PHOENIX MODEL®

Instruction Manual

ASK-21 ELECTRIC 6500

1/2.5 SCALE ARF

SPECIFICATION

- **Wingspan:** 6500mm (255.9 in)
- **Length:** 3257mm (128,2 in)
- **Flying weight:** 18-24 kg
- **Wing area:** 266.5 dm2
- **Wing loading:** 69g/dm2
- **Wing type:** HQ profile
- **Covering type:** Genuine ORACOVER®
- **Radio:** 6 channel minimum (not included)
- **Servo:** 10 standard hi-torque servo: 4 aileron; 2 elevator;1 rudder;1 retract SLS; 2 window (not included)
- **Recommended receiver battery:** 6.0V 2400/2600mAh NiMH (2) (not included)
- **Servo mount:** 21mm x 42 mm
- **Flap:** 2-4 electric flaps 440mm (not included)
- **Propeller:** suit with your engine
- **Motor:** brushless outrunner 2600-3000 W, 149 KV (not included)
- **Gravity CG:** 155 mm (6.1 in) Back from the leading edge of the wing, at the fuselage
- **Control throw Ailerons:** Low: 20mm up/down, 10% expo; High: 35mm up/down, 10% expo
- **Control throw Elevators:** Low: 15mm up/down, 12% expo; High: 20mm up/down, 12% expo
- **Control throw Rudder:** Low: 45mm right/left, 15% expo; High: 70mm right/left, 15% expo
- **Experience level:** Intermediate
- **Plane type:** Giant Scale Sailplane

RECOMMENDED MOTOR AND BATTERY SET UP

- **Motor:** hacker brushless a60-18l kv149 (not included)
- **Propeller:** hacker 20x13; 23x12 foilding (not included)
- **Lipo cell:** 12 cells / 5000 – 6000mAh (not included)
- **Esc:** 120-160A / HV (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:

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 ASK-21 SLS ELECTRIC 6500 ARF 1/2.5 SCALE 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.

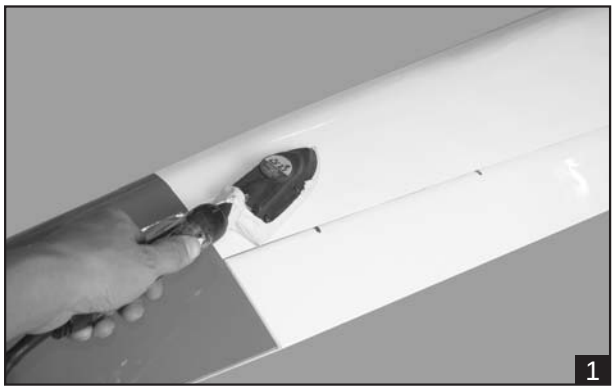
The painted and plastic parts used in this kit are fuel proof. However, they are not tolerant of many harsh chemicals including the following: paint thinner, C/A glue accelerator, C/A glue debonder and acetone. Do not let these chemicals come in contact with the colors on the covering and the plastic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

SAFETY PRECAUTION:

- This is not a toy
- 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.

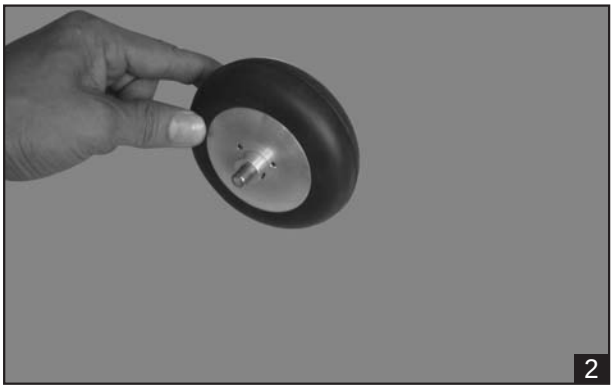
PREPARATIONS

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 MAIN WHEEL

1. Secure the collars.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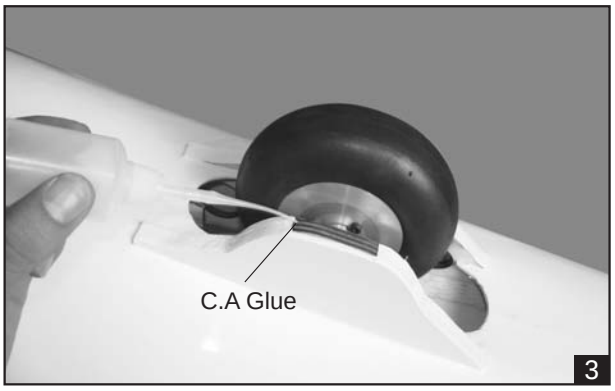
2. Glue the wooden plate to the fuselage.



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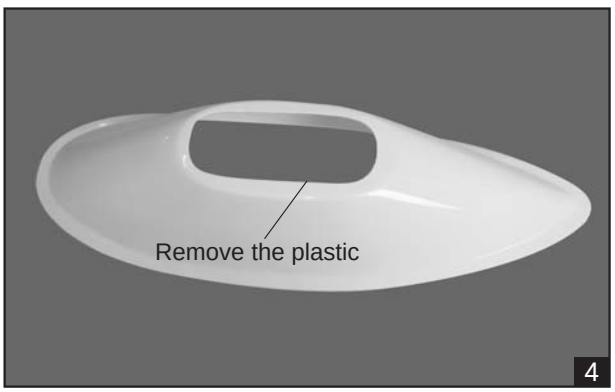

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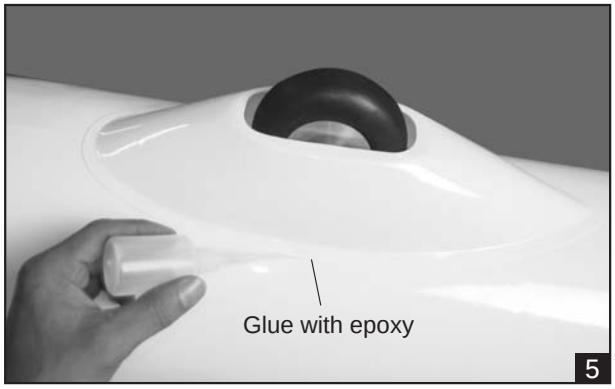
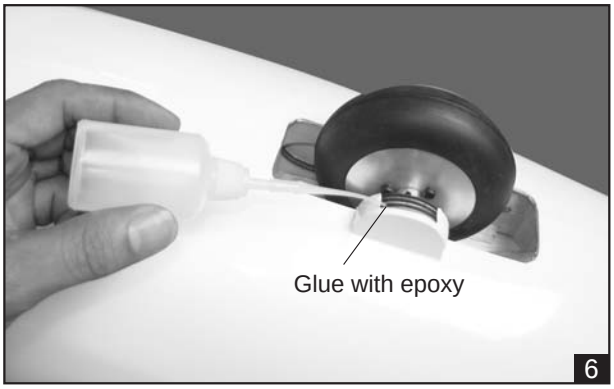
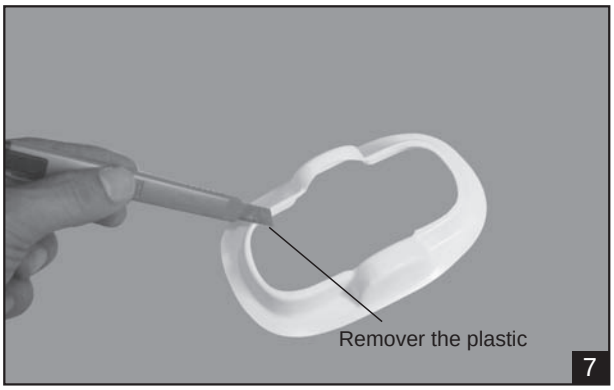
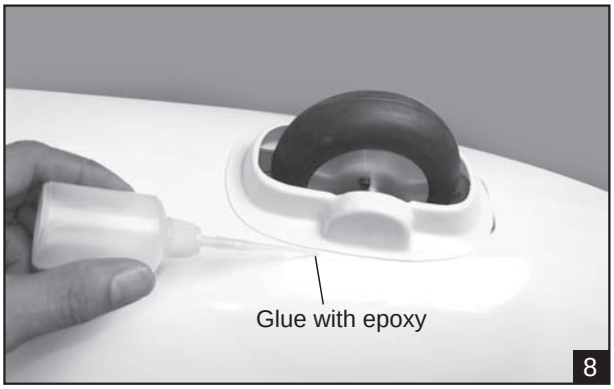


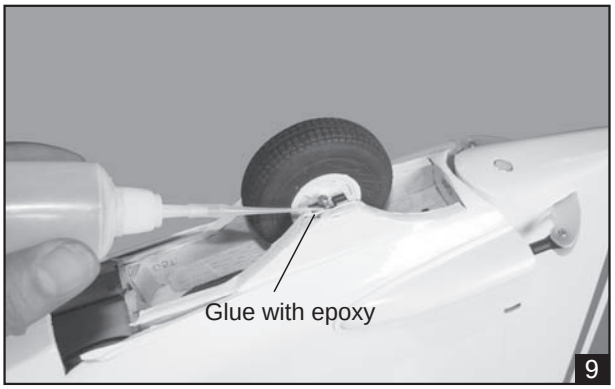
INSTALLING THE NOSE WHELL

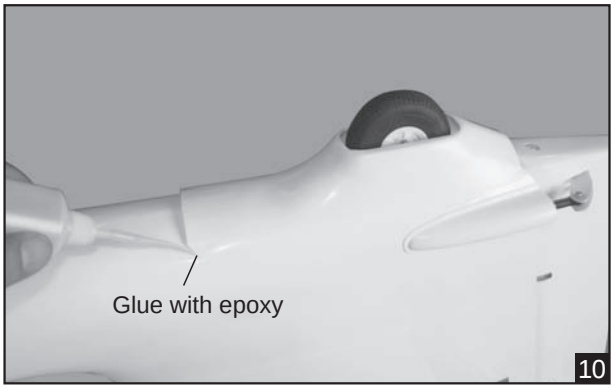




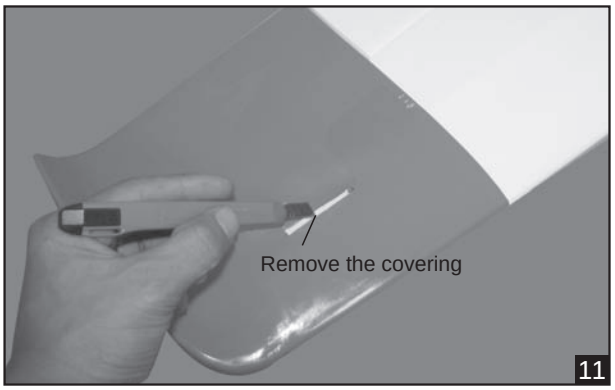


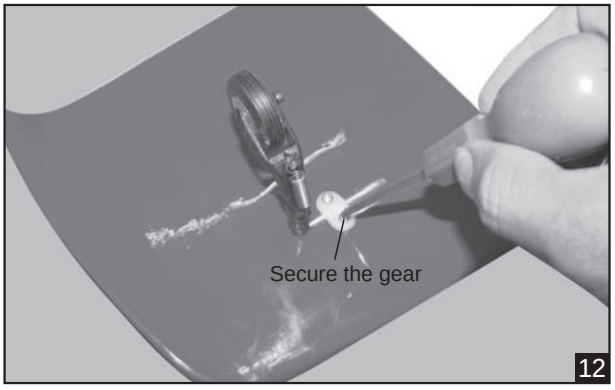
INSTALLING THE TAIL WHEEL

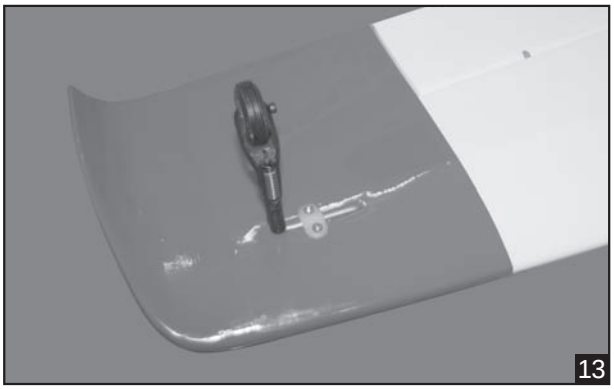




INSTALLING THE WING GEAR



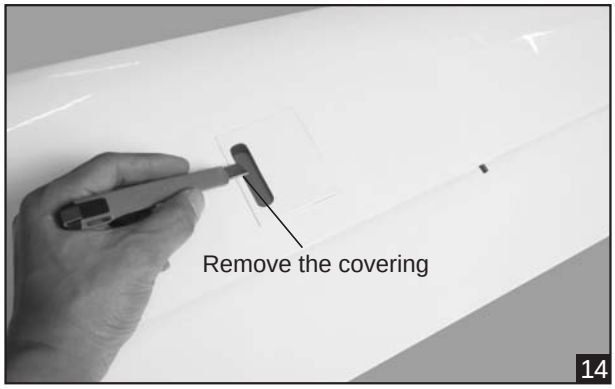



13

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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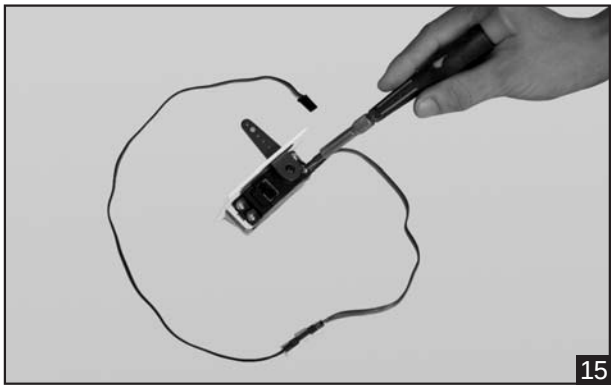
3. Place the servo into the servo tray. Center the servo within the tray and drill 1,6mm pilot holes through the block of wood for each of the four mounting screws provided with the servo.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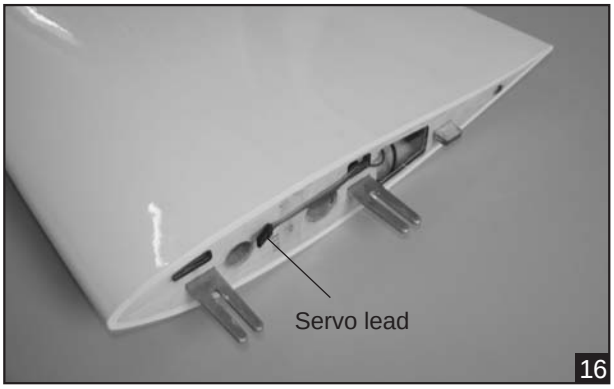
4. Using the thread as a guide and using masking tape, tape the servo lead to the end of the thread: carefully pull the thread out. When you have pulled the servo lead out, remove the masking tape and the servo lead from the thread.



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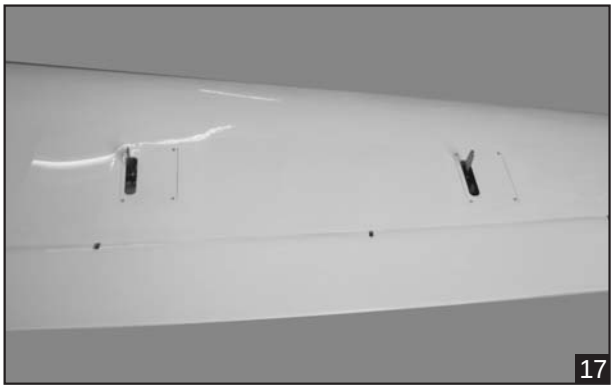
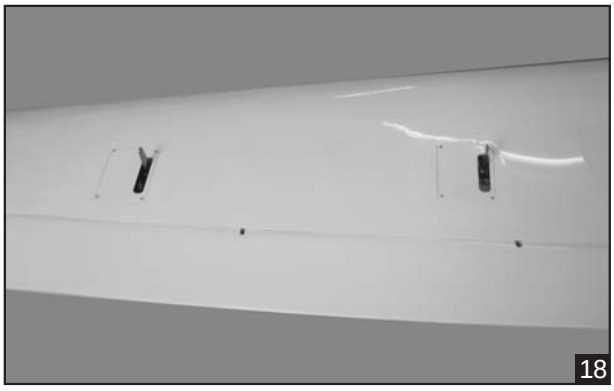
5. Place the aileron servo tray / hatch into the servo box on the bottom of the wing and drill 1,6mm pilot holes through the tray and the servo box for each of the four mounting screws. Secure the servo tray in place using the mounting screws provided (2mm x 12mm).

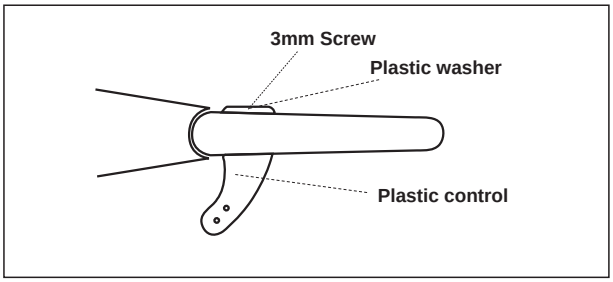

17

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


18

INSTALLING THE CONTROL HORNS

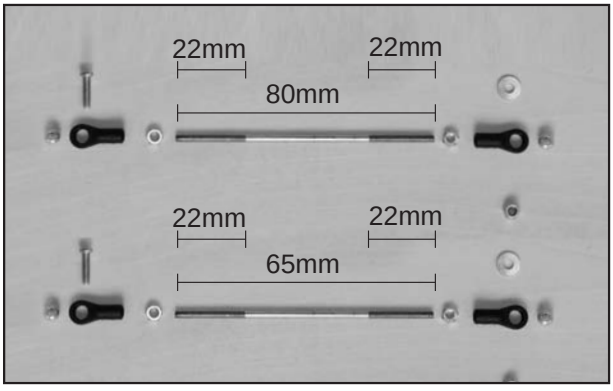
1. One aileron control horn in positioned on each aileron. Remove the covering from the aileron and secure it.

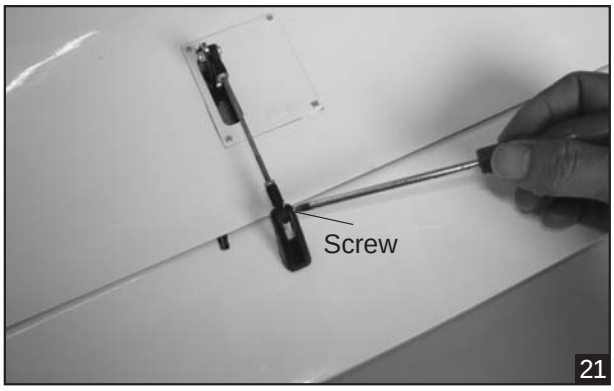


2. Repeat step # 1 - # 2 to install the control horn on the opposite aileron.

INSTALLING THE AILERON LINKAGES

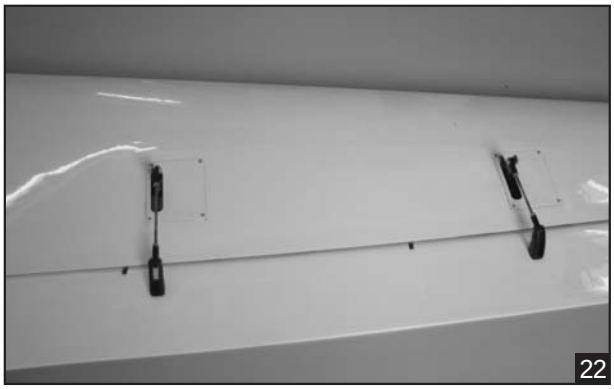
The aileron linkages are assembled as shown below.

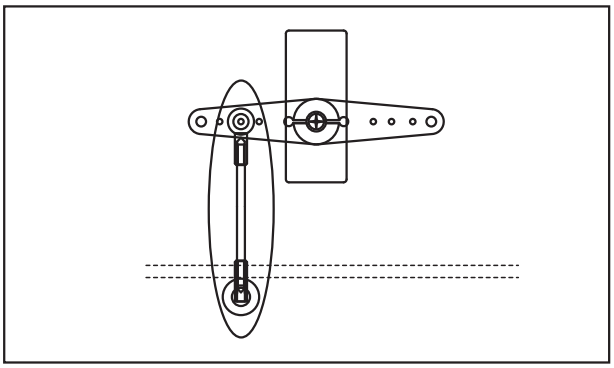


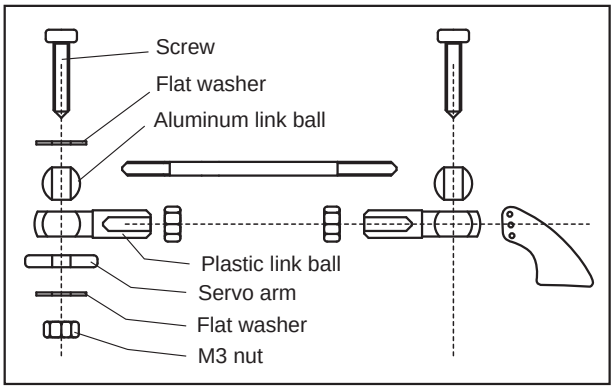


1. Plug the aileron servo into the receiver and center the servo. Install the servo arm onto the servo. The servo arm should be perpendicular to the servo and point toward the middle of the wing.

2. Center the aileron and hold it in place using a couple of pieces of masking tape. Adjust the linkage until the aileron and the servo arm are both centered and then tighten the nut against the clevis. Install the plastic linkball to the servo arm. Remember use thread locking compound to secure.







3. Repeat step 1 - step 2 for the second aileron linkage.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INSTALLING THE ELECTRIC AIR BRAKES

(NOT INCLUDED WITH THE KIT)

1. Remove the covering from the top of the wing.

24

2. Install the air brake into the bay.

25

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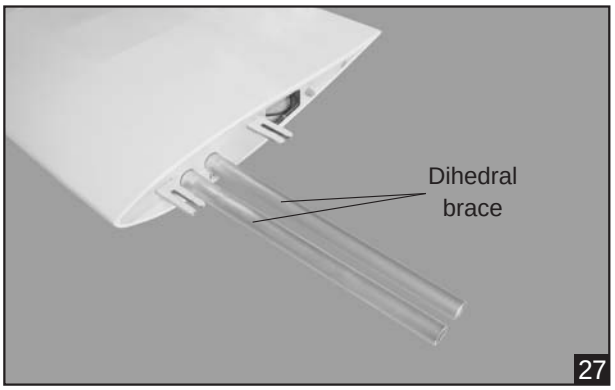
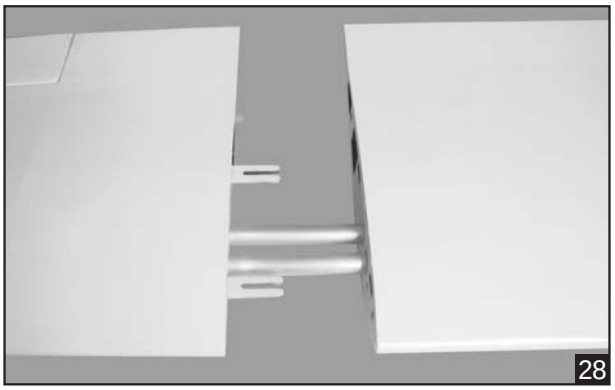
JOINING THE WING HALVES

1. Slide two aluminum tube to the wing.

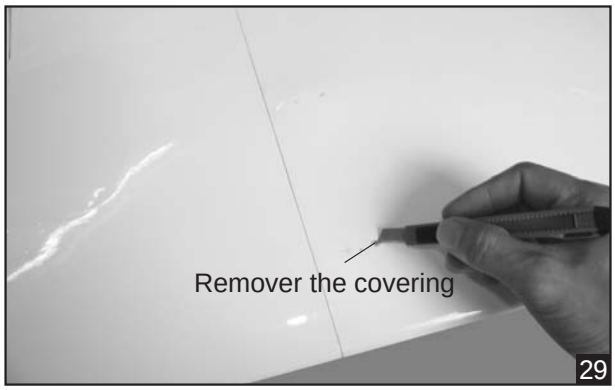


27

2. Attach the wing to the joiner.


28

3. Remove the covering.



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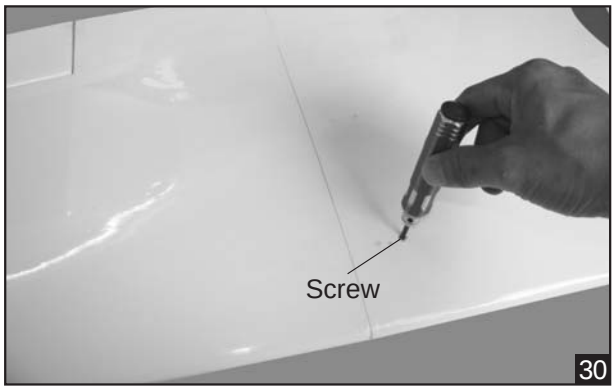
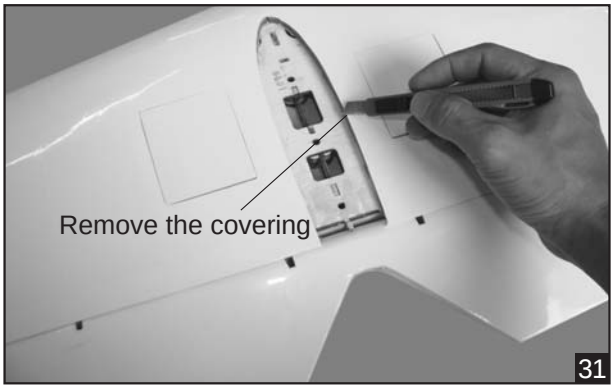
4. Secure the wing.



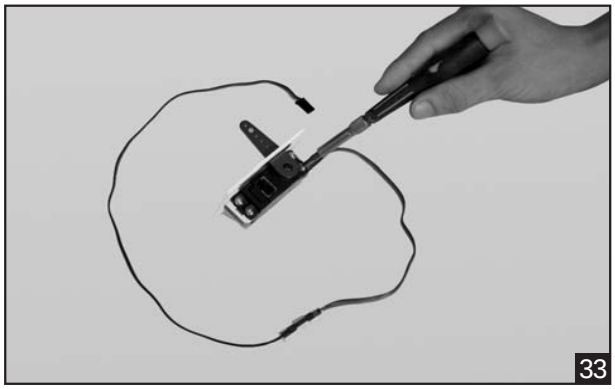
30

INSTALLING THE ELEVATOR SERVOS

1. Remove the covering.

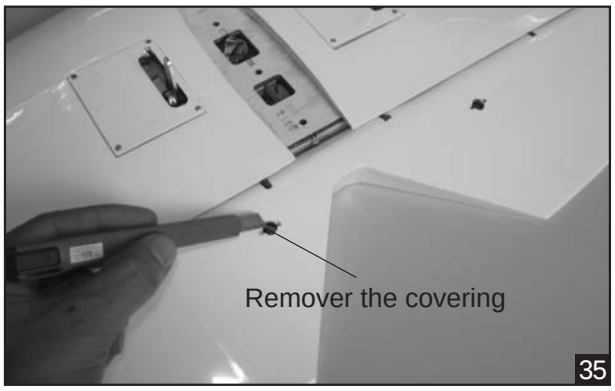


2. Install the elevator servo.



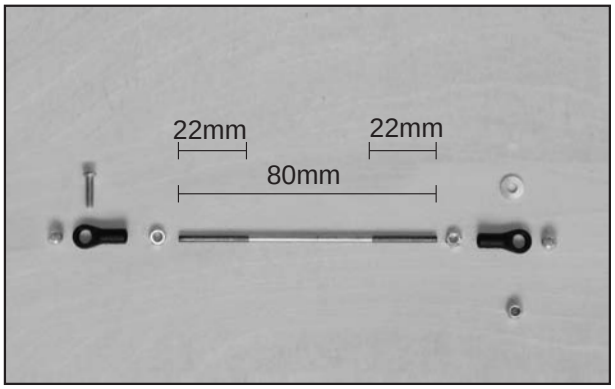
INSTALLING THE ELEVATOR CONTROL HORN

Repeat these step from installing the aileron control horn to install the elevator control horn.

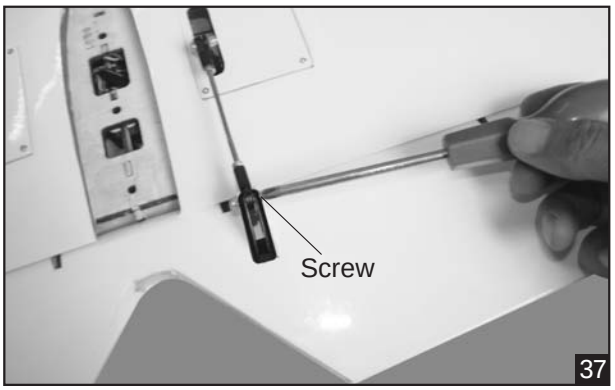


INSTALLING THE ELEVATOR LINKAGES

The elevator linkages are assembled as shown below

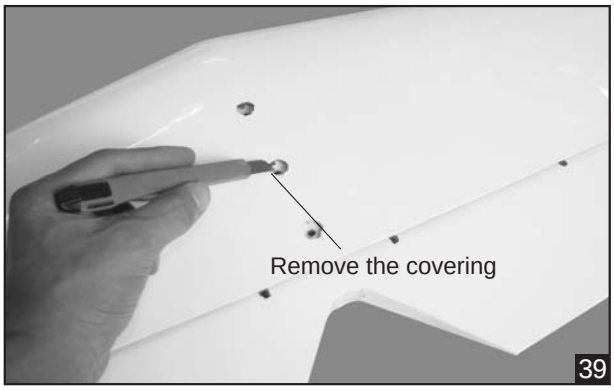


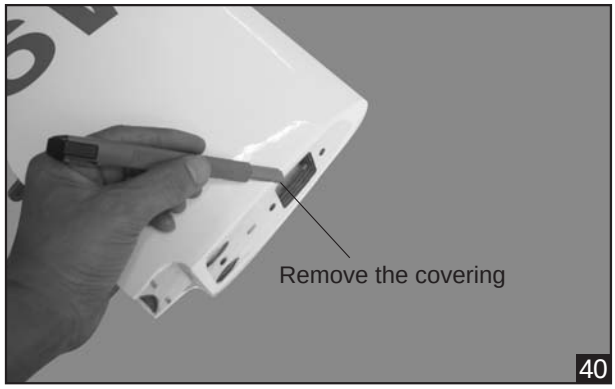
- Repeat these step as installing the aileron linkages.



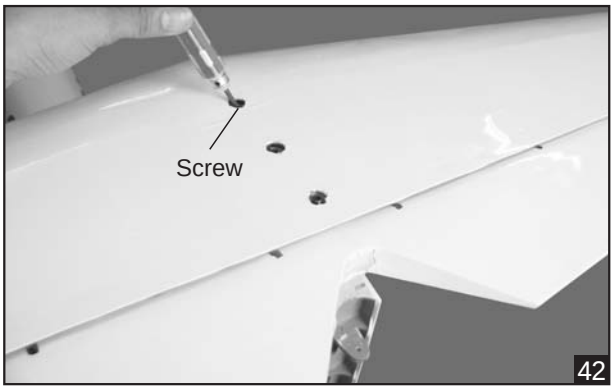
INSTALLING THE HORIZONTAL STABILIZER

1. Remove the covering.



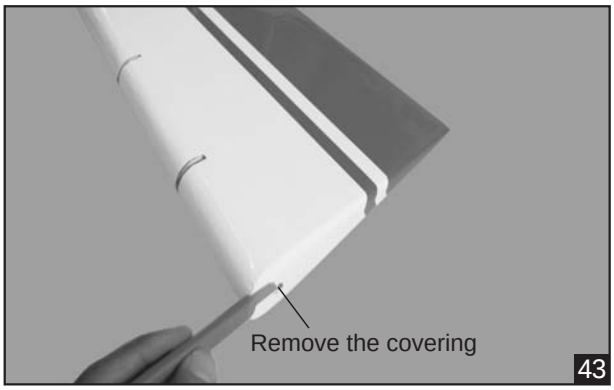


2. Secure the horizontal onto the fuselage.



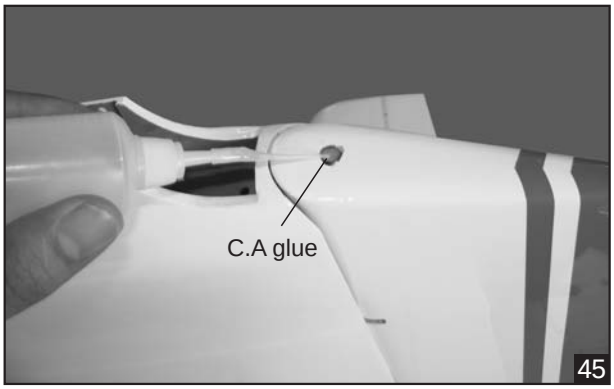
INSTALLING THE VERTICAL STABILIZER

1. Remove the covering from the bottom of the rudder.



2. Slide the joiner to the rudder.

3. Glue the exit hole.



INSTALLING THE RUDDER SERVO

Install the rudder servo to the fuselage as shown.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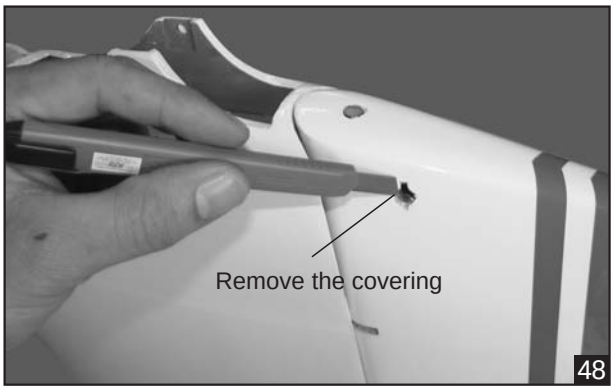
INSTALLING THE RUDDER LINKAGES

The rudder is controlled by two metal cables. Install the rudder linkages and cables as below.

1. Use a hobby knife to remove the covering from the openings for the rudder control cables.

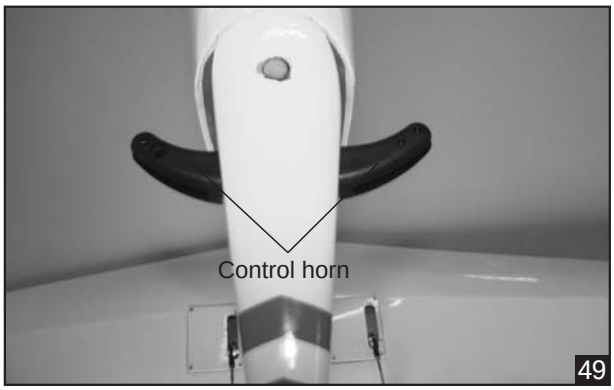
47

2. The rudder has a block wood plate for mounting the control horn. Two control horn in positioned on both side rudder (left and right).



48

3. Install and secure the control horn to the rudder.



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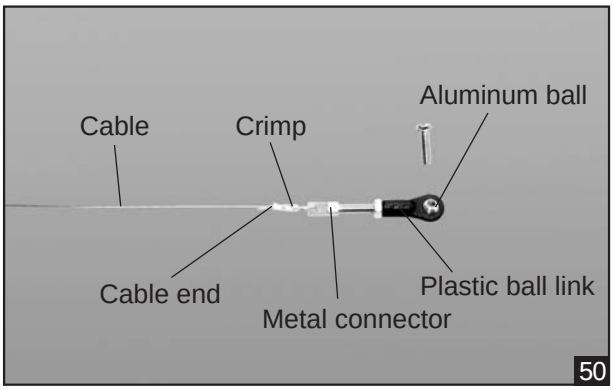
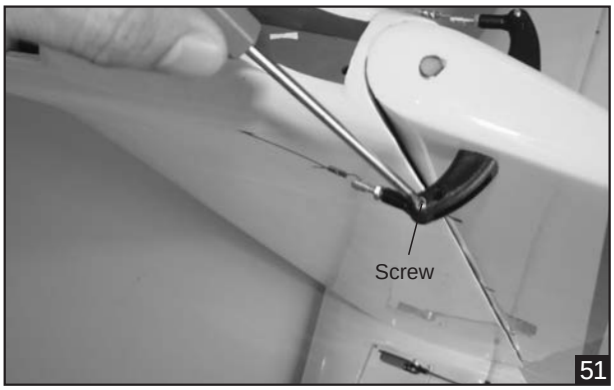
4. Slide a crimp onto the cable, then pass the cable through the threaded cable end. Pass the cable back into the crimp and use crimping pliers to secure the crimp to the cable. Guide the cable into the fuselage to the position for the rudder servo.



50

5. Thread the metal connector to the link ball.



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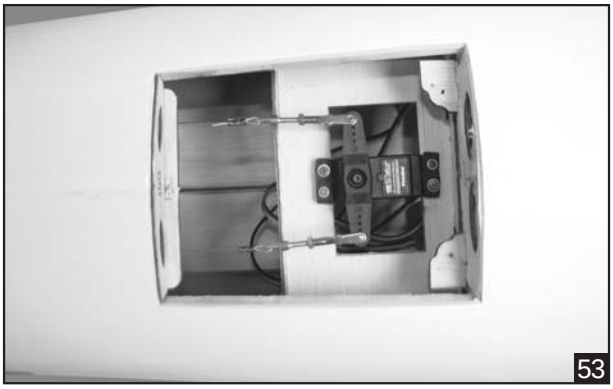
6. Center the rudder servo using the radio and install the servo arm. Attach the metal clevis to the rudder servo arm.
7. Slide a crimp onto the cable, then pass the cable through the threaded cable end. Pass the cable back into the crimp and use crimping pliers to secure the crimp to the cable.
8. Thread the metal connector to the metal clevis.
9. Attach the clevis to the rudder servo. There should be light tension on each of the wires when installed properly.

Note: *Remember use thread locking compound to secure.*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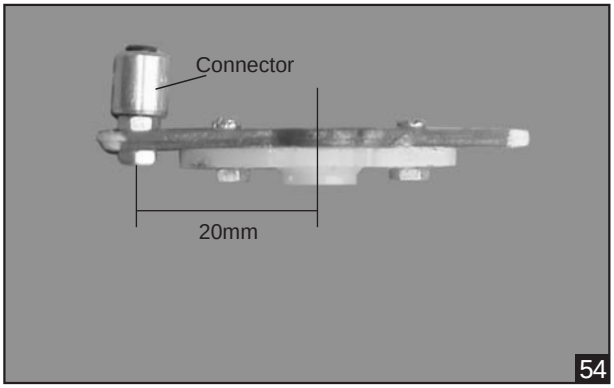
INSTALLING THE DOOR COVER



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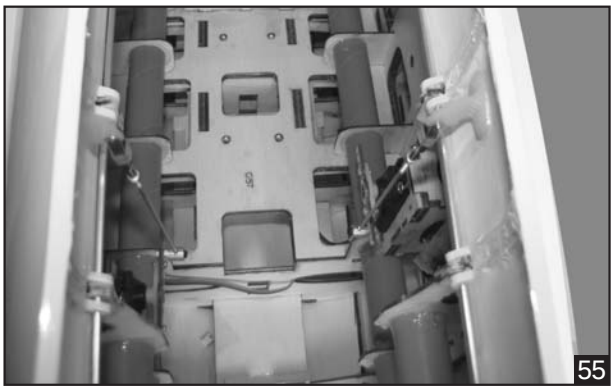
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INSTALLING THE SELF LAUNCH SYSTEM (SLS)

SET UP ELECTRIC SYSTEM RECOMMANDED

- Motor : Hacker A60-18L KV149
- Esc : 120A HV - 160A HV
- Battery : Poly 12 cells - 5000 mAh
- Propeller : 23 x 12.

Self Launch System (SLS)

This unit helps the glider launch without the need for any external aides. It is operated via an air piston. When the glider reaches the required altitude, the unit will stop the propeller and retract the motor and propeller assembly into the fuselage, leaving the model “Cleaned Up” ready for gliding. To prevent the motor from starting when it is inside the fuselage, this device is also equipped with a safety switch; it will only allow the motor to start when the SLS unit is in the extended position. The safety switch has 2 wires, one lead of the wire will be plugged into the receiver and another lead will be plugged into the ESC.

Please note that if your motor is retracted inside the fuselage, it will not start even though you have the throttle stick in the advanced position. However, in some cases, this action could burn out your ESC, so you have to remember to never advance the throttle stick if the SLS system is retracted inside the fuselage. You can configure a mix on your transmitter to prevent this situation.

SLS Installation Procedure

1/ The SLS system will be pre-installed into the fuselage from the factory.

2/ Do not connect the motor wires to the ESC or receiver until you have completed these steps below.

3/ Install the servo to the air control valve.

4/ Plug the servo lead into the receiver and setup as the picture below

5/ Fill air to the tank at 7 kg/cm2

6/ Test the SLS at extended and retracted positions several times to ensure reliable operation.

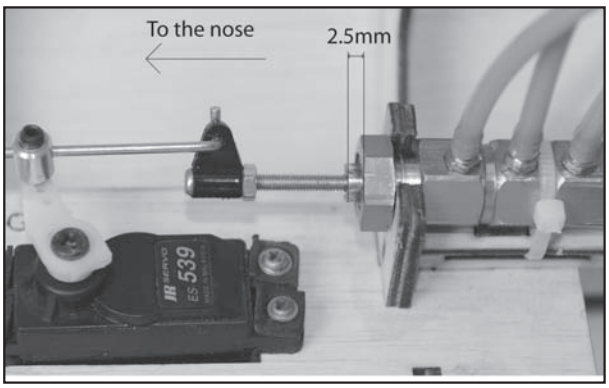
7/ When satisfied with the operation of the SLS system, next step is to connect the two door covers.

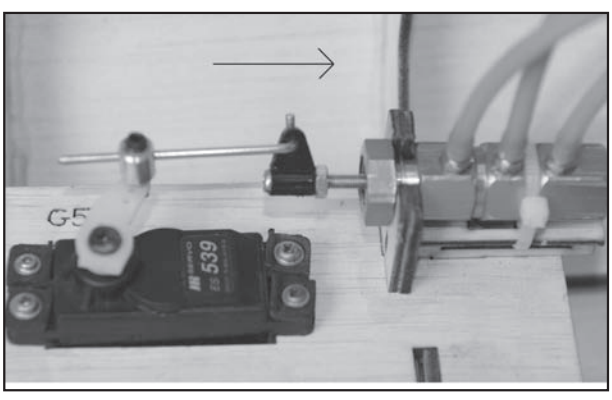
8/ Once your system is ready (SLS and door covers);

9/ Connect your motor, receiver and ESC (Please note: DO NOT install the propeller at this point)

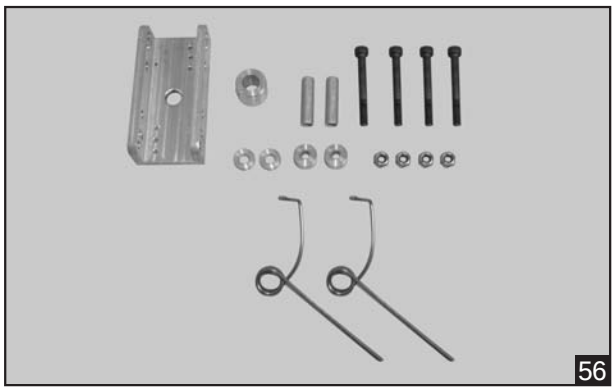
10/ When you are 100% satisfied with the operation of the SLS system, door covers and motor, you are now ready to install the propeller. (Remember to disconnect the battery when installing the propeller)

11/ Please noted that you MUST set up the Esc at " BRAKE MODE " Which to protect propeller when the SLS retract into the fuselage.

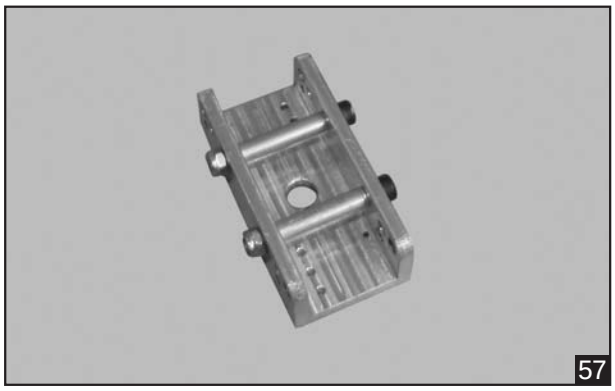




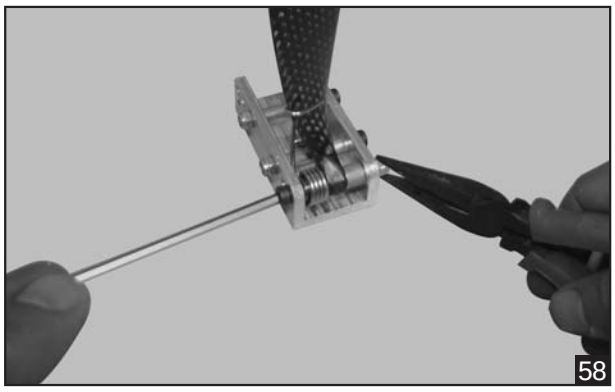
- Propeller aluminum plate.



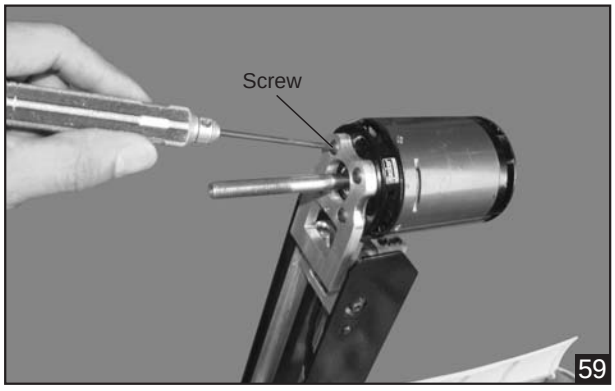
- Secure 2 screw.



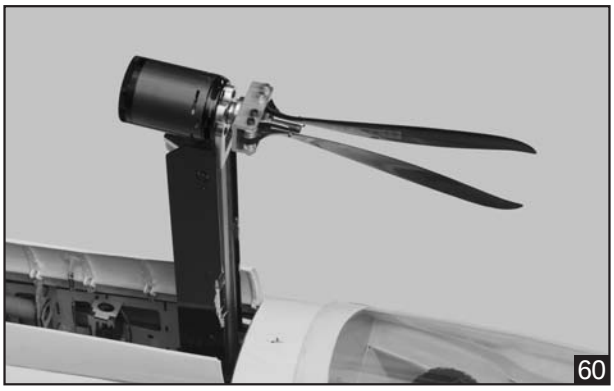
- Secure propeller.



- Install the motor.



- Install the propeller.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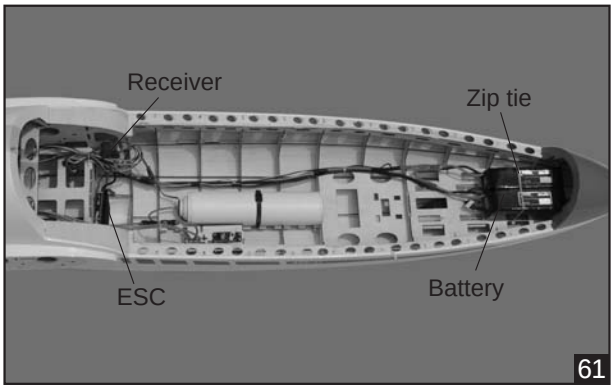

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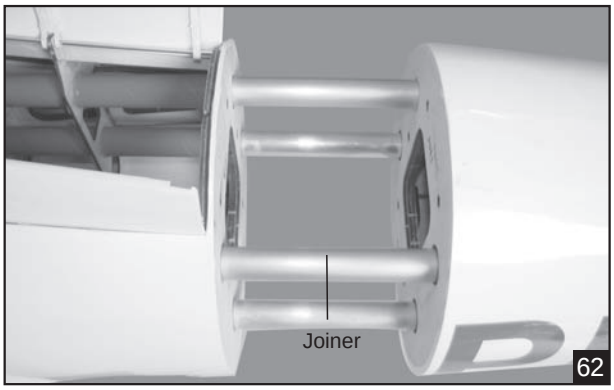
SECURE THE FUSELAGE



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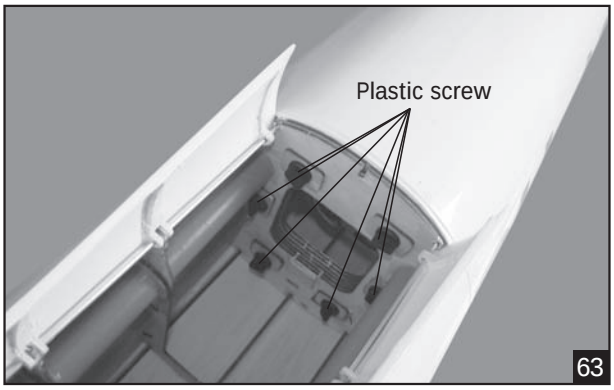
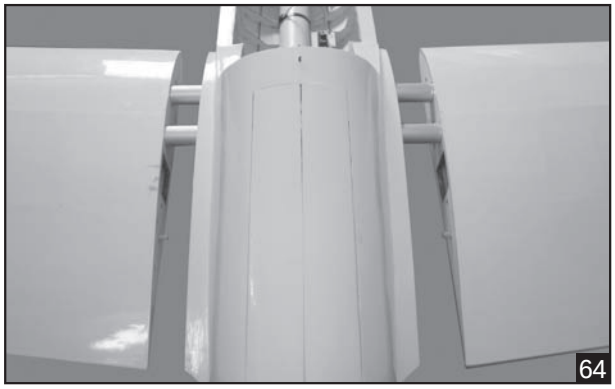


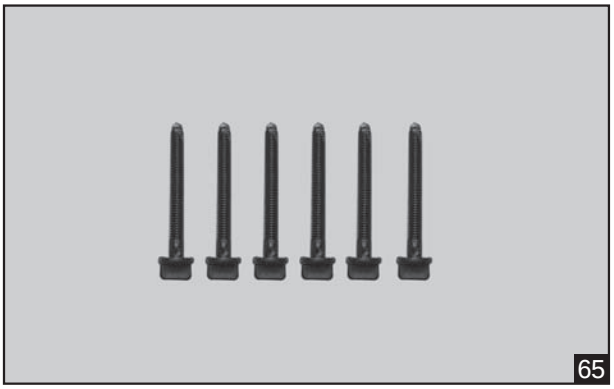
63

INSTALLING THE WING

1. Install the wing to the fuselage with 2 aluminum tube.


64

2. Secure the wing with 6 nylon screw.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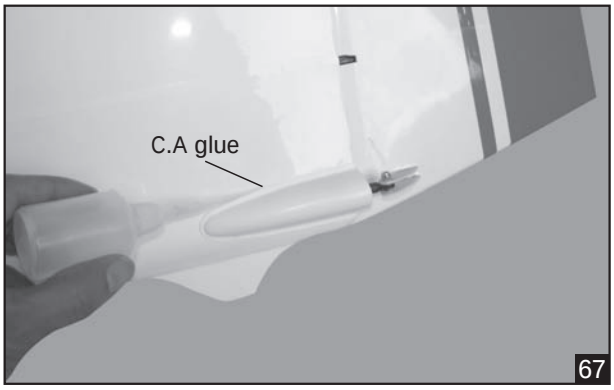
66

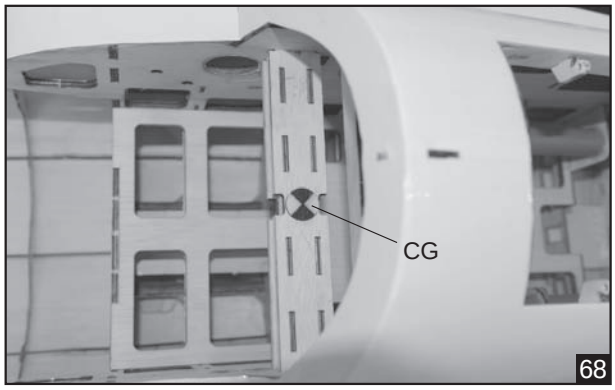
- Glue the plastic cover.



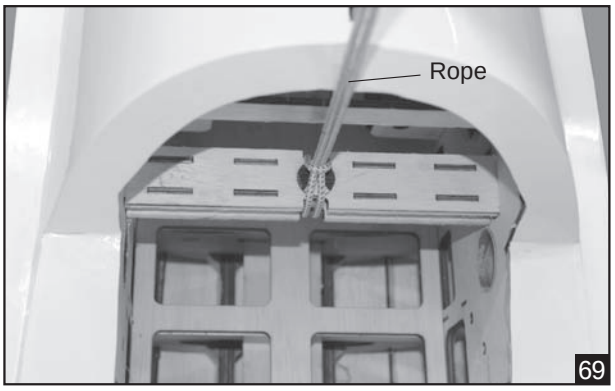
67

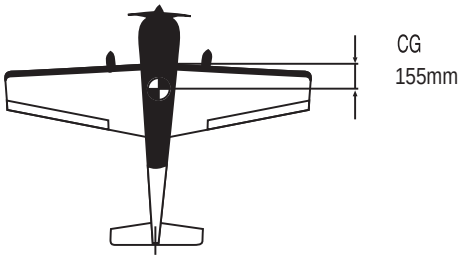
BALANCING

1. It is critical that your airplane be balanced correctly. Improper balance will cause your plane to lose control and crash.
2. If you fly your model with SLS (self launch system), please note that, the motor must be DOWN and INSIDE the fuselage when correct the C.G (very important).
3. THE CENTER OF GRAVITY IS LOCATED 155mm BACK FROM THE LEADING EDGE OF THE WING, AT THE FUSELAGE. This location is recommended for initial test flying and trimming. There is a 5mm margin forward and aft.



4. Use a piece of rope wrapped over the wooden plate (see picture) and lifted up the plane. 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.





LATERAL BALANCE

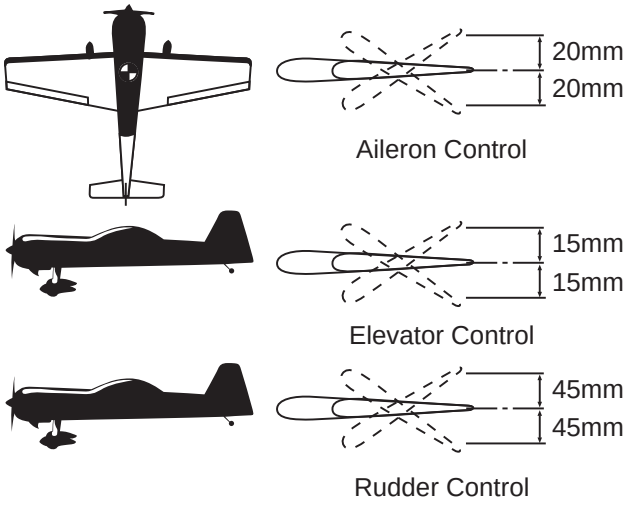
After you have balanced a plane on the C.G. You should laterally balance it. Doing this will help the airplane track straighter.

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

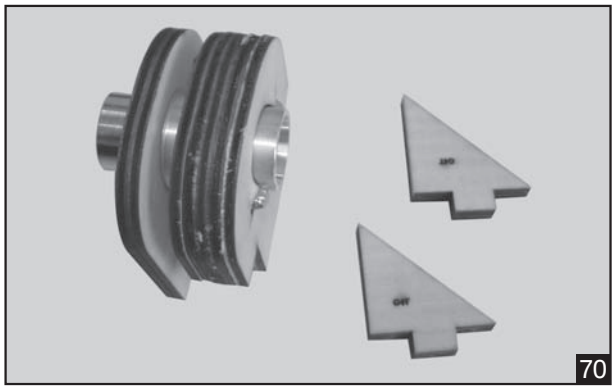
1. We highly recommend setting up a plane using the control throws listed.
2. The control throws should be measured at the widest point of each control surface.
3. Check to be sure the control surfaces move in the correct directions.

Aileron	: 20mm up	20mm down
Elevator	: 15mm up	15mm down
Rudder	: 45mm right	45mm left



INSTALLING THE TOWING LINE

- In this case, your glider can be towed by another plane.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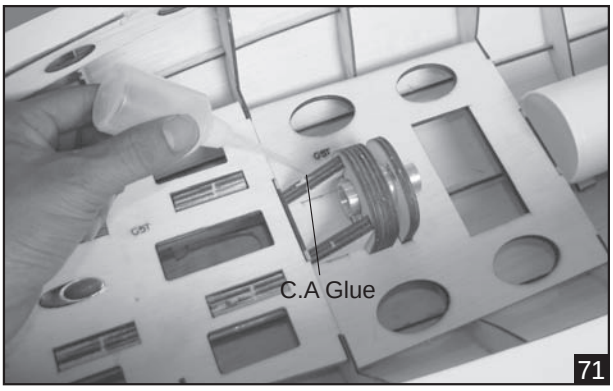

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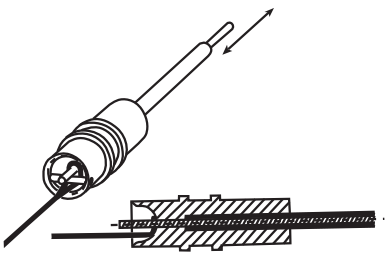


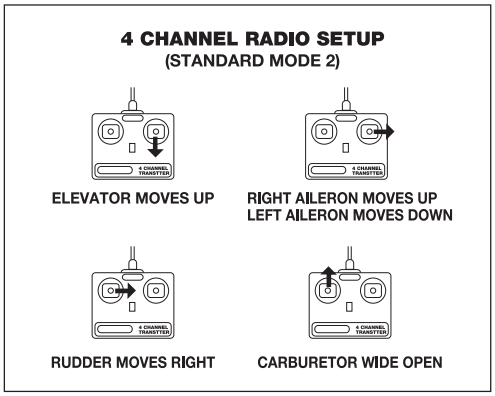
ALUMINUM JOINER FOR ASK21- 6500

FUSELAGE:

- L = 890mm x OD = 19mm x ID = 17mm (2)
- L = 560mm x OD = 19mm x ID = 15mm (2)

WING:

- L = 1140mm x OD = 32mm x ID = 28mm (2)
- L = 850mm x OD = 25,5mm x ID = 20,5mm (2)
- L = 560mm x OD = 19mm x ID = 17mm (2)

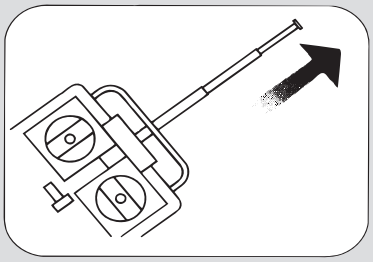


FLIGHT PREPARATION

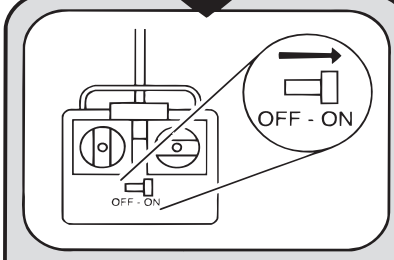
PRE FLIGHT CHECK

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.

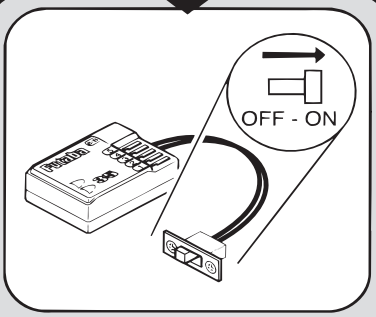
I/C FLIGHT GUIDELINES



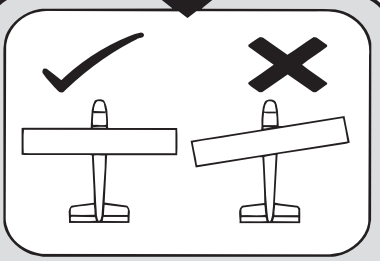
When ready to fly, first extend the transmitter aerial.



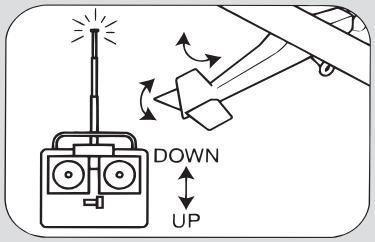
Switch on the transmitter.



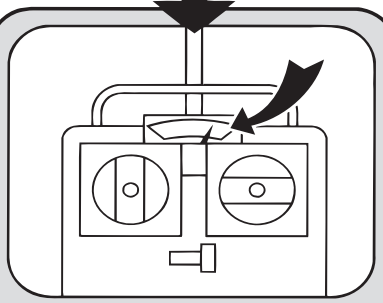
Switch on the receiver.



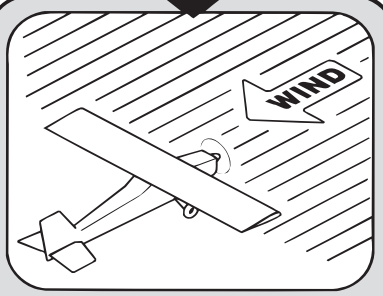
Check that the wings are correctly fitted to the fuselage.



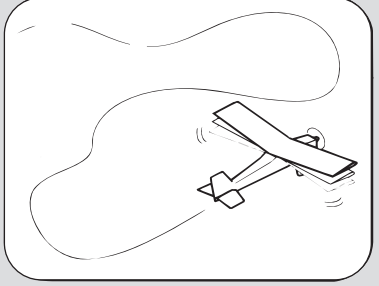
Operate the control sticks on the transmitter and check that the control surfaces move freely and in the CORRECT directions.



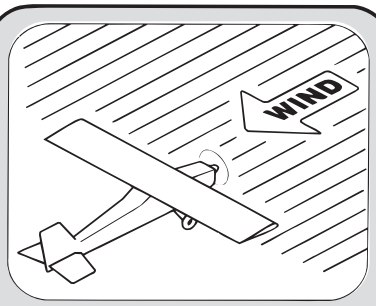
Check that the transmitter batteries have adequate power.



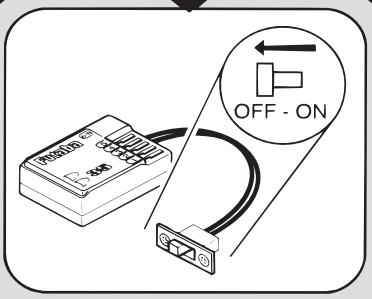
ALWAYS take off into the wind.



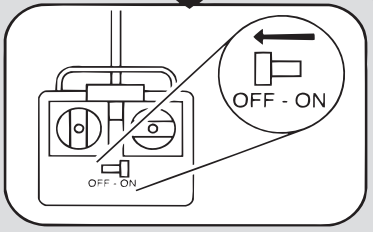
If the model does not respond correctly to the controls, land it as soon as possible and correct the fault.



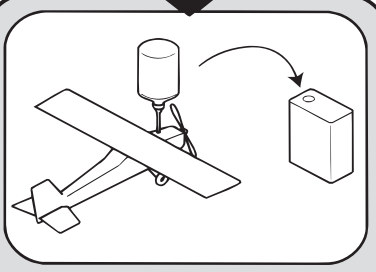
ALWAYS land the model INTO the wind, this ensures that the model lands at the slowest possible speed.



Switch off the receiver.



Switch off the transmitter.



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

Made in Vietnam