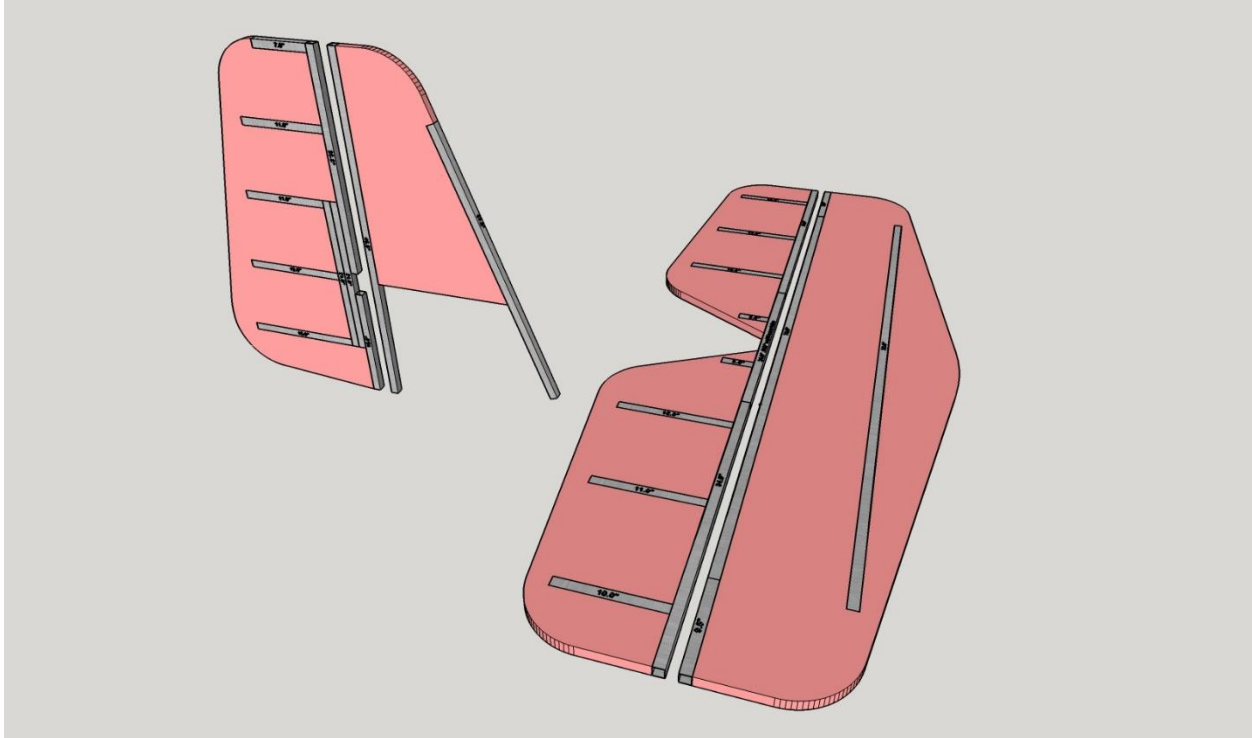


Belite Chipper SS (Single Seat)

Tail Feather Assembly Procedure revised April 27, 2019

By James Wiebe



*1: View of Tail Feathers for Chipper SS*

Hey, this is going to be fun. The tail feathers are easy to build, let's get going!

## Assembly steps:

- Verify Tail Feather sub-kit inventory using the updated Bill Of Materials supplied with your kit.
- Review and understand all instructions before proceeding.
- Lengths of all tubes are determined by the callouts in the CAD, drawings and this build manual. You need to cut to length from the raw material provided. Use a bandsaw or a hacksaw.
- Surface preparation on all metal: use acetone, then sand with 120 grit paper, then clean again with acetone. Gorilla glue will bond tenaciously with metal as long as you do surface preparation correctly. We won't say this again in this manual, you must do it.

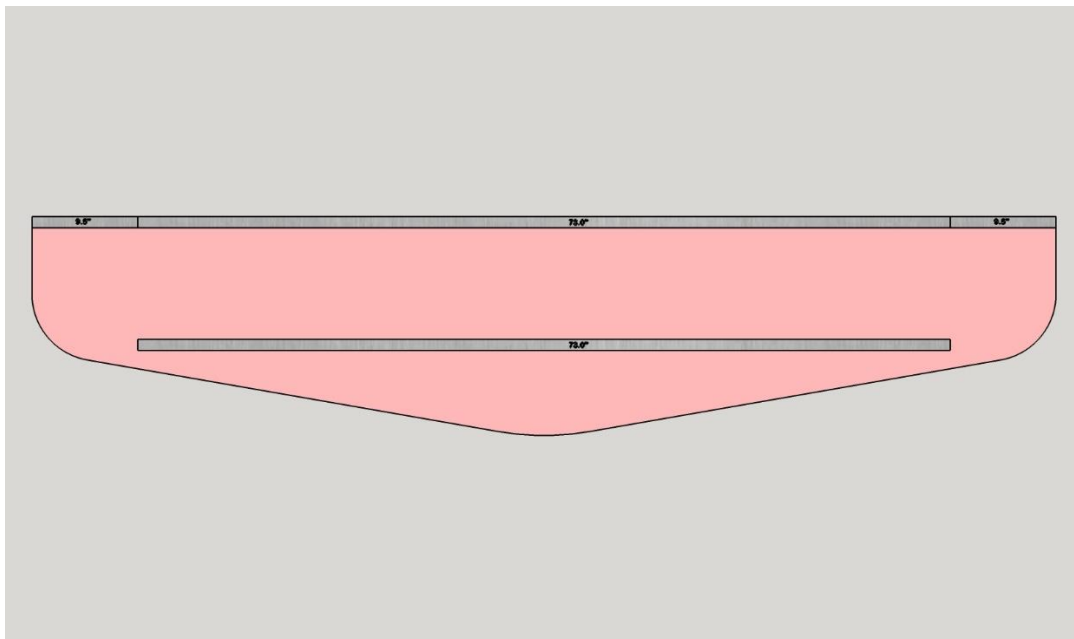
Each piece of 1" foam included in the tail feather kit is cut with CNC equipment to the exact required shape. Your job is to cut the required tubes to length, then glue them in with Gorilla glue. Some areas get a reinforcing layer of fiberglass.

The leading and trailing edges are rounded off with a router, then also covered with fiberglass.

Optional steps include adding more fiberglass for an even tougher surface finish.

Gorilla glue can be very messy, as it expands out of glue joints and sticks to everything. One trick we've learned is to 'outline' the slot with blue masking tape prior to gluing. Then when the glue oozes out, you can just peel the tape off and preserve the foam from getting glue all over the surfaces.

Let's start by doing the horizontal stabilizer.

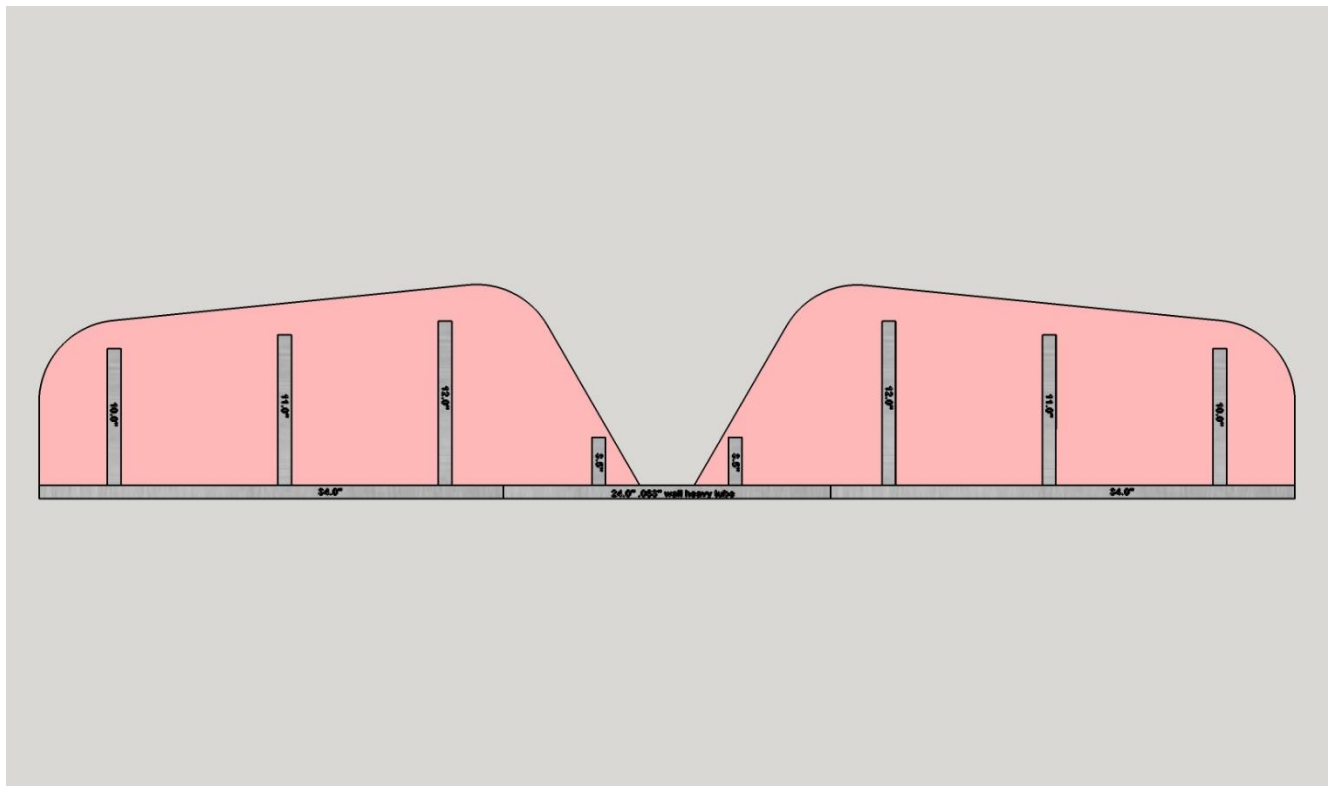


2: Horizontal surface

- Cut two pieces of tubing to 9.5". You'll also need two, full length pieces of 73".
- Make sure the foam is prepared by removing excess foam and lightly sanding as needed. You may also need to square the corners of the internal slot.
- Put a covering down on your work surface to prevent glue from bonding to the work surface. We use plastic release film.
- Put in blue tape on the top and bottom of the tail feathers.
- Use a bead of gorilla glue on foam edges. Don't use too much!!! Use water mist to activate.
- Insert your surface-prepped tubes. Use masking tape or clamps to secure the end tube.
- Allow to set.
- Remove masking tape and remove excess glue.

Set aside for more work later.

Now we'll move on to the elevator.



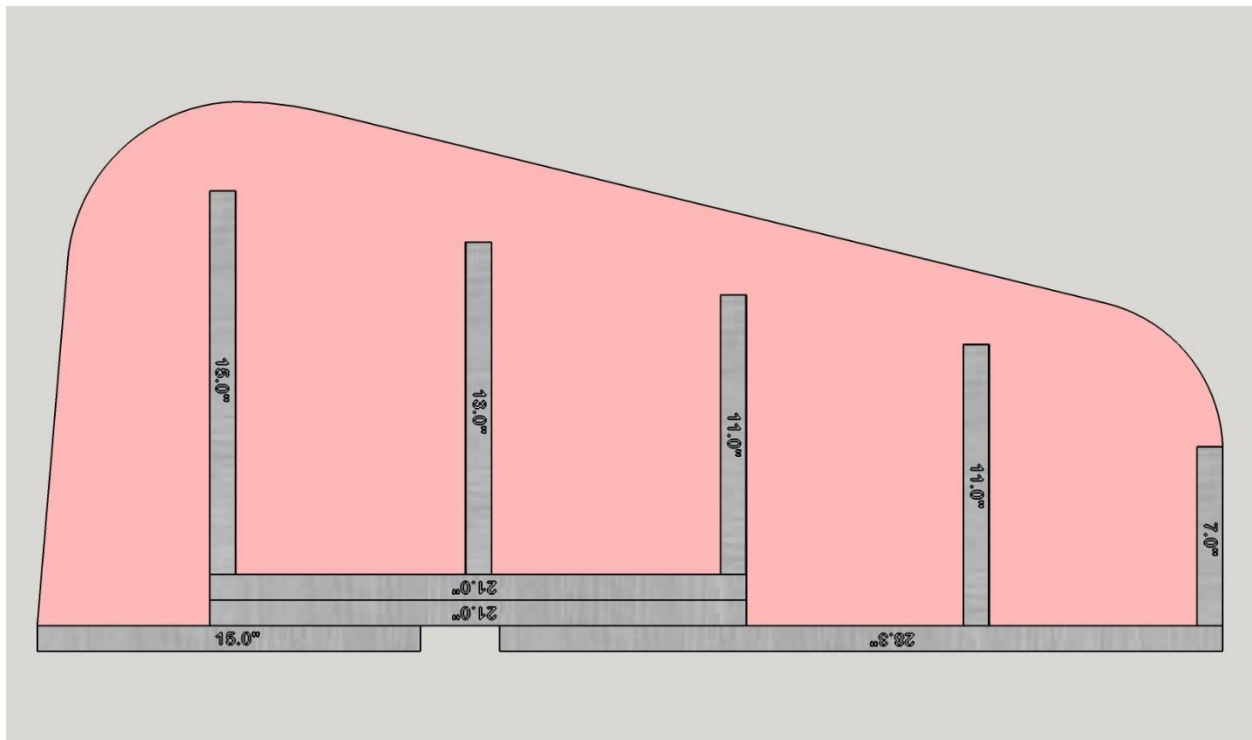
3: Elevator for Chipper SS

- Cut pieces of thinwall tubing to 10", 11", 12", 3.5", 34". You'll also need one piece of thickwall aluminum tubing of 24" length.

- Make sure the foam is prepared by removing excess foam and lightly sanding as needed. You may also need to square the corners of the internal slot.
- Put a covering down on your work surface to prevent glue from bonding to the work surface. We use plastic release film.
- Put in blue tape on the top and bottom of the tail feathers.
- Use a bead of gorilla glue on foam edges. Don't use too much!!! Use water mist to activate. TIP: You don't have to do it all at once. Start with a single tube to verify glue technique.
- Insert your surface-prepped tubes. Use masking tape or clamps to secure the end tube.
- Allow to set.
- Remove masking tape and remove excess glue.

Set aside for more work later.

Now we'll move on the rudder.

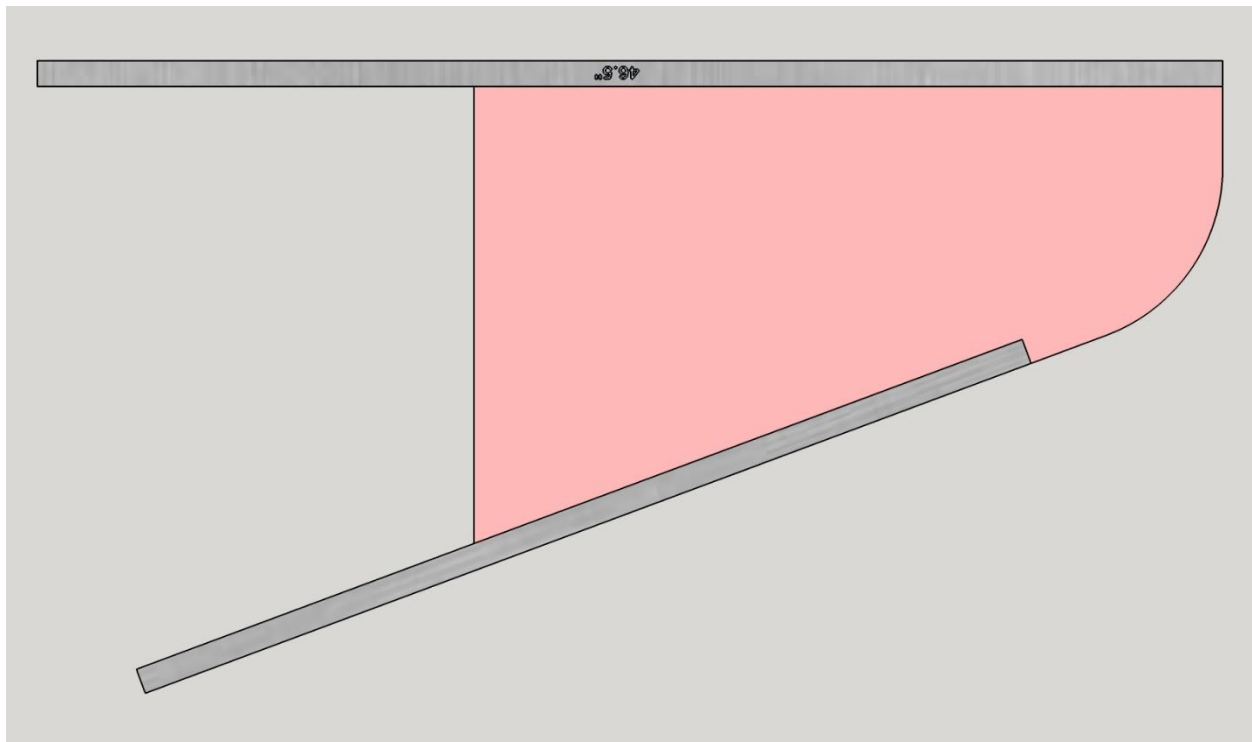


4: Rudder for Chipper SS

- Cut pieces of thinwall tubing to 7", 11", 13", 15", 21" and 28.5".

- Make sure the foam is prepared by removing excess foam and lightly sanding as needed. You may also need to square the corners of the internal slot.
- Put a covering down on your work surface to prevent glue from bonding to the work surface. We use plastic release film.
- Put in blue tape on the top and bottom of the tail feathers.
- Use a bead of gorilla glue on foam edges and on metal faces which touch each other. Don't use too much!!! Use water mist to activate.  
TIP: You don't have to do it all at once.
- Insert your surface-prepped tubes. Use masking tape or clamps to secure the end tube.
- Allow to set.
- Remove masking tape and remove excess glue.

Set aside for more work later.



*5: Forward cabin area thinwall aluminum tubing.*

- Cut pieces of thinwall tubing to 46.5" and 37.0".
- Make sure the foam is prepared by removing excess foam and lightly sanding as needed.
- Put a covering down on your work surface to prevent glue from bonding to the work surface. We use plastic release film.



## TAIL FEATHER ASSEMBLY PROCEDURE

- Put in blue tape on the top and bottom of the tail feathers.
- Use a bead of gorilla glue on foam edges. Don't use too much!!! Use water mist to activate.  
TIP: You don't have to do it all at once.
- Insert your surface-prepped tubes. Use masking tape or clamps to secure.
- Allow to set.

Set aside for more work later.

Now, let's round the edges using a router. I recommend using a regular quarter-round router bit and practice on scrap foam. Remember, you have to round it twice, once from each side. This can make it tough. Consider using a smaller rounding radius and finishing with a sanding block.

- Round the horizontal stabilizer edges.
- Round the rudder.
- Round the elevator.
- Round the tip of the vertical stabilizer.

Congrats! Your tail feathers are now complete and ready for the finishing kit, which will include fiberglassing, hinging, attachment and so forth.