

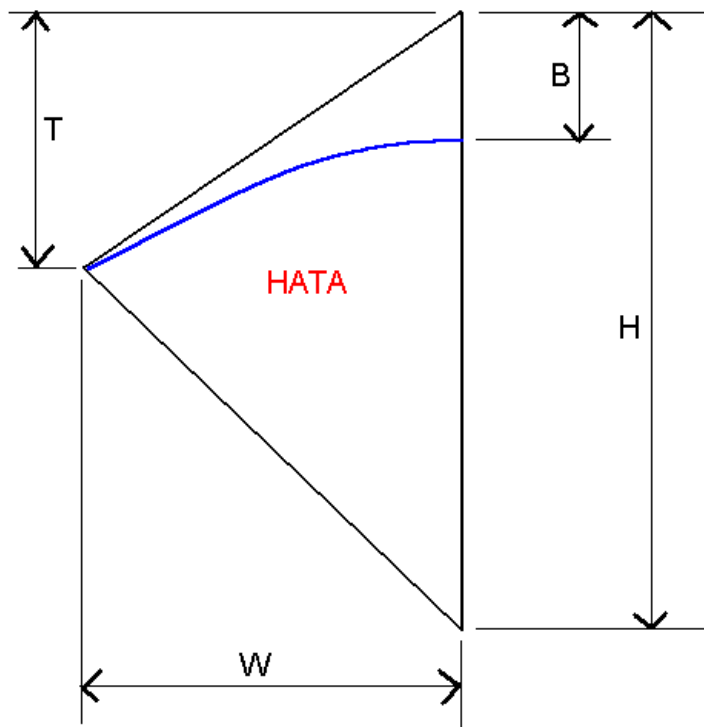
3 SIZE NAGASAKI HATA MADE FROM MODERN MATERIALS

By Peter (P-air) Stauffer June 2000



The kite and resulting plans and instructions, I have made because of a request by Uli Wahl and Rico Argent, as Rico does not have access to all the traditional materials to make a Hata. This meant that he could not fly and experience the wonders of these beautiful fighters from Japan. I have tried to reproduce the Hata as close as possible, in modern materials. In doing so, if I have offended any of the Japanese kite makers, I am truly sorry and I hope they accept my deepest apology, as my intentions are only honourable in an effort to introduce the kite to people who are not fortunate enough to experience a traditional Hata.

PLAN



MEASUREMENTS OF 3, _ SIZE, NAGASAKIYA HATA'S MADE BY 3 DIFFERENT JAPANESE KITE MAKERS.

I do not know the kite maker's names.

	N ^o 1	N ^o 2	N ^o 3
W	387	380	385
H	685	693	695
T	266	276	273
B	150	146	155

(BOW)

The Japanese refer to the frame of the kite as its bones.



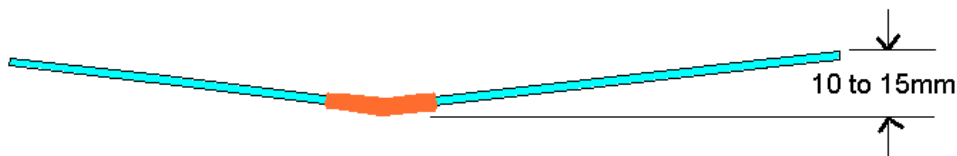
Main Bow section:- 3mm Fibreglass

Centre Bow Section:- 2.2mm Carbon fibre, 380mm long

Joining Tube:- Neoprene fuel tube, 2 off 5mm long, 2 off 10mm long

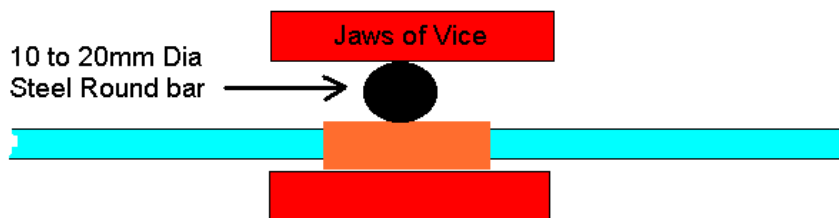
Neoprene tube holds the two rods together. This bow will give you the compound curve in the bow that is close to the bamboo Bow. It can also be used for trim adjustment for straight-line flight by offsetting the carbon rod 5,10 or 15mm to one side of centre of the main bow.

(SPINE)



Main section:- 6mm Fibreglass rod

Bending Tube:- Brass 25mm long



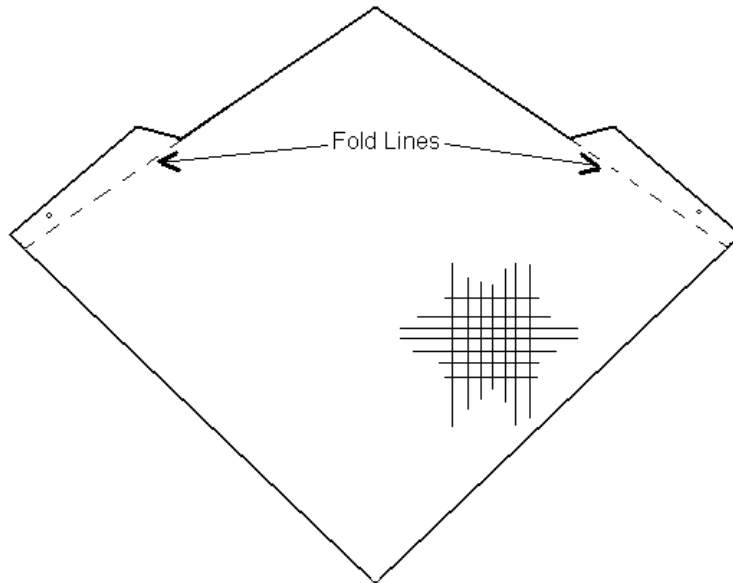
Bending spine:-

- 1) Mark spine at distance T.
- 2) Slide brass tube onto spine.
- 3) Glue tube onto spine with super glue.
- 4) Before glue dries, place spine horizontally in vice with round bar placed vertically across the spine at distance T.
- 5) Tighten vice to kink tube and spine, bending the bow 10 to 15mm.

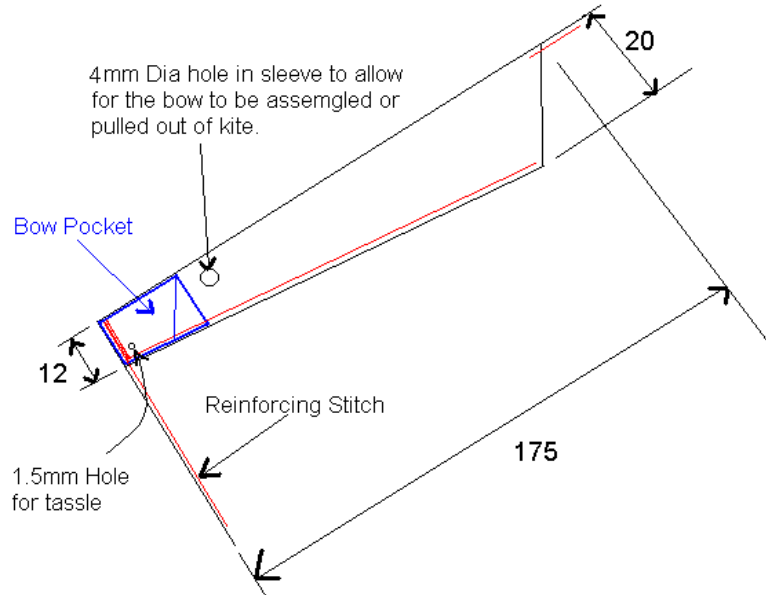
SAIL

Ripstop Nylon :- Colour, Red, White & Blue. Black can be used also.

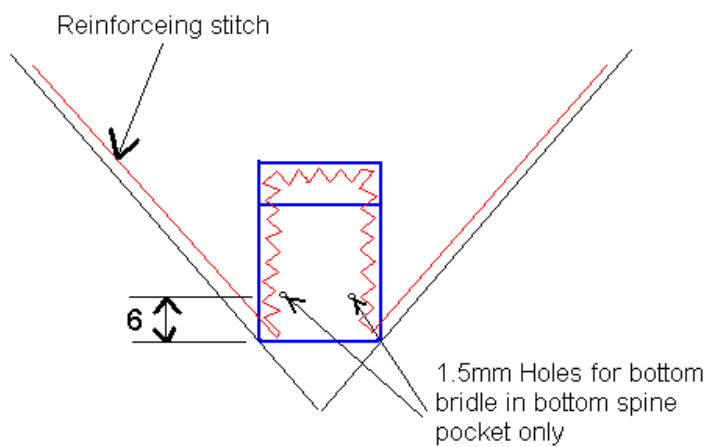
SAIL SHAPE Detail 1



BOW POCKET & SLEEVE Detail 2

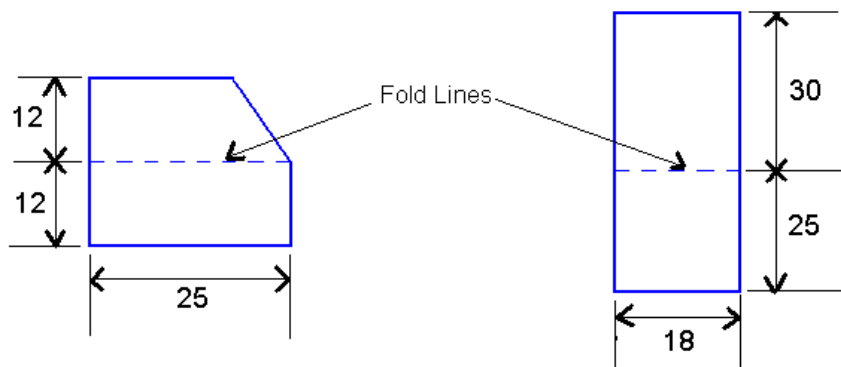


SPINE POCKET Detail 3



BOW POCKET Detail 4

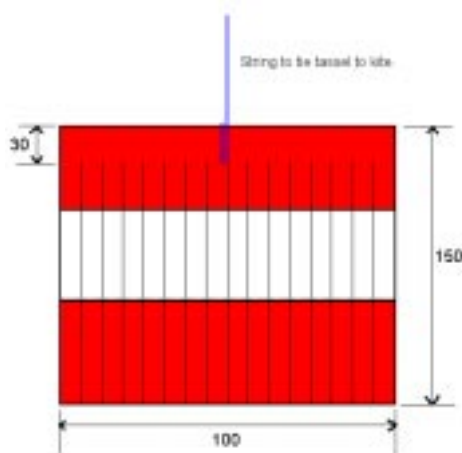
SPINE POCKET Detail 5



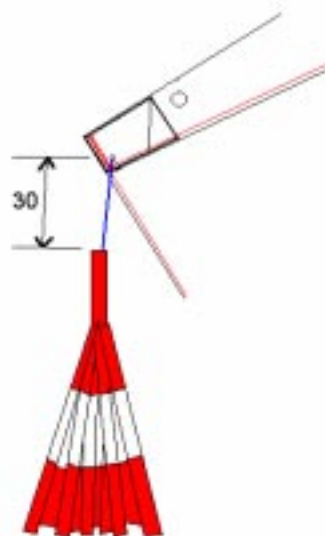
- 1) Decide on kite sail pattern, cut out pieces with hot knife, piece together with double-sided tape and sew with a zigzag stitch.
- 2) Using a template cut out sail shape with hot knife as per Detail 1.
- 3) Cut 2 Bow & 2 Spine pockets from heavy Dacron with hot knife as per detail 4 & 5.
- 4) Fold Bow pockets, one left hand, one right hand and seal the outside edges together with hot knife.
- 5) Fold spine pockets and seal the outside edges together with hot knife.
- 6) Using double sided tape, tape Spine pockets onto the back of the sail, as per detail 3.
- 7) Use double-sided tape, tape Bow pocket to the back of the sail, so the cut back section of the pocket faces up, as per detail 2.
- 8) Fold Bow sleeve over covering Bow pocket and stick down with double sided tape where stitching is going to be, as per detail 2.
- 9) To sew around the sail, start sewing at the bottom Spine pocket with a zigzag stitch on three sides, so that the spine is a neat fit into pocket, as per detail 3. Then change to straight stitch and sew reinforcing stitch, 2mm in from the trailing edge of the kite, up to the Bow pocket.
- 10) Continuing with straight stitch, sew along end of the Bow pocket and sleeve 4 times to stop the end of the bow pushing out, then up the inside edge of the bow pocket & sleeve, as per detail 2.
- 11) Raise needle then move over to a point 2mm in from the leading edge about 5mm back from where the fold of the sleeve pocket meets the cut leading edge, as per detail 2.
- 12) Sew reinforcing stitch 2mm in from the leading edge up to the top Spine pocket. Then change to zigzag and sew in top Spine pocket on 3 sides, so that the spine is a neat fit into the pocket, as per detail 3.
- 13) Change to straight stitch and sew reinforcing stitch, 2mm in from the leading edge, down leading edge to a point 5mm into the folded Bow sleeve.
- 14) Raise needle and move over to the inside edge of the Bow sleeve. Sew out along the bow sleeve and Bow pocket. Sew up and down the end of the Bow pocket 4 times then down the trailing edge, 2mm in from the edge, to the bottom Spine pocket and finish off with 3 or 4 stitches of zigzag, up the edge of the Spine pocket.
- 15) With a hot needle melt 2, 4mm Dia holes in the Bow sleeves, just in front of the Bow pockets, as per detail 2. **DO NOT MELT HOLE IN THE FRONT OF THE SAIL.** These holes are to allow the bow to be placed into position and if required, disassembled for transport.
- 16) Reinforce top and middle bridle points with 40mm Dia circles of sticky back ripstop.
- 17) Insert the bones (spine & bow) into the sail. The bow should cross the spine about 10mm higher than point B, then put the kite aside for 1 week to let the kite settle.
- 18) Now that the kite has settled, trim the main bow section so that the middle of the bow crosses the spine at point B with the centre carbon section in the middle of the main bow section.

TASSELS

TASSEL Detail 6



TASSEL Detail 7

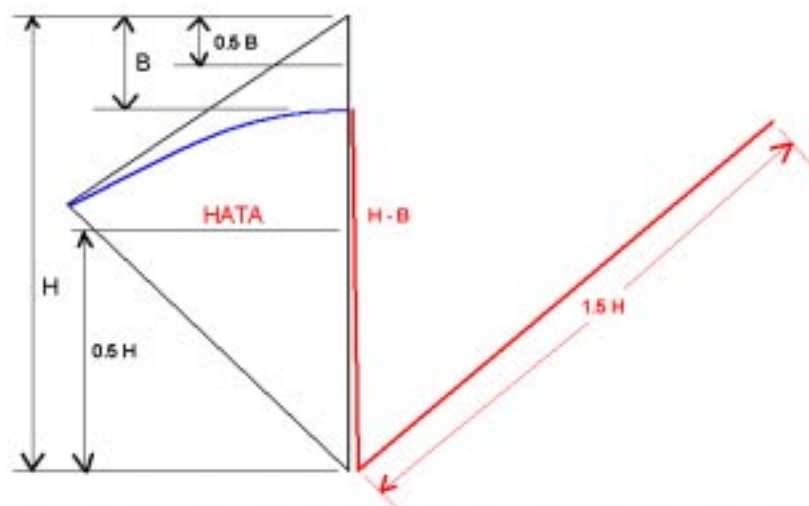


- 1) Using 3 strips of Ripstop nylon (2 Red, 1 White), tape together with double-sided tape and sew with straight stitch to form a rectangle 100 by 150mm.
- 2) Except for the top 30mm, cut the rectangle into 6mm wide strips with a hot knife as per Detail 6.
- 3) In the centre of the rectangle, loop the string down through the middle cut, then up the back of the material and back down beside itself, as per Detail 6.
- 4) Using super glue on half of the 30mm uncut section, fold and glue the material in half width ways, gluing the string to the nylon at the same time.
- 5) Before this glue dries, place glue on the 30mm uncut section, and from the folded side where the string is, roll up the tassel.
- 6) Melt 2 hole, one in the bottom corner of each Bow pocket as per Detail 2.
- 7) Tie the tassel to the ends of the bow pockets with 30mm of string between tassel and kite, as per Detail 7.

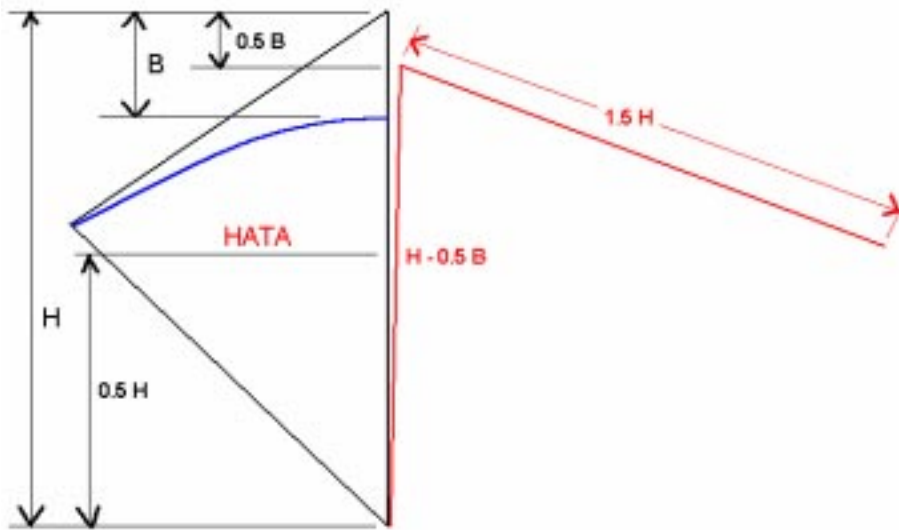
BRIDLE

The traditional Hata uses a two-leg bridle.

TOP BRIDLE:- $(H-B)+1.5*H$



BOTTOM BRIDLE:- $(H-0.5B)+1.5H$

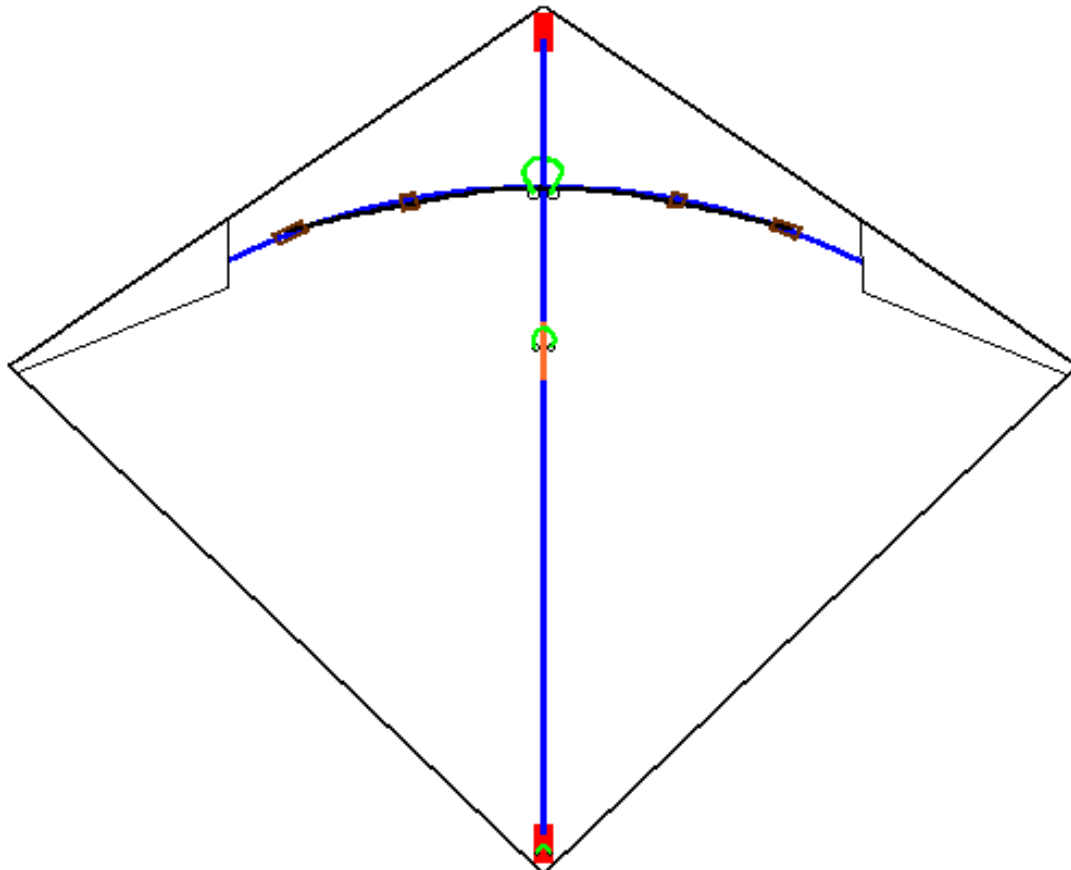


Bridle line 50lb breaking strain.

The Hata does not fly as well from a short bridle.

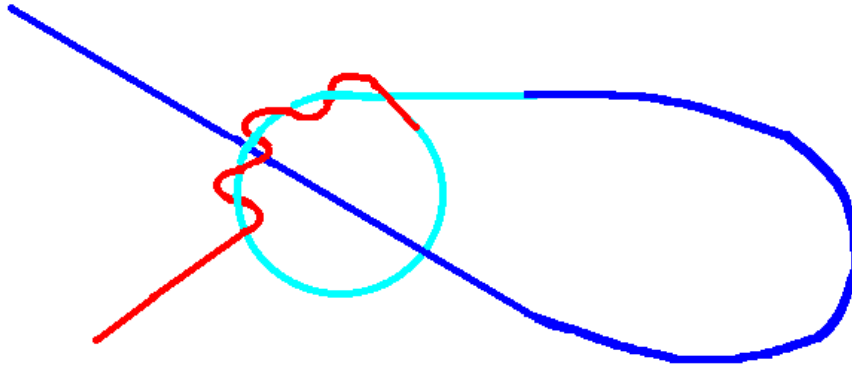
With a hot needle melt 6 holes, 3 on either side of the spine for the bridles.

BRIDLE Detail 8



Tie the bridles to the kite using a triple overhead or blood knot around the bridle line, as per Detail 9 and pull bridles tight. This knot will hold firm, but will still allows you to slide it up the bridle line and loosen the bow from the spine to remove bow for transport when required.

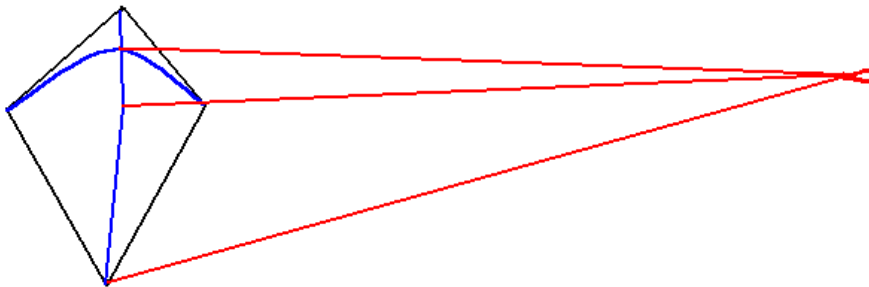
KNOT Detail 9



I have changed the colour of the line to make it easier to see how the knot is done. To loosen the knot, with one hand grab the tail and wiggle it side ways. At the same time with the other hand pull the bow away from the spine till they are about 25mm apart. You can now remove the Bow for transport.

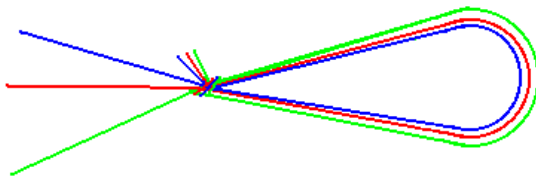
I used a bamboo Spine 7 by 4mm for my Hata. The round fibreglass spine will rotate around in flight if a two-leg bridle is used. To stop this happening use a third bridle tied to the bend in the spine at distance T as per Detail 10. SPINE MUST BEND FORWARD, to copy as close as possible the natural bend of a bamboo spine.

BRIDLE Detail 10

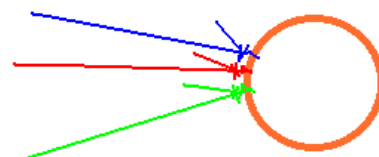


Measure and mark, top and bottom bridles to length. Then add the third bridle making sure all three bridles are of even tension when there is a 10 to 15mm bend forward in the spine. Next, loop the ends around and tie all lines with a single overhead knot as per Detail 11.

LOOP & KNOT Detail 11



RING Detail 12



Alternatively use a metal ring, tying the top and bottom bridles first then the middle one tied to the ring in between the other two knots, as per Detail 12. I have not found a need to adjust this bridle. If you want to adjust the bridle then make the top and bottom bridle's, one line and tie it to the ring with a larks head hitch. Tie the middle bridle to the ring in the middle of the larks head hitch.

When bridled, hold the wingtips against your fingers, with the back of the kite facing you. Push your finger inward, flexing the bow several times. At the point where the bow crosses the spine the bow must not move up or down the spine when you are flexing the bow.

FLYING LINE

Flying line 20lb minimum breaking strain.

When a bamboo and washi Hata is in flight, the sail does not flap. This combined with the minimal bend in the Spine and the strong Bow makes it a very fast, strong pulling kite.

MEASUREMENTS FOR A TRADITIONAL FULL SIZE HATA

W	490
H	870
T	365
B	190

The skills and knowledge I have used to make this kite have been acquired from many places over years of my kite making. It is impossible for me to remember where they all came from for these skills have been passed down from Guru to Chela for centuries in one form or another and because of this I do not put copyright on this information as it belongs to everyone. All that I ask of those who are wanting to use this material is that they give proper recognition to where they acquired this material as I have tried to do in the reference and acknowledgment sections.

Have a wonderful time with this magical fighter from Japan.

REFERENCES

Manjha News N° 8

ACKNOWLEDGMENT

Abdul Rauf, my kite making Guru, for his patience while teaching me the techniques to make Indian Fighters.

Peter (P-air 2) Lloyd, for showing me how to sew almost as neat as he can (well not quite that good) and for the spine bending technique.

Masami Takakuwa

Philippe Ravel

Masato Horikiri

All past and present Japanese kite Masters

All other past and present fighter kite masters

All modern kite makers