

KITES FOR CONNOISSEURS

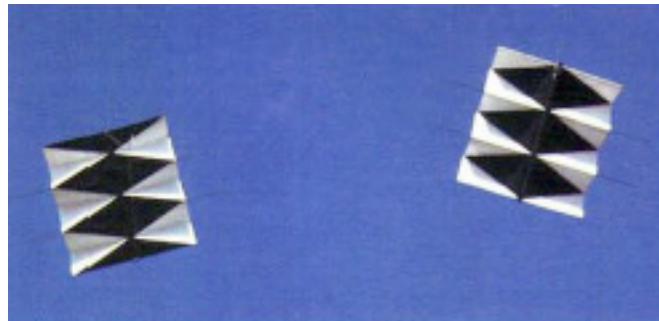
FOLD BLACK

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Kites for Connoisseurs is a collection of plans for kites designed by Andreas Ågren. These kites often have a unique technical twist. The plans can be found at <http://windman.se/kite-plans> and they may not be used for commercial purpose without written consent.



The **Fold Black** (1995) is inspired by Chinese Rigid Wing kites such as the Swallow, and the Fold Black is simply the wing part of the Rigid Wing, only tripled.

The Fold Black comes in two versions, A and B. B is more or less A turned over back to front. The sail material is stiff Tyvek (type 10, like Tyvek envelopes or housewrap air barrier), the spine is a triangular wooden stick (a "fillet" from a lumber yard) and the spars are thin bamboo sticks from a window blind. The Fold Black is not dismountable, and since the foldings are rather sensitive, a transportation box needs to be used to and from the field.

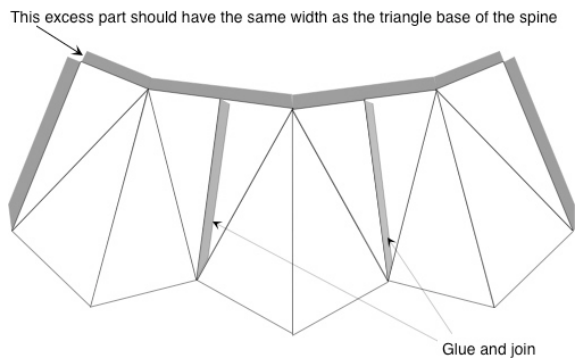
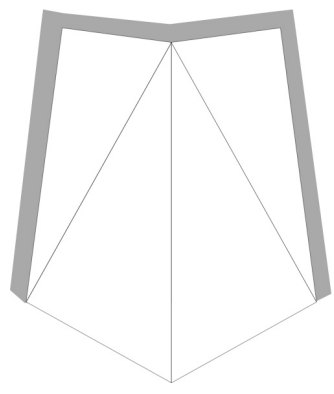
Material

- Cardboard or poster board for templates
- Stiff (Type 10) Tyvek for sail
- Thin bamboo, approximately 330 and 600 mm (from matchstick screen) for spars
- White glue
- Triangular wooden stick (fillet), triangle base approximately 10mm, stick length 380 mm, for spine
- Bridle line is less than 700 mm.
- Acrylic paint (black)

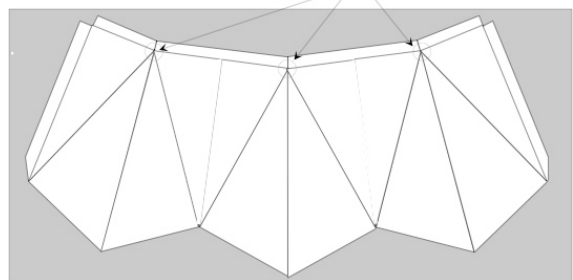
This is a description on how to make Model B. The same goes for Model A

Directions for making Fold Black, Model B:

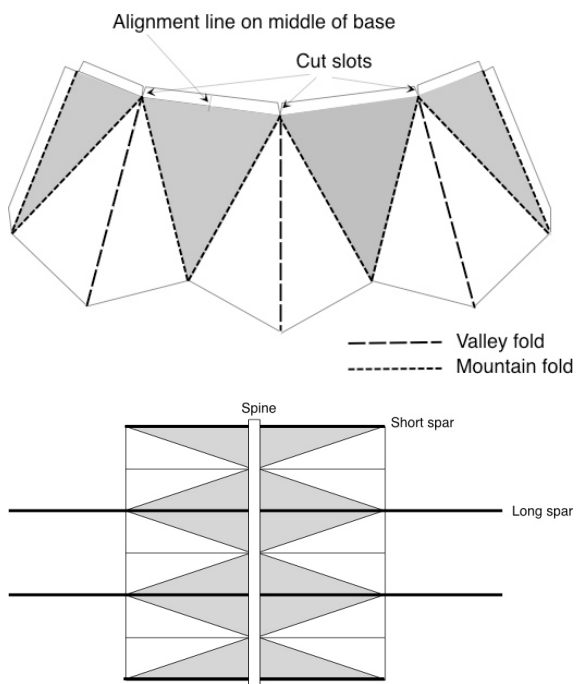
1. Make three copies of the template for Model B and cut them out, leaving an edge on both sides of each so you can glue them together. Also leave an edge of about 10 mm at the top. These edges are the shaded parts in the figure. The top edge is for connecting to the other half and the end parts are for hiding the leading and trailing edge sticks.
2. Glue the three parts together. (On two of the pieces you need to cut one side of the template before gluing.) You now have the template for one side of the kite.
3. Copy the template onto the Tyvek twice for the both sides.
4. In order to locate the starting points on the Tyvek for the lines going from the center to the edge, push a needle through the three points indicated in Figure 1 to make a mark in the Tyvek.
5. Now prepare the folding lines in the Tyvek by drawing all lines with a dull point. This is to make a dent in the material.
6. Paint the shaded triangles and paint the spar sticks. Use acrylic paint (black), which covers well.
7. Cut the three slots and fold along the lines, mountain folds and valley folds according to the lines in the figure.
8. Put the halves together, joined at the overlapping part pointed out in the first figure, closely observing the alignment made on the middle of each triangle base on the unpainted side. These are also the positions of two of the spar sticks. Glue on the overlapping part.
9. Measure the length of the kite; it should be 360 mm. Add 20 mm and cut the triangular fillet that long (380 mm).



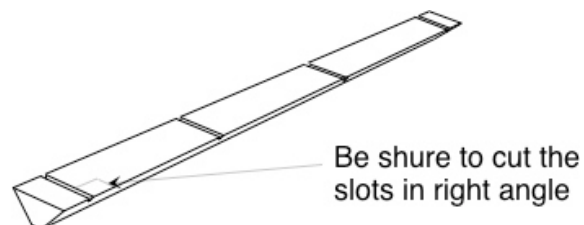
Press needle point through junctions to make marks on Tyvek sheet



Model B half viewn from front

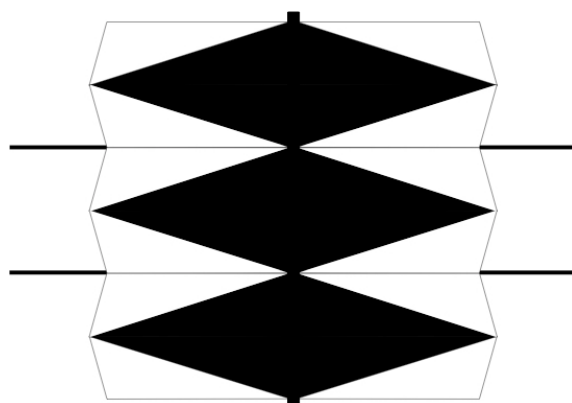
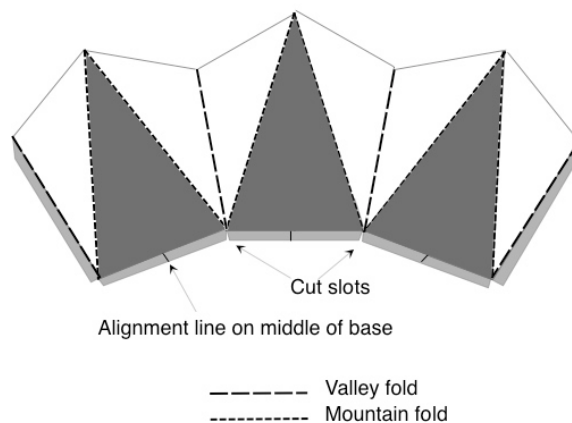


10. The figure above shows the position of the spine and the spars on the back of the kite. Place the spine on this joining area. The gray areas in the drawings are flat and the white areas form the air stream channels.
11. Put the spine on the back of the kite, leaving 10 mm extending on each end. On the spine, mark accurately the position of the four spars.
12. Cut four slots in the spine, just deep and wide enough for the spars to fit tightly, as in the figure. Glue the spine and spars onto each other and then onto the Tyvek in one move. Make adjustments so everything is aligned.
13. When this has dried, fold and glue the extra Tyvek over the leading and trailing spars.
14. Cut the ends of the leading and trailing spars to align with the Tyvek.
15. Cut the middle spars to equal length, protruding approx. 15 cm on each side. Since the extended parts are only decoration, cut to suit your taste.
16. Colour the protruding edges of the spine
17. Tie a two-point bridle to the kite, on the spine ends sticking out. The kite's towing point position isn't very sensitive, but it should be about $\frac{2}{7}$ the length of the kite from the leading edge, whichever edge you choose to be leading. If the extending spars are shorter than suggested, make a shorter bridle line to avoid tangling the bridle in the extending sticks.



Fold Black Model A is made in the same way

Model A half viewn from front



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