

Owners Manual

40T

Rotary Tumbler



Congratulations on the purchase of a Diamond Pacific Commercial Duty Tumbler!

This heavy duty tumbler will accommodate any combination of media and parts which will fit in the appropriate barrel size. **Please note:** when in use the motor will get very hot to the touch, this is normal. The roller bearings will last for many weeks of continuous use. Do not over oil, as excess oil will seep onto the rollers causing the barrel to slip. If this happens extensive cleaning is required.

For tumbling and polishing of stones follow the instructions on the following pages. For tumbling of metal there is a very wide range of techniques used. The media used depends on the metal, size, shape and the amount of material removal desired. The media can be rouge coated walnut shell, ceramic in various grits and shapes, resin bonded grits in several shapes, steel and stainless steel shot in various shapes. To determine the most suitable media for your specific needs contact your tumbler dealer, a local abrasive supplier or call the technical department at Diamond Pacific.

There is one basic rule of thumb for rotary tumbling, for optimum action the barrel should be used approximately two thirds (2/3) full of combined media and parts/stones. If it is overfilled there will be very little tumbling action and if under filled there will be slippage without tumbling. In metal parts if the parts are too big or of unusual shape, they may interlock while tumbling and create an out of balance condition causing the barrel to come off the rollers. To correct this, you will need to experiment with the quantity of parts, and some particular sizes may not work.

One thing to remember is that this is not a science but an art and you will need to experiment.

POLISHING ROCKS IN A ROTARY TUMBLER

Tumble polishing rocks is fun and easy, but there are certain guide-lines to follow that will help insure success.

GENERAL GUIDELINES

1. 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.
2. Set up your tumbler on a firm, level surface preferably in an area where the noise of the rolling rocks will be less of a bother.
3. Fill your tumbler barrel about 2/3 full. You need to allow room for the stones to roll around.

PREPARATION OF STONES

1. Remember, the finished product is determined as much by the quality of the rocks you use as by the polishing process. Some rocks will never attain a good polish no matter what you do to them. In general, stones that are 6 to 7 in hardness will polish well. Use the scratch test listed later in this manual to determine the hardness of your material.
2. Sort your stones by hardness and do not attempt polishing soft and hard stones (such as agate and opal) together in a rotary tumbler. The softer stones will wear away before the harder stones are polished.
3. Select stones of about the same size, up to about 2-1/2" for a small 12 lb. barrel. Larger stones can be used in the larger barrels, but use common sense.
4. Wash your rocks in hot, sudsy water and rinse well before placing them in the tumbler.

INSTRUCTIONS

NOTE: The quantities of grit given below are for a 12 pound tumbler barrel. Adjust as necessary for larger tumblers. The time will generally be about the same.

STEP 1. COARSE GRIND (60/90 grit)

- A. Place Your clean rocks in the tumbler and fill the barrel to about 2/3 full of stones. Add 24 oz. of the coarse grind (60/90) and then add enough water to just cover the stones.
- B. Run the tumbler with this mixture for at least 7 days, 24 hours a day, or until the rocks are smooth.
- C. Check the process daily. Some material may cause gas build-up and need the tumbler covers removed every so often to release the gas.
- D. Remove the stones and WASH STONES AND BARREL WELL. A kitchen colander is handy for washing the stones, BUT NEVER WASH THEM WHERE THERE IS A DRAIN SUCH AS THE KITCHEN SINK. The grit and mud can clog the drain. On a lawn is a good place for the washing operation. Remember, even one particle of grit left on a stone or in the barrel can scratch the finish of the next finer grit.

STEP 2: FINE GRIND (220 grit)

- A. Place the well washed stones back into the barrel. Add 24 oz. of the 220 grit and enough water to cover tops of stones.
- B. Run tumbler with this mixture approximately 7 days, 24 hrs. a day or until the rocks are shiny when wet. Remove stones from barrel, and again WASH STONES AND BARREL WELL.

STEP 3: PRE-POLISH (600 grit)

- A. Place stones back into barrel. Add about 24 oz. of the pre-polish 600 grit and enough water to cover tops of stones.
- B. Run this mixture about 7 days, 24 hrs. a day, or until the rocks show a luster when dry. Again, wash stones and barrel well.

STEP 4: POLISH (Aluminum oxide)

- A. Place stones back into the barrel. If possible, use a separate barrel for the final polish as this lessens the danger of contamination from the coarser grits. Add about 20 oz. of the aluminum oxide polish and enough water to cover the top of the stones.
- B. Run this mixture for about 7 days, 24 hours a day, or until the rocks are shiny when dry. Wash stones and barrel well.
- C. For a good clean up, place the well washed stones back into the barrel and add enough powdered detergent to make stiff suds when water is added to about the top level of the stones. Run this mixture for a few hours at least, or over-night. This cleans all the polish from the stones and puts a final burnish on them.

THE MOHS SCALE

The Mohs Scale lists ten minerals according to relative hardness. The scale is graduated from No. 1 (Talc, a very soft stone) through No. 10 (Diamond, the hardest stone).

- 1. Talc
- 2. Gypsum
- 3. Calcite
- 4. Fluorite
- 5. Apatite
- 6. Orthoclase
- 7. Quartz
- 8. Topaz
- 9. Corundum
- 10. Diamond

SCRATCH TEST FOR HARDNESS

Use the simple field test below to identify relative hardness of a stone. Stones in the range of 6.5 to 7.5 will usually polish well.

Fingernails scratch	2 to 2.5
Pennies scratch	3.0
Knife blades scratch	5.5
Window glass scratches	5.5
Steel files scratch	6.5
Garnet scratches	7 to 7.5
Carborundum scratches	9.5

Replacement Parts

	Description	Part #
	40 Lb Barrel Assembly (complete)	611-30-4010
	Lid Gasket	611-30-4019
	Barrel Liner	611-30-4012
	Shaft Bearing	690-90-2529-1
	Belt, Motor	690-91-4340
	Belt, Shaft	690-91-4190
	Guide Rod with Bearing	690-30-102618
	Plastic Roller Cover Kit (2pcs & 4 clamps)	611-93-002

