Item No.:FJ308
Version No.:FJ308-V01

Freewing MODEL
www.sz-freewing.com

F-14 Tomcat User Manual

Wingspan : 1550mm

EN 1 ~ 14
中 15 ~ 28

MADE IN CHINA

Introduction

EN

Thank you for purchasing F-14 "Tom Cat" dual 80mm ducted based fighter model! Grumman for the US Navy designed and manufactured F-14 "Tom Cat",no doubt, is the majority of military fan favorite carrier-based fighter in the US Navy's fighter group. In addition to its cool and beautiful appearance, unique design of variable-sweep wings beyond these features, powerful combat is another focus, which mount "Phoenix" missile, the strategic imagination became reality! Although, F-14 "Tom Cat" this legendary fighter has bid farewell to the sky and the sea! However, it did not affect us to continue on the "Tom Cat" praise and love!

We obtained the North American Grumman authorization and designed it refer to F-14 "Tom Cat" D-type prototype!Whether it is the overall shape of the model, painting, or the nose portion of the pitot tube, all kinds of antennas, weapons pylons, missiles and other details,its vivid.

Scale is not our only pursuit, variable sweep flight is our pursuit for F-14. We use the electric worm and alu-frame to achieve the variable sweep flight. After thousands test and dozens of improvements, we solved the flight un-stability problem in swept wing flight. Although we only set up two fixed angle swept wing, we can fully appreciate that the variable sweep wing bring us its flight pleasure. In forward wing flight, F14 is very stale to fly. In swept wing flight, it looks like change a new jet, flight speed is quicker and more flexible,it feels like that you controlled one upper wing trainer firstly, and suddenly change to fly a jet , full of excitement!

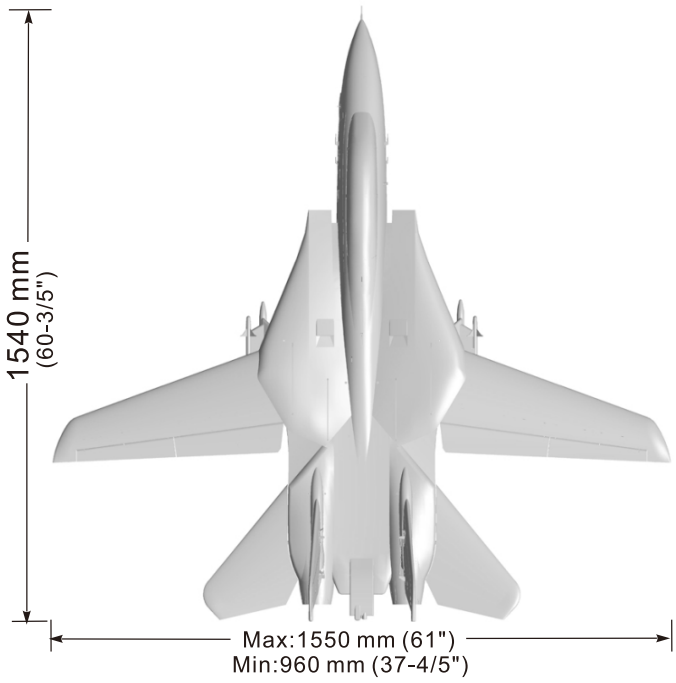
F-14 is a complicated model plane, We strongly recommend that you read the manual very carefully beofre install, and adjust it according to manual parameter. We wish you have a successful maiden flight and hope to give you a new flying experience!

⚠ **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! Operater 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.

Product basic information



Standard Version

Wingload：240g/dm²
Motor: o/r BL 3525-2050KV (2pcs)
Servo: 9g / 17g MG servo (2 / 8pcs)
ESC: 80A with 8A UBEC (2pcs)
Ducted fan: 80mm 6-blade plastic fan (2pcs)
Weight: 4160g (w/o Battery)
Thrust: 5200g

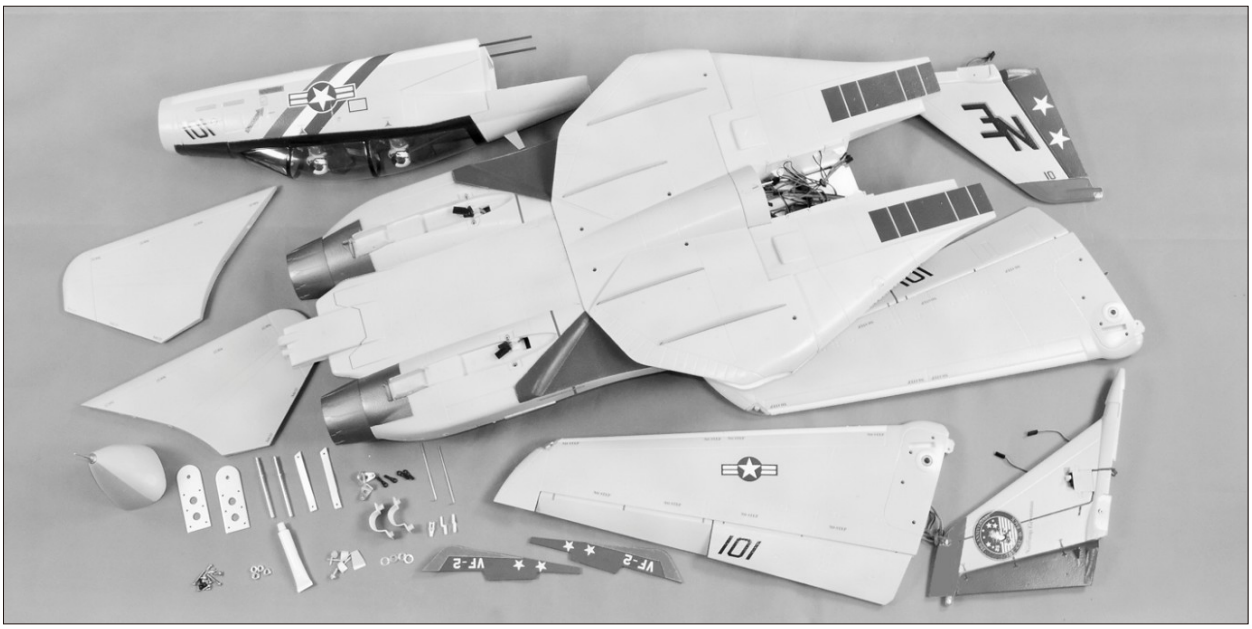
Upgrade Version

Wingload：255g/dm²
Motor: o/r BL 3530-1750KV (2pcs)
Servo: 9g / 17g MG servo (2 / 8pcs)
ESC: 80A with 8A UBEC (2pcs)
Ducted fan: 80mm 12-blade fan (2pcs)
Weight: 4340g (w/o Battery)
Thrust: 5600g

General function

-New electric retract landing gear (Large torque)
-Nose landing gear cabin door
-Scale high LED light set, nose take-off light
-Wing sweep controller
-Hardware
-Aluminum rear hub (with bearings)
-Scale cockpit, pilot

Package list



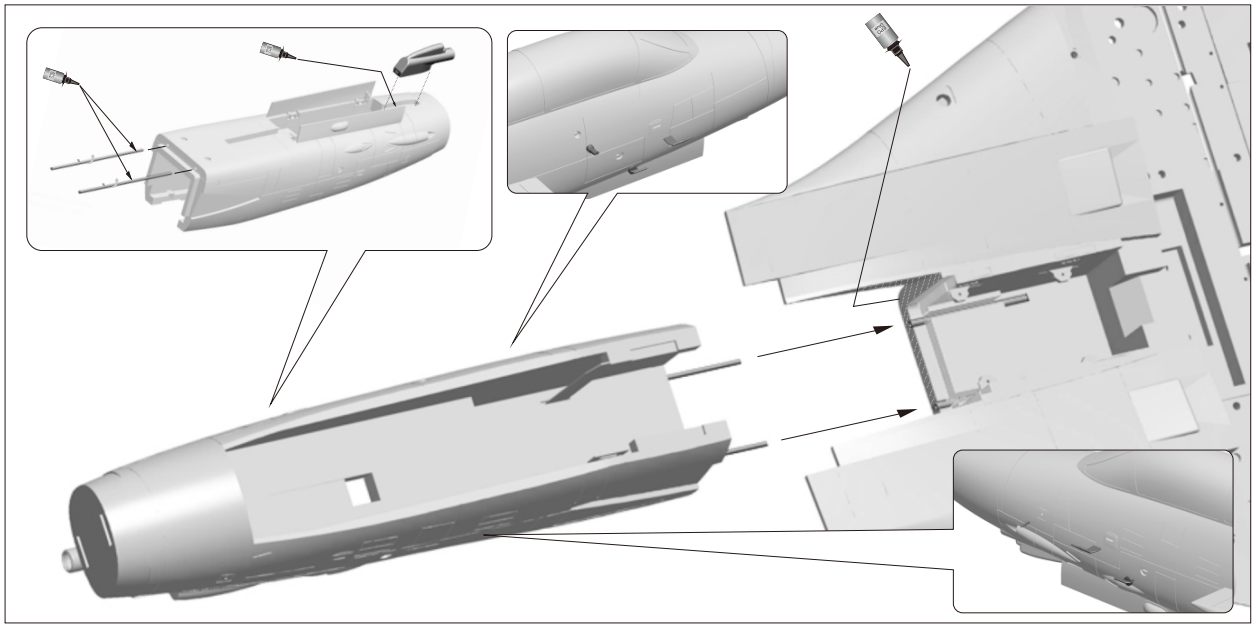
Open package and check the package list. (Different version include different contents) Include ✓ Optional ● Not include ×

NO.	Parts Name	PNP	KIT Plus	KIT
1	Fuselage	✓	✓	✓
2	Main wing	✓	✓	✓
3	Elevator	✓	✓	✓
4	Rudder	✓	✓	✓
5	Nose cone	✓	✓	✓
6	Missiles and pylons	●	●	●
7	Retract landing gear	✓	✓	✓
8	LED light	✓	✓	✓
9	Wing sweep controller	✓	✓	✓
10	Servo	✓	✓	×
11	Motor	✓	×	×

NO.	Parts Name	PNP	KIT Plus	KIT
12	EDF	✓	×	×
13	ESC	✓	×	×
14	Battery	●	●	●
15	Fin	✓	✓	✓
16	Plastic part	✓	✓	✓
17	Screw bag	✓	✓	✓
18	Pushrod ,clevis	✓	✓	✓
19	Hardware	✓	✓	✓
20	Carbon tube	✓	✓	✓
21	Glue	✓	✓	✓
22	Manual	✓	✓	✓

Fuselage

Install front and rear fuselage

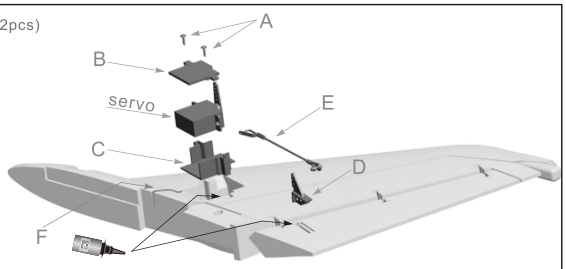


Rudder

Install rudder servos

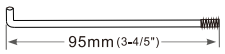
1. Use servo tester or radio to center the servo arm.
2. Use glue to attach the 17g servo box (C) and rudder horn (D) on the rudder.
3. Install the servo on the 17g servo box (C), and press the servo cable on the servo cable trough (F), cover the 17g servo cover (B) , and use 2pcs screws (A) to fix the servo.
4. Use rudder pushrod (E) to connect the servo arm and rudder horn (D).

A - Screw (PWA1.7×5mm 2pcs)
B - Servo cover
C - Servo box
D - Rudder horn
E - Rudder pushrod
F - Servo cable trough

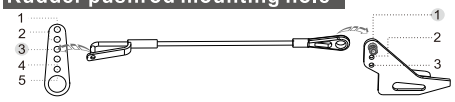


Rudder pushrod size

Pushrod diameter : Ø 1.5 mm

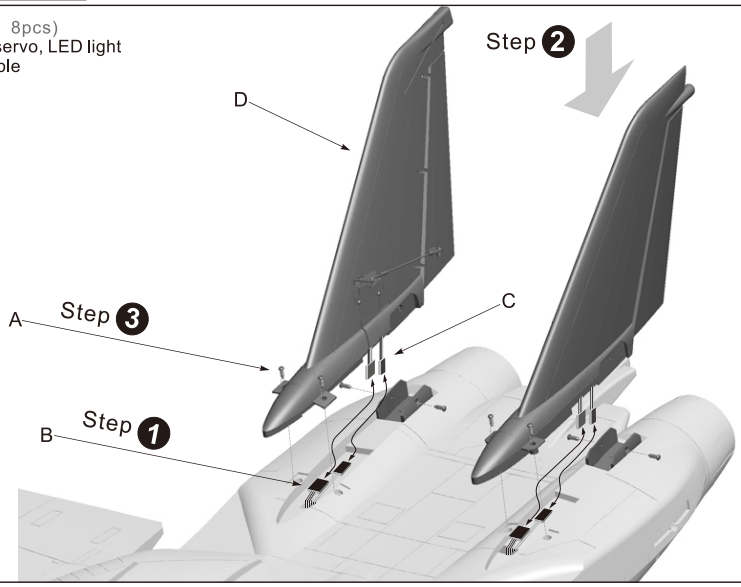


Rudder pushrod mounting hole



Install rudder

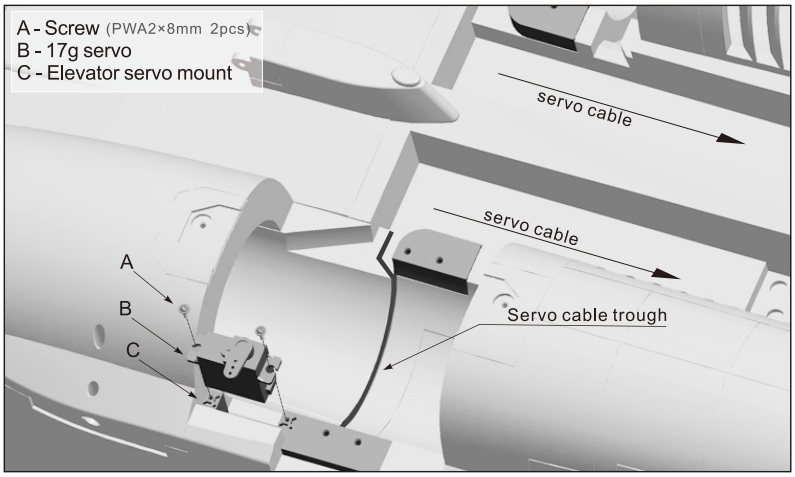
A - Screw (PA3×8mm 8pcs)
B - Extension cable of servo, LED light
C - Servo, LED light cable
D - Rudder



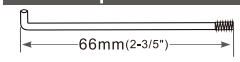
Elevator

Install elevator servos

1.Use servo tester or radio to center the servo arm.
2.Use screw (A) to fix servo (B) on the elevator servo mount (C).
3.As the right photo shown, press the servo cable on the servo trough,then put on the cable compartment.
4.Repeat the above steps to install on the other side servo.



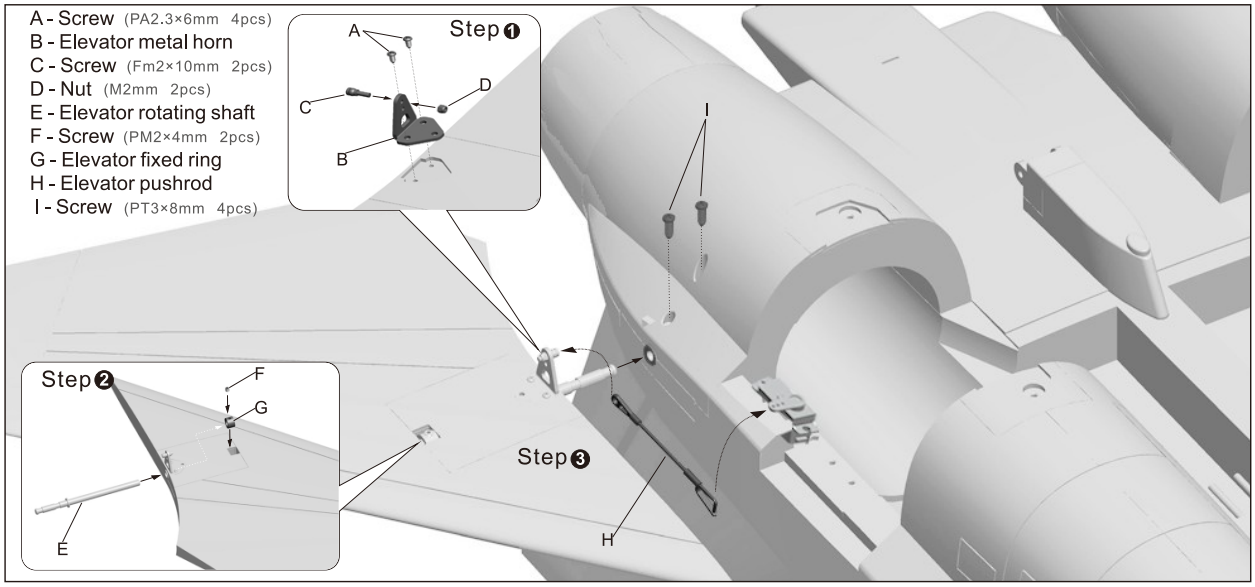
Elevator pushrod size



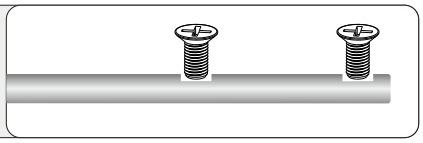
Pushrod diameter : Ø 1.5 mm

Elevator pushrod mounting hole

Install Elevator



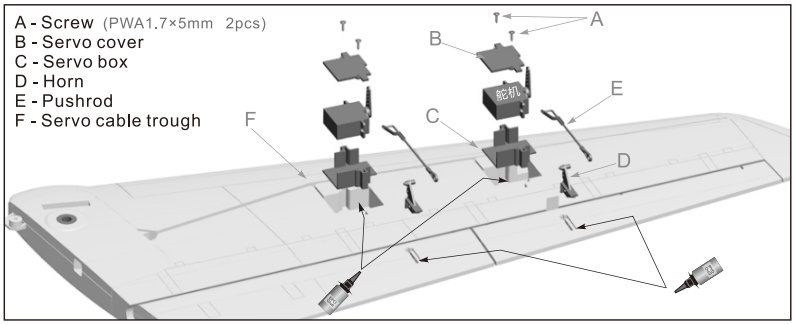
Note: when use screw **I** to fix the elevator rotating shaft, we need to control the screw depth, make sure the screw reach to the notch position of elevator rotating shaft, also make sure the elevator rotate smoothly. We can try to pull out the elevator to test the screw reach to the correct depth or not.



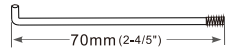
Main Wing

Install Main Wing Servo

1. Use servo tester or radio to center the servo arm.
2. Use glue to attach the 17g servo box (C) and horn (D) on the main wing.
3. Install the servo on the 17g servo box (C), and press the servo cable on the servo cable trough (F), cover the 17g servo cover (B) , and use 2pcs screws (A) to fix the servo.
4. Use Pushrod (E) to connect the servo arm and rudder horn (D).

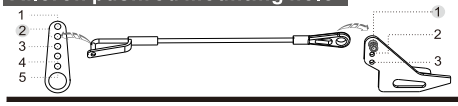


Aileron pushrod size

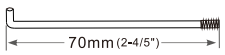


Pushrod diameter : Ø 1.5 mm

Aileron pushrod mounting hole



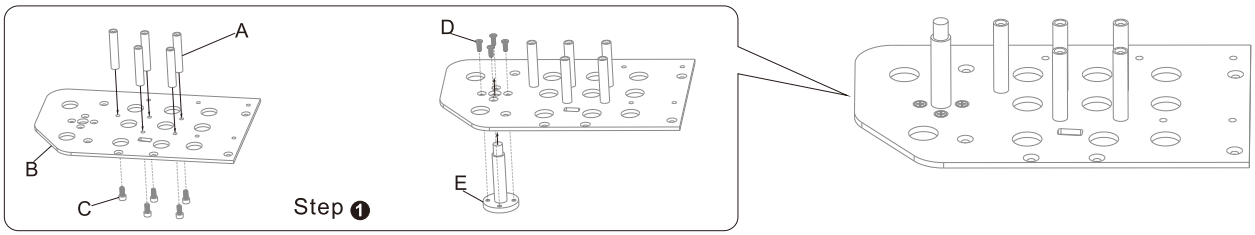
Flap pushrod size

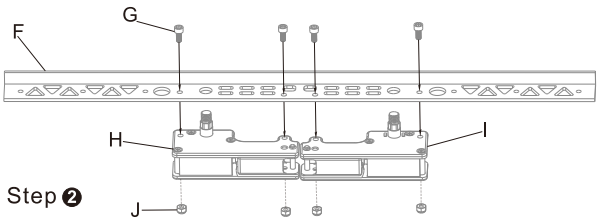


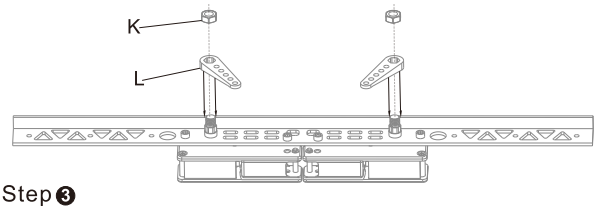
Flap pushrod mounting hole

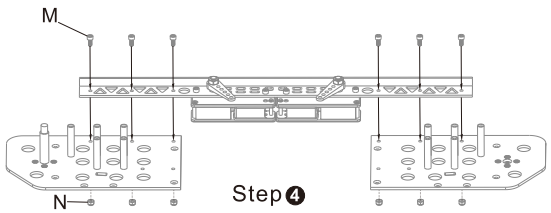
Install Fuselage

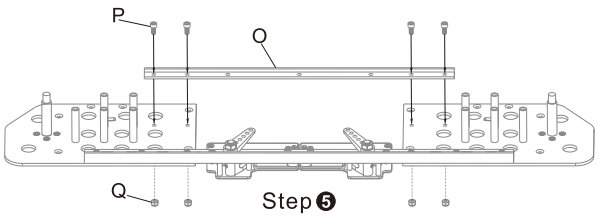
Install Variable Sweep Wing

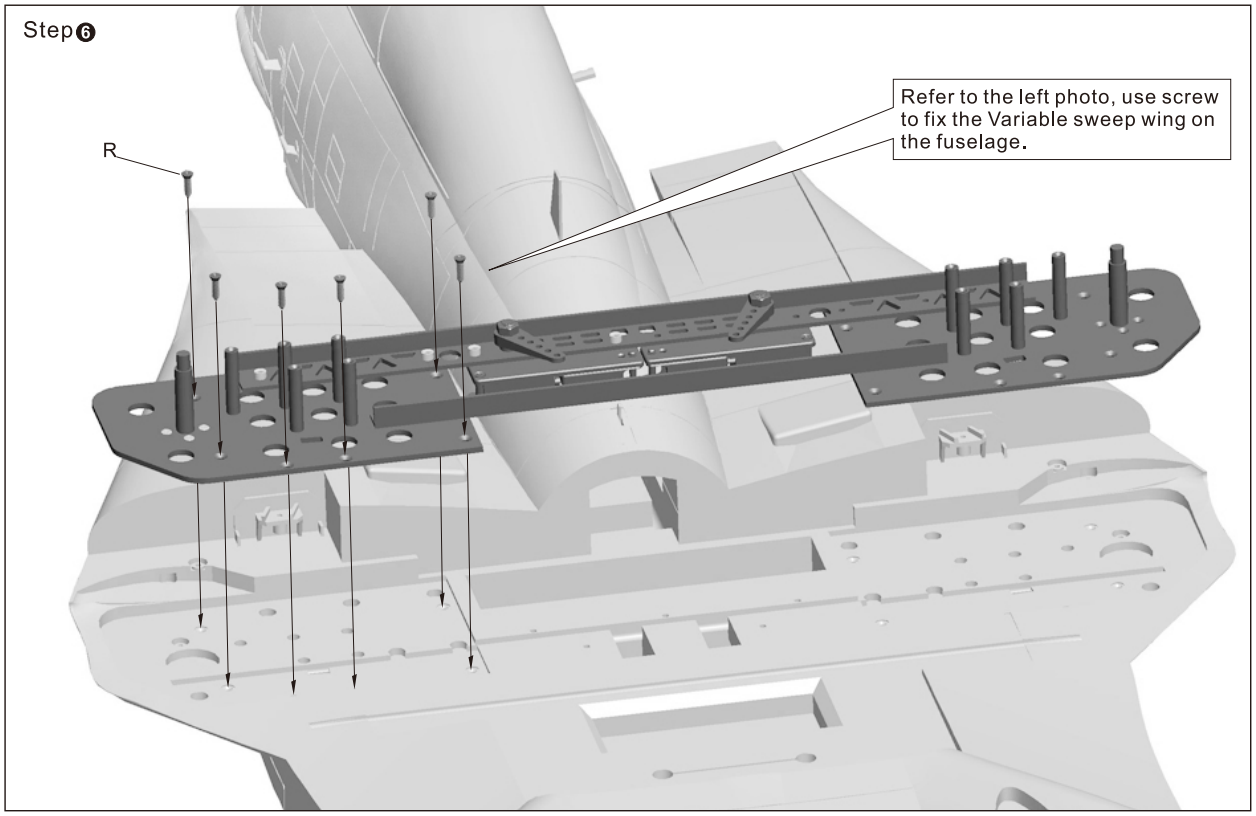






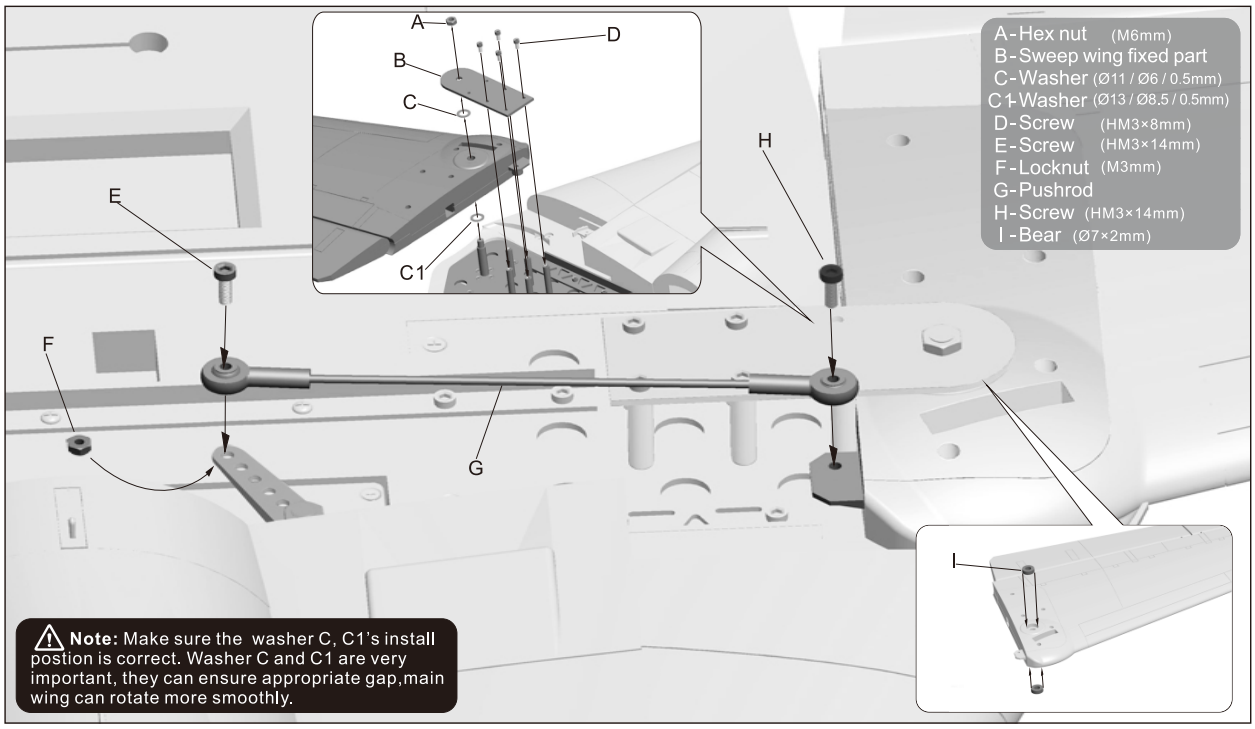






A-Sweep Wing supported rod
B-Sweep Wing mounting plate
C-Screw (HM3×6mm 10pcs)
D-Screw (KM2.5×6mm 8pcs)
E-Rotating shaft
F-Stiffener(F)
G-Screw (HM3×8mm 4pcs)
H-Wing sweep controller left
I-Wing sweep controller right
J-Locknut (M3 4pcs)
K-Screw (M6 4pcs)
L-Arm
M-Screw (HM3×8mm 6pcs)
N-Locknut (M3 6pcs)
O-Stiffener(B)
P-Screw (HM3×8mm 4pcs)
Q-Locknut (M3 4pcs)
R-Screw (KA3×12mm 12pcs)

Install main wing



NOTE :

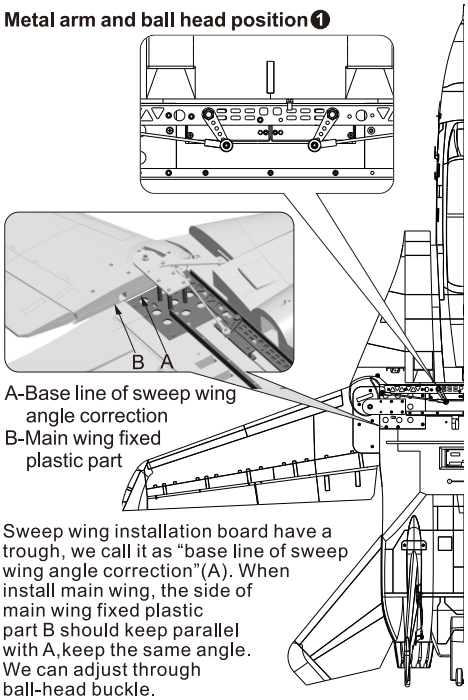
1.When install the Sweep Wing supported rod, please make sure the metal arm of wing sweep controller is in correct angle. In factory, we adjusted the metel arm of wing sweep controller is in forward wing condition.(In forward wing condition, the main wing angle is 20 degree.) If not correct angle, the arm of wing sweep controller will operate in wrong direction,and make damage.

2.In F14 forward wing condition, the wing angle is 20 degree. Through wing sweep controller adjusted, the max angle it can reach to 65 degree. We can limit the max angle to 45 degree through revise the installation hole of wing sweep controller arm.

3.In flight, when main wing is in swept wing condition, don't use flap. It will cause the damage of flap and flap servo. Flap only use for forward wing condition.

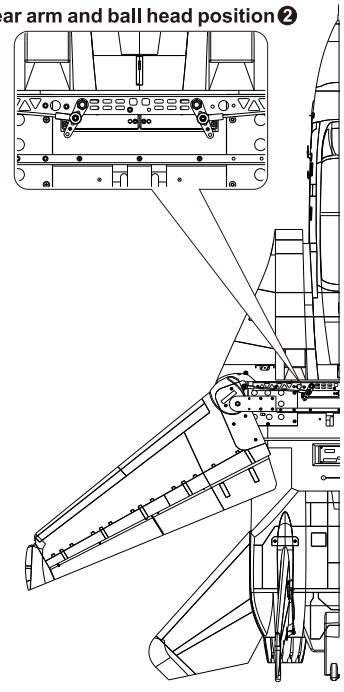
Sweep wing angle correction and setting

Metal arm and ball head position❶



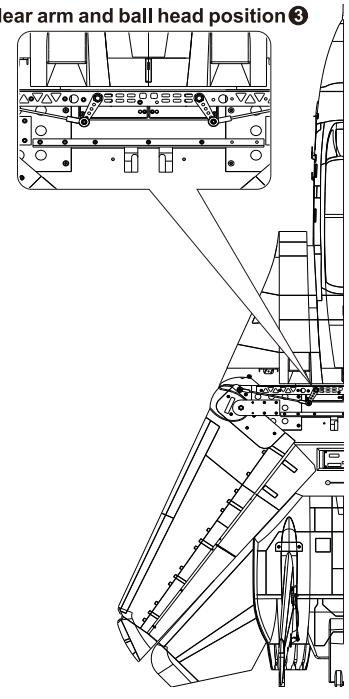
Forward wing angle 20 degree

Mear arm and ball head position❷



Swept wing angle 41 degree

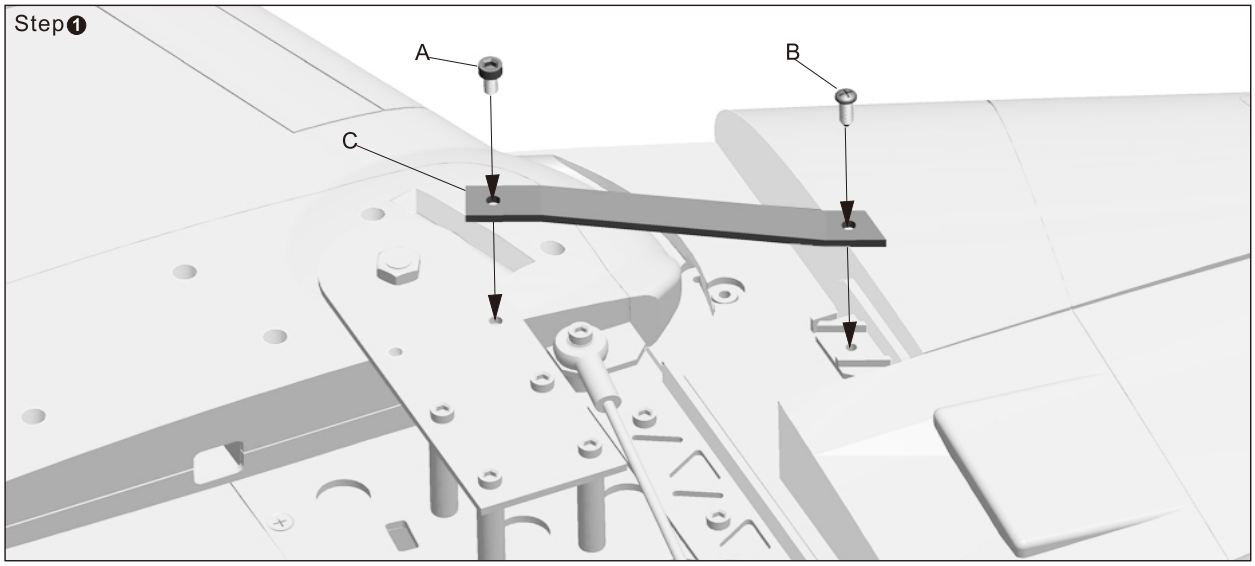
Mear arm and ball head position❸

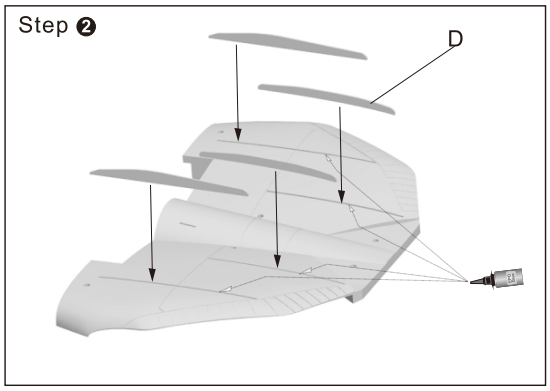


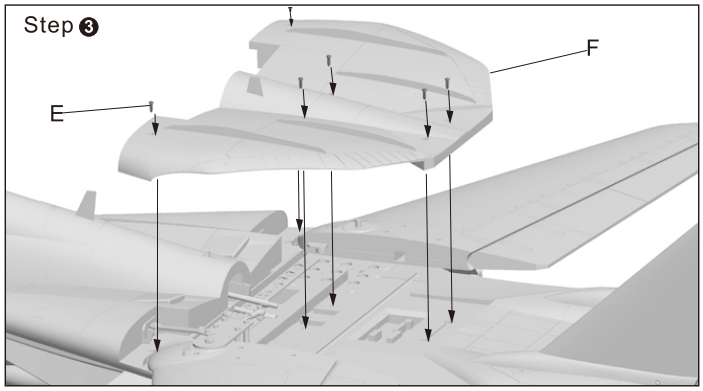
Swept wing angle 62 degree

Install Fuselage

Install main wing



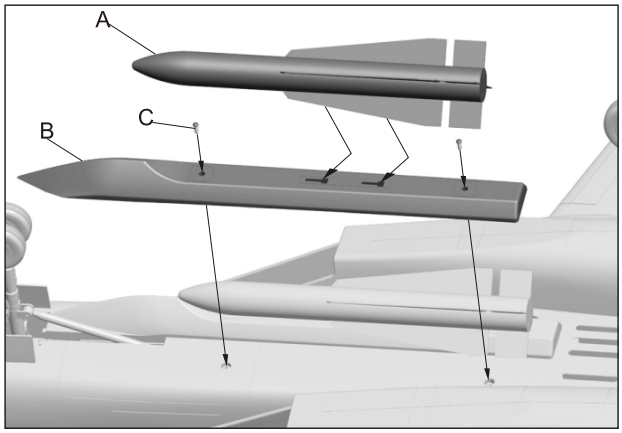


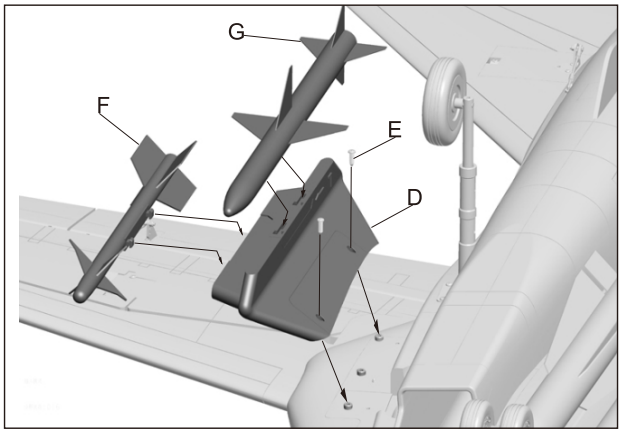


A-Screw (HM3×8mm)
B-Screw (PWA3×12mm)
C-Mainwing strengthen connecting rod (L/R)
D-Wing fence
E-Screw (PA3×10mm / PA3×25mm)
F-Sweep wing structure foam cover

❶ -After adjust the main wing, use screw to fix the main wing strengthen connecting rod, reinforce main wing of the anti-distortion tolerance.
❷ -Use glue to attach the wing fence on the surface of sweep wing structure foam cover.
❸ -Use screw to fix the sweep wing structure foam cover.

Install missiles and pylons





A-AIM-54 missile
B-Pylon
C-Screw (PA3×8mm)
D-Composite pylon
E-Screw (PA3×8mm)
F-AIM-9 missile
G-AIM-7 missile

1.Use screw to fix the two types pylons.
2.Lock the missiles on the plastic fixed trough of pylons, move forward to the arrow direction, lock tightly.

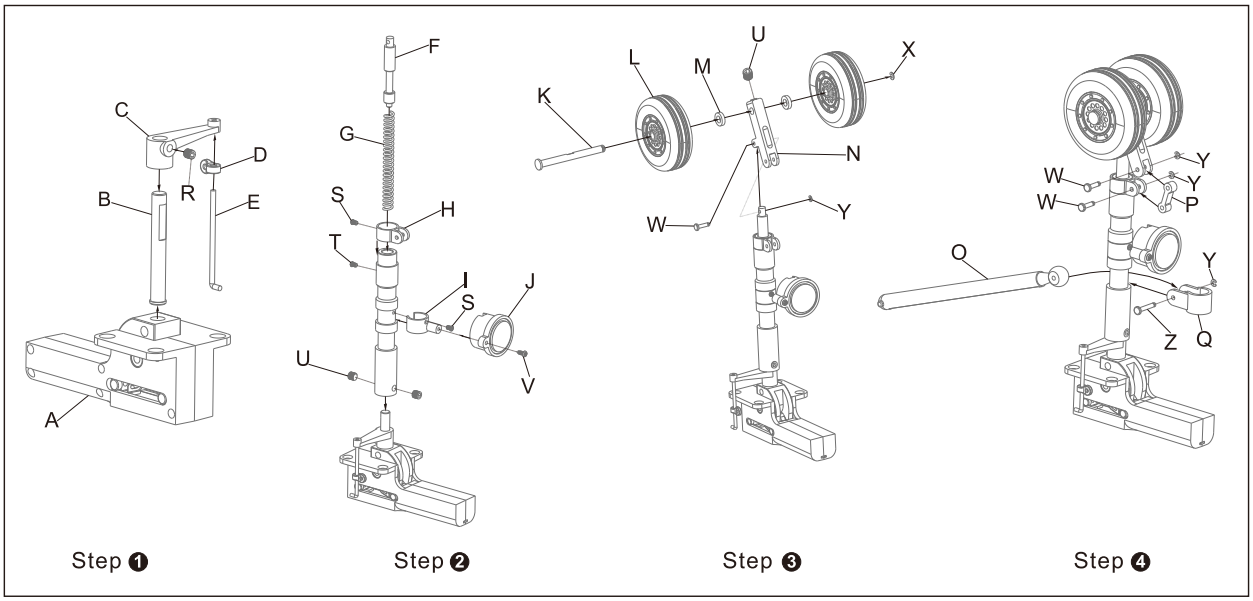
Install landing gear

Nose Landing Gear Assemble

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

Accessories name and specification

A-Retract controller
B-Nose gear main rod
C-Nose gear steering arm
D-Nose gear steering control ring
E-Nose gear steering rod
F-Nose gear shock absorber active rod
G-Spring
H-O-shape connecting arm
I-LED light fixed arm
J-LED light
K-Nose wheel axle
L-Wheel (Ø45×16mm)
M-Washer
N-Nose gear slant supporting rod
O-Plastic supporting rod
P-8-shape connecting arm
Q-U-shape plastic connecting arm
R-Jimi screw (M3×3mm)
S-Screw (PM2×3mm)
T-Screw (PM2×4mm)
U-Jimi screw (M4×4mm)
V-Screw (PA2×8mm)
W-Pin (Ø3.5×9.2mm)
X-E-buckle (id Ø2.0mm)
Y-E-buckle (id Ø1.5mm)
Z-Pin (Ø2×11.1mm)

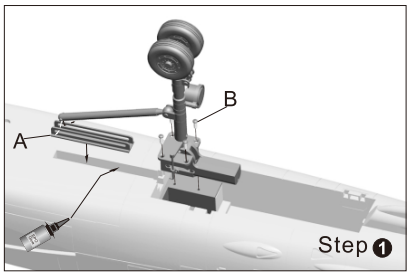


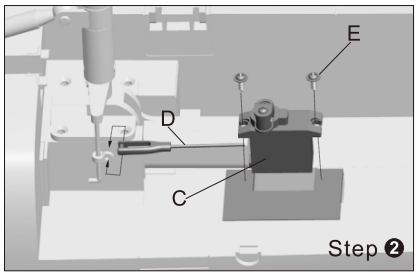
Install nose steering servo, cabin door

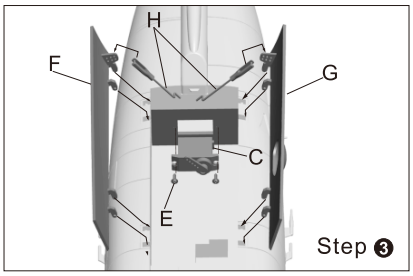
Please refer to the following photo to install、 replace/revise nose gear cabin door.

Accessories name and specification

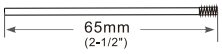
A-Plastic guide track
B-Screw (PWA3×12mm)
C-9g servo
D-Nose steering pushrod
E-Screw (PWA2×8mm)
F-Left side cabin door of nose gear
G-Right side cabin door of nose gear
H-Cabin pushrod







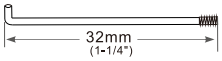
Nose steering pushrod size



Pushrod diameter : Ø 1.2mm

Servo pushrod installing hole

Cabin door pushrod size



Pushrod diameter : Ø 1.0mm

Servo pushrod installing hole

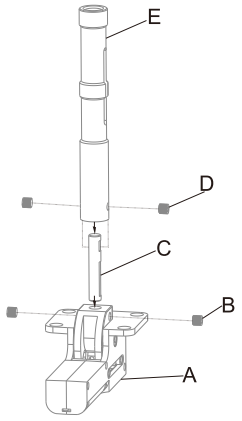
Install landing gear

Rear Landing Gear Assemble

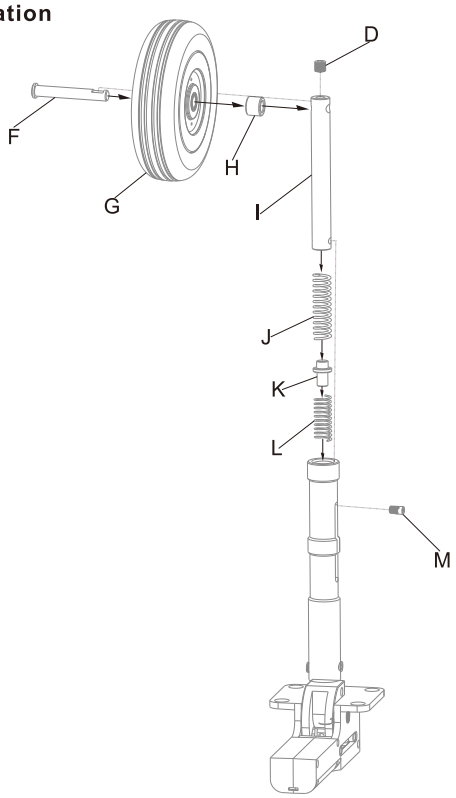
Please assemble、 disassemble the rear landing gear according to the following photo.

Accessories name and specification

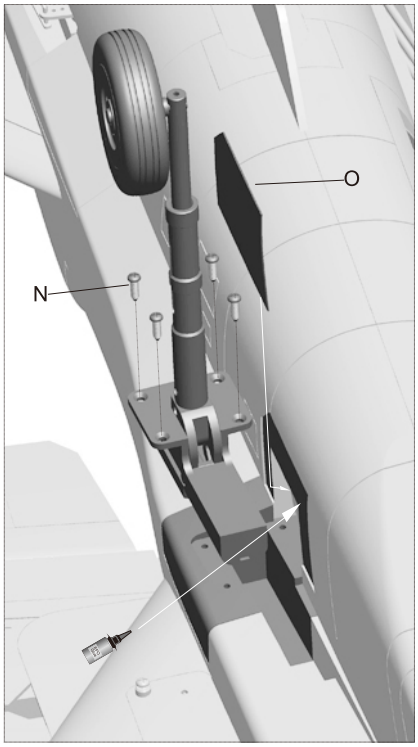
A-Retract controller
B-Jimi screw (M4×4mm)
C-Rear gear main rod
D-Jimi screw (M4×4mm)
E-Rear gear main supporting rod
F-Rear wheel axle
G-Wheel (Ø60×17mm)
H-Washer
I-Rear gear shock absorber active rod
J-Spring
K-Spring guide post
L-Spring
M-Screw (M3×5.2mm)
N-Screw (PWA3×12mm)
O-Rear gear blister piece (left/right)



Step ❶

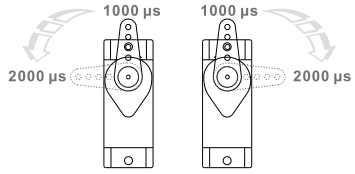


Step ❷

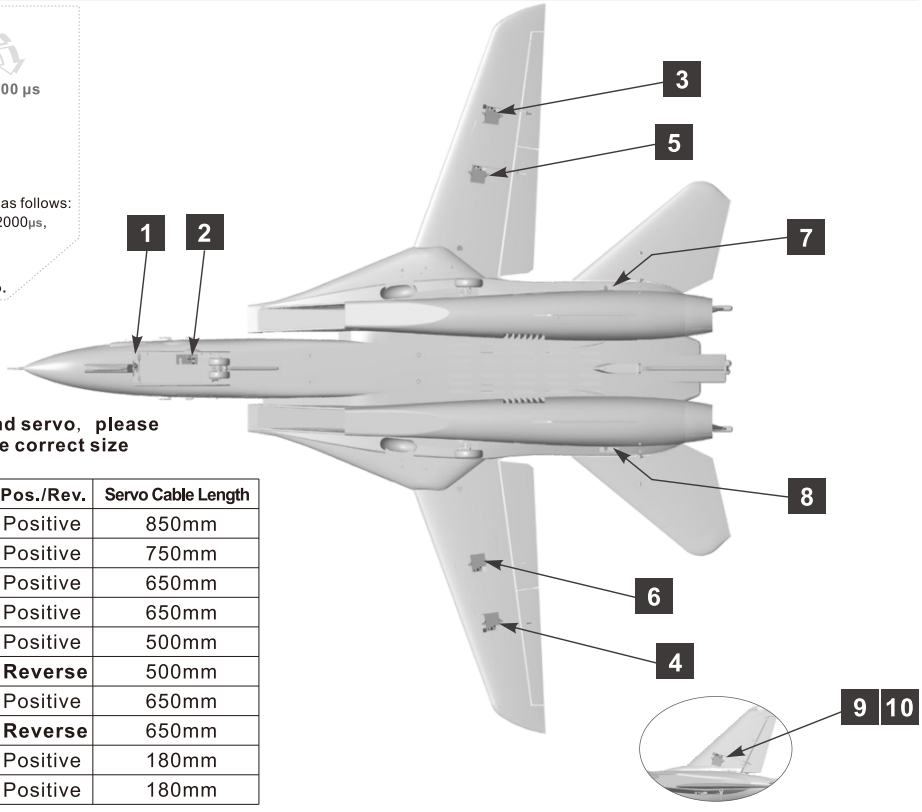


Step ❸

Servo Introduction



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 other brand servo, please refer to the following list to choose correct size servo.

Installing position		No.	Pos./Rev.	Servo Cable Length
Front cabin door	(9g MG)	1	Positive	850mm
Nose gear steering	(9g MG)	2	Positive	750mm
Aileron(L)	(17g MG)	3	Positive	650mm
Aileron(R)	(17g MG)	4	Positive	650mm
Flap(L)	(17g MG)	5	Positive	500mm
Flap(R)	(17g MG)	6	**Reverse**	500mm
Elevator(L)	(17g MG)	7	Positive	650mm
Elevator(R)	(17g MG)	8	**Reverse**	650mm
Rudder(L)	(17g MG)	9	Positive	180mm
Rudder(R)	(17g MG)	10	Positive	180mm

Intergrated circuit module instroduction

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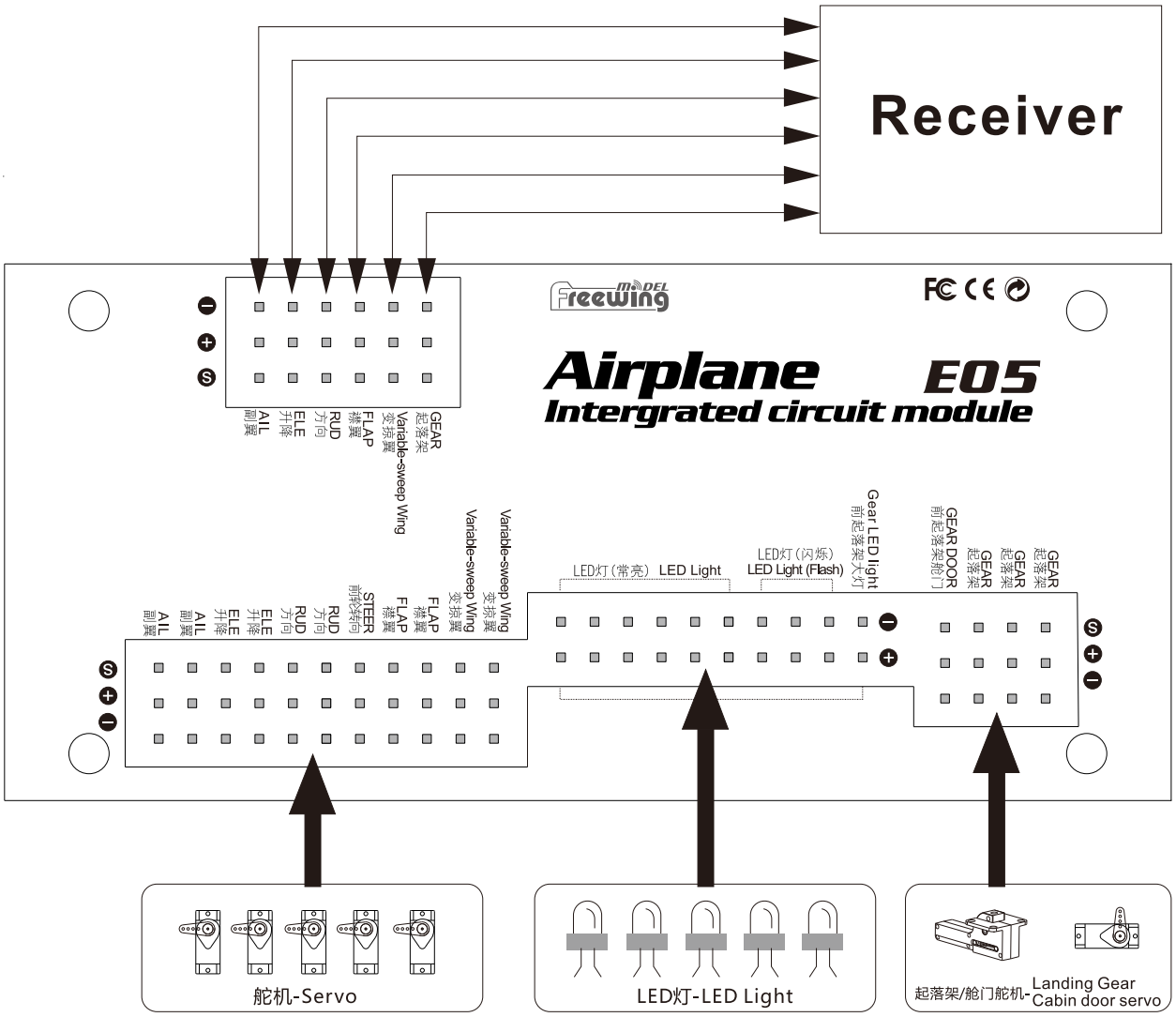
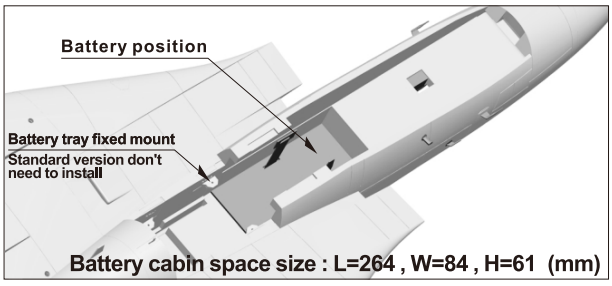
Refer to the diagram, connect the servo cables on the intergrated circuit module, and connect to the receiver correctly.

Note: Before flight, we need to check every port in the intergrated circuit module, make sure these don't loosen. The PNP version, we have connected the cables to the intergrated circuit module in factory, and applied on the electronic anti loose glue to make sure the port's stability. We advise, after the jet installed and adjusted, use electronic anti loose glue to strengthen the port connection stability.



Install on battery

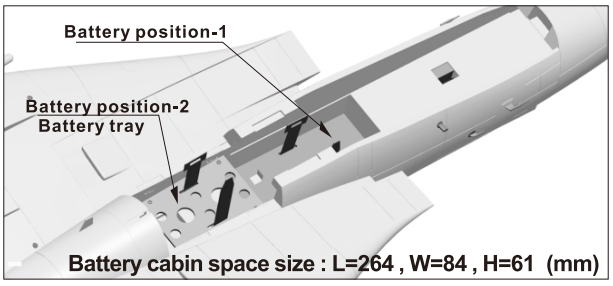


Standard powersystem equipment (One battery)

The battery capacity and discharge rate we advise is in the following:

6S 22.2V 5000mAh ~ 6S 22.2V 6000mAh

Discharge rate of C ⩾ 35C



Upgrade powersystem equipment (Two battery)

The battery capacity and discharge rate we advise is in the following:

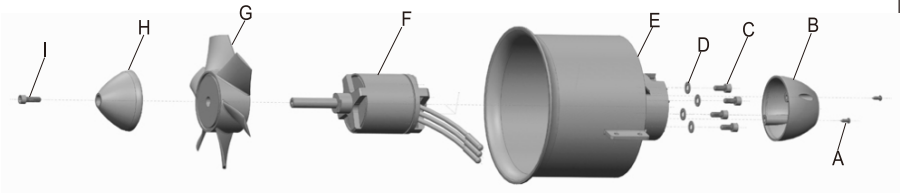
6S 22.2V 4000mAh ~ 6S 22.2V 5000mAh (2pcs)

Discharge rate of C ⩾ 35C

Install power system

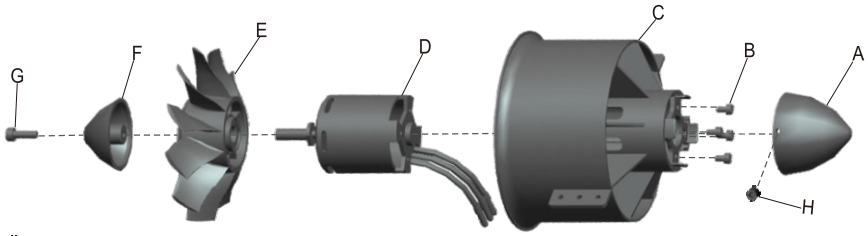
Standard Version

A -Screw (PT2.3×6mm)
B -Motor spinner
C -Screw (HM 3×7mm)
D -Metal gasket (Ø3.1mm)
E -80mm plastic ducted fan frame
F -Outrunner brushless motor
G -80mm 6-blade ducted fan
H -Spinner
I -Screw (HM 3×10mm)



Upgrade Version

A -Motor spinner
B -Screw (HM 3×6mm)
C -80mm metal ducted fan frame
D -Outrunner brushless motor
E -80mm 12-blade ducted fan
F -Spinner
G -Screw (HM 3×10mm)
H -Screw (M3×3mm)

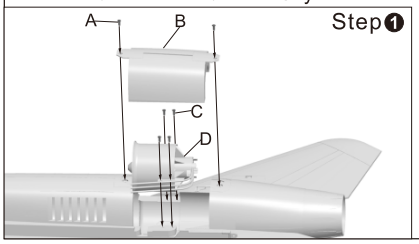


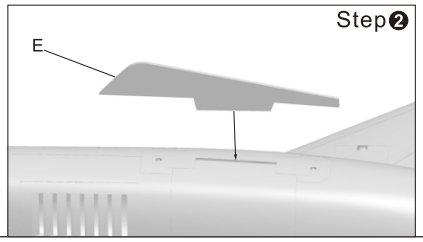
According to the following steps to install on the power system and ESC, and according to the arrow direction, put the ESC cable on the battery compartment.

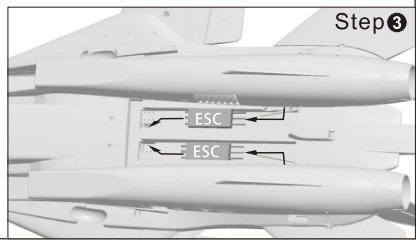
A-Screw (PA3×8mm)
B-Fan cover
C-Screw (PWA3×8mm)
D-Power system
E-Belly fin

Note: When use two battery to fly, the battery should connect the ESC with UBEC firstly, then connect the second ESC. Or the two power system can't start in the same time.

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.

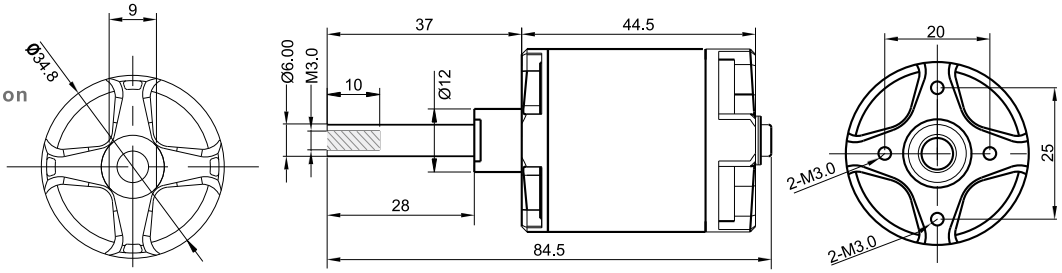




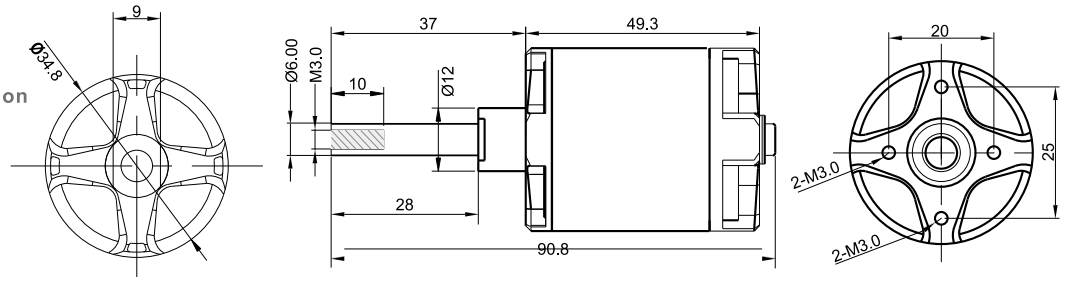


Motor parameters

MOJ35252
3525-2050KV
For
Standard Version



MOJ35301
3530-1750KV
For
Upgrade Version



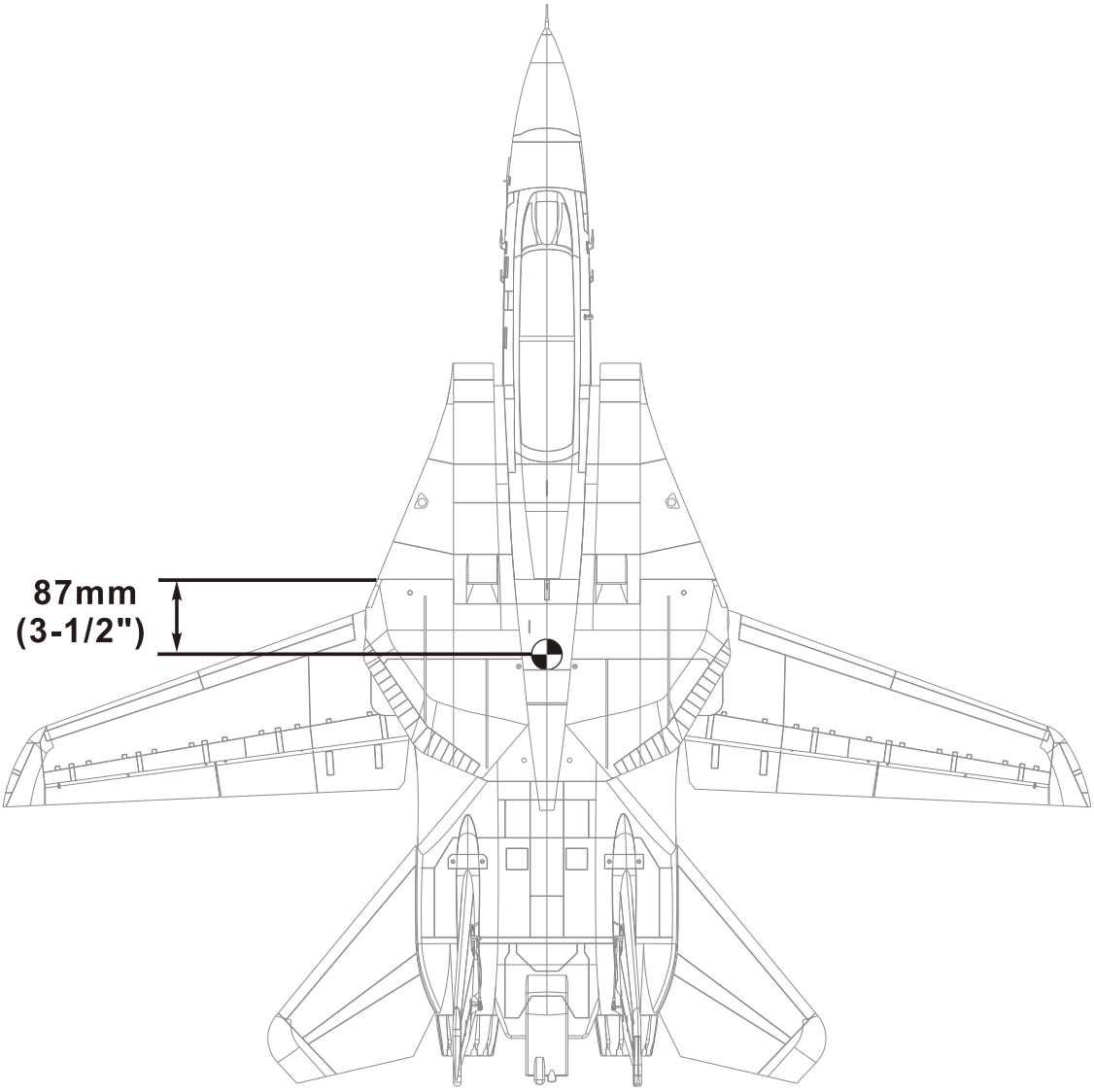
Item No.	KV Value	Volate (V)	Current (A)	Thrust (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MO035252	2050RPM/V	22.2	63	2500	0.0087Ω	125	4.8A/15V	6-Bladed 80mm Ducted Fan	⩾80A
MO035301	1750RPM/V	22.2	72	2600	0.0146Ω	150	4.6A/23V	12-Bladed 80mm Ducted Fan	⩾80A

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.



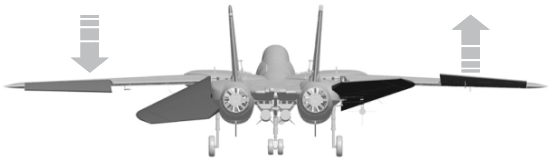
Control direction test

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

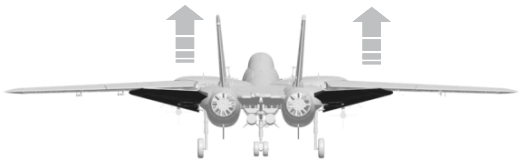
Stick Left

Stick Right

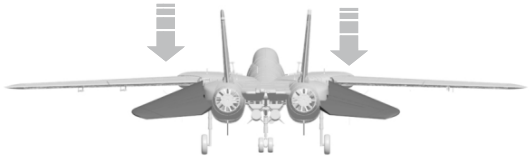


Elevator

Up Elevator



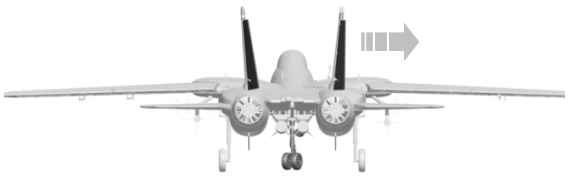
Down Elevator



Rudder

Stick Left

Stick Right

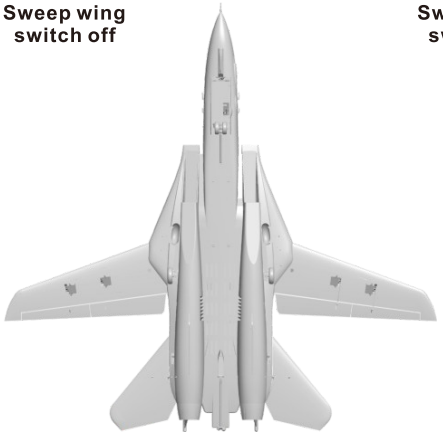


Optional Flaps

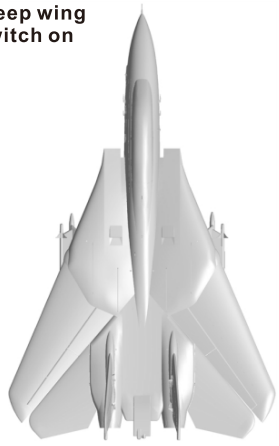
Flaps down

Sweep wing

Sweep wing switch off



Sweep wing switch on



Dual Rates

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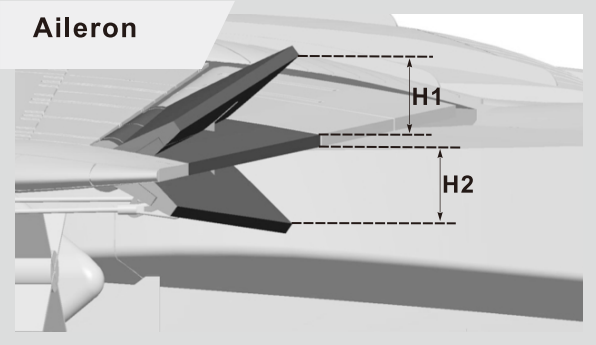
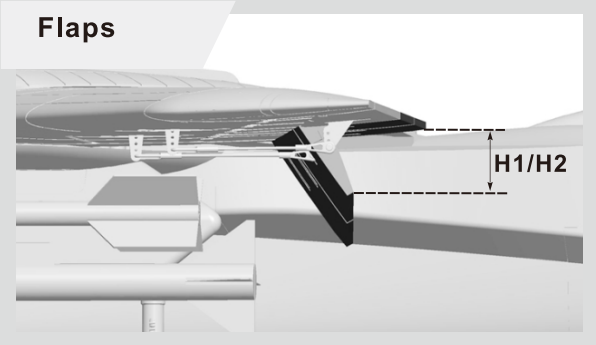
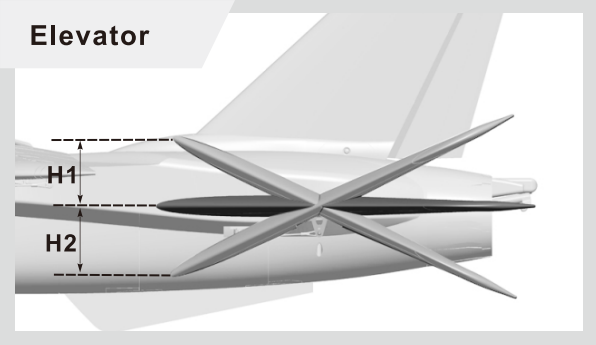
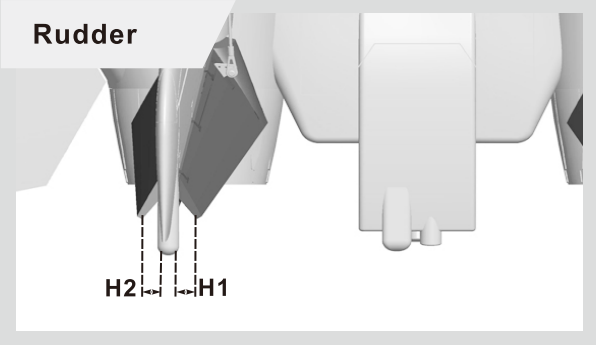
F-14, in forward wing condition and in swept wing condition, the control sensitivity will change. We advise you set up the rate according to the following parameters. According to sweep change, to switch different rate,make your operation more easier.









	High Rate	Low Rate
Aileron	H1/H2 14mm D/R Rate : 100%	H1/H2 8mm D/R Rate : 65%
Flaps	H1/H2 40mm	H1/H2 30mm
Elevator	H1/H2 34mm D/R Rate : 100%	H1/H2 24mm D/R Rate : 65%
Rudder	H1/H2 30mm D/R Rate : 100%	H1/H2 20mm D/R Rate : 65%

Elevator install angle correction

Caution: Neutral point of full elevator should be correct, it affects your flight directly. Please refer to the left photo to correct your full elevator install angle!

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