CONTROLLING A PARTICULAR STONE SIZE

Sometimes you need a certain size of stone--most usually, to fit a particular mounting. Other times, you need to set a particular dimension for a facet position--and it's not possible to measure with a hand tool (and even when you can, that's a slow, "sneak-up-on-it" technique). The Calibrated Mast lets you control the dimensions--it lets you <u>know</u> where the facet will come out. Read about it--do it (this is another case when reading about it probably requires intense concentration, while if you <u>do it</u>, it's easy).

Using the CALIBRATED MAST

● **TO CONTROL to a PARTICULAR FINISHED SIZE**

● **TO CUT "CALIBRATED STONES"**

● **TO CONTROL CORNER-CUTS ON RECTANGULAR STONES**

A main advantage of the calibrated mast is that it allows you to control (when you wish) the size of the stone you are cutting. Since the calibrated mast allows you to *know* the distance from the surface of the lap to the stone, you can cut a precisely calibrated stone (without sneaking up on it, and "measuring it in").

Think about it--if you know the height reading that represents the surface of your lap, it's a matter of setting the height position of your dop above that lap surface by ½ the diameter of the stone you want to obtain.

DETERMINING THE HEIGHT POSITION OF THE LAP SURFACE: Initially, you need to know the height reading of the lap surface (unfortunately, it's different for each lap since the thicknesses vary, but fortunately, easy to determine). Here's a routine to do it:

1. Using any dop over 6.4 mm—measure the actual diameter of the Dop (that is to say, don't trust the nominal dimension—measure it). Note the dimension—divide it by 2— then, save it. Insert that dop into the Spindle and lock it in.

2. Set the Angle Dial at 90°. Gradually lower the dop toward the lap surface, and stop when that measured dop diameter barely touches.

3. Read the height setting on the Mast scale. To that reading, add the ½ dop diameter (from step 1)—the resultant answer is *the* height setting of the lap surface (the reference dimension).

Keep in mind, once a particular lap's position is identified in this process, it's <u>always</u> that position (on <u>your</u> machine), so if you make note of it, this routine needs to be done just once.

USING THE LAP SURFACE INFORMATION TO CONTROL STONE SIZE: Having determined the height reading of the lap surface, you can cut an exact sized stone by setting the height position of your dop above that lap surface by ½ the diameter of the stone you want to obtain.

For example:

Example 1--A CALIBRATED DIAMETER (ROUND): Say that you determined that the surface of your lap corresponds to 14.64 cm. You want to cut a round girdle 12 mm (1.2 cm) in diameter. You would set the position of the dop 6 mm (.6 cm), (that's half of the 12 mm diameter that you want), above the lap surface--setting the Mast position to 14.04 cm. (the arithmetic: 14.64 cm - .6 cm = 14.04)

Example 2--A CALIBRATED RECTANGLE: If you want a rectangular cut, 25 mm (2.5 cm) X 14 mm (1.4 cm). For the length, set the dopped stone 12.5 mm (1.25 cm-- ½ the 2.5 cm) above the lap surface, that is, at 13.39 cm. For the width, set the stone 7 mm (.7 cm--half the 1.4 cm) above the lap surface, that is, at 13.94 cm.

Example 3 CONTROLLING **CORNER-CUT POSITIONS:** If the rectangular design is a cut-corner type (as almost all are), and if the diagram includes information about the measurement over the corners, you can calculate the height position for those corners: The corner-to-corner measurement information is given as a ratio, for example, D/W=1.643 (that is, D [the corner to corner measurement] divided by W [the width measurement] equals 1.643 -- or, one step simpler, D = W X 1.643). So, going back to our example, where we had a width of 14 mm, D = 14mm X 1.643, D = 23mm. Dividing that 23 mm in half, we get 11.5 mm (or, 1.15 cm), and so the height setting for the corner cut is 13.5 cm (the arithmetic: 14.65 cm [the lap surface height] minus 1.15 cm [the corner measurement we figured out). You mathematical swiftys have already figured out that since we are looking for ½D for setting purposes, we could have used the .7 cm half-width measurement that we figured out previously, giving: ½D = .7 X 1.643, ½D = 1.15 cm.