Radio control model / Flugmodel

W.W2 GERMAN FIGHTER

FOCKE WULF FW-190A

ALL BALSA, PLYWOOD CONSTRUCTION AND ALMOST READY TO FLY

Instruction manual / Montageanleitung

SPECIFICATIONS

Wingspan:.....1500mm (59in)
Length:.....1130mm (44.5 in)
Electric Motor:.....See next pager
Glow Engine:..... .46 2-T / .70 4-T
RTF Weight: 3.2Kg / 7.05lbs (Will vary with Equipment Used).
Radio:.....6-8 Channels / 6-7 Servos
Function: Ailerons-Flaps-Elevator-Rudder-Throttle
Optional Retractable Landing Gear.

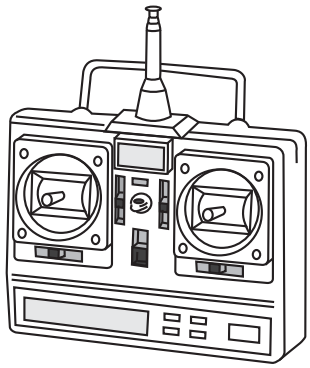
NEXA

WARNING! This radio controlled model is NOT a toy. If modified or flown carelessly it could go out of controll and cause serious human injury or property damage. Before flying your airplane, ensure the air field is spacious enough. Always fly it outdoors in safe areas and seek professional advice if you are unexperienced.

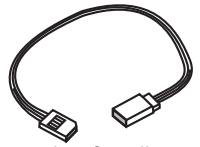
ACHTUNG! Dieses ferngesteuerte Modell ist KEIN Spielzeug! Es ist für fortgeschrittene Modellflugpiloten bestimmt, die ausreichende Erfahrung im Umgang mit derartigen Modellen besitzen. Bei unsachgemässer Verwendung kann hoher Personen- und/oder Sachschaden entstehen. Fragen Sie in einem Modellbauverein in Ihrer Nähe um professionelle Unterstätzung, wenn Sie Hilfe im Bau und Betrieb benötigen. Der Zusammenbau dieses Modells ist durch die vielen Abbildungen selbsterklärend und ist für fortgeschrittene, erfahrene Modellbauer bestimmt.

Read through the manual before you begin, so you will have an overall idea of what to do.

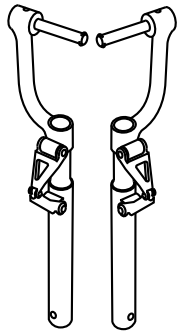
OPTIONAL ACCESSORIES / BENOTIGTES ZUBEHOR



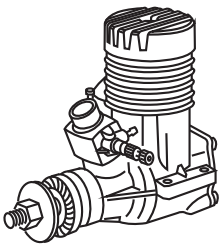
10.5x6 for .40 - 2 cycle engine
11x6 for .46 - 2 cycle engine
12x6 for .60 - 4 cycle engine
12x7 for .70 - 4 cycle engine
11x8 for Brushless Motor

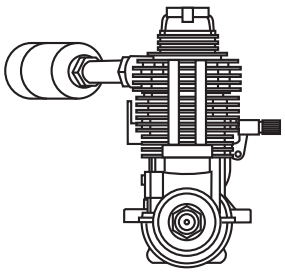


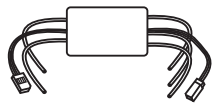
Extension for aileron flap and retract servo.



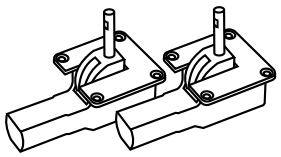
www.motionrc.com

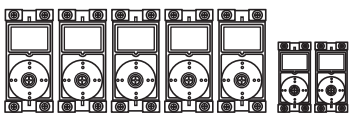






ESC:65-70A

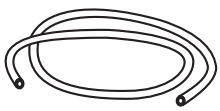




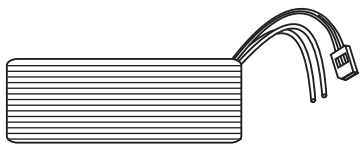
.46 ~ .50 - 2 cycle

.60 ~.70 - 4 cycle

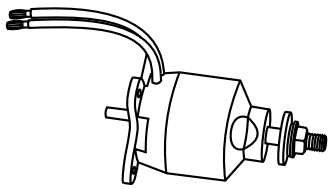
Minimum 6 channel radio
for airplane with 7 servos
.Motor control x1 .Aileron x2
.Flap x2 (mini servo)
.Elevator x1 .Rudder x1



Silicone tube



Li-Po Battery

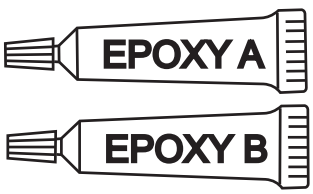


600Kv or equivalent brushless Motor

GLUE (Purchase separately)

Silicon sealer

Cyanoacrylate
Glue
Klebstoff



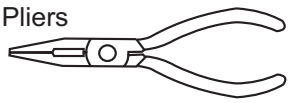
Epoxy Glue (5 minute type)
Epoxy-Klebstoff (5min-Typ)

Epoxy Glue (30 minute type)
Epoxy-Klebstoff (30min-Typ)

TOLLS REQUIRED (Purchase separately)

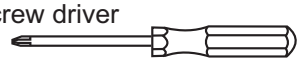
Hobby knife

Needle nose Pliers

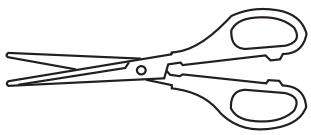


Sander

Phillip screw driver



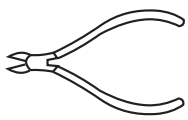
Scissors



Hex Wrench

Awl

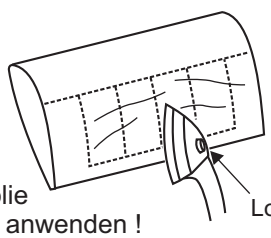
Wire Cutters



Masking tape - Straight Edged Ruler - Pen or pencil - Rubbing alcohol - Drill and Assorted Drill Bits

If exposed to direct sunlight and/or heat, wrinkels can appear. Storing the model in a cool place will let the wrinkles disappear. Otherwise, remove wrinkles in covering film with a hair dryer, starting with low temperature. You can fix the corners by using a hot iron.

Bei Sonneneinstrahlung und/oder Wärme kann die Folie erschlaffen bzw. Falten entstehen. Verwenden Sie ein Warumluftgebläse (Haartrockner) um evtl. Falten aus der Folie zu bekommen. Die Kanten können Sie mit einem Bügeleisen behandeln. Nicht zuviel Hitze anwenden !



Low setting

Drill holes using the stated size of drill (in this case 1.5 mm Ø)

Use epoxy glue

Take particular care here

Apply cyano glue

Hatched-in areas: remove covering film carefully

Assemble left and right sides the same way.

Check during assembly that these parts move freely, without binding

Not included.
These parts must be purchased separately

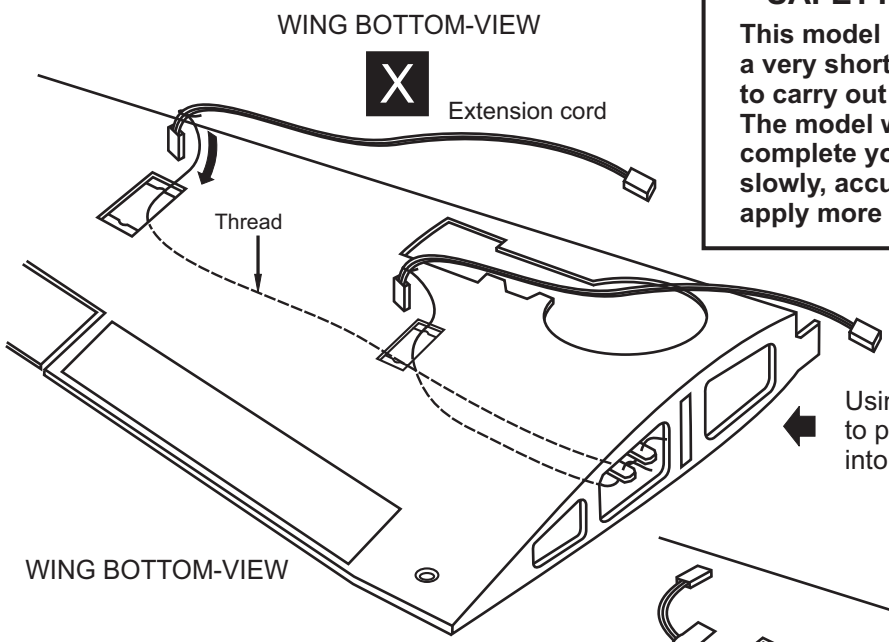
CONVERSION TABLE

1.0mm = 3/64”	3.0mm = 1/8”	10mm = 13/32”	25mm = 1”
1.5mm = 1/16”	4.0mm = 5/32”	12mm = 15/32”	30mm = 1-3/16”
2.0mm = 5/64”	5.0mm = 13/64”	15mm = 19/32”	45mm = 1-51/64”
2.5mm = 3/32”	6.0mm = 15/64”	20mm = 51/64”	

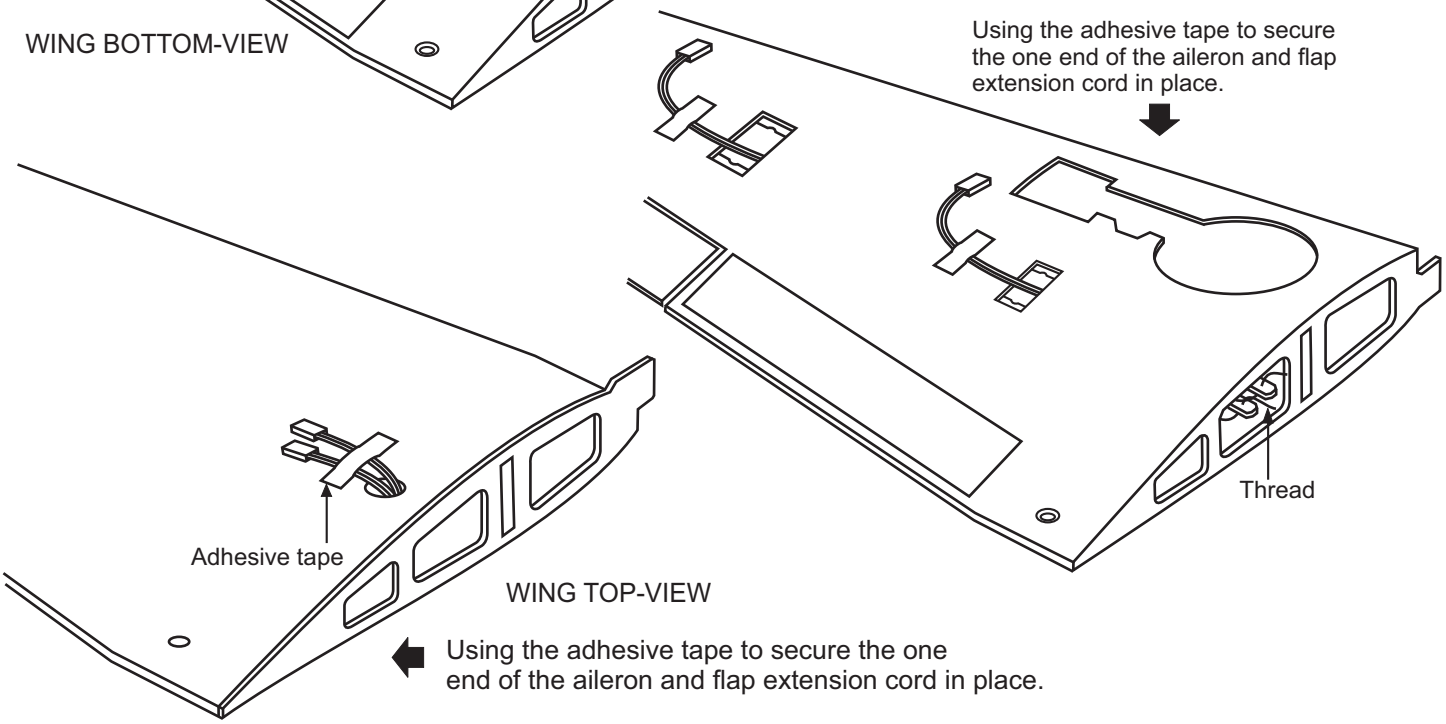
1-Aileron extension cord installation

SAFETY NOTES BEFORE ASSEMBLING

This model is highly pre-fabricated and can be built in a very short time. However, the work which you have to carry out is important and must be done carefully. The model will only be strong and fly well if you complete your tasks competently - so please work slowly, accurately and check every joints, maybe apply more glue to be safe.

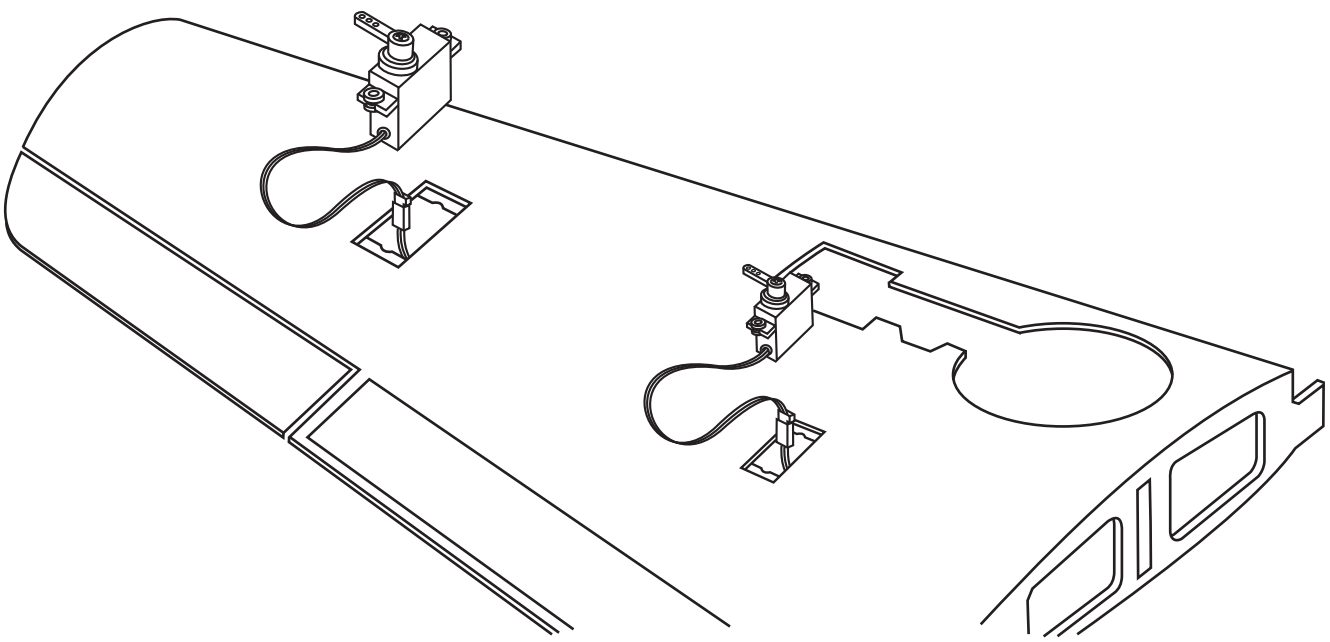


Using the thread (pre-installed at factory) to pull the aileron and flap extension cord into the wing half.



Using the adhesive tape to secure the one end of the aileron and flap extension cord in place.

2-Aileron and flap servo installation



3- Control horn & linkages

Plastic control horn

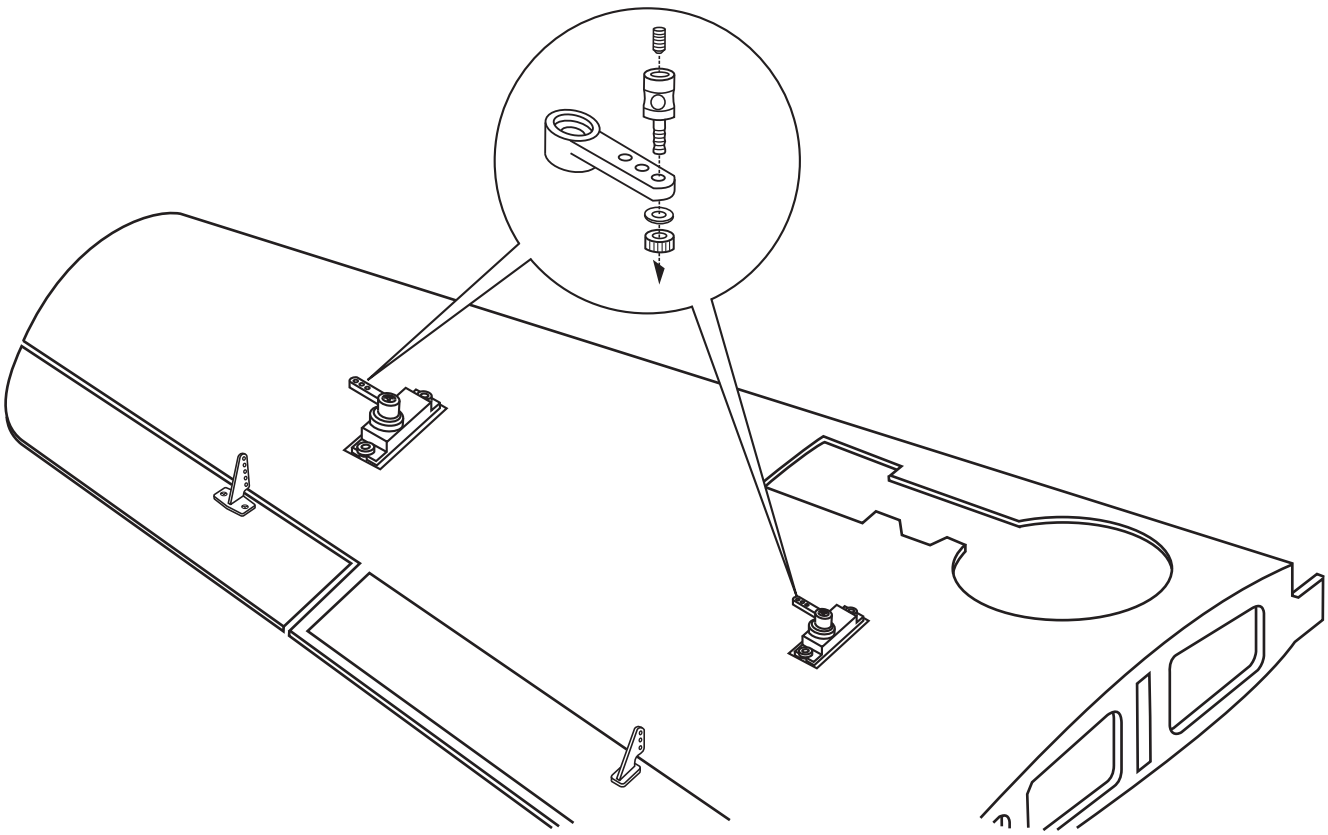
.....2 set

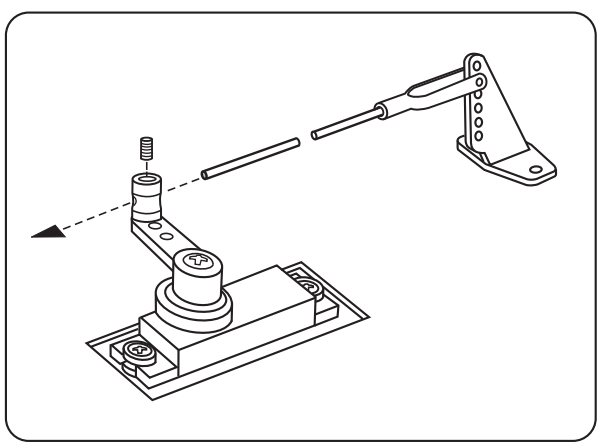
Plastic control horn

.....2 set

2x20mm screw

.....4





2mm connector

.....4

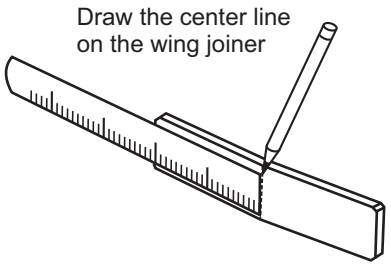
2x175mm push rod

.....4

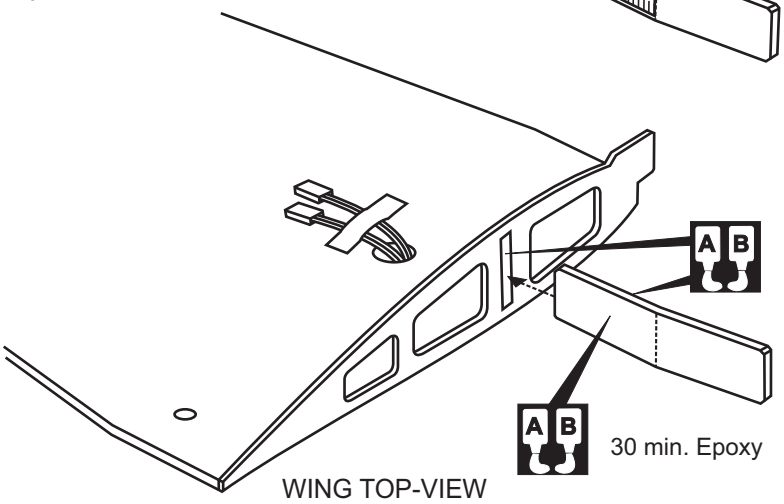
4- Joining the wing

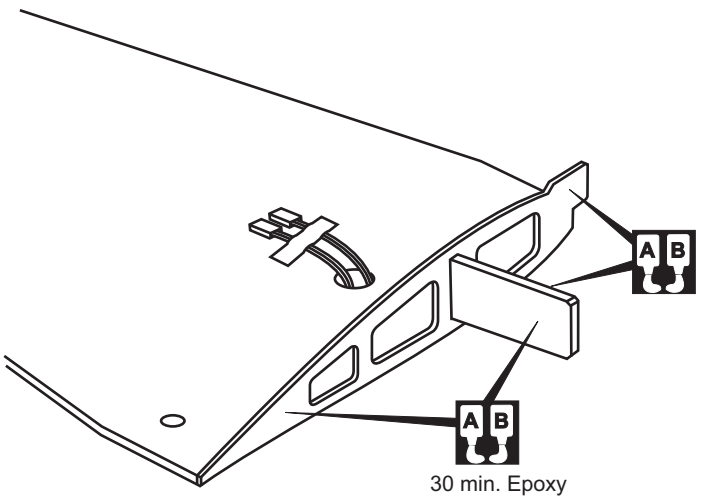
Before gluing:

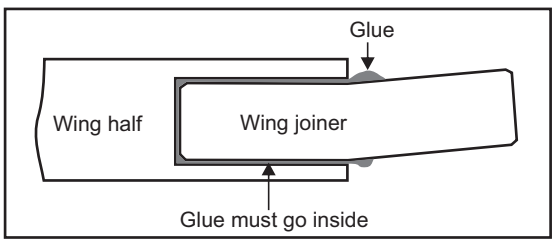
- Draw the center line on the wing joiner.
- Trial fit each part before gluing . Be certain that there are no gaps. If the parts will join, but with a gaps, sand or trim the parts a little at a time until the parts meet exactly with no gaps.
- Check for the correct dihedral angle



Coat one half of the dihedral brace with epoxy up to the center line. Install the epoxy-coated side of the dihedral brace into the wing joiner cavity up to the center line.

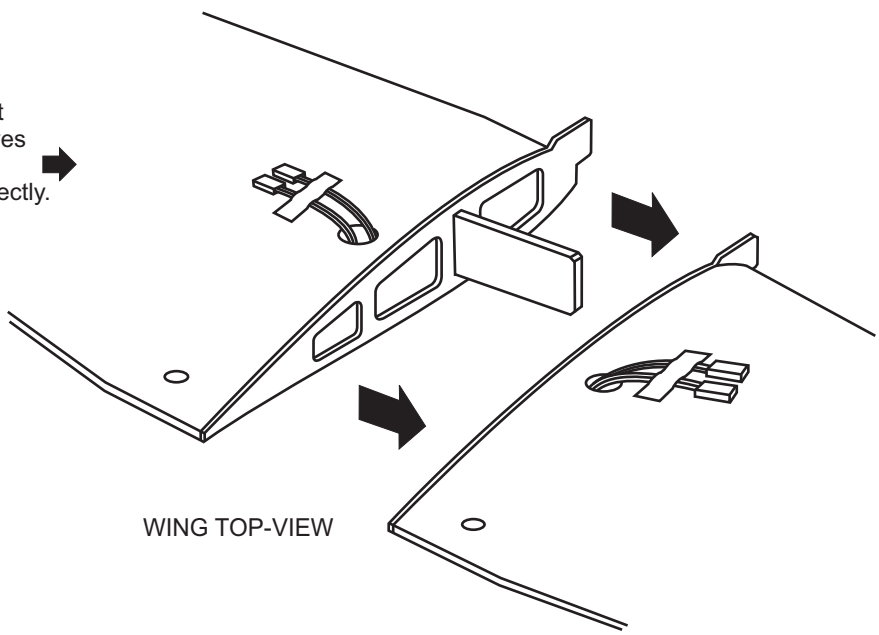




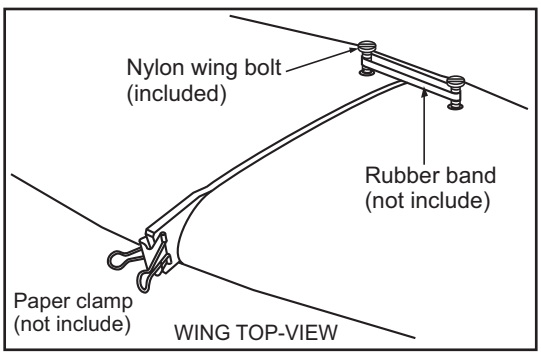


! Make sure to glue securely, If not properly glued, a failure in flight may occur.

Carefully slide the wing halves together, ensuring that they are accurately aligned. Firmly press the two halves together, allowing the excess epoxy to run out.
Note: The two wing halves roots mustfit together perfectly. Clear off the excess epoxy.

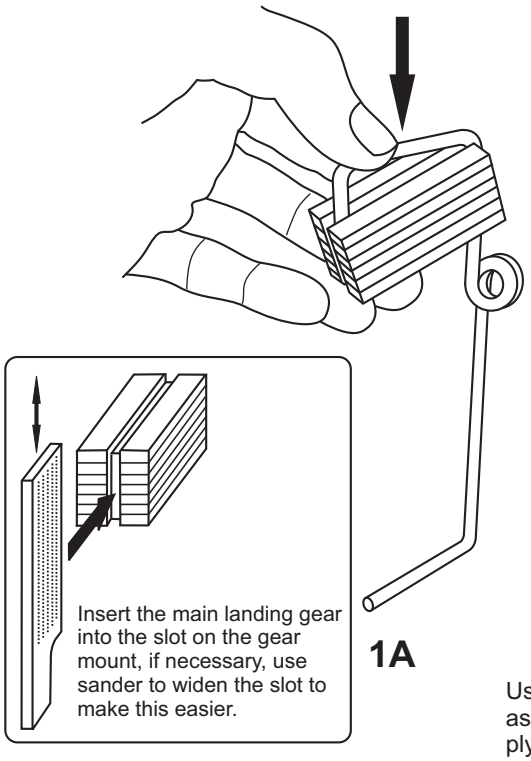


Hold the wing halves together with paper clamp and rubber band.



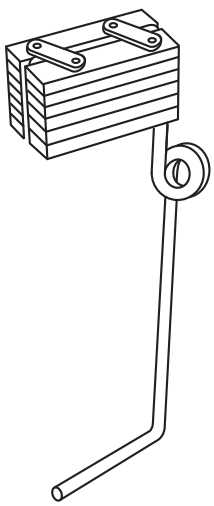
IMPORTANT: Please do not clean off the excess epoxy on the wing with strong solvent or pure alcohol, only use kerosene to keep the colour of your model not fade.

5- Fixed gear assembly



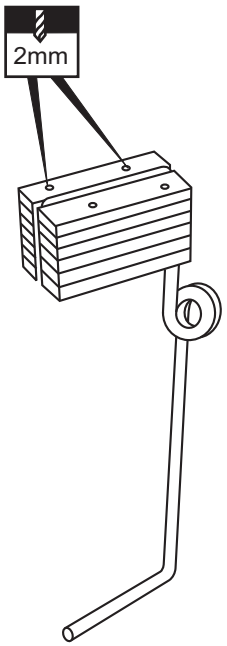
Insert the main landing gear into the slot on the gear mount, if necessary, use sander to widen the slot to make this easier.

1A



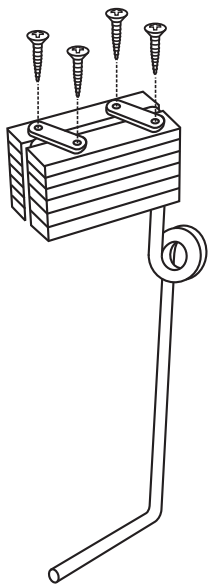
1B

Using the nylon gear strap as a template, mark the plywood gear mount where the four holes to be drill.



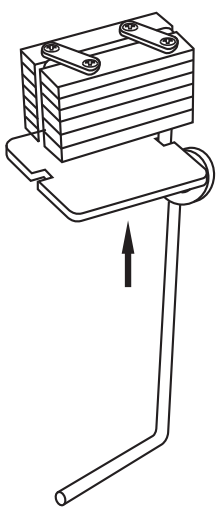
1C

Remove the nylon gear strap and drill a 2mm hole at each of the four marks marked.



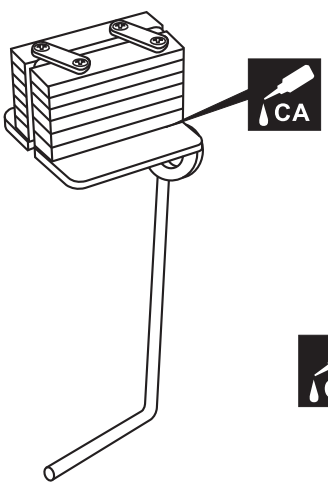
1D

Reposition the nylon gear strap and secure them in place using four 3x20mm screws.



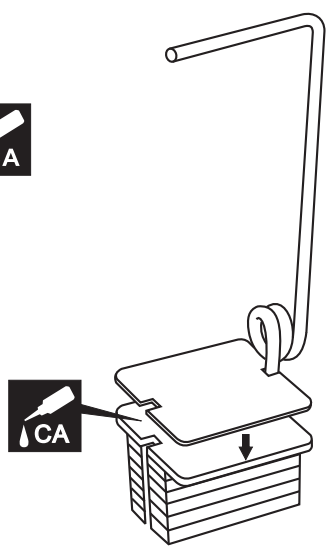
1E

Attach the ply gear mount plate to the plywood gear mount



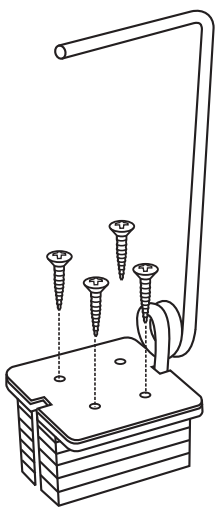
1F

Secure the ply gear mount plate in place using CA glue.



1G

Attach the square plastic onto the ply gear mount, secure it in place using CA glue.



1H

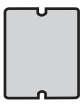
Drill a 2mm holes through the square plastic and ply gear mount plate.
Secure the ply gear mount using four 3x20mm screws.

3x20mm screw 16

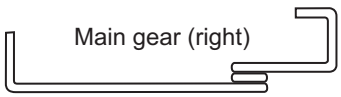
Nylon gear strap 4

Plywood Gear mount x 2

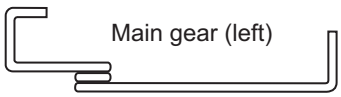
Square plastic x2



Ply gear mount plate x 2

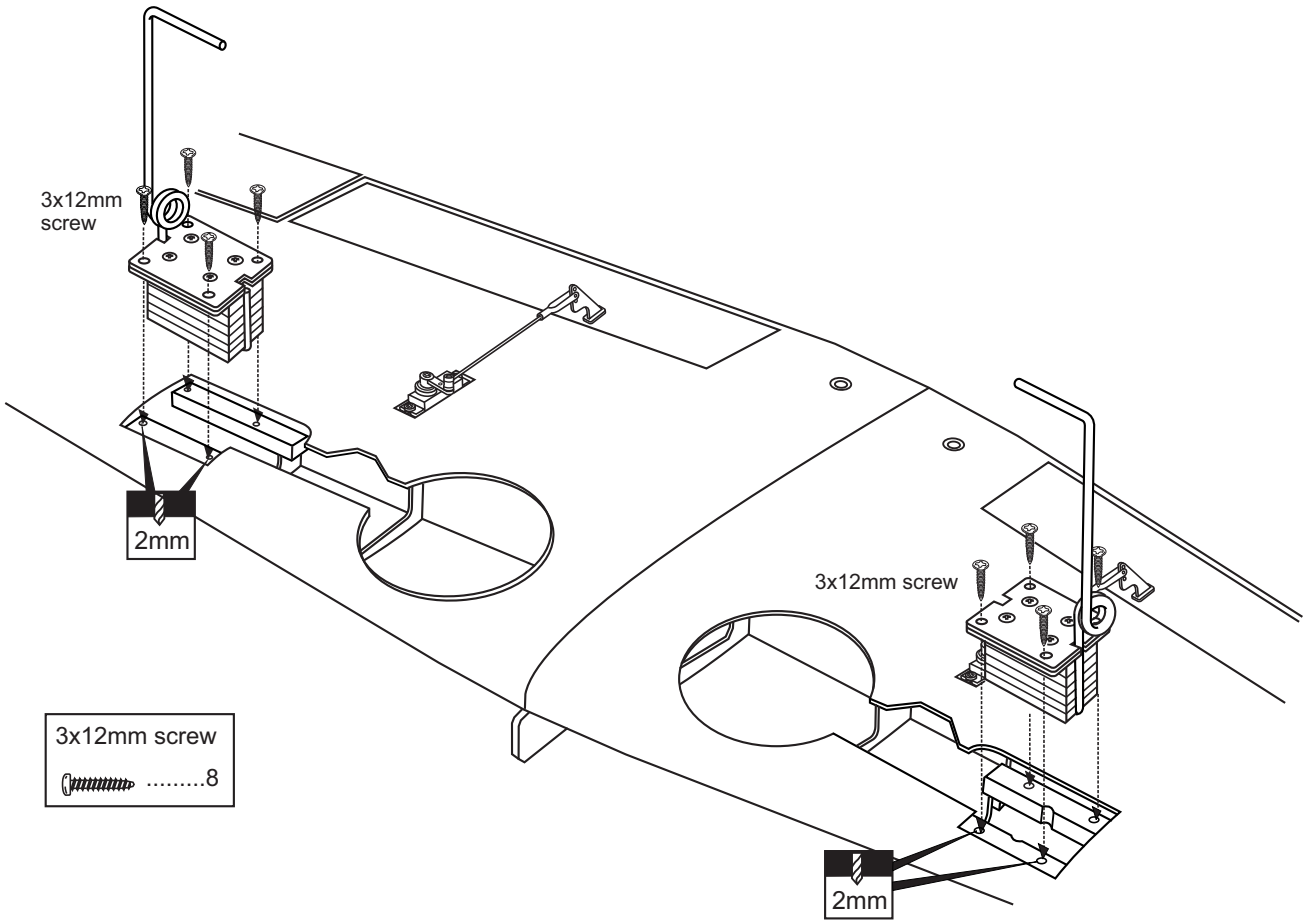


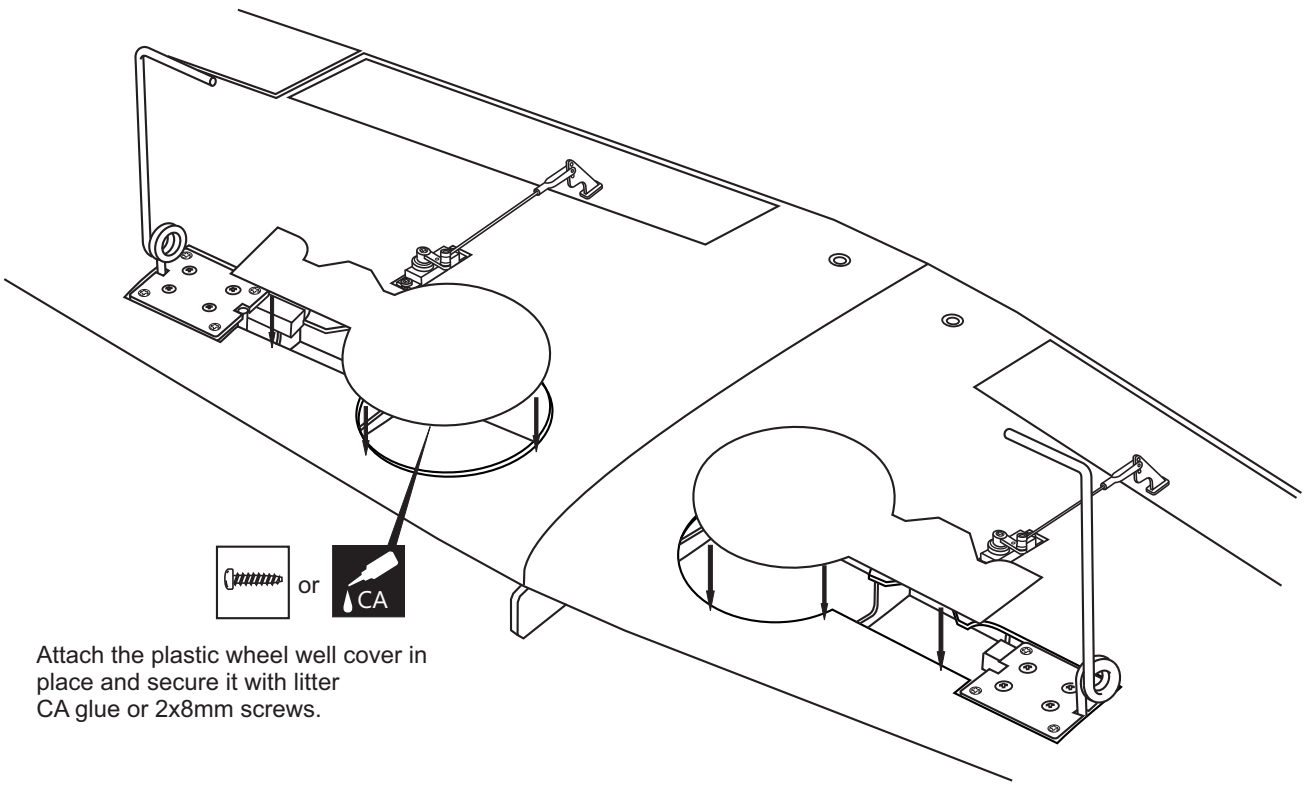
Main gear (right)



Main gear (left)

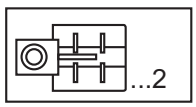
6- Fixed gear installation

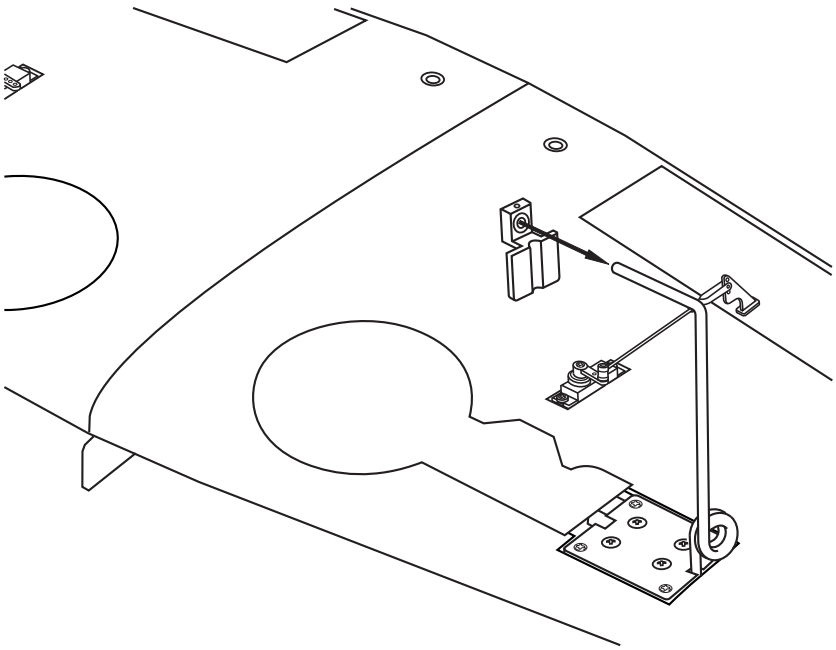


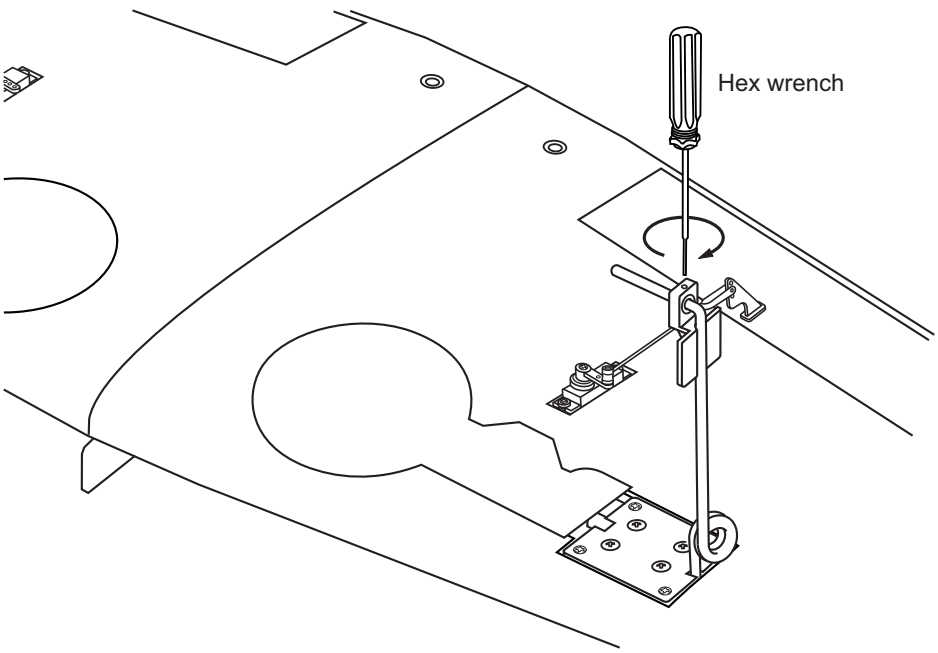


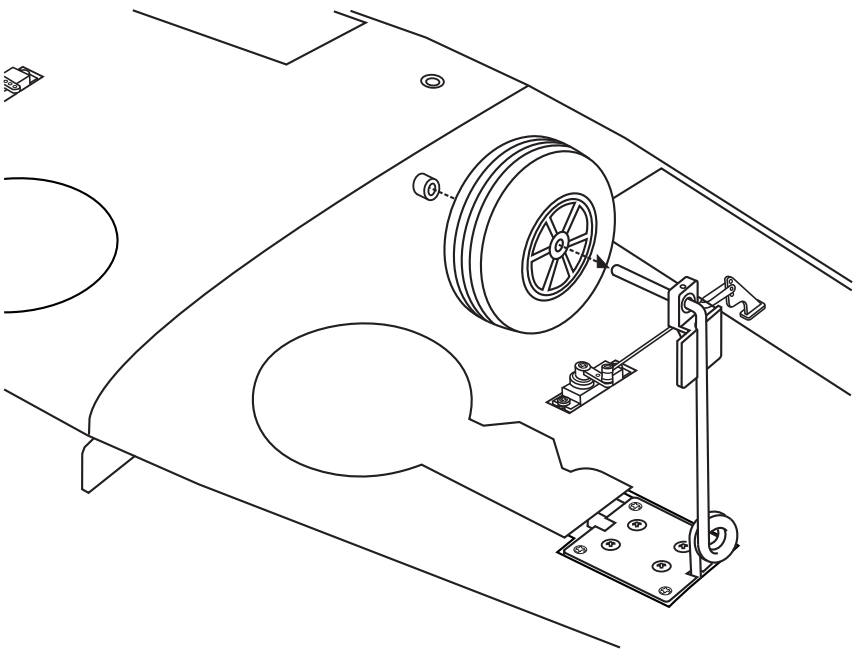
Attach the plastic wheel well cover in place and secure it with litter CA glue or 2x8mm screws.

7- Fixed gear installation continued



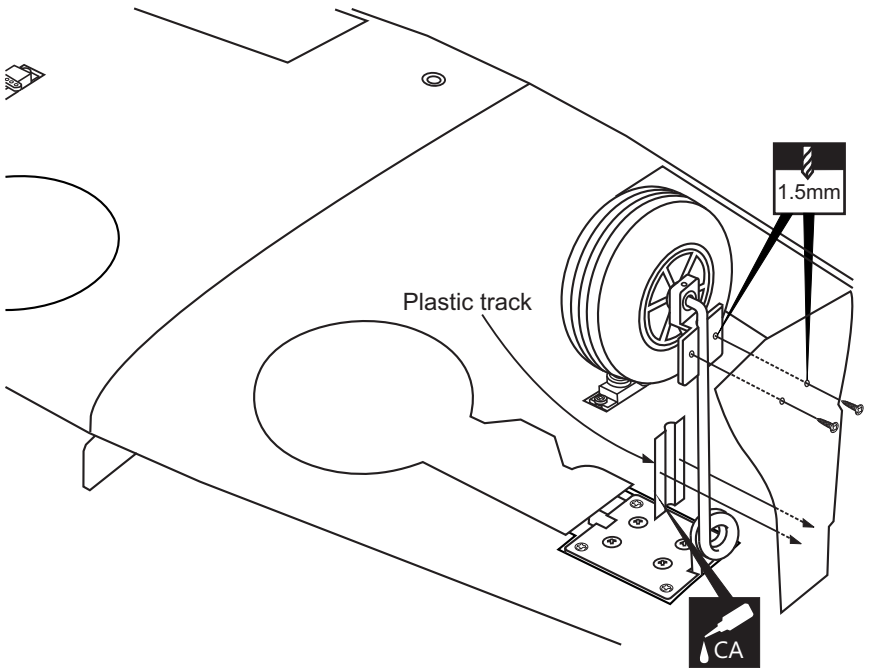






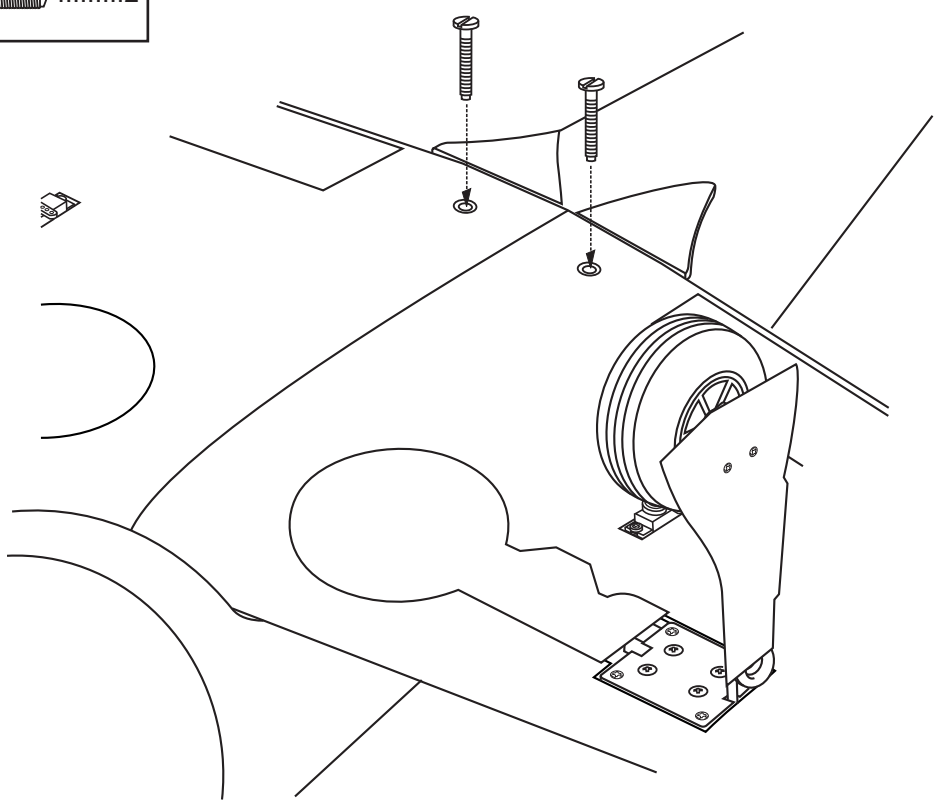
8- Fixed gear installation continued

2x6mm screw 4

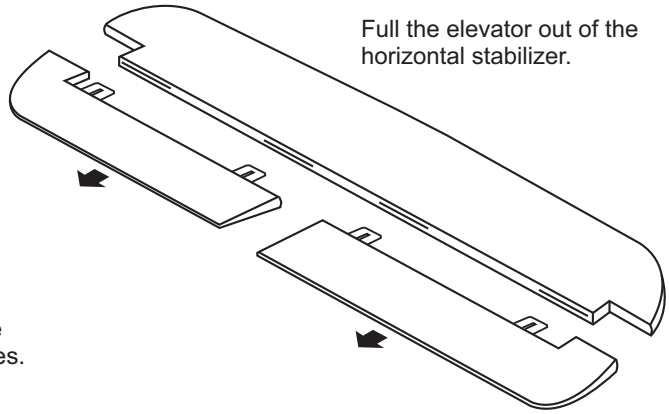


9- Attach the wing to the fuselage

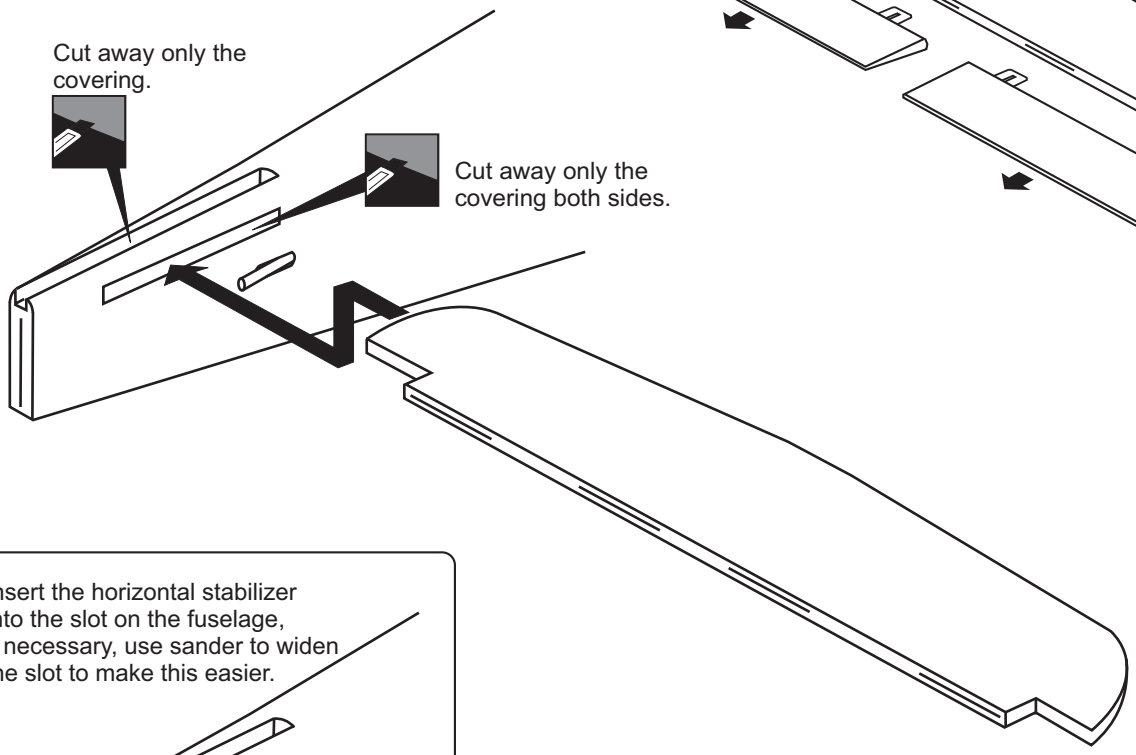
6x40mm nylon bolt 2

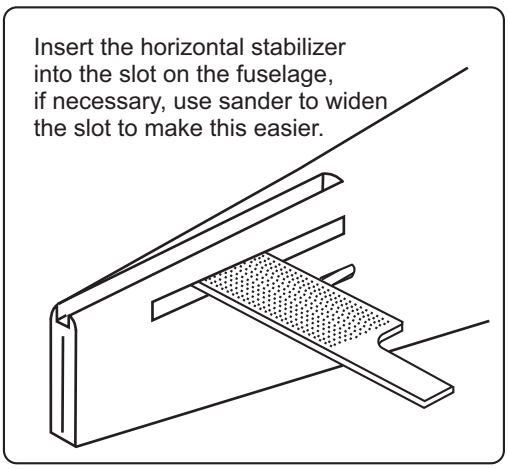


10- Horizontal stabilizer

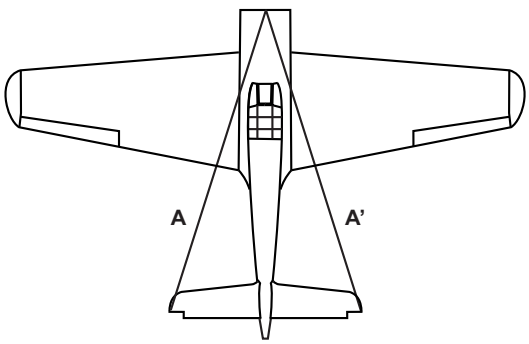


Full the elevator out of the horizontal stabilizer.

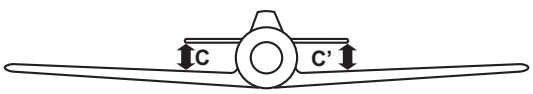




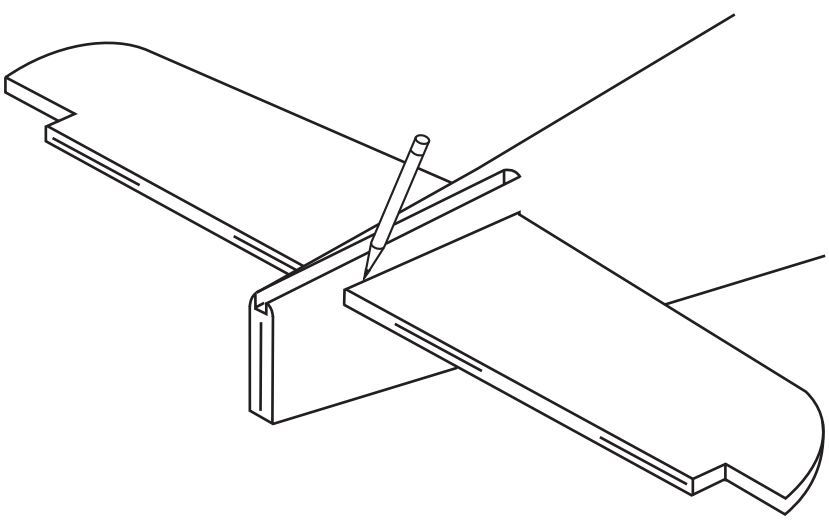
Insert the horizontal stabilizer into the slot on the fuselage, if necessary, use sander to widen the slot to make this easier.



A=A'



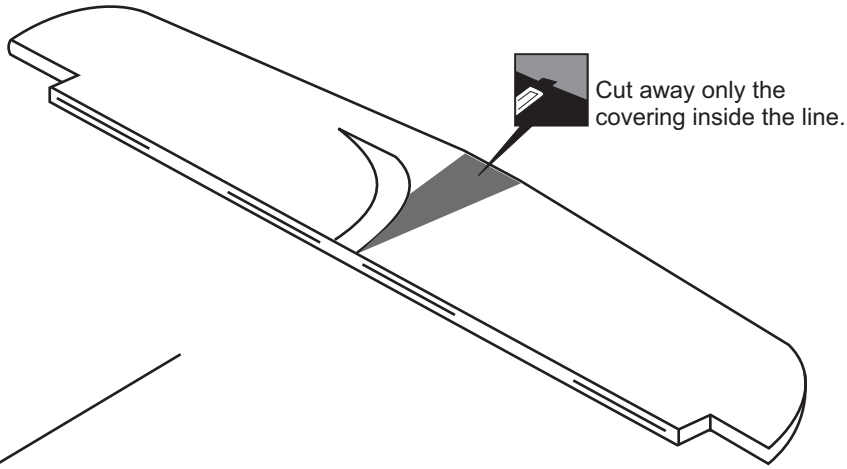
C=C'



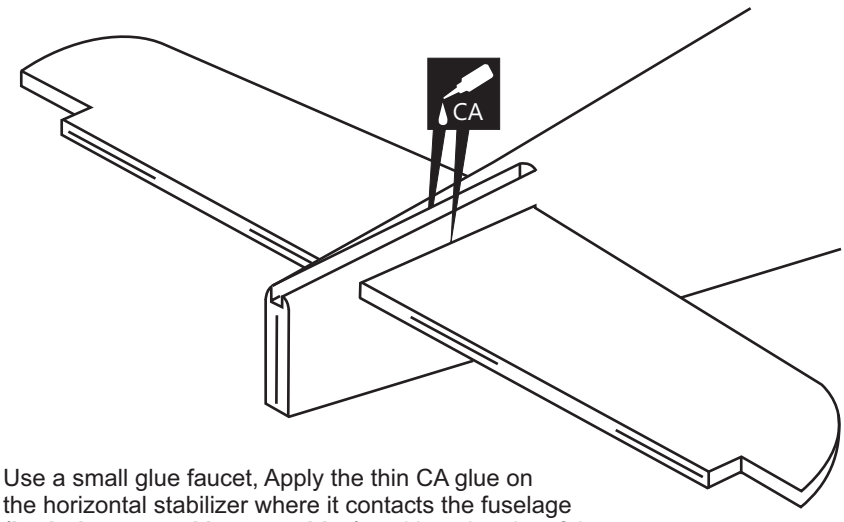
Check the alignment of the horizontal stabilizer. When you are satisfied with the alignment, use a pencil to trace around the top and bottom of the stabilizer where it meets the fuselage.

11- Horizontal stabilizer continued

Remove the horizontal stabilizer from the fuselage. Using the sharp hobby knife, carefully cut away the covering **inside the lines** which were marked above.

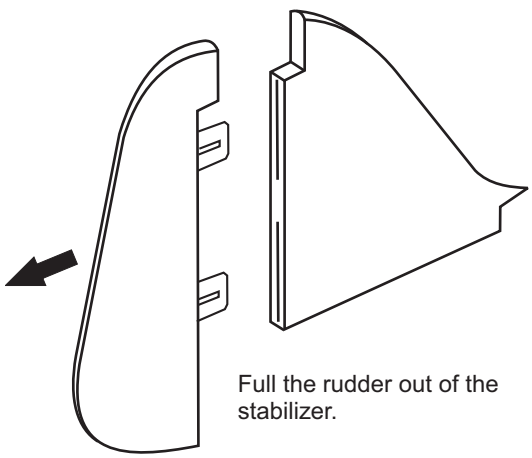


Be cautious **not to cut into the wood**, this will weaken the structure**.**

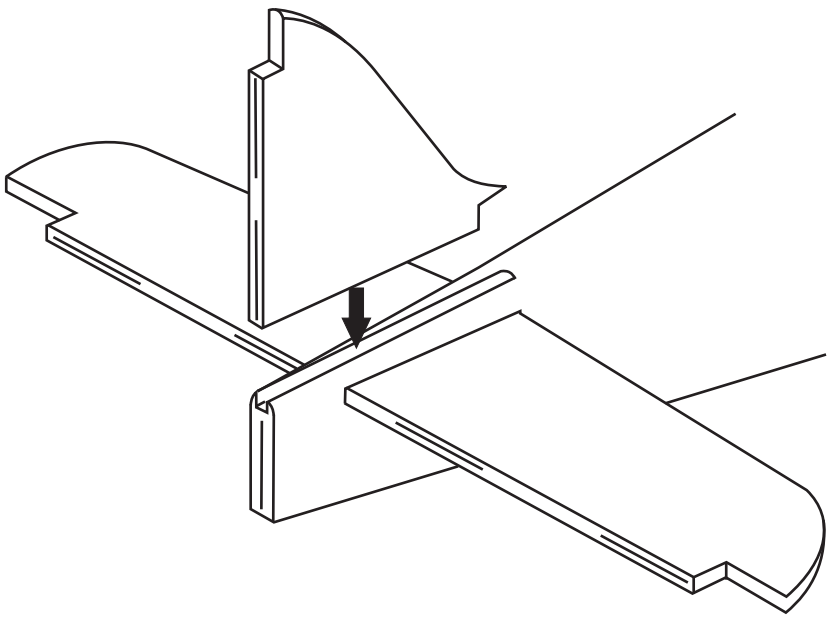


Use a small glue faucet, Apply the thin CA glue on the horizontal stabilizer where it contacts the fuselage **(both the top and bottom sides)**,and into the slot of the fuselage as show.

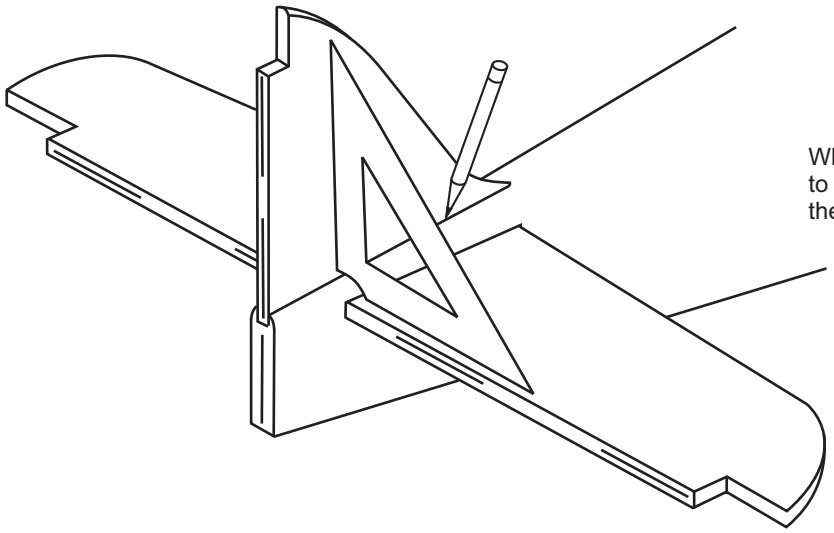
12- Vertical stabilizer



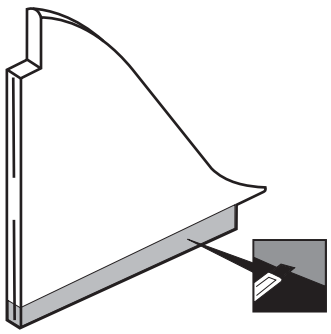
Full the rudder out of the stabilizer.



13- Vertical stabilizer continued

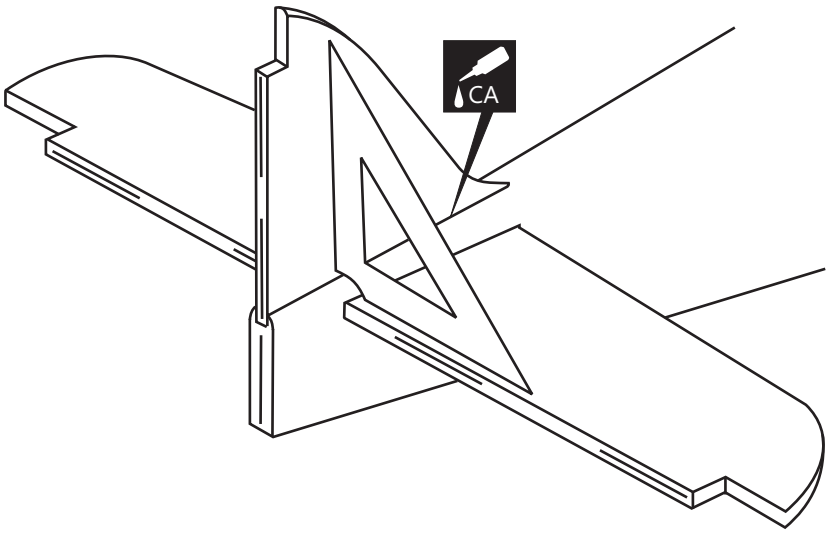


When you are satisfied with the alignment, use a pencil to trace around the right and left of the stabilizer where the vertical stabilizer meet the fuselage.



Remove the vertical stabilizer from the fuselage. Using the sharp hobby knife, carefully cut away the covering **inside the lines** which were marked above.

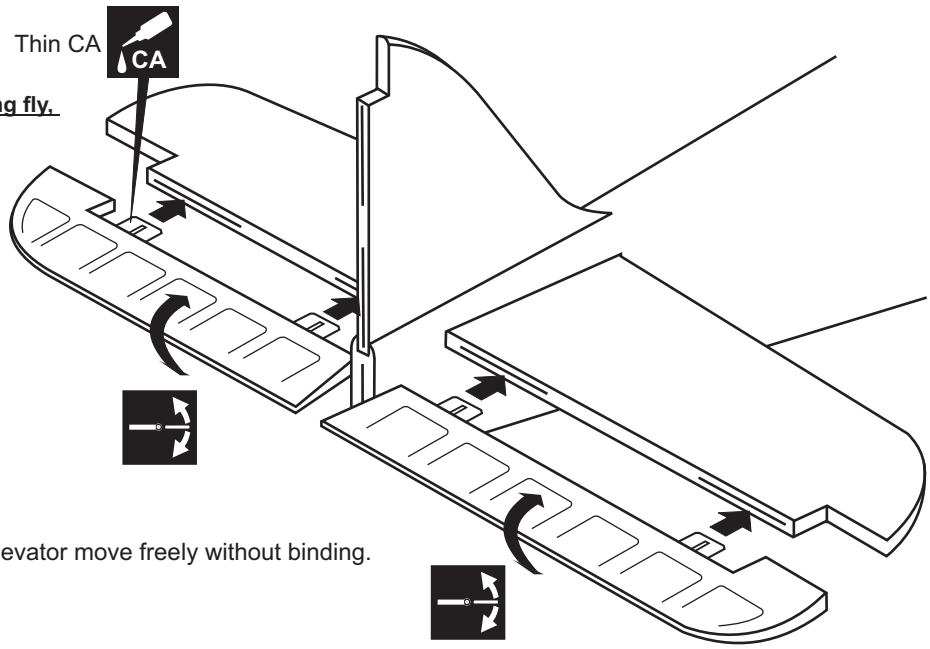
> Be cautious **not to cut into the wood**, this will weaken the structure**.**



Use a small glue faucet, Apply the thin CA glue on the vertical stabilizer where it contacts the fuselage.

! Securely glue together. If coming off during fly, you lose control of your air plane.

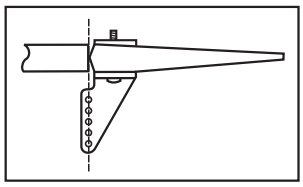
Thin CA



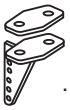
! Securely glue together. If coming off during fly, you lose control of your air plane.

Note: make sure the elevator move freely without binding.

14- Elevator and Rudder control horn



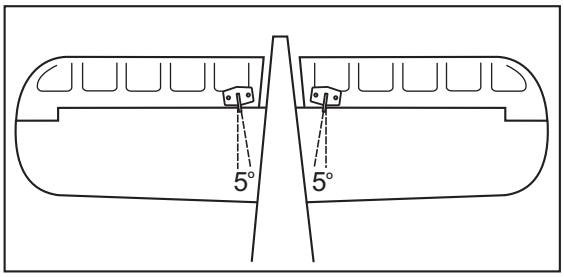
Plastic control horn

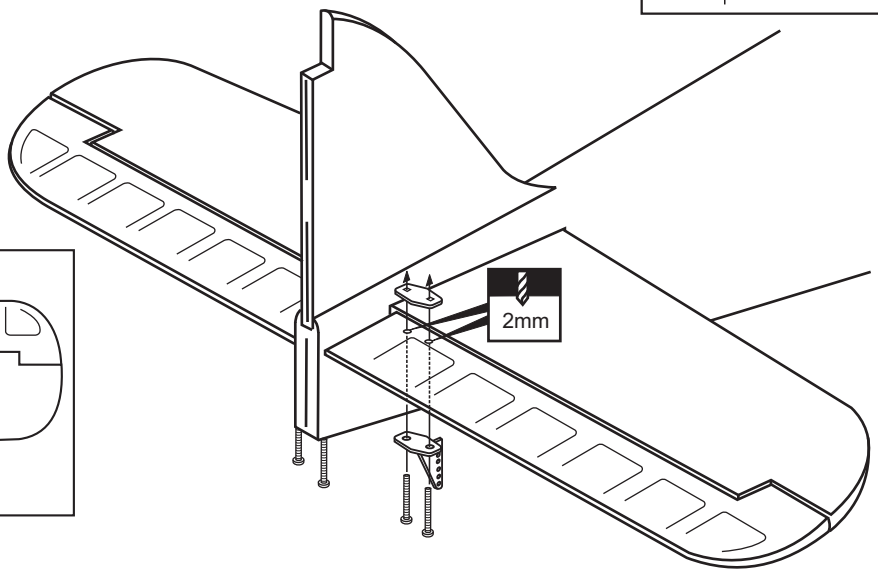


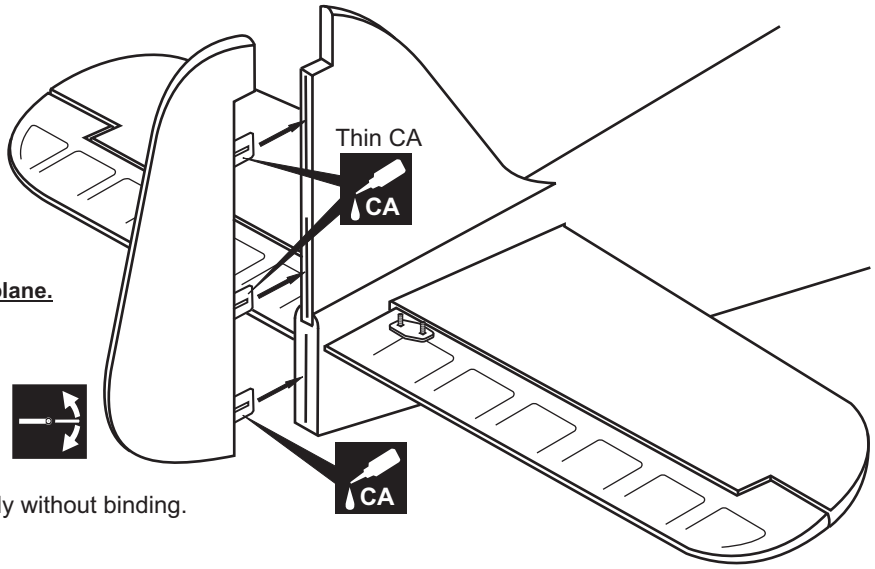
.....3

2x12mm screw

.....6

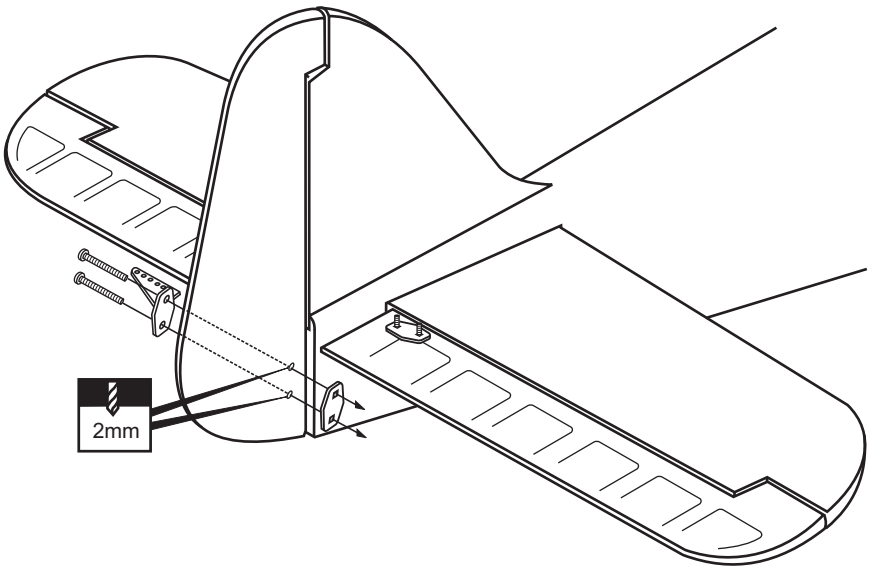




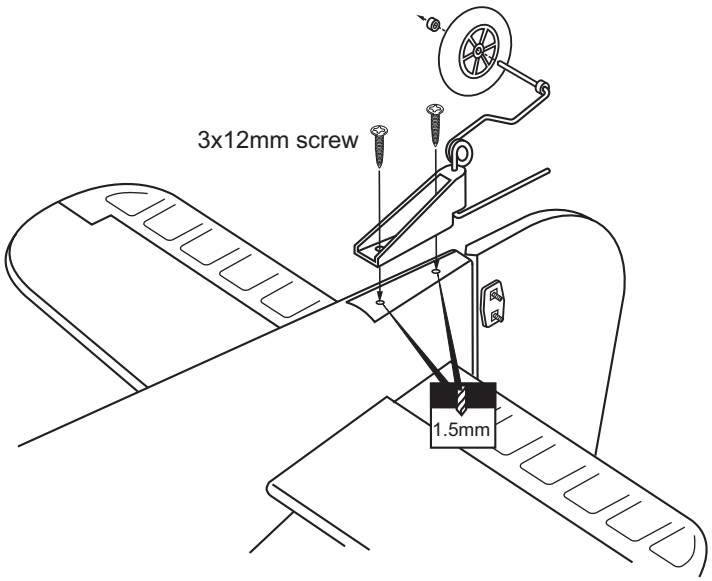


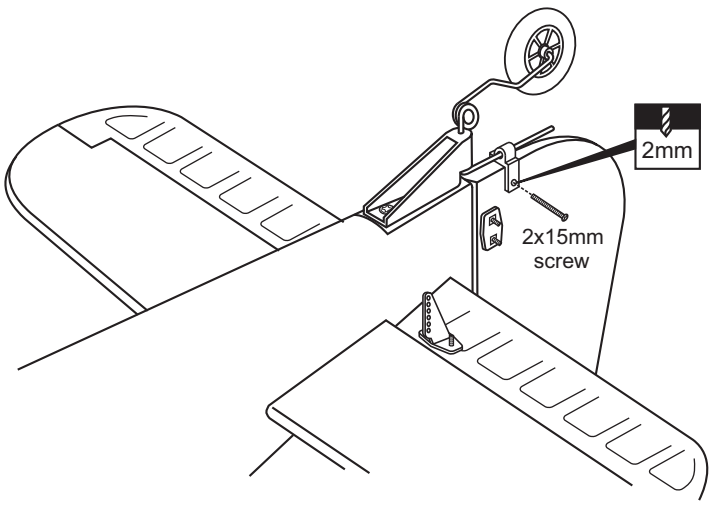
! Securely glue together. If coming off during fly, you lose control of your air plane.

Note: make sure the rudder move freely without binding.

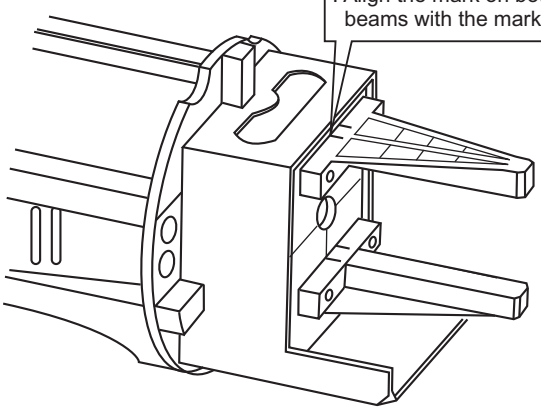


15- Tail wheel

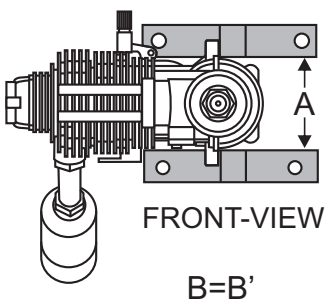


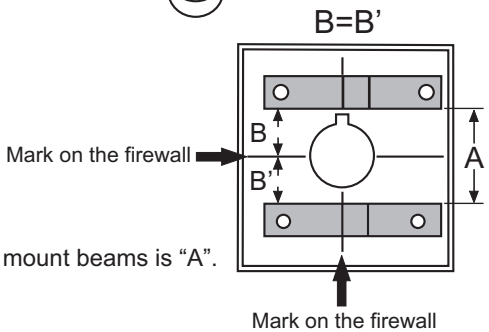


16- Glow engine

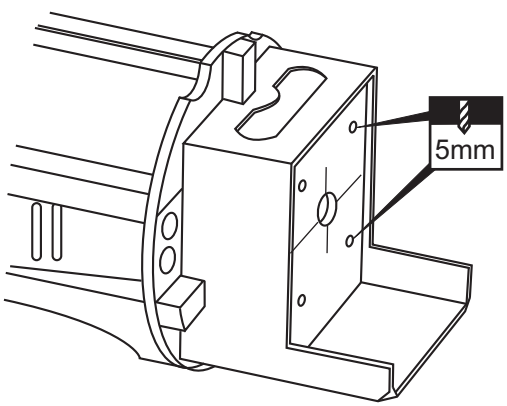


! Engine thrust on balk head is already adjust at factory





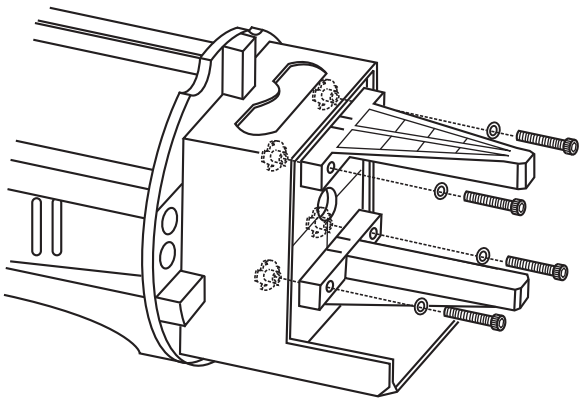
Attach the engine mount beams onto the fire-wall so the distance between of two engine mount beams is “A”. Secure the engine mount beams onto the fire-wall with litter CA glue.



Using a pencil or felt tipped pen, mark the fire wall where the four holes are to be drilled.

Carefully remove the engine mount beams and drill a 5mm hole through the fire-wall at each of the four marks made above.

17- Glow engine continued



4x25mm hex bolt 4

Blind-nut 4

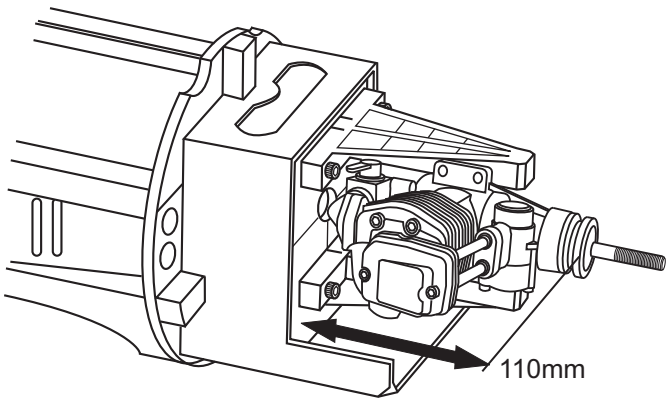
4mm washer 4

Insert the blind-nut onto each of the four holes make above.

Reposition the engine mount beams on to the fire-wall and secure them with four 4x25mm hex bolt.

3x20mm screw ...4

Nut 4



Position the engine to the engine mounts so the distance from the prop hub to the fire-wall is **110mm**.
Mark the engine mounting plate where the four holes are to be drilled.

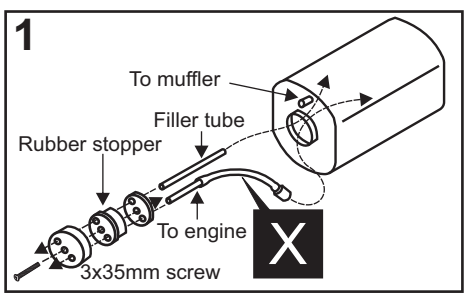
Remove the engine and drill a 3mm holes through the beam at each of the four marks made above.

Marking sure that you drill the hole perpendicular to the beam of the engine mount.

Reposition the engine on the engine mount beams, aligning it with the holes. Secure the engine to the engine mount using four 3x25mm hex bolts.

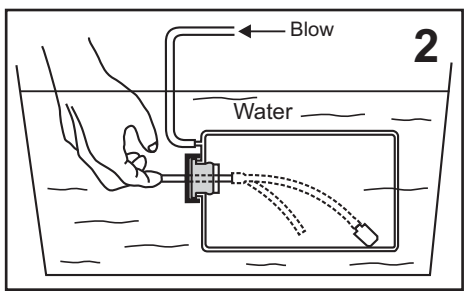
Note: Apply Silicon sealer to each of the 3x25mm bolt and nut.

18- Fuel tank (in case of glow engine using)

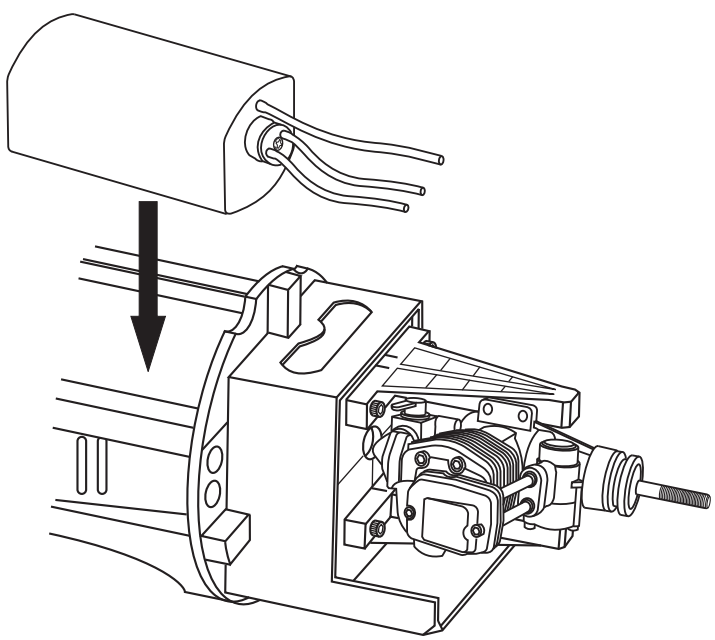


After confirming the direction . Insert this assembly, clunk end first, into the fuel tank and tighten and screw the fuel tankcap on firmly.

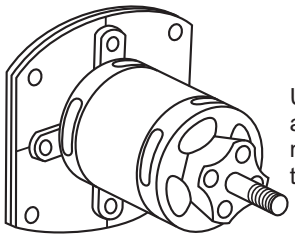
Ensure that the fuel tank clunk does not touch the rear of the fuel tank.



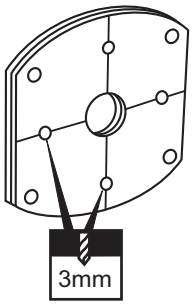
Checking for leaks - block the vents and blow into the feed, if in doubt submersing the tank in a blow of water will show up any problems.



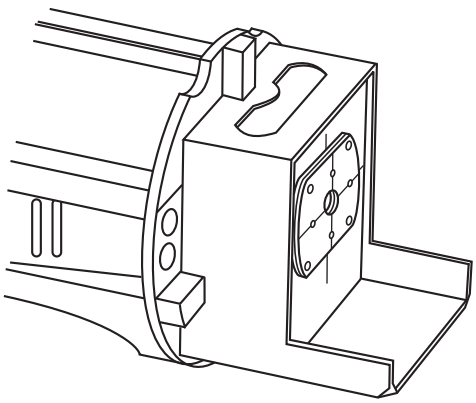
19- Electric motor



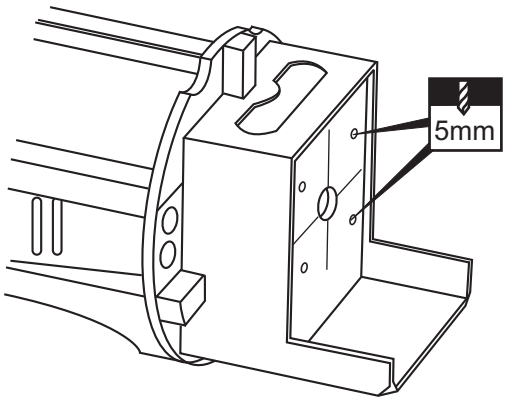
Using a aluminum motor mounting plate as a template, mark the plywood motor mounting plate where the four holes are to be drilled.



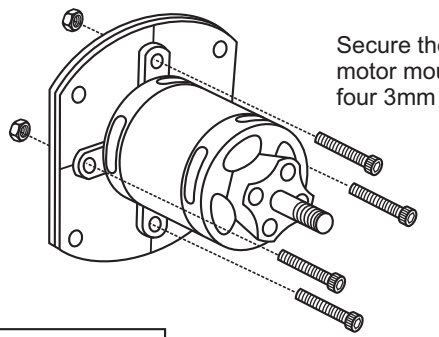
Remove the aluminum motor mounting plate and drill a 3mm hole through the plywood at each of the four marks marked .



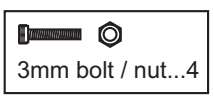
! Align the mark on the plywood motor mount with the mark on the firewall.

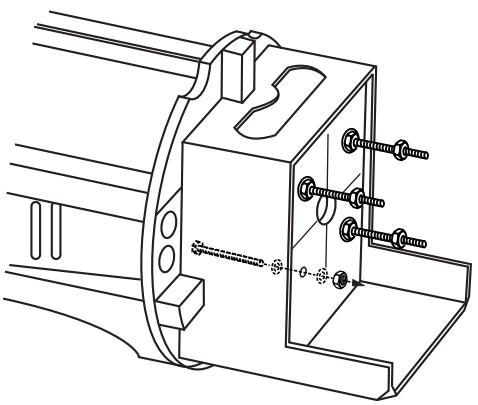


Remove the wooden motor mounting plate and drill a 5mm hole through the fire-wall at each of the four marks marked.

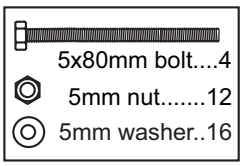


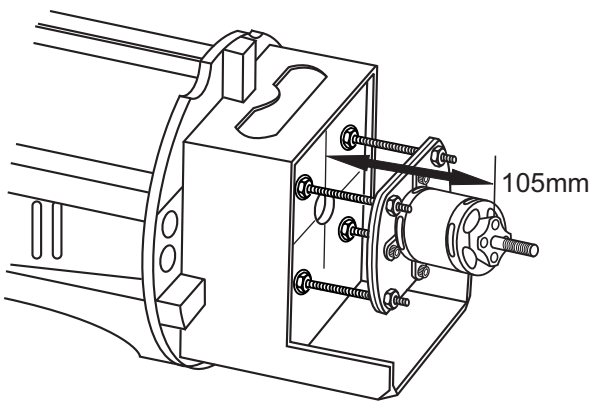
Secure the Motor to the wooden motor mounting plate using the four 3mm bolts.





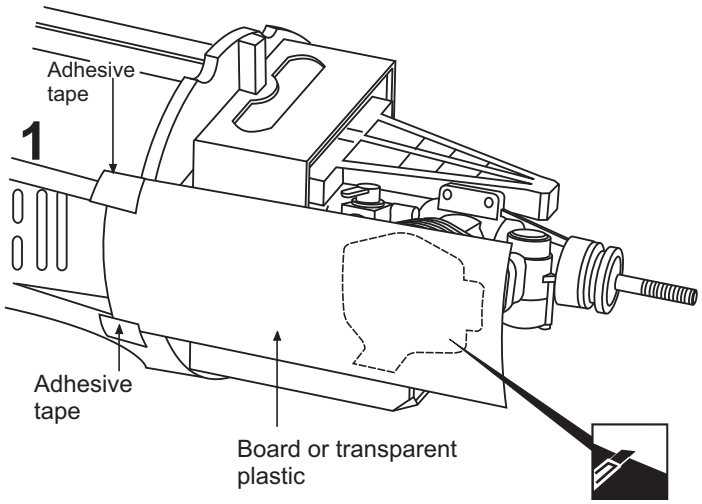
Attach the four 5x80mm bolts and nuts to the fire-wall as shown.





Distance from the prop hub to the fire-wall is **105mm**.

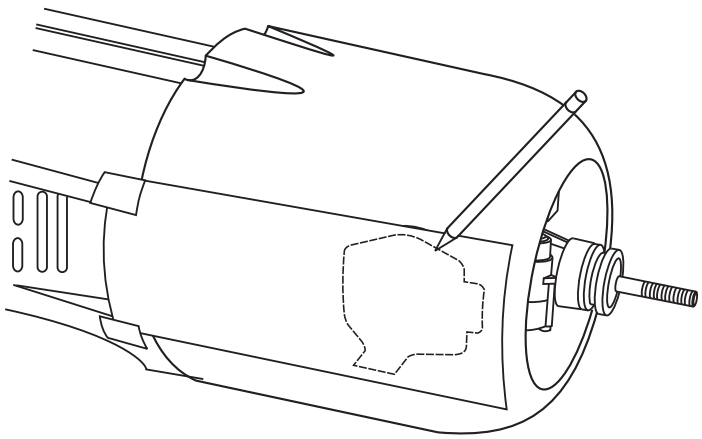
20- Cowling



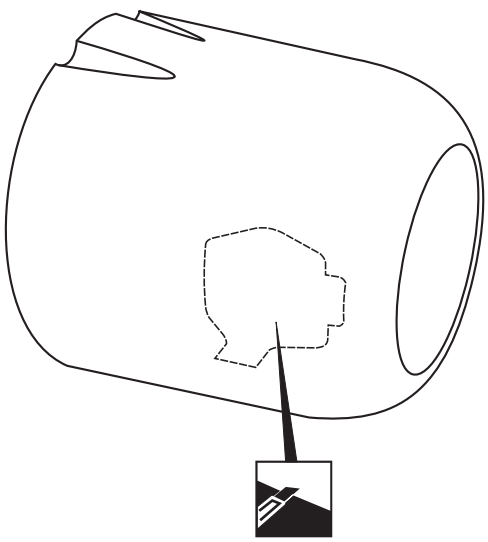
Attach the board or transparent plastic on the side of the fuselage with the adhesive tape as show.
Using a pencil or felt tipped pen trace around the engine head where it meets the cowl. Cut the opening the board or transparent plastic for the engine head as marked above.

Do the same way with the needle vale.

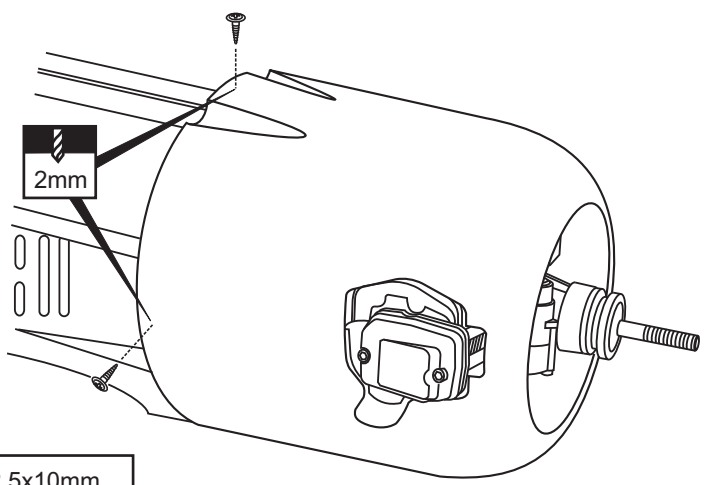
Cut the opening the board or the transparent plastic.



Remove the engine and insert the cowl on to the fuselage so the distance from the fire wall to the front of the cowl is 100-105mm.
Using a pencil trace around the hole where it meets the cowl.



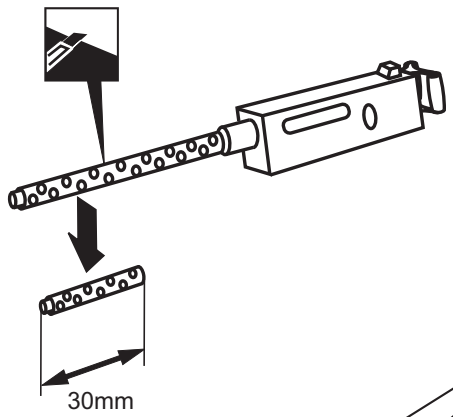
Cut the opening the cowl.
Remove the cowl from the fuselage and carefully cut the opening for the engine head as marked above. Do the same way with the hole for needle-valve.

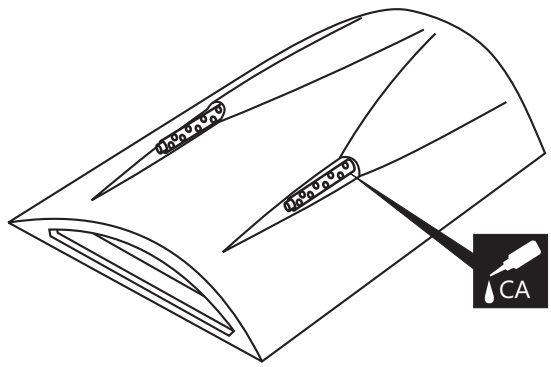


2.5x10mm 3

Again. Insert the cowl on to the fuselage and secure it in place with three 2.5x10mm screws.

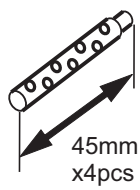
22- Decor



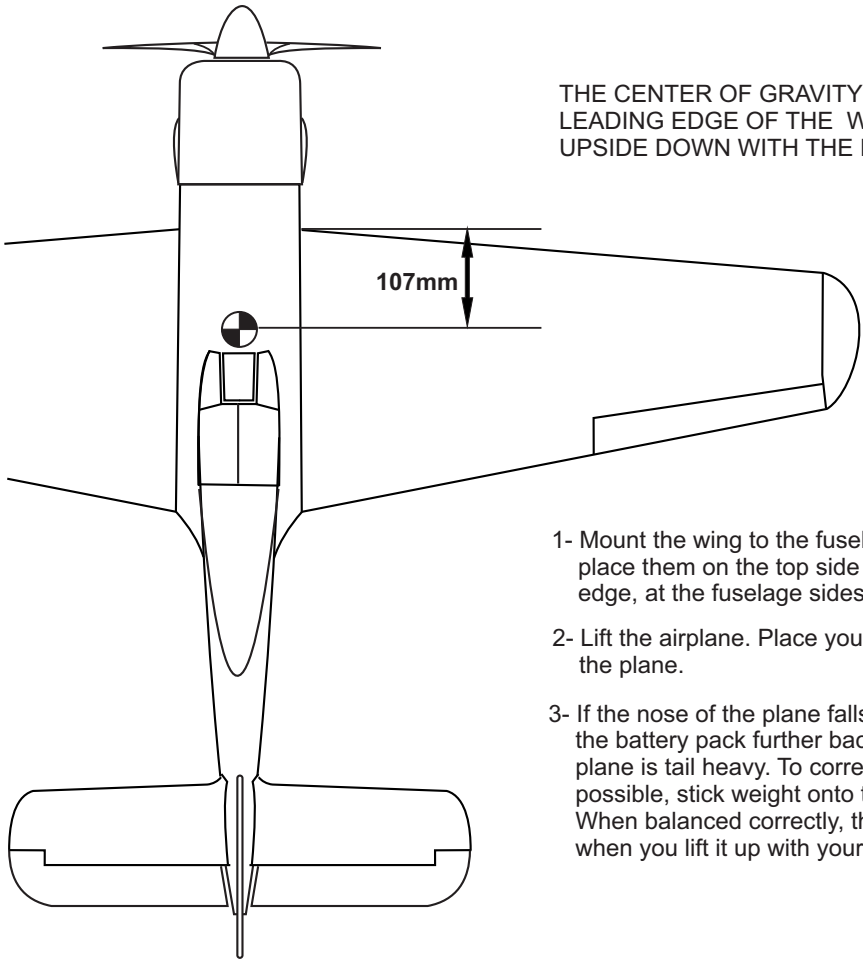


Magnetic fuel tank hatch

Drill the 4mm hole and 3mm deep
before attaching the plastic gun barrel.



23- Balance and control surface



THE CENTER OF GRAVITY IS LOCATED 107mm BACK FROM THE LEADING EDGE OF THE WING, AT THE FUSELAGE. BALANCE A PLANE UPSIDE DOWN WITH THE FUEL TANK EMPTY.

1- Mount the wing to the fuselage. Using a couple of pieces of masking tape, place them on the top side of the wing (107mm) back from the leading edge, at the fuselage sides.

2- Lift the airplane. Place your fingers on the masking tape and carefully lift the plane.

3- If the nose of the plane falls, the plane is heavy nose. To correct this, move the battery pack further back in the fuselage. If the tail of plane falls, the plane is tail heavy. To correct this, move the battery forward or if this is not possible, stick weight onto the firewall.
When balanced correctly, the airplane should level or slightly nose down when you lift it up with your fingers.

LATERAL BALANCE:

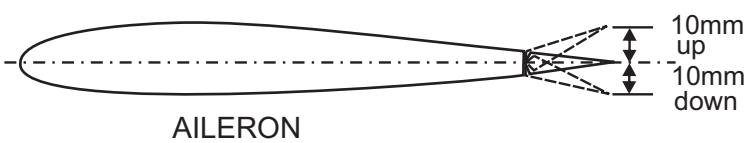
After you have balanced a plane on the CG, you should laterally balance it. Doing this will help the airplane track straighter.

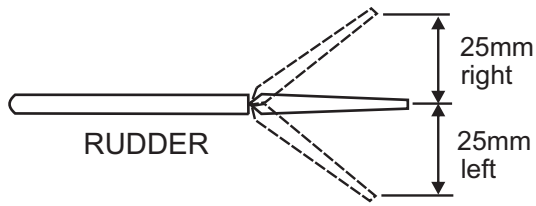
1- Turn the airplane upside down. Attach one loop of heavy string to the engine crankshaft and one to the tail wheel wire. With the wing level, carefully lift the airplane by the string. This may require two people to make easier.

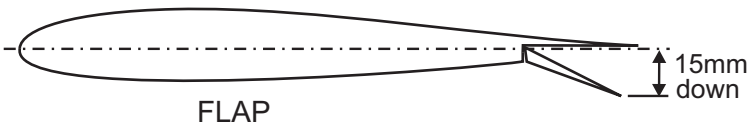
2- If one side of the wing fall, that side is heavier than the opposite. Add small amounts of lead weight to the bottom side of the lighter wing half's wing tip. Follow this procedure until the wing stays level when you lift the airplane.

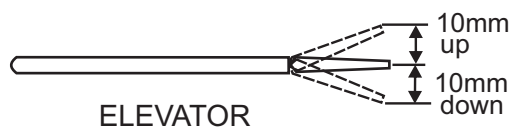
DO NOT try to fly an out-of-balance model !

CONTROL SURFACE









IMPORTANT: Flying your model at these throws will provide you with the greatest chance for successful first flights.
If,after you have become accustomed to the way the FW-190 flies, you would like to change the throws to suit your taste that is fine. However, too much control throw could make the model difficult to control, so remember, "more is not always better".

LOW RATE

Aileron	: 10mm up / down
Elevator	: 10mm up / down
Rudder	: 25mm right / left
Flap	: 15mm down

HIGH RATE

Aileron	: 12mm up / down
Elevator	: 12mm up / down
Rudder	: 30mm right / left
Flap	: 25mm down