68" Storm Chaser Building Instructions

The Storm Chaser is a big solid EPP/ FPV design that can take abuse that would destroy other planes. It is easy to fly and can level its wings and put its nose on the horizon without pilot input. It is a perfect plane for first time flyers and low hour FPV flyers. It is capable of long flight times. Speed range is from 15-70 mph depending on build, power and weight. It is very easy to fly and has a fantastic glide. We recommend the polyhedral with the pod mount motor for most flyers, and the aileron wing for proximity flying.

There are four options with the Storm Chaser described in these instructions. You can have the motor on the nose or on a pod. You can also choose between the self leveling polyhedral wing and a dihedral wing with ailerons. The polyhedral wing is aerobatic and flies well with 3 channels (Rudder-Elevator-Throttle) and the dihedral with ailerons for a full 4 channel sport plane. The ailerons wing is not self leveling but very strong and stable. The wing with ailerons has to be laminated to make it stiff enough for the ailerons to work.

SPECS

- This plane comes with laminate and needs to be laminated if using the wing with ailerons.
- Center of Gravity: 4.5” (11.5 cm) back from leading edge of *wing*
- Elevator throws: 1/2”(1.3 cm) up/down. Rudder 1.5” (4 cm) left/right
- Wing tip angle is up 7” (18 cm) to top of wingtip on both polyhedral wing
- Wing tip angle up 3.5” (9 cm) on each side of aileron wing. (7” (18 cm) up total if one side is laying flat)
- Dowels back 11” (28 cm) and 24” (61 cm) from the nose of the fuselage
- Round fiberglass spars back 3”, 4” and 12” (7.5 cm, 10 cm, and 30 cm) on both top and bottom of the wing
- Flat carbon spar back 4.5” (11.5 cm) from front of horizontal tail
- Use eight to twelve #64 size rubber bands to secure wing
- Best flying weight: 3-7 lb (1.4-3.4 kg)
- 3530-1400KV motor, 40A-80A ESC, 2 standard size servos
- 5000-20,000+ mAh 3S lipo battery recommended
- This plane is designed to be self stabilizing if you launch at 1/2 throttle and throttle up.

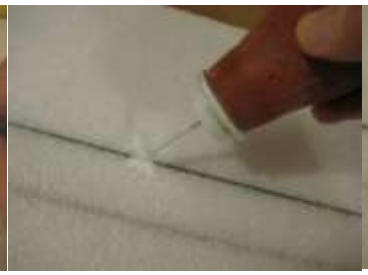
EQUIPMENT NEEDED

- 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)

Prepare the Foam

1. Rub the EPP foam surfaces with another piece of EPP foam or shave the cores with a disposable razor to get the melted fibers off. Use your fingernail to pick off any stubborn fibers.
2. Lay out the pieces and check the fit of the wing tips. Notice that the nose of the fuselage for the nose mount motor is cut at an angle, down and to the right for front motor mounting. This is meant to compensate for the torque of the motor, and the lift created upon acceleration. DO NOT correct this angle. This angle is an important part of the self stabilizing Storm Chaser, Albatross and Pelican designs.






Tail Assembly

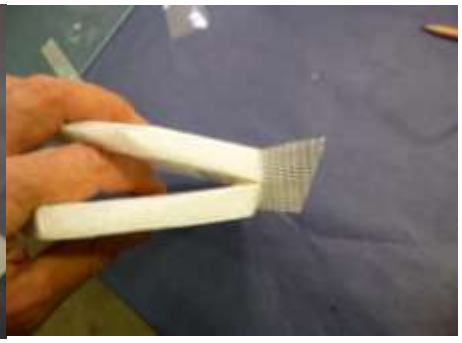
1. To stiffen the horizontal stabilizer a flat carbon spar is inserted in a slit in the foam back 4.5" (11.5 cm) from the front of the tail.
2. Cut a razor blade slit the length of the spar centered in the tail.
3. Sand the spar lightly so the glue will stick.
4. Press the spar into the slit making sure it doesn't bow the foam side to side or front to back.
5. Work a little baking soda into the slit and glue the spar in place with CA glue.
6. Lay out all of the tail pieces making sure of top and bottom and hinge angle of the pieces.
7. Trim a 1" (2.5 cm) angle on the bottom of the rudder making for later clearance with the elevator. The top angle trim is just for looks.
8. The EPP foam is easily shaped with a razorblade, sandpaper or a very hot iron. Many like to round the leading edge of the tail surfaces and sharpen the trailing edges of the flight surfaces before laminating or hinging. Do not round or sharpen any edge that has a hinge line or the hinge won't work.






9. If you are going to use laminate on the wing and tail, apply laminate to the four tail pieces with an iron that is hot enough to make the laminate stick but not so hot it changes the shape of the foam.
10. Make sure not to round the edges that will be hinged or warp the elevator with the heat of the iron.
11. Scotch Extreme Tape makes great hinges for the laminated tail surfaces.
12. Cut the 2" (5 cm) wide E-tape to 1" (2.5 cm) wide.
13. Leave a 1/16" (1.5 mm) gap in the hinge line and put a strip along the top hinge line
14. Fold the elevator over and put a 1" (2.5 cm) strip along the bottom hinge line as well.

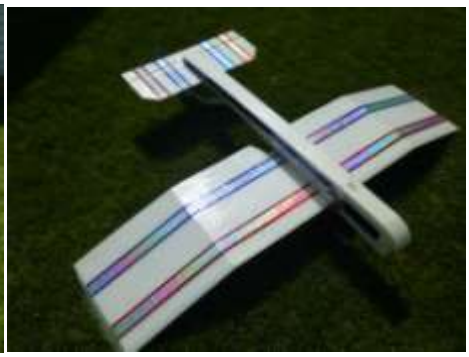




15. Extreme tape turns yellow and dries out in a few weeks if it is not protected from UV light. The laminate in our kits has an excellent UV shield comparable to other heavier model airplane colored iron on laminates.
16. Cut a 2" (5 cm) wide strip of laminate and iron it over the strip of E-Tape both top and bottom on the hinge line over the tape.
17. Bend the hinge line both up and down and iron the hinge and it will loosen up and lay flat.

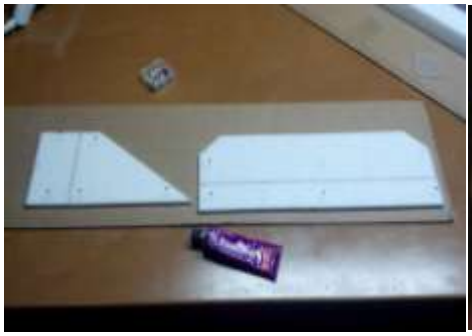


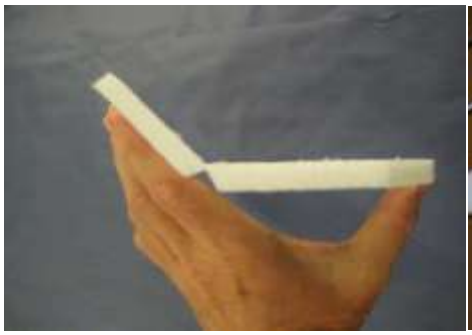
18. These are pictures of laminated Storm Chasers. They are more durable and fly great.

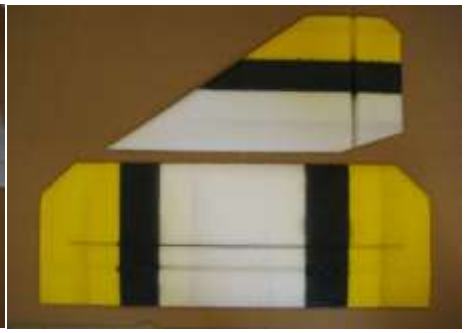




Goop Hinge instructions for those who are not laminating

19. Pin the tail pieces (rudder, elevator) on a piece of cardboard, (the box will work) with a 1/16" (1.5mm) space between the pieces where they will be hinged. Make sure the pointed end of the hinged part is up. Pin the parts onto the cardboard with push pins.
20. Squeeze a small amount of Goop glue onto the hinge line, and spread thinly with your finger or razor blade. Make sure the glue is spread very thin! Otherwise, it won't bend freely. Cover about ½" (1 cm) on either side of the hinge.
21. Allow to dry 4-6 hours, after which you can flex the hinges repeatedly to loosen them up, if needed.







22. Here are some pictures of non laminated planes that are painted. They are lighter and fly slower and longer but not as strong.

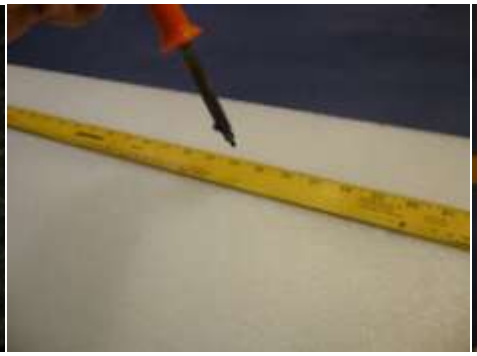


WING CONSTRUCTION (Our latest kits have the spar slots cut and come with laminate.) Pictures are shown on a polyhedral wing.

23. We have both a polyhedral wing and a wing with ailerons available. (See pictures) The wing with ailerons will have two 36” (92 cm) panels and the polyhedral wing has one 36” (92 cm) panel and 2x 18” (46 cm) panels. They are joined in the same way.
24. Both tips of the polyhedral wing will be up 7” (18 cm).
25. Both tips of the wing with ailerons will be up 3.5” (9 cm) (or easier measured with one wing up 7" (18 cm) with the other flat on table.)
26. There are 12 fiberglass spars included in the kit—6 for the bottom of the wing, and 6 for the top of the wing. Fiberglass spars are less brittle than carbon spars and won’t interfere with FPV transmission and reception.
27. We have used black spars for many of the photos but most kits will have the white spars. (see picture below)
28. All spars will go tip to tip, and will be on both the top and bottom of the wing, with reinforcement at the angles.

If your kit already has the spar slots cut, skip to step 36.

Mark all cores back 3”, 4”, 12” (7.5 cm, 10cm, 30cm) from the front of the wing on both top and bottom of all panels to cut the spars.


29. Pin a metal straight edge in place to keep the straight edge from moving during the cut.
30. The spars need to be carefully aligned for reinforcement later.
31. Using a soldering iron along a metal straight edge melt slots from tip to tip back 3”, 4”, 12” both top and bottom of all panels.
32. Notice our soldering iron has a wheel collar that sets the depth of the cut. Some builders just cut the tip of the soldering iron off to the desired depth.
33. The wing angles will be reinforced with wood braces that are 8" (20 cm) wide or 4" (10 cm) on each side of the angle on the front two spars.
34. Use a knife or hack saw blade to cut through the wing for the installation of the angle reinforcement.

After you have cut the spar and brace slots or if your kit has the spar slots already cut

35. Glue the wing core sections together making sure to get the angle correct.
36. Work baking soda into the slits that are at the angles of the wing
37. Press the wood angle braces into the slots making sure they are centered and the right depth both top and bottom on wing.
38. Glue the plywood wood braces in place using CA glue
39. We include reinforcing wire for the top and bottom of the plywood angle.
40. The wire is on the top and bottom of the brace and the spar over the wire.
41. Bend a wire to fit both top and bottom of each wood brace to keep the wood from splitting
42. Glue wire in place with CA glue or a hot glue gun making sure not to get glue blocking the installation of the spar.
43. Also glue these wires top and bottom where the back spars will go to keep the spars from separating (there will not be a wood bracket under the back spars).
44. Lightly sand the fiberglass spars so the glue will stick to them.
45. Use low temperature hot glue and glue the spars into the slots.



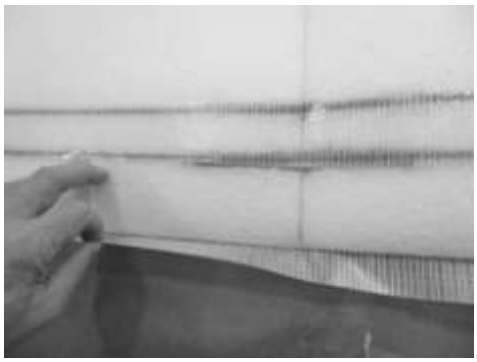
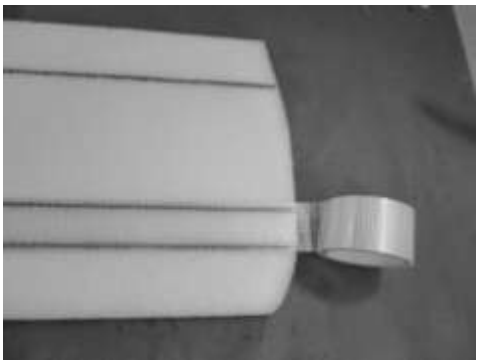






46. We use #64 rubber bands to attach the wing to the plane. These rubber bands can only stretch 12' so we need to make a cut out on the back of the wing that allows the rubber bands to reach between the dowels.
47. Find the center of the wing and measure back 13" (33 cm) from the front of the wing and cut out a 6" wide (15 cm) section of the trailing edge of the wing to leave a gap for the rubber bands to connect to the rear dowel. I tapered the cut to make it look better from 4" (10 cm) to 6" (15 cm) in the pictures (see picture below). On a dihedral wing, half of the cut out will be on each wing with the center at the connecting line of the wing halves.
48. The other advantage of the cut out is it leaves the trailing edge of the wing is thicker where the rubber bands go for more strength.
49. We use tongue blades to protect the foam from being torn by the rubber bands. Glue a tongue blade on the top of the wing both front and back on the wing. Make sure to center the tongue blades on the wing.
50. Fold a 2" (5 cm) strip of extreme tape over the leading edge of the entire wing. Using two more strips (2" each) of extreme tape, cover the spars on the top and bottom of the wing. One piece will be able to cover the front two spars.

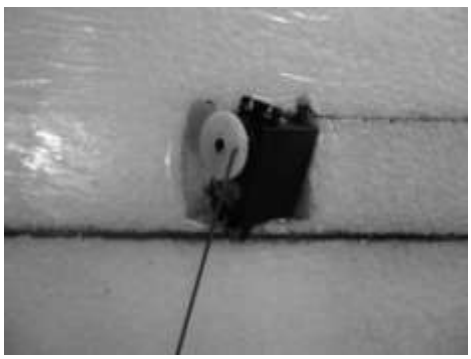
51. Laminate the wing. The trick of doing large surfaces is to work with usable sized pieces and work from the center out. The clear laminate doesn't show seams so doing one panel at a time with a couple of inches of overlap makes a big surface easy to do.

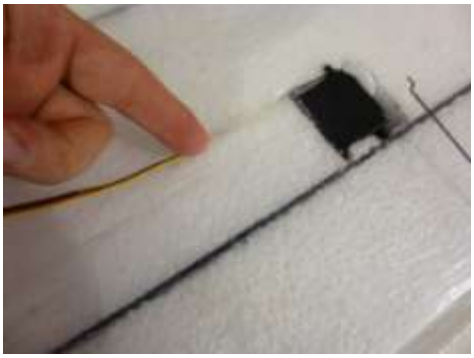





BUILDING THE WING WITH AILERONS

52. Cut ailerons to size (from the edge of the mid cutout of the wing to the tip of the wing).
53. Laminate the EPP ailerons with two layers of laminate using the same technique as we used on the elevator and rudder.
54. Make sure the ailerons don't warp while you are laminating or they won't line up with the back of the wing.
55. Cut 2" Extreme Tape to one inch and hinge the aileron to the top/back of the wing leaving a 1/16" (1.5 mm) gap
56. Fold the aileron up and put a 1" (2.5 cm) wide piece of E-Tape along the bottom of the hinge line. (See instructions posts 12-17)
57. Cover the Extreme tape with 2" (5 cm) wide strips of laminate to prevent it from drying and discoloring because of UV rays.
58. Use standard sized servos because of the weight of the plane.
59. You will need a "Y" connector that hooks two servos to the same channel on the receiver.
60. Plug the "Y" connector in the receiver and the servos in the "Y" connector and see how far out the servos reach.
61. Most full size servos will have wires about 10"-12" (25.5-30.5 cm) long.
62. Lay the servos out on the wing and stretch out the servo wires with the "Y" connector centered in the wing.
63. You can either lay the servos on their side or stand them up in the wing depending on servo size.
64. The servos are positioned on the bottom of the wing 8" (20 cm) back from the leading edge.
65. Trace the servo and cut out a hole that is tight on all parts of the servo but the servo arm which must move freely.
66. Use a razor to cut a slit for the servo wires to the center of the bottom of the wing.
67. Push the wires in the slot with a fingernail and put clear tape or laminate over the wire to keep it in place.
68. Glue the servos in the wing with hot glue.
69. Install the push rods in the servos so you can line up the horns directly behind the servo arms

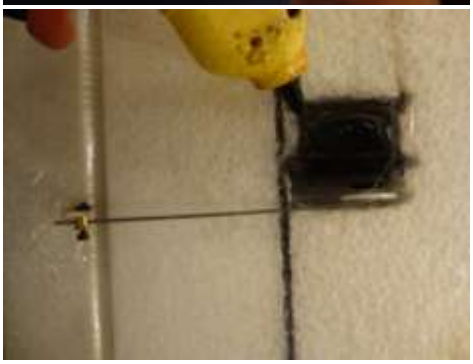





70. Use a pointed blade or box knife to cut a slot completely through the aileron for the control horn (white) **next to** where the push rod is when straight back (so it is straight to the EZ connectors once installed). Start just behind the hinge line.
71. Remove the extra tab that comes attached on the back of the horns.
72. Push the horn down through the top of the aileron so that the base is flat against the top of the aileron and it pokes out the bottom.
73. Cut away a little laminate so you are gluing to the foam.
74. Cut out a little foam so the horn top sits level with the top of the wing. This can be done with a box knife or X-acto knife
75. Use hot glue on both the top and bottom of the aileron to secure the horn.
76. Attach the EZ Connectors to the servo horns with a pair of pliers.
77. Put the pushrods through the EZ connectors.
78. Turn on transmitter and receiver when doing final set up and center the servos and set the ailerons at 0 degrees and tighten the EZ connectors.






FUSELAGE PREPARATION

79. The Storm Chaser fuselage is a solid block of high density EPP foam. The fuselage will not crush and when covered with Extreme Tape and laminate it is one of the strongest fuselages on the planet. At Crashtesthobby, we focus on an indestructible model that will outlast the competition and take the years of abuse good models get.
80. The solid EPP fuselage is too long to fit in the box, so we cut the end off the fuselage for packaging. We also cut the nose off for the pod mount motor to help you with assembly. The kits are different for the two fuselages and the two wings.
81. The fuselage for the front mount motor 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.
82. The pod mount fuselage has the motor pointing straight forward on a pod that is on a 12" (30.5 cm) pylon with enough clearance for a 10” (25.5 cm) prop.
83. The big Storm Chaser fuselage is tapered down towards the tail. There is a top and a bottom. The extra height at the nose protects the motor and prop when landing and gives a lot of room for batteries and FPV camera gear

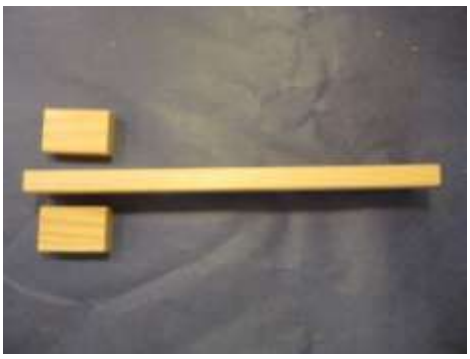
FRONT MOUNT MOTOR

84. The front mount motor is easy to build.
85. Lay out the fuselage pieces to orient yourself with the top and bottom of both pieces
86. The motor is screwed onto a triple layer of Formica plates that strengthen the nose.
87. With low temperature hot glue apply glue to the foam. If applied to the Formica it cools too fast to work with.
88. Glue the Formica plate on the front of the EPP fuselage aligning the top of the Formica with the top of the EPP fuselage.
89. We found 3 layers of the high density Formica is much stronger than if we put a single layer of plywood.
90. Glue two more layers of the Formica over the top of the first and hold in place until set.
91. Glue the tail on the fuselage with the tail cutout (for elevator attachment) on the top of the tail.

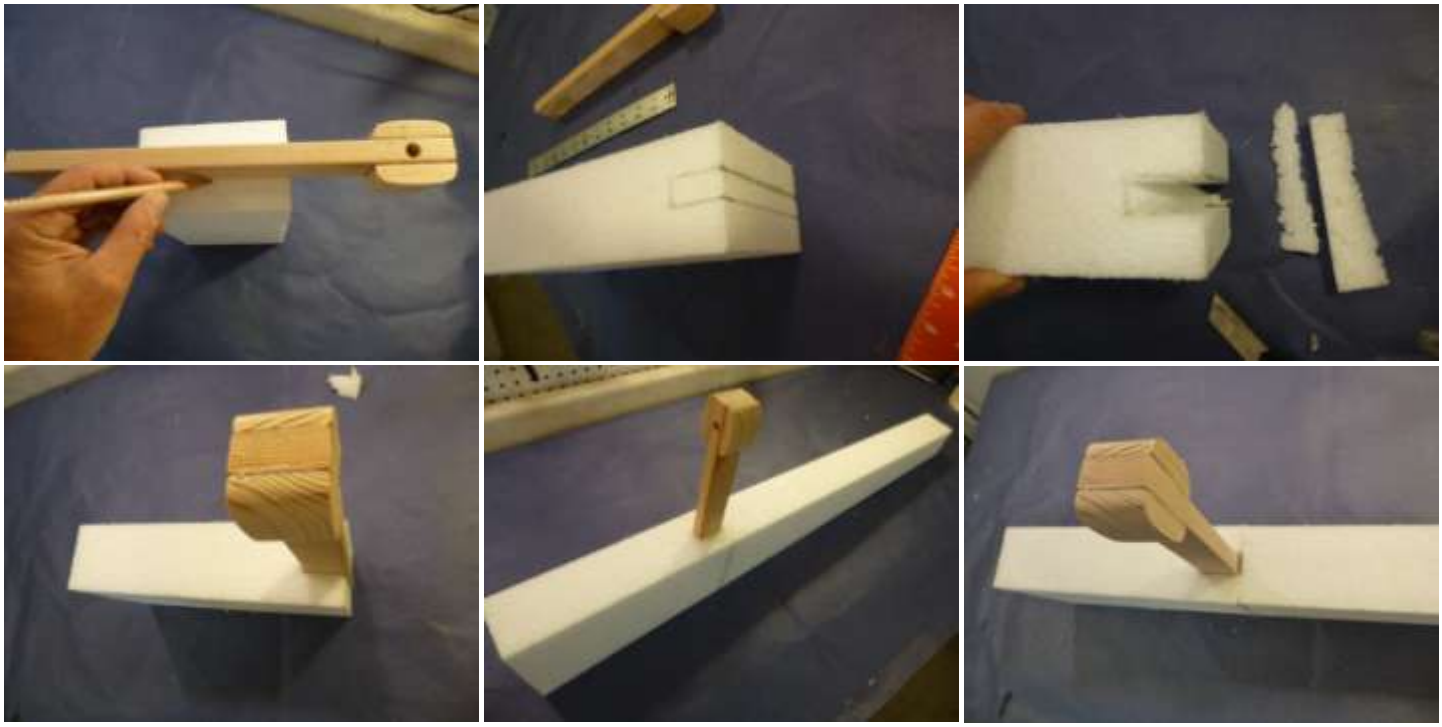


POD MOUNT MOTOR

92. The pod is built from 3 pieces of straight grain hickory
93. Glue the two small pieces as shown at the end of the long post. You can round it if you like but leave room for your motor base.
94. You need to look at your specific motor and drill holes for screws and the shaft as needed.
95. Lay out the three EPP foam fuselage pieces to orient yourself with the top and bottom.
96. You must identify the front section and find the top so the pod is out the top not the bottom of the fuselage. The bottom of the front of the fuselage will be a 90 degree angle while the top of the front will be slightly angled.
97. Draw the pod cut out on the back of the front piece of foam and cut it out with a box knife or kitchen knife or hack saw blade.



98. Glue the pylon of the pod in place. Triple check the pod is coming out the top of the fuselage.
99. The pod should be at 90 degrees or a right angle to the TOP of the fuselage
100. Glue the center piece of the fuselage to the back of the pod and make sure that the top is perfectly aligned.
101. Glue the tail on the fuselage making it 48" long. Make sure that the slit for the tail is on the top of the fuselage.



102. Cut the camera mount as desired. It protects your camera lens if the lens is back farther from the front of the plane. This fuselage has room for bigger cameras. The cut out for a GoPro is shown.

TAPING AND LAMINATING THE FUSELAGE

103. Tape the front 16" (40.5 cm) of the fuselage with Scotch Extreme tape or other reinforced packing tape on top bottom and sides.
104. Put a strip of extreme tape around the fuselage back 24" (61 cm) where the rear dowel will go that holds the wing so it won't rip out later.
105. Use a hobby iron or cloths iron to iron the laminate on the fuselage. Keep the temperature low enough it will not change the shape of the foam.
106. Cut a wiring slot down the top center of the fuselage from the nose on the nose mount design or the pod to the servos which are back 29" (73.5 cm) from the nose of the plane. This slot will have the servo wires and receiver wires and link the electronics together.
107. Use a razorblade to cut the slot then melt it with a soldering iron.
108. **Only the wing with ailerons needs the fuselage shaped where the wing will sit from 12" (30.5 cm) to 22" (56 cm) back from the nose (see pictures).** The polyhedral wing is flat in the center and does not need this angle cut.
109. The wiring slot helps you to measure down ¼" (6.5 mm) in the center of the wing and angle the fuselage where it contacts the foam (V-shape).

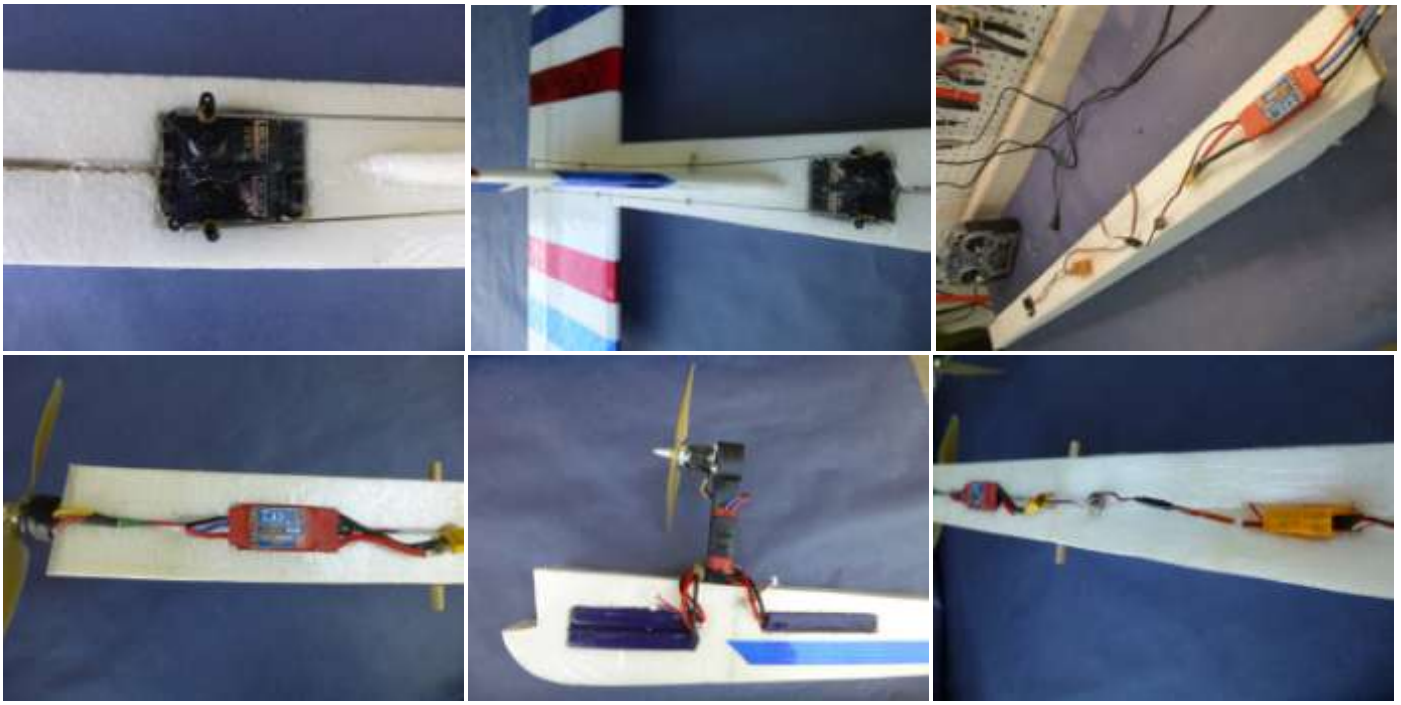
ATTACHING RUDDER AND ELEVATOR

110. Double check the hinge line. Make sure the tape hinge and the goop hinges are working well before gluing the tail to the plane.
111. Cut the piece of foam off the tail of the fuselage which has been sliced. 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 move hinge. The flat side of the hinge should be up. Draw lines on center of fuselage and center of horizontal tail piece so it can be easily centered when glued. Cut the laminate off the tail piece where it will be glued as foam to foam will glue much better than foam to laminate.
112. Mark where the rudder will go and use a soldering iron to punch a string of holes in the laminate so the rudder will stick to the fuselage.
113. Use hot glue to glue the horizontal tail piece with hinged elevator to the plane. Use the same method to attach the vertical tail piece. Make sure that it is attached at a 90 degree angle to the horizontal tail piece.

INSTALLING THE RADIO

114. Use standard size servos. This big of a plane can stall the mini servos at the most inconvenient times (such as in a dive).
115. The servos will be installed just in front of the rudder (will be approximately 30" (76 cm) back from the nose of the plane).
116. Cut out servo holes with the servos side by side and the wires coming out to the nose of the plane. The servos should be deep enough the top of the servos are even with the top of the fuselage.
117. Plug the servos into the Receiver (RX). A satellite receiver on the standard receiver may be nice on this big of a plane.
118. Screw the motor on the pod or on the nose of the plane.
119. Plug the ESC into the motor.
120. Plug the rudder servo in the aileron plug on the receiver for the polyhedral wing. There are no servos in the polyhedral wing.
121. The aileron wing has two wing servos "Y" connected in the wing, and elevator, rudder and throttle
122. Speed controls (ESC) can overheat if they don't have air flow. Foam is a good insulator. You can burn out a speed control by burying too deep in the foam or putting a piece of tape over the top that blocks air circulation around the ESC.
123. On the front mount fuselage place the ESC on the top of the fuselage so it has one side exposed to airflow.
124. On the pod mount, tape the ESC to the pod with electrician tape.

125. The wiring has to reach from the motor to the servos. You may need a servo extension between the ESC and receiver.



SERVOS & PUSH RODS

126. Use hot glue to set the servos in place
127. Connect your radio and center the servo arms with transmitter on. You may have to remove and replace the arm for this.
128. 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. You may have to use a drill to widen the holes in the servo arm and horn.
129. 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.

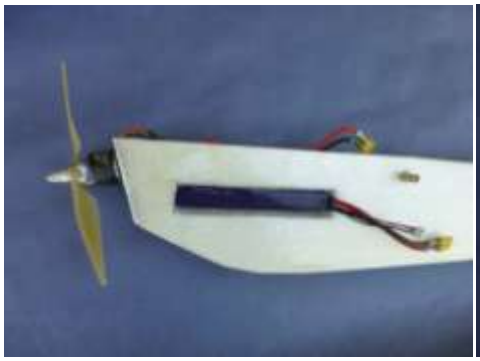
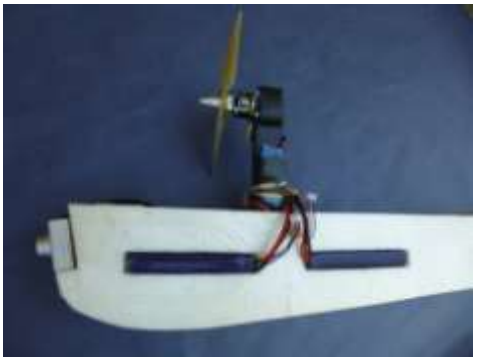
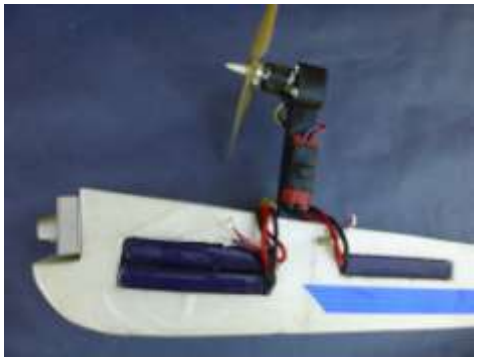
130. Use a pointed blade or box knife to cut a slot completely through the elevator for the horn just next to where the push rod lies. Start just behind the hinge line.
131. Remove the extra tab that comes attached on the back of the horns.
132. Push the horn up through the bottom of the elevator so that the base is flat against the bottom of the elevator.
133. Cut away a little laminate (if your tail is laminated) so you are gluing to the foam.
134. 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.
135. Attach the EZ Connectors to the servo horns with a pair of pliers.



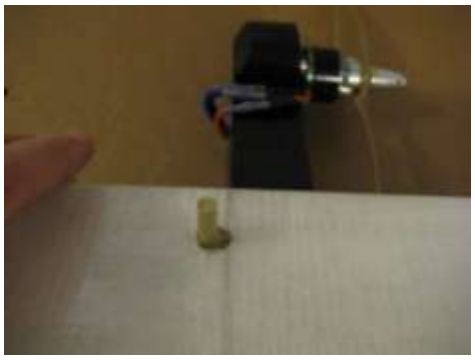
136. Put wire through EZ connector.
137. Use side cutters or snips to trim off extra push rod.
138. With the push rod inserted in both the servo arm and the EZ connector, mark a spot on the fuselage about halfway between the two, underneath the push rod.
139. Remove the push rod (or hold it to the side), 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.
140. 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
141. 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.
142. 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.
143. 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.
144. Mark and melt a spot for the push rod guide, then glue in place so that the guide extends just over the push rod.
145. Adjust your soldering iron tip to the proper depth, and melt compartments for the ESC (only part way so it still gets airflow) and receiver. Make the size of the compartments tight so that the ESC and Rx fit snugly.
146. Different receivers have different types of antennas. Your antenna will work best if it is not bunched in servo wires.

BATTERY PLACEMENT - CENTER OF GRAVITY (CG) is back 4.5" (11.5 cm) from the front of the wing.

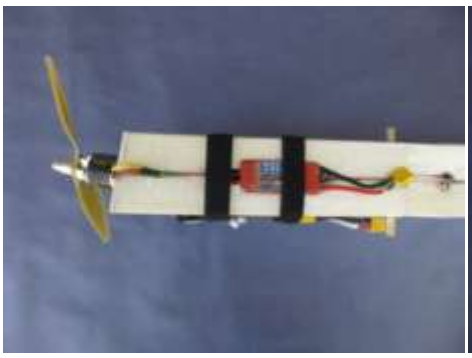
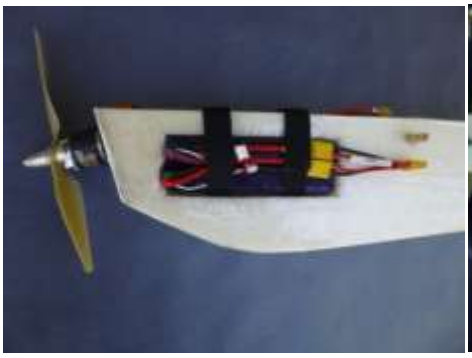
147. Your plane needs to have the radio installed and the color trim added before checking the CG. You need to add your FPV gear and GoPro camera too. Anything that could change the balance of the plane should be on the plane when you check the CG.
148. Before installing your battery, you want to make sure the plane's center of gravity (CG) will be correct—in other words, that the wing balances front-to-back at the proper point, so that it's not too nose heavy or tail heavy. The CG on the Storm Chaser is 4.5" (11.5 cm) back from the leading edge of the wing, and is relative to the wing, not the fuselage. If the CG is not far enough forward the plane will be hard to control. If it is too far forward it will not glide well.
149. Notice the different battery configurations below. The back batteries are under the wing on the CG so they don't affect the balance. You can decide if you want to fly without them or not. The forward batteries have to be in place for the plane to fly.
150. Multiple batteries take "Y" connectors to pair them to the ESC. Two batteries will need 1 "Y" connector, 3 batteries need two and 4 batteries need 3.
151. I can get more than an hour of flight with two 4500 3S batteries and I have flown with four 4500 batteries. The plane flies well with this much weight, but lighter is almost always better so I decide how many batteries to carry by how I am going to fly.

152. The laminated tail adds weight to the back end of the plane and It takes several times that much weight in the nose of the plane to balance it. The choices are either to move the wing back or add weight to the nose if you are tail heavy.

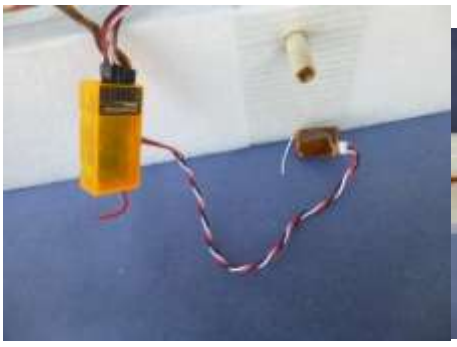
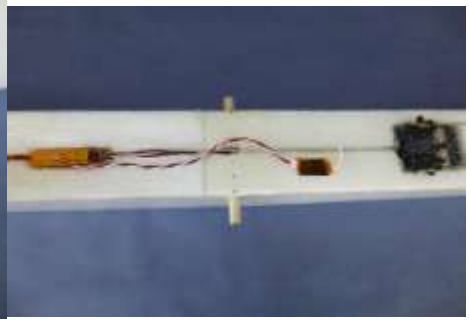

153. **Install the dowels to hold the wing 11" (28 cm) back from the nose and 24" (35.5 cm) back from the nose. The CG is very close with two 3S 4000-5000 mah 3S battery far forward in the fuselage of the laminated Storm Chaser. The un-laminated wing and tail get by with only one battery.**
154. At 11" and 24" back from the front of the fuselage draw a line across the top of the fuselage where you want the dowel to go.
155. Measure down 3/4" (2 cm) and make a mark on each side where each dowel will go through the side of the fuselage.
156. Drill or melt a hole through the E-tape with a soldering iron on your marks.
157. Poke a long sharp pencil through the foam that remains between the two holes and look at the alignment of the pencil and correct it as needed so it goes straight though the fuselage.
158. Slide a dowel through the holes.
159. Fill the hole with plenty of hot glue. Roll the dowel while putting the glue in for best adhesion and hold in correct position until cool.
160. Use a ruler to find and mark the center of the wing, on both the leading and trailing edge of the wing. Making these marks permanent is a good idea, as you will use them to center the wing on the fuselage.
161. Turn the wing over. On the bottom of the wing, on either side of the flat center section, use a ruler to measure back 4.5" (11 cm) from the leading edge, and place a mark with a pen. Stick pushpins or thumb tacks into each of those marks so the CG reference point will be easy to find without looking
162. The batteries will be installed in the side of the fuselage, below the ESC. At this point, do not cut or melt a slot for the batteries, but determine the approximate location where they should go. Make sure the lead from the ESC will reach the battery's lead.
163. Once you have determined a probable spot for your battery, temporarily tape the battery to the top of the fuselage, directly above where you wish to install it.
164. Make sure all other electronics or hardware are sitting in their proper place on the plane, including the motor, ESC, Rx, servos, and push rods.
165. Place the wing on top of the fuselage, slightly in front of the servos with a dowel on either side, so that it covers the Rx. Use the center marks you made on the leading and trailing edge of the wing to make sure the wing is centered left-right. Use push pins to hold it in place.
166. Reach under the wing on either side. Find the pushpins you used to mark the CG on the bottom of the wing, and gently try to lift the plane off of the table.
167. If the plane does not balance you can adjust the battery location. If the plane is nose heavy the wing needs to move forward, weight needs to be added to the tail of the plane, or the batteries need to be moved back. If the plane is tail heavy which is more common, you will need to move the wing back, add weight to the nose of the plane, or move your batteries forward. Remember the CG is relative to the wing not the fuselage.
168. Use a pen to mark the front and back of where the battery will go when the CG is correct. Remove the tape, and set the battery aside.
169. Use a pen to mark the outline of the batteries.
170. Use a razor blade and pliers (and/or your soldering iron) to cut/melt a slot for your battery.
171. Cut the bay slightly smaller, and make the battery fit in snugly enough that it will stay in place during flight.
172. 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 for a Velcro strap that can hold the batteries in.


173. 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 and the speed control.
174. Make sure the Velcro's ends match up properly, and trim off any excess Velcro.
175. 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.
176. The wing will be held to the fuselage with 8-12 rubber bands. Not only is this an effective way to attach the two parts, but it allows for simple takedown, travel, and storage and absorbs energy in an impact.


Final radio check and trim

177. 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.
178. This is a big plane. It can be far away and look closer than it is. We recommend a satellite that plugs into the primary receiver to extend range. (See pictures.)


179. The polyhedral wing uses rudder elevator and throttle. Plug the rudder into the aileron plug on the receiver for this plane.
180. The wing with ailerons will have the ailerons plugged into the aileron plug and the rudder plugged into the rudder plug on the RX.
181. The speed control will be plugged into the throttle and the elevator into the elevator on both plane designs.
182. 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.
183. 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/sideways (depending on orientation) as possible.

184. 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.
185. 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. Do the same for the servos in the wing (for Aileron version) if not already done.
186. 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 1/2" (1cm) up and 1/2" 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.

STICK UP	Elevator down	Nose down
STICK DOWN	Elevator up	Nose up

187. To program the rudder: Hold the ruler horizontally behind your rudder, and again use your transmitter to set the throw of the rudder, 1.5" (4 cm) left, and 1.5" (4 cm) 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 LEFT	Rudder left	Nose left
STICK RIGHT	Rudder right	Nose right

188. Ailerons are as follows:

STICK LEFT	L aileron is up	R aileron is down
STICK RIGHT	R aileron is up	L aileron is down.

189. 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.)
190. The propeller has the writing facing forward (the direction the plane is flying). Make sure it is on frontwards and well secured.
191. 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 8-12 rubber bands (#64) from dowel to dowel, to attach the wing to the fuselage. Four rubber bands go straight, and four cross in the middle.
192. 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!
193. **Here is a comprehensive preflight checklist you may like: http://crashtesthobby.com/articles/10-mistakes-to-avoid**
194. **Note #1 Launching the Storm Chaser is different than other planes.** The self stabilizing design 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 on the nose acts the same as the motor on a pod. The best way to launch the Storm Chaser is to launch at ½ throttle then throttle up once the plane is in the air. 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.
195. **Note #2** Test the plane by turning the motor off and trimming it to glide**.** Advance the throttle slowly and see if the plane rises or falls. If the plane rises trim the motor down. If it pulls down trim the motor up with a couple of washers behind the bottom of the motor mount. Different loads and power supplies may affect the trim angle of the motor. Once trimmed it will be consistent for future flights.