

Spitfire MK24



SPECIFICATIONS:

Wingspan:1100mm (43.3")

Flying weight:1300/1400g (45/49oz) 3/4 cell

Length:950mm (37.4")

Servos:6 x 9g type (2 aileron, 2 flap, elevator, rudder)

Motor: Banana Hobby 3536-550KV brushless outrunner

ESC: Banana Hobby 40amp

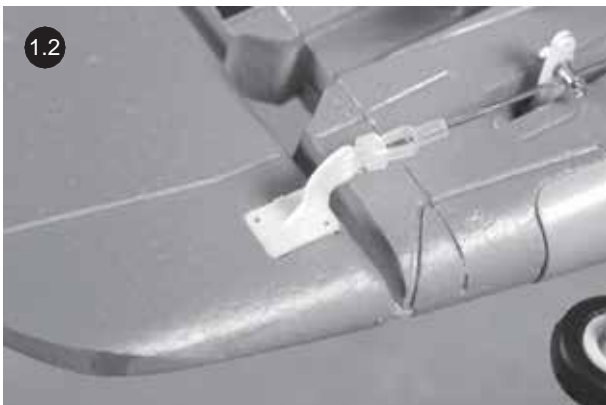
Battery: 2200mah 3S 60-65C or 2200mah 4S 25-30C Channels:

6-7 required (7 if using included bomb system)

Retracts: Servoless Electric retracts

Install the Control horn

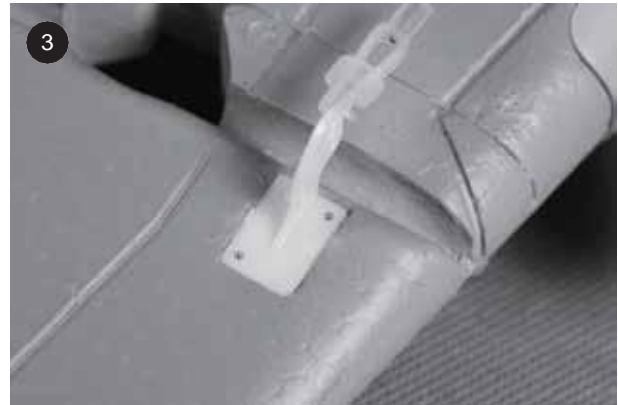
1. Attached the control horn to the starboard of the rudder with it toward the hinge line.



2. Secure the horn from the backplate side using the provided screws.
Note: The longer screws always locate on the leading edge side of all the control surface.



3. Check to make sure the screws are firmly grabbed into the horns.



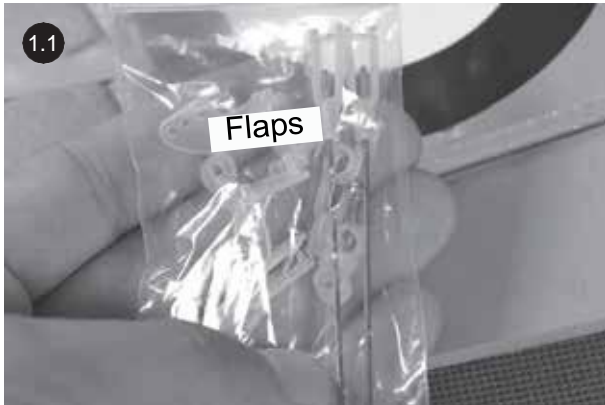
4. Install the aileron control horn on the servo side of the main wing with the horn towards the hinge line as the picture shows.



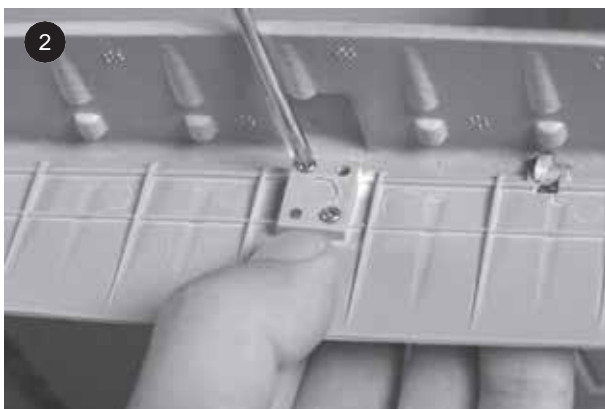
Assemble the plane

Install Control horn

1. Attach the flap control horn on the servo side of the main wing with the horn towards the hinge line.

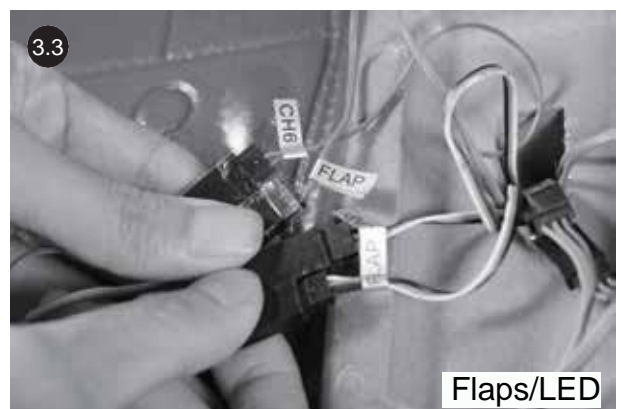
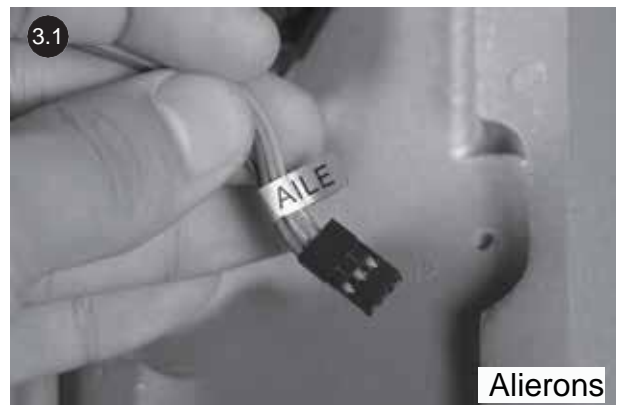


2. Open the split flap and secure the horn from the upside of the flap.
Note: No backplate used in this step or it will stop the flap from fully retract.



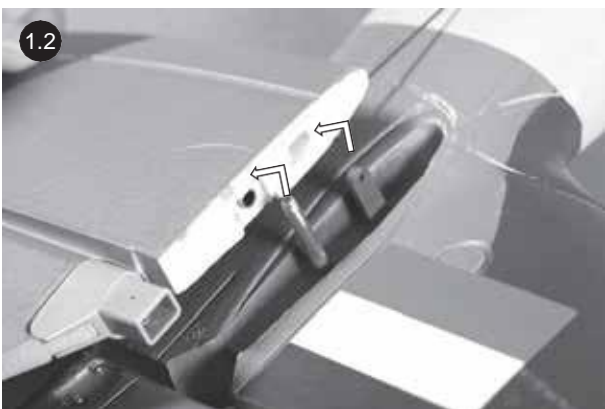
Connect the Y harness to the main wing

3. Connect the wing leads to the harness the first. Two ailerons servo to the Y harness labeled **AILE (CH1)**, main landing gears to the harness with **GEAR (CH5)**, two LED leads and the flaps to the four way harness labeled **FLAP(CH6)**. Secure the connector using the tape.

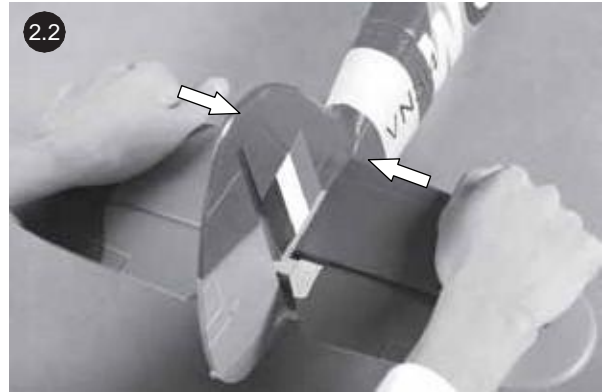
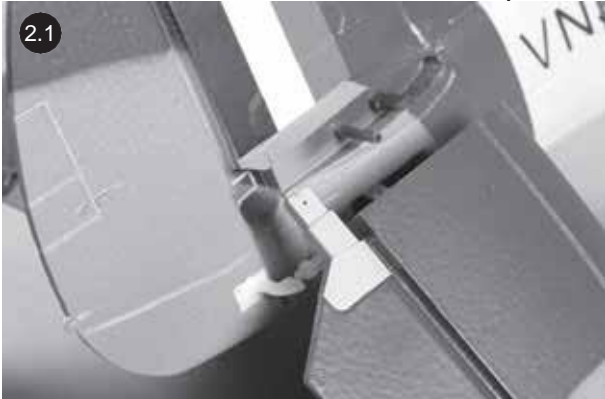


Install the Horizontal stabilizer

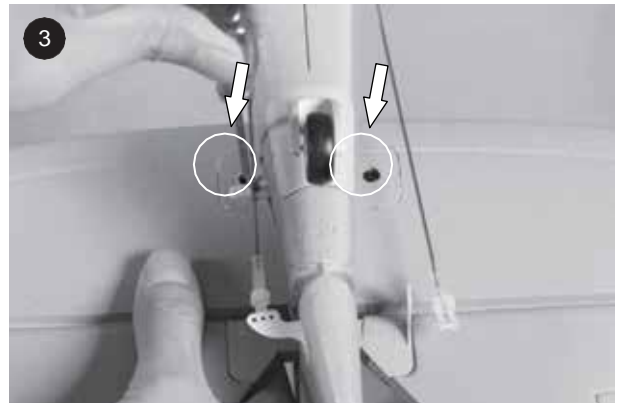
1. Insert the port side half stabilizer fully into place with the camouflage side face up, make sure insert the round bar into the glass fiber socket, the plastic bar with the eyelet into the square socket on the stabilizer root.



2. Insert the starboard stabilizer half into the tail mounting slot the same with the port side half.
Note: Make sure the elevator connector interlock to each other before fully slides the star board stabilizer half into place.



3. Turn over the plane so the bottom of the plane face up and secure the stabilizer halves using the provided screws.
(Screws: PA2.6*10 2PCS)



4. Secure the elevator connector halves together from bottom side of the elevator using one piece of self tapping screw.
(Screw: PA2.0*8)



Bind the receiver to the transmitter

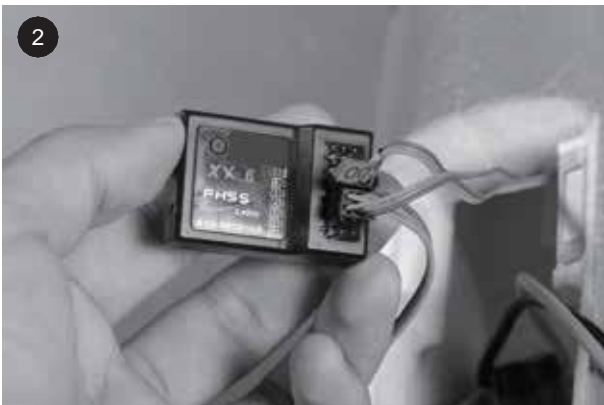
1. Before getting started, bind your receiver with your transmitter. Please refer to your **Transmitter Manual** for proper operation. **CAUTION:** To prevent personal injury, **DO NOT** install the propeller assembly onto the motor shaft while binding the receiver to your transmitter and in all the testing steps until the manual tell you to do it .

Install the receiver

1. Remove the battery hatch cover by rising the band on the rear end of the cover, the cover is attached into place by four pieces of magnets on the rear and the foam nose in front.

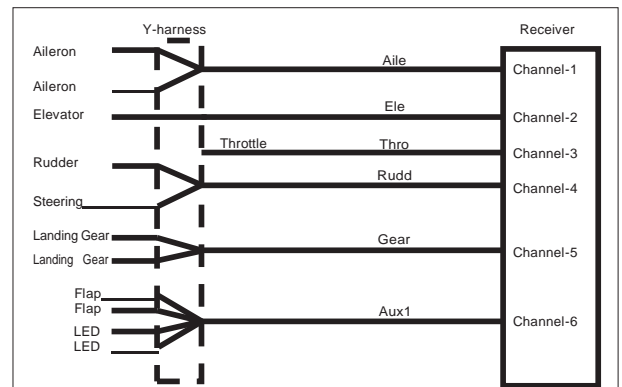


2. Disconnect the battery from the ESC after the binding process completed. Turn off the transmitter and remove the bind plug as necessary. Plug the elevator and the rudder servos to the receiver.

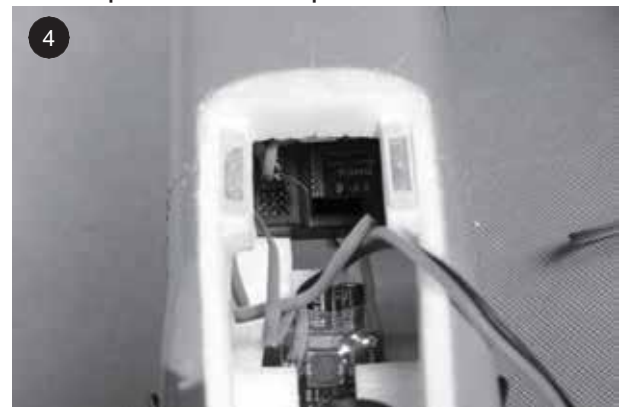


3. Receiver connection diagram.

Note: All servo and retract leads have been specifically labeled for your convenience. Use the provided Y-harness for situations where two or three servos are controlled by one channel; for example ailerons, landing gear, and flaps. Refer to the diagram below for recommended connections.



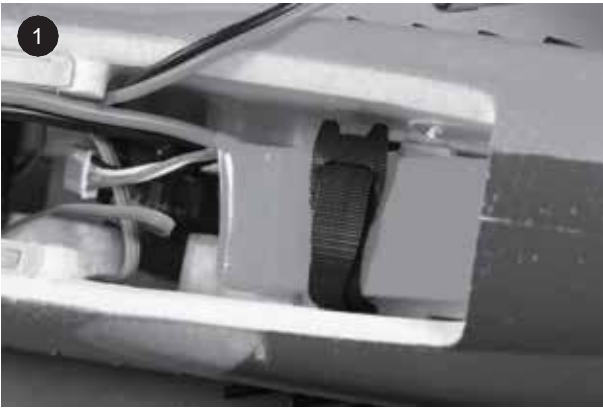
4. Attach the receiver to the receiver chamber at the end of the battery hatch using double side tape or velcro tape



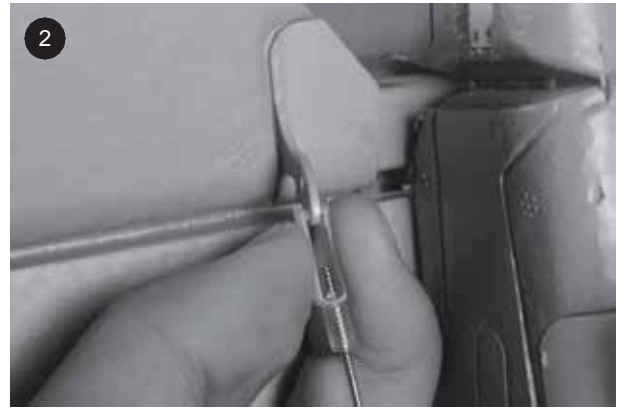
Test the electric device

Install the receiver

1. Slide the battery into the battery hatch with the power supply cable toward the rear end of the plane and secure it using the pre installed hook and loop tape.
Note: You may need to relocate the battery position to achieve the correct CG for your model.



2. Snap the clevis into the elevator surface control horn.

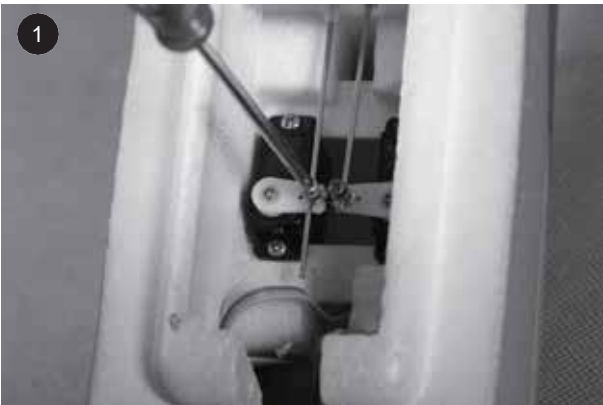


3. The provided piece of fuel tubing keeps the clevis closed during flight. Secure all the linkages the same way.
Note: Do not over slide the securing tube or it will impede the movement of the surface control horn. Install all of the linkages the same way.



Hook on the linkage rod of the stabilizer

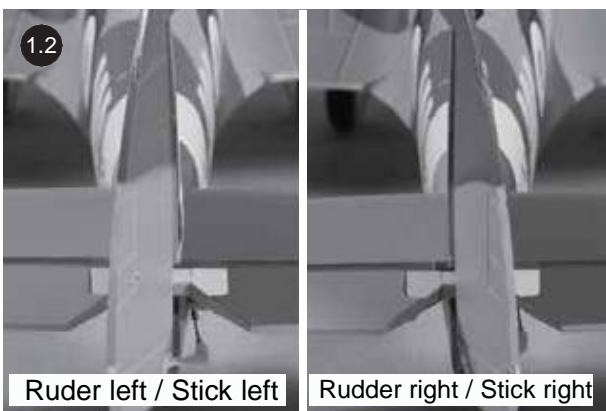
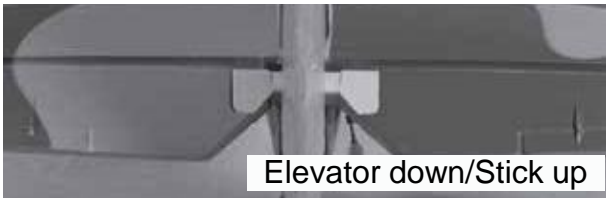
1. Loosen the screws on the control connector which holding the rod into place.



4. Repeat the step 2&3 for the all the other linkage hooking.

Test the stabilizer control servos

1. Make sure all the control sticks on your radio are in the neutral position (rudder, elevator, ailerons) and the throttle in the OFF position. Turn on the transmitter and power on the model, move the elevator and the rudder on the transmitter to make sure aircraft control surface move correctly. If controls respond in the opposite direction, reverse the direction for operation of flight controls.



- Adjust the linkage in the control connector to make sure the counterbalance leading edge of the elevator and the rudder level with the leading edge of the horizon stabilizer and the vertical fin respectively.

Note: Use a drop of thread lock on the screw before secure the rod into place.



- Adjust the control connector on the rear landing gear steering arm to make sure the wheel align with the centerline of the fuselage.

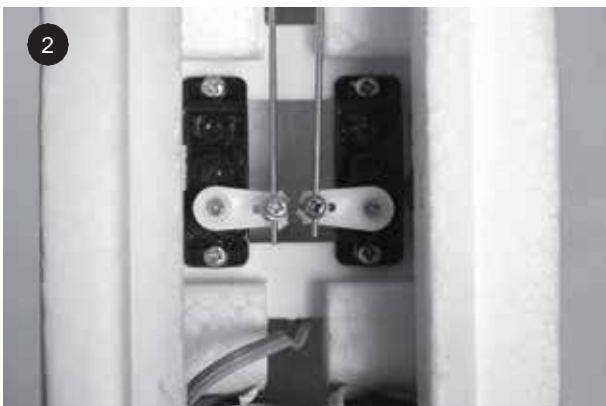


- The motor should rotate counterclockwise when viewing the plane from the front. Or you will have to disconnect any two of the motor plugs and plug them back to each other's socket.



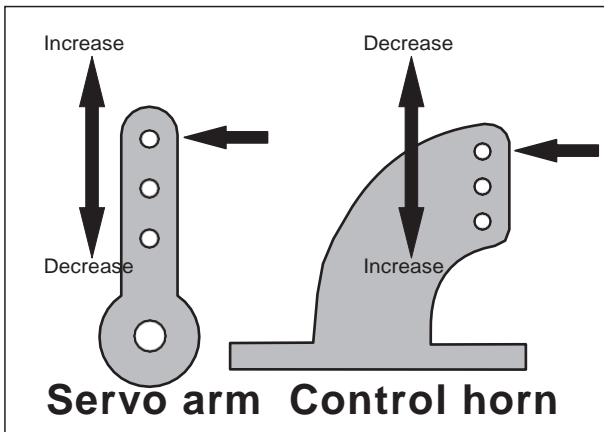
- Make sure all the control surface trim in neutral position, for computerized transmitters, use the servo/channel sub-trim feature to make each servo arm fully vertical.

Note: Make sure the trims and the sub trims in neutral position before making some mechanically trim. Adjust the servo arms mechanically make sure all servo arms are as fully vertical with the servo case as possible. If not, adjust the servo arm by using the trim function on your radio.

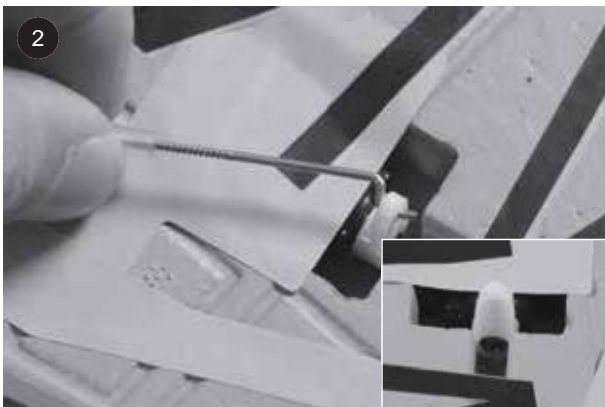


Install the control rod

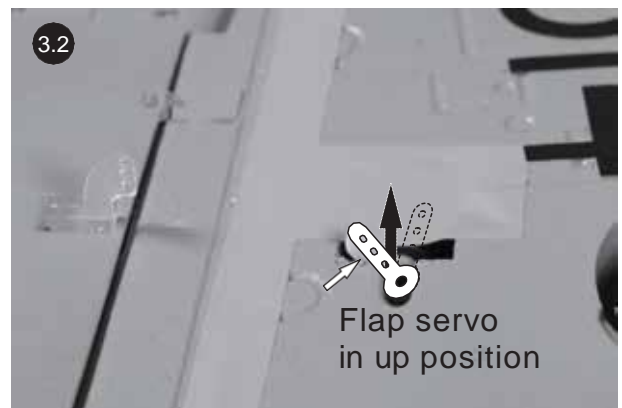
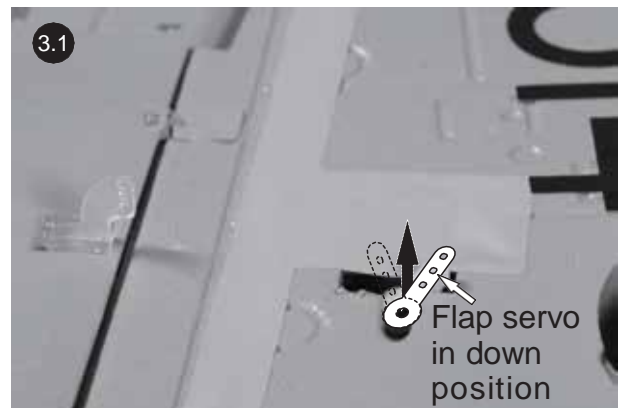
1. The standard hole settings for linkage connections are shown by the black arrows in the diagram below. You can refer the recommended control throw setting to move the linkage to different hole positions to increase control surface travel and increase the aerobatics of the airplane.



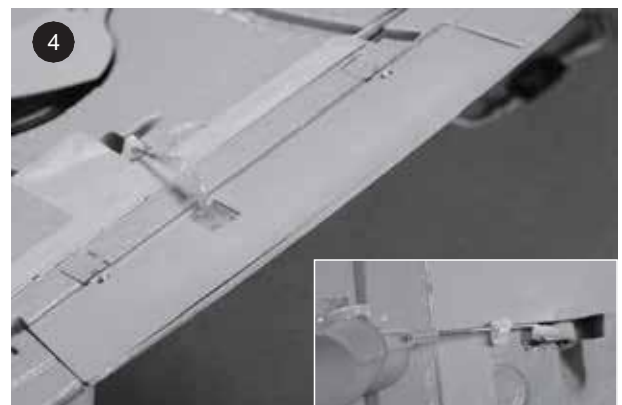
2. Make sure the aileron servo horns are fully vertical with the servo case and stick. Input the aileron to make sure the servos function well. Put the Z-bend end of the linkage into the desired servo control horn hole of the main-wing. It is a tight fit and should allow the linkage to move just slightly within the hole to avoid binding up. Hook on the clevis the same with the stabilizer.



3. Toggle switch the flaps channel knob according to which AUX port that the Y harness you have inserted into the receiver. **Note:** To avoid the "buzz" sound from the flap servos, install either the flaps linkage while the servo arm is in up position. And make sure the trailing edge of the flaps is level with the wing root.



4. Thread the folk on the linkage rod clockwise and counterclockwise to make sure the split flaps are fully seat into the flap bay when the folk closed.

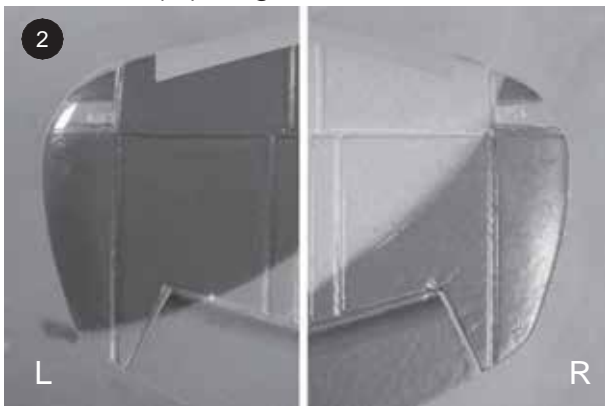


Test the retract and the LED set

1. Cycle the retractable main landing gears several times to ensure proper function.



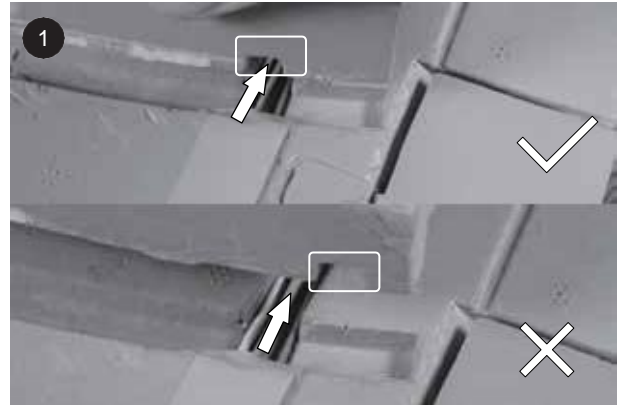
2. Make sure the navigation light on port side(L) wing tip emitting red beams, the starboard(R) is green.



Install the auxiliary part

1. Fit one of the under-wing radiator into pre notched slot under the main wing. The small notch on both flanks of the radiator will let the wire cluster running freely through. If not you have to fit the other one.

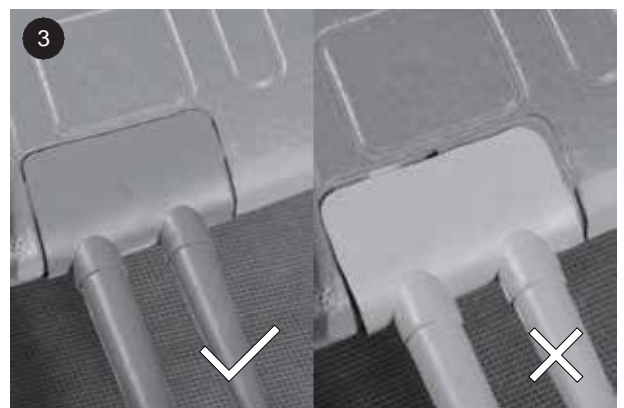
Note: No glue applied in this step.



2. Apply glue to the radiator where it fits with the main wing using the glue brush or any other applicator.



3. Fit on of the cannon set into the notch on the leading edge of the main wing with the shorter cannon located on the wing tip side. It will fit perfectly with the notch with no gap between the cannon and the notch edge, or you have to fit the other one.



4. Verify the completed cannon installation.

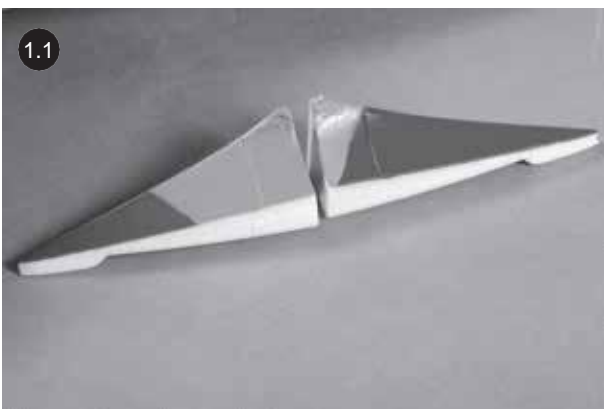


5. Glue the air scoop into place.



Mount the main wing

1. Install the main wing fairing fillet by fitting the proper one into place with no glue applied the first.

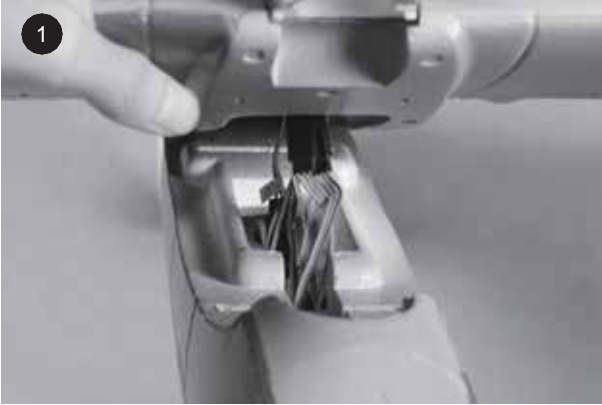


2. Glue the fairing back into place.



Mount the main wing

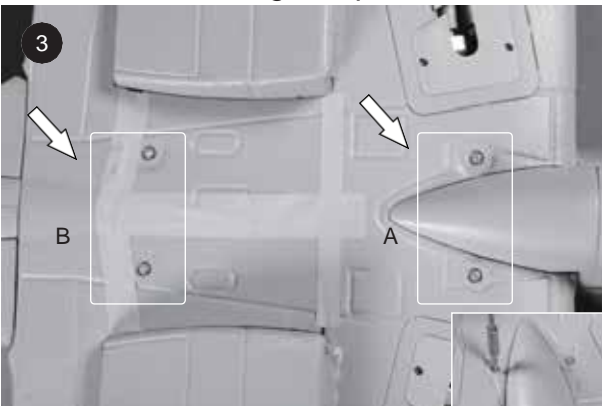
1. Seat wing to the wing bay by threading the leads from the hole at the bottom of the wing bay to the receiver hatch,



2. Slightly pull the leads from the receiver hatch before fully fit the main wing into place to avoid any tangling to prevent the wing from fully mounting.



3. Check to make sure the main wing before secure it into place using the provided self tapping screws, two pieces PA 2.6*50(A) to hold the wing front into place. The PA 2.6*45 pieces are used to secure the rear side of the wing into place.







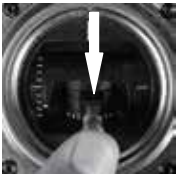
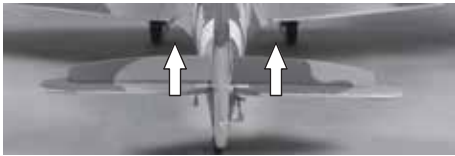
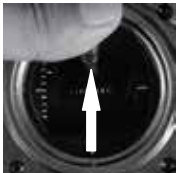
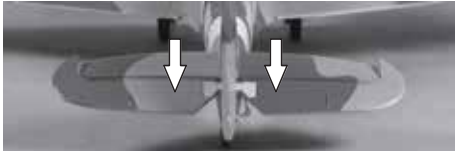

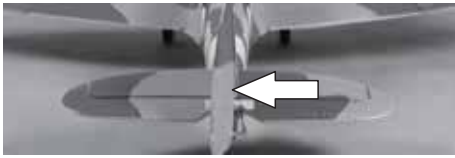


The transmitter and model setup

Before getting started, rebind your receiver with your transmitter if necessary.

CAUTION: To prevent personal injury, DO NOT install the propeller assembly onto the motor shaft while testing the control surfaces .

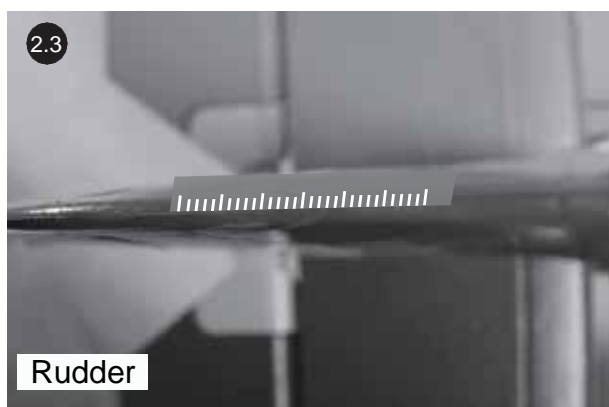
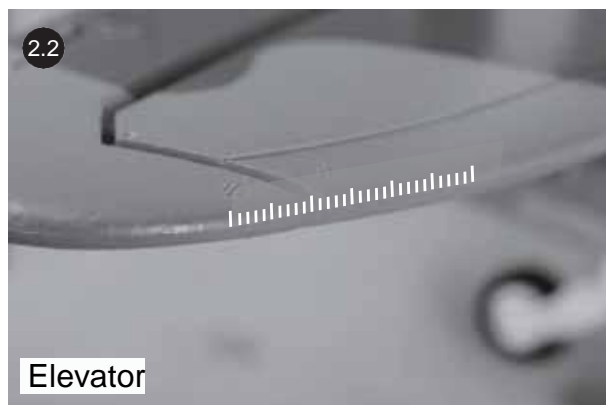
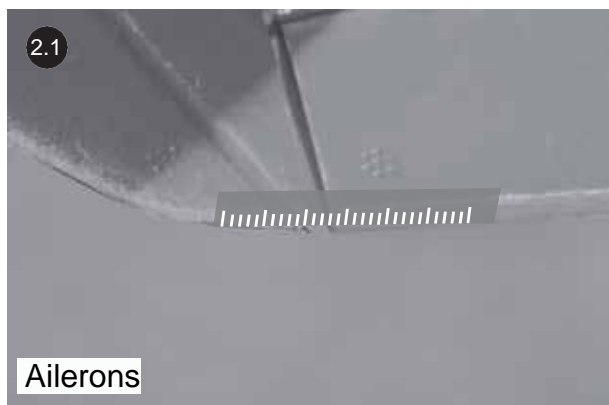
Tips: Make sure all control sticks on your radio are in the neutral position (rudder, elevator, ailerons) and the throttle in the OFF position. Make sure both ailerons move up and down (travel) the same amount. This model tracks well when the left and right ailerons travel the same amount in response to the control stick.

1. Move the controls on the transmitter to make sure aircraft control surface move correctly. See diagrams below. If controls respond in the opposite direction reverse the direction for operation of flight controls. Refer to your transmitter's instructions for changing direction of transmitter flight controls.

	Bank Left		Aileron
	Bank Right		
	Climb		Elevator
	Descend		
	Yaw Left		Rudder/ Steering
	Yaw Right		

Get your model ready to fly

2. Recheck to align the control surfaces well by trim the control channel.
The ailerons align with the trailing edge of the wing tip.



Check the control throws

1. Adjust ATV/travel adjustment on your transmitter until you obtain the following control surface travel. Do not adjust dual rates until you have correctly adjusted the total travel.

Ailerons: 16mm up and down (both ailerons), measured at the aileron inboard side.

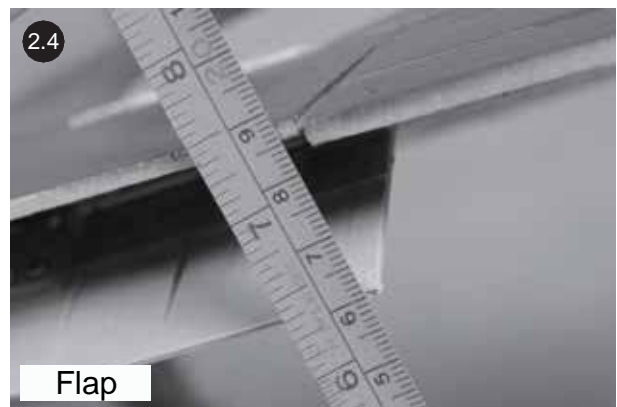
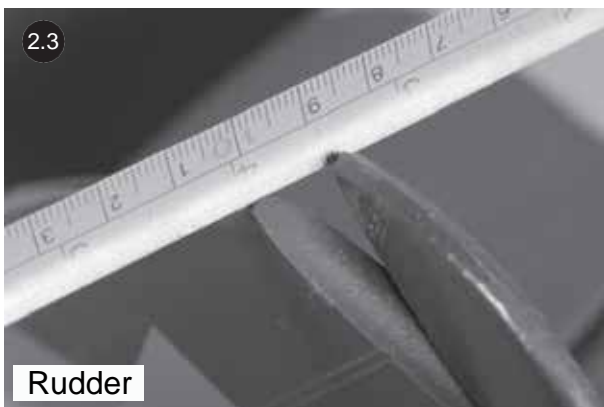
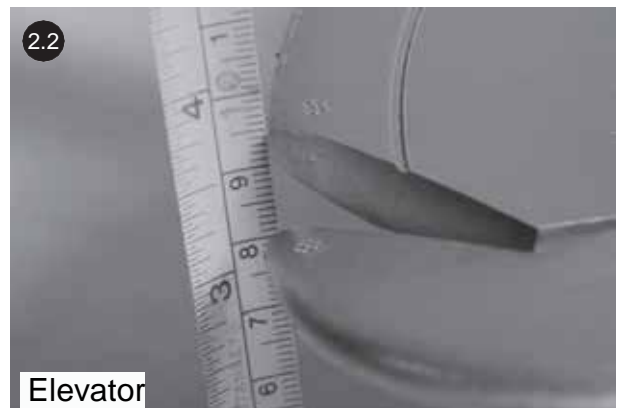
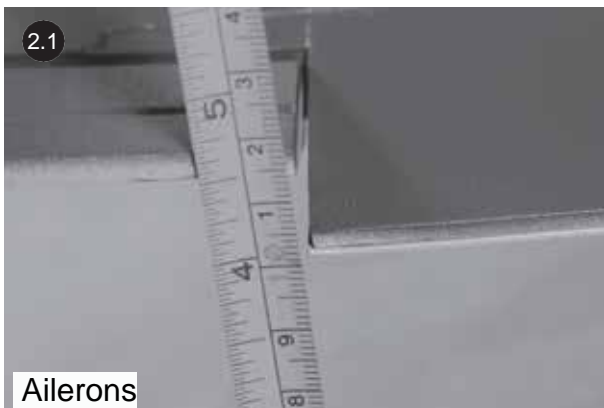
Elevator: 14mm up and down, measured at the counterbalance leading edge.

Rudder: 14mm left and right, measured at the counterbalance leading edge.

Flaps: Full 25mm

2. The dual rates and the Exponential setting for intermediate flyers of **Spitfire** are based on the ATV set in previous step.

	High Rate	Expo	Low Rate	Expo
Aileron	100% 16mm up/down	30%	69% 11mm up/down	20%
Elevator	100% 16mm up/down	25%	63% 10mm up/down	20%
Rudder	100% 20mm left/right	25%	75% 15mm left/right	15%



Install the propeller set

Caution: Disconnect the battery from the ESC before installing the propeller. Before testing the propeller, make sure the tail of the plane is firmly on the ground and ensure there are no people or objects in the range of the propeller. Make sure the throttle stick and the trim on the lowest position before plug in the battery.

1. Keyed the propeller assembly onto the hex nut of the motor shaft properly.



2. Install the propeller to the motor shaft and make sure the root of the propeller sit right on the saddle with the paint side face the front of the plane.



3. Install the spinner middle part.



4. Hand tighten the spinner and make sure it is tight enough and no gap left between the assembly.



Install the antenna mast

1. Glue the antenna mast into the pre notched hole on rear end of the fuselage with it incline toward the rudder side.

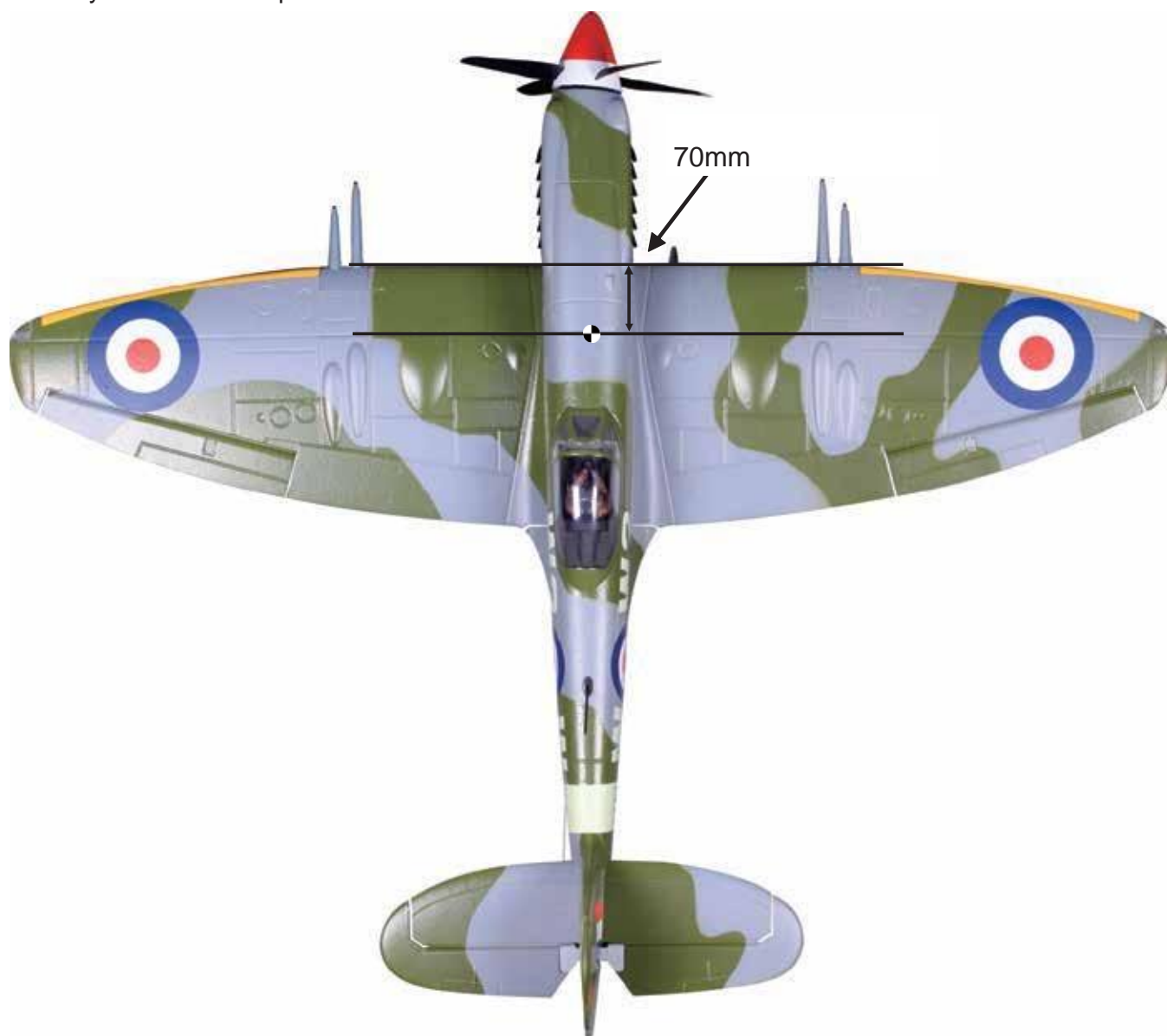


Check the C.G. (Center of Gravity)

Center of Gravity

When balancing your model, adjust the motor 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 (**70mm/2.8in**) forward 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 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.
3. Always balance the plane with the retracts down.



Troubleshooting

Problem	Possible Cause	Solution
Aircraft will not respond to the throttle but responds to other controls.	<ul style="list-style-type: none"> - ESC is not armed. - Throttle channel is reversed. 	<ul style="list-style-type: none"> - Lower throttle stick and throttle trim to lowest settings. - Reverse throttle channel on transmitter.
Extra propeller noise or extra Vibration.	<ul style="list-style-type: none"> - Damaged spinner, propeller, motor, or motor mount. - Loose propeller and spinner parts. - Propeller installed backwards. 	<ul style="list-style-type: none"> - Replace damaged parts. - Tighten parts for propeller adapter, propeller and spinner.
Reduced flight time or aircraft underpowered.	<ul style="list-style-type: none"> - Flight battery charge is low. - Propeller installed backward. - Flight battery damaged. 	<ul style="list-style-type: none"> - Remove and install propeller correctly. - Completely recharge flight battery. - Replace flight battery and obey flight battery instructions.
Control surface does not move, or is slow to respond to control inputs.	<ul style="list-style-type: none"> - Control surface, control horn, linkage or servo damage. - Wire damaged or connections loose. 	<ul style="list-style-type: none"> - 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.
<ul style="list-style-type: none"> - Motor loses power. - Motor power pulses then motor loses power. 	<ul style="list-style-type: none"> - Damage to motor, or battery. - Loss of power to aircraft. - ESC uses default soft Low Voltage Cutoff(LVC). 	<ul style="list-style-type: none"> - Do a check of batteries, transmitter, receiver, ESC, motor and wiring for damage (replace as needed). - Land aircraft immediately and Recharge flight battery.
LED on receiver flashes slowly.	Power loss to receiver.	<ul style="list-style-type: none"> - Check connection from ESC to receiver. - Check servos for damage. - Check linkages for binding.