



Meister Scale Japanese Zero

Welcome to the build of the Meister Scale Japanese Zero. This step-by-step manual is designed to aid you in the build process of the fiberglass fuselage kit. Please understand that many of the decisions on exact parts such as hinges, servo installation, etc. are left to the modeler. This is only designed as an aid to your plans.

This manual was built during the construction of my Zero that I competed with at Top Gun 2014. This airplane took me to 4th place in Pro Am Pro. It is a great and docile airplane with no bad habits.

I hope you enjoy building and flying this wonderful airplane as much as I have.

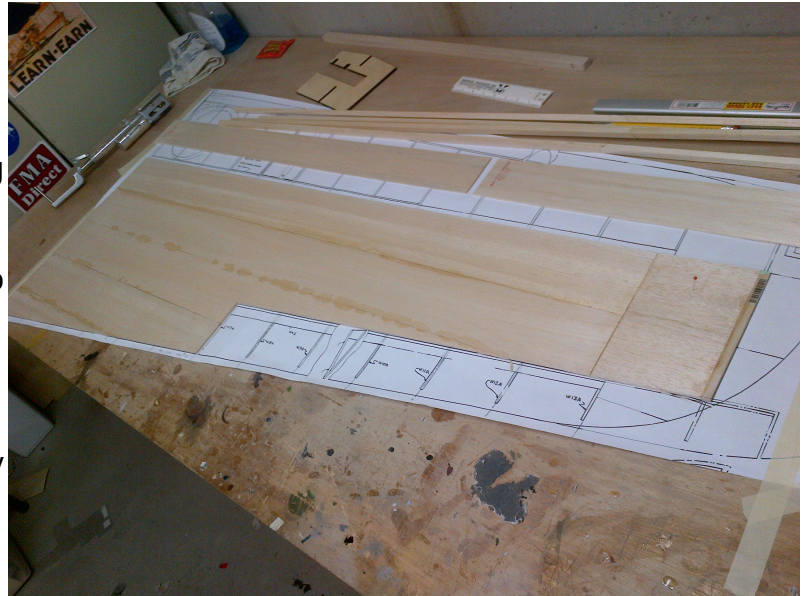
Good Luck!
P.J.

Wing

Start by laying the plans out on a flat surface. At this point you will want to glue the sheeting together and trace off to match the plans.

The sheeting must stop at the wing spar. Meaning you want the sheeting to start at the spar and cover backwards to the trailing edge. The wing curves in front of the sheeting plus you will need to work on the wheel wells before sheeting.

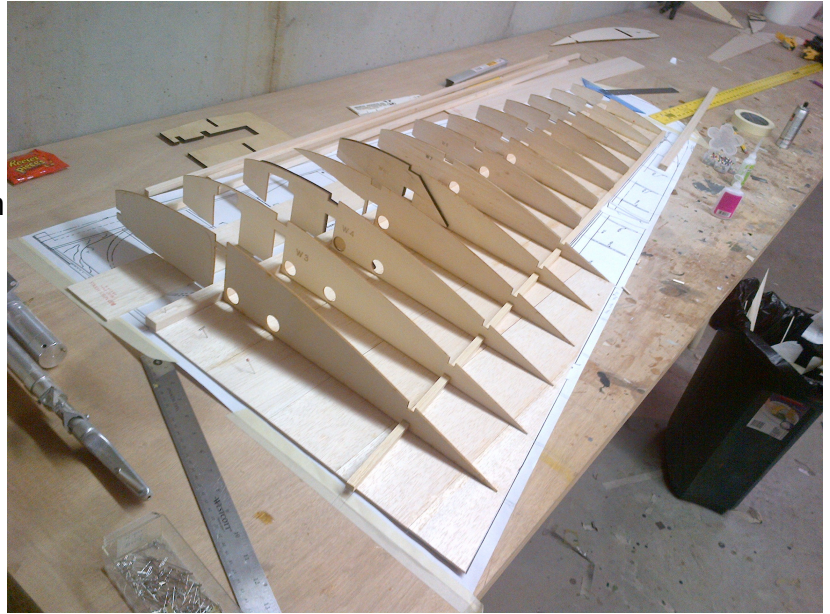
Set the sheeted bottom of the wing and trace lines where the spars, ribs, and other areas that will be glued to the bottom. This way when you are ready to build there will be no guessing.



Follow the plans to make your upper and lower spar housing. You will need to shave off a portion of the ribs to fit the spar housing correctly.



Lay your bottom spar housing along with the trailing edge stringer on the sheeting. Glue W4 and W6 to their respective hard wood doubler. Test fit W2 - W-14 on your sheeting. You might want to lay a piece of scrap wood in front of the ribs for alignment. Once you are happy, glue them into place.



Glue the top trailing edge stringer into place and sand to match the contour of the wing.



Glue the top spar housing on your ribs. You might need further sanding and cutting to make it flush with each rib. Sand in areas to accomplish this.



Slide the main spar in the wing. Once it is all the way in and snug, draw a line on either side of the spar where the ribs meet. This way, when you pull the spar back out, you will know where to cut your inner spar housing.



Cut the inner spar where you made your lines and tack glue them into place. Re-slide the spar to make sure you have a good fit. BE CAREFUL not to use too much glue or you will glue the spar to the wing!

Once you are happy with the fit, remove the spar and add your shear webbing on either side to complete your spar housing.



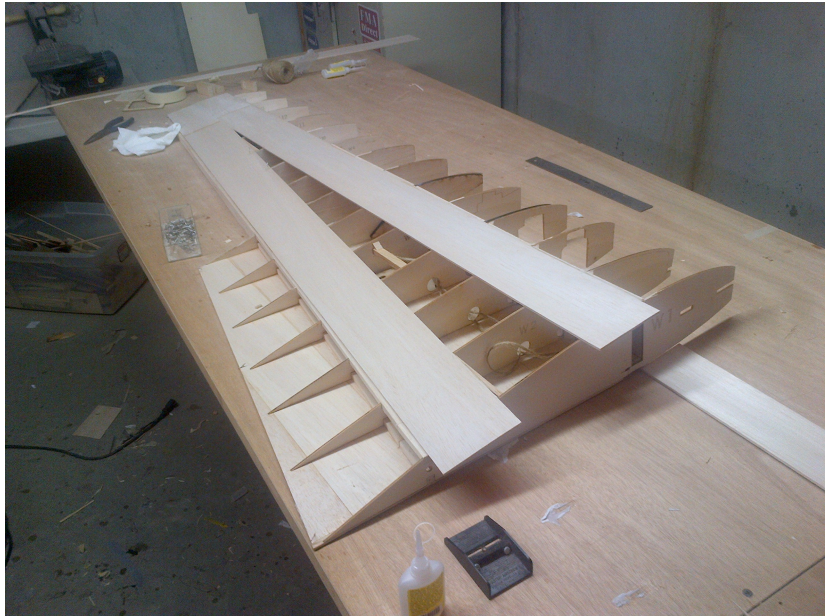
Build the other wing panel the same way. Once you have them built, slide the two halves together. Note, you have not glued W11 wing rib in yet. Using the plans as a guide, line up the wing and install W1 rib on both wings. Tack glue them into place so there is a tight seam once the wings are aligned. When you are happy with the fit, final glue the pieces together and complete your spar housing as you did in the previous steps.



This point would be a good time to locate where your servos will be placed. A good hatch that works well with this plane can be purchased by Aero-Accessories. Don't forget to run string in order to pull your servo wire through.



Once you are happy with everything, fasten the wing to your table in order to keep any warping from happening as you sheet the top of the wing. Only sheet from the rear stringer to the spar. This will give the strength you need while you work on the rest of the wing.



Glue the wing tongue in place. You will need to re align the wing sever times to make sure it is flush. Once you are happy with the fit, use some 30 minute epoxy in this area.



Sheet the bottom of the wing leaving the wheel well and landing gear plate area open.



Install the landing gear and gear plate. There is enough room to set it exactly how you want. Make sure the angels are correct on both the extended and retracted position. Remember that the wing does have dihedral so the gear might not look right until you put both panels together.

Once you are happy, use 30 minute epoxy as well as fiberglass or carbon fiber to glue into place.



Glue a hard wood plate where your wing bolts will go through. Using scrap wood, cover the whole area for strength before sheeting this area.



Sheet the rest of the wing top and bottom. Using your balsa block, glue to the front of the wing and sand to shape.

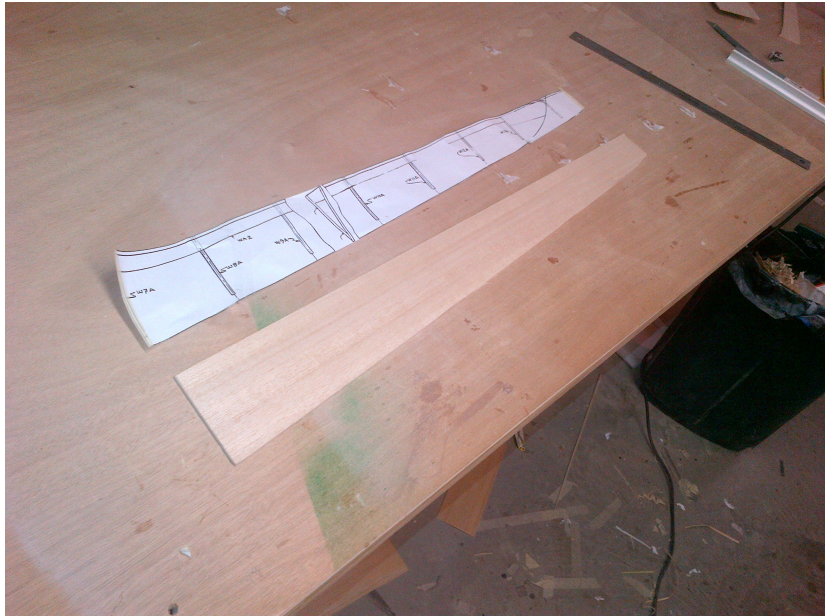


Glue your wingtip blocks on and sand to shape. This wing depicted is of the Mk22 or long wing version. Slide the wings together during final sanding. This way you can be assured that you are not sanding one wing too much and/or carving them out of proportion.



Aileron

Make an aileron template from the plans as shown out of extra 1/8th sheeting.



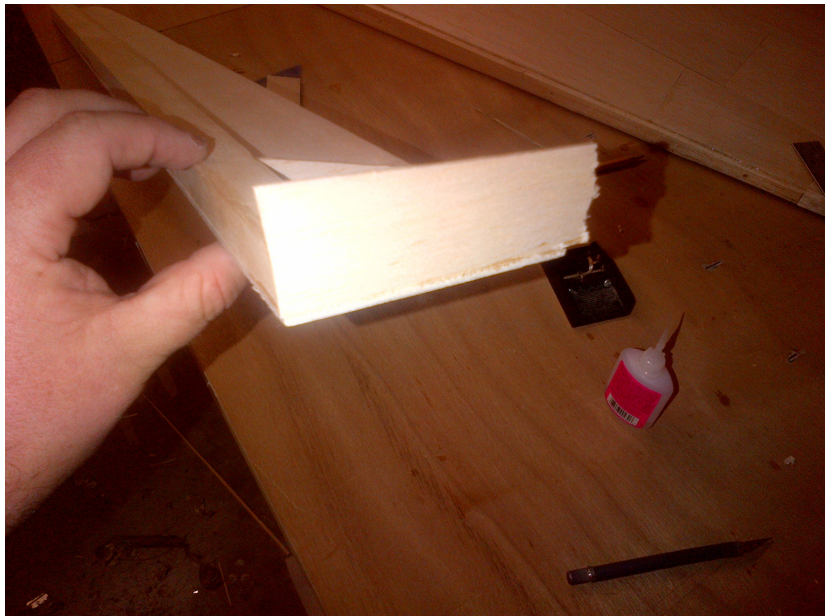
Using the plans as a guide, locate the balsa strip for your leading edge. Glue it into place. Using a raiser plane or sander, shape the aileron so it will be flush with the wing.



Sand the trailing edge of the aileron at a slight angle so the angle of the ribs will be flush with the bottom of the aileron where it meets the trailing edge.



Use scrap 1/8th sheeting balsa to make your ribs. Simply glue them into place according to the plans and sand them so they are flush with both the leading edge and trailing edge of the aileron.



Use the wing as a guide when sanding. You want the aileron to be slightly smaller in thickness than the wing.

Looking at a cross section of the aileron, you will notice it is shaped much like a flat bottom airfoil.



Once you are happy with the fit, you can glue a small "cap strip" or flange over the leading edge of the aileron to hide any gap.



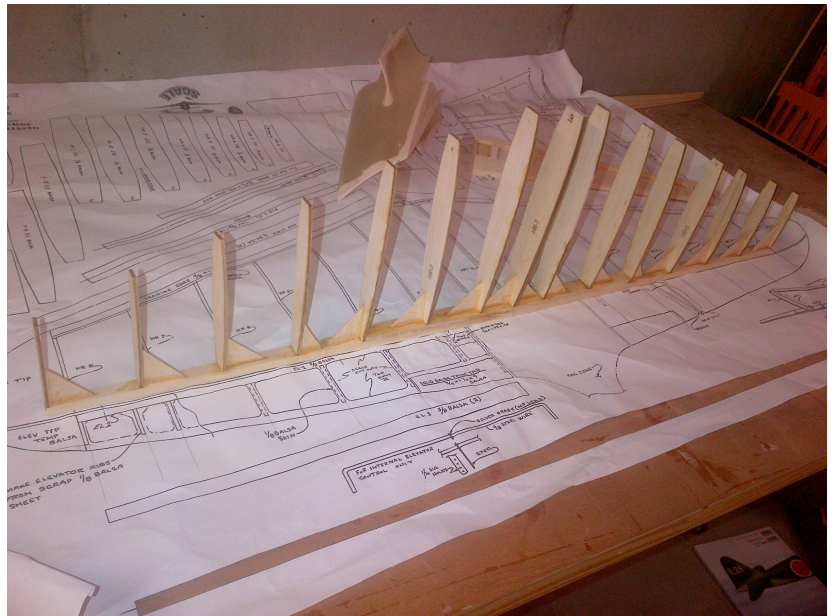
Horizontal Stab

Using the plans, locate the required wood for your trailing edge stab spar and glue them together with 30 minute epoxy.



Use scrap balsa and make 90 degree triangles in order to glue your ribs in place at a 90 degree angle to your trailing edge spar.

Lightly tack glue them in place according to the plans.



Use some string and attached it to the tips of the stab. Pin it on the center stab. Once tight, you can align each rib so all the ribs are straight.

Make sure your center stab and your tip stab are perfectly straight to one and other. This way you know the rest will be straight.

Once your are happy CA glue them in place.



Glue your balsa leading edge pieces in place.



Glue your balsa leading center joint into place and sand to fit the rest of the stab. Use the plans as a guide.



Glue your leading edge balsa block in place and sand to match the contour of the stab.



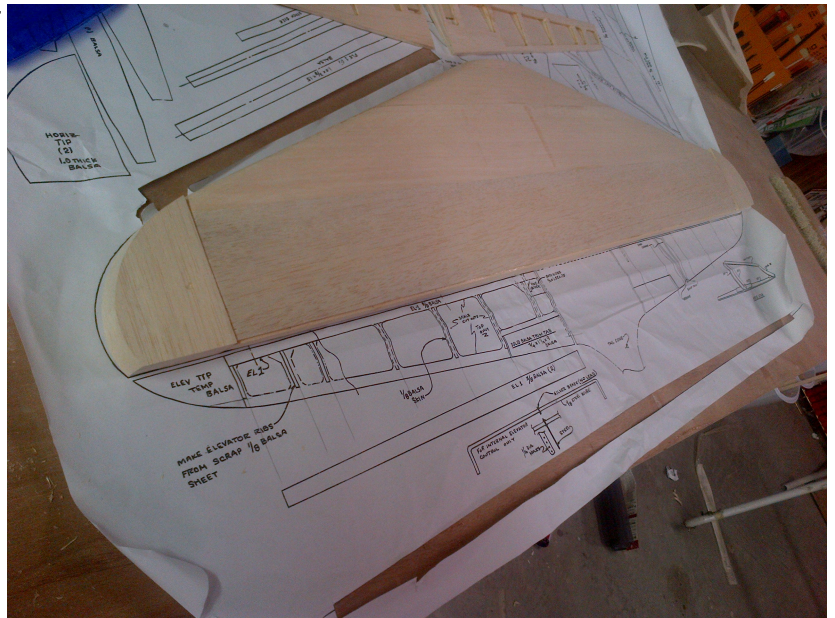
Glue the trailing edge balsa string into place and sand it to fit the contour of the stab.



Sheet the top and bottom of the stab.

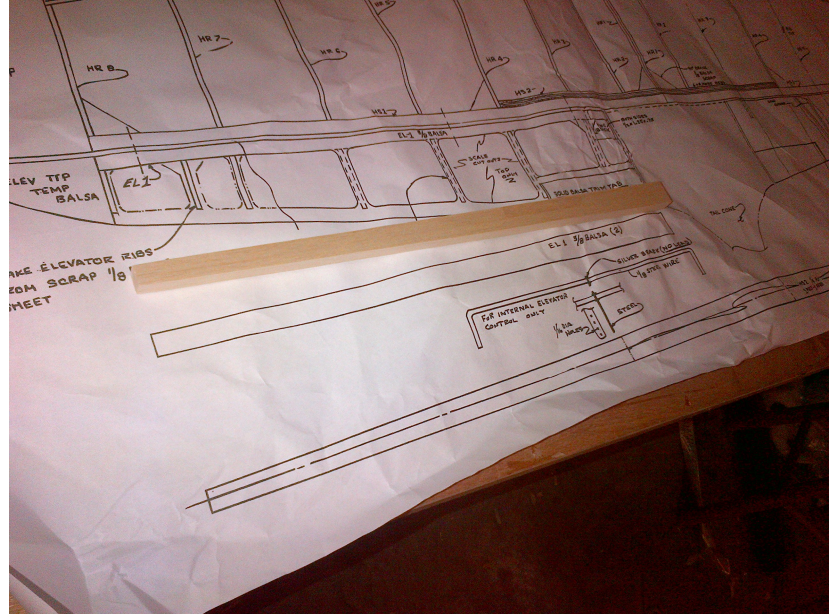


Glue the stab tip balsa blocks into place. DO NOT sand them to shape yet.

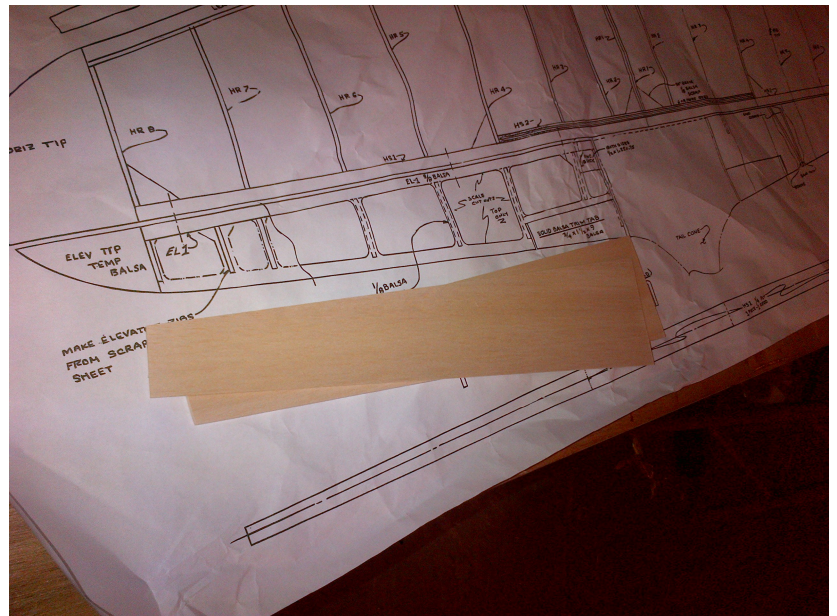


Elevator

Out of 3/8 balsa, make 2 EL-1 by using your plans as a guide.



Using 1/8 balsa sheeting, cut two elevator halves as shown.



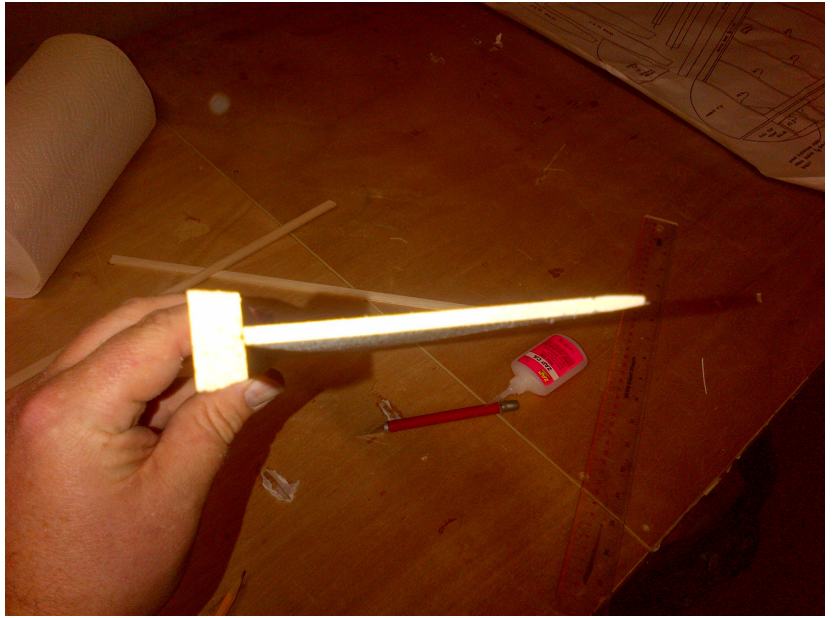
Draw a line in the middle of EL-1.



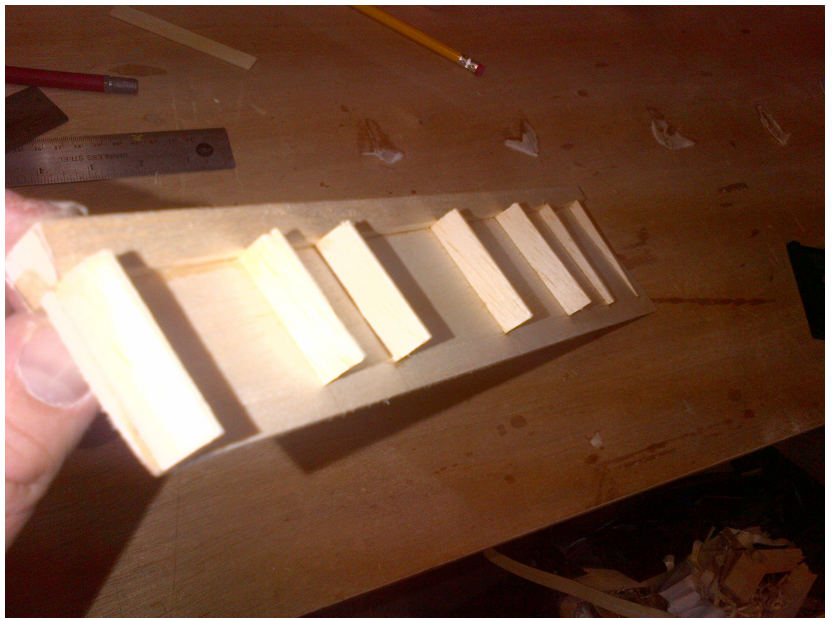
Glue your elevator sheeting to EL-1. Make sure that you glue the widest part of the sheeting to the widest section of EL-1.



Sand the leading edge of EL-1 and the trailing edge of the sheeting as shown. This way, when you start sanding your ribs into place, you will have the correct angle.



Using the plans as a guide, glue scrap 1/8 balsa where the ribs will go.



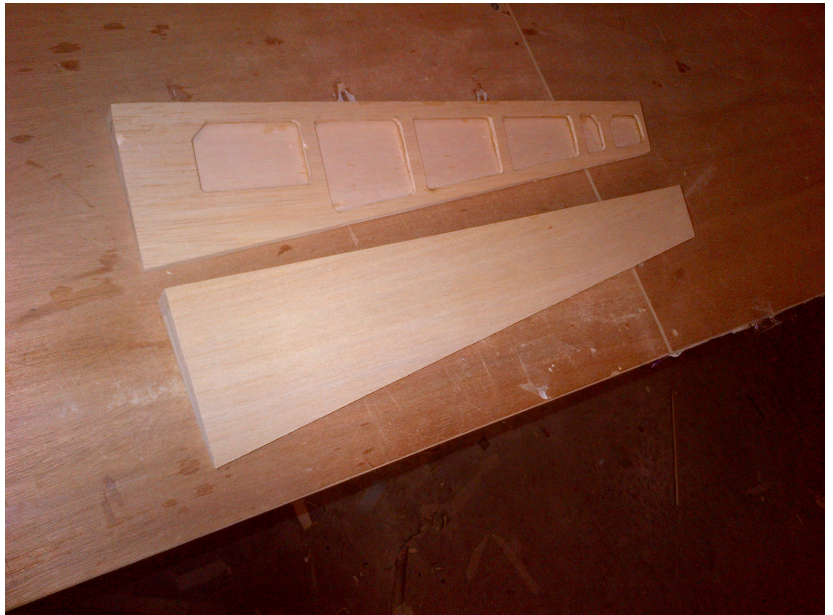
Sand the ribs so they become flush with the leading and trailing edge of the elevator.

Repeat these steps on the other side of the elevator.

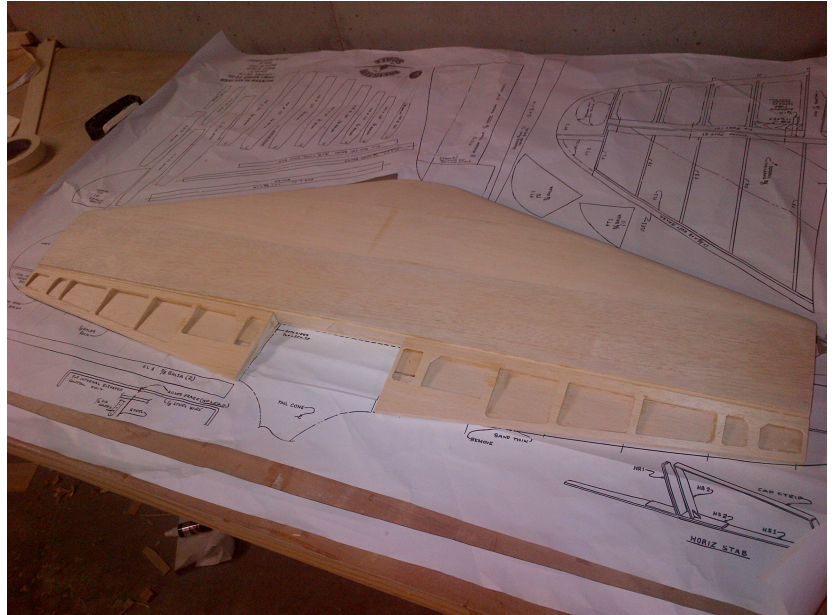
At this point, you will want to make hinge doublers as well as decide how you are going to place your control horn.



Use 1/8th sheeting to cover the top and bottom of each elevator. You may want to use the plans to cut out the lighting holes but this is not mandatory.



Test fit the elevators with your stab. You may need to sand or add wood in areas. Make sure it matches the plans perfectly.

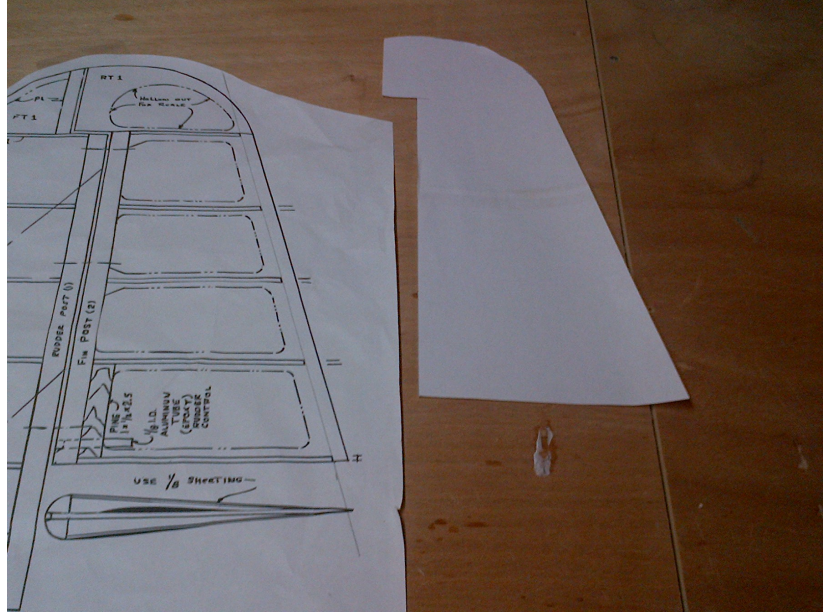


Once you are happy with the fit, glue the balsa blocks on the tips and sand to shape.

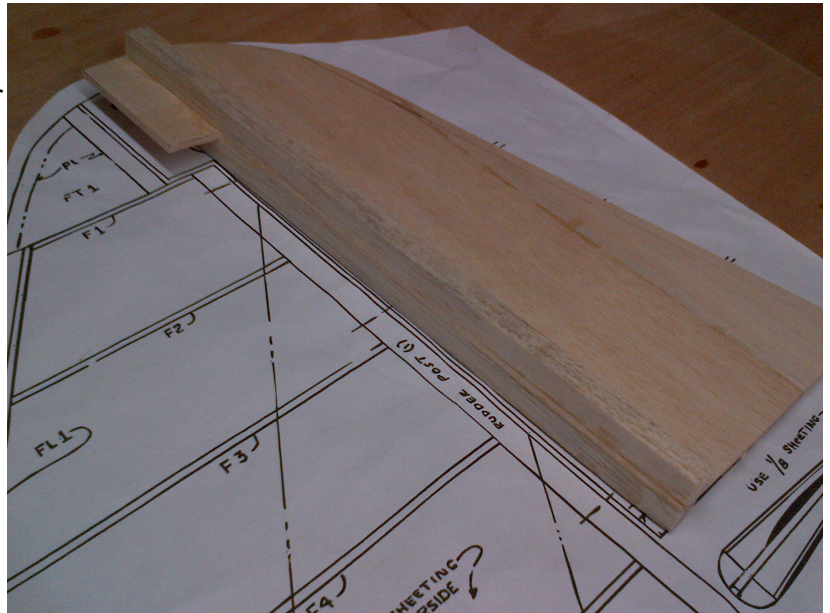


Rudder

Make a template of your rudder from the plans. Glue some 1/8 sheeting together and make a rudder out of the sheeting by using your template.



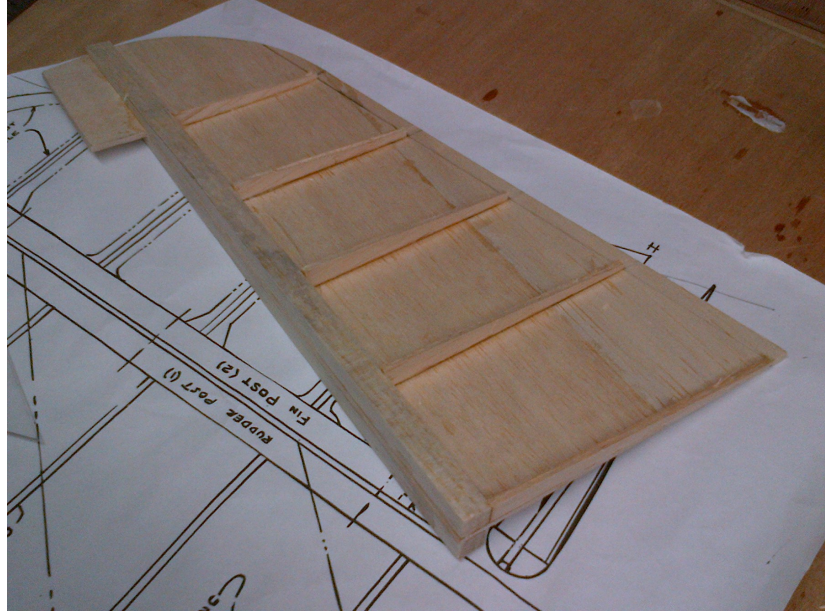
By using balsa, make your "fin post". Use the plans as a guide. You will want to make two. Once you are complete, glue on either side of your rudder.



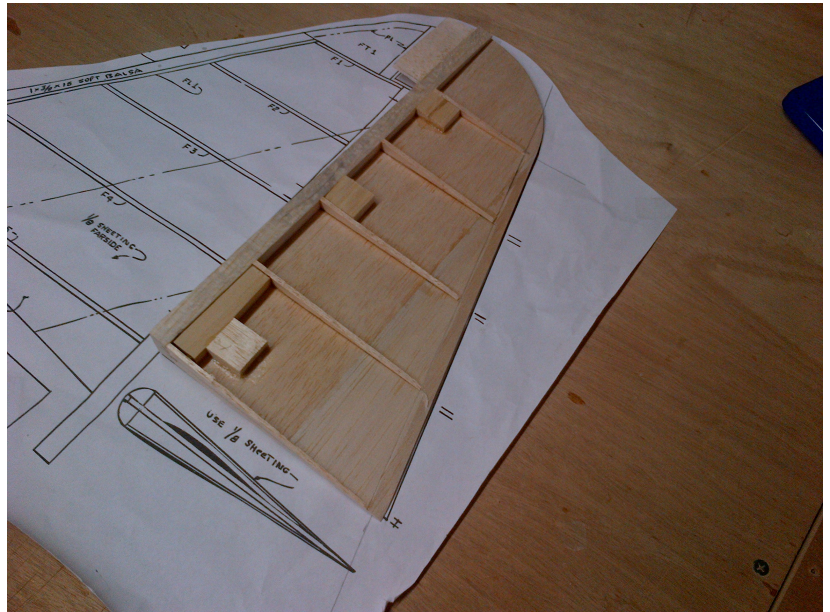
Use scrap 1/8 balsa to glue your rudder ribs into place. Use the plans as a location guide. Sand them flush with the rudder post. Sand the rudder post having the thickest part on the bottom and trailing to the thinnest part on top.

Do this to both sides.

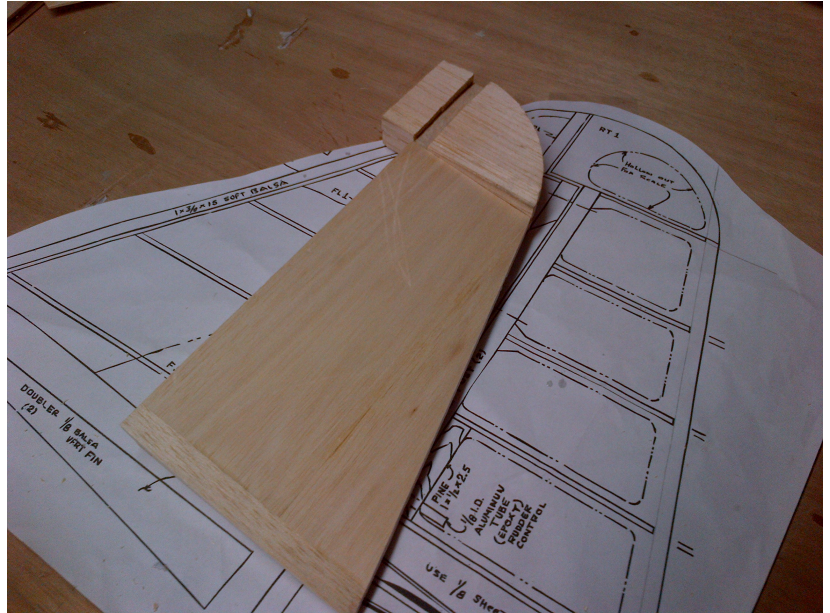
You will want to pull the back half of the fuselage to match this with your tail. Remember, you will sheet the rudder, so allow the extra thickness of the sheeting as you sand to place.



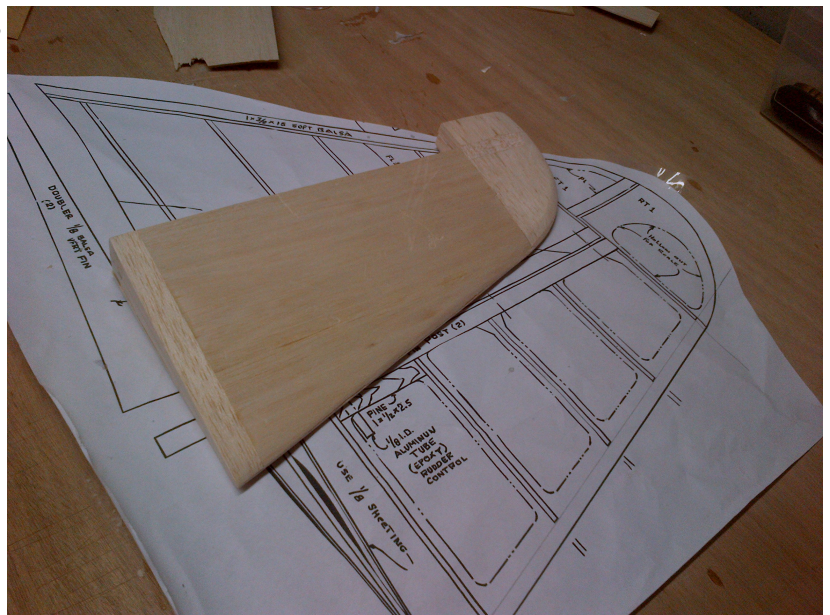
Using the plans as a guide, place balsa and hardwood doublers where your hinges and rudder control rod will go.



Sheet both sides and glue your balsa block to the top of the rudder.



Sand to shape. Remember to use both your plans as well as the tail section of the fuselage to secure a good fit.



The Fuselage

Based on the fact that there are so many different types of set ups for the fuselage, the pictures below show the basic set up of the formers and an engine box (set to fit a Quadra 100). The formers should be tack glued into place first with CA then final glued into place with epoxy or Hysol.

