“The BIPE”
Assembly Manual

Specifications
Wing Span: 34 inches
Wing Area: 524 in^2
Fuselage Length: 36 inches
Weight (ready to fly): 20 to 24 oz.
Wing Loading: 5.5 to 6.6 oz/ft^2

Designed by Jim Vigani
Version 1.0 - 1/2/07

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Limited Warranty

AirfoilZ takes pride in the care and attention given to the manufacture of the components in this kit. The company warrants replacement of any materials found to be defective for their intended use prior to their use in the construction of the model, provided the purchaser requests such replacement within a one year period from the date of purchase, and the part is returned, if so requested by the Company. No other warranty, expressed or implied, is made by the company with respect to this kit. The purchaser assumes full responsibility for the risk and all liability for personal or property damage or injury resulting from the purchaser's use of the components of this kit whether assembled or not.

The Company reserves the right to provide a full refund to the purchaser if the model does not perform as advertised. Any refund is at the sole discretion of the Company.

Introduction:

Thank you for choosing the AirfoilZ "The Bipe" model airplane. We have taken great care to provide a design and kit components that, when properly assembled, will give you a high quality model with outstanding performance. While the assembly is not complicated, the quality and ultimate performance of your model will depend on the care you take while building. **Please read these instructions carefully and be sure that you understand them before you start.** Take care to assemble the components as shown and in proper alignment.

Warning

This radio-controlled model is not a toy and, if operated inappropriately can cause serious bodily injury and property damage. *It is the buyer's responsibility to assemble the kit correctly and properly install the motor, radio and all other equipment. The model must always be flown in accordance with the safety standards of the Academy of Model Aeronautics (AMA).*

This model is designed to be fully 3D capable. While it is reasonably simple to assemble, it is not intended for the novice flier. ***Do not attempt to learn to fly with this model!*** *If you are an inexperienced modeler, we recommend that you get the assistance of an experienced modeler to help you with the assembly and initial flights. There are many local clubs that can offer help with assembly and flight instruction. Information on local clubs can be found through the Academy of Model Aeronautics. The AMA has over 2500 chartered clubs throughout the country. Information on the AMA can be found at www.modelaircraft.org.*

We do not recommend the use of hot glue for mounting components such as servos, control horns, receivers or speed controls.

Recommended Power System:

This plane has been designed using a minimum 250-watt brushless outrunner motor power system. Other power systems with similar capabilities can be used. Performance will vary depending on the specific power system selected. For information on alternate power systems please visit http://3dxhobbies.com or your local hobby shop.

Kit Contents:

Before you start the assembly of this model, check to make sure that there are no missing parts and that none of the parts have been damaged during shipment. If you have any questions with the assembly or flying of this model, please contact us and we will be happy to assist you. If you need replacement parts please provide the model name, (The BIPE Airplane) and reference the part numbers listed below.

Part #:	Qty:	Description:
TB-01	1	laminated foam fuselage
TB-02	2	1/32" sheet plastic nose doublers
TB-03	1	1/8" plywood motor mount
TB-03a	1	balsa tri stock motor mount support
TB-05	1	hardwood landing gear mount
TB-05a	1	1/32" ply landing gear mount cap
TB-05b	2	1/32" sheet plastic landing gear mount fuselage doubler
TB-06	1	3/32" diameter bent wire landing gear
TB-06a	1	1/32" diameter bent wire tailskid
TB-06b	1	1/32" ply tailskid mount
TB-07	2	3mm formed depron wings
TB-07b1	2	1/8" x ½" balsa wing spar web
TB-07b2	4	1/8" x ½" balsa wing spar cap
TB-07c	4	6mm depron ailerons
TB-07d1	2	3mm depron wing struts - outer
TB-07d2	2	3mm depron wing struts - inner
TB-08	1	6mm depron horizontal stabilizer
TB-08a	1	6mm depron elevator
TB-08b	1	1/8" x ¼" balsa horizontal stabilizer spar
TB-08c	1	3/16" dia. x 5" long CF elevator joiner
TB-09	2	3mm depron vertical stabilizer filler piece
TB-09a	1	6mm depron vertical stabilizer
TB-09b	1	6mm depron rudder
TB-09c	1	¼" sq. balsa tail post

Hardware Package

FSM-01	8	¼" x 1" x 1/32" sheet plastic servo mount
FHM-01	4	5/8" x 5/8" x 1/32" sheet plastic control horn mount
TB-ACH	4	Aileron connecting linkage control horn
MH-001	23	poly hinge
MH-002	2	Dubro duro collar
MH-003	2	#2 washers
MH-004	4	double threaded 2-56 control rod
MH-004a	1	6 inch, 2-56 threaded rod
TB-006a	1	1/8" dia. X 9" CF push rod blank
MH-006	1	1/8" dia. X 24" CF push rod blank
MH-007	12	Nylon clevises
MH-008	4	Dubro nylon control horns
MH-009	2	2" long heat shrink tubing
MH-011	2	Spoked light weight foam wheel
TB-DS	1	decal set
TB-IM	1	Instruction Manual

Other items you may need that are not included with your kit:

Building Supplies:

In addition to the kit contents, we recommend having the following building supplies on hand to complete the kit assembly in accordance with this manual.

- Foam safe (odorless) CA
- Foam safe CA "Kicker"
- Thin CA
- Gorilla glue
- 5 and 15 minute epoxy
- JB Weld
- Double back tape or spray adhesive
- Low tack masking tape (blue painter's tape)
- Sanding block with 100 grit sandpaper
- Sanding stick or emery board (150 grit)
- Craft Popsicle-size wooden sticks
- Soldering iron and resin core solder
- $^{1}/_{32}$" inch, $^{1}/_{16}$", and $^{3}/_{32}$" inch diameter drill bits
- Exacto knife with #11 blade
- Utility knife
- Small square
- 36 inch ruler
- Needle nose pliers
- $^{3}/_{8}$ inch diameter brass tubing
- ½ inch diameter brass tubing
- Dremel tool with abrasive cutoff wheel
- Diagonal cutting pliers

Power and Control Equipment:

The following items are needed to provide power and control function to your model.

- Brushless outrunner motor with radial mount (AXI 2808/24 or equivalent)
- 4 motor mounting screws
- 4, #2 washers
- Brushless motor speed control (Castle Creations PH25 or equivalent)
- 4 micro servos (Hitec HS55 or equivalent)
- 3S Li-poly battery pack (TP 2100 Pro-Lite or equivalent)
- LI-poly battery charger
- 4 or 5 channel (with channel 6 capability) micro receiver
- Y harness if 4 channel receiver selected
- 4 or 6 channel transmitter

Making a Sanding Block:

The leading edges of the elevator, the rudder, and ailerons need to be beveled prior to installing the hinges. This is best performed by the use of a 2 inch wide by 12 inch long, 100 or 120 grit sanding block or sanding bar. In addition, other areas of the airframe can be sanded as shown in this manual to enhance the overall appearance. If you do not have a suitable sanding block, one can be easily made by securing a piece of 100 grit sand paper to a 2 inch x 12 inch x ¾ inch wooden block. The sandpaper can be secured to the block using either double backed tape or spray adhesive. ***Make sure that the block is flat!***

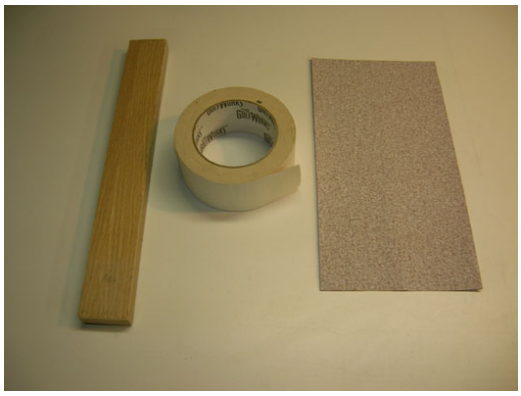

Figure: 1

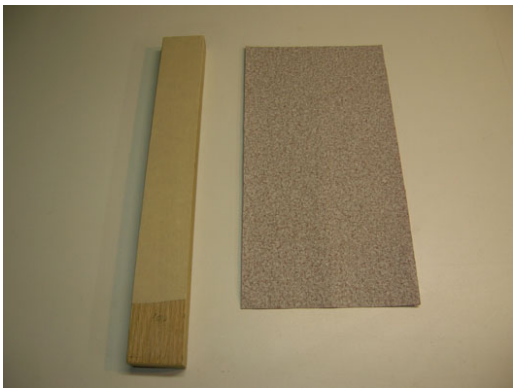

Figure: 2

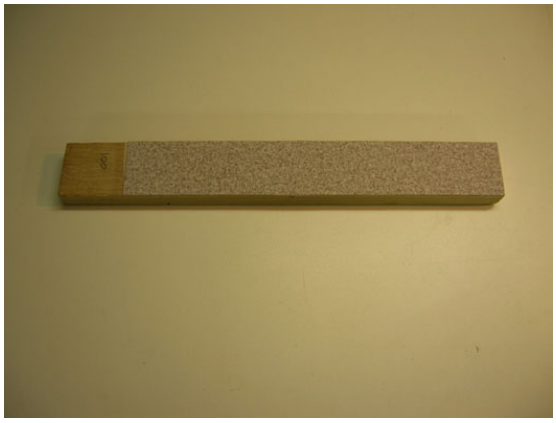

Figure: 3

General Comments on Assembly:

To ensure maximum performance from your model it is necessary to build it straight and light. Improperly aligned surfaces and unnecessary weight will only hinder its performance. Apply glue and epoxy in a thin uniform coat, using only enough to achieve a strong bond. Excess glue or epoxy will only add unnecessary weight and will not increase the strength of your model. Trial fit all components to ensure fit and alignment before applying any glue or epoxy. Keeping joints tight fitting will minimize the amount of glue required and will ensure a strong bond.

Use a light touch while sanding. Foam cuts very quickly and excess pressure can limit your ability to accurately shape the foam. Take extra care not to over sand. Avoid scratching the surface of the Depron foam. While sanding components such as the wing tip caps, you may chose to use blue painters tape to protect the adjacent wing surfaces from accidental contact by the sanding block.

Decals:

If you are going to apply the decals provided, we recommend that the decals for the fuselage be applied before installing the fuselage servo mounts and the lower wing. While not necessary, lightly misting the surface of the foam with a solution of water containing a few drops of dishwashing liquid prior to placing the decal in place will allow you to slide the decal around for accurate positioning. When the decal is in its proper location, gently squeegee any excess water out between the decal and the foam surface. Allow to dry completely before use. Keep the decals slightly away from all edges as this can allow for you to bevel the edges if desired.

Fuselage Assembly:

Motor Mount:

Carefully glue the nose doublers in place with medium foam safe CA or epoxy being careful to align the doublers with the motor cutout in the fuselage and with each other. (See Photo 1) **It is recommended that the mating surface of the nose doublers be sanded to increase the bond between the doublers and the fuselage.** After the glue has set, slide the motor mount in place from the front. Check the fit before applying any epoxy. If the notches in the motor mount are too small, lightly sand or file until the motor mount fits properly. Also, check that the interior corners of the motor mount cutout are square. Cut the balsa tri-stock motor mount supports to the proper length and check their fit behind the motor mount. Apply epoxy to the mating surfaces between the motor mount and the fuselage, and between the motor mount, motor mount support blocks and nose doublers. Position the motor mount and motor mount supports in place. Check that the motor mount is square to the fuselage both vertically and horizontally. Allow the epoxy to set before moving. (See Photo 2)

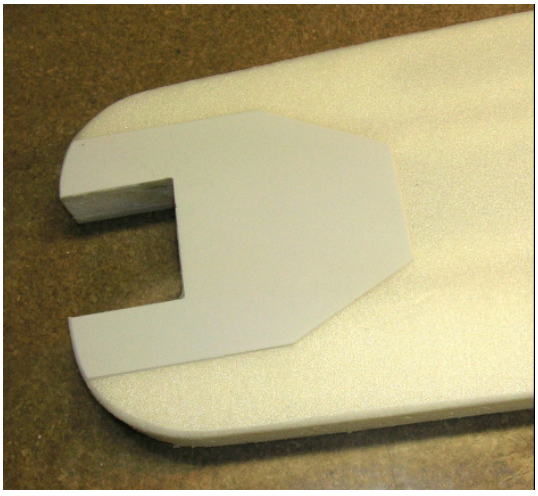

Figure: 4

Figure: 5

Landing Gear Mount:

Epoxy the landing gear mount cap to the landing gear mount to create the landing gear block. Test fit the block in the cutout in the fuselage. Sand the block as necessary so that the edges of the block are even with the surface of the fuselage sides. For added strength, wrap the assembled block with several loops of unwaxed dental floss. Prior to wrapping the dental floss, cut or file several small groves in the sides of the block so the dental floss does not protrude above the surface of the fuselage when the block is in place. Glue the dental floss in place with CA. Check the fit of the landing gear wire in the slot. Epoxy the block and the landing gear mount fuselage doublers in place. **It is recommended that the mating surface of the landing gear mount fuselage doublers be sanded to increase the bond between the doublers and the fuselage.**

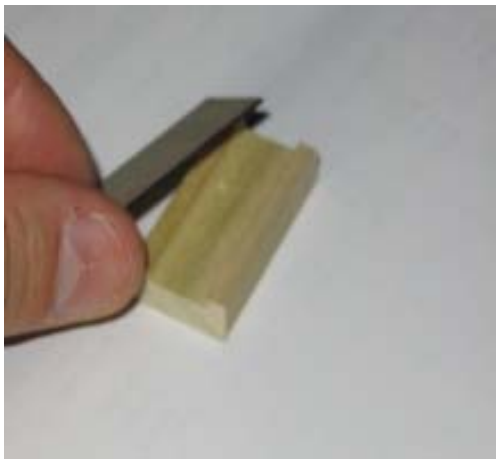

Figure: 6

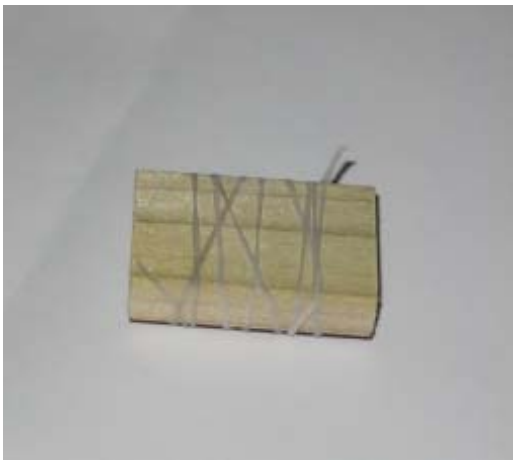

Figure: 7

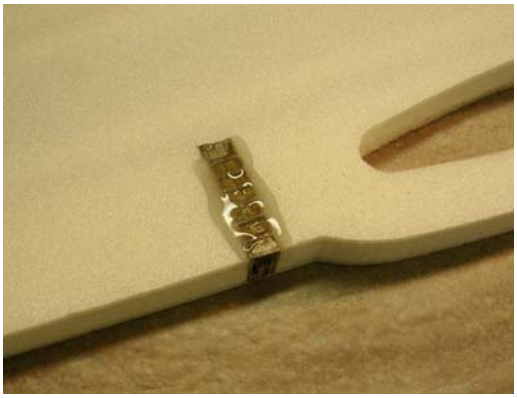

Figure: 8

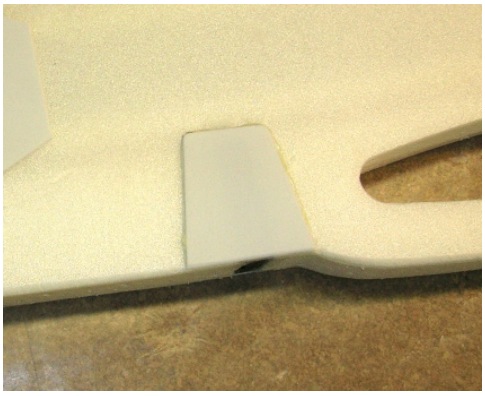

Figure: 9

Sanding:

If you would like to finish the edges of the fuselage, do that after the motor mount and the landing gear mount have been installed. Use your sanding block to smooth and either bevel or round the edges approximately $^{1}/_{8}$ inch. Sand the edges of the motor mount and motor mount supports smooth using the sanding stick or emery board.

Wing Assembly and Installation

Assembling the Spars:

Lay one of the spar cap strips flat on your work surface and position the spar web along the center of the cap strip. Starting at one end, tack the web in place at 6-inch increments with thin CA, firmly pushing the web in place as you glue (Figure 12 & 13). Repeat the process with the other cap strip. When both cap strips are tacked in place, run a bead of thin CA along the joints between the web and caps strips. **The completed spar resembles an "I" beam** (see Figure 15). Lightly sand the ends and edges of the wing spar to prevent it from catching on the foam when it is inserted into the wing skins.

Figure: 4

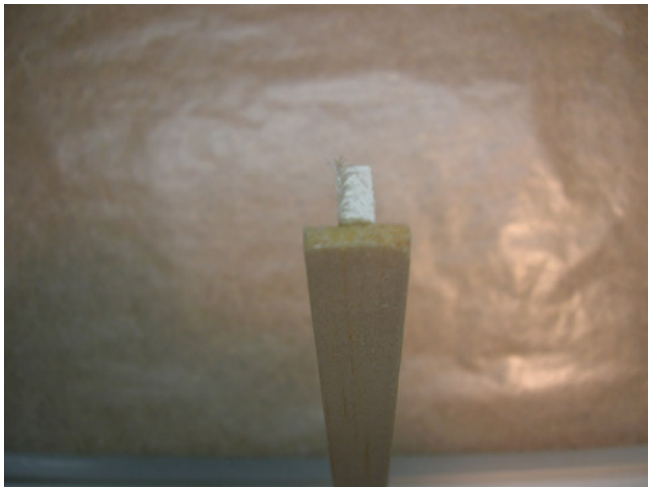

Figure: 5

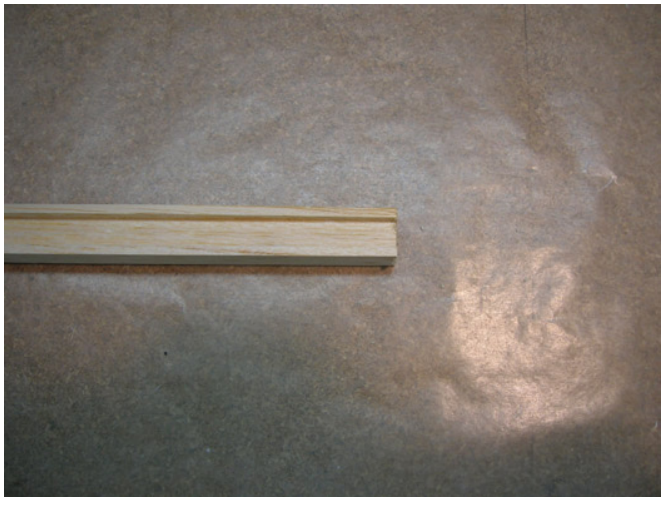

Figure: 6

Figure: 7

Wing Panel Assembly:

Place a mark 2½" behind the leading edge at each wing tip. Carefully slide the spar into the wing and align the spar centerline with the marks (See Figure 14). **The spar must be positioned so it resembles an "I" beam.** The wing panel will take the proper airfoil shape after the spar is in place. To secure the spar in place, gently lift the wing skin at the wing tips and apply approximately 1 inch of glue to the top and bottom spar caps. The spar does not need to be glued to the wing skin along its entire length. However, for additional strength, a small hole can be cut in the wing skin along the wing centerline to expose the spar. The spar is then glued to the wing skin at this location (See Figure 15). For cosmetic reasons, this center gluing should only be done on the lower surface of the top wing as the upper wing skin is exposed along its centerline and the hole will be visible. After the glue has set, sand the spar flush with the end of the wing. Repeat for the other wing panel.

Figure: 14

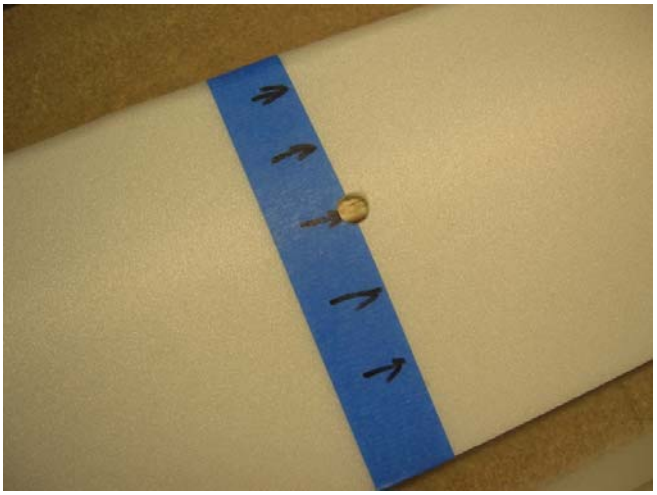

Figure: 15

Wing Strut Assembly:

Laminate the inner and outer wing strut pieces together with medium foam safe CA making sure that the outer edges are aligned. **Make sure to make a left and right hand version!** Sanding the edges after laminating greatly enhances the struts appearance.

Figure: 16

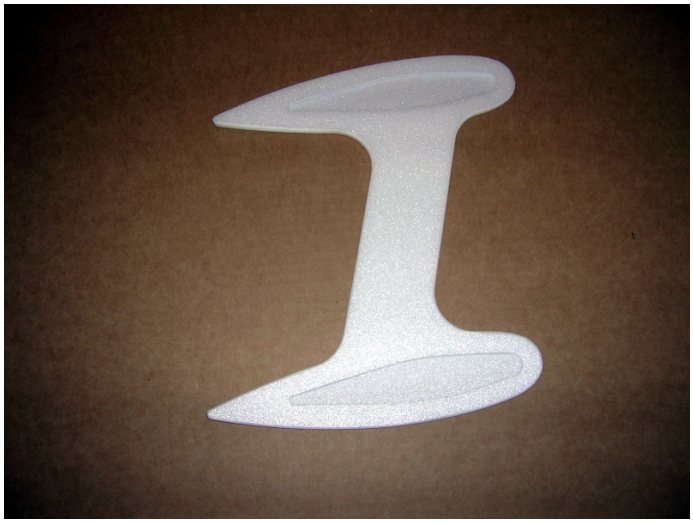

Figure: 17

Lower Wing Installation:

Mark the centerline of both wings (See Figure: 18). Test fit the lower wing in the fuselage wing cutout. ***Do not force!*** If the fit is tight, carefully sand the opening with the sanding stick or emery board until the wing slides smoothly into the cutout.

Figure: 18

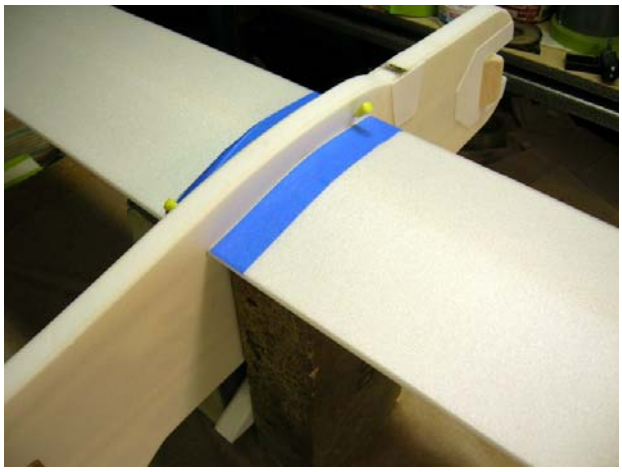

Figure: 19

The wings can be joined to the fuselage with either epoxy or Gorilla Glue. If simply gluing the lower wing in place slide the lower wing out approximately ¾ inch and apply the glue to the wing centerline and slide the wing back in place. Carefully align the lower wing with the fuselage and check that it is centered along the fuselage and the distance from the trailing edge at each wing tip to the rear of the fuselage is the same. Also check that the fuselage is square to the wing surface. Temporarily secure with painters tape. An alternate method is to align the wing as above and tack it in place using foam safe CA. The lower wing can then be permanently glued in position by creating a fillet using a mixture of 15-minute epoxy and micro balloons. This provides both a strong and attractive wing joint.

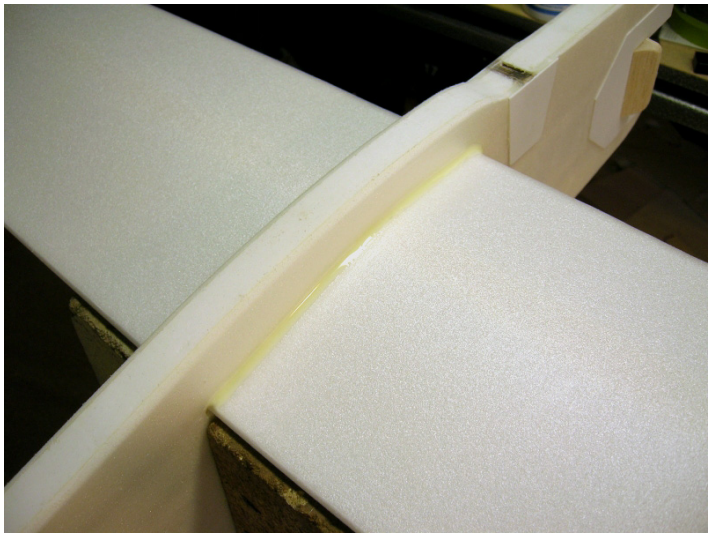

Figure: 8

Wing Strut and Upper Wing Installation:

The tips of the wings fit into the sockets of the wing struts insuring proper wing alignment. Prior to gluing, test the fit the strut sockets on the wing tips. Glue the lower wing tips into the wing strut lower sockets with foam safe CA (See Figure: 21). When cured, test fit the upper wing in the wing strut sockets and on the fuselage wing support saddle. Adjust the fit of the wing saddle as necessary by sanding with the sanding stick. ***Be careful not change the wing alignment!*** Glue the upper wing tips into the wing strut upper sockets (See Figure: 22). When cured, center the upper wing on the fuselage and glue in place on the fuselage wing support saddle (See Figure: 23). Tacking the wing in place with foam safe CA and securing with a fillet made from a mixture of 15-minute epoxy and micro balloons similar to the lower wing provides an attractive and strong joint.

Figure: 21

Figure: 22

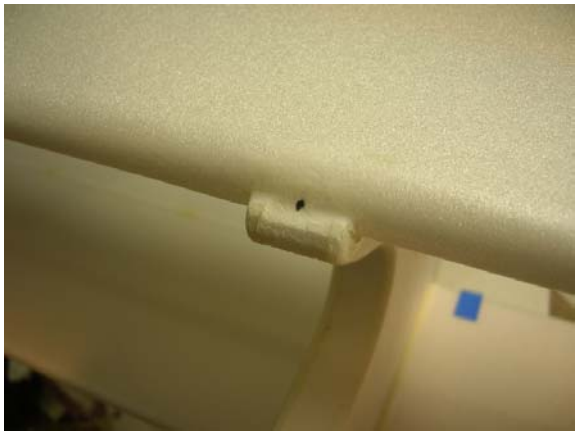

Figure: 23

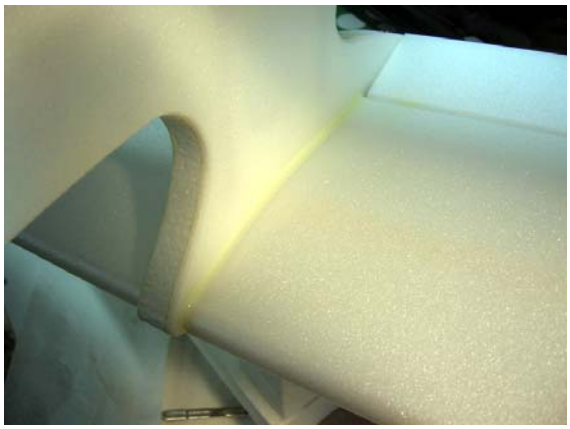

Figure: 24

Tail Feather Assembly and Installation:

Installing the Elevator Joiner:

Using the end of the CF elevator joiner, gently create a shallow grove in the elevator joiner cutout. Secure the CF joiner in place with epoxy. For a lighter joint a mixture of 15 minute epoxy and micro balloons can be used.

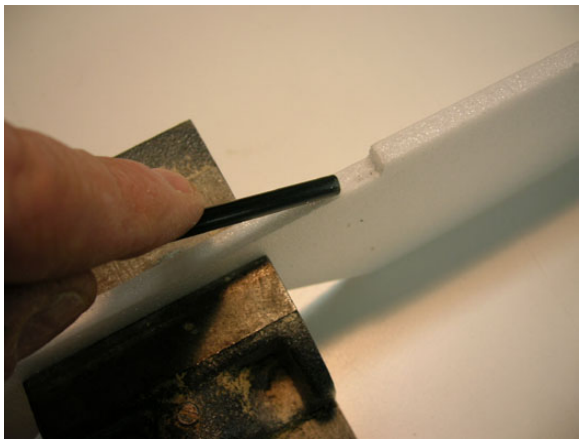

Figure: 25

Figure: 26

Installing the Horizontal and Vertical Stabilizer:

When the epoxy has cured, check the fit between the horizontal stabilizer and the elevator. There should be approximately $^{1}/_{32}$" clearance between the outside edges of the stabilizer and the elevator. Trim with your Exacto knife if necessary. Using the sanding block, bevel the leading edge of the elevator as shown to allow for movement of the elevator when hinged. Cut out the foam connecting section at the center of the elevator using your Exacto knife.

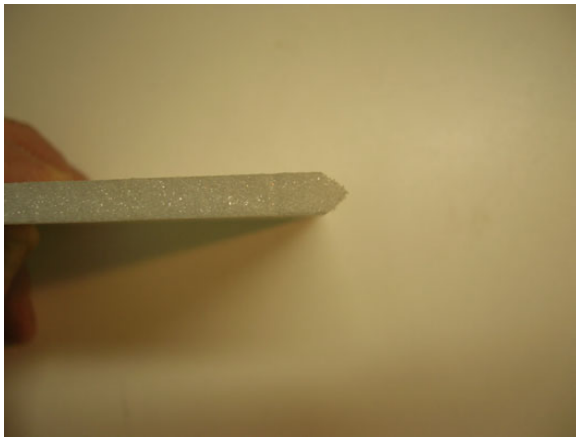

Figure: 27

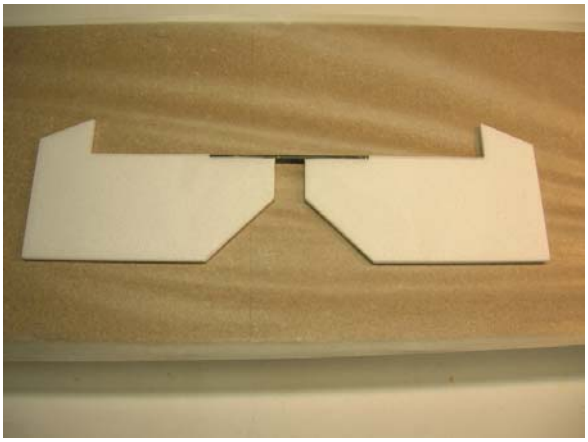

Figure: 28

Glue the balsa horizontal stabilizer spar to the rear of the horizontal stabilizer (Figure28). Check the fit of the horizontal stabilizer in the slot at the rear of the fuselage. If necessary, gently sand the slot with the sanding stick until the stabilizer can be positioned parallel with the wing. Check the fit of the vertical stabilizer tabs in the slots in the horizontal stabilizer. Trim as necessary for a snug fit. Join the vertical and horizontal stabilizer and tack into position using foam safe CA. Make sure the surfaces are square. Glue the 3mm depron vertical stabilizer filler pieces in place on either side of the rudder (Figure: 30).

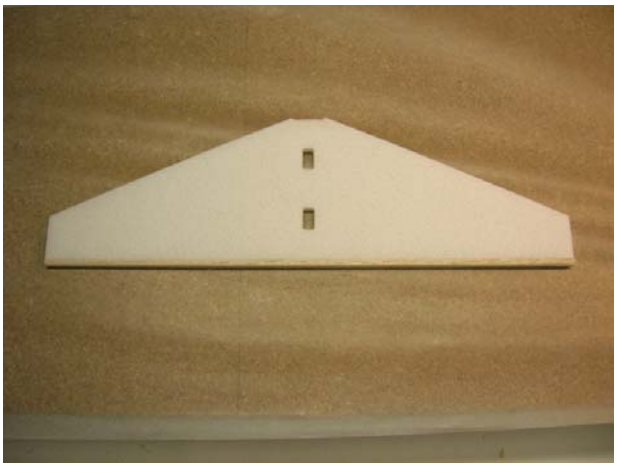

Figure: 29

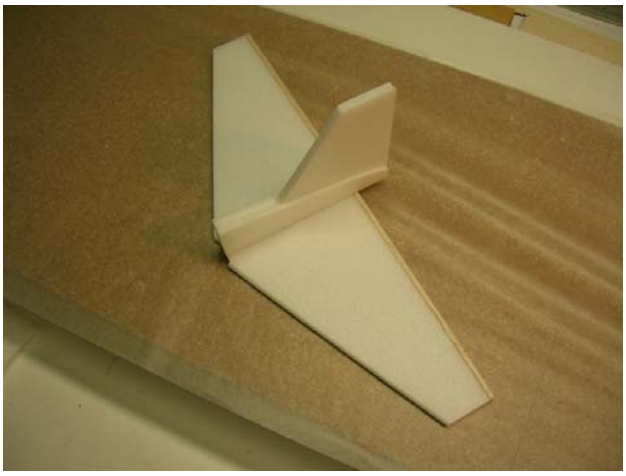

Figure: 30

Cut out the flashing at the rear of the fuselage above the stabilizer slot being careful not to break the fuselage skins.

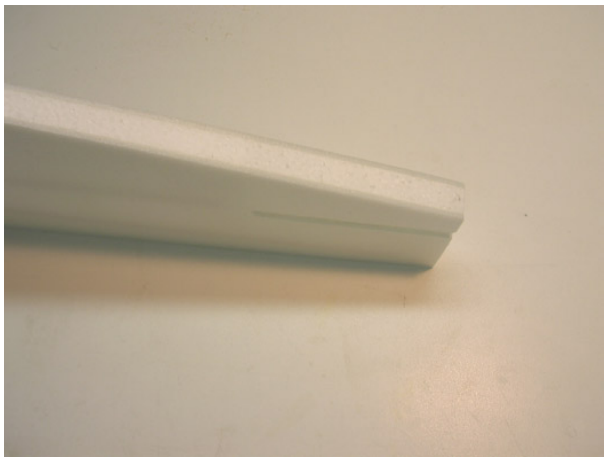

Figure: 31

Figure: 32

Check the fit of the stabilizer assembly in the slot at the rear of the fuselage. If required, using your sanding stick, sand the slot in the fuse to allow the stabilizer to be parallel to the wings. Carefully glue the stabilizer assembly in place using epoxy. Temporarily secure the assembly in proper alignment using 2 craft sticks and painters tape. ***Make sure the horizontal stabilizer is parallel with the wing before the epoxy cures!***

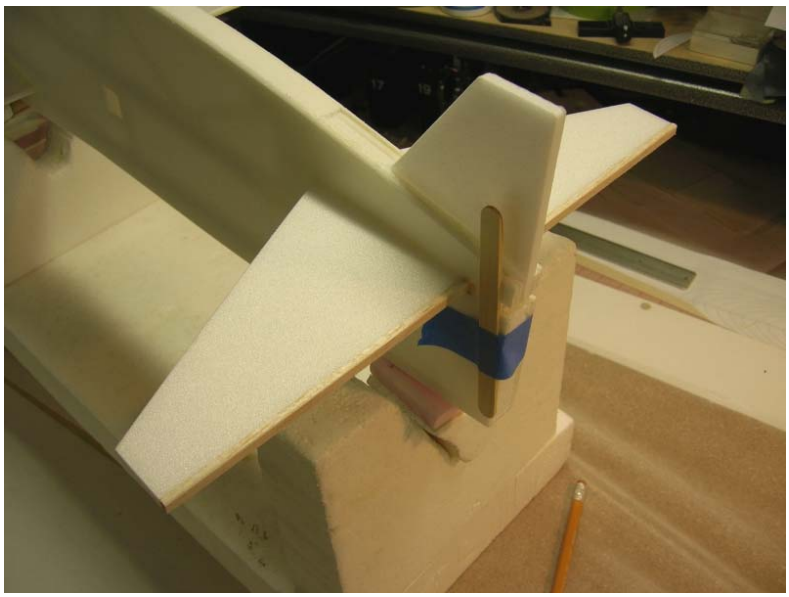

Figure: 33

When the epoxy has cured, check that the back of the vertical stabilizer and the back of the fuselage are flush. Sand as necessary with the sanding block.

Installing the Elevator:

Slide the elevator into position and temporarily secure with tape. Mark the position of the elevator hinges with strips of $^{3}/_{8}$" wide painter's tape. Cut the tape along the hinge line and remove the elevator.

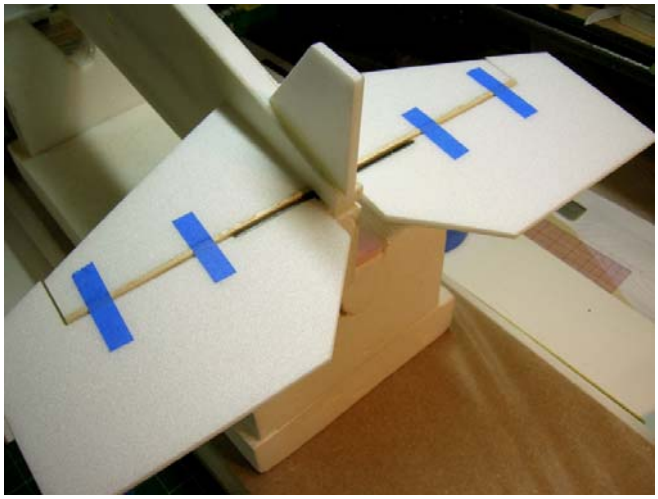

Figure: 34

Figure: 35

Using your Exacto knife, carefully cut a slit along the centerline of both the stabilizer and elevator at each hinge location. Test fit the hinges into the slits. Check that the elevator can move at least 50 degrees in each direction. If necessary, widen the slot in the fuselage at the CF elevator joiner location to allow full travel. When all parts fit properly, apply a small amount of Gorilla Glue to one side of the hinges and insert them into the slits in the stabilizer. Wipe off any excess glue at the hinge line. Test flex the hinges to ensure they are positioned properly. When the glue has cured, apply a small amount of Gorilla Glue to the exposed end of the hinges and slide the elevator onto position. Keep the hinge line tight. Again wipe off any excess glue at the hinge line.

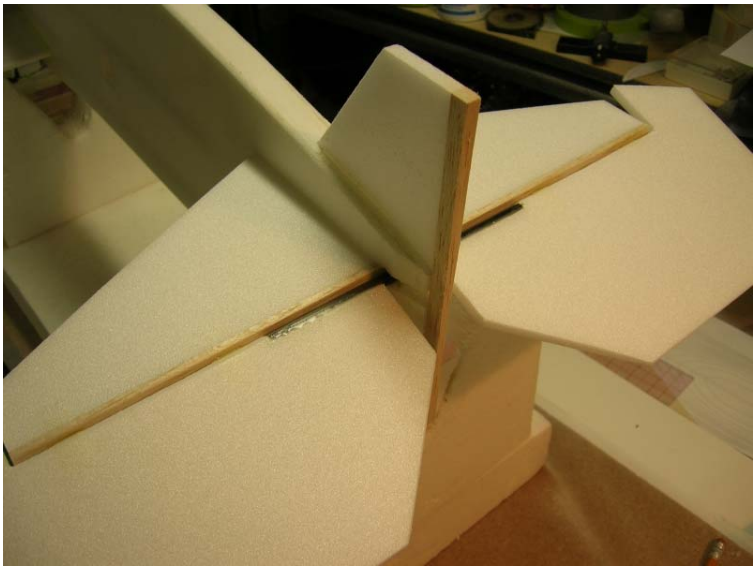

Figure: 36

Installing the Rudder:

Glue the rudder post in position using foam safe CA. Sand the rudder post flush with the top of the vertical stabilizer and with the bottom of the fuselage using the sanding block. Trim the back

of the fuselage at an angle to match the rudder post using your Exacto knife. This allows clearance for the rudder control horn.

Bevel the leading edge of the rudder to allow for movement when hinged. Temporarily secure the rudder in position using painter's tape. Remember to leave approximately $^{1}/_{32}$" clearance between the top of the vertical stabilizer and the rudder. Mark the position of the rudder hinges with strips of $^{3}/_{8}$" wide painter's tape. Cut the tape along the hinge line and remove the rudder. Using your Exacto knife, carefully cut a slit along the centerline of both the rudder post and the rudder at each hinge location. Install the hinges using the same procedure as used for the elevator.

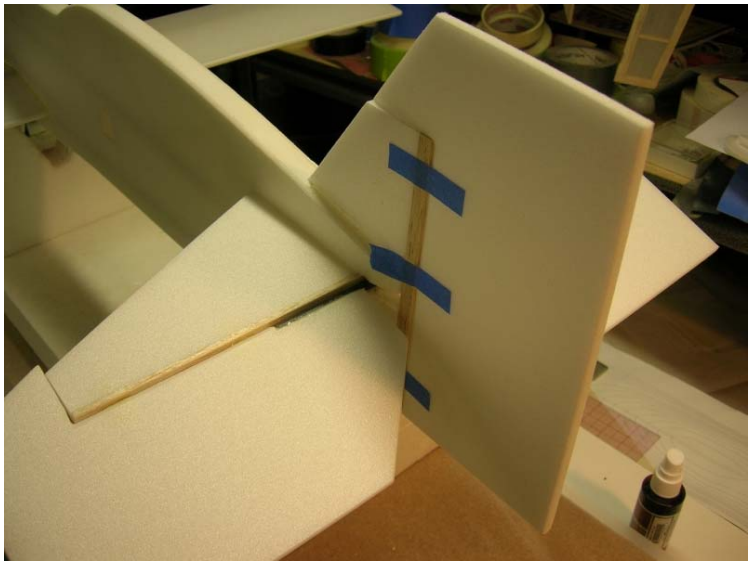

Figure: 37

Aileron Installation:

Bevel the leading edge of the ailerons to allow for movement when hinged. Temporarily secure the ailerons in position using painter's tape. Mark the position of the aileron hinges with strips of $^{3}/_{8}$" wide painter's tape. Cut the tape along the hinge line and remove the aileron. Using your Exacto knife, carefully cut a slit along the centerline of both the aileron and the wing trailing edge at each hinge location. ***Please note that the wing has a glue seam along the centerline of the trailing edge. Make all the slits in the wing trailing edge as close as possible to the centerline, directly above the glue seam!*** Test fit the hinges into the slits. When all parts fit properly, install the hinges using the same procedure as used for the elevator and rudder.

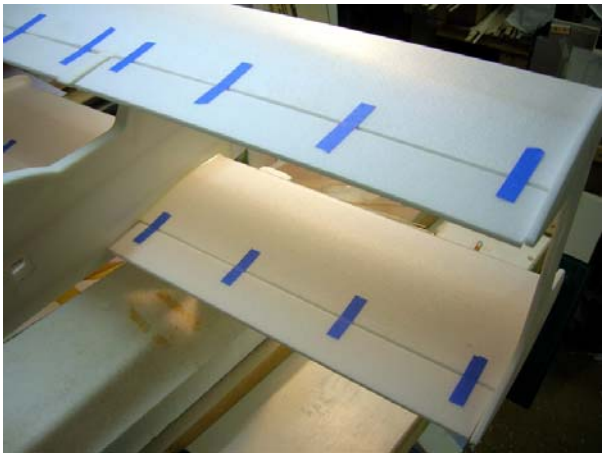

Figure: 38

Figure: 39

Servo, Pushrod and Control Horn Installation:

Aileron Connecting Linkage Installation:

Prepare the aileron connecting linkage control horn for installation by drilling a 1/16" diameter hole for the clevis pin where indicated on the horn. Cut a $^{1}/_{32}$"slot at the midpoint of each aileron for the aileron connecting linkage control horn. Glue the horns in place with foam safe CA.

Figure: 40

Figure: 41

Cut 2 double threaded 2-56 control rods into two pieces with diagonal or a Dremel abrasive wheel, with each unthreaded section extending ¾ inch beyond the threaded section. File the cut end smooth to remove any burrs. Sand the unthreaded section with 100 grit sandpaper to remove any surface dirt and provide a texture for gluing. Cut 2 sections of $^{1}/_{8}$" diameter pushrod blank 4½" long for the aileron interconnecting linkage. Insert the threaded rod into the end of the carbon fiber tube up to the threads and glue with thin CA or JB Weld. When the adhesive has set, check to make sure the threaded rod is secured in the carbon fiber tube. Slip a ½" section of heat shrink tubing onto the carbon fiber tube and position it such that the end extends

approximately $^{1}/_{16}$ " past the end of the carbon fiber tube. Apply heat to shrink the tubing. Wick thin CA into the joint between the heat shrink and the rod. Install the clevises on the threaded rod leaving room for adjustment. Connect the clevises to the connecting linkage control horns and adjust so that the upper and lower ailerons are parallel at neutral.

Figure: 42

Figure: 43

Elevator and Rudder Servo Installation:

Test fit the elevator and rudder servos in the fuselage cutout provided. As the servo leads are routed inside the fuselage, an exit hole near the receiver location needs to be cut out. Mark the servo lead exit hole location being careful to avoid cutting into the fuselage spars. A $^{3}/_{8}$ inch diameter brass tube with one end sharpened makes an effective hole punch. Mark the location of the plywood servo mounts and remove the servos. Glue the servo mounts in place with foam safe CA. Fit the servos in place and route the leads through the interior of the fuselage, and out through the exit hole. (*We use a pair of tweezers to pull the servo leads through the exit hole.*) Drill a small pilot hole in the servo mounts at each servo mounting lug location. Secure the servos in place with the servo mounting screws provided with the servos. *(Please note that the plywood servo mounts shown in the photographs have been replaced with plastic mounts.)*

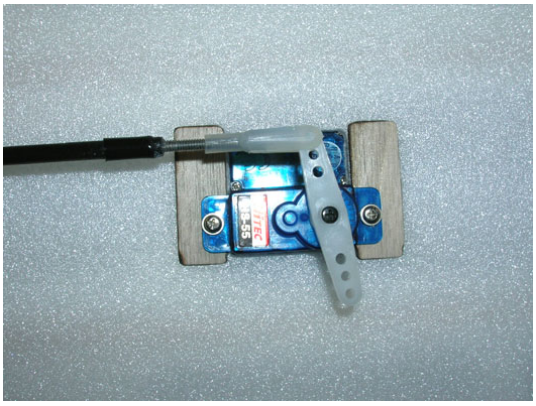

Figure: 44

Aileron Servo Installation:

Mark the wing servo locations on the bottom surface of the wings. The recommended servo location using Hitec HS-55 servos is shown on the following sketch of the wing bottom.

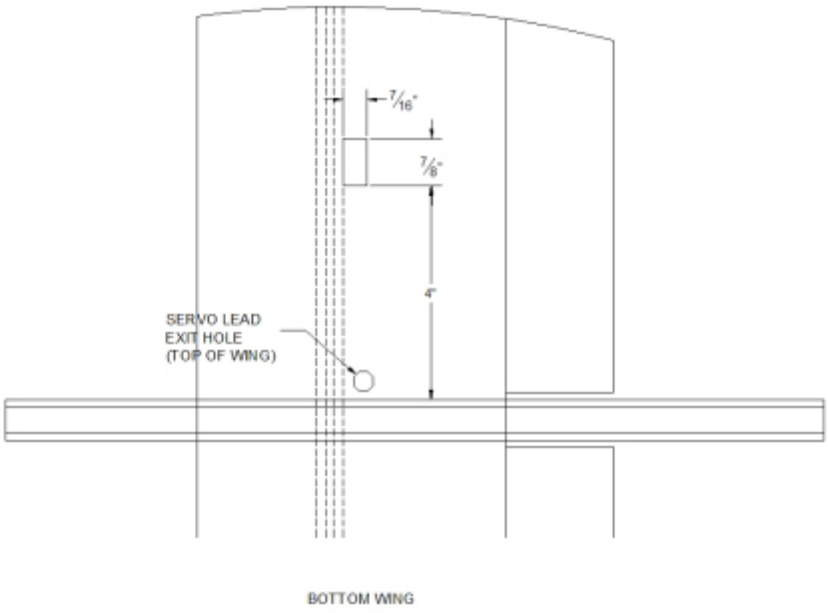

Figure: 45

Cut the hole in the bottom of the lower wing skin for the servo using your Exacto knife. As the servo leads are routed inside the wing, an exit hole in the wing near the receiver location needs to be cut out. Cut the servo lead exit hole location being careful to avoid cutting into the wing spar. Test fit the servos in the holes. Mark the location of the servo mounts and remove the servos. Glue the servo mounts in place with foam safe CA. Fit the servos in place and route the leads through the interior of the wing, and out through the exit hole. Drill a $^{1}/_{32}$ inch diameter pilot hole in the servo mounts at each servo mounting lug location. Secure the servos in place with the servo mounting screws provided with the servos.

Figure: 46

Control Horn Installation:

Locate the four, $^{5}/_{8}$" x $^{5}/_{8}$" x $^{1}/_{32}$" plastic control horn mounting plates and the four control horns. Insert the control horn pins through the holes in the mounting plates. Mark the location of the control horns on each of the control surfaces, making sure that the holes in the control horn are in line with the control surface hinge line. With the control horn in its proper location, push the pins on the control horns into the control surfaces, making two holes in the control surface. Epoxy the control horn mounting plates and the four control horns in place.

Figure: 47

Figure: 48

Elevator and Rudder Push Rod Assembly and Installation:

Both pushrods are assembled in the same manner. Only their length varies. **Note that enough carbon fiber tube has been provided to assemble all the pushrods. Be sure to accurately measure the length of each section before cutting.**

Cut the double threaded 2-56 control rods into two pieces with diagonal or a Dremel abrasive wheel, with each piece extending ¾ inch beyond the threaded section. File the cut end smooth to remove any burrs. Sand the unthreaded section with 100 grit sandpaper to remove any surface dirt and provide a texture for gluing. Insert the threaded rod into the end of the carbon fiber tube and glue with thin CA or JB Weld. When the adhesive has set, check to make sure the threaded rod is secured in the carbon fiber tube. Slip a section of heat shrink tubing onto the carbon fiber tube and position it such that the end extends approximately $^{1}/_{16}$ inch past the end of the carbon fiber tube. Apply heat to shrink the tubing. Wick thin CA into the joint between the heat shrink and the rod. Install the clevis on the threaded rod leaving room for adjustment and attach to the appropriate servo arm. Position the servo arm to its centered position. Mark the carbon fiber tube 1¼ inch from the hinge line. Remove from the servo arm and cut to length. Install the threaded rod and clevis in a similar manner to the servo end. Drill the control horn with a $^{1}/_{16}$" inch diameter drill for the clevis pin. Install the pushrods and adjust as required.

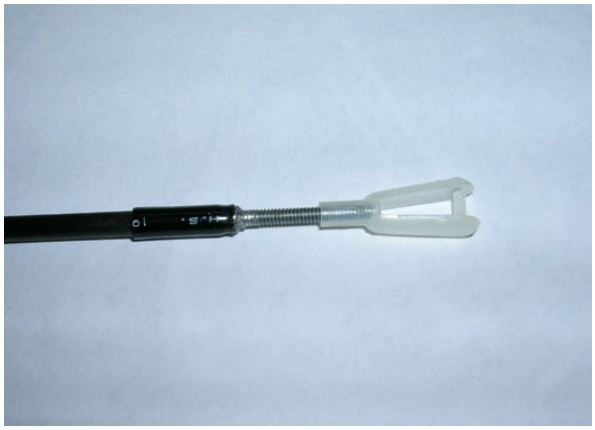

Figure: 49

Aileron Push Rod Installation:

The aileron pushrods are made from 2-56 threaded rod with clevises on each end. Drill the control horn with a $^{1}/_{16}$" inch diameter drill for the clevis pin. Install the pushrods and adjust as required.

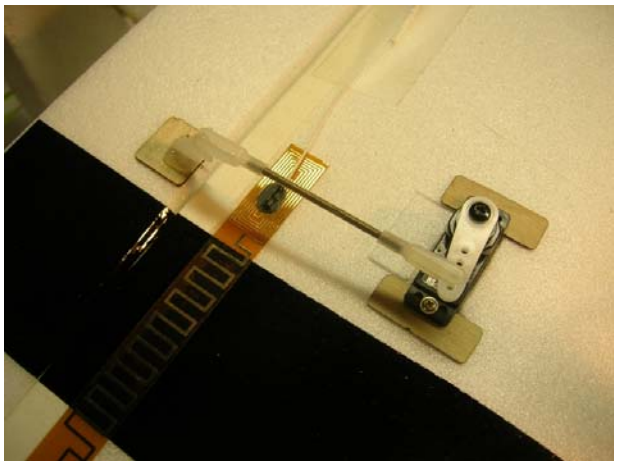

Figure: 50

Landing Gear Installation

Main Landing Gear:

Solder the #2 washers on the wheel axles to act as inner wheel stops. Slide the wheels on the axles and check that they spin freely. Secure with the wheel collars. Insert the landing gear into the landing mount. **Do not glue.** The landing gear is designed to be removable.

Tailskid:

Tie the wire tailskid to the plywood mount with unwaxed dental floss or thin wire. Secure with CA. Attach the plywood tailskid mount to the rear of the fuselage and bottom of rudder post using foam safe CA or epoxy.

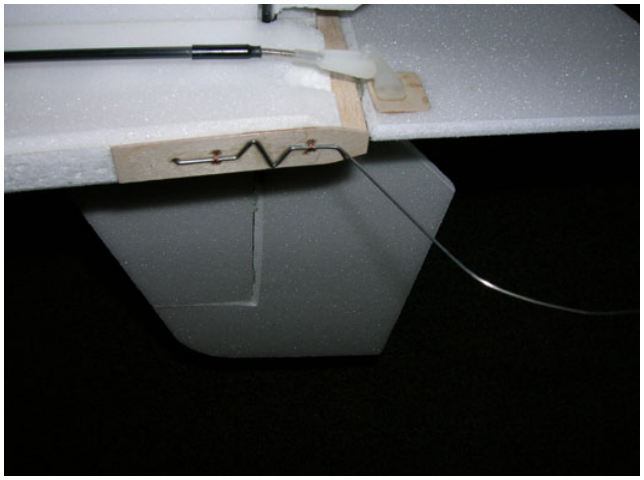

Figure: 51

Motor, ESC, Receiver and Battery installation

(Please note that the photographs show plywood parts used on the prototype. As with all the AirfoilZ kits, these have been replaced with white sheet plastic parts on the production version)

Position the motor radial mount and mark the position of the mounting holes. Drill $^{1}/_{32}$" diameter pilot holes in the plywood motor mount for the mounting screws. Mount the motor using small wood screws and #2 washers. Check to make sure the motor turns freely and there is no interference between the rotating motor components and the fuselage. Mount the ESC, Receiver and Battery with Velcro strips on the side of the fuselage between the wings. The battery should be mounted on the right side of the fuselage when looking from the rear. A battery strap is recommended. The receiver and speed control should be mounted on the left side. We find it most convenient to cut a hole through the fuselage to route the power leads between the battery and ESC. A ½ inch diameter brass tube sharpened on one end makes an effective hole punch.

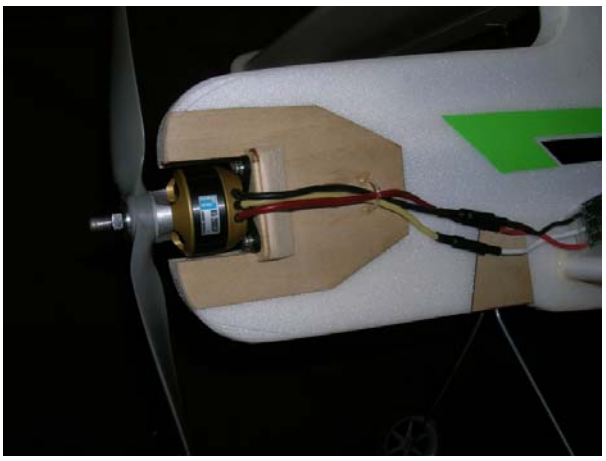

Figure: 52

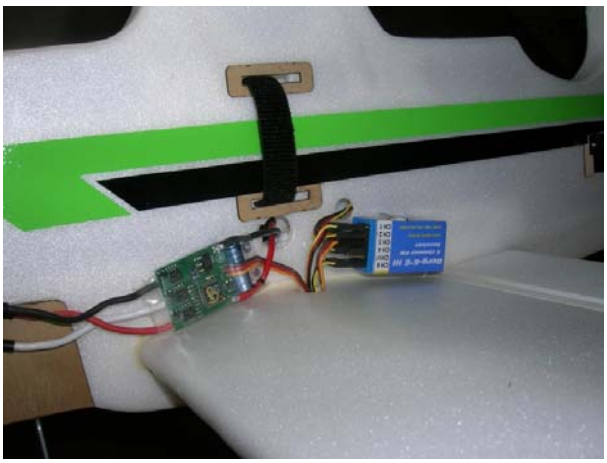

Figure: 53

Figure: 54

Graphics Layout:

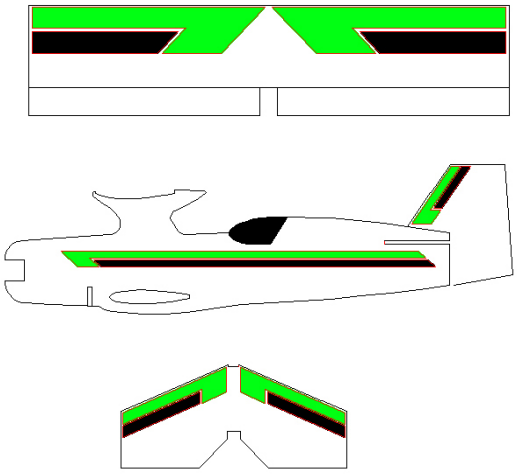

Figure: 55

Pre-flight checklist

Balancing:

The Bipe has a reasonably broad Center of Gravity (CG) zone where it will fly successfully. We recommend that you perform initial flights with the CG approximately 2 ¾ to 3 inches behind the leading edge of the top wing. Keep moving the battery forward or back until you get the flight characteristics that suit your taste. 3D flight will improve with a more rearward CG location.

Electrical Components:

Check that all electrical components are securely attached and the all plugs are fully seated. Any extra length on servo leads can be neatly secured within either the fuselage or the wing. Avoid loose or dangling wires. We recommend the use of a micro antenna such as the Azarr, or the RC Direct Peel & Stick Antenna.

Controls:

Check that all the control surfaces move in the correct direction. For 3D flying adjust the servos and pushrod locations to give at least 45^0 of control surface travel. If you radio has a dual rate function set the low rates to suit your taste. We recommend 25-40% expo to start.

Prior to each day's flying, always perform range check of your equipment in accordance with the manufactures instructions.