DISCUSSION OF CAM-EASY FACETING

A Centerpoint Angle Method (CAM) preform is always an alternative available for cutting the outline for a stone, even if a meetpoint sequence is available. When we talk about "CAM" preforms we usually have meant use of a temporary centerpoint to which a group of low angle facets are cut in such a way that when girdle facets are cut to meetpoints with these facets the girdle forms the proper outline of the stone. All angles on the preform, except the actual 90 degree facets that define the outline, are below the lowest angle on the final stone so there can be no interference. In our INDEX TO FACET DESIGN DATABASE we maintain of complete file of low angle CAM preforms even if the original reference did not utilize one. One reason for this practice is that we fit each design we come across into one of the "standard" shapes if the design is flexible enough to permit this. "Mix or match" combinations of crowns and pavilions are possible with any design that has the same shape at the girdle, so we can increase the number of combinations we can study or use directly without letting the storage space get too large.

Occasionally we hear from facetors who say they do not use "meetpoint" cutting sequences, because it often requires drastic angle changes - - - alternately high angles such as 90 degrees at the girdle to lower angles on the breaks or mains and then back to the 90 degrees followed by another go with lower angles. On some commercial faceting machines (but not all) this is a major undertaking. Especially if the faceting head is pivoted at the vertical mast or one has to physically raise and/or lower the platform to make angle changes.

Recent correspondence with a commercial cutter in Brazil brought up the point that his workers were very concerned with the time needed to make these gross "up/down" adjustments. Shop output of finished stones is important, quite literally "time=money" is a guiding principle for them. They feel they need CAM preforms for their cutting to "standard" sizes. But if a low angle CAM preform cuts a series of temporary facets it wastes effort and the "meetpoint" up/down height adjustments is an even worse option on the types of machines they have.

Our solution to their problem was to recommend using a CAM preform with facets that are **NOT TEMPORARY, BUT ARE AN INTEGRAL PART OF THE DESIGN.** Several series of designs were devised to do this. Design 3.076 (page 3) and 2.113 (page 4) in this issue as well as 5.044B (SFD Nov 90) are examples of the concept. The CAM preform facets are the final break facets and all 90 degree girdle facets are grouped together so the number of height adjustments is reduced. The only new facets that have to be cut after the preform are the mains.

There is a minor penalty involved in cutting the breaks to a temporary centerpoint, because depth of rough material used is slightly greater than the finished stone requires. A further penalty in using CAM-EASY technique comes from not recutting the break facets. Without recutting the breaks it is not possible to get all meets perfect when using the "brilliant" facet arrangement (with culet as a point), but as the diagrams show the error is very slight. Since all the mains are cut to preexisting meetpoints involving break/girdle facets if we at the same time want the main facets to meet at the culet, each facet is doubly constrained. Meets like this can be obtained on a "round" shape. However, in "non round" designs like the one shown here, it is not possible to make all the preselected meets unless we permit use of the cheater. To keep it simple no cheater is used in these designs and as a result we have a slight mismatch at the culet. It was done in this case because the commercial buyers are interested in seeing a "brilliant" pattern with a pointed culet that looks "familiar" to them.

To sum up, the CAM-EASY method involves (1) cutting the outline generating "preform" using the final break facet angles (no temporary facets), (2) then simply adding the final mains (without using a "cheater"), (3) keeping the difference between the main and break angles close together (minimize loss in depth) and (4) grouping the facets in a cutting sequence that reduces the number of "up/down" facet adjustments (increase cutting speed). So far marquise, oval, pear, pendeloque, and heart shaped stones with L/W from 1.20 to 2.00, have been cut using this technique with fewer problems than one might have anticipated.