A-10 Thunderbolt II

1/10 Scale Twin 80mm EDF JET



User Manual

Length: 1551mm(61.1")
Wingspan: 1700mm(66.9")
Weight:4250g (w/o Battery)



EN	1~15
中	16~30

www. sz-freewing. com

MADE IN CHINA

www.modellmarkt24.ch; www.modellmarkt24.de

Introduction

EN

Thank you for purchasing our Freewing 80mm EDF jet A-10 thunderbolt II. The original A-10 Thunderbolt II is a single-seat twin-engine attack plane, produced by Fairchild. It is now the only continuous service jet in US Air Force to provide intensive support for the ground forces.

The Freewing 80mm EDF A-10 Thunderbolt II's length is 1551mm (61.1”), wingspan is 1700mm (66.9”).The main wing and horizontal tail have a hollow frame design which reduces the weight effectively, and significantly increases main wing’s strength. Three control boards are installed on the fuselage and both main wings . The ribbon wire connection reduces wire installation time, and increases connection reliability. The model uses screws for assembly so you can assemble/disassemble it quickly for convenience when carrying or shipping.

The A-10 Thunderbolt II model plane comes in a stock grey color scheme with most of the factory decals installed. In the package, we include three different sets of fuselage decals, please refer to the decal instructions and choose which set you want to use.

The A-10 Thunderbolt II model plane utilizes the newest 9-blade dual 80mm EDF with a 3530-1900KV brushless out-runner motor and 100A ESC. In flight, each side's continuous current is about 85A. The A-10 Thunderbolt II model plane uses 2 x 5000mAh lipo batteries,the flight time is about 3.5 ~ 4 minutes, the max flight speed is about 180KPH / 110MPH.

The A-10 Thunderbolt II has excellent flight characteristics in both high and low speed flight as well as excellent short takeoff and landing capabilities. The new 70mm nose wheel and 85mm rear wheels allow you to operate from all types of runways.

Enjoy your new The A-10 Thunderbolt II !

⚠ **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! Operators should have some basic experience. Beginners should operate only under the guidance of a professional instructor.
2. Before beginning assembly, please read through the instructions and carefully follow them throughout the build.
3. Freewing and it's vendors will not be held responsible for any losses due to improper assembly and operation.
4. Model airplane operators must be at least 14 years of age.
5. This airplane is made of EPO foam material, covered with surface spray paint. Don't use chemicals to clean as it may cause damage.
6. You should avoid flying in areas such as public places, areas with high voltage power lines, nearby highways, airports or in other areas where laws and regulations clearly prohibit flight.
7. Do not fly in bad weather conditions, including thunderstorms, snow, etc...
8. Lipo batteries should be properly stored in a fire proof container and be kept at a minimum of 2M distance away from flammable or explosive materials.
9. Damaged or scrap batteries must be properly discharged before disposal or recycling to avoid spontaneous combustion and fire.
10. At the Flying Field, properly dispose of any waste you have created, don't leave or burn your waste.. Ensure that your throttle is in the low position and that your radio is turned on before connecting the Lipo battery.
11. Do not attempt to catch this model while in flight. Wait until it comes to a complete stop before handling the airplane.

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PNP Assembly Instructions

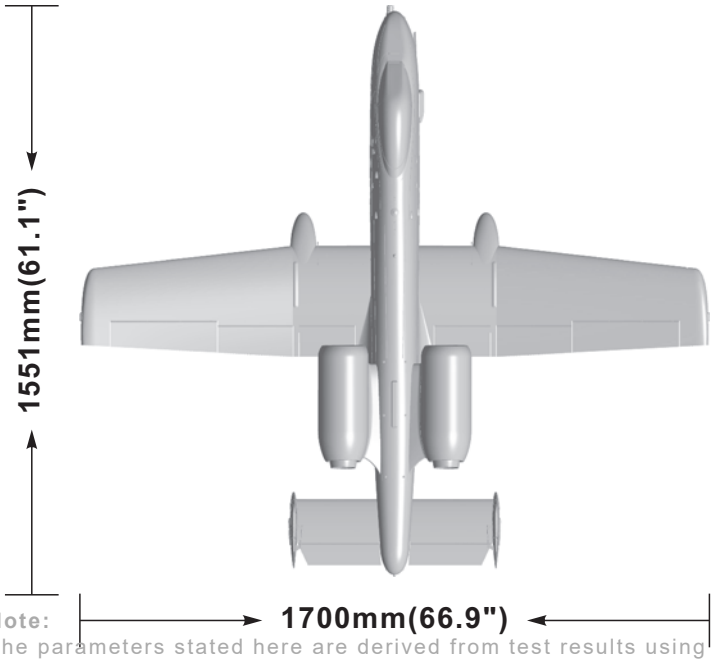
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Basic product information



Standard version

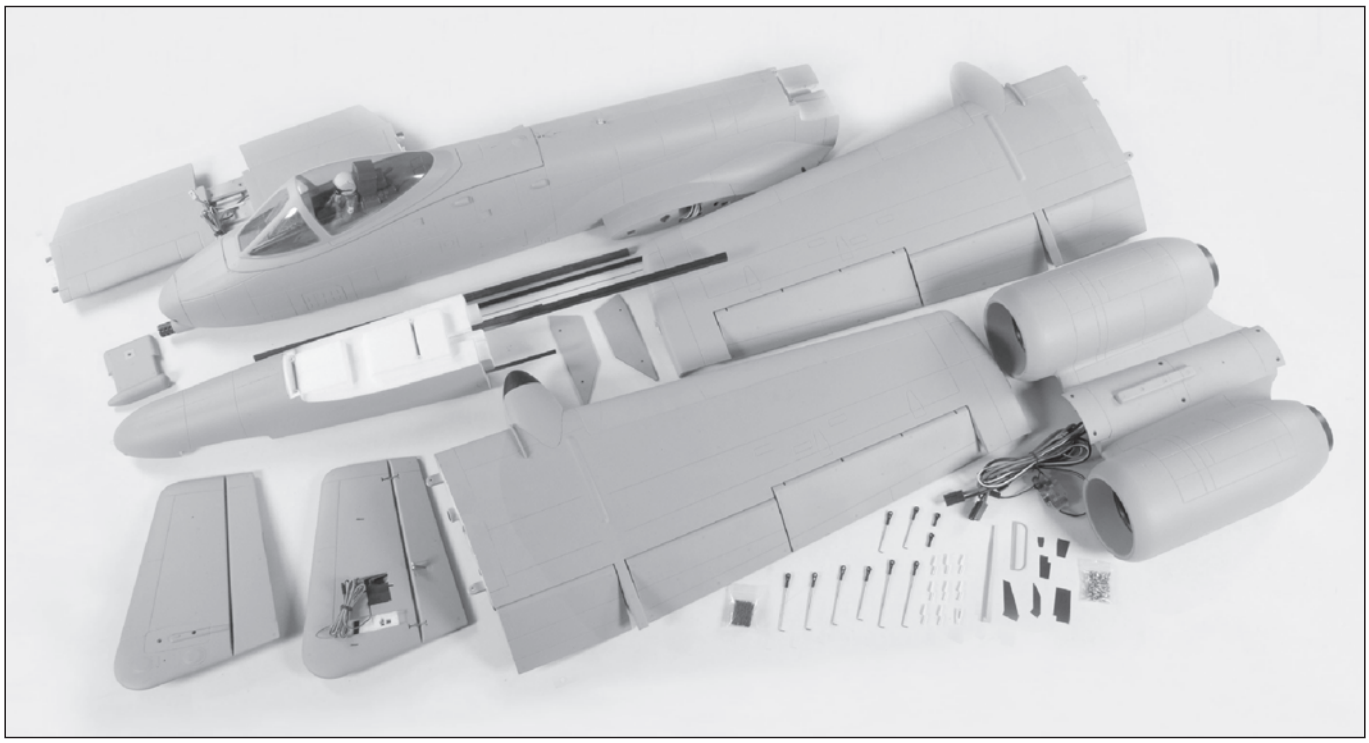
Wing loading: 124g/dm^2
Motor: 3530-1900KV
brushless outrunner motor
Ducted fan: 80mm 9-blade fan
ESC: 100A brushless UBEC 8A(2pcs)
Servo: 17g Digital MG servo (9pcs)
30g Digital MG servo (2pcs)
9g Digital MG servo (1pcs)
Weight: 4250g(without battery)
Thrust: 6600kg

Other features

Material: EPO
Aileron: Yes
Flap: Yes
Elevator: Yes
Rudder: Yes
Landing gear: Retract landing gear
Landing gear doors: electric nose gear doors
Scale LED lights
Scale Pilot figure

Note:
The parameters stated here are derived from test results using our accessories.
If you use other accessories, the test results will differ. We cannot provide technical support if you have a problem when using other accessories.

Package list



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

No.	Name	PNP	ARF Plus	Airframe
1	Fuselage	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
2	Main wing	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
3	Horizontal tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
4	Vertical tail	Pre-installed all electronic parts	Pre-installed servo	No electronic equipment
5	Engine compartment	Pre-installed all electronic parts	√	No electronic equipment
6	Carbon tube	√	√	√

No.	Name	PNP	ARF Plus	Airframe
7	Linkage Set	√	√	√
8	Scale accessories	√	√	√
9	Stabilizer wing	√	√	√
10	Manual & Decals	√	√	√
11	Glue & Non-slip mat	√	√	√
12	Screws	√	√	√

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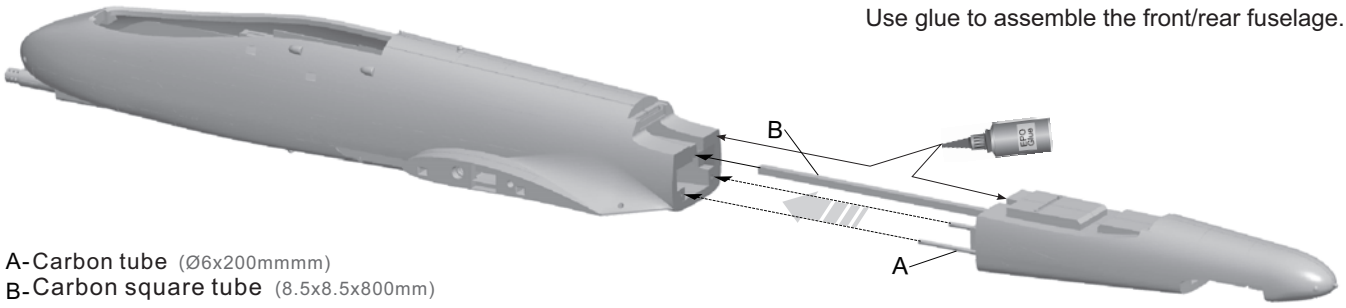
Steel wire use instructions

Our tests show that excessively long servo extension lines increase the rise of poor connections that can lead to servo brown outs or failure, causing accidents during flight. Instead, this kit contains a steel wire that can be used to pull the main wing/elevator and rudder servo wires through the airplane to the battery compartment, eliminating the need for extension wires.



Fuselage Installation

Use glue to assemble the front/rear fuselage.



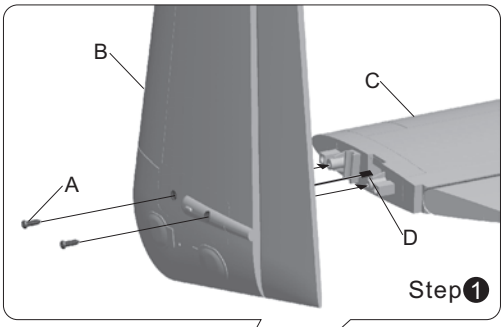
A-Carbon tube (Ø6x200mmmm)
B-Carbon square tube (8.5x8.5x800mm)

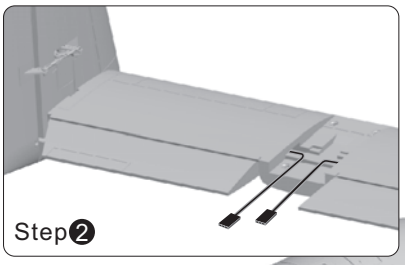
Horizontal stabilizer / Vertical stabilizer assembly

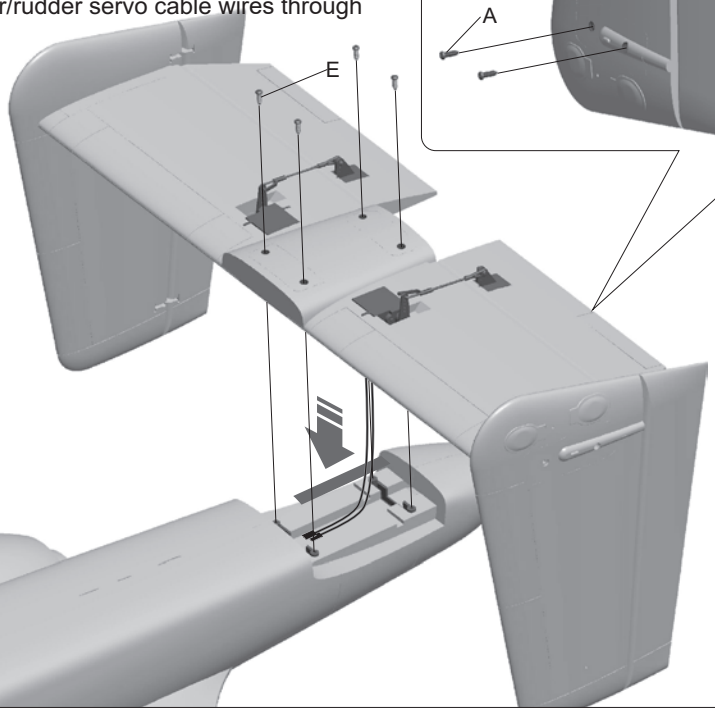
As shown in the photo:

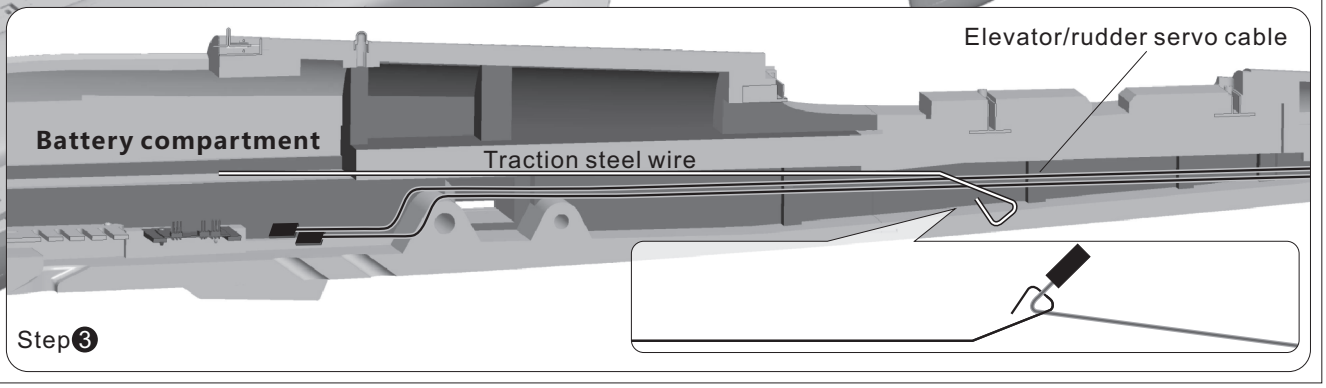
1. Attach the vertical stabilizer to the horizontal stabilizer and use the 2 screws to attach the left/right vertical stabilizer.。
2. When installing the vertical stabilizer, pull the rudder servo cable wires through the inside trough。
3. Use the metal wire to pull the elevator/rudder servo cable wires through to the battery compartment.
4. Attach the horizontal stabilizer to the rear of the fuselage and use the 4 screws to secure it.

A- Screws (PA3x8 4pcs)
B- Vertical tail
C- Horizontal tail
D- Servos wire
E- Screw s (PA3x8 4pcs)





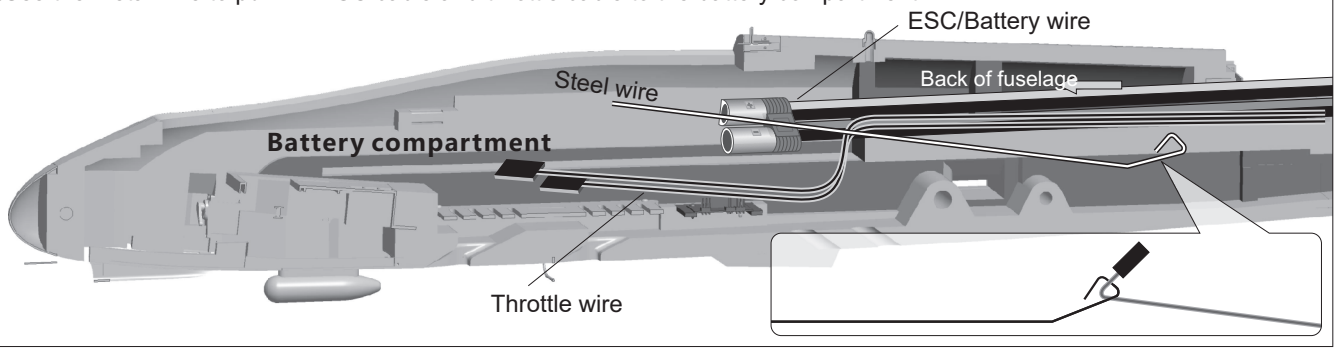




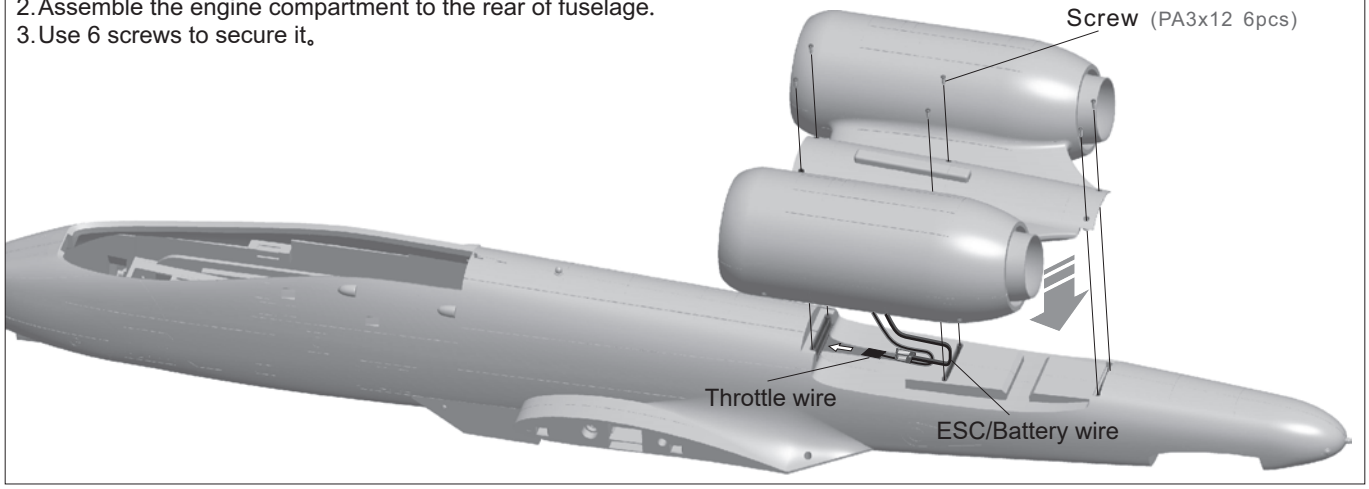
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Engine compartment assembly

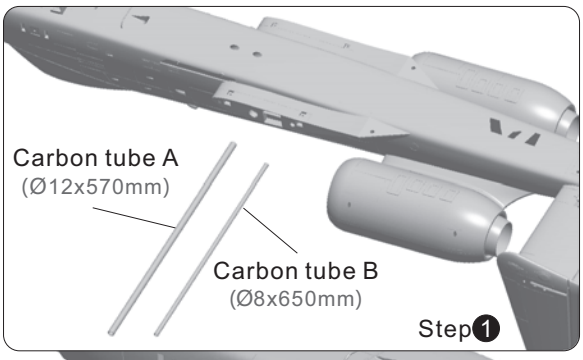
1.Use the metal wire to pull the ESC cable and throttle cable to the battery compartment.

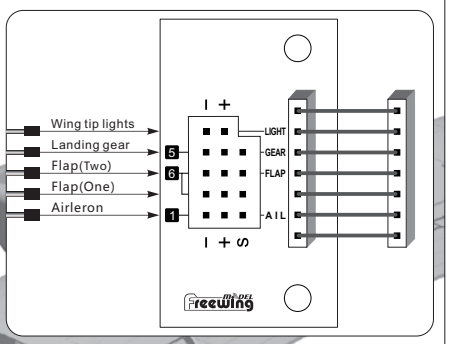


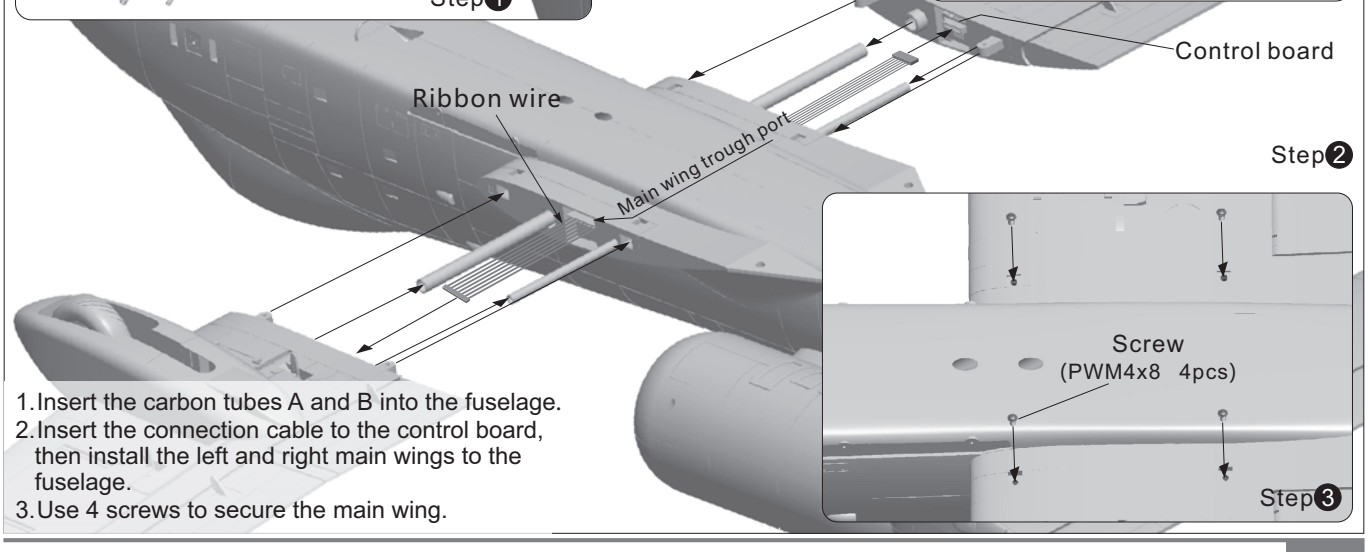
2.Assemble the engine compartment to the rear of fuselage.
3.Use 6 screws to secure it。



Main wing assembly





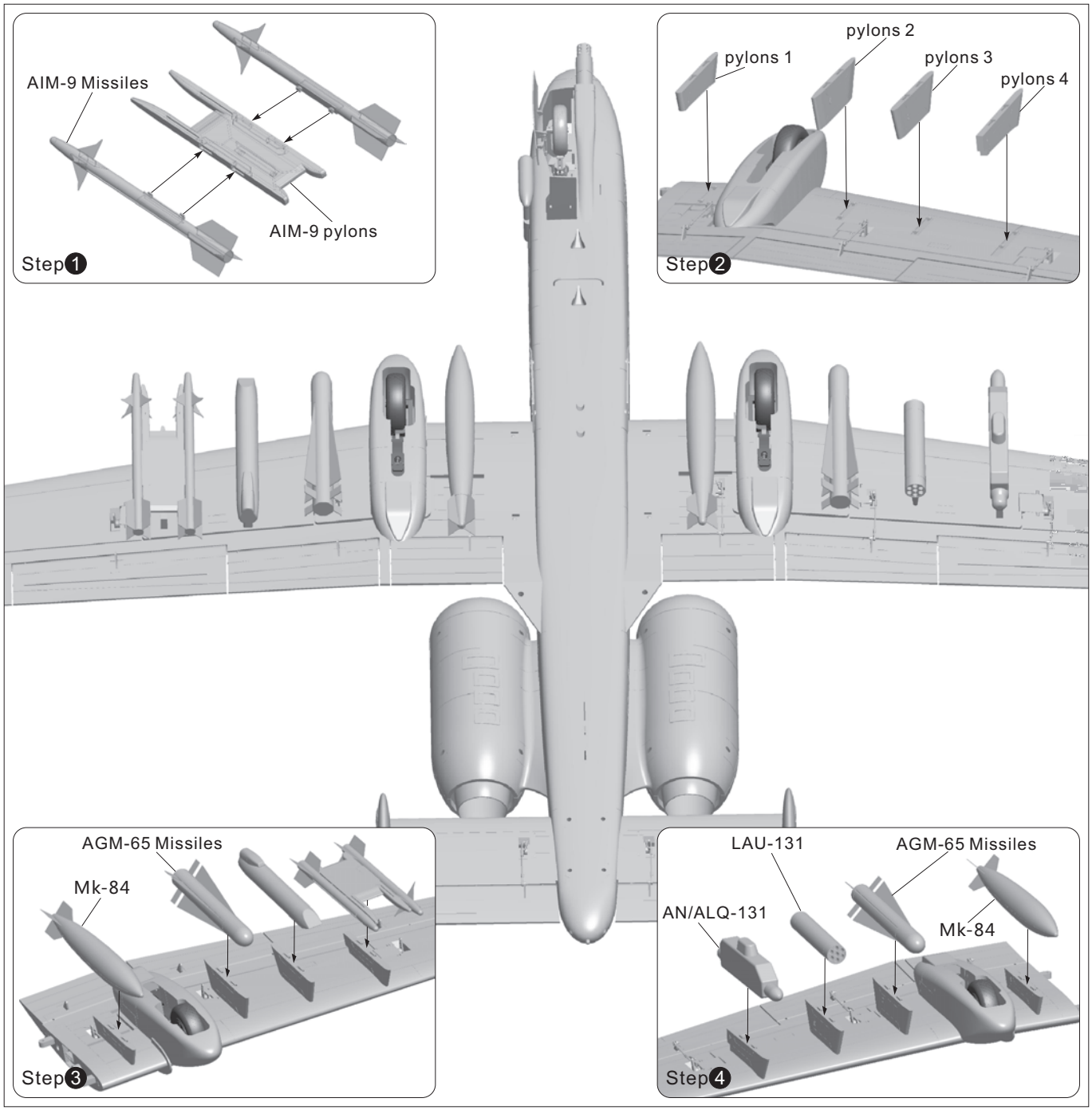


1.Insert the carbon tubes A and B into the fuselage.
2.Insert the connection cable to the control board, then install the left and right main wings to the fuselage.
3.Use 4 screws to secure the main wing.

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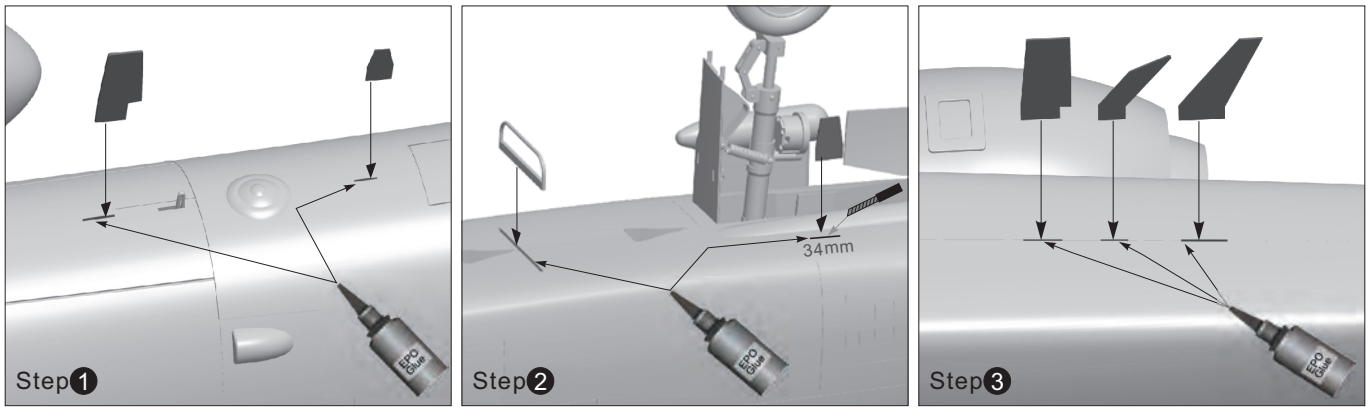
Missile Installation

Follow the pictures below to install the weapons

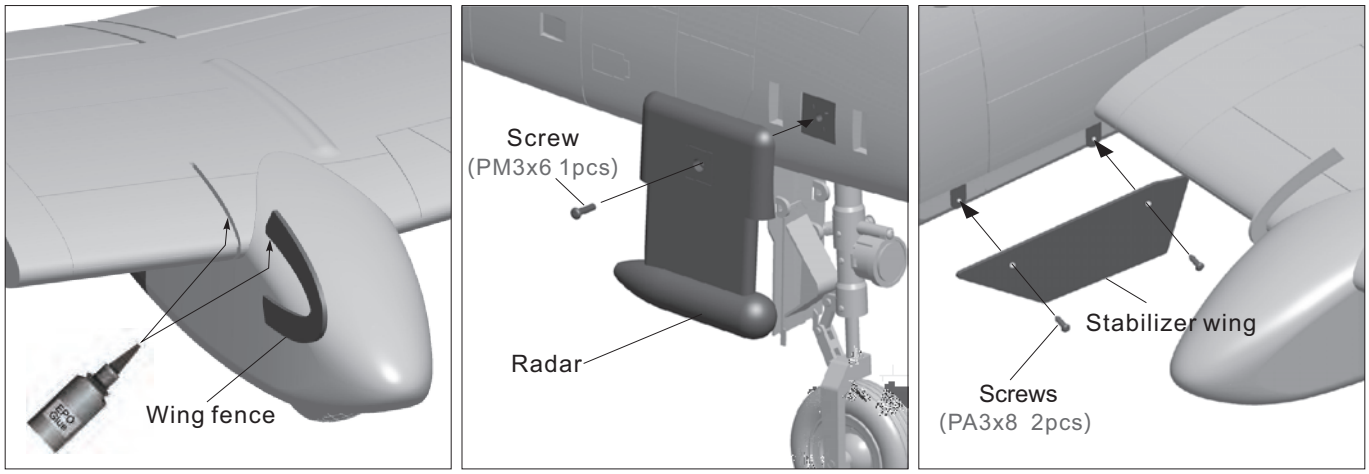


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Antenna Installation

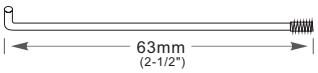


Radar and Wing Fence Installation



Pushrod instructions

Flap pushrod size(Inside)

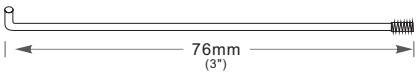


Pushrod diameter Ø1. 5mm

Flap pushrod mounting hole(Inside)



Flap pushrod size(Outside)

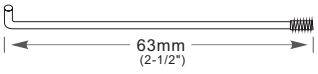


Pushrod diameter Ø1. 5mm

Flap pushrod mounting hole(Outside)

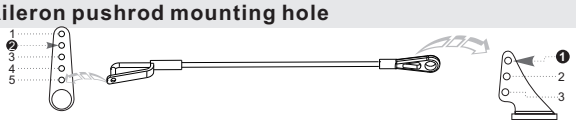


Aileron pushrod size

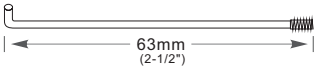


Pushrod diameter Ø1. 5mm

Aileron pushrod mounting hole



Elevator pushrod size

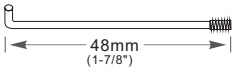


Pushrod diameter Ø1. 5mm

Elevator pushrod mounting hole

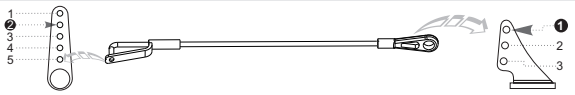


Rudder pushrod size



Pushrod diameter Ø1. 5mm

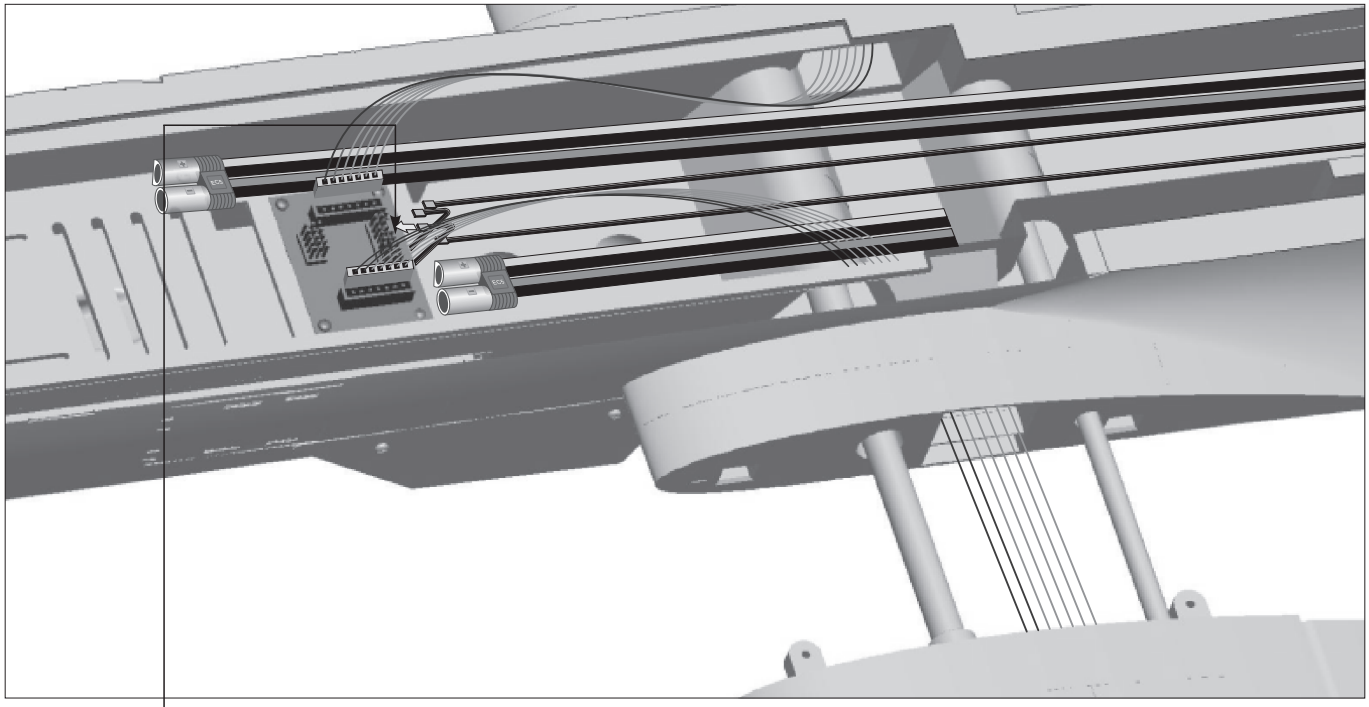
Rudder pushrod mounting hole

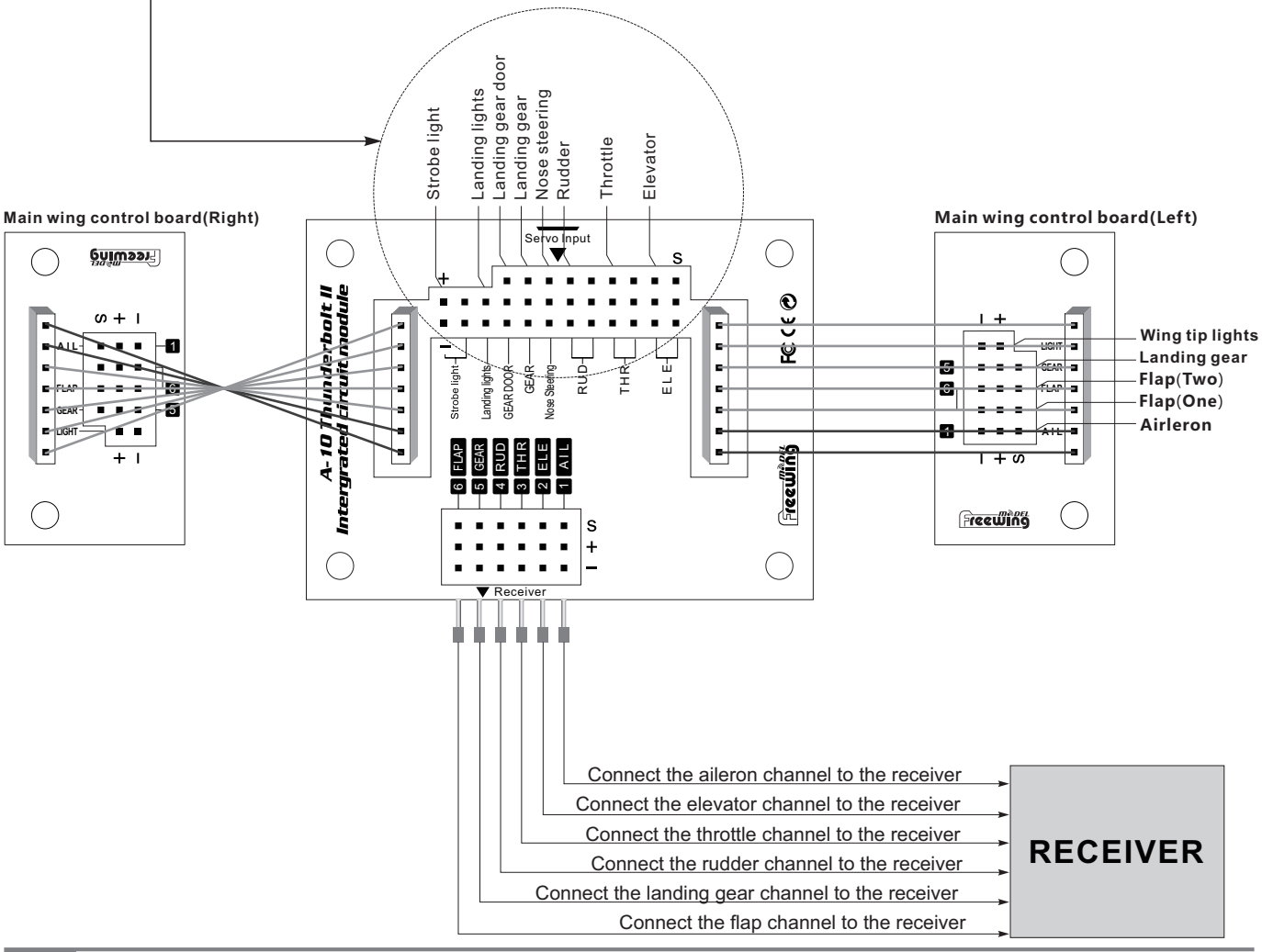


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Control board connection diagram

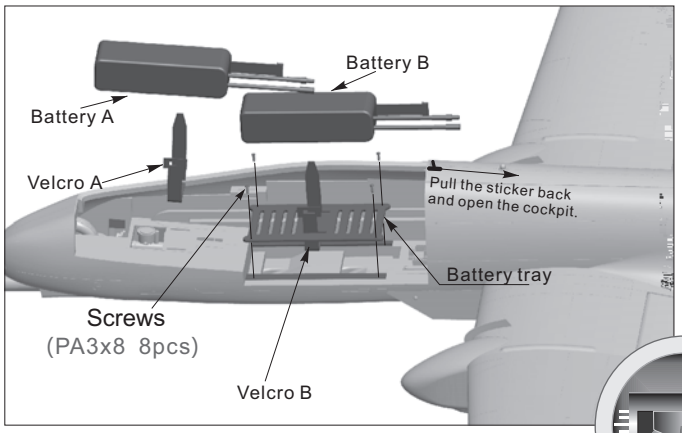
A-10 Thunderbolt II uses ribbon wires for convenience. Please refer to the following photo for connecting the electronic equipment.

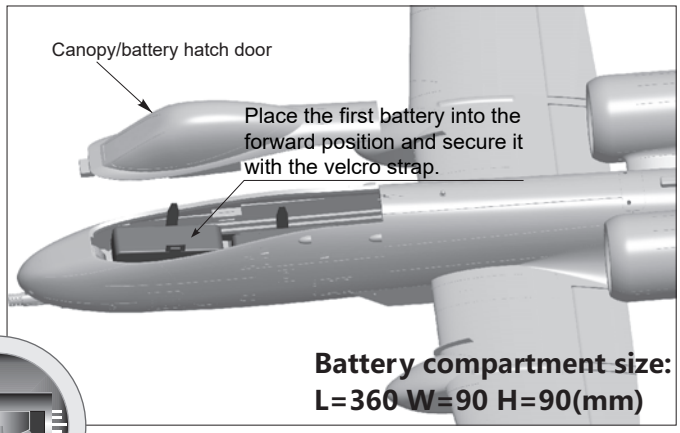




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Battery size



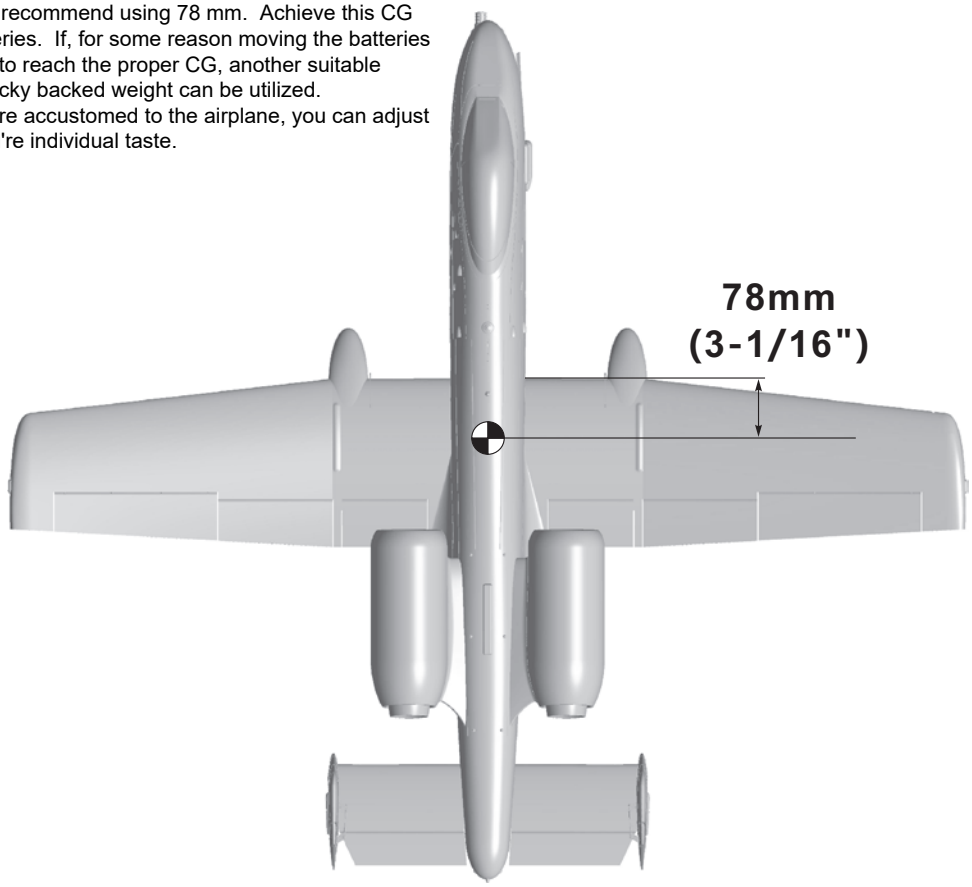


Before connect the battery and receiver, turn on your transmitter, select the desired model channel and make sure the throttle stick is in the lowest position. We recommend assigning a switch as a kill switch.

We recommend the following battery capacity and discharge rate:
6S 22.2V 4000mAh ~ 6S 22.2V 5200mAh (2pcs)
Discharge rate of C>30C

Center of gravity

The Center of Gravity is directly related to the flight characteristics the airplane will demonstrate on it's first flight. As a starting point, we recommend using 78 mm. Achieve this CG by moving the batteries. If, for some reason moving the batteries does not allow you to reach the proper CG, another suitable material such as sticky backed weight can be utilized.
As you become more accustomed to the airplane, you can adjust the CG to meet you're individual taste.



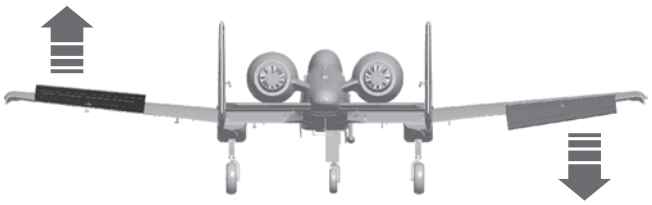
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Control direction test

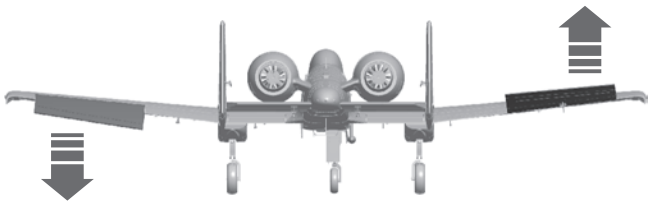
After the airplane is assembled, but before the first flight, ensure that your control surface directions are correct. Turn on the transmitter and set the throttle in it's the lowest position, then test the control surfaces individually to ensure correct movement.

Aileron

Stick Left

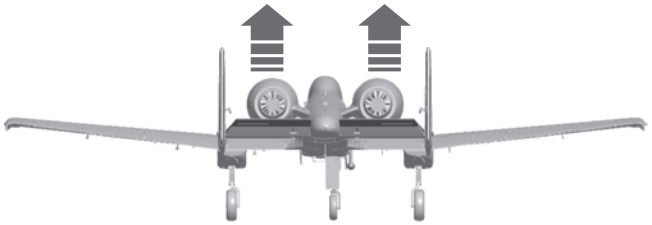


Stick Right

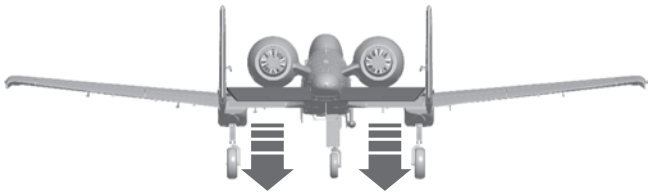


Elevator

Up Elevator

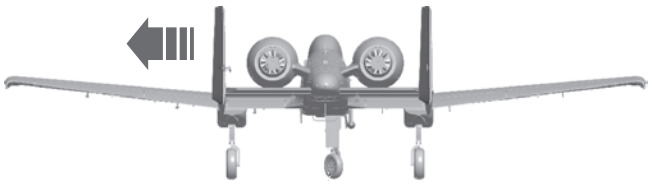


Down Elevator

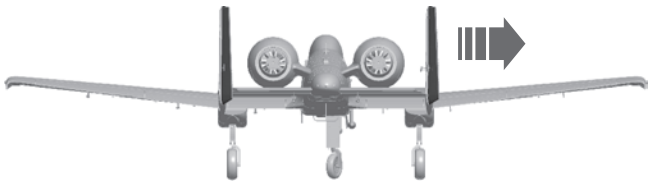


Rudder

Stick Left

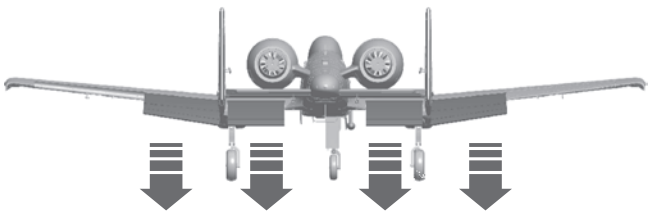


Stick Right



Flaps

Flaps down

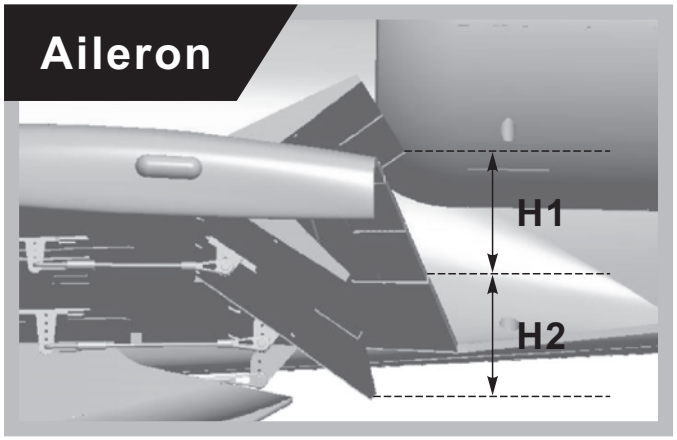


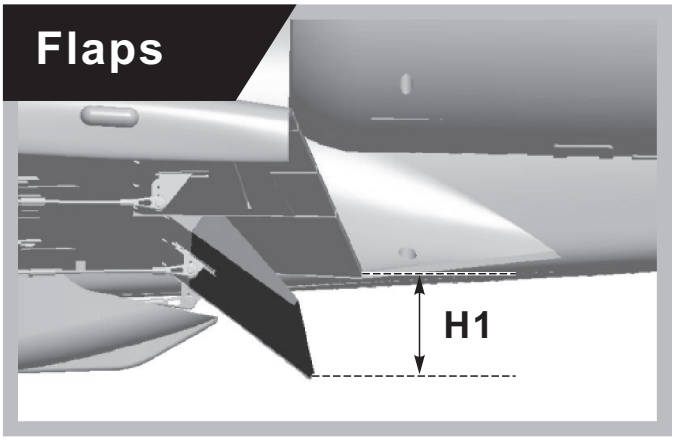
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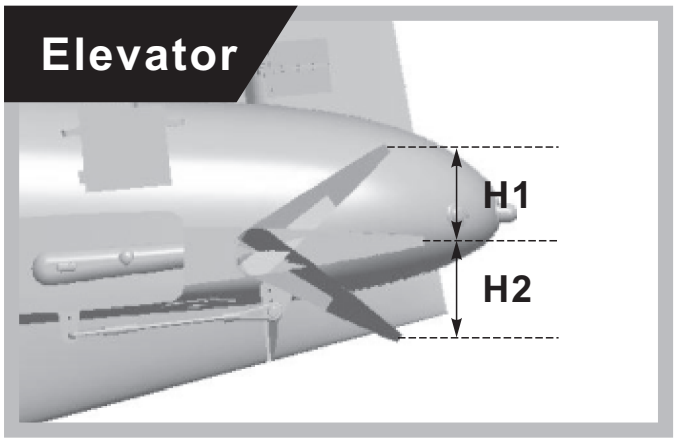
Dual rates

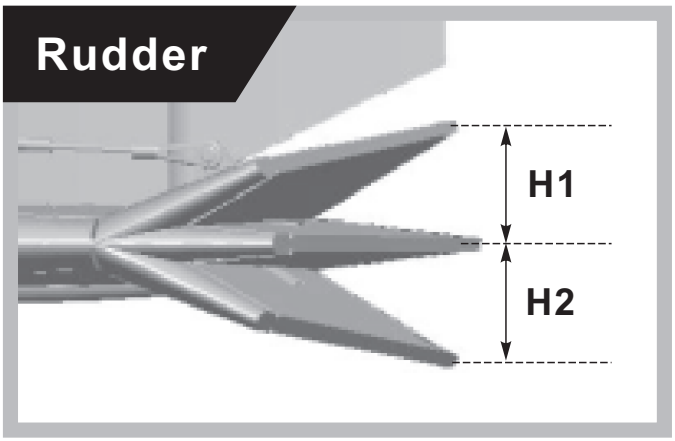
From our flight test results, we recommend the following parameters for aileron/elevator rates. In low rates, the airplane will be more stable. In high rates, it will be more sensitive. We advise using the recommended high rates in your first flight, then trying the recommended low rates.

Afterwards can may want to adjust the rates to suit your individual taste.









	Aileron	Elevator	Rudder	Flaps
Low Rate	H1/H2 30mm/30mm D/R Rate: 70%	H1/H2 30mm/30mm D/R Rate: 85%	H1/H2 20mm/20mm D/R Rate: 85%	H1 32mm
High Rate	H1/H2 40mm/40mm D/R Rate: 100%	H1/H2 34mm/34mm D/R Rate: 100%	H1/H2 26mm/26mm D/R Rate: 100%	H1 50mm

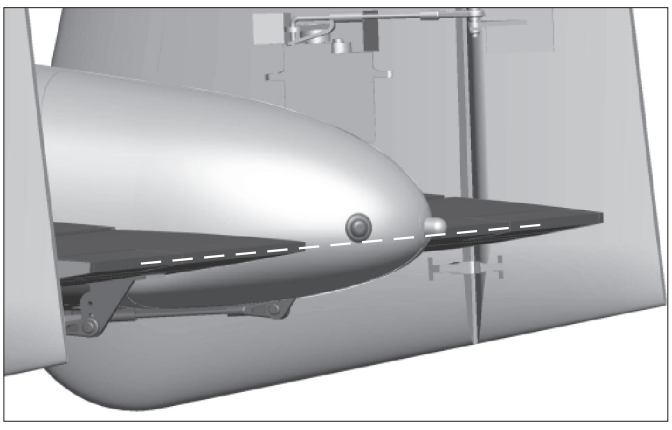
⚠Preflight precautions:

1.Correct elevator center position

After assembly, adjust the elevator to center its position, please refer to the photo.
After adjusting, the surface should look as if it has a little up elevator.

Flap-elevator mix parameter

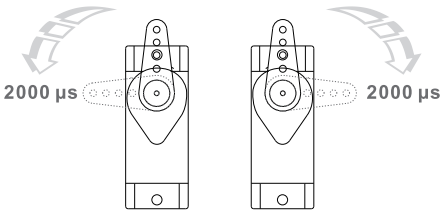
When deploying the flaps, the jet will tend to fly tail heavy. In order to correct this, we recommend a 'Flap/Elevator' mix within your radio. In this case, when you deploy the flaps, the airplane will maintain level flight.
Setting range is as following:
Deploy flaps to 50mm, pre-set the elevator 3mm down.
Deploy flaps to 32mm, pre-set elevator 2mm down. Fine tune these settings according to your individual taste.



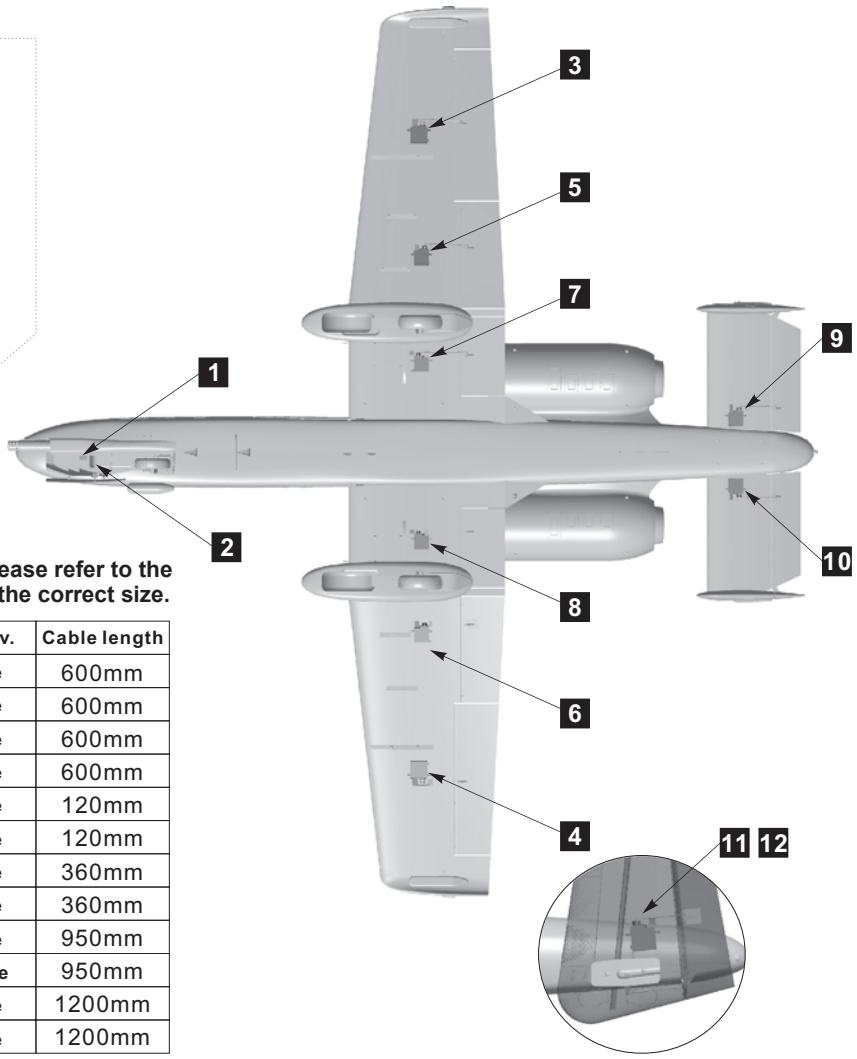
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Accessories Description

Servo Introduction



A servo or reversed servo is defined as follows: When the servo input signal changes from 1000μs to 2000μs, if the servo arm rotates clockwise, it's a positive servo. If it rotates counter clockwise, it's a reversed servo.

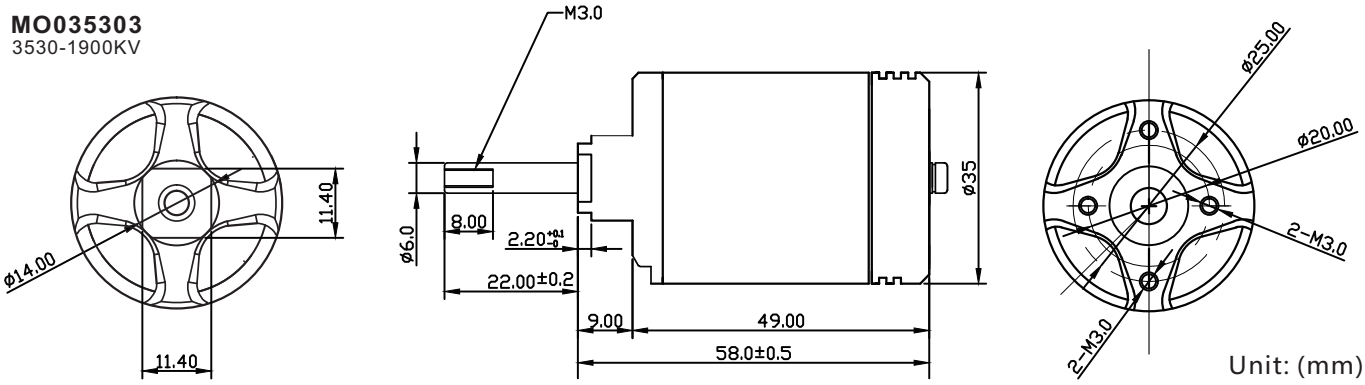


If you choose not to use the factory servo, please refer to the following list to ensure the selected servo is the correct size.

Position	Model	No.	Pos./Rev.	Cable length
Nose gear steering servo	17g Digital MG	1	Positive	600mm
Landing gear door	9g Digital MG	2	Positive	600mm
Aileron(L)	30g Digital MG	3	Positive	600mm
Aileron(R)	30g Digital MG	4	Positive	600mm
Flap(L)	17g Digital MG	5	Positive	120mm
Flap(R)	17g Digital MG	6	Positive	120mm
Flap(L)	17g Digital MG	7	Positive	360mm
Flap(R)	17g Digital MG	8	Positive	360mm
Elevator(L)	17g Digital MG	9	Positive	950mm
Elevator(R)	17g Digital MG	10	**Reverse**	950mm
Rudder(L)	17g Digital MG	11	Positive	1200mm
Rudder(R)	17g Digital MG	12	Positive	1200mm

Motor Parameters

MO035303
3530-1900KV



Item No.	Use motor	motor(KV)	Thrust(kg)	Current(A)	Use voltage (V)	Use ESC (A)	EDF Weight (g)	Max power (W)	Efficiency (g/w)
E72310	O/R BL3530	1900	3300	90	22.2(6S)	100	278	2000	1.65

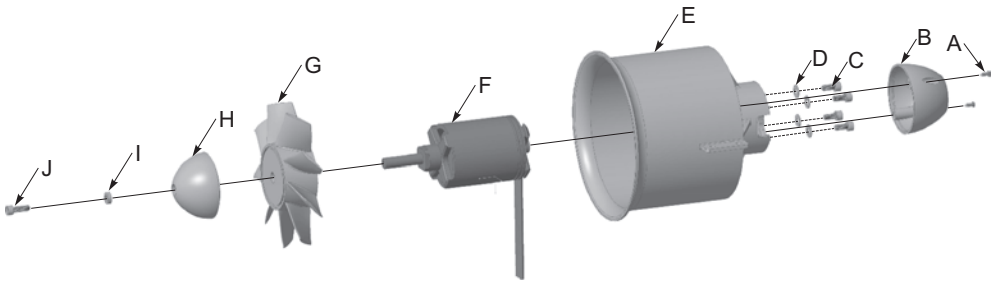
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Accessories Description

Motor installation

Standard version

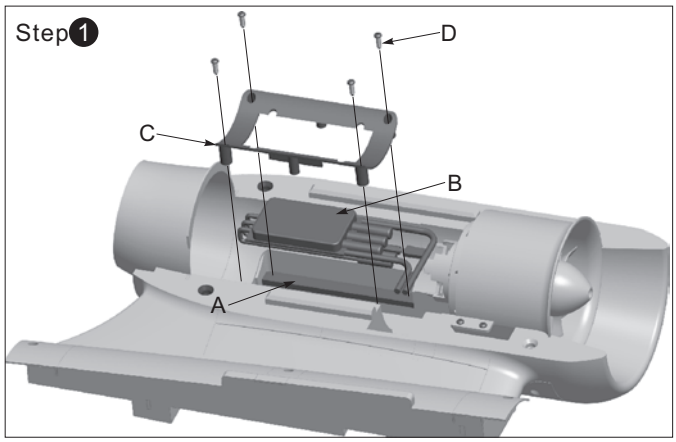
A - Screw
B - Motor spinner
C - Cup head screws (M3x7 4pcs)
D - Washer
E - 80mm ducted fan frame for outrunner motor
F - 3530-1900KV motor
G - 80mm 9-blade ducted fan
H - Spinner
I - Washer
J - Cup head screws (M3x12 1pcs)

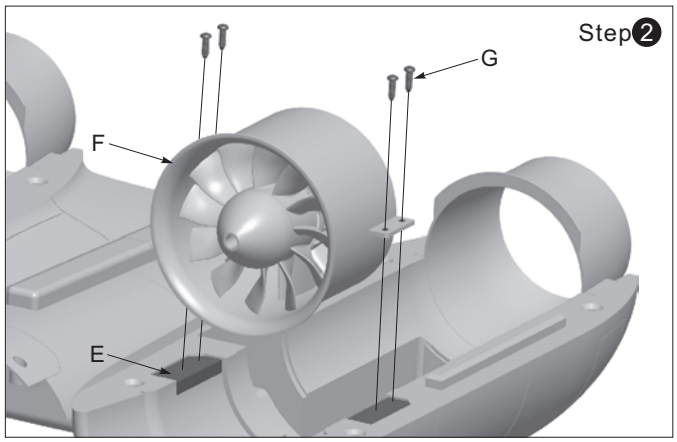


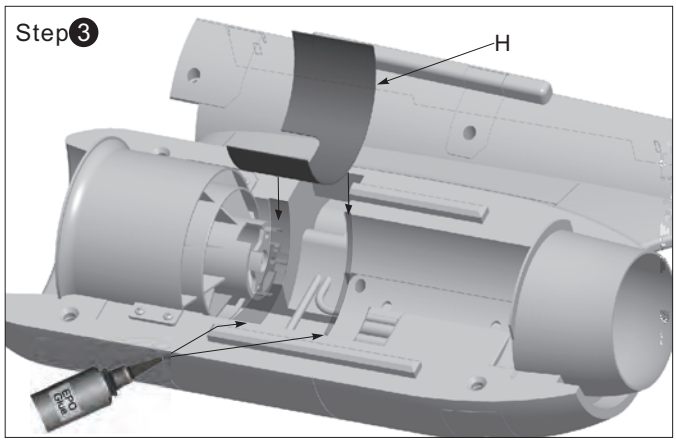
Refer to the following diagram to install the ESC and power system:

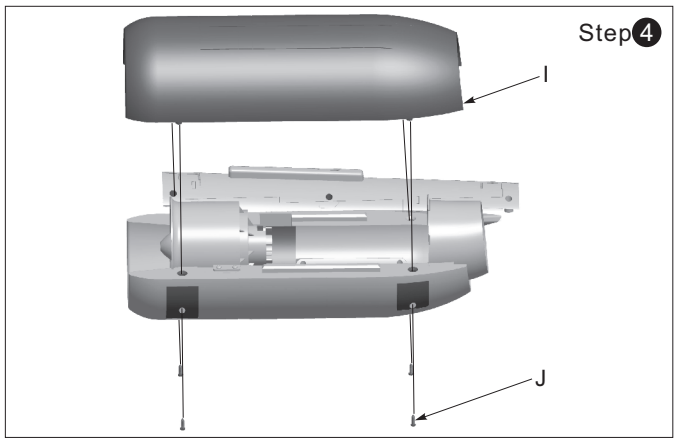
A - ESC fixed mount
B - ESC
C - ESC fixed part
D - Screw (PA3x8 4pcs)
E - Power system fixed mount
F - 80mm EDF power system
G - Screws (PWA3x8 4pcs)
H - Plastic cover
I - Engine compartment cover
J - Screws (PA3x8 4pcs)

Note: When ESC and battery connected, do not touch them by hand to avoid accidental injury. When testing an EDF, use a proper test stand. Don't touch the EDF wihile testing









90mm EDF power system instruction

1. We have optional power systems available for the A-10.You may want to use one of these, just follow the above steps, the dimensions are suitable for all Freewing 90mm EDF power system and 130A ESC.

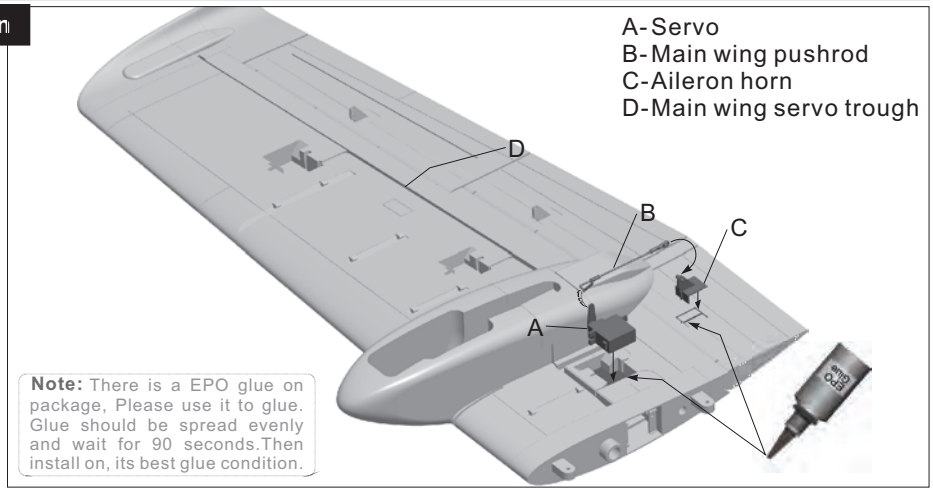
2. ESC cable specification:
   The cable length for motor output port: 100mm
   The cable length for power port: 200mm

3. **Note :** An alternate brand of power system and ESC might not fit in this engine compartment, check the dimensions before purchasing.

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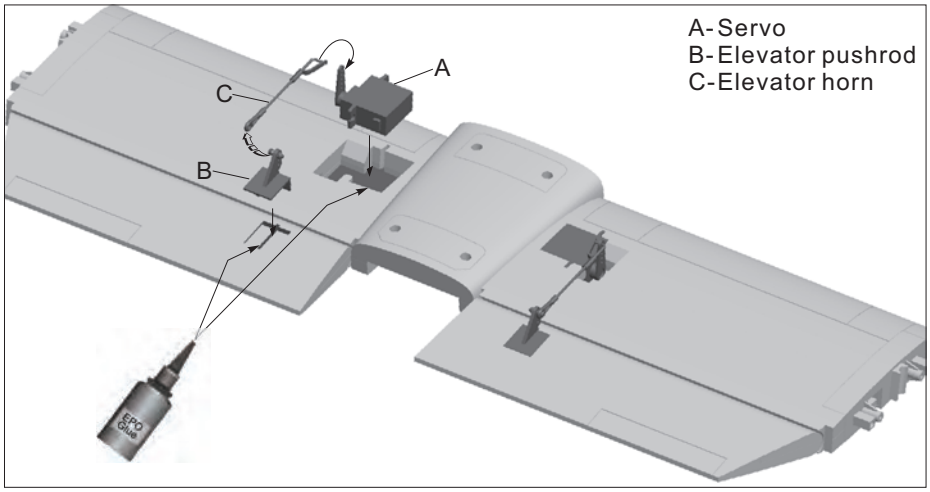
Aileron and Flap pushrod Installation

1. Use a servo tester or a transmitter to center the servo.
2. Use glue to install the servo and aileron horn to the main wing.
3. Feed the servo cable through the trough, when completed for all the servos, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. And secure the clevis to the aileron horn.
5. Repeat the above four steps to install the other clevis' for the flap, then repeat the procedure for the other aileron and flap servo.



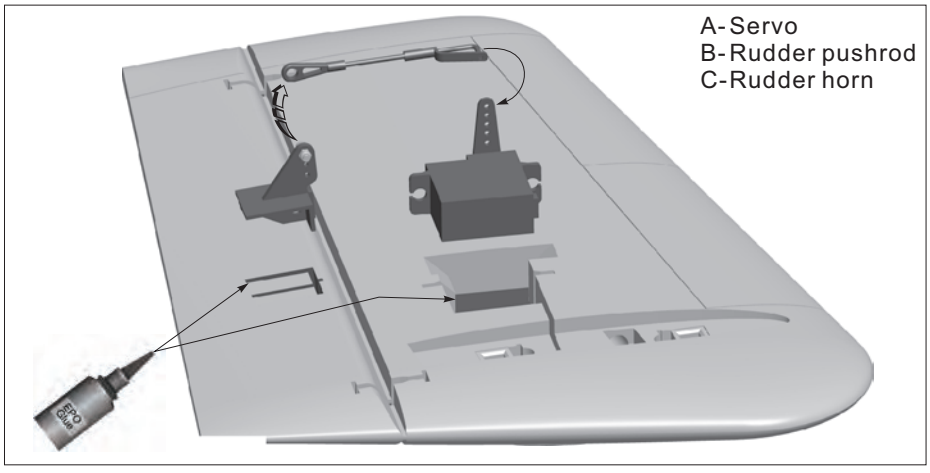
Elevator pushrod Installation

1. Use a servo tester or a transmitter to center the servo.
2. Use glue to install the servo and elevator horn on the elevator.
3. Feed the servo cable through the trough, when completed for all the servos, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. Secure the clevis to the elevator horn.
5. Repeat the above four steps for the other side of the elevator.



Rudder pushrod Installation

1. Use servo tester or a transmitter to center the servo.
2. Use glue to install the servo and rudder horn on the rudder.
3. Feed the servo cable through the trough, when completed, apply the decal over the trough.
4. Insert one end of the pushrod into the servo arm and adjust its length. Secure the clevis to the rudder horn.
5. Repeat the above four steps for the other rudder.



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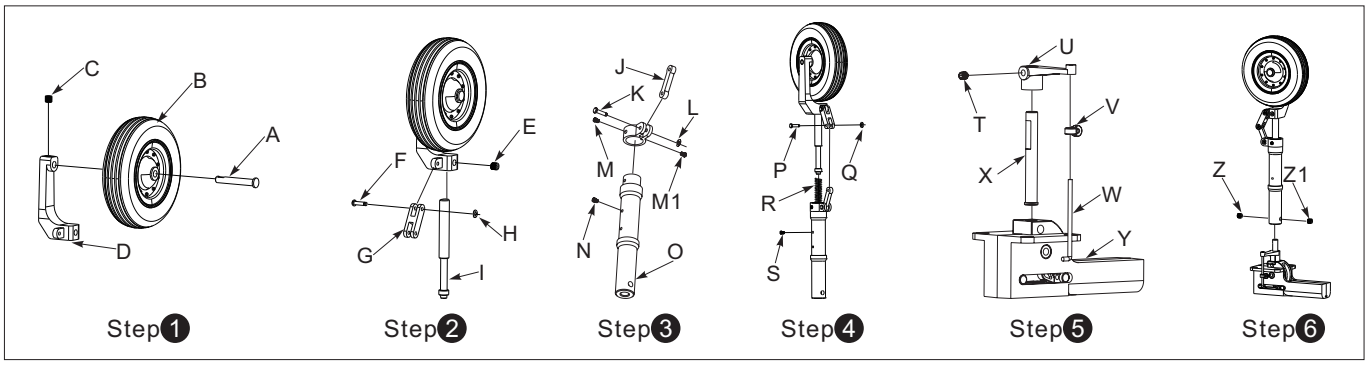
Accessories Description

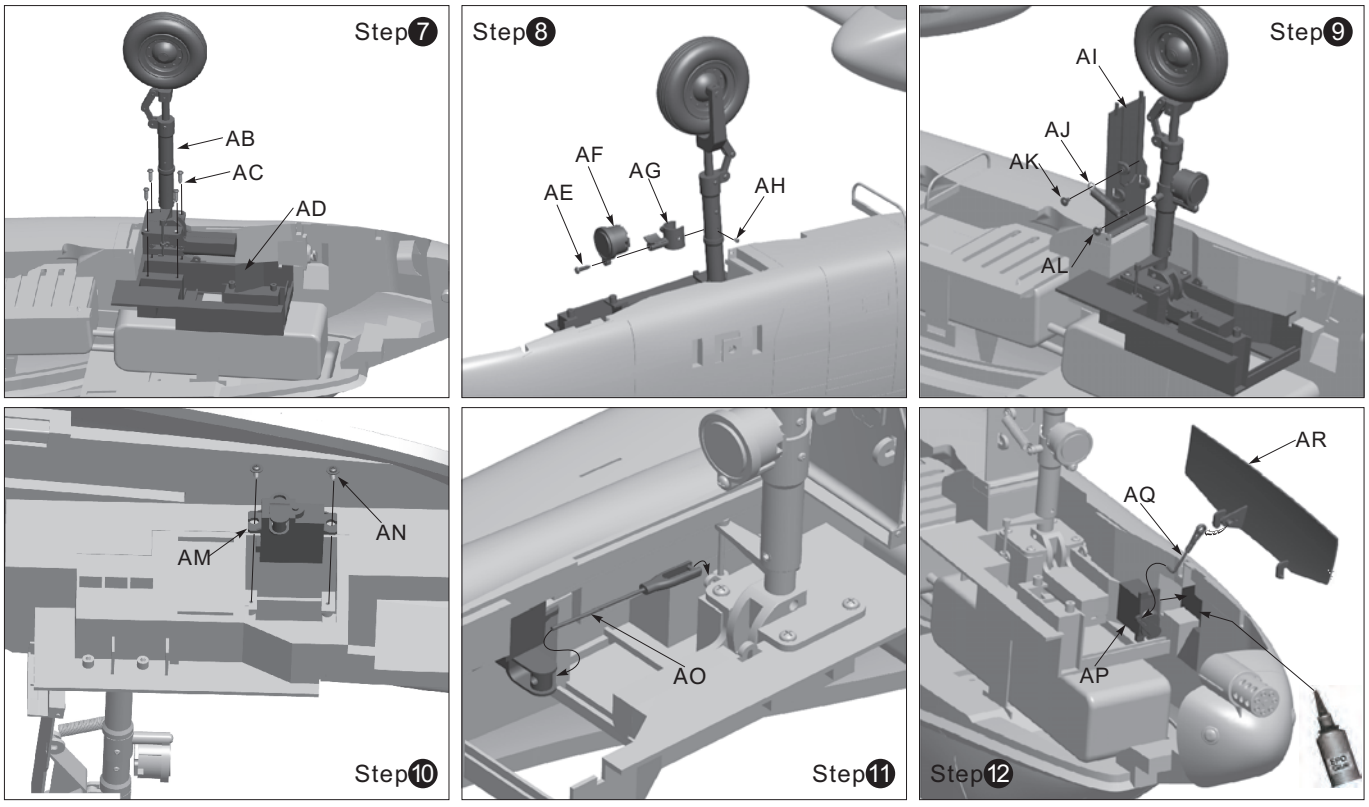
Nose landing gear assembly

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

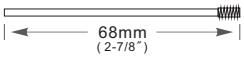
A - Nose gear axle
B - Nose wheel (Ø70x20mm)
C - Grub Screw (M4x3)
D - Nose gear slant strut
E - GrubScrew (M4x3)
F - Pin (Ø3.5X9.2mm)
G - H-Strut
H - C-Clip (Ø1.5mm)
I - Nose gear shock absorber active rod
J - 8-shape connecting arm
K - Pin (Ø3.5X9.2mm)
L - C-Clip (Ø1.5mm)
M - Screw (PM2x3 2pcs)
N - Screw (PM2x4 1pcs)
O - Nose gear strut
P - Pin (Ø3.5X9.2mm)
Q - C-Buckle (Ø1.5mm)
R - Spring
S - Screw (PM2x4 1pcs)
T - GrubScrew (M3x3)
U - L-shape rotating arm O-
V - shape ring
W - Pushrod
X - Nose metal wire Retract
Y - controller
Z - Grub Screw (M4x4)

AB - Nose landing gear Screw
AC - (PWA3x12 4pcs) Nose
AD - landing gear mount
AE - Screw (PA2x8 1pcs)
AF - LED lights
AG - LED light fixed arm
AH - Screw (PM2x3 1pcs)
AI - Nose landing gear door type
AJ - Spring
AK - Screw (PWA3x8 1pcs)
AL - Screw (PWA2.3x6 1pcs)
AM - Servo
AN - Screw (PWA2x8 1pcs)
AO - Nose steering pushrod
AP - Gear door servo
AQ - Gear door pushrod
AR - Nose cabin door





Nose steering pushrod size



Pushrod diameter Ø1.5mm

Servo pushrod installing hole



⚠ **Note:** When installing, please check the position of the flat spot on the spare part. When setting the grub screw,the flat position must face towards the screw hole, so that the grub screw anchors the part into place.

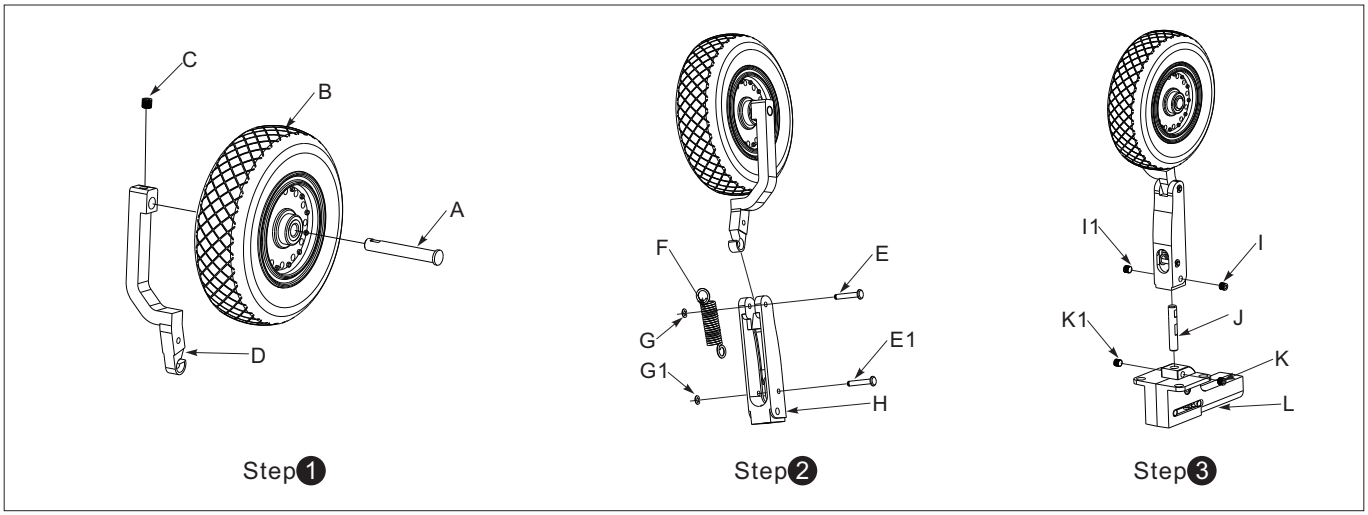
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Accessories Description

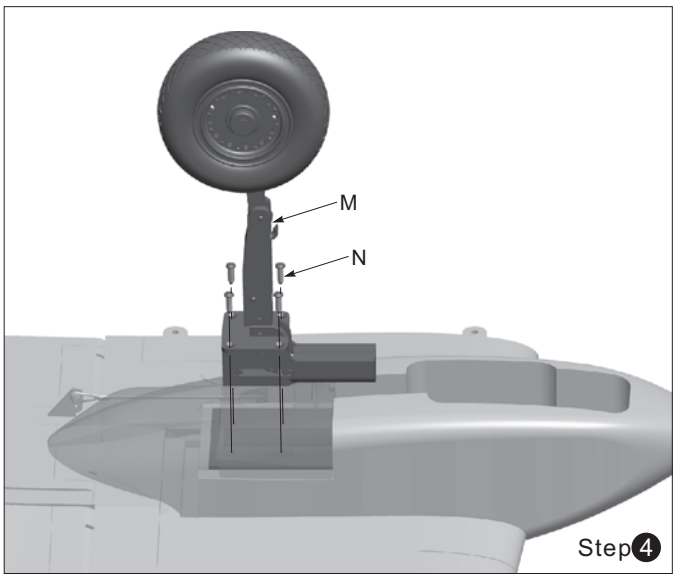
Main landing gear Assembly

When assembling or disassembling the main landing gear, refer to the following diagram

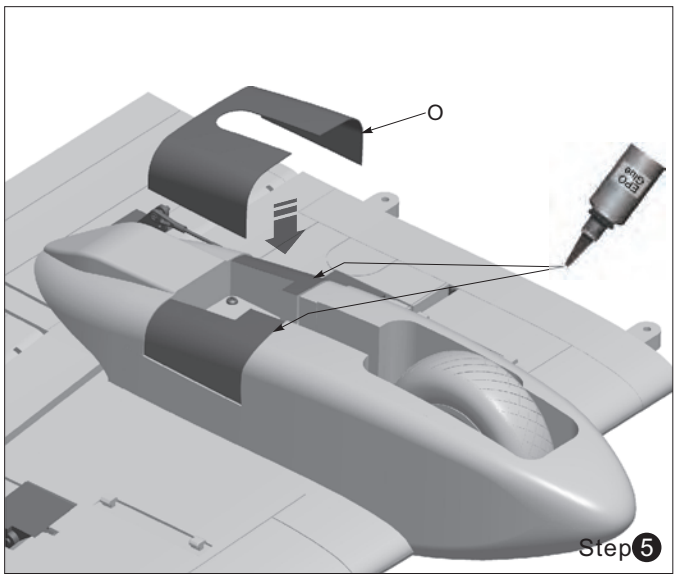
A- Main gear axle
B- Main wheel (Ø85x26mm)
C- Grub Screw (M4x3)
D- L-Slant strut
E- Pin (Ø3.5X9.2mm)
F- Spring
G- C-Clip (Ø1.5mm) Main
H- Gear strut
I - Grub Screw (M4x3)
J - Main gear main rod
K- Grub Screw (M4x3)
L - Electronic retract
M- Main landing gear
N- Screw (PWA3x12 4pcs)
O- Main gear plastic cover



Step 1 Step 2 Step 3



Step 4



Step 5

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