ALBATROSS by CRASHTESTHOBBY.COM

The Albatross is a unique slow flyer that will put its nose on the horizon and level its own wings. It is very quiet and designed to use inexpensive electronics. It is one of my favorite night planes and small park flyers. The Albatross was designed for engineering students to test auto pilots they were designing. They wanted a plane that would be easy to fly for the beginner, could be flown in small fields, is quiet and neighbor friendly, is fast to build and cut from EPP so it would be durable. Several flyers predict that most Albatrosses will be built with the pod because it protects the prop and motor and leaves room for a camera up front. The Albatross is available with ailerons for more advanced flying and FPV but don't underestimate the fun of the polyhedral wing. The aileron wing has to be laminated for strength.

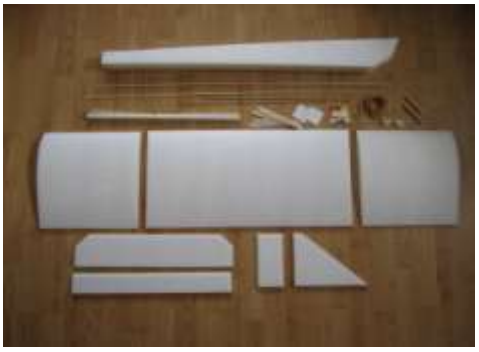


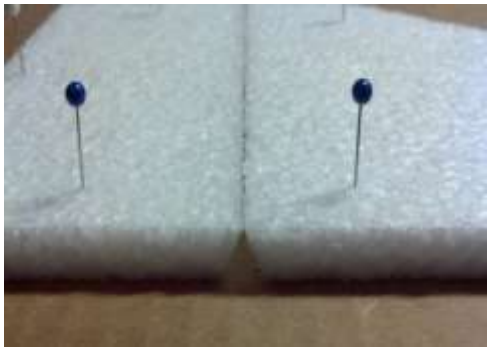
Instructions included for the front mount and pod motor and the polyhedral and aileron wing

- The optional pod mount and/or ailerons do not change the CG requirements.
- Wing with ailerons has to be laminated for hinging and control.
- The aileron version of the kit comes with laminate for the entire plane.
- The polyhedral wing kit has laminate included only for the fuselage.
- Center of Gravity: 3.75” (9.5 cm) back on the wing
- Elevator throws: 3/8”(1 cm) up/down. Rudder 1” (2.5 cm) left/right. Ailerons: 3/8" up/down
- Wing tip angle is up 5” to top of each wingtip on the polyhedral wing
- Wing tip angle is up 2.5" on each tip of the aileron wings or measured 5" up on one tip with the other wing flat.
- Dowels back 9” and 21” from the nose of the fuselage
- Use four to six #64 size rubber bands to secure wing
- Best flying weight: 19-27 oz (570-810 gm) Lighter always flies better!!!
- Laminating wing and tail adds about 7 oz to the plane.
- 2812 motor, 25A ESC, 2 (or 4 for wing with ailerons) mg90 servos
- 1300 to 2200 mAh 3S lipo battery recommended
- Launch at 1/3 throttle and throttle up.

EQUIPMENT NEEDED

- Albatross kit, from CrashTeshHobby.com
- All electronics and accessories as desired (motor, props, esc, tx/receiver, servos)
- Low-temperature hot glue gun (and low-temp rated glue)
- “Goop” brand glue (preferably Household)
- Metal straight edge
- Soldering iron (either adjustable-depth tip, or a wheel collar to restrict depth)
- Fine grit sand paper
- Pliers, Side cutters, or snips (must be flush on one cutting side)
- Adjustable razor blade
- Electric drill and small bit
- Philips head screwdriver
- Iron for applying laminate (hobby iron is preferable, but clothing iron may be used)
- Velcro strip





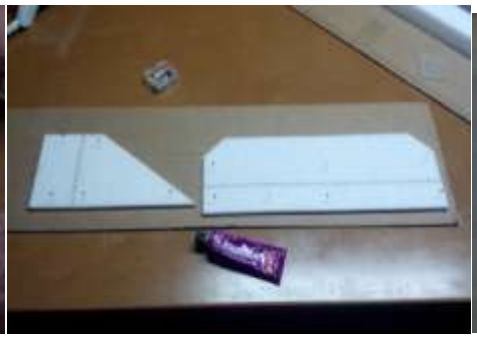
FOAM PREPARATION

1. Rub the EPP foam surfaces with another piece of EPP foam to get the melted fibers off. Use your fingernail to pick off any stubborn fibers. You can also use a disposable razor and shave the EPP foam to get the fibers off.
2. Lay out the pieces and check the fit of the wing tips. Notice that the nose of the fuselage is cut at an angle, down and to the right. This is meant to compensate for the torque of the motor, and the lift created upon acceleration. DO NOT correct this angle, or cut the nose flat.. This angle is an important part of the self stabilizing Albatross design. If you will be using a pod you can square the nose of the plane as desired.

HINGING THE RUDDER AND ELEVATOR

If you are not laminating, the tail the rudder and elevator are hinged with a thin layer of "Goop" brand glue, or Shoe Goo. Hinging them at this point allows time for the glue to dry while you perform other portions of the build. If you are laminating you will want to laminate the four tail parts individually and hing them with tape afterwards.

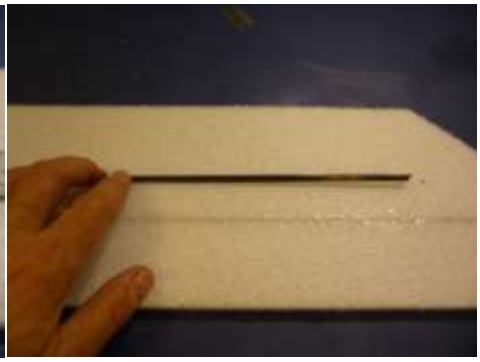
3. Pin the tail pieces (rudder, elevator) on a piece of cardboard, with a 1/16" (1.5mm) space between the pieces where they will be hinged. Make sure the pointed angle of the hinged part is on top on both pieces. Pin the parts onto the cardboard with push pins.


4. Goop is a fast drying glue. Use only in well ventilated areas. The glue will age in the tube once it is opened. Apply it quickly and do not go back to touch it up or it will roll up in little glue balls and can ruin a hinge line.
5. Squeeze a small amount of Goop glue onto the hinge line, and spread thinly with your finger or a flat tool. Make sure the glue is spread very thin and is only on the top side of the hinge line or it won't bend freely. glue ½" (1 cm) on either side of the hinge.
6. Allow to dry 4-6 hours, after which you can flex the hinges repeatedly to loosen them up, if needed.

REINFORCING THE TAIL WITH A FLAT CARBON SPAR





7. You can reinforce the tail with a flat carbon during the build or after the plane is built. The flat carbon spar will be included in all kits in after December 2013. You can easily put a spar in a plane that has already been built.
8. Cut a slit with a razor blade 2.5" back from the front of the horizontal tail that is 14" wide leaving 2" on each end uncut.
9. Sand the carbon spar lightly so the CA glue will have a better surface to stick to.
10. Press the 12.5" spar into the slot making sure that it does not poke out the top or the bottom along its length.
11. Baking soda is a catalyst for CA glue. It helps to put a little baking soda along the spar to help the CA glue set.
12. CA glue along the length of the spar make sure it is well secured.
13. If you are adding the spar to a plane that is already built, cut the slit as described and insert the spar. It may help to make a small slit up into the vertical stab to be able to insert the spar. The first picture above shows a spar that was added to a plane that had already been built.

POLYHEDRAL WING CONSTRUCTION

14. Lay the wing core on a flat surface, and determine which tip goes on which end. The tips should fit so that they angle upwards. (The pre-cut slits in the tips go towards the center.)
15. Have a ruler or a square handy to measure the height of the wing tips as you glue them.
16. Use your low-temp hot glue gun to glue the tips onto the wing core with the tips up 5” to the top of the wing core
17. Repeat with other wing tip.
18. Lay a bead of hot glue along the seam between the wing portions, to fill in any gaps, and smooth with a flat tool as the glue dries.
19. There are 2 fiberglass spars included in the kit—1 for the bottom of the wing, and 1 for the top of the wing.
20. Lightly sand the fiberglass spars so the glue will stick to them.
21. Some kits have the spar slots precut, if yours does not you will need to cut the spar slots.






22. Lay the spar on top of the wing, and slide the ends of the spar through the pre-cut slits that are 4” back in the wing tips.
23. Use a pen to mark a line on the center wing section where the spar lies.
24. Remove the spar, and lay your metal straight edge along the line you marked.
25. Adjust your soldering iron tip so that it will melt about ¼” (.5 cm) into the foam, and run the soldering iron along the straight edge, melting a slot into the foam for the spar to lay in.
26. Some builders like to use a razorblade to cut the slots for the spars. If you use the blade don’t cut too deep or remove too much foam.
27. Place hot glue into the slot, and replace the spar, with the ends through the slits in the wing tips. Make sure both ends of the spar are seated completely down through the pre-cut slits in the wing tip, so that the spar lays flat.
28. Fill in any gaps on top of the spar with hot glue, and smooth the glue along the surface.

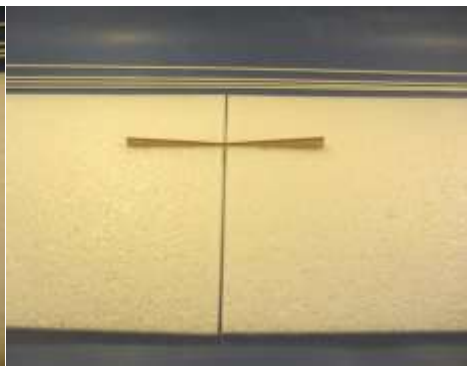


29. Fill in the pre-cut slits in the wing tips with hot glue, especially around the spar that goes through it.
30. Turn the wing over, and use snips to cut off any excess spar sticking out of the slits.
31. On the bottom of the center wing section, measure back 4” from the leading edge (thicker edge) of the wing on the left and right. Use a straight edge to draw a line between the two points, marking where the spar will go on the bottom of the wing.
32. Use your straight edge and soldering iron to melt a slot along that line for the bottom spar.
33. Put hot glue in the slot, and then insert the spar. Fill in any gaps above the spar with hot glue, and smooth the surface.
34. Use snips to cut off any excess spar sticking out on the sides.
35. Measure where the center of the wing is, and place a mark on the leading and trailing edges of the wing at the center point.
36. Glue the tongue depressors centered on top and bottom, on the leading and trailing edges of the wing.
37. Apply a thin layer of Goop glue along the entire leading edge of the wing, to protect the foam from chipping in case of impact.

WING WITH AILERONS CONSTRUCTION - Aileron wing needs to be laminated for strength

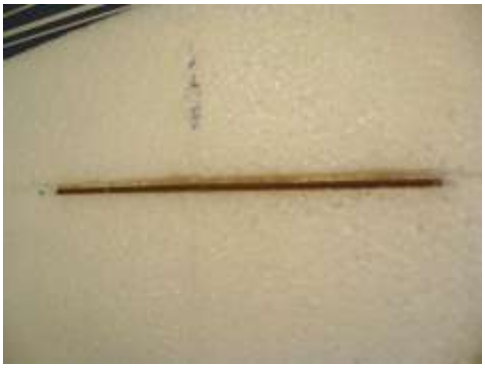


38. Look at the dihedral wing pictures above. I used black spars for the pictures but you will get white spars in the kit.
39. There are top and bottom spars back 4' from the front of the wing joined in the middle with a wood dihedral brace.
40. The dihedral (the bend) in the wing is necessary to stabilize the plane and smooth out the turns.
41. We are including enough laminate in the kit to laminate the wing and ailerons and tail but keep the plane light because it will tend to be tail heavy with the laminate on the tail. Laminating wing and tail will add about 7 oz.
42. The wood brace (shown below) is the full thickness of the wing and presses into a precut slot in the wing.
43. Use a soldering iron and cut a spar slot in the foam along the **FRONT only** of the wood brace about 1/4" deep both top and bottom of the wing.
44. **Some wings have the spar slots precut. If yours does not cut the spar slots as follows.**
45. Use a soldering iron with a depth collar and cut a 1/4" deep slot 4" back from the front of the wing along the top and bottom of each wing half that continues from the slot in front of the wood brace to the end of each wing.
46. Glue the two wing halves together with one wing flat on the table and the **top of the other wing tip 5" off the table.**
47. It helps to have the brace in the slot to get the wing halves to align.
48. Slide the brace into the slot after putting hot glue in the slot.
49. Make sure the wood brace is well aligned with the top and bottom of the wing and allow to cool.
50. Use hot glue and glue the spars in the slots making sure they are **well glued to the wood brace** in the middle of the wing.

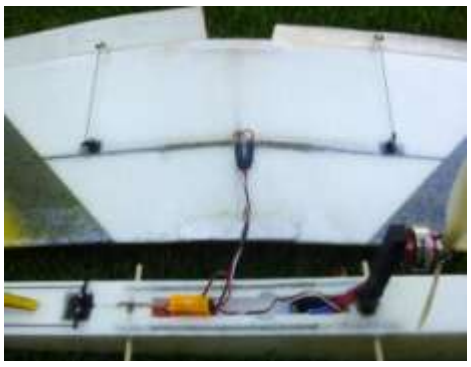

51. Cut the ailerons to length. We like to leave a 1" gap between the aileron and fuselage so there is room to attach the rubber bands.
52. Use hot glue and glue the fiberglass tongue blades in place on the front and back center of the top of the wing to keep the rubber bands from cutting into the foam and to reinforce the joint in the wing.





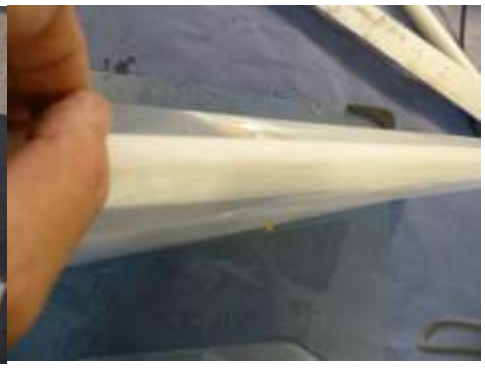

53. Lay out your servos so the servo wires overlap 2" in the center of the wing and the servos are as far apart from each other as the servo wires will allow.
54. I prefer to keep their weight forward by mounting the servos close behind the spar on the bottom of the wing.
55. They will be connected to the receiver in the middle of the wing with a "Y" connector plugged into the aileron plug on the receiver.
56. Cut the holes to install the servos vertically or on their side being careful not to cut completely through the wing.
57. Make a razorblade slit from each servo to the center of the wing.





58. Gently push the servo wire into the slit leaving the last 1" of the wire out of the center of the wing.
59. Using hot glue or goop, glue in the servos and secure the wires where they come out in the center of the wing.
60. Laminate the wing with one layer of laminate
61. Laminate the EPP ailerons with 2-3 layers of laminate making sure to keep aileron straight and not warped. Align it with a straight edge to make sure that it doesn't bow while laminating.
62. Use a 1" wide strip of Extreme tape to hinge the aileron to the top back of the wing
63. Fold the aileron up and put a 1" strip of extreme tape along the bottom of the hinge line
64. Put a 2" wide strip of laminate top and bottom on the hinge line to protect the tape from UV light





65. Bind your receiver to your transmitter and connect the servos to the receiver with a Y connector
66. The Y connector will give you slack in the wires so you can take the wing off the fuselage and unplug the servos for transport
67. Put the servo arms on your servos
68. Attach the push rods by sliding the Z bend through a middle hole in the servo arm
69. Line up the push rods so they point straight back on the wing. Measure so both wings are the same
70. Cut a slit for the white plastic control horn to be pushed through from the top of the wing
71. Cut the laminate as needed so glue will make a reliable bond with the foam
72. Slide the EZ connector onto the pushrod.
73. Put the EZ gold connector in the top hole of the aileron horn. You may need to slightly enlarge the hole.
74. Put the snap on the back of the EZ connector and the thread in the bolt.
75. Tighten the bolt with the aileron in proper position.

FUSELAGE PREPARATION - (Motor pod instructions next in instructions.)

Even when I install the motor on a pod I build the nose as shown below so that I have the option to put the motor on the nose later.

69. The fuselage is longer on the top than on the bottom, and tapered down towards the tail. The extra height at the nose helps balance the plane, and also protects the motor and prop when landing. The nose of the fuselage is cut at an odd angle. This is done on purpose, to compensate for the torque of the motor, and the lift created upon acceleration. **DO NOT** correct this angle, or cut the nose flat.



70. Two layers of Formica plate will be glued on the front of the fuselage
71. Put the hot glue on teh foam first because the Formica plate causes the glue to cool too quickly.
72. Set the hot glue gun to low temperature and glue a Formica plate on the upper nose section on the fuselage.
73. Hold the Formica plate in place will the glue sets but glue the second Formica plate directly over the top before it cools.
74. If the glue cools too quicly and the planes aren't quite in place, use your hobby iron on the front of the plate. The heat will remelt the glue under the plates, and you can reposition the Formica plates. Be careful because the plates will get very hot.
75. Use strips of Scotch Extreme Tape to completely cover the Formica plates and nose of the fuselage, extending back 12” (30 cm) on the sides of the fuselage. The is E-Tape adds incredible strength to the plane.

76. Put a strip of E-Tape on the bottom of the fuselage that goes back 20" from the nose. This helps to keep the fuselage from flexing and breaking with the pressure of the rubber bands.
77. Turn the fuselage upside-down, and center a length of laminate (included in the kit) along the fuselage, rough side towards the foam. Leave enough excess laminate extending beyond the nose and behind the tail to wrap the ends later.
78. Use your hobby iron to adhere the laminate along the entire bottom of the fuselage.
79. Wrap the sides of the laminate up along the sides of the fuselage and iron into place. Cut the remaining edges of laminate so that they will overlap at least 1" (2 cm) on top of the fuselage. Iron down one side of the laminate on top of the fuselage, then the other. The entire length should now be laminated, overlapping on top, with the ends still open. Store the remaining laminate in case it is ever needed for repairs.
80. Cut the ends of the laminate and slit the corners, so that you can iron down the "tabs" of laminate onto the nose and tail ends of the fuselage. Complete the lamination of the entire fuselage. Make sure the pieces overlap sufficiently as you iron them down. The seams in the clear laminate hardly show.





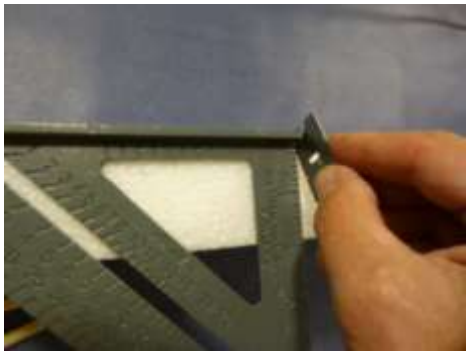
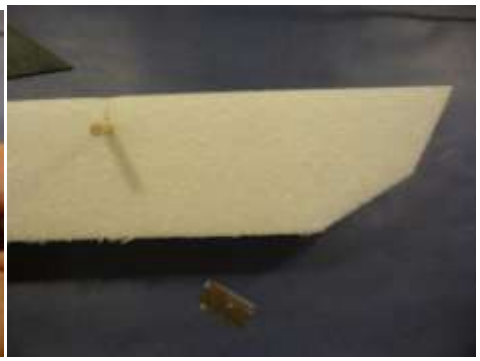
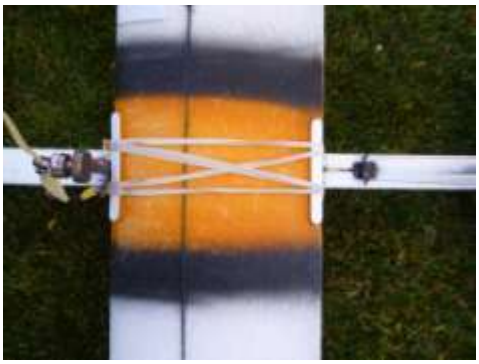

81. Hold your motor mounting base on the Formica plates, and use a pen to mark the holes for the screws.
82. Use a drill and a small bit to drill pilot holes in where you placed the marks.
83. Screw your motor mounting base to the nose of the plane. Do not over-tighten the screws, as it may crack the Formica plates. Install the dowels that will hold the rubber bands that secure the wing.
84. Measure back 9" from the nose of the plane and cut a 3/4" deep slit on the top with a sharp razorblade.
85. Press the dowel into the slit making sure it is straight and level.



Installing the Wooden Dowels that hold the wing

86. Cut slits with a razor blade using a straight edge 9" and 21" back from the nose of the plane that are 3/4" deep into the foam.
87. You can press a dowel into the slit by setting it on top of the slit and pressing downwards.

88. Secure the dowel in place by filling the slit with glue above the dowel and rolling the dowel to cover all surfaces before the glue sets.
89. Re-install your Rx and ESC, and tuck the leads in the slits along the fuselage. If the glue over the dowels filled part of the long slit for your leads, just use your razor blade to re-cut the slit through the glue.

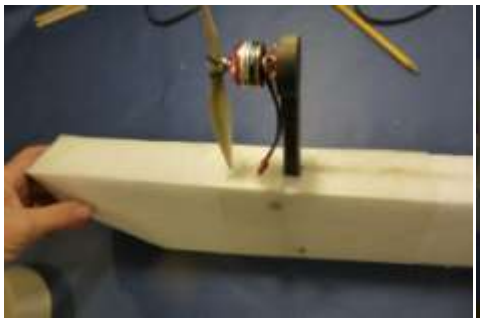




POD INSTALLATION

90. You can easily add a motor pod on a plane you already have with a 1/2" dowel from Lowes.
91. Use a 1/2" square dowel. Cut post 8.5" long.
92. Sharpen one end of the post with a disc sander or utility knife.
93. Install the front dowel that holds the wing by cutting a slit 3/4" deep with a razor blade back 9" from the nose of the plane in the **TOP** of the fuselage. Repeat for the back dowel back 21" from the nose of the plane.

94. Press the wing dowel into the slit in the foam down 3/4" from the top of the fuselage.
95. Use a Phillips screwdriver to stab a vertical hole in the **TOP** of the fuselage behind the dowel.
96. The hole needs to be at 90 degrees to the **TOP** of the fuselage and not tipped to one side.

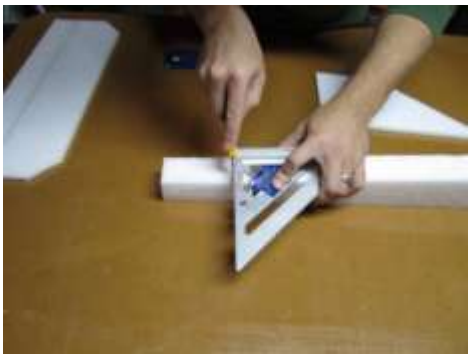
97. Press the sharpened end of the pod in the hole in the fuselage.
98. Mount the motor on the pod and back plate.
99. Put a prop adapter on the motor shaft
100. Put a prop on the motor so you know how tall you will need to make the pod.
101. Glue the pod and wing dowel into place with a hot glue gun.
102. Extreme tape the fuselage back 12" from the nose of the plane.
103. Put one strip of E-Tape on the bottom of the fuselage back past the back wing dowel. This stiffens the fuselage against the forces of the rubber bands on the top of the fuselage.
104. Laminate the entire fuselage as explained in instructions for the nose mount motor.
105. Mount tail surfaces and install radio The same as explained above for the front mount motor.



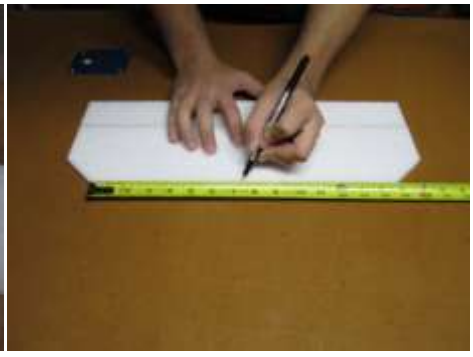
ATTACHING RUDDER AND ELEVATOR

106. Make sure the Goop glue is dry on the rudder and elevator hinge lines, and flex them repeatedly to make sure they move easily.
107. Place the horizontal tail piece (with the elevator) on top of the back of the fuselage, so that the elevator hangs off the back of the tail, with room to hinge. The flat side of the hinge should be up.

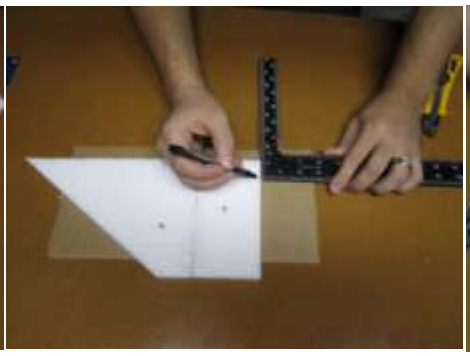




108. Find the pre-cut slit on the top of the fuselage where the horizontal tail and elevator will be attached.
109. Lay your square on the fuselage to line up with the front of the tail piece. Hold.
110. Use your razor blade to cut down into the fuselage until your blade meets the pre-cut horizontal slit. Remove this piece of foam.

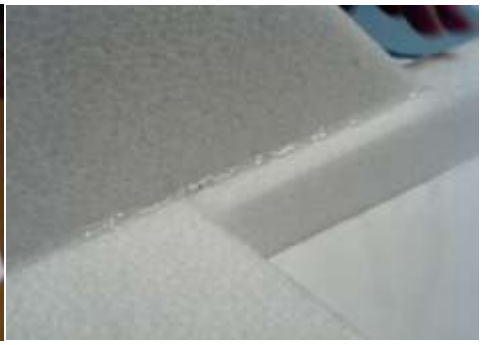
111. Use your ruler to mark the center point at the front and back of the horizontal tail piece. Make a matching center mark on the top of the fuselage, just in front of the piece you just cut out.
112. Put hot glue on the recessed surface of the fuselage and place the horizontal tail piece in place. Make sure the center marks you measured match up. Use a square to make sure the tail piece is exactly perpendicular to the fuselage.


113. On the flap of the rudder (upright tail piece), measure and place a mark 1" (2 cm) up from the bottom.
114. Use your straight edge and razor to cut from the mark you just made, to the bottom of the hinge line, cutting out a triangle that will allow the elevator to move upward without hitting the bottom of the rudder.



115. Place the rudder on top of the fuselage and horizontal tail piece, so that the back of the rudder lines up with the back of the elevator. Make sure the rudder is centered, front and back, and mark with a pen where the rudder sits on the fuselage.
116. Use your razor blade to lightly cut the laminate off the fuselage along the line where the rudder will sit. (Do not cut down into the foam). Pull away the strip of laminate you just cut out. This will allow the glue to adhere better on the foam surface, rather than the laminate.
117. Hot glue the rudder to the top of the fuselage. Use your square as the glue dries to make sure the rudder is straight. (Using the scrap you cut out from the fuselage, and push pins, may help keep the rudder straight as well.)
118. Lay a bead of hot glue along the sides of the rudder piece, where it connects with the fuselage, to strengthen the hold.

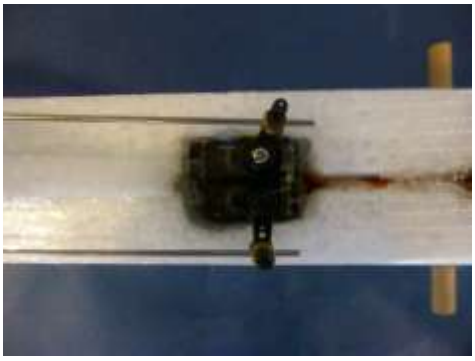



SERVOS & PUSH RODS

119. The servos should sit no more than 2" (0-5 cm) in front of the upright tail piece, on their sides, with the arms facing outwards, and the leads pointing towards the nose of the plane.
120. The servos can either be stood up or laid on their side. Both methods work well.
121. Lay the servos in place and mark the fuselage in front and behind them for a pattern to cut on.



122. Use a straight edge and razor blade to cut across the fuselage at the front and back marks for the servo. Cut only as deep as you need to for the servos to lay flush with the top of the fuselage.
123. Cut a slot for the servo and other radio wiring. The receiver and ESC will also be on this line.


124. Use hot glue to set the servos in place
125. EZ connectors can be on the servo arm or on the horn at the back of the plane.
126. Connect your radio and center the servo arms with transmitter on. You may have to remove and replace the arm for this.
127. Slide the Z-bend end of one of the push rods into the servo arm, so that the push rod extends back from the inside of the servo arm. If the push rod or EZ connector does not fit, you may have to use a drill to widen the holes in the servo arm and horn.
128. Lay the other end of the push rod on the elevator straight back from the servo. Place a mark on the front edge of the elevator, where the push rod will go.



129. Use a pointed blade or box knife to cut a slot completely through the elevator for the horn. Start just behind the hinge line.
130. Remove the extra tab that comes attached on the back of the horns.
131. Push the horn up through the bottom of the elevator so that the base is flat against the bottom of the elevator. Use hot glue along the base of the servo horn, and around the top and bottom of the horn, to keep it in place as the hot glue cools, make sure the horn is facing straight forward, and that the holes in the front of the horn is directly over the elevator's hinge.
132. Attach the EZ Connectors to the servo horns with a pair of pliers.
133. Use side cutters or snips to trim off extra push rod.
134. With the push rod inserted in both the servo arm and the EZ connector, mark a spot on the fuselage about halfway between the two, underneath the push rod.
135. Remove the push rod, and use your soldering iron to melt a hole at the mark you just made. This hole should be wide enough and deep enough that the push rod guide (the metal staple included in the kit) can sit in it, and extend just over the push rod.
136. Fill the hole with hot glue, and set the push rod guide (staple) in place. Hold it there while the glue cools. Make sure rod slides freely thought the guide

137. On the other side of the fuselage, insert the second push rod into the other servo's arm, and hold the end of the push rod against the rudder (vertical flap). Place a mark on the front edge of the rudder, where the push rod will go.
138. Use your razor blade to cut a slot completely through the rudder, about 1/8" (.25 cm) back from the hinge. Remember to note the angled side of the hinge.
139. Glue the horn into the slot in the rudder, and attach the EZ connector so that the set screw faces up. Use side cuts or snips to remove extra push rod.
140. Mark and melt a spot for the push rod guide, then glue in place so that the guide extends just over the push rod.



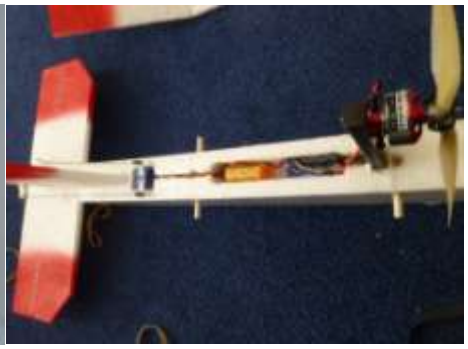
RECEIVER AND ESC

As long as the plane balances on the center of gravity you can mount your radio and servos any way you like and the plane will fly well. It is best to first lay out the electronics and make sure wires will reach before you start cutting into the foam. We recommend you install the ESC and Rx and servos on top of the fuselage and the battery on the right . If we are building the fuselage with a pod mounted motor we put the ESC and receiver in the fuselage under the wing. If we are putting the motor on the nose of the plane we put the ESC in front of the wing so the wires will reach to the motor.

Plug your servos and ESC into your Rx. Lay the Rx far enough forward that the ESC will reach the motor leads. If your servo and ESC wires do not reach, you will need to purchase a short servo lead extension to go between the ESC and the receiver. You can also use two extensions to the servos which will work the same. For the aileron version of the wing you may want a "Y" connector extension to plug both servos into the aileron plug and still have an extension making putting the wing on the plane easier.

141. Mark with a pen where the ESC and Rx will go.
142. The ESC and receiver can be laid flat or stood on their edge.



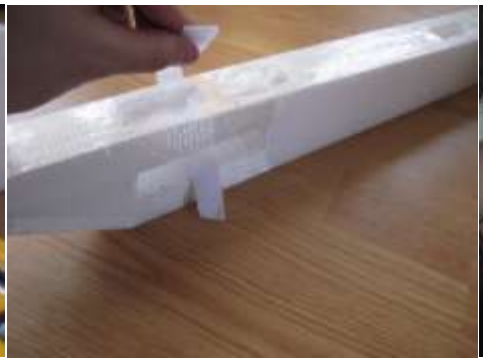


143. Adjust your soldering iron tip to the proper depth, and melt compartments for the ESC and Rx or you can cut them with a longer blade hobby knife. Make the size of the compartments tight so that the ESC or Receiver fit snugly.
144. Use your razor blade and a straight edge to cut slits for the leads between the electronics, so that they are buried at least flush with the top of the fuselage.
145. Your antenna will work best if it is not bunched in a bundle of servo and battery wires.

BATTERY PLACEMENT

146. Position your battery 2" back from the nose of the plane on the side of the fuselage with the battery plug to the back. (1300-2400 mA recommended) Use a pen to trace the outline of the battery.
147. Use a razor blade and pliers (and/or your soldering iron) to cut/melt a slot for your battery. If your battery is small, you can cut the bay slightly smaller, and make the battery fit in snugly enough that it will stay in place during flight. If so, skip to step 91.

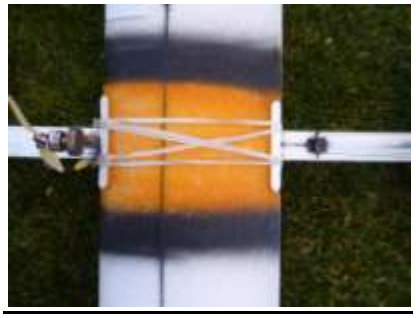
148. Install a velcro strip to hold the battery in place.
149. Use your razor blade to cut a ½" (1 cm) slit from the center of the bottom of your battery bay, through to the other side of the fuselage.
150. Pull one end of a Velcro strap through the slit, and wrap the other end up and over the fuselage, so that they meet on the battery's side of the fuselage, and will wrap completely around the battery.
151. Make sure the Velcro's ends match up properly, and trim off any excess Velcro.
152. Use your hot glue gun to glue down the Velcro where it lays over the opposite side, and top of the fuselage. This way, when you put your wing on, the ends of the Velcro strap will always be on the correct side of the fuselage.

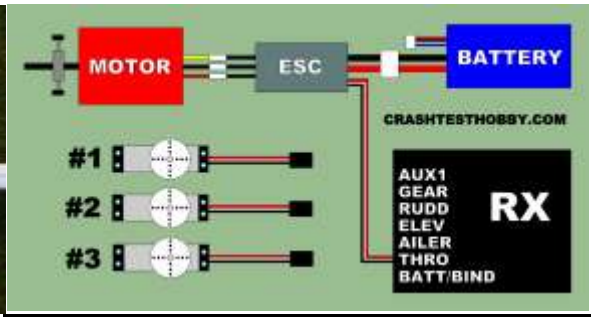




CENTER OF GRAVITY - CG

The COG on the Albatross is 3.75" (9.5 cm) back from the leading edge of the wing, and relative to the wing, not the fuselage. Install the wing mounting dowels back 9" and 21" from the nose of the plane. Install your battery 2" back from the nose of the fuselage.

153. Turn the wing over. On the bottom of the wing, on either side of the flat center section, use a ruler to measure back 3.75" (9.5 cm) from the leading edge, and place a mark with a pen. Some people like to stick pushpins or thumb tacks into each of those marks so the CG reference point will be easier to find without looking.
154. Make sure all other electronics or hardware are sitting in their proper place on the plane, including the battery, motor, ESC, Rx, servos, and push rods.
155. Reach under the wing on either side. Find the pushpins you used to mark the COG on the bottom of the wing, and gently try to lift the plane off of the table.
156. If the plane does not balance you can adjust the battery location or add weight to the nose or the tail of the plane until it balances correctly. **Remember the CG is relative to the wing not the fuselage.**
157. The wing will be held to the fuselage with 6-8 rubber bands. Not only is this an effective way to attach the two parts, but it allows for simple takedown, travel, and storage. Attaching the wing with pod mount and front mount motors shown below.





SETTING TRIM/THROW & ELECTRONICS TESTING

158. Consult the instructions for your Transmitter and receiver (Tx/Rx) set to properly bind the two together, and then make sure the servos and ESC are connected into the proper channels on your receiver.
159. A simple wiring diagram is above. Notice how the plugs from the motor and battery connect to the ESC and that the ESC plugs into the Throttle plug on the receiver. Servos will plug into the Aileron for the Rudder and the Elevator for the elevator.
160. Remove the servo arms from the servos. Connect all electronics, including a battery, but for safety purposes, make sure you do not have a prop attached to your motor at this point. Turn on your transmitter, plug in your battery, and allow the servo gears to "center" themselves.

161. Slide the push rod through the hold in the servo arm (still unattached to the servo), then slide the end of the push rod through the guide, and into the EZ Connector on the flaps. Then re-attach the servo arm to the servo so that the arm is as close to straight up as possible.
162. With the EZ Connectors still loose, use the Subtrim function on your transmitter to set the servo arms completely straight. This should allow for less movement from center when trimming the wing as it flies.
163. Make sure your elevator and rudder are straight, then tighten the set screw on the EZ connectors, and use snips to trim off any excess push rod.
164. Set the wing on a flat surface, and hold a ruler vertically behind the trailing edge of the elevator. Use your transmitter to set the throw (range of movement) on the elevator to 3/8" (1cm) up and 3/8" down. Make sure your stick movement translates to the proper up/down on your elevator: This can also be adjusted by putting the push rod close to the center of the servo and at the top of the control horn.
165. Hold the ruler horizontally behind your rudder, and again use your transmitter to set the throw of the rudder, 5/8" (2 cm) left, and 5/8" right. : This can also be adjusted by putting the push rod close to the center of the servo and at the top of the control horn.

STICK UP	Elevator down	NOSE DOWN
STICK DOWN	Elevator up	NOSE UP
STICK LEFT	Rudder left	NOSE LEFT
STICK RIGHT	Rudder right	NOSE RIGHT

166. Test the throttle and make sure the motor is turning in the correct direction. If not, unplug two of the three connectors between the motor and the ESC and reverse them, then try again. (Be sure your prop is not attached, for safety purposes.)
167. The propeller has the writing facing forward (the direction the plane is flying). Make sure it is on frontwards and well secured.
168. When you're ready to fly, lay the wing on top of the fuselage, and check your center marks, front and back, to make sure the wing is centered. Use four rubber bands (included in the kit) from dowel to dowel, to attach the wing to the fuselage. Two rubber bands go straight, and two cross in the middle.
169. It's always a good idea to have someone else double check your work. Field test and range check your equipment, then launch, trim, and enjoy!
170. **NOTE!!! Launching the Albatross is different than other planes.** The Albatross is designed to be self stabilizing so it will level its nose and wings without flyer input but it has to be moving for this to happen. The downward angle of the motor mount mean *the plane is much more likely to nose dive than take off until it is up to speed if it is launched with too forceful a throw, or with too much throttle or throttle advanced too quickly. Instead, launch ½ throttle, and release the plane gently at a slightly upward angle.* Slowly throttle up until aerodynamics take over, and the plane gets lift. Once it is flying you won't notice the difference in flying and you will be amazed at how the plane can be so stable and easy to fly.