

F/A 18E SUPER HORNET

USER MANUAL



Wingspan : 950mm (37.5 in)

Thank you for purchasing the F/A 18E Super Hornet 90mm EDF Jet. With the F/A 18E V2 version, we have revised and improved the following:

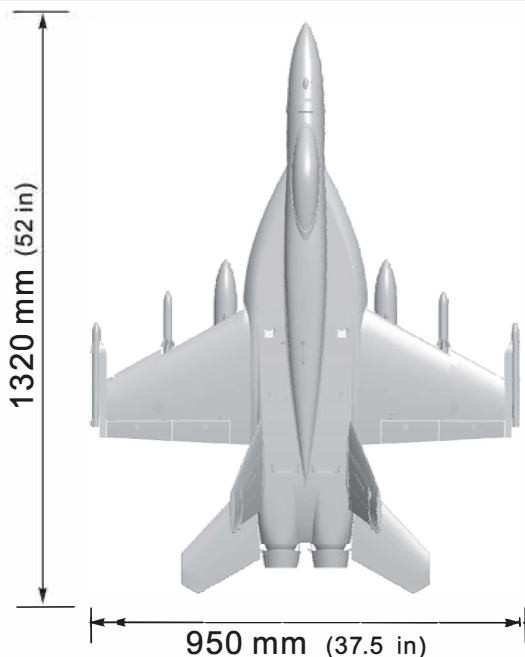
- Added additional carbon fiber tubing to strengthen the fuselage and the main wing, to handle the increased power of the 90mm EDF.
- Improved the full elevator control structure to strengthen the elevator.
- Upgraded the power system and used the new Freewing metal 12-blade 90mm fan for more thrust.
- Increased plastic assembly parts to achieve a glue-free assembly for easier assembly/disassembly making it more convenient to transport.
- Increased flap control for easier landings. We believe, F/A 18E V2 will give you excellent performance!
- Before starting, please read the manual carefully.

⚠ NOTE: This is not a toy. Not for children under 14 years. People under 14 years of age 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 its 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.

Basic Product Information



- Motor
3748-1450KV
- ESC
100A ESC (UBEC 8A)
- Servo
9g Servos (11pcs)
- Battery
6S 22.2V 5000mAh 35C (Not included)
- Ducted Fans
90mm EDF
- Take-off weight
2700g (95.24 oz.) (Using Freewing Battery-6S 22.2V 5000mAh 35C)
- Thrust
3000g (105.8 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.

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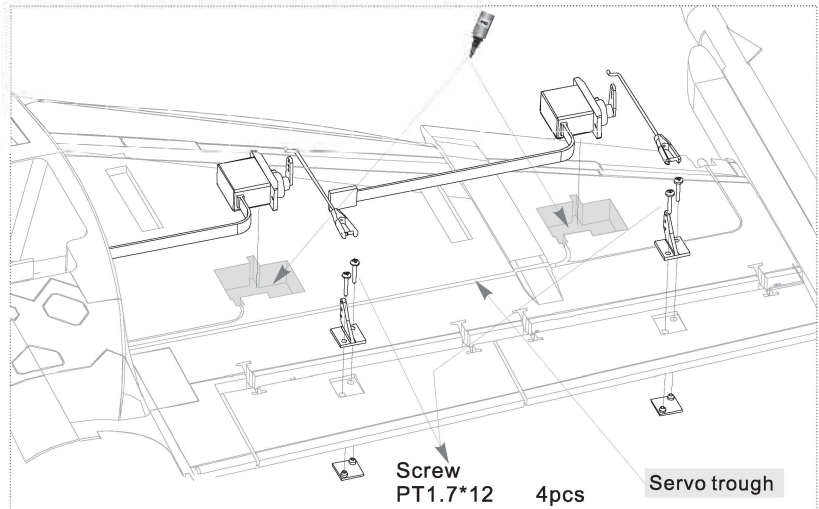
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Main Wing Installation

EN

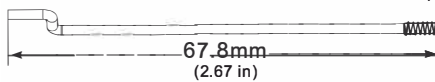
⚠ Note: Before installing a servo, use servo tester or radio to center it. Install the servo arm and ensure its position is correct.

1. Apply the glue to the indicated place on the main wing.
2. Place the servos in the servo bays.
3. Use the screws to attach the control surface horn.
4. Feed the servo cables into the servo cable trough.
5. After the glue has dried feed the open end of the pushrods into the servo arms and snap the devis' onto the control horns.

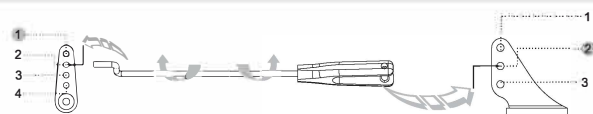


Aileron pushrod size

Pushrod diameter: \varnothing 1.2mm

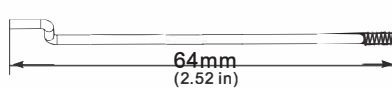


Aileron pushrod mounting hole

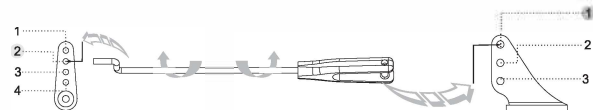


Flap pushrod size

Pushrod diameter: \varnothing 1.2mm

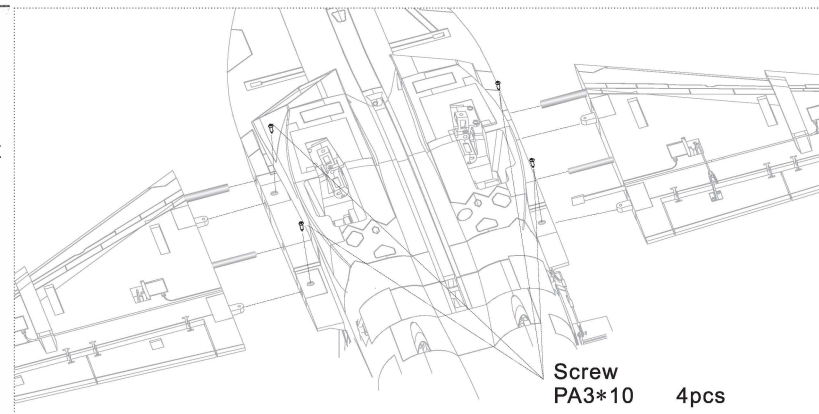


Flap pushrod mounting hole



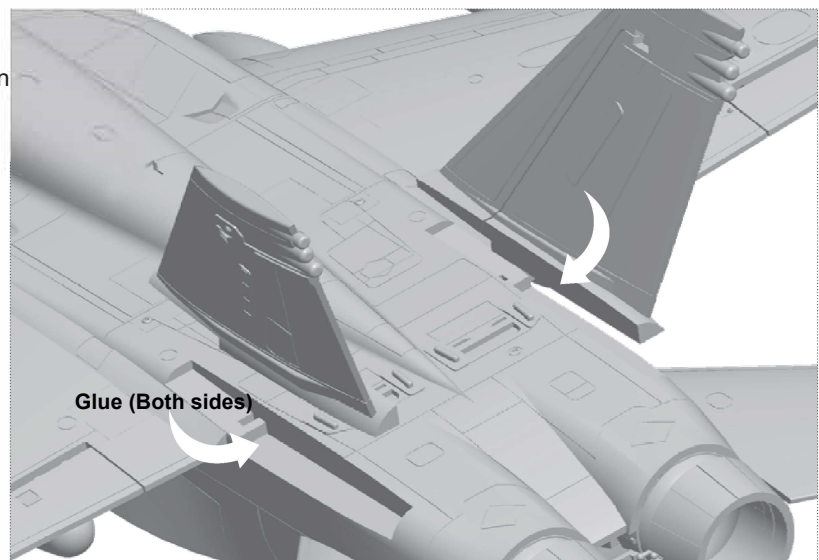
A. Screws (PA3*10 4 pcs)

1. Use fuselage the extension wires to connect main wing servo cables and LED light line.
2. Slide the main wings and fuselage together.
3. Secure the assembly with 4 "screws(A)".



Vertical Stabilizers Installation

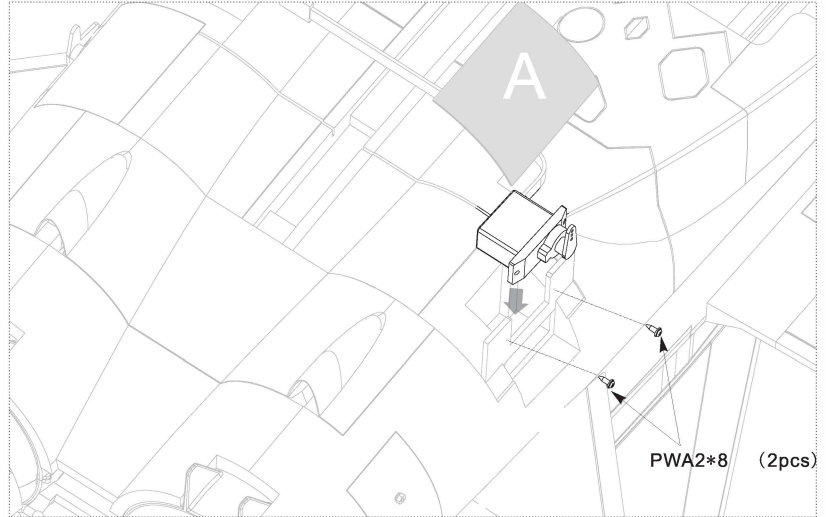
1. Apply the glue to the indicated places as shown in the photo at the right. Attach the vertical stabilizers to the fuselage and allow the glue to dry.



Referring to the diagram on the right:

- A. Plastic cover
- B. Screws (PWA2*8 2 pcs)

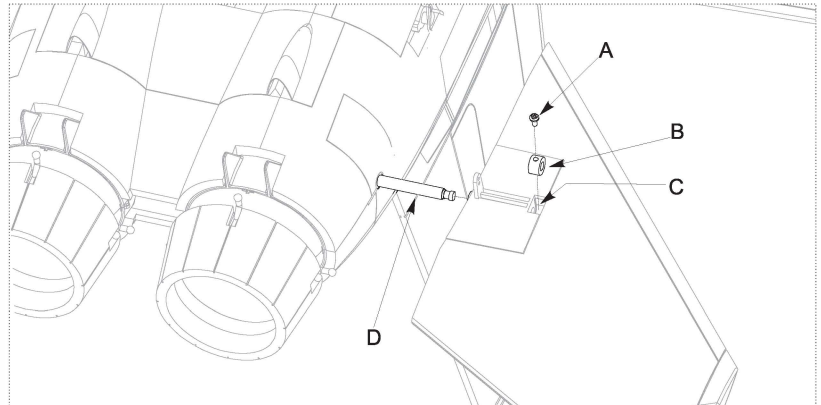
1. As shown by the arrow, press the 9g servo into the servo bay.
2. Use 2 "screws(B)" to secure the servo to the wooden piece.
3. Glue "Plastic part (A)" to the fuselage to cover the servo.



Elevator Installation

- A. Screw
- B. Aluminum collar
- C. Arrow
- D. Rotating shaft

1. Put the "aluminum collar (B)" in the slot as the "arrow (C)" shows.
2. Insert the elevator into "Rotating shaft (D)".
3. Use "screw (A)" to lock the "aluminum collar (B)" to the "rotating shaft (D)".



Screw one threaded side of pushrod (A) into the ball link clevis head(B). Turn it left or right to increase or reduce the length of the pushrod.

1. Put the ball head(A) onto the screw (B), then insert the screw (B) through the hole of control horn(D), and lock it with nut (C).

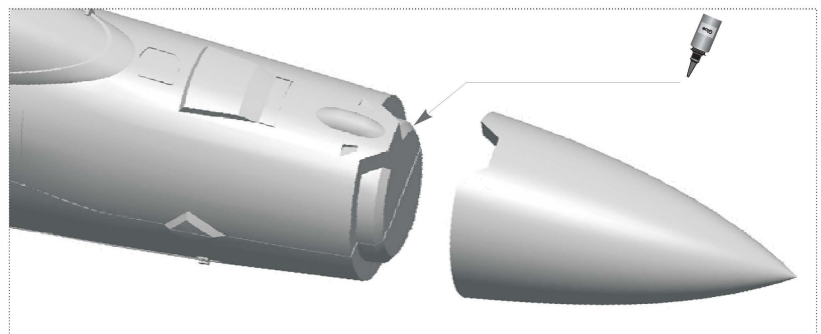
Elevator pushrod size

Pushrod Diameter : Ø1.2mm

Elevator pushrod mounting hole

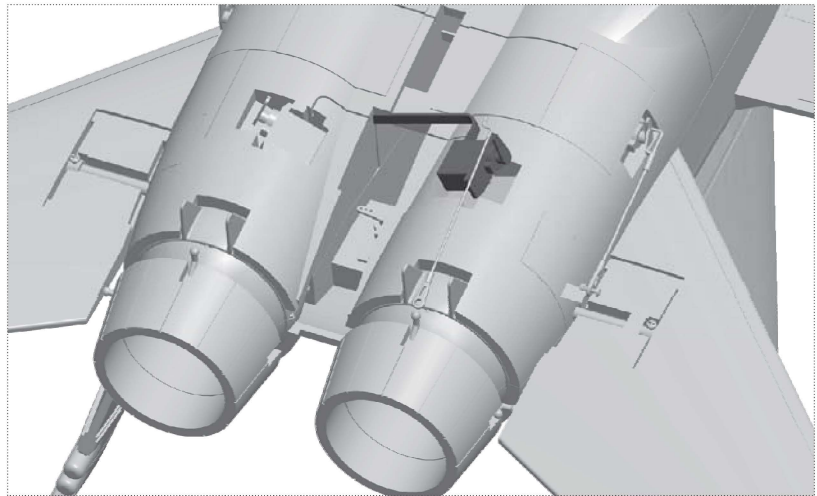
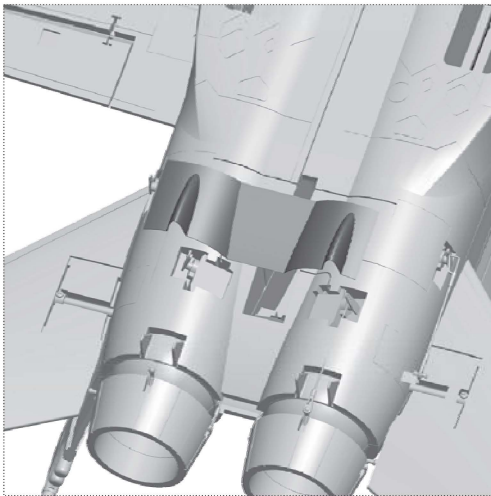
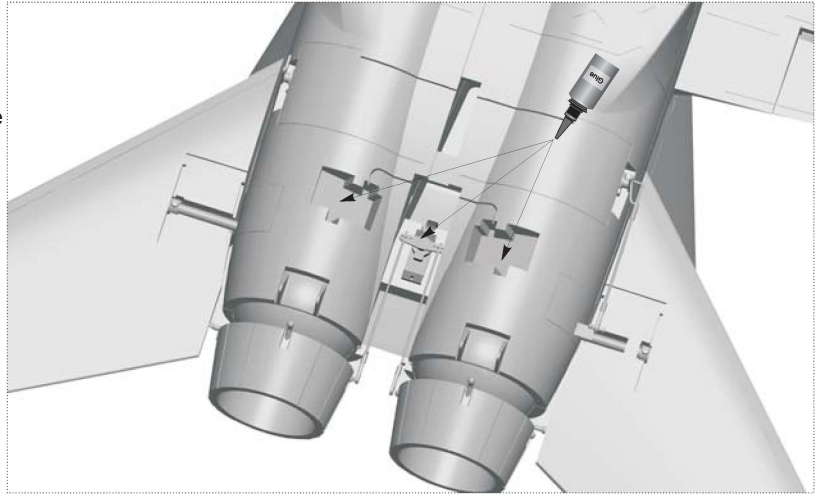
Nose Cone Installation

1. Use glue to attach the nose cone to the fuselage.

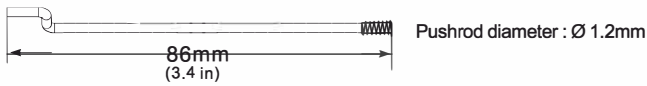


⚠ Note: Before installing a servo, use a servo tester or radio to center the servos. Install the servo arm and test its position to ensure it is centered.

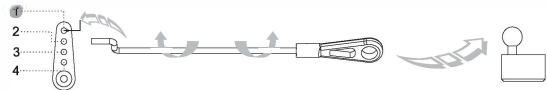
1. Apply the glue to the indicated positions as the arrows show.
2. Attach the servos to the fuselage.
3. Use the pushrods to connect servo arm and vector control horn.
4. After installation, use glue to attach the protective cover to the fuselage.



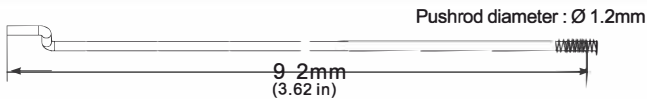
Vector pushrod length (Vertically)



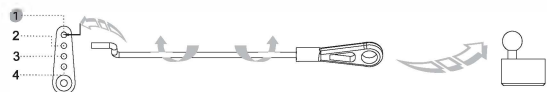
Installing hole of Vector pushrod (Vertically)



Vector pushrod length (Horizontally)



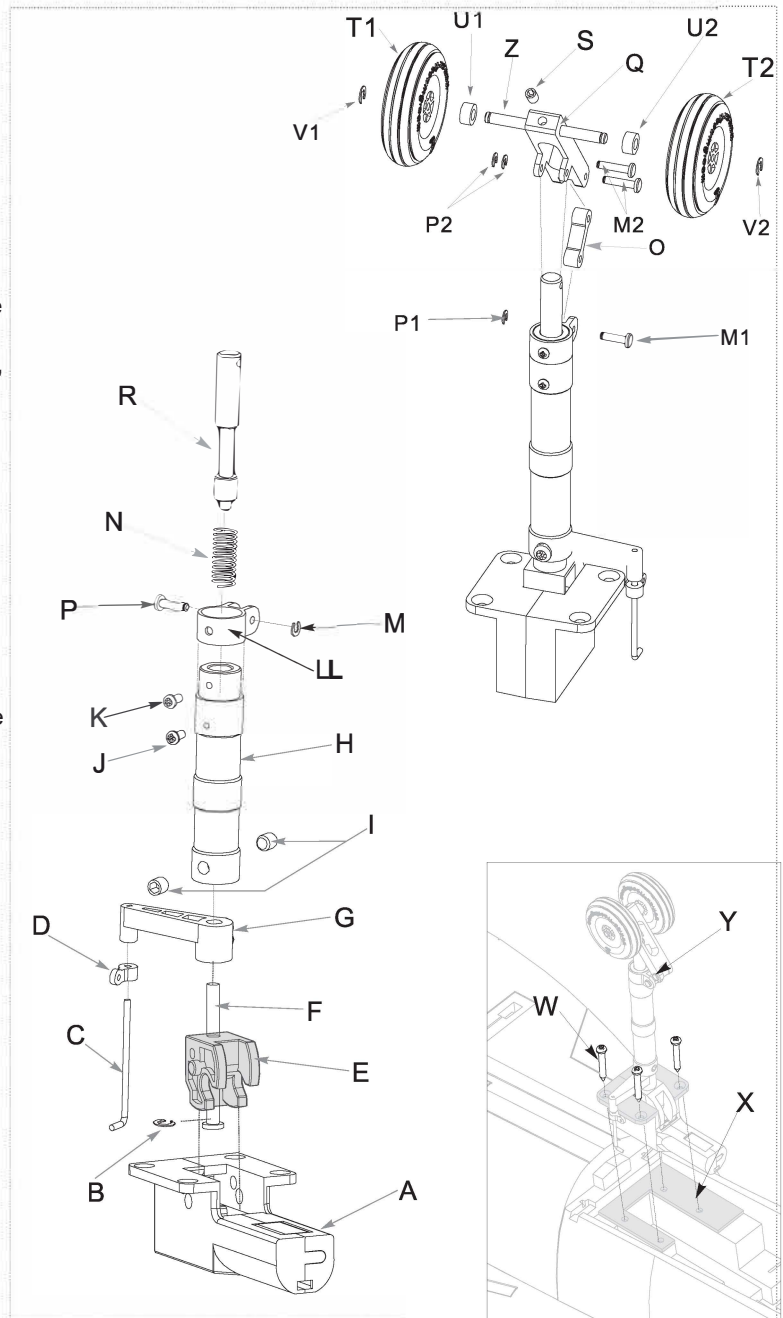
Installing hole of Vector pushrod (Horizontally)



Nose landing gear accessories list:

- | | |
|---------------------------------------|------------------------------|
| A - Electric retract | N - Spring |
| B - E-clips (Ø2.0 pcs) | O - 8-shaped damping shaft |
| C - Nose gear steering pushrod | P - E-Clips(Ø1.5 2pcs) |
| D - Nose gear steering control collar | Q - Shaft support lever |
| E - Trunion | R - Damping pin |
| F - Nose gear metal pin | S - Grub screw |
| G - Steering tiller | T - Wheel |
| H - Nose gear main strut | U - Spacer |
| I - Grubscrew (M4*4 2pcs) | V - E-clips (Ø2.0 2pcs) |
| J - Screw (PM2*4 1pcs) | Z - Wheel shaft |
| K - Screw (PM2*3 1pcs) | |
| L - U-shaped collar | W - Screws (PA3*45 4pcs) |
| M - Pins (2pcs) | X - Nose gear mounting point |
| | Y - Nose gear assembly |

- At first, insert the "Nose gear metal pin (F)" into the "Trunion(E)", and clip the "E-clip(B)" to the "Nose landing gear metal wire (F)" to lock it in place.
- Put the "Nose gear steering control collar (D)" on the "Nose gear steering pushrod (C)", slide the assembly into the hole on the "Steering tiller (G)" and lock it in place.
- Put the installed Steering tiller(G) on the "Nose gear metal pin(F)", and secure it with the screw. Ensure the screw and the flat spot of the pin are aligned.
- Next, put the "Nose gear main strut (H)" onto the "Nose gear metal pin(F)", and secure it with 2 "Grub screws(I)".
- Put the "Spring (N)" in the "Nose gear main strut (H)", then insert the "Damping pin(R)" into the "Nose gear main strut (H)", press down on the "Damping pin(R)", and thread the "screw (J)" in the "nose landing gear main strut (H)", to lock the "Damping pin(R)" in place.
- Put the "U-shape collar(L)" on the "Nose gear main strut (H)", and secure it with "Screw (K)".
- Use "E-clips(P)" and "Pins(M)" to connect the "Shaft support lever (Q)", the "8-shaped damping shaft (O)" and the "U-shaped collar(L)".
- Insert the "wheel shaft (Z)" into the "Shaft support lever (Q)", and use "Grub screw(S)" to secure the "Wheel shaft (Z)".
- Put the "Spacers(U)" and "Wheels(T)" on the "wheel shaft (Z)", and use "E-clips(V)" to secure the two wheels.
- Place the "Nose gear assembly(Y)" on the Nose gear mounting point(X)", and secure it with 4 "Screws(W)".



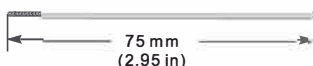
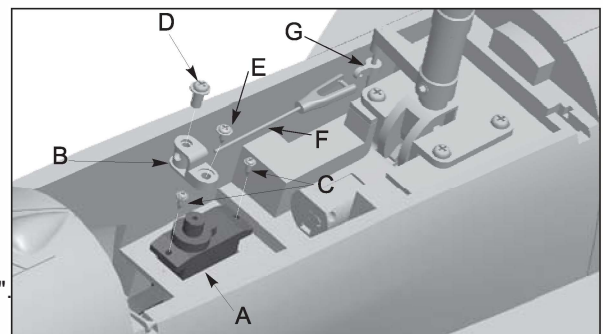
Note: When installing, please check that the flat position of part is aligned with the screw before tightening. The flat position must face the screw hole so that it can lock in place properly. Failure to do so can result in the piece being misaligned, or worse, falling off.

Nose Gear Servo Installation

Accessories list

- A - Metal gear servo
- B - U-shaped servo arm
- C - Screws (PWA2*8 2pcs)
- D - Screw (PM3*6)
- E - Screw (PWA1.7*5)
- F - Pushrod
- G - Landing gear steering collar

- Use a servo tester or radio to center the servo.
- Use "screws(C)" to secure the "Servo(A)". Install the "U-shaped servo arm(B)" on the servo and secure it with "Screw(E)".
- Snap the clevis of "Pushrod(F)" into the "Landing gear steering collar(G)" and insert the other end into the "U-shape servo arm (B)". Center the nose wheel.
- Use "Screw(D)" to secure the "Pushrod(F)".



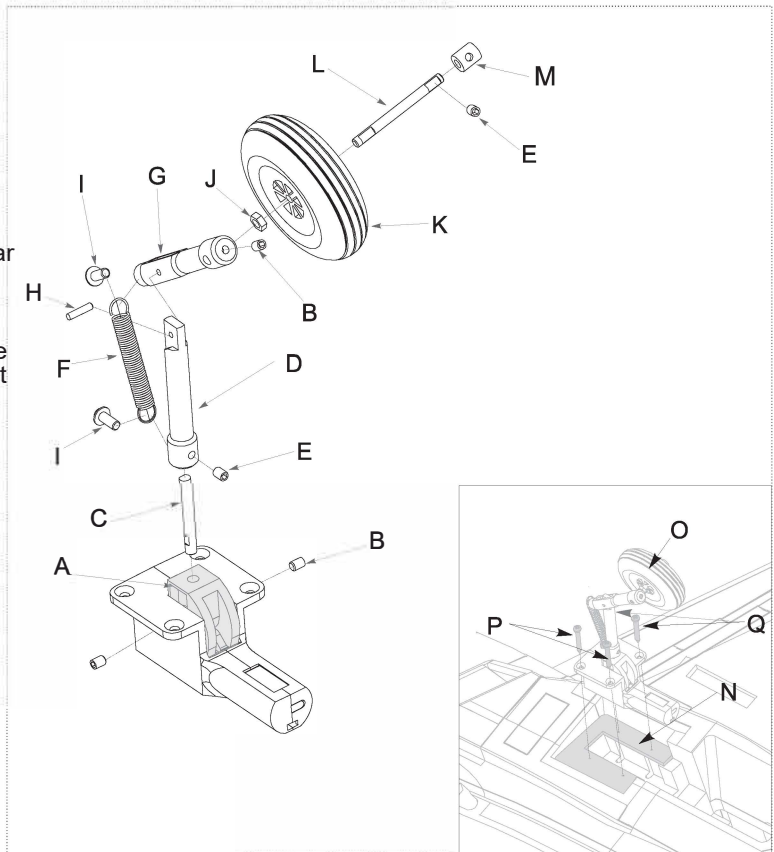
Pushrod diameter : Ø 1.2mm



Main landing gear accessories list:

- | | |
|------------------------------|-----------------------------|
| A. Trunion | J. Nut |
| B. Grub screws (M3*s 3pcs) | K. Wheel |
| C. Main gear metal pin | L. Wheel shaft |
| D. Main gear main strut | M. Collar lock |
| E. Grub screws (M3*3 2pcs) | N. Main gear mounting point |
| F. Spring | O. Main gear assembly |
| G. Main gear dampening strut | P. Screws (PWA3*10 2pcs) |
| H. Pin | Q. Screws (PWA3*45 2pcs) |
| I. Screws (PM*6 2pcs) | |

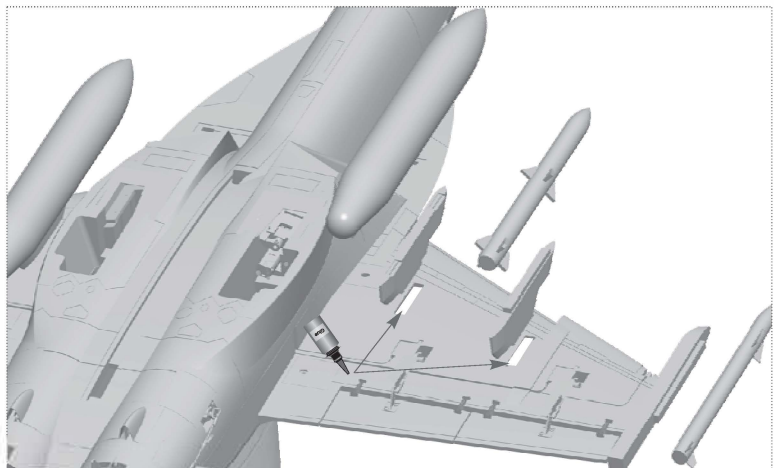
1. Insert the "Main gear metal pin(C)" into the "Trunion(A)", and secure it with "Grub screw(B)".
2. Put the "Main gear main strut(D)" to the "Main gear metal wire(C)", and lock it with "Grub screw(E)".
3. Use "Pin(H)" to connect the "Main gear main strut (D)" to the "Main gear dampening strut(G)".
4. Use "Grub screw(B)" to secure the flat side of the "Wheel shaft(L)" to the "Main gear dampening strut (G)", then put the "Nut(J)", "Wheel(K)", "Collar lock(M)" onto the "Wheel shaft(L)". Finally use "Grub screw(E)" to secure the "Collar lock(M)".
5. Use "Screws(I)" to attach the "Spring(F)" to the "Main gear dampening strut(G)" and "Main gear gear main strut(D)".
6. Place the "Main gear assembly(O)" on the "Main gear mount(N)", and use 2 "Screws(P)" and 2 "Screws(Q)" to secure it in place..



Note: When installing, please check that the flat position of part is aligned with the screw before tightening. The flat position must face the screw hole so that it can lock in place properly. Failure to do so can result in the piece being misaligned, or worse, falling off.

Installing the Guided Missiles and Pylons

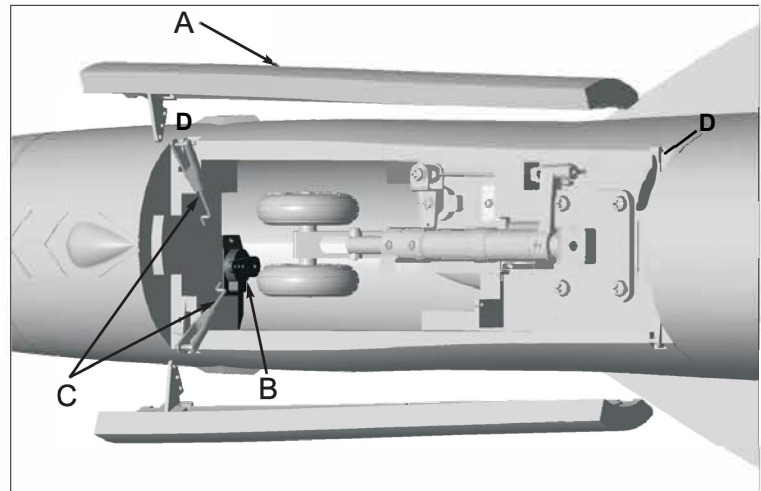
1. Refer to the photo on the right for the proper positions for the Pylons and Missiles.
2. Use the glue where the arrows indicate and attach the pylons into the slots on the wings.
3. **Allow at least 2 hours for the glue to dry.**
4. After the glue has dried, install the guided missiles as indicated.



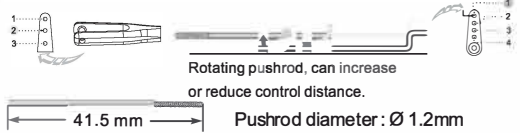
Nose Gear Door Installation

EN

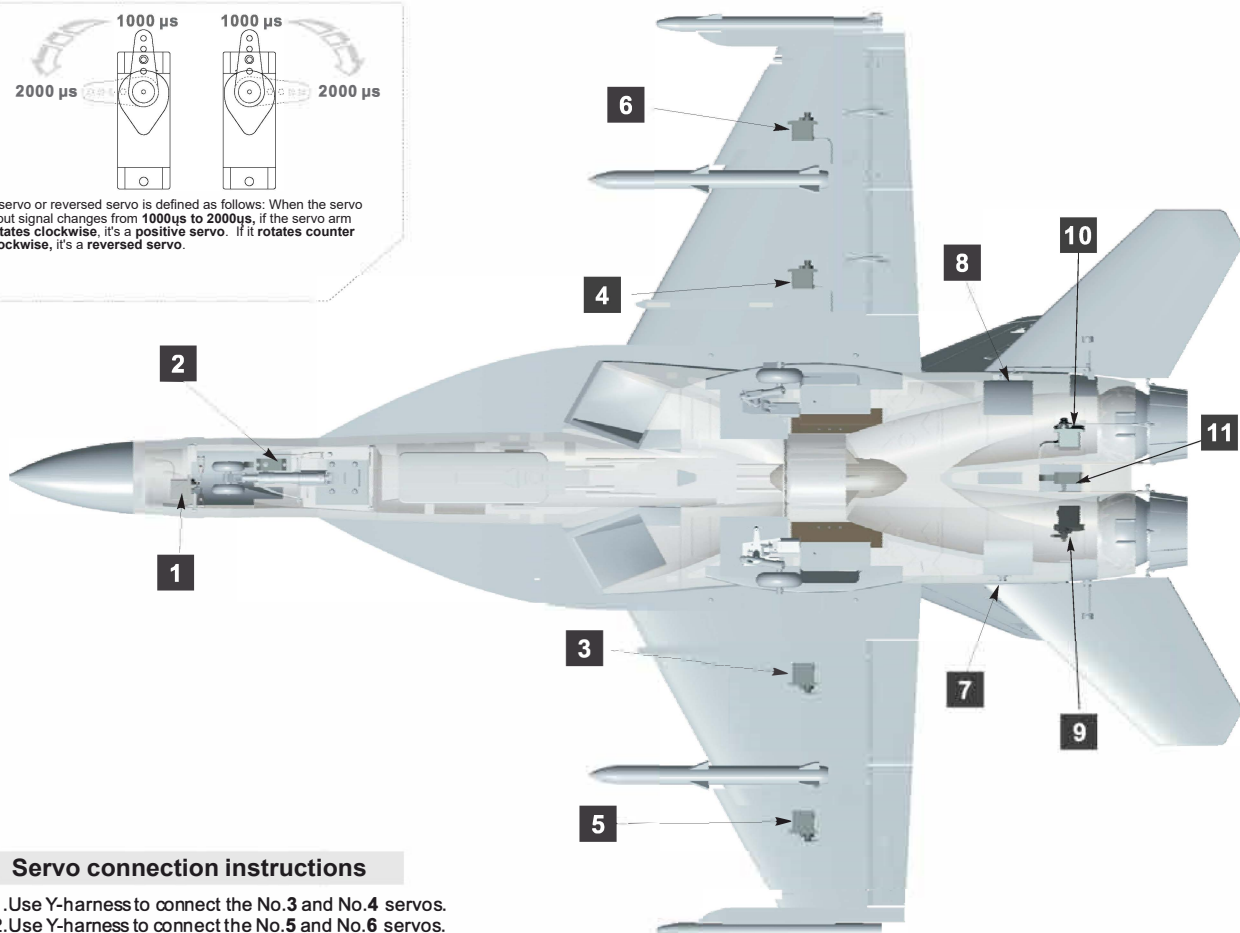
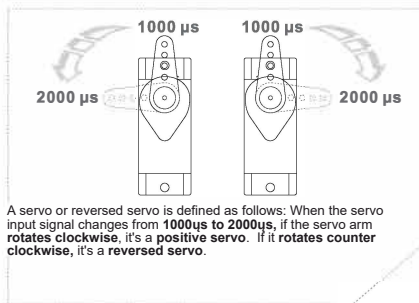
1. Snap the rotating shaft of "Nose gear door(A)" into the holes of the "Gear door attachment point(D)".
2. Adjust the cabin door servo arm to the maximum travel. Use glue to secure "Servo(B)". Use the "pushrods(C)" to connect the gear doors to the servo arm.
3. Test the doors for functionality. If the doors will not close tightly, adjust the pushrods until they do. If the doors close too tightly, or the servos 'buzz', make the pushrod slightly longer until the 'buzz' is eliminated.



The pushrod size of cabin door



Servo Introduction

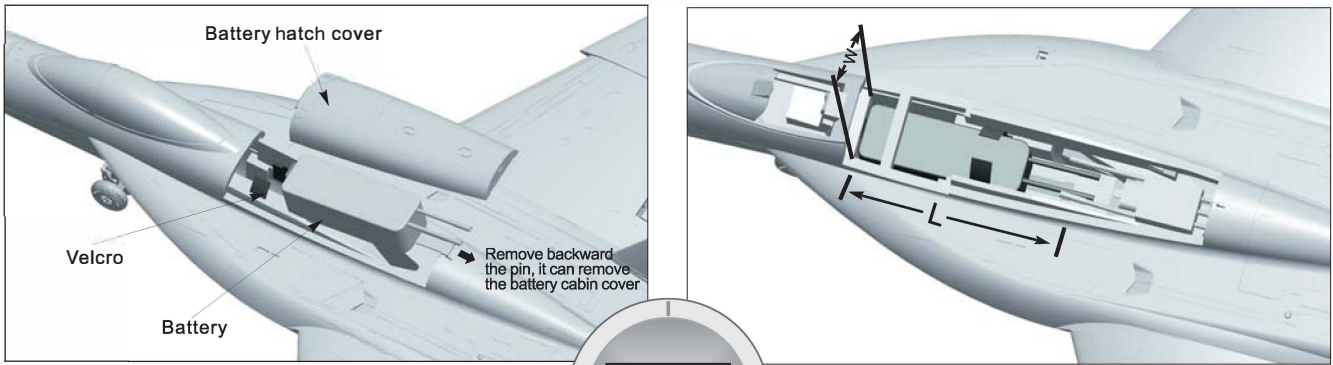


Servo connection instructions

1. Use Y-harness to connect the No.3 and No.4 servos.
2. Use Y-harness to connect the No.5 and No.6 servos.
3. Use Y-harness to connect the No.2 and No.11 servos.

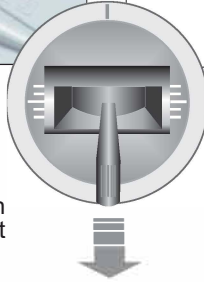
Servo installing position	No.	Pos./Rev.	Servo Cable Length
Nose Cabin Servo	1	Reverse	L:500mm
Nose gear steering servo	2	Reverse	L:100mm
Flap servo	3	Positive	L:150mm
Flap servo	4	Reverse	L:150mm
Aileron servo	5	Positive	L:300mm
Aileron servo	6	Positive	L:300mm

Servo installing position	No.	Pos./Rev.	Servo Cable Length
Elevator servo	7	Positive	L:200mm
Elevator servo	8	Reverse	L:200mm
Vector servo (Horizontally)	9	Reverse	L:100mm
Vector servo (Horizontally)	10	Reverse	L:100mm
Vector servo (vertically)	11	Reverse	L:100mm



Push the pin towards the rear of the airplane and remove the battery hatch cover. Place a battery on the tray and use the Velcro straps to secure the battery.

Before connecting a battery to the ESC, switch on the radio and ensure that the throttle is in the lowest position. Engage the kill switch if one is assigned.



The standard battery is: **6S 22.2V 5000mAh 35C** You can choose a different battery, just remember to refer to the battery hatch size:

L=240mm; W=50mm; H=50mm

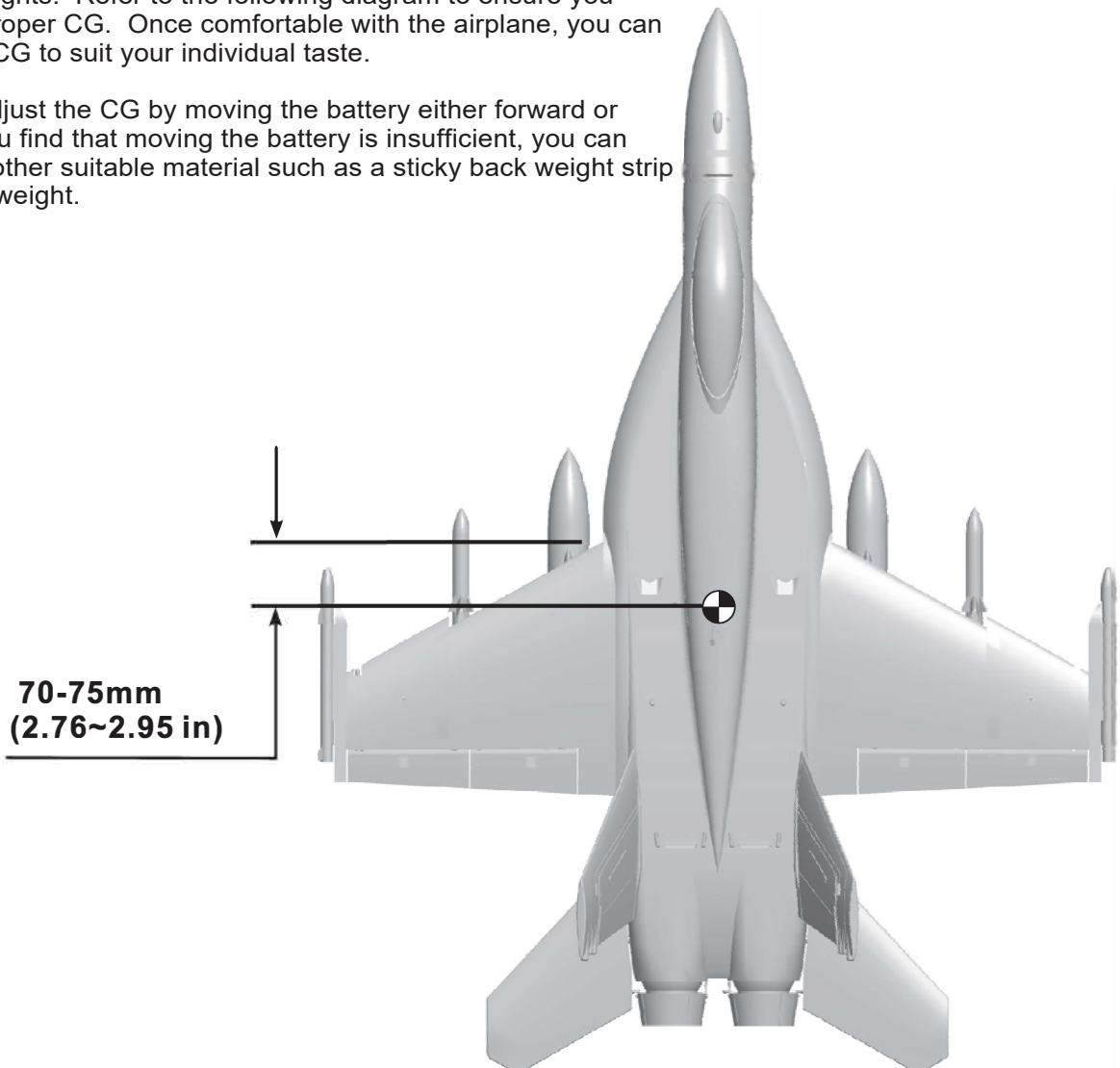
6S 22.2V 4500mAh ~ 6S 22.2V 5200mAh
Discharge rate of C > 35C

Different battery weights may affect the CG, Always check the CG when using a different size of battery than you use normally.

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.

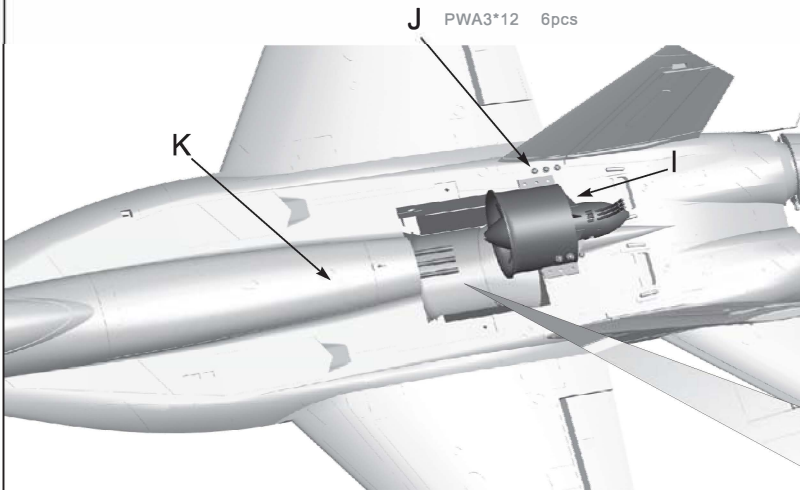
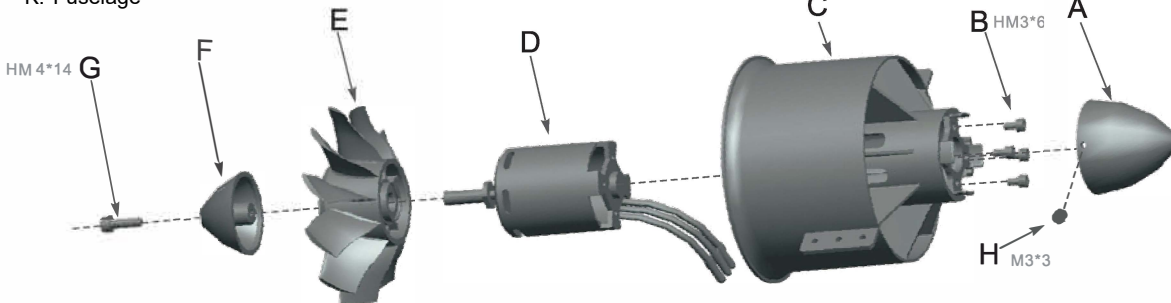
You can adjust the CG by moving the battery either forward or back. If you find that moving the battery is insufficient, you can use some other suitable material such as a sticky back weight strip to counter weight.



70-75mm
(2.76~2.95 in)

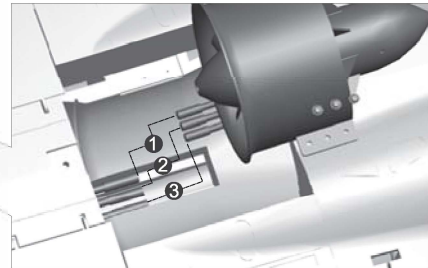
- A. Tail fan
- B. Cup head screws(3*6)
- C. Ducted fan housing
- D. Motor
- E. Rotor
- F. Spinner
- G. Cup head screw (4*14)
- H. Grub screws(3*3)
- I. EDF
- J. Screws (3*12 6pcs)
- K. Fuselage

1. Place the "Motor(D)" in the "Ducted fan housing(C)".
2. Secure the motor with 4 "Cup head screws(B)".
3. Slide the "Rotor(E)" over the motor shaft.
(During this process, note that the hardware platform of the rotor should be in alignment with the motor shaft platform)
4. Use "Spinner(F)" to cover the rotor and secure the "Spinner(F)" with a "Cup head screw(G)".
5. Install the "Tail fan(A)" to the bottom of the "Ducted fan housing(C)" and secure it with 2 "Grub screws(H)".
6. Connect the motor to the ESC
7. Put the assembled "EDF(I)" into the "Fuselage(K)".
8. Use 6"Screws(J)" to secure the "EDF(I)" to the wooden attachment point.

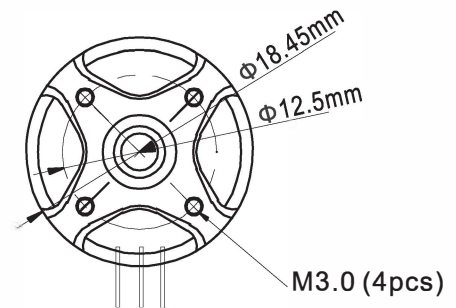
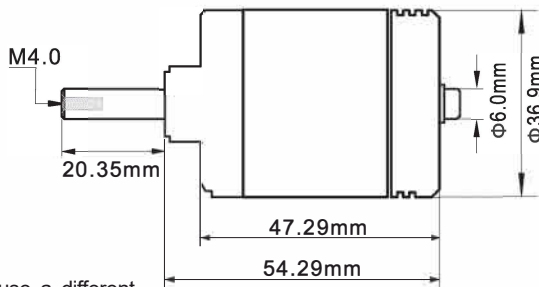
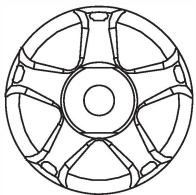


⚠ Note: When the ESC and battery are connected, do not touch the unit with your hands! This could cause serious injury. When testing the unit, always use a safe testing stand, keep your fingers away!

⚠ Note: When testing the EDF, if the motor turns in reverse, swap the number 1 and 3 wires connection to the ESC.



Motor Parameters



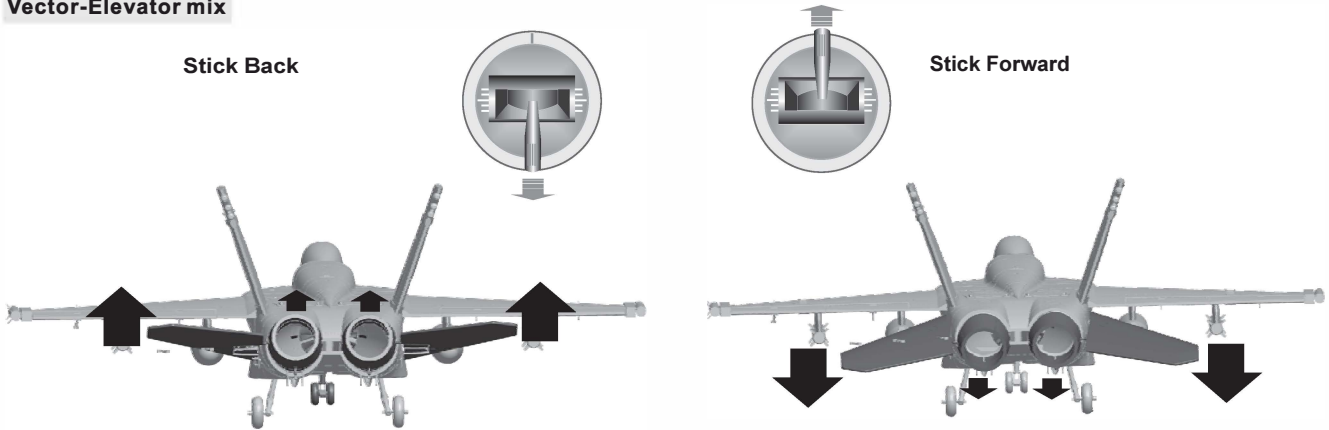
⚠ Note: If you decide to use a different motor or want to upgrade from the stock one, refer to the dimensions to ensure that the new motor will fit in the airplane

Item No.	KV Value	Volate (V)	Current (A)	Pull (g)	Motor Resistance	Weight (g)	No Load Current	Propeller	ESC
MO037481	1450RPM/V	22.2	80	3600	0.02 Ω	195	2.7A/10V	90mm Ducted Fan	≥ 95A

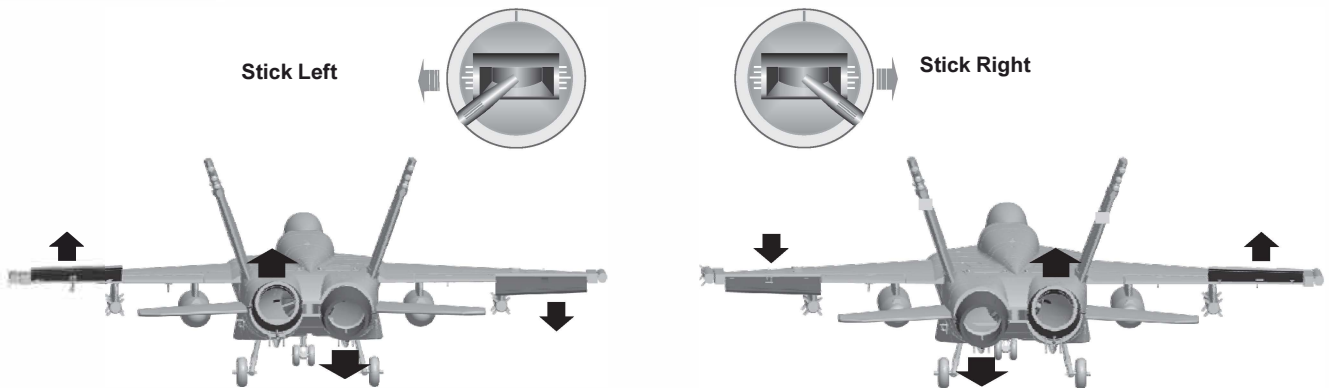
Note: This jet has the vector function, a 7CH+ programmable radio is required.

1. Connect the left up/down vector control servo to the 7th CH in the receiver
2. Connect the right up/down vector control servo to the 8th CH in the receiver.
3. Use Y-harness to connect the left and right vector control servo and nose wheel steering servo, then, insert the Y-harness into the rudder channel (4thCH) in the receiver.
4. Enter into the PROG. MIX from radio menu, set the mix for 7CH to elevator and aileron.
5. Enter into the PROG. MIX from radio menu, set the mix for 8CH to elevator and aileron.

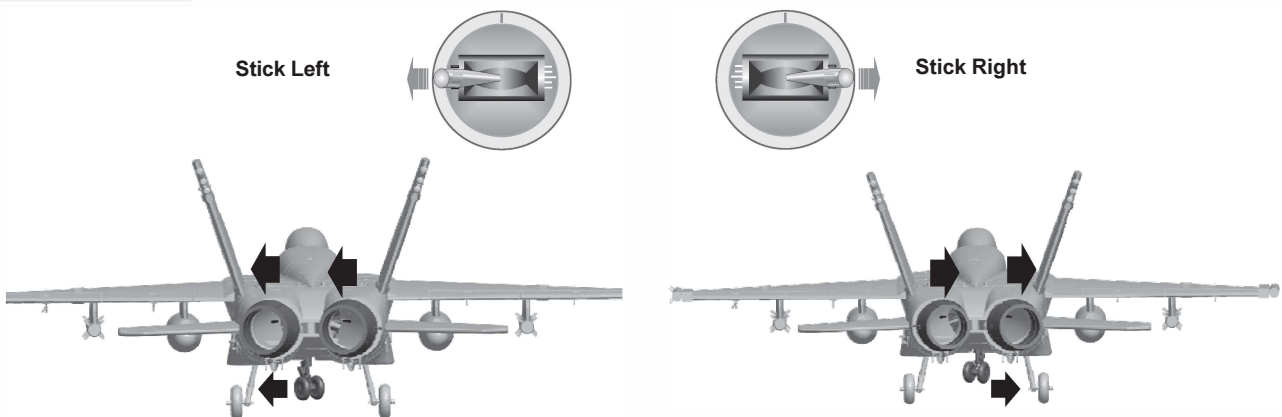
Vector-Elevator mix



Vector - Aileron mix



Vector-Rudder mix



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

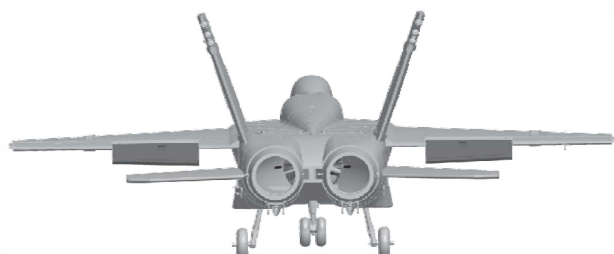


Stick Right

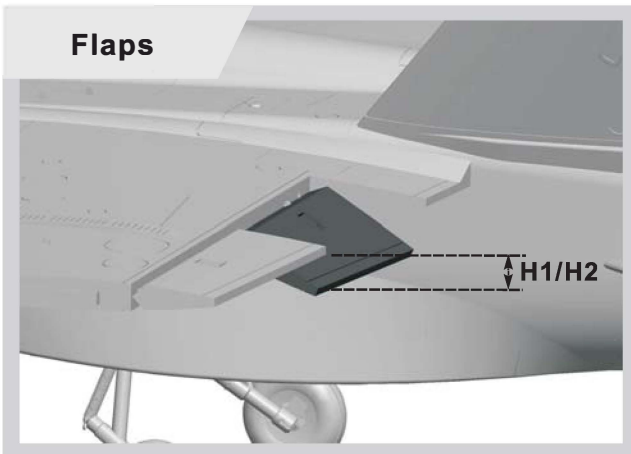
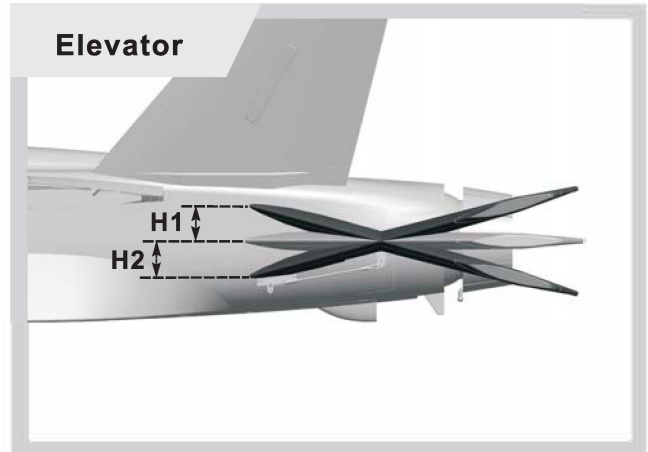
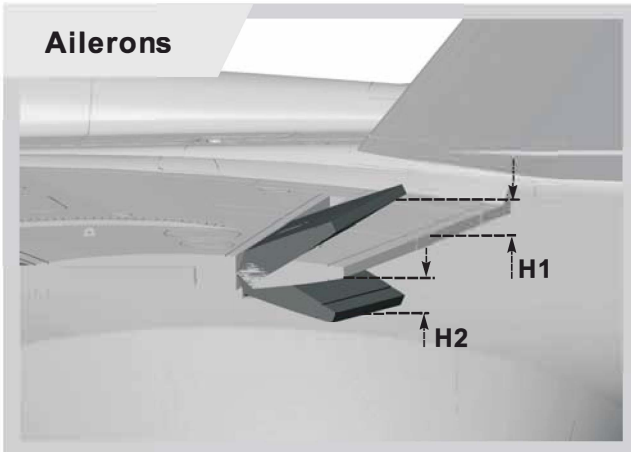


Optional Flaps

Flaps Down

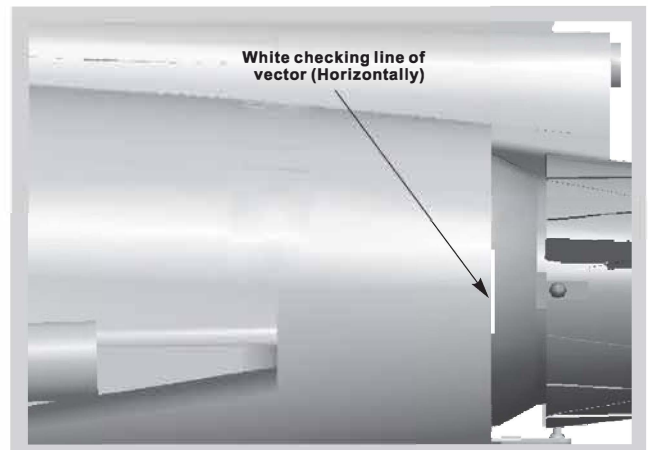
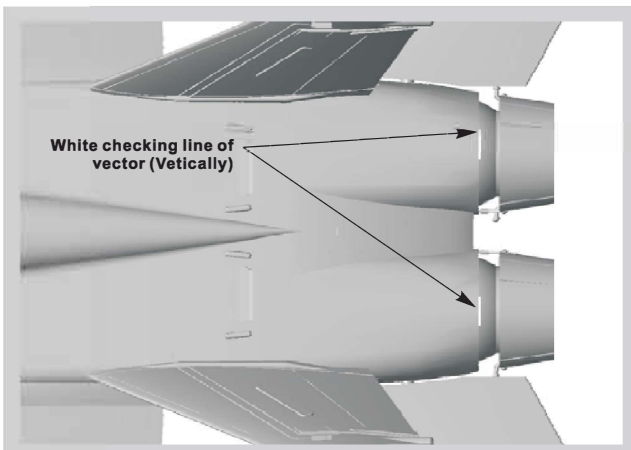


According to our test results, the following rates proved to be a good starting point. Low rates are good for initial flights or less experienced pilots. High Rates will be more sensitive to control inputs After initial flights, adjust the rates to suit your own style.

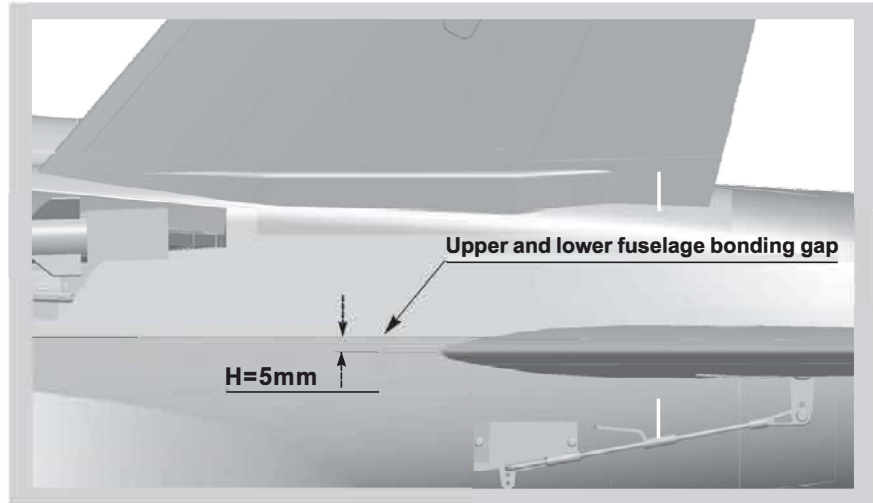


	Ailerons	Elevator	Flaps
Low Rate	H1/H2 17mm/17mm	H1/H2 12mm/12mm	H1/H2 17mm/17mm
High Rate	H1/H2 25mm/25mm	H1/H2 19mm/19mm	H1/H2 33mm/33mm

Vector center diagram



Correct angle of attack, is essential to the success of the initial flight and all subsequent flights. Please refer to the diagram on the right for the correct specifications for the proper elevator angle of attack.



Troubleshooting Guide

Motor does not turn on	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
The airplane requires constant up elevator .	A) CG is forward	A) Adjust CG backward refer to instruction
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 not stable	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) Thrust is on the high position
	B) Taxi distance is not enough	B) Long taxi distance
	C) Elevator rate is not enough high	C) Use high rate of elevator
Airplane will not climb	A) Li-Po battery is depleted	A) Recharge Li-Po battery
	B) Ducted fan is damaged	B) Check and replace ducted fan
	C) Motor is damaged	C) Check and replace motor
	D) ESC overheat protection, power reduction.	D) Landing firstly, check and select a more powerful ESC
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	B) Check and replace motor
	C) Ducted fan is not balance	C) Adjust the ducted fan balance
	D) High speed will happen slightly vibrate	D) Its normal to use
Control surfaces move in the wrong direction	A) Servo direction is reversed	A) Adjust servo reversing function



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