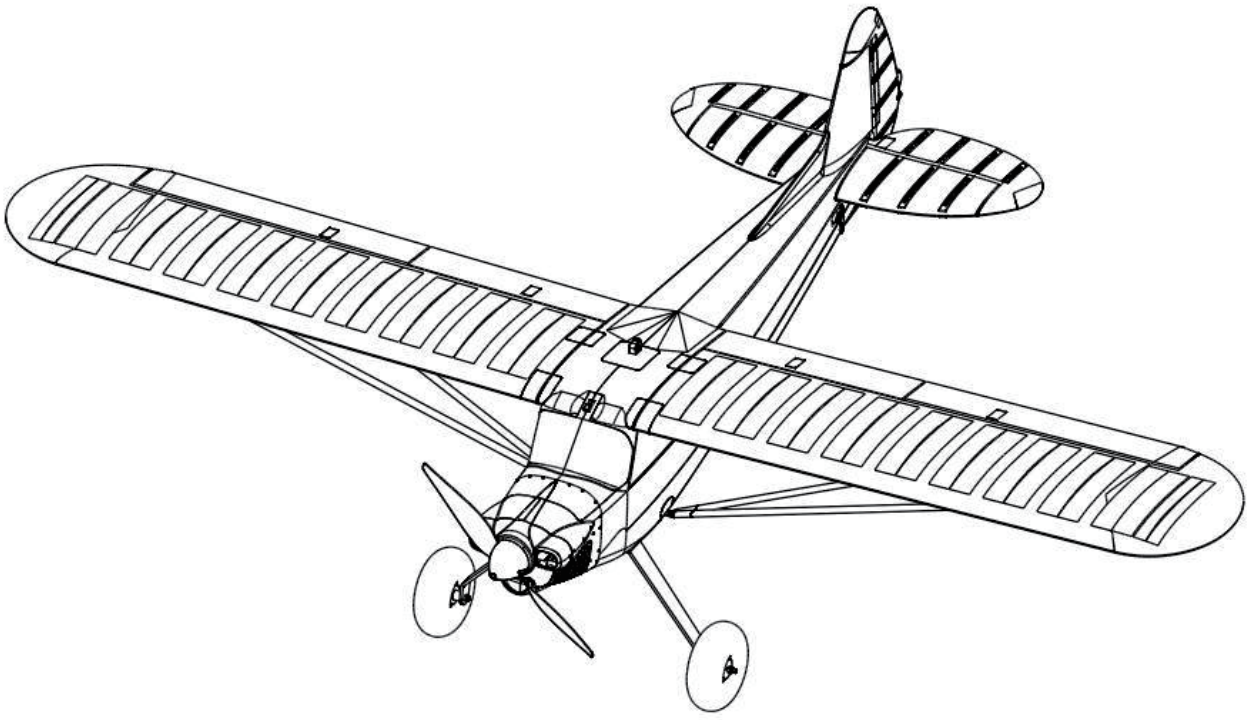
TOP RC HOBBY

AGE 14+

# 1500mm S Cub

## Radio Control Model Airplane

**Operation Manual**



# INDEX



## Statement

1.Please read this manual carefully and follow the instructions before using this product.
2.This airplane is not a toy, and is only suitable for experienced fliers or under the guidance of an experienced pilot.
3. Not recommended for children under 14 years old.
4.Please adjust this plane according to the instructions and make sure that fingers and other parts of your body are out of the way of rotating parts of the plane, or it may cause damage to the plane or injury to your body.
5.Do not fly in a thunderstorm, strong winds or bad weather.
6. Never fly your plane where there are power lines overhead, automobiles, near an airdrome, railway or highway.
7.Never fly your plane where there are crowds of people. Give yourself plenty of room for flying, as the plane can fly at high speeds. Remember that you are responsible for others' safety.
8.Do not attempt to catch the plane when you are flying it.
9.The user should bear full responsibility of proper operation and usage with regards to this model. We, Top RC together with any distributor of us will not be responsible for any liability or loss due to improper operation!

## Brief Introduction

**Thank you for choosing the Top RC Hobby 1500mm S Cub remote control model aircraft, and we hope that this aircraft will bring you endless fun.**

★ Easy and fast assembly, this airplane has detachable main wings and horizontal wing, which makes it very easy to carry and store.

★ A hook for towing a glider has been designed at the top of the fuselage, which can tow an unpowered glider for flight operations.

★ The oversized battery compartment design can support 4S 2200-3300mAh Li-Po battery and other electronic devices.

★ The oversized pneumatic main wheels have the advantages of light weight, good wear resistance, and great shock absorption performance, which allows the airplane to takeoff and land on roads and grasslands.

★ The appearance is eye-catching and beautiful, with the highly scaled design, it can give people a good impression. Stable flight, easy to operate, and flexible operation.

## Specifications

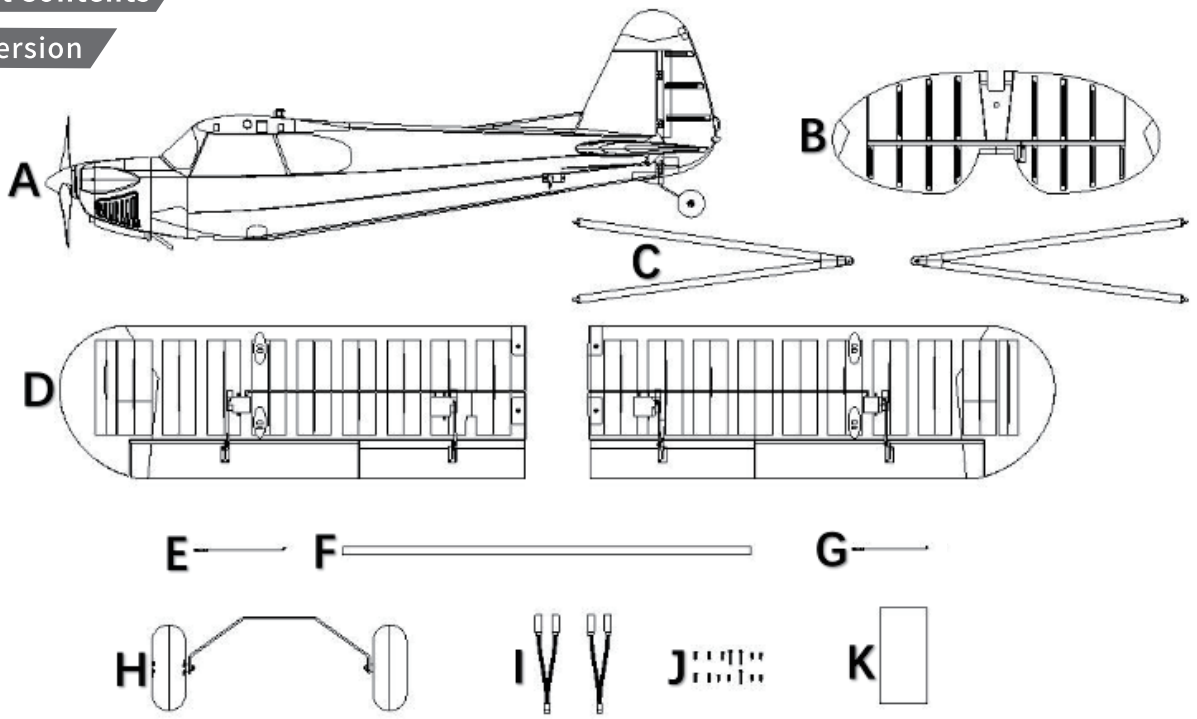
| | |
|---|---|
| ★ Wingspan | 1500mm |
| ★ Length | 995mm |
| ★ Flight weight | 1500g |
| ★ Thrust | ≥1500g |
| ★ Flight time | ≥8minutes |

## Main Configuration

| | |
|---|---|
| ★ Radio System | 6CH |
| ★ Motor | 3720-900KV |
| ★ Battery | 2200MAH 14.8V 30C |
| ★ ESC | Hobbywing 40A |
| ★ Servo | 9g metal gear servo*3pcs, 9g plastic gear servo*2pcs, 17g plastic gear servo*2pcs |

## Product Contents

### PNP Version




A.Fuselage B.Horizontal stabilizer C.Wing Struts D.Left and Right wings E.Pushrod for elevator (long) F.Wing Tube G.Pushrod for rudder (short) H.Main landing gear set I.Y harness wire J.Screw sets K.Velcro tape

### ARF Version

RTF excluding transmitter and receiver.

### RTF Version

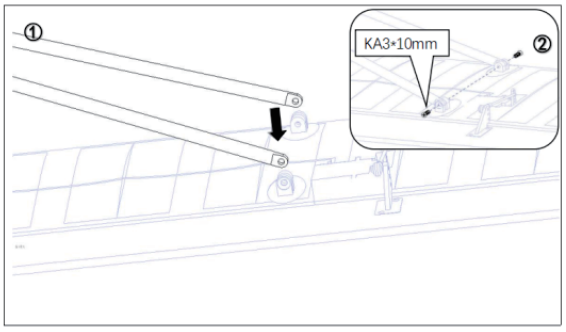
PNP + Transmitter,receiver, charger and Battery.

### KIT Version

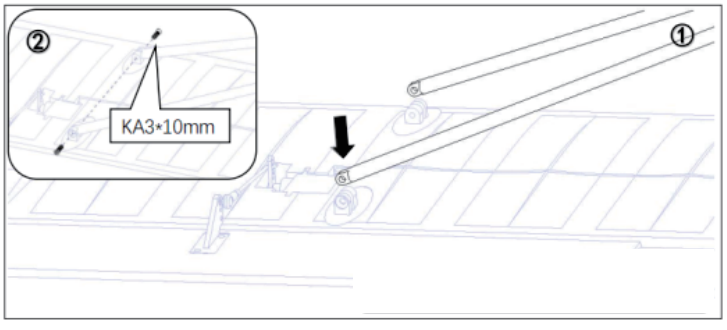
Without any electronic equipment.

## Assembly Process

### Left and Right Wing Strut Assembly



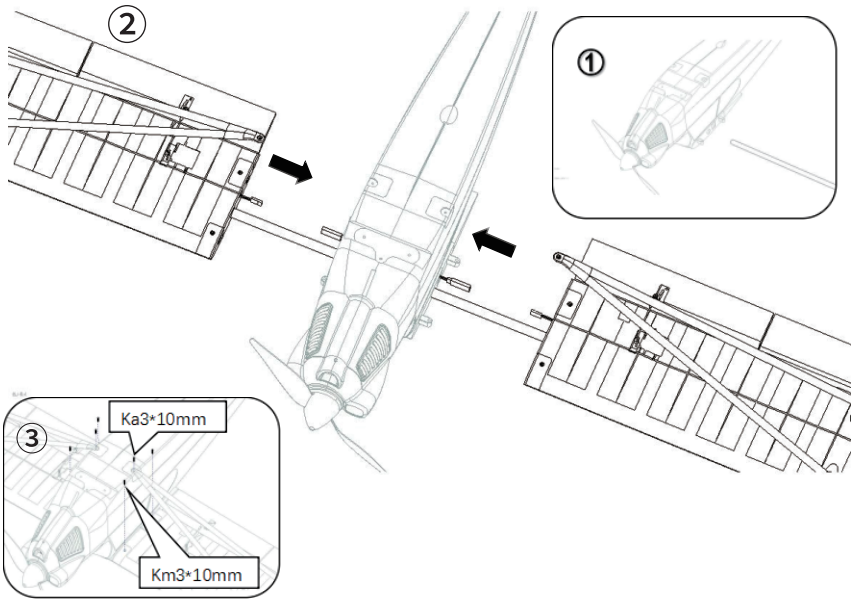

Insert one side of the wing struts into the mounting slots on the left wing and secure the wing strut to the left wing with KA3*10mm screws.




Insert one side of the wing struts into the mounting slots on the right wing and secure the wing strut to the right wing with KA3*10mm screws.

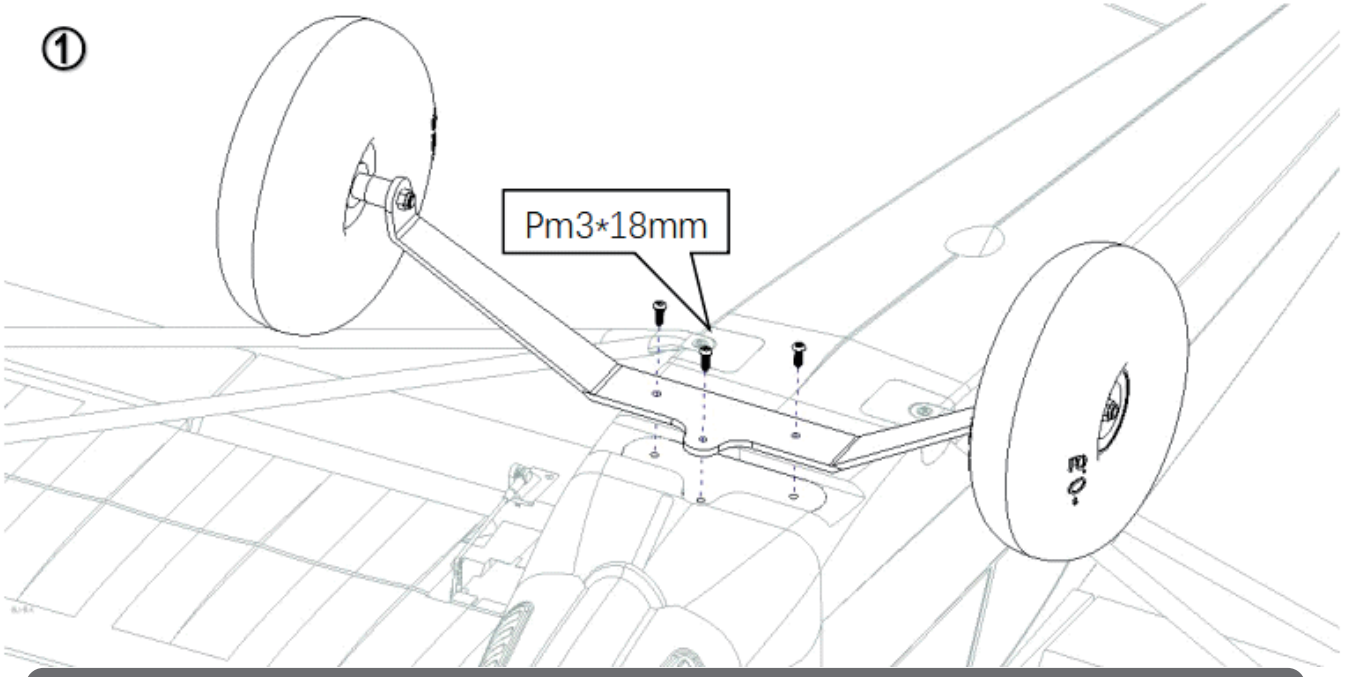
## Assembly Process

### Main wing Installation




1.Insert the main wing tube into the reserved hole of the fuselage.
2.Slide the left and right wings onto the wing tube, rotate the wing struts into position in preparation for mounting the wing, connect the servo wire plug of the wing to wire plug of the fuselage. Please make sure that the cables from the main wing are plugged into the correct extension wire in the fuselage.
3.Secure the wing into place using the included KM3*10mm screws. Secure the wing struts into place with included KA3*10mm screws. Disassemble in reverse order.

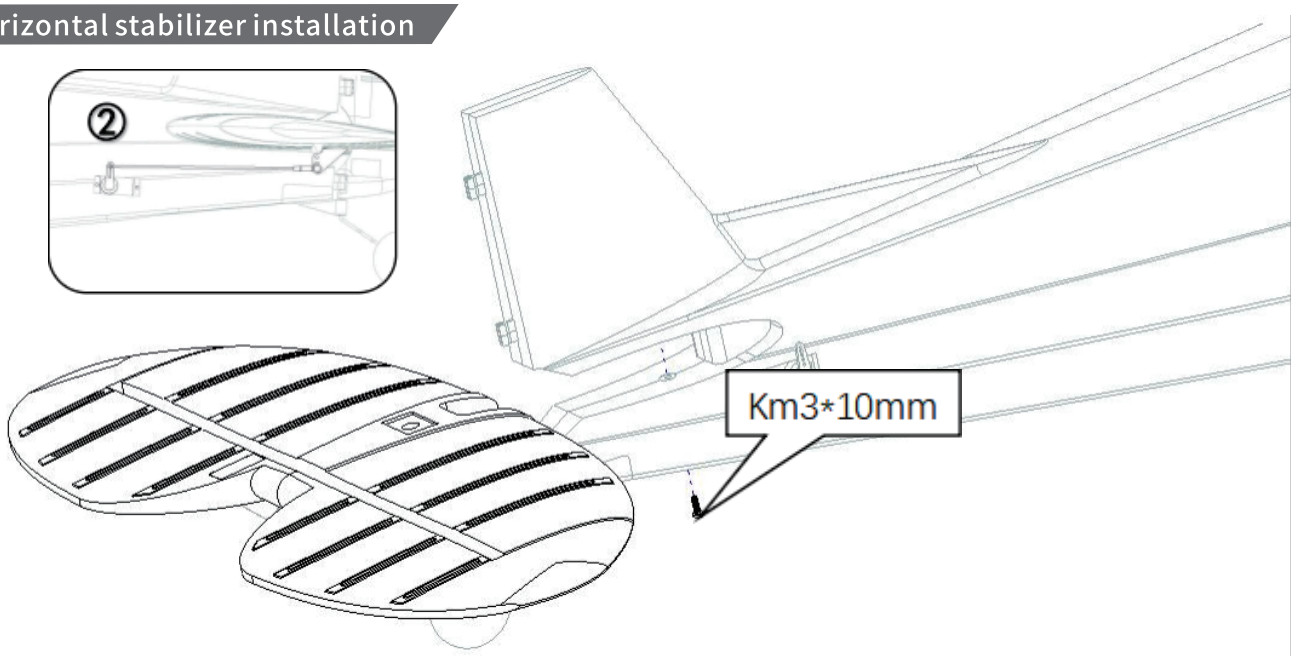
### Landing gear Installation




1.By using the 3pcs PM3*18 screws, secure the main landing gear into the mount slot on the bottom of the fuselage.If needed, pump up the wheels with an air pump and the supplied needle.

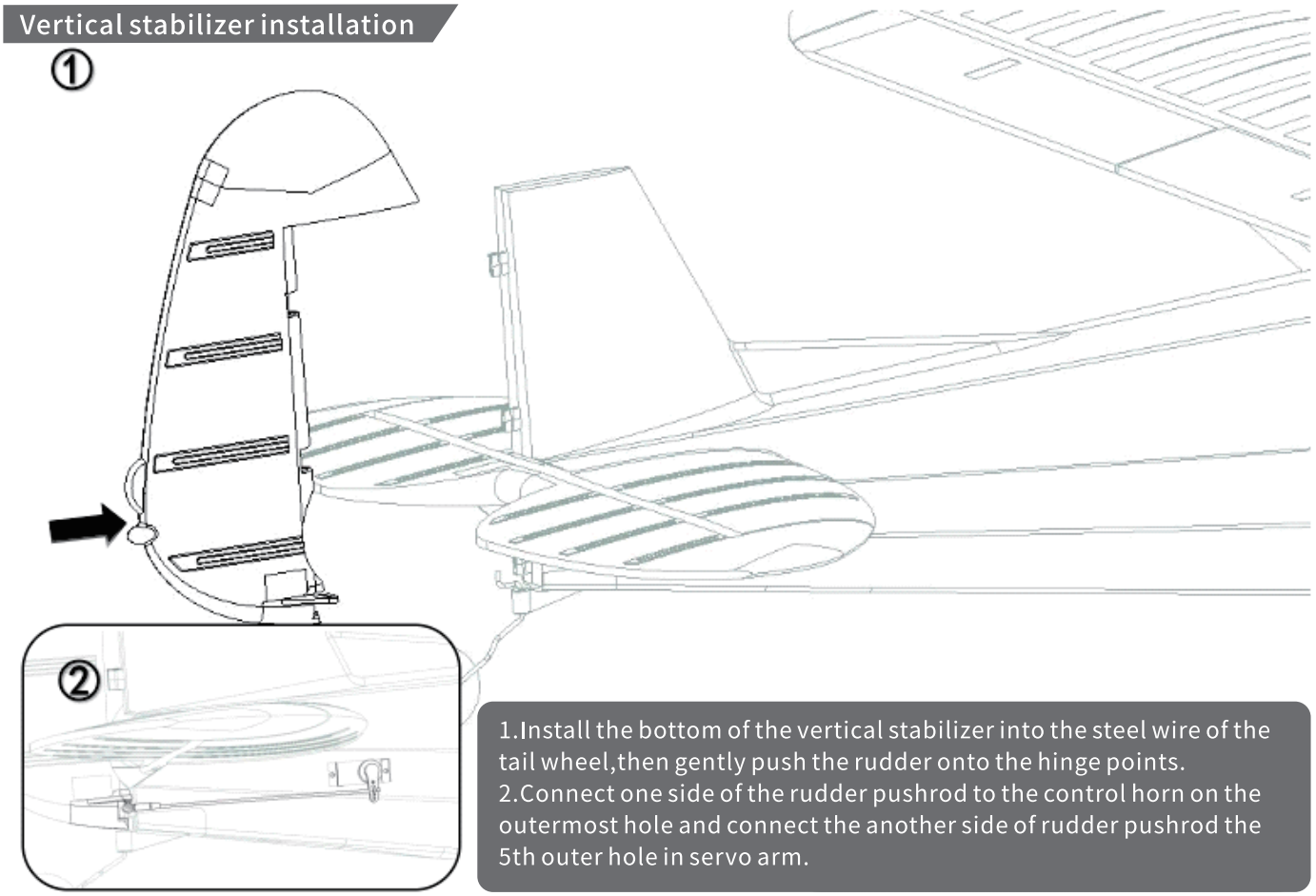
## Assembly Process

### Horizontal stabilizer installation




1.Install the horizontal stabilizer into the slot at the rear of the aircraft as shown, and secure the horizontal stabilizer with the 1pc KM3*10m screw.
2.Connect one side of the elevator pushrod to the control horn on the outermost hole and connect another side of the elevator pushrod to the 5th outer hole in servo arm.

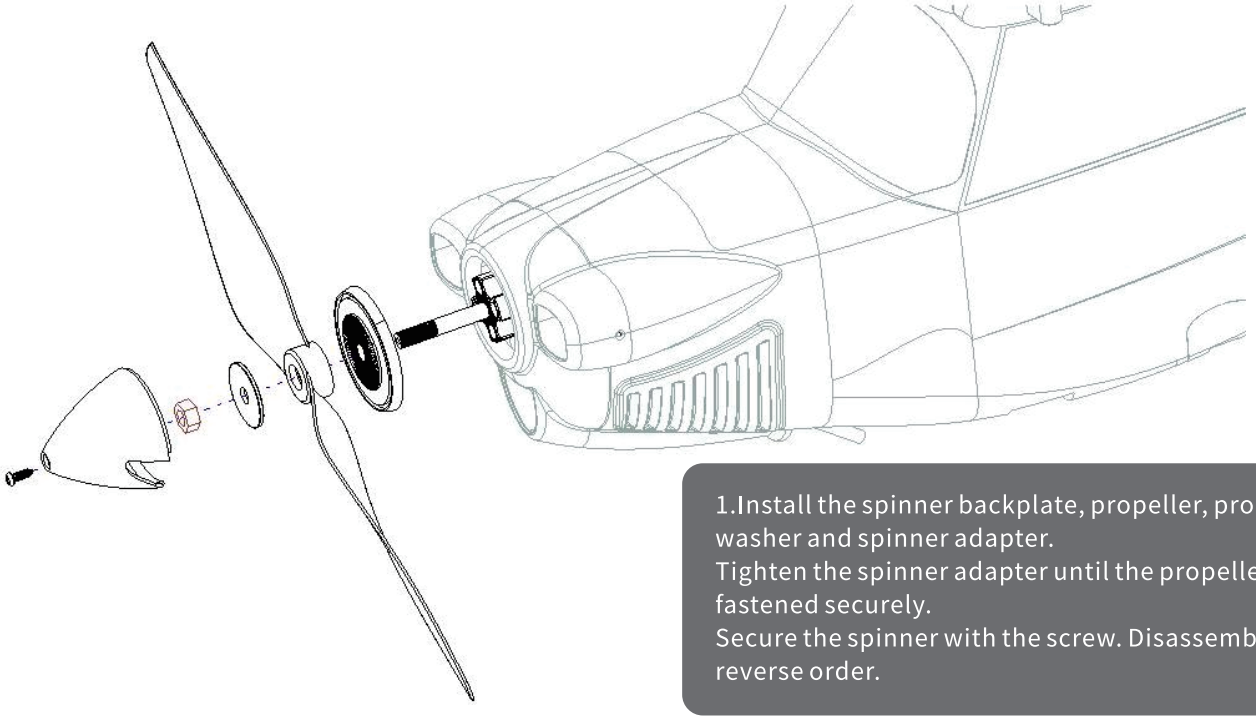
### Vertical stabilizer installation




1.Install the bottom of the vertical stabilizer into the steel wire of the tail wheel,then gently push the rudder onto the hinge points.
2.Connect one side of the rudder pushrod to the control horn on the outermost hole and connect the another side of rudder pushrod the 5th outer hole in servo arm.

## Assembly Process

### Spinner and Propeller installation



1.Install the spinner backplate, propeller, prop washer and spinner adapter.
Tighten the spinner adapter until the propeller is fastened securely.
Secure the spinner with the screw. Disassemble in reverse order.

### Control Horn and Servo Arm Settings

Make sure that all servos are in their central position and adjust the pushrods to the indicated positions. The factory settings for the control horns and servo arms are shown in the table.
Suggest using the factory setting to fly this aircraft before making changes.

Control horn and servo arm locations for Ailerons
Aileron pushrod in 3rd outer hole in control horn and 5th outer hole in servo arm

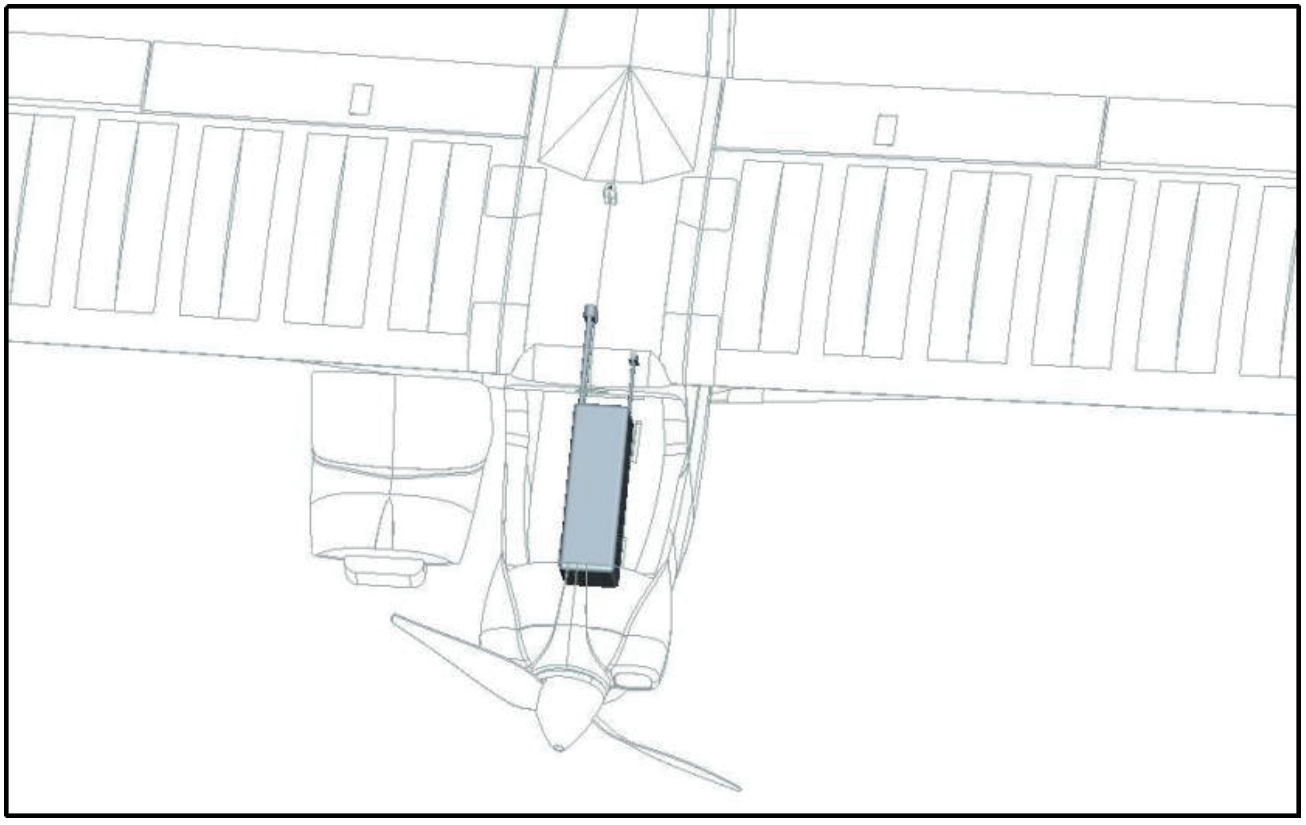

Control horn and servo arm locations for Elevator
Elevator pushrod in 3rd outer hole in control horn and 5th outer hole in servo arm


Control horn and servo arm locations for Flaps
Flap pushrod in 3rd outer hole in control horn and 5th outer hole in servo arm


Control horn and servo arm locations for Rudder
Rudder pushrod in 3rd outer hole in control horn and 5th outer hole in servo arm

## Assembly Process

### Battery Installation



1.Remove the battery hatch and take battery straps from the battery tray.

2.Insert battery into the battery compartment with the power wire towards the rear part of the plane and use straps to secure the battery.

3.Make sure that the throttle and throttle trim are set to the lowest settings.

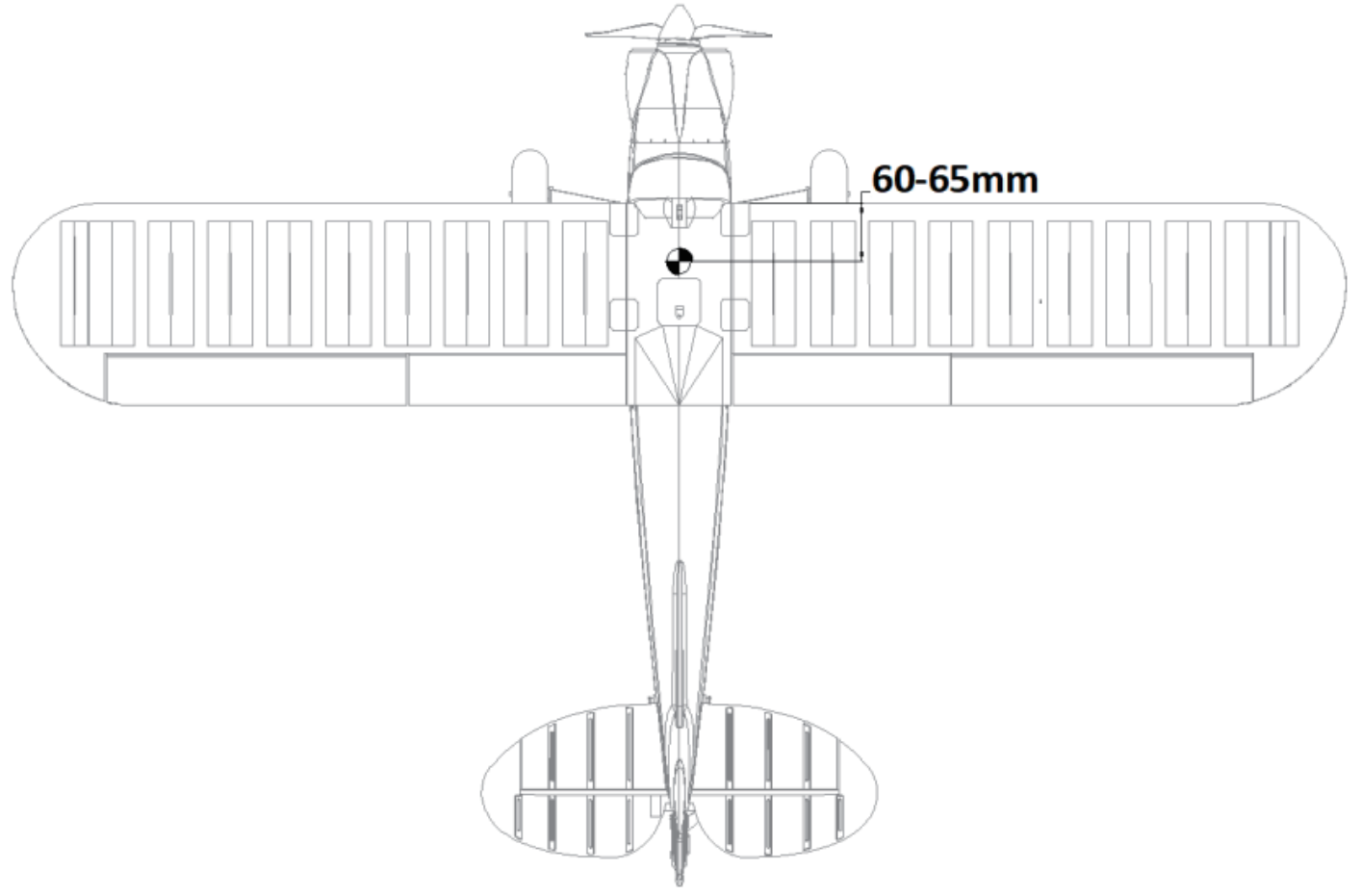
Please power on the transmitter first, then connect the battery plug to the ESC plug.

4.The battery weights are different from different battery factories, so it’ s necessary to adjust the center of gravity (CG) by moving the battery forward or backward.

## Center of Gravity Setting

**Correct CG is a main factor of a successful flight, please refer to the below diagram to adjust the CG of the aircraft.**

You could adjust the CG by moving the battery forwards or backwards, if you cannot adjust to the correct CG by moving the battery position, then you can also use some other materials to balance the CG of the aircraft to the correct position.

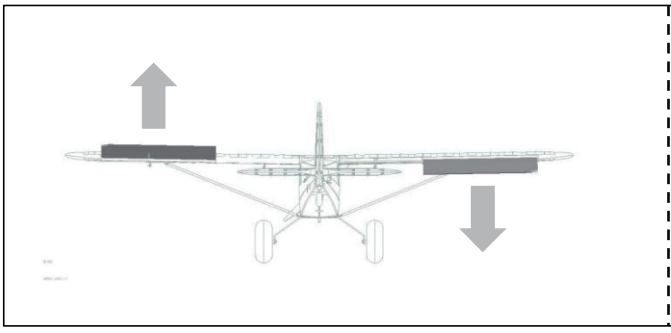
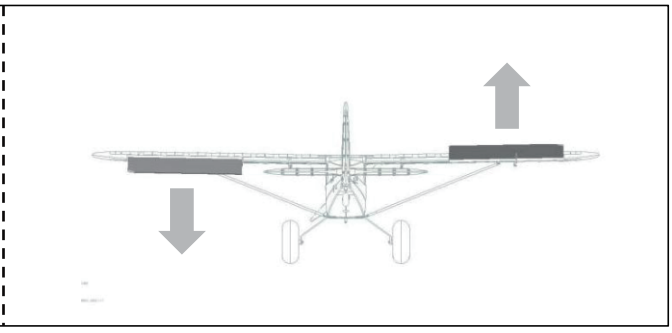
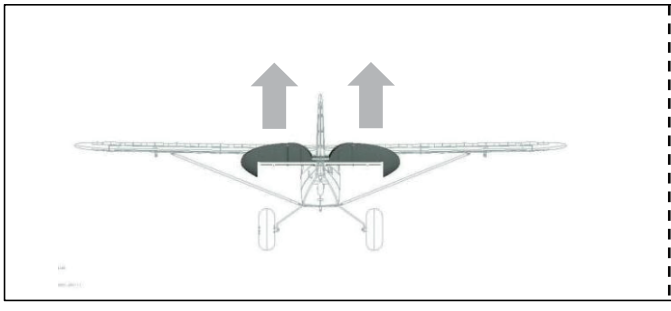
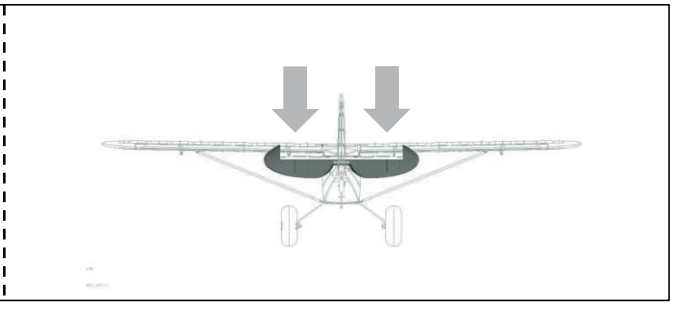
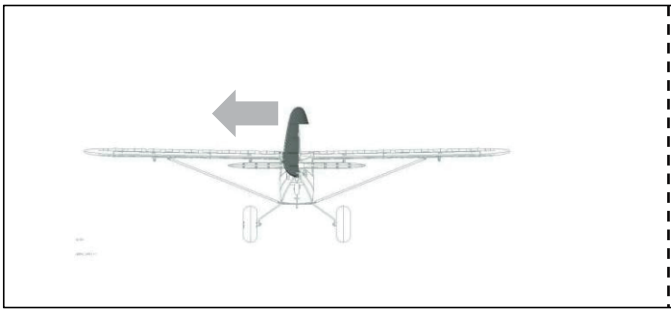
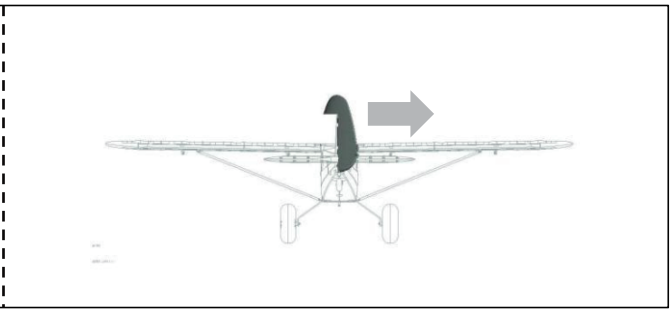
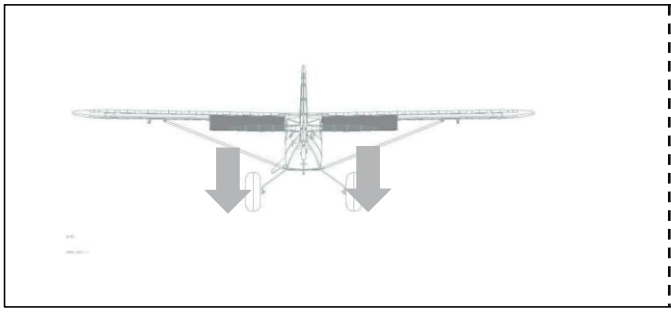


## Adjustment Steps

### Control Direction Testing

After finishing the assembly of this airplane as per the above steps and adjusting the servo arm. Before you fly this airplane, please use one fully charged battery to test to make sure that all the control surfaces can respond correctly to your transmitter by referring to the diagram below in direction and orientation.

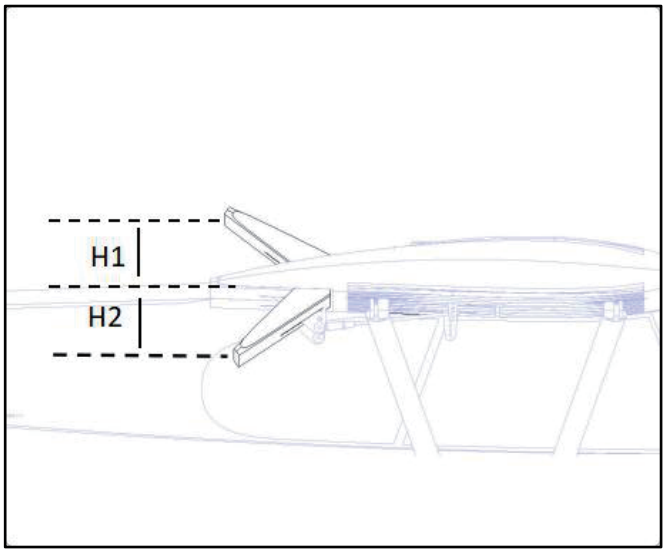
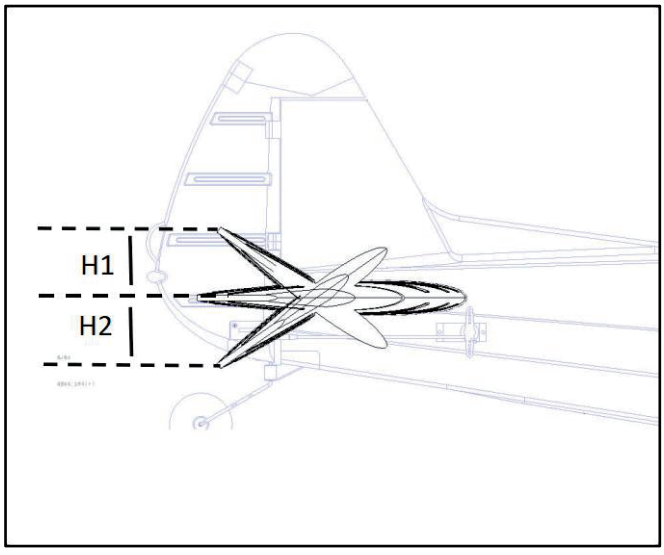
**Notice: To secure your safety and avoid any accident if the motor is activated , please make sure to disassemble the propeller before the testing of the control surface.**

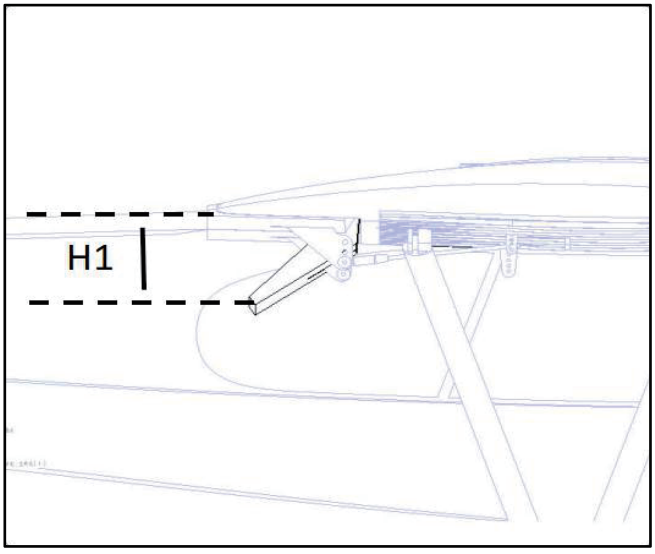
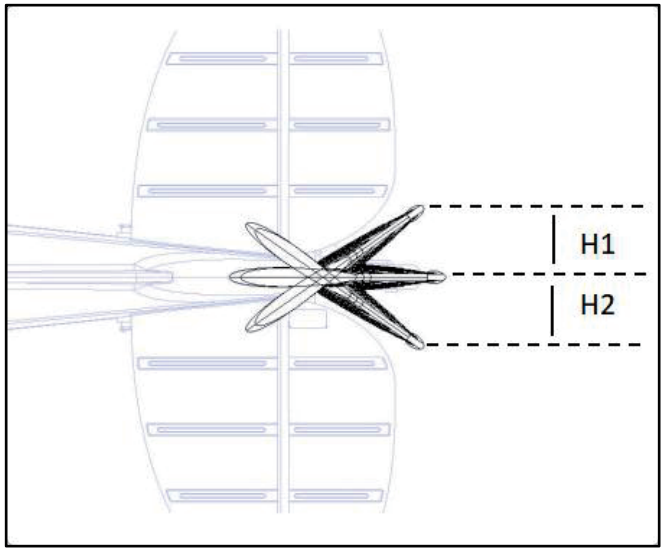
| Push the Aileron joystick left | Push the Aileron joystick right |
| --- | --- |
|  |  |
| Pull the elevator joystick downward | Push the elevator joystick upward |
|  |  |
| Push the Rudder joystick left | Push the rudder joystick right |
|  |  |
| Move the flaps to downward | |
|  | |

## Adjustment Steps

### Dual Rates and Control Throws

Per our testing experiences, we suggest setting dual rates and control throws to the below values given to achieve a successful flight.
The aircraft will be controlled less sensitive at low rates than the high rates.
The first flight is recommended to be flown using high rates, after flying you may choose to adjust the values for the desired control response.

| Aileron Control Throws | Elevator Control Throws |
|---|---|
|  |  |

| Flap Control Throws | Rudder Control Throws |
|---|---|
|  |  |

## Adjustment Steps

**Tips:** When flaps are lowered, the aircraft will be heading up, it requires the mixed elevator control for good landing, 1mm descending at low rates and 2mm descending at high rates is required per our testing experience.

| Low Rate(H1/H2) | | High Rate(H1/H2) |
|---|---|---|
| Aileron | 15mm | 25mm |
| Elevator | 15mm | 25mm |
| Rudder | 20mm | 30mm |
| Flaps | 20mm | 40mm |

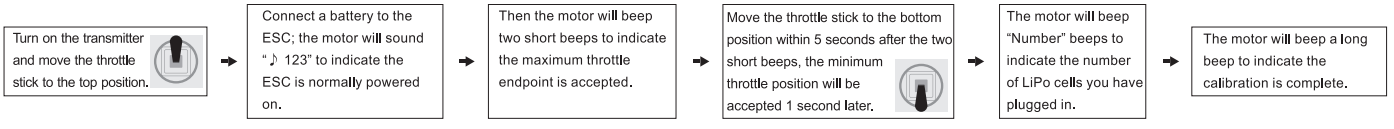
## Safety Precaution

1.If you have a simulator,we suggest practicing on the simulator before you fly this aircraft. Perfect practice makes perfect.
2.Please maintain a safe altitude(50meters)and avoide full throttle flight until the model is trimmed and you are familiar with the performance of the aircraft.
3.This aircraft is for experienced pilots. Understanding how to control this aircraft carefully will reduce the possibility of the crash of the aircraft.
4.Allow sufficient altitude whenever performing any type of aerobatic maneuvers. Hard, tight turns increase the load on the aircraft and may cause it to stall unexpectedly which could result in the loss the aircraft.
5.When taking off or landing the aircraft,the aircraft should always be directed into the wind.
6.Do not fly the aircraft over your head or behind you,always fly the aircraft in front of you at a safe distance.

## Notification for ESC

1.Do not change the ESC settings. The included ESC has been programmed to the ideal settings for the motor.
2. Before you connect the battery, please make sure the throttle and trim are in the lowest position. If the throttle and trim are not in the lowest position by mistake after connecting the battery, you can disconnect the battery, move the throttle joystick to the lowest position, then reconnect the battery.
3.The ESC of the aircraft is in a good cooling location at default settings, please don't move the position.
4.The ESC should be connected to the motor correctly, otherwise the motor will operate in reverse.

## ESC/Radio Calibration



## Charging method and cautions RTF version

### Li-Po battery(balance charger) specifications

Specifications:
Input voltage: DC 10V~15V
Output voltage:2S-4S Li-Po battery
Charging current: 1.0A

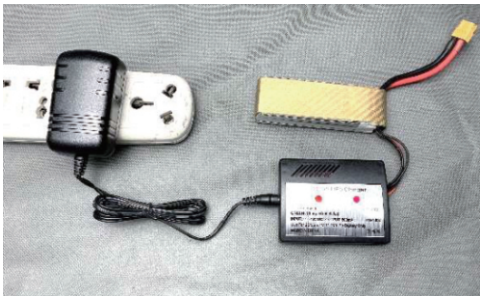
Indicator state:
Green: Charge complete or no battery
Red: Charging
The batteries are inspected separately. When the voltage reaches 4.20V, the charging process stops.

### Operating

1.AC adapter should be connected if charging at home: connect the adapter to home power socket, then plug the adapter' DC end to charger. The LED will turn green indicating it is ready for charging

2.Connect the battery to charger per its interface mark. The LED becomes red, which means charging is on the way.

3.When LED flashing, the charger will enter the stage of drip current charging. The LED turns green when fully charged , and the battery can be used at any time.



### Notice

1.While charging is in process, please do not leave it near flammable materials.

2.Except Li poly battery, this charger is not allowed for other kinds of battery.

3.While charging, please keep it out of the reach of Children.

4.When this charger is in use, please do not go away and leave it unwatched.If any abnormality occurs such as the power indicator is off, the temperature of the battery rises rapidly, etc., stop charging immediately.

5.Please do not use power with output voltage higher than 15V.

6.Please do not disassemble the charger or its accessories.

7.When the battery is not cool down, please do not charge it, let the battery return to normal temperature before charging it.

## Safety Instruction of Li-Po/Ni-MH battery

1.Do not disassemble or reconstruct the battery.

2.Do not short-circuit the battery.

3.Do not use or leave the battery near the fire, stove or heated place (more than 80°C).

4.Do not immerse the battery in water or sea water, do not get it wet.

5.Do not charge the battery under the blazing sunlight.

6.Do not drive a nail into the battery, strike it by hammer or tread on it.

7.Do not impact or toss the battery.

8.Do not use the battery with conspicuous damage or deformation.

9.Do not charge a warm battery. Allow it to cool completely before attempting to charge.

10.Do not reverse charge or over discharge the battery.

11.Do not connect the battery to the ordinary charger socket or car cigarette jack.

12.Do not use the battery for unspecified equipment.

13.Do not touch the leaking battery directly, please wash your skin or clothes with water if they are in contact with liquid leaking from the battery.

14.Do not mix the Li-Poly battery with other un-chargable battery in using.

15.Do not continue charging the battery over the prescribed time.

16.Do not put the battery into the microwave oven or high-pressure container.

17.Do not use the abnormal battery.

18.Do not use or keep the battery under the sunlight.

19.Do not use the battery near the place where generates static electricity (over 64V).

20.Do not charge the battery when the environmental temperature is under 0°C or over 45℃

21.If you find the battery leaking, smelling or abnormal, stop using it.

22.When the battery is charging, please do not leave it near the flammable materials!

23.Keep the battery away from the children.

24.Use the specifed charger and observe charging requirement (under 1A).

25.When using by minors, parents should show them the correct instruction and provide supervision.

## Trouble shooting

| Problem | Possible Cause | Solution |
|---|---|---|
| Aircraft will not respond to the throttle but responds to other controls. | -ESC is not armed.<br>-Throttle channel is reversed. | -Lower throttle stick and throttle trim to lowest settings.<br>-Reverse throttle channel on transmitter. |
| Extra propeller noise or extra vibration. | -Damaged spinner, propeller motor or motor mount.<br>-Loose propeller and spinner parts<br>-Propellor installed backwards. | -Replace damaged parts.<br>-Tighten parts for propeller adapter, propeller and spinner.<br>-Remove and install propeller correctly. |
| Reduced flight time or aircraft underpowered. | -Flight battery charge is low.<br>-propeller installed backward<br>-Flight battery damaged. | -Completely recharge flight battery.<br>-Replace flight battery and follow flight battery instructions. |
| Control surface doe snot move, or is slow to respond to control inputs. | -Control surface, control horn,linkage or servo damage.<br>-Wire damaged or connections loose. | -Replace or repair damaged parts and adjust controls.<br>-Do a check of connections for loose wiring |
| Controls reversed. | Channels are reversed in the transmitter. | Do the control direction test and adiust controls for aircraft and transmitter. |
| -Motor loses power<br>-Motor power pulses then motor loses power. | -Damage to motor, or battery.<br>-Loss of power to aircraft.<br>-ESC uses default soft LowVoltage Cutoff(LvC). | -Do a check of batteries, transmitter, receiver, ESC, motor and wiring for damage(replace as needed).<br>-Land aircraft immediately and recharge flight battery. |
| LED on receiver flashes slowly. | Power loss to receiver. | -Check connection from ESC to receiver.<br>-Check servos for damage.<br>-Check linkages for binding. |

## Trouble shooting guide

Strict ground inspections should be done before each flight, to help avoid flight accidents.

1.Check if the screws of the whole aircraft are installed in place or not, the servo arms and control horns are connected reliably or not and the wings fixing are locked or not.

2.Install the battery and adjust the aircraft' s CG to the recommended position in the instruction.

3.Make sure the batteries are fully charged in a reliable working condition.

4.Gently push the throttle to check if the propeller is rotating correctly or not.

5.After all checks completed, you can start the flight. The maiden flight for beginners needs the assistance of experienced enthusiasts to avoid flight accidents due to improper operation.

## Flight time

The recommended flight time by the manufacturer is using the battery what we recommend, and the flight test is completed by experienced RC pilots on a breezy day. This flight time is related to battery parameters and aircraft weight, flight conditions and flight methods. Different conditions may result in different flight times.

It is recommended that the enthusiasts use the "timing function" of the remote control during flight. It is suggested that the initial flight time be set to 4 minutes of powered flight.

When there is a countdown alarm, please land the aircraft and measure the battery voltage. At the end of the battery discharge period, it is not recommended to fly the aircraft into the leeward zone (the far down wind direction) to prevent the aircraft from being unable to return safely due to the insufficient power.

## Spare parts list

| | |
|---|---|
| top126001 | Fuselage: 1500mm S Cub (Yellow) |
| top126002 | Main Wings: 1500mm S Cub (Yellow) |
| top126003 | Canopy:1500mm S Cub (Yellow) |
| top126004 | Cowl:1500mm S Cub (Yellow) |
| top126005 | Horizontal Stab:1500mm S Cub (Yellow) |
| top126006 | Vertical Stab: :1500mm S Cub (Yellow) |
| top127001 | Fuselage: 1500mm S Cub (Blue) |
| top127002 | Main Wings: 1500mm S Cub (Blue) |
| top127003 | Canopy: 1500mm S Cub (Blue) |
| top127004 | Cowl: 1500mm S Cub (Blue) |
| top127005 | Horizontal Stab:1500mm S Cub (Blue+Red) |
| top127006 | Vertical Stab: 1500mm S Cub (Blue+Red) |
| top128001 | Fuselage: 1500mm S Cub (Red ) |
| top128002 | Main Wings: 1500mm S Cub (Red ) |
| top128003 | Canopy: 1500mm S Cub (Red ) |
| top128004 | Cowl: 1500mm S Cub (Red ) |
| top128017 | Spinner set:1500mm S Cub |

| | |
|---|---|
| top128018 | Propeller:1500mm S Cub |
| top128019 | Wing tube: 1500mm S Cub |
| top128020 | Prop Adapter:1500mm S Cub |
| top128021 | Wing Struts:1500mm S Cub |
| top128022 | Wheels: 1500mm S CubTwo main wheels ( pneumatic rubber tire)+one tail wheel |
| top128023 | Main landing gear W/O wheels:1500mm S Cub |
| top128024 | Pushrod set:1500mm S Cub |
| top128025 | Screw set:1500mm S Cub |
| TOP00142 | 9g Servo plastic gear 550MM lead: 1500mm S Cub (Aileron) |
| TOP00143 | 9g Servo Metal gear 600MM lead: 1500mm S Cub (Elevator/Rudder) |
| TOP00144 | 9g Servo Metal gear 250MM lead: 1500mm S Cub (tow release) |
| TOP049027 | 17g plastic gear 300MM lead:1500mm S Cub (Flaps) |
| top20402 | 40A Brushless ESC XT60: 1500mm S Cub |
| top128031 | 3720-900KV Brushless motor w/mount: 1500mm S Cub |
| top128032 | Gyro: 1500mm S Cub |
| Top08917 | Lipo battery(2200mAh 20C 14.8V) |

# 1500mm S Cub

## Radio Control Model Airplane

**Shenzhen Top RC Hobby Tech Co.,Ltd**

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***AGE 14+***

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