

F-16 FIGHTING FALCON

USER MANUAL

Wingspan:878mm

Item No.: FJ211

Version No.: FJ211-V01



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1~ 12

中

13~24

Freewing MIDEL®

www.sz-freewing.com



MADE IN CHINA



The F-16C "Fighting Falcon" is a single-engine multirole fighter aircraft originally developed for the United States Air Force (USAF). Designed as an air superiority day fighter, it evolved into a successful all-weather multirole aircraft. The F-16C features an internal M61 Vulcan cannon and multiple locations for mounting weapons and other mission equipment. Operating in nearly 30 countries to this day, the F-16 has distinguished its place in aviation history.

Freewing has modeled this brilliant aircraft in EPO foam with a 70mm electric ducted fan (EDF) powerplant. With a 1306mm length and 878mm wingspan, this 1/12 scale flying replica includes many exciting features! An accurate scale outline with sharp surface details and panel lines make this model stand out at your airfield. Removable main wings and a magnetic nose cone make transport very convenient. The cockpit battery bay cover is secured with a sliding latch to prevent separation during flight, and the entire aircraft is reinforced with strategic placement of carbon tubes to withstand vigorous flying maneuvers.

Our Freewing 70mm F-16C V2 model jet uses electric retractable landing gear for lower drag and better scale appearance during flight. The model is offered in three different powerplant options: 4s Standard, 6s Upgrade, and 6s Professional. These powerplants achieve a maximum flying speed of 125kph, 140kph, and 165kph, respectively. The aircraft is designed for stability, strong climbing performance, and short takeoff distance, suitable for all levels of jet pilots. The aircraft can also maintain a high alpha of 30 degrees to demonstrate its superior low speed stability.

We feature this exciting aircraft in the modern three tone gray US Air Force base colors, and three decal sets are included for you to choose from to customize your model from various actual Air Force squadrons.

⚠ 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:

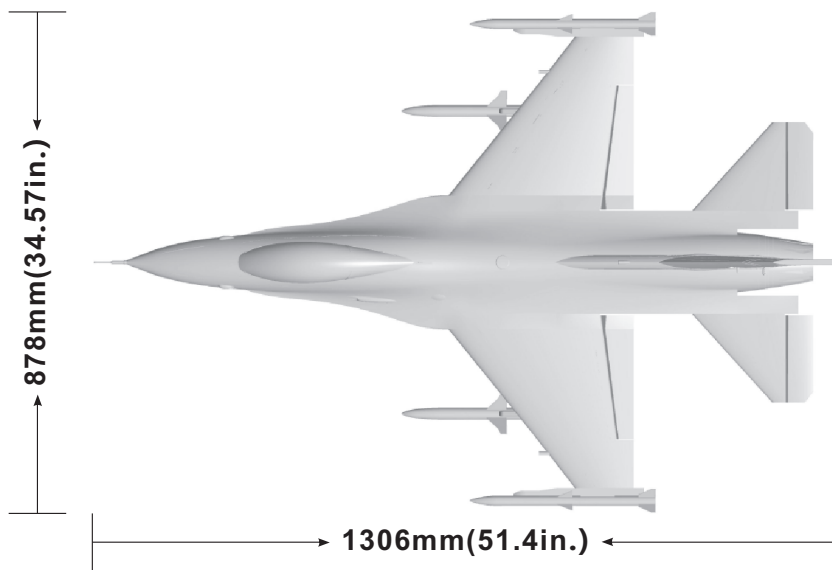
1. This is not a toy! Operator should have a certain experience, beginners should operate under the guidance of professional players.
2. Before install, please read through the instructions carefully and operate strictly under instructions.
3. Cause of wrong operation, Freewing and its vendors will not 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.

Catalog

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Product basic parameters

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⚠ 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.
The package don't include the missiles and pylons, if you need, please contact your local dealer.

Standard version

Wing loading : 121g/dm²
Motor: 2849-2850KV(4S)
brushless outrunner motor
Ducted fan: 70mm 12-blade ducted fan
Flight speed: 125km/h
ESC: 60A brushless ESC
Servo: 9g digit plastic servo(6pcs)
Weight: 1400g (without battery)
Thrust: 1500g

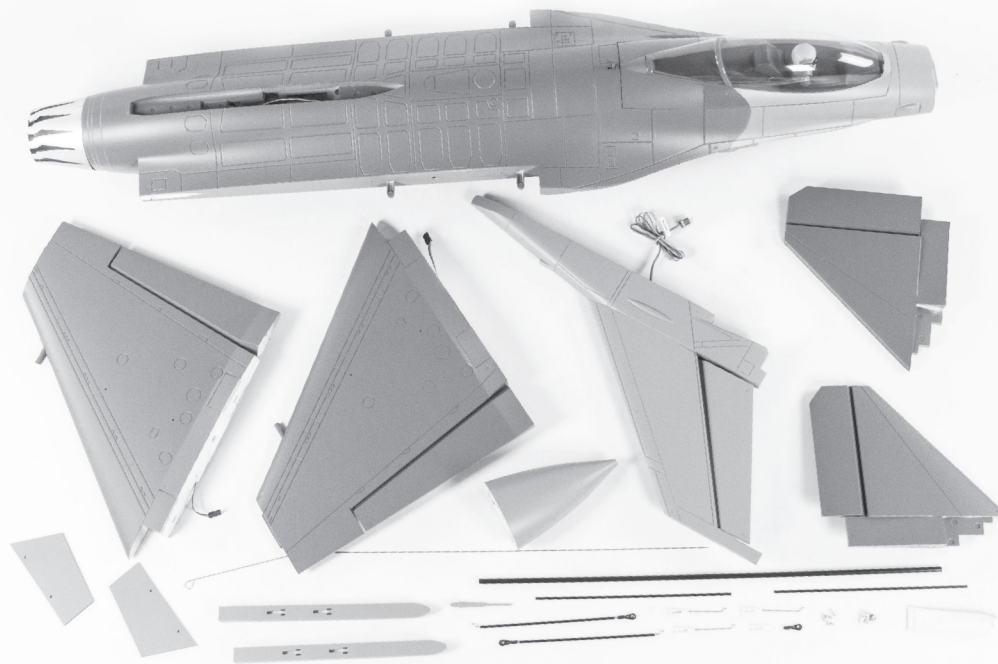
Upgrade version

Wing loading:145g/dm²
Motor: 3048-2150KV(6S)
brushless outrunner motor
Ducted fan: 70mm 12-blade ducted fan
Flight speed: 140km/h
ESC: 60A brushless ESC
Servo: 9g digit metal gear servo (6pcs)
Weight: 1450g (without battery)
Weight: 2150g (without battery)

Professional version

Wing loading:145g/dm²
Motor: 3048-2300KV(6S)
brushless outrunner motor
Ducted fan: 70mm 12-blade ducted fan
ESC: 80A brushless ESC
Servo: 9g digit metal gear servo(6pcs)
Flight speed: 165km/h
Weight: 1450g (without battery)
Weight: 2400g (without battery)

Packing list



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

NO.	Parts Name	PNP	KIT Plus	Airframe	NO.	Parts Name	PNP	KIT Plus	Airframe
1	Fuselage	Pre-install power system and servos	Pre-installed servo	No electronic equipment	6	Missiles and pylons	Optional part, purchase separately	Optional part, purchase separately	Optional part, purchase separately
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	7	Pushrod	✓	✓	✓
3	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment	8	Carbon tube	✓	✓	✓
4	Horizontal tail	✓	✓	✓	9	Glue/Decals	✓	✓	✓
5	Nose cone, Fln	✓	✓	✓	10	Manual	✓	✓	✓

Install main wing

1. Insert the carbon tube into fuselage.

Carbon tube ($\varnothing 6 \times 500 \text{mm}$)

2. Connect the main wing servo cable and fuselage extension cable, then install left/right main wing.

main wing trough port

3. Use 4pcs screws to fix the main wing.

Screw (PWA3x8 4pcs)

Tail wing set

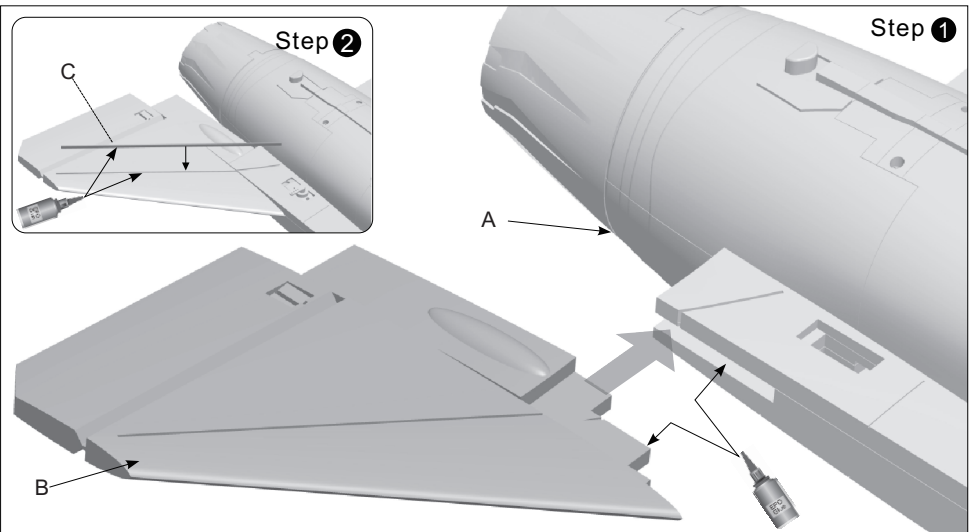
Install Horizontal tail

As the right photo shown

1. Use glue to attach the horizontal tail on the tail fuselage.
2. Use glue to attach the carbon piece on the bottom of elevator, it can be stronger.
3. Repeat above steps to install another horizontal tail.

A-Tail fuselage
B-Horizontal tail
C-Carbon piece

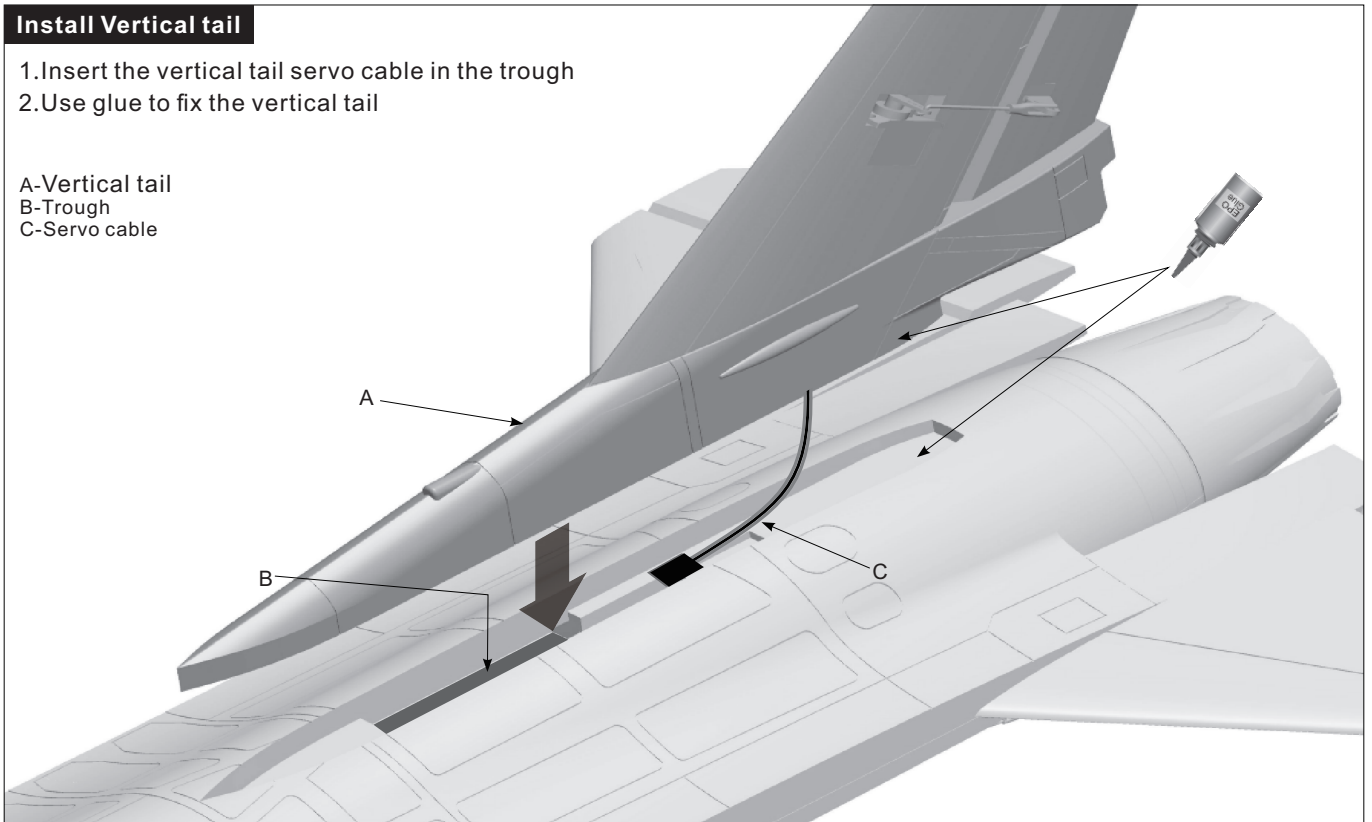
Note: There is a EPO glue on package, please use it to glue. Glue should be spread evenly, and wait for 90 seconds. Then install on, its best glue condition.



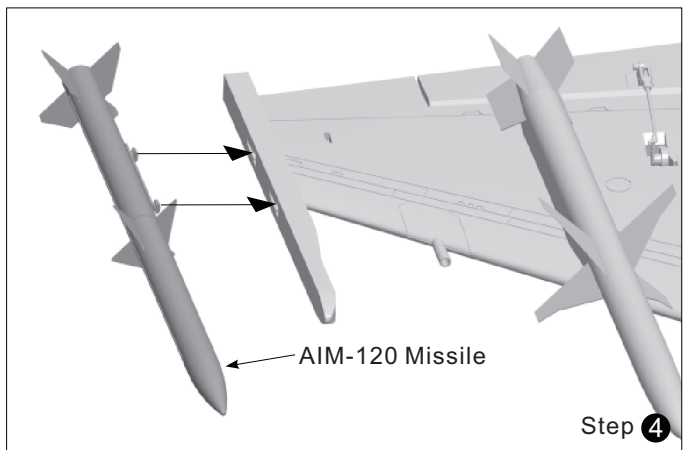
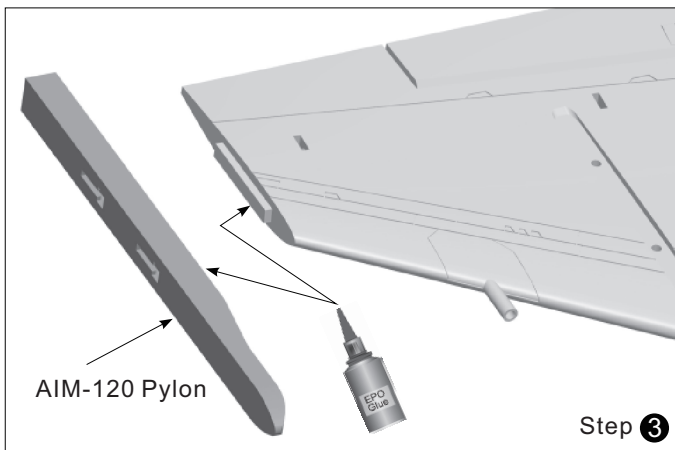
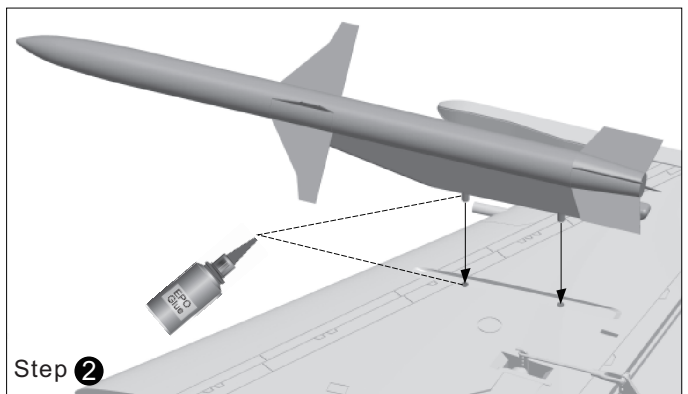
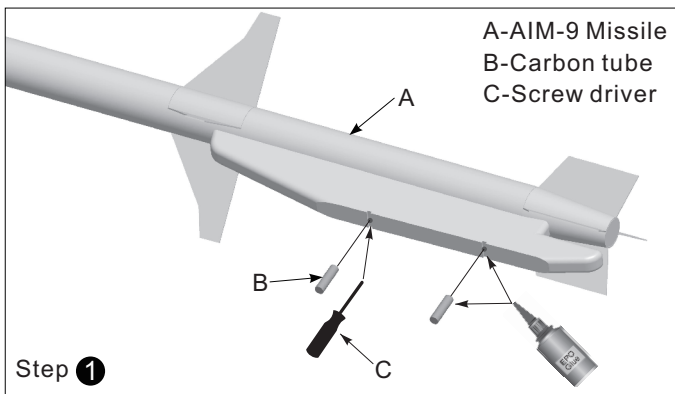
Install Vertical tail

1. Insert the vertical tail servo cable in the trough
2. Use glue to fix the vertical tail

A-Vertical tail
B-Trough
C-Servo cable

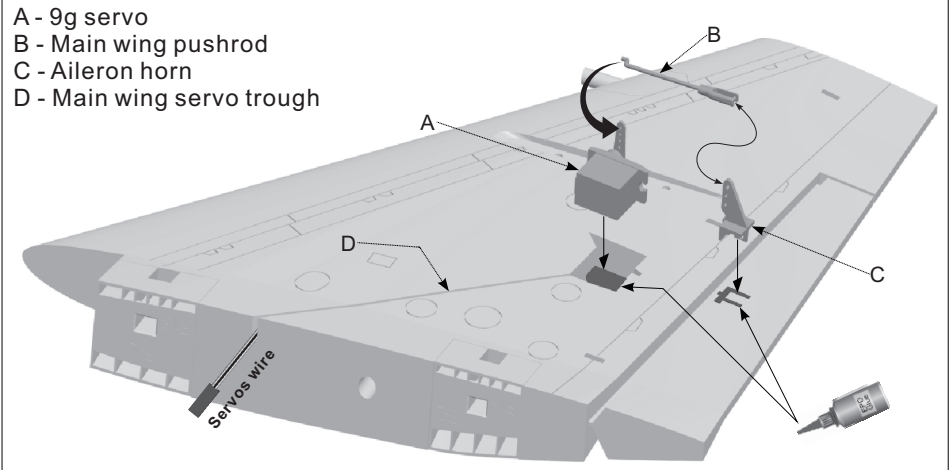


Install missiles and pylons (Note: The package don't include the missiles and pylons, if you need, please contact your local dealer.)



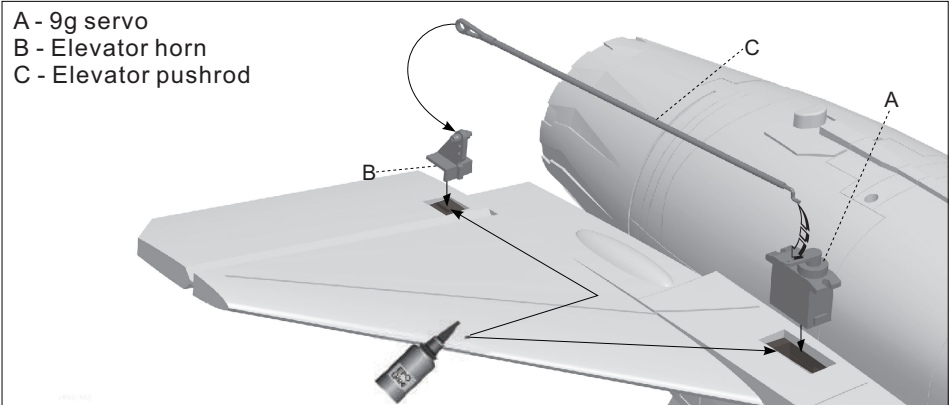
Install main wing servos

1. Use servo tester or radio to center the servo.
2. Use glue to install the servo and aileron horn on the main wing.
3. Buckle the servo cable to the trough, after installed all the servos, stick on the decal.
4. One side pushrod insert to the servo arm, adjust its length. And insert the clevis to the aileron horn.
5. Repeat the above four steps, install the other side main wing servo and flap servo.



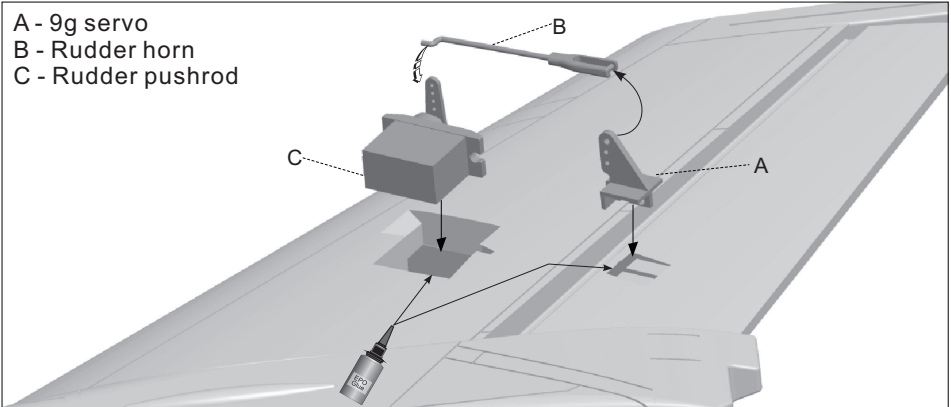
Install elevator servos

1. Use servo tester or radio to center the servo arm.
2. Use glue to fix servo on the elevator servo mount.
3. One side pushrod insert to the servo arm, adjust its length. And insert the clevis to the aileron horn.
4. Repeat the above steps to install on the other side servo.



Install rudder servos

1. Use servo tester or radio to center the servo arm.
2. Use glue to fix the servo and servo arm on the rudder. (Refer to the right photo)
3. Press the servo cable on the servo cable trough.
4. After glue solidify, connect the pushrod to servo and servo arm.

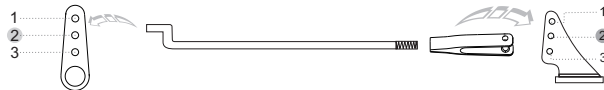


Aileron pushrod size

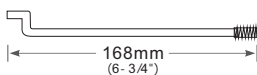


Pushrod diameter $\varnothing 1.2\text{mm}$

Aileron pushrod mounting hole



Elevator pushrod size



Pushrod diameter $\varnothing 1.5\text{mm}$

Elevator pushrod mounting hole



Rudder pushrod size



Pushrod diameter $\varnothing 1.2\text{mm}$

Rudder pushrod mounting hole



Landing gear Installation Instructions

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Install nose landing gear

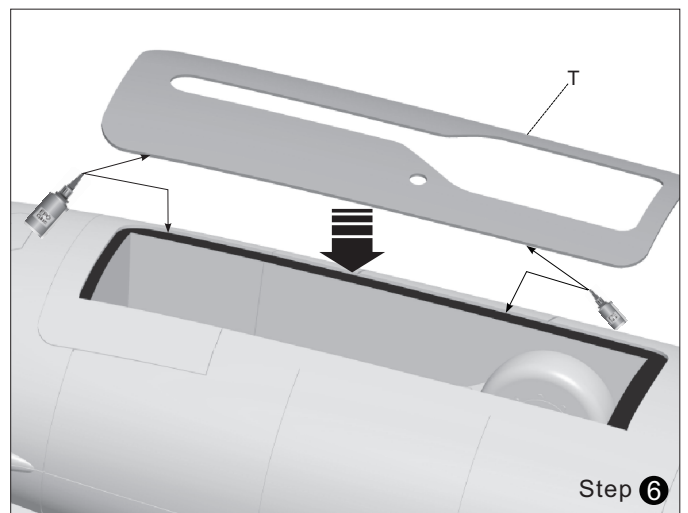
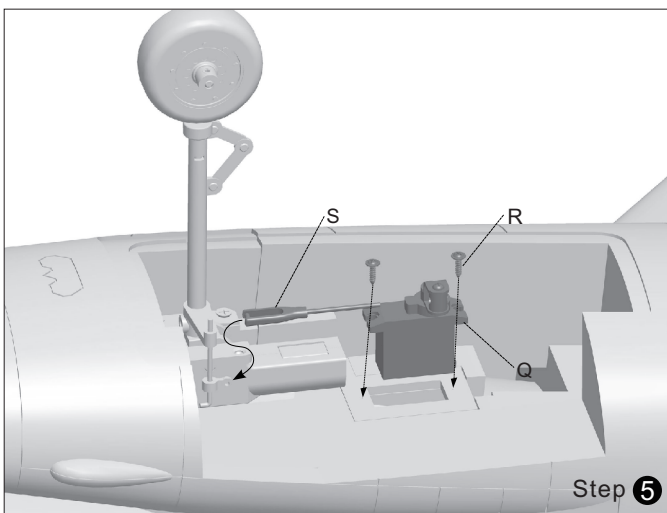
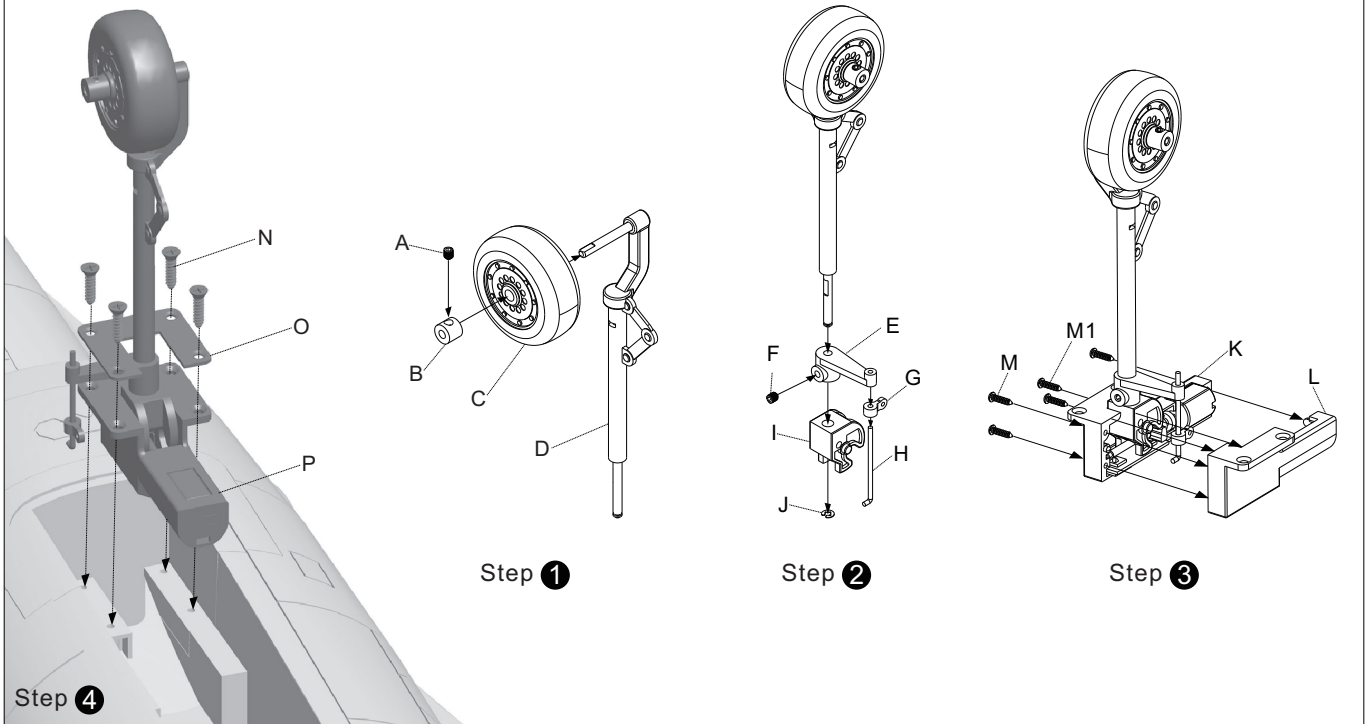
Please refer to the following photo, assemble, replace, revise the nose landing gear

sparepart name and parameters

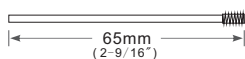
- A- Jimi screws (M3x3 1pcs)
- B- Wheel chock
- C- Wheel
- D- Nose gear main strut
- E- L-Shape arm
- F- Jimi screw (M3x3)
- G- Nose gear steering ring

- H- Nose gear steering rod
- I - Metal shaft
- J- Buckle (Ø2.0mm 1pcs)
- K- Nose gear plastic cover(left)
- L- Nose gear plastic cover(right)
- M- Screw (PA1.7x8 2pcs)
- M1- Screw (PB1.0x10 3pcs)

- N- Screw (KA2.6x12 4pcs)
- O- Nose gear screw fixed part
- P- Nose gear installed set
- Q- Servo
- R- Screw (PWA2.0x8 2pcs)
- S- Steering pushrod
- T- Nose cabin door



Nose steering pushrod size



Pushrod diameter : Ø1.2mm



Note When installing, please check the flat position of spareparts, when screw to fix, the flat position must face to the screw hole, just like this, it can fix successfully, the spareparts don't rotate and fall off.

Landing gear Installation Instructions

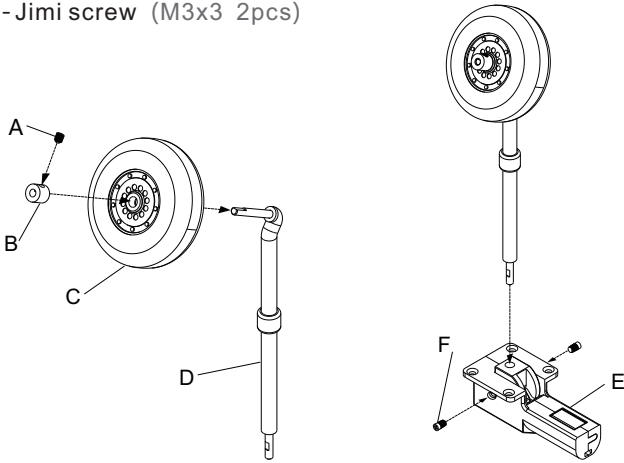
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Install rear landing gear

Please assemble, disassemble the rear landing gear according to the following photo.

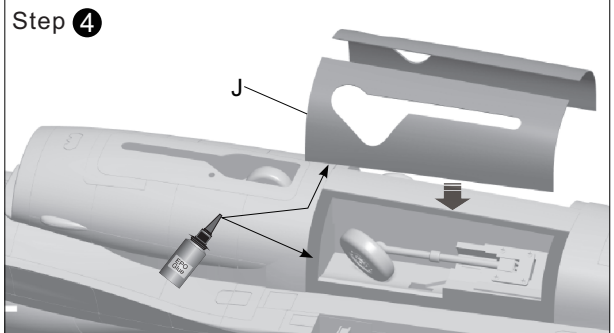
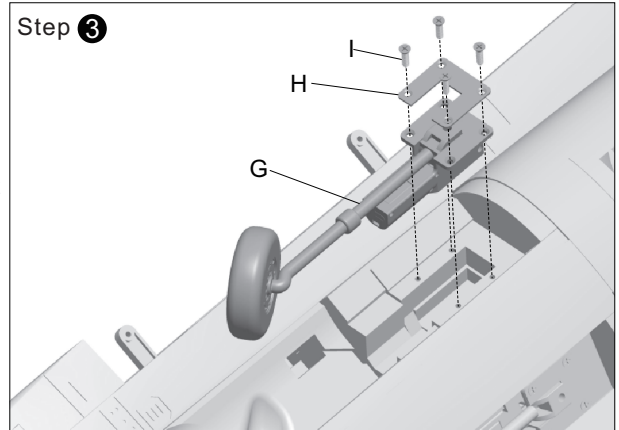
- A-Jimi screw (M3x3 1pcs)
- B-Wheel chock
- C-Wheel
- D-Rear gear main strut
- E-Electric retractable controller
- F-Jimi screw (M3x3 2pcs)

- G-Rear gear installed set
- H-Rear gear screw fixed part
- I-Screw (KA2.6x12 8pcs)
- J-Rear cabin door

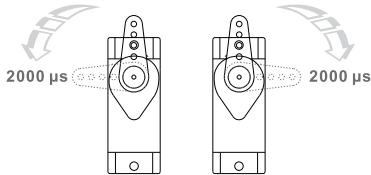


Step 1

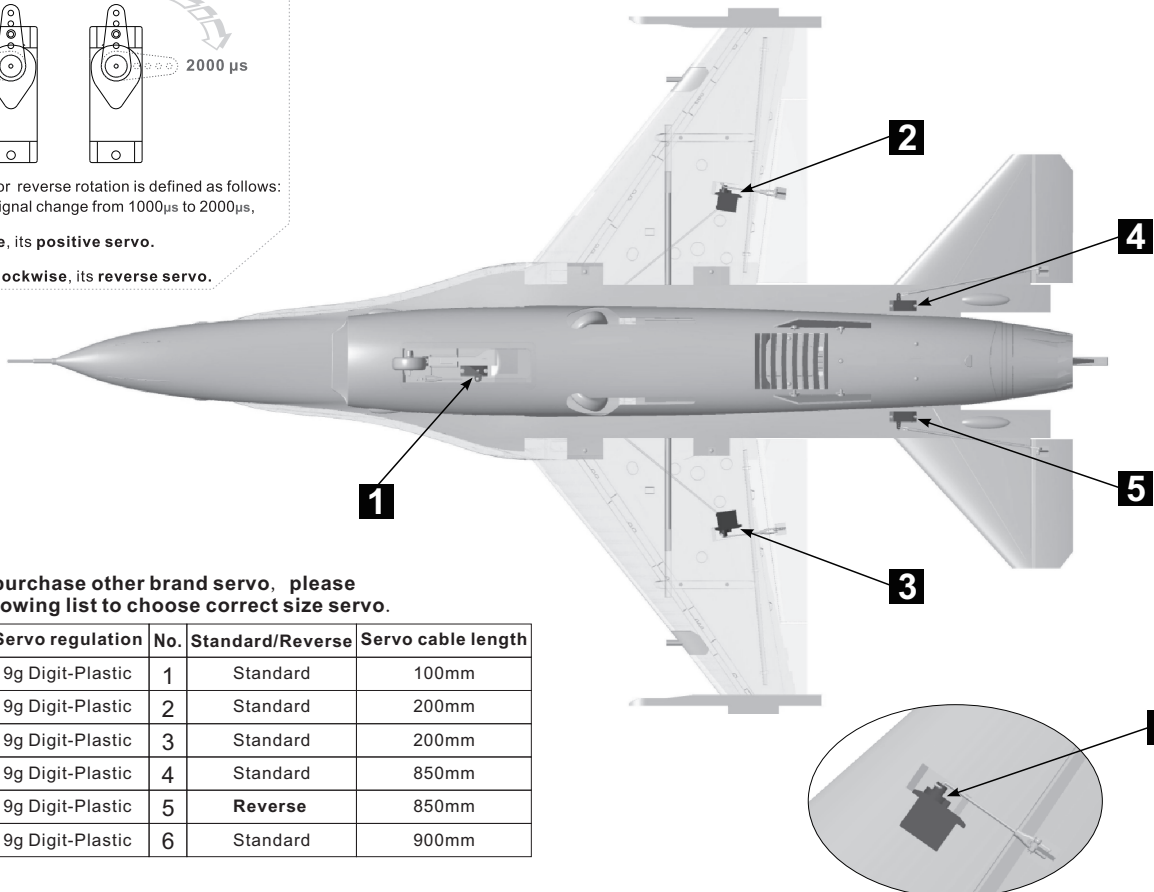
Step 2



Servo parameters



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

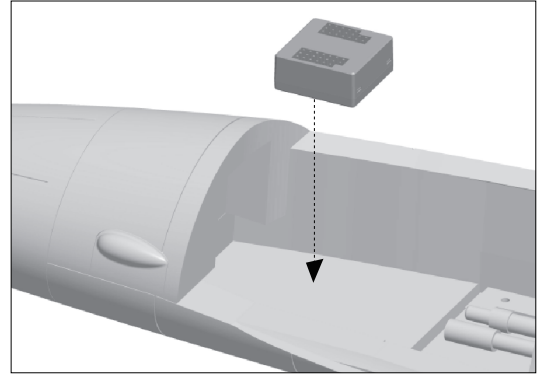
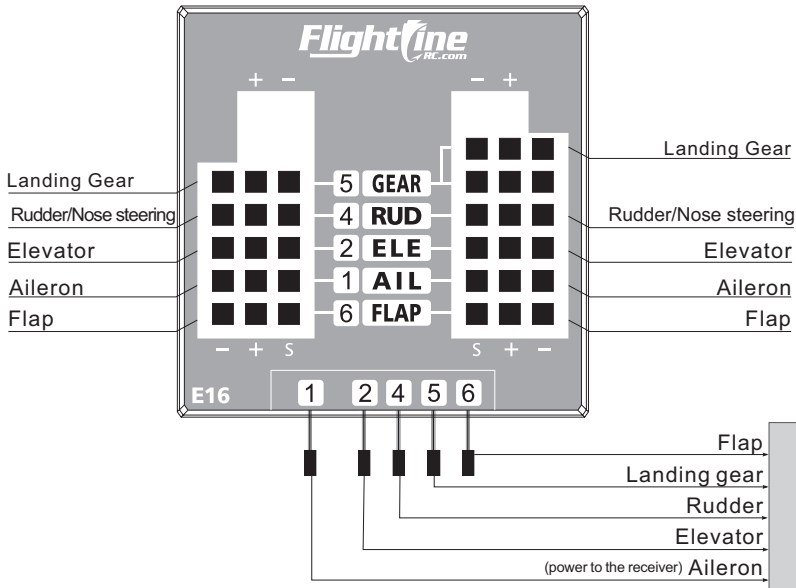


If you need to purchase other brand servo, please refer to the following list to choose correct size servo.

Servo position	Servo regulation	No.	Standard/Reverse	Servo cable length
Nose steering	9g Digit-Plastic	1	Standard	100mm
Left aileron	9g Digit-Plastic	2	Standard	200mm
Right aileron	9g Digit-Plastic	3	Standard	200mm
Left elevator	9g Digit-Plastic	4	Standard	850mm
Right aileron	9g Digit-Plastic	5	Reverse	850mm
Rudder	9g Digit-Plastic	6	Standard	900mm

Control board instruction

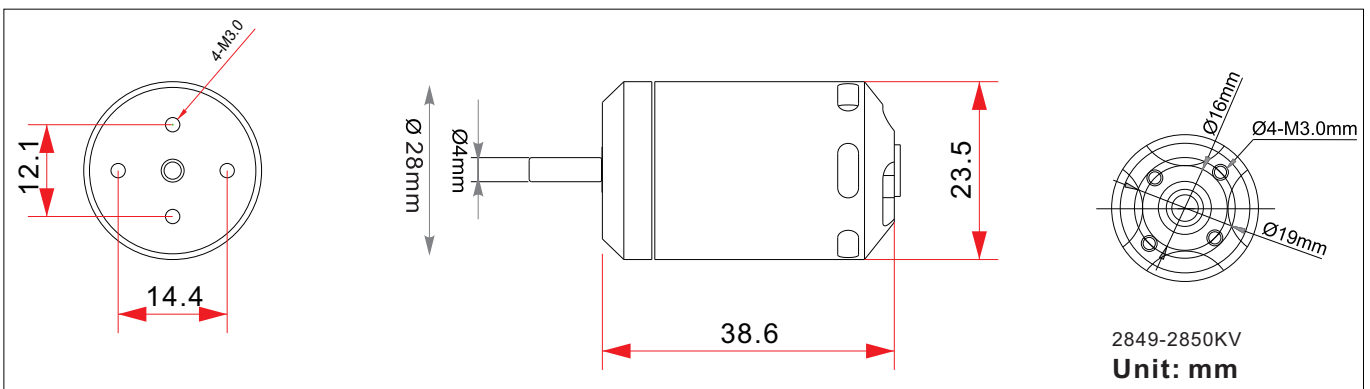
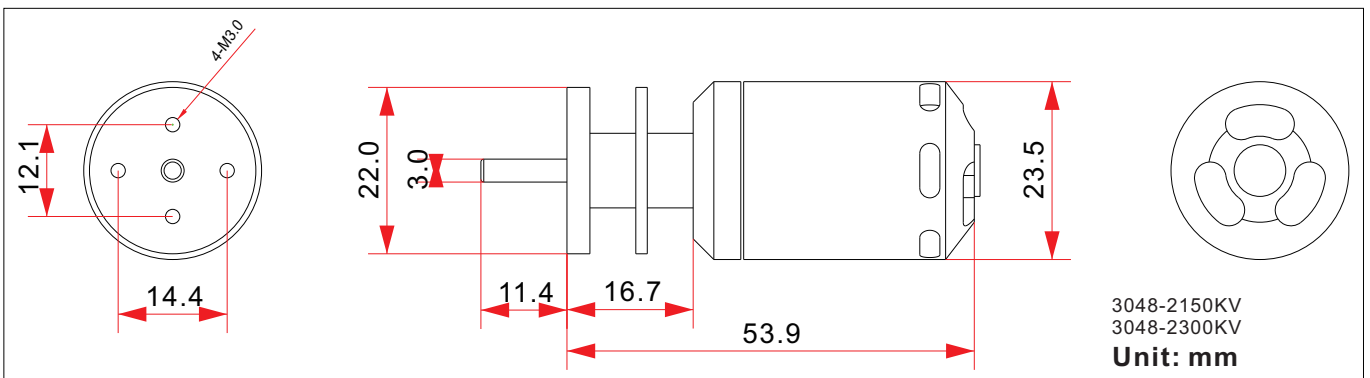
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According to the note, connect the related servo cables in the control board.

The control surface is not any note on the control board, connect directly to the receiver.

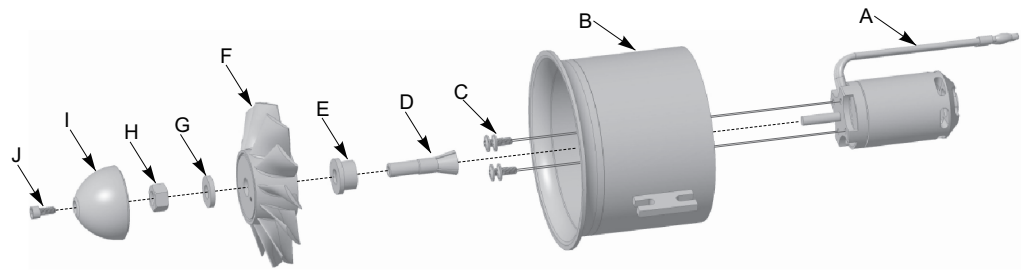
Motor parameters



Item No.	EDF Fans	Voltage (V)	Current (A)	Power (W)	Thrust (Kg)	Efficiency (g/w)	Motor Specifications	Rotating speed (rpm)	Weight (g)
E7215	70mm 12-blade EDF	14.8	55-60	880	1.5-1.6	1.76	2849-2850	42000	146
E7216	70mm 12-blade EDF	22.2	55-60	1330	2.05-2.25	1.65	3048-2150	47700	180.7
E7217	70mm 12-blade EDF	22.2	65-72	1510	2.3-2.5	1.6	3048-2300	51000	180.7

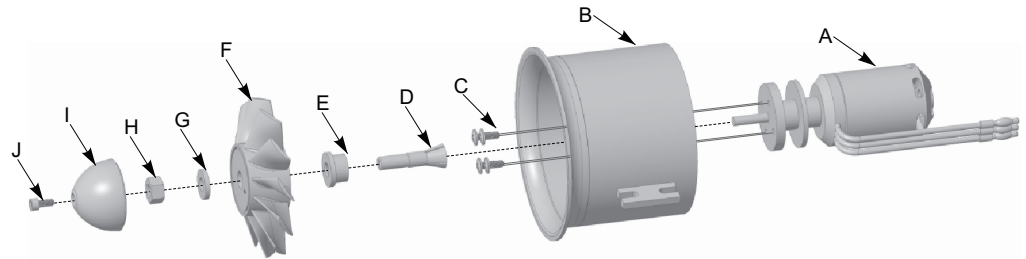
Standard version

- A - 2849-2850KV Brushless outrunner motor
- B - 70mm Outrunner ducted frame
- C - Screw (PWM3x6 4pcs)
- D - Motor chuck
- E - Motor chuck fixed plate
- F - 70mm 12-blade ducted fan
- G - Spacer
- H - Nut
- I - Spinner
- J - Screw (M3x8 1pcs)



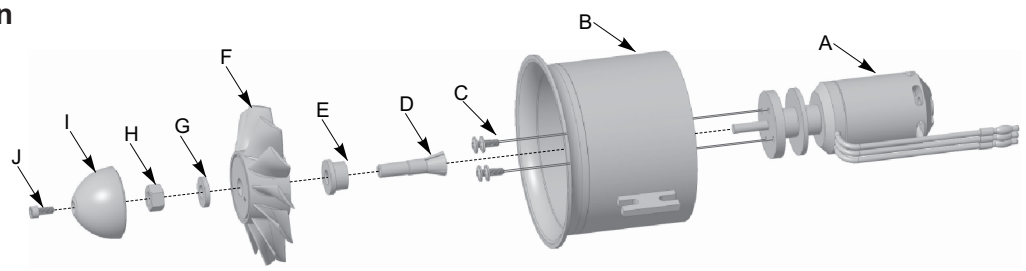
Upgrade version

- A - 3048-2150KV Brushless outrunner motor
- B - 70mm Outrunner ducted frame
- C - Screw (PWM3x6 4pcs)
- D - Motor chuck
- E - Motor chuck fixed plate
- F - 70mm 12-blade ducted fan
- G - Spacer
- H - Nut
- I - Spinner
- J - Screw (M3x8 1pcs)



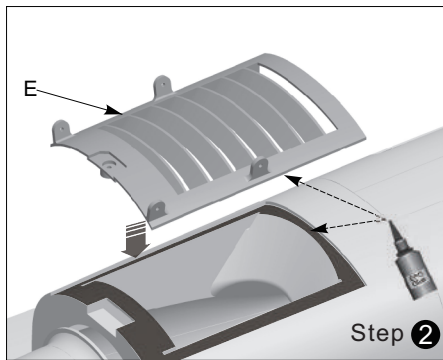
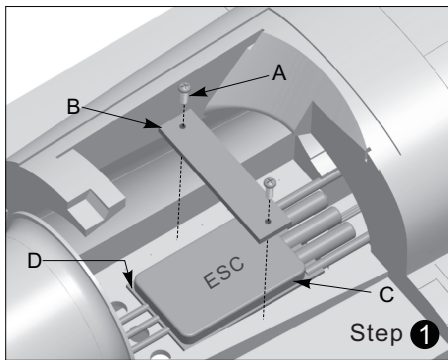
Professional version

- A - 3048-2300KV Brushless outrunner motor
- B - 70mm Outrunner ducted frame
- C - Screw (PWM3x6 4pcs)
- D - Motor chuck
- E - Motor chuck fixed plate
- F - 70mm 12-blade ducted fan
- G - Spacer
- H - Nut
- I - Spinner
- J - Screw (M3x8 1pcs)

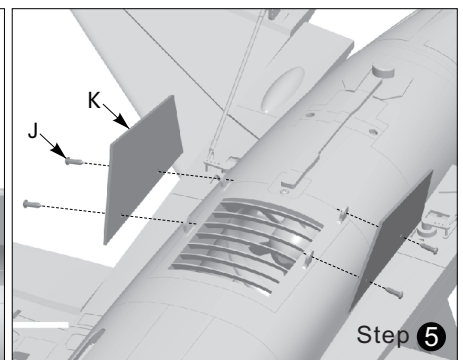
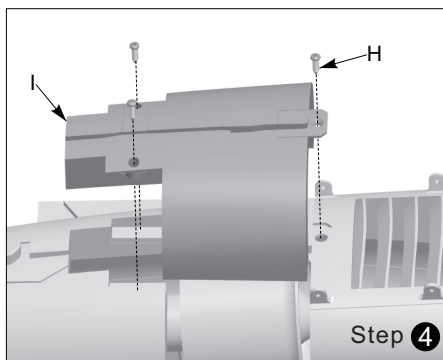
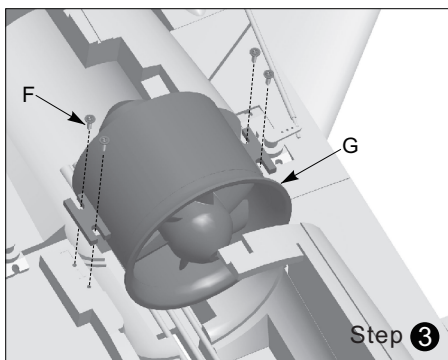


⚠ Note: When ESC and battery connected, prohibit to touch them by hand to avoid accidental injury. When test EDF, please use safety test stand for testing, prohibit to touch by hand for testing.

Refer to the following diagram, install ESC and power system:

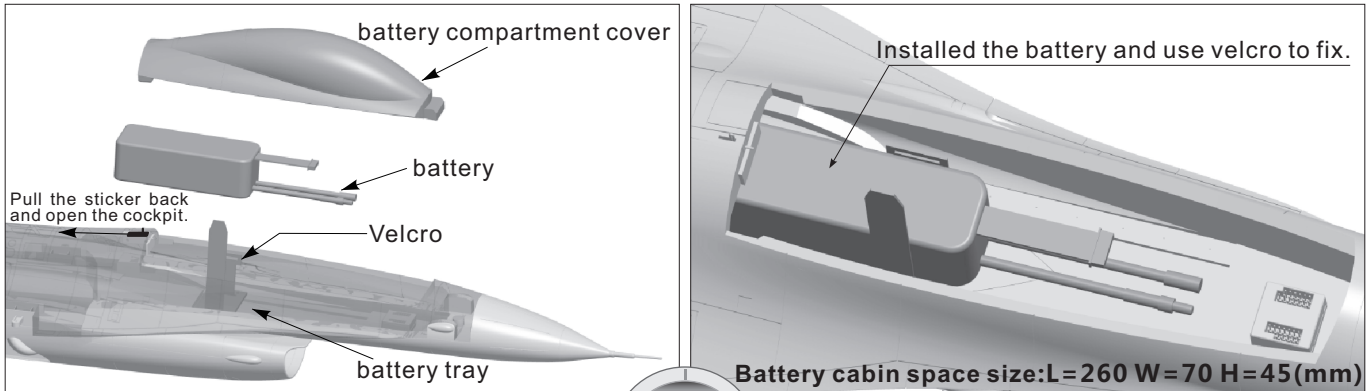


- A - Screw (PA3x25 2pcs)
- B - ESC fixed wood piece 1
- C - ESC
- D - ESC fixed wood piece 2
- E - Intake grid
- F - Screw (PWA3x8 4pcs)
- G - 70mm EDF power system
- H - Screw (KA2.6x8 3pcs)
- I - EDF cover
- J - Screw (KA2.6x8 4pcs)
- K - Flt

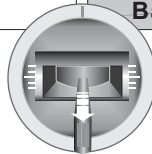


Install battery

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Before connect the battery and receiver, please switch on the transmitter power and make sure the throttle stick is in the lowest position.



The battery capacity and discharge rate we advise to use are as follows:

4S 14.8V 2600~4000mAh

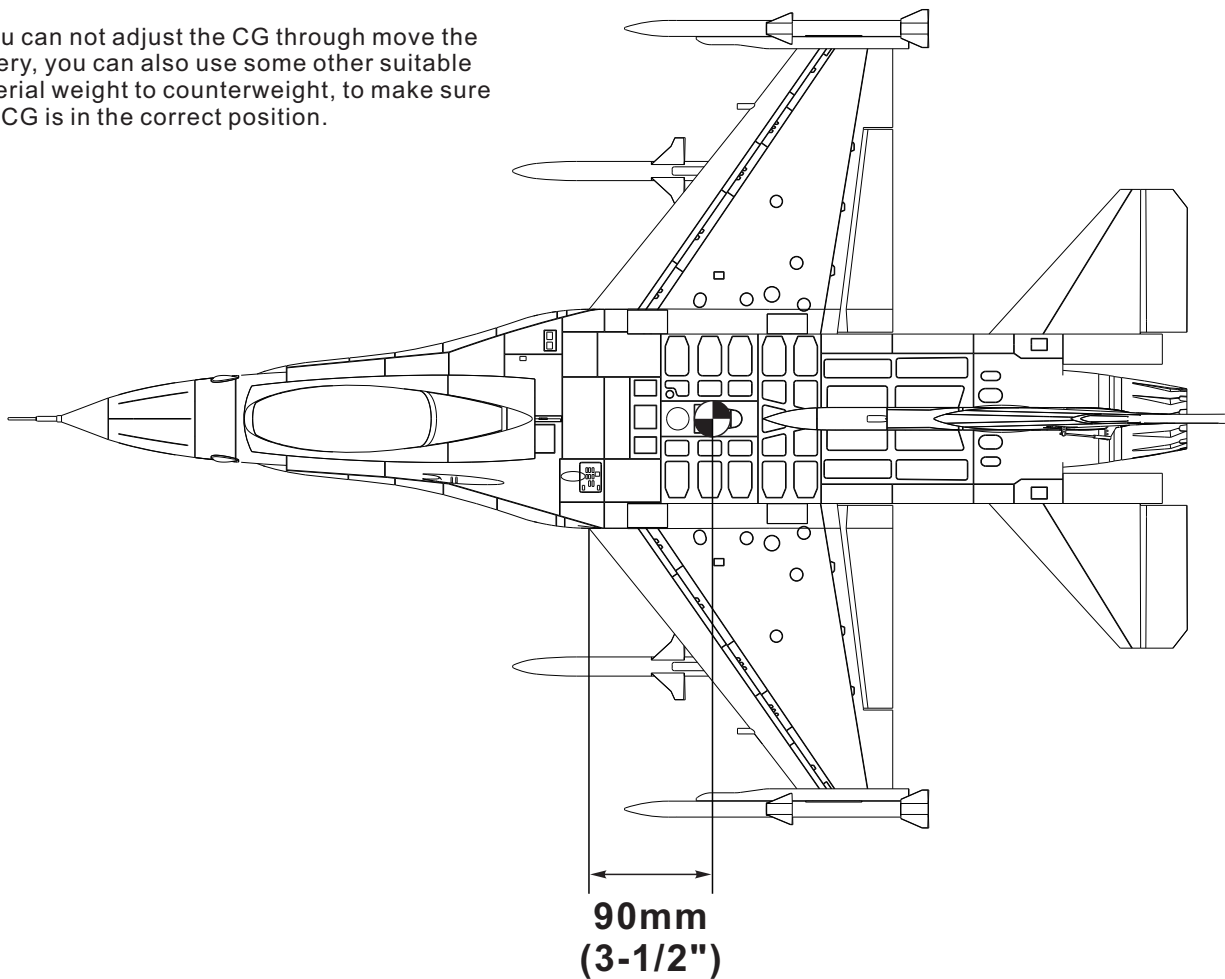
6S 22.2V 2600~4000mAh

discharge rate $\geq 30C$

Center of Gravity

Correct center of gravity is directly related to the success of the flight, please refer to the following CG diagram to adjust your plane's center of gravity.

- You can move the battery forward or backward to adjust the center of gravity.
- If you can not adjust the CG through move the battery, you can also use some other suitable material weight to counterweight, to make sure that CG is in the correct position.



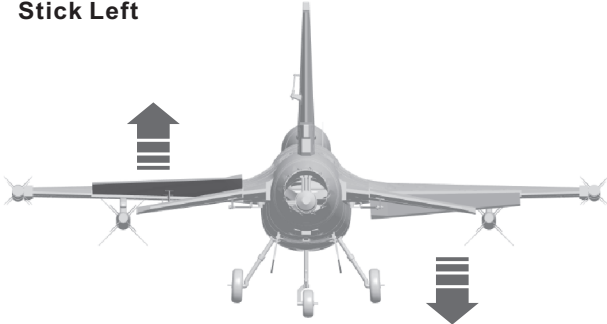
Control direction test

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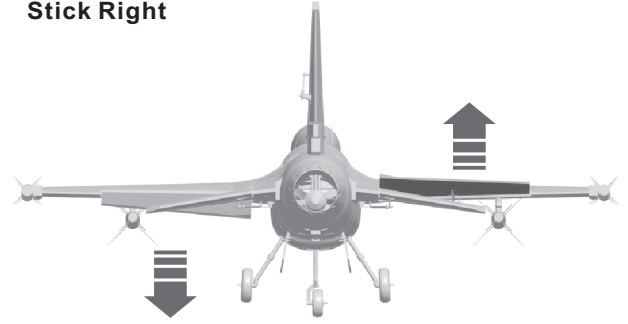
After installed the plane, before flying, we need a fully charged battery and connect to the ESC, then use radio to test and check that every control surface work properly.

Aileron

Stick Left

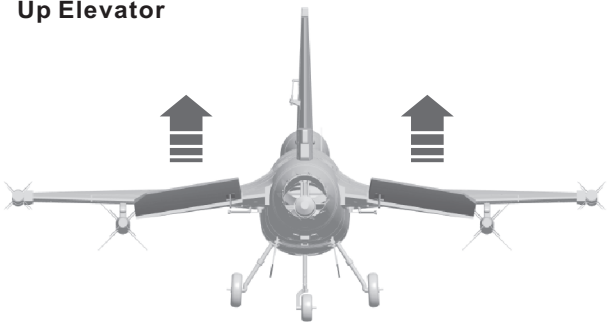


Stick Right

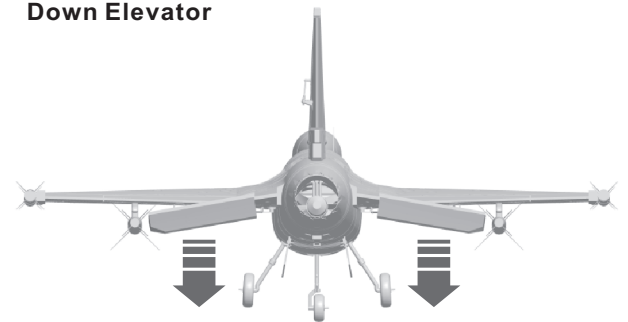


Elevator

Up Elevator



Down Elevator

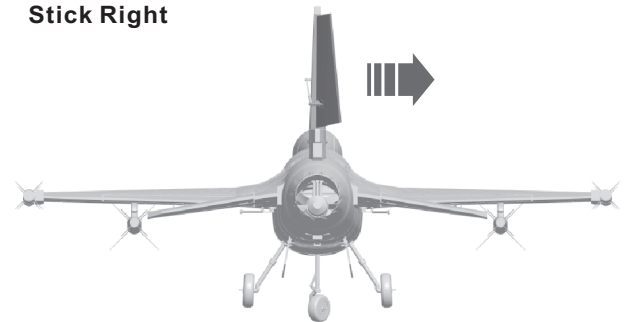


Rudder

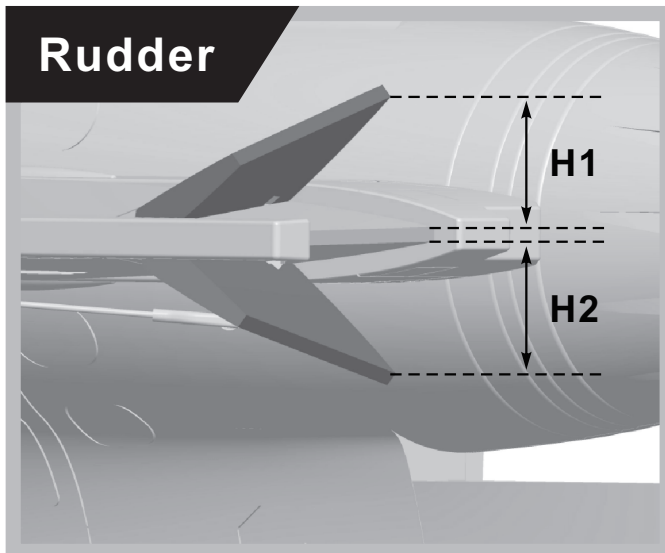
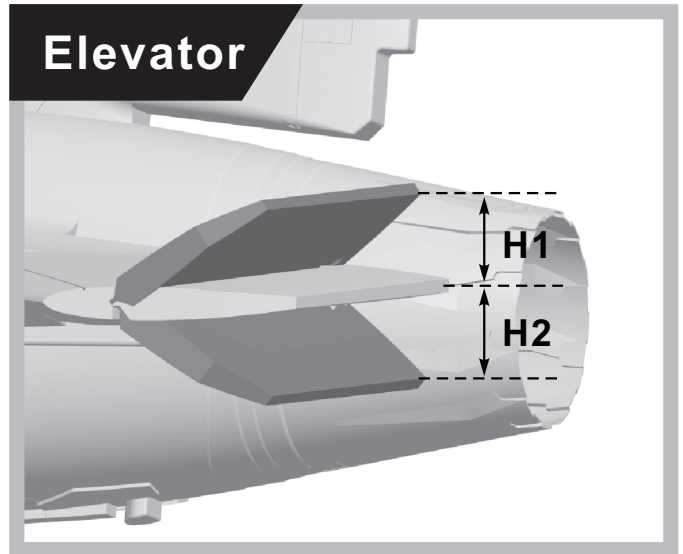
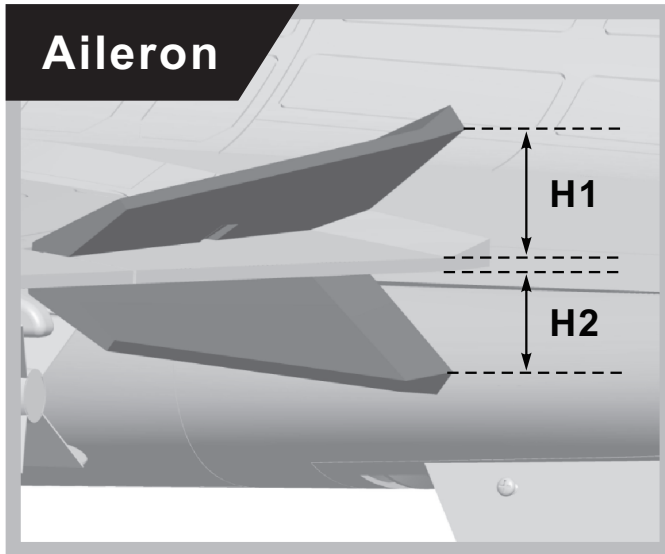
Stick Left



Stick Right



According to our testing experience, according to the following parameters to set the aileron/elevator rate, it will be useful for flight. In low rate, its good for flight control and its suitable for the initial flight or less skilled players. According to your own circumstance, choose one rate in flight.



	Aileron	Elevator	Rudder
Low Rate	H1/H2 22mm/22mm D/R Rate: 65%	H1/H2 19mm/19mm D/R Rate: 80%	H1/H2 30mm/30mm D/R Rate: 85%
High Rate	H1/H2 34mm/34mm D/R Rate: 100%	H1/H2 23mm/23mm D/R Rate: 100%	H1/H2 35mm/35mm D/R Rate: 100%



Dongguan Freewing Electronic Technology Ltd
HK Freewing Model International Limited

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