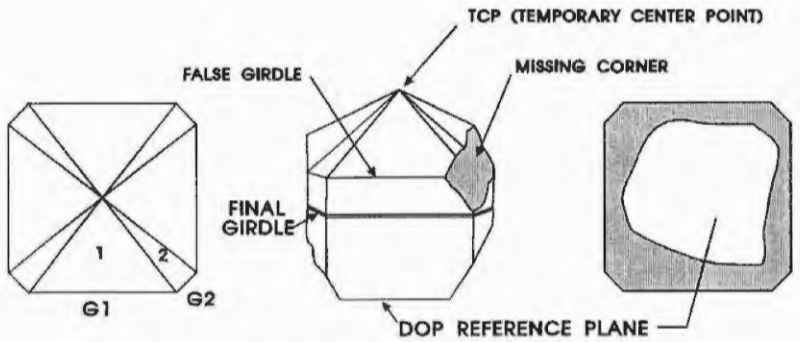

Figure 1 Schematic diagram of CAM preform

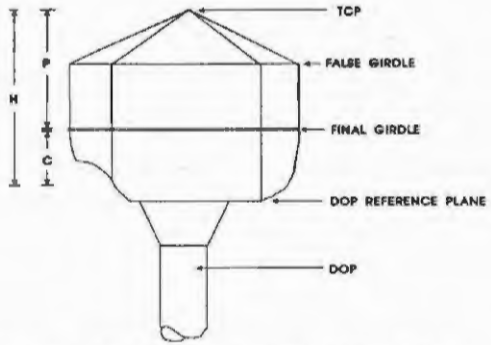

Figure 2 CAM Preform attached to a Dop

PREFORM PF07090

Step/Angle		Bearing Index	Comment
PF1	35.0	96-24-48-72	Cut to TCP
PF2	29.0	12-36-60-84	Meet PF1 at TCP
G1	90.0	96-24-48-72	Fix size of stone at the girdle
G2	90.0	12-36-60-84	Complete the stone outline at the girdle

Judging from the letters and telephone calls we receive, the CAM preform is not as well understood by our readers as we might wish. At the risk of being much to elementrary for some of our readers, we thought this would be an approriate time to review some of the important principles about CAM preforms. The basic idea is that by using a low angle set of facets that all reach from a Temporary Center Point (TCP) to a prism that forms the true outline of the stone we can reproducibly generate ANY DESIRED OUTLINE using just the controls on the faceting machine. For design 7.090 (see page 1) a preform is in order because a reliable method to fix size of the corners is needed and there is no reasonable meetpoint sequence that could do the job. Preform PF07090 cutting instructions above would be appropriate to do this. The "35.0" angle can be lower or higher as long as it does not interfere with the P1 facets in the final design and is constent with PF2.

Preform facets PF1 and PF2 are **temporary**. Once they have been used to locate the girdle and the outline, they will be cut off. As shown in Figue 1 and Figure 2 there is always both a "false girdle" and a "final girdle". It should be clear from Figure 2 that the most economical use of the rough would be to have the culet of the stone correspond to the TCP of the preform. For this situation the "final girdle" would be P/W times the stones actual W below the TCP. If your design has been drawn with a computer program equivalent to GEMCAD the (C, P, and H) dimensions listed in Figure 2 would be available (as we have listed them on page 1) in terms of ratio's to the "width". As soon as a width dimension is fixed, the facetor can easily estimate estimate the other dimensions. The final girdle will be "P" distance below the TCP.

If we had started with a blocky piece of rough the preform might end up looking like the idealized drawing at the left in Figure 1. But if we had a typical piece of rough it could look much different. For example if the rough had been more rounded when Dop Reference Plane was cut the preform may not have sharp corners (as shown in the center tipped view). There could be a missing corner on the pavilion side so that the "false girdle" is not complete.

The important point is that the "false girdle" DOES NOT HAVE TO BE COMPETE, but the "final girdle" does. If there is not enough material to cut a compete outline at the "final girdle" in the preform stage, then we do not have enough material to cut the full design except with a smaller width. The **final girdle** line is always different from the "false girdle" and farther away from the TCP. Both the center diagram in Figure 1 and the diagram in Figure 2 are intended to point this out.

The most common problem we have found is inexperienced facetor's not realizing that the "false girdle" is NOT THE FINAL GIRDLE. Since the preform is cut at a lower angle than the actual stone main angle and the indexing is usually not the same as the central facets on the design, if one trys to use the "false girdle" as the "final girdle" there will be big problems.

A CAM preform is a very useful tool for non-meetpoint designs. If it is used it is important to distinquish the difference between the "false girdle" and the "final girdle".