

How to Build the Swallow



First of all, I'd like to be clear that I am **NOT** an experienced kite maker. And my kites show it. They aren't aesthetically pleasing when you get up close to them. The glue can be seen and the tape doesn't exactly have clean cuts. Maybe some time in the future they'll be more "cleanly" built. But, I'll tell you this... they certainly fly beautifully.

When building the Swallow, there are only five main steps as I see it:

- A. Cut out the pieces
- B. Do the initial reinforcement
- C. Put in the spars and battens
- D. Do the final reinforcement
- E. Bridle the kite

With the exception of possibly one or two items, all items, materials, and supplies are readily available to anyone from a nearby discount or home improvement store. I'll mention where I got mine, and how much it cost. There are surely other options, and the ones I mention are just convenient to me.

First, you need a working space. Mine is a card table set up in a spare bedroom with a piece of 2'x2' masonite to protect the card table (\$1.37 at Home Depot).

Below are the materials and supplies. Although I'll mention where I got them, I'm not endorsing any particular company.

Materials Needed

- **Skin** – 18"x18" piece of mylar wrapping paper (roll from Dollar Store - \$1.00. I also bought a larger roll from Target for \$3.99)
- **Spine** – 1/8" dowel (48" long for \$.38 at Lowe's)
- **Battens** – bamboo skewer (package of 100 from grocery store – about \$1.50)
- **Bow** – .05" carbon fiber rod (48" piece from kitebuilder.com for \$2.40)
- **Bridle** – waxed dental floss (\$.87 from Wal-Mart)

Supplies Needed

- Self-stick photo corners (box of 250 for \$2.44 from Wal-Mart)
- 2" clear package sealing tape (We already had this)
- 3/4" Transparent tape (not Magic Mending Tape) – (\$.77 at Wal-Mart)
- Contact cement (\$2.67 from Wal-Mart)

- Methyl Ethyl Ketone – optional for thinning the contact cement (\$6.98 at Lowe's)
- Cosmetic wedge for spreading the contact cement – optional for spreading the contact cement (Pkg of 32 from Wal-Mart for \$1.78)
- Blue low-tack masking tape (\$1.12 from Wal-Mart)
- CA glue (super glue) (nothing special; I had this already)

Other Items

- Large (15 ½ x 21 ½) cardboard box from USPS for a template
- 24" steel ruler (\$6.00 from AC Moore)
- X-Acto knife (I already had this from years ago)
- Modified wire stripper for cutting the carbon fiber rod (about \$4.00 off Ebay)
- Cross-stitch needle for making the bridle (my wife had one of these)
- Silver fine-point marking pen (I already had this)
- Emery board (swiped one from my wife)

Take the Swallow template that is on www.fighterkitecentral.com and, using Adobe Acrobat, print it full size. This causes the pattern to be printed on several pieces of paper for a kite approximately 17" nose-to-tail by 22 ½" wingtip-to-wingtip. Cut out the pattern, cutting away the join lines, carefully arrange the pieces, tape them together, and glue them down with double-stick tape, spray adhesive, or glue on a 15 ½" x 21 ½" USPS Priority Mail box to make a firm pattern.

A. Cut out the Pieces

1. Using a very sharp X-Acto knife, cut the pattern out of the mylar wrapping paper in one smooth cut to make the kite skin. If you stop while cutting the skin, you most likely will have a rough spot that will probably be the beginning of a tear later on (yes, I am the voice of experience).
2. Cut a 24" piece of .05 carbon fiber rod for the bow using the modified wire stripper. If you don't have a wire stripper to cut, you can use a utility knife or fine-blade saw. Use the emery board to smooth the rough edges after cutting
3. Cut a 15 ½" piece of 1/8" dowel for the spine. Using a knife, make a blunt point at one end, allowing one side of the point to be flat so the spine can lay flat on the skin.
4. Clip a little off the end of the point of one of the skewers. Cut it 8" long for battens keeping the point on one end of the 8". Split it evenly down the middle so you have two equal, half-diameter battens.

B. Do the Initial Reinforcement

1. On the front (yes, only the front) of the kite (facing the flyer), put a 2" x 2" square of package sealing tape for crash reinforcement.

2. On the backside of the kite only (side where the spars go) put a strip of 6 ½” transparent tape about ½” wide to give reinforcement for the leading edge (it’ll hang over the edge about ¼”). Cut off the excess flush with the kite skin.
3. Put self-stick photo corners on nose of the kite, wingtips, and two tail points. Burnish (press down smooth) the corners, nose reinforcement and leading edge reinforcement.

C. Put in the Spars and Battens

1. Tape the kite, front side down, on leading and trailing edges in a couple of places with low-tack masking tape to hold it.
2. Thin a small amount of the contact cement a little with the Methyl Ethyl Ketone (if desired). Using the point of one of the cosmetic wedges, put a narrow coat of syrupy contact cement along the crease in the skin. Put a coat of contact cement on one side of the spine. Carefully put the pointed end of the spine into the photo corner in the nose. While holding the kite, carefully walk the spine down to the skin, making sure it’s aligned over the crease. Hold it firmly for a moment.
3. Split a 12” skewer down the middle. Cut off the sharp end so it’s a little blunt. Cut to a length of 8” for the battens. Mark a point the length of the battens from the two tail points to 1 ½” from center spine. This is to align the battens. Mark a line from the points of the tails to these marks.
4. With the cosmetic wedge, dab syrupy contact cement on the batten line. Do the same for the battens. Put the point of the battens into the photo corners on the two tails. Carefully walk the battens down to the kite skin, winding up at the marks 1 ½” from the centerline. Hold firmly for a moment.
5. Mark the spine at 3 ½” from split tail center. This is for lower bridle point.
6. Put the 24 ” carbon fiber bow into the two wingtips, rotating to its “soft” position.
7. Mark on the bow, with the silver marker, a mark 1 ½” each side of the spine. This is for the upper bridle connection.
8. Let the contact cement dry before doing anything else.

D. Do the final reinforcement

1. Place one 3 ¾” strip of ¾” tape along the curved part of the leading edge starting with the wingtip. Let it hang over the edge about ¼”. Then place another 3 ¾” strip the same way slightly overlapping the first one, ending up near the end of the curved part of the leading edge. Do the same for the other side. Cut the excess off, cutting up next to the skin.
2. Place ¾” x ¾” pieces of Scotch tape at each end of the battens (over the photo corners and at the end toward the leading edge).

3. Wrap 1 ½” pieces of Scotch tape around the bottom end of the wingtip (both sides) so you have ¾” on each side of the kite. Wrap 1 ½” pieces of Scotch tape around the leading edge where the curved part stops, before you get to the straight part of the leading edge (both sides).
4. Wrap a 1 ½” piece of Scotch tape over the blunt nose of the kite (¾” will be on each side of the kite).
5. Place a ¾” x ¾” piece of Scotch tape under each mark where the upper bridle connection will be.
6. Place a 1 ½” piece of ¾” tape at the point marked on the spine for the lower bridle point to reinforce the skin. Also place a 1 ½” piece of tape across the trailing end of the spine.
7. Take this opportunity to burnish all the tape very well. What that means is, press the tape firmly in place, possibly with some blunt instrument so no edges will come up later during flight.

E. Bridle the kite

1. Cut a piece of waxed dental floss about 12” long. Thread the needle; pass it through the skin front-to-back at one of the marks on the bow. After passing the bridle material around the bow, thread it back through the same hole to the front and tie with two overhand knots. Pass the other end of the bridle material through the skin front-to-back at the other mark on the bow. Pass the bridle material around the bow and thread it back through the same hole. Before tying a knot, make sure the loop formed falls short of the nose of the kite. Tie two overhand knots and cut off the excess material on both ends of the loop.
2. Cut a piece of waxed dental floss about 24-25” long and make a loop 2”-3” long at the end. Hook it on the short loop with a Lark’s Head knot and pull it tight. Thread the loose end through the needle, pass it through the skin, front-to-back at the lower bridle marked point, pass it around the spine, and back through the other side of the spine. Check to see that this long part of the bridle is narrower than the wingtip. Tie a knot at the lower bridle attachment point and cut off the excess.
3. Cut a piece of waxed dental floss about 6” long, make a loop with it, and Lark’s Head it on the lower bridle line (this is the tow line). Put a drop of CA glue on each of the three places on the back where the bridle crosses a spar and on each of the three knots on the front. Let the glue dry.
4. Holding the kite by the tow line, adjust it so the nose is about an inch or so above the table when the tail is touching the table. This will be a good starting point for tuning when you take the kite out.

One more thing that you’ll need is flying line and a spool. Although there are several places to get these, I got my spool and Panda 8 flying line from www.one-world-trading.com/. The “gator style yo-yo” spool was \$2.50 and the line was \$5.50 (plus shipping, of course).

That's it!!! You're ready to head to the field for tuning and flying!!!

**. . . Doug L'Hommedieu
(CLTKiter)**



Tools used to make the Swallow.



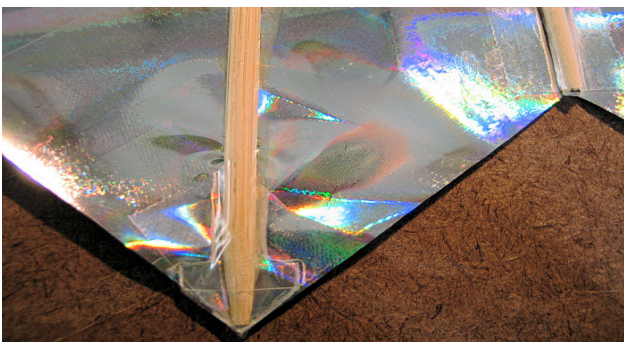
Materials used to make the Swallow



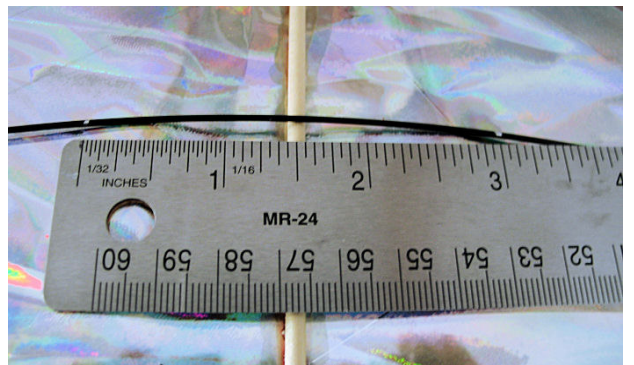
Tape reinforcement along nose leading edge.



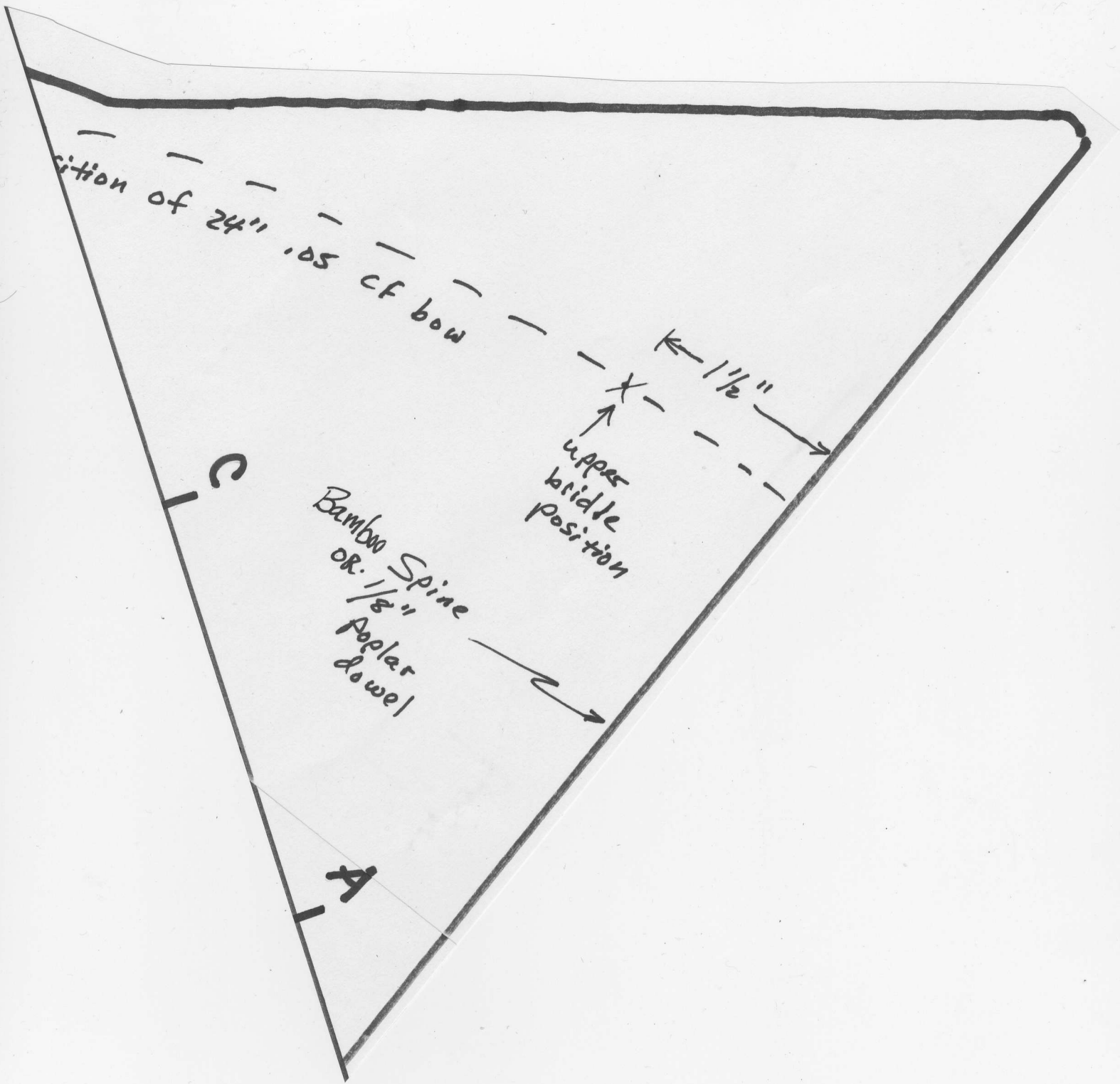
. Bow taped to skin, photo corners at wingtips.

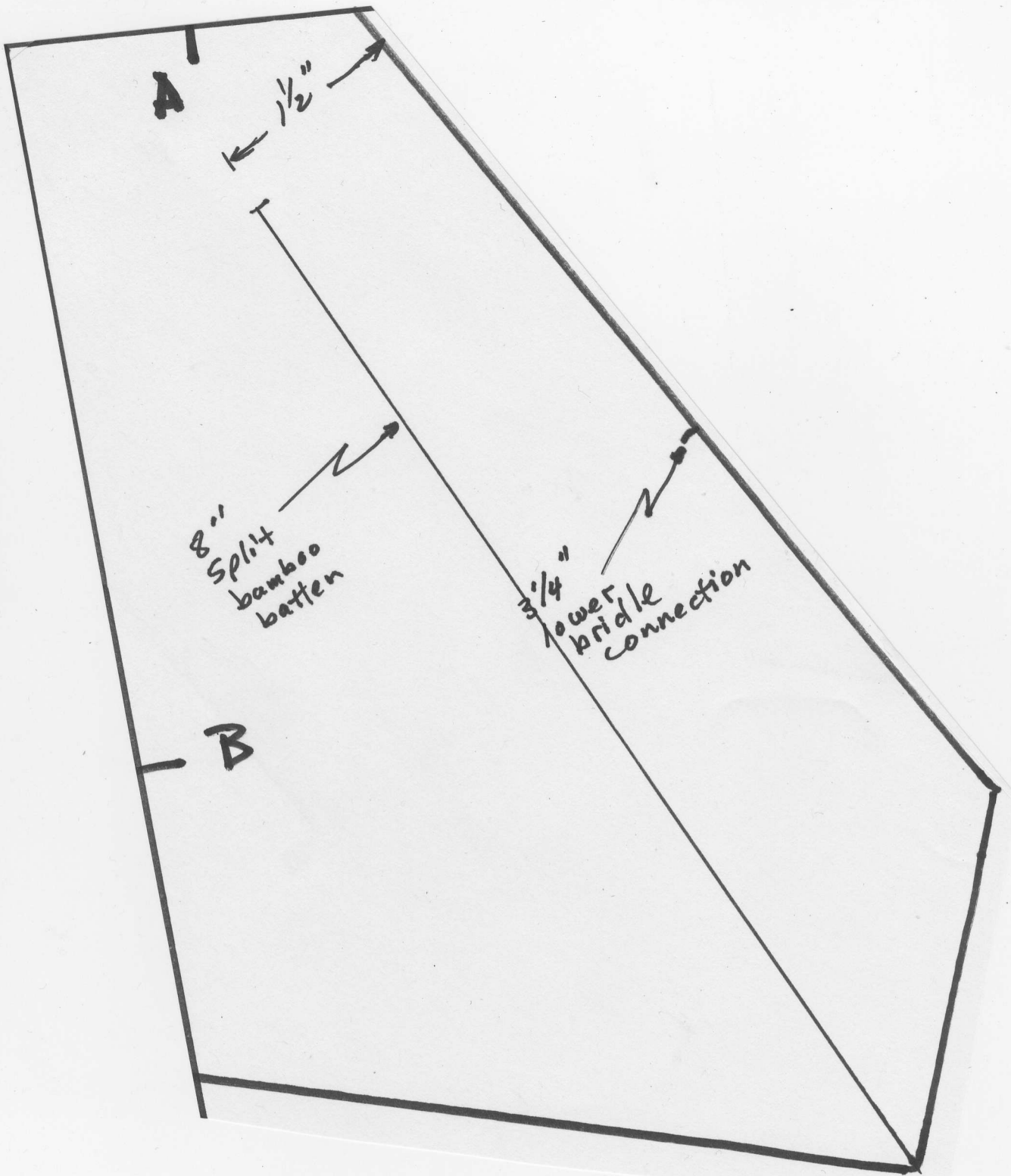


One of the bamboo battens and the end of spine.



Location of upper bridle connection points.





Approx Po

SWALLOW

Doug L'Hommédieu
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