

B-24 LIBERATOR USER MANUAL

WINGSPAN:2000MM(78.7in.)
LENGTH:1230MM(48.4in.)
WEIGHT:2190G(W/O BATTERY)

EN	1~11
中	12~22

Flightline
RC



FreeWing
MODEL
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MADE IN CHINA



The famed B-24 Liberator is one of the most recognizable WWII aircraft of all time. Serving in every theater of that global conflict, the B-24 fought to bring its brave crews home through unimaginable danger. With humility and reverence, FlightLineRC and Motion RC are proud to introduce the world's first foam electric PNP B-24 Liberator, in remembrance of the crews who gave the ultimate sacrifice and those who carry on its memory.

The FlightLineRC B-24 is approximately 1/10 scale, with a 2000mm wingspan and 1230mm length. Constructed from EPO foam and reinforced with integrated aluminum, carbon, and plastic structures, the B-24 delivers the ultimate all around experience for pilots seeking the ultimate foam PNP bomber replica. A magnetic nose section allows owners to swap between two B-24 variants, the -D ("Greenhouse" nose), and the -J ("Emerson turret" nose). The Upper Turret on both variants and the Nose Turret on the -J variant can be panned with an optional servo. Steerable tillers are pre-installed, including special provisions to fit FPV cameras inside.

The FlightLineRC B-24 uses four 3530-860KV brushless outrunner motors and four 30A ESCs. A quick disconnect ribbon wire harness consolidates wiring into a central circuit board in the fuselage. The recommended pair of 4s 14.8V 2800-4000mAh lipo batteries 2pcs can power the aircraft in excess of 110kph/70mph, for 4-10 minutes based on a pilot's throttle management. The outboard motor pair and inboard motor pair are run from separate flight batteries, allowing for powered landings in the event of one battery failing. A 70mm tall nose wheel and 85mm tail main wheels provide stable operation grass runways, and optional suspension struts are available. Assembly is comprised of only 12 screws and gluing on external details such as antennas.

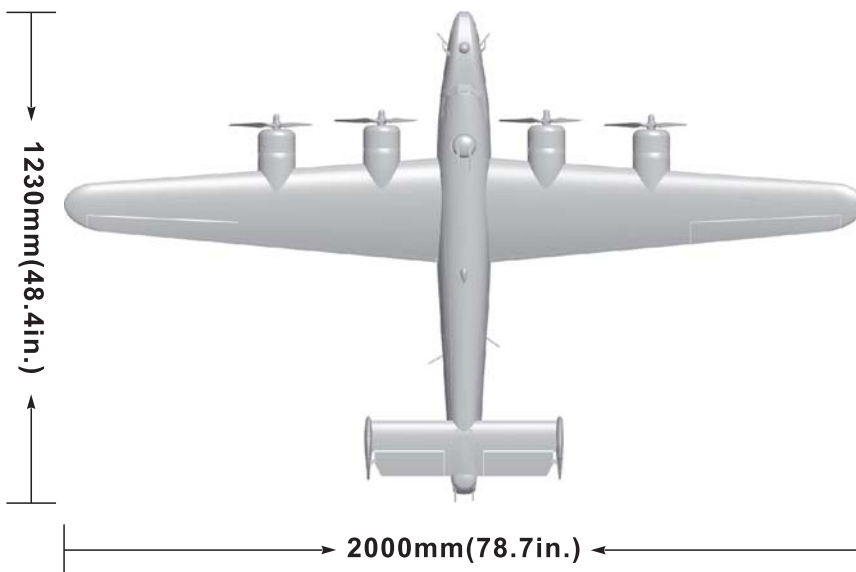
⚠ NOTE: This is not a toy. Not for children under 14 years. Young people under the age of 14 should only be permitted to operate this model under the instruction and supervision of an adult. Please keep these instructions for further reference after completing model assembly.

Note:

1. This is not a toy! Operator should have a certain experience, beginners should operate under the guidance of professional players.
2. Before install, please read through the instructions carefully and operate strictly under instructions.
3. Cause of wrong operation, Freewing and its vendors will not be held responsible for any losses.
4. Model planes' players must be on the age of 14 years old.
5. This plane used the EPO material with surface spray paint, don't use chemical to clean, otherwise it will damage.
6. You should be careful to avoid flying in areas such as public places, high-voltage-intensive areas, near the highway, near the airport or any other place where laws and regulation clearly prohibit.
7. You cannot fly in bad weather conditions such as thunderstorms, snows....
8. Model plane's battery, don't allowed to put in everywhere. Storage must ensure that there is no inflammable and explosive materials in the round of 2M range.
9. Damaged or scrap battery should be properly recycled, it can't discard to avoid spontaneous combustion and fire.
10. In flying field, the waste after flying should be properly handled, it can't be abandoned or burned.
11. In any case, you must ensure that the throttle is in the low position and transmitter switch on, then it can connect the lipo-battery in aircraft.
12. Do not try to take planes by hand when flying or slow landing process. You must wait for landing stop, then carry it.

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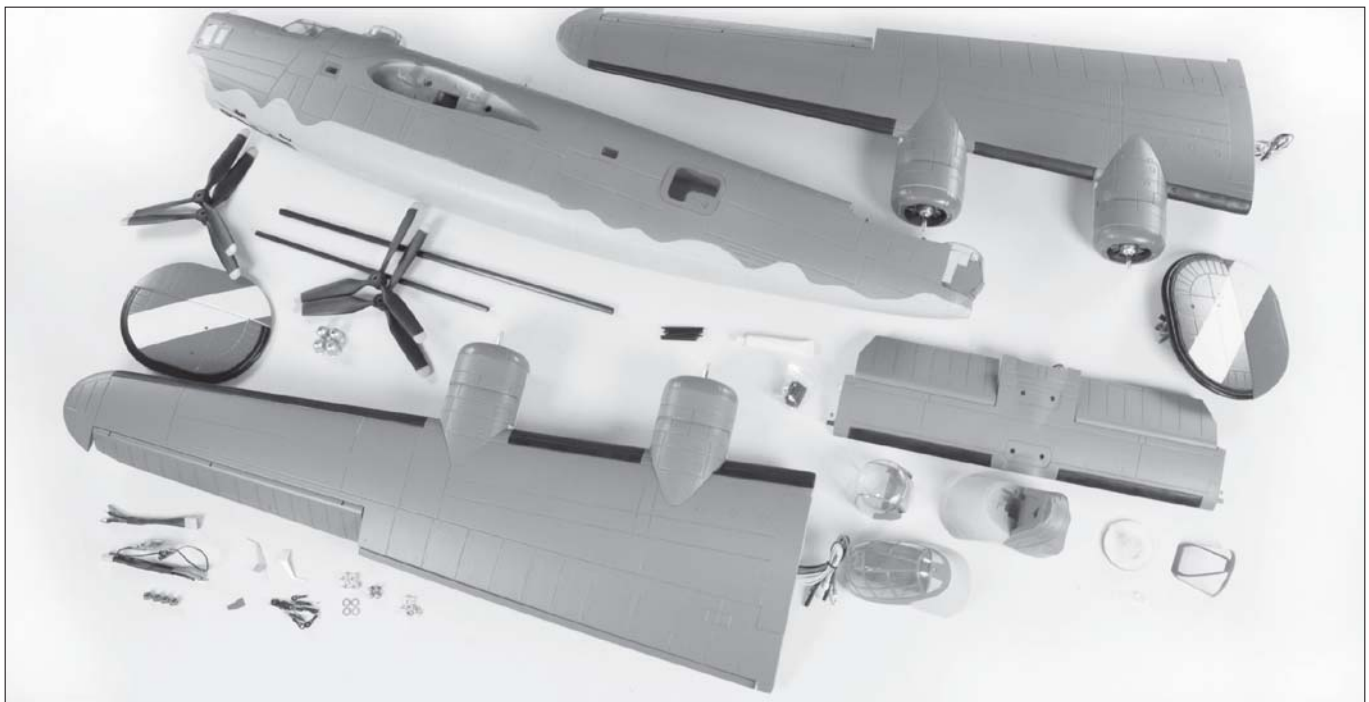


Wing loading : 100g/dm²
 Wing area : 35dm²
 Motor: 3530-860KV
 brushless outrunner motor (4pcs)
 Propeller : 3-Blade 9.5x7
 (4PiecS Standard/Reverse)
 ESC : 30A (4pcs)
 Servo : 9g digital metal gear servo (9pcs)
 Flight speed : 110KPH/70MPH
 Empty Weight : 2910g(without battery)
 Pull: 5400g

Material : EPO
 Aileron: Yes
 Flaps: Yes
 Elevator: Yes
 Rudder: Yes
 Landing gear: Retractable, Suspension
 Scale Pilot figure
 Battery: 4S 2800-4000mAh (2pcs)

⚠ Note: The parameters in here are derived from test result using our accessories. If use other accessories, the test result will be different. Any problem since of using other accessories, we are not able to provide technical support.

Package list



Different equipment include different spareparts. Please refer to the following contents to check your sparepart list.

No.	Name	PNP	ARF Plus	Airframe	No.	Name	PNP	ARF Plus	Airframe
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	7	Scale Accessories	✓	✓	✓
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	8	ESC wire	✓	✓	✓
3	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	9	Linkage Set	✓	✓	✓
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	10	Glue & Non-slip mat	✓	✓	✓
5	Propeller & Spinner	✓	✓	✓	11	Carbon tube & Screw	✓	✓	✓
6	Nose Turret & Nose	✓	✓	✓	12	Manual & Decals	✓	✓	✓

Wire Pull-Through Tool Instructions

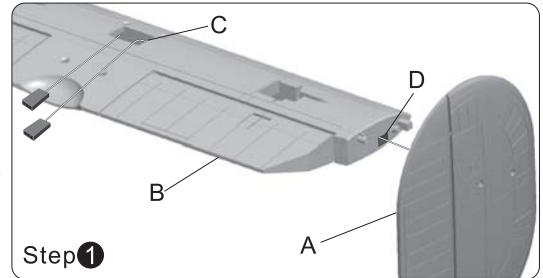
To minimize servo connections, the Elevator and Rudder servos' wires each reach from the servo itself directly to the receiver. A rigid steel wire hook is included in the box to allow you to pull the servo wires through the model's internal fuselage.



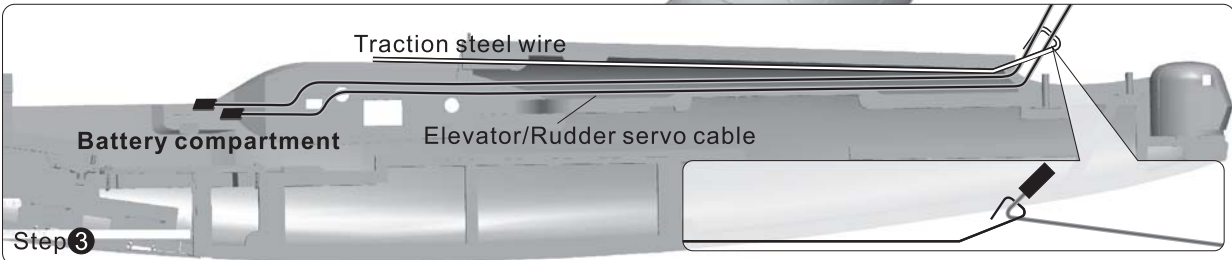
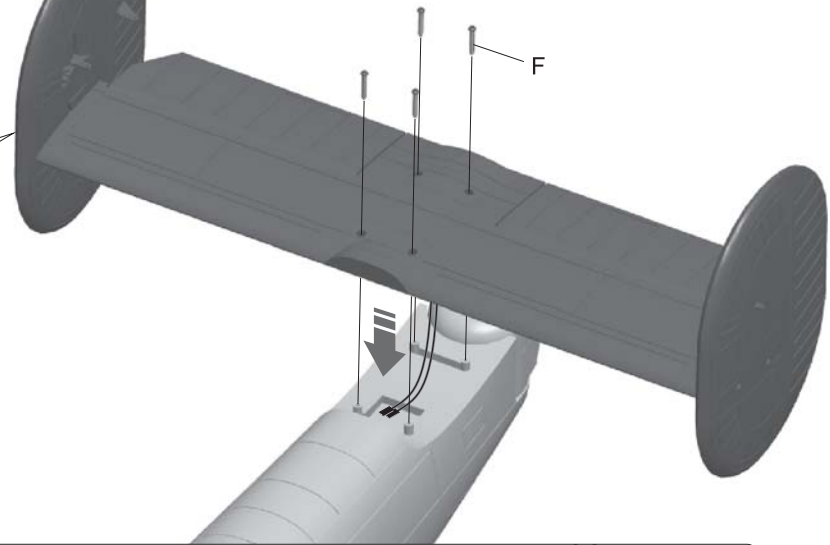
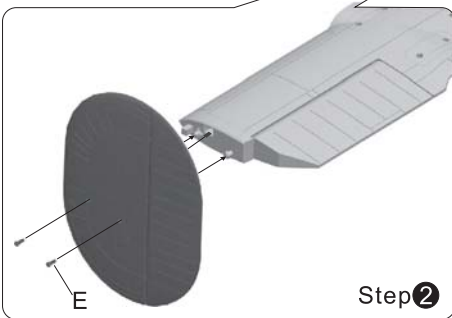
Install Horizontal Stabilizer/Vertical Stabilizer

As shown in the photo below:

1. Insert the left/right rudder servo cable into the trough of the horizontal tail, and pull the cables from the gap of horizontal tail.
2. Secure the left/right vertical stabilizer to the horizontal tail with 4pcs PA3x8 screws.
3. As the photo shows, bundle the rudder/elevator cables and use the Wire Pull-Through Tool to carry cables to the battery compartment.
4. Finally, install the horizontal tail on the fuselage and secure it with 4pcs PA3x8 screws.

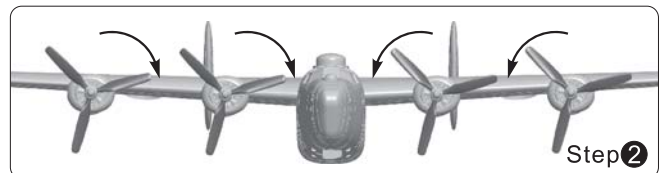
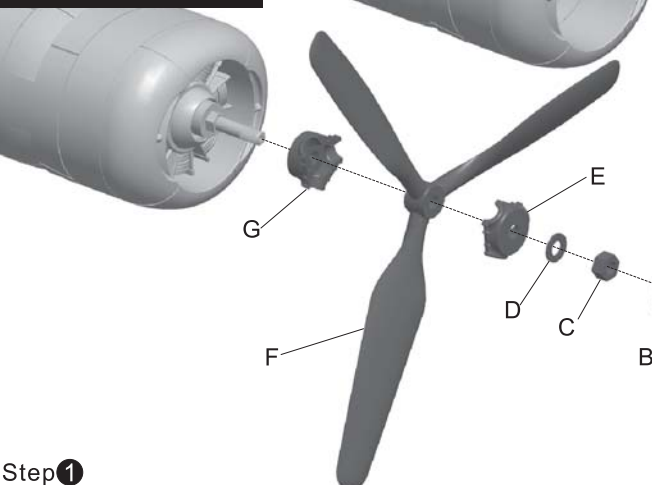


- A- Rudder
- B- Elevator
- C- Servo cable
- D- Elevator wire channel
- E- Screw (PA3x8 4pcs)
- F- Screw (PA3x8 4pcs)



Step 4

Install the Propeller



- As shown in the photo below:
1. Fix the propeller on the motor..
 2. As the photo show, install the left/right propeller.

- A- Screw (PM2.5x6 4pcs)
- B- Spinner
- C- Screw nut
- D- Washer
- E- Propeller fixing bolt A
- F- Scale propelle
- G- Propeller fixing bolt B

Step 1

Install Main Wing

Step 1

Carbon tube A (Ø10x500mm)

Carbon tube B (Ø8x360mm)

FlightLine

Throttle

Throttle

Aileron

Flap

Landing gear

Step 2

Main wing wire hole

ESC wire & Ribbon wire

Step 3

Screw (PWM4x8 4pcs)

1. Insert carbon tube A and B into the fuselage.
2. Pull the ESC wire and Ribbon wire through the hole.
3. Insert the left/right main wing on the fuselage.
4. Use 4pcs PWM4x8 screws to secure the main wing.

Install Nose Section -J

(PNP includes two optional forward nose sections for the B-24-D ("Greenhouse") and B-24-J ("Emerson Turret")

- A- Nose Turret A
- B- Nose Turret B
- C- Nose Turret Base
- D- B-24-J Variant Foam Nose
- E- Washer
- F- Tiller
- G- Screw (PA2.3x8)
- H- Lower Windshield
- I - Gun Barrels

Magnet

Install Nose Section -D

- A- Greenhouse for -D Variant
- B- Antennas
- C- Gun Barrels

Magnet

B

C

C1

C2

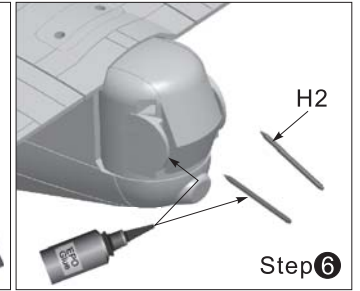
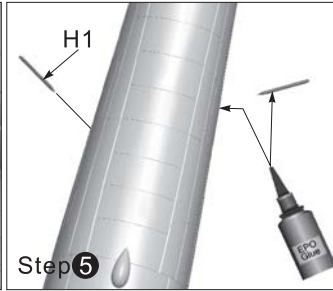
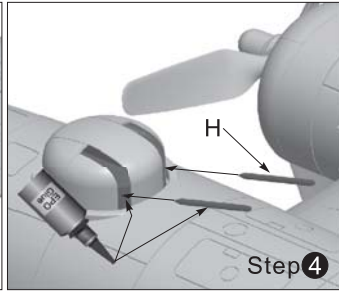
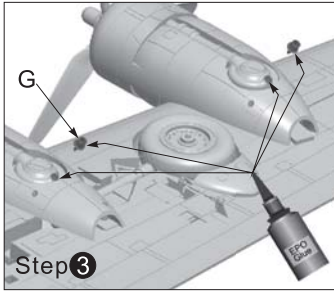
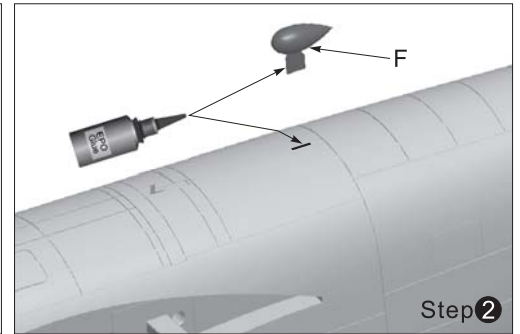
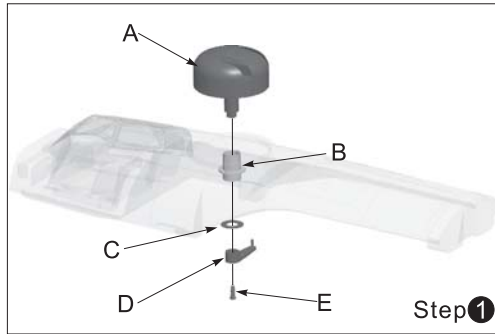
B1

PNP Assembly Instructions

EN

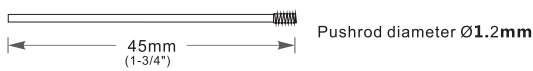
Install Scale Accessories

- A - Upper Turret
- B - Upper Turret Base
- C - Washer
- D - Tiller
- E - Screw (PA2.3x8)
- F - Antenna
- G - Exhaust Pipe
- H - Gun Barrels



Pushrod Length Setup

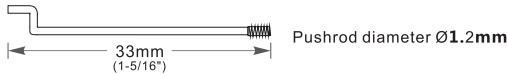
Nose gear steering pushrod length



Nose gear steering pushrod mounting hole



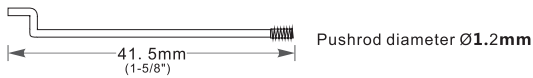
Flap pushrod length



Flap pushrod mounting hole



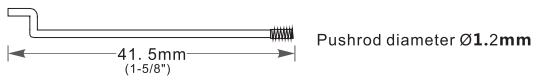
Aileron pushrod length



Aileron pushrod mounting hole



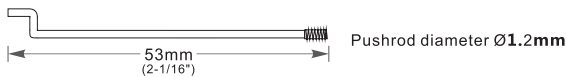
Elevator pushrod length



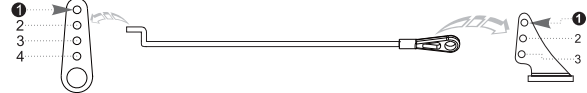
Elevator pushrod mounting hole



Rudder pushrod length

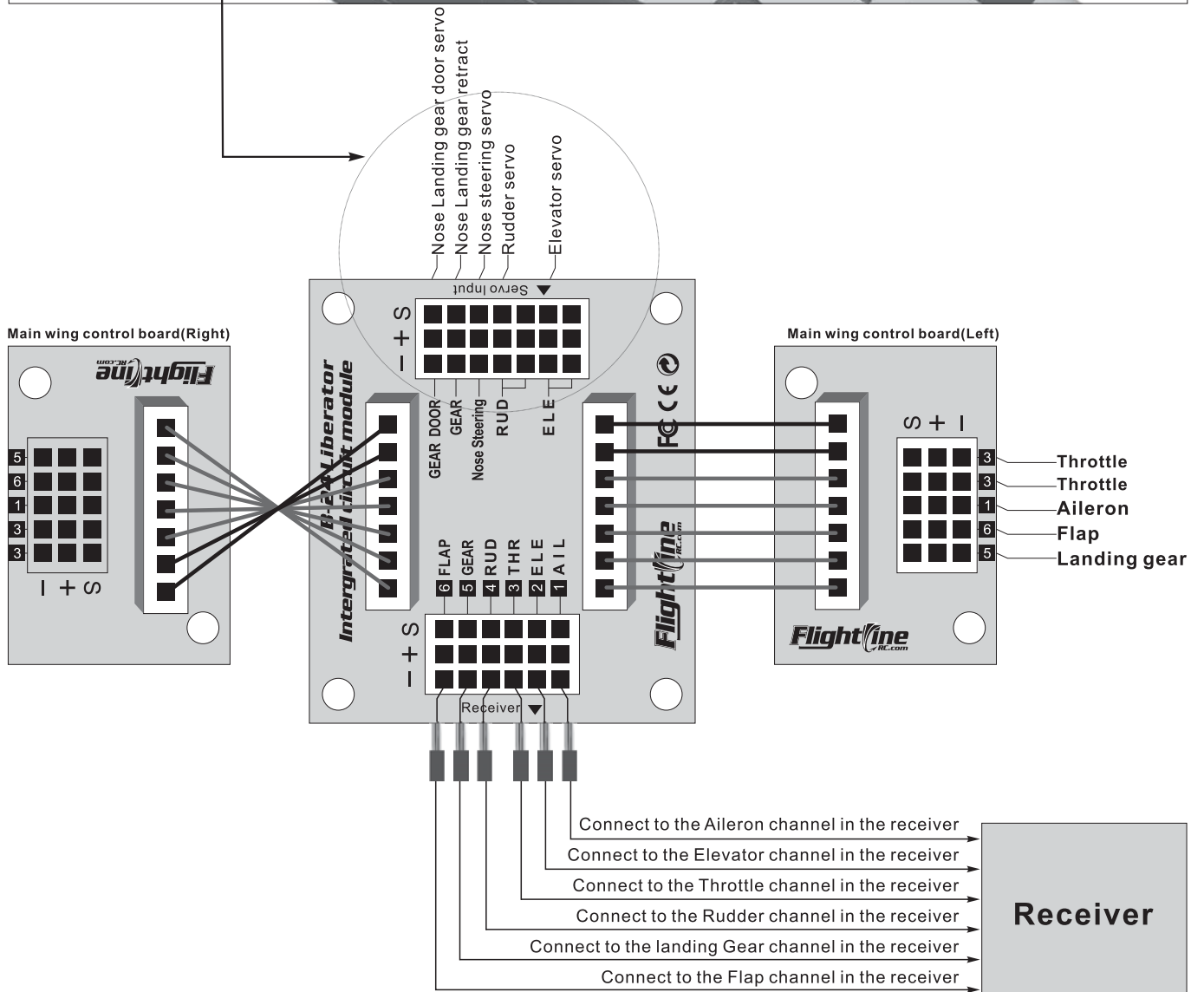
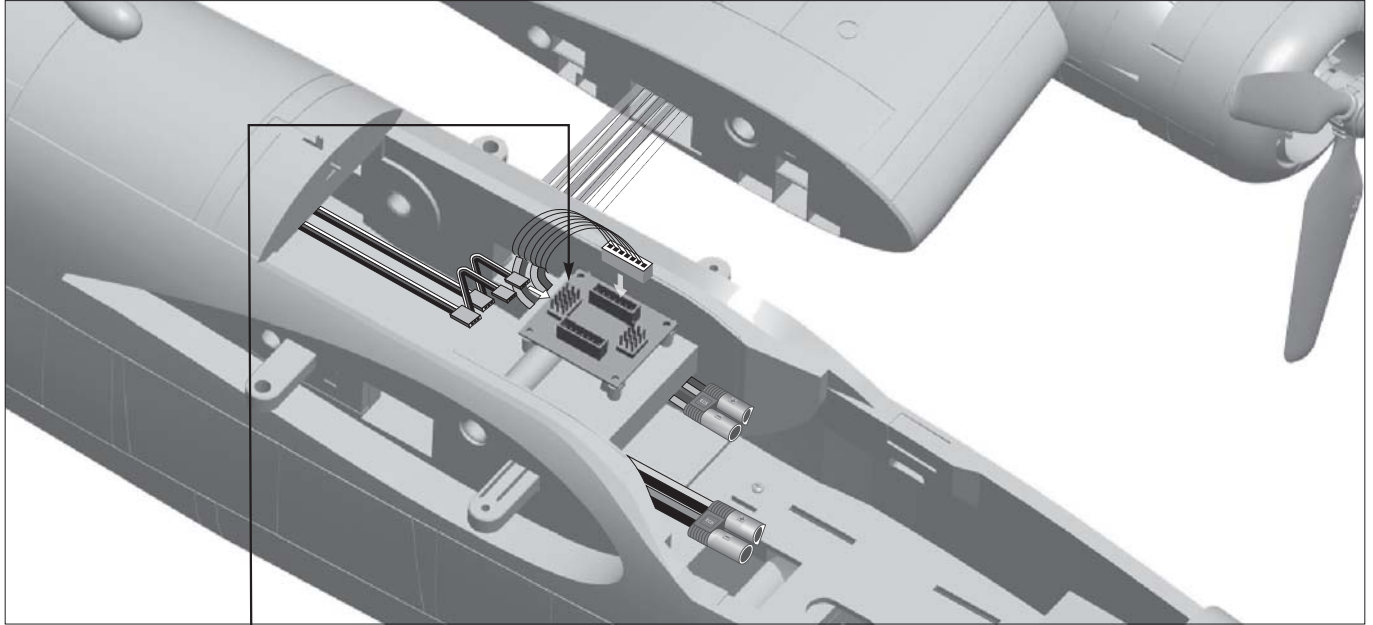


Rudder pushrod mounting hole

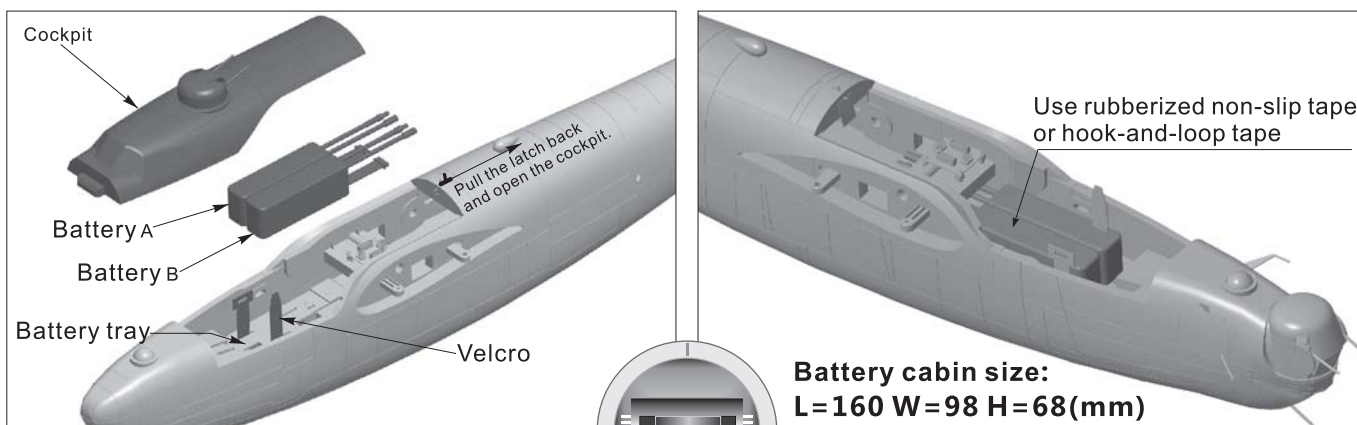


Control board connection diagram

The B-24 uses a convenient flexible ribbon wire harness to consolidate wiring. Connect according to the photo.



Battery Size



Battery cabin size:
L=160 W=98 H=68(mm)

Before connecting the battery and receiver for the first time, please remove the propellers, position the model on a stand above the ground, and switch on the transmitter power and make sure the throttle stick is in the lowest position.

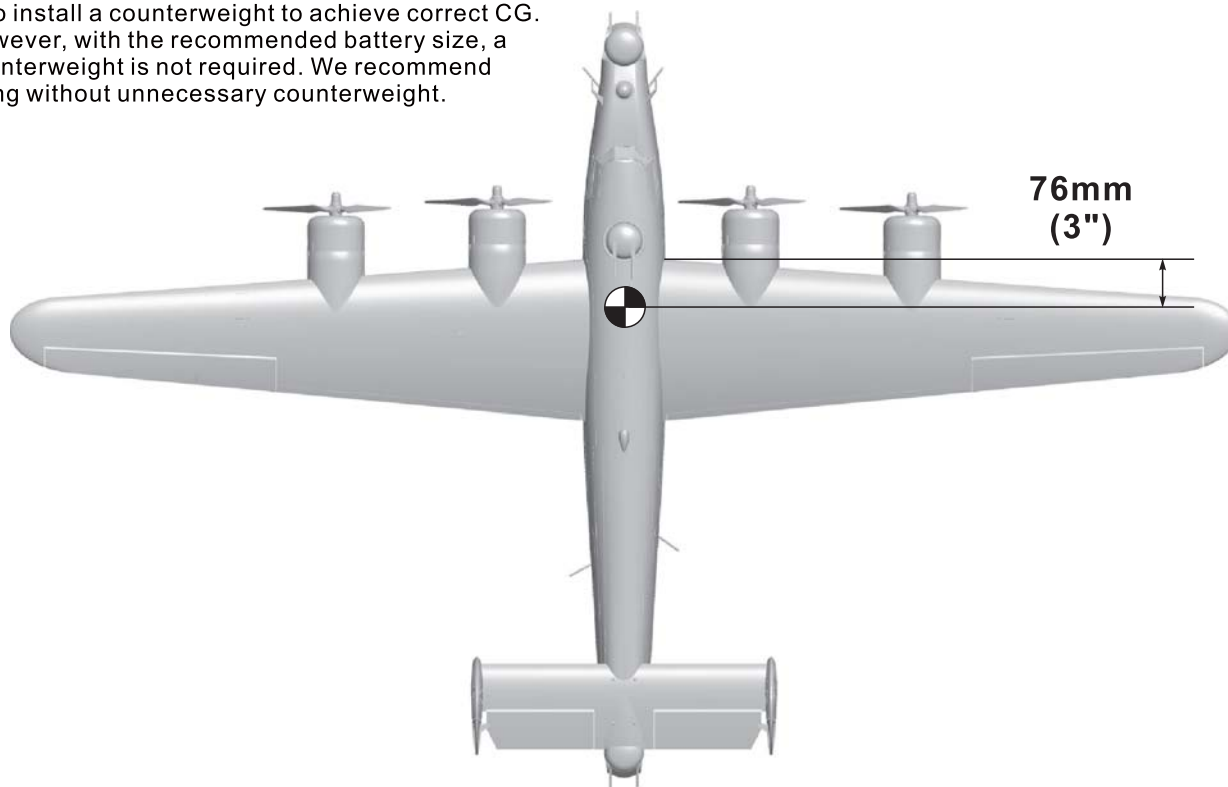
We recommend the following LiPo battery:
4S 14.8V 2800mAh ~ 4S 14.8V 4000mAh (2pcs)
Discharge rate of C ≥ 35C

After you have programmed your radio transmitter, reinstall the propellers and carefully verify their correct rotation. With the aircraft level, the uppermost tip of all the propellers rotate inward, toward the fuselage. The stock PNP configuration assigns the inboard motors to one flight battery, and the outboard motors to the second flight battery. If one battery fails, the model can be landed immediately on the remaining two engines flown at full power. Before all flights, clear the propeller area to avoid personal injury.

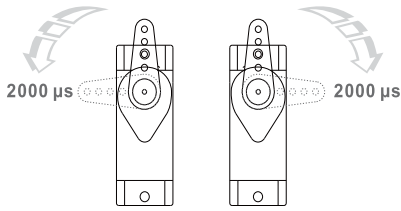
Center of Gravity

Correct Center of Gravity ("CG") is critical for enabling safe aircraft stability and responsive control. Please refer to the following CG diagram to adjust your aircraft's Center of Gravity. This CG has been flight tested 200+ times for your safety.

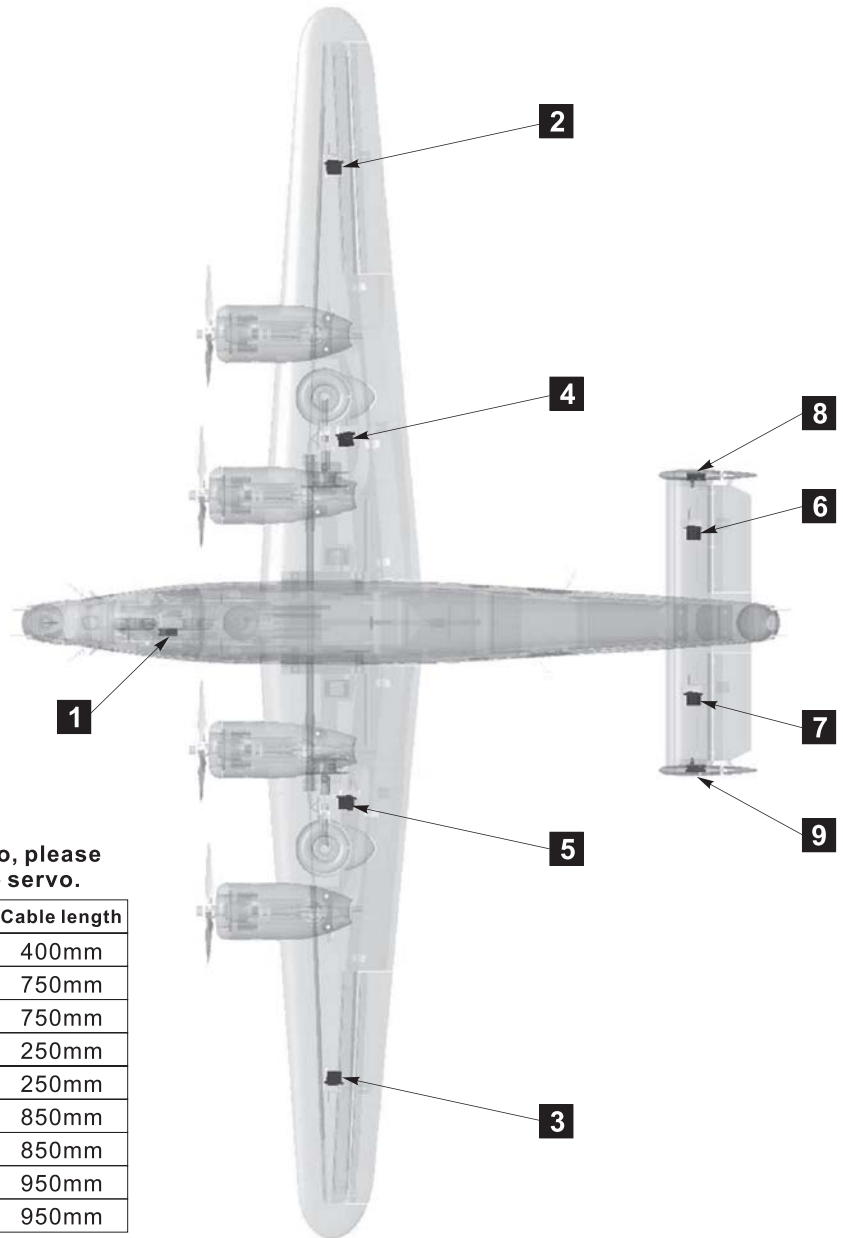
- Depending on the capacity and weight of your chosen flight batteries, move the battery forward or backward to adjust the Center of Gravity.
- If you cannot obtain the recommended CG by moving the battery to a suitable location, you can also install a counterweight to achieve correct CG. However, with the recommended battery size, a counterweight is not required. We recommend flying without unnecessary counterweight.



Servo Direction



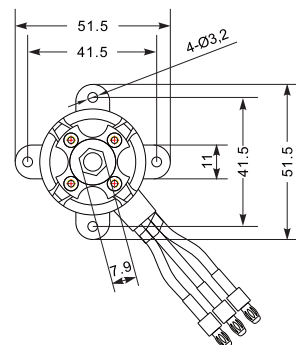
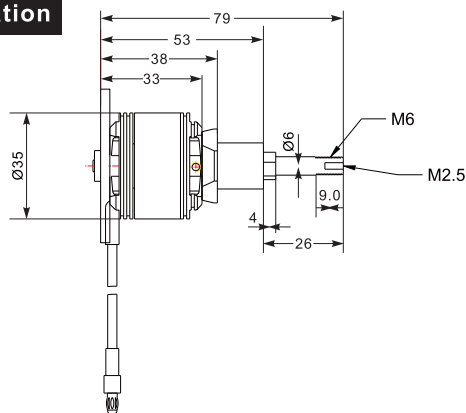
The servo positive or reverse rotation is defined as follows:
 When servo input signal change from 1000μs to 2000μs,
 The servo arm is rotated clockwise, its positive servo.
 The servo arm is rotated counterclockwise, its reverse servo.



If you need to purchase another brand's servo, please refer to the following list to choose a suitable servo.

Position	Servo regulation	No.	Pos./Rev.	Cable length
Nose gear steering servo	9g Digital-MG	1	Positive	400mm
Aileron(L)	9g Digital-MG	2	Positive	750mm
Aileron(R)	9g Digital-MG	3	Positive	750mm
Flap(L)	9g Digital-MG	4	Positive	250mm
Flap(R)	9g Digital-MG	5	Positive	250mm
Elevator(L)	9g Digital-MG	6	Positive	850mm
Elevator(R)	9g Digital-MG	7	Positive	850mm
Rudder(L)	9g Digital-MG	8	Positive	950mm
Rudder(R)	9g Digital-MG	9	Positive	950mm

Motor Specification



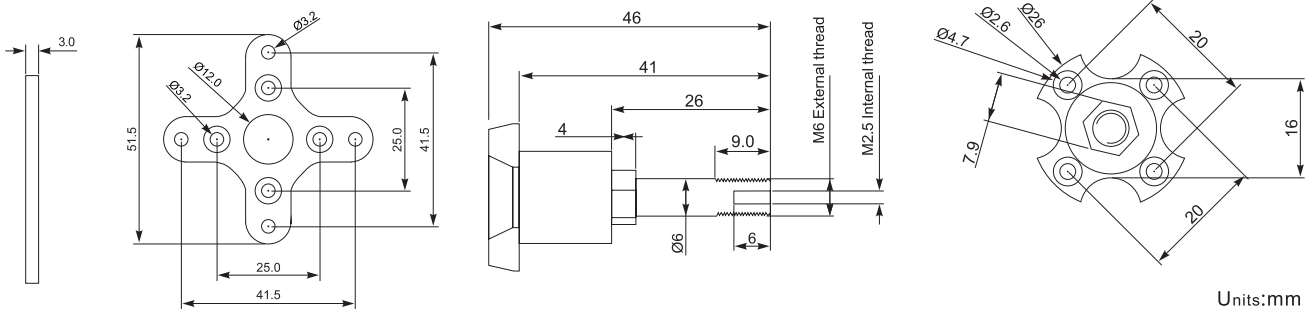
3530-860KV
 Units:mm

Item No.	KV Value	Volute (V)	Current (A)	Pull (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MO135301	860RPM/V	14.8	25	1350	0.02 Ω	106	2.3A/10V	3-Blade 9.5x7	≥30A

Pre-Installed Component Overview

EN

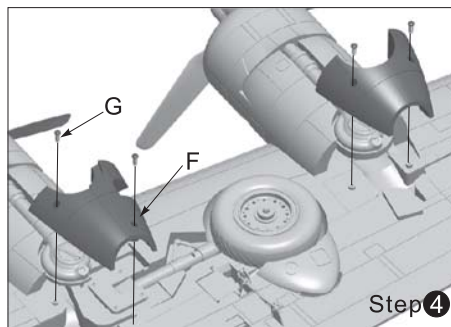
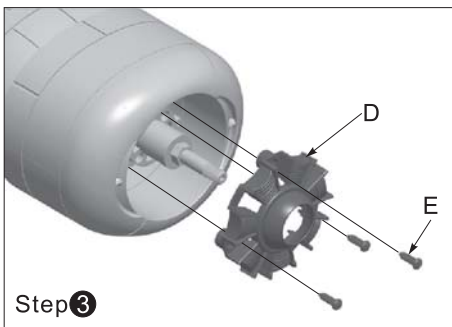
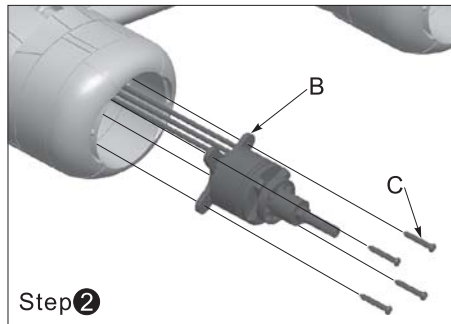
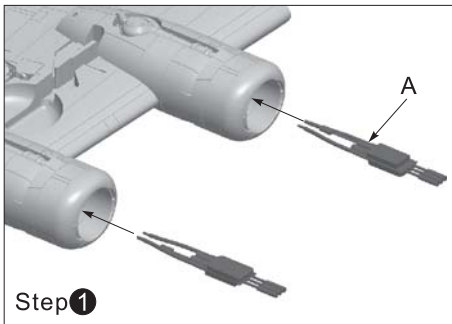
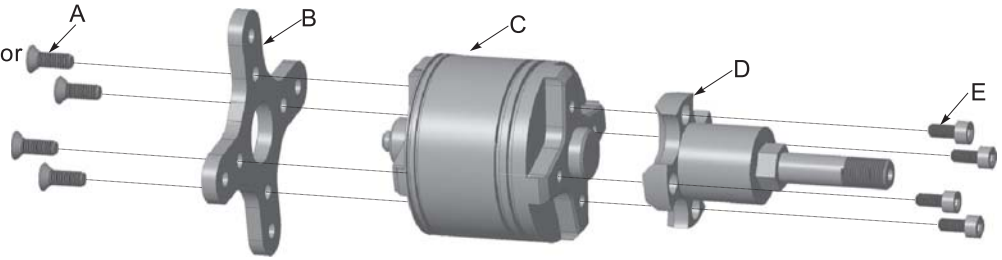
X-fixed base & Motor shaft



Units:mm

Install power system

- A-Screw (PM3x6)
- B-Motor Mount
- C-3530-860KV out-runner motor
- D-Prop shaft adapter
- E-Cup head screws (M2.5x6)



As the left diagram, install ESC and Motor

- A- ESC
- B- Motor
- C- Screw (PA3x15 16pcs)
- D- Engine cowl
- E- Screw (PA2.3x6 12pcs)
- F- Engine Pod cover
- G- Screw (PA2.3x6 8pcs)

Control Direction Test

After installed the plane, before flying, we need a fully charged battery and connect to the ESC, then use radio to test and check that every control surface work properly.

Aileron

Stick Left

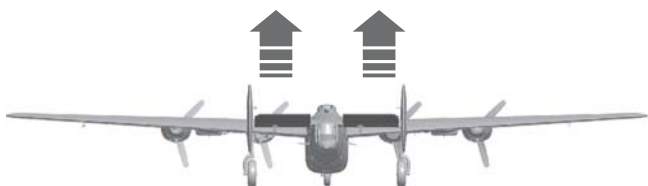


Stick Right

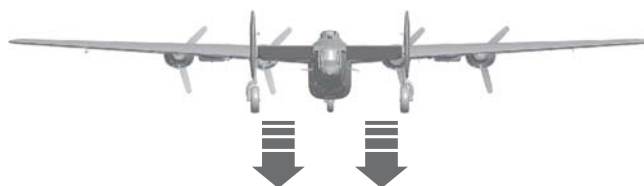


Elevator

Stick down

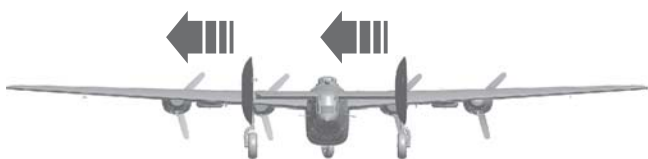


Stick Up

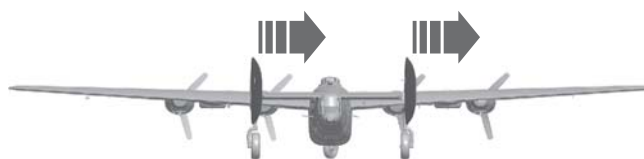


Rudder

Stick Left



Stick Right



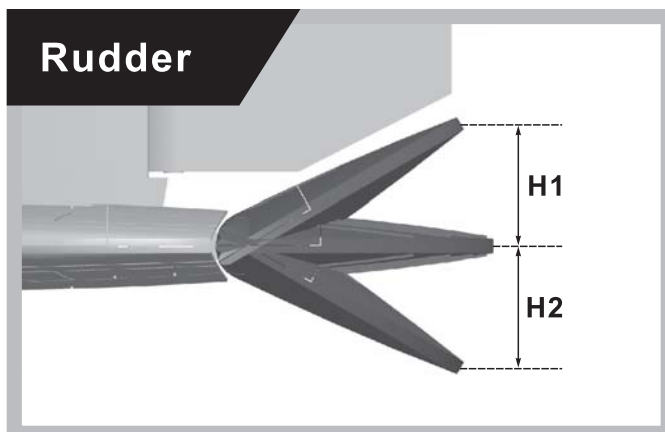
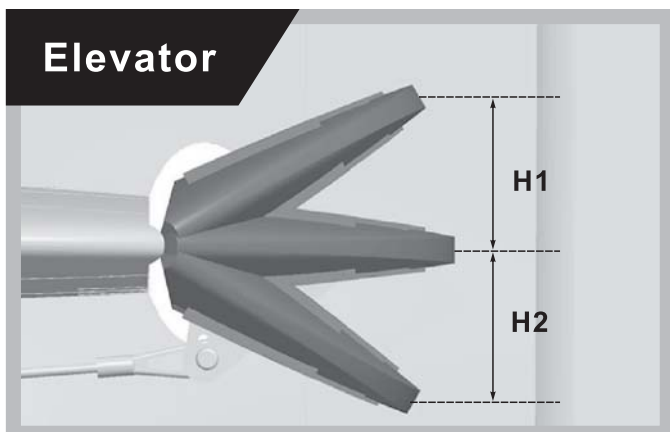
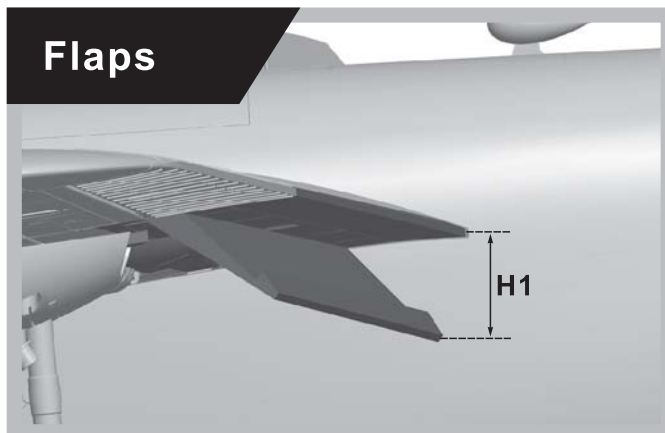
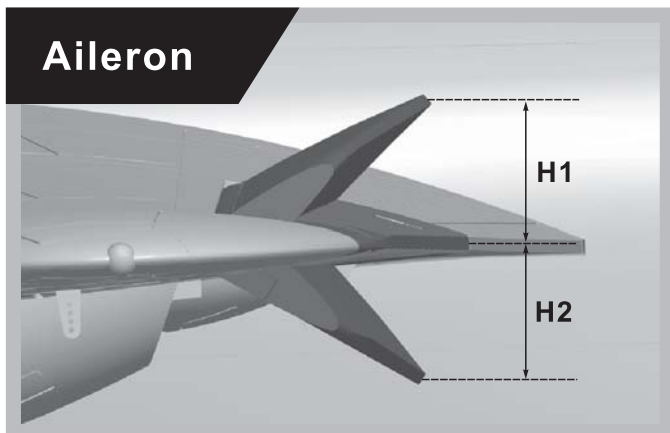
Flaps

Flas down



Dual Rates

According to our testing experience, use the following parameters to set Aileron/Elevator Rate. Program your preferred Exponential % in your radio transmitter. We recommend using High Rate for the first flight, and switching to Low Rate if you desire a lower sensitivity. On successive flights, adjust the Rates and Expo to suit your preference.



	Aileron(measured closest to the fuselage)	Elevator(measured closest to the fuselage)	Rudder(Measured from the bottom)	Flaps
Low Rate	H1/H2 20mm/20mm D/R Rate : 85%	H1/H2 18mm/18mm D/R Rate : 75%	H1/H2 15mm/15mm D/R Rate : 80%	H1 13mm
High Rate	H1/H2 22mm/22mm D/R Rate : 100%	H1/H2 23mm/23mm D/R Rate : 100%	H1/H2 19mm/19mm D/R Rate : 100%	H1 29mm

IMPORTANT : **Throttle Calibration**

Before your first flight, without the propellers attached, calibrate your ESC pairs and verify that all four motors are synchronized. Install the propellers and taxi test the model to check for synchronous thrust.

Flap Mixing and Tips

- 1 - A Flap-to-Elevator Mix is required to maintain level flight when the flaps are deployed. With 13mm of flaps(Low Rate), mix 1.5mm of Down Elevator. With 29mm of flaps (High Rate), mix 3mm to Down Elevator.
- 2 - When flaps are deployed, do not advance the throttle very quickly. The B-24 is intended to be flown as a scale bomber, with moderate throttle advance. Add rudder input to flatten turns for more scale appearance.

Elevator Neutral Position

1. Before your first flight, mechanically set the Elevator's Neutral Position to 1.5mm Up.



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