FMS

FW190

Perfect Appearance Excellent Performance



Email: info@fmsmodel.com
Http://www.fmsmodel.com

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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 scale model hobby product and NOT a toy. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner 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 reasonable to read and follow all the instructions and warnings in manual, prior to assembly, setup or use, in order to operate correctly 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 property owned by others. Models that are controlled by a radio signal subject to interference from many sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance in all directions around you model, as this margin will help avoid collisions or injury.

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

- Always keep all chemicals out of the reach of children.
- 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 your model with low batteries. Always recharge batteries.
- Carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.) you use.
- 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 portion of your model in your mouth as it could cause serious injury or even death.

step1 Installing the control horn

1. The plastic control surface horns for the rudder and elevator are adapted to the bags containing the rudder and elevator, do not to accidentally discard them.



2. Make sure the control surface horn is facing the proper direction before installing for the most deflection.



3. Install the elevator control surface horns with the screws provided in the small plastic bag on the bottom of the elevator surface, the same painted surface is the top.



4. Now attach the aileron surface horn onto the bottom of the wallowing half. The same paint is also only on the top surface.



5. Next attach the flap control surface horn, you will need to open the flap to install the back plate.Once both wing halves are done the same way the hardest part is now done !



6. Always make sure that the screws are seated into the back plates of the control horns. It is very important that these are not during flight.



step2 Installing the elevator and rudder

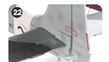
1. Attach the horizontal stabilizer first. Mount the stabilizer into the pre-notched aft section of the fuselage. Use two screws to secure it.(PA2.6*26 2PCS)



2. Now the vertical stabilizer is ready to be installed.
Gently push the stabilizer down until it is fully seated with no gaps between it and the fuselage, it fits perfectly when properly pushed down.
Secure it with the main hinge on the rudder keyed into the tail slot properly.







3. Now use the screws to secure the elevator halves, it is easier to do this with a magnetized screwdriver. Note: Keep the bolts straight into the hole then to the nut. Don't look too tight to avoid any effect on control throw



4. Apply glue on the combined side of the foam part.
The wing fiber must now be glued into the wing before mounting the wallowing. Apply the provided cement onto the body area on one side to the white surface only of the wing fiber piece. A heat glue job will provide for a perfect build.



5. Install the hook part.
Gently set the wing fiber into place after glue has been applied to the set dry.



step3 Installing the main wing

1. Put the Z band and of the linkage in the desired surface control horn hole. It will fit tightly but will allow the linkage to move slightly within the hole to avoid binding up.



2. Snap the plastic clevis end of the linkage into the surface control horn.



3. The provided piece of fuel tubing keeps the clevis closed during flight. Cut off the linkages the same way.

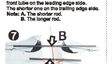


step3 Installing the main wing

6. Get the wing panels ready.



7. The langer one should be slide in front (on the leading edge side). The shorter one on the trailing edge side. Note: A. The shorter one. B. The longer nol.



8. Slide the tube in one wing panel. It should slide in easily, so do not push it further than it will slide.



Net: Slide the glass fiber tube in till the white line that the factory has implemented.



9. We recommended apply a thin coat of epoxy on the wing where the two halves fit together.



step3 Installing the main wing

10. Plug the leade from the aileron, flap servos, retracts and LED into the pre-labled Y-harness.





The receiver connection diagram



step4 Installing the oil tank

1. Apply glue on the pre-notched slot for the base fuel tank rack.



2. Fit the base rack properly into place, make sure it go straight into the bottom of the slot.



3. Install the plastic rack of the oil tank.
Note 1: There are some slight different between those two racks, the higher one on the propeller side, the shorter one isolate on the rear end side.





Note 2: The plastic rack chamfer should consistent with the foam rack surface.



The right way to fit the rack.



The wrong way to fit the rack.

step5 Mounting the main wing

1. Install the wing connector.
Note: Put the connector into the position rightly. Making sure there is no odd between the two wing panel.



2. Thread the bolt into the connector making sure it is tight enough. (PA3.0*10 2PC) (PA4.0*65 2PC)





3. Secure the oil tank with provided screws. (PA1.7*6 4PCS)



step6-7 Installing the propeller and small parts

1. Assemble the blades using screws. (PA2.6*10 6PCS)



2. Install the propeller set making sure it is keyed into the motor shaft.



3. Install the middle part of the spinner.



4. Secure the prop with the spinner and tighten by hand firmly.



5. Install the antenna.
Attach the plastic antenna toutube to the hole on the left side of the fuselage. Attach the other end of the plastic antenna to the vertical stabilizer and tie it off.



step7 Installing the cannon and pilot tube

2. Install the cannons, the shorter wing cannons go near the fuselage and the longer wing guns go on the outside.

3. Install the middle part of the spinner.

2A. Apply glue on the combined side of the stripped head.

4. Install the stripped head, the stripped indicator or " pilot " tube goes on the end of the right or starboard wing tip.

step8 Battery position

1. Battery position.

DETAIL DECAL APPLICATION INSTRUCTIONS

Main specification

Specification

Wingspan : 1400mm/55.2 in
Length : 1200mm/48.4 in
Weight : 5150g/183.9 oz
CG Position : 80mm
Battery : 14.8V 4000mAh Li-Po Battery
ESC : 60A
Motor : Outrunner Brushless Motor
Wing Area : 33.6dm²
Wing Load : 76.4g/dm²
RC System : 6 Channel, 6 Servos
And 1 Brushless ESC

Center Of Gravity(C.G.)

Center of Gravity

When balancing your model, adjust the motor battery as necessary so the model is level or slightly nose-heavy.

This is the recommended balance point for most.

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 (80mm) back from the leading edge at the roots wing as shown with the battery pack installed. Mark the location of the CG on both wings.
2. With the help of an assistant, support the plane inverted at the marks made on the bay 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 to fly before balancing.

Note: Always balance the plane with the retracts down.

Control throw setting

1. Turn on the transmitter, and receiver of your model.
2. Check the movement of the rudder using the transmitter.
When the stick is moved right, the rudder should also move right, Reverse the direction of the servo at the transmitter if necessary.
3. Check the movement of the elevator with the radio system.
Moving the elevator stick toward the bottom of the transmitter makes the airplane elevator move up.
4. Check the movement of the ailerons with the radio system, moving the aileron stick right makes the right ailerons move up and left aileron move down.
5. Adjust the control throw to the recommended value by the transmitter.
6. Adjust the position of the pushrod at the control horn and the transmitter to achieve the following measurements when moving the sticks to the end point.
Note: Always disassemble the propeller set when binding the transmitter and testing the control surface.

Spare Parts List

The suggested throws for the FMS FW 190 are as follows:

Low rate	High rate
Elevator - 5/16 or 8 mm up an down	7/16 or 11 mm up and down
Rudder - 9/4 or 19 mm left and right	1" or 26.4 mm left and right
Ailerons - 3/8 or 10 mm up and down	1/2 or 13 mm up and down
Flaps - 1" or 25.4mm full down	

Spare Parts List

Item#	Description
MM-101	Fuselage
MM-102	Main Wing Set
MM-103	Elevator
MM-104	Cowl
MM-105	Rudder
MM-106	Spinner
MM-107	Canopy (the front part of the plastic canopy)
MM-108	Canopy (the latter part of the canopy)
MM-109	Battery Cover
MM-110	Battery Tray
MM-111	Battery (14.8V,4000mAh,25C)
MM-112	Brushless motor (A2602-8V580)
MM-113	ESC (60A ESC with 5A BEEC)
MM-114	9g Servo (metal)
MM-115	13g Servo
MM-116	Landing Gear(For Main Landing Gear)
MM-117	Retract System (For Main Landing Gear With two S-retract and Main landing Gear Set)
MM-118	Rear Landing Gear Set
MM-119	Propeller
MM-120	Motor Mount
MM-121	Motor Almond
MM-122	Stickers (a set of stickers)
MM-123	Mainline Out
MM-124	Details sticker
MM-125	Screws Set
MM-126	Motor Beard
MM-127	Motor Shaft

Spare Parts List

Trouble shooting

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.
Extra propeller noise or extra Vibration.	Damaged spinner, propeller, motor or motor mount. Loose propeller and spinner nut. Propeller installed backwards.	Replaced damaged parts. Tighten parts for propeller adapter, propeller and spinner.
Reduced flight time or aircraft underpowered	Flight battery charge is low. Propeller installed backward. Flight battery damaged.	Remove and install propeller correctly. Completely recharge Flight battery. Remove and install propeller correctly. Replace flight battery
Control surface does not move, or is slow to respond to control inputs.	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.
Control reversed.	Channels need be 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	Damage to motor, or battery. Loss of power to aircraft, ESC uses default soft Low Voltage Cuts(LVC).	Do a check of battery, transmitter, receiver, ESC, motor and replace damaged. (replaces as needed) Land aircraft immediately and Recharge flight battery.
LED on receiver flashes slowly.	Power loss to receiver.	Check connection from ESC to receiver. Check servos for damage. Check linkages for binding.

Battery Selection and Installation.

1. We recommend 14.8V 4000mAh 25C Li-Po battery.
2. If using another battery, the battery must be at least 14.8V 2600mAh 25C battery.
3. Your battery should be approximately the same capacity, dimension and weight as the 14.8V 2600mAh 25C Li-Po battery to fit to the fuselage without changing the center of gravity a large amount.

Flying Tips

Range Check Your Radio System

After final assembly, range check the radio system with the FMS FW190. Refer to your specific transmitter instruction manual for longe test intrnstion.

Take off and landing tips

1. Take off using full power, as soon as you have taken off retract the landing gear.
2. Use the flaps to give a steeper landing approach, increase throttle slightly to offset the increased drag.
3. The FW190 is fitted a timer and land with plenty of battery power in reserve.
4. Its difficult to landing be place perfect from the centre fying stale when the flaps keep in the contour.
5. Never exceed 3 minutes to fly with the maximum power ofhes.
6. Never extend the brilled flying weight.

First Flight Preparation

1. Charge flight battery contents.
2. Charge flight battery contents.
3. Read this instruction manual thoroughly.
4. Fully assemble model.
5. Install the flight battery in the aircraft. (once it has been fully charged).
6. Check the C.G. per instructions.
7. Make sure linkages move freely.
8. Make sure the rubber ring has been properly slide on the clevis.
9. Ensure all hardware is installed correctly on the transmitter.
10. Adjust trim controls and contacts.
11. Perform a radio system Range Check.
12. Find a safe and open area.

Please read the following instructions and fully understand it.

1. Do not fly in strong wind or bad weather.
2. Never fly the model in crowded areas, where there are lots of people, automobiles on the road, power lines or trees. Always fly in open areas away from the airport. Please make yourself enough room for the flying and operating, as the plane can travel at high speed. Remember you are responsible for the safety of others.
3. Children under the age of 12 should have an adult guide. Never recommend for the children to operate the model.
4. Never charge the charger in wet conditions.
5. The FW190 is made from PA and polythene which are tinder. When it meets the heat, transfiguration can easily happen, so you must keep it away from heat.
6. Do not attempt to catch the FW190 while flying, please do not touch the propeller.
7. Never leave this system unattended around children with battery in the exit, as injury may occur from children playing with or tampering to the transmitter controls.
8. During the preparation for the flight, please remember to turn on the transmitter before connecting the battery pack.
9. Close the throttle on the transmitter before connecting battery otherwise the motor may operate.