VIOS

GRAND TUNDRA 2

INSTRUCTION MANUAL

PNF
PLUG N FLY

GRAND TUNDRA 2

SAFETY INSTRUCTIONS

1. Please read this manual carefully and follow the instructions before you use this products.
2. Our airplane is not a toy, it is only suitable for experienced pilots. If you are a novice then please only fly under the guidance of an experienced pilot.
3. Not recommended for children under 14 years old.
4. Please adjust and set up this plane according to the instructions and make sure to keep your body parts out of the rotating propeller all the times or it may cause damage to the plane or serious injuries to yourself.
5. Do not fly in thunderstorms, strong winds or bad weather.
6. Never fly R/C planes where there are overhead power lines, automobiles, near an airport, railway lines or near a highway.
7. Never fly R/C planes where there are crowds of people. Give yourself plenty of room for flying, this plane can fly at a very high speeds. Remember that you are responsible for others safety and the safe conduct of the flight.
8. Do not attempt to catch the plane when you are flying it.
9. The operator should bear full responsibility for the proper operation and usage with regards to this model. We at Hobbyking will not be responsible for any liability or loss due to improper use of this product.

⚠ WARNING:

Read this instruction manual fully so as to become completely familiar with the features of the product before operating. Failure to operate this product correctly could result in damage to the product, personal property and cause serious injury. This is a sophisticated hobby product and is NOT a toy. It must always be operated with caution, common sense and some basic mechanical ability. This manual provides instructions on the assembly, safe operation and maintenance of this hobby product. It is highly recommended that you read and follow fully the instructions and warnings stated in this manual including safety, assembly, set-up and flying guidelines in order to operate this product correctly and avoid damage or serious injury.

AVIOS

GRAND TUNDRA 2

INTRODUCTION

Congratulations on purchasing the 1700mm Avios Grand Tundra 2. The Avios Tundra series of STOL sports planes has enjoyed a massive following over the years, and like all things that evolve, there are areas that, over time, could do with a slight improvement. It is now a 6S setup as standard, the tail wheel has been redesigned and strengthened, the main tundra wheels have pneumatic rubber tires, it has a removable plywood battery tray with spring-loaded latch (for quick battery changes), hex-head screws all round, and a new profile, more efficient glass-filled nylon 15x8 propeller.

The day bright LED lights have always been a feature of the Tundra series, but the GT2 now has a switch unit included for the twin landing lights. The Grand Tundra 2 can still use a 4S setup, but you will need to change the supplied 15x8 propeller for a 16x8 (not supplied). With the GT2, you can still enjoy short take-offs and landings using its huge 90-degree flaps, wing vortex generators, and the large tundra-style wheels. It also includes the revolutionary Aerostar RVS (reverse function system) G2 ESC. This ESC offers instantaneous reversing, so there is no need to stop the prop before reversing.

The AVIOS team hopes you enjoy putting together and flying your Grand Tundra 2, and they look forward to bringing you more exciting models in the near future.

FEATURES:

- Air-filled pneumatic rubber tires
- Improved and strengthened tailwheel assembly
- Pre-installed 2nd Generation SK3 motor, Aerostar 80A RVS ESC, and digital MG servos
- Hex head screws, and a removable battery tray with spring-loaded latch
- Powerful 6S setup as standard w/improved 15x8 glass-filled nylon propeller
- Wide flight envelope from slow and stable, to fast and aerobatic
- 90-degree flaps for short take-off and landing
- Day-bright navigational lights and switchable landing lights
- Glider tow point and optional FPV cockpit tray

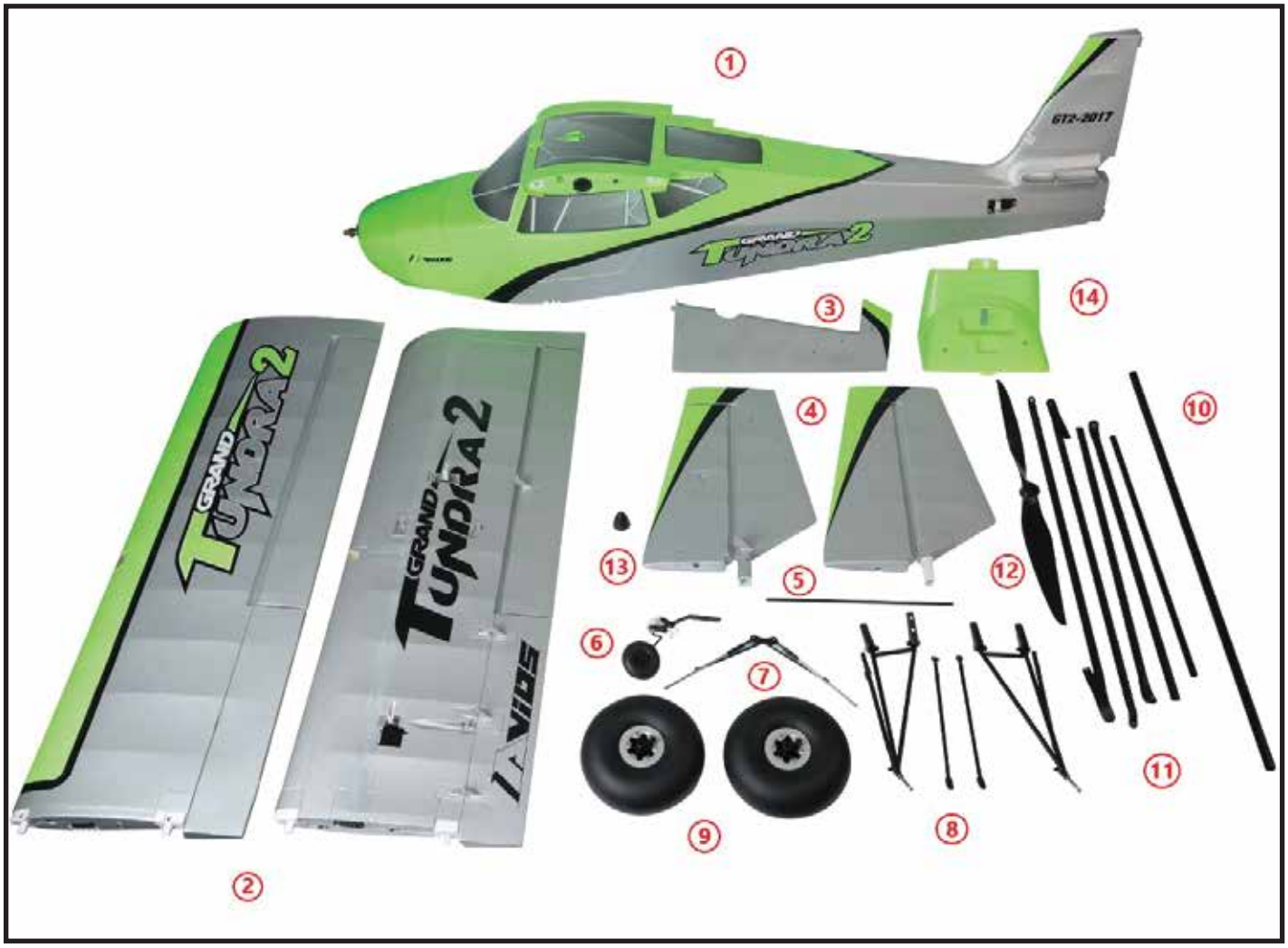
SPECIFICATIONS:

- **Wingspan:** 1700mm (66.9")
- **Length:** 1260mm (49.6")
- **Motor:** SK3 5055 500KV
- **ESC:** Aerostar 80A RVS Reversing ESC
- **Servos:** 4 x 17g, 2 x 9g, all Digital w/Metal Gears
- **Propeller:** 15x8 Glass-Filled Nylon
- **All Up Weight:** 2.85kg w/4000mAh LiPo Battery

RECOMMENDED:

- 1 x 6 channel Transmitter/ Receiver
- 1 x 6S 3500~5000mAh, or a
- 4S 4500~6000mAh LiPo/LiHV
- battery (not supplied)

Please read through all the steps in the manual carefully and your adventures await with the Avios Grand Tundra 2.



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9. Main Wheels
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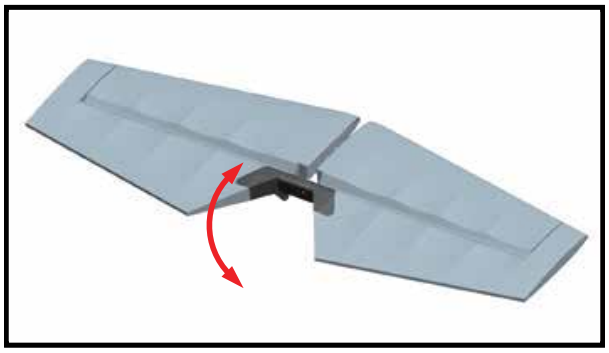
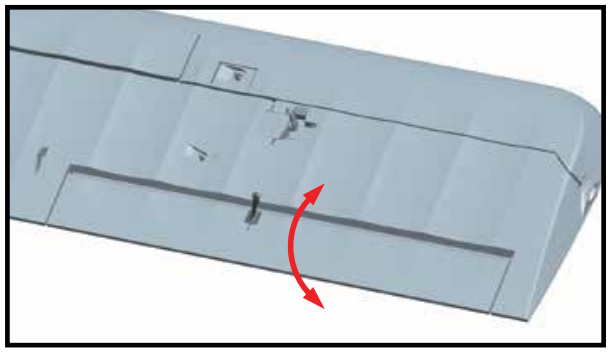
11. Wing and Tail Struts
12. 15x8 Glass-Filled Propeller
13. Spinner
14. Optional FPV Canopy

ASSEMBLY (PNF)

1. Out of the box your GT2 comes with reinforced foam hinge hinges. However before assembly can begin, each hinge line must be flexed back and forth 5-6 times to reduce the tension and load on the servo. Do this for all control surface before continuing.

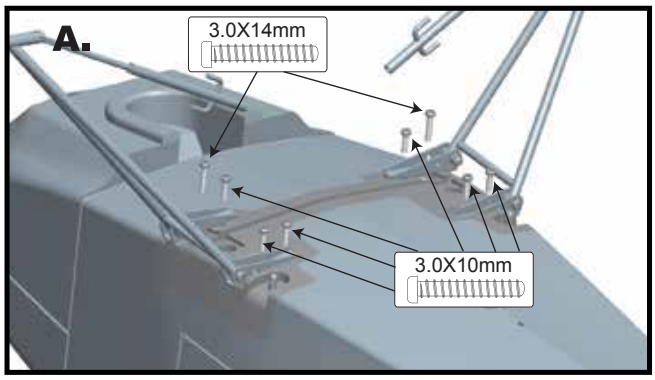


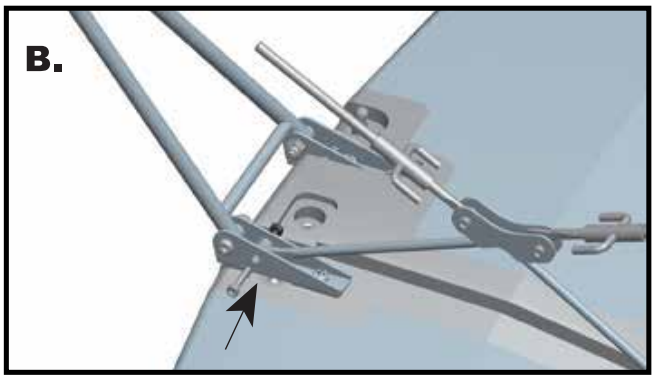


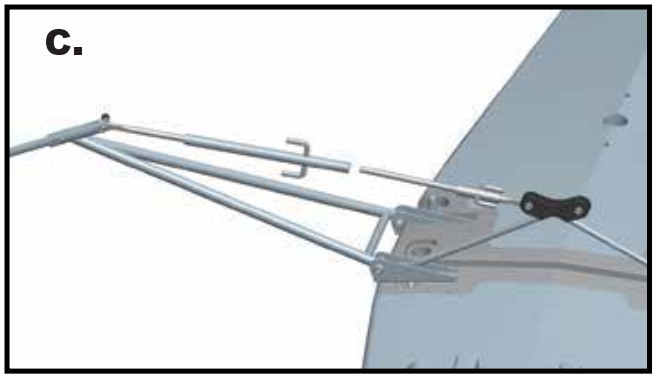
2A. To mount the undercarriage to the fuselage, start by inserting and securing the two main struts with suppied bolts 3X10mm(6psc) and 3X14mm(2pcs) Now install the upper part of the gear shock absorption brace with the supplied socket head bolts 2X10mm(2pcs).Be sure to add the rubber spacers to the right, behind the mount points on the upper brace . Then insert the upper of the gear socket into the lower brace shaft. You need to strap the upper and the lower braces together with the supplied rubber bands, we recommend two bands each side.

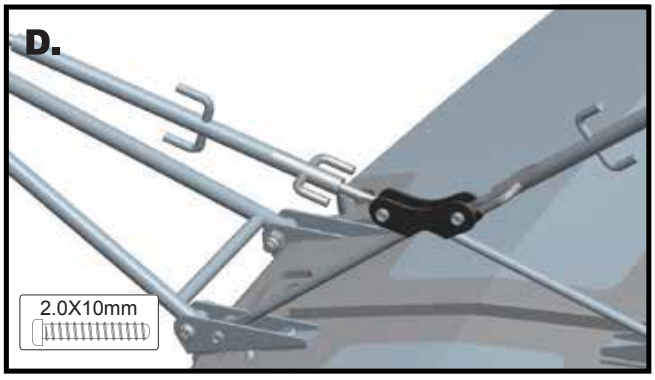
Notes:

- Ensure the main gear rakes forward at stage A.

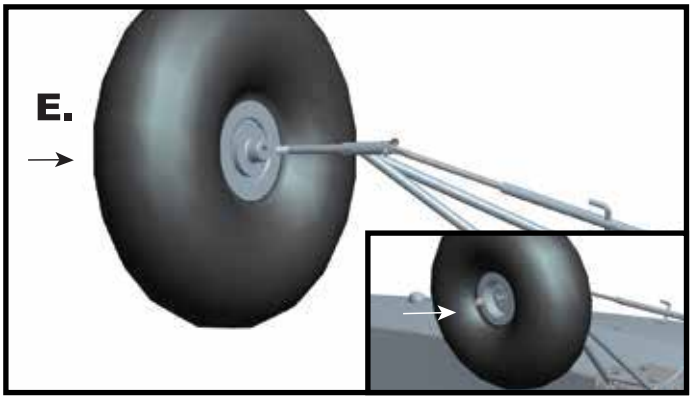


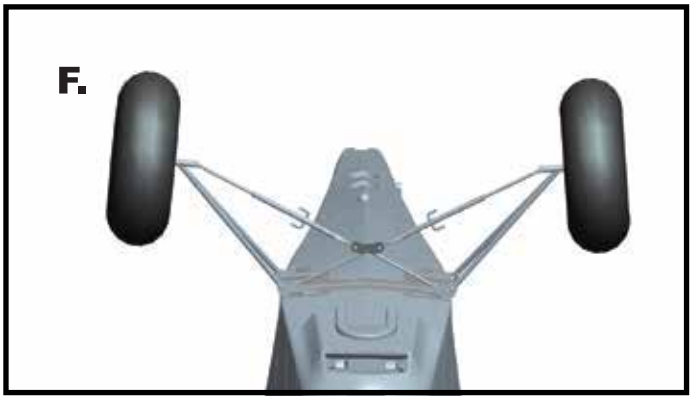




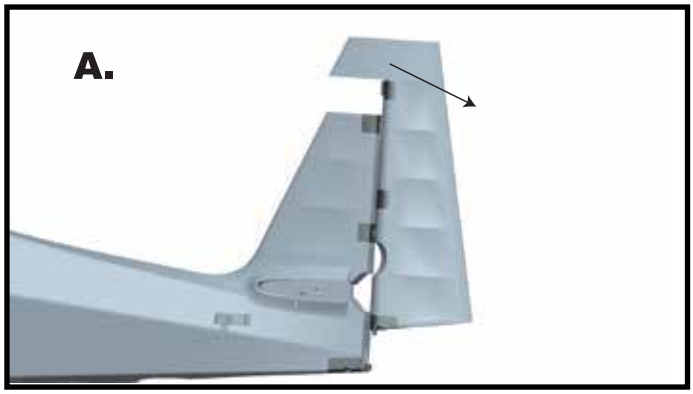


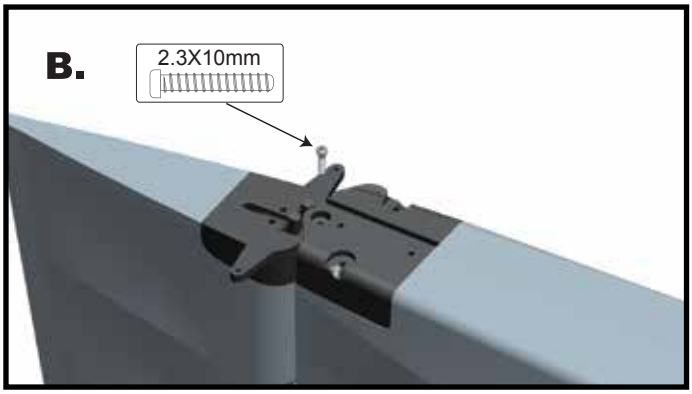
2B. Now install the main wheels to the shaft, Hold the wheels onto the shaft with the supplied nylon insert nuts. Be sure you do not over tighten the nuts, so that the wheels will spin freely.



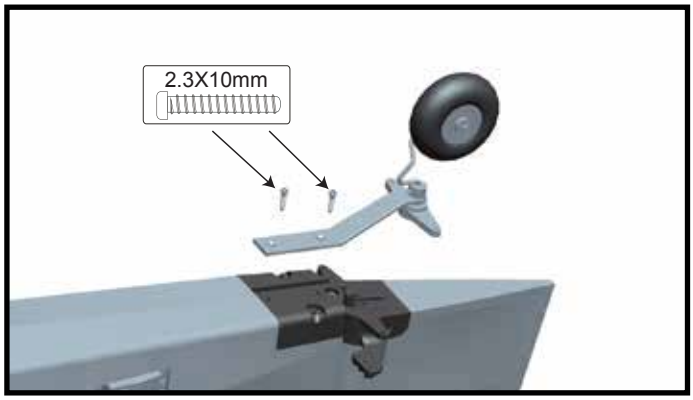


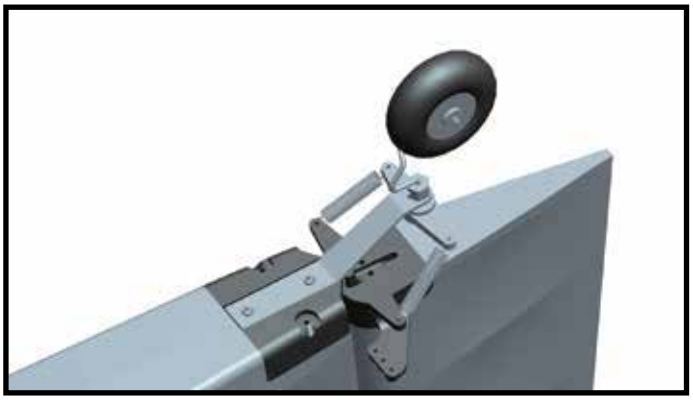
3. Insert the rudder into the hinge socket on the trailing edge of vertical fin, secure the rudder into place with the supplied self-tapping screw 2.3X10(1pc). Please ensure this holds the rudder safely in position, but do not over tighten the screw, the rudder needs to still move freely.



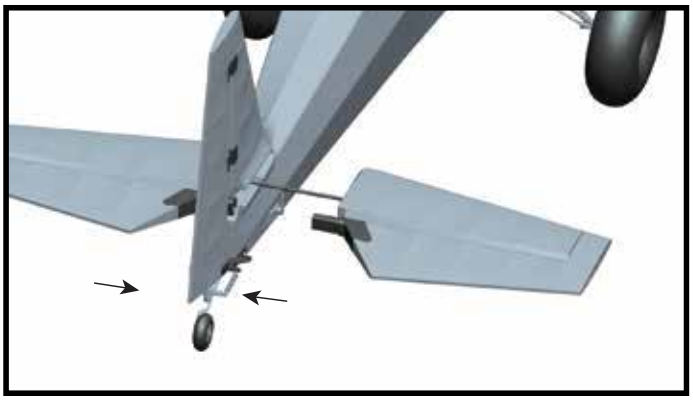


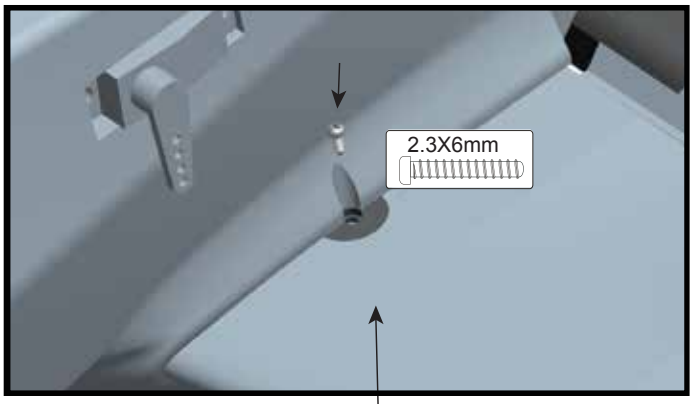
4. Install the taill wheel assembly to the plastic mount to the rear of the fuselage, secure in place with the provided self tapping screws 2.3X10 (2pcs).

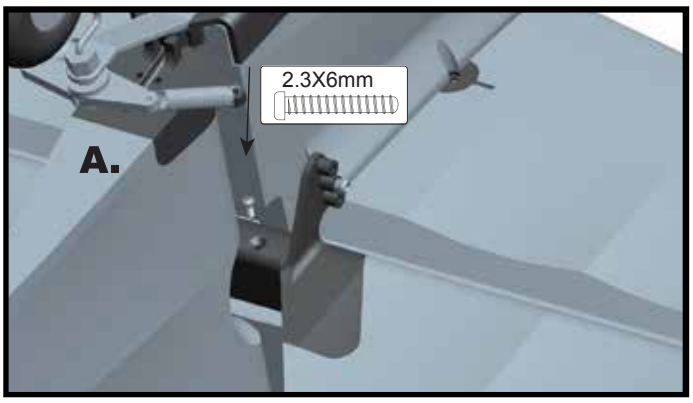




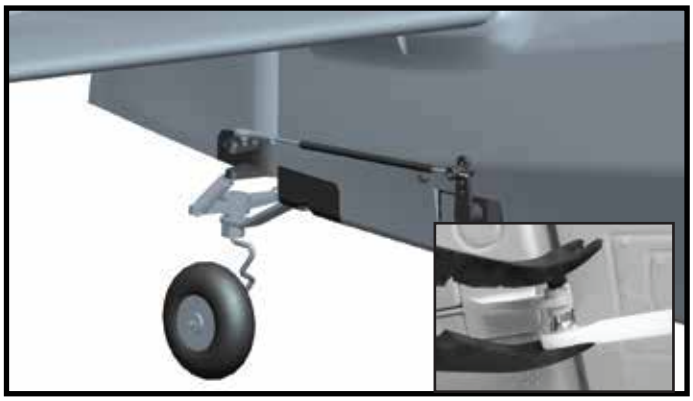
5. Insert one half of the carbon tail spar into one of the horizontal stabilizer halves. Then slide the carbon spar through the hole in the base of the vertical stabilizer until the stabilizer half fits snugly into the vertical stabilizer. Then slide the other horizontal half onto the spar until that is also snug in the vertical stabilizer. Secure the 2 stabilizer halves, and the elevator joiner using the 2.3x6mm screws provided. At this point, please check the alignment of the tail with the main wing and vertical stabilizer.



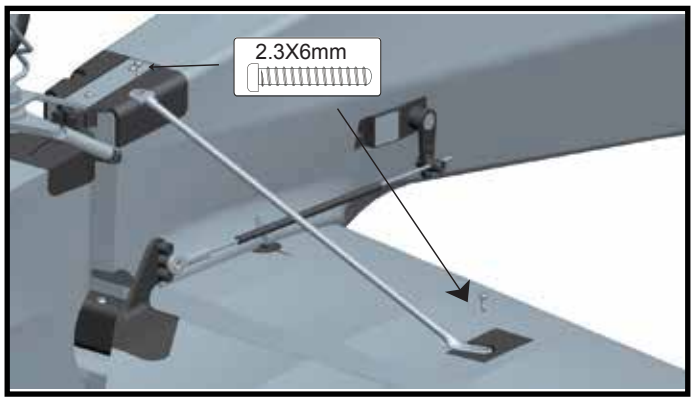


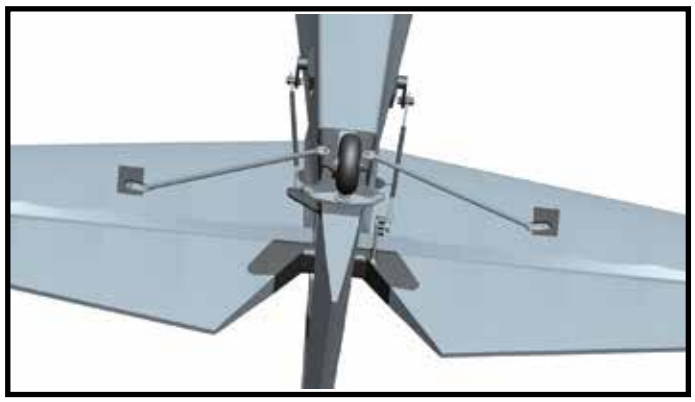


6. Using a pair of pliers (ball link pliers preferably) connect the elevator push rod to the elevator horn (A). To ensure both the elevator and rudder are neutral (with the servos centered) loosen the grub screw of the piano wire fastener and slide push rods until both surfaces are neutral if required (B). Tighten firmly when done. For added security, the tail can be glued in place too.

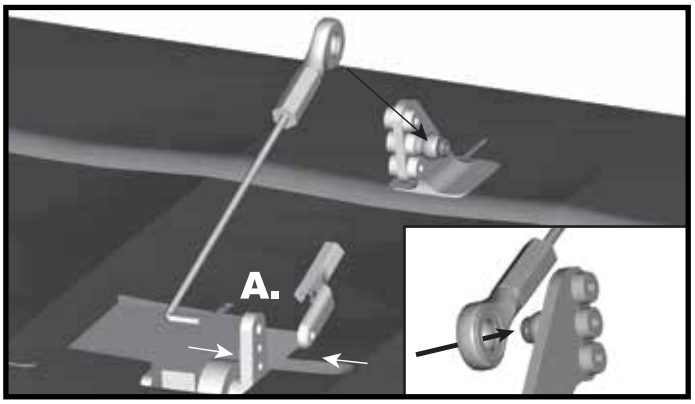


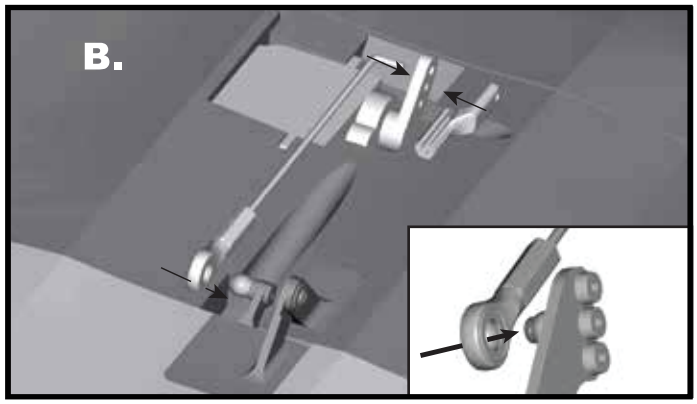
7. Fit the tail braces into the correct positions as shown below and secure into place with the supplied 2.3X10mm screws (4pcs , 2 for each side).



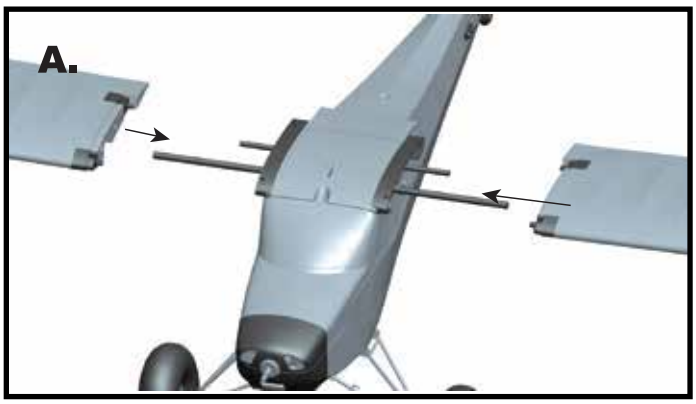


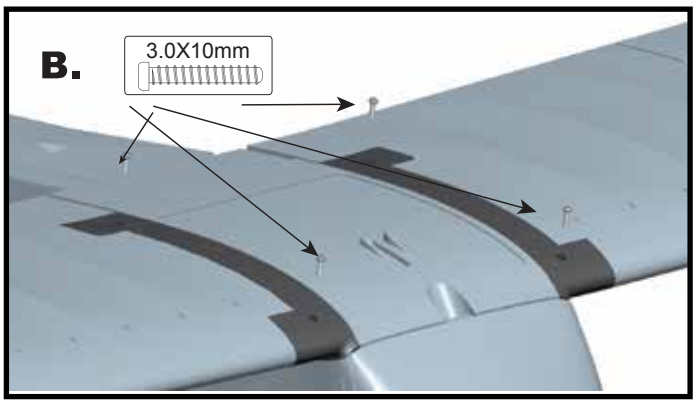
8. With the aileron control horns at 90 degrees to the wing surface (neutral) insert the aileron push rod and secure in place with plastic keepers (A). Connect the ball link to the aileron control horn as shown (B). Repeat this same process for the flaps, the exception being the flap servo horn must be positioned as far forwards as possible. This will give a flap neutral position with the push rod connected.



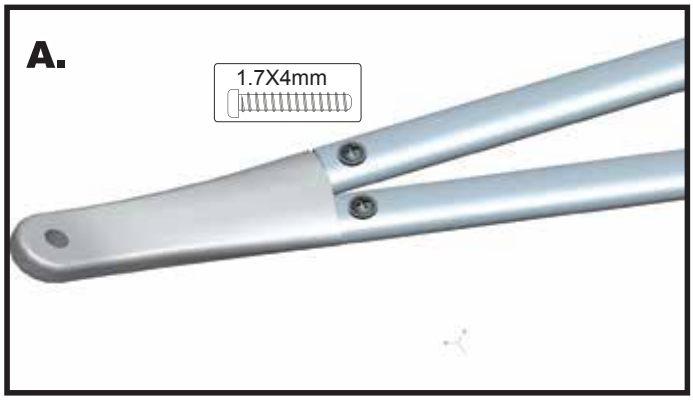


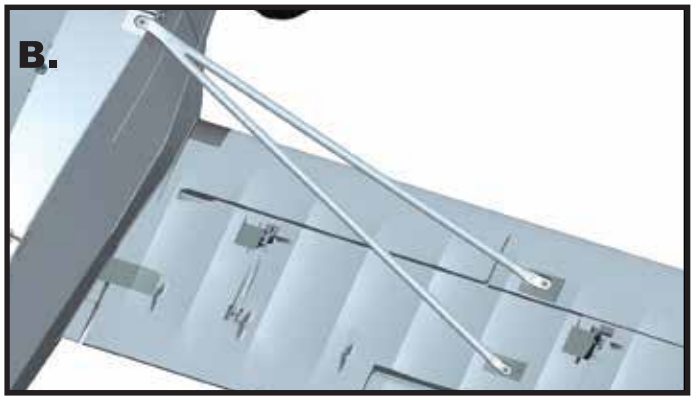
9. Slide the carbon wing spar through the fuselage wing root, ensure that it is centered. Then slide one wing panel onto the spar and check that the wing servo PCB connectors line up correctly before pushing the wing panel firmly into place into the fuselage wing root. Secure the wing panel using the 3x10mm hex screws provided. Repeat this process for the other wing.

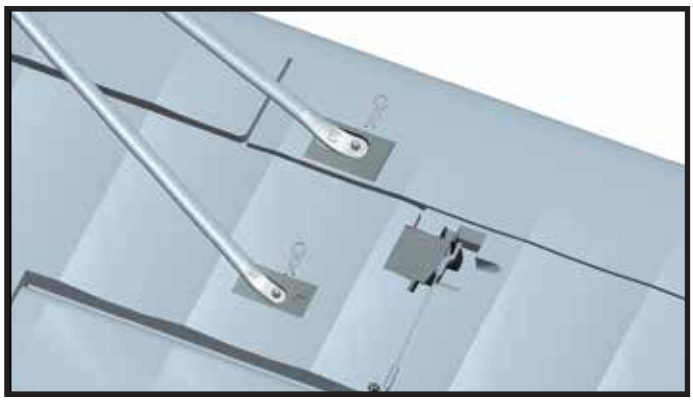


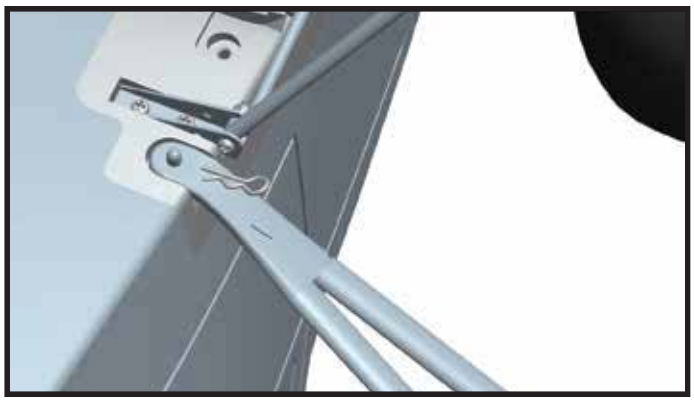


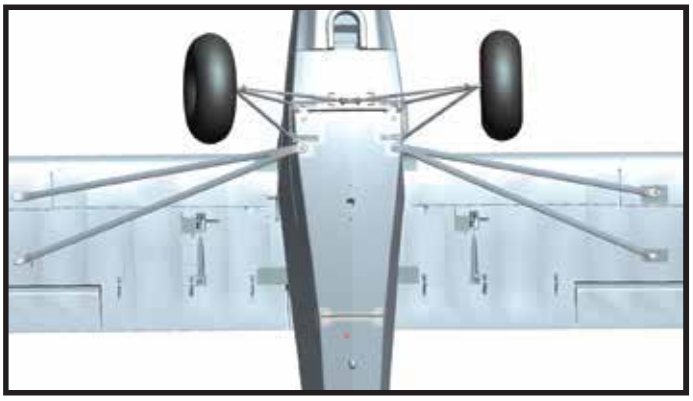
10. The left and right wing struts are packed in separate bags to avoid confusion of the right and left handed components. Secure the strut tubes to the bottom strut molding using the 1.7x4mm screws provided. Make sure that both the plastic securing parts at the wing end of the struts are angled the same so that they will sit flat onto the wing. Attach each wing strut to their respective sides (A), the struts are marked “L” and “R”. Please note that the left and right hand sides are when looking forward from the tail. Secure the struts using the supplied “R” clips. We recommend to secure the wing end of the struts first, then the fuselage end.



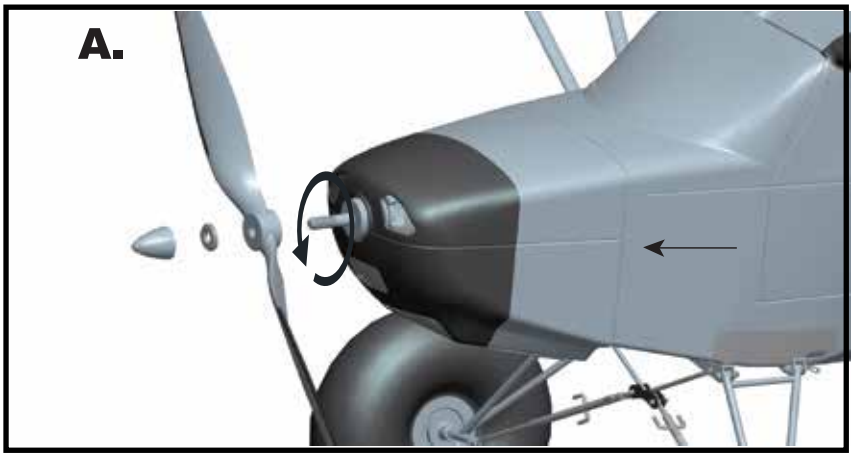






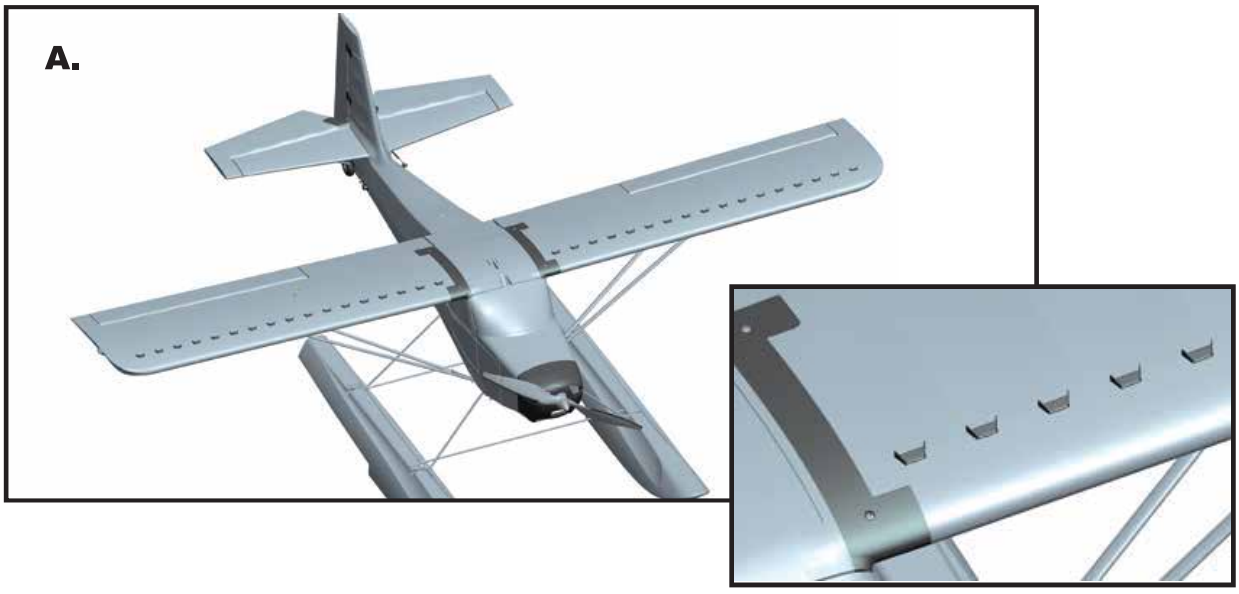


11. The next stage of the assembly is to fit the propeller to the prop adapter onto the motor as shown (A) using the spinner nut. However, we recommended leaving this until you have set up your radio and the model, and you have completed the final checks. Once these are all complete, you should only then fit the propeller.



The propeller should be balanced out of the box, however it is recommended a final balance check be carried out before attaching to the model. A well balanced prop will greatly increase all round performance and efficiency of the model in flight.

Please note that the supplied 15x8 propeller is for a 6S set up. If you wish to use a 4S set up then you will need to change this to a 16x8.



12. Glue the wing turbulators to the wing as shown, please not that the narrow opening faces the leading edge of the wing.

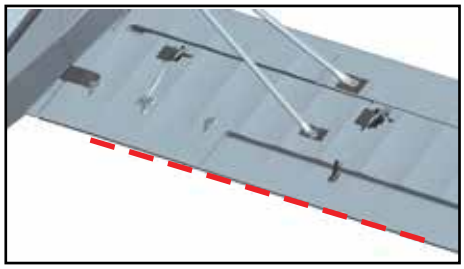
13. Install your choice of receiver (minimum 6 channel) and battery as shown. The landing light switch can be connected to any auxilliary channel you have available on your radio equipment. If you use a 2-position switch, it will give you on/off, if you use a 3-position switch, this will give you on/flashing/off.

Congratulations, basic assembly of your Grand Tundra 2 is now complete. Please perform a final check on all screws, bolts and components, ensuring all are secure and firmly in place.

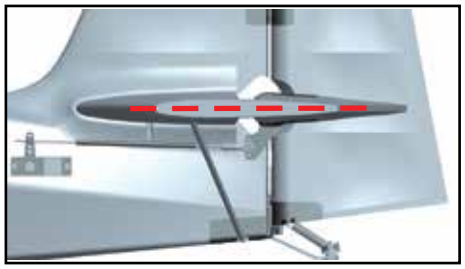
SETTING UP YOUR MODEL:

1. With your receiver installed and all servos plugged into their corresponding channels, connect the flight battery to the ESC to power up the electronics. With the model now armed, ensure all servos are centered and all control surfaces are level. If not, adjust by turning the control clevis's by hand accordingly until the control surfaces are level as shown.

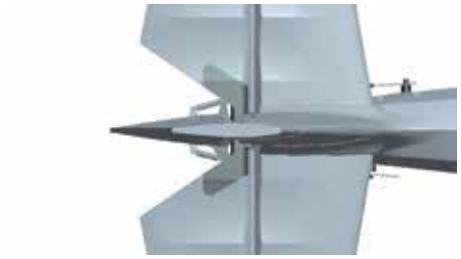
Note: For safety reasons, it is advised that this is done with the prop removed from the model.



Aileron



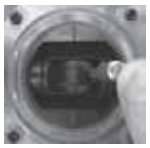
Elevator



Rudder

2. Check all control surfaces are moving in the correct direction with the correct stick input (see below).

Roll left

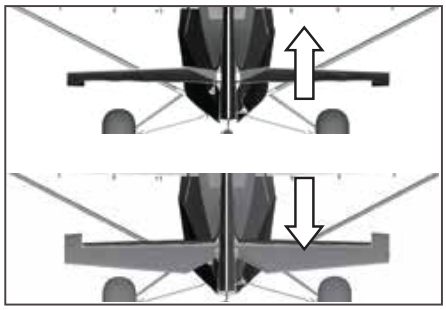


Roll right

Aileron (Roll)

Pitch up

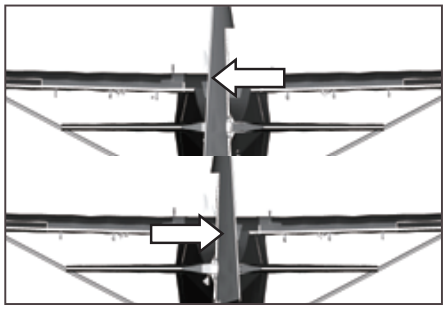
Pitch down



Elevator (Pitch)

Yaw left

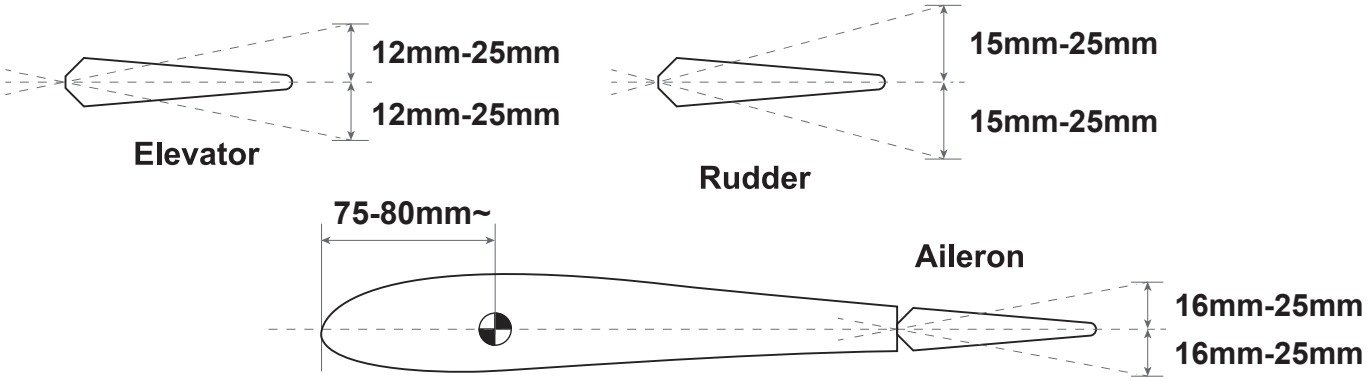
Yaw right



Rudder (Yaw)

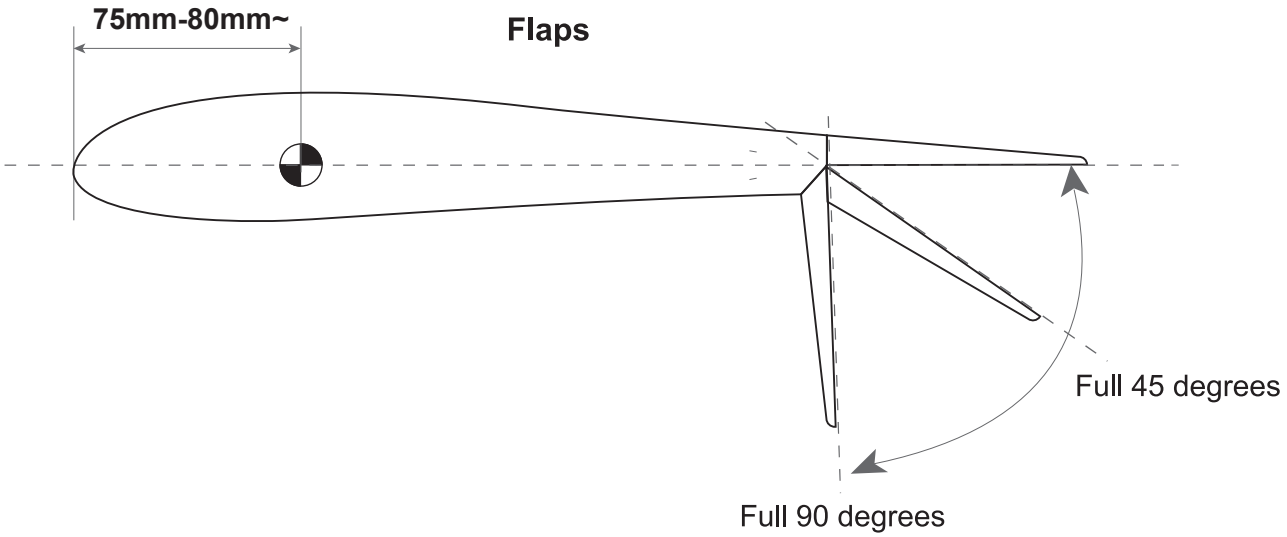
3. The Grand Tundra 2 handles very well in flight and that's not down to good design alone, but a good pre-flight set-up too. Before you fly your Grand Tundra 2 please follow the recommended settings below for optimum handling and performance.

CONTROL THROWS:



*Elevator 'low rates' **12mm** 'high rates' **25mm** in either direction from neutral.
*Rudder 'low rates' **15mm** 'high rates' **25mm** in either direction from neutral.
*Aileron 'low rates' **16mm** 'high rates' **25mm** in either direction from neutral.

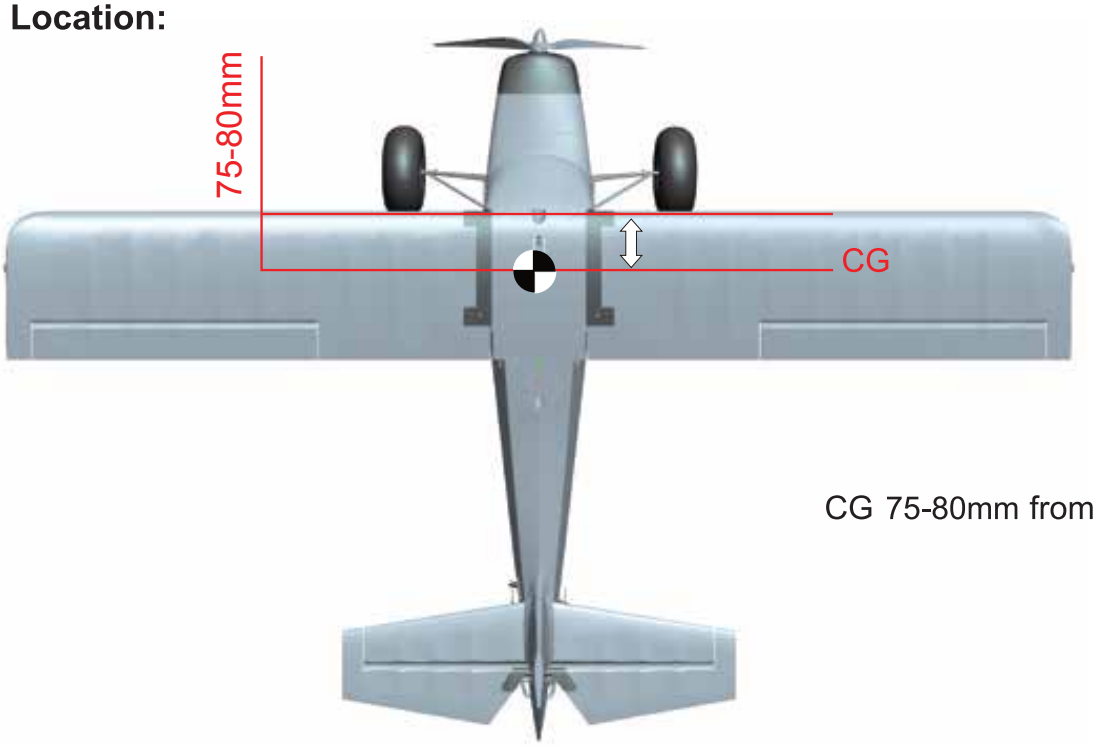
4. Flaps on the Grand Tundra 2 will need to be set for 3 stages (up/no flap, mid flap and full down flap). Either via your radio or mechanically by turning the clevis's on the flap control rod (or via both in most cases), set mid flap to approximately 45˚ degrees and full flaps to approximately 90˚ degrees to the wing. In the "up/no flap" position ensure the flaps close fully without straining the servos and are both level with trailing edge of the neutral ailerons. Also check that both flaps deploy equally at every stage.



5. The recommended center of the gravity (CG) for the Grand Tundra 2 is approximately 75-80mm from the leading edge of the wing. Your Grand Tundra 2 should balance within the CG range with the recommended batteries.

CG LOCATION:

CG Location:



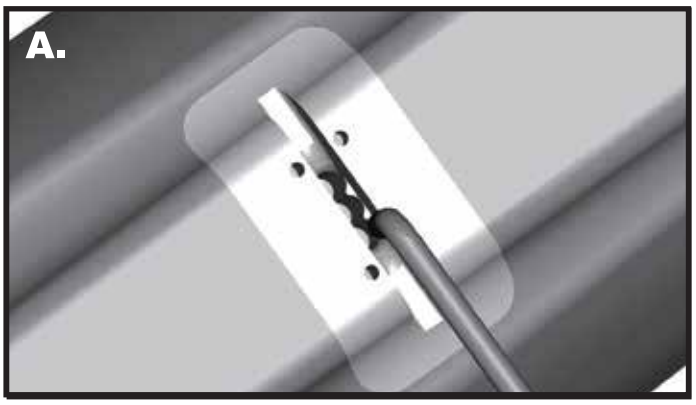
CG 75-80mm from leading edge.

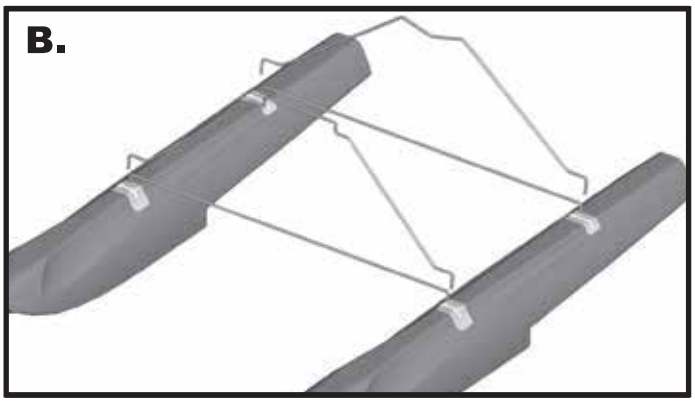
With assembly and set-up now complete, your Avios Grand Tundra 2 should be ready for flight. However we recommend your read and follow the advice given in the following pages of this manual before flying.

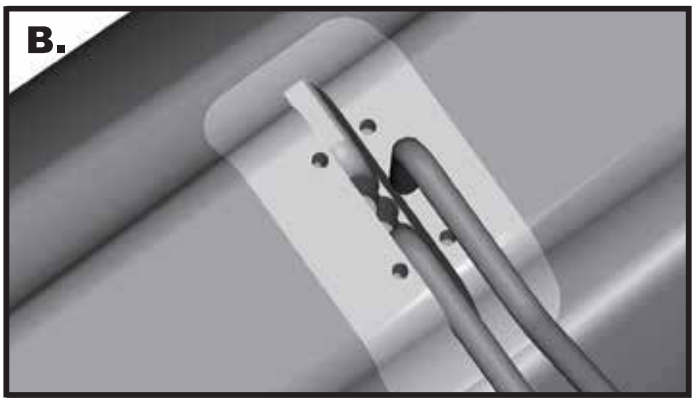
GRAND TUNDRA OPTIONS:

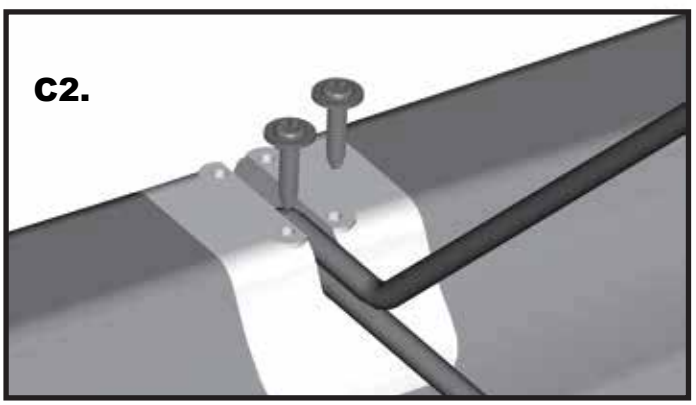
Floats

1. With each float placed on a level surface, and parallel to one another, add the front and rear cross brace struts. Do this by inserting the 90° bent ends into the inner most hole of the float mounting plate (A). Now insert the ends of the front and rear fuselage struts into the center holes (B). Once all the struts are installed as shown in diagram (C1), secure them into place using the 2.3x10mm screws provided (C2).

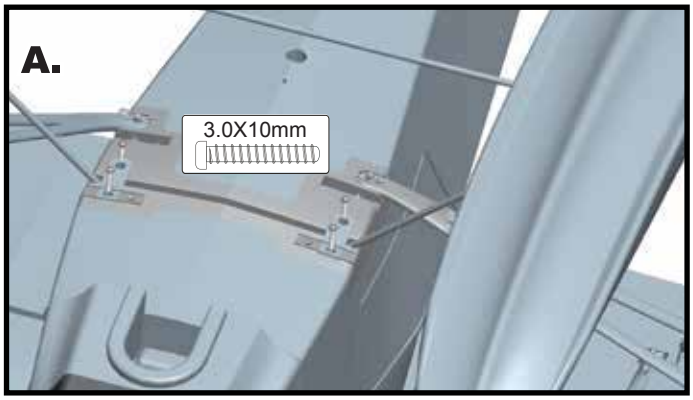


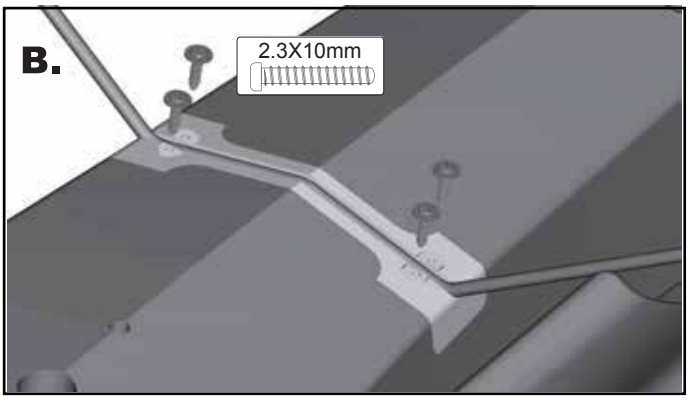




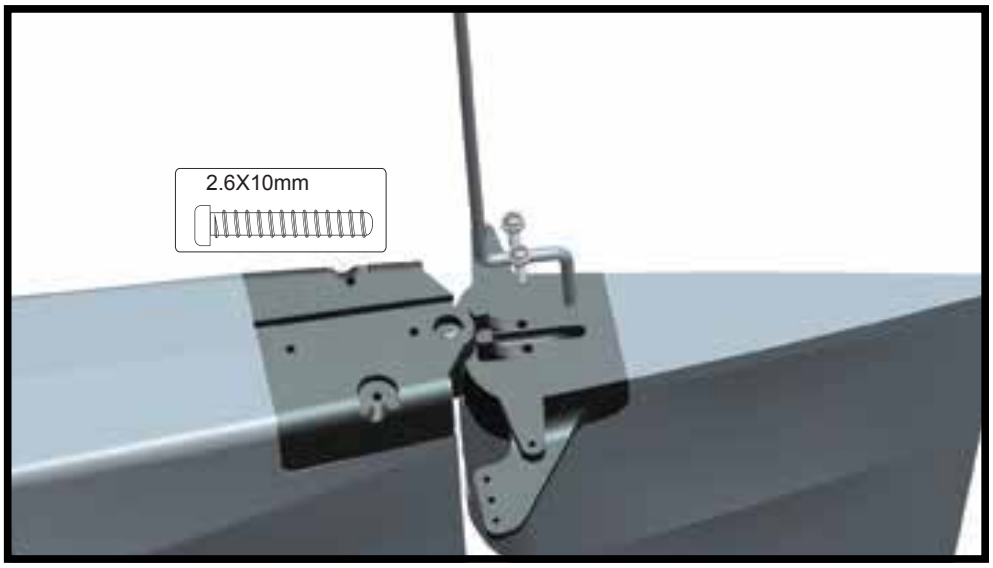


2. With the landing gear removed and the floats fully assembled you are ready to install them. Insert the front mounting strut in the main landing gear housing (A), and into the rear mounting plate (B). Secure the rear strut using the supplied 2.3x10mm screws (B), and the front strut using the supplied 3x10mm screws (A).



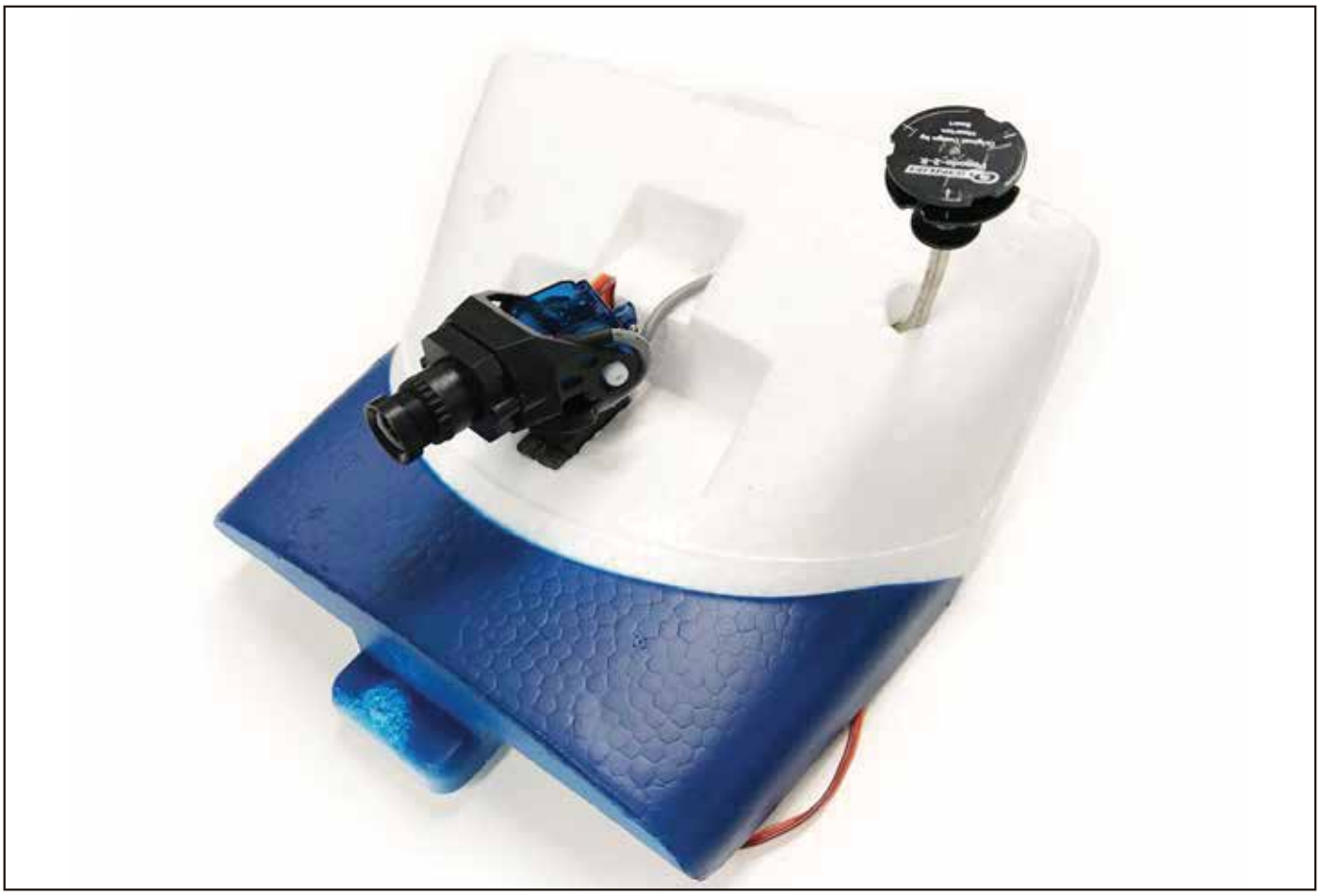


3. Although not always required, a water rudder does help with steering in less than calm water conditions. Simply remove the tail wheel and replace with the water rudder (A). Both tail wheel and water rudder mount in exactly the same way.



FPV Canopy

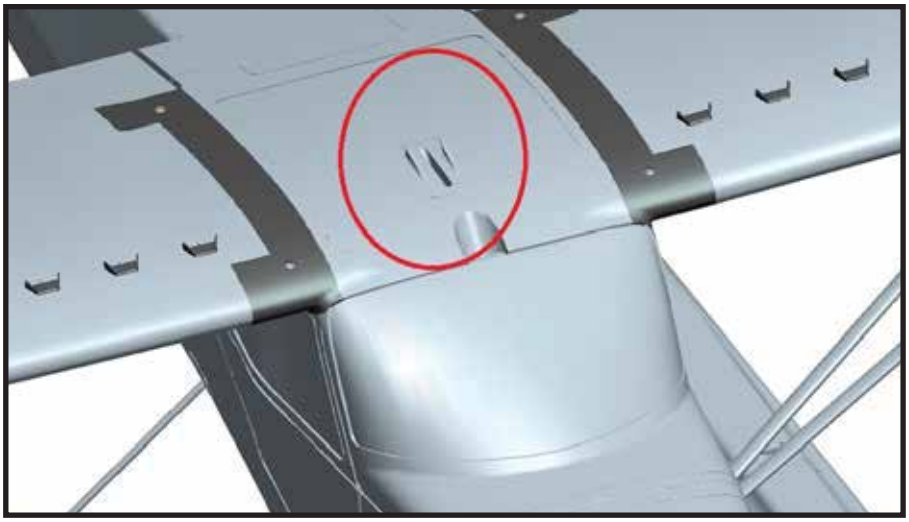
With the canopy now assembled you are free to install your FPV equipment as you see fit. However you may wish to follow the simple example shown below.



Tow line mounting point.

The built-in towline hard mounting point gives the GT2 a solid point close to the C of G to attach a towline for towing gliders. The below drawing shows how the towline should be inserted and attached to the main spar through the towline slot.

Please note: The model you are towing will require a tow release of some sort. The hard point attachment does not offer any form of release.



HINTS AND TIPS WHEN FLYING YOUR GRAND TUNDRA 2

Take off - Depending on the ground surface you will need to hold a little up elevator when taxiing the Grand Tundra 2.
Once lined up on your runway slowly increase throttle on keeping the plane flying straight with the use of rudder control, Once airborne simply keep the GT flying with a good rate of climb not letting the GT off the throttle until you have climbed to good altitude.
Once you are at cruising speed adjust the trims of your Grand Tundra 2 to make sure you have it flying straight and level. Now is a good opportunity to get a feel for the airplane and test the stall, the slow speed handling, and how it handles with medium and full flaps.
Landing - Always keep the power on during slow speed turns to maintain your altitude and not sink in height. Once on your base leg approach apply 1/2 flaps then turn onto your final approach. Once lined up with your landing runway the use your rudder to control the GT2's direction, use the throttle to manage your rate of decent and use your elevator to correct the GT2's attitude. Once those large tyres touch the ground simply pull back the power and apply the elevator to taxi back.

Now your first flight is ticked off, check all of the screws, nuts and bolts. Check all of your control surfaces and linkages. Check your motor and check all of your electronic components. Once you've checked over the GT2, then let the adventure begin.

The Avios Grand Tundra 2 is a dynamic STOL (Short Takeoff and Landing) RC model. It has the ability to fly right to the edge of its flight envelope.

Short take off with full flaps and full power will get you into the air in a few feet and get ready to pull the flaps up and climb out with an unlimited climb rate on the 6S set up.

A spectacular flying RC plane ready to for whatever you can throw at it.

RECOMMENDED ACCESSORIES

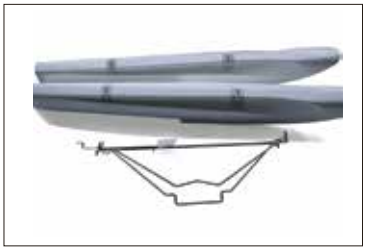
Turnigy BoltX LiHV 6S
4500mAh 80C LiPo w/XT90
SKU: 9067160049

Turnigy Graphene Panther
5000mAh 6S 75C LiPo w/XT90
SKU: 9067000375-0

Turnigy BoltX LiHV 4S 5400mAh
15.2V 80C LiPo w/XT90
SKU: 9067160051

Turnigy Graphene Panther
6000mAh 4S 75C w/XT90
SKU: 9067000414-0

HOTA H6 Pro AC/DC 1~6S
Smart Charger
SKU: 9466000020-2



Avios Grand Tundra 2
Optional Float Set
SKU: 9499790645

Turnigy/FrSky TWIN X14
ACCESS 2.4GHz Transmitter
SKU: 9236720209

Helloradiosky V16 ELRS 16
Channel 2.4GHz Transmitter
SKU: 1043720001

FLYSKY Paladin PL18 2.4GHz
AFHDS3 18CH w/FTr10 Receiver
SKU: 9114000085-0

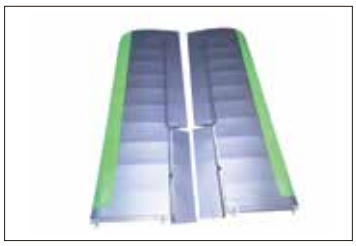
FrSky TW R6 Dual 2.4GHz 6ch
TW Protocol Receiver
SKU: 9236720013

FrSky TW R8 Dual 2.4GHz
8ch TW Protocol Receiver
SKU: 9236720012

Helloradiosky HR7E ELRS 8
Channel 2.4GHz Receiver
SKU: 1043720013

SPARE PARTS

Fuselage
SKU: 9499790638



Wing Set (1pr)
SKU: 9499790639

Horizontal Stab Set w/Spar
SKU: 9499790640

Canopy/Battery Hatch
SKU: 9499790641

Main Wheels (deflated)
SKU: 9499790642

Tailwheel Set
SKU: 9499790643

RC Access Hatch
SKU: 9499790644

Spinner
SKU: 9499790646

Cowl
SKU: 9499790647

LED Light Cover Set
SKU: 9499790648

Landing Gear/Float Mounting Set
SKU: 9499790649

Image to follow

Propeller Adapter
SKU: 9499790650

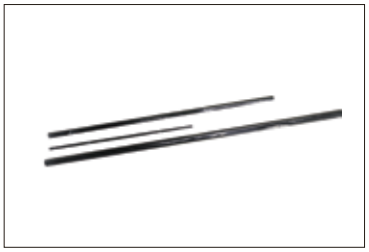
SPARE PARTS (CONTINUED)

Wing & Tail Struts
SKU: 9499790651

Accessory Pack
SKU: 9499790652

Vortex Generators
SKU: 9499790653

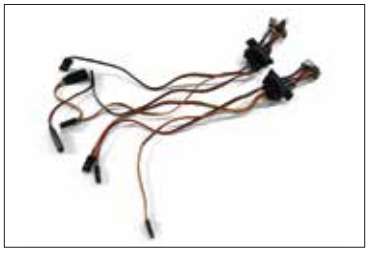
Flap Hinge & Control Horn Set
SKU: 9499790654



Wing & Horizontal Stab Spars (3pcs)
SKU: 9499790655

Main Landing Gear Mount
SKU: 9499790656

Decal Set
SKU: 9499790657



Wing Servos Connector Set
SKU: 9499790658

Image to follow

5055-500KV Motor w/Mount
SKU: 9499790659

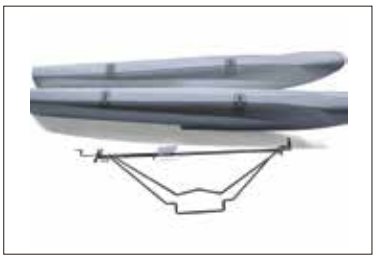
15x8 Propeller for 6S
SKU: 9499790661

Image to follow

X Motor Mount
SKU: 9499790662

Landing Gear Set
SKU: 9499790663

OPTION PARTS



Avios Grand Tundra 2 Optional Float Set
SKU: 9499790645

16x8 Propeller for 4S Battery
SKU: 9499790660

We hope you enjoy your Avios Grand Tundra 2 and have many great flights and happy landings with it.

The Avios Team.

Made in China