

## Building a Wooden Router Plane

Spurred on by my promise to demonstrate plane making at the 2013 Perth Lie-Nielsen Tool Event, I made up a number of planes, amongst which were several router planes.





Think of them as you would a traditional wooden plane - they are adjusted with a light tap from a mallet. And they glide in the same smooth way.

The router planes use the Large Veritas Router Plane irons, so there is a range from 1/8" through to 1/2" available (I would argue that you could get away with a 1/4" and 1/2" for most tasks, with the smaller ones seen to be valuable but used in special cases, such as inlay).

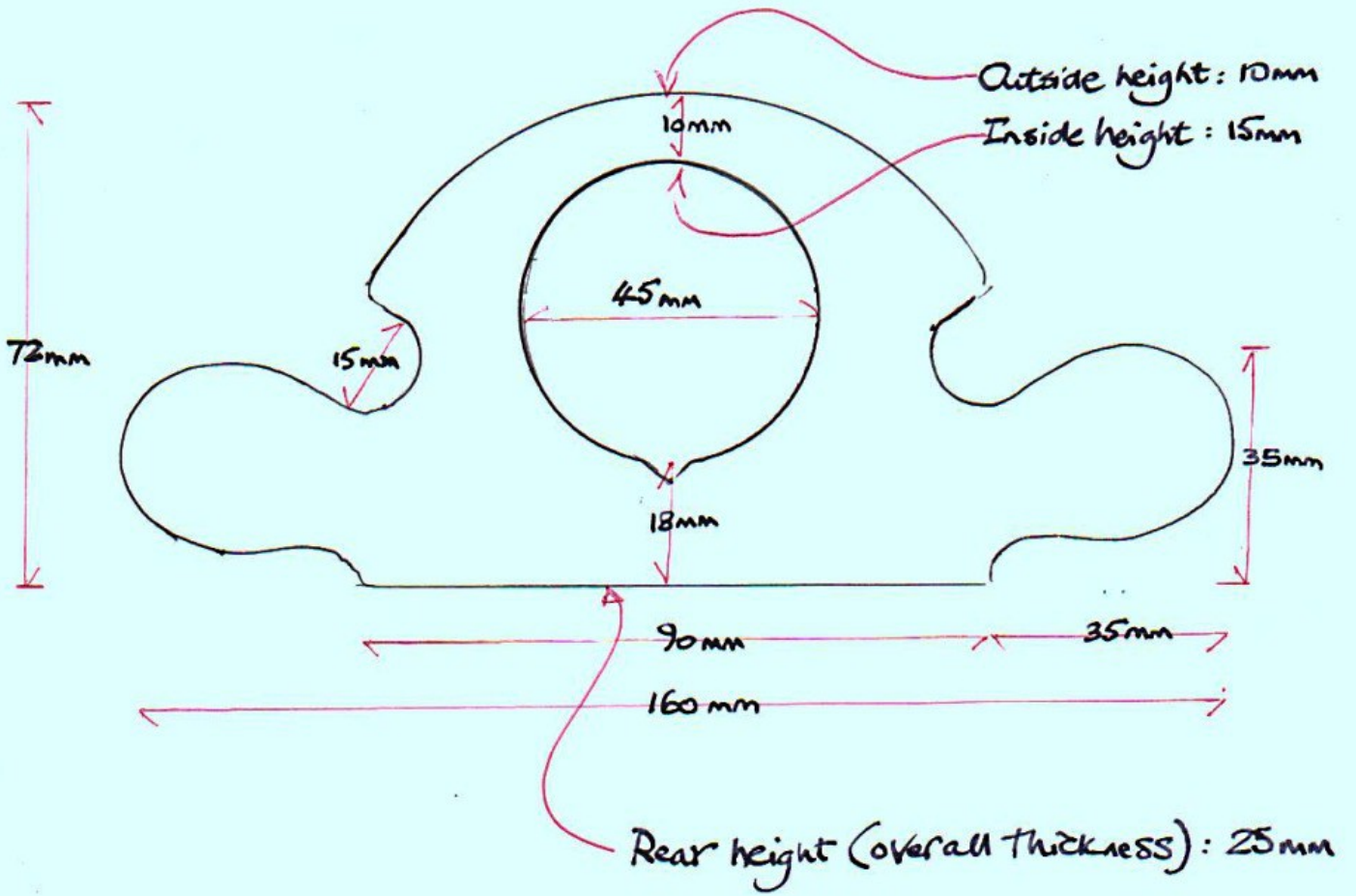
The blade holder uses a wavy washer (like the Veritas), which means that you can loosen the brass adjuster nut when adjusting the projection and the blade will not drop out (originally there was a brass wing nut, which you can use if a coupling nut is unavailable). There is also a depth stop (which is a vital piece of equipment with a router plane, for example, when planing hinge mortices or grooves).



## Plans

Below are all dimensions. I consider this router plane to be a medium size - smaller than a large and larger than a small. A cast iron Stanley #71 is 7 1/2" wide and this wooden router plane is 6 1/4" (160mm) wide.





Parts



The knurled brass blade adjustment nuts came via eBay (UK), and were referred to as "coupling nuts". These have a M6 thread, which I had to hunt for. I do not have a metal lathe, so no choice.

The eye bolt is stainless steel. This picture is post fettling and cutting to size ..



The wavy washers also came via eBay (UK). The problem is finding any of these items in small quantities. It is easier to buy 100 than 10.

The blades and the small knurled screw are available from Lee Valley. The brass collar for the depth stop came off plumbing, which I cut and ground.

### **Building the Router Plane**

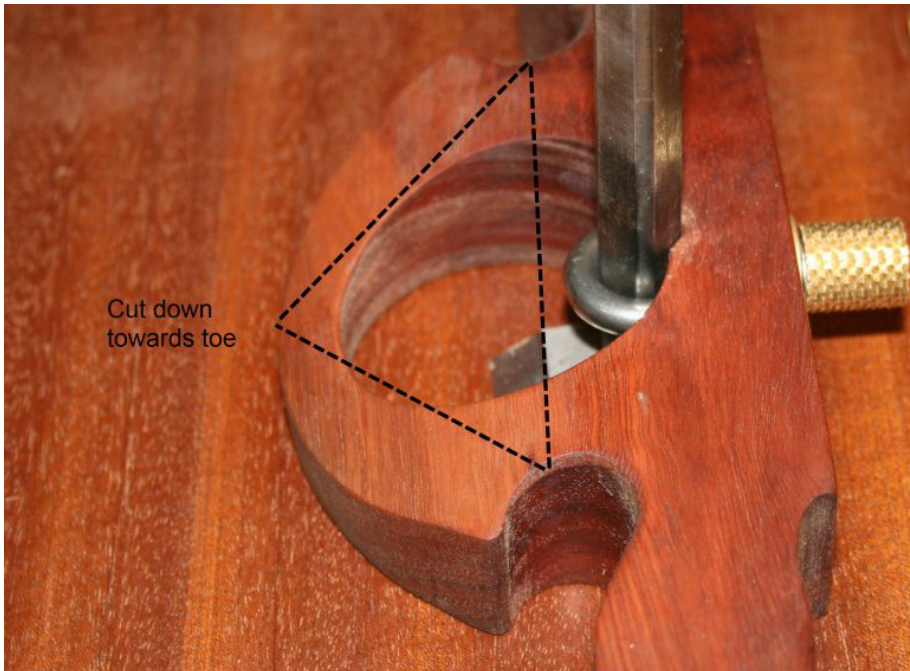
The first step is to transfer the outline of the router onto a suitable block of wood. The grain here is orientated width-wise. Note that the wood used on these router planes is hard and interlocked Jarrah.

The second step is to drill out the areas above the handles and the plane mouth.





The next step must be to saw away the front section of the plane so that it slopes down from the handles to the toe. I used a backsaw for this, and then filed it flat and smooth.



Note that the height at the toe determines where you will be able to place both the hole for the eye bolt as well as the height for its mortice. Since these need to be drilled from the toe side of the plane, the toe must find a compromise height for positioning the mortice and for strength.

Here is the rear of the router to show the height achieved ...



The eye bolt is held in two dimensions: the eye bolt, itself, is held in a horizontal mortice. With the iron installed, it is held vertical by a groove for the latter ..





Here is a better look at the mortise ...



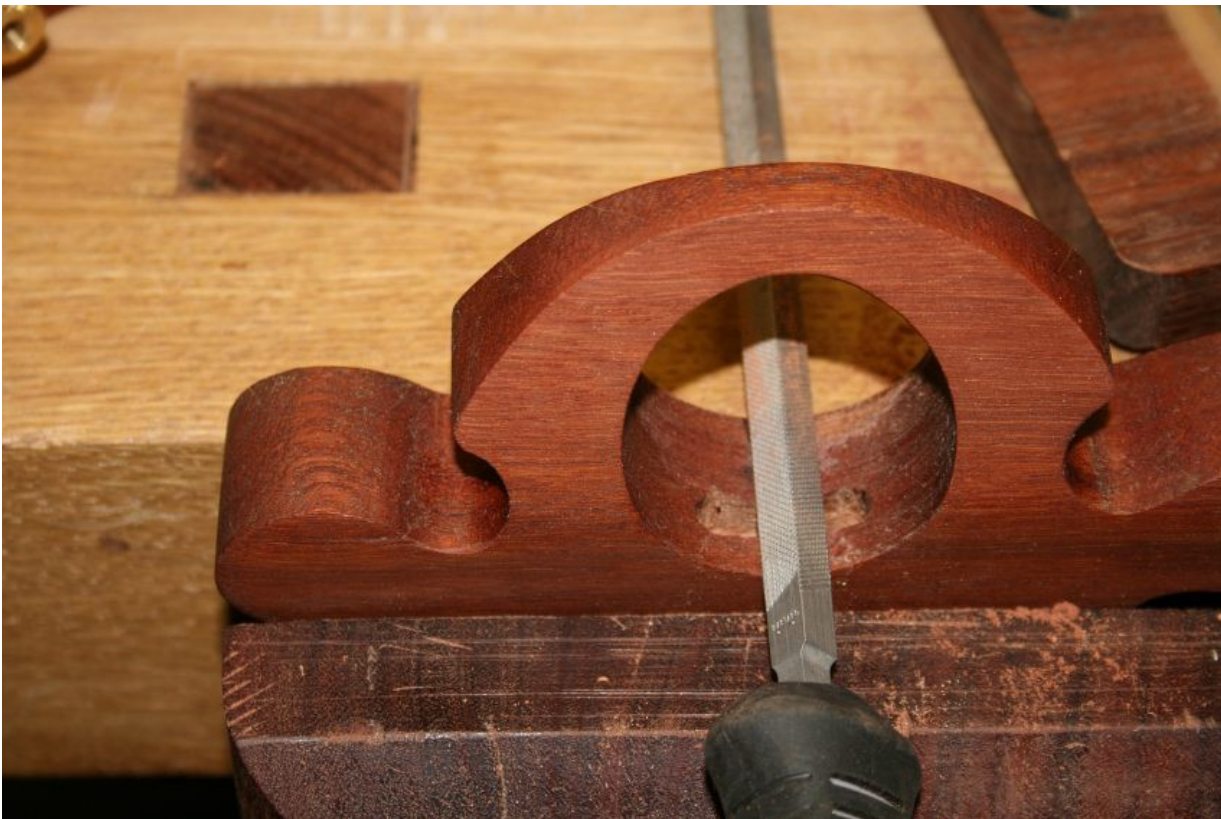
The mortise is formed easiest at a drill press. It needs to be wide enough to secure the width of the eye bolt, and deep enough to lock the pointed rear of iron in the groove.





The groove must be precisely vertical – otherwise the iron's cutter will not sit parallel to the surface of the work piece.

Begin by using a coarse square file to remove the waste in line with the hole...



Now stand the router plane plus iron and check the shaft for square ...



You also need to fettle the eye bolt to fit in the mortise. The lower outer section of the eye bolt is round and needs to be flattened to fit securely in the mortise. If you deepen the mortise instead you will weaken the wooden structure. The shaft of the eye bolt can be shortened to suit. I used a grinder and files here.





We are now in a position to assemble the router plane. One of the integral items to aid in a smooth adjustment of the irons' projection is a wavy washer.

There's a wavy washer in front of the knob and after the (flat) brass washer. This acts as a spring and allows the knob to be loosened without losing all tension. Some tension remains to hold the iron in place, and this permits it to slide up or down without losing its integrity in the groove.



The final piece to build is the depth stop. This is simply a section of brass tube that fits snugly around the shank of the iron. A thread is tapped into a wall for the knurled screw. Reduce the length of the screw for the ideal aesthetic.



**Setting up the router plane**

The iron needs to be adjusted so that it sits snugly in the groove, in a vertical orientation, and flush with the underside of the body of the router plane.



Now attach the depth stop.

### **In use**

A wooden router plane of this size is strikingly different in feel and feedback when compared with the larger iron router planes. It is held low and pushed with the thumbs behind the blade attachment. The "handles" are there for fingers, but the effort comes from the thumbs. As a result one is working as if with a LA plane, that is, with a low centre of gravity (or, as I prefer, a low centre of effort, a sailing term).

By contrast, the Stanley/LN/LV work from a higher level. Their handles move the centre of effort higher and wider. They have less direct feedback and feel.





Regards from Perth

Derek

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## **Part II – Modifications**

The guys on the Aussie forum (Ubeaut) challenged me to add a brass section to support the blade. I thought this a good idea, not just for the bling 😊 but because it would add a little more solidness to the blade bedding (although Mk I is solid anyway).

I must admit to scratching my head for quite some time before coming up with a very simple addition. Here is the finished router plane ...



Doesn't look any different to before? 😊 Look carefully at the brass "v" at the rear ...





Under the plane the brass channel is more easily seen ...



... and without the blade ...



Loose and prior epoxying together ...





Here in the insert ...



A larger eye bolt was required. I could only get a 1/4" diameter and had to convert this to M6 (to match the brass nut).





The inside of the eye bolt must be filed so that the brass channel fits snugly ..



When using epoxy, add a little tint ..



When glueing in the brass insert, secure the blade upsidedown ..





This will allow you to ensure that it is square to the sole of the plane.





All the best with yours.

Regards from Perth

Derek

May 2013