



# Plan Maple Leaf



**This plan may not be used for commercial purposes!**

The original idea for the maple leaves came by chance. On the flight back from Windscape Kite Festival in Canada, the Canadian airline offered their food and drinks on a menu that was decorated in the style of the Canadian national flag with painted maple leaves.



*Die verschiedenen Farben: hier die Herbstfärbung*

I had almost 10 hours on the plane to look at these leaves in red, yellow and green, and to think of them as a kite. - A new project was born! The idea was to produce contrasting coloured interior profiles on the skin front surface, which should come as close as possible to nature, resulting in the creation of new colour schemes.

On different kite festivals the maple leaves have already found a lot of friends. Although initially no blueprint publication was planned by me, the story took its own course. On request I sent a graph paper drawing in the assumption kite builders could work with it. But there was a few who were not satisfied with this drawing and wanted more. There were people interested in Canada, in Argentina and in the friendly Kite Forum. I did not expect that, independent from one another, diligent drawing and construction was underway. Soon there were various digitized drawings available, and the Toronto Kite Flier even organized its own Maple Leaf workshop, in which 15 leaves have been built. It was similar at the Kite Club BATOCO in Argentina. In Germany, Frank and Susann Luge from the team WEIMAIR took on the leaves. They also made some changes to the air inlet and the internal profiles, so that the leaves also fly stably without a lifter. As demand is still large we have decided to publish this plan for private purposes only. The plan of the Maple Leaf is relatively simple and should be doable for experienced kite builders.



Anyone who has studied the preceding plans or even built one will find repetitions and similarities in some parts and steps of this plan. This is intentional, because these plans have been praised for being understandable and comprehensible. Why deviate from this style, it also offers a guaranteed easy introduction to the subject of soft kites for newcomers!

The leaf is comparable in size and material requirements with the previous building plans. However, one should not be misled by the simple form, sewing complexity and difficulty are involved! Sewing and kite building experience should therefore be present.

## The approximate material requirements:

<u>Ripstop:</u> Leaf colour	10 x 1,5 Metres
Inner and circumferential elliptical profiles	5 Metres
Drogue	1 Metre

### Lines:

For the 50 daN (~110lb)	2 Metres
bridle 70 daN (~150lb)	60 Metres
100 daN (~220lb)	4 Metres

<u>Reinforcing:</u> Low stretch line	12 Metres (approx.)
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Others: A repair opening is not necessary, since the leaf remains open at the air inlet.

A swivel for the drogue.

## The Leaf Form:

This plan describes the 3-meter version of the leaf, for that, ripstop with a width of 150 cm is ideal. Front and rear of the skin are cut with scissors. Whilst cutting the main skin make sure that the back is somewhat longer than the front. The position of the profiles is drawn onto the skin, this will be of help later when the panels are sewn together. This plan can be doubled in size without problem albeit reinforcing and bridle lines have to be strengthened accordingly.



## The profiles, triangles and ellipses:

As already described above, beautiful colour effects can be made when a darker contrasting colour is chosen for the inner profile and the circumferential elliptical profile segments. Yellow leaf with red interior profiles, red with blue, light green with brown, orange with green ... .. here the creativity knows no boundaries. A beautiful contrasting colour, when backlit, contributes to the leaf's vitality. The ellipses can be kept in the same contrasting colour as the inner sections. Since the inner profile is not directly visible here can scraps be used. Apart from the long middle section all other profiles, triangles and ellipses are needed double. It makes sense to cut the longer and larger profiles first, so that many of the smaller segments can be cut from left over scraps. It is advisable to label the cut pieces to keep track of the total of 33 parts. After the profiles the vent holes should be cut out. This can be done easily with a hot cutter. As a template, a cup, a plate or the like (approximate diameter 6 -10 cm) can be used. Then the tops of the long profiles and the part "h" can be, reinforced with a cord, hemmed.



**Säumen und  
Verstärkungsschnüre  
(links), Aufnähen der  
Verstärkungsschnüre  
(rechts)**

The overview drawing shows all of the segments.

This drawing is to scale and can be enlarged by hand whereby the thicker lines are in a grid of 50 x 50 cm.

For whom this is too much work, we offer the templates as a pdf file which can be printed 1:1, on this site or <http://kite-and-friends.de/bauanleitungen/bauanleitung-maple-leaf/>.

Since the outline should be visible through the fabric, you can directly draw or cut along the lines. Please be sure to know that there are a left and a right half of the skin, and the material must be turned accordingly. This should be taken into account when labelling.

The templates are drawn with a seam allowance of 0.7 cm, and at the upper edges of the longitudinal profiles and the part "h" has a seam allowance of 1 cm (air intake).

When a wider hem is preferable then this allowance should be taken into account before the individual segments are cut with a sharp pair of scissors. When all the parts are cut out, you can then begin sewing.

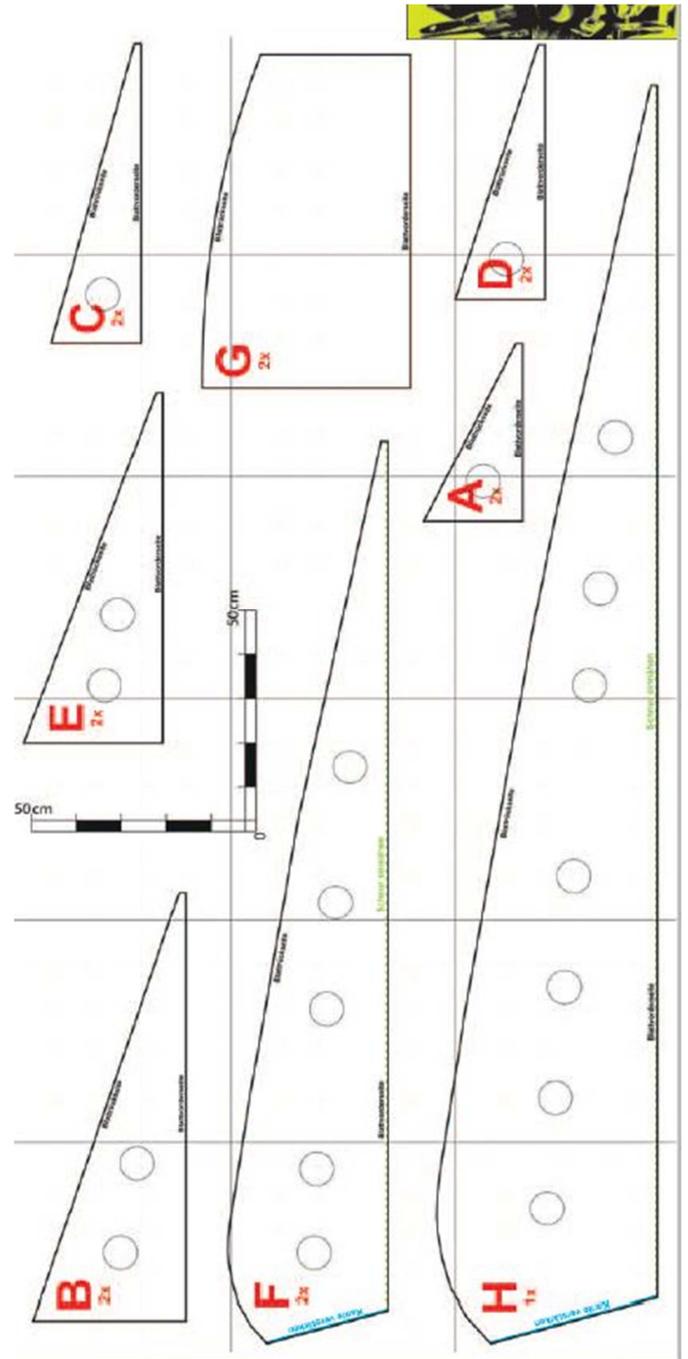
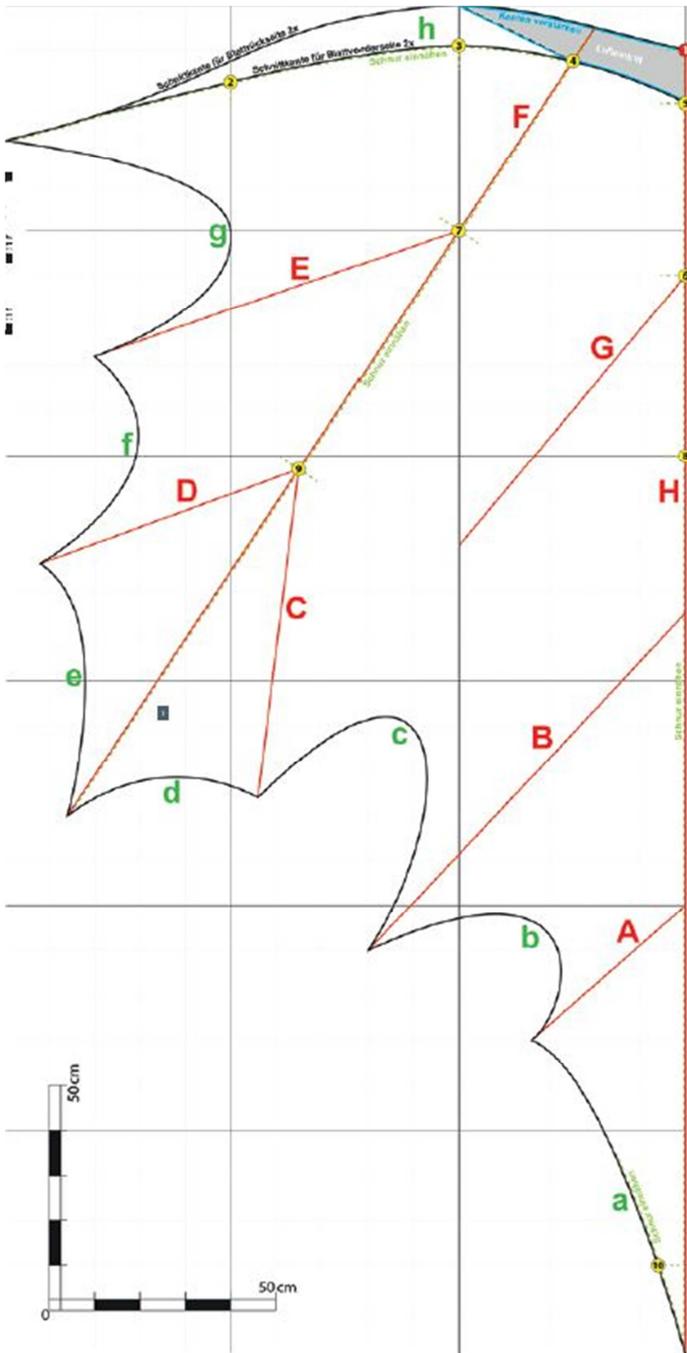
### **Construction specification:**

All seams are sewn from the inside. At stressed points line is sewn in for reinforcement as is into the hems of the upper edges of the longitudinal profiles. In particular the leading edge of the inner profiles should be well reinforced to accommodate the pull of the lifters.

Additional tip: When flying, the lifter should have a steep angle or even better the leaf be attached to the tow point otherwise it will overfly the lifter. The reinforcing lines should cross at the points where the bridle will be later attached so to avoid the fabric ripping.

It is easier to sew the lines in before assembly, position shown as dotted green lines.

At the trailing tip of the centre profile a loop is sewn in to be later used for the drogue (see point 10 on bridle image). The bridle points are marked in yellow and the lifter attachment in red.



## Sewing:

Having found the wanted colour scheme, the pieces cut out and marked, we can begin to sew. Basically there are two different ways to sew the skin together.

One would be to sew the two halves first and then join them at the middle, the second would be to complete the rear side and then attach it to the front skin. Whichever way, it is your choice.

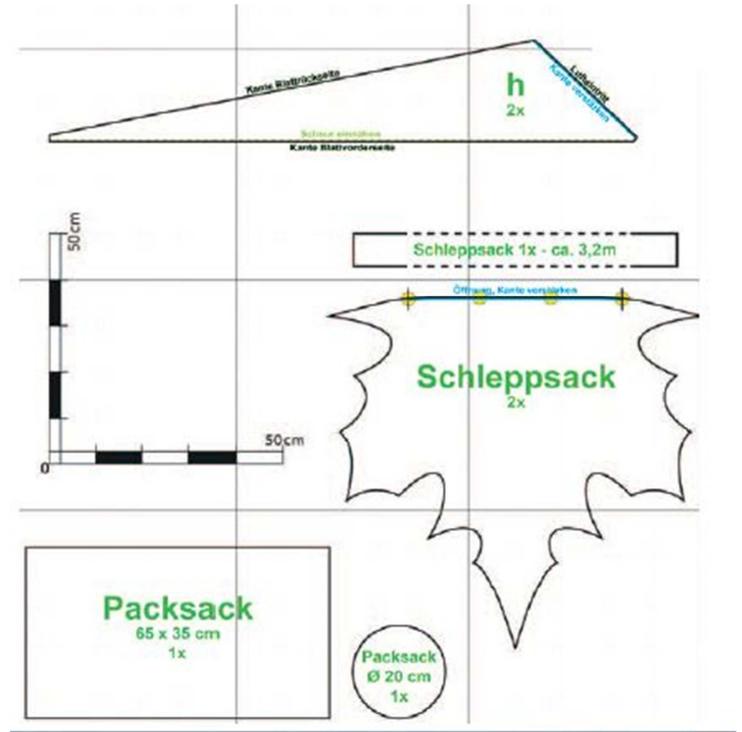
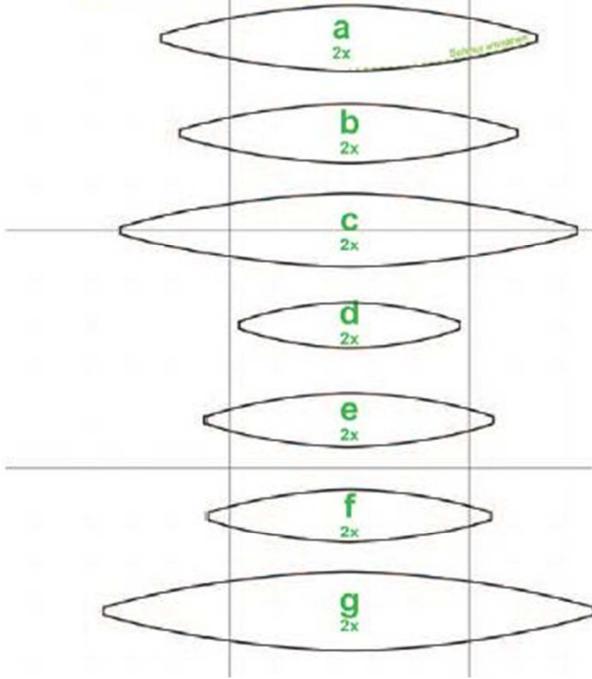
Here is the second method:

Firstly the front and the rear halves are sewn together in the middle with a simple stitch making up the complete leaf form.

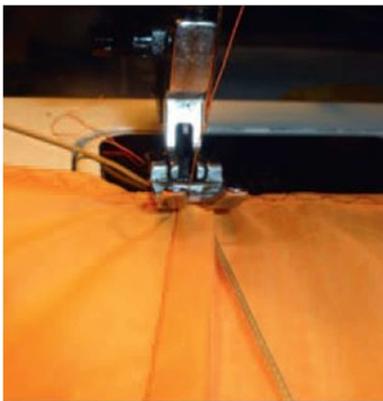
Starting top left, sew the ellipses to the rear skin, followed by the profiles. As explained above follows the reinforcing and hemming of top edges of the air intake middle profiles, also the vent openings cut out and the cord sewn onto the appropriate markings, after which the long profiles, starting at the rounded air intake side, are sewn to the rear skin.



Workshop / Maple Leaf



This done, the short triangle profiles can be sewn all the way into the tips being careful that the right angles of the triangles will be attached to the front skin. This means that the hypotenuse will finish on the rear side of the leaf. The triangles are only sewn to the front and back of the leaf, but stay open toward the profiles. When all profiles and ellipses are sewn to the rear skin most of the work is done. Now for the difficult part, joining these pieces to the front skin.



Mit Leinen verstärkte Säume



Schnurkreuze zur Verstärkung der Waagepunkte



Aufsicht mit eingenähten Ellipsen



Aufsicht mit Ellipsen und Innenprofilen

Those who have already built a foil or wings (i.e. the parrot) know how tricky it is to sew profiles from the inside, but no worries, it is possible if you keep the order of sewing. Starting from the left, sew the top edge to the outer tip.

First step; the ellipse “g” is sewn to the front skin followed by the first profile with the triangle “E” and finishing off with the ellipse “f” into the tip. Now the triangle “D” can be sewn in. Before the next profile can be sewn through into the tip, the 3<sup>rd</sup>. ellipse “e” must be fitted in. From the closed tip it continues with the 4<sup>th</sup>. ellipse “d” to the triangle “C”. Sew the rib “G” next before continuing with the next ellipse “c” and triangle “B”. Continue this procedure for the following profiles.

Always try to remember that the rounding still to be sewn stays open until the next profile hinders the placing of the machine foot. It is also recommended to check the fitting of the next profiles and ellipses before continuing to sew, any miss fitting can be corrected by stretching or cutting away the material. Before the tip of the leaf is reached a loop for the drogue has to be sewn in. Continuing around, step by step, until reaching the top right profile.



It seems sensible to leave the piece “h” until last so long a large enough opening is available for sewing. All the sewing been done, the leaf can be turned outside-in. Now for the drogue.

### The drogue:

A small leaf is ideal for a drogue.

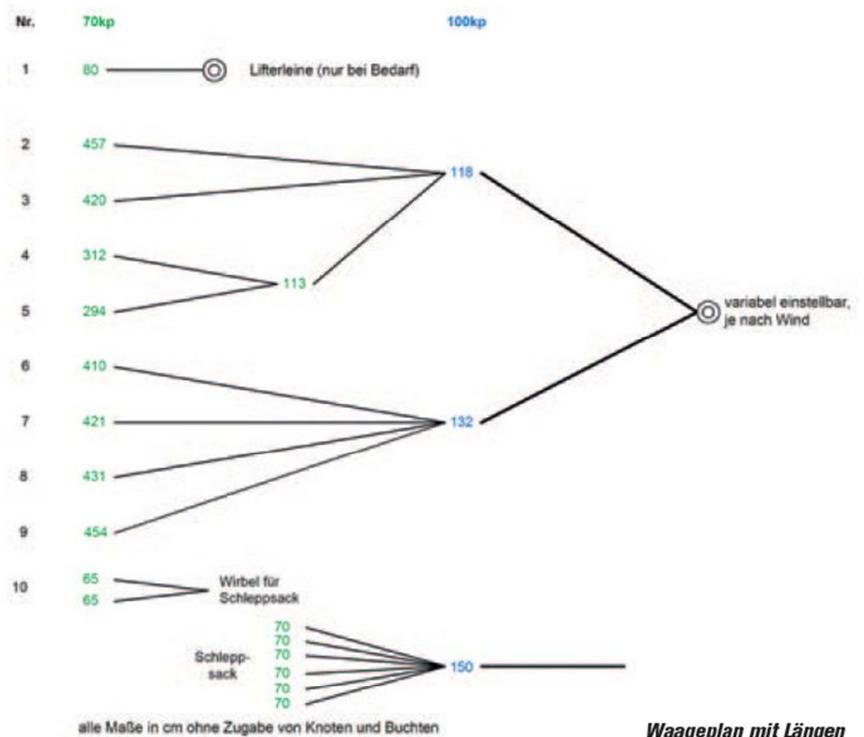
So that the drogue can be filled with air, a band (7 cm wide, approx. 320 cm long) is sewn between the two leaf halves. The top edge of the air inlet should either be hot cut or hemmed. 6 short lines (about 70 cm) are sewn on and attached to longer (150 cm) line, this is then knotted or attached with a swivel to the top of the leaf (see bridle plan #10).



*Schnurkreuze zur Verstärkung der Waagepunkte*



*Schlaufen zur Waagebefestigung*



### The bridle:

Using a 50kp (1kp = 2.204lb) line, knot the bridle connecting points by pushing an upholstery needle through the material and close to the cord crossings, pull the lines (about 10cm) through and knot them to loops, these will later be connected with a lark’s head to the bridle lines. The composite bridle is cascaded into lines of different strength. Starting at the leaf with a 70kp, followed by a 100kp and ultimately connected to a short piece of 130kp line or directly to a karabiner.

All bridle lines are finished with a stopper knot at one end and a loop (for the lark’s head) at the other end making it easier for connecting and tuning.

The bridle plan is read from the top, starting at the skin, down to the middle of the leaf.

All given bridle measurements are without the addition of knots and loops!

If this has not been done yet then a loop should be tied at the bridle point “1” to make a connector for the lifter and also a loop on both sides of the leaf tip, point “10” for the drogue.



### Storage sack:

If you wish you can quickly sew a storage bag. Sew a rectangular piece (35 x 65cm) onto a circular (20cm diameter) bottom, close the side and hem the top for a toggle line. Now the leaf is ready for the maiden flight. The hooking up of the leaf to a lifter can ease the first flight. The bridling should be correct but because of possible sewing and knotting differences it may have to be tuned. After some air time the material and lines will have stretched and depending on the type of line used sometimes the knots may loosen but after they have been taught this should not happen.

When everything is correct the leaf will fly in a steady wind even without a lifter.

A flying line, depending on wind speed, of about 70 – 100kp will suffice.

Enjoy building and flying at home or at kite festivals.

We would be pleased to have feedback about the plans/pictures.

Questions and/or contact to the author: <mailto:info@drachenbernhard.de>

Further pictures and plan download: [www.drachenbernhard.de](http://www.drachenbernhard.de)

Note of thanks:

Special thanks go to Frank and Susann Luge from the Team WeimAir: <http://www.weimair.de/> for the fantastic implementation of the drawings, to my kite friend Karl-Ulrich Körte: <http://www.raberudi.com> for his continuous advice and for the compilation for the homepage Andreas Napravnik: <http://www.drachenbaendiger.de>  
Translation: Christian Baden Powell



Workshop of Toronto Kite Fliers

*Fliers aus Kanada*

