



## Sky Surfer Assembly Instructions

Items required for completion of Sky Surfer:

- Medium CA glue (Bob Smith Insta-Cure+, ZAP, etc.)
- Blue thread lock compound
- Small Phillips screwdriver
- Metric ruler
- 8 AA batteries

Open the box and verify all the components listed are included.



1. Main wings
2. Main wing spar
3. Fuselage
4. Instruction manual
5. Battery charger
6. Battery charger leads
7. Propeller
8. 3S LiPo battery
9. Servo Y-connector
10. 2 of each: control horns, connectors, screws, nuts
11. Velcro
12. Transmitter (receiver in battery compartment)
13. Horizontal stabilizer
14. Vertical stabilizer

Dispose of the instruction manual (4).  
Caution: Using with a chimney starter for grilling is not recommended as the stench from the paper is overwhelming.



Pull the receiver out of the battery compartment in the transmitter (12). While the battery cover is off, install 8 AA batteries following the polarity shown in the compartment.

The transmitter and receiver should be bound from the factory. If for any reason a re-bind is necessary, see page 14 for instructions on how to bind the receiver to the transmitter.



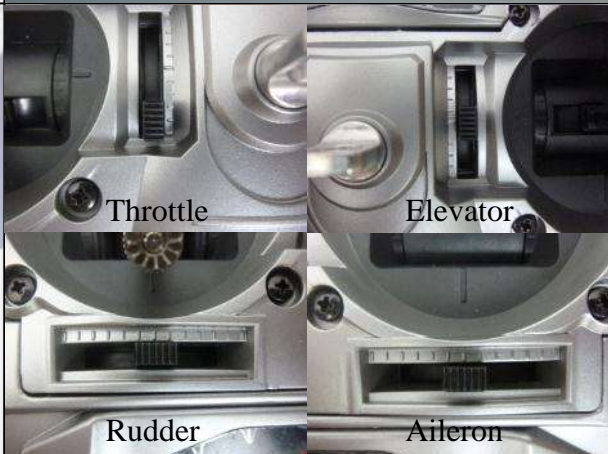
With the antenna at the left of the receiver, the 6 channels are configured as follows:

(top)

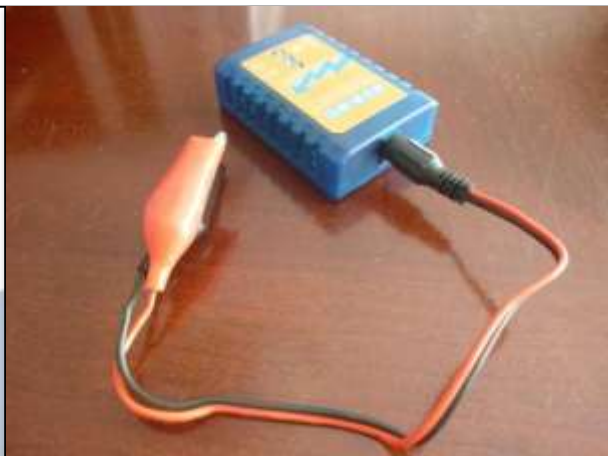
1. Ailerons
2. Elevator
3. Throttle
4. Rudder
5. Gear (not used)
6. Flap (not used)
7. Bind port



Center the trims for the elevator, rudder, and aileron. The throttle trim should be in the lowest position to allow the Electronic Speed Control (ESC) to arm when power is applied. The radio system will be used in the setup of the plane so set it aside after setting the trims properly.



Connect the charger leads (6) to the battery charger (5).



To charge the LiPo battery (8), connect the charger leads to the terminals of a car battery. The red lead clamps to the positive terminal and the black lead clamps to the negative terminal. The alligator clips on the leads are small but should clamp to the terminal bolt / nut without issue.



Three green lights indicate the charger is ready for charging. There may be an occasional flicker from green to red. This is normal. The charger is able to charge 2 or 3 cell Lithium Polymer (LiPo) batteries with a JST-XH balance connector. For a 2 cell LiPo, use the left port. For a 3 cell LiPo, use the right port.



To charge the included 3S LiPo battery, the charging port on the right should be used. The port is keyed to ensure the battery is connected properly. Connect the battery using the leads with the white JST-XH connector on the end. The LED's on the front of the charger will remain red during the charging process. When all three LED's are green, charging is complete.



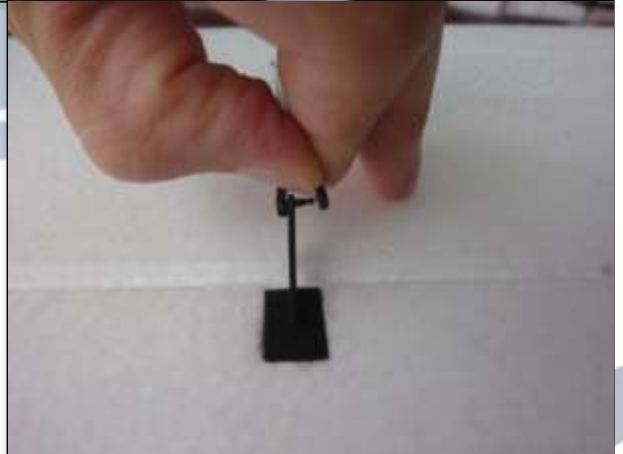
In a few cases, the control surfaces may be very stiff and can cause premature servo failure. To alleviate the problem, flex the control surfaces back and forth gently about 5 times. This should be performed for the rudder, elevator, and both ailerons.



The images above and to the right show the rudder being flexed. Doing so for the rudder and elevator before attaching them to the fuselage will be much easier.



To flex the ailerons, open up the control rod end and move it out of the control horn. Before disconnecting, make note of which hole the the rod end is connected to.

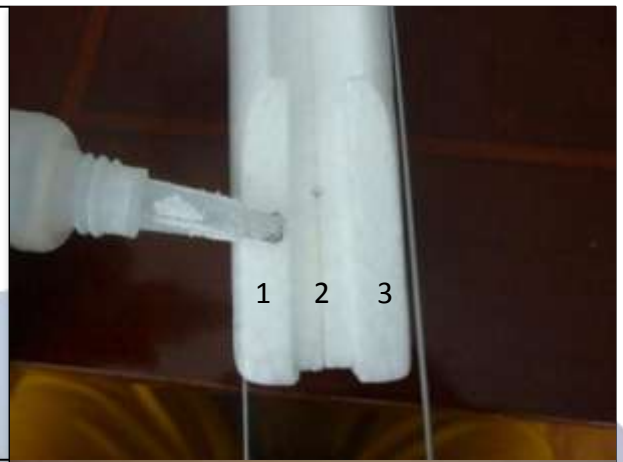


Once the control rod end has been disconnected, flex the aileron as done before with the rudder and elevator. Re-attach the rod end back into the same hole on the control rod as connected before.



Note: Before gluing the stabilizers in place, pre-fit each to familiarize yourself with how it should be aligned.

At the end of the fuselage (3), add a thin layer of CA to the three labeled surfaces to glue the horizontal stabilizer (13) to the fuselage.



Position the horizontal stabilizer to the fuselage where the CA was previously applied. Ensure the edges are aligned properly as highlighted to the right. Hold the stabilizer in position until the CA begins to harden.



Once the CA had dried sufficiently for the horizontal stabilizer, apply a thin layer of CA around the curved, vertical section in the fuselage as shown by label 1. Also apply a thin layer of CA to the areas near label 2 where the rear portion of the vertical stabilizer (14) will be glued to the horizontal stabilizer.



Before the glue sets, put the vertical stabilizer in place. The fit should be tight enough that there will be no need to hold the stabilizer in place while the glue dries.



To attach the control horns (10) to the control rods, make sure you have two each of the screws, rod connectors, control horns, and nuts.

Although not a requirement, it is highly recommended to use thread locker on the nut to keep it from coming loose due to vibrations. Avoid getting thread lock on the plastic as it can weaken the plastic.



Place the narrow end of the rod connector through the second hole in the control horn as shown. Make sure the orientation of the control horn matches what is shown in the picture.

Screw the nut onto the connector FIRST, then apply a drop of the thread locker to the nut on the side farthest away from the plastic control horn. Dab the excess off to avoid getting thread lock on the plastic control horn



Do the same for the other connector, making sure it is connected to the control horn in the same orientation. Once finished, confirm that both control horns look as shown to the right.

Before installing the control horns and rods, we need to make sure the two servos are centered properly.



To do so, connect the servo cable with the label 2 into the elevator channel (2) on the receiver. Connect the ESC connector into the throttle channel (3). The servo connector labeled 4 should be connected to the rudder channel (4).

The orange/white wire should be at the far left of the three wires when plugged in as shown. This is the signal wire. The red wire is 5V power and the black is ground.



As an important rule for any r/c system, always turn on the transmitter before plugging in power to the airplane. A common rule is the transmitter on first, off last.

Make sure the throttle stick (left) is in the lowest position.

Caution: If the prop has already been installed, remove the prop for safety purposes during these steps.



If the supplied radio is a MC4DF as pictured above and to the right, set the switches as shown to the right for proper servo movement direction.

**\*\*ATTENTION:** Some systems shipped with a FlySky FS-T4C radio may have the reversing switches labeled incorrectly. The switches should be labeled as in the picture to the right, from left to right: Aileron, Elevator, Throttle, Rudder



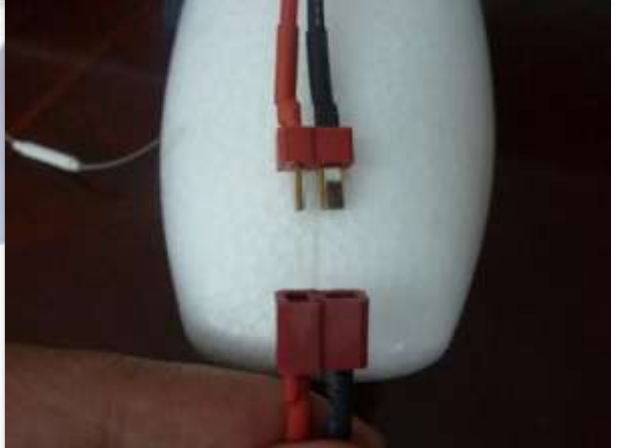
Plug the battery into the ESC. A green light should turn on in the receiver indicating that the airplane is now on.

The ESC will beep three times indicating a 3 cell battery has been connected. Immediately after the three beeps, it will beep two more times indicating the ESC is armed and the motor will turn if the throttle stick is moved up.



Now that the servos are centered (assuming the trims were centered properly), remove power from the receiver by unplugging the battery.

Proceed to install the control horns.



Thread the control rod through the rod connector that was installed on the control horn previously. The rod should pass over the top of the horn.

Note: the flat edge of the control horn should be facing the front of the plane.



Apply a thin layer of CA to the rudder where the control horn will be installed. Install the control horn and hold in place until the glue sets.



Once the glue has set, use the Phillips screwdriver to install the screw into the rod connector to hold the control rod in place. A small amount of thread locker may be used on the screw if desired.

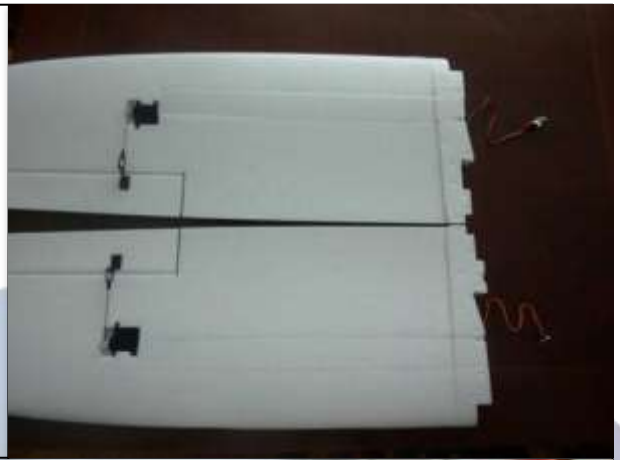


Repeat for the elevator control horn. Verify that the flat edge of the horn is facing the front of the plane and that the rod is to the right of the horn when looking from behind as shown.





Remove the tape and packaging material from the main wings (1).



Install the main wing spar (2) into one of the wings and install the wing into the fuselage. Route the servo wire through the hole in the fuselage.



Install the other wing into the fuselage. The servo wire for the second wing should be routed into the fuselage before the wing is fully installed.



Using the servo Y-connector (9), connect the two aileron servos into the Y-connector as shown. Verify the polarity of the connection by matching the colors of the wires from the servos to the Y-connector wires.



Install the aileron Y-connector into channel 1, following the same convention as before on the orientation of the wires.



Once again, turn on the transmitter, then apply power to the ESC by plugging in the battery. After the ESC arms, take a look at the control surfaces (mainly the ailerons) to see if they line up properly. The rudder and elevator should be aligned properly assuming the previous steps were followed correctly. If not, loosen the screw on the rod connector and adjust accordingly.



If the aileron(s) do not align properly, as shown to the right, follow the next three steps. Otherwise, the three steps can be skipped.



Flip the airplane over and remove the control rod from the control horn. If the aileron is higher than the wing as shown above, then rotate the rod end clockwise and vice versa.



Connect the rod end back to the control horn and check the alignment to ensure it lines up closely.



Iterate through the previous two steps until it is aligned as close as possible.  
Disconnect the battery from the ESC.



Apply the small velcro to the ESC and receiver. On the ESC, it is desirable to apply the velcro to the side that is not perfectly flat. The flat side is the heat sink and should be left open.  
Place velcro in the plane and mount to the side of the fuselage to hold the two items in place.



The included battery should be placed as far forward as possible and held with velcro. The battery position will be adjusted forward and backward to get the proper center of gravity (CG).



To install the propeller (7), remove the end of the prop adapter.



Install the propeller onto the motor shaft.



Verify the propeller has been installed properly. The part of the propeller closest to the hub that facing the front of the plane should be rounded. The flatter side should be towards the back of the plane.



Another view of the propeller orientation. Once the orientation has been set properly, screw the end of the prop adapter back onto the motor shaft and tighten.

\*Note: If the propeller spins backwards, you simply need to reverse two of the wires that go between the speed controller and the motor. Any two of the three wires can be swapped.



The center of gravity is measured 60 mm back from the leading edge of the main wing. This is the location right next to the fuselage. Make a small mark 60 mm back on both sides of the airplane.

Once everything has been installed and is ready to go, including the canopy, the center of gravity should be checked. If the plane is level, you are ready to go. If it is nose heavy, move the battery backwards. If it is tail heavy, move it forward.

You are now ready to go fly!  
If this is your first airplane, seek the help of an experienced pilot.

For further modifications for rigidity, durability, or just for fun, please see the Sky Surfer/Bixler thread on RCGroups.  
<http://www.rcgroups.com/forums/showthread.php?t=1231310>



### BIND INSTRUCTIONS:

This is a bind plug. It pulls the signal pin to ground so the receiver can be bound to the transmitter. In almost every case, there should not be a reason to re-bind as the transmitter and receiver are bound together from the factory.



Install the bind plug at the bottom of the receiver where only two pins are visible. For only this case, plug in the battery to the ESC first to put the receiver into bind mode. The green light on the receiver should flash. Once flashing, press and hold the bind button the transmitter then turn it on. The light on the transmitter should begin to blink.



After a few seconds, let go of the bind button on the transmitter and it should stop blinking. Remove power from the ESC and then remove the bind plug. The transmitter and receiver should now be bound together.

