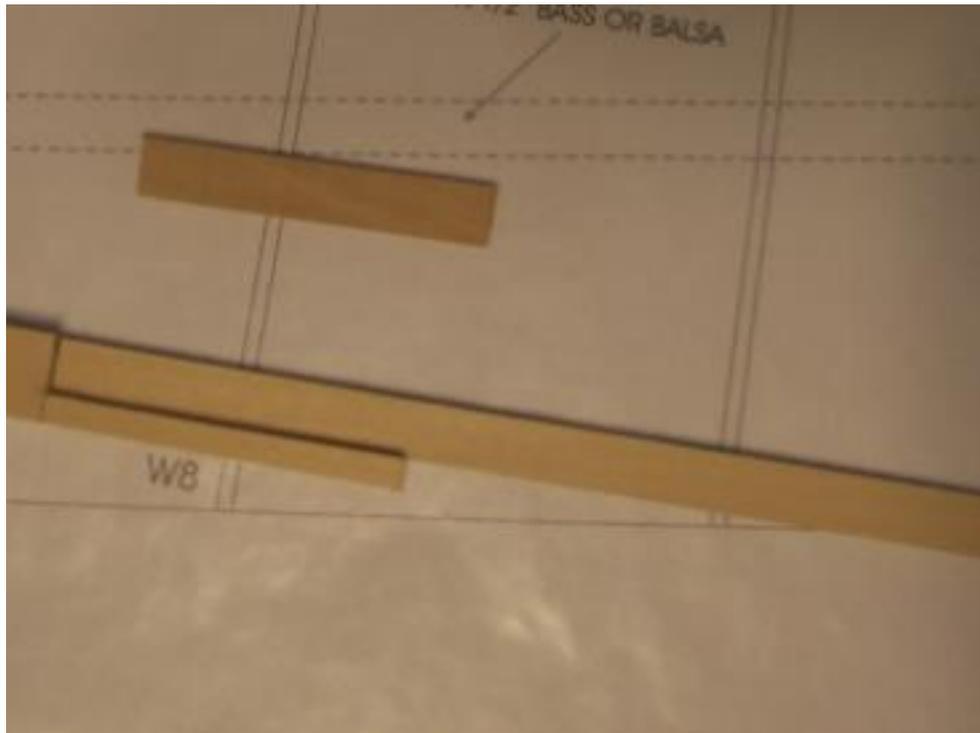
- b. Splice the $\frac{1}{4} \times \frac{1}{2}$ with the $\frac{1}{2} \times \frac{3}{4}$ spar material.
 - c. Overlap the $\frac{1}{4} \times \frac{1}{2}$ with the $\frac{1}{2} \times \frac{3}{4}$ spar material.
 - d. Use the $\frac{1}{4} \times \frac{1}{2}$ spar material to trace the notch to be cut in the $\frac{1}{2} \times \frac{3}{4}$ spar material.

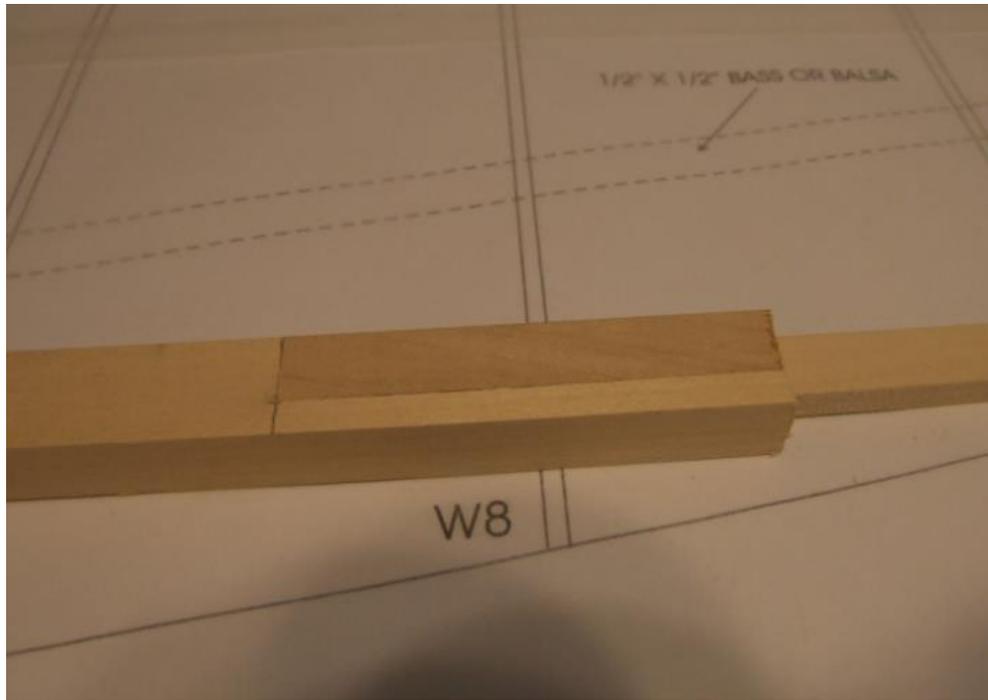


- e. Cut the notch in the $\frac{1}{2}$ x $\frac{3}{4}$ spar material.

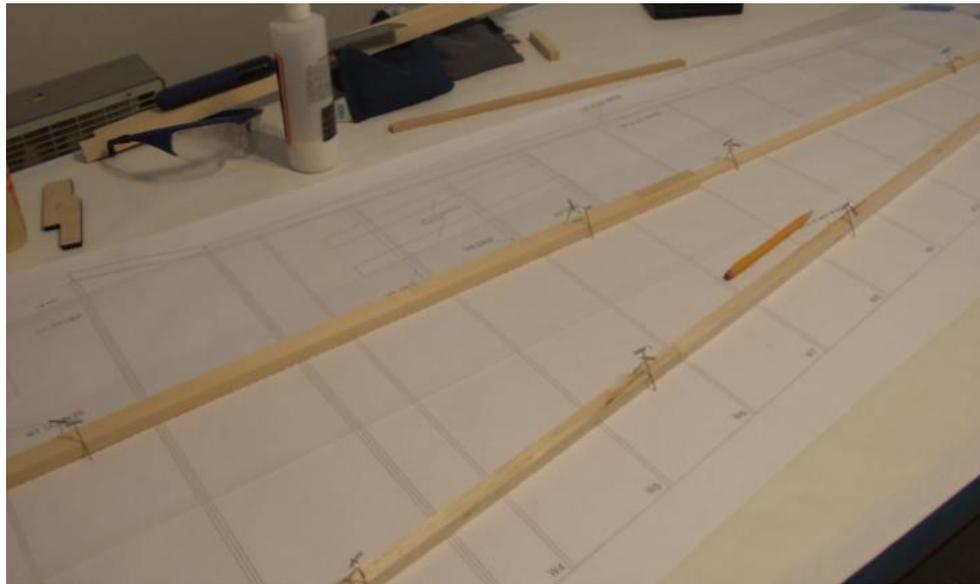


- f. Cut a piece of filler from scrap $\frac{1}{4}$ x $\frac{1}{2}$ spar material the same size as the notch.

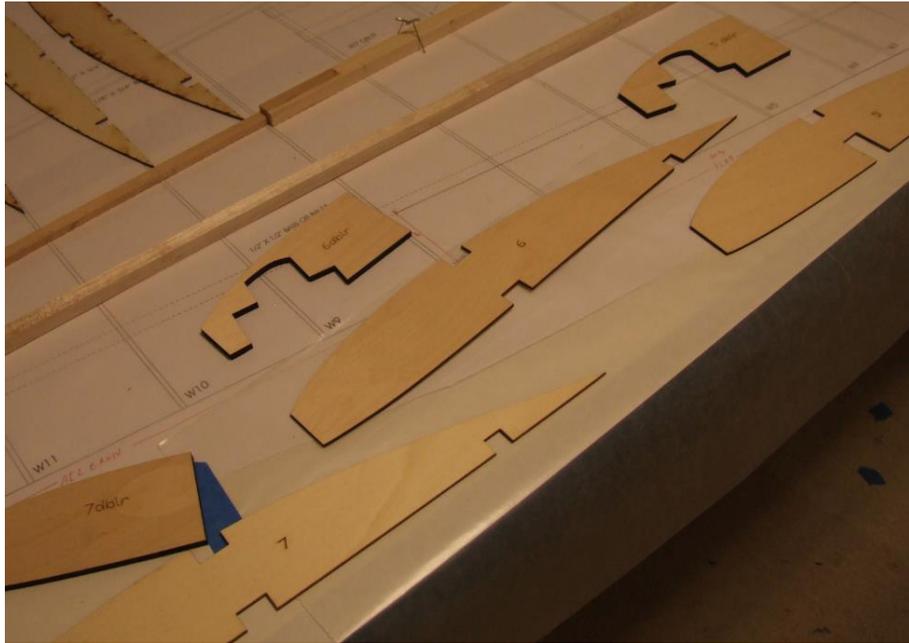




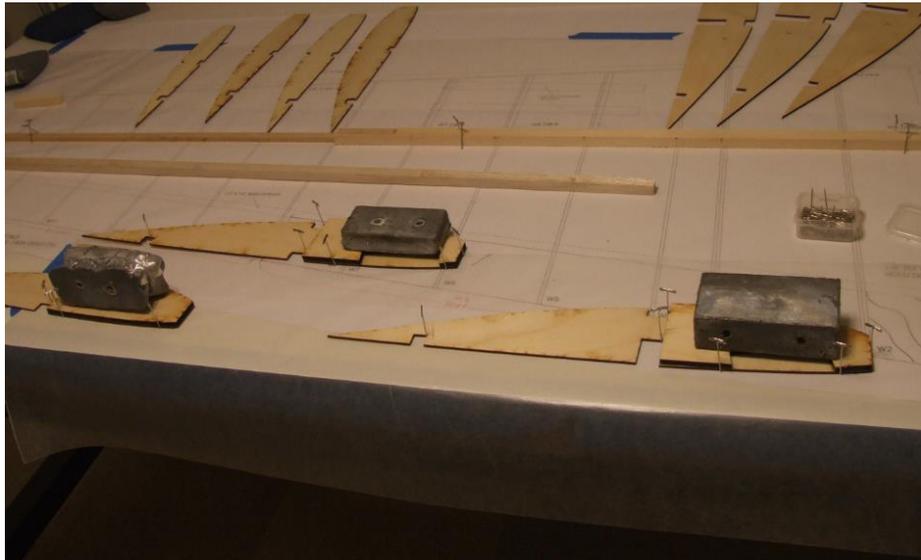
- g. Glue the bottom main spare together and pin it to the appropriate position on the plans.



6. Glue the doublers on to the appropriate side of RIB 5, 6, and 7
 - a. Identify and gather the RIBs and double

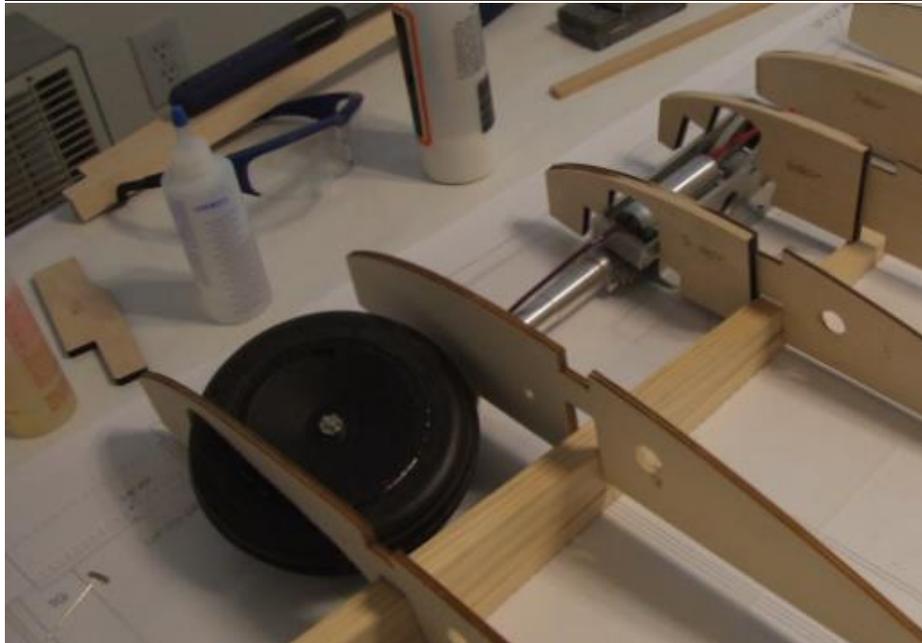
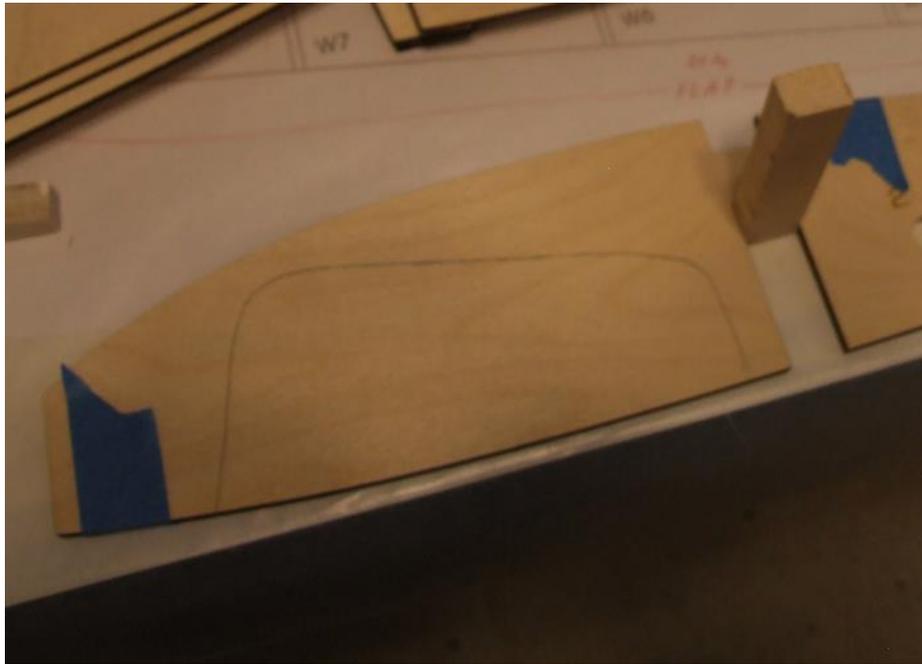


- b. Glue the doublers on to the appropriate side of RIB 5, 6, and 7

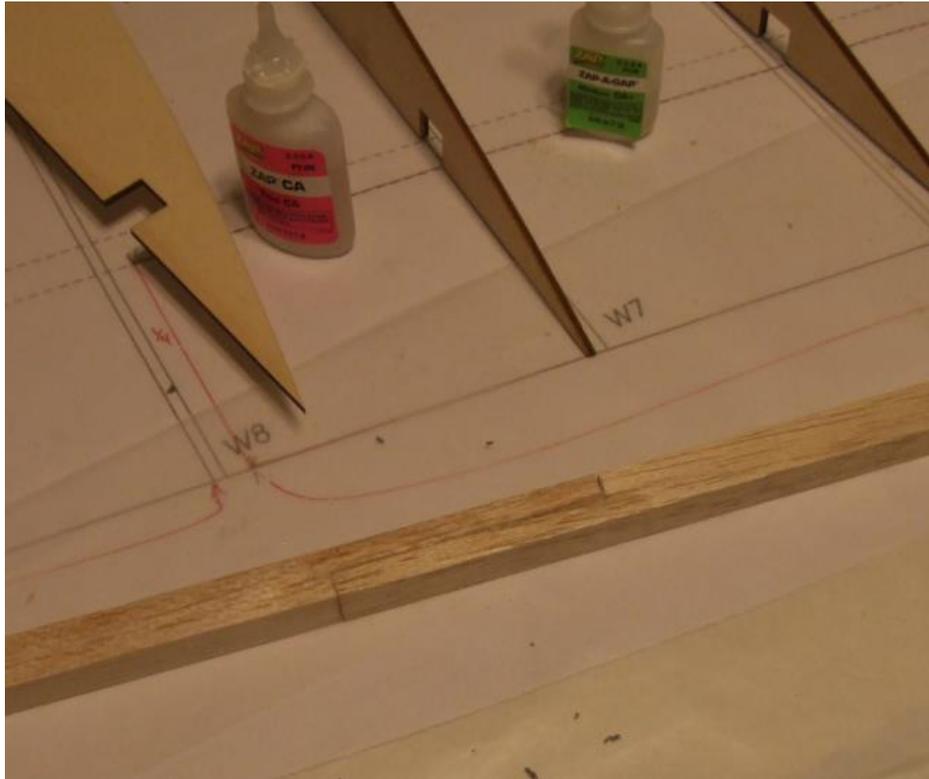


This would be a good time to use the doublers to cut out the relief for the landing gear blocks.

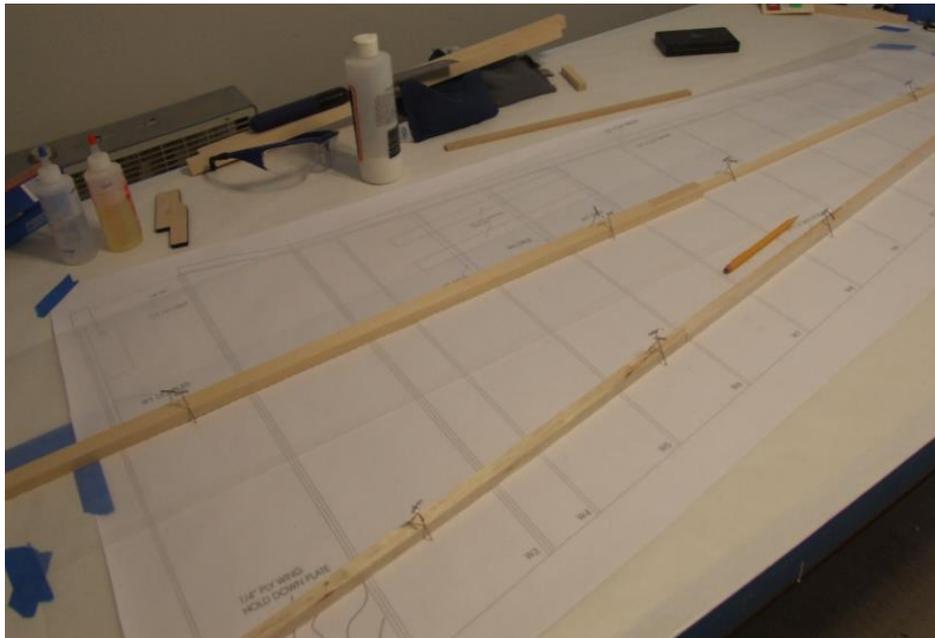
- c. At this time we chose to cut the space for the landing gear and tires in RIB 2, 3, and 4.



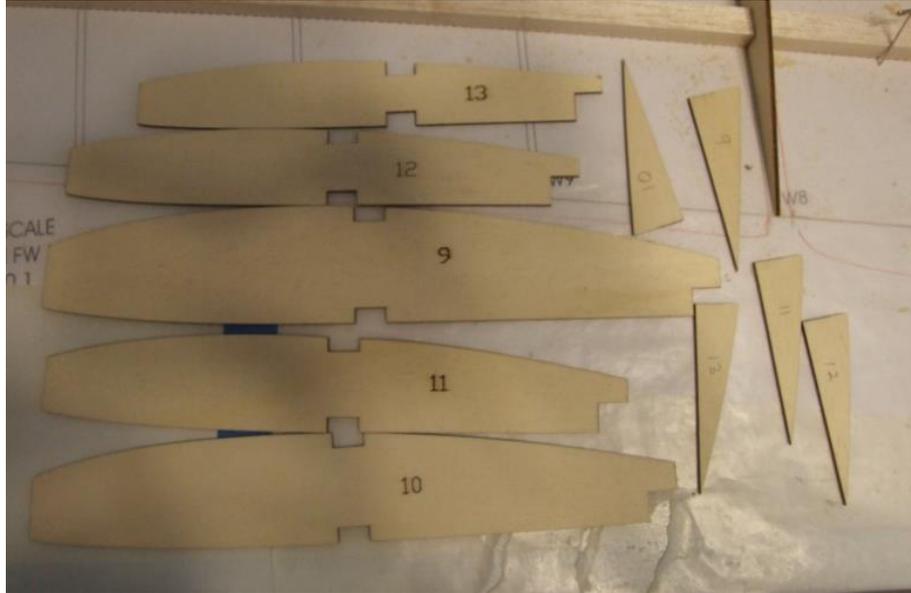
7. Splice the rear spar.
 - a. Splice the rear $\frac{1}{2} \times \frac{1}{2}$ balsa spar together



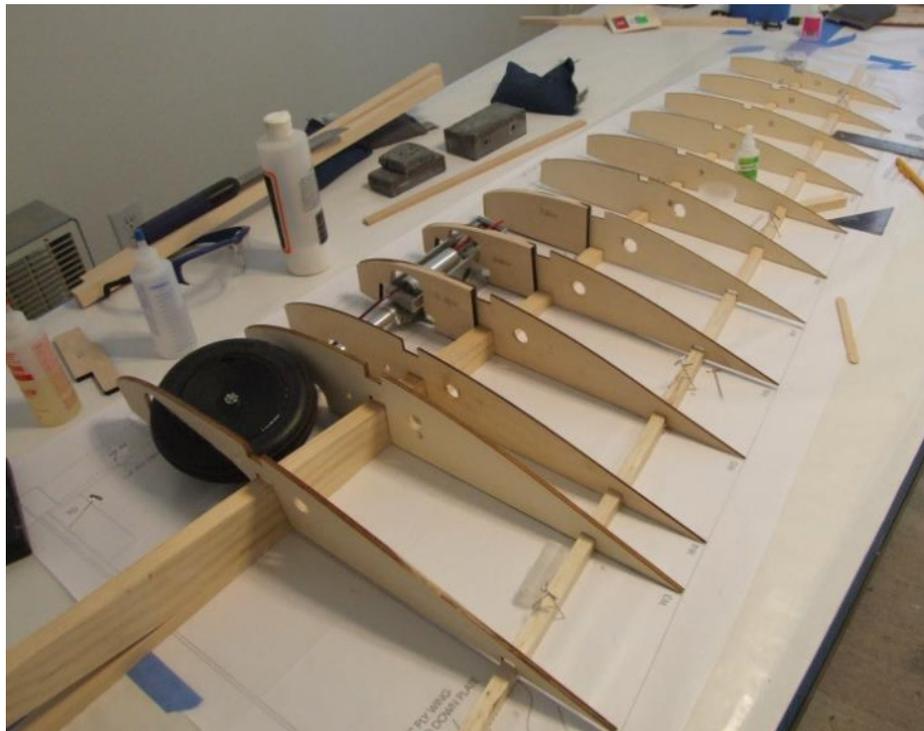
- b. Pin the rear $\frac{1}{2} \times \frac{1}{2}$ balsa spar to the plans in the appropriate location.



- c. **TEST FIT ALL OF YOUR RIBS BEFORE GLUEING THEM IN PLACE.**
- d. Cut the ends off of RIB 9,10,11,12 and 13. This is the location of the aileron.

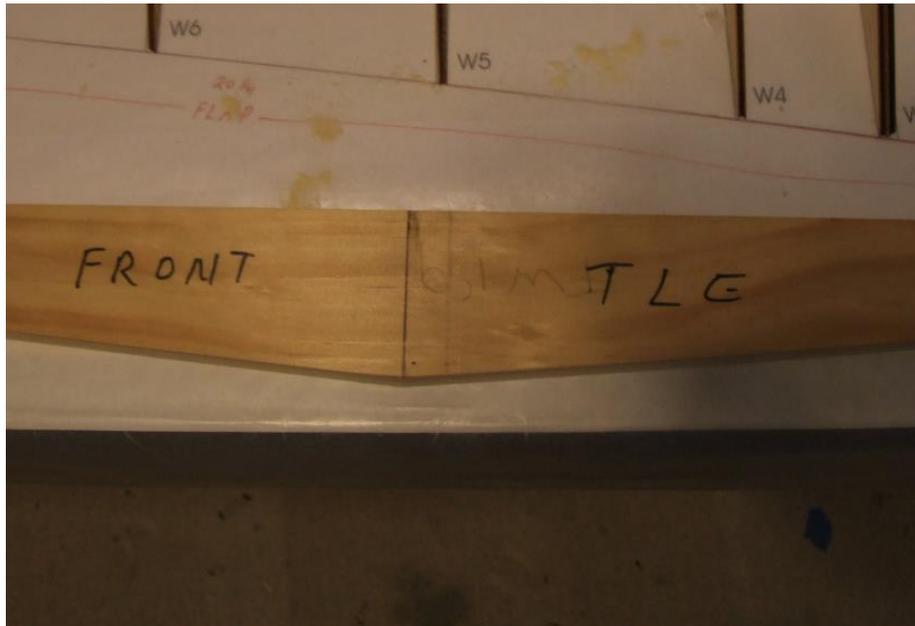


- e. Start gluing the RIBS in place starting with **RIB 2**. Ensure all RIBS are glued straight.
- f. Repeat this step for the rest of the RIBS out to the wing tip. **Do not Glue RIB 1 in place at this time.**

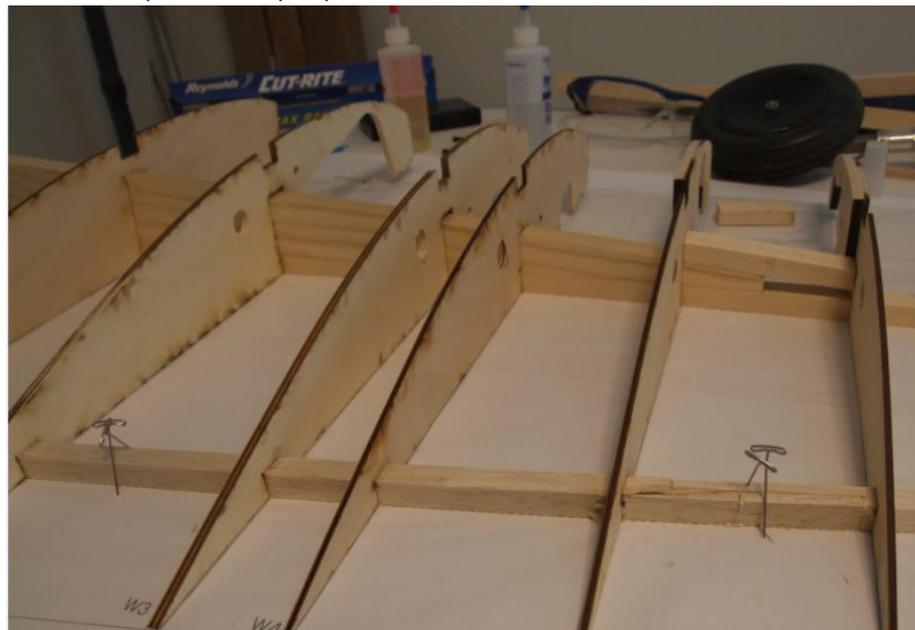


8. Build the main spar pocket

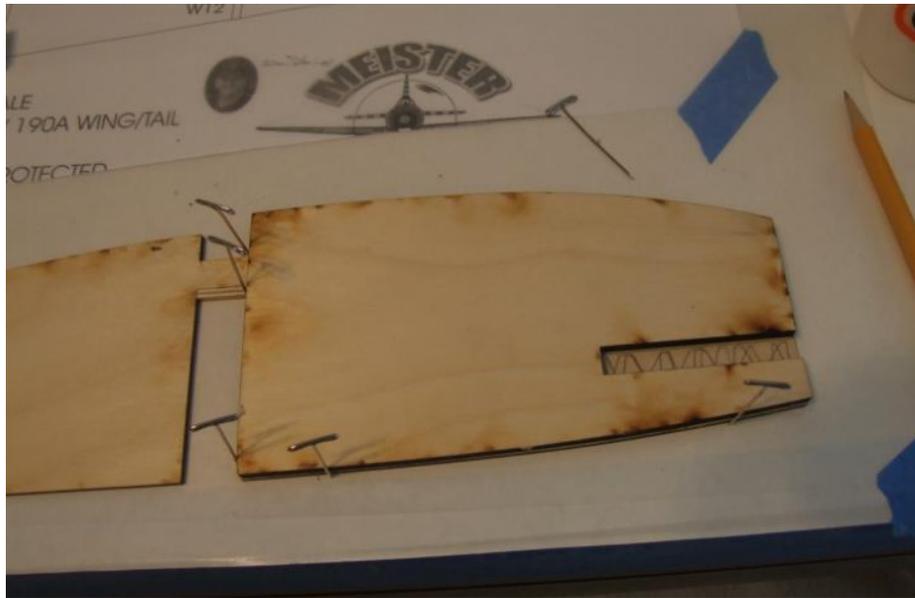
a. **Always have your spar facing the same direction when you build your wing.**

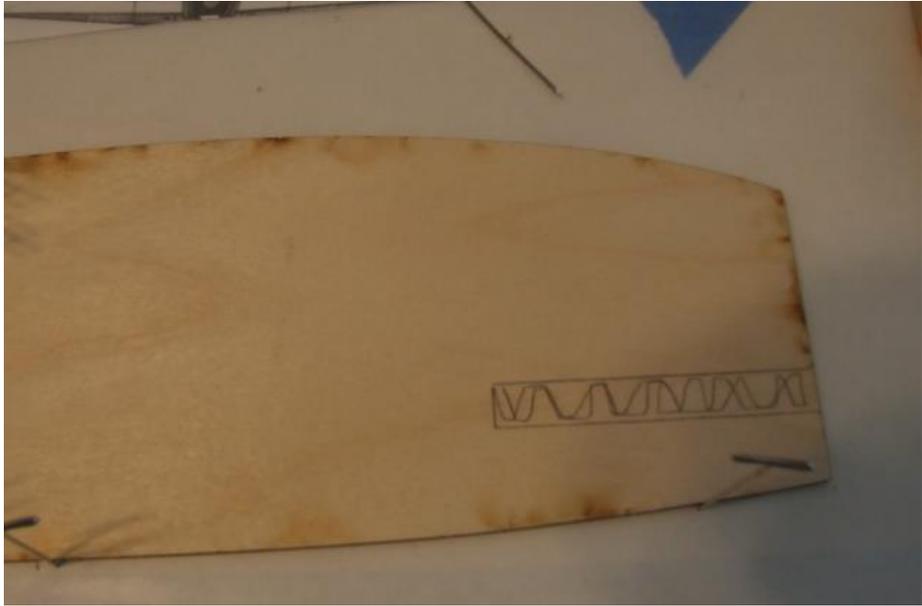


b. Insert the main spar in the spar pocket in the RIBs.



- c. Glue the RIB doubler on to RIB1.







- d. Build your top spar using the same method that was used in the bottom spar. Do not glue in place. **However when you glue the spar together the $\frac{1}{4} \times \frac{1}{2}$ will be on the top side of the splice.**



- e. Cut $\frac{1}{2}$ x $\frac{1}{4}$ balsa to create the main spar pocket. Glue them in place between the RIBs very carefully to ensure no glue get on the floating spar.



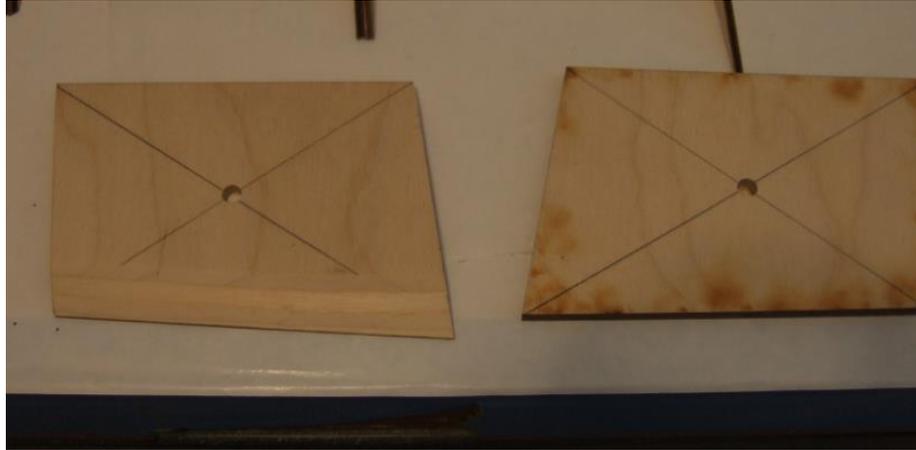
- f. Glue the top spar in place.



- g. Cut 1/8th balsa sheeting for sheer webbing. Glue them in place along the spar front and back. **Ensure no glue gets on the floating spar.**



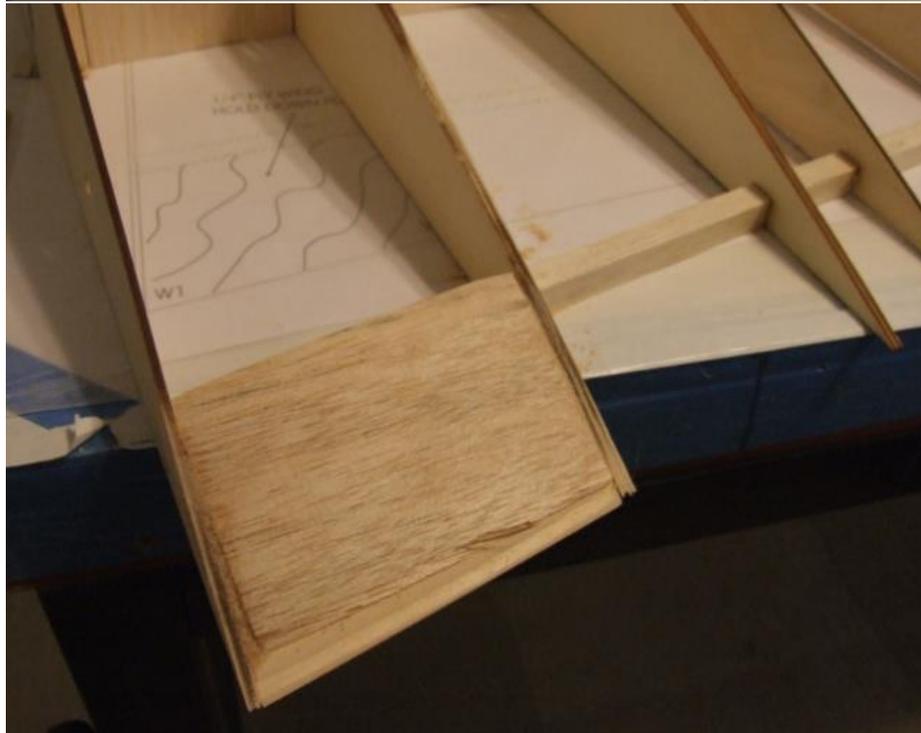
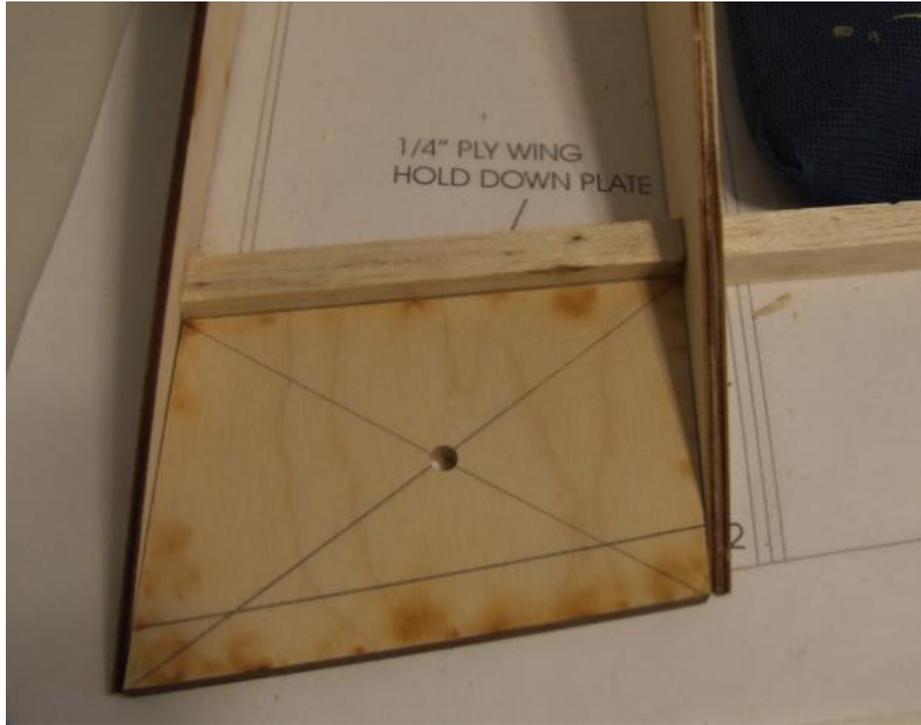
- h. Locate the Wing bolt down plate. Use a ruler to draw an X from corner to corner. Drill a $\frac{1}{4}$ 20 hole where the lines intersect.



- i. Test fit this plate between RIB 1 and RIB 2 at the Trailing edge. We took the opportunity to ensure the trailing edge of the plate was shaped at this time.

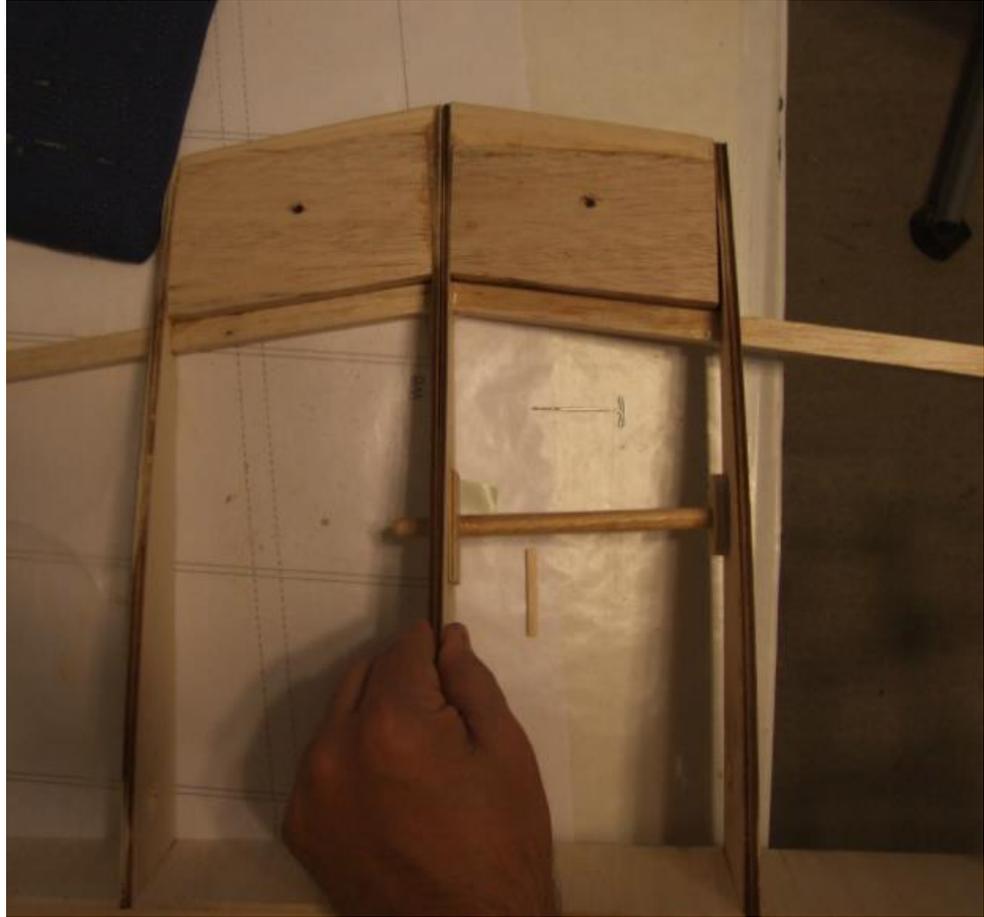


- j. Glue the wing bolt hold down place between RIB1 and RIB2 flat on the table. Fill in the gap between the wing bolt hold down plate and the top of the RIBs with scrap balsa.



k. Test join your 2 wing panels.





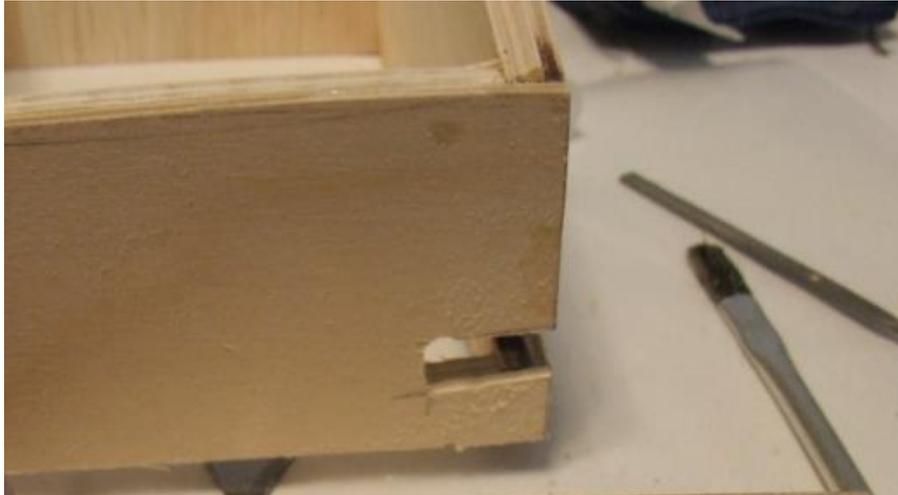
- I. Cut an appropriate sized 1/8th inch piece of ply for the front striker plate to be glued between RIB1 and RIB2.



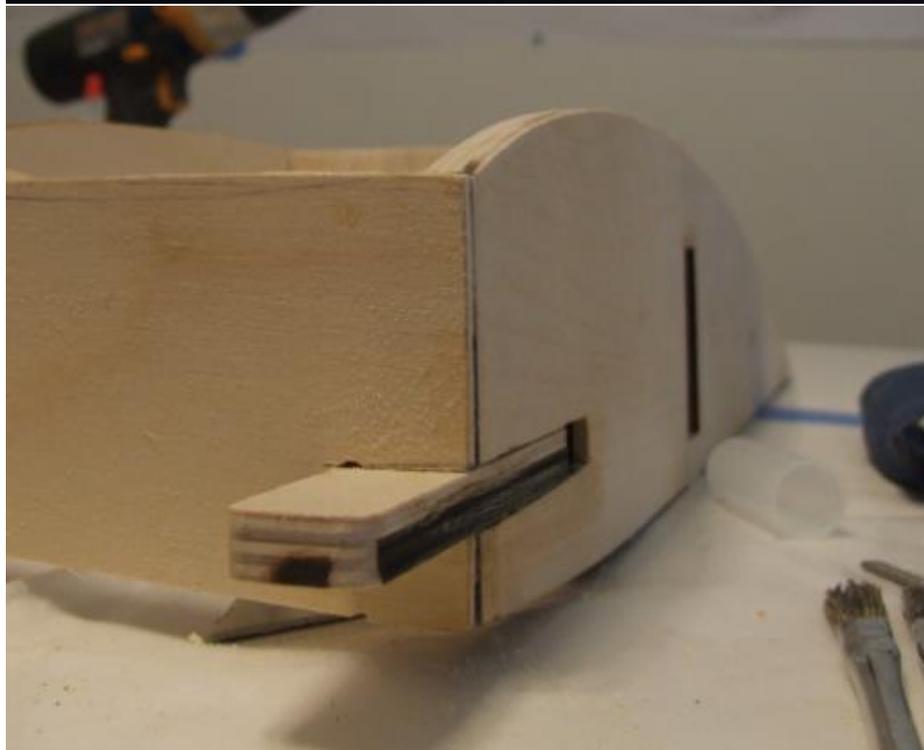
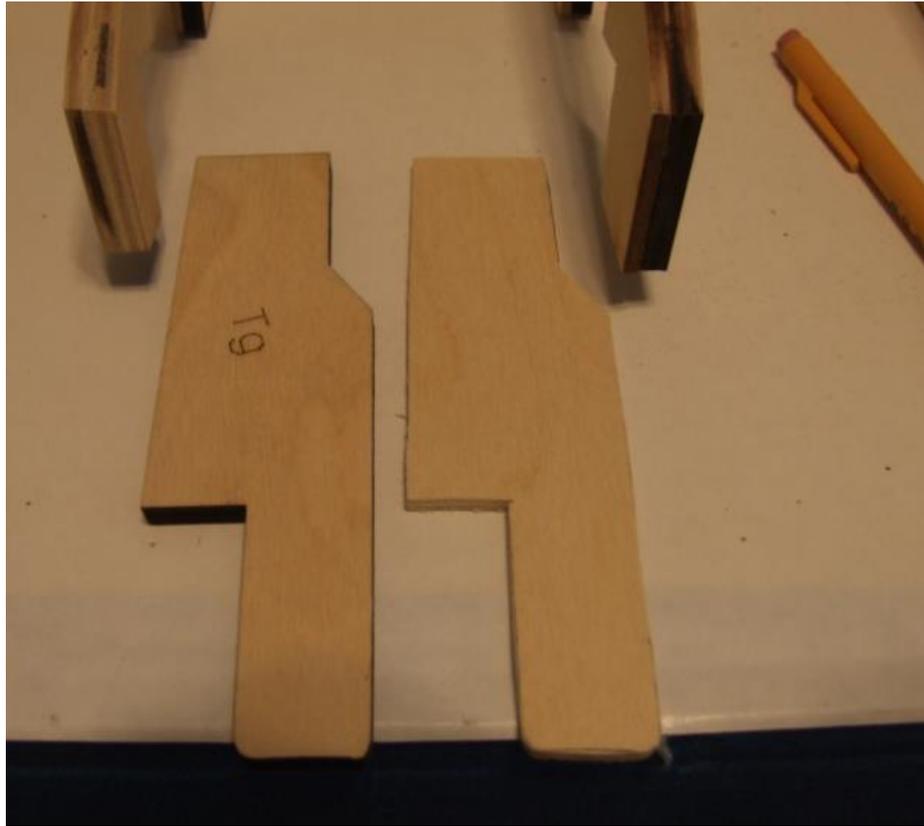
- m. Cut an additional piece of $\frac{1}{4}$ ply to be glued on the back side of the striker plate and Glue it in place between RIB1 and RIB2.



- n. Cut a hole to accept the wing tongue.



- o. Assemble the wing tongue and glue it in the wing panel.

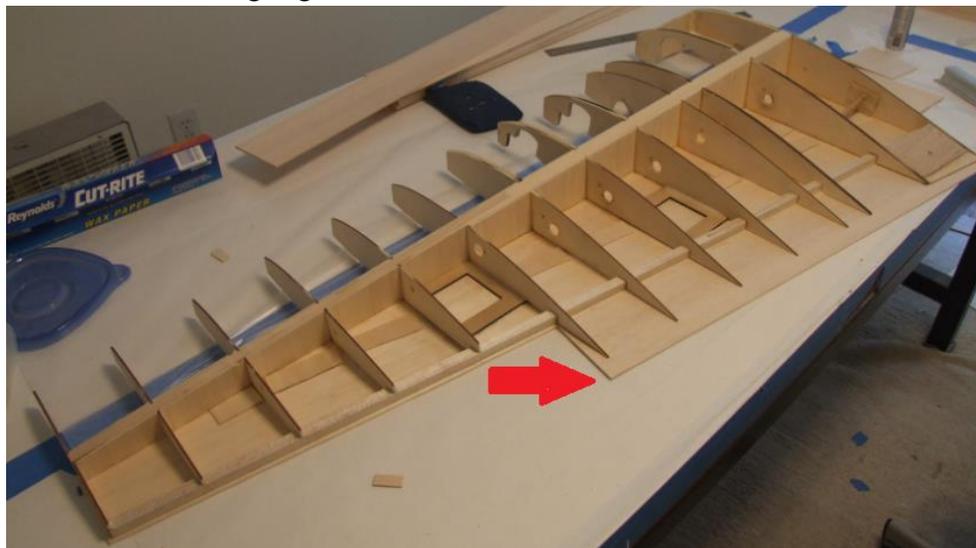


- p. Your main wing panels are now ready for sheeting

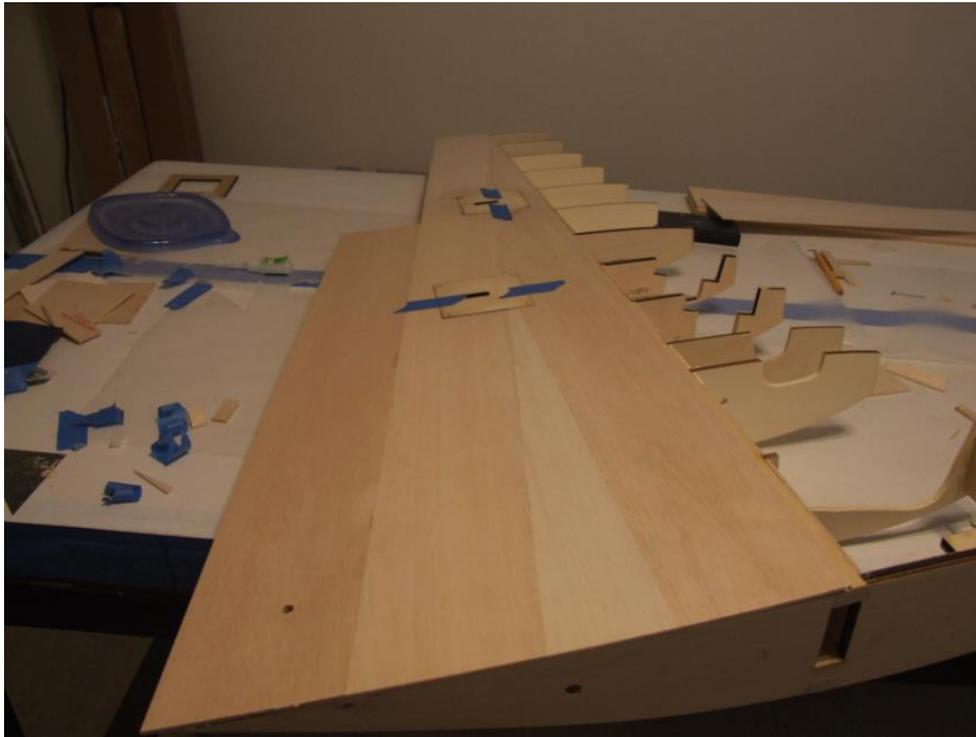


9. Sheet your wing panels.

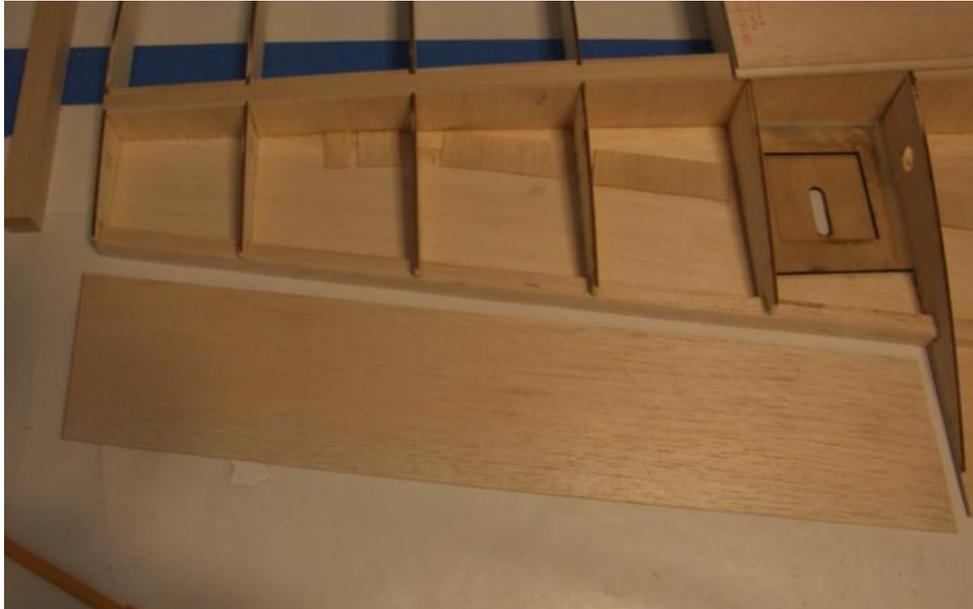
- a. Sheet the back half you're your wing panel first with 1/8th inch sheeting. Be sure to leave some over hang on the back side to allow for proper mating of the top sheeting to the bottom at the trailing edge.



b. Sheet to the center of the spar.



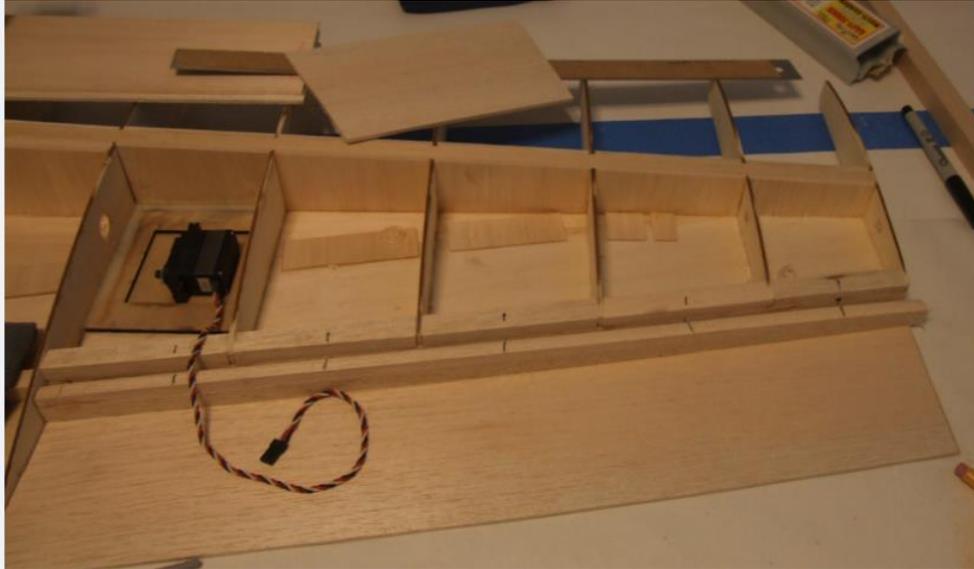
- c. Build the aileron. Cut a $\frac{1}{8}$ th inch piece of sheeting for your bottom skin of the aileron.



- d. Use the $\frac{1}{2}$ x $\frac{1}{2}$ balsa to make the leading edge of the aileron. You will need to shape the top down profile. In this case a razor plane was used.

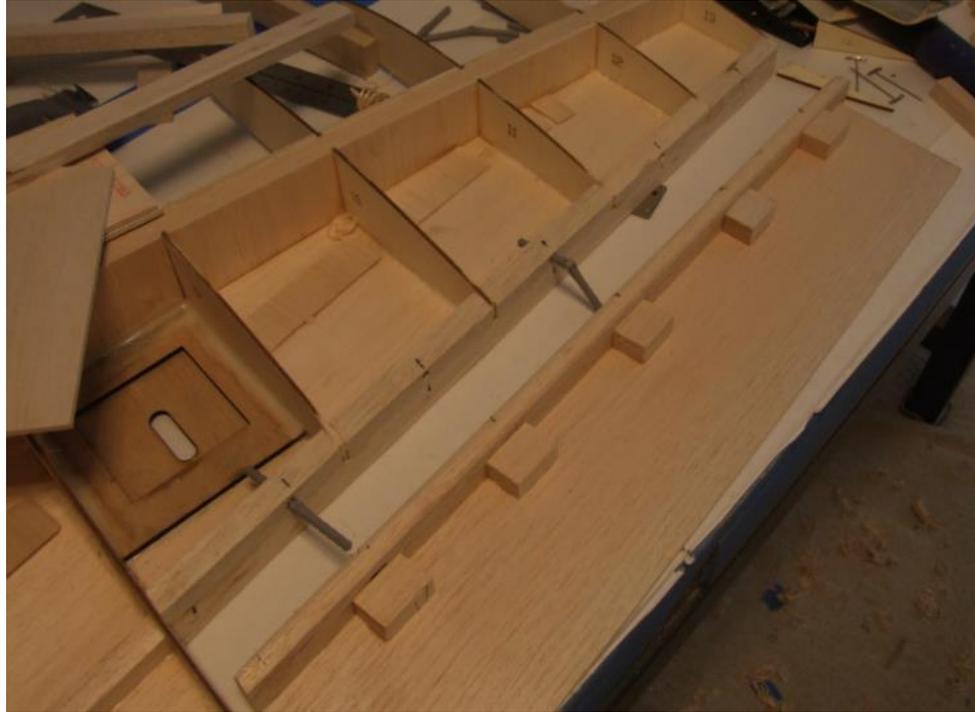


- e. Fill in the trailing edge of the main wing with $\frac{1}{2} \times \frac{1}{2}$ inch balsa to accept the leading edge of the aileron.



- f. Glue in scrap balsa for your hinges.





- g. Use 1/8th inch balsa sheeting to fabricate RIBs from the inside leading edge of the aileron to the trailing edge. Sheet the top of the aileron. At this point you must also choose where to place your hard points for mounting the control horns.

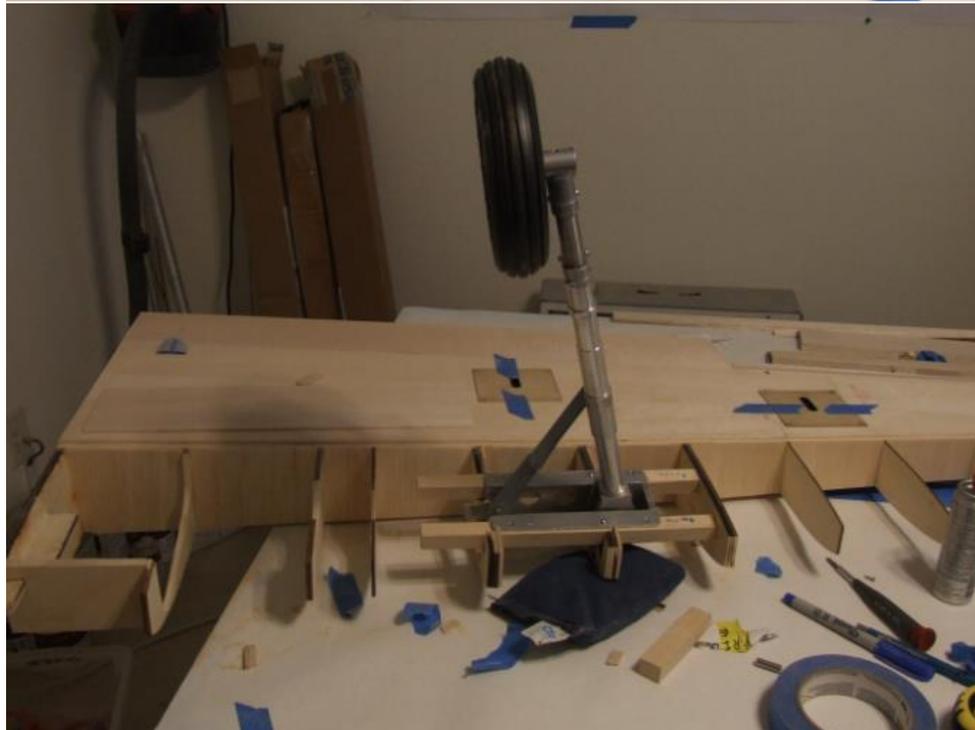




h. Sheet the top of the back half of the wing.



- i. Cut the gear block per plan and mount your gear blocks in the wing. **It is very important if you are using the gear with the scale draglinks that you make sure they are square and strait when extended before your glue the blocks in permanently.**



- j. Finish sheeting the top front half of the wing.
- k. After your gear blocks are glued in Glue on the 1/8th balsa leading edge to the RIBs.
- l. You will now glue the 1/2 x 2 inch balsa leading edge to the 1/8 balsa leading edge.

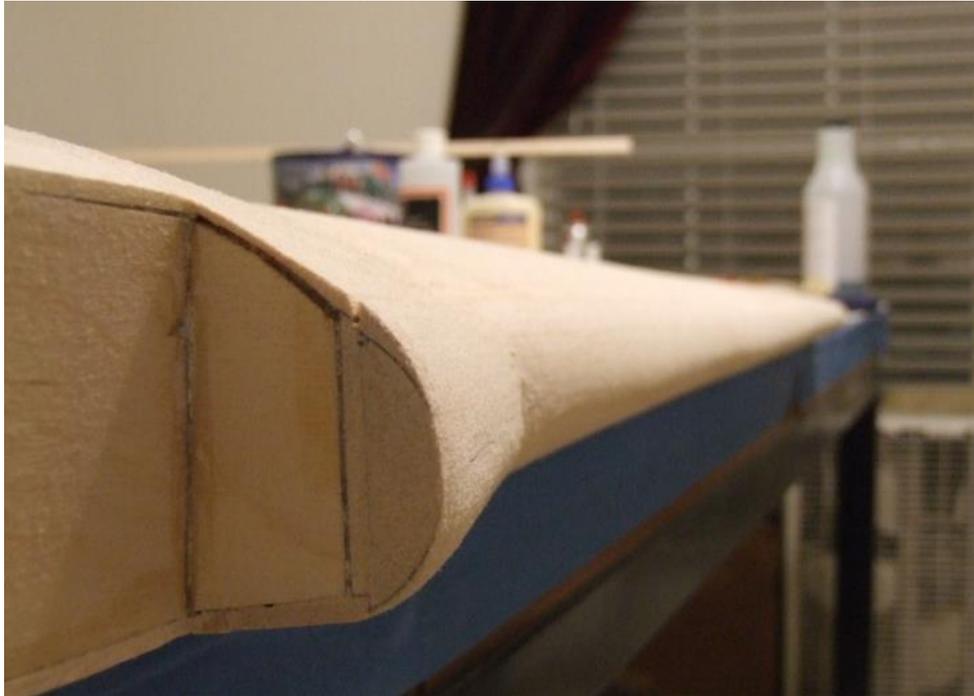


m. Use a razor plane to rough shape the leading edge.



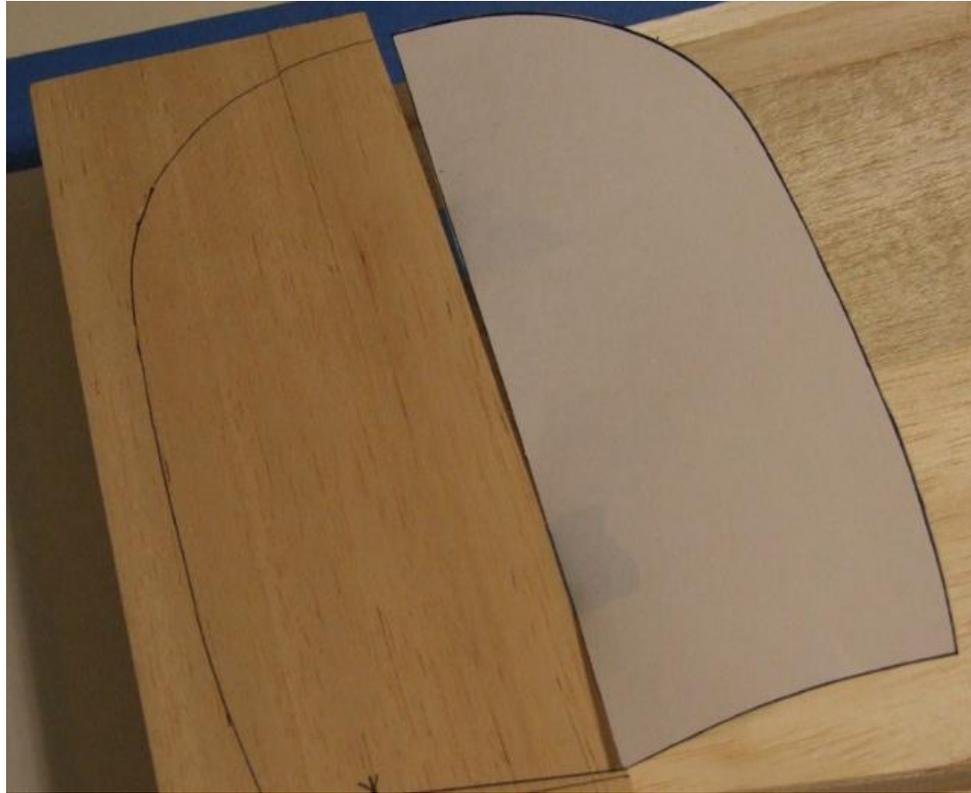


- n. Finish shaping the leading edge.



- o. Trace the wing tips from the plans on paper. Cut this tracing out to be used for a template. Place the template on the balsa block to be used as a wing tip.





p. Cut the wing tip out and glue it to the wing.



q. Shape the wing tip.

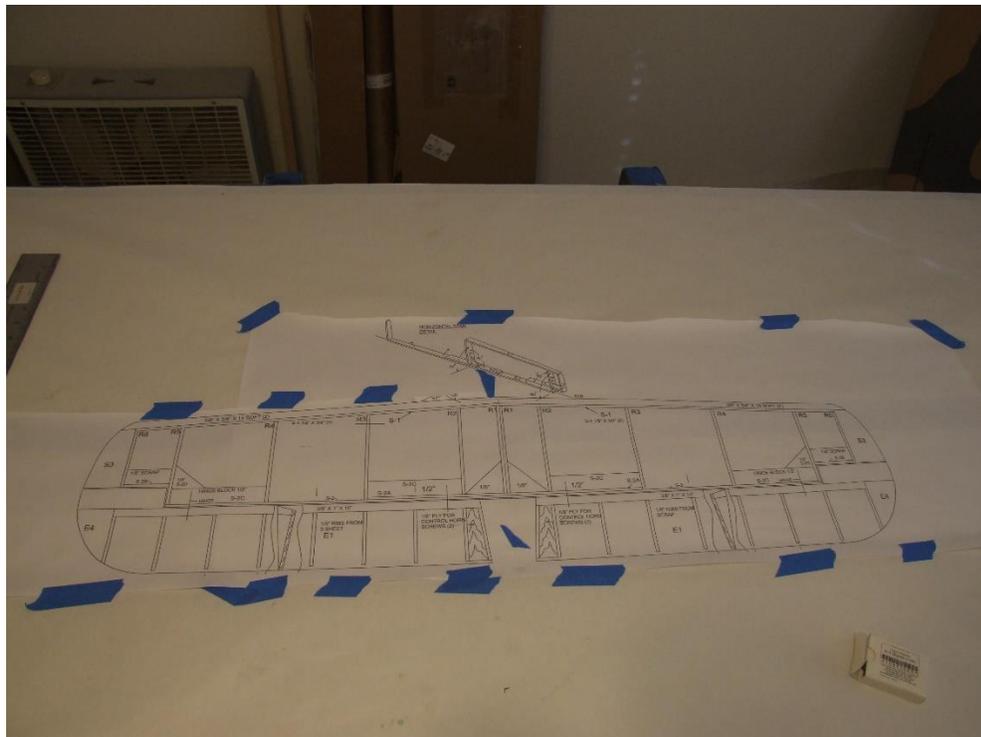




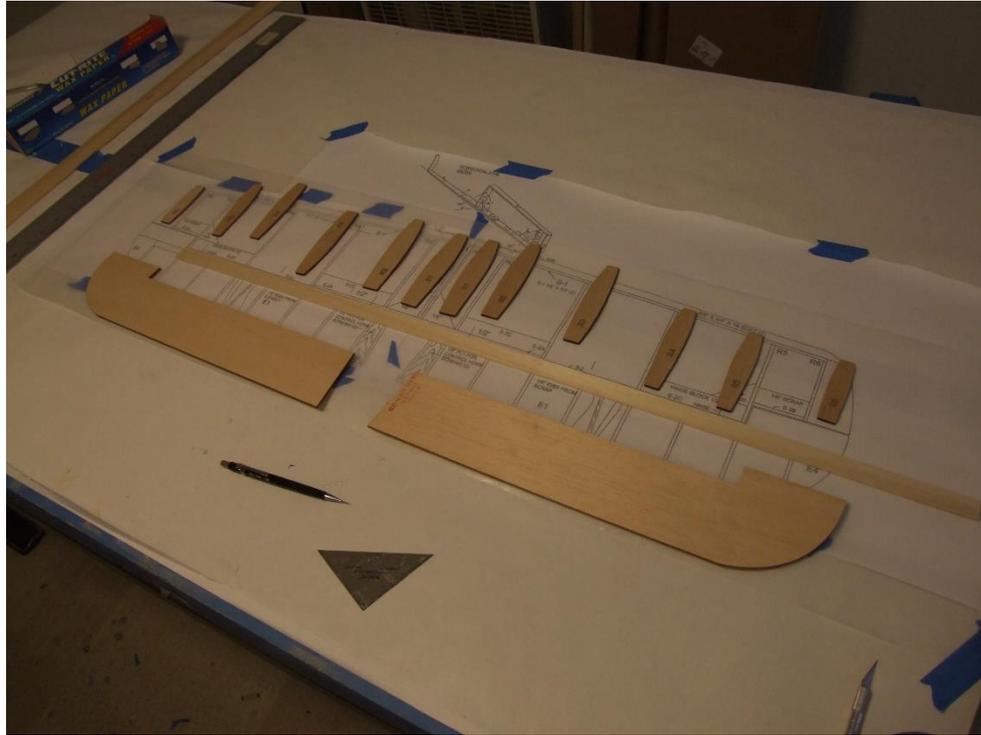
- r. Repeat these steps for the opposite wing panel.

Building the Tail Group

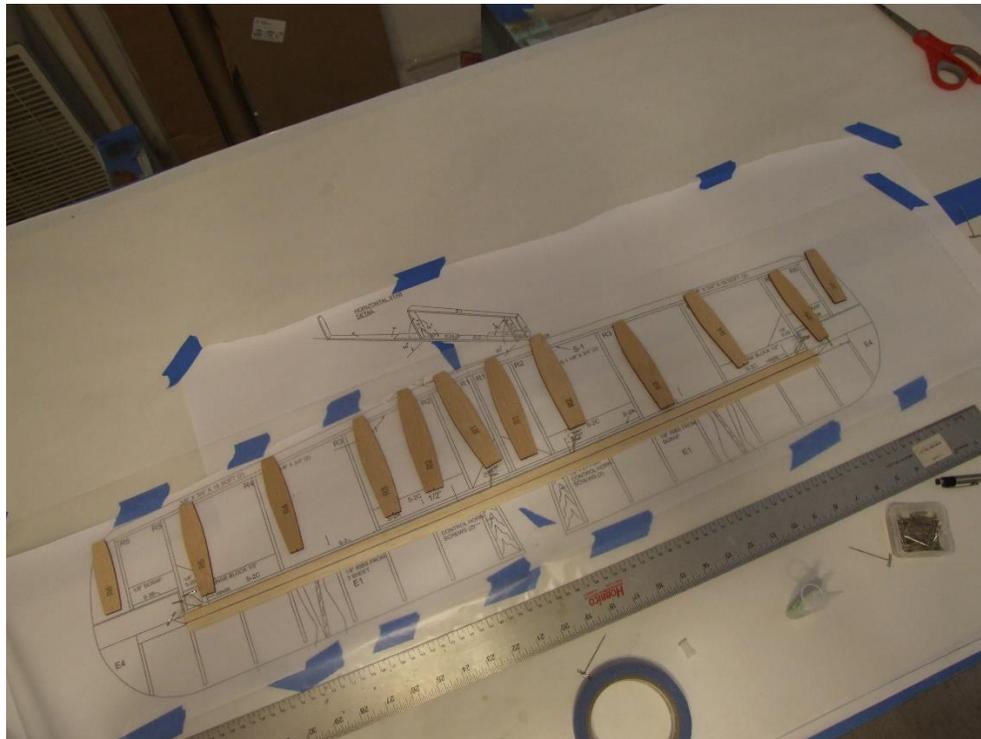
1. Collect the horizontal stab plan located on each wing panel plan.
 - a. Properly align them and affix them to your building surface.



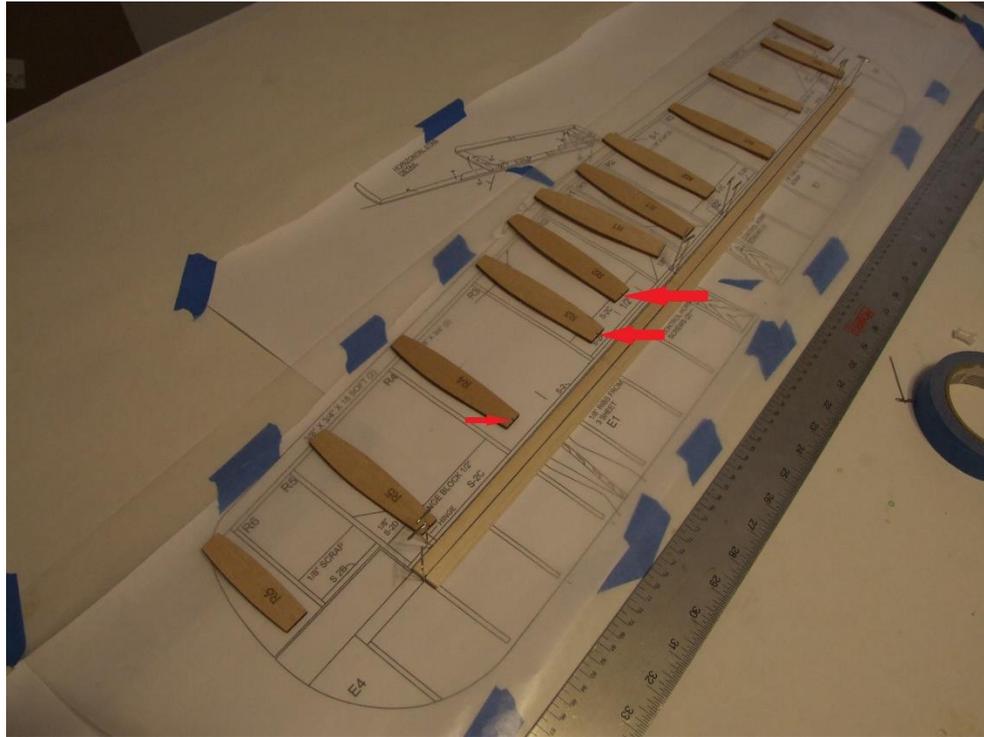
- b. Gather your horizontal stab parts.



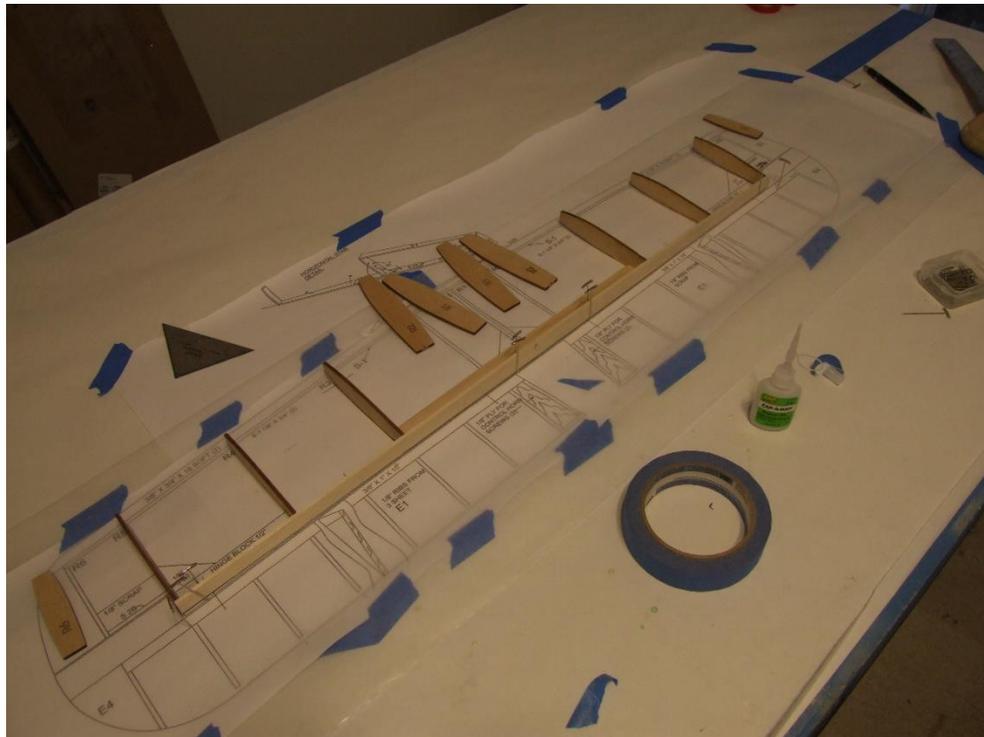
2. Cut the trailing edge from a 1 x 1/8th balsa per plan.
a. Mark a line down the center of your trailing edge.



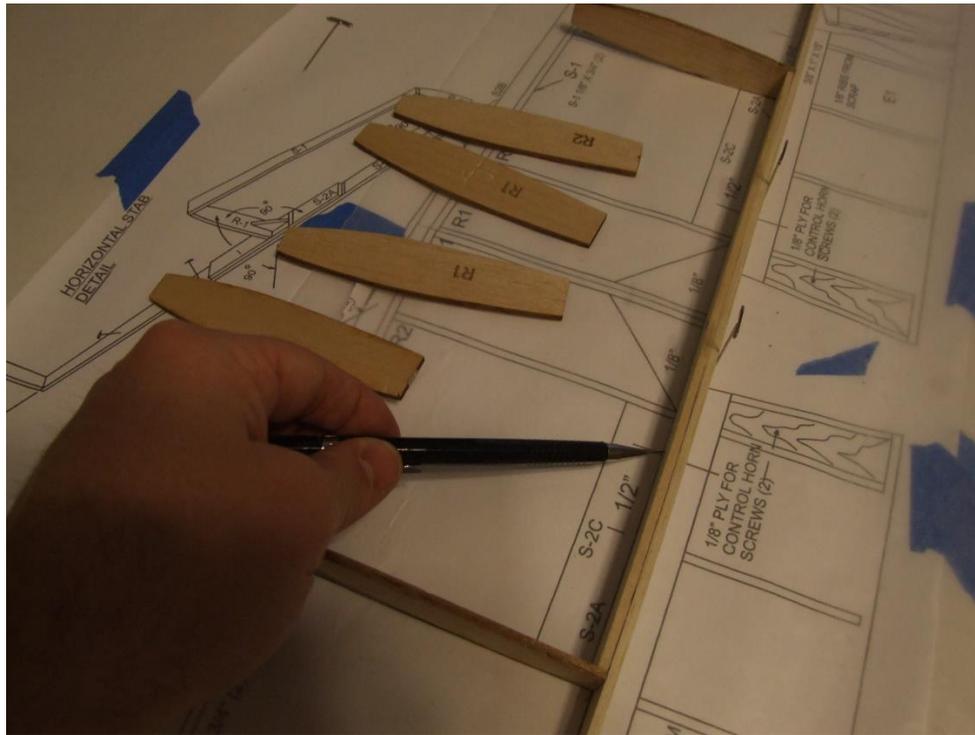
- b. Mark the center of the trailing edge of the RIBs for the horizontal stab.
- i. Note ensure that all of the RIBs have the number pointing in the same direction.



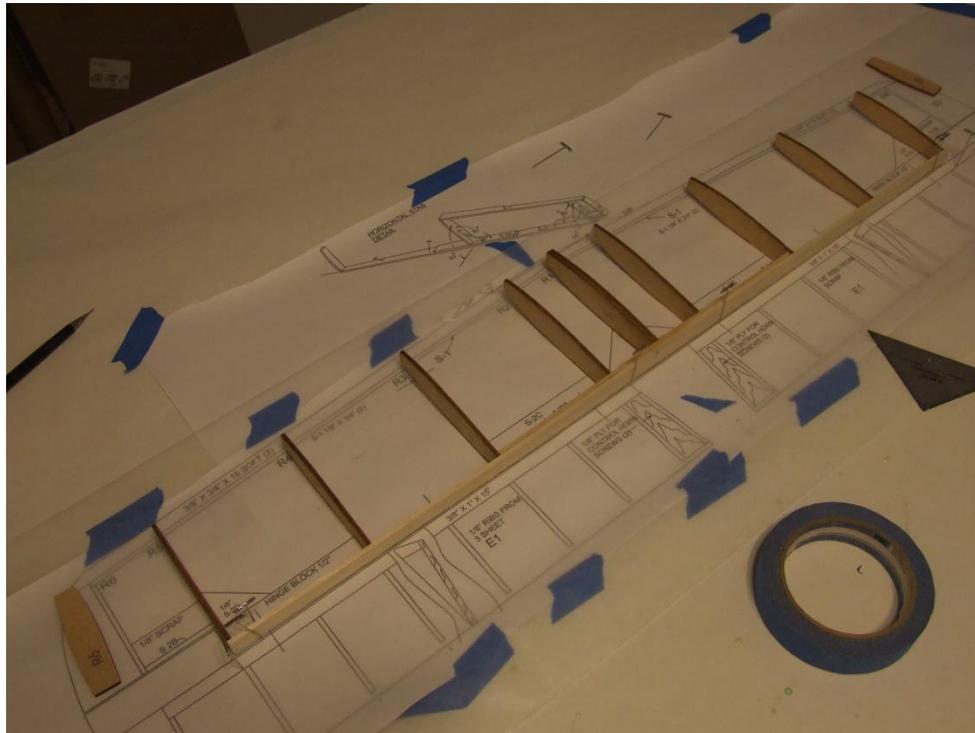
- c. Glue the RIBs R3, R4, and R5 only for the horizontal stab on to the trailing edge. Use the center line ensure all the RIBs are lined up properly.



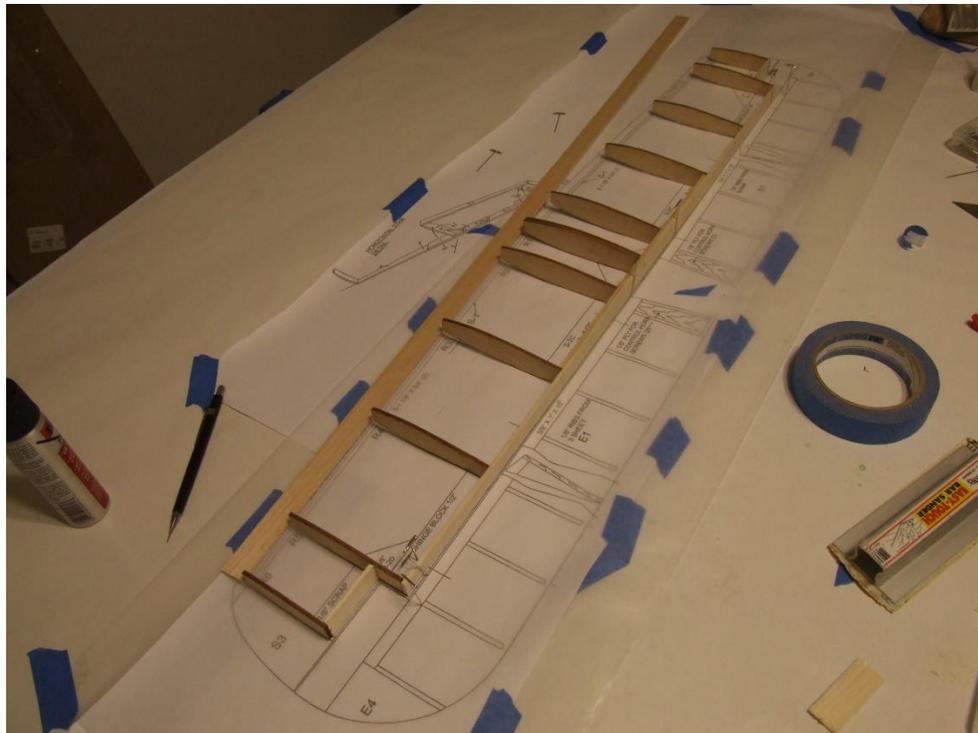
- d. Glue in S2a per plan made from 1x1/8th balsa. This glues directly between RIBs R3 and R2.



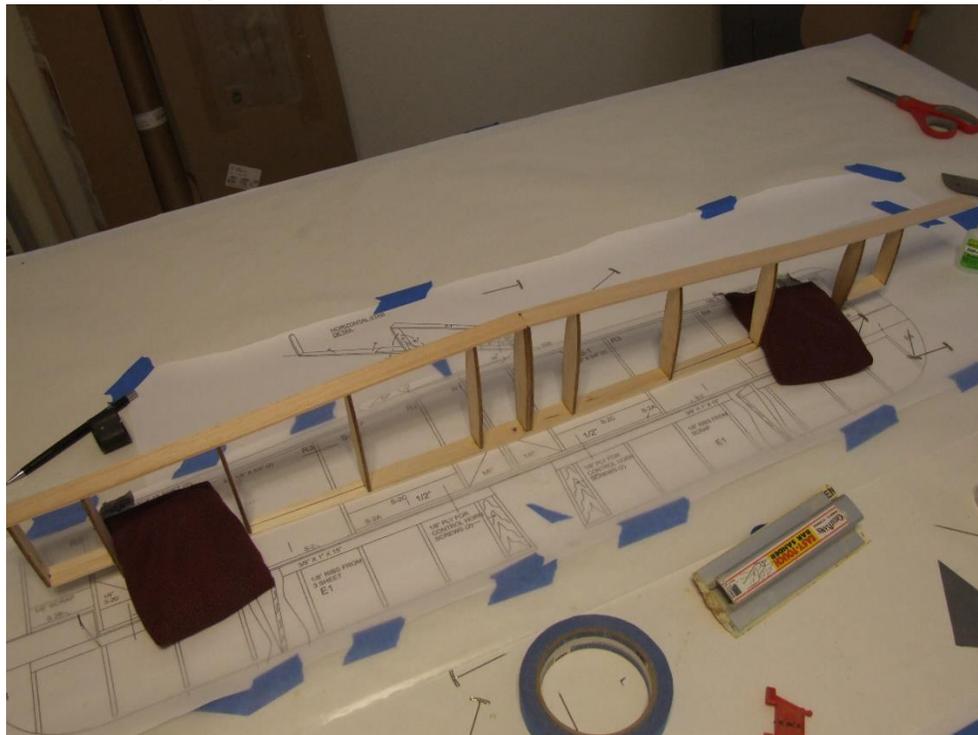
- e. Glue in RIB R1 and R2.



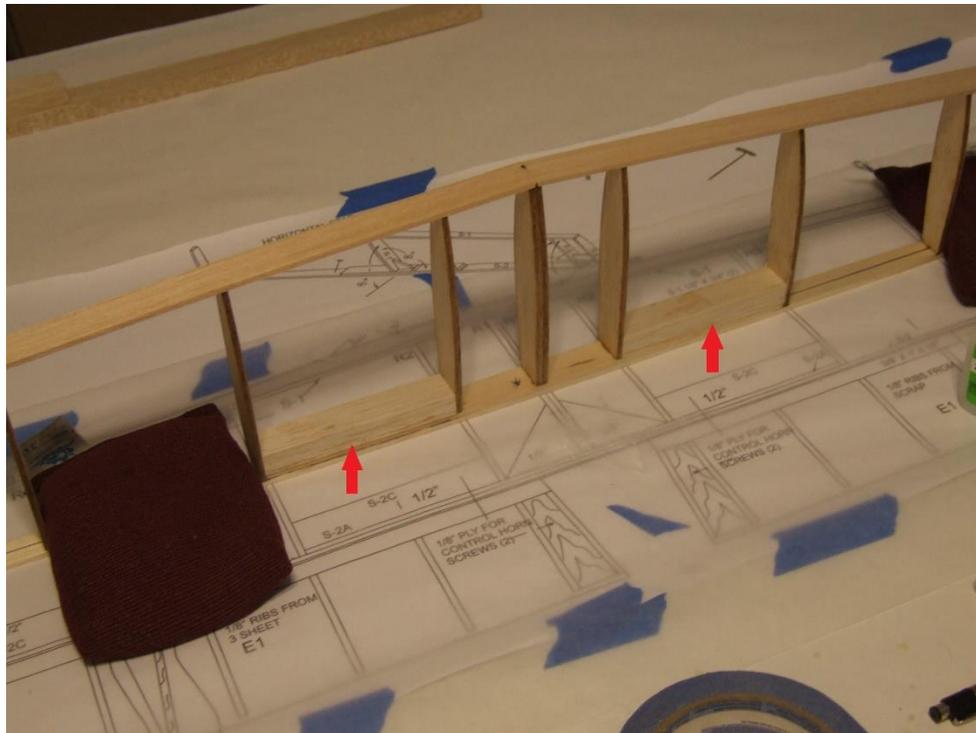
- f. Glue in RIB R6 using 1x 1/8 balsa to make the trailing edge.



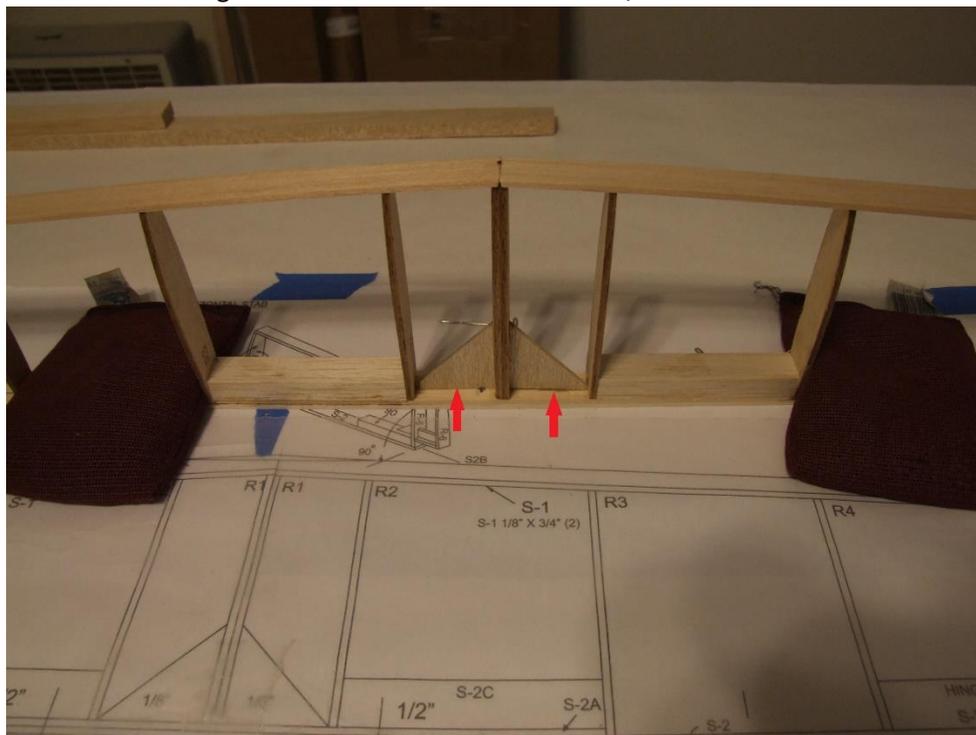
- g. Glue on the leading edge plate made from $1 \times 1/8^{\text{th}}$ balsa. Ensure all your RIBs are square to the trailing edge.



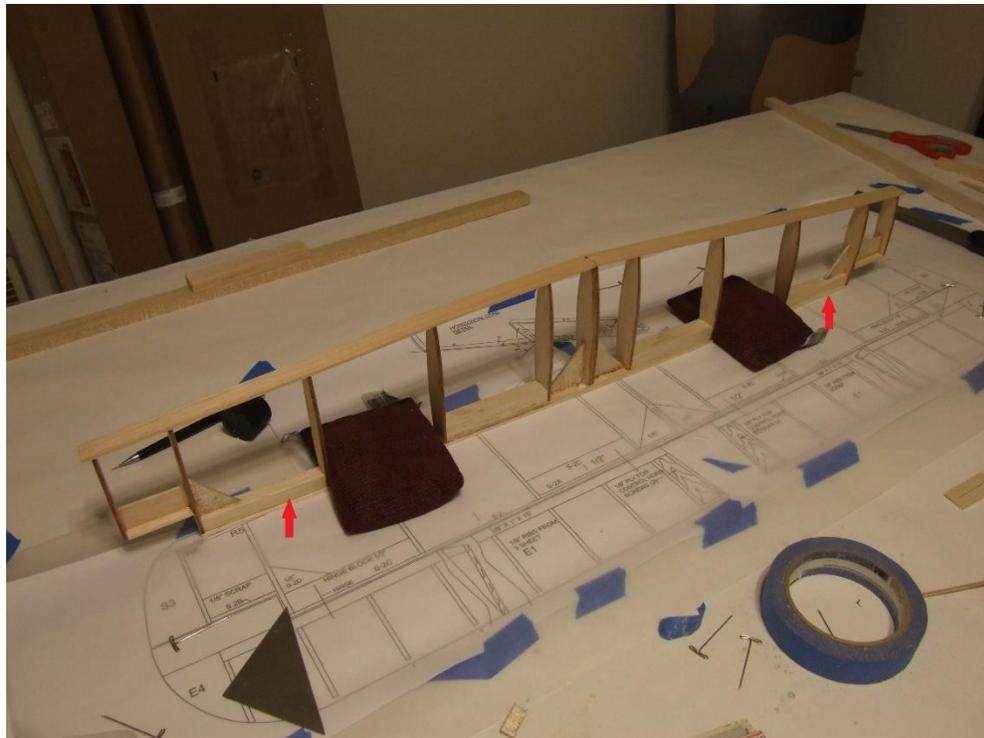
- h. Glue in the hinging blocks between R2 and R3 made from $1/2 \times 1/2$ balsa.



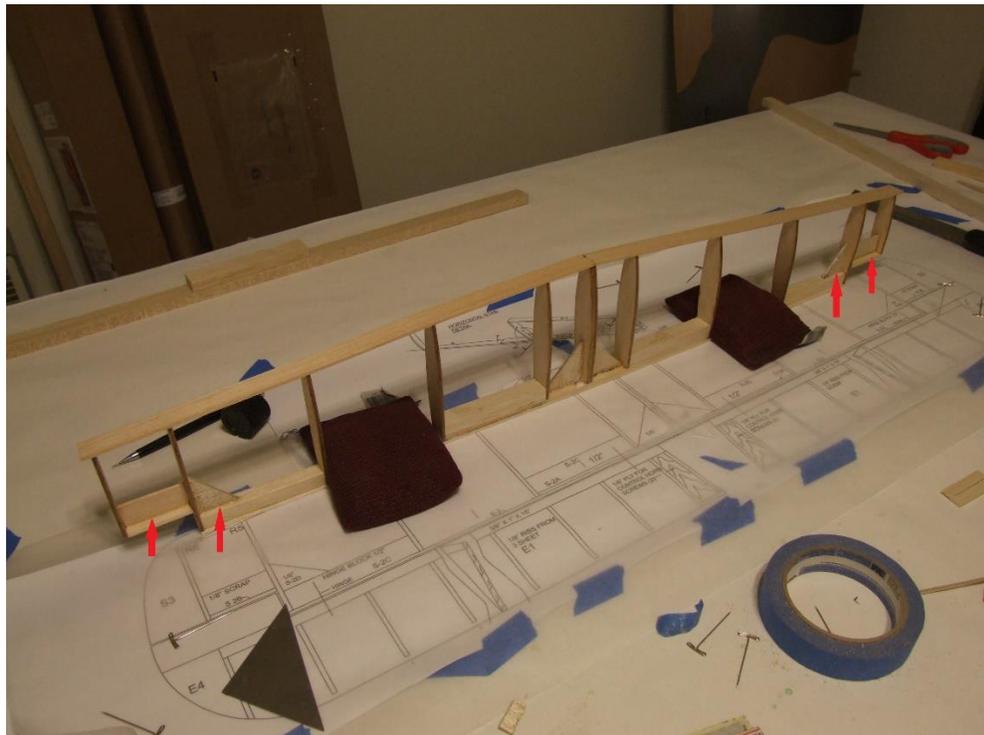
i. Glue in the bracing between R2 and R1 made from 1/8inch balsa.



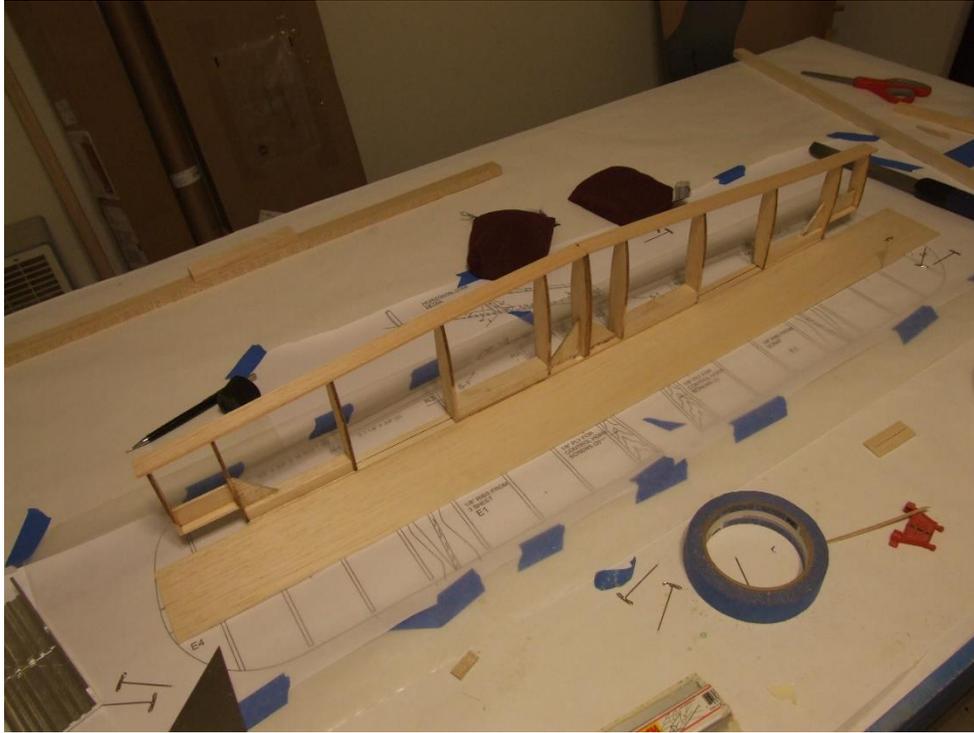
j. Glue in the hinge blocks between R5 and R4 made from 1/2 x 1/2 balsa.



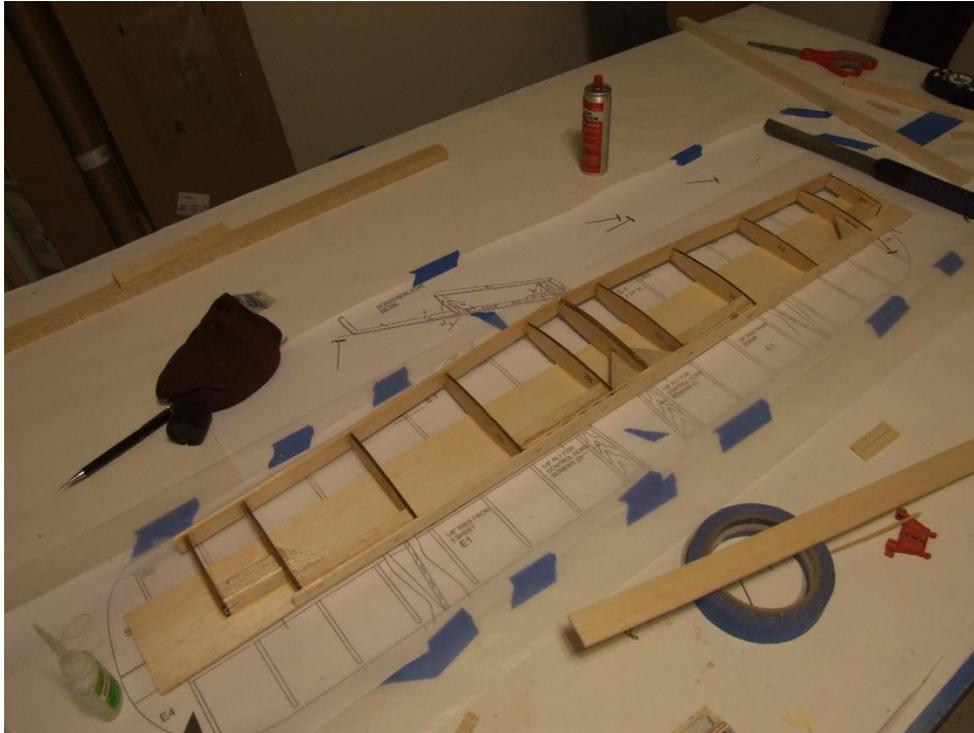
- k. Glue in the bracing made from 1/8th inch balsa between R6 and R5. Also glue in the corner bracing on the inside of R5 made from 1/8th inch balsa.

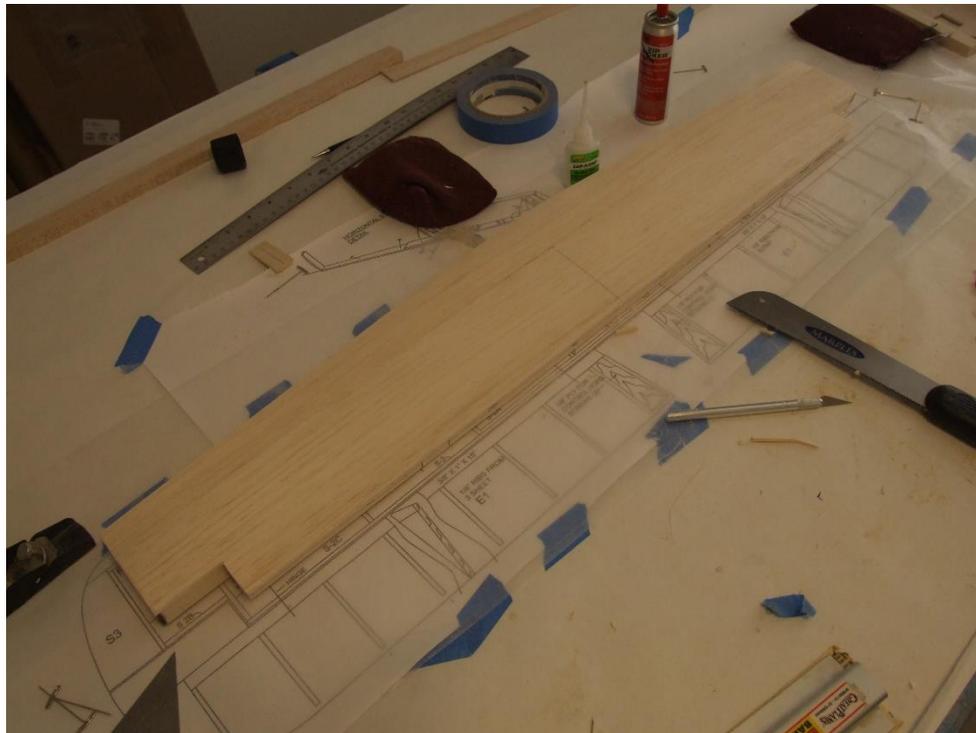


3. Sheet the horizontal stab.
 - a. Use 1/8th inch balsa sheeting top and bottom.

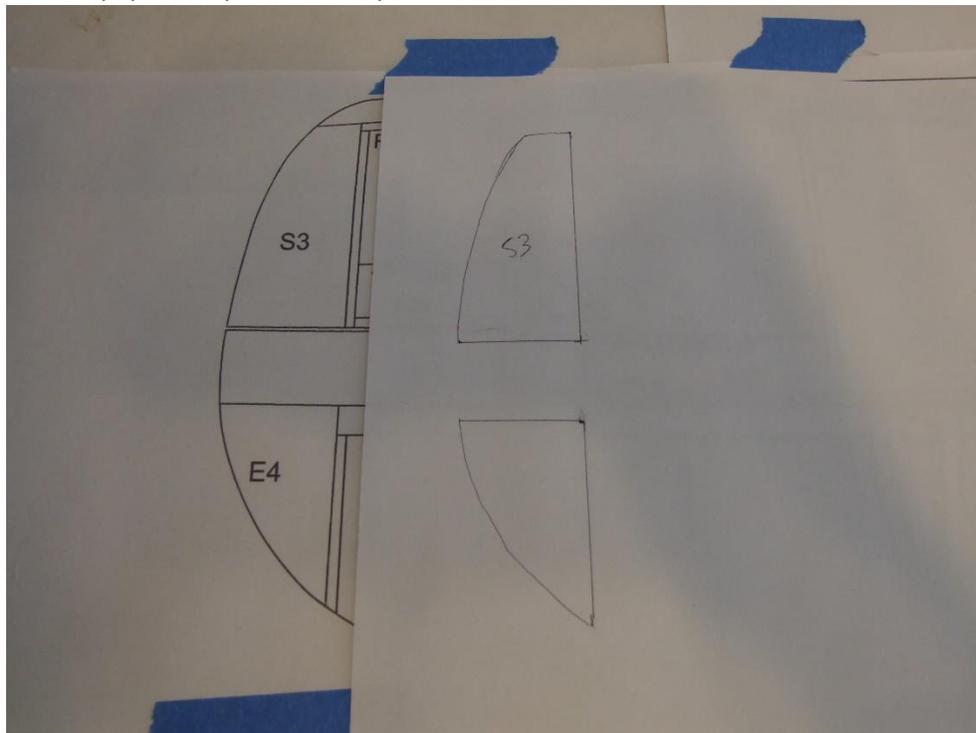


- b. Glue the sheeting to the stab.

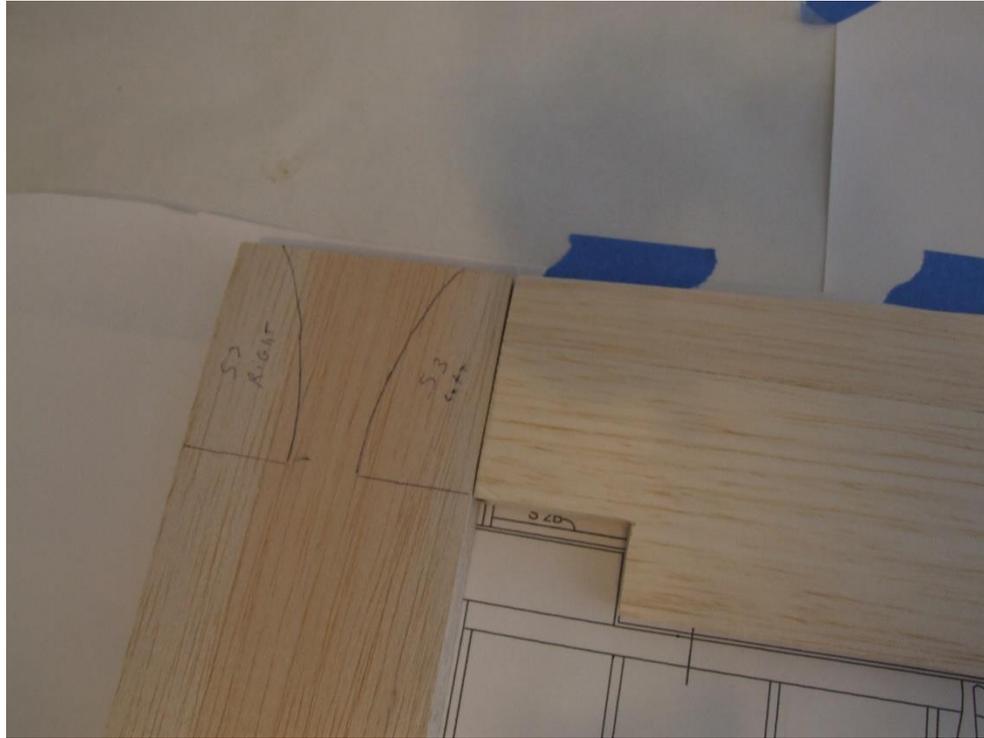




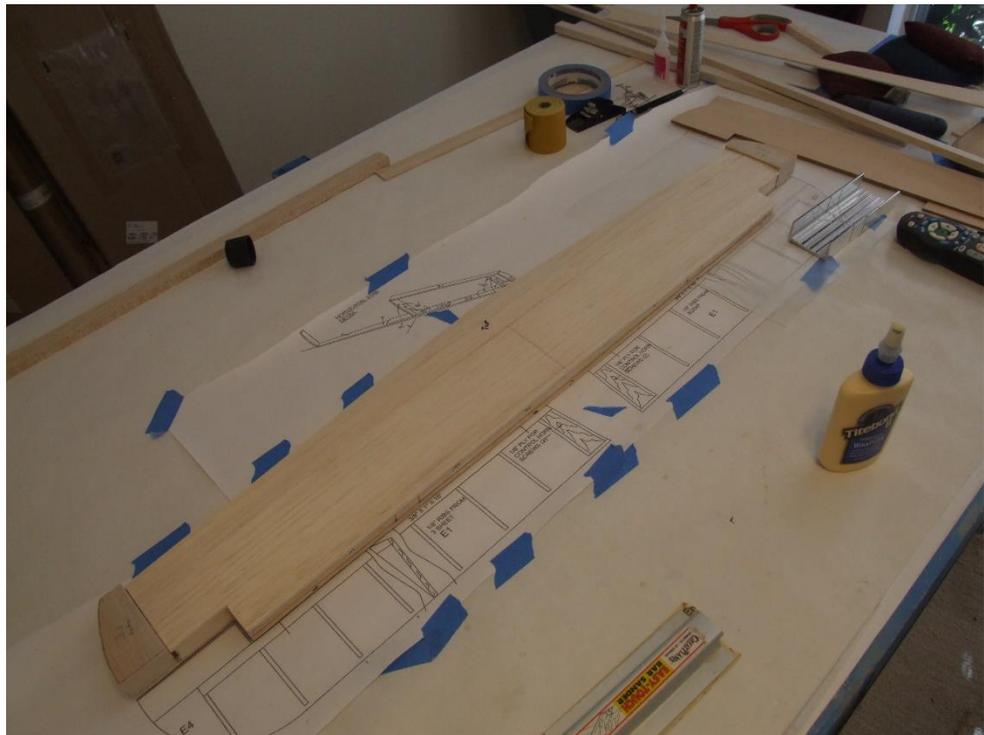
4. Make the horizontal tips
 - a. Make a paper template off the plan.



- b. Trace the shape on to a balsa block.

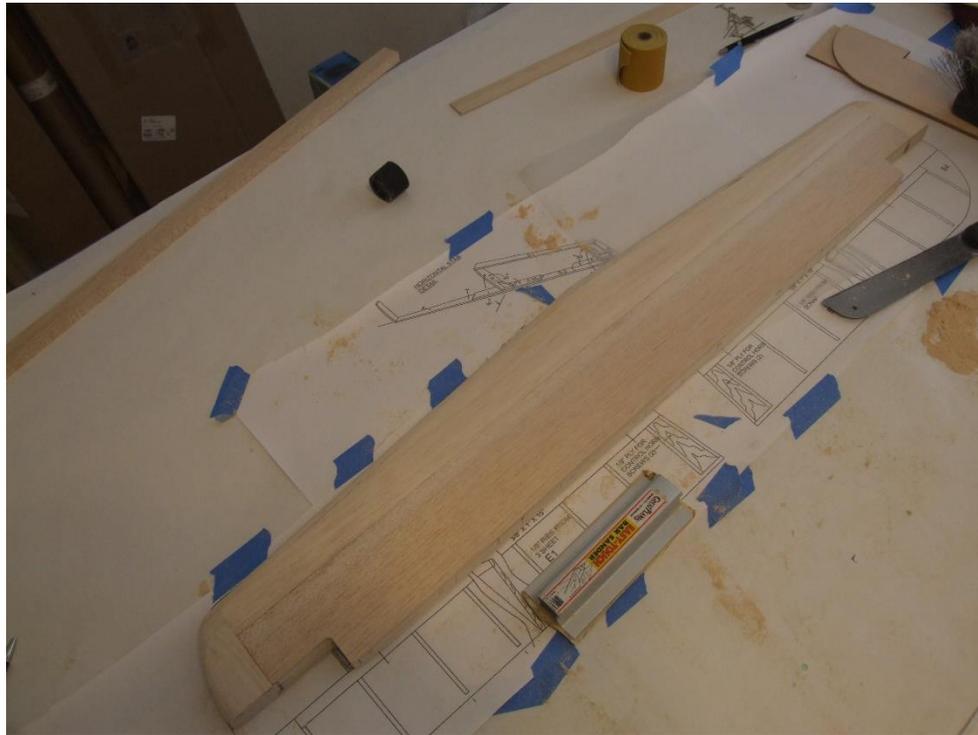


- c. Glue on the horizontal stab tips.



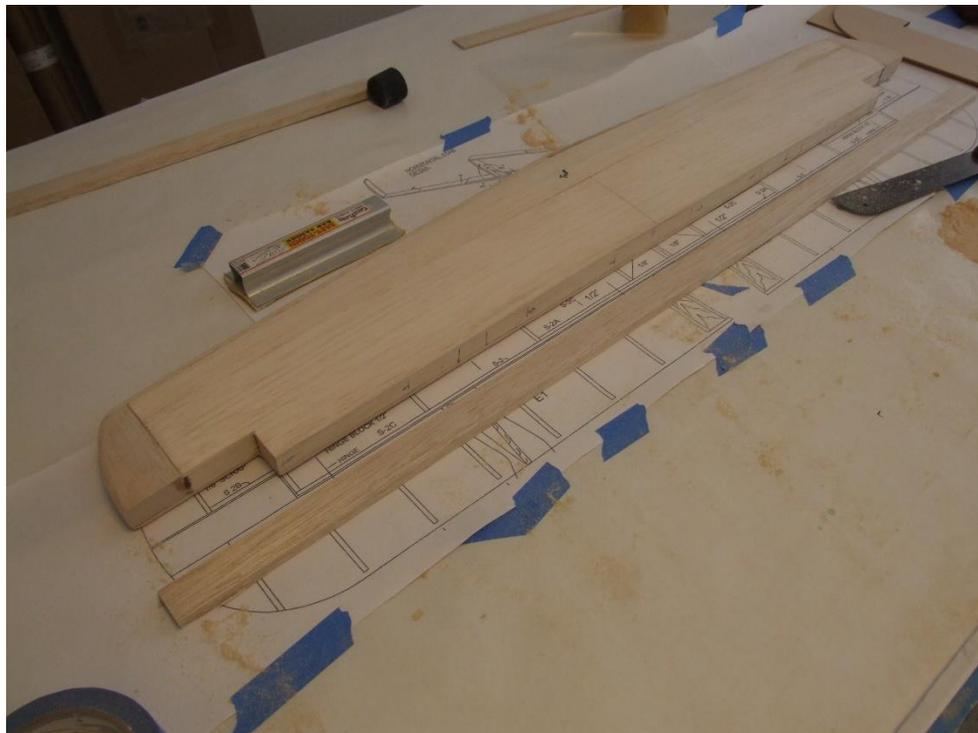
- d. Glue on the leading edge made from $\frac{3}{8}$ th x $\frac{3}{4}$ balsa.

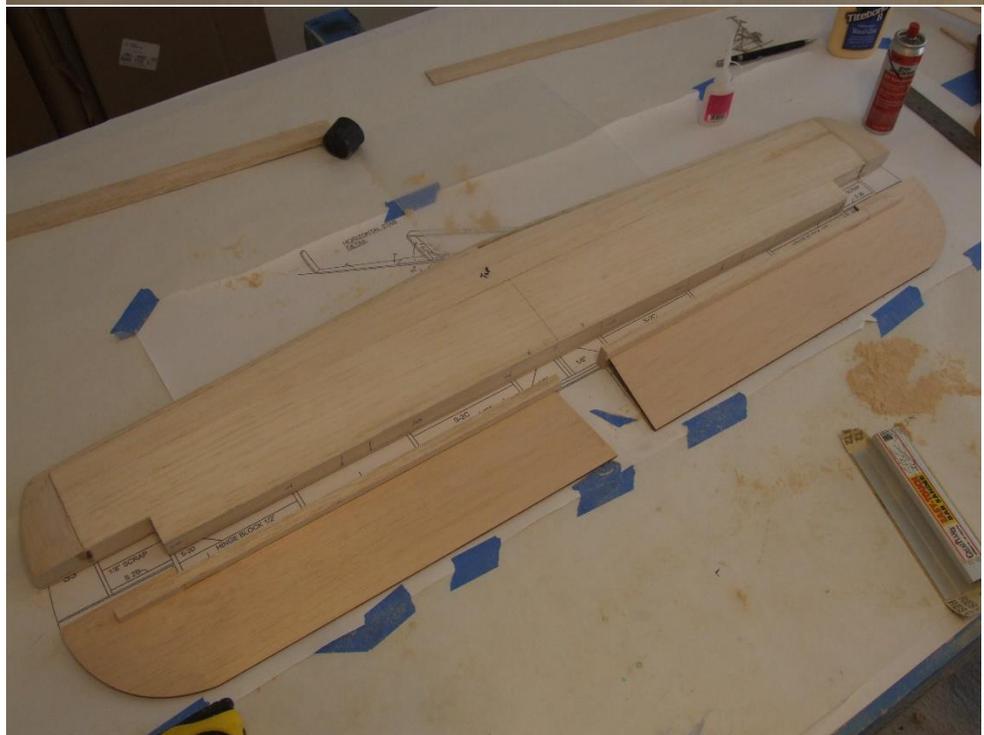
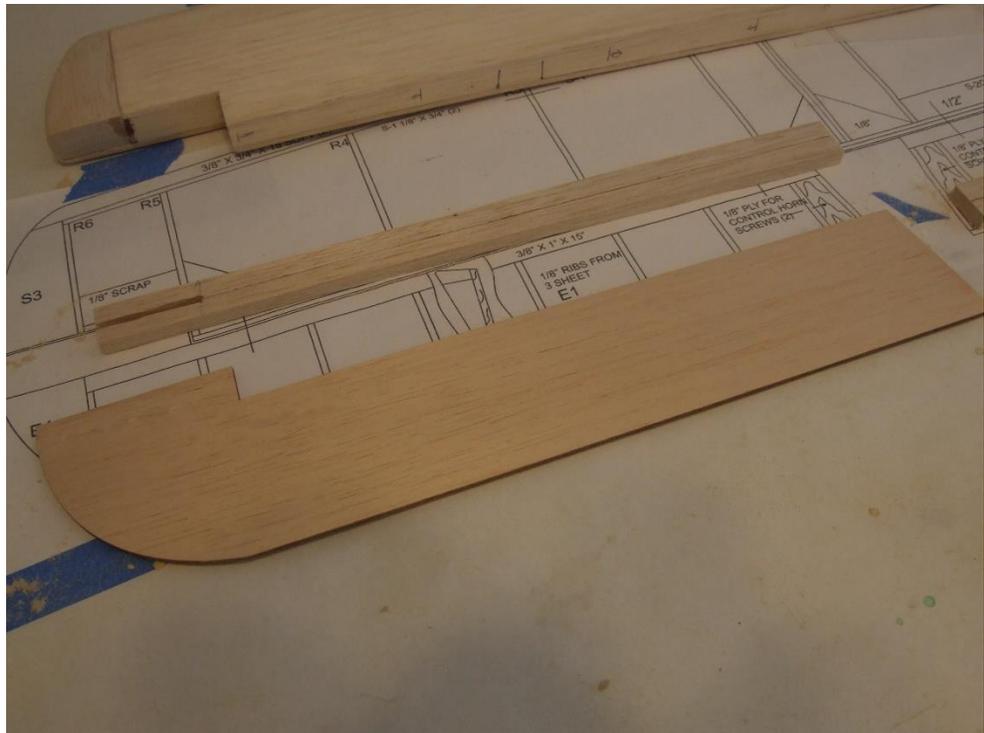
- e. Sand the leading edge and horizontal tips to shape.



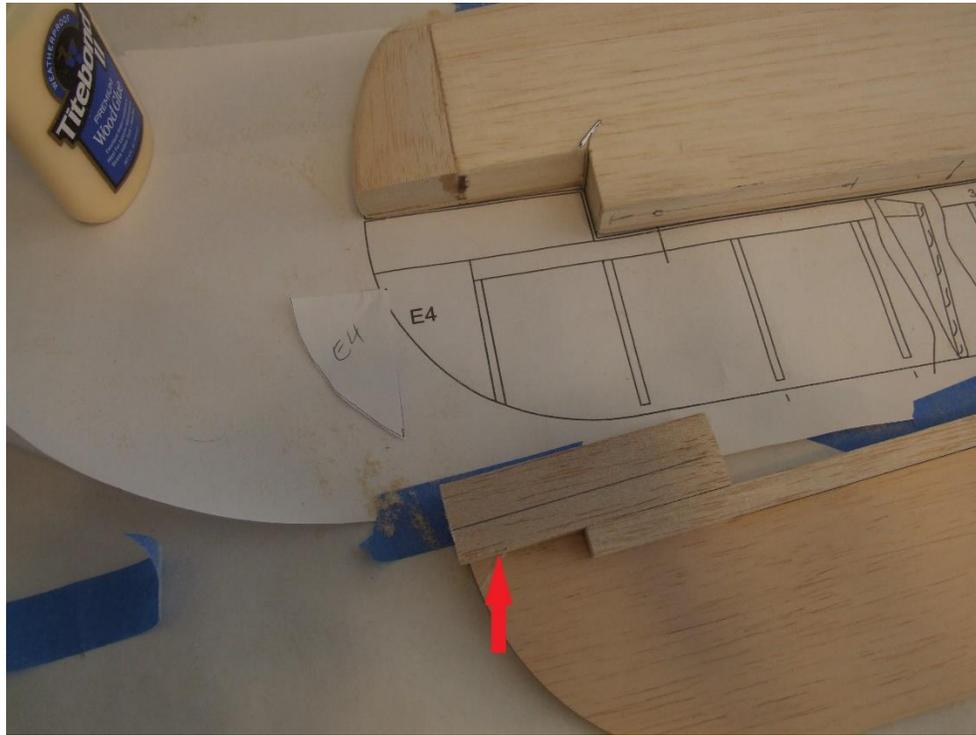
5. Construct the Elevator

- a. Make the leading edge of the elevator from $3/8^{\text{th}}$ x 1 inch balsa.

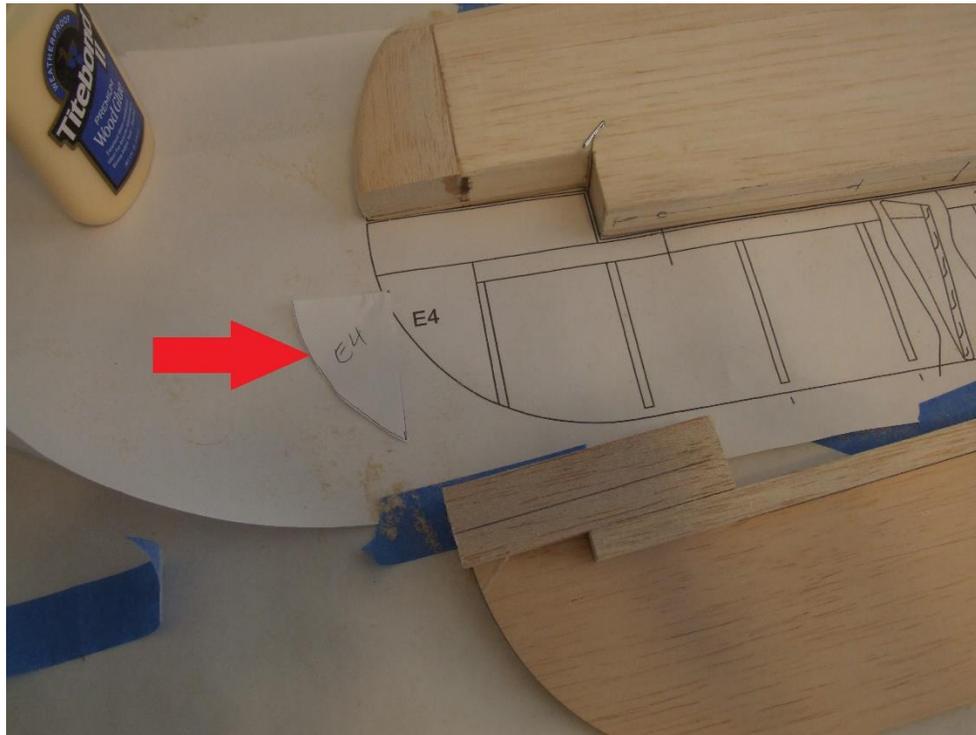




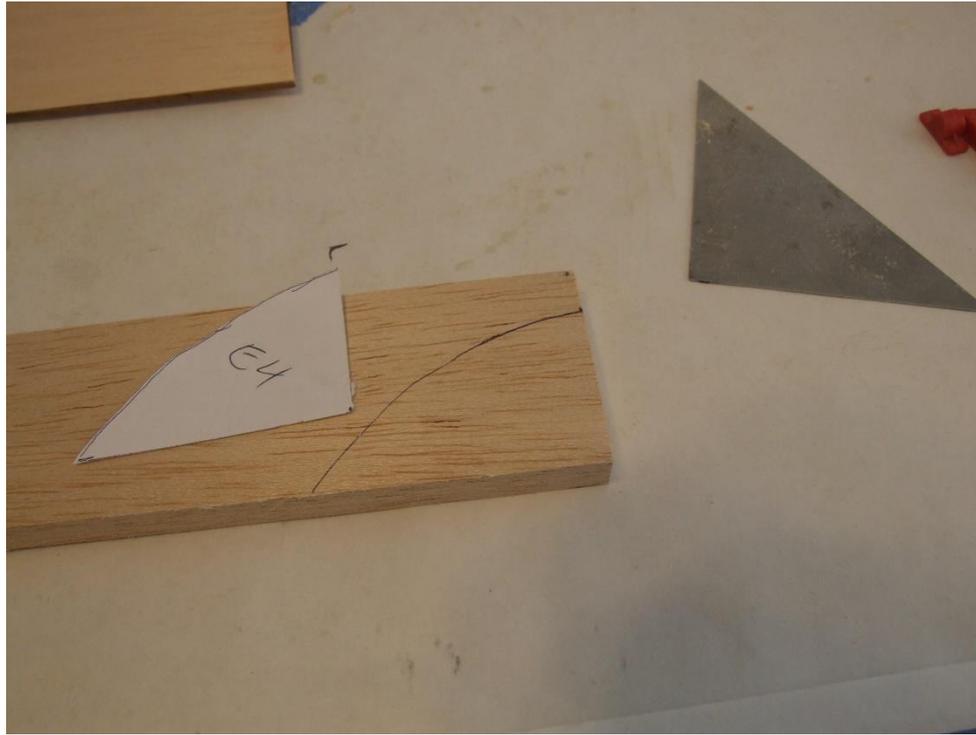
- e. Make the elevator tips out of balsa $\frac{3}{4}$ x $\frac{1}{2}$ inch balsa.



- f. Use the plan to make a template for the remaining elevator tip.



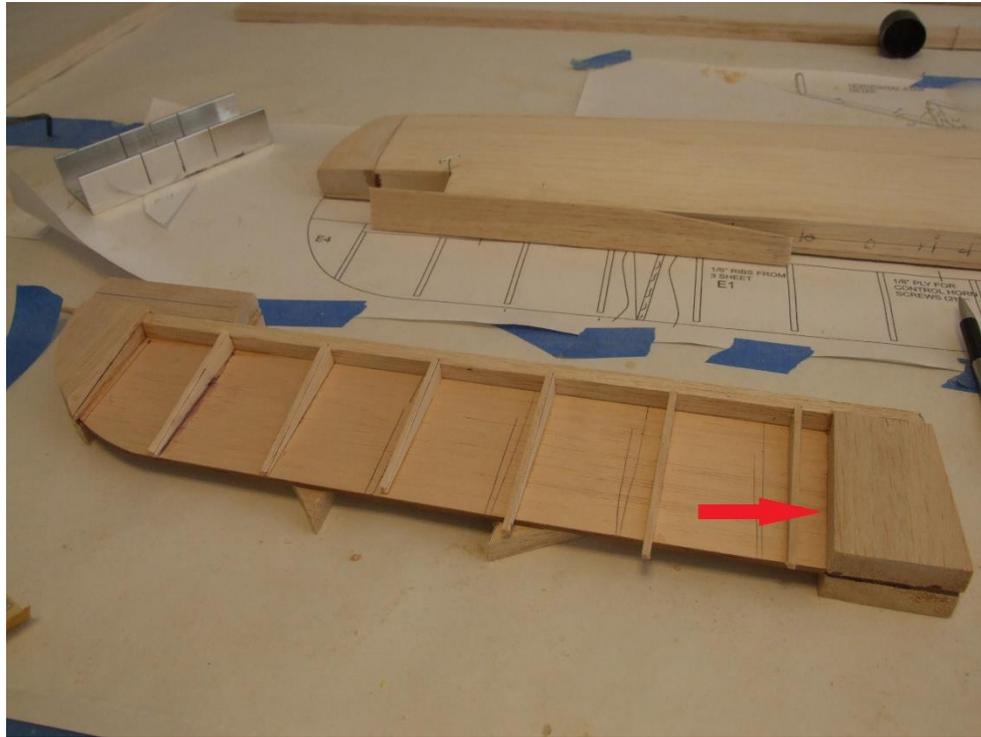
- g. Cut out the elevator tip from $\frac{1}{2}$ x 2 inch balsa. Note you will need 2 per side one for the top one for the bottom.



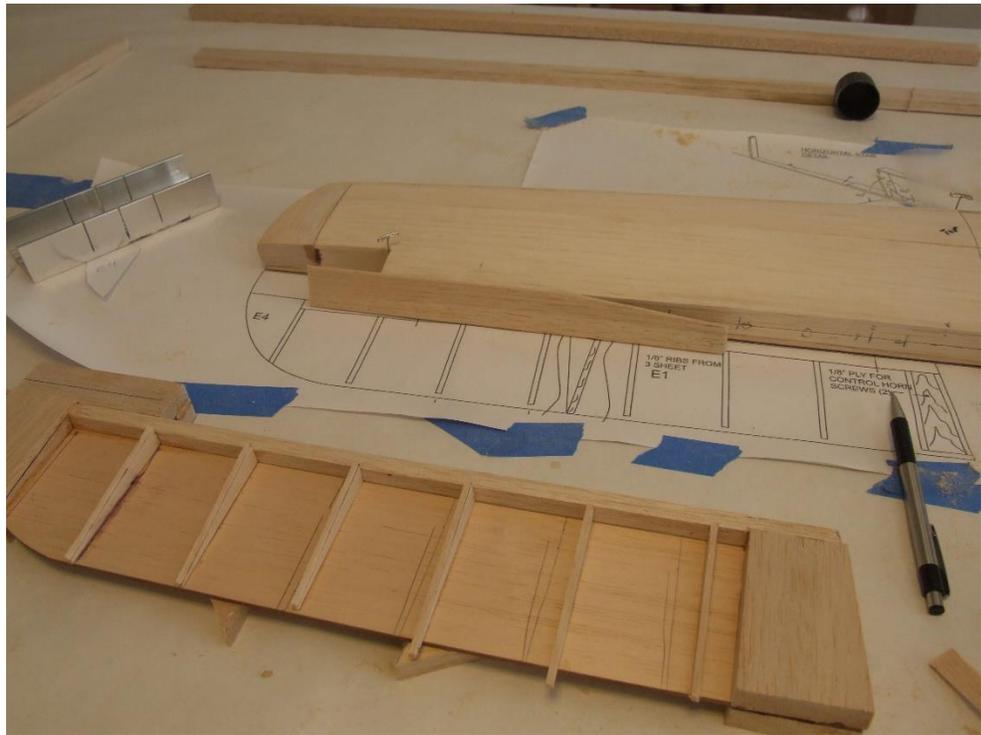
- h. Glue the tips on the elevator.



- i. Make the inside elevator end out from $\frac{1}{2}$ x 2 inch balsa. **Note depending on how you plan to attach your control horns you may want to add a piece of $\frac{1}{8}$ ply to the bottom side of the elevator attachment point. This is shown on the plan.**



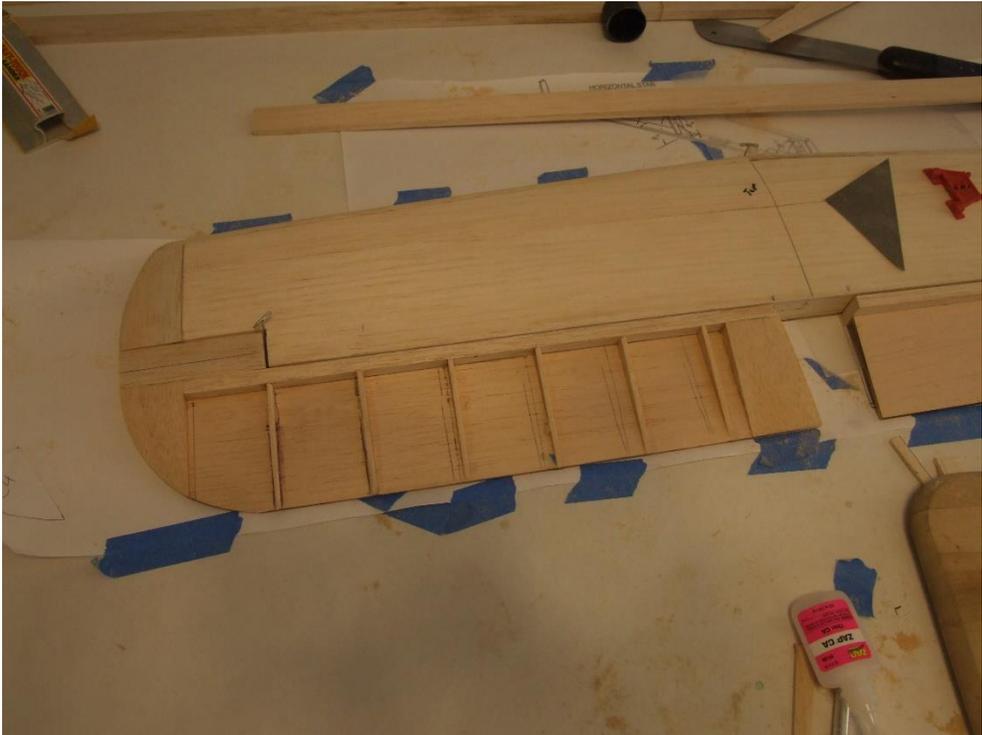
- j. Make the RIBs for the elevator out of $\frac{1}{8}$ th x 1 inch balsa. Glue them in per plan.



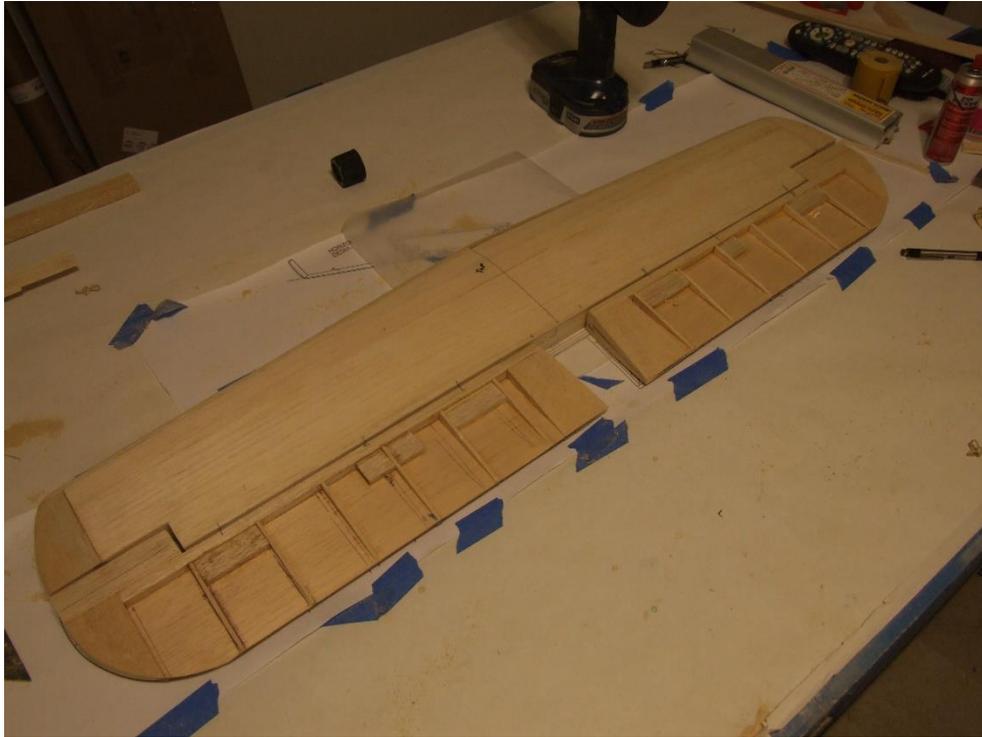
k. Sand the elevator RIBs to shape.



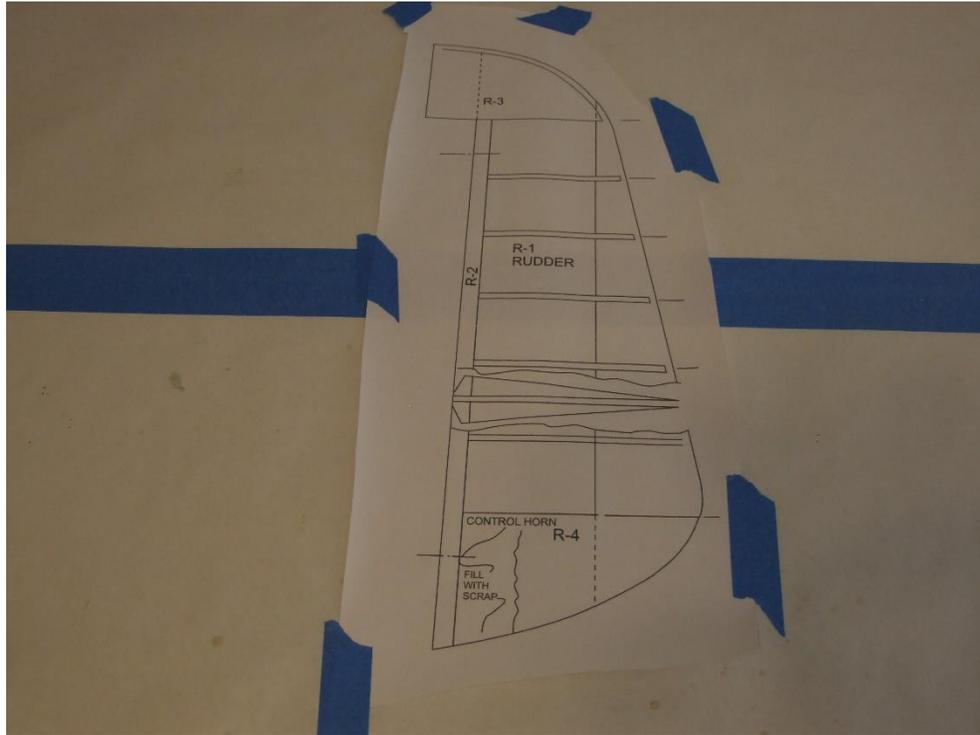
l. Sand the elevator tips to shape.



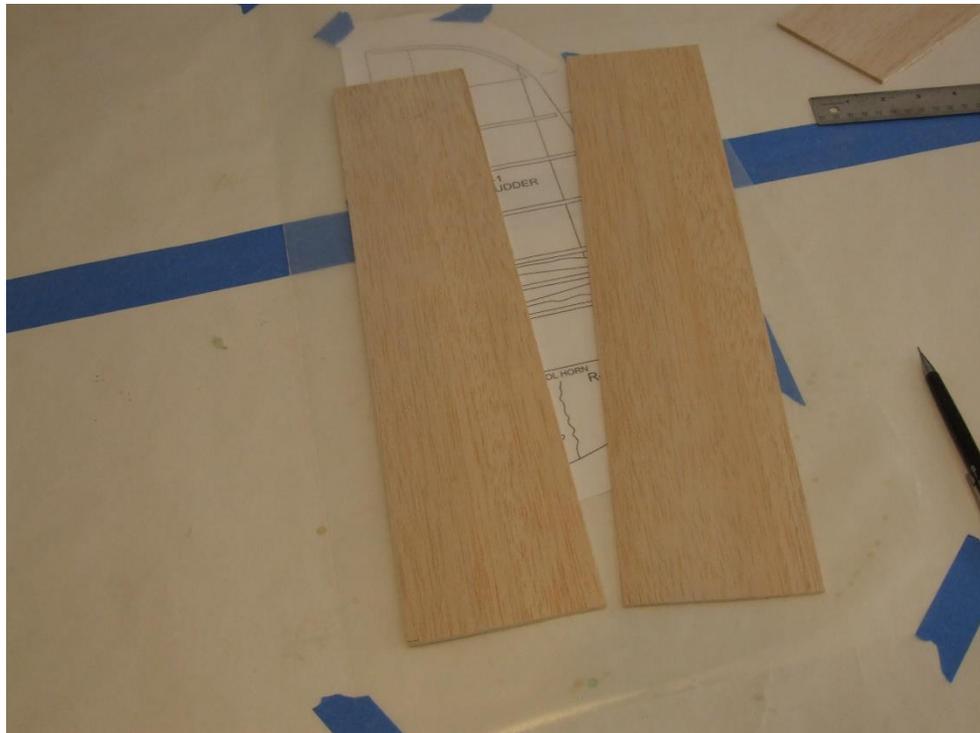
m. Glue in your hinge blocks.



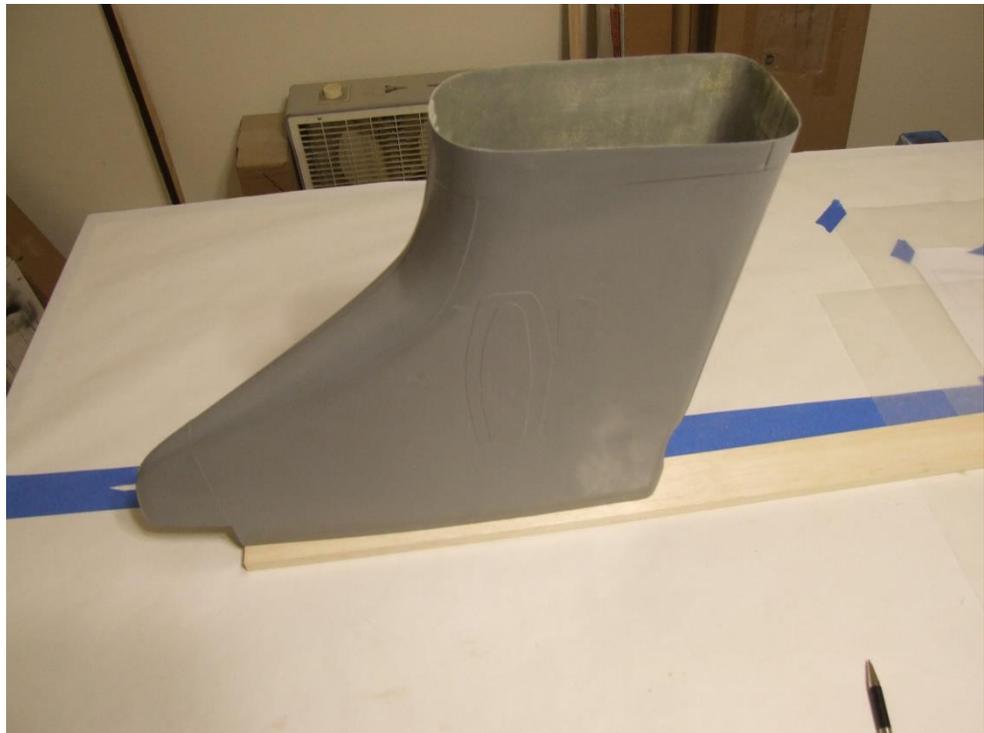
6. Build the Vertical Stab
 - a. Cut out your stab plan.



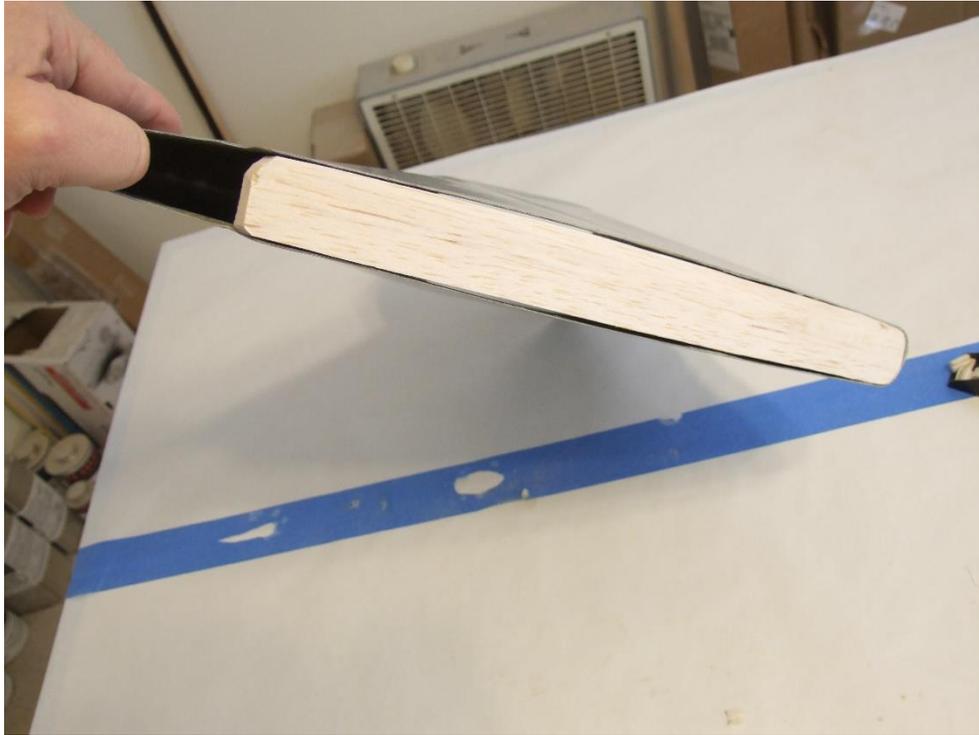
- b. Glue 2 appropriately sized pieces of 1/8th inch balsa sheeting together to make the stab core.



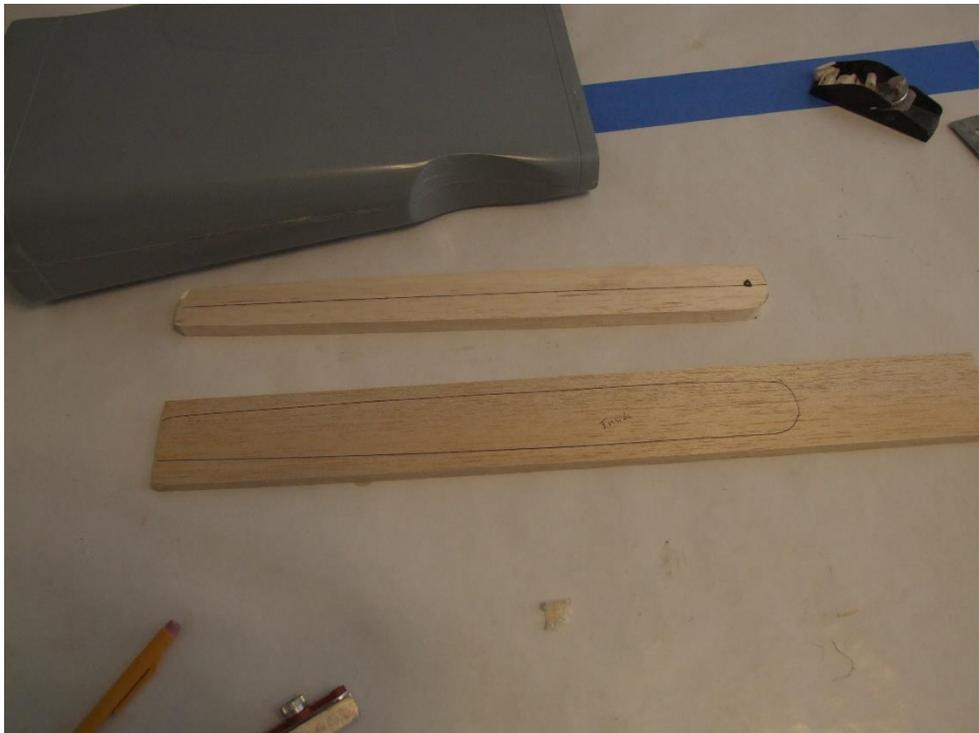
- c. Use the fiberglass fuse to trace the shape of the vertical stab post for the fuse and the Vertical stab.



- d. Cut the fuse post from $\frac{1}{2}$ x 2 inch balsa.



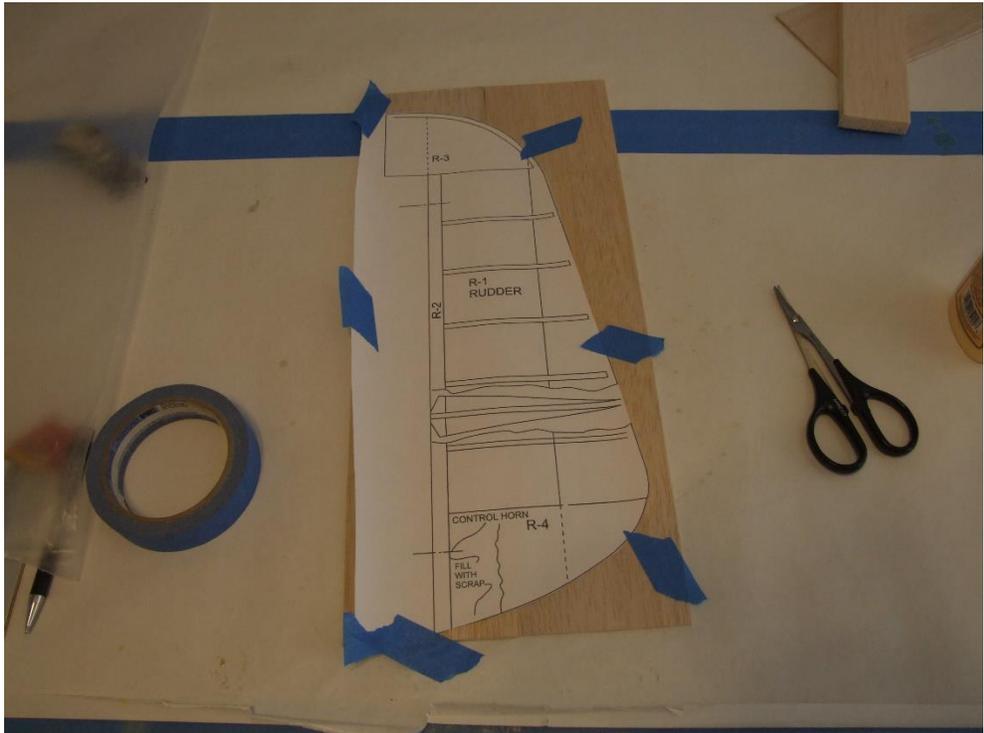
- e. Use the fuse post you just cut as a template to make the vertical stab leading edge. Trace the shape on to $\frac{1}{2}$ x 2 inch balsa.

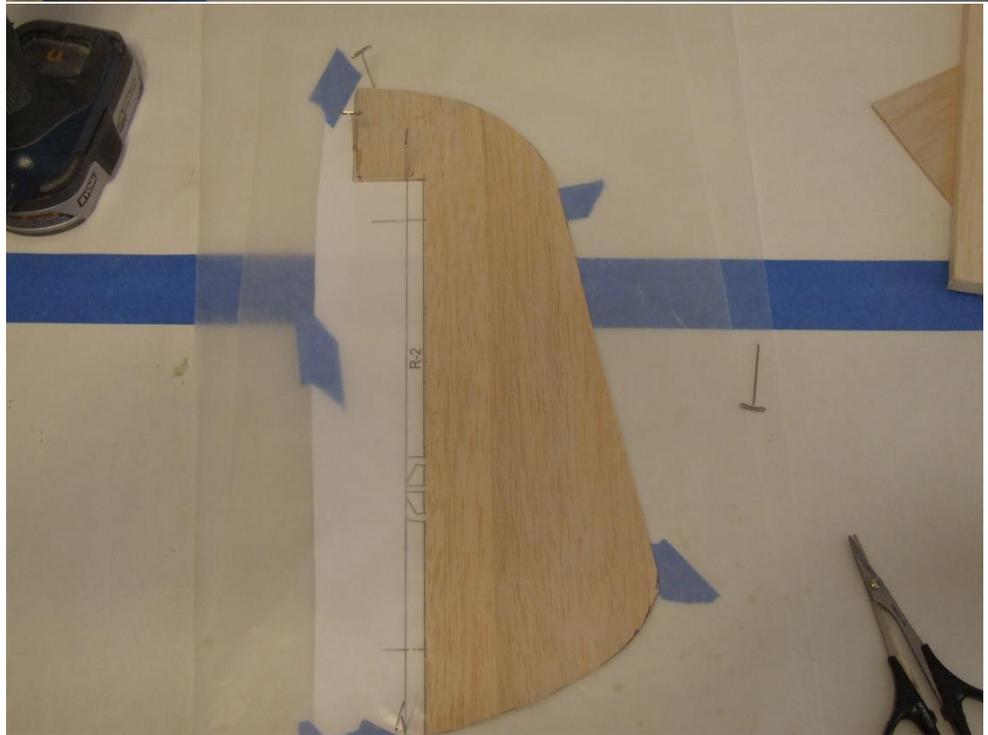
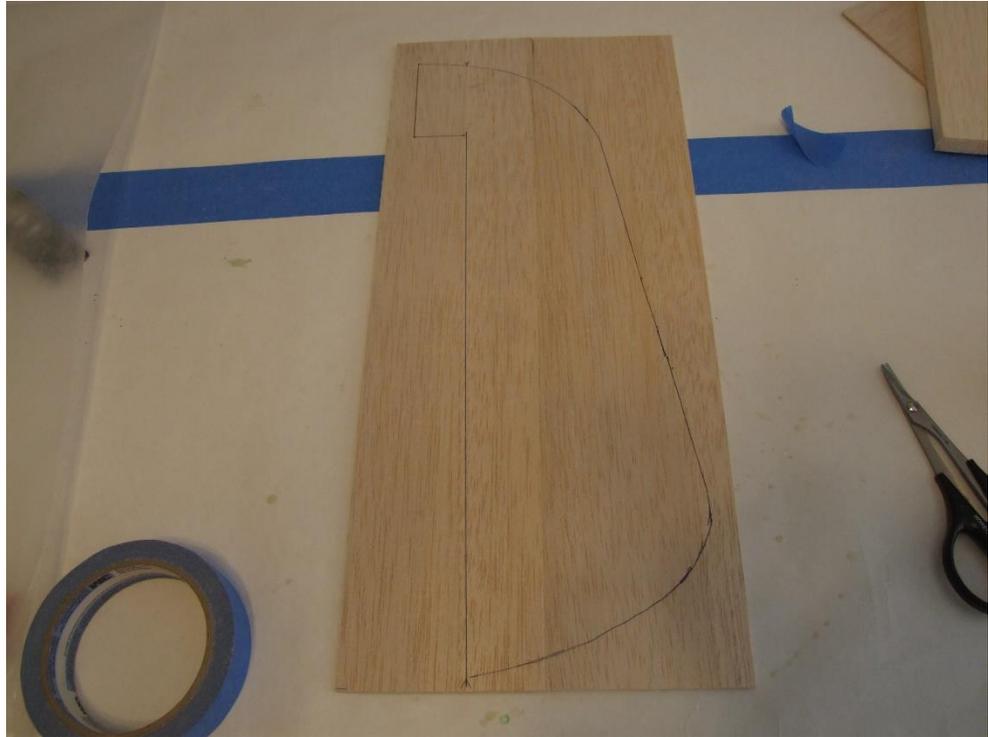


- f. Cut out the vertical stab leading edge.



- g. Cut the vertical stab core from the 2 sheets of 1/8th balsa that was glued together.

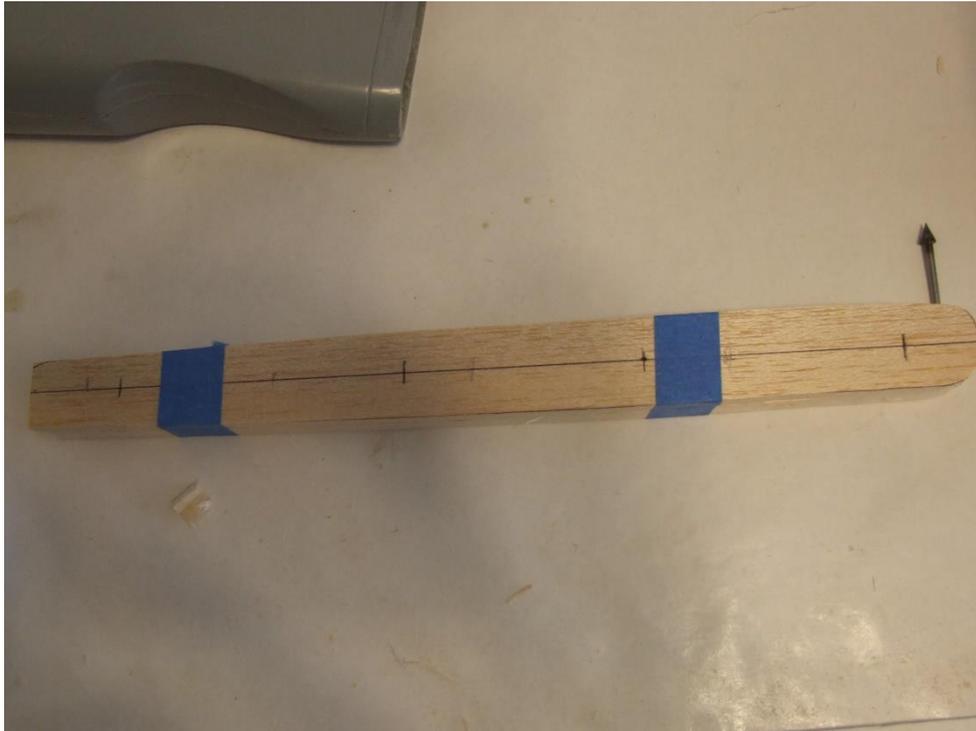


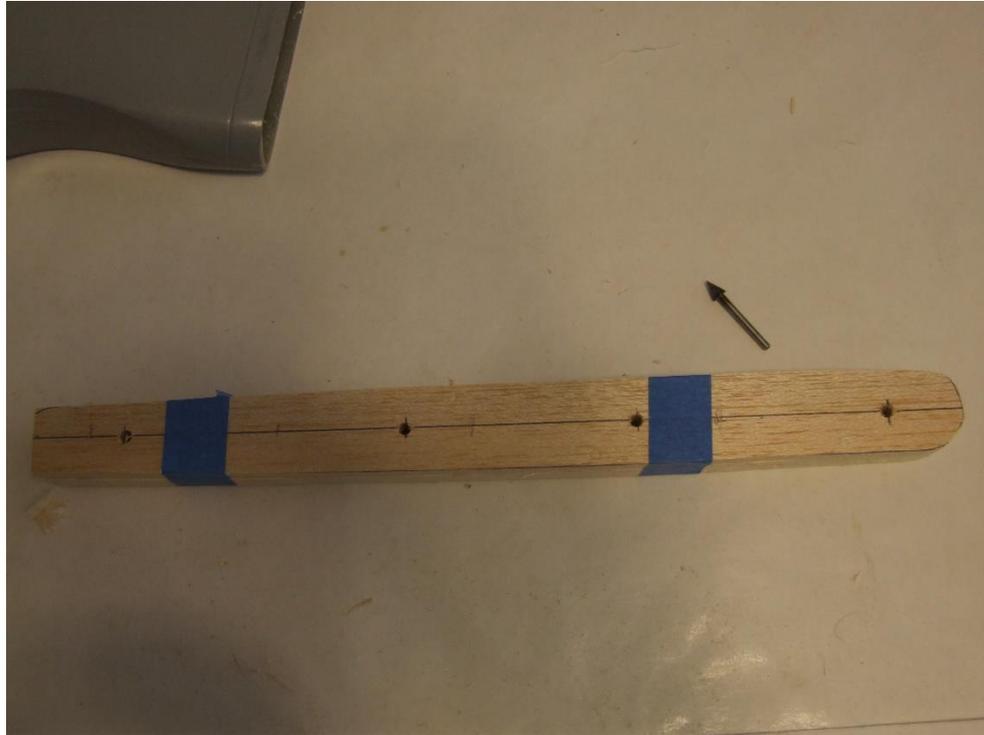


h. Mark the center of your vertical stab leading edge.

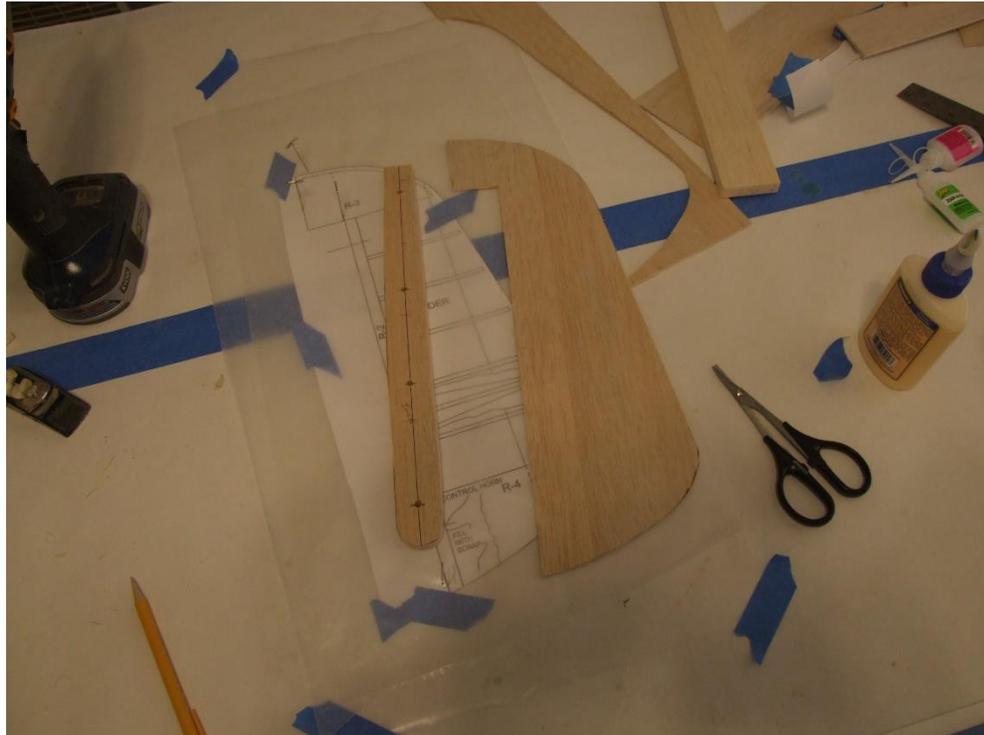


i. Tape the post to the leading edge of the vertical stab and drill your hinge holes.





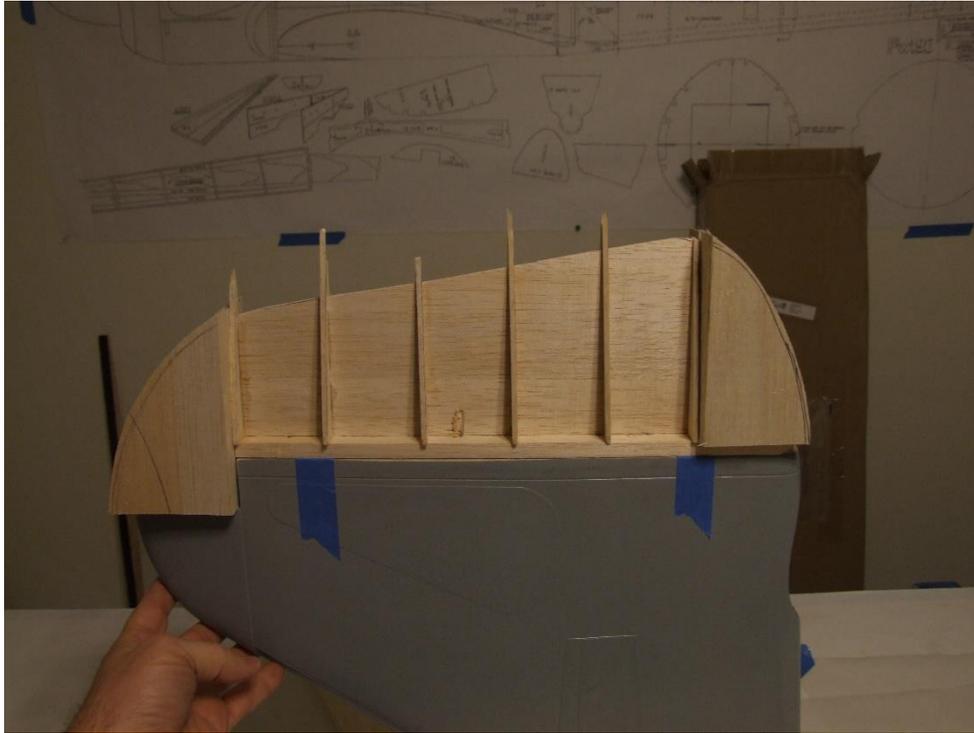
- j. Glue the vertical stab core to the center line marked on the vertical stab leading edge.



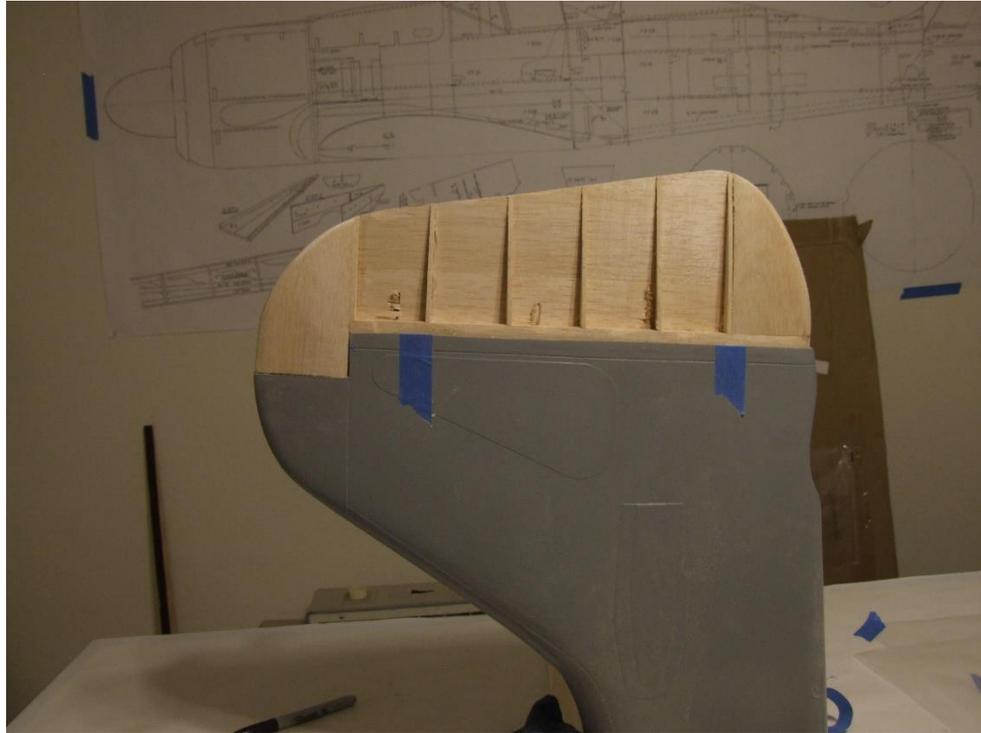
- k. Make the RIBs for the vertical stab from 1/8th x 1 inch balsa. Glue them in place per plan.



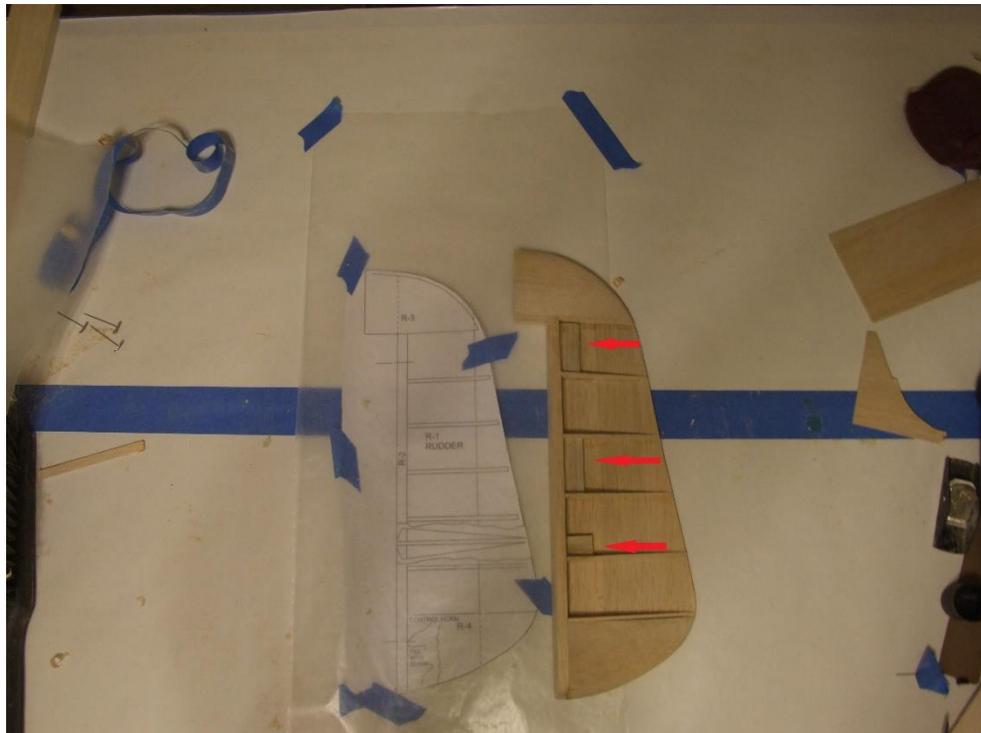
- I. Cut the bottom and top vertical stab tips from balsa block. Glue them to the stab core.



m. Sand vertical stab tips to shape.



n. Glue in balsa blocks for the hinges.

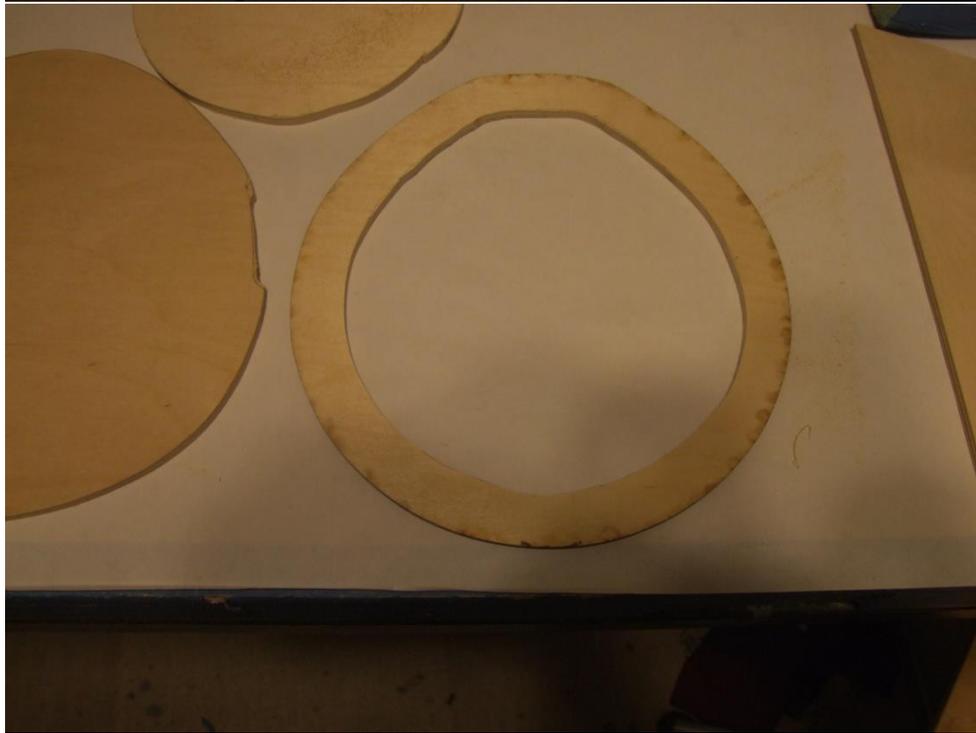


Building the Fuse

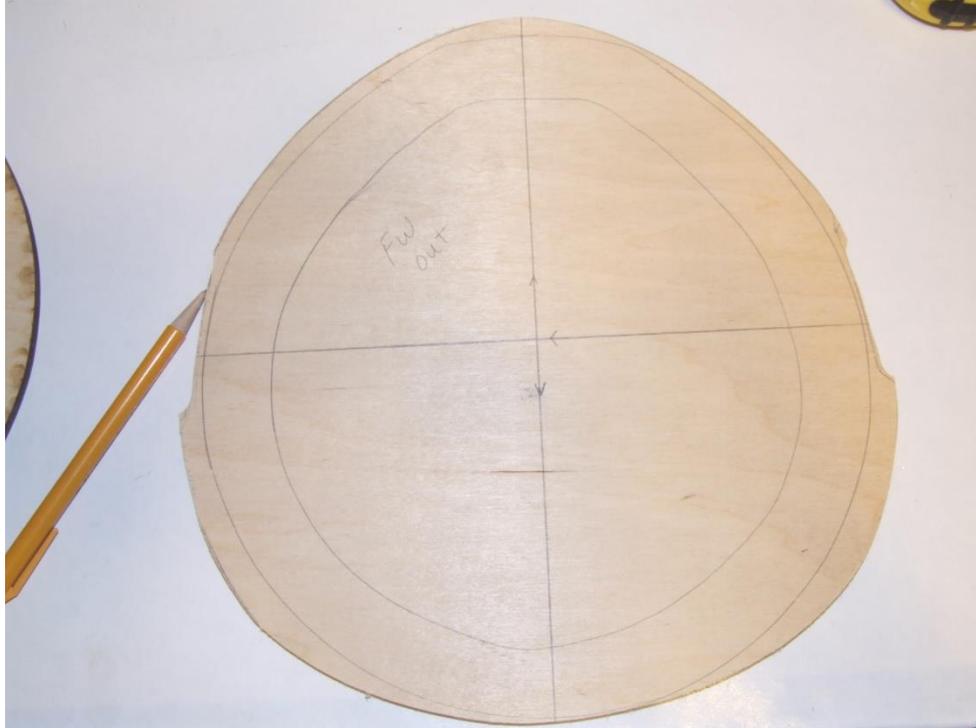
1. Wash the fiberglass parts in warm soap and water to ensure all mold release agents have been removed
 - a. Dry fit your outer firewall. Trim as desired.



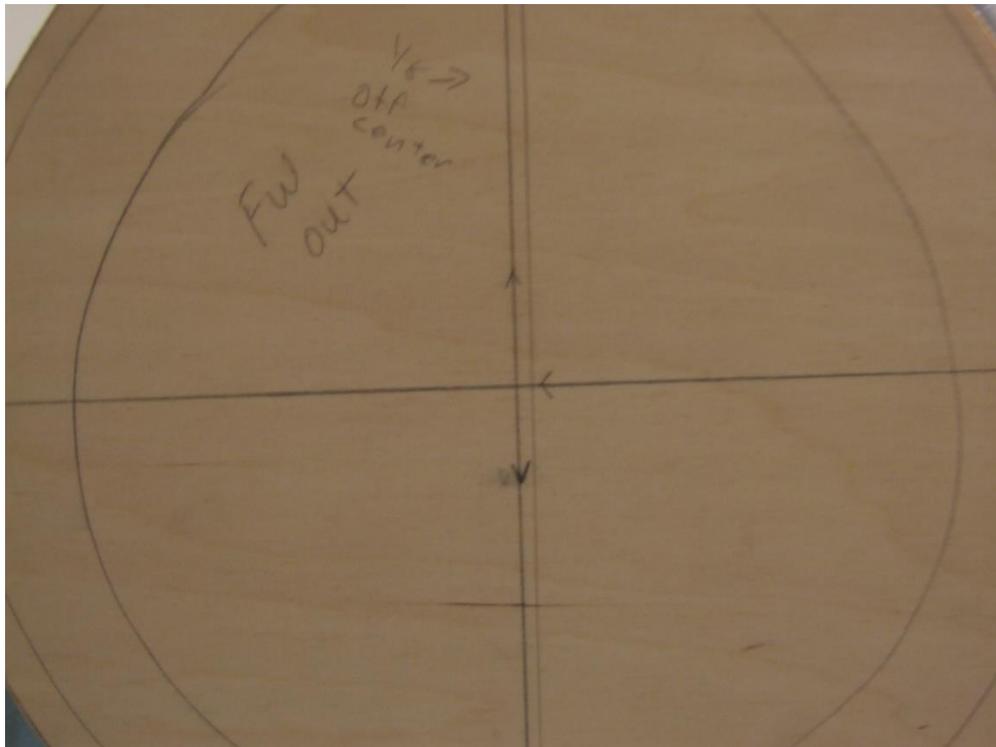
- b. Use the inner firewall to make your firewall ring. The fuse is made with a nice lip to allow the creation of a removable firewall. This is a great way to get as much weight forward of the cg and adds the benefit of easy maintenance.



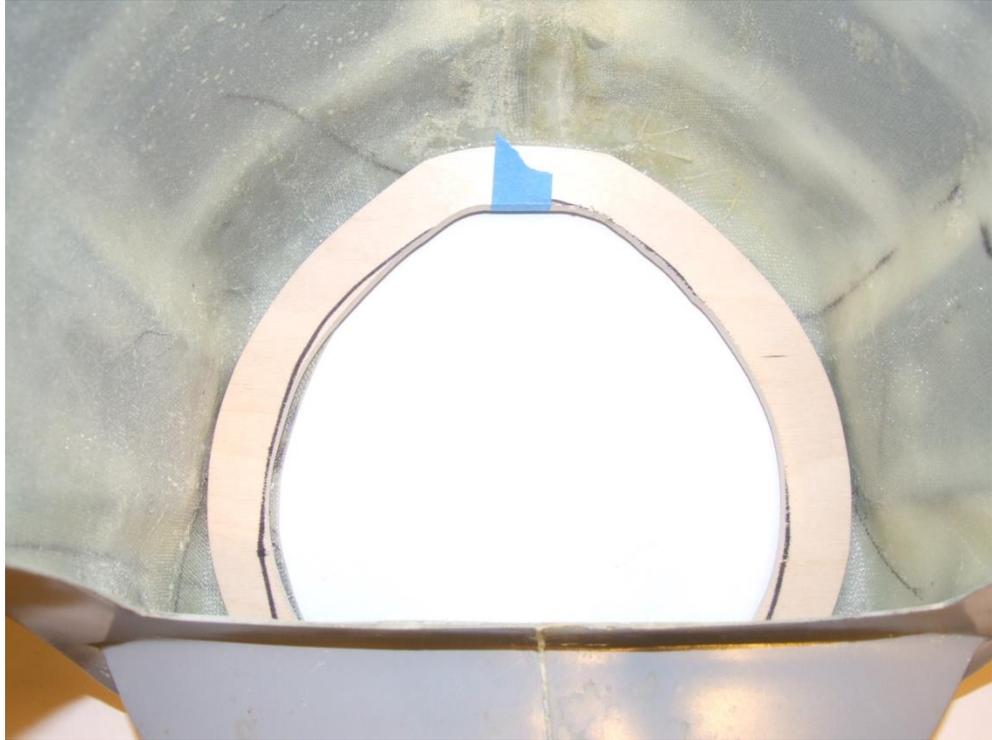
c. Mark the back side of the outside firewall



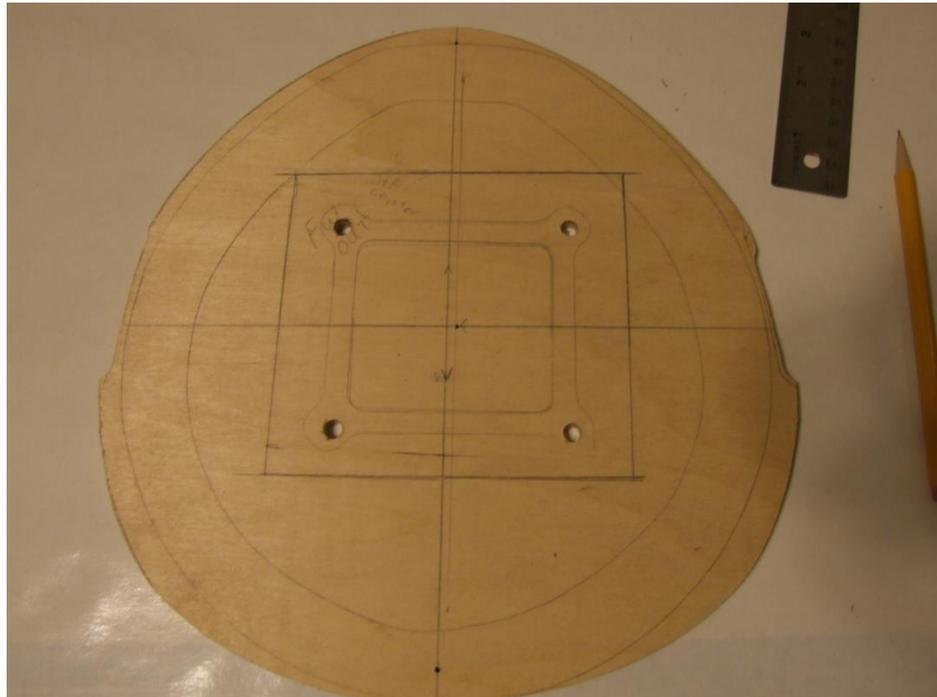
- d. This example has 3 degrees of off set to allow for right thrust to be built in to the motor box. That is $1/8^{\text{th}}$ of an inch to the right of center.



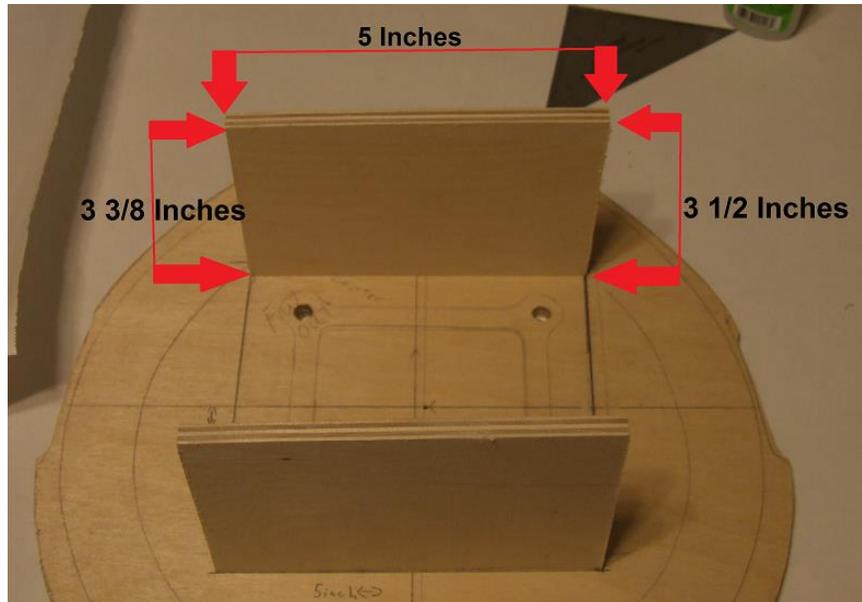
- e. Epoxy the firewall retainer ring in the fuse. **Be sure to use 80 grit sand paper to rough up the fiber glass and clean it with rubbing alcohol.**



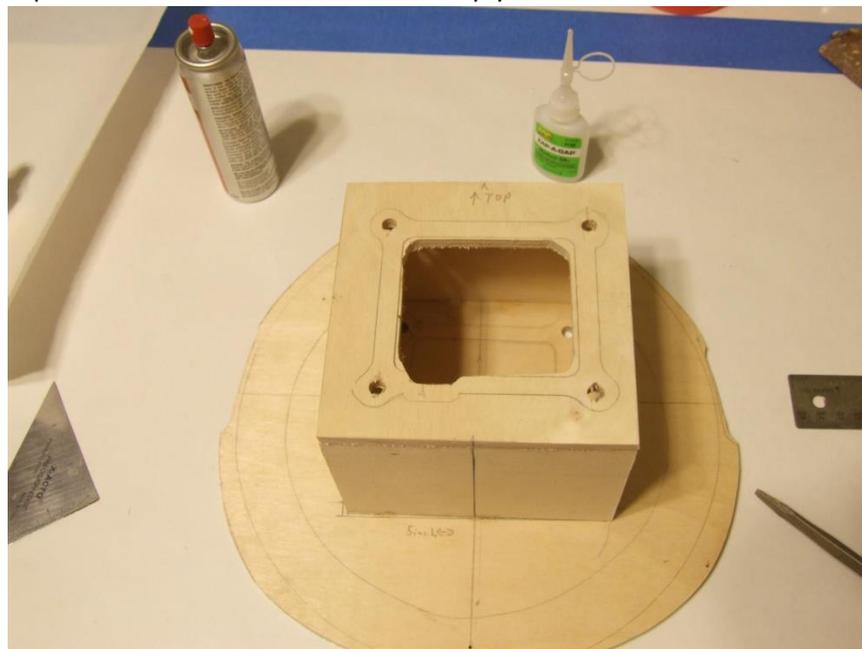
- f. Build your motor box. (This example is for a DA85)
i. Mark the location of the mounting bolts.



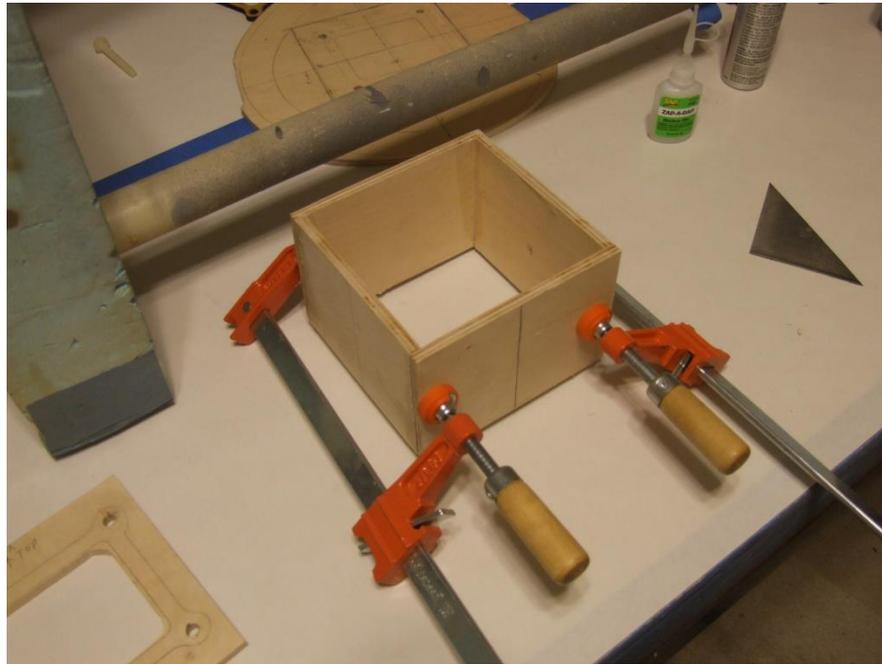
- ii. Build the motor box. Use $\frac{1}{4}$ aircraft ply. The box measurements are 5 inches by 5 inches the top and bottom plates **from the front of the fuse** are the $3\frac{3}{8}$ inches tall on the left side and $3\frac{1}{2}$ inches tall on the right. This produces the 3 degrees of right trust.



- iii. Cap the motor box with $\frac{1}{4}$ inch aircraft ply



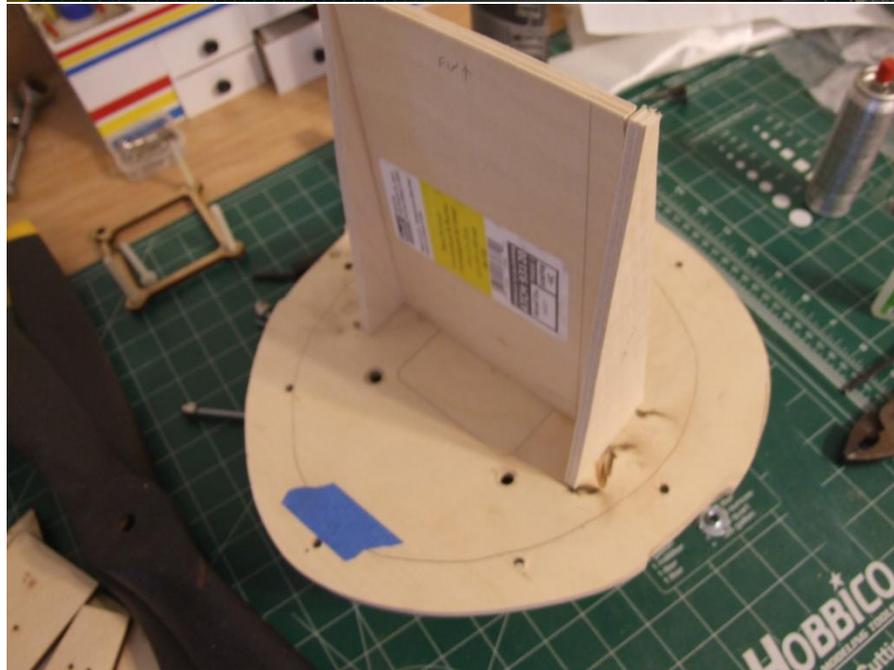
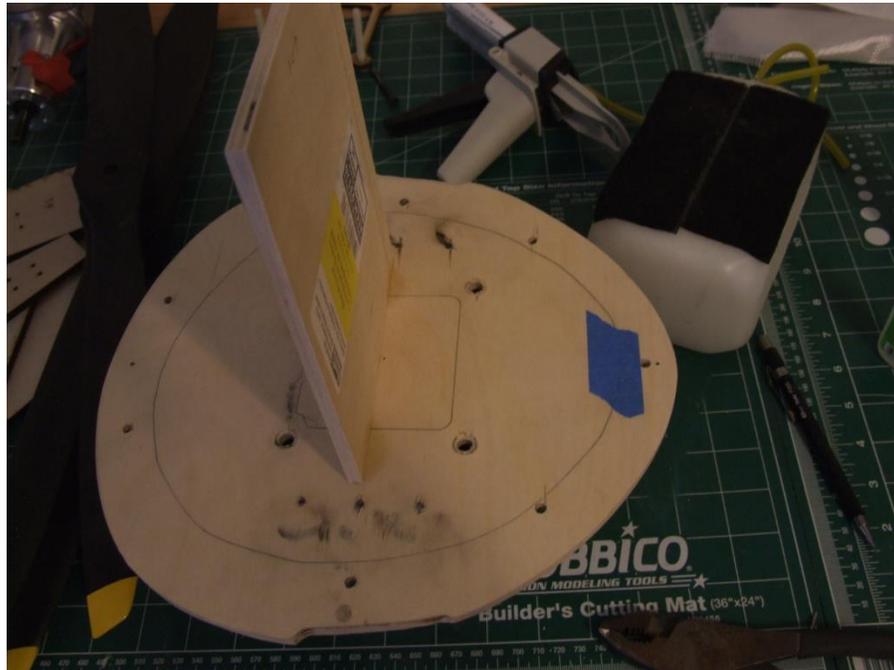
- iv. Epoxy your motor box together.



- v. Use $\frac{1}{4}$ 20 all thread to attach the motor box to the firewall. This will allow you to secure the motor and the box to the firewall. You will also want to secure the firewall to the inner firewall with 8/32 bolts and blind nuts (7 were used in the example).



- vi. Build the support for the fuel tank out of $\frac{1}{4}$ inch aircraft ply.



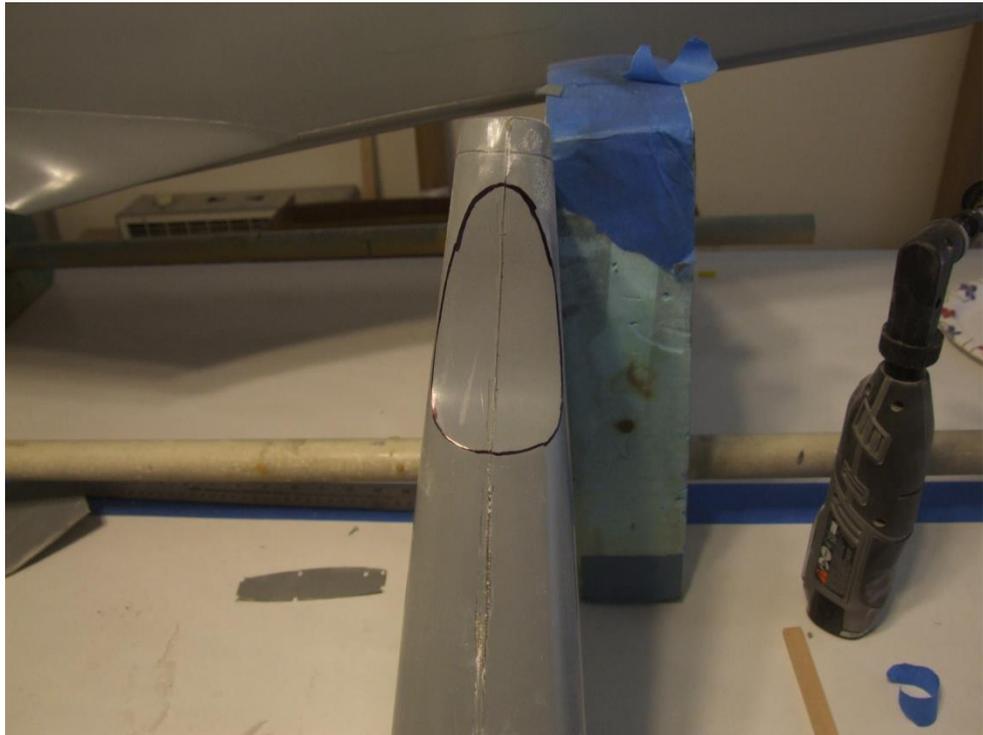


g. Cut the appropriate location for your horizontal stab.

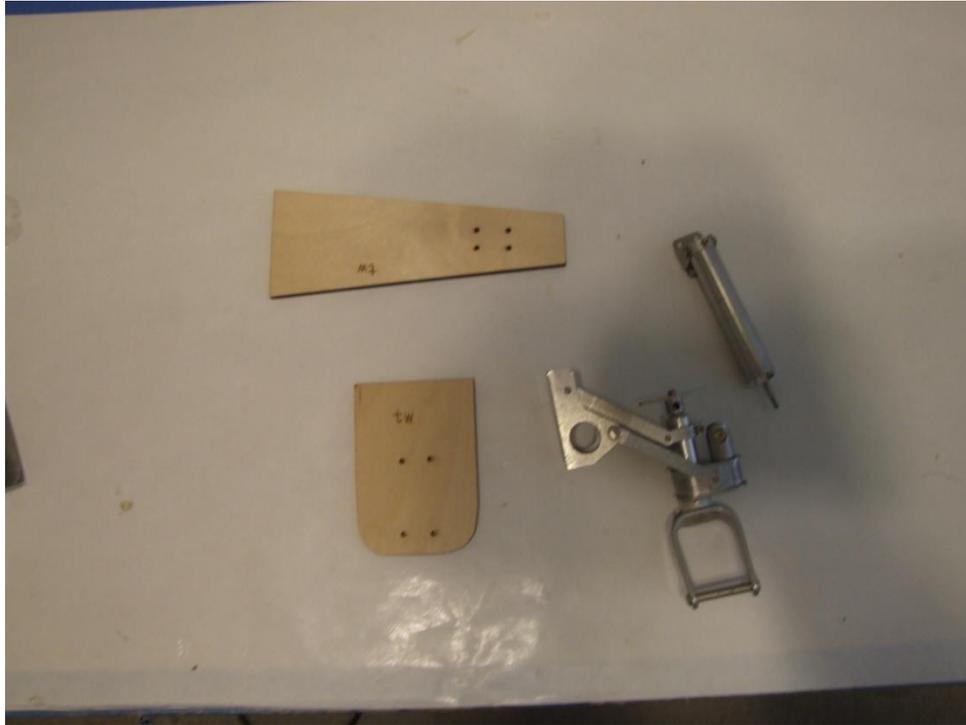




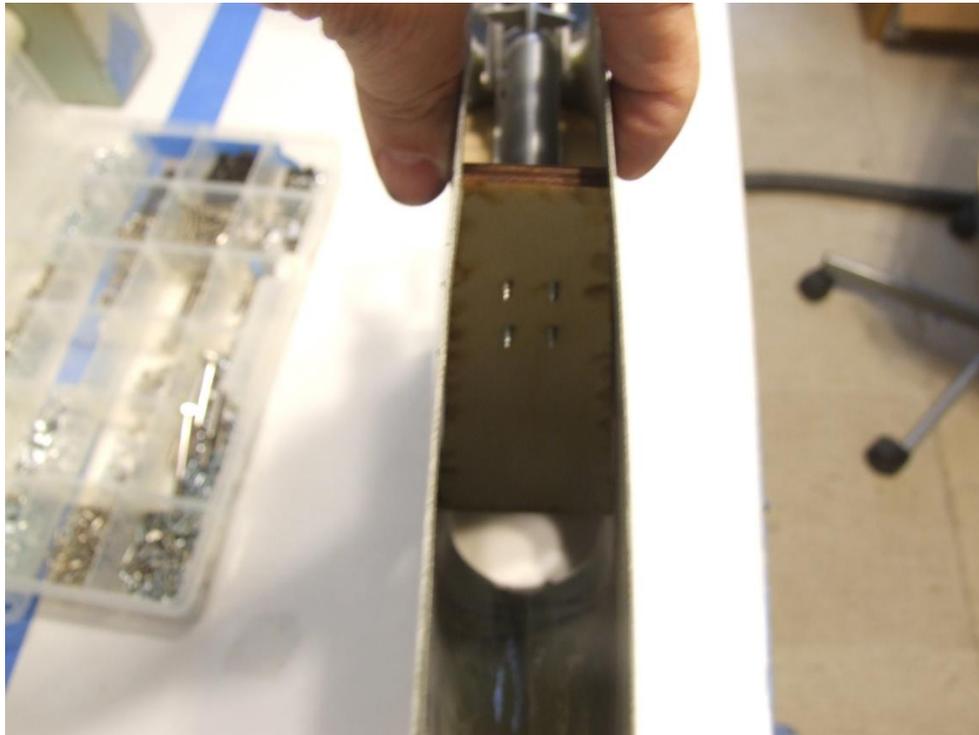
h. Cut out the hole for the tail gear.



- i. Attach the tail gear to the formers provided. **Dry fit all your bulk heads**



- j. Extend the air cylinder rod completely and place the upper plate in the tail section.

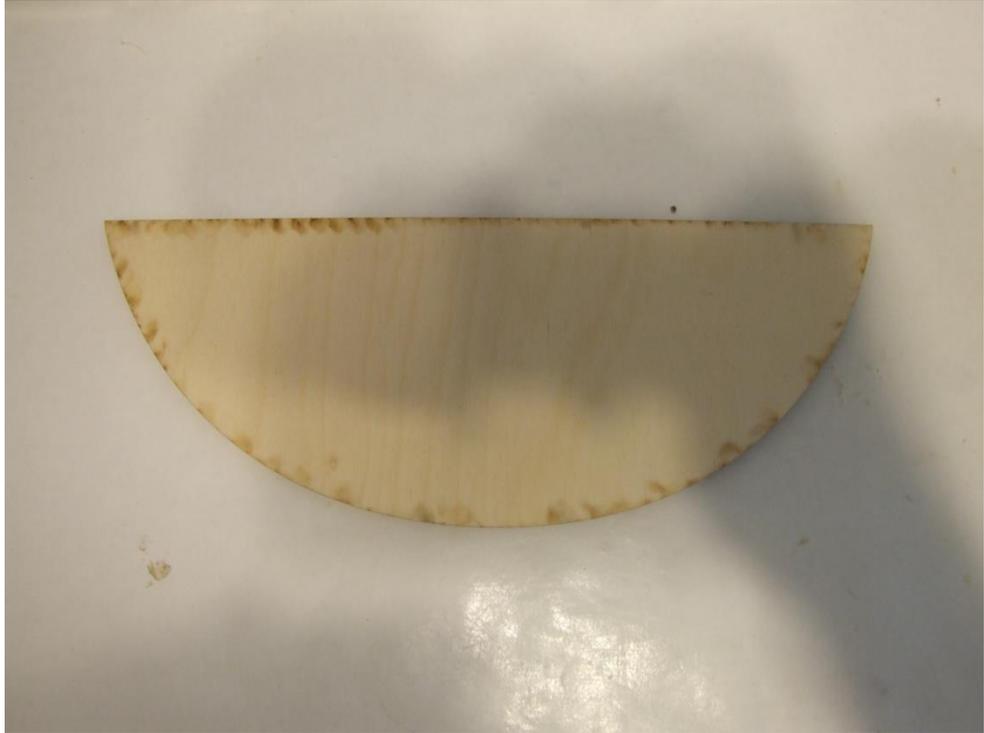




- l. When you are satisfied with the alignment of your bulkheads epoxy them in place.
Remember to use 80 grit sandpaper on the fuse to allow the epoxy to bite in and hold.
- m. Cut out the hole for the wing tongue.



- i. When you get the wing aligned as desired mark and epoxy the front wing saddle former in place.

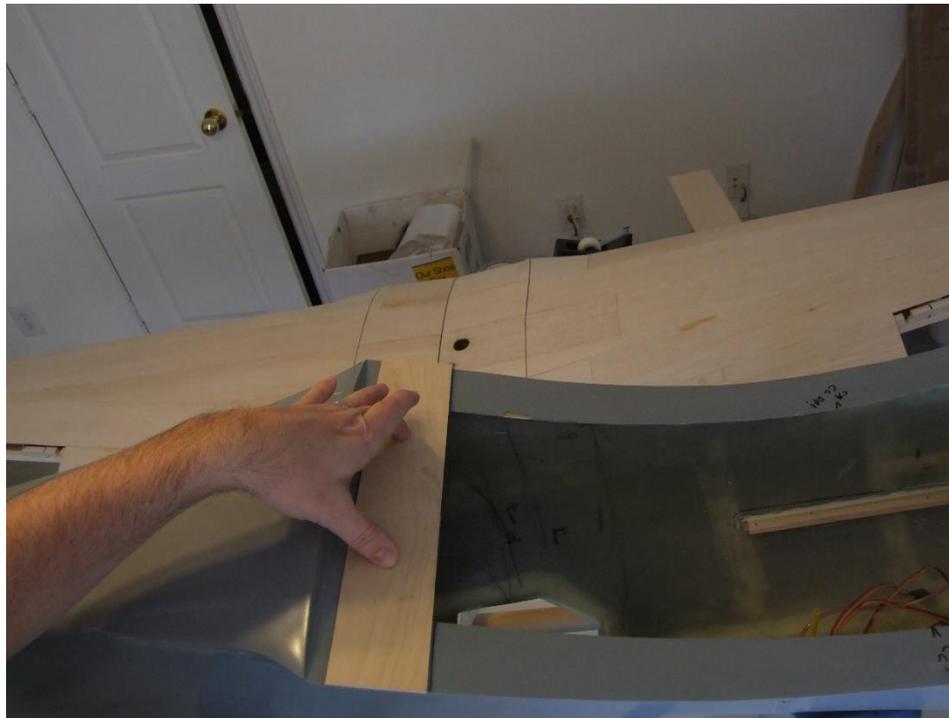


7. Attach the wing to the fuse

- a. Cut a 1/8 ply wing hold down plate to be epoxied at the back of the fuse.



- b. Test fit the wing hold down plate.

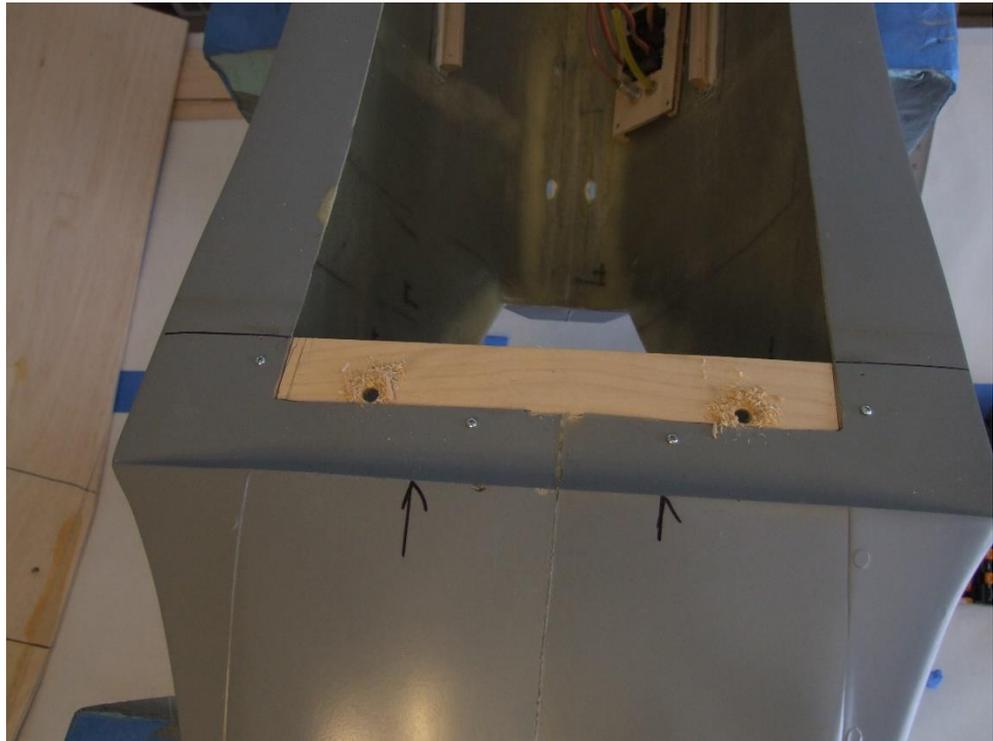




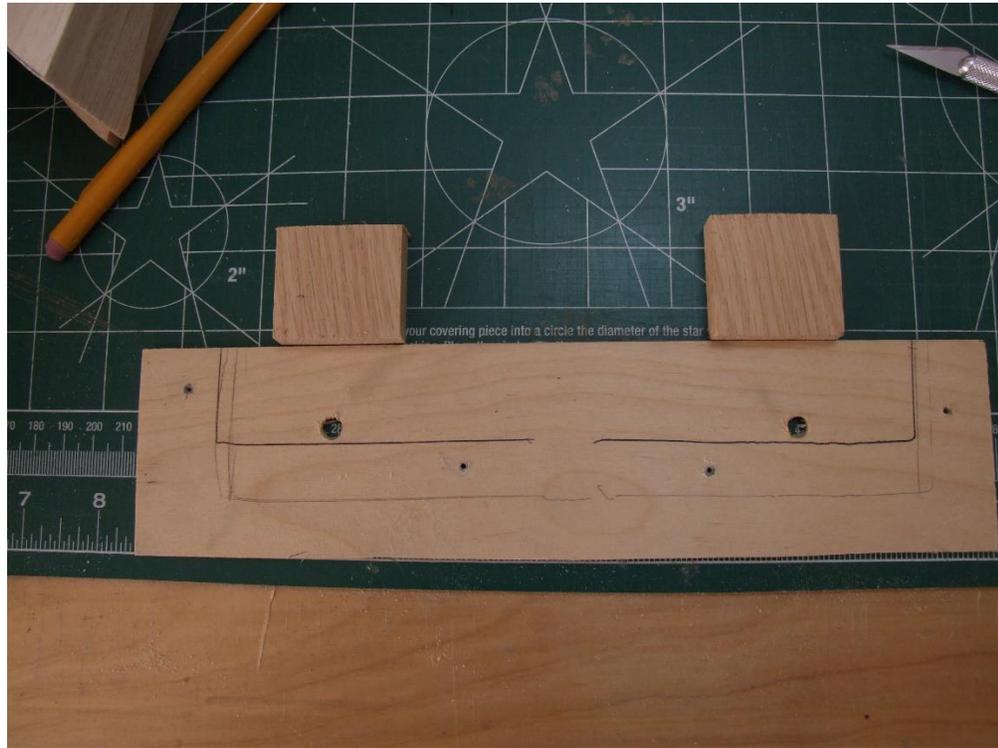
- c. Secure the plate to the fuselage with screws.



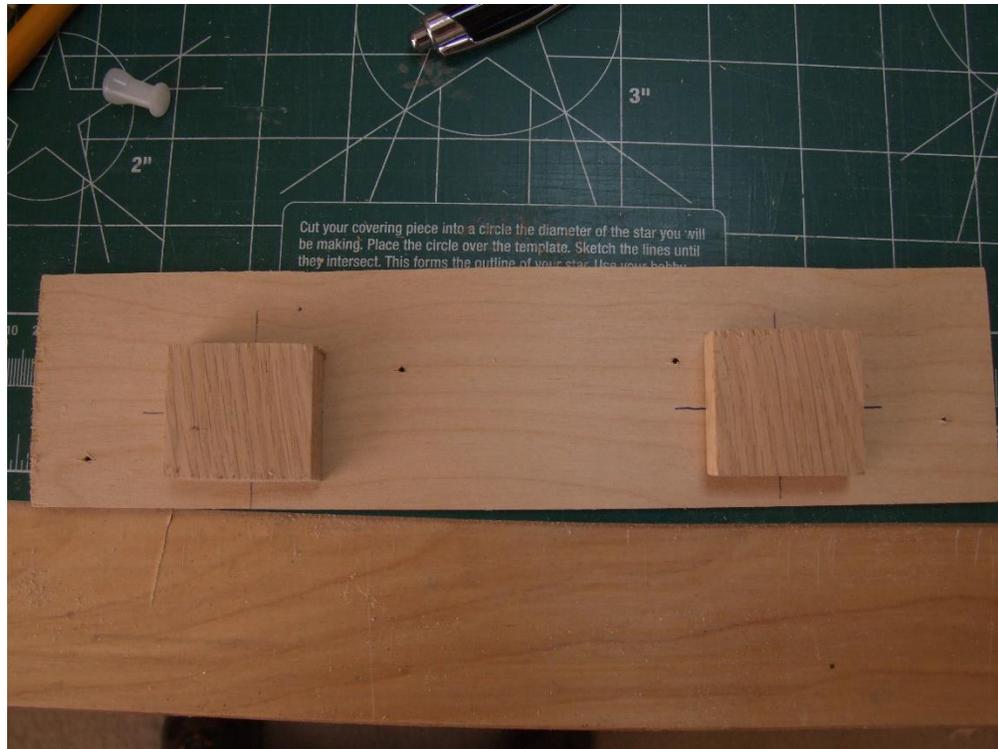
- d. Place the wing on the fuselage and align it. It is best to measure in several areas to ensure it is on the fuselage square.
- After you are satisfied with the alignment and fit Drill your wing bolt holes.



- e. Remove the wing plate. Cut 2 hardwood blocks.



- f. Epoxy them to the wing hold down plate. (The blocks will go to the inside of the fuse)

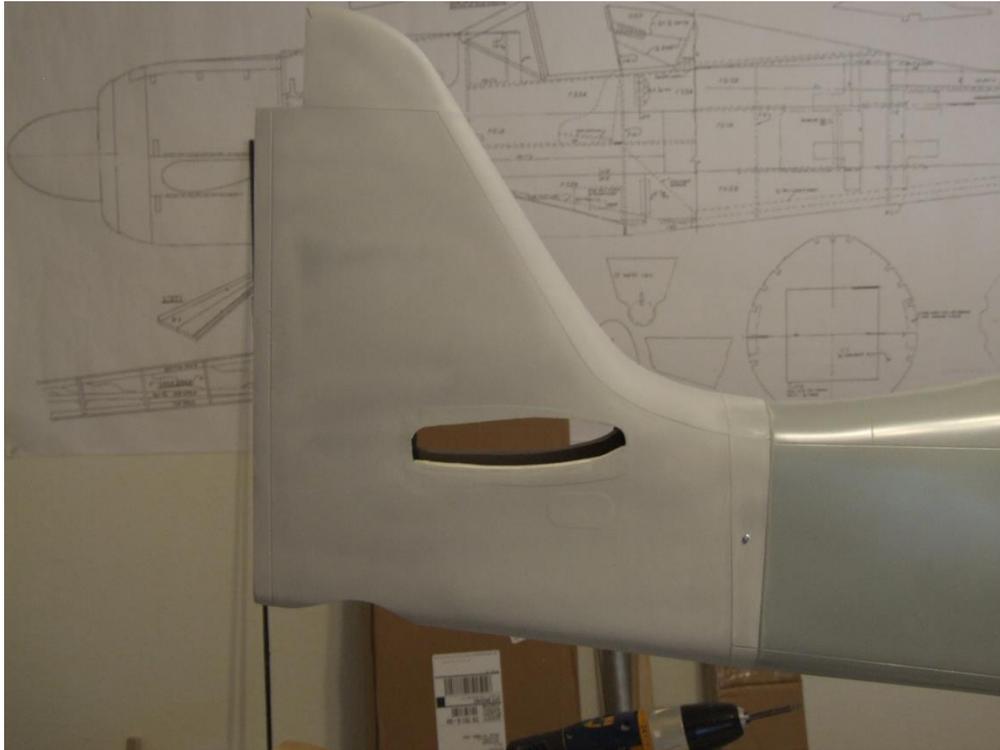


g. Epoxy the wing hold down plate in to the fuse. Drill the holes for the ¼ 20 wing bolts and tap.



8. Tail Incidence.

- a. Attach the tail to the fuse in permanent location with a temporary mounting method. In this case we have used #2 screws.



- b. Mount the horizontal stab.



- c. Attach the main wing to the fuse. Place the airplane on a level surface.

- d. Place your incidence meters on your stab and main wing.
 - i. The incidence of the horizontal stab should be 1 less than the main wing.
 - 1. Example if the main wing reads 4 degrees the horizontal stab should be 3 degrees.

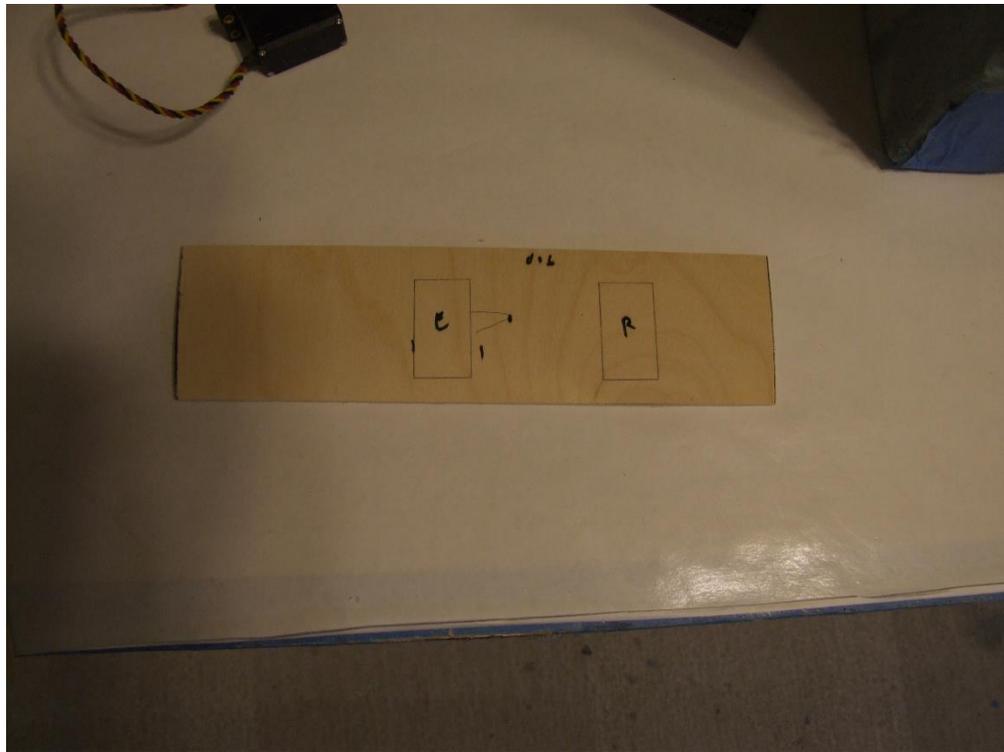


- e. When you are happy with the adjustments to the horizontal stab glue it in place.

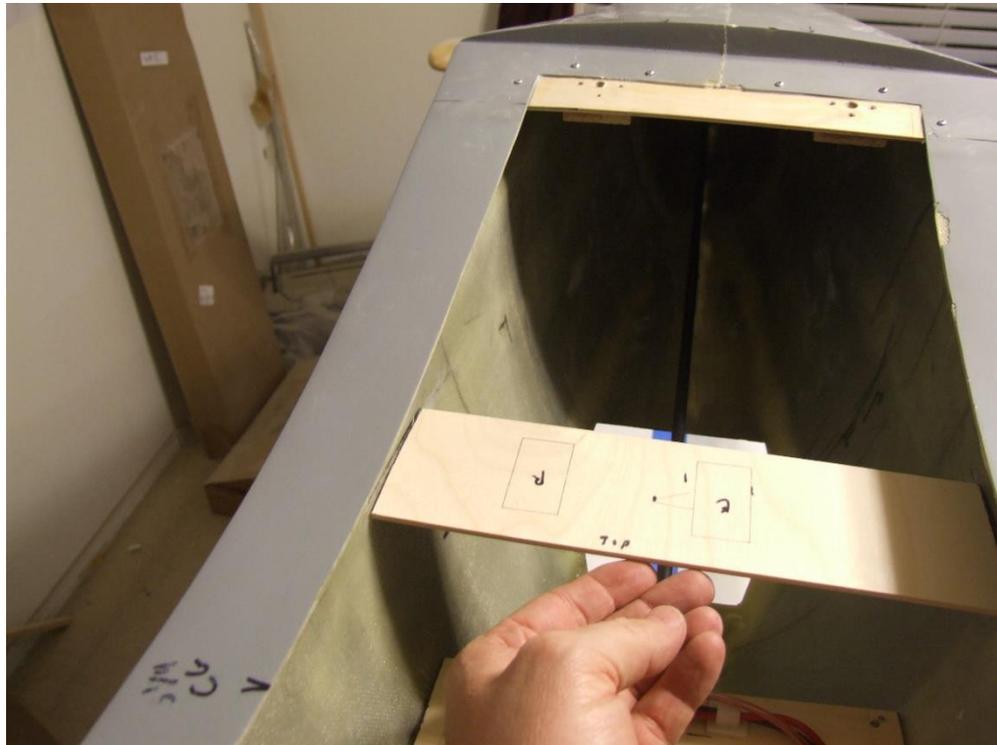


9. Servo Tray

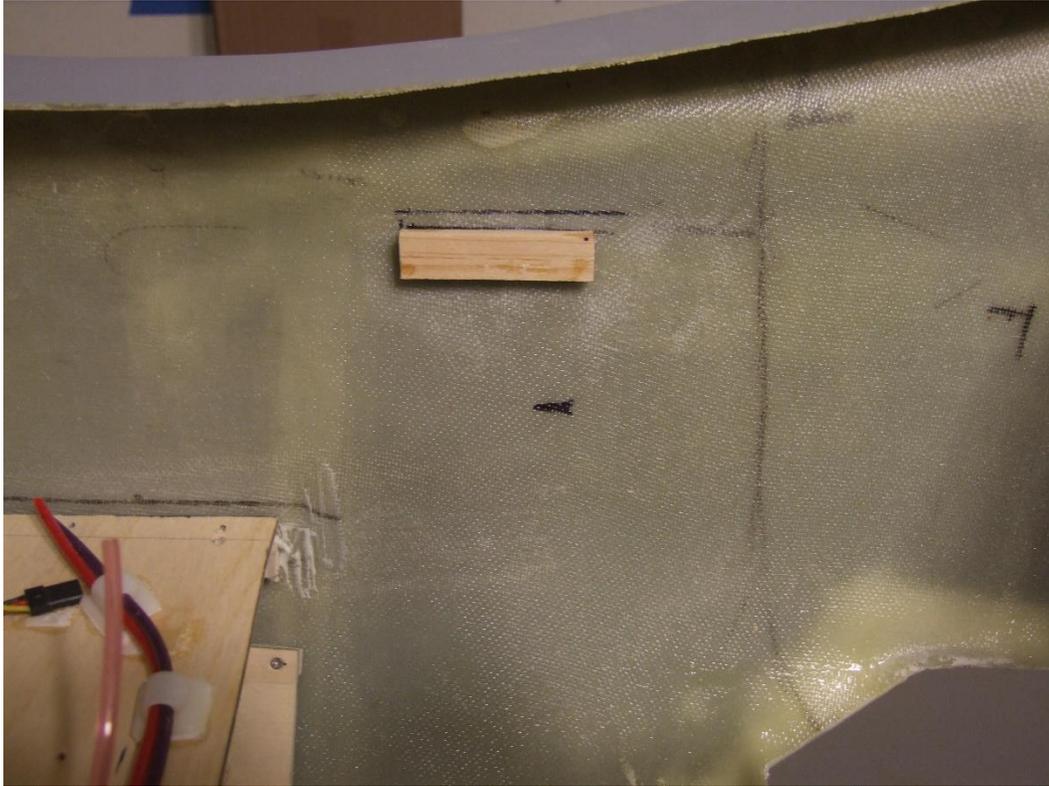
- a. Locate a good location for your servo tray. This can simply be made from 1/8 ply with a $\frac{1}{4} \times \frac{1}{2}$ basswood stiffener.



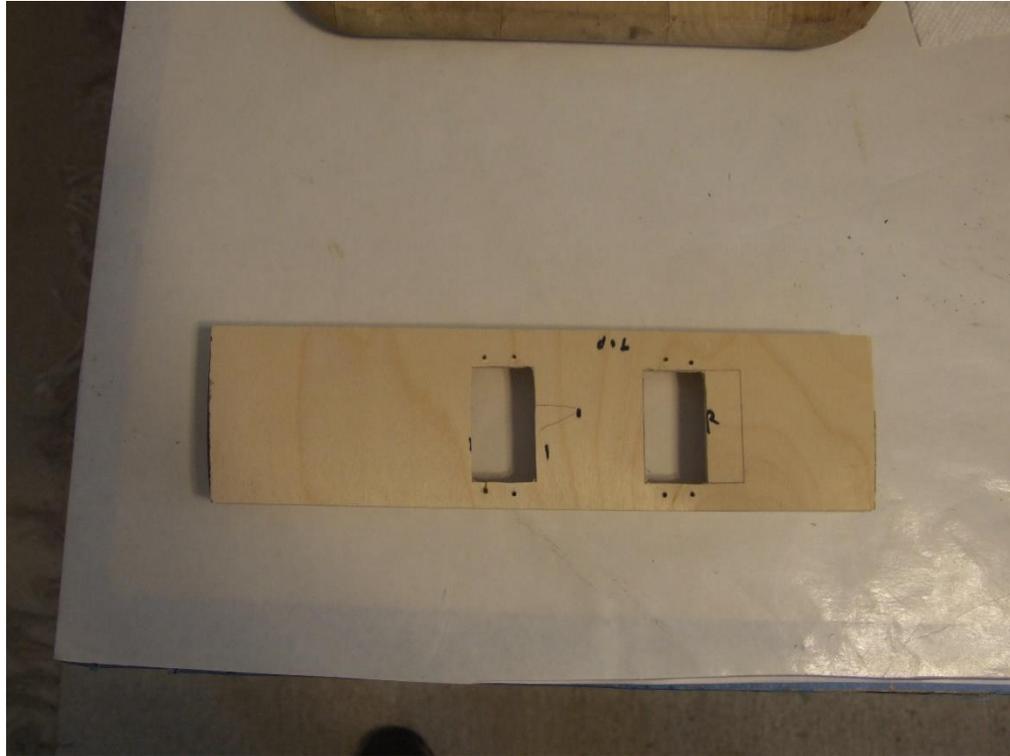
b. Choose the location for your servo tray.



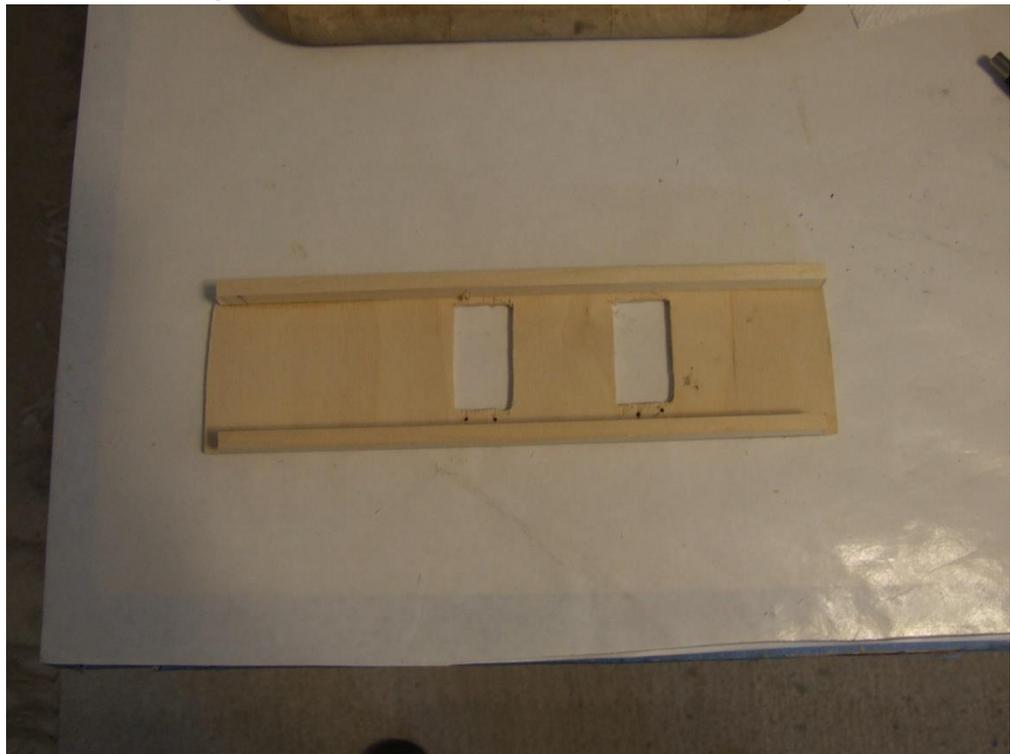
- c. Mark the area of the inside of the fuse and **rough it up with 80 grit sand paper.**
 - i. Epoxy $2\frac{1}{4} \times \frac{1}{2}$ Basswood ledges in the location you marked to support the servo tray.



- d. Cut out the holes for your servos in your desired location of the tray.



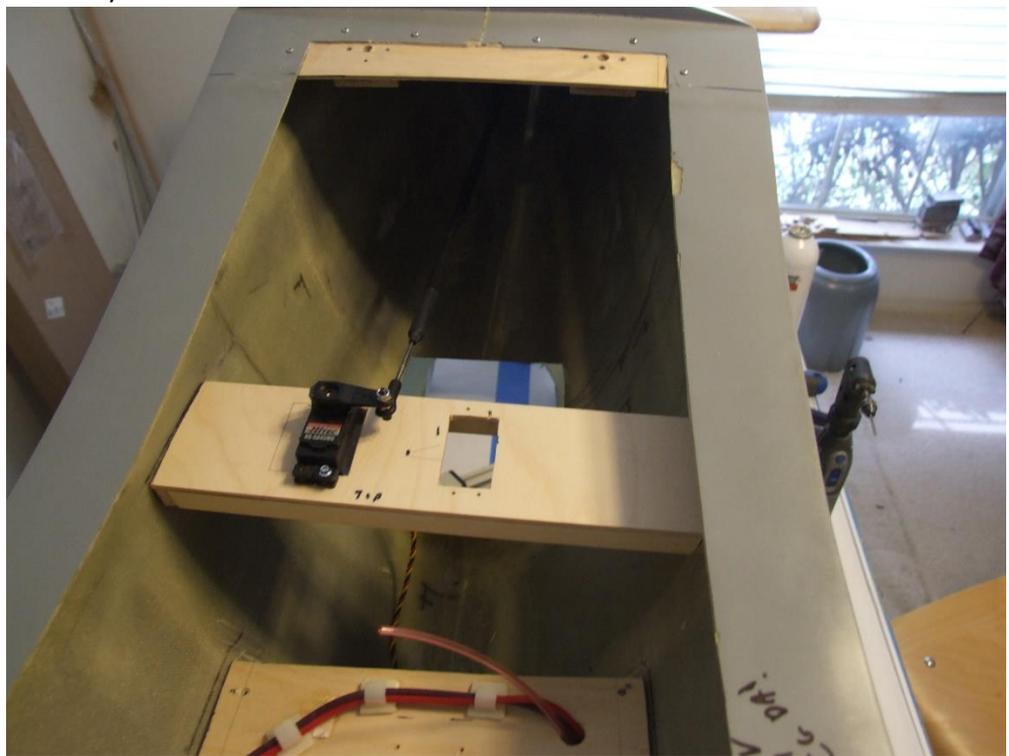
- e. Glue the stiffening $\frac{1}{4} \times \frac{1}{2}$ basswood sticks to the bottom of the tray.



- f. Epoxy the servo tray in to your fuse.



- g. In this example we are using 2 servos to control the rudder and elevator. The elevator is controlled by carbon fiber rod running to the center of the control surface. The Rudder and tail wheel is a pull pull system. There are many other ways to do this please use the method you are most comfortable with.



- h. Epoxy the tail to the fuse.



- 10. After you have completed installing all of your gear its time to paint and cg your new FW190a.
 - a. CG is 5 ¼ inches from the flat plate of the wing that touches the front of the fuse.
 - b. Elevator 1 inch low rate 2 inch high rate or as desired.
 - c. Rudder 1 inch low rate 2 inch high rate or as desired.
 - d. Aileron 1 inch low rate 2 inch high rate or as desired.
 - e. Flaps 45 degrees full 25 degrees half or as desired.