At Precision Aerobatics, we developed the Addiction X to deliver an aircraft unlike any other. Using advanced production techniques, including our revolutionary PA FiberFusion® construction, we created an airframe that is exceptionally light yet extremely strong.

Strategic carbon fiber reinforcement and meticulous weight reduction make the Addiction X one of the lightest in its class, with very low wing loading and outstanding flying characteristics.

Through extensive flight testing, we evaluated numerous equipment combinations and identified a direct link between the drive system and overall performance. To ensure the aircraft flies exactly as intended by our designer and test pilots, we developed our Integrated Performance Airframe-Drive Systems® (iPAs®).

iPAs Set up
when performance matter!

Each iPAs component has been selected based on extensive flight testing to ensure optimum performance, reliability, and handling, with many parts designed or modified specifically for the Addiction X.

All demonstration videos found on our site feature aircraft equipped with an iPAs® setup.

Deviating from these recommendations may result in reduced performance and altered flight characteristics.

The Addiction X is designed to deliver maximum performance without oversized, expensive power systems. Our recommended iPAs setup gives you strong, efficient power, long flight duration, and a perfectly balanced feel. It's lighter, more responsive, and easier on batteries and electronics than typical setups in this class. If you want the aircraft to fly exactly as intended — this is the system to run.

visit PrecisionAerobatics.com for more information

Motor	**PA Thrust 45 Revo,** 24-pole Outrunner with Rotorkool® Technology | 127 g brushless motor PA Item #AC-1888 with Carbon Fiber X mount. *Using a motor larger or more powerful than specified may damage the motor box or result in airframe failure.*
ESC	**PA Quantum 45A Evo** ESC PA Item #AC-2189Evo
Battery	**PA Gen2 LiPo 4S pack** 14.8v 2600 mAh 30-60C PA Item #AC-2221
Servos	**4 of Nexatec NXT 180HV** servo. PA Item #AC-2376-4
Propeller	**Vox 13×6.5 Propeller** PA Item #AC-2107 An excellent overall propeller for high speed aerobatics, precision and sport flying. Suits windy days and for practicing precision and high-speed knife edge circuits and alike. It allows tighter and more aggressive tumbles. **Vox 14x5 Propeller** PA Item # AC-2387 Optimized for extreme 3D, it delivers strong static thrust and increased prop wash, which is critical for slow harriers, KE flight, hover stability, and torque rolls. The larger diameter compensates for the ADX V3's drag and improves overall control at low airspeeds. The additional thrust is essential for maintaining airspeed during transitions between maneuvers.
Radio	6 channel lightweight receiver
Carbon Fiber Spinner	**1.8" Ultimate Style CF Spinner** (CNC Machined) PA Item # AC-2048 Factory pre-cut, this ultra-lightweight carbon fiber spinner features a premium high-gloss finish. Each unit is individually tested in-house to guarantee it spins centered and true for vibration-free performance.
Carbon Fiber Vortex Gen	**ADX Carbon Fiber Vortex Generators** PA Item # AC-2177 These CNC-machined VGs complete the ADX aerodynamic profile, providing a more "locked-in" feel. They are essential for maximizing stability in slow, high-alpha 3D flight and improving precision during Knife Edge tracking.
Carbon Fiber Servo Arms	**PA Carbon Fiber Servo Arms** (# AC-2347) These CNC-machined lightweight arms are essential for achieving the perfect geometry and full control throws required for 3D flight.

iPAs Integrated Performance Airframe-Drive System

Precision Aerobatics Addiction X Version 3

What's new in this version?

• More completed at the factory than ever before!

• Optimized linkage geometry to maximize servo efficiency and control authority for aggressive flight.

• Complete ball link hardware on all pushrods.

• Secure hatch latch system, no magnets.

• Clear canopy for a clean, modern look.

• Hinges pre-glued into rudder and ailerons.

• Elevator/stabilizer ready for installation (fully pre-hinged and hinge gap is sealed).

• Motor box reinforcements are pre glued - ready for fast assembling to the fuselage.

• Updated construction with the latest FiberFusion features - lighter, stiffer, and stronger.

Due to these updates, some steps outlined in the manual are no longer required.

Please refer to the first page of this document for the most up-to-date recommended electronics and propellers.

Congratulations on your purchase of Precision Aerobatics

Addiction X V2

Dear Addiction X owner,
Congratulations on your purchase of the Addiction X V2. After assembling a few in different ways and sequences, I found the following sequence and methods to be the smoothest and easiest for you. A lot of work and effort was invested into this manual so please put the time to read and follow it to get the best results. I hope you enjoy your new Addiction X as much as we do.

Shaun Vanunu
PA Designer
Chief engineer

Warning – This is not a toy!

Be sure you have read and understood this entire manual before you assemble this model

Do not overlook the warnings and instructions enclosed herewith or those provided by other manufacturers, and the official AMA (Academy of Model Aeronautics) Safety Code (see at the end of this manual). They were designed to assist you in preventing damage or injury.

The instructions below are our suggestions only on how to assemble this model. There are other ways and methods to do so.

Precision Aerobatics has no control over the final assembly, the materials and accessories you use when assembling this kit or the manner in which the assembled model and the installed radio system and electronic parts, are used and maintained. Thus, no liability is assumed or accepted for any damage resulting from the use of the assembled model aircraft or from this instruction manual including but not limited to direct, indirect, incidental, special, and consequential damages. In no event shall Precision Aerobatics' liability exceed the original purchase price of this kit.

BY THE ACT OF ASSEMBLING AND OPERATING THE ASSEMBLED MODEL YOU ASSUME AND ACCEPT FULL LIABILITY FOR YOUR ACTIONS.

Radio controlled model aircraft that are not properly assembled, operated and maintained can cause serious damage to body and property. If you are not an experienced pilot and airplane modeller you must use the help of an experienced pilot or preferably an authorized flight instructor who will assist you with the assembly and flying of this model.

SAFETY NOTES:

1. Before assembling and flying this model read carefully any instructions and warnings of other manufacturers for all the products you installed or used on your model (especially radio equipment and power source).
2. Check thoroughly before every flight that the airplanes components are in good shape and function correctly. If you find a fault do not fly the model until you have corrected it.
3. Radio interference caused by unknown sources can occur at any time without notice. In such a case, your model will be uncontrollable and completely unpredictable. Make sure to perform a range check before every flight. If you detect a control problem or interference during a flight, immediately land the model to prevent a potential accident
4. Youngsters should only be allowed to assemble and fly these models under the instruction and supervision of an experienced adult.
5. Do not operate this model in a confined area.
6. Do not stand in line with, or in front of a spinning propeller and never touch it with any object.

Precision Aerobatics quality control team checks each plane before it leaves the factory 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 assembly of this model. Inspect the components of this kit now. If you find any parts damaged or missing, contact the hobby shop who supplied this kit immediately. We do not accept the return or replacement of parts on which assembly work has already begun. Precision Aerobatics reserves the right to change this warranty at any time without notice.

Enjoy your new model. Precision Aerobatics Team

Equipment selection

At Precision Aerobatics we have gone to great lengths developing the Addiction X V2 (ADX V2) in order to provide you with an aircraft like no other. We have used unique engineering and untraditional production techniques, including our revolutionary PA FiberFusion® to create the lightest, strongest aircraft possible. The extremely advanced aerodynamic design, the extensive engineering and usage of carbon fiber along with our never ending quest to reduce weight ensures the ADX V2 is like no other aircraft in its class! It's one of the lightest aircraft in its class, with an incredibly low wing loading. These factors contribute to the outstanding flying characteristics of the ADX V2.

Throughout our extensive flight testing program, we have trialed many different combinations of equipment in order to obtain the best possible performance from the airframe. We noticed a direct relationship between the drive system chosen and the aircraft performance and handling characteristics. It is our desire that your ADX V2 should have the same amazing capabilities as our designer envisioned and test pilots experienced. For this reason, we have developed a number of our own **Integrated Performance Airframe-Drive Systems®** or **iPAs®**.
Note: All the flying videos available on our website use, exclusively, the iPAs recommended gear which can give you a good idea on the high performance you can achieve.

The ADX V2 was designed around the following iPAs gear. Please be aware that any deviations from these recommendations will result in degraded flight characteristics.

- **Motor** - PA Thrust 45 Revo with **Rotorkool®** technology (PA Item #AC-1888) brushless motor (using a motor that is larger or more powerful than that specified can result in damage to the motor box or failure of the airframe).To find more details on the Thrust 45 Revo visit our website. Note that when buying the motor with the airframe you are entitled to get a FREE CNC machined carbon fiber X mount (PA Item # AC-1887X), made to suit the Addiction X V2.
- **Prop adapter** –CNC machined precision prop adapter for the Thrust 45 Revo (PA Item # AC-2360).

Use only a good quality prop adapter that spins perfectly true otherwise thrust and efficiency will be lost and vibrations may damage the motor box.

- **ESC** - PA Quantum 45A Pro Programmable ESC with built in HV selectable Switching BEC (PA Item # AC-2189HV).
- **Batteries** –PA V4 2600mAh 25-50c 3S (11.1V) LiPo (Item #AC-2326). On our website you can find bundles of 2pak and 4paks at a discounted package price. **Note:** different batteries will vary the motor's output thrust and amp drawn and might push the motor beyond its limits. If using none-PA packs use a watt meter to verify that the output power and amp drawn are within the Thrust 45 Revo range with the specified propeller. Please refer to the Thrust 45 Revo data sheet.
- **Connectors** – use only high-end plugs that can handle the amps. We found that using cheap copies can cause problems of conductivity and restriction of higher current flow resulting in serious loss of power.
- **Servos** – We recommend four NXT-80HV (item #AC-2334??) servos or similar quality digital mini servos all around.
- **Extension lead** – German made, thin gauge flexible extension lead for EP models 2M/ 6.5ft (PA item # AC-1713).
- **Micro Receiver** – Four or more channels full range 2.4Ghz (e.g. Spektrum AR620/610/AR6210 receiver).
- **Propeller** – Vox 15x6 Electric wooden propeller (item #AC-2112) only when using the Thrust 45 Revo with 3S set up. It is essential to allow good air flow (using the supplied air baffles and installing the gear per the instruction manual) over the motor, ESC and batteries regardless of chosen propeller. Please refer to our website for the prop selection.
- **VOX 15x6** (Thrust 45 Revo / 3s 11.1v setup only) - This prop is a must-have with the ADX V2 and is included in our iPAs Pro package. This is the highest range propeller for the Thrust 45 Revo with the V4 pack and is an excellent overall propeller for extreme 3D specifically tuned for slightly slower and graceful 3D. Due to the large size of the ADX V2 (more drag), this prop is an excellent match with overall performance for aerobatics and 3D. The added thrust and prop wash provide excellent traction when flying slow 3D such as slow harrier rolls and slow KE. The ADX V2 has a very wide flight envelope from precision aerobatics maneuvers to very slow and easy 3D. The extra output thrust this prop produces is therefore essential, especially in sustaining the flight speed during the transition between maneuvers so you don't lose much of the energy. The Larger prop diameter generates better propwash for 3D flying. It gives an excellent punch for recovery out of awkward situations especially when learning to hover or torque roll. Allows moderate speed maneuvers and good tumbles/spins at a manageable pace.
- **VOX 14x8** (Thrust 45 Revo / 3s 11.1v setup only) - This is a good alternative propeller, an excellent overall propeller for high speed aerobatics, precision and sport flying. The added speed provides excellent performance on windy days. It is very suitable for practicing precision and high-speed knife edge circuits and alike. It allows tighter and more aggressive tumbles. Lower thrust means slower pull out from hovering so if you are after slower 3D the 15x6 would be a better choice.

Warning: Plastic APC "E" propellers of equivalent sizes are **NOT recommended** for any of the PA planes as they generate a lot of vibrations being out of balance. They also flex and will draw much higher amps compared to the Vox props at the same sizes being less efficient. Using them instead of the recommended Vox propellers can lead to a motorbox failure!!

DISCLAIMER - AIRFRAME LIMITATION

The ADX V2 is designed for extreme aerobatics and 3D maneuvers and has robust construction that was thoroughly tested. However due to the extreme thrust produced by the Thrust 45 Revo, the low flight weight of the model and its large control surfaces, it is vital for the user to exercise discretion while executing high stress maneuvers so as to avoid over loading the airframe. EVERY airframe may it be an RC model or a full scale aircraft has its maximum limits. Your ADX V2 is not an exception. The ADX is also specifically designed to operate using the recommended gear described above. Keeping within the design limitations greatly depends on your flying style and IS YOUR RESPONSIBILITY. Please read the Official Academy of Model Aeronautics National Model Aircraft **Safety Code** at the end of this book.

Pre-Assembly

Before you commence assembling please inspect the contents of the kit for any damage that may have occurred during transport or a suspected manufacturing defect. If you suspect any component is damaged please contact the shop from which you purchased the model immediately. Do not commence the assembling of this kit.
We go to great lengths to ensure all components are manufactured free of warp or twist, however, due to high temperatures on the long journey in a container and changes in humidity it is possible for small amounts of warp or twist to develop. It is important at this stage to inspect for warp.
Look down the length of the ailerons to ensure they are perfectly straight or alternatively, place them on a flat solid surface such as bench top to verify it (same applicable with the elevator and rudder). If the aileron appears to be twisted, it must be removed by gradually twisting in the opposite direction and carefully applying heat to the wrinkles on the covering film (ideally with a modeling iron). Start at a very low temperature and gradually increase until the wrinkles begin to shrink. Different films respond to heat in different ways and excessive heat will damage the covering. Repeat this process until the aileron is perfectly straight with no twist visible. Do **NOT** use a heat gun as it affects a much greater area which may cause an unwanted warp in other areas and burn the covering.

Inspect all sharp edges of the covering trims to verify they are sealed down. If there are loose edges that peel off, use an iron to lightly seal them down, especially pay attention to wing and elevator tips (trailing edge & leading edge).

Place the elevator on a flat surface to verify both elevator counterbalances sit flat. If one counterbalance is slightly twisted up or down while the other side is neutral, the slight twist can be removed in the same manner as the ailerons by gently twisting in the opposite direction and applying heat to the film where it wrinkles. It is important to ensure that this step is completed prior to installing the stabilizer/elevator on the model. A straight elevator should line up perfectly (both sides) with the stabilizer leading edge.

Any small bubbles or wrinkles in the covering film can also be removed with a small hobby iron, **however extreme care must be taken, as it is possible to introduce warp to an otherwise straight part while removing wrinkles.** Start at low temperature and gradually increase it. Use the iron **front tip** and **only** over the wrinkles to avoid warping other areas! Avoid using a heat gun as it spreads the heat over a large area and can easily cause twists and warps.

Avoid keeping the hatch off the fuselage for long periods of time as it may develop some warp due to its length and climate changes. Do not leave hatch/canopy out in the sun as it may warp as well.
Tip: As most parts of the ADX will be assembled using epoxy, it is recommended to have some Denatured Alcohol (methylated spirits) and paper towels handy for the occasional quick clean ups during the build.

Note: Through the manual - all left/right/rear indications are from pilot view

You may also watch "PA Build" videos available on our website, however, don't miss reading this instruction manual.

Attaching and Removing the Hatch

Note that the hatch of the Addiction X is held on by strong magnets. Being quite tall it should be removed with both hands by grabbing and lifting at the position shown. Due to the lightweight structure of the hatch, trying to remove it by grabbing or forcing a different area may result in damage.
Note: If you are having difficulty removing the hatch off the fuselage for the first time, it is possible that the radical climate changes caused the magnets to fuse. In this case do not apply excessive force as that can result in breaking the hatch, instead, use a sharp blade to separate them.
Make sure the hatch is fitted properly before takeoff. The battery Velcro strap or cables might get compressed with the hatch forcing an ejection during flight. Also, if you are a high speed/energy flyer, it's recommended to use a small piece of sticky tape over the rear top canopy as precaution.

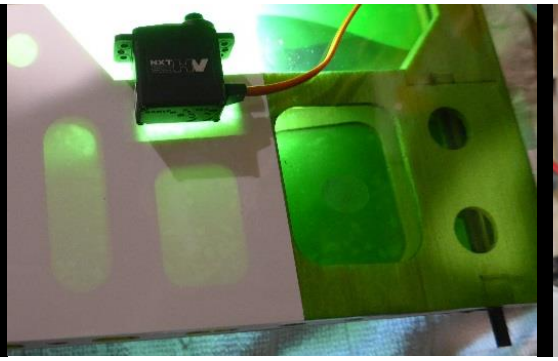
Making the Openings

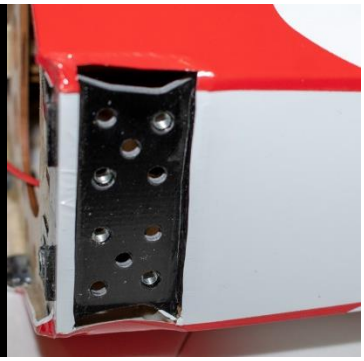
Start by ironing around the edges of all the openings to be made to ensure the covering does not peel back later. Next make the following openings in the covering film, as shown in the photos- aileron servo cables, wing bolts, elevator servo (cutout one side only), landing gear, cooling air exit, stabilizer slot and aileron servo bays. Save the excess covering for a later step. NOTE: Aileron servo lead opening should be cut smaller since the wing root **do NOT** fully cover the fuselage opening. Fit the wing panel to estimate the location.
Tip: To prevent making accidental mistakes in the openings, use a pin or blade to pierce a hole in the opaque covering from the inside to mark the location of the openings before cutting from the outside.

Stabilizer slot

Note: Each side of the fuselage has an identical elevator servo opening. Choose the side per your preference. Make sure to expose the elevator control horn slot in the correct side of your servo final position.
With the exception of the aileron servos, the easiest way to make the openings is by 'cutting' the film with the heated end of a paperclip (to heat use a cigarette lighter or a candle) or with a very sharp modeling knife.
NOTE: Finding the aileron servo bays through the opaque covering is a bit challenging. The easiest method is to plug in the LED lights into a battery and you'll be able to identify the opening. Due to the reflection avoid using direct flashlight.
For the air-cooling exit, undercut the covering around the bay by leaving a 3mm overhang all around then carefully tuck the edges down.


Aileron servo lead opening (cut smaller)


Aileron servo bay (LED lights ON)


Landing Gear Bay

Aileron installation

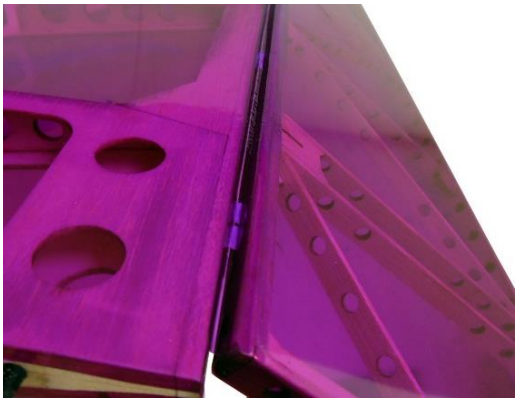
Locate the eight identical large aileron hinges. The ailerons and wing hinge slots are pre-cut. Start by gluing the hinges into the ailerons first (hinges fitted half way in). Test fit the aileron; if you find it hard to insert the hinges into the wing, enlarge the slots with a sharp blade. Visually confirm the alignment of the aileron and if by chance it's out, carefully re-cut the hinge slots as necessary.

To set the aileron deflection, insert the aileron all the way into the wing leaving no hinge gap. Align the aileron tip with the wing tip and deflect the aileron to 50 Deg (or close to it) up and down to set the gap (gap should be about the same over the entire length). Once satisfied, apply a few drops of thin CA on both sides of the hinges (while fully deflected) and repeatedly deflect the aileron up and down in a quick pace until the CA sets. Tip: It's recommended to apply thin CA to the hinges with a pipette tip applicator supplied with your CA bottle to avoid "fogging" the covering. If fogging occurs, it can be easily removed by wiping off with a paper towel dipped in acetone or nail polish remover.

Take the supplied covering strip and crease it into a "V". Trim the creased covering to the length of the aileron. Align it along the hinge line (apply from the bottom side of the aileron only). Hold it in place and starting at one end, iron it down along the length of the wing (do not iron to the aileron at this stage).
Deflect the control surface to maximum and iron the film into the hinge gap using the point of the iron. Now iron the strip along the aileron while deflected to approximately 50º. This method ensures the gap is completely sealed while still allowing full deflection of the control surface.
NOTE: Sealing the ailerons hinge gap is an extremely important step, it is an integral part of the Addiction X design, therefore, skipping this step will have a detrimental effect on the flight characteristics and possible flutter!

If the film doesn't adhere to the surface it could well be that the protection backing is still on and needs to be peeled off. Repeat for other wing.

Use only the point of the iron



Iron down covering

Aileron servo installation

Feed the servo cable through the servo opening and out through the opening in the wing root rib. Insert the aileron servos with the output shaft closer to the aileron. **DO NOT** force the servos in as you may damage the servo trays. Slightly enlarge the openings if needed, using a sharp blade to "shave off" a bit of ply. Alternatively, you may use a small flat file. Test fit servos during this process and take care not to damage the servo lead.

Aileron servo lead

Drill holes for the servo mounting screws using a sharp 1.5mm (1/16") drill bit. Ensure that the screw holes are centered. Use only fully threaded screws. Do not use excessive force as this may damage the servo tray. Screw and unscrew the mounting screws and then apply a drop of thin CA into each of the holes to set the thread. Once the CA has cured install the servo.

Tip: Carefully "tap" the screws in by making a full turn in and then backing out by ¼ turn and repeat until the screw sits fully in.

Warning - we recommend **not to use** the rubber grommets and eyelets supplied with some servos as this method of mounting will introduce excessive flex of the servo case under flight loads and will cause a loss of resolution in control ("blowback" of the control surface). The best method is hard mounting of the servos (tail and aileron servos) with aftermarket screws without the grommets and eyelets.

Aileron control linkages

First, select the two identical (89mm/3.5") CF pushrods (shortest) and control horns from your hardware pack to begin preparing them for installation. Note that the aileron control horns are the identical pair from the hardware pack of four CF control horns.

Lightly sand the base of the CF control horns to allow better gluing surface. Next, slit the opening for the CF horn on the Aileron. Test fit the CF horn. If the fit is too tight; do not force the horn in. Instead, use a blade to carefully enlarge the opening until a perfect fit is achieved. Do not epoxy the CF horn at this stage.

Locate the metal clevis from the hardware pack and use a paper rag soaked in denatured alcohol to thoroughly clean the inside of the hole where the CF rod inserts. Install the metal clevis to the aileron horn. The horn mounting hole is slightly undersized. Use a fine needle file carefully to **slightly** enlarge the hole to get a precise slop-free fit. Test fit the mounting bolt a few times during the process. **Take your time** to do so because oversized hole would cause undesired slop. Later, do the same with the CF servo arms' mounting hole.

Screw the clevis bolt and test for a smooth bind free movement. Do not over tighten to avoid "clamping" the fork of the clevis on the CF control horn. If binding occurs, lightly sand the sides of the CF horn until smooth bind-free movement is achieved. If it still binds, unfasten the bolt, slightly widen the clevis fork with a flat screwdriver and refasten the bolt lightly. Once satisfied, apply green or red permanent Loctite. You may also install the metal clevis for the elevator at this stage.

Note: some Loctite may run over the horn preventing the clevis from swiveling freely. Swivel the clevis rapidly a few times to get rid of any excess Loctite and if needed use a modeling knife to clean the horn surface.

Install clevis

Secure the bolt with Loctite

File mounting hole

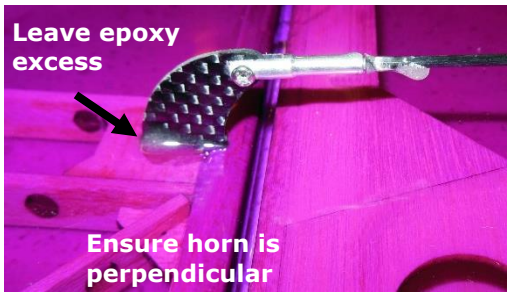
Test fit bolt

Next, use epoxy over the control horn base and inside the aileron slot to glue the CF horn in and ensure that the horn was inserted **all the way in** and is perfectly 90 degrees perpendicular to the control surface. There will be a bit of epoxy excess once the control horn is slid into the slot. Do not wipe it off as it will create a solid base to the horn. If needed, use a piece of masking tape to hold the CF horn in position until the glue sets. Ensure adequate epoxy is applied to cover the holes at the base of the horn (once dry it acts as fixation pins).
Note: epoxy allows time for adjustment after the horn has been inserted while CA is prone to set too rapidly and may also cause stains to the covering film.

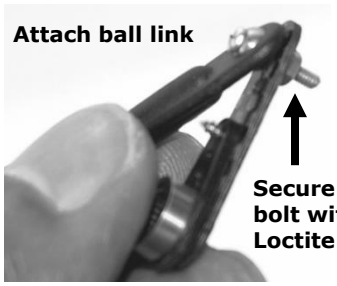
With the servos centered in neutral, temporarily install the plastic servo arm. Find the best position of the servo arm which yields 90 degrees to the servo case. That ensures linear and symmetrical throws in both directions without the need of excessive TX sub-trims and servo travel adjustments to one direction. Once satisfied, cut off the other three unused arms using a nail clipper.

In order to achieve maximum control throws for 3D and to ensure proper linkage geometry we recommend using PA Carbon Fiber servo arms. Note that these are not included with the kit. If you have them, install them now. You may wish to do so for the elevator servo at this point too.

The CF servo arm holes are also slightly smaller to achieve a tight slop-free fit. You may need to enlarge the hole a bit to fit the ball link M2x8mm bolt in a similar way as you did with the aileron control horn.
Install the ball link onto the CF servo arm with the ball on the **bottom side** of the servo arm. Install the aileron ball link in the servo arm **outer** mounting hole.
The order of assembly is M2x8mm bolt/ball link/CF arm/nut. Apply permanent Loctite to secure the nut.



Notch pushrod ends

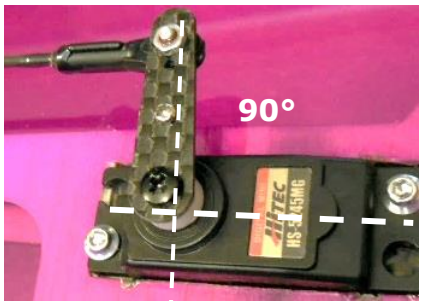


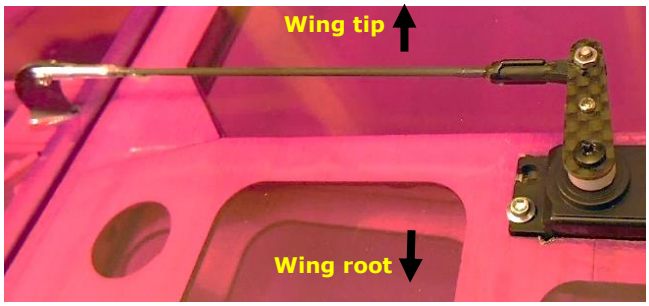
PA CF servo arms

Tip: Using a nail clipper, trim off the plastic tab and fin of the ball link so they will not rub against the plastic servo arm while swiveling at high angles.

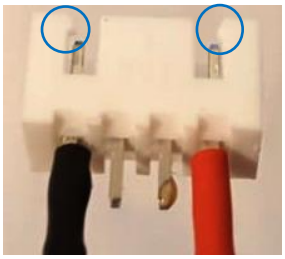
Lightly sand, roughen and notch the ends (12mm, 1/2”) of the two CF pushrods using a small triangle file to ensure a secure glue bond. With the servo arm installed and centered in neutral (90 degrees to the servo case) and the aileron taped and held in the neutral position, temporarily insert the CF pushrod into the clevis and line the other end up with the ball link. Cut short the CF pushrod to fit into the ball link, careful not to over shorten the rod! You may file the tip to obtain an accurate fit. If done properly, you have completed a perfect linkage geometry set-up and will therefore need very minimal sub-trim adjustment when you set up your transmitter later.

Once satisfied with the precise pushrod length and with the aileron already taped in the neutral position, apply 30 minute epoxy to one end of the pushrod and insert it into the clevis. Do the same with the ball link. Note that the pushrod should be pushed fully in and the ball link positioned **horizontally** to the clevis. Finally verify that the servo arm is also in the neutral (90°) position BEFORE the epoxy sets. Do the same with the other wing panel.



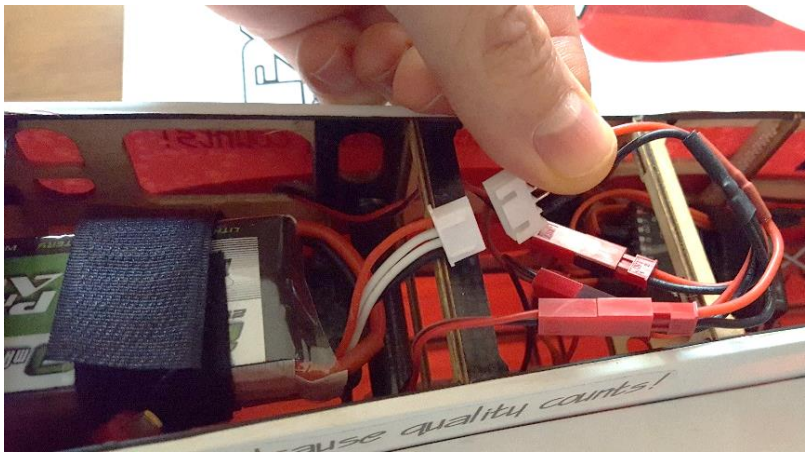


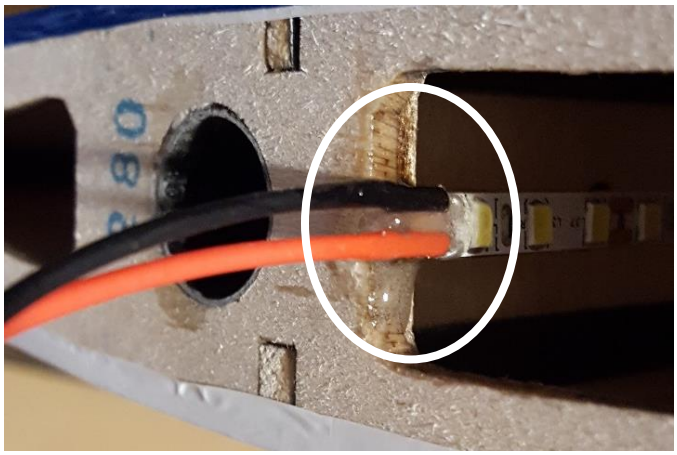
LED night flying



Illuminating your Addiction X V2 for night flying is done via main flight battery, therefore, additional battery is not required.
Use the PA light harness to switch on the lights. Plug it into the battery balancer plug before takeoff (leave the three LED strip plugs permanently plugged in).

NOTE: If the balancer plug fits too tight, you can use a fine file to slightly trim the plastic lugs of the harness plug to allow an easier fit.
WARNING: The installed LED lights should be powered with 3s (11.1V) pack. Higher voltage will burn the LEDs. The soldering joints of the LED cables are delicate and can break loose over time or during transportation. Apply a dab of epoxy over these joints as precaution to secure them firmly onto the PCB board and to the airframe. You can do that during one of the manual steps which requires epoxy. Use a long rod to apply the epoxy on the fuselage LEDs either through the top of the fuselage or the lower front bulkhead opening.





Elevator & Horizontal Stabilizer

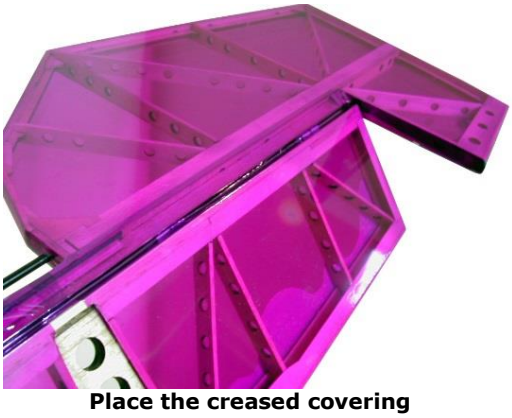
The stabilizer and elevator hinge slots are precut. All that is required is to set the elevator deflection and glue the hinges (four widest hinges). Start by gluing the hinges into the elevator first (hinges fitted half way in). To set the elevator deflection, fit the elevator into the horizontal stabilizer all the way in leaving no hinge gap. Ensure the hinges are aligned and centered, then deflect the elevator to approx. 50-55° Deg up and down to set the gap. If the alignment or centering is a bit out, carefully re-cut the hinge slots to correct as it will affect the flight performance. Ensure that the gap between the stabilizer tip rib and elevator counterbalance is equal on both sides.

Once satisfied, apply a few drops of thin CA to both sides of the hinges (while deflected) and repeatedly deflect the elevator in a quick pace until the CA sets. Try to pull the elevator off the stabilizer to verify the integrity of the hinges gluing.
Tip: It's recommended to apply thin CA to the hinges with a pipette tip applicator supplied with your CA bottle to avoid "fogging" the covering. If fogging occurs, it can be easily removed by wiping off with a paper towel dipped in with acetone or nail polish remover.

Take the supplied covering strip and crease it into a "V". Trim the creased covering to the length of one-half of the elevator. Align it along the hinge line (bottom side of the elevator only). Hold it in place and starting at one end, iron it down along the length of the stabilizer (do not iron to the elevator at this stage). Deflect the control surface to maximum and iron the film into the hinge gap using the point of the iron. Now iron the strip along the elevator while fully deflected to maximum. This method ensures the gap is completely sealed while still allowing full deflection of the control surface.

Note: Sealing the elevator hinge gap is an **extremely** important step and an integral part of the Addiction X design. Skipping this step will have a detrimental effect on the flight characteristics and possible flutter!

Deflect the elevator to approx. 55° to set the hinge gap



Place the creased covering strip in the hinge gap

Iron in the covering strip

The stabilizer inserts into the fuselage slot from the rear which requires the removal of the balsa at the rear of the slot. This is best done with a sharp hobby knife or a fine hobby saw. Use a ruler to draw a line extending from the slot to the rear to mark the area to be cut off.

Iron down the covering at the area to be cut and with a sharp blade or fine saw, carefully cut the balsa out. Insert the stabilizer all the way into its slot. If the fit at the newly cut slot is tight do not use force. Merely widen the slot evenly using a file until the stabilizer slides through. Proceed to slide the stabilizer until it reaches the stop at the front end of the stabilizer slot in the fuselage.

Next, you will need to align the stabilizer. Temporarily insert the wing tube to the fuselage. Looking from the rear check that the stabilizer is parallel to the wing tube and 90° to the fin (tape the elevator in the neutral position).
If the stabilizer is not parallel to the wing tube, remove the stabilizer and lightly file the fuselage slot to achieve perfect alignment. The stabilizer, after filing, must sit parallel to the wing tube.

Tip: If you have difficulty to visually check the stabilizer alignment with the wing tube, temporarily install the wings (with the ailerons taped in the neutral position) to make the visual reference.
At this stage fully deflect the elevator UP and DOWN to verify there is no obstruction; If any, slightly file the fuselage opening (ONLY as needed) to allow the full deflection.

Once the stabilizer is in perfect alignment, remove it and apply a thin layer of 30 minute epoxy or wood glue to the exposed balsa in the center of the stabilizer (both sides) and on the side of the stabilizer roots (Note: CA is not recommended here as it causes discoloration of the covering film and set too fast). Insert the stabilizer ensuring it is pushed fully forward into its slot and make a final check from all angles that the stabilizer is correctly aligned. If there is any gap between the stabilizer roots and fuselage make sure to keep an even gap on both sides before letting it cure. Use masking tape to hold the stabilizer parallel to the wing tube until the epoxy sets. Check and double check to ensure the stabilizer is absolutely parallel to the wing tube. Use a paper towel soaked in denatured alcohol (methylated spirits) to wipe off epoxy excess. Stabilizer root ribs will keep the correct position of the stabilizer so no alignment measurements are needed to be done.

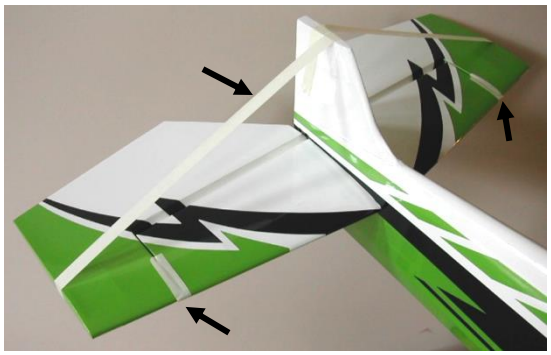
Note: While gluing the horizontal stab, it is extremely important not to place any pressure on the fuselage. Doing so can result in the fuselage being glued with a permanent twist impairing the flight performance.

Once the glue sets, remove the masking tape and slide the supplied balsa wedge into the gap you previously cut at the rear of the fuselage. Being oversize, you need to lightly sand the balsa wedge (all around) until it fits flush with the fuselage. Do not attempt to force the wedge in as this could risk inducing a permanent twist in the fuselage (as with the stabilizer). Once satisfied, glue the wedge in with CA. You may use scraps of covering material previously cut to cover the balsa wedge.

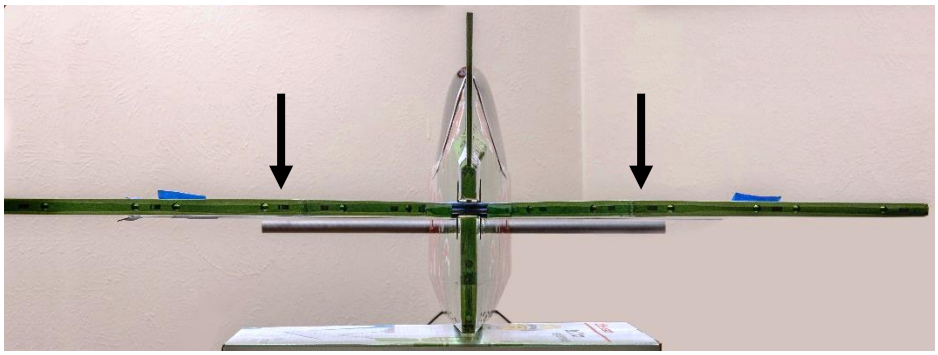
Apply glue to stab center

Glue four elevator hinges

Glue in the balsa wedge



This step is shown on a different PA plane

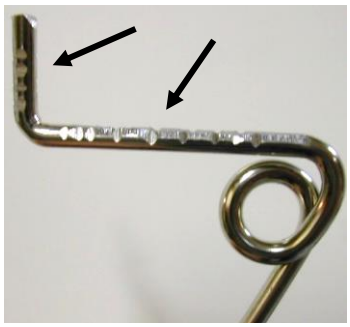


Horizontal stabilizer parallel to the wing tube

Rudder and Tail Landing Gear

For the rudder, use one large hinge (close to the control horn) and the two narrow hinges. Locate the groove at the bottom of the rudder closer to the hinge line. Using a sharp blade remove the covering to expose the groove. Test fit the tail LG in the groove, and mark the position of the hole to drill for the wire. Drill a hole in the marked position using a 1.5mm (1/16”) drill bit. If the tail LG strut doesn’t fit into the groove use a fine file to correct. With the LG in place verify its alignment with the rudder and if needed correct it by bending the strut with pliers before glued in.

Create indentations in the surface of the LG wire using a triangle file or Dremel disk. The indentations provide better surface for the glue to bond. Flood the groove with 30 minute epoxy and install the LG into the slot. Apply another layer of epoxy over the LG wire. Place the assembly aside until the epoxy sets.

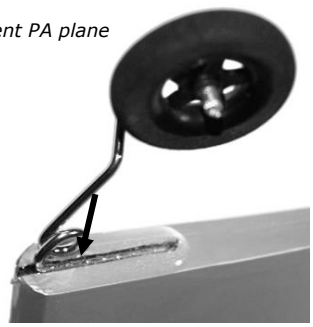


Notch the LG wire

Drill a hole

This step is shown on a different PA plane

Apply Epoxy



Apply Epoxy over the LG

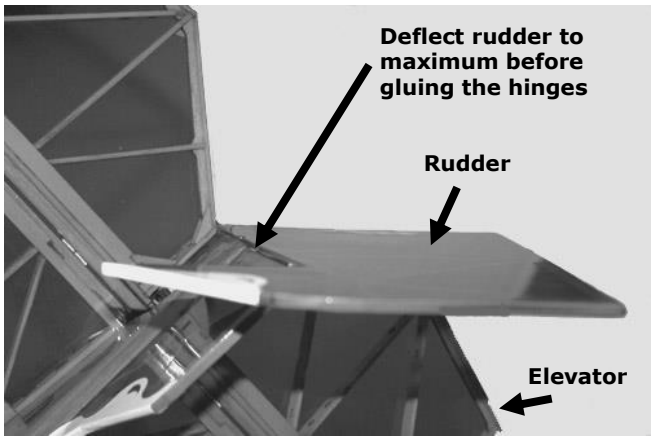
The fuselage/fin and rudder come with the hinge slots pre-cut at the factory. On gluing the rudder into the fuselage – fit the hinges into the rudder first. If they don’t fit in easily use a sharp modeling knife to CAREFULY re-cut the hinge slots (avoid widening them as that can cause them to detach in flight if thin CA is used to glue them). Before applying glue place the rudder side by side with the fuselage and check the alignment of the hinges with the fuselage slots and readjust hinges if needed. Use a sharp modeling knife to carefully lengthen the slots IF needed, but make sure not to overdo it. Once satisfied, apply a few drops of thin CA over each hinge to glue them to the rudder and let it cure. Then test fit the rudder into the fuselage all the way in, align the rudder counter balance with the fin leaving a small gap that allows the rudder to deflect freely, then place the fuselage on its side and fully deflect the rudder until it hits the elevator (elevator must be in neutral position. If needed use masking tape to hold it in neutral). With the rudder at full deflection apply a few drops of CA to both sides of the hinges to fix them permanently in place.

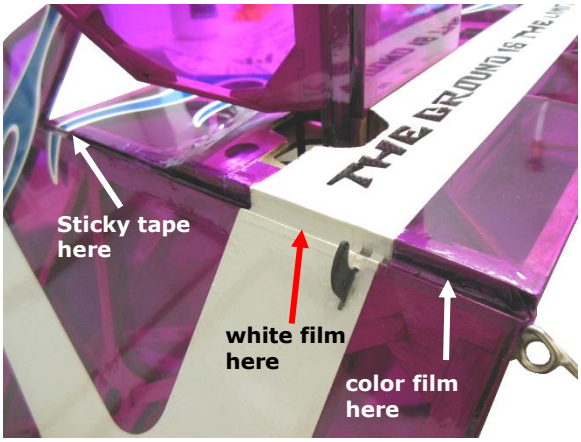
Note: Try to pull the rudder out of the fuselage/fin to verify the integrity of the hinges gluing. Properly glued hinges will not allow the rudder to detach.

Next, seal the hinge gap with the supplied strips, to match the color scheme, in the same way you did with the elevator (the strips can be applied from either side of the rudder and should be trimmed to match the color scheme). Seal the flame with a clear sticky tape. This step is equally important for the rudder as it is with the elevator.

Note: Once the rudder is installed, it must be checked for warp. Although we fix warps on all parts after the covering process, due to the lightweight construction of the rudder it is normal for it to have some small amount of warp that occurred during the long journey in the container and to your doorstep. There is no need for concern as this can be easily removed. Note that to guarantee a warp-free rudder would have meant deliberately beefing up the internal structure of the rudder which would then result in an unacceptable control surface weight penalty.

Tape the rudder in the neutral position and look from the rear to verify that the trailing edge of the rudder is perfectly vertical. If it twists to one side, carefully counter twist it in the other direction and apply heat where it wrinkles using an iron as you did with the ailerons and elevator. Continue until the trailing edge of the rudder forms a perfectly centered vertical line.





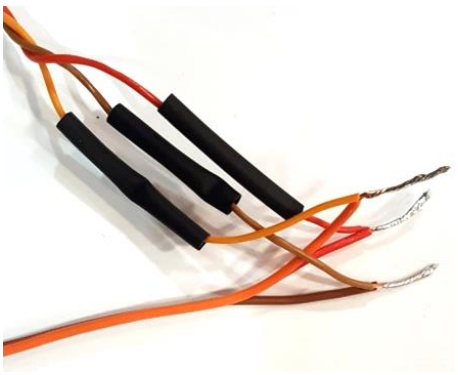
Seal the entire hinge gap while rudder is fully deflected

Elevator servo installation

Prior to installing the servo, prepare the servo lead extension. You will require a 520mm/20.5" long extension (depends on servo used). We recommend extending the leads using a good quality lightweight servo extension to save on weight, avoid RF noises and voltage drop (PA Item Code AC-1713 is a German made low resistance flexible Extension Lead and is included in the iPAs Pro package). Cut the servo lead close to the servo case. Expose each cable end, then solder each to the extension lead according to the colors. Insulate the cables with a shrinking tube over **each** of the soldered cables (fit them on before soldering the wires).

PA Lightweight servo extension

NXT servos



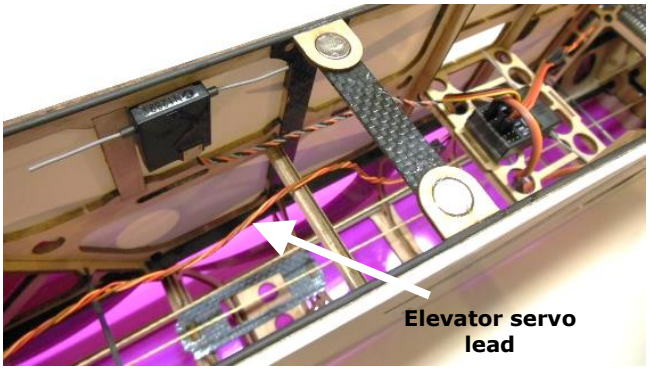
Solder and insulate each cable

Install the elevator servo in the opening you previously cut in the covering film with the servo output shaft closer to the control surface as per the photos.

DO NOT force the servos in as you will cause damage. Slightly enlarge the openings if needed, using a sharp blade to "shave off" a bit of ply. Alternatively, you may use a small flat file. Test fit servos during the process.

Elevator servo

Drill mounting holes as required for the screws supplied with your servos using a sharp 1.5mm (1/16") drill bit. Ensure that the screw holes are centered. Use only fully threaded screws. The servo mounts have ply doublers glued on the inside of the fuselage; therefore, applying a drop of CA into each hole is not actually required (however this can be done should the screws become loose). Run the servo lead thorough the bulkheads' openings above the Kevlar pull-pull cables.
Tip: Carefully "tap" the screws in by making a full turn in and then backing out by ¼ turn and repeat until the screw sits fully in.



WARNING: - we recommend **not to use** the rubber grommets and eyelets supplied with some servos as this method of mounting will introduce excessive flex of the servo case under flight loads and will cause a loss of resolution in control ("blowback" of the control surface). The best method is hard mounting of the servos (tail and aileron servos) with aftermarket screws without the grommets and eyelets.

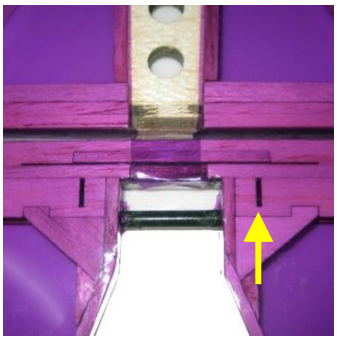
Elevator control linkages

Take the long elevator CF pushrod (105mm/4.13") and control horn from your hardware pack to begin preparing them for installation as per what was previously done for the ailerons. Next, expose the slot for the elevator control horn in the correct side.

Test fit the CF elevator control horn. If the fit is too tight do not force the horn in. Instead, use a modeling knife to carefully enlarge the slot until a perfect fit is achieved. Use epoxy to glue the CF horn all the way in and ensure the horn is perfectly 90 degrees perpendicular to the control surface.
Proceed to install the metal clevis, plastic ball link and CF push rod in the same manner as the ailerons.
For correct linkage geometry use the PA CF servo arms and install the **elevator** ball link in the **outer** mounting hole of the arm.


Elevator control horn

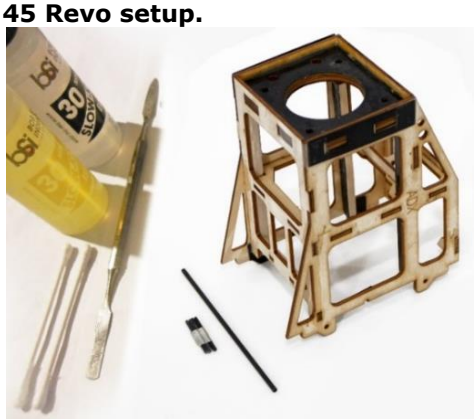

Final elevator set up


Elevator control horn slot


Elevator control horn

Motor Box

When assembling your ADX V2 or replacing your motor box after a crash, please follow these few precaution steps to verify your motor box will withstand the high torque of the Thrust 45 Revo setup.



I purposely designed the ADX V2 motorbox as a separate part to the fuselage. The main advantage is after a crash/mishap as the flyer only needs to replace the motorbox instead of the entire fuselage and tail section. That saves a lot of money. It does require a little extra work but it is certainly worth it in the long run.

The motor box comes pre-glued, with the correct motor thrust angle built into the pre-drilled firewall.
CAUTION- The motor box has been designed, tested and drilled for the Thrust 45 Revo motor. Using a larger motor or using an improper propeller size or a prop adaptor which is out of true can lead to a motor box failure which will cause damage to your ADX. For technical data on the Thrust 45 Revo please visit our website.

CAUTION- Once glued the motor box is extremely robust, however, following any crash, propeller ground strike or hard landing it is essential that the cowl be removed and all joints inspected for cracks and

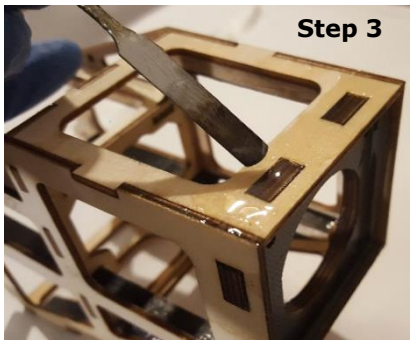
repaired as required. **Do NOT use any imbalanced, oversized, chipped propellers or with an off-centered hub hole as excessive vibrations can lead to premature motor box failure.**

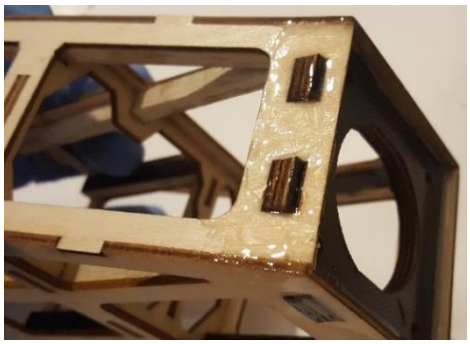
If your motor box broke due to a crash we recommend that you don't attempt to repair it as it may fail in flight. Replacement motor box is available (see replacement parts list at the end of this manual). Instructions and video on how to replace it are available on our website (How To section).

1. Prior to installation **go over all pre-glued joints** with carpenter wood glue or epoxy **(except the mounting plate!)** to ensure they are properly bonded and no gap between the parts is present so it will be able to withstand the torque generated by the powerful Thrust 45 Revo motor.

Go thoroughly over the entire motor box and verify that there are no cracks. If there is any, it must be fixed properly with epoxy.
NOTE- **DO NOT** modify the motor box or firewall. Any modification may lead to a motor box failure and will void warranty.

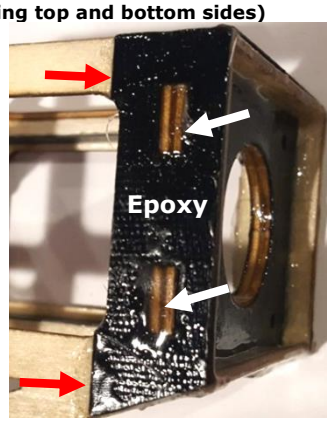
2. Verify with a ruler that the CF stringers do **NOT** protrude the rear of the motor box, otherwise the motor box will be mounted with an incorrect thrust angle which will impair the ADX flight performance, therefore, if needed, sand/file the rear ends of the stringers flush with the motor box ply.

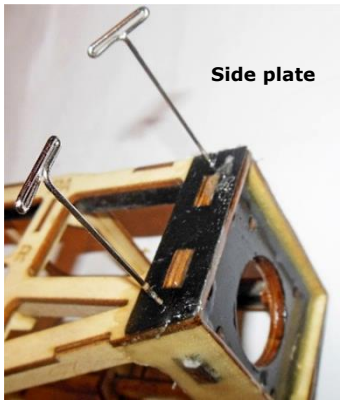




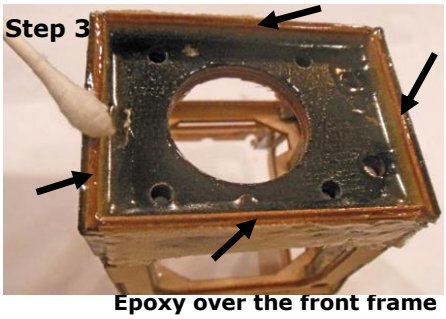
Apply epoxy over the motorbox front perimeter (including top and bottom sides)

3. Take the two supplied composite plates and lightly sand/roughen one side of each plate to allow better gluing surface. Apply a medium layer of slow cure epoxy (with a stick, flat tool or a brush) over the entire surface of each plate and the motor box front perimeter (including top and bottom sides) then place the plates over the ply and align them properly. Use a few pins or modeling clamp to hold the plates tight onto the motor box with **no gap** until the glue cures. Apply some epoxy over the mounting plate tabs and along the rear seam of the plates, especially if there is some gap between the plates and ply. Continue by applying a bit of epoxy over the front frame.

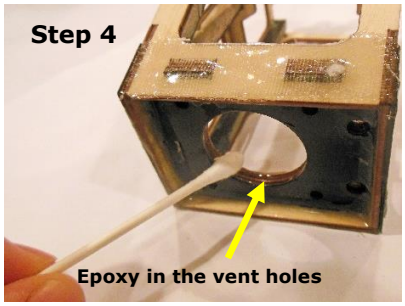




4. Using a cotton swab apply a thin layer of epoxy in the mounting plate vent holes except the mounting bolts' holes. Wipe off any excess where the motor will be mounted.



Epoxy over the front frame



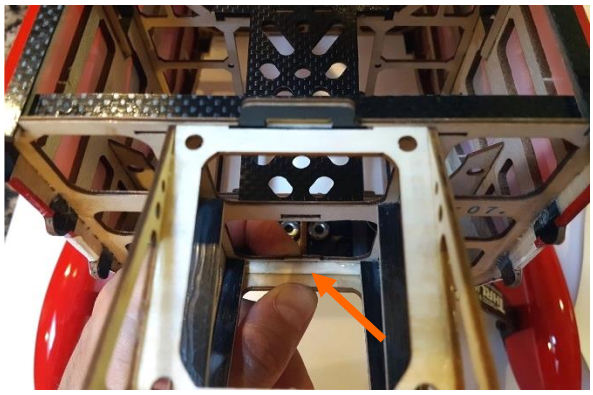
5. Next, use a round needle file to pierce a hole in the covering at the sides of the fuselage as shown in the photo in order to accommodate the long carbon rod. The motor box is held in place by five carbon pins; four short pins behind the bulkhead, and one long rod in front of it.
These carbon pins fit into the pre-drilled holes in the motor box mounting lugs.
Test fit the motor box and carbon pins in the bulkhead prior to applying 30 minute epoxy.

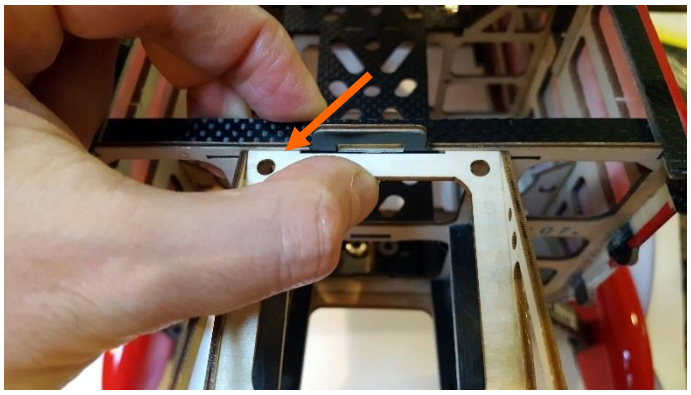
Do not force the motor box into the bulkhead slots. If it is too tight use a fine file to slightly enlarge the slots until a perfect fit is achieved. If the carbon pins are difficult to insert, use a round needle file to slightly enlarge the holes or taper the pins. The long rod in front of the bulkhead should not protrude out the sides of the fuselage as this will interfere with the cowl. Shorten this rod if required using a file. Next, gently work the motor box in until it sits **perfectly** flush with the fuselage

front bulkhead **without any gap** present. A gap between the motor box and bulkhead will weaken the joints and change the pre-set motor thrust angle so take your time to do it right.

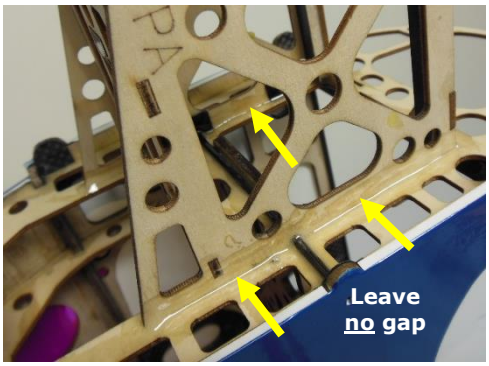
6. Once satisfied with the fit, insert the five CF pins in place.
Hold the motorbox firmly against the bulkhead to **eliminate any gap** and apply a few drops of CA to the top and bottom spots (one at a time) to "tack" it in place (see photos). Alternatively, you may use a clamp or zip ties at the center top and omit the CA. That will fix the motorbox in place while applying the epoxy. Next, run a thin bead of epoxy along the **entire seam** between the motor box and bulkhead including the CF pins. Use **only epoxy** and make sure you cover the **entire** CF rods, especially the one at the front. Spot gluing will **NOT** work and will allow excessive flex of the front bulkhead which can cause the motorbox to fail under loads.

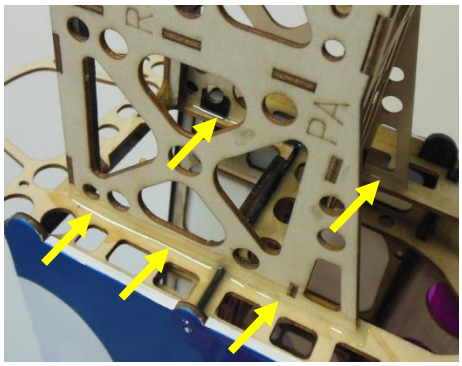
Some of the photos used in this step were taken from a different PA plane



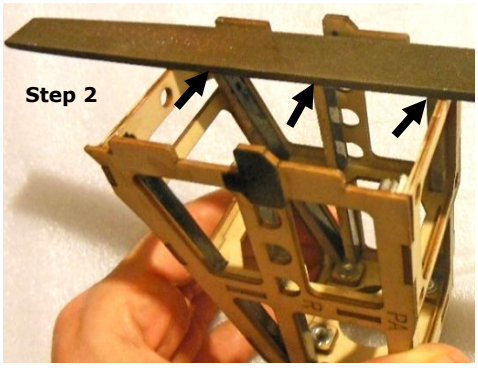


Hold the motorbox firmly with your fingers and apply a drop of CA (top and bottom) before applying epoxy

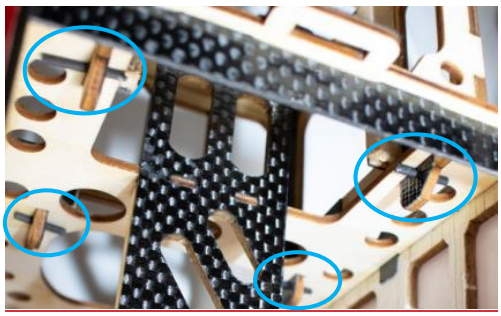




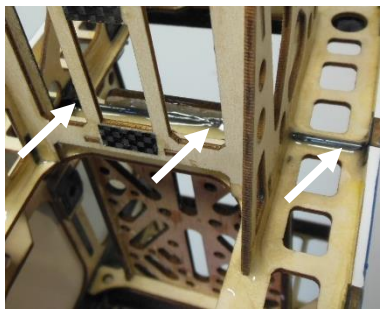
Epoxy ALL seams of the motor box with the bulkhead



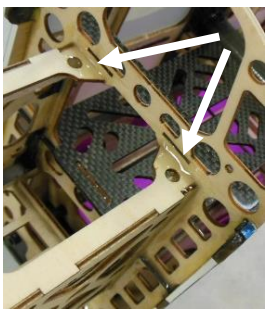
Verify CF corner stringers do not protrude



Glue motor box lugs and CF pins



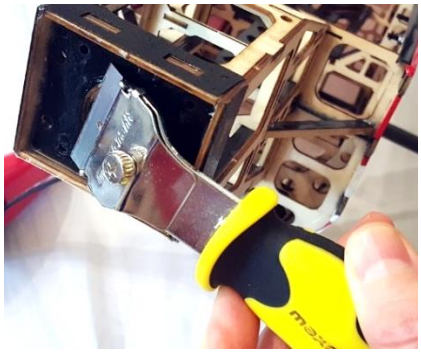
Cover the entire CF rod with epoxy



Epoxy

Pierce a hole in the covering to fit the rod

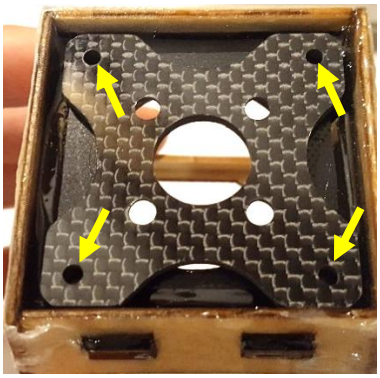
Motor and ESC Installation



Scrape off any epoxy

Install the Thrust 45 Revo motor in front of the firewall using the supplied hardware. **DO NOT under any circumstances enlarge/modify the motor box opening or mounting holes of the motor mount**. The motorbox is pre-drilled to accommodate the Thrust 45 Revo motor, therefore, the installation is easy. Note: if there is any epoxy over the mounting plate that may prevent the X mount from sitting flush, scrape it off with a sharp blade as it may result in an incorrect motor thrust angle.

Make sure your X mount bolts are at least 14mm long. Due to the thick laminated ADX mounting plate, shorter bolts may strip the thread and cause the motor box to fail under the extreme thrust. We strongly advice to use temporary (blue color) Loctite on all mounting bolts.
Our new and powerful T45 Revo is supplied with a CNC machined solid CF X mount for extra rigidity and weight saving.



Start by unfastening the shaft's retaining bolt, apply Loctite and refasten it firmly.
Do NOT over fasten as you may shear the bolt's head! Always use correctly sized quality tools so you don't strip the bolts.
Test fit the M3 mounting bolts into the laminated firewall to clear any debris. If the fit is excessively tight, do not use force. Use a 1/8" (3mm) drill bit to clear the holes in the firewall. **DO NOT** drill into the blind nut itself.

Now, you can test fit the same bolts in the CF X mount. If tight, use the same 1/8" (3mm) drill bit or a round file to slightly enlarge the holes.

Next, test fit the counter sink motor bolts into the X mount. If tight, use a round file to slightly enlarge the holes.

NOTE: X mount MUST sit flush with the firewall. **Do not** attempt to use washers between the X mount and the firewall as it can lead to a failure.

Apply a bit of Loctite to all the bolts and install the motor onto the motorbox.

Caution: Over tightening the four motor mounting bolts may run a risk of crushing or cracking the motor mount plywood thereby weakening it. This increases the likelihood of an in-flight failure. Apply temporary Loctite to the bolts and fasten them to a point where the motor sits firmly on the motor mount. Then add a quarter turn clockwise on the bolts to secure them.

Warning: Our new Quantum 45 HV Pro ESC has a selectable SBEC voltage output. **Verify** that the voltage is set to fit your servo brand and specs! Refer to the ESC instruction manual on how to set the voltage. If using the NXT80-HV servos, set it at 7.4V. **Higher voltage will damage your servos!**

To achieve the correct Center of Gravity, the ESC should be mounted as forwards as possible on one side of the motorbox. In order to do so an extension lead must be used on the ESC Rx cable. Properly solder a short extension lead to the existing cable as you previously did with the servos, or use a pre-made extension lead. Stick a thick foamed double-sided sticky tape (a few layers) underneath the ESC to soft mount, then attach it **lightly** to the motor box using zip ties (see photos).
NOTE: Do not over tighten the zip ties as it will increase vibrations to the ESC.

The ESC battery wires can be trimmed as needed and passed through the bulkhead on top of the battery tray.
Connect the three motor cables to the ESC. The RX lead can be twisted to reduce RF noises.

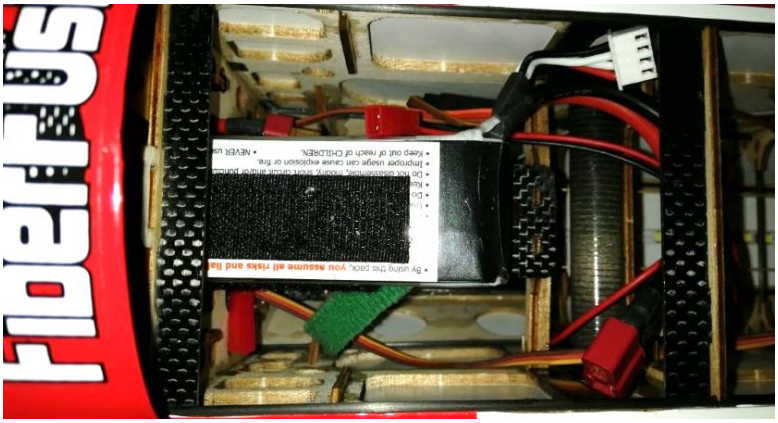
Verify the correct motor rotation direction (should spin clockwise from pilot view).
If it doesn't, power down the ESC and swap the position of any two motor cables or reprogram your Quantum ESC for reversed rotation. We strongly recommend removing the propeller as a safety precaution before powering up the ESC.

Assemble air baffles

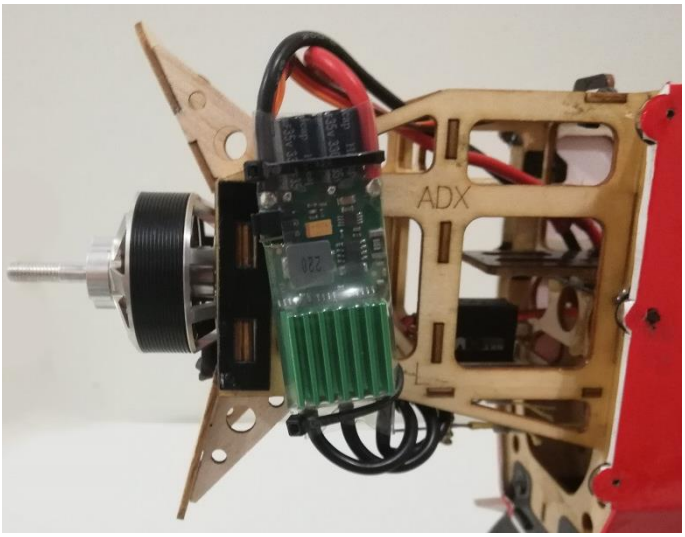
Apply Loctite to the retaining bolt

Counter sink motor bolts

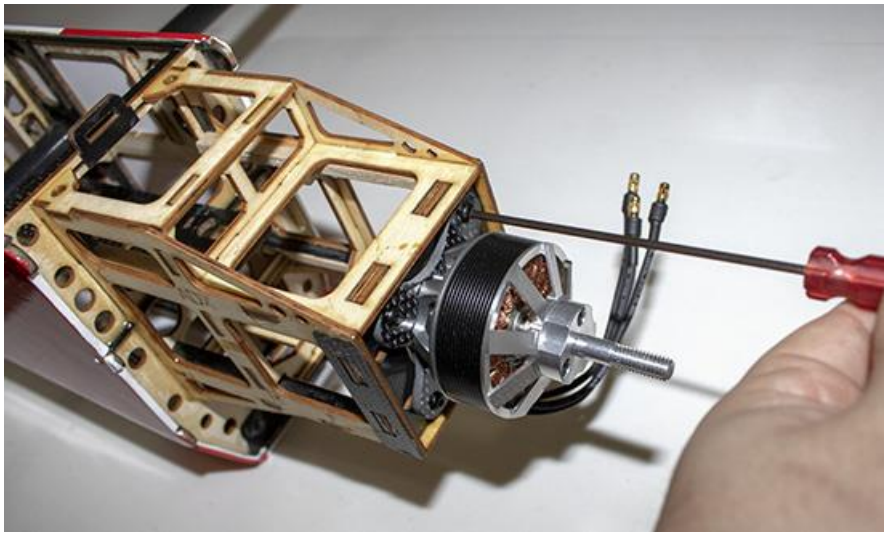
Using CA, assemble the supplied balsa air baffles and glue them to the **<u>top and bottom</u>** sides of the motor box to improve airflow to cool the motor/ESC/batteries.



Route the battery and RX cables



Install ESC as forward as possible



<u>NOTE:</u> Install the motor with the cables positioned downwards

Install air baffles

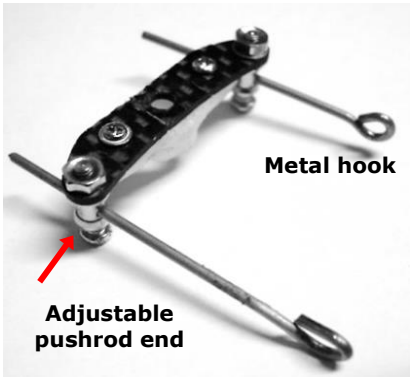
For cosmetic reasons, air baffles can be painted black

Rudder servo installation and Pull-Pull setup

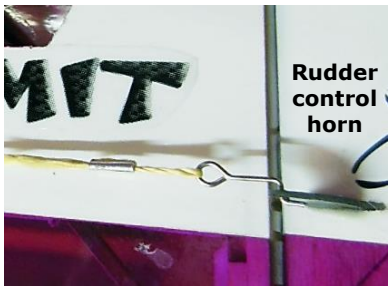
There are two options for installing the rudder servo.

Option 1 (recommended): In the servo tray on the underside of the motor box after the motor box is installed. This option offers the best CG allowing it to be adjusted freely when using the recommended iPAs® setup. This instruction manual only describes the installation of this option.
Option 2: In the servo tray inside the fuselage. This option restricts adjustment of the CG and harder to install, therefore, not recommended.

Solder a 110mm/4.3" extension lead to the servo cable (depends on servo used). Install the rudder servo into the servo tray on the underside of the motor box in the same manner as you did with the aileron servos. Next, expose the slot for the rudder control horn. Install the rudder control horn in the rudder slot ensuring it is pushed fully forward, and that the horn is perfectly 90 degrees perpendicular to the control surface and well centered in the rudder. It is very important for a pull-pull to be symmetrical, check carefully that the mounting holes in the horn are both aligned with the hinge gap (that one hole isn't further forward than the other). Glue the horn in place using epoxy and stick a small piece of balsa behind the control horn, or simply apply a bit of epoxy into the slot behind the control horn as the slot is wider than the horn.
Install the supplied carbon fiber rudder servo arm to your servo by attaching it on top of a plastic servo arm using the two small supplied screws (NOTE- if your plastic servo arm has a top ring, file it down to get a flat mounting surface). Fit the two adjustable pushrod ends to the **bottom side** of the servo arm as shown in the photo. Do not over fasten the top nut as it will prevent the metal hook from rotating freely. If it binds in any position it will compromise the rudder control. However, Likewise, the nut should not be too loose as this will cause rudder control to be sloppy. If you are unable to tighten the nut sufficiently use one or two of the supplied small washers/spacers. At this stage install the metal hooks in a way that they partially (1/3) protrude from the adjustable pushrod ends (that is to allow final adjustments of the cables tension later on). You may lightly roughen and notch the surface of the metal hook using a Dremel disk or small triangle file for a better grip.



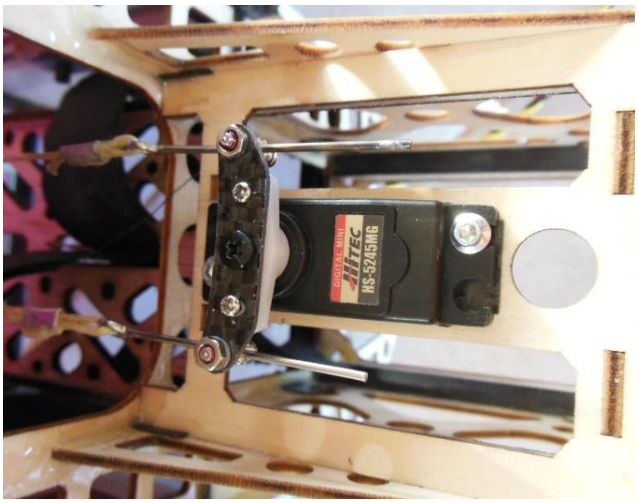
When you are happy with the linkage, apply a drop of permanent thread Loctite to the top nut to prevent it from loosening. Once it is dry, we recommend applying a drop of lubricant to reduce friction between the CF arm and the adjustable pushrod ends. Verify it rotates freely.
Cut out two exit openings in the covering (one on each side just in front of the bulkhead) for the rudder pull-pull cables using the hot paperclip method (see photo). If your ADX V2 covered in the opaque white scheme, you can plug in the LED lights into a battery for better orientation. Feed the Kevlar pull-pull cables (the crimped ends) through these openings and along the length of the fuselage. The cables should pass through the larger openings below the carbon braces within the fuselage. Take care that the routing of these cables is clear of any obstructions. The geometry of the servo arm and rudder horn is such that the Kevlar cables should cross each other inside the fuselage.



Note: due to the narrow fuselage, it is inevitable for the cables to rub against the bulkhead at the exit points. Being made of Kevlar there is no risk for them to wear out.

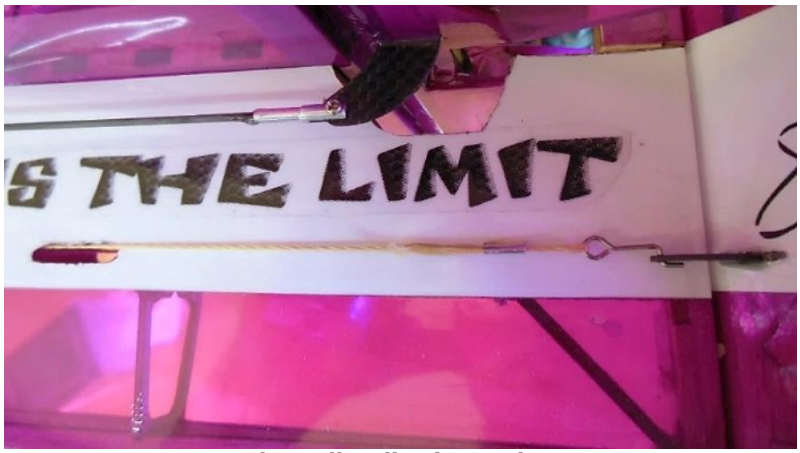
With the rudder taped in the neutral position and the servo centered, loop the ends of the cables over the wire hooks at each end. Now, with the un-crimped ends at the control horn you can adjust the cables tension approximately, then apply a drop of CA to hold it in this position and crimp the aluminum tubes using pliers (verify the symmetry). Final adjustments to the cables tension should be made by adjusting the wire hooks at the servo arm (this requires detaching the servo arm from the servo as the adjustment screws are facing down).

Test the pull-pull setup ensuring the cables do not bind and are in the correct tension (too much tension will place excess strain on the servo, too little tension and the rudder will have too much play in it). As a rule of thumb, the approximate correct tension is when a bass tone is emitted when the cables are plucked in a similar way to a guitar string.

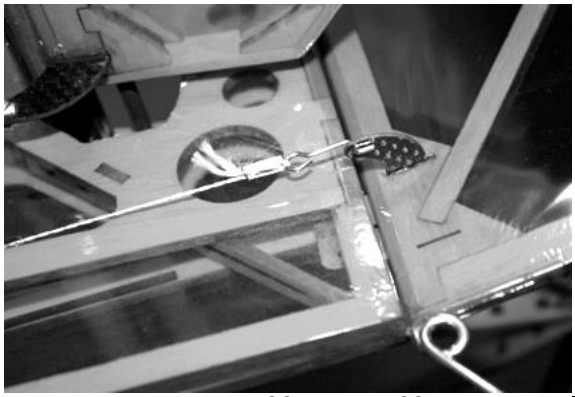


Install rudder servo in the motorbox

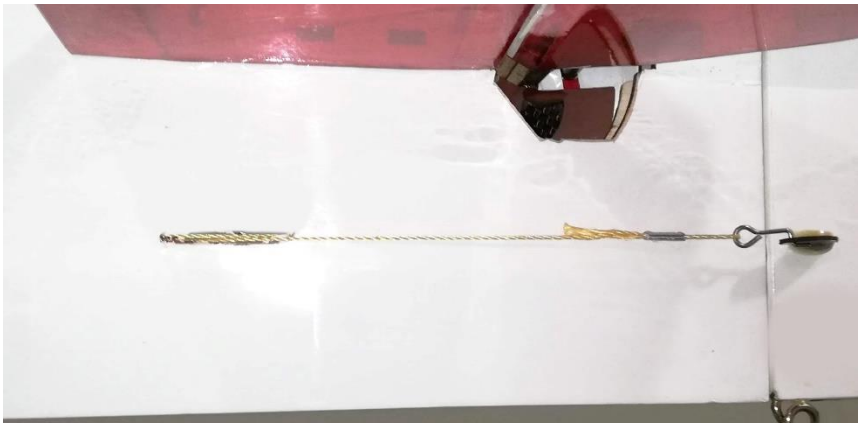
Switch ON the LEDs



Kevlar pull-pull exit opening



Rudder control horn



Kevlar pull-pull exit opening

Receiver and battery Placement

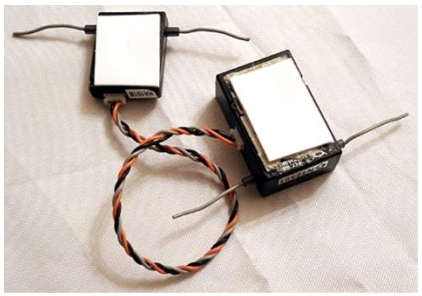
Use the installed Velcro or foamed double sided sticky tape to secure the RX on its tray. If you are using a 2.4GHz RX with twin receivers, mount the second RX away from the main RX at the inner side of the fuselage using rubberized or foam double sided sticky tape. Secure RX plugs well to avoid 2.4GHz reboots.
Note: Use only a high-quality reliable receiver.

The battery is held in place on the battery tray using the supplied Velcro strap (there are small protrusions on the underside of the battery tray to prevent the Velcro from sliding back and forward).To prevent the battery from sliding on the CF tray you can stick a small piece of foamed double sided sticky tape underneath the battery and place a piece of rubber foam on top of the battery, then wrap and fix it with the Velcro. To avoid the battery from sticking to the CF tray, "weaken" the adhesive by sticking some dust to it.

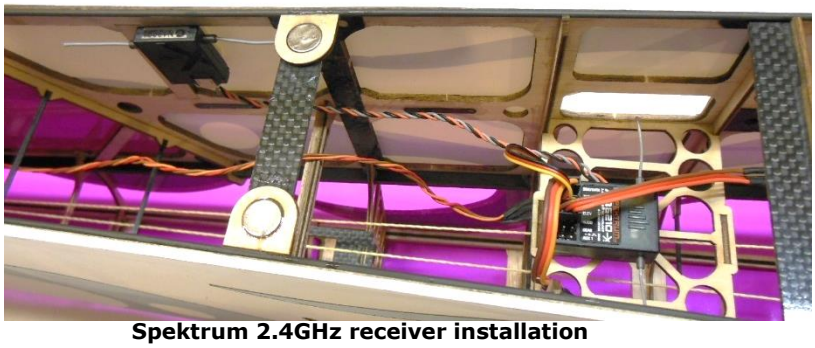
Another two ways to prevent the battery from sliding would be: A. cut two pieces of Velcro (only from the plastic hook type) and stick one underneath the pack and one on the tray itself. Then wrap and strap it down with the Velcro and foam as above. B. wrap a thick rubber band over your battery and continue as the above. You may wish to trim the battery wires to reduce weight.

Tip: Once you set up the exact CG per the manual, use a piece of sticky tape or a marker to mark the position of the battery (rear end) as a reference point when swapping packs between flights.

Batteries can be mounted flat or upright



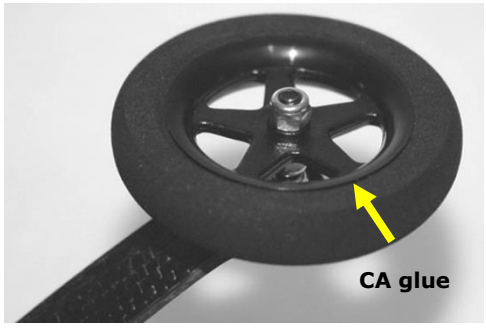
Thick double sided Sticky tape



Spektrum 2.4GHz receiver installation

Landing Gear (LG)

Install each wheel onto the CF landing gear strut using the black M3x20mm bolt/axle in the pre-drilled hole. The order of hardware is: Bolt/black washer/CF strut /two lock nuts /wheel/ lock nut. The wheel should be captured between the two lock nuts and the lock nut tight enough to still allow free rotation of the wheel. If the nuts are too loose the wheel is likely to wobble and is more prone to damage or scuff the wheel pants. Verify that the tires are firmly glued to their rims. Apply a little bit of thin CA around the perimeter of the rims if required to keep them firmly in place. You may use some temporary Loctite on the outer nut to prevent it from fastening or loosening after time.



Wheel Pants

First, differentiate between the left and right hand side of the LG struts by placing them on the fuselage LG plate mounting holes. Position the fiberglass wheel pants over the wheel at the height you desire. If flying off grass, mount the pants higher leaving more wheel exposed and if flying on a sealed surface, the wheel pants can sit lower. Once satisfied with the position, mark the location for the self-tapping retention screw (2.3x10mm screw with soldered washer) of the wheel pant and drill, using a 1.5mm (1/16") drill bit. Attach the wheel pant to the landing gear strut using the self-tapping screw but DO NOT apply excessive force while doing so as this risks shearing the screw's head off. Rather "tap" the screw in gradually and if it becomes too tight, remove it and slightly enlarge the hole in the LG strut. Take care that the wheel pants are both mounted at the same angle and height; we made a perfect recess to make it extremely easy for you. Remove the retaining screw and cut off (using cutters or Dremel tool) its sharp edge so it will not hit the wheel, then apply a drop of thin CA glue into the hole to stiffen the thread. Once the glue has cured, install the wheel pants with the screws.

Note: if the LG strut doesn't fit into the recess on the wheel pant then light filing of the strut sharp edges may needed.

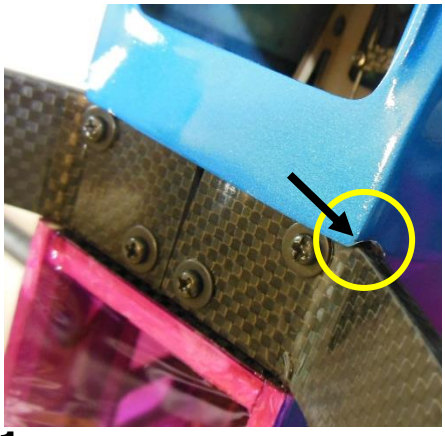
Installing the Landing Gear

Install the LG onto the fuselage using the M3x10mm black bolts and washers. You may apply temporary Loctite to the bolts.
Note: if the LG struts hit the balsa on the sides of the fuselage, use a sharp modeling knife to trim the balsa keeping the gap with the LG to minimum.

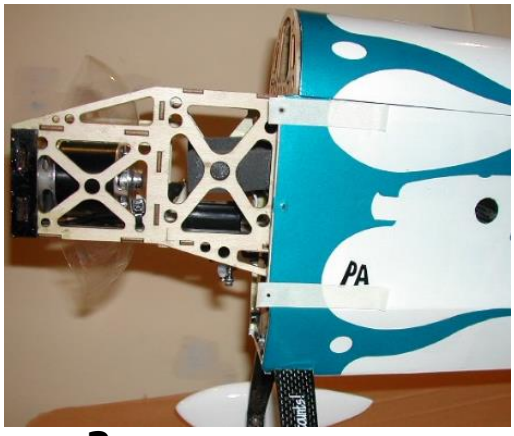
M3x10mm Mounting bolts

Tip: Trim the supplied covering to size with approximately 10mm overhang from the bulkhead and behind the landing gear bay. Fold the covering over the edge of the bulkhead and use the covering iron to tack it down. Gently pull the covering at the rear of the bay taut and proceed to tack it down. Once satisfied, seal the edges and carefully shrink the remaining wrinkles. Being a cosmetic step only, you may choose to skip this step and leave it uncovered.

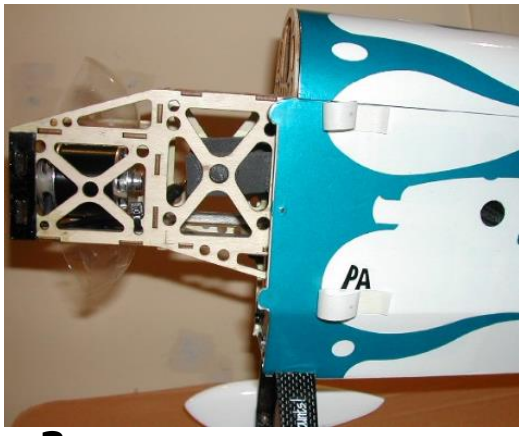
Cowling Attachment



1 **Notch the cowling to clear the LG**



2 **Mark the location to drill**



3 **Partially peel off the masking tape**


4 **Align the cowling**

5 **Fit cowling and drill**

6 **Fasten screws**

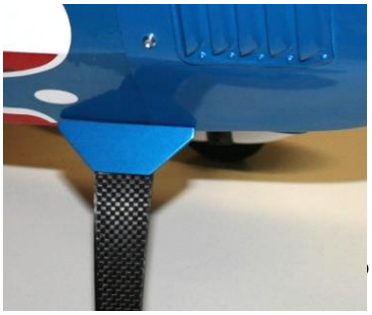
Prior to fitting the cowl, it is required to install the prop adapter and have the hatch fitted to the fuselage. Apply Loctite to the bolts and fasten the prop adaptor onto the motor.

The fiberglass cowl is attached using four self-tapping screws (2.3x10mm with soldered washer) screwed into the carbon fiber mounting lugs. Fit the cowl with a small overlap past the fuselage front bulkhead (over the hatch) and reasonable gap with the spinner's backplate so it won't rub against the cowl. The bottom side of the cowl requires two notches to be filed in to clear the landing gear struts.

Start by temporarily fitting the cowl in and mark the locations of the landing gear struts where they obstruct the fit. Remove the cowl and carefully file or grind the notches until the struts no longer obstruct the fitting of the cowl.

Once cowl is fitted, install the spinner backplate and align it perfectly with the cowl front opening (photo #4). This ensures that the position of the cowl could be adjusted for a precise fit. Mark the center of the mounting lugs onto pieces of masking tape as shown in photo #2, partially peel the tape back and fit the cowl.

The cowl must be fitted so that when looking from the front, the motor shaft will protrude through the cowl exactly at the center of the opening with a small friction free gap between the spinner backplate and the front of the cowl.
Press down on the top rear section of the cowl to minimize the gap between the hatch and the cowl. When you are happy with the fit, hold the cowl firmly in place using tape and lay the pieces of tape you marked previously back onto the cowl. These markings identify the location of the mounting lugs underneath the cowl, allowing you to drill, using a 1.5mm (1/16") drill bit, through the cowl and into the mounting lugs. After drilling, remove the cowl and screw the four 2.3X10mm self-tapping screws into the drilled holes in the same manner you did with the wheel pants. You may remove the screws and apply a drop of thin CA into each of the holes to set the thread. Once the CA cured reinstall the cowl.



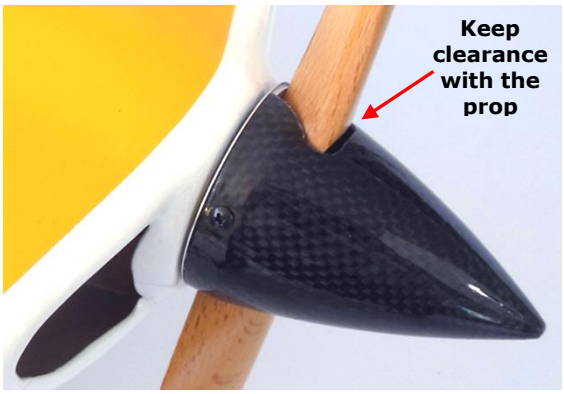
Tip: If the cowling fits too tight, inspect the inner lip of the cowl for any bulging epoxy and sand it down. It is easier to fit the cowl first with the hatch off, then fit the hatch under the cowl overlap, adjust and continue the procedure of final installation of the cowl. Install the LG cuffs over the LG struts with double sided sticky tape and a drop of CA. Position them as close as possible to the fuselage minimizing any gap. You may trim them with a modeling knife if needed.

Propeller and Spinner installation

At this stage mount the propeller and if you are using a spinner, mount the cone as well. We recommend using the pre-cut 1.8" lightweight PA Carbon Fiber spinner (PA code # AC-2048) that perfectly matches the Addiction X cowl shape, to retain optimum CG and avoid carrying unnecessary weight. It's recommended to use temporary Loctite on the propeller adaptor mounting bolts.

Note: While fastening the propeller nut, hold the prop and spinner backplate firmly by hand to prevent it from slipping. Don't use tools as you might deform it.

Note: It is important to accurately balance your propeller prior to installation as poorly balanced propellers are inefficient and cause vibrations which are detrimental to your model and motor. Use only propellers that are adequately sized to be within the specified limits of your motor.



If your Vox prop fits tight (we keep a tight tolerance for accuracy) use a fine round file (smaller diameter than the hub center hole) to very slightly file it all around and test fit it. It should fit snug.

APC propellers are not recommended for the Addiction X due to the higher amps drawn and vibration which can lead to a motorbox failure or damage to your gear.

If your CF spinner cone wobbles while spinning, it is more likely that the cone is not sitting flush with the backplate. There are a few potential causes for this:

1. The mounting bolts compromise the flush fit. In this case, use a fine rounded file to slightly file the holes in an oval shape towards the front of the cone. Filing towards the rear will weaken the cone.
2. The prop blade openings are undersized and make contact with the propeller. Enlarge the openings with a file to allow an even gap around the propeller. **Caution:** Thrust 45 Revo is extremely powerful, therefore larger clearance is required between the cone and the propeller blades which will be under high flight loads. Failing to do so will result in a cone popping off during flight.
3. Bulging epoxy on the inner lip which should be sanded down

If the above were done and the cone still wobbles, unfasten the bolts and rotate the cone 180 degrees and re-fasten it. for a fine adjustment you may unfasten one bolt, counter adjust the cone and re-fasten.
NOTE: Use washers and fasten the mounting bolts firmly with Loctite.

Wing Attachment

Note: Due to the manufacturing tolerance of the CF wing tube and sleeves, you may experience a tight fit with difficulty sliding the wing onto the wing tube. Tight fit may create a bit of a gap between the wing root and the fuselage. In a case of a tight fit slightly sand the CF wing tube with fine sandpaper, wipe off the carbon dust using a wet paper towel and test fit again. Repeat this process until you obtain a perfect fit.
Do not attempt to force the wings onto the wing tube as this may cause damage.

The wings must initially be installed in this sequence: First insert the CF wing tube all the way into the sleeve of one wing panel until it reaches the stopper. Next fit the wing to the fuselage, taking care to align the CF anti-rotation pins when about to insert them into the fuselage. If resistance is felt, do not attempt to force the pins in. Instead, remove the wing and lightly file the ends of the anti-rotation pins (taper them). Avoid enlarging the receptacle holes in the fuselage as loose fit may result in incorrect wing incidence.
Due to the large size of the wing roots you may need to wobble the wing panel in order to fit the two anti-rotation pins into the fuselage. If after you fit one wing panel the anti-rotation pins of the other panel would not align easily, remove the wing panel and install the other wing panel first.
Prior to installing the nylon wing bolt, dip the tip of the bolt into some silicone grease to add lubrication (otherwise the bolt may have tight fit and could sheer off if excessive force is exerted). If, for any reason the bolt still feels tight to fit, do not force as there could be dirt or corrosion build up on the threads of the blind nut. Instead, remove the bolt and fasten a 4.0mm metal bolt to "clear" the blind nut threads. Secure the wing in place with the nylon wing bolt but don't over tighten the bolt and take care not to cross thread the bolt.

Next install the other wing panel onto the CF wing tube. If for the reasons below (*) there is a gap between the wing and the fuselage, remove the wing and carefully sand short one end of the CF tube slightly and refit the wing. Do not attempt to force the wing onto the wing tube. Secure the wing in place with the other nylon wing bolt.
Note: If the wing panels have a tight fit over the wing tube then chances are high for a gap between the wing roots and the fuselage. If so lightly sand down the wing tube to allow an easy fit which will correct it.

(*) A few factors need to be taken into account when inspecting a gap at the wing root. Firstly, weather-related-shrinkage of the light wood and the covering may cause a gap that is unavoidable. Secondly the ADX has a long wing root, and as such production tolerance allows for some gap to be present.
If a gap is present simply follow the step above and sand down the wing tube to improve the fitting.

With the wings installed, you may temporarily fix the aileron tips in neutral using paper masking tape and verify from rear view that there is no twist in the ailerons. Wing roots should be aligned. If needed, correct with an iron as described earlier.

Center of Gravity (CG)

The ADX V2 was designed with a very narrow CG range to attain the best flight performance. Using the iPAs® setup we have listed; you should end up with a center of gravity very close to the ideal position. Fine adjustments should be made by sliding the batteries fore or aft on the battery tray and into the cowl. It is **very important**, regardless of chosen setup, to check your model's center of gravity (on the bench) as accurately as possible as any small deviation will dramatically affect the flight performance. Setting the CG precisely is one of the crucial points to have a good flying plane. Take your time to set it right. **NOTE**: While setting up the CG, the plane should be placed upright with **ALL** the gear installed including wheel pants, hatch, prop and spinner.

The ADX V2 is an excellent precision aerobatics sport flyer and an amazing slow 3D performer; therefore, in order to achieve the best of both worlds we spent many hours testing the CG to find the "sweet spot" that offers a peak in overall performance. We found the "sweet spot" CG with the optional Vortex Generators installed (item code #AC-2177V2) to be the fine line which allows a good blend of both precision and 3D. With this CG the plane is neutral and axial with no KE coupling.

If you find the plane too neutral for you or it's a windy day, you may choose to set it **slightly** forward as it offers a better wind penetration in windier condition and will feel like it "flies on rails". Once you get used to the plane try the "sweet spot" to get better overall performance.

The CG "sweet spot" is **135mm** measured aft from the leading edge at the wing root.

Tip: CG machine such as the Multiplex CG gauge is highly recommended to obtain an accurate set-up. The fingers method is far from being precise. Place your plane on the CG machine and hold a micro spirit level above the stabilizer while supporting the tail from underneath with your hand. Do not rest the spirit level on the stabilizer, use it only as a guide. Remove the spirit level and slowly move away your hand while observing the tail.

If it drops/lifts it means the tail was not leveled. Adjust the battery position on the tray until the tail remains still when you take your hand away. Adjust the batteries position on the CF tray and into the cowl until you reach the desired 135mm CG.

Addiction X V2 CG range is 132.5-138mm

Level the tail with a micro spirit level

Remove the spirit level and watch the tail

Transmitter Setup

As precaution, remove **all servo arms and propeller prior to initially powering up your radio system.** This prevents servos that may be initially reversed or off center to rotate beyond the control surface's deflection angles and motor to accidentally start up. Once powered up reset servos to neutral and reinstall the servo arms. Move TX sticks to verify that the control surfaces are moving in the intended directions and if not reverse rotation via the TX.

With all the channels verified, adjust the sub-trim to obtain the neutral position for all control surfaces. If you have followed the control linkage set up in the earlier sections, the sub-trims will be very minimal. Adjust the servos travel to ensure none of the servos are over traveling causing binding in the linkages.
Note that binding linkages will overload the servos which will overheat the BEC and risk a possible shutdown.

Warning: Servos should **NOT** be operated manually, especially, not the mini/micro ones as they use small gears with small teeth. Those can jam and damage if operated manually. We keep very tight tolerances with the NXT servos in order to keep them precise, therefore, the gear mesh is tight.
Please operate servos only via TX.

Control Setup

Using the supplied deflection gauge, we suggest setting up your control surfaces deflection in accordance with the following table. Use these as a starting point and adjust them to suit your personal flying preferences.

All the figures in this table are approximated		
Control surface	**High rates**	**Low rates**
Ailerons	45° Up and Down Expo: 50%	25° Up and Down Expo: 30%
Rudder	Left and Right (maximum) Expo: 50%	25° Left and Right Expo: 35%
Elevator	50°-55° Up and Down Expo: 50%	25° Up and Down Expo: 35%

Optional Spoilerons: Set 10°-12° of UP and Down ailerons deflection on a 3-position switch such as flaps switch. The center position of the switch is where the ailerons are neutral/0°. Upward deflection of the ailerons, in accordance to the plane's position, (i.e. Spoilerons) will allow faster descending "Elevators", spins and slower high AOA harriers. Spoilerons were great for elevators and harriers since they allowed higher propeller rpm which kept the plane more flat (during the elevator) and made high AOA harriers slower and more stable.

Ailerons/Elevator mix: Set up a TX mix of which both ailerons and elevator deflect fully to the same direction. Assign a convenient switch to enable/disable it during flight. This mix in the ADX V2 is pure fun for tight waterfalls, super tight loops and fast KE spins.

Maiden Flight

THE Maiden flight! It is vital that you choose a proper day for the maiden flight. The combination being nervous flying a new plane along with the fact you are not familiar with the plane can lead to mishaps. Choose a good calm non-gusty day (about 0-8 MPH/knots wind). It may be early morning or late evening.

It is vital to run some good bench tests (outdoor) pointing the propeller away from you or anybody around and blip the throttle from min to max power a few times. This is a harsh test that will apply a lot of load but will verify the prop adaptor is firmly installed (otherwise it may fly off), gear is working properly and the propeller is balanced (no vibrations!!).

NOTE: **ALL** new gear **must** be tested on the bench/ground before take-off with no exceptions. Check servos and linkages for proper movement at the same time.

Flight Trimming

On takeoffs The ADX V2 will be airborne after a very short run, therefore, let it gain some air speed to allow airflow over the wings before trimming. After a few seconds of straight and level flight, on **¾ throttle**, it will balance itself and then you may adjust the TX trims. CG is a critical factor, therefore, make sure to set it up **exactly** as stated on this manual, otherwise the plane will not fly true.
NOTE: If you find yourself constantly trimming the plane during first flights and your CG was set correctly and the weather is calm (no wind gusts) you should check the control surfaces centering on the bench using the TX. If a control surface overshoots the center, you should inspect the linkage to be bind free. Detach the servo arm and operate the control surface manually. If it slightly binds, it is most likely that the clevis fork is clamped over the control horn. To rectify, unfasten the bolt, slightly widen the clevis fork with a flat screwdriver and refasten the bolt lightly with Loctite. Also, make sure the ball link is installed on the **bottom** side of the servo arm.

Initial Flight timer settings

Unlike older lithium polymer (LiPo) packs where a drop in performance is usually noticed during the last quarter of the flight warning the modeller to land, PA's newer high discharge lithium polymer packs have the ability to sustain a higher and constant voltage which results in consistent performance throughout the flight until LVC (**L**ow **V**oltage **C**utoff) is activated. As such there may be instances that a modeller may accidentally prolong the landing and experience an unwanted LVC or in the long term, encounter battery damage due to over discharging, therefore, we recommend setting the flight timer as a matter of good practice. Flying style affects current consumption so flight duration may vary from one modeller to another. We suggest to initially set your flight timer at a very conservative setting. Then gradually adjust the flight duration after

analyzing the battery capacity consumption over the next few consecutive flights. The mAh consumption can be observed via your fast-digital charger or battery checker.

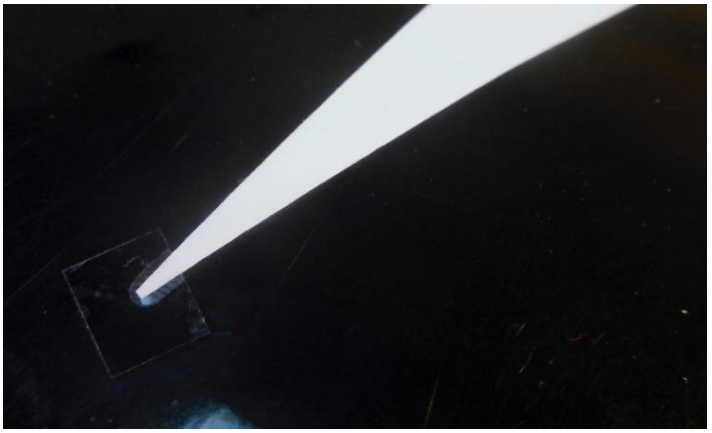
If using our recommended iPAs® setup you may start by setting up your TX timer to 5:00 minutes and adjust it as explained above. Typically, you can expect anywhere between 6-7minutes of flight duration. Re-adjust the timer whenever you change the propeller to a different size (refer to the recommended propellers).

Applying the Decals

Small wrinkles in the covering can be removed with a hobby iron set at low temperature, however, **extreme care** must be taken, as it is possible to introduce warp to an otherwise straight part while removing wrinkles therefore, I suggest to avoid it. Do **NOT** use a heat gun as it will cause warp and may damage the thin covering trims.

As a final touch, decorate your ADX V2 using the supplied PA decals. You may use the following photos as a guide.

Thin edges of covering trim tend to peel off over time. I strongly suggest to apply small pieces of clear tape over these sharp edges to secure them in place. Best done before the plane is exposed to sunlight. If you find one that started to peel off, use the front edge of the iron (set at low temperature) to seal it down first. Careful not to damage or cause it to overshrink and twist.

Carbon Fiber Vortex Generators (VGs) installation

If you purchased the optional CF Vortex Generators (PA Item code # AC-2177V2) designed for the ADX V2, you can install them now. The CNC machined CF Vortex Generators will enhance your ADX flight characteristics in slow high AOA flight, 3D and Knife Edge tracking and will add the funky look to your plane. We highly recommend them to complete the aerodynamic design of the ADX in order to get the best performance.

More info about the VGs can be found on www.PrecisionAerobatics.com

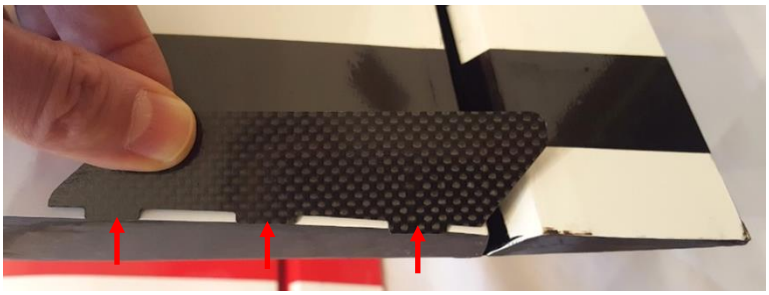
The installation of the Vortex Generators (VGs) is very simple since the slots are pre-cut. However, due to the opaque covering, a certain technique is required to find the hidden slots.

Start by placing the wing flat on a protected surface to avoid scratches to the covering. If you chose the see-through covering scheme, place it upside-down (translucent covering facing up) as you'll be able to see some of the slots through the film.

1. In order to find the slots through the opaque covering, plug in the LED lights into a battery and you'll be able to identify most of the slots. Due to the reflection avoid using direct flashlight and even dim the room light.
   Use a heated paperclip or a sharp modelling knife to reveal the pre-cut slots on both sides of the wing.

If you have difficulties finding a few of the slots, use a sharp long pin or a sharpened paper clip to pierce the upper slots through the bottom side slots that you just revealed. Pierce three to four holes through the entire length of each slot then flip the wing to its other side. Now looking at the pin holes you've pierced you can see the exact locations of the slots. Reveal the slots fully using a heated paperclip or a modelling knife. If you have difficulties finding the wing tip VG slots, place the VG on its side next to the wing tip with the mounting tabs 3mm (1/8") away from the edge of the tip rib to indicate the position of the slots to be exposed. The rear end of the VG should be aligned with the wing's trailing edge. Pierce the covering in the estimated positions using a sharp pin. Pierce three to four holes through the entire length of each slot. Reveal the slots completely using a heated paperclip or a modelling knife.

2. Roughen the gluing tabs of all the VGs using a fine file or sand paper similar to what you did previously with the control horns.
3. Perform a dry test fit of the VGs into the slots and if you find a very tight fit DO NOT force them in as you may damage the balsa sheeting. Instead, do one of the two things: 1 – you may slightly sand the tabs thinner or 2- use a sharp modelling knife to slightly enlarge the slots. Do this with great care not to cause damage.
4. Once you are satisfied with the fit remove them and apply a layer of 30 minute epoxy on both sides of the tabs and inside each slot. Make sure the entire base of the VGs are covered with epoxy and once fitted, add a small bead of epoxy along the entire joint as this will create a solid base and seal the gap with the wing skin. Make sure to push them all the way in to minimize any gap.
5. Now verify from the front of the leading edge that each VG is perfectly perpendicular to the wing surface (90 degrees) and if not use paper masking tape to correct the angle into a perfect 90 degrees and let it set before removing the tape.

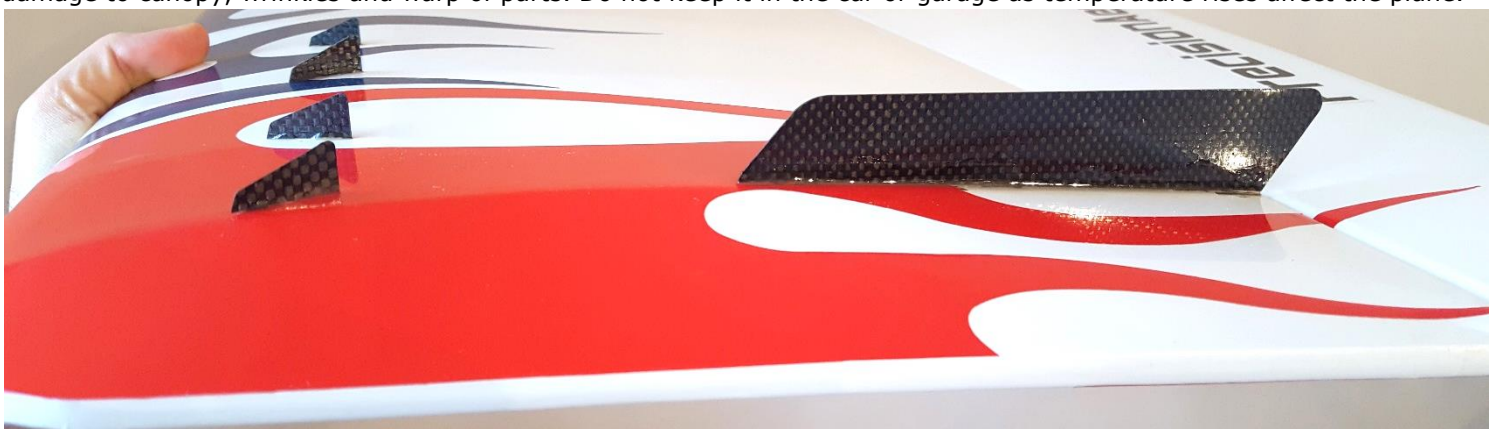


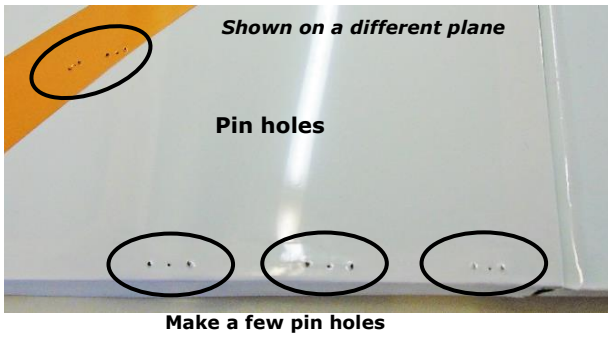
Align the rear of the VG with the wing's trailing edge

Apply a thin bead of epoxy along the entire seam

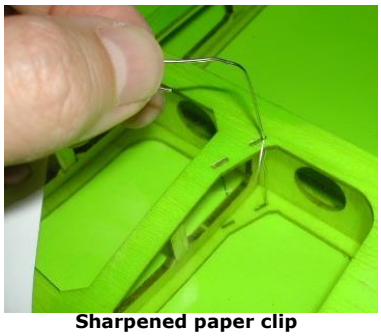
DO NOT use CA as it is not forgiving and will not allow you enough time to fit the VGs properly and verify their angle. CA may set before the VGs are fitted all the way in which means a permanent damage. It will also not seal the gap and may stain the covering surface.

Note: Keep plane under cover and away from direct sunlight when not flown. That is to avoid the covering from fading, damage to canopy, wrinkles and warp of parts. Do not keep it in the car or garage as temperature rises affect the plane.

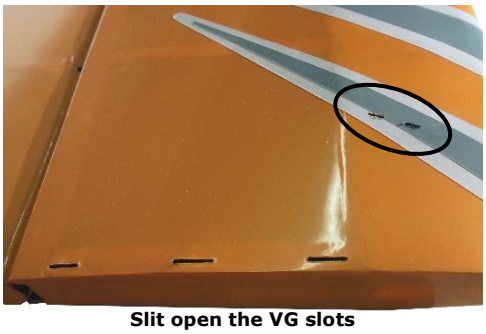




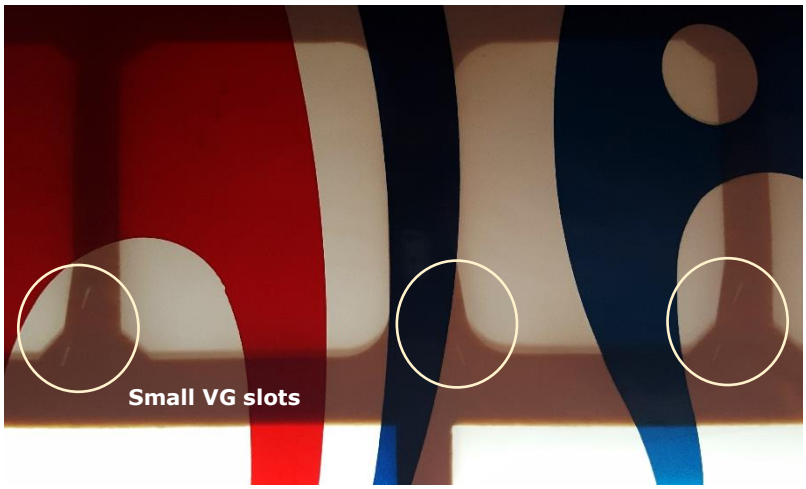
Make a few pin holes



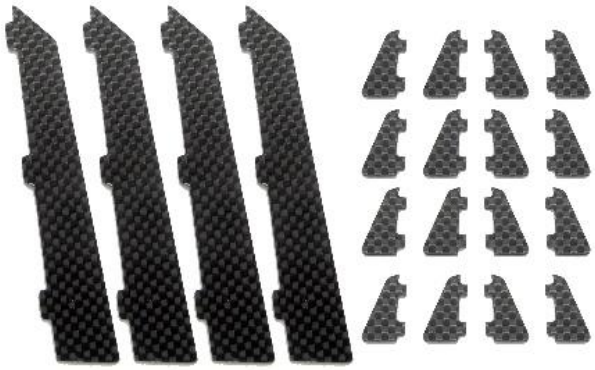
Sharpened paper clip

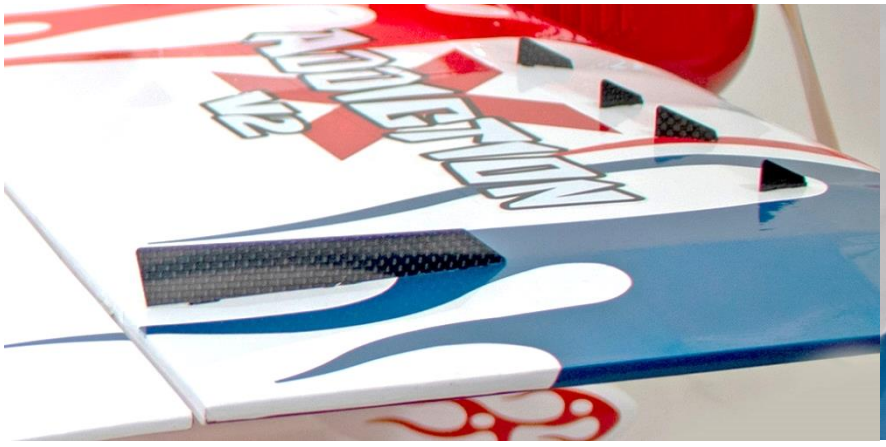


Slit open the VG slots



Vortex Generator set





Optional Extras

Carbon fiber micro long servo arms for perfect linkage geometry.
(PA Item # AC-2135)

Set of 4 Carbon Fiber servo arms specifically designed to achieve full control surface movement required for 3D flights with the correct linkage geometry to fit the Addiction XL. Incredibly light weight and accurately CNC machined in our facility.
Snap installation - No glue required
Hardware and instruction are included.

PA Carbon Fiber 1.8" Ultimate Style CNC machined pre cut spinner
(PA Item # AC-2048)

The PA 1.8" Carbon Fiber spinner is a perfect match to your Addiction X. The combination of precision CNC machined Aluminum back plate and allows true spinning without motor's performance deterioration.

The new CF spinner is incredibly lightweight and has a beautiful shiny finish.

Addiction X carbon fiber wheel pants set
(PA Item # AC-2171)

It is recommended to get a set of CF wheel pants as a spare set so after many happy landings you'll be able to upgrade the fiberglass wheel pants to the carbon fiber ones. the CF wheel pants are stronger and generally will last longer than the stock fiberglass pants.

Addiction X custom made wing bags set
(PA Item # AC-2178)
A real must for carrying the large ADX wings. Made of strong canvas and padded with thick foam to protect your wings in transport.
Size allows for vortex generators.

Prop adapter puller
(PA Item # AC-2163)
Suitable for 5mm shaft, this puller is designed for easy removal of jammed prop adapter from the motor shaft without damage to your motor shaft or model. No more bent shafts!! no more destroying your new propeller adaptor or cracking the cowling and motor box!!!

Vox Electric Prop quiver bag
(PA item code AC-2160)
Vox propellers offers a high quality double padded propeller quiver bag, made of strong durable canvas on the outside and smooth fabric on the inside. The Vox quiver bag is closed from all sides so the propellers cannot slip out by mistake, yet you can easily insert and remove them, and is comfortable to carry. The bag holds 8 propellers up to 16" in length and is sold for only $14.95.

High Performance Brushless Outrunner motors with RotorKool® Technology

The development of our new PA Thrust™ motors has followed our traditional design philosophy employed in our aircraft; which is doing things better. Thrust™ motor is one of the coolest running high performance, high-torque and high efficiency brushless motor ever produced to date. The design incorporates our latest innovation, RotorKool® which keeps the stator core material, the low resistance windings, highly permeable stator plates, high quality NMB Japan triple bearings and powerful neodymium magnets at optimum operating temperatures regardless of duration or the number of consecutive flights made*.

*provided sufficient airflow is permitted.

Visit www.Thrustmotors.com to download data sheets | 2 years warranty for all Thrust motors and Quantum ESC!

www.VoxProps.com

These must be the best Electric wooden propellers out there!
Vox electric propellers are made of Ultra light, high quality German Beechwood allowing higher acceleration rate and thrust, combined with precision, which is a "MUST" for high performance airframes, and is an added bonus for the less demanding EP R/C aircraft.
Vox props have been thoroughly tested as part of our iPAs® packages and feature GREAT value for money!
If you want your plane to perform like the ones in our videos get a Vox prop!

www.Thrustmotors.com

The PA Quantum is a performance enhanced Brushless Electronic Speed Controller specifically designed to seamlessly match our Thrust motors.
The ESC come pre programmed for the Thrust motors so it's only a matter of plug-and-play.
The Quantum ESC is only geared for one thing: to allow you to execute the most challenging maneuvers with ABSOLUTE confidence in your drive system. Visit our website for more details and discounted combos.
ALL ESCS are equipped with user selectable HV SBEC

Why Getting a Thrust motor?

We believe that if you chose the best model plane out there you'll want to get the most out of it – the answer is our iPAs® set up including Thrust® motor and Quantum Pro ESC!
A winning combination thoroughly tested with proven performance.
Go to ***our youtube channel or our website*** to watch hundreds of videos of PA models using Thrust / Quantum setups.

Addiction X Replacement parts list

We believe that you will enjoy your Addiction XL for a very long time. In the event of inevitable mishaps and broken parts, all you need to do is to order replacement spare parts to restore your Addiction XL and be back in the air.

AC-2166	Addiction X CF main landing gear	AC-2178	Addiction X custom made wing bags set
AC-2125	Addiction X Tail wheel assembly inc. tail wheel		Addiction X air bafles set
AC-2168	Addiction X Tinted canopy/hatch	AC-2180	Addiction X right wing (pilot view)
AC-2169	Addiction X Fiberglass cowl	AC-2181	Addiction X left wing (pilot view)
AC-2170	Addiction X fiberglass wheel pants set	AC-2182	Addiction X wings set
AC-2171	Addiction X carbon fiber wheel pants set	AC-2183	Addiction X fuselage
AC-2172	Addiction X carbon fiber wing tube	AC-2184	Addiction X Tail Feathers
AC-2017	Addiction X Pair of wheels w/ wheel aXes	AC-1915	Green translucent Covering 60cmx200cm
AC-2174V2	Addiction X Motor mount V2	AC-1651	Red translucent covering 60x200cm roll
AC-2199	Addiction X CNC machined CF control horns - 4pc	AC-2365	PA light harness
AC-2176	Addiction X pull pull complete set including rudder double servo arm	AC-1654	White cover 60x200cm roll
AC-2177V2	Addiction X vortex generators	AC-1657	Metallic blue covering 60x200cm roll