



ZERO KIT

Code : SEA 123K

ASSEMBLY MANUAL

“Graphics and specifications may change without notice”.



Specifications:

Wingspan----- 66.9 in (170.0 cm).

Wing area----- 761.1 sq.ins (49.1 sq.dm).

Weight----- 9.3 lbs (4.2 kg).

Length----- 51.1 in (129.8 cm).

Engine ----- 0.75 - 0.91 cu.in----2 stroke.

----- 0.91- 1.00 cu.in----4 stroke.

Radio----- 6 channels with 8 servos.

Retracts landing gear (included).

Electric conversion : optional

INTRODUCTION

- Congratulations and thank you for purchasing the **ZERO KIT**. We are pleased to bring you this scale **ZERO KIT** with this kit you can achieve whatever level of detail you like. Just by following the instruction and finishing the plane in scale-looking trim scheme, beginning scale modelers will end up with a model that very much represents and full-size **ZERO KIT**. Experienced builders will find ways to add even more detail, making the **ZERO KIT** competitive in scale contents.

GETTING PREPARED FOR BUILDING

- Here is a list of supplies you should have on hand while you are building. Some of these are optional. Use your own experience to decide what you need.

Getting prepare to build as:

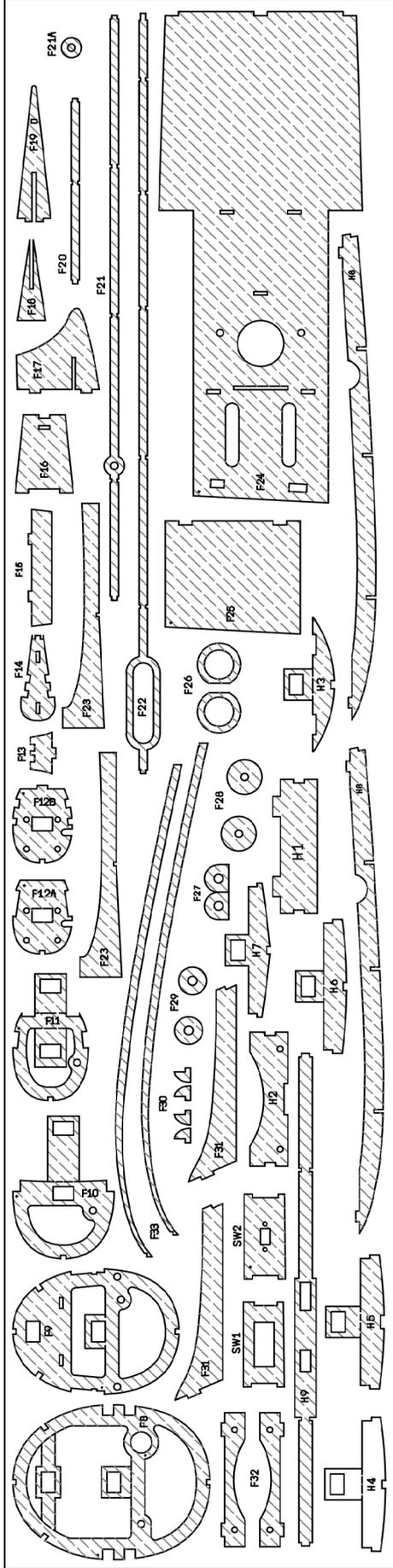
- Flat Iron
- White Glue
- CA Glue
- Epoxy Glue
- Ruler
- Cutter Knife.
- Sandpaper Bar
- Aluminium Square Fixed Tool

1.

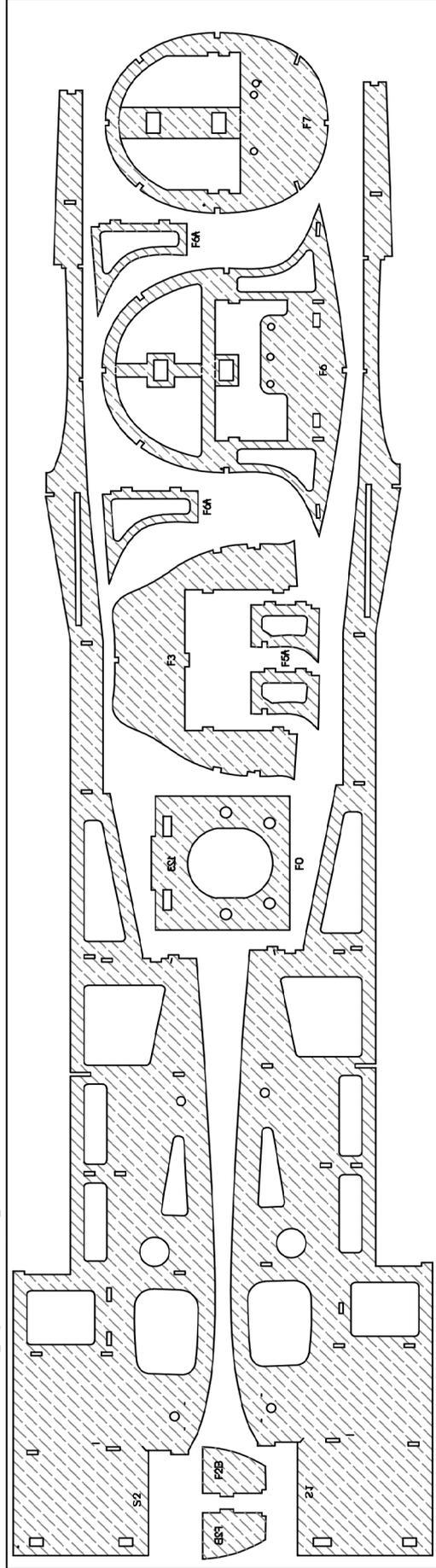


DIE-CUT PATTERNS

2.7mm balsa plywood (1 per kit)

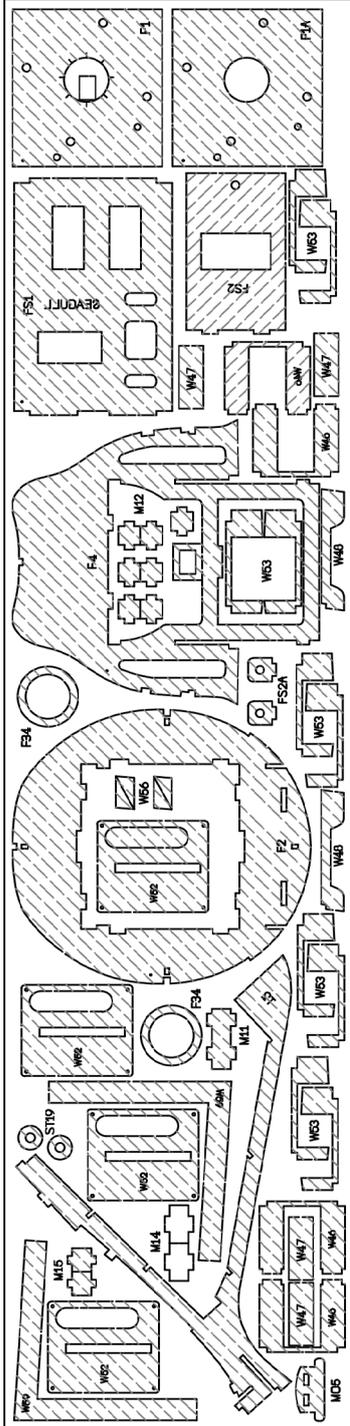


2.7mm balsa plywood (1 per kit)

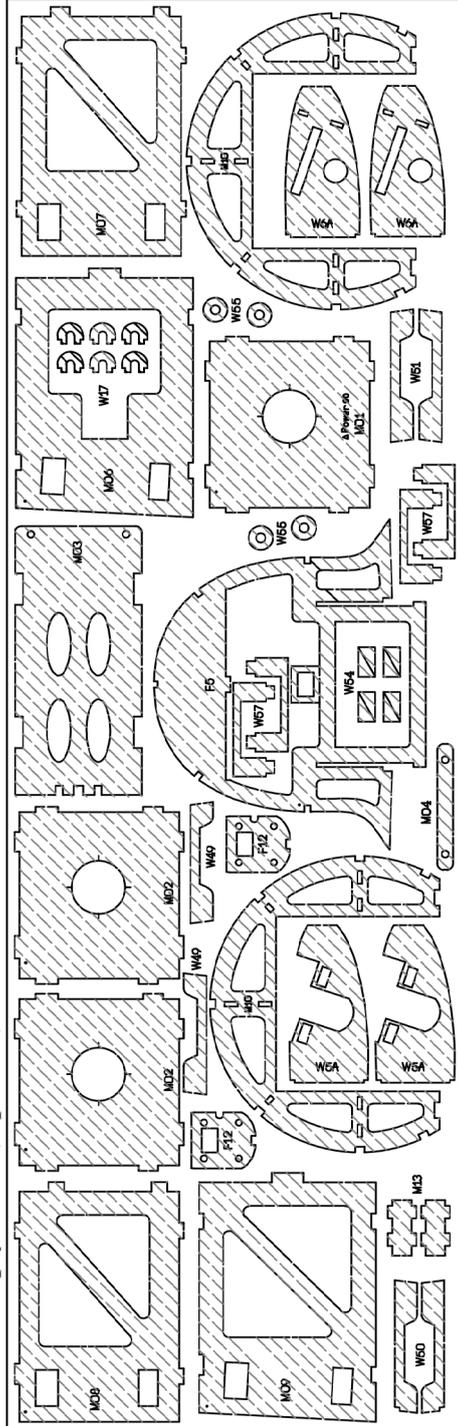


DIE-CUT PATTERNS

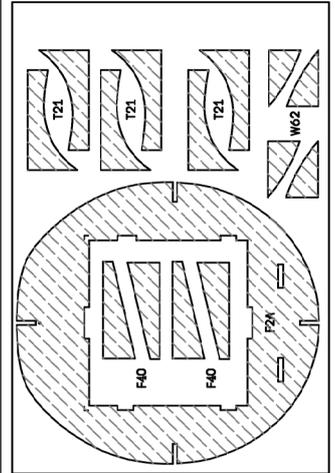
3mm plywood (1 per kit)



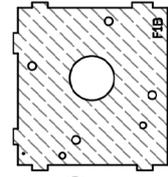
3mm plywood (1 per kit)



8mm balsa (1 per kit)

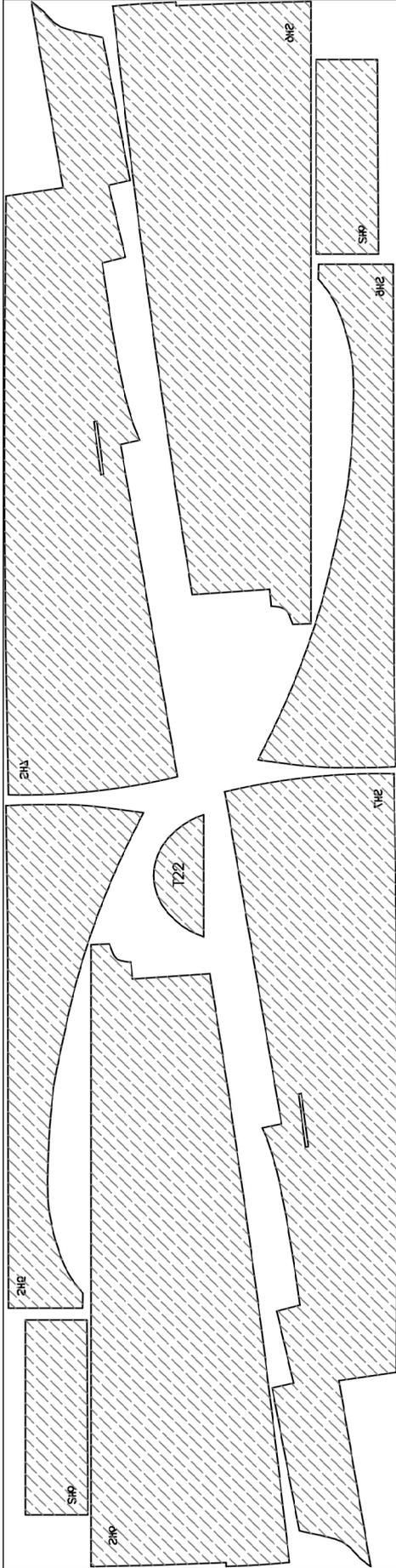


3mm plywood (1 per kit)

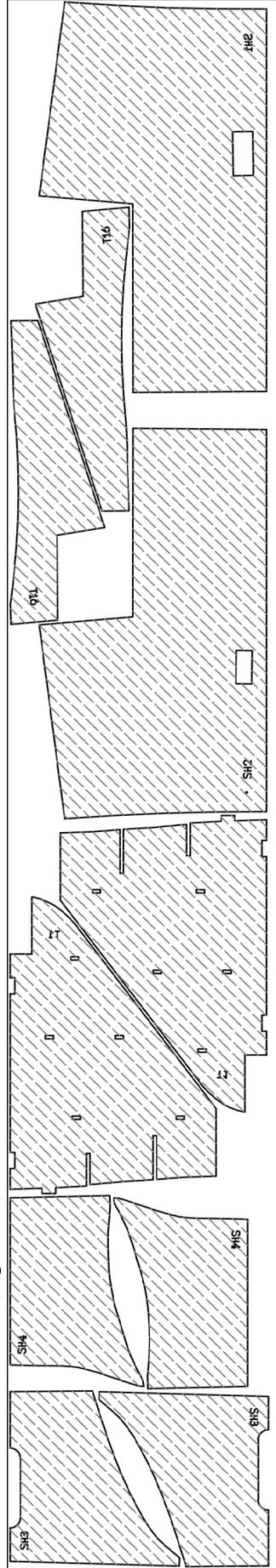


DIE-CUT PATTERNS

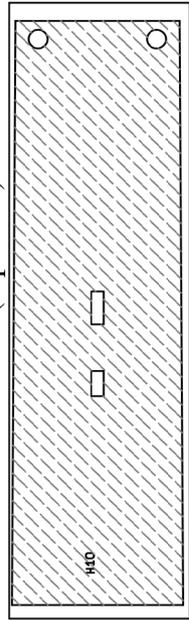
2mm balsa sheet (1 per kit)



2mm balsa sheet (1 per kit)

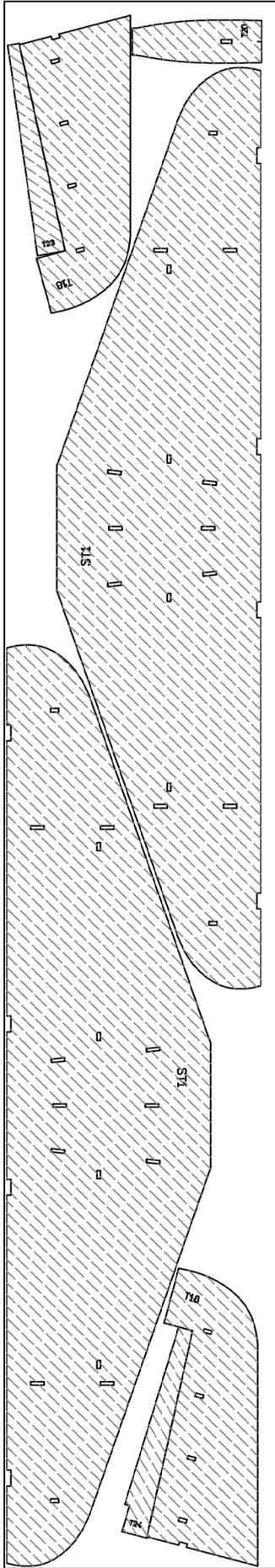


2mm balsa sheet (1 per kit)

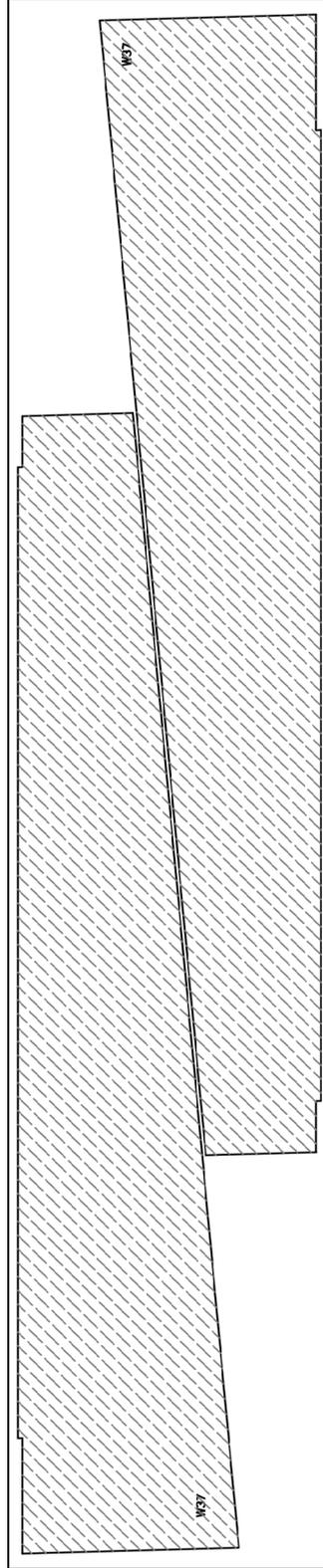


DIE-CUT PATTERNS

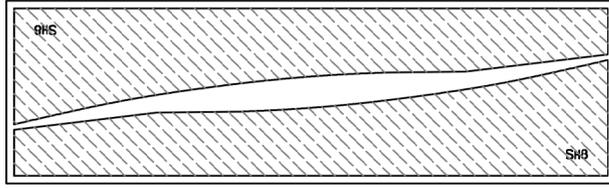
2mm balsa sheet (1 per kit)



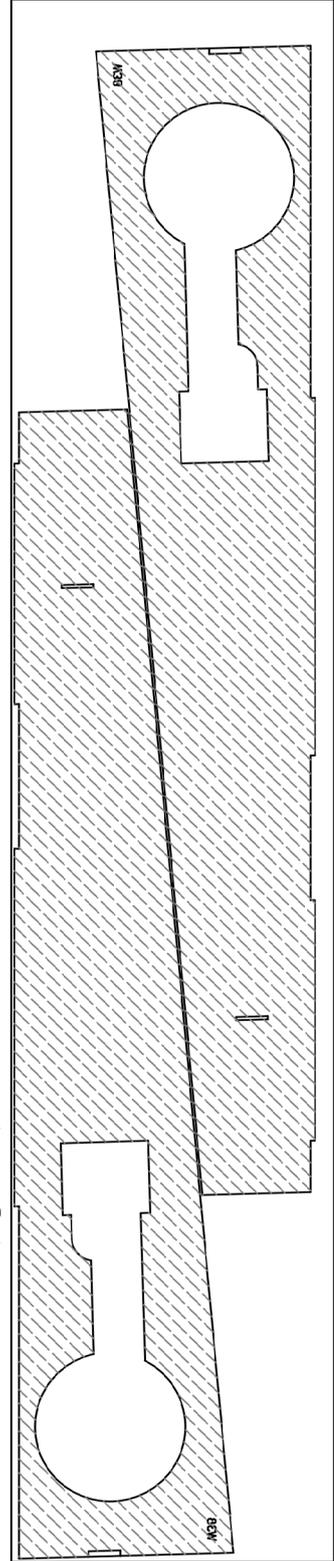
2mm balsa sheet (1 per kit)



2mm balsa sheet (1 per kit)

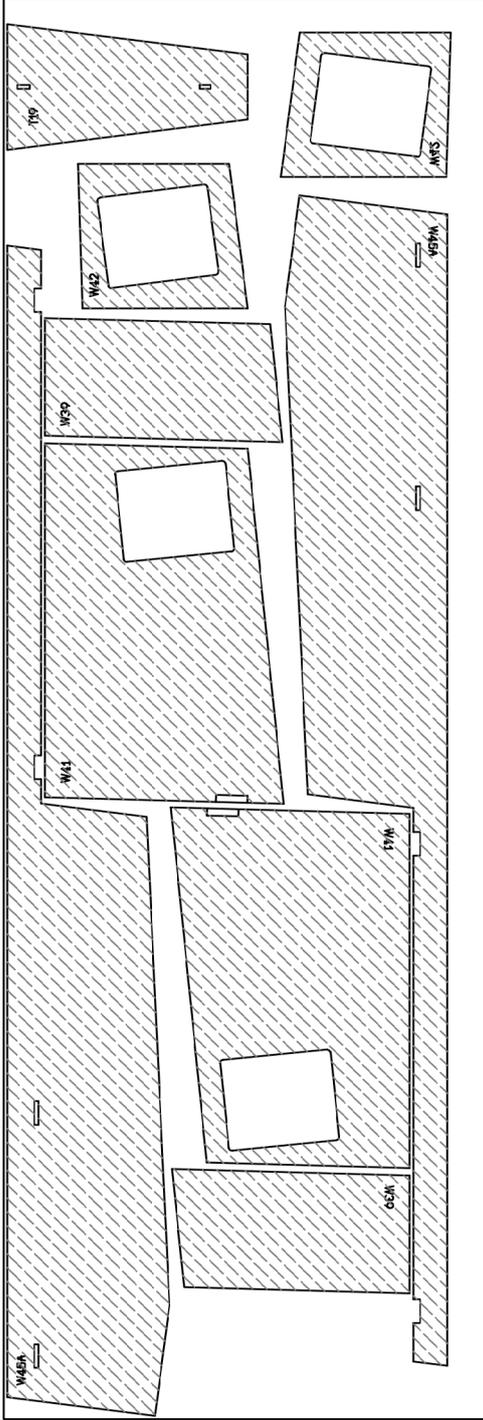


2mm balsa sheet (1 per kit)

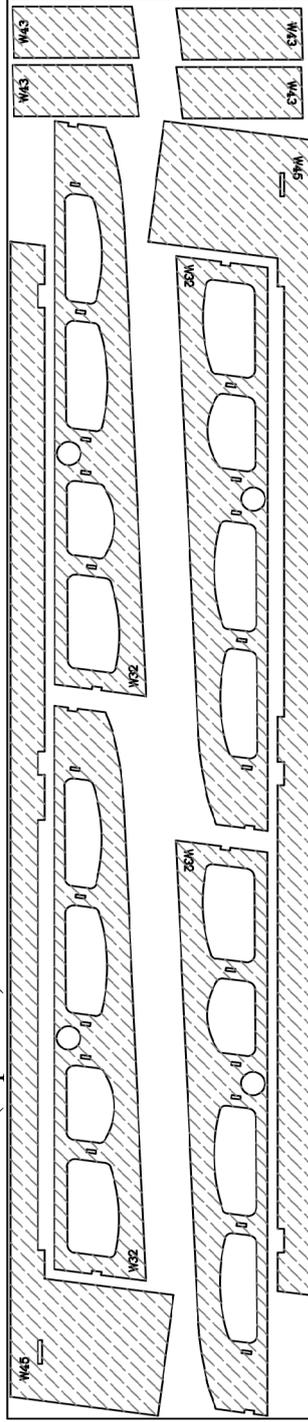


DIE-CUT PATTERNS

2mm balsa sheet (1 per kit)



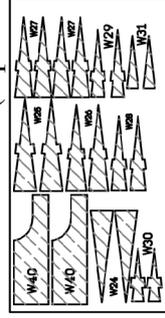
2mm balsa sheet (1 per kit)



2mm balsa sheet (1 per kit)

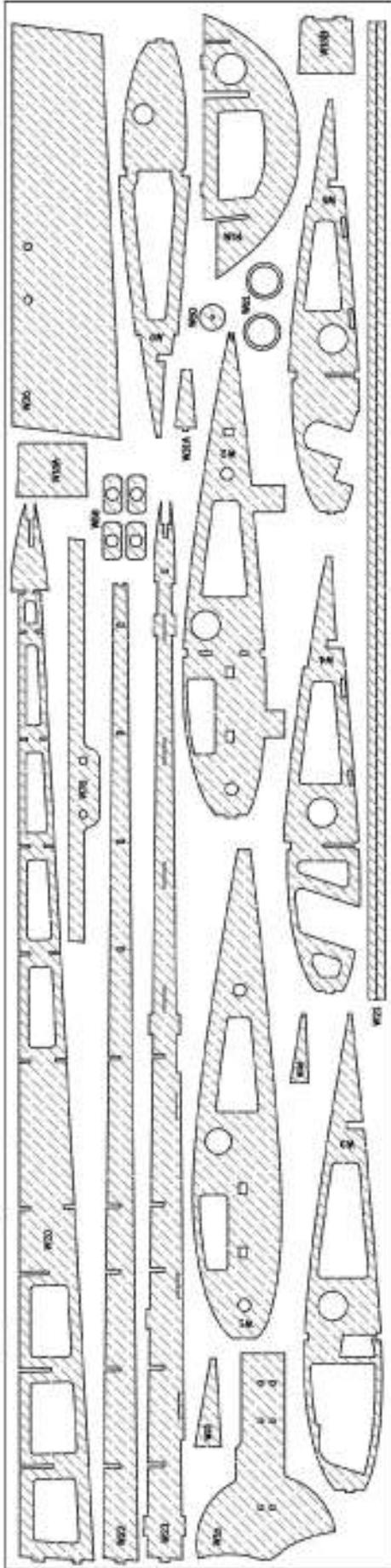


2mm balsa sheet (1 per kit)

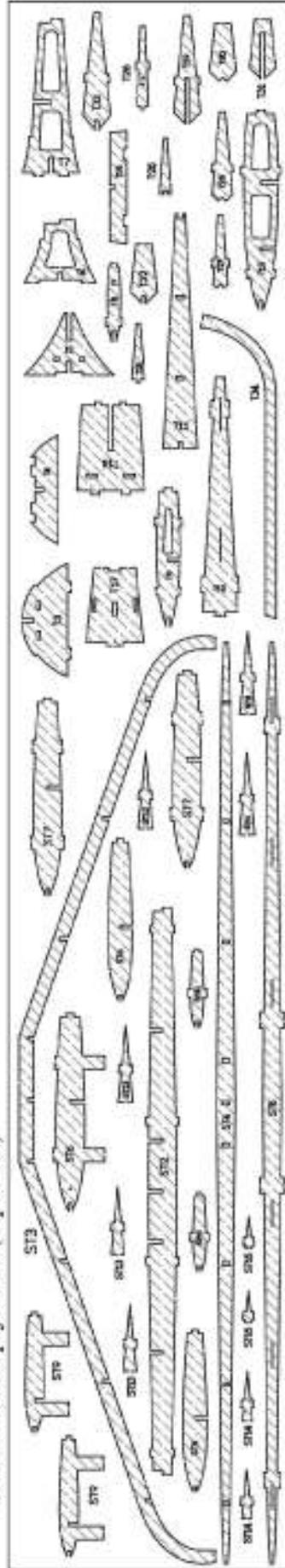


DIE-CUT PATTERNS

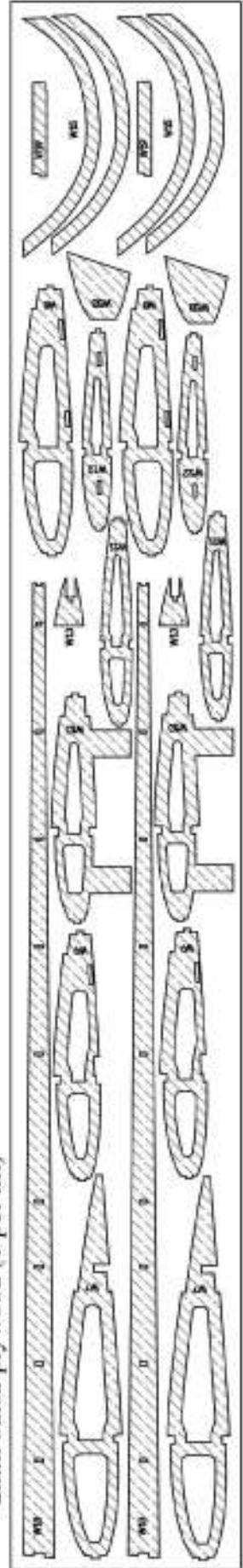
2.7mm balsa plywood (2 per kit)



2.7mm balsa plywood (1 per kit)

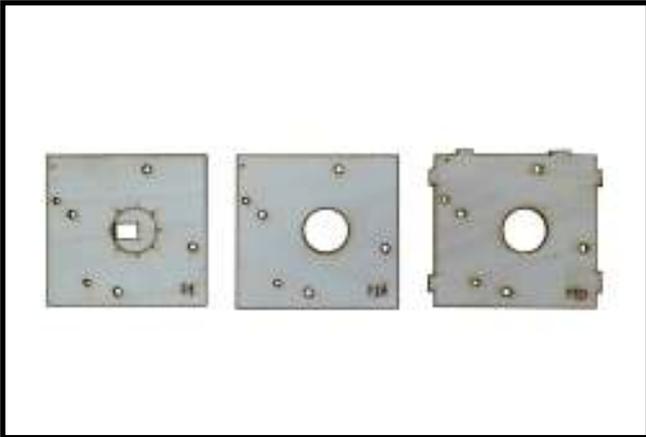


2mm balsa plywood (1 per kit)



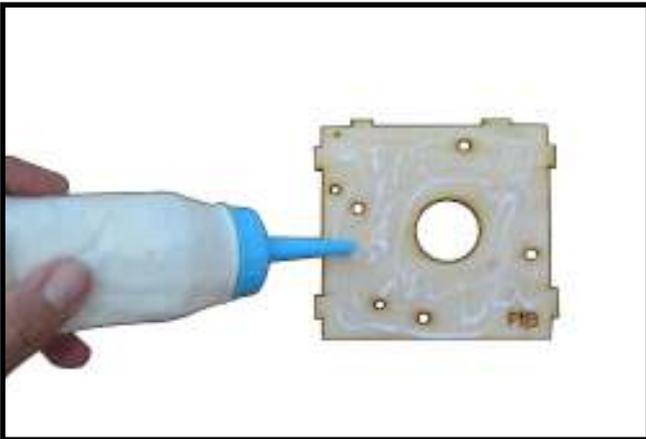
BUILD THE FUSELAGE

1.



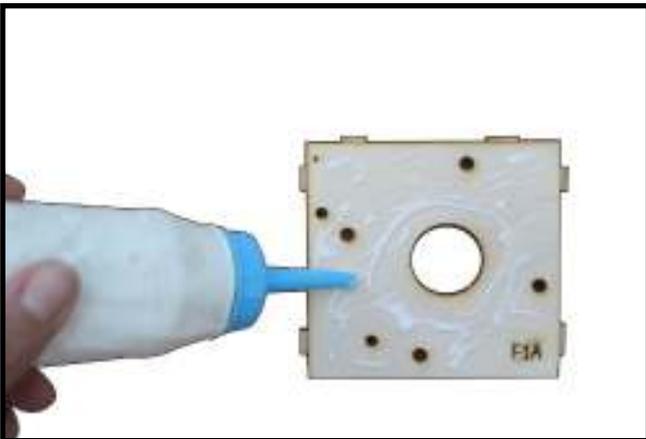
- Firewall (3pcs).

2.



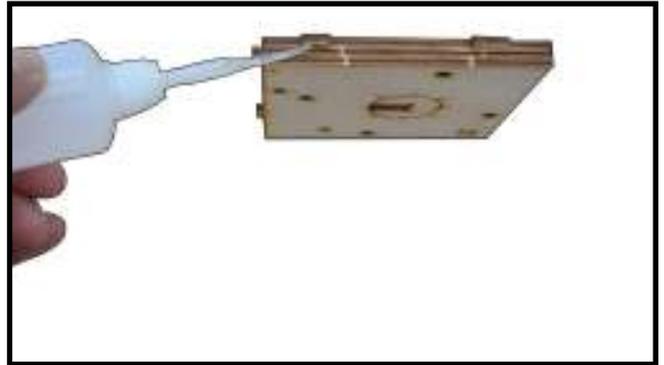
- Fill White Glue to the surface of the F1B.

3.



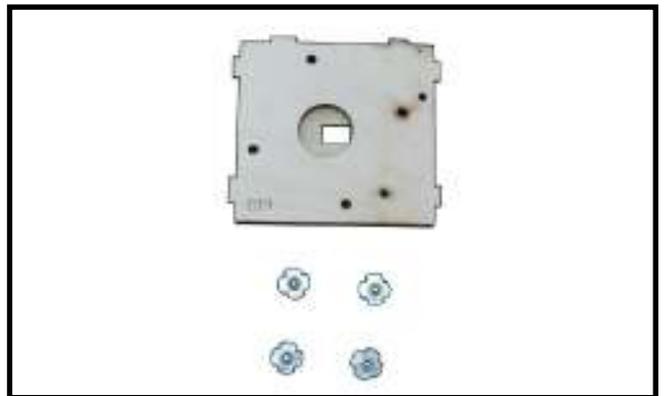
- Put the F1A on F1B to paste them together and then fill White Glue on the surface of F1A.

4.

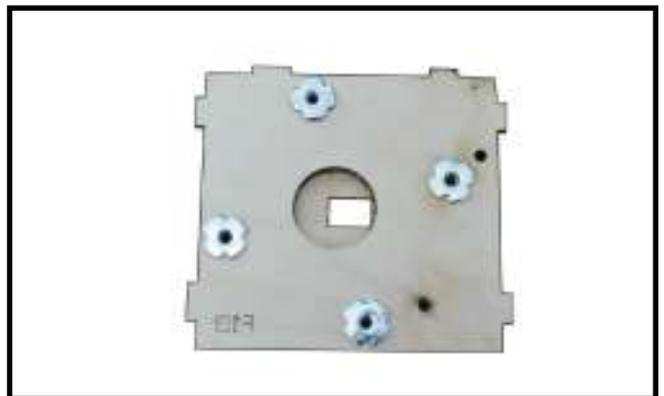


- Put the F1 on F1A, F1B to paste them together and then fill Epoxy Glue around block include 3 layers firewall.

5.



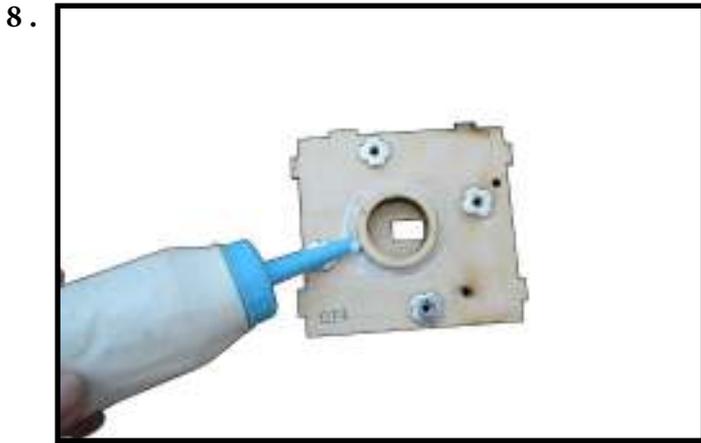
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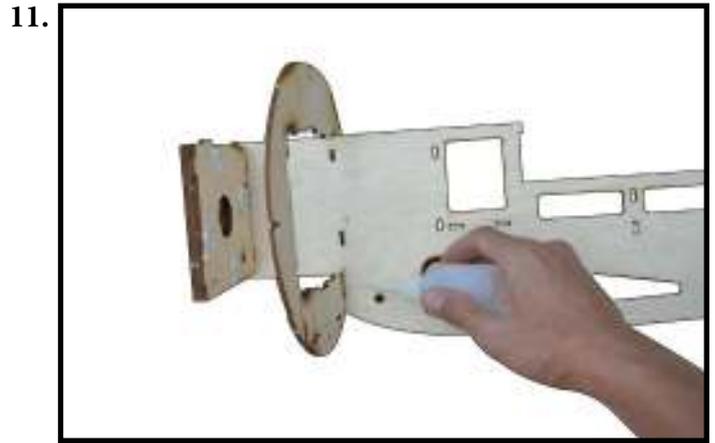
- Attach M4 blind nut (4pcs) to block of firewall .

7.

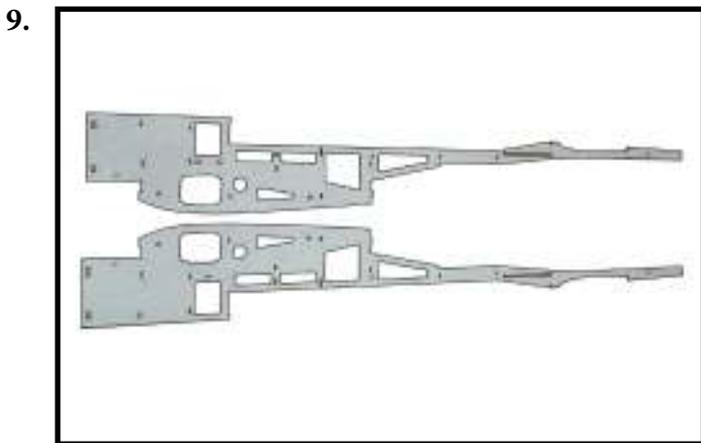




- Attach the ring F34 (2 pcs) to block of firewall so that supporting keep fuel tank stopper.



- Put former F2 on the right fuselage side S2.



- Arrange the left fuselage side S1 and the right fuselage side S2 as photo for difference inside surface and outside surface.

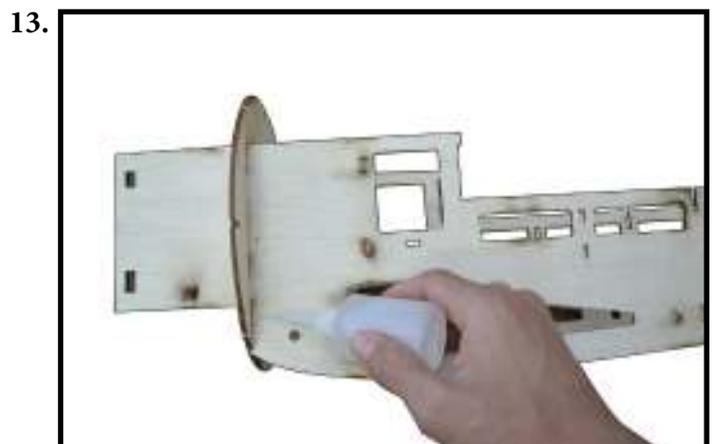
Please kindly see in the drawing sheet so that avoiding mistake at this step.



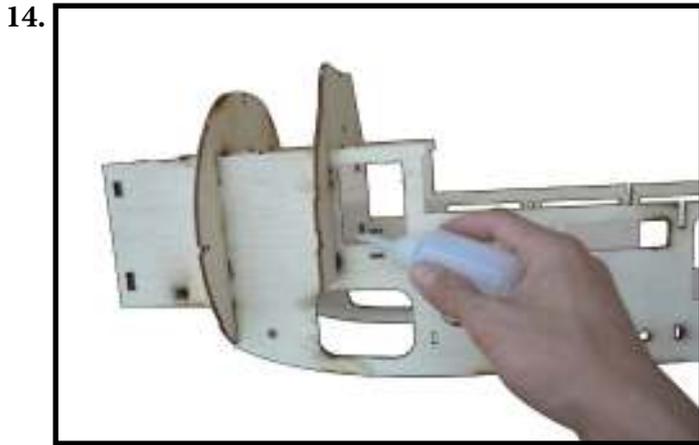
- Using the ruler to adjust perpendicular angle of former F2 and the right fuselage side S2.



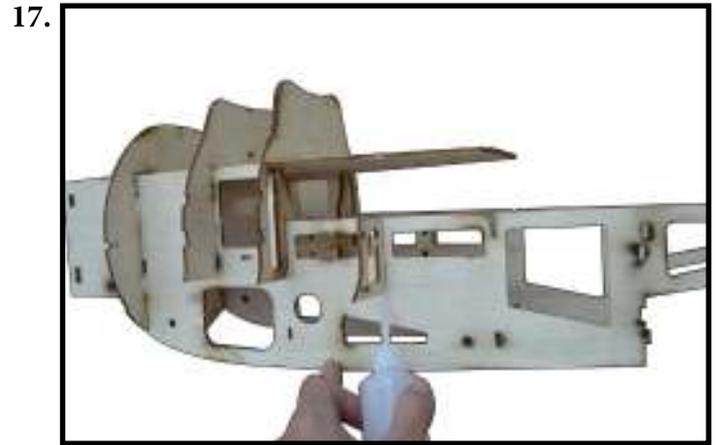
- Install firewall block with the right fuselage side S2 by Epoxy Glude.



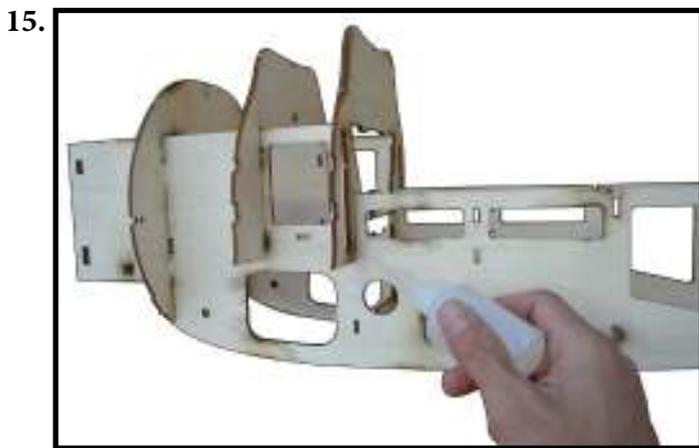
- Fill CA Glue to keep fixed F1, F2 with the fuselage side S1 and S2.



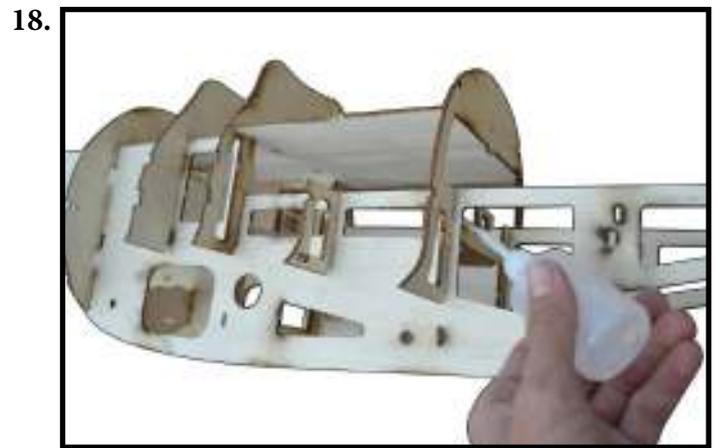
- Fill CA Glue to keep fixed F3 with the fuselage side S1 and S2.



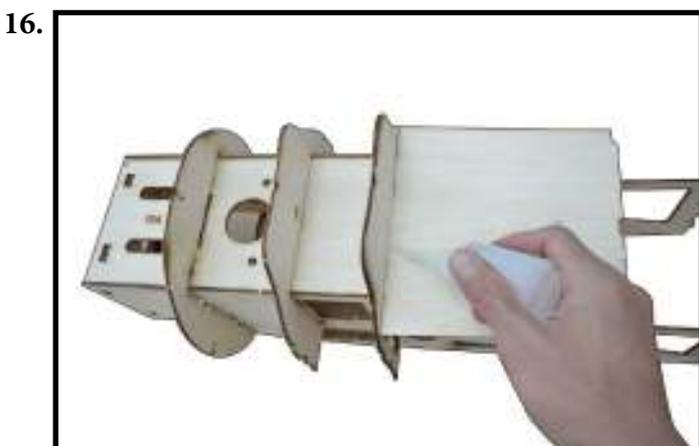
- Fill CA Glue to keep fixed F5A (2pcs) with the fuselage side S1, S2.



- Fill CA Glue to keep fixed F4 with the fuselage side S1 and S2.



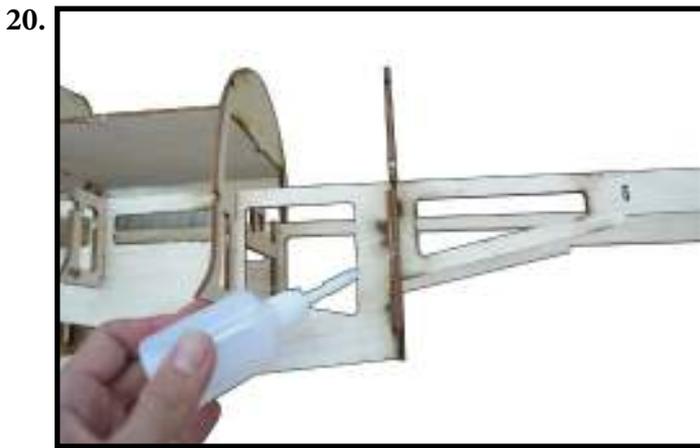
- Fill CA Glue to keep fixed F5 with the fuselage side S1 and S2 and F24.



- Fill CA Glue to keep fixed F24 with F1, F2, F3, F4, S1, S2.

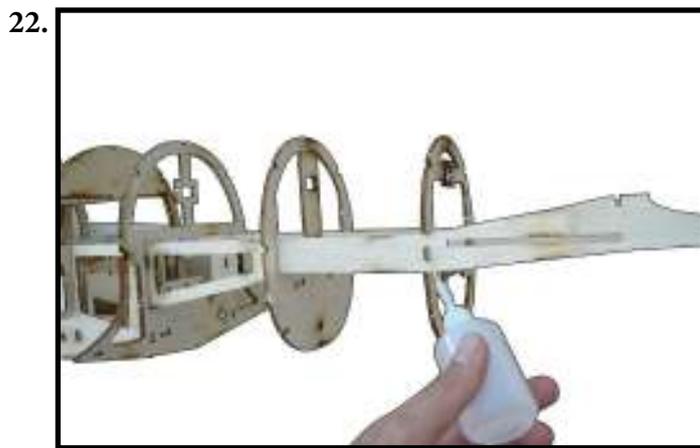
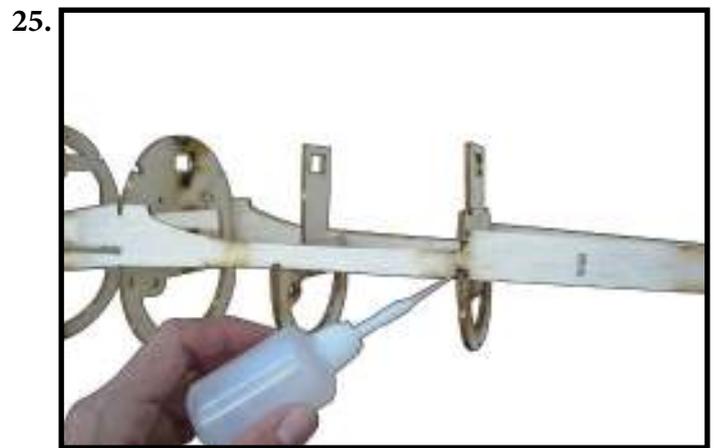
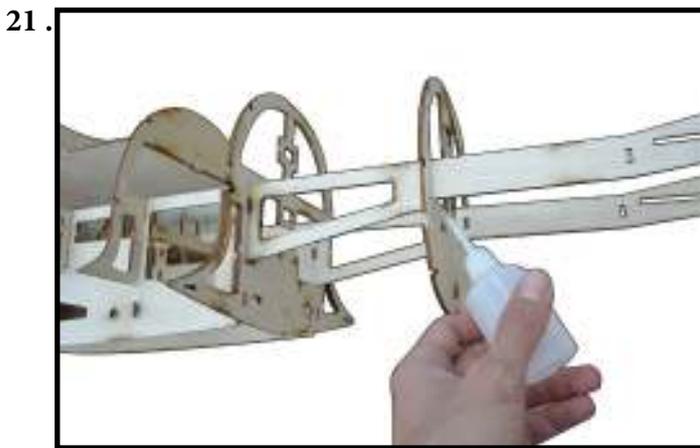
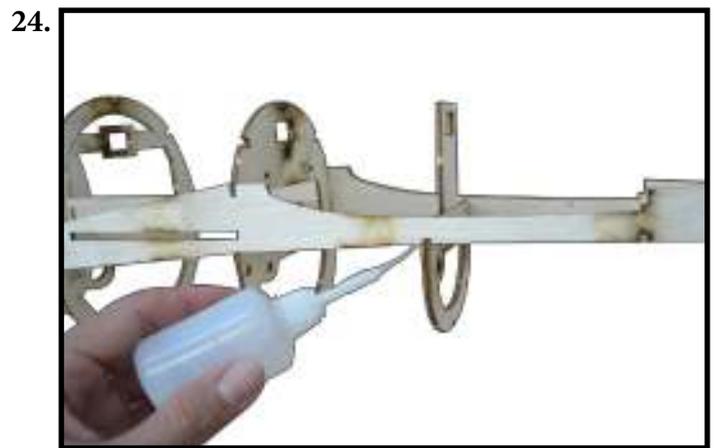
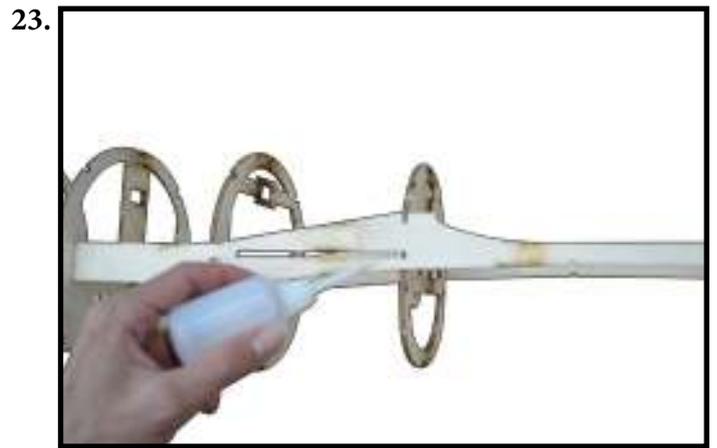


- Fill CA Glue to keep fixed F6 with the fuselage side S1 and S2, and then paste F6A on F6 at two side, and also install them to S1 and S2.

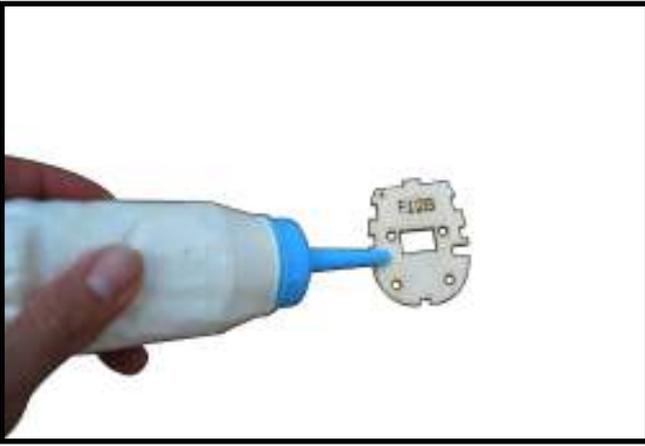


- Fill Epoxy Glue around block include two layers F6, F6A.

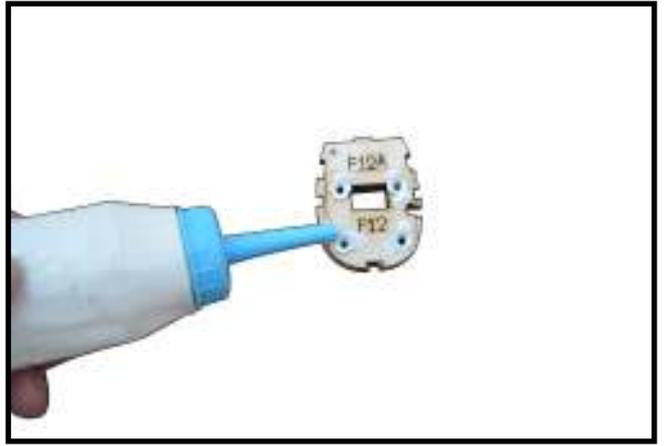
Continue to former F7 to F11 as the instruction photos below.(photo 21-25)



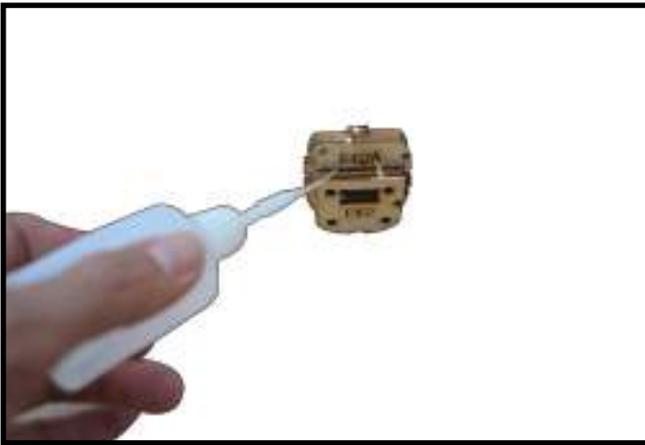
27.



30.

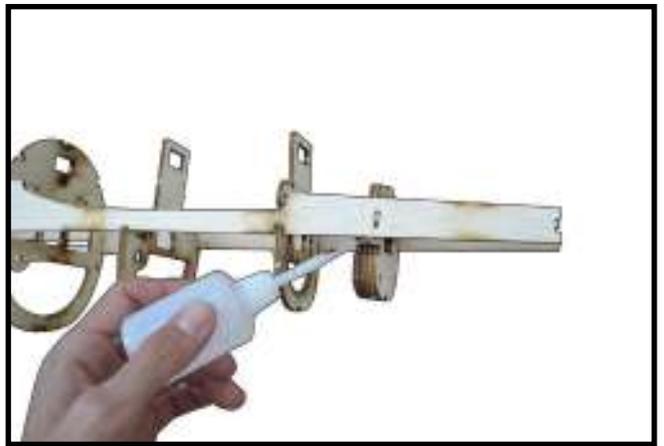


28.



- Attach M3 blind nut (4pcs) to block of F12 , add thin White Glue.

31.



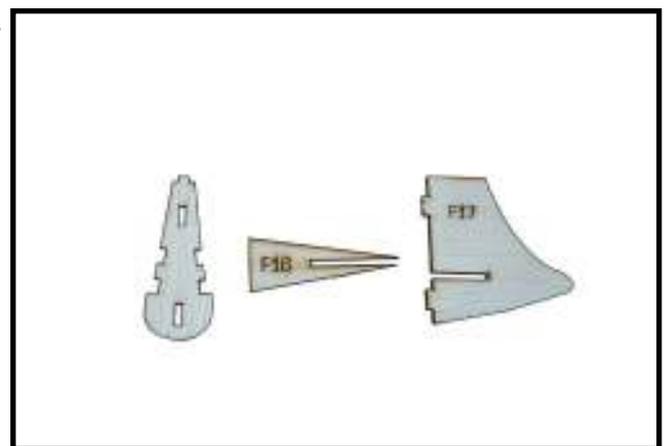
- Using White Glue to paste former F12A, F12B and F12 (2pcs) and then fill Epoxy Glue around block.

- Fill CA Glue to keep fixed block of F12 with the fuselage side S1 and S2.

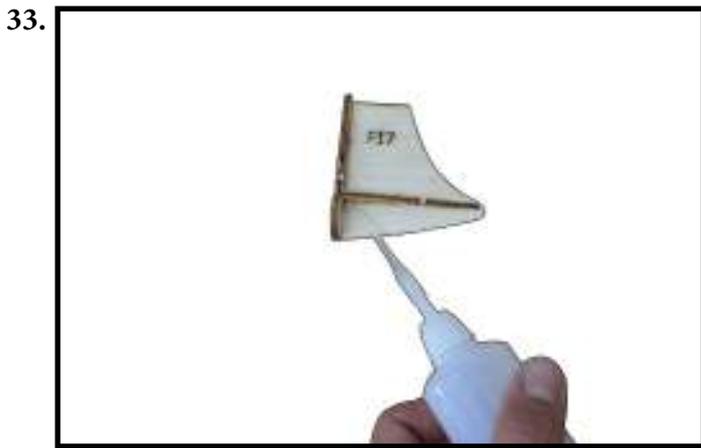
29.



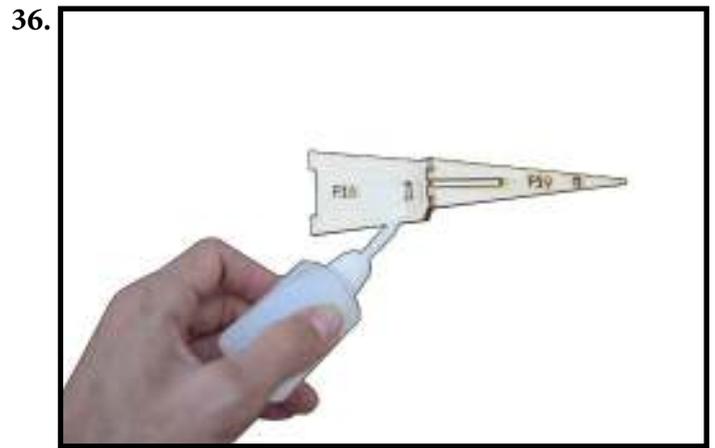
32.



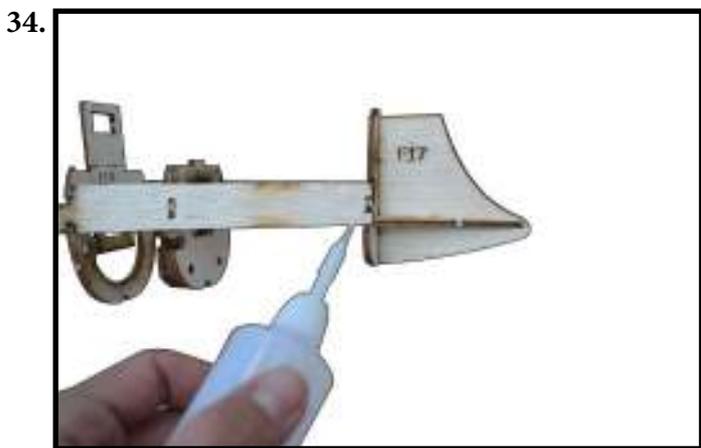
- Getting prepare for block include F14, F17, F18.



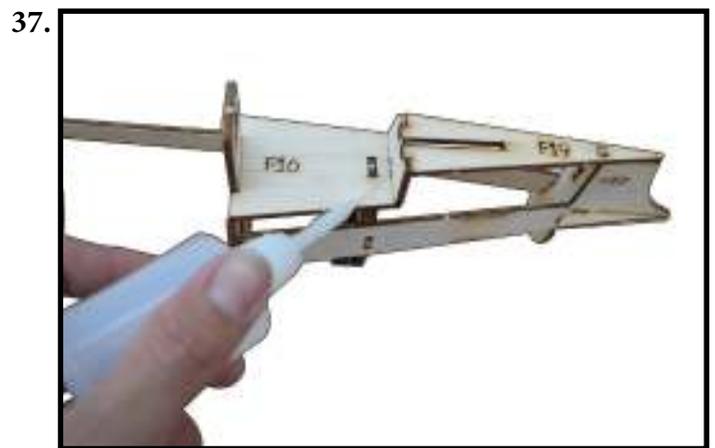
- Install block at the end of fuselage by CA Glue.



- Install F13, F16, F19 together by CA Glue.



- Fill CA Glue to keep fixed block at the end of fuselage.



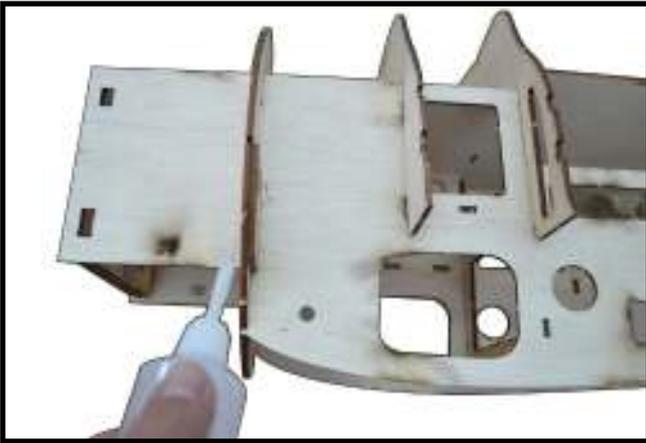
- Fill CA Glue to keep the contact face with rudder at the end of fuselage.



- Getting prepare for the contact face with rudder include F13, F16, F19.

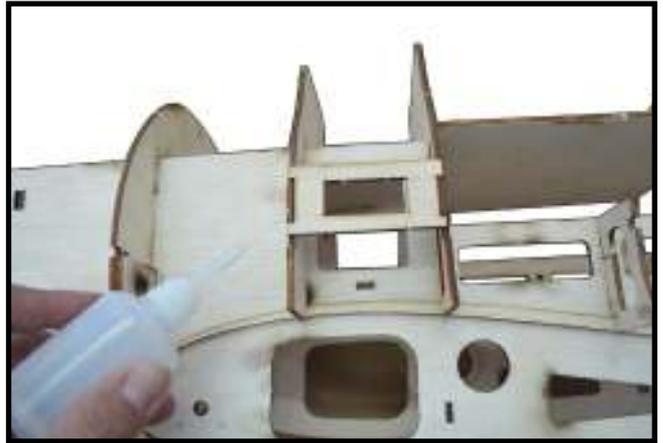


39.



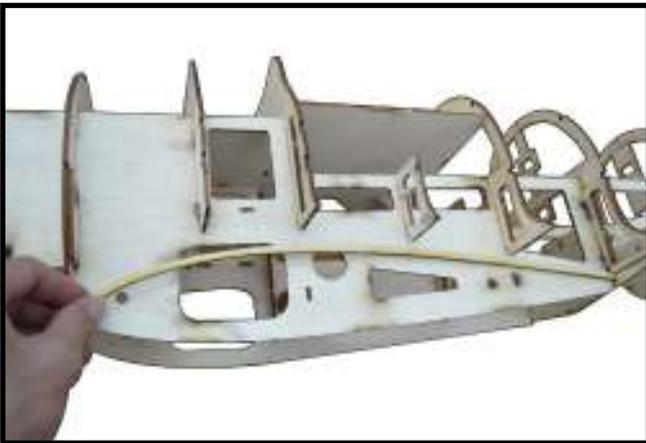
- Install F2B at two side of fuselage by CA Glue.

42.



- Fill CA Glue to keep fixed SW1 at left side of fuselage, SW2 at right side of fuselage.

40.



43.



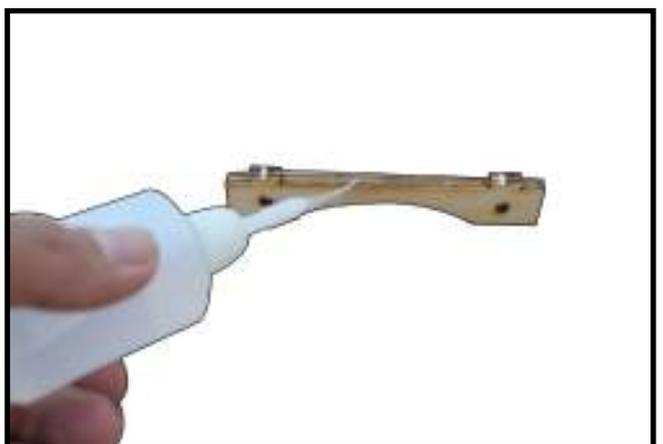
- Getting prepare the mount of bottom hatch include F32 (2pcs).

41.



- Install F33 at two side of fuselage by CA Glue.

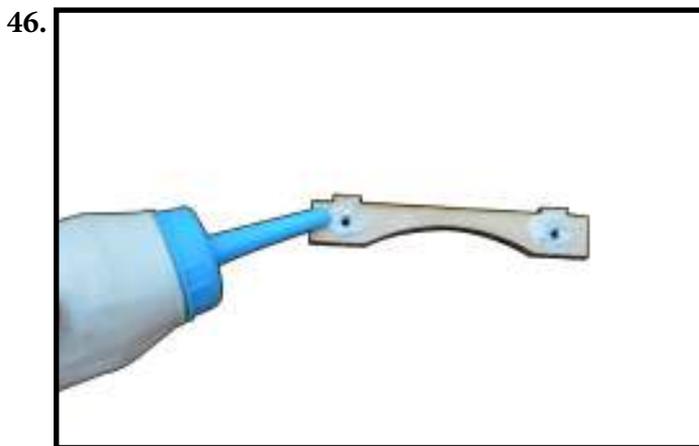
44.



- Paste two F32 together by Epoxy Glue.



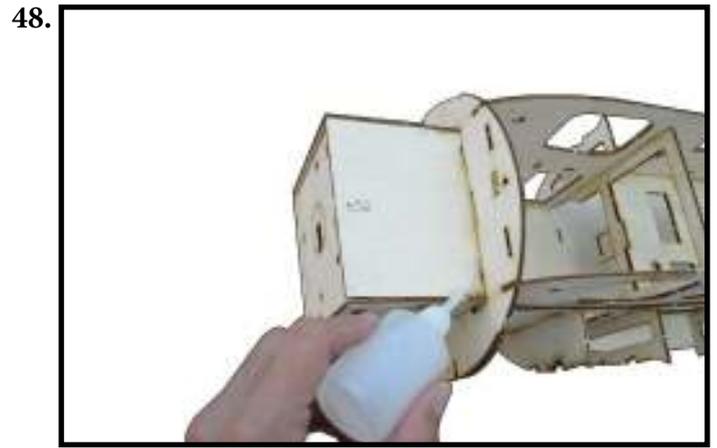
- Attach M3 blind nut (2pcs) to block F32.



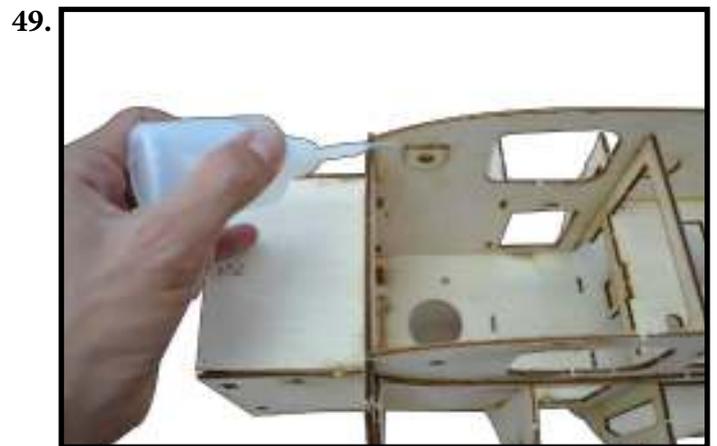
- Upside down block F32 and add White Glue at M3 blind nut position.



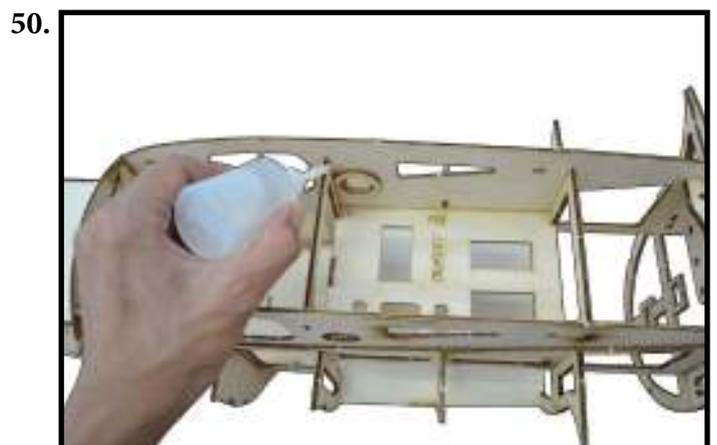
- Fill CA Glue to keep fixed block F32 with fuselage (Upside down fuselage so that installing F32 as photo).



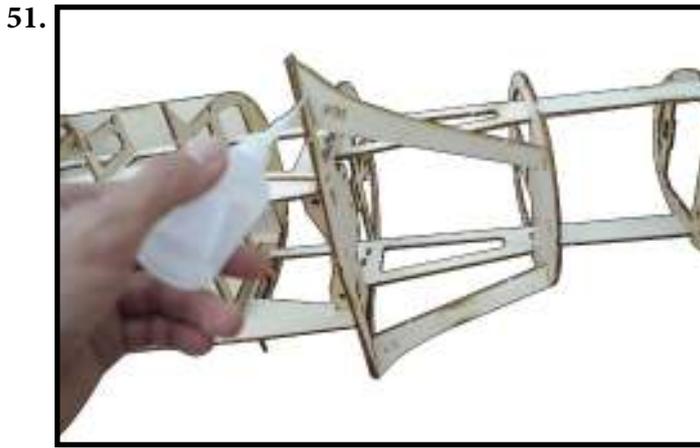
- Fill CA Glue to keep fixed the bottom plate F25 at head of fuselage where for engine.



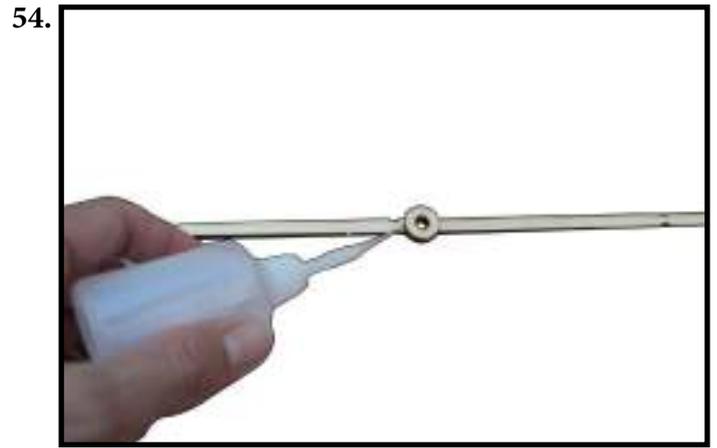
- Attach the ring of wing nylon bolt F27 and F29 at two side of fuselage by Epoxy Glue.



- Attach the ring of wing joiner tube F26 at two side of fuselage by Epoxy Glue.



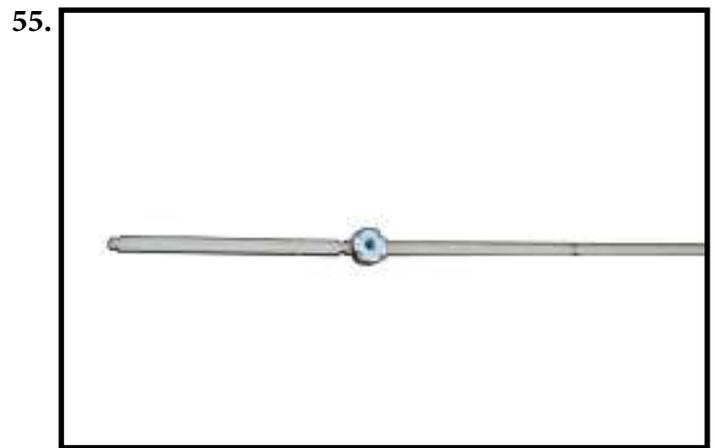
- Install F31 at two side of fuselage by Epoxy Glue.



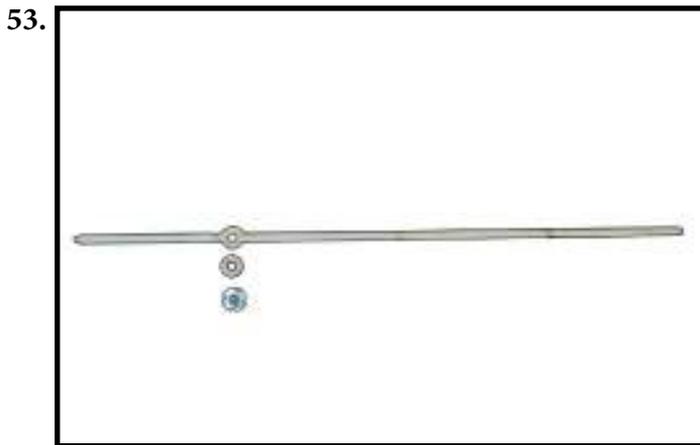
- Paste F21A on F21 by Epoxy Glue.



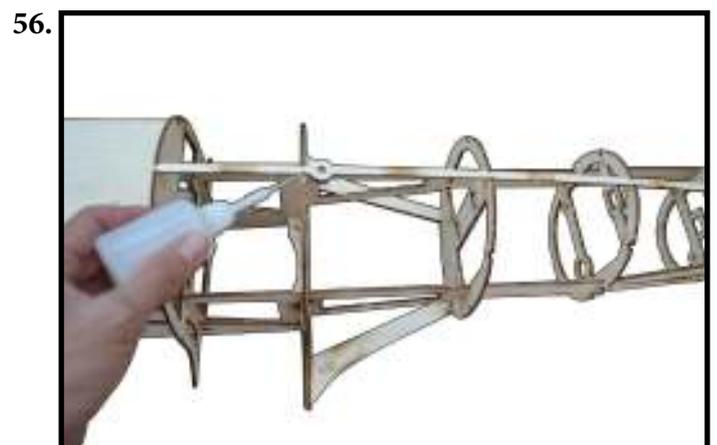
- Install string of stick F20 at the top of fuselage by Epoxy Glue.



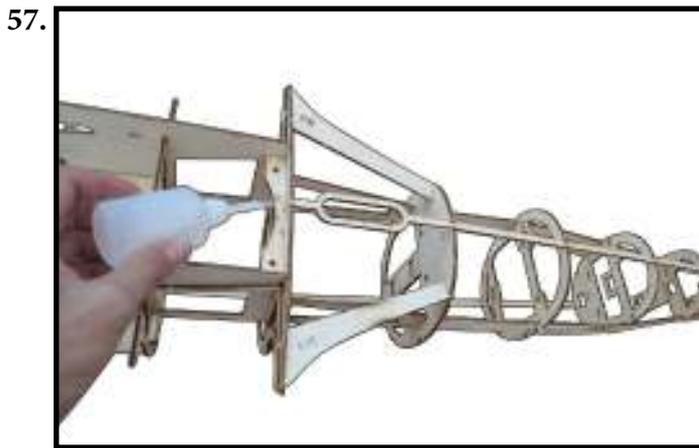
- Attach M3 blind nut to string of stick for antenna F21 as photo.



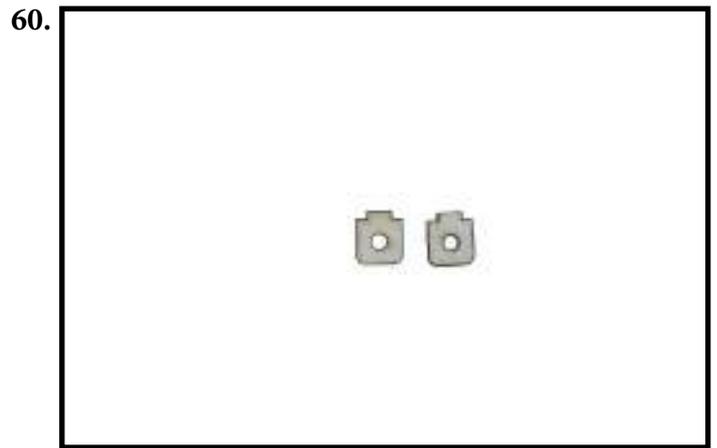
- Getting prepare string of stick for antenna include string of stick F21, the ring F21A and M3 blind nut.



- Install string of stick F21 for antenna at the top of fuselage by CA Glue.



- Install string of stick F21 at the bottom of fuselage by CA Glue.



- Getting prepare for the latch of servo mount include FS2A (2pcs).



- Getting prepare for mounting plate of battery include the ring F28, M4 blind nut.



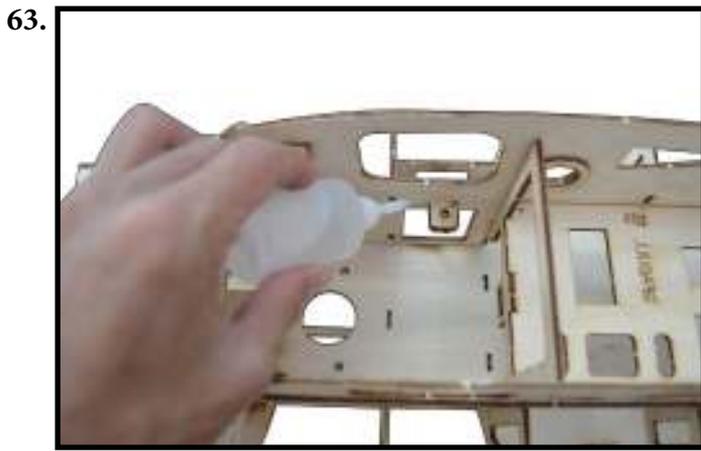
- Paste two latch FS2A together by Epoxy Glue.



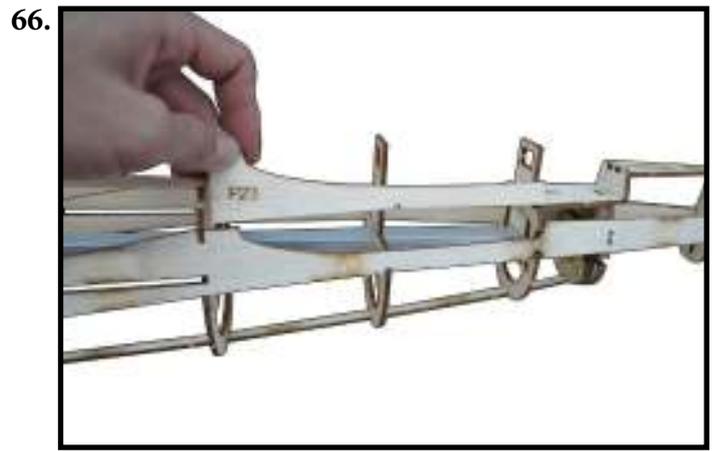
- Attach M4 blind nut to F28, and then paste them on F24 at holes position where put M4 inox bolt by Epoxy Glue.



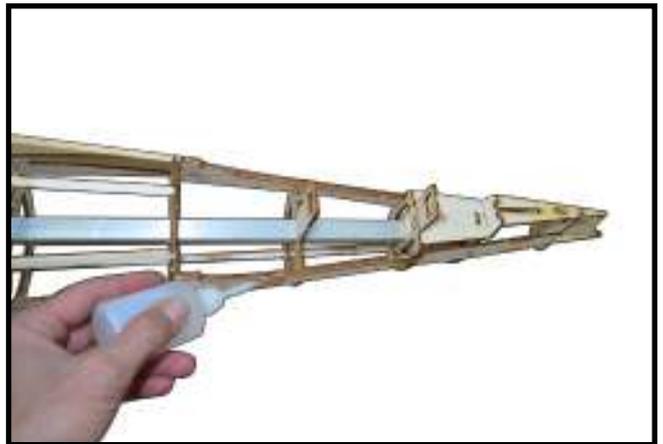
- Attach M4 blind nut to the latch.



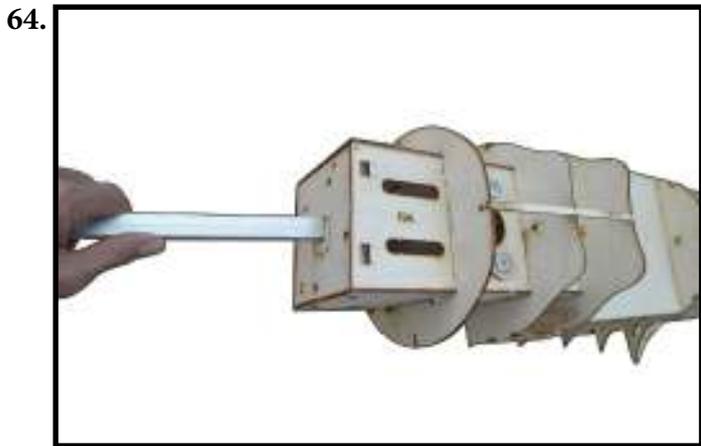
- Install the latch to left side of fuselage by Epoxy Glue as photo.



67.

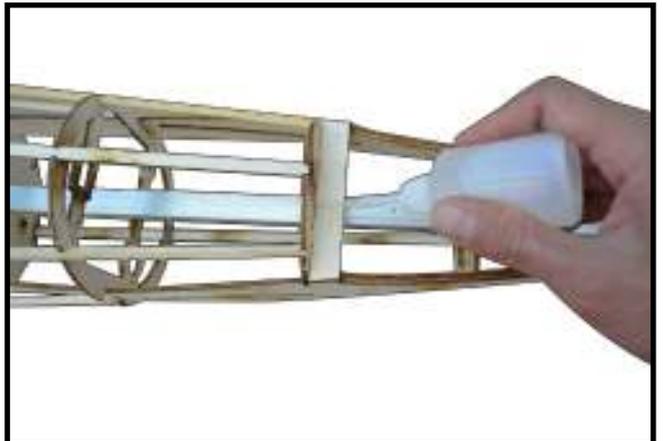


- Paste F23 (2pcs) on the left side and right side of fuselage by CA Glue to support for putting the stabilizer.

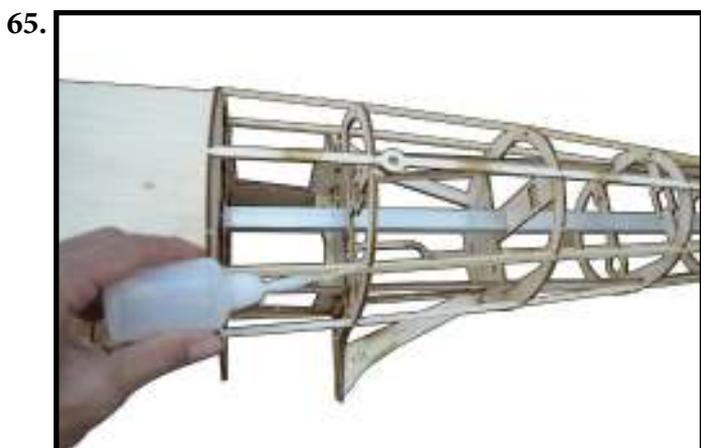


- Using Aluminium Square Fixed Tool to go through all formers at the square hole on each former.

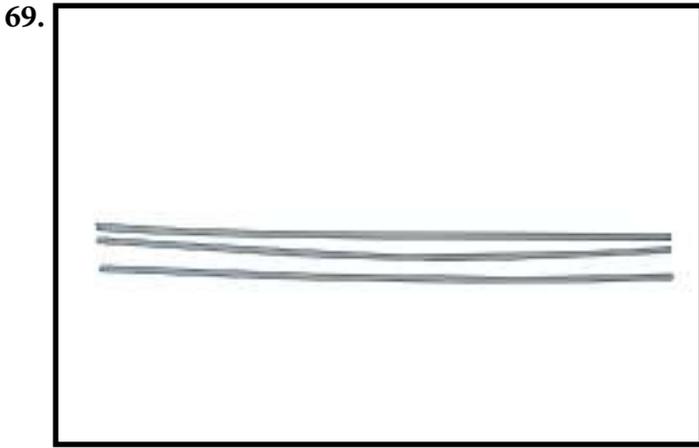
68.



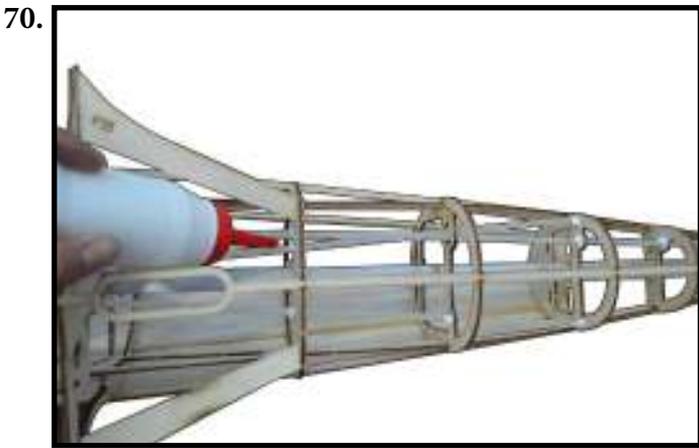
- Install F15 to fuselage by CA Glue.



- Install 4x4 stringers by Epoxy Glue.



- Getting prepare for push rod include plastic tube (3pcs) with $\varnothing = 5\text{mm}$.

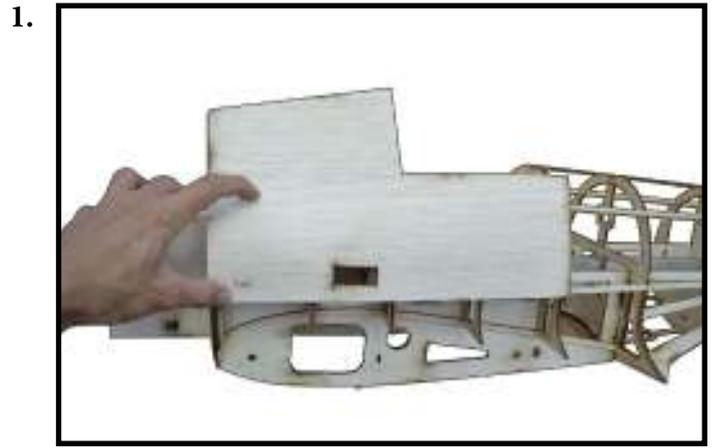


- Install the plastic tube to go through all formers which have path of Fin and path of Elevator hole on each former and fill White Glue to keep fixed.

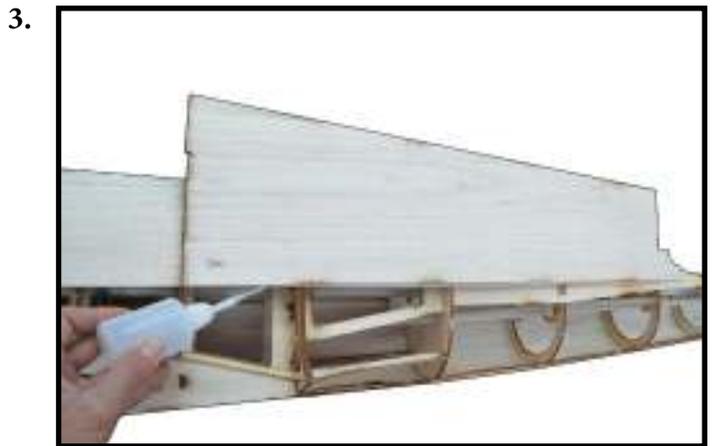
Please kindly see in the drawing sheet so that avoiding mistake at this step.

SHEETING FOR RIBS OF FUSELAGE

If the balsa sheet quite hard, we should use the wet towel so that making soft the balsa sheet.



- Cover the sheet SH1 on ribs of fuselage at the left side, and then SH2 on ribs of fuselage at the right side by CA Glue.

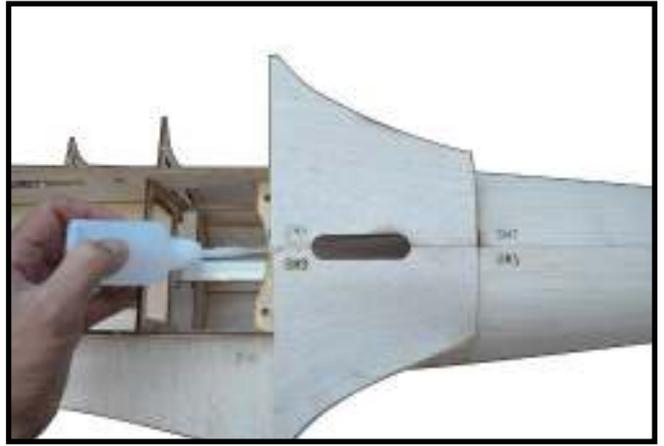


4.



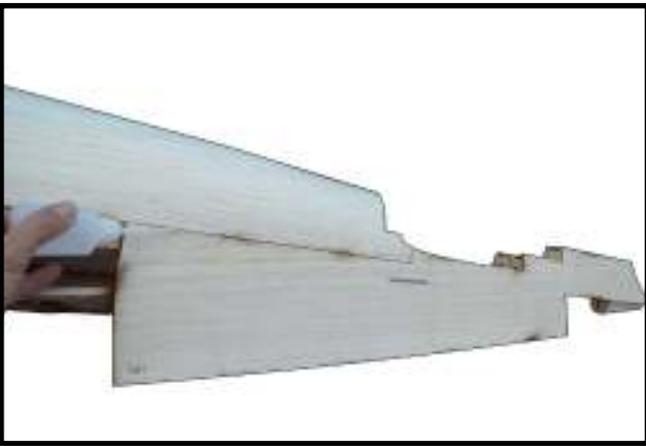
- Cover the sheet SH6 on ribs of fuselage at the both of side and fill CA Glue.

7.



- Cover the sheet SH3 on ribs of fuselage at the both of side and fill CA Glue.

5.



8.



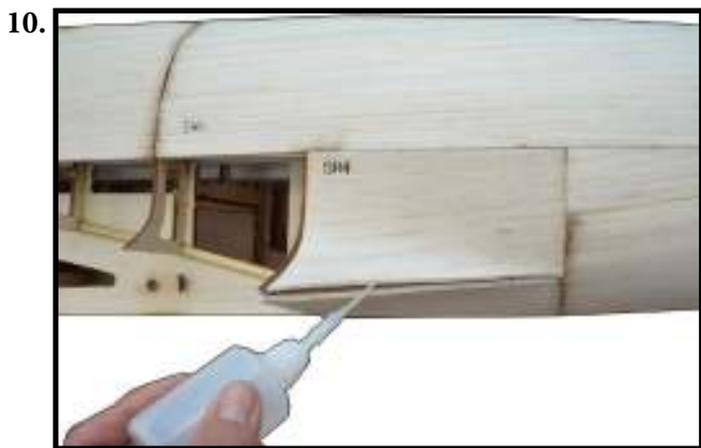
6.



9.



- Cover the sheet SH7 on ribs of fuselage at the both of side and fill CA Glue.



- Cover the sheet SH4 on ribs of fuselage at the both of side and fill CA Glue.



- Use sandpaper tube to sanding at the edge of SH5 as photo.



- Cover the sheet SH5 on ribs of fuselage at the both of side and fill CA Glue.



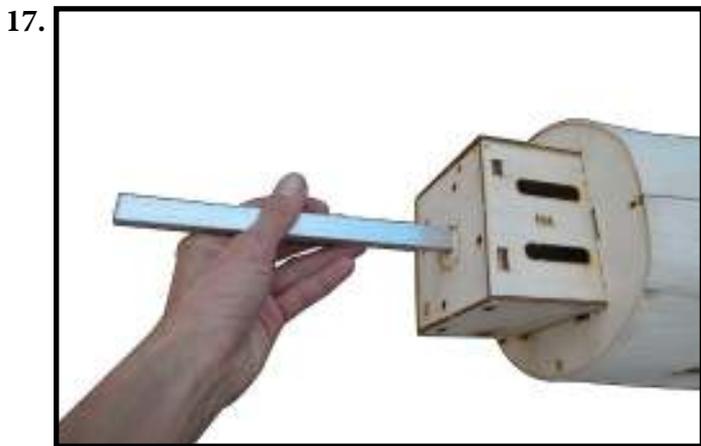
- Cover the sheet SH8 on ribs of fuselage at the both of side and fill CA Glue.



- Cover the sheet SH9 on ribs of fuselage at the both of side and fill CA Glue.



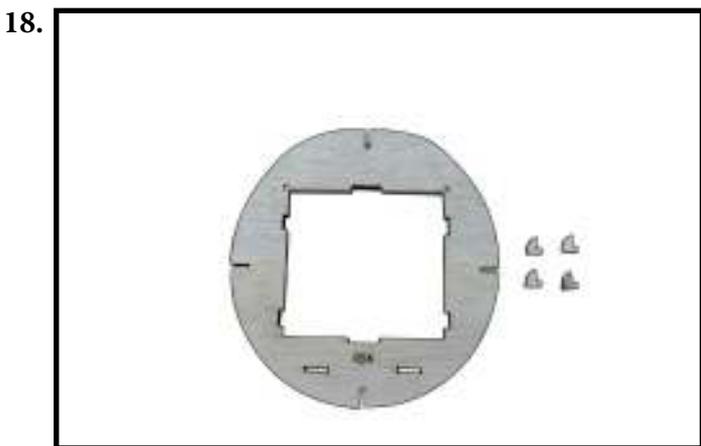
- Attach the latch F30 (4pcs) to F2 by CA Glue.



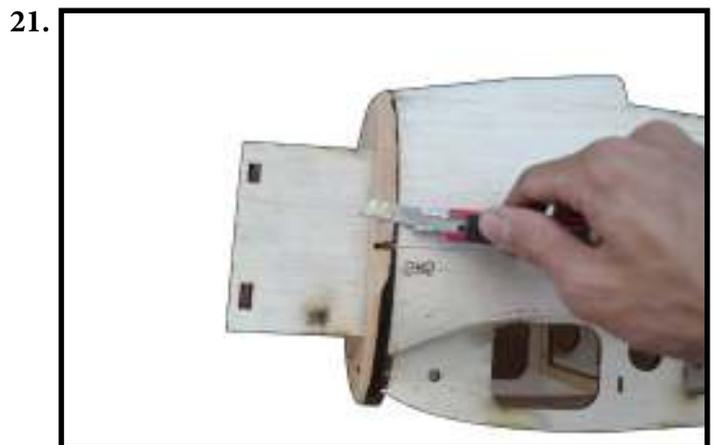
- Removing Aluminium Square Fixed Tool.



- Install F2A (8mm balsa sheet) to F2 by Ca Glue.



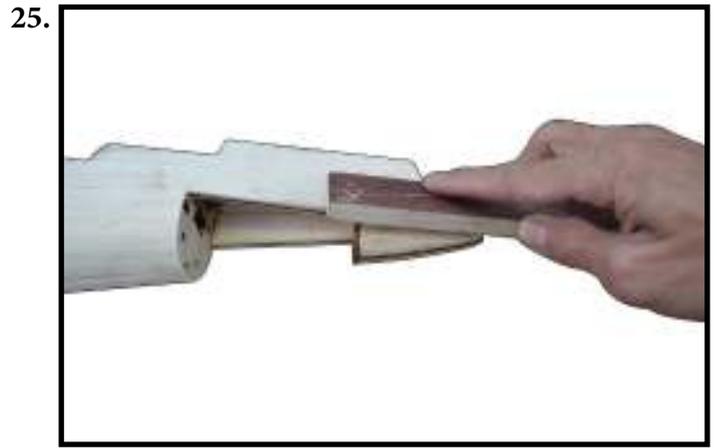
- Getting prepare for cowling mount include F2A (8mm balsa sheet) and the latch F30 (4pcs).



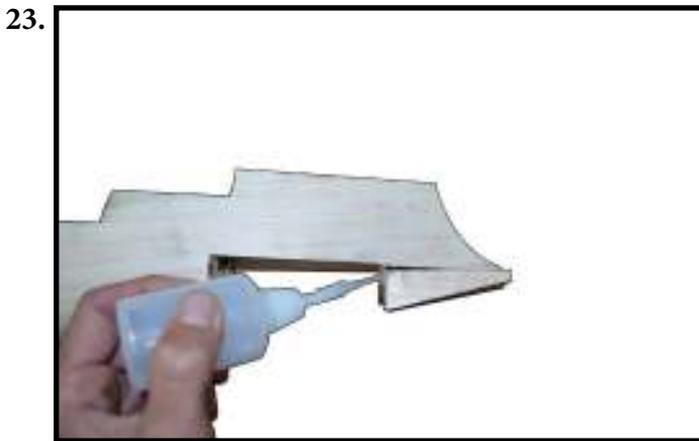
- Use Cutter Knife to chamfer redundancy wood of F2A .



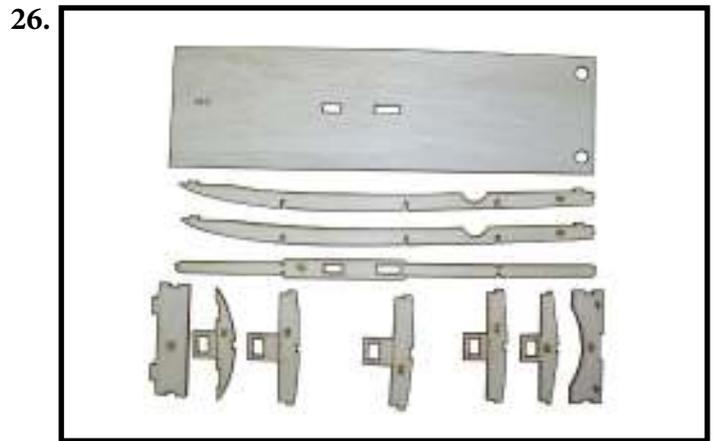
- Use Sandpaper Bar to sanding block F2A , making for the edge to round shaping.



- Use Sandpaper Bar to sanding block F40, making to round shaping as F14.



- Install F40 (8mm balsa sheet) to the end of fuselage at two side of F17, also under F18 and behind F14 by CA Glue.



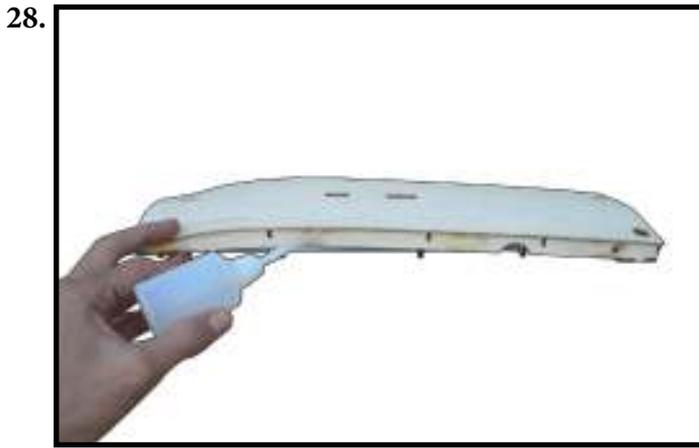
- Getting prepare for bottom hatch include H1, H2, H3, H4, H5, H6, H7, H8 (2pcs), H9, H10 (cover sheet).



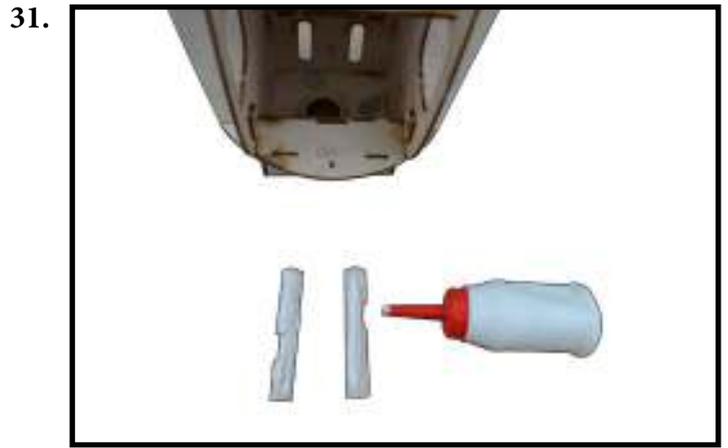
- Use Cutter Knife to chamfer redundancy wood of F40.



- Install the frame of the bottom hatch as photo.



- Cover the sheet H10 on the frame by CA Glue.



- Fill White glue on the the tri-angle block as photo.



- Fitting the hatch into the fuselage, and then use the Sandpaper Bar to sanding at the area contact with the fuselage, on forward , also on behind so that setting up the hatch and the fuselage fit together.



- Attach two the tri-angle block to F1 inside the fuselage.



- Getting prepare two the tri-angle block for reinforcing the firewall F1, cut off redundancy so that the space for blind nut as photo.



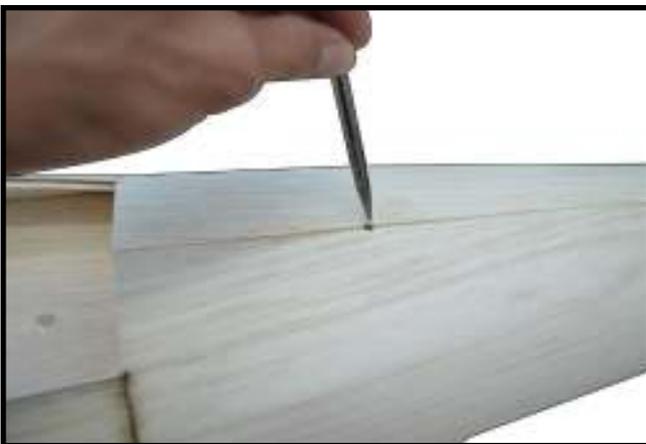
- Install the wing paper tube into the fuselage.

34.



- Use White Glue to keep fixed for wing tube.

35.



- Drill to hole for antenna.

36.



- Using Sandpaper Block to sanding around fuselage. Building the fuselage was finished.

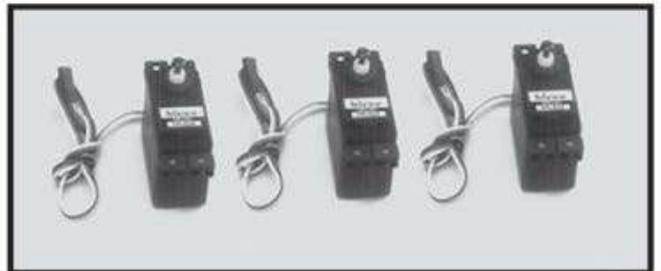
INSTALLING THE FUSELAGE SERVOS

 Because the size of servos differ, you may need to adjust the size of the precut opening in the mount. The notch in the sides of the mount allow the servo lead to pass through.

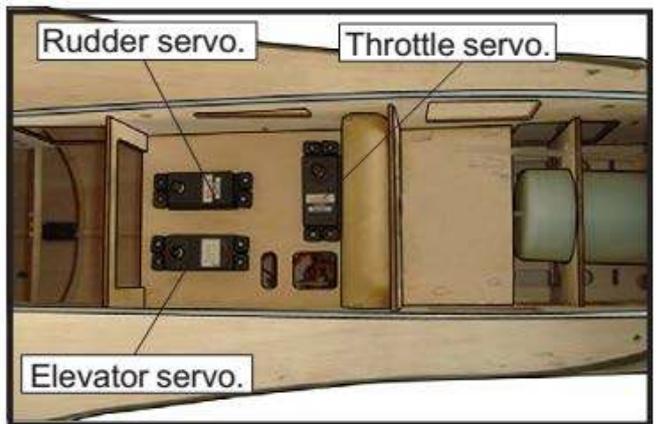
- Install the rubber grommets and brass collets onto the throttle servo. Test fit the servo into the aileron servo mount.

- Secure the servos with the screws provided with your radio system.

1.



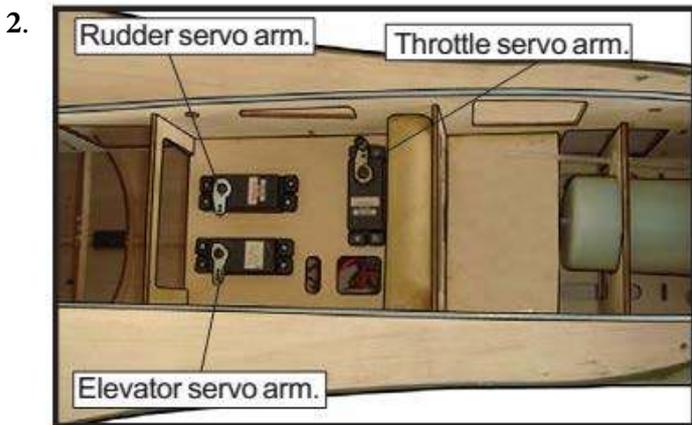
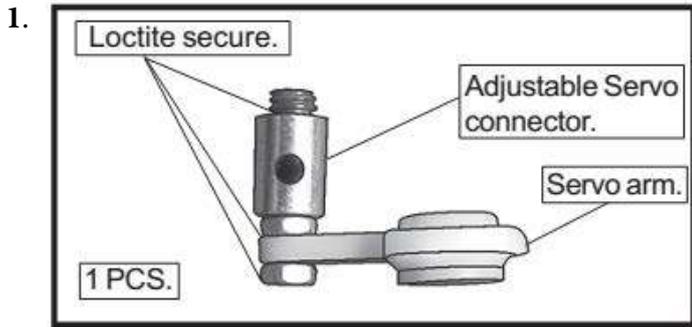
2.



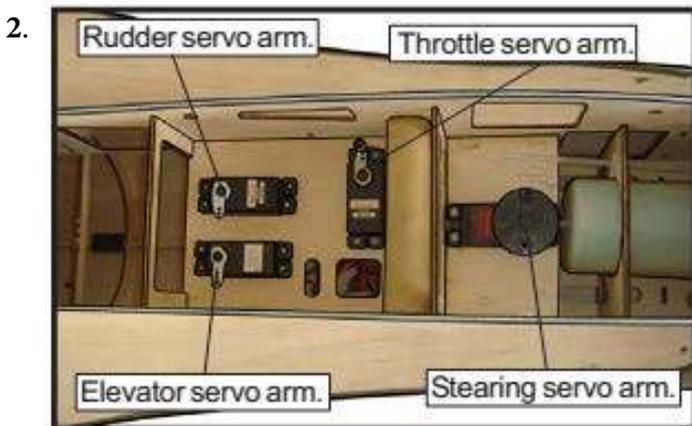
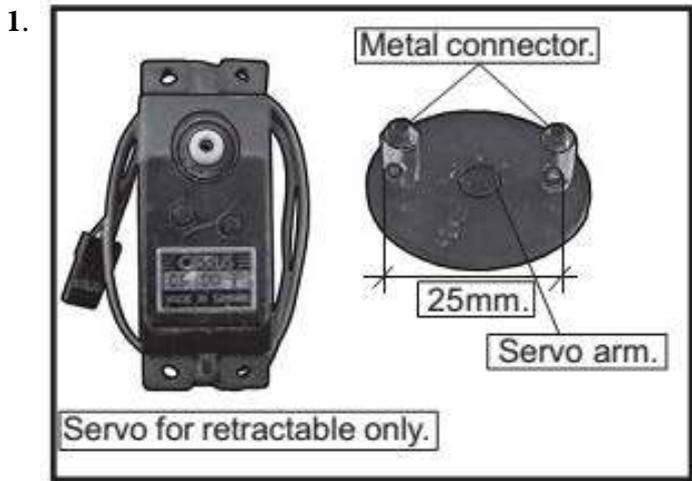
Minimum servo spec.
Torque : 80 oz-in (5.8 kg-cm) @ 4.8V; 100 oz-in (7.2 kg-cm) @ 6.0V

THROTTLE SERVO ARM INSTALLATION

- Install adjustable servo connector in the servo arm as same as picture below:

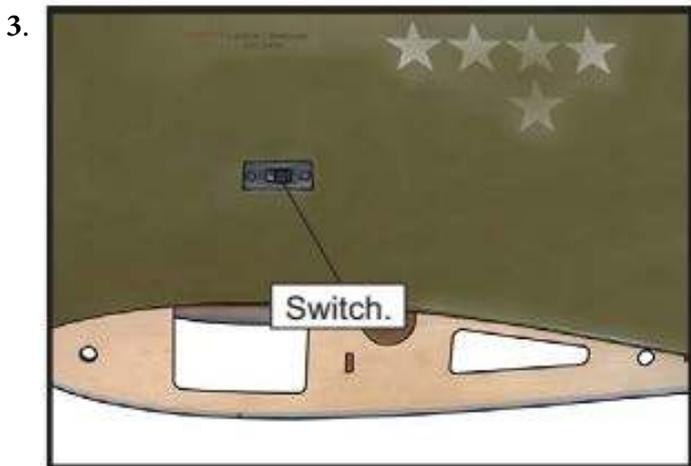
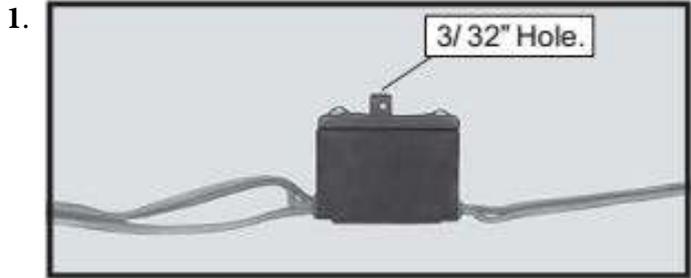


SERVO GEAR INSTALLATION



INSTALLING THE SWITCH

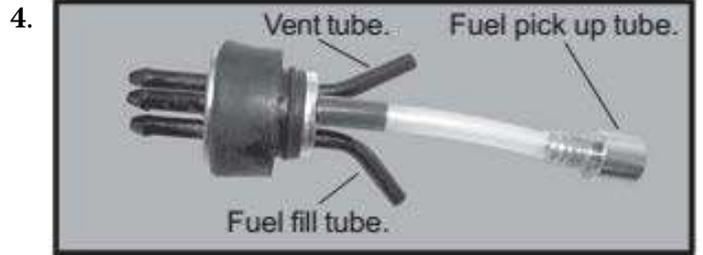
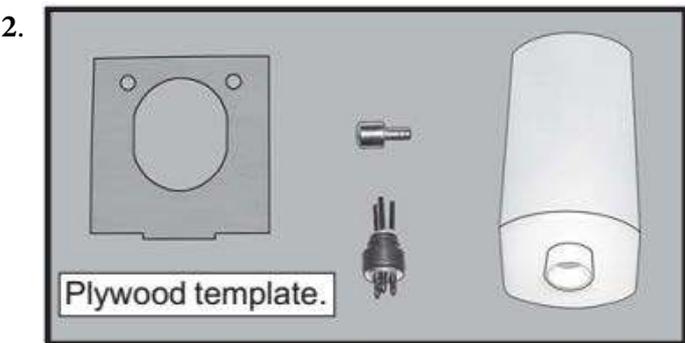
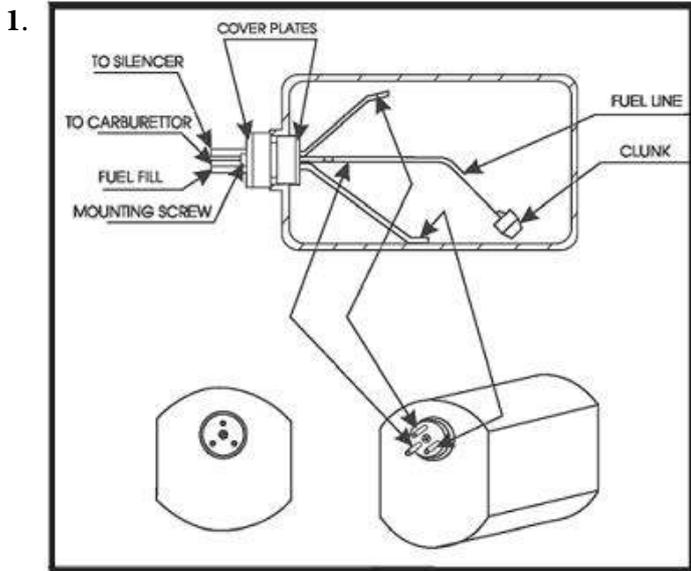
- Install the switch into the precut hole in the side, in the fuselage.



INSTALLING THE STOPPER ASSEMBLY

- Using a modeling knife, carefully cut off the rear portion of one of the 3 nylon tubes leaving 1/2" protruding from the rear of the stopper. This will be the fuel pick up tube.

- Using a modeling knife, cut one length of silicon fuel line. Connect one end of the line to the weighted fuel pick up and the other end to the nylon pick up tube.



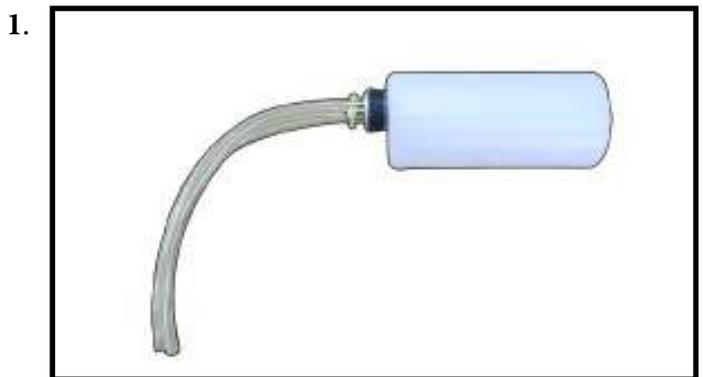
- Carefully bend the second nylon tube up at a 45° angle. This tube is the vent tube.

- Test fit the stopper assembly into the tank. It may be necessary to remove some of the flashing around the tank opening using a modeling knife. If flashing is present, make sure none falls into the tank.

- With the stopper assembly in place, the weighted pick-up should rest away from the rear of the tank and move freely inside the tank. The top of the vent tube should rest just below the top of the tank. It should not touch the top of the tank.

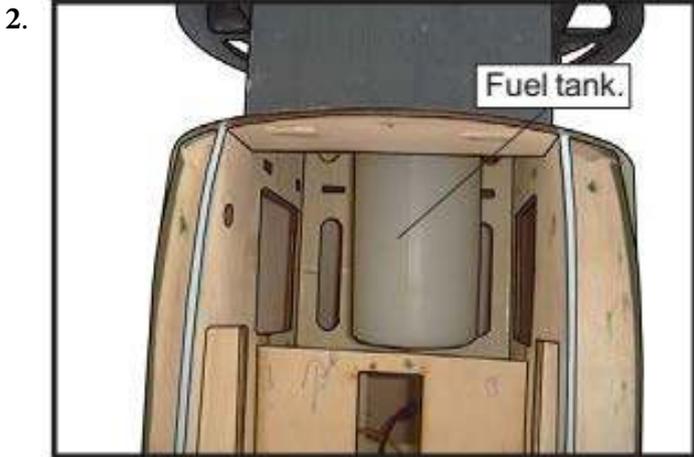
- When satisfied with the alignment of the stopper assembly tighten the 3 x 20mm machine screw until the rubber stopper expands and seals the tank opening. Do not overtighten the assembly as this could cause the tank to split.

FUEL TANK INSTALLATION

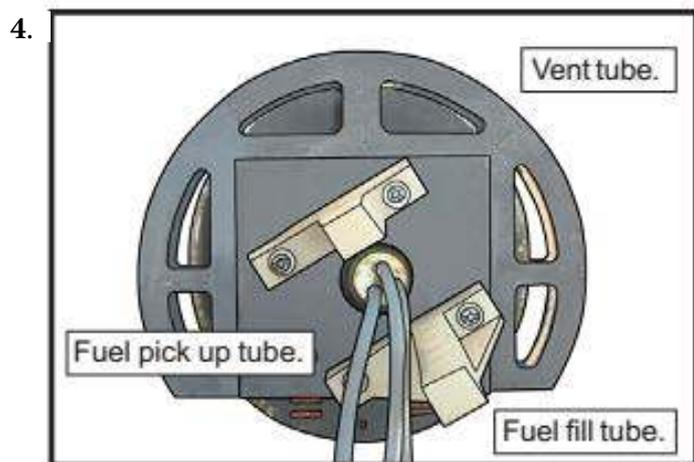
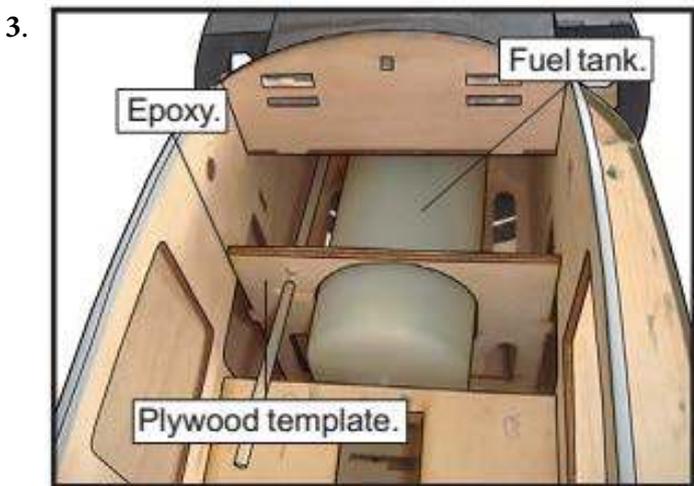


⚠ You should mark which tube is the vent and which is the fuel pickup when you attach fuel tubing to the tubes in the stopper. Once the tank is installed inside the fuselage, it may be difficult to determine which is which.

- Slide the fuel tank into the fuselage. Guide the lines from the tank through the hole in the firewall.



- Use plywood template to hold in place the fuel tank with C/A glue to secure the fuel tank inside the fuselage.



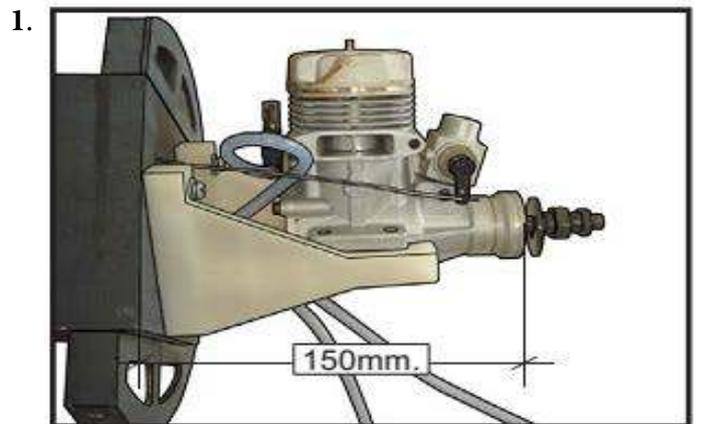
- Connect the lines from the tank to the engine and muffler. The vent line will connect to the muffler and the line from the clunk to the carburetor.



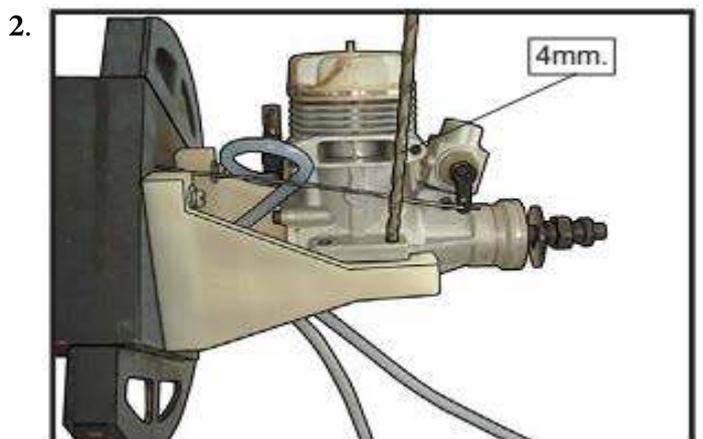
 *Blow through one of the lines to ensure the fuel lines have not become kinked inside the fuel tank compartment. Air should flow through easily.*

MOUNTING THE ENGINE - 2 stroke

- Position the engine with the drive washer (150mm) forward of the firewall as shown.

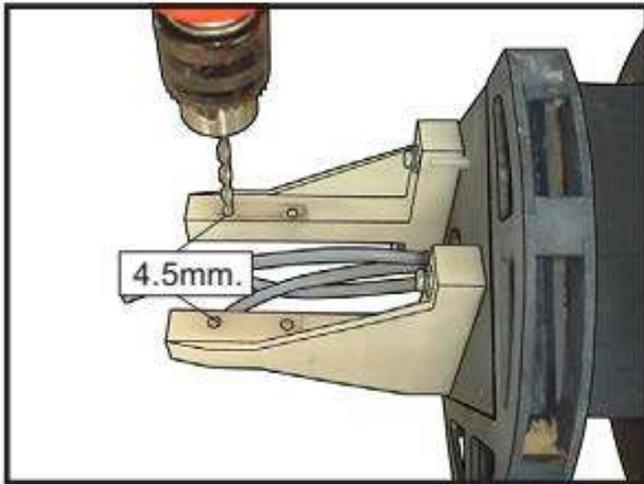


- Use a pin drill and 4mm drill bit to drill a small indentation in the mount for the engine mounting screw.



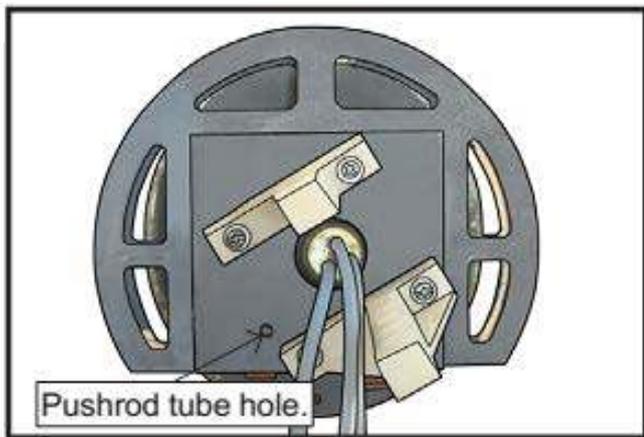
- Use a drill to drill the four holes in the engine mount rails.

3.



- On the fire wall has the location for the throttle pushrod tube (pre-drill).

4.

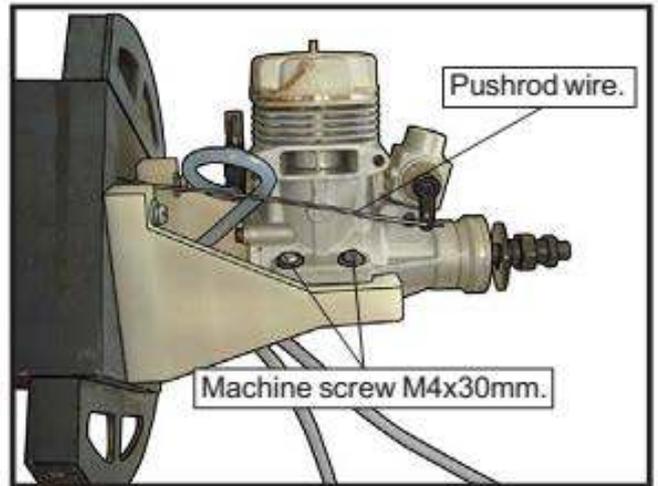


- Slide the pushrod tube in the fire wall and guide it through the fuel tank mount. Use medium C/A to glue the tube to the fire wall and the fuel tank mount.

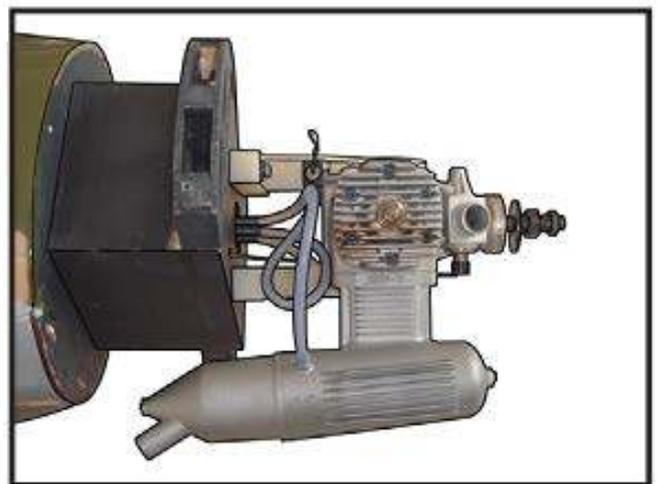
- Connect the Z-bend in the 450mm throttle pushrod to the outer hole of the carburetor arm.

- Slide the throttle pushrod wire into the tube. Position the engine between the mounts. Use four M4x30mm machine screws to secure the engine to the mount as shown.

5.



6.



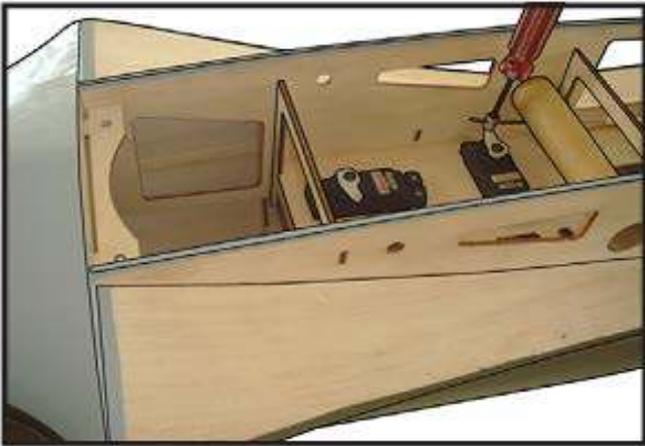
- Reinstall the servo horn by sliding the connector over the pushrod wire. Center the throttle stick and trim and install the servo horn perpendicular to the servo center line.

7.



- Move the throttle stick to the closed position and move the carburetor to closed. Use a 2.5mm hex wrench to tighten the screw that secures the throttle pushrod wire. Make sure to use threadlock on the screw so it does not vibrate loose.

8.

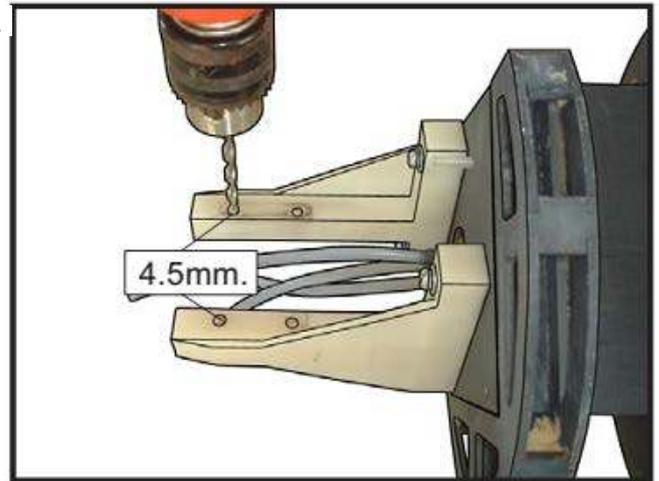


- Use a drill to drill the four holes in the engine mount rails.

+ 0.91 - 1.25 : 4 STROKE.

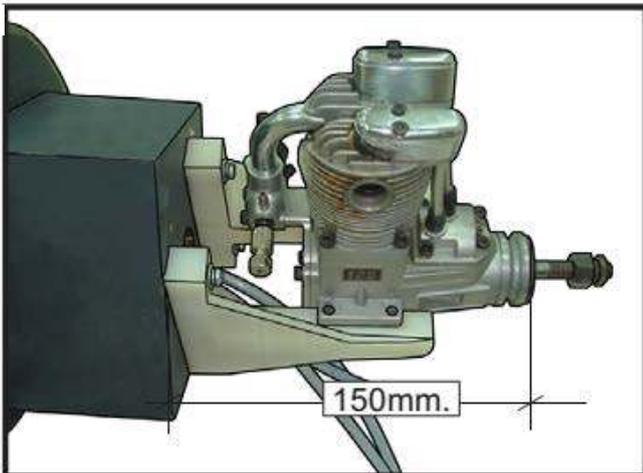
- Position the engine with the drive washer (150mm) forward of the firewall as shown.

11.



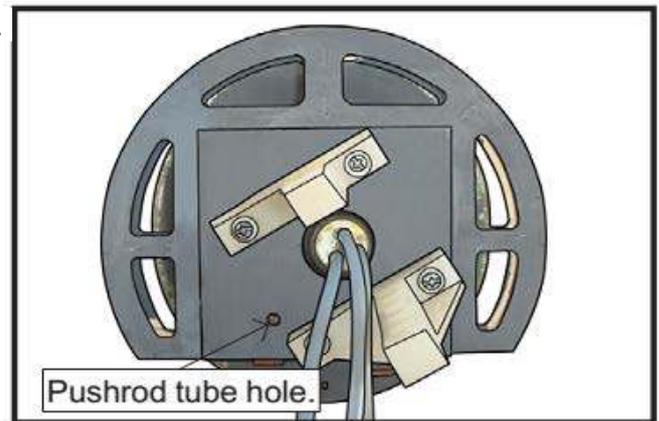
- On the fire wall has the location for the throttle pushrod tube (pre-drill).

9.



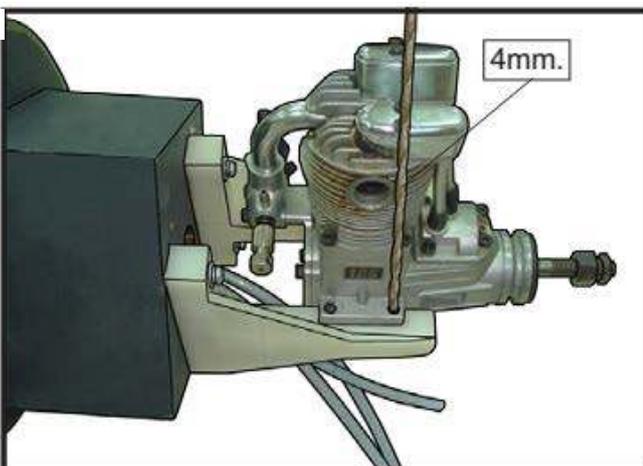
- Use a pin drill and 4mm drill bit to drill a small indentation in the mount for the engine mounting screw.

12.



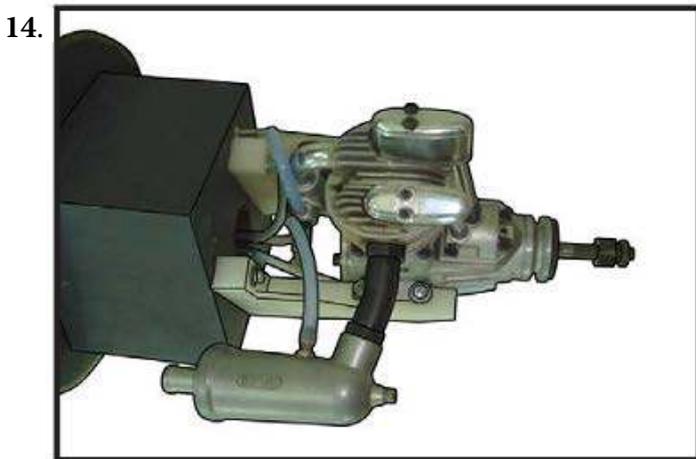
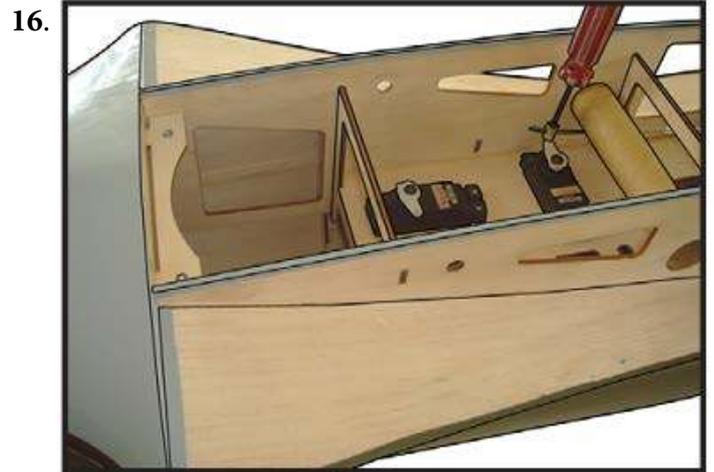
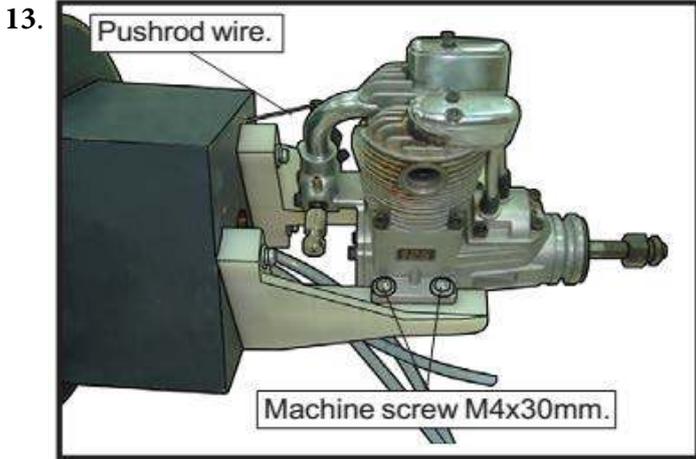
- Slide the pushrod tube in the firewall and guide it through the fuel tank mount. Use medium C/A to glue the tube to the firewall and the fuel tank mount.

10.



- Connect the Z-bend in the 450mm throttle pushrod to the outer hole of the carburetor arm.

- Slide the throttle pushrod wire into the tube. Position the engine between the mounts. Use four M4x30mm machine screws to secure the engine to the mount as shown.



COWLING

- Slide the fiberglass cowl over the engine and line up the back edge of the cowl with the marks you made on the fuselage then trim and cut as shown.

- Reinstall the servo horn by sliding the connector over the pushrod wire. Center the throttle stick and trim and install the servo horn perpendicular to the servo center line.



- Move the throttle stick to the closed position and move the carburetor to closed. Use a 2.5mm hex wrench to tighten the screw that secures the throttle pushrod wire. Make sure to use threadlock on the screw so it does not vibrate loose.

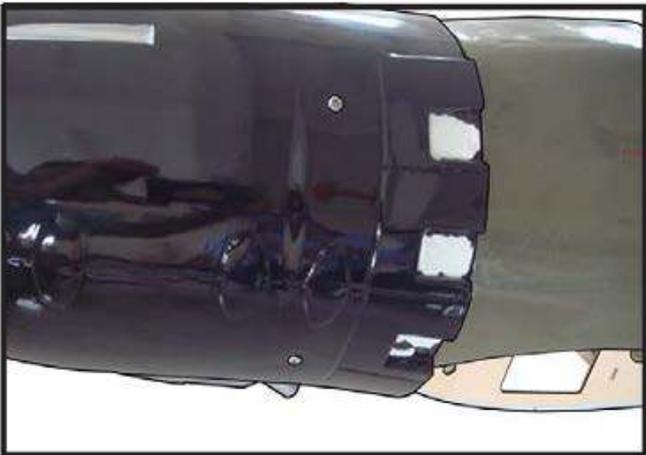
3.



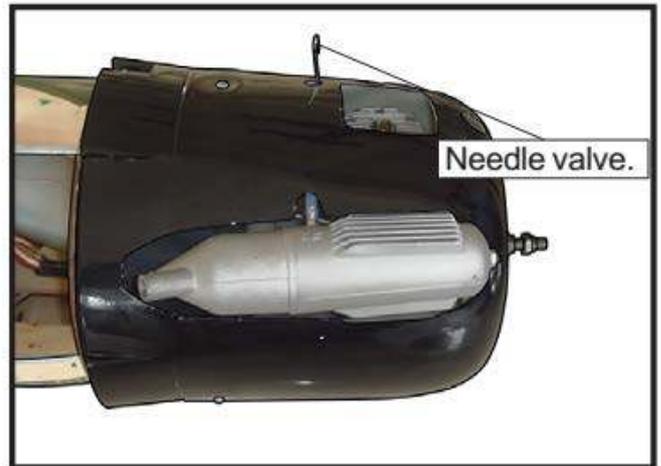
* Because of the size of the cowl, it may be necessary to use a needle valve extension for the high speed needle valve. Make this out of sufficient length 1.5mm wire and install it into the end of the needle valve. Secure the wire in place by tightening the set screw in the side of the needle valve.

- While keeping the back edge of the cowl flush with the marks, align the front of the cowl with the crankshaft of the engine. The front of the cowl should be positioned so the crankshaft is in nearly the middle of the cowl opening. Use the spinner backplate as a guide. Hold the cowl firmly in place using pieces of masking tape.

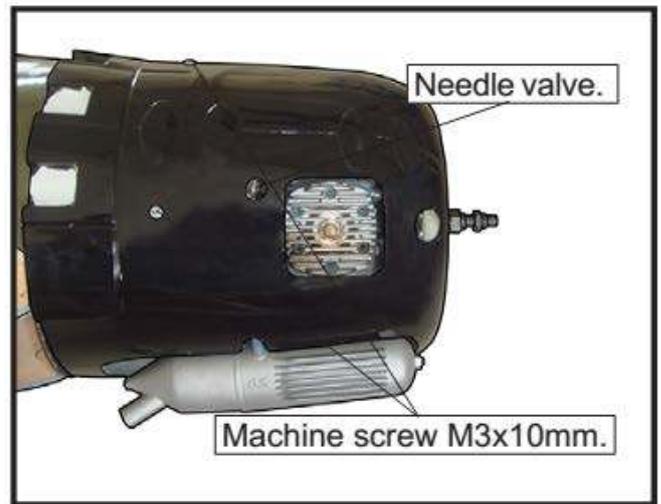
4.



5.



6.



- Install the muffler and muffler extension onto the engine and make the cutout in the cowl for muffler clearance. Connect the fuel and pressure lines to the carburetor, muffler and fuel filler valve. Secure the cowl to fuselage using the M3x10mm screws.

INSTALLATION PILOT AND CANOPY

1.



- The Canopy.

2.



- Cut off redundant cy plastic around.

3.



- Cover the rest of the clear area at the cells with masking tape, where no need painting.

4.



- Use mask the inside the canopy to protect it from over spray.

5.



- Paint follow the swell lines.

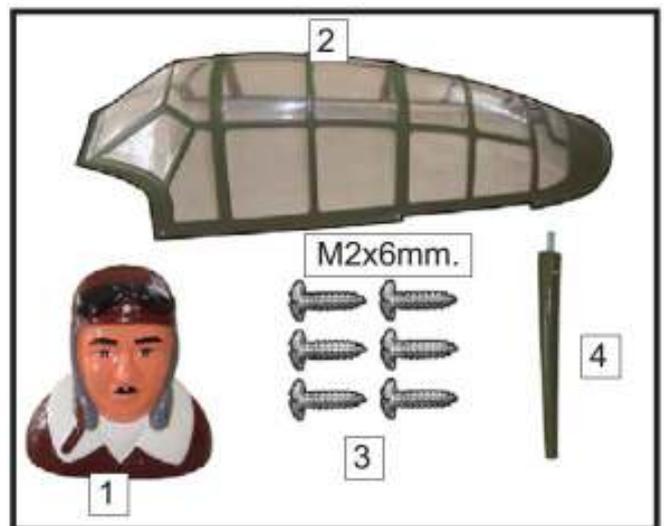
6.



- Remove the mask

- Locate items necessary to install pilot, cockpit panel, and canopy.

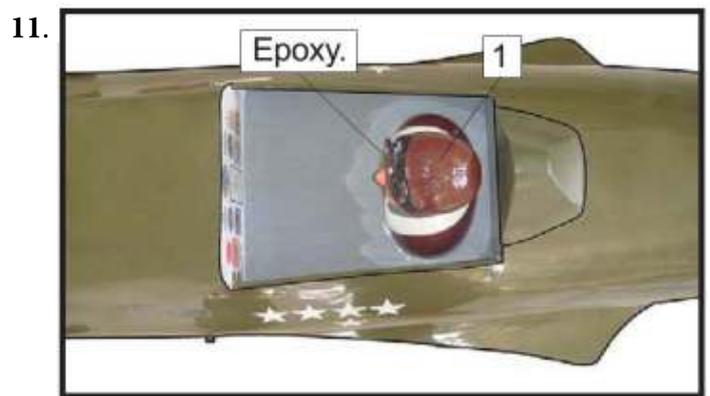
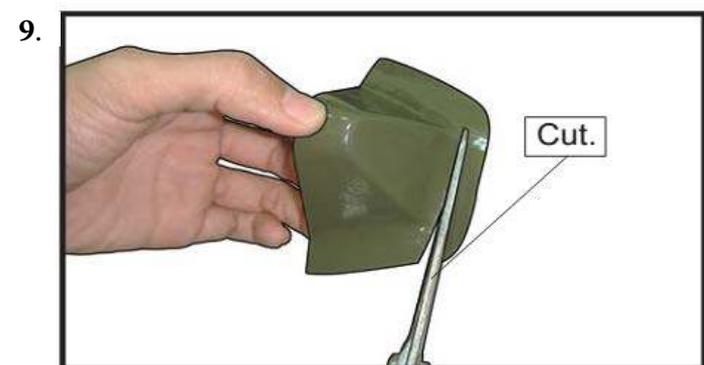
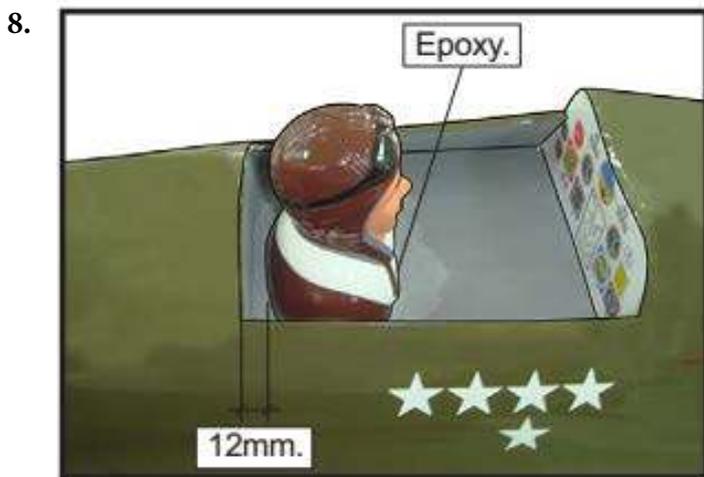
7.



- A scale pilot is included with this ARF. The Pilot included fitting well to the coc pit. (or you can order others scale pilot fiures made by SG Models. They are available at SG Models distributors.)

- If you are going to install a pilot fiure, please use a sanding bar to sand the base of the fiure so that it is flat.

- Position the pilot fiure on the canopy flor as show. Locate the oval shaped on the canopy flor and remove the covering. Use epoxy to glue this into the base of the pilot fiure and glue the cockpit panel in place with C/A glue, please see pictures as shown.

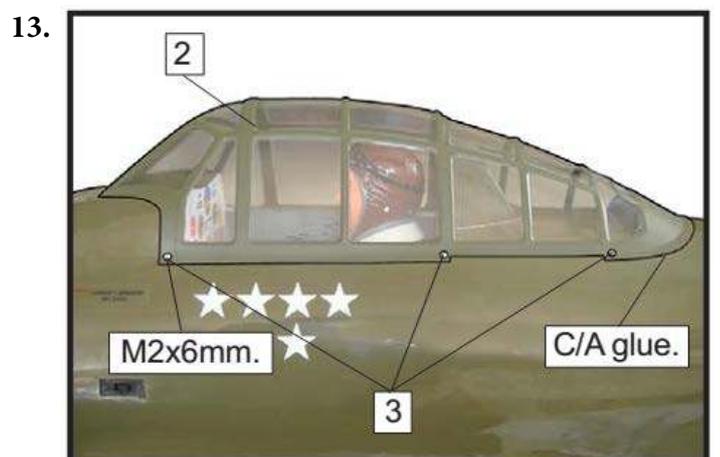


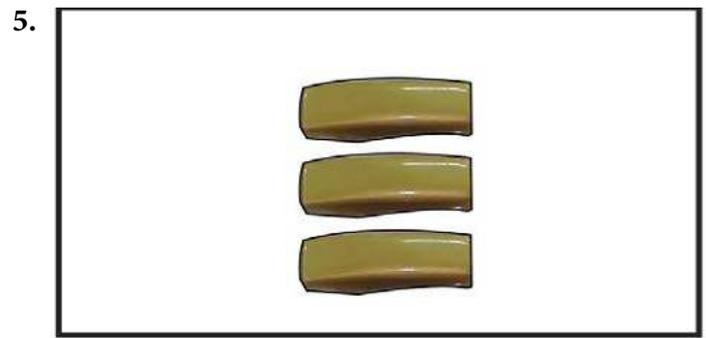
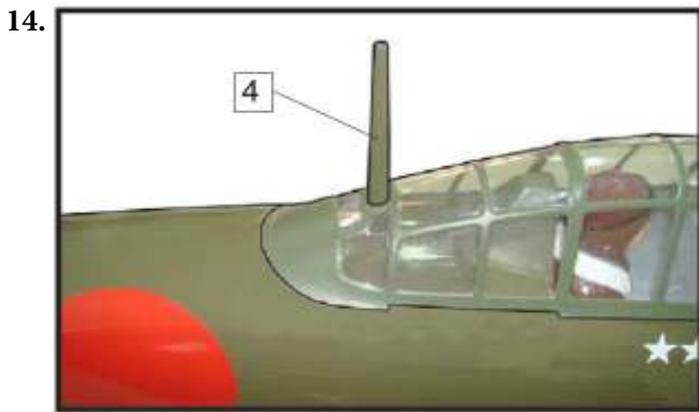
- Position the canopy onto the fuselage. Trace around the canopy and onto the fuselage using a felt-tipped pen.

- Apply a bead of canopy glue around the inside edge of the canopy. Position the canopy onto the hatch. Use tape to hold the canopy secure until the glue fully cures.

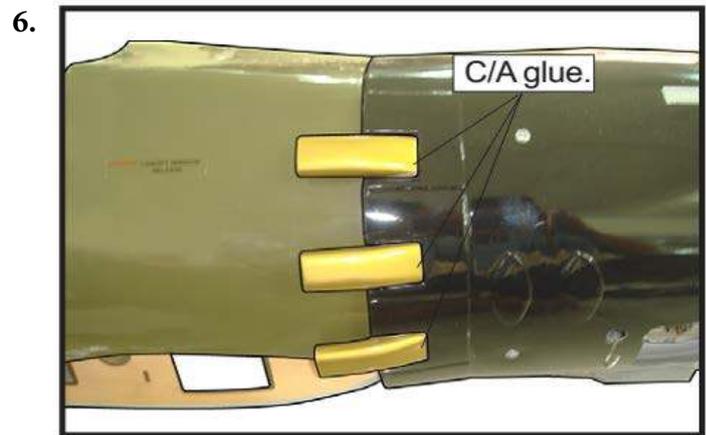
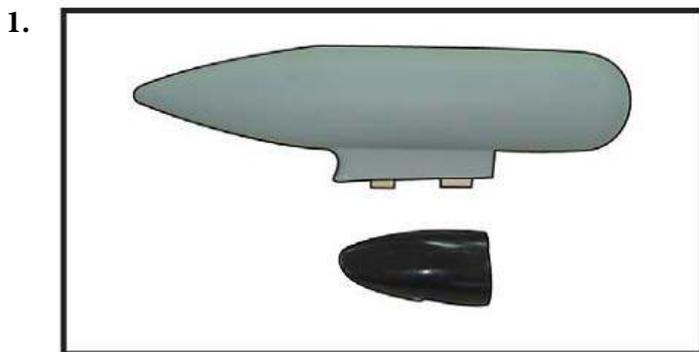


- Install the canopy and secure it with M2x6mm screws.

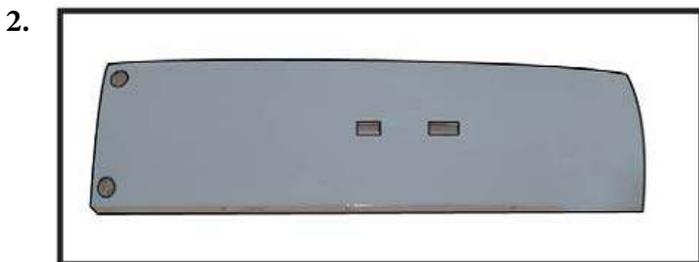




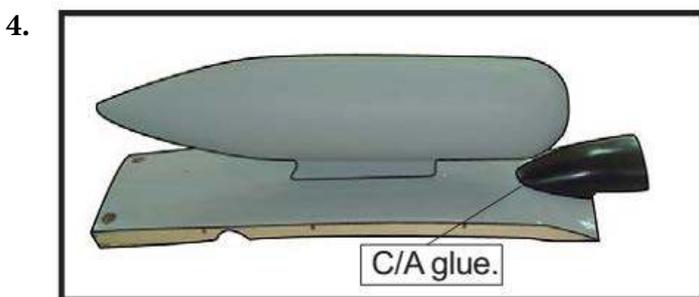
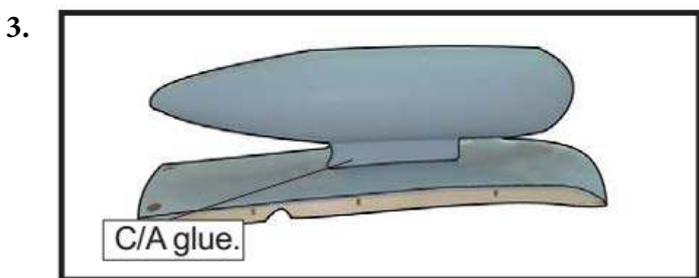
INSTALL THE PLASTIC PARTS



BUILD THE WING



- Getting prepare the perpendicular frame include 2 pcs.



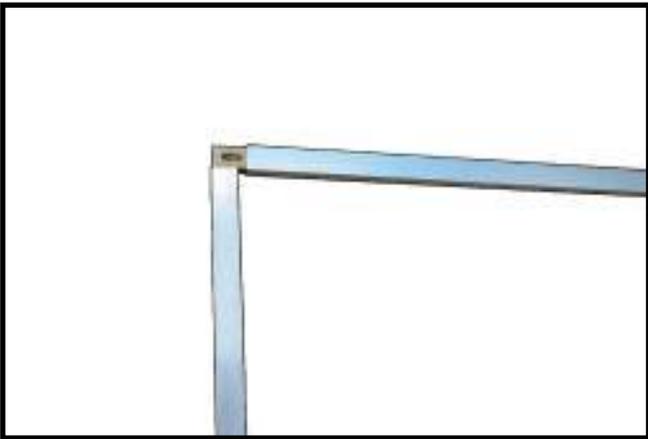
- Paste on them together.

3.



- The Aluminium Square Fixed Tool be separated 2 parts.

4.



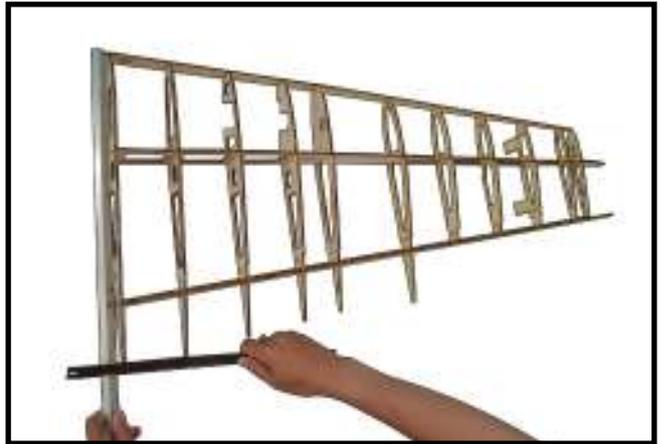
- Weld 2 parts the Aluminium Square Fixed Tool as perpendicular aluminium frame.

5.



- Build the ribs with the leading edge, main edge, trailing edge to frame of wing.

6.



- Cut off redundancy of Aluminium Square Fixed Tool.

7.

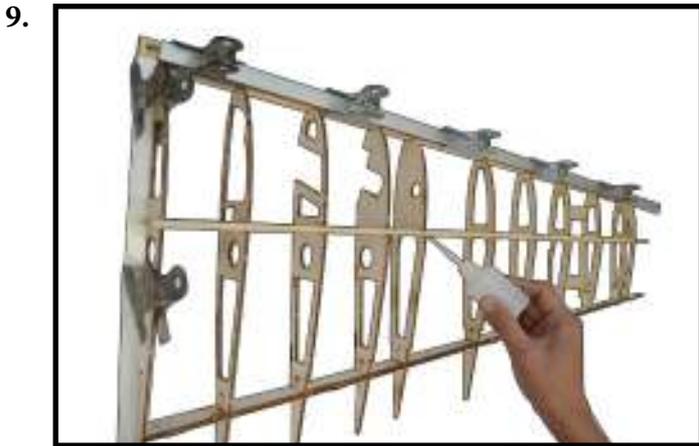


- Fixing the wing frame to Aluminium Square Fixed Tool.

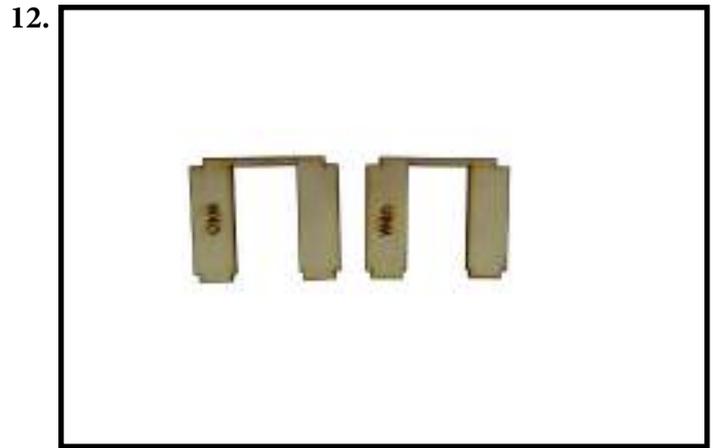
8.



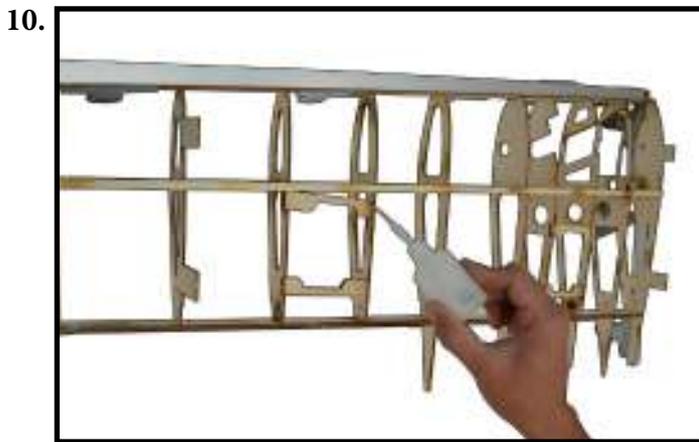
- Fill White Glue at main edge of wing W20.



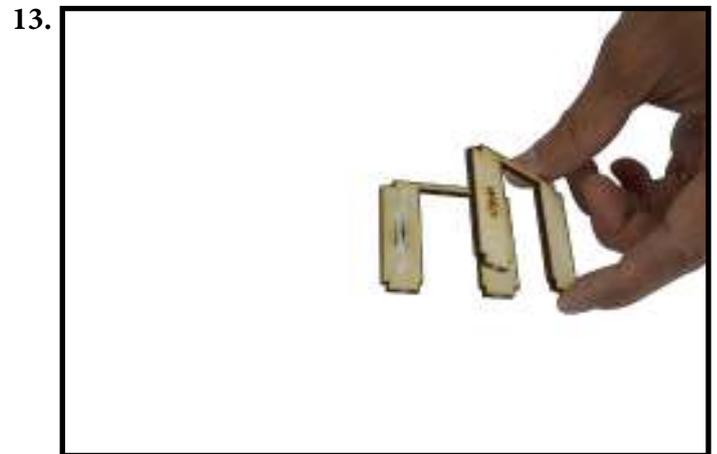
- Paste stringer W21 on main edge of wing W20 by CA Glue.



- Getting prepare mount of retract W46 (2pcs).



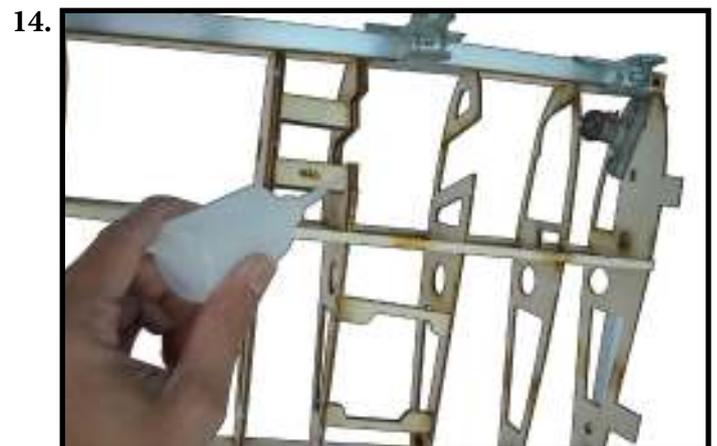
- Install the mount of servo hatch (4pcs) W48, W49, W50, W51 by CA glue.



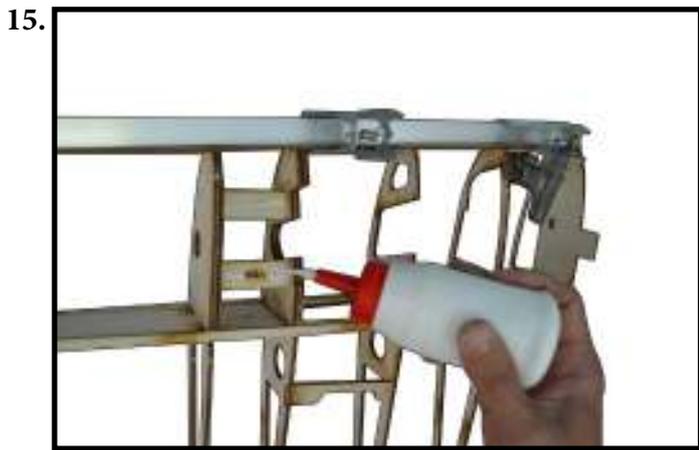
- Use White glue to paste two W46 together.



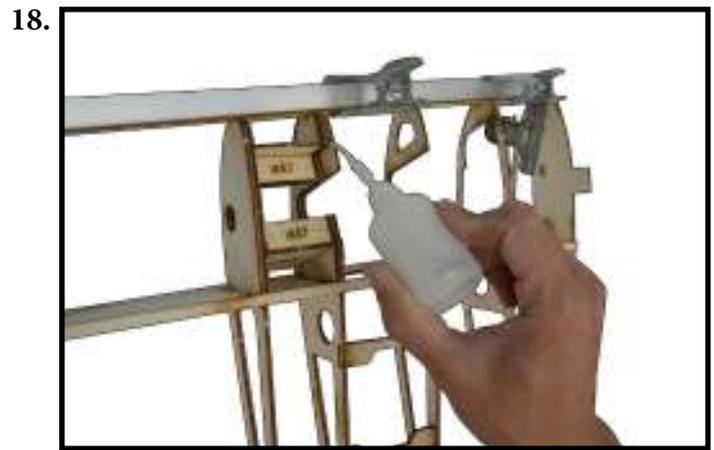
- Install W5A, W6A by CA Glue.



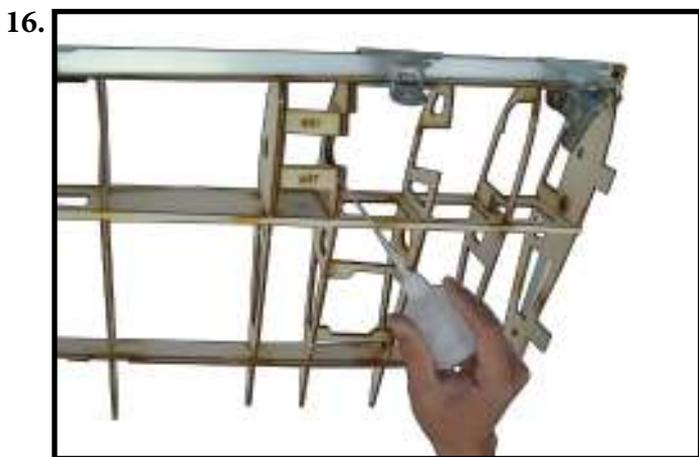
- Install mount of retract W46 to wing at W5A and W6A by CA Glue.



- Fill CA glue on W46.



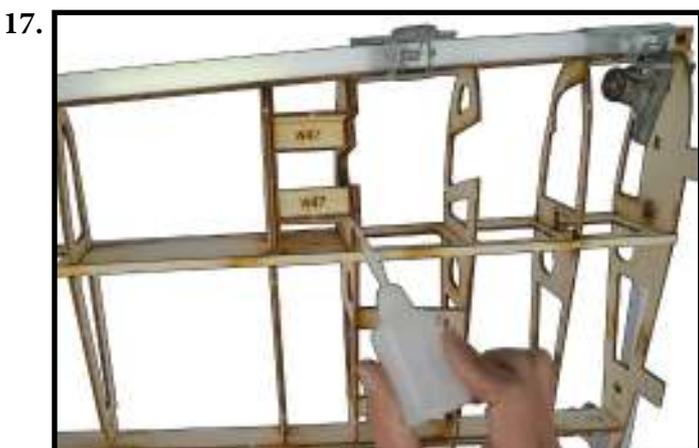
- Paste W5B on W5 by CA Glue.



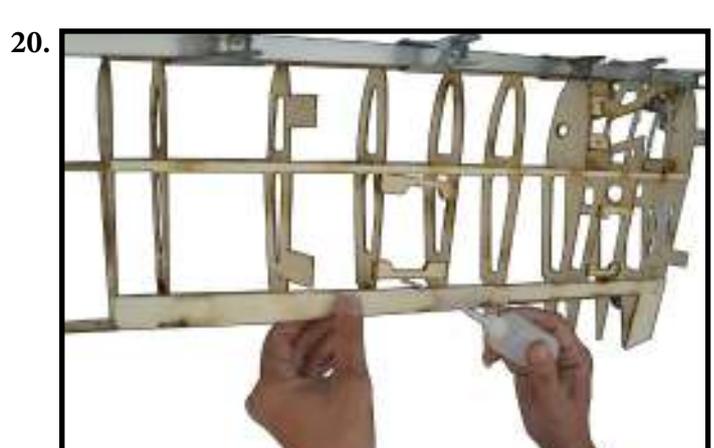
- Paste W47 (2pcs) on W46 by CA Glue.



- Fill White Glue at trailing edge, at bottom side of wing.



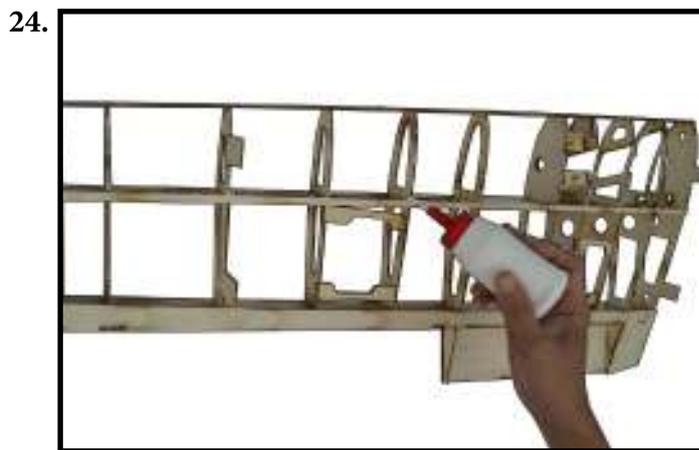
- Install W18 and W18A for mount of retract by CA Glue.



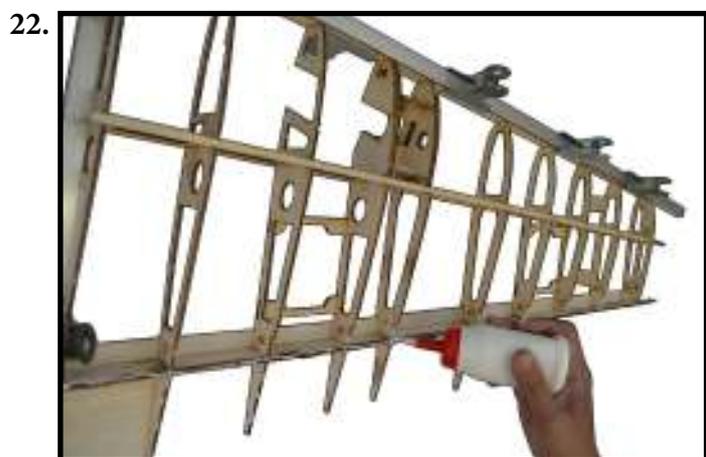
- Cover sheeting W45 by CA Glue.



- Use CA glue inside to fix the sheet W45.



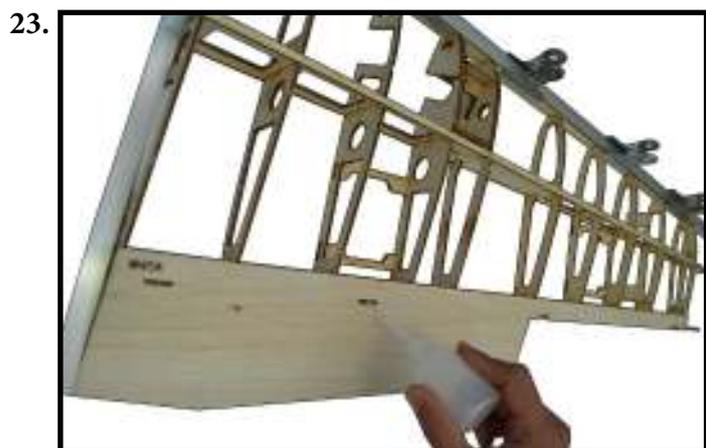
- Fill White glue at the ribs, at bottom side of wing.



- Fill White glue at trailing edge leading by at top side of wing.



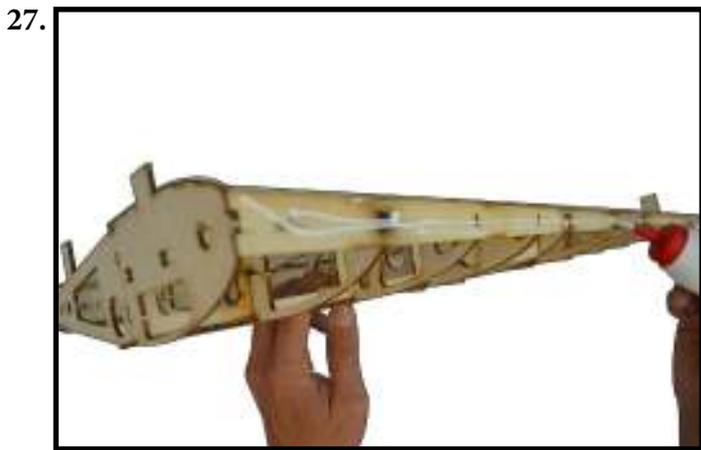
- Cover sheeting W38 and then add more CA Glue.



- Cover sheeting W45A by CA Glue at the tabs.



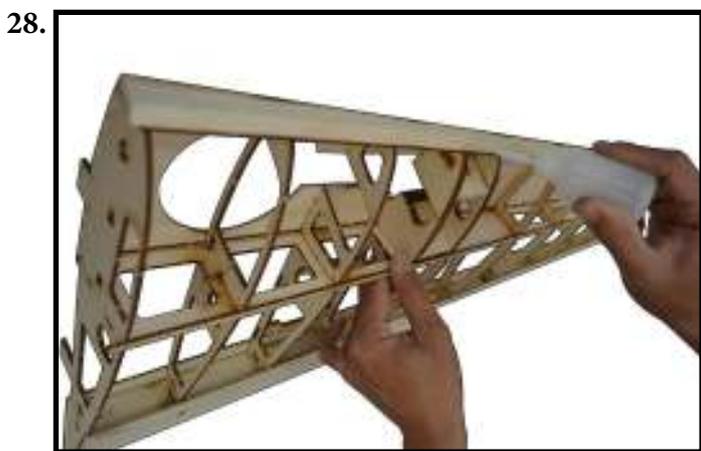
- Use CA glue inside to fix the sheet W38.



- Fill White glue at the face of leading edge.



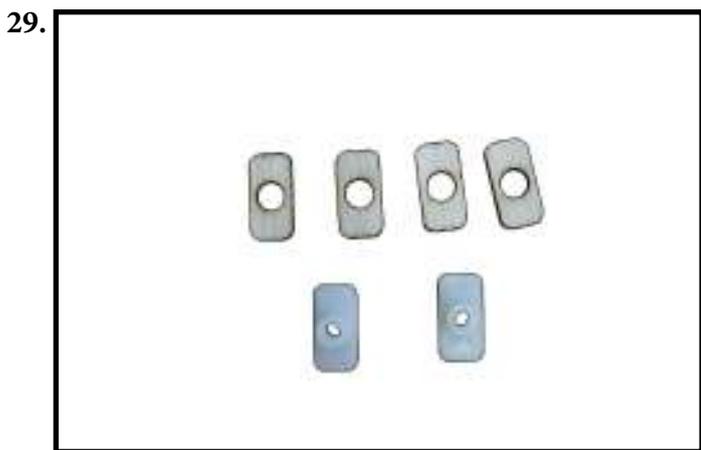
- Add more CA glue to set of lock nut block.



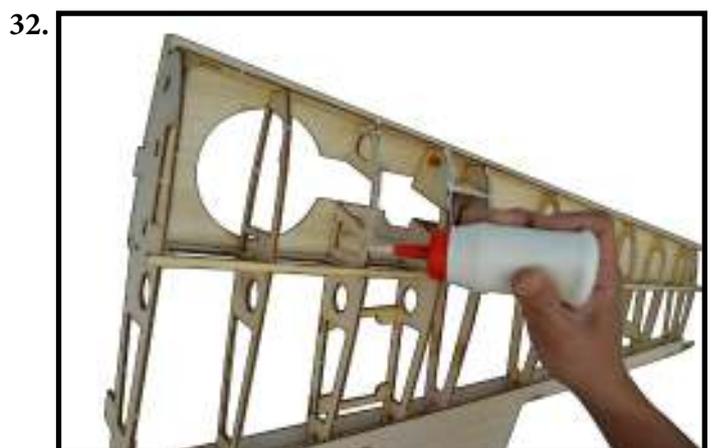
- Paste 6mm balsa trailing edge CA Glue.



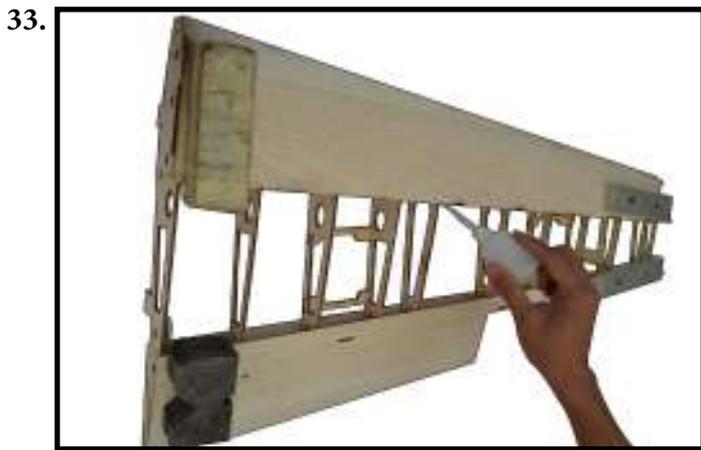
- Install lock nut block to inside wing at wing root by CA glue.



- Getting prepare the rectangle ring of nylon bolt W58 (4pcs) and the install nylon lock nut to the rectangle ring.



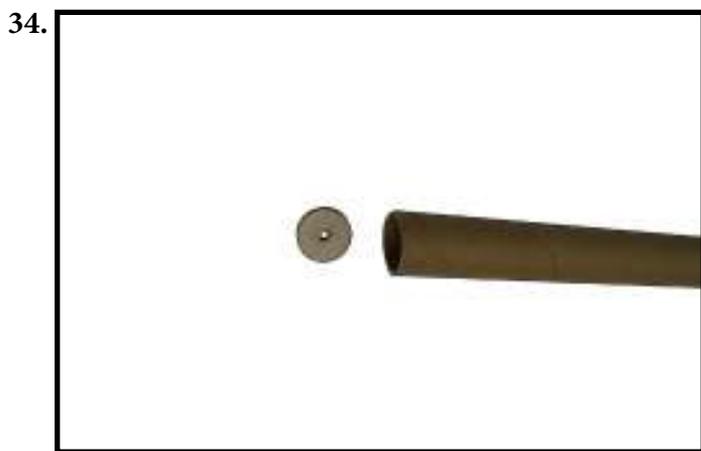
- Fill White glue at the ribs, at the top side of wing.



- Cover sheeting W37 and then add more CA glue.



- Install wing paper tube to the wing, and add the ring W61, and measure excess part is 15mm, and then fixed them by CA Glue.



- Getting prepare the wing paper tube and the ring W60 to block up at a head of wing tube.



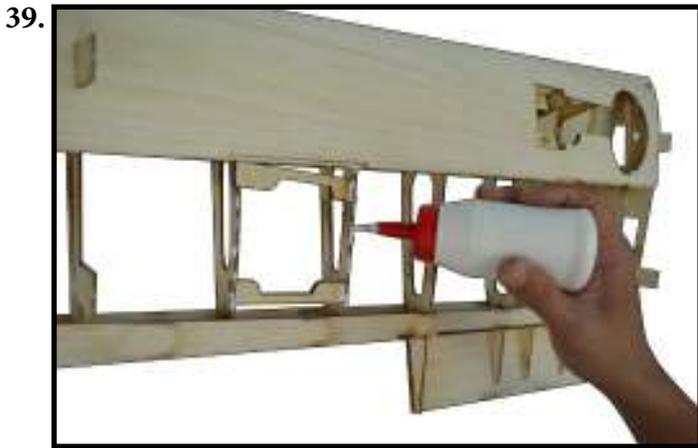
- Cut off redundancy wing paper tube.



- Paste the ring W60 to inside wing paper tube by CA Glue.



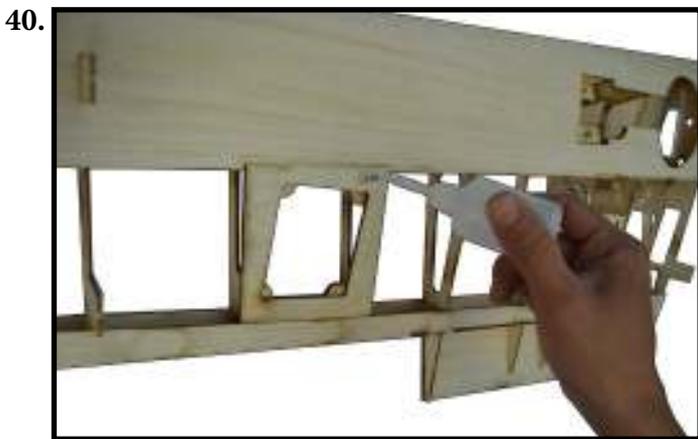
- Fixed by White glue at wing tube.



- Fill White glue on edge of W8, W9.



- Paste the sheet W41 on the ribs and add more CA Glue.



- Paste the sheet W42 on the ribs and add more CA Glue.



- Fill White glue on edge of W11 and W12.



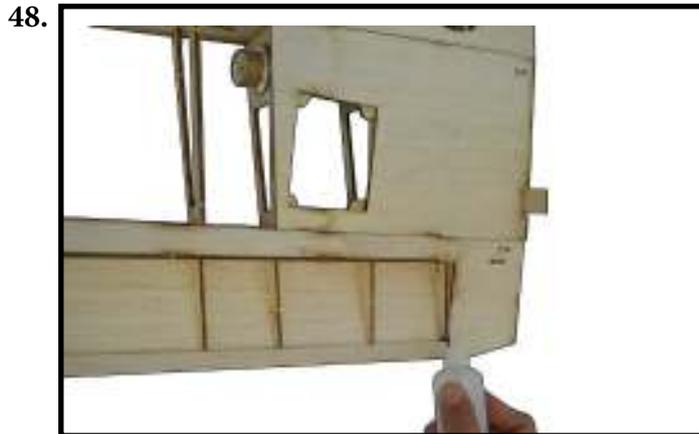
- Fill White glue on edge of W2, W3, W4, W5.



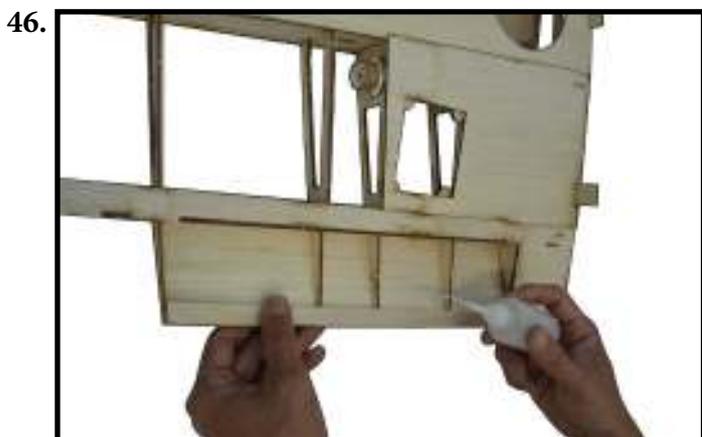
- Paste the sheet W43 on the ribs and add more CA Glue.



- Fill White glue on W45A, inside the flap.



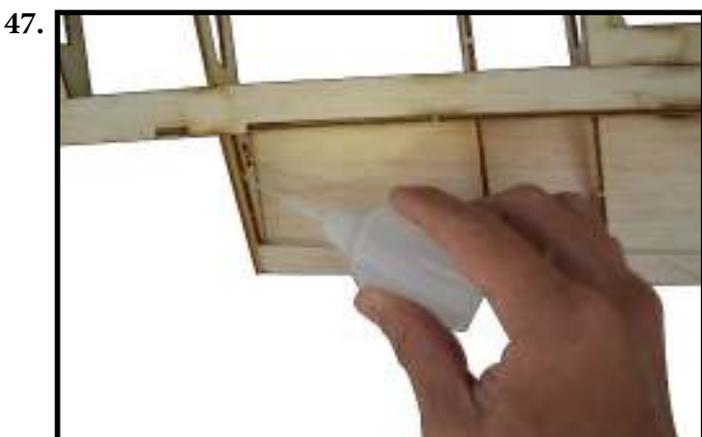
- Paste W33 on W3 by CA Glue.



- Paste WA19 on W45A at trailing edge of flap, add more CA Glue.



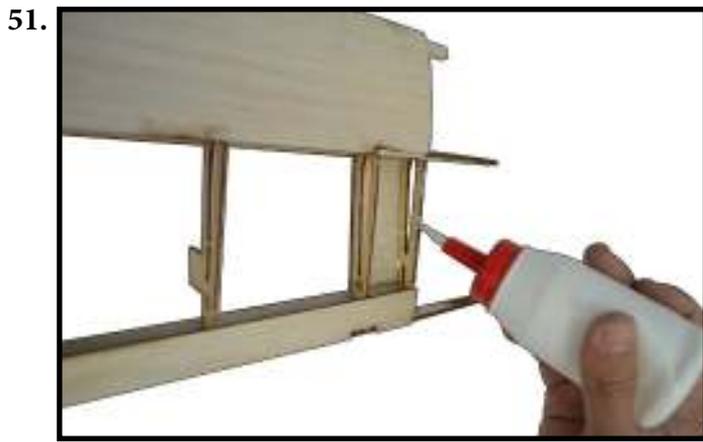
- Fill White Glue on edge of W2, W3, top side of wing.



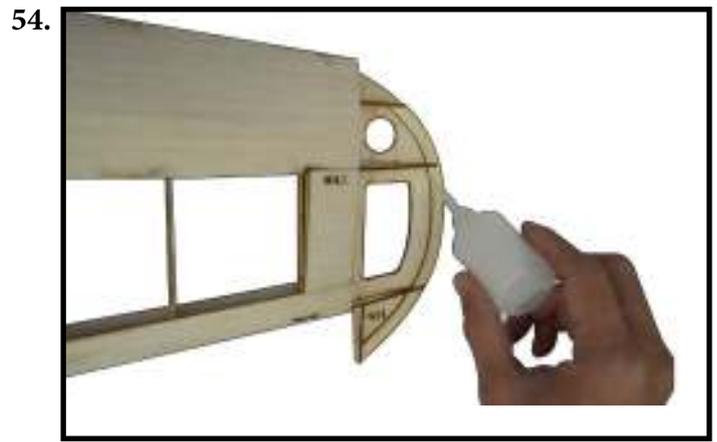
- Paste W34 on W7 by CA Glue.



- Paste the sheet W39 on the ribs and add more CA Glue.



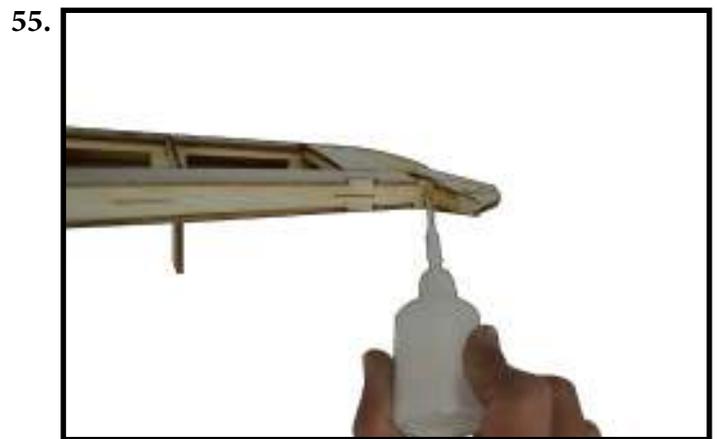
- Fill White glue on edge of W11, W12, top side of wing.



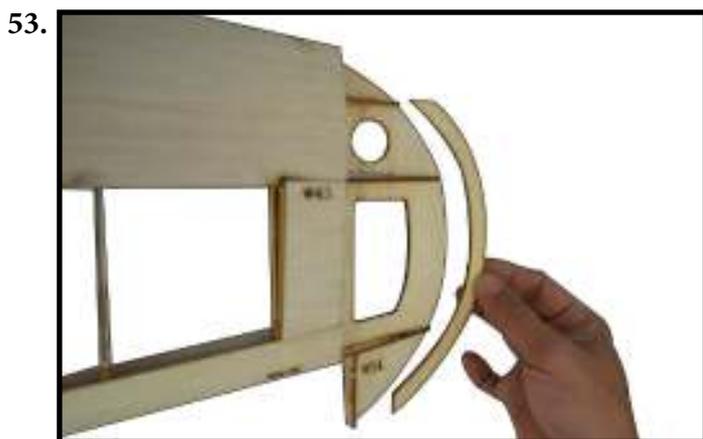
- Add more CA glue at the tip to keep fixed.



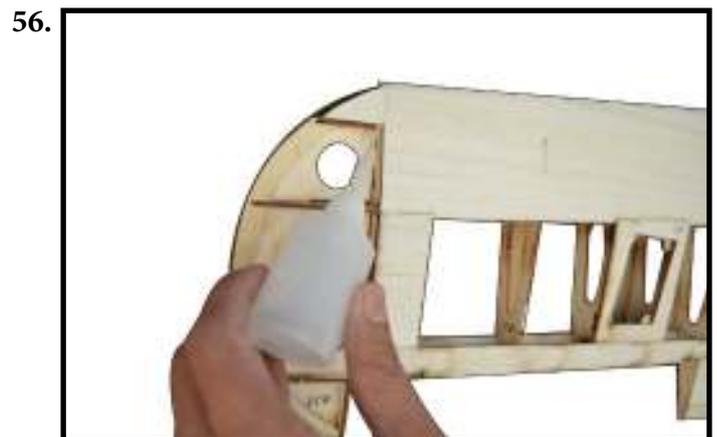
- Paste the sheet W43 on the ribs and add more CA Glue.



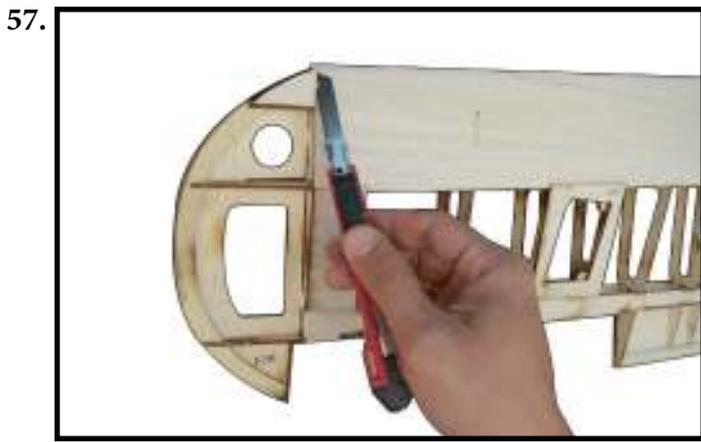
- Install W31A at the tip of wing by CA glue.



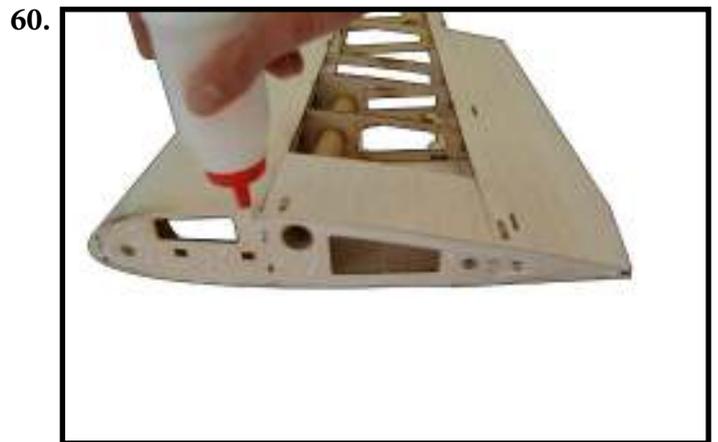
- Install W15 at the tip of wing.



- Install W62 at the tip of wing by CA glue.



- Use cutter knife to chamfer redundancy wood of W62.



- Fill White Glue on face of W2.



- Use sandpaper bar to sanding for smoothing.



- Paste W1 on W2 as photo.



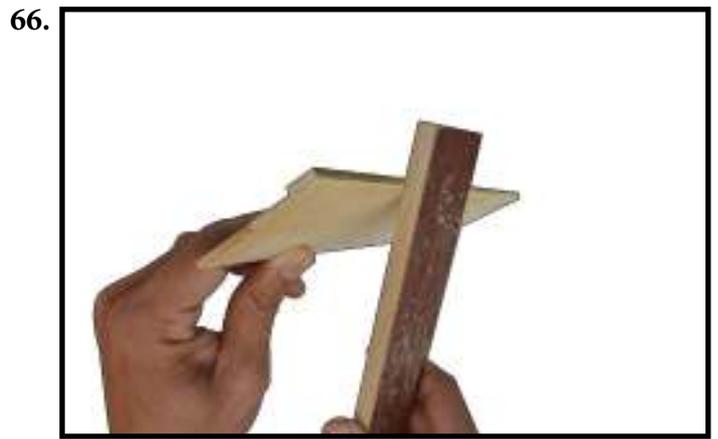
- Use sandpaper bar to sanding at the W2.



- Paste W1 on W2 and add more CA glue to keep fixed.



- Use sandpaper bar to sanding at the leading edge of wing.



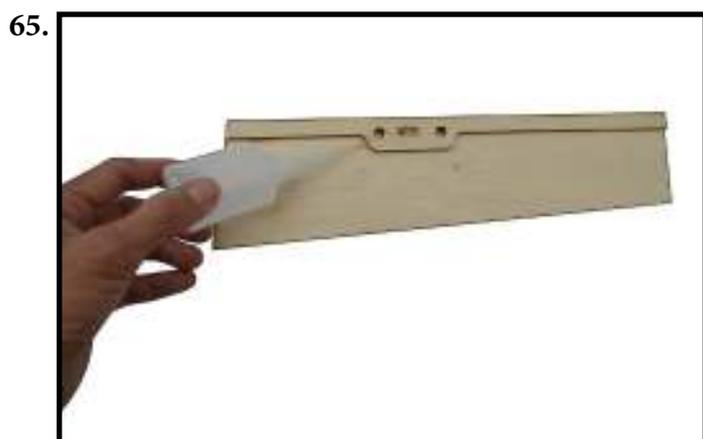
- Use sandpaper bar to sanding at the leading edge of flap.



- Getting prepare the Flap include W35 and W36.



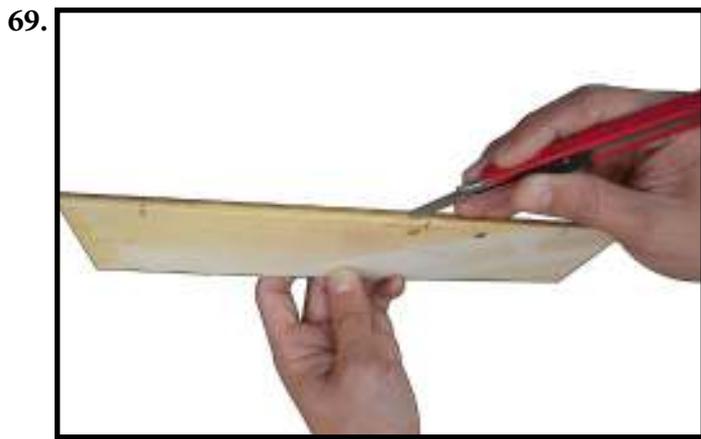
- Use the pen to take the mark for the hinge of flap.



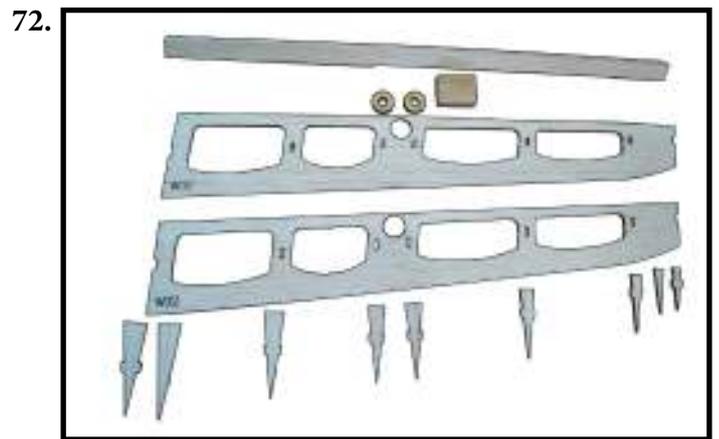
- Paste W35 on W36 by CA glue



- Use cutter knife to cut a line for the hinge on the wing at position of flap.



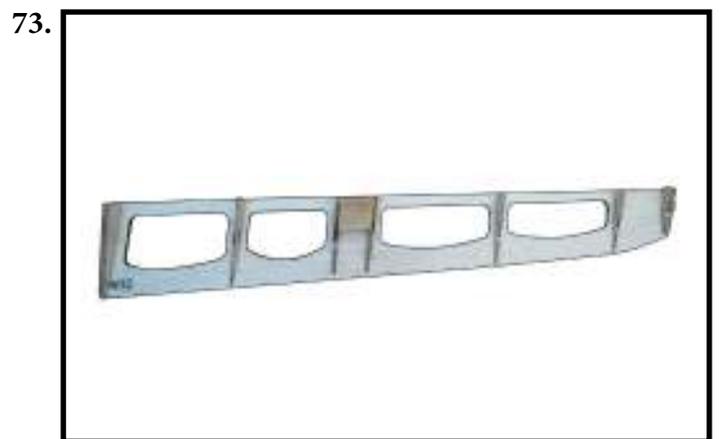
- Use cutter knife to cut a line for the hinge on the flap.



- Getting prepare the aileron as photo 72.



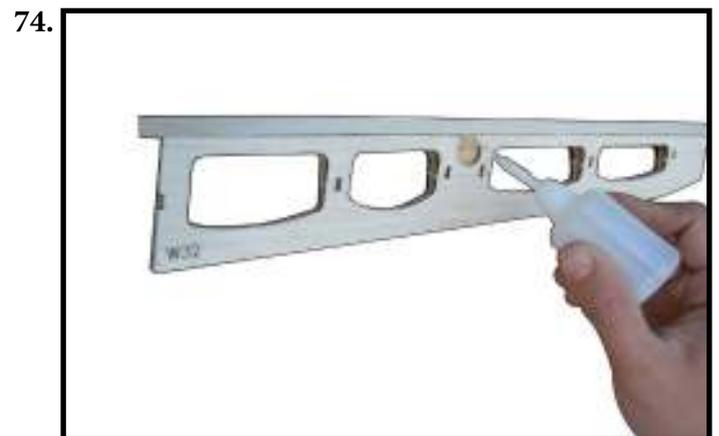
- Install the paper hinge (3pcs) for the flap.



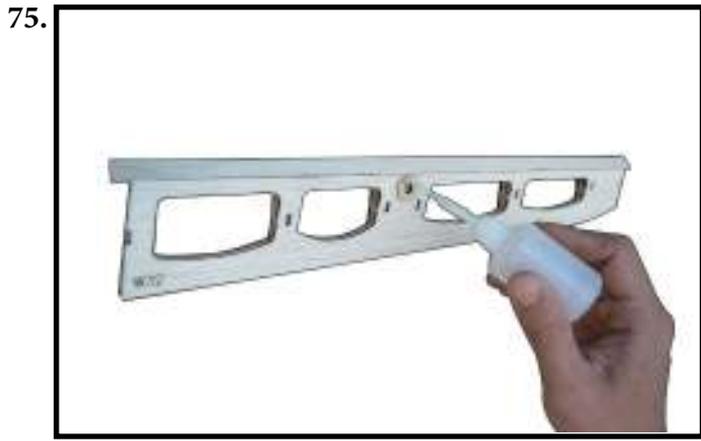
- Install the ribs of aileron as photo 73.



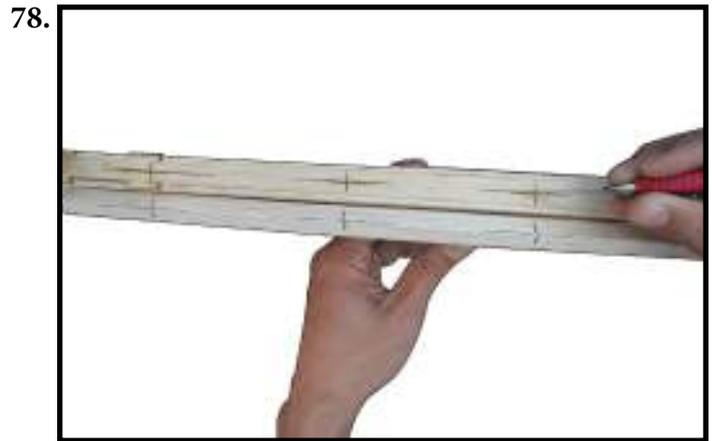
- Finished for the installing flap.



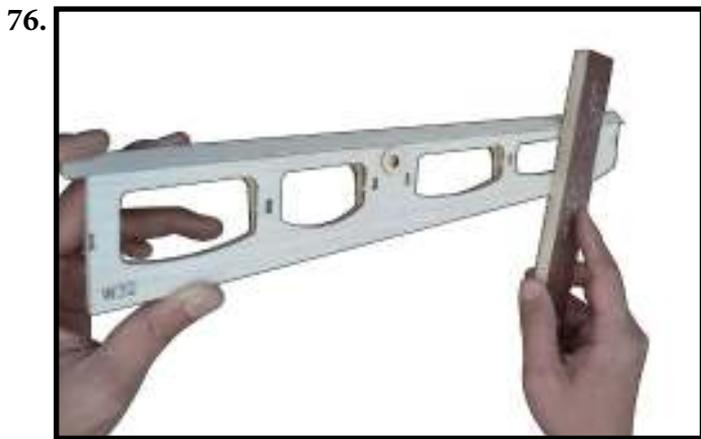
- Install triangle by CA glue.



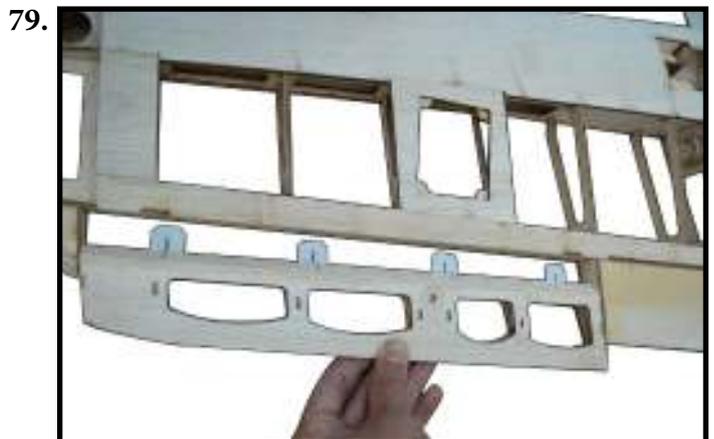
- Install the circle for supporting control horn by CA Glue.



- Use cutter knife to cut a line for the hinge on the wing at position of aileron.



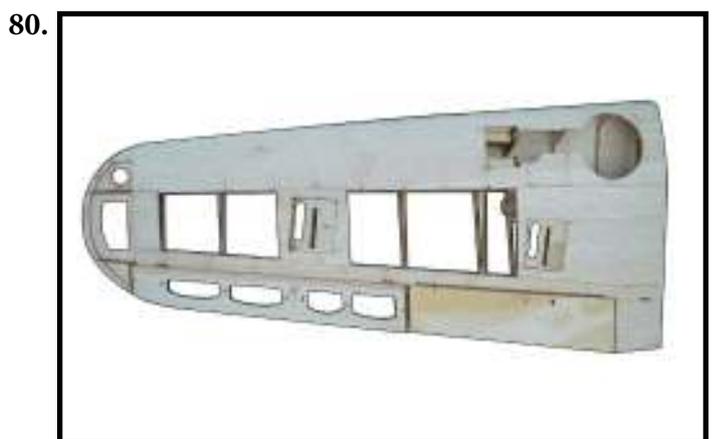
- Use Sandpaper Bar to sanding at the leading edge of aileron.



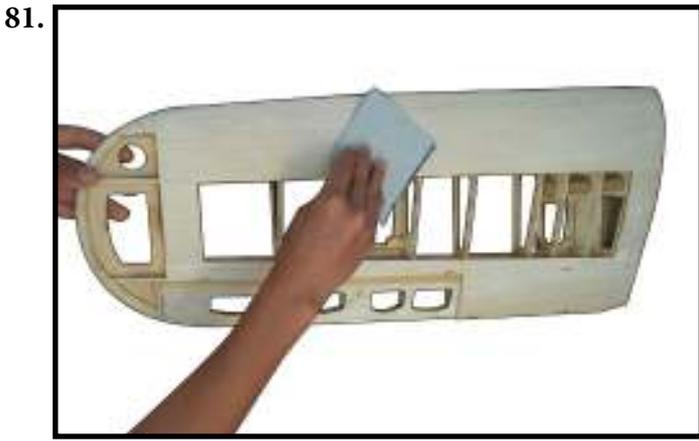
- Install the paper hinge (4pcs) for the aileron.



- Use the pen to take the mark for the hinge of aileron.



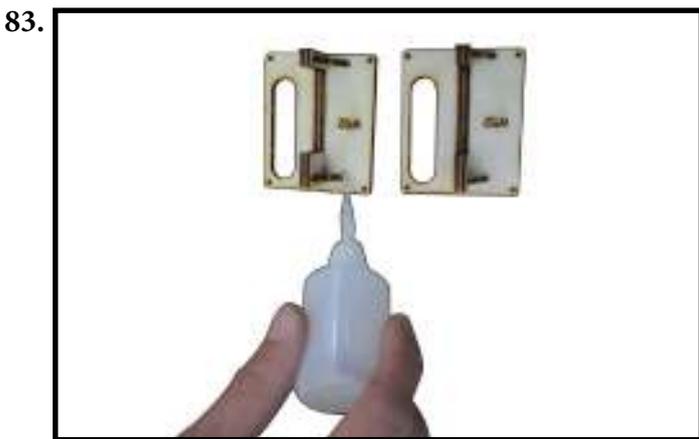
- Finished for the installing aileron.



- Use Sandpaper to sanding the wing.



- Getting prepare 2 sets of servo hatch for a wing include W52 (2pcs); W53 (4pcs); W54 (4pcs).

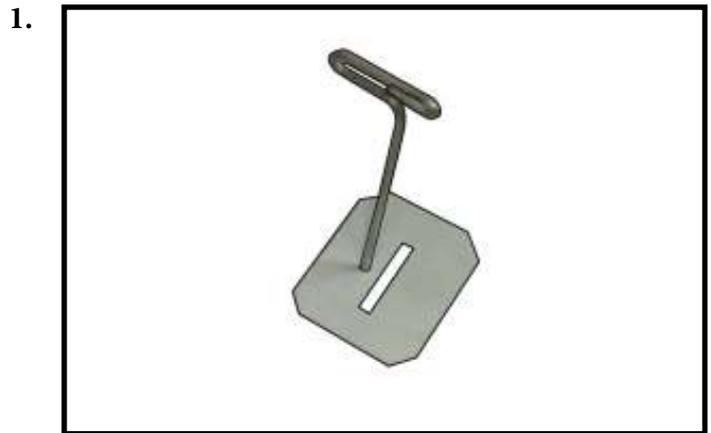


- Install 2 sets of servo hatch for by CA glue.

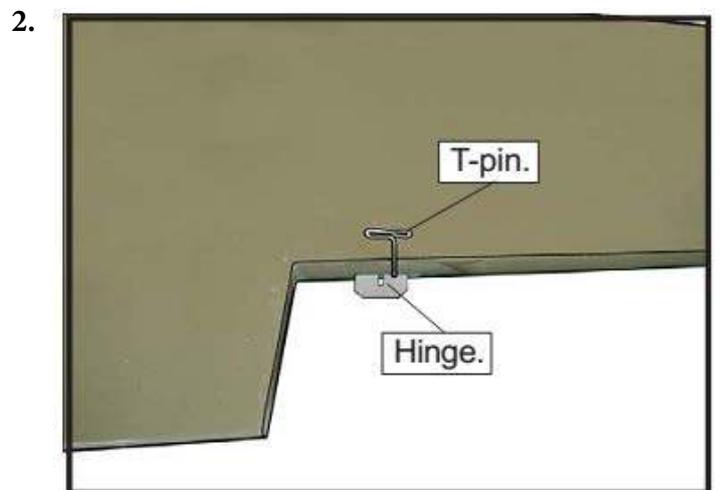
HINGING THE AILERON

Note : The control surfaces, including the ailerons, elevators, and rudder, are prehinged with hinges installed, but the hinges are not glued in place. It is imperative that you properly adhere the hinges in place per the steps that follow using a high-quality thin C/A glue.

- Carefully remove the aileron from one of the wing panels. Note the position of the hinges.

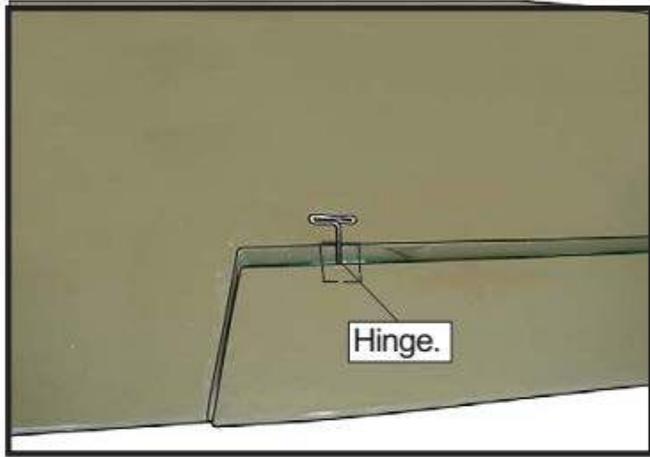


- Remove each hinge from the wing panel and aileron and place a T-pin in the center of each hinge. Slide each hinge into the wing panel until the T-pin is snug against the wing panel. This will help ensure an equal amount of hinge is on either side of the hinge line when the aileron is mounted to the aileron.



- Slide the wing panel on the aileron until there is only a slight gap. The hinge is now centered on the wing panel and aileron. Remove the T-pins and snug the aileron against the wing panel. A gap of 1/64" or less should be maintained between the wing panel and aileron.

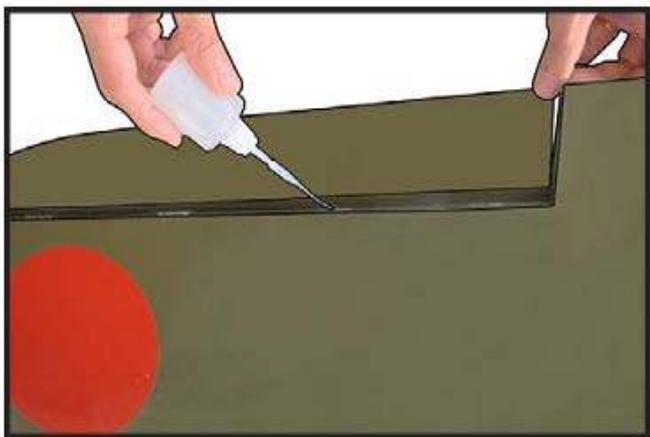
3.



- Deflect the aileron and completely saturate each hinge with thin C/A glue. The ailerons front surface should lightly contact the wing during this procedure. Ideally, when the hinges are glued in place, a 1/64" gap or less will be maintained throughout the length of the aileron to the wing panel hinge line.

NOTE : The hinge is constructed of a special material that allows the C/A to wick or penetrate and distribute throughout the hinge, securely bonding it to the wood structure of the wing panel and aileron.

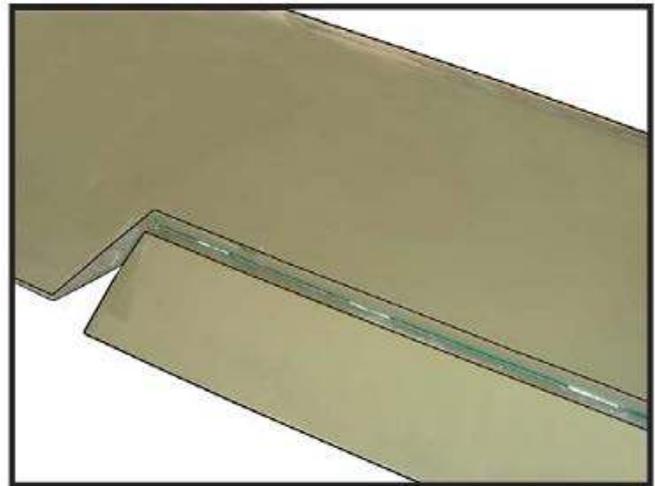
4.



5.



6.



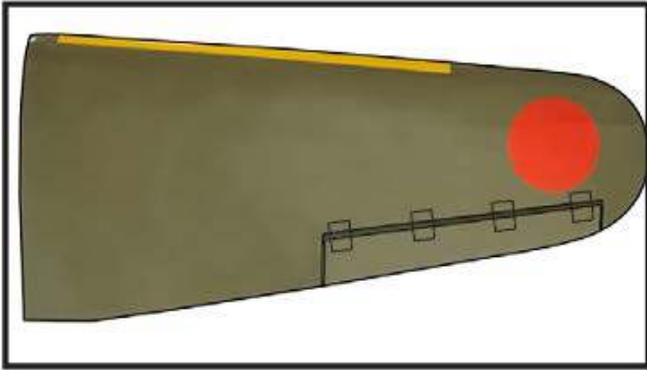
- Turn the wing panel over and deflect the aileron in the opposite direction from the opposite side. Apply thin C/A glue to each hinge, making sure that the C/A penetrates into both the aileron and wing panel.

- Using C/A remover/debonder and a paper towel, remove any excess C/A glue that may have accumulated on the wing or in the aileron hinge area.

- Repeat this process with the other wing panel, securely hinging the aileron in place.

- After both ailerons are securely hinged, firmly grasp the wing panel and aileron to make sure the hinges are securely glued and cannot be pulled out. Do this by carefully applying medium pressure, trying to separate the aileron from the wing panel. Use caution not to crush the wing structure.

7.

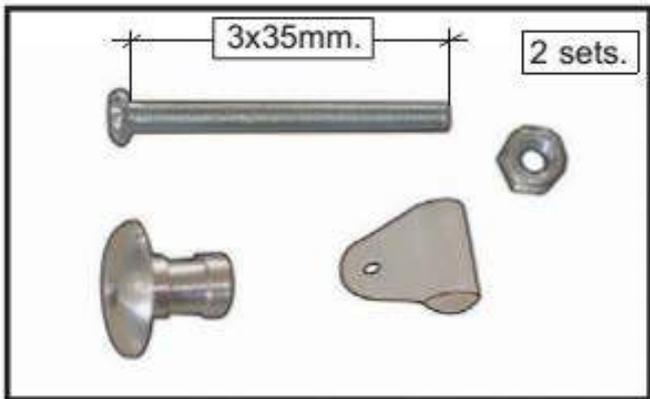


Note: Work the aileron up and down several times to “work in” the hinges and check for proper movement.

INSTALL THE AILERONS CONTROL HORN

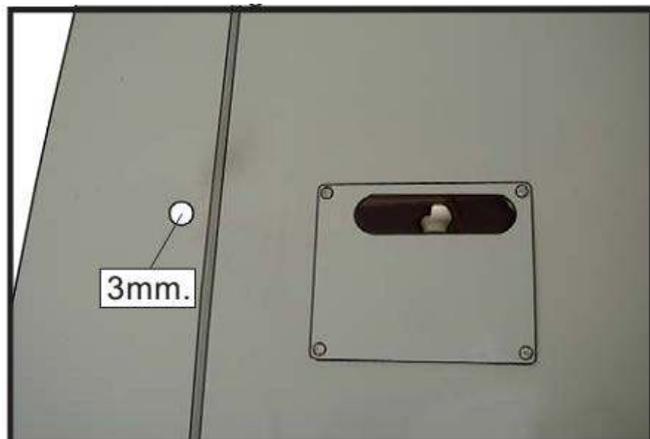
- Locate the hardware necessary to install the control horns for the ailerons.

1.

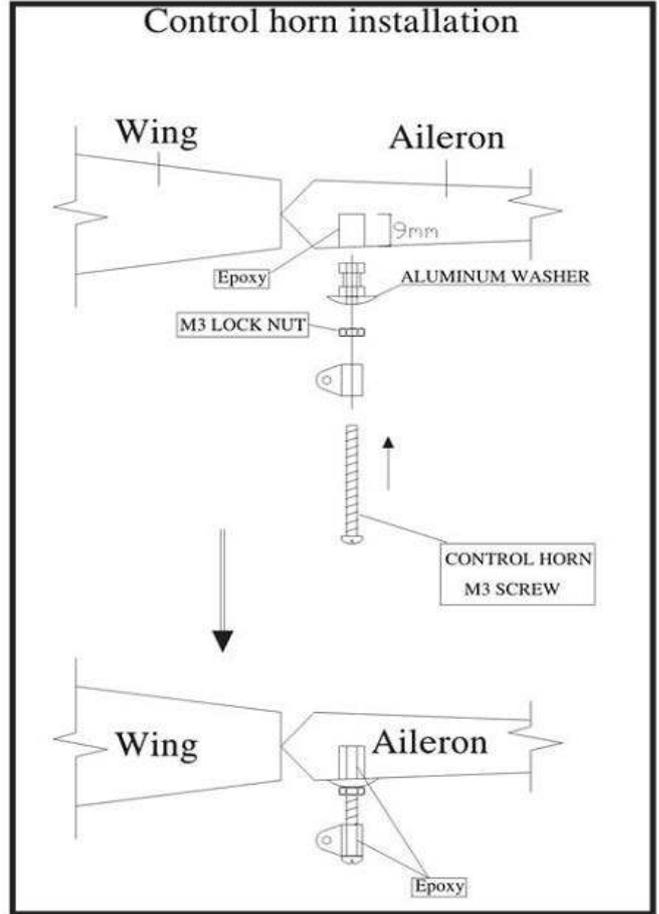


- Position the control horn on the bottom of the aileron. You will see pre-drill hole 3mm for the horn mounting screw on the aileron.

2.



3.

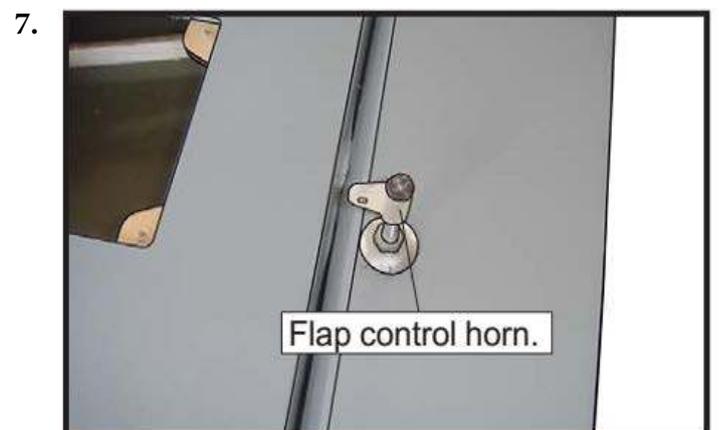
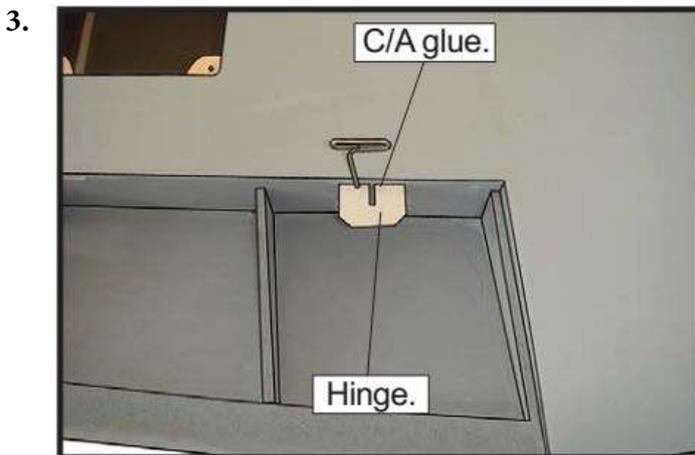
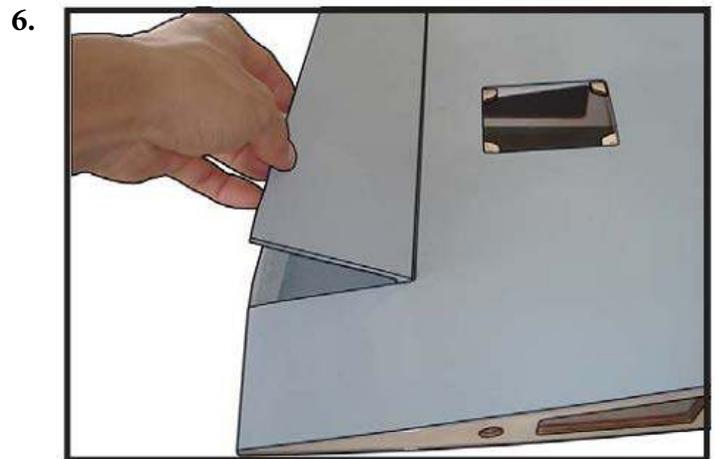
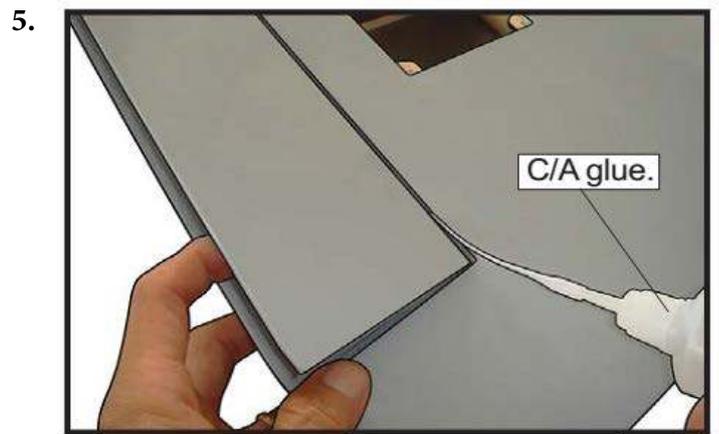
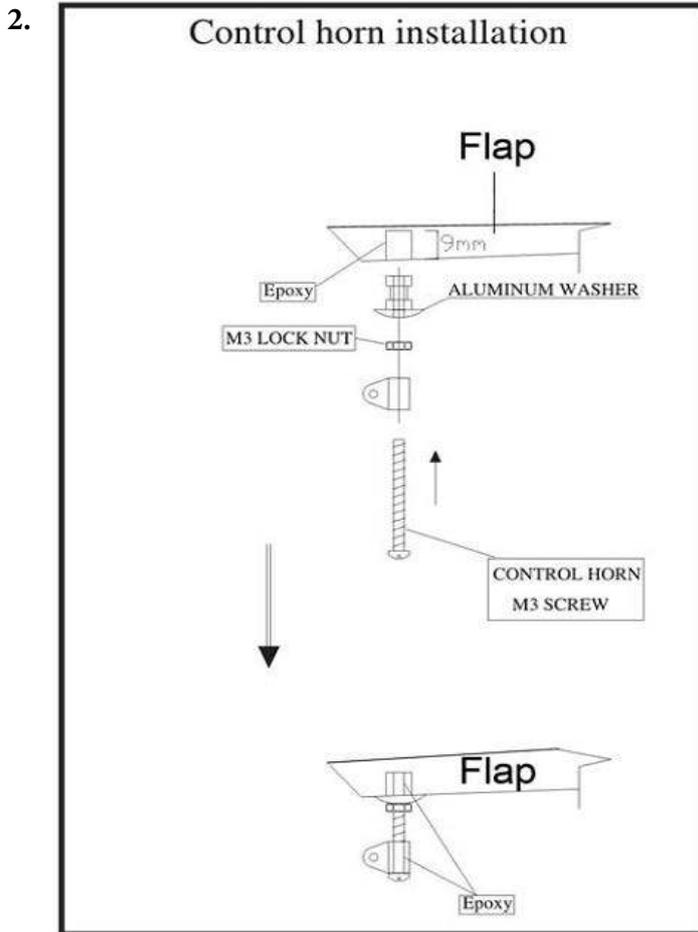
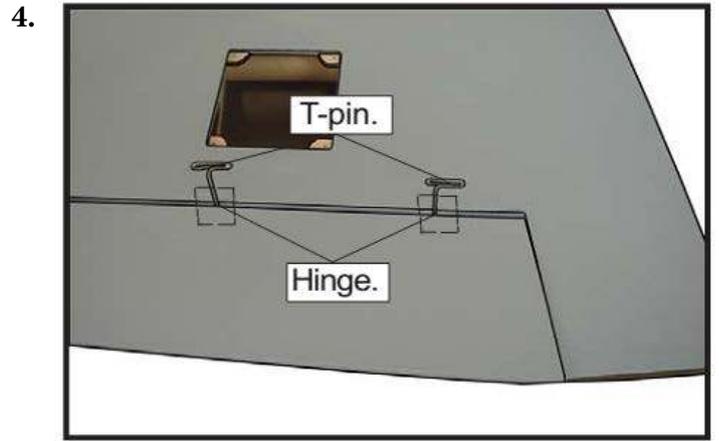
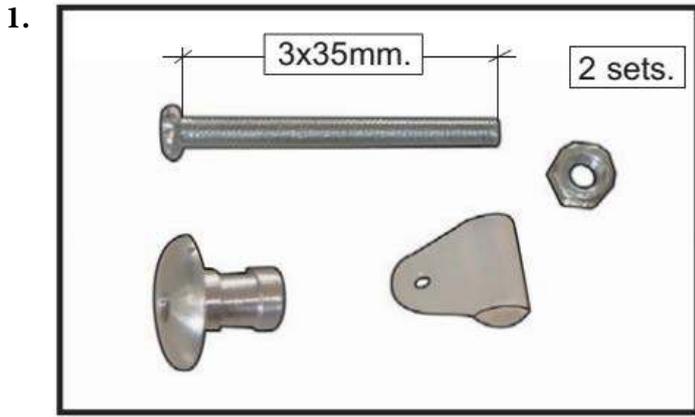


4.



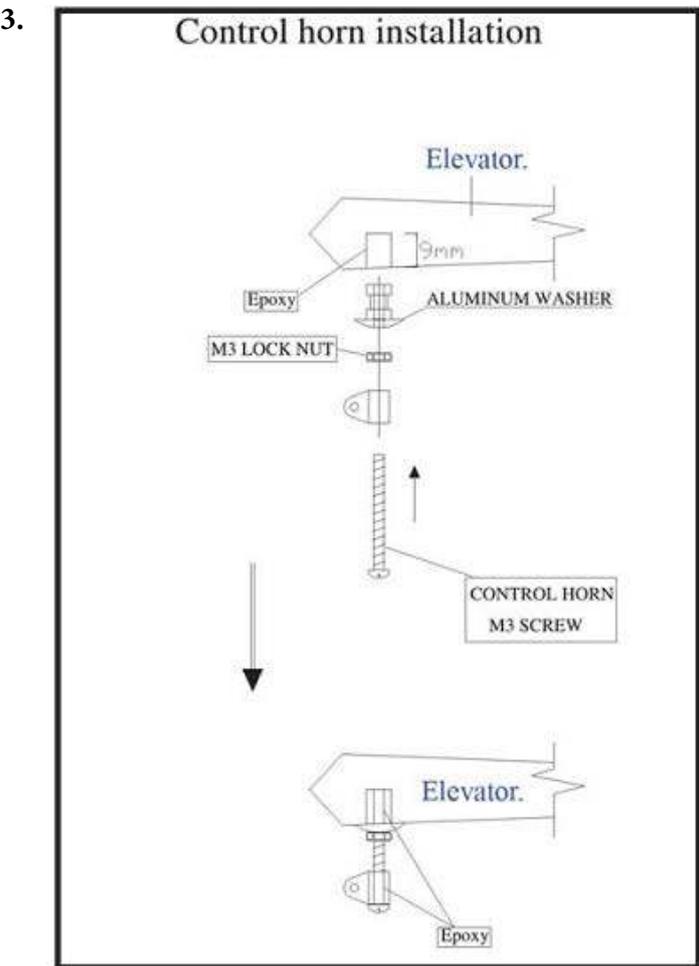
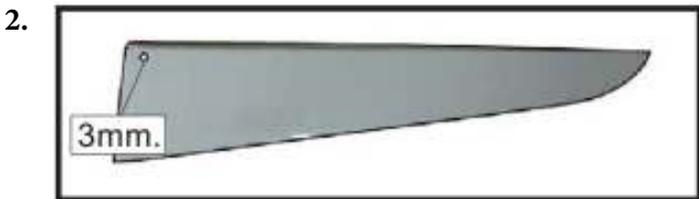
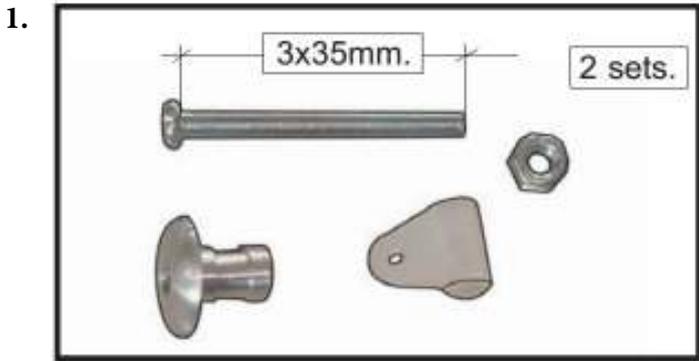
INSTALL FLAP CONTROL HORN

- Install the flap control horn using the same method as same as the aileron control horns.



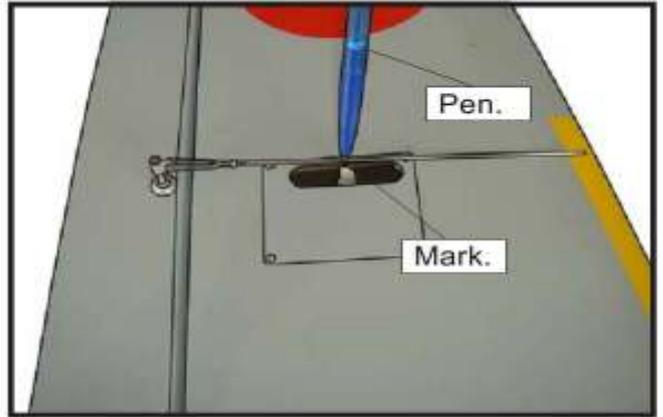
INSTALLING THE AILERON SERVOS

- Install the elevator control horn using the same method as same as the aileron control horns.



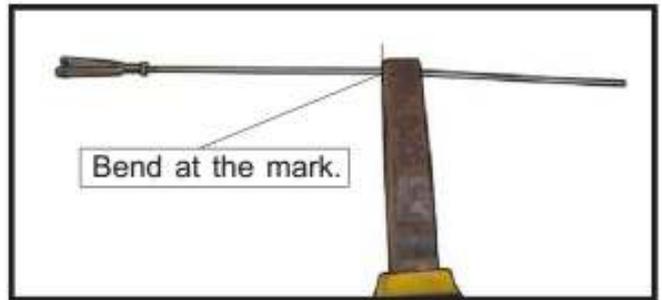
AILERON PUSHROD HORN INSTALLATION

1.

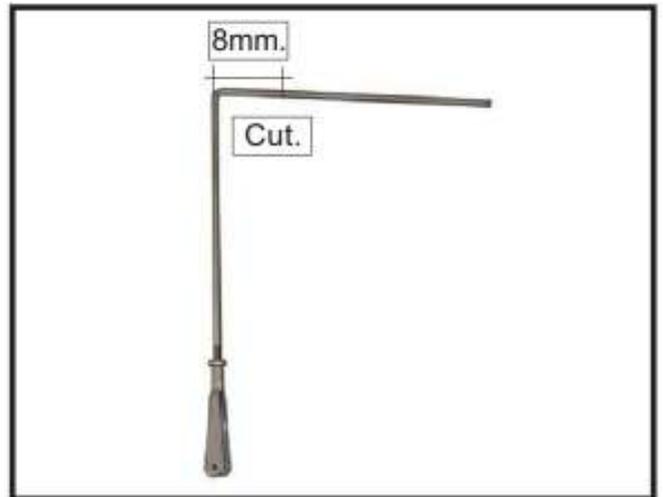


- Mark the control wire where it crosses the servo arm hole.

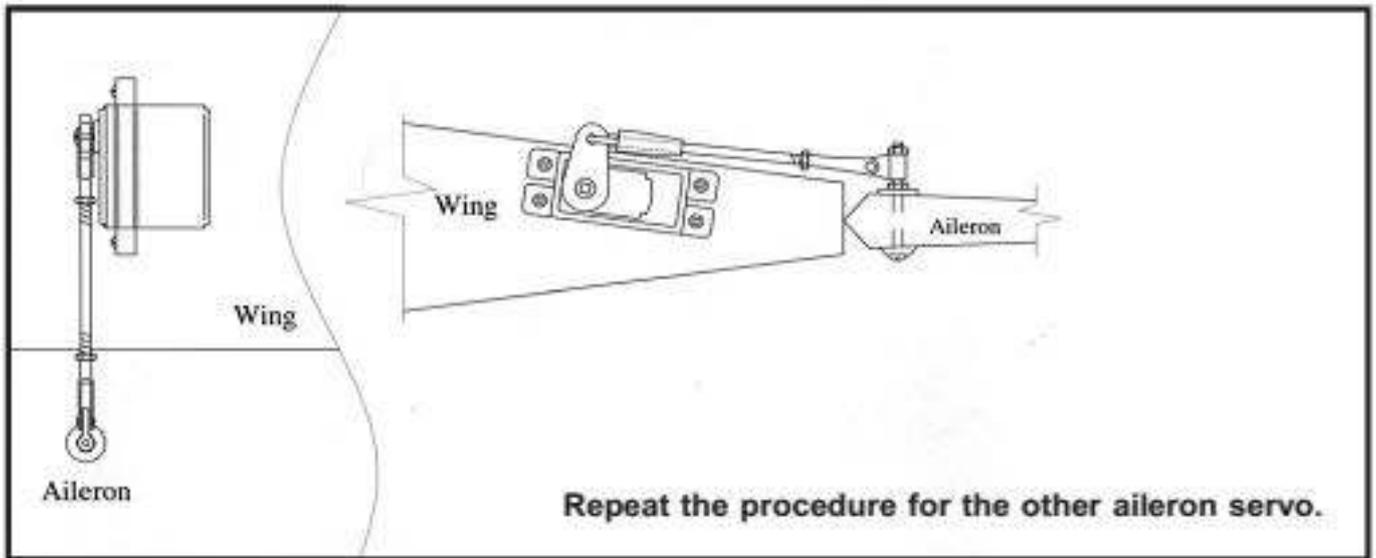
2.



3.

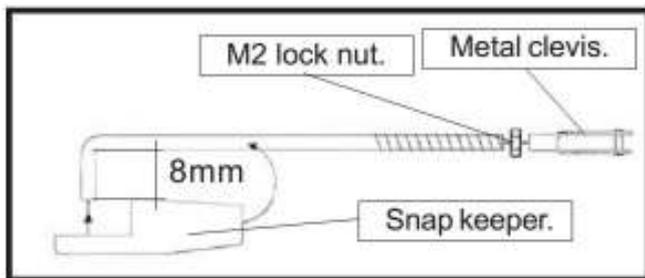


4.

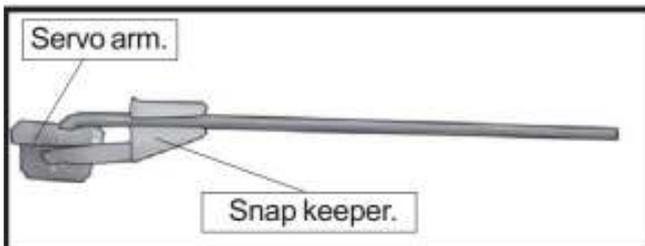


- Make a 90-degree bend at the mark and cut off the excess wire leaving 8mm past the bend.

5.

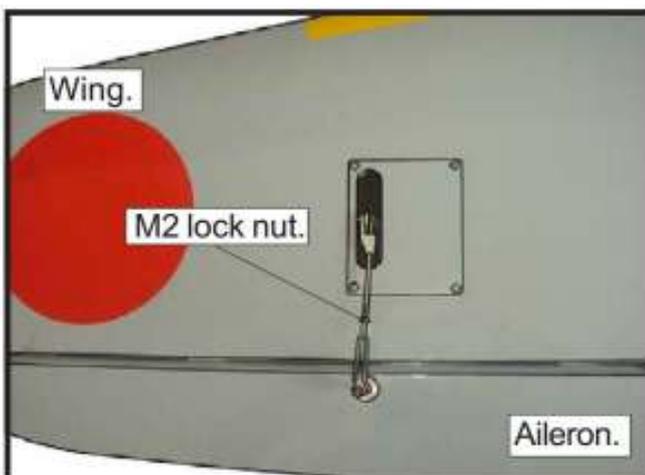


6.



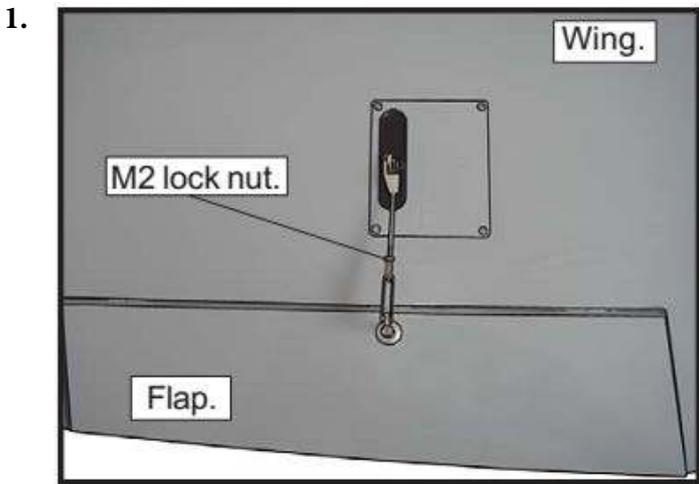
- Connect the linkage as shown and secure the control wire with a snap keeper.

7.



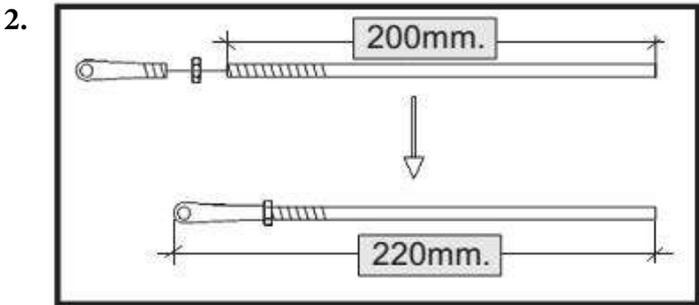
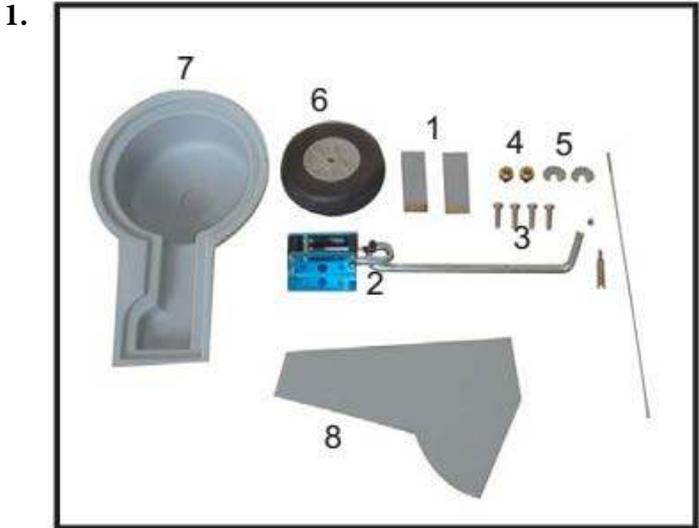
INSTALLING THE FLAP PUSHROD

- Repeat the procedure for the aileron pushrod.

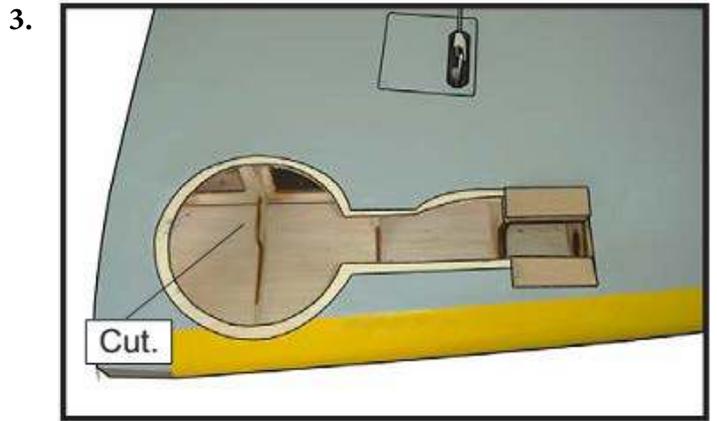


INSTALLING RETRACTABLE LANDING GEAR

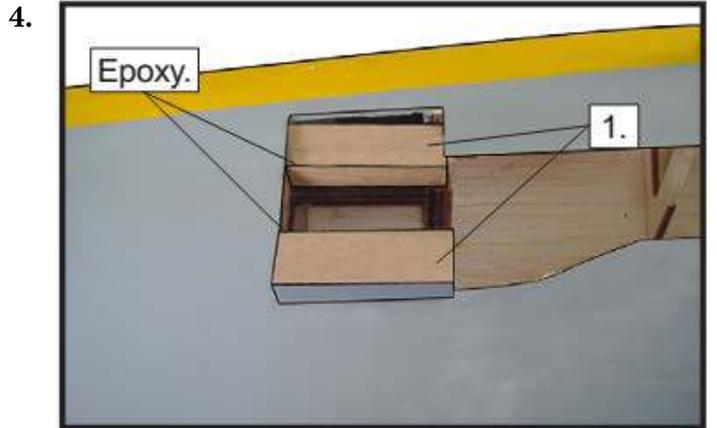
- Locate the items necessary to install the retractable landing gear as shown.



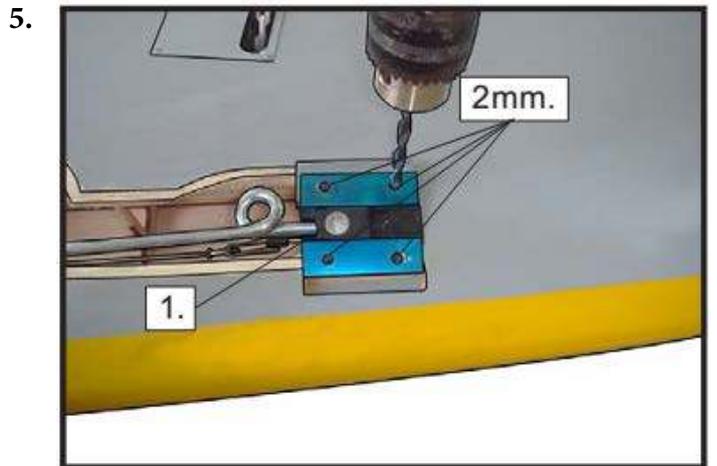
- Cut the covering from the bottom of the wing for retracts landing gear installation.

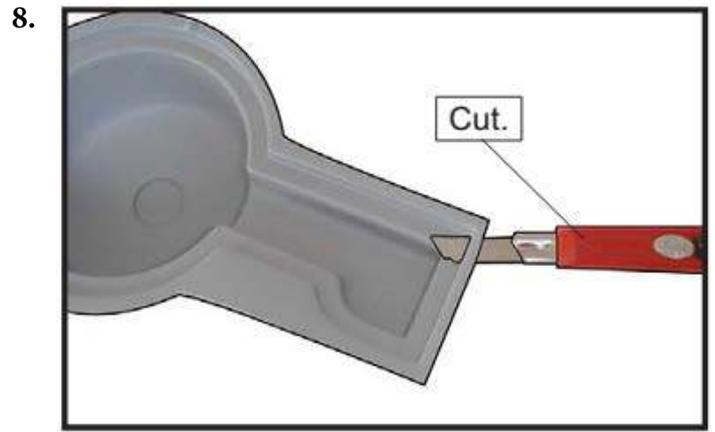
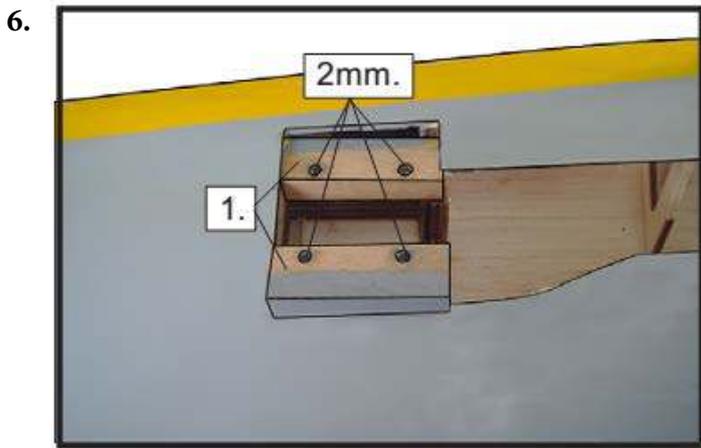


- Glue hardwood mounting blocks into the wing as show with epoxy.

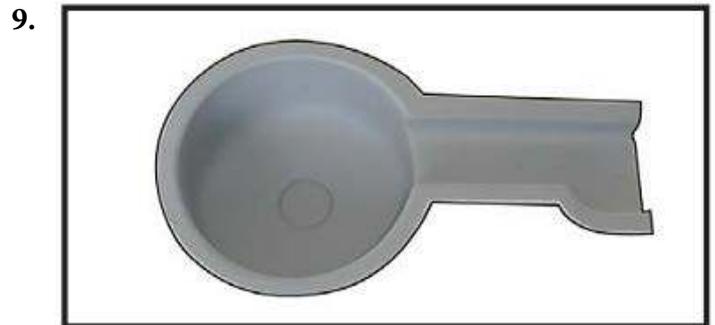
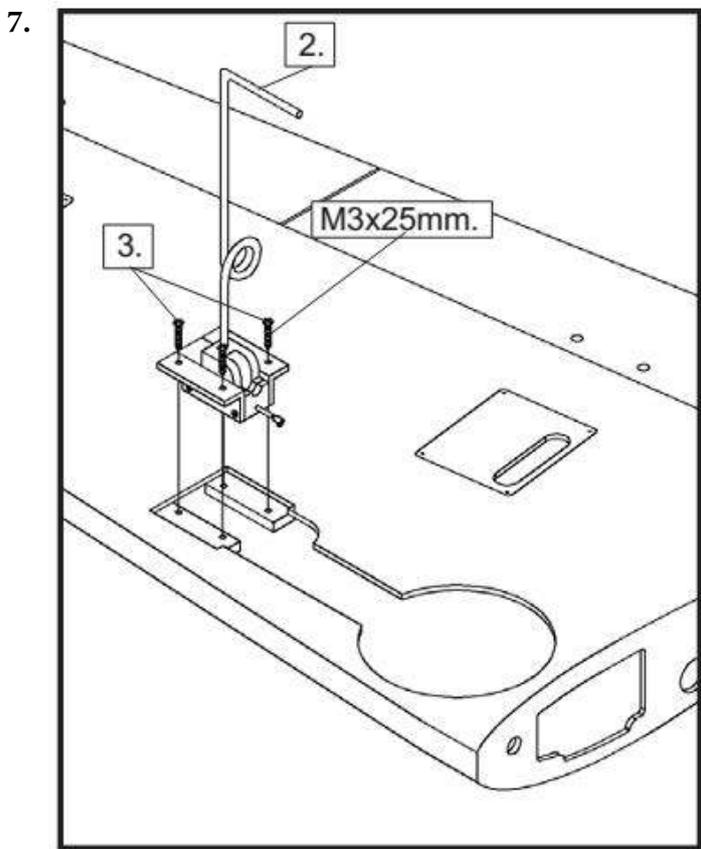


- Position the landing gear onto the landing gear rails. Mark the location of the holes for mouting the landing gear.



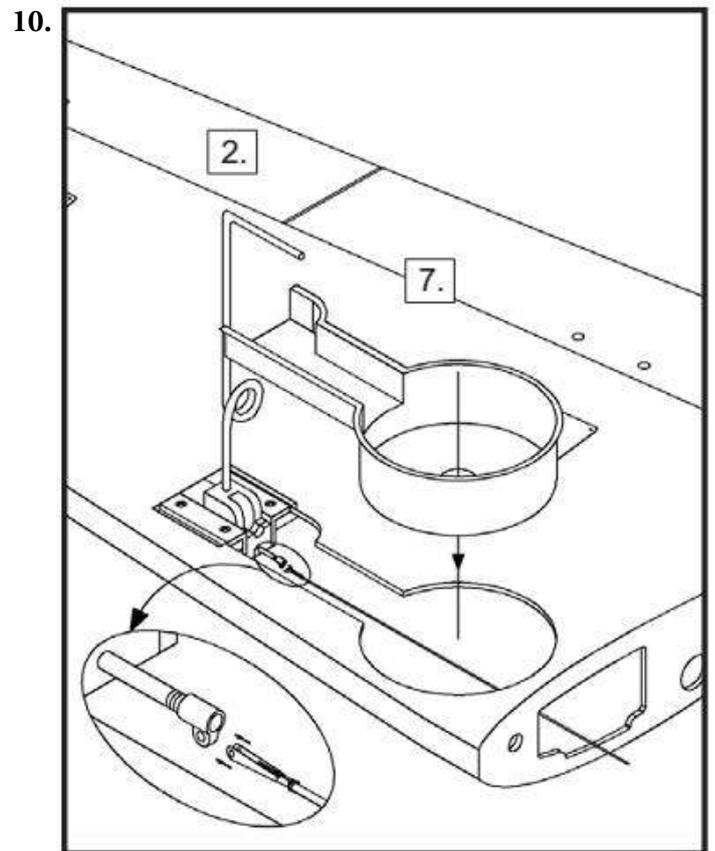


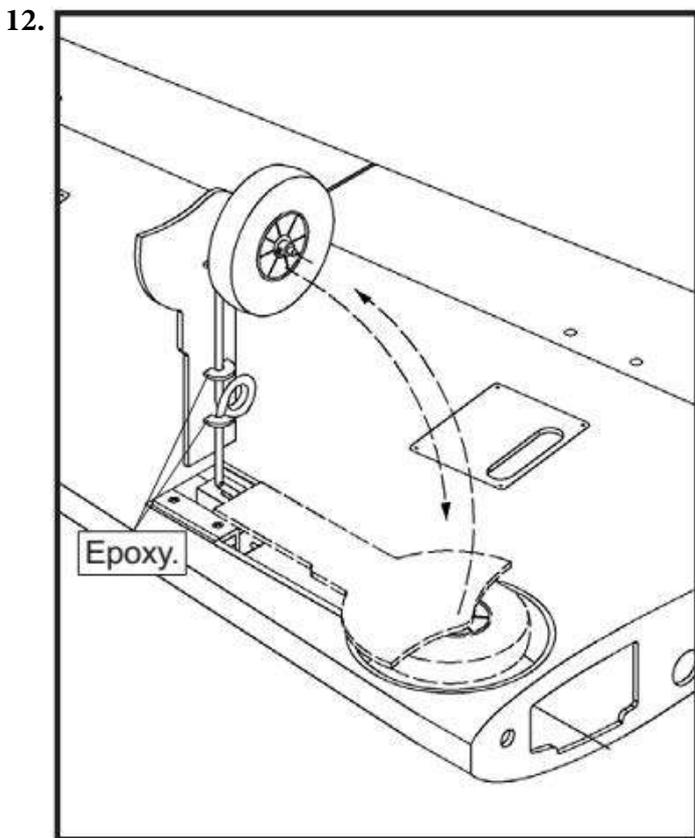
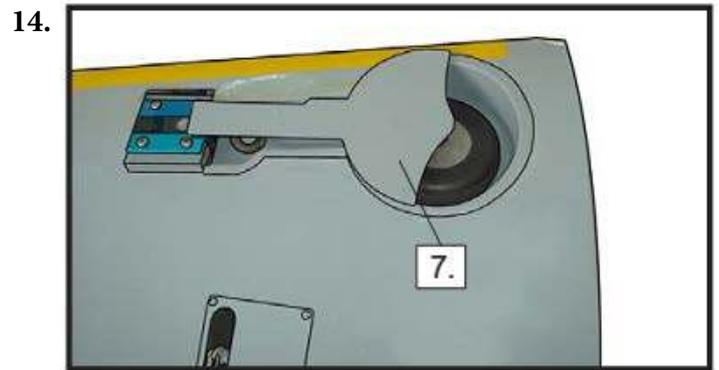
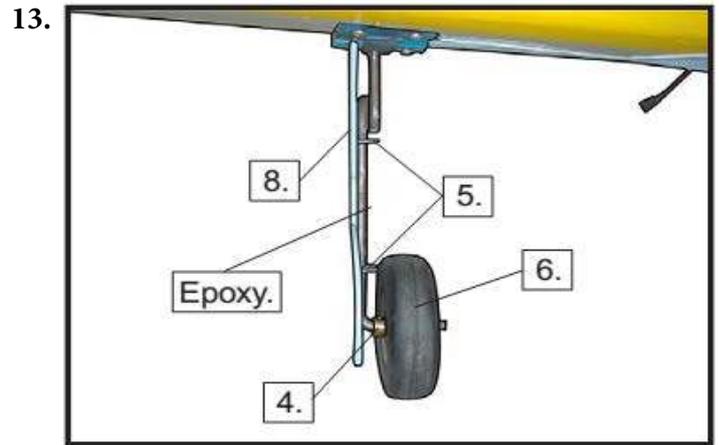
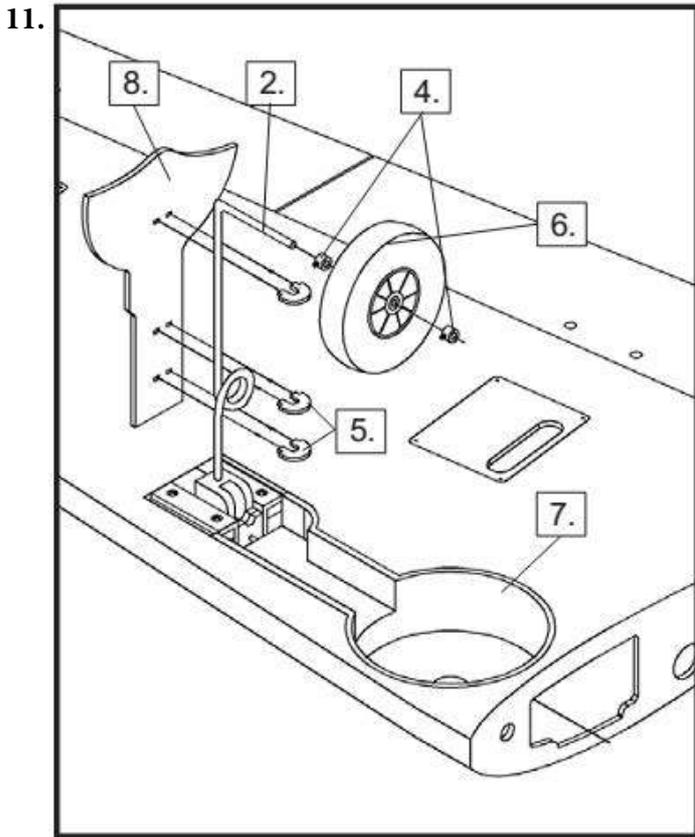
- Install the linkage into the connector on the end of the retract unit as shown. Mounting the landing gear to the rail with four M3x 2.5mm.



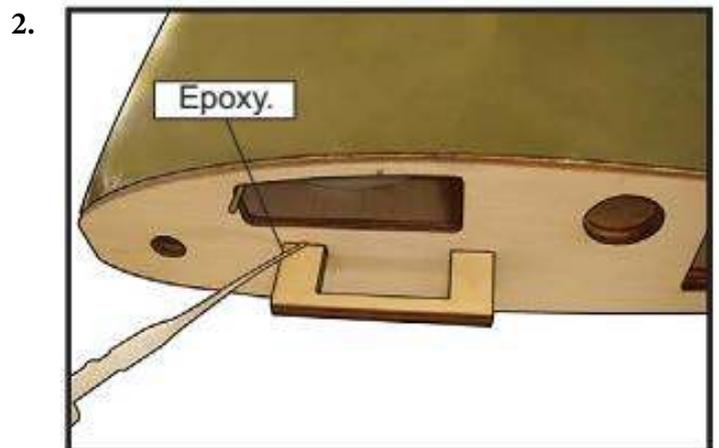
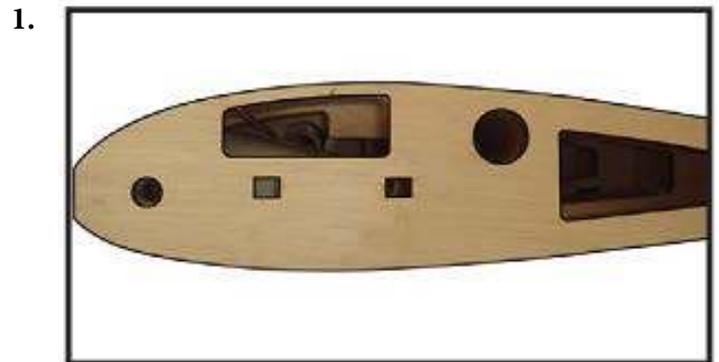
- Install a wheel and two wheel collars on the main landing gear. Secure the collars.

- Install the wheel wells after adjusting the retracts. Roughen the bottom side of the well and glue the wells using C/A glue as shown.

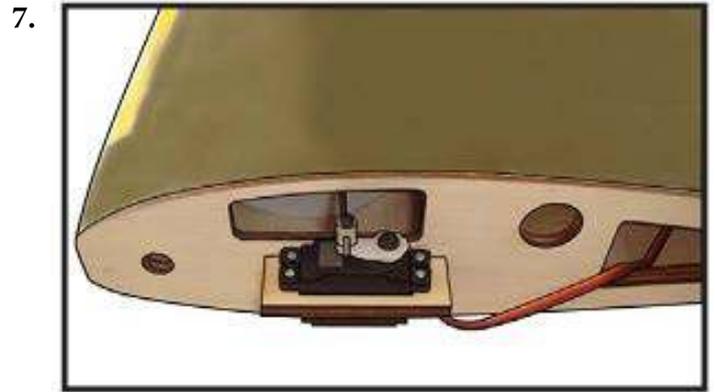
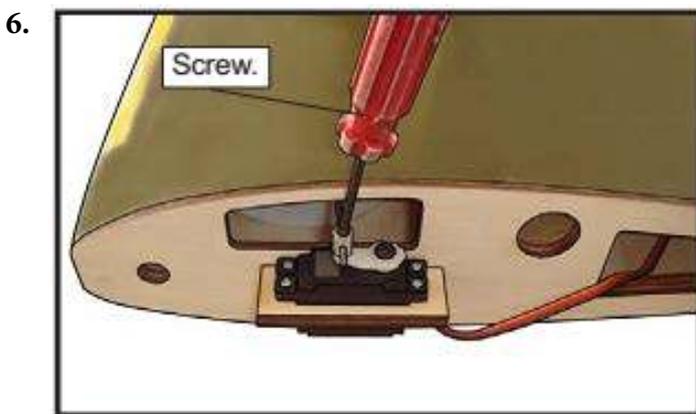
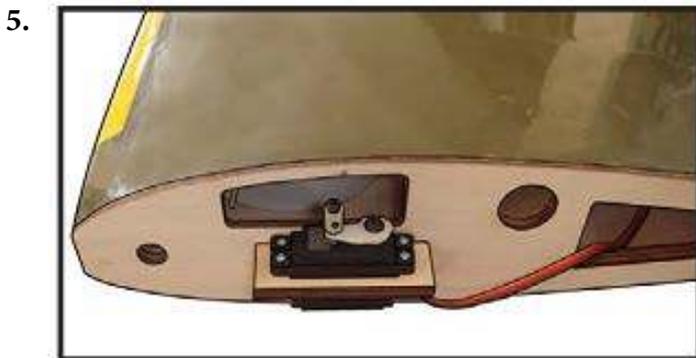
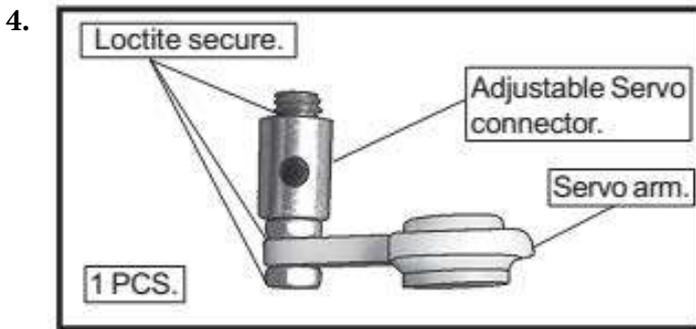




SERVO GEAR 4.5KG (35X16X30MM)



- Install the gear door to the retract strut. Apply a thin epoxy to the two gear door brackets to secure the gear door to the retract strut as shown.

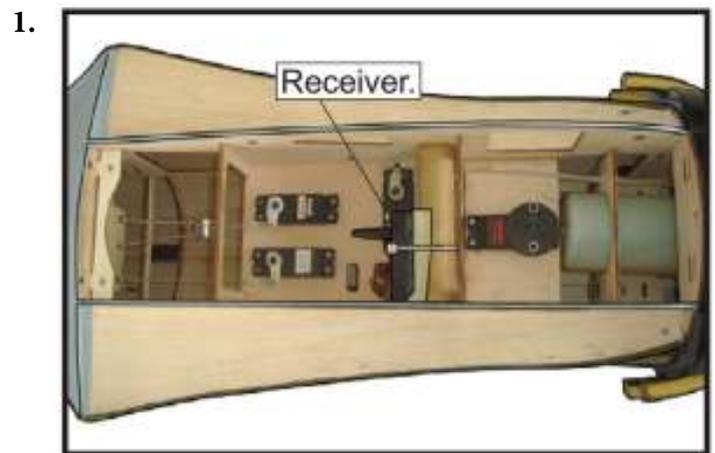


INSTALLING RECEIVER

- Plug the five servo leads and the switch lead into the receiver. Plug the battery pack ead into the switch also.

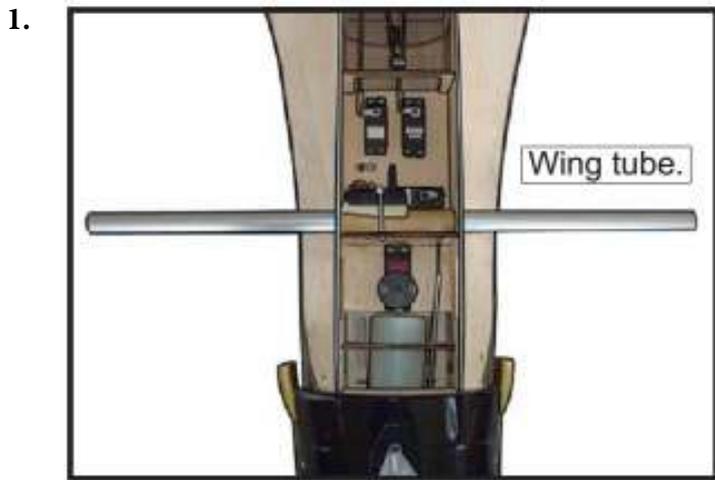
- Wrap the receiver and battery pack in the protective foam rubber to protect them from vibration.

- Route the antenna in the antenna tube inside the fuselage and secure it to the bot tom of fuselage using a plastic tape.

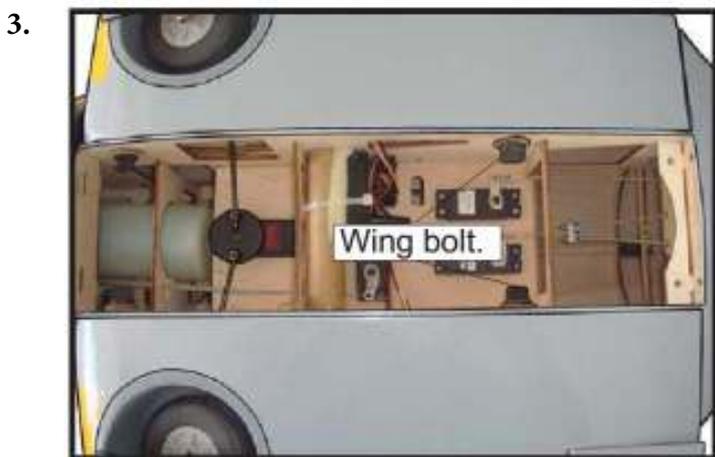
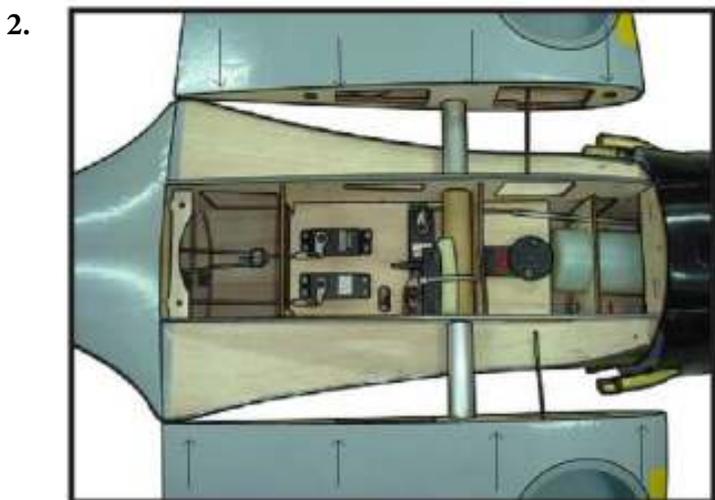


ATTACHMENT WING-FUSELAGE

- Attach the aluminium tube into fuselage.

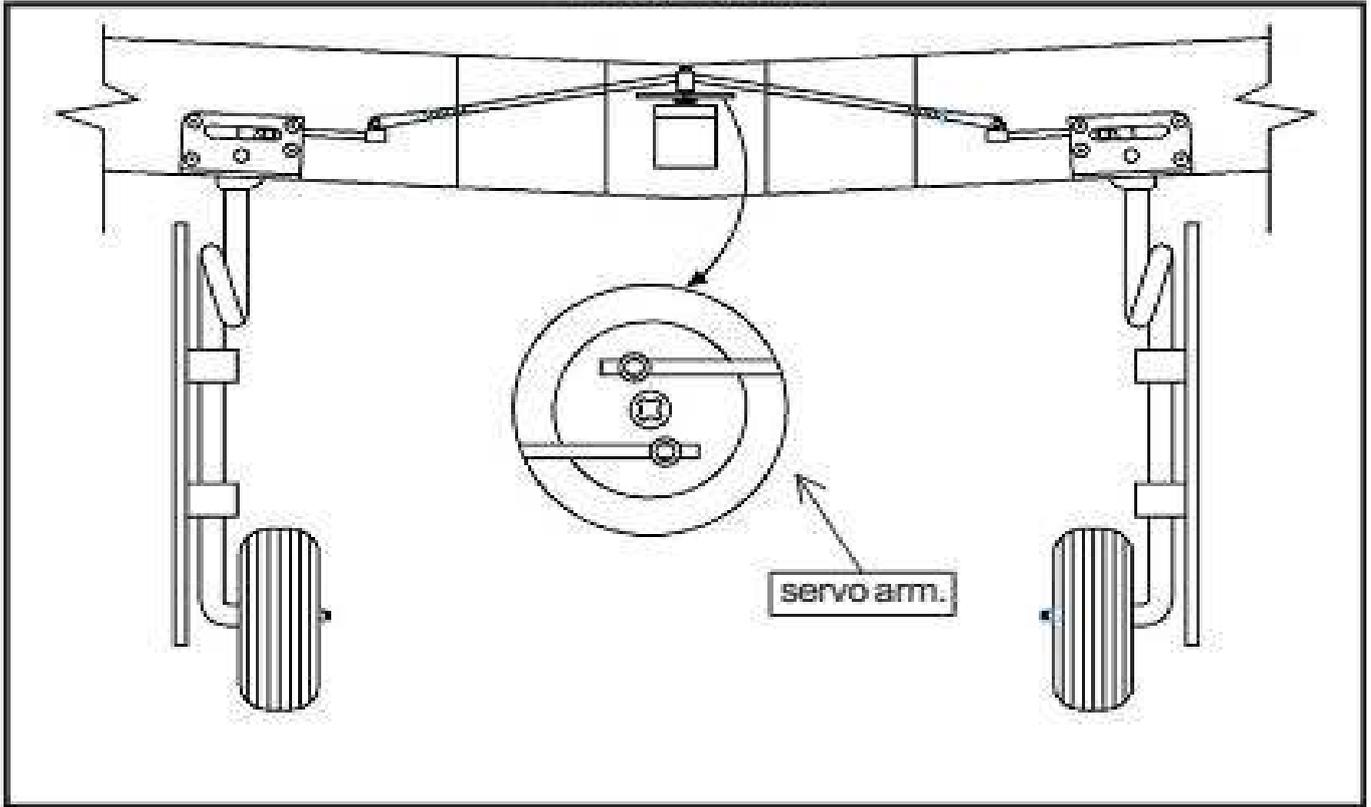


Insert two wing panels as pictures below.



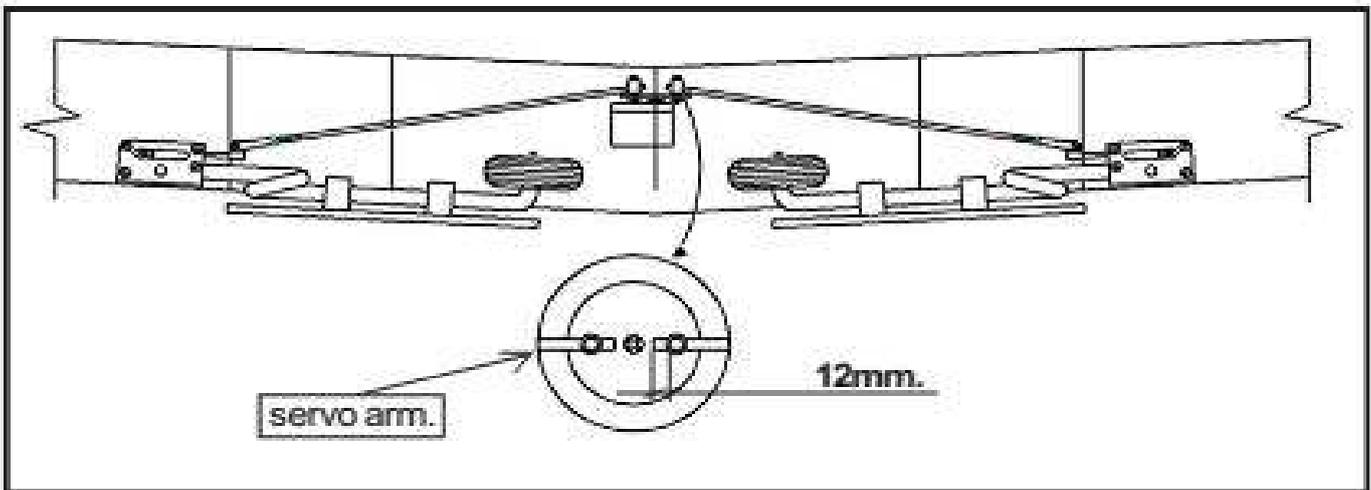
Open Position.

5.

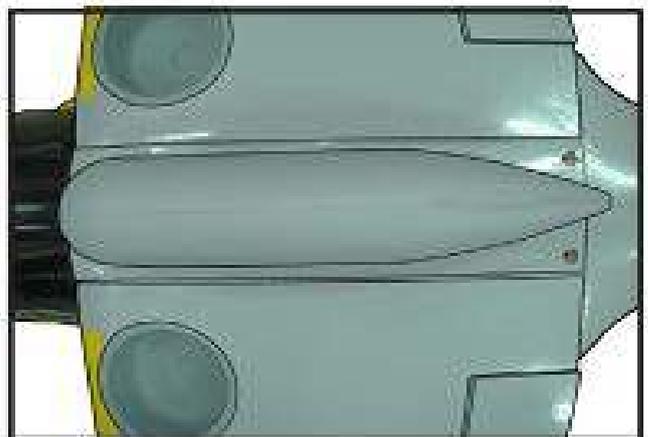


Close Position.

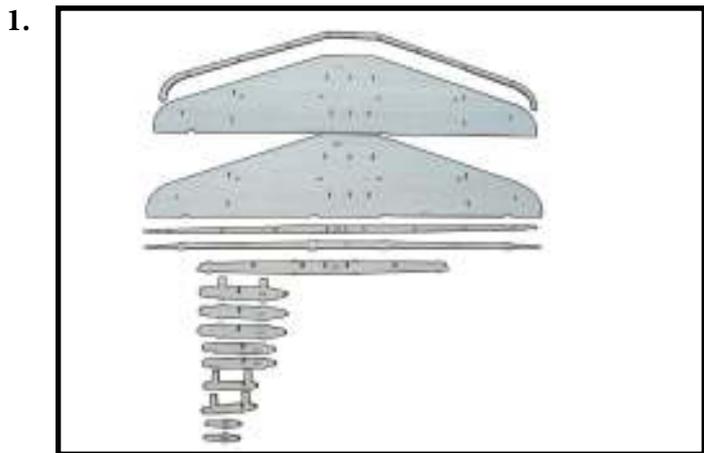
6.



8.



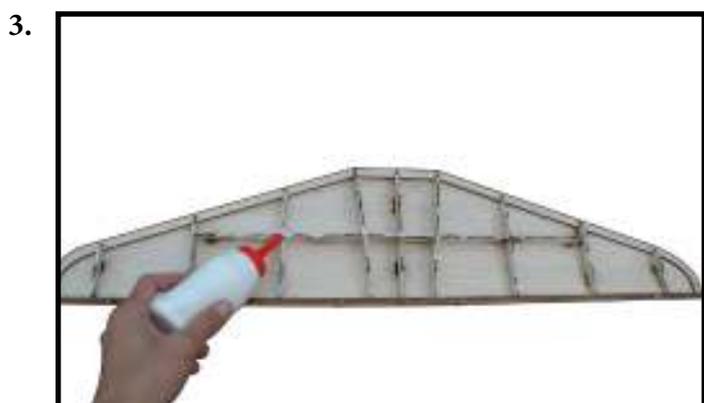
BUILD THE HORIZONTAL STABILIZER



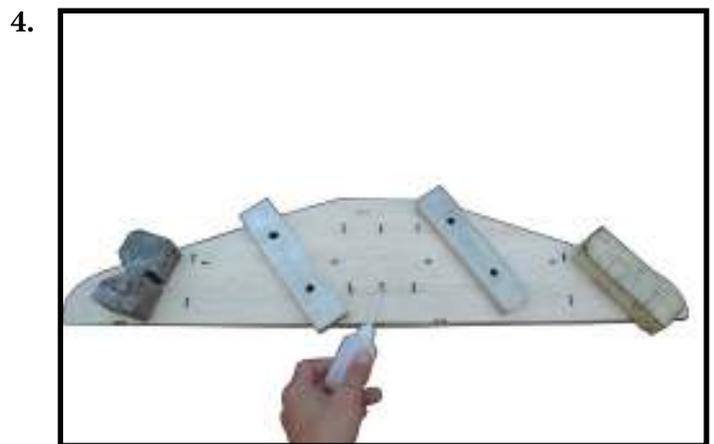
- Getting prepare the horizontal stab as photo.



- Install the frame of stabilizer by CA glue.



- Fill White Glue on the ribs and then cover the sheet ST1 (2pcs) for two side of horizontal stabilizer.



- Hold the sheet down with weights while the glue dries.



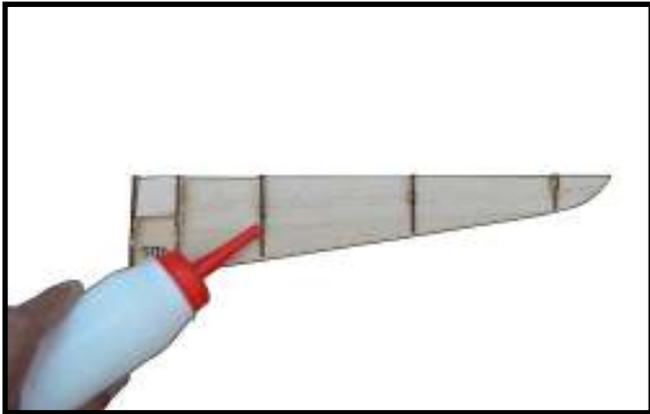
- Use sandpaper to sanding around the horizontal stab.

BUILD THE ELEVATOR



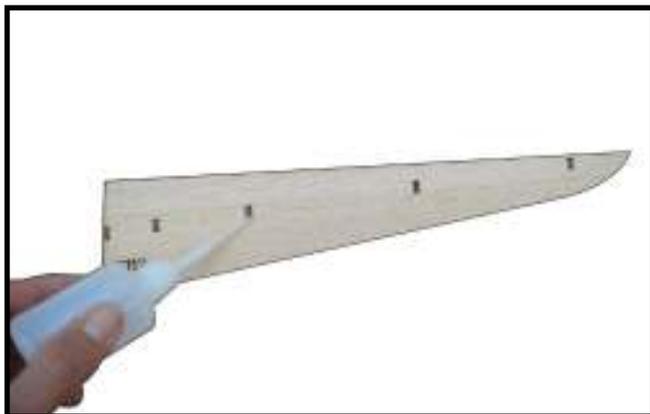
- Getting prepare a set of elevator include triangle 5. bar (1 pcs), the sheet ST16 and ST17, the ribs ST11, ST12, ST13, ST14, ST15, the ring ST19, and 8mm balsa block (1pcs) for supporting control horn.

2.



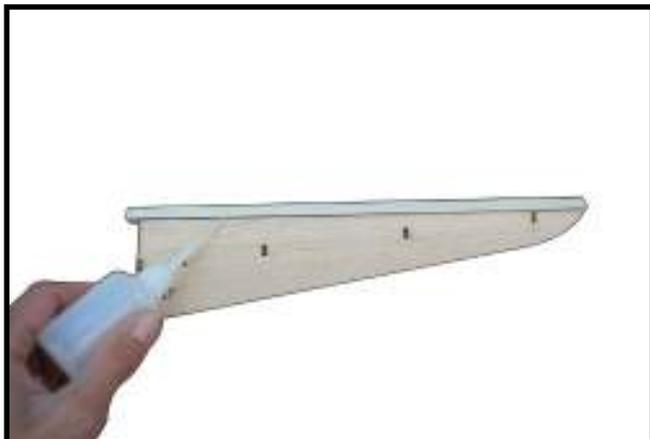
- Install the frame of elevator by Ca glue, add more white glue inside at all ribs.

3.

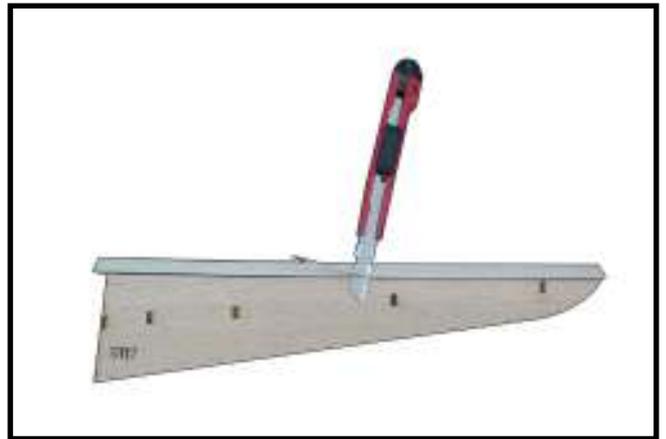


- Add thin CA glue at all tab outside.

4.



- Paste triangle bar by CA glue.



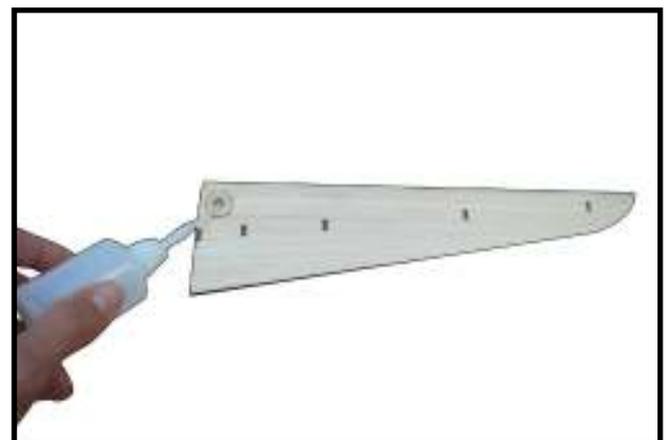
- Use cutter knife to chamfer redundancy wood.

6.

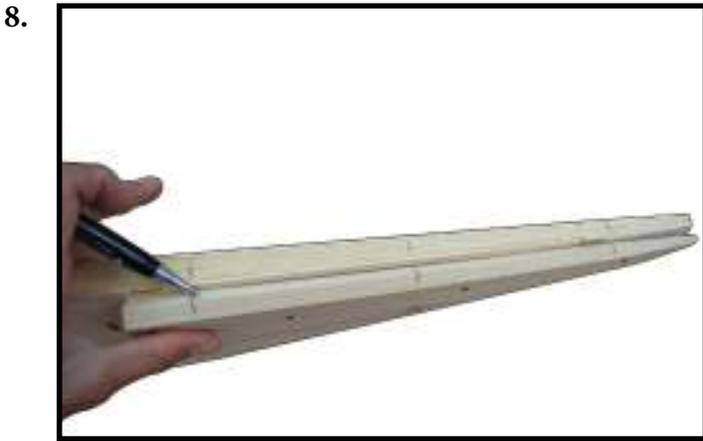


- Use sandpaper bar to sanding surface of elevator.

7.



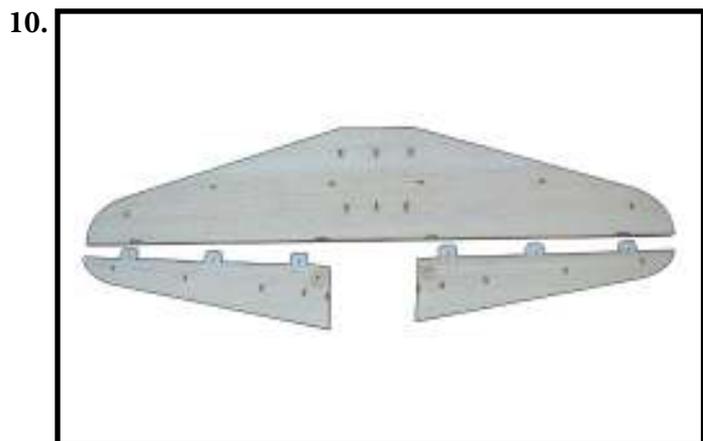
- Install the ring ST19 by CA glue at position of control horn.



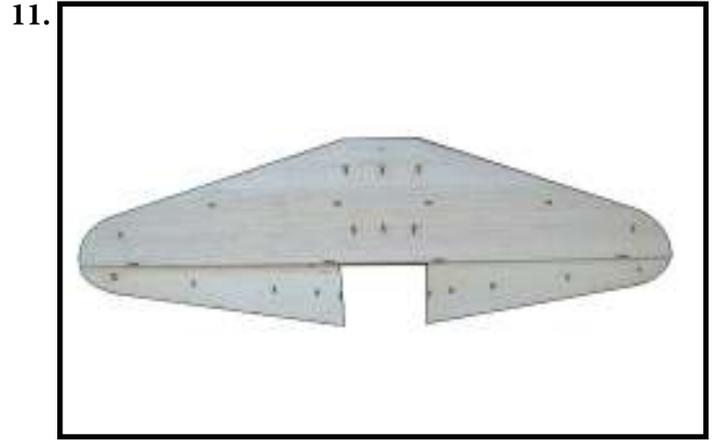
- Use the pen to take the mark for the hinge of elevator.



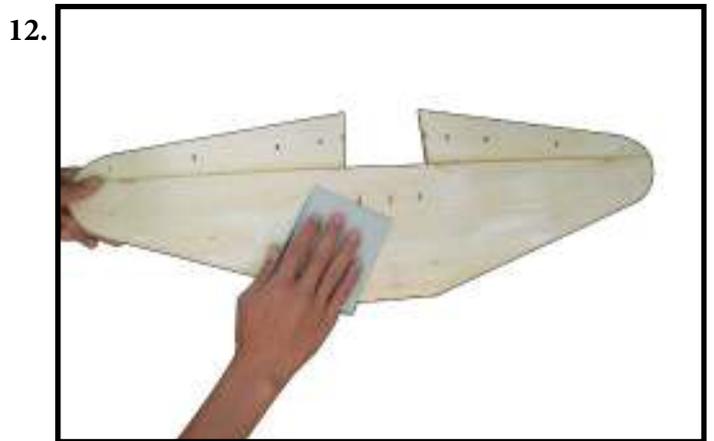
- Use cutter knife to cut a line for the hinge on the horizontal stab and elevator.



- Install the paper hinge (6pcs) for both left elevator and right elevator.



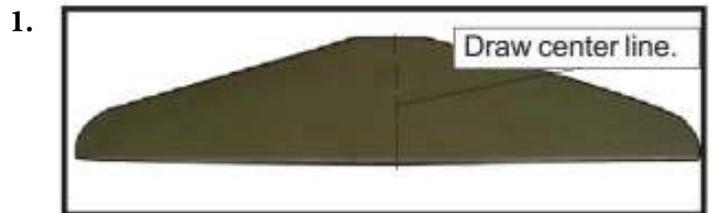
- Finished for the installing elevator.



- Use sandpaper to sanding the set of horizontal stab and elevator for smoothing the surface.

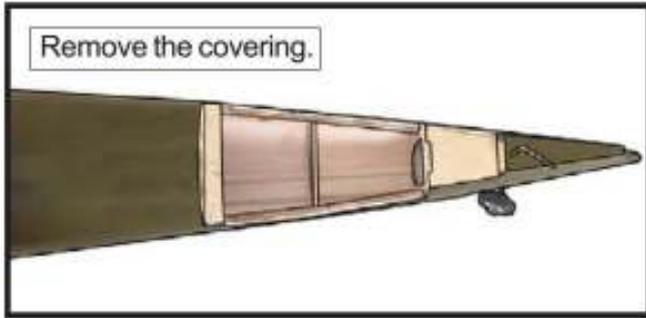
INSTALLING THE HORIZONTAL STABILIZER

- Using a ruler and a pen, locate the centerline of the horizontal stabilizer, at the trailing edge, and place a mark. Use a triangle and extend this mark, from back to front, across the top of the stabilizer. Also extend this mark down the back of the trailing edge of the stabilizer.



- Using a modeling knife, carefully remove the covering at mounting slot of horizontal stabilizer.

2.



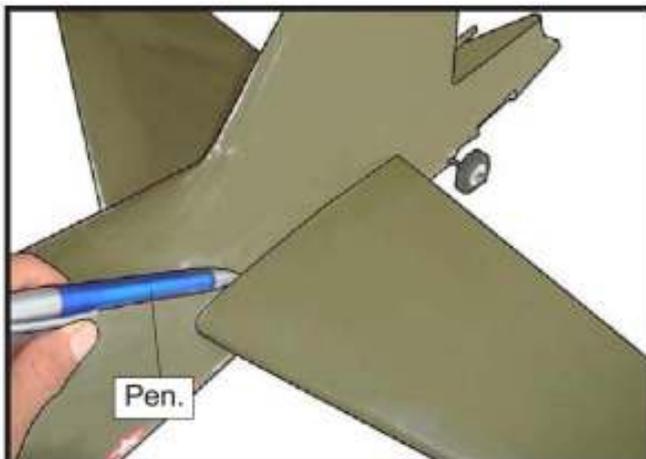
- Put the stabilizer into place in the position of the fuselage.

- Install the stabilizer onto the fuselage. Align the centerline drawn on the top and the rear of the stabilizer with the centre of the fuselage. When that is aligned, hold the stabilizer in that position using T-pins or masking tape. Align the horizontal stabilizer with the wing. When viewed from the rear, the horizontal stabilizer should be level with the wing. If it is not level, use sandpaper and sand down the high side of the stabilizer mounting platform until the proper alignment is achieved. The tips of the stabilizer should also be equal distance from the tips of the wing.

- When you are satisfied with the alignment, hold the stabilizer in place with T-pins or masking tape, but do not glue at this time.

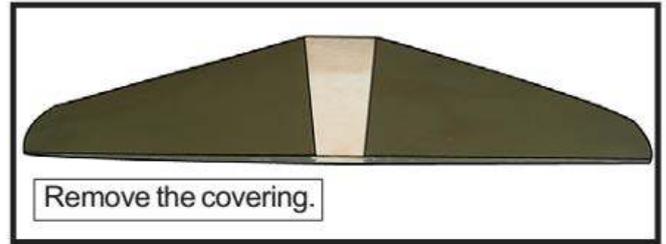
- With the stabilizer held firmly in place, use a pen and draw lines onto the stabilizer where it and the fuselage sides meet. Do this on both the right and left sides and top and bottom of the stabilizer.

3.



- Remove the stabilizer. Using the lines you just drew as a guide, carefully remove the covering from between them using a modeling knife.

4.

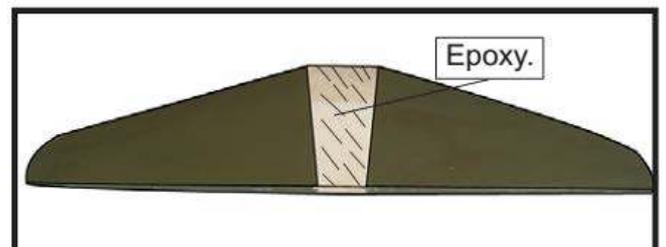


When cutting through the covering to remove it, cut with only enough pressure to only cut through the covering itself. Cutting into the balsa structure may weaken it.

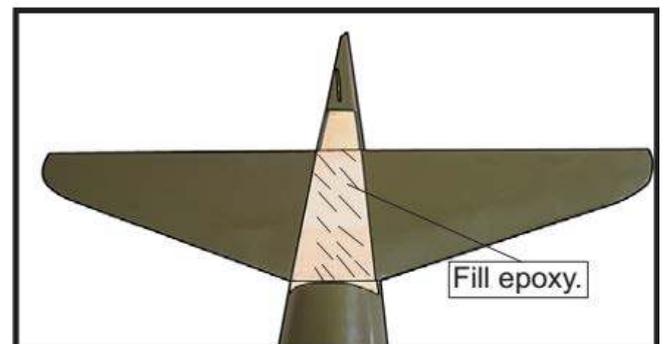
- Using a modeling knife, carefully remove the covering that overlaps the stabilizer mounting platform sides in the fuselage. Remove the covering from both the top and the bottom of the platform sides.

- When you are sure that everything is aligned correctly, mix up a generous amount of 30 Minute Epoxy. Apply a thin layer to the bottom of the stabilizer mounting area and to the stabilizer mounting platform sides in the fuselage. Putting the stabilizer in place and realign. Double check all of your measurements once more before the epoxy cures. Hold the stabilizer in place with T-pins or masking tape and remove any excess epoxy using a paper towel and rubbing alcohol.

5.



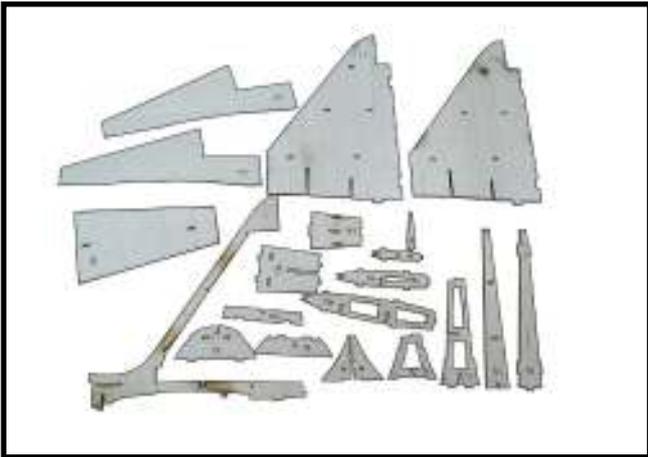
6.



- After the epoxy has fully cured, remove the masking tape or T-pins used to hold the stabilizer in place. Carefully inspect the glue joints. Use more epoxy to fill in any gaps that may exist that were not filled previously and clean up the excess using a paper towel and rubbing alcohol.

BUILD THE RUDDER AND FIN

1.



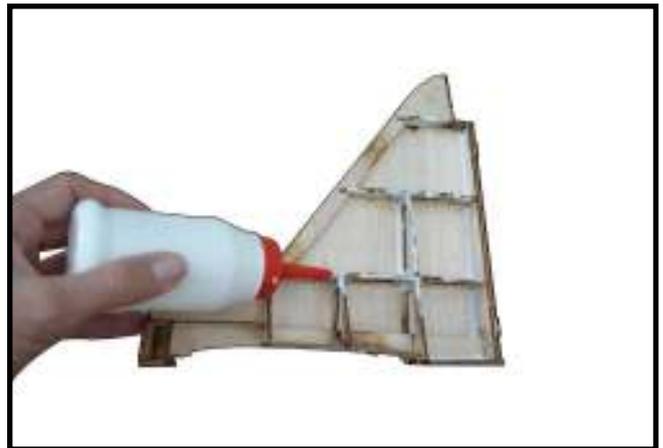
- Getting prepare set of rudder as photo.

2.



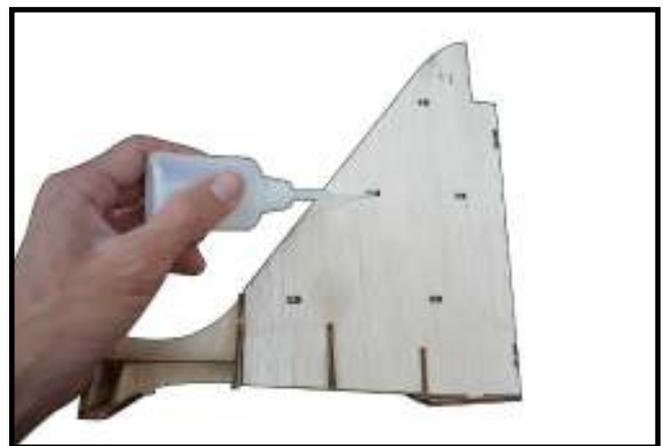
- Install frame of the rudder by CA glue as photo.

3.



- Add the white glue at all the ribs of rudder to covering the sheet T1 (2pcs) for two side.

4.



- Add thin CA glue at the tab outside the sheet.

5.



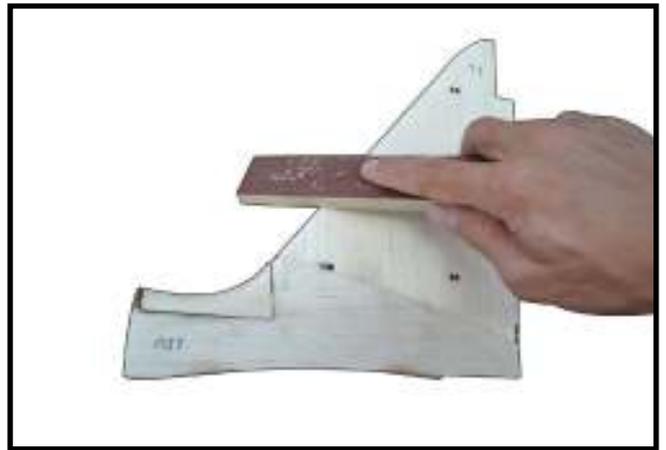
- Corvering the sheet T16 (2pcs) for two side.

6.



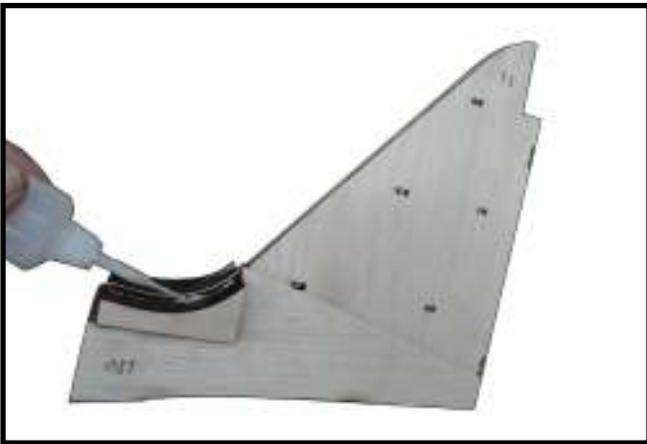
- Add thin CA glue outside the sheet.

9.



- Use sandpaper bar to sanding surface of rudder.

7.



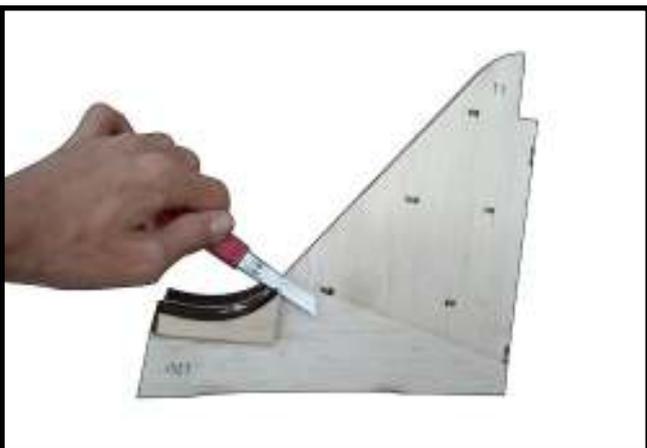
- Install 6mm balsa sheet (6pcs) T21 by CA glue as photo.

10.



- Getting prepare balsa stick 3mm x 8mm (2pcs).

8.

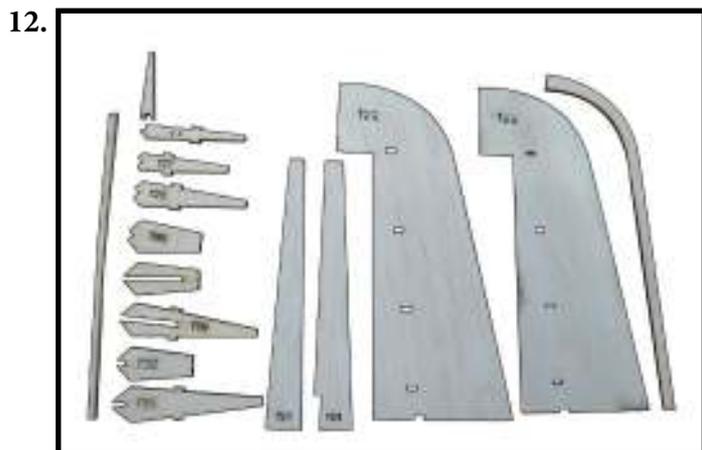


- Use cutter knife to chamfer redundancy wood.

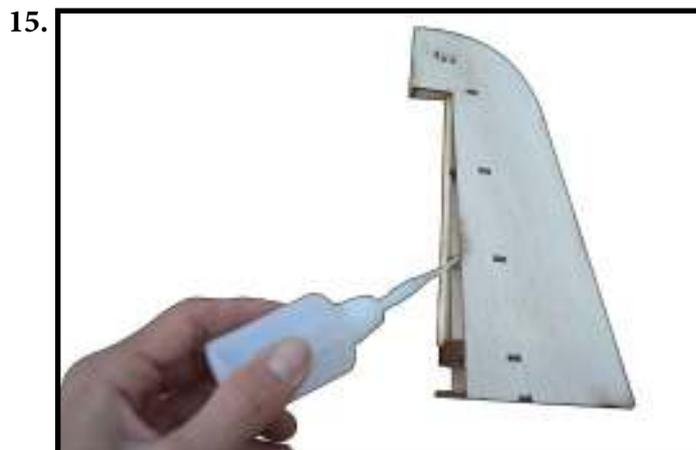
11.



- Paste 3mmx8mm balsa stick under rudder by CA glue as photo.



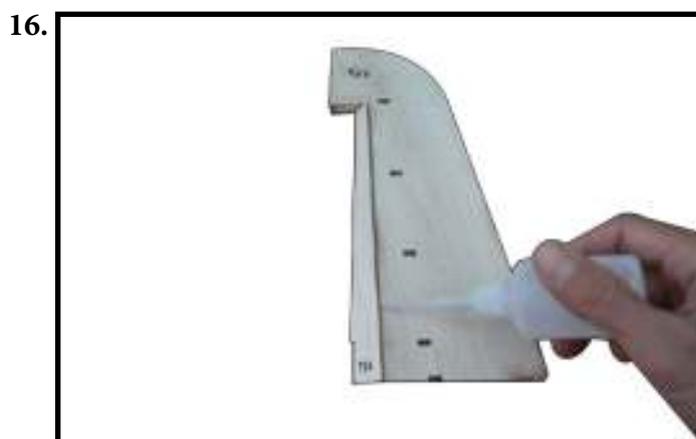
- Getting prepare set of fin as photo.



- Add thin CA glue at the tab outside the sheet.



- Install the fin by CA glue as photo.



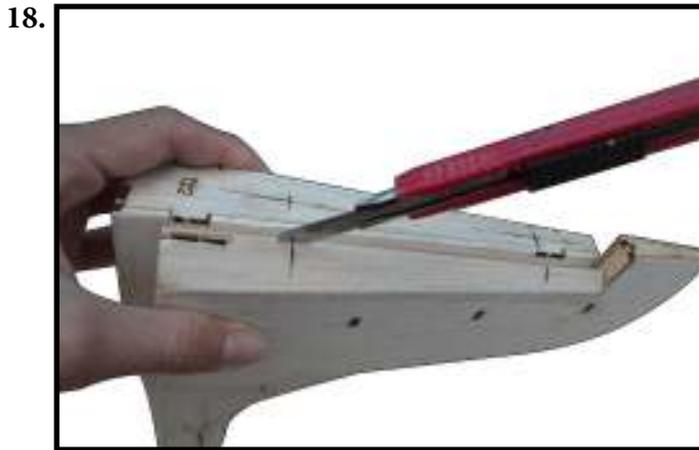
- Covering the sheet T23 and T24 for two side by CA glue.



- Add the white glue at all the ribs of fin to cover the sheet T35 (2pcs) for two side.



- Use the pen to take the mark for the hinge of fin.



- Use cutter knife to cut a line for the hinge on the rudder and fin.



- Use sandpaper to sanding the set of rudder and fin for smoothing the surface.

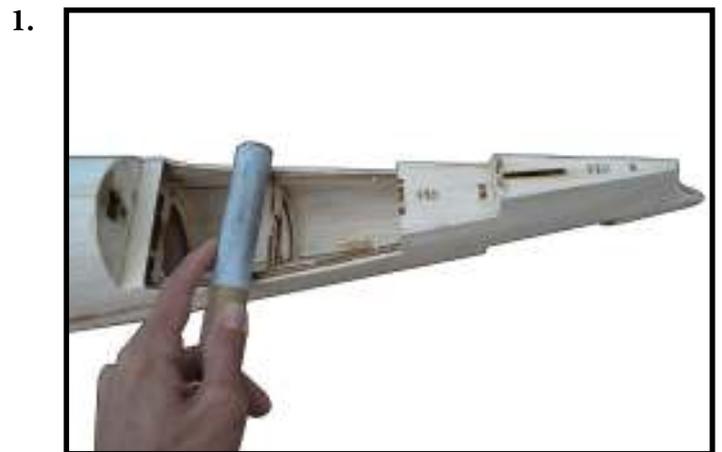


- Install the paper hinge (2pcs) for rudder.



- Finished for the installing rudder and fin.

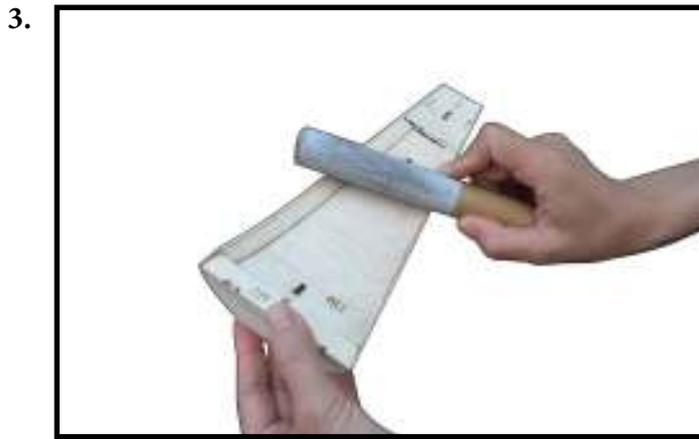
SET UP THE FUSELAGE, THE HORIZONTAL STAB, THE RUDDER FOR THE KIT



- Use sandpaper tube for sanding the area where install horizontal stabilizer.



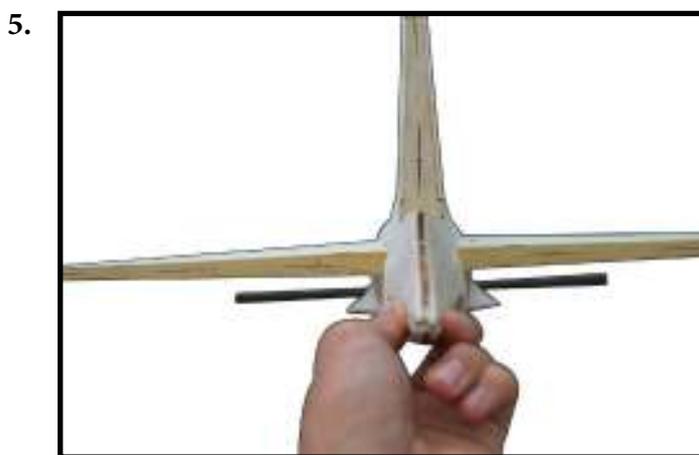
- Install the horizontal stab to the fuselage.



- Using sandpaper tube to sanding rudder so that fitting to the horizontal stab.



- Install the rudder to the fuselage.

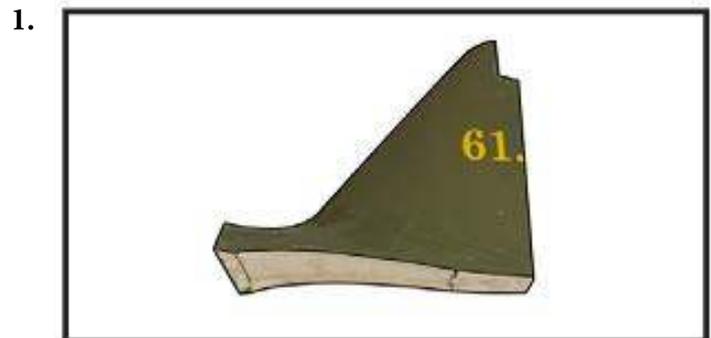


- Install the wing tube to the fuselage and then adjust until stabilizer and wing tube parallel together from view rear of fuselage.

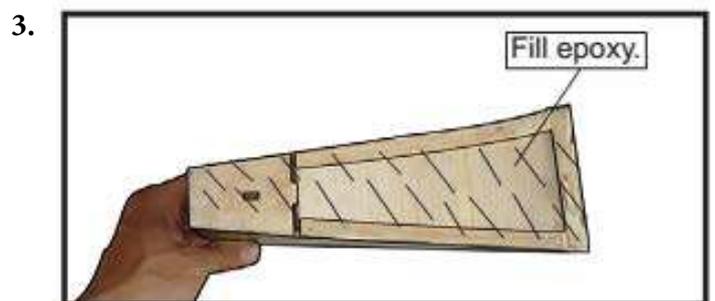
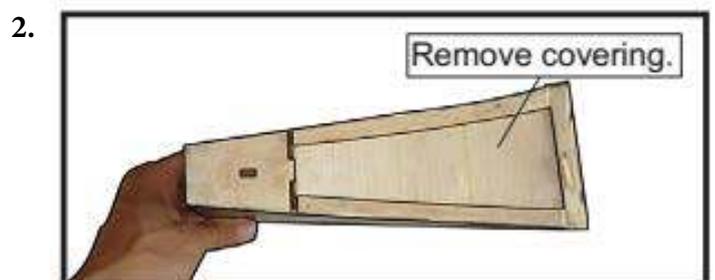


- Install both left wing, right wing and then adjust stabilizer and wing until they parallel absolutely.

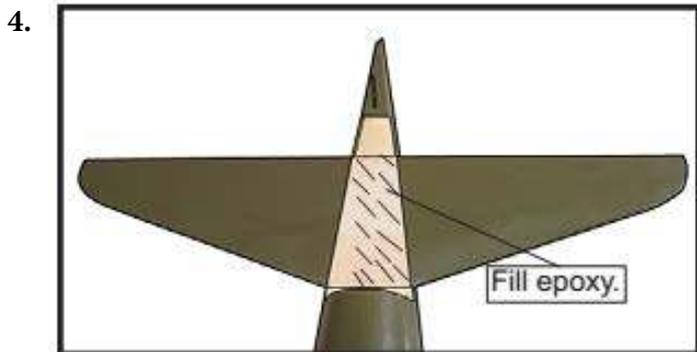
INSTALLING VERTICAL STABILIZER



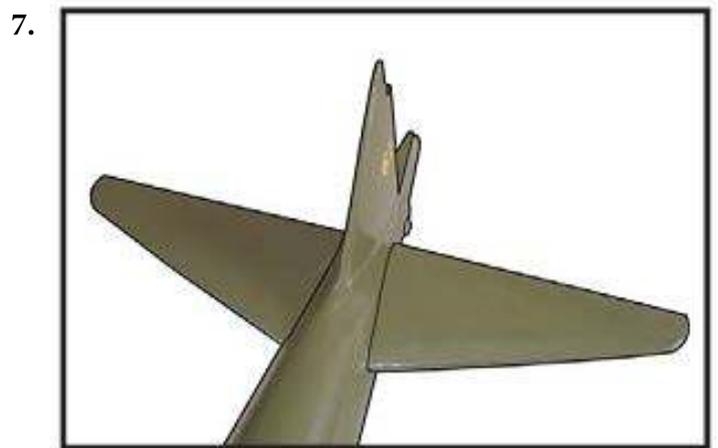
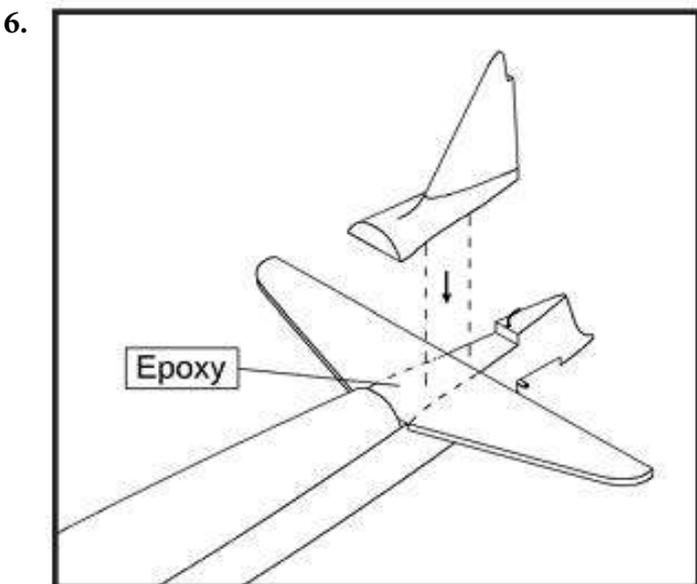
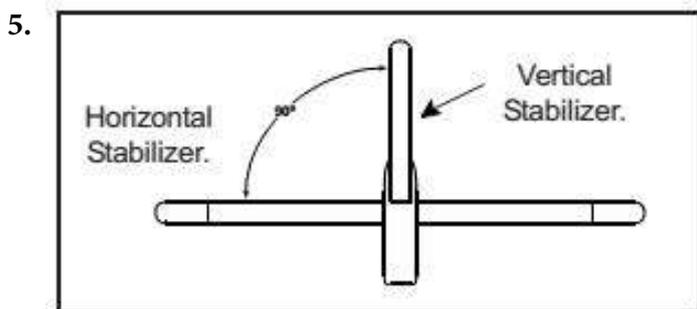
- Using a modeling knife, remove the covering from over the precut hinge slot cut into the lower rear portion of the fuselage.



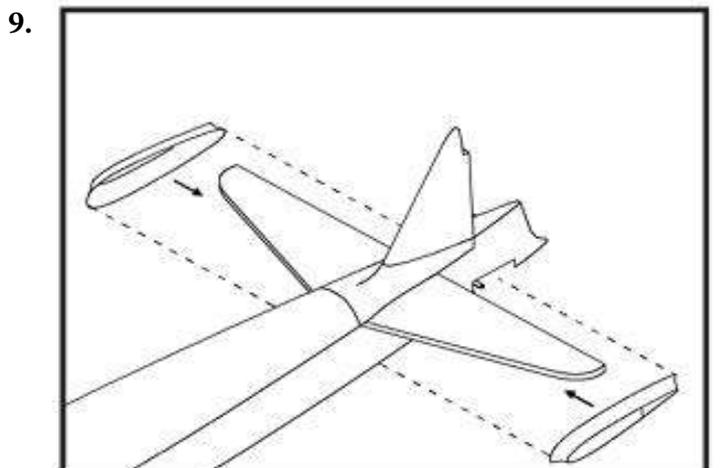
- While holding the vertical stabilizer firmly in place, use a pen and draw a line on each side of the vertical stabilizer where it meets the top of the fuselage.

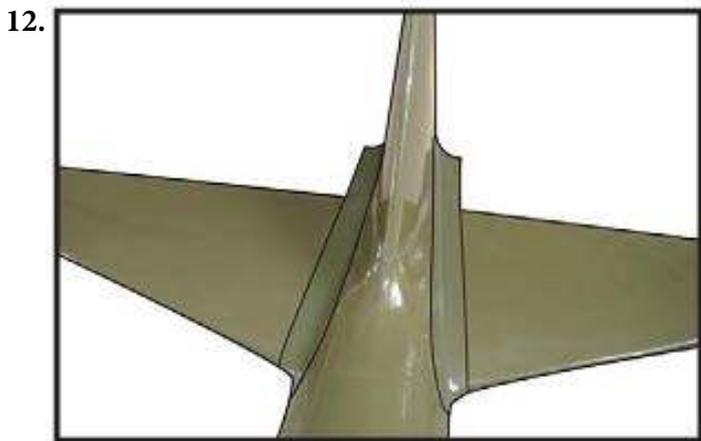
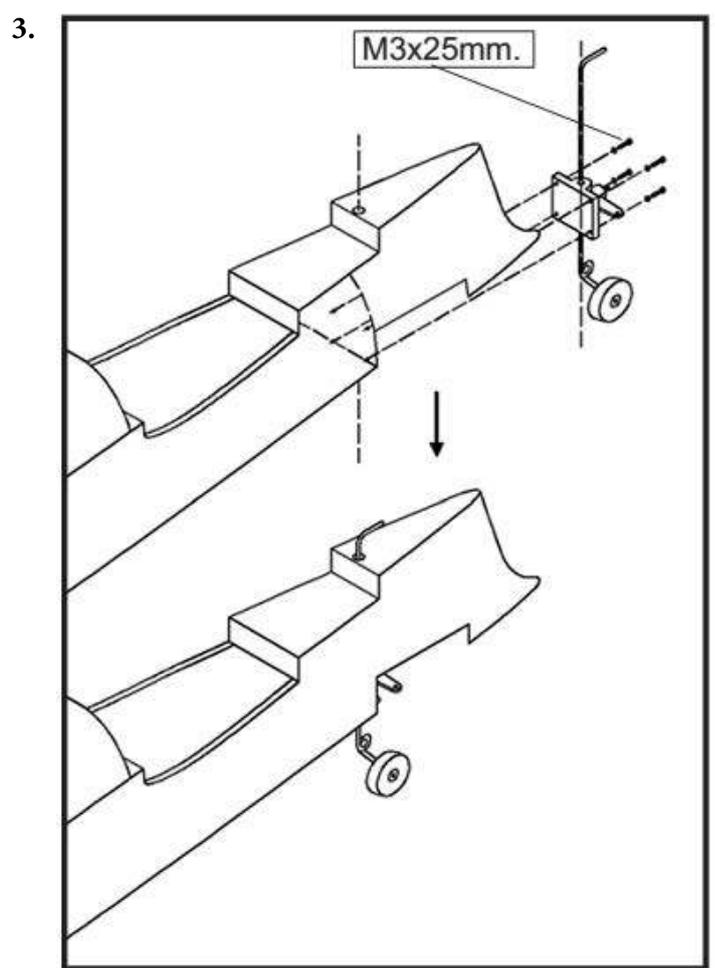
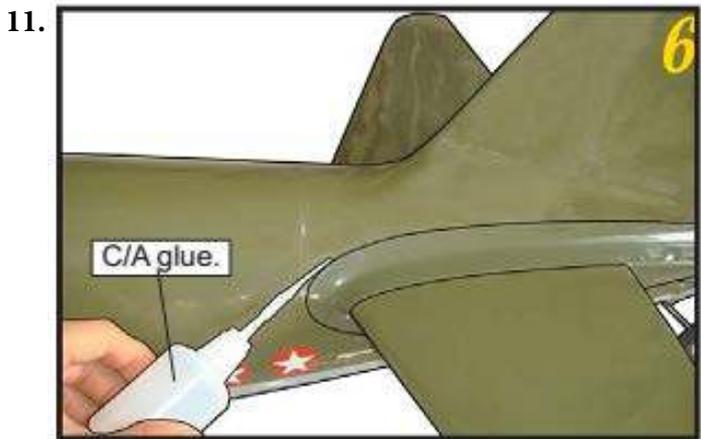
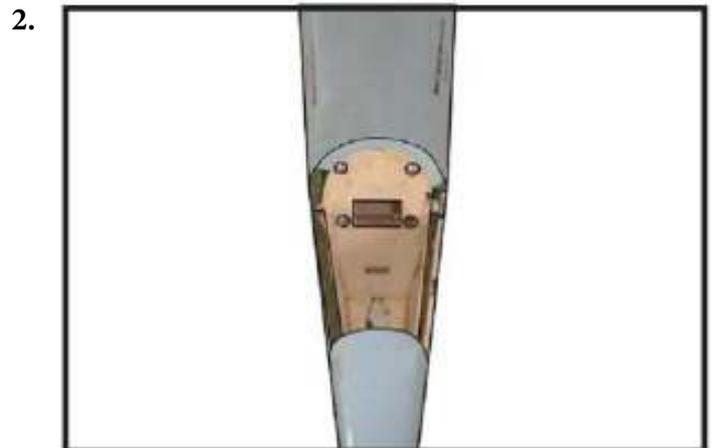
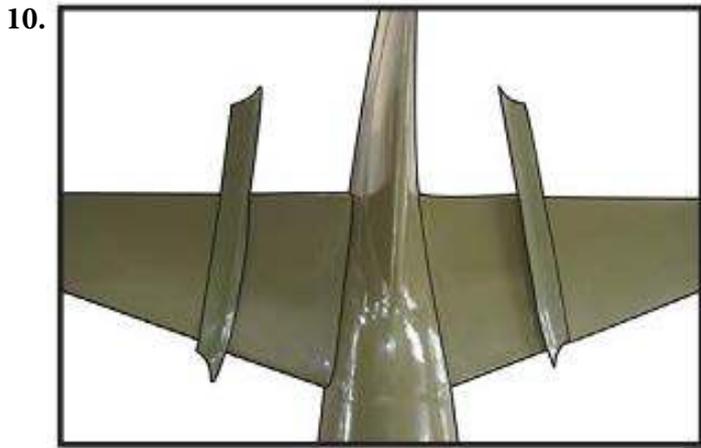


- Slide the vertical stabilizer back in place. Using a triangle, check to ensure that the vertical stabilizer is aligned 90° to the horizontal stabilizer.



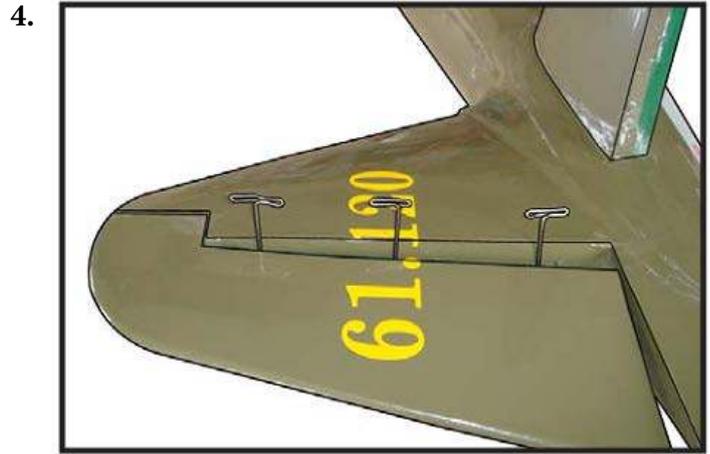
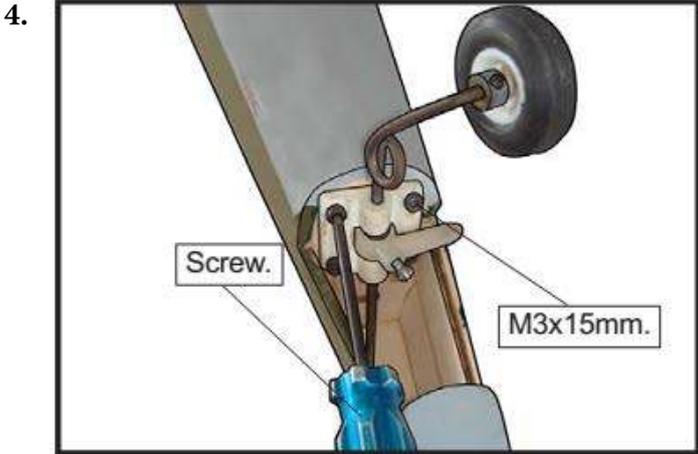
- When you are sure that everything is aligned correctly, mix up a generous amount of Flash 30 Minute Epoxy. Apply a thin layer to the mounting slot and to bottom of the vertical stabilizer mounting area. Apply epoxy to the bottom and top edges of the filler block and to the lower hinge also. Set the stabilizer in place and realign. Double check all of your measurements once more before the epoxy cures. Hold the stabilizer in place with T-pins or masking tape and remove any excess epoxy using a paper towel and rubbing alcohol. Allow the epoxy to fully cure before proceeding.





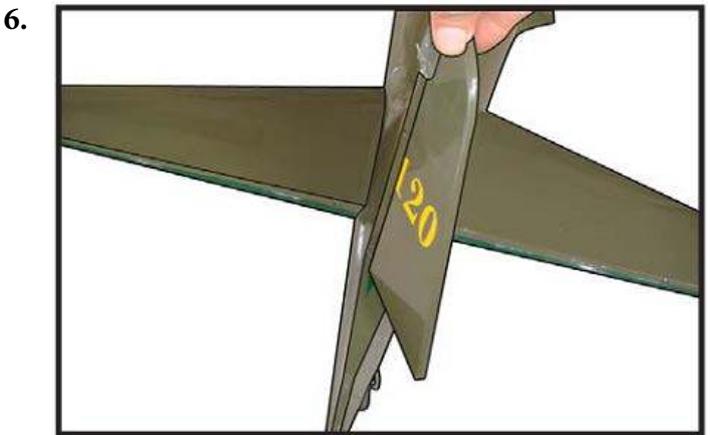
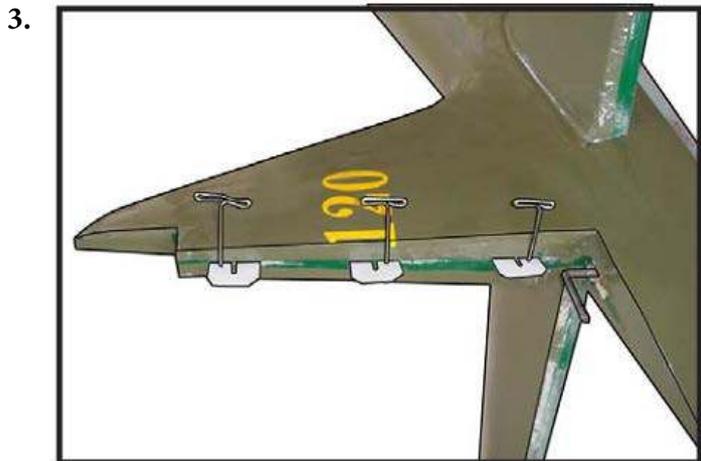
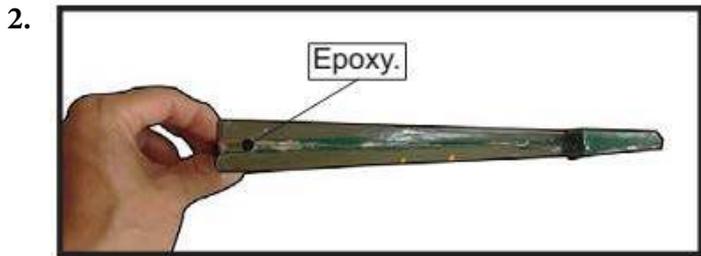
MOUNTING THE TAIL WHEEL





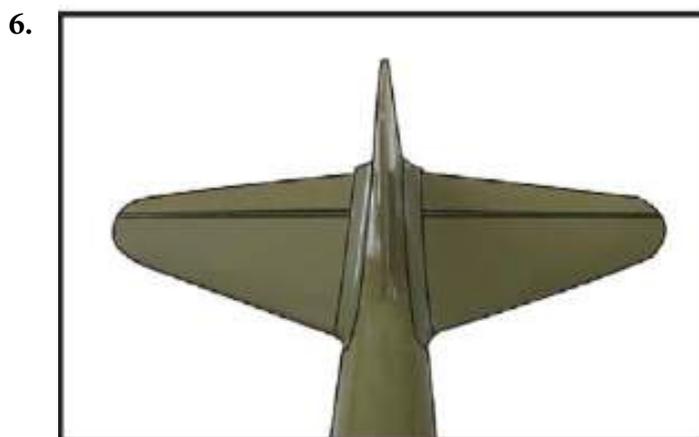
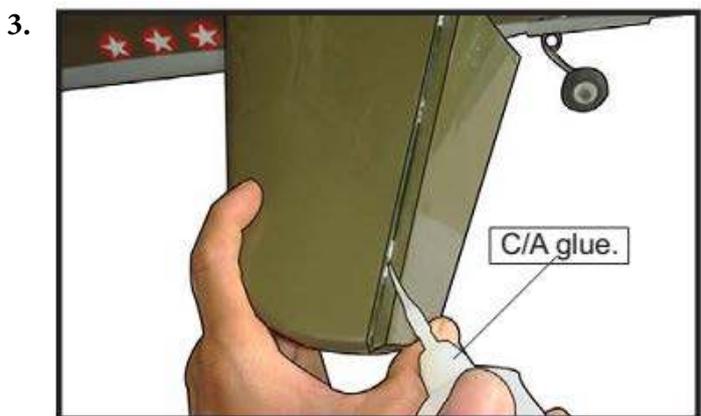
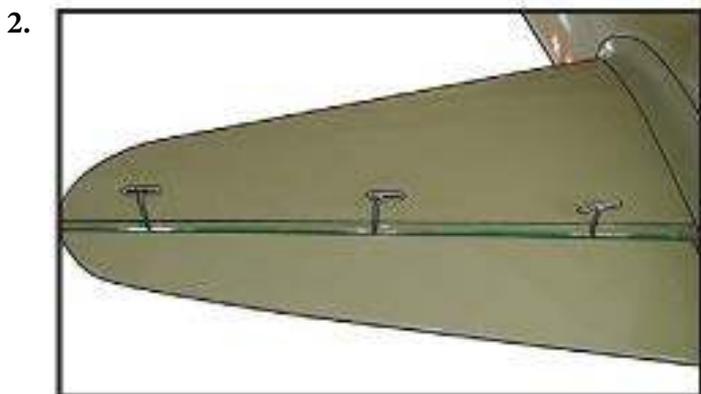
HINGING THE RUDDER

- Glue the rudder hinges in place using the same techniques used to hinge the ailerons.



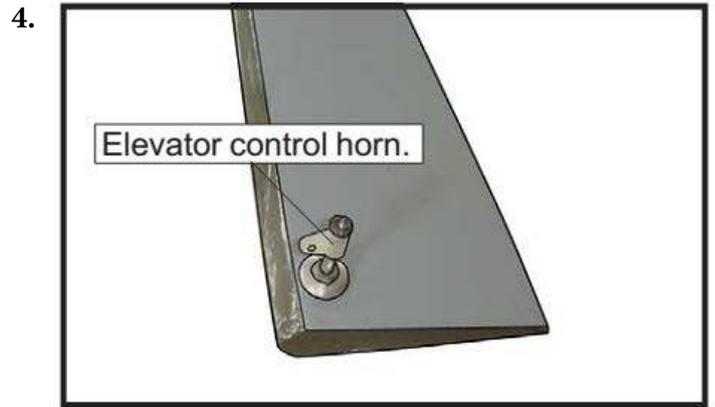
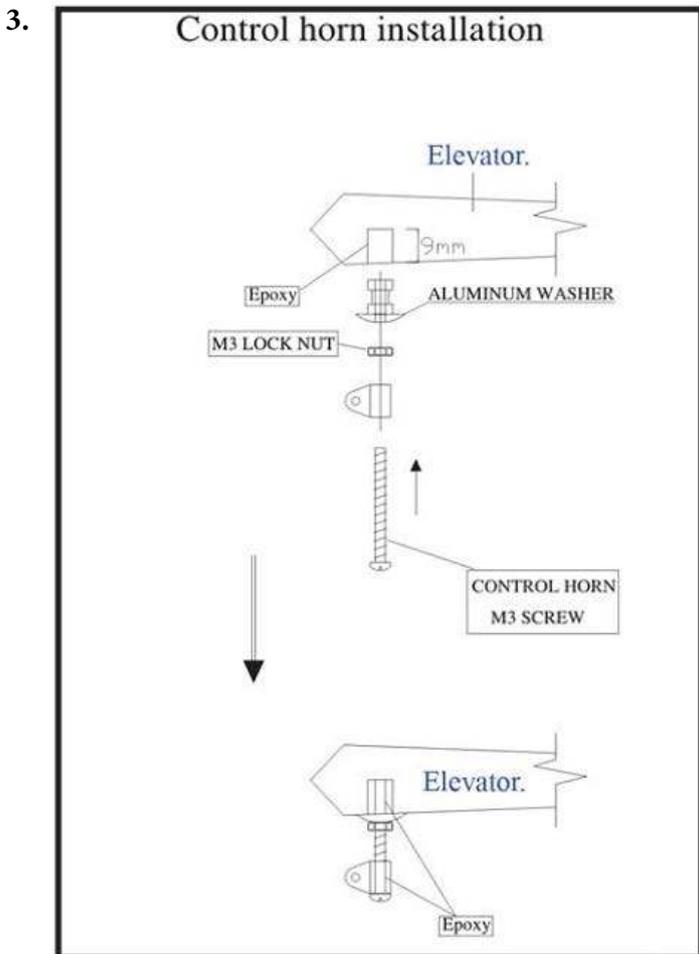
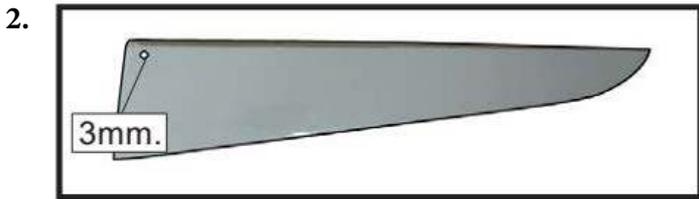
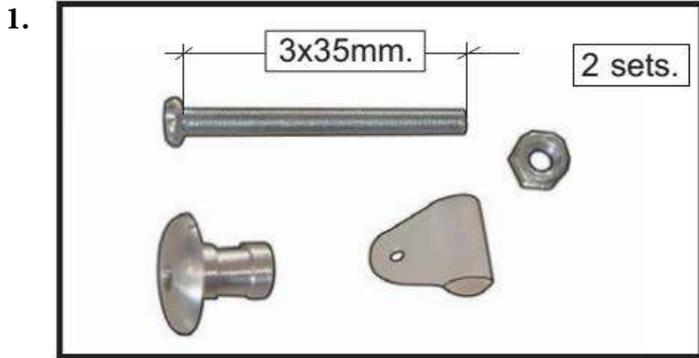
HINGING THE ELEVATORS

- Glue the elevator hinges in place using the same techniques used to hinge the ailerons.



INSTALL ELEVATOR CONTROL HORN

- Install the elevator control horn using the same method as same as the aileron control horns.

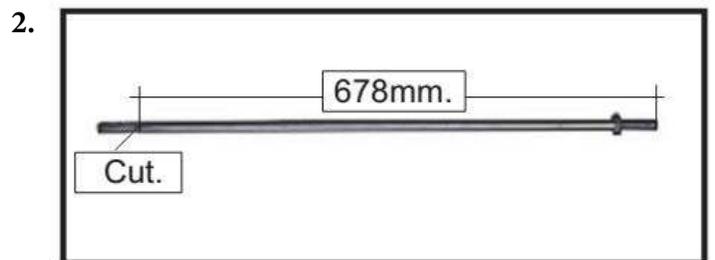


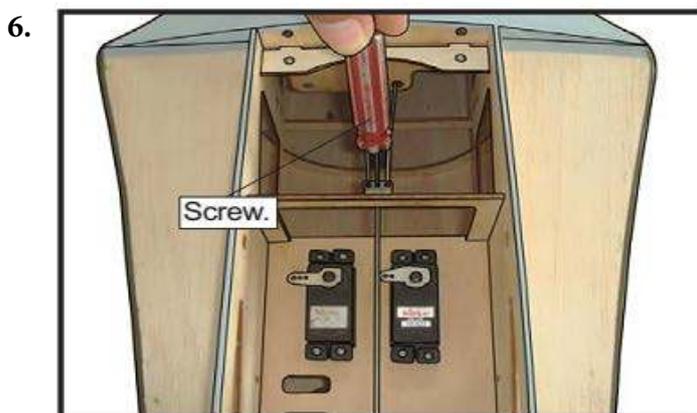
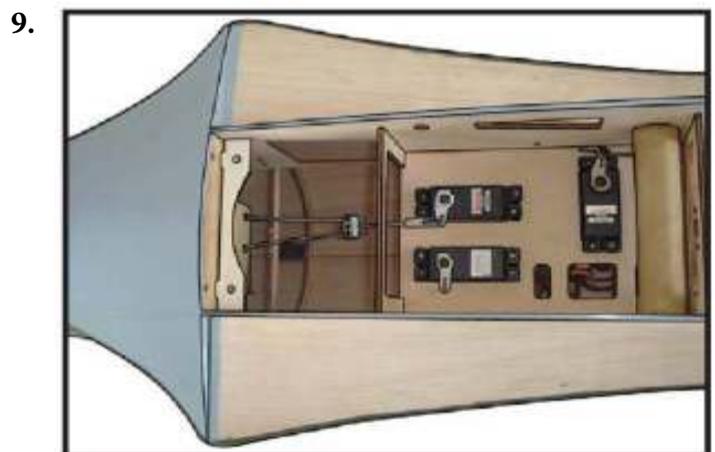
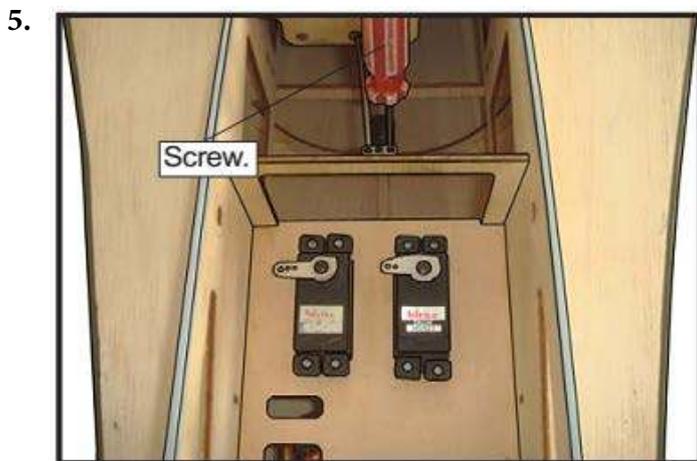
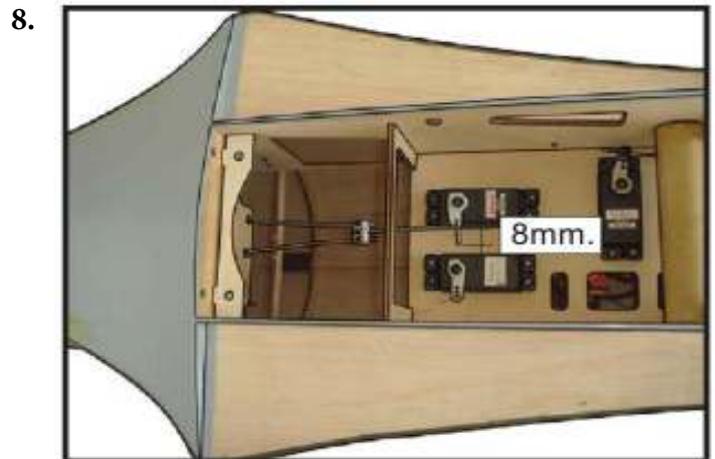
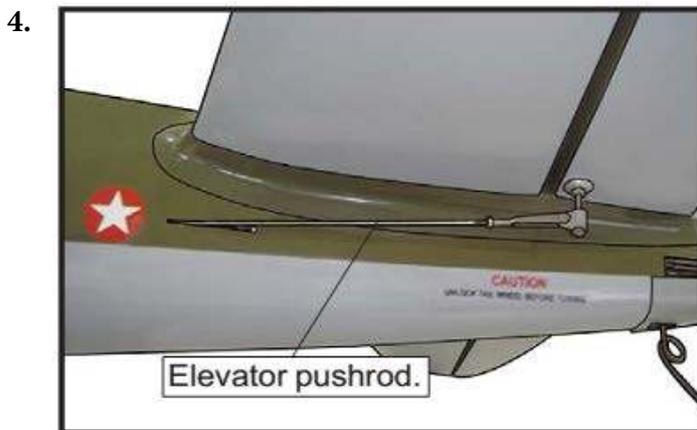
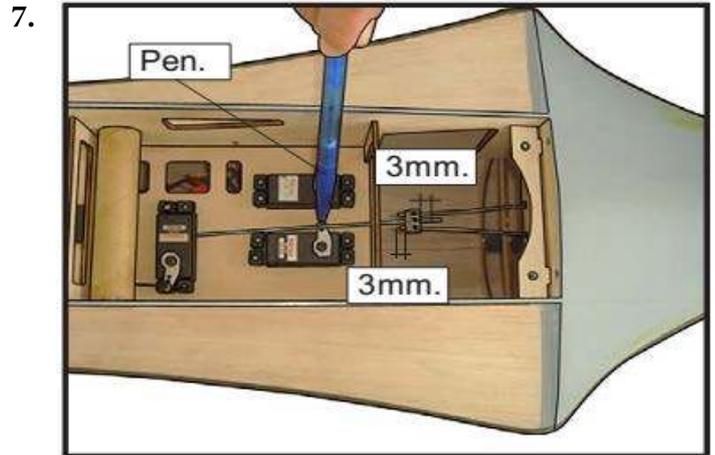
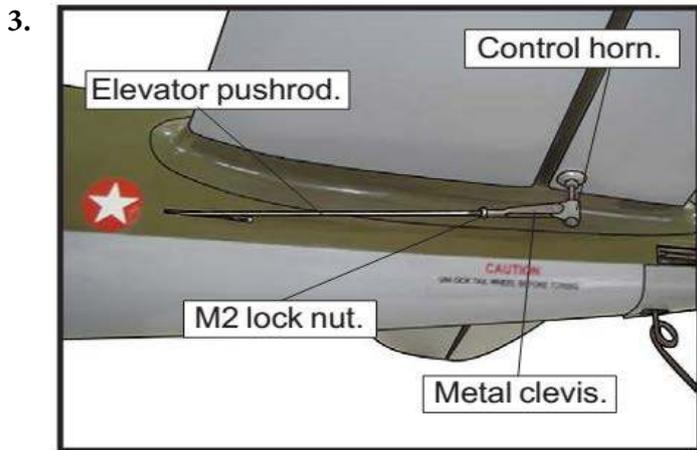
ELEVATOR PUSHROD INSTALLATION

- Install the elevator control horn using the same method as with the aileron control horns.
- Position the elevator control horn on the both side of elevator.



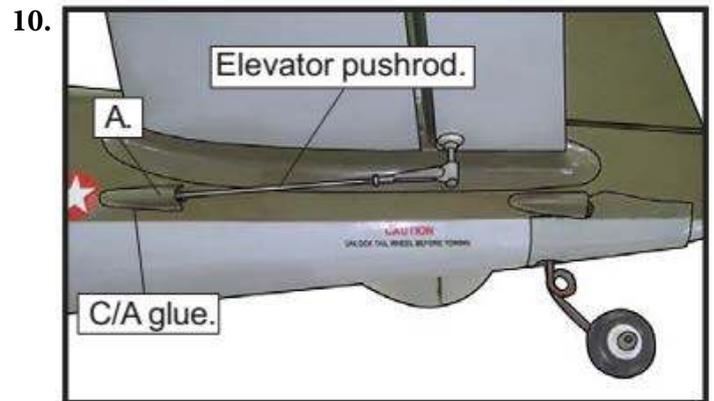
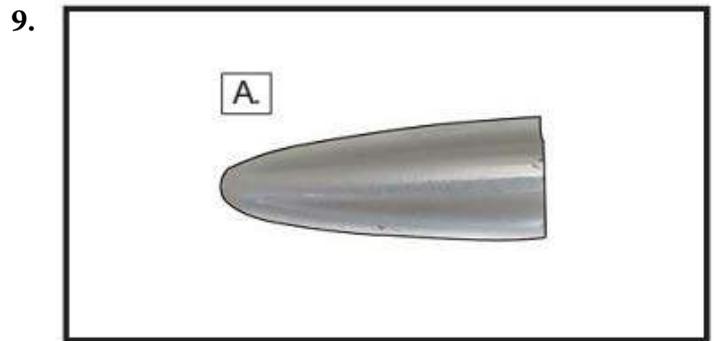
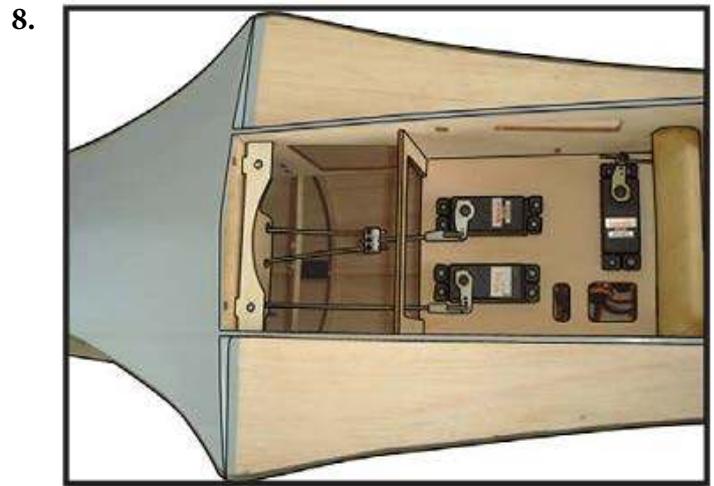
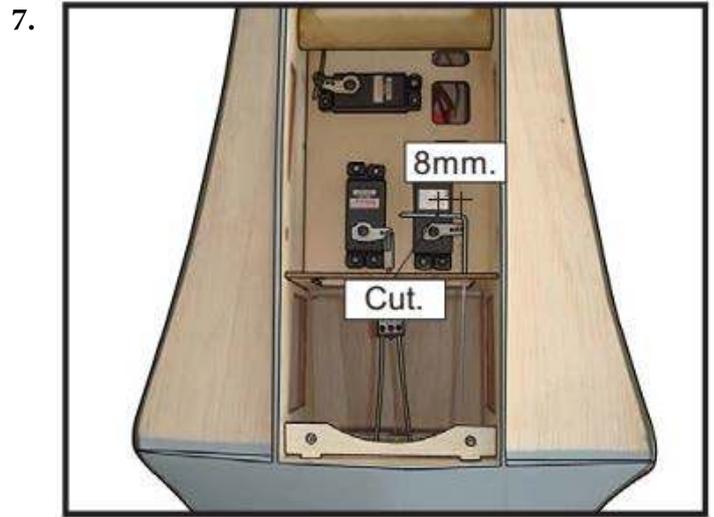
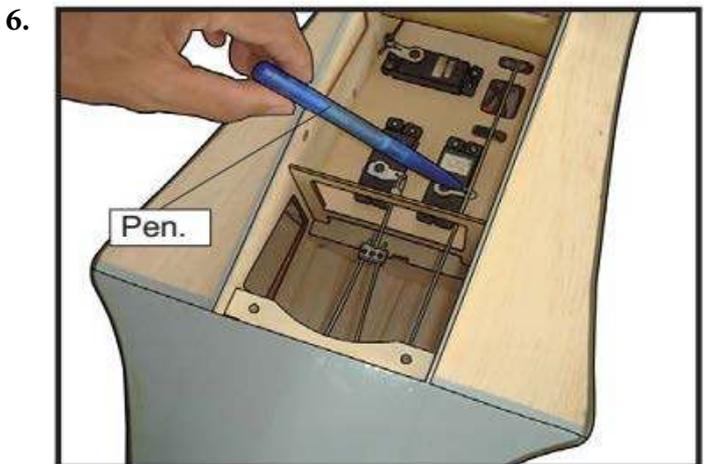
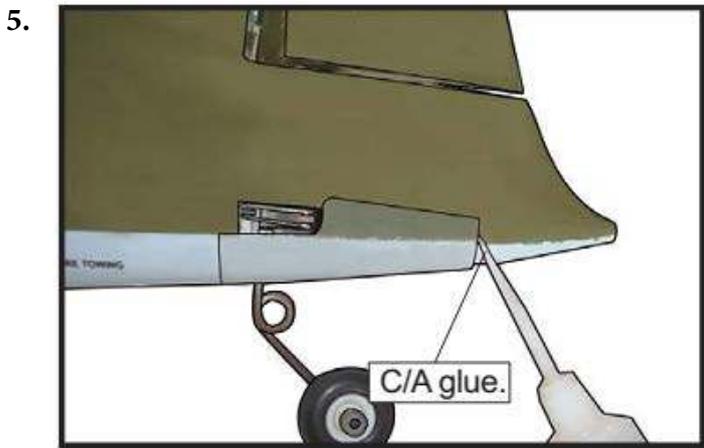
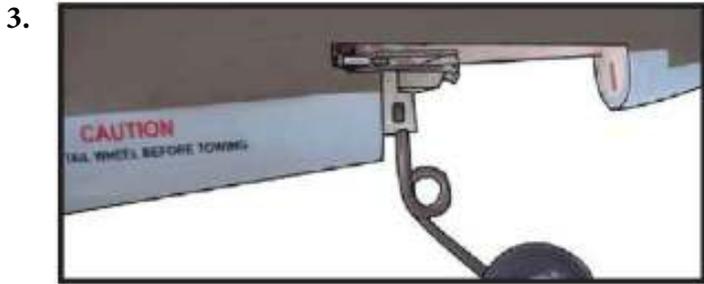
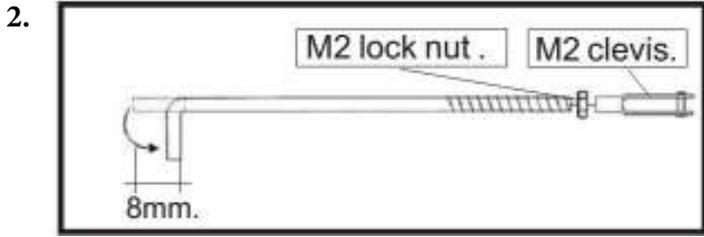
- Thread one clevis and M2 lock nut on to each elevator control rod. Thread the horns on until they are flush with the ends of the control rods.
- Elevator and rudder pushrods assembly as pictures below.

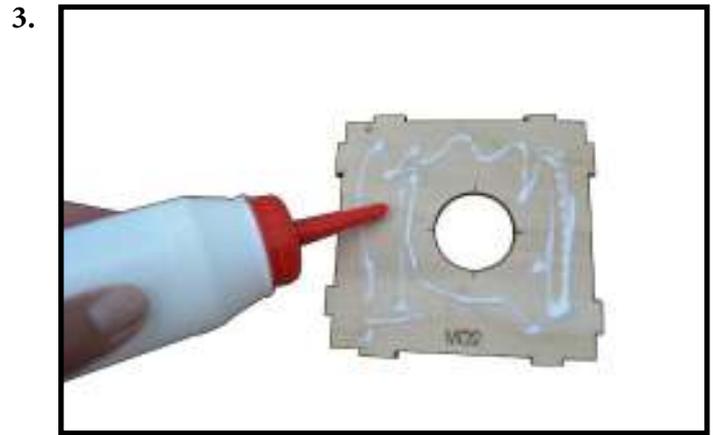
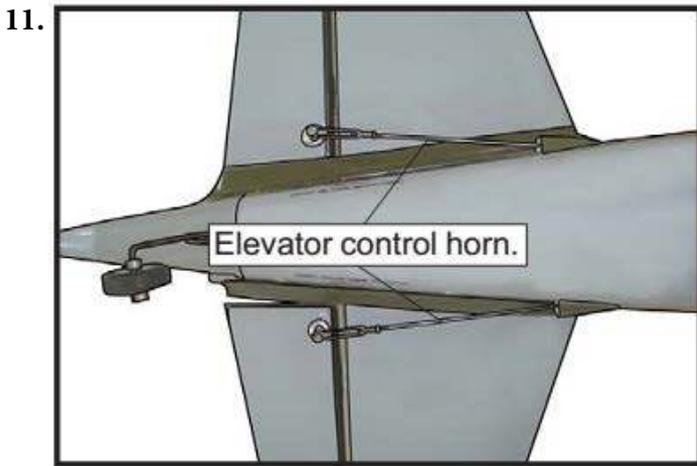




RUDDER PUSHROD INSTALLATION

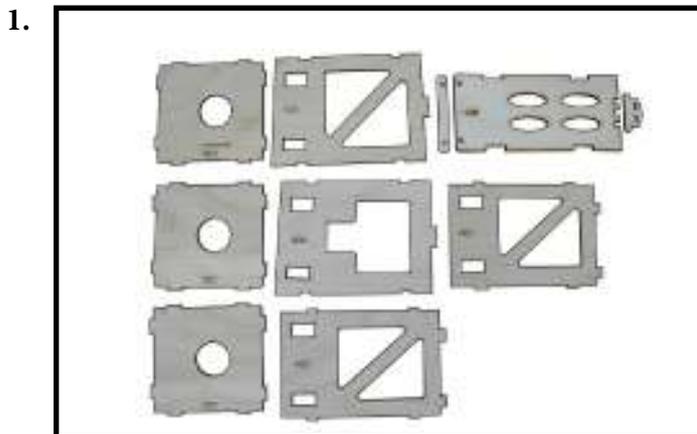






- Fill white glue on surface MO2 (include 2 layer).

BUILD THE MOTOR MOUNT



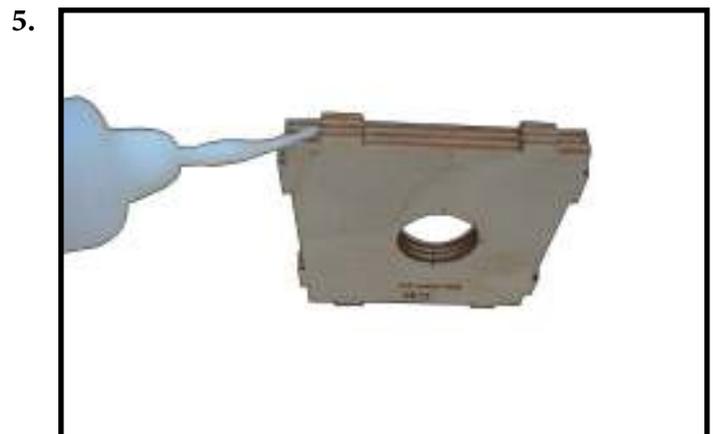
- Getting prepare set of motor mount as photo.



- Paste MO1 on MO2 (include 2 layer).

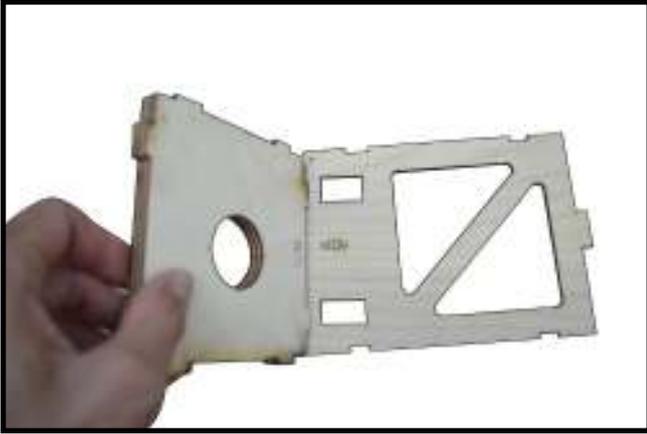


- Paste 2 pieces MO2 together by white glue.



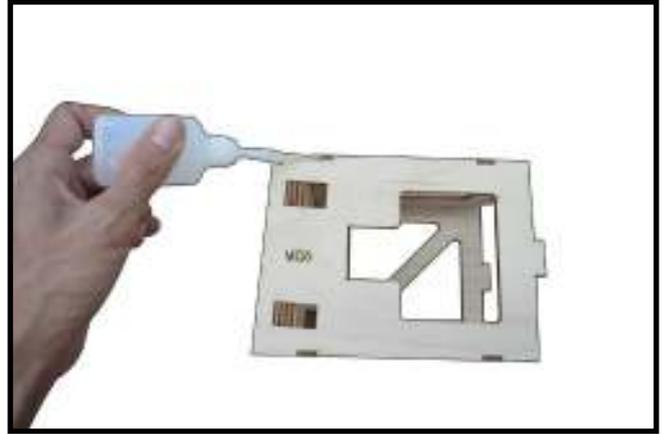
- Add thin CA glue around block 3 layer.

6.



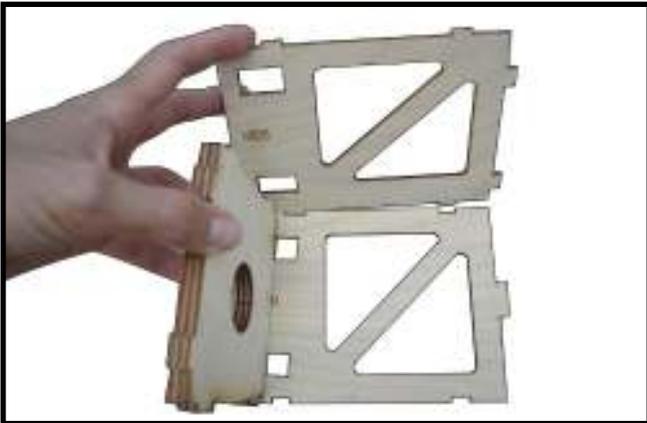
- Install block to the top of mount MO9.

9.



- Add CA glue to paste them together.

7.



- Install block to the right of mount MO8.

10.



- Getting prepare set of battery mount include MO3, MO4, MO5.

8.



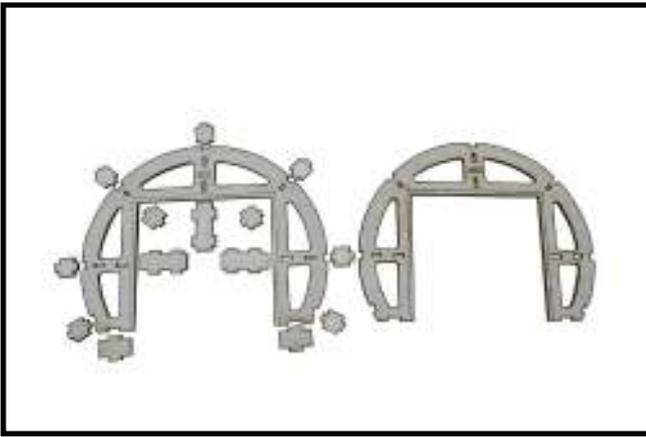
- Install block to the left of mount MO7.

11.



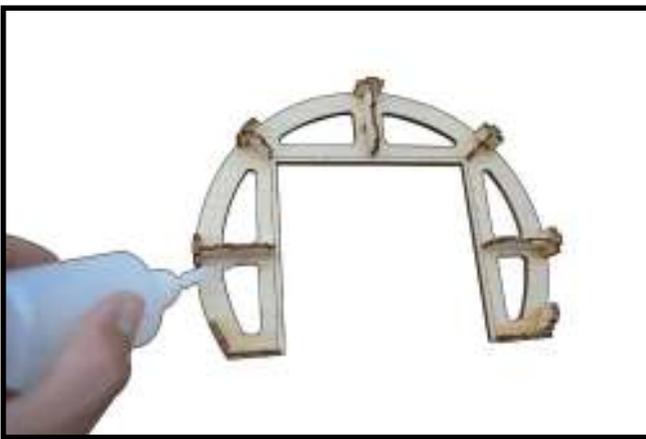
- Paste them together by CA glue.

12.



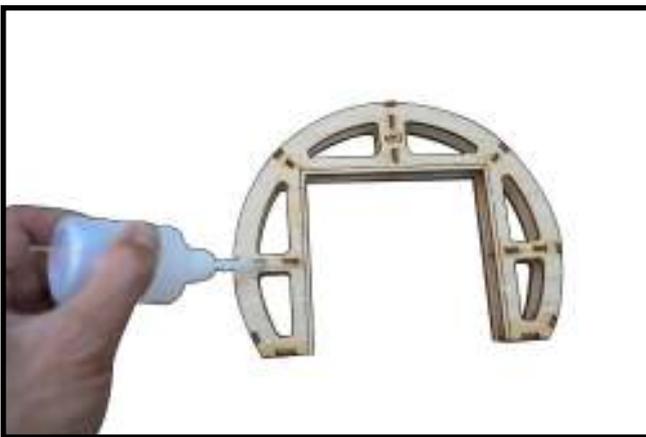
- Getting prepare set of cowling mount include MO10 (2pcs), MO11(1pcs), MO12(7pcs).MO13(2 pcs),MO14(2pcs),MO15(2pcs).

13.



- Paste MO11, MO12, MO13, MO14, MO15 to the first MO10 by CA glue.

14.



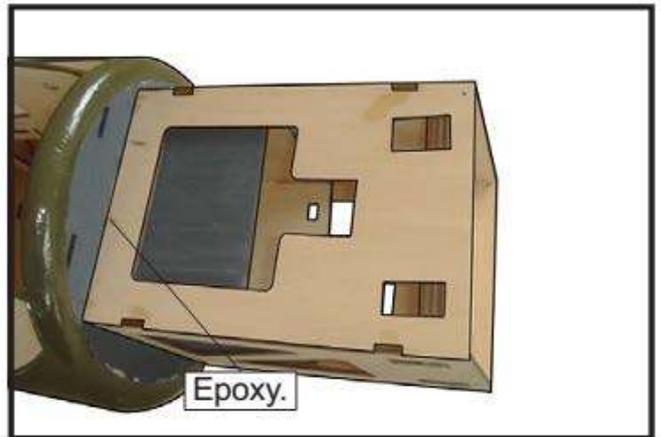
- Paste the second MO10 in rest side by CA glue.

ELECTRIC POWER CONVERSION

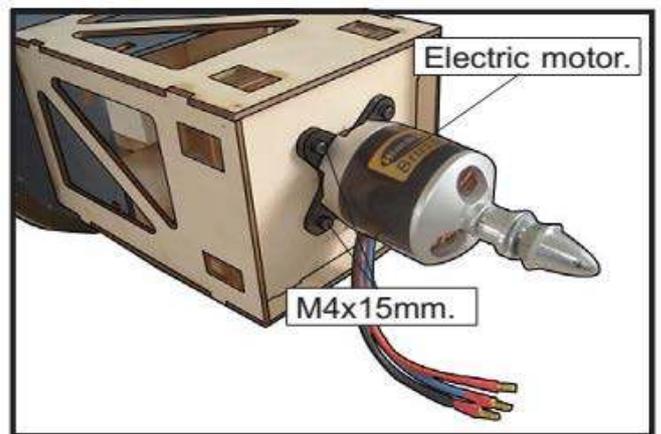
- Model size: .75-.90 size models
- Motor: 50mm 310 rev per volt
- Propeller: 14x10 ~ 15x10
- ESC: 60A
- Lipo Batteries: 8 cell 3200mA

- Attach the electric motor box to the firewall suitable with the cross lines drawn on the electric motor box and firewall. Using epoxy and balsa stick to secure the motor box to the firewall. Please see pictures below.

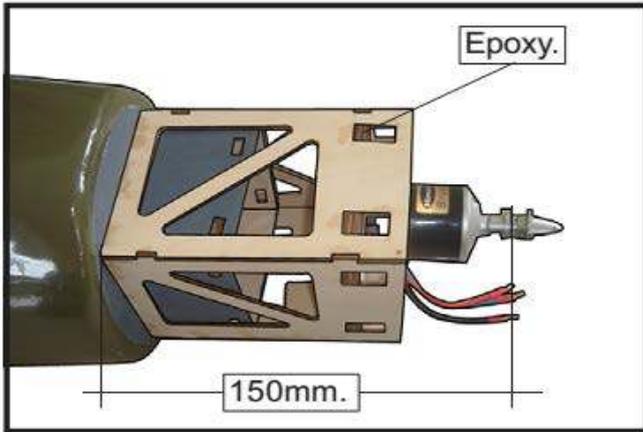
1.



2.

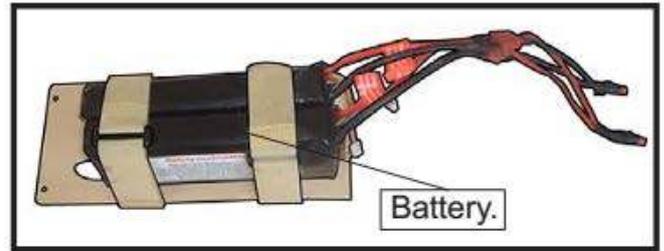


3.



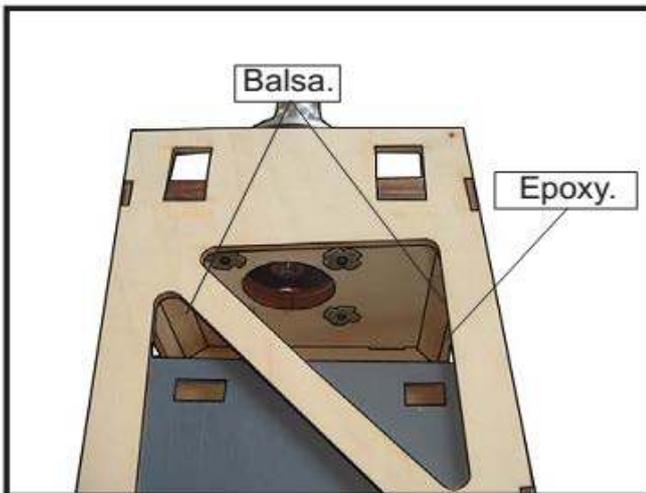
- Attach the motor to the front of the electric motor box using four 4mm blind nut, four M4x15mm hex head bolts to secure the motor. Please see picture shown.

6.

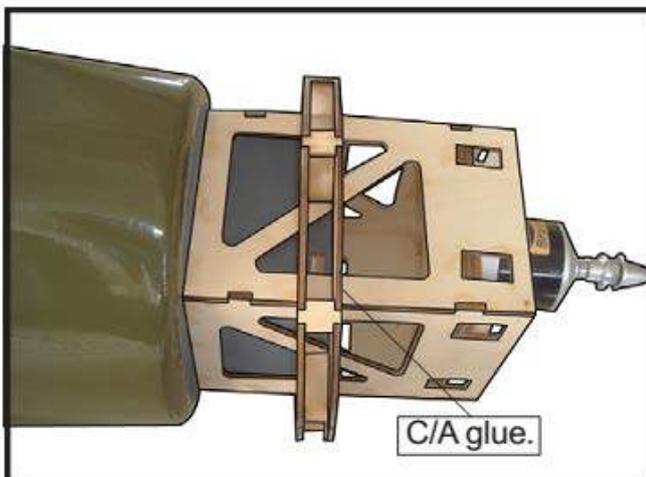


- Attach the speed control to the side of the motor box using two-sided tape and tie wraps. Connect the appropriate leads from the speed control to the motor. Make sure the leads will not interfere with the operation of the motor.

4.



5.



- Locate the plywood battery tray to the fuselage. Tighten the screws using machine screws M3x15mm to secure the tray in position.

BALANCING

- It is critical that your airplane be balanced correctly. Improper balance will cause your plane to lose control and crash. THE CENTER OF GRAVITY IS LOCATED 95MM BACK FROM THE LEADING EDGE OF THE WING AT THE WING ROOT.

- Mount the wing to the fuselage. Using a couple of pieces of masking tape, place them on the top side of the wing 95mm back from the leading edge of the wing at the wing root.

- Turn the airplane upside down. Place your fingers on the masking tape and carefully lift the plane .

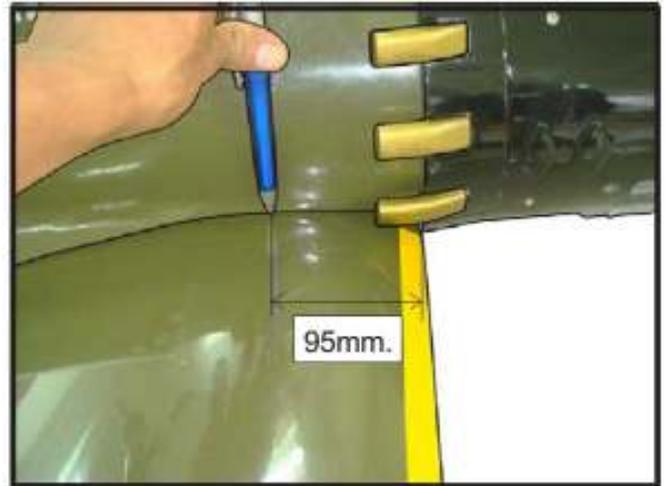
- Accurately mark the balance point on the top of the wing on both sides of the fuselage. The balance point is located 95 mm back from the leading edge of the wing at the wing root. This is the balance point at which your model should balance for your first flights. Later, you may wish to experiment by shifting the balance up to 10mm forward or back to change the flying characteristics. Moving the balance forward may improve the smoothness and arrow-like tracking, but it may then require more speed for take off and make it more difficult to slow down for landing. Moving the balance aft makes the model more agile with a lighter and snappier "feel". In any case, please start at the location we recommend .

- With the wing attached to the fuselage, all parts of the model installed (ready to fly), and empty fuel tanks, hold the model at the marked balance point with the stabilizer level.

- Lift the model. If the tail drops when you lift the model is "tail heavy" and you must add weight* to the nose. If the nose drops, it is "nose heavy" and you must add weight* to the tail to balance.

*If possible, fist attempt to balance the model by changing the position of the receiver battery and receiver. If you are unable to obtain good balance by doing so, then it will be necessary to add weight to the nose or tail to achieve the proper balance point.

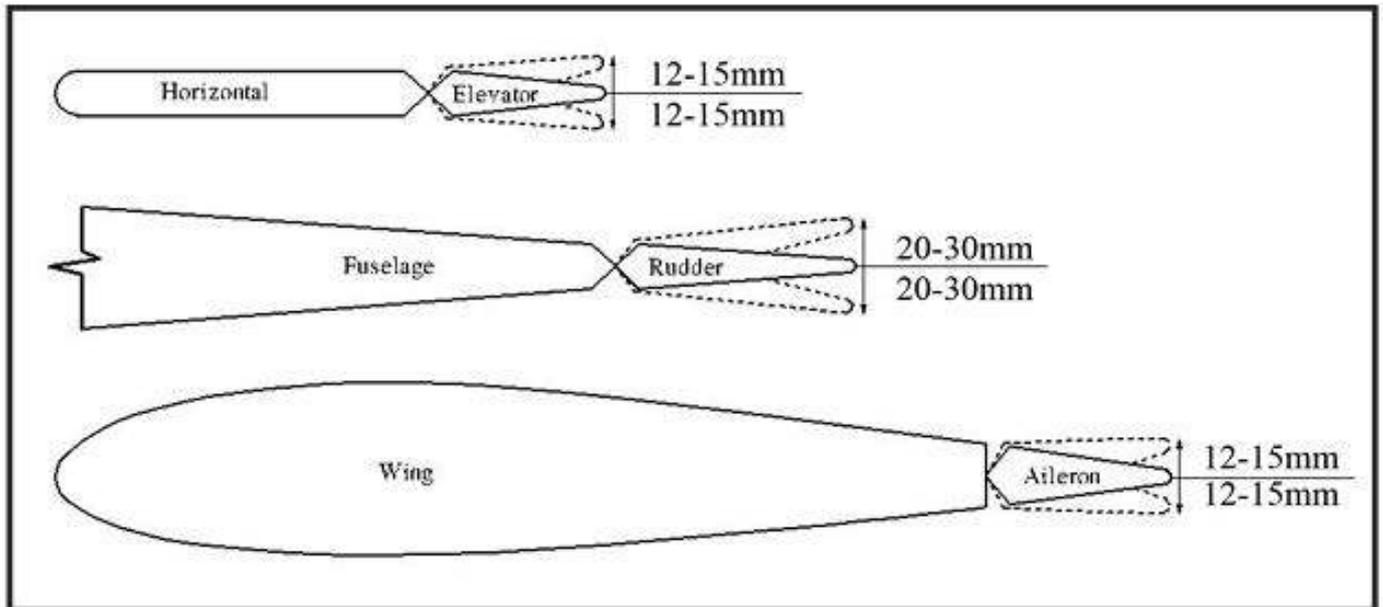
1.



CONTROL THROWS

Ailerons:	12mm - 15mm up 12mm - 15mm down.
Elevator:	12mm - 15mm up. 12mm - 15mm down.
Rudder:	20mm - 30mm left. 20mm - 30mm right.

* Hopefully you fun for installing parts.



*If you have any queries, or are interested in our products,
please feel free to contact us*

Factory : 12/101A - Hamlet 4 - Le Van Khuong Street - Dong Thanh Ward -
Hoc Mon District - Ho Chi Minh City - Viet Nam.

Office : 62/8 Ngo Tat To Street - Ward 19 - Binh Thanh District - Ho Chi Minh
City - Viet Nam

Phone : 848 - 86622289 or 848- 36018777

Website : www.SeagullModels.com

Email : Sales@seagullmodels.com

Facebook : www.facebook.com/SeaGullModels.