TUNDRA V2

INSTRUCTION MANUAL

DURAFLY®

Please read this manual carefully before operating this plane.

PNF VERSION

⚠ WARNING:

Read this instruction manual fully so as to become completely familiar with the features of this 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.

SAFETY PRECAUTIONS:

As the user of this product you and you alone are responsible for operating it in a manner that does not endanger yourself and others around you or result in damage to the product or property of others. This product is operated via a radio controlled system that in some cases can be subject to interference from sources outside of your control. Interference may result in a momentary loss of control so it is always recommended that this product be used in a suitably open outdoors space.

- This is a radio controlled flying model and as such must always be flown with caution and care. This is not a toy.
- This model is designed for intermediate to advanced pilots.
- Alway exercise great caution when using the recommended battery to power this product. For full safety notes and operating procedures, please see information provided by your battery supplier.
- Take great care when connecting/disconnecting the battery. See battery supplier for full safety procedures.
- Never power up the model in confined spaces and always keep the prop clear of obstructions.
- This product is not a toy. Children must be accompanied by a capable and responsible adult at all times if operating this product.
- Only fly this model in an open area away from crowded, people, buildings, trees, power lines and obstructions.
- Always put safety first when operating this model and consider the warnings stated above.
- The supplier/manufacturer accepts no responsibility for damage or injury caused through the use of the product. Not suitable for children under the age of 14. THIS IS NOT A TOY.

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Introduction:

Thank you for purchasing the Durafly Tundra V2. If you are looking for flying with no limits then you've found it with the Tundra! Whether it's flying from rough bush fields, water, snow or sand, or FPV, aerobatics, glider towing, candy dropping or just good old fashioned super STOL slow flying, the Tundra takes on all with ease. Its light weight yet rugged construction, powerful brushless set-up and perfectly harmonized design gives you instantly a feeling of confidence on the sticks as quickly as it puts a smile on your face.

Simply put the Tundra is an immense amount of fun to fly and you will be flying soon enough due to a very straight forward and speedy assembly process and flying however you like too. With either the included floats, tow mounting point and FPV canopy or with optional skis and candy dropper, how you put your Tundra to work, is completely up to you.

Take on the very best mother nature can throw at you and still come up smiling. With the Tundra, there are no limits!

Tundra V2 Updates.

Vortex generators are now included on the top front of wing (small plastic white parts that push into openings on top of wing, narrow opening at the front, wider opening at the back). These allow the Tundra to fly even slower than before whilst still allowing total control.

The landing gear and strut attachment self tapping screws have been replaced with machine screws.

The self tapping screws used for joining the wing to the fuselage have also been replaced with machine screws.

Quick servo connections for the wing have been brought over from the updated V1.

Wood battery tray wirh hook and loop strap.

The plastic landing gear cross brace mount has been replaced with a metal version. It's the metal part on the landing gear wire with 3 holes in it.

Specifications:

Wing span: 1300mm(51.7")
Length: 920mm (47.2")
Flying weight: 1150g (40.6oz)
Controls: 5-Channels (Throttle, Ailerons, Elevator, Rudder and Flaps) ESC:
Aerostar 40Amp Brushless ESC
Motor: 3636 950kV Brushless outrunner
Prop: Durafly Carbon 12"x6"
Battery: 1800-2200mAh 11.1V 3S LiPo(30C min)
Radio system: Minimum 5-channel Rx and Tx required

Contents:

1. Main wing halves
2. Fuselage
3. Horizontal stabilizer
4. Control and mouting accessories
5. Wing, landing gear & float struts
6. Wing and tail spar
7. Main wheels
8. Carbon propeller

Required To Complete Model:

In its 'Plug n Fly' format the Tundra V2 will still require some additional electronic components to get it 'flight ready'. Durafly recommends the products below for optimum performance and great value. Available at hobbyking.com

OrangeRx Tx6i Mode 2 Int'l Version 6ch 2.4GHz DSM2/ DSMX Compatible Radio System
Part No. 9171001328-0

OrangeRx R618XL 6Ch 2.4GHz DSM2/DSMX Compatible Receiver w/PWM and CPPM and Long Antenna (Version 2)
Part No. 9171001381-0

Turnigy Graphene 2200mAh 3S 45C LiPo Pack w/ XT60
Part No . 9067000134-0

Turnigy Graphene Panther 2200mAh 3S 75C Pack w/XT60
Part No . 9067000371-030

OrangeRx Tx10i Mode 2 EU Version 10ch 2.4GHz DSMX Compatible Radio System
Part No. 9171001399-0

OrangeRx R820X V3 8Ch 2.4GHz DSM2/DSMX Compatible Full Range Receiver w/Div Ant, F/Safe & SBUS
Part No. 9171001405-0

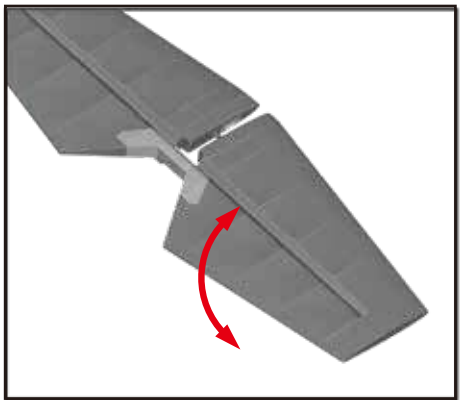
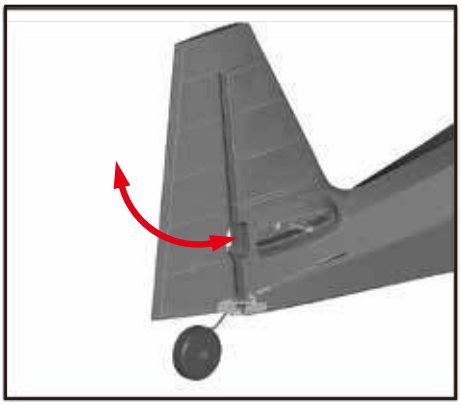
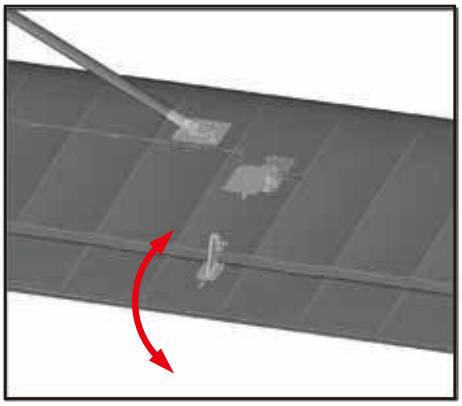
OPTIONAL ACCESSORIES:

Hobbyking Candy Dropper:
Part No. 9499000351-0

Rubber Foam Version of Tundra Wheels with Silver Hub
Part No. 9499000212-0

Assembly (PNF)

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

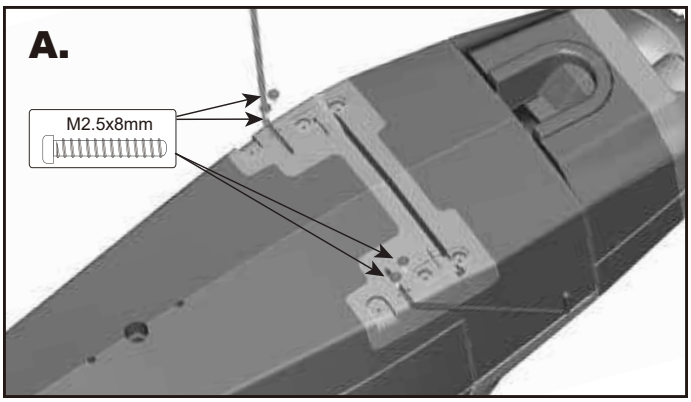




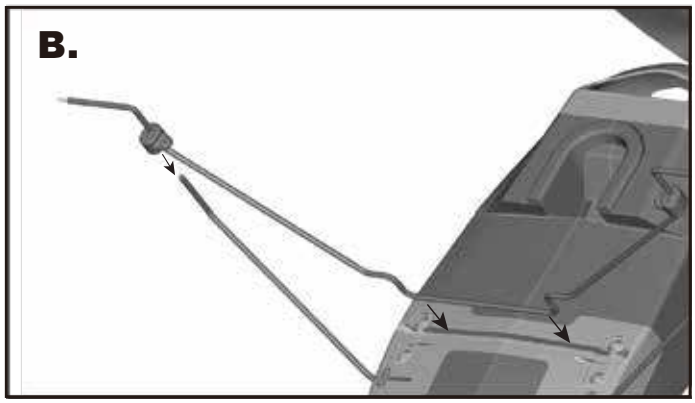
2A. To mount the undercarriage to the fuselage, start by inserting and securing the two rear braces with supplied M2.5x8mm screws (A). Now insert the main gear wire into the fuselage slot and slide the plastic brace keepers over the rear braces (B) to bring these two parts together. Insert the spring support wire between the main gear wire (C) . Using supplied M2.5x8mm screws secure the main gear and spring support wire in place with the plastic undercarriage straps (D).

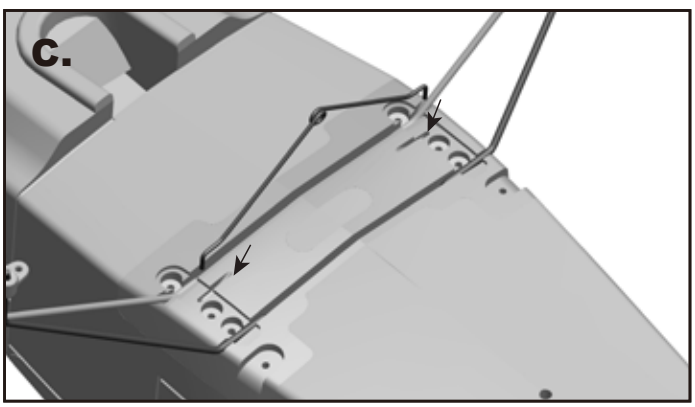
Notes:

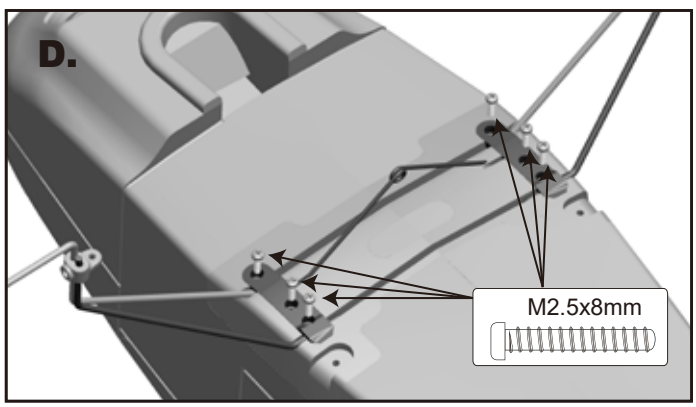
- Ensure the main gear rakes forward at stage B.

- Note left (L) and right (R) marked plastic straps and install accordingly during stage D.

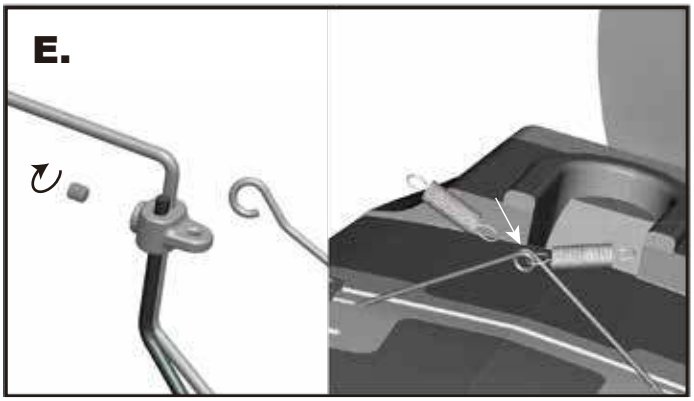


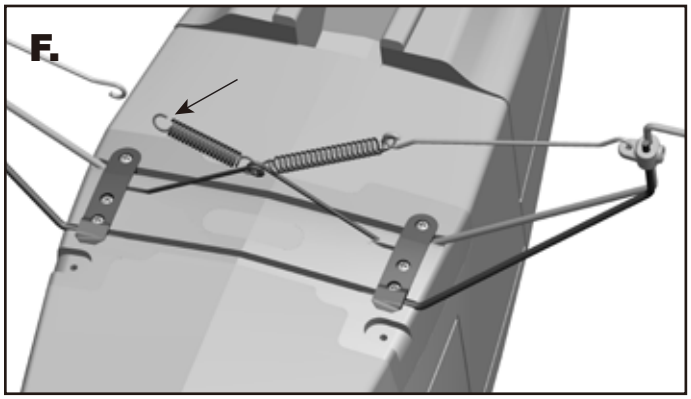


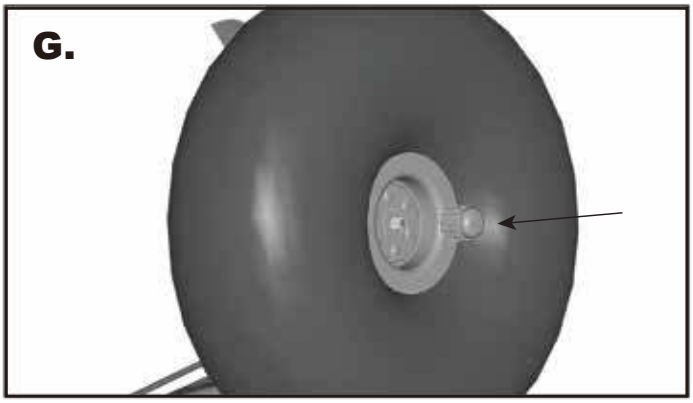


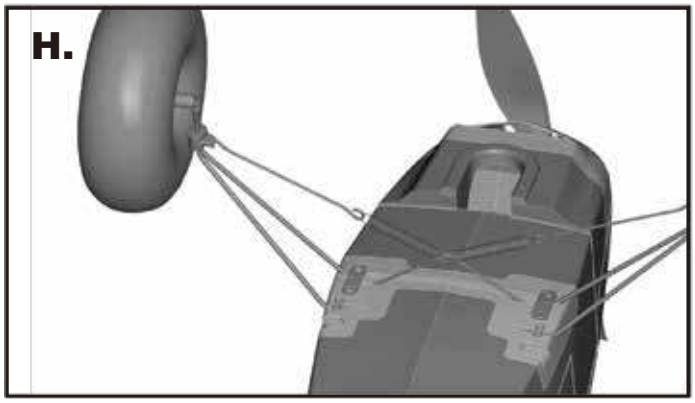


2B. Hook the supplied coil springs through the center ring of the spring support wire and the wire cross braces through the ring of the metal brace keepers (E) to complete the sprung cross bracing assembly (F). Now slide the main wheels onto the axle and secure in place with the plastic grip nut (G). Assembly of the undercarriage is now complete (H).

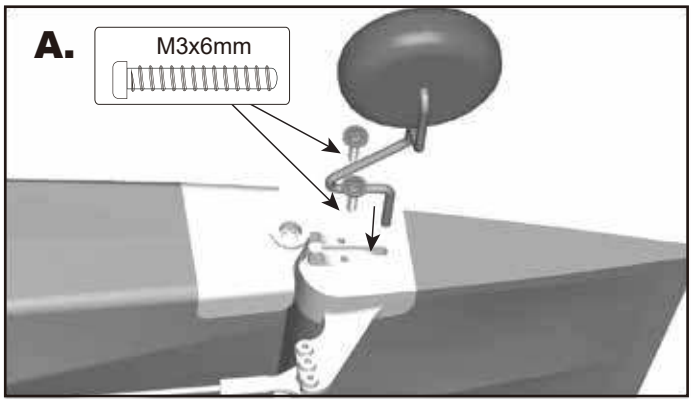


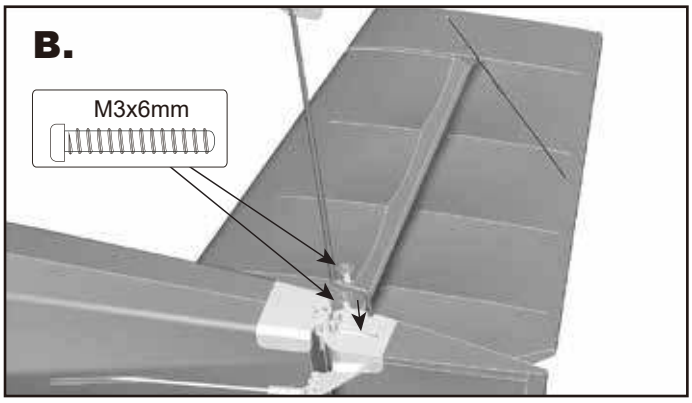






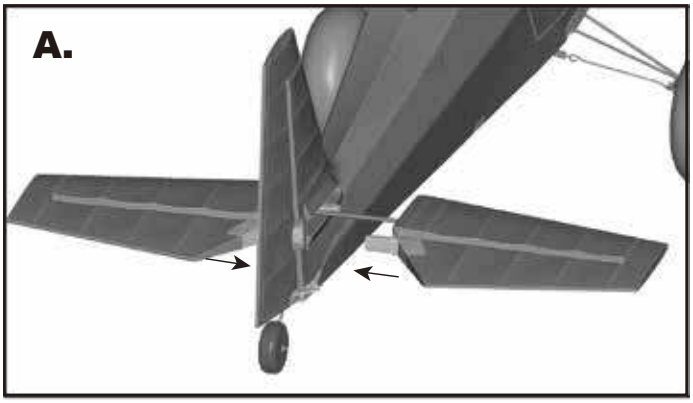
3. Insert the tail wheel assembly into the plastic slot on the bottom of the rudder and secure with two M3x6mm screws (A). The same method is used when mounting the water rudder (B).

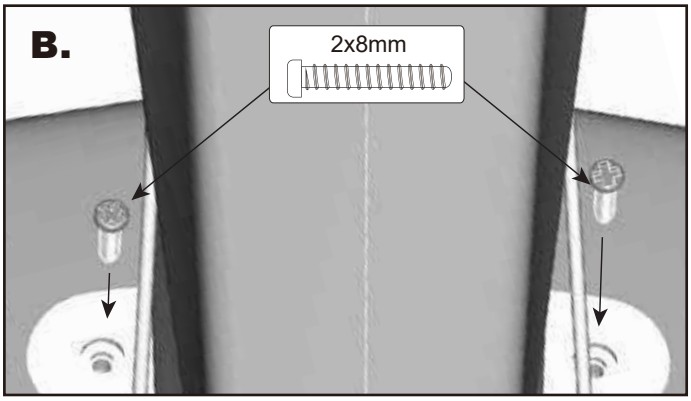




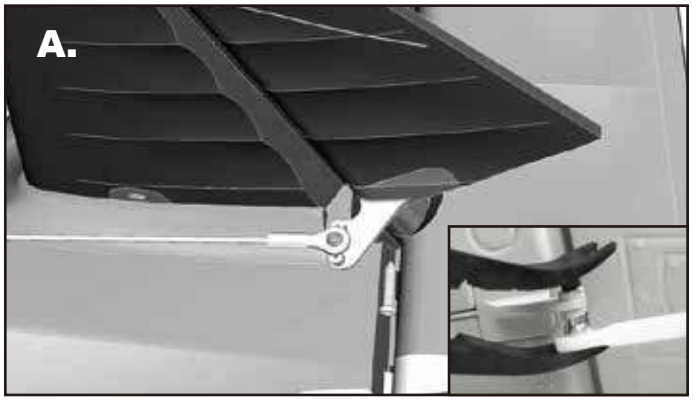
4. Insert one half of the carbon tail spar into one of the horizontal tail pieces before sliding this half into the tail slot on the fuselage. Now install the remaining tail piece (A). Secure both halves in place with the supplied M2.3x6mm screws and the elevator join with the single M2x8mm screw (B). This installation is self aligning, but do double check to ensure equal aligment to the vertical tail and wing.

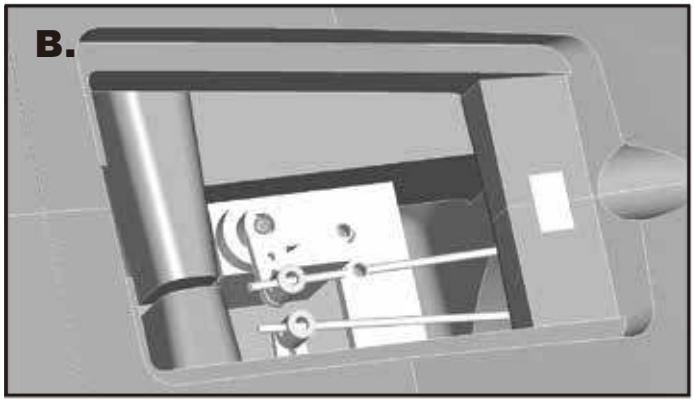
4.



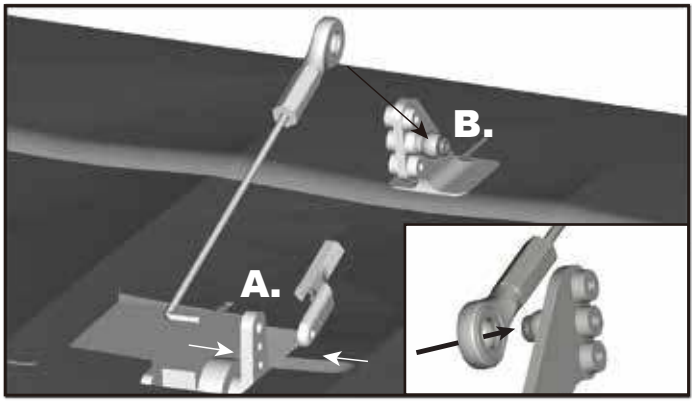


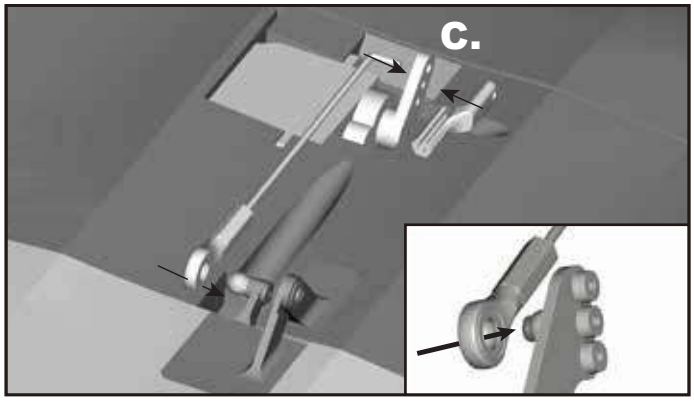
5. Using a pair of pliers (ball link pliers preferably) connect the elevator push rod to the elevator horn (A). To ensure both the elevator and rudder are neutral (with the servos centered) loosen the grub screw of the piano wire fastener and slide push rods until both surfaces are neutral if required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





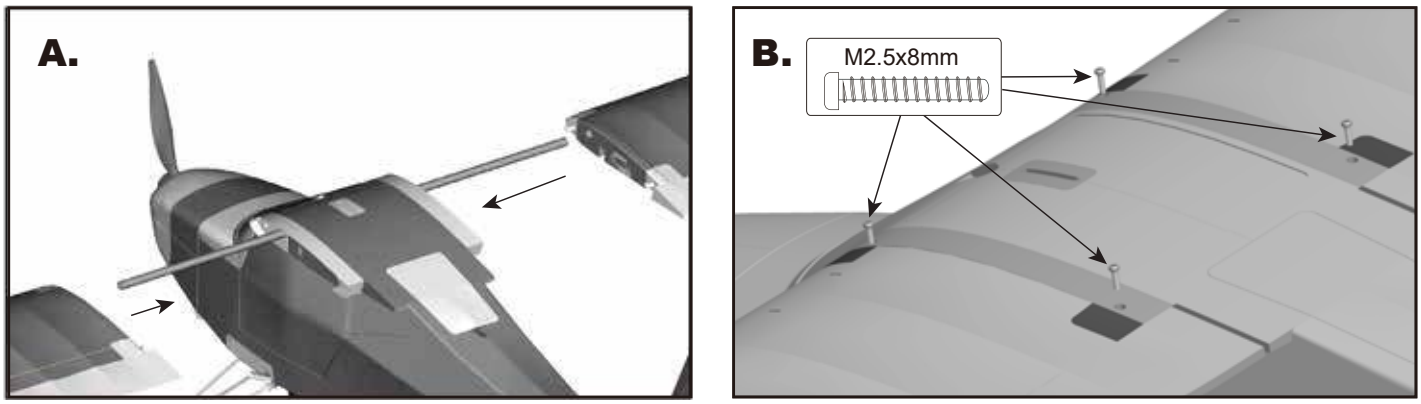
6. With the aileron control horns at 90 degrees to the wing surface (neutral) insert the aileron push rod and secure in place with plastic keepers (A). Connect the ball link to the aileron control horn as shown (B). Repeat this same process for the flaps, the exception being the flap servo horn must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





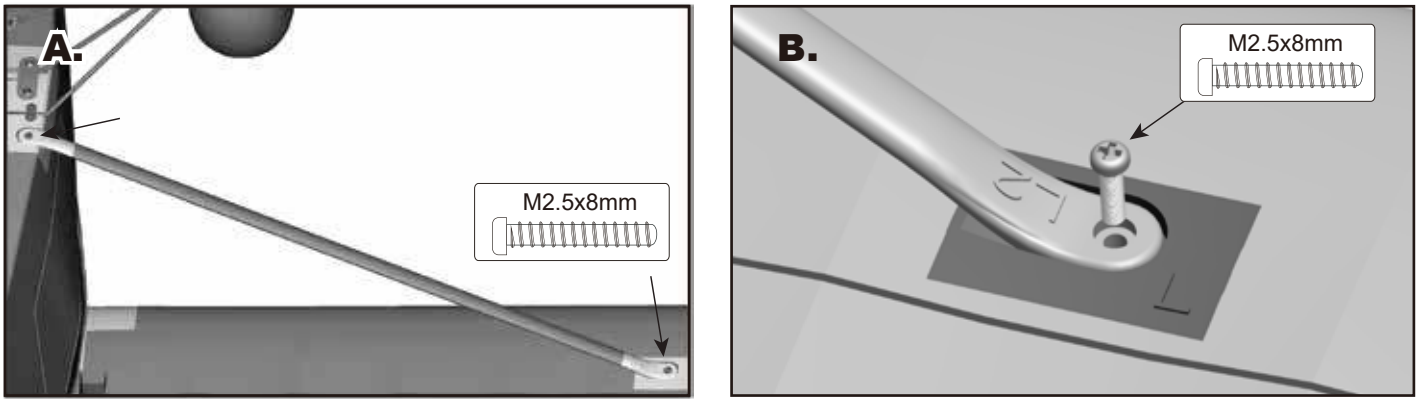
7. Insert the wing spar into the fuselage at the wing root (A) ensuring it is centered. Slide one wing half at a time onto the spar, pushing each panel firming into place on the fuselage (A) and secure each panel with the provided M2.5x8mm bolts (B). Take care to ensure the wing servo PCB is not damaged when connecting the wing to the fuselage.

7.

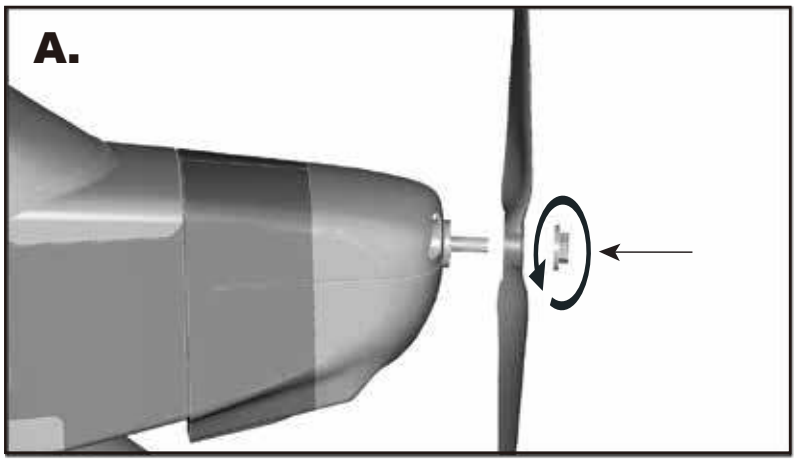


Note: For convenience clear tape alone can be used to secure the wing to the fuselage by running the tape along the entire span of the wing join. However this is not recommended if you intend to fly the Tundra aggressively.

8. Attach every 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 cockpit. Secure firmly in place using the M2.5x8mm screws supplied (B).



9. The final stage of assembly is to mount the Durafly 12"x6" carbon propeller using the prop nut as shown (A). However at this stage it 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.

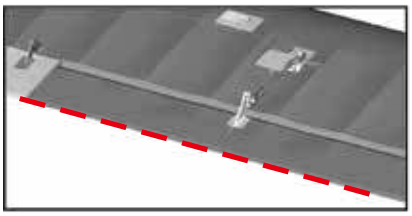
10. Install your choice of 6-channel receiver (OrangeRx R620X shown) using double sided foam tape or Velcro in the location shown (A) under the rear fuselage access hatch. Ensure Rx aerials are held away from the servos.

Congratulations, basic assembly of your Tundra V2 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:

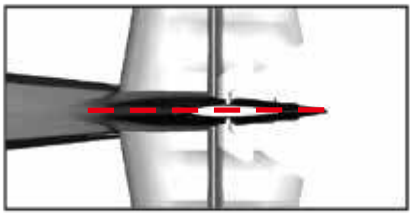
1. With your receiver installed and all servos plugged into their corresponding channels, connect the flight battery to the ESC to power up the electronics. With the model now armed, ensure all servos are centered and all control surfaces are level. If not, adjust by turning the control clevises by hand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



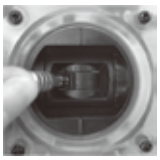
Aileron

Elevator

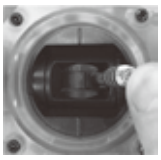


Rudder

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

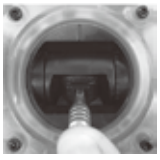


Roll left



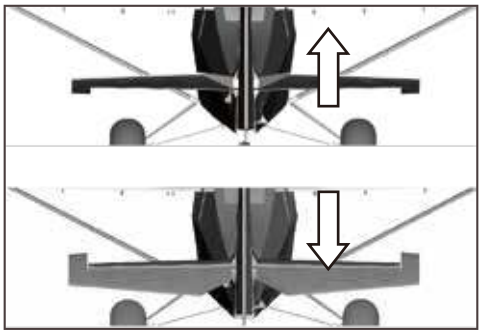
Roll right

Aileron (Roll)



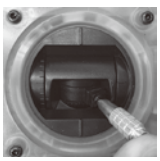
Pitch up

Pitch down

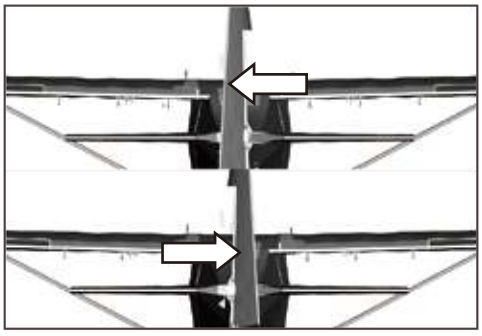


Elevator (Pitch)

Yaw left



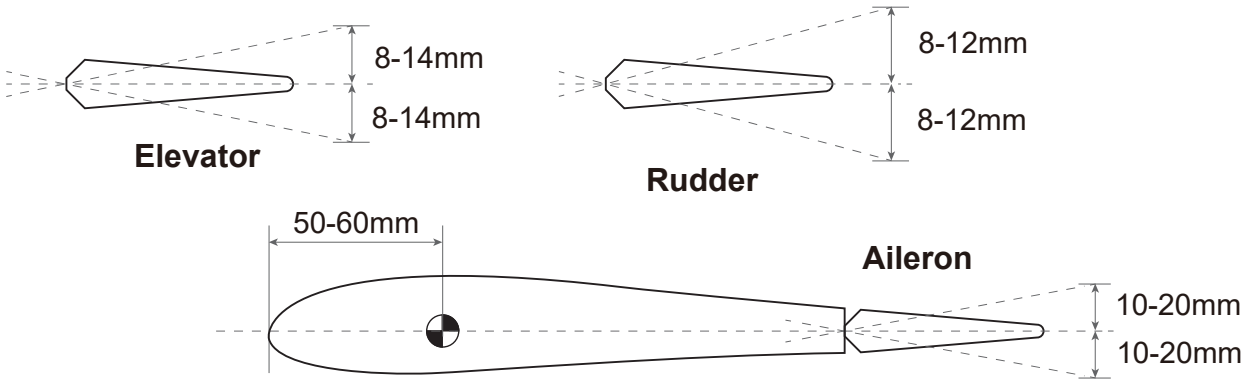
Yaw right



Rudder (Yaw)

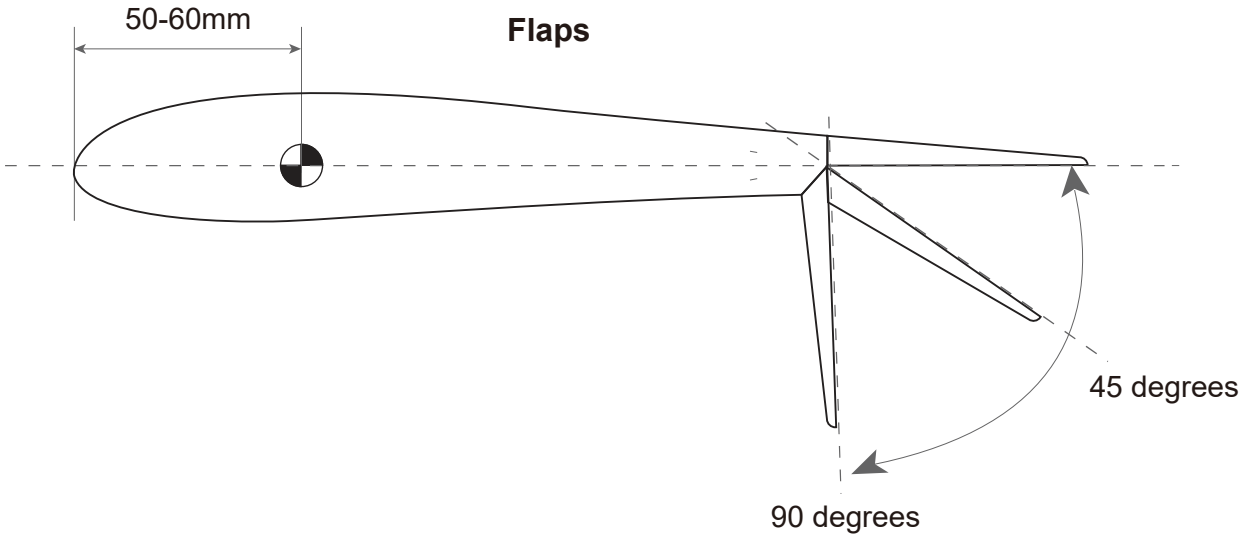
3. The Tundra V2 handles very well in flight and that's not down to good design alone, but a good pre-flight set-up too. Before you fly your Tundra please follow the recommended settings below for optimum handling and performance.

Control throws:



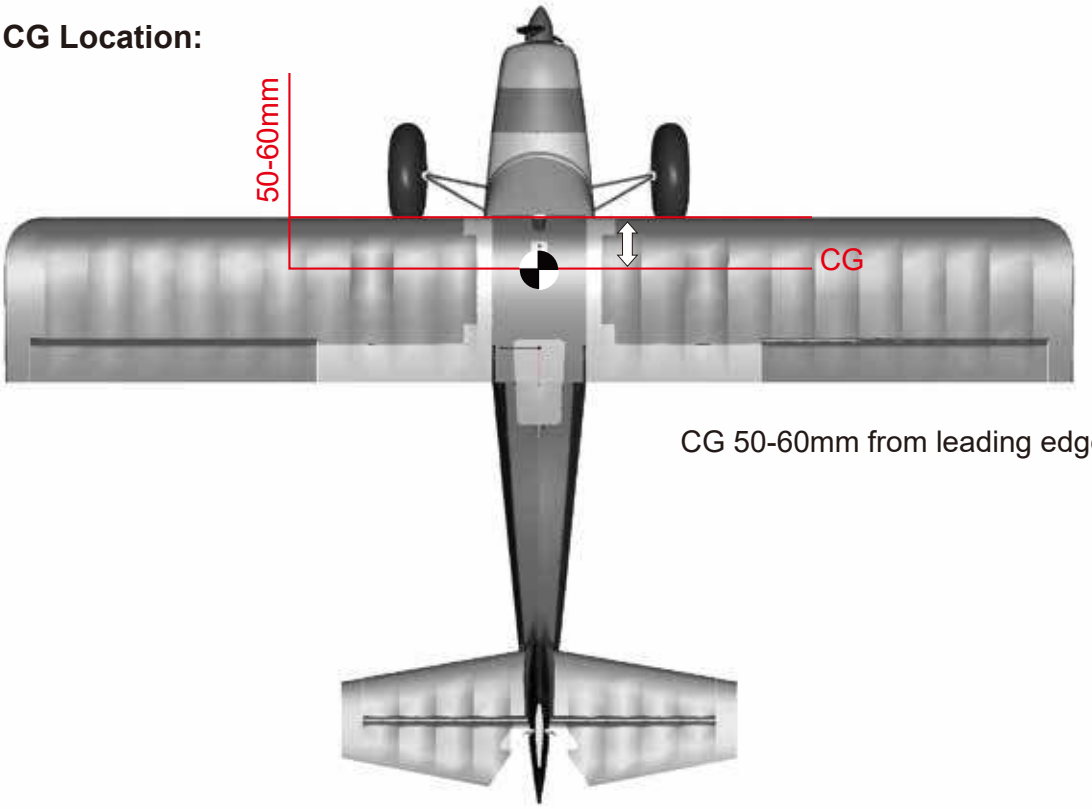
*Elevator: 'low rates' 8mm, 'high rates' 14mm in either direction from neutral.
*Rudder: 'low rates' 8mm, 'high rates' 12mm in either direction from neutral.
*Ailerons: 'low rates' 10mm, 'high rates' 20mm in either direction from neutral.

4. Flaps on the 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 clevises 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 the 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 Tundra V2 is approximately 50-60mm from the leading edge of the wing. Your Tundra V2 should balance within this range with anything from a 1800mAh - 2200mAh 3S LiPo installed as far forwards as possible in the battery area. Your battery can be secured in the battery bay area with the velcro provided.

CG Location:



CG 50-60mm from leading edge.

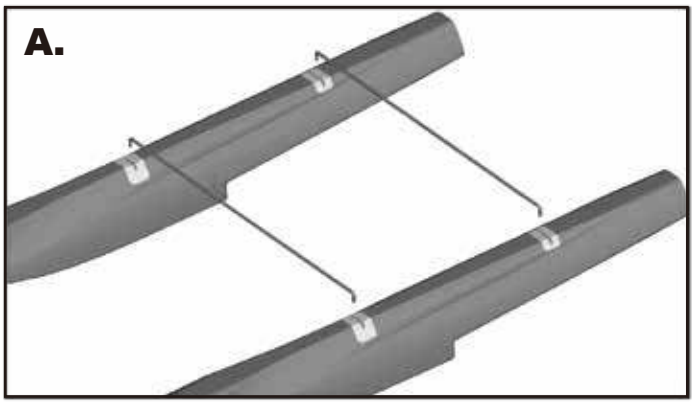
With assembly and set-up now complete, your Durafly Tundra should now be ready for flight. However we recommend your read and follow the advice given in the following pages of this manual before flying your model.

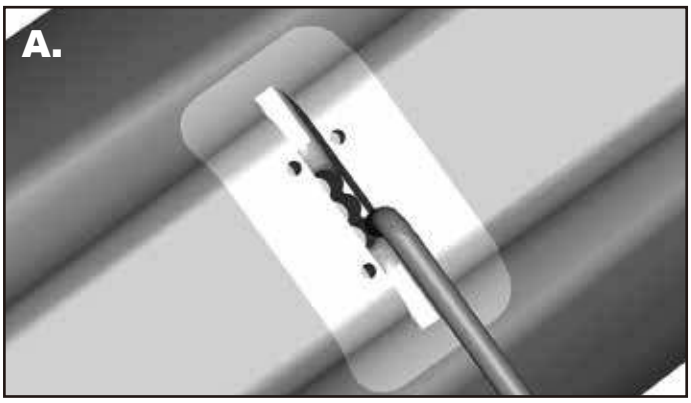
Tundra V2 Options:

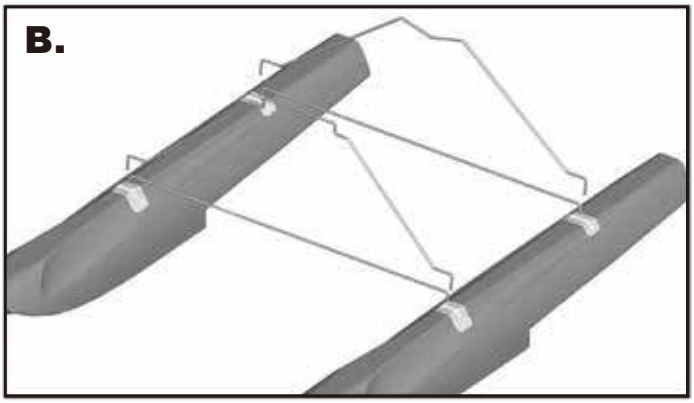
Your Tundra V2 comes with several features available to you during the assembly. Floats , FPV canopy and tow mounting point are all included in the box. Use of a Candy dropper is an optional extra and is not included. All however are covered in these following pages.

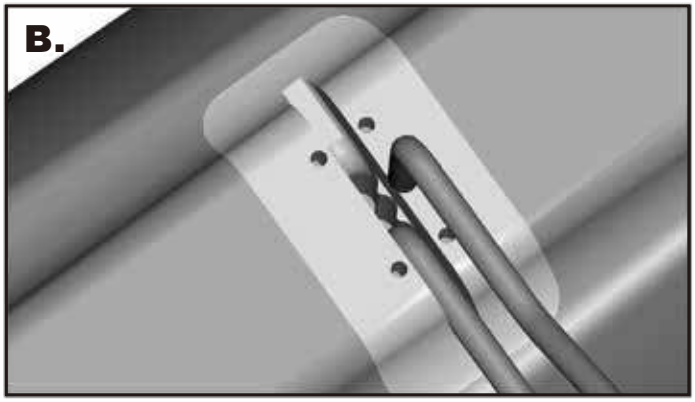
Floats

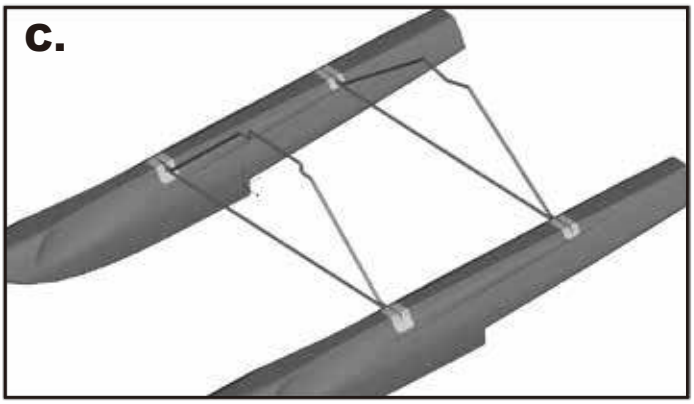
1. With each float placed on a level surface and parallel to one other, add the front and rear cross bracing struts by inserting each end into the inner most hole of the float mounting plate (A). Now insert the ends of the front and rear fuselage mounting struts into the center holes (B). With all float struts installed as shown, secure in place using the M2x8mm screws (C).

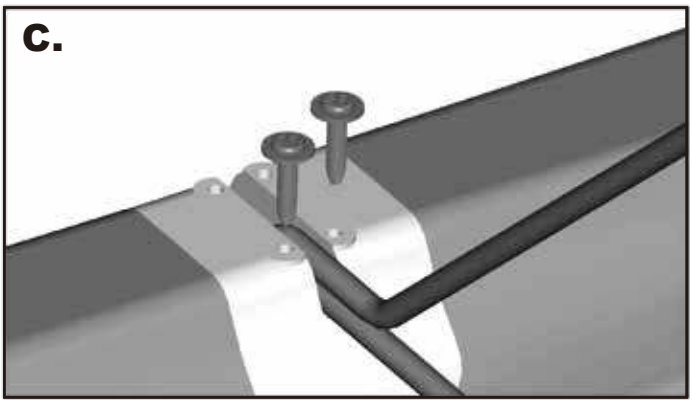




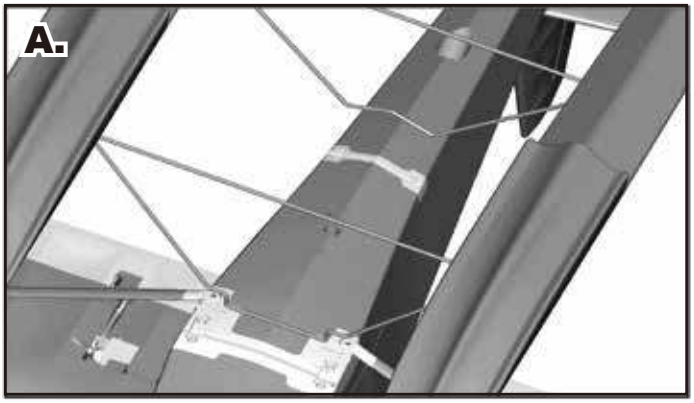


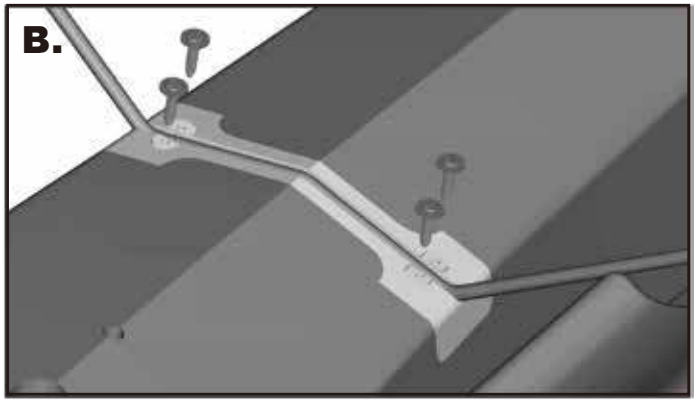




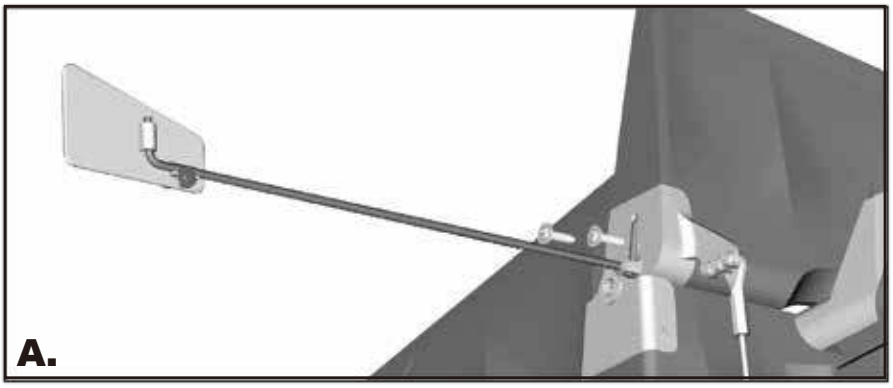


2. With the floats now fully assembled and landing gear completely removed, insert the front fuselage mounting strut into the main gear housing and onto the rear mounting plate (A). Secure the rear with supplied M2x8 screws (B) and the front using the original main gear mounting plate and screws.



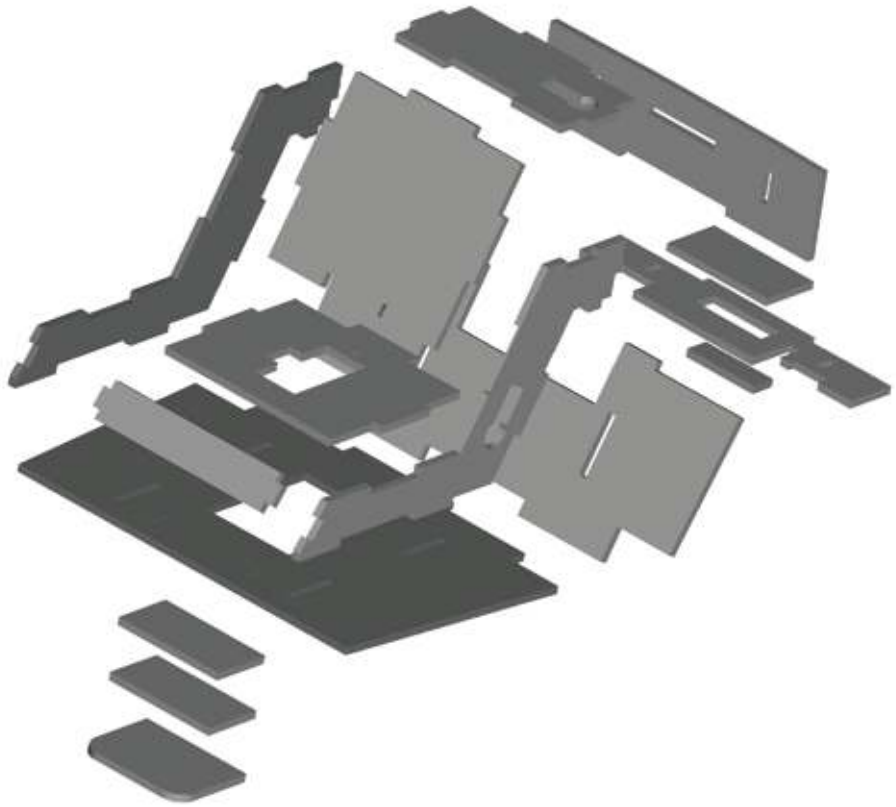


3. Although not always required, a water rudder does help with steering in less than calm water conditions. Simply remove the tail wheel and replace with the water rudder (A). Both tail wheel and water rudder mount in exactly the same way.



FPV Canopy

To assemble the plywood FPV canopy you'll need some CA and no more than 10 minutes to glue it all together. All parts are laser cut and following the below exploded diagram, the assembly should be self-explanatory. Note to allow some time for the glue to cure on the magnet so the bond is as strong as possible. Also be mindful not to let any glue get to the exposed surface of the magnet.

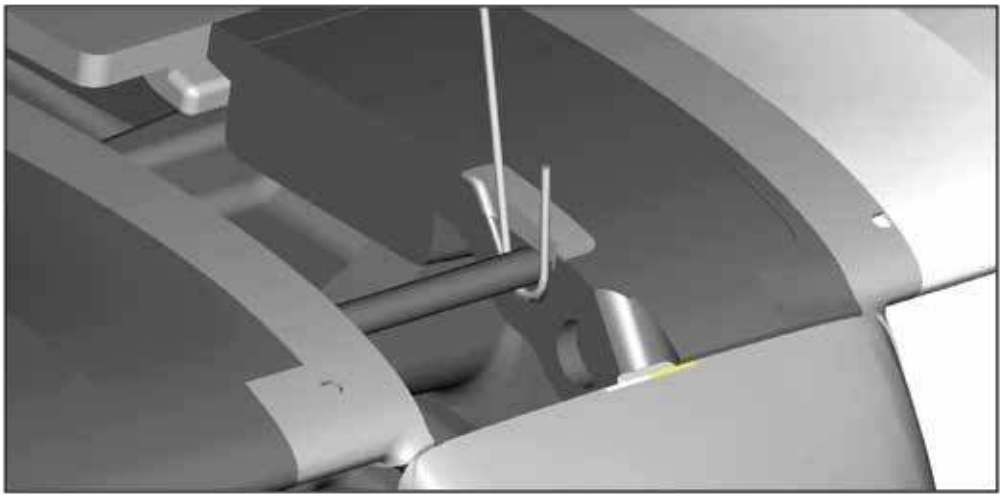


With the canopy now assembled you are free to install your FPV equipment as you see fit. However you may wish to follow the simple example shown below.

Tow line mounting point

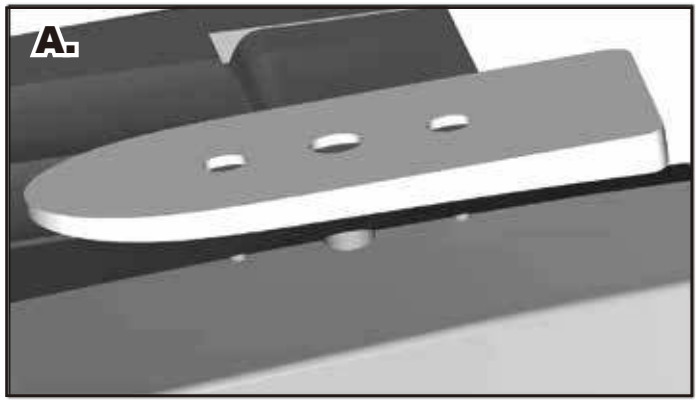
The built-in tow line hard mounting point gives the Tundra a solid point close to the CG to attach a tow line for gliders etc. The below cutaway shows how the tow line should be inserted and attached to the main spar through the tow line slot.

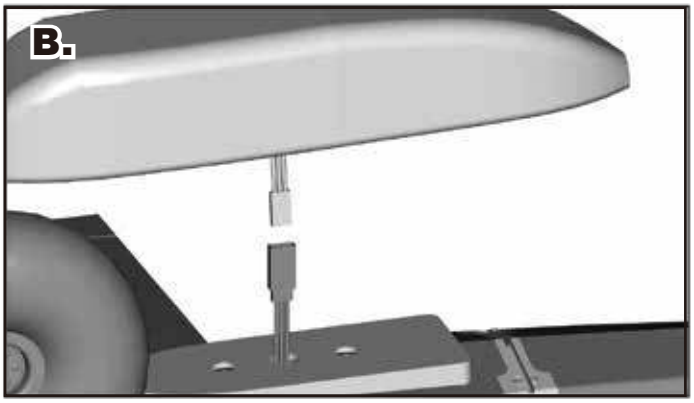
Note: The model you are towing will need a tow release system of some kind. The hard point on the Tundra is for attaching tow line only.



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 Y-lead supplied with the dropper through the center hole and connect to a spare channel on your Rx (B). Secure the dropper using the bolts that come with it to the fuselage (C).





Model Flying Precautions

- Select your flight area carefully. Always choose an open space that is unobstructed from trees and buildings and away from crowed areas. Avoid flying in areas with roads, electric/telephone poles/wires and water near by or within close proximity to full size air traffic.
- Do not fly this model in poor weather. High winds, low visibility, inclement temperatures, rain and storms are to be avoided.
- Never attempt to catch this model whilst in flight. Even a slow moving model can cause harm to yourself and others and risks damage to the model.
- This model is recommended for children no younger than 14 year old. All children, no matter what age, should always be supervised by a capable and responsible adult when operating this model.
- Always unplug your model battery when not in use. Never leave the battery installed in the model.
- Remember to keep clear of the propeller at all times when your flight battery is connected.
- Before flying, always turn on your transmitter first then plug your flight battery into the model.
- After flying, always unplug your flight battery first then turn off your radio transmitter.
- Exercise caution when charging your batteries and follow in full your battery manufacturers safety guideline when doing so.

Pre-flight Checks

1. Always range check your model before any flight (especially when flying a new model for the first time). Follow your radio manufacturers guidelines for performing this check.
2. Check all screws, bolts and mounting points are firmly secured, including control horns and clevises.
3. Only fly with fully charged batteries (both in your radio and model). Failure to do so could result in loss of control, damage to the model and/or persons/property around you. Check your batteries are fully charged.
4. With the model powered up (transmitter on first, then receiver/model) check that all surfaces are free from damage/obstructions, moving freely and in the correct directions with the stick input.
5. Inspect the model and prop for any damage that may have occurred during transit and listen for any unusual sounds from the electronics when powered up. If in doubt, do not fly.
6. With the model held securely and the prop free of obstructions, increase the throttle just slightly to confirm the rotation of the prop is correct. The model should want to pull straight forward with throttle.
7. If this is your first flight with the model double check the C/G is at the correct position. If not adjust battery position inside model accordingly.
8. If you are an inexperienced model pilot seek the help and assistance of an experienced pilot to perform these final checks and to test flying the model for you.

Flying The Tundra V2:

The Durafly Tundra V2 is both an easy and versatile aircraft to fly and has no special considerations when it comes to flying but do make sure you've followed the set-up guidelines and recommendations in this manual thoroughly for the best flying experience.

Thanks to the powerful motor and prop combination you can be off the ground (or water) within just a matter of meters if you are looking for a nice long rolling take-offs, however where's the fun in that! Once you have your model trimmed, the real fun starts with the zero rollout, full flap take offs, just be ready to hold in some down! In the air the Tundra V2 is super stable at any speeds too, full throttle sport flying allows you to explore the full aerobatic potential, whereas at lower speeds and with an indulgent use of the flaps, the Tundra V2 really comes into its own with almost full STOL type flying characteristics, flying slow has never been so much fun. On the ground too, with the very authentic bush style tires and functional sprung undercarriage, the ground never looked so inviting. With the Tundra V2 rolling across the ground is just as exhilarating as rolling through the air.

Off water the only real consideration is getting of the surface of the water itself. This is greatly aided by the use of half flaps on all take off runs as they will help lift the Tundra V2 up off the surface of the water. For towing, just remember to always keep the line tight and to stay below the model being towed.

Tundra V2 Tips:

- If flying from a hard surface (tarmac, asphalt, concrete etc) it is recommended that you remove the spring system from the undercarriage to void excessive bouncing on landings.

- When flying with floats of water, it is advised to always use at least half flaps on takeoff. Semi deployed flaps will greatly increase the Tundra's ability to lift off the water surface.

- When landing on water, always land with a good amount of forward momentum to help achieve the smoothest water landings possible.

- Use of water rudder should only be needed when flying from rough water. Generally the standard rudder alone is sufficient for flying off calmer waters.

- Due to the added weight of the floats, a 1800mAh 3S would be a more suitable LiPo to use rather than the heavier 2200mAh 3S used when flying from water. This will keep the overall wing loading from going up.

- If you intend to perform STOL style landings often with your Tundra V2, it is suggested you use the optional tail brace upgrade supplied with most models. This will greatly improve the strength and rigidity of the tail which will be of great benefit with the higher forces at play with landing STOL.

- For optimum flight performance/model longevity, it is highly recommended that you always fly with a balanced prop. The supplied prop should be balanced, but it’s always good to check first.

- Keep all leads within the fuselage area as tidy as possible. Tidy wires look better, allow for easier access to all internal components, better battery installation, increased airflow around electronics and a reduction in potential electronic signal interference (noise).

- Do not leave your model in direct sunlight or in a hot car for prolonged periods of time. This will have an adverse effect on the foam surface of the model.

Thank you again for purchasing the Durafly Tundra,
we know you’ll enjoy it immensely.

Don’t forget, spare parts are available for this model,
please see opposite for details.

Spare Parts Listing

Fuselage Set
Part No.:
9499000376-0
9499000377-0 (Purple/Gold)
9499000378-0 (Orange/Grey)
9499000379-0 (Blue/Red)

Main Wing Set w/Control Horns
Part No.:
9499000380-0
9499000381-0 (Purple/Gold)
9499000382-0 (Orange/Grey)
9499000383-0 (Blue/Red)

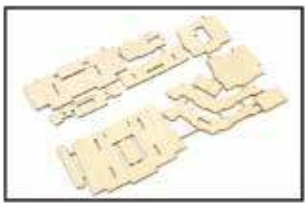
Horizontal Tail
Part No.:
9499000064-0

Floats
Part No.:
9499000065-0

Foam Canopy
Part No.:
9499000066-0
9499000178-0 (Purple/Gold)
9499000179-0 (Orange/Grey)
9499000180-0 (Blue/Red)

Main wheels
Part No.:
9499000067-0
9499000181-0 (Purple/Gold)

Tail wheel Set
Part No.:
9499000068-0
9499000181-0 (Purple/Gold)



FPV Tray
Part No.:
9499000069-0

Cowl
Part No.:
9499000070-0
9499000183-0 (Purple/Gold)
9499000184-0 (Orange/Grey)
9499000185-0 (Blue/Red)

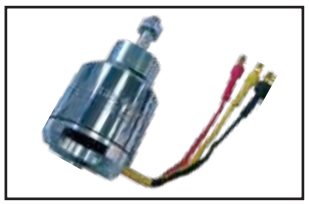
Prop Adapter
Part No.:
9499000071-0

Wing Struts
Part No.:
9499000072-0

Hardware
Part No.:
9499000073-0

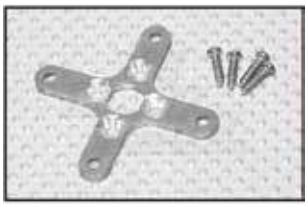
Main Landing Gear Assembly
Part No.:
9499000384-0

Sticker parts
Part No.:
9499000075-0
9499000186-0 (Purple/Gold)
9499000187-0 (Orange/Grey)
9499000188-0 (Blue/Red)



Motor
Part No.:
9499000076-0

Carbon Prop
Part No.:
9499000077-0



X Mount
Part No.:
9499000078-0

Trouble Shooting:

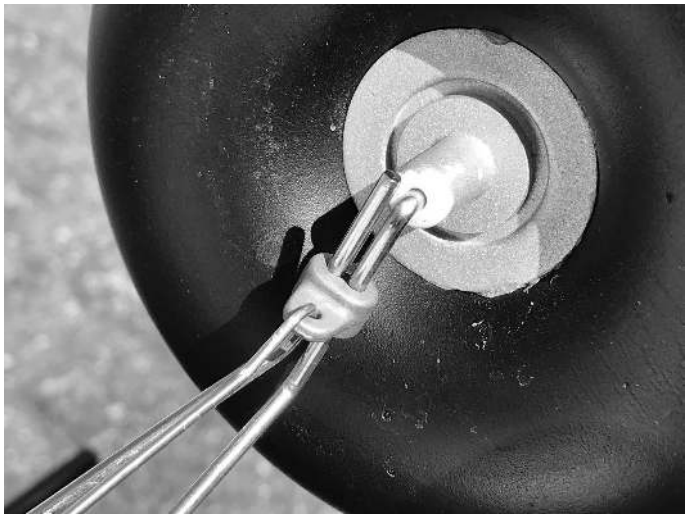
Problem	Cause	Solution
Motor does not run	1. Batteries is not fully charged. 2. Transmitter battery low. 3. Motor not connected. 4. The motor is damaged. 5. Receiver is not bound to Tx. 6. ESC in set-up mode.	1. Charge the batteries. 2. Install a charged battery. 3. Check for connection between the ESC and motor. 4. Replace motor. 5. Consult Radio manual and go through bind procedure again. 6. Hold model and move throttle to full position then back down to idle.
Model moves backwards	1. Prop installed backwards	1. Swap the prop around.
Control surfaces not moving with stick input	1. The servo lead is connected to Rx incorrectly. 2. The servo is damaged.	1. Make sure the servo leads are connect properly. 2. Replace servo.
Model does not fly straight	1. Control surfaces not centered. 2. C/G is not in the correct position.	1. Adjust the trims on the transmitter. 2. Re-position LiPo as suggested.
Model does not climb well Model is very lively in pitch	1. The battery is not fully charged. 2. Elevator servo is reversed. 3. C/G too far forwards. 1. C/G too far backwards.	1. Charge the battery. 2. Change servo direction via Tx. 3. Move battery backwards. 1. Move battery forwards
Limited Radio Range	1. Transmitter/Receiver batteries are flat.	1. Charge/replace batteries.

Tundra V2 Updates.

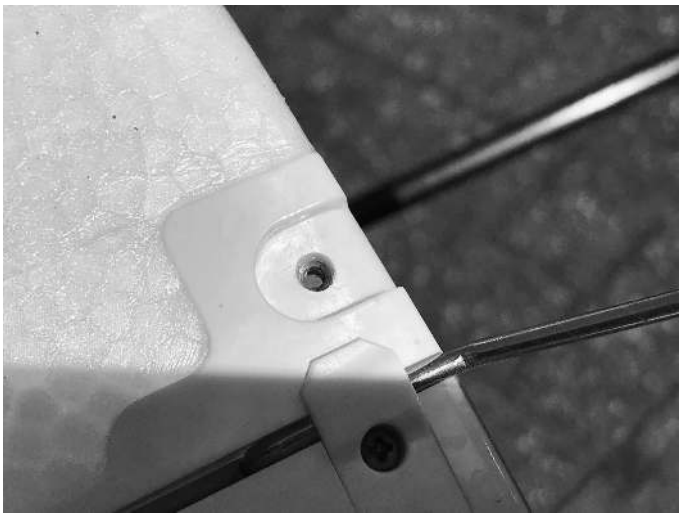
Vortex generators are now included on the top front of wing (small plastic white parts that push into openings on top of wing, narrow opening at the front, wider opening at the back). These allow the Tundra to fly even slower than before whilst still allowing total control.

New improved wing servo connections from the updated V1 brought over to the V2.

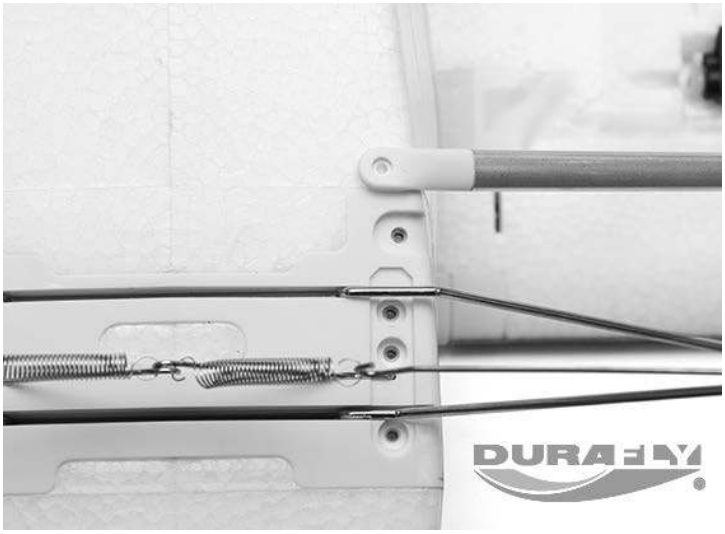
Tundra V2 Updates (continued).



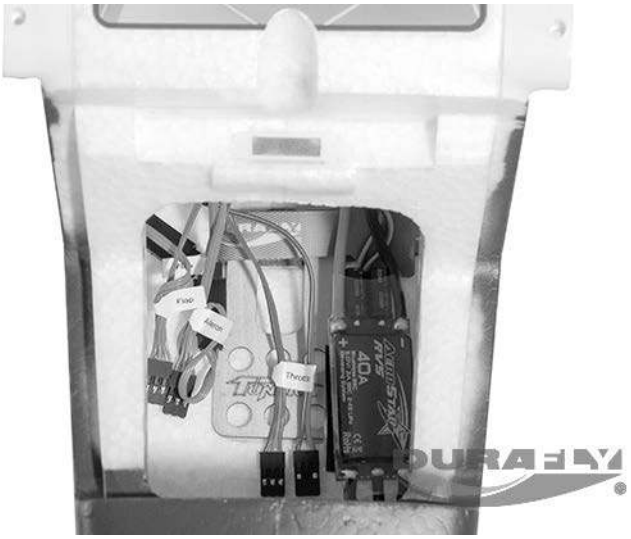
The plastic landing gear cross brace mounts have been replaced with a metal version. It's the metal part on the landing gear wire with 3 holes in it.



Threaded inserts for strut fixing bolts.



Threaded inserts for bolts instead of screws for UC fixing plates.



Wooden battery tray with Hook and Loop retaining strap.

Contact:

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- *Durafly.com*

Or see our Facebook page at:

- *Facebook.com/durafly*

And don't forget you can see the product video for this model and the entire Durafly range at:

- *youtube.com/hobbykinglive*

For your next Durafly purchase be sure to visit:

- *hobbyking.com*

If you wish to contact us directly please email:

- *durafly@hobbyking.com*

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