



**Making The  
MBK Soft Sled Kite**

**For Light To Moderate Winds**

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## Table of Contents

|   |    |
|---|----|
| <a href="#">Introduction</a> .....                | 3  |
| <a href="#">Format</a> .....                      | 3  |
| <a href="#">Using Printouts</a> .....             | 3  |
| <a href="#">Soft Sled Kite Construction</a> ..... | 4  |
| <a href="#">Overview</a> .....                    | 4  |
| <a href="#">The Sail</a> .....                    | 5  |
| <a href="#">Measuring The Sail</a> .....          | 5  |
| <a href="#">Marking The Sail</a> .....            | 6  |
| <a href="#">Taping The Sail</a> .....             | 8  |
| <a href="#">Cutting The Sail</a> .....            | 10 |
| <a href="#">The Cells</a> .....                   | 11 |
| <a href="#">Measuring The Cells</a> .....         | 11 |
| <a href="#">Marking The Cells</a> .....           | 13 |
| <a href="#">Taping The Cells</a> .....            | 15 |
| <a href="#">Cutting The Cells</a> .....           | 16 |
| <a href="#">Attaching The Cells</a> .....         | 17 |
| <a href="#">Towing Points</a> .....               | 23 |
| <a href="#">Attach The Bridle</a> .....           | 25 |
| <a href="#">After Kite Completed</a> .....        | 27 |
| <a href="#">Packing The Kite</a> .....            | 27 |
| <a href="#">FLYING!</a> .....                     | 28 |
| <a href="#">Even More Kites To Make!</a> .....    | 30 |



# Introduction

This *printable* e-book takes you step-by-step through making the MBK Soft Sled kite...

This design was inspired by the classic Pocket Sled, but has several small differences. Not to mention some *large* ones - the different scale, materials and construction methods. This MBK version has a quite gentle pull and so may be flown by small children. Fly it in Light to Moderate winds.

Every kite design in the MBK Soft Series satisfies the following points...

- Materials are **plastic sheet, tape and line** – and nothing more!
- Tools are a **ruler, scissors and a marker pen** - and nothing more!
- All **cuts are along straight lines**.

For the greatest chance of success, I make recommendations regarding the materials. For example, the type/weight of plastic, type/width of tape and line type/strength. Close enough should nearly always be good enough, since the design is well-tested and should be tolerant of *small* differences from my original.

Of course, there is room for somewhat more deviation from the above points if you see fit. For example, you could use Tyvek instead of plastic, nylon line instead of Dacron or a hobby knife and cutting board instead of scissors. And so on.

But **for your first effort**, it's probably a very good idea to try and follow the instructions to the letter! Experiment later, from there.

## *Format...*

You've already seen the **clickable Table of Contents** in previous pages. Here's a summary of the info and images used in the rest of this publication:

- **Step-by-step instructions**, which really 'hold your hand' through the process.
- **Full-width, close-up photos** so you can see how the original kite came together. Actually the photos are of the *second prototype*. After flight testing there are always shortcomings to be fixed and improvements made!
- **An in-flight photo**, near the end of these instructions.

## *Using Printouts...*

To save a bundle on ink costs, find *GrayScale* in your printer's Properties settings, and set it so color ink isn't used. For color, you can always refer back to this PDF on the screen. Also, look for *Draft* or *Fast* in the Properties. This will ensure the printer uses much less black ink too. If you are a Mac user, you should be able to find similar settings for your printer.

# Soft Sled Kite Construction

## Overview

The MBK Soft Sled kite probably looks quite familiar in a way. That's because variations of this type of kite are mass-produced and flown in great numbers. Particularly among the public at kite festivals! As a DIY project, it makes a great starting point for tackling soft kites in general. Another name for this type of kite is 'para-sled'.

### Materials for *this* kite...

The kite described here gains some rigidity from the *air pressure* inside it as it flies.

However, this Soft Sled also needs a bit of help from a sail material that isn't too thin and flimsy. *Sturdy plastic* as used for large garden or rubbish (trash) bags should be fine.

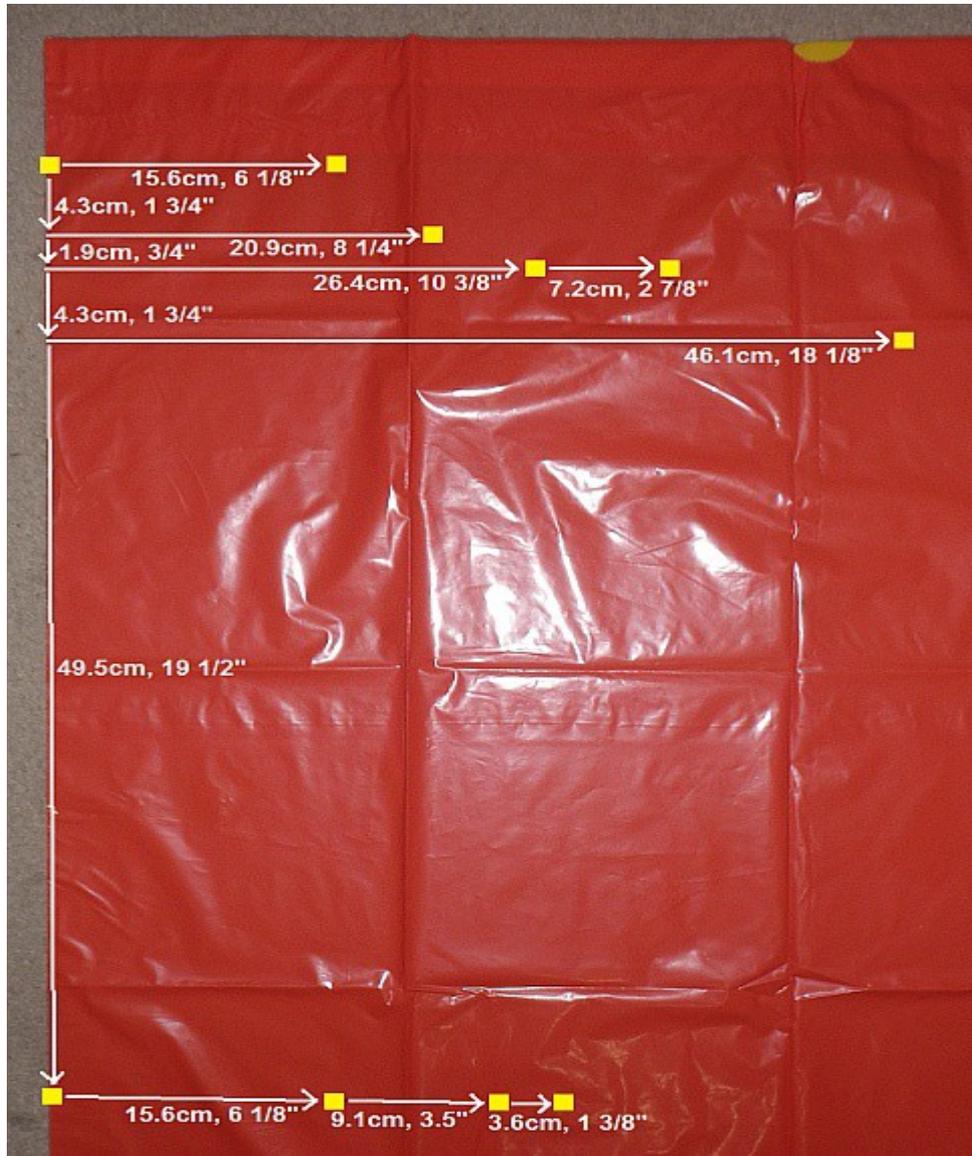
Yet another source of rigidity is how the seams are made. For this kite, extra rigidity is achieved by using *wide packing tape* throughout. Thin, light and non-stretch! It does a great job down the seams, resisting any tendency to crinkle in flight.

The exact wind range of your kite will depend a lot on those last 2 factors.

Being a rather small kite, the Soft Sled can use 20 pound line for the bridle with little chance of breakage. The instructions show somewhat heavier line, but 20 pound would be fine. If you have it.

## The Sail

### *Measuring The Sail*

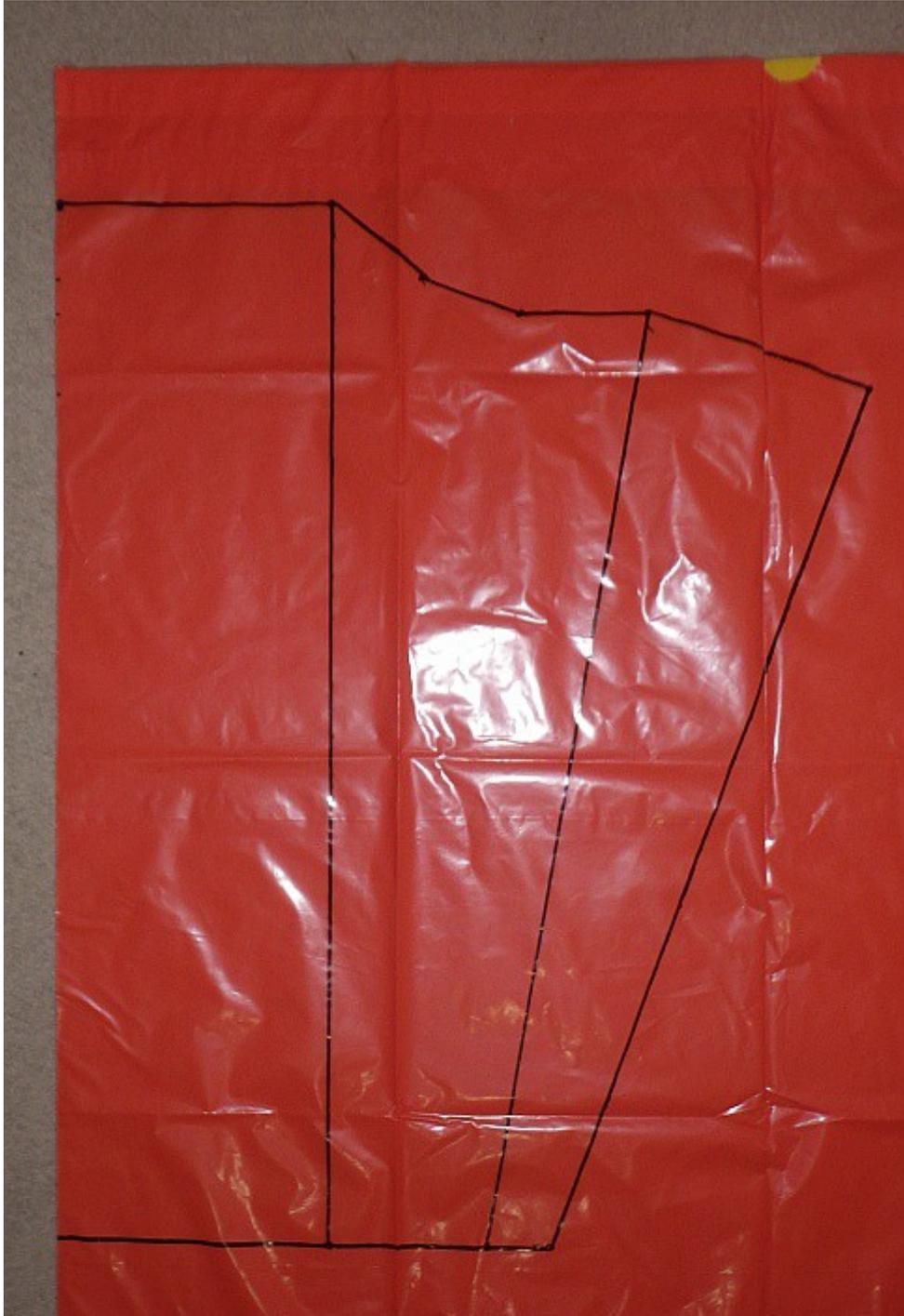


**Dots measured and marked**

- Place your plastic bag flat on the floor. In the case of plastic sheeting, fold it in half from left to right and run a sharp, straight crease down the left hand side.
- Starting from near the top-left corner, measure and mark dots on the plastic. Just follow the arrows marked on the photo. I've high-lighted the dots in yellow.

Judge the horizontal and vertical directions by eye. If you're careful, there's no need for a T-square. The slight slope near the bottom of the photo is just the camera distorting the image. The arrows should be horizontal!

## *Marking The Sail*



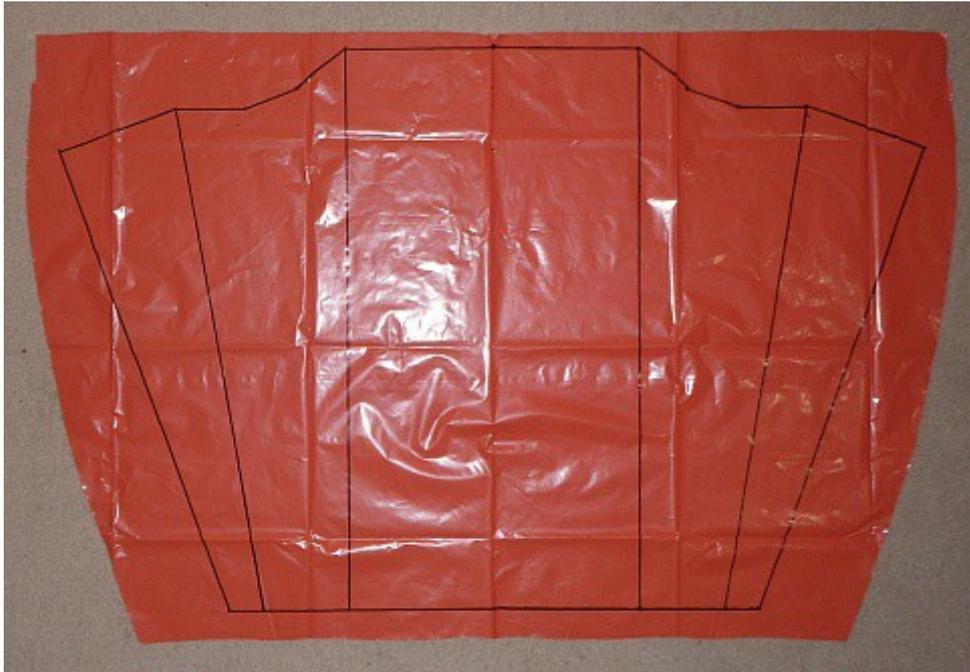
**Dots connected**

- Take your ruler and *connect the dots* with the black marker pen, as shown in the photo.
- Flip all the plastic over and *trace over* all the black lines showing through the 2 layers of plastic.

**Hint:** If it's too hard to see through the plastic, just lay it up against a window. The light from outside should show up the lines easily. Mark dots at all the corners, and then connect the dots using pen and ruler.

I know what you're thinking - why not just rule *one* set of lines and then scissor-cut the two layers of plastic at once?

*Answer* - it's very easy for one sheet to slip against the other while cutting, with horribly inaccurate results! Do it my way and your kite will fly perfectly, the first time.



**Sail plastic opened out**

- Open out the plastic to show the complete sail outline, as in the photo above.

If using a bag, you'll first need to cut off the top, bottom and right hand sides of course. So you can unfold it right to left. That's what I've done in the photo above.

## *Taping The Sail*



**Marked side taped**

- Lay packing tape along the marked lines as shown in the photo above.

Around the outside of the sail, let the tape overlap the black lines by about a finger-width. Leaving most of the tape inside the outline.

For the two central lines drawn down through the sail, try to center the tape's width over each line. As close as you can get it by eye!

**Hint:** It's a lot easier to use packing tape when the roll is sitting in a dispenser. Pull tape out to length and then tear off, just like sticky tape.



**Unmarked side taped**

- Now flip the plastic over.
- Lay packing tape along just the two lines closest to the center of the sail. See the photo above.

## *Cutting The Sail*



**Sail cut**

- Take your scissors and cut all around the outside of the sail, along the black lines. When you are finished, it should look like the photo up there.

## The Cells

### *Measuring The Cells*

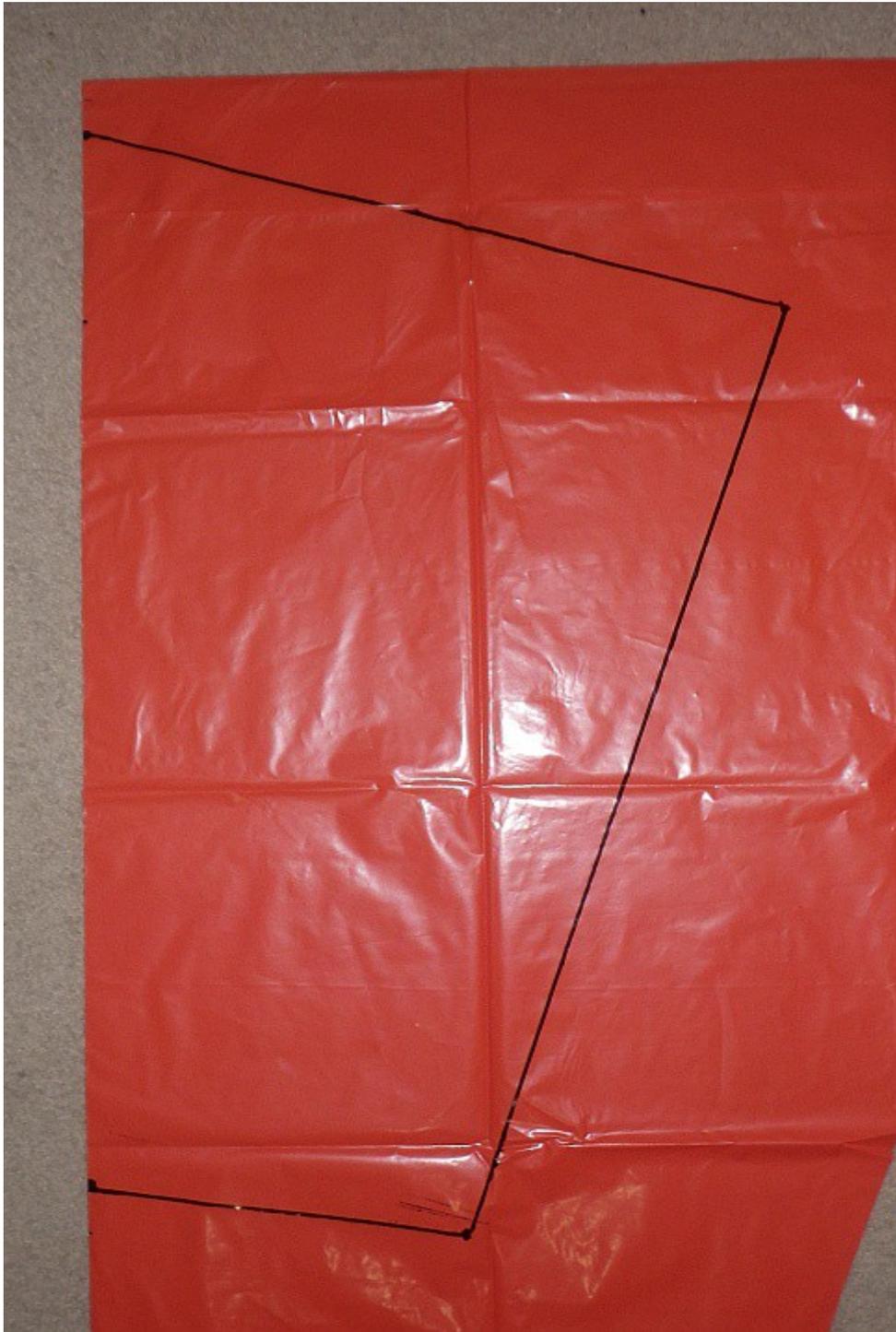
The cells are the inflatable pockets that do the same job as rods of wood or fiberglass in a simple sparred Sled. Hence some call this kind of soft Sled a Ram-air Sled. The air rams in the front opening, helping to keep the cell rigid while in flight!



**Dots measured and marked**

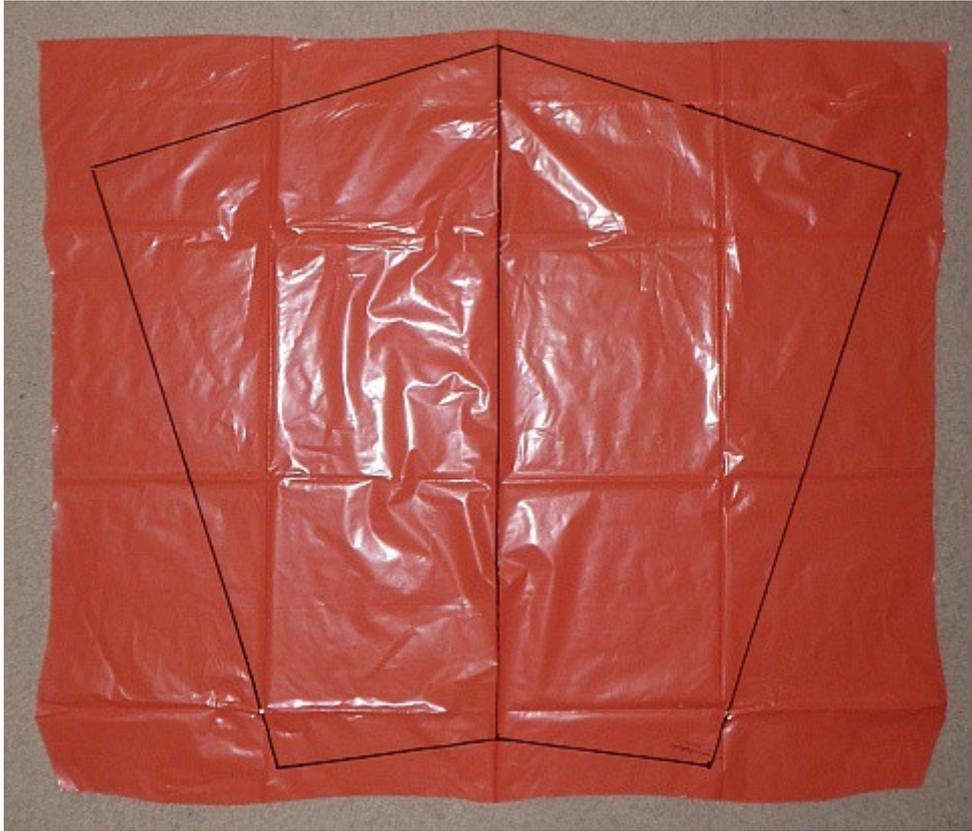
- As before, place your plastic bag flat on the floor. In the case of plastic sheeting, fold it in half from left to right and run a sharp, straight crease down the left hand side.
- Just like you did for the sail, measure and mark dots on the plastic by following the arrows marked on the photo.

## *Marking The Cells*



**Dots connected**

- Take your ruler and connect the dots with the black marker pen, as shown in the photo.
- Flip the plastic over and trace over all the black lines.



**Cell plastic opened out**

- As you did for the sail, open out the plastic and lay it flat.
- Now draw a line right down the middle, as shown in the photo up there.

## *Taping The Cells*



**Marked side taped**

- Lay packing tape along just the top edges of the cell plastic, as in the photo above. Let the tape overlap the black line by about a finger-width above the line.

## *Cutting The Cells*



**Cells cut**

- Take your scissors and cut along every black line, including the one down the middle.
- When you are finished, you will have the two cells as in the photo - ready to attach to the main sail.

## Attaching The Cells



**Cell inner seam tacked on**

- Take one piece of cell plastic and lay it over the sail, lining it up so it looks exactly like the photo up there. Or as close as possible, given that you are probably using slightly different plastic and tape.
- Tack the cell plastic in place with several small bits of sticky tape. Align with the black line showing through the packing tape. The sticky tape ensures the plastic doesn't move while you are doing the next step...



**Cell inner seam taped**

- Run packing tape the entire length of the join, keeping it centered over the black line. Go straight over those little bits of sticky tape!
- Trim the ends of the packing tape with scissors, so it lines up with the edges of the sail and cell plastic. See the photo above.



**Cell flipped and taped again**

- Flip the cell plastic up and fold it flat against the sail plastic, away from where it was before. Crease the join with your thumbnail so it stays down better.
- Now run packing tape the entire length of the cell, keeping it centered over the line as before. Cut off and trim at each end, so it looks like the photo up there.



**Cell outer seam tacked on**

- Line up the other long edge of the cell with the other black line, again tacking it in place with small bits of sticky tape.



**Cell outer seam taped**

- Run packing tape the entire length of the cell edge, and neaten it up at each end with scissors. As you can see in the photo, it looks like an inflatable cell now!



**Reinforced cell opening**

Now you will reinforce the inside of cell's *larger* opening...

This is hard to explain in words, so look very carefully at the close-up photo above. Your task is to pull off about a hand-width of packing tape and stick it down along the inside of the edge you taped in the previous step. Trim with scissors if necessary.

The photo's *too* good isn't it - it shows every bubble, crease and inaccuracy! See if you can do better.



**Cells done**

- Yep, you guessed right... Repeat all the above steps with the *other* piece of cell plastic. One cell is a mirror-image of the other, as in the photo. It's starting to look like a kite!

## Towing Points



**Towing point tape – first**

- Place a 10cm (8") length of packing tape over one towing point corner of the sail as shown in the photo. Halfway between each edge of the sail corner. Also, half on and half off - but try not to let the 'off' bit stick to the floor or table-top!



**Towing point tape - second, stuck to first**

- Flip the sail over and stick another similar piece of tape right over the first one. Press them together where they leave the plastic. See the close-up photo.
- You know what's coming... Go to the corresponding corner on the other side of the kite and do exactly the same thing, using 2 more strips of tape. There's the result below. All that remains is to attach the bridle!



**Top half of kite, cells pushed flat**

## Attach The Bridle



**Towing point tape crushed and tied**

- Cut off a 3 meter (10 feet) length of flying line.
- Tie one end of the line to one towing point tape of the kite, as in the photo. Use any knot you know but make it as tight as possible, to crush the tape \*. It helps to fold the tape in half before winding the line around it.
- Similarly, tie the other end of the line to the other towing point. There they both are, in the photo below. The photo shows the side of the kite which faces the flier, during flight.

(\* I prefer to secure the bridle line to the tape with a [Double Wrap Slip knot](#). A very reliable method.)



**Both towing points tied**



**Bridle complete**

- Nearly finished! Lay the kite on the floor, folded in half so the towing points are perfectly lined up with each other. See the photo.
- Stretch out the bridle lines and tie a [Simple Loop knot](#) in, right near the end. The 2 bridle lines should be exactly the same length. I've brought the loop knot back into the photo above, so you can see it.

## After Kite Completed

### *Packing The Kite*



**Folded in half, along the center-line**



**Rolled up with bridle wound around**

All ready to take or stow somewhere!

***FLYING!***



**Nothing to it - attach line, catch breeze**

After unrolling the kite at a flying field, your flying line can be tied to the bridle loop. That's it, you're ready to fly.

Alternatively, you can [Lark's Head](#) the flying line behind the loop knot. This makes it easier to attach the flying line and take it off again.

Remember that the inflatable cells need to be on the *outside* of the kite when flying. You can see them in that photo up there...

Avoid flying in very windy weather.

**Tails are optional** with this design. If you want to, tie a simple streamer through a hole near each lower corner of the sail. The packing tape border will prevent any further damage to the kite.

It doesn't take much breeze to keep this Soft Sled design aloft. In some ways, it's actually more fun to fly single-line kites in light wind. By watching, you can learn a lot about what's happening up there...

Hope you enjoyed learning how to make my Soft Sled kite!

# Even More Kites To Make!

This e-book provides a lot of building and flying fun for the money.

Would you like to try your hand at a *few more* soft kite designs? ...

[“Making Soft Kites”](#) is a collection of 5 of my soft-kite designs and includes the Soft Sled.

If you're up for it, try the last design in the e-book, the Octopus. This advanced fully-inflatable design looks great at 200 feet, tails a-writhing :-)



## “Making The MBK Soft Sled Kite”

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