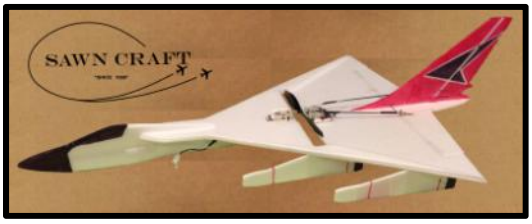
SAWN CRAFT

"SINCE 1958"

Micro B-58 Assembly and Setup Manual



Specifications	
Wingspan	12"
Overall Length	17.28"
Wing Area	70.7 in^2
Flying Weight	1.3oz
Intended Use	Indoor/Calm Winds

Recommended Power System	
RX/ESC/Servo	Spektrum AR6400 (or similar)
Motor	Parkzone P-51 Motor & Gearbox (PKZ3624) or Hobbyzone Champ Motor & Gearbox (HBZ4930)
Battery	160mAh 1S 3.7V 25C LiPo (or similar)

Revised 2014-09-27

SAWN CRAFT

"SINCE 1958"

Thank you from Sawn Craft.

Thank you for purchasing the Sawn Craft Micro B-58 aircraft. Like the full-scale USAF B-58, in your hands is a remarkably versatile airplane designed to deliver a pleasure cruiser with an incredible look. The lightweight and rigid EPS and carbon construction makes it possible for you to experience a wide performance envelope. This means that no matter how you like to fly, you'll enjoy both stability and maneuverability without any sacrifice in precision or control feel.

Your Sawn Craft Micro B-58 aircraft represents the benchmark of ultra-micro performance and aerobatic versatility. All you have to do next is read and apply the information presented in this instruction manual.

I sincerely hope that you enjoy your model as much as we do! If you have any troubles with these instructions or in the setup of your model feel free to contact us and we will provide you with the service you expect from a hobbyist-owned and operated business.

Jonathan Sawn

Owner, Sawn Craft

Jonathan@Sawn-Craft.com

Table of Contents

1 Introduction **1**

1.1 Style Conventions 1

1.2 Required Tools & Supplies 1

1.3 Required Parts for Completion 2

1.4 Included Parts Description 3

2 Assembly Instructions **4**

2.1 Fuselage Lamination 4

2.2 Wing Reinforcement Lamination 5

2.3 Elevator/Elevon & Rudder Hinging 6

2.4 Skid Installation 9

2.5 Fuselage Installation 10

2.6 Vertical Stabilizer Installation 11

2.7 Electronics Installation 12

3 Setup and Tuning **14**

3.1 Center of Gravity 14

3.2 Control Throws and Expo 14

3.3 Launching 14

3.4 Flying Tips 15

3.5 Decorating/Finishing 15

3.6 Spare Parts 15

1 Introduction

The contents of this manual assume the operator will have the following prerequisites:

- Understanding of all appropriate safety procedures and requirements
- The ability to follow written procedures and possess basic hobby building skills

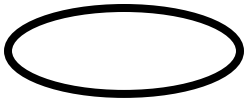
1.1 Style Conventions

Below are the important style conventions that will be used throughout the guide.

Note: Key points or hints for success will be formatted in this manner.

Warning: Any area that poses either a physical hazard or the danger will be formatted in this manner.

Arrows inform where to click or to perform the specified operation. 

Circled items inform of items of interest for the specified operation. Circled items will typically be accompanied by text further identifying the region of interest. 

1.2 Required Tools & Supplies

The list below contains all of the required tools and supplies that are required for the assembly and tuning of this model.

- Clean, flat work surface
- #11 hobby knife
- Straight-edge ruler
- Soldering iron & solder
- Heat gun
- Wire cutters
- Needle nose pliers
- Foam-safe adhesive
- Clear packing tape
- 200-grit Sandpaper on sanding block

Sawn Craft recommends the use of Beacon Foam-Tac adhesive and 3M Blenderm Hinge Tape for the construction of this model due to its strength, light weight, and easy use. Both Blenderm and Foam-Tac can be purchased by visiting the Building Supplies tab on Sawn-Craft.com

1.3 Required Parts for Completion

This model was designed with the intention of putting to use the electronics that are used in today's popular 1S LiPo-powered Ultra-Micro aircraft. Once you have worn out the airframe on your Hobbyzone© Champ or Parkzone© UM P-51 Mustang, simply remove the electronics and use them to power this model. If you choose to purchase your power system components separately, Sawn Craft does offer the Micro Electronics Kit that includes every part of the power system that you need. The list below contains all of the required and recommended parts for the successful operation of this model.

- **1S LiPo "Brick"**
- **Ultra-Micro Motor and Gearbox**
- **5x3 Propeller (or similar)**
- **1S LiPo Battery**

Please note that other power systems and components may be compatible and may work without issue, but the listed components have been used successfully by Sawn Craft.

Optional Parts for Completion

To make your build easier and ensure the nicest looking finished product, the following products are offered on Sawn Craft.com. See the Building Supplies tab for these products.

- **Colored Packing Tape**
- Micro Electronics Kit

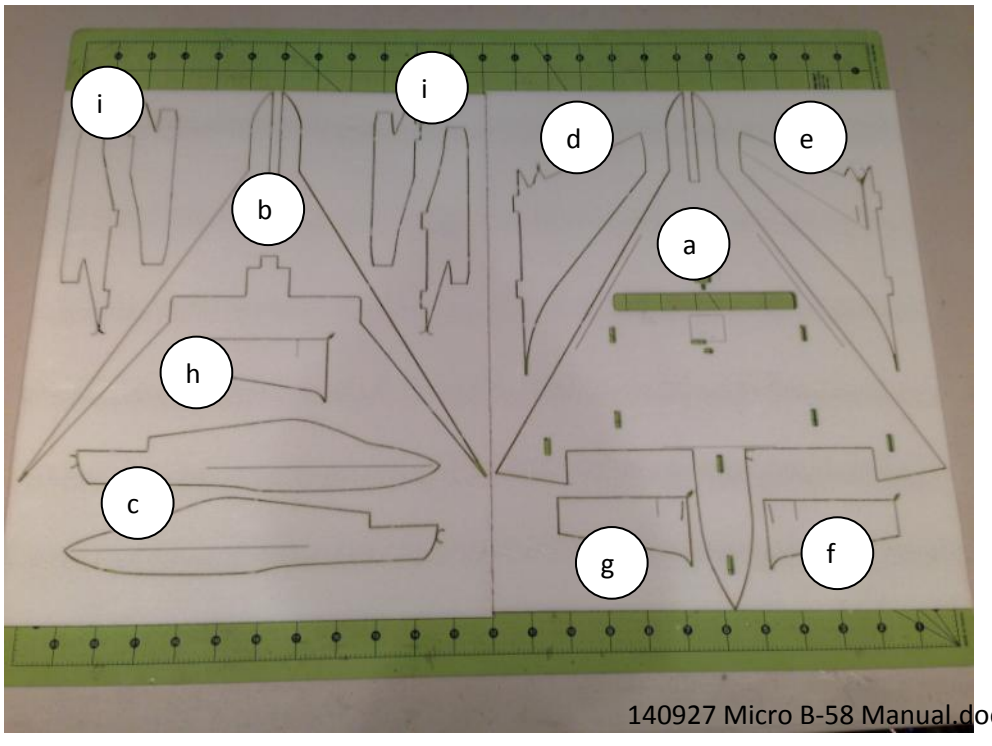
1.4 Included Parts Description

Please inspect your kit and ensure that all listed parts are present and undamaged. If you find missing parts or signs of damage please contact Support@Sawn-Craft.com for assistance.

a) Main Wing
b) KFm Step
c) Fuselage Half (2 each)
d) Vertical Stabilizer (Elevon)
e) Vertical Stabilizer (Rudder/Elevator)
f) Left Elevator Half/Elevon
g) Right Elevon
h) Right Elevator Half
i) Skid/Engines (4 each)

Component Bag:

j) Micro Control Horn (4 each)
k) 1” 0.024” Control Wire with Z-Bend (4 each)
l) 5” 0.024” Elevator Joiner Wire
m) 3" 0.051" Carbon Rod
n) 4” 0.051” Carbon Rod (2 each)
o) 5” 0.051” Carbon Rod
p) 6” 0.083” Carbon Rod
q) 3” 2mm Heat Shrink Tube (3 each)
r) 12” Micro Wire



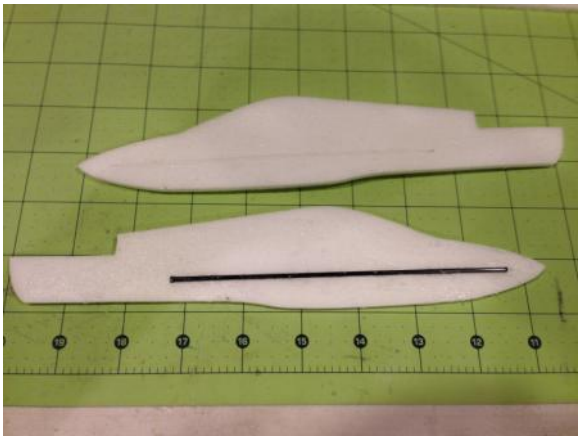
2 Assembly Instructions

The order of assembly presented in this instruction has been tested and it is recommended that you do not differ from them to provide the most accurate and easiest assembly possible.

2.1 Fuselage Lamination

- **Parts Required:**
  - Fuselage Half (2 each)
  - 6” 0.083” Carbon Rod

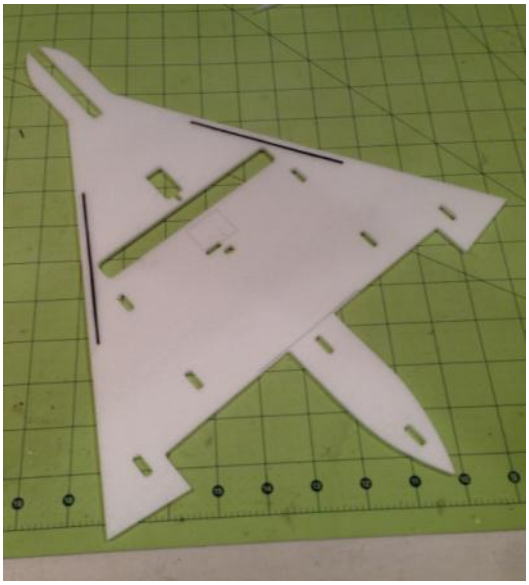
1) Lay both fuselage halves flat on the table with the recessed slot facing up. Press the carbon rod into the foam on the recessed slots to enlarge the slot.
2) Apply a bead of glue around the entire perimeter of one of the fuselage halves.
3) Press the unglued fuse half onto the glued fuse half, recessed slots facing each other, and gently slide the parts around to spread the glue evenly.
4) Separate the two fuse halves and insert the carbon rod into one of the recessed slots.
5) Rejoin the two fuse halves, glue side toward each other, ensuring that the carbon rod already in the slot aligns with the recessed slot on the other fuse half. Set the assembled fuse lamination aside to allow the glue to cure. If desired you can place a flat weight (book, etc.) on top of the lamination while curing to ensure a flat assembly.
6) Once cured, sand leading edges to round them to your liking.

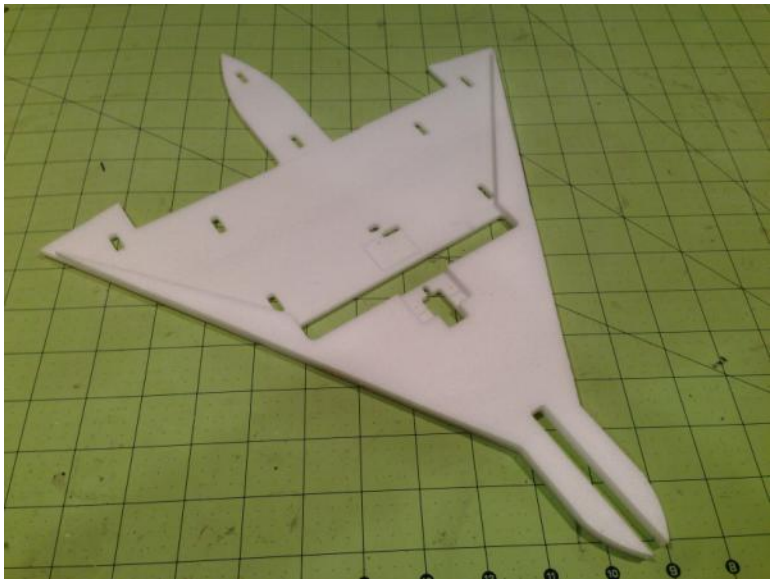


2.2 Wing Reinforcement Lamination

- **Parts Required:**
  - Main Wing
  - KFm Step
  - 4” 0.051” Carbon Rod (2 each)

1) Lay the main wing on the table with the diagonal carbon rod location markings slot facing up. Press the carbon rod into the recessed slots to enlarge them slightly if necessary. Apply a bead of glue around the entire perimeter of the KFm Step.
2) Press the glued side of the KFm onto the Main Wing with the carbon rods in place, aligning the leading edges of both parts, and gently slide the parts around to spread the glue evenly.
3) Set the assembled wing lamination aside to allow the glue to cure. If desired you can place a flat weight (book, etc.) on top of the lamination while curing to ensure a flat assembly.
4) Once cured, sand the leading edges to your liking.





2.3 Elevator/Elevon & Rudder Hinging

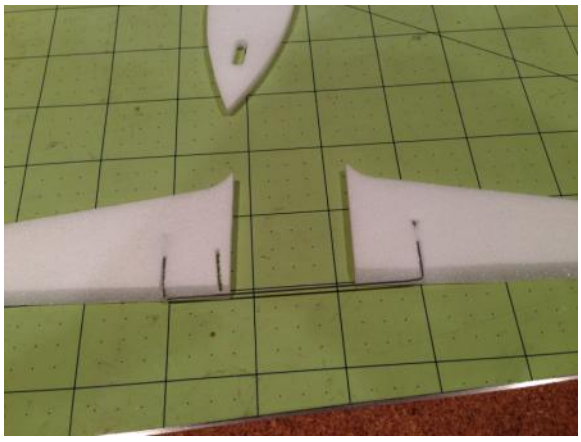
- **Parts Required:**
  - Right Elevator Half
  - Left Elevator Half
  - Elevator Joiner Wire
  - Vertical Stabilizer
  - Micro Control Horn (2 each)
  - Main Wing

  or
  - Elevon (2 each)
  - Micro Control horn (2 each)
  - Main Wing

Elevator/Rudder Setup

Warning: This process involves using extremely sharp cutting blades. Care must be taken to avoid injury.

1) Lay the elevator halves on the table with the leading edge facing yourself and the widest parts nearest each other. Use a straight edge ruler and a hobby knife or a sanding block to cut an approximate 45° bevel into the leading edge of the control surface.
2) Bend two 90-degree bends into the Elevator Joiner wire 1” from each end, making a U-shape with the middle 3” long. Ensure the short sides are parallel to each other; if not, bend the wire so they are. Press the short ends of the joiner wire into the beveled end of the elevator halves at the small notches cut into the elevator halves. Glue the wire to the elevator halves and use small pieces of tape over the slot to secure.

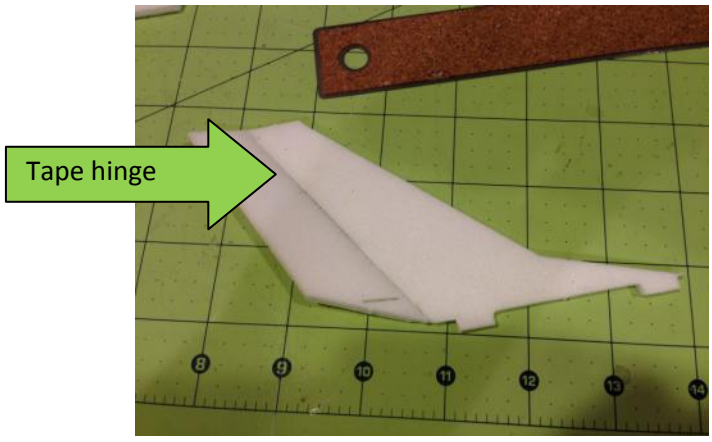


3) Lay the vertical stabilizer on the table with the bottom facing you. Carefully crack the rudder along the rudder line or use a straight edge ruler and a hobby knife to cut down the rudder cut line in order to separate the rudder.

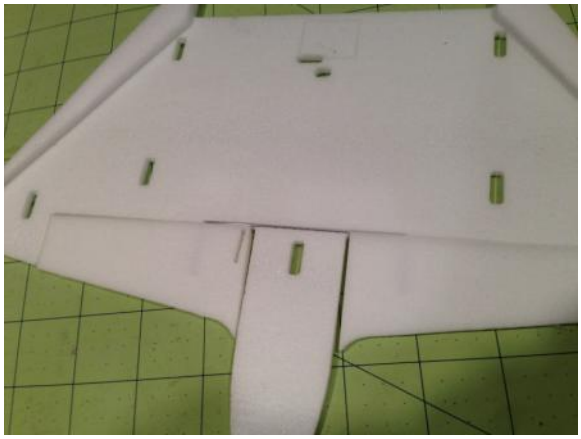
4) Lay the rudder on the table with the leading edge facing you. Use a straight edge ruler and a hobby knife to cut an approximate 45° bevel into the leading edge of the control surface, ensuring that the bevel is on the correct side.

If you choose to use a glue hinge for your surfaces ensure you bevel the mating surface as well.

5) Place the vertical stabilizer and rudder back together with trailing and leading edges touching, oriented the proper direction for the bevel to face to the left when installed. Cut approx. ¼" x 1" pieces of hinge tape. Use two of these small pieces of tape to attach the smooth sides of the rudder and vertical stab together. Dry fit a micro control horn into the slot, ensuring that the hinge bevel is facing down. Set assembly aside.

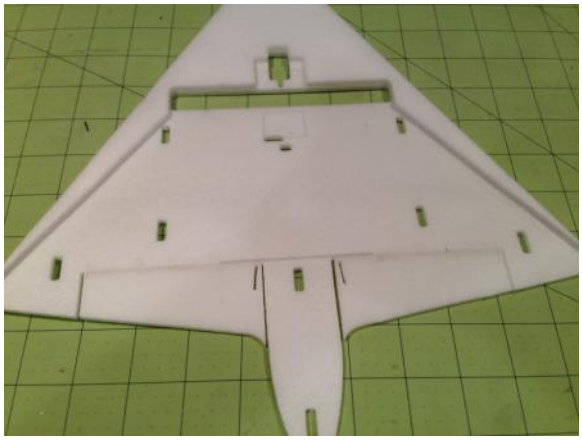


6) Place the elevator and main wing together with trailing and leading edges touching, oriented such that the hinge bevel faces down when the KFm Step is facing up. Use two small pieces of tape on each elevator half to attach the smooth sides of the elevator halves and main wing together.



Elevon Setup

1) Lay the elevons on the table with the leading edge facing yourself and the wide part of the elevons on the outside. Use a straight edge ruler and a hobby knife or a sanding block to cut an approximate 45° bevel into the leading edge of the control surface, ensuring that you have both a left and right elevon. Dry fit a micro control horn into the slots, ensuring that the hinge bevel is facing down. **Note:** Ensure you use the elevons with a slot in each for the control horn.



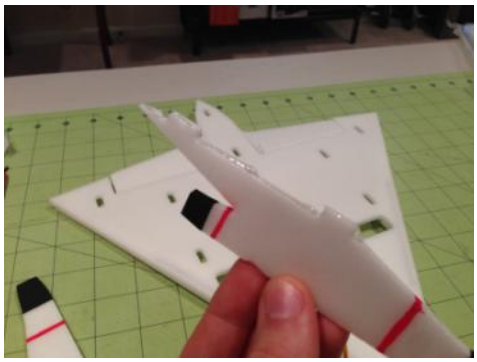
2) Place the elevon and main wing together with trailing and leading edges touching, oriented such that the hinge bevel faces down when the KFm Step is facing up. Use two small pieces of tape on each elevon to attach the smooth sides of the elevon and main wing together.

This is an ideal time to paint or decorate the parts as they are still flat and will be easier to handle.

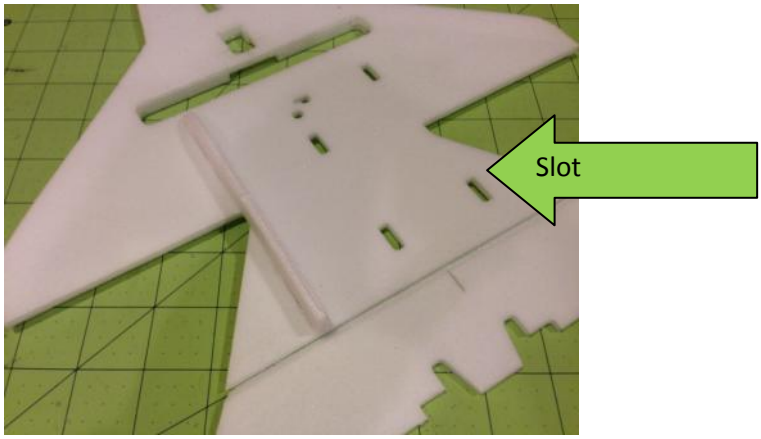
2.4 Skid Installation

- **Parts Required:**
  - Main Wing Assembly
  - Skid (4 each)

1) Lay the main wing assembly on the table with the KFm step facing down. Apply a bead of glue down the entire length of the top of the skid.



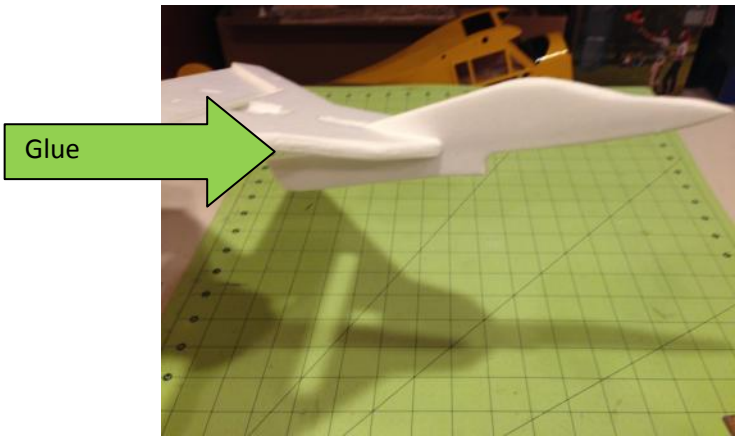
2) Press the glued side of the skid onto the Main Wing, aligning the slots on the wing with the tabs on the skids, and gently press the parts together to spread the glue evenly. Allow glue to cure before proceeding.

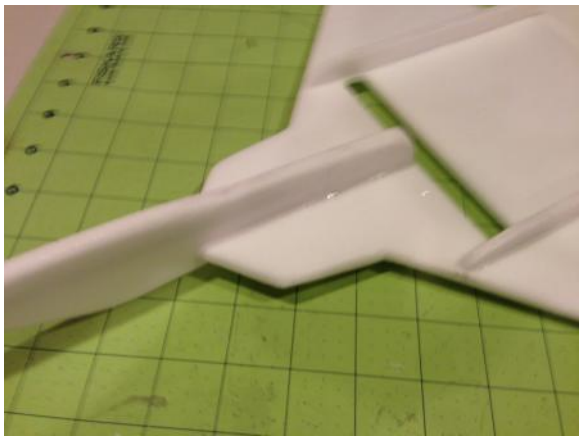


2.5 Fuselage Installation

- **Parts Required:**
  - Main Wing Assembly
  - Fuselage Assembly

1) Apply a bead of glue down the entire length of the flat spot on the top rear of the fuselage assembly. Also apply glue on the inside edges of the main wing assembly fuselage slot.
2) Press the glued side of the fuselage assembly onto the main wing assembly, sliding the fuse all the way back, and gently slide the parts back and forth to spread the glue evenly. Check that the front of the wing that is glued to the side of the fuse is straight and even on both sides of the fuse. Allow glue to cure before proceeding.

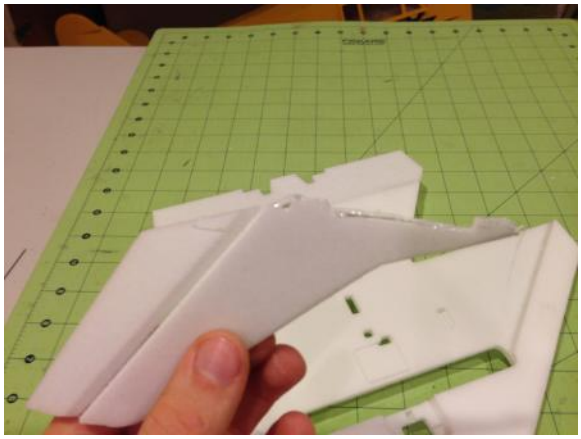
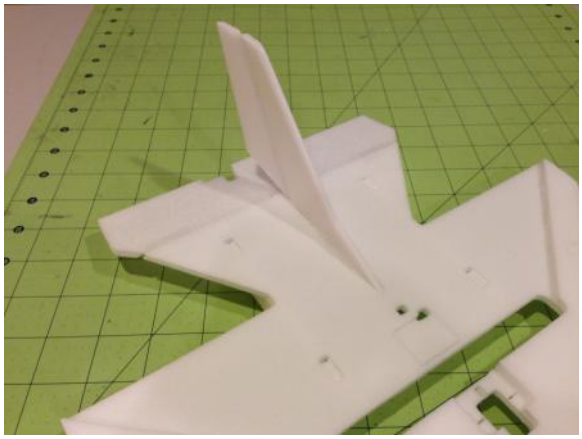
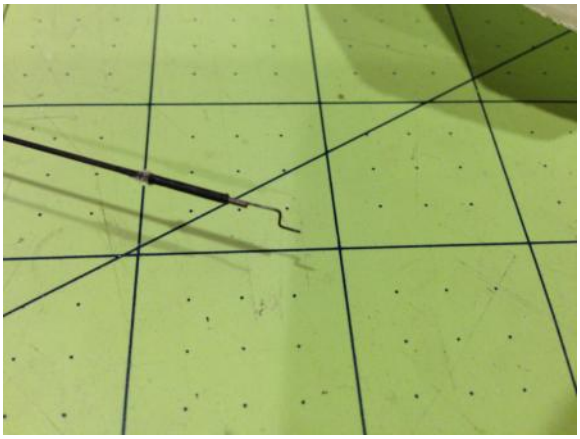
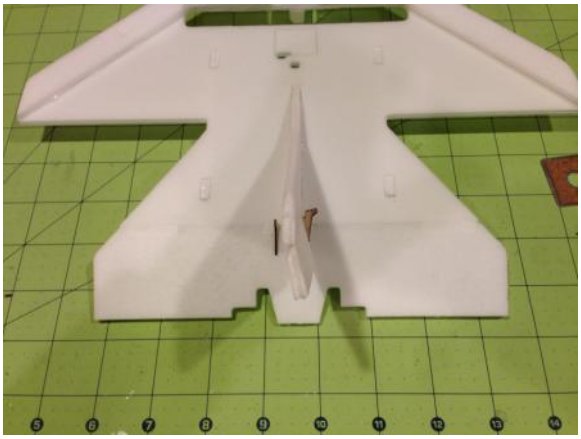




2.6 Vertical Stabilizer Installation

- **Parts Required:**
  - Main Wing Assembly
  - Vertical Stabilizer Assembly
  - 5" 0.051" Carbon Rod

1) Apply a bead of glue down the entire length of the bottom of the vertical stabilizer assembly. Press the glued vertical stab assembly onto the top of the main wing assembly onto the proper slots, ensuring that the stab sits evenly on the wing. Allow the glue to cure fully prior to proceeding.
2) **If building your model with a rudder:** Secure the push rod z-bends to the 5" carbon rod by using glue and heat shrink tube. Glue one rudder joiner control horn and dry fit the other. Adjust the control rod length and then shrink the heat shrink tube to "lock" the z-bend wire in place to ensure that the rudder is straight with the vertical stabilizer. Once the rod length is set, attach the unglued control horn to the z-bend and then glue the assembly in place.

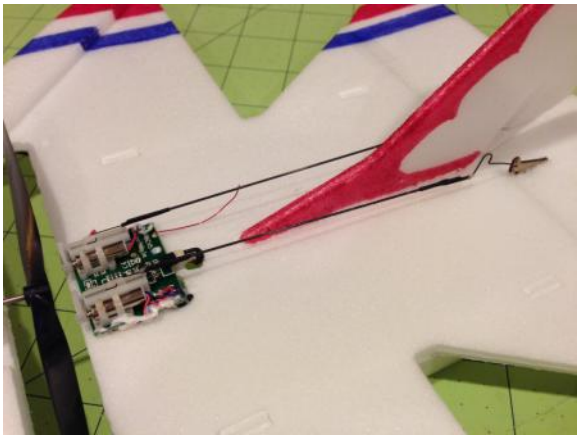





2.7 Electronics Installation

- **Parts Required:**
  - Complete Model Assembly
  - RX/ESC/Servo "Brick"
  - Motor & Gearbox w/Prop
  - 12" Micro Wire
  - 1/16" Heat Shrink Tube
  - Hook and loop material

The steps for this part of the assembly are the same for multiple models so even though the photos may not be for your model, the instruction is correct. Use the photos for reference.

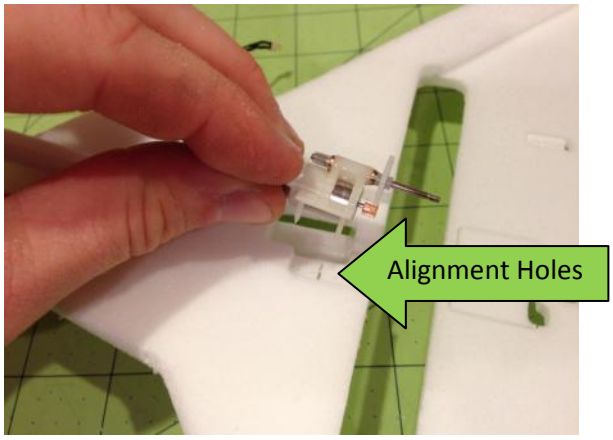
1) Glue the RX/ESC/Servo "Brick" on the top of the main wing at the location marked by a square, just behind the prop slot. Ensure that the servo gears are facing forward and the brick and all wires are completely clear of the prop.



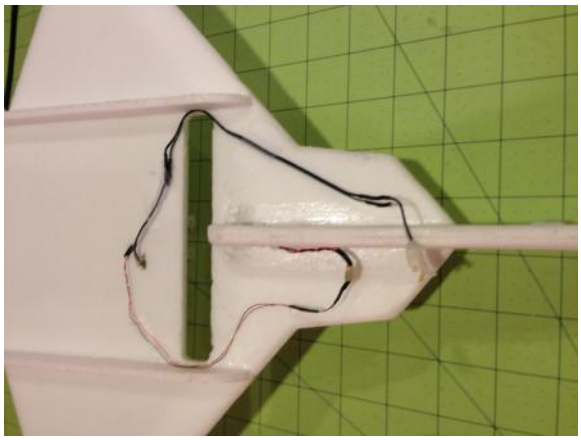
2) Cut the motor and battery wires approximately in the center. Strip the insulation off the wire about 1/8" and tin the wires. Strip and tin one end of the micro wire as well. Cut pieces of shrink tube to cover the exposed wires. Slide the shrink tube onto the wires leading to the motor. Solder the micro wire to the motor wire ends, matching polarity. Once soldered, slide the shrink tube over the completed solder joint and use a heat gun to shrink the tubes.

Warning: This process involves using soldering equipment that is extremely hot. Extreme caution must be taken

3) Dry fit the motor onto the top of the main wing by inserting the motor mounting pins into the pre-cut alignment holes/dots in the wing with the prop located inside the open slot. Route the motor wires around the slot and to the brick and cut the micro wire to the proper length. Solder the motor plug onto the micro wire and cover with heat shrink tube. Use small pieces of clear packing tape or glue to secure the motor wires around the slot. Plug the completed, longer motor wire into the brick.



4) Use glue to secure the motor to the airframe. Let glue cure fully before proceeding. Secure all loose wires with tape or glue around the prop slot to ensure it is not damaged by the prop.



5) Attach a piece of hook and loop material to the side of the fuse, under the canopy for battery mounting and adjustment.
6) Secure the push rod z-bends to the remaining carbon rods by using glue and heat shrink tube. If you choose to use elevons you will need to cut the 5" carbon rod down to 3" to match the other. Adjust the control rod length and then shrink the heat shrink tube to “lock” the z-bend wire in place to ensure that the elevator and rudder are straight with the main wing and vertical stabilizer. Once the rod length is set, install the control rods to the brick and control horns then attach the unglued control horn to the z-bend and then glue the assembly in place.

3 Setup and Tuning

3.1 Center of Gravity

The CG of this plane is located approximately ½" in front of the prop slot and is marked by a slot cut in the foam on the main wing. Moving the CG fore and aft will dramatically change the handling of the plane so adjust to your liking. An aft CG will allow for slow, high-alpha flight while a more fore CG will provide a faster flight experience. Use the included hook and loop fastener to adjust the fore/aft location of the battery to adjust the CG without adding additional weight.

3.2 Control Throws & Expo

By altering the amount of control throw the surfaces have you can fine-tune the handling and performance. Below are the recommended settings as tested that will provide a successful flying experience. Throws are measured at the point farthest from the hinge.

Control Surface	Low Rate Throw	Low Rate Expo	High Rate Throw	High Rate Expo
Elevator	1/2in	20%	3/4in	35%
Rudder	5/16in	20%	3/8in	35%
Elevon	1/4in	30%	3/4in	55%

3.3 Launching

Launching this aircraft is very simple and is easy to do. Simply hold the airplane by the wingtip in one hand with your radio in the other. Advance the throttle to full and gently swing the aircraft forward, releasing it with wings level and a slightly up attitude.

3.4 Flying Tips

This aircraft is designed to fly in the space as small as a single basketball court. Being such light weight, it is recommended that this aircraft be flown indoors or outdoors in calm wind conditions. Always ensure that you are comfortable with the aircraft and its flight characteristics prior to flying in a small venue. If you want to fly slower, choose the rudder/elevator version. If you'd like to fly more aerobatically, pick the elevons. Never fly over people or animals.

This aircraft flies much "bigger" than it really is and the techniques of flying larger aircraft apply. Rudder turns will bank the aircraft so elevator will need to be added to maintain altitude. The delta-wing design is inherently stable and makes this model a pure joy to fly! This model can fly slowly in high alpha flight, but when you drop the nose it is remarkably quick and nimble. Landing the aircraft is simple; keep some throttle applied and as the plane nears the ground, pull back on the elevator to flare.

3.5 Decorating/Finishing

The beauty of this aircraft is that you have the opportunity to finish it with the look that you desire. We recommend using colored packaging tape (available on the Building Supplies tab) for decorating as it is easy to use, lightweight, and provides a nice, glossy finish. Water-based paints have been used with success in the past as have permanent markers. Prior to using any paints or markers, test on a scrap piece of foam to ensure that it doesn't melt the foam.

Remember that any weight you add to the airframe will affect its performance so keep heavy applications of paint and decals to a minimum.

3.6 Repairs & Spare Parts

Due to this models extremely light weight, it is surprisingly durable! If a part of the model is damaged it can typically be repaired using small pieces of packaging tape or by gluing using Beacon Foam Tac.

If a part is damaged beyond repair, simply send us an email at Support@Sawn-Craft.com as we have replacement parts for purchase.