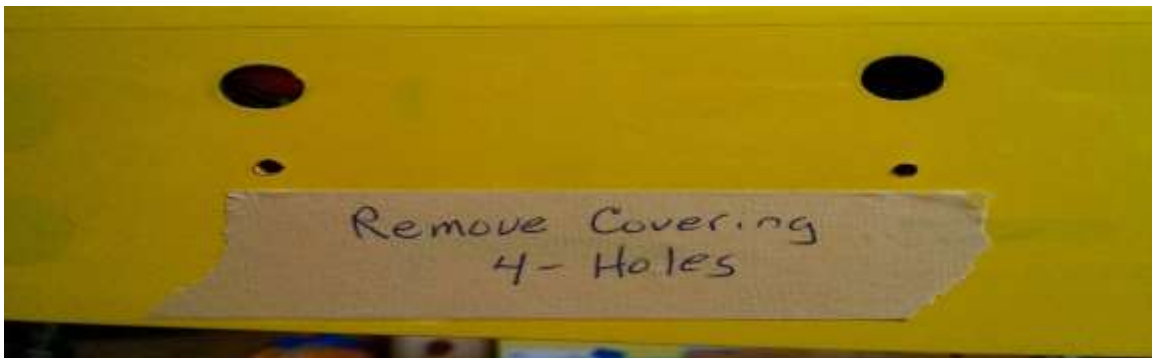


Turbinator

- 1) Open the box and inspect for damage. If any damage is present, please contact Boomerang RC Jets or your dealer immediately.
- 2) After inspection of your airframe, this is a good time to go over all of the components with a covering iron and shrink out any wrinkles or bubbles in the covering.
- 3) Fuselage: with a sharp razor blade or exacto knife cut out the covering over the holes in the fuselage for the wing tubes and horizontal stabilizer tubes. There are 2 small holes near the tail tube that also need to be opened. These holes are for securing the Stabilizer to the fuselage with the supplied screws later on in the assembly.



- 4) On all control surfaces, using either a hot soldering iron or an exacto knife open the holes for all of the hinges and control horns.



- 5) Remove four 6mm x 110mm aluminum dowels with a 4mm thread on one end. These rods are used to secure the wings to the fuselage. With a Dremel or grinder round off the end of the rod with no threads on it. This will make it easier to assemble the wings onto the fuse later.



- 6) Install the four 6mm rods into the 6mm holes in the fuselage side that you opened previously. Secure them into the preinstalled blind nuts inside the fuselage. You can see the blind nuts through the fuel tank bay.



- 7) Install the 2 Carbon fiber wing tubes into the front and rear holes in the fuselage.

- 8) Install the wing panels to check for fit. Sand the aluminum rods to fit by placing them in a spinning hand drill and applying 100 grit and paper to them to get the proper fit. Don't over do it here. Just sand enough that the wings slide on and off without too much force. Take your time fitting the wings.



- 9) Once you are satisfied with the fit, remove the wings from the airframe.
- 10) On the bottom of each wing open up the 2 holes on the bottom surface that are in alignment with the holes for the aluminum rods. These threaded holes are for the 4mm screws to secure the wings with.



- 11) You will find in your hardware package a small bag with various washers and screws. Remove from this bag the four 4mmx 20 mm socket head screws. Partially thread these screws into the holes you just opened on the bottom of the wing.
- 12) Re-install the wings on the fuse and tighten the screws on the rods enough to make a light impression on the aluminum rod.



- 13) Remove the wings, and where the marks are on the aluminum rods grind or file a flat notch to secure screws.



- 14) Fit the wings once again to make sure they fit properly and the screws hold them securely in place. Just snug the screws to the rods. Then remove them and set aside.
- 15) Vertical Stabilizer: In this step you will glue the two-piece vertical stabilizer together. In the kit are three 12mm carbon tubes. The shortest one is for the vertical stab. The other 2 are for the horizontal stab.
- 16) Glue some scrap blocks to the bottom of the fuse to help stop your clamps from sliding off while gluing the stabilizer together.



- 17) You can use tie wraps ganged together to provide clamping power. We used some inexpensive picture frame clamps with a ratchet.
- 18) Using painters tape, cover the edge of both parts with tape to protect the airframe while gluing the Vertical stabilizer together.
- 19) Lay a bead of Hysol or 30 minute epoxy on the two halves and clamp them together. Clean up any glue that squeezes from the seam at this time. Set aside and let it dry completely.



20) Next step is to glue the hinges for the control surfaces. Start by slightly enlarging the opening of each predrilled hinge hole with a sharp blade. This will allow you to seat the hinge with minimal gap between the surfaces. Begin with the Elevators. Once the Elevators are done move onto the wings and glue the hinges for the Ailerons and the Flaps. Take your time and make sure the spacing is OK between the flaps and ailerons and make sure the flaps don't rub against the fuselage. Then proceed to the rudder hinges for gluing. Hysol or aeropoxy is recommended for the gluing of all hinges because it gives you more working time and has great strength.



21) When gluing the flap hinges be sure to set them so they can reach approximately 80 degrees of deflection. Use masking tape to hold them in the deflected position while the glue sets.





22) Flap and Aileron Servos: Remove the covering from the control horn slots in both the flaps and ailerons. Bottom Side only. Also remove the covering on the servo plates for both the flaps and ailerons control horn exits.



23) The servo plates have the servo mounts already built into them. Reinforce this mount by wicking thin CA glue between the plate and the plywood mount.

24) Install servos of at least 150in oz of torque on each of the flaps and ailerons.

25) Assemble the ball links:

There are 2 types included in your kit. Be sure to install the balls with the brass eyelets protruding from both sides of the plastic loop into the control horns.

The Ball link that only protrudes from a single side is for the servo arm connection.

26) Install your servos into the servo mounts for both the Ailerons and Flaps. You may have to shave the Balsa reinforcing block on the mount to get the servo wire past it.

27) Connect your pushrods to the servos and control horns. The supplied pushrods have both a positive and negative thread. Screw one of each style ball link onto each end and adjust to the proper length.

28) For the Flap connection you will have to drill another hole in the composite control horn to accommodate the ball link. This will be below the other holes and spaced equally. This should be done before installing the control horn on the flap.





- 29) Once the hole is drilled in the control horn you can trim the control horn to eliminate the excess material above the ball link.
- 30) It is best to set up your receiver and servos on the bench and make your adjustments and on each Aileron and flap surface.
- 31) Once you have completed the wing servos and controls put them aside and begin the installation of the rudder and elevator servos.
- 32) The rudder and elevator servos should be of at least 180in oz of torque.

33) There are 2 hardwood spacer blocks in your kit that are needed to raise the rudder servo above the elevator servos. The rudder is a Pull-Pull system and the clearance is needed for the servo control arm to clear the elevator servos during operation. Glue these 2 blocks into place using 30 minute epoxy and clamps. Let them set completely before installing the rudder servo.



34) Install the control horns in the rudder. There are two horns that slip through the slots you opened previously. Apply some masking tape around the area to keep it clean while gluing these horns to the rudder.



35)

- 36) Sand the horns in the middle and slip them through the slots. Install a ball link on each side to help keep them aligned while gluing the horns.
- 37) Once they are installed, slide them to one side just enough to allow you to apply some epoxy to the horns and then push them back through the other side and apply a little more epoxy.
- 38) Set them into position and let them dry completely. You can clean off any excess epoxy at this time. Remove the tape before the epoxy sets.
- 39) Install the Pull-Pull cables for your rudder operation. Be sure the rudder and elevator servos are installed as shown or your elevator pushrods will be too short.
- 40) There are threaded inserts in your hardware package that allow you to thread the supplied cable through it. Screw one into each of the ball links for each side of your rudder servo arm and control horn. Adjust the tension and lock them in place using the supplied tubing.
- 41) Horizontal Stabilizers: Install the 2 remaining 12mm carbon rods into the holes in the rear of the fuselage. Slide the 2 halves of the stabilizer onto the tubes and secure with the 4 supplied hex head screws and washers.
- 42) Locate the 2 steel pushrods and slide them through the preinstalled guide tubes in the fuse. You can install a ball link on one end prior to installing the rods in the tubes. Once they are installed you can thread the remaining ball link onto the other end and adjust the length so that your servo arm is at 90 degrees and the elevator is in alignment with the stabilizer. This is a good time to center your servo using your transmitter and receiver.

43) Turbine installation: The Turbinator will accept a wide range of Turbines from 80 -120 size. We installed a 100 size turbine and are very satisfied with the performance.

44) There are 4 wooden plates included in your kit that are engraved D21. You can choose the size that fit best for your turbine.

45) For our set up we used the narrow mounts installed into the notches in the fuse. We then glued the other two mounts onto the top of them and secured our turbine to the wider mounts. This gave us the clearance we needed between the turbine and the cover for the engine bay. Once the glue has set, we recommend Hysol or Aeropoxy for this task. Install your turbine per the engine manufactures instructions. There is ample room below the tank bay for running your cables fuel lines and pumps etc... Be sure not to run the lines and cables over the fuel tank plates. Run your lines under the plastic guide tubes.



46) Now is a good time to layout your system components within the Fuselage. Things you will have to consider are the fuel system with the main tank and the UAT or air trap header tank. Air tanks if you are using pneumatic gear. Your receiver and switches and controllers for the turbine and gear.

There are many bits and pieces to install for the various systems and the Turbinator has plenty of room to accommodate the setup of your choosing.

47) There is a bay in the front of the Fuselage that is accessible through the hatch. This is the best place to install your batteries as it will keep the weight forward and help with balancing.

48) Landing Gear: Install your desired landing gear. We used the ProLinks electric gear package by Dreamworks RC.

- 49) Nose Gear Steering: Install the steering servo in the fuselage mount. There is a hatch on the bottom of the fuse for access.
- 50) Use 2 ball links on the servo arm with the threaded inserts. Run your cables from the servo to the steering arm and secure them the same way you did the rudder. Do not use a ball link on the steering arm. Just loop the cables through the arm and secure them.
- 51) Complete your gear installation and check the operation.
- 52) Fuel system. Install the Sullivan 125oz fuel tank (sold separately) and run all fuel lines and vents as needed. You can secure the tank using Velcro Straps or tie wraps. Add some foam padding to the sides of the tank to help keep it from moving in flight.
- 53) Canopy and Hatch: Trim the Excess off the plastic canopy and secure it to the hatch using a good quality plastic cement. Install a pilot or cockpit of your choosing prior to gluing the canopy.
- 54) There are 2 sets of magnets supplied with your hardware. These can be installed in the holes in the hatch and fuse for extra security. Be Careful they are very strong. We didn't install them as the installed latch is ample security for the hatch.
- 55) Balance the airplane. The Center of Gravity is 7 inches aft of the leading edge of the wing from where it contacts the fuselage. The plane should be balanced with a full UAT and the gear in the retracted position.
- 56) Control Throws: Ailerons = ½ inch up and down.
 Elevators = 1 inch up and down.
 Rudder = 1 inch left and right.
 Half flaps = 20 degrees down
 Full Flaps = 60- 80 degrees down.

You can adjust the throws to suit your personal flying style once you become comfortable with the Turbinator's handling.

We hope you have many successful flights with your Turbinaator Sport Jet. We welcome your feedback and can be reached at boomerangrcjets@gmail.com