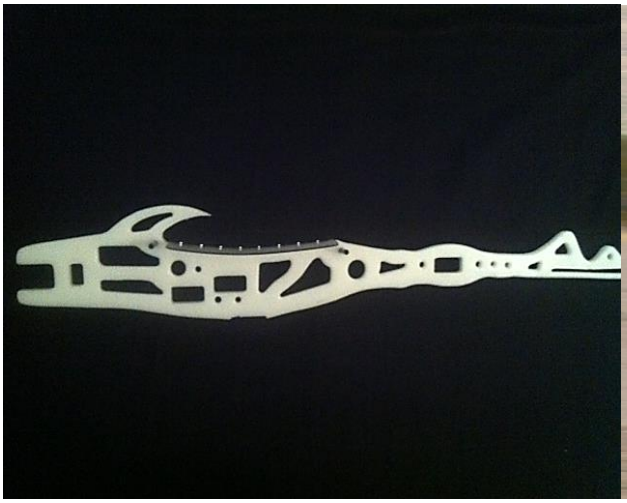
Tuff Skull Trainer

The Tuff Skull trainer is based on the Skull Bandit open B combat aircraft. The Bandit is the combination of the best design elements of Open “B” class radio control combat airplanes in the spring of 2002. The Tuff Skull utilizes the Selig airfoil and a profile fuselage created from High Density Polyethylene (HDPE). The components of the fuselage are CNC routed, and then the finishing touches are hand crafted and inspected. It’s unique, and we think the very attractive shape combines form and function. The fuselage hump over the wing on both the Bandit and the Tuff Skull securely locks the wing into the fuselage. The fuselage is only as thick or wide as is needed to survive rough landings, hanger rash and common training mistakes.

Thank You for your interest in the Tuff Skull aircraft!



The Tuff Skull Trainer is designed around a large high wing and can be flown slow and easy or acrobatically. One of the unique features of the Tuff Skull is that all of the components, servos, fuel tank, connectors, etc., are accessible without taking the wink off.

Our planes have been powered by a variety of engines including OS .40 LA, OS .40 AX .Your plane when finished should weigh approximately 5 lbs. depending on choice of engine, radio, battery, and wing covering material. We have flown the Tuff Skull 20 minutes using a 6 oz. fuel tank and the OS LA .40

Materials included in each kit:

- ☐ HDPE Fuselage with Lexan wing saddle attached with socket head screws
- ☐ Two Hi-Load 40 wing cores pre slotted for wing spars (2)
- ☐ Two 1/8” fiberglass rods for use as wing spars (2)
- ☐ Corrugated Vertical and Horizontal Stabilizer (one each)
- ☐ ¼” dowels for wing hold downs (2)
- ☐ ¼” plastic leading edgeplastic rod or ¼ “ wood dowels
- ☐ 5/16” X 5/16” balsa trailing edge caps (2)
- ☐ Two 3/8” X 1-1/4” X 36” ailerons (2)

Items you will need to complete the Tuff Skull:

1. Wing covering material: ripstop nylon, tapes, or your choice of covering material
2. Five Minute Epoxy, 30-minute epoxy
3. 4-40 X 3/4”socket head cap screws and blind nuts (4) for engine mounting.
4. Bi-Directional packing tape and12” tie wraps to secure fuel tank, servos, battery, and receiver.
5. Six ounce or 8 oz. fuel tank. (Sullivan 6 or 8oz. slant tank).We prefer the hard plastic rather than flexible.
6. .40 to .46 size engine.
7. Four standard servos for elevator and ailerons, rudder and throttle.
8. 4 channel receiver and extensions for ailerons and battery connectors.
9. Foam padding for battery and receiver if desired.
10. 4 2-56 rods with threaded ends and clevises for throttle (1), elevator (1), and ailerons (2). Rudder / nose wheel (2)
11. Nylon control horns for elevator (1), and ailerons (2) and rudder (1)
12. Bamboo skewers (min. 2) to stiffen corrugated plastic stab and elevator to prevent deformation in high-speed turns.

Needed Tools:

1. Phillips screwdriver.
2. 2” chip brushes
3. 4-40, 5-64 Hex drivers.
4. X-Acto knife with extra sharp blades.
5. Various grits of sandpaper. We use 220
6. Electric drill and various bits
7. T-pins to hold the trailing edge to the foam as it dries; to hold spar in place as you glue it and to hold the wing panels in alignment as they dry.
8. 8-12 mini spring clamps

Power tools that make life easier:

1. Drill press.
2. Dremel with sanding drum and cutting bit to enlarge servo holes if necessary.

Now Let's Begin

The Construction process is basically the same for either the Bandit or Tuff Skull in regards to wing construction. Many of the photos are actually photos of a bandit wing being constructed. The construction process is the same for both models, so don't be alarmed.

Wing Construction:

Step 1: Attach balsa trailing edge

Using five-minute epoxy, mix up enough to glue the balsa TE on one wing panel at a time. It's easier to glue the trailing edge on both the wing panels before joining them. Don't ask how we know. We usually pin them in place using T-pins. Put weights on the surface to make sure it remains straight. Remember to clean your work surface so that nuts and bolts don't embed themselves in the lovely foam cores we have provided you.

you will need 5 min epoxy, T-pins, mixing tool

Balsa TE end caps held in place with T-pins

Save the excess balsa end caps that you removed from the trailing edge For the Bandit wing they will be used as shims in the next step of joining the wing panels.
For the tuff Skull wing. Don't worry about shimming the tips.

Figure 1 Save the excess balsa end caps

The supplied TE stock is 36" long but each panel is 32"so when the TE has cured, cut off the excess 5/15 stick and lightly sand the root of each panel before joining. Save the excess segments of the 5/16 balsa sticks you just cut off to use as shims under the wing tips as you join the 2 wing panels.

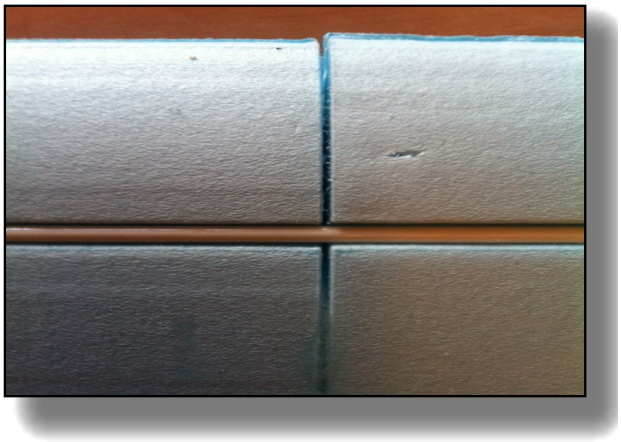
Step 2: Join the wing panels

Once the TE caps are in place and trimmed we will be joining the wing panels using five-minute epoxy. Begin by test fitting the panels together and aligning the rod pockets using one of the supplied fiberglass rods. Use the excess 5/16 balsa stock you saved in the prior step to shim-up the wing tips while test fitting the wing panels together. **Note: This is necessary for the Bandit wing but, not the Tuff Skull wing.** We like to shim for a slight up-curve of the wing so either way works. If you decide to shim the wing, the time to do it before the 1/8" fiber glass rods are glued in.

The gluing process will "lock-in" the wing shape. Be sure to flex the wing tips in the **up** direction!

Now let's proceed!

Shim wing tips and test fit wing cores



Align the rod pockets

Once satisfied with the fit, slather 5 minute epoxy on the root and re-assemble the two panels together.You can use masking tape to hold the foam cores together as they cure or use T-pins to secure them while the epoxy cures

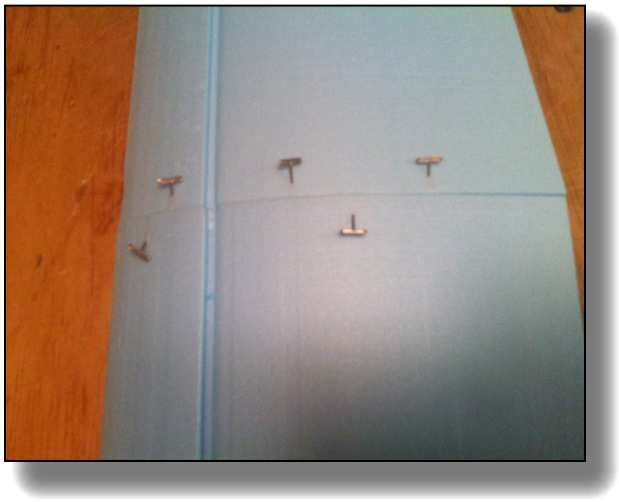


Figure 2 Glue wing halves together

Figure 3 align leading and trailing edges

Be careful and make sure the panels are aligned properly! If you get them twisted in relation to each other you will have built a very elegant high speed corkscrew.

- The Tuff Skull wing is constant cord and has no taper in the wing thickness from root to tip so there is no need to shim the tip of the wing while gluing in the fiber glass rods. For the Bandit wing, yes….shim the tips. We prefer to shim the wing slightly in the upward position giving the wing a slight dihedral effect. Building a straight flat wing works well

too. The shim is only 5/16 thick so it's hardly noticeable, but keeps you from having a "droopy" looking wing….It's your choice.

Step 3: Insert 1/8" fiber glass spars

A 1/8" groove has been cut into the wings, 1- top and 1- bottom to accommodate the two 1/8" fiberglass rods. The wingspan is 64" and the glass rods are 60" so you will have to center them in the grooves – leaving the last two inches of wing slot open. Place the 5/16" shim under each wing tip to make sure the wing stays straight. Use 15-minute epoxy for this step….if you are a fast builder the use 5 min epoxy. We place the rod in the slot and use T-pins to hold it down into the groove. The T-pins are pushed in at an angle and across the fiberglass rod.

Figure 4 add plenty of epoxy to the rod and groove

Figure 5squeegee the epoxy into groove and around rod

Apply 5-minute epoxy over the rod. While it is curing it flows down in the slot around the rod to lock it in place. Use a squeegee (old credit card) to force the epoxy down into the groove. It is sometimes necessary to apply a second application of epoxy to the rod to make sure that it is firmly adhered to the foam. Any excess epoxy is squeegeed onto the wing core the full length of the rod. This also helps the covering material adhere to the foam when you get to that step.

If you are using 5 min epoxy, you will need to work swiftly! The last couple of squeegee strokes should be the full length of the wing with the squeegee formed to the same shape as the air foil.

We usually use a "T"-pin or two to push the 1/8" fiberglass rod all the way down into the groove after the rod and glue are in place. This may cause a little "ooze-out" of the epoxy which in turn may make it necessary to squeegee again in some spots

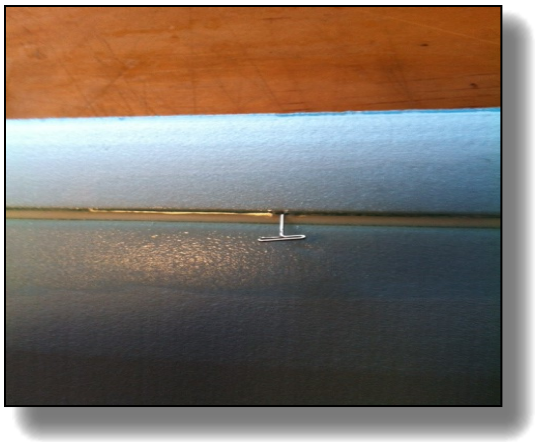


Figure 6 T-pin holding rod in place

Figure 7 Properly installed fiberglass rod!

It's starting to look like a pretty good airplane wing now, isn't it?

Step 4: Insert leading edge plasticrod or dowels

After the wing panels have been joined and the fiberglass rods are glued in place, insert the ¼" polypropylene leading edge rod or dowels into the cut out on the leading edge of the newly joined panels.

Figure 8 Insert Leading Edge plastic rod

Figure 9 Sand Leading Edge foam to fit rod

Once the rod is in place, use 220 grit sandpaper to "blend" the foam with the shape of the ¼" rod. You could apply a spot of shoo goo to a couple of locations to hold it in place, however we just let the rod float in the groove. It will be held in place at the final taping stage.

Step 5: Cover the wing

Now is the time to cover your wing. The wing is covered in two parts, top first then the bottom. Be sure to have everything ready before you start. You will need your rip-stop fabric, polyurethane, a dozen clamps, sharp X-Acto knife, blocks or old tape cores. Lay everything out and think it through before starting. Note that there are several methods that can be used to cover the wing. We have covered with several materials: Rip-stop Nylon, plain Nylon, and polyester fabric packing tape. We prefer rip-stop nylon adhered with water based polyurethane.

Begin by cutting your rip-stop fabric into a rectangle large enough to cover 1/2 of the wing. Either top or bottom, it doesn't matter. Cut your fabric large enough to over-hang the wing cores by 2-3 inches on all 4 sides. On a separate table or work space, lay-out fabric and wet-it out with chip brush and water based poly urethane.

Figure 10 cut fabric to size -1"- 2" larger than foam core

Figure 11Polycrylic Polyurethane

We prefer MINWAX Polycrylic polyurethane (flat finish). Begin by wetting-out first piece of fabric and allow the poly to stand on the fabric while you coat-out the one side of the wing to be covered. Allowing the polyurethane to stand on the fabric will relax the fibers in the fabric making it "stretchy". Once you have an even coat on the foam, lay the fabric over the foam centered in both directions. Ensure you have excess material hanging over all of the edges. Starting at the center, use your hand or brush to smooth out the fabric.

Try and move quickly as the poly will start to cure quickly. You may want to wear latex gloves for this step. Smooth out all of the wrinkles and try to remove all of the air bubbles as well.

Figure 12 Coat-out foam

Figure 13 Coat-out fabric

With the rip-stop fabric stretched out covering the foam, smooth out the fabric by hand removing all of the wrinkles and air bubbles. You may want to use an old credit card to assist in the process.

Figure 14 use old credit card to help smooth-out air bubbles

Figure 15 Move excess urethane to top of wood trailing edge

Once satisfied with the smoothing process, place the wing on a platform to raise it off of the table surface 3-4 inches. We use expired tape roll cores for this. Again, move quickly on each of these steps for best results. With the wing on its platform, attach spring clips or any other type of weights around the perimeter of the fabric to help prevent it from curling and it cures.

Figure 16 place wing on pedestal

Figure 17 add spring clamps to keep skin from curling

The rip-stop will shrink as it cures. Let the wing cure for several hours, overnight or until you are satisfied that it is dry enough to flip it over and repeat the process on the other side.

Once the poly has cured, use a sharp X-Acto knife to trim around the perimeter of the wing. Trim the wing tips even with the foam. Trim the trailing edge even with the balsa TE and trim leading edge even the poly rod.

Figure 18 Trim covering around the perimeter

Figure 19 3M Bi-directional with fibers in 2 directions

Now flip the wing over and repeat the process!

Step 6: Tape the TE and LE

After the wing is covered and the covering has been trimmed. Tape the Leading edge of the wing using 1 strip ofbi-directional tape the full length of the 64” wing. Start by placing the tape on top of the wing so that it will be centered on the LE poly rod. Press in place and smooth the tape around the leading edge to the bottom of the wing. The tape should be smooth, and rounded as it helps maintain the leading edge shape of the airfoil.

Figure 20 Tape leading edge in 2 parts

Figure 21 tape second half of leading edge

Next, cover the trailing edge in the same manner as leading edge. Since the wings are tapered on the trailing edge, tape it using two strips of tape, left then right. Center tape so that it will covers a portion of the top of wing trailing edge.

Since the rip stop nylon fabric has been trimmed, taping the leading and trailing will prevent any lifting of the skin frpm the foam.

You can experiment with other covering materials or sheet the wing with balsa sheeting and cover with Monokote iron on covering.or tape covering. Many have used the Bi-directional tape as a covering.

Fold the tape down the trailing edge onto the bottom of wing. You may find it easy to center the tape strip on the trailing edge then fold it over towards top and then bottom of wing. The idea is to “seal” the trailing edge with tape to prevent the covering from being peeled away from the foam.

Step 7: Attach ailerons

After the wing is covered and the leading edge and trailing edges are taped it is time to attach your ailerons.

Trim your Ailerons to 30 ½”. You may want to cut a small taper at the root for cosmetic appearance,be sure that your ailerons will clear the rear wing hold-down dowels.

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Figure 22 Mark ailerons at 30"


Figure 23 Trim to desired angle

Once your aileron is cut to the desired shape, use one strip of bi-directional tape to cover half of the aileron top and bottom. This strip of tape covers the trailing edge of the top of the aileron that folds over to the bottom side of the aileron the full length.

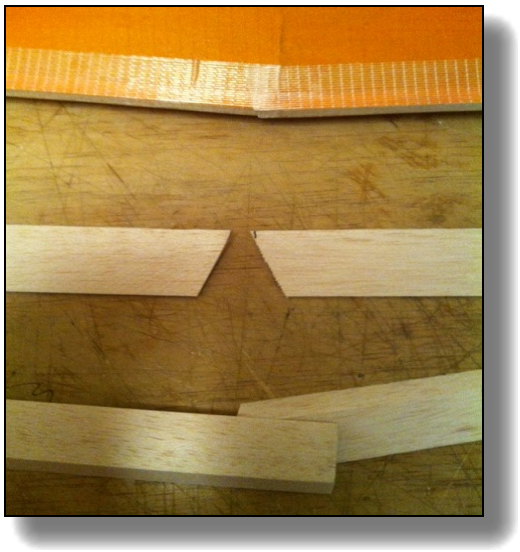

Figure 24 top view of trimmed ailerons

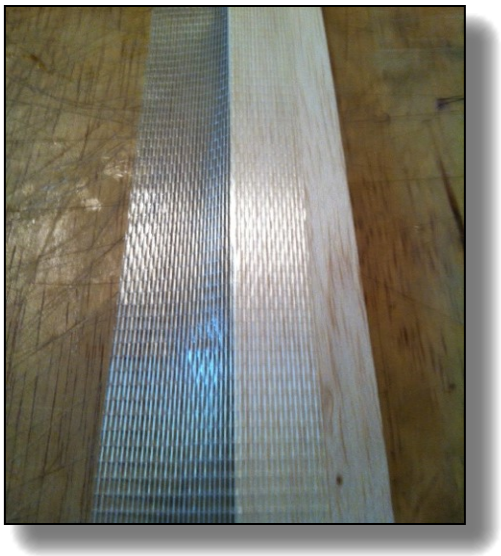

Figure 25 Cover trailing edge of aileron top and bottom

A second strip of bi-directional tape is cut the length of the aileron and over lapped on top of the first layer of tape. Approximately ½ of the tape will over-hang the aileron and this will be attached to the wing. Attach the aileron to the wing in a "fully flexed" down position. The aileron is now taped to the wing.

Figure 26 attach bi-directional tape - over lap first layer

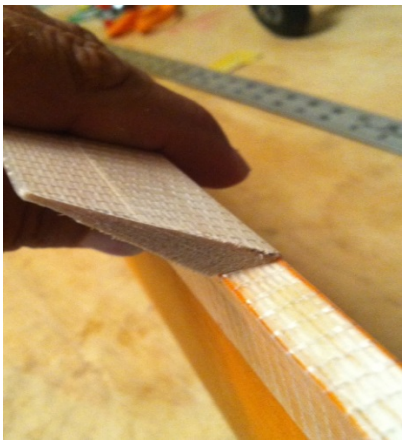

Figure 27 attach to trailing edge in deflected position

Next, fold the aileron back onto the top of the wing exposing the hinge line and "adhesive" side of the upper hinge tape. Center a 3rd strip of tape along the hinge line then smooth it down the bottom of the aileron followed by the wing bottom.

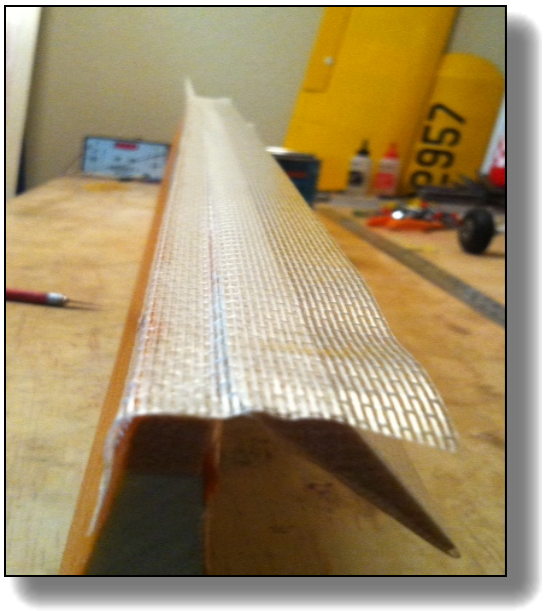

Figure 28 center tape on hinge line on bottom of wing

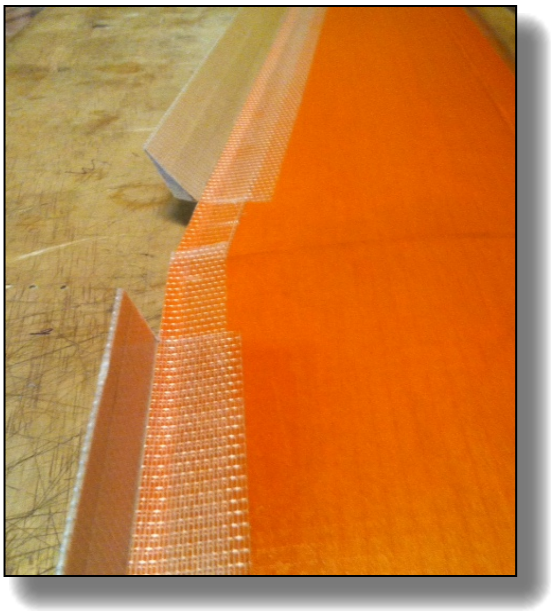

Figure 29 Both ailerons attached

This creates a “gap-less” hinge line and attaches the aileron to the wing its full length. Repeat the process for the second aileron.

Step 8: Install wing saddle and wing dowels

If the wing saddle and dowels are not already installed, install them at this time. The dowels simply insert into the ¼ in holes forward and aft of the wing saddle. The Lexan wing saddle is mounted using the socket head mounting screws evenly spaced down the center.

Figure 30 Fuselage with wing saddle attached

Figure 31 Wing Dowels in place

Step 9: Mount engine

Mount the engine directly to the fuselage in the cut out provided. You may need to enlarge the opening for your particular engine. Since we do not know which size or brand of engine you are using, we came up with a general, one size fits all opening. We suggest you mark the fuselage with a fine tip sharpie before starting. We use a dermal tool with a 1/8" milling bit for this procedure. The plastic cuts easily. You could also use a band saw, a hand saw or any unique tool you may have on hand that can do the job. Drill the mounting holes into the plastic to accept 4-40 blind nuts and mount the engine using 4-40 X ¾" socket head screws (not provided) . Note: the engine head should be on the right side if the fuselage with the muffler down.

Figure 32 Mark for your engine size

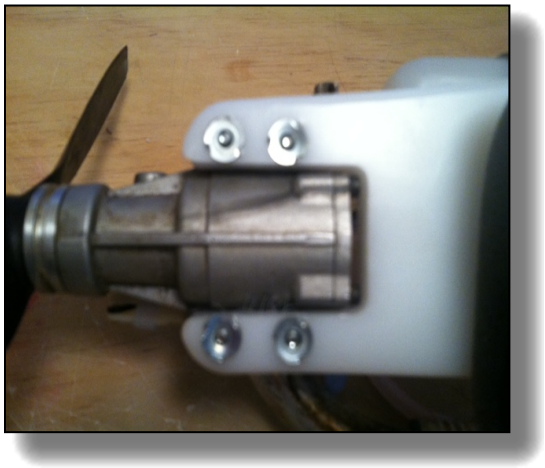

Figure 33 Mount engine with 4-40 x 3/4 inch socket head cap screws

Step 10: Attach the vertical and horizontal stabilizers

Attach the tail feathers to the fuselage.

The elevator hinge line is created by removing one side of the flutes between the corrugation side walls. The elevator hinge is established using the fuselage as a reference.

Your fuselage comes with the holes pre drilled and the screws started in the HDPE. To begin, cut-in the hinge and test fit the horizontal stabilizer before mounting to the fuselage. With the horizontal stabilizer fully inserted, mark the flute that you wish to cut away in order to create the living hinge. Let the open flute of the hinge be on the bottom surface of the Horizontal stabilized. It can be on either side of the Vertical fin.

The hinge should fall just AFT of the end of the fuselage. With the hinge cut in, install 2 bamboo skewers into the flutes of the corrugate plastic to stiffen and make the stabilizer more rigid. We install one skewer in the elevator and one in the horizontal stabilizer. Now you can install the horizontal stabilizer. Install your stab/elevator first then put in the rudder. The stabilizer is held in place with 4 provided socket head screws. The holes have been pre-drilled on the bottom of the fuselage.

Tighten the screws to a snug fit but be careful not to over tighten the screws or you will strip the threads from the holes. The vertical fin is attached in the same manner as the stabilizer. Insert a bamboo skewer into the vertical fin to stiffen it as well. Slide the fin into the slot and use the provided socket head screws to attach fin to fuse….again, do not over tighten.

The Vertical fin could also be installed using 4-40 cap screws and blind nuts as seen in the figure 32 below.

We insert bamboo skewers into the flutes of the corrugated fins to stiffen them making the more rigid. See figure 33 below.

Figure 34 Vertical fin installed using 4-40 blind nuts and cap screws

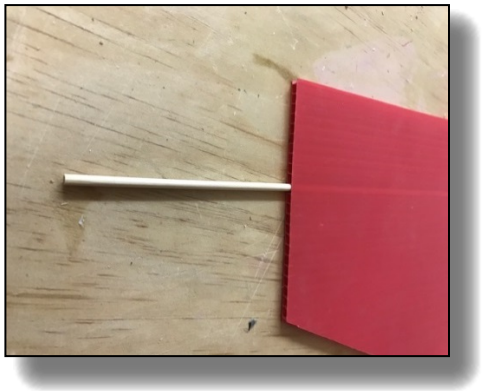

Figure 35 bamboo skewers inserted into flutes to stiffen up stabilizer

Figure 36 Horizontal stabilizer mounting screws on the bottom of fuselage

Figure 37Vertical fin mounting screws

Step 11: Install nose wheel

The nose wheel is installed with the steering arm mounted in the cut-out on the forward portion of the fuselage. The first step is to drill a 5/32 hole into the bottom of the fuselage to accept the nose wheel wire. Be sure to center the hole in both directions. The HDPE serves as a great bushing for the wire. The nose gear is held in place using two 5/32 wheel collars. The steering arm should be protruding out on the left side of the aircraft on the same side and the rudder / steering servo

Figure 38 Drill 5/32 hole for landing gear wire

Figure 39 wire should go into upper portion of cut out

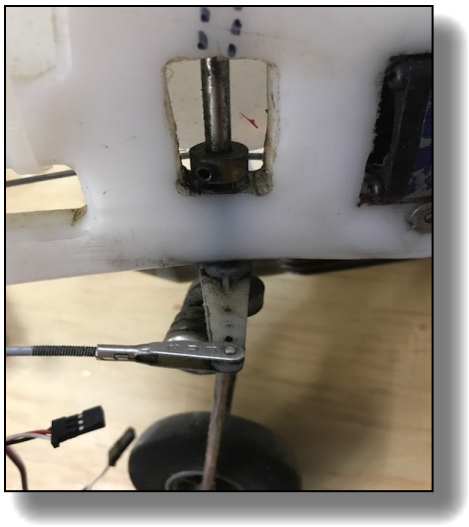

Figure 40 wheel collars and steering arm in place

Figure 41 Completed Linkage

Step 12: Install servos and linkages

Aileron servo

Check fit aileron servo with wing in saddle. Be sure to place the wing into the wing saddle to establish servo location. Place the servo mounting location behind the handle above the wing. We have created a “H” template that fits the particular brand of servo being used.

Figure 42 place wing into saddle to be sure to clear handle

Figure 43Figure 33 create template and mark location

Mark the servo location with an ink pen or fine tipped sharpie. Cut along the outline and peel away the fabric covering wing skin exposing the foam below. Once the skin is removed, use your #11 X-Acto knife the cut deep into the foam out lining the cavity location of the servo case. We usually cut the full depth that the 311 blade will go.

Figure 44 Trim and remove skin covering

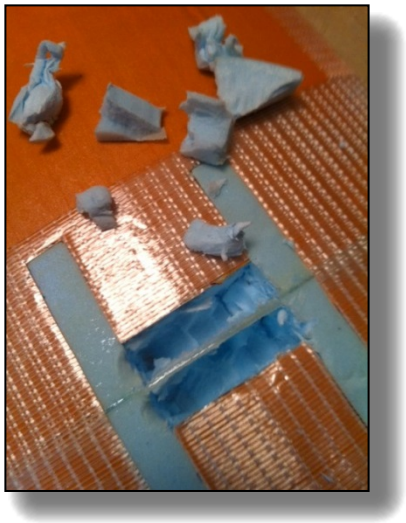

Figure 45 Remove foam from servo cavity

Next, remove the foam from the servo cavity in chunks using a flat blade screw driver. We take it all the way down to the lower skin. Tests fit your servo and make any modifications needed to allow the servo to fit into the cavity. Once satisfied with the fit, cut along the servo rail out line with your X-Acto knife. Cut to the depth of your mounting rail thickness and remove the foam using the same flat blade screw driver. Glue in your servo mounting rails using 5 minute epoxy and mount the servo using servo mounting screws.

Figure 46 relive foam to accept servo mounting rails

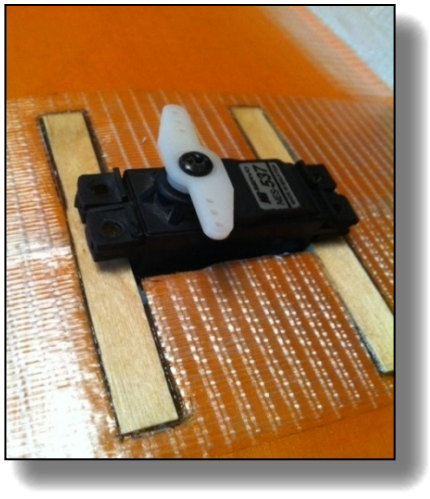

Figure 47 Mount servo

Elevator servo

The elevator servo cut-out is the furthest aft opening in the fuselage. Again, you may need to open the cut-out slightly to obtain a good fit for your particular brand of servo. The servo should be mounted with the servo arm on the right side of the fuselage. The servo arm should be mounted vertically and facing upward. The arm should be pulling forward when achieving up elevator.

Figure 48 Elevator servo mounted with servo arm up

Figure 49 Elevator linkage installed

Rudder / nose wheel steering servo

The Rudder / nose wheel steering servo is located directly below the center of the wing saddle. The servo should be mounted with the servo on the left side of the fuselage. The servo arm should be two sided and should be centered with the servo arm vertical. The top servo arm will operate the rudder and the lower servo arm should operate the nose wheel steering arm.

We simply use small tie-wraps to hold the pushrod assembly (Ni-rod) in place along the aft end of the fuselage. Don't over tighten or the rod will bind inside the sleeve and it will not move freely

The nose wheel linkage is just a 2-56 wire with a small clevis attached. You may need to shape and bend it slightly to achieve a good alignment.

Feel free to try your own ideas regarding the rudder / nose wheel linkage!

Figure 50 Rudder / steering servo mounted

Figure 51Rudder push rod mounted

Throttle servo

The throttle servo should be mounted so that the servo arm is on the right side of the fuselage with the servo arm pointing downward. We usually bend the 2-56 threaded push rod so that it allows a little more clearance for the fuel tank or battery.

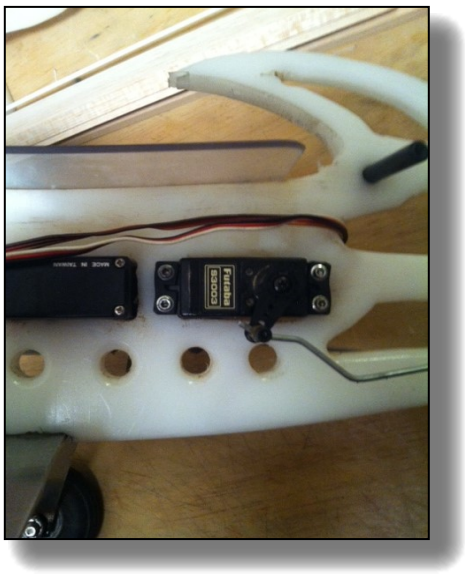

Figure 52 Throttle push rod at servo

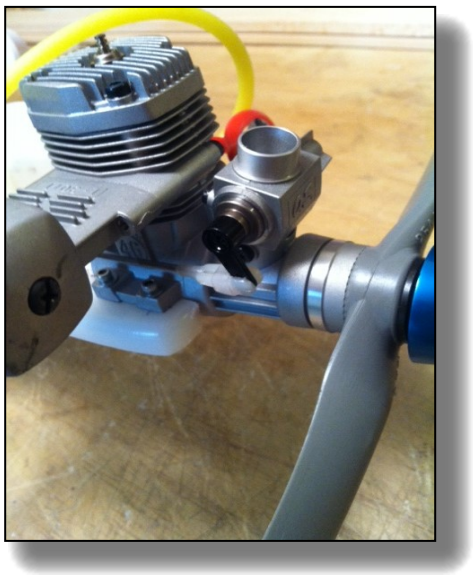

Figure 53 throttle push rod at throttle lever

Step 13: Install control surface linkages

Aileron servo linkage

The aileron servo linkage consists of Z bends and clevises installed on 2-56 threaded rod. Install aileron control horns onto the balsa ailerons. With control horns installed, thread the clevises onto the threaded rods and install the clevises onto the control horns. Insure that the servo is centered and the servo arm is parallel to the leading edge. Mark the location of the Z bends using the outer holes in the servos. Make the Z bends and then install the aileron linkages

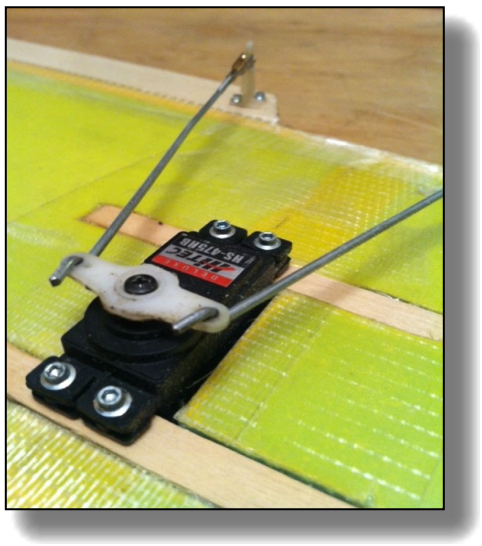

Figure 54 aileron linkage with Z bends

Figure 55 linkages connected to control horns

Elevator servo linkage

Install the elevator control horn in the moving portion of the horizontal stabilizer. We have found that you need to stiffen the tail or it will deflect in the air causing great reduction in control authority. Insert bamboo skewers available from your local grocery into a flute near the hinge line on both the fixed portion and moving portion of the stab.

Due to horizontal stabilizers width you may need to use two skewers to strengthen the entire span. Shove the pointed end into the Coro flute. This works better than pushing the pointed end into your hand. Wick a little thin CA into the flute with the skewer inserted. When CA has cured, cut off the skewers flush with the stabilizer edge. We use cutter pliers or an X-Acto knife.

Figure 56 Elevator linkage

Figure 57 elevator control horn close up

Rudder / steering linkage

The Rudder / steering linkage uses the same servo with the rudder clevis on top and the steering clevis on the lower arm. The rudder linkage is made using a common plastic nylon rod set up. The outer portion of the nylon rod is attached to the fuselage in several locations using small tie wraps. The control horn is connected directly to the rudder.

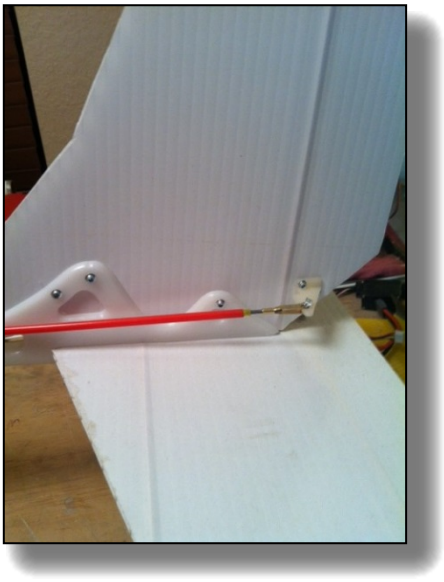

Figure 58 Rudder linkage, notice skewers in place

Figure 59 Rudder Control horn and clevis

Throttle linkage

Step 14: Install fuel tank and battery

Install tank and battery at the locations on the nose just behind the engine. The tank and battery are attached using several tie wraps. We have used6 oz. tanks and 8 oz. tanks. We have even used combination of 8 oz. and 4 oz. tanks together. The tanks are constructed in a conventional 2-line set-up.

Figure 60 6 Oz. tank mounted behind engine

Figure 61 8 Oz. tank on opposite side of fuselage

The battery is mounted on the opposite side of the fuselage from where the tank is mounted. It is also strapped to the fuselage using tie wraps. Be sure to route the connector towards the receiver or switch mounting location.

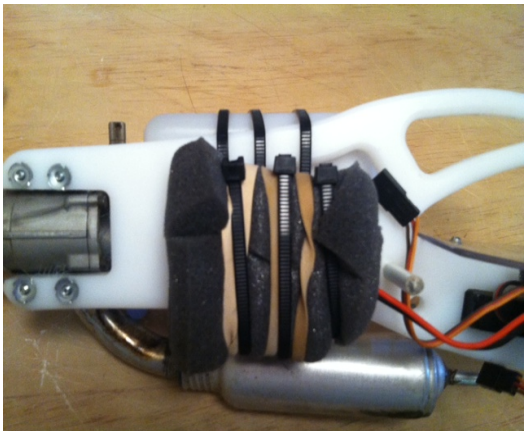

Figure 62 Battery mounted to fuselage

Figure 63 battery mounted opposite side of the fuel tank

Step 15: Install receiver

The hardest part of equipment installation is getting a neat wiring job. You will have wire going all over, which made us consider naming the plane Medusa instead of Tuff Skull, but then we got to thinking…. what Southern Red Neck would know anything about Greek Mythology so we just stuck with Tuff Skull and worked out how to get our wiring neat using small tie wraps and or Velcro. We normally put our receiver under the wing saddle against the fuselage on the side opposite the engine exhaust. We wrap our receiver in foam and then drill holes in the Lexan wing saddle that we can run tie wraps through then around our foam wrapped receiver. Others have made receiver "cases" out of scrap foam. These are basically boxes that the receiver goes into that are then secured with tie wraps.

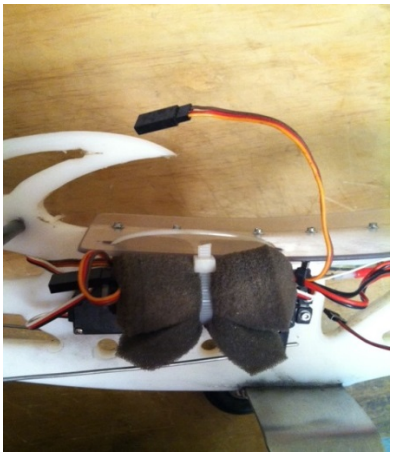

Figure 64 install receiver under the wing saddle

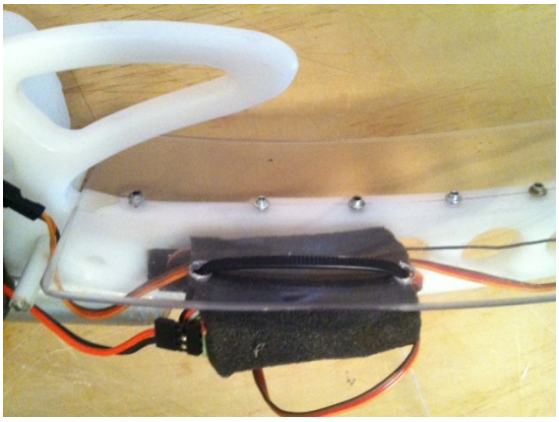

Figure 65 receiver mounted

Step 16: Install switch

The switch can be installed in several places on the fuselage the two most common places that the switch is mounted are the wing saddle and the aluminum main landing gear bracket. The switch naturally needs to be in close proximity to the battery connector and receiver. We simply drill a couple of small holes in the saddle and mount the switch using small gauge tie wraps.

Figure 66 Switch mount on Lexan wing saddle

Figure 67 Switch mount on Lexan saddle, top view

The switch is mounted to the landing gear hardware in a similar fashion if this is the location you choose. Feel free to mount the switch is either location or another location of you choosing.

Step 17: Balance aircraft - CG

Balance the plane just behind the fiber glass spar on the bottom of the wing. The CG is between 2-5/8” to 2 -3/4”.

The recommended starting control surface throws are: Elevator 3/8” up and down; Aileron – about ½” up and down. These settings are flexible and can be experimented with. Rudder ½” left and right.

Before experimenting with the control surface throws. Fly the aircraft to establish trim settings. Too much control surface travel can be a hand full for inexperienced pilots.

If you do not already have experience flying RC aircraft or do not know how to fly, Get an experienced RC pilot to help with the set-up and flying of the aircraft. Use a buddy box and get lessons and training.

Note: This aircraft is not a toy! The performance of the aircraft greatly depends on straight and true construction, the correct installation of the servos and components and the proper set up of the control surfaces.

Use a good radio system, ground check your model, perform range check. As with any model aircraft or flying model follow safety rules and do not fly over or around people.

It is recommended that you fly your aircraft at a designated RC flying site and follow AMA rules pertaining to RC aircraft safety and operation.

If you are unsure about anything…..GET Qualified HELP!

By building and flying this model, you assume responsibility and liability. As a kit manufacturer we provide quality parts and instructions, but ultimately the quality and fly-ability of your finished model depends on you, the builder. No guarantees are expressed or implied as to the performance and the safety of the completed model.

If you need further help or instruction, don't hesitate to call or contact us through the web page at www.screamingeaglerc.com

We think you will enjoy flying the Tuff Skull! Be sure to check out or videos on the web site.

Thank you again for your choice and have A Great Time flying!