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ROCIPROLAP® INSTRUCTIONS

1. Install the four leveling feet with a washer, lock-washer, and nut on top.
2. Insert one steel disc in each bearing cup making sure the steel disc sets down flat. Place two nylon thrust bearings in each container. Add three or four drops of machine oil onto bearings.
3. Install the lap plate ensuring the plate rests on the nylon thrust bearings by twisting the plate back and forth. The plate should turn freely. A visual inspection will make certain.
4. Place a level on the machined surface of the lap plate. Adjust leveling feet until level. Turn level 90 degrees or one quarter turn and adjust feet until level.
5. Start the machine and let run for approximately five minutes. Check the leveling feet by placing a finger against the plastic pads and the floor. If one vibrates or bounces, loosen the nut and screw the foot down by hand. Tighten the nut securely. Observe the lap plate in operation. With no load on it, the lap plate should revolve about two to three times per minute. When lapping or polishing it is normal for the lap plate to either slow down or revolve in the opposite direction of the no load condition.



Caution: Take extreme care with the wearing ring surface. This is the portion of the plate that rides on the nylon thrust bearings. It must be kept scrupulously clean and well oiled with 30 or 40 wt. oil. *Never use grease.*

HAZARDOUS CONDITION WARNING: NEVER START THE ROCIPROLAP WITH THE LAP PLATE REMOVED.

MISCELLANEOUS ADVICE

- Inspect the nylon thrust bearings each time the plate is removed. If they are dirty or discolored then the thrust plate is not being kept clean.
- When the plate begins to revolve faster than normal it is an indication that the thrust balls are failing or that you have too much oil on the bearings. If too much oil is not the problem (the problem usually is overly worn bearings), you must change the complete set. The nylon

thrust bearings are measured and packaged in sets – individual bearings may vary by as much as .005 of an inch. Mixing them could damage the machine.

- Clean your material and machine thoroughly after each lapping operation. One grain of 80-grit can scratch your material if allowed to mix with the next lapping operation.
- Never leave your flats on the lap plate when the machine is stopped for an indefinite period of time. The can and will stick to the lap plate. Should you ever have this problem, add water to the plate and start the machine. If the flat won't come loose, jar it slightly with a block of wood. Place the edge of the flat on the bumper ring when through with a lapping procedure to avoid it sticking to the lap plate.
- After using the machine, when the machine won't be in use for a day or so, put a thin coat of oil on the inside of the plate. This will keep it from rusting.
- Never do fine (400g or 600g) lapping on a rusty plate. The scale from the rust will scratch the surface of your material.
- Never overcrowd the plate. A 16" piece is the normal operating maximum for the 20" model, Use the proportion should be followed in the other plate sizes.

LAPPING PROCEDURE

For a 24" Plate: With the machine running, pour about two (2) cups of 80-grit on the lap plate. Add two (2) cups of water. Stop the machine and place material to be lapped on the lap plate and start the machine. As the material begins the grind, the grit and water mixture will become a creamy slurry. Maintain this creamy state throughout grinding process for maximum abrasion.

Note: Use equal amounts of grit and water to begin on all other plate sizes and lap into a creamy slurry.

Always wash plate thoroughly between cycles to eliminate cross contamination of grits.

Testing for Flatness: Wash the piece off. Using an aluminum marking pencil, mark a 2" square grid on the bottom of the piece. Replace the piece and lap for about 10 minutes. Remove piece and examine the bottom. If the lines have been removed, the piece is flat and ready for the next operation.

Second Lapping Operation: Once the material has been lapped flat on 80-grit, repeat the first process using 220g and equal amounts of water.

Third Lapping Operation: Repeat the first operation using equal amounts of 400-grit and water.

Fourth Lapping Operation: Repeat the first operation using equal amounts of 600-grit and water.

Polishing: Install the polishing pad, splash guard, and bumper ring. Start the machine and place ½ cup of Cerium Oxide on the pad and add enough water to create a creamy slurry. Most objects

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require about five (5) hours of lapping to be polished however the size and weight of the object will make a difference in the lapping time and you will have to be your own judge. The supplied green pad works well for lapidary applications. For glass, a special magnetic backed felt pad is available.

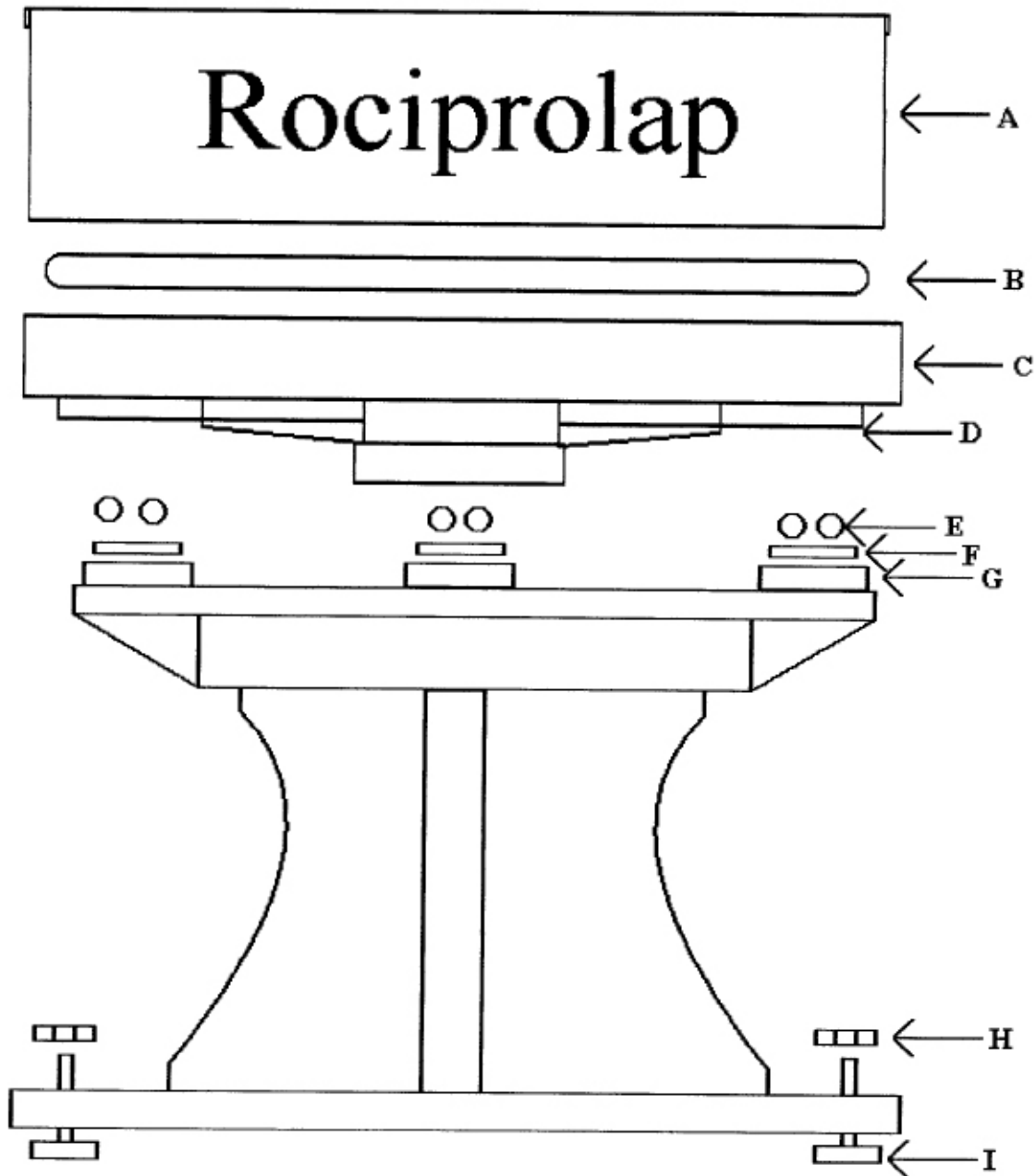
Note: These instructions are for a 24" lap plate. Use proportionally larger or smaller amounts of grit for larger or smaller lap plates.

IMPORTANT INFORMATION

If you move the machine or if the machine should move, follow the leveling procedure. **DO NOT** bolt the machine down! Doing so will damage the bearing in the lap plate. Arrange the power cord so that if the machine should move it will disconnect itself. **DO NOT** trim the polishing pad. Work it up the side of the splash guard then put in the bumper ring on top of the polishing pad so that the polishing pad will not slip.

When to change the nylon thrust bearings: If the bearings stop revolving in the bearing containers then the nylon thrust bearings have worn flat spots in themselves. If run too long in this condition they will wear dimples in the steel discs, wearing out new sets of bearings even faster. Turn the discs over if a dimple is worn into one side. A nice circular pattern worn into the steel disk is good.

Additional Information: When lapping a single piece always put in a bumper ring to keep the material moving over the entire surface of the lap plate, this allows the lap plate to wear evenly. When lapping several pieces that have protective rings around them, remove the outer bumper ring. This allows the material to work out over the undercut area of the lap plate. Bumper rings are made of rubber or plastic tubing with a dowel inserted to form a ring. They can be held together with glue or they can be taped together.



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| A - Splash Guard | F - Steel Disks |
| B - Bumper Ring | G - Ball Containers |
| C - Lapping Plate | H - Lock Nut |
| D - Wearing Surface | I - Leveling Feet |
| E - Nylon Bearings | |