A-6E Intruder

80MM EDF JET

USER MANUAL



EN 1 ~ 14

中 15 ~ 28

Item No.:FJ2041
Version No.:FJ2041-V01

MADE IN CHINA

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Introduction

The Grumman A-6 (Intruder) was an all-weather, medium carrier-based attack aircraft in the U.S. Navy and U.S. Marine Corps between 1963 and 1997.In any bad weather, with low altitude flying, through enemy radar network, A-6 was able to destroy enemy positions correctly. Although A-6 was removed from U.S. Naval Air Forces,it was an excellent attack aircraft. We choosed (E) as a reference, to make our second 80mm EDF jet. No matter its apperance or details, this model plane has perfect simulation.

New 80mm EDF jet, we will make two version----4S battery standard version and 6S battery upgrade version. These two version, either the price or performance, it can suit for more groups.

A-6 Intruder model plane is a medium foam jet which wingspan is only 1174mm, very convenience to carry out. Use 80mm EDF power system, it can compensate the lack of 70mm EDF jet.So, when we design it, we add the flaps, full elevator, removable control surface design, electric retractable landing gear, 6S battery upgrade version, and retracts with full metal damping landing gear.

A-6 model plane have excellent flight performance. With flaps, it can be very smooth low altitude/slow flight, fully inherited all the best flight performance of real aircraft.

⚠ **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. Ensure that the throttle is in the lowest position and transmitter is turned on, before connecting a Lipo Battery to the ESC of the aircraft.
12. Do not try to catch the airplane while in flight or during landing. Wait for the airplane to come to a complete stop before handling.

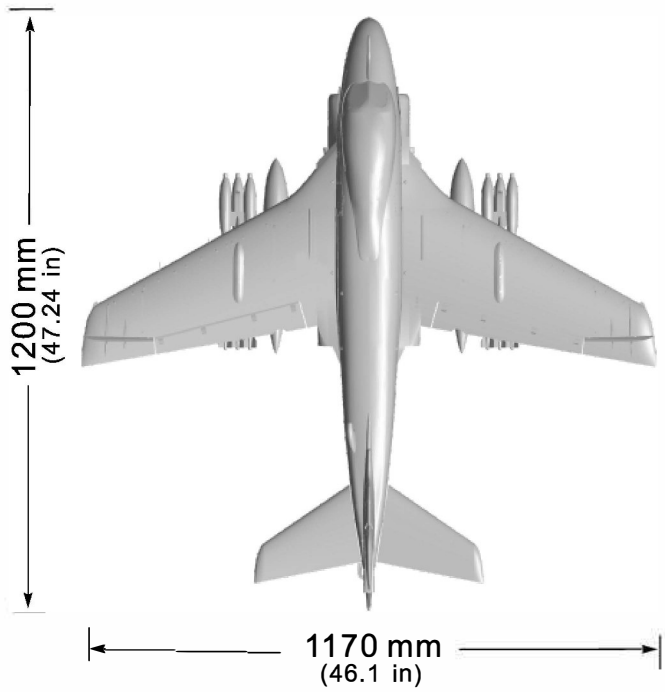
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Basic Product information

EN



4S Standard Version

- Motor
  3525-2870KV
- ESC
  80A（5A BEC)
- Servo
  9g (8pcs)
- Battery
  4S 14.8V 4000mAh 35C
- Ducted fans
  6-Bladed 80mm EDF
- Take-off weight
  1950g (68.72 oz.)
- Thrust
  1900g (67 oz.)

6S Upgrade Version

- Motor
  3530-1750KV
- ESC
  80A （5A BEC)
- Servo
  9g (8pcs)
- Battery
  6S 22.2V 3700mAh 35C
- Ducted fans
  12-Bladed 80mm EDF
- Take-off weight
  2290g (80.7 oz.)
- Thrust
  2600g (91.8 oz.)

⚠ 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 types of kits will come with certain specific parts. Refer to the list of parts for your type of kit in the chart below.

PNP

1.Fuselage set (installed, includes the electric parts and connection lines)
2.Main wing set (installed, includes the electric parts and connection lines)
3.Tail wing set (installed, include the electric parts and connection lines)
4.Missiles and pylons
5. Main wing plastic hard point
6.Carbon Fiber tube
7.Screws
8.Glue

Kit Plus

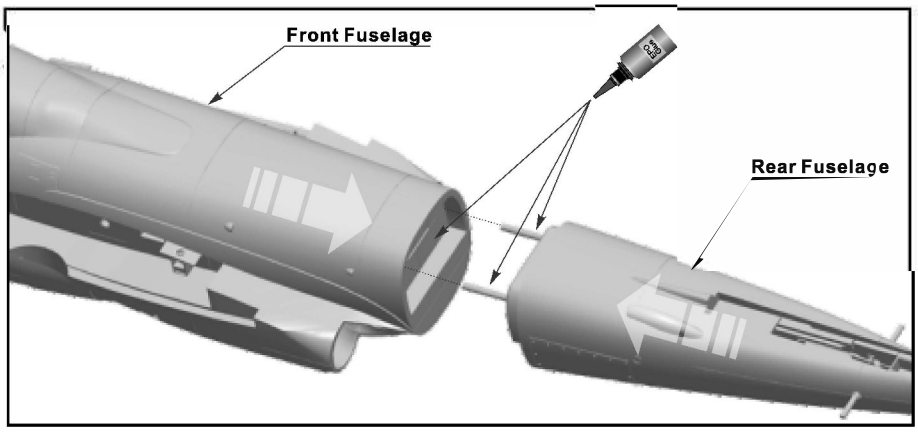
1.Fuselage set (installed,includes connection lines)
2.Main wing set
3.Tail wing set
4.Missiles and pylons
5.Main wing installing plastic part
6.Carbon Fiber tube
7.Screws
8.Glue

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Fuselage Assembly

Refer to the photo on the right for proper glue points.

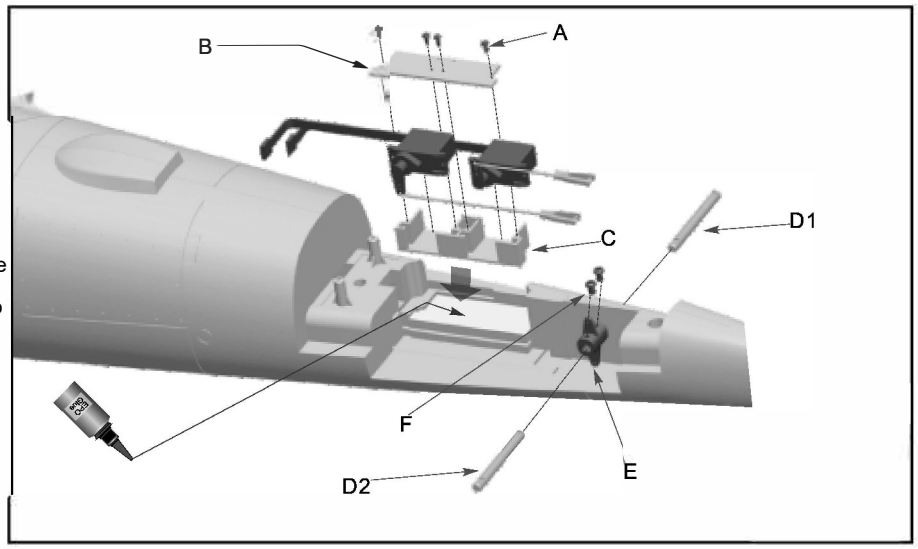
Once the glue has set for approximately 90 seconds, join the two pieces then pull them apart, creating 'strings' of glue. Repeat 3 times then press the two pieces together for the final time, this will ensure maximum strength at the glued point.



Elevator Servo Installation

A- Screws (PWA1.7x5mm 3pcs)
B- Elevator servo cover
C- Elevator servo plastic hard point
D- Elevator rotation shaft
E- Elevator rotating arm
F- Screws (PT3'5mm 2pcs)

1. Use a radio or servo tester to center the servo.
2. Apply the glue to mount the "Elevator servo plastic hard point(C)" on the white colored position as shown in the photo on the right.
3. Place the servo onto the "Elevator servo plastic hard point(C)", then place the "Elevator servo cover(B)" over the servo and use the 4 screws to secure it.
4. Insert the "Elevator rotation shaft(D)" in the "Elevator rotating arm (E)" and secure it with 2 "Screws(F)".
5. Use push rod to connect the servo arm to the "Elevator rotating arm(E)".

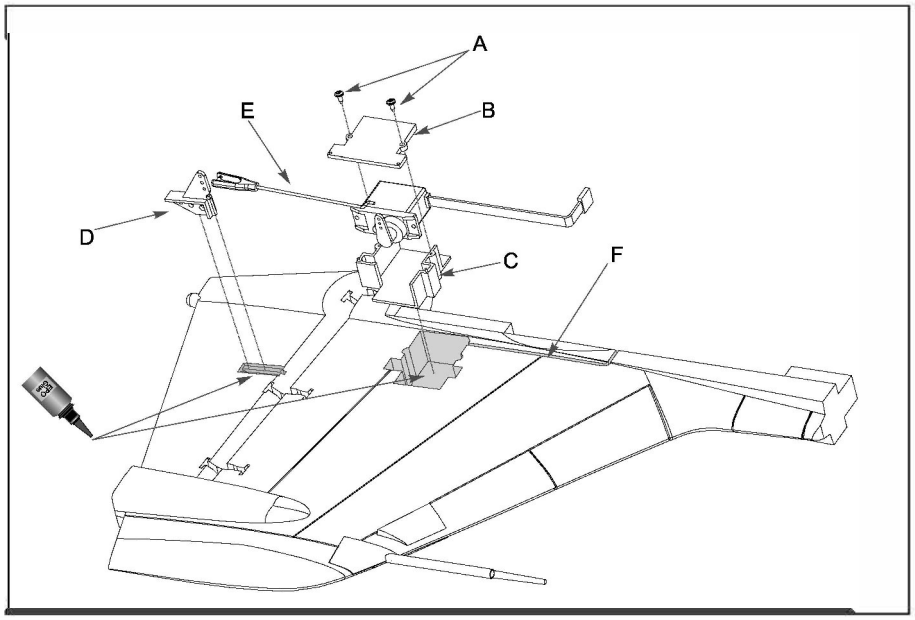


Rudder Servo Installation

A- Screws (PWA1.1, 5mm)
B- 9g servo cover
C - 9g servo box
D- Surface control horn
E - Rudder pushrod
F- Trough

Refer to the photo on the right

1. Use a radio or servo tester to center the servo.
2. Apply glue to the servo bay and install the "9g servo box(C)".
3. Apply glue to the rudder and install the "Surface control horn(D)".
4. Place the servo in "9g servo box(C)" and press the wire into the "Trough(F)".
5. Place the "9g servo cover(B)" over the servo and secure it using the 2 "Screws(A)".
6. Feed the open end of the "Rudder pushrod(E)" into the servo and snap the clevis onto the "Surface control horn(D)"



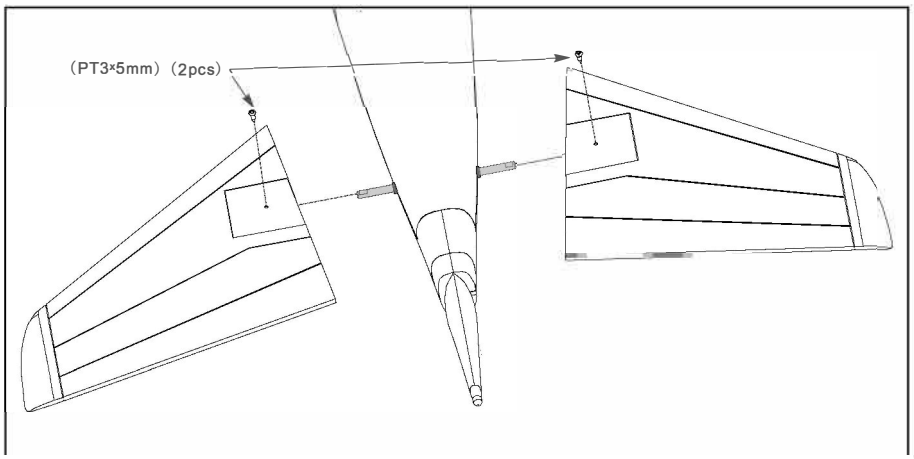
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Horizontal Stabilizer Installation

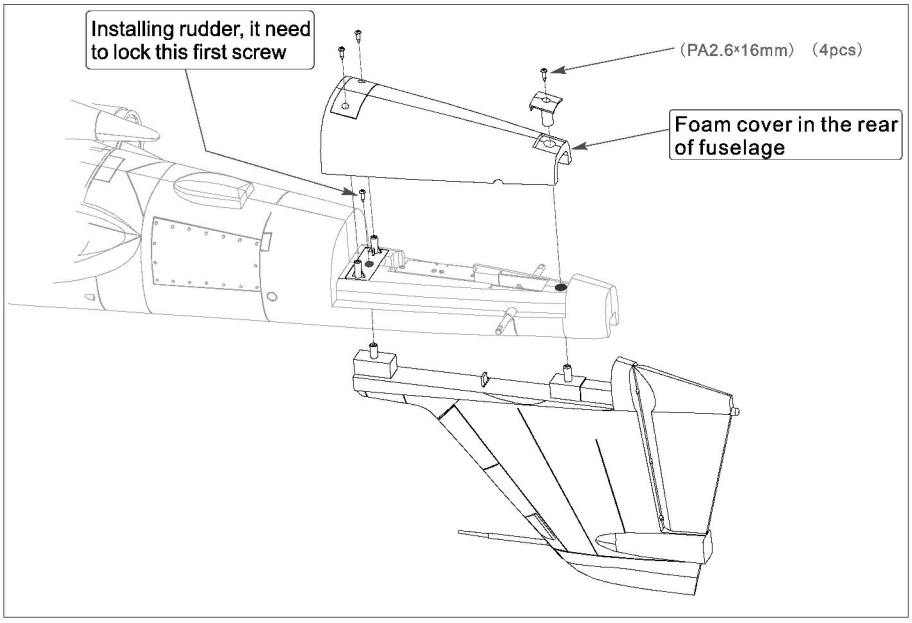
A. **Screws** (PT3x5mm 2pcs)

Refer to the diagrams on the right

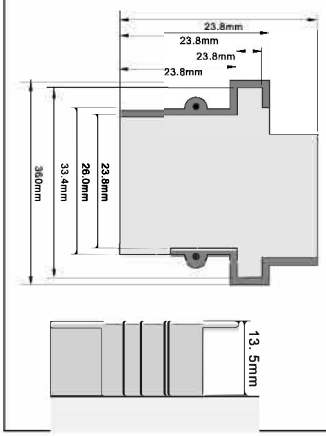
1. Ensure that the flat points of the "Elevator rotation shaft" are aligned with the screws that anchor the Horizontal Stabilizers. If they aren't aligned, the surfaces will not be securely anchored and there is a possibility of them coming loose during flight.



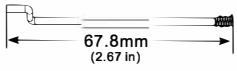
2. Connect the rudder servo cable to the extension cable in the fuselage.
3. Slide the Vertical Stabilizer into the rear of the fuselage and insert the screw into the bottom of the fuselage and tighten it to anchor the Vertical Stabilizer.
4. Place the foam cover over the fuselage anchor port and secure it with the 3 screws. Note the plastic hard points that the screws feed into.



Note: we have installed all the servo boxes in the aircraft, when pilots remove the servo, it will not damage the foam surface. If you need to replace servo, please purchase Freewing servo ,or refer to the following drawing to choose the correct size servo.

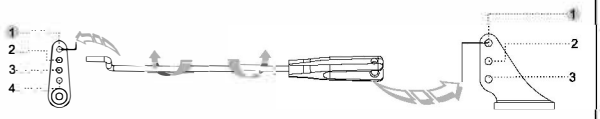


Rudder pushrod size



Pushrod diameter : Ø 1.2mm

Rudder pushrod mounting hole

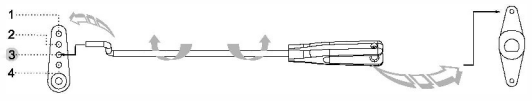


Elevator pushrod size(1)

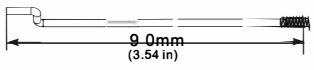


Pushrod diameter : Ø 1.2mm

Elevator pushrod mounting hole(1)



Elevator pushrod size(2)



Pushrod diameter : Ø 1.2mm

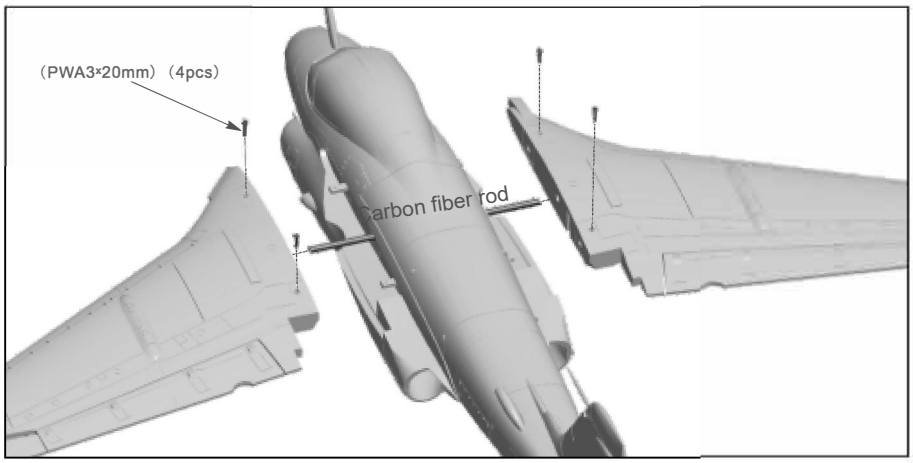
Elevator pushrod mounting hole(2)



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Main Wing Installation

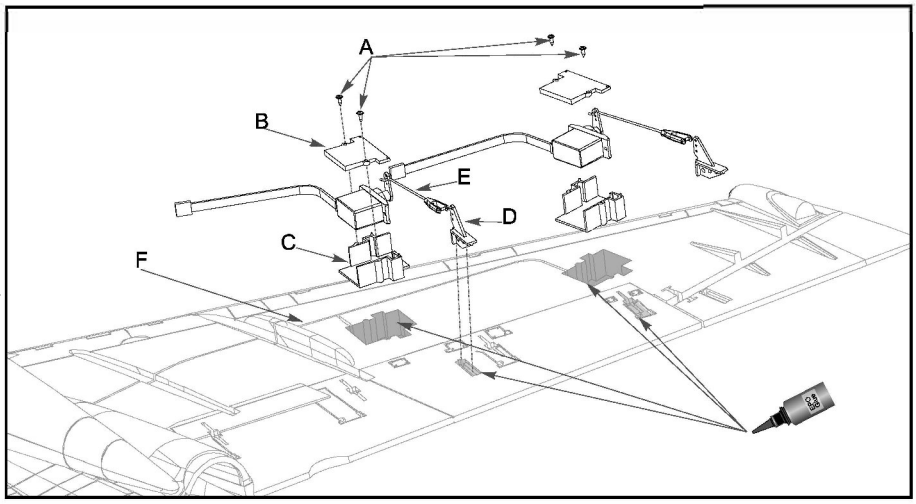
1. Insert the Carbon fiber rod into the fuselage.
2. Slide the port and starboard wings onto the Carbon fiber rods.
3. Use the 4 screws to anchor the wings to the fuselage.

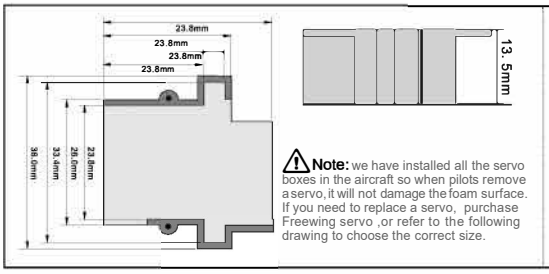


Wing Servo Installation

A - Screws (PWA1.7×5mm 2 pcs)
B - 9g servo cover
C - 9g servo boxes
D - Control horns (2pcs)
E - Pushrods (2 pcs)
F - Trough

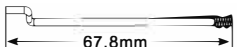
1.Use a servo tester or radio to center the servo.
2.Apply the glue to the servo bays and the control surfaces to attach the"9g servo boxes(C)" and"Control horns (D)" to the wings.
3.Place the servo in the" 9g servo box (C)", and press the servo cable into the "Trough (F)", then place the"9g servo cover (B)" over the servo and secure it with 2 "Screws(A)".
4.Use "Pushrods(E)" to connect the servo arms and"Control horns (D)".





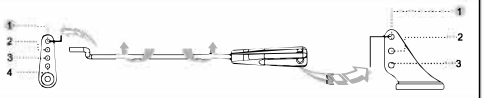
Note: we have installed all the servo boxes in the aircraft so when pilots remove a servo, it will not damage the foam surface. If you need to replace a servo, purchase Freewing servo ,or refer to the following drawing to choose the correct size.

Aileron pushrod size



Pushrod diameter : Ø 1.2mm

Aileron pushrod mounting hole

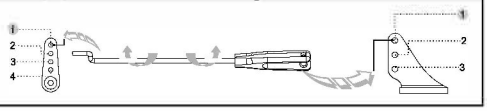


Flap pushrod size



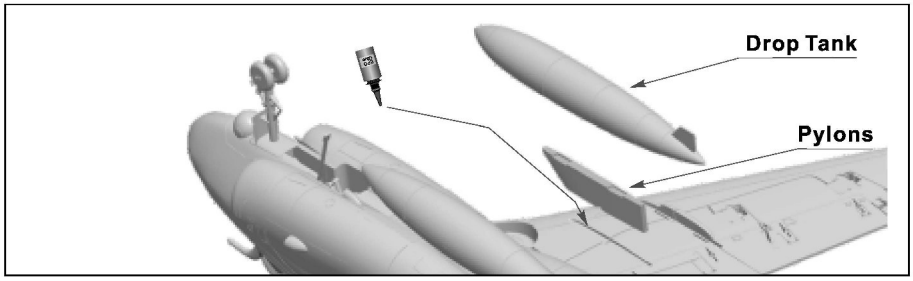
Pushrod diameter : Ø 1.2mm

Flap pushrod mounting hole



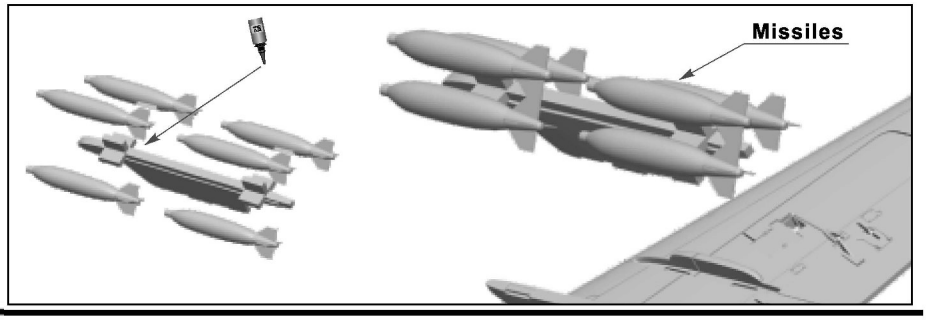
Drop Tanks And Bombs Installation

1. Apply glue to attach the drop tank pylons to the main wing.
2. After the glue sets, the drop tanks are attached to the pylons magnetically.



3. Use glue to attach the **optional** bomb pylons to the wings.
4. After the glue sets, the bombs attach to the pylons magnetically.

(The kit does not include bombs. If you wish to purchase them separately, contact your local distributor)

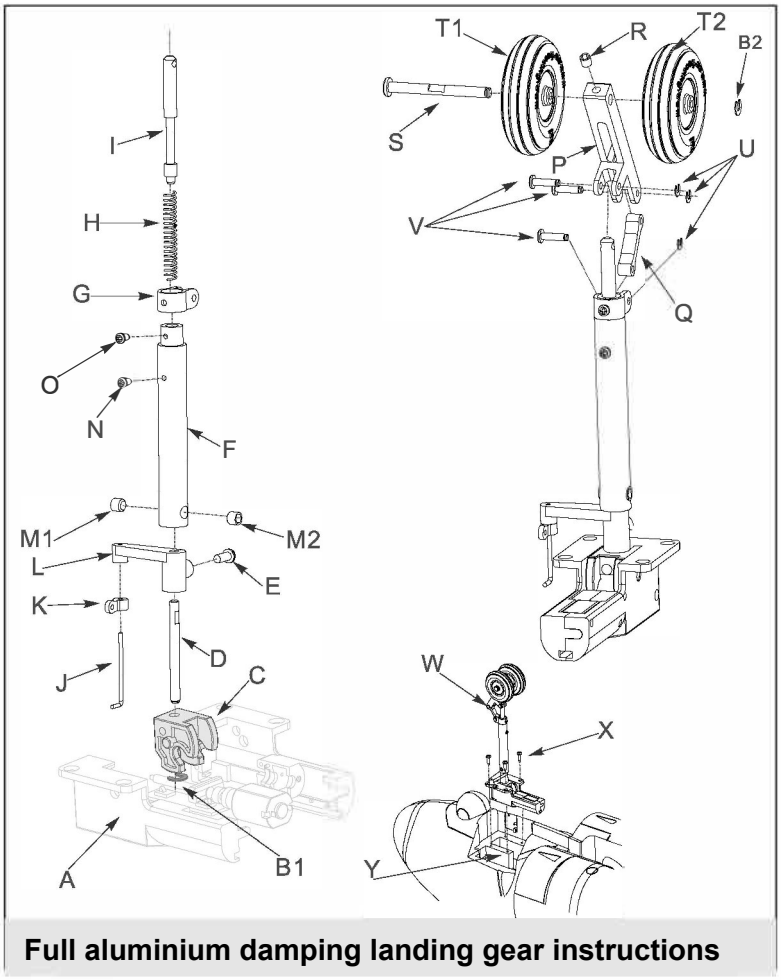


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Nose Gear Assembly and Installation (4s and 6s Versions)

The A-6 comes in two versions, the 4s standard version and a 6s upgraded version. The 4s version utilizes a basic wire type landing gear whereas the 6s upgraded version comes with a spring loaded aluminum shock absorbing style landing gear. The upgraded landing gear is also available to purchase separately if you choose to upgrade your 4s system.

A - Electric retract
B - E-clip (O2.0mm)
C - Trunnion
D - Metal pin
E - Screw (PT2.6x6mm)
F - Nose gear upper strut
G - U-shaped damping collar
H - Spring
I - Shaft
J - Landing gear steering pin
K - Pushrod collar
L - Steering tiller
M - Grub screws (M4x3mm 2pcs)
N - Screw (PM2x4mm)
O - Screw (PM2x3mm)
P - Lower strut
Q - Dampening shaft
R - Grub screw (M3x3mm)
S - Nose wheel axle
T - Wheels (O 35x10mm)
U - E clip (Ø1.5mm)
V - Pin
W - Landing gear assembly
X - Screws (PA2.6x10mm)
Y - Nose gear hard point



Full aluminium damping landing gear instructions

1. Disassemble the "Electric retract(A)", and remove the trunnion.
2. Insert the "Metal pin(D)"into the "Trunnion(C)" and secure it with "E clip(B)".
3. Put the "Pushrod collar(K)"onto the end of the "Landing gear steering pin(J)"and thread it into the "Steering tiller(L)".
4. Put the "Steering tiller(L)" and the "Nose gear main strut(F)"on the "Metal pin(D)" and use 2 "Grub screws((M)" and Grub screw(E)" to secure the assembly.
5. Put the "U shaped dampening collar(G)" on the end of the "Nose gear main strut(F)"and secure it with "Screw(O)".
6. Insert "Spring(H)" and "Shaft(I)" into the the "Nose gear main strut(F)" and press the "Shaft(I)" down. Thread the "Screw(N)"into the hole in the side of the "Nose gear upper strut(F)" to lock the "Shaft(I)" in place.
7. Use "Pin(V)" and "E clip(U) to connect the "Lower strut(P)" and the "Dampening shaft(Q)" to the "U shaped dampening collar(G)".
8. Put the "Wheel(T1)"on the "Nose wheel axle(S)" then insert the "Nose wheel axle(S)"into the "Lower strut(P)" and use "Grub screws(R)" to secure the "Nose wheel axle(S)" to the "Lower strut(P)".
9. Slide the "Wheel(T2)"onto the open end of "Nose wheel axle(S)" and secure it using "E clip(B)".
10. Place the "Landing gear assembly(W)" onto the "Nose gear hard point(Y)" and secure it using "Screws(X)."

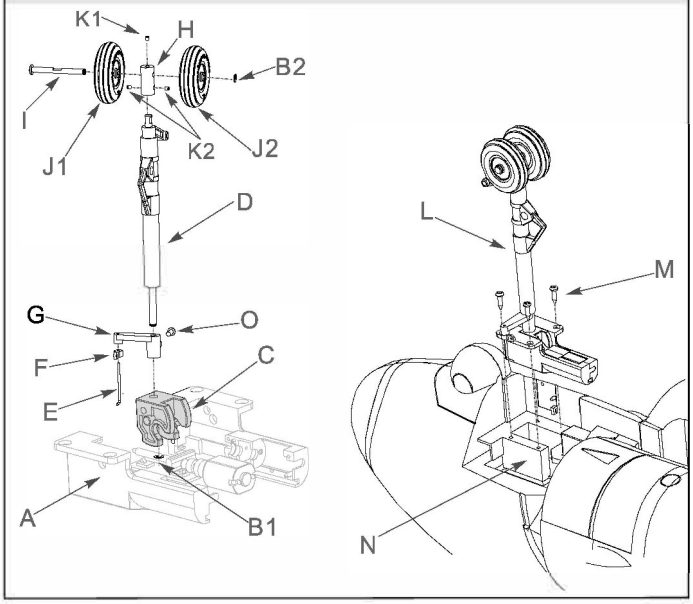
Note: When assembling, ensure that the flat position of the part aligns with the screw hole, this will lock the piece in place. Failure to do so could result in the piece coming off during flight.

Nose Landing Gear List

A- Electric retract
B - E-clips (02.0mm)
C - Trunnion
D - Nose gear strut
E - Nose gear steering pin
F - Pushrod collar
G - Steering tiller
H -Wheel mount
I - Nose wheel axle J
-Wheel (035'10mm)
K- Grub screws (M3x3mm)
L- Assembled nose gear set
M- Screws (PA2.6x10mm)
N- Nose landing gear mount
O- Screw (PT2.6x6mm)

1.Disassemble the "Electric retract(A)", and remove the "Trunnion(C)".
2.Put the"Pushrod collar(F)" into the" Nose gear steering pin(E)" and thread it into the"Steering tiller(G)"
3.Put the"Steering tiller(G)" onto the"Nose gear strut (D)", and use"Screw(O)" to secure it.
4.Insert the"Nose gear strut(D)" into"Trunnion(C)", and use"E-clip(B)" to secure it.
5.Put the"Wheel mount (H)" into the end of the"Nose gear strut (D)", and use the "Grub screws(K)" to secure it.
6.Put the"Wheel(J1)" on the" Nose wheel axle(I)", then insert the "Nose wheel axle(I)" into the "Wheel mount(H)", use"Grub screw (K1)" to secure it. Then put the other wheel on the "Nose wheel axle(I)", and secure it with the "E-clip (B2)".
7.Reassemble the "Electric retract(A)".
8.Place the"Assembled nose gear(L)" onto the "Nose gear hard point(N)"and use the "4 screws(M)" to secure the unit.

4S standard version metal landing gear (no damping) instructions



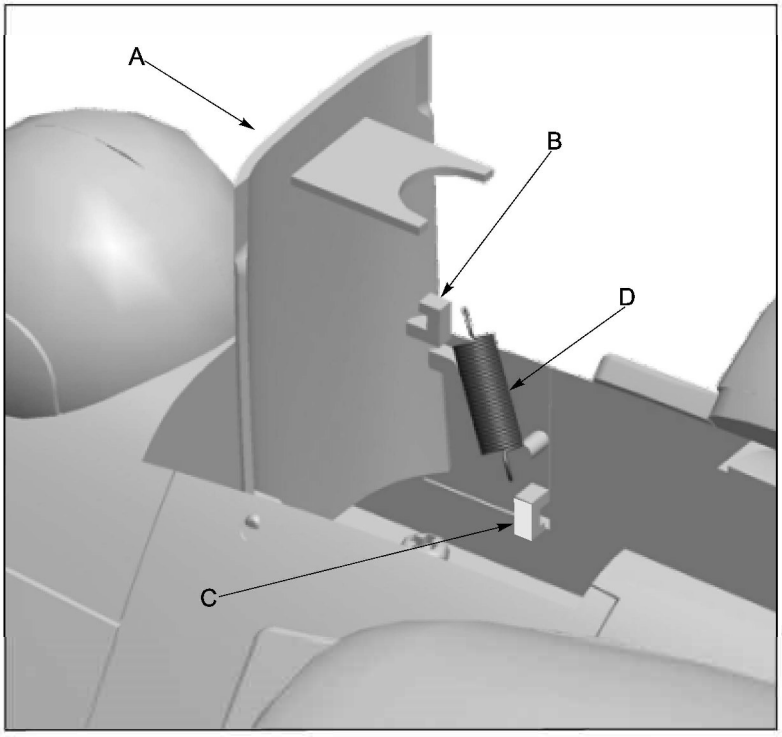
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Nose Gear Door Installation

Nose cabin door list:

A- Nose gear door
B - Door hook1
C - Door hook2
D- Spring

1.Attach the"Nose gear door(A)" to the fuselage.
2.Use"Spring(D)" to connect the"Door hook1(B)" o the "Door hook 2 (C)".

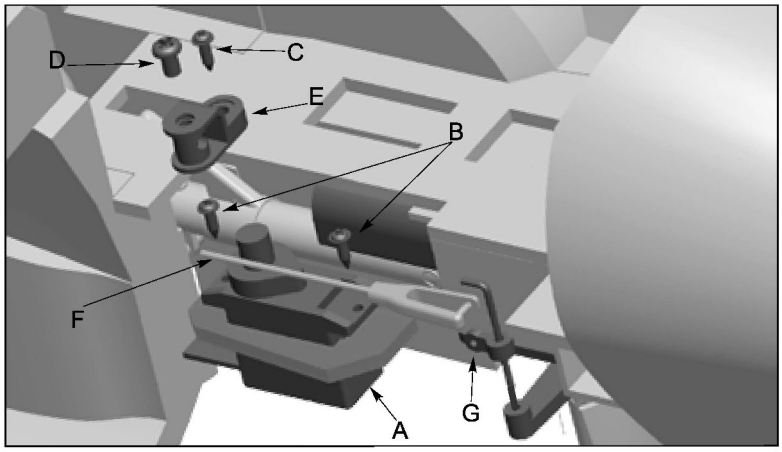


Nose Gear Steering Servo Installation

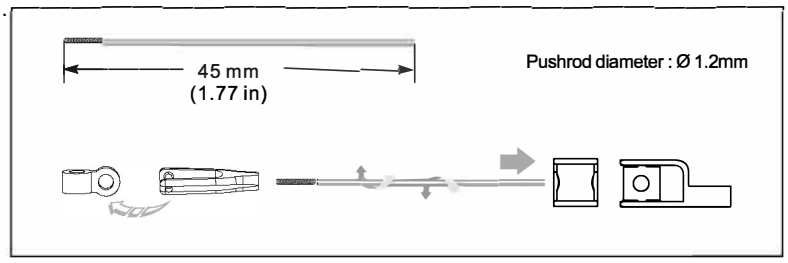
Accessories list

A- 9g servo
B - Screw (PWA2'B)
C - Screw (PWA1.7'5)
D- Screw (PM3'6)
E - U-shape servo arm
F - Pushrod
G - Landing gear steering control ring.

1. Place the "9g servo(A)" onto the wooden mount.
2. Use "Screws(B)" to secure the servo.
3. Place the "Servo arm(E)" on the pin of the servo and use "Screw(C) to anchor it.
4. Snap the clevis onto the "Pushrod collar(G)"and slide the open end of the "Pushrod(F)" into the "Servo arm(E)".
5. Center the nose wheel then lock the pushrod into place using "Screw(D)".



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Main Gear Assembly and Installation

Main gear list (6S upgrade version)

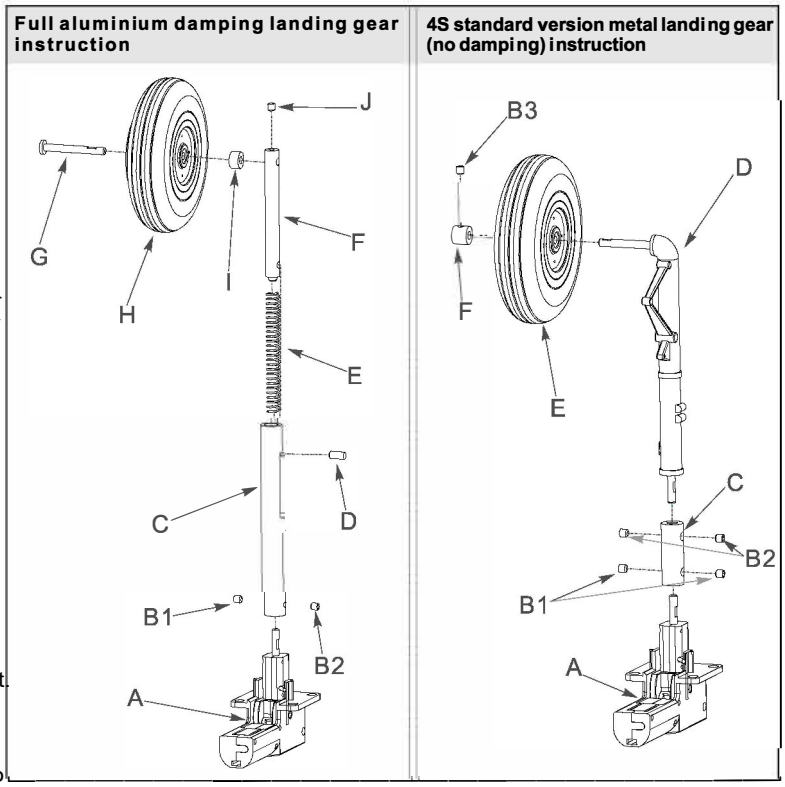
A-Electric retract
B-Grub screws (M4x3mm)
C-Main gear strut
D-Pin
E -Spring
F -Main gear dampening pin
G -Main gear wheel axle
H -Rear wheel (06Ox16mm)
I -Spacer
J -Grub screw (M3x3mm)

1.Put the" Main gear strut (C)" onto the metal pin of "Electric retract(A)" and use the 2"Grub screws(B)" to secure it.
2.Insert the"Spring(E),and "Main gear damping pin (F)" into the"Main gear strut(C)", and press the" Main gear damping pin(F)" down. Through the slot ofthe"Main gear strut(C)", slide the"Pin (D)" into the hole ofthe"Main gear dampening pin(F)" to lock it in place.
3.Put the"Rear wheel(H)" and"Spacer(I)" onto the" Main gear wheel axle(G)", then slide the"Main gear wheel axle(G)" into the hole of the "Main gear strut (C)" and use "Grub screw (J)" to secure it.

Rear landing gear list (4S standard version)

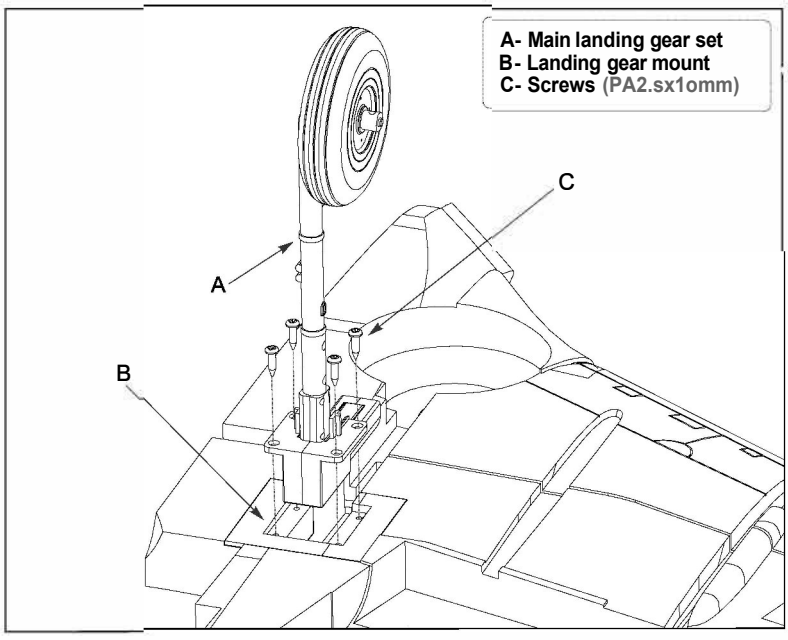
A-Electric retract
B-Grub screw (M3x3mm)
C-Main gear metal collar
D-Main gear strut
E-Main wheel (0sox1smm)
F-Wheel collar

1.Put the "Main gear metal collar(C)" in the "Electric retract(A)" and use 2 "Grub screws(B1)" to secure it.
2.Insert the "Main gear strut(D)" into the "Main gear metal collar(C)", and use 2 "Grub screws(B2)" to secure it.
3.Put the "Main wheel(E)" and "Wheel collar(F)" onto the "Main gear strut(D)", and use "Grub screw (B)" to lock the "Wheel collar(F)"onto the axle.



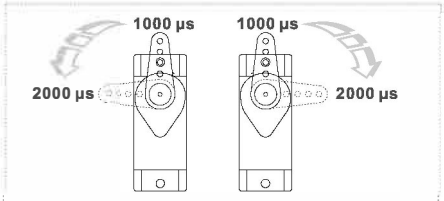
Note: When assembling, ensure that the flat position of the part aligns with the screw hole, this will lock the piece in place. Failure to do so could result in the piece coming off during flight.

1.Place the assembled "Main landing gear set(A)"onto the "Landing gear mount((B)". Secure the gear to the wing with 4 "Screws(C)"



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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**.

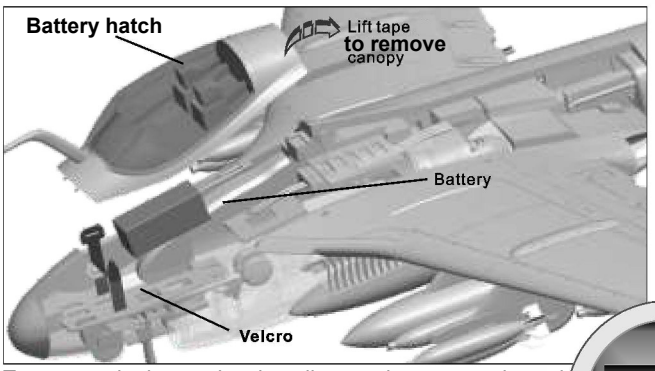
If you decide to purchase another brand of servo, use the following list to ensure the servo has the correct dimensions and cable length.

Servo installing position	Servo No.	Pos./Rev.	Servo Cable Length
Nose gear steering servo	1	Positive	100mm
Aileron servo (Left)	2	Positive	450mm
Aileron servo (Right)	3	Positive	450mm
Flap servo (Left)	4	Positive	300mm
Flap servo (Right)	5	**Reverse**	300mm
Elevator servo (Left)	6	Positive	250mm
Elevator servo (Right)	7	Positive	300mm
Rudder servo	8	**Reverse**	200mm

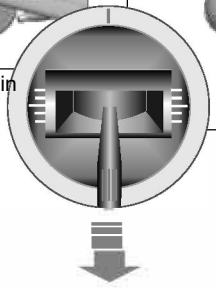
Servo connection instruction

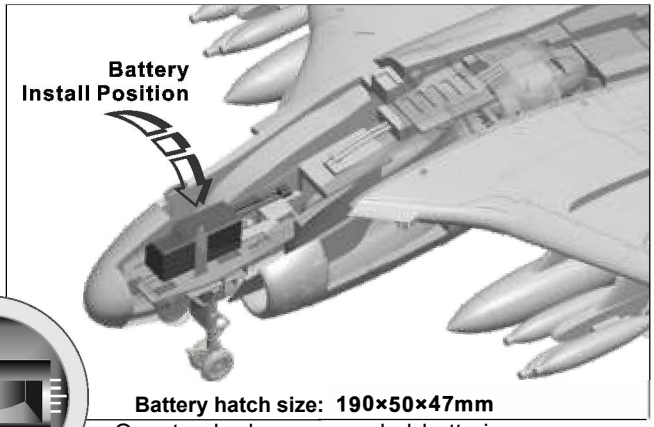
1.Use Y-harness to connect the No.1 and No.8 servos.
2.Use Y-harness to connect the No.2 and No.3 servos.
3.Use Y-harness to connect the No.4 and No.5 servos.
4.Use Y-harness to connect the No.6 and No.7 servos.

Battery Installation



To remove the battery hatch, pull up on the tape as shown in the diagram. Place the battery on the battery mount and secure it using the Velcro straps. Check your CG. Ensure that the radio is turned on and that throttle is in the lowest position. Engage the kill switch if one is assigned.





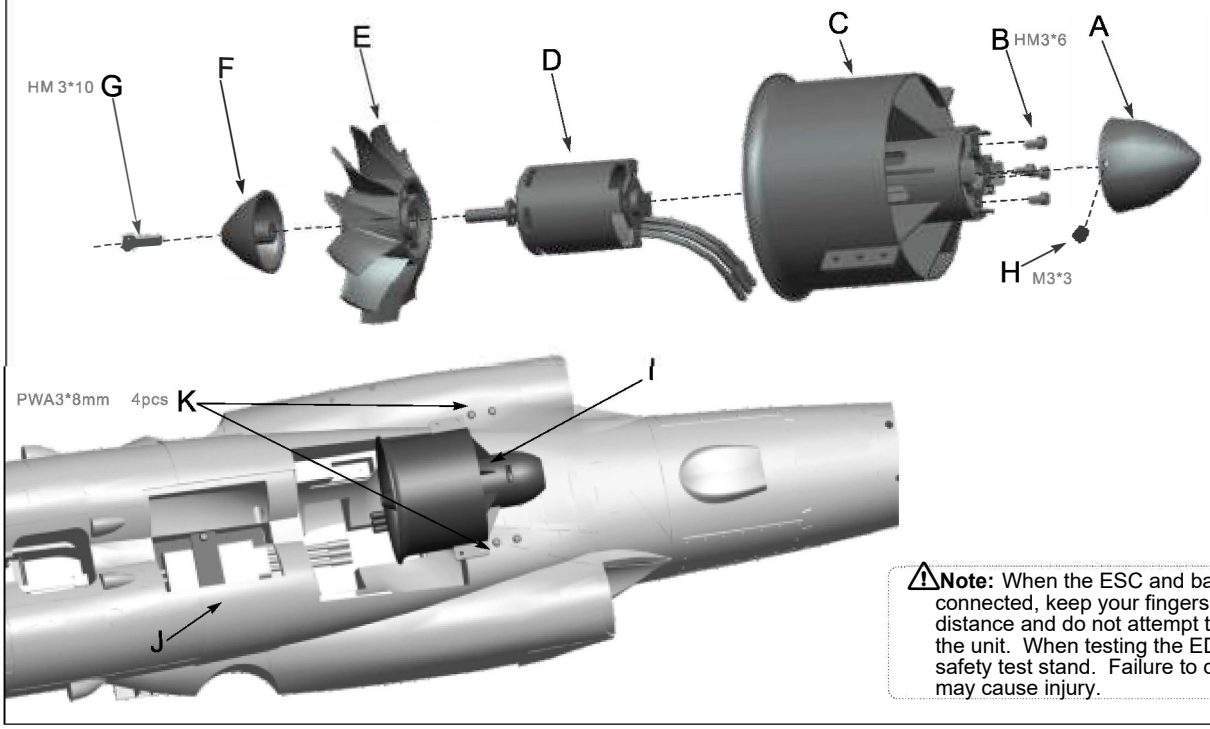
Battery hatch size: 190×50×47mm

Our standard recommended batteries are:
45 14.SV 4000mAh 35C
or 65 22.2V 3700mAh 35C
The recommended battery capacity and discharge rate is :
4514.8V 3200mAh ~ 4S 14.BV 4500mAh
65 22.2V 3200mAh ~ 65 22.2V 4500mAh
Discharge rate of C ⩾ 25C
Different battery weights may affect the CG. Be aware of this and adjust to battery position to attain the correct CG.

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Power System Installation

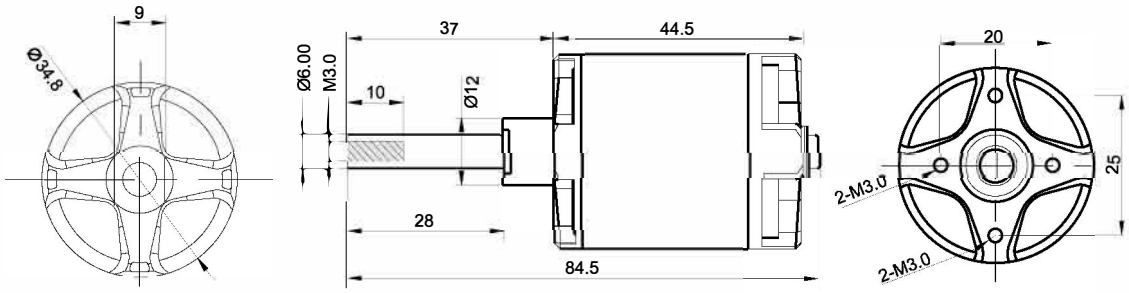
1.Slide the "Motor(D)" into the "Ducted fan housing(C)".
2.Join the "Motor(D)" to the "Ducted fan housing(C)" using 4 "Cup head screws(B)".
3.Slide the "Rotor(E)" onto the motor shaft.
(During this process, please note the flat spot of rotor should align with the flat spot of the motor shaft)
4.Use "Spinner(F)" to cover the rotor, and use the "Cup-head-screw(G)"to secure it to the motor shaft.
5.Place the "Tail air-deflector(A)" onto the "Ducted fan housing(C)", and use 2 "Grub screws(H)" to secure it.
6.Connect the motor to the ESC.
7.Put the "assembled "EDF(I)" into the fuselage.
8.Use 4 "Screws(K)" to secure the "EDF (I)" to the fixed wood platform.



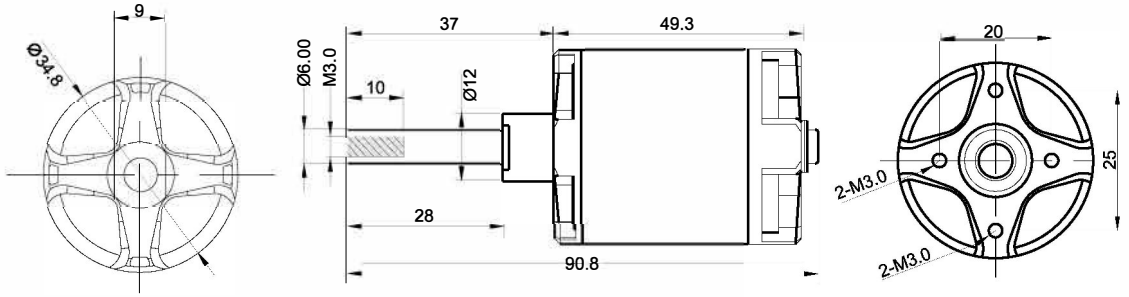
Note: When the ESC and battery are connected, keep your fingers at a safe distance and do not attempt to touch the unit. When testing the EDF, use a safety test stand. Failure to do so may cause injury.

Motor Parameters

MOJ35251
3525-2870KV
For 4S Battery Standard Version



MOJ35301
3530-1750KV
For 6S Battery Upgrade Version

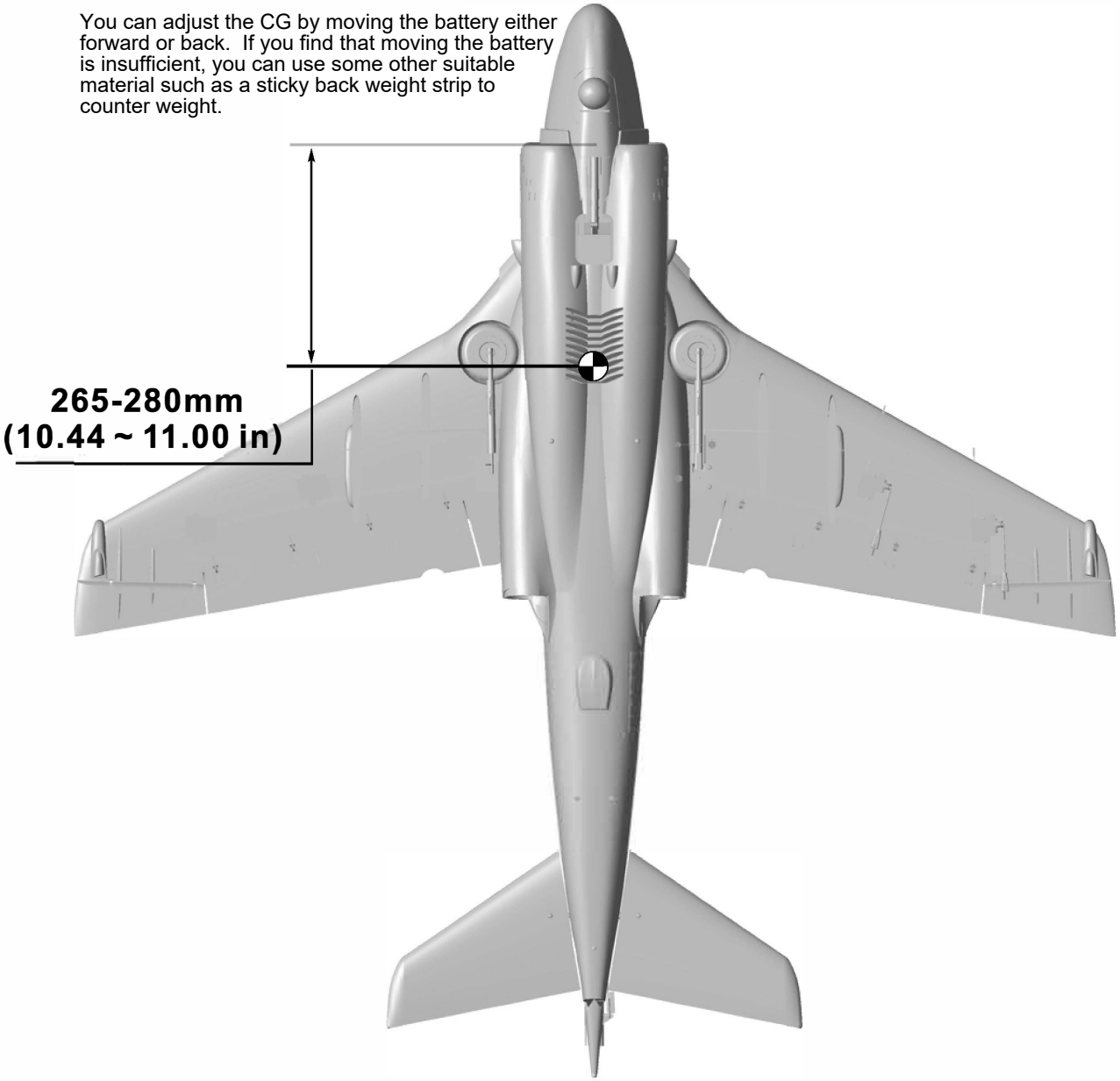


Item No.	KV Value	Volate (V)	Current (A)	Thrust (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MOJ35251	2870RPM/V	14.8	63	1900	0.0087Ω	125	4.8A/15V	6-Bladed 80mm Ducted Fan	⩾80A
MOJ35301	1750RPM/V	22.2	72	2600	0.0146Ω	150	4.6A/23V	12-Bladed 80mm Ducted Fan	⩾80A

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Center of Gravity

The correct Center of Gravity is directly related to the success of the initial flights. Refer to the following diagram to ensure you have the proper CG. Once comfortable with the airplane, you can adjust the CG to suit your individual taste.



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Control Surface Direction and Set Up

After the Airplane is assembled, but before first flight, switch on the radio and ensure the throttle is in the lowest position. Engage the kill switch if one is assigned. Install a fully charged battery and connect it to the ESC. Using the radio, ensure that all control surfaces move in the correct direction.

Ailerons

Stick Left



Stick Right



Elevator

Stick Back



Stick Forward



Rudder

Stick Left



Stick Right



Flaps

Flaps Down

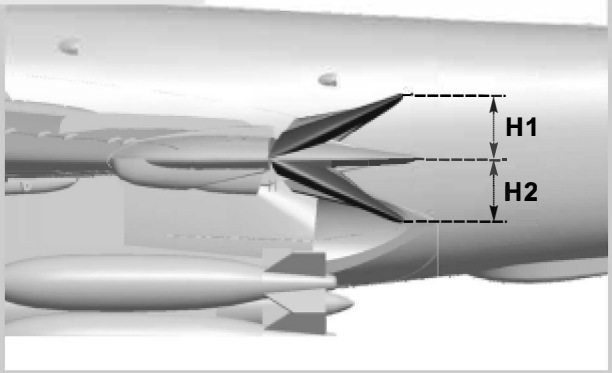


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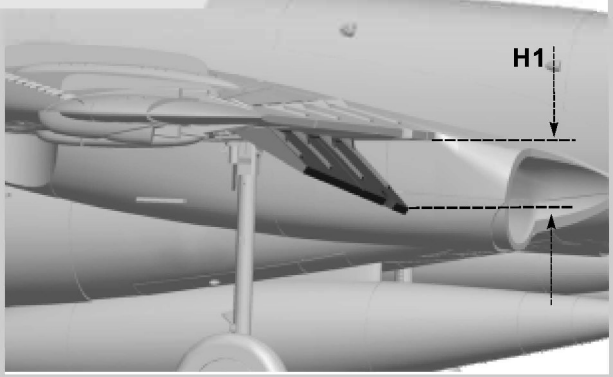
Dual Rates

According to our test results, the following rates proved to be a good starting point. Low rates are good for initial flights or less experienced pilots. High Rates will be more sensitive to control inputs After initial flights, adjust the rates to suit your own style.

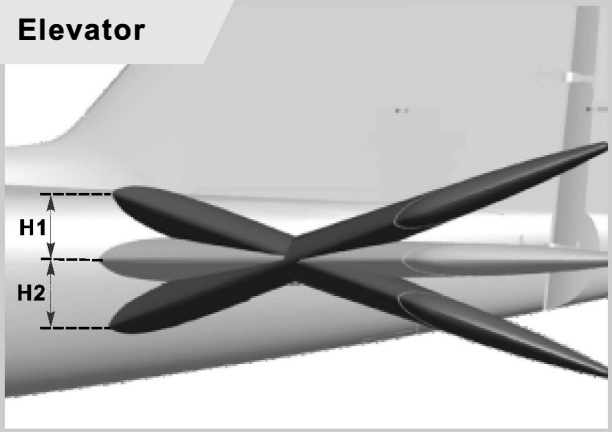
Ailerons



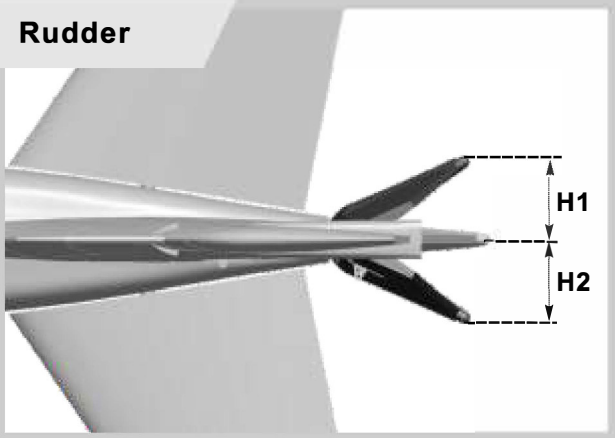
Flaps



Elevator

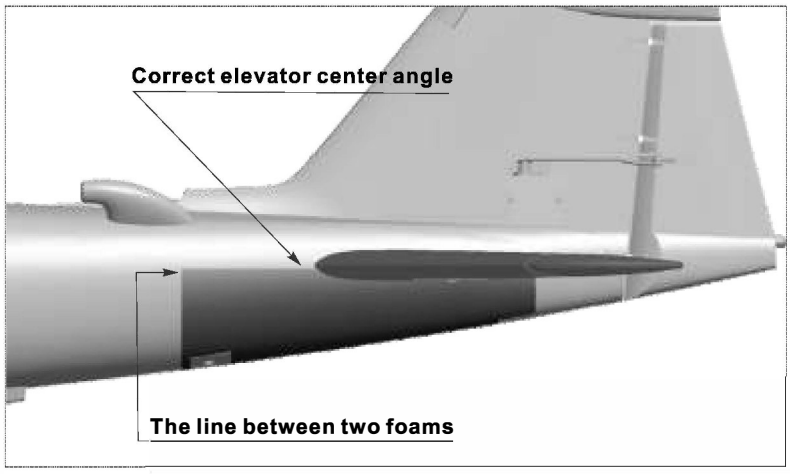


Rudder



	Aileron	Flaps	Elevator	Rudder
Low Rate	H1/H2 23mm/23mm	H1 22mm	H1/H2 16mm/16mm	H1/H2 30mm/30mm
High Rate	H1/H2 26mm/26mm	H1 42mm	H1/H2 22mm/22mm	H1/H2 40mm/40mm

All Flying Elevator Centering Diagram



Note: This airplane has an "All Flying" type horizontal stabilizer, therefore, the angle of attack is critical to the flight performance.

Use the photo to the left for reference to ensure the correct angle of attack

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Troubleshooting Guide

Motor does not turn	A) Li-Po battery depleted	A) Recharge Li-Po battery
	B) Transmitter batteries depleted	B) Replace or recharge batteries
	C) Transmitter not turned on	C) Turn on transmitter
	D) Li-Po battery not plugged in	D) Plug in Li-Po battery
	E) Motor not armed	E) Arm motor
	F) A crash has damaged an internal component	F) Replace
	G) ESC or other damaged	G) Check ESC or contact local distributor
Airplane is difficult to control	A) You are flying in too much wind	A) Fly when there is no wind
	B) Li-Po battery depleted	B) Recharge Li-Po battery
	C) Transmitter batteries depleted	C) Replace or recharge batteries
	D) Transmitter antenna not extended completely	D) Extend transmitter antenna completely
	E) Surface control rate is too high	E) Use low rate to fly
Airplane flies nose heavy, needs constant up elevator	A) CG is forward	A) Adjust CG rearward. Refer to CG instructions
Airplane constantly climbs or descends, or turns right or left without control input	A) The aircraft is out of trim adjustment	A) Adjust the transmitter trim tabs
	B) You are flying in too much wind	B) Fly when there is no wind
Elevator is too sensitive, vertical movement is unstable	A) CG is backward	A) Adjust CG forward refer to instruction
Airplane will not taxi straight	A) Nose gear is not center.	A) Center nose gear
	B) Rudder is not center.	B) Center rudder
Take off is difficult	A) Thrust is not on the high position	A) Throttle is in the high position
	B) Taxi distance is not enough	B) Extend the take off distance
	C) Elevator rate is not enough high	C) Use a higher rate of elevator
Airplane will not climb	A) Li-Po battery is depleted	A) Recharge Li-Po battery
	B) Ducted fan is damaged	6) Check and replace ducted fan
	C) Motor is damaged	C) Check and replace motor
	D) ESC overheat protection,power reduction.	D) Land and check the ESC. Replace if necessary
Li-Po battery is slightly warm after charging	A) This is normal	A) The Li-Po battery may be slightly warm when fully charged. It should not be hot to the touch.
Motor vibrates excessively	A) Ducted fan is damaged	A) Check and replace ducted fan
	B) Motor is damaged	6) Check and replace motor
	C) Ducted fan is not balance	C) Adjust the ducted fan balance
	D) High speed will happen slightly vibrate	D) This is normal, its good to use
Control surfaces move in the wrong direction	A) Servo direction is reversed	A) Adjust servo reversing function

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Dongguan Freewing Electronic Technology Ltd
HK Freewing Model International Limited

Add.:FeiYi Building,face to Labor Bureau, Fumin Middle Road, Dalang Town,
Dongguan City，Guangdong Province, China
Web: http://www.sz-freewing.com
Email:freewing@sz-freewing.com
Tel: 86-769-82669669 Fax:86-769-82033233

东莞市飞翼电子科技有限公司
香港飞翼模型国际有限公司

地址：广东省东莞市大朗镇富民中路402-408号飞翼楼四楼
Web: http://www.sz-freewing.com
Email:freewing@sz-freewing.com
Tel: 86-769-82669669 Fax:86-769-82033233

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