

Flattening boot vamps

Confidence comes from method and understanding, according to experienced pattern cutter Tony Garley.

Flattening a boot vamp, sometimes referred to as 'springing', is associated with changing the shape of a pattern by a procedure that is not well defined, is influenced by styling and differs for every style with a single-piece vamp. In effect, the shape, which is carefully developed on the standard, is distorted when the final vamp pattern is created and the diagrams in this article illustrate why the process is needed.

While the centre line of the vamp on the standard is curved, a single-piece vamp can only be produced from a pattern with a straight centre line (Figure 1). Flattening in this context therefore relates to the curved centre line becoming straight. It is remarkable how little documentation exists about this process, so it is hardly surprising that trainee pattern cutters find the process daunting.

BASIC THEORY

On a boot vamp pattern, the curved centre line *must* be

Figure 1

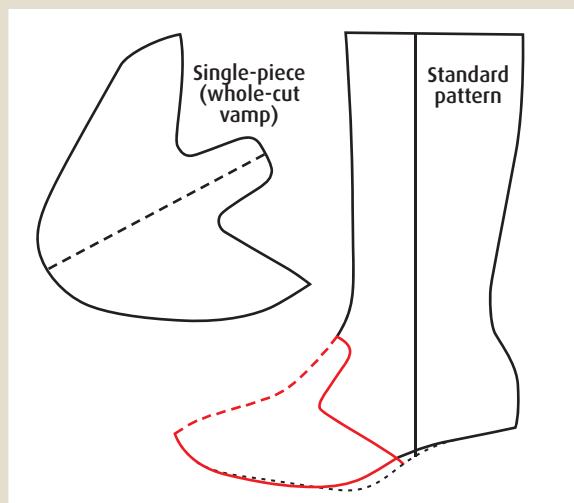
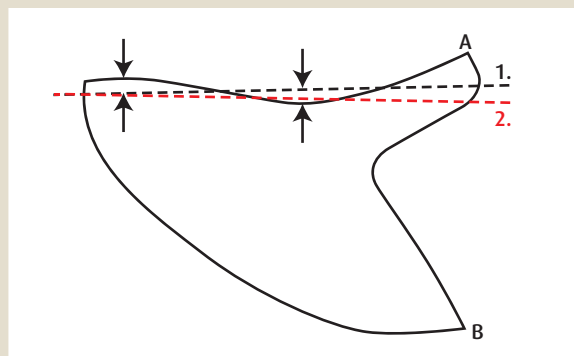


Figure 2



straight to enable a whole-cut component part pattern to be produced. So how does one go about this? In the past, many pattern cutters have been taught to take the vamp part of the standard—with its curved centre line—and place it on a straight line which becomes the new centre-line, with the centre of the curve below it and the two end sections above it.

Figures 2 and 3 show two alternative scenarios.

Line 1 has been positioned so that the gaps above and below the line (arrowed) are similar. One would therefore think that this equalises the stresses applied to the vamp in each area when it is lasted.

Line 2 demonstrates an alternative position with a small gap in the middle of the line and a larger gap near the toe.

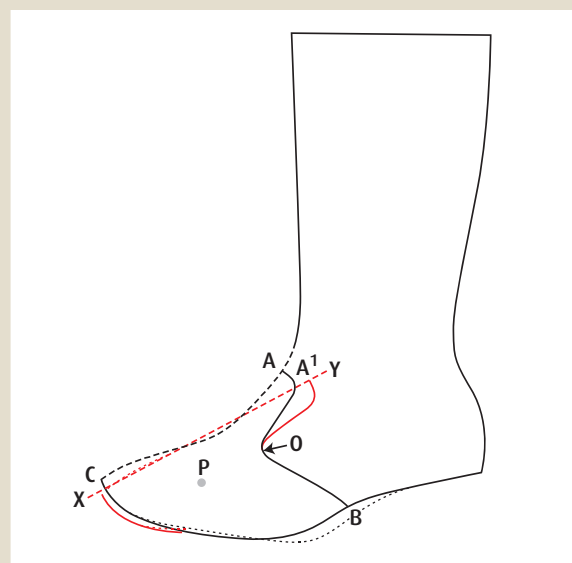
However, when focusing only on the area of the vamp and the curved centre line when positioning the straight line, it is very easy to overlook a very important issue, which will become clear later on.

While the shape of style line AB has to be changed, the length must not, as this edge of the vamp is to be stitched to the leg where the line is unchanged. The toe area needs to be pivoted or sprung down to provide the correct width of upper across the toe. As this usually shortens the lasting edge line, there is a temptation to compensate by pivoting or springing the lower part of the rear edge of the vamp backwards. We will show why this can cause problems.

GENERAL RULES

We can in fact establish some general rules for the vamp flattening process that can be applied to a wide variety of styles. The process can be outlined in three steps.

Figure 3



1. Line C-A: Decide the location of point O where the part of the style-line (A-O) to be sprung and the part that remains unaltered (O-B) meet, then locate line X-Y to become the new straight centre-line.
2. Line A-B: Create a new line A¹-O-B from existing line A-O.
3. Line B-C: Decide where pivot point P is to be located to create a new toe area lasting edge line. Blend this into existing line C-B.

Once the vamp has been flattened, the whole-cut vamp can be produced in the normal way using centre-line XY as a fold-line if pattern cutting manually, or as a mirror-line if using CAD. **Treat the inside lasting edge exactly the same as the outside lasting edge line C-B at step 3.*

We will now look at steps 1, 2 and 3 more closely to explain how this all works.

1. Measured at 90°, the distance from point O on the new centre-line X-Y must be identical to the distance from point O to the closest point of the curved centre-line C-A on the standard (*Figure 4*). This is because the side seam line A-O-B of the vamp has two parts. Lower section OB does not change its shape or position, and when joined to the leg section, establishes the draft-line shown below in green that controls the position of the upper, and more specifically, the quarter or leg when the upper is lasted (*Figure 5*).

For example, if on the pattern point O is closer to centre-line X-Y than to the curved line C-A, the leg of the upper will not be correctly positioned on the last. Point O will be higher, resulting in an incorrect angle of the leg relative to the ground. Maintaining the distance of point O from the centre-line is the important issue that can easily be overlooked if one focuses on the vamp centre-line only when positioning the new straight centre-line.

The angle of the line is more difficult to define, though not quite so critical. Gap (a) where the straight line is above the curved centre-line in front of point O, should not be more than 5-6 mm and is usually around 3-4 mm. Gap (b) near the toe where the straight line falls below the curved centre-line, will be greater than gap (a).

2. The new line A¹-O-B must be exactly the same length as the original line A-O-B. Bear in mind that line O-B is unchanged, so its segment A¹-O must be checked carefully. Line A-O on the leg component will be stitched to edge line A¹-O of the vamp, so every point along the length of segment A¹-O must be exactly the same distance from line X-Y as the equivalent point of the original line A-O from the line C-A when measured at 90° (*Figure 6*). This will ensure that the vamp 'tab' has the same distance from one side to the other as defined by the original tab outline of the standard. Any difference here will change the fit of the boot.
3. The position of point P (*Figure 7*) is not critical. It should be about halfway between line X-Y and the lasting edge, and below the point where the line X-Y crosses the curved centre-line in the front part of the vamp. Line C-B is pivoted down using point P as the pivot point by an amount that line C-A is above the new centre line X-Y near the toe, in order to create a new lasting edge line at the toe area. This line is then blended into the original line C-B.

The vamp may appear to have lengthened a little by pivoting

Figure 4

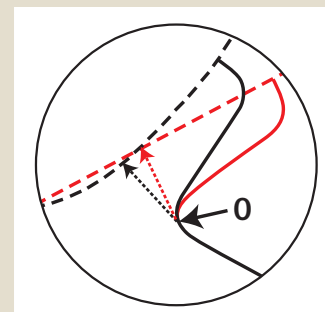


Figure 5

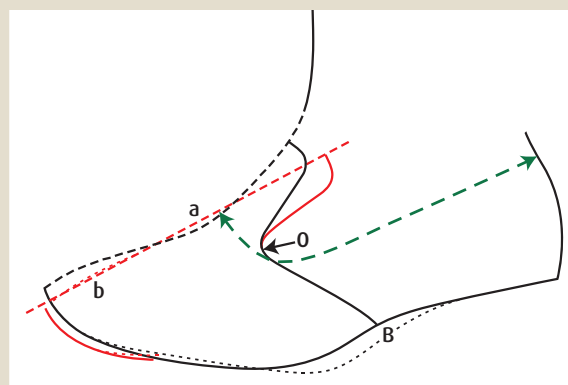


Figure 6

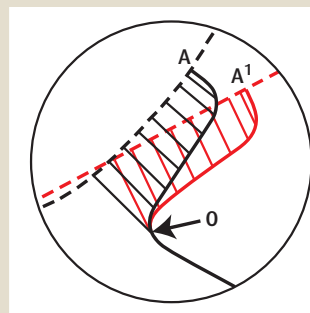


Figure 7

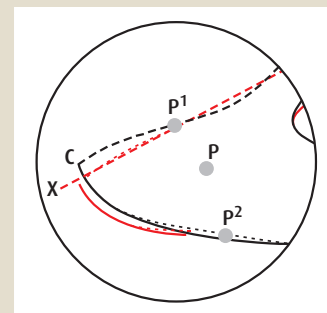


Figure 8

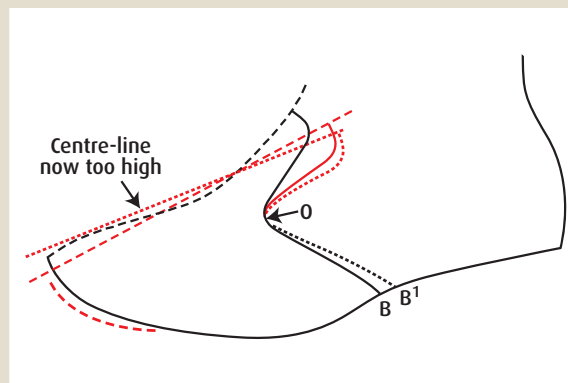
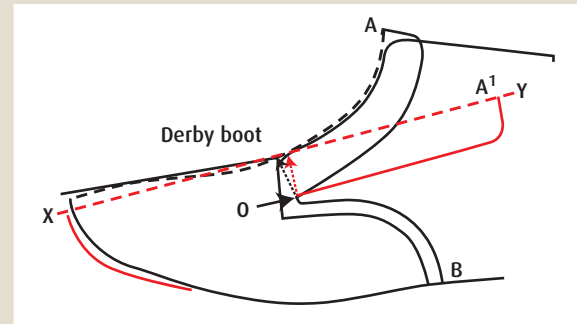
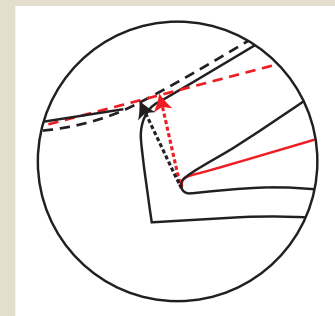


Figure 9



at point P, but in fact the lasting edge line has been shortened. It will only remain unchanged in length if pivot point P^2 is used, but then the upper is likely to be too long. In the same way, the upper will usually be too short if pivot point P^1 is used.

Figure 10



As mentioned earlier, there is a temptation to compensate for the shortening of the lasting edge line when the toe is pivoted down. This is not recommended, as lengthening the lasting edge line by pivoting the rear edge of the vamp O-B further back at point O to become line O-B¹, adds lasting edge length in the wrong place (Figure 8). Line OB of the leg is unchanged but if you superimpose line O-B¹ of the vamp pattern (the fine dotted lines in the diagram on to line O-B of the leg), you will see what happens to the centre line.

HOW UNIVERSAL ARE THESE RULES?

They apply to all boot and shoe whole-cut vamp patterns where the vamp extends up the instep, even when light pre-shaping is carried out. Indeed, many Gibson shoes and Derby boots will also benefit from having the vamp flattened in the same way. For instance, sheer strains in the vamp area from point O up to the centre-line during lasting are much less when the straight centre-line XY is used instead of the usual solid black line (Figures 9 and 10).

THE KEY STEPS AGAIN

- Identify point O and create the straight centre line
- Create a new line above point O without changing its length and distance to the centre-line measured from points on its length
- Pivot the toe area lasting edge down and blend to the existing lasting edge

Remember, shape retention is the ultimate indicator of quality. Reproducing the dimensions of the standard along the draft line in the component patterns is the vital factor linking the flattening process described and good shape retention. 

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