CAD/CAM Setting by Peter Keep

As CAD/CAM jewellery becomes more prominent in our trade, bench jewellers skills focus more and more on stone setting. It really is not that difficult, as long as the mount has been designed printed and cast correctly; And you have done your practice.

The JTS CAD/CAM setting blanks are designed to represent a typical halo cluster with a combination of setting types and stone sizes. This setting course will give you a chance to practice the techniques before you tackle commission work.

Step 1:

Preparing the mount can take as long if not longer than the actual stone setting. If you are setting a commission job, examine the stones to make sure they are perfectly calibrated. It is also advised that you use a tumbler to begin the cleaning process; this also helps to work harden the casting. All surfaces should be tooled to remove evidence of print growth lines and leave a polished finish. Use a ball bur to clean out the settings, and gravers to tidy around the prongs.

Step 2:

Prepare the scalloped shoulder cuts with a cone or flame bur, then finish with a greenie wheel or polishing string.

To minimize the chance of changing the size or shape of the prongs, finish off the clean-up with a bristle brush mop and a light cutting/polish compound.

Step 3:

During the setting procedure you may need to use a visual aid such as an Optivisor and a ring clamp or Bench-Mate.

The settings on some halo mounts may be drilled all the way through. In this case the settings do not have back holes, so extra clearance may be needed for the cullet of the stones. Use a ball bur between 0.5mm and 0.7mm to add a little more depth to each of the settings.

Step 4:

Start off with the split claw shoulder setting. You may prefer to clamp your work, but I prefer to perform the cutwork against my bench peg. Find a hart bur that is approximately 10% smaller than the stone size (2mm). The one in this example is 1.8mm. Cut into the setting until the teeth of the bur are all the way in and the start of the shaft lines up with the top of the setting. Rotate the bur slightly.

Step 5:

Now assess if the stone will fit. Tilt the stone in and push the opposite crown of the stone with a soft metal pusher. If the stone does not friction fit in place, perform more rotation cutting. Do not over cut. The first setting will take the longest to prepare as you familiarize yourself with the task, but once the first stone fits, you can prepare three settings at a time.

Step 6:

Once you have the stones in place use a flat graver to cut and lever into the crease between the claws to split and separate them. The metal will move onto the stones. I prefer to use a claw splitting tool as this spreads the claws more efficiently and evenly.

There are tool making videos included in the course that shows how to make a variety of tools including the claw splitter.

Step 7:

Once you have secured all the shoulder stones, you can tighten them and form the claw tips with a beading tool. Select a beading tool that cups the prong tips without pinching the metal. Roll the tool firmly and work on the opposite claw to ensure the stone stays level. The end shoulder settings are half gypsy/rub set with a pointed burnisher. Alternatively, you can create claws by cutting an end line with a flat graver.

Step 8:

Once you have finished the shoulder setting, check to see if there is any movement by probing the stones girdle.

Now perform the seating cut for the outer halo using the same technique Make sure that the hart bur is no more than 10% smaller than the stone size. It is important that you avoid cutting any of the pre-formed prongs as they will also be shared prongs. Cutting them or reducing their size will compromise the setting.

Step 9:

The stones must fit tightly into the setting and have contact with the prongs. If the stones won't settle into the settings and tend to pivot, make sure that there is enough clearance inside the setting and the stone pavilion and cullet is not obstructed. You may need to bur the inside of the setting a little more with a ball bur. With practice and experience you should be able to friction fit all the stones into place before securing them.

Step 10:

The inner halo may present more of a challenge as it holds 1.5mm stones. Find a 1.3mm hart bur and repeat the process. Avoid contact with the prongs and try to friction fit all the stones before tightening them with the beader. Once they are all in place, probe around each stone to check for movement. Apply more pressure with the beading tool if necessary. With extra pressure the prong tips will spread to create a mushroom shape and contact the stones.

Step 11:

There are only four claws to secure the centre stone, so it is important not to over cut the seating. The girdle of the centre stone is going to be slightly raised from the bezel. Use a fine saw blade to begin the cut just above the bezel. This will help to keep the bur on track. Use a 2.5mm – 2.7mm hart bur to cut a third into the claw thickness. The stone should click into place. Push the claw tips inwards and finish the setting with either a large beading tool or a claw tip shaper.

Step 12:

Use a flat graver to bright cut around the edges and remove any flashing from the prongs. Finnish with a bristle brush mop followed by a cotton rouge mop.

Check the quality of your work. Assess your work as if you are the customer receiving it.

The CAD/CAM setting pack includes videos 5 x SB9 blanks and all the stones you will need for the course.

Stone Setting Courses

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