Flash RELOADED

MOTOR: 1x 50-72g / 900-1200kV Outrunner
ESC: 1x 20A(58g motor)/30A(72g motor)
SERVOS: 4x 10g-16g Metal Gear Servos
PROP: 1x 10x3.8-10x4.7 for 58g motor
11x5.5 for 72g motor
BATTERY: 3s 800mAh-1500mAh

TWISTED HOBBYS

RADIO: 4 channel
WINGSPAN: 39″
LENGTH: 41″
AUW: 400g to 500g
depending components used

SAFETY NOTES

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

IMPORTANT: PRIOR TO ANY ASSEMBLY

Please Note: after removing kit from shipping box, lay each piece flat on a hard surface, this will allow the airframe to straighten out if lightly bent from shipping. Do not worry since EPP is very pliable and can be bent back if out of shape.

TWISTED HOBBYS

Website: www.twistedhobbys.com – email: sales@twistedhobbys.com

Thank you for your purchasing a Twisted Hobbys' model. Please read through the entire manual before beginning to build this model. If you have any questions please contact us at the above indicated email address.

WARNING INFORMATION

This R/C Aircraft is not a toy! Read and understand the entire manual before assembly. If misused, it can cause serious bodily harm and property damage. Fly only in open areas, and AMA (*Academy of Model Aeronautics*) approved flying sites. Do not over look the warnings and instructions enclosed or those provided by other manufactures' products. If you are not an experienced pilot and airplane modeler you must use the help of an experienced pilot or an authorized flight instructor for the building and flying of this model aircraft.

These instructions are suggestions only on how to assemble this model. There are other ways and methods to do so. Twisted Hobbys has no control over the final assembly, the materials and accessories used when assembling this kit, or the manner in which the assembled model, installed radio gear and electronic parts are used and maintained. Thus, no liability is assumed or accepted for any damage resulting from the use of the assembled model aircraft or from this instruction manual including but not limited to direct, indirect, incidental, special, and consequential damages. By the act of using this user-assembled product, the user accepts all resulting liability. In no event shall Twisted Hobbys' liability exceed the original purchase price of the kit.

SHIPPING DAMAGE

Twisted Hobbys checks each plane before shipping to ensure that each kit is in fine condition. We have no bearing on the condition of any component parts damaged by use, modification, or assembly of the model. Inspect the components of this kit upon receipt. If you find any parts damaged or missing, contact Twisted Hobbys immediately. We will not accept the return or replacement of parts on which assembly work has already begun. Twisted Hobbys reserves the right to change this warranty at anytime without notice.

OUR MISSION

To provide the best products and service to our customers at the lowest prices possible. We take great pride in our company, our commitment to customer service and in the products we sell. Our online store is designed to provide you with a safe and secure environment to browse our product catalog.

Thank you for shopping with Twisted Hobbys!

KIT CONTENTS

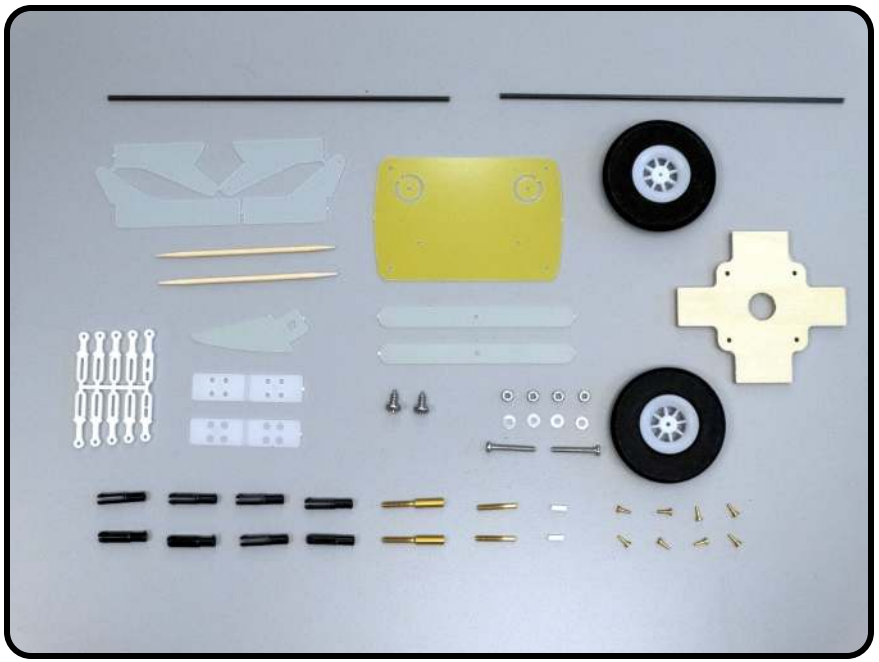
Wing Parts

Fuselage Parts

Double check that you have all the above pictured items. Note -
Some kits might have slight deviations from the above pictured items.

DETAILED DESCRIPTIONS OF ITEMS WILL BE CALLED OUT IN THE BUILD STEPS

KIT CONTENTS (cont.)



Hardware and Small Carbon

Optional Aura5 and Reciever

Double check that you have all the above pictured items. Note -
Some kits might have slight deviations from the above pictured items.

DETAILED DESCRIPTIONS OF ITEMS WILL BE CALLED OUT IN THE BUILD STEPS

POWER COMBOS

Light Weight Combo

High Energy Combo

There are many different combinations of servos, motors, escs, props, etc. Above are the two offerings from Twisted Hobbys. Slow and Floaty on the LEFT and Ballistic and Insane on the RIGHT.

***** THESE ARE OPTIONAL ITEMS - THEY ARE NOT INCLUDED IN THE KIT *****

TOOL AND ADHESIVES NEEDED

Tools shown and listed are suggestions only. Depending on your building technique you may not need everything indicated – and/or – you may find that other tools available to yourself may be of benefit to your Build.

It is also recommended that you have a flat building surface, one that will accept stick pins and push pins. An Acrostic Ceiling panel from your local hardware store fits this bill nicely, and will lay flat on your work table. Over size / long push pins are available at your local craft store. These two items are by no means required, but will aid in the building process, and can be used for future projects

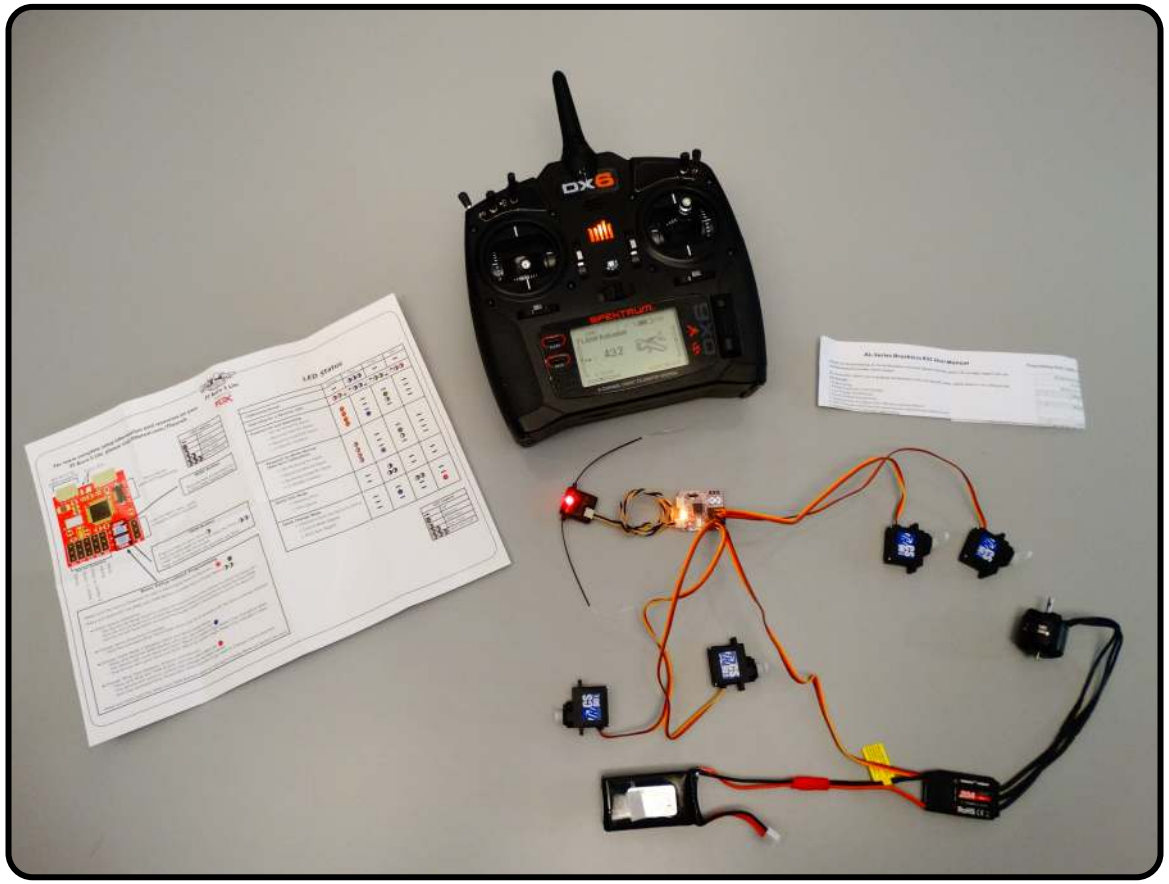
- **Lighter**
- **Small Drill Bits**
- **Tape Measure and Ruler**
- **Black Sewing Thread**
- **Welders or Foam Tac Glue**
- **Hobby Knife w/new Blade**
- **Needle Nose Pliers**
- **Wire Cutters**
- **Low Temp Hot Glue Gun**
- **Course Sand Paper**
- **Scissors**
- **Small Phillips Screw Driver**
- **Thin and Medium CA**
- **CA Applicator Tips**
- **Activator**

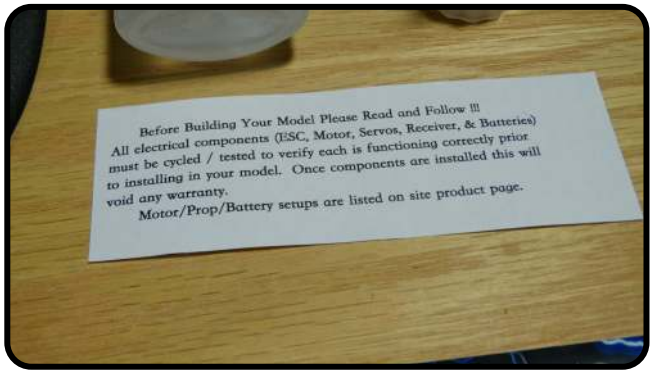
THE BUILD

CONSTRUCTION METHODS:

Building surface should be at least 2ft x 4ft and flat. Weights or some small heavy objects will be handy for holding things in place during the time glue is setting.

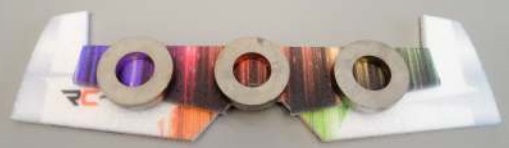
Welders or FoamTac glue is used for FOAM TO FOAM joints. Thin and Medium CA can be used on the PLASTIC TO FOAM and CARBON TO FOAM joints. **When using the Welders or FoamTac glue for a butt joint, apply a thin film to each surface, allow to sit breifly per mfg instructions, then assemble**. Note that this method will create a nearly instant bond, so locate carefully when bringing the two pieces together. **If alignment is necessary or a slip joint, do not allow the glue to tack up**, simple apply and join immediately, you will have several minutes to locate the two parts before the glue sets up. In most cases the parts being glued can be handled with care in 30 minutes, full cure is approx 24 hours.





- ☐ Locate all the electronics that will be used on this model
- ☐ Create a model on your transmitter
- ☐ Following your radio mfg. instructions, bind your radio to the power combo components
- ☐ Calibrate the ESC.
- ☐ Confirm all components work properly.

Bend over elevator carefully and weigh down



1

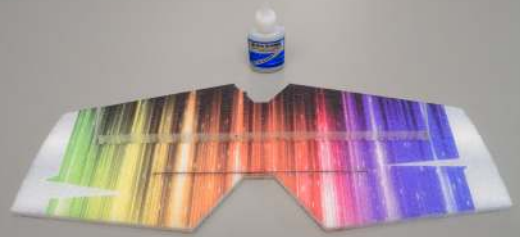
Flex the ailerons - Do not bend all the way back

2

Put a fresh blade in your hobby knife

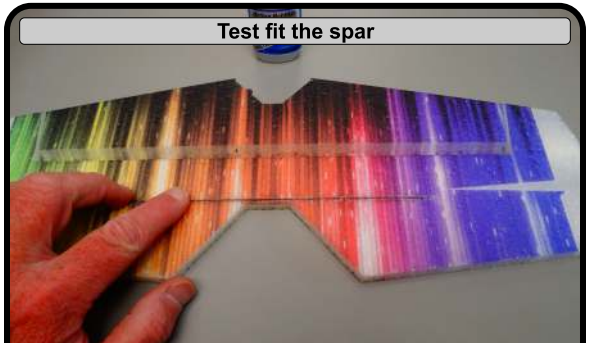
3

Locate 3x0.5x190 Carbon Spare and thin CA



4

Test fit the spar

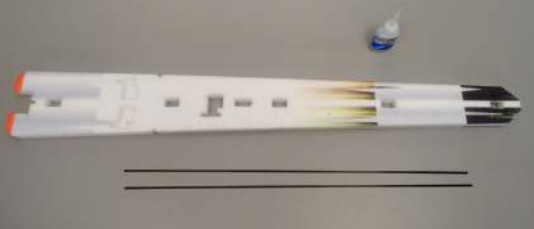


5

Secure with CA and Kicker

6

Locate fuselage piece and 2pcs 3x0.5x500 spars



7

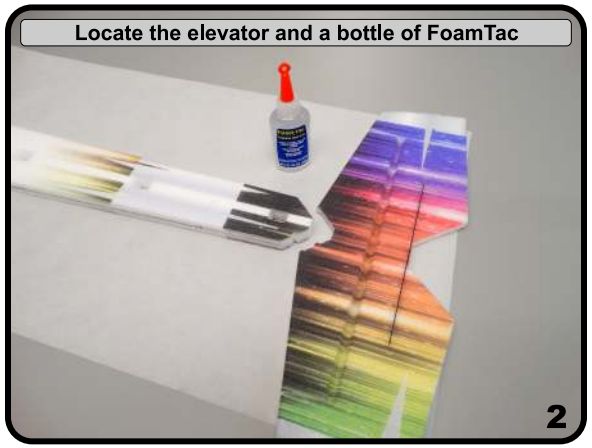
Install from tail forward with no over hang

8

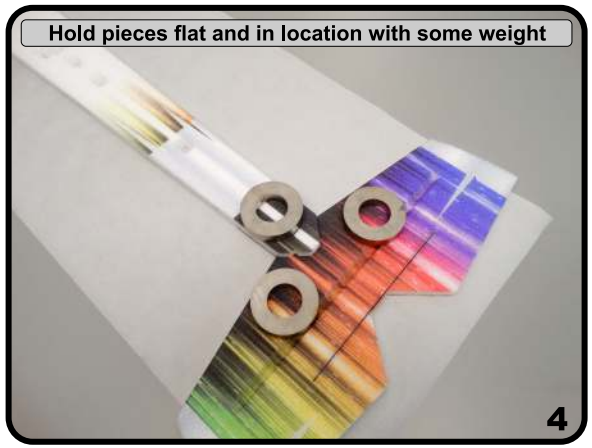
Push down flush for the whole length

9


Check for straightness and the CA - do both sides
1


Locate the elevator and a bottle of FoamTac
2

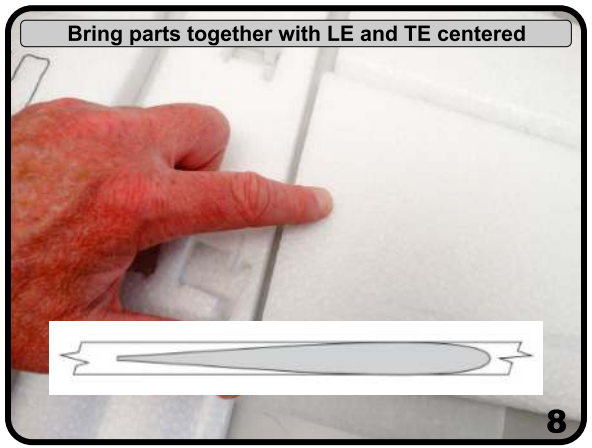

Coat both surfaces and join together
3


Hold pieces flat and in location with some weight
4


Locate the wings
5

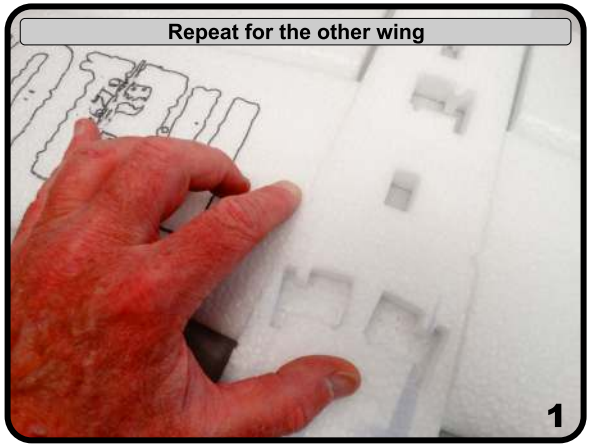

Coat both surfaces with FoamTac and tack-up
6


Once glue is tacked up join the pieces together
7


Bring parts together with LE and TE centered
8


Make sure the joint is nice and solid
9

Repeat for the other wing

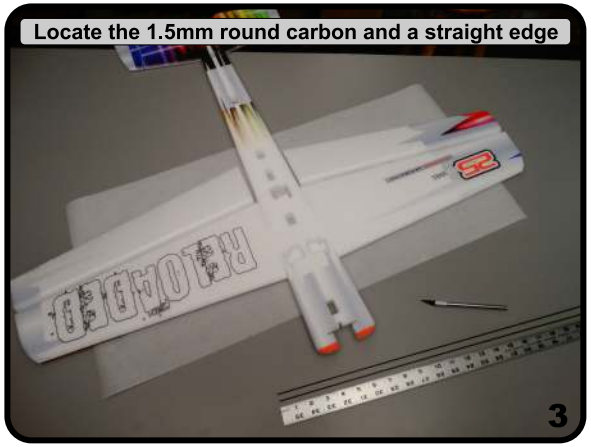


1

Let everything dry with some weight

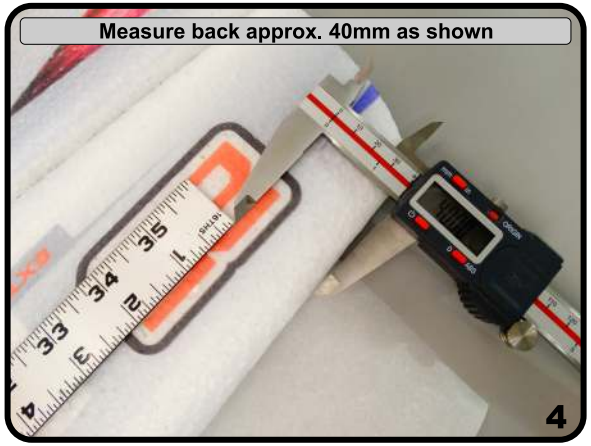
2

Locate the 1.5mm round carbon and a straight edge



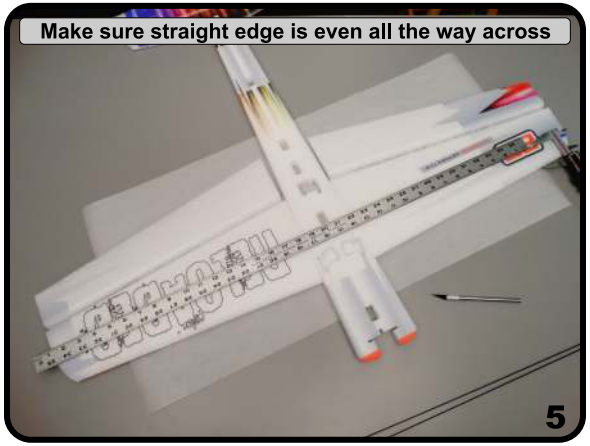
3

Measure back approx. 40mm as shown



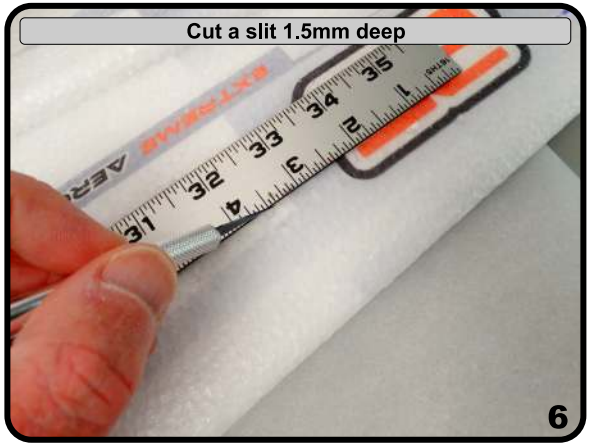
4

Make sure straight edge is even all the way across



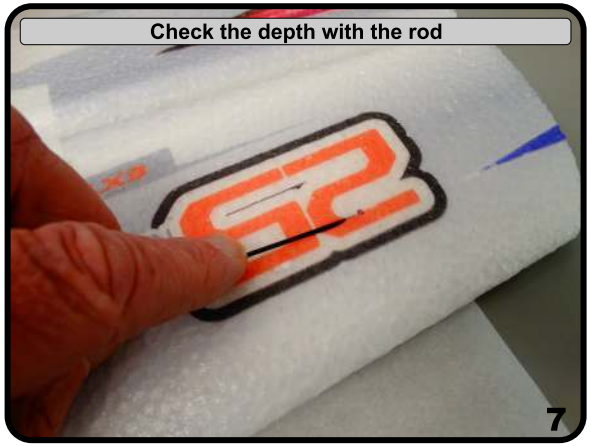
5

Cut a slit 1.5mm deep



6

Check the depth with the rod

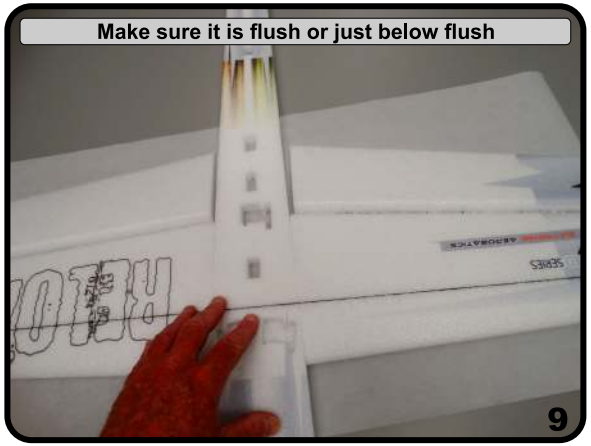


7

Press into the slit

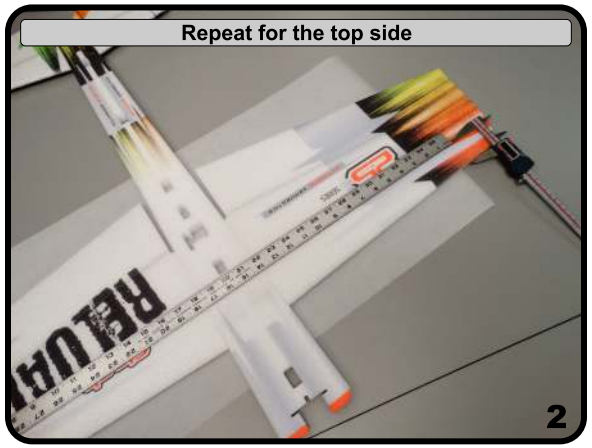
8

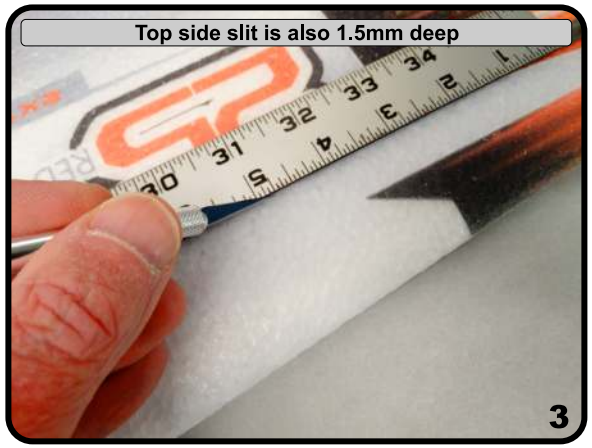
Make sure it is flush or just below flush

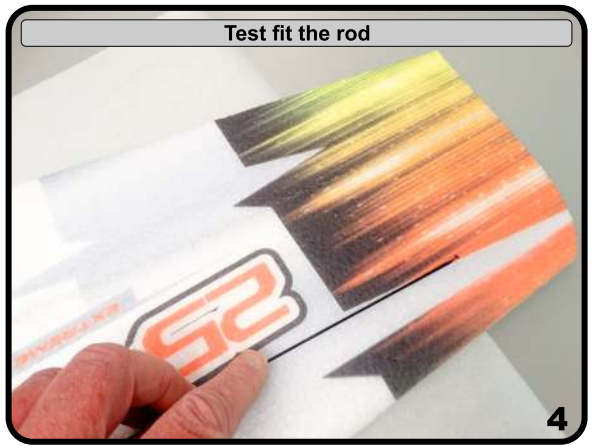


9


Secure with CA along the entire length
1

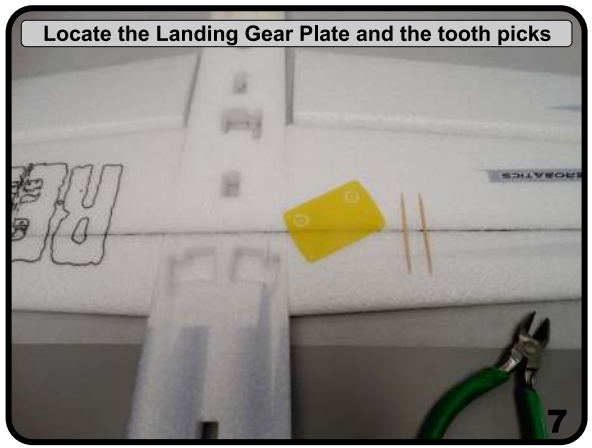

Repeat for the top side
2

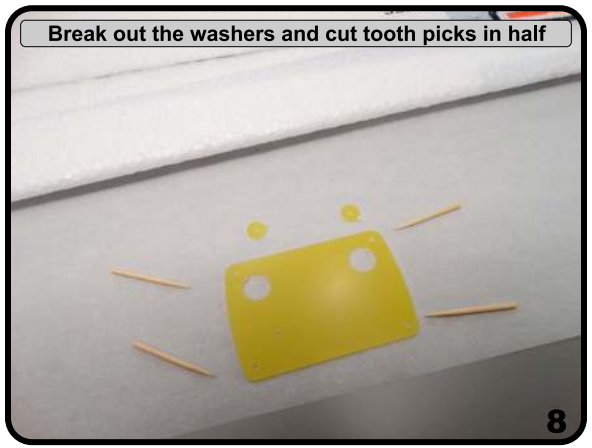

Top side slit is also 1.5mm deep
3

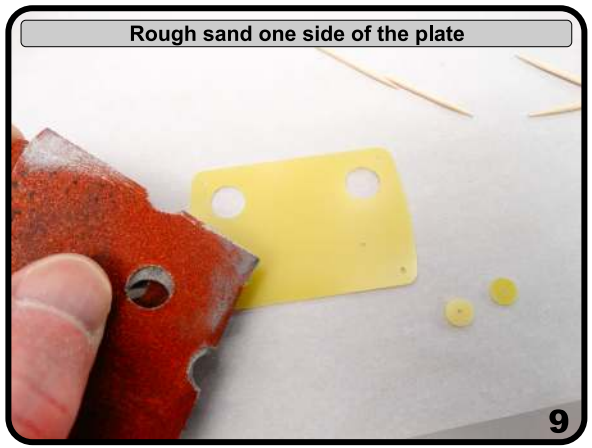

Test fit the rod
4


Make sure it is flush to just below flush
5

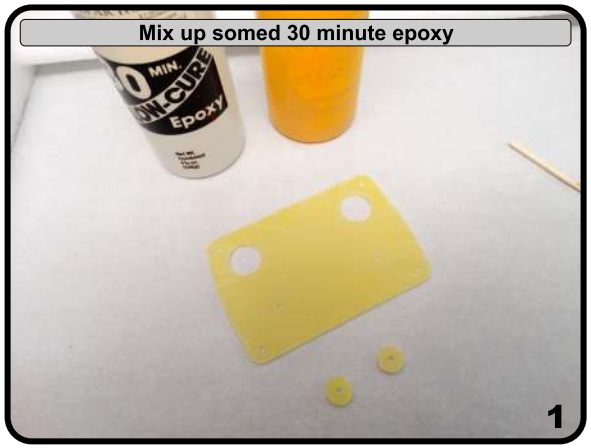

Secure with CA along the entire length
6


Locate the Landing Gear Plate and the tooth picks
7


Break out the washers and cut tooth picks in half
8


Rough sand one side of the plate
9

Mix up somed 30 minute epoxy



1

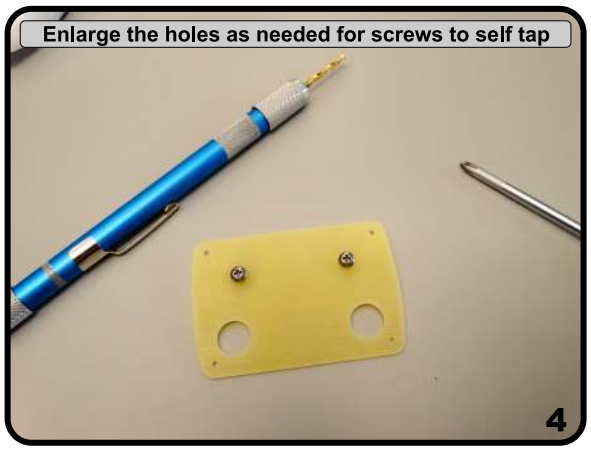
Attach the washers to roughed side - align holes

2

Locate the two landing gear attachment screws

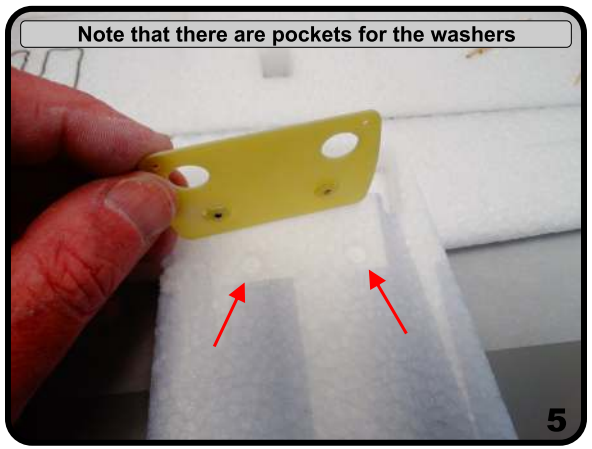
3

Enlarge the holes as needed for screws to self tap



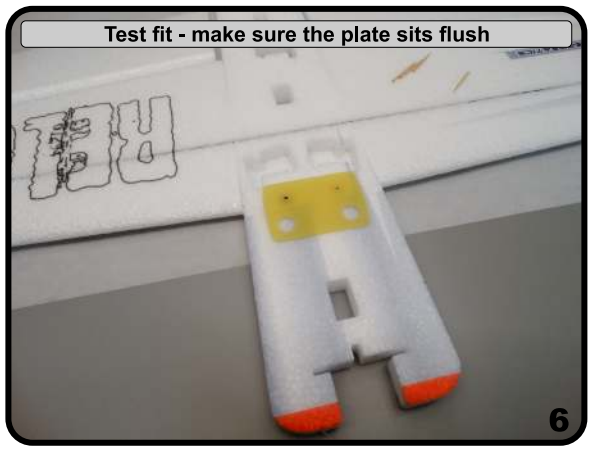
4

Note that there are pockets for the washers



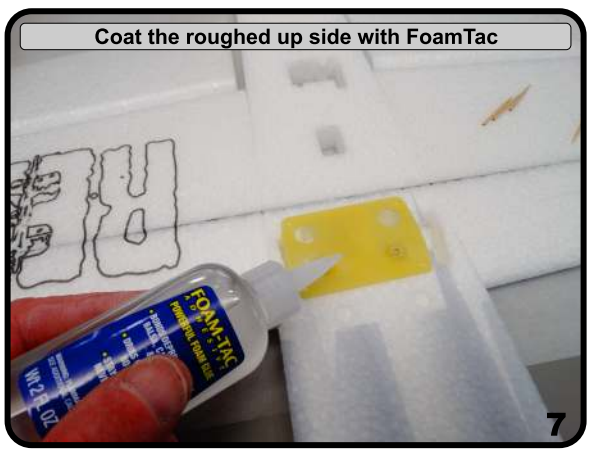
5

Test fit - make sure the plate sits flush



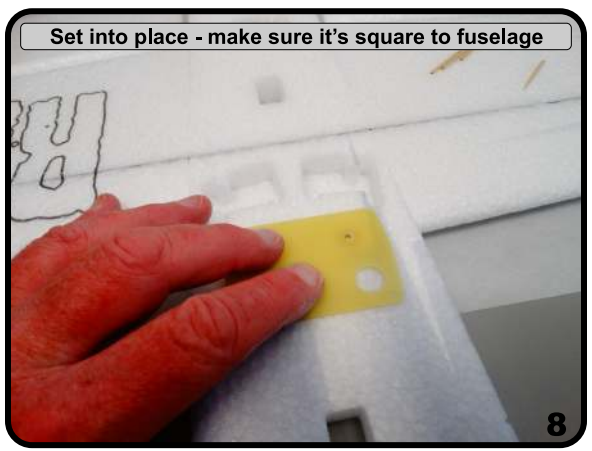
6

Coat the roughed up side with FoamTac



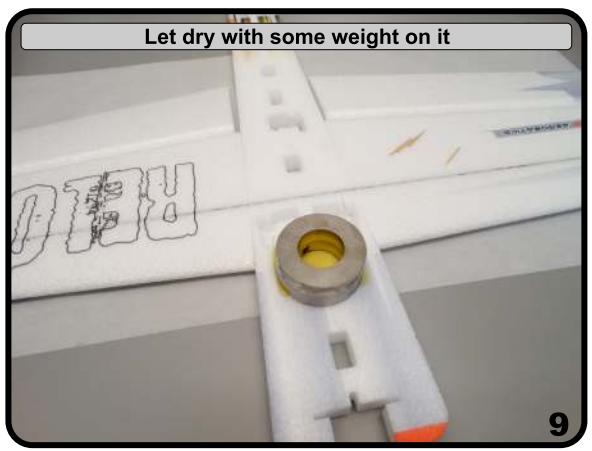
7

Set into place - make sure it's square to fuselage



8

Let dry with some weight on it

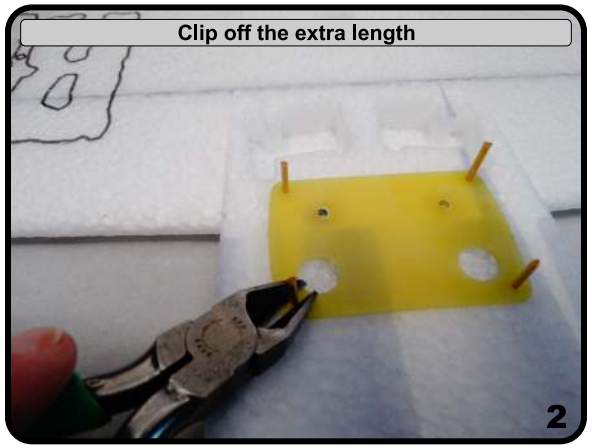


9

Install tooth picks with some med. CA as shown

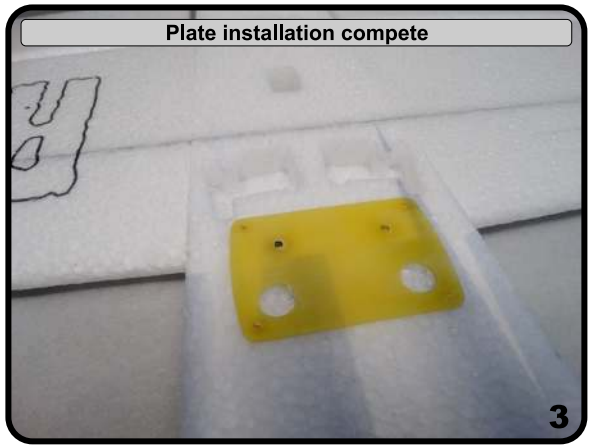
1

Clip off the extra length



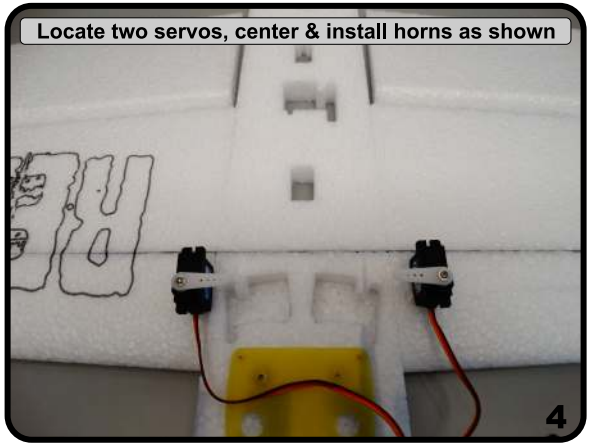
2

Plate installation compete



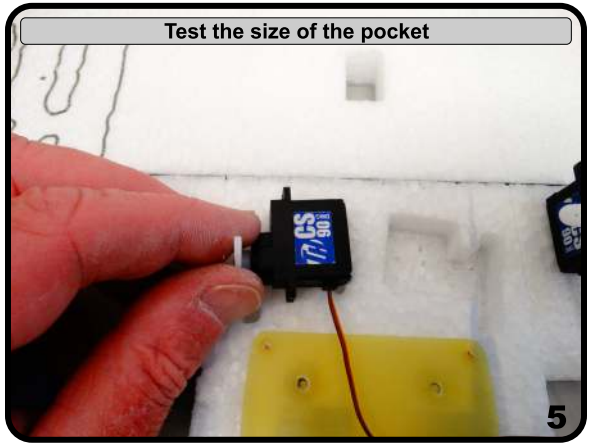
3

Locate two servos, center & install horns as shown



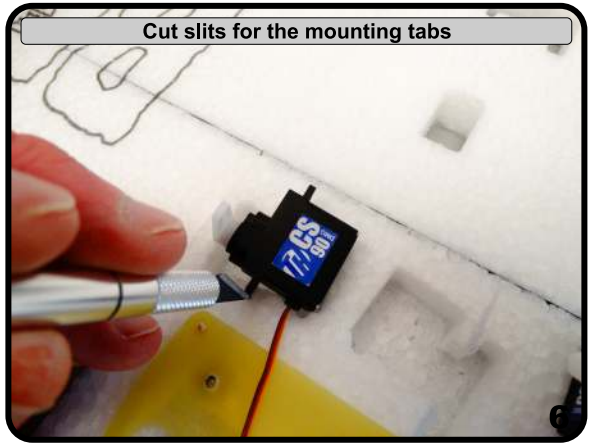
4

Test the size of the pocket



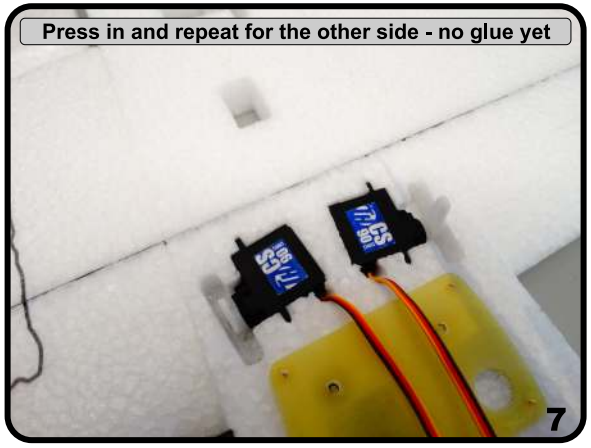
5

Cut slits for the mounting tabs



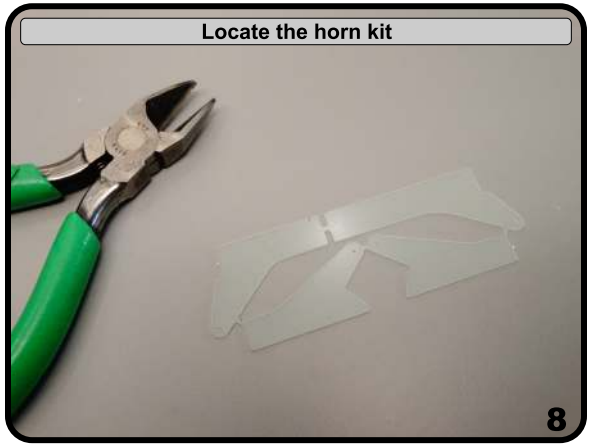
6

Press in and repeat for the other side - no glue yet



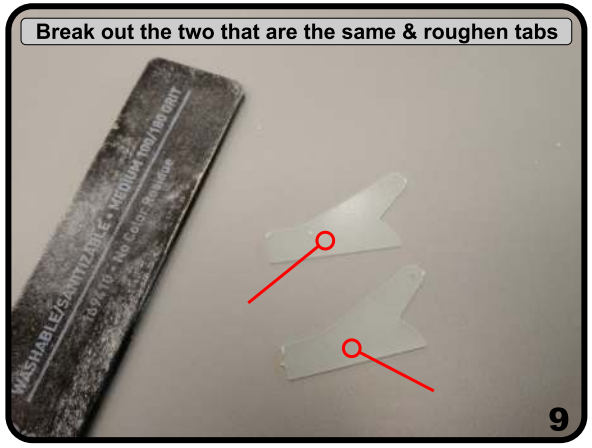
7

Locate the horn kit



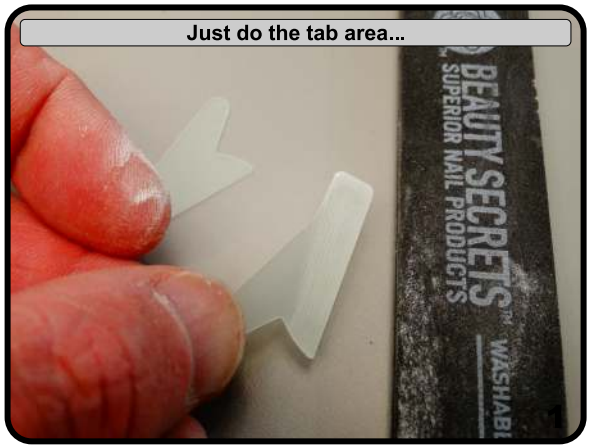
8

Break out the two that are the same & roughen tabs

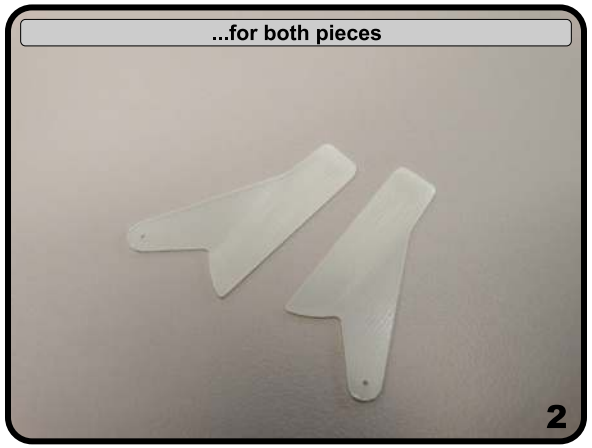


9

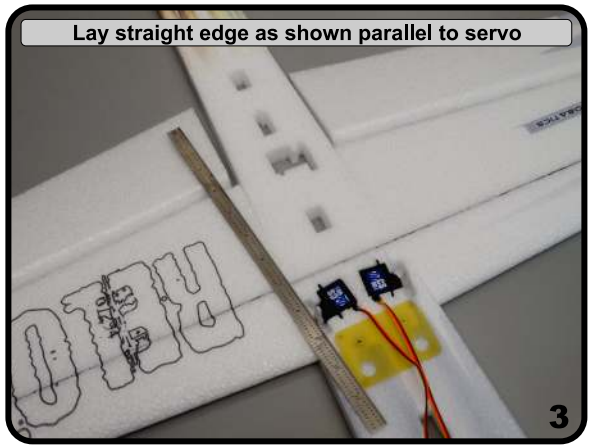
Just do the tab area...



...for both pieces

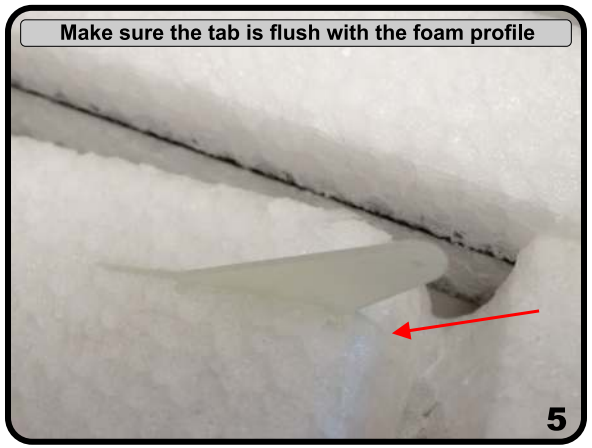


Lay straight edge as shown parallel to servo

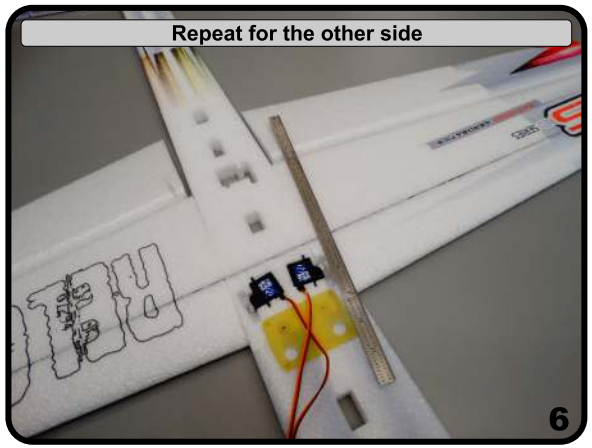


Make a slit long enough for the tab of the horn

Make sure the tab is flush with the foam profile

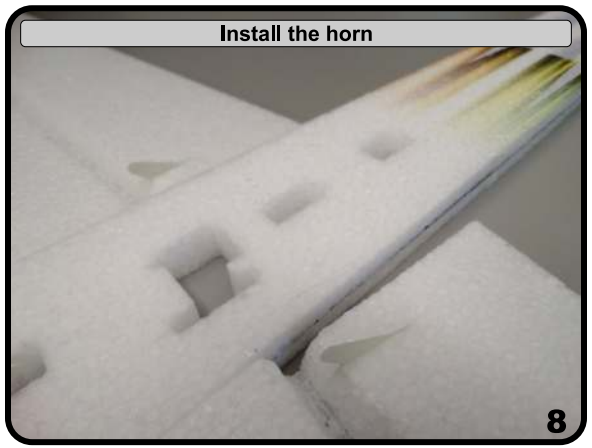


Repeat for the other side

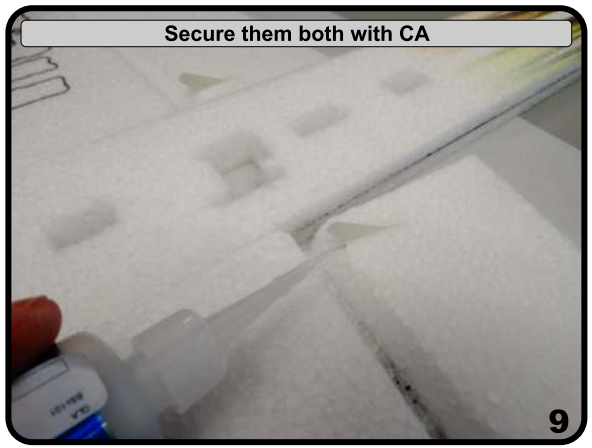


Cut the slit

Install the horn



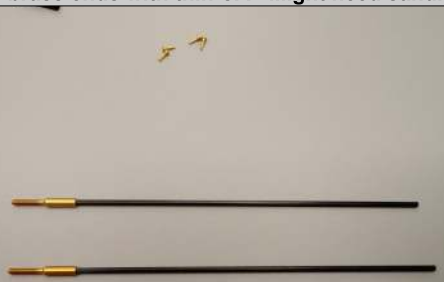
Secure them both with CA



Locate all the pieces shown for aileron rods

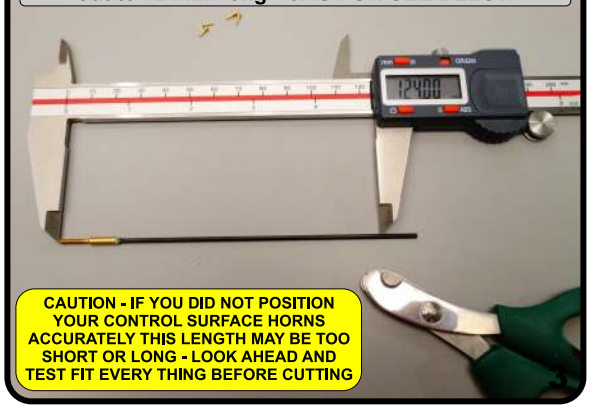
1

Secure brass ends with thin CA - Might need sanding



2

Cut to 124mm long - CAUTION SEE BELOW



3

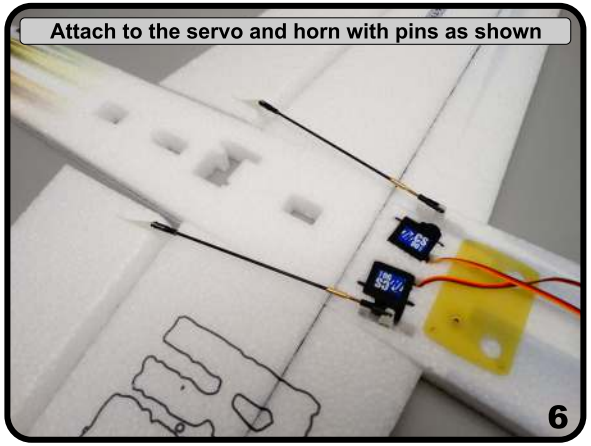
Position the clevises so their holes are 142mm apart

4

Repeat for other control rod & secure with thin CA

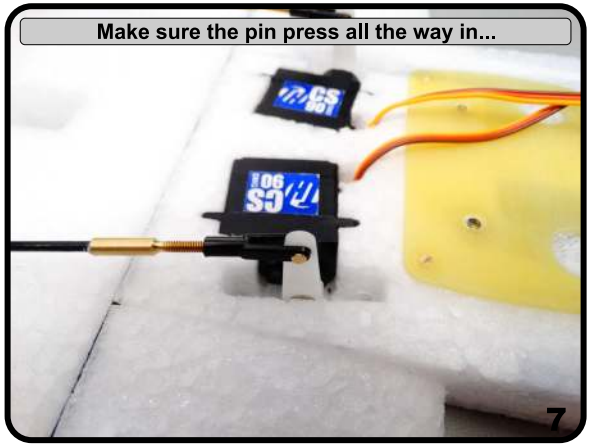
5

Attach to the servo and horn with pins as shown



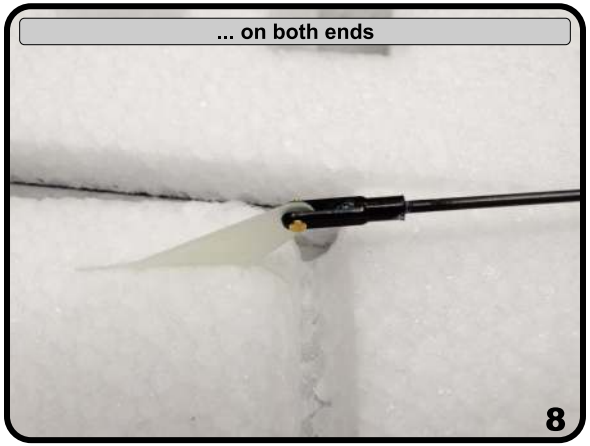
6

Make sure the pin press all the way in...



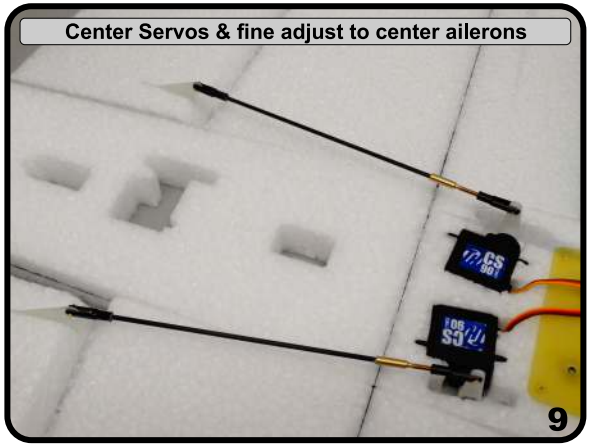
7

... on both ends

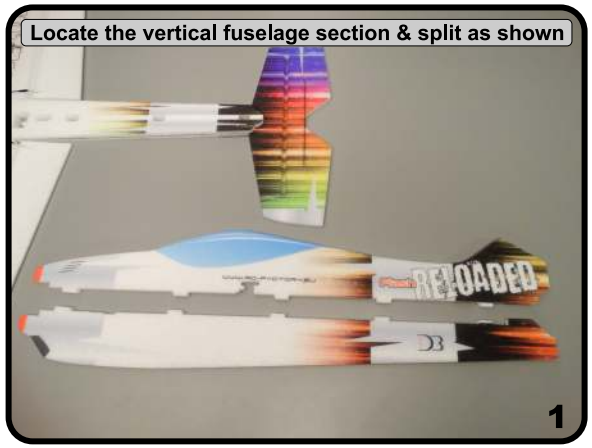


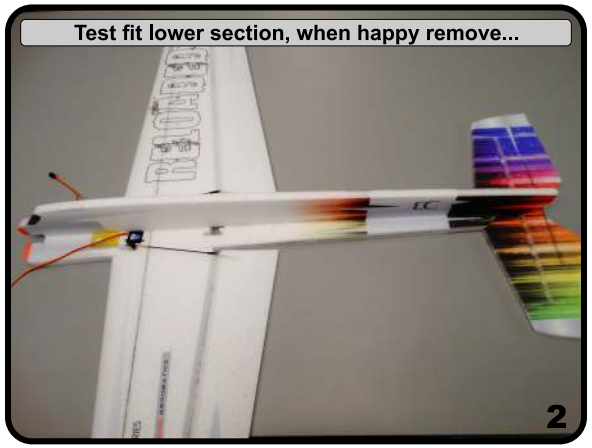
8

Center Servos & fine adjust to center ailerons

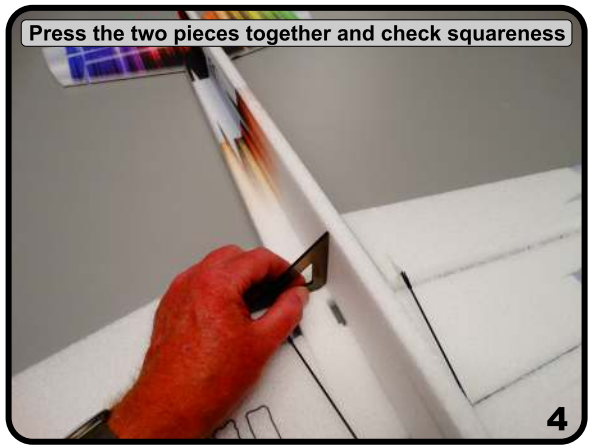


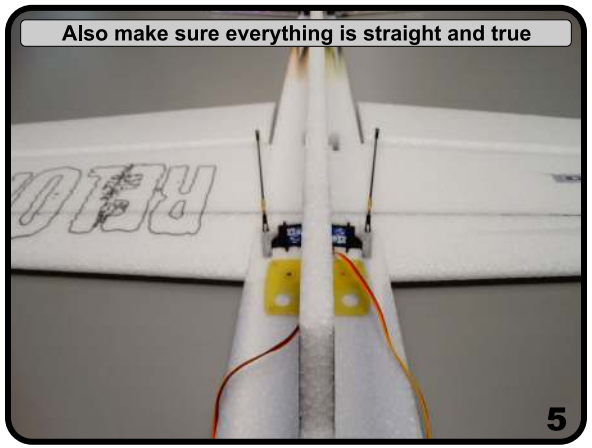
9


Locate the vertical fuselage section & split as shown
RELOADED
1


Test fit lower section, when happy remove...
2


... and apply FoamTac - avoid LG Strut slot
3


Press the two pieces together and check squareness
4


Also make sure everything is straight and true
5

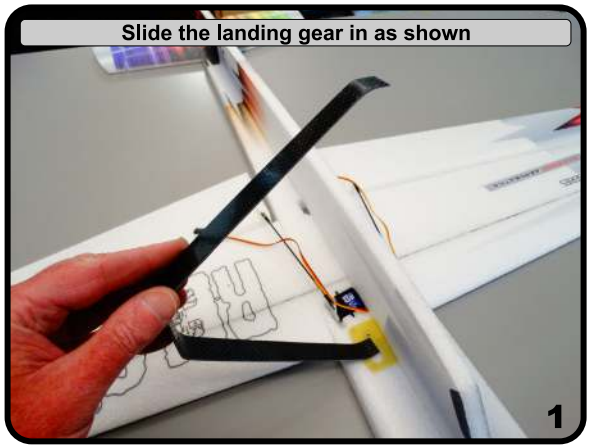

Locate the landing gear & mark as shown
35.00
6


Drill with a 2mm diameter bit
7


Mark axle hole with approx. location as shown
8

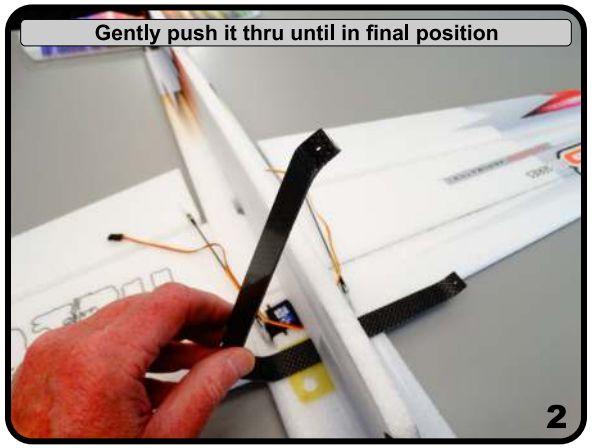

Drill with 2mm diameter bit
9

Slide the landing gear in as shown



1

Gently push it thru until in final position

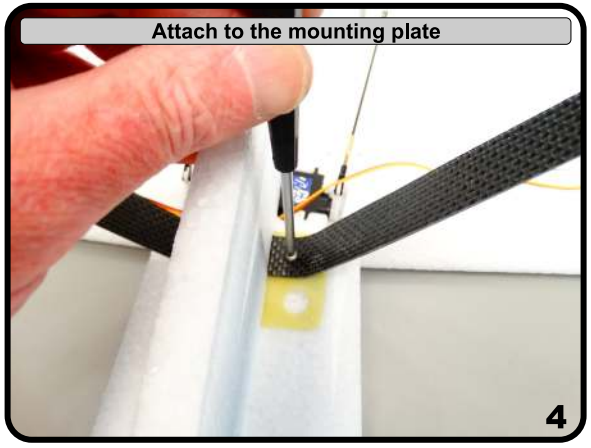


2

Locate the two mounting screws

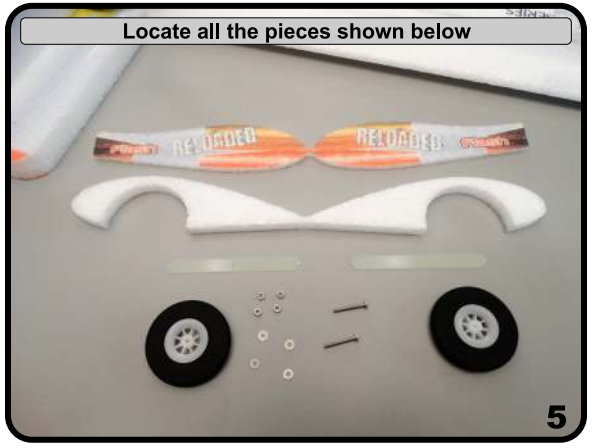
3

Attach to the mounting plate



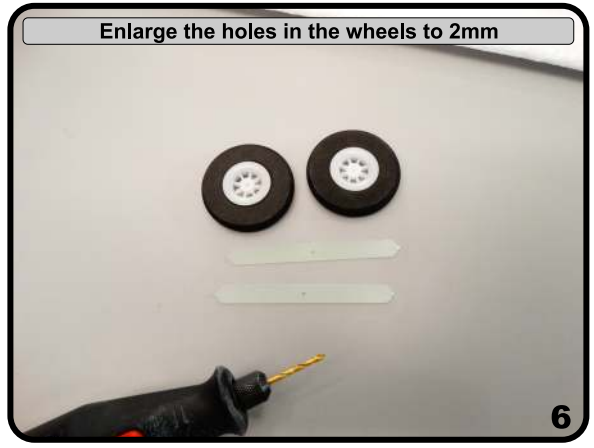
4

Locate all the pieces shown below



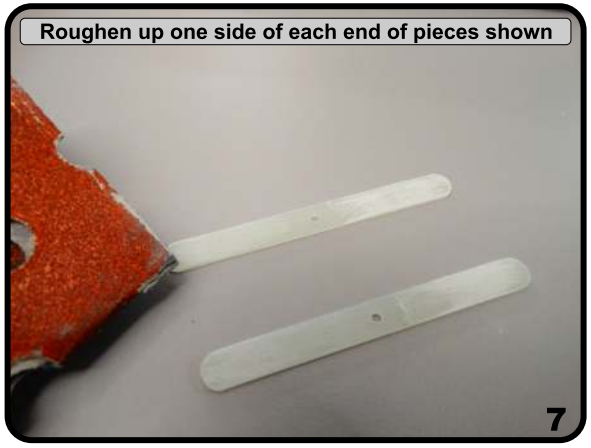
5

Enlarge the holes in the wheels to 2mm



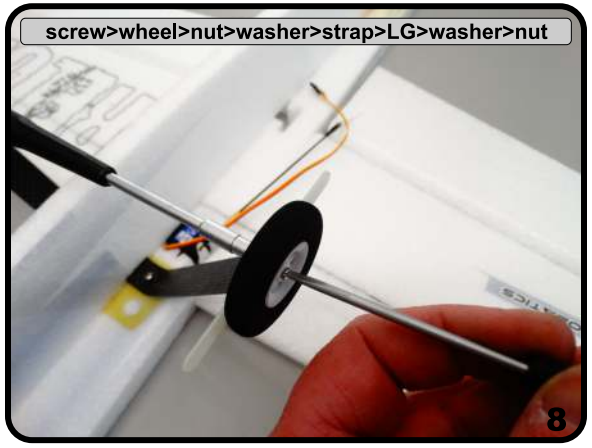
6

Roughen up one side of each end of pieces shown



7

screw>wheel>nut>washer>strap>LG>washer>nut



8

Tighten up so it is slop free, but still spins

9

Make sure the strap is level to position of flight

1

Secure nut with thin CA

2

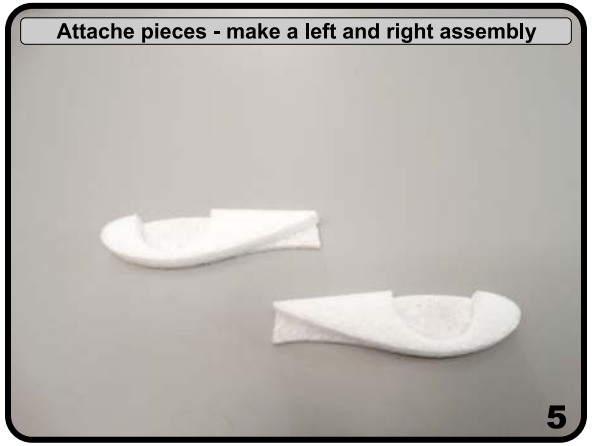
Locate the wheel pants

3

Cut them apart and coat one side with FoamTac

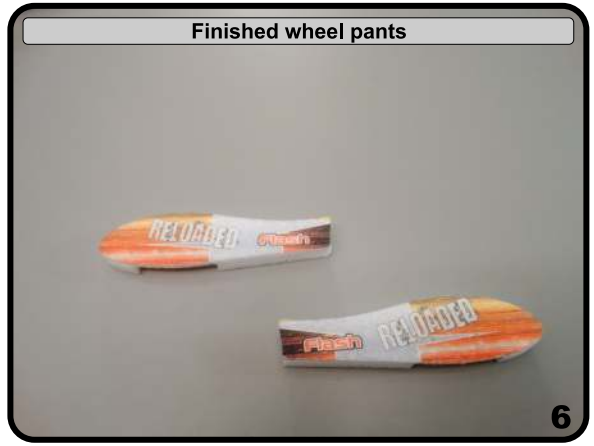
4

Attache pieces - make a left and right assembly



5

Finished wheel pants

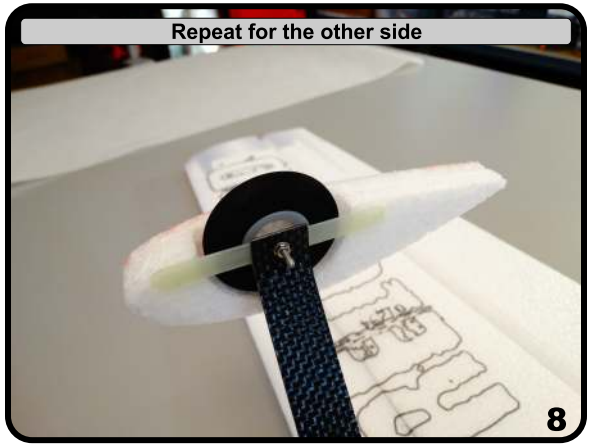


6

Attach them as shown with med CA and kicker

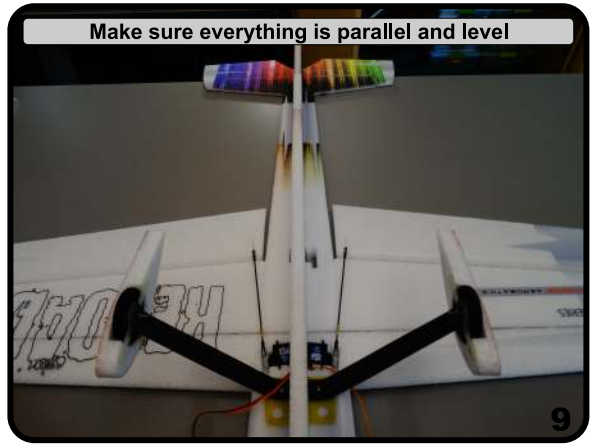
7

Repeat for the other side



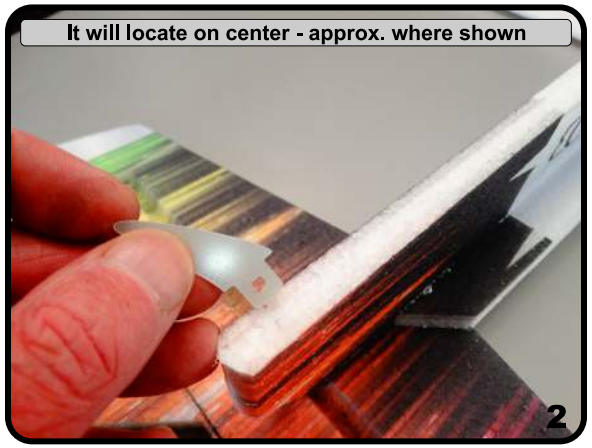
8

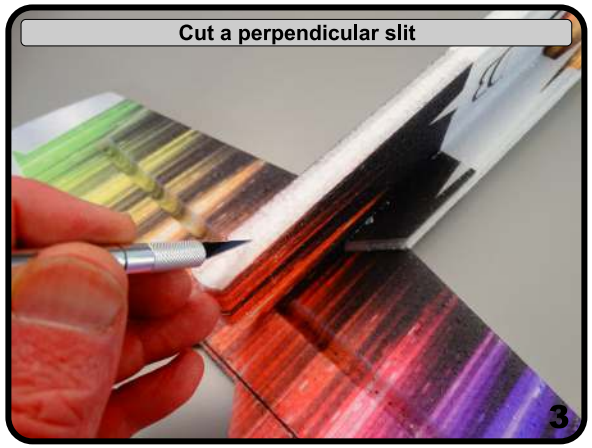
Make sure everything is parallel and level

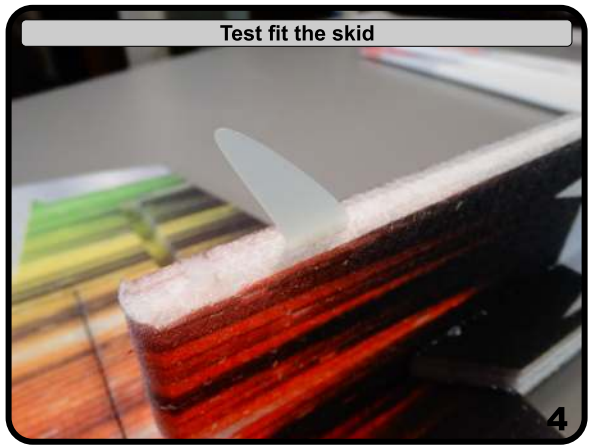


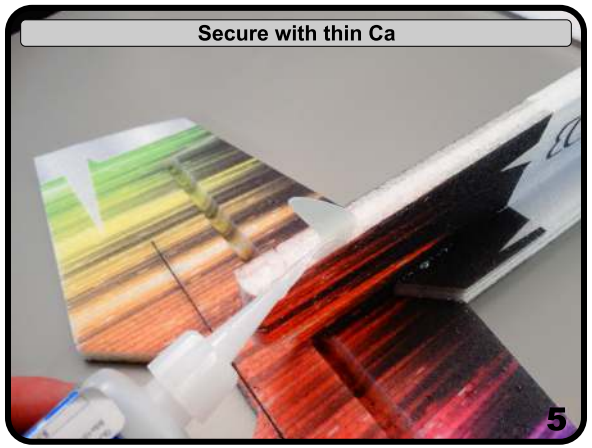
9

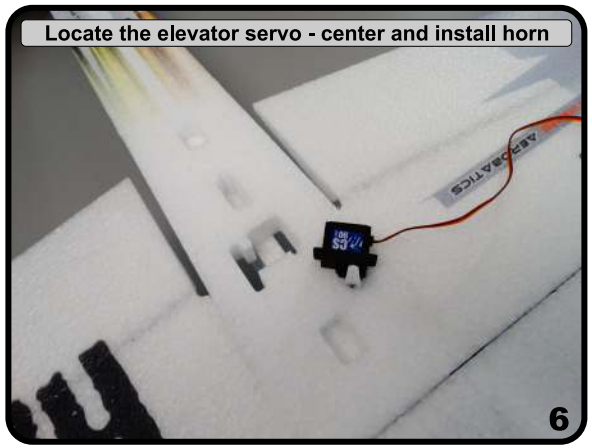

Locate the tail skid
1


It will locate on center - approx. where shown
2


Cut a perpendicular slit
3

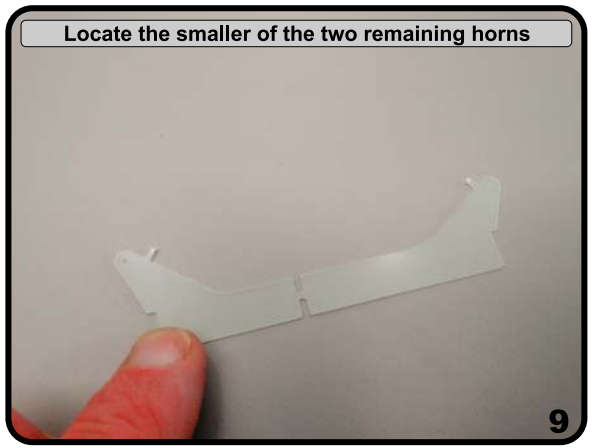

Test fit the skid
4


Secure with thin Ca
5


Locate the elevator servo - center and install horn
6

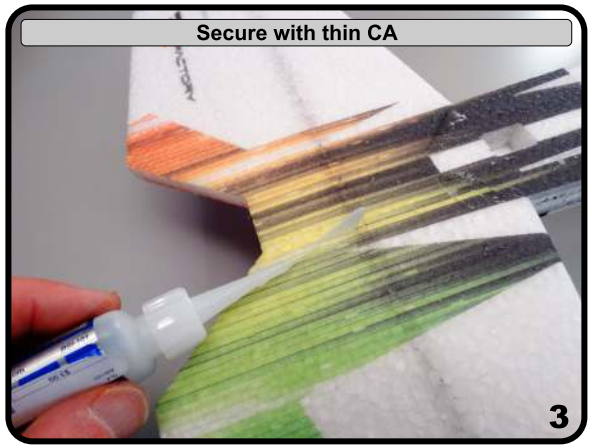

Fit into the pocket and cut slits for mounting tabs
7

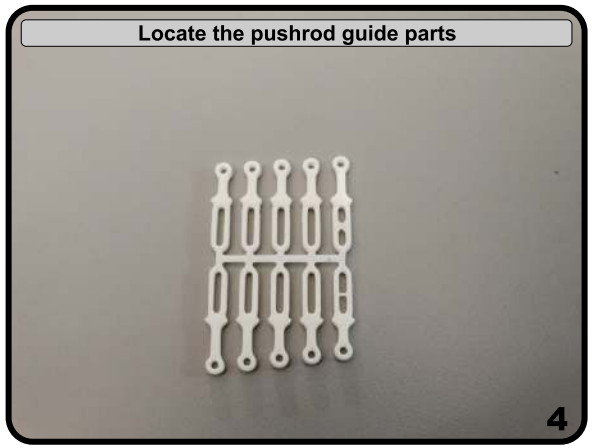

Press into position - no glue yet
8

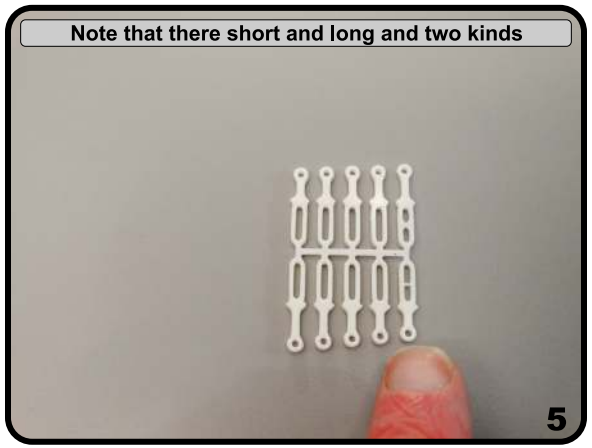

Locate the smaller of the two remaining horns
9

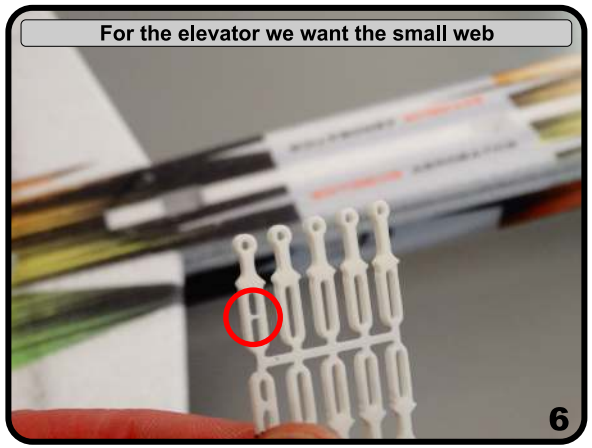

Roughen up the tab area as shown
1

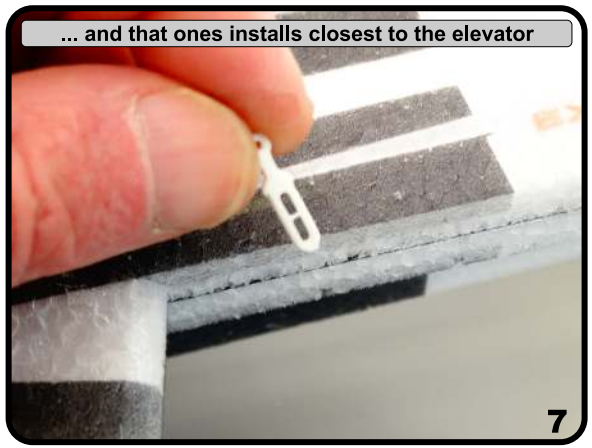

Test fit into the elevator - hole over hinge line
2


Secure with thin CA
3

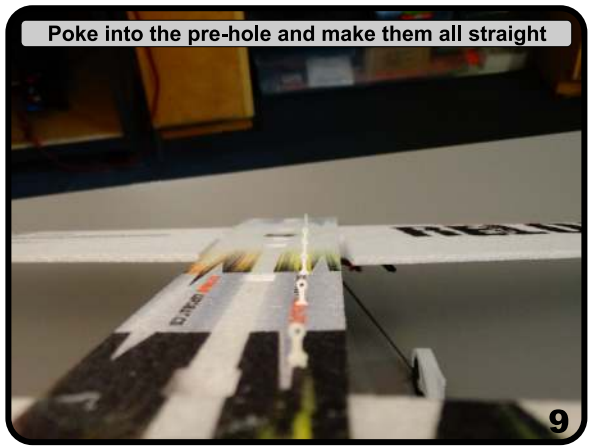

Locate the pushrod guide parts
4


Note that there short and long and two kinds
5

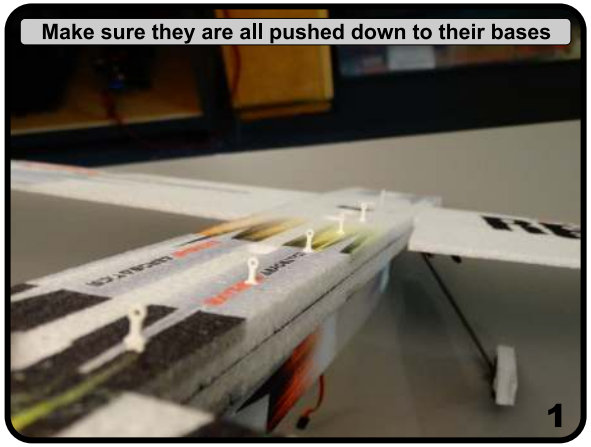

For the elevator we want the small web
6


... and that ones installs closest to the elevator
7


The rest follow in order from tail to nose
8

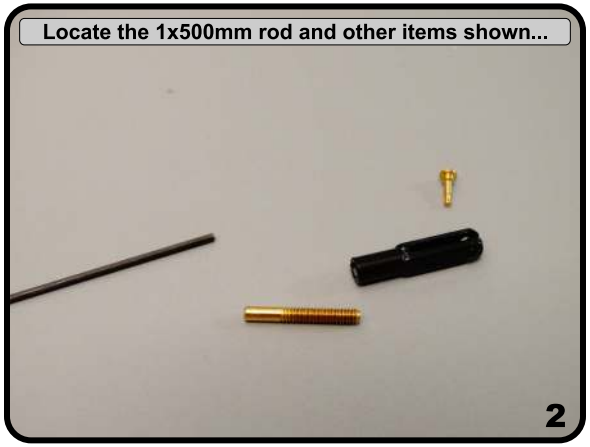

Poke into the pre-hole and make them all straight
9

Make sure they are all pushed down to their bases



1

Locate the 1x500mm rod and other items shown...

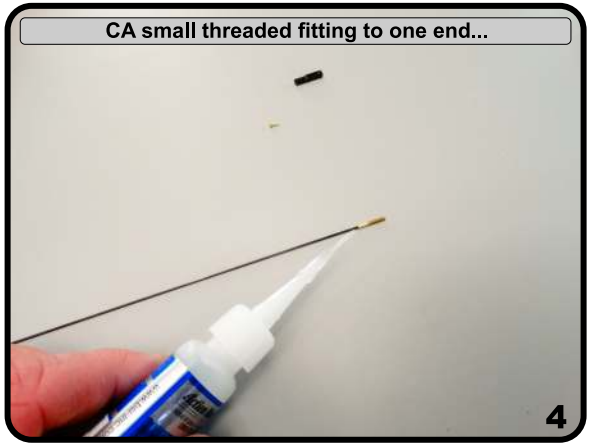


2

.... and these items as well for the other end

3

CA small threaded fitting to one end...

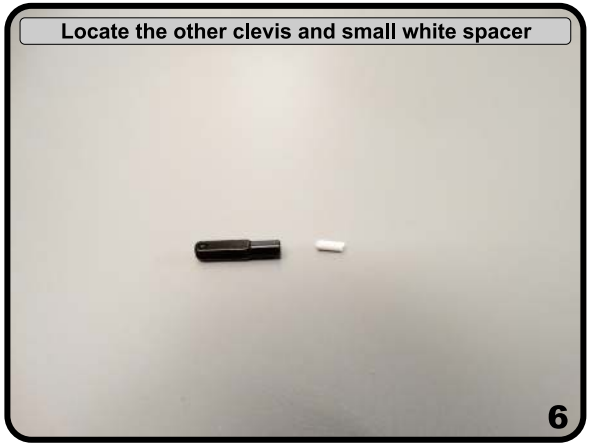


4

... and screw the clevis on about half way

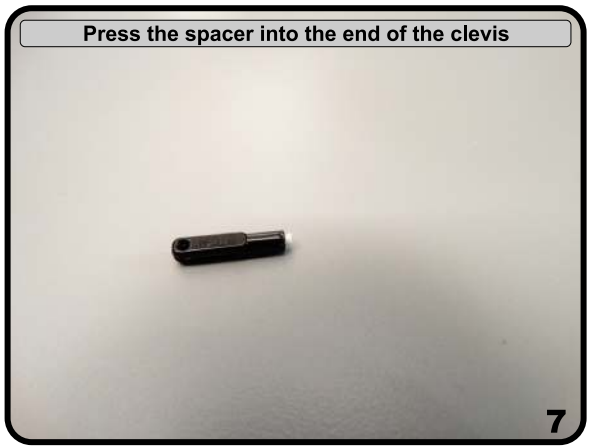
5

Locate the other clevis and small white spacer



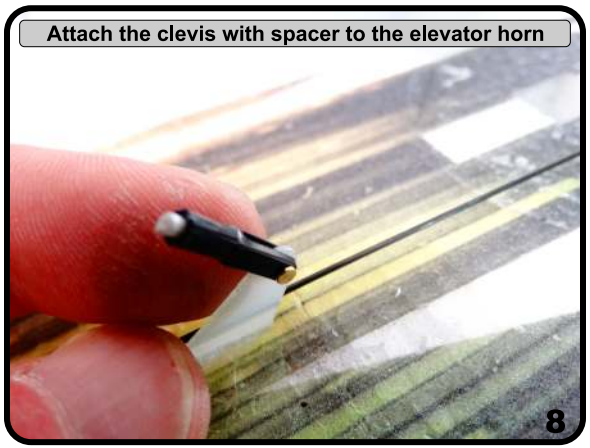
6

Press the spacer into the end of the clevis



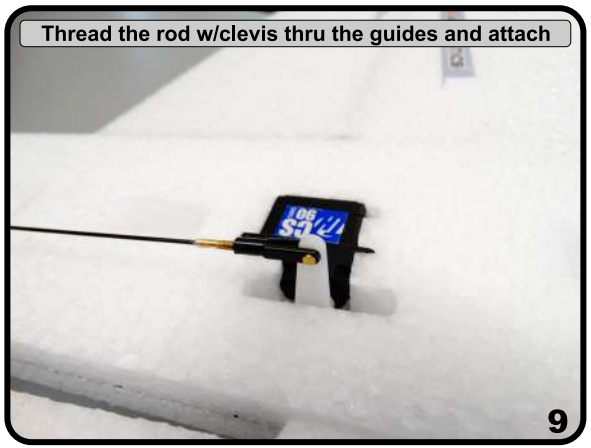
7

Attach the clevis with spacer to the elevator horn

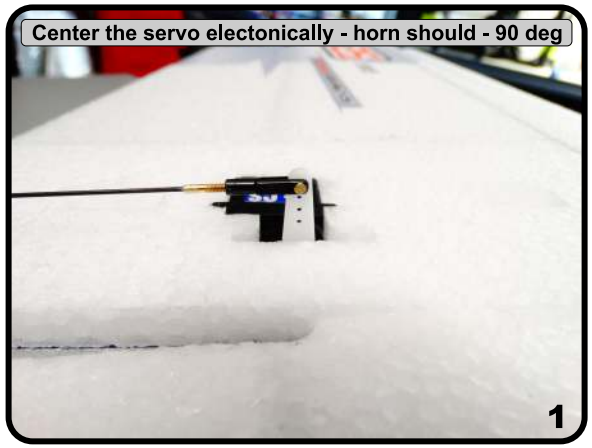


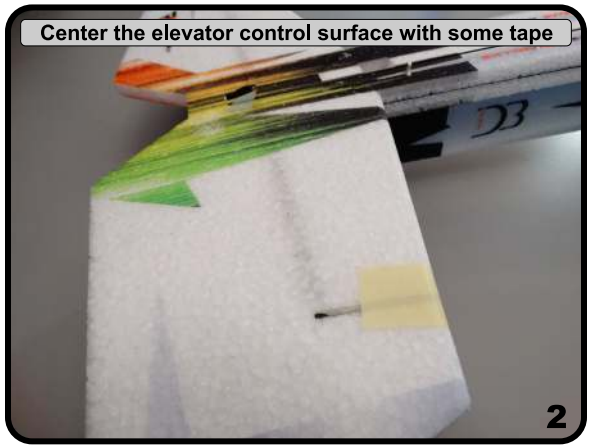
8

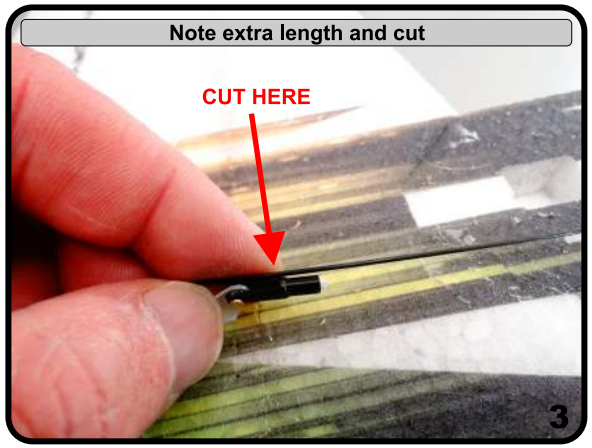
Thread the rod w/clevis thru the guides and attach

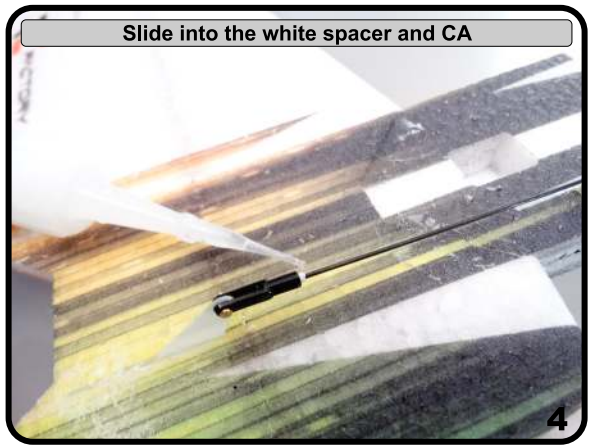


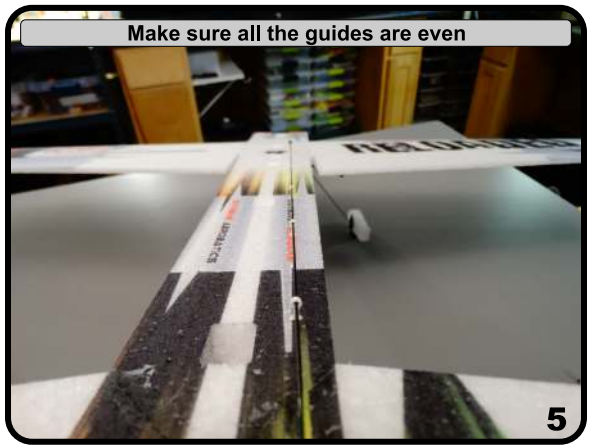
9

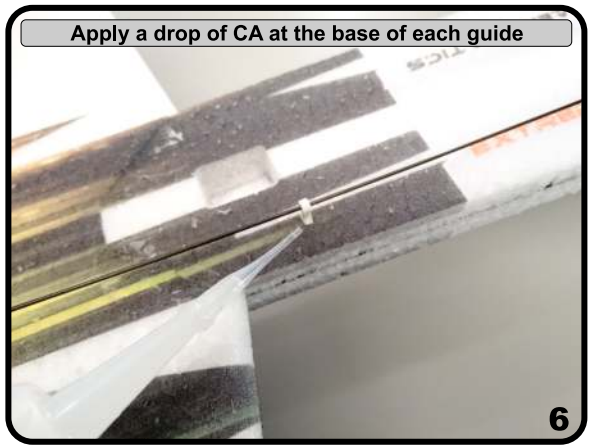

Center the servo electonically - horn should - 90 deg
1

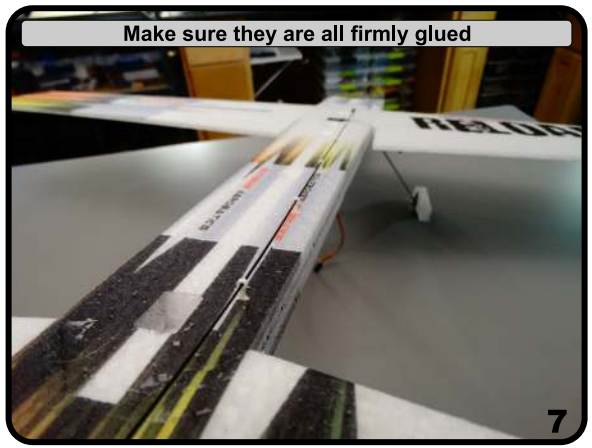

Center the elevator control surface with some tape
2

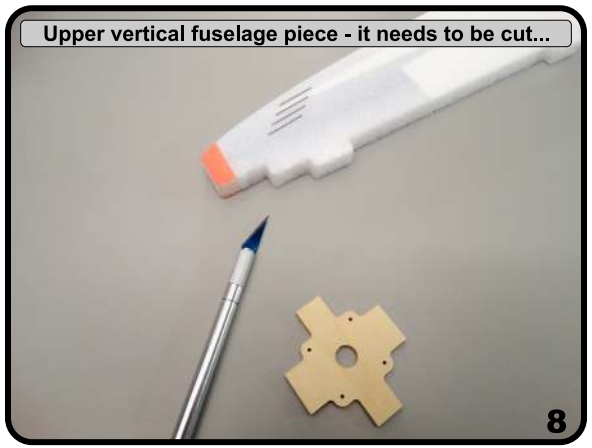

Note extra length and cut
CUT HERE
3

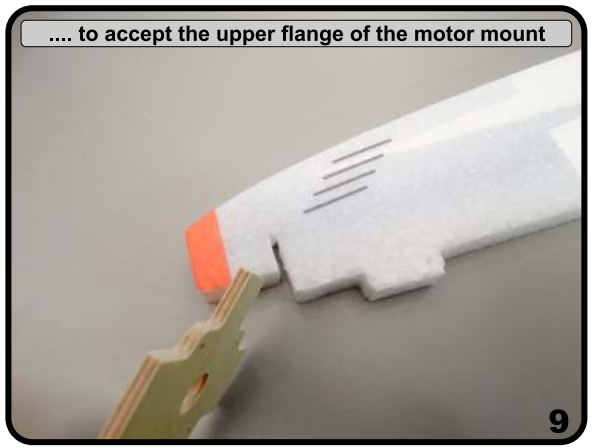

Slide into the white spacer and CA
4


Make sure all the guides are even
5

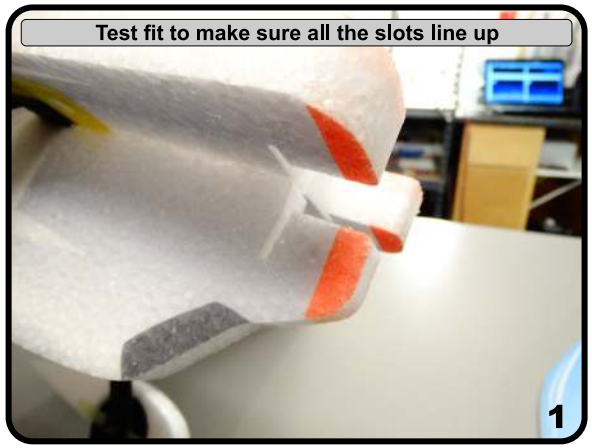

Apply a drop of CA at the base of each guide
6


Make sure they are all firmly glued
7


Upper vertical fuselage piece - it needs to be cut...
8

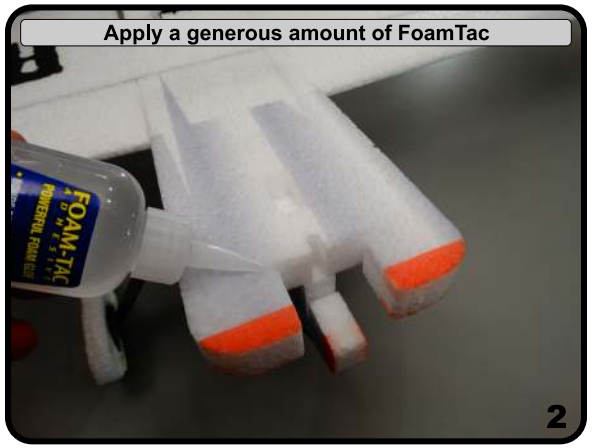

.... to accept the upper flange of the motor mount
9

Test fit to make sure all the slots line up



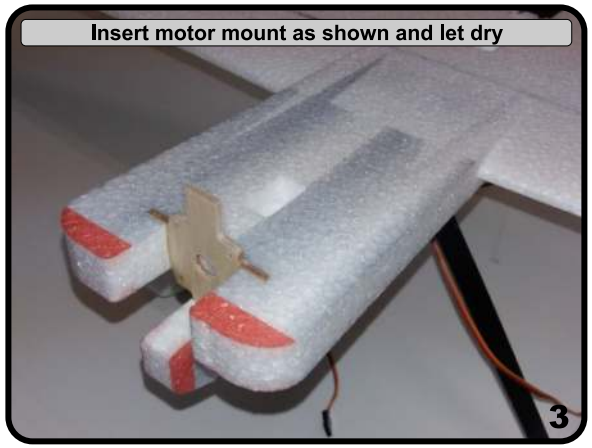
1

Apply a generous amount of FoamTac



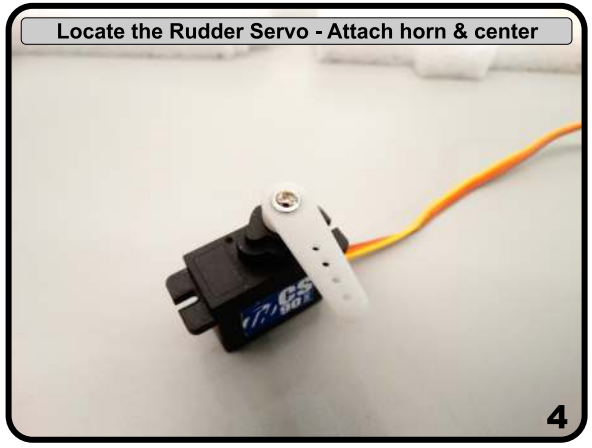
2

Insert motor mount as shown and let dry



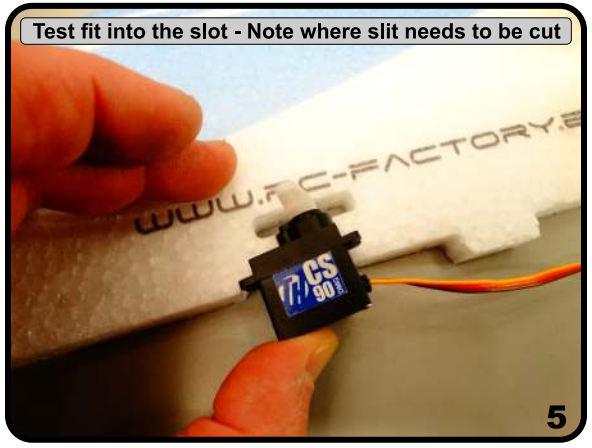
3

Locate the Rudder Servo - Attach horn & center



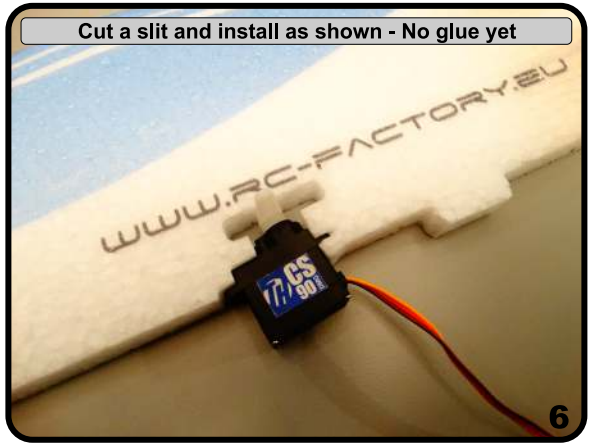
4

Test fit into the slot - Note where slit needs to be cut



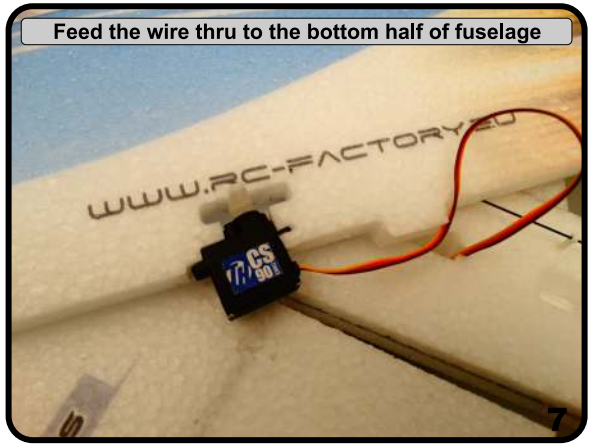
5

Cut a slit and install as shown - No glue yet



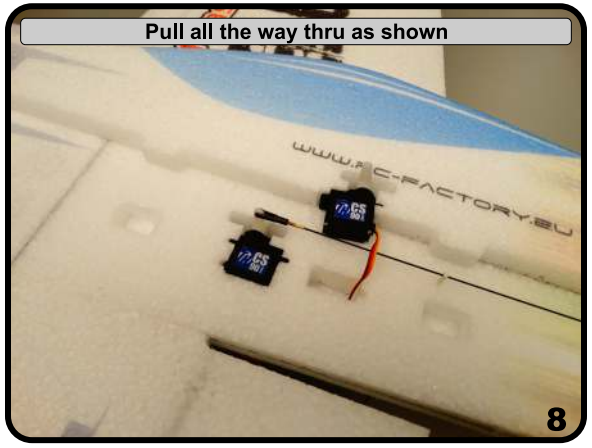
6

Feed the wire thru to the bottom half of fuselage



7

Pull all the way thru as shown

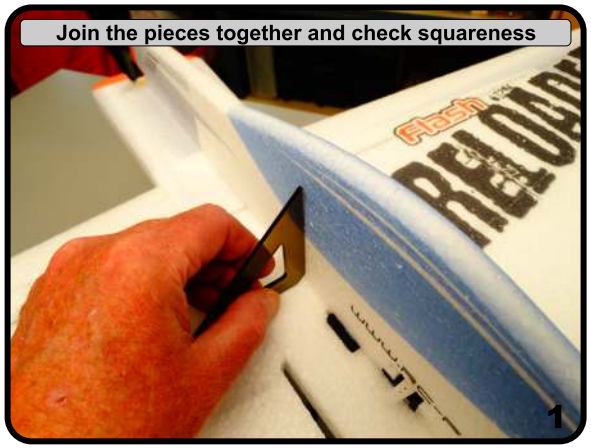


8

Apply FoamTac to all the mating surfaces

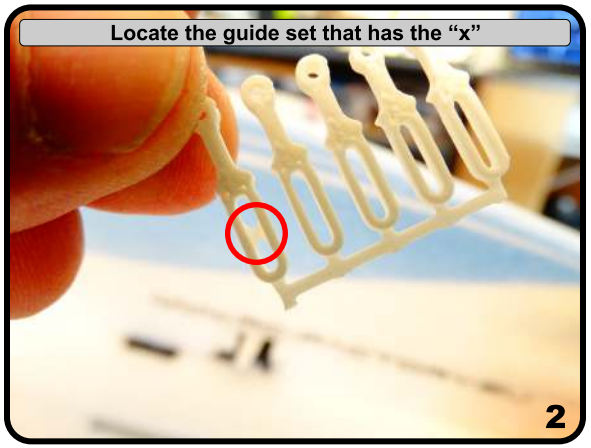
9

Join the pieces together and check squareness



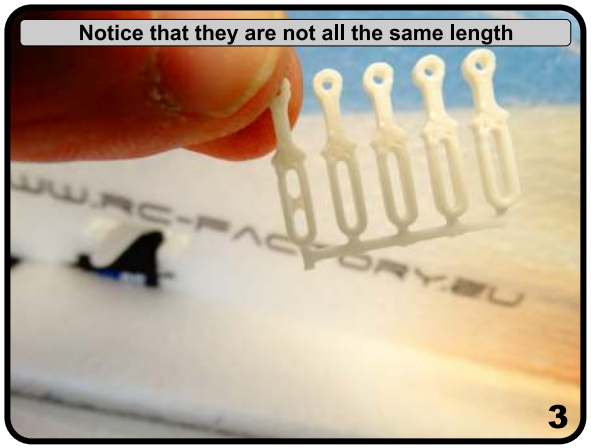
1

Locate the guide set that has the “x”



2

Notice that they are not all the same length



3

The X one goes by servo - rest in order - CA Bases

4

Locate the rudder and two hinges

5

Slit the rudder to accept the hinges as shown

6

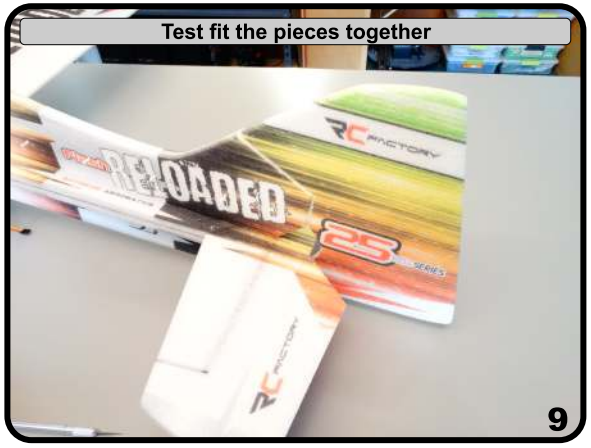
Make sure the slits are in the center of the thickness

7

Align with fuselage and make mating slits

8

Test fit the pieces together



9

Put some glue in the slits and install hinges

1

Put some glue in the mating slit...

2

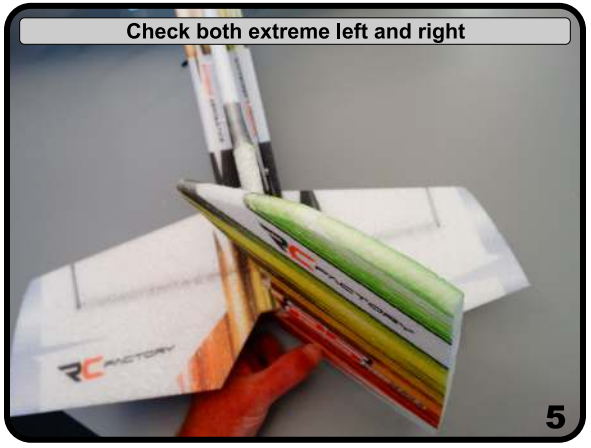
... and a little glue on the hinge itself

3

Slide the pieces together and check throw extremes

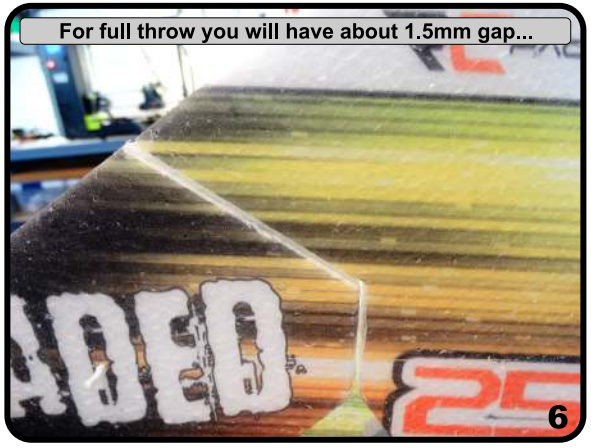
4

Check both extreme left and right



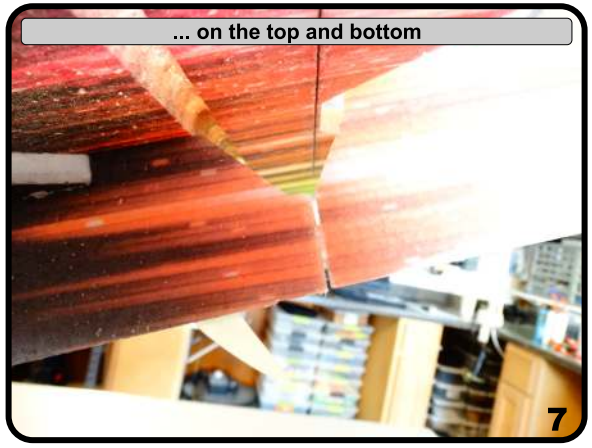
5

For full throw you will have about 1.5mm gap...



6

... on the top and bottom

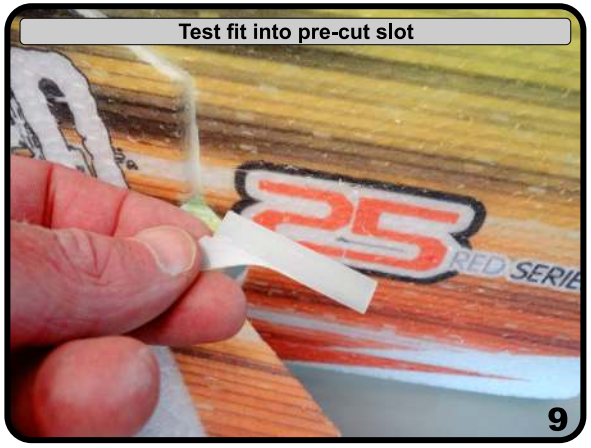


7

Locate last control horn and roughen tab area

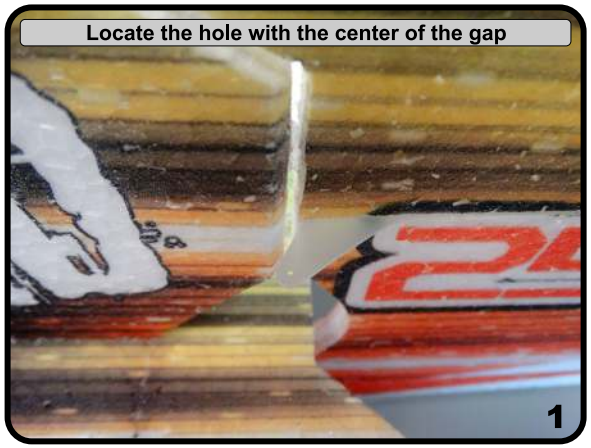
8

Test fit into pre-cut slot



9

Locate the hole with the center of the gap



1

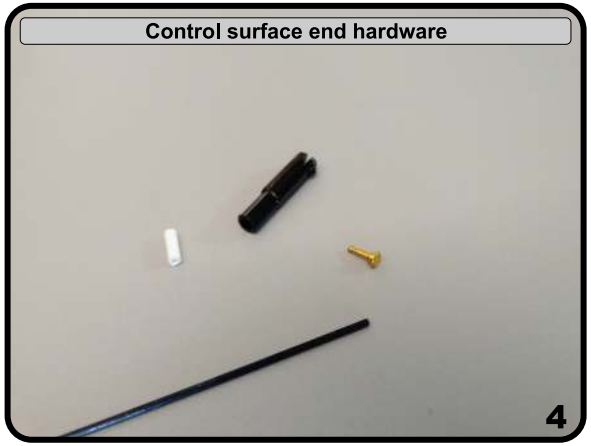
Secure in place with thin CA

2

Locate the remaing rod and rod end hardware

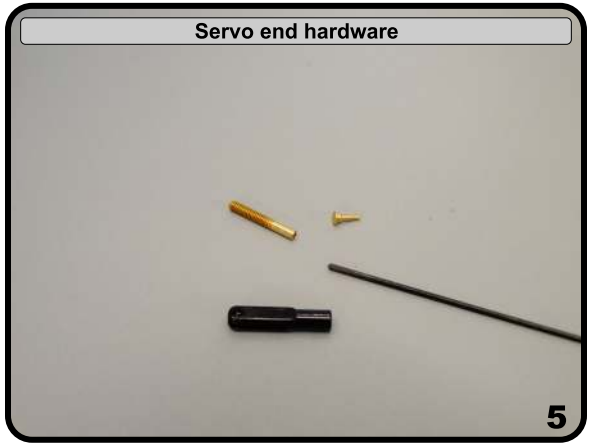
3

Control surface end hardware



4

Servo end hardware

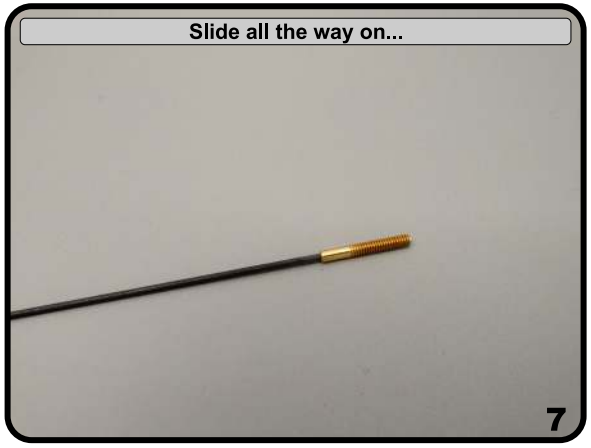


5

Sand a little if needed so fitting will slide onto rod

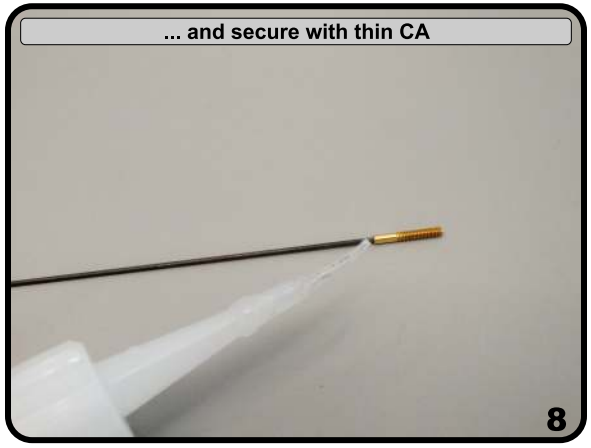
6

Slide all the way on...



7

... and secure with thin CA



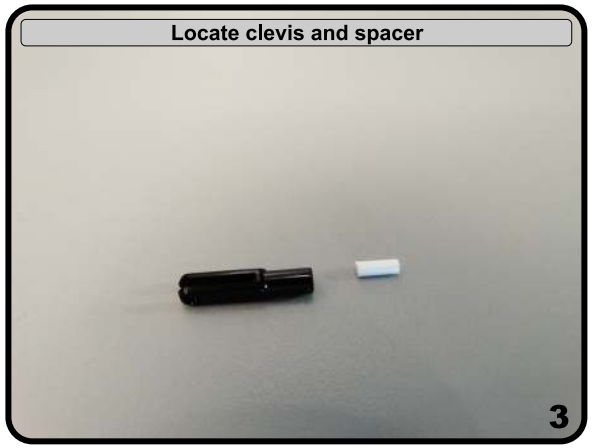
8

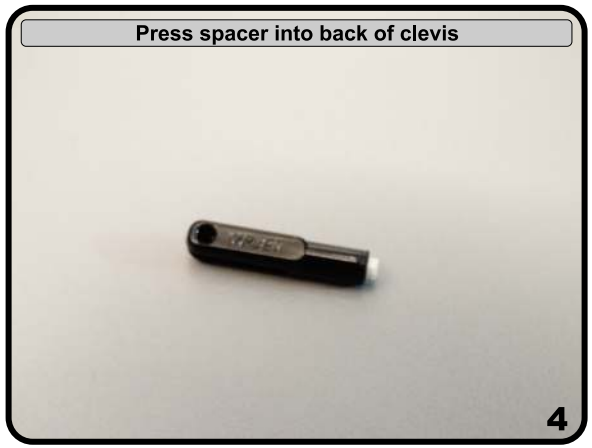
Thread the clevis on about half way

9

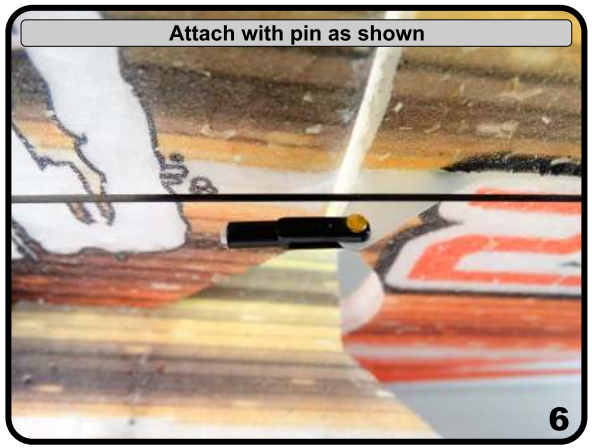

Thread the control rod thru guides from nose to tail
WWW.RC-FACTORY.EU
1

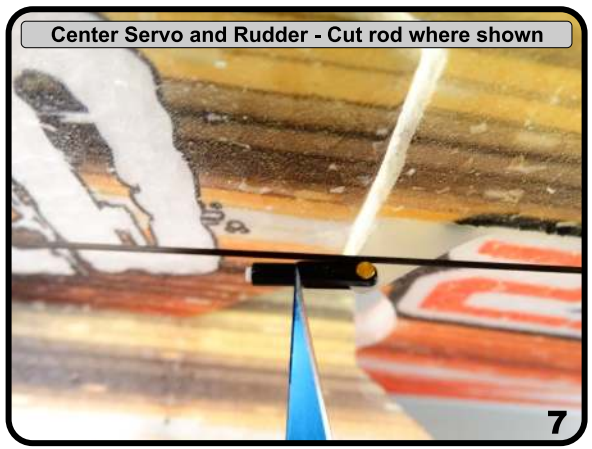

Attach to servo horn with pin as shown
WWW.RC-FACTORY
2

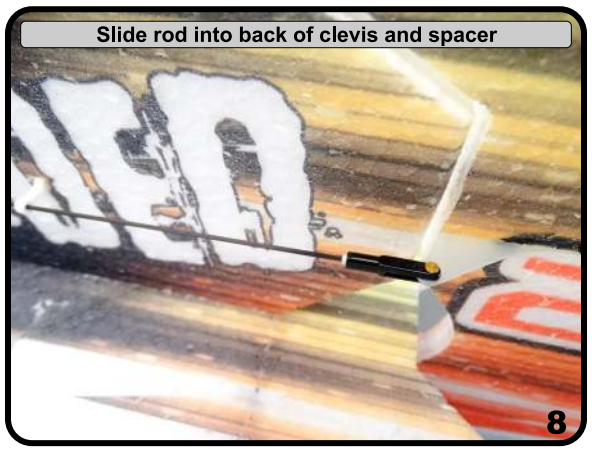

Locate clevis and spacer
3


Press spacer into back of clevis
4


Clevis will attach to rudder control horn
5

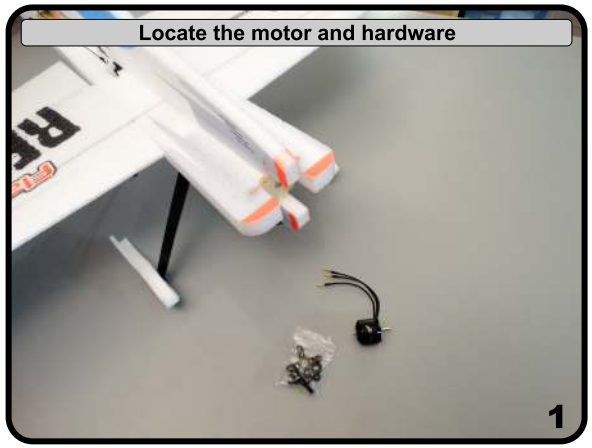

Attach with pin as shown
6


Center Servo and Rudder - Cut rod where shown
7


Slide rod into back of clevis and spacer
8


Secure with thin CA
9

Locate the motor and hardware

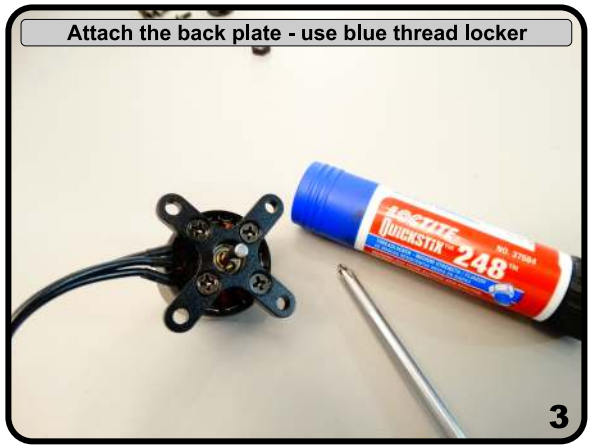


1

All the motor hardware spread out

2

Attach the back plate - use blue thread locker



3

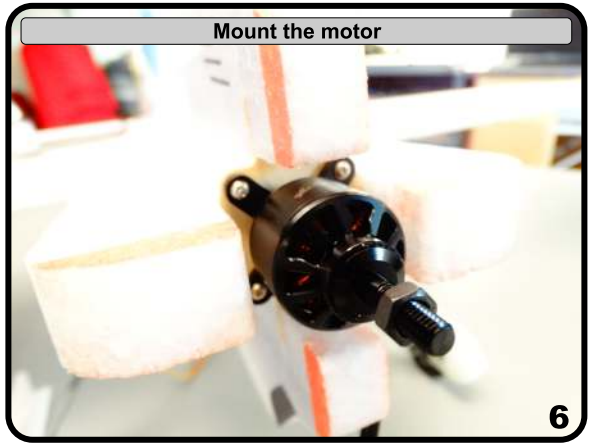
Attach the prop shaft - use blue thread locker

4

Locate 4 servo screws

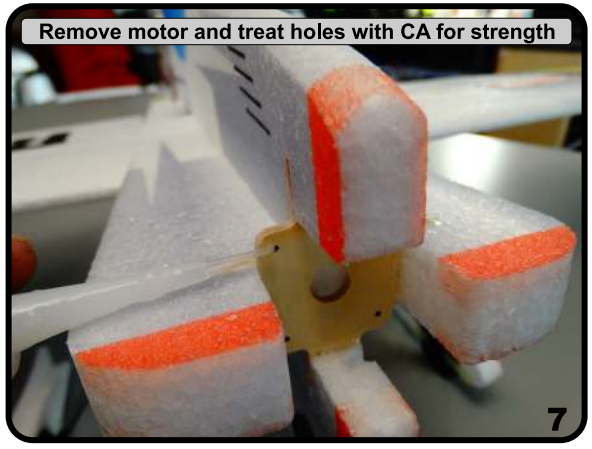
5

Mount the motor



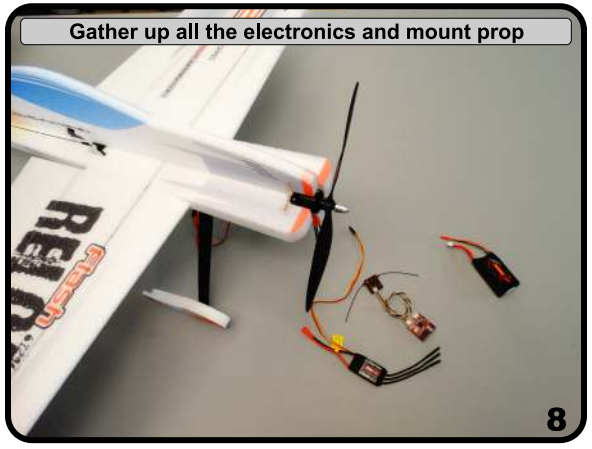
6

Remove motor and treat holes with CA for strength



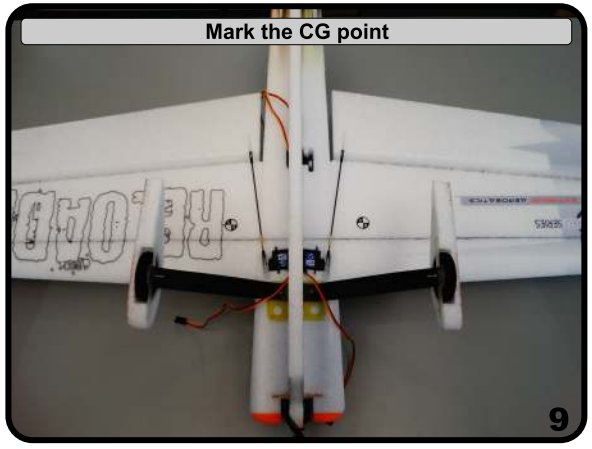
7

Gather up all the electronics and mount prop



8

Mark the CG point

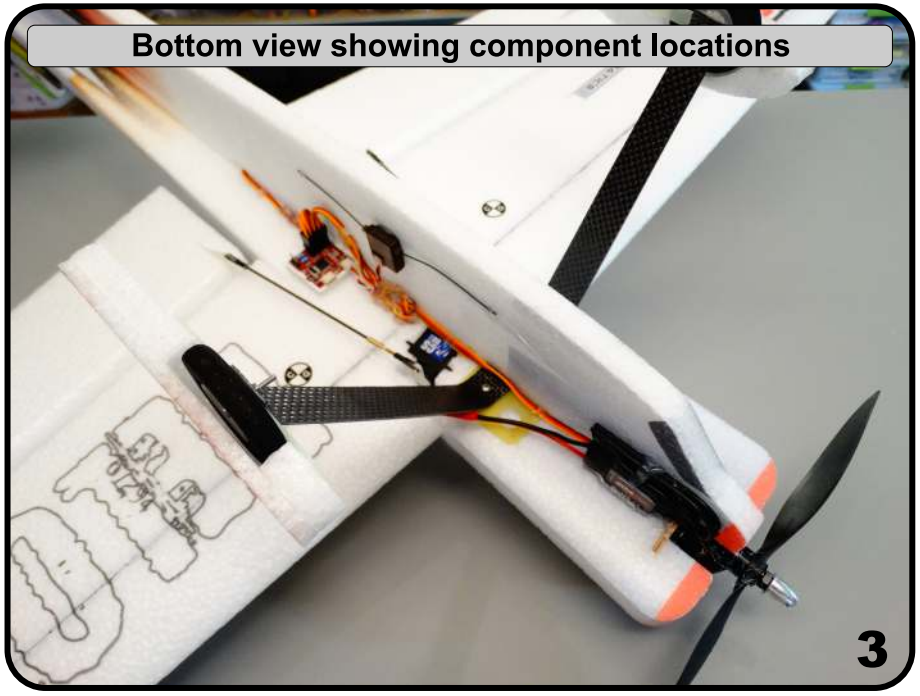


9

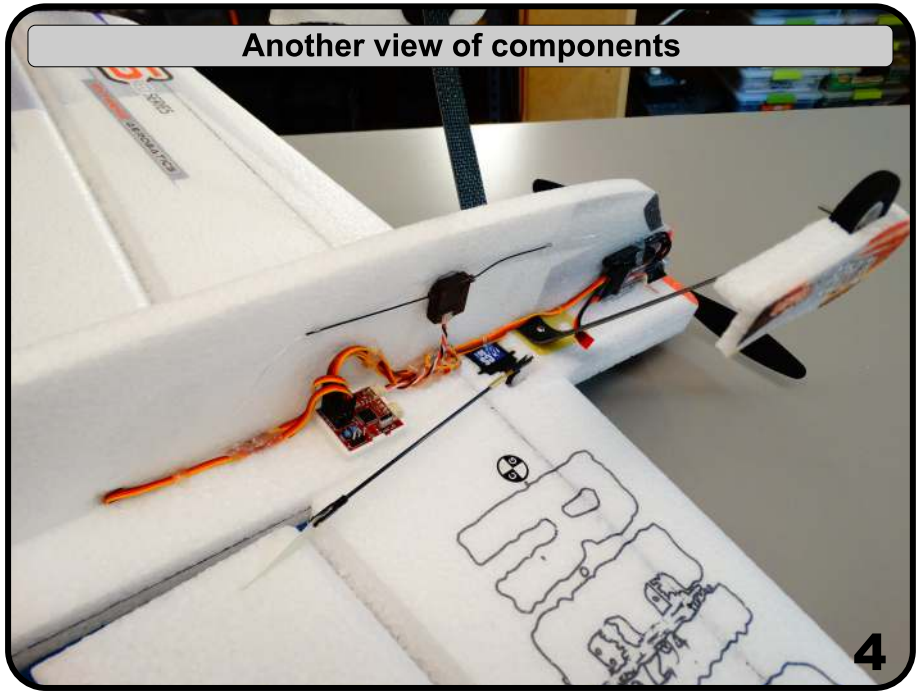
Roughly locate everything for to achieve CG

Hot glue everything in place - including servos

Bottom view showing component locations



Another view of components



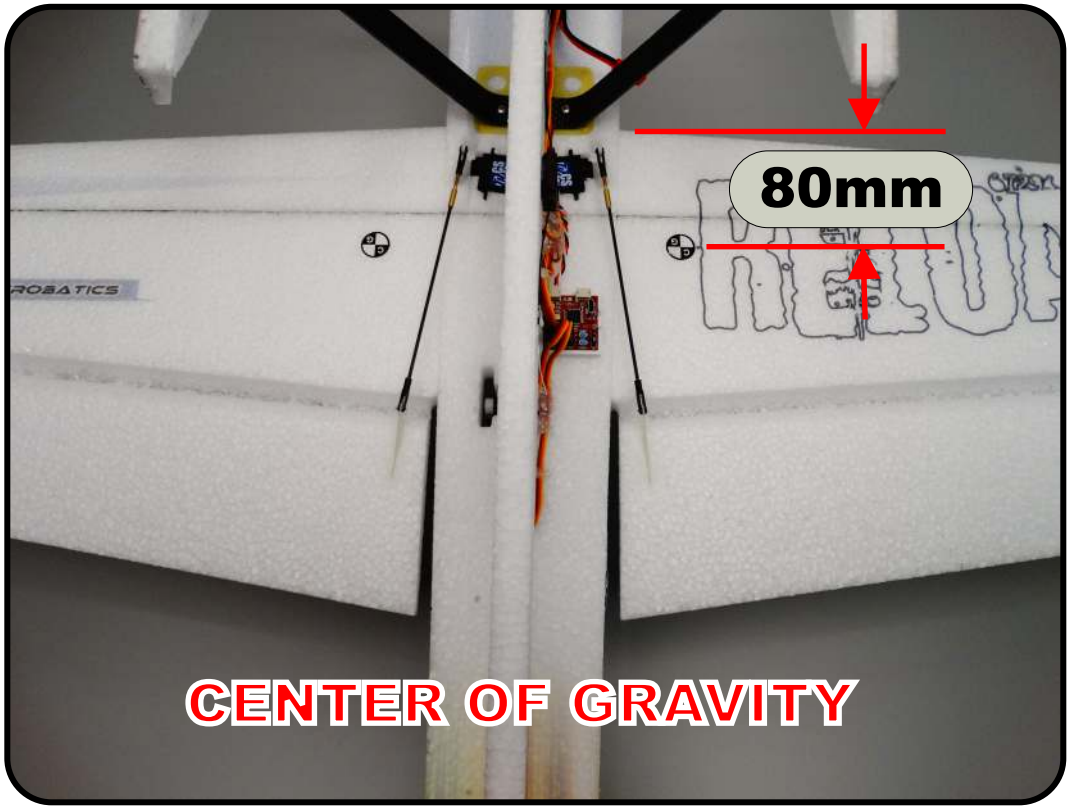
Find yourself a park that is out of the way with a little open space and tear it up, this plan is the perfect size..!!

This completes the build, it's design and construction should give you many hours of flying enjoyment. This airplane will serve you well, whether you are new to 3D flying or are a seasoned veteran.

Please visit www.TwistedHobbys.com for other accessories and aircraft.

There are several online resources and forums for this model as well. It is suggested that you visit the RC Groups Thread for this model for additional information, it is a great resource for questions and insight to this aircraft.

CENTER OF GRAVITY AND CONTROL THROWS



C.G. - 80mm from LE of wing

Locate all the electronics to achieve indicated CG point. Use Velcro for initial flights for battery mounting and experiment with it's position until you have determined the best spot for your flying style.

Control Throws

Ailerons: +/- 40 deg
Rudder: +/- 50 deg
Elevator: +/- 50 deg

Expo and Dual Rates to suit

Control Throws should be adjusted to flying style and adjusted to work with in the boundaries of the setup. For extreme flying max throws should be used. For sport and novice flying decrease throws by approx half on all surfaces

TWISTED HOBBYS

PRE-FLIGHT & TESTING

Prefight Checks

Motor: Should run smoothly at all stick positions, and transition smoothly from low to high RPM. If the motor is turning backwards, reverse two of the three wires between the motor and ESC. Check that the screws holding the motor to the airframe are tight and secure.

Flight Controls: Set all to neutral or level positions with sticks in the neutral positions. Ensure that all controls and linkages move freely. Double check that all hinged areas are free from rips or tears. Verify proper control surface directions. Right Roll is – right aileron up, left aileron down, Left Roll is left aileron up and right aileron down.

Batteries: Should be fully charged prior to each flight. Watch transmitter battery level and follow manufactures recommendations. Motor battery should not be drained any further than recommended by the manufacture, use a timer to prevent an over discharged condition.

Radio: All trims should be set to neutral and throttle in the low position. Check that rate switches and mixes are set properly.

Range Check: With and without the motor running per radio manufactures instructions. If there is insufficient range or significant reduction with the motor running, resolve and re-test before flying.

Prefight Checks

The first flights should be done with the CG at the recommended position, and reduced control rates until comfortable with your handling of the aircraft. As your experience with the aircraft grows experiment with different CG points and control rates. After all flights, check the aircraft over for damage and/or other items that may adversely affect flight performance.

This Foamie Plane is a high performance aircraft and will provide hours of entertainment, including the occasional crash. If, as the result of a crash, the foam tears, simply glue with Welders, FoamTac or CA. Many pilots prefer Welders or FoamTac because they remain flexible after drying. CA however, is more suited for the “quick” repair.

This aircraft can be flown indoors or outdoors. It is however designed specifically for outdoor 3D Extreme flying and will be right at home in the local park with a little open space

Storage

This EPP plane should be stored resting it's landing gear, or hanging directly from it’s prop. Storing in other fashions that put stress on the airframe could cause the airframe to distort. Storage in a hot car could also cause damage.

Be safe and enjoy, thank you again for purchasing a Twisted Hobbys' Product!

TIPS AND TRICKS

- A good building surface is “drop ceiling” panel from a local hardware store on a nice flat board
- Use parchment paper between the areas being glued and your work surface
- Heavy flat objects (like books, batteries, etc.) could be used to hold everything flat
- When resetting your radio, start with all the ATV’s or throw volumes at 100%.
- Make sure you have set the direction of the servos correctly before attempting to trim for zero position.
- If possible try the servo horns in different locations to determine which position will require the least amount of sub trim.
- Installing the servo horns in their final location and attaching quick links to the servos may make servo installation much easier later.
- On the Orange Rx, the negative pin is the one closest to the flat side of the circuit board.
- Keep a good supply of sharp knife blades handy when building a foamie airplane.
- Use low temp hot glue for gluing electronics, this will allow for easy removal later if necessary. The low temp hot glue can be “released” by painting” the glue bead with an alcohol soaked cotton swab a couple times.
- A business card with the corners clipped off can be used as a small square.
- Allowing the Welders glue to set for five minutes before assembly will shorten the tack up time, just be sure if doing it this way that you get the parts into position quickly, as the glue will start to bond on contact. Any joints that you feel are going to require adjustment, it is best to assembly the pieces while the glue is wet. The Green (high tack) masking tape works the best when used to clamp things together on an EPP foam airplane.
- When gluing the rudder to the fuselage, stick pins could be used to hold in position if wanting to handle the airframe before it is completely dry
- A rotary tool with a cutting wheel could be used to produce grooves in fiber glass parts instead of coarse sand paper. Use a hatch pattern. This creates more bonding area for the glue.

NOTES AND S/U SHEET

Setup Sheet

Transmitter - Receiver -

Weight - g oz

CG Point - mm from wing leading edge

Model

timer - min

Travels and Exponential

	low rate	high / 3D
right aileron up -		
right aileron down -		
left aileron up -		
left aileron down -		
aileron expo -		
rudder right -		
rudder left -		
rudder expo -		
elevator up -		
elevator down -		
elevator expo -		

Electronic Components

Aileron Servo -

Rudder Servo -

Elevator Servo -

Battery -

motor -

ESC -

Propeller -