

# Willy Nillies GLH-250 Assembly Guide

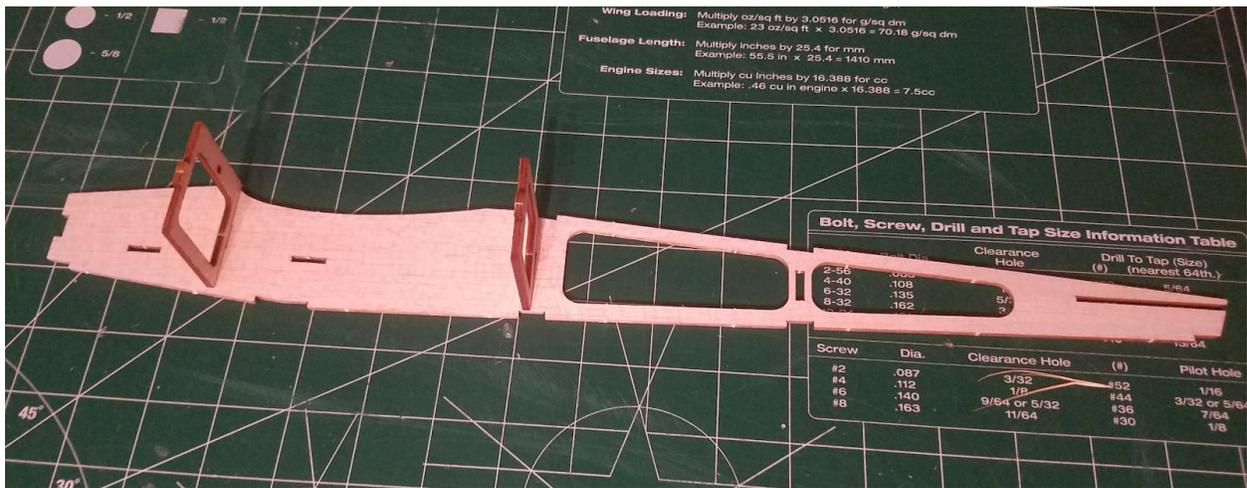
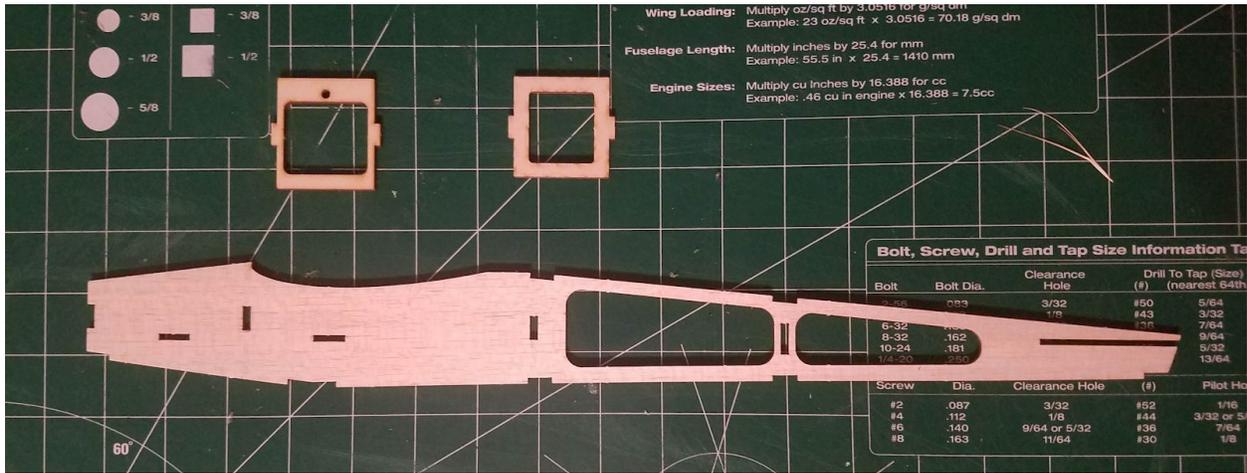
This guide is a list of steps accompanied with photos of my build of the Willy Nillies GLH-250. This guide closely follows the one available from Willy Nillies but there are some modifications and a few corrections as the original had a few part numbering errors. This guide is not meant to replace the original instructions. Willy Nillies also created several useful videos of the assembly that can be found on their youtube channel. Feel free to be creative and make your own modifications.

## Fuselage Construction:

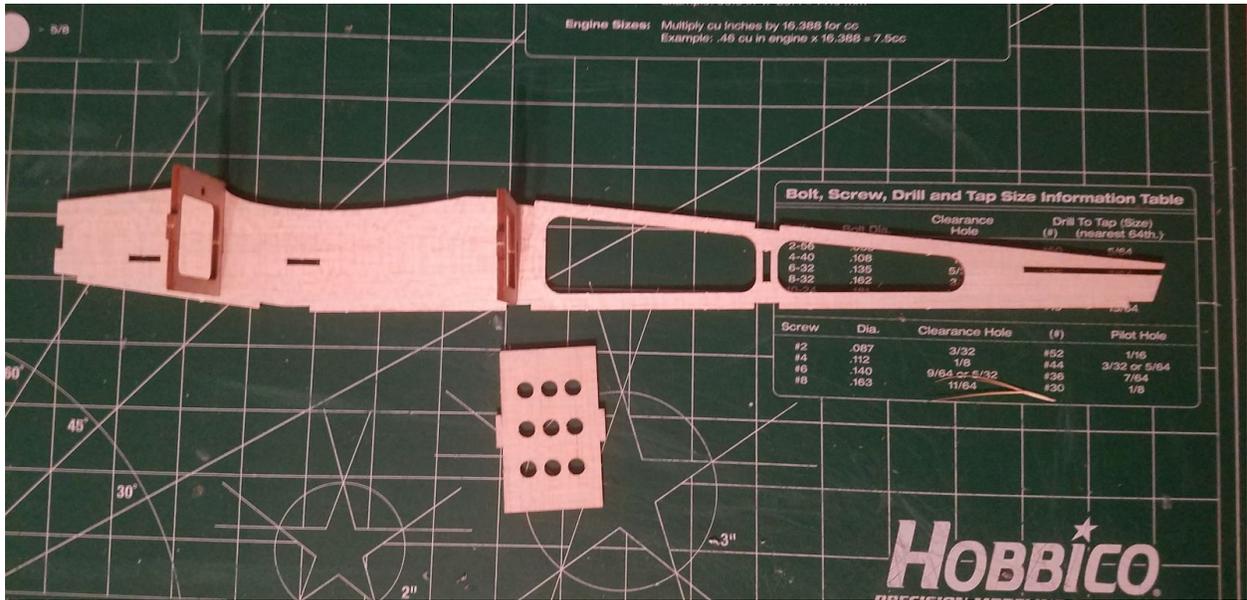
Electric motors: I am using a 2204 but may switch to a different motor depending on performance. I would like the ability to easily swap motors so I am using 2-56 Blind Nuts with the screws included with the kit. I install the blind nuts to firewall F1 and add a little glue to lock them in. I waited until the assembly was complete before actually mounting the motor. I used the mount included with the motor but you could use one included with the kit as well (M1 or RM1)



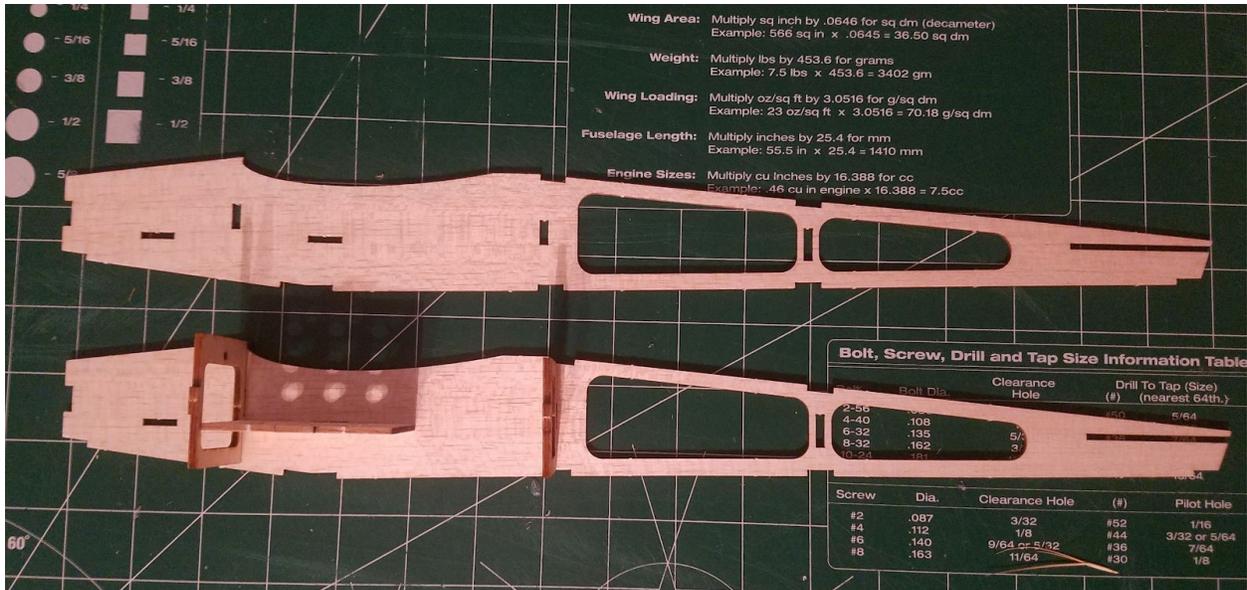
Lay out a fuselage side FS1 on a flat surface. Locate Fuselage former F2 and F3 and fit into place. F2 has a hole along one side, this side will be at the top of the model. DO NOT GLUE AT THIS TIME.



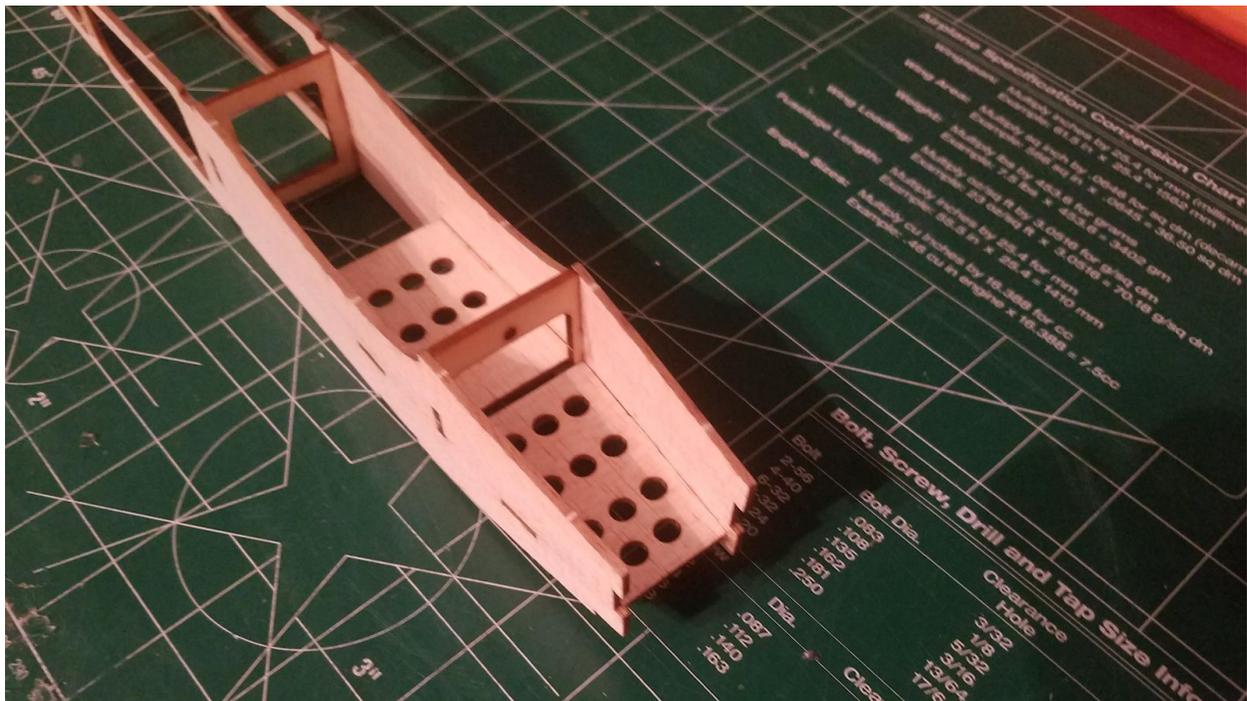
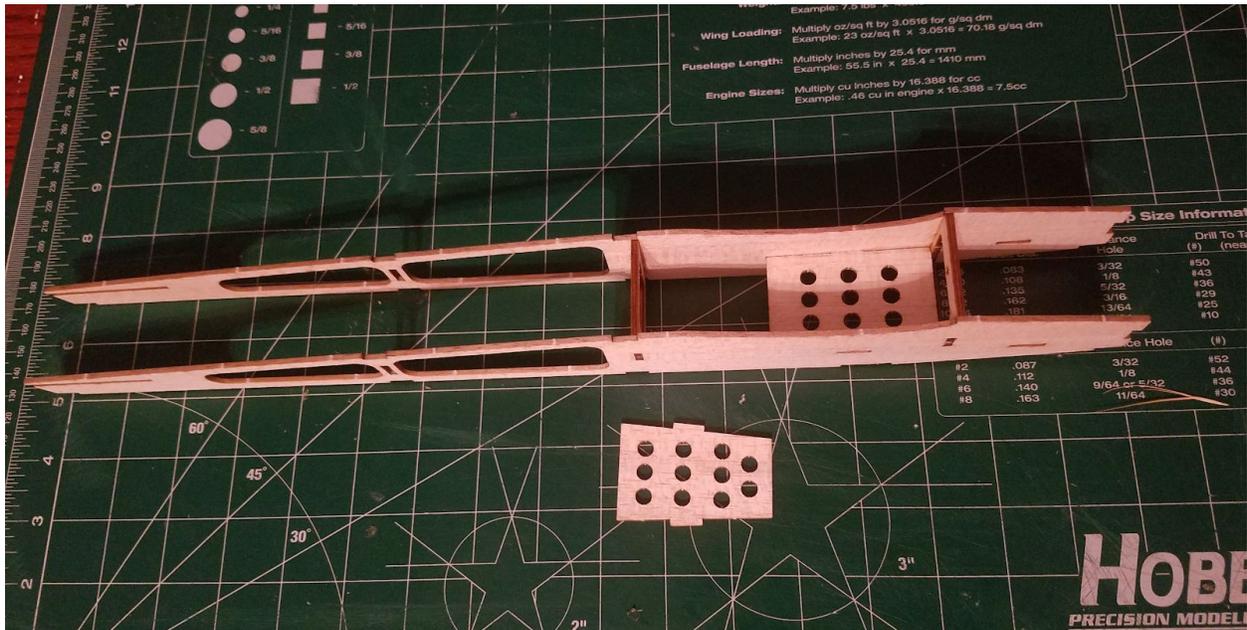
Locate battery tray floor BT2 and fit into place. DO NOT GLUE AT THIS TIME.



Take the other fuselage side FS1 and install onto F1, F2 and BT2. DO NOT GLUE AT THIS TIME. Carefully lift assembly from work table and inspect that everything is square and formers and battery tray are fully seated in their slots. Once satisfied everything is seated and square/aligned, run a bead of thin CA glue along F2, F3 and BT2.

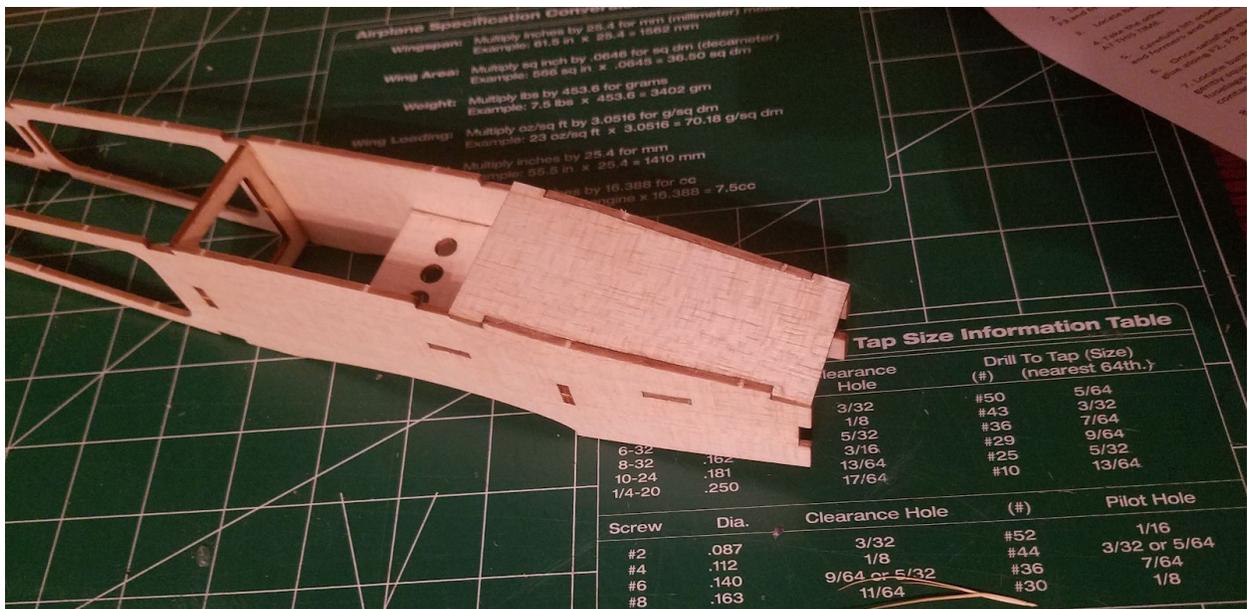


Locate battery tray floor BT1 and your previously assembled F1. Dry fit into place gently squeezing the fuselage sides to seat against BT1. Once satisfied the fuselage is still square and true, run a bead of thin CA glue along BT2 where it contacts the fuselage sides and former F2.



Dry fit F1, prepared earlier with blind nuts, into place. Double check that it is fully seated in slots and run a bead of thin CA where it contacts both fuselage sides.. Once set, use a heavy bead of medium CA glue to reinforce these joints. (No picture of this step but note that you may have to sand or carve some balsa to allow for clearance for the blind nuts. F1 is symmetrical so there is no up or down.)

Now locate FB1 and dry fit into place. Once satisfied all is aligned, wick thin CA glue into the joints all around FB1.



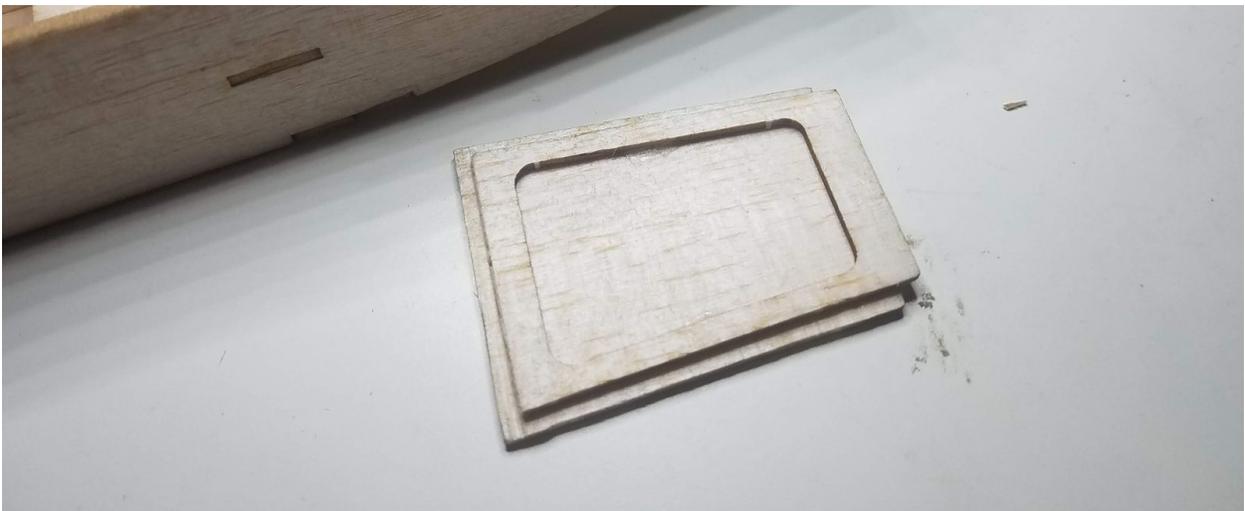
Locate FT3 , FB2 and F4. Dry fit in place. Carefully check alignment. Once satisfied aft fuselage is straight and true, wick thin CA glue along each joint.



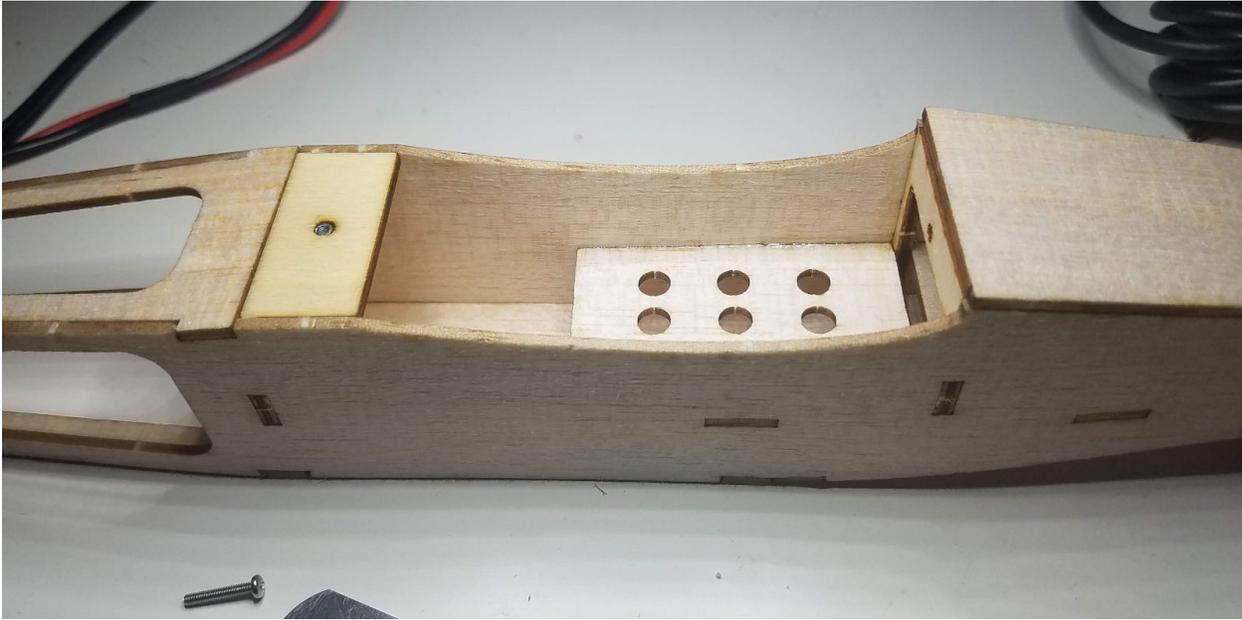
Locate FT1 and glue into place along firewall and both fuselage sides.



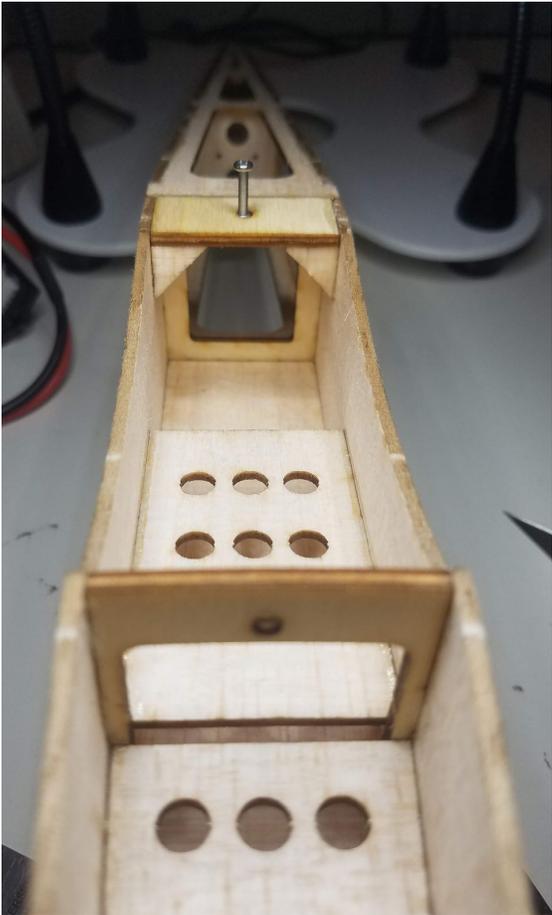
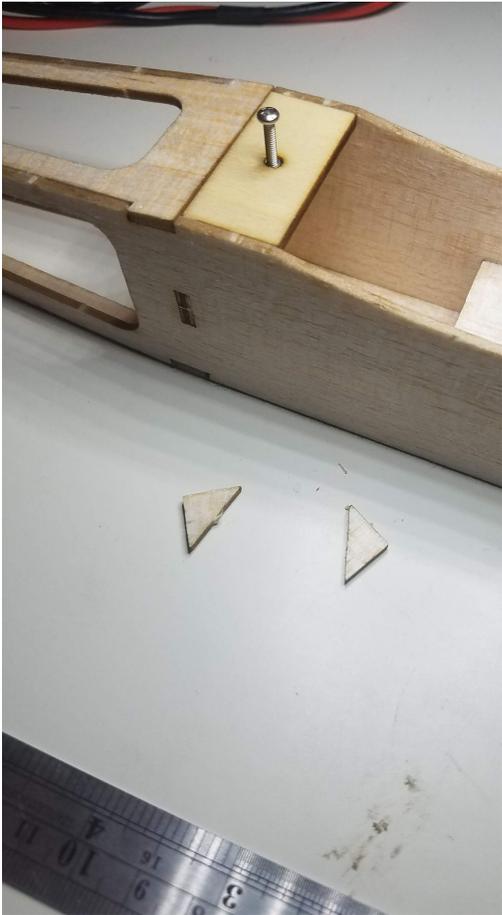
Locate FT2 and FT2A. Ensure FT2 is centered on fuselage before gluing FT2A to hatch. NOTE: FT2A will stick out forward of FT2 about 1/4" and act as a tongue to hold the hatch down.



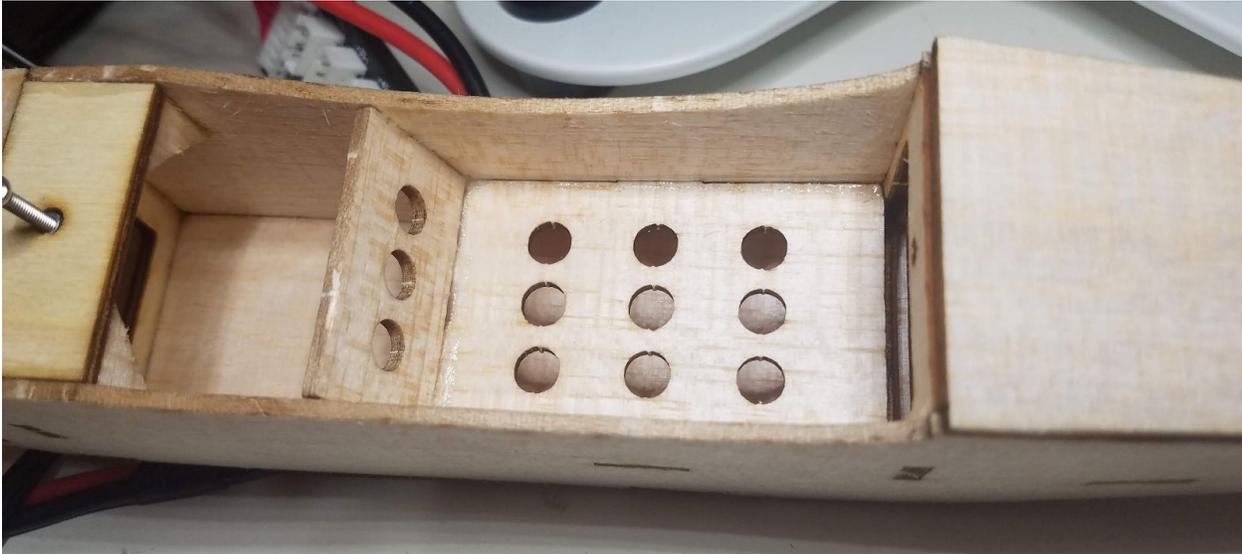
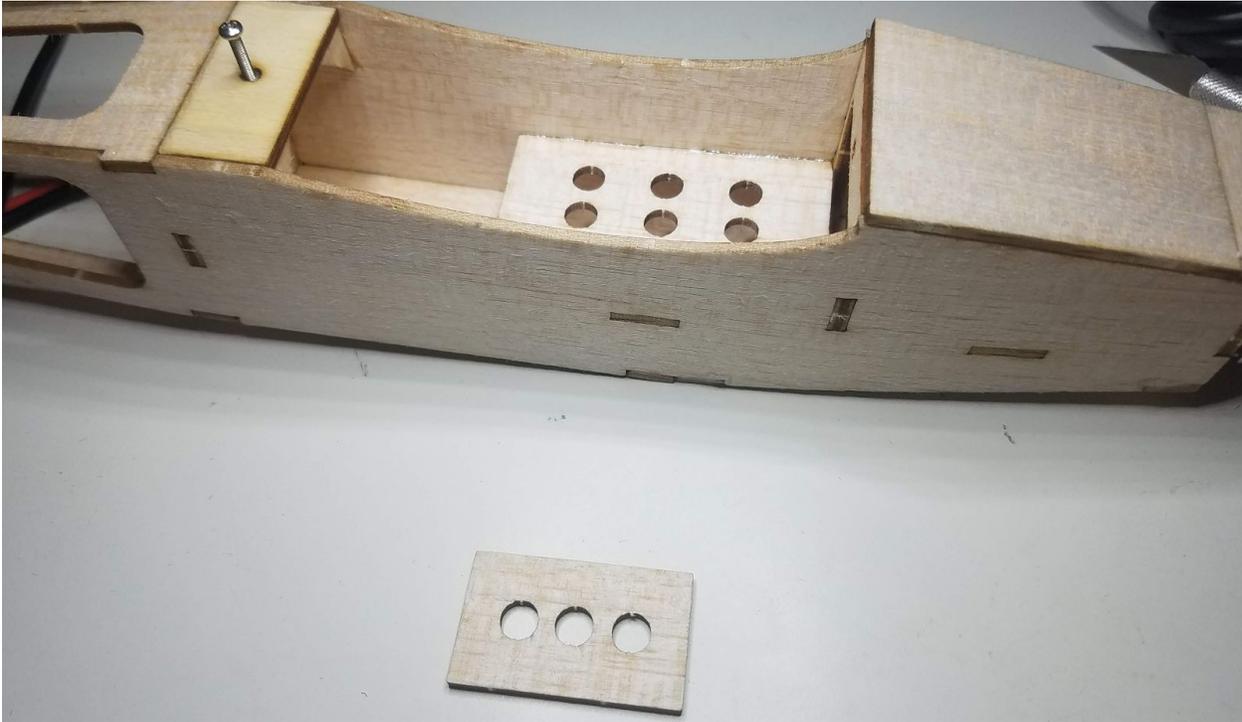
Locate and fit F4 and install supplied 2-56 blind nut. Once blind nut is installed, dry fit into place. Once satisfied with placement and fit, glue in place with medium CA glue.



Locate 2 triangular gussets and glue in place to support F4.



Locate BT3 and fit in place. Glue in place using thin CA.



## Horizontal Stabilizer and Vertical Fin

Note: I deviate from the original instructions here. You may want to cover these parts and install the hinges before mounting to the fuselage.

Carefully remove the horizontal stabilizer HS1 and vertical fin VF1. Fit them to the fuselage and make sure they are square before adding CA glue.



## Elevator and Rudder

Carefully remove the elevator E1 and rudder R1 from balsa sheet. Now is the time to sand a 45 degree bevel into the leading edge of the elevator and rudder.

Again, you can cover and mount them now. I elected to wait.



# Wing Construction

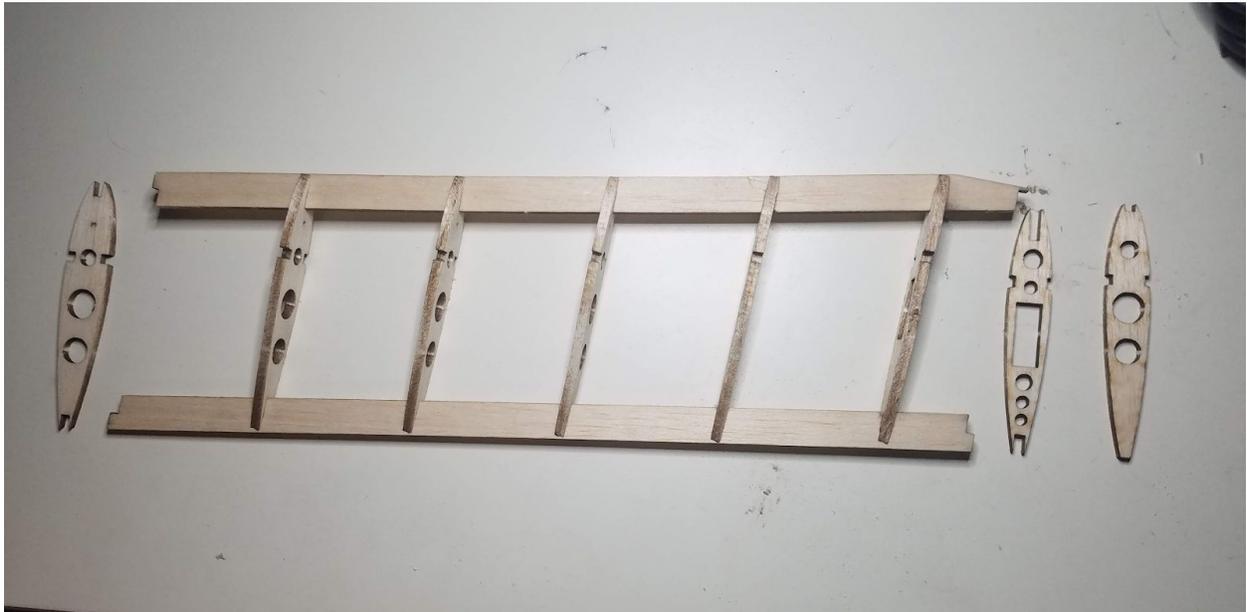
The wing is built in two halves. The airfoil is symmetrical so the assembly of each side is identical.

Find parts for the leading edge WSF1 and trailing edge WSR1. Also find ribs number 1, 2, 2A and five of number 3. From outer edge to the inner lay them out as follows:

3, 3, 3, 3, 3, 2, 2A, 1



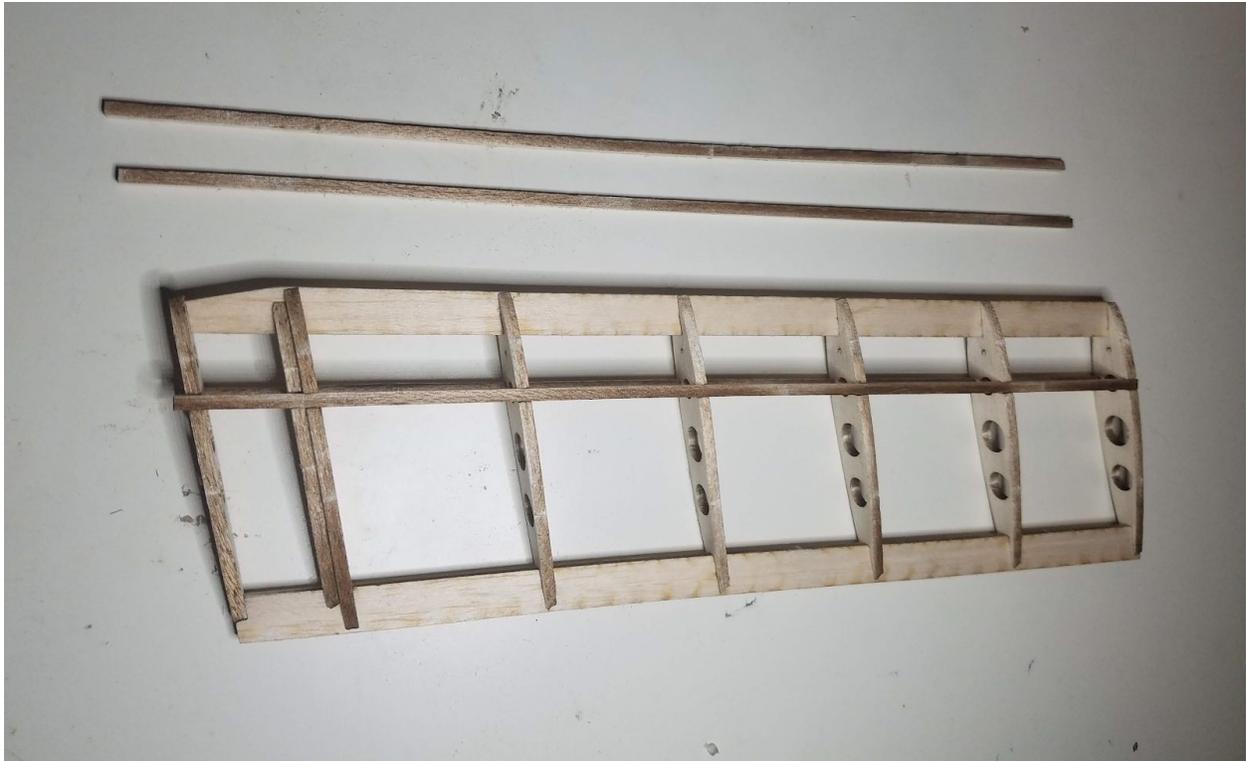
Test fit all inner ribs to ensure they fit properly before final assembly. The inner ribs include four of number 3 and the number 2. Insert all inner ribs to the leading edge. Then fit the trailing edge. Make sure all ribs are seated completely and the assembly is straight. Apply CA glue.



Add the remaining number 3 rib to the outer slot. Add the number 2A rib next to the number 2 rib, ensure the servo cutouts are lined up. Add the number 1 rib to the inner slot. After verifying alignment glue the final ribs in place.



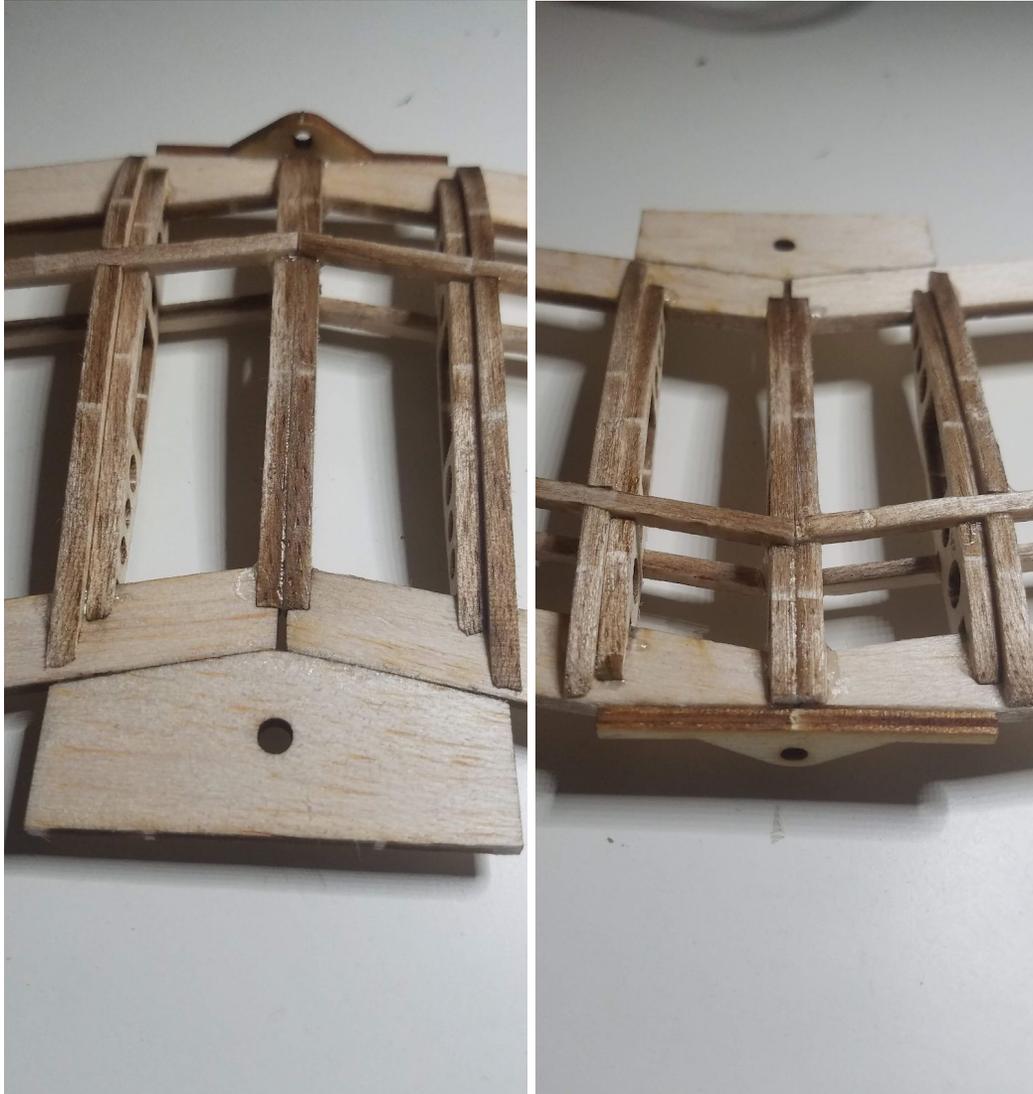
Locate two of the 1/8th inch square spars and fit them into the corresponding grooves of the ribs. There will be a small amount of excess that will need to be cut and sanded flush. Add small drops of CA at the contact points to glue into place.



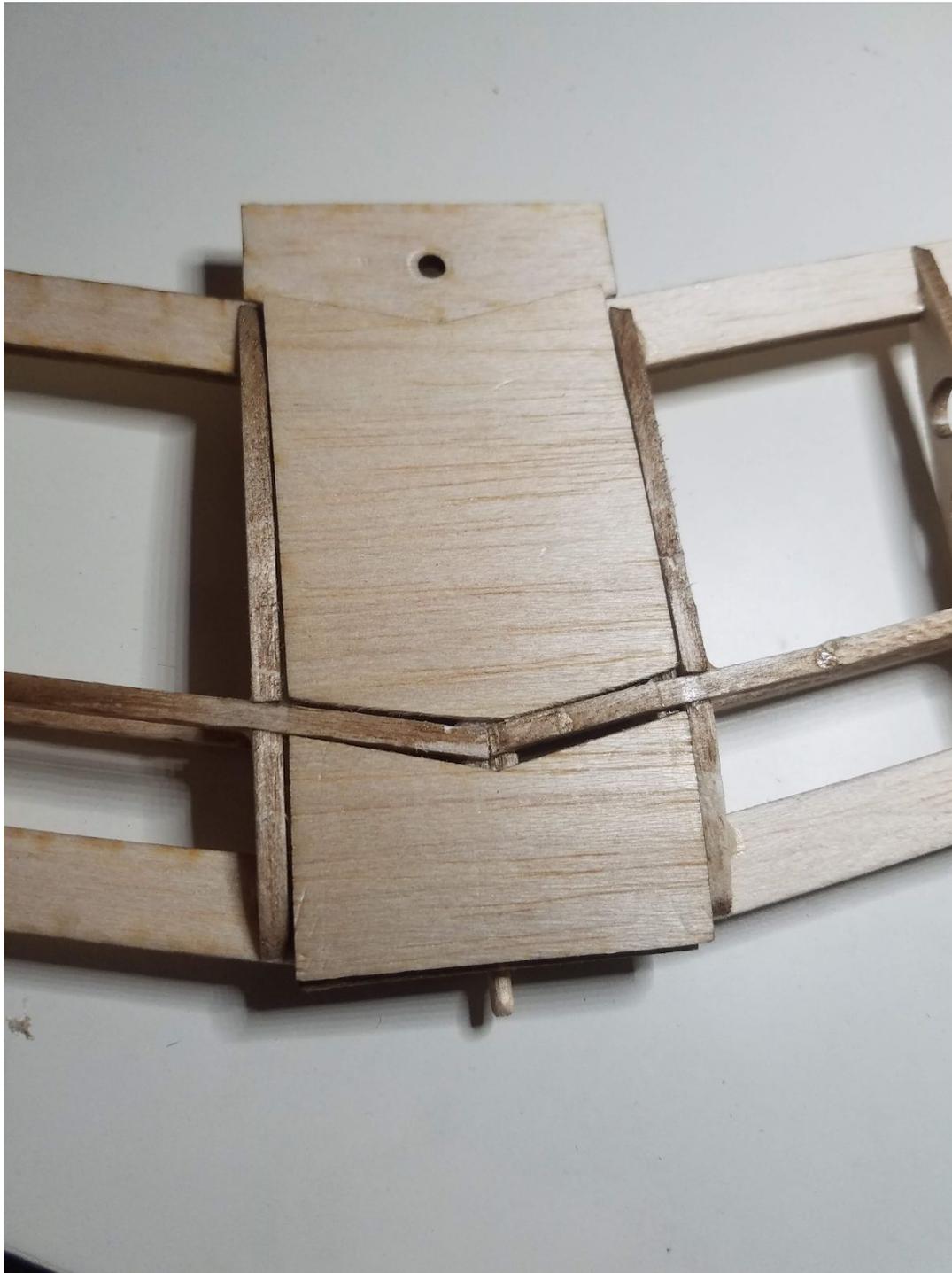
Find the wing tip support piece and fit and glue into place.



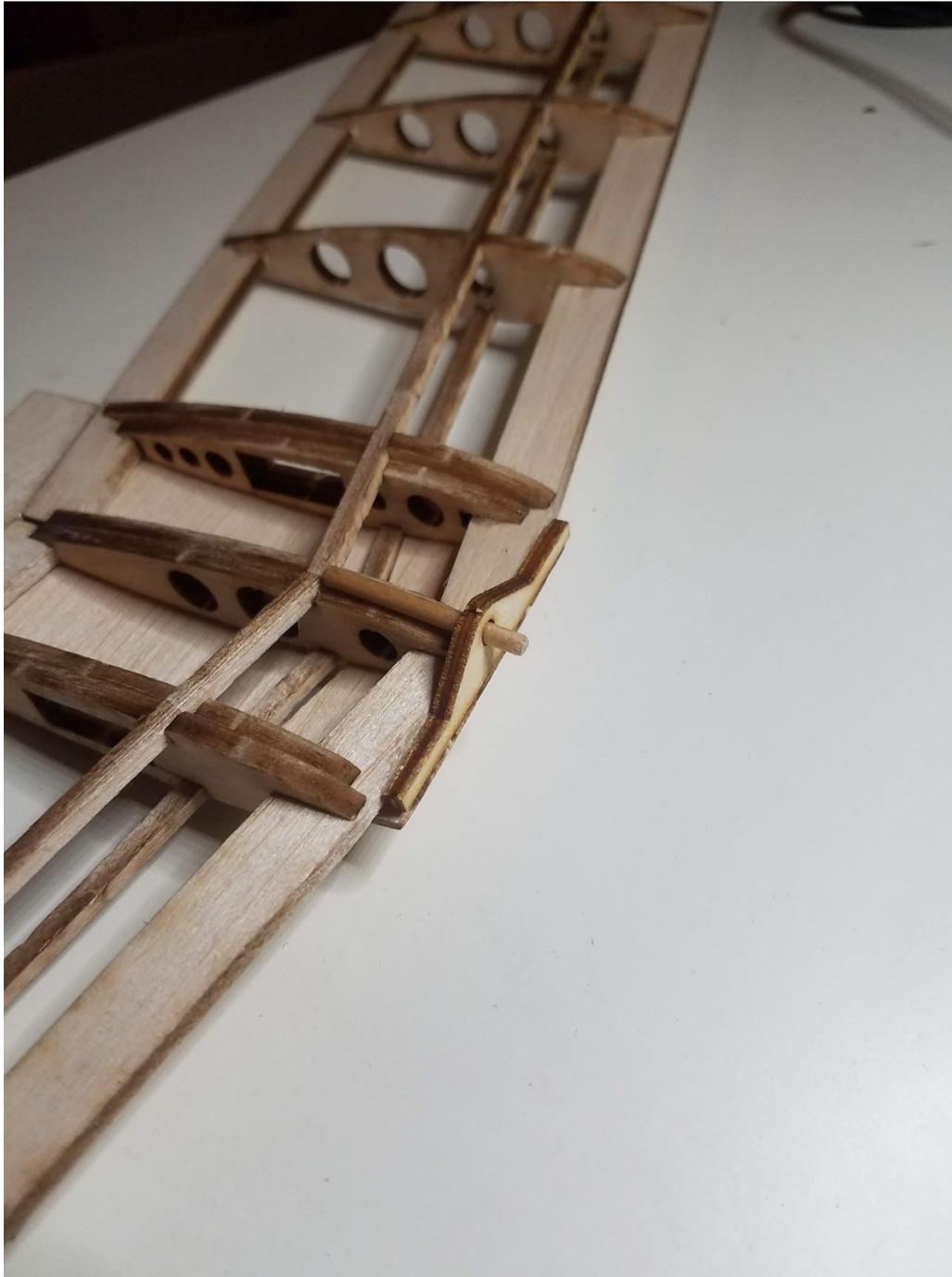
Once both sides are completed fit them together. I aligned them by eye as best as I could and used just a few clothesline pins to hold them together. Find the wing hold down and WTE1 and individually use them as a guide to align the leading and trailing edge. Once I was happy with the alignment I glued them into place. Some sanding was required on the leading edge of the wing to allow for the front hold down to lay flat.



Parts WCS1 and WCS2 are provided for sheeting the center section of the wing. Some trimming was required to get them to fit perfectly and I did not use one of the WCS2 sections for the bottom of the wing to leave room for servo wires.



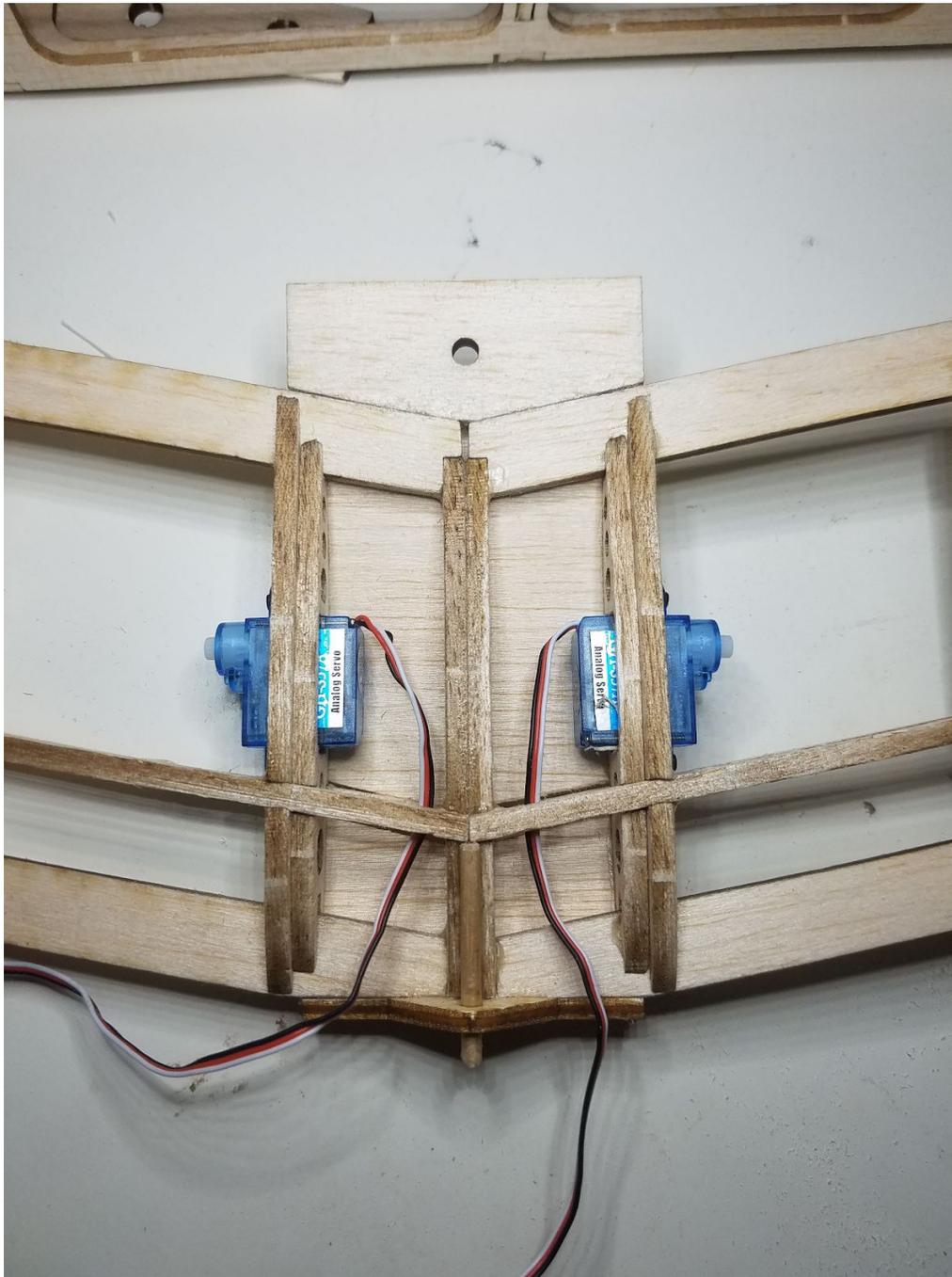
Find the included dowel and insert into the front wing hold down. I used the center ribs as a guide and glued it into place.



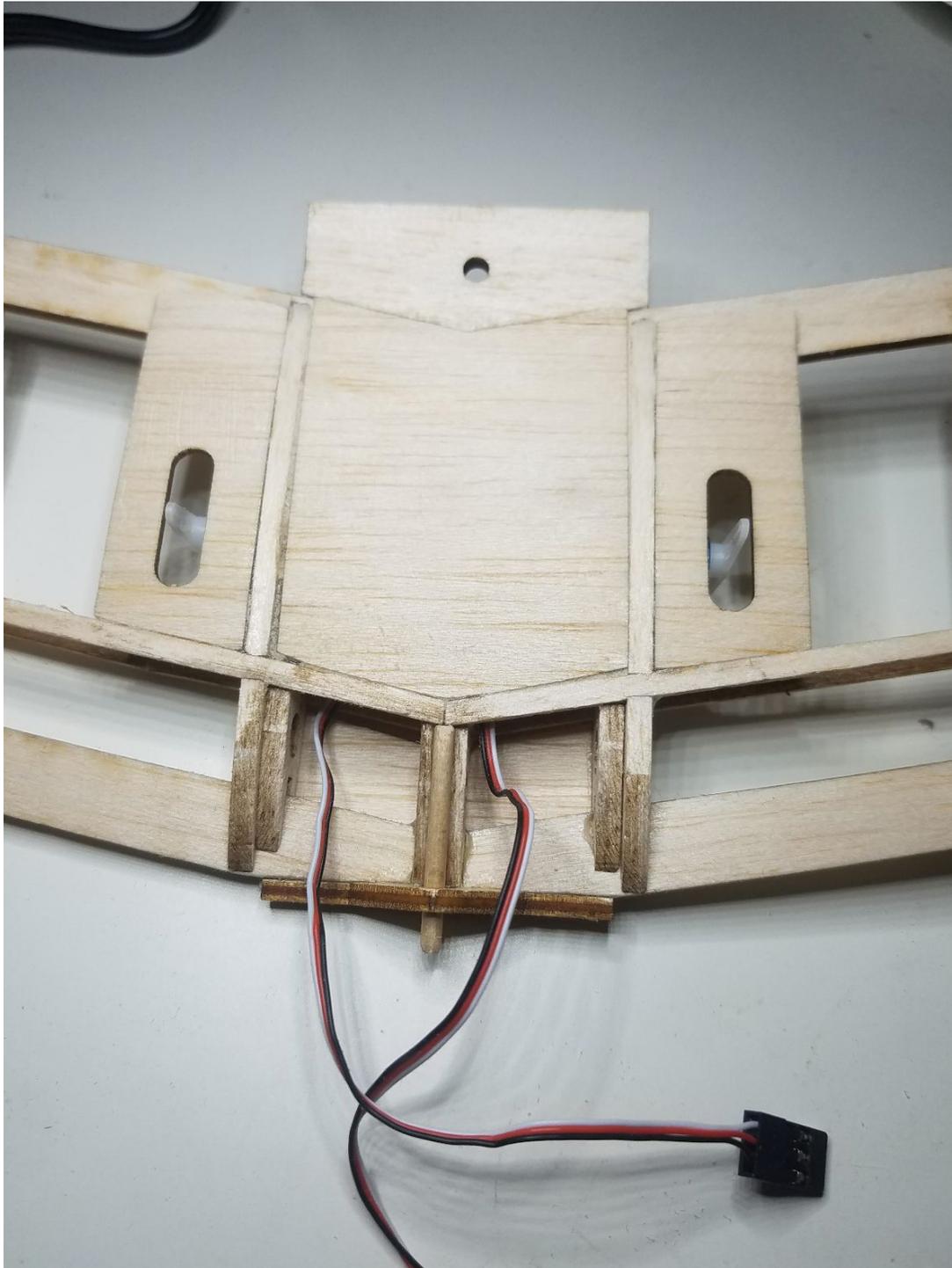
Find the two ailerons WA1 and like the elevator and rudder sand a 45 degree leading edge to prepare for the covering hinges.



You are now ready to install the micro servos into the wing. Some sanding and trimming may be needed to make them fit. They can be glued into place but I used the included screws to secure them.



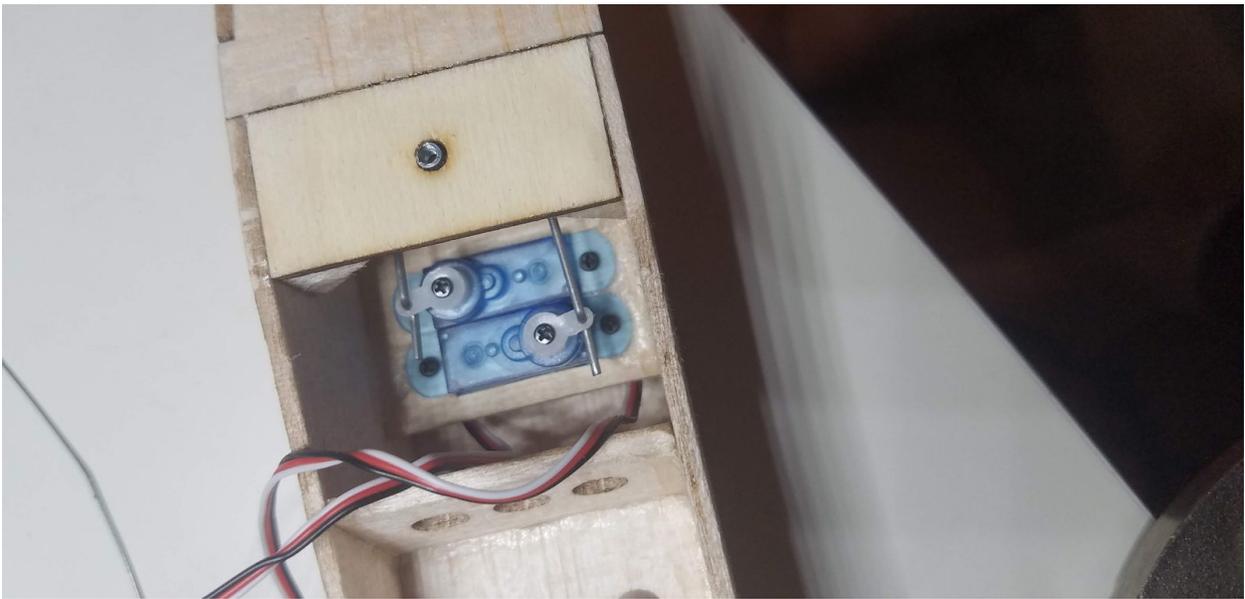
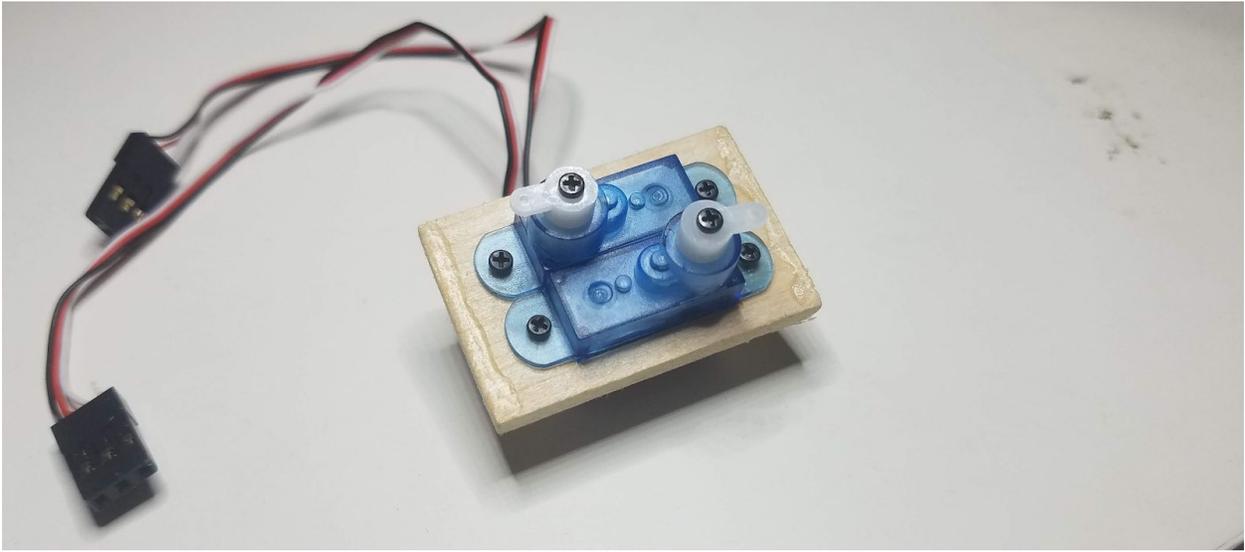
I used the included sheeting pieces WCS3 to cover the servos. There is extra material on these pieces so you can make sure to line up the opening with your chosen servos.



Install the control horns to each of the control surfaces. You can wait until the pieces are covered and installed before securing these with CA glue. The kit includes all required pushrods but you will need to cut and form z-bends to complete the installation. I elected to use linkage stoppers for added adjustability and mechanical fine tuning.



The rudder and elevator control servos can simply be glued into place in the center of the fuselage. I created a small shelf that I screwed the servos into and glued into place.



You will need to sand down everything to clean up any rough edges before covering.

This concludes my assembly guide. I will leave the electronics, pushrod installation and covering up to you and your favorite method.

