

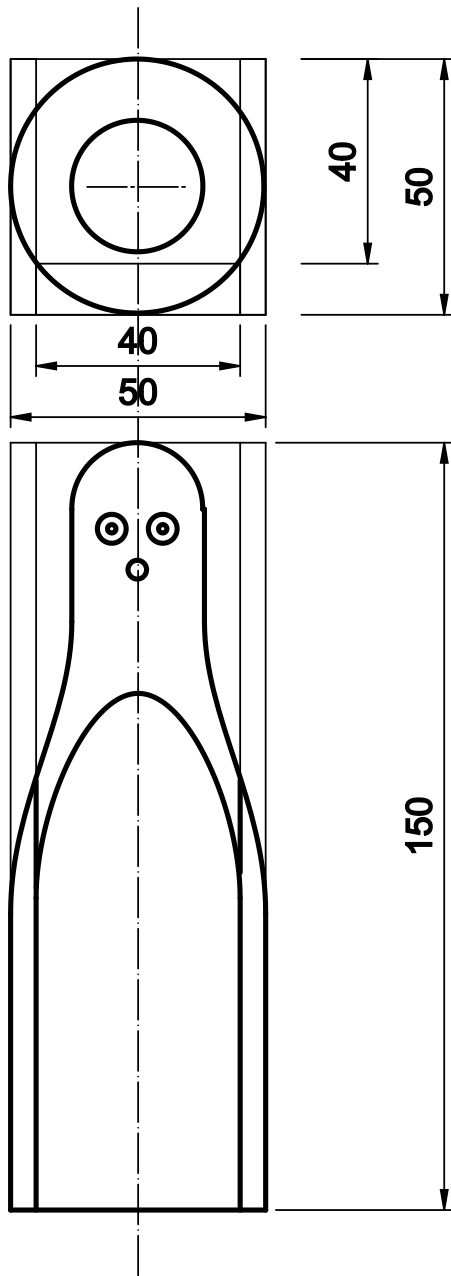
## A Waddle of Pesky Penguins.

Last year, I began making penguins as a demonstration piece at the various shows that the ABWT has attended, and after a number of people have asked how they are made, I thought I'd put this article together.

The turning of the penguins is fairly straightforward, but the preparation needs a surprising amount of care, both to get the right appearance and more importantly, to avoid problems when turning.

The use of laminated blanks can be a cause for concern when woodturning. To put it simply, if you do not have the facilities/ skills to assemble correctly, please don't do it. In my professional life, laminated assembly for woodturning is **strictly not allowed**. This rule is followed or strongly advised in a number of organisations associated with woodturning.

The steps shown should reflect the care that is necessary to safely produce blanks for turning safely, however, if you decide to have a go, it is entirely your responsibility. A visual inspection of the assembled block will not identify if the gluing/ assembly has been correctly performed.



The basic dimensions for the penguin are shown alongside. These are not critical, and the blank is slightly longer to allow for holding in the chuck or between centres.

The two 'wing' inserts are nominally 5mm thick, although mine were actually cut 8mm before being prepared for gluing, similarly, the breast area was cut 12mm to allow for 10mm thickness at the finish. Varying the thicknesses of the pieces will change the height/ appearance of the finished piece. Please experiment.

The 40mm square core is a dark wood, your choice, I used some scrap unnamed hardwood, recycled, but free from surface blemish. This was cut on a circular saw, and then sanded to ensure flatness. This was then glued to a piece of 12 x 42 Ash to form the breast. The preparation for both pieces was the same. The wing pieces, again dark, were made from a different species to make a noticeable visual difference



*The pencil squiggle enables you to see if the whole surface is correctly flattened ready for gluing*



Regretably out of focus, the piece is held on a belt sander which is large enough to sand the whole piece in one go, if you have a small disc sander this may cause some problems, as both pieces must be **absolutely flat**,

The flat bed of the sander (or a flat lathe bed) acts as a datum surface to test for absolute flatness, in this case good enough is not good enough, it must be flat. Rock the pieces, any movement and its back to the sander. Check that the centre is not bowed by pressing firmly in the centre.



*(If you have the luxury of a thicknesser, make sure that you plane/thickness the timber before cutting to length)*

The next stage is to glue the two pieces together; I use ordinary PVA for this, if done correctly the glued joint is stronger than the wood.



There must be enough glue to completely cover the surface, however, too much is almost as much of a problem as too little. If you use too much glue the moisture takes much longer to evaporate.

The glue works by the dry wood absorbing the moisture of the glue, drawing the PVA into the grain of the wood where, in the absence of air the PVA cures.

**If you have used a wood which contains high levels of natural oils, ie teak and others, you must degrease the surface before gluing.**

The surface of the wood should be just visible through the glue. When assembling, the two pieces should be rubbed together in a figure of eight to ensure that both surfaces are equally covered.



And so to a nice relaxing **24 hours** in a vice, you don't need to hang your whole weight on the vice, it doesn't achieve anything, just good and tight so that a bead of glue appears at the joint. Check that the two pieces are still in line, as they can slide apart by hydraulic action.



**PVA is nominally dry in 2 hrs, but takes 24 hours to fully cure. Given that the blank is going to be submitted to some fairly large shear forces on the lathe, please allow the full cure time between processes.**



*When dry, the blank(s) are marked up to show where the surface needs sanding to achieve a flat surface.*



*Not ready yet, notice the pencil marks towards the bottom of the picture, continue sanding right back and test for flatness*



*The sides glued on, (using a different but still dark material to show up the 'wings'), ready for another 24 hours resting in the vice*

If I have taught a few people to 'suck eggs' in the above section, it's because this is the minimum standard that I feel that needs to be achieved in order to produce blanks that are prepared in a manner that will allow for the risk of high speed separation to be minimised.



*When dry, find the centres of both ends as accurately as is possible.*

*It is important the centre mark is exactly half way between the front and the back surfaces (back nearest camera) and in the centre of the main (40mm square) block from side to side, if you are out on the side to side measurement by more than half a millimetre the wings will be noticeably different in height.*

*I use a chuck to hold the block for turning to shape .I prepare a spigot on one end to suit my chuck which needs a 45 mm spigot. I have turned penguins using a larger spigot, but this doesn't achieve a full circle, so will need care when mounting. The photo also shows that the 'wings' have been cut wider than the 5mm required, this will turn off.*



*I use a ring centre for preference, as I find that a lot less pressure is exerted on the blank for a positive location.*



*I turn the beaks from a piece of 4mm beech dowel held in a pre-drilled disc as shown. The extra hole and length of band saw cut are deliberate and enable an excellent grip. I have a number of these 'collet' chucks with varying size holes for quickly gripping small items. The beaks are then cut to length and dyed yellow.*





And so to the main event, (and a change in location)



1 Roughing out the shape clearly shows the reduction in the width of the wings.



2 turning the basic shape shows the difference in height of the wings (darker) and the breast (lighter)



3 Most of the shaping is achieved with the spindle roughing gouge, but the spindle gouge is used to finish off the head.



4 The position for the beak and eyes is carefully measured and marked out.



5 A spur point drill (4mm) is used for the beak, while a 3mm drill is used for the eyes. (if you use a 4mm for the eyes, they fall in!) Great care and accuracy needs to be achieved at this point, or the penguin will acquire the unfortunate name of Isiah.



6 The eye sockets are shaped using a 6mm burr, to about a third of the depth of the burr. Both eyes must be equal in depth



7 After sanding to 600 grit the penguin is finished with Friction Polish, and a coat of Carnuba wax.



9 Looks painful, but gently dip the beak and eyes in superglue and place in position. If wax has found its way into the holes clean first. The holes in the beads must face forwards and in the same direction



8 Part off, sand and finish the bottom.



10 Another pesky penguin comes off the production line. In theory they go onto the 'Pick a Peg' stand, where they last about 10 seconds before being snaffled, However...



Hayden, having seen the first penguin come off the production line, spent most of the next 40 minutes watching the production of this one from blank to finished article. We checked with his mum and asked him to hold it for the photo, and you can see his smile. When we told him that it was his to keep, he didn't know what to say.

Result.

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