

EXCALIBUR

RULE THE SKY

INSTRUCTION MANUAL



PNF
VERSION

DURAFLY
®

Please read this manual carefully
before operating this plane.



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 as the the assembly, safe operation and maintenance of this hobby product. It is highly recommended that you follow and read 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.
- Always 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 props clear of obstructions.
- This product is not a toy. Children must be accompanied by an adult at all times if operating this product.
- Only fly this model in an open area away from crowds, 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:

Forged by Kings in a distant realm, the legendary Excalibur is here!

The Excalibur is the perfect marriage of modern design and materials, with rock solid engineering and performance. The entire model features carefully positioned carbon and glass fibre reinforcement through-out, super smooth EPO foam for the lowest drag possible, quick connect PCB wing plugs, efficient ball links on all surfaces and a simple screw together assembly.

This, is all wrapped up in the sleekest looking warmliner to date. The Excalibur's forward swept wing and V-tail design coupled with the mighty pre-install high torque power system, impresses on every single level. And it is these lasting impressions from which legends are born.

Whether on the slope or at the field, rule the sky with the Durafly Excalibur.



SPECIFICATIONS:

- Wing span:1600mm(63.5")
- Length:1010mm(40.2")
- Flying weight:1250g(44.2oz)
- Controls:4 Channel (Ailerons,Elevator,Rudder (V-Tail),Throttle)
- ESC: Aerostar 60amp Brushless ESC
- Motor:3542 800kv Brushless outrunner
- Prop: Aerostar Folding Carbon 13x7
- Battery:1800-2200mAh, 4S lipo, 40-65C
- Radio system: Minimum 4 channel Rx and Tx required
- Servos: 4 x 9g high torque

CONTENT:



- | | | | |
|----------------------|-----------------------------------|---------------------|------------------|
| 1. Main wing panels | 4. Control & mounting accessories | 7. Upper tail plate | 10. Canopy/hatch |
| 2. Fuselage | 5. Prop and spinner assembly | 8. Slope nose cone | |
| 3. V-tail stabilizer | 6. Fuselage patch kit plates | 9. Wing spars | |

REQUIRED TO COMPLETE MODEL:

In its 'Plug n Fly' format the Excalibur 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. If you are viewing this manual online, click



OrangeRx T-SIX 2.4GHz 6CH
Programmable Tx:
Part No. 9403000001 Mode 1
9403000002 Mode 2



OrangeRX R620X
6Ch 2.4Ghz:
Part No. 9171000757-0



Turnigy Graphene 1800mah
65C 4S Lipo:
Part No. 9067000133-0



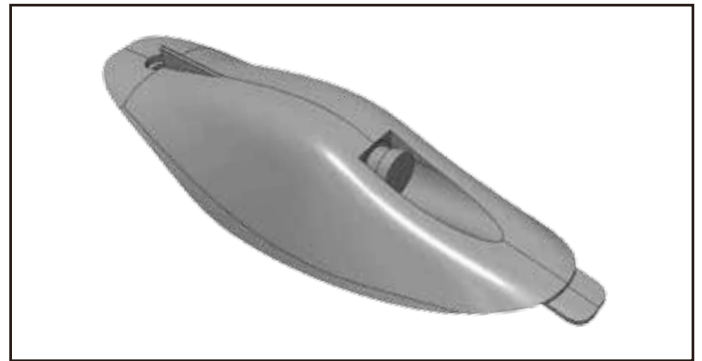
A-SPEC G2 2200mah
65C 4S Lipo:
Part No. 9472000004-0

OPTIONAL PARTS:

To further extend the Excalibur's performance and versatility, the below optional parts are available directly from Hobbyking.com The 'Pro prop' upgrade is for those more experienced pilots that are looking to squeeze the maximum performance out of the stock set-up and can be purchased directly from the site. The 'FPV canopy hatch' is a free to download 3D file of the canopy from the files tab of the listing for those that wish to 3D print their own canopy and FPV the Excalibur.



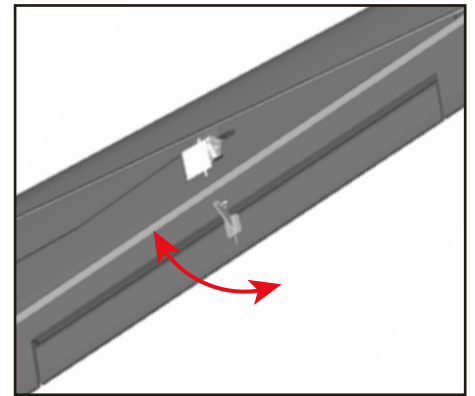
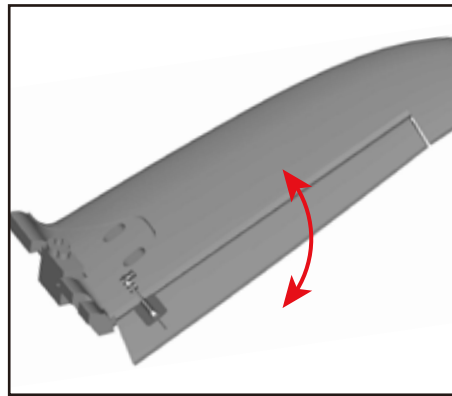
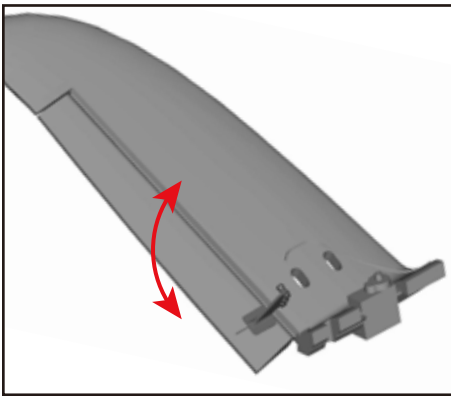
'Pro' propeller. 13 x 8 Full carbon folder
SKU: 445000071-0



FPV canopy 3D file for printing. Download for free here.

ASSEMBLY (PNF)

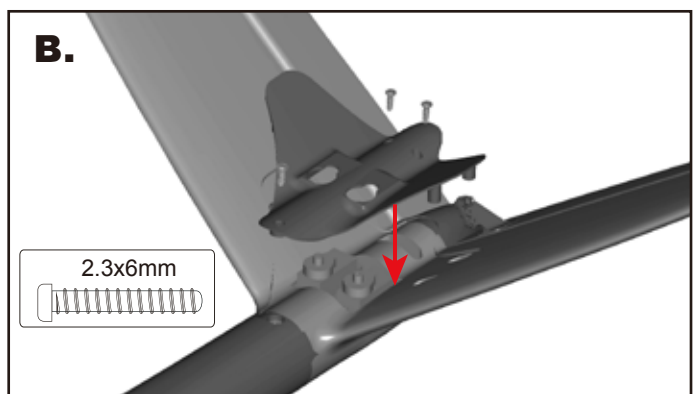
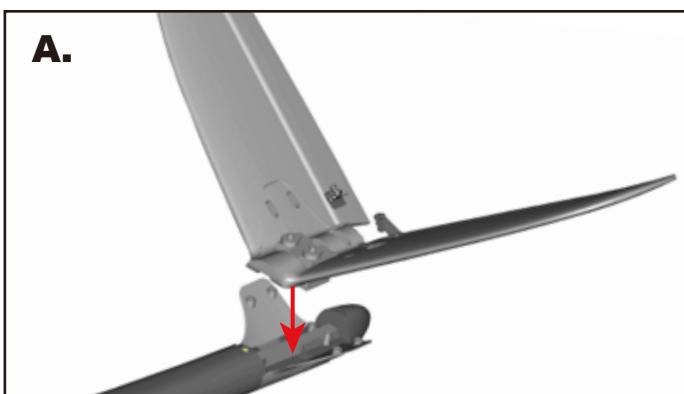
1. Out of the box your Excalibur comes with reinforced foam hinges. However before assembly can begin, each hinge line must be flexed back and forth 5-6 times to reduce tension and load on the servo. Do this for all control surfaces before continuing.

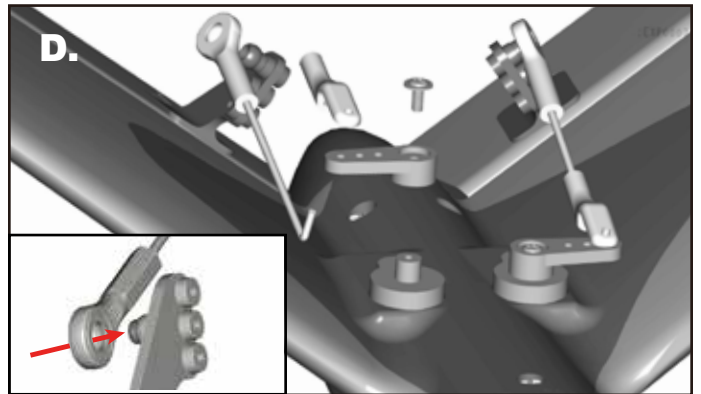
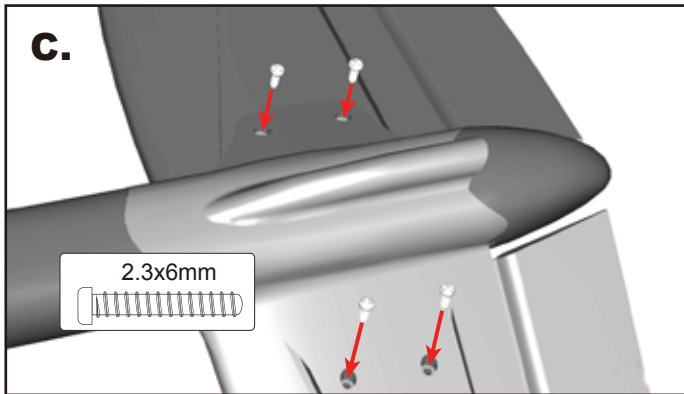


2. Test and center each tail servo then carefully install each tail half into the the housing at the rear of the fuselage. Connect the servos to the extension leads and ensure they are pushed forward into the fuselage when fitting the tail, for the perfect fit as shown (A). With the tail now correctly in place, add the top tail mounting plate and secure using the supplied 2.3x6mm screws (B). Turn the tail over and repeat this process (C). Finally locate and install the tail servo horns and control rods (D).

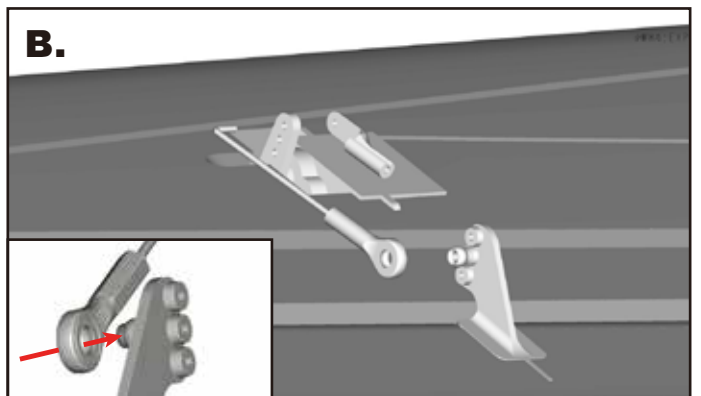
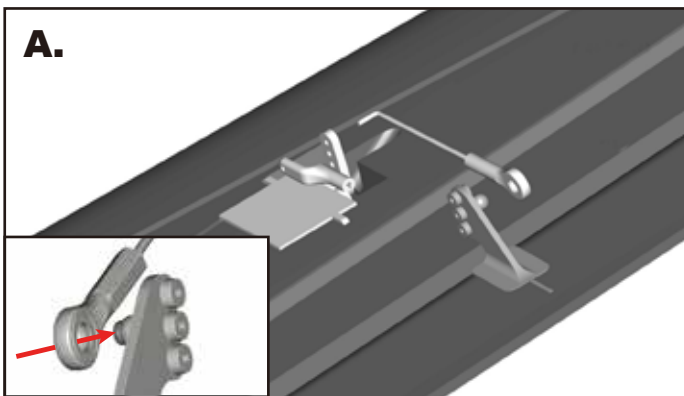
Note:

- For max strength and security, UHU glue can be used in addition to supplied screws when installing the tail.
- When connecting ball links, the side with the ring molded on, is the side pressed onto the ball.
- Use of heat shrink or sticky tape is recommended to keep the extension/servo lead connection secure.

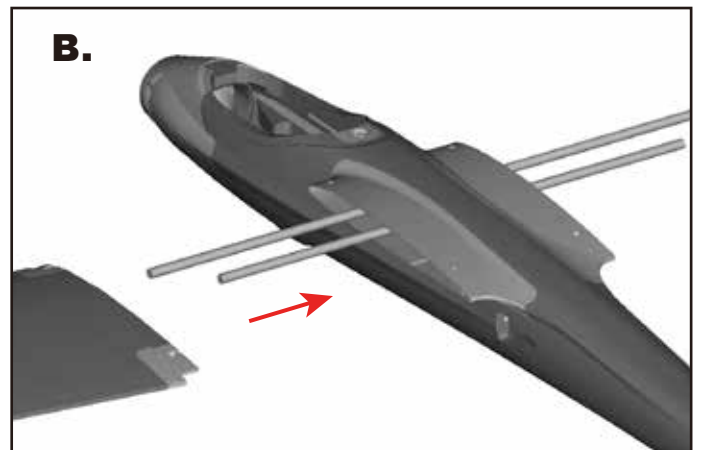
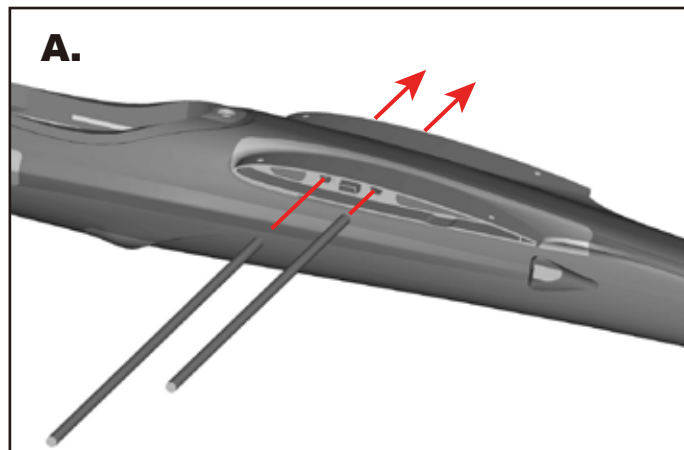




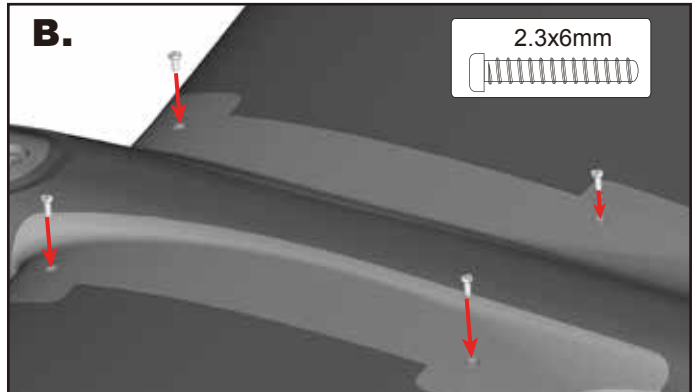
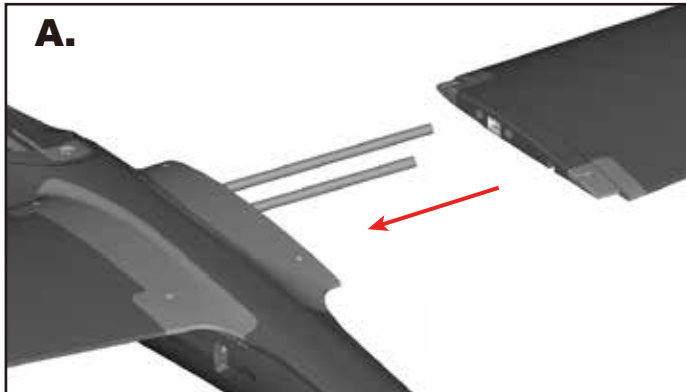
3. Center the aileron servo's and connect the ball link to the ball end on each control horn using the push clip to secure the rod to the servo horn as show (A,B). Screw or unscrew the ball link as required to get the aileron level with the wing trailing edge with the servo center.



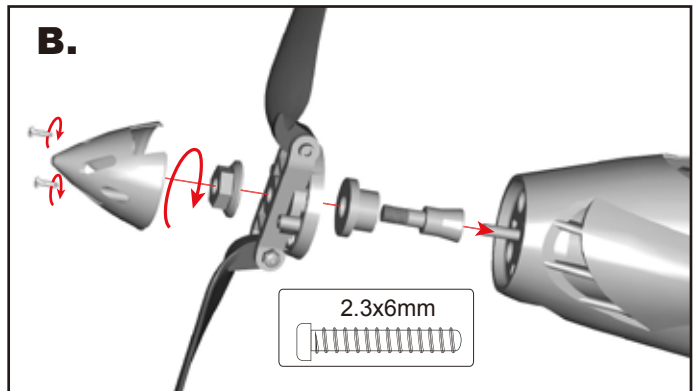
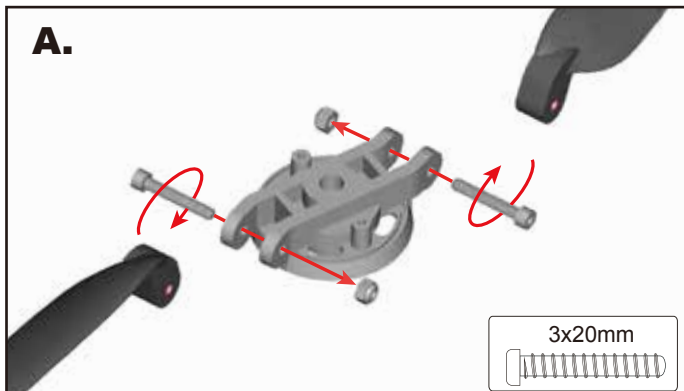
4. Push the supplied carbon wing joining spars into the slots of the fuselage (A), longer at the front, shorter at the rear, ensuring neither catch on any wires when passing through the fuselage. Once inserted, ensure both are centered as show (B).



5. Maintaining their aligned position, slide one wing panel onto the spars and into place on the fuselage. Handle with care, as you may need a good firm push to get the wing fully into position. Repeat with the remaining panel (A). With both panels firmly in place, secure with four of the 2.3x6mm screws as shown (B).



6. Bolt each prop blade to the hub using the supplied 3x20mm bolts and lock nuts. Do not over tighten these bolts, the blade should be able to freely fold back (A). Now secure the prop and hub onto the prop adapter and tighten the entire assembly onto the motor shaft and finish off by screwing the spinner in place with the final 2.3x6mm screws (B).



Note:

- For increased performance, we suggest the optional 13x8 'Pro' propeller blades. See page 2/3
- The propellers 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.

7. The final stage of assembly is to install your choice of 4-6ch receiver, the smaller the better. With all servo leads connected, the receiver can be inserted under the wing leading edge and secured with if desired. Your 1800-2200mah 4S lipo (2200mah 4S ASPEC G2 shown) installs as seen below. This is also the desired location for correct CG.



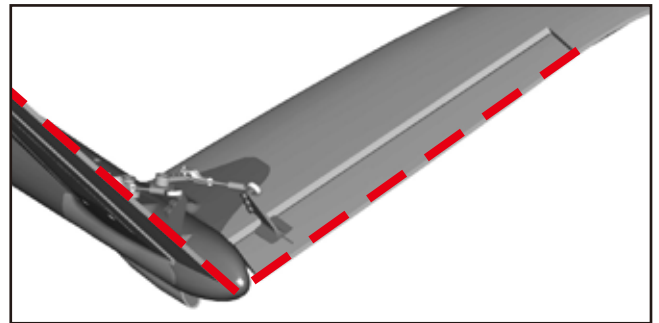
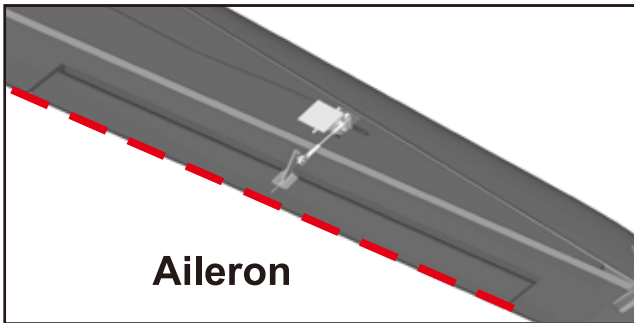
**Congratulations, basic assembly of your Excalibur is now complete.
Please perform a final check on all screws, bolts and
components, ensuring all are secure
and firmly in place.**

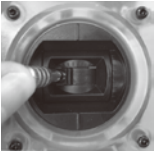
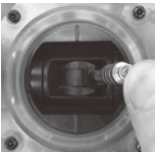

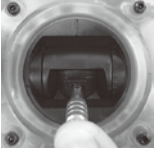

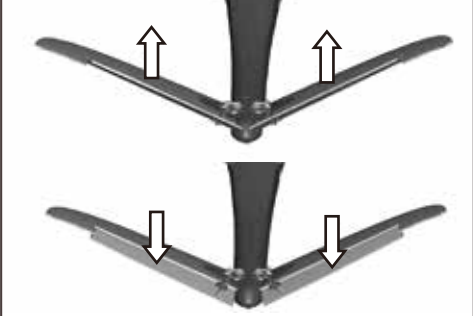


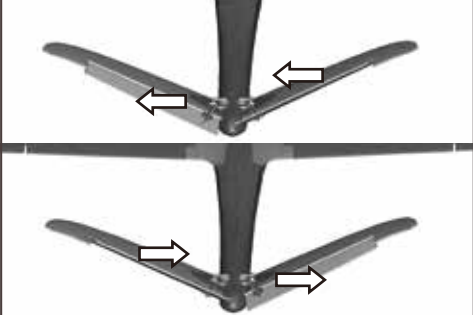


SETTING UP YOUR MODEL:

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.

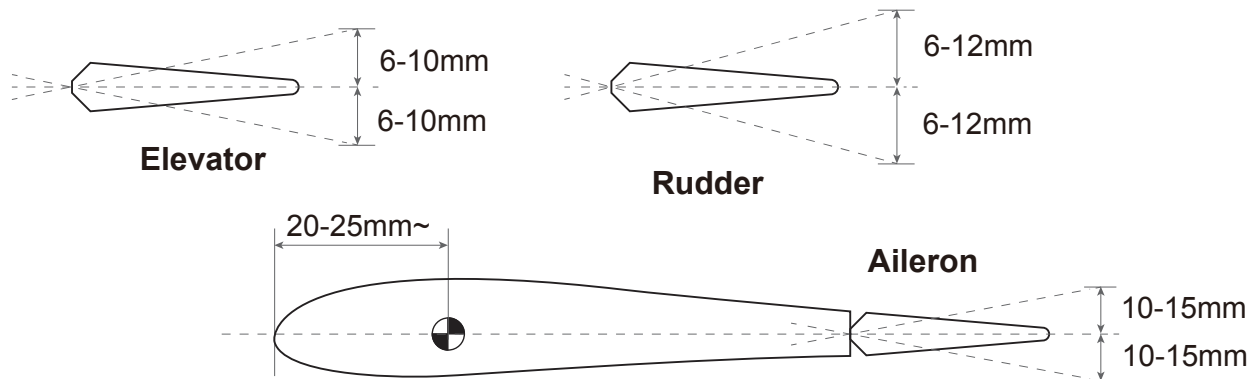
Note: For safety reasons, it is advised that this is done with the prop removed from the model.



 	Roll left		Aileron (Roll)
	Roll right		
 	Pitch up		Elevator (Pitch)
	Pitch down		
 	Yaw left		Rudder (Yaw)
	Yaw right		

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

CONTROL THROWS:



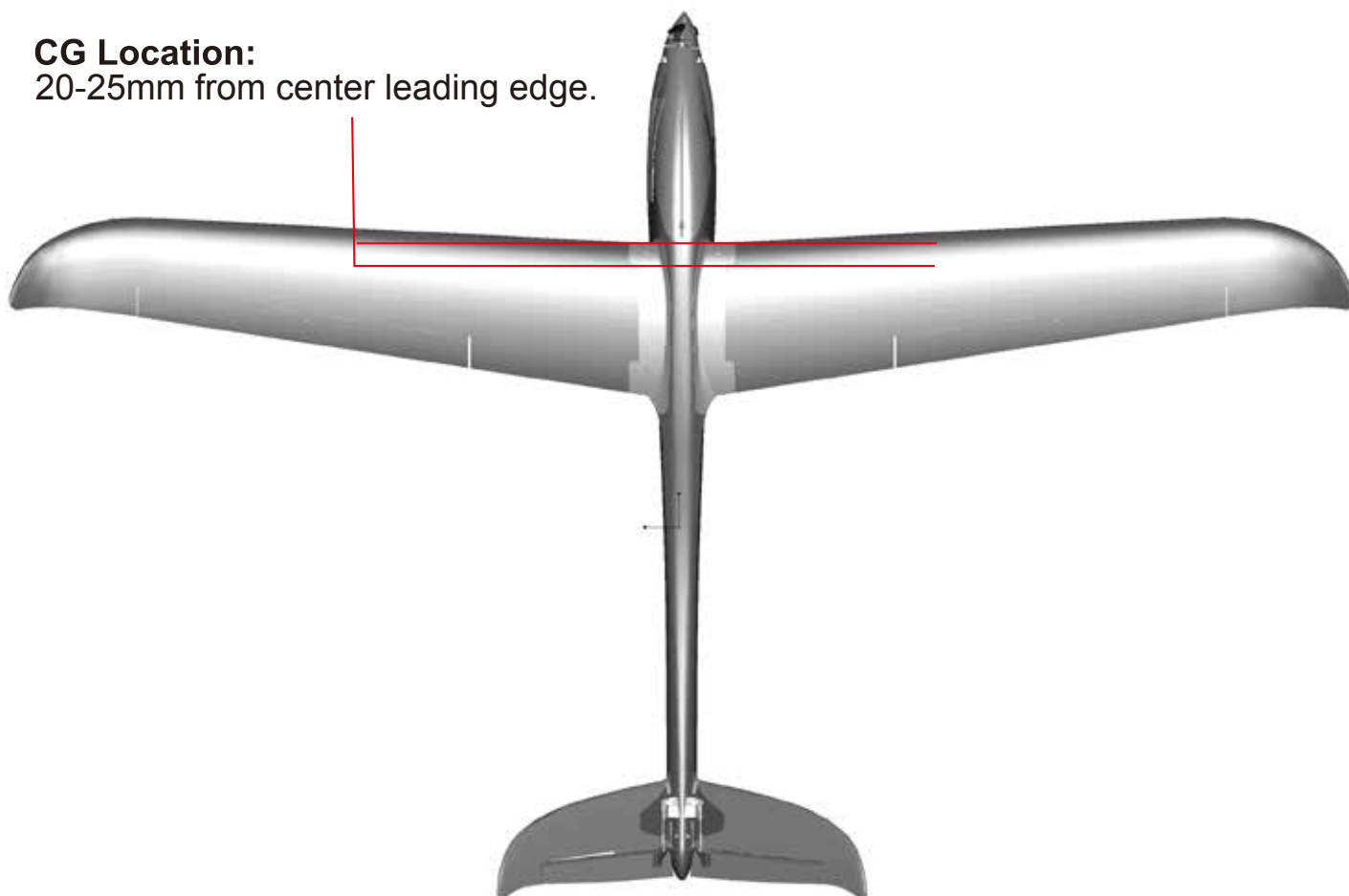
*Elevator 'low rates' 6mm 'high rates' 10mm in either direction from neutral.

*Rudder 'low rates' 6mm 'high rates' 12mm in either direction from neutral.

*Aileron 'low rates' 10mm 'high rates' 15mm in either direction from neutral.

3. The recommended center of gravity (CG) for the Excalibur is approximately 20-25mm from the leading wing when measured along the plastic of the wing fairing. Your Excalibur should balance within the range using anything from a 1800mah - 2200mah 40-65C 4S lipo installed directly under the canopy hatch.

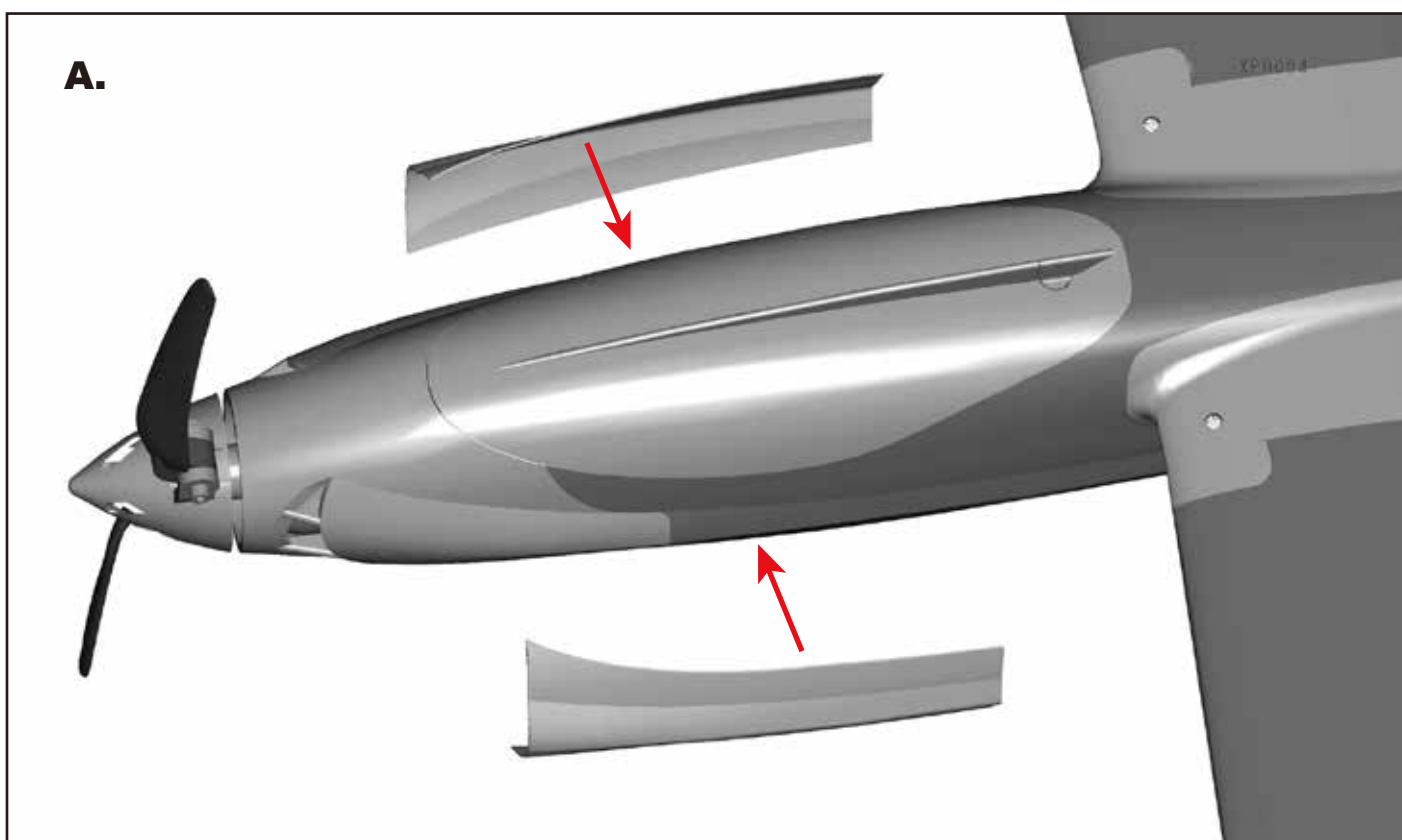
CG Location:
20-25mm from center leading edge.



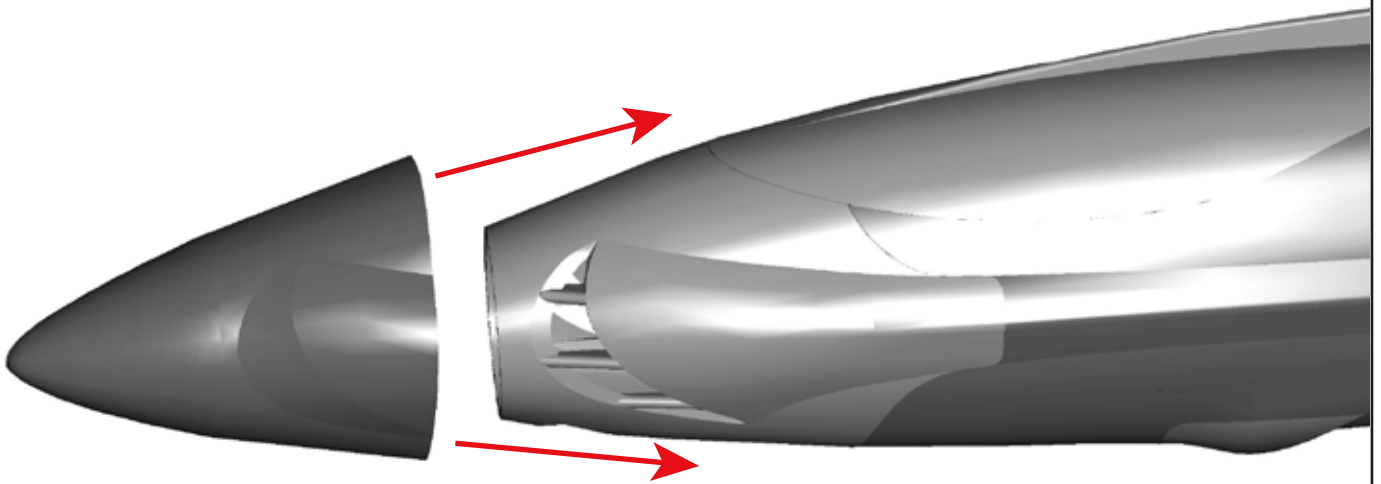
ADDITIONAL PARTS INCLUDED:

Your Excalibur comes with several additional plastic parts included in the box, 'Slope nose cone' and fuselage 'Crash kit'. Both are detailed below:

1. In the event of a hard crash or ground loop etc, you may find the 'fuselage patch kit' parts helpful if you find any evidence of a split or crack in the foam around the frontal fuselage area. These are designed to act as a temporary fix however. Its always best to replace the fuselage entirely, though these should see you through while you wait for the new fuselage to arrive. Using contact type glue (UHU recommended) and following the shape of the fuselage, glue the side panels in place as shown below (A) and leave until the glue has fully cured.



2. If you are fortunate enough to have access to a good moderate to strong wind slope site, you will definitely want to slope the Excalibur. In fact after you slope the Excalibur, you may never want to fly it with power again! To help streamline the Excalibur and turn it into a sloping dream machine we've included a slope nose cone. Simply remove the prop and spinner and position the nose cone over the front of the fuselage and secure in place with some clear tape (A). You can even use your regular powered flight lipo.

A.

With assembly and set-up now complete, your Durafly Excalibur 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.



MODEL FLYING PRECAUTIONS:

- Select your flight area carefully. Always choose an open space that is unobstructed from trees and buildings and away from crowded 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/or 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 manufacturer's 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 manufacturer's guidelines for performing this check.
2. Check all screw/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 in the correct directions and freely with 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 rotations of the prop are 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 fly the model for you.

FLYING THE EXCALIBUR:

The Duraflly Excalibur is both an easy and impressive 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.

As powered gliders go, the Excalibur is in fact an extremely versatile air frame. Out of the box you will already have an abundance of climb, maneuverability, power and grace on the supplied 13x7. However, upgrade to the optional 'Pro' 13x8 prop, and see Excalibur really push the boundaries between warm and hot liner! An 1800-2200mah 4S will give flight times from 4 minutes of continual powered flight or up to 15mins with mixed throttle flying. And mixed throttle flying is really where its at with the Excalibur. Full power climbs will get you to the cloud base in seconds, and a quick flick of the sticks has you coming back down again in either a power or none powered dive, either way it will be blisteringly fast and rock solid all the way. Or, remove the prop completely and you've got yourself ready to run high energy slope machine with the included optional slope nose cone, the set-up is exactly the same.

When it does come to time to land, the Excalibur does as all good gliders should and that's glide. So to bleed speed and reduce height when landing, fly an 'S' type approach or mix flapperons into your model. The Excalibur will remain responsive throughout the speed range and all the way down to the ground.



EXCALIBUR TIPS:

- * For optimum flight performance/model longevity, it is highly recommend 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 for prolonged periods of time. This will have an adverse effect on the foam surface of the model.

* Set 'Break On' on the ESC if it is not done so already out of the box. The prop will not fold if the brake is not set to 'On'. To set the brake 'on' use the Durafly or Aerostar programming card (see spare parts listing) or follow the below instructions:

TONES SEQUENCE AND CODE	
Programmable Item/Tone	Value
Throttle Calibration (Within first Sec) •• •• •• ••	
1. Brake	
• • • •	Brake On/Off *
2. Battery Type	
□ □ □ □	NiCd/NiMh
□□ □□ □□ □□	LiPo *
3. Low Voltage Cutoff Threshold	
• - - • - - • - - • - - • - -	Low 3.0V / 50%
• - - • - - • - - • - - • - -	Medium 3.2V / 60% *
• - - • - - • - - • - - • - -	High 3.4V / 65%
4. Restore Factory Default	
- - - -	Restore
5. Motor Timing	
- - - -	Automatic (7-30°) *
- - - -	Low (7-22°)
- - - -	High (22-30°)
6. Start Up Acceleration	
□□ □□ □□ □□	Soft *
□ □ □ □	Normal
□□□ □□□ □□□ □□□	Hard
7. Heli Mode	
• - - • - - • - - • - -	Governor Off *
• • • •	Heli Mode 1
• • • •	Heli Mode 2
8. Motor Rotation	
W W W W	Forward * / Reverse
9. Switching Frequency	
// // // //	8kHz
\\ \\ \\ \\	16kHz *
10. Low Voltage Cutoff Type	
□ □ □ □ □ □	Reduce Power *
_ □ □ □ □ □	Hard Cutoff

ENTERING PROGRAMMING MODE	
1. Turn On the transmitter and set the throttle stick to top position (100%)	
2. Plug the battery pack into the speed control.	
3) Wait 2 seconds, you will hear four groups of 2-beep sets. This is for calibration. After several more seconds, the speed controller will start to cycle through programming menu options.	

SELECTING DESIRED VALUE	
The motor emits audible tones in the order and sequence in the chart above. For each option, the tone is repeated 4 times before cycling to the next option. When the desired value tone is audible, move the throttle stick all the way down to select. This will save the setting, exit programming menu and arm the motor. To change additional values, enter programming mode through the sequence described above.	

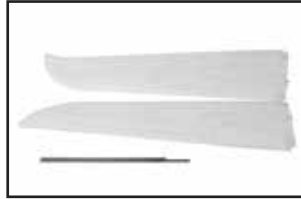
Thank you again for purchasing the Durafly Excalibur, we know you'll enjoy it immensely.

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

SPARE PARTS LISTING



Fuselage
Part No:
9499000127-0



Main Wing Set
Part No:
9499000128-0



Tail
Part No:
9499000129-0



Spinner
Part No:
9499000131-0



Canopy/hatch
Part No:
9499000130-0



Slope Nose Cone
Part No:
9499000132-0



Cowl
Part No:
9499000133-0



Top Tail Plate
Part No:
9499000134-0



Stock Prop
Part No:
9499000135-0



Motor
Part No:
9499000136-0



Prop Adaptor
Part No:
9499000137-0



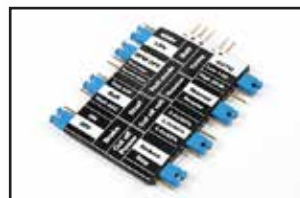
Control Rods/Screws
Part No:
9499000138-0



Decals
Part No:
9499000139-0



Durafly ESC card
Part No:
9164000024-0



Aerostar ESC card
Part No:
9164000041-0

TROUBLE SHOOTING:

Problem	Cause	Solution
Motor does not turn	<ol style="list-style-type: none"> 1. Battery is not fully charged. 2. Transmitter battery low. 3. Motors not connected. 4. The motor is damaged. 5. Receiver is not bound to Tx. 6. ESC in set-up mode. 	<ol style="list-style-type: none"> 1. Charge the batteries. 2. Install a full 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.
<u>Model moves backwards</u>	<ol style="list-style-type: none"> 1. Prop installed backwards 	<ol style="list-style-type: none"> 1. Swap the props around.
<u>Control surfaces not moving with stick input</u>	<ol style="list-style-type: none"> 1. The servo lead is connected to Rx incorrectly. 2. The servo is damaged. 	<ol style="list-style-type: none"> 1. Make sure the servo leads are connect properly. 2. Replace servo.
<u>Model does not fly straight</u>	<ol style="list-style-type: none"> 1. Control surfaces not centered. 2. CoG is not in the correct position. 	<ol style="list-style-type: none"> 1. Adjust the trims on the transmitter. 2. Re-position lipo as suggested.
<u>Model does not climb well</u>	<ol style="list-style-type: none"> 1. The battery is not fully charged. 2. Elevator servo is reversed. 3. CG too far backwards. 	<ol style="list-style-type: none"> 1. Charge the battery. 2. Change servo direction via Tx. 3. Move battery forwards.
<u>Limited Radio Range</u>	<ol style="list-style-type: none"> 1. Transmitter/Receiver batteries are flat. 	<ol style="list-style-type: none"> 1. charge/replace batteries.

USEFUL LINKS:

For your next Durafly purchase be sure to visit:

- <http://www.hobbyking.com>

Or see our Facebook page at:

- <http://www.facebook.com/durafly>

See the product video of Excalibur in action:

- <https://youtu.be/Pln6xsyRl8w>

For a closer look at the Excalibur out of the box, watch the daily below:

- <https://youtu.be/XWYDmCxQLgA>

For more information on this model and the entire range from Durafly please visit us at:

- <http://www.durafly.com>

If you wish to contact us directly please email:

- durafly@hobbyking.com

NOTES:

