MEMBER'S BOOKLET

.....

SUNCOAST GEM & FOSSICKING CLUB Inc.

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Email gemclub@bigpond.com

Website www.suncoast-gem-club.com.au

~ *Guiding Principles* ~

- Supporting the Sunshine Coast Community through our non profit organisation
- Enhancing self-worth
- Feel Pride in the club and what it represents
- Bringing people together
- Providing Lapidary skills to all ages
- Encouraging mateship and volunteering
- Always conducting ourselves in an open, honest, respectful and supporting manner
- Share knowledge with other members

DEAR MEMBERS

This Booklet is to assist all members so they have a better understanding of Club Rules and Club equipment.

CLUB HOUSE RULES

- SIGN IN and PAY Work Fees before starting work on any machinery.
- TWO MEMBERS must be on the premises before any work commences. This does not include the Management Committee.
- WEAR SUITABLE CLOTHING and CLOSED IN SHOES (no sandals) or you will be asked to leave due to safety issues.
- EAR and EYE PROTECTION MUST BE WORN. Eye Protection in all departments. Ear Protection in the Cabbing Room and Saw Room.
- Long hair must be tied back so it cannot catch in wheels or belts, or be burnt by a soldering torch.
- It is the Club's Policy that ALL MEMBERS start with the Lapidary Experience before starting Silver work or Faceting. When starting in the Cabbing Room you will be assigned an Instructor. PLEASE NOTE: You can only attend on days the Club has instructors. Once you have been approved and are competent in the Cabbing Room you can then precede into the Silver Smithing Room.
- Read the instructions and explanation sheets displayed around the work areas.
- If The Management committee or an Instructor asks you to change your work habits, please listen. The club machinery is very expensive to repair and maintain.
- HELP CLEAN UP AT THE END OF THE SESSION. Clean work areas and equipment prevents accidents and damages to machinery. PLEASE LEAVE WORKPLACE CLEAN AND TIDY.

MEMBER CLUB INFORMATION

Members are kept up to date on club matters by Email and via our Club Newsletter, which is also via Email. A hardcopy is located near our sign in book for viewing at the Club. If you would like a hardcopy for yourself please see the Management Committee.

Members are expected to help in our fund-raising activities of BBQ's, Open Days and the Annual Show.

We are a Not for Profit organisation and that means any funds raised goes into the club for upgrades, machinery, consumables and facilities for you.

Welcome to CABBING

CABBING WORKROOM RULES

- Please make sure you have signed in and paid your work fees before starting work on machinery.
- Make sure you are wearing suitable clothing and **closed in shoes** (no sandals).
- Long hair must be tied back so it cannot catch in wheels or belts, or be burnt by a soldering iron.
- PLEASE read the instructions and explanation sheets displayed around the work area.
- If The Management committee or an Instructor asks you to change your work habits, please listen. The club machinery is very expensive to repair and maintain.
- HELP CLEAN UP AT THE END OF THE SESSION. Clean work areas and equipment prevents accidents and damages to machinery. PLEASE LEAVE WORKPLACE CLEAN AND TIDY.
- EAR & EYE PROTECTION MUST BE WORN.

ADDITIONAL INFORMATION FOR NEW MEMBERS

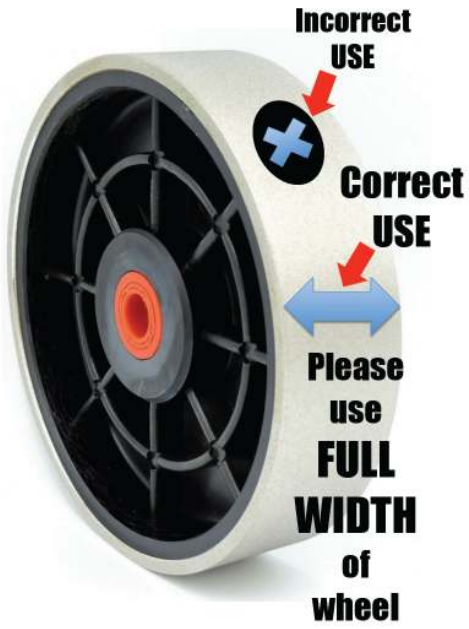
- When starting in the Cabbing Room you will be assigned an Instructor.
- PLEASE NOTE: As you are a NEW MEMBER you can only attend on days the Club has instructors. This is so that you are instructed on how to use the Club equipment efficiently and safely. Once you have been approved and are competent in the Cabbing Room you are able to attend as many sessions as you wish in the Cabbing Room.
- You may also then proceed into the Silver Smithing Room on the days the Club has instructors. This is so that you are instructed on how to use the Club equipment efficiently and safely. Once you have been approved and are competent in the Silver Smithing Room you are able to attend as many sessions as you wish.

GENERAL EQUIPMENT REQUIREMENTS FOR LAPIDARY WORK

- Waterproof Apron
- Eye Protection
- Ear Muffs or Ear Plugs
- Hand Towel and soap
- Slabbed Stones
- Dob sticks; several sizes
- Magnifying Loupe
- Small toolbox to carry your equipment
- Closed in shoes

IMPORTANT INFORMATION ON HOW TO USE CLUB LAPIDARY EQUIPMENT

- When using grinding wheels work across the full width of the wheel to avoid dishing.



- Stones should be shaped on the 80 Grit Wheel, then 220 Grit Wheel is used as the next stage of the grinding process then the 600 to finalise the grinding.

Wash your hands, stone and dop stick
before moving on to the next grinder or sander.

This rule is designed to prevent contamination
of wheels and sanders from coarser grits,
thereby avoiding scratches on the stone.

- When using the paper sanders, DO NOT USE lots of water. A light spray is sufficient.
- DOP STICKS must be used on SOFT WHEEL MACHINES 7 AND 8.
- Please use SOFT WHEEL MACHINE 9, which is for NON DOP STICK USE.
- NO WATER to be used on all Diamond Sanders. WASH and DRY STONE CLEAN when moving from one Grit to Another.
- When using the polishers with TIN Oxide or Cerium Oxide only a light spray of water is needed. DO NOT flood the polishing lap. If the stone is properly prepared you should only need a few seconds to polish it.
- Trim your stones for lapidary work with the trims saws to avoid unnecessary grinding.
- Instruction sheets are available for your guidance; please read them.

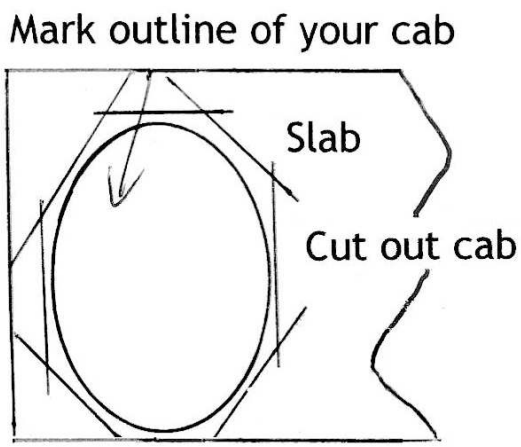
LAPIDARY PROCESS ~ HOW TO CUT A CABOCHON using a TRIM SAW

TRIM SAWS

Once you have a planned shape,
mark the stone with your desired shape
using a permanent marker.

Trim off the excess stone on the
trim saws in the Saw Room.

CUT STRAIGHT LINES ONLY.
See Diagram below



Trim Saw 20 or 22 for stones.

Trim Saw 21 is for
Boulder Opal ONLY.

SAWS MUST BE CLEANED AFTER EVERY USE.

THESE TRIM SAWS ARE FOR TRIMMING AROUND YOUR CABOCHON SHAPE ONLY.

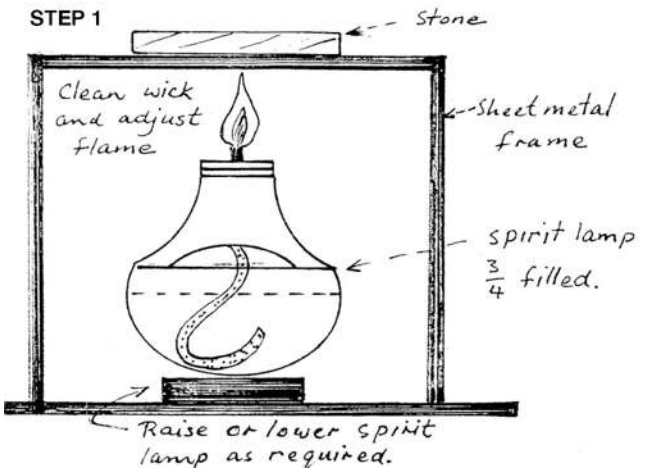
NO CHARGE FOR THESE SAWS.

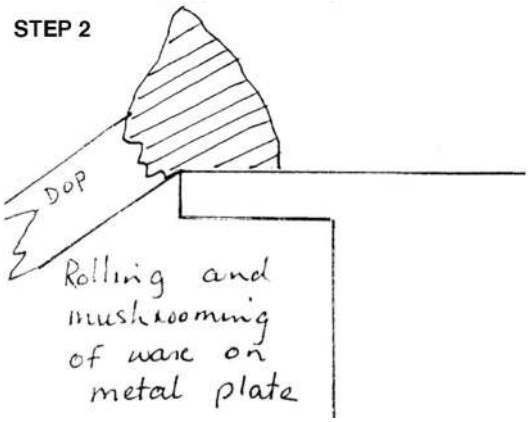
See page 17, for our other SAWS

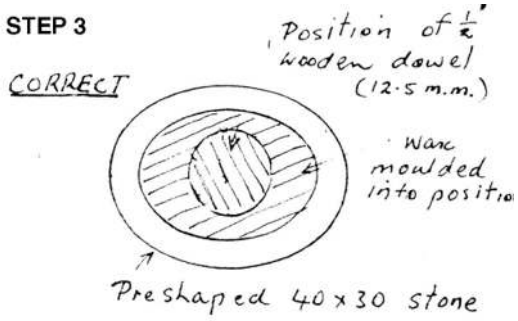
LAPIDARY PROCESS ~ HOW TO DOP YOUR STONE

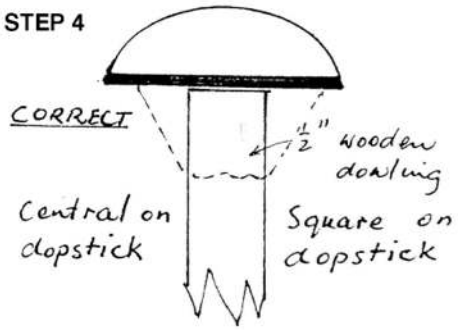
DOPPING

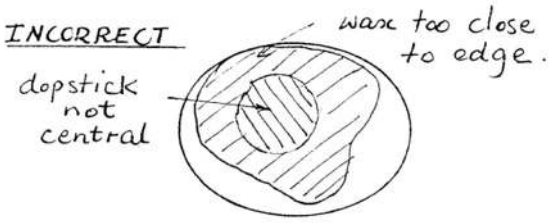
You may chose to use a Dop Stick or hold your stone when using Grinders 1, 2, 3, 4, 5, 73 and 74. Dop Sticks MUST BE USED on Grinders 7 and 8.

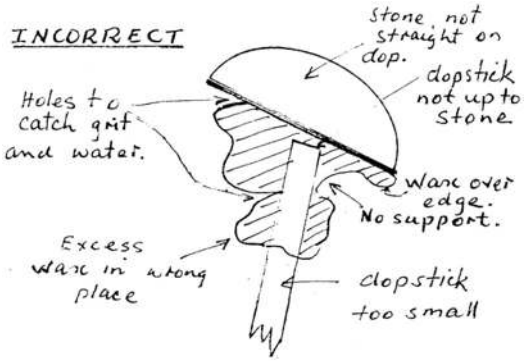


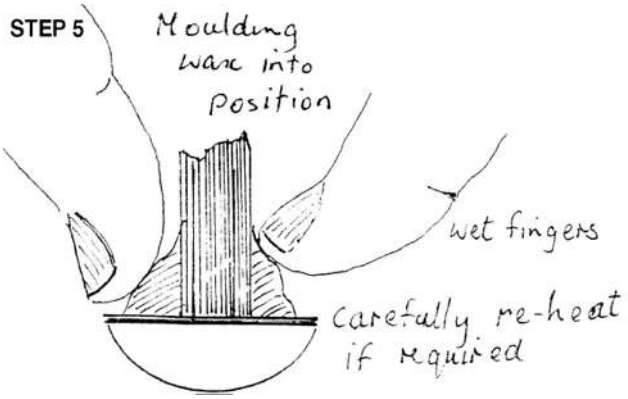












LAPIDARY PROCESS – HOW TO SHAPE YOUR CABOCHON

GRINDING WHEELS

- Shaping the stone on the Diamond Wheels is next.
- Use the entire wheel surface and don't apply excess pressure.
- The grits are 80, 220 and 600. All should be used progressively before pre-polish.
- The 80 GRIT is for material removal within 1mm of your line; the 220 GRIT shapes the stone and removes all scratches and flats before going to the 600 GRIT. Use the Neon light lines to check for scratches and low spots.

REMEMBER to wash your hands, stone and dop stick before moving on to the next grinder or sander.

This rule is designed to prevent contamination of wheels and sanders from coarser grits, thereby avoiding scratches on the stone.

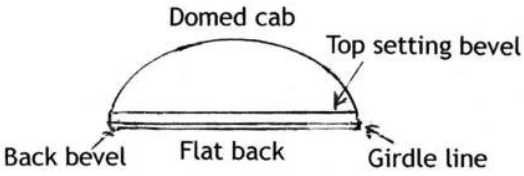
- Work with the information sheet and your instructor.
- Keep the stone moving and look down on the grinding wheel and stone for accurate grinding.
- Grinding is complete when the stone has a dull even sheen, with no variation on the surface.
- After finishing on the 600 GRIT grinding disc you may precede to the Diamond Sanding discs after thoroughly washing and drying you're stone and hands.

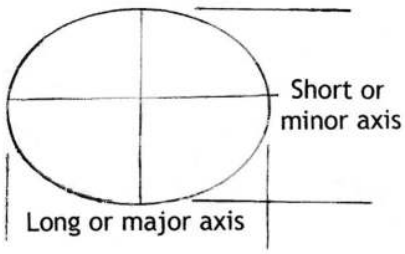
Grinders available for this process are Grinder 1, 2, 3, 4, 5, 73 and 74.

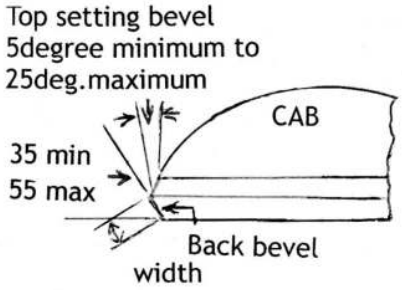
Grinder No 6 is for LARGE ROCKS ONLY.

BOULDER OPAL can only be used on Grinder No. 4 and No. 5

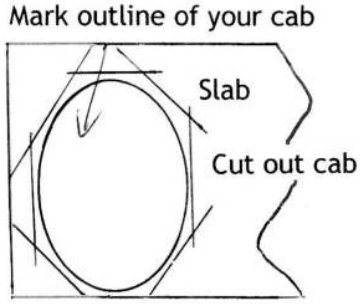
HOW TO CUT A CAB



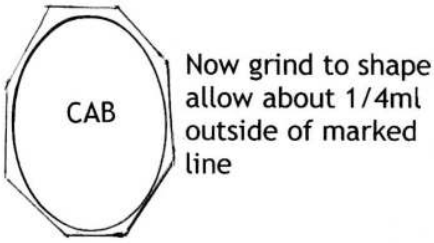




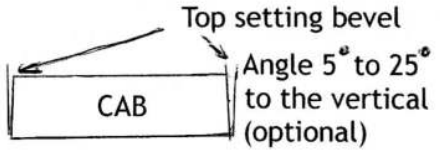
STEP 1: Take your slab and choose the side of the Material to be the face. Then select the area of the slab you want to use to cut your Cab out of. Now turn the slab over and mark out the outline of the Cab on the back, opposite the area selected, using a Club template. The reason we mark the back of the slab is if you choose to use a ready made setting and you have cut to the line on the back side of the slab, you know, your Cab will fit well in your setting, when finished.



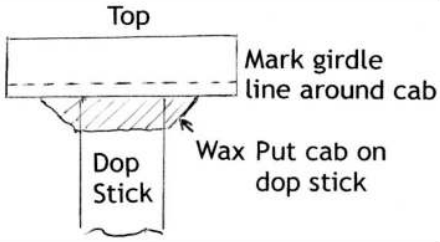
STEP 2: Cut away the excess area of your slab on the trim saw leaving a small margin outside the line on your Cab to be ground away. Now grind away the excess area of the slab left; never grind out the line of your Cab. Always leave a, hairs width of material outside the line to be removed during Polishing.



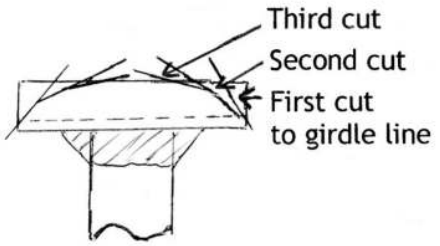
TOP SETTING BEVEL: While grinding away the excess material the top setting bevel, should be formed (see diagram). This is done; by holding the slab at a slight angle on the grinder so it cuts at a little over 90 degrees. The top setting bevel is required; so when the Cab is set in a silver setting and the silver folded over to hold the cab in the setting, the Cab being bigger at the bottom than the top, won't come out of the setting.



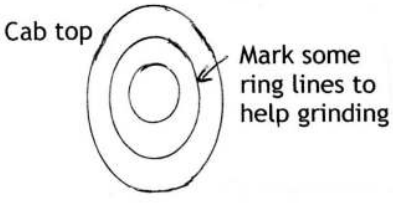
STEP 3: Mark the GIRDLE LINE around Cab. Place the Cab on a flat surface and using a marker of some type, hold the marker on the flat surface, touching the edge of the cab at the correct height (as per diagram) and rotate the Cab to give a Parallel line around the Cab. Now, fix your Cab to a Dop stick.

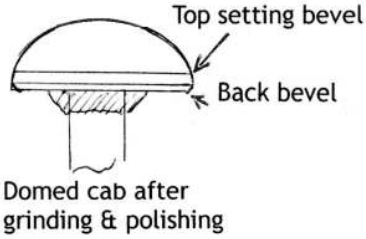


STEP 4: To cut a DOME on the Cab. Make three step cuts (as diagram). The angle of the cuts will depend on the size of the Cab and the height of the dome. You can mark rings on the top of the Cab as a guide to cut to, for each cut, if it helps. Be sure you finish up with a complete dome starting from the girdle line on one side of the Cab, to the line on the other side of the Cab. A common fault is to end up with a flat on top of the Cab. Check the dome often by holding it up and looking at it side on.



STEP 5: Now cut the BACK BEVEL to stop chipping of the back corner. Best to use the 600 grit wheel. It must be cut between 35 and 55 degrees, and less that 1 millimetre wide. Try to keep it even around the Cab. You can now proceed to polish the Cab.





IF YOU NEED ANY FURTHER HELP, PLEASE SPEAK TO A CAB INSTRUCTOR.

LAPIDARY EQUIPMENT – DIAMOND GRINDERS

Grinder No. 1, 2, 3, 4, 5, 73, 74 are NOT to be used for large rocks.

Grinder No. 6 is for LARGE ROCKS ONLY.

Grinder No. 1, 2, 3, 73, 74 are NOT to be used for Boulder Opal.

Boulder Opal can only be used on Grinder No. 4 and 5.

LAPIDARY PROCESS – NEXT STEP AFTER USING THE DIAMOND GRINDERS

WET AND DRY SANDPAPER LAPS

- Sandpaper Laps are for use after you have used the Diamond Grinders.
- This step is before you go onto the Diamond Laps and Soft Wheels to remove any scratches or imperfections.
- Use the spray water bottle on the Sandpapers.
- WASH and DRY your Stone clean when moving from one Sandpaper Lap to the next Sandpaper Lap and so on.

- **Sandpaper Grits 240, 400, 600 and 1200**

LAPIDARY PROCESS – NEXT STEP AFTER USING THE SANDPAPER LAPS

DIAMOND SANDING LAPS

- Please make sure you have washed stone, dop stick and hands with soap and water thoroughly.
- Only after the stone has been has been finished on the 600 Grit Grinding Wheel is it ready to proceed to the Diamond Sanders.
- The Diamond sanding discs are used **DRY** and LIGHT PRESSURE achieves best results.
  NO WATER TO BE USED ON THESE LAPS.
- Commence on the 325 Lap; when the surface of the stone is evenly worked you can inspect the surface of the stone by wiping it clean with toilet paper. Wash and Dry before moving on to next GRIT.
- Next go to the 600 Lap; when sure the surface is evenly sanded inspect; clean with toilet paper, Wash and Dry, then proceed to the 1200 Lap.
- Same procedure; inspect with magnifier to ensure no scratches remain on the stone surface.
- Wash stone, dop stick and hands with soap and water thoroughly before going to the pre-polish Nova wheels.

We have 2 set-ups for the Diamond Sanding Laps.

SIDE A - DO NOT USE Boulder Opal

SIDE B - for Boulder Opal

DIAMOND SANDERS

DO NOT USE WATER
WASH and DRY
Stone clean when moving from one Grit to another.

LAPIDARY PROCESS – PRE POLISH YOUR CAB

You MUST use Dop Sticks on these machines.

NOVA WHEELS

- Once you have finished on the 1200 Diamond Sanding Lap and your Cab is smooth but dull with no scratches or flats, wash stone, dop stick and hands with soap and water thoroughly before using the pre-polish NOVA wheels. Machines 7 & 8.

- These wheels do not remove material from the stone unless it's soft (opal, tiger eye, jade etc.)

- The 280, 600, 1200 and 3000 should be used in sequence while checking your cab between grades.

- This is pre-polish so the more time spent on the 600 and 1200 will be beneficial to the process of polishing; which is next.

Stones that are being polished on these Nova Wheels MUST BE on a DOP STICK.
This is to avoid damage to these Soft Wheels.
NO LARGE STONES and NO BOULDER OPAL.

PRE POLISHING MACHINE No. 7

PRE POLISHING MACHINE No. 8

LAPIDARY PROCESS – PRE POLISH YOUR CAB using BLUE GRINDER

This machine does not require Dop Sticks.

HOW to USE these WHEELS

- From the 280 Soft Wheels **YOU MUST WASH YOUR STONE** before moving to the 600 Soft Wheels.
- Then you **WASH YOUR STONE AGAIN** before moving onto the 1200 Soft Wheels.
- Then you **WASH YOUR STONE AGAIN** before moving onto the 3000 Soft Wheels.

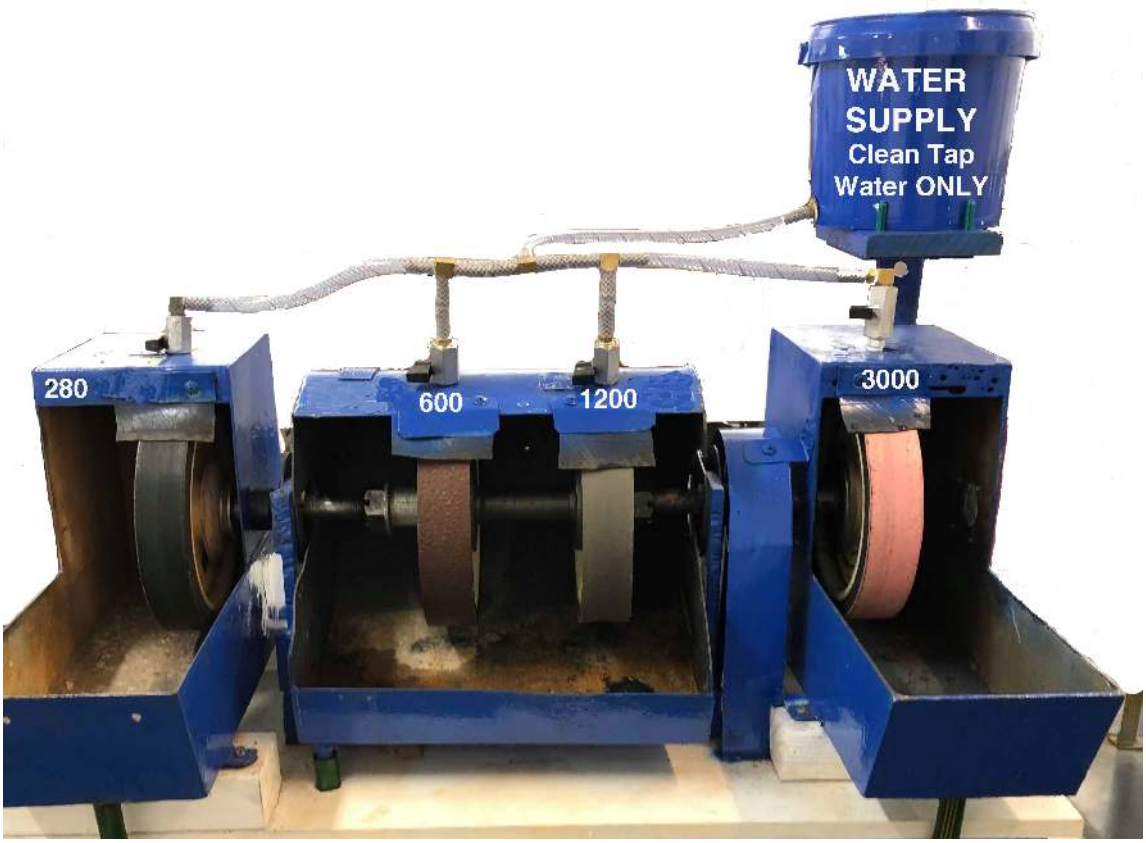
Please do not jump from 280 straight to 3000 this is not the correct process.

HOW to FILL the Water Supply

Please use **CLEAN TAP WATER ONLY**. This is important and STOPS Wheels from being contaminated.

Where to EMPTY Dirty Bucket Water

Please **EMPTY** DIRTY BUCKET WATER in the GARDEN. ***DO NOT use the dirty water to Fill Clean Water Supply Bucket, as it will contaminate the Soft Wheels.***



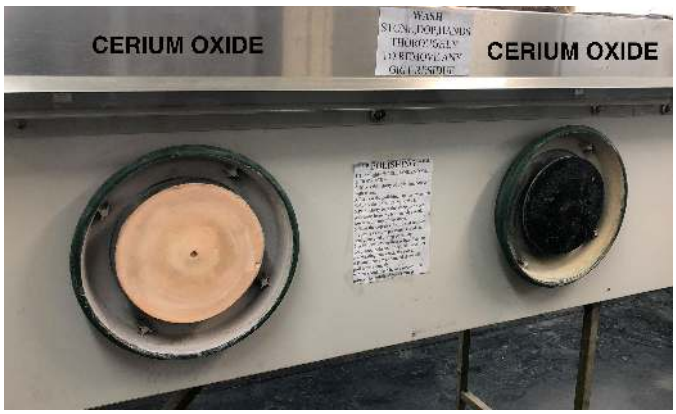
LAPIDARY PROCESS – FINAL POLISHING

POLISHING

- Tin Oxide and Cerium Oxide provide two different types of polish.
  Your instructor will clarify which to use.

- **TIN OXIDE** is used on the leather buff. A white powder mixed with water to form the slurry for application to the cab (Yellow Container).
  Light water spray on the leather before polishing is needed.
  DO NOT FLOOD IT.

- **CERIUM OXIDE** is used on the felt buff. A brown powder mixed with water to form the slurry (Green Container).
  Light water stray on the felt before polishing is needed.
  DO NOT FLOOD IT.



- **DO NOT MIX THESE POLISHES TOGETHER.**

- Rotate the stone to polish surface completely.

- Wash stone with soap and water, dry, then place in the freezer for a few minutes or so; stone can then be removed easily from Dop Stick.

LAPIDARY PROCESS – FLAT LAP

Using FLAT LAP Machines

- Prepare surface of stone by drawing a grid pattern across the stone with an aluminium marker.
- If the saw cut is rough use 80 Grit; if saw cut is smooth use 220 Grit to start.
- Spray lap lightly with water.
- Sprinkle some grit on the moving lap; but not too much as it can build up and cause scratches.
- **DO NOT PRESS DOWN HEAVILY ON THE STONE, AS THIS WILL CAUSE THE GRIT TO BE SQUEEZED OUT FROM UNDER THE STONE.**
- Once the grid marks are ground off, the stone should be flat.
- After washing the stone and lap go to the next finer grit.
  Repeating these steps until you are sure there are no scratches left on the surface.

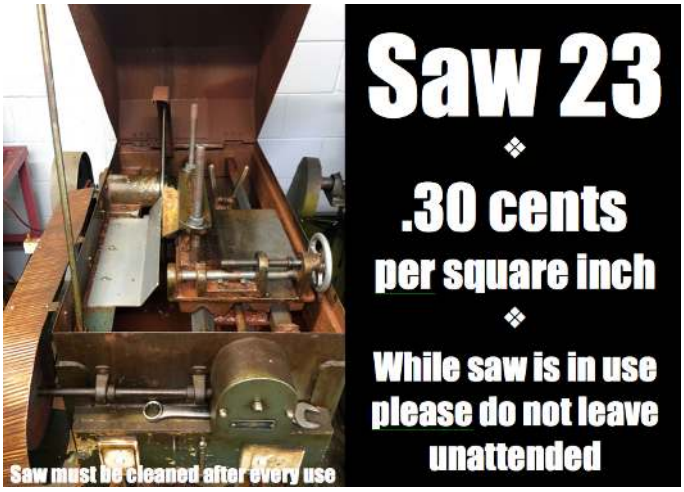
  Wash the stone and hands thoroughly before going to your next choice of machine.

SAW ROOM EQUIPMENT – LARGER SAWS

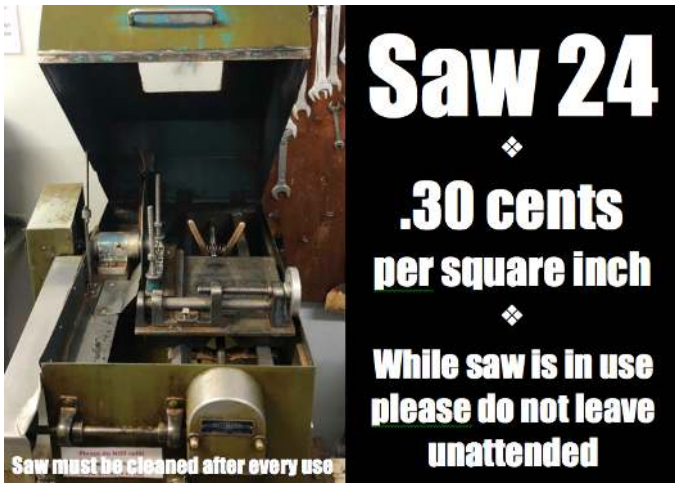
SWING SAW

14 INCH POWERED SAW

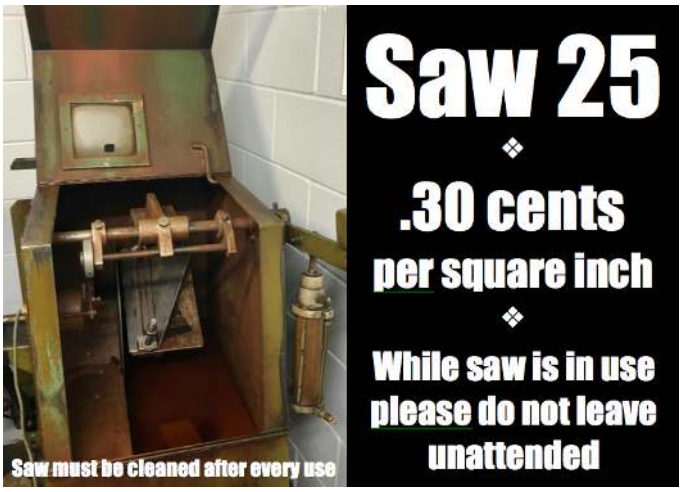
20 INCH POWERED SAW



14 INCH POWERED SAW



16 INCH POWERED SAW



SAWS TO BE USED BY EXPERIENCED MEMBERS ONLY.

ALL SAWS

must be cleaned after every use including all Trim Saws.

Welcome to SILVER SMITHING

SILVER JEWELLERY MAKING:

Basic tool kit for beginners

- 1 Adjustable Saw frame and saw blades 2/0,3/0,4/0
- 1 Pair of shank bending pliers
- 1 Pair round nose pliers
- 1 Pair of flat nosed pliers
- 1 pair of side or end cutters
- 1 x 150mm steel ruler
- 1 ring clamp
- 1 fine flat hand file 200 – 300 long
- 1 set of needle files
- 1 small plastic or hide hammer
- 1 small 125grm or 4oz ball pein hammer
- 1 pair small tin snips for cutting light gauge metal
- 1x 75mm steel engineers square

Silver required

1mm	plate 100mm x 25mm
1/2mm	plate 100mm x 25mm
1.5mm	wire 150mm long

Solder required

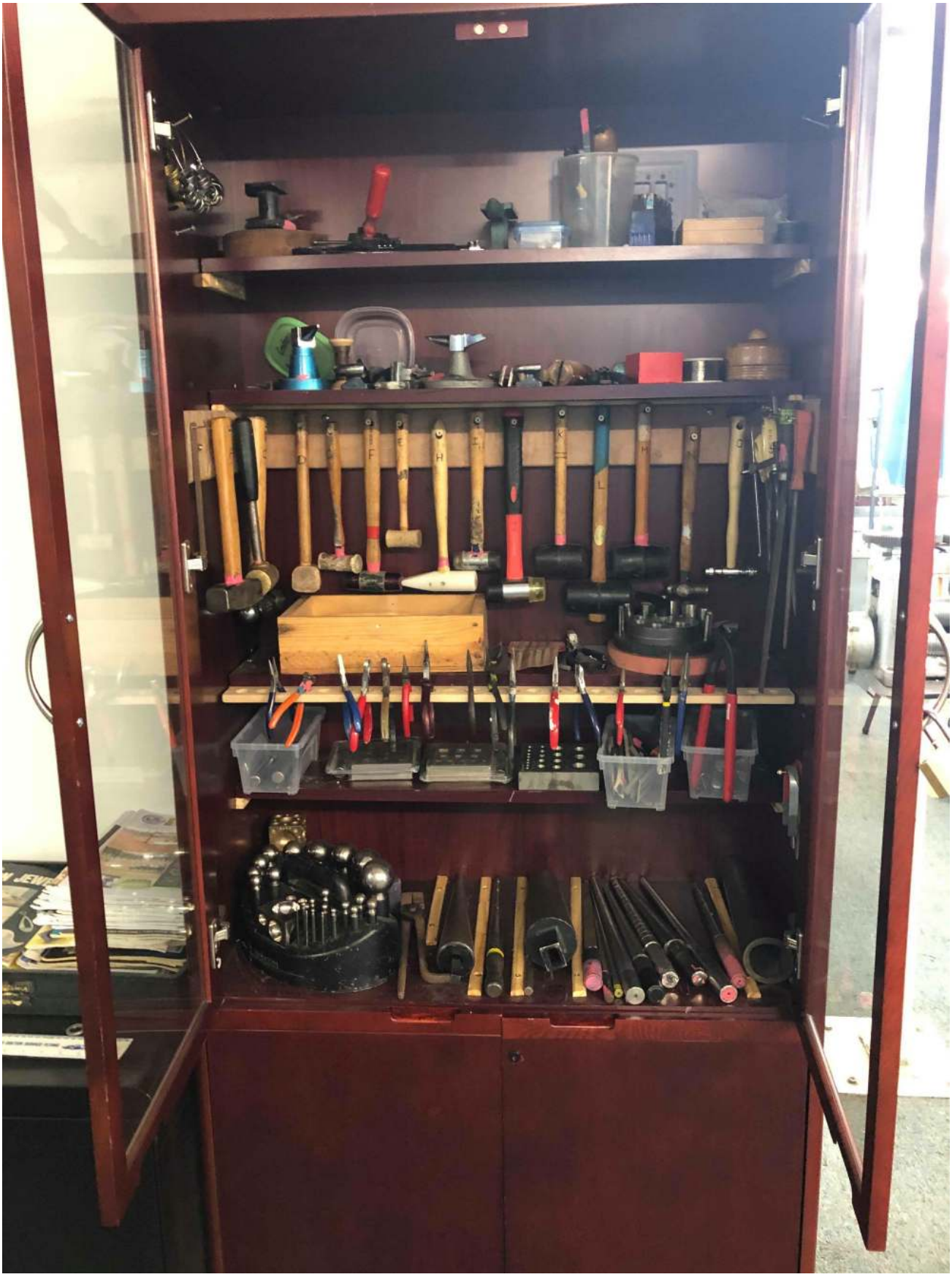
- 5 grams each of hard, medium and soft
- Solder flux-comweld No 2 silver solder flux or borax cone
- Pickling compound

Other equipment needed if working at home:

- 1 Soldering torch with needlepoint jet and larger jet
- 1 LP gas bottle (2kg ample) with connecting hose etc.
- Fire brick
- Glass or earthenware basin for pickle
- Larger basin for clean water to wash item after pickling
- Tapered mandrill for shaping rings perfectly round.
- Bench pin and clamp.
- Cross lock tweezers
- Soldering pick (titanium)

SILVER SMITHING EQUIPMENT AND TOOLS

(Please ask for assistance on use of Equipment and Tools)

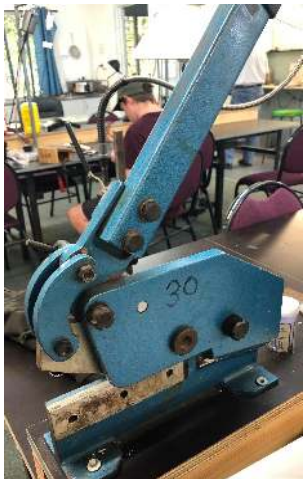


SILVER SMITHING EQUIPMENT AND TOOLS

(Please ask for assistance on use of Equipment and Tools)

ROLLING MILLS

SHEARERS



SOLDER STATIONS

MELTING STATION

PICKLE POT

SILVER SMITHING EQUIPMENT AND TOOLS

(Please ask for assistance on use of Equipment and Tools)

HAMMER and TUMBLER ROOM

VIBRATING TUMBLER

ULTRA SONIC

ANVILS, WAX POT, VICES, BENCH PEGS and WOODEN MANDRELS

SILVER SMITHING EQUIPMENT AND TOOLS

(Please ask for assistance on use of Equipment and Tools)

GRINDER for Flap Wheels

GRINDER

POLISHERS for JEWELLER'S ROUGE

BELT SANDER

DRILL PRESS

SILVER SMITHING EQUIPMENT AND TOOLS

(Please ask for assistance on use of Equipment and Tools)

DRAW BENCH

LOST WAX CASTING EQUIPMENT (instructors only)

SILVER SMITHING ROOM

SOME TERMS USED WHEN WORKING WITH METALS:

Annealing
Process of heating metal until its internal structure is changed and stresses removed making it malleable.

Solder
For silver work there are 3 grades of solder used; easy, medium and hard. Soldering is done at red hot heat; the metal being soldered is almost at melting point when the solder melts and fusion occurs to form a join nearly undetectable. For gold use solder of the same karat as the gold being worked.

Some useful knowledge about Solder:
- Pure Silver melts at 981.8 centigrade
- Sterling Silver melts at 893 centigrade
- Hard Solder melts at 778 centigrade
- Medium Solder melts at 765 centigrade
- Easy Solder melts at 722 centigrade
- Hard Solder comprises of 75% pure silver, 22% copper, 3% zinc
- Medium Solder comprises of 70% pure silver, 20% copper, 10% zinc
- Easy Solder comprises of 65% silver, 23% copper, 12% zinc

SAFETY PRACTICES WHEN SOLDERING
- Have long hair tied back so it does not get singed.
- Be careful not to wave lighted torch near co-workers to avoid any accidental burns.
- Be aware the pickle will let off bad fumes if very hot metal is put into it; let work cool a little first.
- Bowls are water are at each Solder Bench so that you can place your items in to cool.

Flux
Prevents the surface of the metal oxidizing during soldering.

Pickle
Diluted solution of acid essential to clean oxide or fire scale after heating work.
ALUM is a natural product also available that is mixed with water

Tripoli
A coarse abrasive used in the first stages of polishing metal.

Rouge
Jeweller's rouge is a red iron oxide, a fine abrasive used for the final polishing stage of precious metal.

Club vibrating tumbler is used to clean silverwork; please leave it clean and ready for the next session.
A sieve to clean shot is above the sink.
Burnishing powder is supplied for the tumbler. One teaspoon is all that is required.

FACETING ROOM

Faceting is the cutting and polishing of gemstones. The club has a variety of Faceting machines available for members use with training conducted by accomplished Faceters who will guide you through the process.
This must be arranged in advance so a machine is free for training.

CLUB LIBRARY

Club lending library has over 300 books and magazines full of useful information.
Club members for a small fee can borrow books; this helps fund purchase of new books.

MONTHLY CABBING COMPETITIONS

- Any financial member may enter the Club Cabbing Competitions; they run from February to November each year.
- A list of the year's competition stones (type of material and cut with special requirements) and templates will be available early February.
- Two stones can be entered each month in the competition.
- First placed entries may be not entered again in any further club monthly competitions.
- Entries mat be submitted on or by the Tuesday prior to the club's Monthly Management Committee meeting, put your club number with entries.
- Competitions are judged in accordance with the definitions, rules and conditions in the J & R Manual. A Club copy of the manual is available.
- Winners of each year's competition are not eligible to win first position the following year.
- Annual winner's name will be engraved on the Competition Shield displayed in the Clubhouse.

FIELD TRIPS

- For trips organised by the club the necessary fossicking permits and Insurance covering members while together at a designated fossicking area are organised by the Field Officer and the Trip leader carries the necessary documents.

- If members leave the club group they are responsible for obtaining their own licences to fossick.

- Members are reminded to have sufficient fuel, carry extra if going to a remote location.

- Leaders make sure all members know the rules for travelling in convoy so no one gets separated or lost.

- No pets on trips.

- A responsible adult must accompany junior members.

Suggested Equipment to take on field trips;

- Sturdy shoes or boots

- Ankle protectors to keep dirt out of boots

- Overalls (optional)

- Safety glasses, leather gloves

- Geo pick

- Large pick, crow bar or pinch bar

- Small spade or long handled shovel

- Buckets and /or sturdy carry bag for rocks

- Newspaper to wrap rocks in

- Waterproof coat

- Hat, sunscreen and water bottle