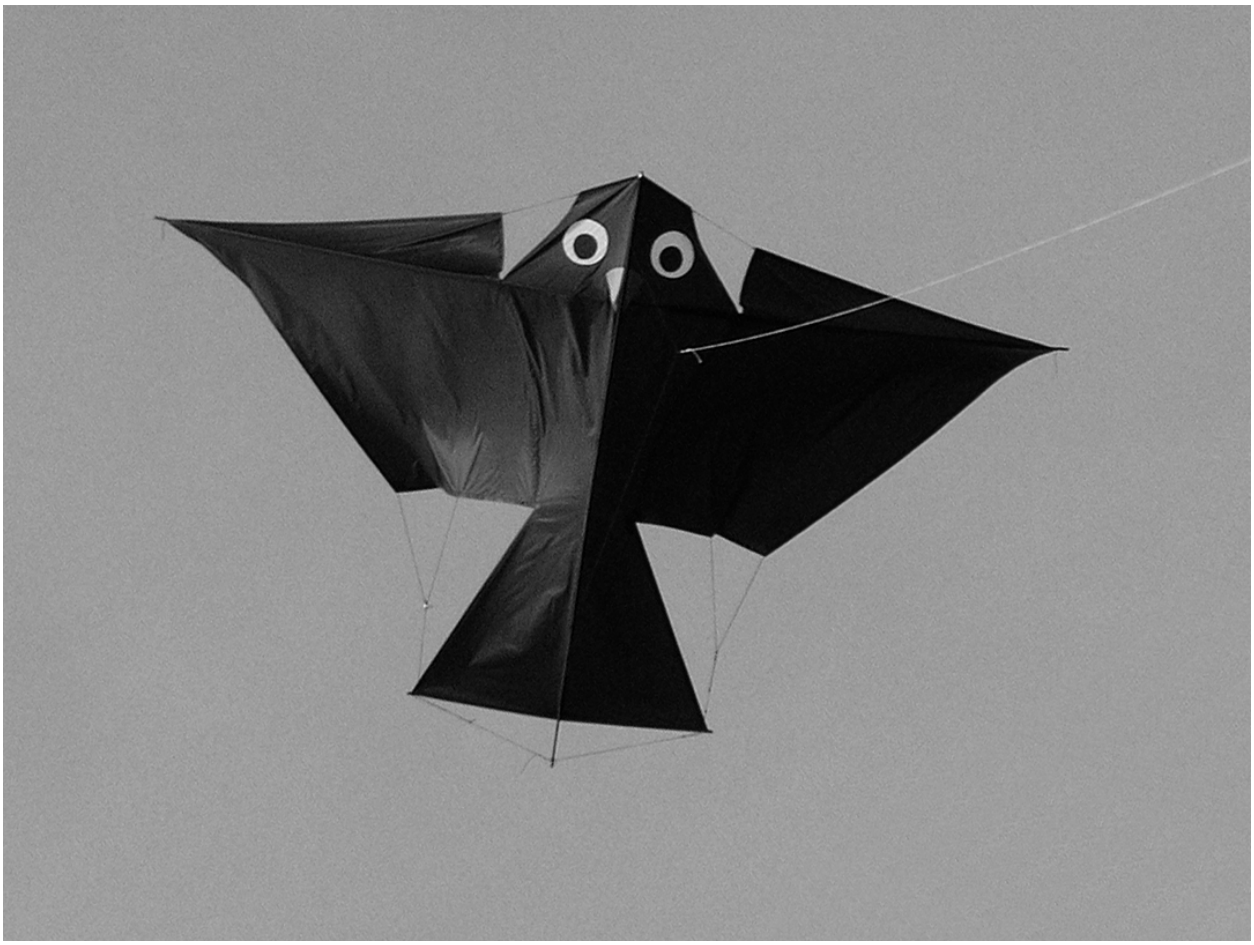


Arno Haft's Vogeldrachen
(Bird Kite)

31 March 2007
www.2kiters.com

The Arno Haft Bird Kite

Arno Haft's bird kite is from the 1950's. The original kite was made from cotton canvas and wood spars. Herr Haft lived in Hamburg, Germany. He flew many of the classic kites such as the Rolo Plan. One of his specialties was line climbers used for aerial photography. Your bird will be made from our modern-day materials of ripstop nylon and composite rods. Fly your kite in moderate wind with 80 to 100 pound test line.

Please note: Metric measurements have generally been used in this manual. In some cases the English measurements are used when that is how the item is supplied in the USA.

Supply list:

2 yards of 60 inches wide 3/4 ounce ripstop nylon (2.5 yards of 54 inch wide or 2 yards cut on the cross grain). Metric requirements: 1.8-2.3 meters
Small amount of black, white and yellow ripstop nylon for eyes and beak (optional)
60 cm of 3 inch wide 3.9 ounce Dacron for reinforcements
60 cm of 1 inch wide black 3/4 ounce ripstop edge binding, split in half lengthwise
9.5 meters of 1 inch wide black 3/4 ripstop edge binding
10 meters of 80 pound test line. It will be cut into the following lengths, see instructions:
- spine line and loop (30 cm and 6.5 cm respectively.)
- 2 wing tip lines (60 cm total. Divide in half.)
- 2 lower wing loops (122 cm total. Divide in half.)
- 4 tiny upper wing and head loops (26 cm. Divide in fourths.)
- 2 small tail loops (13 cm total. Divide in half.)
- rigging lines between tail / wing and between spine / outer tail tips (2 meters total. Do not divide until reading instructions.)
- bridle (5.5 meters or remainder of 80# test line.)

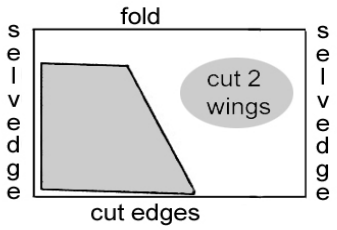
112 cm of 30 pound test line. It will be cut into the following lengths, see instructions:
- Line for rigging between head and wing (1 meter total. Divide in half.)
- Line for cheater line on one tail loop. (12 cm.)

2 Dihedrals (4" and 2.5" of aluminum tubing, formed to a 150 degree angle.)
(3) small solid aluminum rings (1/4 inch)
(2) hooks size 3
(3) Graphite .2200 / 5.6 mm x 48" rods plus 27 cm of a 4th rod. Purchase (4) rods total.
(4) Stubby Nock - .2200"
(1) Aluminum ferrel # 2200
(1) Graphite .1800 / 4.6 mm x 29.5" rod
(2) Stubby Nock - .1960"

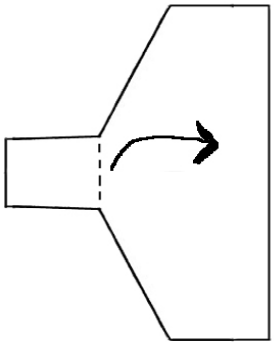
Other materials: high quality black thread, thread matching the bird's color, thin Super Glue, narrow double sided tape, Scotch tape, beeswax, black permanent pen such as a Sharpie, pencil or chalk pencil.

Note: Please read instructions carefully, paying close attention to indicated **front** and **back**.

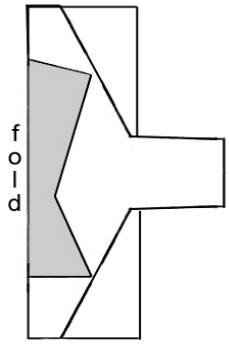
Cutting and marking:



NOT TO SCALE



Unfold, refold to fit body.



Cut one body on fold

60 inch wide fabric:
Fold fabric in half with cut edges together and the selveges even. Position wing template close to the cut edges end, NOT THE FOLD. Cut the wings. Refold remaining fabric lengthwise. Position body template on the fold. Cut one body piece on the fold.
54 inch wide fabric: cut on the cross grain. Cut body on the fold and wings separately.

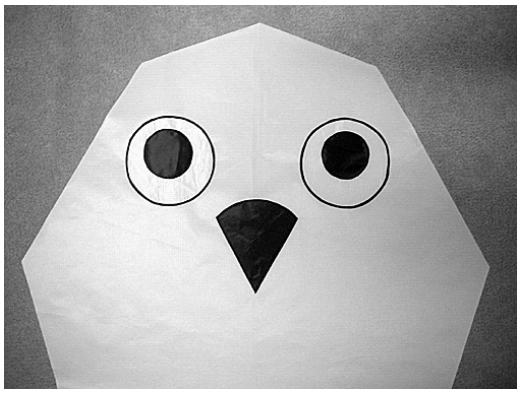
Mark wings: mark the spreader rod line and the position for the line and reinforcement on the lower wing edge.
Mark body: Mark the spreader rod line at the spine. Mark position for optional eyes and beak.

Cut 2 strips for the wing spreader sleeves: each 96.5 cm x 4.5 cm. Cut 1 spine sleeve: 133 cm x 4.5 cm. 1 tail spreader sleeve: 8 cm x 2.8 cm. *English: 2 wing spreader sleeves each 38 inches long x 1 3/4 inches wide each. 1 spine sleeve: 52 1/4 inches long x 1 3/4 inches wide. Cut 1 strip of black ripstop for the tail spreader rod sleeve: 3 inches long x 1 1/8" wide.*

Cut, then heat seal all reinforcements from 3.9 ounce Dacron. See reinforcement diagram. Fine tune as necessary before sewing in place.

Sewing procedures:

Optional Appliqué Appliqué the black pupils onto the white eye pieces. Do not back cut. Scotch tape in place on the body. Use black thread and zig zag stitch the outer edge of the eye onto the body. Trim excess black fabric. Back cut, leaving the white under the pupil. Appliqué the beak using white to back the yellow fabric. I do not back cut the beak unless necessary. This is a stress point on the kite and back cutting will weaken this area. Black may also be used for the beak color. Set aside.



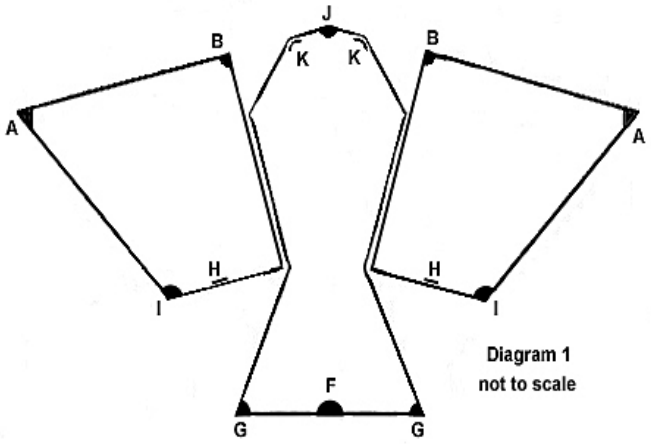
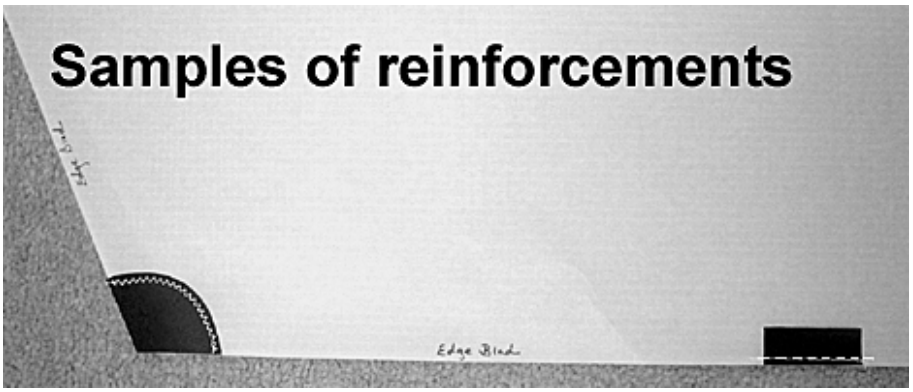


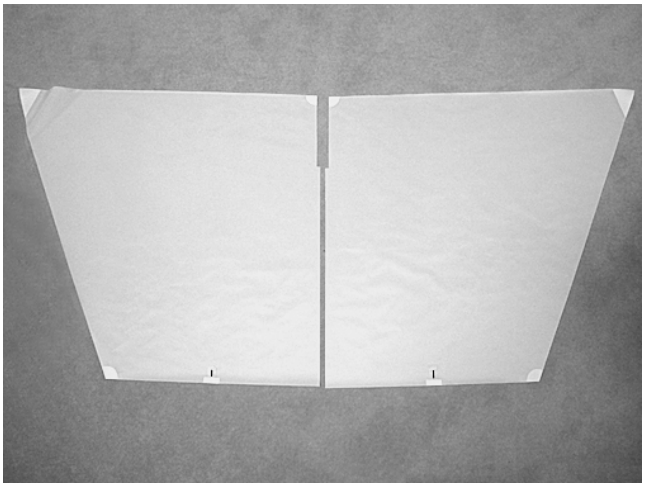
Diagram 1
not to scale

Reinforcements Use matching thread. Sew the reinforcements onto the back of the kite skin. Use a Zig zag stitch. Look at the samples, pictures, and Diagram1 for correct placement and the side to sew. Reinforcements C and E will be sewn in place *after* the wings and body are sewn together.

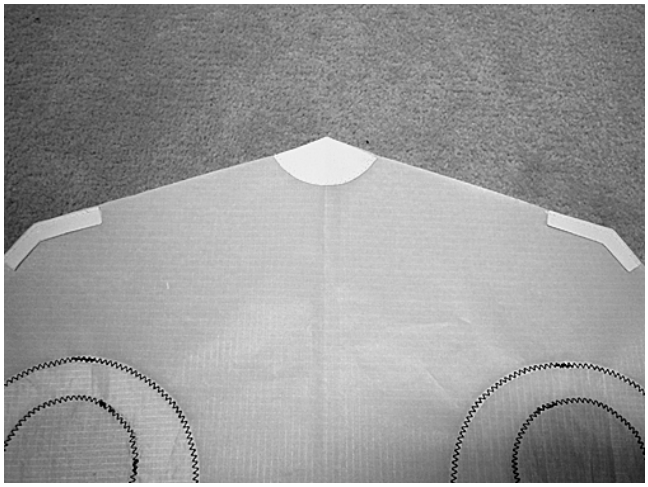
Part 1. (of 4 Parts) Wings: Sew A, B, and I onto the wings. Make a right and a left wing. Sew H on the wings. The center of H is 10.5 inches / 26.6cm from the inner edge. Straight stitch the outer edge. It will be covered with the edge binding and the top edge will be sewn as you edge bind. It is helpful later if you position a piece of tape with a mark on it, pointing to the center of H.



Note: Sewing all edges is not necessary.



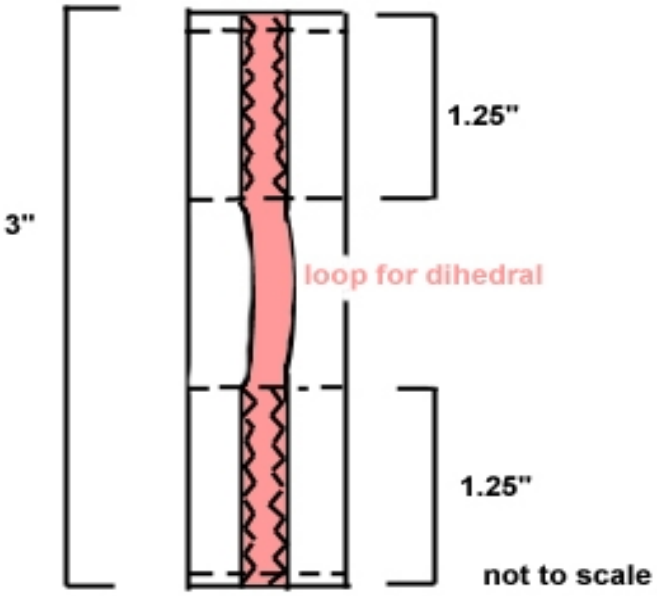
Reinforcements A, B, I, and H



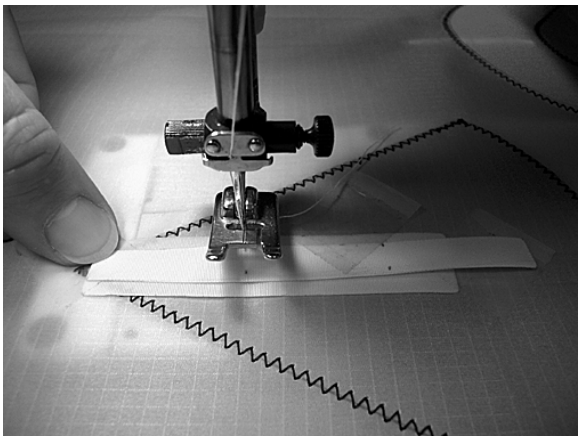
Reinforcements J and K

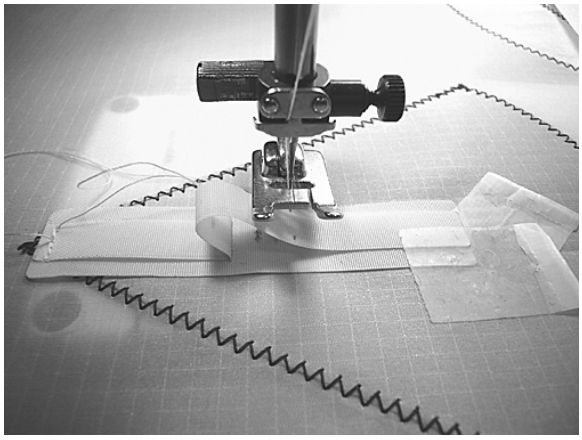
Part 2. Body: Position and sew on G, F, J, K. These use the same methods as for the wing.

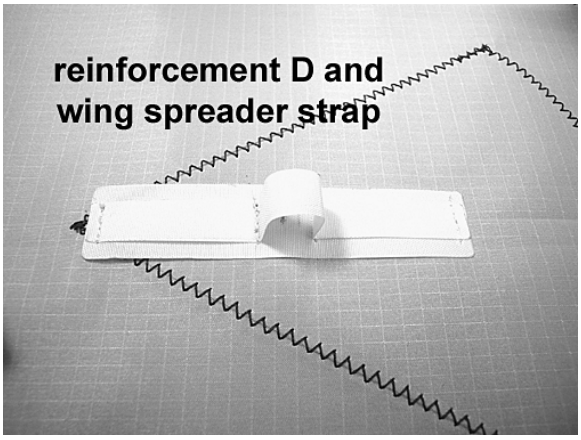
Part 3. Reinforcement D: This is the 3" x 5/8" or 7.75 x 15 cm piece of Dacron. Center it on the back of the body where the spine and spreader cross. Don't sew it. Tape it in place. Place the dihedral strap (1/4" x 3.5" or .6 x 9 cm) so that it is centered horizontally on the taped D piece. The ends are even top and bottom, forming a loop in the center. Sew with a straight stitch across the ends and where the loop starts. Zig zag on the strap. See drawing. Later, when you are putting the spine sleeve in place, you will catch the outer edges of piece D. (Note: The dihedral will slide into the strap but will not stay in place.) Diagram 8 on page 10 shows the strap's location.

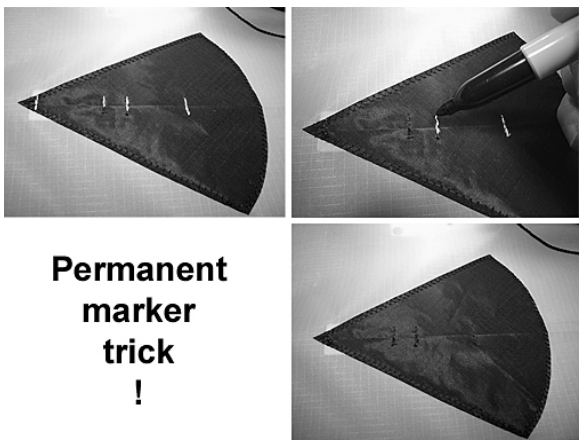


Reinforcement D









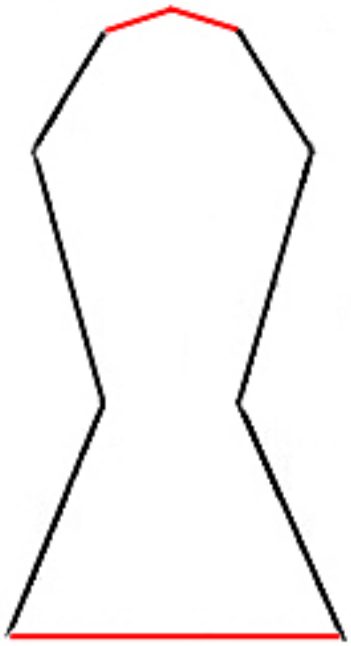
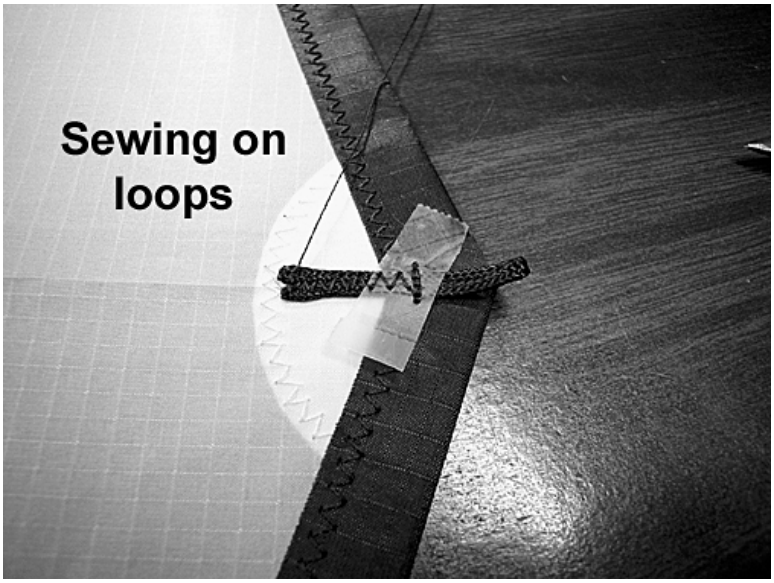


Diagram 2

Edge binding part 1 of 2 parts: Body: Fold the edge binding in half, position body inside the binding at the fold. Use a narrow zig zag stitch with black thread. Stitch close to the edge. Edge bind the head and the tail as shown in diagram 2 and the photo below.

(Head) Spine loop 80# test line. Position the 6.5 cm spine loop on top of the reinforcement on the **FRONT** of the kite. Stitch in place securely. See Diagram 3. (1)



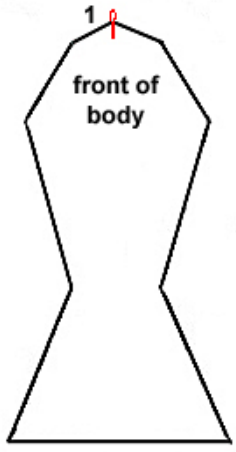
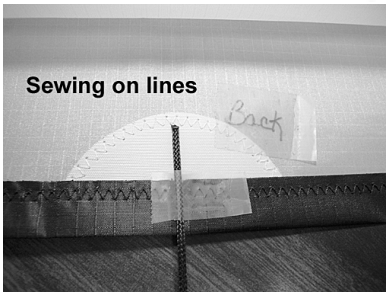


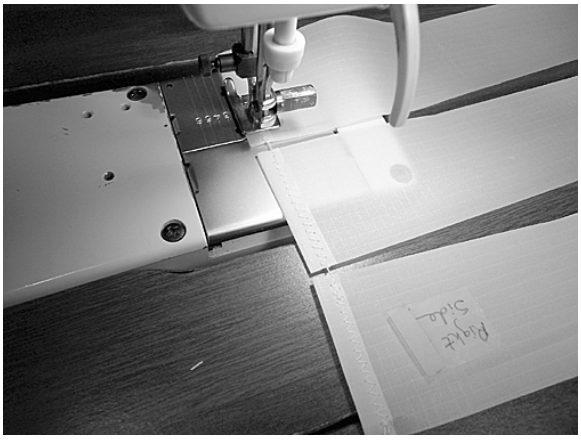
Diagram 3

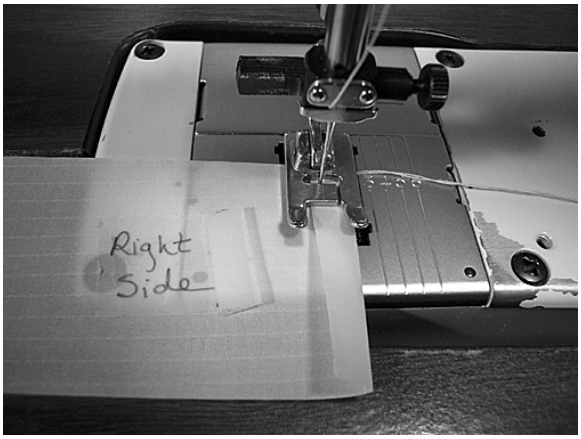


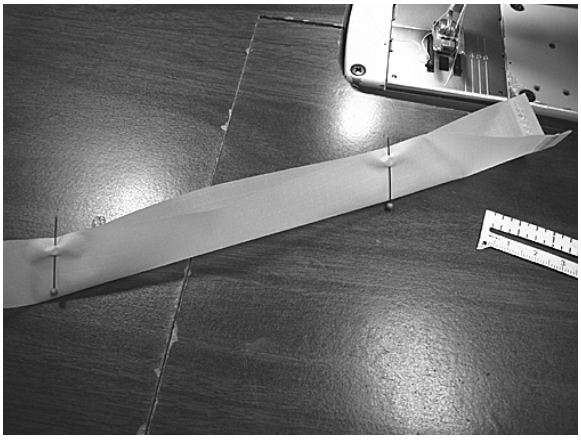
(Tail) Spine line 80# test line. Position the 30 cm spine line on top of the reinforcement on the

BACK of the kite. Stitch in place securely. See Diagram 8 on page 10 (A)

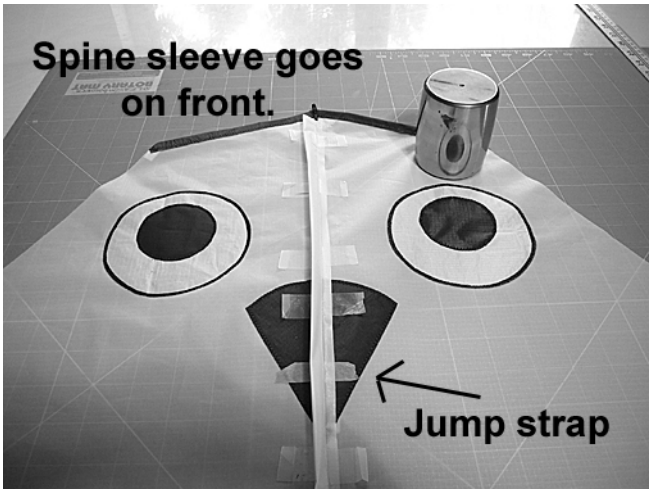
Construct the wing spreader and spine sleeves This sleeving method is quite different from most methods used today. It is the method Herr Haft used. Start by folding the ends to the right side and sewing in place. Then fold all three sleeves in half lengthwise, wrong sides together. Do not make a hard crease. Straight stitch 14 mm (scant 5/8" inch) from the fold. I suggest you pin the sleeves before sewing to keep the fabric from creeping lengthwise. Make all three sleeves. Set aside the 2 shorter (wing spreader) sleeves.



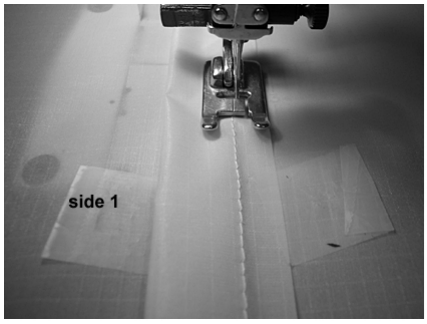


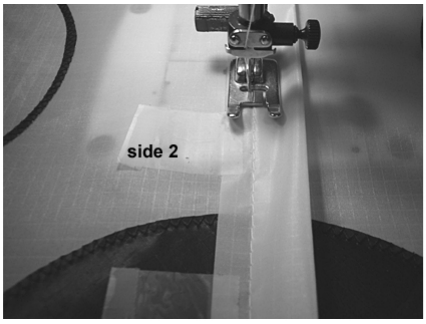


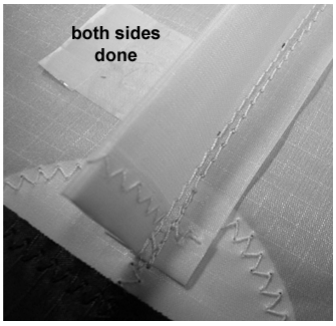
Attach spine sleeve to the body Fold the body in half and crease. On the right side of the body, draw a pencil line at intervals on the crease to make sleeve placement easier. Also mark the position of the dihedral loop, which is on the back. Open out the seam allowances on the sleeve. Position the seam of the sleeve on the pencil line. You are putting the spine sleeve on the **FRONT** of the body. Use tape tabs and secure the sleeve on each seam allowance. Push the sleeve to one side and

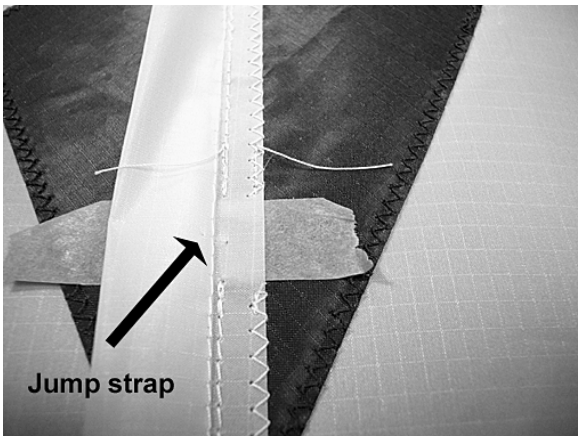


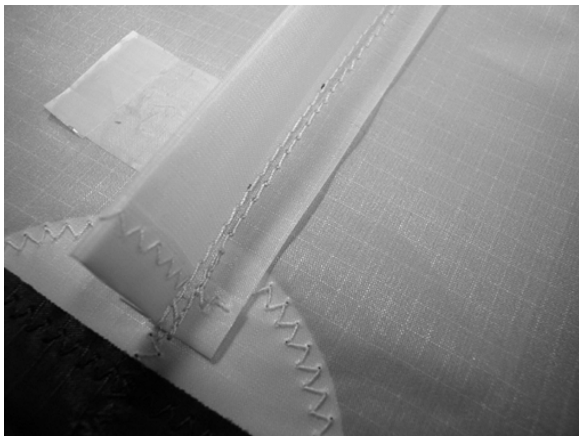
zig zag close to the seam, removing the tape tabs as you get to them. Jump over the loop, backstitching each side of the jump. The loop must remain free. Do not sew into the sleeve, stay on the allowance. Repeat on the other side. The following pictures may help you. You may also straight stitch close to the seam of the sleeve and then zig zag close to the sleeve edge. This is the neatest and most secure method but involves more work.

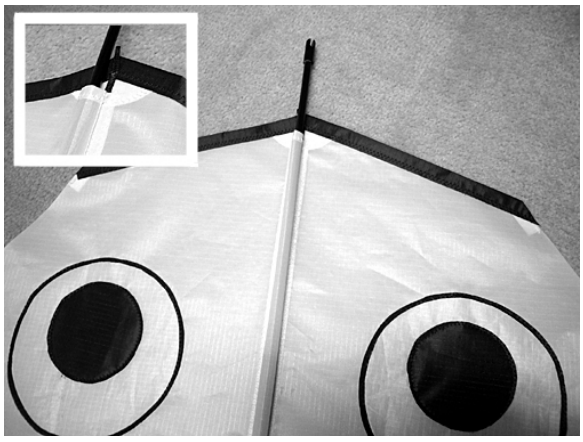


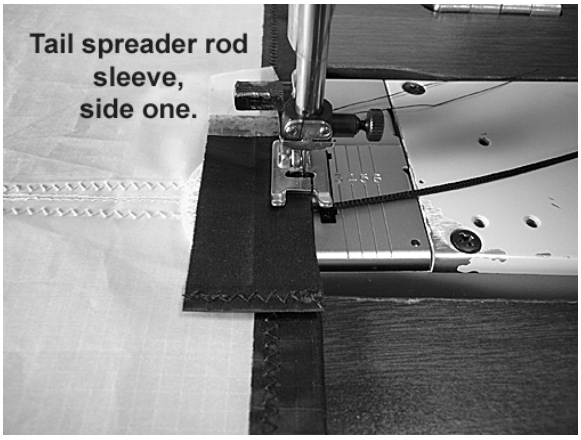




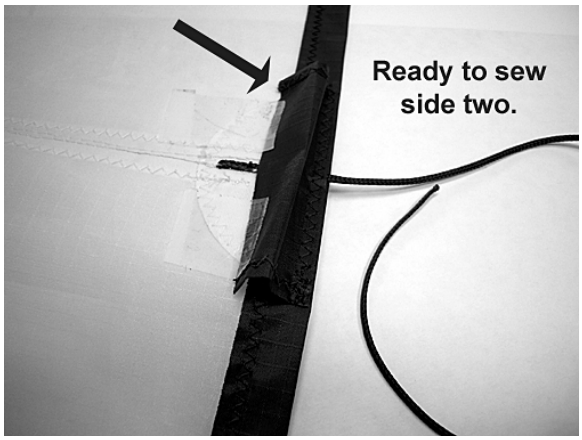


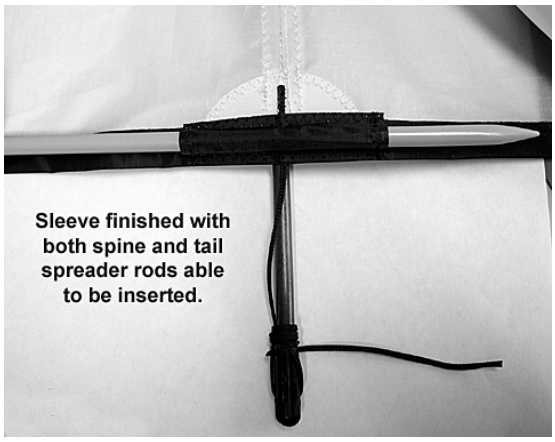






Tail rod sleeve Sew the ends back to the right side. Center the sleeve over the spine line on the **BACK** of the bird. Zig zag lower edge. Make a tunnel and sew other long edge, being careful not to catch the spine sleeve on the front. This sleeve is tight; sew close to the edges.





Wings to body Using a 1 cm or 3/8" seam allowance, sew the wings to the body as shown in Diagram 6. Right sides together. You may use narrow double sided tape inside the seam allowance as this seam will be top stitched in place. Straight stitch. Finger press seams towards the wings.

Reinforcements part 4: Position and sew on reinforcements C and E onto the back of the kite. Diagram 6.

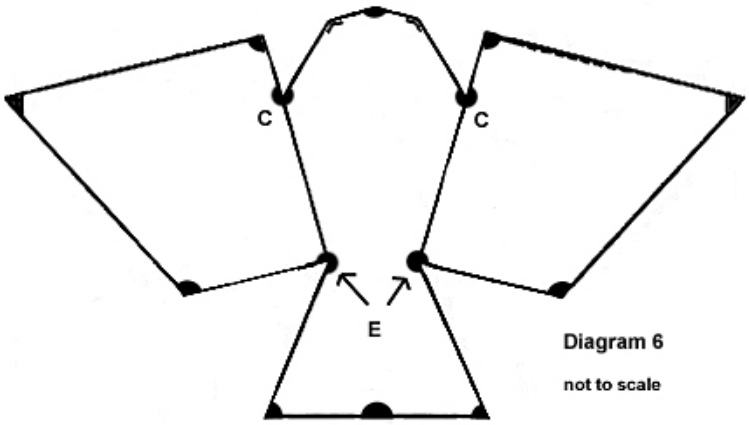
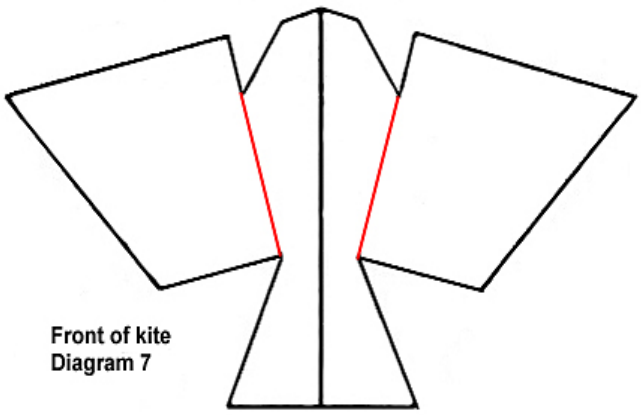


Diagram 6

not to scale



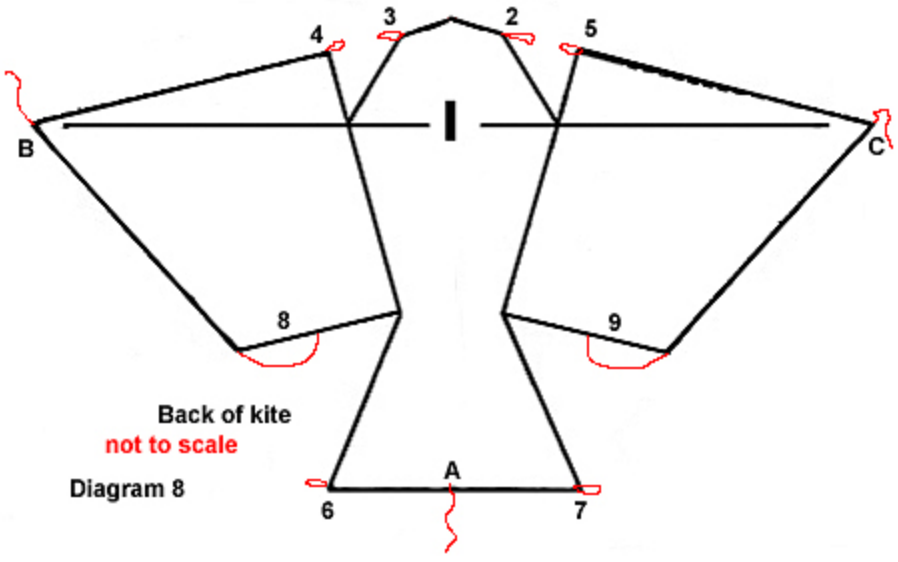
Front of kite
Diagram 7

Decorative detailing wing/body detail: Using the narrow 1/2" edge binding, position it on top of the seam between the body and the wing. It will follow the line from the edge of the wing down to the tail, dividing the wing from the tail. See diagram 7. It goes from reinforcement C to reinforcement E. Stitch both sides.

Wings sewn to body
and wing detail sewn on

Edge binding, part 2 Finish the rest of the edge binding so that the entire bird is outlined.

Spreader sleeves These go on the **BACK** of the kite. Follow the method for the spine. Center the sleeve between the wing tip and the spine. The sleeve does not span the entire distance. Diagram 8 shows their position.



Back of kite
not to scale
Diagram 8

Upper wing and head loops 80# test line. 26 cm total, divided in fourths. BACK of the kite. Position and sew in place the 4 loops as shown in the diagram 8. 2, 3, 4, 5.

Tail loops 80# test line. 13 cm total, divided in half. BACK of the kite. Position and sew the 2 loops as shown in the Diagram 8. 6 and 7. These catch the stubby nocks and hold the tail spreader rod in place. Cheater loop: make a loop of 30# line (12 cm.) and lark's head it to one loop. You will use it to pull the 80# test loop over the stubby nock.

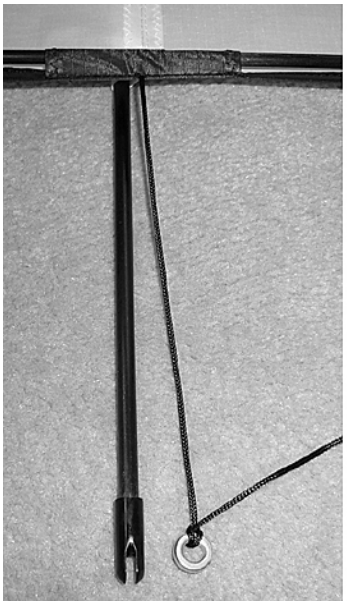
Wing tip lines 80# test line.60 cm total, divided in half. Sew in place the 2 wing tip lines on the BACK of the kite. See Diagram 8 . B and C.

Lower wing loops 80# test line.122 cm total, divided in half. Stitch one end of the lower wing loop line in place on the BACK of the kite on top of reinforcement I. Slide a small ring over the line and stitch the other end of the line to reinforcement H. Both ends of the line must be sewn off the bottom of the kite. See photo on the next page and diagram 8 . 8 and 9.

Framing lines, rods, bridling:

Framing line at head and wing: Divide the 1 meter piece of 30 # test line in half. Using the photographs on page 14, construct the sliding tensioner lines between the head and wings. One end of the line is tied to the wing loop. The other end forms the adjusting tensioner, through the head loop. Trim excess.

Rods: *1. Spine:* Use 2 graphite .2200 / 5.6 mm x 48" rods. Use one rod full length and glue a .2200 Stubby nock onto one end. Cut the other rod to 27cm. Glue the ferrel to one end of the short rod. The rod goes half way into the ferrel. Glue a .2200 Stubby nock onto the other end of the short rod.

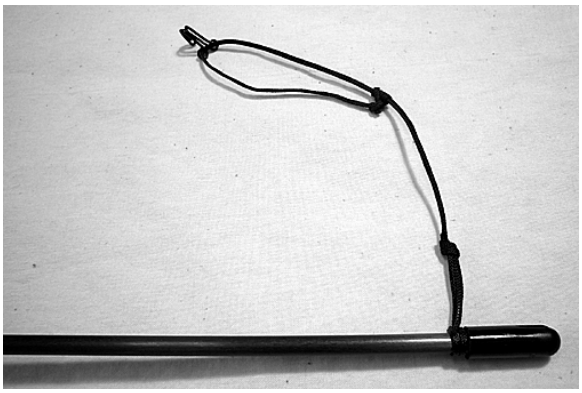


The long rod will always remain in the kite. The short rod can be removed for transport.

Lark's head the remaining ring to the spine line, about midpoint on the line. This will hold the spine in place and can later be tensioned properly. Put the spine into the kite. For now, move the ring high enough on the line just to hold the spine in place.

2. Wing spreaders: Use 2 graphite .2200 / 5.6 mm x 48" rods. Dry fit the rods with the stubby nocks and dihedral. You should not need to cut the rods. After the dry fit, glue a stubby nock to one end of each rod. Glue one rod into the dihedral. Put the rods into the kite and tension the head/wing lines.

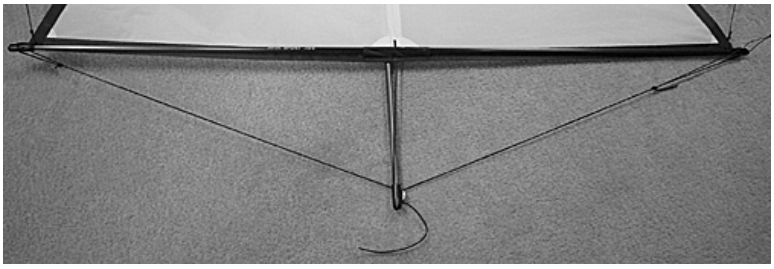
3. Tail spreader rod: Use the graphite .1800 / 4.6 mm x 29.5" rod, dry fit using 1 stubby nock. Cut to fit. It will be about 71 cm long. Cut it in half. Dry with with stubby nocks and dihedral. Glue the dihedral and one stubby nock on one rod, a stubby nock on the other. Insert into tail.



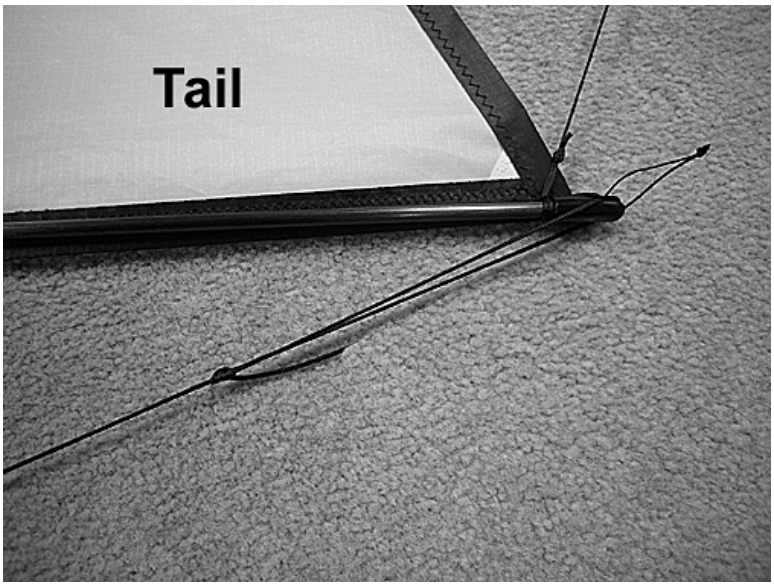
Next take the 2 meter long piece of line for rigging between tail / wing and between spine / outer tail tips. Cut off (2) 40 cm pieces. Set aside the remainder. Using about 10 cm, form a loop in one end by tying an overhand knot. The loop should be about 5 cm long. Lark's head it over the tail spreader rod behind the stubby nock. You may super glue it to the rod. Now thread the other end of the line through the eyes of the flattened hook and make the sliding tensioner knot. Repeat with the other line. The tail rod is done and may be put into the kite and the hooks put through the lower wing loop rings.

The tensioning line attached to tail spreader rod hooks to lower wing loop.

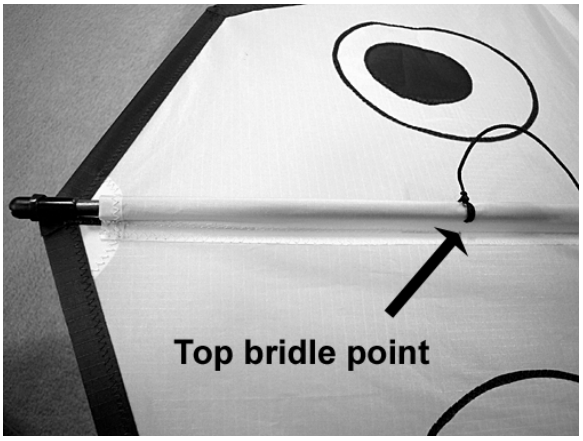
Framing lines at spine and outer tail: Using the remaining piece of line you set aside, find the center and lark's head it to the ring on the spine line. This piece is approximately 120 cm long.



Now construct a sliding tensioner loop on each end of the line. You will not use a ring or hook. Rather, the loop formed will slip over the tail spreader rod stubby nock.



Bridling: Cut one 30 cm piece of line from the bridle line. Make a loop and set aside. This will be your tow point.



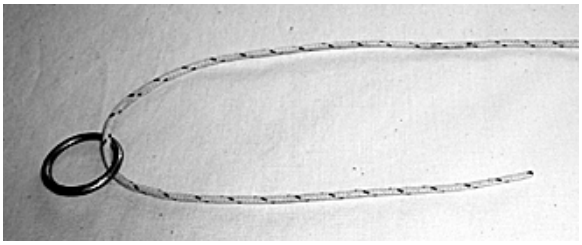
Use the remaining line for your bridle. Attach one end 16 cm (6.25 inches) from the top. Using a needle, penetrate the spine sleeve and wrap the line around the rod. Leave it loose enough to be able to remove the spine rod if necessary. Tie a knot. Repeat with the other end of the bridle line, at 26 cm (10.25 inches) up from the bottom of the **kite skin** (not from the bottom of the rod). Lark's head the loop to the bridle as your tow point. A good starting point for the tow point is a bit less than 2 meters from the top bridle point.

A nice sized bag will measure 165 long x 15cm wide (finished size laying flat). Cut size approximately 170 cm x 32 cm wide.

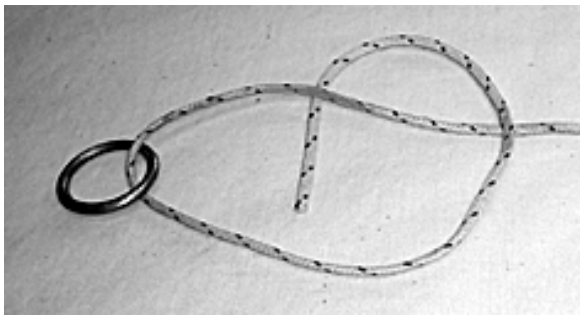
Done! Enjoy flying your replica *Vogeldrachen*, or bird kite.

Questions? Email us at 2kiters@2kiters.com, Bob and Charmayne

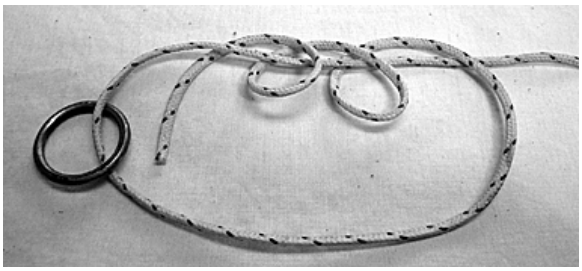
How to make the sliding knot to tension framing lines:



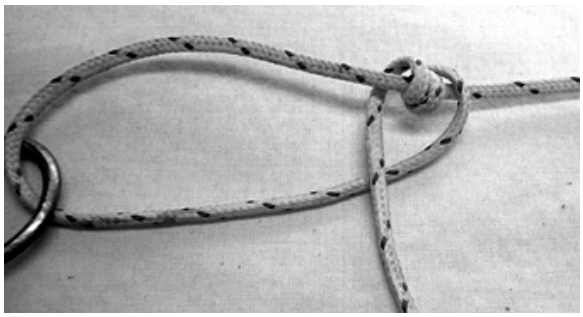
Step 1



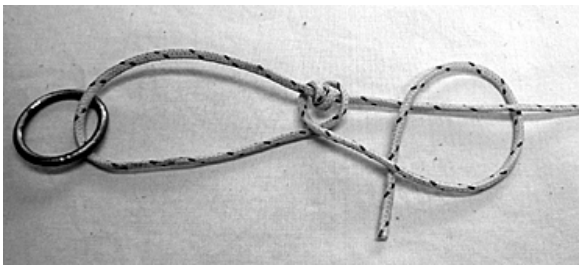
Step 2



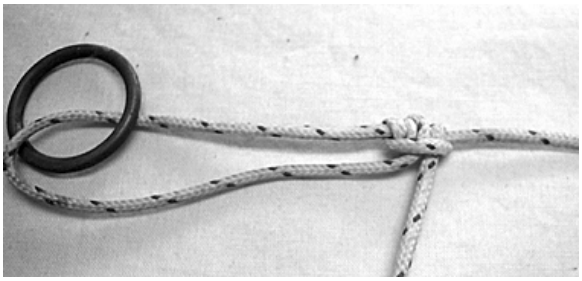
Step 3



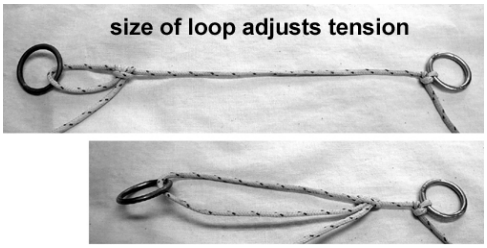
Step 4, tighten



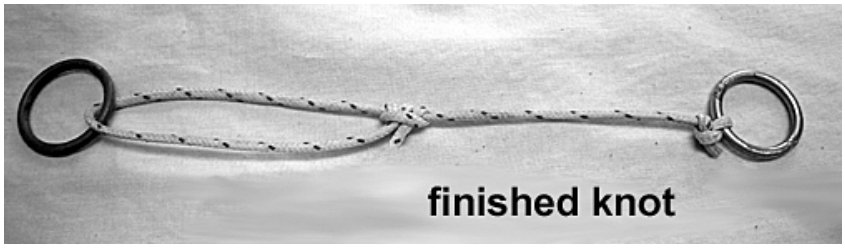
Step 5

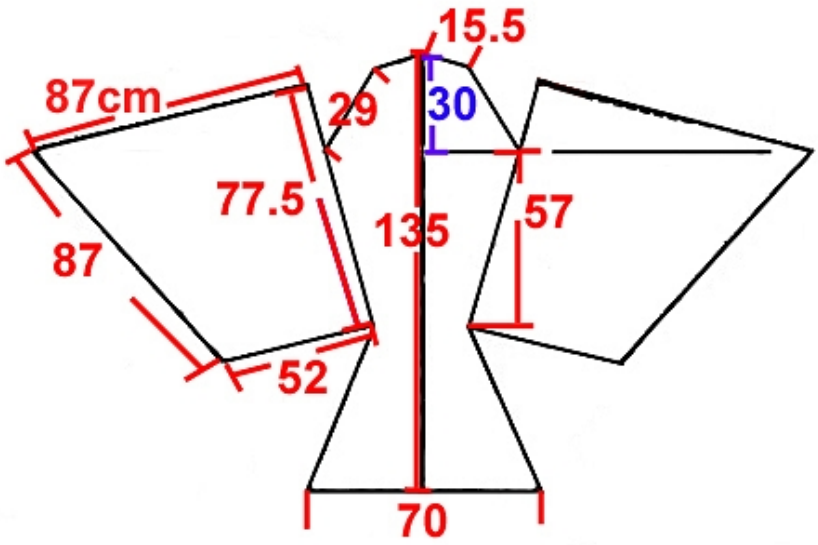


Step 6, tighten



The loop can be adjusted to tension the line between two areas.





Note: add a seam allowance on both wings and body where they join together.

Reinforcements are not quite to scale. Use for shape only.