

Owners Manual

Vi-Bro-Lap

20VL 27VL



IMPORTANT SAFETY INSTRUCTIONS

PLEASE READ BEFORE OPERATING THIS MACHINE

Before plugging in this machine, make certain the electrical outlet is properly grounded and of the proper voltage. Also make certain that the machine switch is off and that your hands and the electrical connections are dry in order to avoid possible electrical shock.

INTRODUCTION

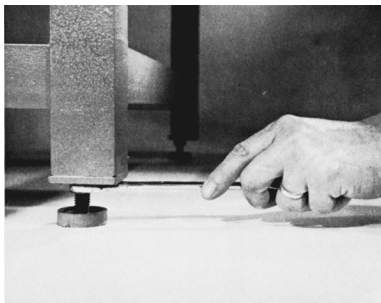
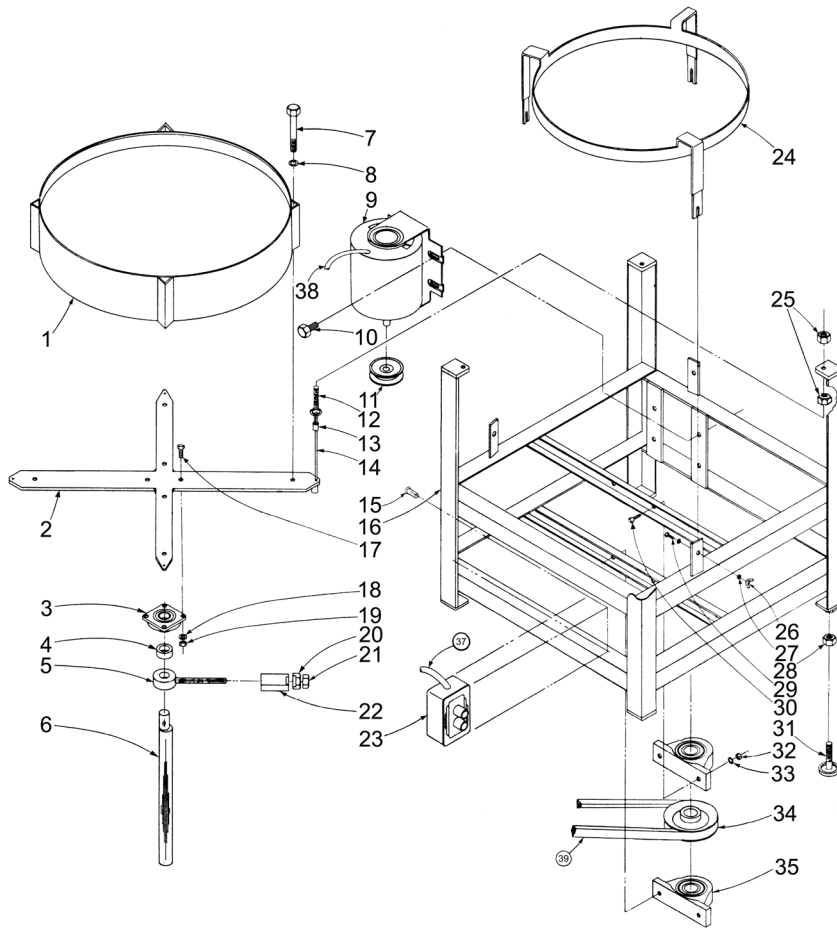
The Diamond Pacific Vi-Bro-Lap you have purchased is a rugged, dependable machine which will give you years of service. Built into this machine is the same excellence of design and craftsmanship found in all our lapidary equipment.

Your Vi-Bro-Lap comes factory balanced and ready to use. Simply install the unit as described below and you are ready to begin lapping.

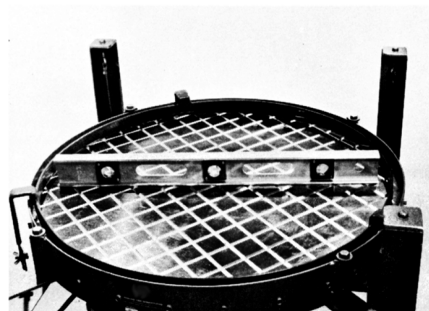
INSTALLATION

- (1) *Untie* the counterweight (No.22, Figure 1).
- (2) Set your machine on a level floor; preferably concrete.
- (3) Loosen the locknuts (No.28, Figure 1) and use the adjustable feet (No.31, Figure 1) to level your machine. When it is level - and this need not be exact - check all the feet to make sure they are firmly contacting the floor. Secure the locknuts.

Figure 1



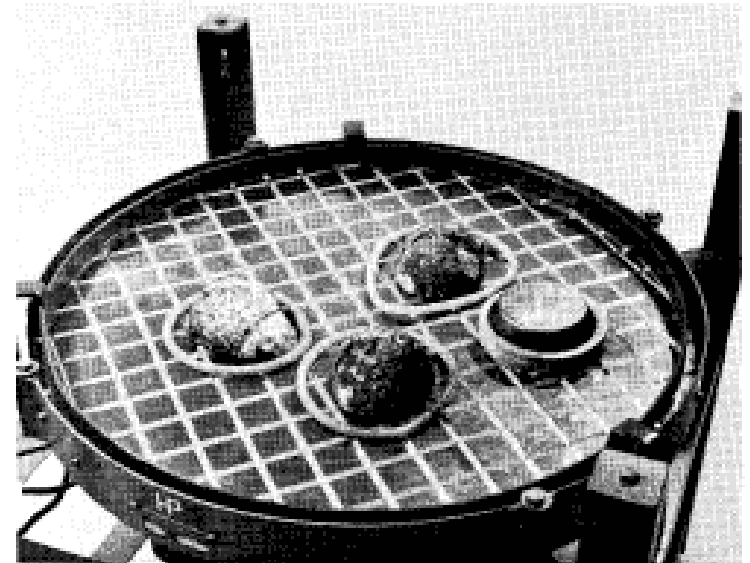
The adjustable feet are used for leveling the Vi-bro- Lap.



A level placed on the Vi-bro-Lap plate shows when the machine is level.

SPECIMEN PREPARATION

- (1) Remove saw burrs or heels from all specimens.
- (2) BEVEL ALL EDGES at approximately 45 degrees. (Just enough to still leave a bevel edge after the grinding operations are completed.)
- (3) Add weight to any specimen which is too light, i.e. under 2" average thickness.



Rubber bumpers surround three geodes protecting them from chipping. A thin slab is protected by a wooden circle, and weighted by a lead weight.

OPERATION

There are only three basic steps in lapping with the Vi-Bro-Lap. The first and perhaps the most important step, rough grinding, gives the specimen a perfectly flat, even surface. The second step, fine grinding, smooths this surface in preparation for the final step polishing.

(1) Coarse Grinding.

- (a) Be sure the plate (#1, fig 1) is oriented with the aluminum (grinding) side up.
- (b) Adjust the bumper guard (# 24, fig 1) so that it clears the plate surface by approximately 3/16".
- (c) The counterweight is painted red on one side. To grind, position this with the RED SIDE DOWN. If your machine is operating with an extra heavy load, it may tend to rotate. If it does rotate, stop the machine, slide the counterbalance back on the shaft and rotate it so that the red side is up. Slide the counterbalance forward and engage it in the slotted T-nut DO NOT LOOSEN THE LOCKNUT.
- (d) Measure the proper amounts of grinding compound and water onto the plate (see table 1 on page7)
- (e) Place the prepared specimens (rocks) on the plate.
- (f) Surround each specimen with a rubber bumper

such as surgical tubing. Join the ends of the surgical tubing together with the wooden peg. This is to protect the specimens from chipping and is important in polishing as well as in grinding.

- (g) Turn the machine on and grind from 3 to 8 hours.
- (h) Remove the specimens when the ground surface is perfectly flat and even.
- (i) Clean the plate, bumper guard and specimen thoroughly. You must be careful not to transfer any coarse grit to the fine grinding operation.
- (j) If after 8 hours a specimen still has an uneven surface, include it in with another rough grinding batch.

(2) Fine Grinding

Follow the procedure outlined under number "1" except run the fine grinding operation from 6 to 8 hours.

(3) Polishing

- (a) Remove the bumper guard. Remove the cap screws (# 7 fig 1) and invert the plate to expose the polish pad. Be sure the polish pad is free of contamination. Re-tighten the cap screws DO NOT TIGHTEN EXCESSIVELY. Replace the bumper guard and adjust it so that it clears the polish pad by approximately 3/16".
- (b) Position the counterbalance with the RED SIDE UP.

- (c) Inspect the specimens for saw marks, chips and sharp edges. Silver colored swirls on the surface should be removed with 600 Wet/Dry sandpaper.
- (d) Measure the proper quantity of polishing compound and water onto the polish pad (see table 1 on page 7).
- (e) Place the specimens on the polish pad and polish them from 2 to 4 hours.
- (f) The polish does not require changing after every batch of specimens. Simply replenish the quantity used up in the previous batch (approximately 1 tbsp.) And continue with the next batch. After polishing approximately 10 or 12 batches of specimens, you should thoroughly clean your polish pad. Soak it overnight with a mild solution of soap. Then scrub it with a stiff brush and flush out the residue with a hose.

The plate assembly is inverted to expose the polishing pad.



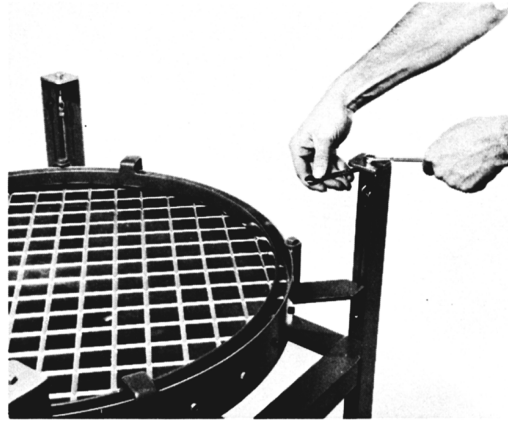
Table 1			
Operation	Compound	Quantity Required	
		20" unit	27" unit
Grinding	80 grit Silicon Carbide	4 tbsp.	6 tbsp.
Fine Grinding	400 grit Silicon Carbide	4 tbsp.	6 tbsp.
Polishing	Polish	1/4 lb.	1/3 lb.

Dilute these quantities with 1-1/2 cups of water on the 20" machine, and 2-1/2 cups of water on the 27" machine. Maintain these proportions of water and compound by adding water periodically to compensate for evaporation.

SUGGESTIONS

- (1) **Preventing Machine Rotation:** If your machine is resting on a slick surface or if it is heavily loaded, it may tend to rotate. Two methods are suggested for preventing this rotation.
 - (a) Cement small pieces of 100 or 220 grit sandpaper to the floor underneath each foot.
 - (b) Take a piece of plywood with holes cut out for the feet. Fasten the plywood down and set the machine with its feet through the holes. **NEVER BOLT DOWN the Vi-Bro-Lap.**

(2) **Keeping Your Specimens Moving Around the Plate or Pad:** If your machine is level, and your specimens tend to run to a particular corner or position, you should tighten the cable (# 14 fig 1) at that point very slightly and loosen the one at the opposite corner an equal amount. **(DO NOT FORGET THE LOCKNUTS #25,** fig1). It is not advisable to run your machine with the cables unduly taut. The settings as they are when you receive your Vi-Bro-Lap are correct. Only minor adjustment should ever be necessary.



Two wrenches are used to adjust the plate supporting cables.

(3) **Working With Jade:** The Vi-Bro-Lap is ideal for grinding jade, however, polishing jade on the Vi-Bro-Lap is not recommended. Excessive “orange peel” results from the nylon-polish combination. A polishing wheel is suggested for polishing jade.

THE RESERVE GRINDING SURFACE

The surface of your grinding plate may, through normal wear, become bowl shaped. This may in turn prevent large specimens from obtaining an even grind. In this case it is necessary to expose the reserve grinding surface as follows:

- (1) Remove and discard the worn polish pad. Carefully remove the galvanized tin circle.
- (2) Clean the tin circle and the newly exposed aluminum plate with lacquer thinner.
- (3) Fill in the bowl shaped area of the old grinding surface with metal putty.
- (4) Use contact glue and cement a new polish pad onto the tin circle. After it dries cement the tin circle with polish pad onto the old grinding surface.

BALANCING THE VI-BRO-LAP

It is unlikely that you should ever need to readjust the counterbalance mechanism. But if you feel that your machine vibrates excessively, and you are sure that all other adjustments are correct, then readjustment of this mechanism may be necessary. In this event, please follow the steps listed below.

- (1) Locate your machine on a smooth, level, solid surface such as a cement floor. (The use of a smooth surface is only to simplify balancing your machine. For normal operation a slightly rough surface is preferable. Balancing is further simplified by smearing a little grease or Vaseline under each of the feet.)
- (2) Check all four cables to assure that they have approximately the same tension.
- (3) Level the machine. (Refer to “Installation” on page 1)

- (4) Make sure that the position of the set screw on the counterweight collar (#5, fig 1) is in line with the punch mark on the shaft (# 6, fig 1). Be sure that this collar is as far up the shaft as possible. Tighten the set screw firmly.
- (5) Adjust the locknut and T-nut (#s 20 & 21, fig1) so that the distance from the end of the threaded shaft to the locknut is approximately 5/8". Tighten the locknut. Position the counterbalance with the red side down and engage it in the T-nut.
- (6) Turn on the machine. You will probably notice two things: First, your machine may vibrate and, second, it may tend to revolve on the smooth surface.
- (7) Turn off the unit. If it tended to circle clockwise, loosen the set screw (# 5, fig 1) and turn the collar very slightly counterclockwise. If it tended to circle counterclockwise, you should move the collar clockwise. Re-tighten the set screws.
- (8) Repeat steps "6" and "7" until the machine vibration is at a minimum. (Your machine may still revolve one way or the other.)
- (9) If the machine still revolves clockwise, loosen the locknut (# 21, fig 1) and move the counterweight a full turn "in" on the threaded shaft; if the machine revolves counterclockwise, move the weight a full turn "out" on the shaft. Adjust T-nut and secure the locknut. (A more precise balance is possible, of course, by finally adjusting the weight by half turns.) You may have to repeat steps "8" and "9" one or more times to achieve the desired balance.

Accessories/Parts		
Description	20"	27"
Replacement Plate w/Pad	621-41-118208	621-41-118190
Galvanized Circle w/Pad	621-41-117176	621-41-117184
Nylon Polish Pad	621-41-117101	621-41-117119
Rubber Bumper (fits on #24)	690-41-118211	690-41-118210
Cable & Eye Bolt Kit	690-41-100438	690-41-100420
Adjusting Leg (#31)	690-41-104120	
Flange Bearing (#3)	690-90-4120	
Pillow Block Bearing (#35)	690-90-5684	

Orders/Technical Support:

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