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Boomerang ATOM Squared Instructions

Specs:

Wingspan: 100 inches/ 2.54m	Flying Weight: 39-48 lbs
Length: 110.6 inches/ 2.81m	Turbine Size: 200-320n

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Includes:

(1) Complete ATOM Squared Airframe
(1) Composite Fuel Tank
(1) Landing gear and brake set
    - Brake controller and nose gyro
    - Gear controller and Gear Door Sequencer
(1) Thrust tube
(1) Vector Unit
(1) Hardware package
(1) Carbon Fiber Wing Tube

Requires:

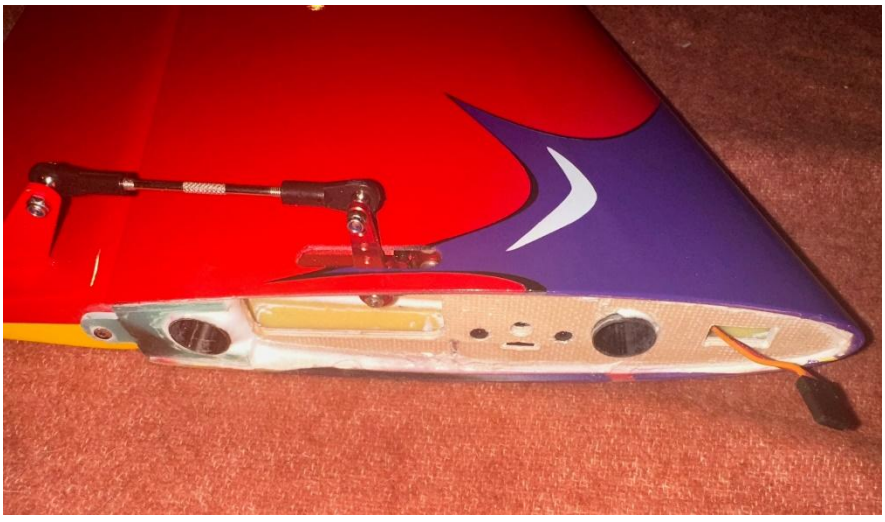
- 9ch or more radio
- 9ch or more receiver
- 7x Standard High Torque Servos, 9x if using Thrust Vectoring
    - We suggest the TORQ 3813A
- 4x Mini High Torque Servos for nose wheel steering and gear doors
    - We suggest the TORQ CL1810A
- 9x 30mm servo arms (distance from the servo screw to the hole)
    - Used for Flaps, Elevators, Rudder, Vectoring, Main Gear Doors
- 4x 20mm servo arms
    - Ailerons, nose gear door, nose steering
- Turbine
- Batteries for radio and turbine

- Open and inspect all the parts of your new ATOM Squared for any issues.

Note do not use rubber gromets or eyelets with your servos.

Horizontal Stabilizer

- Install and test fit your servo into the cut out, drill your mounting holes so as not to split the wood.
    - Insert the screws into the pre drilled holes and then remove.
    - Remove the servo and drop in 2 drops of thin CA into the screw holes and let the CA air dry so it wicks into the wood.
    - Re install the servo, spline forward, and run the wire to the front opening.

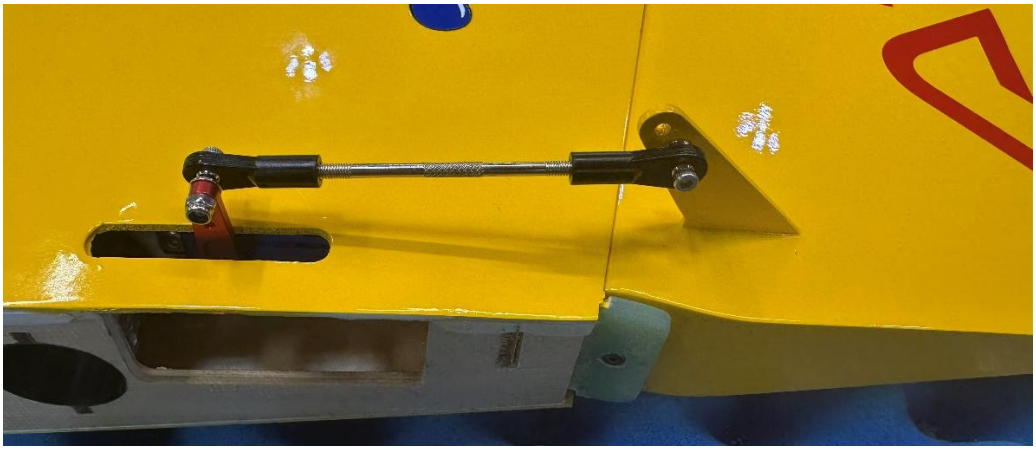


- Power on your servo and center it, then put your 30mm servo arm on. Locate the hardware bag with the heavy duty 3mm pushrod and ball links. Assemble the pushrod and ball links and then secure the pushrod to the servo arm and the control horn using the 2.5mm hardware.

Rudder

- Just like above, test fit your servo, drill the servo screw holes then insert the screws and remove.
    - After removing the screws and servo put in two drops of CA to harden the wood.
- Re install the servo, spline forward and secure the servo, route the servo wire forward.

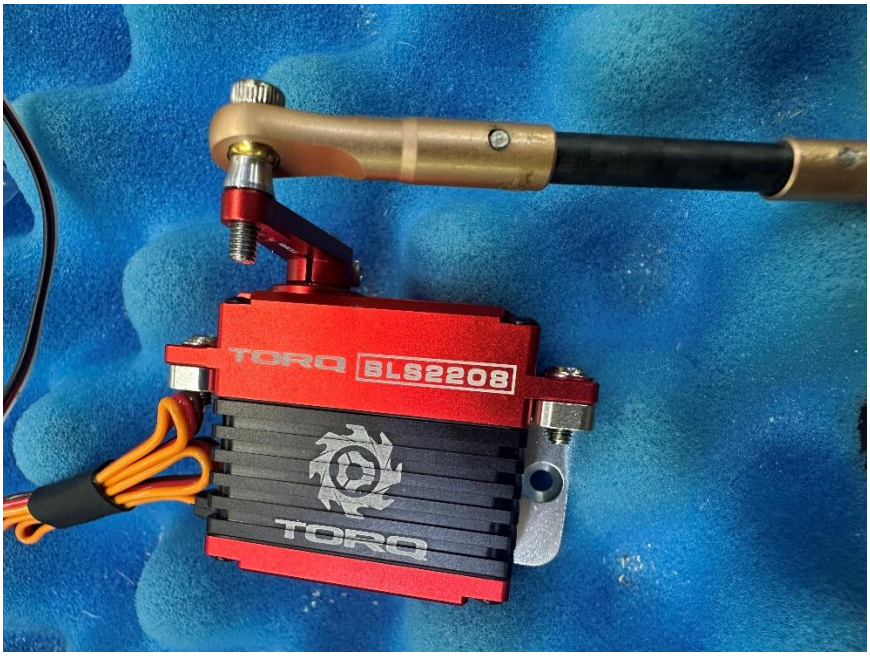
- Power on the servo and center it. Then install a 30mm servo arm.
    - Locating the 3mm pushrod and ball links assemble the pushrod and then secure it with the 2.5mm hardware.



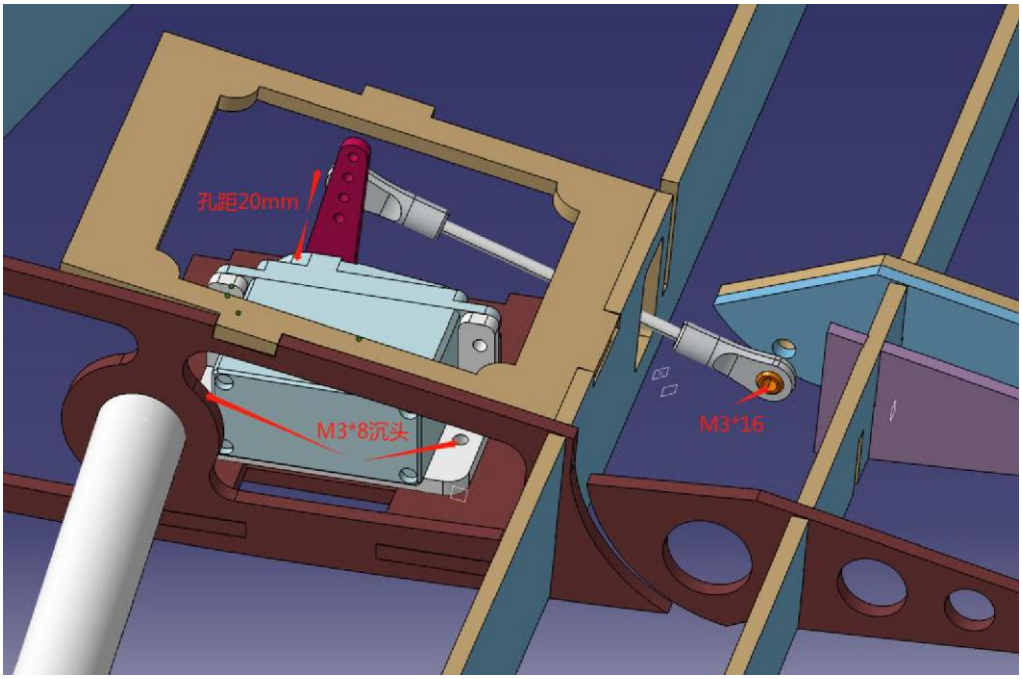
Wings

****Note:** there are no external control horns on the wings, both the ailerons and flaps use hidden control linkages.

- Starting with the **Ailerons**, locate your servo as well as the aluminum mounts and secure them using the 3mm bolts with locktite.



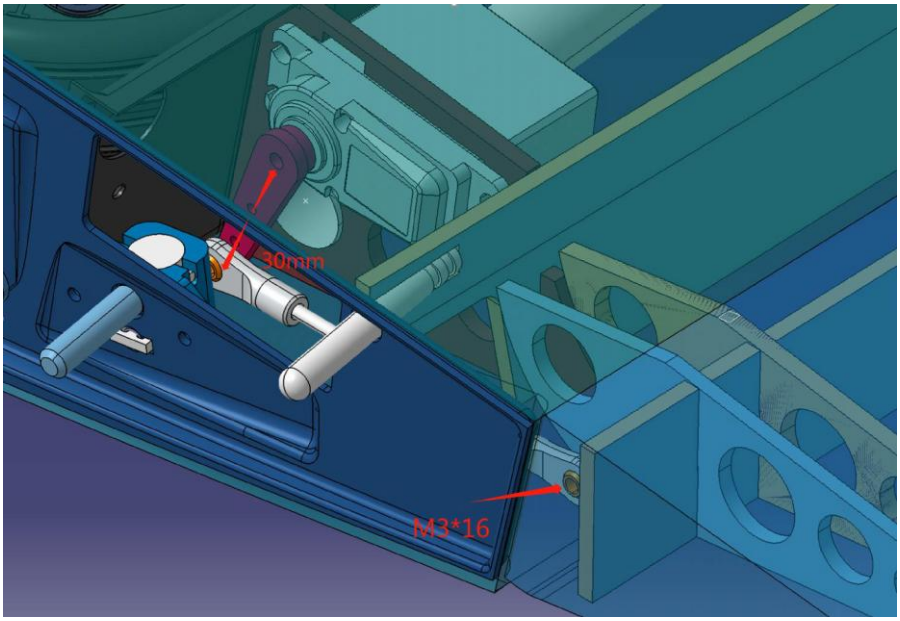
- Power on the servo and center it.
- Install the 20mm servo arm.
- Locate the pre made carbon fiber pushrods and 3mm hardware and mount it to the servo arm.
- Install the servo and mount into the wing and secure with the 3x8mm screws.



- Secure the pushrod to the aileron with the M3x16 screw and a drop of locktite.
- Installing the servo covers, hold it in place, pre drill the screw holes and then tap the holes for your screws.
    - Remove the screws and put two drops of CA into the wood and let dry then re install.

- Moving to the Flaps, the servo gets installed through the wing root.
- Spline forward, pre drill the holes for the servo screws and tap the holes.
    - Remove the screws and the servo, put 2 drops of CA into the hole so that the wood can harden and let dry.

- Before re installing the servo, power on and center the servo and install the 30mm servo arm and pushrods using the M3 hardware.



- Once installed use the M3x16 screw to secure the pushrod to the flap.

- Using low tack painters' tape to hold the flap deployed can help with access to the hidden mount in the root of the flap.

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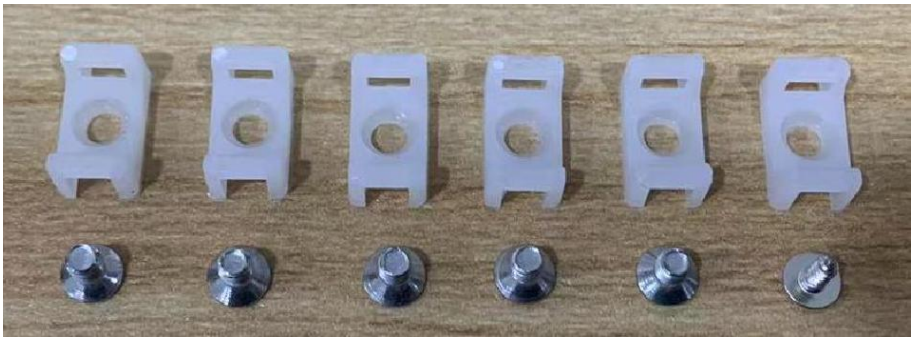
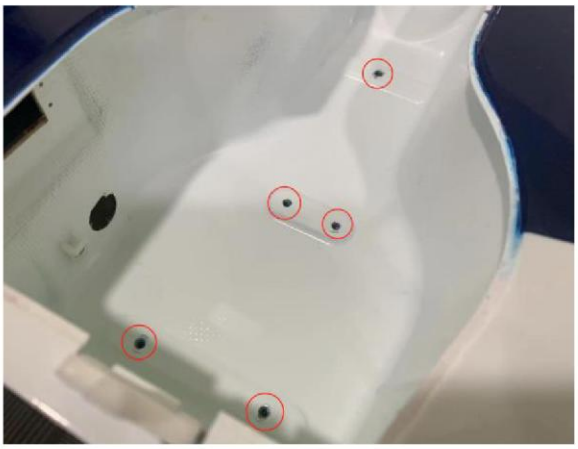
Main Landing Gear and Main Gear Doors

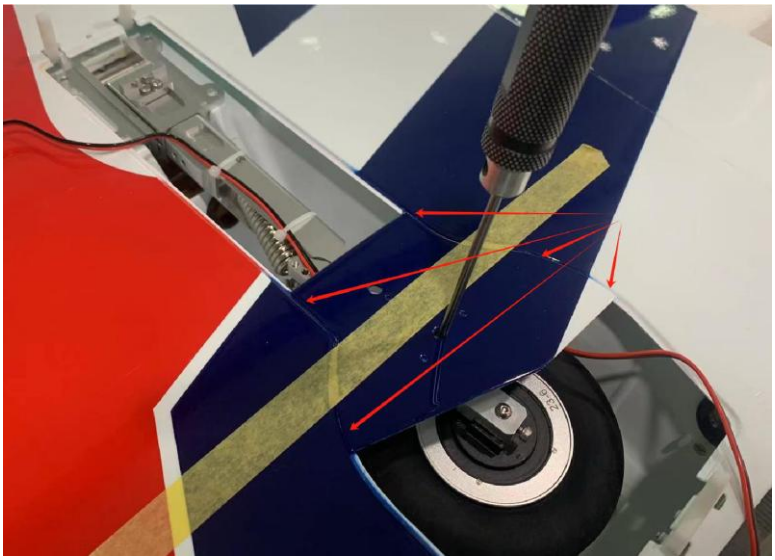
- Locate the following:
  - Wire clips × 6
  - M3 × 5 countersunk screws × 5
  - M2.5 × 8 pan head self-tapping screw × 1



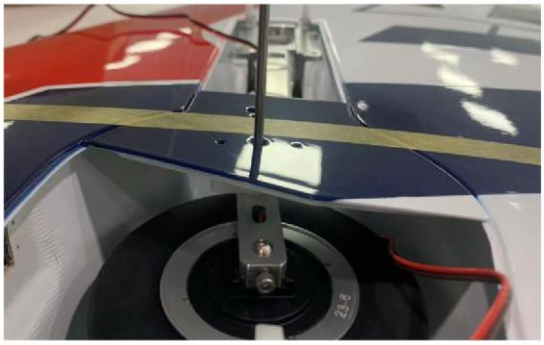
- Install 5 of the wire clips using the M3x5 counter sunk screws with a drop of locktite into the wheel wells.

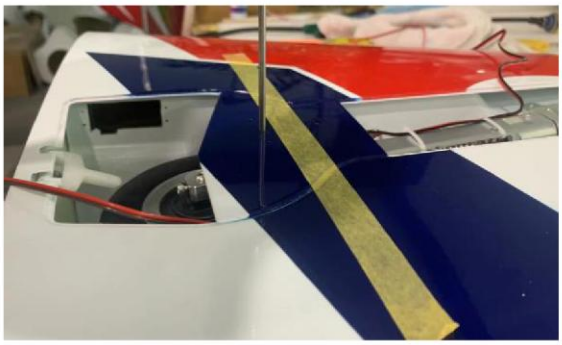


- Place the main landing gear into position, then tape the lower portion of the gear door into place as it will help us line everything up.

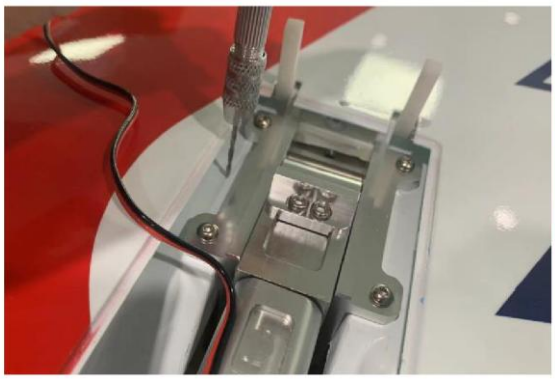


- Insert a 2.5mm driver into the hex of the screws on the landing gear and look and confirm that it is square. Once it is all square there you will know your landing gear is in the proper location.

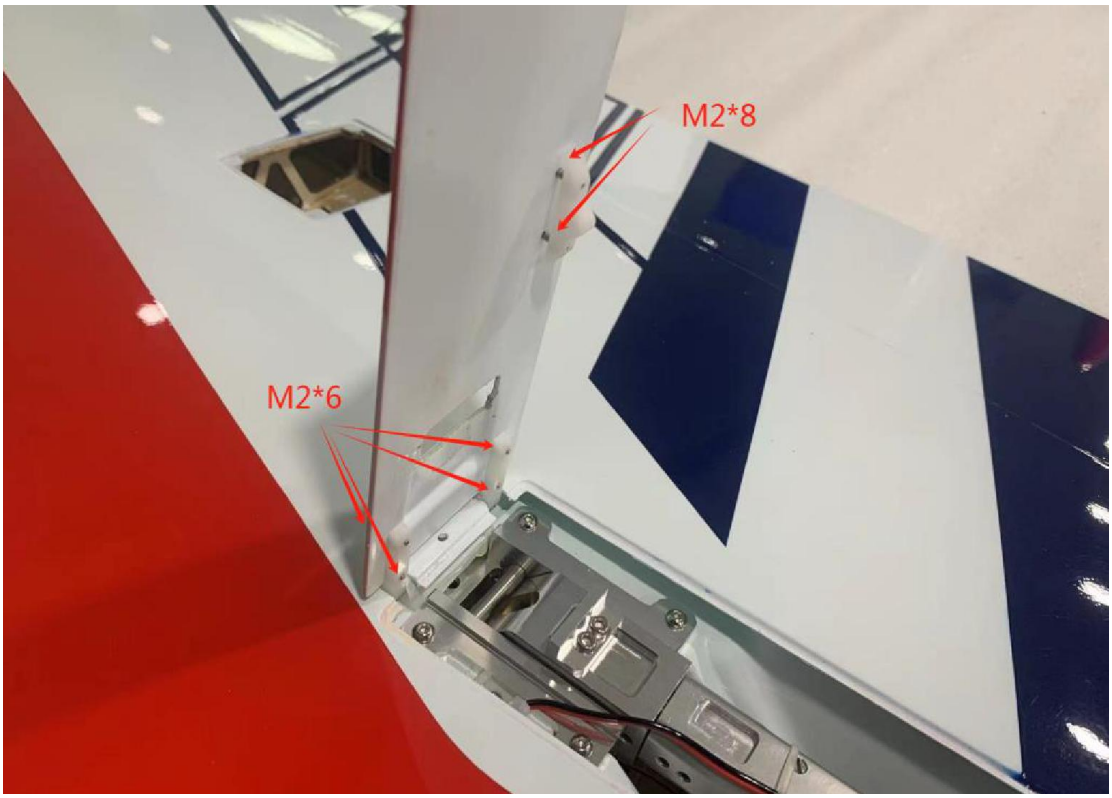




- Using a 1.2mm drill bit drill the first of four landing gear mount holes and then screw in that one in.
    - Check your driver 2.5mm driver to make sure it is still square and drill your next hole one at a time.



- Using your 1.2mm drill bit, drill a small hole for the last wire clamp and screw it in with the M2.5x8 self tapping screw.
- Remove all four landing gear screws as well as the lower door.
- Put in a few drops of CA and let that harden into the wooden landing gear blocks.
- Using the two M2x8 screws secure the plastic gear door pushrod mount to the gear door as shown in the picture.



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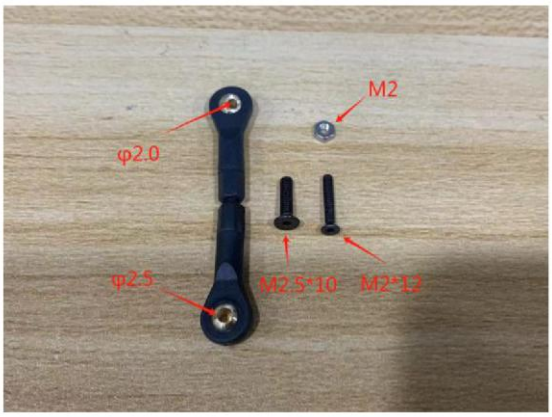
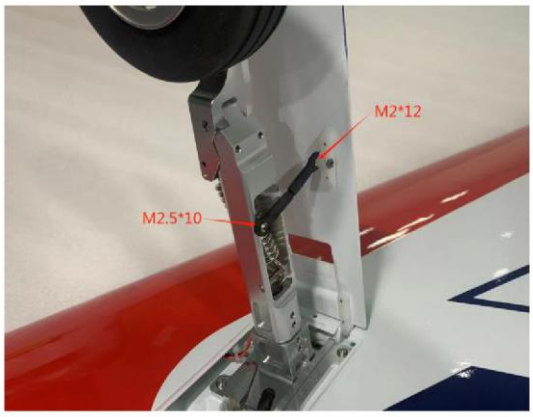
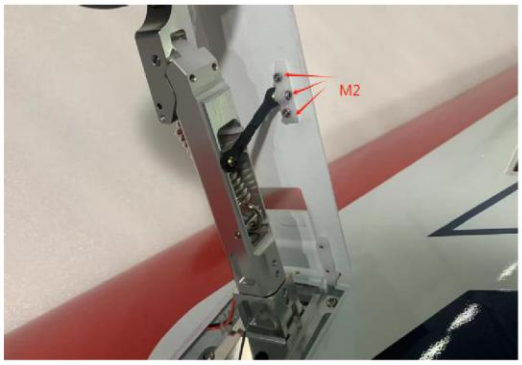
- Connect the provided pre made linkage as shown below with the accompanying hardware as shown below.



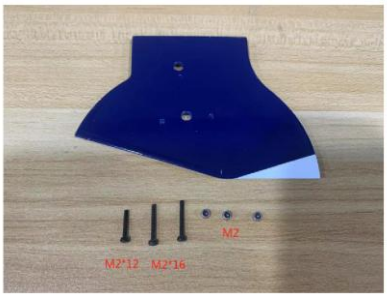


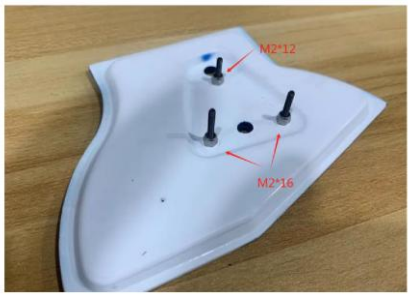
Note it might be necessary to adjust the length of the pushrod a little to get a nice fit.

- Opening the landing gear and now tighten all the screws and make sure to install the M2 nuts.



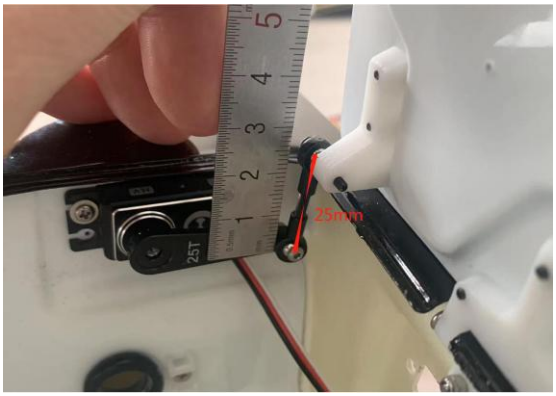
- Locate the lower gear door and the M2 screws and nuts.
- Put the M2x16 screws in the bottom holes and the M2x12 into the top and back them with the nuts, but only make them snug.





- Now screw them into the plastic “T” looking part on the landing gear strut, but again only loosely and then close the landing gear.
- Slowly retract the landing gear until it is all the way retracted.
    - Slowly tighten the screws to adjust them so they are seated snug on the lip on the wing.

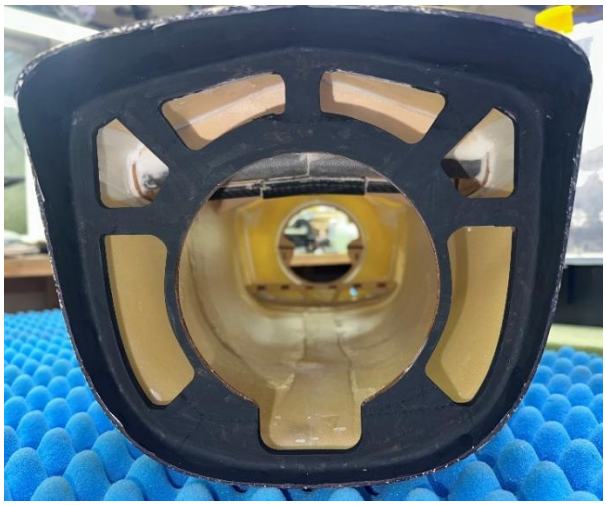
- Installing the inner gear door servo.
    - A mini Servo is required here with a 30mm servo arm.
    - The screw holes are laser cut for you already so just make sure they line up, then screw the servo in and then remove it.
    - Put in a few drops of CA to harden the wood and let it dry.



- Install the servo arm, pushrod and plastic gear door pushrod mount.
- When testing if there is ever an over drive or a bind quickly unplug the servo or power so and not to do any damage.

Installing the Thrust Vectoring servos

- The Servo on the right side of the plane will get mounted from the bottom while the one on the left side will mount through the top.
    - Pre drill the screw holes and then screw in the servo.
    - Remove the screws and the servos and drop in a few drops of CA and let dry.
    - Re install the servos as shown above.



- If you want to paint the inside of the tail and the former now will be the best/ easiest time to do so.
- Slide the thrust tube into the back of the fuselage.
- The thrust vectoring unit will slide right over the tail of the pipe.
    - Make sure the front of the pipe is sitting on the pipe mounting rails and center the thrust vectoring unit and drill the four holes to mount the TV unit.
    - Remove the TV unit and drop in a few drops of CA and let it harden.
- Re install the TV unit with two screws, it will be coming off again later.
- Make up the TV unit pushrods.
    - Notice the carbon tubes have nice threaded inserts pre installed already.
    - Thread the ball link on about half way and then thread into the pushrod about half way and secure it to a 30mm servo arm.
    - Take the other threaded rod and thread it into the link on the TV unit

- Slide the pushrod in and screw it into the threaded end on the TV unit, make sure to use locktite.

- Center the servo and make sure you are centering the TV unit as the pushrod is installed and adjusted.
- Do the same thing for the other pushrod.

- Install all your servo extensions to the tail at this time.
    - We ran everything along the right side of the fuselage and then made a hole through the bulkheads on both the front and back half of the fuselage that line up to pass the wires through.
      **Note this is just one way to do it, and there are many ways.

Nose Gear Door

- The nose gear door uses a mini servo with a 20mm servo arm.

- Pre Drill the servo screw holes and then screw the servo in.
- Remove the screws and the servo and drop in a few drops of CA to harden the wood.
- Re install the servo and secure it in place.

- Mount the door pushrod connector and the pushrod to the servo and door.

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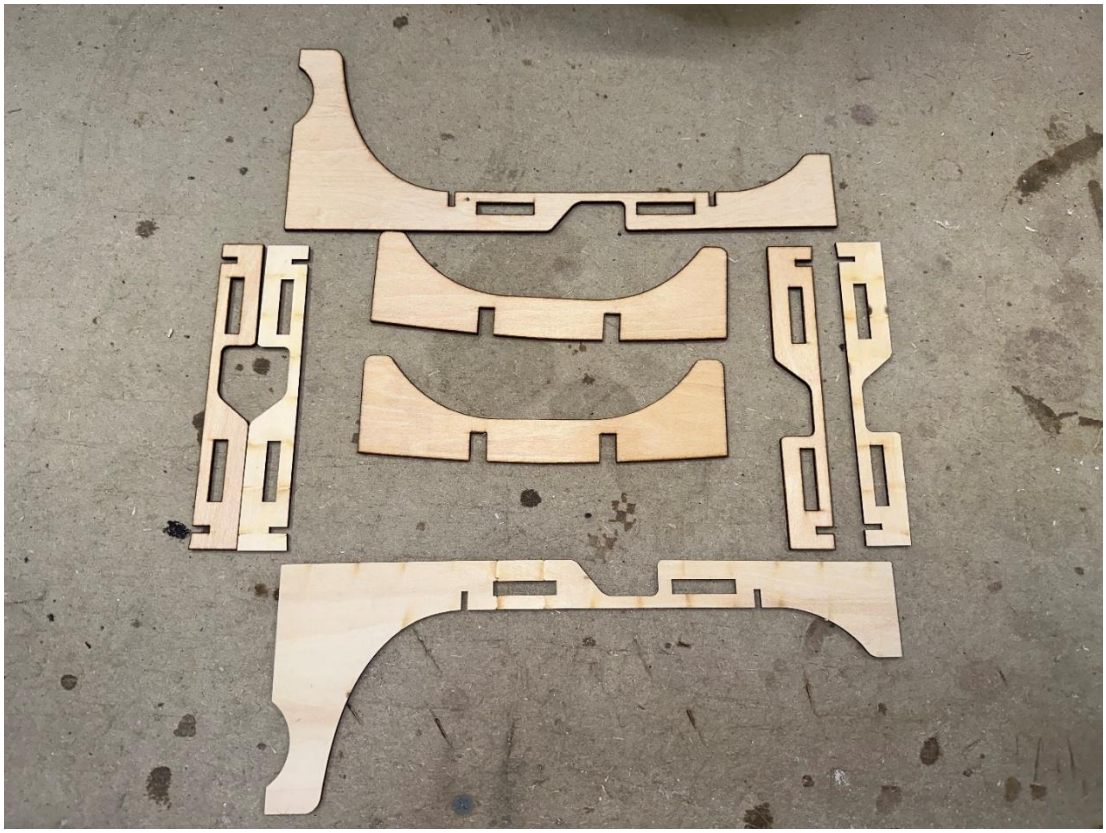
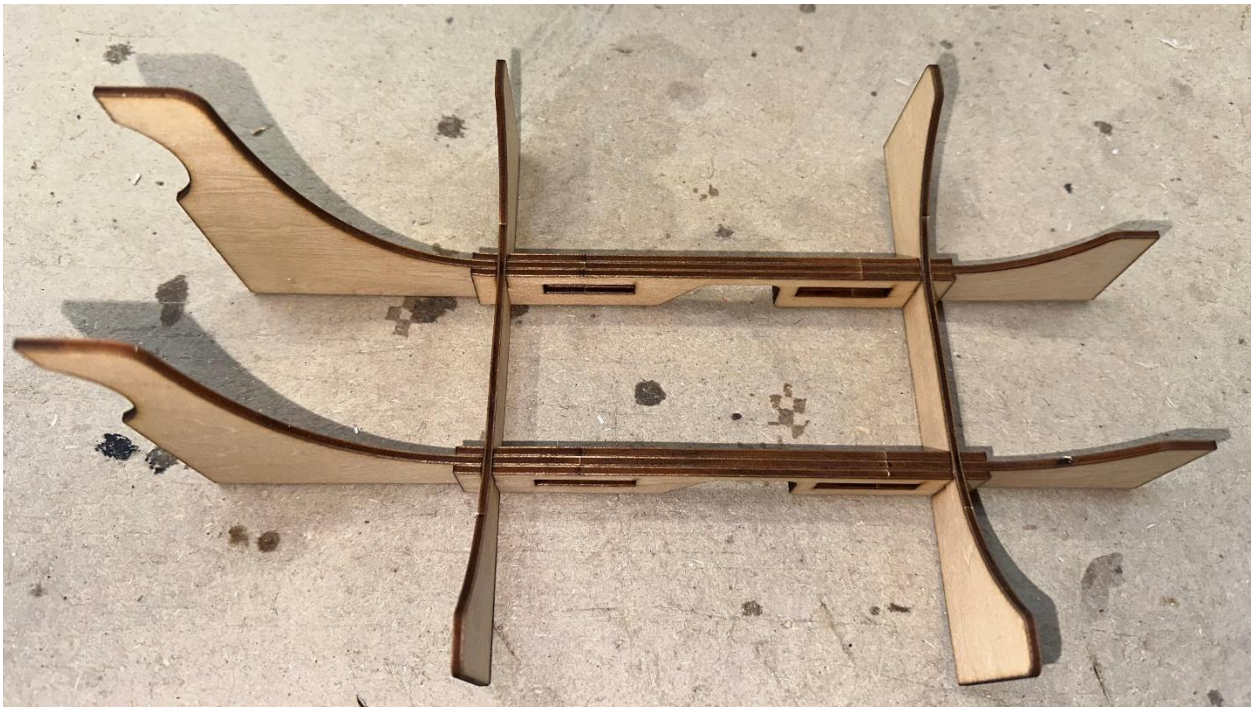
Fuel Tank and Tray Assembly

- Locate the wood for the Fuel Tank Tray.

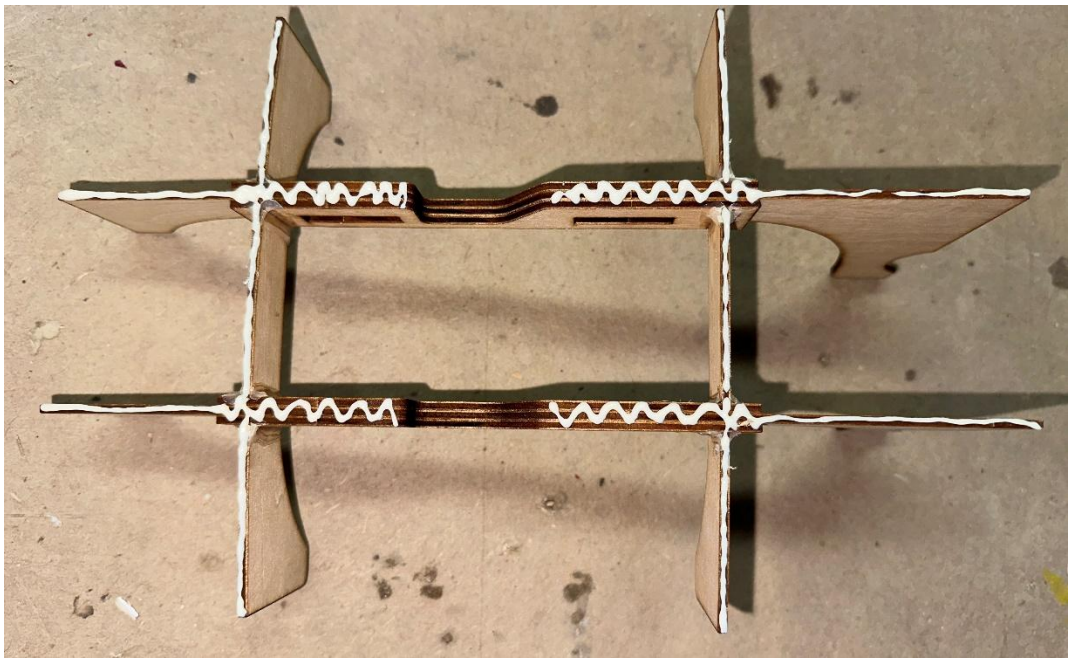


- First you will need to laminate the strap doublers to the long parts as shown below.

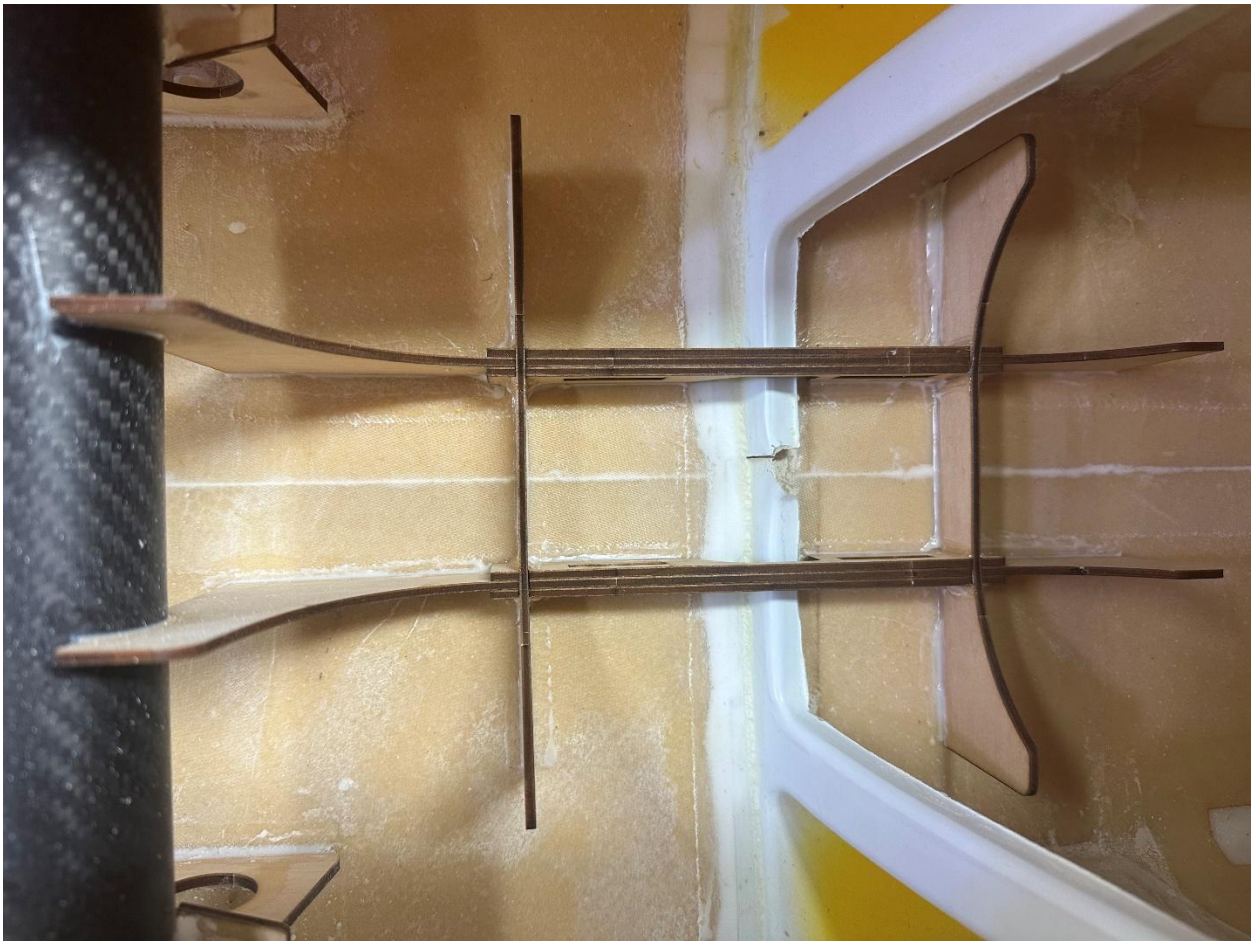
- Glue the cross members in place and let dry.



- Test fit this into the belly of the jet and bring back into place snug on the wing tube.
- Once test fit remove and apply Hysol/ Epoxy to the bottom of the tray.



- Now install the tray back into the belly of the jet and add weight to hold it in place and let it dry.



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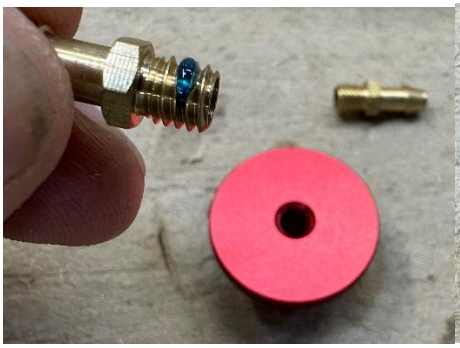
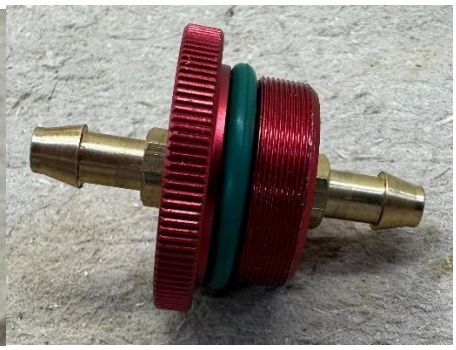
- Find the fuel tank and the hardware for the tank.


- Locate the front stopper and thread the nipples on to both ends using a drop of locktite.

- Drill the front of the tank in the marked circle 25mm to insert the fitting for the stopper.

- Test fit the insert and then Hysol/ Epoxy it into place making sure to get glue all the way around so as to have no leaks.

- Drill the top, over flow to insert the 90 degree fitting 9.5mm.
    - Test fit and glue in as above.

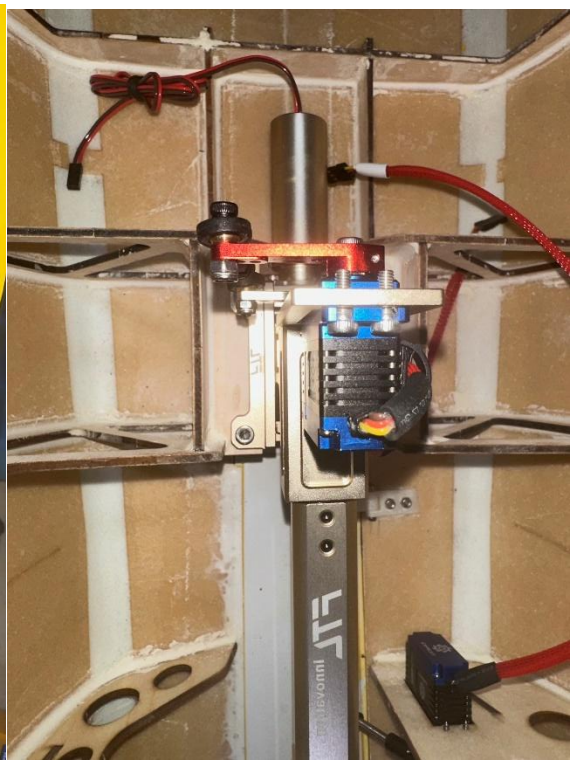
- Assemble your clunk line as show below, about 24.5mm longs but always make sure to check the length and make sure that it correct.

- Lockwire the fuel line into place so that it cannot slide off anywhere.
- When threading the stopper into the tank, put a drop of Locktite on the threads and secure.

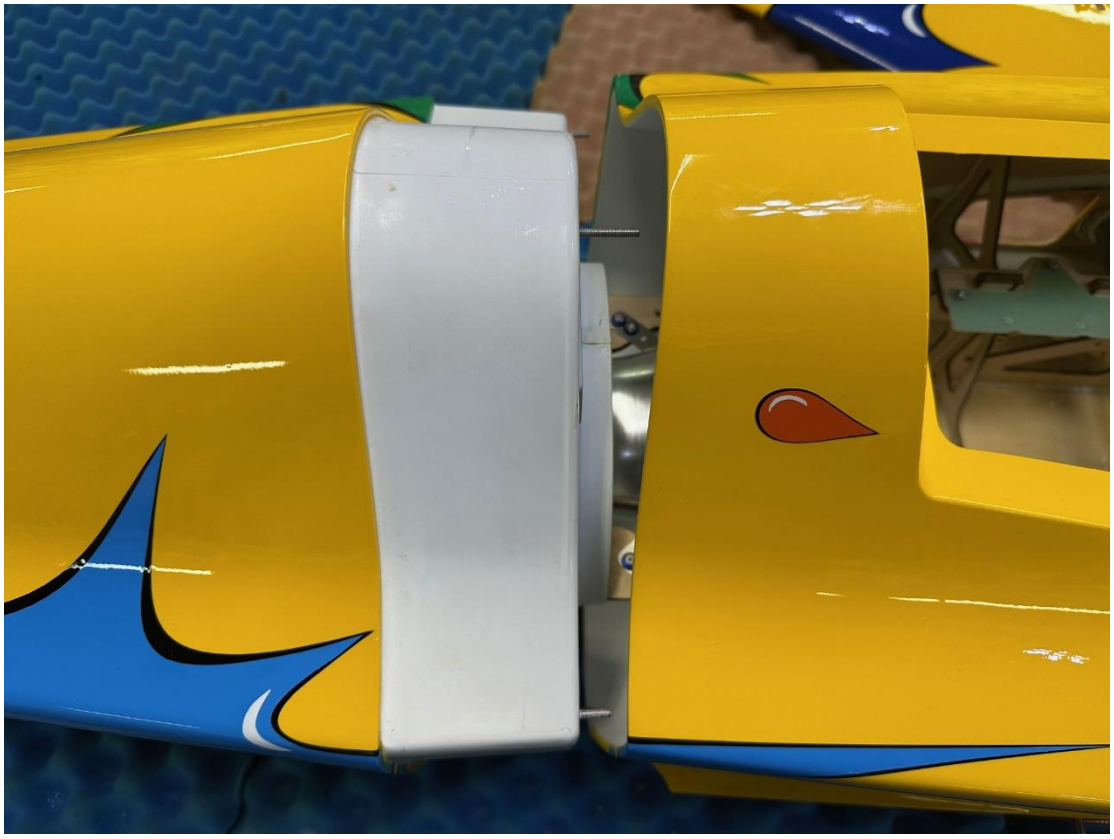
Installing the Steering Servo and Nose Gear

- Locate one of the Mini Servos and a 20mm servo arm.

- The servo inserts from the bottom of the tray.
    - Use the provided 3mm screws with a drop of locktite to secure the servo in place.
    - Center the servo and install the arm and then the pushrod.
    - Adjust the length of the pushrod so that the wheel is straight.
- Insert retract into the mounts in the nose of the jet and secure with the 4x bolts as shown below.

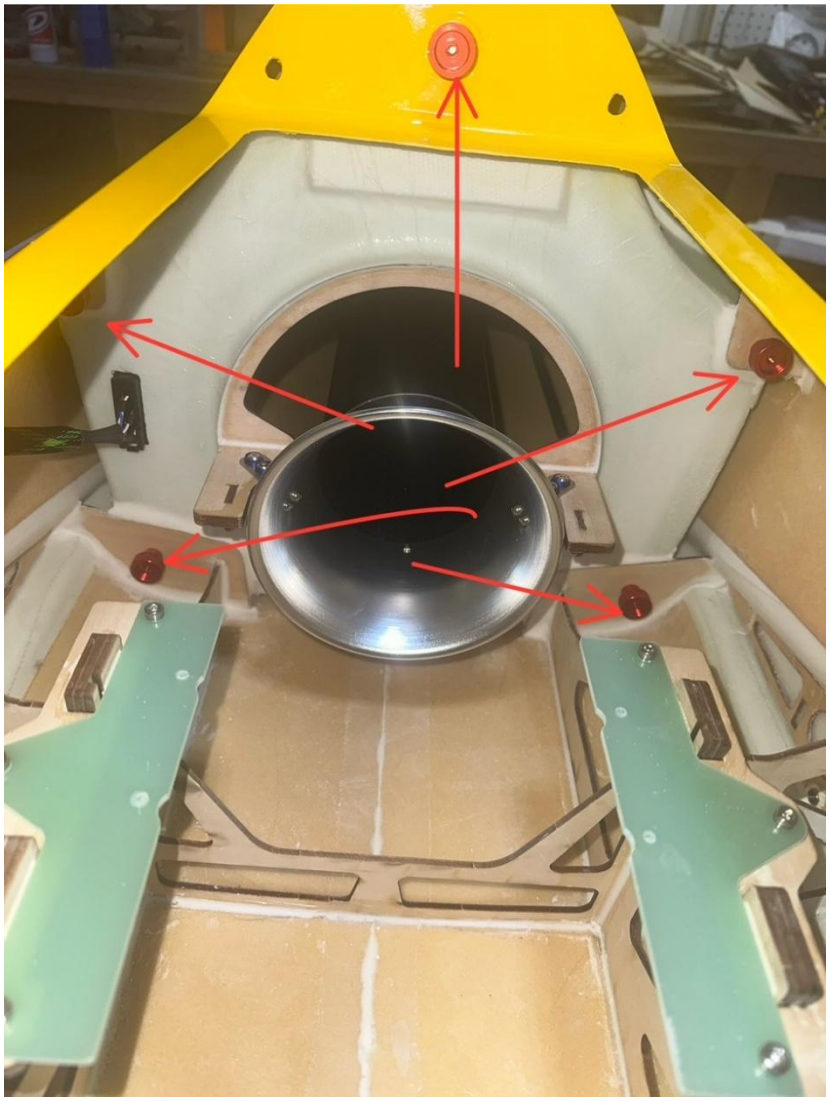


- Joining the front and rear halves of the fuselage is very easy, slide the two half's together nice and gently.



  - Locate the 5 thumb screws and make them finger tight.
    **Note check these from time to time once assembled to sure they are not coming lose.

- See below where the 5 red thumb screws are located.



- Install the G10 Plates that the turbine will mount on.
- Use the supplied bolts with a drop of thread lock.

- Adjust the placement of the turbine between the wing tube and the pipe.
- Then drill the holes for the turbine and then for the pipe and secure.

- Mounting your UAT, radio and turbine equipment is up to you where you would like to mount things.
- One way is to tape it out so you can picture it and move things around.
- There is plenty of open space above the top plate as well as below.

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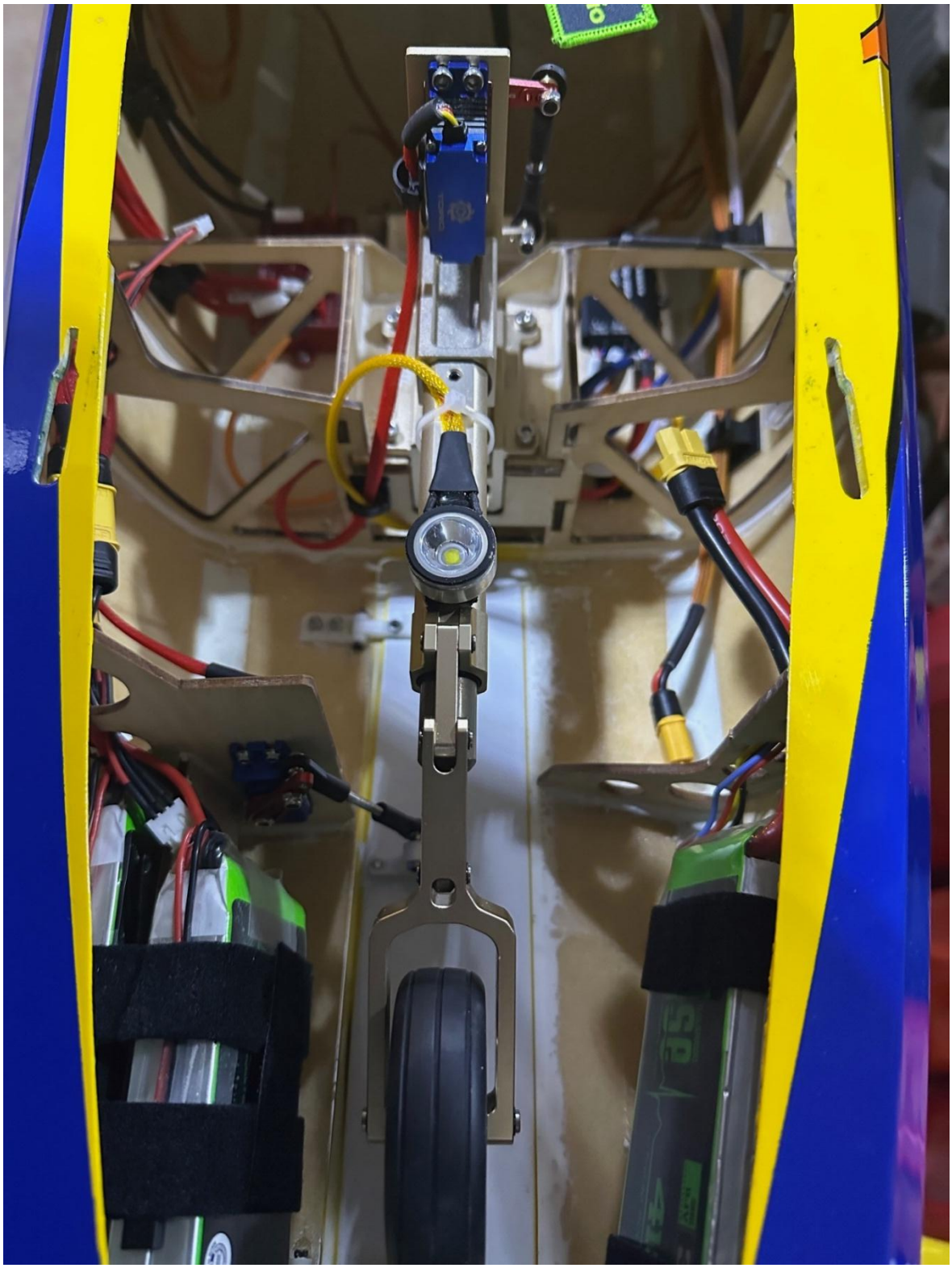
Final Installation Pictures for Reference



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