Instruction Manual

PHOENIX MODEL®

GRIPEN

EDF 90MM ARF SCALE 1:7

SPECIFICATION

- **Wingspan:** 1084mm (42.7 in)
- **Length:** 1655mm (65.1 in)
- **Flying weight:** 5.4 - 5.6 kg
- **Wing area:** 42dm2
- **Wing loading:** 135g/dm2
- **Wing type:** Naca airfoils
- **Covering type:** Genuine ORACOVER®
- **Retract gear type:** Electric retract gear (not included); CNC Suspension Metal Struts (included)
- **Radio:** 6 - 9 channel . 6 mini hi-torque servo: 2 aileron; 2 flap; 1 rudder; 1 steering nose; 2 standard hi-torque servo (minimum 9kg) for 2 elevator (not included)
- **Engine:** edf 90mm with minimum thrust up 4 kg ; 10-12 cells (not included)
- **Gravity CG:** 95 mm (3,7 in) Back from the leading edge of the wing, at the fuselage
- **Control throw Ailerons:** Low: 8mm up/down, 10% expo; High: 10mm up/down, 10% expo
- **Control throw Elevators:** Low: 11mm up/down, 12% expo; High: 13mm up/down, 12% expo
- **Control throw Rudder:** Low: 15mm right/left, 15% expo; High: 20mm right/left, 15% expo
- **Control throw flap :** Mid : 15mm down; Landing : 20mm down
- **Plane type:** scale military
- **Experience level:** advanced

RECOMMENDED EDF AND BATTERY SET UP

- **EDF:** 90mm, Minimum thrust 4 kg. Midi-Fan evo/ HET 650-68-1130 WeMoTec (not included)
- **Lipo cell:** 10-12 cells / 5000mAh 60C (not included)
- **Esc** 120-160 A Phoenix Castle (not included)

TOOLS AND SUPPLIES NEEDED

- Medium C/A glue
- 30 minute epoxy
- 6 minute epoxy
- Hand or electric drill
- Assorted drill bits
- Modeling knife
- Straight edge ruler
- 2 bender plier
- Wire cutters
- Masking tape
- Thread lock
- Paper towels
- Rubbing alcohol

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:

1. 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. The GRIPEN EDF 90MM ARF SCALE 1:7 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.
2. 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.

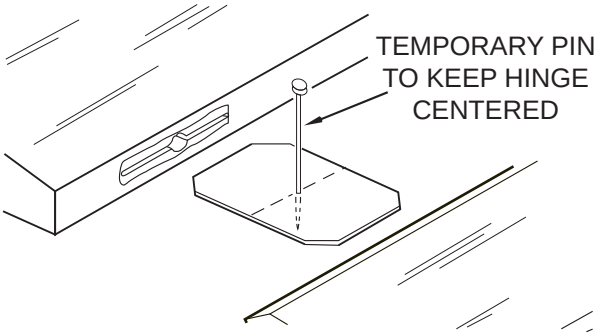
PREPARATIONS

Remove the tape and separate the ailerons from the wing and the elevators from the stab. Use a covering iron with a covering sock on high heat to tighten the covering if necessary. Apply pressure over sheeted areas to thoroughly bond the covering to the wood.

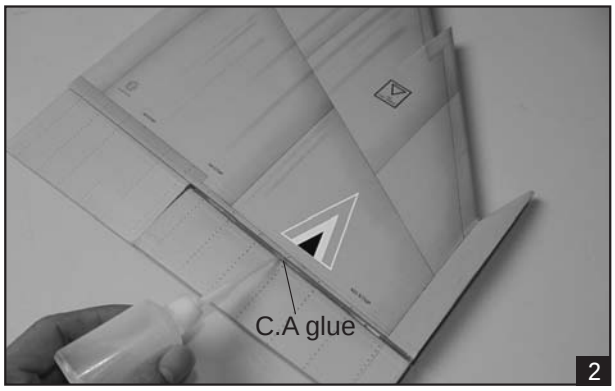

1

INSTALLING THE AILERONS

1. 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.



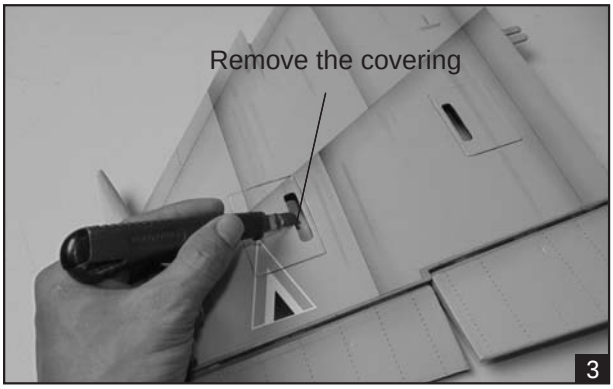
2. Apply six drops of thin CA to the top and bottom of each hinge. Do not use CA accelerator. After the CA has fully hardened, test the hinges by pulling on the aileron.



2

INSTALLING THE AILERON SERVOS

1. Install the rubber grommets and brass eyelets onto the aileron servo.
2. 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.



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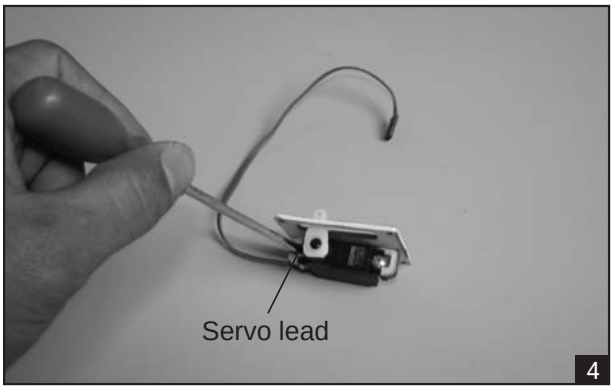
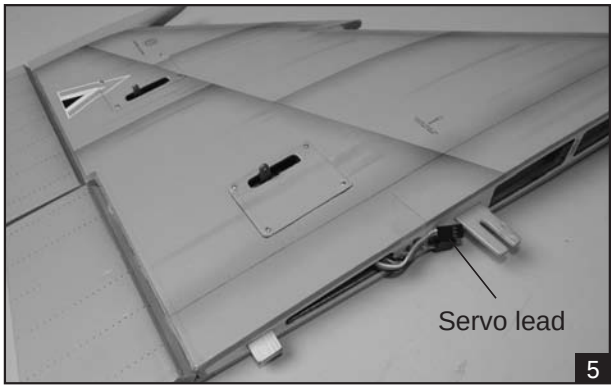
3. Place the servo into the servo tray. Center the servo within the tray and drill 1,6mm pilot holes through the block of wood for each of the four mounting screws provided with the servo.

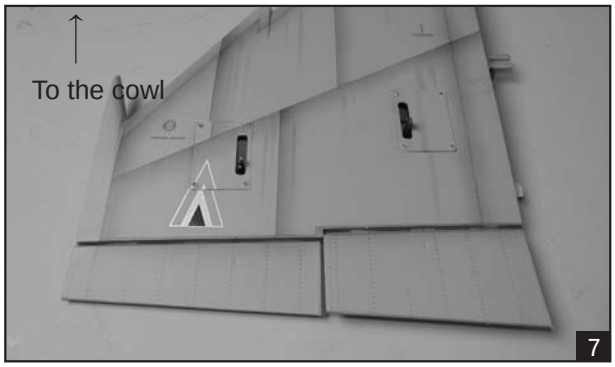


4. Using the thread as a guide and using masking tape, tape the servo lead to the end of the thread: carefully pull the thread out. When you have pulled the servo lead out, remove the masking tape and the servo lead from the thread.



5. Place the aileron servo tray / hatch into the servo box on the bottom of the wing and drill pilot holes through the tray and the servo box for each of the four mounting screws. Secure the servo tray in place using the mounting screws provided (2mm x 12mm).

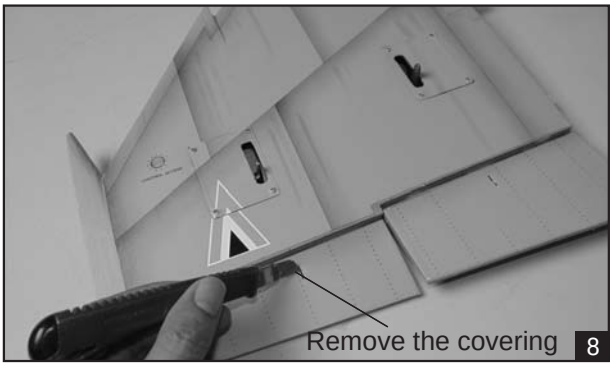
6. Repeat step # 2 - # 5 to install the second aileron servo in the opposite wing half.

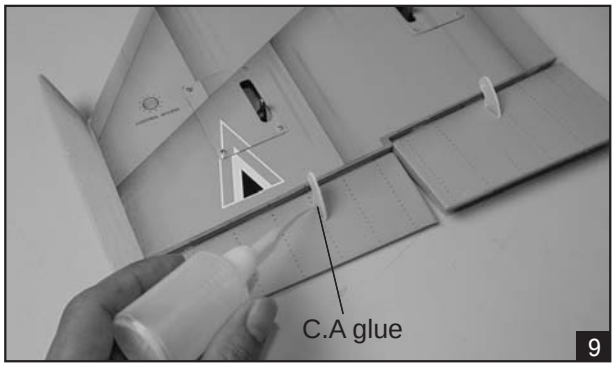


INSTALLING THE CONTROL HORNS

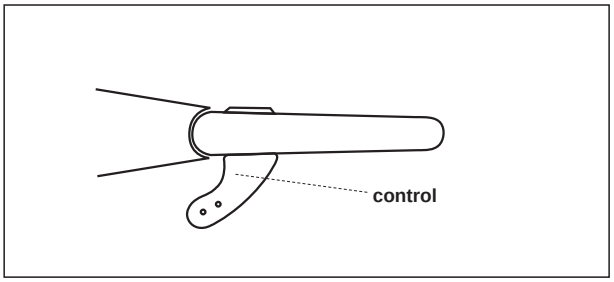
1. Remove the covering from the slot on the bottom of the aileron.

2. Insert the control horn into the slot and secure it by using C.A glue.



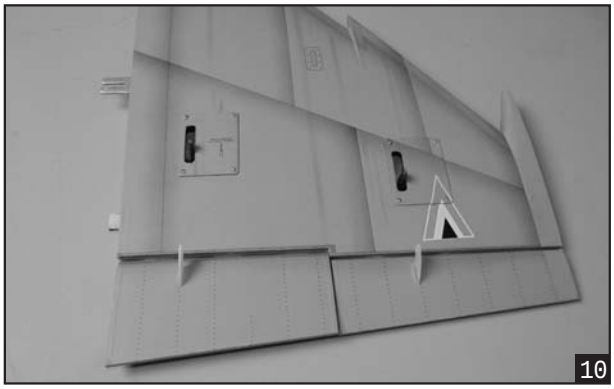


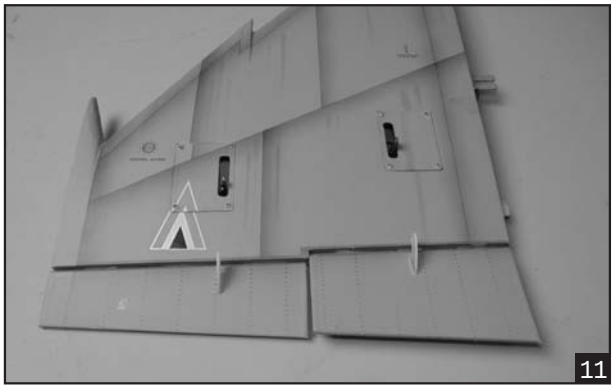
3. Repeat step # 1 - # 2 to install the control horn on the opposite aileron.



INSTALLING THE CONTROL HORNS FOR FLAP

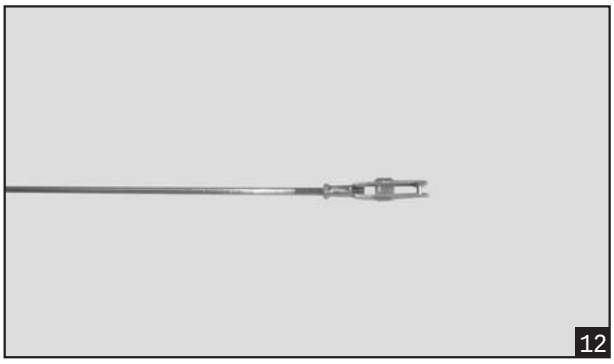
Repeat step #1 - #3 from installing the control horn for aileron to install the control horn for flap.



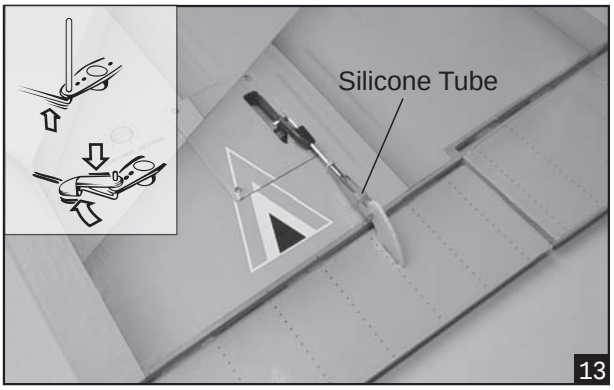


INSTALLING THE AILERON LINKAGES

1. Working with the aileron linkage for now, thread one clevis at least 14 turns onto one of the threaded wires.



2. Attach the clevis to the outer hole in the control horn. Install a silicone tube on the clevis.
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 4mm beyond the bend.



8. Insert the 90 degree bend down through the hole in the servo arm. Install one nylon snap keeper 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.

INSTALLING THE FLAP LINKAGE

Repeat step #1 - #9 from installing the aileron linkage to install the flap linkage.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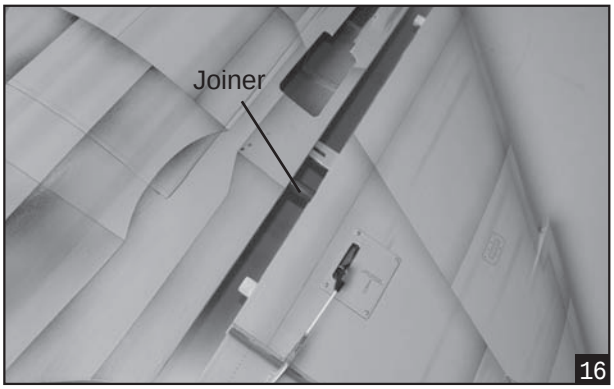
SECURE THE WING TO THE FUSELAGE



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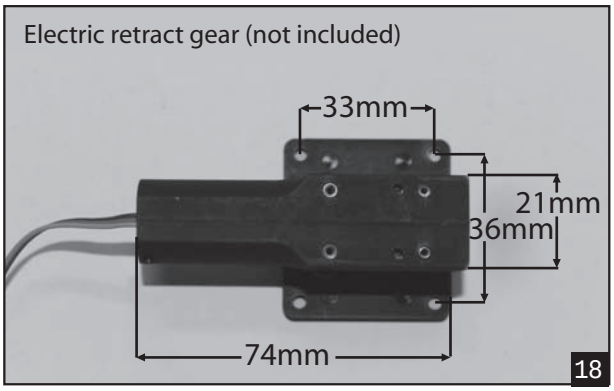
INSTALLING THE LANDING GEAR

- In case you want to use with the electric retract (not included with the kit), please pay attention with the dimension as picture below.



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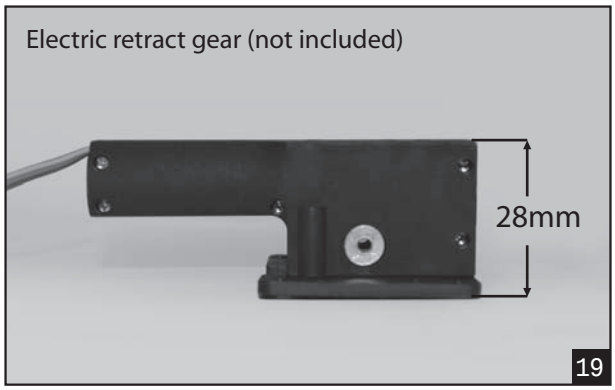

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- We would like provide you some link for electric retract suit with Gripen

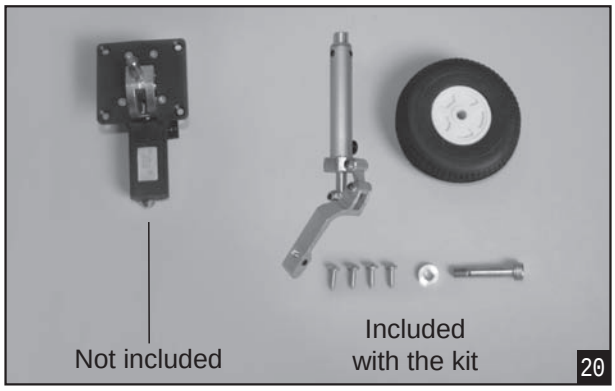
Link electric nose gear Gripen

http://hobbyking.com/hobbyking/store/__56195__Servoless_Steerable_Nose_Retract_with_Metal_Trunion_44mm_x_41mm_Mount_EU_Warehouse_.html

Link electric main gear Gripen

http://hobbyking.com/hobbyking/store/__28976__Servoless_Retract_with_Metal_Trunion_44mm_x_41mm_Mount_2pcs_.html

1. The retract set (Electric retract not included with the kit).



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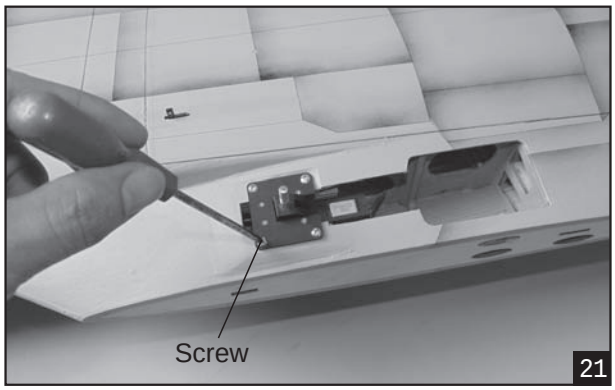
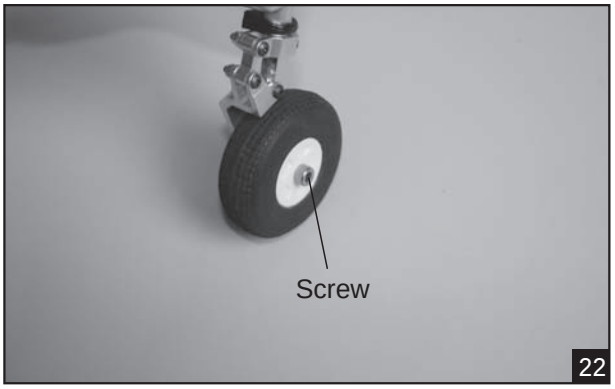
2. Secure the retract to the wing.

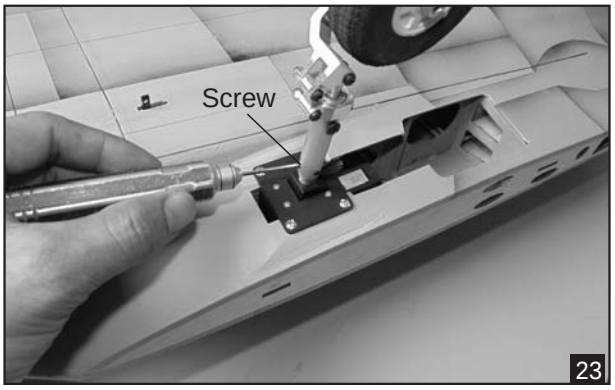


21

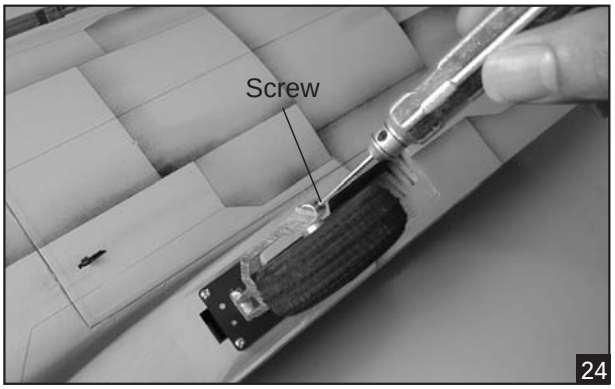
3. Install and secure the wheel.



4. Secure the strut suspension to the retract.

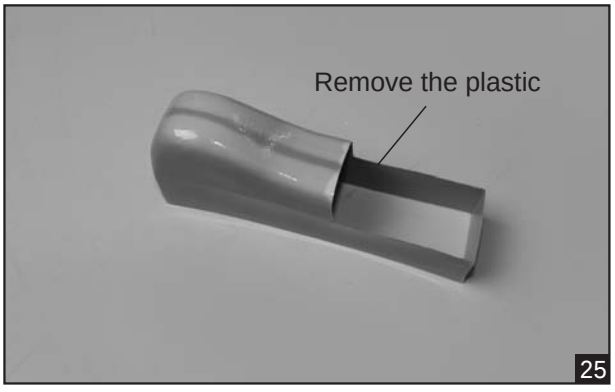


5. Lock-up the axle.

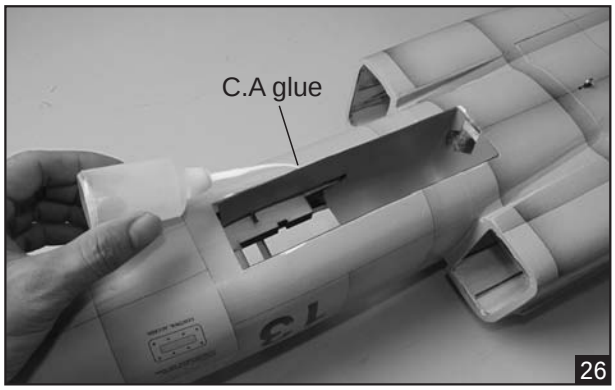


INSTALLING THE STEERING NOSE GEAR

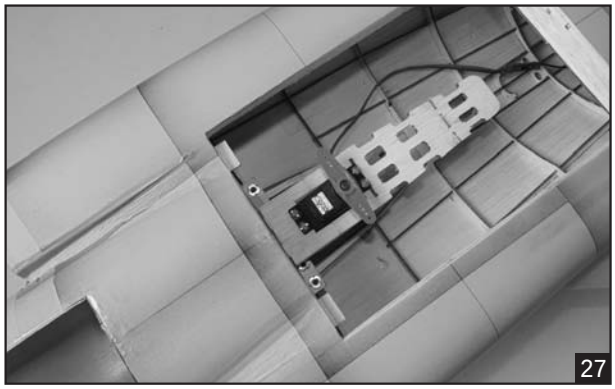
1. Trim the plastic wheel well.



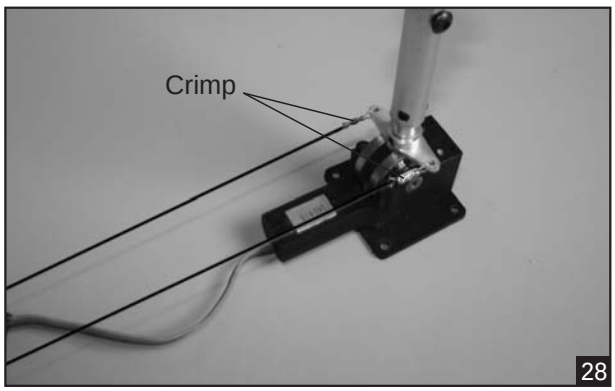
2. Glue the wheel well by C.A glue.



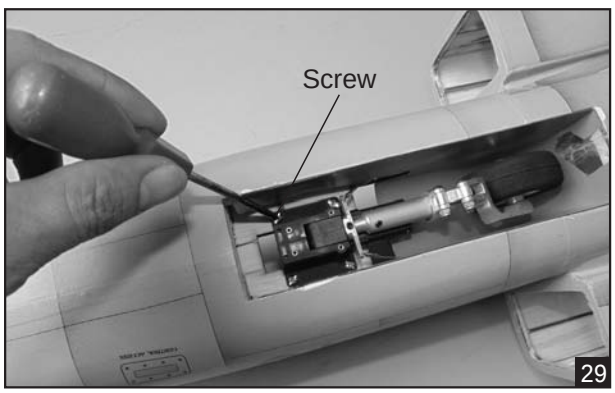
3. Install the steering nose servo into the servo tray in the fuselase.



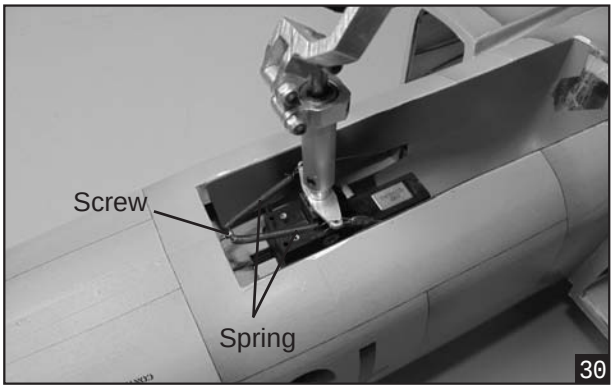
4. Secure the strut suspension to the electric retract and slide the two cable to the steering plate.



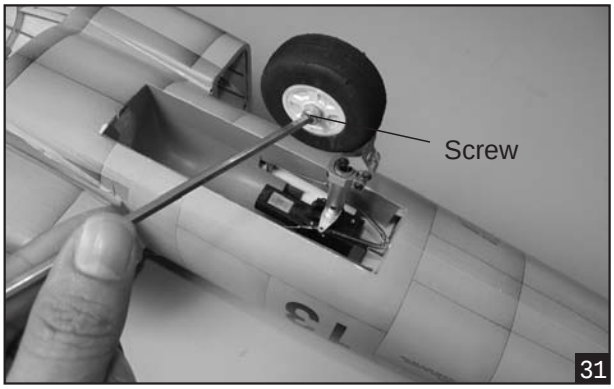
5. Install the nose retract.

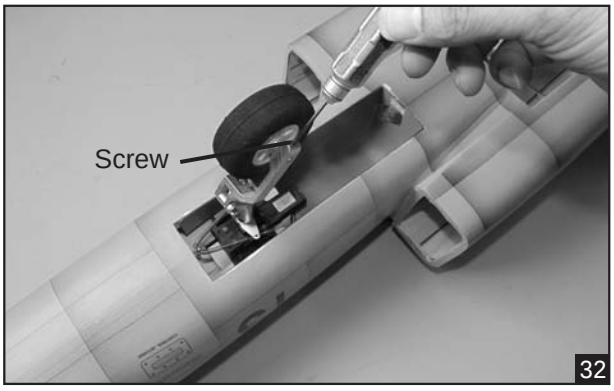


6. Slide and install the two spring steering nose to the retract.

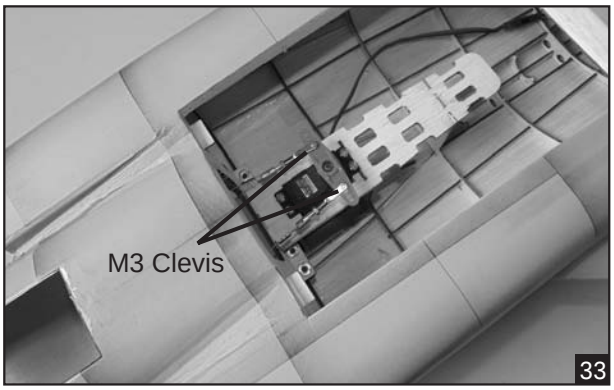


7. Secure the alxe.



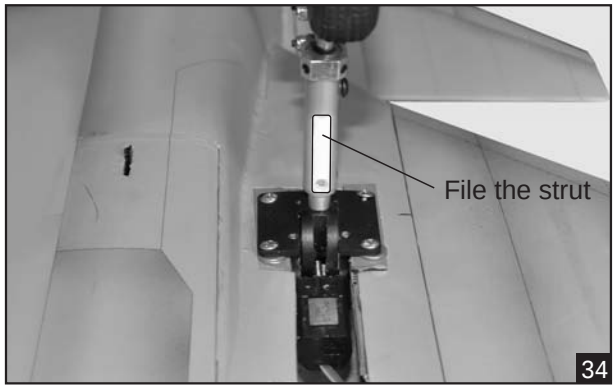


8. Install two cable to the steering servo nose gear.



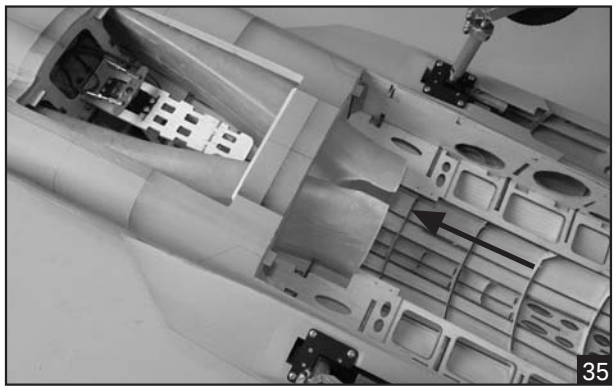
CHECKING THE ELECTRIC RETRACT LANDING GEAR

- Connect 3 electric retract to the receiver and test them several times and make sure it work well.
- Incase the electric retract does not work well. You had to file a flat on the strut as it would not allow the retract to cycle completely.

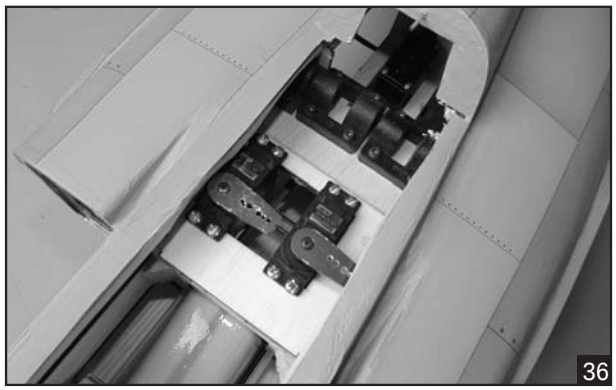


INSTALLING THE HORIZONTAL STABILIZER

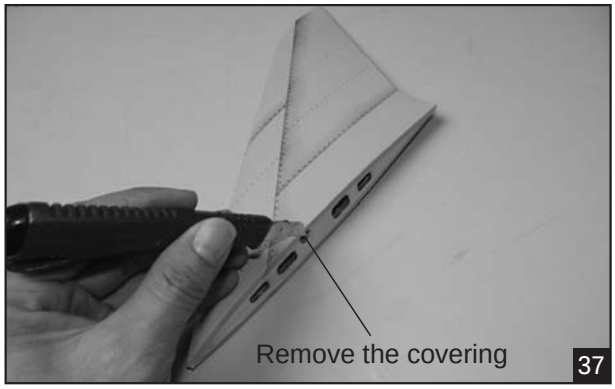
- Slide the air inlet to the fuselage.



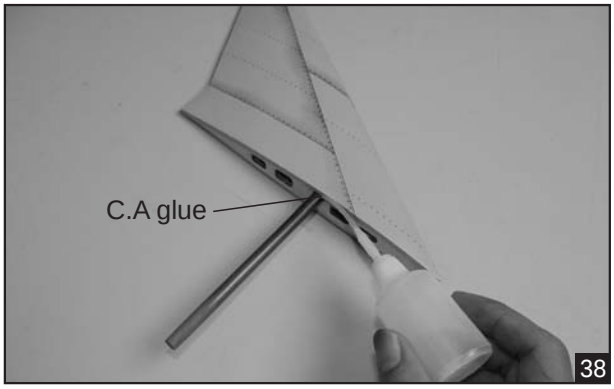
- We are hightly recommended using the digital servo with the torque minimum 9kg.
- Install two elevator servo to the fuselage.

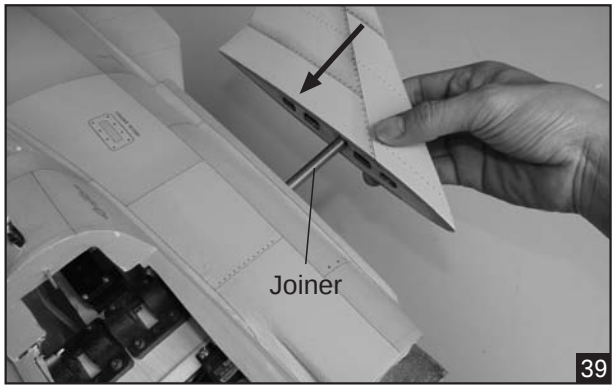


- Remove the covering from the Horizontal Stabilizer for the elevator dihedral.



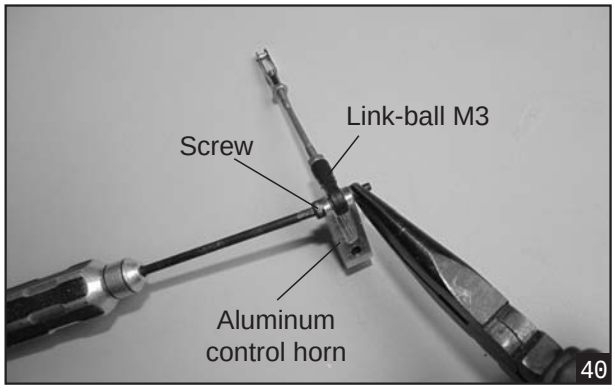
- Insert the carbon tube to the elevator and glue it by C.A glue.



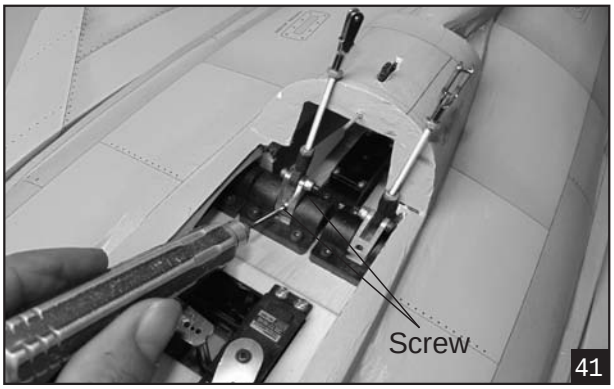


INSTALLING THE ELEVATOR LINKAGES

- Secure the metal rod as photo below.

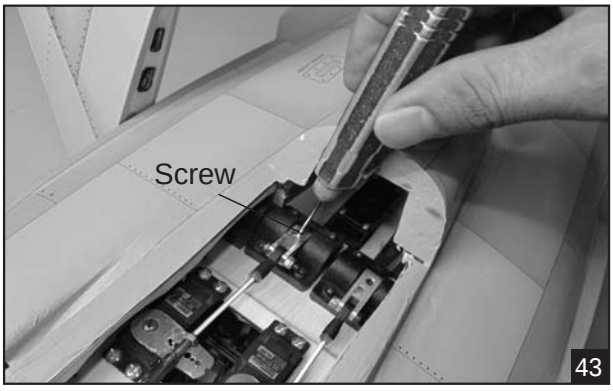


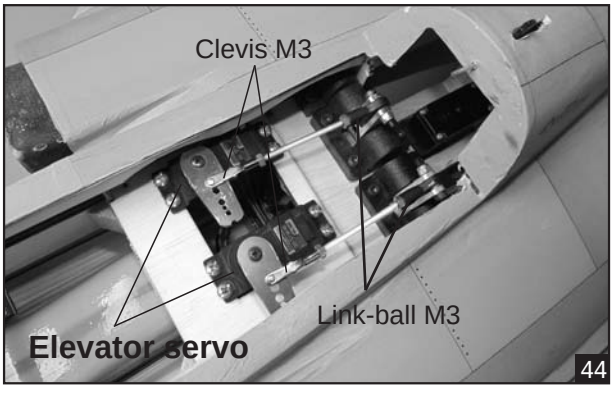
- Attach and secure the horizontal stabilizer to the fuselage using aluminum control horn. Each control horn secure by 2 screw and using “Loctite” lock these screw.



- Make the same way from installing the aileron linkages for installing the elevator linkges.

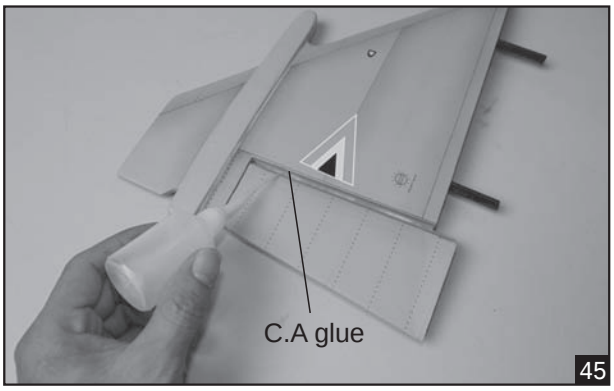
- Make the same way for the second elevator.



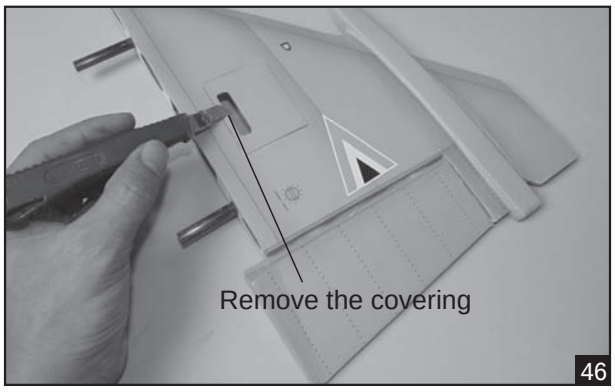


INSTALLING THE VERTICAL STABILIZER

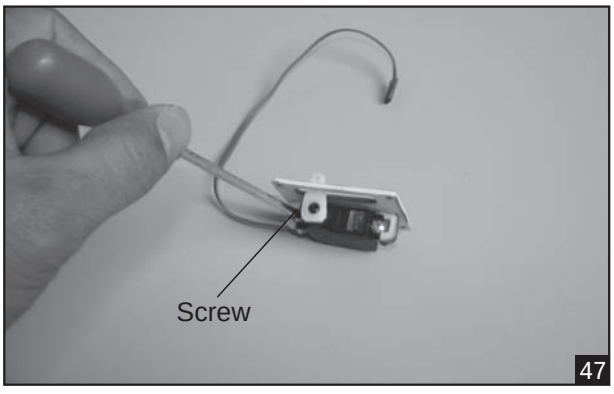
1. Repeat these step from the installing aileron for the installing rudder.



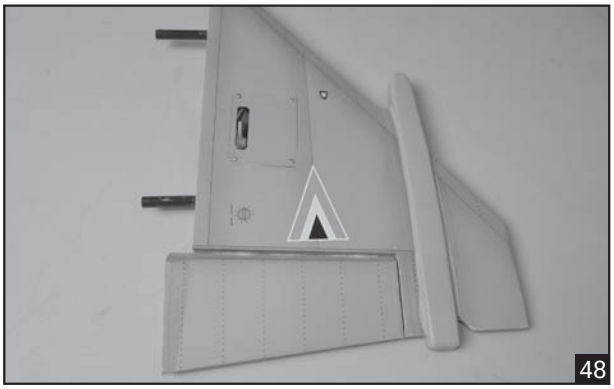
2. Remove the covering.



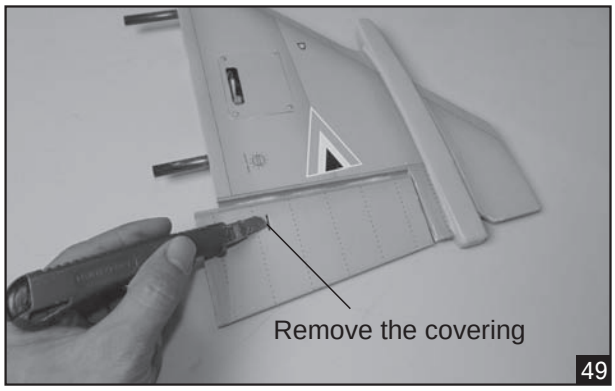
3. Install the rudder servo.



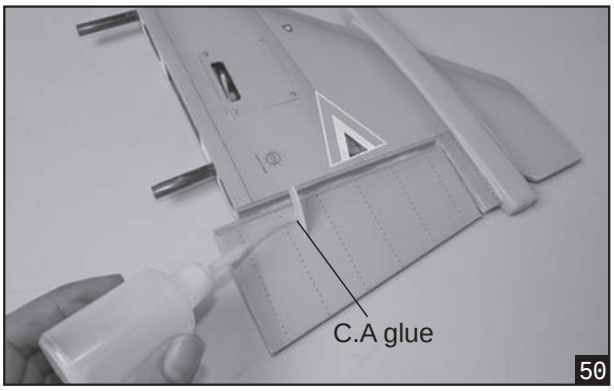
4. Secure the servo plate.



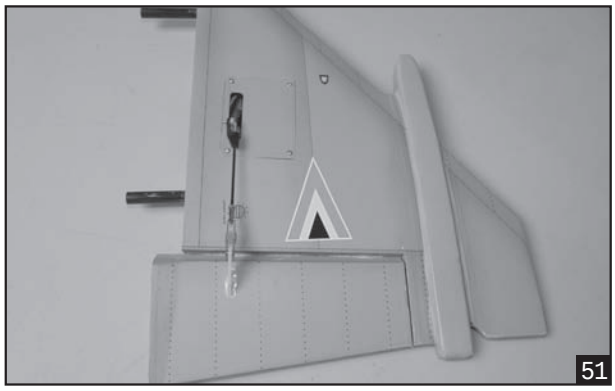
5. Remove the covering.



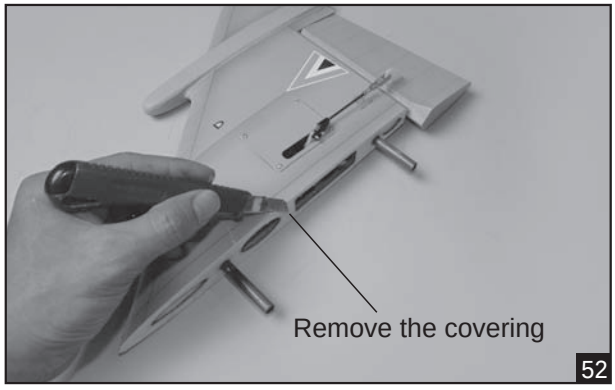
6. Install and glue the rudder control horn.



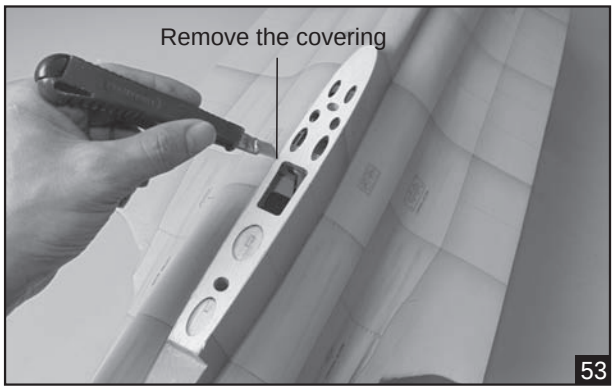
7. Repeat these step from installing the aileron linkages to install the rudder linkages.



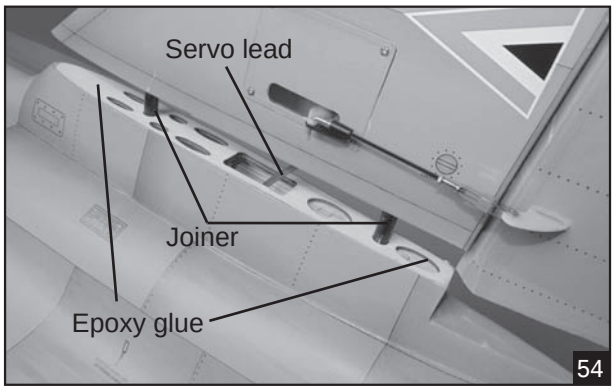
8. Remove the covering.

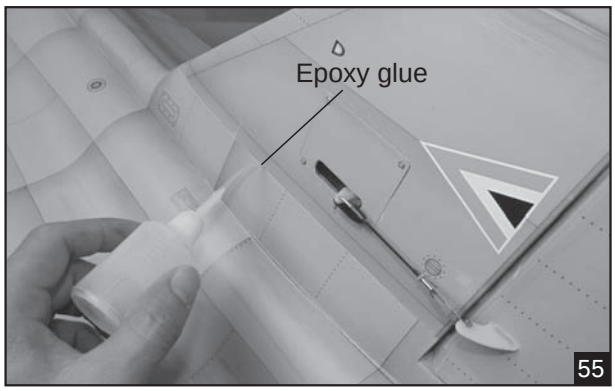


9. Remove the covering from the fuselage.



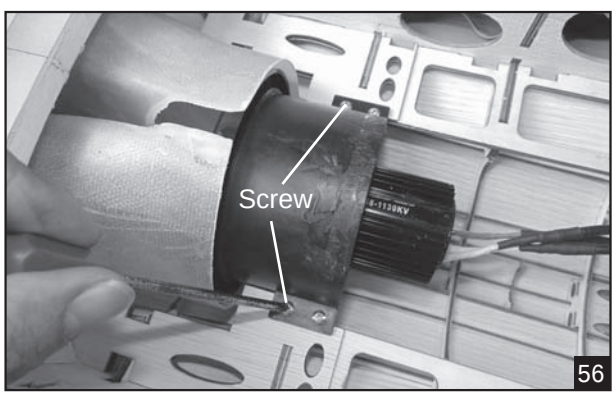
10. Slide the extension servo lead through the fuselage. Install the vertical stabilizer and glue it using epoxy glue.



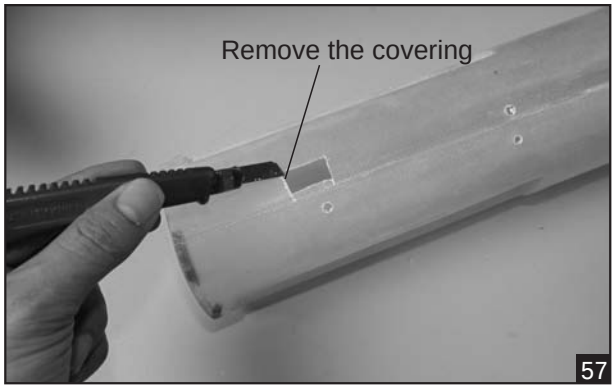


INSTALLING THE EDF (ELECTRIC DUCTED FAN) SYSTEM

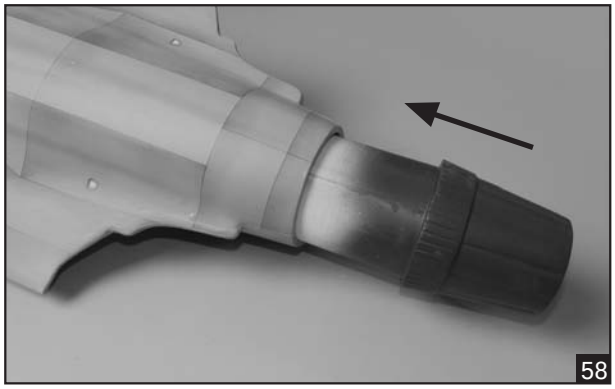
1. Secure the EDF.

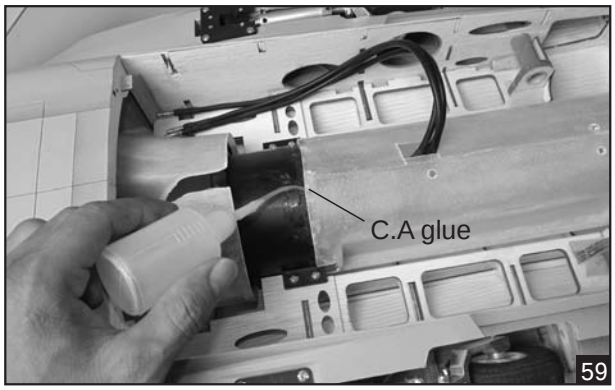


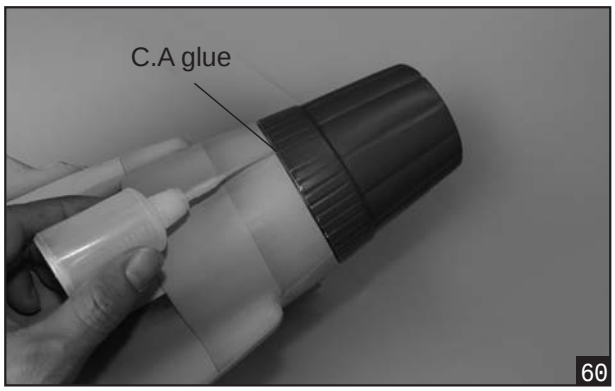
2. Trim 1 hole from the air outlet for the wires of EDF.

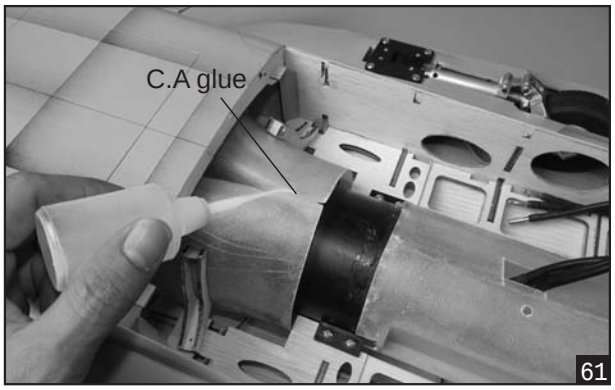


3. Slide and fix the air outlet.

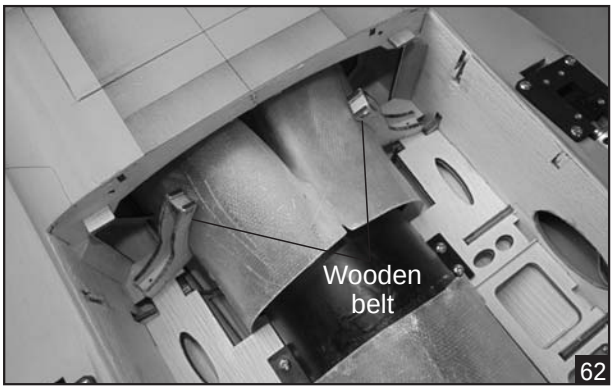




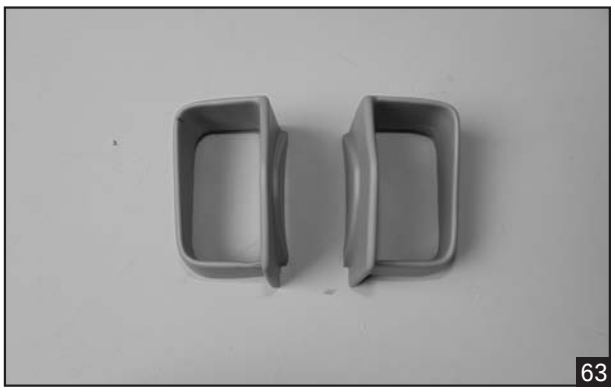




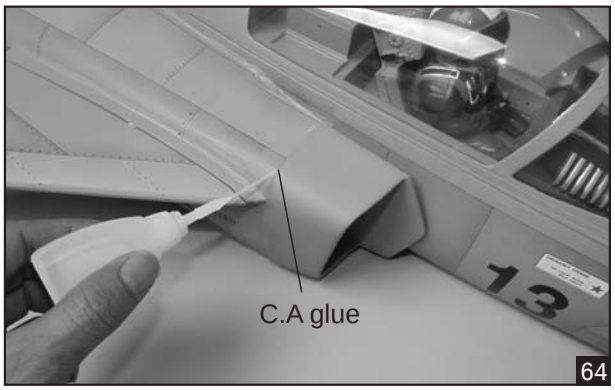
4. Glue the wooden belt for EDF (Included with the kit) using C.A glue.



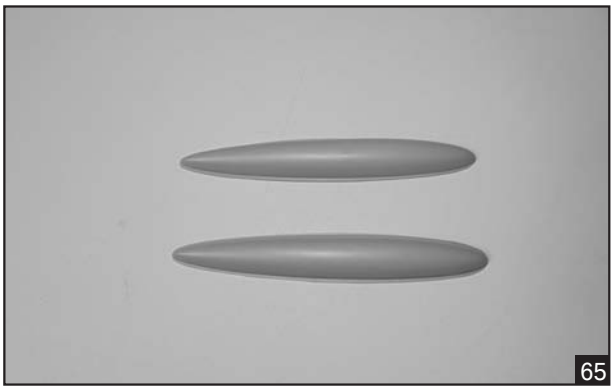
5. Trim the plastic inlet lip.

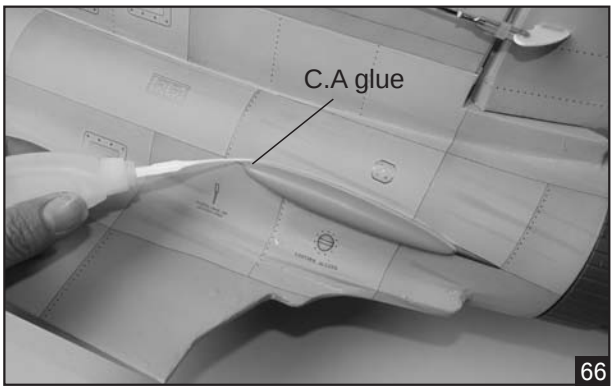


6. Glue the plastic inlet lip using C.A glue.

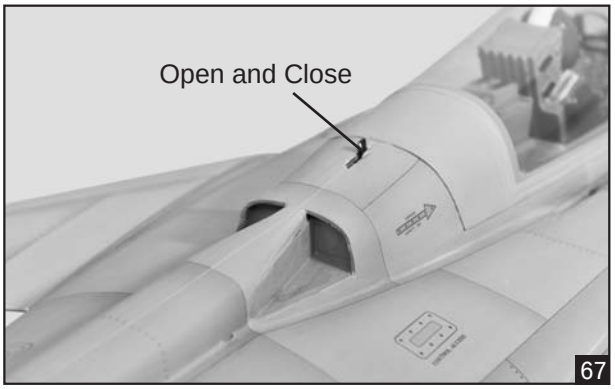


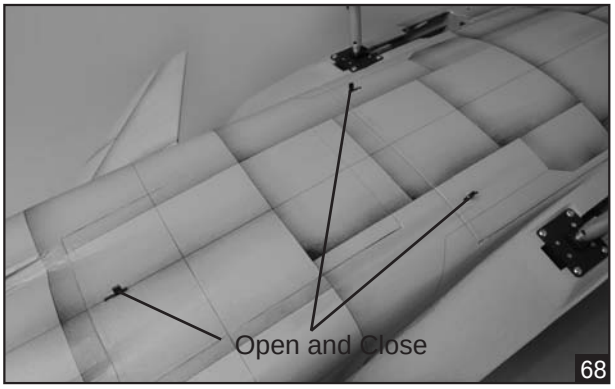
7. Glue the two plastic part to the fuselage using C.A glue.

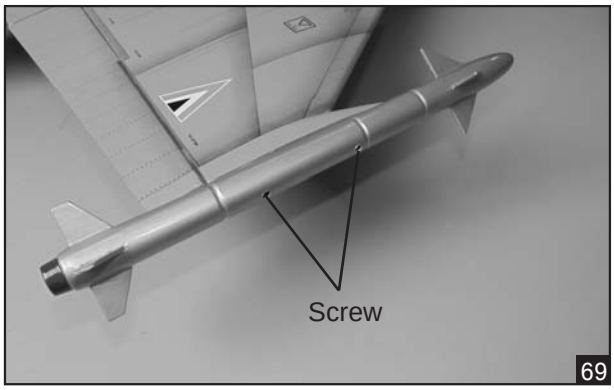




OPEN AND CLOSE THE CANOPY







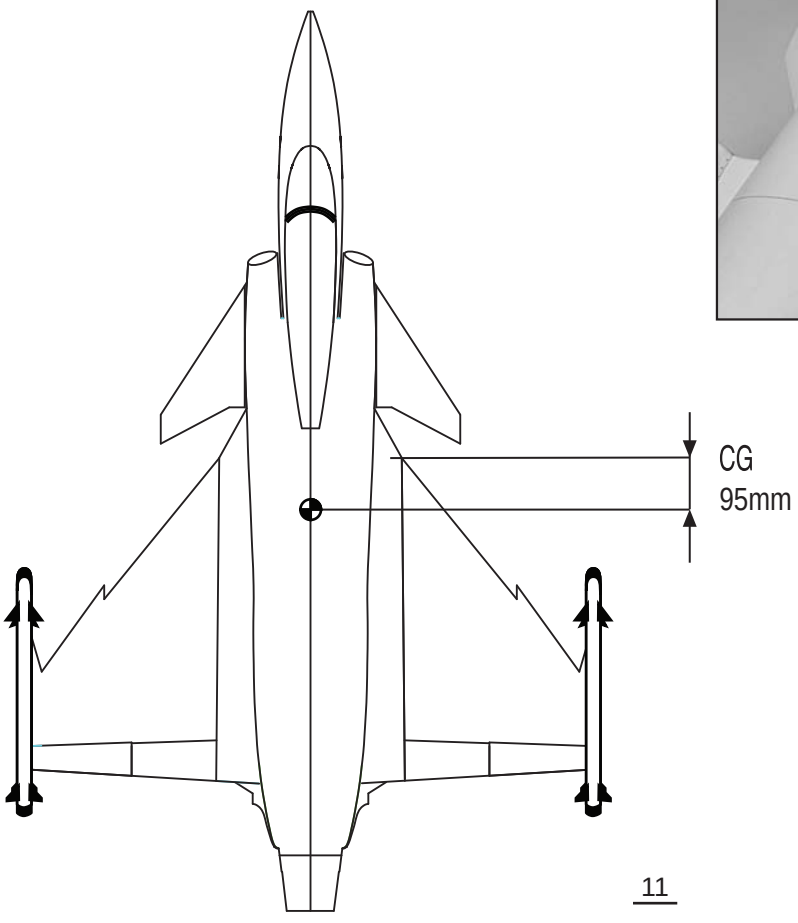
BALANCING

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 95mm BACK FROM THE LEADING EDGE OF THE WING, AT THE FUSELAGE. BALANCE A PLANE UPSIDE DOWN WITH THE FUEL TANK EMPTY.

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

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

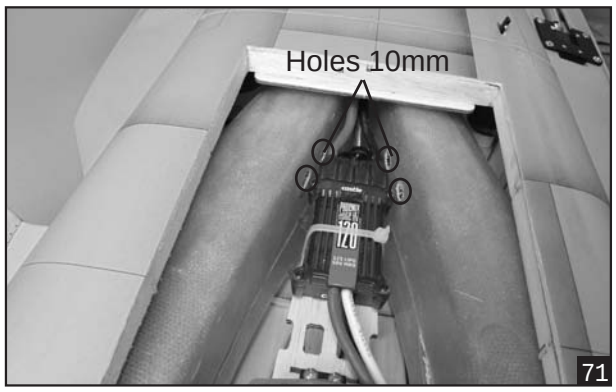


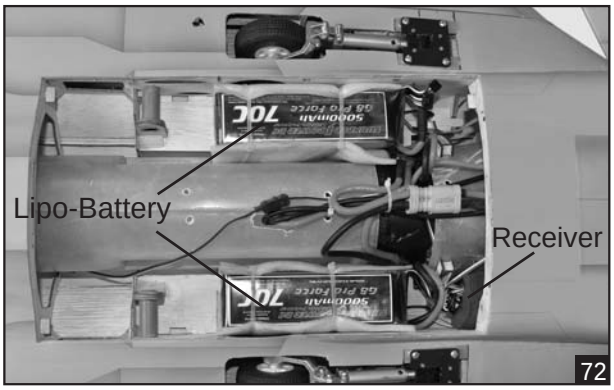
4. If the nose of the plane falls, the plane is nose heavy. To correct this first move the battery pack further back in the fuselage. If this is not possible or does not correct it, stick small amounts of lead weight on the fuselage under the horizontal stabilizer. If the tail of the plane falls, the plane is tail heavy. To correct this, move the battery and receiver forward or if this is not possible, stick weight into the firewall. When balanced correctly, the airplane should sit level or slightly nose down when you lift it up with your fingers.

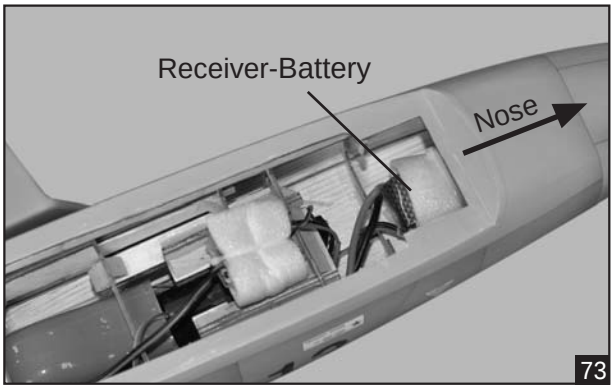
HERE IS OUR SET UP FOR TESTING FLYING

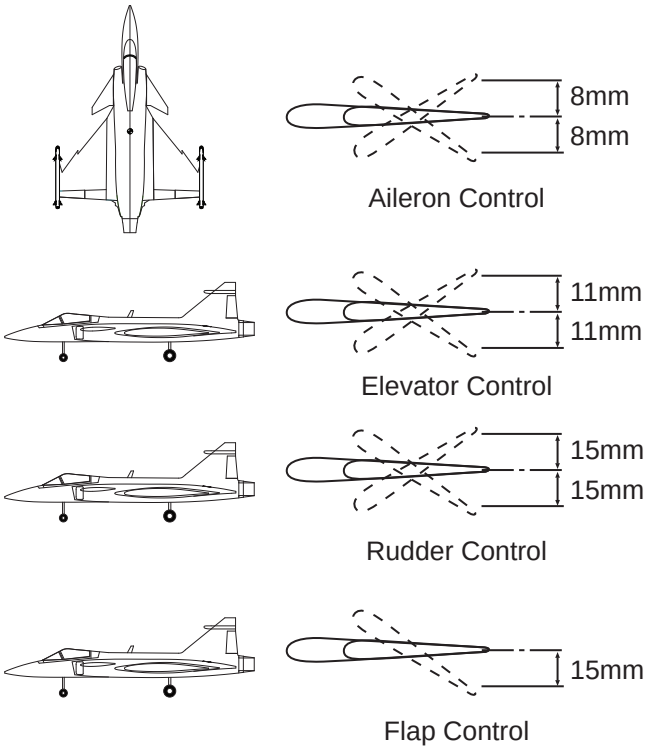
- 10 cell thunder power 5000 mAh 70c.
- Wemotec ducted fan with HET 650-68-1130.
- ESC 120A phoenix.

- Drill four holes 10mm on the air inlet, behind the ESC for cooling the ESC.









LATERAL BALANCE

⚠ *After you have balanced a plane on the C.G. You should laterally balance it. Doing this will help the airplane track straighter.*

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

6. 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.

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.

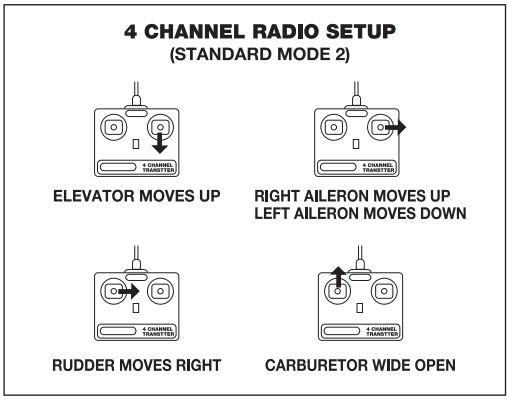
3. Check to be sure the control surfaces move in the correct directions.

- **LOW RATE**

Ailerons :	8mm up	8mm down
Elevator :	11mm up	11mm down
Rudder :	15mm right	15mm left
Flap T/O:	15mm - Landing	20mm

- **Hi RATE**

Ailerons :	10mm up	10mm down
Elevator :	13mm up	13mm down
Rudder :	20mm right	20mm left



FLIGHT PREPARATION 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

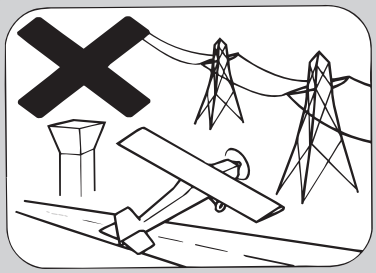
4. Check the control surface

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

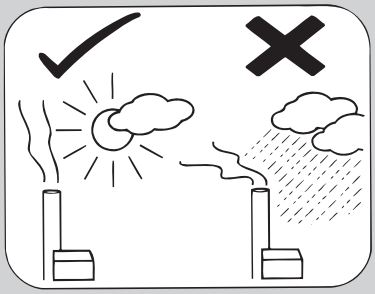
6. Properly balance the propeller.

I/C FLIGHT WARNINGS

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.

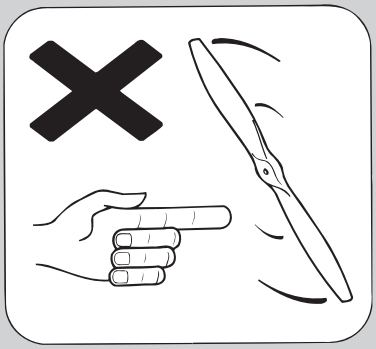


NEVER fly near power lines, aerials or other dangerous areas including airports, motorways etc.

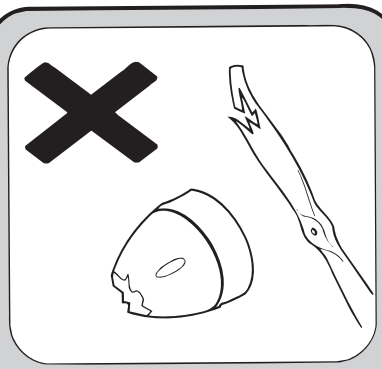


NEVER fly in wet conditions or on windy or stormy days.

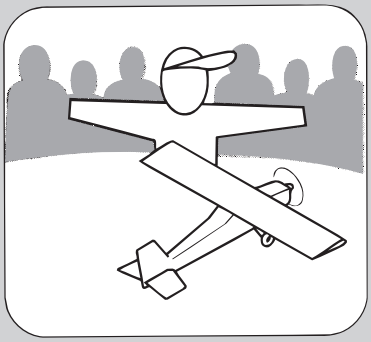
ALWAYS adjust the engine from behind the propeller, and do not allow any part of your body to be in line with the propeller.



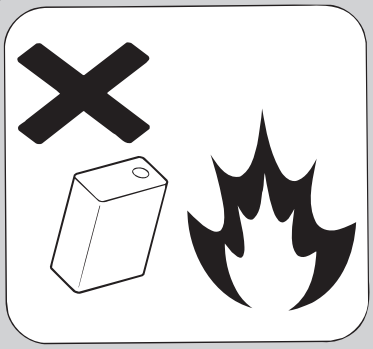
THE PROPELLER IS DANGEROUS
Keep fingers, clothing (ties, shirt sleeves, scarves) or any other loose objects that could be caught or drawn in, away from the propeller. Take care at **ALL** times.



NEVER use damaged or deformed propellers or spinners.

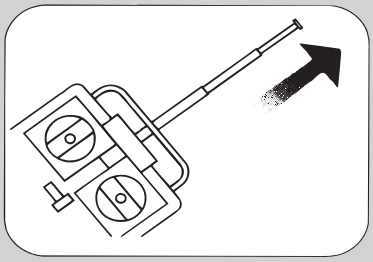


Keep all onlookers (especially small children and animals) well back from the area of operation. This is a flying aircraft, which will cause serious injury in case of impact with a person or animal.

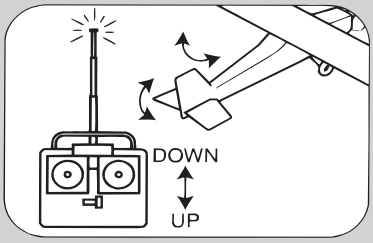


DO NOT dispose of empty fuel containers on a fire, this can lead to an explosion.

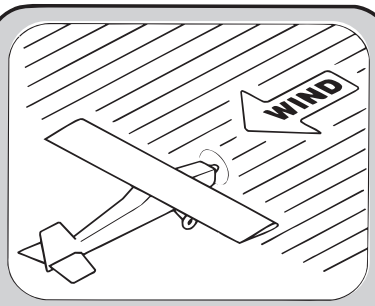
I/C FLIGHT GUIDELINES



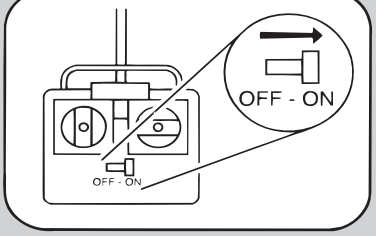
When ready to fly, first extend the transmitter aerial.



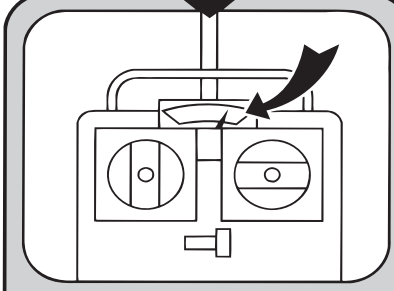
Operate the control sticks on the transmitter and check that the control surfaces move freely and in the CORRECT directions.



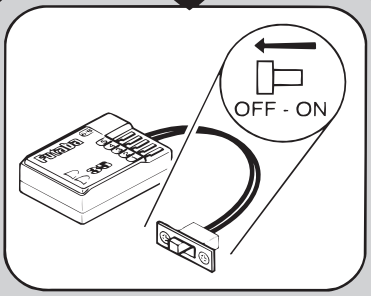
ALWAYS land the model INTO the wind, this ensures that the model lands at the slowest possible speed.



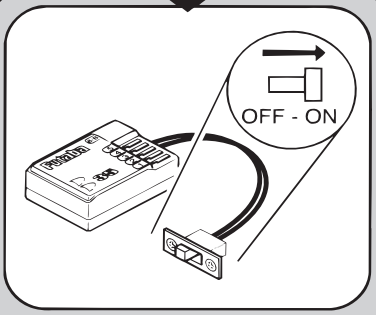
Switch on the transmitter.



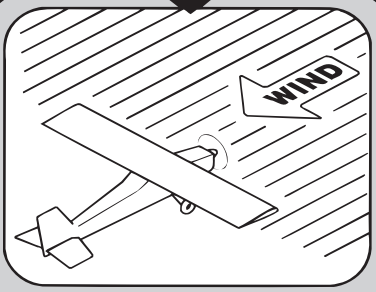
Check that the transmitter batteries have adequate power.



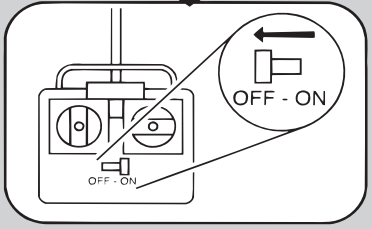
Switch off the receiver.



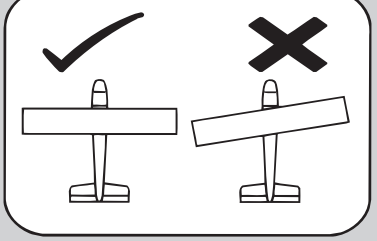
Switch on the receiver.



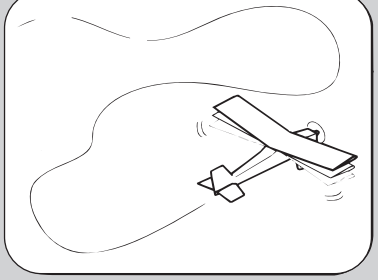
ALWAYS take off into the wind.



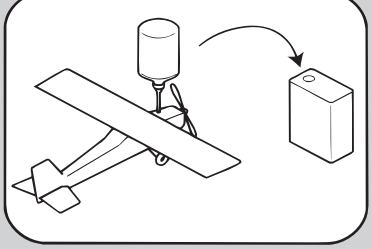
Switch off the transmitter.



Check that the wings are correctly fitted to the fuselage.



If the model does not respond correctly to the controls, land it as soon as possible and correct the fault.



Empty the fuel tank after flying, fuel left in the tank can cause corrosion and lead to engine problems.

Made in Vietnam