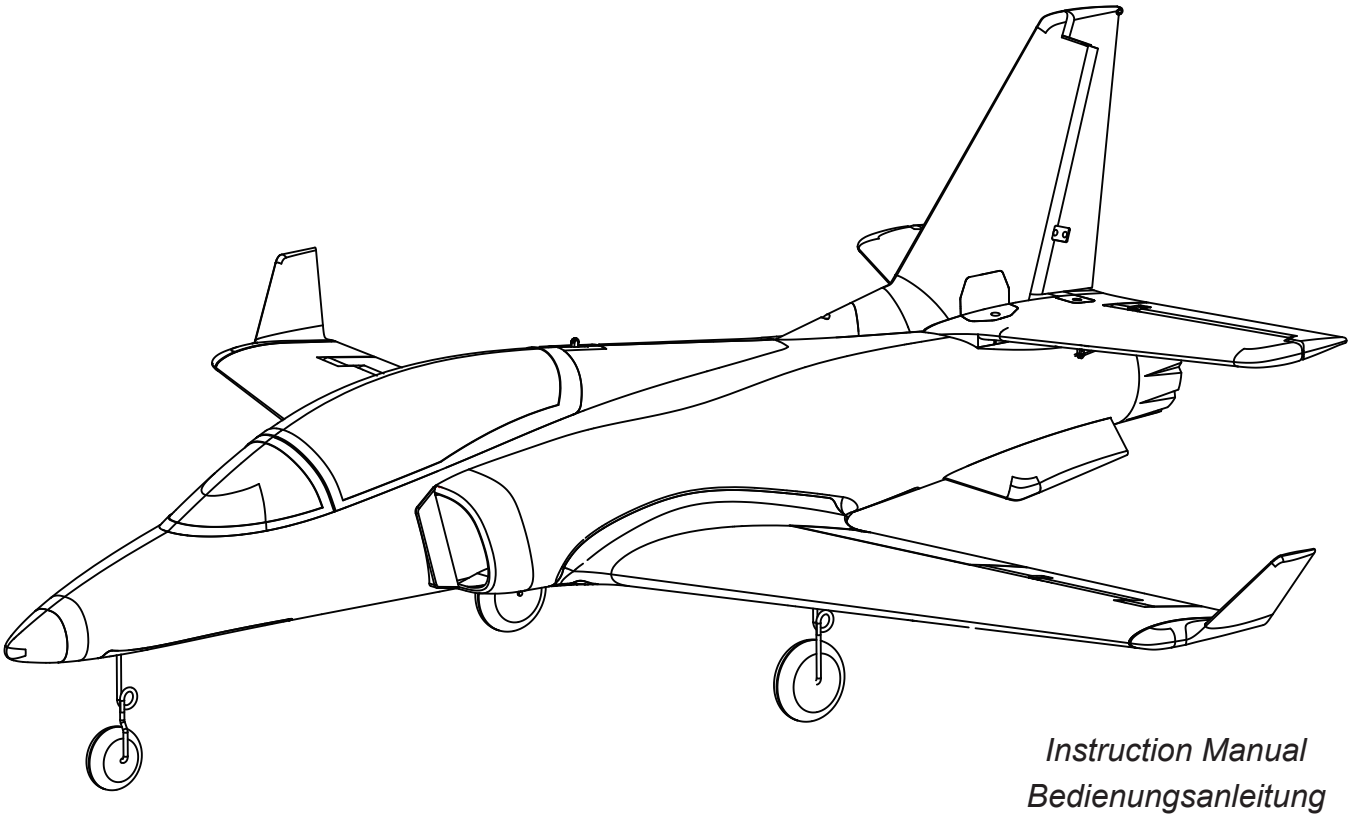
ROC OBBY

70mm

Super Viper



Instruction Manual
Bedienungsanleitung
Manuel d'utilisation
操作手册

REALISTIC
• Retracts installed

RIGID
• Durable EPO material

STABLE
• Smooth flying performance

FMSMODEL.COM

WARNING

WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating.

Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product and NOT a toy. It must be operated with caution and common sense and failure to do so could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision.

This manual contains instructions for safety operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual prior to assembly, setup or use, in order to operate and avoid damage or serious injury.

Safety Precautions and Warnings

As the user of this product, you are solely responsible for operating in a manner that does not endanger yourself and others or result in damage to the product or the property of others. This model is controlled by a radio signal subjectto interference from many sources outside your control. This interference can cause momentary loss of control so itis advisable to always keep a safe distance in all directions around your model, as this margin will help avoid collisions or injury.

Age Recommendation: Not for children under 14 years. This is not a toy.

·Never operate your model with low transmitter batteries.

·Always operate your model in an open area away from cars, traffic or people.

·Avoid operating your model in the street where injury or damage can occur.

·Never operate the model in populated areas for any reason.

·Carefully follow the directions and warnings for this and any optional support equipment you use (chargers,rechargeable battery packs, etc.)

·Keep all chemicals, small parts and anything electrical out of the reach of children.

·Moisture causes damage to electronics. Avoid water exposure to all equipment not specifically designed and protected for this purpose.

·Never lick or place any part of your model in your mouth as it could cause serious injury or even death.

Safety

Lithium Polymer (Li-Po) Battery Warning

CAUTION: Always follow the manufacturer's instructions for safe use and disposal of batteries. Fire, property damage, or serious injury can result from the mishandling of Li-Po batteries.

- By handling, charging or using a Li-Po Battery you assume all risks associated with lithium batteries. If at any time the batteries begin to swell or balloon, discontinue use immediately!
- Always store the batteries at room temperature in a dry area to extend the life of the battery. Always transport or temporarily store the battery at a temperature range of 40-120F. Do not store the battery or model in a car or in direct sunlight. If stored e the battery or model in a car or in direct sunlight. If stored
- Never use a Ni-Mh Charger to charge Li-Po Batteries. Failure to charge the battery with a Li-Po compatible charger may cause fire resulting in personal injury and property damage.
- Never discharge Li-Po Cells below 3V.
- Never leave charging batteries unattended.
- Never charge damaged batteries.
- Use a battery charger that is designed to safely charge the Li-Po Battery. Read the charger instructions carefully before use. When charging the battery, make certain the battery is on a heat resistant surface. It is also highly recommended to place the Li-Po Battery inside a fire resistant charging bag readily available at hobby shops or online.

Introduction

Building on engineering innovations seen in this popular jet model, ROCHOBBY(by FMS) has launched a brand new 70mm EDF Super Viper onto the market!

In terms of appearance, the Super Viper has a scaled navy blue color scheme with bright yellow wingtips, which highly distinguishes it for long distance viewing. The optimized fuselage shape decreases wind resistance. The button-type canopy design lets you latch the canopy so you will not lose the cockpit during extreme maneuvers.

In terms of performance, the Super Viper is equiped with a 70mm 12-blade Ducted Fan, innrunner KV1850, and a Predator 70A ESC, this powerful system, when coupled with a 6S battery, resembles a turbine engine sound.

This inexpensive fine trainer is excellent for edf jet beginners. To keep costs low, we offer the model as a standard PNP with options to add flap servos.

Get you rself a Super Viper and bring new excitement to the flying field!

Key Features:

- High quality Predator 70A ESC, powerful KV1850 innrunner motor with the latest 70mm 12-blade EDF
- Screw-together construction
- Button type canopy hatch
- Pre-installed ball link style control horns provide precise surface control
- The finest Trainer EDF in the market

Table of Contents

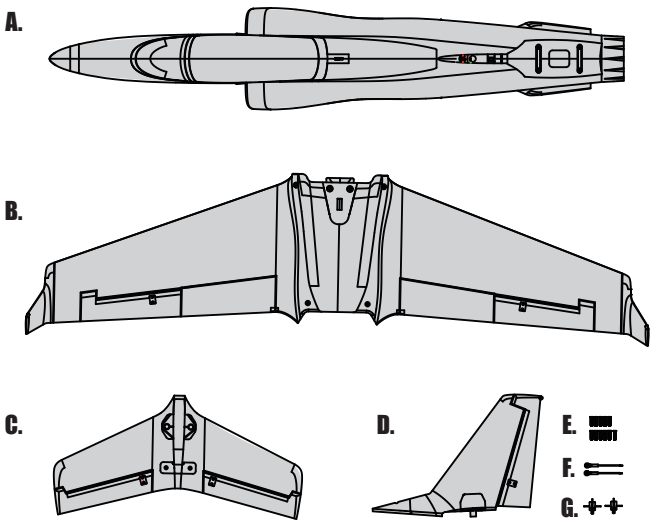
Contents of Kit

Before assembly, please inspect the contents of the kit. The photo below details the contents of the kit and labels.

If any parts are missing or defective, please indentify the name or part number (refer to the spare parts list near the end of the manual) then contact your local shop or email us: support@fmsmodel.com.

Specifications

Wingspan: 1100mm (43.30in)
Overall length: 1025mm (40.4in)
Flying weight: ~ 1795g (63.32oz)
Motor size: Brushless 2860-KV1850
Wing load: 93.5 g/dm^2 (0.21oz/in^2)
Wing area: 19.2 dm^2 (297.6 sq.in)
ESC: 70A
Servo: 9g servo x 6



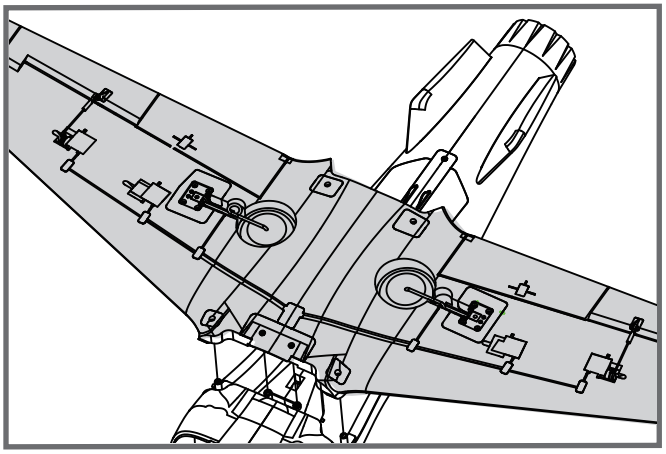
A: Fuselage
B: Main Wing Set
C: Horizontal Stabilizer
D: Vertical Stabilizer
E: Screws (11-HKM3.0*16）
F: Linkage Rods for Flaps
G: Control Horns for Flaps

Model assembly

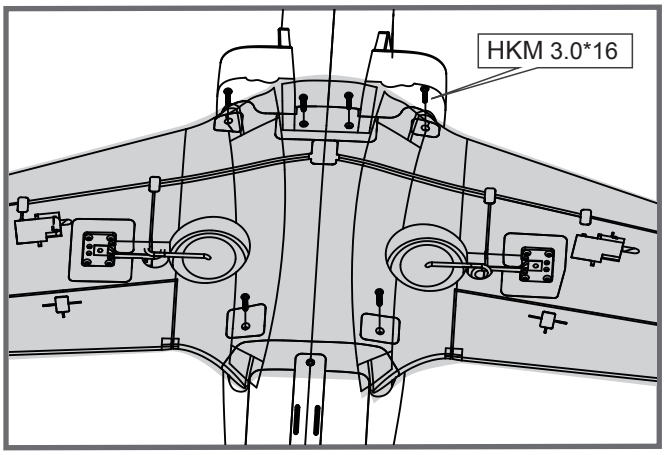
Main Wing Installation

1. Remove the canopy hatch.

Note: Guide the Y-harnesses from main wing through the hole located in the bottom of the fuselage as shown.



2. Aligh the wing with the fuselage and secure into position using screws included as shown.

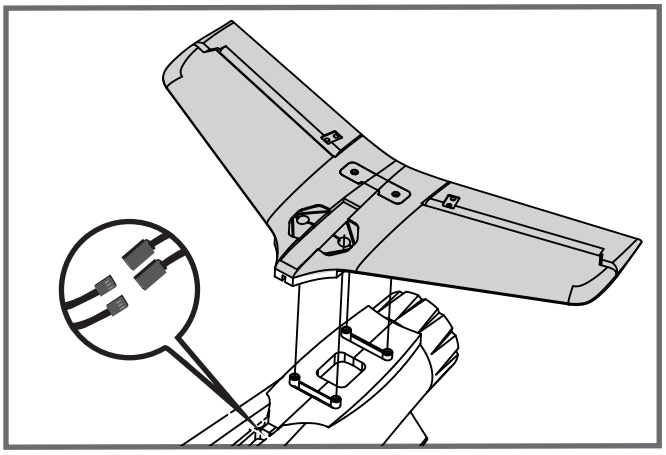


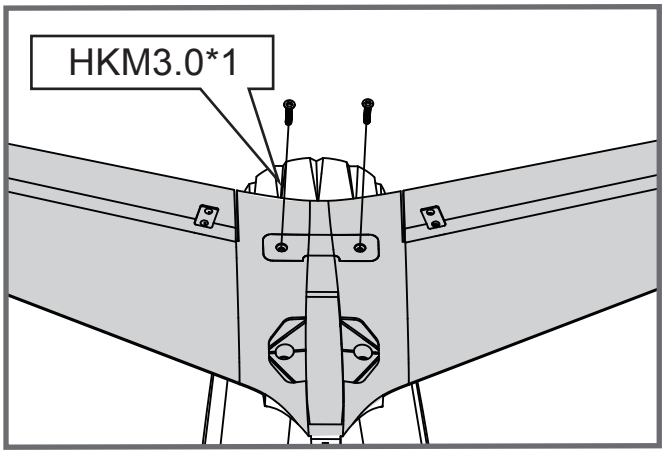
Horizontal Stabilizer Installation

1. Connect the elevator servo connectors to the servo extensions in the fuselage.

2. Secure the horizontal tail in place using the included screws.

Note: Install the horizontal tail in the rear of the fuselage. Ensure the control horn faces down as shown.





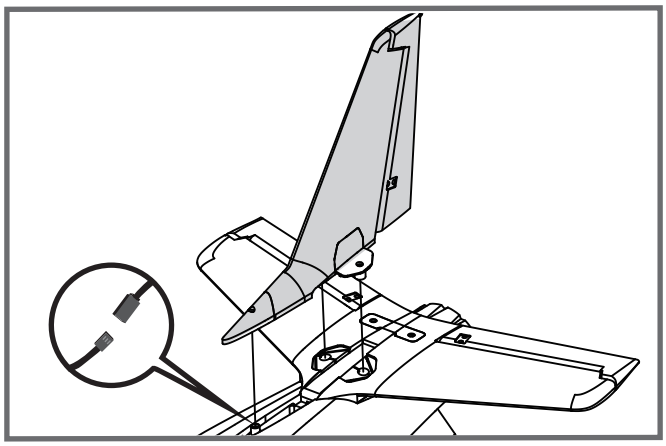
Model Assembly

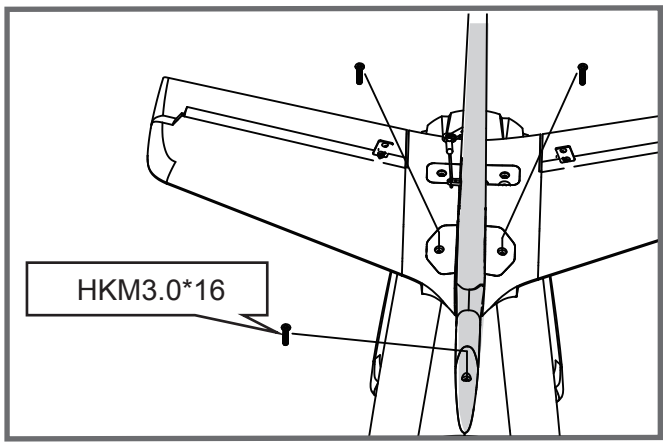
Vertical Stabilizer Installation

1.Install the vertical tail into the slot in the fuselage.

2.Secure the vertical tail in place using the included screws.

Note: Connect the rudder servo connectors to the servo extensions in the fuselage.

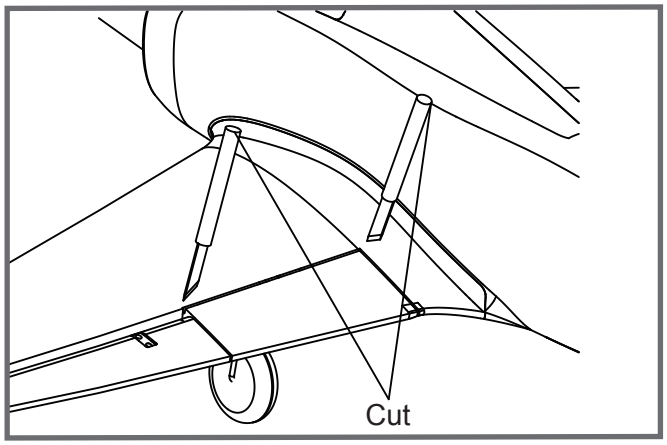




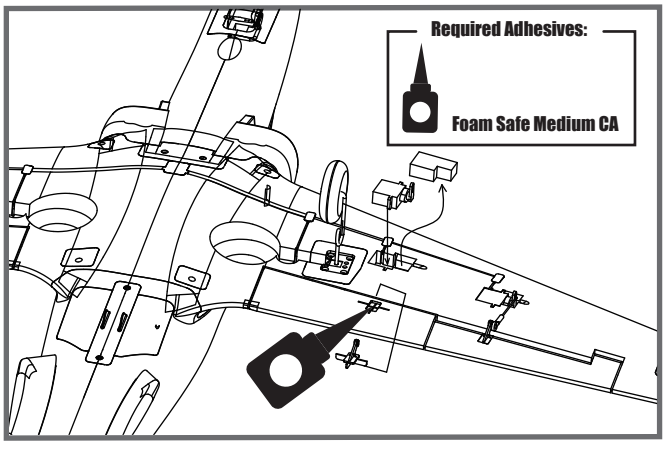
Flap Option

1.Cut apart the joints with a knife as shown.

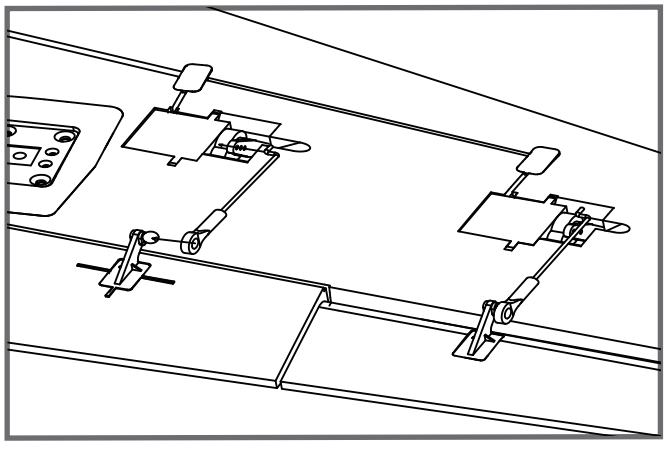
Note: Take out the foam blocks from the flap servo slots and put the flap servos in.



2.Glue the control horns.



3.Install the linkage rods.

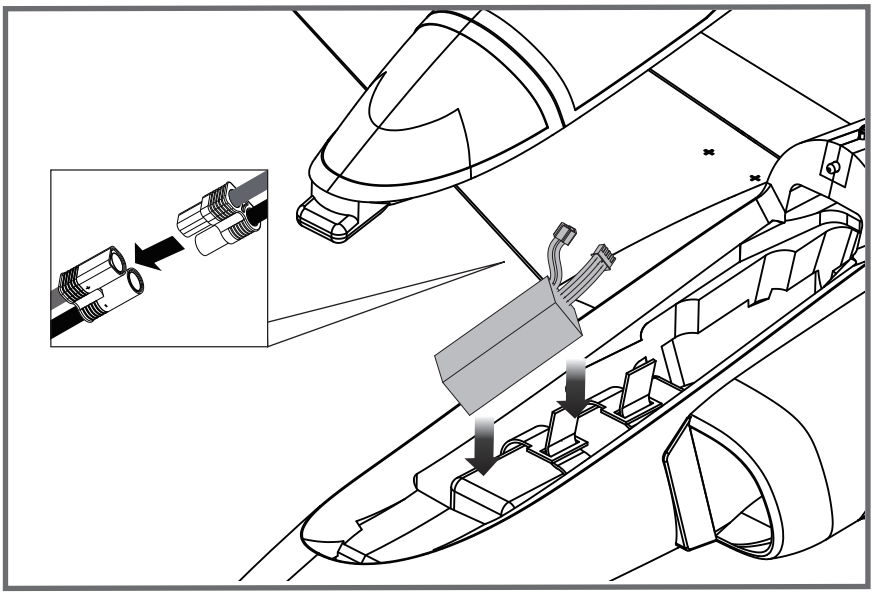


Battery installation

1.Apply the hook tape to the cable end of the battery.

2.Slide the battery into the battery hatch with the power supply cable toward the rear end of the plane and the hook tape facing the bottom of the battery hatch.

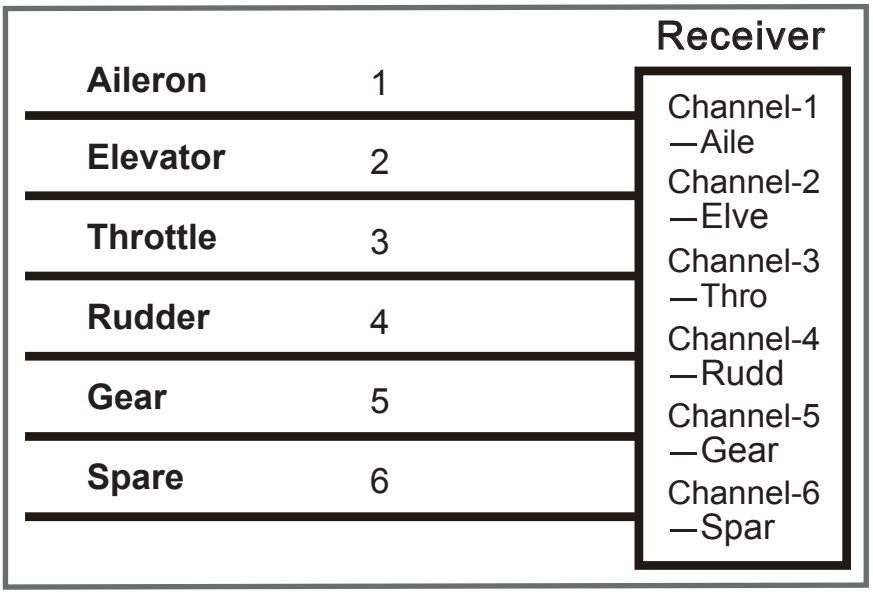
Note: You may need to relocate the battery position to acheieve the correct CG for your model.



Connectors Diagram

Attach aileron servo to the aileron channel of your receiver. Elevator harness goes to elevator channel of your receiver. Steering servo goes to the rudder channel. Attach the ESC connector to the throttle channel of the receiver. The LED to any spare channel. Tuck the wire leads into the recessed cavity at the rear end of the battery hatvh.

Note: Seat the receiver into the aside chamber as the picture shows.



Get your model ready to fly

Important ESC and model information

1. The ESC included with the model has a safe start. If the motor battery is connected to the ESC and the throttle stick is not in the low throttle or off position, the motor will not start until the throttle stick is moved to the low throttle or off position. Once the throttle stick is moved to the low throttle or off position, the motor will emit a series of beeps. Several beeps with the same tune means the ESC has detected the cells of the battery. The count of the beeps equals the cells of the battery. The motor is now armed and will start when the throttle is moved.
2. The motor and ESC come pre-connected and the motor rotation should be correct. If for any reason the motor is rotating in the wrong direction, simply reverse two of the three motor wires to change the direction of rotation.
3. The motor has an optional brake setting. The ESC comes with brake switched off and we recommend that the model be flown with the brake off. However, the brake could be accidentally switched on if the motor battery is connected to the ESC while the throttle stick is set at full throttle. To switch the brake off, move the throttle stick to full throttle and plug in the motor battery. The motor will beep one time. Move the throttle stick to low throttle or the off position. The motor is ready to run and the brake will be switched off.
4. Battery Selection and Installation. We recommend the 22.2V 3300mAh 35C Li-Po battery. If using another battery, the battery must be at least a 22.2V 3300mAh 35C battery. Your battery should be approximately the same capacity, dimension and weight as the 22.2V 3300mAh 35C Li-Po battery to fit the fuselage without changing the center of gravity significantly.

The transmitter and model setup

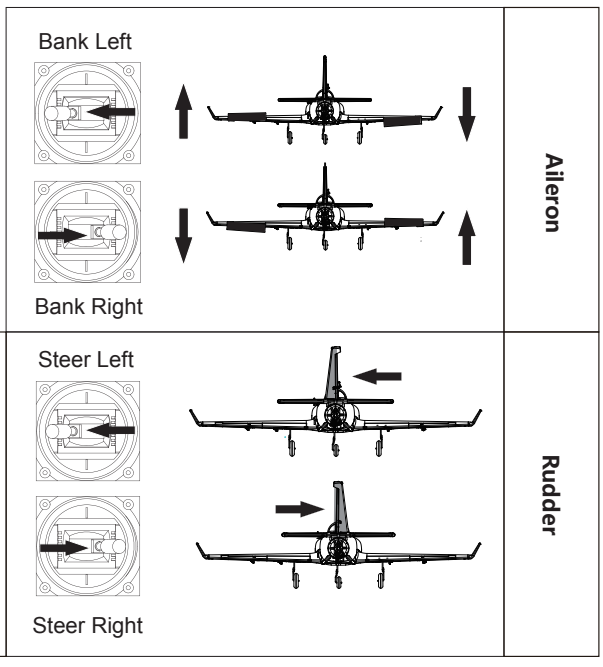
Before getting started, bind your receiver with your transmitter. Please refer to your Transmitter Manual for proper operation.

CAUTION: To prevent personal injury, DO NOT install the propeller assembly onto the motor shaft while testing the control surfaces. DO NOT arm the ESC and do not turn on the transmitter until the Transmitter Manual instructs you to do so.

TIPS: Make sure all control sticks on your radio are in the neutral position (rudder, elevator, ailerons) and the throttle is in the OFF position. Make sure both ailerons move up and down (travel) the same amount.

This model tracks well when the left and right ailerons travel the same amount in response to the control stick.

1.Move the controls on the transmitter to make sure the aircraft control surface moves correctly. See diagrams below.



Get your model ready to fly

Check the control throws

The suggested control throw setting for FMS MODEL are as follows (dual rate setting):

Tips: On first flight, fly the model in low rate. The first time you use high rates, be sure to fly at low to medium speeds. High rate, as listed, is only for EXTREME maneuvering.

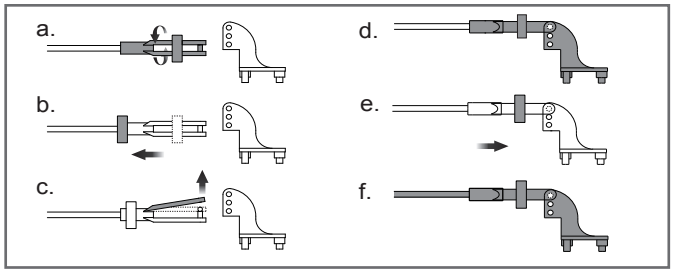
	High Rate	Low Rate
Elevator	16mm up/down	12mm up/down
Aileron	14mm up/down	10mm up/down
Rudder	16mm left/right	12mm left/right

Clevis installation

1. Pull the tube from the clevis to the linkage.

2. Carefully spread the clevis, then insert the clevis pin into the desired hole in the control horn.

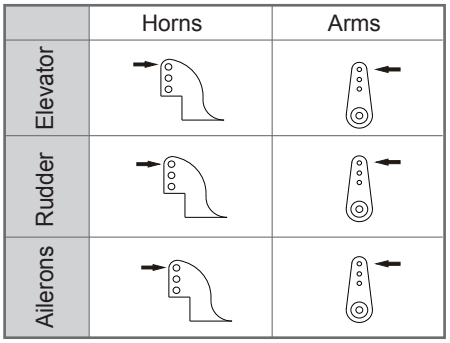
3. Move the tube to hold the clevis on the control horn.

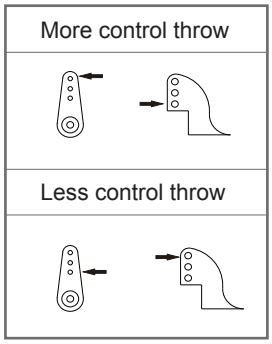


Control horn and servo arm settings

1. The table shows the factory settings for the control horns and servo arms. Fly the aircraft at the factory settings before making changes.

2. After flying, you may choose to adjust the linkage positions for the desired control response. See the table to the below.



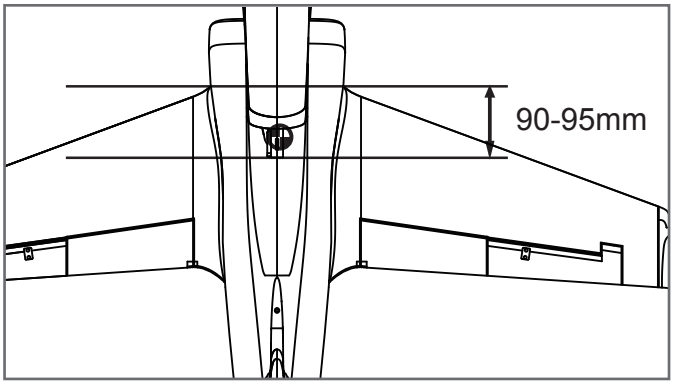


Check the C.G. (Center of Gravity)

When balancing your model, adjust the battery as necessary so the model is level or slightly nose down. This is the correct balance point for your model. After the first flights, the CG position can be adjusted for your personal preference.

1. The recommended Center of Gravity (CG) location for your model is (90-95mm) from the leading edge of the main wing (as shown) with the battery pack installed. Mark the location of the CG on top of the wing.

2. When balancing your model, support the plane at the marks made on the bottom of the main wing with your fingers or a commercially available balancing stand. This is the correct balance point for your model. Make sure the model is assembled and ready for flight before balancing.



Before flying the model

Find a suitable flying site

Find a flying site clear of buildings, trees, power lines and other obstructions. Until you know how much area will be required and have mastered flying your plane in confined spaces, choose a site which is at least the size of two to three football fields - a flying field specifically for R/C planes is best. Never fly near people - especially children, who can wander unpredictably.

Perform the range check for your plane

As a precaution, an operational ground range test should be performed before the first flight each time you go out. Performing a range test is a good way to detect problems that could cause loss of control such as low batteries, defective or damaged radio components, or radio interference. This usually requires an assistant and should be done at the actual flying site you will be using.

First turn on the transmitter, then install a fully-charged battery into the fuselage. Connect the battery and install the hatch.

Remember, use care not to bump the throttle stick. Otherwise, the propeller/fan will turn and possibly cause damage or injury.

Note: Please refer to your Transmitter Manual that came with your radio control system to perform a ground range check. If the controls are not working correctly or if anything seems wrong, do not fly the model until you correct the problem. Make certain all the servo wires are securely connected to the receiver and the transmitter batteries have a good connection.

Monitor your flight time

Monitor and limit your flight time using a timer (such as on a wristwatch or in your transmitter if available). When the batteries are getting low you will usually notice a performance drop before the ESC cuts off motor power, so when the plane starts flying slower you should land. Often (but not always) power can be briefly restored after the motor cuts off by holding the throttle stick all the way down for a few seconds.

To avoid an unexpected dead-stick landing on your first flight, set your timer to a conservative 4 minutes. When your alarm sounds you should land right away.

Flying your model

Take off

While applying power, slowly steer to keep the model straight. The model should accelerate quickly. As the model gains flight speed you will want to climb at a steady and even rate. It will climb out at a nice angle of attack (AOA).

Flying

Always choose a wide-open space for flying your plane. It is ideal for you to fly at a sanctioned flying field. If you are not flying at an approved site always avoid flying near houses, trees, wires and buildings. You should also be careful to avoid flying in areas where there are many people, such as busy parks, schoolyards, or soccer fields. Consult laws and ordinances before choosing a location to fly your aircraft. After takeoff, gain some altitude. Climb to a safe height before trying technical manoeuvres, including high speed passes, inverted flight, loops, and point rolls.

Landing

Land the model when you hear the motor pulsing (LVC) or if you notice a reduction in power. If using a transmitter with a timer, set the timer so you have enough flight time to make several landing approaches.

The model's three point landing gear allows the model to land on hard surfaces. Align model directly into the wind and fly down to the ground. Fly the airplane down to the ground using 1/4-1/3 throttle to keep enough energy for proper flare. Before the model touches down, always fully decrease the throttle to avoid damaging the propeller or other components. The key to a great landing is to manage the power and elevator all the way to the ground and set down lightly on the main landing gear. After a few flights you will find the model can be set down lightly on the mains and you can hold the nose wheel off balancing the model on the mains until it slows and gently settles the nose.

Maintenance

Repairs to the foam should be made with foam safe adhesives such as hot glue, foam safe CA, and 5min epoxy. When parts are not repairable, see the Spare Parts List for ordering by item number.

Always check to make sure all screws on the aircraft are tightened. Pay special attention to make sure the spinner is firmly in place before every flight.

Troubleshooting

Problem	Possible Cause	Solution
Aircraft will not respond to the throttle but responds to other controls	- ESC is not armed - Throttle channel is reversed	- Lower throttle stick and throttle trim to lowest settings - Reverse throttle channel on transmitter
Excessive vibration or noise from the fan unit	- Damaged blades - loose motor mount - Reversed polarity	- Replace damaged fan unit - Inspect and tighten bolts for the motor or fan assembly - Reverse motor polarity (only if confirmed)
Reduced flight time or aircraft underpowered	- Flight battery charge is low - Flight battery damaged	- Completely recharge flight battery - Replace flight battery and follow flight battery instructions
Control surface does not move, or is slow to respond to control	- Control surface, control horn, linkage or servo damage - Wire damaged or connections loose	- Replace or repair damaged parts and adjust controls - Do a check of connections for loose wiring
Controls reversed	Channels are reversed in the transmitter	Do the Control Direction Test and adjust controls for aircraft and transmitter
- Motor loses power - Motor power pulses then motor loses power	- Dammage motor, or battery - Loss of power to aircraft - ESCuses default soft Low Voltage Cutoff(LVC)	- Do a check of batteries,transmitter,receiver,ESC,motor and wiring for damage(replaceas needed) - Land aircraft immediately and recharge flight battery
LED on receiver flashes slowly	Power loss to receiver	- Check connection form ESC to receiver - Check servos for damage - Check linkages for binding

Spare parts list content

ROCKP101	Fuselage
ROCKP102	Main wing set
ROCKP103	Vertical stabilizer
ROCKP104	Horizontal stabilizer
ROCKP105	Cockpit
ROCKP106	Front Landing Gear Set
ROCKP107	Main Landing Gear Set
ROCKP108	Front Landing Gear System
ROCKP109	Main Landing Gear System
ROCKP110	Landing Gear Cover
ROCKP111	Linkage Rod
ROCKP112	Control Horns
ROCKP113	Wheel Set
ROCKP114	Screw Set
ROCKP115	Decal Sheet
FMSRE040	EL Retract
FMSRE038	EL Retract
FMSDF12B70	70mm Ducted fan
PRKV1850	2860-KV1850
PRESC013	70A ESC
	(With 300mm length input cable)
FMSSER9MGDP	9g digital metal gear servo positive
FMSSER9MGDR	9g digital metal gear servo reverse

Visit our website: www.fmsmodel.com to see photo of this product.

Enter the key word "ESC" in the search bar for the stock ESC instruction manual.