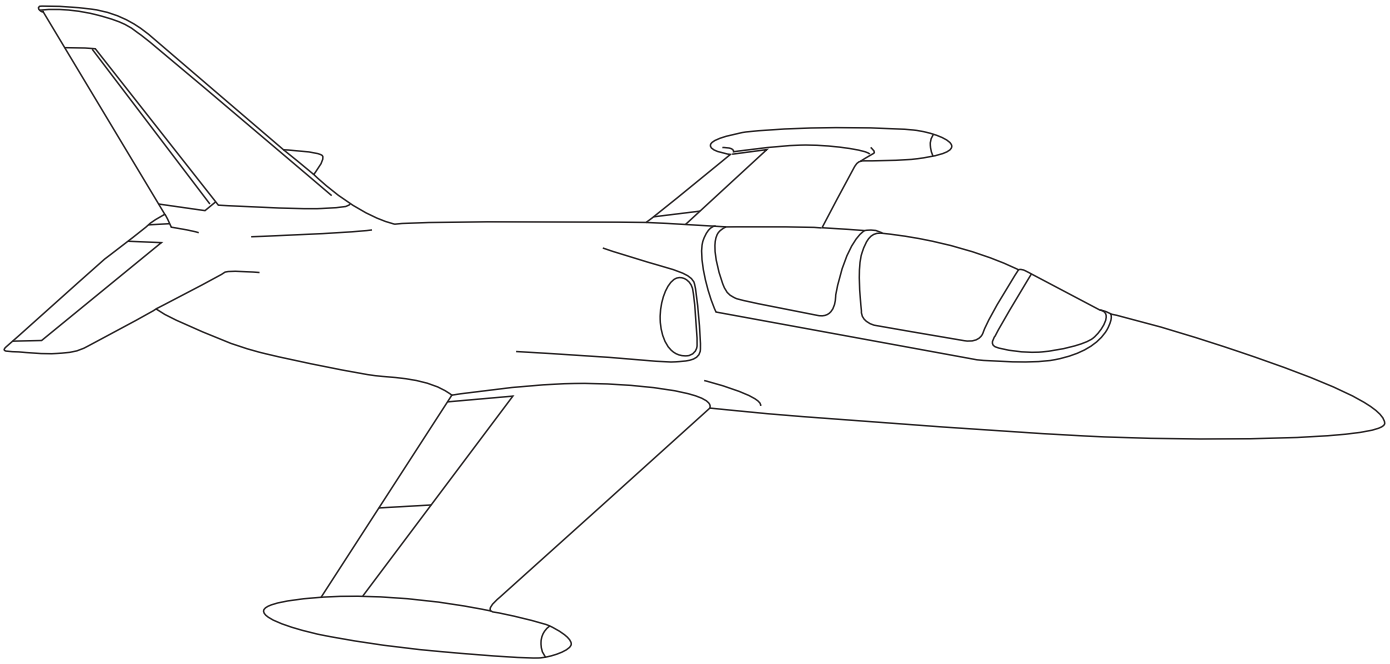
Instruction Manual Book

Item code: BH141A

L-39 ALBATROS

ALL BALSA - PLY WOOD CONSTRUCTION.

95% PRE BUILT ARF ALMOST READY TO FLY



95% ALMOST READY TO FLY

SPECIFICATION:

- Wingspan: 1,450mm (57.09in).
- Length: 1,860mm (73.23in).
- Flying weight: 4.6-4.9kg (10.12-10.78lbs).
- Wing area: 43dm².
- Wing loading: 113g/dm².
- Wing type: Naca airfoils.
- Covering type: Genuine ORACOVER®.
- Gear type: Electric retract gear, size: (73.5 x 44 x 28)mm (not included) or size: (81 x 44 x 29)mm (not included). CNC Suspension Metal Struts *(included)*.

Parts listing required (not included):

- Radio: 08 channels.
- Servo: 08 standard high torque servos, size: (29 x 13 x 30)mm.
- EDF: 90mm 10 Blade Impeller
- Battery: 2 Packs * 5 Cells LIPO 37V.
- Speed control: 120A.

***Recommended EDF and Battery set up* (not included):**

- EDF: DS51 - AXI - HDS 90mm 10 Blade Impeller, Minimum thrust 4 kg.
- HET 700 - 68 - 1200KV.
- Lipo cell: 10 cells/5000mAh 55C.
- ESC: 120A Phoenix Castle.

Made in Vietnam.

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INTRODUCTION

Thank you for purchasing Black Horse Model products. With over 19 years experience in production and fly testing, Black Horse Model is committed to bring the best quality products and good service to customers. Along with a team of creative engineers and skilled workers, we will always accompany with customers by our great experiences, fully enthusiasm... which will burn our passion!! Joining with us to explore and conquer challenges in the sky ...

Your satisfaction is our success. Please read through this manual before starting construction.

Academy of Model Aeronautics: If you are not already a member of the AMA, please join! The AMA is the governing body of model aviation and membership provides liability insurance coverage, protects modelers' rights and interests and is required to fly at most R/C sites.

Academy of ModelAeronautics
5151 East Memorial Drive Muncie IN 47302-9252

Tele. (800) 435-9262
Fax. (765) 741-0057

Or via the Internet at: http://www.modelaircraft.org

AMA
SINCE 1939

Symbols used throughout this instruction manual, comprise:

- Cut off excess.
- Apply threadlocker (screw cement).
- Must be purchased separately!
- Cut off shaded portion carefully.
- Apply instant glue (C.A glue, super glue).
- Ensure smooth, non-binding movement when assembling.
- Pay close attention here.
- Apply epoxy glue.
- Drill holes using the stated. (in this case 1.5mm Ø).
- Take particular care here.
- Assemble left and right sides the same way.
- The number of times the same way Assembly (in this case twice).
- Warning! ► Set all scerws securely. If they come off during flight you will lose control of your aircraft!

This instruction manual is designed to help you build a great flying aeroplane. Please read this manual thoroughly before starting assembly. Use the parts listing below to identify all parts.

WARNING

Please be aware that this aeroplane is not a toy and if assembled or used incorrectly it is capable of causing injury to people or property. WHEN YOU FLY THIS AEROPLANE YOU ASSUME ALL RISK & RESPONSIBILITY.

If you are inexperienced with basic R/C flight we strongly recommend you contact your R/C supplier and join your local R/C Model Flying Club. R/C Model Flying Clubs offer a variety of training procedures designed to help the new pilot on his way to successful R/C flight. They will also be able to advise on any insurance and safety regulations that may apply.

WARRANTY

Black Horse Model guarantees the component parts in this kit to be free from defects in both material and workmanship at the date of purchase by the purchaser.

This warranty does not cover cosmetic damage or damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or modification of or to any part of the Product.

This warranty does not cover damage due to improper installation, operation, maintenance, or attempted repair by anyone other than Black Horse Model.

Return only the component part that is defective in materials or workmanship. Please pack the unit carefully and insure it, as this warranty does not cover loss or damage in transit.

DISCLAIMER

Read this disclaimer carefully before using this product. Please strictly follow the instruction manual to assemble and use this.

In that Black Horse Model has no control over the final assembly or material used for final assembly, black Horse Model is not responsible for loss of use, or other incidental or consequential damages.

Furthermore, Black Horse Model cannot be held liable for personal injury or property damage caused by the use or misuse of Black Horse Model products. By the act of using the user-assembled products, the user accepts all resulting liability.

SUGGESTION

To avoid scratching your new airplane, do not unwrap the pieces until they are needed for assembly. Cover your workbench with an old towel or brown paper, both to protect the aircraft and to protect the table. Keep a couple of jars or bowls handy to hold the small parts after you open the bag.

NOTE

Please trial fit all the parts. Make sure you have the correct parts and that they fit and are aligned properly before gluing! This will assure proper assembly. This kit is hand made from natural materials, every plane is unique and minor adjustments may have to be made. However, you should find the fit superior and assembly simple.

The painted and plastic parts used in this kit are fuel proof. However, they are not tolerant of many harsh chemicals including the following: paint thinner, C/A glue accelerator, C/A glue debonder and acetone. Do not let these chemicals come in contact with the colors on the covering and the plastic parts.

Caution: This model is not a toy!

If you are a beginner to this type of powered model, please ask an experienced model flyer for help and support. If you attempt to operate the model without

knowing what you are doing you could easily injure yourself or somebody else. Please keep your safety and well-being in mind at all times.

Important: Before you start construction

Even if you have built a large number of RC modelsplease read right through these instructions and check all the kit components against the parts list. We have taken great trouble to keep construction as simple as possible, without making any compromises in the area of safety.

Note regarding the film covering

Minor creases or bubbles may develop in the film covering due to major fluctuations in weather conditions (temperature, humidity etc.); in rare cases you may even find a slight warp in a component. These minor faults are in the nature of film-covered built-up wooden structures, and can easily be corrected using a heat gun, as commonly used for modelling.

Creases: Blow warm air over the area and rub down with a soft cloth.

Wing wrap: Hold the panel twisted gently in the opposite direction to the wrap, and apply warm air to remove the creases from the covering.

Caution! do not heat the film more than is absolutely necessary. If the air or the iron is too hot, the film may melt and holes may be formed.

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 and accurately.

When self-tapping screws have to be screwed into wood, apply a little white glue to prevent them shaking loose: just squirt white glue into the hole and fit the screw

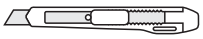
SAFETY PRECAUTION.

- This model is not a toy and pilots must be over the age of 14.
- Be sure that no other flyers are using your radio frequency.
- Do not smoke near fuel.
- Store fuel in a cool, dry place, away from children and pets.
- Wear safety glasses.
- The glow plug clip must be securely attached to the glow plug.
- Do not flip the propeller with your fingers.
- Keep loose clothing and wires away from the propeller.
- Do not start the engine if people are near. Do not stand in line with the side of the propeller.
- Make engine adjustments from behind the propeller only. Do not reach around the spinning propeller.
- Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

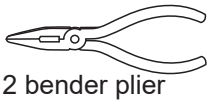
TOOLS & SUPPLIES NEEDED

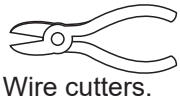
Medium C/A glue


Threadlocker
(screw cement).


Modeling knife.

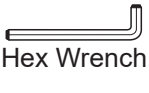

Straight edge ruler.


2 bender plier


Wire cutters.

30 minute epoxy.
5 minute epoxy.


Screw driver

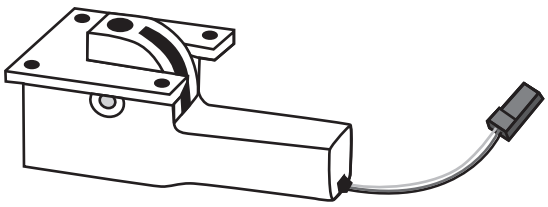

Hex Wrench.

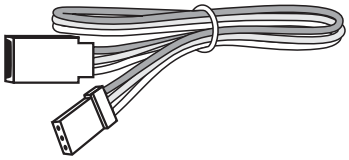

Hand or
electric drill.

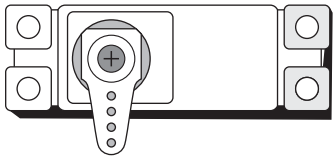
Some more tools.

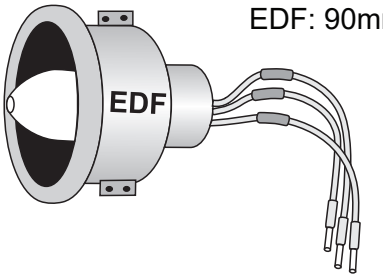
Assorted drill bits.
Masking tape.
Paper towels.
Rubbing alcohol
90° square or builder's triangle.

PARTS LISTING (NOT INCLUDED)

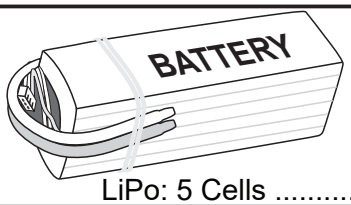





Servos size: (29 x 13 x 30)mm.
Torque: 4.8V(3.89kg-cm), 6V(4.82 kg-cm).... 8pcs

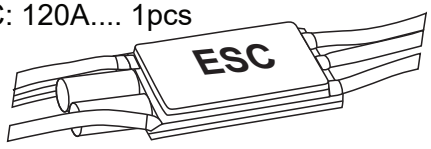


EDF: 90mm

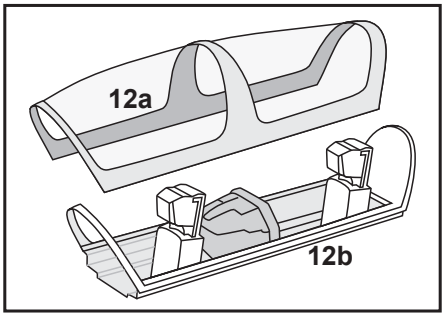


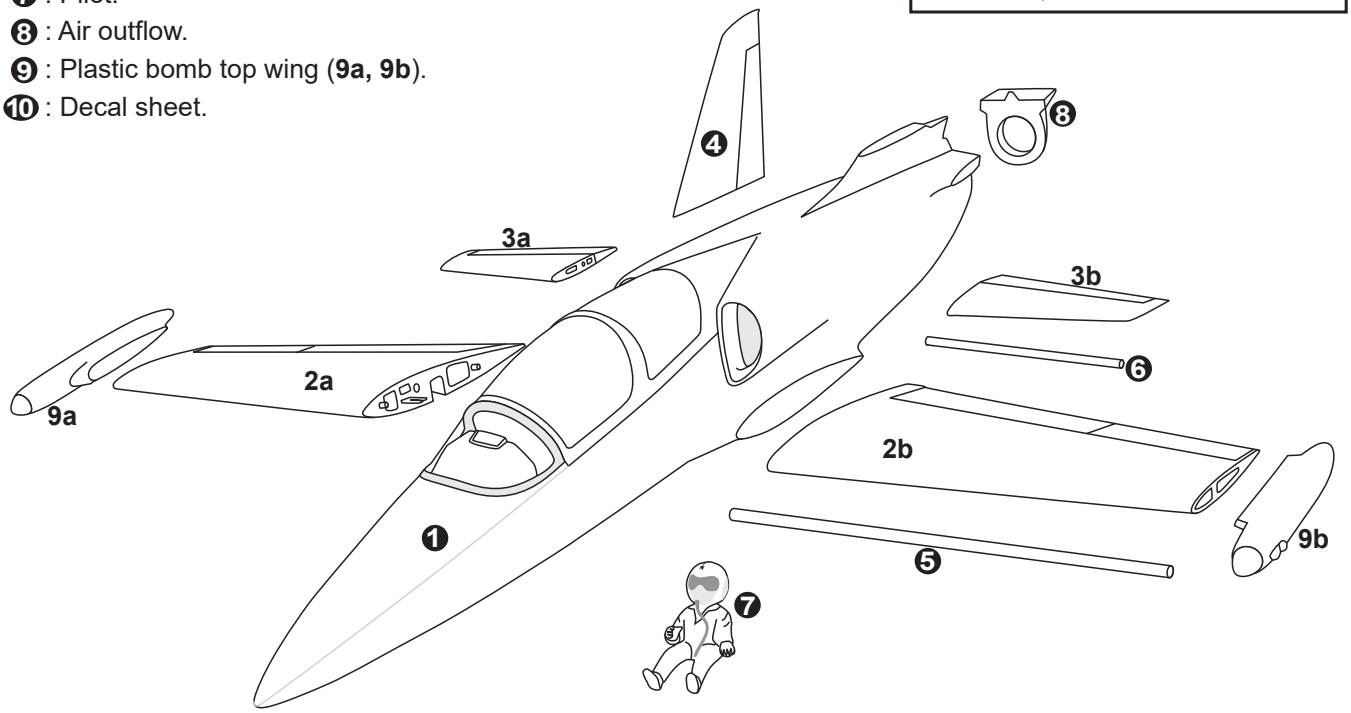
LiPo: 5 Cells ..... 2 Packs

ESC: 120A.... 1pcs

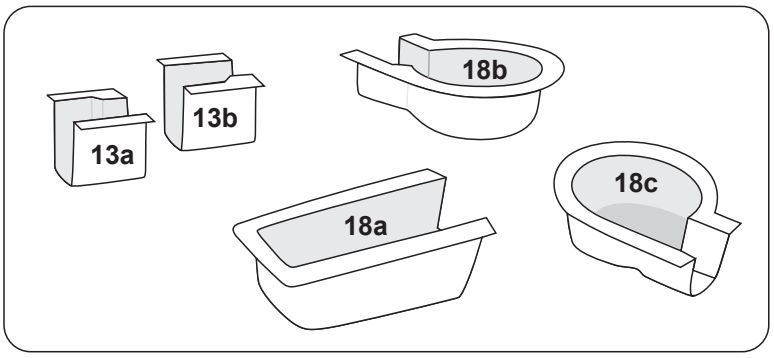


❶ : Fuselage.
❷ : Wing panel (**2a, 2b**).
❸ : Horizontal stabilizer (**3a, 3b**).
❹ : Vertical stabilizer.
❺ : Aluminium wing dihedral brace.
❻ : Aluminium tube Horizontal stabilizer.
❼ : Pilot.
❽ : Air outflow.
❾ : Plastic bomb top wing (**9a, 9b**).
❿ : Decal sheet.



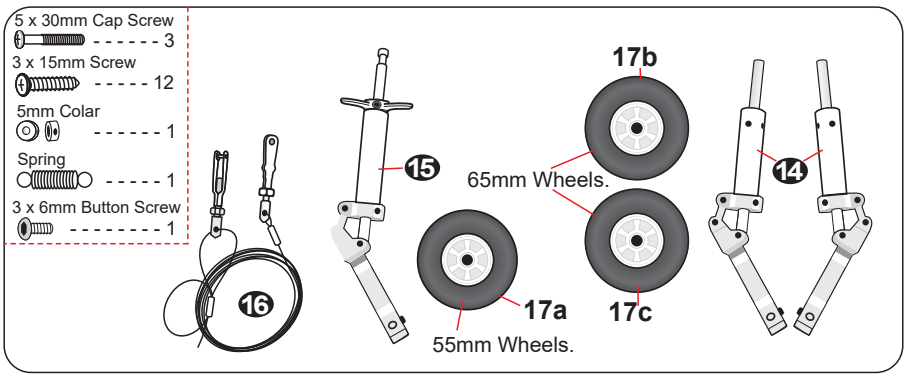


⓬ : Cockpit fuselage **(12a, 12b)**.
⓭ : Plastic parts of landing gear (**13a, 13b**).
⓮ : Oleo struts retracts.
⓯ : Oleo struts retract nose gear.
⓰ : Cable wire (nose gear).
⓱ : Wheels (**17a, 17b, 17c**).
⓲ : Wheel well (**18a, 18b, 18c**)

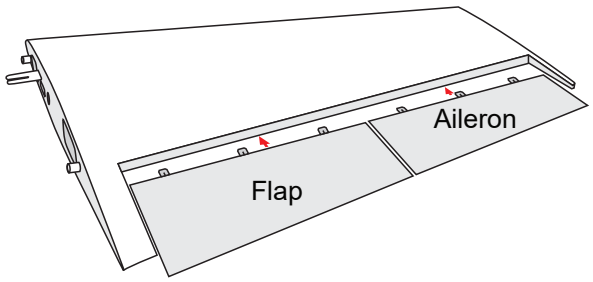


M2	7	2 x 10mm Screw	28
2mm Hex Nut	7	3 x 12mm Screw	4
100mm Push rod	7	35mm Aluminium	2
Flaslink	7	Plastic	2
Horn	7		

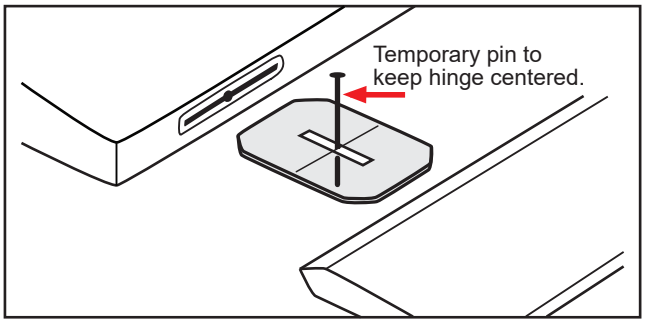
5 x 30mm Cap Screw	3
3 x 15mm Screw	12
5mm Colar	1
Spring	1
3 x 6mm Button Screw	1



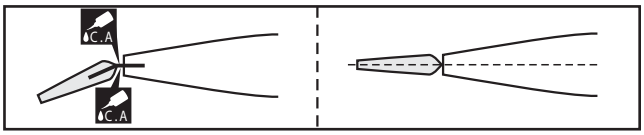
INSTALLING THE AILERONS, FLAPS



* Test fit the ailerons to the wing with the hinges. If the hinges don't remain centered, stick a pin through the middle of the hinge to hold it in position.

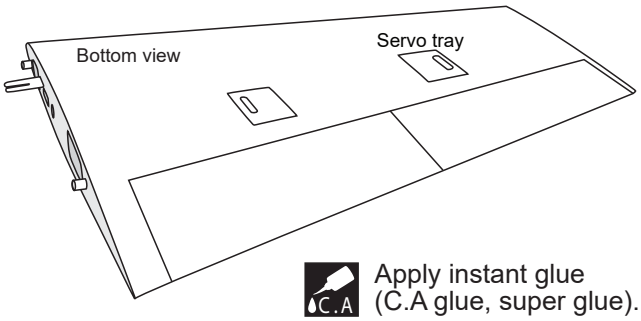


* Apply drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully hardened, test the hinges by pulling on the aileron.



* Secure nylon hinges with instant glue, being careful not to glue the wing and aileron together.
* Align the center line of main wing with aileron.

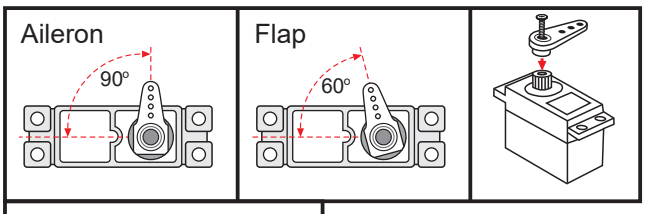
WARNING Make certain the hinges are adequately secured with glue. if they come loose in flight accidents may result.

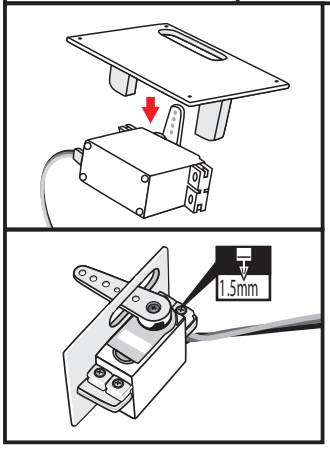


C.A Apply instant glue (C.A glue, super glue).

INSTALLING THE AILERON SERVOS

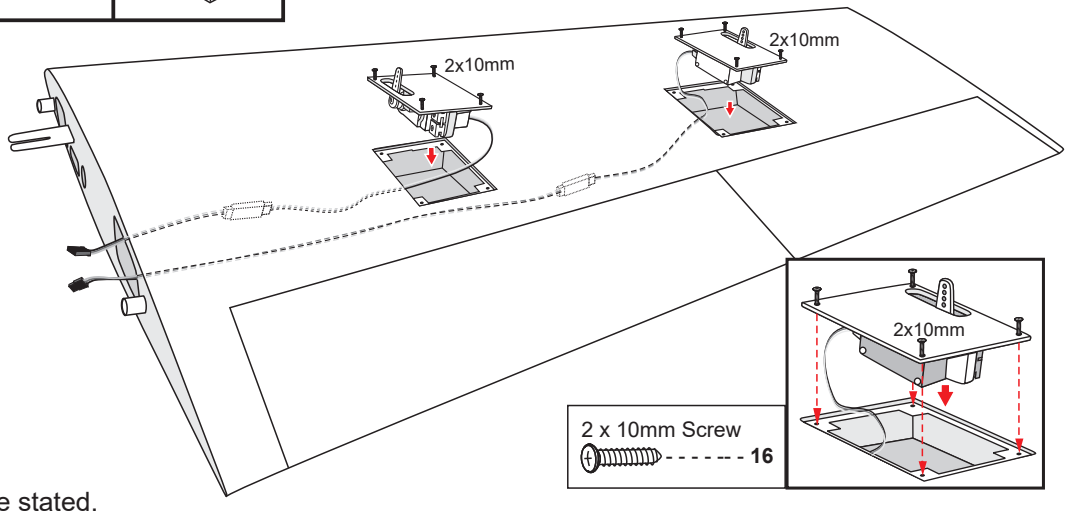
* Install the rubber grommets and brass eyelets on to the aileron servos.
* Using a modeling knife, remove the covering from over the pre-cut servo arm exit hole on the aileron servo tray / hatch. This hole will allow the servo arm to pass through when installing the aileron pushrods.
* Place the servo into the servo tray. Center the servo within the tray and drill 1.5mm pilot holes through the block of wood for each of the four mounting screws provided with the servo.





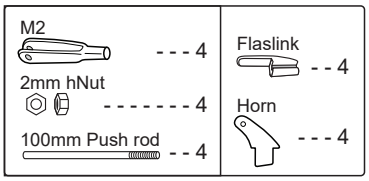
* Using the thread as a guide and using masking tape, tape the servo lead to the end of the thread: carefully pull the thread out. When you have pulled the servo lead out, remove the masking tape and the servo lead from the thread.

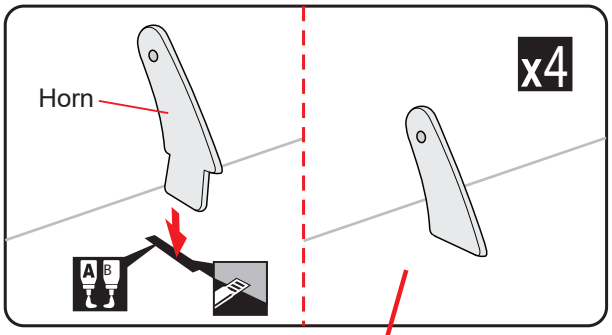
* Place the servo into the servo tray/ hatch into the servo box on the bottom of the wing and drill 1.5mm pilot holes through the tray and servo box for each of the four mounting screws. Secure the servo tray in place using the mounting screws provided.

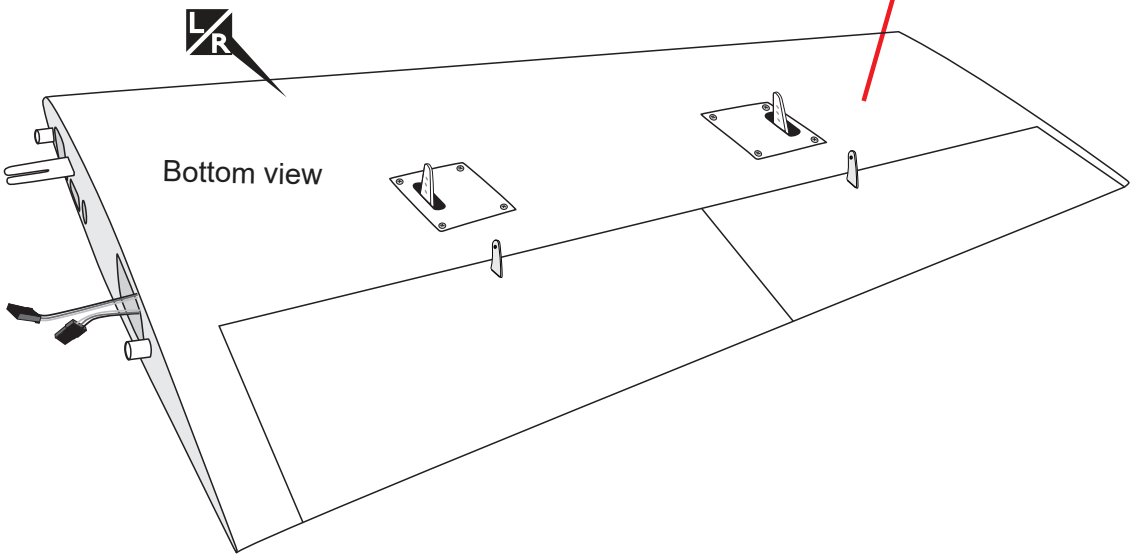


1.5mm Drill holes using the stated. (in this case 1.5mm Ø).

INSTALLING THE CONTROL HORNS, LINKAGES







1) Working with the aileron linkage for now, thread one nylon clevis onto one of the threaded wires.

2) Attach the clevis to the outer hole in the control horn.

3) Locate one nylon servo arm, and using wire cutters, remove all but one of the arms. Using a 2mm drill bit, enlarge the third hole out from the center of the arm to accommodate the aileron pushrod wire.

4) Plug the aileron servo into the receiver and center the servo. Install the servo arm onto the servo. The servo arm should be perpendicular to the servo and point toward the middle of the wing.

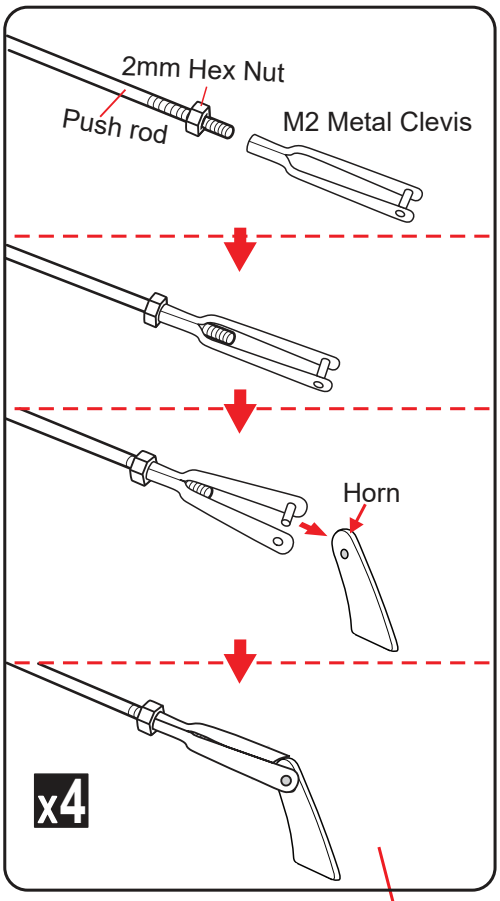
5) Center the aileron and hold it in place using a couple of pieces of masking tape.

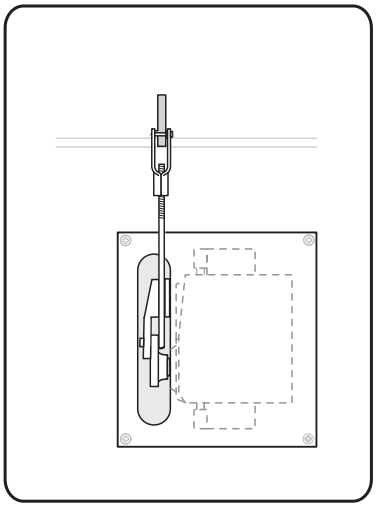
6) With the aileron and aileron servo centered, carefully place a mark on the aileron pushrod wire where it crosses the hole in the servo arm.

7) Using pliers, carefully make a 90 degree bend down at the mark made. Cut off the excess wire, leaving about 6mm beyond the bend.

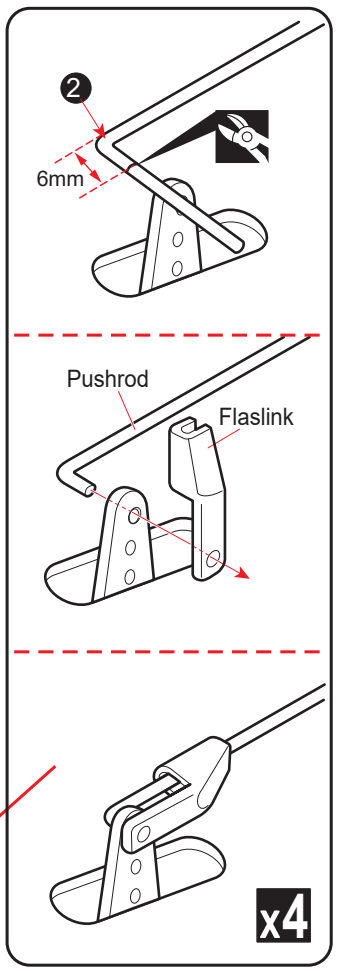
8) Insert the 90 degree bend down through the hole in the servo arm. Install one nylon flaslink over the wire to secure it to the arm. Install the servo arm retaining screw and remove the masking tape from the aileron.

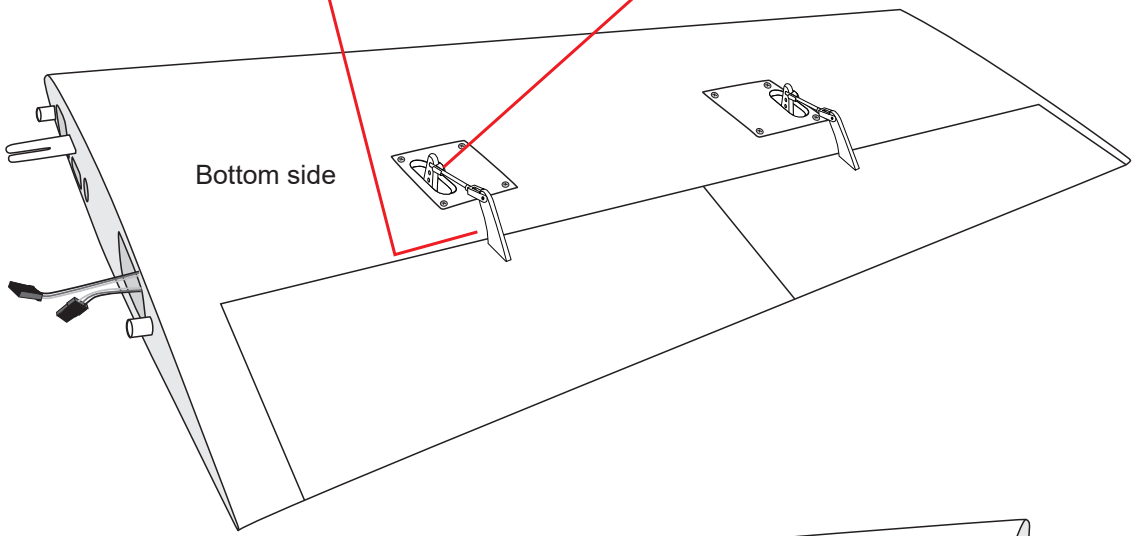
9) Repeat step # 4 - # 8 to install the second aileron linkage. After both linkages are completed, connect both of the aileron servo leads using a Y-harness you have purchased separately.

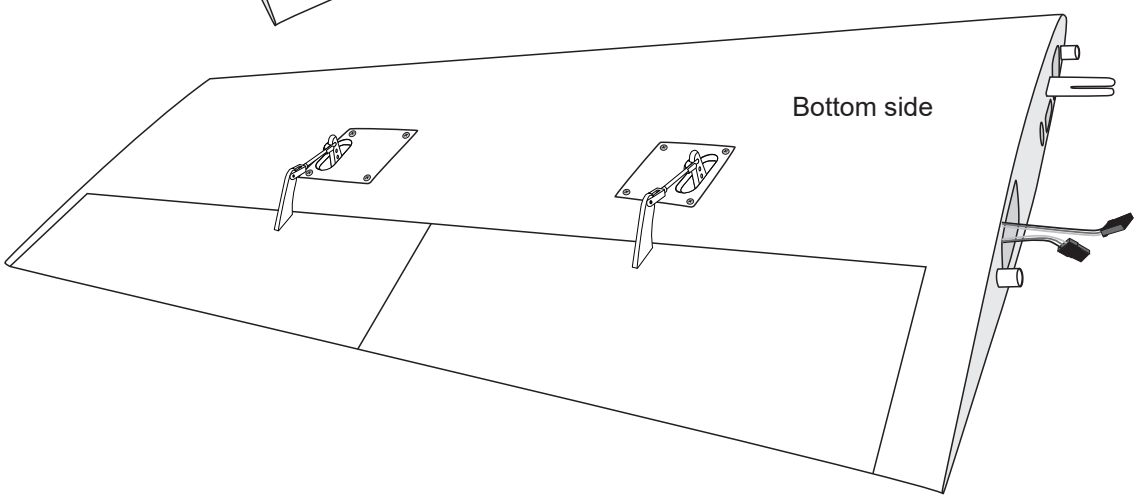




1 Mark the spot to attach
2 Bend 90°







INSTALLING THE HORIZONTAL STABILIZER

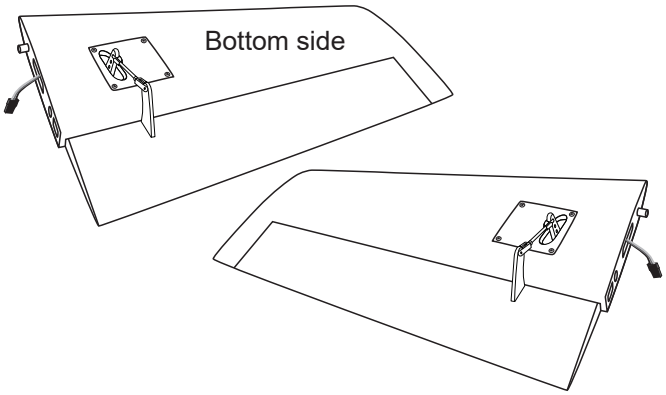
Elevator are installed the same way as the Aileron before (see page 5, 6).

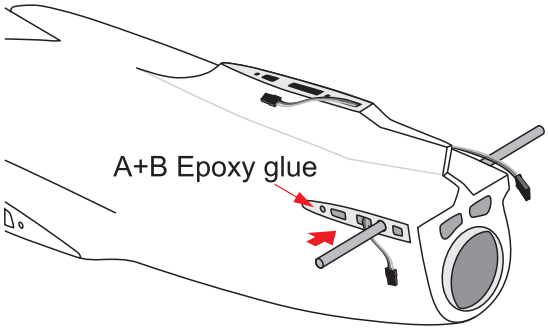
M2	- - - 2	Flaslink	- - 2
2mm Hex Nut	- - - - - - - 2		
100mm Push rod	- - 2	Horn	- - - 2
2 x 10mm Screw	- - - - - - 8		

Aluminium tube Horizontal stabilizer. ⌀8mm

220mm

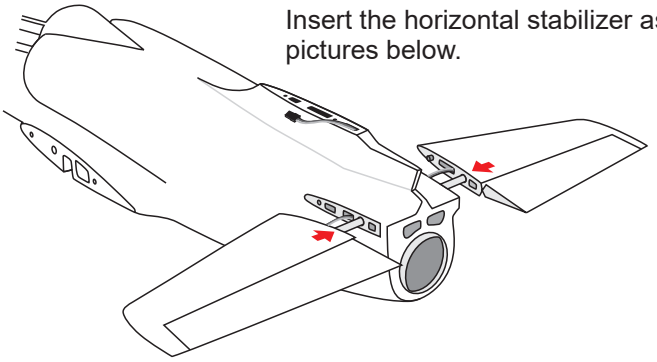
Attach the aluminium tube into the fuselage.
Use A+B Epoxy glue to secure the horizontal stabilizer to the fuselage.

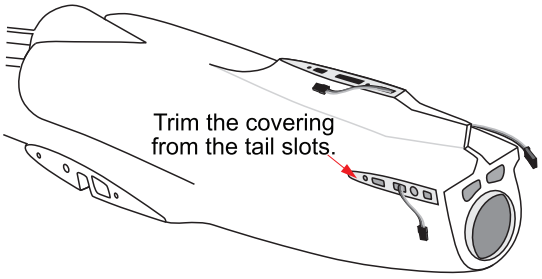




Using a modeling knife, carefully remove the film covering from the tail slots at the rear of the fuselage. Make sure that you do not remove any wood from the slots as this will affect the alignment of the tail.

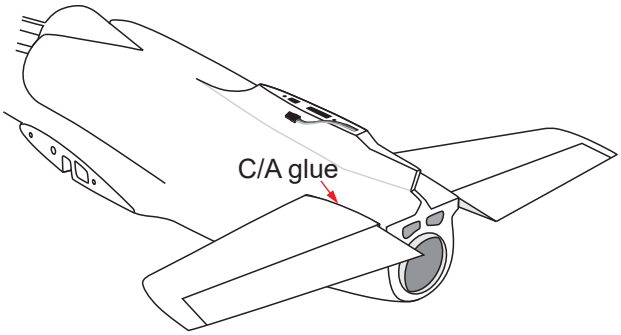
Insert the horizontal stabilizer as pictures below.



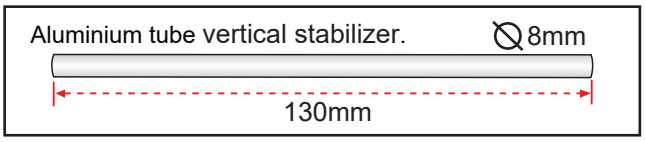


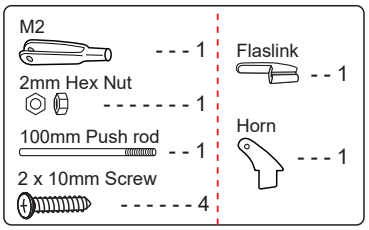
*** Test fit the aluminium tube dihedral brace into each wing haft. The brace should slide in easily. If not, use 220 grit sand around the edges and ends of the brace until it fits properly.

Use C/A glue to secure the horizontal stabilizer to the fuselage

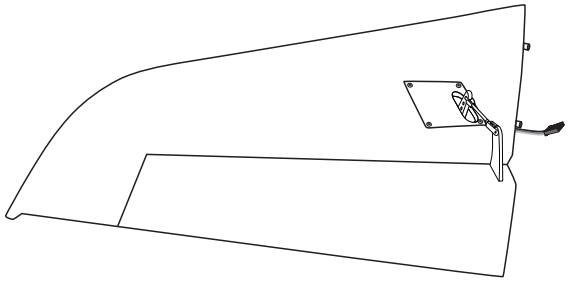


INSTALLATION THE VERTICAL STABILIZER



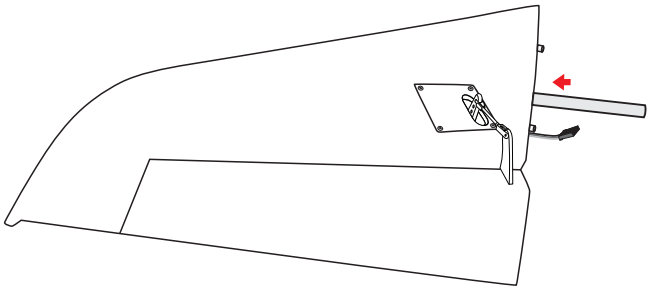


Rudder are installed the same way as the Aileron before (see page 5, 6).

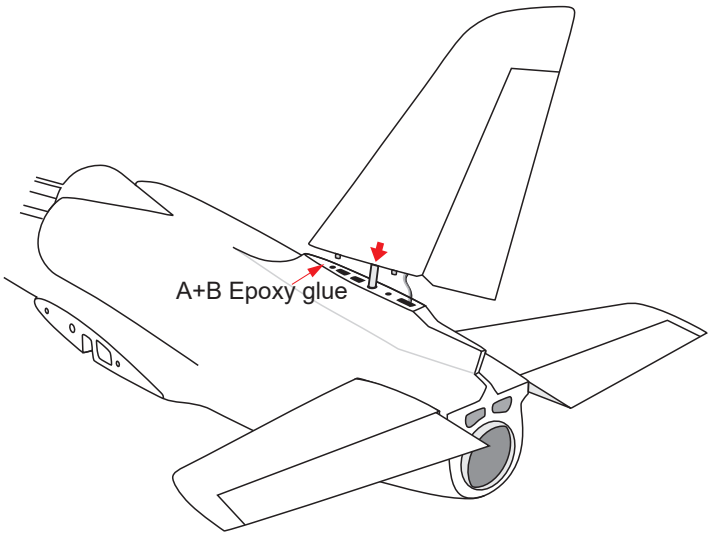


*** Test fit the aluminium tube dihedral brace into each wing haft. The brace should slide in easily. If not, use 220 grit sand around the edges and ends of the brace until it fits properly.

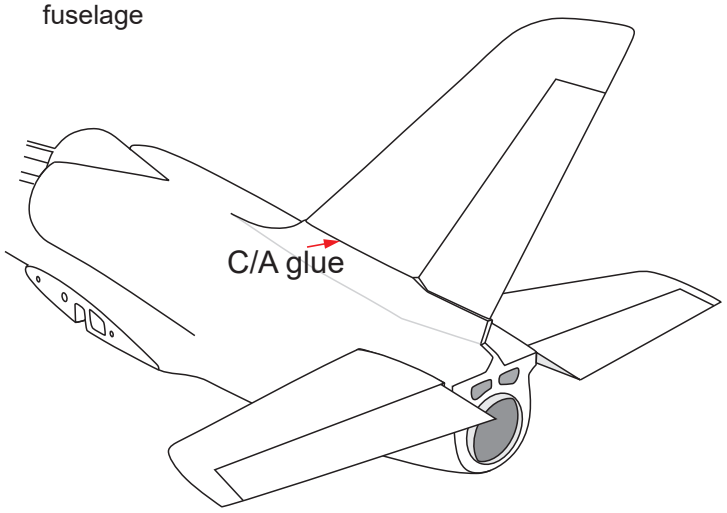
Attach the aluminium tube into the vertical stabilizer.



Use A+B Epoxy glue to secure the vertical stabilizer to the fuselage.



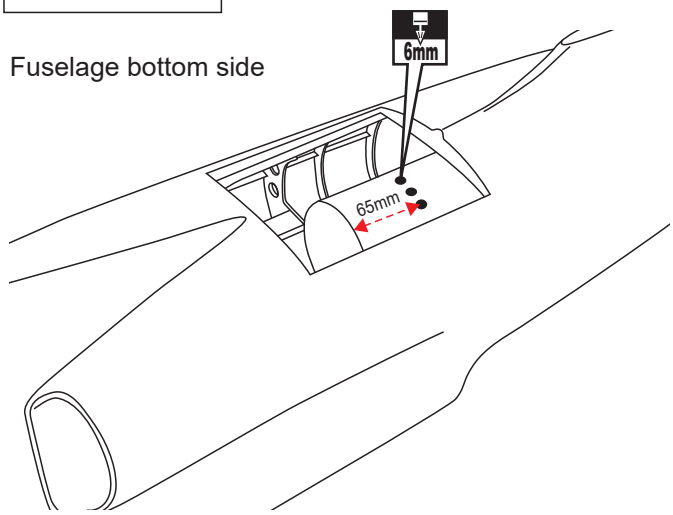
Use C/A glue to secure the vertical stabilizer to the fuselage

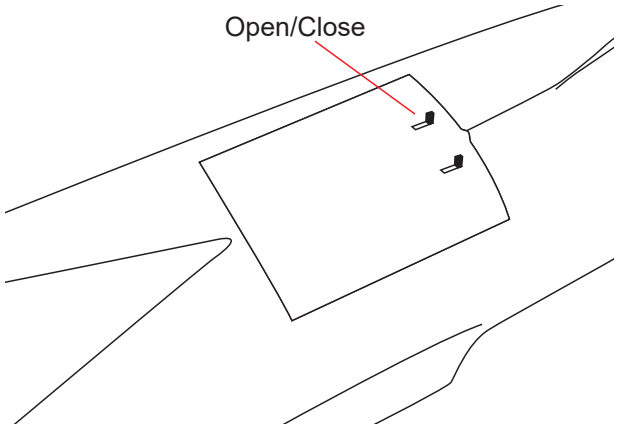


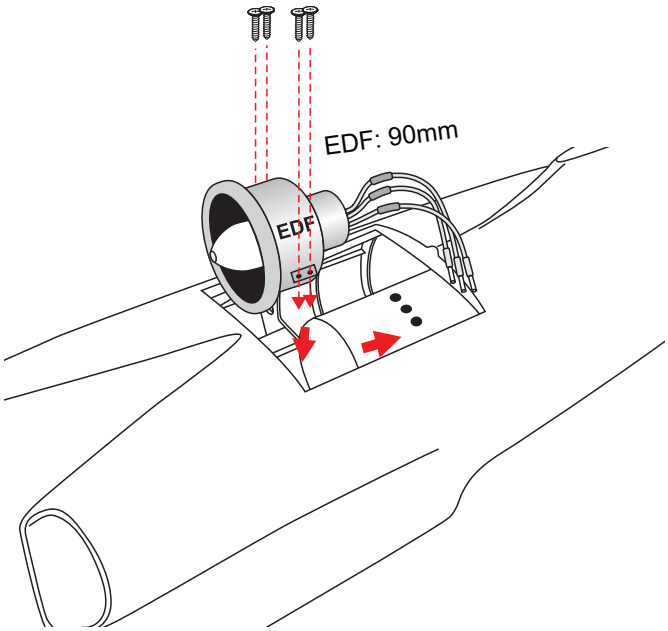
INSTALLING THE EDF (ELECTRIC DUCTED FAN) SYSTEM

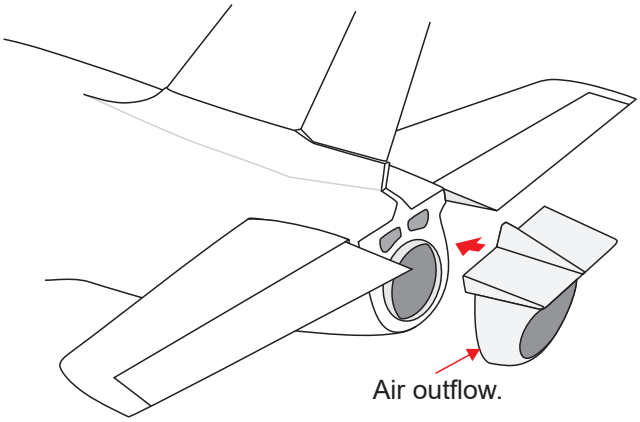
Drill 3 holes from the air outlet for the wires of EDF.

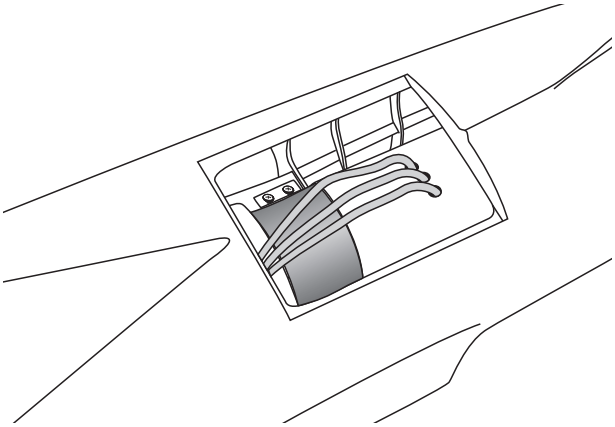
3 x 12mm Screw - - - - - - 4

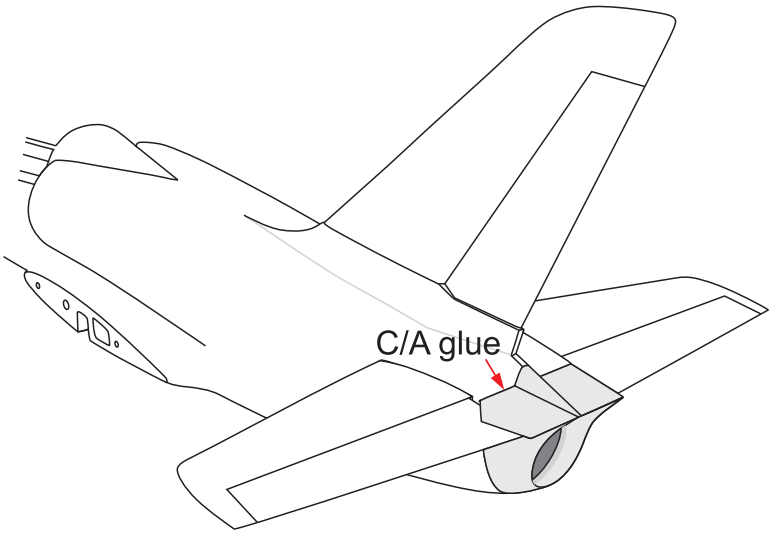




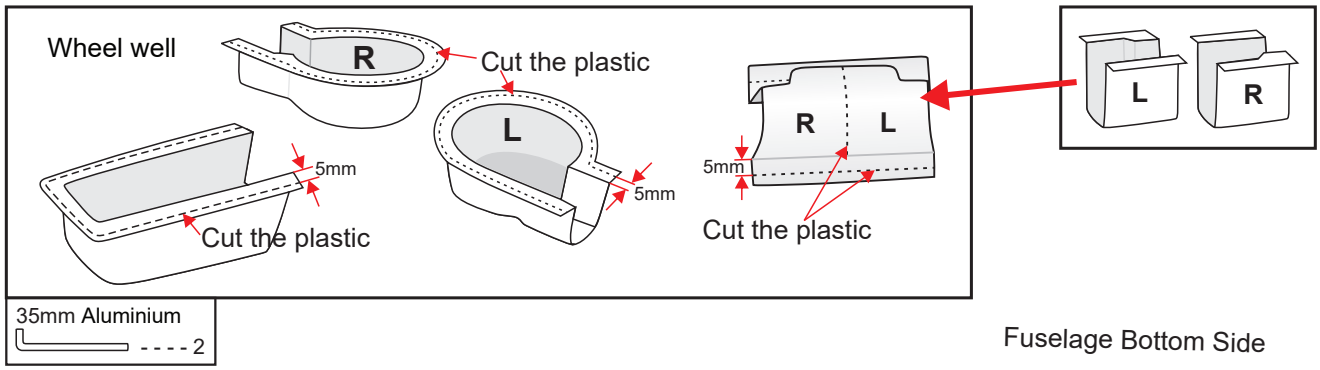




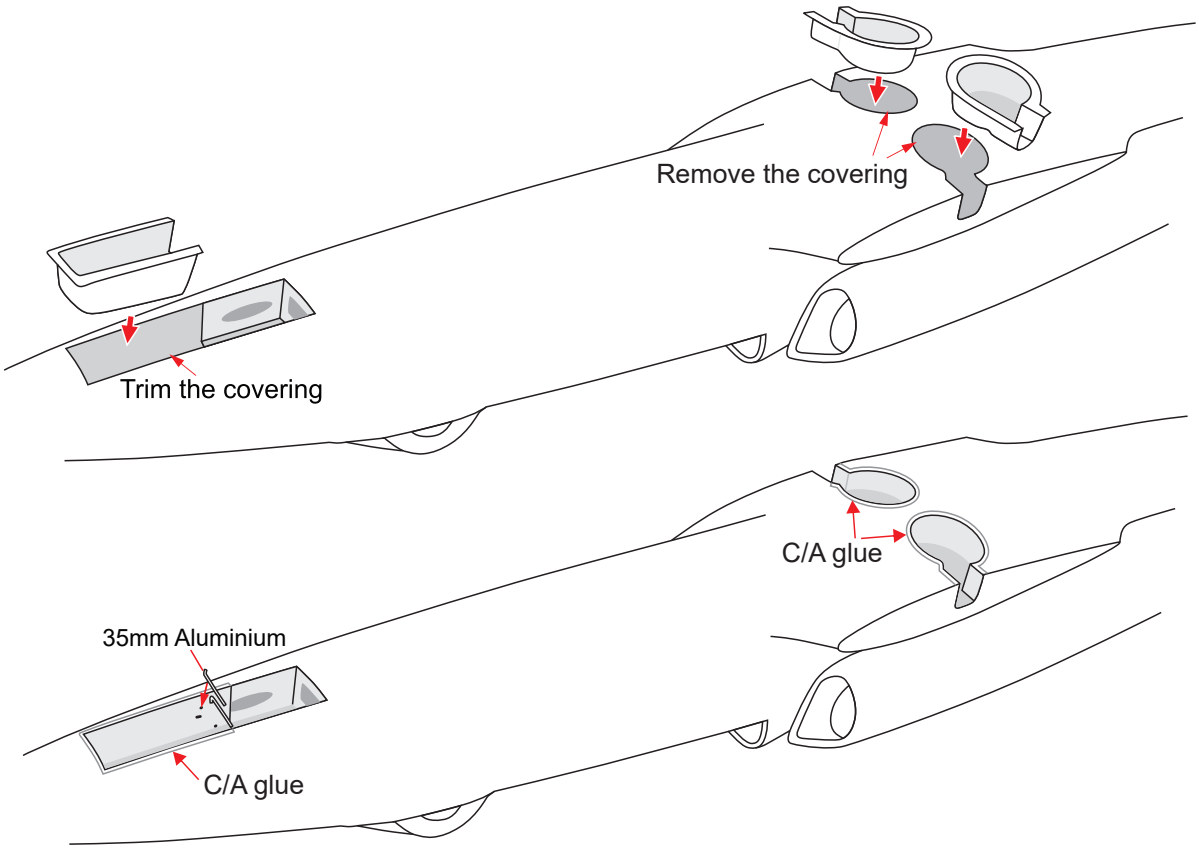


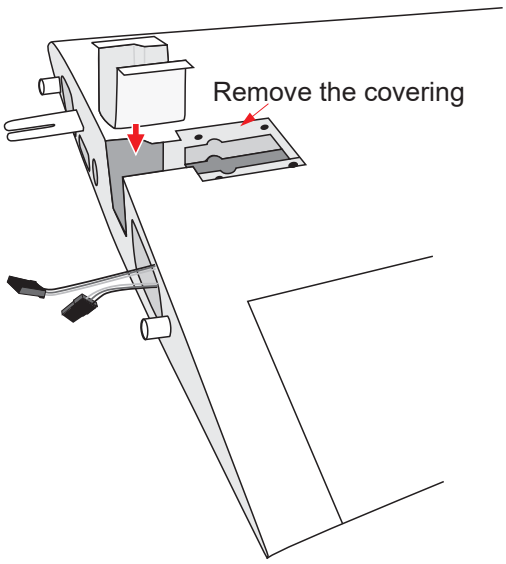


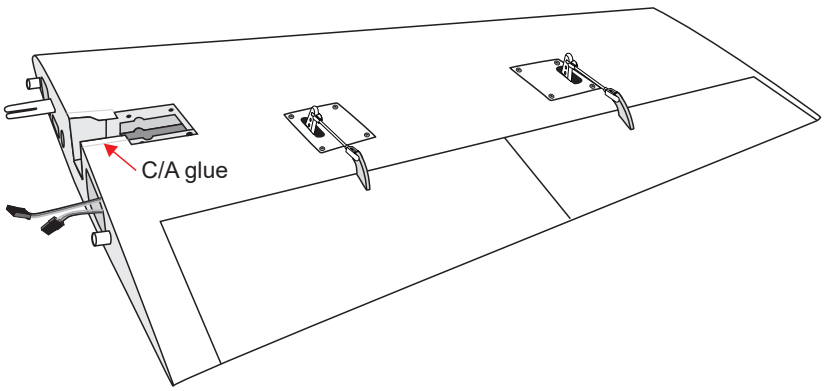
INSTALLING THE WHEEL WELL



Fuselage Bottom Side

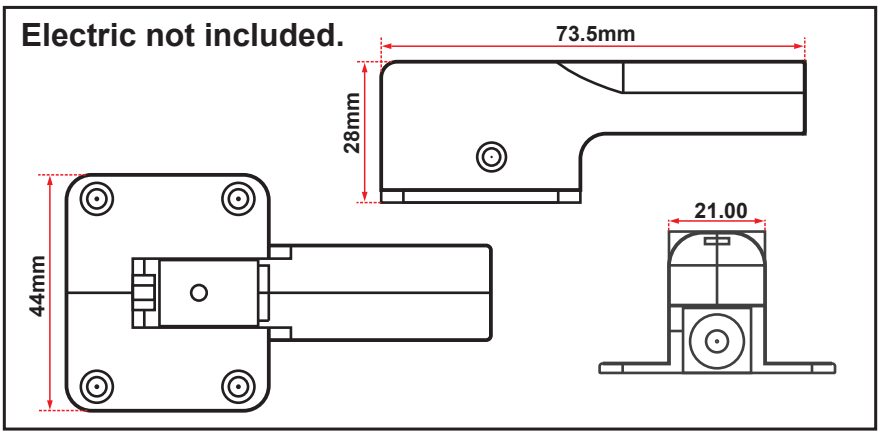


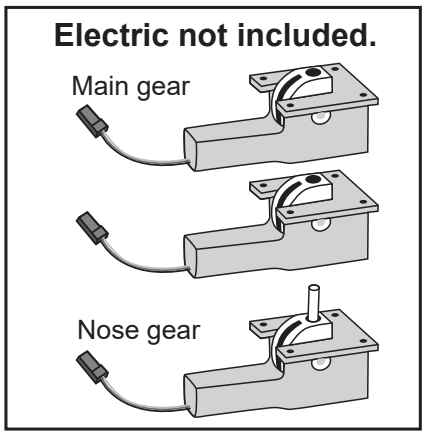


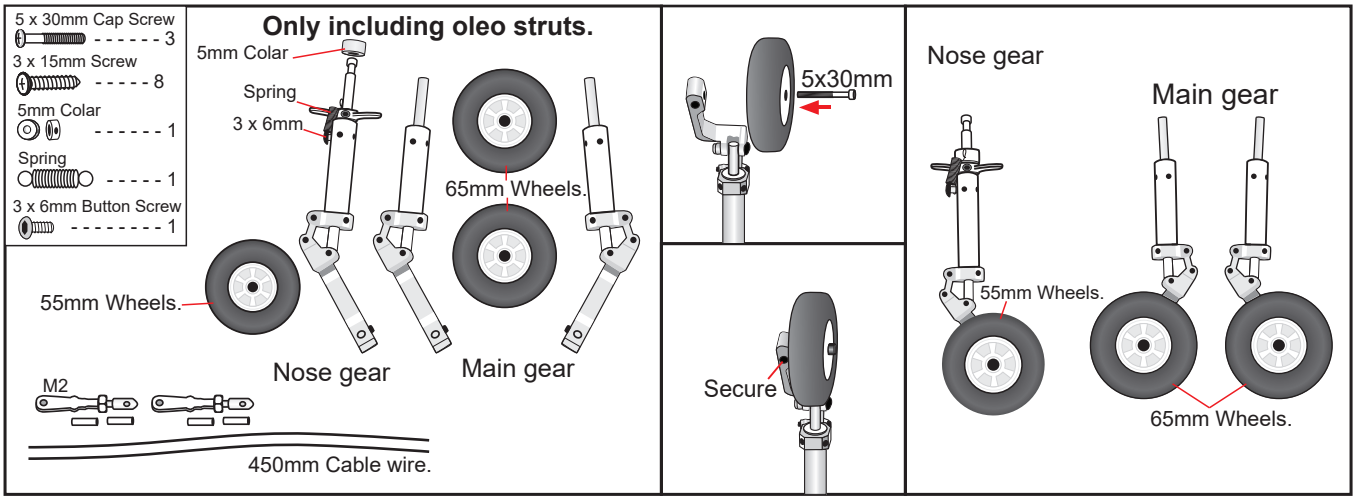


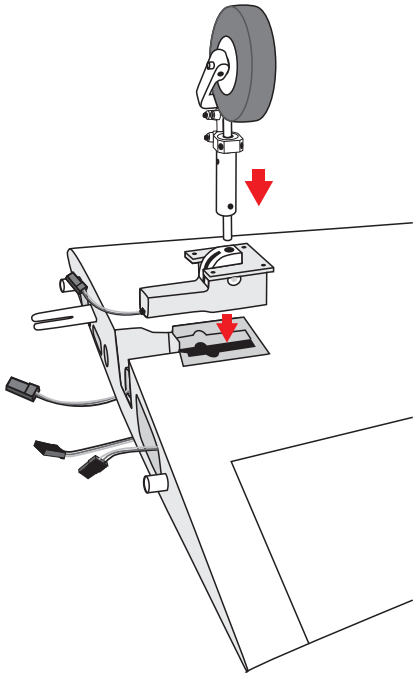
INSTALLING THE ELECTRIC GEAR RETRACTS

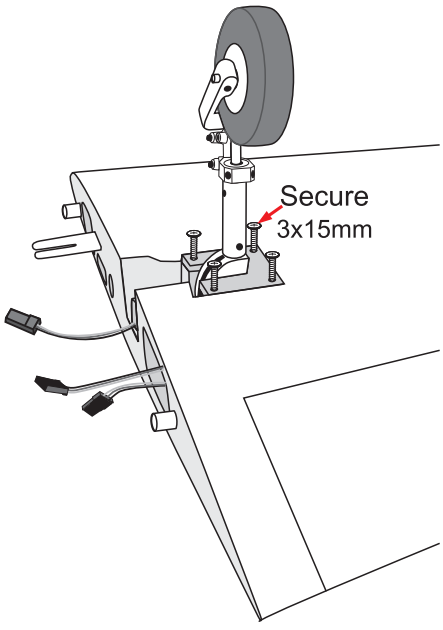
PARTS REQUIRED



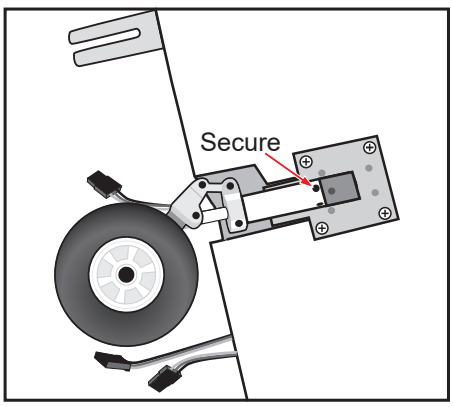






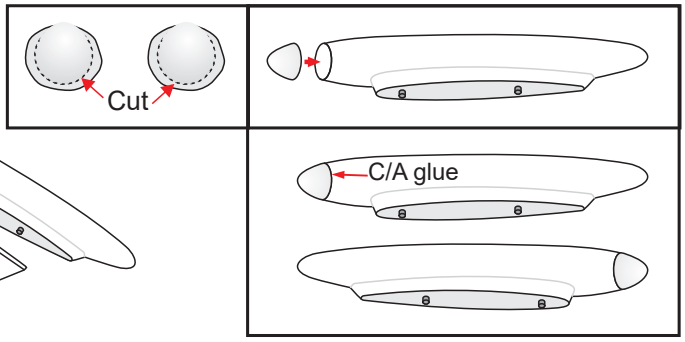


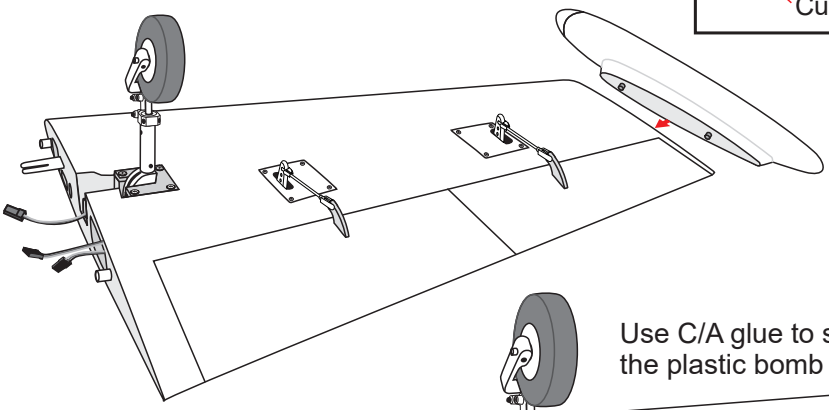
Screw the gear in position

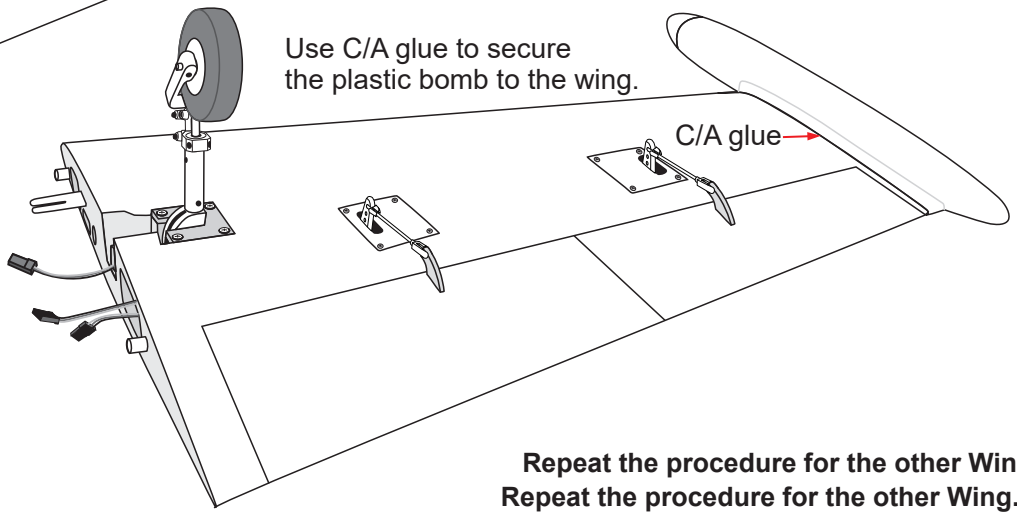


Repeat the procedure for the other Wing.

INSTALLING THE PLASTIC BOMB TOP WING

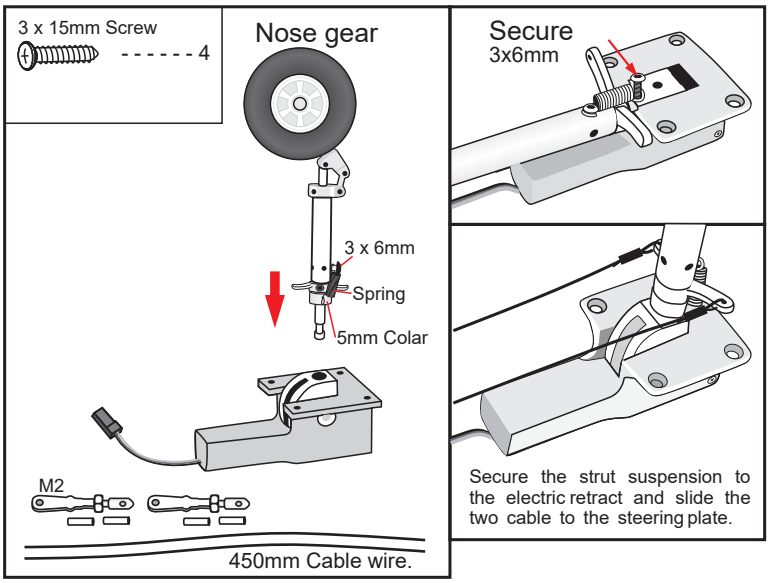




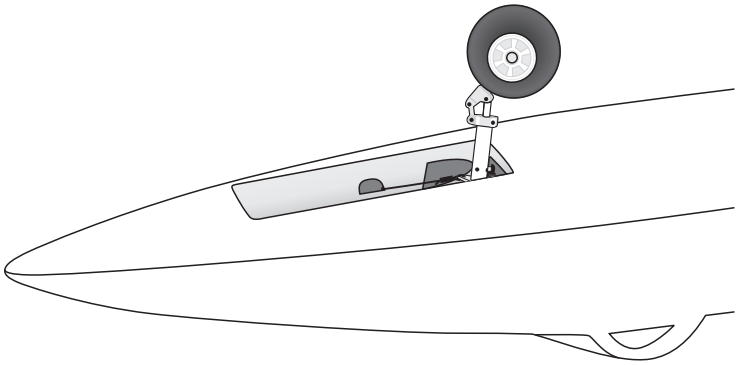


Repeat the procedure for the other Wing.
Repeat the procedure for the other Wing.

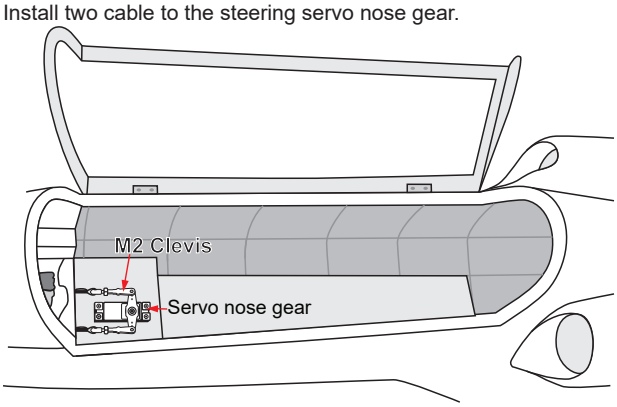
INSTALLING THE NOSE GEAR



Screw the gear in position



Install two cable to the steering servo nose gear.



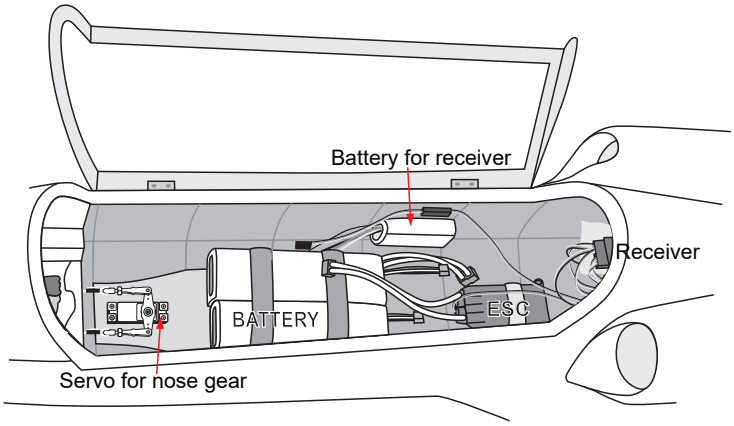
INSTALLING THE RECEIVER, ESC AND BATTERY

1) Plug the servo leads and the switch lead into the receiver. You may want to plug an aileron extension into the receiver to make plugging in the aileron servo lead easier when you are installing the wing. Plug the battery pack lead into the switch.

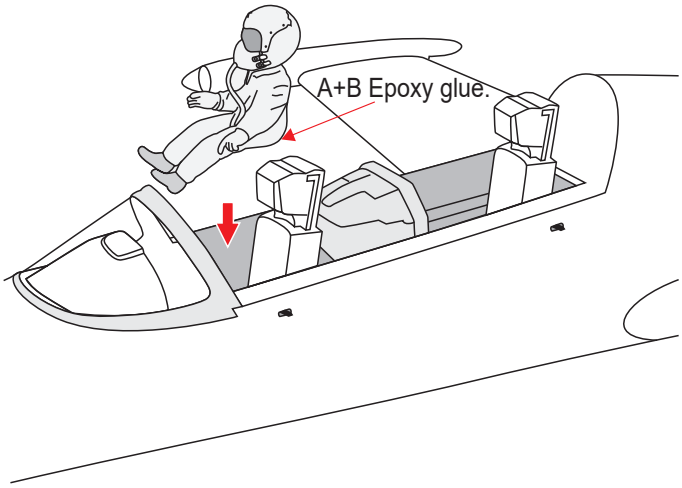
2) Wrap the receiver and battery pack in the protective foam to protect them from vibration. Use a rubber band or masking tape to hold the foam in place.

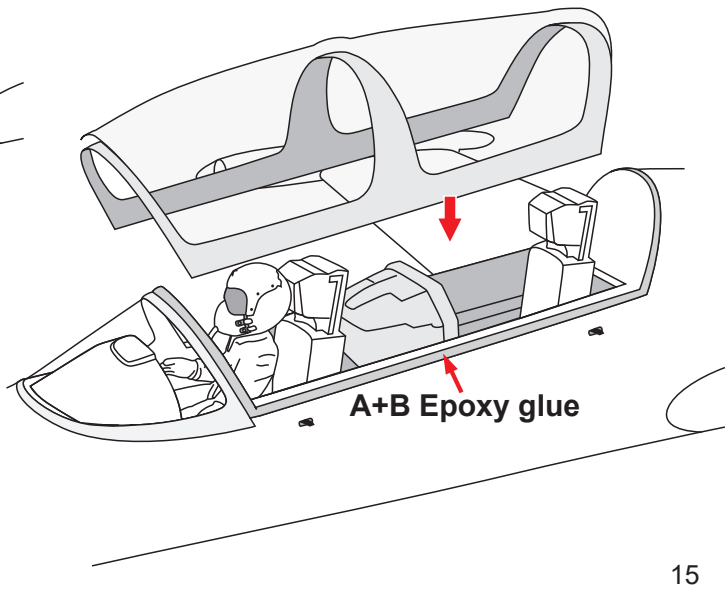
3) Position the battery pack and receiver behind the fuel tank. Use two tie wraps to hold the battery and receiver securely in place as pictures below.
Do not permanently secure the receiver and battery until after balancing the model.

4) Using a 2mm drill bit, drill a hole through the side of the fuselage, near the receiver, for the antenna to exit.

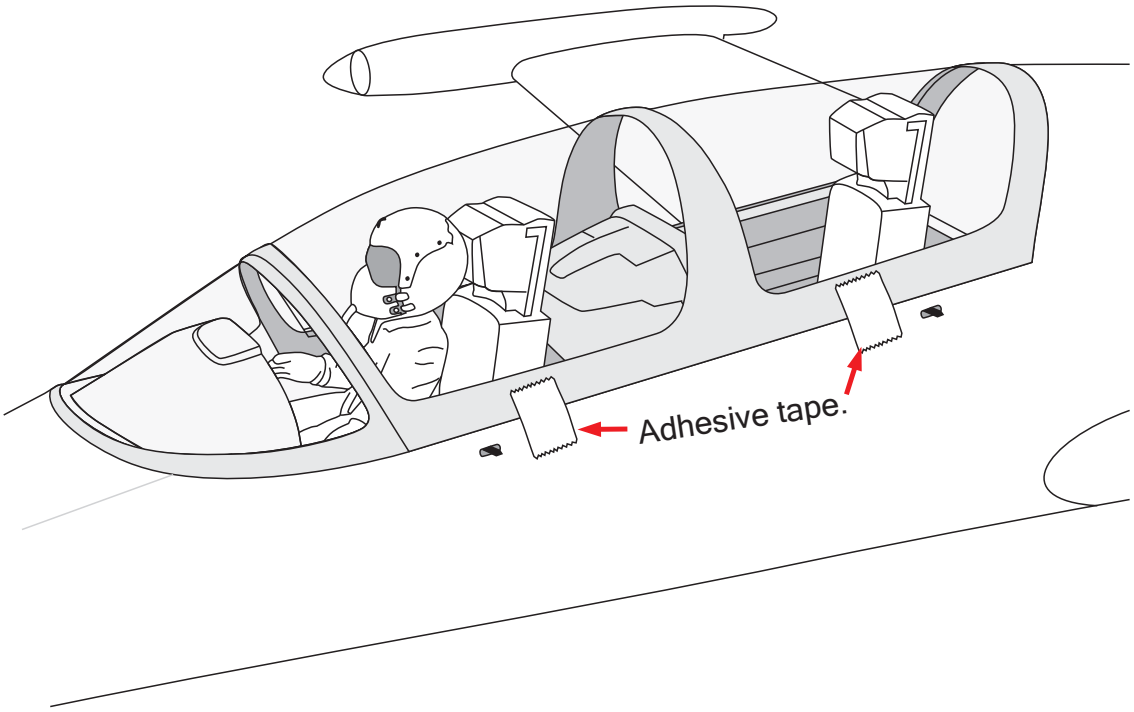


INSTALLING THE COCKPIT FUSELAGE





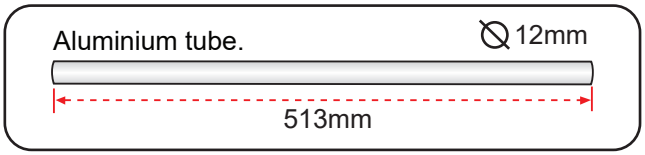
Position the canopy so the rear frame on the canopy is aligned with the rear edge of the cockpit opening. Use canopy glue to secure the canopy to the canopy hatch. Use low-tack tape to hold the canopy in position until the glue fully cures. Wrap the tape completely around the canopy hatch.

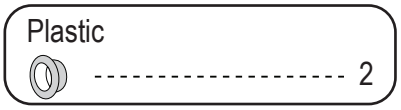


SECURE THE WING TO THE FUSELAGE

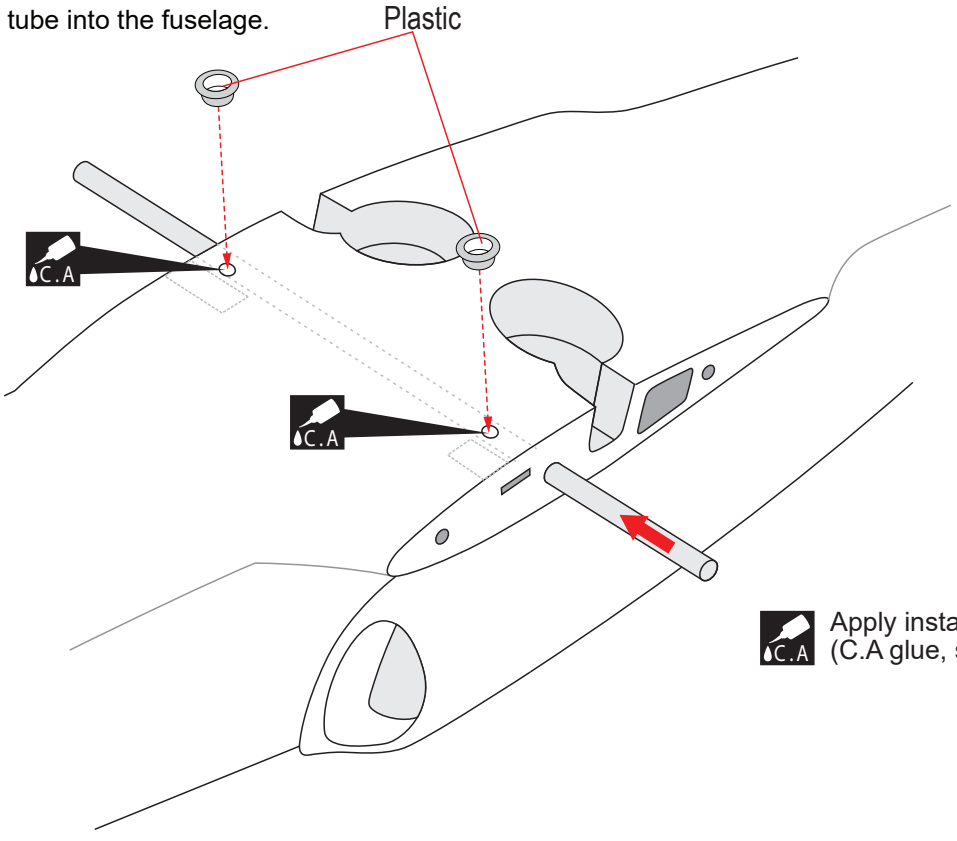
Locate the aluminium wing dihedral brace.

*** Test fit the aluminium tube dihedral brace into each wing haft. The brace should slide in easily. If not, use 220 grit sand around the edges and ends of the brace until it fits properly.



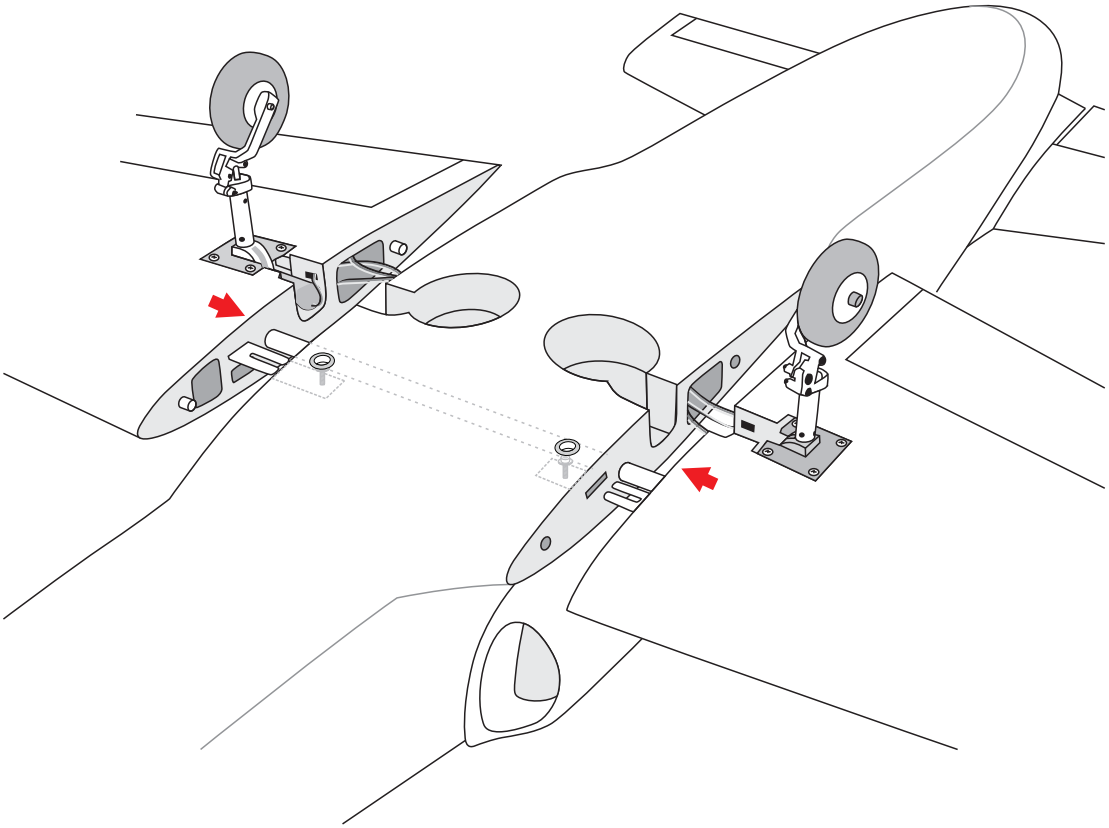


Attach the aluminium tube into the fuselage.

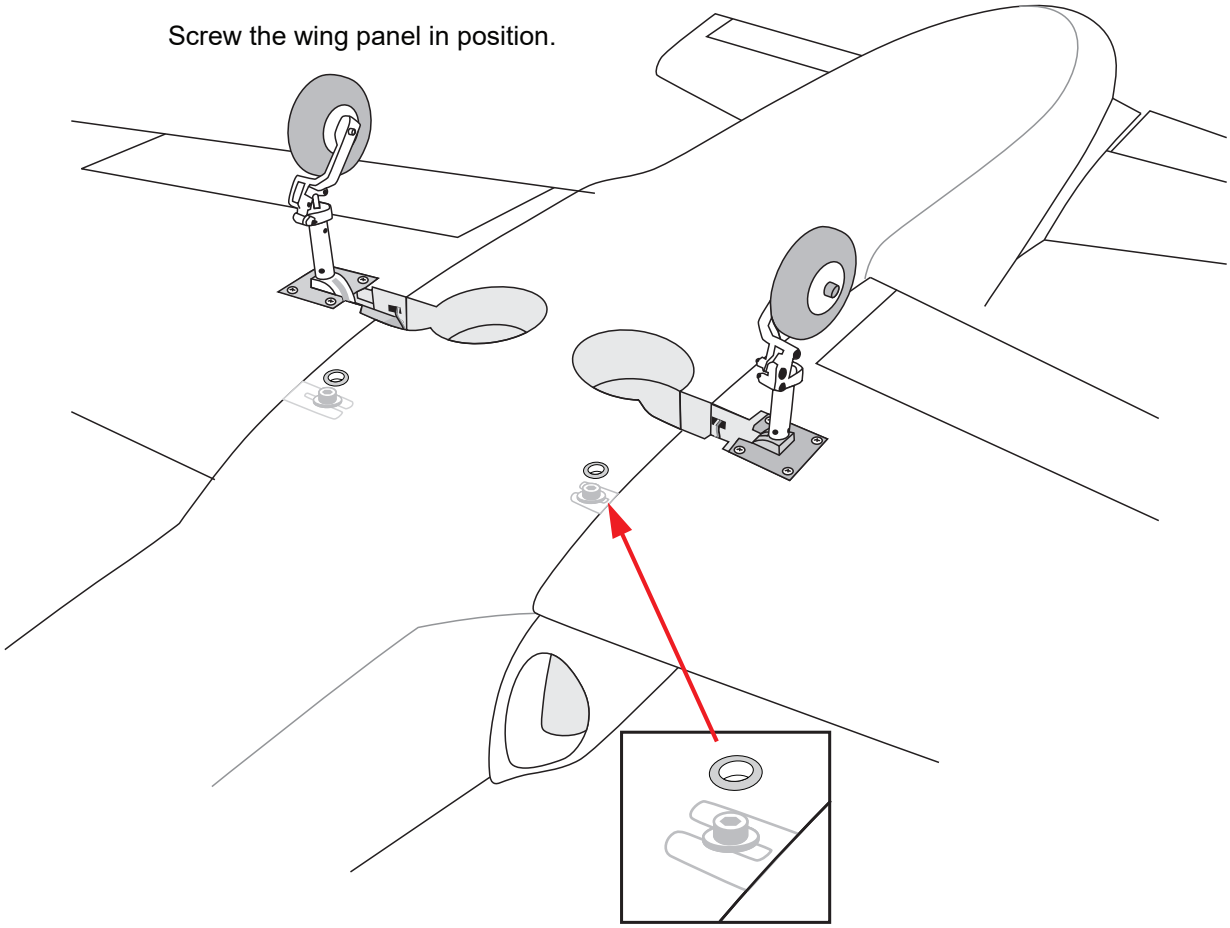


C.A Apply instant glue (C.A glue, super glue).

Insert the wing panel as pictures below.



Screw the wing panel in position.



BALANCING

1) 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 ***111MM*** BACK FROM THE LEADING EDGE OF THE WING.

2) Mount the wing to the fuselage. Using a couple of pieces of masking tape, place them on the top side of the wing **111mm** back from the leading edge, at the fuselage sides.

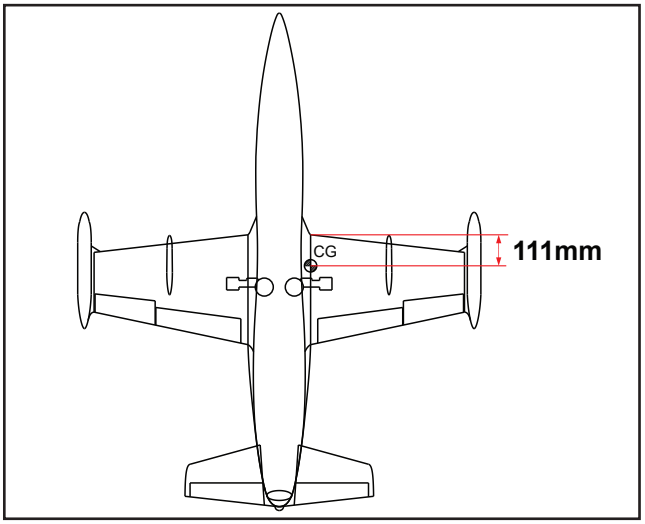
3) Turn the airplane upside down. Place your fingers on the masking tape and carefully lift the plane.

Accurately mark the balance point on the top of the wing on both sides of the fuselage. The balance point is located **111mm** back from the leading edge. 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 weigh* to the nose. If the nose drops, it is "nose heavy" and you must add weight* to the tail to balance.

*If possible, first 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.



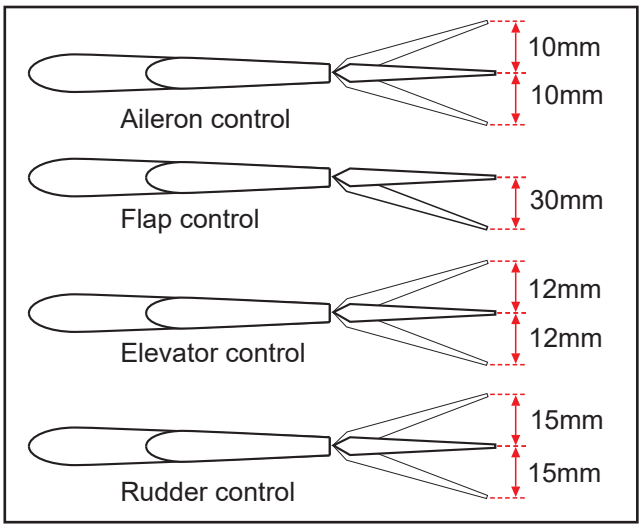
CONTROL THROWS

1) We highly recommend setting up a plane using the control throws listed.

2) The control throws should be measured at the widest point of each control surface.

3) Check to be sure the control surfaces move in the correct directions.

Ailerons : 10 mm up 10 mm down
Flap : 30 mm
Elevator : 12 mm up 12 mm down
Rudder : 15 mm right 15 mm left



PRE-FLIGHT CHECK

1) Completely charge your transmitter and receiver batteries before your first day of flying.

2) Check every bolt and every glue joint in your plane to ensure that everything is tight and well bonded.

3) Double check the balance of the airplane.

4) Check the control surface.

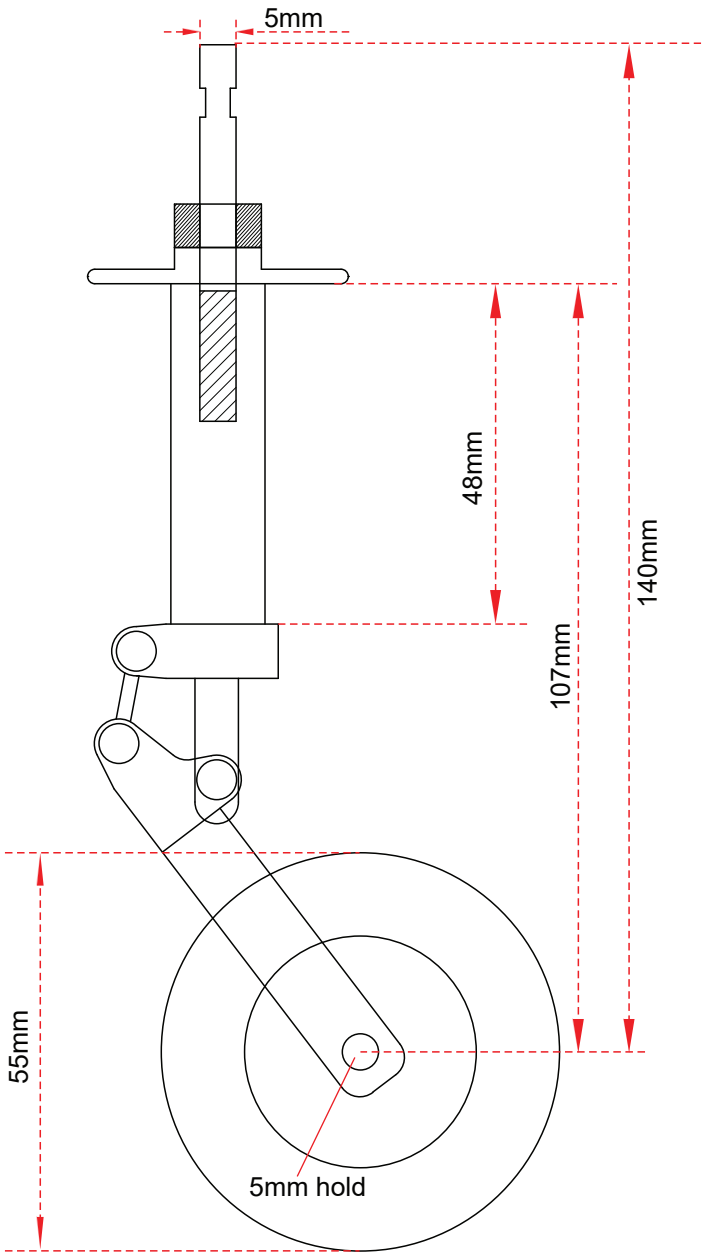
5) Check the receiver antenna. It should be fully extended and not coiled up inside the fuselage.
Check the receiver antenna. It should be fully extended and not coiled up inside the fuselage.

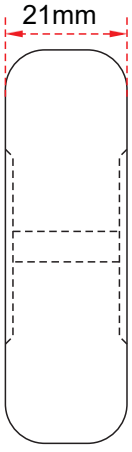
6) Properly balance the propeller.

We wish you many safe and enjoyable flights with your L-39 ALBATROS.

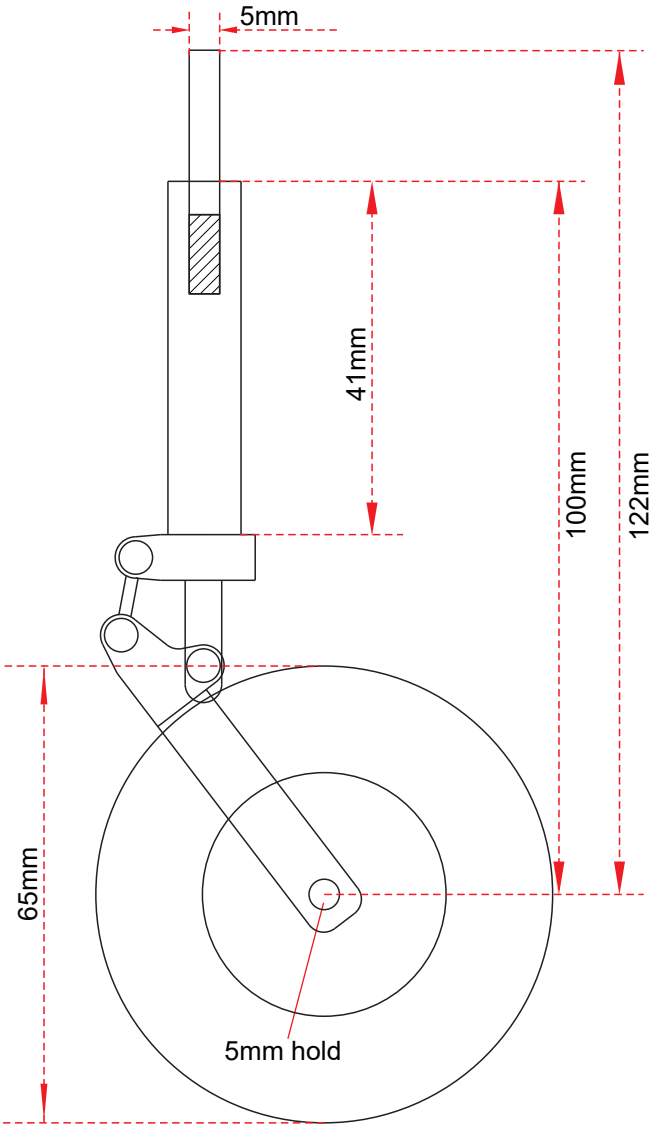
MAIN GEAR DIMENSIONAL DETAIL

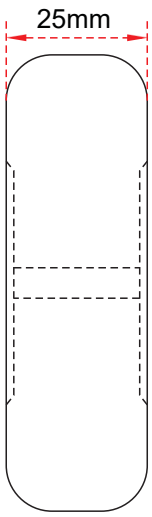
NOSE GEAR STRUTS



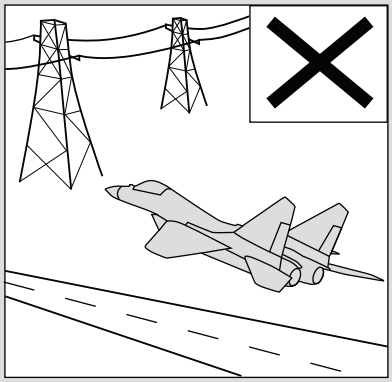


MAIN GEAR STRUTS

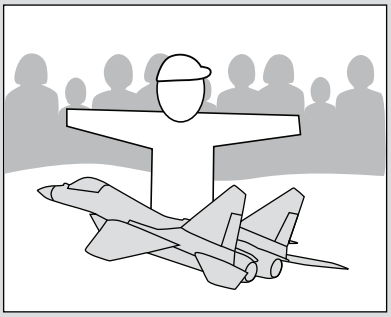




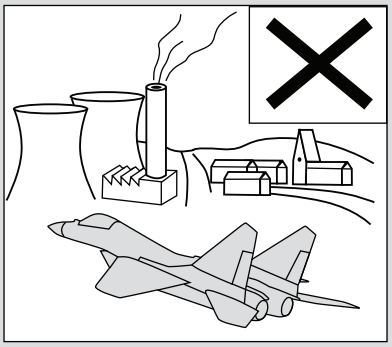
I/C FLINGT WARNINGS



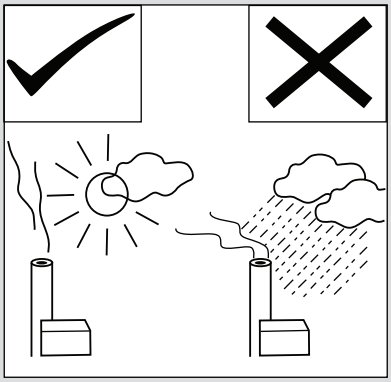
NEVER fly near power lines, aerials or other dangerous areas including airports, motorways etc.



Keep all onlookers (especially small children and animals) well back from the area of operation. This is a flying aircraft, which will cause serious injury in case of impact with a person or animal.



Always operate in open areas, away from factories, hospitals, schools, buildings and houses etc. **NEVER** fly your aircraft close to people or built up areas.



NEVER fly in wet conditions or on windy or stormy days.