

The Ultra Tec Fantasy Machine

By Jeff Warrington

Bognor Regis, United Kindom

jeffrey.warrington@gmail.com

Well following on from my write up on the Ultra Tec V5 here is a start on their Fantasy Machine.

But, before this, a word of thanks to Ultra Tec and Brad Amos their UK representative. Now, Ultra Tec are based in Santa Ana in California, a long way away. I had a small problem with a motor on this machine, Brad and Ultra Tec could not have been more helpful and despite the distance they sorted it out.

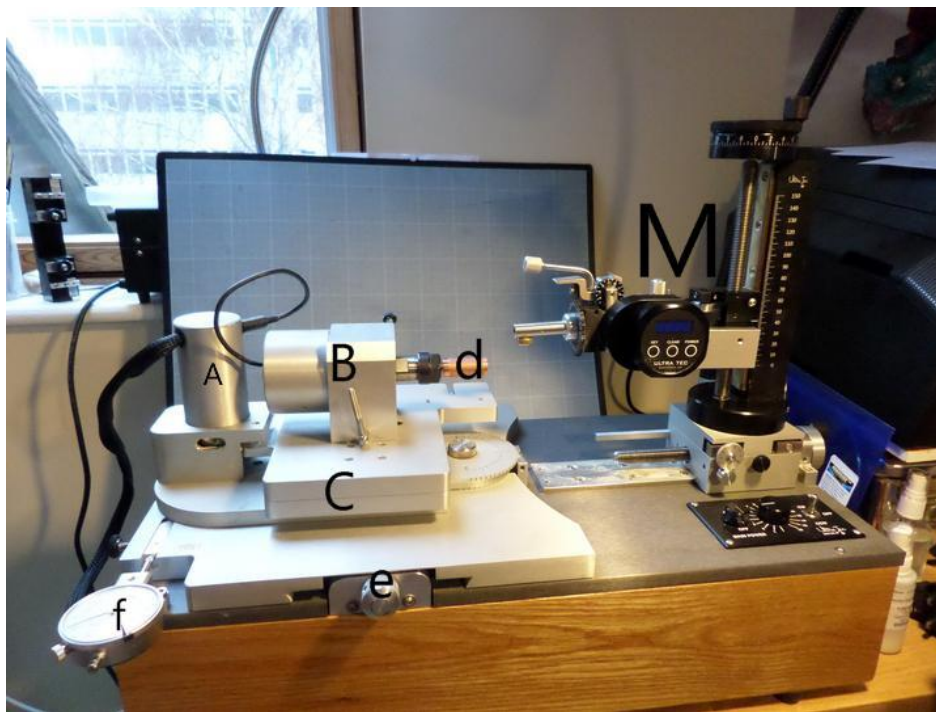
Their customer service was superb and it is good to know that they will, and do, sort out any problems that may occur. Thank you.

What is a fantasy cut ? And that is probably as hard to answer as to describe how and what the machine will do.

Probably the most well known cut that this machine will cut, are concave facets. Not your normal flat facets but a slightly curved facet, both into the pavilion and the crown or even the girdle.

These have been called 'optically magnified facets' BUT and it is a big but there are many other options of cuts that can be made with this machine.

Let's look at the machine itself.....



M.... is the mast from the Ultra Tec V5 faceting machine, transferred onto the Fantasy Machine with the twist of a locking bar and the addition of a substantial block which stops the quill from moving to the left or right, keeping it rigid but allowing the quill to be lifted up and down.

If we look at C, I call it the 'deck'.....it reciprocates left and right, powered by motor 'A' which has a speed controller on the main control panel. In addition the whole of the 'deck' can be rotated to a fixed angle with the protractor seen at the front of the deck, this allows offset facets to be cut. And the 'deck' can be moved forward and backwards by knob 'e' in relation to the mast which is fixed. (ie away from and towards you.)

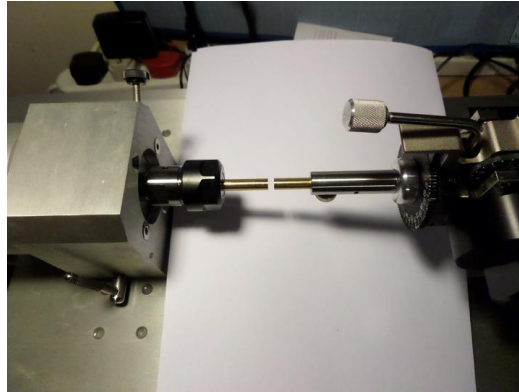
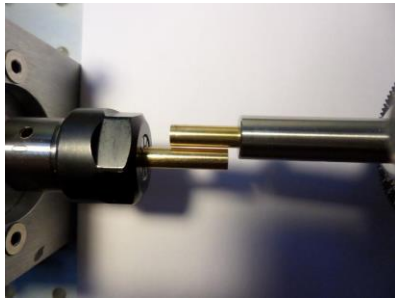
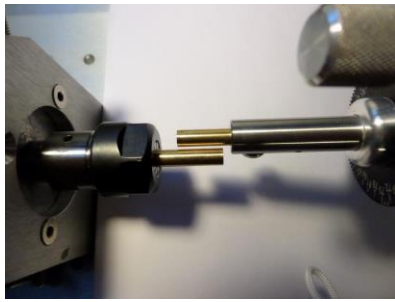
Motor 'B' drives the cutting or polishing lap/mandrel 'd' in this case, a copper cutting lap. This motor is again has variable speed and rotation, controlled from the main control panel.

Dial indicator 'f' allows the forward/backwards position of the 'deck' to be recorded to return to it's chosen setting.

(there is also a dial indicator to be affixed to the mast to locate the left/right position of the mast)

Phew lots to remember, in this case I am going to cut the pavilion of a marble with concave facets at an angle set on the protractor of 20deg, (this will give a swirl effect to the pavilion), this is not to be confused with the cutting angle of each facet selected on the quill/mast. Which will be 43deg for all the facets.

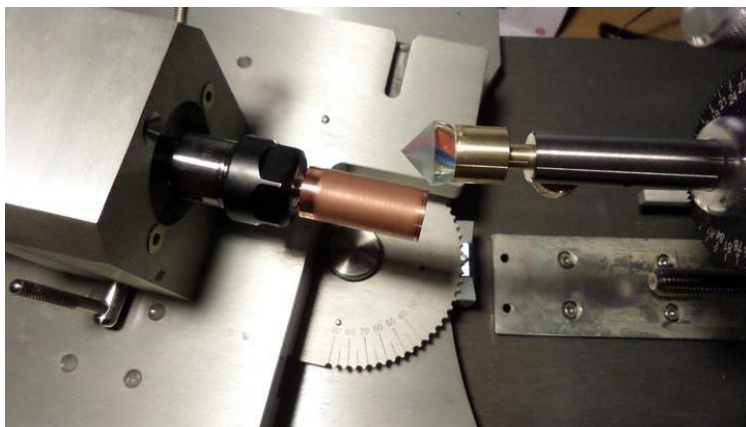
Firstly I have to set the cutter and 'deck' to be in alignment with the mast.....



Now that the mast/quill is aligned with the 'deck'/lap motor, the dops can be changed for the cutter and the marble to be cut.



And now to adjust the angle of the 'deck'



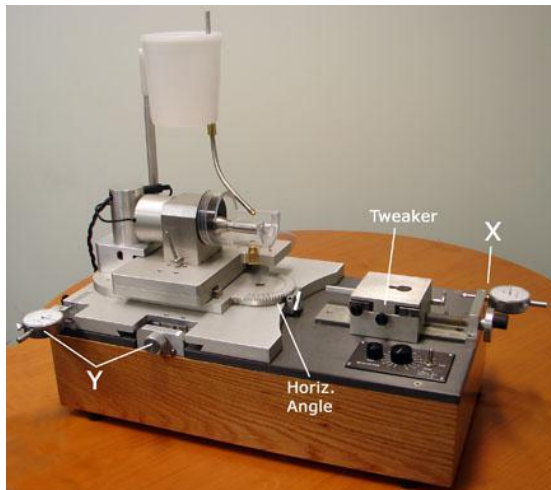
There are 9 round mandrels supplied with the machine, in copper, maple and phenolic and in 3 sizes.

To save cutting time on the Fantasy Machine, I preformed the 16mm dia marble on the V5 with the 240 lap.

I use 1200 dia powder mixed with 'superlube' and I run the mandrel just touching some foam, this helps keep the lap charged and takes away the cutting waste, also I use a drip of WD40 now and then, as extra lube.

With all of the facets cut, it is simply a matter of changing the mandrel to polish the facets and as all the parameters can be readily recalled it is not difficult. For myself, I turn off the angle indicator on the mast. As with 'normal' faceting minor adjustments need to be made and often the cheater used for each facet.

Then polish with 30,000 dia on the phenolic lap/mandrel, still to use the maple mandrels but I find the diamond powders I use to work for me.



Ultra Tec's pic here shows both dial gauges in place and the Tweaker used to align the mast to the work., also the drip tank, if you decide to use water as the lubricant.

I am going to the Tucson show in February and hope to buy some sintered diamond mandrels and perhaps a composite polishing mandrel.

So here is the finished marble,



Perhaps with hind sight I should have selected a marble with no white glass in the centre but it was an enjoyable exercise.



And here is a pink CZ which the picture does not do justice to.

If anyone has any questions, please contact me jeffrey.warrington@gmail.com

Jeff in Bognor Regis (UK)