STEP 1. The Crown Main Facets

Begin cutting the crown main facets (M, Fig. 4) on a medium lap. Set the index to 32 and the protractor to 90° and the diamond to 60° and the index on the ID setting. Cut the table on a medium lap until it’s width is 60% of the width of the gem. Measure to be sure that it is correct. Recut the table slightly with the fine and extra fine laps. All restpoints must be on the platform during this recutting, and care should be taken to ensure that the entire table is recut by each lap.

If it appears that the entire facet is polishing, wet the lap and turn it at a slow speed. Polish a few seconds and check again. If the entire facet is not polishing, use one of the methods described above to get the facet flat to the lap before polishing for an extended period. Do not move to a new facet until the one you are working on is completely polished. Do not polish the girdle.

After all of the pavilion facets are polished, the gem is ready to be redopped onto another dop stick. To prepare for this, coat the entire pavilion with a thin layer of shellac. It will take about ten minutes to dry. Directions for redopping are in the fume hood.

STEP 2: The Girdle Facets.

Set the protractor at 90°. Set the index to 32. On a fine lap, cut the first girdle facet wider than the pavilion main facet. Cut the next facet to where it removes the extra width of the first facet, so that the two girdle facets now meet on the same line as the pavilion main facets. Repeat this process using the Step 1 index settings until all eight girdle facets are cut. All girdle facets should now be the same height and your gem should resemble Figure 3. Recut the girdle on an extra fine lap to remove scratches left by the fine lap.

Slightly recut the main facets with a fine lap to remove medium lap scratches. If the table is not a perfect octagon, recut the smaller main facets. The crown should resemble Figure 4. Recut the main facets on an extra fine lap.

When the first two star facets are the same size and are touching, cut the next two star facets. The star facets (S) are cut on the extra fine lap, indexed on asterisk settings, at an angle of 15° less than the crown angle. The cutting of the star facets (or any other small facets) is best done by wiping the stone across a motionless lap. Do not start the motor at any time during this step. Wiping a facet in this manner takes only a small amount of extra time and has the advantage of much more precise control of facet size.

The star facets must just meet the adjoining stars around the table. Begin cutting a pair (settings 32 & 4) of star facets on a motionless, wet, extra fine lap, alternating between them until they are precisely the same size and meet at a point, as shown in Figure 5. If these first two star facets are not the same size, the remaining stars will alternately be small and large.

When the first two star facets are the same size and are touching, cut the remaining six in rotation.