This article follows on from the description of bearing and belt replacement on a Planer for my 1971 maroon Coronet Major lathe.

As mentioned previously it was great to start the motor up and to hear the smooth hum you get from a planer but without the horrible cacophony of bearings in distress. However when I took a trial cut on a piece of softwood, it was pretty bloody awful; it was neither flat nor a good finish and there was some vibration. I had followed the instructions given in the manual for setting the blades to the letter but it appeared that the settings had changed. After checking the blade height in relation to the rear fixed table, I found that the blades were around 0.75mm lower than they should have been. I thought about it for a while and realised that I had made several errors and false assumptions therefore I decided to repeat the exercise and document exactly what I did & how in order to get it right.

My real aim in all of this was to be able to plane up some Pear blocks taken from one of my trees that I had felled several years ago - Pear is a beautiful wood but quite hard and unforgiving of a poorly set up planer.

Setting The Blades

I read up on several of the blade setting methods and the setting jig equipment available but I think that f you take care with what you are doing, then using a piece of wood with markings around 1/8" apart, works well as shown below - this is as per the Coronet Manual and it is a pretty accurate method.

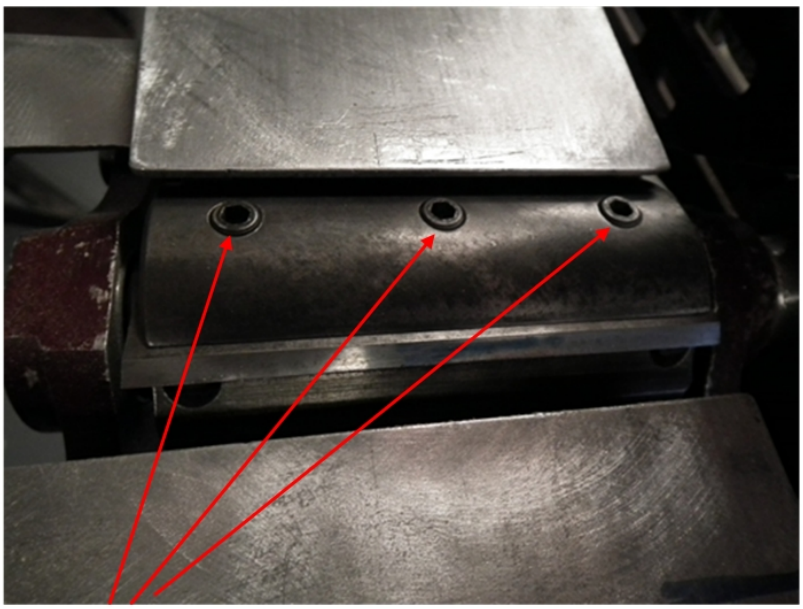


Plate 1: Cap Head Blade Clamping Screws

There are 3 x off clamping screws per blade. Start with one blade and undo the 3 screws. Then, take up any slack and give them a slight 'nip' (but not so tight as to prevent the blade form moving on the adjusting screws). Repeat for the other blade.
Following the Coronet manual, I took a bit of wood, made pencil marks ..."about 1/8" apart"... as shown in **Plate 2** and **Fig 1** and then rotated the cutting block as per the instructions.
Note that the blue on the blade is from marker & not due to heat - this was only so I could remember which blade I had adjusted (shaky old timers memory).

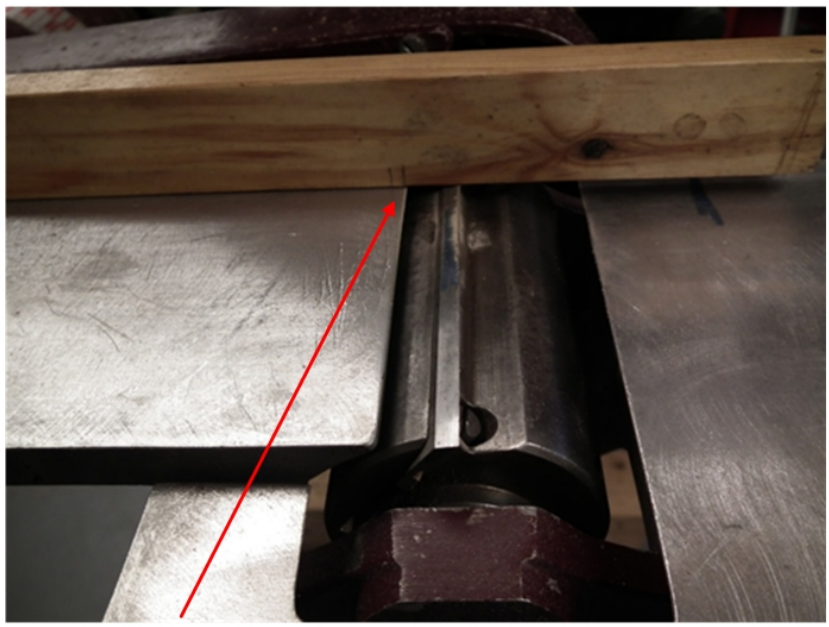


Plate 2: Wooden Setting Jig (setting marks arrowed)

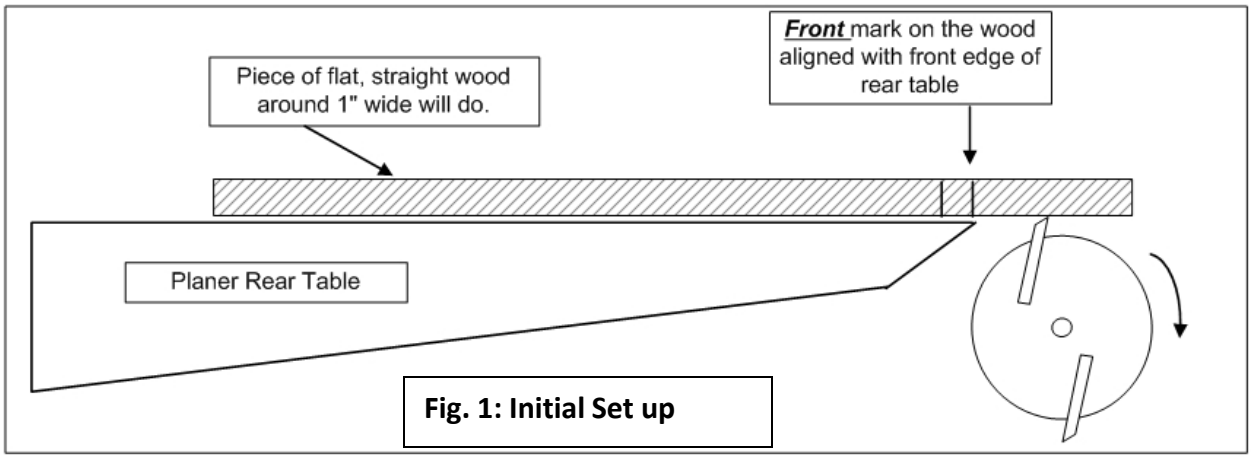


Fig. 1: Initial Set up

Apply light pressure on the strip of wood to keep it in contact with the table. Rotate the cutter head in the direction of the arrows as shown. The blade should catch on the wood and move it forward to the rear mark.

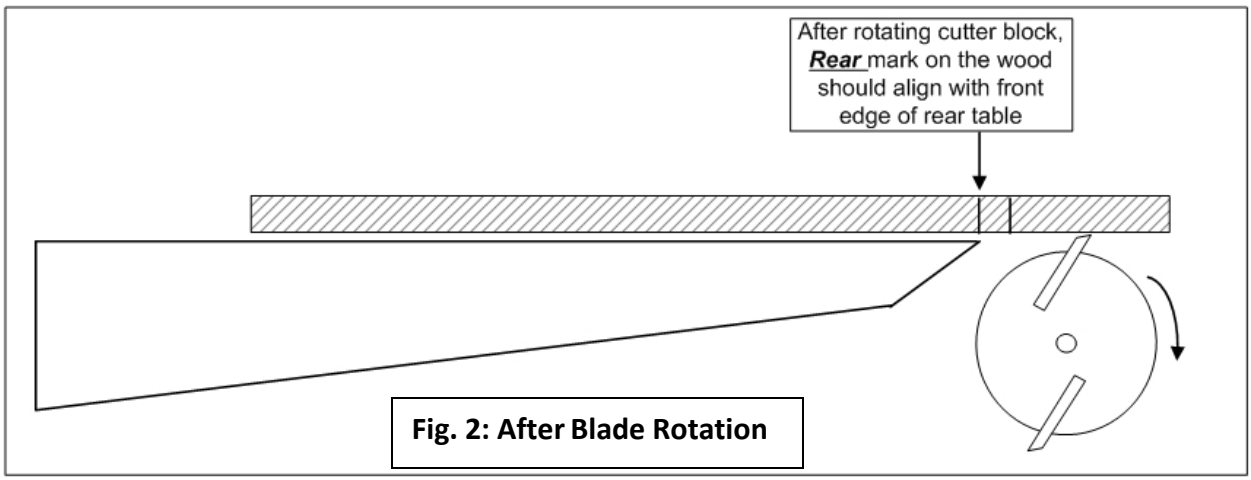


Fig. 2: After Blade Rotation

You can adjust the amount that the blade protrudes from the cutter block using the screws shown below so that the wood moves forwards by the amount recommended by Coronet (1/8"). NOTE: The amount of movement should be the same at all positions across the blade.

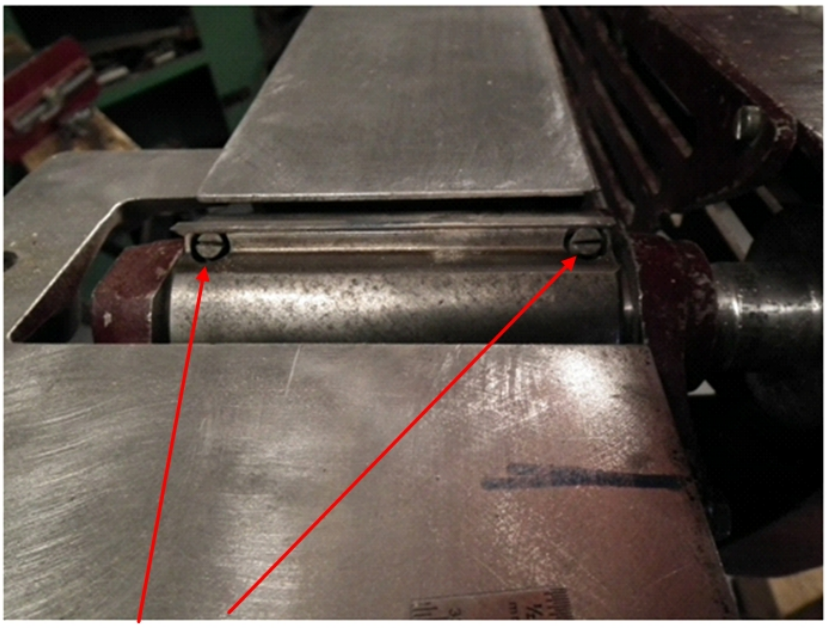


Plate 3: Blade Adjusting Screws

Once you have achieved the prescribed 1/8" movement, tighten the 3 x off clamping screws evenly on each blade (take up the initial slack on each screw and then progressively tighten). Then, check with the marked wood to ensure that the blade has not moved. Repeat the whole exercise if necessary (as I had to).

One item is worthy of further mention; If, during adjusting the blade, you find you have screwed the adjustment screw out too far, then screw it back in but carry on for ½ a turn more and then screw it out again; this will ensure that any slack in the adjustment screw is taken up.

Further Info

I found the following on https://woodgears.ca/jointer/knives.html, an American website, and thought it worthy of inclusion here; note that he uses a steel rule rather than a piece of wood. It applies to a 2 ½" cutter block, the same as the Coronet Major and whilst it may contain info that you are not all that interested in or may not need, knowledge is power and it shows just how fine the tolerances are when setting up blades. The sentence underlined below provides a probable cause as to why my initial blade setting attempt needed repeating.

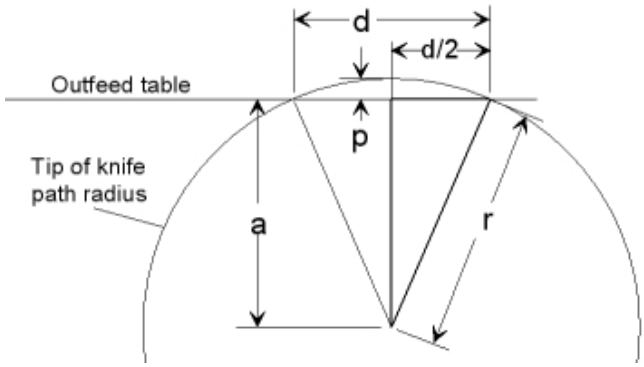
Given that this is an excerpt from an American website, the "Outfeed Table" mentioned is our Rear fixed table, "Alan" key is self explanatory whilst "Jointer" is their term for a planer. Also, they have a three-bladed cutter block whereas the Major only has two.

..."Setthe height of the knives so that if you rest the ruler on the outfeed table, and turn the planer head by hand, it will pick up the ruler, and move it forward by 5 mm, or about 0.2"Measure it just above the jack screws. It's a bit of an iterative process, and I usually just leave the alan key in between checking.
For a typical 2.5"diameter cutter head on a 6"jointer, having the ruler be moved by 5 mm works out to having the knives protrude 0.004"(0.1mm) above the outfeed table.

<u>However, once you tighten the four screws to lock the blade in place, the knife will actually come up a little bit, just from flexing in the steel.</u> On my jointer, after tightening, the ruler gets carried about 6 mm, which works out to closer to about .0048"or 0.12 mm. When you adjust the blades, ignore this change in height after tightening. After installing, adjusting and tightening all three blades, check that they all come to the same height. If they all came up by the same height after tightening, you are good to go.

The amount of protrusion from how much the ruler gets carried can be calculated as follows:
If ***r*** *is the radius (not diameter) of the cutter head and* ***d*** *is the distance the ruler is carried, then the protrusion (****p****) of the knives from the outfeed table can be calculated using the Pythagorean theorem.*

For a right angled triangle, the pythagorean theorem states that the sum of the squares of the length of the sides forming a right angle is equal to the square of the length of the diagonal.
Thus, for the geometry at right, $a^2 + (d/2)^2 = r^2$
and a can be calculated as $a = sqrt(r^2-(d/2)^2)$
Where sqrt denotes square root.
And finally, $p = r - a$
Thus:
Protrusion $p = r-sqrt(r^2-(d/2)^2)$



For a 2.5"diameter cutter head, using inches, this works out as follows:

Distance ruler pulled	***Knife Protrusion***
0.10"	*0.0010"*
0.12"	*0.0014"*
0.14"	*0.0020"*
0.16"	*0.0026"*
0.18"	*0.0032"*
0.20"	*0.0040"*
0.22"	*0.0048"*
0.24"	*0.0058"*

I found a link to a planer setting jig on Ebay costing £21:59 which seemed reasonable although quality unknown:
https://www.ebay.co.uk/i/401462156404?chn=ps&adgroupid=49962971442&rlsatarget=pla-380178317920&abcId=1129946&adtype=pla&merchantid=101775970&poi=&googleloc=1006674&device=c&campaignid=974960578&crdt=0

You can buy setting jigs as shown below at Axminster:
http://www.axminster.co.uk/planer-blade-vernier-setting-jig-700360 at £51:92. This page also advertises a blade hone etc which looks a pretty useful bit of kit to maintain your blades in good nick.