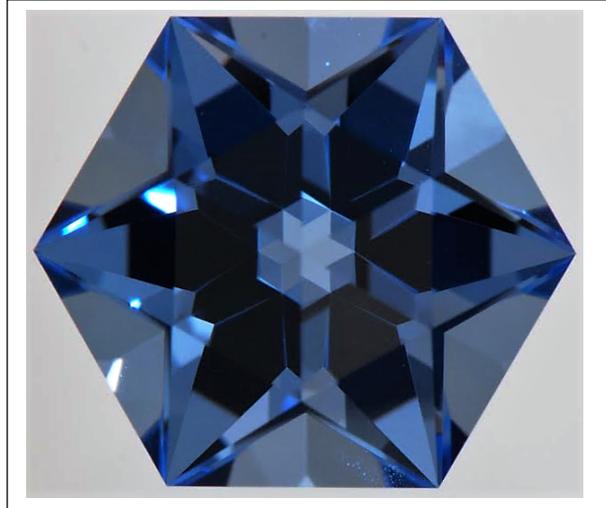


2017 Novice

Aphex



Cutting notes by Keith Wyman

Aphex is a good novice-level competition stone. It only has 36 facets and a total of 20 meet-points (7 on the pavilion and 13 on the crown), but don't let the simplicity fool you. It will be a good test of your skills. Pick the material you are most comfortable cutting and polishing. For me, it's generally one of the synthetics because they rarely hide surprises, unlike many of the natural materials.

Before you start to cut, take a close look at the diagram. The stone is to be 10 mm wide, measured across the flats. The length/width (L/W) is 1.155; multiplying by 10, that gives a length (measured point to point) of 11.55mm. Choose the size and orientation of your rough to account for this. You'll also be grinding material away as you rough out the shape. This might be a good time to review Steve Attaway's excellent article on subsurface damage (http://attawaygems.com/NMFGcabinet_makers_and_chain_saws.htm). Another consideration is the depth of the rough – again, a bit of simple arithmetic (gotta love multiplying by 10) and you'll see that the finished gem will be 7.8mm deep (5.2mm + 2.3mm + 0.3mm). Make sure you have enough rough depth generate the outline and to take care of the grinding damage. I generally like to have lots of extra depth because it lets me cut the pavilion several times (at least up through the pre-polish stage) to get a feel for the pattern and to correct any mistakes made during the earlier stages.

I cut the test stone by cutting the P1 facets to the best meet-point I could and then cut the outline to end up with a level girdle line. This is where the extra depth of rough is necessary since cutting P1 to a point makes the pavilion almost 0.8mm deeper than the finished pavilion will be. The rough was first cut with a 360 grit lap to about 11.0mm or so, followed by a 600 grit to 10.5mm, a 1200 sintered to a bit under 10.2mm and then a BATT with 3k diamond to as close to 10.0mm as I could get. Each time the lap changed the P1 facets are cut to a point followed by the outline being cut to an even girdle line. Cutting opposite facets (96 and 48, 16 and 64, and finally 32 and 80) to whatever hard or soft stop method you use is a good way to

make sure you're getting the best meet-point you can with the P1's and then doing the same with the 90 degree facets to generate the best outline you can.

The P2 facets will cut fairly quickly compared to the P1's and girdle facets, so the 1200 will make fairly short work of them. Cut fairly close to the P1-girdle, but leave enough room to do a good job cutting in the meets with the final pre-polish lap. Polish the P2 facets paying very close attention to the culet meet-point where all 6 facets meet. Polish the girdle facets next (remember, you don't have to get a perfect polish on the entire girdle facet, just the 0,3mm that will be on the finished gem). The P1 facets are polished last with careful consideration given to the P1/girdle meets. Transfer and you're ready for the crown.

My Facetron uses indexed dops and the system works quite well for me. I cut the C1 facets the same order as the P1 facets – 96, 48, 16, 64, 32, 80 – to check my alignment. If the C1 facet edges tend to line up on one side or the other of the girdle facet edges, now is the time to get them in perfect alignment. This is when you'll appreciate the extra depth in the rough you chose. If you've got a bit of extra material, now is the time to cut the rest of the crown facets to see how everything comes together. I'd recommend going down to the 1200 lap so you have fairly smooth facets and it's possible to take a close look at meet-points. If everything is lining up, then it's time to get the girdle width as close to 0.3mm as you can using your finest pre-polish lap – 3k diamond on the BATT in my case. Put the perfect polish on the gem and box it up – you've got a winner there.