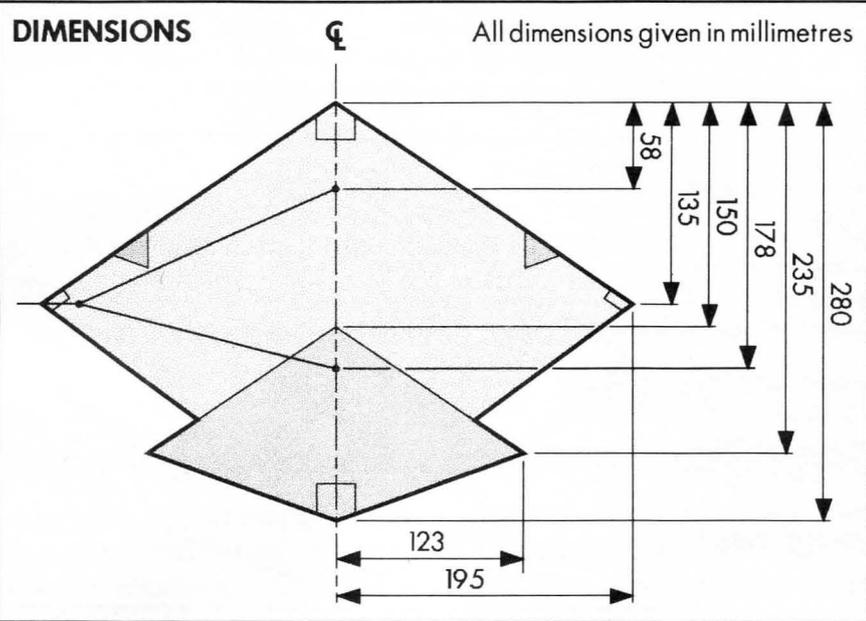


SID'S FIGHTER



This is one of several Indian fighters by the late Sid Horton of the Brighton Kite Flyers. Designed in July 1997 it was Sid's pride and joy and the kite that he flew most often.

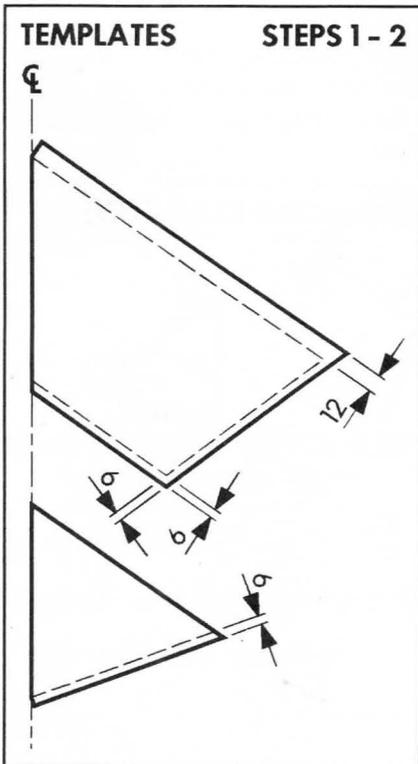
As a rough guide it will fly in winds of about 5mph to 15mph. It's a very sharp and responsive little fighter which turns extremely quickly... so be prepared to test your reactions!

MATERIALS (Minimum required):

- ◆ 1 sheet A4 stiff card (Templates)
- ◆ 1 sheet mylar gift wrap (Sail)
- ◆ 3mm wide x 1.5mm deep bamboo x 28cm (Spine)
- ◆ 1.5mm diameter GRP rod x 72cm (Cross spar & Tail stiffeners)
- ◆ 75cm heavy thread/suture (Bridle)
- ◆ 25mm wide GRP tape x 12cm
- ◆ 25mm wide double sided tape x 11cm
- ◆ 12mm wide double sided tape x 63cm
- ◆ 6mm wide double sided tape x 142cm
- ◆ PVA glue

CONSTRUCTION:

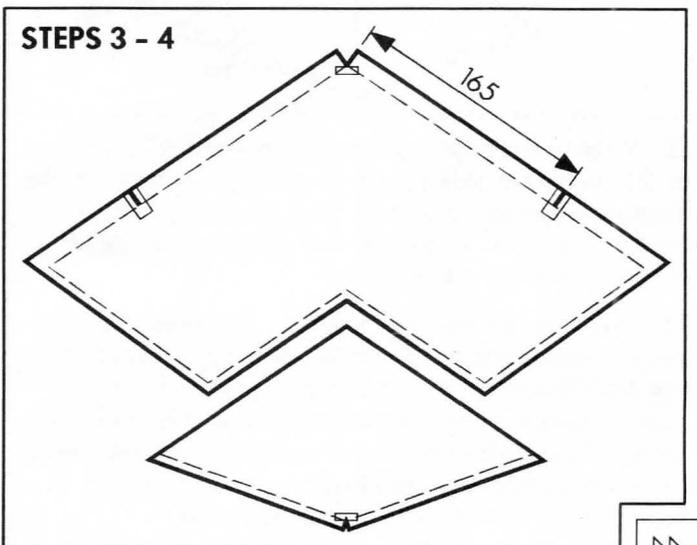
1 From the dimensions shown above draw out the kite sail and tail sections separately on the card. Add the fold and overlap allowances given as shown below. Cut out to make two half templates.



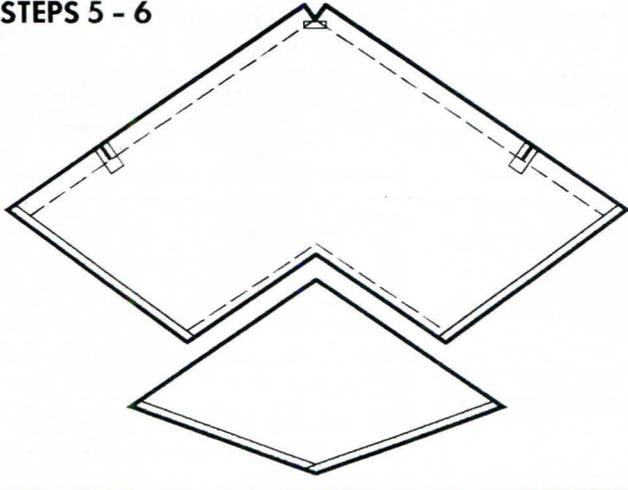
2 Fold the mylar sheet in half with what is to be the front of the kite on the outside. Place the half templates with the marked centre lines along the fold and cut out the sail and tail sections of the kite. Retain the remaining mylar.

3 Open out the mylar and lay both pieces flat with the front sides face down. Cut two 5mm pieces of GRP tape and position one at the nose of the sail and the other at the base of the tail as shown. This is to prevent the material from tearing.

4 Mark the cut point on each of the leading edges of the sail. Cut two 1cm pieces of GRP tape and position one centrally over each cut point from the edge of the mylar as shown. Again this is to prevent the material from tearing. Do not cut the leading edges yet.



STEPS 5 - 6



5 Place lengths of 6mm double sided tape along the trailing edges of the sail section. Fold inwards and secure as shown.

When secured trim any unwanted overlap from the ends of the tape for neatness. Repeat along the trailing edges of the tail section.

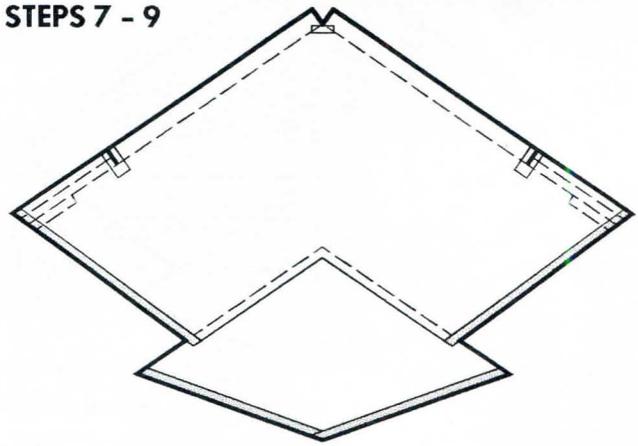
6 Turn the sail section over and place lengths of 6mm double sided tape along the inset trailing edges where it is to be joined to the tail. Use the half tail template to mitre cut the ends of the tape to the correct angle where they meet at the centre.

7 Turn the tail section over and carefully join it to the sail of the kite along the taped inset trailing edges. Use the edges of the 6mm double sided tape as a guide.

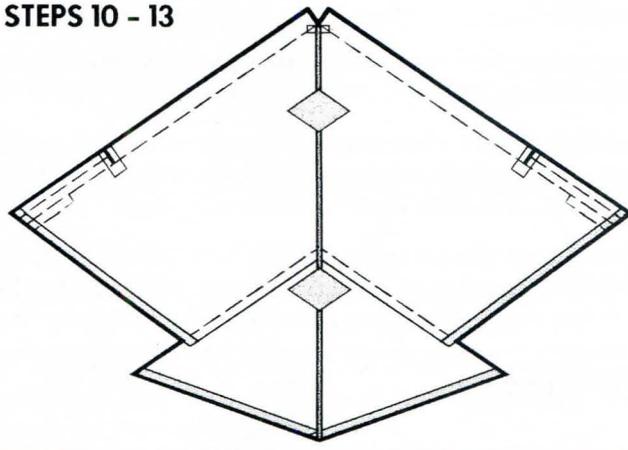
8 Place the kite face down again. Position lengths of 12mm double sided tape along each leading edge of the sail from the nose to the cut point as shown. Do not fold in yet.

9 Position two pieces of 6mm double sided tape from the cut point to the wing tip on each leading edge. Leave a small gap at each cut point just large enough to cut along. Add a third half length piece of 6mm double sided tape as shown. Do not fold the tape in yet. Carefully cut along the marked cut points, through the GRP tape that is covering them.

STEPS 7 - 9



STEPS 10 - 13



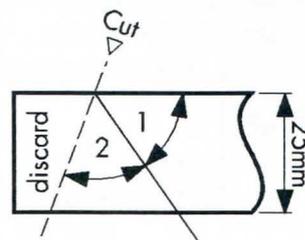
10 Cut the bamboo spine to size. This should be 4mm shorter than the overall sail length from the nose to the tail base. Round the ends slightly to remove any rough edges. Place 6mm double sided tape along the length of the spine and trim off the excess width.

11 With the taped side face down, position the spine approximately 2mm from the nose of the sail and secure. This allows space for the leading edges to be turned over. Do not turn them over yet.

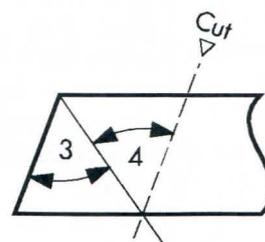
12 Make four reinforcing diamonds by cutting four pieces of 25mm double sided tape diagonally as shown in the diagram opposite. Stick one side of each piece of tape to the remaining off-cuts of mylar and trim to size.

13 From the dimensions given on the previous page measure the top and bottom bridle points from the nose of the kite. Mark these on the spine on the reverse of the sail. Position one reinforcing diamond centrally over the mark on the spine at the top bridle point. Before securing it carefully crease it over the bamboo to prevent the kite sail from buckling. Repeat at the bottom bridle point on the spine.

MAKING THE REINFORCING DIAMONDS

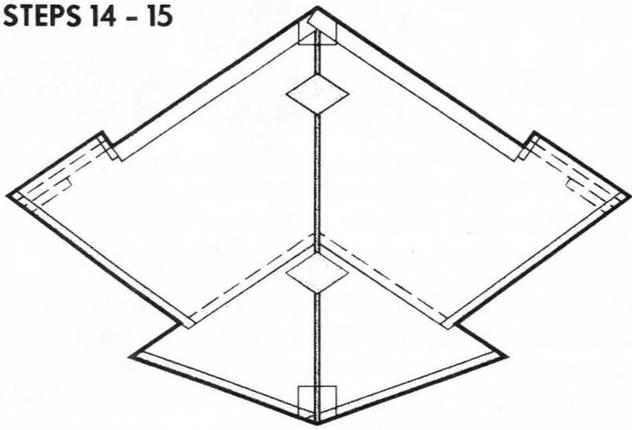


Use this corner of the tail template for marked angles.



Repeat for all 4 diamonds

STEPS 14 - 15



14 Fold in and secure the 12mm double sided tape on both leading edges of the sail. Start at the nose of the kite and

fold over the spine. Before securing, carefully crease each leading edge over the bamboo to prevent the kite sail from buckling.

Continue folding in the leading edges up to the cut point on each side.

Do not fold the 6mm double sided tape on the leading edges at the wing tips yet.

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15 Cut two 4cm pieces of GRP tape for the nose and tail reinforcements.

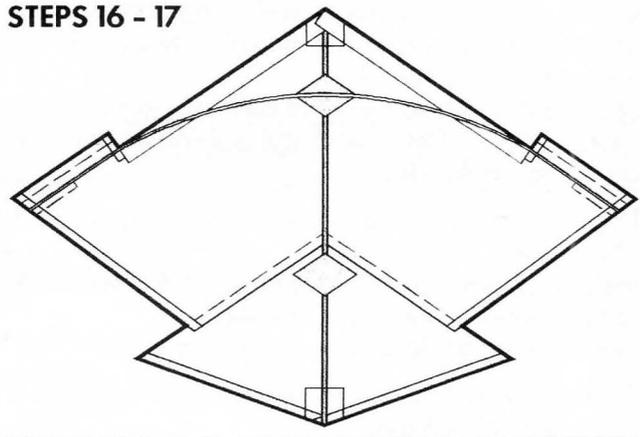
Fold one centrally over the nose of the kite with 2cm of the tape on the front and 2cm on the reverse of the sail.

In the same fashion fold the other piece over the base of the spine at the tail end.

Positioning one of the strands of fibreglass in the tape directly along the apex of the nose and tail points of the spine will give them added strength. These are the parts of the kite that are likely to suffer most damage when you are flying it.

Trim both pieces to the shape of the kite sail as shown. Leave a join in the tape where it covers the nose and tail points of the spine, roughly the same width as the bamboo.

STEPS 16 - 17



16 Take the GRP rod and cut to 42.5cm to make the cross spar. Round the ends slightly to remove any rough edges. Retain the remaining off-cut from the GRP rod for making the two tail stiffeners.

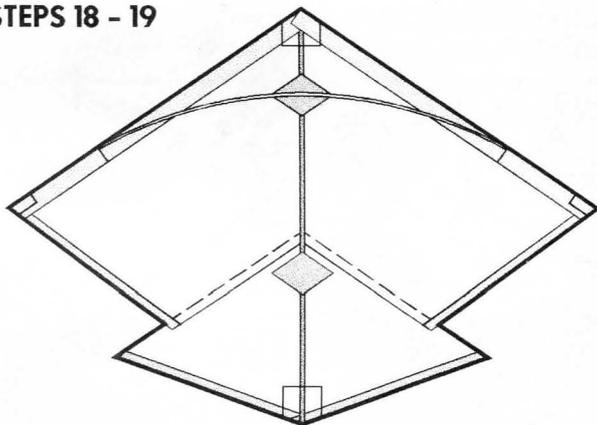
17 Remove the backing paper from the two inner pieces (the shorter length and adjacent piece) of 6mm double sided tape remaining on each leading edge of the sail.

Bow the cross spar, taking care to check that it isn't twisted as this will warp the kite sail and prevent it from lying flat. It is usual for GRP rod to bow more easily in one direction than others.

Keeping it bowed, place each end along the outer edge of the shorter pieces of tape as shown.

When the cross spar is in the correct position press it down firmly on to the tape.

STEPS 18 - 19



18 Fold in the remaining part of the leading edge, where the double sided tape is uncovered, over each of the spar ends and secure.

Remove the backing paper from the remaining piece of tape on the leading edge at each wing tip. Press down and secure.

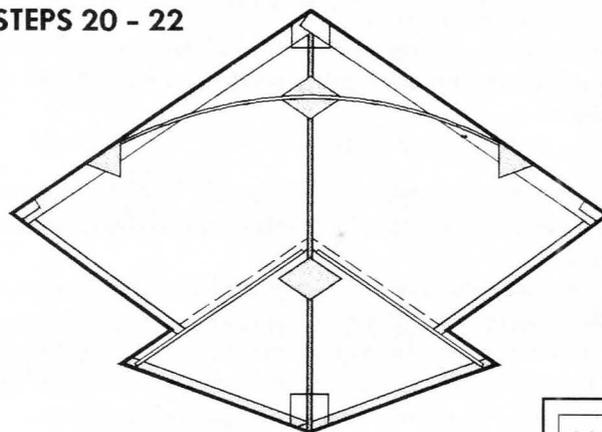
19 To make the wing tip reinforcements cut two 5mm pieces of GRP tape.

Fold one lengthways along and over each end of the cross spar as shown.

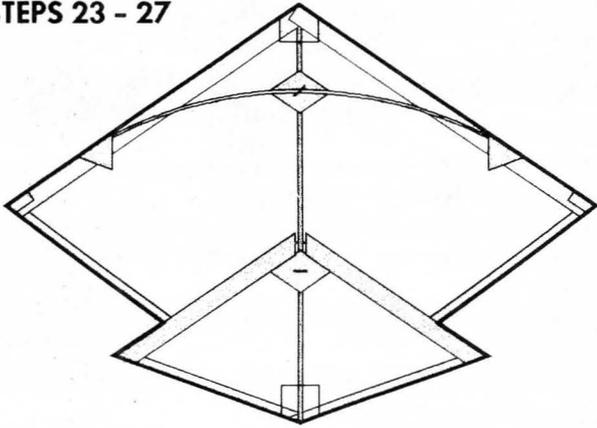
Half of the tape should be on the front and half on the reverse of the sail.

In the same fashion as the nose and tail reinforcements, positioning one of the strands of fibreglass in the tape directly over the spar ends will give added strength.

STEPS 20 - 22



STEPS 23 - 27



20 Take one of the remaining reinforcing diamonds and fold it over the cross spar and the sail at the cut point on the leading edge of the sail.

Half of the diamond should be on the front and half on the reverse of the sail. Repeat at the cut point on the opposite leading edge of the kite.

21 To make the tail stiffeners cut the remaining piece of GRP rod in half.

Carefully split each piece along its length and select the two best pieces. Trim each piece to 14cm.

Round the ends slightly to remove any rough edges.

22 Carefully coat the flat edge of each stiffener with a light covering of PVA glue.

Using too much glue will cause the stiffener to slide around on the mylar and may also result in the sail buckling.

Take one of the stiffeners with the glued side face down. Position it along the inset trailing edge of the sail section, where it meets the tail of the kite as shown.

Start at the end where the stiffener meets the spine and when in the correct position press down lightly until secure.

Repeat on the opposite side and allow the glue enough time to dry.

23 Using 12mm double sided tape and the remaining off-cuts of mylar, make two mylar backed reinforcing strips. These should be 15cm long and trimmed to the tape width. Use the half tail template to mitre cut the ends of each strip to the correct angle as shown.

24 Place one reinforcing strip centrally over and along the length of each stiffener.

If positioned correctly the top edge of the strip should be aligned along the leading edge at the tip of the tail section as shown.

Repeat on the opposite side.

25 From the dimensions given on the first page, once again measure the top and bottom bridle points from the nose of the kite.

Mark these on the reinforcing diamonds covering the spine on the reverse of the sail.

Cut a 50cm length of heavy thread or suture for the bridle. With the kite face down make a small hole in the sail on each side of the spine at the two marked bridle points.

26 With the kite face up, thread one end of the bridle line through one of the holes at the bottom bridle point.

Pass the line over the spine on the reverse of the sail, back through the other hole to the front of the kite and tie off.

27 Using the other end of the bridle line repeat at the top bridle point. Make sure that the line passes over both the spine and the cross spar on the reverse of the sail as shown. Before tying off adjust so that the final length of the bridle is 36.3cm from knot to knot.

Trim any unwanted ends for neatness.

28 Crease and mark the bridle line at 18.7cm from the top bridle point.

29 Take the remaining 25cm of heavy thread or suture and fold in half, bringing the two ends together.

Tie to make a 10.5cm loop and trim the knotted end for neatness.

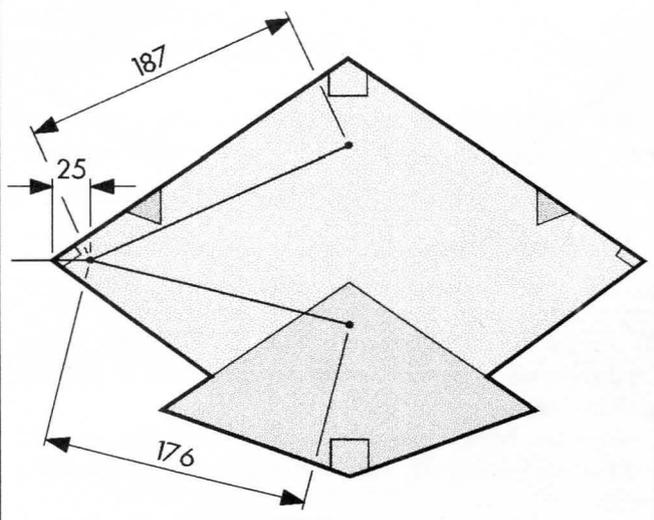
30 Using a Lark's Head knot at the apex of the loop, attach it to the bridle line on the kite.

When laid flat on the sail of the kite the apex of the bridle should be 25mm from, and in line with, the wing tip as shown.

This method allows easy bridle adjustments to be made by loosening the Lark's Head knot on the loop and sliding it up or down the bridle line as required.

Your kite is now ready to fly... have fun!

STEPS 28 - 30



With thanks to Annie Horton for her permission to publish this design.

CREDITS:

DANNY STEER: Instructions & construction details
ALAN OUTRAM: Assistance
MIK JENNISON: Artwork
TOODY OAKHILL: Text & layout

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