You are almost done. Using the newly created meet points, you can continue with the girdle facets and complete the gem outline. A pair of 90° cuts at index 9-87 produces the targets for the final girdle facet at index setting 0. The result is a completed gem outline very close to the original goal (Figure 17-35).

Congratulations! Your OMNI outline is complete!

A final note: This exercise is based on the Keystar gem design from Chapter 19.2.5. Take a careful look at the cutting prescription. As so often happens, the OMNI facets themselves ended up in the final design.

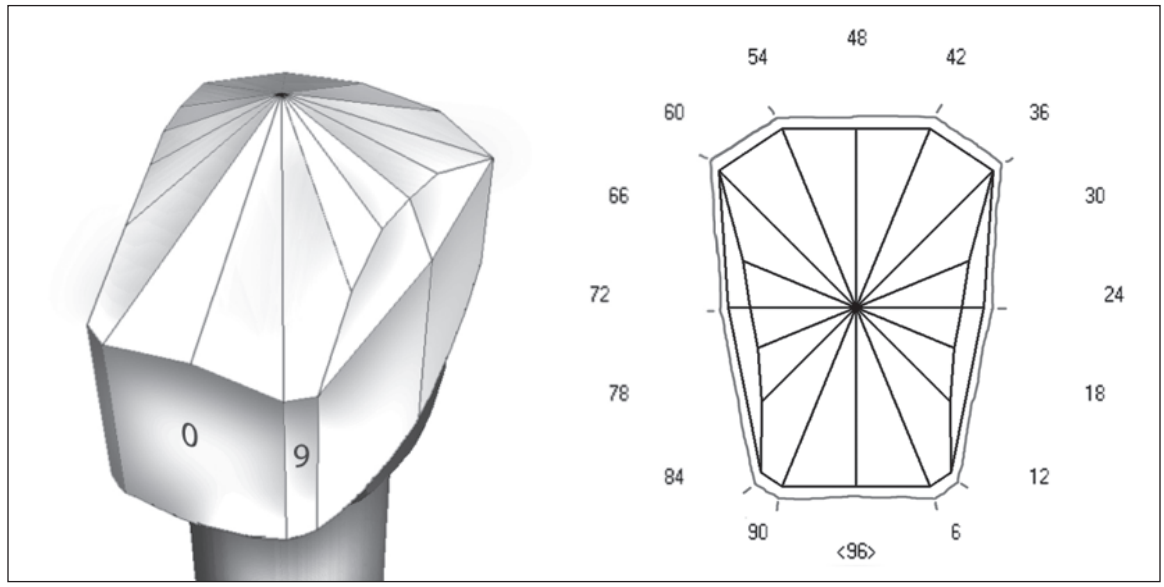

Figure 17-35 Placing the final girdle cuts at index 9-87 and 0 completes the gem outline. A comparison with the original sketch (right) shows how well you have done.

CAM versus OMNI

So far, this chapter has highlighted the two most important strategies for establishing the gem outline, the Centerline Angle Method (CAM) and the OMNI technique.

Which one should you use?

The answer sounds facetious: Just use the one that works best under the circumstances. Figuring out which one this actually is takes experience, and unsurprisingly, it depends a great deal on the gem design you are aiming for.

CAM allows exquisite control over the outline, and it is not dependent on your having girdle vertices that line up with nice, evenly-spaced, symmetric locations. CAM outlines also naturally produce a level girdle line without additional steep, Barion-type facets.

On the other hand, the OMNI technique unquestionably involves fewer changes of cutting angle and mast height, and the OMNI facets usually appear in the final design, thereby saving effort. Some faceters also claim that the OMNI method requires less

extra gem rough. In any case, it is very clear that CAM does not do well on elongated designs, since this requires a large range of cutting angles, meaning you either run out of stone or are forced to cut uncomfortably steep angled facets. "Clever CAM" can help in these circumstances (see page 282).

The short answer is that, if the design is naturally simple and symmetric, or if you are aiming for a more deep-bellied, brilliant pavilion, try the OMNI method. Otherwise, go with CAM. In either case, it is safest and best – and in my view, mandatory – to test cut the gem outline in a program such as GemCAD.

17.5 Corner Locator Angle Method (CLAM)

The CAM and OMNI approaches are by far the most popular methods for establishing the gem outline, but there are times when neither will do. This has spawned the development of a third technique, called the Corner Locator Angle Method, or CLAM.

In many ways, CLAM is a variant of OMNI, in that the goal is to establish radial lines outward from a center point to generate meet points for the 90° girdle cuts (see Section 17.4). As with the OMNI method, CLAM facets also frequently end up as part of the gem design. Unlike OMNI, however, the cutting angles are not equal, and the index wheel settings are not symmetric and evenly spaced.

The basic goal of CLAM is to use a pair of angled facets to establish a direction out to a future girdle vertex – hence the name "corner locator." Figuring out the correct combination of angled facets to produce the desired direction is a matter of calculation (see below) or experimentation (hopefully in GemCAD and not in expensive stone).

Note that this section, unlike those which previously dealt with CAM and OMNI, will combine theory, practice, and a real-world example into one happy bundle.

Figure 17-36 shows the desired gem outline, including the girdle facet index wheel settings measured exactly as with CAM and OMNI (turn back to previous sections, if you don't understand how to do this).

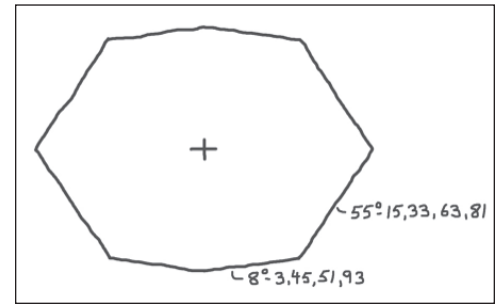

Figure 17-36 A simple eight-sided stone whose shape will be established using the CLAM technique. Due to the two-fold, mirror symmetry, two segments define the entire outline.

Time to sit down at the virtual faceting machine known as GemCAD. You will begin by generating four angled facets to create the temporary center point. Since you know that the design will be elongated left-right, it makes sense to place these facets with index wheel settings somewhere near the top and bottom, that is, near index 0 and 48 on a 96-tooth wheel (think about it…this actually does make sense).

Again, absent other considerations, it seems sensible to start with a level girdle line by selecting the same index wheel settings for the angled facets as for the girdle cuts measured