THORIZONS

STOL X V2

TA HORIZONS 37” STOL X V2
ASSEMBLY INSTRUCTION MANUAL

Technical Data-
Wingspan : 37"
Length : 32”
AUW : 200-220g
(Depends upon the setup used)

Setup Recommendations (Not Included)-

Motor : 18-22G 1500-1800KV Outrunner
ESC : 16-20 amp
Servos : 4 X 9gms each
Propeller : 8-9” electric
Battery : 450-600Mah 2-3S Lipo

EPP CONSTRUCTION

T-MOTOR HOBBY

KIT ONLY

WWW.TAHORIZONS.COM

WARNING INFORMATION & SAFETY INSTRUCTIONS

Website: www.tahorizons.com Email: tahorizons@gmail.com

Thank you for choosing TA Horizons. Please read the entire manual thoroughly before you begin to assemble this model. If you have any questions, please contact us aforementioned email address.

This R/C airplane is not a toy! Read and understand the entire manual before assembly. If misused, it can cause serious damages to life and property. Fly only in open areas. If you are not an experienced pilot and airplane modeler you must take the help of an experienced pilot or an authorized flight instructor for the building and flying of this model aircraft.

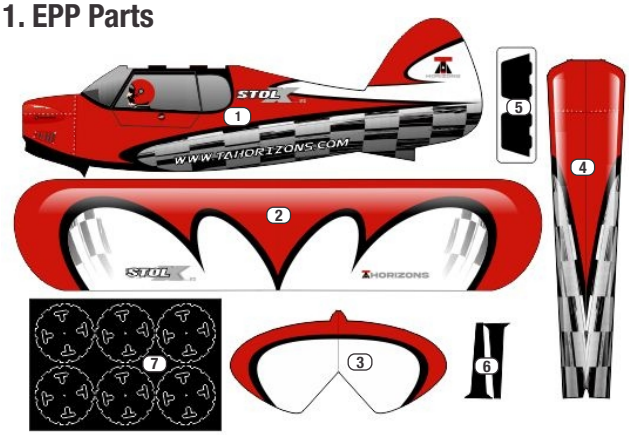
These instructions are suggestions only on how to assemble this model. There are other ways & methods also to do so. TA Horizons has no control over the final assembly because it specifically depends upon the knowledge and experience of the person involved directly in its handling, or the manner in which the model is assembled, radio gear installed, and electronic parts are used and maintained. Thus, no liability is assumed or accepted for any damages resulting from the use of the assembled model aircraft. By the act of using this user-assembled product, the user accepts all the resulting liabilities. In no event shall TA Horizons' liability exceed the original purchase price of the kit.

The user is advised to comply with all local laws and regulations. TA Horizons will have no responsibility over the user assembled product and its end use. TA Horizons has the right to change any content on the website, product information brochure, or the manuals, at any point of time without any prior notice.

TA Horizons checks each plane before shipping to ensure that each kit is in fine condition. We have no bearing on the condition of any component parts damaged by use, modification, or in assembling of the model. Inspect the components of this kit upon receipt. If you find any parts damaged or missing, please contact TA Horizons immediately. We will not accept the return or replacement of parts on which assembly work has already begun.

Our goal is to bring to you the best in quality and state of the art radio controlled aircrafts. For those who demand the ultimate in precision, or for those who are just a weekend flyers and want to feel good about their flights, our planes are in development from many months and tested to ensure that these aircrafts will give you the best possible performance. We sincerely hope that our products can provide the same thrill to you that we experience in this hobby.

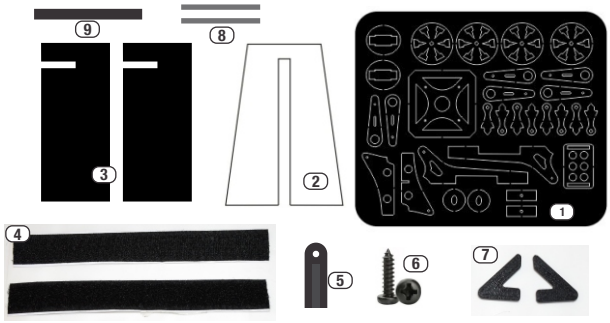
1. EPP Parts



EPP Parts

1. Fuselage
2. Wings
3. Horizontal stabilizer
4. Horizontal profile section
5. Wing truss supports X 2
6. Landing gear cover X 2
7. EPP Wheels

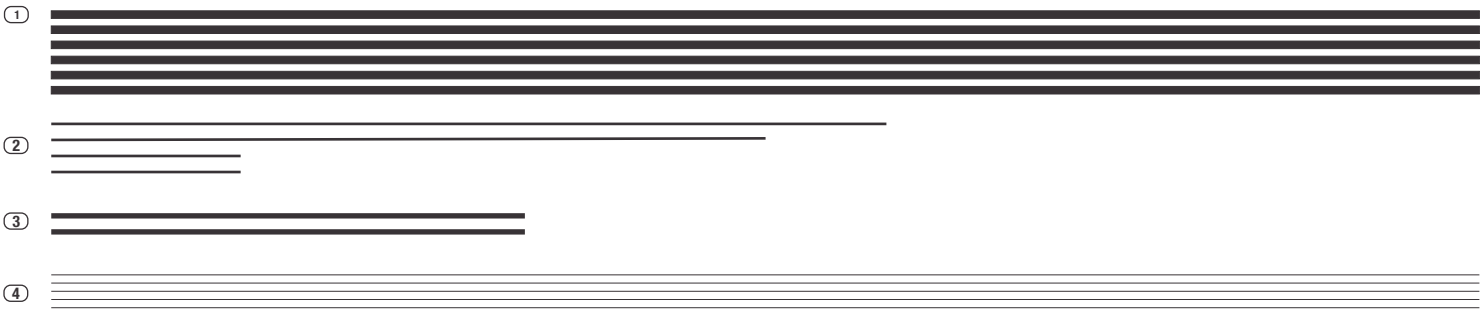
2. Hardware / Small Parts



Hardware Parts

1. Polycarbonate Hardware parts
2. Fuselage assembly jig
3. Wing assembly jig X 2
4. 150mm velcro
5. Quick links X 10
6. Selftaping screw X 10
7. 3D printed wheel bracket X 2
8. 45mm 2mm CF Wheel Shaft X 2
9. 60mm CF strip

3. Carbon Rods / Strips / Tubes



Carbon Rods / Strips / Tubes

1. 3 X 0.5mm Carbon Stripes
   L 1000mm X 6

2. Control rods D 1.2mm
   RUD 420mm L X 1
   ELE 380mm L X 1
   AIL 100mm L X 2

3. Undercarriage sq.tube
   D 2x3mm L 225mm X 2

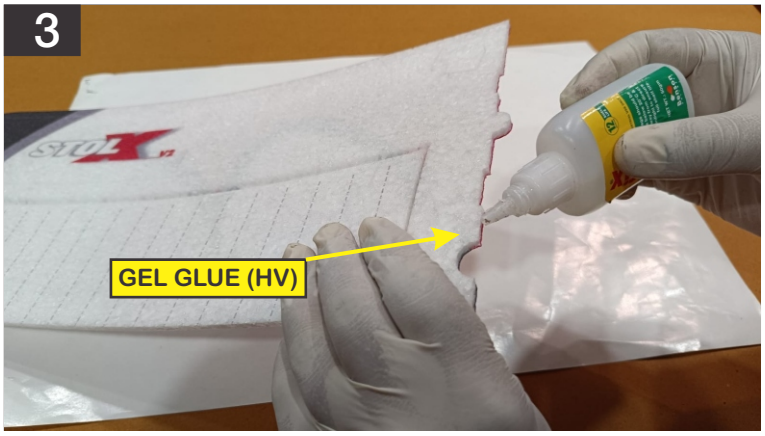
4. 1mm Reinforcement Rods
   L 1000mm X 5

Please Note: After removing kit from shipping box, lay each piece flat on a hard surface, this will allow the airframe to straighten out if lightly bent from shipping. Do not worry since EPP is very pliable and can be bent back if out of shape. Double check that you have all the above pictured items. If any of the airframe or hardware items are missing, contact TA Horizons before starting your build.

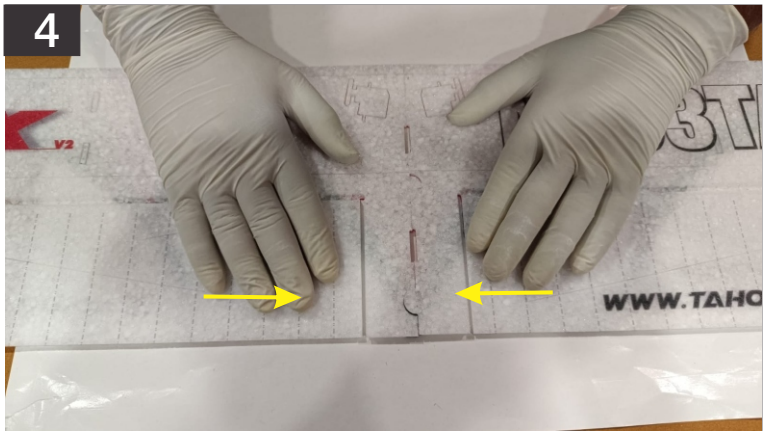
- Heat Gun
- Tape Measure and Ruler
- Black Sewing Thread
- High Viscosity CA
- CA Spray Activator
- Hobby Knife w/new Blade
- Needle Nose Pliers
- Wire Cutters
- Low Temp Hot Glue Gun
- Scissors
- Small Phillips Screw Driver
- Thin CA
- Alenkey

1. (This is mandatory step)locate the hinged items as shown above, Bend them back on to each other as shown and let set for at least 2 hours. This will help to loosen up the movement of the surface.

2. Locate the two halves of the wings as shown in the picture above.



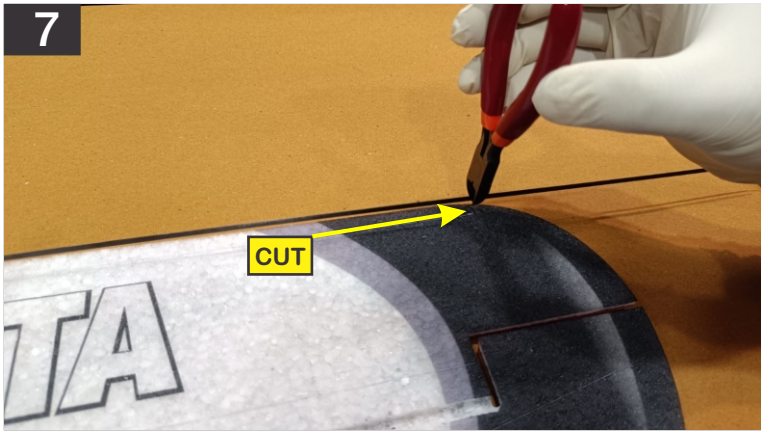
3. Apply a bead of HV CA to the contacting edge of the wing piece as shown above.



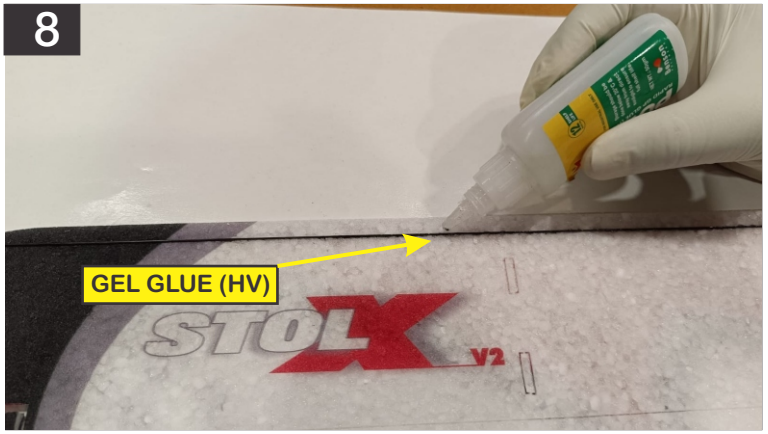
4. Lay down the shown parts on the flat surface with wax paper on it and glue it together. Note that we are working from the bottom side.

5. Lets start with the rear wing reinforcement, Please note that all stripes that goes and flush into the foam are 3X0.5mm stripes, Insert the stripe vertically into the precut slot, make sure it is completely inserted into the slot.

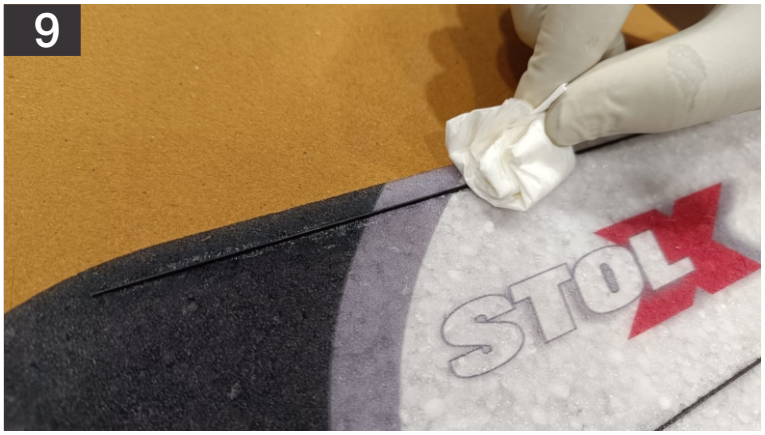
6. Make sure it is completely inserted into the slot.



7. Once it reached at the end of Pre-cut slot, use a scissor or wire cutter to cut down the excess stripe.

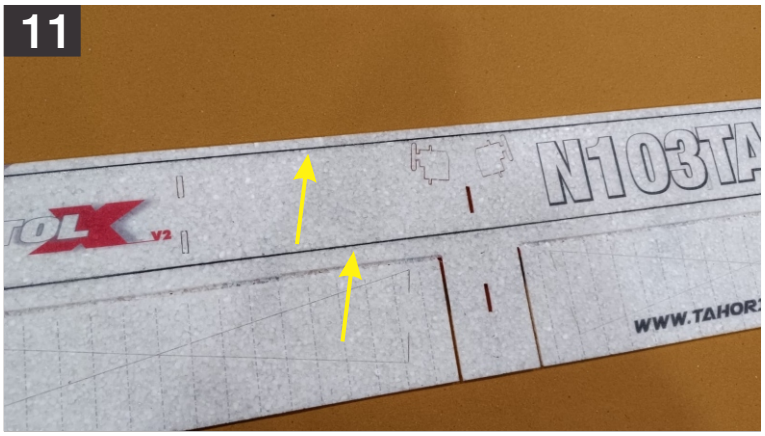


8. Use the Medium or HV Cyno to glue the stripe.

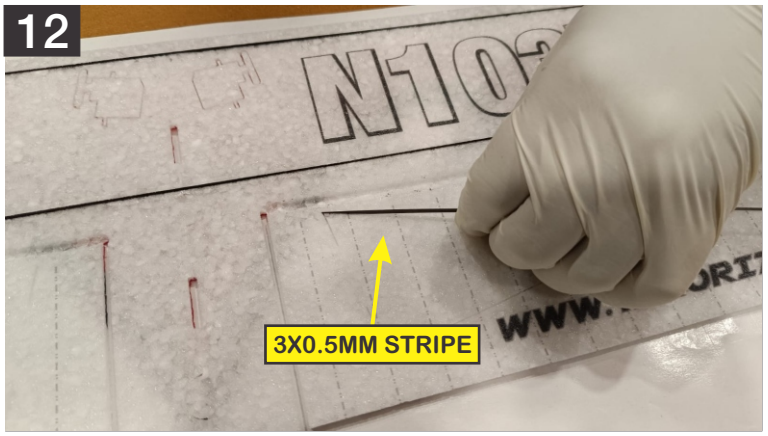


9. Wipe out the excess glue if needed using the tissue paper.

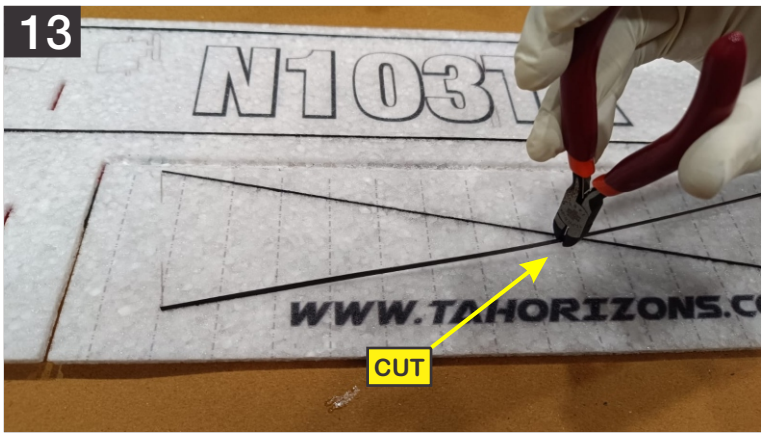
10. Use the spray activator to cure it and fast forward the process.



11. Repeat the same process for other stripe as well as shown in the picture above.



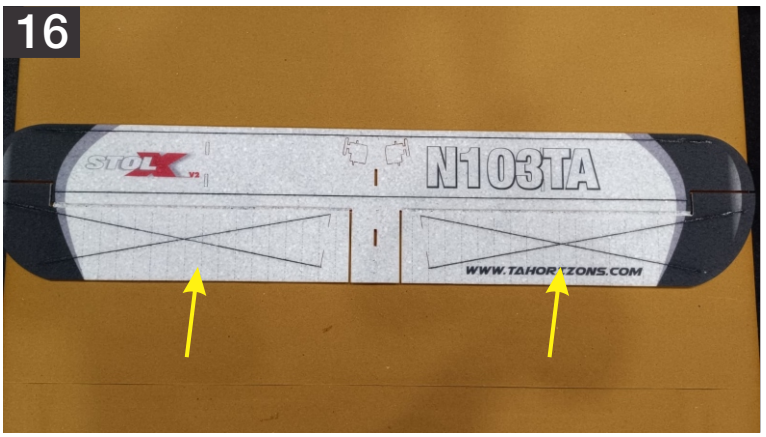
12. Use the same 3 X 0.5mm stripe to reinforce the ailerons as well. Glue one of the two carbon stripes that goes in cross shape in the ailerons as shown above.



13. Glue the other stripe as shown above, once it reached at the intersection of the other glued stripe, use a scissor or wire cutter to cut it.

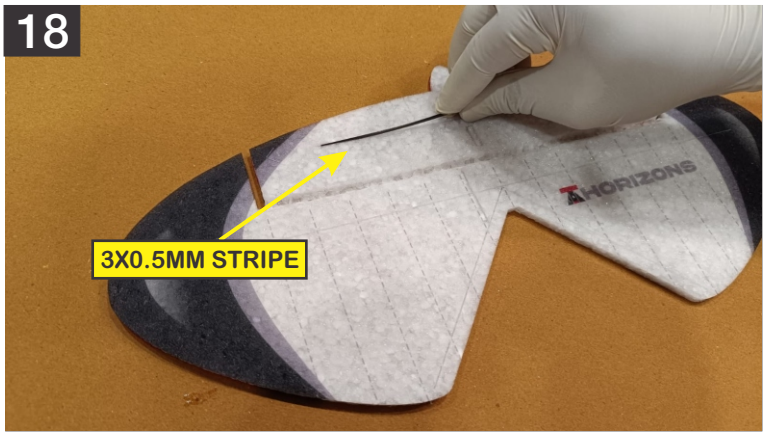
14. Glue the Half part of the stripe as shown above.

15. Measure and cut the size of other half of the stripe, and glue it like shown above.

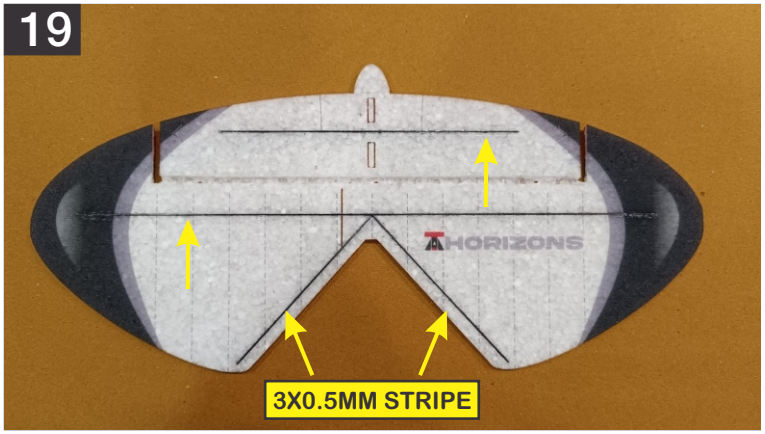


16. Repeat it for the other aileron as well.

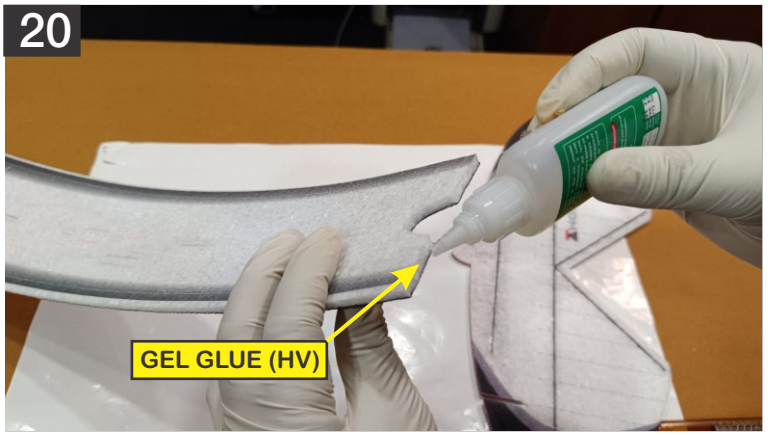
17. Locate the horizontal stabilizer section like shown above.



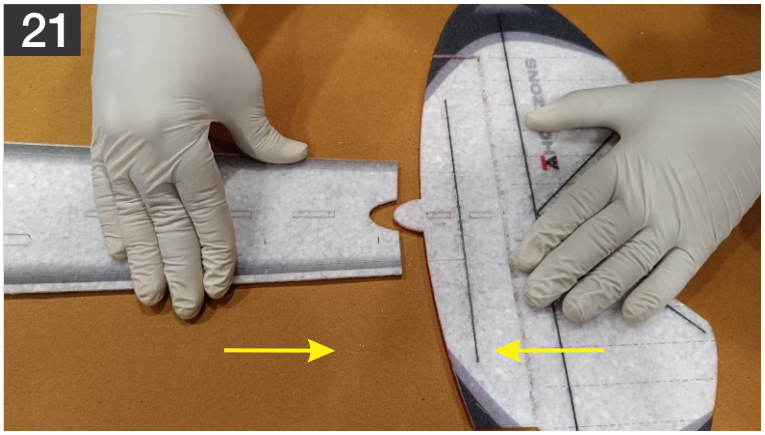
18. Insert the stripe vertically into the precut slot in the elevator, make sure it is completely inserted into the slot, again you need to cut the required length from the supplied (3 X 0.5mm) 1000mm stripe or from any excess remaining stripe from the previous steps.



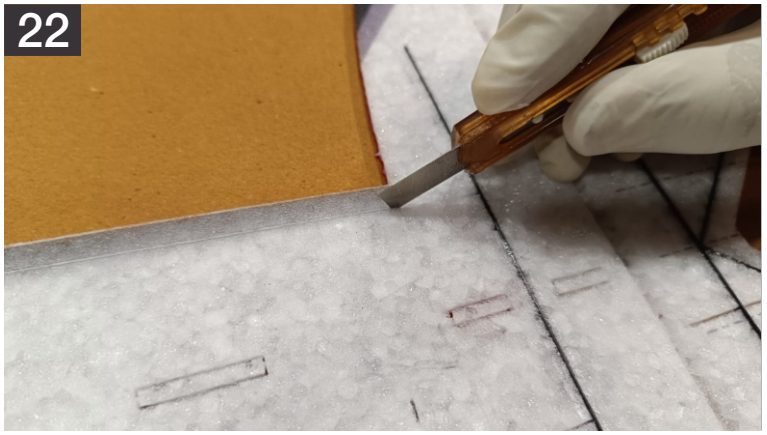
19. Repeat the process for elevator reinforcement as well, use the same 3 X 0.5mm stripes and glue them vertically into the pre cut slots like shown above.



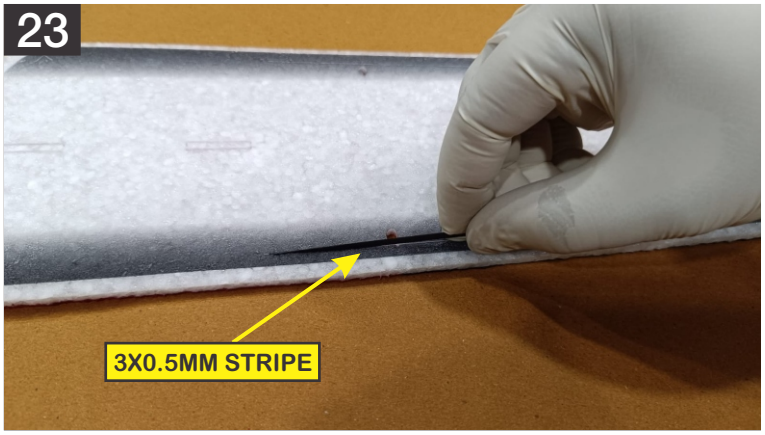
20. Up next is glueing the horizontal profile section to the horizontal stabilizer, Apply a bead of HV CA to the edge of the glueing surface like shown above.



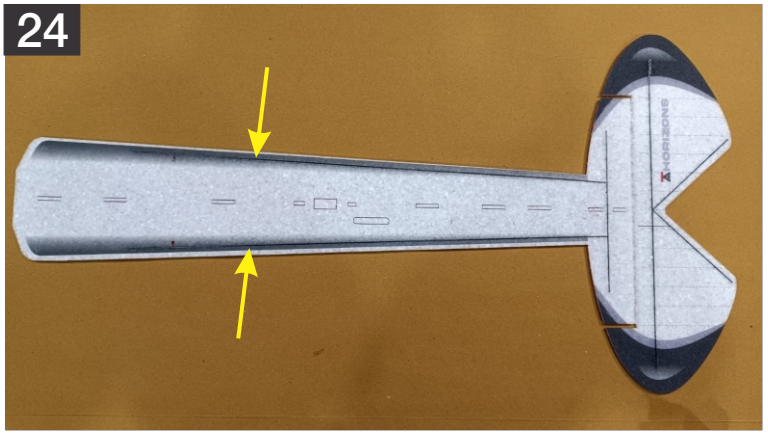
21. Bring the two pieces together. Make sure that both pieces are at on the flat workbench, spray activator to cure it.



22. Reinforcement of horizontal profile section is next, make sure that the slot in the area where the elevator attaches is free of glue.



23. The horizontal piece of the fuselage also uses the 3 X 0.5mm carbon fiber stripe spanning the entire length to the horizontal stab spar, cut the required length and insert the stripe into the precut slot like shown above.



24. Glue both the stripes like shown above.

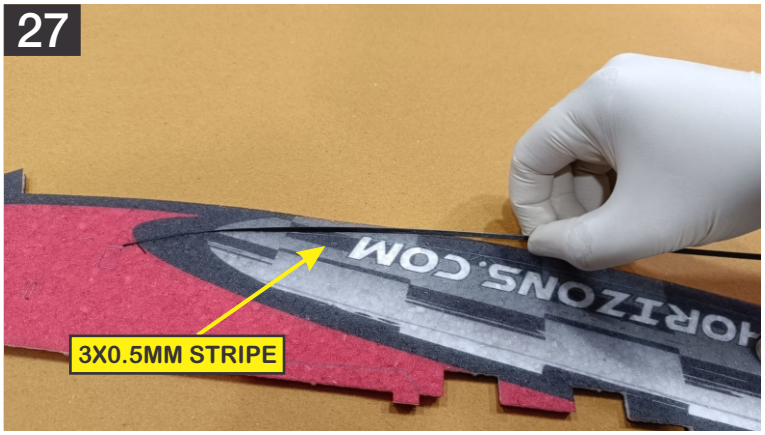
25

25. Up next is the vertical fuselage section.

26

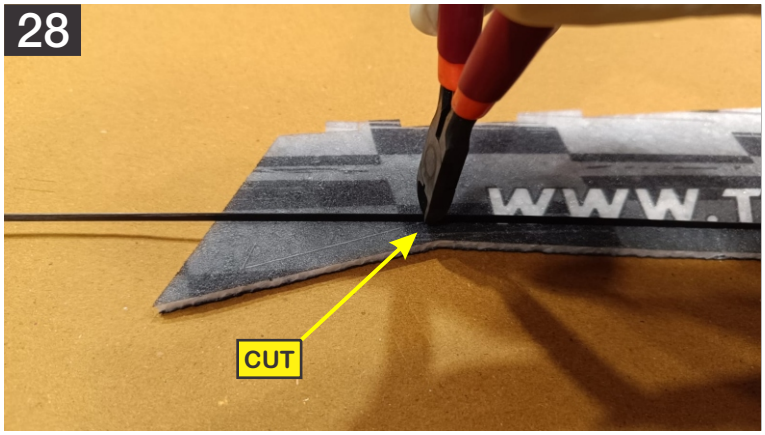
26. Use the knife to separate both the parts.

27



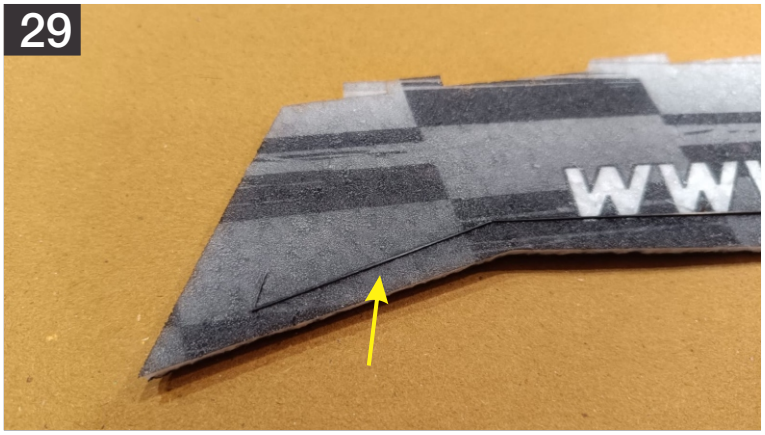
27. Belly of vertical fuselage also uses the 3 X 0.5mm stripe for reinforcement, Lay into it's designated slot, cut length as advised in the next step.

28



28. Cut it from where it starts to bend like shown above.

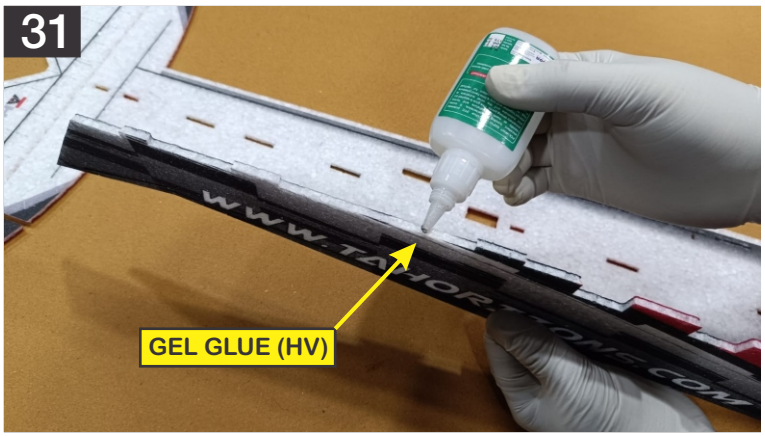
29



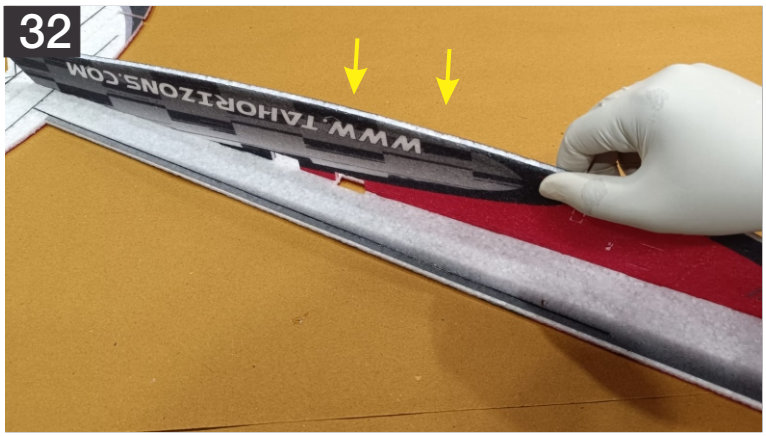
29. Use the other small part of stripe and glue it here separately.

30

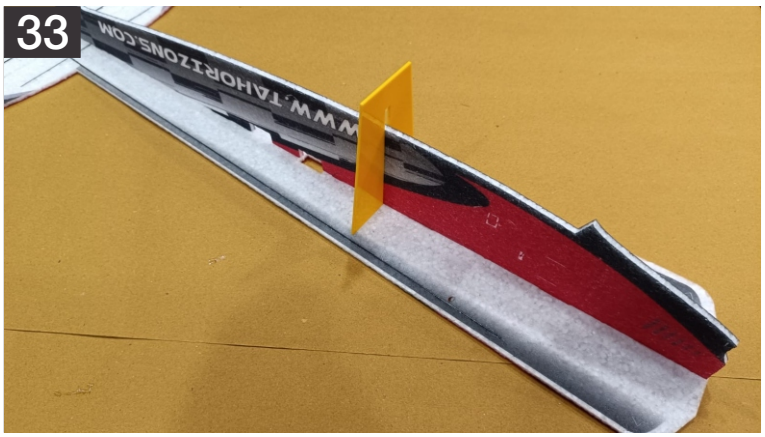
30. Glue the same 3 X 0.5mm Stripe in the slot just behind the rudder horn slot, to reinforce the rudder.



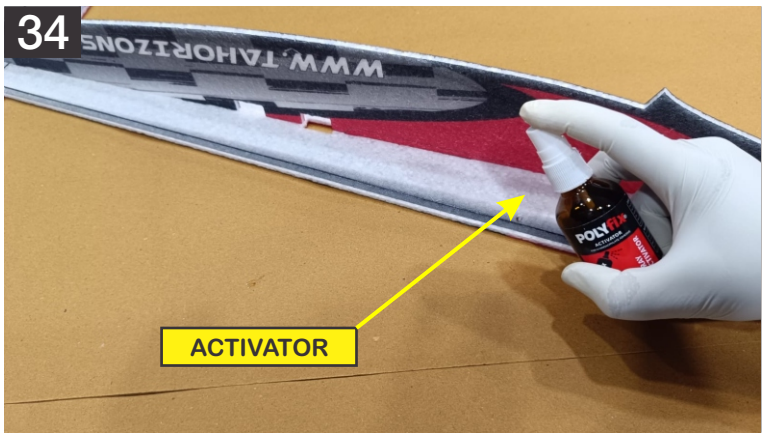
31. Apply a thin layer of HV CA to the mating surfaces of the lower vertical fuselage.



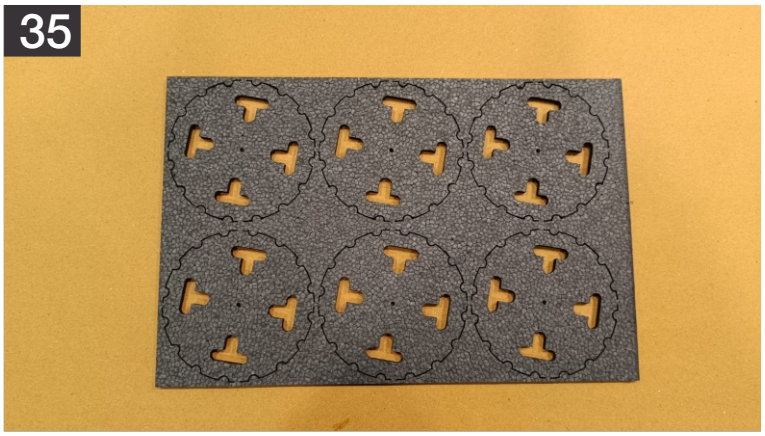
32. Bring the two pieces together. Make sure the tabs and slots of the two pieces are fully engaged, flush and square.



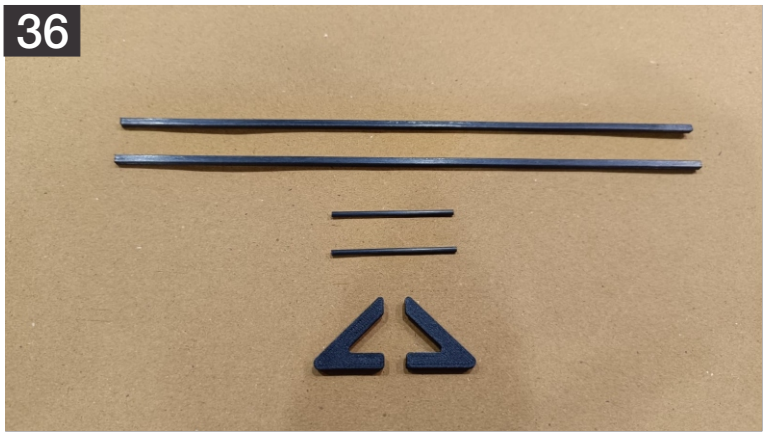
33. It is extremely important to make sure that the bottom part of the fuselage stays 90 degrees to the horizontal fuselage while the glue is setting. use the supplied acrylic jig for this task.



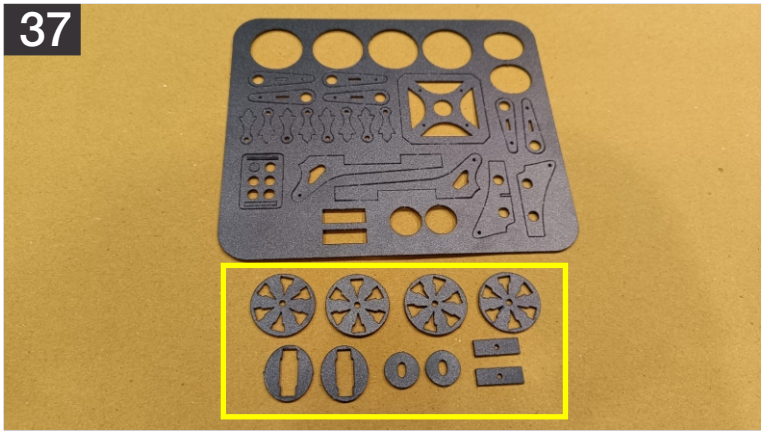
34. Use a spray activator to cure it.



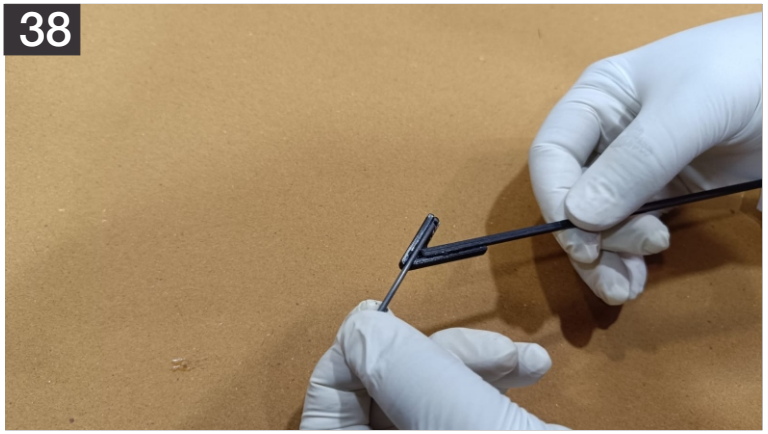
35.Up next is the undercarriage, locate the wheels as shown above.



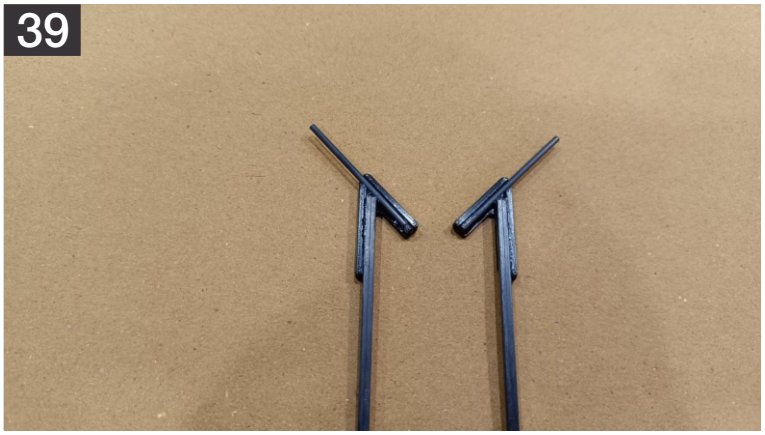
36. Locate the 2 X 225mm undercarriage, 2 X wheel brackets and 2 X 40mm wheel shaft like shown above.



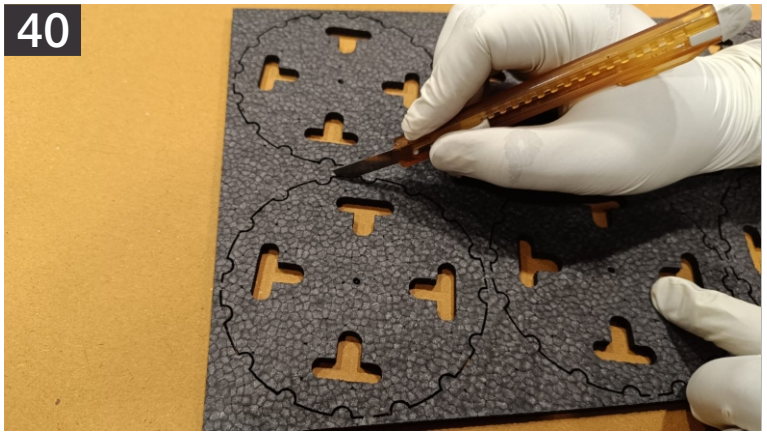
37. Locate and take out the indicated parts from the polycarbonate hardware sheet for the next steps.



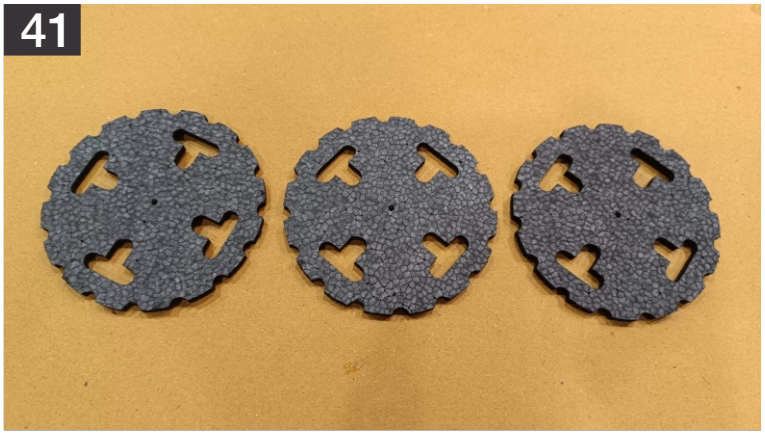
38. Here the supplied (3mm dia 225mm) tube and (2mm dia 40mm) wheel shaft are glued on the wheel bracket.



39. Repeat the step for other undercarriage as well.

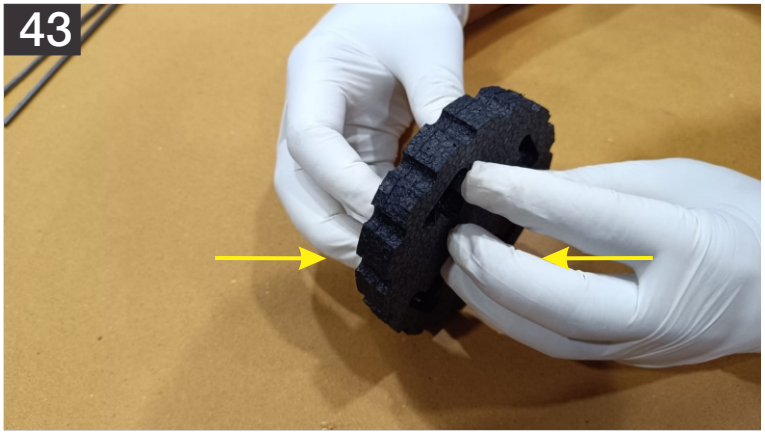


40. Take out the precut wheels using the sharp knife from the black EPP sheet like shown above.

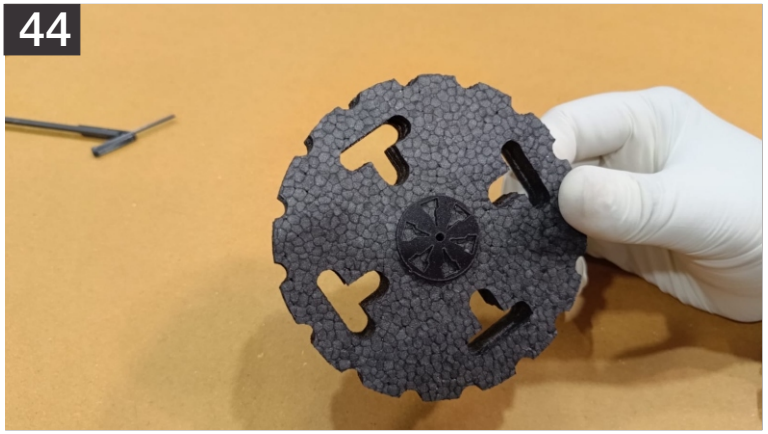


41. For making the wheel look wider, we will use the 3 pcs and glue them together.

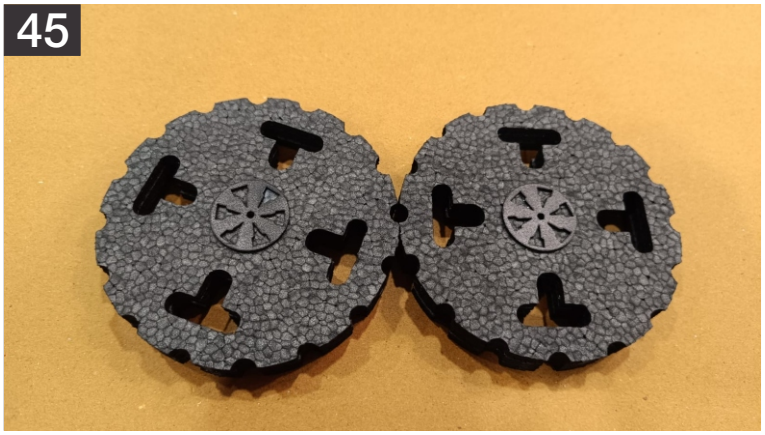
42. Spread a thin layer of HV CA over the supplied HD EPP Wheels.



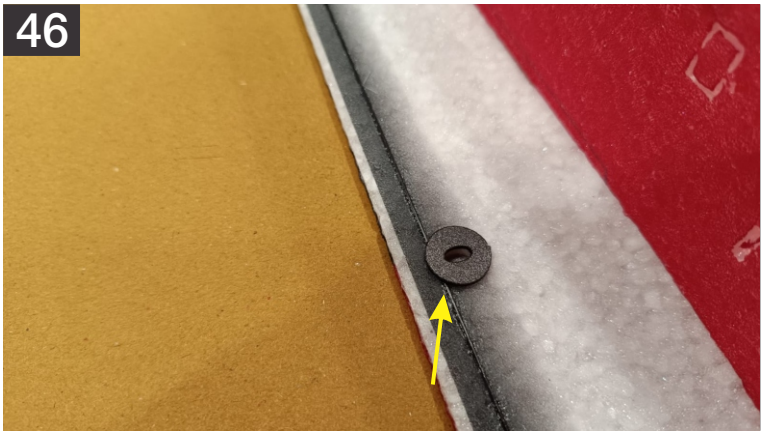
43. Join all 3 wheels together like shown in the above image.



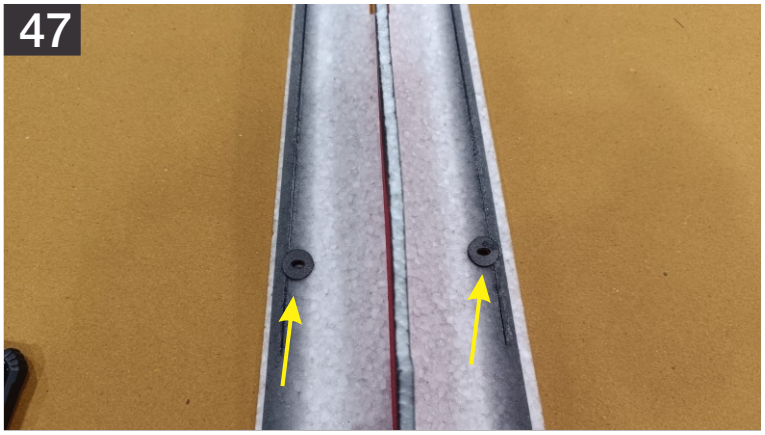
44. Glue the center rim over the wheels with center hole aligned using HV CA (Do it for both the sides of wheels).



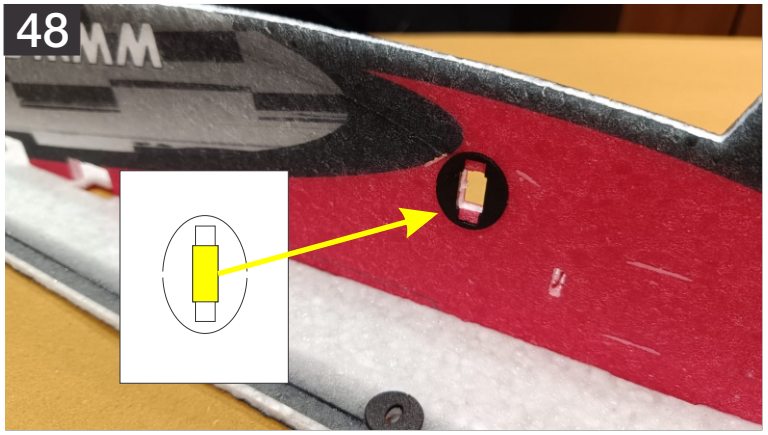
45. Repeat the process for other wheel as well.



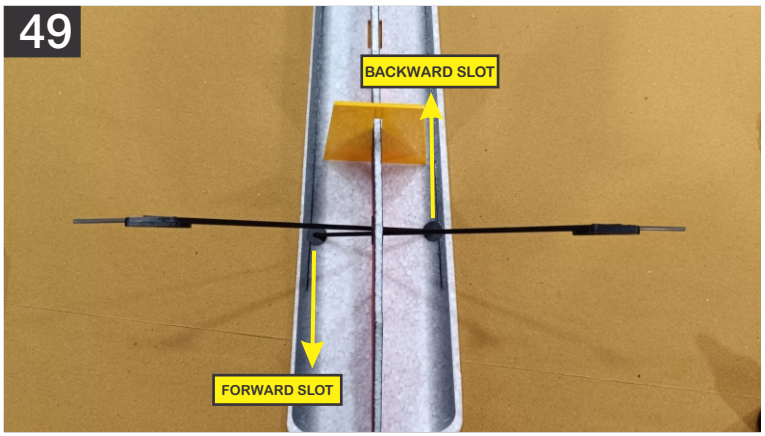
46. Glue the shown parts over the pre cut slots, for landing gear assembly.



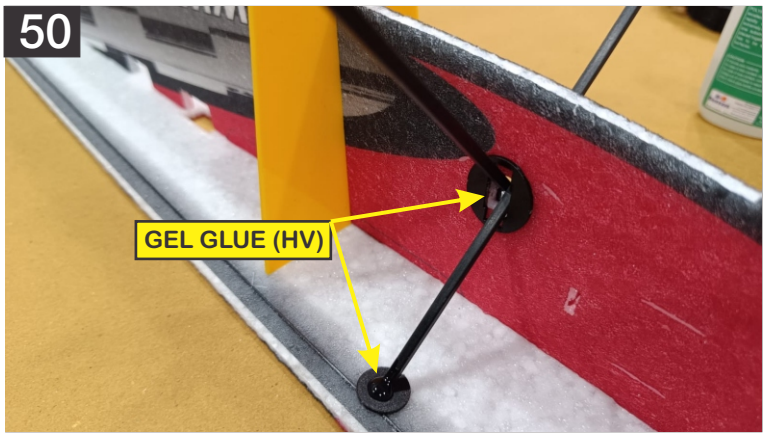
47. Repeat it for other side.



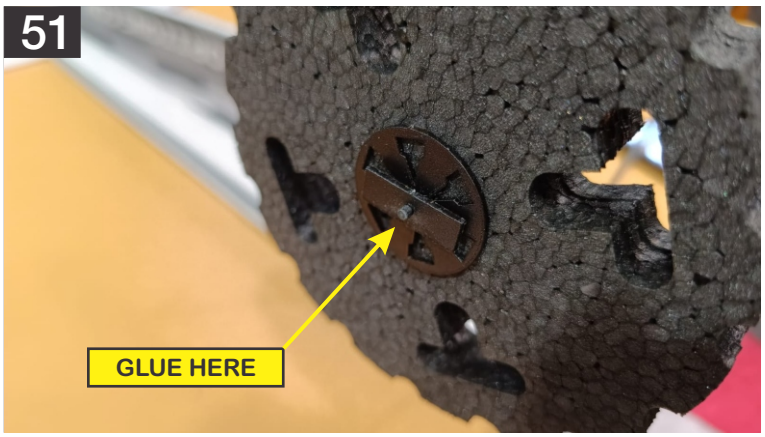
48. Glue the shown parts over the precut slots using the HV CA and cure everything together using the kicker. Match the shown yellow area with the precut slot in the EPP.



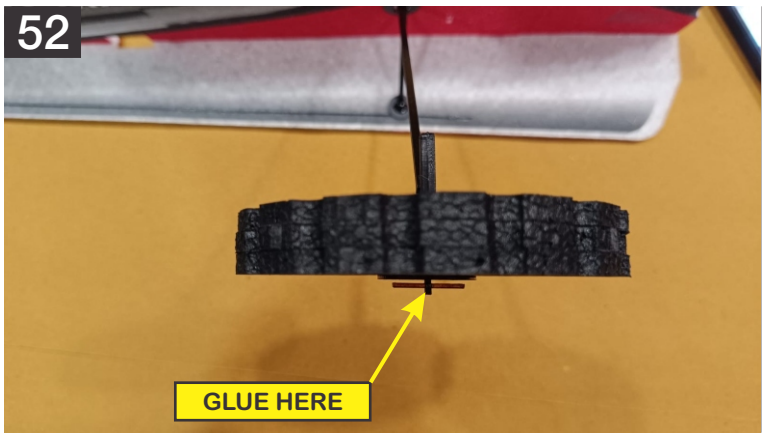
49. Install the undercarriage that we have prepared like shown in the above image. Both sides are having different positioning of UC slots with 3mm difference.



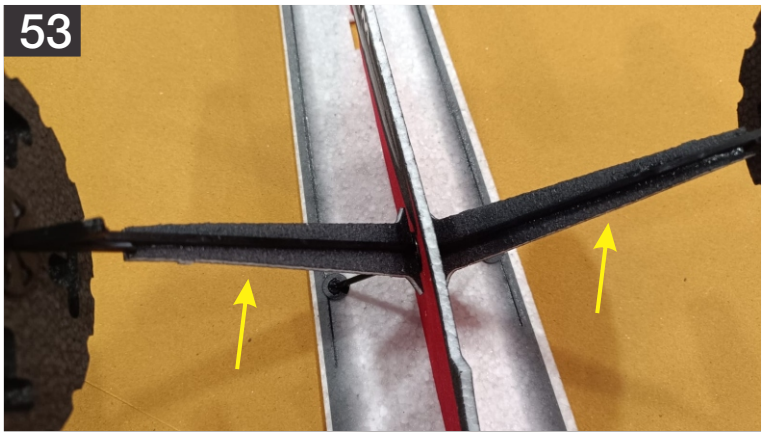
50. Put a drop of HV CA over the indicated joints and spray everything together.



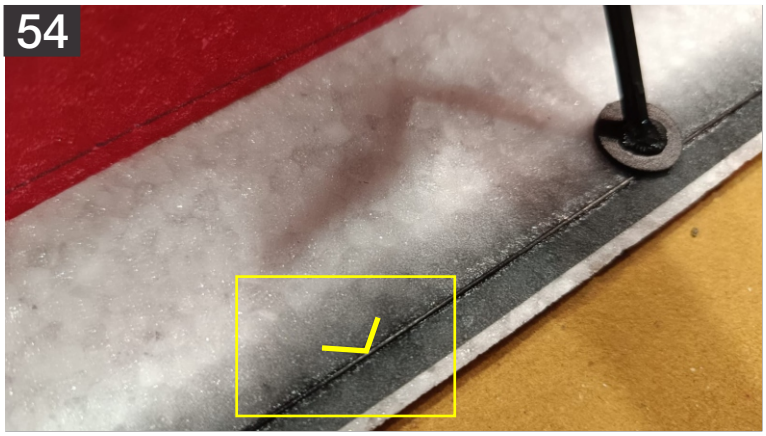
51. Install the wheel over the shaft, make sure it is spinning freely, after this slide in the wheel stopper. Put a small drop of HV CA over the shaft and wheel stopper joint.



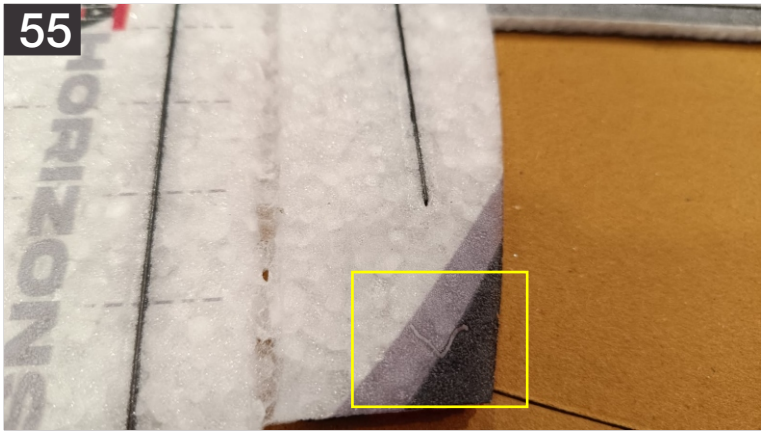
52. Here is another view.



53. Locate the landing gear cover, glue it over the CF Undercarriage.

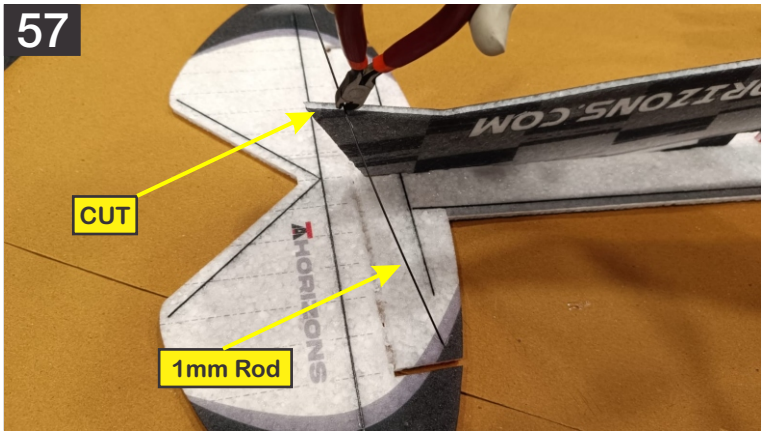


54. Up Next is the fuselage trussing. Locate the pre cut small slots all over the tail, horizontal and vertical fuselage sections.

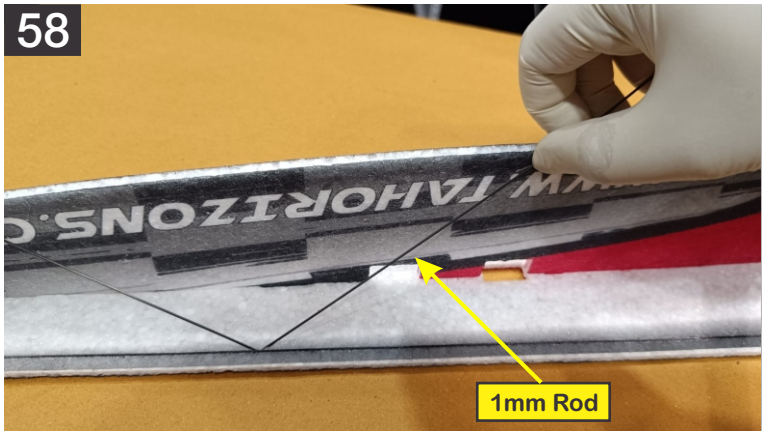


55. Locate the pre cut slots like shown above.

56. Locate the pre cut slots like shown above.

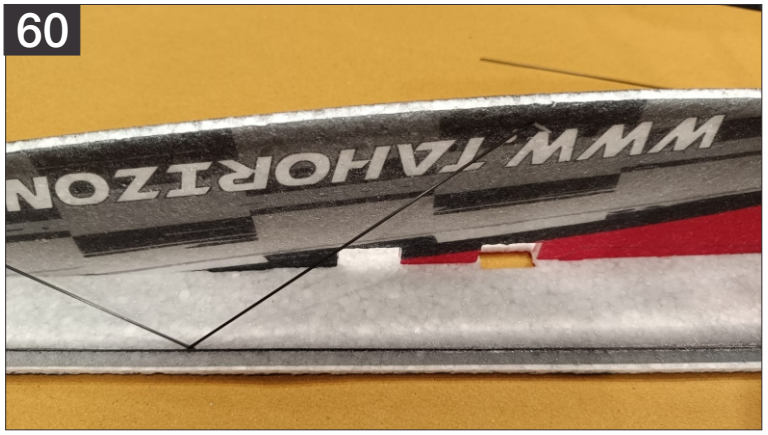


57. We will now start the fuselage trussing using the supplied 1mm X 1000mm Rods, Start by cutting the supplied 1mm rods by measuring them from one slot to other, Start installing them from the back like shown above, take the reference from picture no. 64 coming up later.

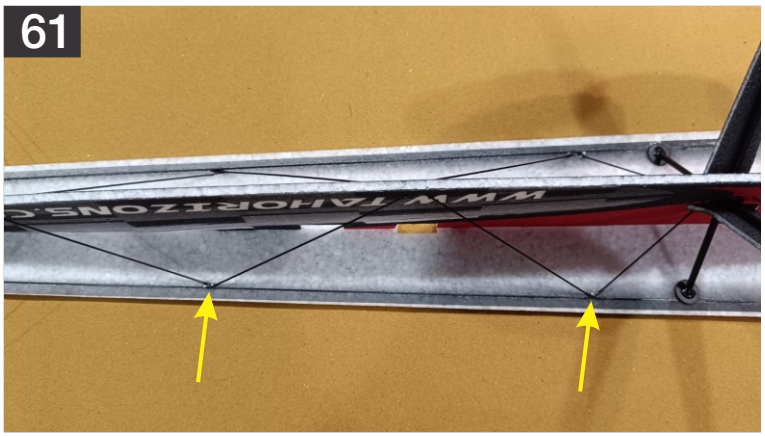


58. It is better to measure and mark the point where it needs to cut.

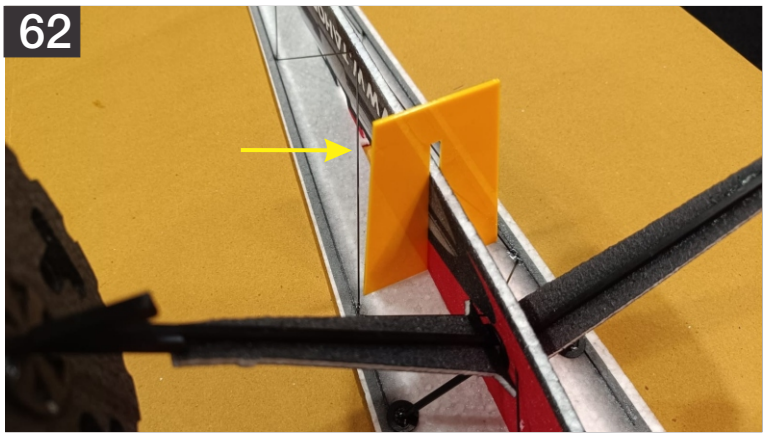
59. Then use the wire cutter to cut it from that point.



60. No need to glue them right now, make sure it sits couple of mm into the slots, also keep the fuselage square as much as possible throughout the process.

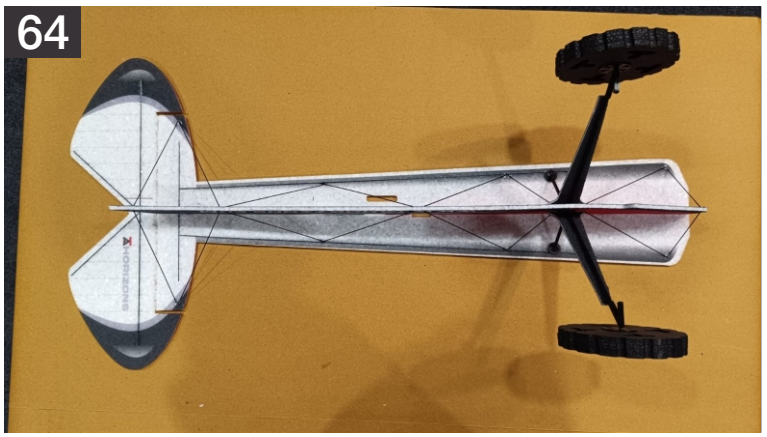


61. Once done with the cutting and dry fit, start gluing them from the horizontal profile section first.

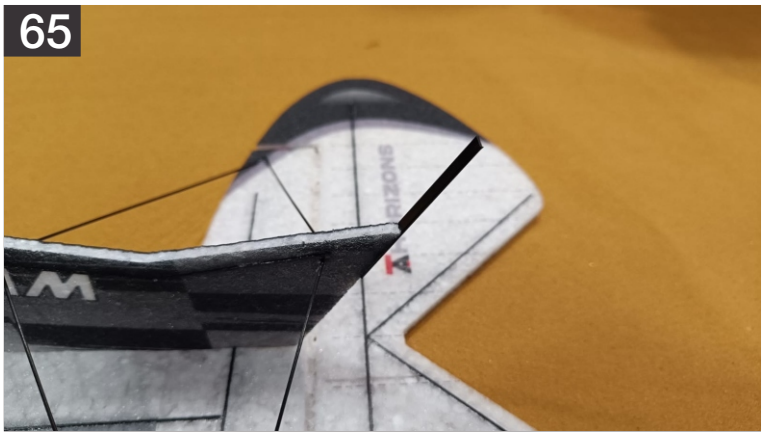


62. Now use the indicated acrylic jig to keep the vertical half as square as possible.

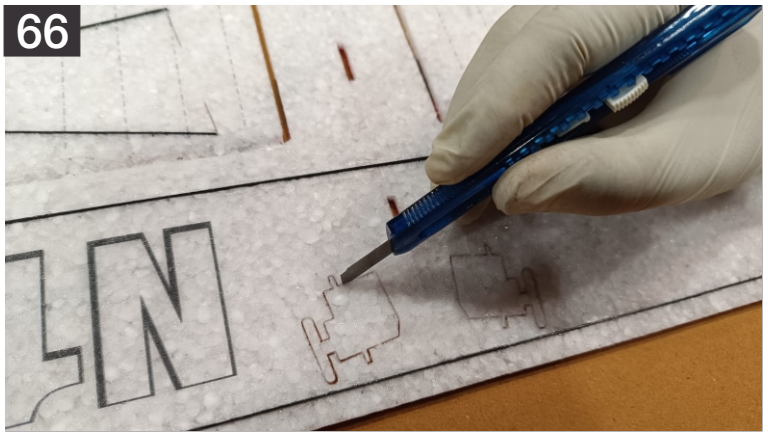
63. With the jig in place, start gluing them on the vertical half.



64. Repeat the process for other side as well, make sure the vertical half remains square throughout the process.

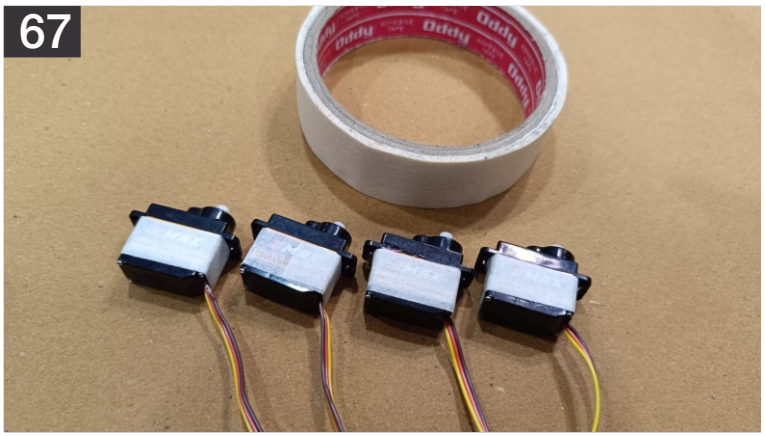


65. Locate the 60mm flat carbon strip and glue it on rear bottom part of the fuselage shown in the above image.



66. Take out the excess foam from the wing servo slots using the sharp knife.

67



67. It's a good idea to wrap the servos with the paper tape too keep the servos safe from the glue used for sticking them in the later steps.

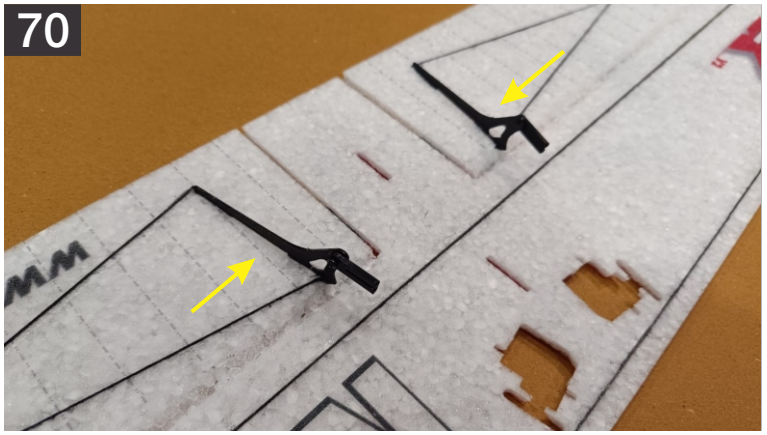
68

68. Install the extenders over the stock plastic servo arms using the small screw. Wrap with thread for more strength if desired.

69

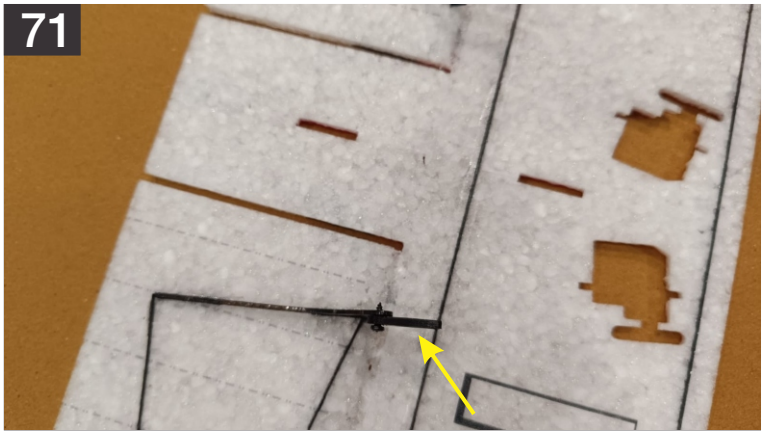
69. Screw all quick links to the pre laser hole in all arms and horns, do not tighten them too much, make sure they can rotate freely.

70



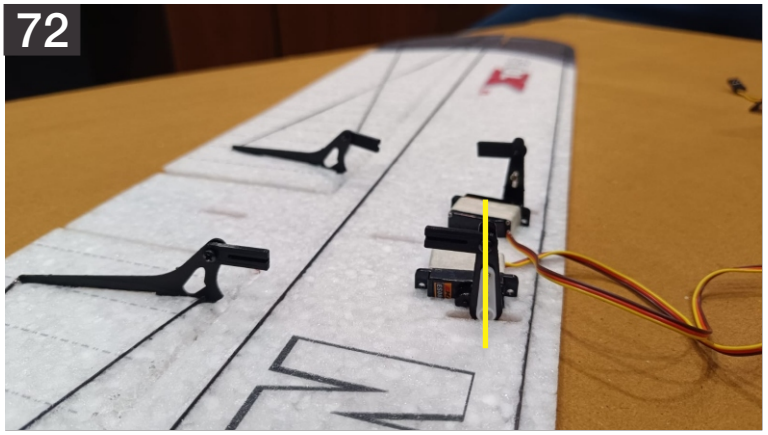
70. Glue the aileron horns shown in the image in the precut control horn slots using HV CA. Make sure it sits right to the bottom of EPP Surface. Keep in mind that we are working on the bottom part of the wing.

71

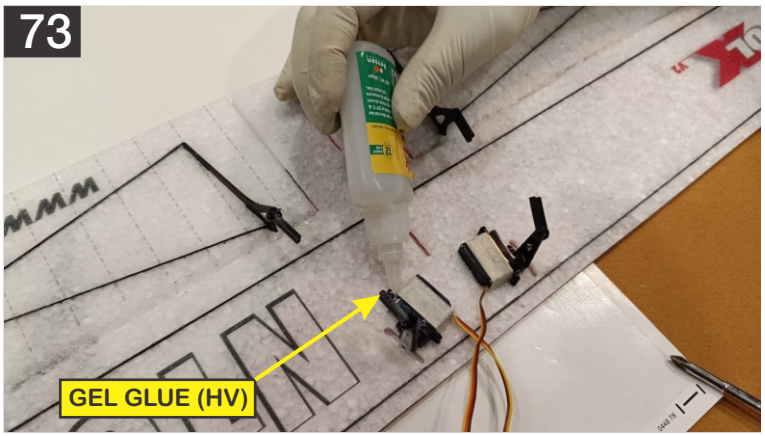


71. Make sure that the quick link is screwed at the correct side (Outer side) of the wing. Correct it if needed.

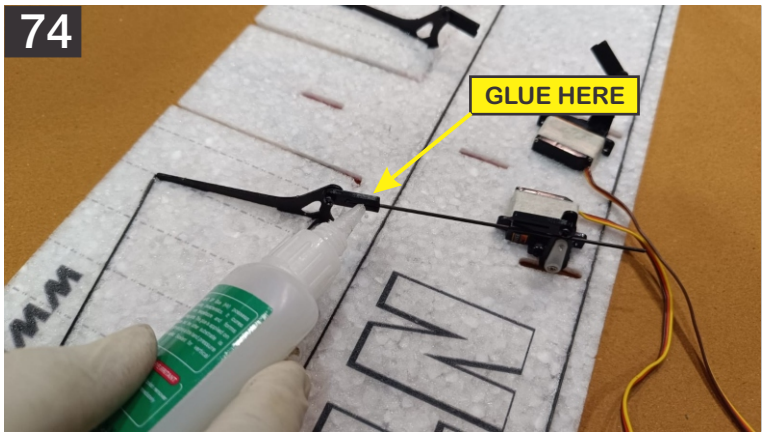
72



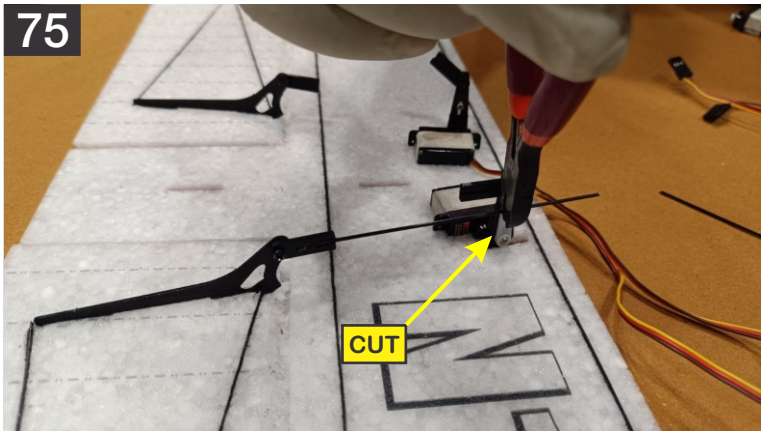
72. Once done, dry fit the servos like shown in the above image. Make sure you have the servo arm centered for the next steps.



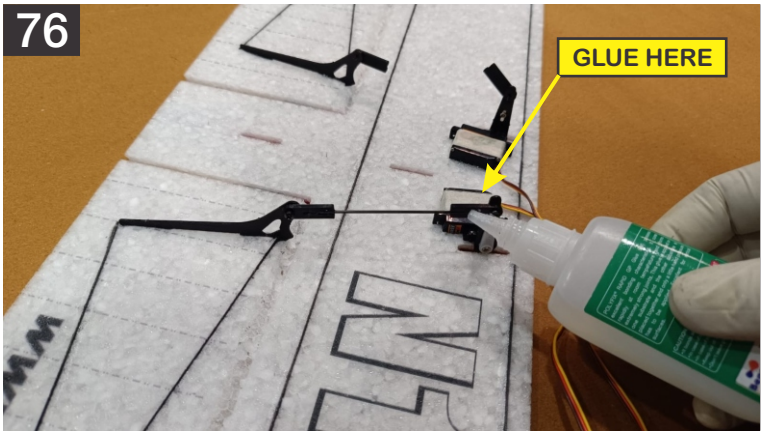
73. Glue the aileron servos in place, make sure to glue the area with the paper tape on it.



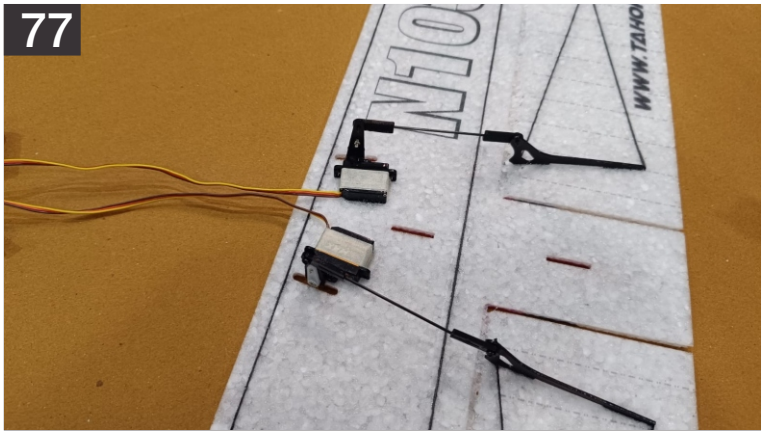
74. Locate the 100mm aileron control rod, glue it on the one side, using thin CA or optionally HV CA. Make sure you have servo arm centered.



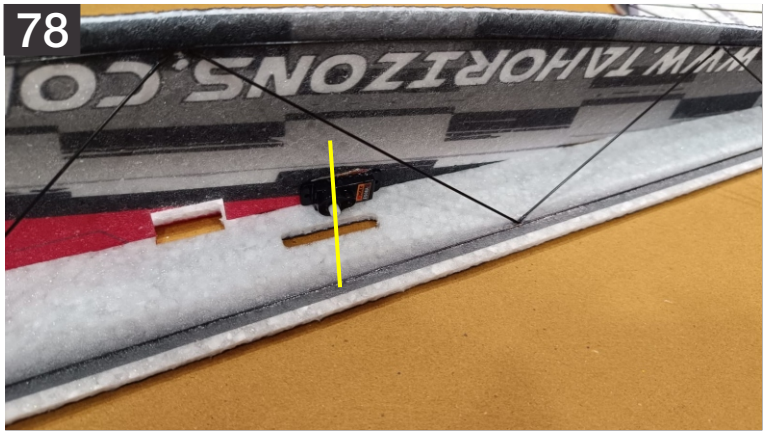
75. With the servo arm and control surface centered, Cut the rod at the position shown in the above image to fit in the quick link.



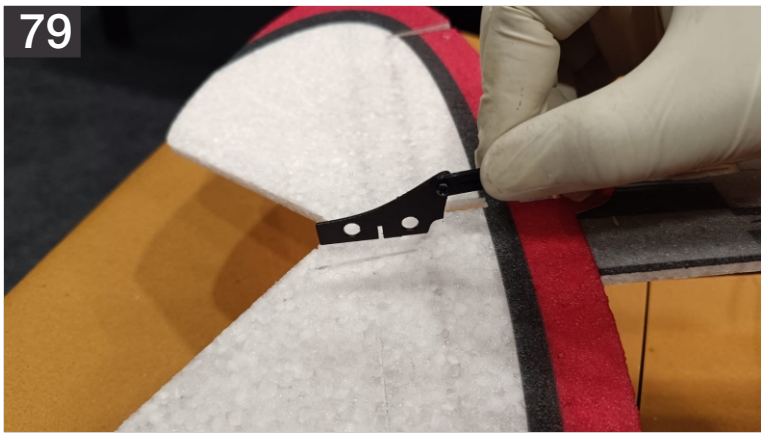
76. Glue the other side of the rod as well.



77. Repeat the process for other side. Above is the finished linkage setup with aileron centered and rod well fitted and glued in both the quick links.



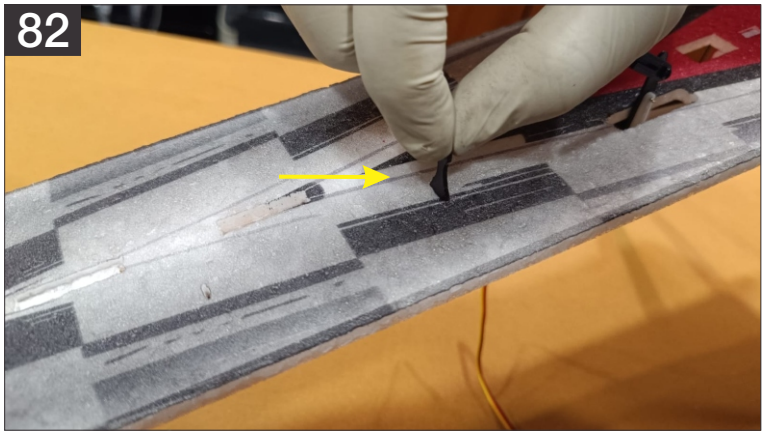
78. Glue the elevator servo in a direction in which the arm hub matches the center line of pre cut elevator arm slot.



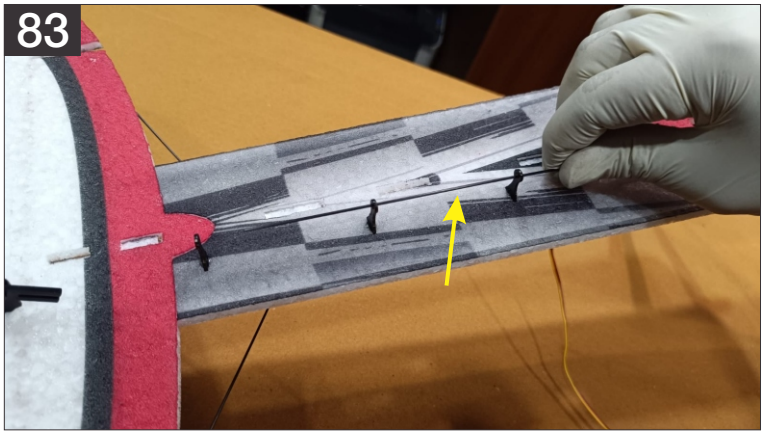
79. Glue the elevator horn shown in the image in the precut control horn slot using HV CA.

80. Make sure it sits right to the bottom of EPP Surface.

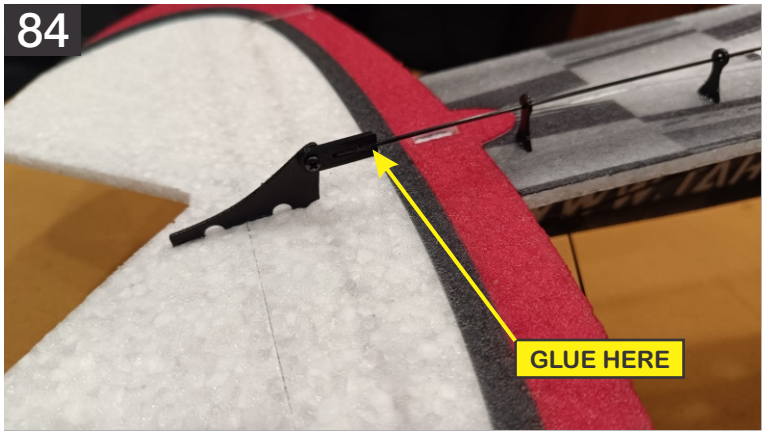
81. Elevator linkage, Make sure you have the servo centered before moving further with the setup, check the orientation shown in the above image.



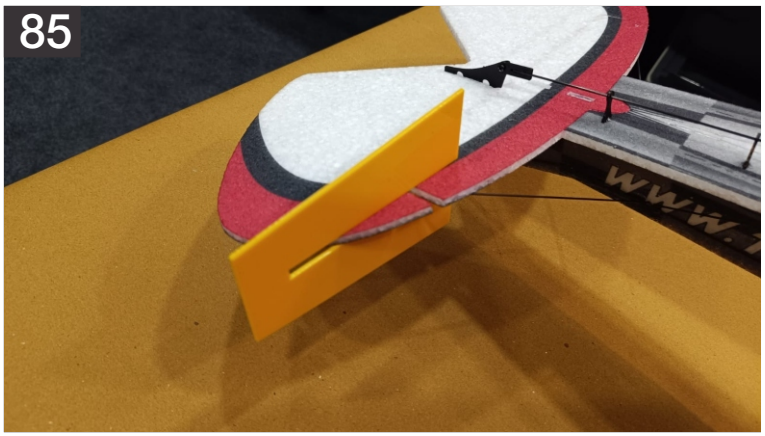
82. Before moving to elevator linkage setup, glue 4pcs pushrod guide into the pre cut slots.



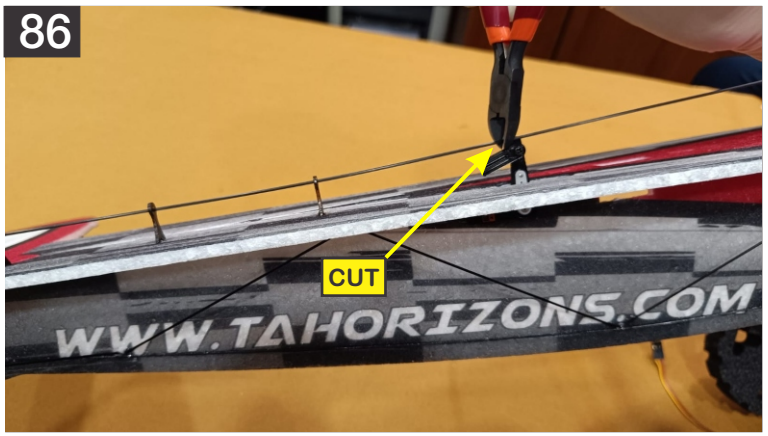
83. Notice how the elevator rod (380mm) is slid in the pre glued pushrod guides.



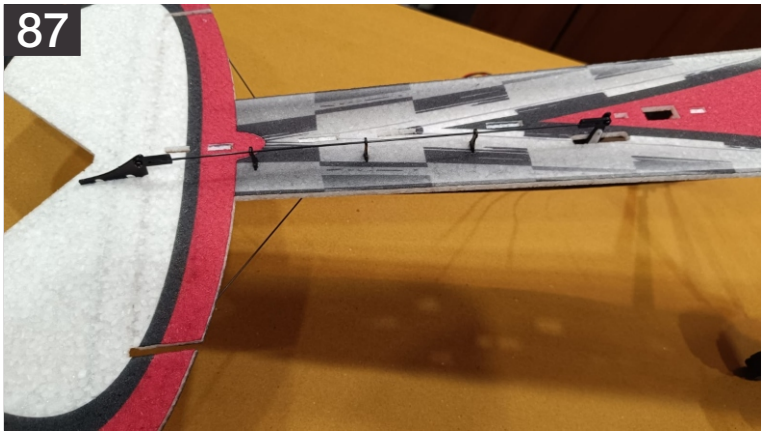
84. Glue the Elevator control rod on the one side, using thin CA or optionally HV CA.



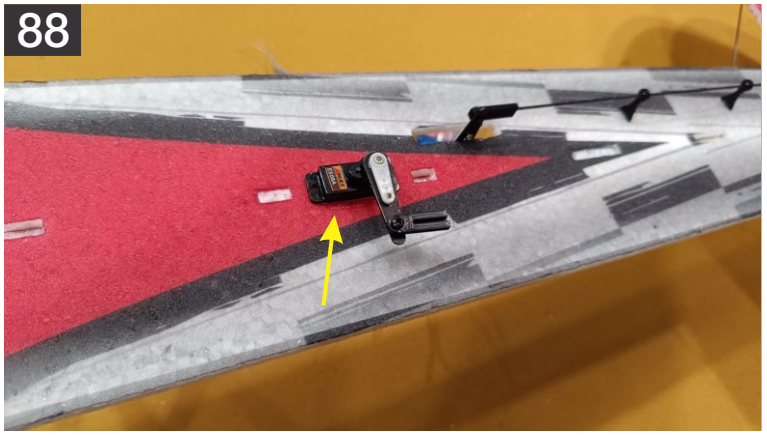
85. Use the assembly jig to center the elevator.



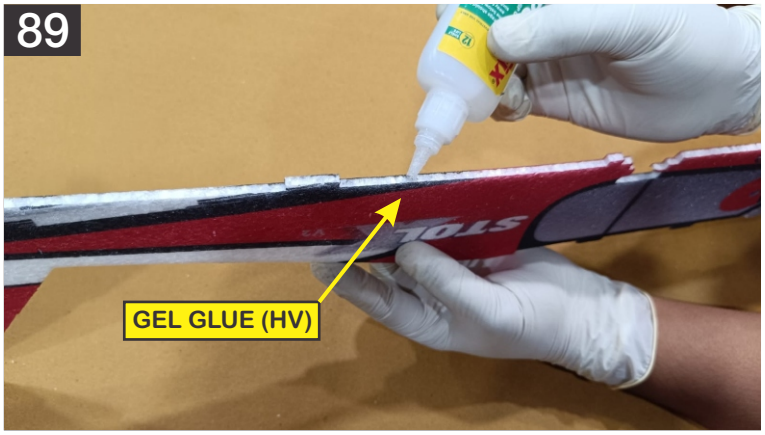
86. With the jig in place, Cut the rod at the position shown in the above image to fit in the quick link. Make sure you have the servo centered.



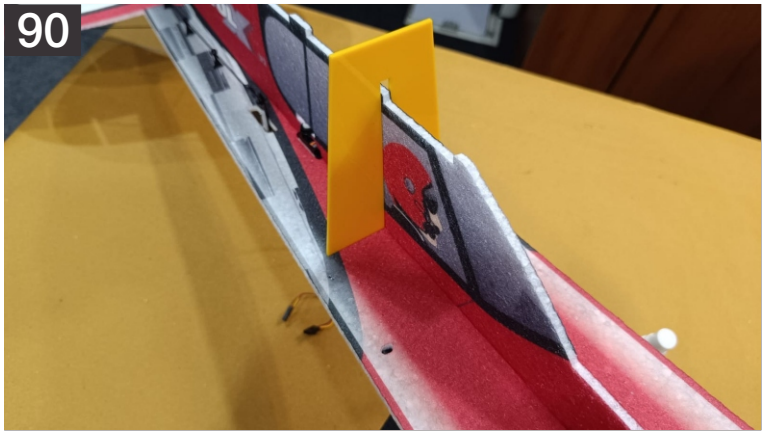
87. Above is the finished linkage setup with elevator centered and rod well fitted and glued in both the quick links with all the guides in place.



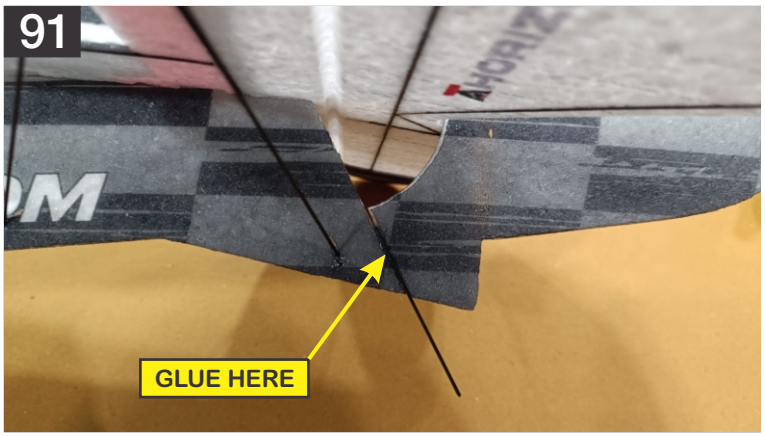
88. Before moving to the upper half of the fuselage, make sure you have glued the rudder servo in the designated slot with the servo arm centered.



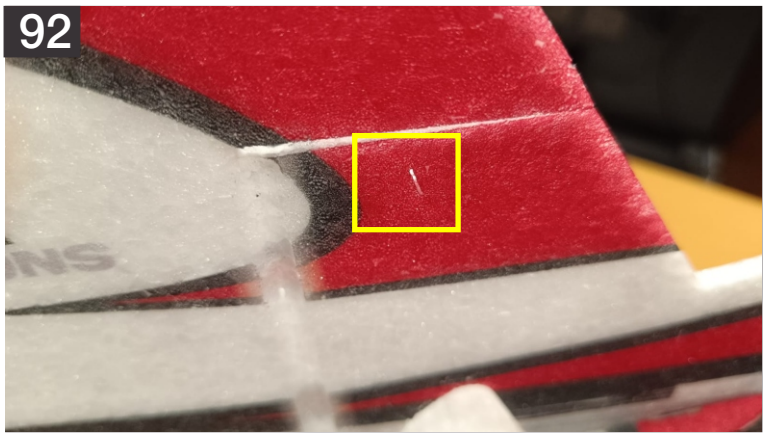
89. Use the same process as gluing the bottom of the fuselage to glue the top of the fuselage into place.



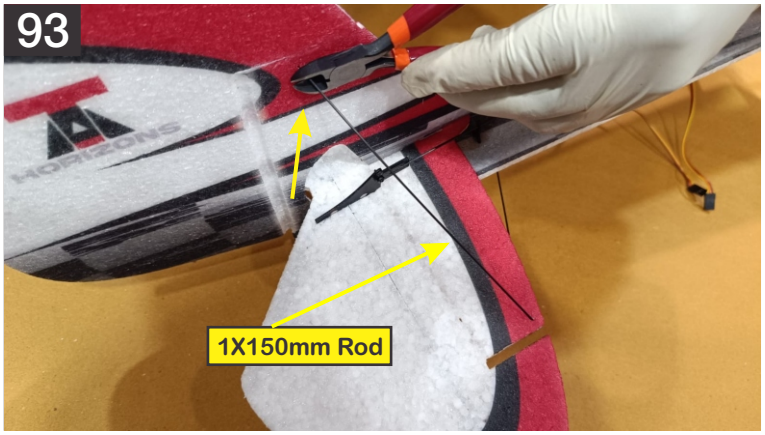
90. Engage all the tab and slots. Press firmly along the length of the fuselage to make sure all areas are fully seated. Check that the top piece is square and straight. Tweak if necessary to make it true.



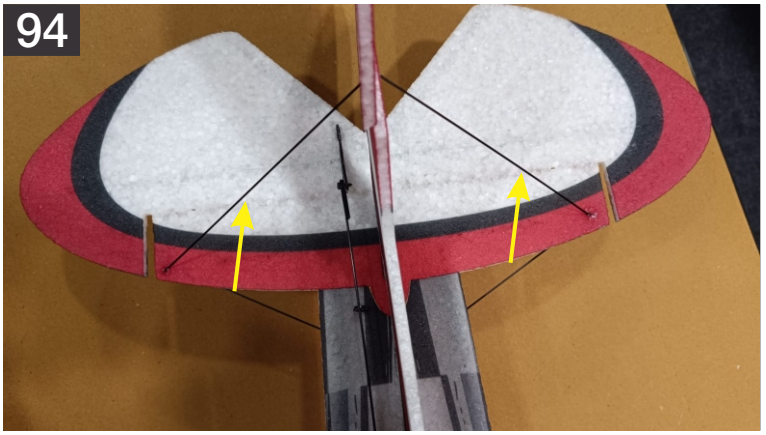
91. Now with the top portion installed glue the rear part to the flat carbon rod that we glued earlier.



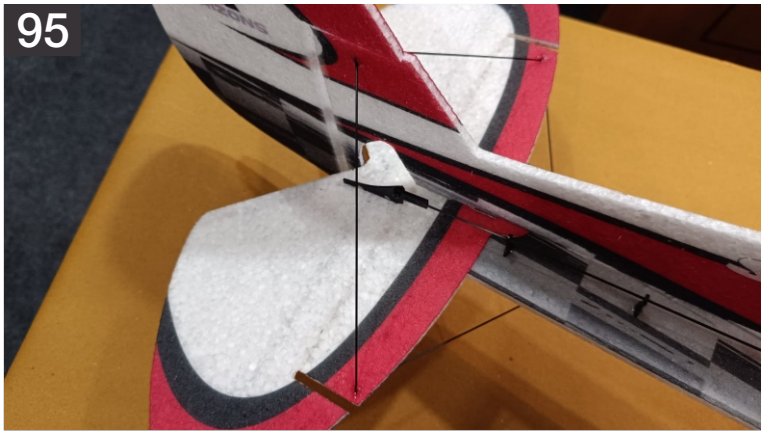
92. Locate the pre cut small slot on the fin.



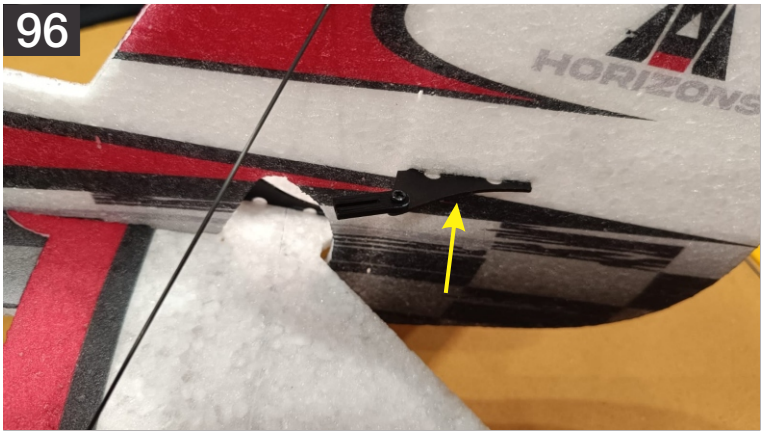
93. Cut down the length of 150mm from the 1mm rod, this rod will go on each side of the fuselage. It will be used to strengthen the horizontal stab and vertical stab.



94. Repeat the process for other side.



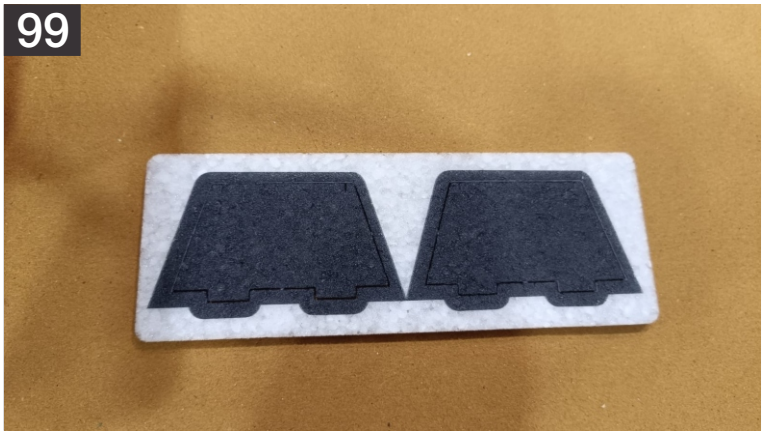
95. Here is the another view.



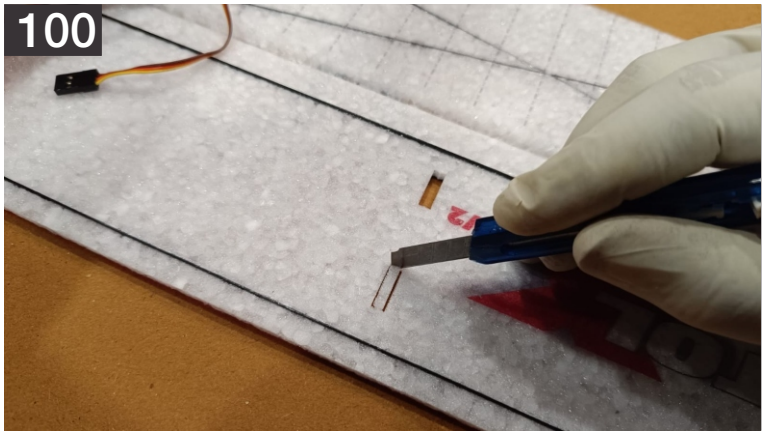
96. Install the rudder horn in place. (Opposite side of the elevator servo).

97. Above is the finished linkage setup with rudder centered and rod well fitted and glued in both the quick links with all the guides in place. Use the same process like we did in previous linkage setups.

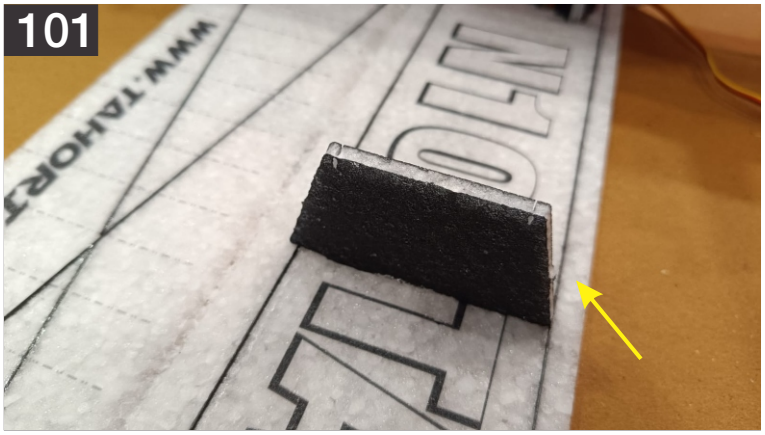
98. Up next is the step that we call "Marriage", Glue the pre-prepared, Fuselage and wing together like shown above.



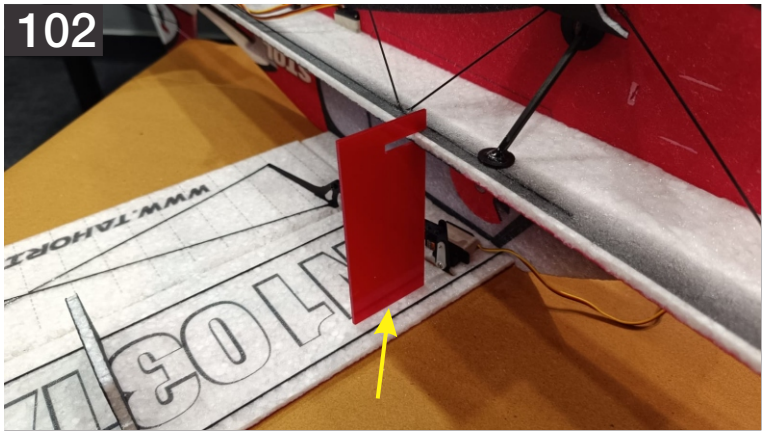
99. Truss braces on the under side of the Wing can be installed next, locate the above parts for the next process.



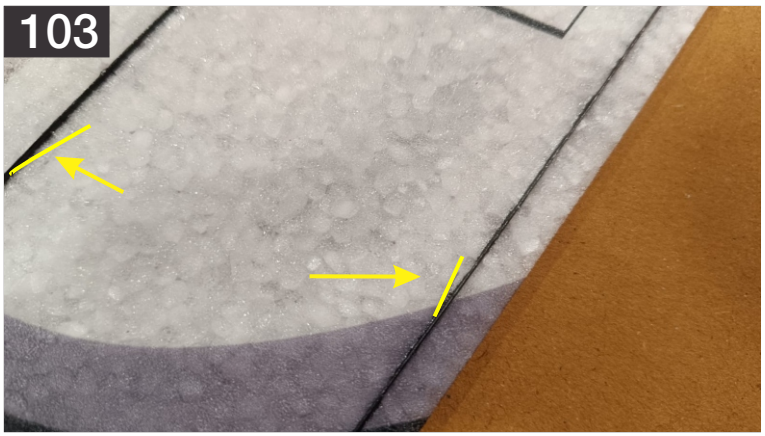
100. Take out the excess EPP foam from the slots like shown above.



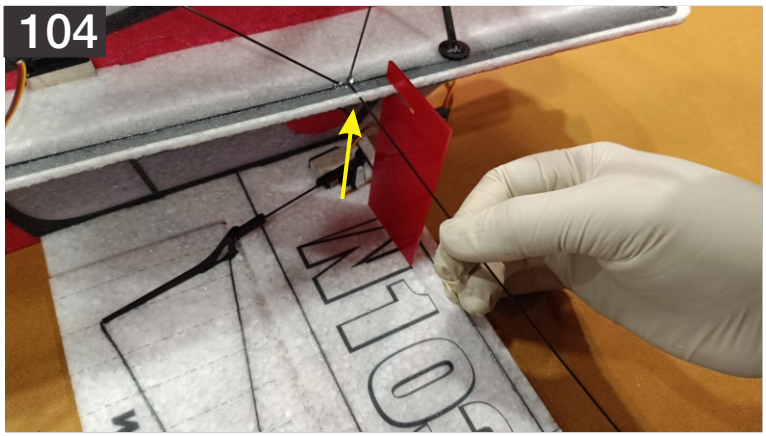
101. Install one on each side as shown, make sure they are fully engaged into their respective slots.



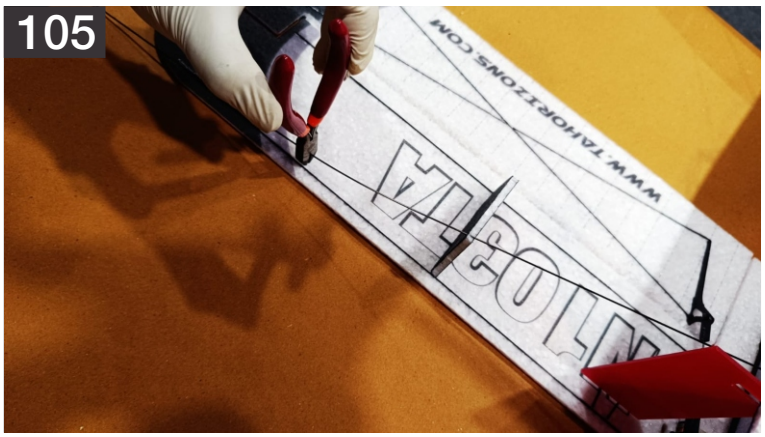
102. Use the supplied wing assembly jig to make sure the fuselage stays in correct positing and square with the wing while glueing.



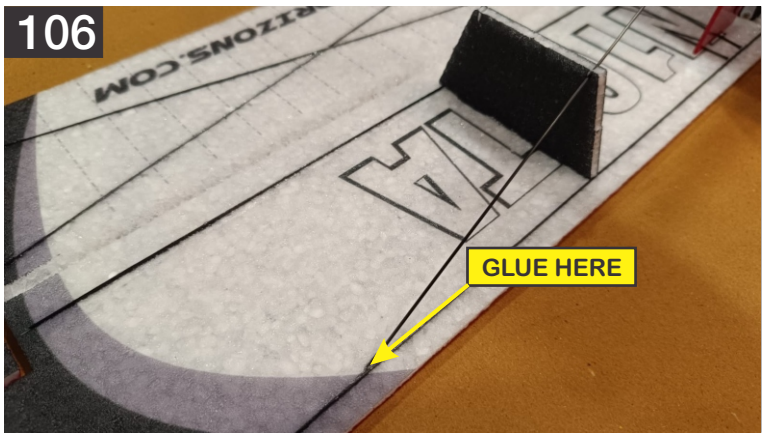
103. Locate the pre cut small slits on the wing tips, 2 slits on both the ends, to insert the rods into.



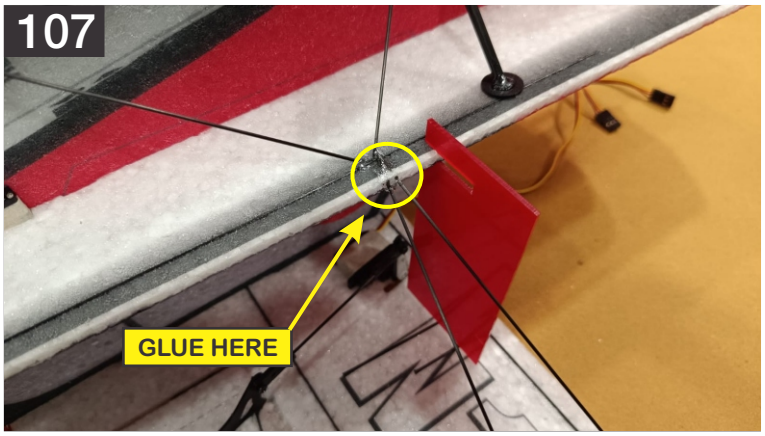
104. For wing braces, use the same 1mm rod, start by poking it into the horizontal profile section at the same location as shown above. Make sure you have the jig in place throughout the process.



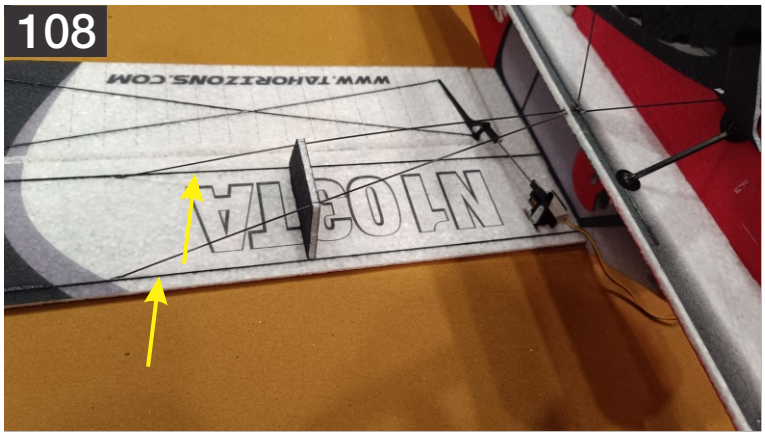
105. Route them thru the slits in the truss guide. They will fit down into the slit about 1/8 inch. Cut the rod right over the pre cut small slits on the wing tips.



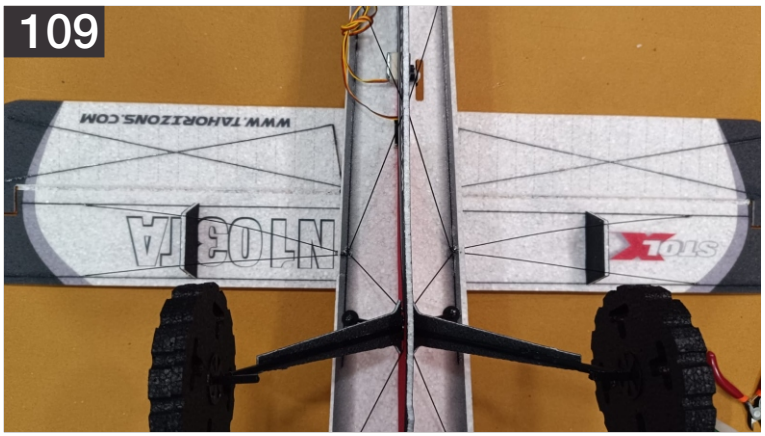
106. Glue the rod in place.



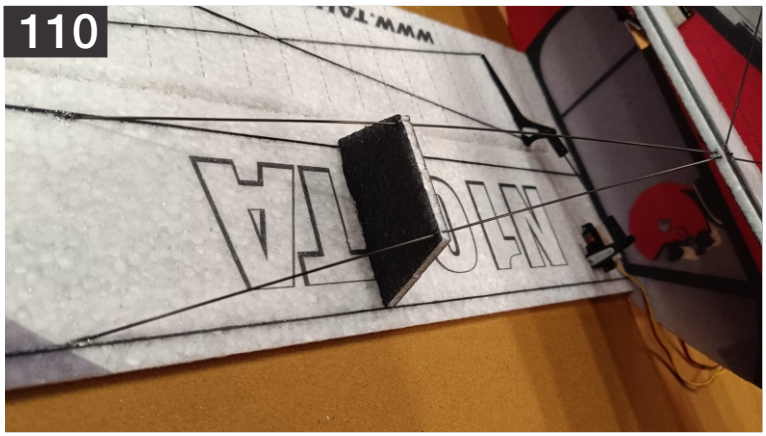
107. Poke and glue the other rod right next to the first one like shown above.



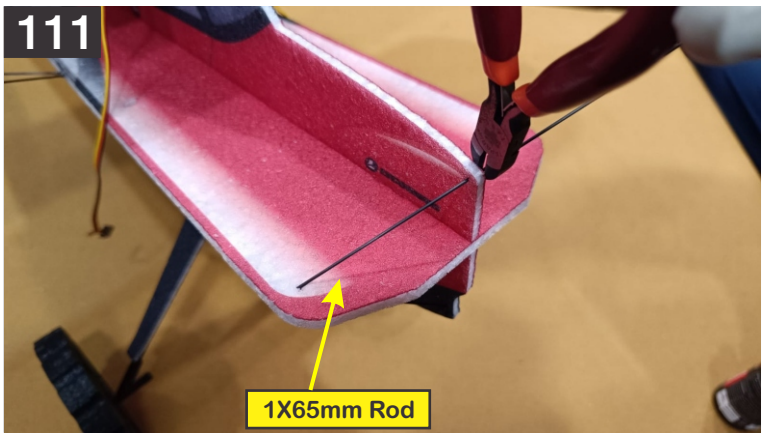
108. Repeat the same process for next rod as well.



109. Repeat the same steps for the other side like shown above.

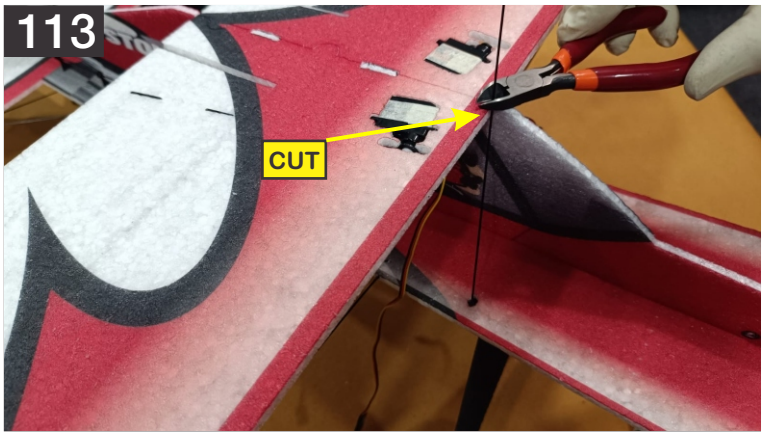


110. Here is another view.

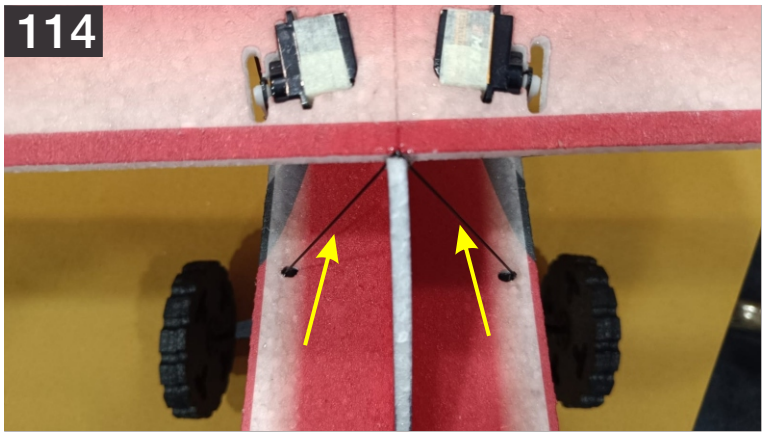


111. Cut down the 2 pieces 65mm length rod from the supplied 1mm rod, and glue them in place like shown in the above image for motor mount reinforcement.

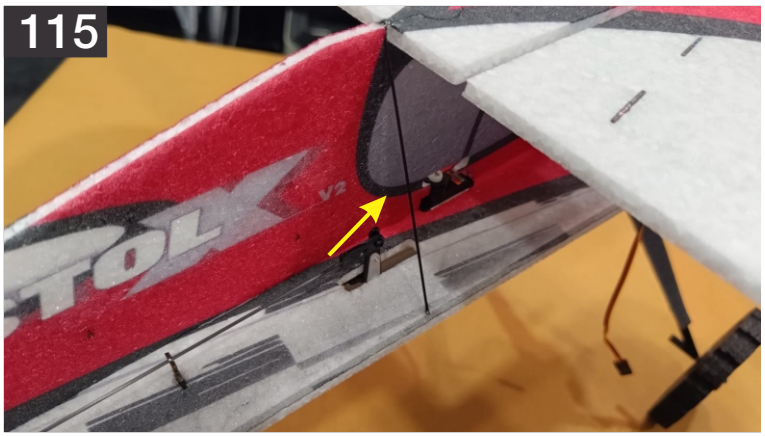
112. Here are all the mount reinforcement rods glued in place.



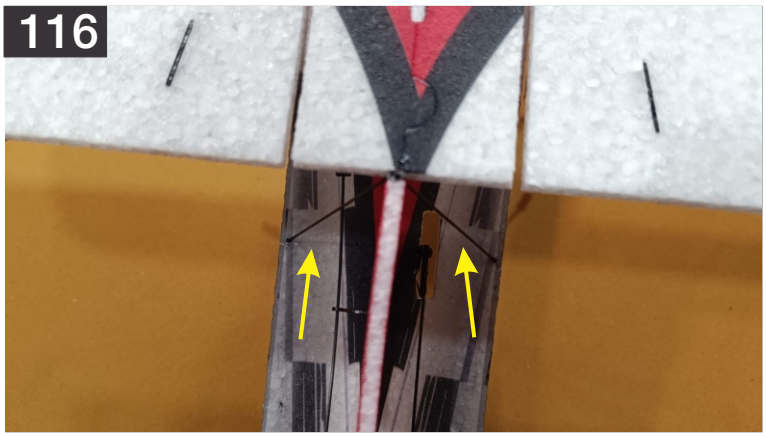
113. Here is the 1mm reinforcement rod that goes from the horizontal profile section to center of the leading edge of the wing.



114. Repeat the process for other side as well.

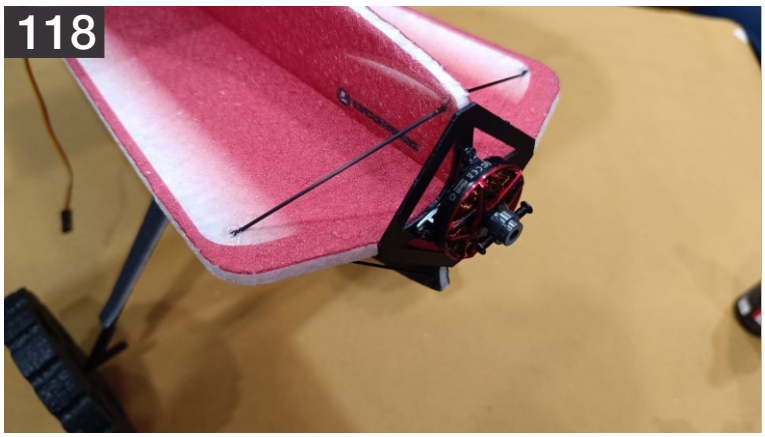


115. Here is the 1mm reinforcement rod that goes from the horizontal profile section to center of the trailing edge of the wing.

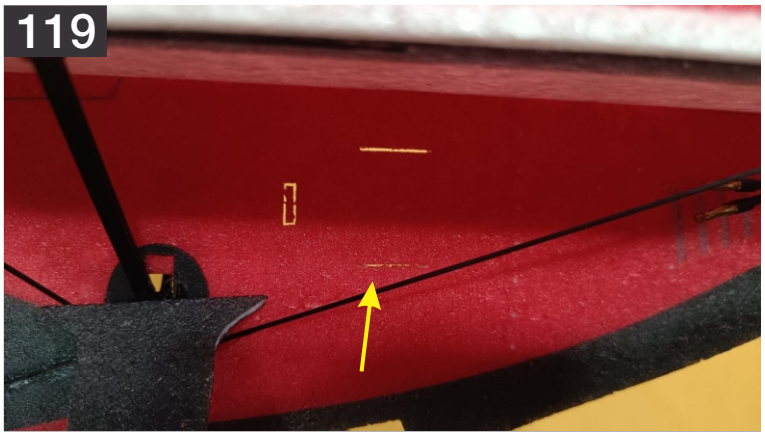


116. Repeat the process for other side as well.

117. Shown above is the motor mount glued, making sure everything is flush and lined up correctly. After that Install the motor on it.

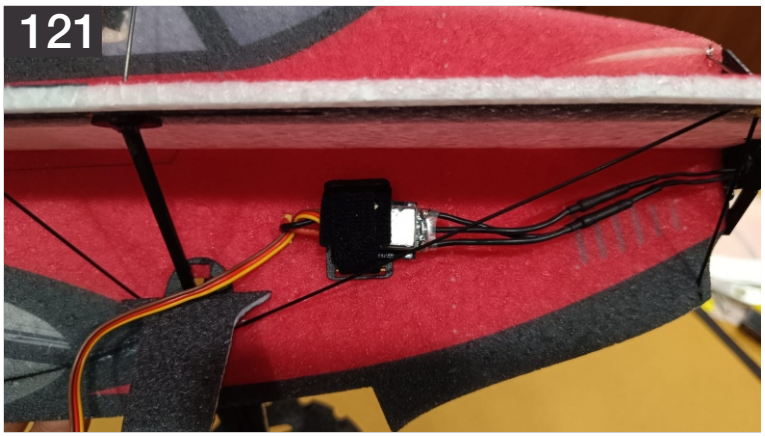


118. Enlarge the pre cut holes over the mount according to need and install the motor on it.



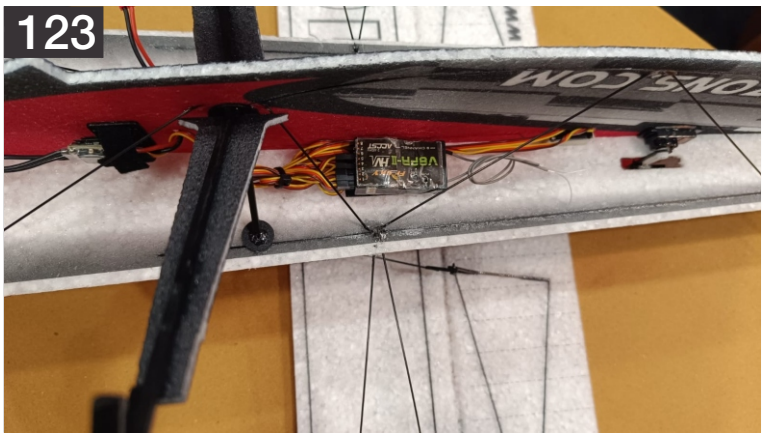
119. Locate the above pre cut slot for glueing the ESC tray.

120. Notice above the plate glued onto the side of the fuselage. This can be used to mount the electronic speed controller.



121. Here is the ESC tied up using the supplied velcro over the ESC tray.

122. Route the aileron servo cables through the desired side of the fuselage like shown above.



123. Here is the complete picture of receiver setup.

124. The long piece of velcro along with the strapping velcro mounted, above is the location of the battery for this setup.

125. Set up your radio as per the suggestions given a little later in this manual, check all the control directions and motor rotation.

CENTER OF GRAVITY

Initial CG is located 225mm from the nose of the aircraft (Not from the motor)

CONTROL THROWS

Extreme & 3D:
Ailerons - approx +/- 45 deg
Rudder - approx +/- 45 deg
Elevator - approx +/- 45 deg
Expo to suit

Beginner & Sport:
Ailerons - approx +/- 20 deg
Rudder - approx +/- 20 deg
Elevator - approx +/- 20 deg
Expo to suit

In order to achieve the control throws as described for “Extreme & 3D”, it is imperative that the control surface, linkages, rod ends, etc, all move freely over the entire range, including range end points.
Failure to do so will result in damage to either the servos or mechanical components

Thank You..

Thank you for your purchase at TA Horizons. We sincerely hope that our products can provide the same thrill to you that we experience in this hobby. The motive of this project is to spread the outcome of my love for teaching and share my knowledge and experience with every enthusiast out there.

Please feel free to contact us regarding any type of question about this kit.

Happy Landings,
Tanmay Agrawal
TA Horizons