Barbarian Helmet Manual

Difficulty: high **Tools needed: advanced**

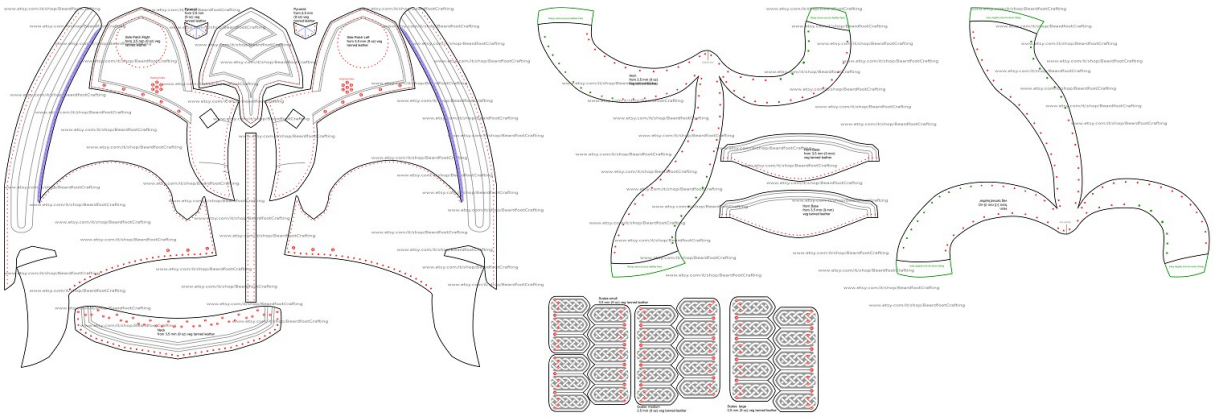
Recommended materials

> 2,5 mm (6 oz) veg. tanned leather
> 3,5 mm (9 oz) veg. tanned leather
> 12 m leather lace 6 mm wide 1 mm thick (3 oz)
> 10 m paracord 150

Tools: dremel or similar, awl, edge trimmer, cutting knife, burnisher, hole punch, leather carving tools, bone folder, clamps, sewing material, diamond shaped chisel, wing divider, glue, rivets

Video Tutorial:
https://youtu.be/vKd_PvJ63iA

Note:
> Black lines show you where to cut.
> Red dots with numbers show where to punch holes with a hole punch. The diameter is written in mm on the dots.
> Red dotted lines show where to punch stitching holes with diamond shaped chisel. Keep a minimum of 3 mm distance from the edges.
> Red squares show where to punch 4 mm thick holes for edge weaving
> Lines and dots in green show where stitching and punching holes are **estimated**! Mark them but do not punch them yet, they can differ depending on your molding. Hole areas in green show where other pieces are **estimated**, in white it is written which piece fits here.
> The grey line shows where to leather carve and put on ornaments, use pictures as reference.
> The blue areas show you roughly where to thin out the leather on the **flesh side**.
> On every piece is written the name and from what material it should be.



Overview over the pattern

Manual

Step 1
Printing and cutting out on paper. I highly recommend a rough cardboard or paper model first. Change the printout in scale if needed.

Note: You can print a large formats document such as a poster, banner or this pattern by splitting the page over several sheets (tile / poster function). This calculates how many sheets of paper are needed. You can adjust the size of the original to fit the paper size and specify how much the parts overlap. After that you want to cut away the edges and tape them together.

Note: The helmet is designed to be worn over a fabric head cushion for more comfort or foam on the inside, you want to count that in when sizing the helmet.
At 100% scale it fits in this way perfectly a person the a head circumference of 59 cm + 1 cm of cushion in the helmet. Scale it up or down if needed.

Step 2
Draw all the lines on the leather and cut out. Ideally you place the two big 'Main Pieces' already in the way on the leather that the backsides edges line up, this way you save yourself some sowing. Also leave some excess leather on the horn in the marked area.

Note: I recommend to cut out the face area on the 'Main Pieces' only rough, since we will glue pieces on there and have to align the edges after that anyway.

Step 3
- Moisten the leather and put on all ornaments on the grey lines
- Bevel and polish all the edges that will stand for them self.
- Thin out the blue areas on the flesh side, be careful not to cut through.
- Punch the holes on the red dots.
- Punch the sowing holes along the red dotted lines.

Step 4
Apply dye, paint, resist, antique gel and finish in that order.

Step 5
Moisten the pieces and bring them into their rough shape.

Step 6
Assemble the pieces.

Step 7
Sow the big 'Main Pieces' together at the back of the head if necessary.

Step 8
The moisten the blue marked edges of the same piece and bend them upwards, the will connect to the other inner edges of the same piece. At the back of the head the blue marked edge will flip from the outside to the inside.

Put contact cement on both edges but not where the edge flips and glue them together. Cut the now only halfway punched sowing holes completely through with an awl and sow it. Now put contact cement on the flipped area at the back of the head and glue it to the inside of the helmet and sow it in the same manner.

Step 9
I recommend to harden only the ‘Main Pieces’, but ‘Side Patches’ and ‘Forehead’ need to be moisten and shaped to the shaped too.

Water hardening: Harden the leather within about 50°C (122° F) hot water for about 5-10 minutes. The Leather will need up to 10 hours to dry, use this time to shape it into its final form.
Shaping: For a good outward bent, use a bone folder to stretch the leather from the inside out. To do so by grabbing an edge, put the leather on the table. Then press one side of the bone folder on the leather and pull it away from your hand towards your body, while pulling the leather up with your other hand. This way the leather gets stretched and give an outwards bend.

Optional
Oven hardening: If it is not hard enough put it in water for about 1 minute, let it set for about 30 minutes and put it into the oven for 30 min at 60°C. Make sure the shape you want is maintained. I recommend a test piece.

Step 10
After completely drying go for some edge weaving along the back of the helmet and the ‘Neck’.

Edge Weaving Technique: Always keep the top grain up. Pull the strap through the first hole, till there is only about 2,5 cm (1 inch) left, pull it trough the 2nd hole, but before tighten it, go through the loop and create another loop. Tighten now the first loop and then the 2nd. That is it. On outer corners use the same holes twice.

Step 11
Sow on the ‘Center Strap’ along the center sowing edge of the helmet staring from the edge at the back.
Position the ‘Side Patches’ and ‘Forehead’, hold them in place with clamps, mark the edge along, rough up the leather underneath, glue them on with contact cement, cut the sowing holes all the way through with an awl and sow it on. Cut away any excess leather, sand, bevel and redye the edges; for the eyes you will need a dremel of similar to align the two leather lairs.
Punch the round holes all the way through.
Shape the ‘Pyramids’ into pyramids, cut holes for it on the cheeks and sow them in, it is recommended to keep the sowing thread lose until the end and tighten it then.

Step 12 Neck
Use paracord to get together the ‘Scales’ with the ‘Neck’. You want them to get into lairs you start with the ‘Neck’ and the Small ‘Scales’ in the highest lair, underneath the middle size ‘Scales’ and then the large ones. It is very much impossible to describe well in text so check the video.

The idea is to go from front to back through one of the two middle 3 mm holes of one scale, then go down a lair through the 5 mm twice to lock it and then got back to the other 3 mm hole in the first lair. From here you go to the next scale and repeat.
If the scale bundle end you want to use the two 3 mm holes at the edge like a 5 mm hole.
The highest hole lair where it is attached to the helmet you want to create lashes of about 1 cm total length. Through these lashes you want to open a hole on the paracord with an awl and put rivets in.
Note: You need long rivets on the 5 holes on the edge and shorter ones on the middle 6 holes at the back of the head!

Step 13 Horns
For the horns you want to punch only the red holes at first and mark only the greens. Use lace to sow the horns until you run out of holes, then put the two edges together by hand and check how the marked holes line up, correct there position and punch and sow them. This is because small meanderings can have huge effect on the hole position and chances are when you do it 3 times it every time a bit different and this way you can be exact.

Step 14 Horn base
Moisten the ‘Horn Base’ and bend them around the ‘Horns’. Mark and rough up the leather underneath the edge (with the sowing holes) of the ‘Horn Base’ and glue it on. The ‘Horn Base’ has 42 sowing holes marked and the circle at the ‘Side Patch’ has 46, this means that 4 sowing holes will be only at the ‘Horn’ and not on the ‘Horn Base’, this is very important that all the holes line up and the positioning is easier.
Cut the sowing holes and sow it only with one thread so that every second space between two sowing holes has not thread.
Cut away the excess leather of the horn and redye the edge.
Now sow the horn on the helmet also with only one threat to cover the other spaces. You want to keep the thread very lose until the very end and tighten it the to make sowing easier. When you using only one thread you lose some stability but you make sowing much easier.

Enjoy!
I would love to hear your feedback!