FMS®

FW190

Perfect Appearance Excellent Performance

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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 not NOT a toy. It must be operated with caution and common sense and assume 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 essential 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 other property. Do not fly the model in a manner that by a radio signal outage/ 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 your model, as this margin will help avoid collisions or injury.
Age Recommendation: Not for children under 14years. This is not a toy.
- Keep away from children and animals of all kinds.
- 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 place any foreign objects into any part of the model or its transmitter.
- 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 control horn onto the bottom of the midwing 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 tight 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.(FK2.6*25 2PCS)
2. Now use the screws to secure the vertical stabilizer, it is easier to do this with a magnetized screwdriver. Note: Keep the bolts straight into the hole then tri to the nut. Don't look too tight to avoid any effect on control throw movement of rudder.(PM3.0*10 1PC, PA2.6*20 1PC)
3. 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. Gently push the main hinge on the rudder keyed into the tail slot properly.

step3 — Installing the main wing

1. Put the Z bend end 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 fast tubing keeps the clevis closed during flight. Put all the linkages the same way.
4. Apply glue on the combined side of the foam plate. The wing fiber must now be glued into the fuselage for mounting the servo wires. Apply the provided cement onto the body area or apply glue to the white surface only of the wing fiber piece. A neat glue job will provide for a perfect build.
5. Install the hatch part. Gently set the wing fiber into place after glue has been applied and let dry.

step3 — Installing the main wing

6. Get the wing panels ready.
7. The longer one should be slide in front side on the leading edge side. The shorter one on the trailing edge side. Note: A. The shorter rod. B. The longer rod.
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 leads from the aileron, flap servos, retracts and LED into the pre-labled Y-harness.

The receiver connection diagram

Receiver	
Aileron	1
Aileron Elevator	2
Throttle	3
Rudder	4
Landing Gear	5
Landing Gear Flaps	6
Flaps	

Channel-1
Channel-2
Channel-3
Channel-4
Channel-5
Channel-6

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 differ between these two racks, the higher one on the propeller side, the shorter one locate on the rear end side.

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

The shorter one. The higher one.

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*16 2PC) (PM4.0*65 2PC)
3. Secure the all bolts with provided screws. (FK1.7*6 4PCS)

step6-7 — Installing the propeller and small parts

1. Assemble the blades using screws. (PA2.6*10 8PCS)
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.

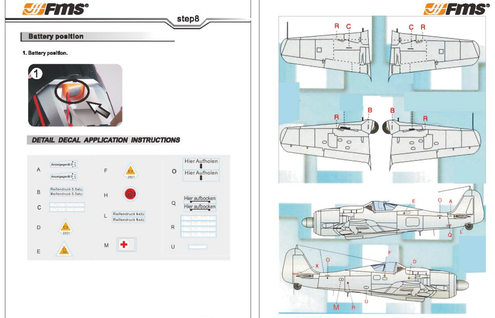
step7 — Installing the cannon and pilot tube

1. Install the cannons, the shorter wing cannons go near the fuselage and the longer wing guns go on the outside.
2. Apply glue on the combined side of the stripped head.
3. Install the elongated head, the stripped indicator or "pilot" tube goes on the and 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	: 10kg/353.0 oz
CG Position	: 90mm
Battery	: 14.8V 25C Li-Po Battery
ESC	: 65A
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 balance your model, adjust the motor battery as necessary so the model is level or slightly nose-up.
Note: Do not 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 (90mm) back 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. Lift the model at the CG point with two fingers inverted at the marks made on the top 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.
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 move upward.
4. Check the movement of the aileron with the radio system, moving the aileron stick right makes the right ailerons move up and left aileron move down.
5. Adjust the control surfaces to the neutral position using the transmitter.
6. Adjust the position of 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

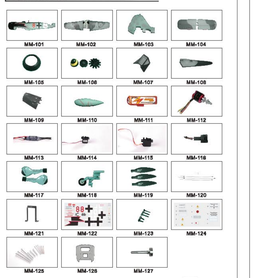
The suggested throws for the FMS FW 190 are as follows:

Low rate	High rate
Elevator: - 9/16 or 8 mm up an down	7/16 or 11 mm up and down
Rudder: - 3/4 or 18 mm left and right	1" or 25.4 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	Rudder
MM-105	Spinner
MM-107	Canopy (the front part of the plastic canopy)
MM-108	Canopy (the latter part of the plastic canopy)
MM-109	Battery Cover
MM-110	Battery Tray
MM-111	Battery (14.8V,2600mAh,25C)
MM-112	Brushless motor (A2212-KV980)
MM-113	ESC (60A ESC with 5A BEC)
MM-114	9g Servo (metal)
MM-115	9g Servo
MM-116	E-retract (For Main Landing Gear)
MM-117	E-retract System (For Main Landing Gear With two E-retract and Main landing Gear Set)
MM-118	Rear Landing Gear Set
MM-119	Propeller
MM-120	Pilot Tube Set
MM-121	Motor Mount
MM-122	Stickers (a set of stickers)
MM-123	Neutrline Gun
MM-124	Details sticker
MM-125	Screws Set
MM-126	Motor Board
MM-127	Motor Shaft

Spare Parts List



Troubles 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 parts. 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. Follow battery charging instructions.
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 motorloses power.	Damage to motor, or battery. Loss of power to aircraft. ESC uses default soft Low Voltage Cutoff(LVC).	Do a check of battery, transmitter, receiver, ESC, motor and connections. Damage (replace 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 service for damage. Check linkages for binding.

Battery Selection and Installation.
1. We recommend the 14.8V 2600mAh 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 in the fuselage without changing the center of gravity a large amount.

Flying Tips

Range Check Your Radio System
After first assembly, range check the radio system with the FMS FW190. Refer to your specific transmitter instruction manual for range test 'information.'
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 slower landing approach, because throttle slightly to offset the increased drag.
3. Fly the model at least a timer and land with plenty of battery power in reserve.
4. Its difficult to landing its plane perfect from the speedy flying state when the flaps keep in the contour.
5. Never exceed 3 minutes in fly with the maximum power others.
6. Never exceed the limited flying weight.

First Flight Preparation
1. Check the transmitter and receiver batteries.
2. Charge flight battery completely.
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 all the control surfaces.
7. Make sure linkages move freely.
8. Make sure the rubber ring has been properly slide on the clevis.
9. Perform a range check with the transmitter.
10. Adjust the control surfaces.
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 roads and other obstacles that may cause injury or damage. Always 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 under the age of 14.
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 emt, an injury may occur if the children accidentally turning on the transmitter or the plane.
8. During the preparation for the flight, please remember to turn on the transmitter before connecting the battery pack.
9. Close the trottle on the transmitter before connecting battery otherwise the motor may operate.