Kingcraft

Super Stearman

1400MM BALSA ARF

Instruction Manual

For intermediate to advance pilots

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 for 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.

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.
- The Super Stearman has been 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 information 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 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.

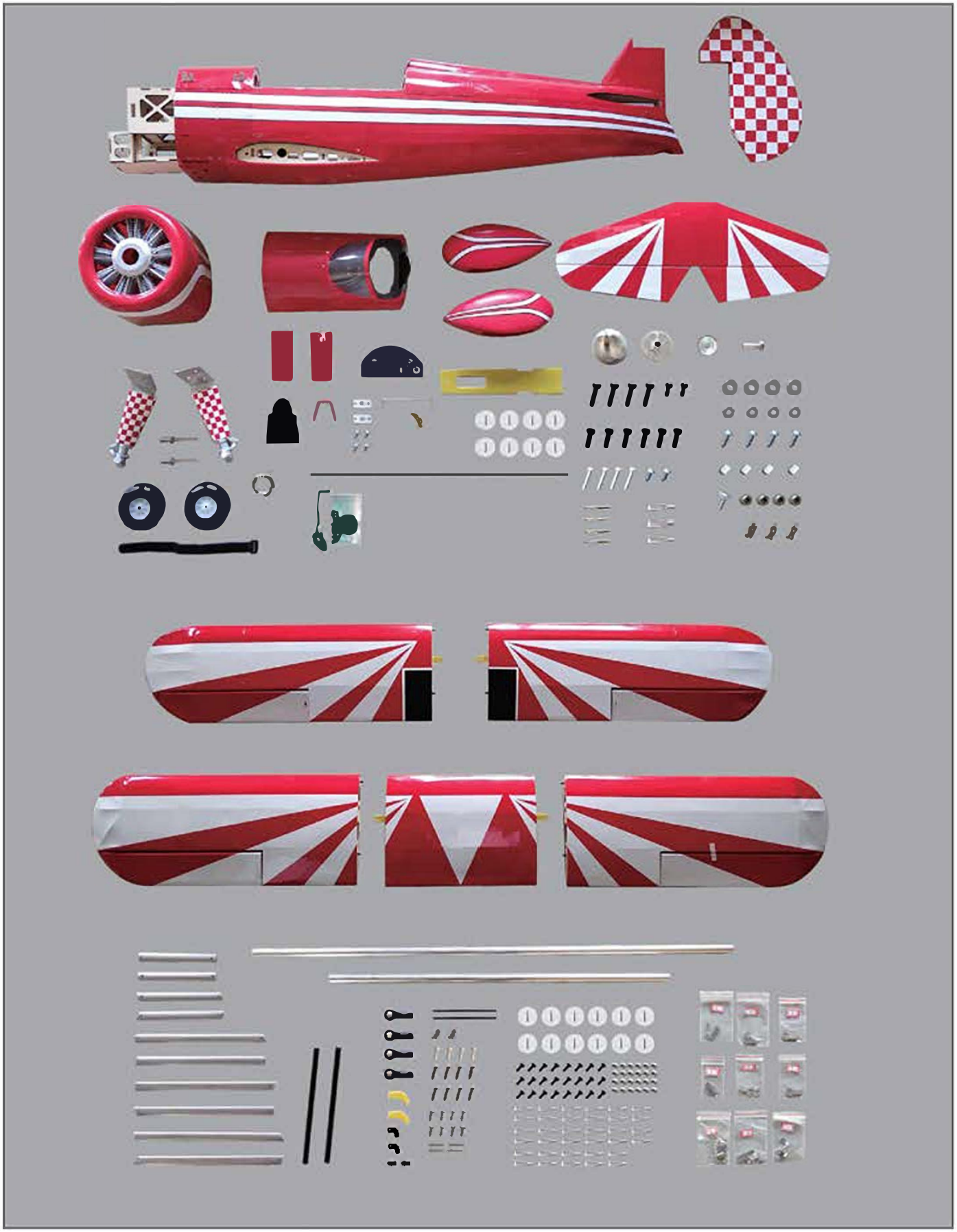
Specifications:

- Fuselage length: 1110 mm/43.7"
- Top wing span: 1400 mm/55.1"
- Top wing area: 30.23 sq. dm/468.6 sq. in
- Bottom wing span: 1383 mm/54.4"
- Bottom wing area: 29.2 sq. dm /416 sq. in
- Motor: BL4258 500KV 5mm shaft (Recommend)
- Servos: Rudder and Elevator >3.5kg/cm x 2 Micro size (recommend)
  Aileron >4kg/cm standard size (Recommend)
- Propeller: 15 x 8
- Battery: Turnigy 6S 3800-4000mAh Li-Poly 30-50C
- Flying weight: 2700-2900 grams

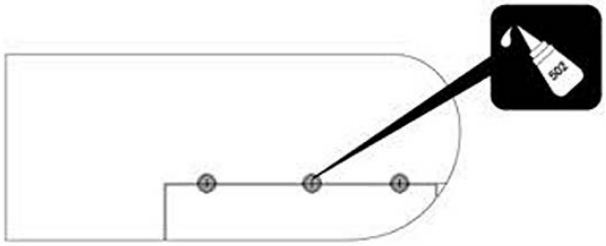
Features:

- Construction: Balsa, plywood and composite material
- Cowling: Painted fibreglass with inner plywood ring that provides strength and allows cowling to be attached with no visible screws
- Landing gear: Airfoil shaped landing gear with a pair of dummy suspension strut
- Spinner: A CNC spinner turning from bar stock is included
- A dummy 9 Cylinder radial engine: Injection mould composite material, factory pre-painted and pre-assemble
- Cockpit Features: Incredible detailed instrument panel.
- Factory pre-painted pilot bust
- Hardware: Full set included
- Decals: A set of high quality printing decal is included.

Kit Content:

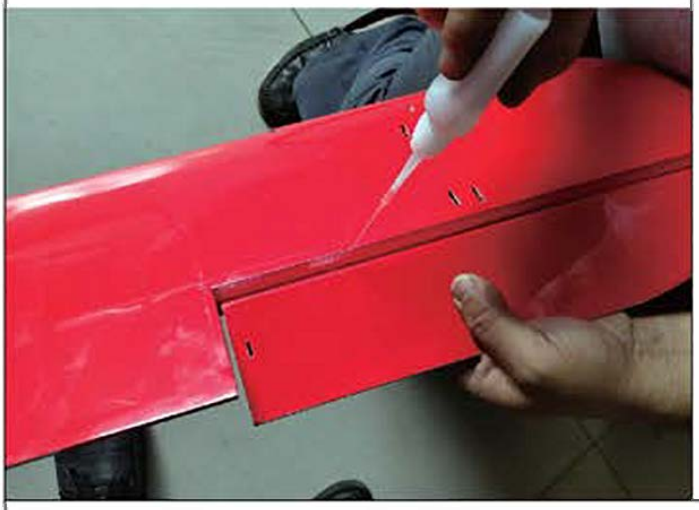


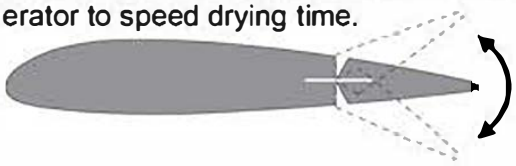
1. Aileron control surfaces installation:



Start by using a sharp hobby knife blade to cut through the covering and expose the factory-cut hinge slots. Insert supplied hinges into their slots and trial fit the aileron control surface on the wing panel. Check that it moves freely without binding. Once you are satisfied with the fit use a medium CA glue to permanently bond the control surface in place. Use a bottle of thin CA and a fine tube applicator to apply a couple of drops to each hinge just to ensure those hinges are soaked with CA glue for a strong bond to the balsa wood. Check frequently if there is any binding whilst the glue dries. Repeat the above steps for the other control surfaces.

Note: Allow the glue to dry, but don't use accelerator to speed drying time.

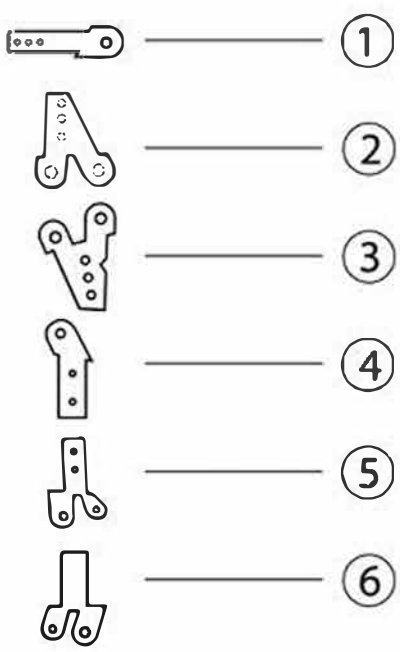


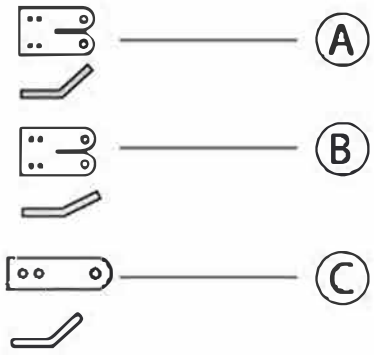


Flex the control surface back and forth to check the deflection clearance.

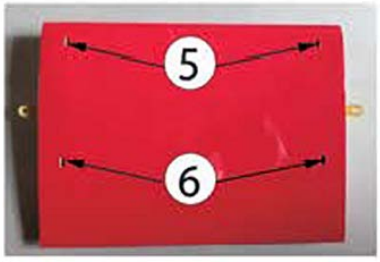
Upper and lower wing panels

2. Wing strut and cabane strut metal fittings and attachements content:

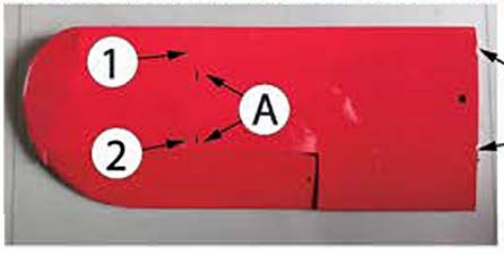




Upper mid section wing panel

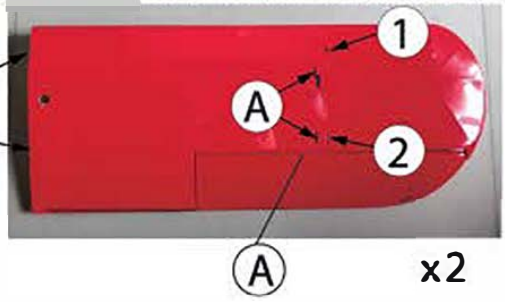


Upper right wing panel bottom surface



x4

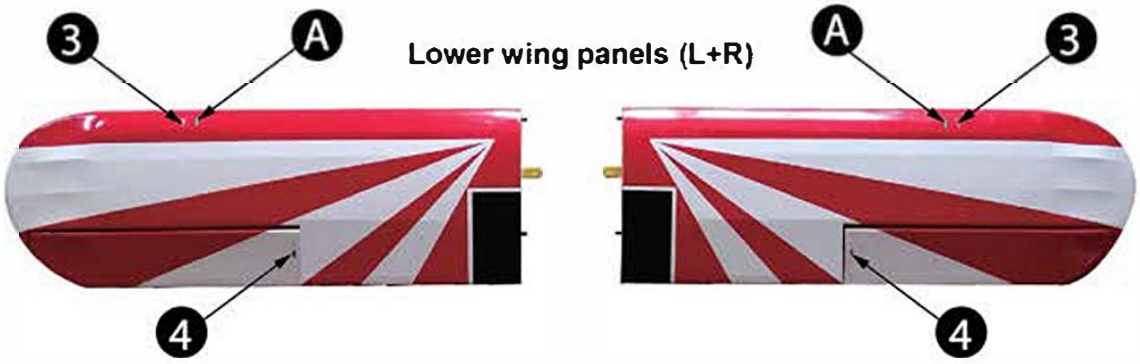
Upper left wing panel bottom surface



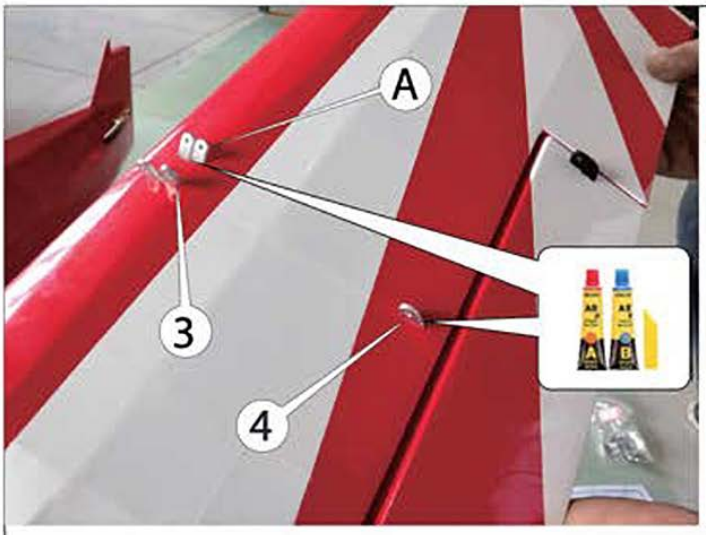
x2

C

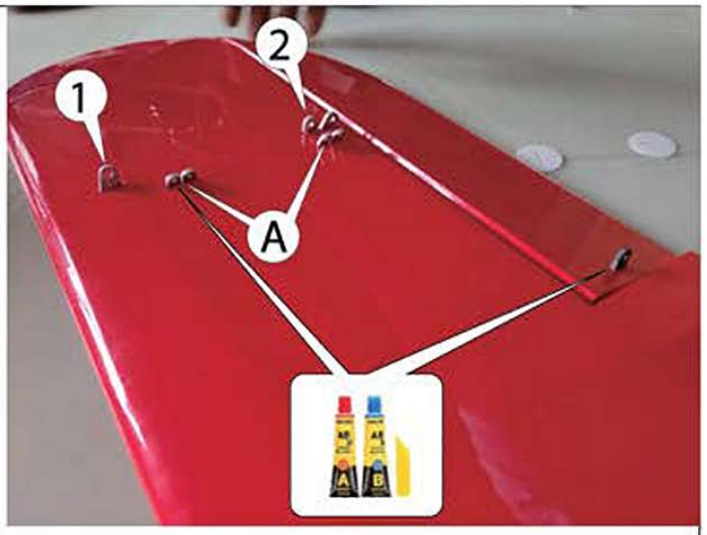
Lower wing panels (L+R)



3. Wing installation:

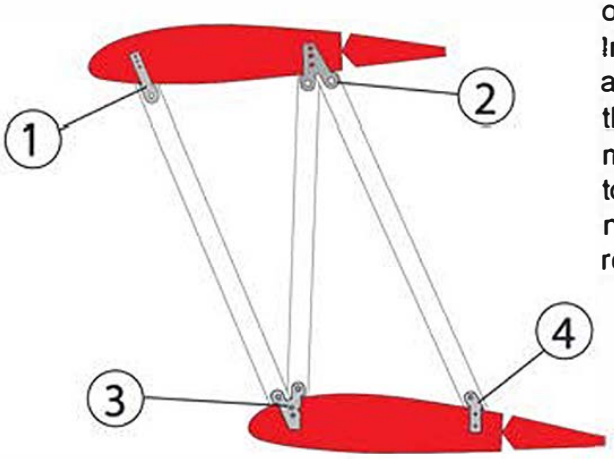


Lower left wing with metal fittings installed.



Upper left wing with metal fittings install

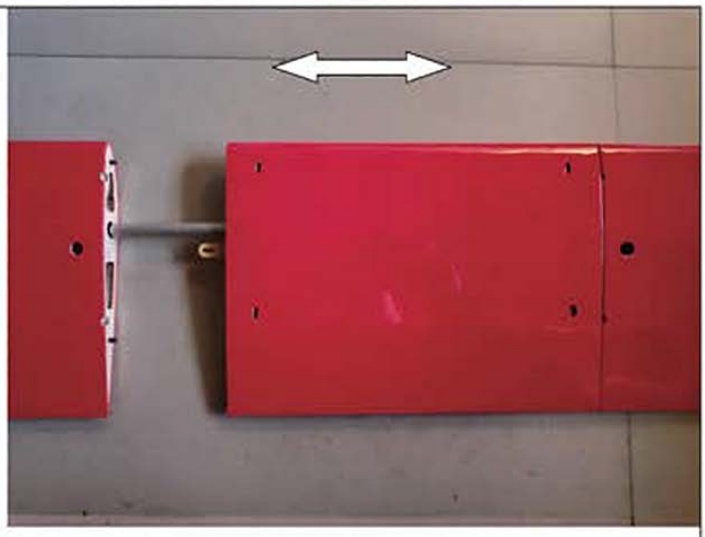
Before you glue the metal fittings into place trial fit them onto the wing panels and check with the pictures attached. Insert metal fittings onto both upper and lower wing panels as shown. Ensure all metal fittings are fully inserted into the slots and in the correct orientation to avoid misalignment. If some of the fittings are too tight and hard to get fully seated into their slots you may need to use a needle file to clean any burrs from the fittings and glue residue around the slots.



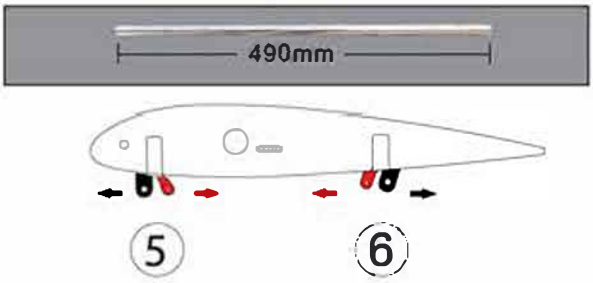
Lower wing aileron control horn installation. Please take note of the horn orientation when installed and see the close up picture below for reference.

Upper wing aileron control horn installation. Please see the close up below for reference.

4. Wing installation:

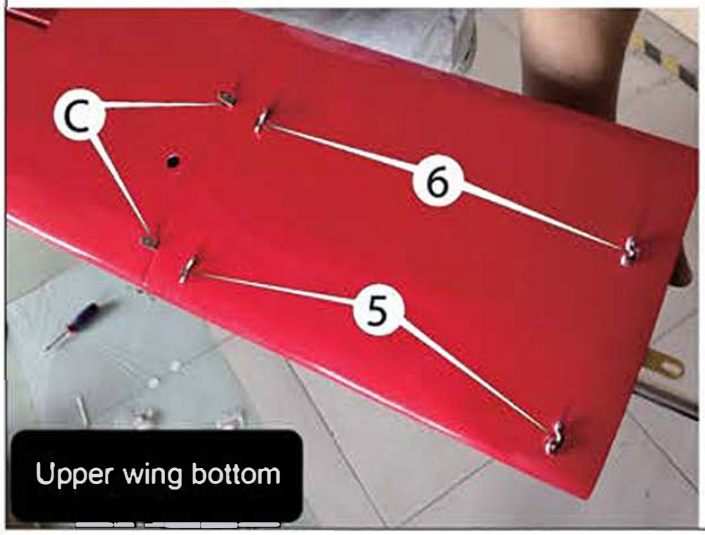


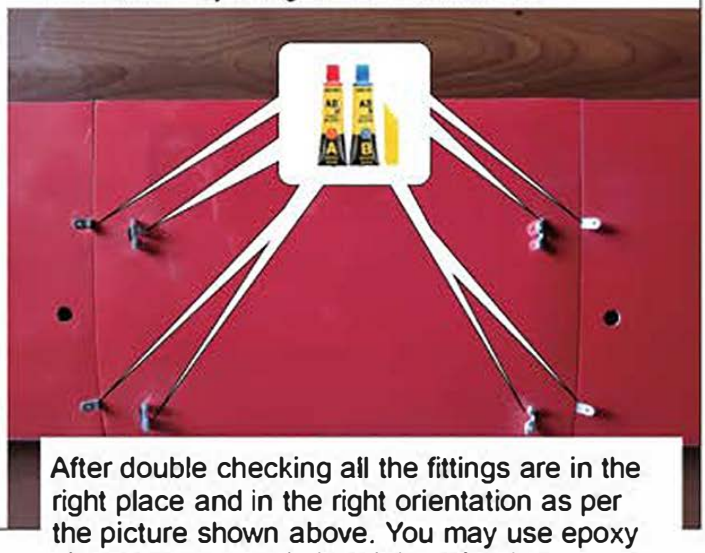
To assemble the top three wing panels together first insert the (490mm) wing tube into the mid wing section and ensure it is centered. Then slide both right and left wing panels onto the wing tube as shown.



Insert #5 and #6 metal fittings into their slots with one in the front and one in the rear respectively. Please note the orientation of the metal fittings by referring to the diagram shown above. If some of their slots are too tight and also hard to get the fittings fully seated use a needle file to clean any burrs from the fittings or glue residue in the slots to achieve the best possible fit.

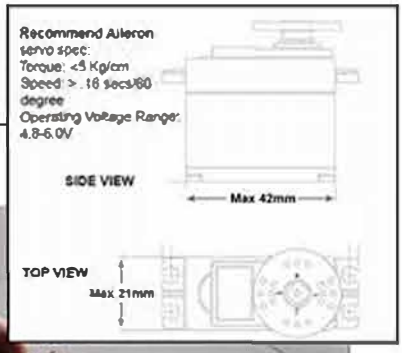
Lock both right and left wing panels in place by using the supplied M3 x 8mm hex screws, use a 3mm Allen key to tighten these screws.

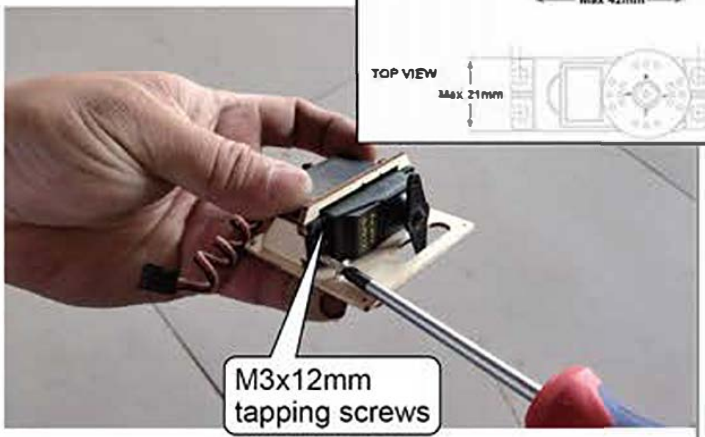




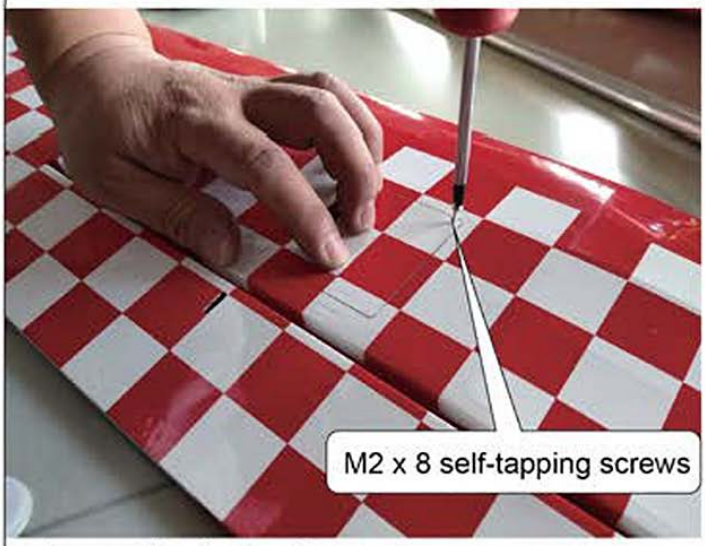
After double checking all the fittings are in the right place and in the right orientation as per the picture shown above. You may use epoxy glue to permanently bond them in place.

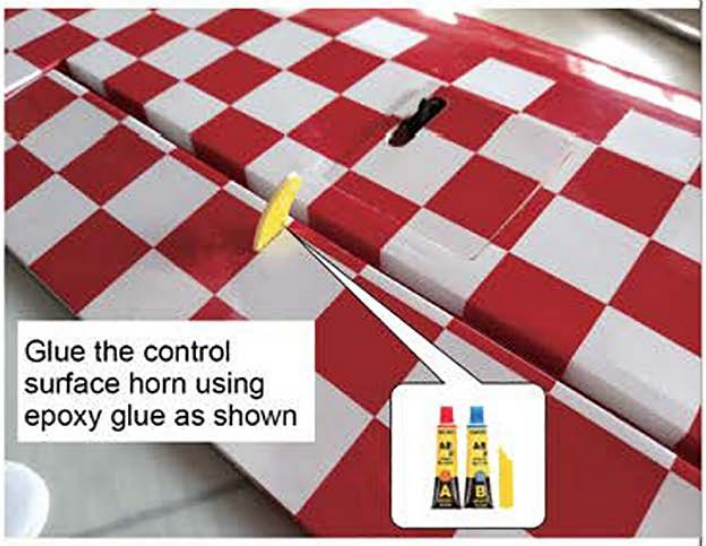
5. Wing servo installation:





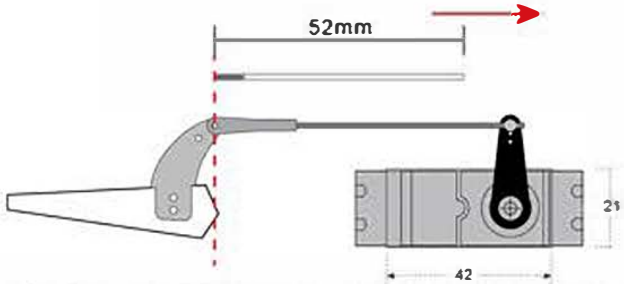
You may use any standard size servo with a 6-7Kg/cm torque for the aileron control. Use 4 off 8 x 12mm self tapping screws to secure the servo to the servo mount cover as shown. Ensure the servo control horn can move freely without rubbing the opening and trim the servo mount to fit if required.





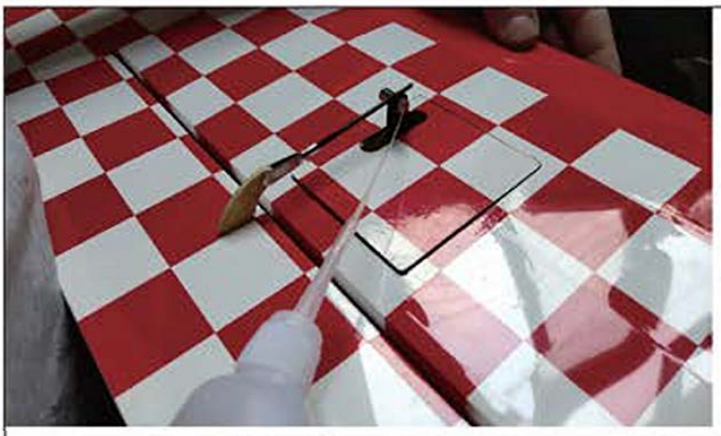
If everything looks right, you may secure the wing servo mounting cover to the wing panel with 4 off 2 x 8mm self tapping screws.

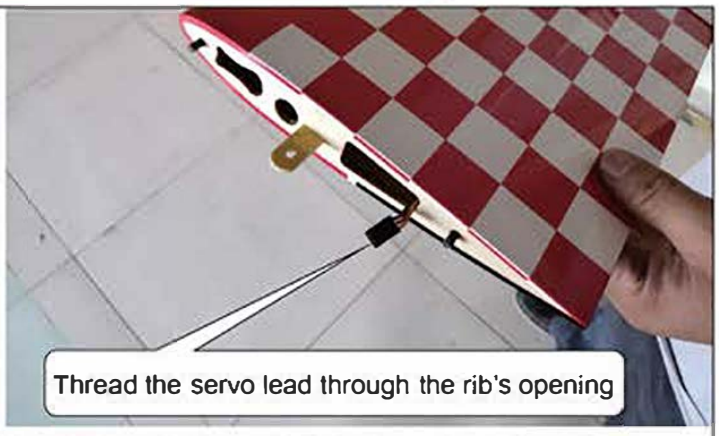
The length of the aileron pushrod.



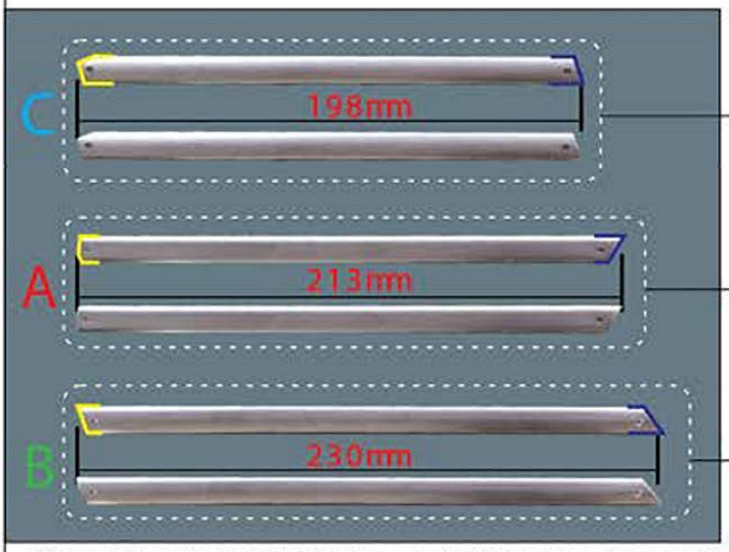
To achieve a symmetrical travel and the optimum travel resolution on all control surfaces the servo control arm must be at 90 degrees to its servo case. The control linkage should be attached to the farthest end of the servo arm as shown. You may use a sub-trim function on your transmitter to achieve the exact neutral position if your servo arm is just slightly off from the center. (Consult with your TX radio instruction manual for set up details.)

6. Wing interplane strut setup and installation :

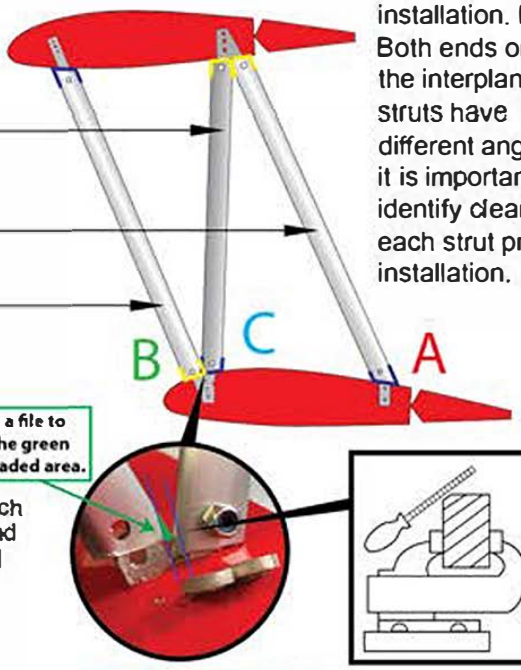




Prepare the control linkage to connect the servo control arm to the control horn. To temporary secure the aileron control surface in a neutral position, you may use a piece of masking tape and tape it to the wing's trailing edge. Then install the pushrod to the linkage stopper on one side and link up the other side with the clevis. The clevis should be adjusted half way on the threaded pushrod to leave room for the best mechanical trimming. See picture attached. Please repeat this process on the other side.

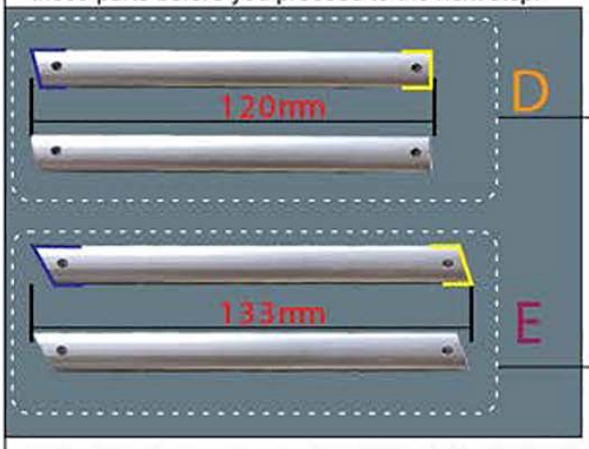


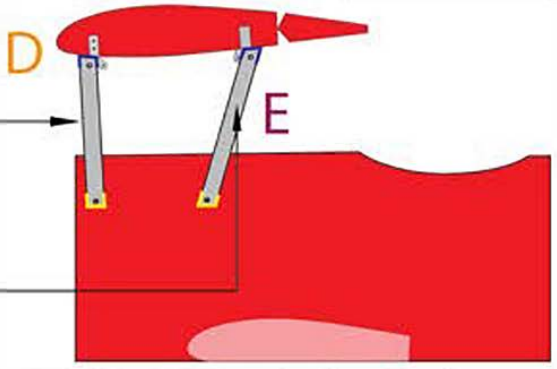
Strut components identification and installation. Note: Both ends on all the interplane struts have different angles, it is important to identify clearly each strut prior to installation.



Note: Use a file to remove the green colour shaded area.

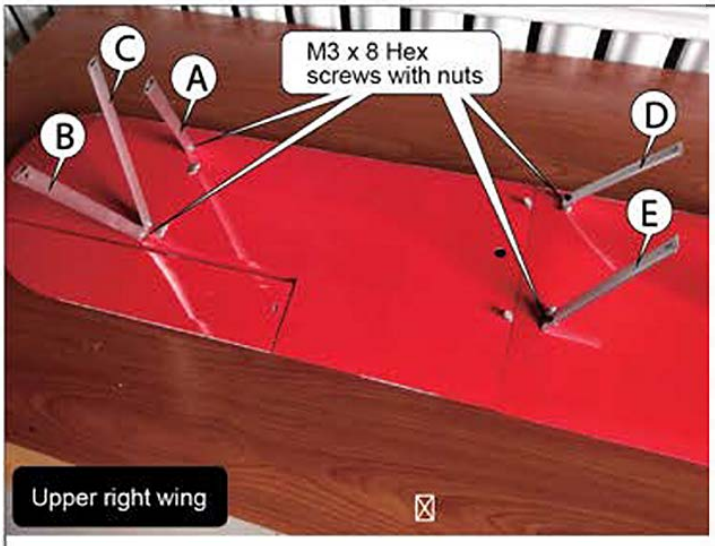
Please take note that all interplane struts dimensions are very similar to each other. To avoid confusion, you need to find all the parts from the packing and lay them out on your work bench as shown. Identify and get familiar with all those parts before you proceed to the next step.

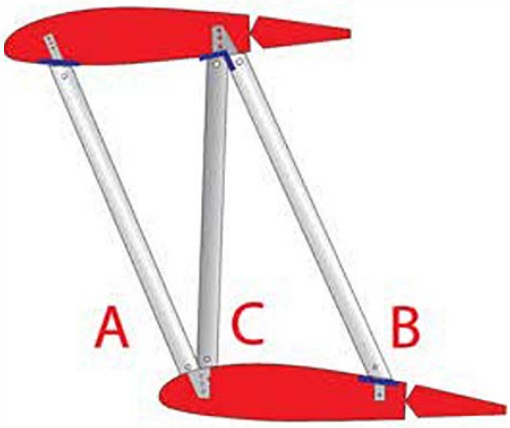




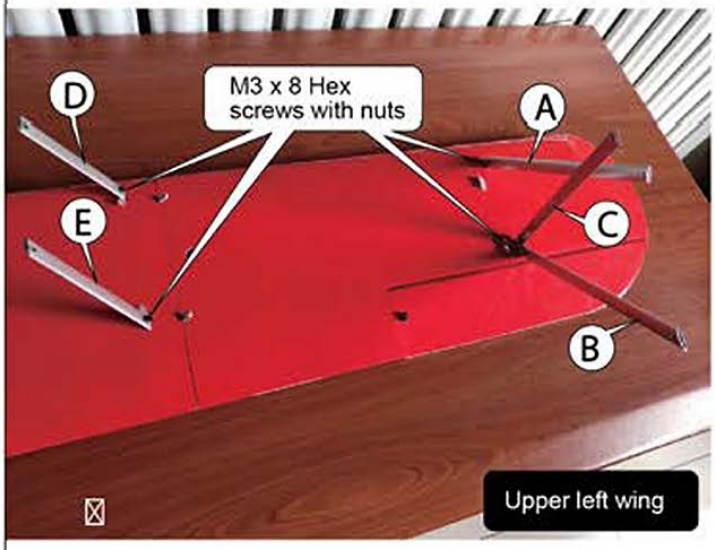
Install the front cabane strut D (length: 120mm) and the rear cabane strut E (length: 133mm) onto the fuselage as shown. Note: These cabane struts have to be installed in the correct position and orientation, otherwise it will affect the wings angle of incidence, this will cause poor flying characteristics and could even cause a crash. In order to make the identification easier we've got the struts highlighted in different colors to help you identify which strut goes where.

7. Wing interplane struts installation

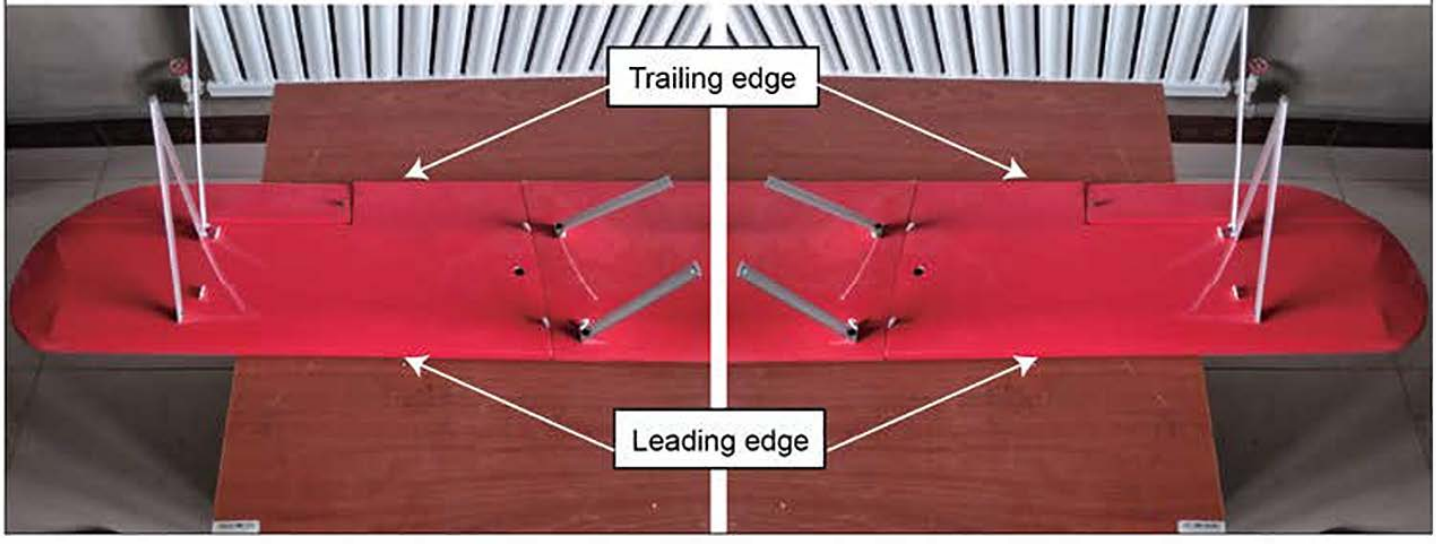




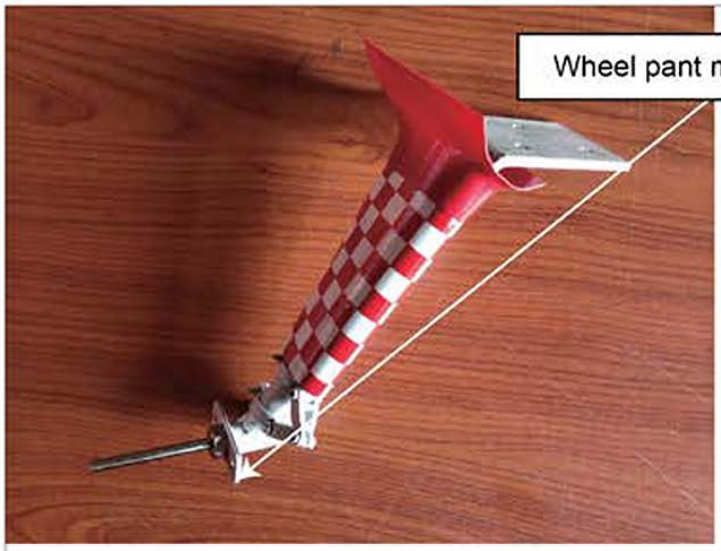
Please refer to the illustration for the correct orientation and the exact mounting position. Use M3 x 8 hex screws and lock nuts to secure them in place.



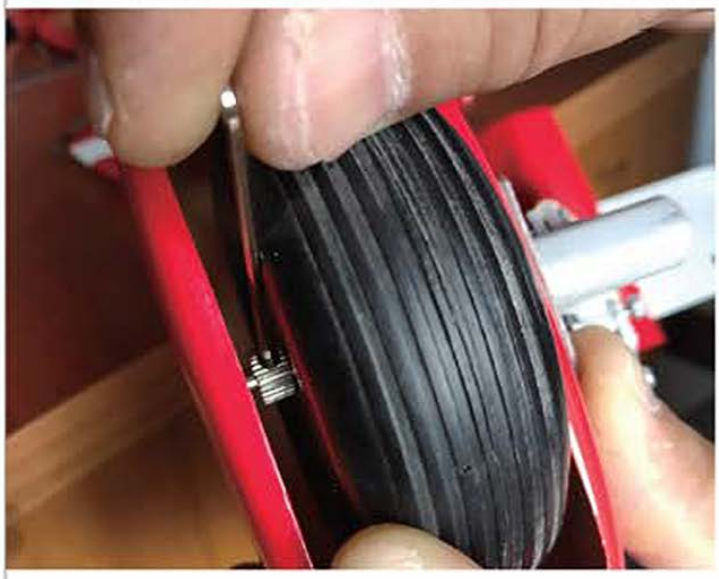
Completed struts and metal fittings installation drawing.



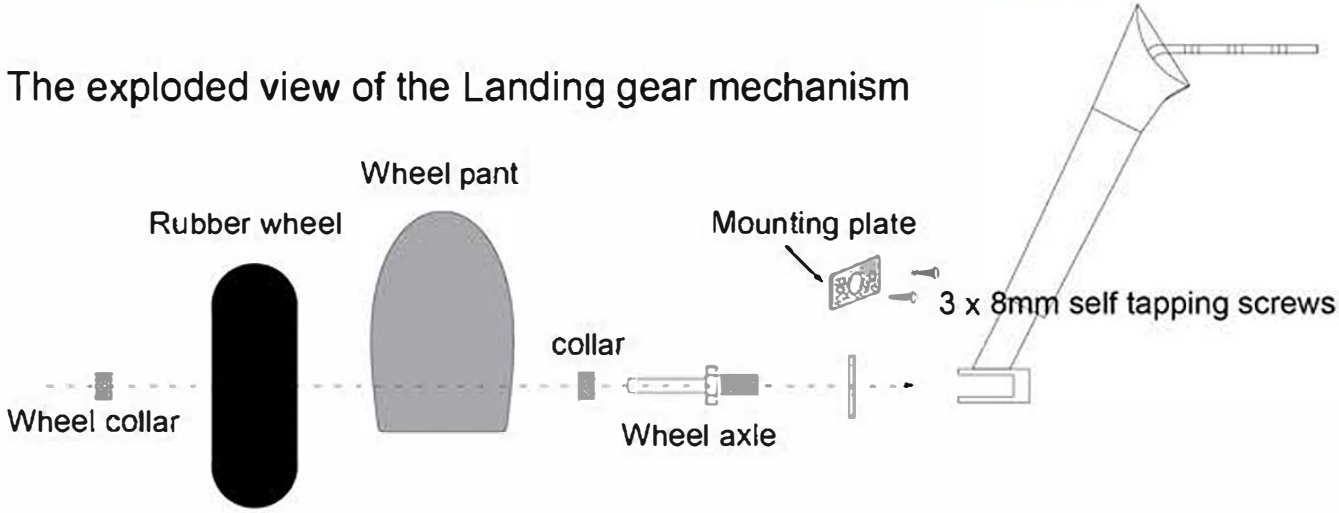
8. Wheel pants and fairings installation:



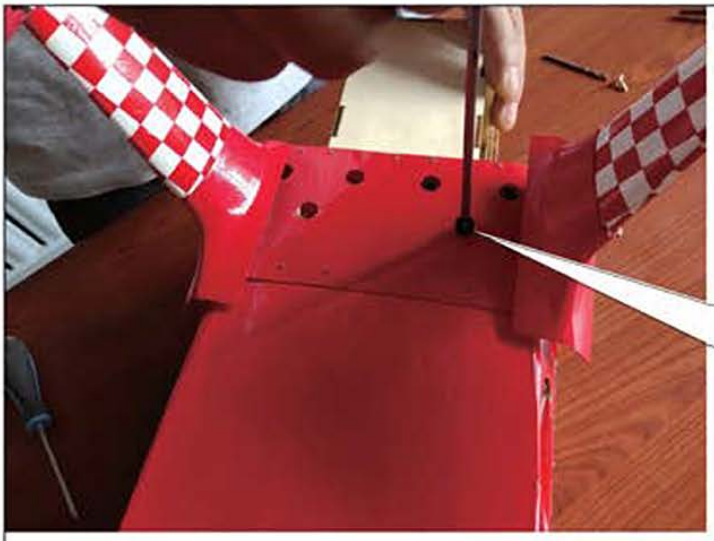
First install the left wheel axle onto the left Landing gear half as shown. Next install the wheel pant on the wheel axle and use the holes on the metal plate as a template and drill two holes on the wheel pant for mounting purposes. Then install a wheel collar on the axle followed by a wheel. Lock the wheel collar on the axle by tightening the grub screws. Finally, align the wheel in the center of the opening and ensure it spins freely without rubbing. Repeat this process for the right side Landing gear. Please note, the center line of the wheel pants should be inline with the center line of the fuselage.



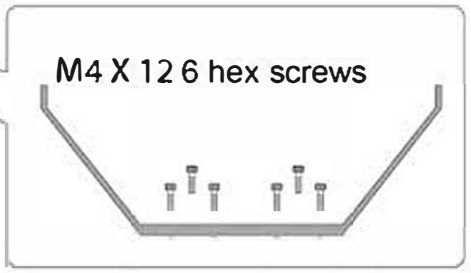
The exploded view of the Landing gear mechanism

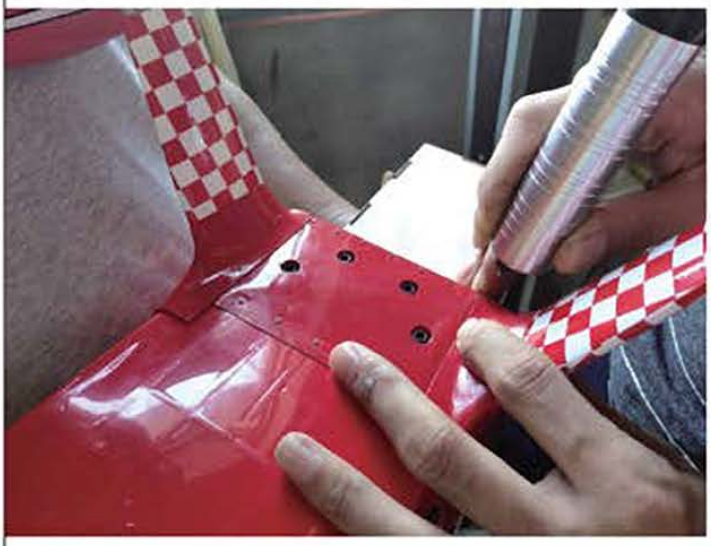


9. Landing Gear installation:

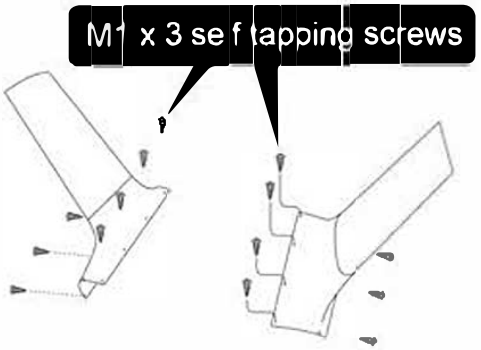


Install both Landing gear halves to the bottom of the fuselage and secure them in place using the supplied 6 hex screws.



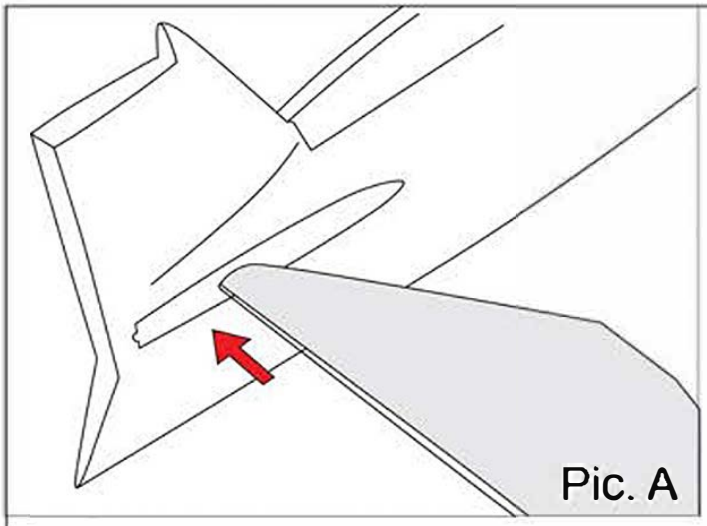


Use the supplied 1mm x 3mm self tapping screws to secure both L+R fairings to the fuselage as shown.



Landing gear installation completed

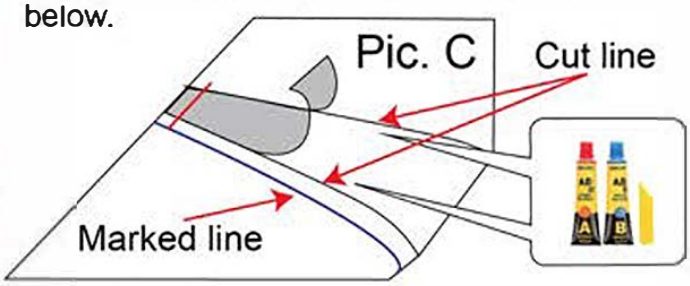
10. Horizontal Stabilizer Installation:

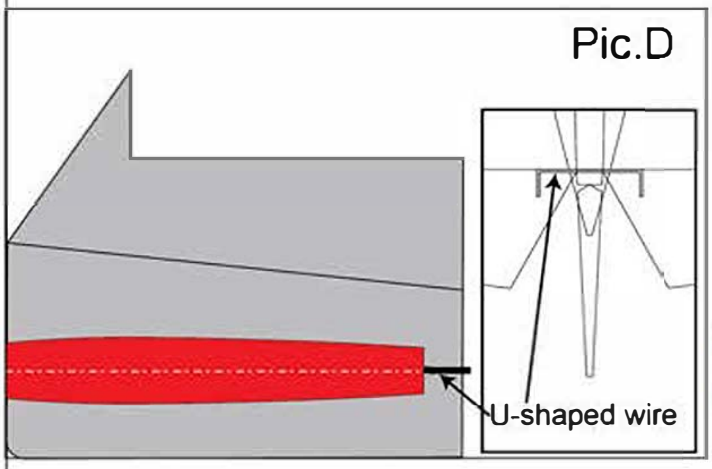

Pic. A

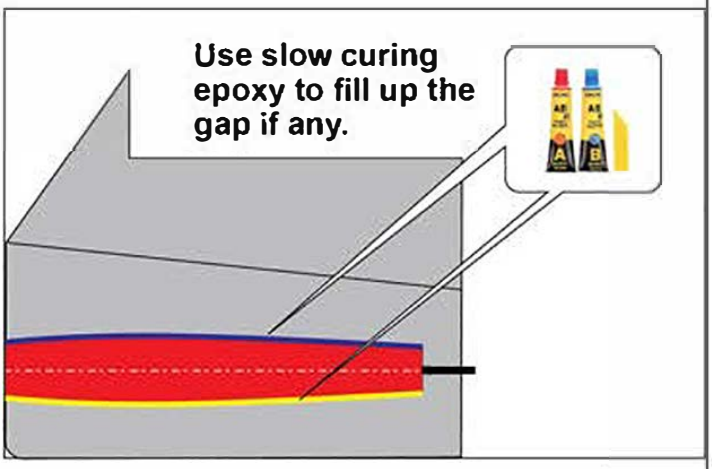
Inserted the stabilizer into the slot as shown, see picture A. Once aligned, use a fine felt-tipped pen to trace the outline of the fuselage on the top and bottom of the stabilizer, see picture B. Remove the stabilizer from the fuselage and then mark a cutting line which is about 1mm inside the marked line, see picture C. Use a sharp hobby blade to lightly cut along the cutting line and ensure you don't cut into the wood beneath it. Remove the covering on the top and bottom of the stabilizer. Apply slow curing epoxy evenly on the bare balsa surface, see picture C. Finally, insert the U-shaped wire and place it in the notch, see picture D and then slide the stabilizer slowly back into the fuselage until it is centered. Note: Wipe away any excess epoxy
glue with a piece of paper towel and some denatured alcohol. Check the alignment frequently whilst the glue is setting, see picture E.

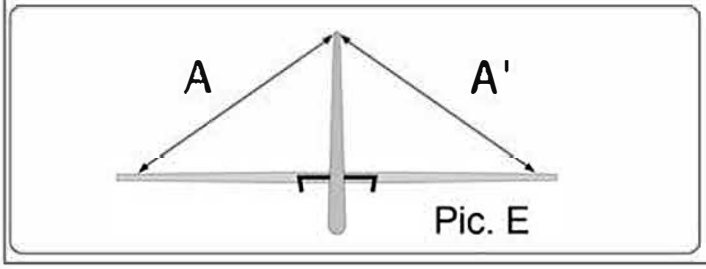

Pic. B

Apply a thin layer of epoxy glue to the bare balsa surface and up to the red line shown below.





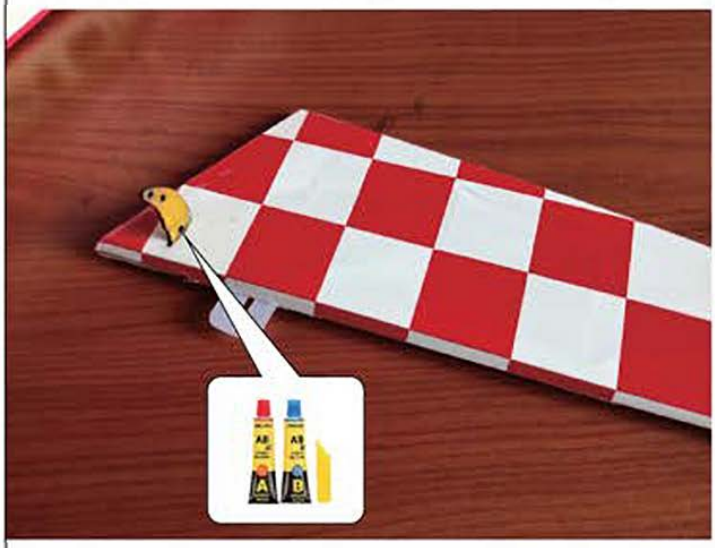


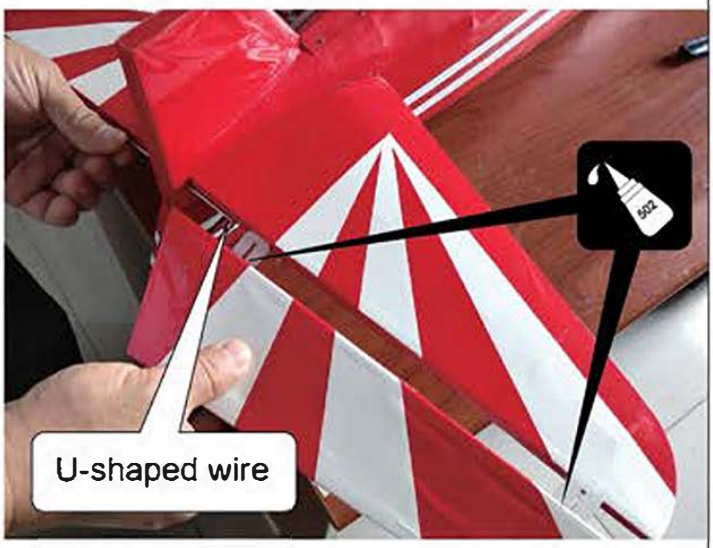


Note: Not to apply any glue to the rear end of the stab. Ensure the U-shaped wire can be operated smoothly whilst glue dries.

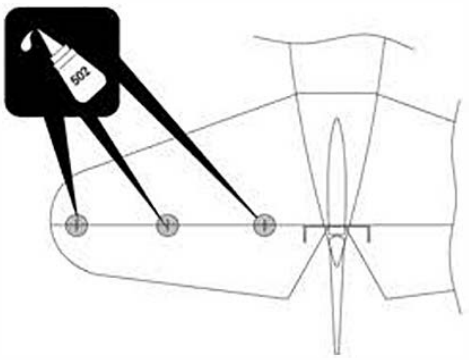
11. Elevator servo and linkage installation :

Install a control horn on the underside of the right hand elevator halve as shown below and glue into place. Ensure the clevis mounting hole is aligned to the hinge line to achieve a symmetrical control throw. Then using the hinges to install both elevator halves to the stabilizer. Please ensure the U-shaped joining wire is located through the slot and inserted into the elevator halves as shown. Note: The 2 elevator halves must be installed and carefully aligned to avoid any twist when viewed from the rear.

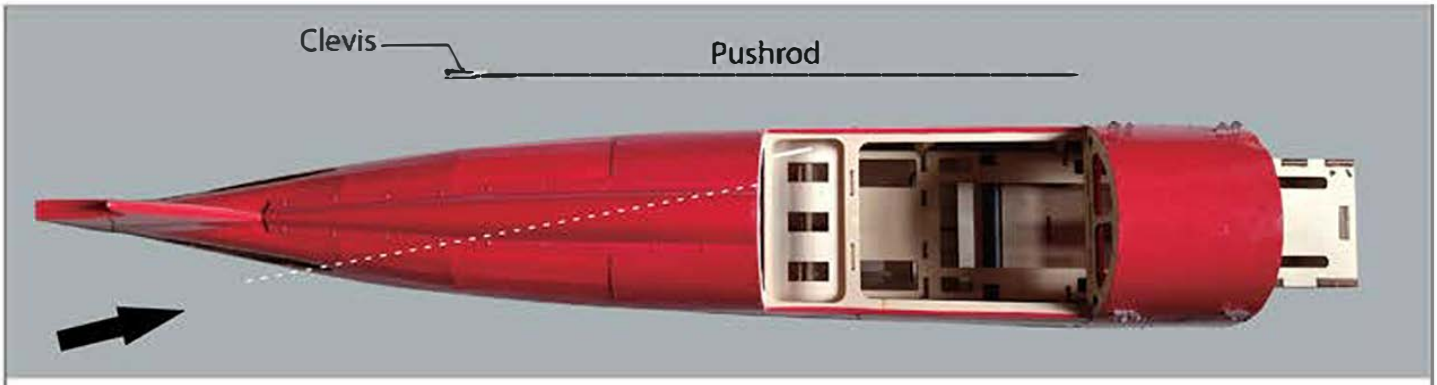




Check if it moves freely without binding. Once you are satisfied with the fit, you may use medium CA glue to permanently bond the U shaped wire into the elevators. It is recommend to use a fine nozzle applicator which is supplied in your glue kit. Apply a couple of drops of CA glue to the hinges and ensure the hinges are soaked with it for a strong bond to the balsa wood. Check frequently if there is any binding whilst the glue sets.

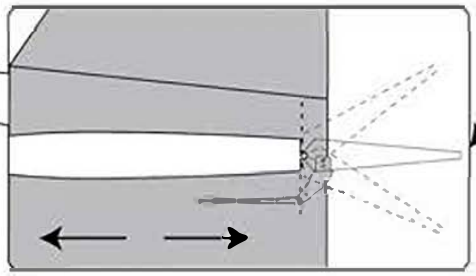


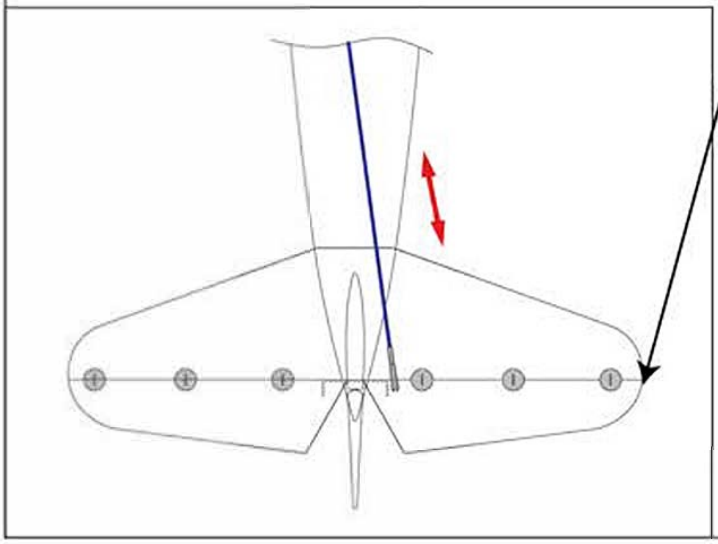
11. Elevator servo and linkage installation :



First you need to make a small cut in the film covering material for the pushrod exit. In order to do this neatly, gently insert the supplied φ0.9 mm piano wire (Non clevis side) into the pushrod sleeve in the radio compartment and slowly feed the piano wire until it touches the flim covering. This will let you know exactly where the pushrod exit is at the rear of the fuselage. Next get a hobby blade to make a small cut in the film covering and let the wire exit from the opening. Finally, link up the elevator control horn with the clevis and perform a test by hand to see if the movement is free from any restriction. Adjust the wire as necessary by bending if need be to ensure as little friction as possible in the pushrod.

Note: Ensure the travel range of the elevator is symmetrical.



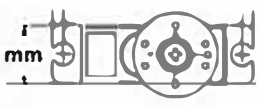


Note: Ensure the travel range of the elevator is free from any binding.

Side View

Recommend Elevator and Rudder servo spec:
Torque: <3.5 kg/cm
Speed: > .16 secs/60 degree
Operating Voltage Range: 4.8-6.0V

Top View

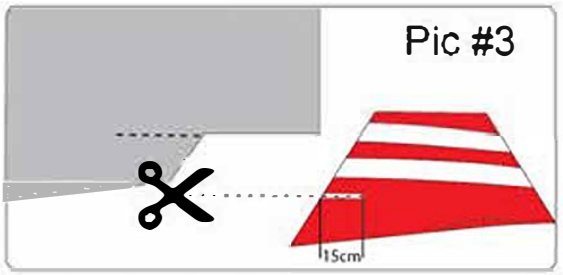


12. Tail wheel fairing assemble :

First, use a straight edge and a pen to mark a line on the covering film. This line extends from the cut-out at the rear of the fuselage as shown.

Then, trial fit the tail wheel plastic cover onto the fuselage and align as shown. You may use the white color trim on the covering to align it properly. When you are satisfied with the fit use some masking tape to hold it in place.

Next, use the marked line on the covering film as a reference and mark a new line on the tailwheel cover.

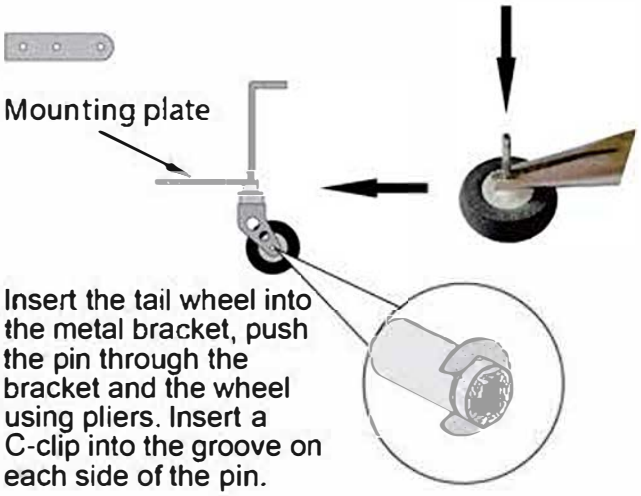


Finally, Use a hobby knife to make a cutout on the plastic cover as shown according to the marked line (approx. 13-15mm in length). See Pic #4

Install the flying wire mounting plate by using the supplied 2.5 x 6mm self tapping screws to secure it in place.

The tail wheel cover and flying mounting wires has now been installed
Here is the picture to show you how it looks when completed.

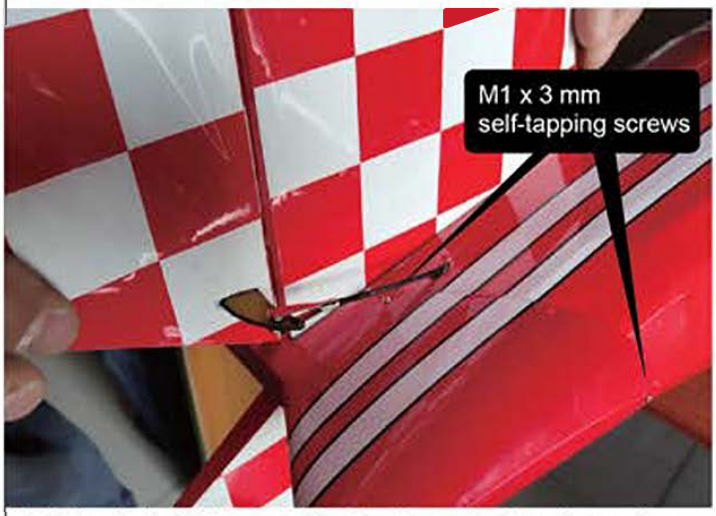
13. Tailwheel installation:

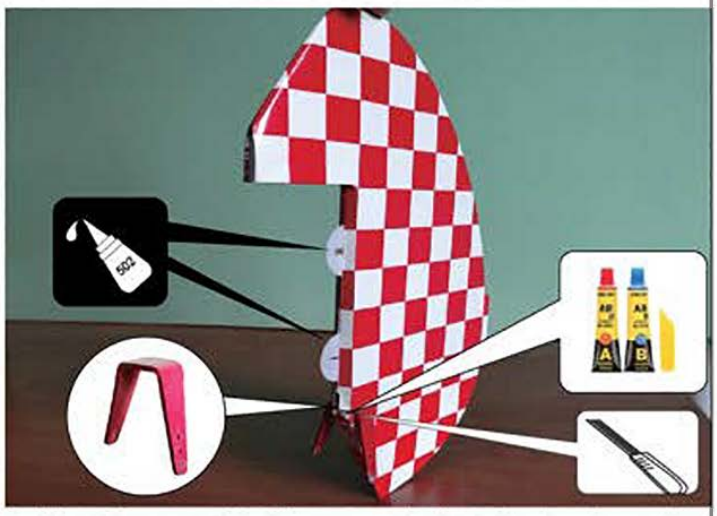


Insert the tail wheel into the metal bracket, push the pin through the bracket and the wheel using pliers. Insert a C-clip into the groove on each side of the pin.

Install the tail wheel assembly onto the plywood with 2 off M3x 8 hex screws.

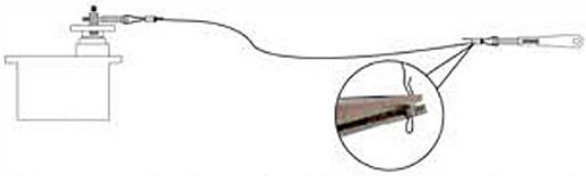
Please note: The hinge and the scale like u-shaped rudder control horn has to be installed prior to the rudder installation. Use epoxy glue to permanently bond the control horn in place as shown. Ensure the horn is installed properly without misalignment. Glue the hinges into the leading edge of the rudder as shown





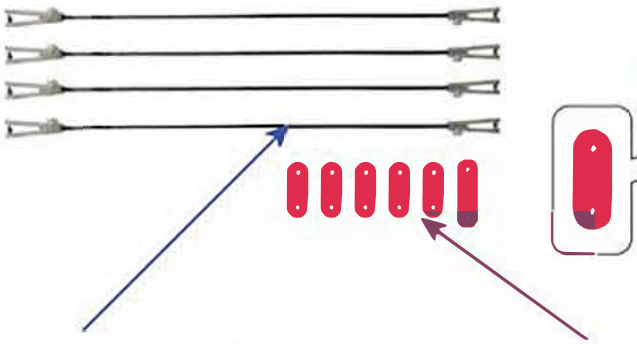
Drill a hole in the rudder for the tail wheel steering arm. Align those rudder hinges and the tail wheel arm in line with the vertical fin center line. Then trial fit these parts into the pre-cut slots on the vertical fin. Once satisfied with the fit, you may apply some CA glue to the hinge and apply some epoxy glue to the tailwheel steering arm. Ease the parts together and use some masking tape to hold them whilst the glue dries.

14. Rudder servo and linkage installation :



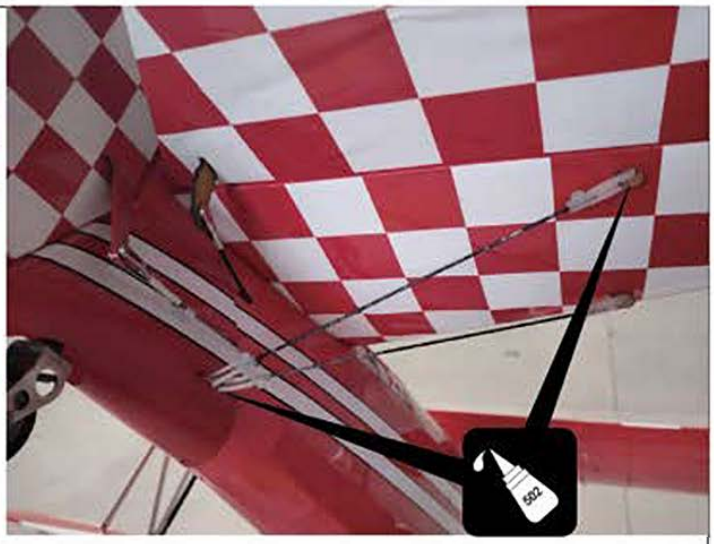
Before we start making the cables and installing them remove all the supplied cables, threaded studs, adjustable pushrod adjusters and clevises from the accessory bag. You need to make 2 pull-pull cables to allow the rudder to work. First, cut 2 lengths of cable that are long enough to reach from the servo to the rudder control horn plus about 40-50mm or so, this will make it easier for you to make the loops on the ends and crimp the tube. Feed one end of the cable through the fuselage in to the servo compartment. At the servo end slip a crimp tube over the cable then loop the cable through the hole in the threaded stud and then loop the cable back into the tubing and pull the cable to form a small loop about 12mm long. Now bend the cable back along the tubing and slide it back into the tubing.

Use long nose pliers to pull out all the slack and leave a small loop, this is why you need the extra cable length. When the cable is pulled tight and you have formed a small loop, (see photo above) use a crimping tool and make two crimps to lock the tubing into place. Repeat this process on the other end of the cable (control horn end). Once you have one cable made make another identical one for the other side. Once both cables are made screw a clevis on the rudder horn end and feed the servo end through the servo connector. Adjust the clevis and the servo connector end on both cables until both are tight and there is no slack to the rudder and the rudder is neutral.

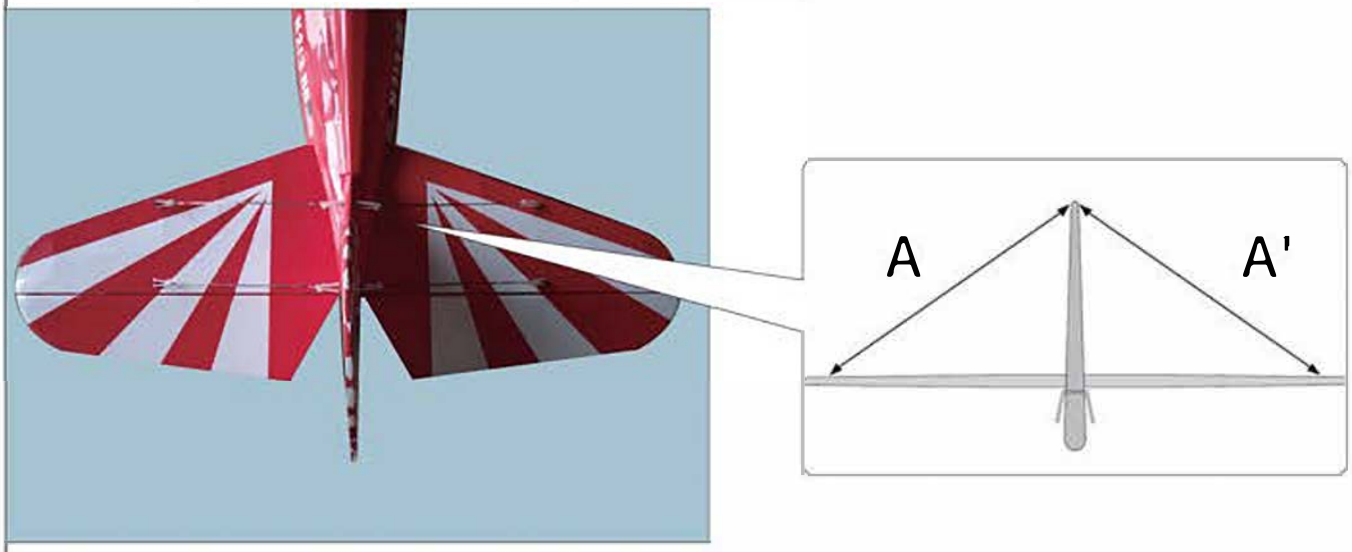


Insert the fiber tabs of the flying wire fixings halfway into the pre-cut slots on the vertical fin and stabilizer. Apply a drop of CA glue to fix them in place.

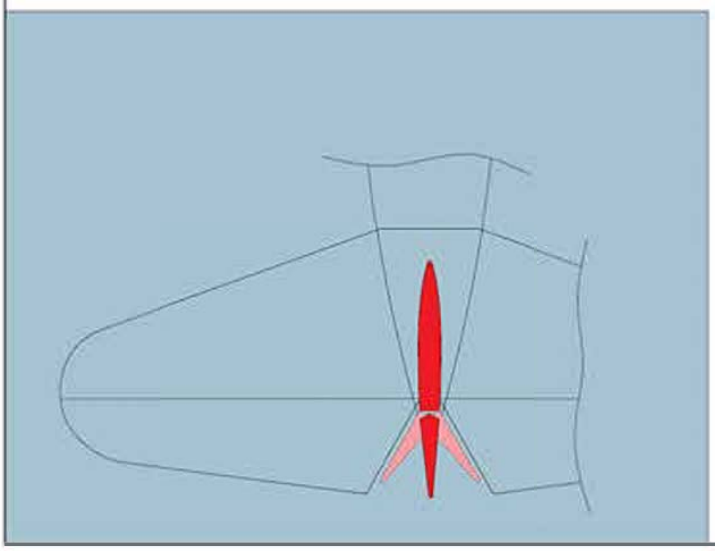
15. Flying wires riggings :

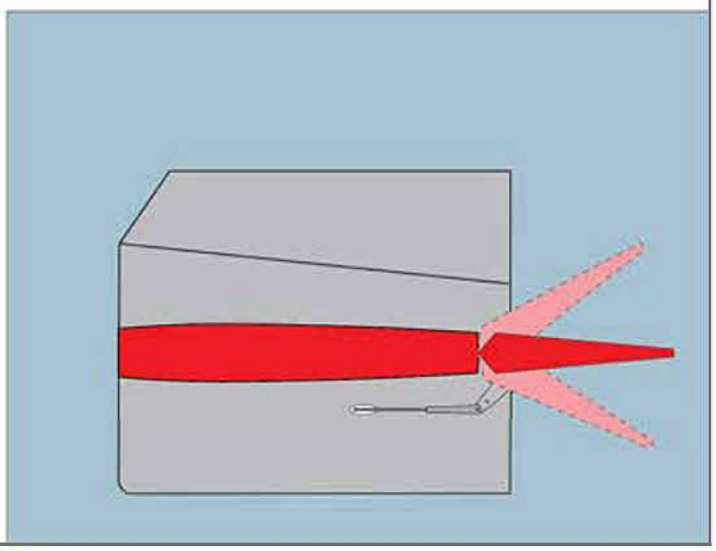


Trial fit the flying wires between the vertical fin and the stabilizer. Ensure the empennage is straight and true before you secure the clevis onto the pushrod with CA glue.



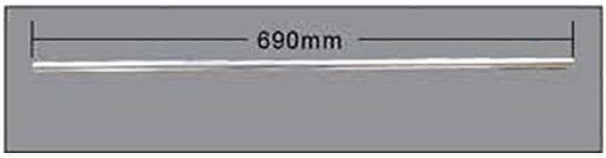
At this stage switch on your radio control system and check that the elevator and rudder are working correctly and free from binding.



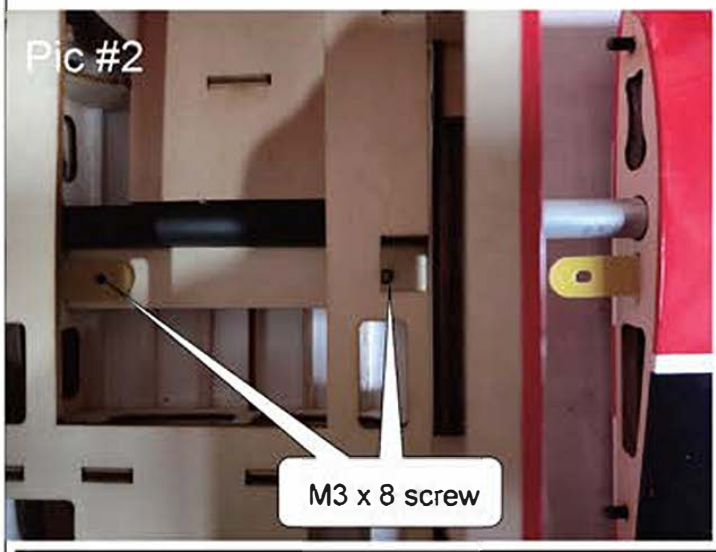


16. Bottom wing installation:

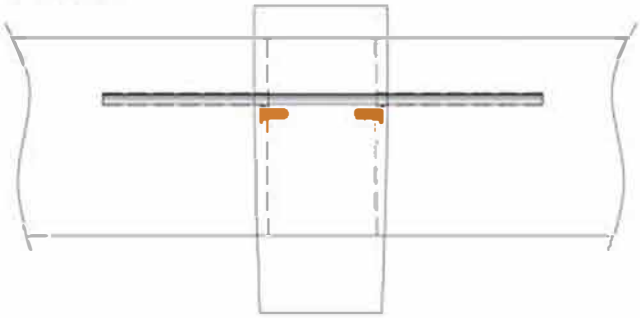
Lower wing joiner tube



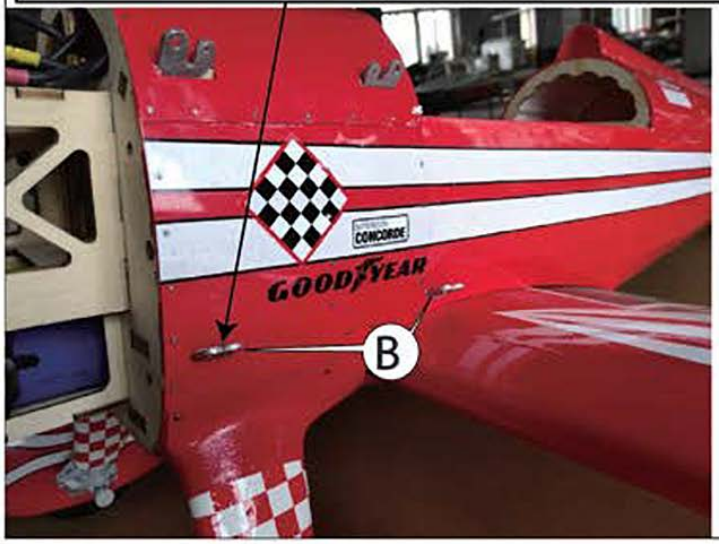
Insert the lower wing joiner tube through the sleeve in the fuselage. Then slide the left wing onto the wing joiner tube until it is up against the wing saddle (See pic #1). Ensure the wing locking tab has aligned with the hole in the wing mounting box (See pic #2). Finally lock the wing in place by using the supplied M3x8 screw. Please follow the same procedure to install the right wing. Pic #3 shows how both the L+R wing are mounted on the fuselage when complete.

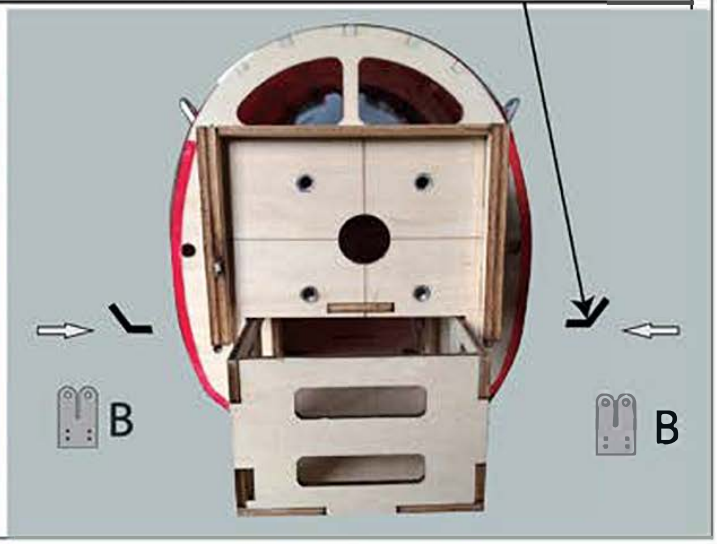


Pic #3



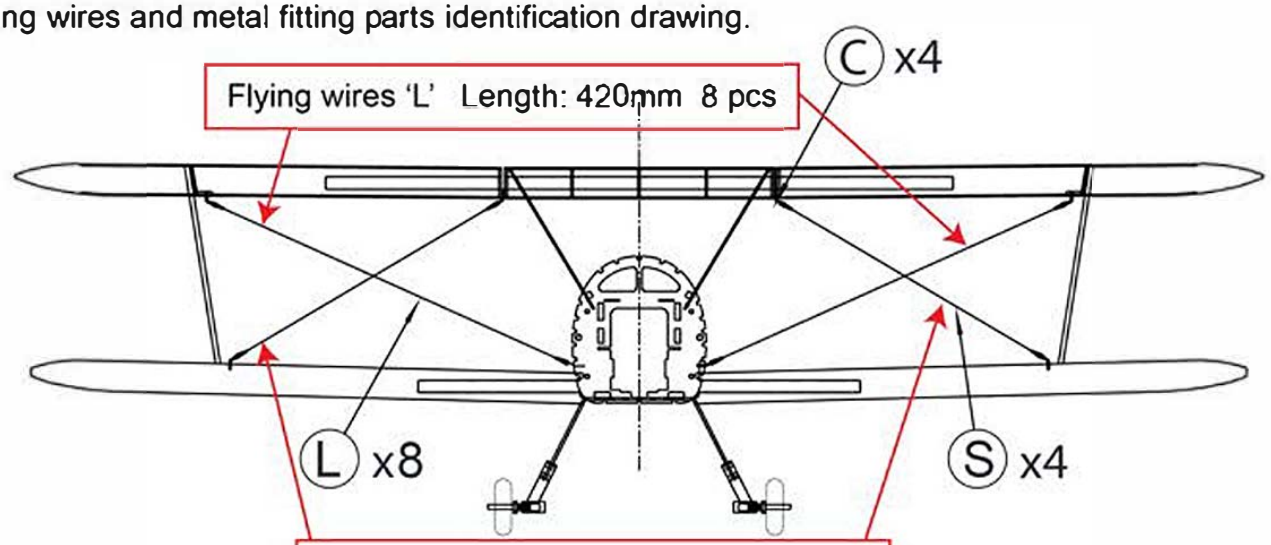
Trial fit the 4 'B' metal fittings into the fuselage as shown. Ensure all the fittings are fully seated into the slots. Note: Please use a needle file to clean up any burrs or glue residue inside the slot to improve the fit. When satisfied with the fit permanently glue the parts into place.





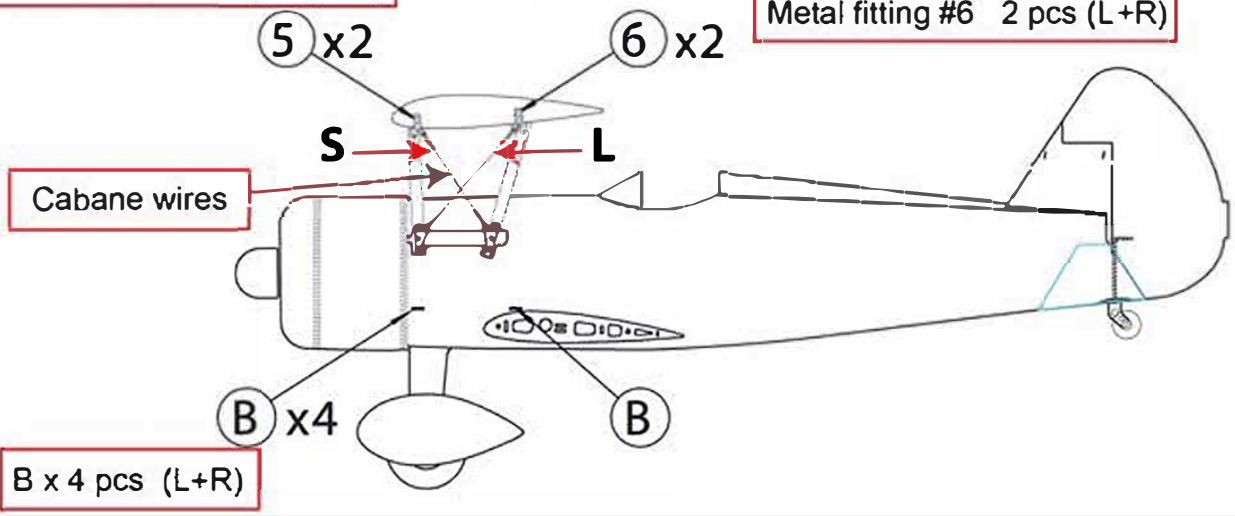
17. Flying wires rigging for Main wings:

Flying wires and metal fitting parts identification drawing.



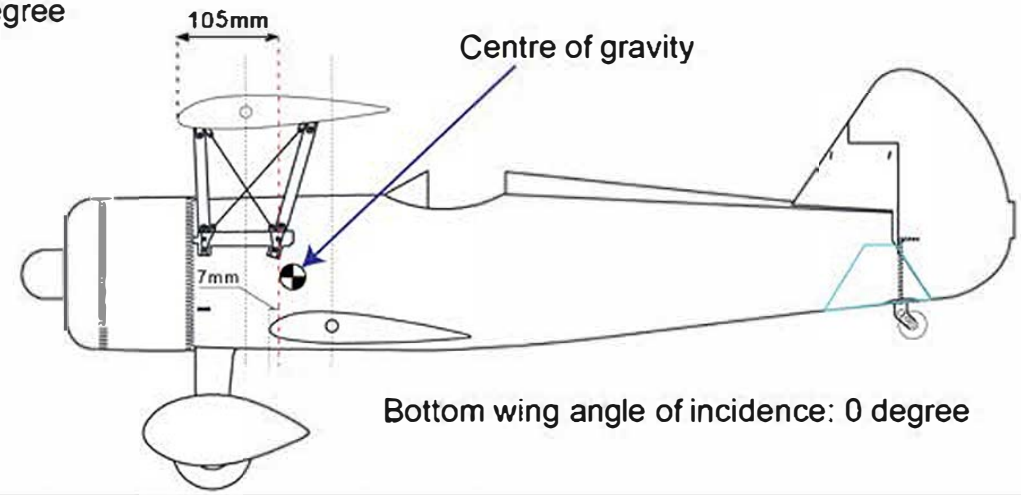
Metal fitting #5 2 pcs (L+R)

Metal fitting #6 2 pcs (L+R)



Centre of gravity

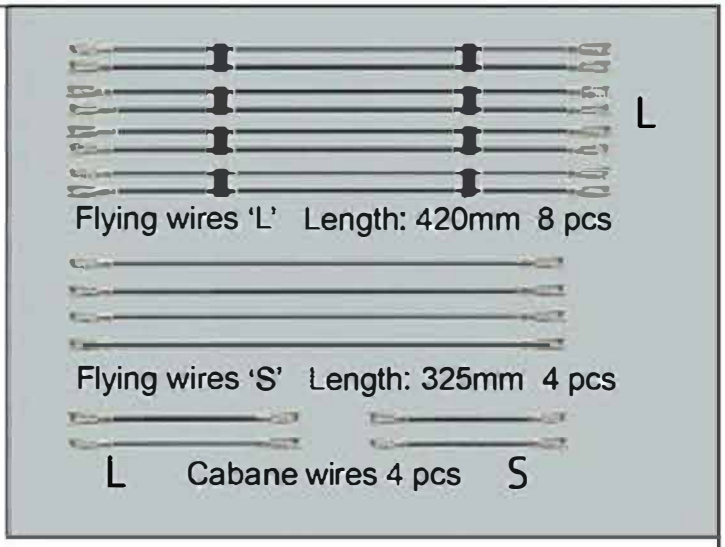
Top wing angle of incidence:
minus 0.5-1 degree



Bottom wing angle of incidence: 0 degree

18. Main wings, wing struts and aileron control rod linkages setup instruction

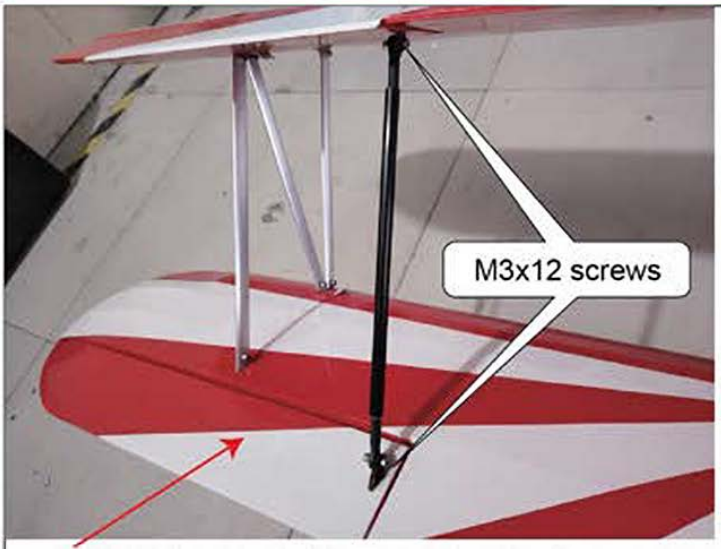
Prepare a pair of aileron pushrods as shown.



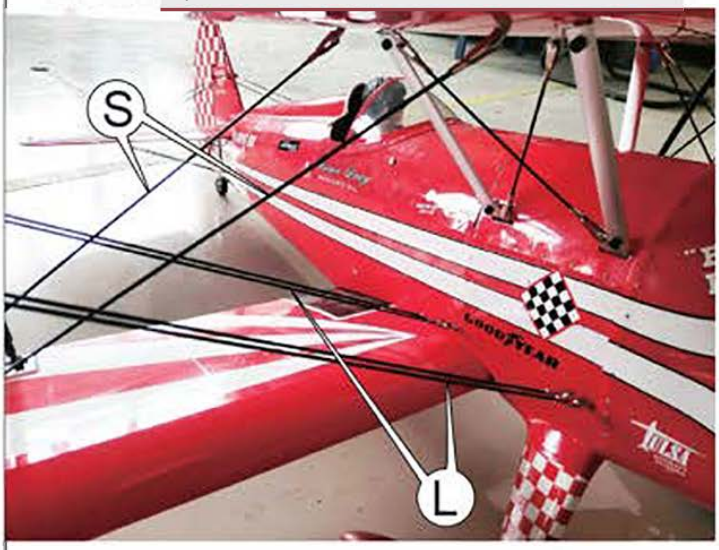
You may refer to the flying wires rigging drawing shown above for the installation.

Attach the top wing and align the pre-installed metal fittings in the fuselage in front of the cockpit with the cabane struts. Attach the cabane struts to the fittings using 4 off 3 x 8mm nuts and bolts, use a small wrench and an Allen key to secure them in place.

19. Interconnect pushrod installation for ailerons:

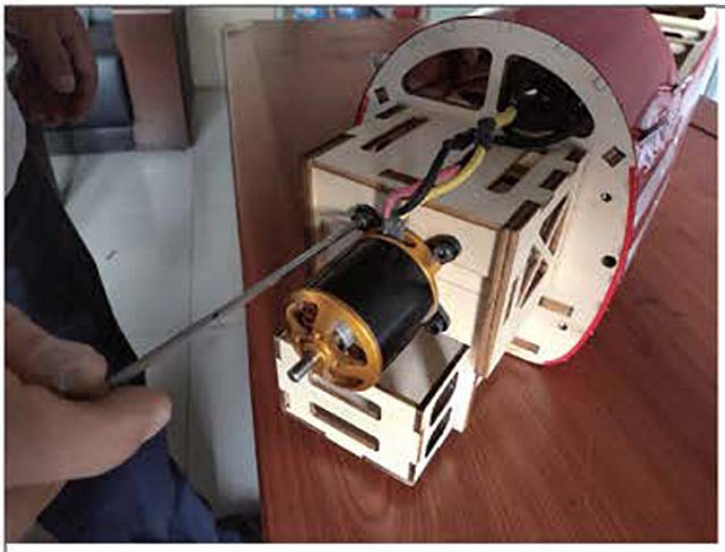


First set the lower wing ailerons at neutral, you can use masking tape to hold them in place. Then connect the pushrod between the upper and lower wing ailerons. Adjust the length of the pushrods so that the top ailerons are neutral when the bottom ailerons are neutral.

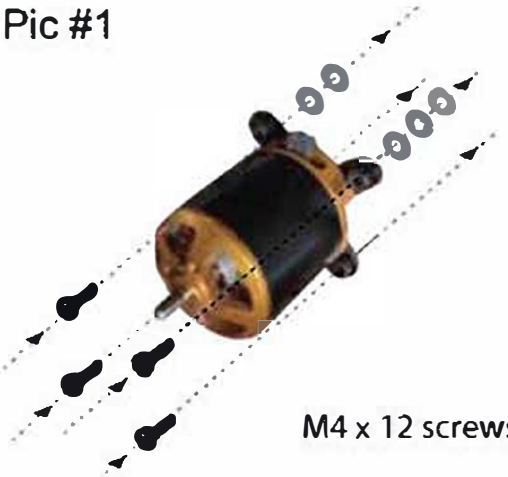


Here are some more pics to let you have a better understanding of the flying wires connections. Install the small pieces of foam on the flying wires as shown to reduce the resonance and vibration when the prop RPM has reached a certain level.

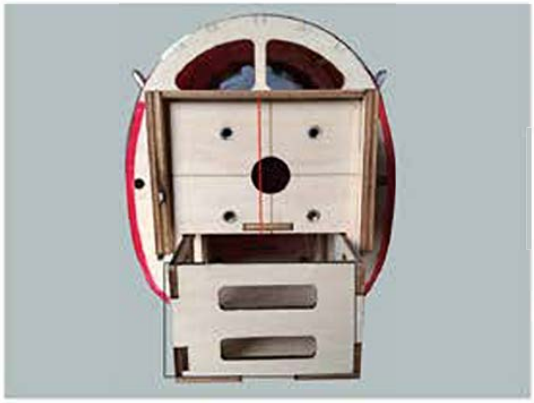
20. Motor and ESC installation:



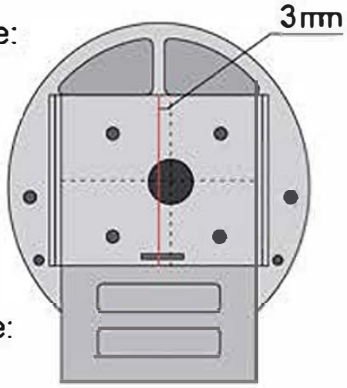
Pic #1



Choose your desired motor according to our recommended power range. There are so many different motor sizes on the market so it is hard for us to tell you exactly how to install it on this model. If you follow the guide below you will still be able to achieve good results with the motor installation.



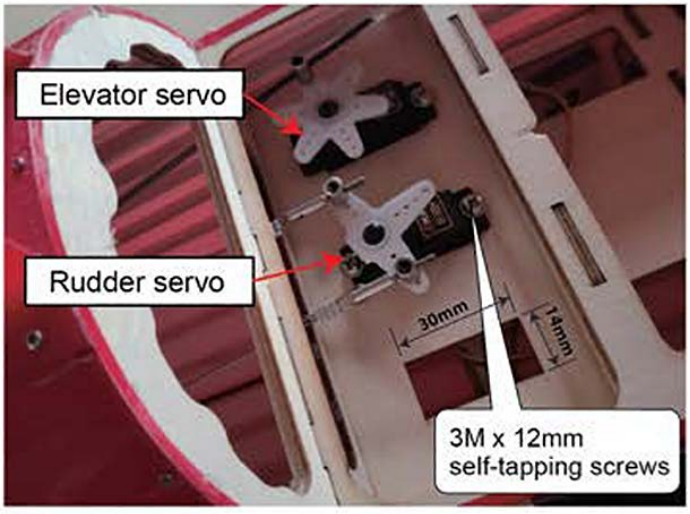
Right thrust angle:
2-3 degrees



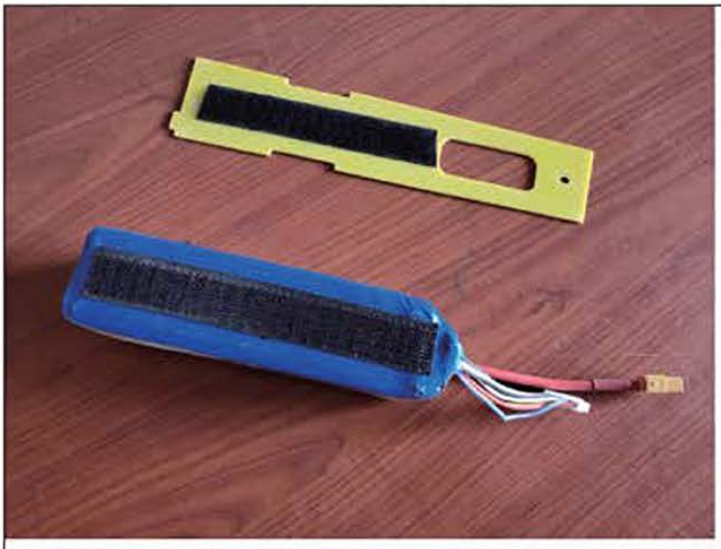
Down thrust angle:
1-1.5 degrees

Attach the X-mount to the motor using the set of screws supplied with a crosshead screwdriver, use some threadlock to secure the screws. You can see the line on the firewall is offset to allow for the side thrust. Install the X mount on the offset line mark which is about 5mm to the left of the center line. Add washers behind the X-mount (See pic #1) in order to achieve the correct right thrust at the same time. 3-4 washers will achieve the correct right thrust angle. By aligning the motor on the offset line this will bring the motor shaft back to the center axis of the plane when the motor has been installed.

Elevator and rudder servo installation. The servo mount cut-out size is 28mm x 12 mm You may need to trim the servo mount cut-out if you want to use a bigger size servo with more torque.

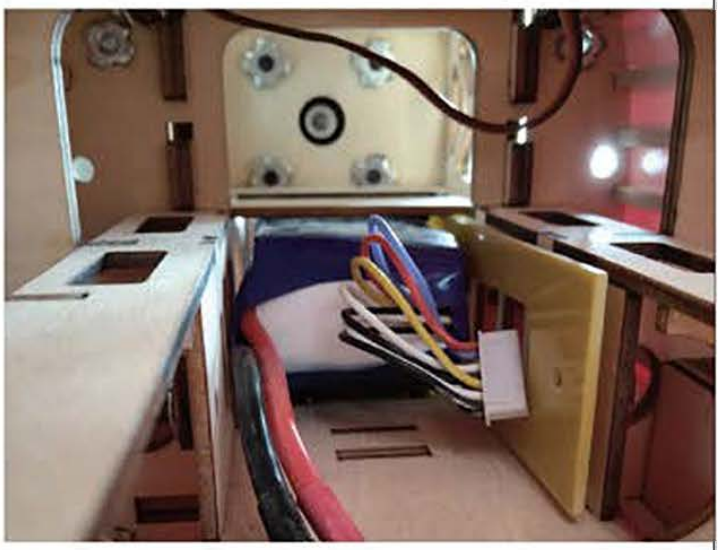


21. Battery tray installation :



Due to the fact that this Biplane has got a very short nose moment it can become a bit tail heavy even if we had designed a strong yet light tail. We have come up with a new battery tray design which helps to achieve the correct C of G without having to add extra ballast in the nose which saves overall weight. In order to do this we place the battery pack in the very front of the fuselage right against the firewall. This enables you to achieve the correct C of G without adding ballast. The battery tray is removable so that you can take the tray out and strap the battery pack to it. You can then slide it back into the fuselage and lock it in place using the supplied thumb screw.

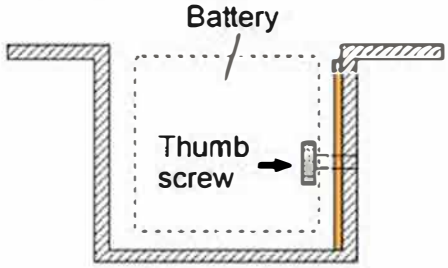
Stick one side of the Hook and Loop tape onto the removable battery tray then stick the other side of the tape to the side of a battery flight pack as shown. Stick the battery onto the tray with the Hook and Loop then use a battery strap to further secure it in place.



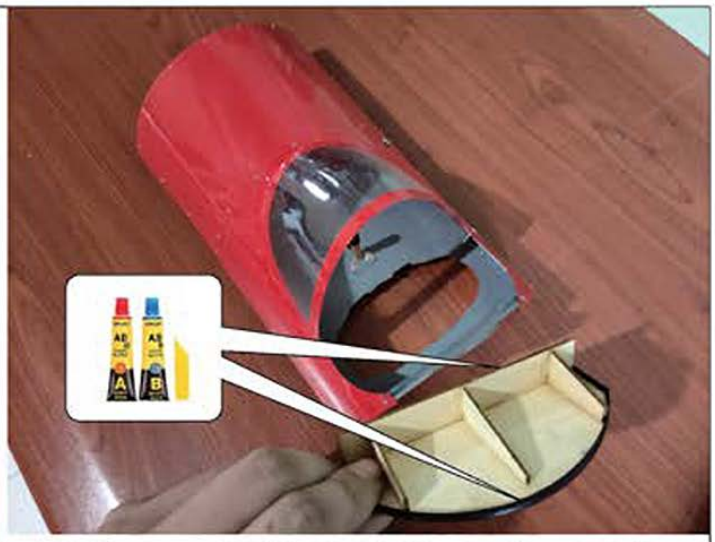
Turn the battery pack sideways and slide it back into the battery compartment.

Once you have satisfied with the fit, use a thumb screw to secure it in place. See pic A.

Pic A

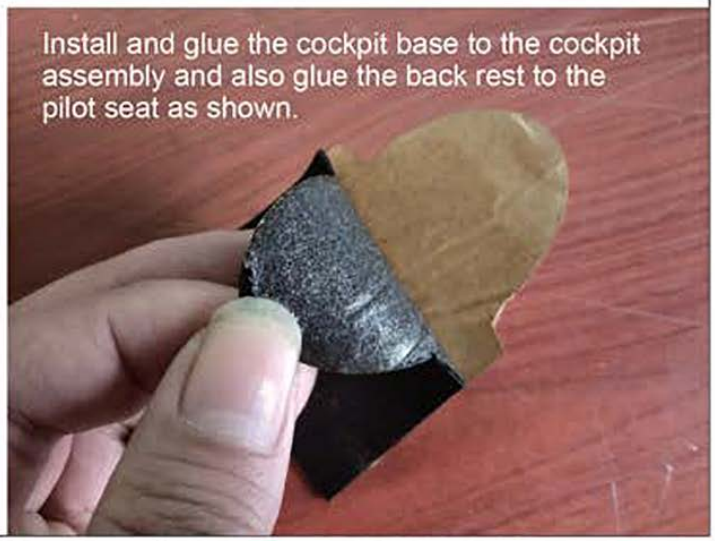


22. Canopy and cockpit installation:



We have made a very detailed scale instrument panel, cockpit area and pilot. Most of the hard work in this area has been done for you, however you still need to spend a little time and effort to assemble this scale detail. Time spent on this is well worth it and gives the model a very realistic look.

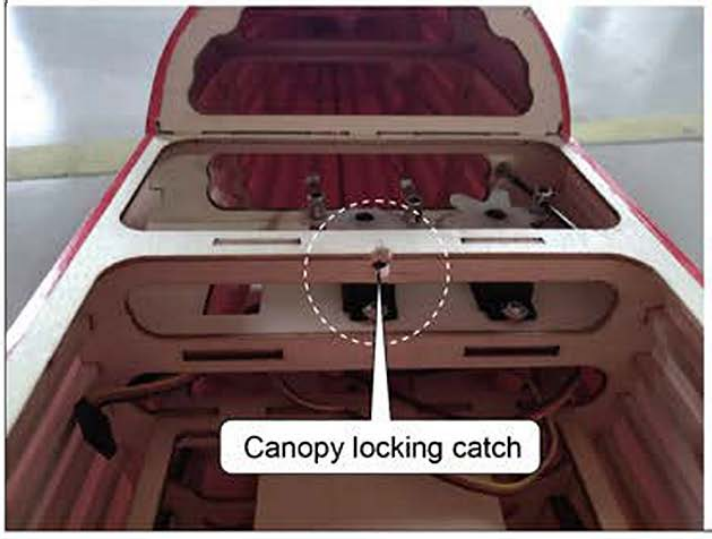
To install the instrument panel into the cockpit you must first remove the control stick. After finishing the panel installation apply a small drop of Medium CA glue to hold the instrument panel in place. Once the glue has dried replace the control stick.



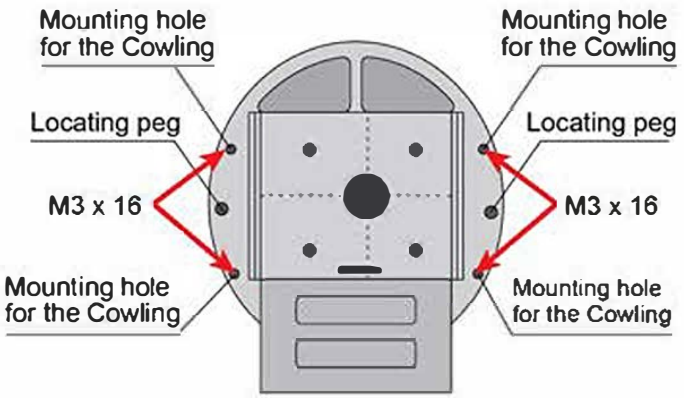
23. Canopy and cockpit installation:

At this point you can glue the pilot figure to the cockpit base.

Also supplied with the kit is a dummy head rest which adds a nice bit of scale detail. Glue the dummy head rest behind the seat and also use 2 off 1mm x 3mm self tapping screws to help hold it in place as shown.



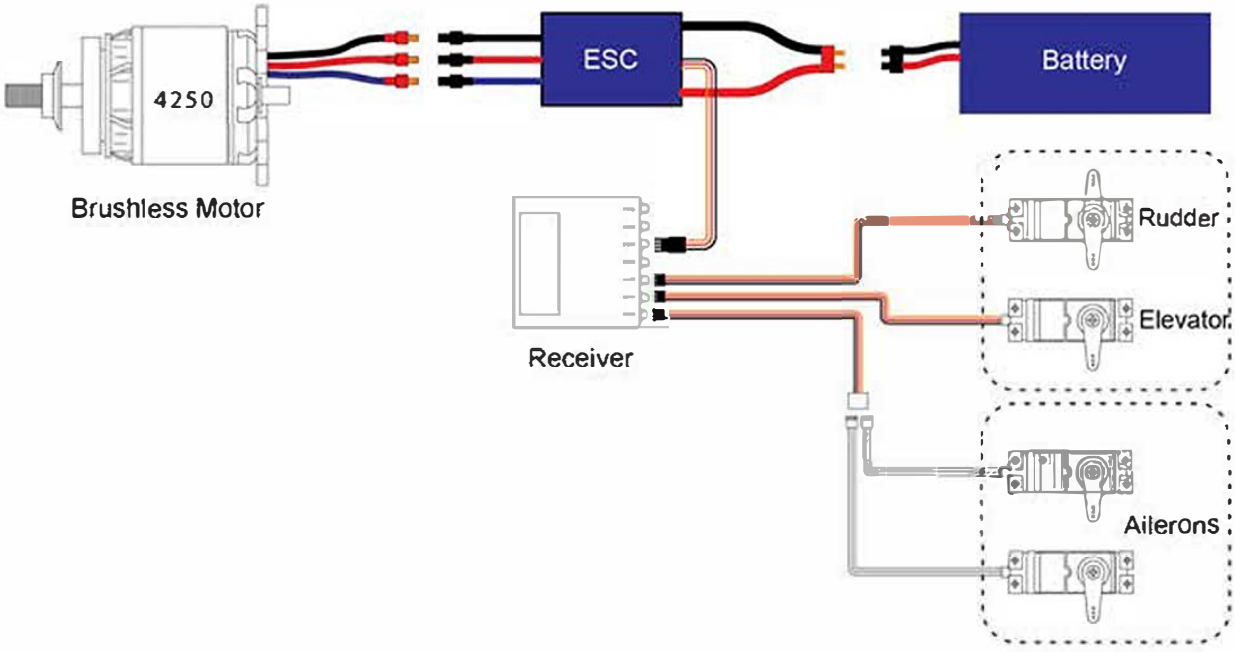
24. Cowling installation:

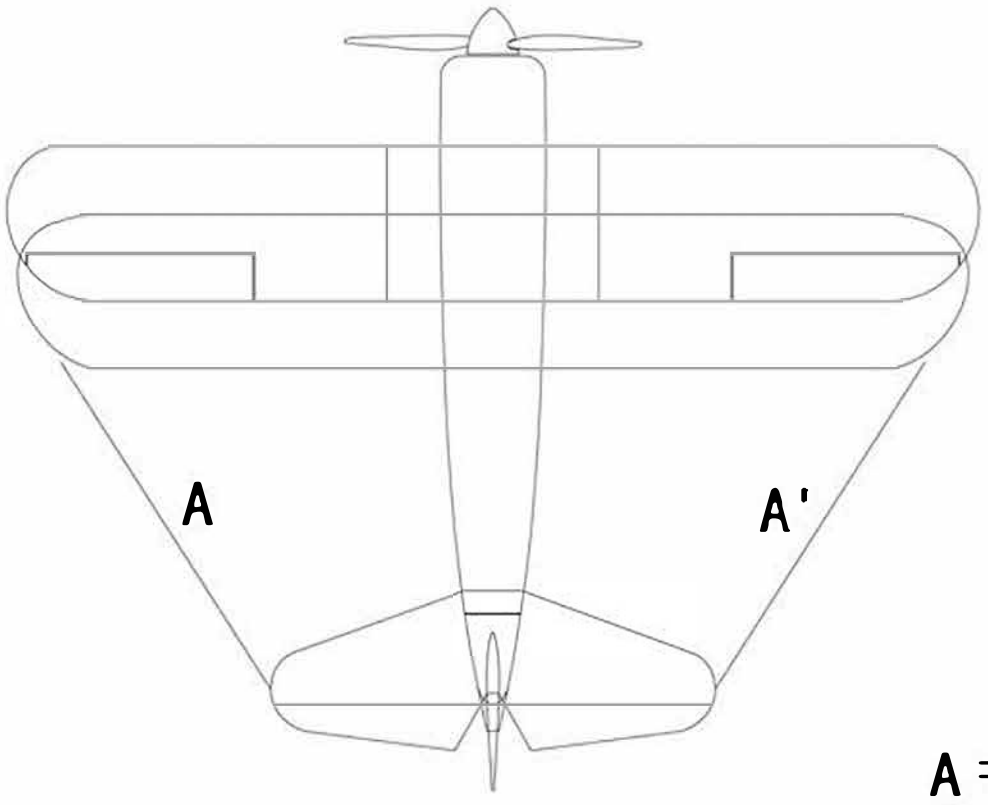


A dummy engine is supplied which replicates the full size engine as closely as possible, it is made of vacuum molded parts and other lightweight components to keep the weight to a minimum. The engine is factory painted and assembled which means all the hardwork has been done for you. In order to ensure all the parts remain secure we recommend you reinforce all the joints with a slow setting epoxy glue. Fit the cowl to the firewall using the supplied M3 x 16mm screws.

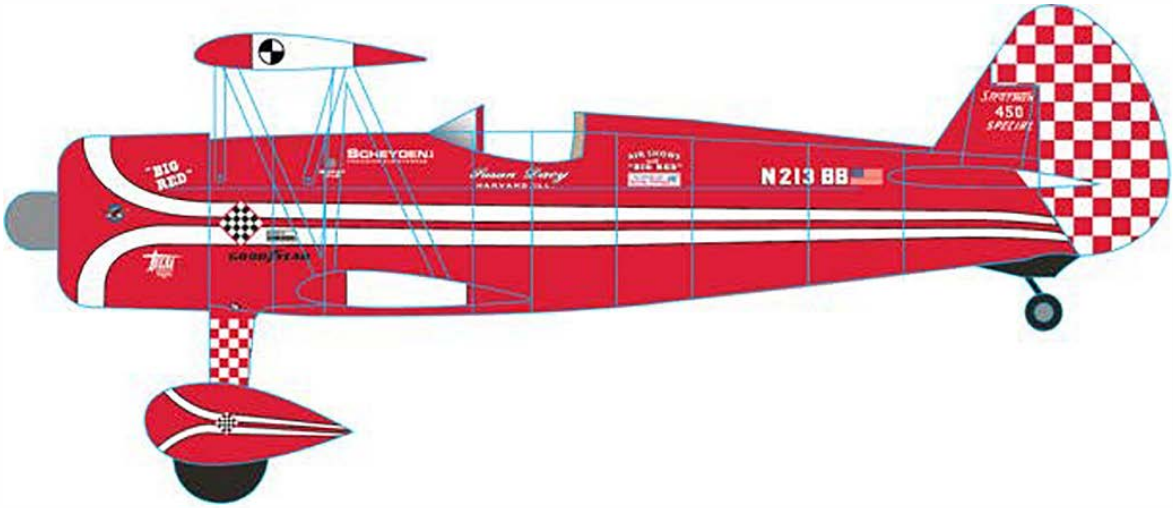
To assemble the spinner and propeller assembly first slide the tapered collet onto the motor shaft followed by the spinner backplate. Then install a suitable propeller that suits your choice of motor, then the propeller washer and nut, tighten the assembly. Position the spinner over the propeller and ensure the spinner cone is fully seated into the backplate. Hold the spinner in place using the cross head screw provided, apply a small drop of threadlock to the screw thread to stop it loosening in flight.

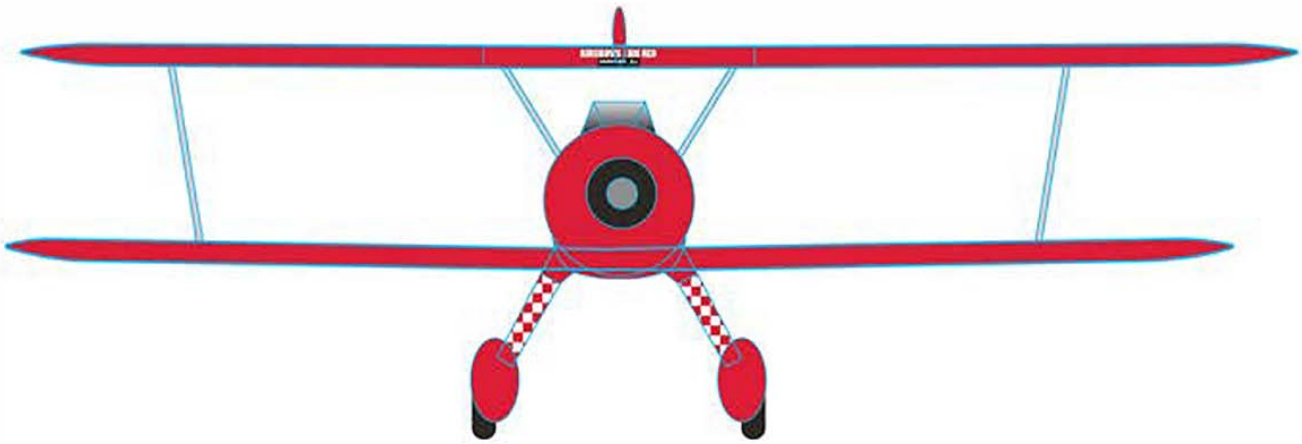
25. RC system and electronic diagram:





26. Decal placement location diagram:



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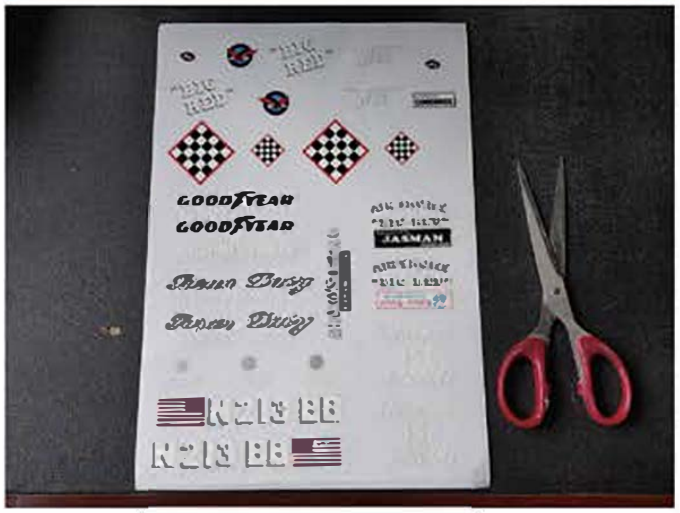
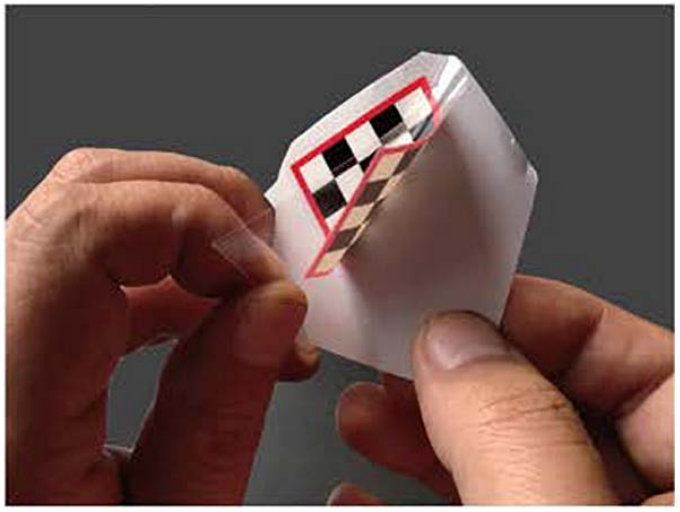
Decals application steps



Use scissors to cut out the decals. Cut out

Cut out and trim the required decal as shown above.



Peel off the backing paper

Position the decal precisely in the designated spot. Apply it to the covering film and use your finger to lightly press into place then rub over with a cloth.

Once in place peel off the surface protective film very slowly.

Success !! The decal is now adhered firmly in place.

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