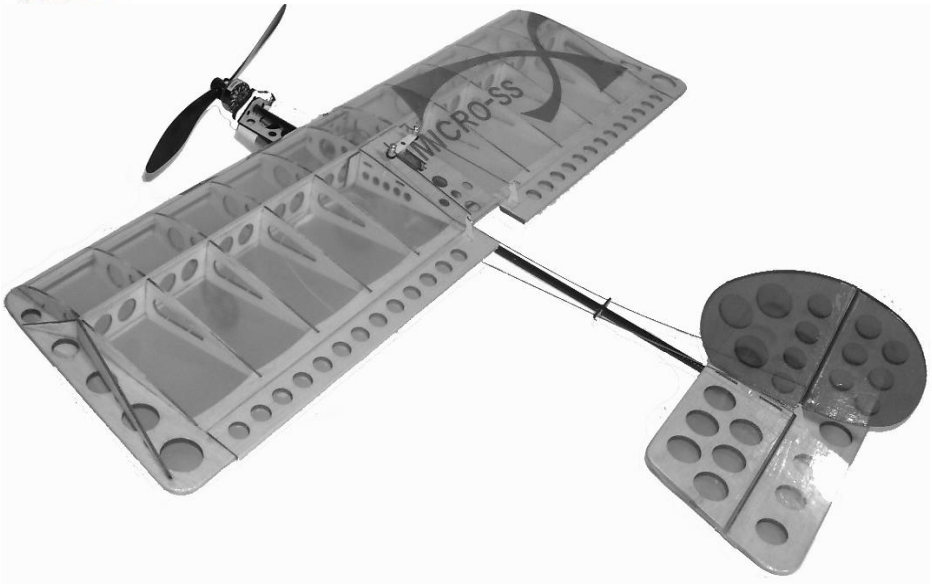
Millennium RC presents Micro SSX Build Kit

MICRO-SS™

Dimensions: 21 ½" wing span
Flying Weight: 4 ½ -5 ¼ oz.
(with recommended setup)



Introduction:

This is the Micro SSX™ build-it-yourself kit. It is identical to the ARF version with some enhancements to make it easier to build. All the parts are laser cut and interlocking so no pins are needed to assemble this kit. The wing can be assembled in ½ an hour by most modelers.

The MicroSSX™ is a miniature version of the Millennium R/C Slow Stick X™ Electric Park Flyer. It is a fun-to-fly fully aerobatic electric R/C airplane that can be taken anywhere! Fly it indoors or out!!

Adult supervision recommended for children 15 and under. R/C Airplanes should be flown following safety guidelines provided by the AMA (Academy of Model Aeronautics).

CAUTION: This is not a toy!

Recommendations:

1. Read through each step before starting assembly.
2. After removing all the pieces from packaging, inspect to make sure there are no broken or missing parts.
3. Check off each completed step to help keep from losing your place.

DISCLAIMER:
Millennium R/C assumes no responsibility for any accident or injury to persons or damage to property.

IMPORTANT:
DO NOT GLUE UNTIL INSTRUCTED TO DO SO!

List of Provided Kit Parts:

1. Laser-cut balsa parts for Micro SSX™ wing/tail sections
2. 4 micro control horns
3. 2 micro light wheels
4. 2 wheel retainers
5. Wire for push rods, aileron linkage and tail skid
6. Preformed wire main landing gear
7. 15" Wrapped carbon fuselage
8. Velcro pads
9. Velcro "One Wrap" Battery strap (RED)
10. Servo tape (Used to hold speed control in position)
11. 6 # 0 - ¼ sheet metal screws (Servos)
12. 2 # 1 – ¼ sheet metal screws (Motor)

Additional Items Required:

1. Cyanoacrylate or CA Glue (thin and thick)
2. Hobby knife
3. 220-grit sandpaper
4. Sanding block
5. Hinge tape (recommend 3M Scotch ™ ¾" Transparent Tape)
6. Ruler
7. Square
8. Razor saw
9. Hand drill or small drill with #56 (.046") drill bit.
10. 1/16" drill bit.
11. Micro screwdriver set
12. Micro-receiver (recommend Castle Creations Berg)
13. Motor (recommend Hacker A10-12S brushless outrunner motor, 2900 Kv)
14. Speed control (recommend 5-9 amps, as recommended by motor)
15. Propeller (as recommended by motor manufacturer)
16. Three servos (less than 6 grams each, recommended. Ideal is 4 grams)
17. Battery (recommend 2-cell lithium polymer battery, 300-480 mAh) Please adhere to manufacturer's safety guidelines.

* *

Check out the Micro SSX build thread on R/C Groups with full-color pictures and instruction updates. Find the link at our website: *www.millenniumrc.com*

ADDENDUM:
Part P8 (plywood piece) is no longer needed for main spar brace, as it has been determined that wing design provides sufficient strength.

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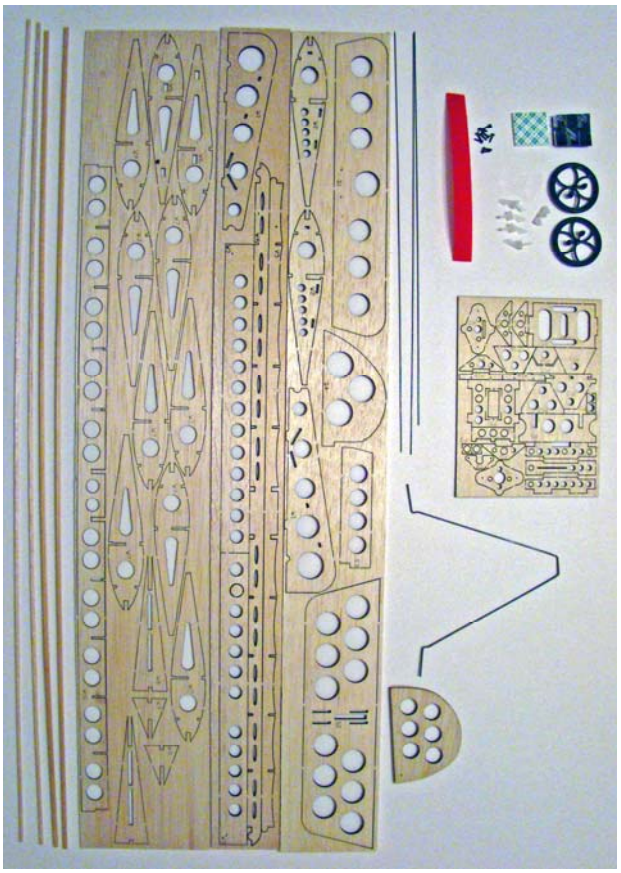
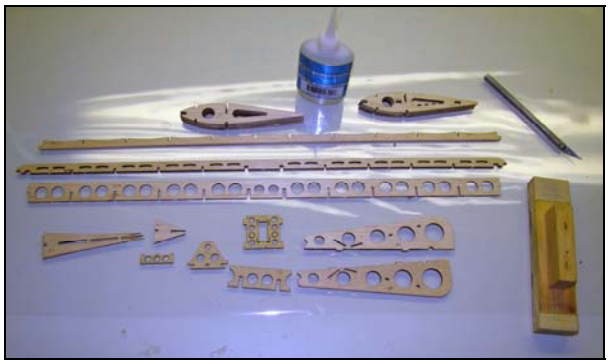


Parts provided in Micro SSX Build Kit

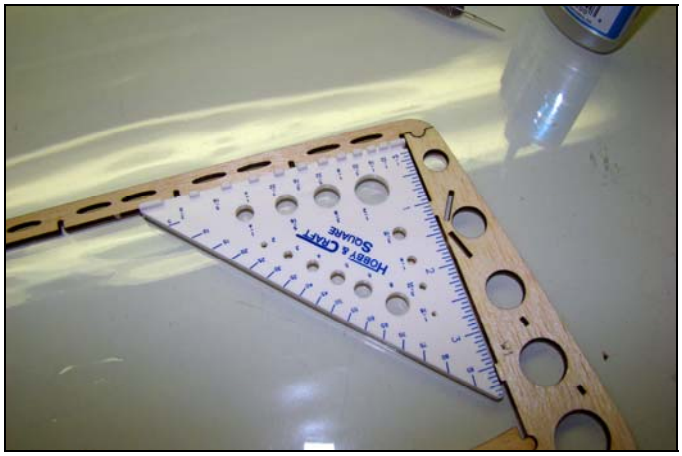
If you should find a part missing or damaged, or have any questions about assembly, please contact us:

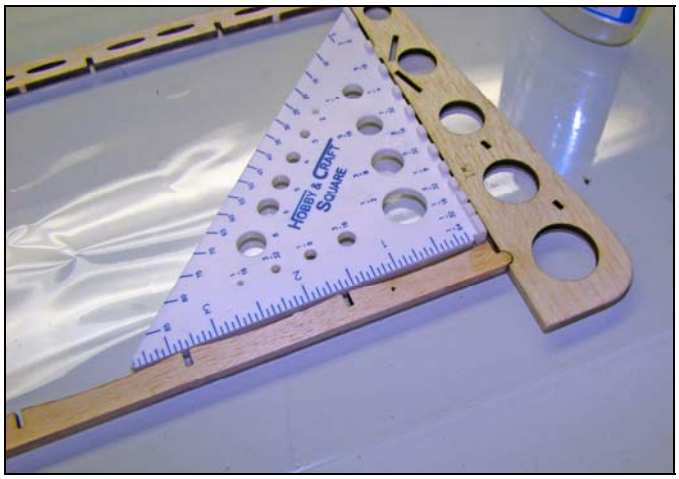
MILLENNIUM R/C
12859 Lower River Blvd., Orlando, FL 32828
Phone: 407-208-9745 / Fax: 866-799-2372
E-mail: Service@millenniumrc.com

Assembly Instructions:



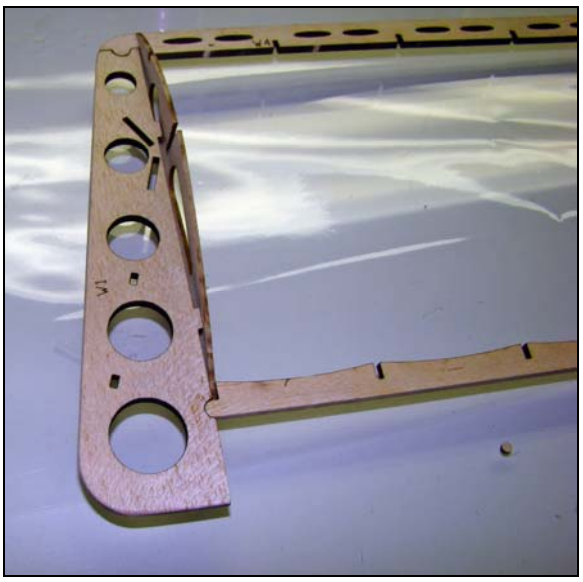
1. Cut - don't break the balsa and plywood parts from the parts sheets. Breaking the parts out of the sheets can damage the parts. Remove all "W" balsa parts and P8, P9, P10 and P11 plywood parts. Sand smooth the break points. Parts above are prepped and ready for assembly.





2. Assemble a frame from parts W1, W4 and W5. Use a small square to insure a square corner. Use thin CA at corners.

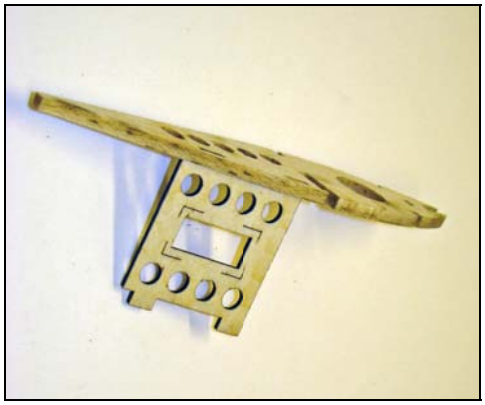
Completed wing frame



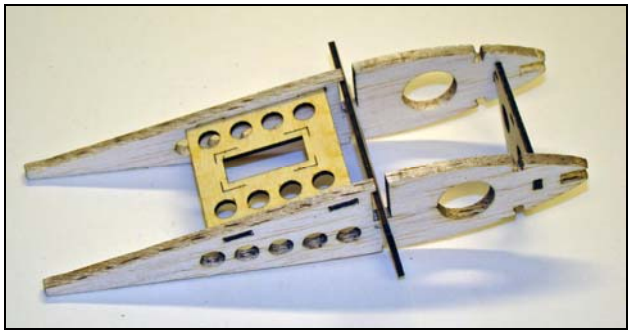
3. Install ribs W6 at wing tips. Bend the part slightly to fit in place.

Center ribs W2, servo deck P10, front wing saddle P11, P9 and main spar brace

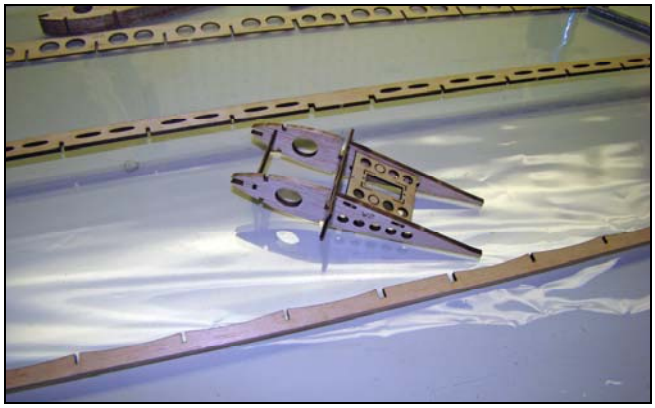
4. Assemble wing center section from parts W2, P8, P10 and P11. (Note: P8 no longer used)



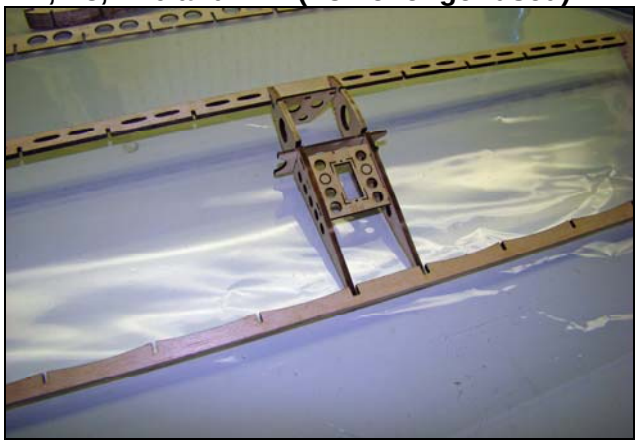
5. Install the servo deck P10 so that the flush mounting tabs are closest to the spar.



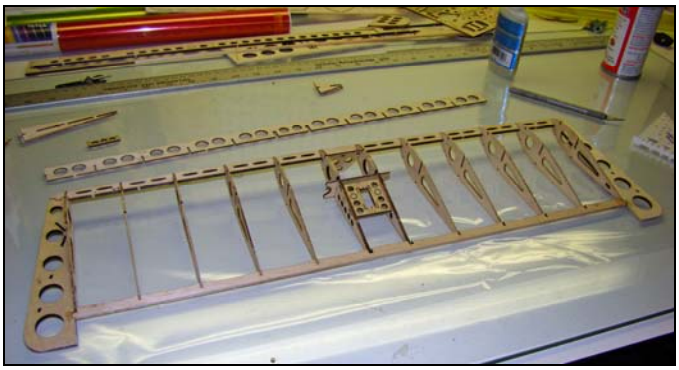
6. Install front wing saddle P11. (P8 shown, but no longer used)



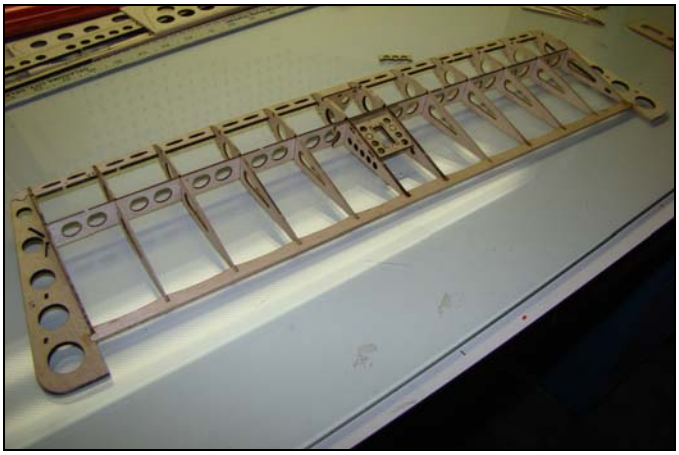
Assembled wing center section from parts W2, P8, P10 and P11 (P8 no longer used)



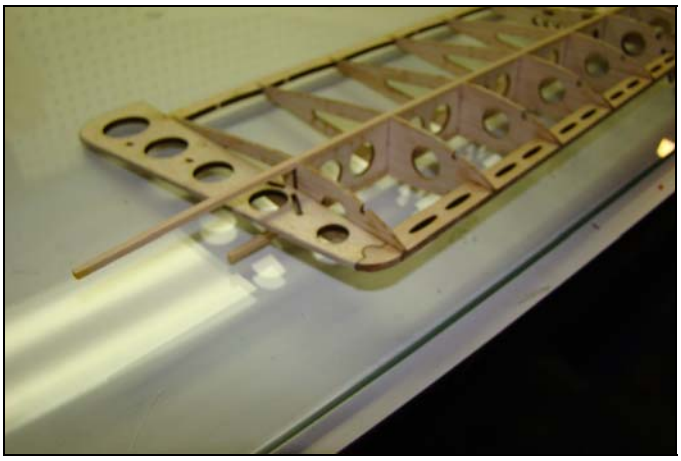
7. Install Center section into the leading edge.



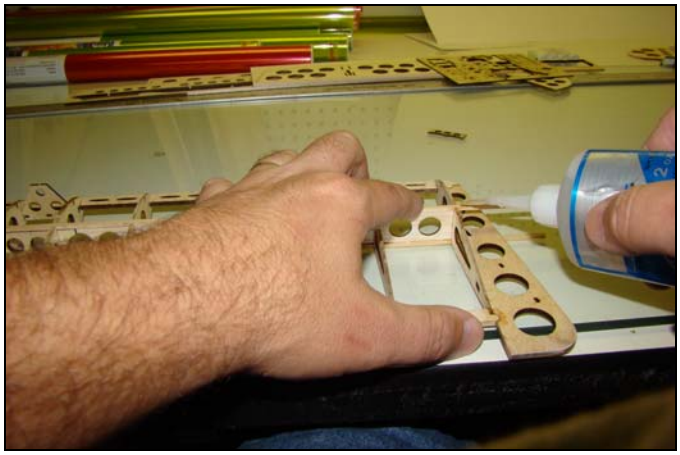
8. Insert remaining ribs W7 into the leading edge.



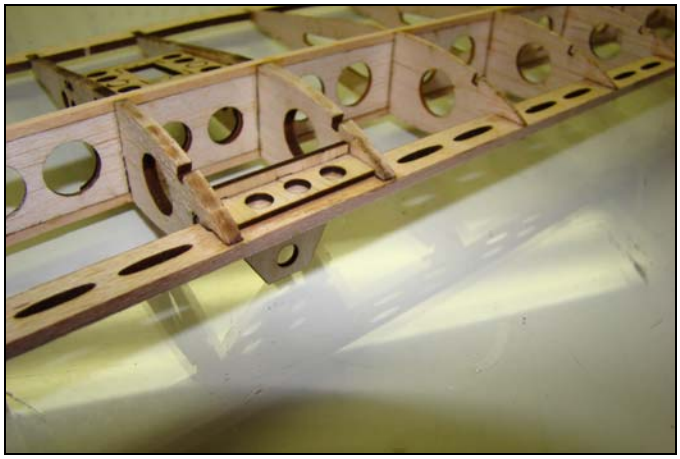
9. Install spar crutch W10, Use caution!



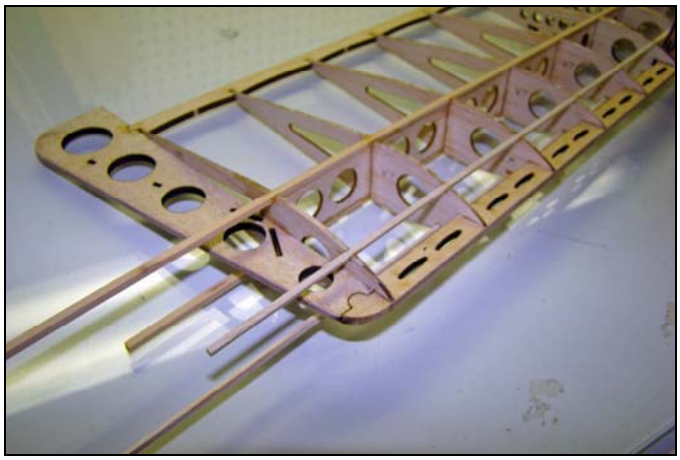
10. Sand smooth one side of the 3/32 spar sticks. Test fit them into the ribs. If sticks protrude beyond the ribs then sand the sticks till they are flush with the top of ribs. Center ribs on trailing edge and tack glue.



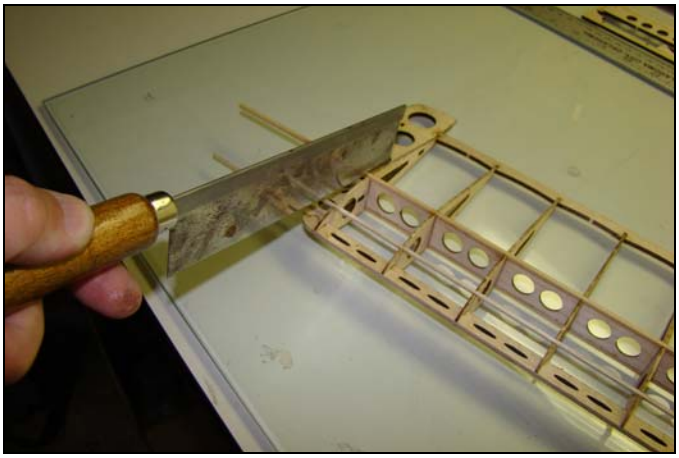
11. Hold spar stick in position and glue. Be sure that the spar stringers are butted up against the spar crutch W10. This forms a very strong " I " beam.



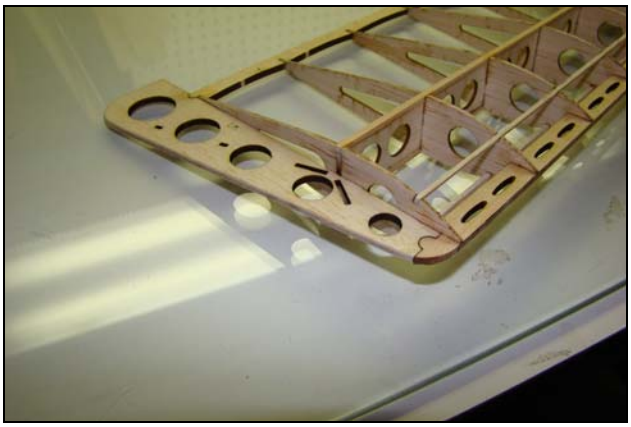
12. Install front wing saddle brace P9. Make sure front wing saddle is square to the wing frame and glue with thin CA.



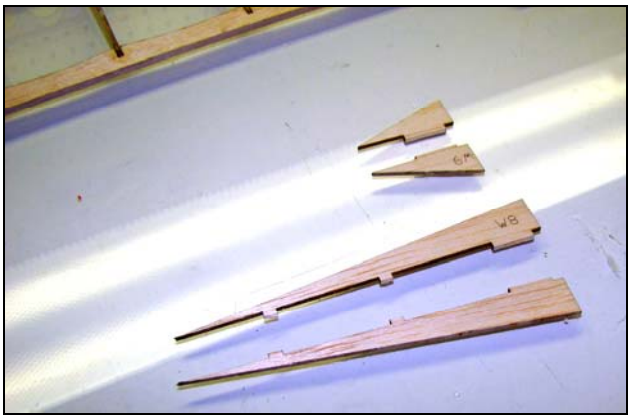
13. Install leading edge stringers top and bottom. Make sure they are flush with ribs and sanded on one side before gluing. Glue all remaining joints of the wing.



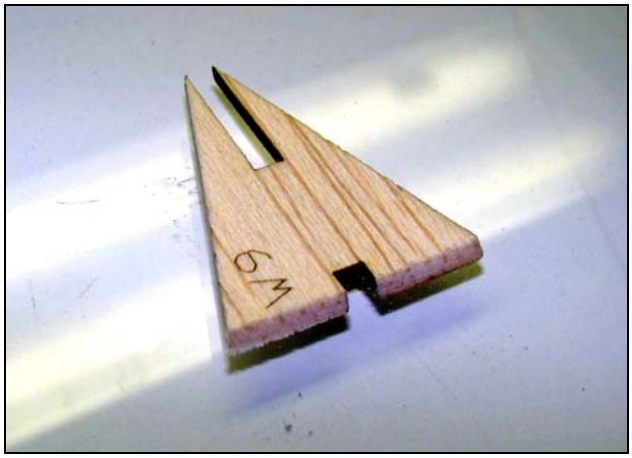
14. Remove excess spar stick and leading edge stringers.



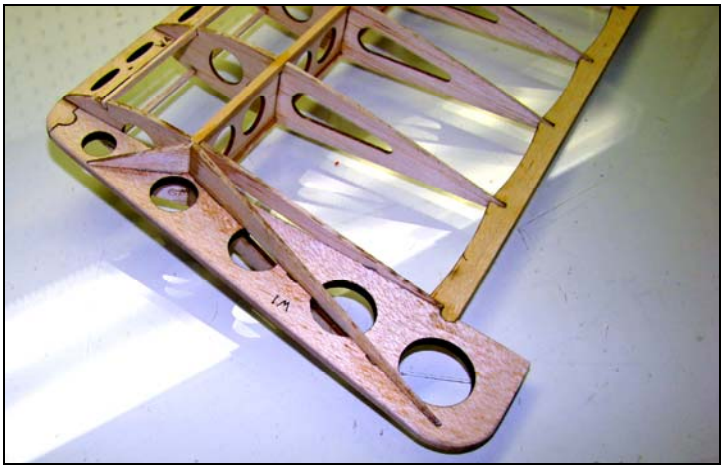
15. Sand flush with rib W6.



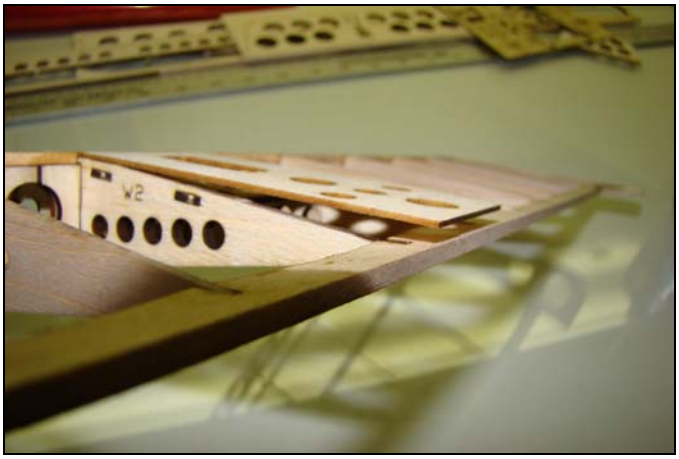
16. Prepare wing tip braces for installation. (Sand and Split)



17. Bevel wide end of W9 before assembly.



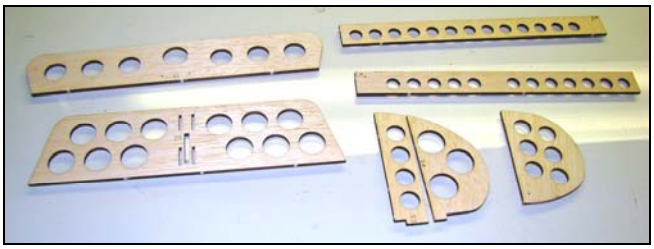
Completed wing tip



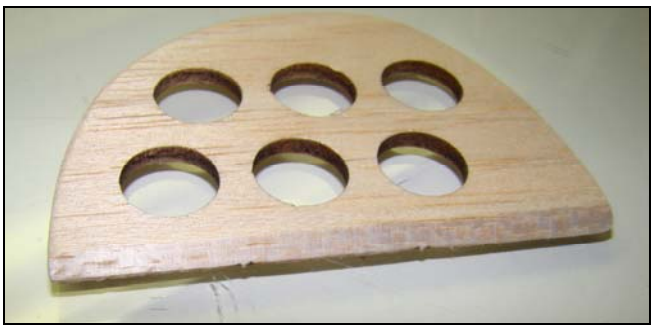
18. Install servo deck cover. First glue to spar. Then, following the contour of rib; glue the trailing edge.

19. Flip the wing over and glue the cover to the inside. Sand cover flush with trailing edge.

Tail Section



1. Glue together vertical stab pieces S3 and S4. Prepare remaining parts to be covered. Remove burnt edges with 220 sand paper and round off corners. Stop sanding when burnt edge is faint. Do not distort the original shape of the part.



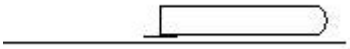
2. Bevel leading edge of rudder elevator and ailerons 45 degrees.

3. Cover tail section and wing with light model covering such as World Model Lightex or So Lite, following manufacturer's instructions.

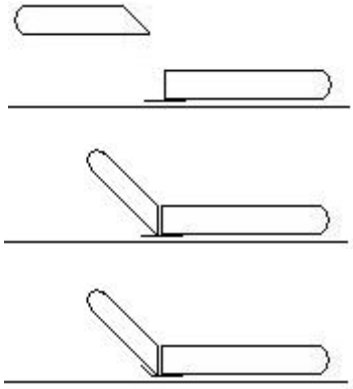
Assembly of the control surfaces

1. Start by removing the horizontal stabilizer and vertical stabilizer from the packing bags. Remove the four pieces of masking tape holding the elevator to the stabilizer.

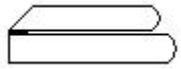
2. Tape a length of Scotch tape™ along the rear trailing edge of the horizontal stabilizer and secure with your finger (either side is fine). Now, flip the stabilizer and place on a work surface. See diagram below:

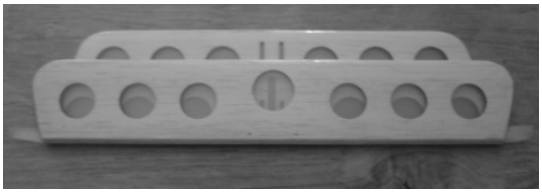


3. Now, take the elevator. You will see that the elevator has a 'beveled' edge. This is important in creating the hinge. Ensure that the beveled edge is pointing up, and while holding at a 45° angle, place up against the trailing edge of the horizontal stabilizer and secure the hinge tape to the elevator with your finger. See diagrams below:

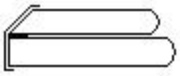


4. Turn the stabilizer assembly over, and carefully fold the elevator back onto the stabilizer.





5. Tape another length of Scotch tape™ along the bottom hinge line and secure with your finger.



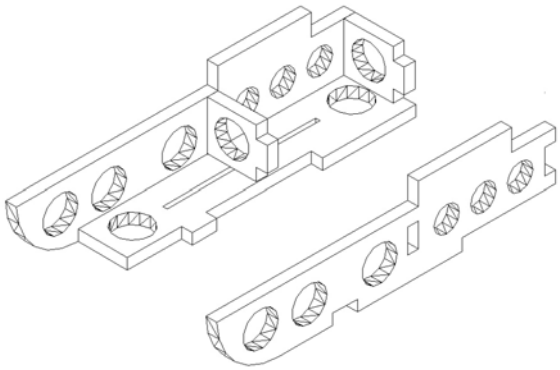
6. Fold the elevator back to normal position. Test the hinge by pulling gently on the control surface. Cut off any excess tape overhanging the stabilizer sides.

7. Repeat the steps 1. thru 6. for the rudder and ailerons.

8. Install the control horns by pushing the horns through the holes located in the vertical and horizontal stabilizers. The vertical stabilizer control horn must be installed on the opposite side of the beveled edge. The horizontal stabilizer horn will be installed through the top on the opposite side of the vertical stabilizer horn. Secure the control horns with thick CA glue.

Assembly of the plywood hardware

1. Open the bag containing the plywood pieces carefully. The hardware bag contains many small items that can get misplaced easily. Remove the parts for the tail support bracket and assemble with thick CA glue as shown in the diagram below. Ensure that no excess glue travels into the holes for the fuselage. The small square cross pieces are installed with one located at the leading edge of the mount and other centered on the tail skid slot. Refer to the next diagram: **Note: New style tail mount.**

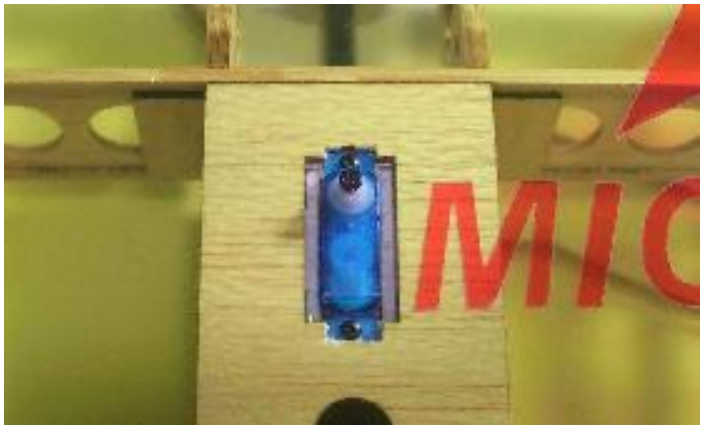


2. Build two servo mounts with the parts provided using thick CA glue. Ensure that no excess glue travels into the holes for the fuselage. Refer to the picture below:

3. Assemble the battery mount pieces with thick CA Glue. Ensure that no excess glue travels into the holes for the fuselage. Refer to the picture below:

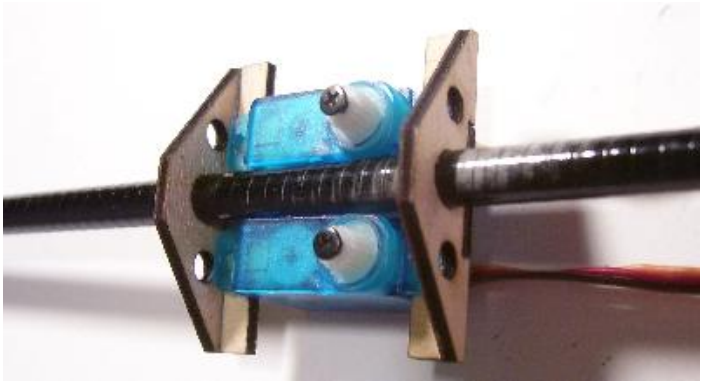
Main Wing & Fuselage Construction

1. Carefully trim the covering from the servo mount on the top center of the wing, being careful not to tear the covering. Trim the servo mount if necessary. Feed the servo wire through the hole and install the servo. Use provided #0 -1/4 black screws to mount the servo.

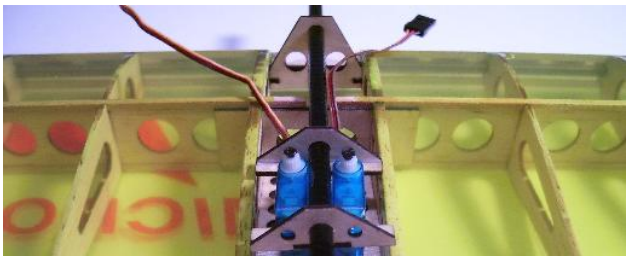


2. Take the fuselage carbon stick and slide the servo mounts previously assembled in #11 onto the fuselage. If necessary, shave a little material around the holes off the mounts so that they fit onto the fuselage. **DO NOT** sand or lubricate the fuselage stick.

3. Mount the servos as shown in the diagram below. Use provided #0 -1/4 black screws to mount the servo. **DO NOT** glue the mounts to the fuselage stick until instructed to do so. *The servo mounts will accommodate servos up to 7 grams.*



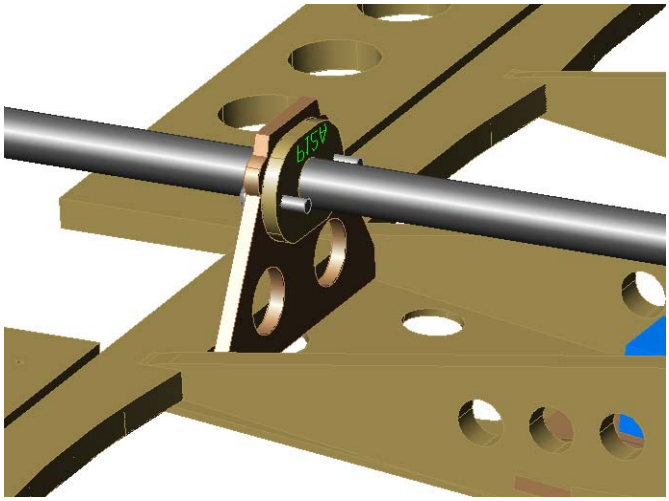
4. Slide the fuselage and servo assembly through the front wing saddle, carving any excess from the hole ONLY if necessary. Feed servo wires through the holes in the center spar towards the front of the wing. Refer to the picture below:

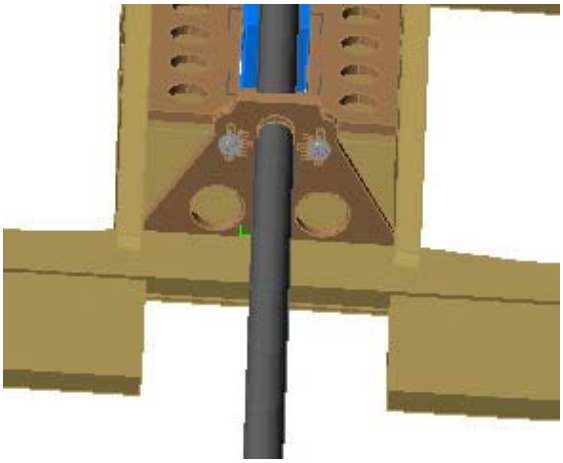


5. Slide P12A onto the fuselage stick and glue 6-3/4" from the tail mount leading edge. Slide P12 onto the fuselage and leave it loose. Slide the tail mount onto the fuselage end and align it so that it is square with the flat edge of P12A. Glue it and allow the glue to dry. Secure P12 to P12A with 2 #0-1/4 screw. Do not glue P12 to P12A. Slide the servo assembly onto the front of the fuselage, align it so that it is square with the flat edge of P12A and glue it with CA glue. Slide the fuselage assembly through the front lower wing mount. P12 should be

glued to the leading edge of the trailing edge piece of the wing. Align the wing so that it -is parallel to the tail mount. Glue the tail section vertical and horizontal stabilizer together so they are square.

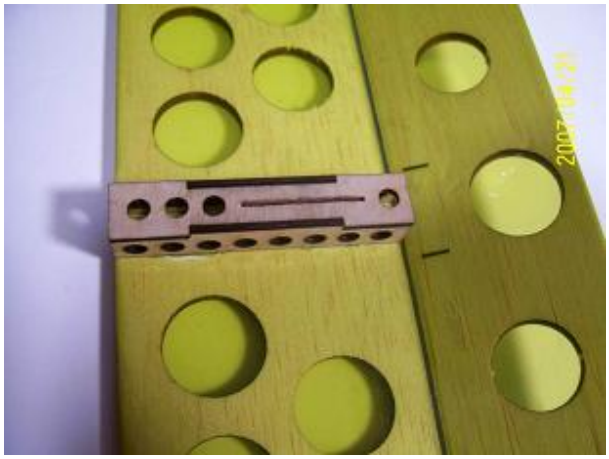
(Below) Installed rear wing saddle



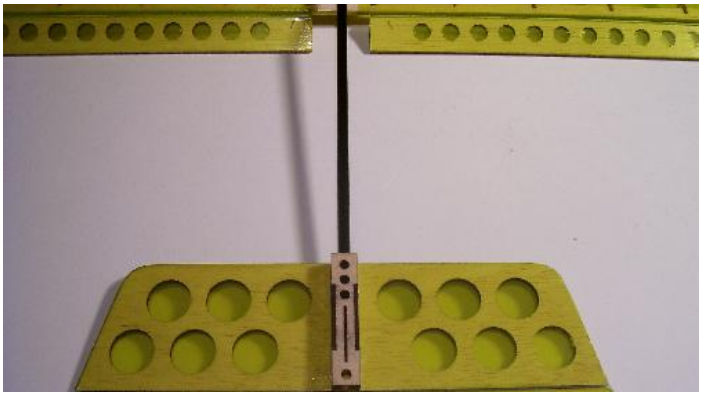


Main Assembly

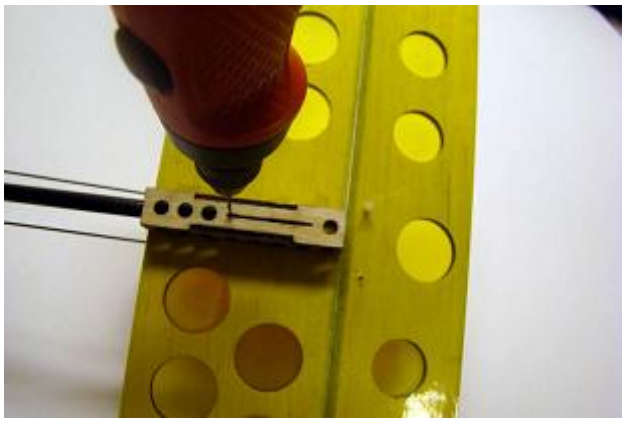
6. Return to the horizontal stabilizer, previously assembled in sections 1. thru 8. Depending on which side you chose to install the control horn, depends on which side you install the tail support bracket. **WITH THE CONTROL HORN ON THE OTHER SIDE OF THE STABILIZER** carefully cut the covering away from the slots in the stabilizer by using a sharp modeling knife. Install the mount into the horizontal stabilizer using thick, or slow drying CA glue. The three circles of the tail support bracket should point to the leading edge of the stabilizer.



7. Now, slide the fuselage stick into the tail mount support bracket, and secure using thin CA glue. **REAR TAIL MOUNT SHOULD BE 3/8TH" PAST THE END OF THE FUSELAGE STICK.**

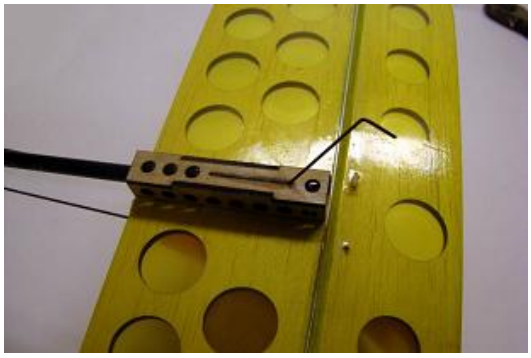


8. Locate the tail skid slot on the tail mount bracket. Using a micro drill bit, drill a small hole through the fuselage stick at the front of the tail skid slot. Install the tail skid into the drilled hole and locate in the slot. Secure with thick CA glue. See next picture:



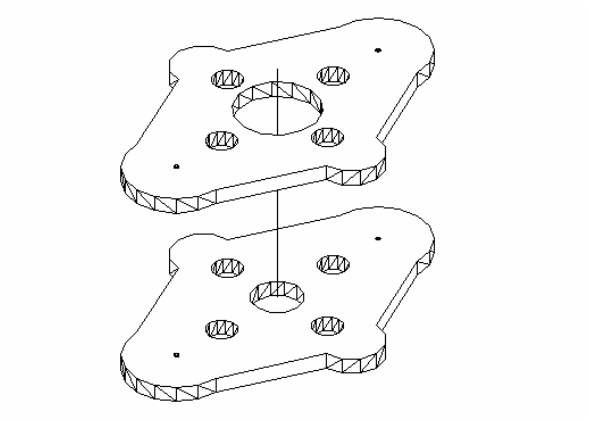
Drill hole to accept tail skid

Install tail skid into the tail support bracket

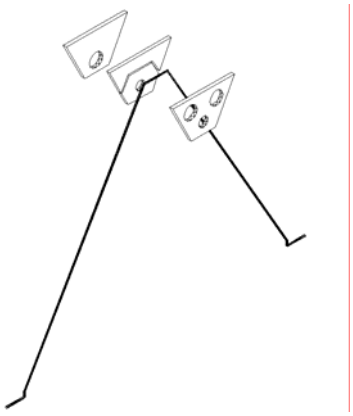


And secure with thick CA glue

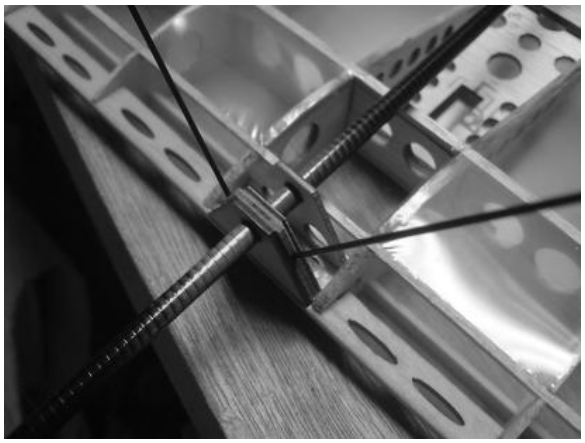
9. Assemble the two motor mounts by gluing the two pieces together with thick CA. These will be glued onto the battery support previously assembled in #11 later in these directions. Refer to the following diagram:



10. The landing gear consists of 4 plywood pieces. Locate these and assemble using thick C.A glue as shown in the diagrams below. Some light sanding of the internal landing gear mounting pieces may be required to maintain alignment.

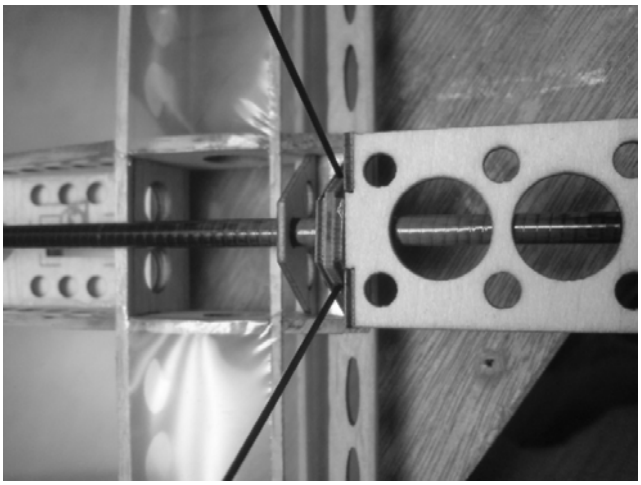


11. Slide the landing gear onto the fuselage as shown in the diagram below. Using thick C.A glue, secure the landing gear bracket onto the front wing saddle and leading edge of the wing. **DO NOT** glue to the fuselage stick yet. Attach the wheels with the provided plastic collars.



12. Install the pushrod guide on the fuselage stick. It is located half way down the fuselage between the trailing edge of the wing and the leading edge of the horizontal stabilizer.

13. Slide the battery mount onto the front of the fuselage. Again **DO NOT** glue the battery mount to the fuselage.



Balancing & final fuselage assembly

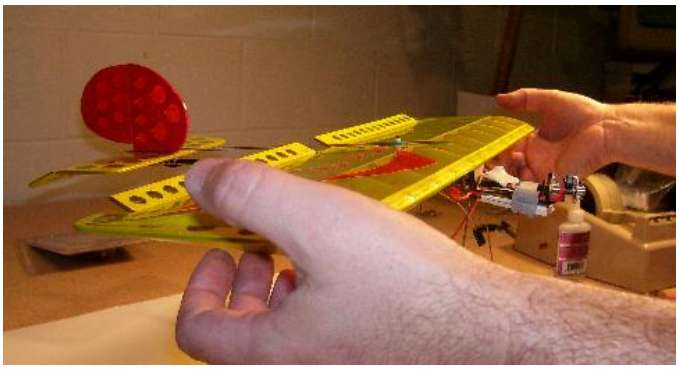
In order to balance this model, a 'dry' assembly of the fuselage is performed. The model is then balanced and finally secured with C.A glue. Follow the steps below to balance the model and finish assembly.

1. Position the wing so that the front of the landing gear mount is approximately 2 1/8" from the front of the fuselage tube and lined up with the leading edge of the wing. The distance between the aileron trailing edge and the leading edge of the horizontal stab should be approximately 5-1/4". Do not glue the wing to the fuselage.

2. Setup motor and speed control as per manufactures recommendations. Fit battery and power unit to model so that wires are as short as possible. This is a light model and every little bit of extra weight counts.

3. Temporarily attach propeller, receiver, antenna, motor, speed control, and battery (using narrow Velcro strap) before balancing. The receiver is typically strapped or taped to the fuselage and a micro antenna is used for this model.

4. The CG for this model is 1/8" inch to the rear of the main spar. Balance the plane at the CG by holding wings with your fingertips as shown in the image below. Try to maintain the distance from the front fuselage to the leading edge of the wing at 2 1/8" by adjusting positions of your hardware first. If necessary, change position of your wing to balance.



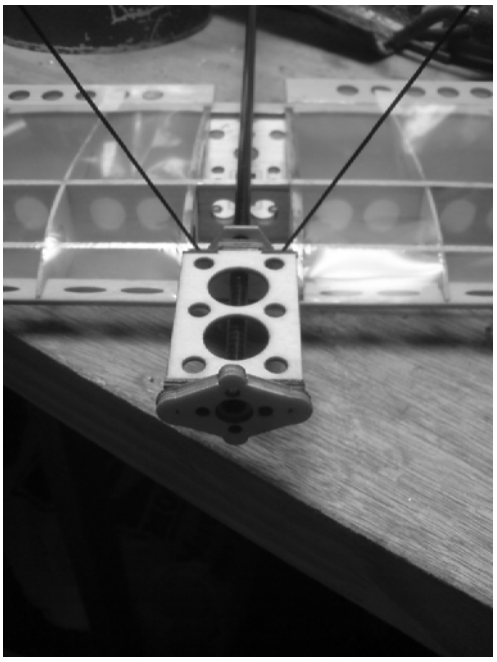
5. Once aircraft is balanced, adjust the horizontal stabilizer so it is parallel to the wing. Then glue the front and rear wing saddles to the fuselage stick.

6. Position servo, battery and motor mounts. The motor should have 2 ° of right and 2 ° of down thrust. This can be achieved by shimming the motor or by offsetting the motor mount during gluing. Glue the motor mount to the fuselage and battery mount using thick CA glue.

7. Square the vertical stabilizer to the horizontal stabilizer. Glue the vertical stabilizer to the horizontal stabilizer by bleeding thin CA into the mount.

8. Install the control linkage. The aileron control horns must be mounted through the top of the control surface at this time and glued at the same angle as aileron push rods. Feed the rudder and elevator pushrods through the rear pushrod guide before attaching to servos. Use Z bends for rudder and elevator servos. Be sure to center your servos first.

9. Glue the motor mount to the front of the battery holder. See picture below:



10. Permanently install receiver, motor and speed control. Make sure your antenna does not touch the carbon fiber fuselage or any metal. Use double stick foam tape to mount speed control to the top of battery mount.

Control throws

Control throws are as follows:
Use Exponential if your radio has it the facility.

Elevator: 45 ° up and down 20° low rate
Rudder: 45 ° left and right
Ailerons: 45 ° up and down 20° low rate

Motor & Battery Setup

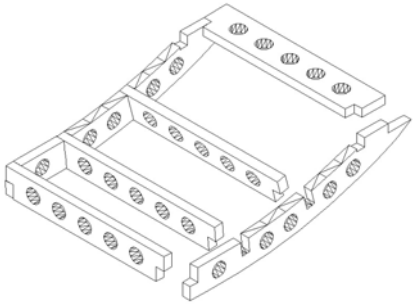
1. Use the motor mount provided with your motor. Trim the motor mount so that it does not extend beyond the plywood mount.
2. Keep wire leads as short as possible. Every little bit of weight counts.
3. Use the provided double-sided foam tape to secure the ESC to the plywood battery holder.
4. Use the provided sticky back Velcro to mount the battery to the plywood battery holder. Place the hook side on the plywood holder and the loop side on the battery. This will hold the battery in place while you secure the battery with the red Velcro strap.

Servo/Radio Setup Tips

- Use the small arms for all servos.
- Connect pushrods at outermost hole of control horns and servo arms.
- Micro servo cases are typically press fit. The bottom can easily be pulled apart and if you don't put it back correctly, you can ruin the servo. I recommend using a piece of clear tape and placing it so that it straddles the bottom of the servo. This will keep the bottom from falling off.
- Use a micro receiver such as the Berg 4L or Micro Spectrum receiver.
- The spectrum receivers can easily be placed inside the wing between the center ribs.
- The Berg 4L can be secured to the fuselage with a Velcro strap or tape.
- Use a Micro antenna with the Berg 4L receiver, if possible.

- Do not allow your antenna to touch the fuselage or pushrods during flight. This can reduce the range of your receiver. The fuselage of the Micro SSX is carbon fiber, carbon is a conductor.
- ***Tip:*** Run servos for several cycles before first flight. This will improve centering.

New Optional Receiver Hatch:



Main Wing Decal

1. Cut excess material from decal before removing the backing.
2. Remove the protective backing to expose the adhesive.
3. Add about 3 drops of dish soap to 2 pints of clean water. Put it in a spray bottle and spray the back of the decal.
4. Slide the decal into position and squeegee the excess water from under the decal.
5. Allow the decal to dry overnight.

ENJOY YOUR NEW MICRO SSX!