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497 TRIM SAW & GRINDER INSTRUCTIONS

The Mounted Trim Saw and Grinder is the perfect answer for lapidary hobbyists with limited workshop space. This saw is designed for working medium to soft gemstone material.

ASSEMBLY

Secure the unit to a sturdy bench or suitable table. Read and comply with the *Covington Safety Demands* sheet.

After blades or grinding wheels are installed, secure blade/wheel guard in place. When removing blades or wheels, first hold shaft collar with pliers and loosen unit with a wrench (left hand thread). Rotation of the shaft should turn the blade or wheel toward the operator and down.

MAINTENANCE

Proper care of blades and grinding wheels is essential. IMPORTANT – follow the manufacturer's instructions.

DIAMOND BLADES – DO NOT RUN DRY because the heat generated will ruin the blade. Eventually the blade will become dull. This is caused by metal bond glazing over the diamonds. Use a 220g silicon carbide dressing block to reexpose the diamond.

GRINDING WHEELS – Keep the wheel flushed clean so dust will not form. It is hazardous to your health to breathe the dust. The heat generated by dry grinding can damage the material being ground. DO NOT ALLOW WATER TO BE ABSORBED BY THE WHEEL TO UPSET ITS BALANCE.

The wheel will wear with use, although not rapidly. If the surface becomes grooved or wavy it needs to be dressed. Use a coarse silicon carbide dressing block or a diamond t-bar dresser to smooth the wheel face. Finally, smooth the surface with 100g silicon carbide sand paper over a wooden block.

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PREPARING TO CUT

Before you begin cutting check to make sure the arbor hole in the blade is the right size for the shaft; there must be no play. The flanges must fit evenly against the blade. Be sure there is no dirt between the flanges and the blade. Koolerant should be poured into the tank until the surface level comes up about ¼” onto the rim of the blade. When the blade is running it should bring up a constant fine spray of Koolerant. DO NOT put in so much koolerant that it splashes. Use a sponge placed flat in the back of the tank to prevent splashing if necessary.

Eventually the koolerant will become dirty and full of sludge. The tank should be be thoroughly cleaned and new koolerant added.

TRIMMING ROUGH MATERIAL AND PEBBLES

Small pieces or rough gem material can be trimmed by placing a reasonably flat side on the trim saw table. Grip both sides of the material firmly. Gently push the material into the revolving blade cutting only straight lines. If there are no flat spots on the material, flatten one side on a grinding wheel. Pebbles may be handled the same way but be careful that they do not roll or slip from your fingers. A safer option for cutting pebbles is to use a sawing jig or small vise.

TRIMMING SLABS

Gemstone slabs are much easier to trim than rough material or pebbles. First, make the design you wish to cut on the side of the slab that will be the bottom of the gem. Mark straight lines around the design. Then cut along the lines with firm but gentle pressure. If you must make an angled cut first cut a slight notch at the edge of the stone, then turn the slab to the angle desired and continue cutting.

DOPPING

Prior to grinding, it is advisable to mount or “dop” the gem stone on a small rounded wooden stick. Mounted in this fashion, the stone is much easier to handle in the grinding, sanding, and polishing operations.

Melt some of the dop wax over a low flame and warm the stone at the same time. Dip the end of the stick into the melted wax and press onto the bottom of the stone to be worked.

GRINDING

After outlining the gem’s design, grind away material around the outline. Hold the stone so the wheel cuts from the bottom to the top of the gem using light pressure. Space does not permit detailed instruction on grinding techniques. One of the recommended books listed should be procured and used as a guide.

REFERENCE BOOKS

Cabochon Cutting by Jack R. Cox
Advanced Cabochon Cutting by Jack R. Cox
The Art of Gem Cutting by Dr. H.C. Dake