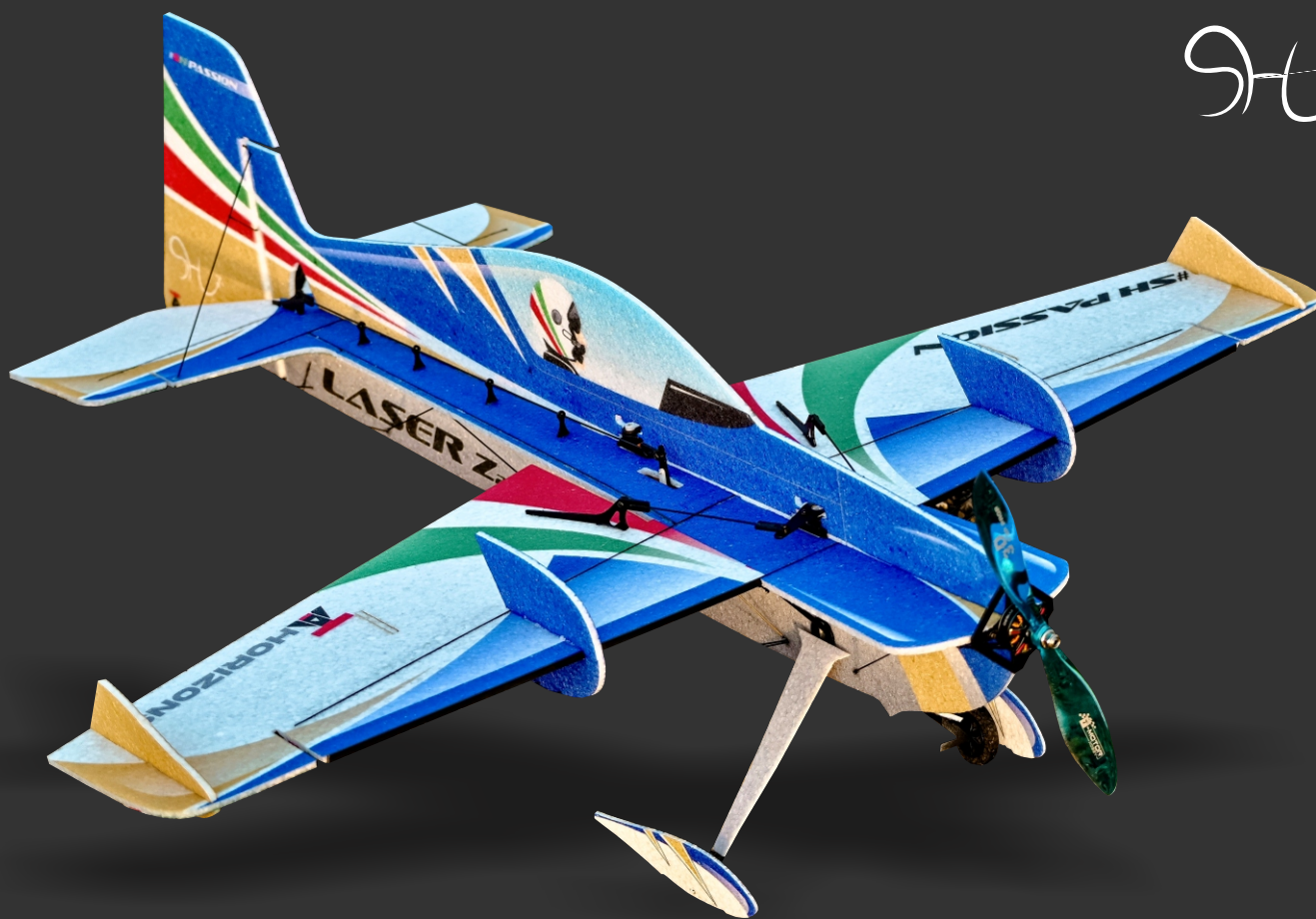


**TA HORIZONS**

**33" LASER Z<sub>2300</sub>**

**#SH PASSION**



## TA HORIZONS 33" LASER Z2300 ASSEMBLY INSTRUCTION MANUAL

Technical Data-

Wingspan : 33"

Length : 35"

AUW : 180-220g

(Depends upon the setup used)

Setup Recommendations (Not Included)-

Motor : 18-22G 1800-2300KV Outrunner

(T-Motor AS2304 1800KV Recommended for Super Light Setup)

ESC : 12-16 amp

Servos : 3Pcs 9gms each

Propeller : 8-9" electric

Battery : 450-600Mah 2-3S Lipo



## WARNING INFORMATION & SAFETY INSTRUCTIONS

Website: [www.tahorizons.com](http://www.tahorizons.com)

Email: [tahorizons@gmail.com](mailto:tahorizons@gmail.com)

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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.

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**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.

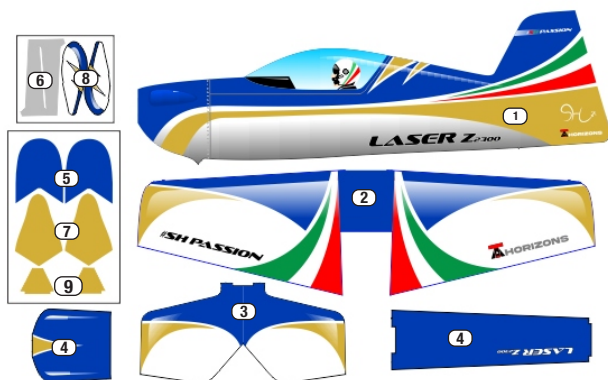
These instructions are suggestions only on how to assemble this model. There are other ways & methods also to do so. TA Horizons has no control over the final assembly because it specifically depends upon the knowledge and experience of the person involved directly in its handling, or the manner in which 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.

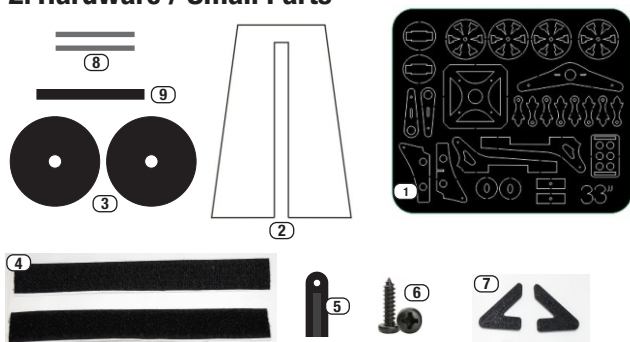
## 1. EPP Parts



### EPP Parts

- ① Fuselage
- ② Wings
- ③ Horizontal stabilizer
- ④ Horizontal profile section
- ⑤ Wing truss supports X 2
- ⑥ Landing gear cover
- ⑦ Side Force Generators X 2
- ⑧ Wheel Pants X 2
- ⑨ Aileron truss support X 2

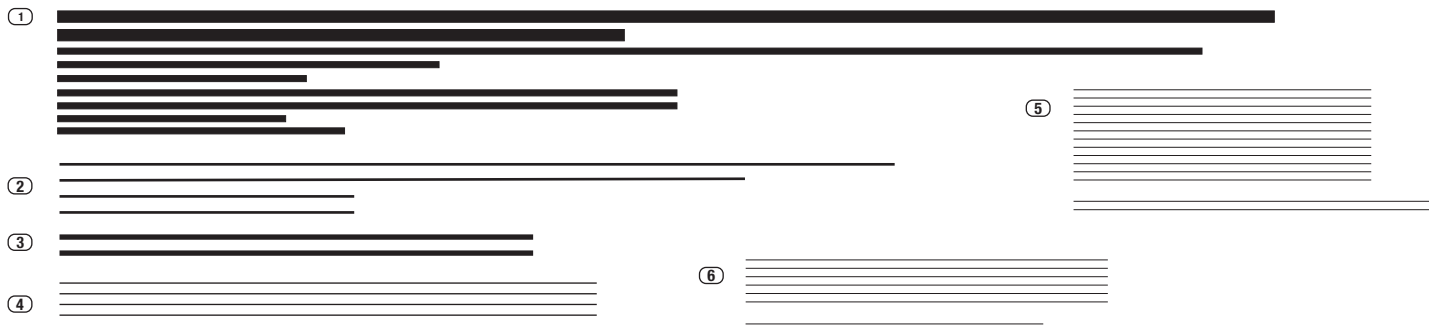
## 2. Hardware / Small Parts



### Hardware Parts

- ① Polycarbonate parts
- ② Fuselage assembly jig
- ③ EPP Wheels X 2
- ④ 150mm velcro
- ⑤ Quick links X 8
- ⑥ Selftaping screw X 8
- ⑦ 3D printed wheel bracket X 2
- ⑧ 40mm 2mm CF Wheel Shaft X 2
- ⑨ 60mm CF strip

## 3. Carbon Rods / Strips / Tubes



### Carbon Rods / Strips / Tubes

- ① Flat 5X1mm 675mm L front wing spar  
Flat 5X1mm 325mm L elevator spar  
Flat 3X0.5mm 645mm L aft wing spar  
Flat 3X0.5mm 200mm L rud renf  
Flat 3X0.5mm 150mm L fin renf  
Flat 3X0.5mm 415mm L fuse renf X2  
Flat 3X0.5mm 170mm L tail renf  
Flat 3X0.5mm 180mm L vertical fuse renf
- ② 1.2mm CF Control rods  
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 Wing Truss Rods  
L 330mm X 4
- ⑤ 1mm Fuselage truss rods  
150mm L X 12  
200mm L X 2  
100mm L X 2
- ⑥ 1mm Aileron truss rods  
200mm L X 6  
150mm L X 2

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.

## ***TOOLS AND BUILDING MATERIAL REQUIRED***

- 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
  - Allenkey
- 



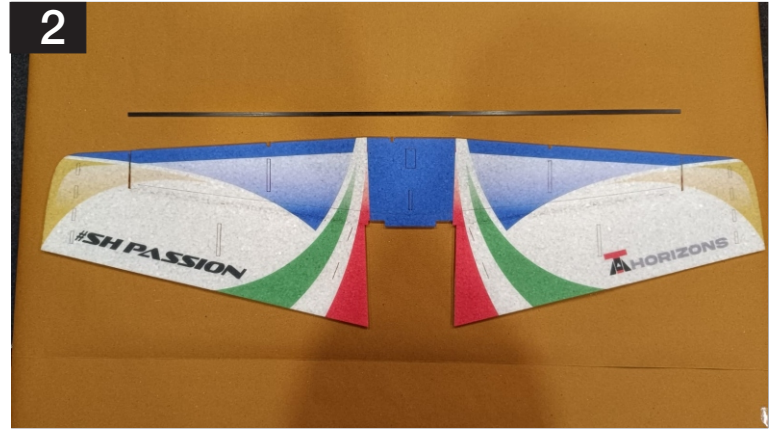


# The Build

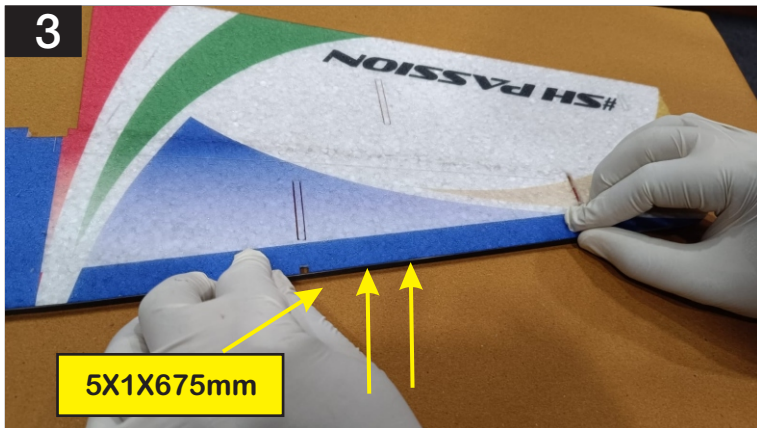
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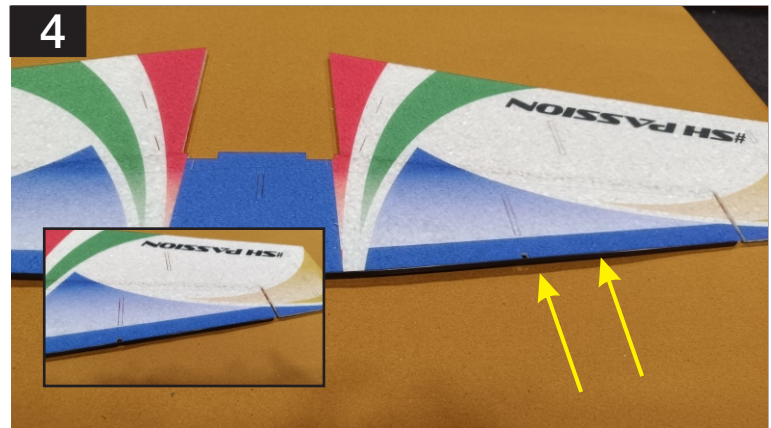
1. (This is mandatory step) locate the hinged items as shown above, Bend them back on to each other as shown and let set for at least 2 hours. This will help to loosen up the movement of the surface.



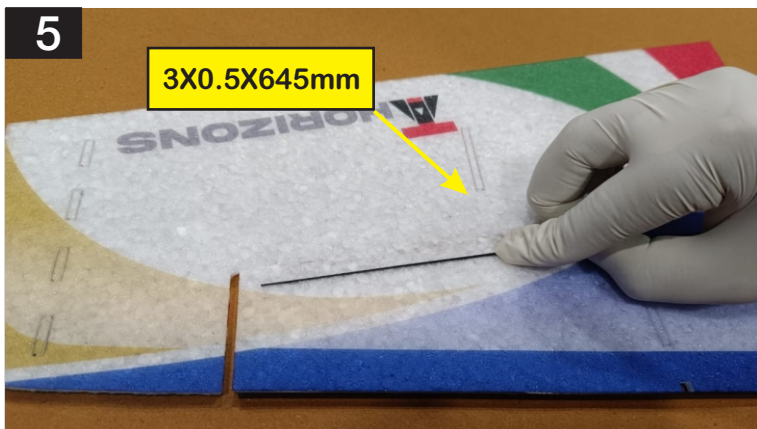
2. Locate the 5mm X 675mm CF Spar shown in the picture above.



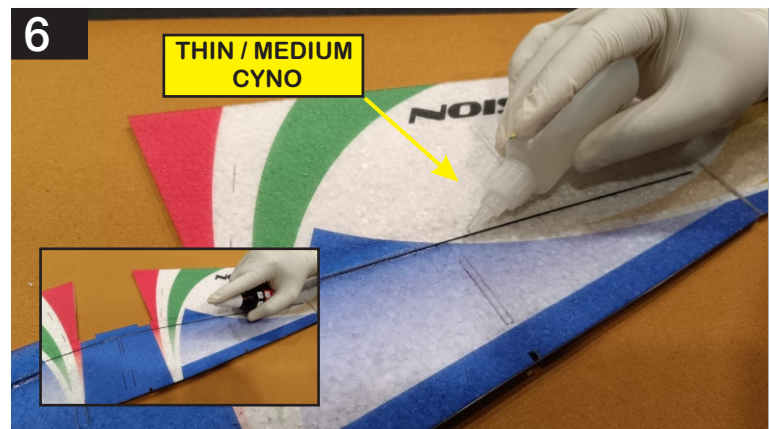
3. Apply a thin layer of HV Cyno on CF Spar, and glue it on the leading edge of wing, like shown above.



4. Make sure to lay down the wing on the flat surface while glueing the CF stripe.



5. Locate the 3X0.5mm 645mm Stripe, for rear wing re-inforcement, insert the stripe vertically into the pre-cut slot, make sure it is completely inserted into the slot.

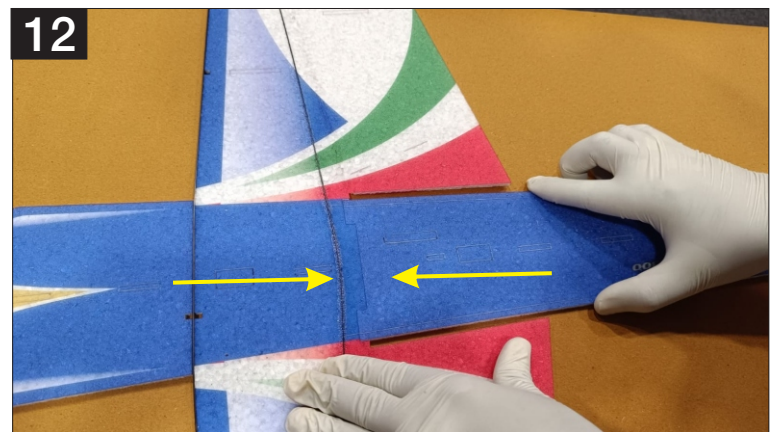
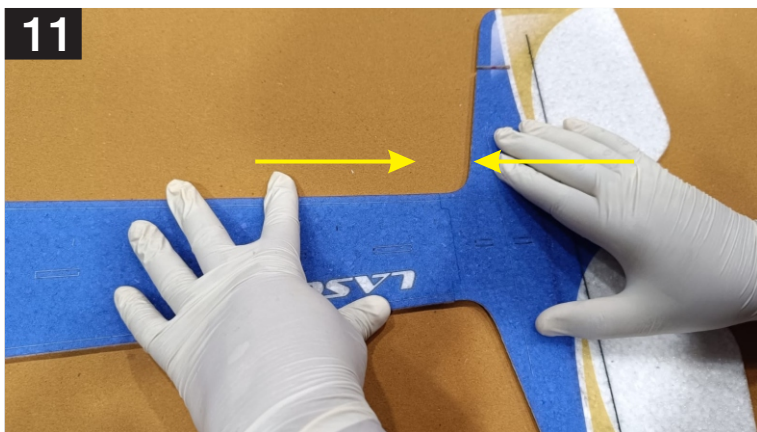
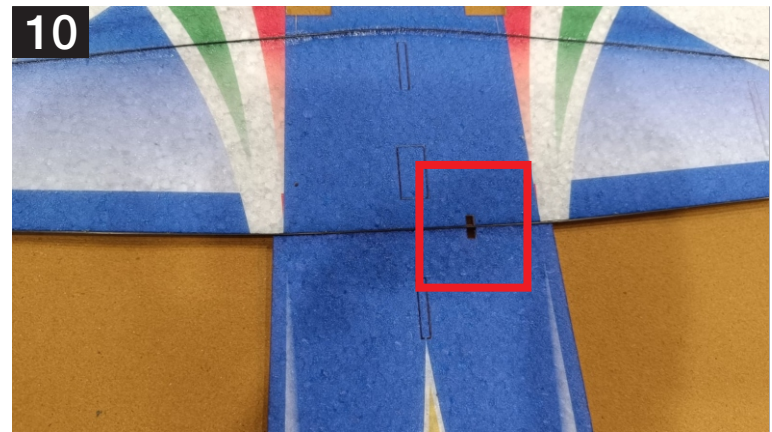
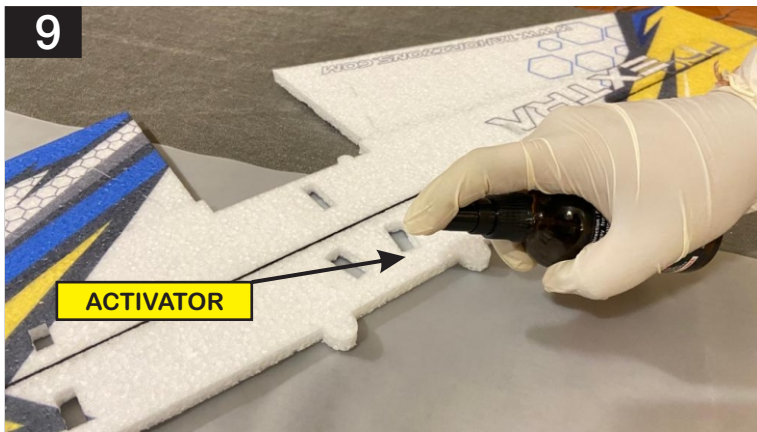
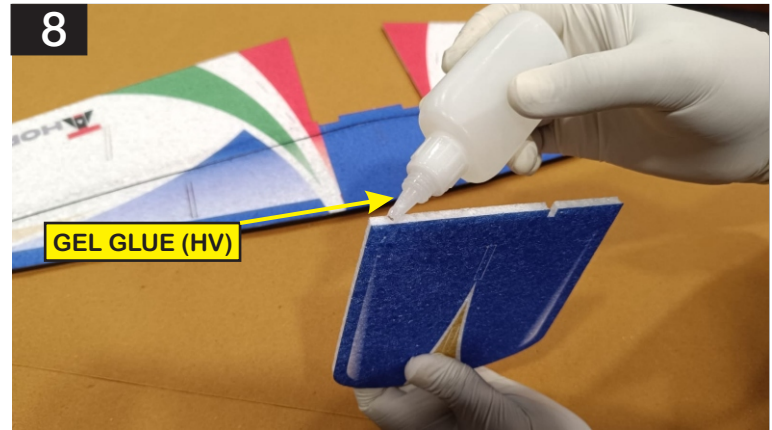
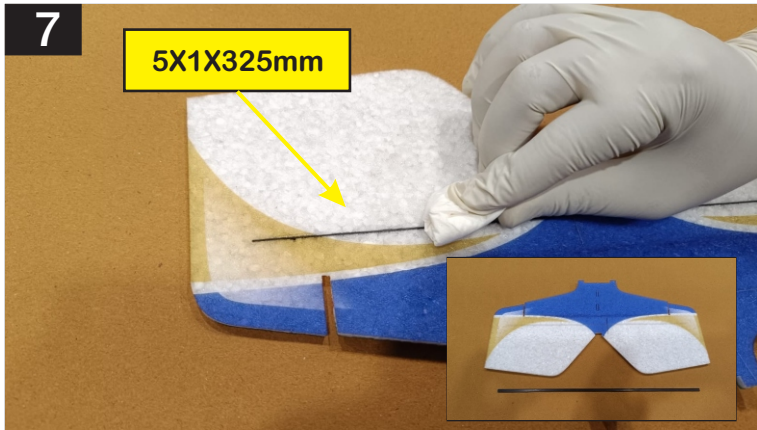


6. Use thin or medium cyno to glue this stripe. use spray activator to cure it.



## The Build

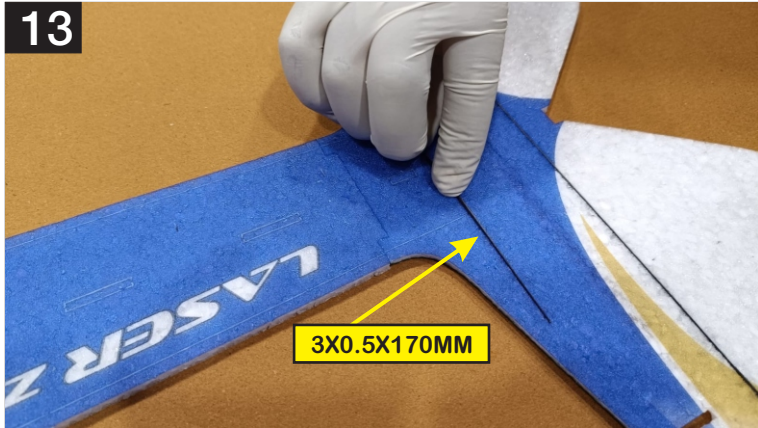
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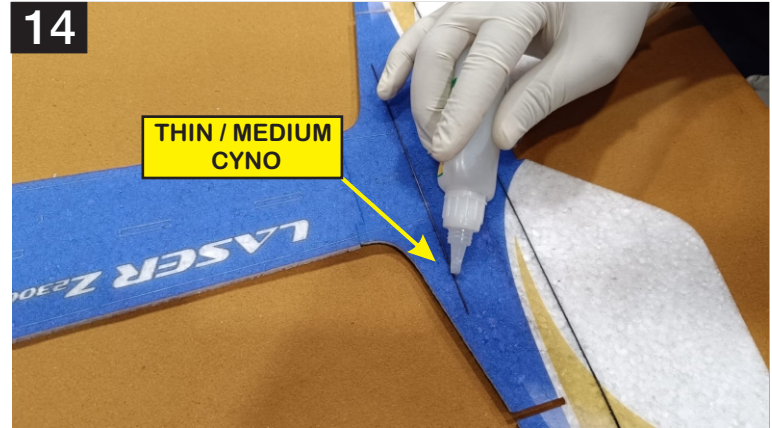


## The Build

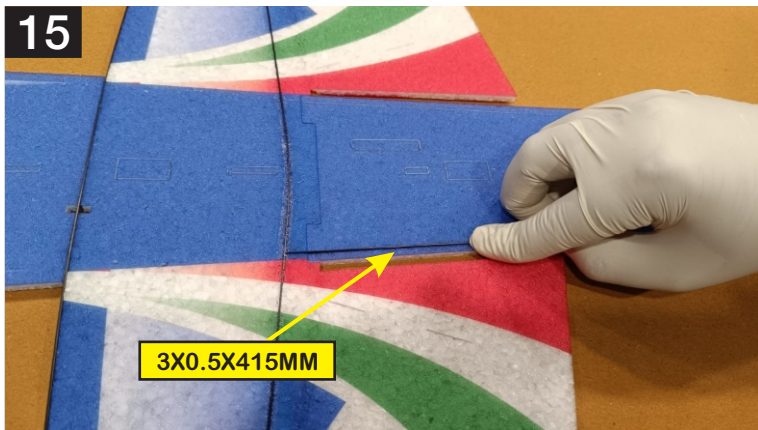
Please Note: Few pictures shown below are of different plane and for reference purpose only.



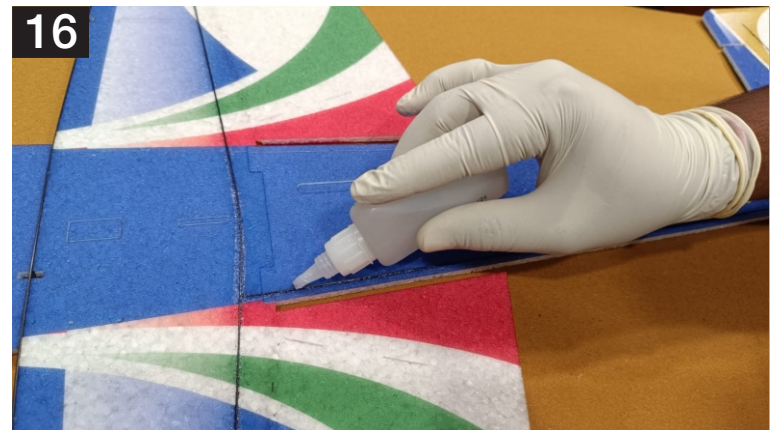
13. Locate the 3X0.5mm 170mm stripe for tail re-inforcement, insert the stripe vertically into the precut slot, make sure it is completely inserted into the slot.



14. Use thin/medium cyno to glue this stripe, use spray activator to cure it.



15. The horizontal piece of the fuselage also uses flat carbon fiber spanning the entire length from the rear wing spar to the horizontal stab spar, locate the 3X0.5mm 415mm stripe, insert the stripe vertically into the precut slot like shown above.



16. Use thin/medium cyno to glue this stripe, use spray activator to cure it.



17. Here are 2 X 415mm stripes inserted and glued from the rear wing spar to the horizontal stab spar.

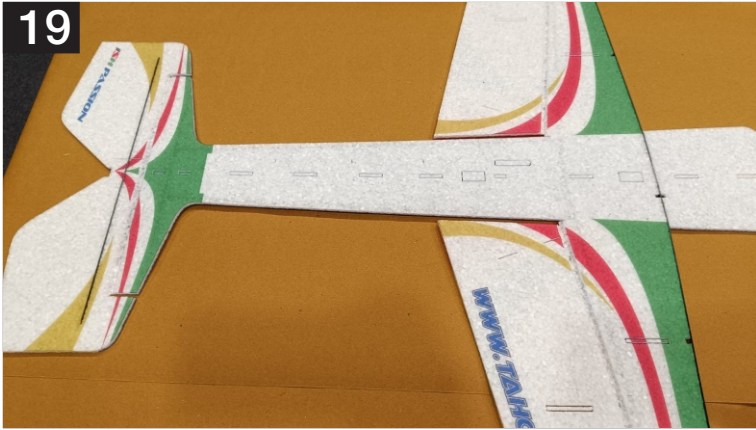


18. Wipe off the excess glue if needed.

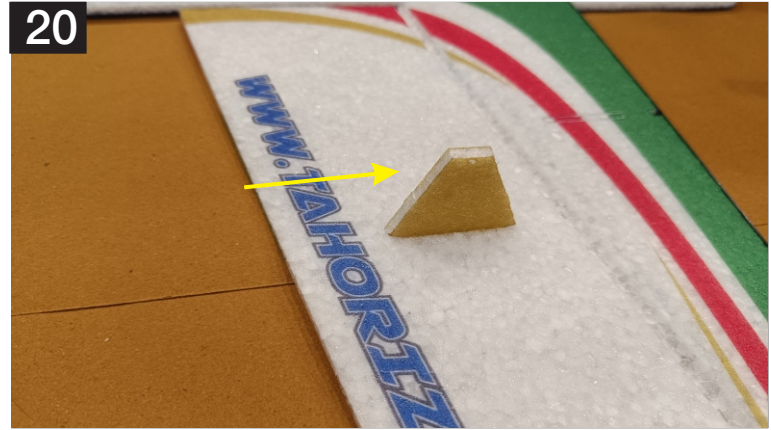


## The Build

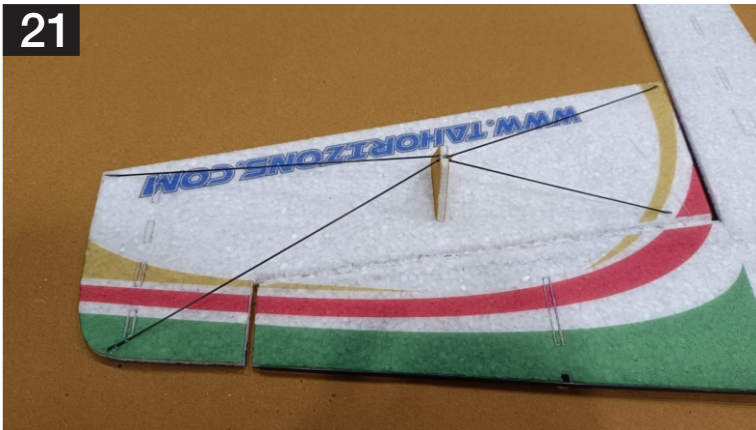
Please Note: Few pictures shown below are of different plane and for reference purpose only.



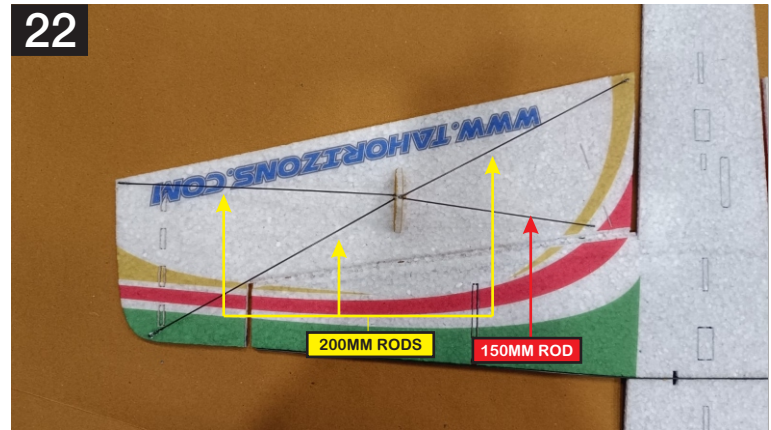
19. Time to do Aileron trussing.



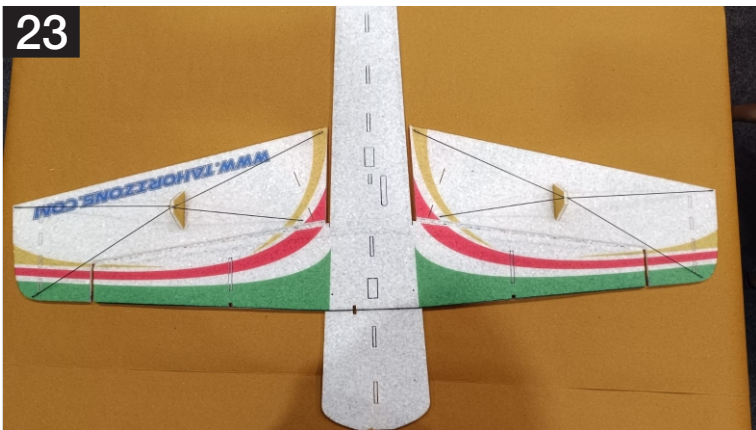
20. Use the yellow marked part of foam as aileron truss support.



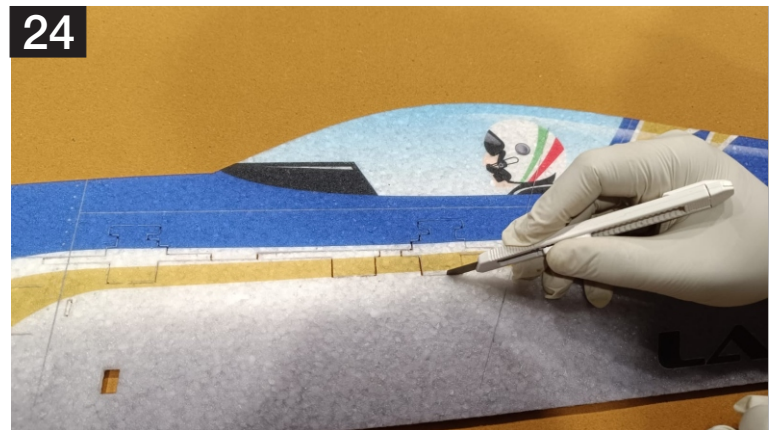
21. Locate the triangular joiner that will be placed on the underside of each aileron. Once you make sure that it fits clean and snug into the cutout, you can glue this piece in and repeat to the other side.



22. Locate the 3 X 200mm and 1 X 150mm 1mmD rods. With the joiner in place, you can now begin the process of bracing the aileron. This will include four carbon fiber rods in the configuration shown above.



23. Repeat the process for the other side aileron.

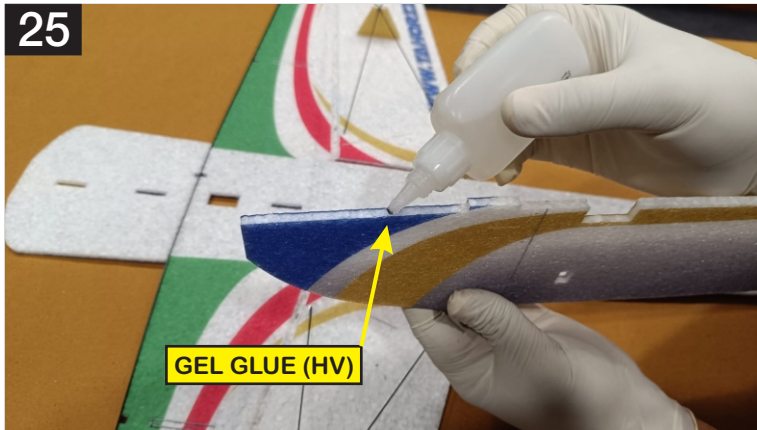


24. We can now begin the vertical fuselage installation, use the blade to separate both the parts.



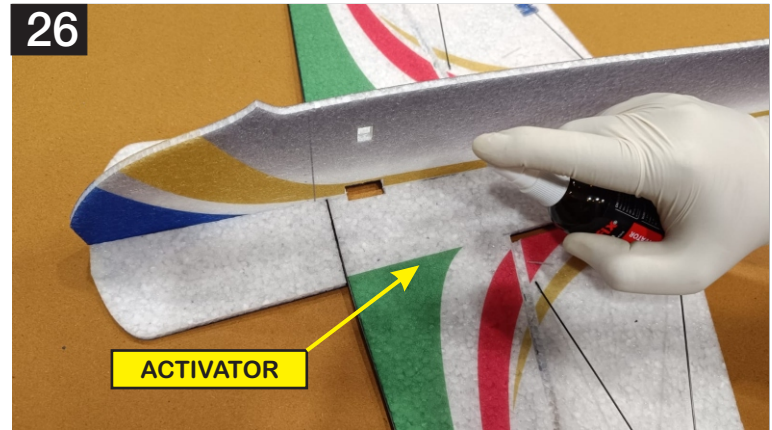
## The Build

Please Note: Few pictures shown below are of different plane and for reference purpose only.



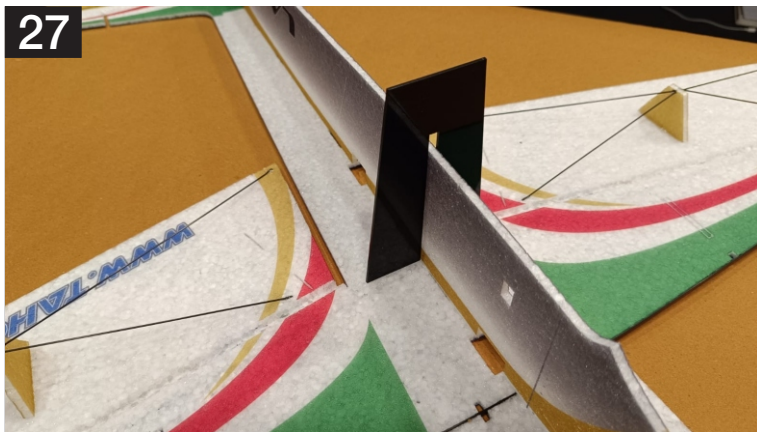
**GEL GLUE (HV)**

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

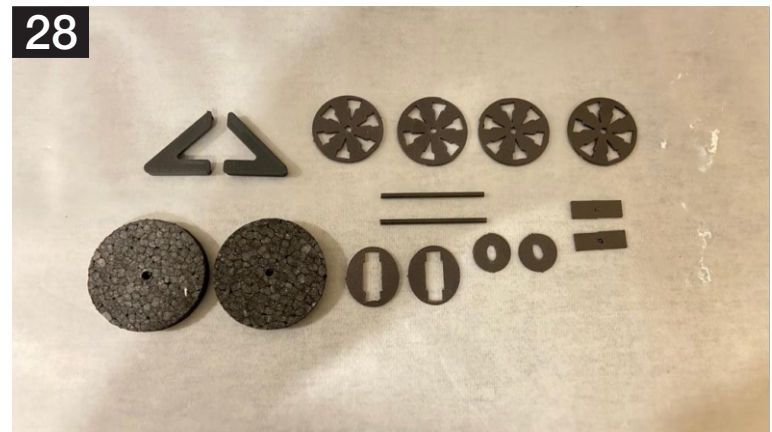


**ACTIVATOR**

26. Bring the two pieces together. You will have a little time to work with and adjust for squareness.



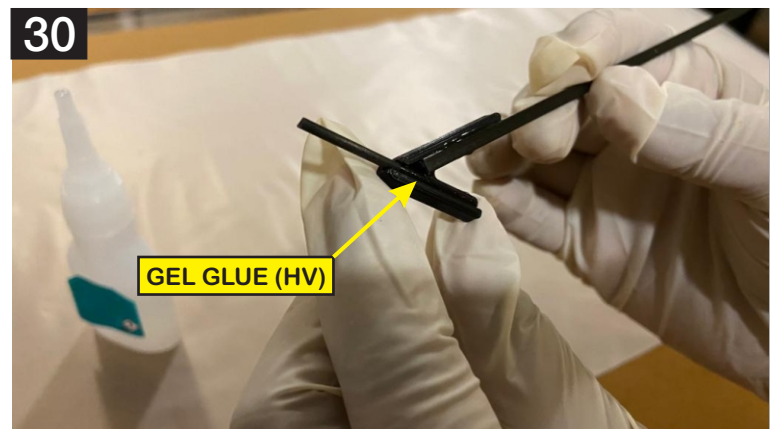
27. It is extremely important to make sure that the bottom part of the fuselage stays 90 degrees to the horizontal fuselage while the glue is setting. Use the supplied jig for this task.



28. Locate the above parts for the undercarriage assembly



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



**GEL GLUE (HV)**

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

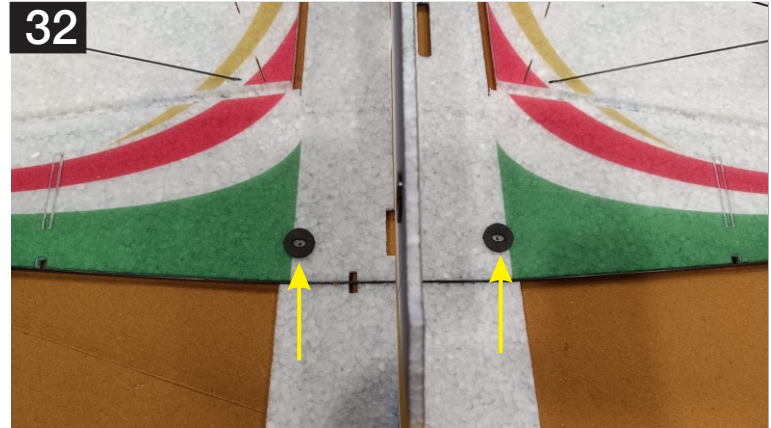


## The Build

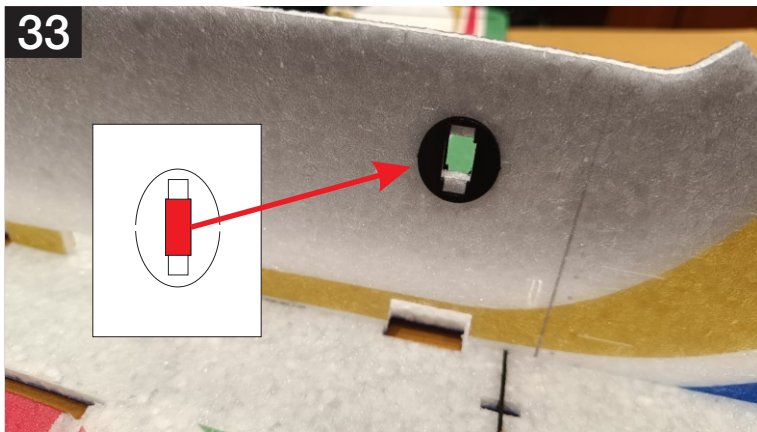
Please Note: Few pictures shown below are of different plane and for reference purpose only.



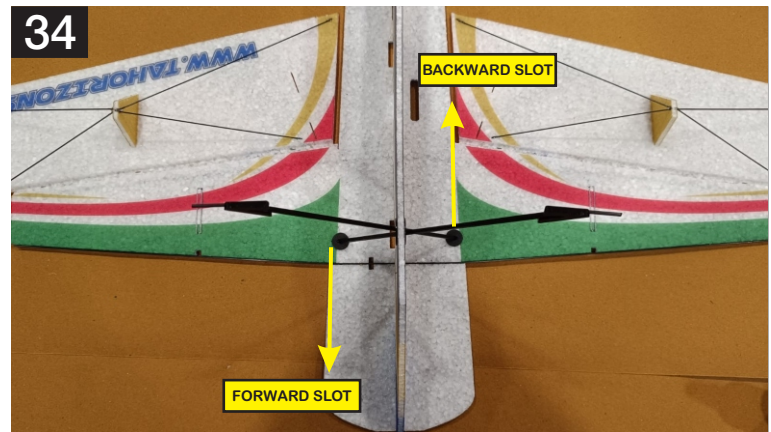
31. Optionally use a heat shrink tubing for better cosmetic finish.



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



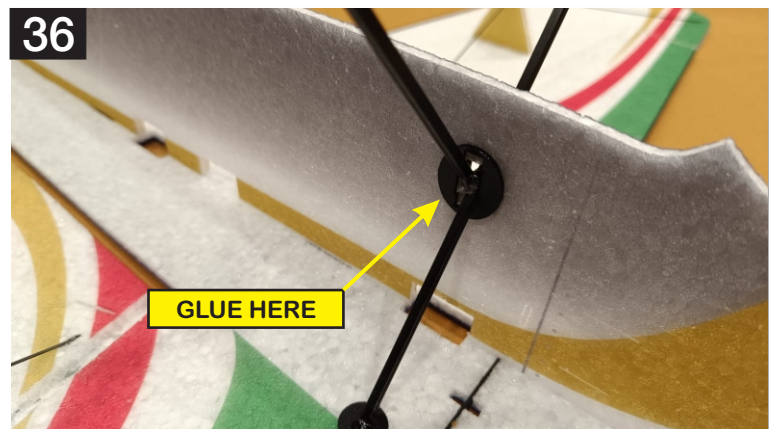
33. Glue the shown parts over the precut slots using the HV CA and cure everything together using the kicker. Match the shown red area with the precut slot in the EPP.



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



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

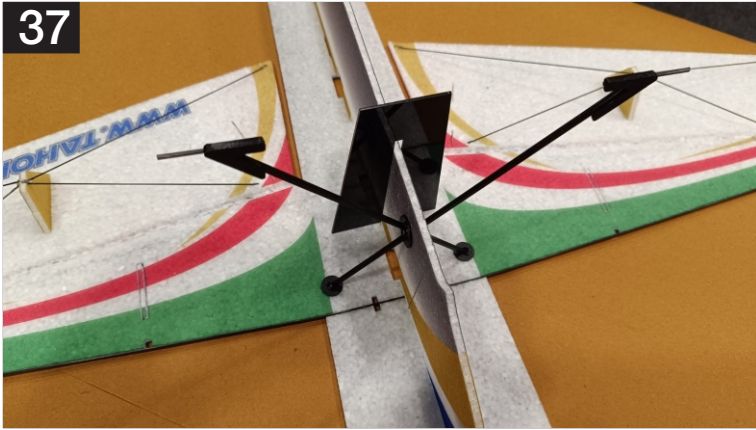


36. Put a drop of HV CA over the joints and spray everything together.

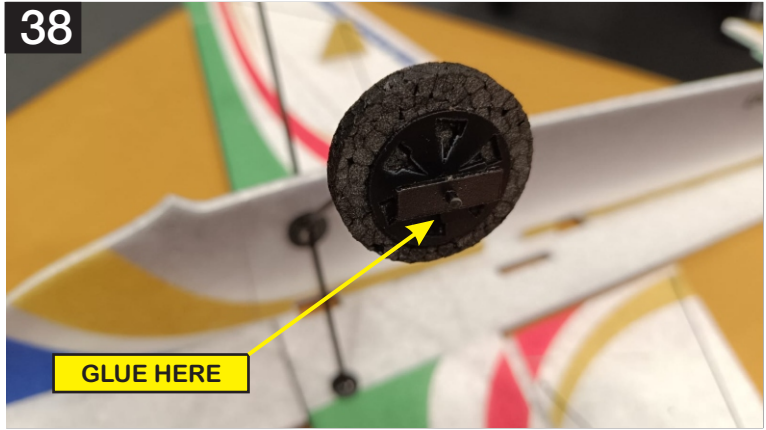


## The Build

Please Note: Few pictures shown below are of different plane and for reference purpose only.



37. Make sure the lower part of fuselage is straight while installing the gears using the building jig.



38. 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.



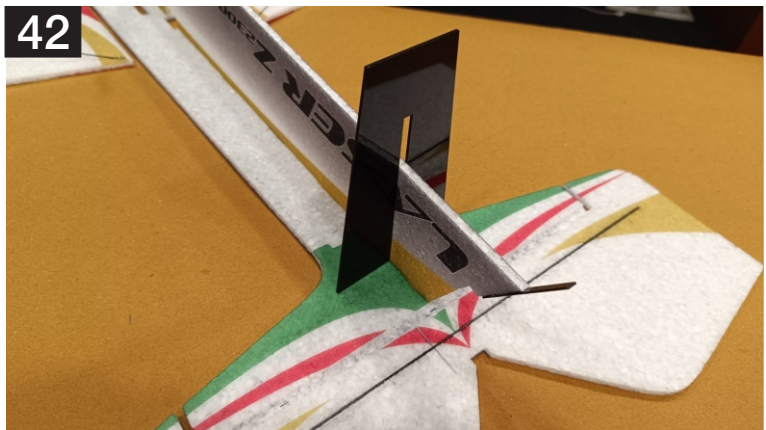
39. Glue the wheel pants on wheel stopper using the HV CA.



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



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



42. Time to install the fuselage and wing bracing, please use the jig installed for this process, so that lower part of the fuselage stays 90 degrees while installing the truss.

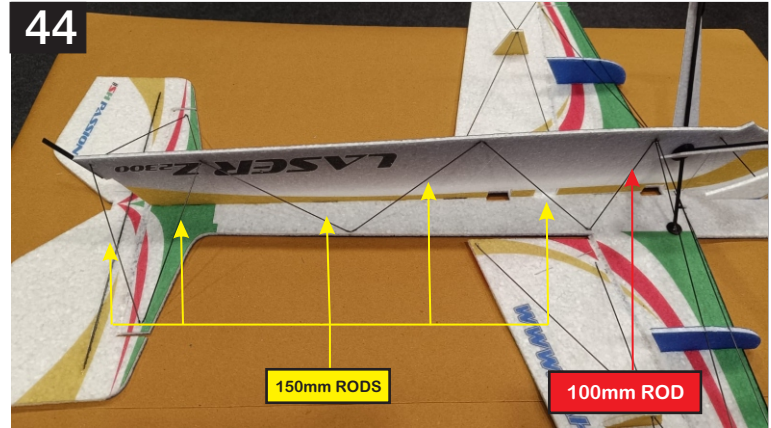


## The Build

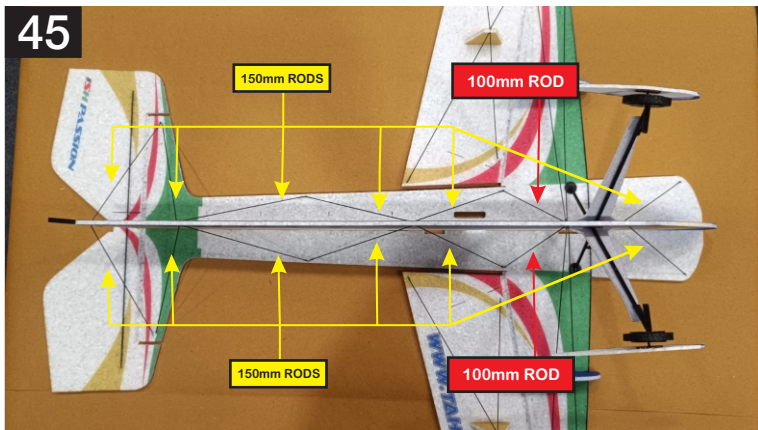
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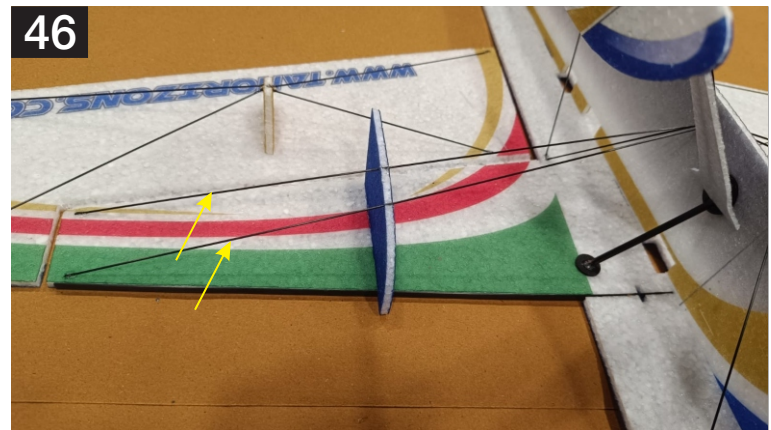
43. Locate and glue the half part of SFG works as wing truss support, glue it in pre-cut slot like shown in the picture.



44. Rods bracing the lower part of fuselage are 150mm X 12 and 100mm X 2. Please refer to the above image for reference.



45. Rods bracing the lower part of fuselage are 150mm X 12 and 100mm X 2. Please refer to the above image for reference. Carbon rod needs to sit couple of mm into the foam before gluing, Just put a small drop of HV Cyno to glue it.



46. Glue the 330mm L X 4 rods for wing bracing, Make a small slot on bracing support using a sharp knife where it meets the rod. Make sure the carbon bracing is slid about a mm down into the slots. Glue it using a HV CA.



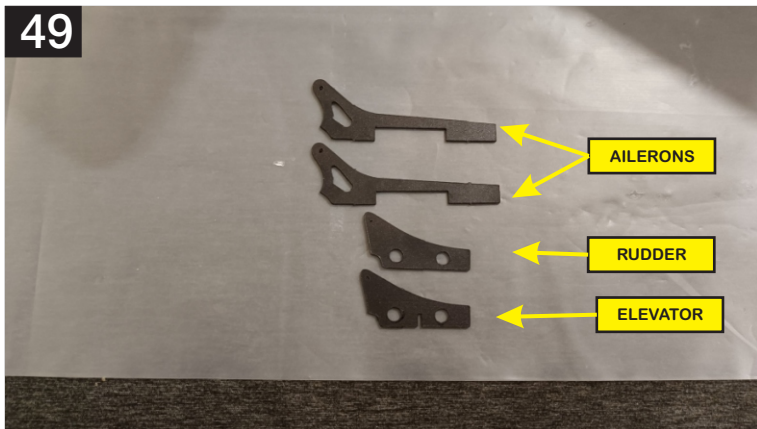
47. Make a small slot on bracing support using a sharp knife where it meets the rod. Make sure the carbon bracing is slid about a mm down into the slots.



48. Shown above is how the wing bracing rods glued with the last fuselage bracing just behind the undercarriage, on the fuselage.



Please Note: Few pictures shown below are of different plane and for reference purpose only.



49. Locate the servo trays and control horns, for elevator control horn you will notice a small square shaped cutout on the underside. This is meant to be placed around the spar of the elevator that was installed earlier.



50. Locate the servo arm extenders install the extenders over the stock plastic servo arms using the sewing thread. Alternatively one can install these using small screws as well.



51. Locate 8 X Quick links and 8 X 2mm screws, screw all quick links to the pre laser hole in all arms and horns.



52. 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.



53. Glue the aileron horns shown in the image in the precut control horn slot using HV CA. Make sure it sits right to the bottom of EPP Surface.

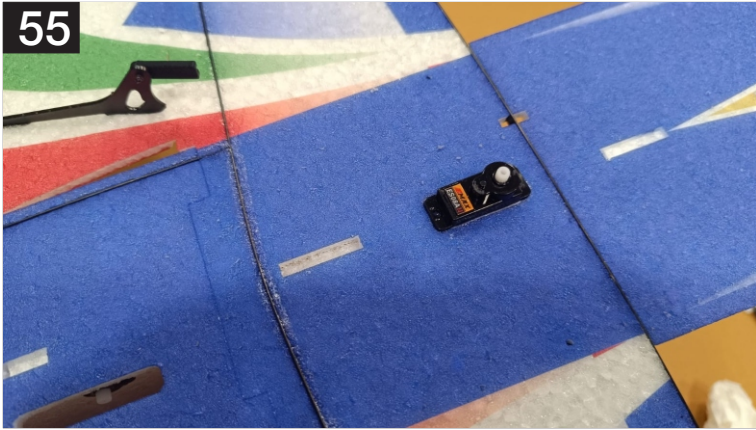


54. Glue the elevator horn shown in the image in the precut control horn slot using HV CA. Make sure it sits right to the bottom of EPP Surface.

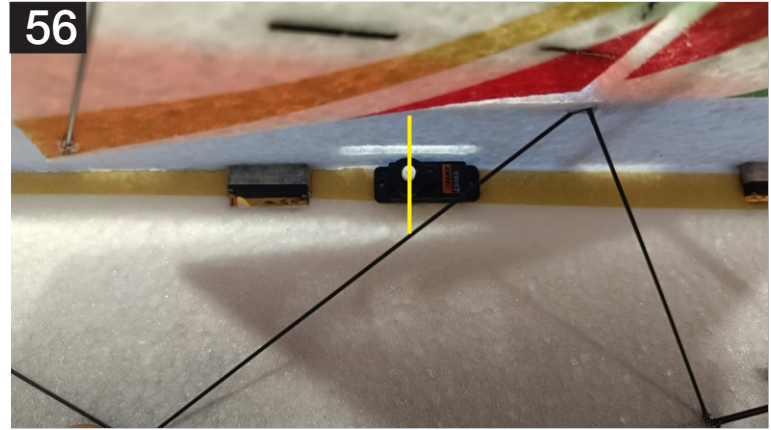


## The Build

Please Note: Few pictures shown below are of different plane and for reference purpose only.



55. Time to install the servos, put the aileron servo in place and glue it.



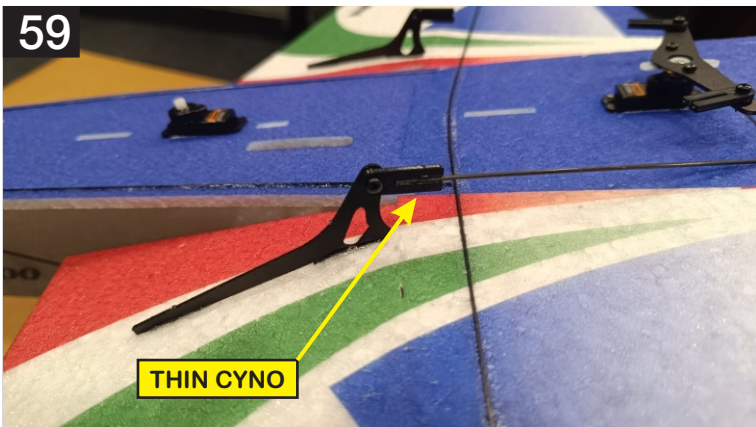
56. Glue the elevator servo in a direction in which the arm hub matches the center line of pre cut elevator arm slot.



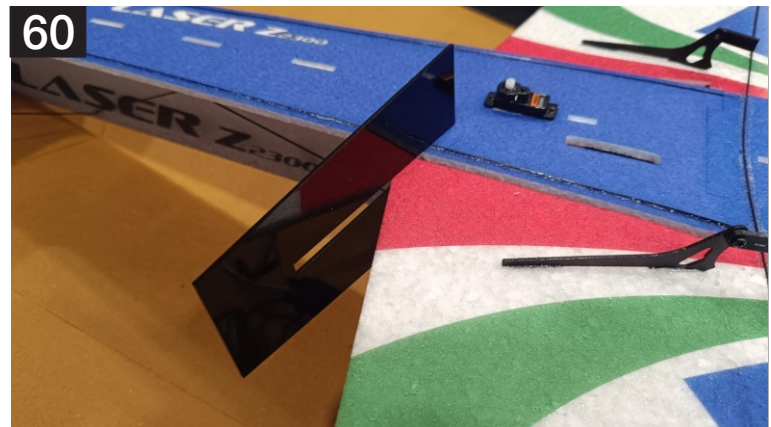
57. Glue the rudder servo in place.



58. With the servo centered, Install the dual servo arm over it, check the orientation shown in the above image.



59. 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.**

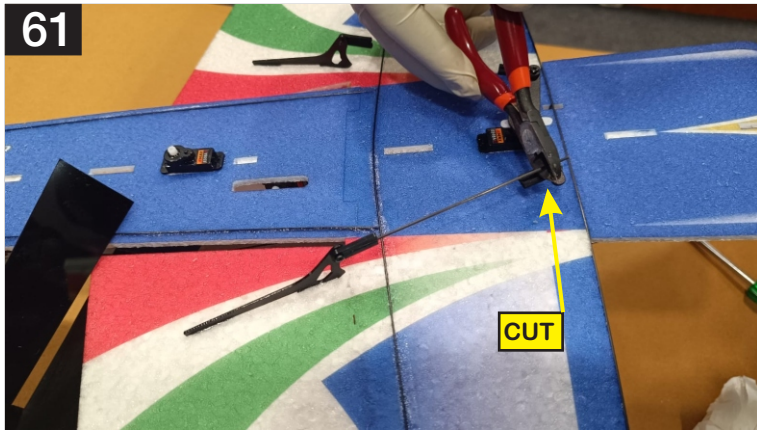


60. Use the assembly jig to center the ailerons and align it with the horizontal profile section for the final installation of the control rod

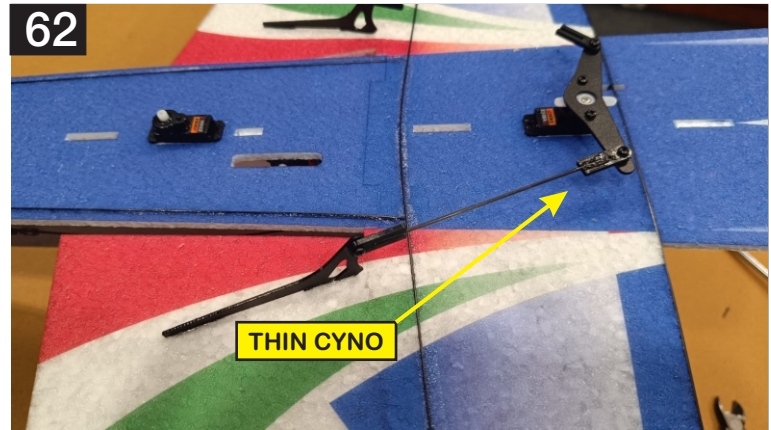


## The Build

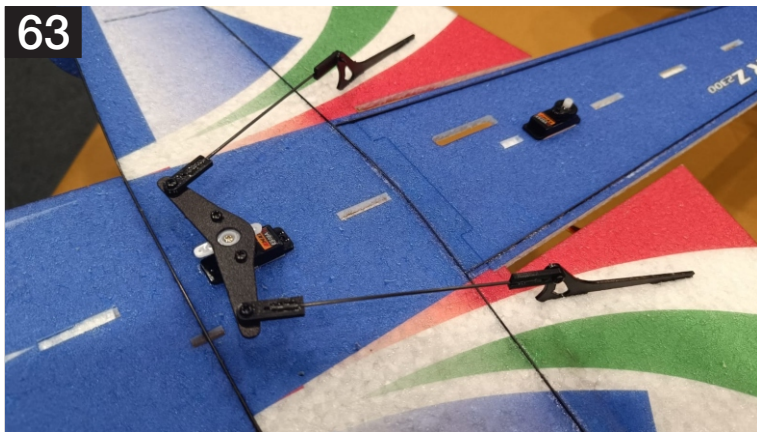
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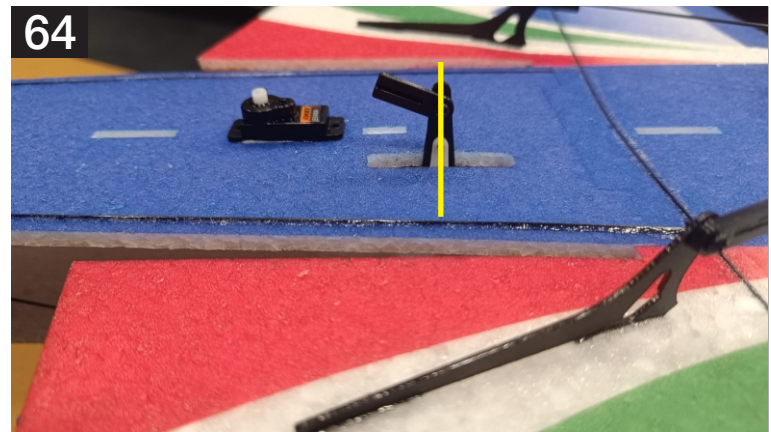
61. Cut the rod at the position shown in the above image to fit in the quick link.



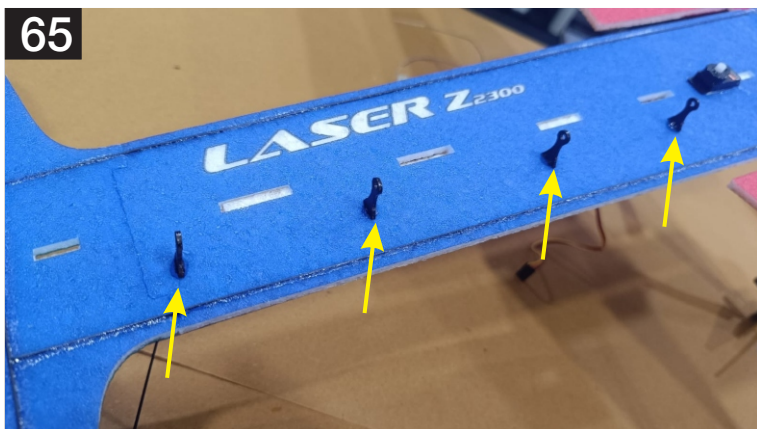
62. Above is the finished linkage setup with aileron centered and rod well fitted and glued in both the quick links.



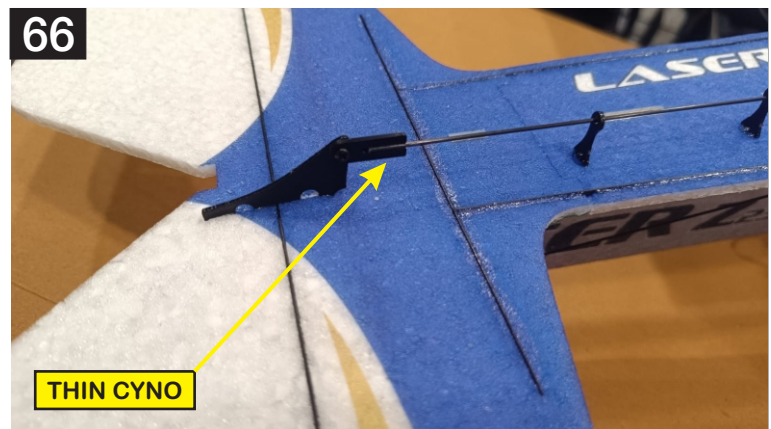
63. Repeat the process for other side. Above is the finished linkage setup with aileron centered and rod well fitted and glued in both the quick links.



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



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

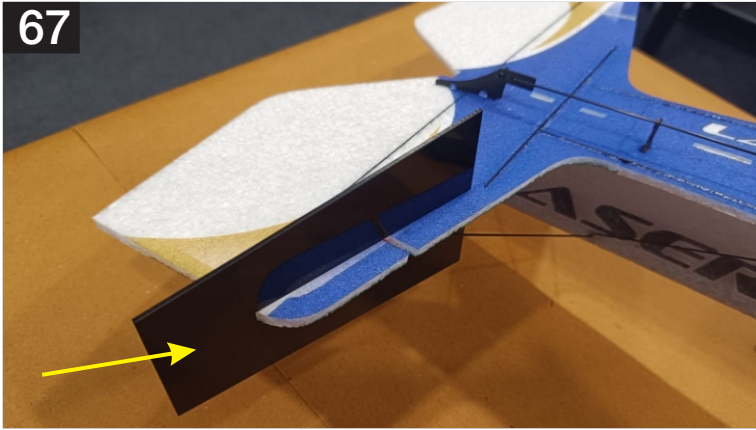


66. Notice how the elevator rod (380mm) is slid in the pre glued pushrod guides, Glue the Elevator control rod on the one side, using thin CA or optionally HV CA.

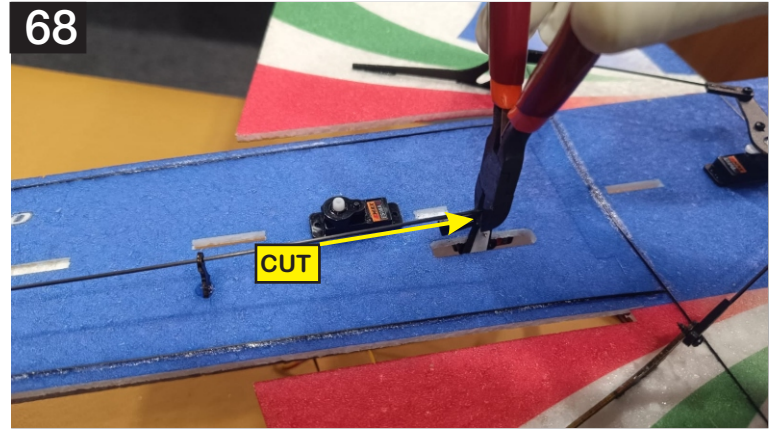


## The Build

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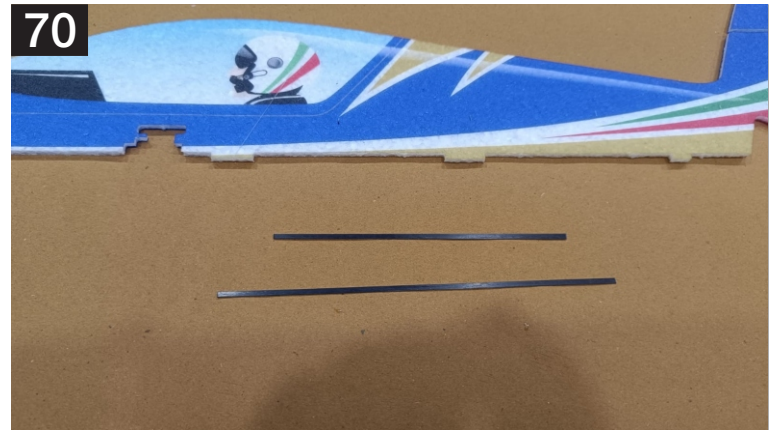
67. Use the assembly jig to center the elevator.



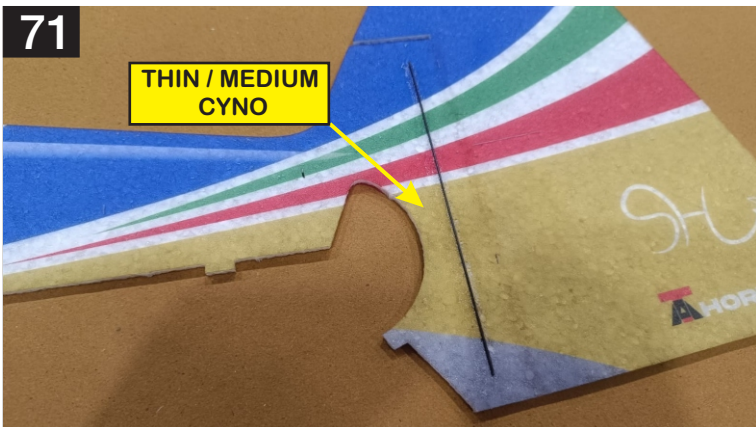
68. With the jig in place, Cut the rod at the position shown in the above image to fit in the quick link.



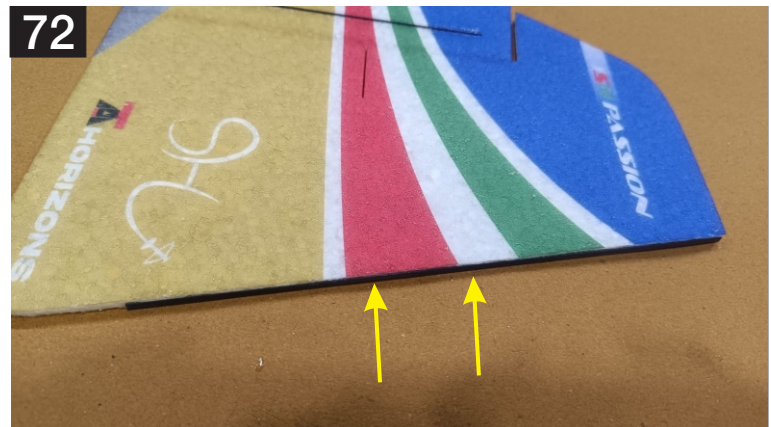
69. Above is the finished linkage setup with elevator centered and rod well fitted and glued in both the quick links with all the guides in place.



70. Before glueing the upper half of the fuselage, locate the 0.5X3mm (150mmL) stripe and 0.5X3mm (200mmL) stripe. these will be used to strengthen the vertical tail and rudder section.



71. Glue the 0.5X3mm (150mmL) stripe into the precut slot into the fin.

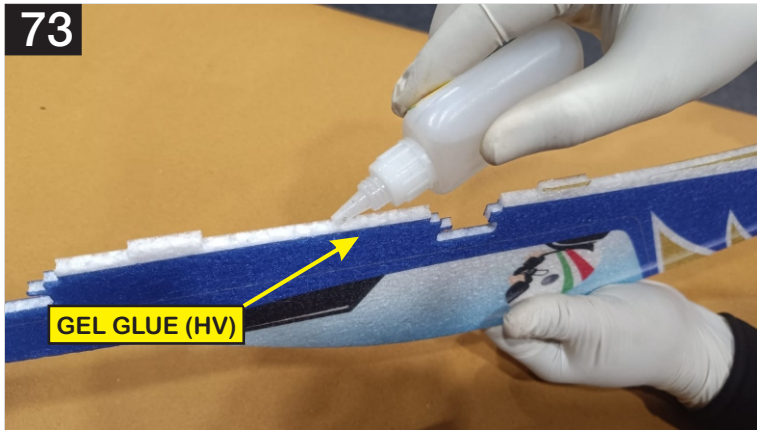


72. Glue the 0.5X3mm (200mmL) on the trailing edge of the rudder.

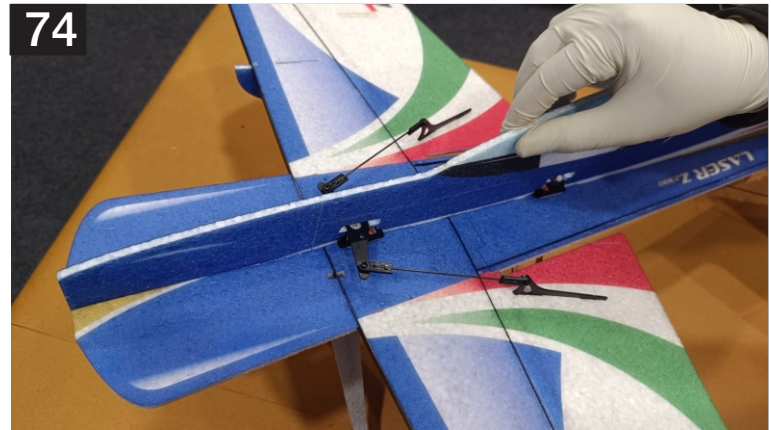


## The Build

Please Note: Few pictures shown below are of different plane and for reference purpose only.



73. Once the aileron and elevator linkages are set up, use the same process as gluing the bottom of the fuse to glue the top of the fuselage into place.



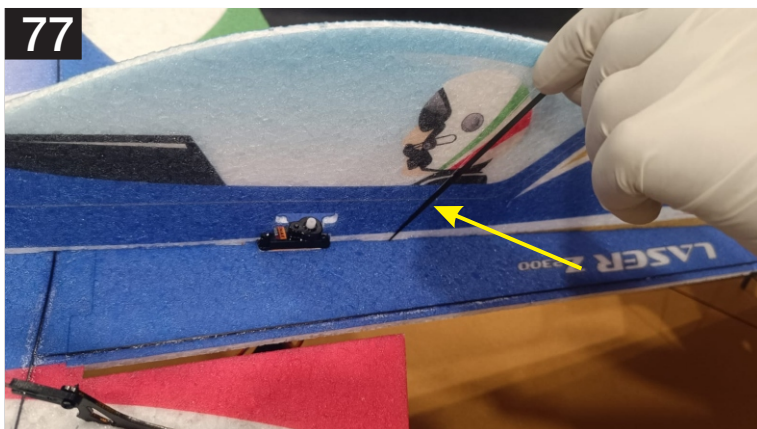
74. Go Slow, once again it is so important to keep this as straight as possible.



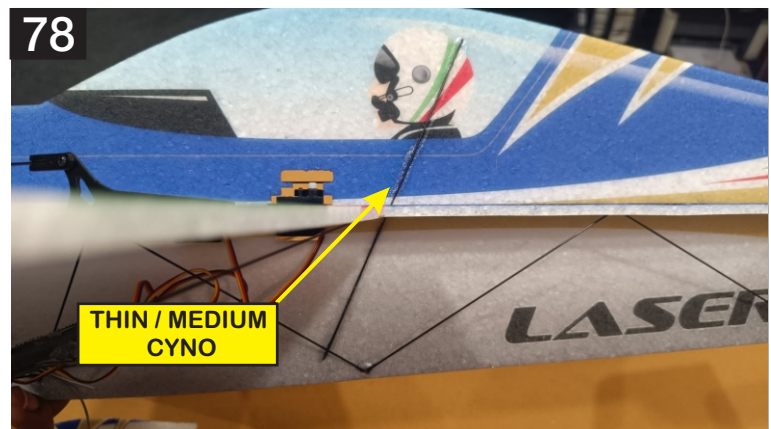
75. Use the jig to keep it as straight as possible.



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



77. Locate the 180mm flat stripe, slid it into the pre grooved cut into the fuselage from top to right at the bottom, this will be used to strengthen the upper half of the fuselage.



78. Use thin/medium cyano to glue it, make sure it is completely flushed.

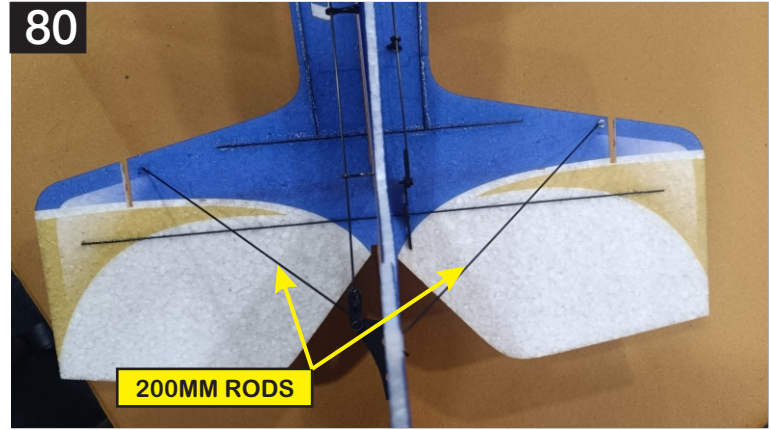


## The Build

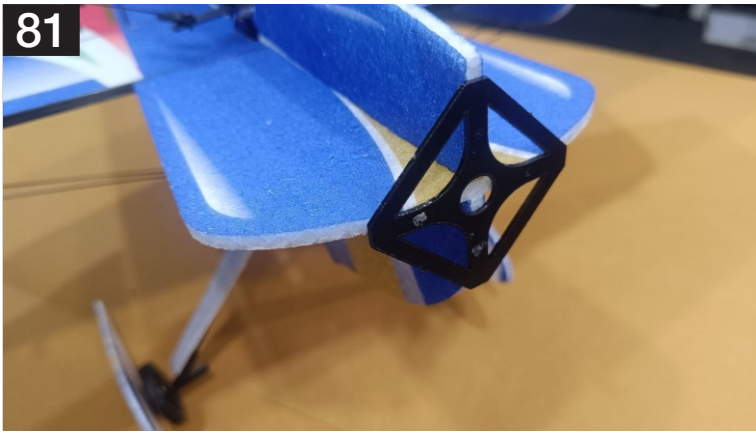
Please Note: Few pictures shown below are of different plane and for reference purpose only.



79. 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.



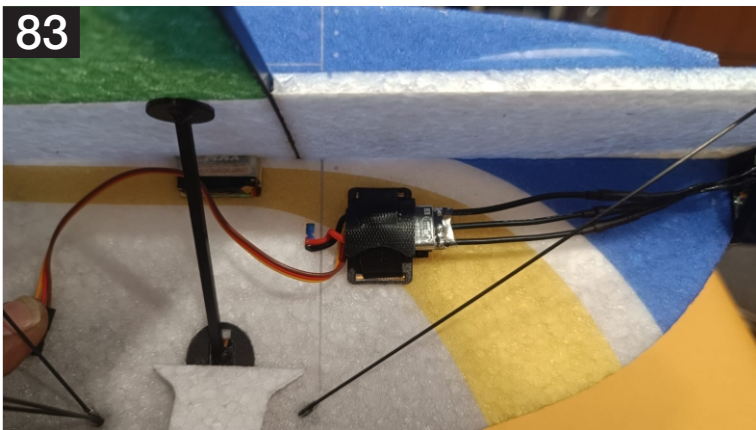
80. Shown above is the 200mm X 2 carbon rod that will go on each side of the fuselage. It will be used to strengthen the horizontal stab and vertical stab.



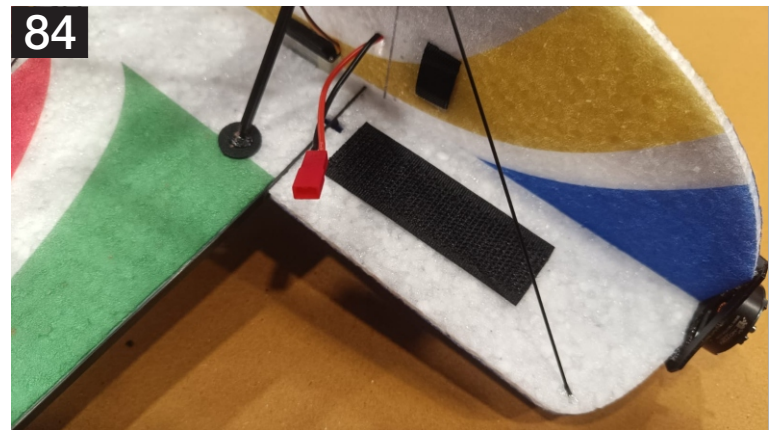
81. Shown above is the motor mount glued, making sure everything is flush and lined up correctly. After that install the motor on it.



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



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



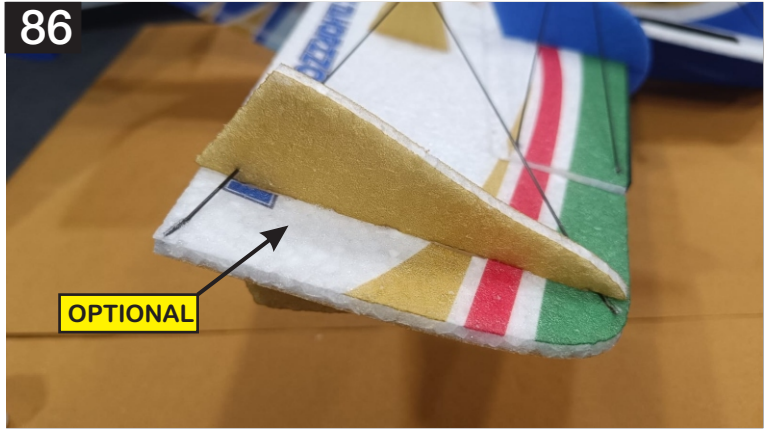
84. The long piece of velcro along with the strapping velcro mounted, above is the location of the battery for this setup.

## The Build

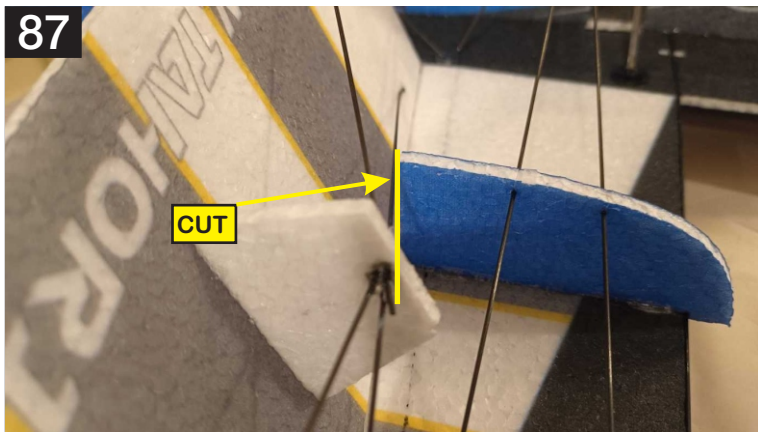
Please Note: Few pictures shown below are of different plane and for reference purpose only.



85. Slide in and glue the upper half of SFG using HV CA to the pre-cut slots like shown in the above image.



86. If desired, locate these smaller side force generators that will be glued into the counterbalances of the ailerons, make a small cut so that they can run through the aileron truss rods.



87. Notice that we have trimmed the small foam from the lower SFG so that you can have the full deflection of aileron.



88. Here is the complete picture of receiver setup. 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 230mm 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

## *Message from our Team Pilot*

### *Sacha SH Cecconi*

“Thank you for your purchase at TA Horizons. I hope this project can fuel the passion for this fantastic hobby.

SHpassion means precisely transporting one's passion for R/C flight to make it available to all flight enthusiasts. #SH”

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

