

TA HORIZONS®



37" LASER 230Z



TA HORIZONS 37" LASER 230Z ASSEMBLY INSTRUCTION MANUAL

Technical Data-

Wingspan : 37"

Length : 38"

AUW : 310-340g
(Depends upon the setup used)

Setup Recommendations (Not Included)-
Motor : 25-40G 1100-1500KV Outrunner
(T-Motor AM40 Recommended for Super Light Setup)

ESC : 20 amp

Servos : 4Pcs 9gms each

Propeller : 9-10" electric

Battery : 850-1000Mah 3S Lipo

EPP CONSTRUCTION



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.

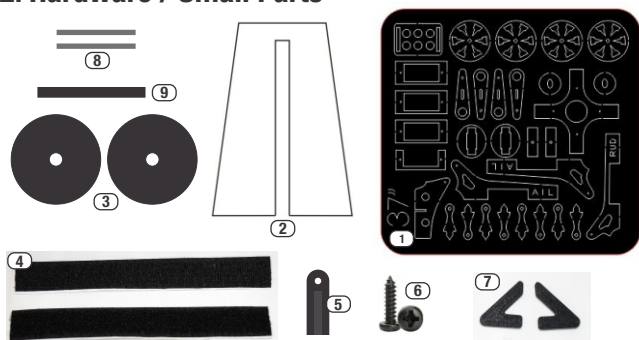
1. EPP Parts



EPP Parts

- ① Fuselage
- ② Wings
- ③ Horizontal stabilizer
- ④ Horizontal profile sections
- ⑤ Landing gear cover
- ⑥ Side Force Generators X 2
- ⑦ Wheel Pants X 2
- ⑧ Wing Truss Supports X 2

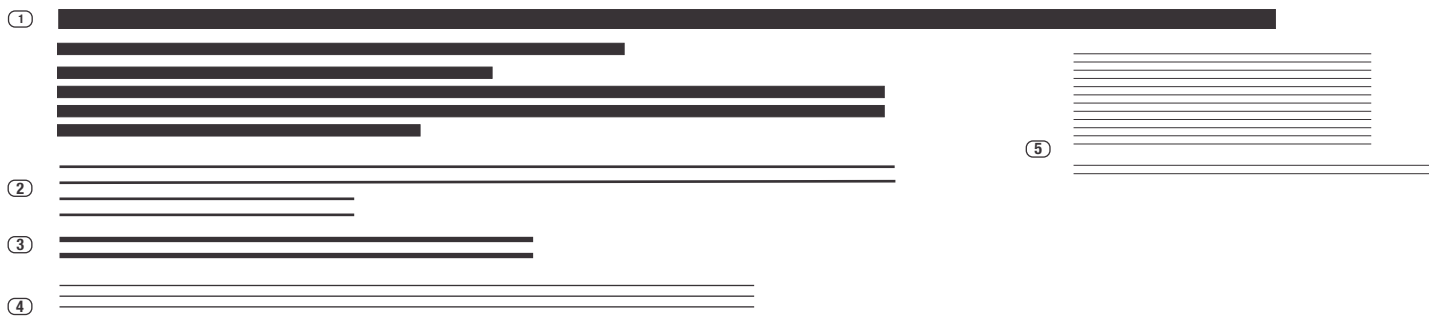
2. Hardware / Small Parts



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 6X1mm 800mm L CF wing spar
Flat 5X0.5mm 380mm L Elevator spar
Flat 5X0.5mm 230mm L Rud Renf.
Flat 5X0.5mm 500mm L Profile Renf X 2
Flat 5X0.5mm 200mm L Tail Renf
- ② 1.5mm CF Control rods
RUD 500mm L X 1
ELE 500mm L X 1
AIL 140mm L X 2
- ③ Undercarriage Square Rod
D 3x3mm L 250mm X 2
- ④ Wing Truss Rods
L 330mm D 1mm X 4
- ⑤ Fuselage truss rods
150mm L 1mm D X 12
200mm L 1mm D 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

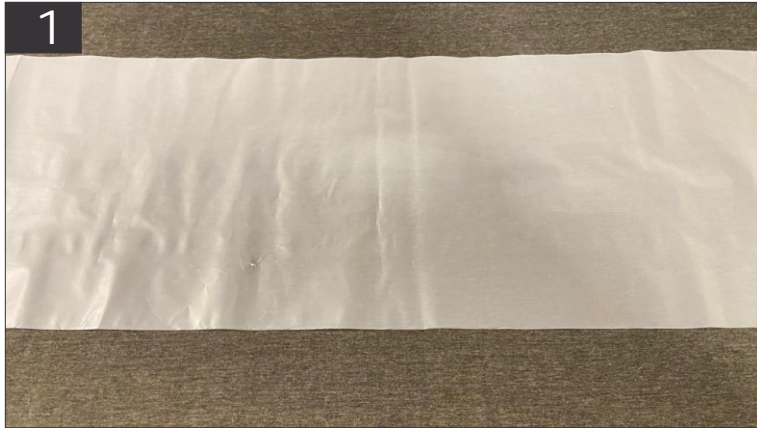
- Heat Gun
- Tape Measure and Ruler
- Black Sewing Thread
- High Viscosity CA
- CA Spray Activator
- Hobby Knife w/new Blade

- Needle Nose Pliers
 - Wire Cutters
 - Low Temp Hot Glue Gun
 - Scissors
 - Small Phillips Screw Driver
 - Thin CA
 - Allenkey
-

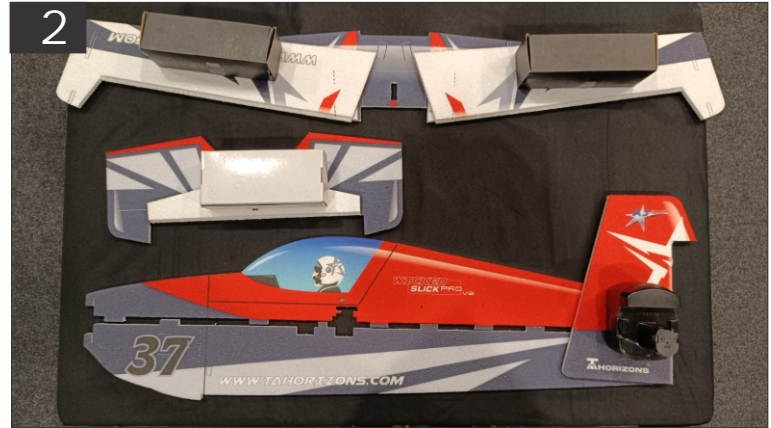


The Build

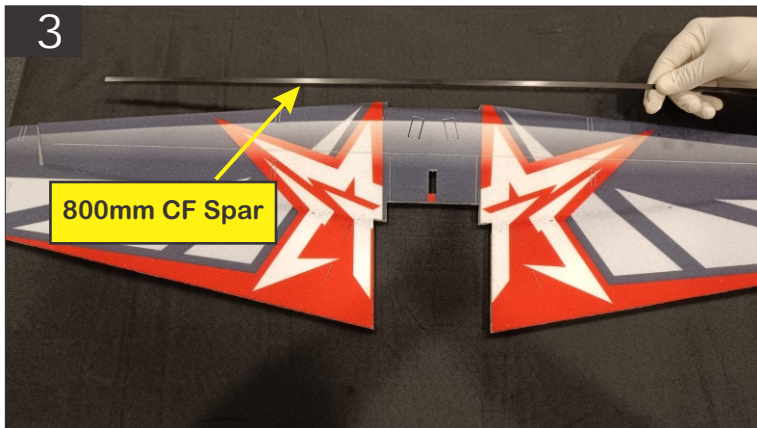
Please Note: Few pictures shown below are of different plane and for reference purpose only.



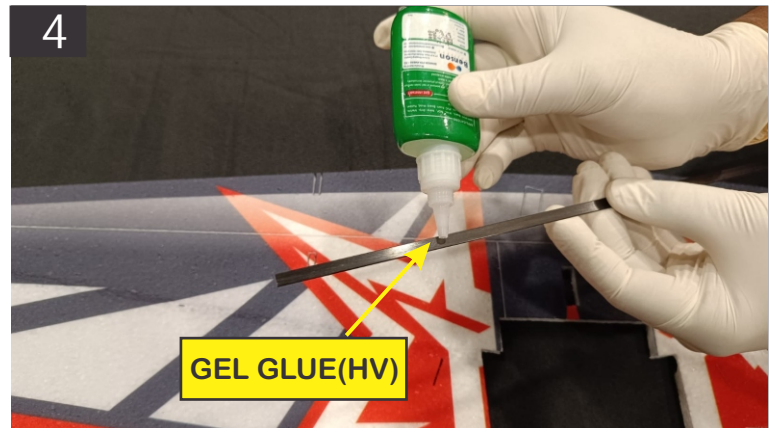
1. Building surface should be at least 2ft x 4ft and flat, Use a wax paper over the surface to avoid sticking EPP on it when gluing.



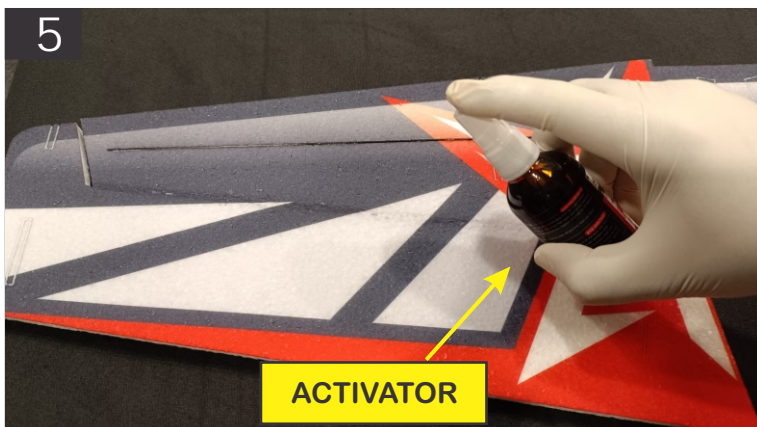
2. (This is mandatory step) locate the hinged items as shown above, Bend them back on to each other as shown and let set for at least 2 hours. This will help to loosen up the movement of the surface.



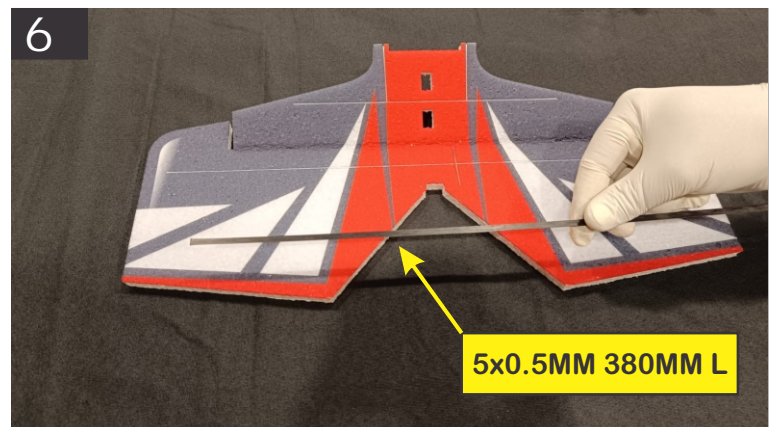
3. Locate the 800mm CF Spar shown in the picture above.



4. Apply a thin layer of HV Cyno on CF Spar, Do it for both sides.



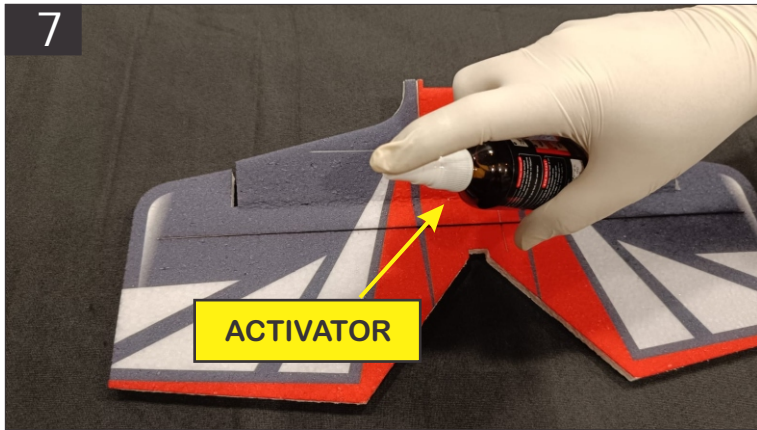
5. Install it in the pre-cut groove. Use a spray activator (Kicker) to cure it.(Do not touch the EPP Surface for Few Seconds After Spraying otherwise it will Result Damaging the paint Surface)



6. Locate the 5X0.5mm 380mm Stripe, For elevator reinforcement.

The Build

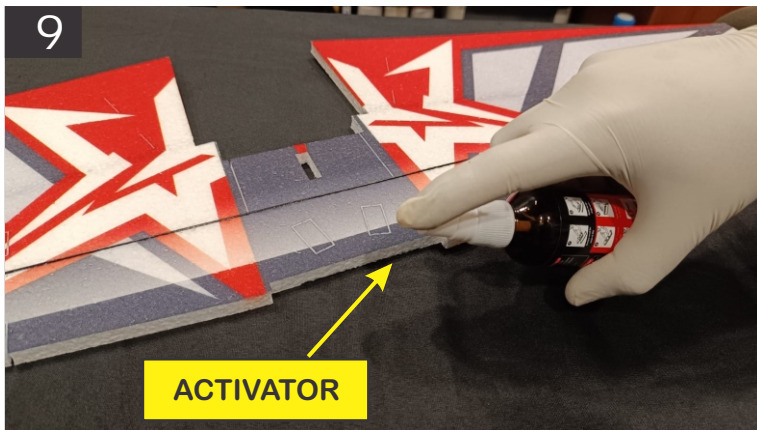
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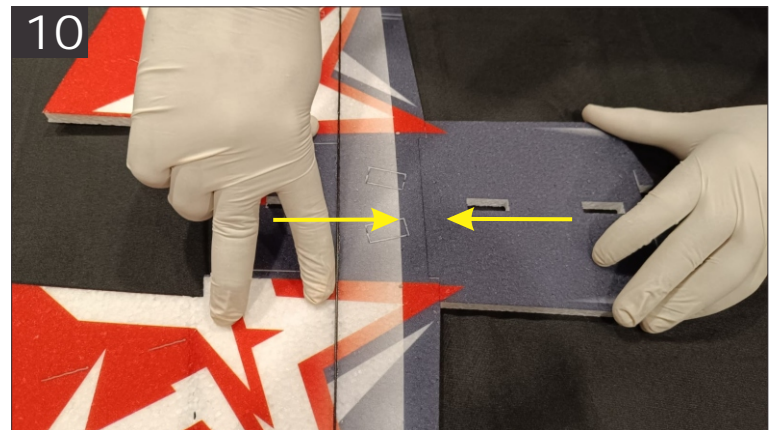
7. Glue it in the pre-cut groove. Use a spray activator (Kicker) to cure.



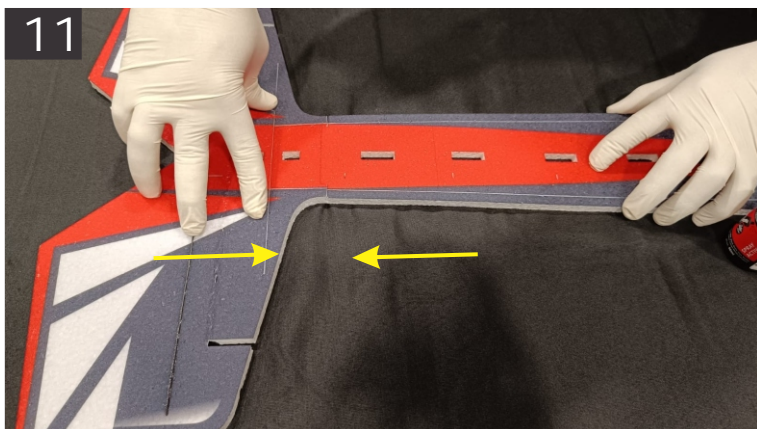
8. Apply a thin layer on gluing surface.



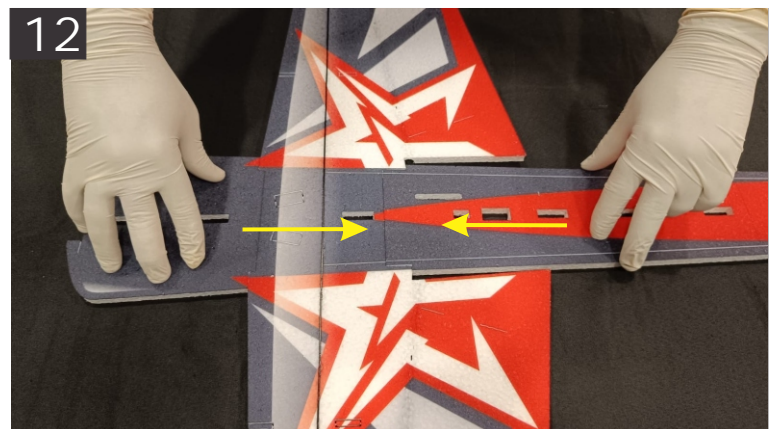
9. Use a spray activator (Kicker) on the other surface.



10. Glue both the parts together, hold it for a few seconds.



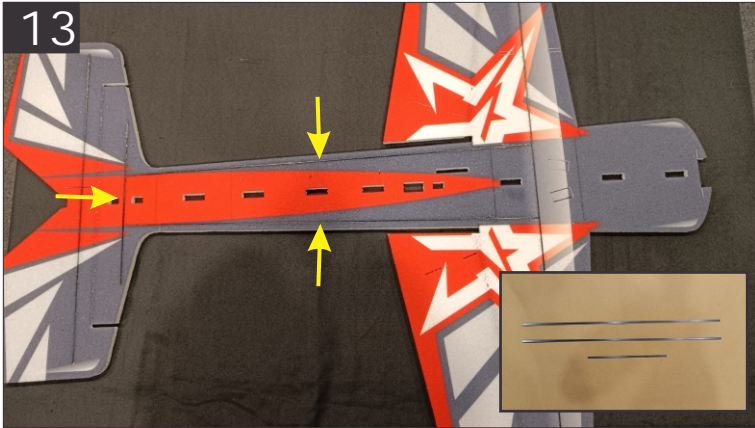
11. Lay down the shown parts on the flat surface with wax paper on it and glue it together.



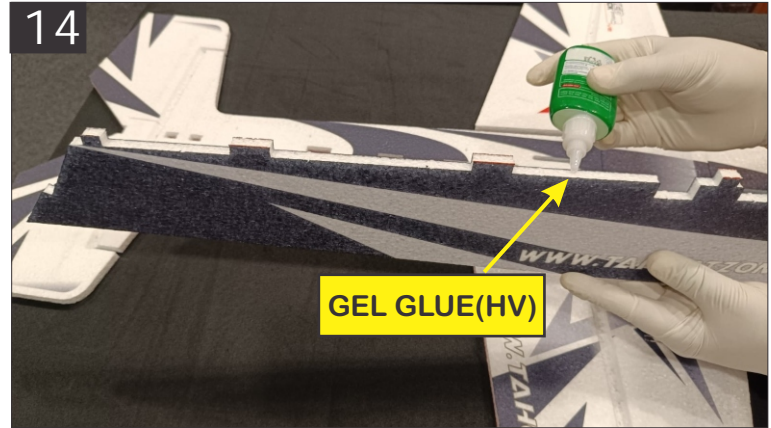
12. Lay down the shown parts on the flat surface with wax paper on it and glue it together.

The Build

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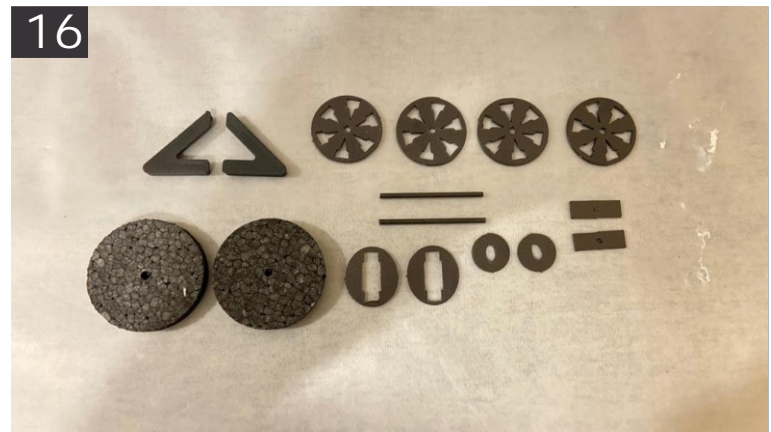
13. Locate the above 3 strips measuring 500mm L X 2 and 200mm L X 1, these are going to be used for reinforcing horizontal profile section and tail, glue them into the precut groove like shown in the image above.



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



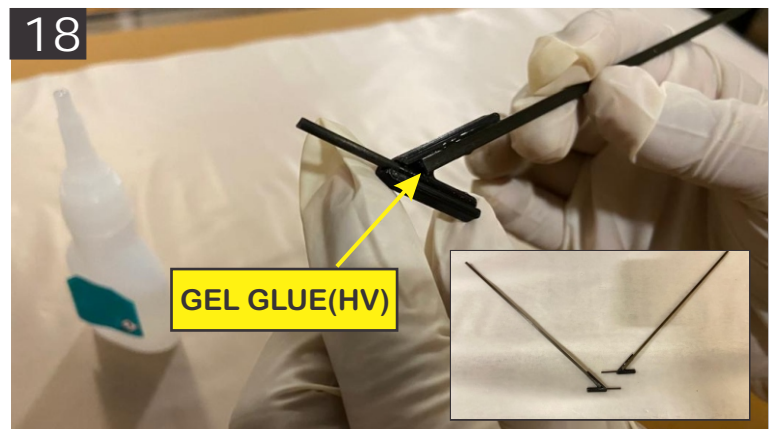
15. Bring the two pieces together, It is extremely important to make sure that the bottom part of the fuselage stays 90 degrees to the horizontal fuselage while the glue is setting. Use the supplied jig for this task.



16. Locate the above parts for the undercarriage assembly.



17. 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).



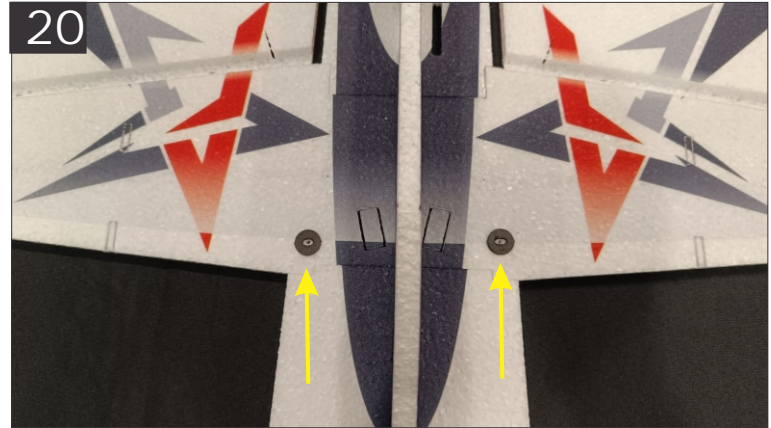
18. Here the supplied (3mm dia 250mm) tube and (2mm dia 40mm) wheel shaft are glued on the wheel bracket.

The Build

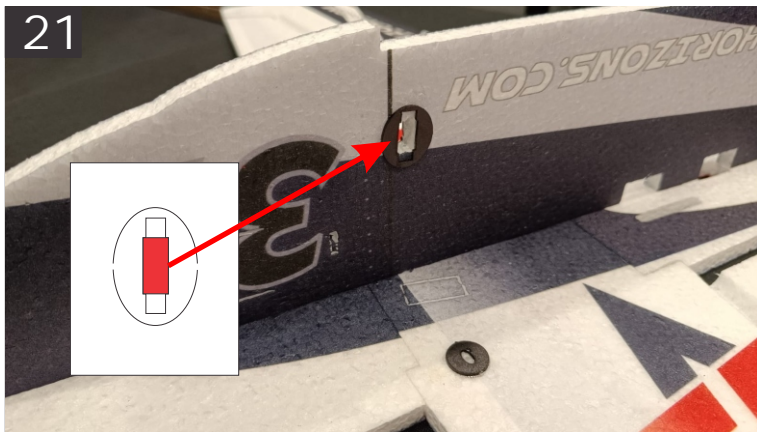
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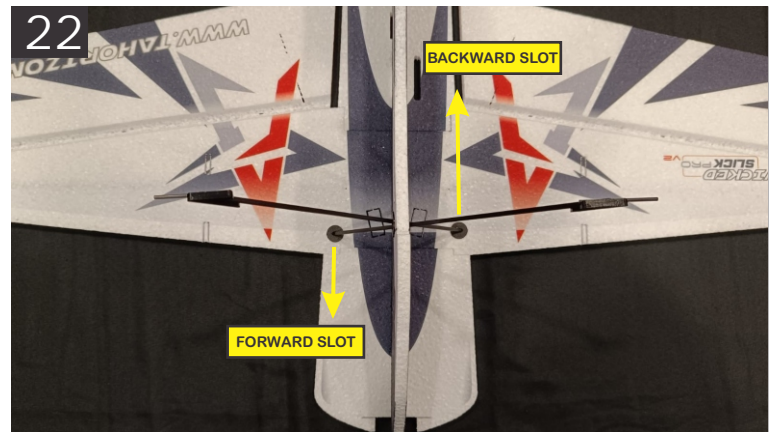
19. Optionally use a heat shrink tubing for better cosmetic finish.



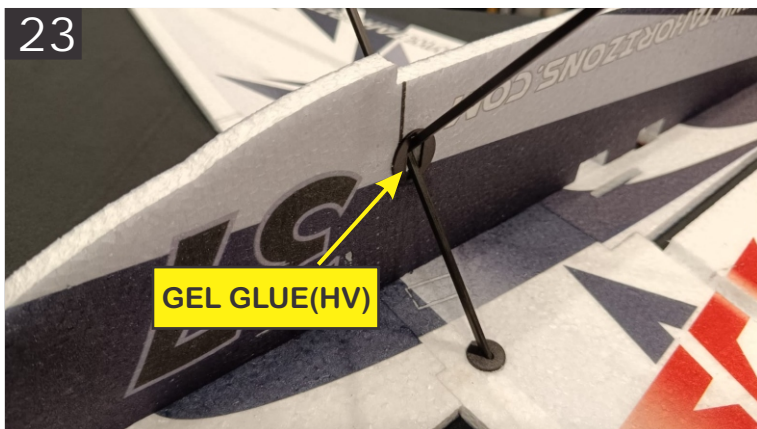
20. Glue the shown parts over the pre cut slots, for landing gear assembly.



21. 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.



22. 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.



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



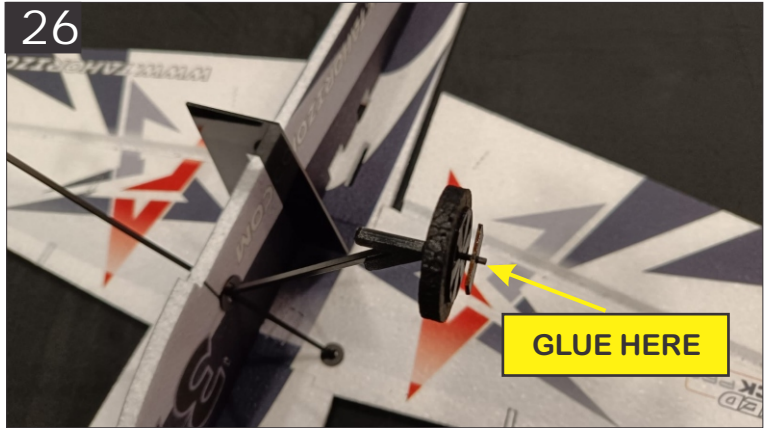
24. Put a drop of HV CA over the joints and spray everything together

The Build

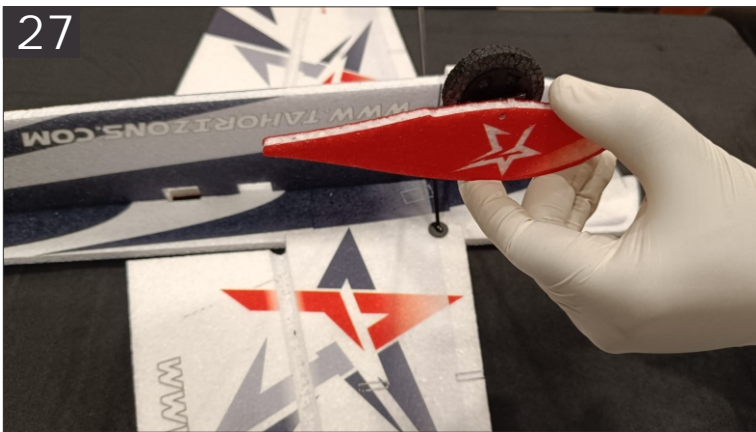
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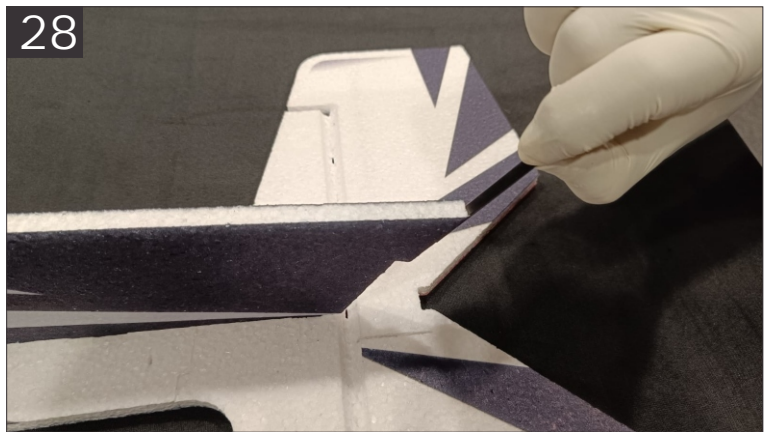
25. Make sure the lower part of fuselage is straight while installing the gears using the building jig.



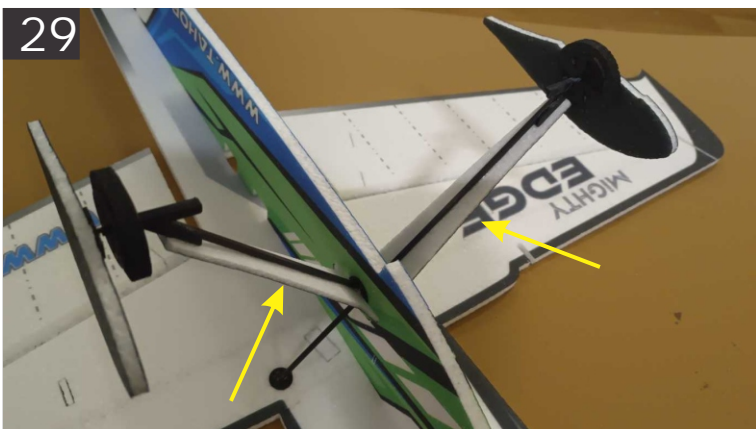
26. Install the wheel over the shaft, make sure it is spinning Freely, after this slide in the wheel stopper. Put a small drop of HV CA over the shaft and wheel stopper joint.



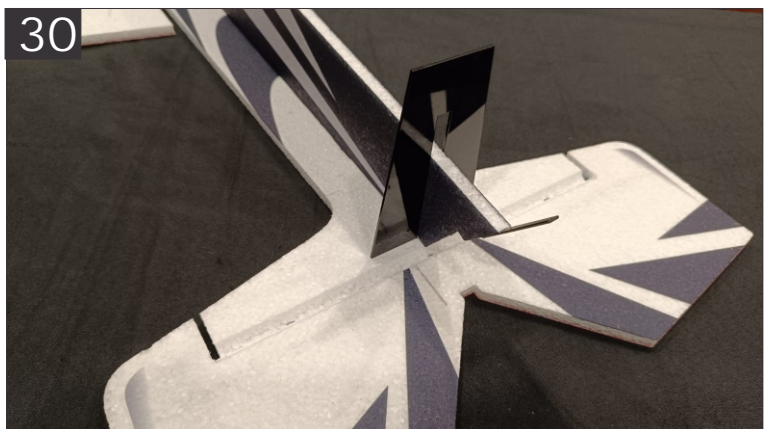
27. Glue the wheel pants on wheel stopper using the HV CA.



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



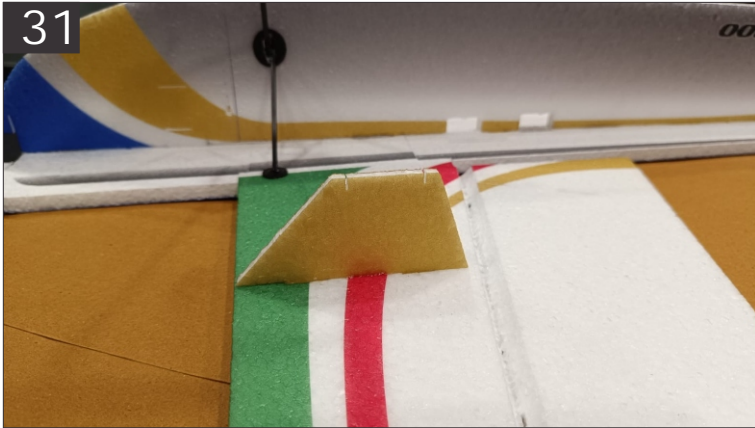
29. Locate the landing gear cover, glue it over the CF Undercarriage.



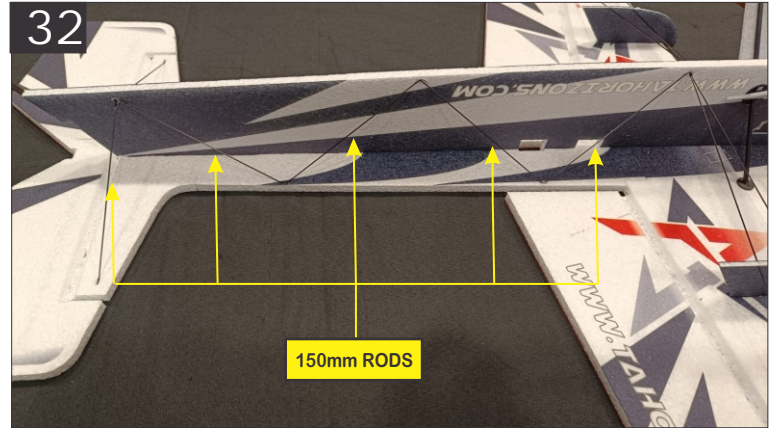
30. Time to install the fuselage and wing bracing, please use the jig installed for this process, so that lower part of the fuselage stays 90 degrees while installing the truss.

The Build

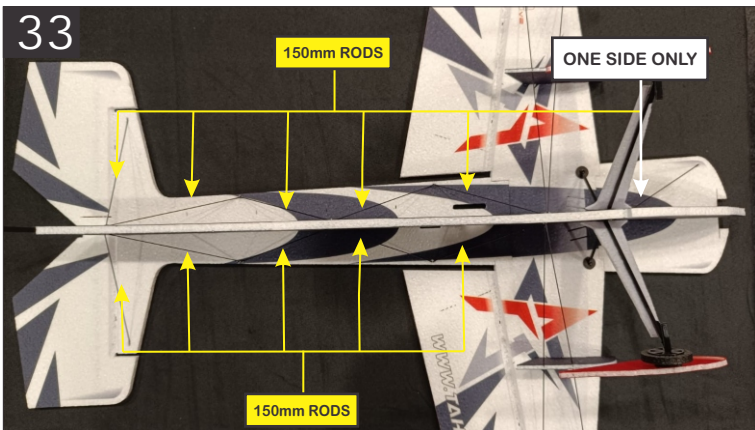
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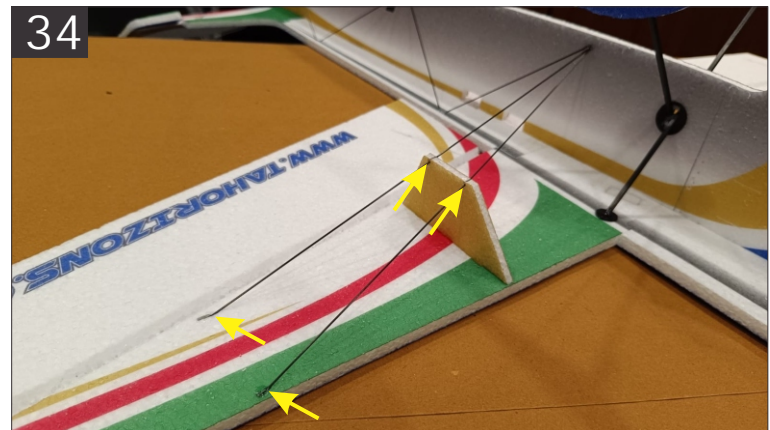
31. Locate the wing truss support, glue it in pre-cut slot like shown in the picture. Make sure to glue it in the correct orientation like shown in the image above.



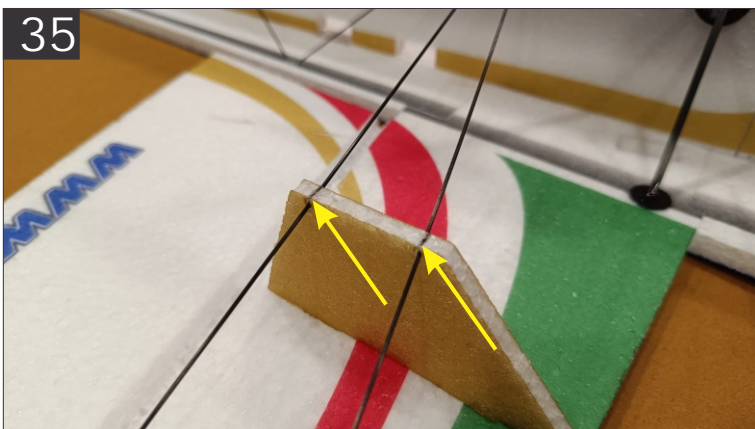
32. Rods bracing the fuselage are 1mm dia 150mm L. Please refer to the above image for reference.



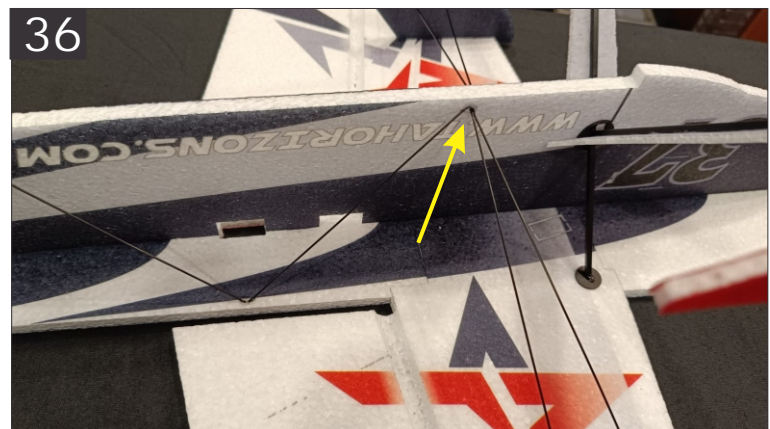
33. Carbon rod needs to sit couple of mm into the foam before gluing, Just put a small drop of HV Cyno to glue it. (Please Refer to above image for the reference)



34. Glue the 330mm L X 4 rods for wing bracing. Make sure the carbon bracing is slid about a mm down into the slots. Glue it using a HV CA.



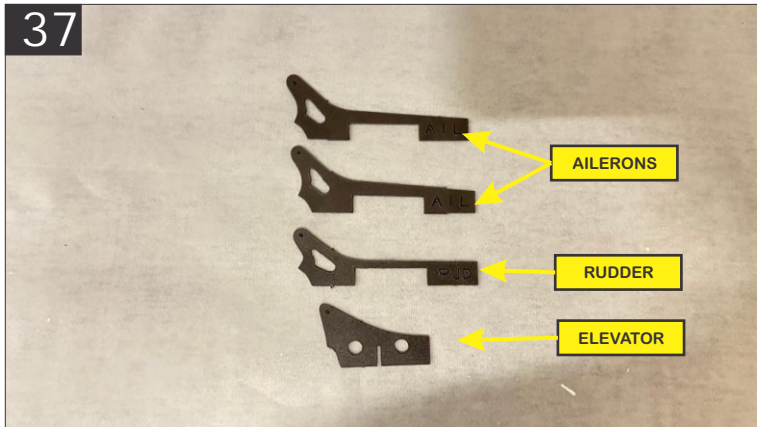
35. Here is how the carbon rods went through the pre cut slots in wing truss supports, slid in about 1mm down into these slots and glue it together.



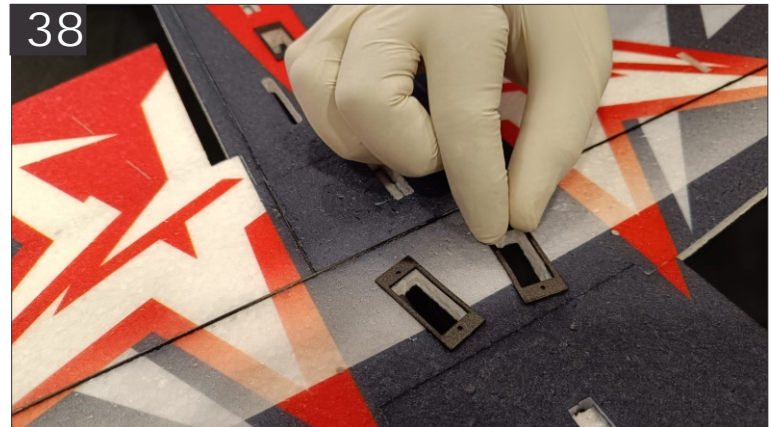
36. Shown above is how the wing bracing rods are glued just behind the undercarriage to the fuselage wall.

The Build

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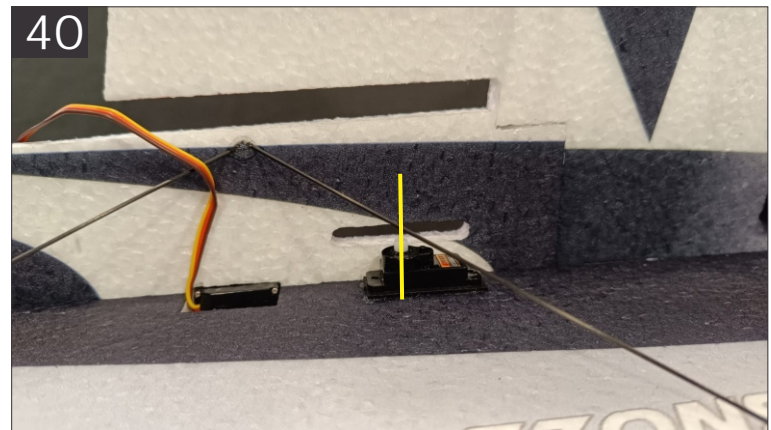
37. Locate the servo trays and control horns, Please refer to above image for selecting control horn for specific control surface, Check the labeling at end of control horns.



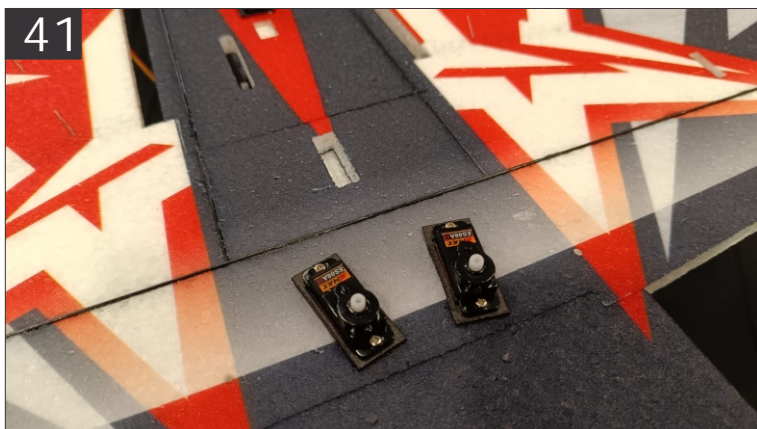
38. Glue the aileron servo tray shown in the image over the precut servo slot using HV CA.



39. Glue the rudder servo tray shown in the image over the precut servo slot using HV CA.



40. Optionally, One can glue the servos directly in the slots. Glue the elevator servo in a direction in which the arm hub matches the center line of pre cut elevator arm slot.



41. Time to install the servos, put the aileron servo in place and screw it together.



42. Install the rudder servo in place.

The Build

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

43



43. Locate all the control horns and servo arms for next process.

44



44. Locate 8 X Quick links and 8 X 2mm screws.

45



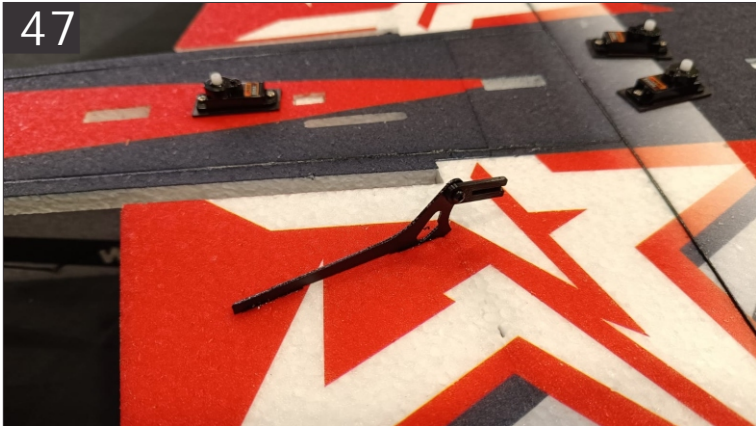
45. Screw all quick links to the pre laser hole in all arms and horns, do not tighten them too much, make sure they can rotate freely.

46



46. Install the servo arm extenders over the stock plastic servo arms using the sewing thread and thin CA. Optionally one can use the small screw as well to install it in place like shown in the other small image.

47



47. 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.

48



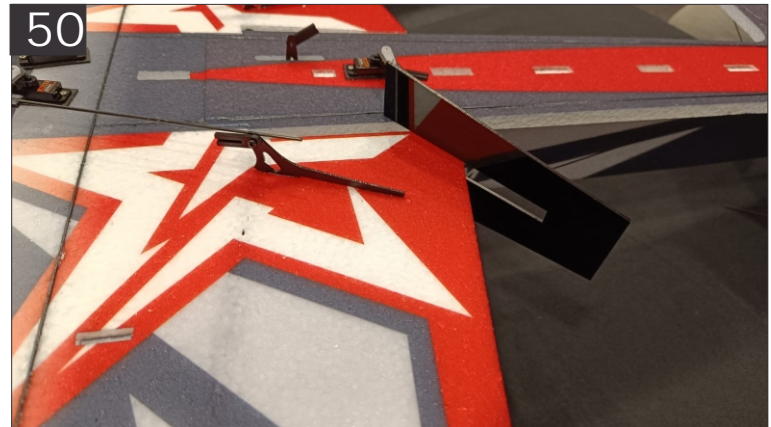
48. Glue the elevator horn shown in the image in the precut control horn slot using HV CA. Make sure it sits right to the bottom of EPP surface.

The Build

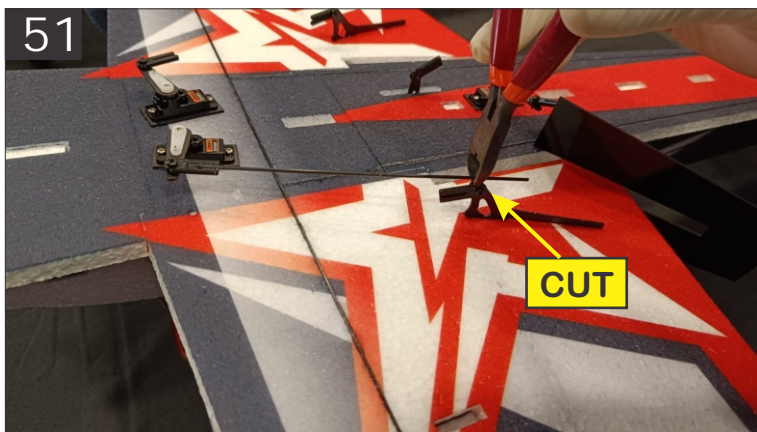
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49. Locate the 140mm aileron control rod, glue it on the one side (Servo arm), using thin CA or optionally HV CA. **Make sure you have servo arm centered at the 90 degree position with the servo.**



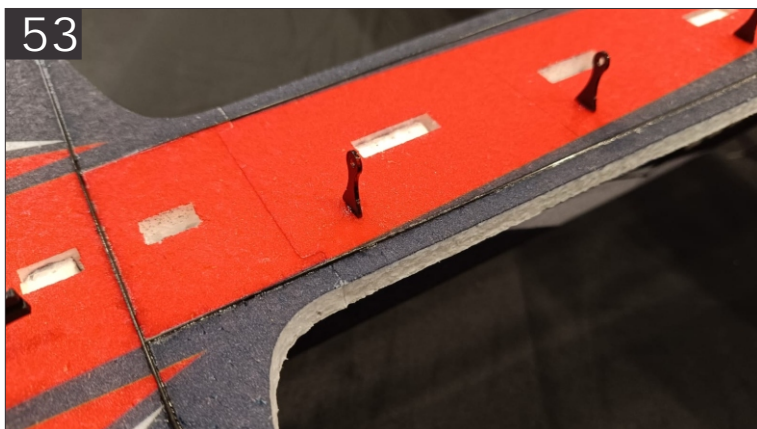
50. Use the assembly jig to center the ailerons and align it with the horizontal profile section for the final installation of the control rod.



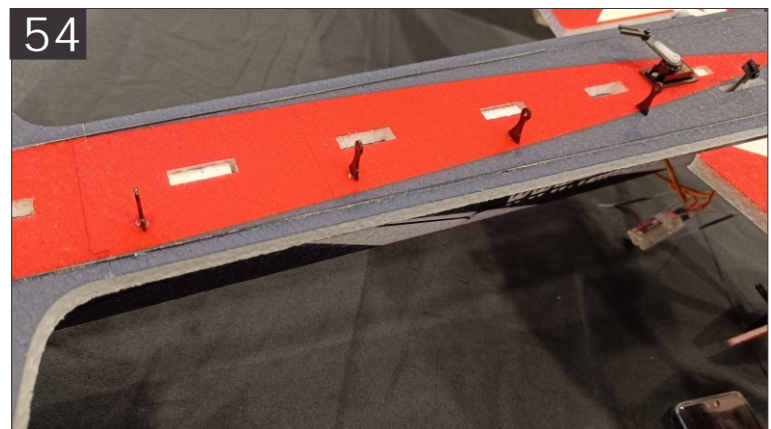
51. Cut the rod at the position shown in the above image to fit in the quick link.



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



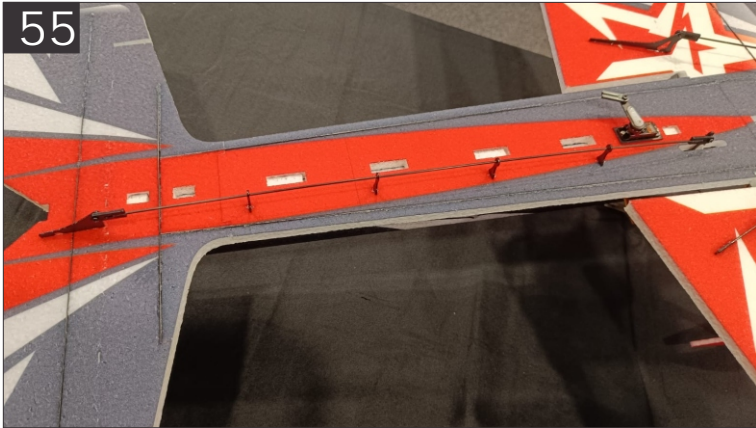
53. Locate the above pushrod guides. 4 for Elevator, 4 for Rudder



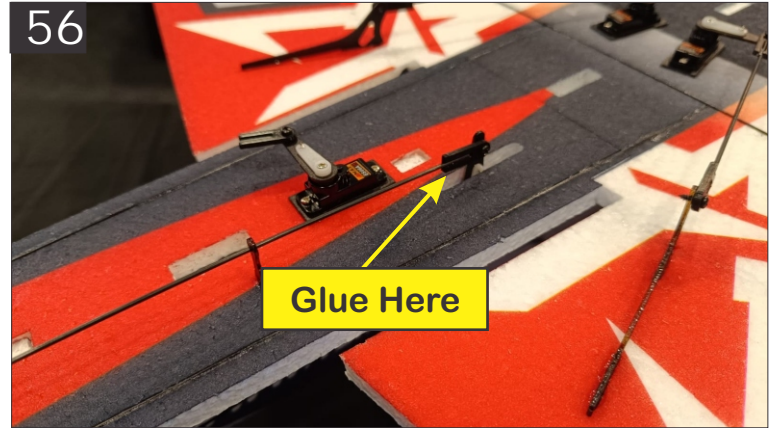
54. Before moving to elevator linkage setup, glue 4pcs pushrod guide into the pre cut slots.

The Build

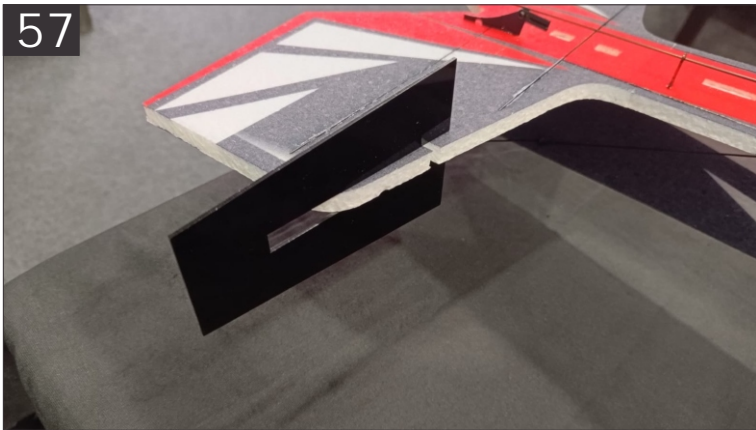
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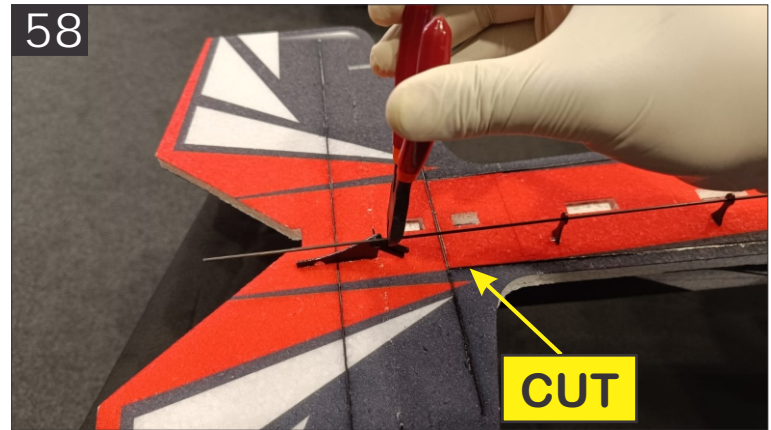
55. Locate the 500mm control rod, Notice how the rod is slid in the pre glued pushrod guides, shown in the above image.



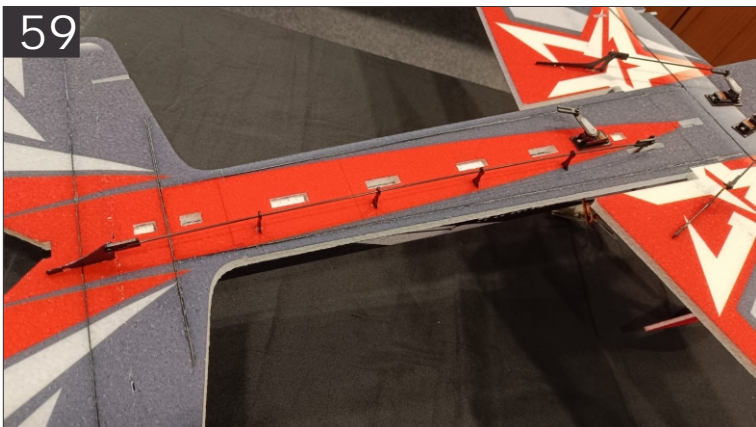
56. Glue the Elevator control rod on the one side (Servo arm), using thin CA or optionally HV CA. **Make sure you have servo arm centered at the 90 degree position with the servo.**



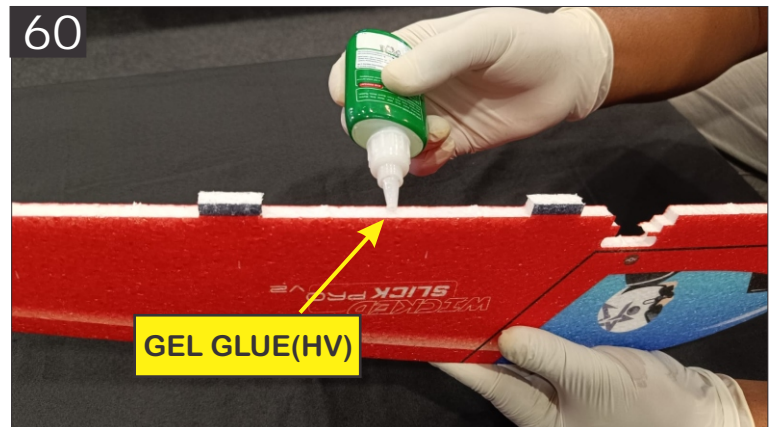
57. Use the assembly jig to center the elevator.



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



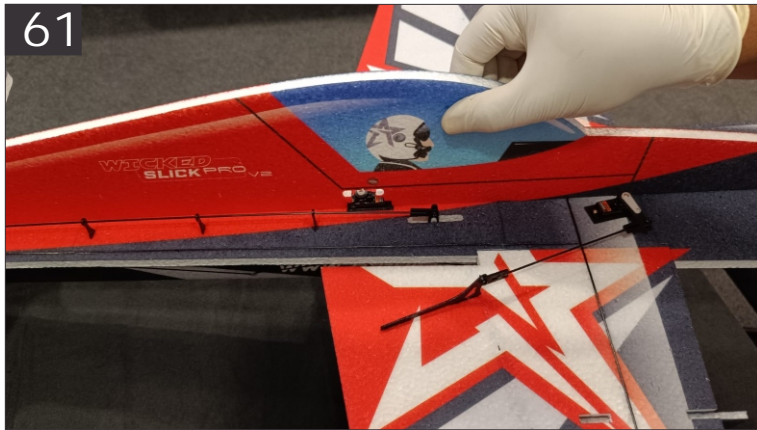
59. Above is the finished linkage setup with elevator centered and rod well fitted and glued in both the quick links with all the guides in place.



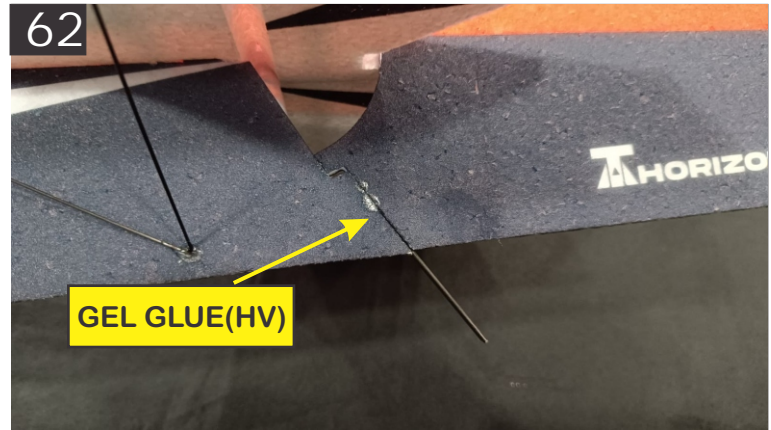
60. Once the aileron and elevator linkages are set up, use the same process as gluing the bottom of the fuse to glue the top of the fuselage into place.

The Build

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



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



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



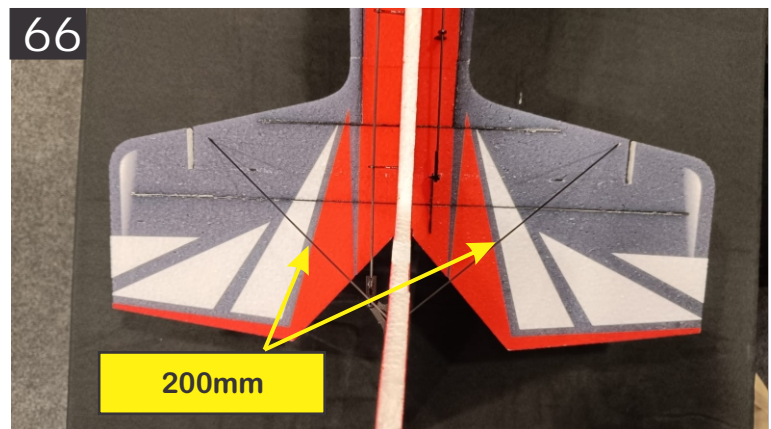
63. Install the last remaining 150mm rod to the bottom of the fuselage shown in the above image, this will be mounted from the bottom of the horizontal tail to the rear of the bottom vertical fuselage, make sure of full elevator deflection while installing this.



64. Install the last remaining control horn in the precut slot like we did for elevator horn. (Install it the opposite side of elevator horn)



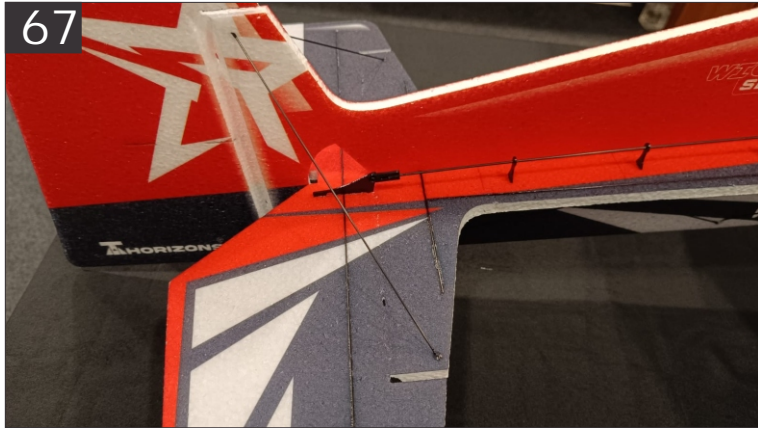
65. Above is the finished linkage setup with rudder centered and rod well fitted and glued in both the quick links with all the guides in place. Use the same process like we did in previous linkage setups.



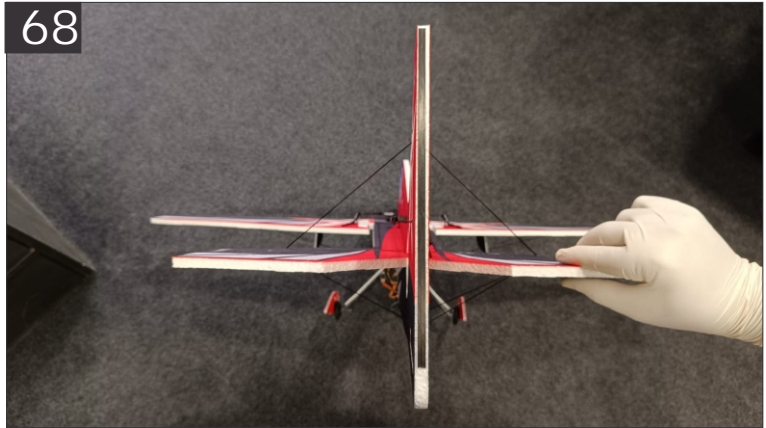
66. Shown above are the 200mm X 2 carbon rod that will go on each side of the fuselage. It will be used to strengthen the horizontal stab and vertical stab.

The Build

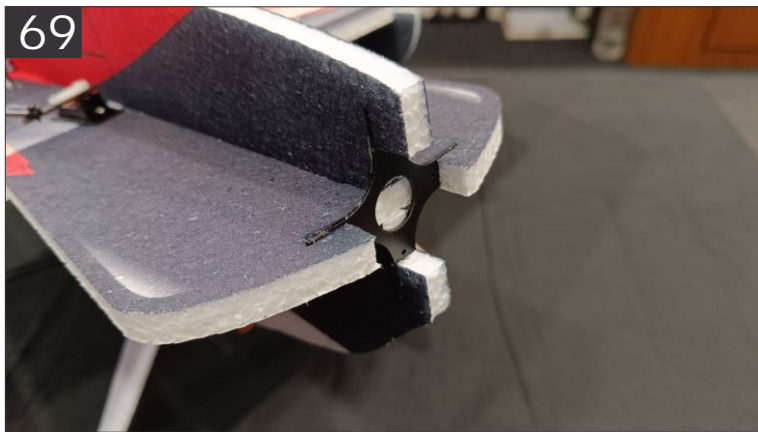
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67. Here is another view.



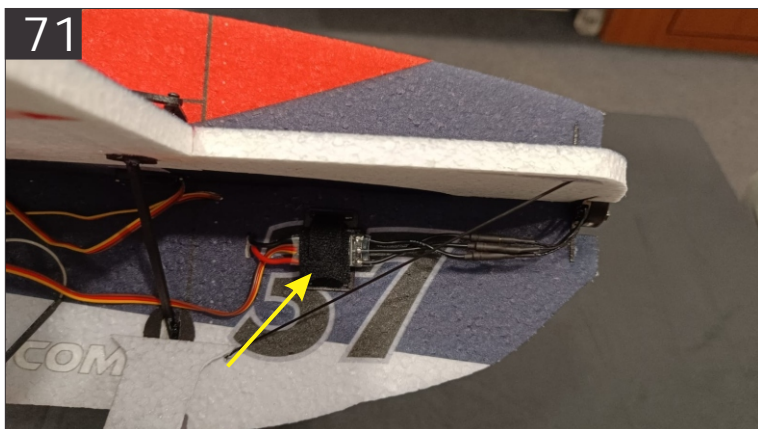
68. Glue the last remaining 5X0.5mm 230mm L Flat strip over the trailing edge of rudder.



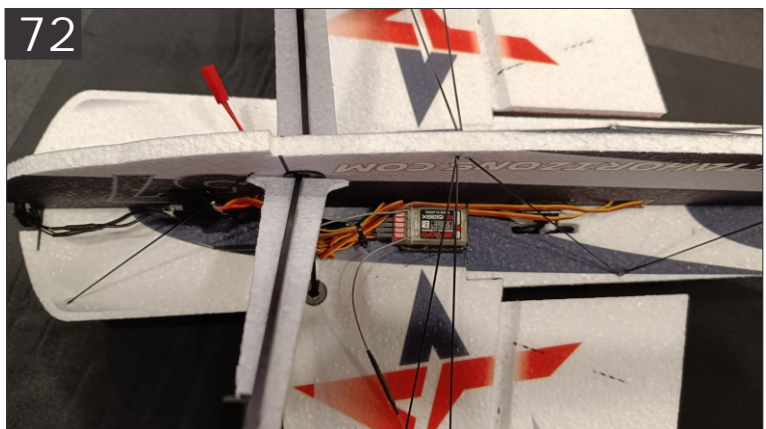
69. Shown above is the motor mount glued, making sure everything is flush and lined up correctly. After that Install the motor on it.



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



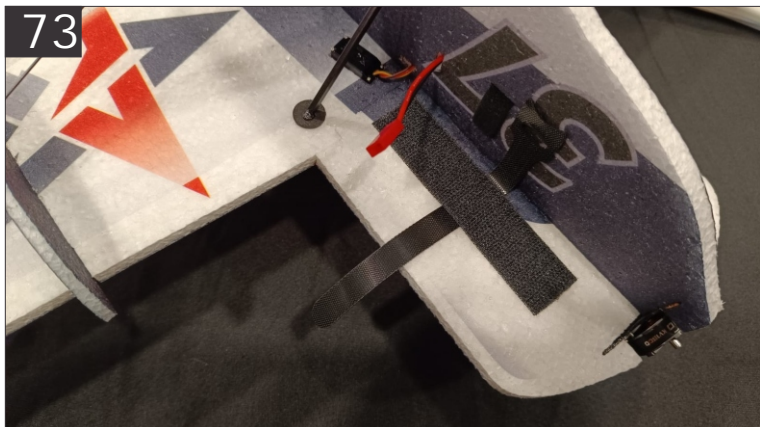
71. Notice above the plate glued onto the side of the fuselage. This can be used to mount the electronic speed controller.



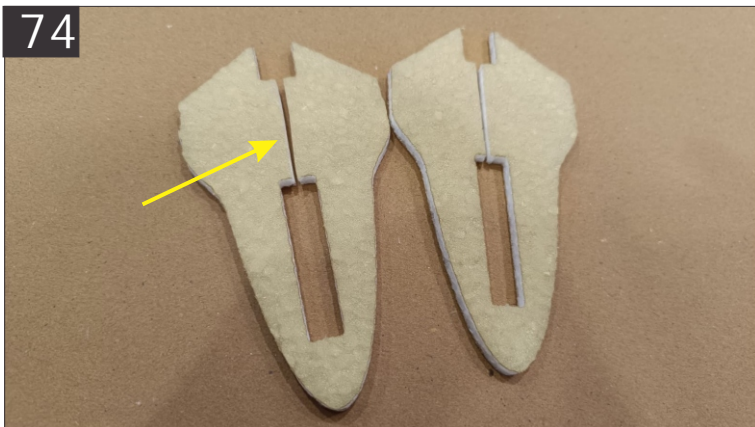
72. Here is the complete picture of receiver setup. Set up your radio as per the suggestions given a little later in this manual, check all the control directions and motor rotation.

The Build

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



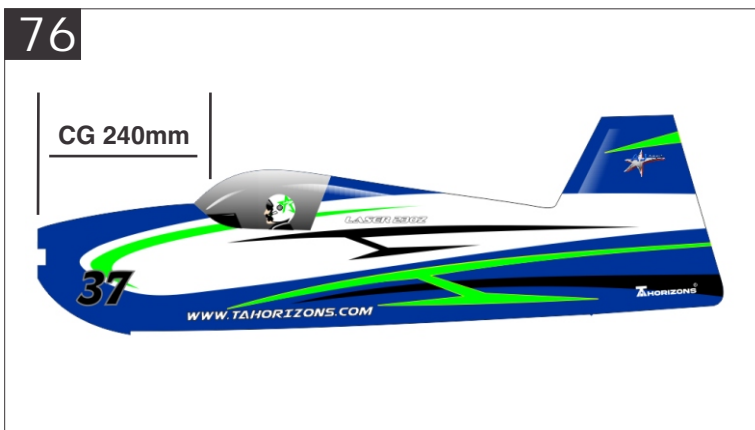
73. The long piece of velcro along with the strapping velcro mounted, above is the location of the battery for this setup.



74. If desired, locate these smaller side force generators that will be glued into the counterbalances of the ailerons. Cut them from the location shown above to slide them into the pre cut slots on Ailerons.



75. Here is how the side force generators are slid in and glued in the precut slots over the counterbalances of the ailerons.



76. Initial CG is located 240mm 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