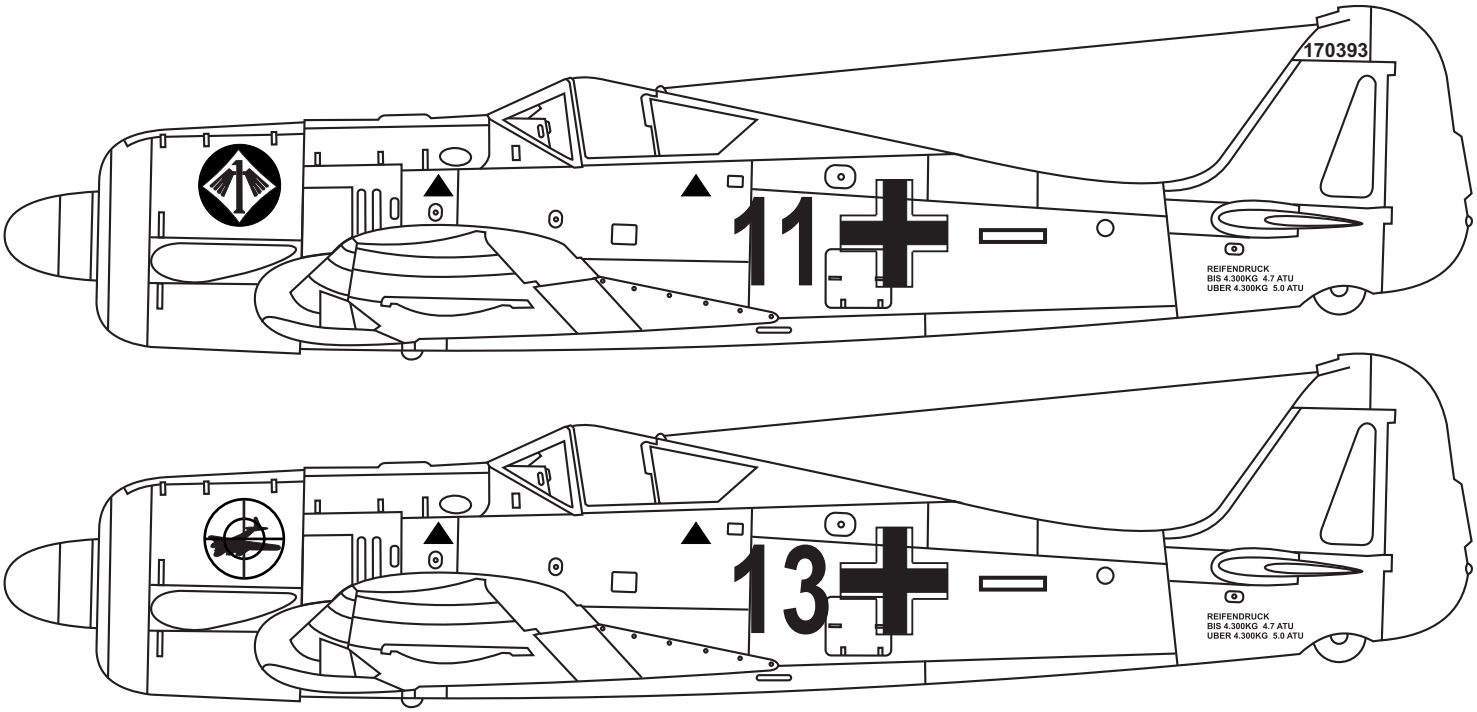
60 Class
2-cycle engine

90 Class
4-cycle engine

FW-190A Focke-Wulf

BUILDING INSTRUCTIONS / MONTAGEANLEITUNG



SPECIFICATIONS

Wingspan	1610mm
Length	1220mm
Flying weight	2900g
Electric Motor	800 Watt (BOOST 60)
Glow Engine	7,5cc 2T / 8,5cc 4-T
Radio	5 Channel / 6 Servos

Technische Daten

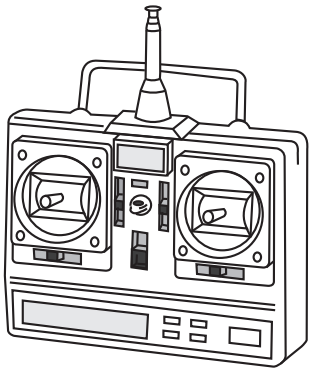
Spannweite	1610mm
Länge	1220mm
Fluggewicht	2900g
Elektroantrieb	800 Watt (BOOST 60)
Verbrennerantrieb	7,5cc 2T / 8,5cc 4T
Fernsteuerung	5 Kanal / 6 Servos

RADIO CONTROL MODEL ®

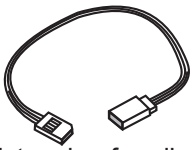
WARNING! This radio controlled model is NOT a toy. If modified or flown carelessly it could go out of controll and cause serious human injury or property damage. Before flying your airplane, ensure the air field is spacious enough. Always fly it outdoors in safe areas and seek professional advice if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

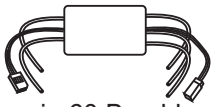
REQUIRED FOR OPERATION (Purchase separately)



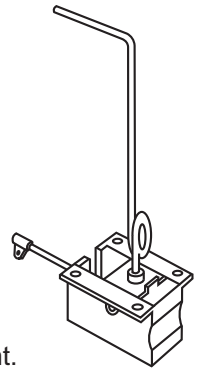
12x6 for .60 - 4 cycle engine
13x7 for .90 - 4 cycle engine
14X8 for Quantum 4120/07



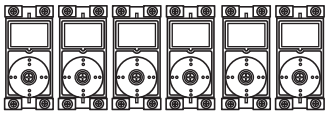
Extension for aileron servo, retract servo.



Phoenix-60 Brushless Motor Control or equivalent.

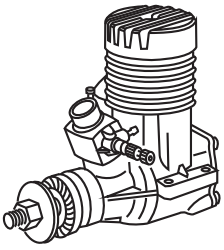


Retract landing gear VQAR010

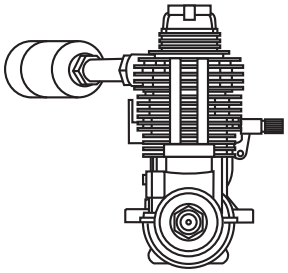


Minimum 6 channel radio for airplane with 6 servos

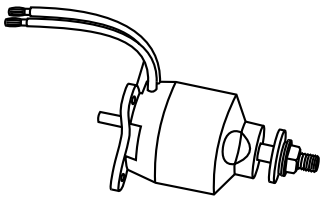
.Motor control x1 .Aileron x2
.Elevator x1 .Rudder x1
.Flap x 1



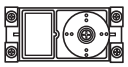
.60 - 2 cycle



.90 - 4 cycle

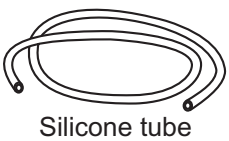


Brushless Motor BOOST 60

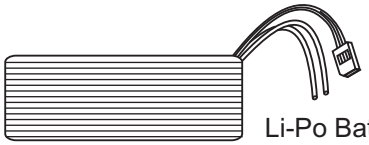


Retract servo x1

Linkage Stopper x2 (for retract servo)



Silicone tube



Li-Po Battery, 14.8V, 4500mAH (25C)

GLUE (Purchase separately)

Silicon sealer

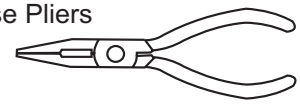
Cyanoacrylate Glue

Epoxy Glue (5 minute type)
Epoxy Glue (30 minute type)

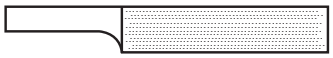
TOLLS REQUIRED (Purchase separately)

Hobby knife

Needle nose Pliers

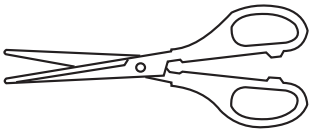


Sander



Phillip screw driver

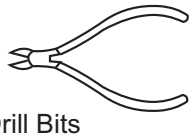
Scissors



Hex Wrench

Awl

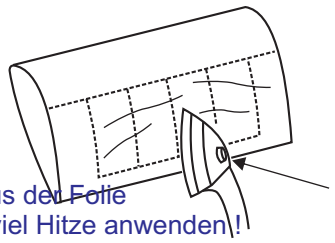
Wire Cutters



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

Symbols used throughout this instruction manual, comprise:

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

Take particular care here

Hatched-in areas: remove covering film carefully

Check during assembly that these parts move freely, without binding

Use epoxy glue

Apply cyano glue

Assemble left and right sides the same way.

Not included. These parts must be purchased separately

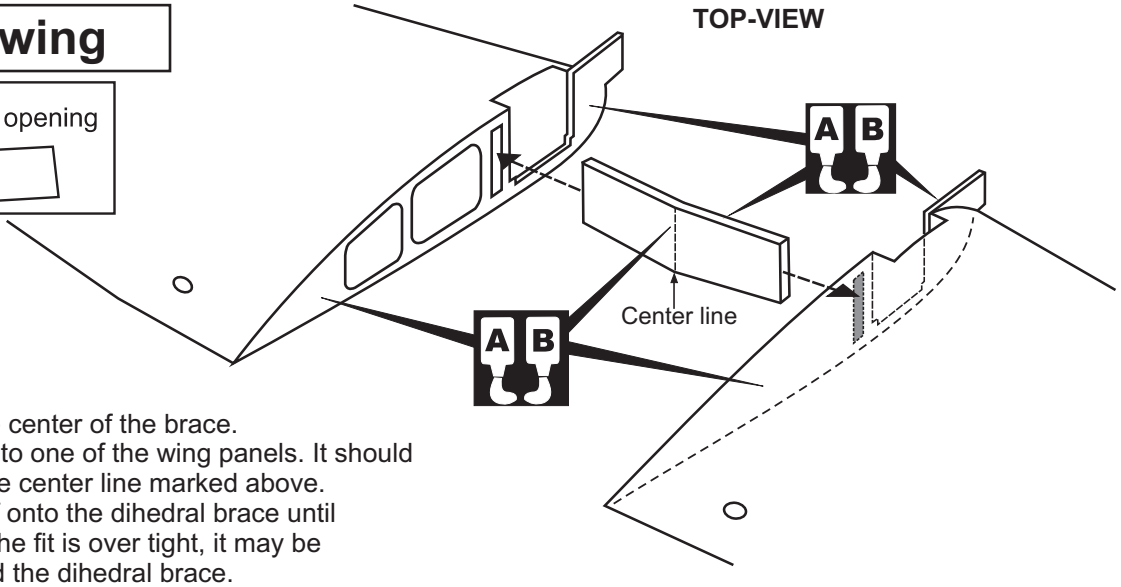
Read through the manual before you begin, so you will have an overall idea of what to do.

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”	

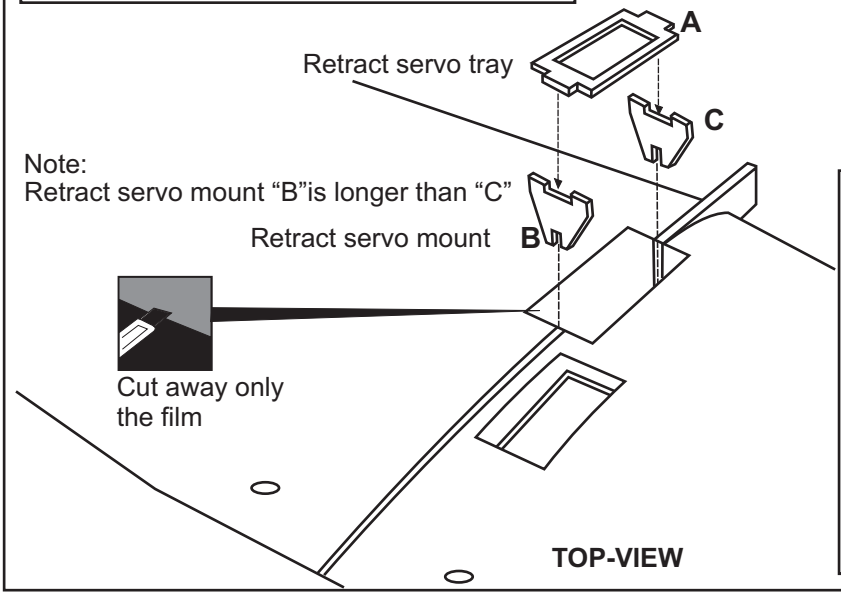
1- Joining the wing

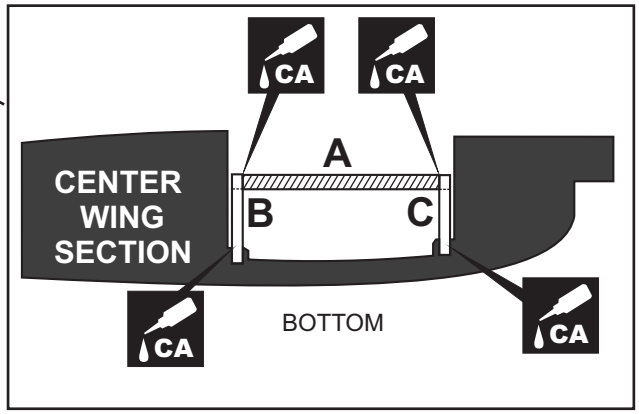
Use epoxy glue to bury the opening



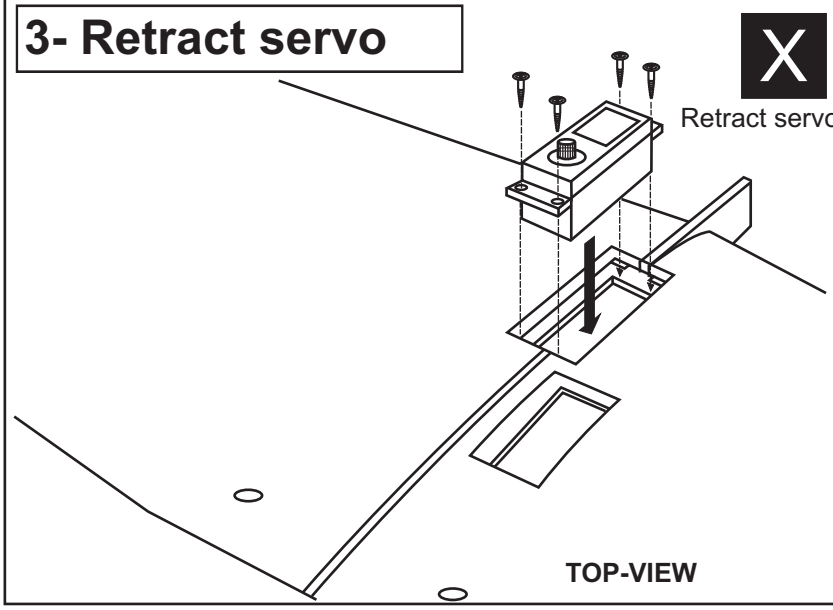
1- Using a pencil, mark the center of the brace.
2- Trial fit the wing joiner into one of the wing panels. It should insert smoothly up to the center line marked above.
3- Slide the other wing half onto the dihedral brace until the wing panel meet. If the fit is over tight, it may be necessary to lightly sand the dihedral brace.
4- Check for the correct dihedral angle.
5- Mix approximately 30 minute epoxy and apply a generous amount of epoxy into the wing joiner cavity of one wing half.
6- 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, marking sure that the “V” of the dihedral brace is positioned correctly
7- Do the same way with the other wing half.
8- 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. Clear off the excess epoxy.

2- Retract servo mount





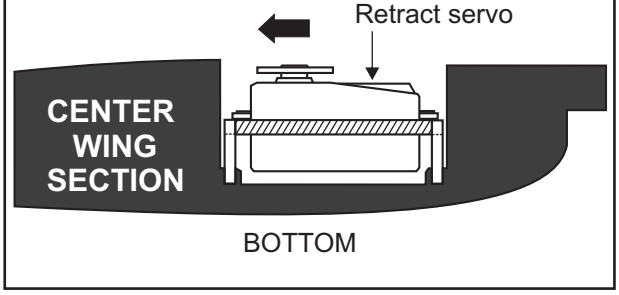
3- Retract servo



Install the retract servo onto the retract servo mount and secure it in place with four screw (included with radio set).

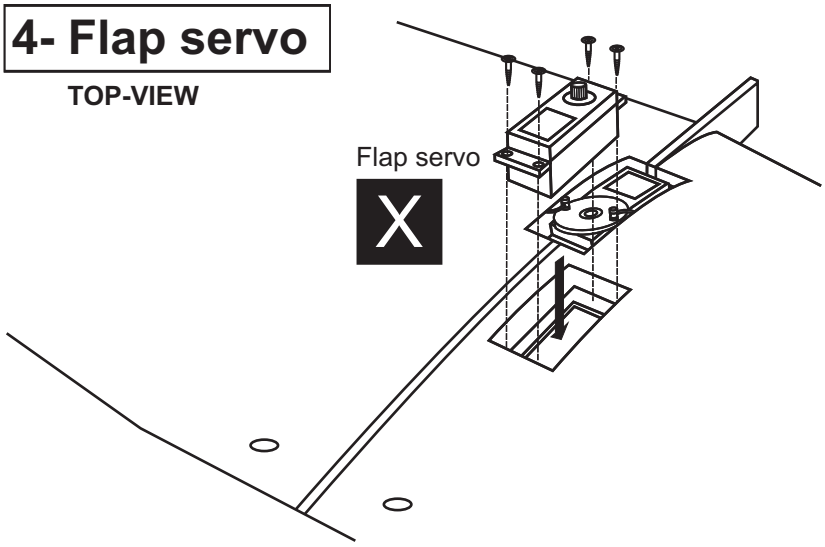
RETRACT SERVO INSTALLATION

Note: The head of servo should be positioned toward the rear of the wing.



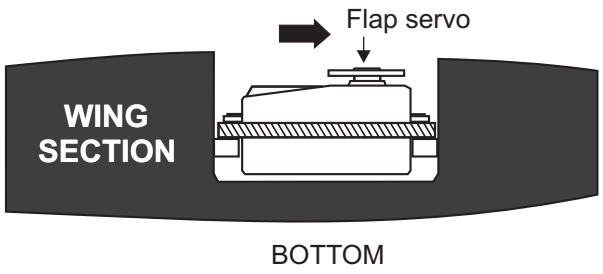
4- Flap servo

TOP-VIEW

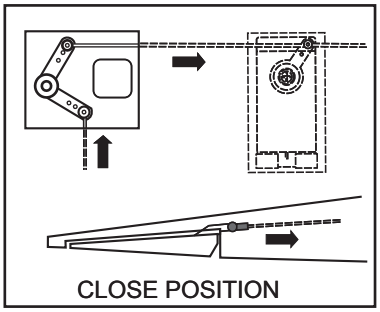


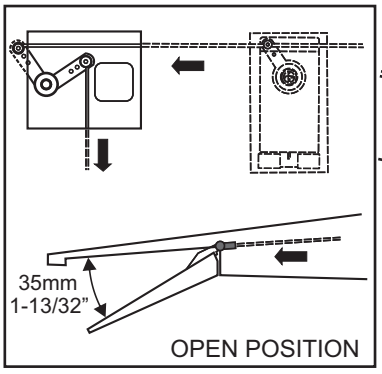
FLAP SERVO INSTALLATION

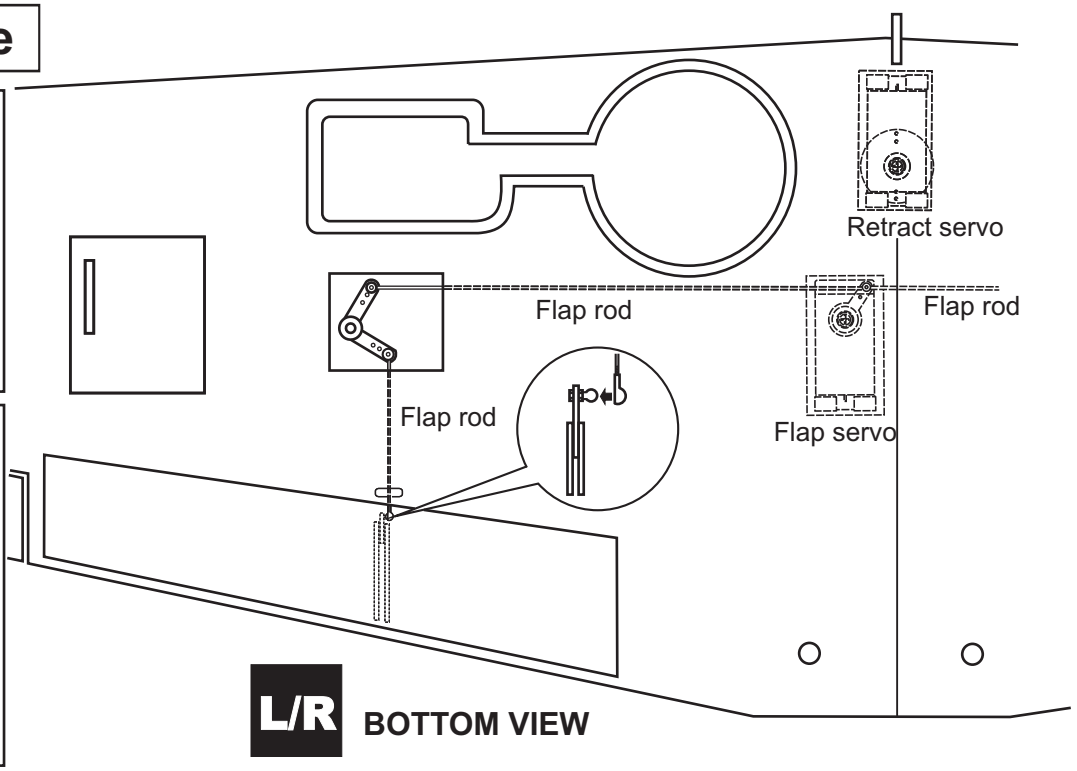
Note: The head of servo should be positioned toward the front of the wing.



5- Flap - Linkage

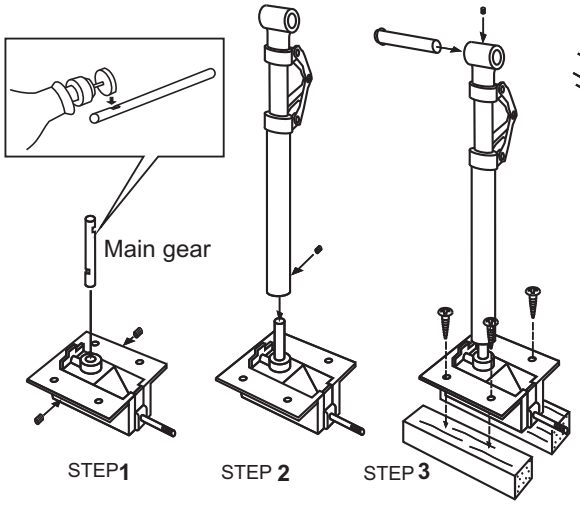


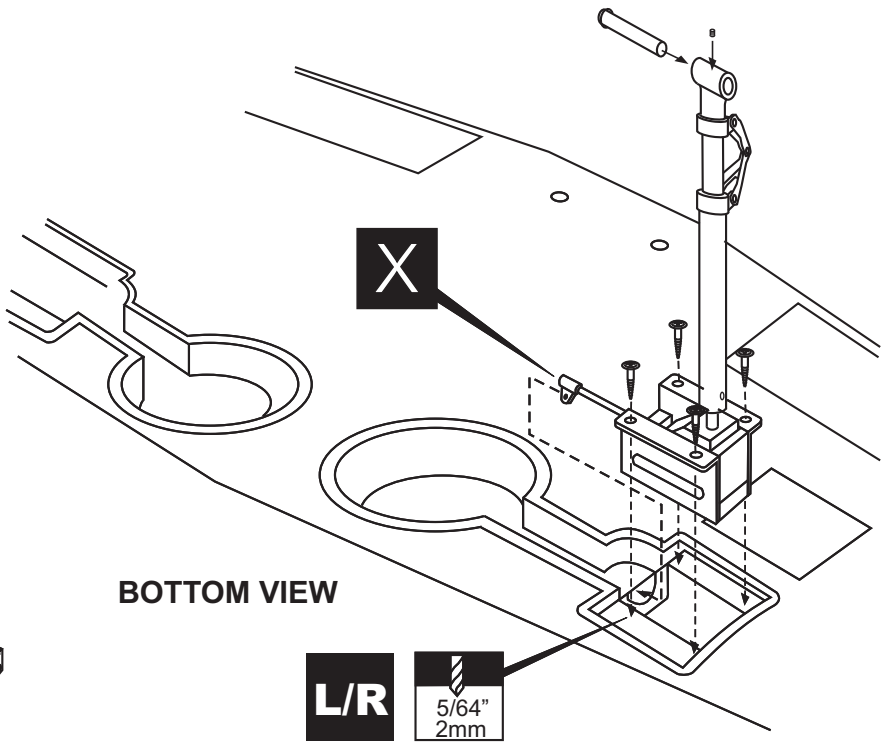




6- Retract landing gear

3x15mm screw 8



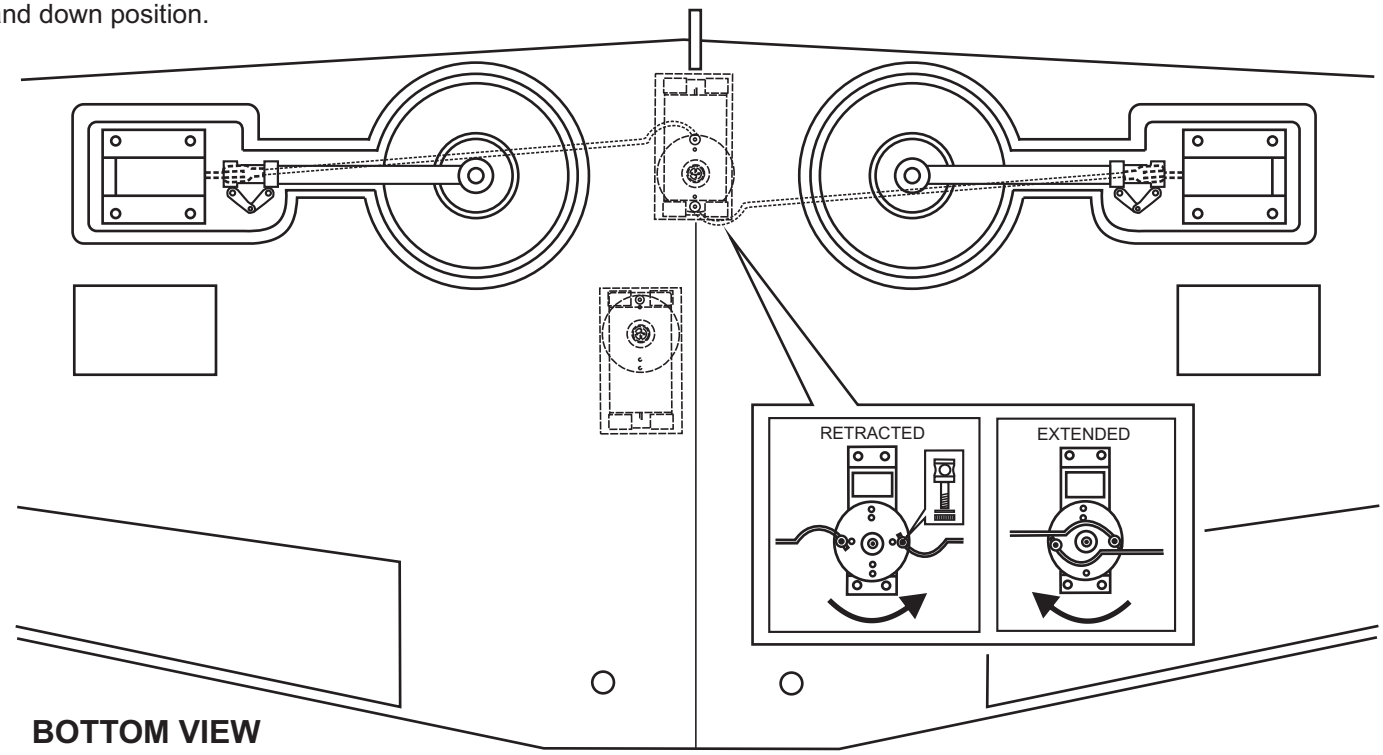


Note: Retract landing gear and Strut not included.

7- Retract landing gear

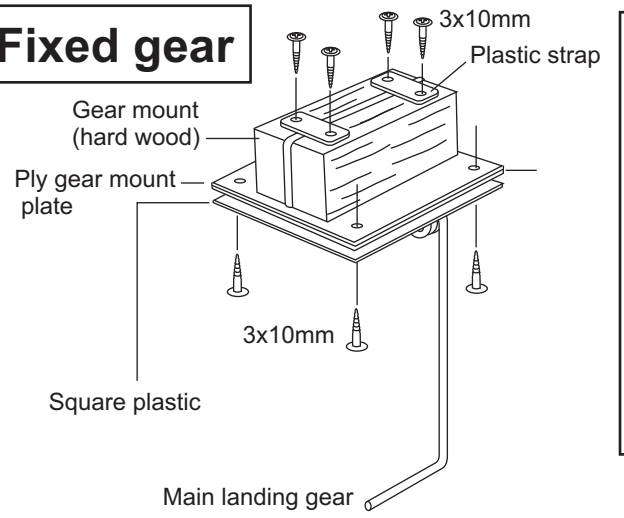
With the retract and retract servo in the retracted position, mark the position where each of the pushrod will attach to the servo arm, a small piece of masking tape works well for this. Cut off the excess length each rod.

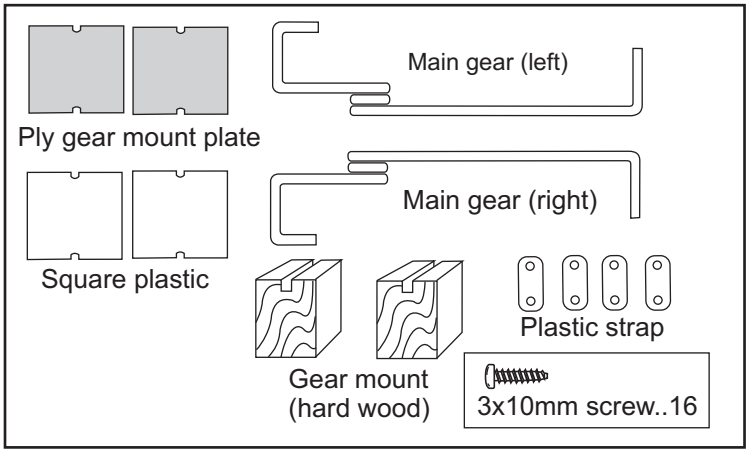
Link the servo and retract gear arm with push rod. Be sure to adjust the stroke so that the landing gear locks in both up and down position.



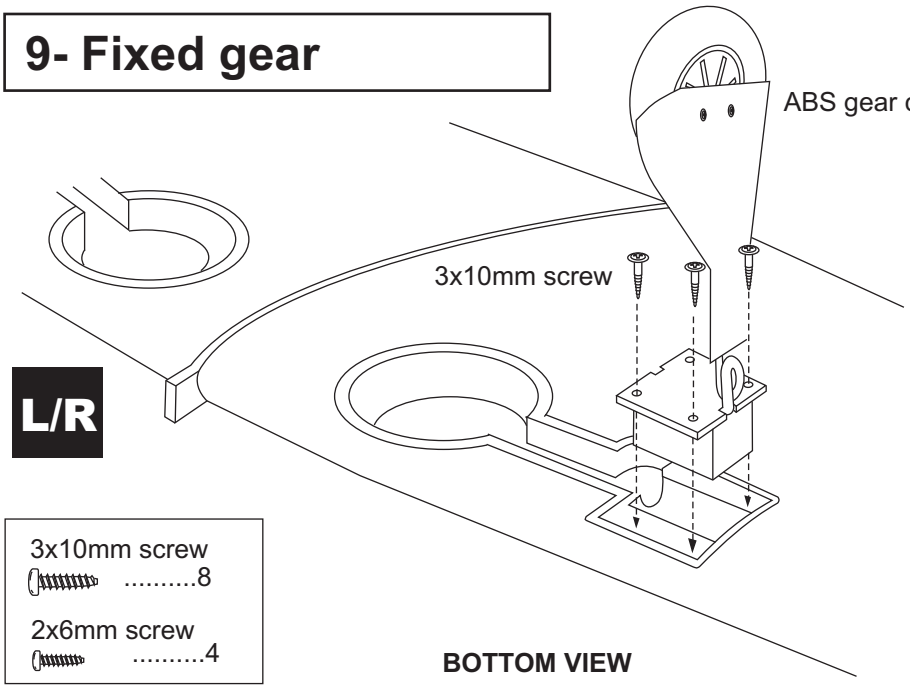
BOTTOM VIEW

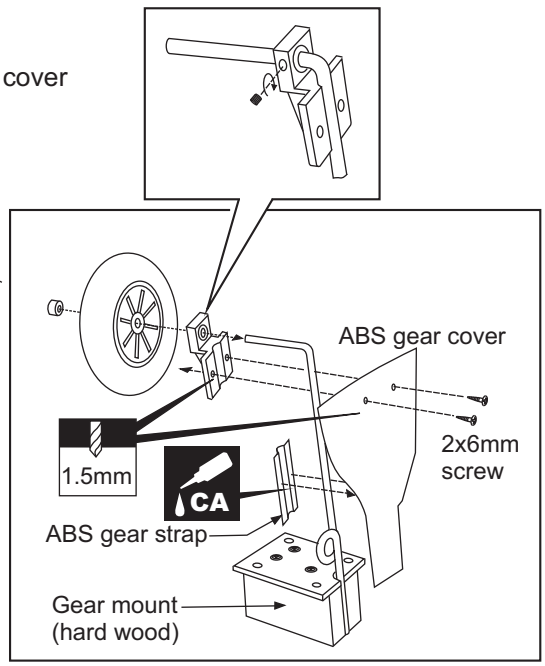
8- Fixed gear



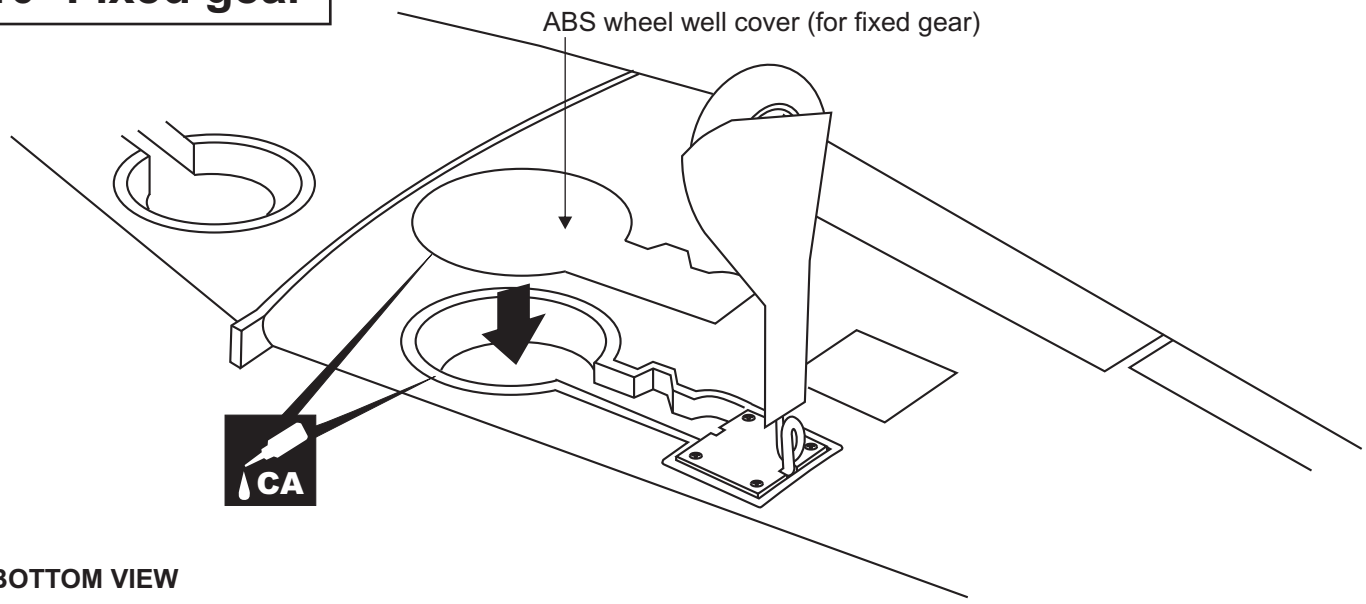


9- Fixed gear





10- Fixed gear

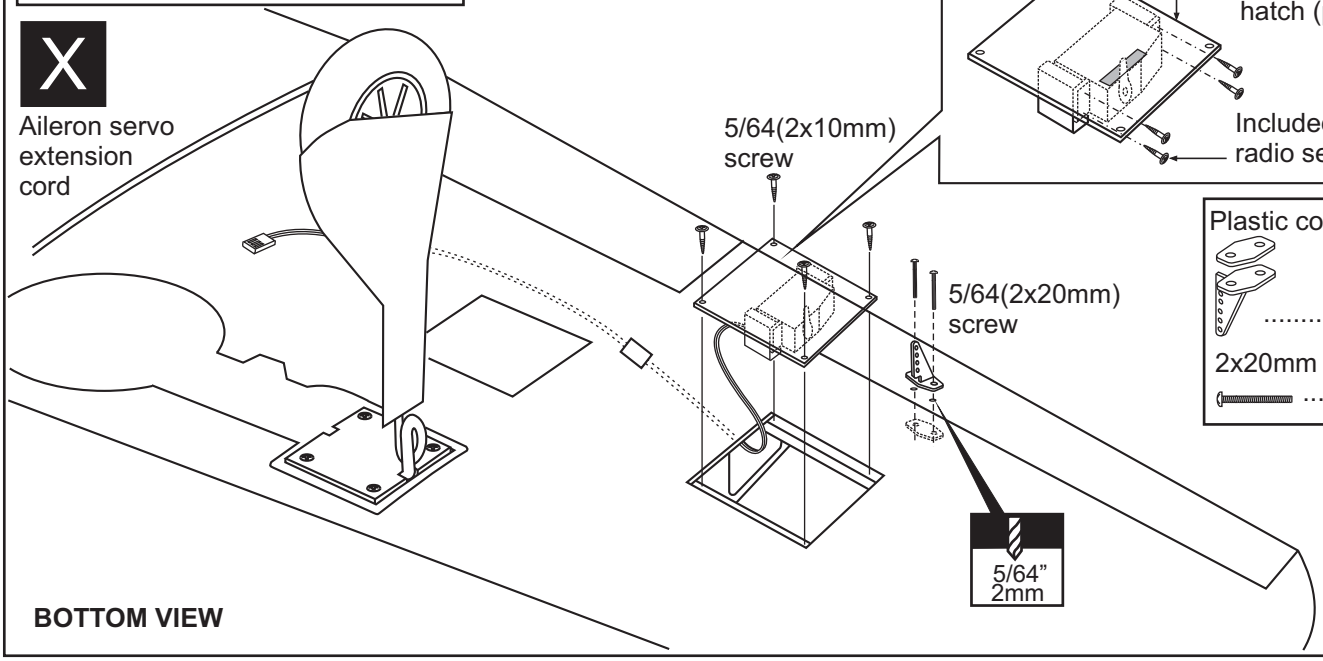


BOTTOM VIEW

11- Aileron servo

X

Aileron servo extension cord



Plastic control horn 2

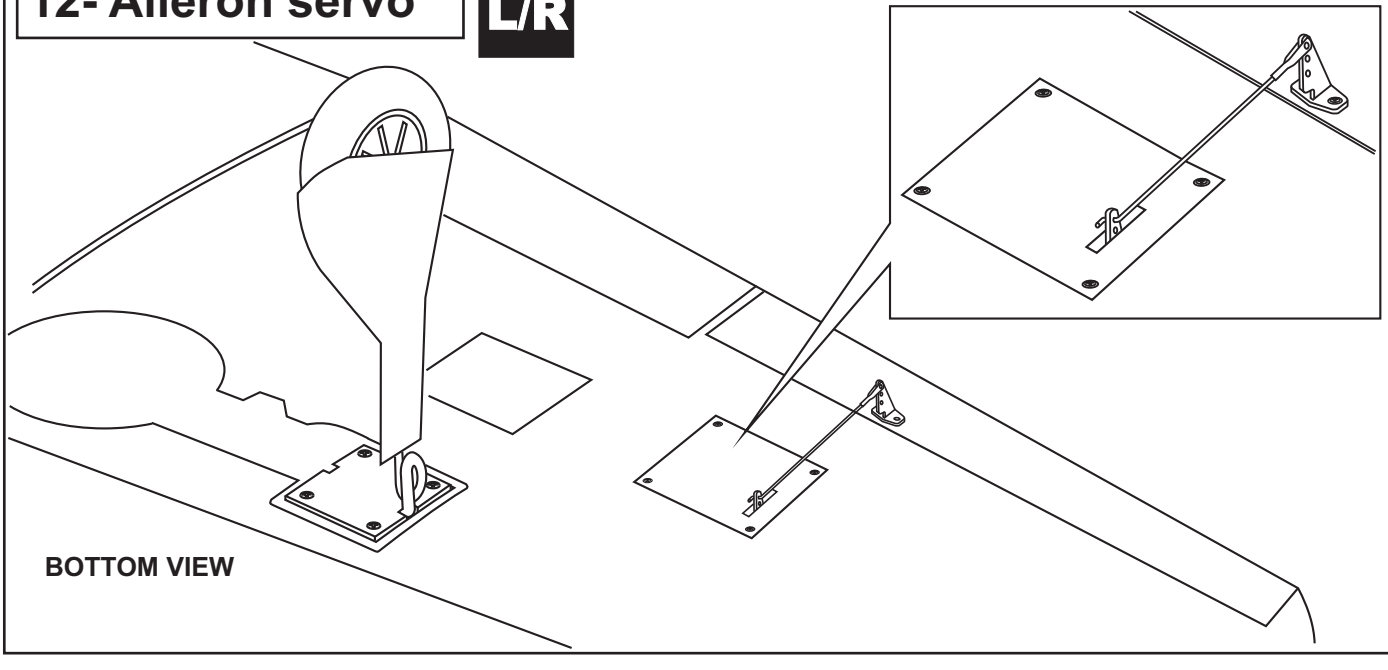
2x20mm screw 4

BOTTOM VIEW

12- Aileron servo

L/R

Assemble left and right wingsthe same way



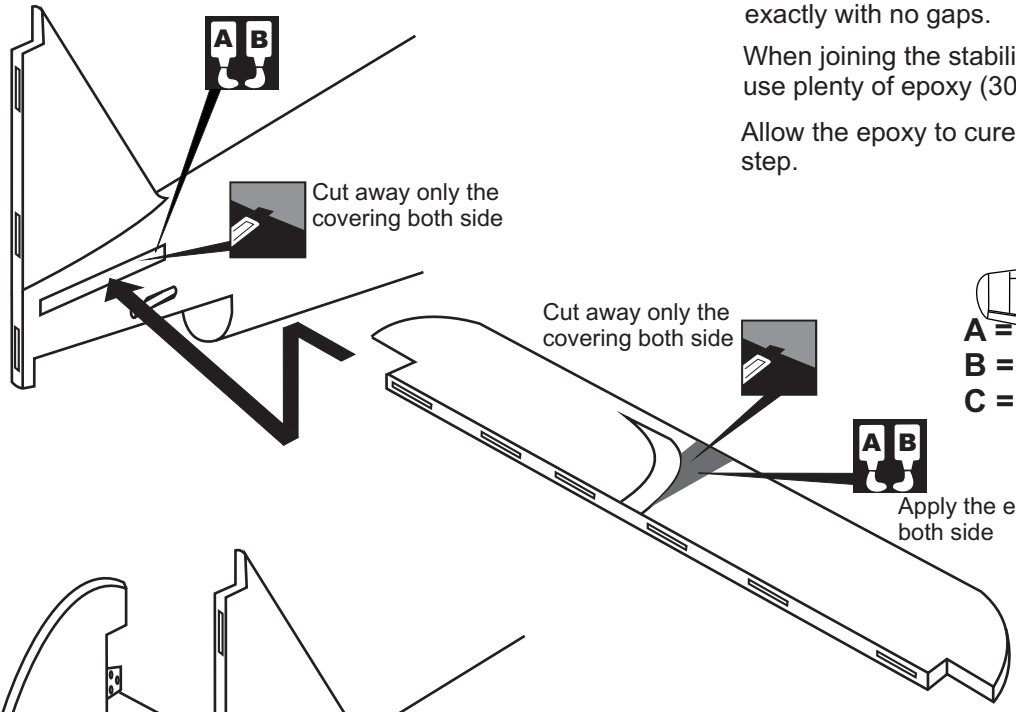
BOTTOM VIEW

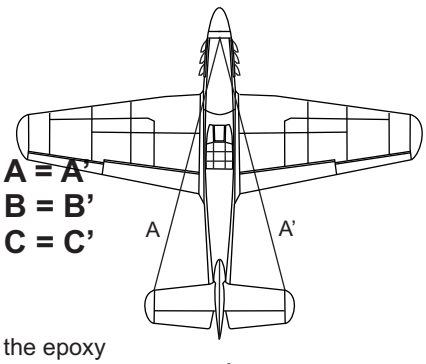
13- Vertical / Horizontal stabilizer

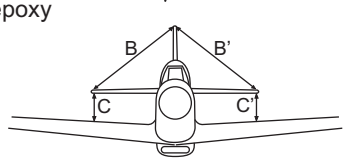
Trial fit each part before gluing . Be certain that there are no gaps. If the parts will join, but with a gaps, sand or trim the parts a little at a time until the parts meet exactly with no gaps.

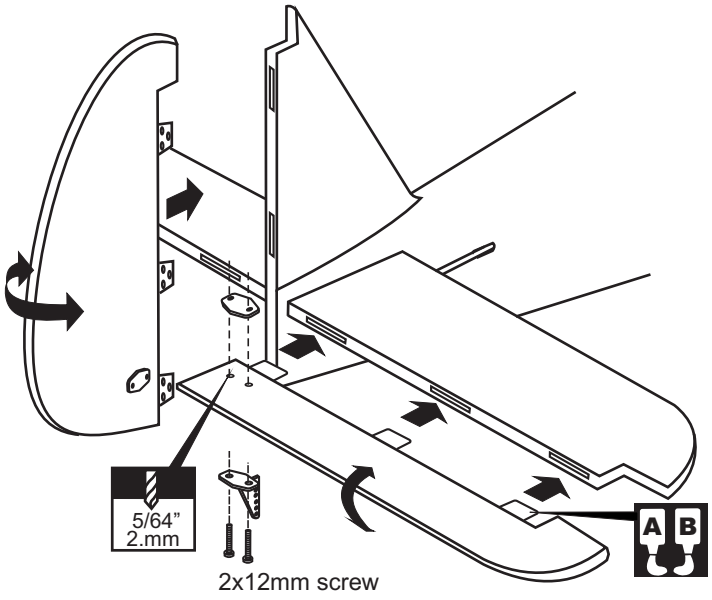
When joining the stabilizer it is extremely important to use plenty of epoxy (30 minutes) or CA glue (thin type)

Allow the epoxy to cure before proceeding to the next step.









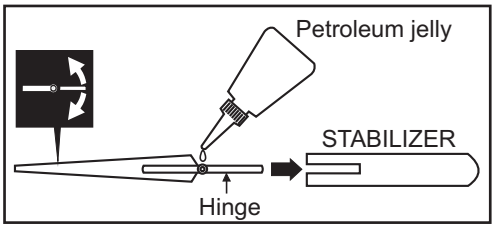
Apply a thin layer of machine oil or petroleum jelly to only the pivot point of the hinges on the elevator, then push the elevator and its hinges into the hinge slots in the trailing edge of the horizontal stabilizer. There should be a minimal hinge gap and the end of the elevator should not rub against the horizontal stabilizer.

When satisfied with the and alignment, hinge the elevator to the horizontal stabilizer using 5 minute epoxy. Make sure to apply a thin layer of epoxy to the top and bottom of both hinges and to inside the hinge slots. Repeat the previous procedures to hinge the second elevator to the other side of the horizontal stabilizer.

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

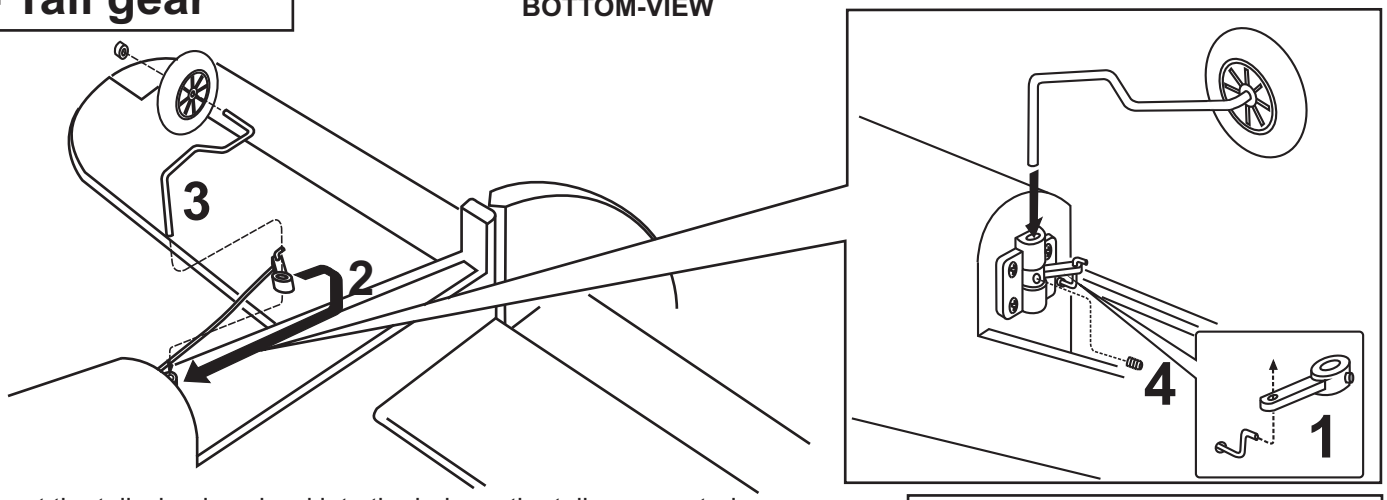
Control horn 3

2x12mm screw 6



14- Tail gear

BOTTOM-VIEW



1- Insert the tail wheel pushrod into the hole on the tail gear control horn (as show).

2- Install the tail wheel control horn in place.

3- Instal the tail wheel gear in place.

4- Secure the tail wheel control horn in place using a 5/64"(2mm) screw set, Ensure smooth non-binding movement.

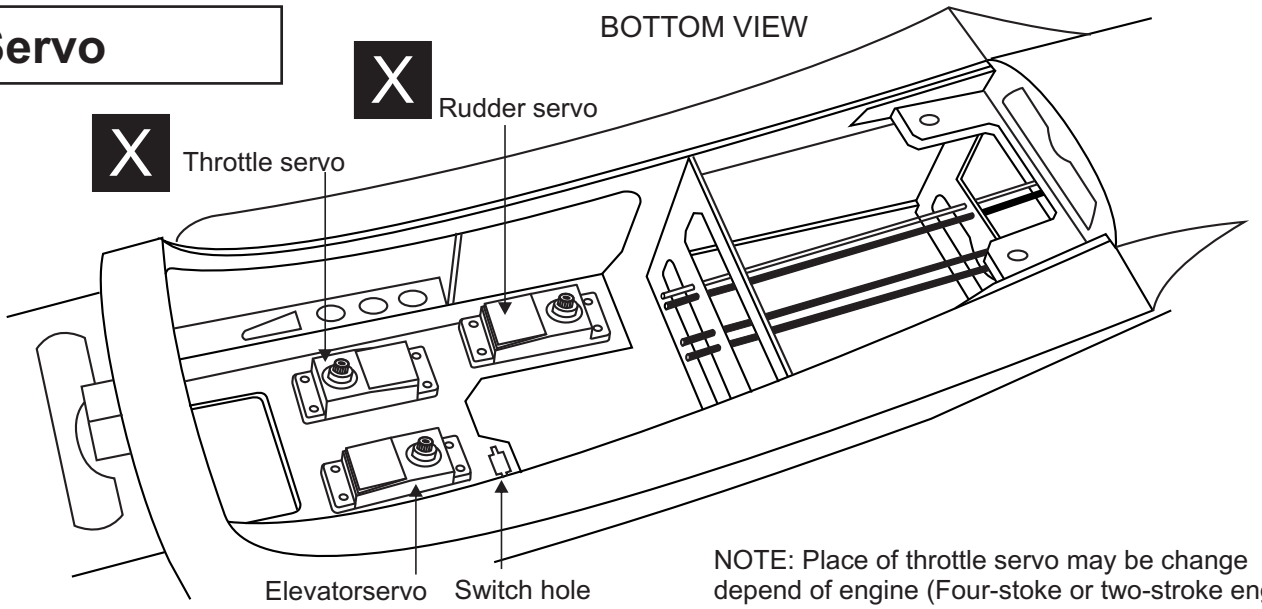
2x3mm screw 1

2mm I.D collar 1

Tail wheel control-horn 1

Tail landing gear 1

15- Servo

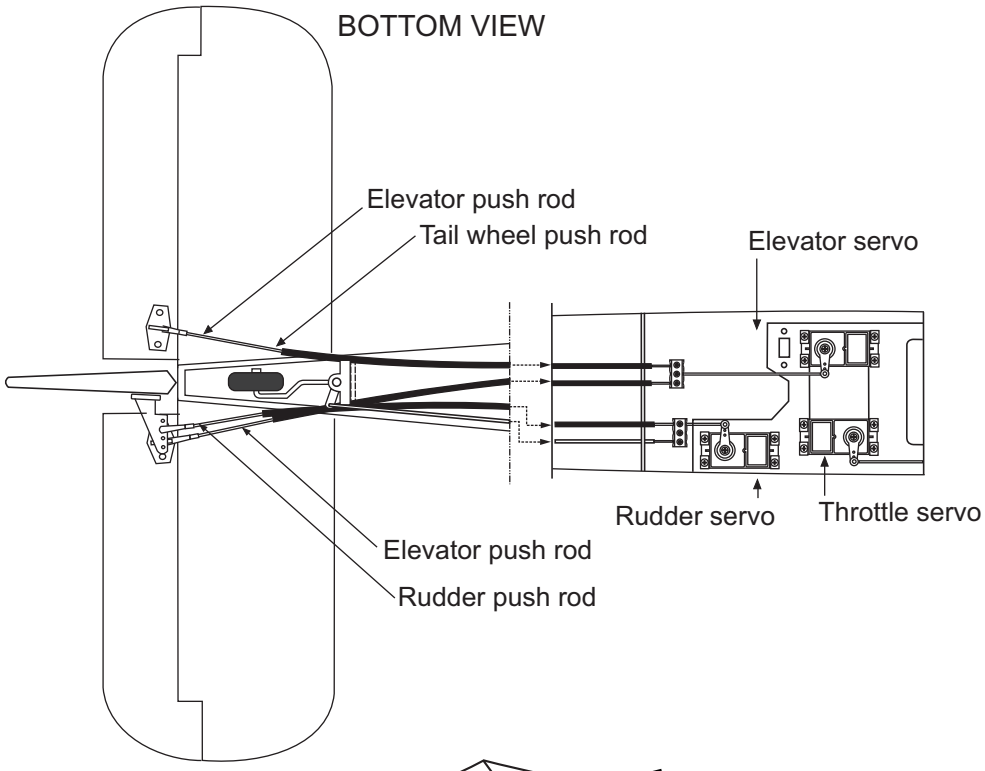


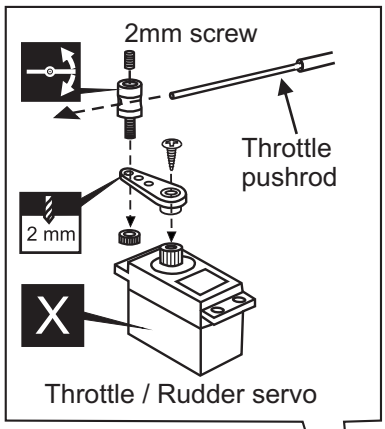
NOTE: Place of throttle servo may be change depend of engine (Four-stoke or two-stroke engine)

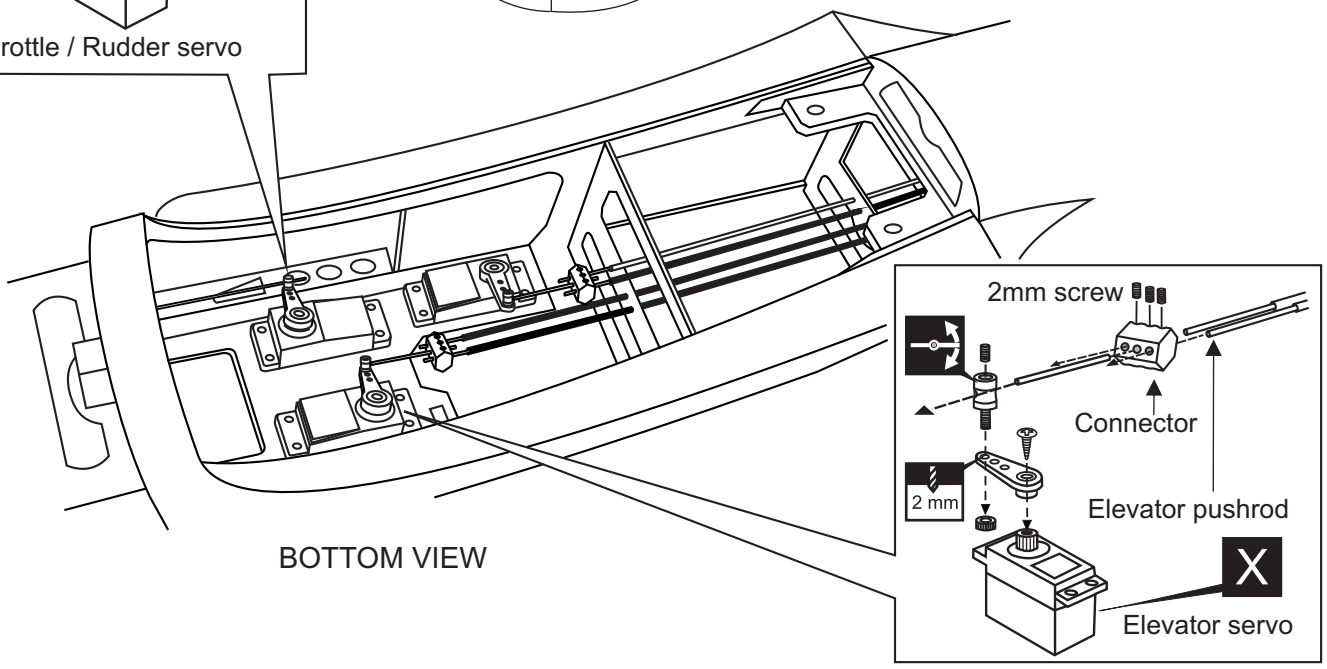
16- Linkages

Connector 2

Connector 3



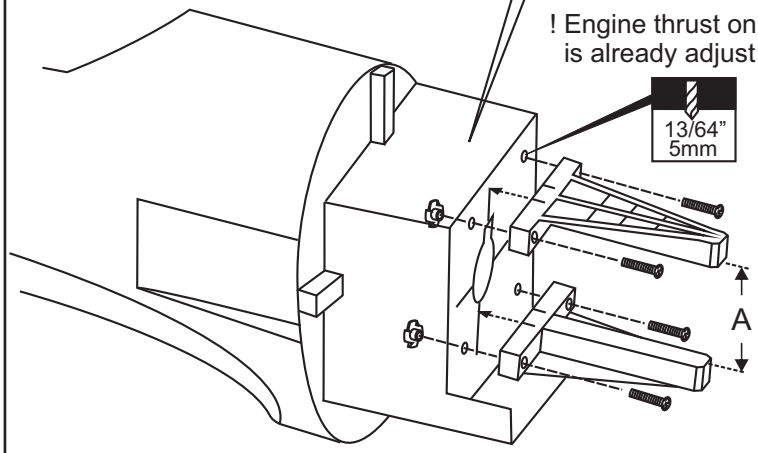




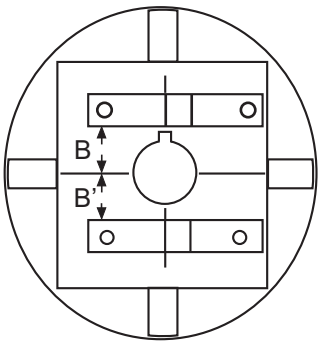
17- Engine mount

! Align the mark on both mounts with the mark on the fuselage

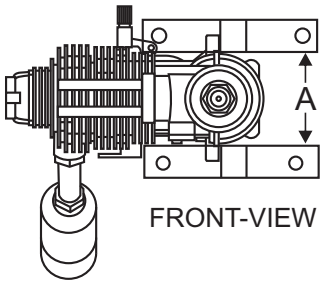
! Engine thrust on balk head is already adjust at factory



FRONT-VIEW



B=B'



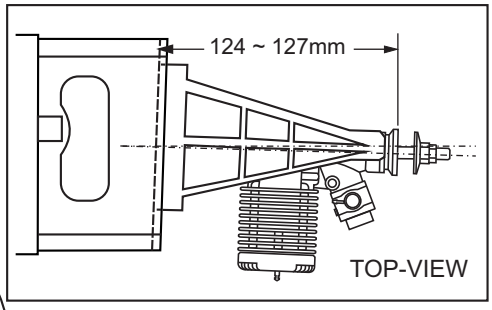
FRONT-VIEW

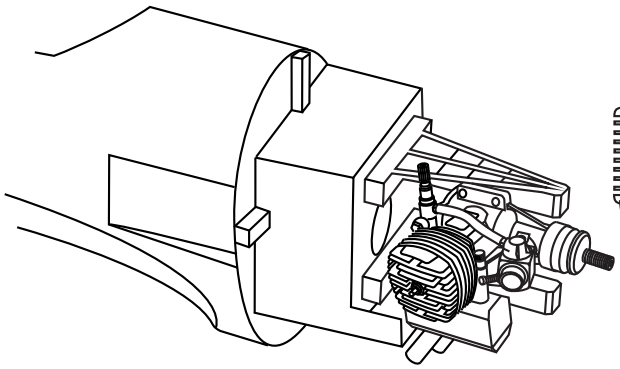
4x25mm screw 4

Blind-nut 4

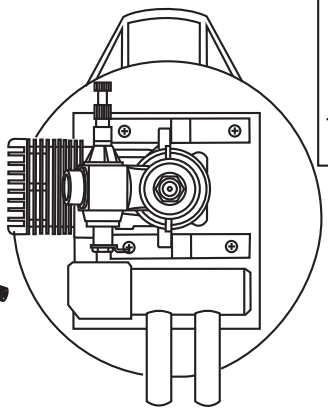
18- Engine

(IN CASE OF 2T ENGINE)

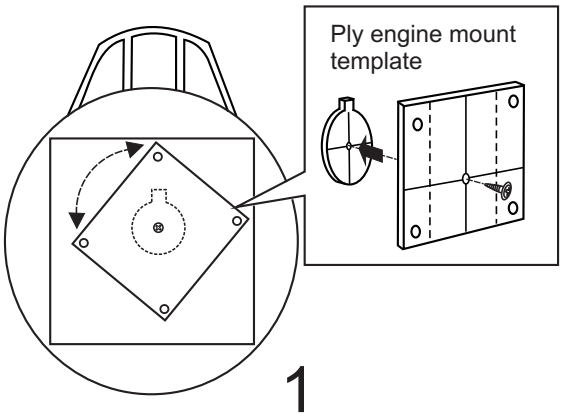




With hang silencer (Pitts-style)

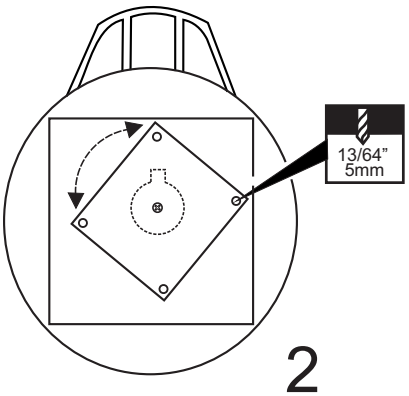


With hang silencer (Pitts-style)



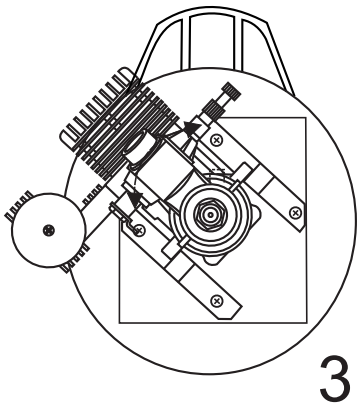
1

With the ply engine mount template, determine the angle for the engine mounts so the muffler will not contact the fuselage.



2

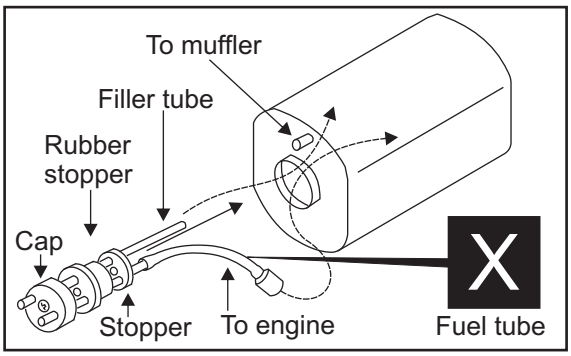
When satisfied with the angle, mark the location of the four engine mount holes.
Remove the engine mount template from the fire-wall and drill the four mounting holes as marked.



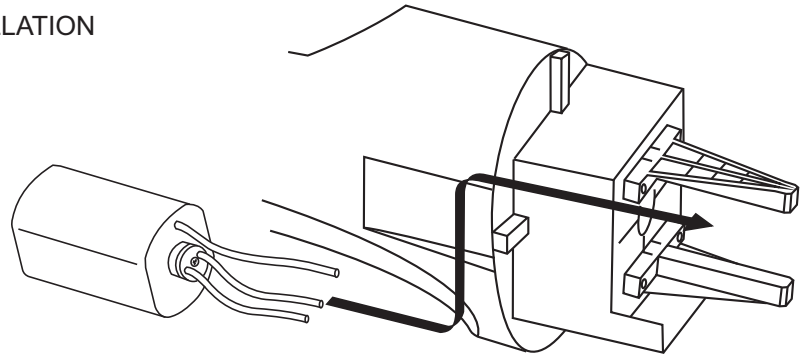
3

With side silencer

19- Fuel tank

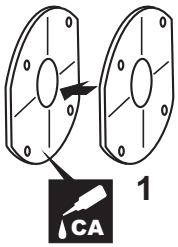


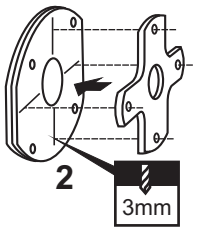
FUEL TANK INSTALLATION



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

20- Electric motor

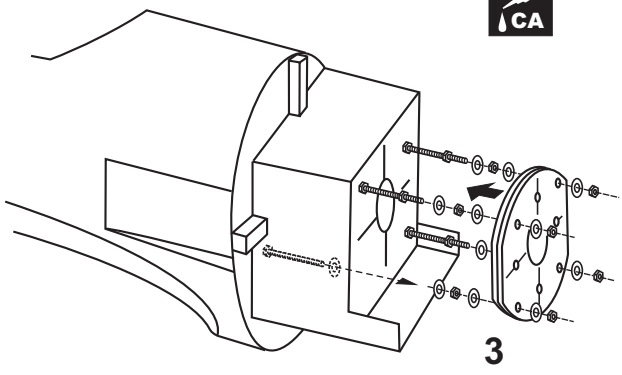


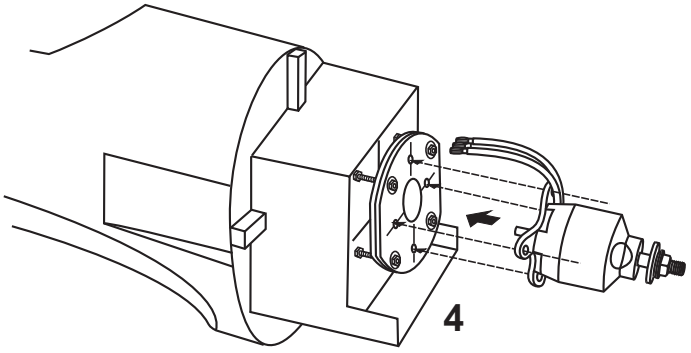


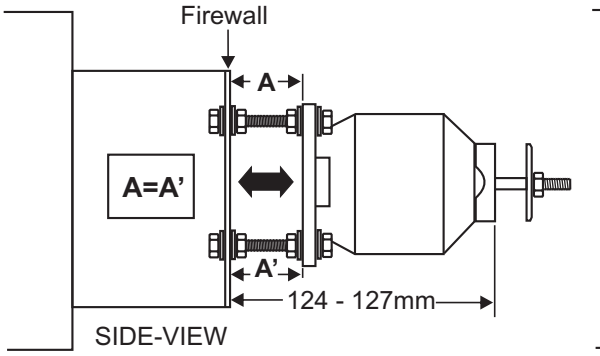
Using a aluminum motor mounting plate as a template, mark the plywood motor mounting plate where the four holes are to be drilled (2).

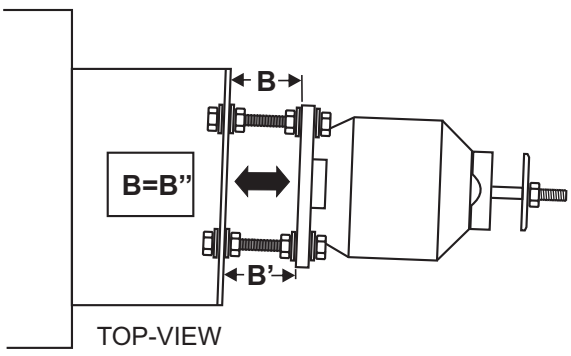
Remove the aluminum motor mounting plate and drill a 1/8"(3mm) hole through the plywood at each of the four marks marked .

Note: The aluminum motor mounting included with electric motor set.

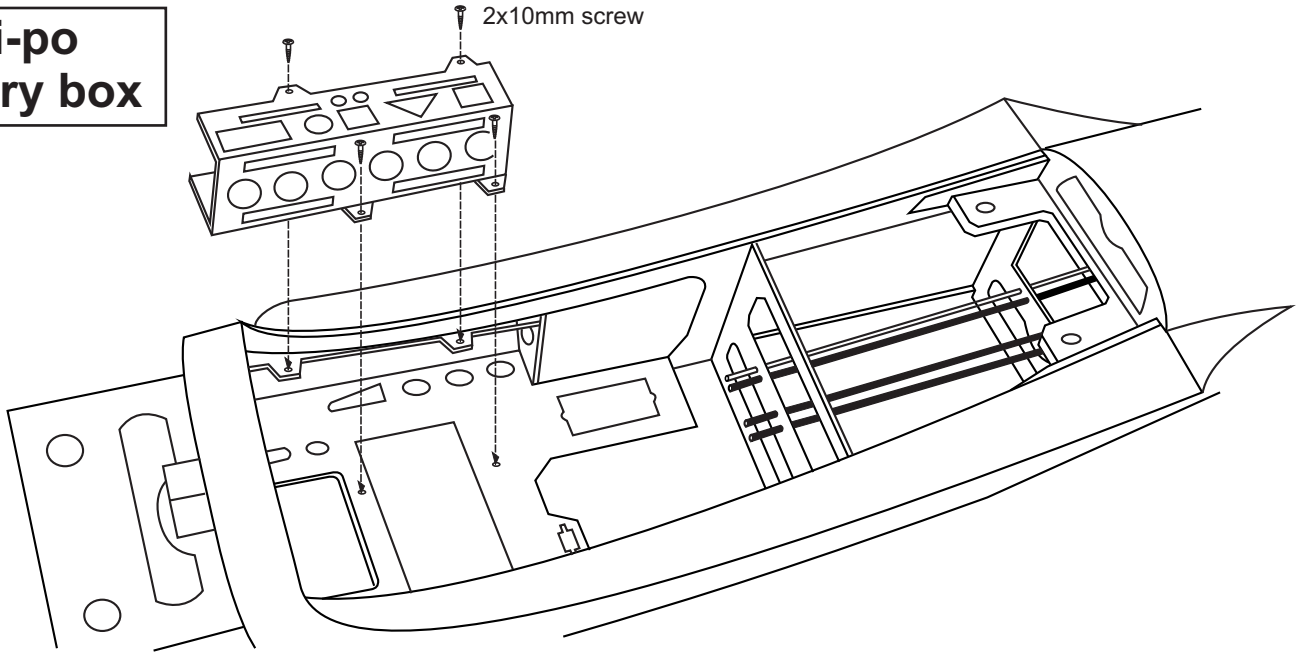








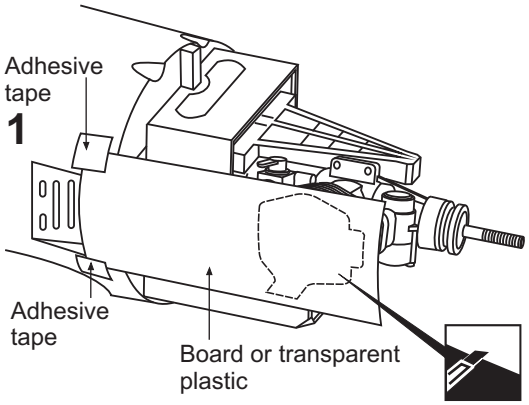
21- Li-po Battery box



22- Cowling

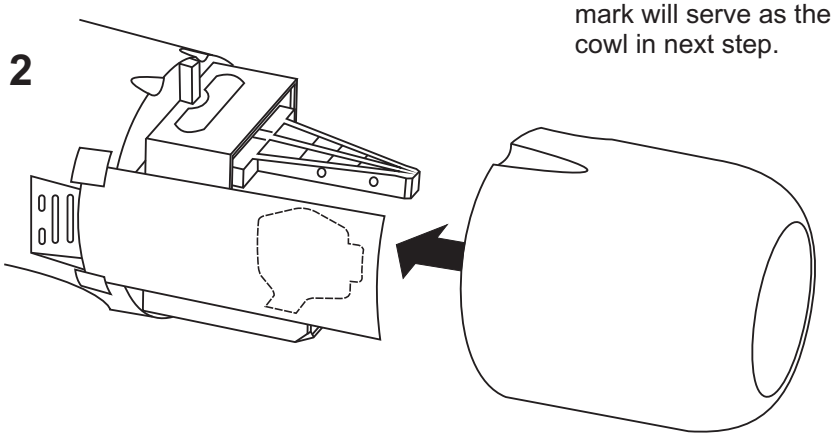
2.5x10mm screw 4

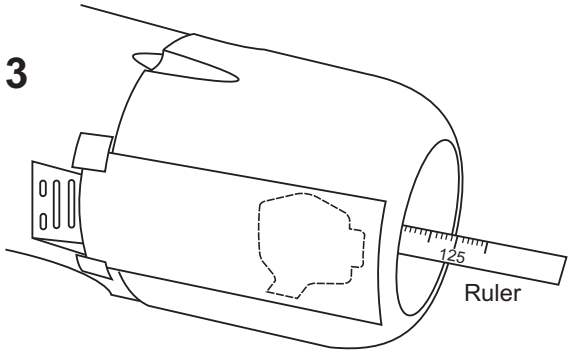
Attach the board or transparent plastic on the side of the fuselage with the adhesive tape as show.
Using a pencil or felt tipped pen trace around the engine head where it meet the cowl. Cut the opening the board or transparent plastic for the engine head as marked above.

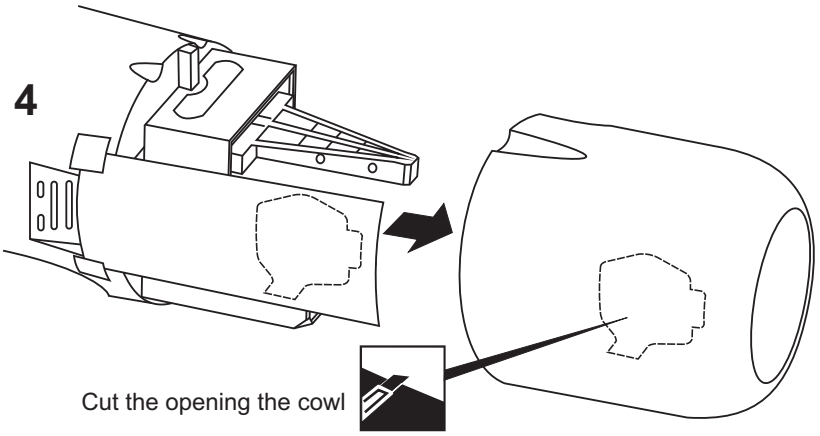


Cut the opening the board or the transparent plastic.

Remove the engine and insert the cowl onto the fuselage so the distance from the fire wall to the front of the cowl is 125mm (124~127mm)
Using a pencil or felt tipped pen trace around the inside of the engine head hole on the board or the transparent plastic made in step 1. This mark will serve as the guides for cutting the engine head hole on the cowl in next step.

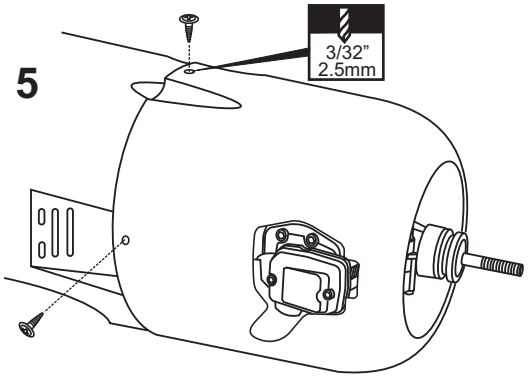






Cut the opening the cowl

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

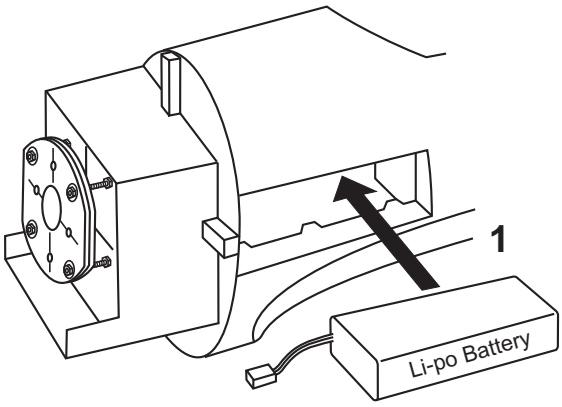


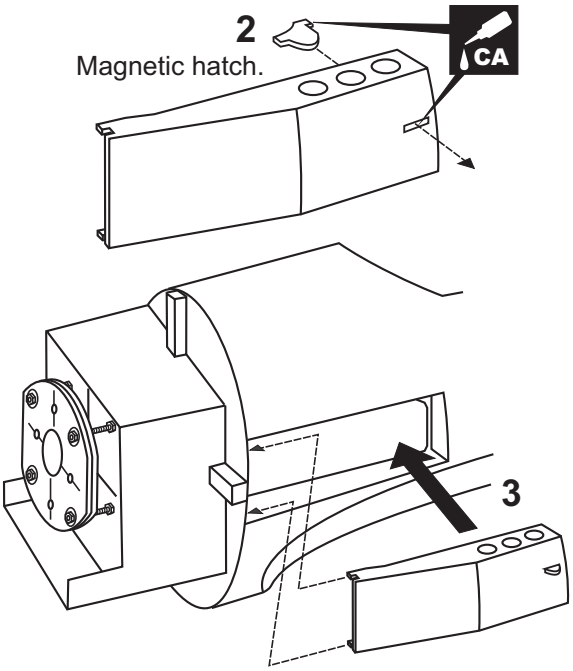
Reposition the engine onto the engine mount beams and secure it with four 3x25mm screw.

Again, insert the cowl onto the fuselage and secure it in place with four 2.5x10mm screw.

NOTE: Do the same way in case of two-stroke engine.

23- Hatch



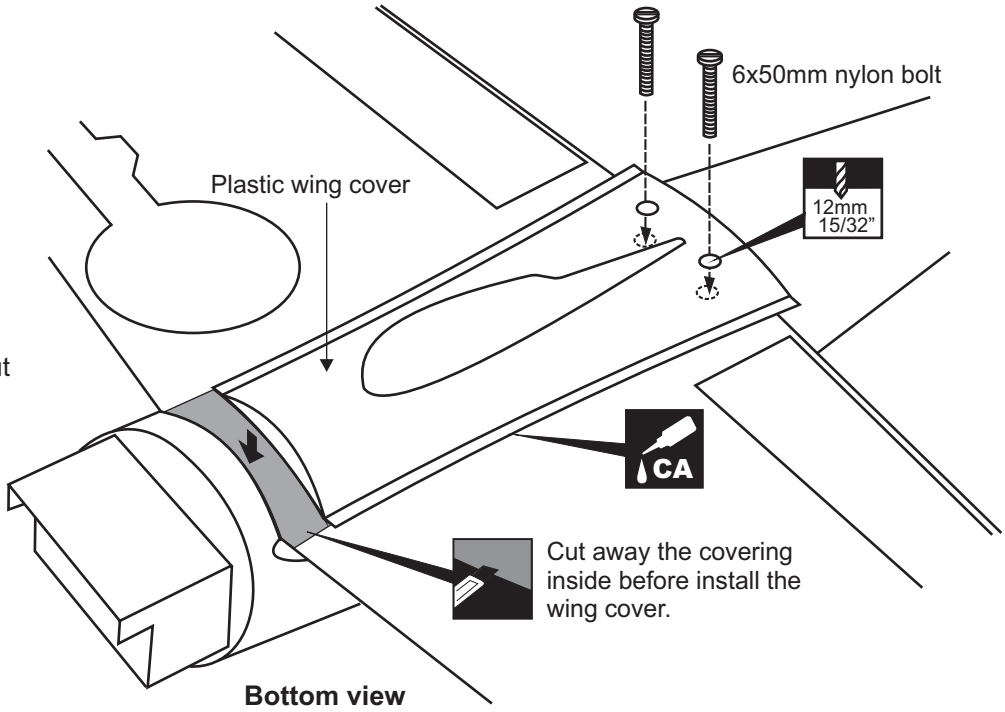


! Securely install the battery, ensuring it will not come rattle during flights.

24- Wing cover

6X50mm bolt ...2

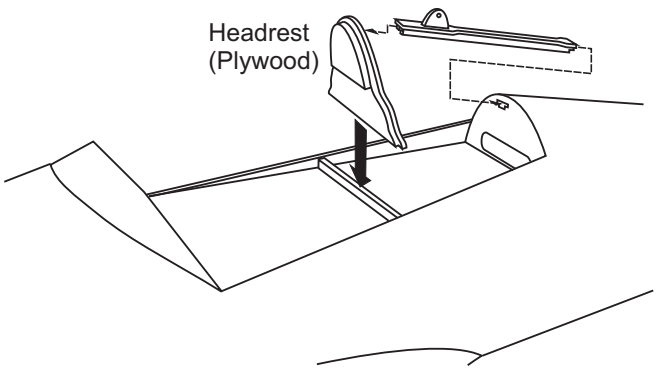
Using the plastic wing cover as a template, trace around the outside edge of the plastic wing cover and then remove it.
Using a sharp hobby knife, cut away the covering inside the lines. Not to cut into the wood.
Apply the plastic wing cover in place and secure it with CA glue.

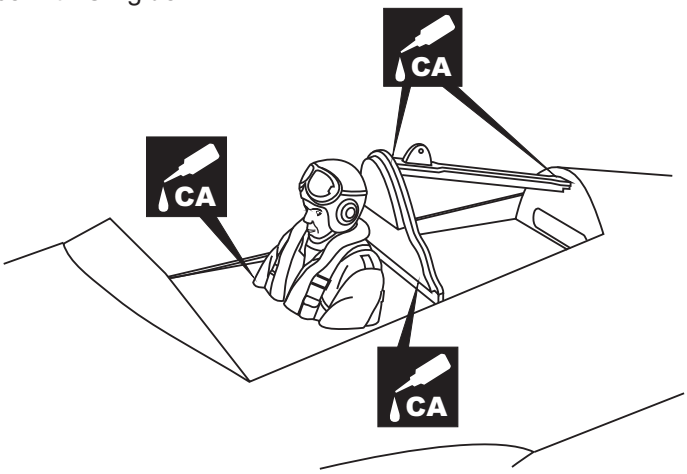


Bottom view

25- Cockpit

Trial fit the headrest and the strut in place, do not glue at this time. When satisfied with the fit and alignment, secure them in place with CA glue.





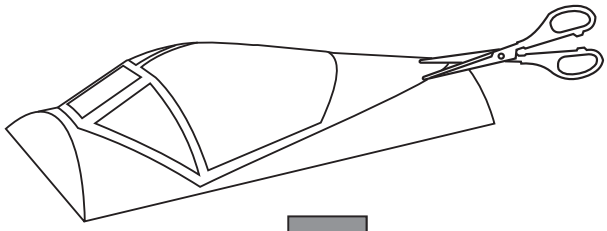
26- Canopy

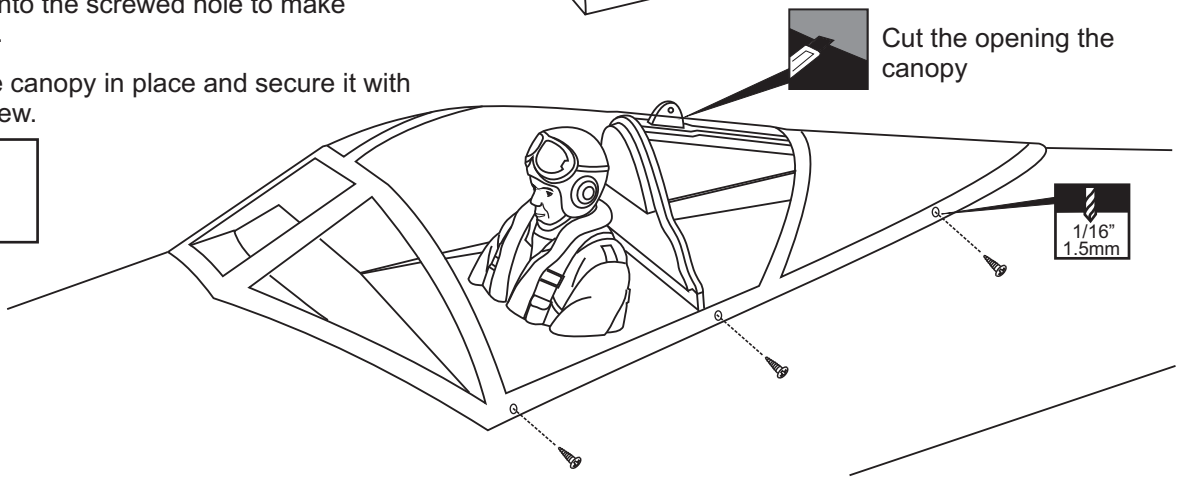
Secure the canopy in place with adhesive tape . When satisfied with the fit, drill six holes on the each side of canopy as show.

Remove the canopy from the fuselage and apply litter CA glue into the screwed hole to make reinforcement.

Reposition the canopy in place and secure it with six 2.8mm screw.

2.x8mm.....6

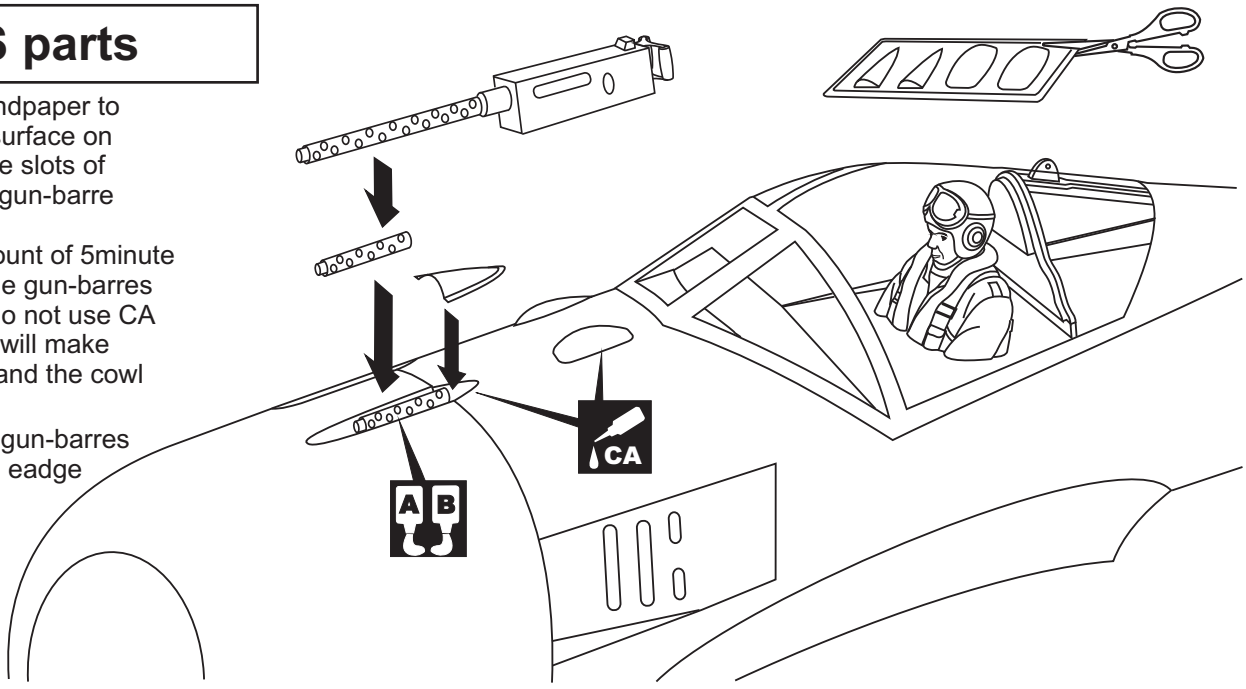




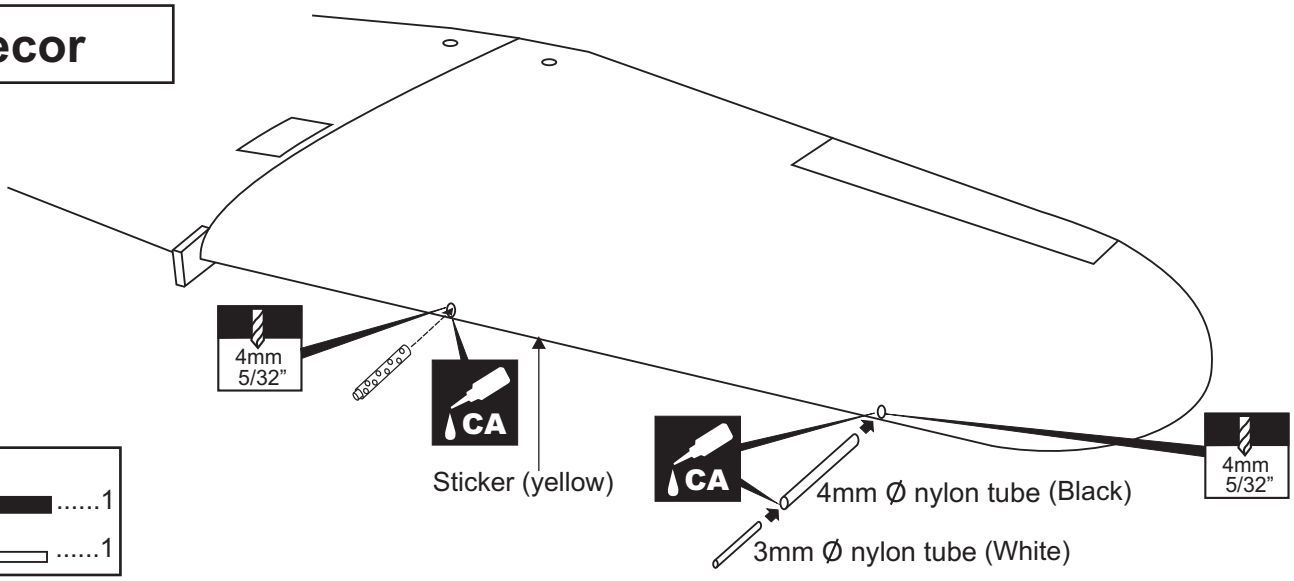
27- ABS parts

Use 150 grit sandpaper to "rough up" the surface on the bottom of the slots of cowl where the gun-barre meets the cowl.
Mix a small amount of 5minute epoxy to glue the gun-barres onto the cowl.(do not use CA glue because it will make the gun-barres and the cowl white).

Install the other gun-barres onto the leading eadge of the wing



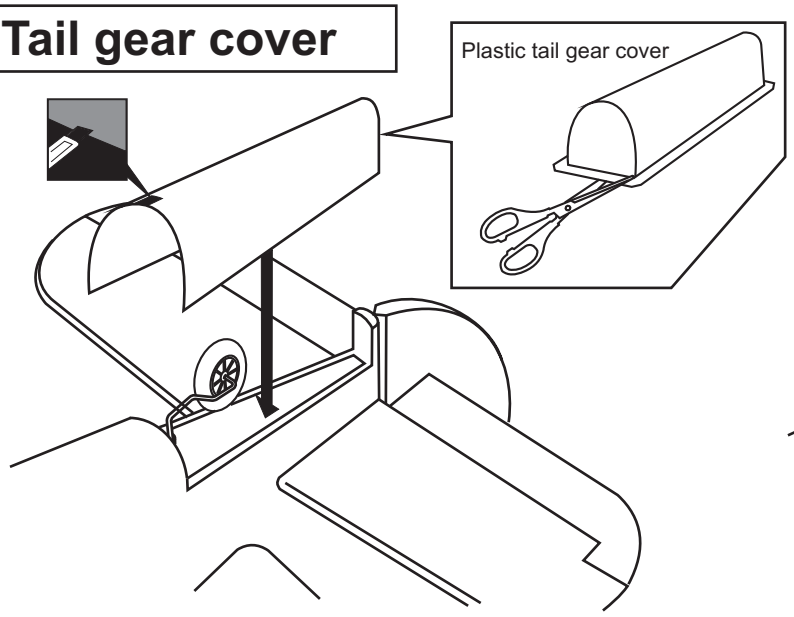
28- Decor



Nylon tube 1

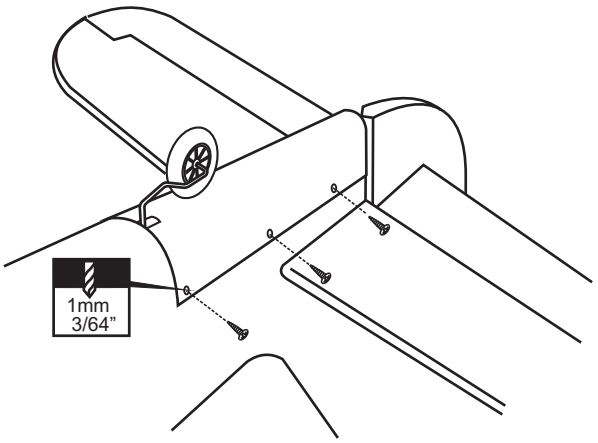
Nylon tube 1

29- Tail gear cover

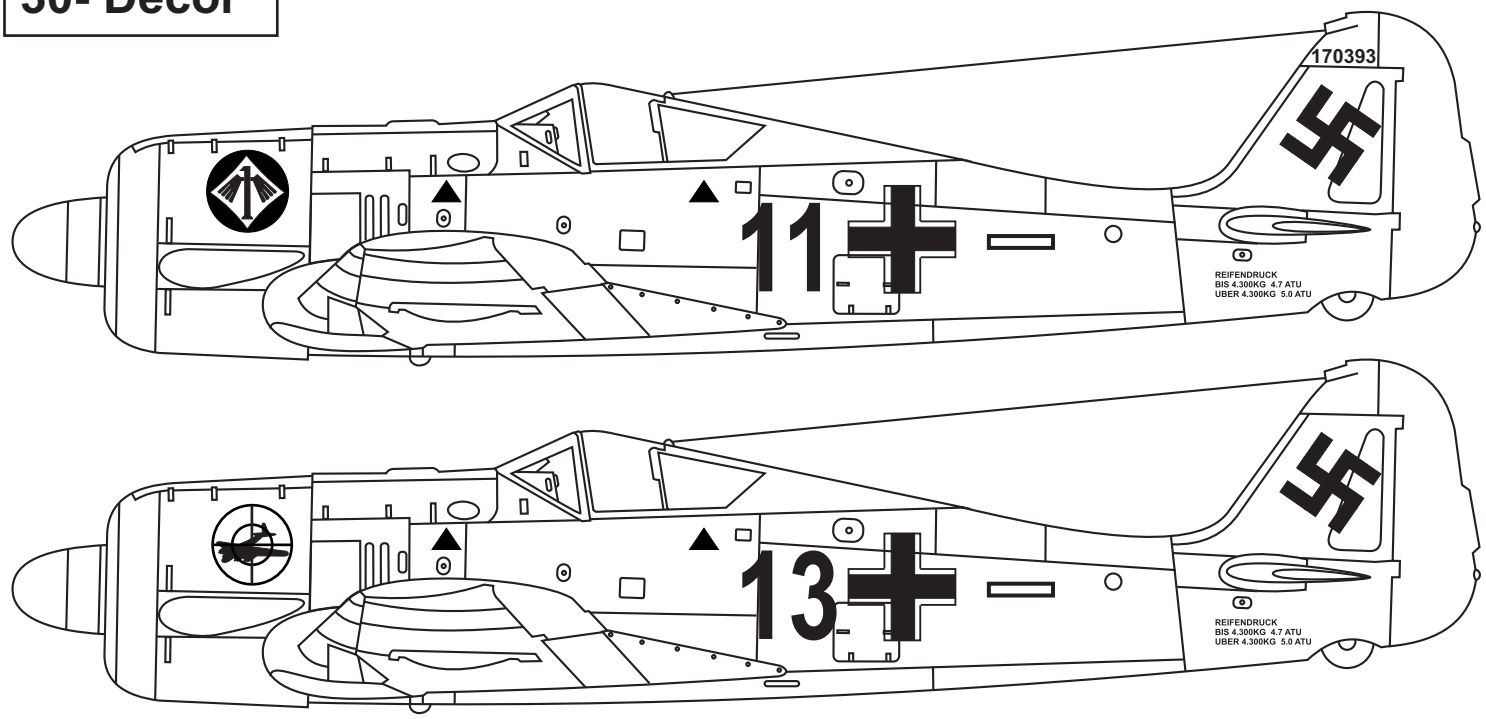


BOTTOM-VIEW

2x10mm.....6



30- Decor

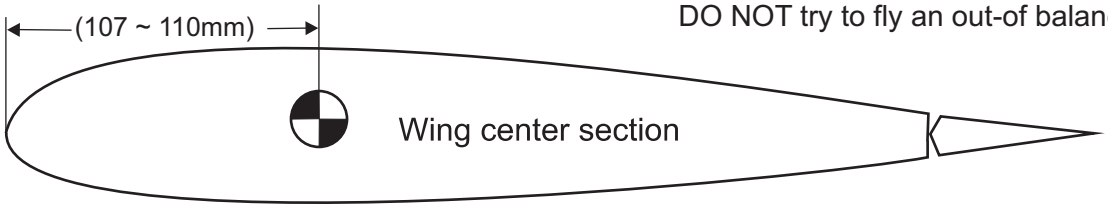


Note: Cut out the stickers and apply them in the proper area. Do not peel the backing paper off all at once.
Peel off one corner of the backing and cut off with scissors. Arrange sticker on model and when satisfied adhere the corner without backing.
Carefully peel back the rest of the backing while at the same time adhering the rest of the sticker.
Try not to make air bubbles, if there are some, carefully puncture sticker (center of bubble) but not model surface with the tip of the knife or sharp pin and squeeze out the air. At curves stretch sticker and apply a little heat so that no ceases occur. Cut off the excess that is produced.

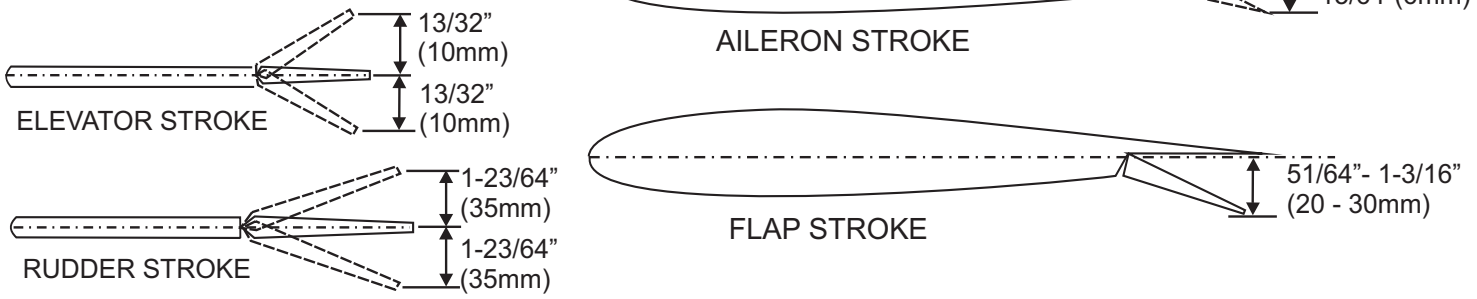
31- Balance

Note: Adjust the location of the battery pack to achieve this C.G location.

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



32- Control surface



Adjust the travel of the control surfaces to achieve the values stated in the diagrams.
These value will be suitable for average flight requirements. Adjust the values to suit your particular needs.

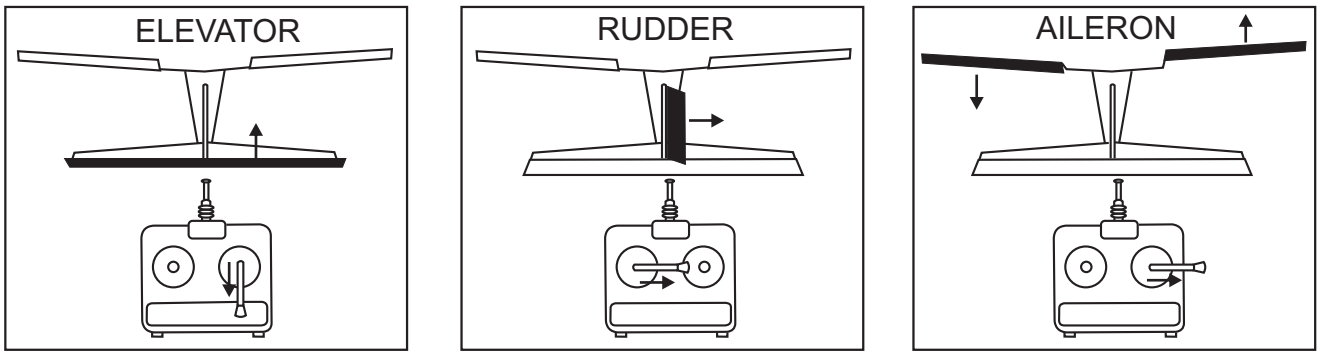
PRE-FLIGHT CHECKING AND ADJUSTING YOUR MODEL

It is almost impossible to fly your model without checking and adjusting your model. You can stop easily if your car is not running strait. But you cannot stop your airplane after take off. Your plane could go right or left. Or even go up or down. Without understanding these instruction before flying the Ki-61, you might otherwise have difficulty in flying, or crash the plane. If you are new to Radio Control flying, you should not fly the Ki-61 but have an expert fly it. Even if you are experienced pilot, read this before your first flight.

PRE-FLIGHT CHECK

1-Balance: There is very important relationship between the CG position and stall characteristic of an airplane or knife-edge performance. An aft CG will make the plane snap roll instead of making a clean stall. And your plane goes to down side at knife edge flying instead of strait. To measure the CG position, measure 4 ~ 4-1/8" (100 ~ 105mm) from leading edge (a + / - 13/64" = 5mm is fine).

2-Check the operation and direction of the elevator, rudder, ailerons and throttle:



CAUTIONS FOR SAFETY

Ensure the airfield is spacious enough.

Ensure the spinner and propeller are securely attached. Immediately disure defective propeller as well as deformed spinners.

Adjust the engine always from behind, but never from infront or the sides as rotating propeller may badly injure you.

Do not allow watching people to get too close to a rotating propeller.

Fully extend the transmitter and receiver antenna.

Always take off and landing your airplane into the wind.

Switch off the transmitter and receiver after landing.

Do not fly your airplane above people standing around.

BEFORE FLYING CHECK EVERYTHING

Before each flight, inspect the airplane for any loose parts. Check the hinges, make sure the pushrods are still firmly attached, and check the engine mounting bolts. In general, check everything on the plane that might possibly come loose.

CHECK THE FREQUENCE BEFORE FLYING

DO NOT FLY NEAR A POWER LINE

The power lines cause radio interference, so avoid flying near them.

WARNING

Do not put in a large-than recommended engine. A bigger engine does not necessarily mean better performance.