Avios

GRAND TUNDRA

INSTRUCTION MANUAL

SAFETY INSTRUCTIONS

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

INTRODUCTION

Dear Avios Customer,

Congratulations on purchasing the fantastic Avios Grand Tundra.

The Grand Tundra is an impressive RC aircraft with a huge presence in the air.
The wide flight envelope makes for a very forgiving aircraft giving you the confidence to challenge yourself. From slow flight through to fast aerobatics, the Grand Tundra does it all with such finesse. Featuring metal gear servos, ball-linked control rods, glider tow point and navigational lights - Attach your camera to the FPV cockpit tray to put yourself in the driver's seat for a truly epic ride. Enjoy short take-off and landings with huge 90-degree flaps, wing vortex generators, large tundra wheels, optional floats, navigation lights and much more.

The Grand Tundra happily flies on 4S, however, on 6S you'll realize there is another side to the GT. This is when the GT comes to life as it's no ordinary PNF model. If you have never tried skis or floats then this plane is for you and its something that everyone must try as there is nothing like landing or taking off on water. Note: Floats and Skis are optional.

Features:

- Wide flight envelope for stability
- 90-degree flaps for short take-off and landing
- Quality metal gear servos and ball-linked control rods
- Large soft Tundra wheels with actuating suspension
- Wing vortexes
- Cockpit tray for FPV cameras
- Navigational and landing lights
- Available in two schemes - Blue & Silver and Green & Gold
- Glider tow point
- Generous battery bay
- Optional Floats and Skis

Specifications:

Wingspan: 1700mm (66.9")
Length: 1260mm (49.6")
Motor: SK3 5045 500kV
ESC: Aerostar 60A RVS Reversing ESC
Propeller: 17x8 for 4S battery OR 16x8 for 6S battery

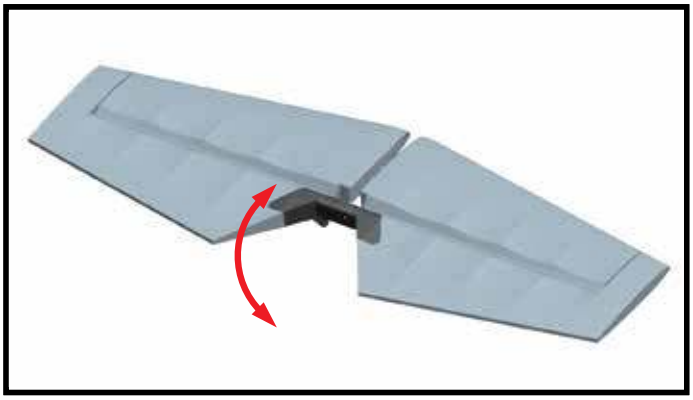
Recommended:

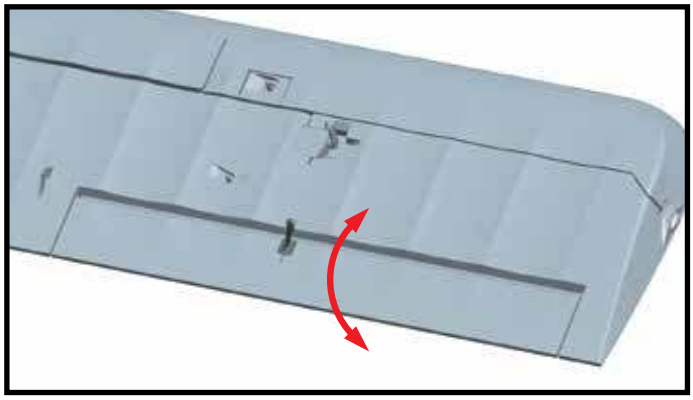
1 x 7 channel radio/receiver
1 x 4-6S 4000mAh Lipo Battery

Read through all the steps in the manual and the Adventure awaits with the Avois Grand Tundra.

ASSEMBLY (PNF)

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

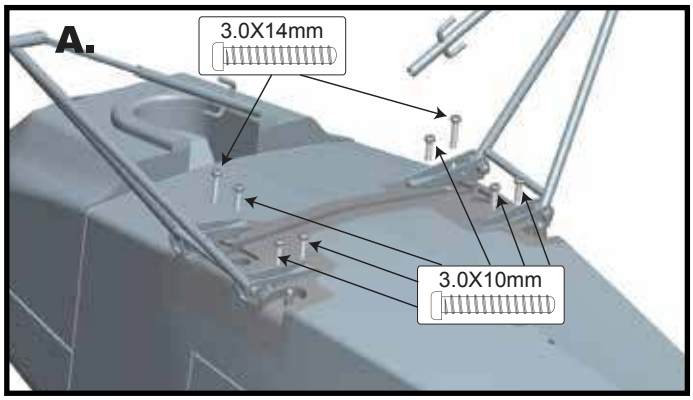


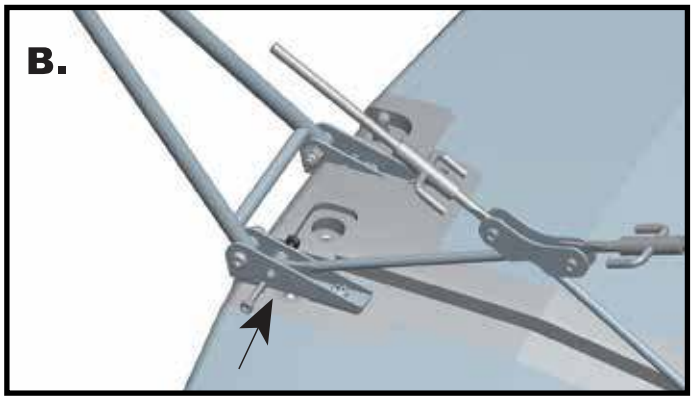


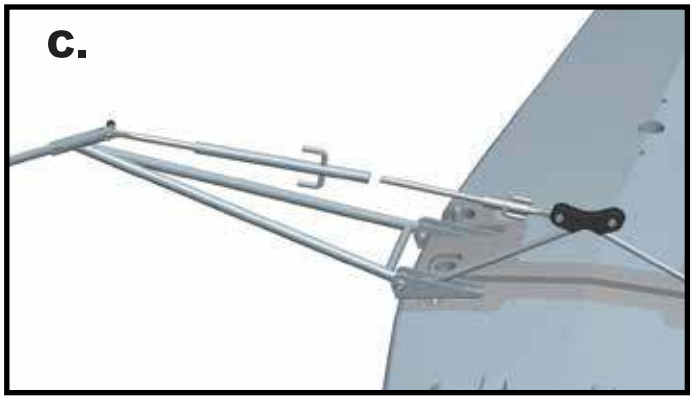
2A. To mount the undercarriage to the fuselage, start by inserting and securing the two main struts with suppied bolts 3X10mm(6psc) and 3X14mm(2pcs) Now install the upper part of the gear shock absorption brace with the supplied socket head bolts 2X10mm(2pcs).Besure to add the rubber spacers to the right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

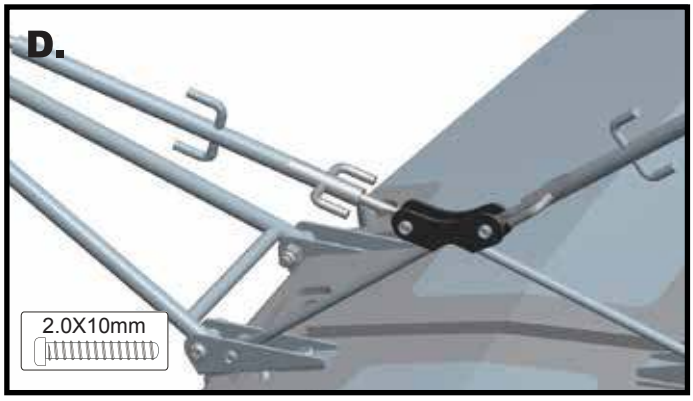
Notes:

- Ensure the main gear rakes forward at stage A ***.***

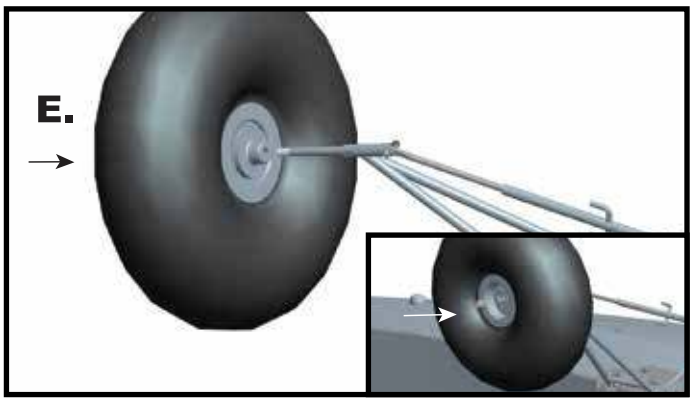


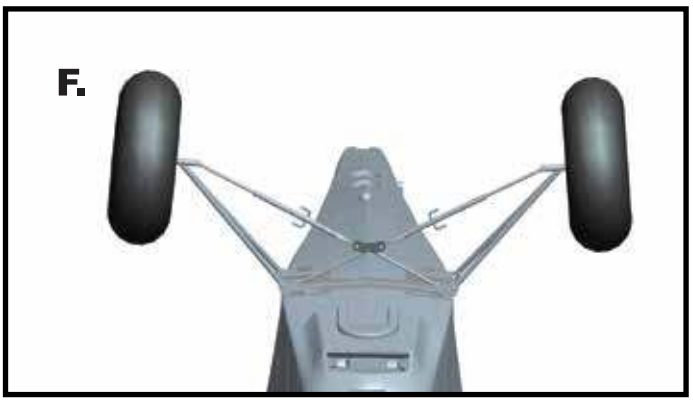




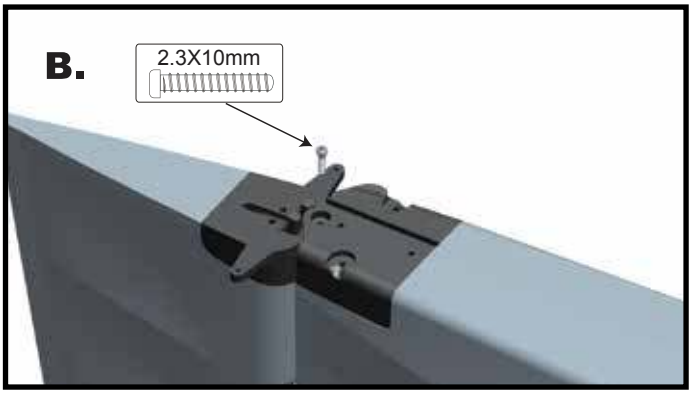


2B. Now install the main wheels to the shaft, Hold the wheels in the shaft with supplied Nylon insert nuts, busure do not over tigth the nuts for the freely spin of the wheels.

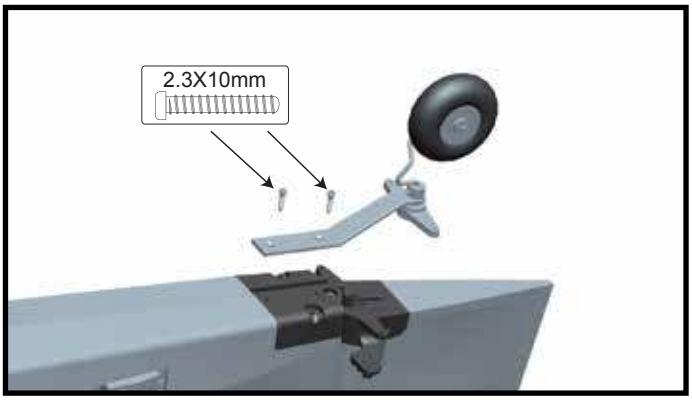


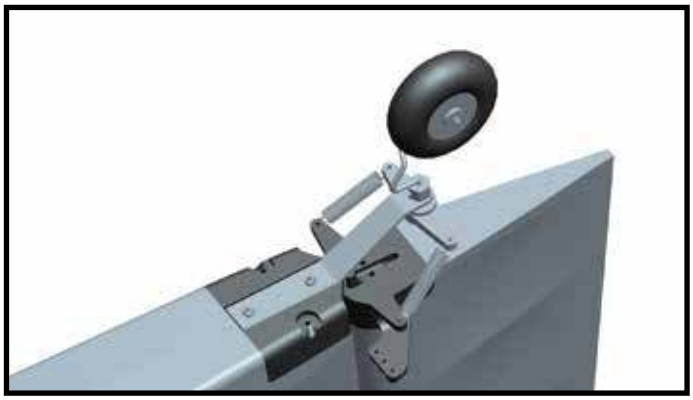


3. Insert the rudder into the hinge socket on the trailig hinge of vertical fin, secure the rudder into place-with the supplied self tapping screw 2.3X10(1pc)while holding the rudder in position, do not over tighten the screw for the freely moviaaaa

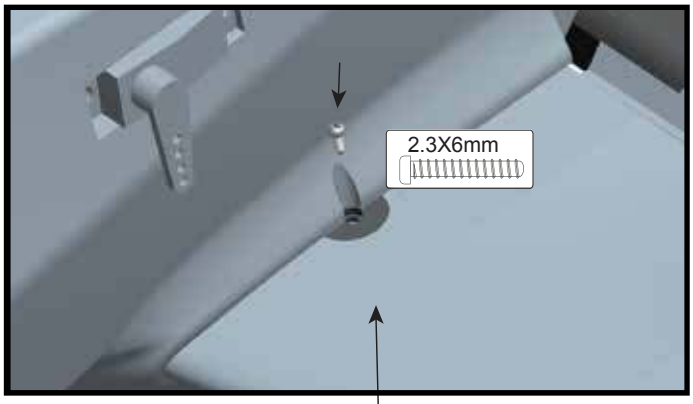


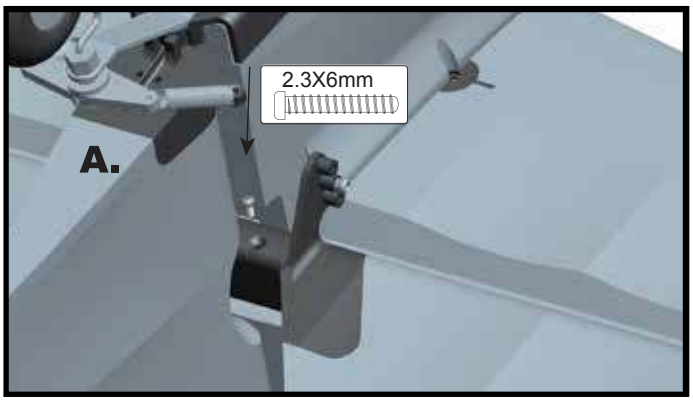
4. Install the taill wheel assembly to the plastic mount on the T/E of the vertical fin, then secure with the provided self tapping screws2.3X10(2pcs)

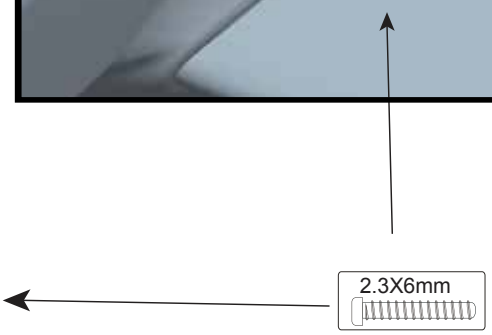




4. Insert one half of the carbon tail spar into one of the horizontal tail pieces before sliding this half into the tail slot on the fuselage. Now install the remaining tail piece (A). Secure both halves in place with the supplied 2.3x6mm screws and the elevator join with the single2.3x6mm screw (B). This installation is self aligning, but do double check to ensure equal aliment to the vertical tail and wing.

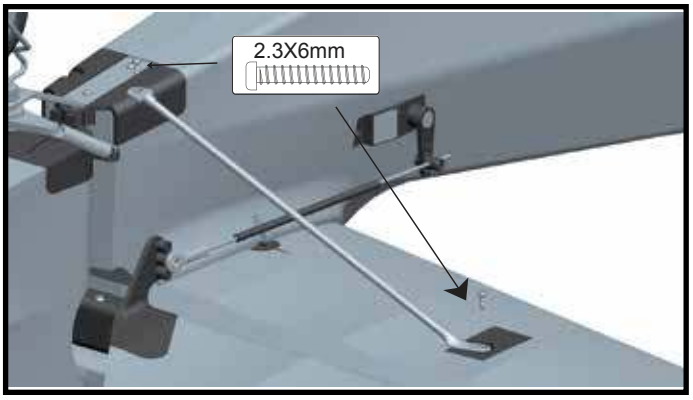


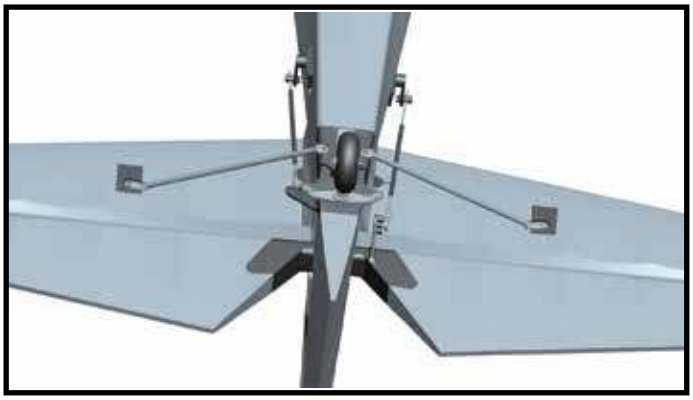




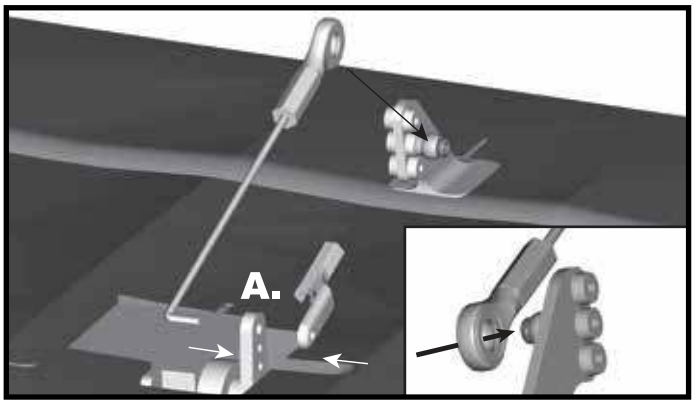
5. Using a pair of pliers (ball link pliers preferably) connect the elevator push rod to the elevator horn (A). To ensure both the elevator and rudder are neutral (with the servos centered) loosen the grub screw of the piano wire fastener and slide push rods until both surfaces are neutral if required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

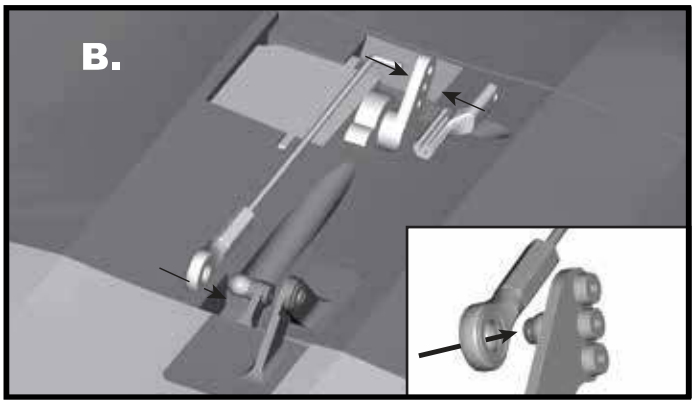
6. Try to place the tail brace into right slots and then secure them into place with the screws2.3X10 (4pcs ,2 for each side)



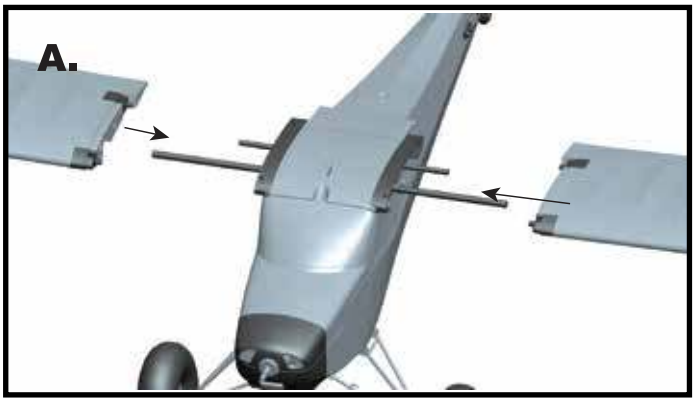


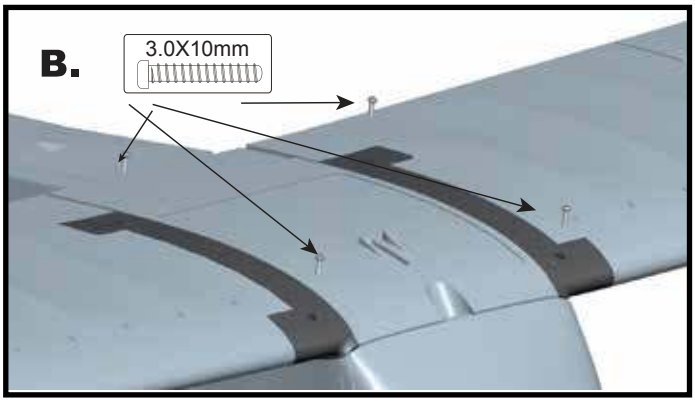
6. With the aileron control horns at 90 degrees to the wing surface (neutral) insert the aileron push rod and secure in place with plastic keepers (A). Connect the ball link to the aileron control horn as shown (B). Repeat this same process for the flaps, the exception being the flap servo horn must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



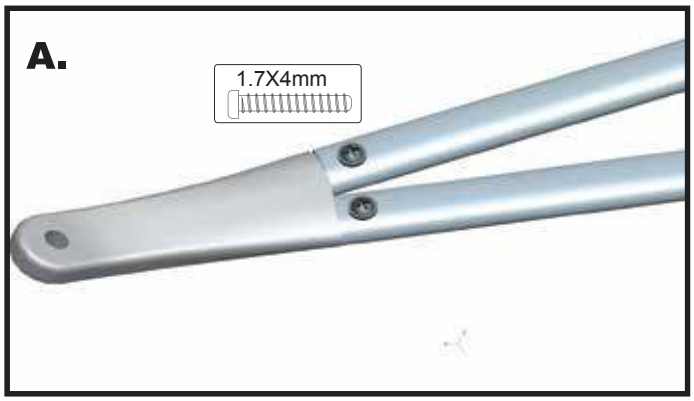


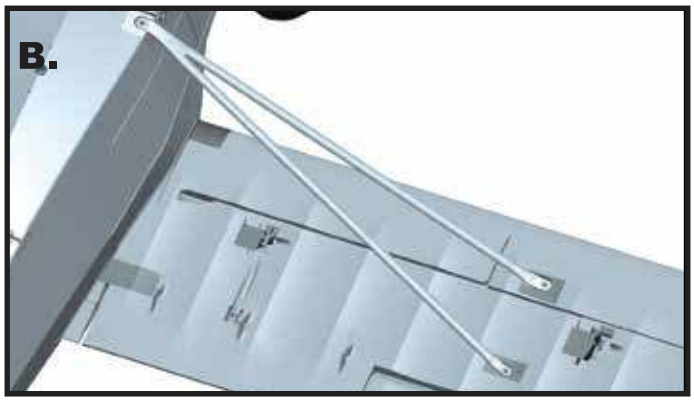
7. Insert the wing spars into the fuselage at the wing root (A) ensuring it is centered. Slide one wing half at a time onto the spar, pushing each panel firming into place on the fuselage (A) and secure each panel with the provided 3X10mm bolt(4pcs) (B). Take care to ensure the wing servo PCB is not damaged when connecting the wing to the fuselage.

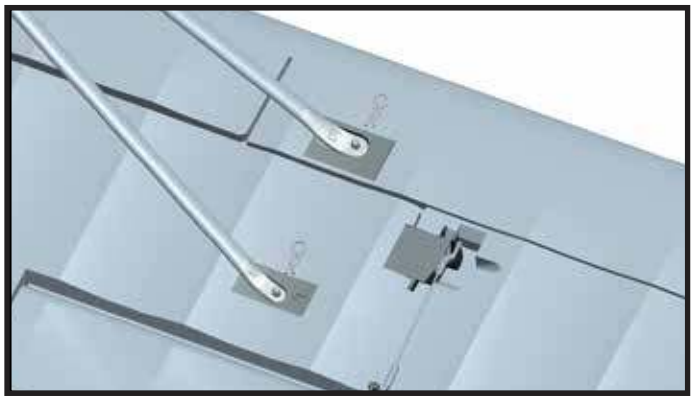


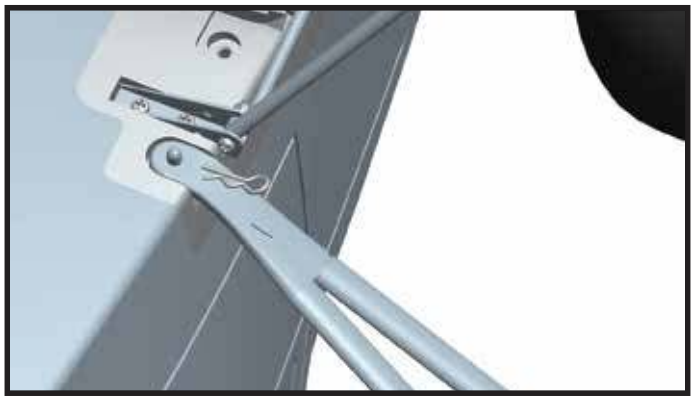


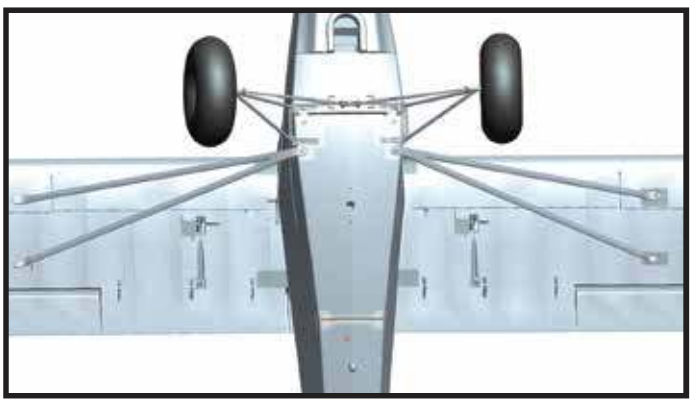
9. With the wing struts packed in a separate bag in each, secure the tube to the main trunk of the struts respectively with provided screws come with the struts' bag(1.7X4mm). Make sure the plastic securing bits at wing end should bent to the same side before screwing on. Attach each wing strut to their respective sides (A), both struts are marked "L" and "R" to note left and right hand sides if looking forward from the tail. Secure firmly in place using the "R" securing bits. we recommend to secure the wing end of the struts using "R" the first.



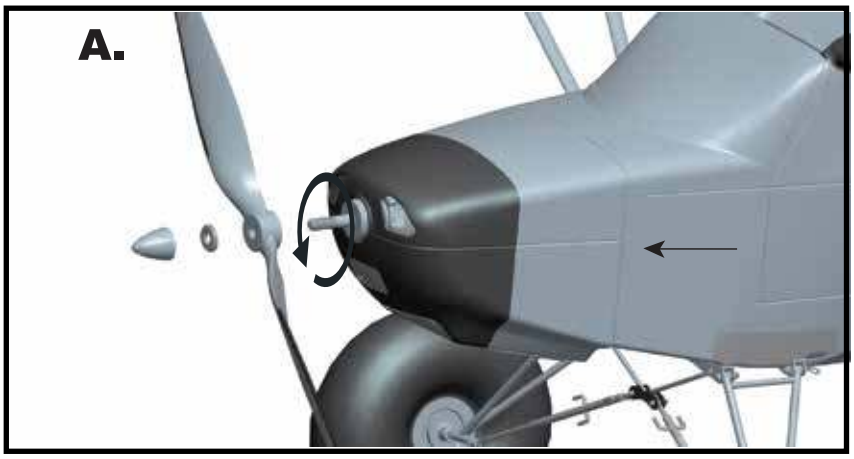








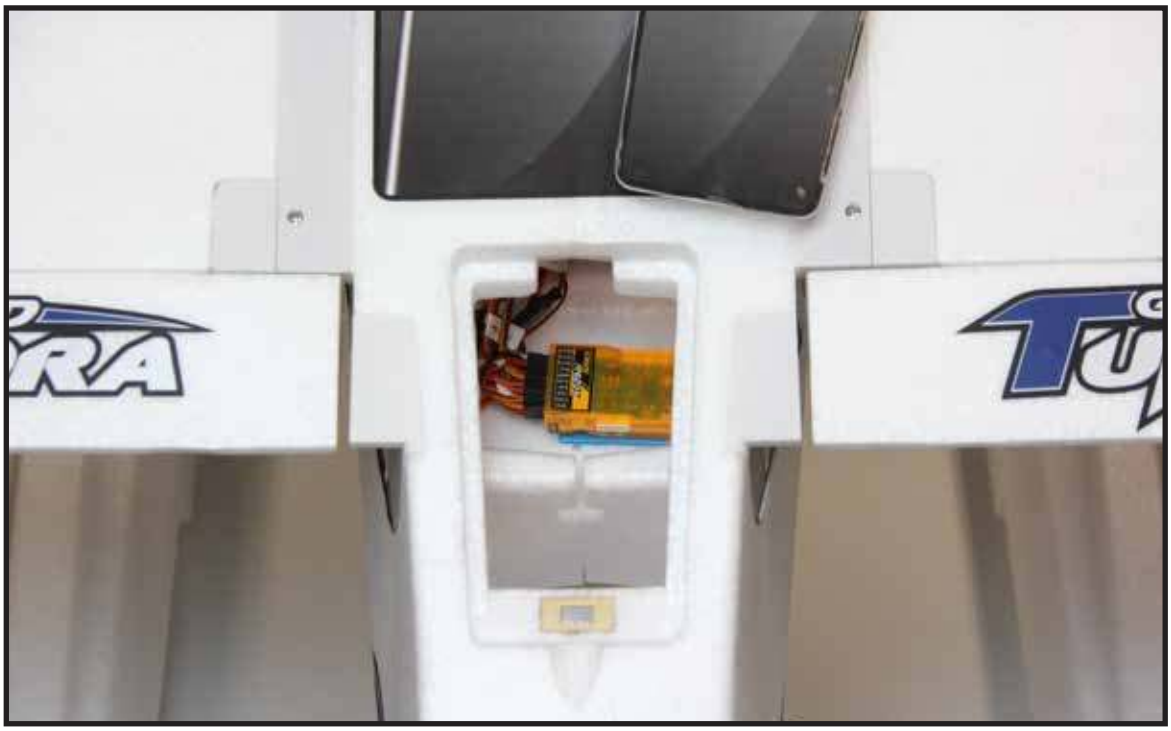
9. The final stage of assemble is to mount the propeller using the prop nut as shown (A). However at this stage is is HIGHLY recommended that all set-up and final checks of the model be done before finally installing the prop firmly in place.



Note: 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.

Also please choose the right prop to install to match what battary will you using,
The 17X8 FOR 4 cells the 16X8 for 6cells.

10. Install your choice of receiver (minimum 6 channel)

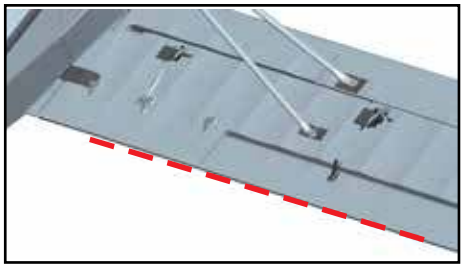


Congratulations, basic assembly of your Grand Tundra is now complete. Please perform a final check on all screws, bolts and components, ensuring all are secure and firmly in place.

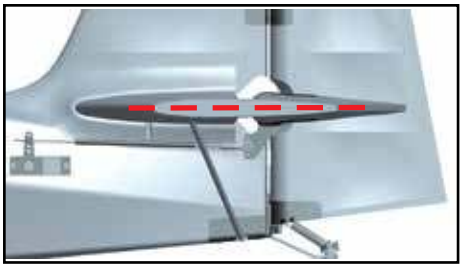
SETTING UP YOUR MODEL:

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.

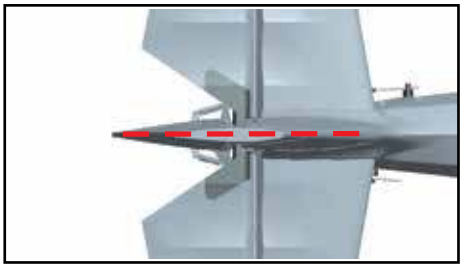
Note: For safety reasons, it is advised that this is done with the prop removed from the model.



Aileron

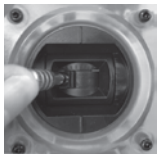


Elevator

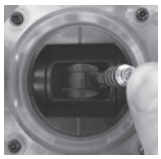


Rudder

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

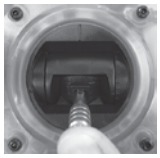


Roll left



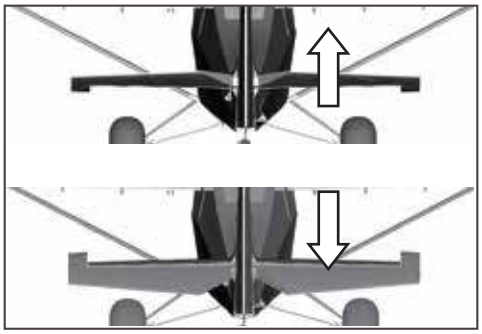
Roll right

Aileron (Roll)



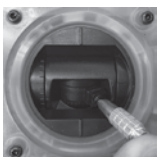
Pitch up

Pitch down

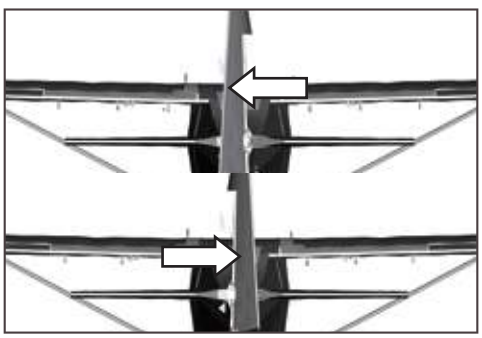


Elevator (Pitch)

Yaw left



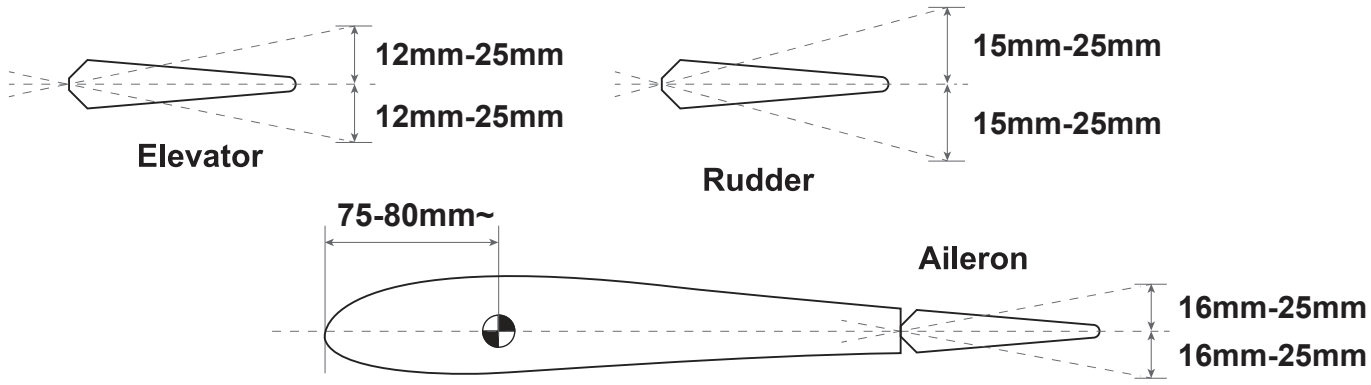
Yaw right



Rudder (Yaw)

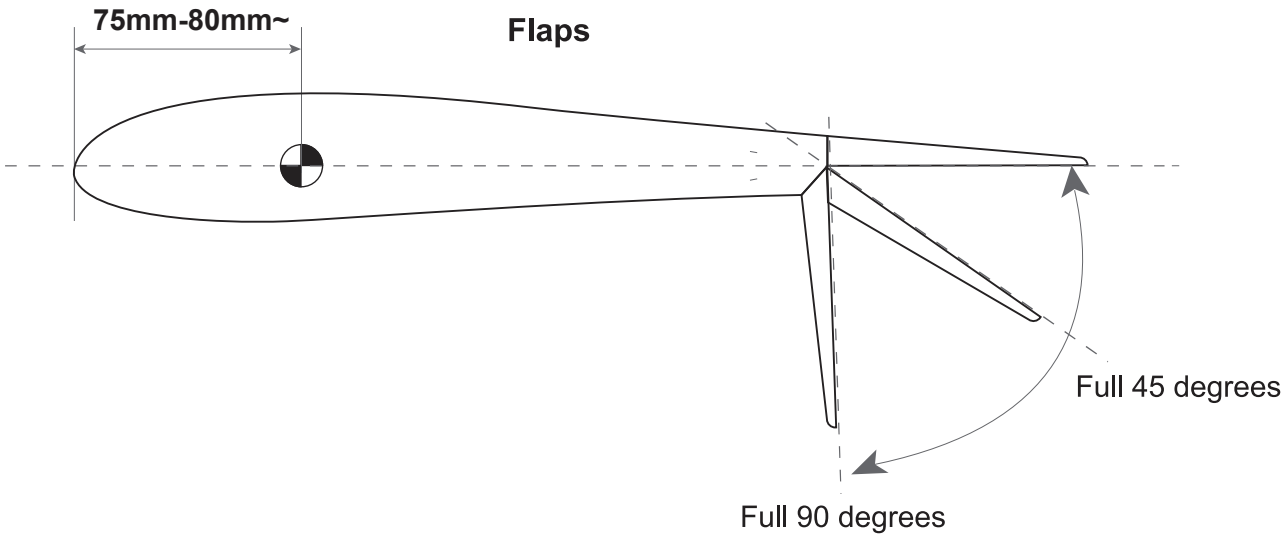
3. The Grand Tundra handles very well in flight and that's not down to good design alone, but a good pre-flight set-up too. Before you fly Grand Tundra please follow the recommended settings below for optimum handling and performance.

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.

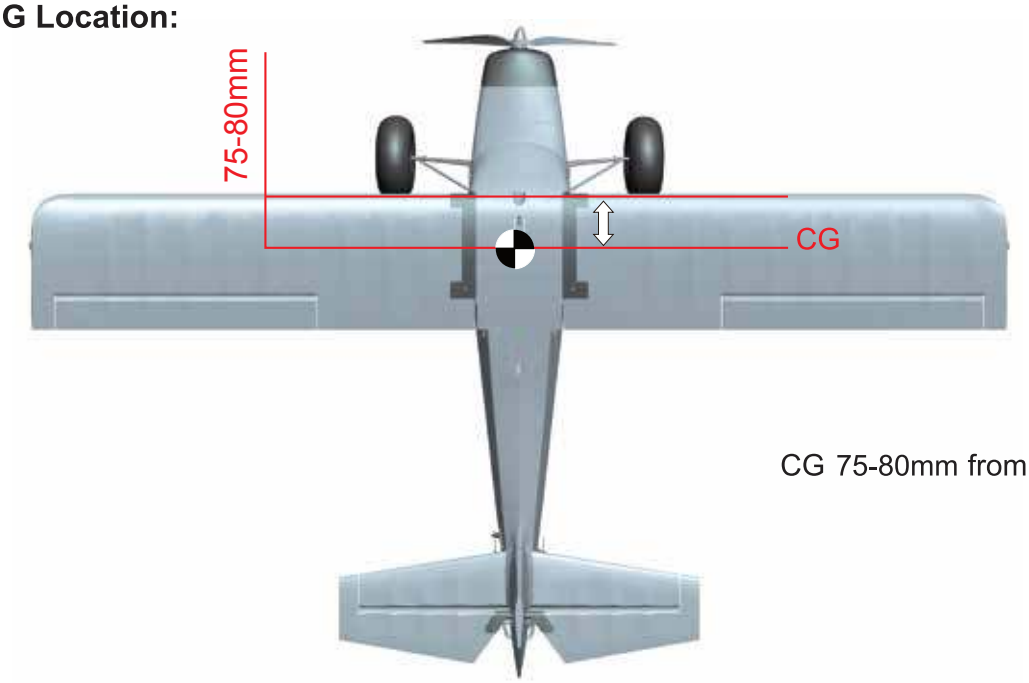
4. Flaps on the Grand Tundra will need to be set for 3 stages (up/no flap, mid flap and full down flap). Either via your radio or mechanically by turning the clevis's on the flap control rod (or via both in most cases), set mid flap to approximately 45˚ degrees and full flaps to approximately 90˚ degrees 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 is approximately 75-80mm from the leading edge of the wing. Your Grand Tundrawill balance within the CG range with the advised battery secured with the Avios battery straps.

CG LOCATION:

CG Location:



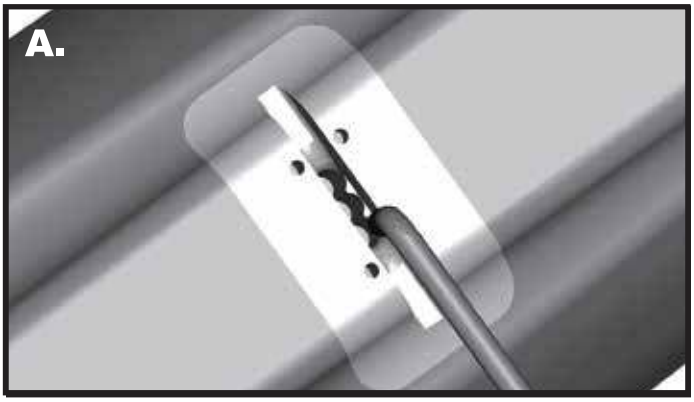
CG 75-80mm from leading edge.

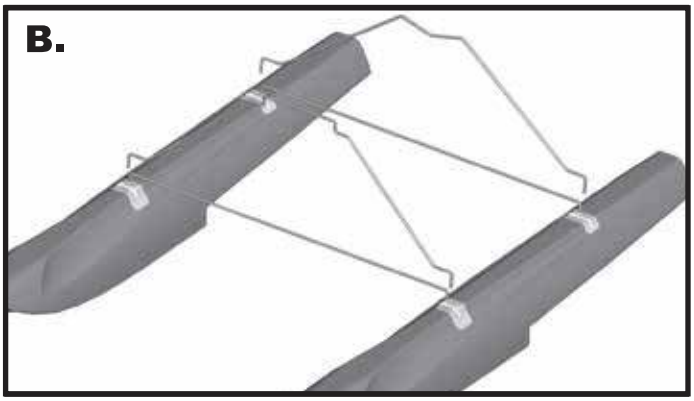
**With assembly and set-up now complete,
your Avios Grand Tundra should now be ready for flight.
However we recommend your read and follow the advice
given in the fillowing pages of this manual
before flying your model.**

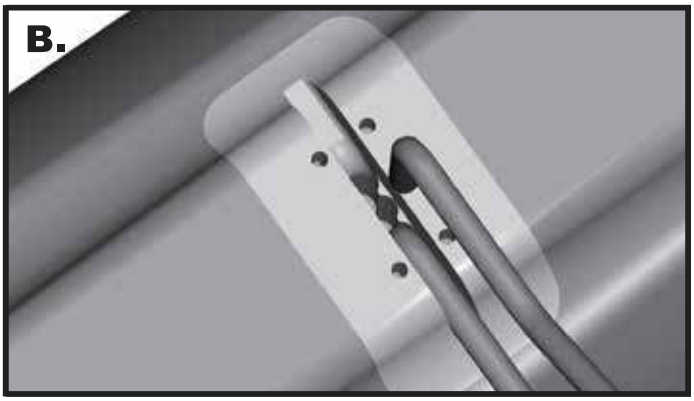
GRAND TUNDRA OPTIONS:

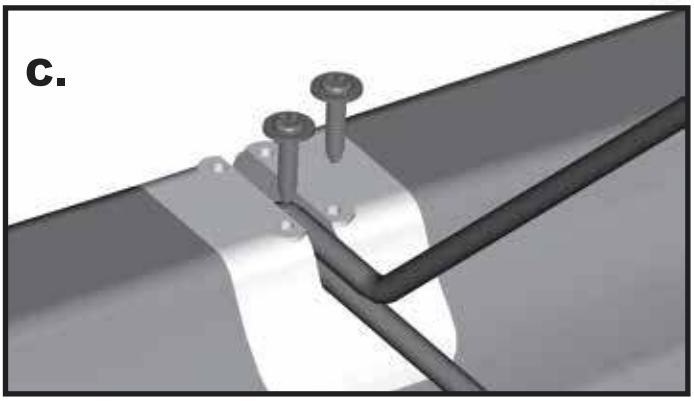
Floats

1. With each floats placed on a level surface and parallel to one other, add the front and rear cross bracing struts by ianserting each end into the inner most hole of the float mounting plate (A). Now insert the ends of the front and rear fuselage mounting struts into the center holes (B). With all float struts installed as shown, secure in place using the 2.3x10mm screws (C).

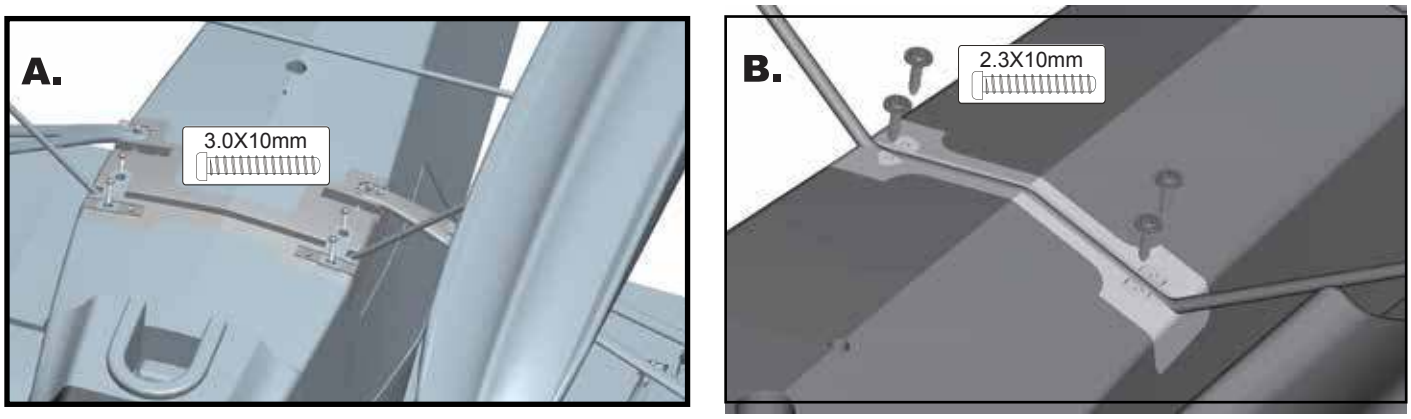




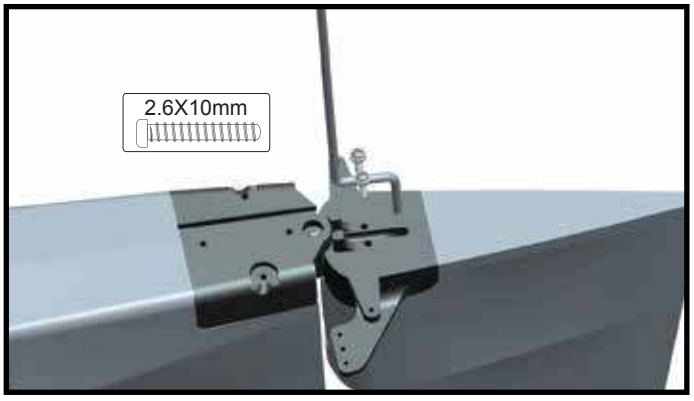


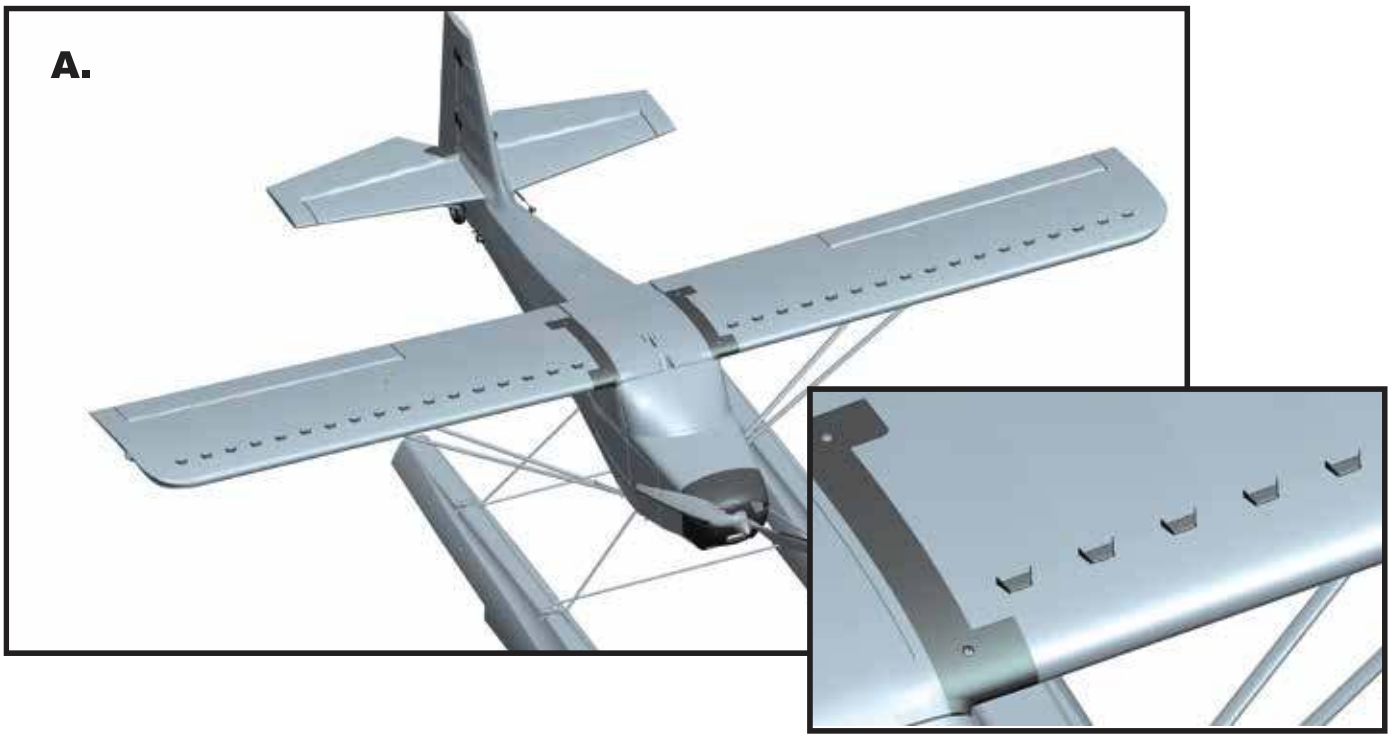


2. With the floats now fully assembled and landing gear completely removed, insert the front fuselage mounting strut into the main gear housing and the rear onto the rear mounting plate (A). Secure the rear with supplied2.3x10 screws (B) and the front using the 3x10(4pcs)



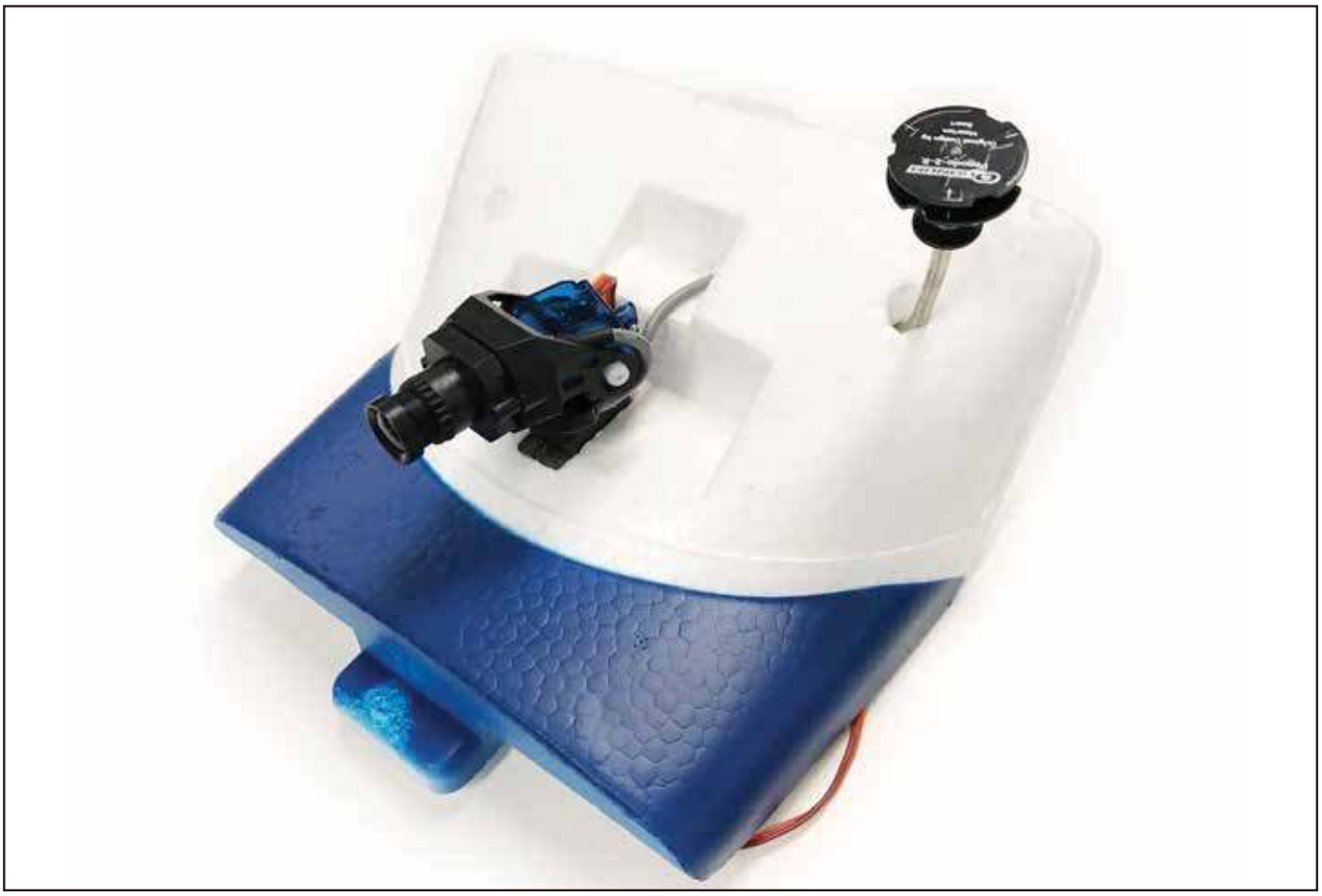
3. Although not always required, a water rudder does help with steering in less than calm water conditions. Simply remove the tail wheel and replace with the water rudder (A). Both tail wheel and water rudder mount in exactly the same way.





FPV Canopy

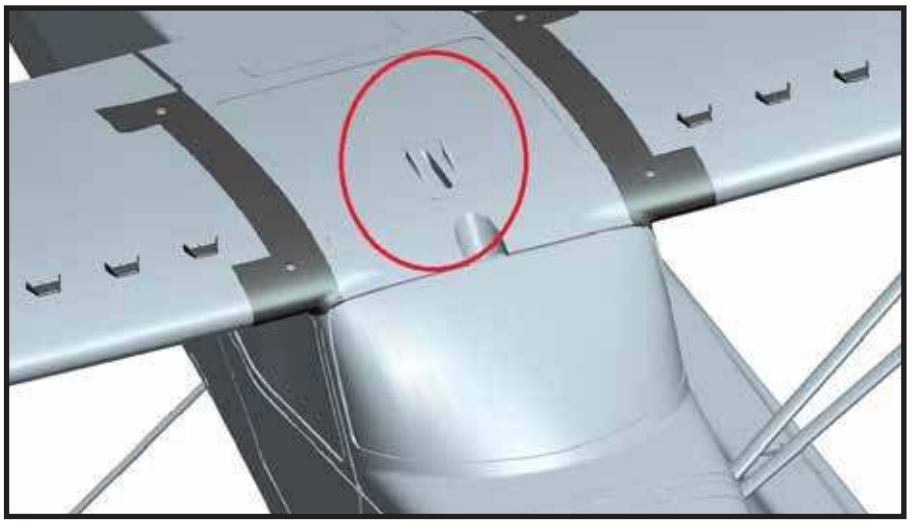
With the canopy now assembled you are free to install your FPV equipment as you see fit. However you may wish to follow the simple example shown below.



Tow line mounting point.

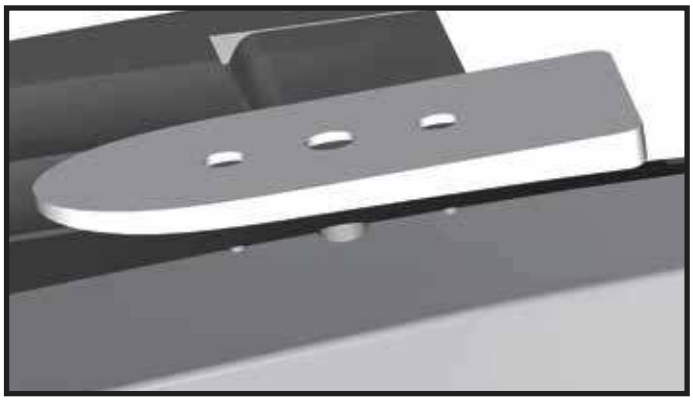
The built in tow line hard mounting point gives the Tundra a solid point close to the CG to attach a tow line for gliders etc. The below cut away shows how the tow line should be inserted and attached to the main spar through the tow line slot.

Note: The model you are towing will need a tow release system of some kind. The hard point on the Tundra is for attaching of tow line only.



Optional Candy Dropper

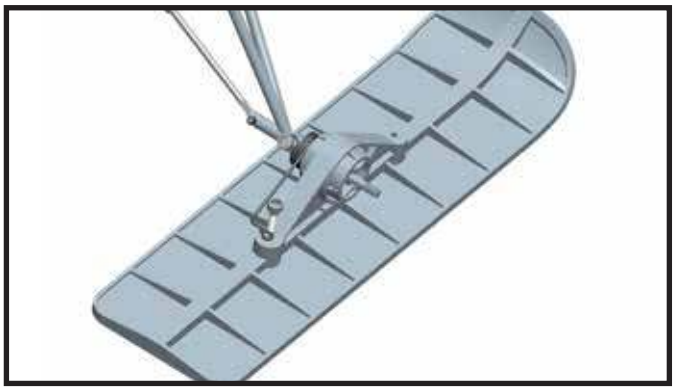
Mounting the optional Candy Dropper is quick and easy. Position the foam filler over the mounting holes on the underside of the fuselage (A). Feed the lead through the center hole and connect to a spare channel on your Rx (B). Secure the dropper using the bolts that came with it to the fuselage (C).



Grand Tundra Optional Skis

The optional skis are a worth while addition to the Tundra for flying from both snow and soft sand. First remove the main wheels and slide the plastic sleeve over both axles (A). Then slide each ski onto the axle/sleeve (B) and once in position hook the tension spring around the back of the landing gear wire (C).

Note: You may wish to add a collet to the axle to have the assembly additional security



HINTS AND TIPS WHEN FLYING YOUR GT.

Take off - When you have set up your Grand Tundra depending on the ground surface you will need to hold a little up elevator when taxiing.
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 (roughly 3/4 throttle on 4S) then adjust or trim your Grand Tundra to make sure you have the GT flying straight and level. Now is a good opportunity to get a feel for the airplane and see the stall, slow speed 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 GT's direction, use the throttle to manage your rate of decent and use your elevator to correct the GT'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 GT then the Adventure begins.

The Avios Grand Tundra 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 (6S).

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

Enjoy your Avios Grand Tundra
and
Happy Landings.

The Avios Team.