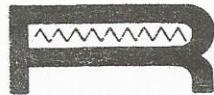


# OPERATING INSTRUCTIONS

8" GRINDER-SANDER-POLISHER



RAYTECH INDUSTRIES, INC.

Post Office Box 6 - Stafford Industrial Park

Stafford Springs Conn. 06076 - Tel. (203) 684-4273

We hope you like your new Raytech variable speed grinder. Before operating your new machine, please read the checkout instructions that follow:

\*\* SAFETY CAUTIONS \*\*

DO

1. DO always wear safety glasses or some type of eye protection when grinding.
2. DO plug the machine into a properly grounded electrical outlet.
3. DO unplug machine when changing the belt or making other adjustments on the machine.

DON'T

1. DON'T turn machine on without first checking grinding wheels for cracks.
2. DON'T stand in line with grinding wheels when starting up the machine.

PART I  
MACHINE CHECKOUT

UNPACKING AND SETUP

1. Remove the strapping from the outside of the carton, and slit the sealing tape on the four sides of the top of the carton.
2. Slide the inner carton out of the top. Lift the grinder and skid out of the carton.
3. Unbolt the grinder from the skid and place it on a sturdy table with the drain outlet (02-011-010) over the front of the table far enough to leave room for a garden hose connection. An ordinary garden hose will fit the drain nipple if two hose washers are used. An inexpensive coolant and drain system are available from your Raytech dealer.
4. The grinder should be screwed in place so that it does not vibrate.

INSTALLING HOOD STOPS

The grinder is provided with rubber-covered stops (02-011-018A) which keep the hood from falling back when it is opened. For shipping purposes, the stops are positioned inside the hood. To position the stops correctly, simply unbolt each one and then rebolt it by screwing the two hex head screws provided

INSTALLING HOOD STOPS - cont.d

through the holes in the stops and into the two threaded holes in the end of the machine. When the two stops are correctly positioned, the rubber bumpers will stick out from the back of the machine and catch the hood when it is hinged open.

INSPECTING GRINDING WHEELS

Open the hood of the machine and inspect the grinding wheels carefully to see that they have not been accidentally cracked in shipment. A small chip on the outside corner of the wheel is not serious, but a crack in the wheel could cause it to break when it is being used.

OPENING HOOD

To open the hood, first cut the plastic strapping which holds the handle of the variable speed unit down during shipping. Next remove the vee belt from the motor pulley to allow the hood to be opened. To remove the belt, unplug the machine then place the variable speed unit in its lowest, or "GRIND" position. Open the top of the variable speed unit, force the belt off the pulley while rotating it by hand. Push the belt completely off the end of the variable speed pulley.

Release the two hood holddown bolts by unscrewing them with two triangular plastic knobs on top of the hood (02-011-013). At this point, the hood can be hinged back against the stops, then the grinding wheels can be inspected. The entire shaft assembly can be lifted out of the grinder for changing grinding wheels and for easy clean-out of the sump.

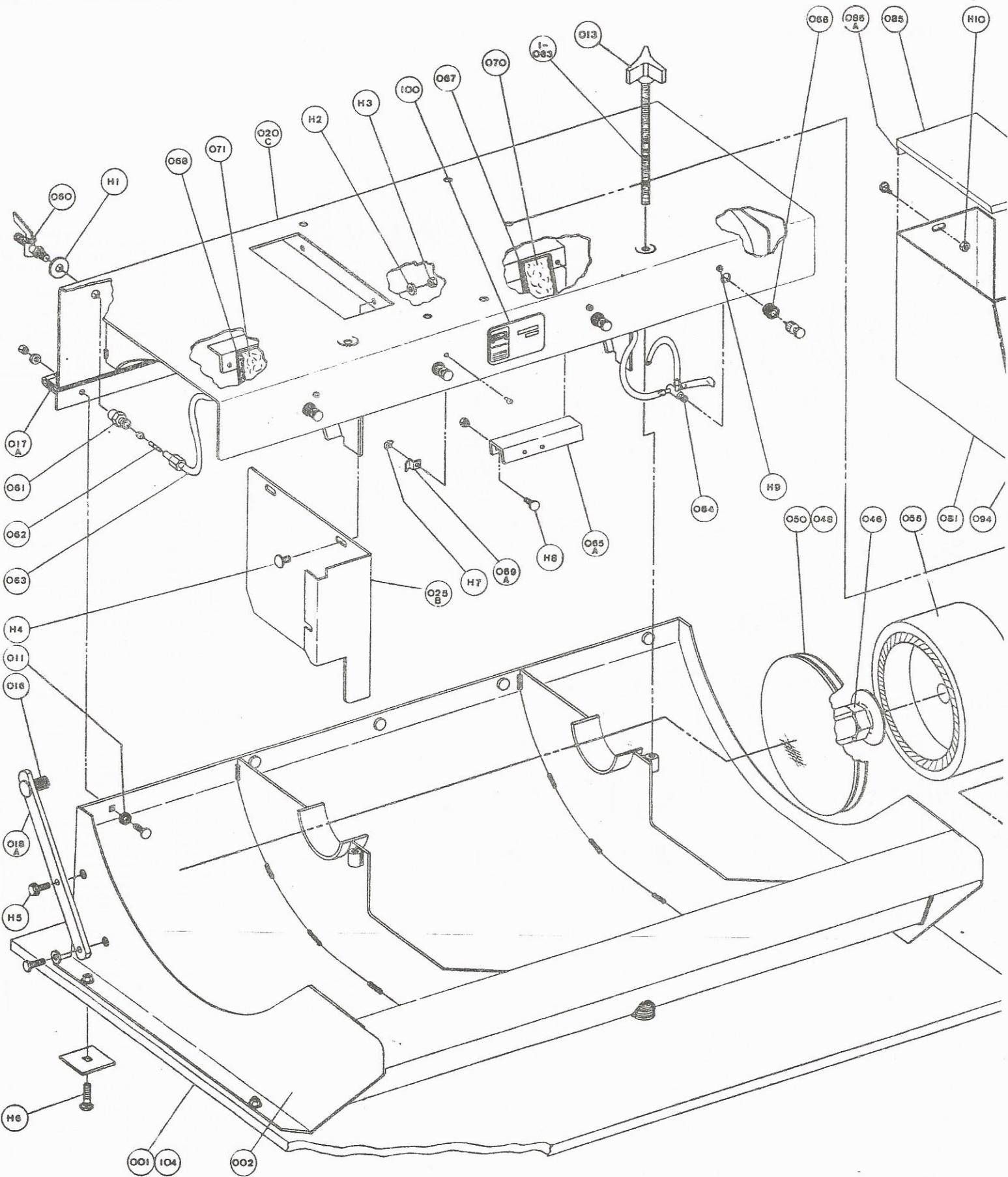
CHANGING GRINDING WHEELS

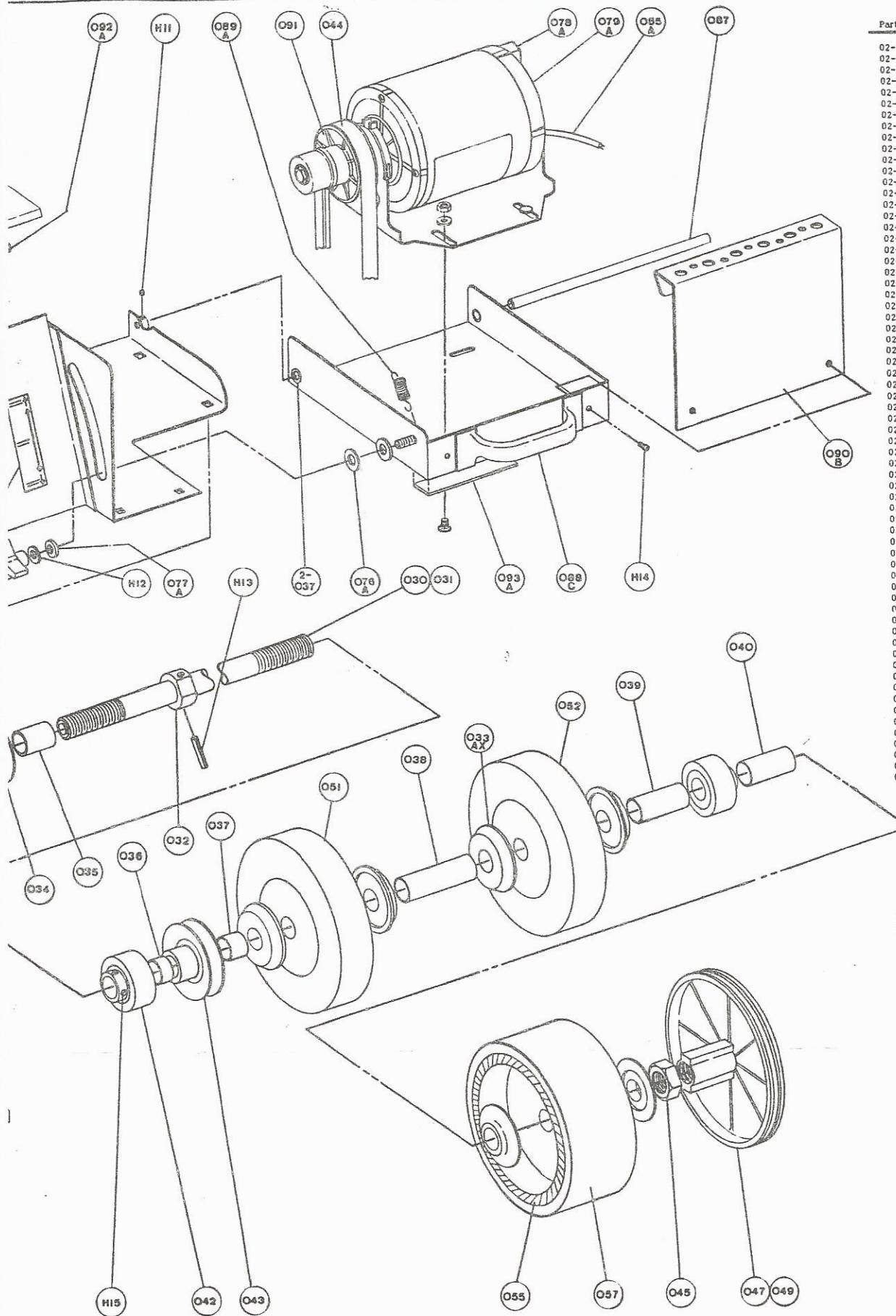
To remove the grinding wheels, the nuts are unscrewed from the ends of the shaft and the spacer sleeves and flanges and bearings are slipped from the shaft. A RH (right hand) nut is used on the right hand side of the machine and a LH (left hand) nut for the left side. IT IS IMPORTANT that the right hand thread be reassembled on the right hand side of the machine so that the nuts tend to tighten themselves as the machine is used. A  $\frac{1}{4}$ -20 threaded hole is provided in the center of the right end of the shaft, and this can be used for mounting spin discs and other accessories having a  $\frac{1}{4}$ -20 center stud.

In order to reach the nuts which retain the grinding wheel in place, it is first necessary to unscrew one or both faceplates at the end of the shaft. Flats are provided on a collar on the shaft so that a wrench can be used to keep the shaft from turning when the nuts are either removed or reinstalled.

The 1" rubber-covered ball bearings are held in place with slotted nylon set screws which will not mar the shaft. The set screws should be loosened before the bearings are pulled off and should be snugged up again after the arbor nuts are tightened in place with all the sleeves, wheels and flanges in place.

When replacing the rubber sanding drums on the shaft, make sure the expansion slots in the rubber rim point downward at the front of the machine





Part No.	Req.	Name
02-011-002	1	Sump Weldment
02-011-011	5	Fibre Washer
02-011-013	3	Knob for Holddown
02-011-016	2	Bumber Hood Stop
02-011-017	1	Gasket for Hood Hinge
02-011-018	2	Hood Stop
02-011-020	1	Hood Weldment
02-011-025	1	Baffle for Pulley
02-011-030	1	Shaft Assembly
02-011-031	1	Shaft
02-011-032	1	Collar
02-011-033	4	Flange Heavy
02-011-034	4	Flange Light
02-011-035	1	Spacer
02-011-036	1	Spacer
02-011-037	1	Spacer
02-011-038	1	Spacer
02-011-039	1	Spacer
02-011-040	1	Spacer
02-011-042	2	Bearing/Sealmaster #SRC-16
02-011-043	1	Pulley
02-011-044	1	Belt
02-011-045	1	Nut 1"-14 RH
02-011-046	1	Nut 1"-14 LH
02-011-047	1	Face Plate RH Plain
02-011-048	1	Face Plate LH Plain
02-011-049	1	Face Plate RH With Sponge
02-011-050	1	Face Plate LH With Sponge
02-011-051	1	Grinding Wheel 220 Grit
02-011-052	1	Grinding Wheel 100 Grit
02-011-055	2	Drum-Expanding
02-011-055	1	Belt 220 Grit
02-011-057	1	Belt 600 Grit
02-011-060	1	Valve, Shut Off
02-011-061	1	Adapter, Tube to Pipe
02-011-062	1	Insert
02-011-063	1	Tubing
02-011-064	4	Valve, 3 Way
02-011-065	4	Tube Clip
02-011-066	4	Grommet
02-011-067	2	Wick for Wheel
02-011-068	2	Wick for Drum
02-011-069	4	Clamp for Tube
02-011-070	2	Toweling for Wheel
02-011-071	2	Toweling for Drum
02-011-076	1	Mylar Washer
02-011-077	1	Nylon Washer
02-011-078	1	Switch Box for Motor
02-011-079	1	Motor
02-011-081	1	Guard Weldment
02-011-085	1	VS Lid
02-011-086	1	VS Hinge
02-011-087	1	VS Shaft
02-011-088	1	VS Motor Tray
02-011-089	1	VS Spring
02-011-090	1	VS Dope Holder
02-011-091	1	VS Pulley
02-011-092	1	Gasket for VS Lid
02-011-093	1	Gasket for Motor Tray
02-011-094	1	Decal VS
02-011-100	1	Name Plate
02-011-104	1	Skid
02-001-063	2	Holddown Screw 3/8-16x6 1/2
02-001-071	1	Collar
02-002-037	1	Bushing-Nylon
02-010-055	1	Cord Set

Part No.	1	Washer, 3/8 USS Common, Plt.
H-1	1	Washer, 1/4 USS Common, Plt.
H-2	23	Washer, 1/4 USS Common, Plt.
H-3	21	Nut, 1/4-20 Hex, Plt.
H-4	17	Bolt, 1/4-20 x 1/2 Carr. Shrd. Plt.
H-5	4	Screw, 1/4-20 x 3/4 Hex Hd. Plt.
H-6	4	Bolt, 1/4-20 x 1 Carr. Black
H-7	4	Nut, 8-32 PM, Plt.
H-8	9	Bolt, 3/16-24 x 1/2 Carr. Plt.
H-9	4	Screw, 8-32 x 3/8 Pan Hd. Plt.
H-10	9	Nut, #10-24 Hex, Plt.
H-11	1	Screw, #10-32 x 3/16 Soc.
H-12	2	Washer, 5/16 USS Common, Plt.
H-13	1	Bolt, Plt. 1/4 x 1 5/8 Plt.
H-14	2	Screw, 8-32 x 3/8 Thd. Form, Type F RHL

CHANGING GRINDING WHEELS - cont'd.

so that the drag of the sanding will tend to make the slots straighten toward a radial position and thereby tighten the grip on the sanding belt.

When reassembling the grinder, the hood holddowns (02-011-013) should not be overtightened. Only light tension is required and excess tightening may cramp the ball bearings and shorten their life.

Now that the hood is again bolted in place, the belt should be sprung back on the variable speed motor pulley. This is easily done when the variable speed adjustment is all the way down in the "GRIND" position. Before starting the grinder, turn the shaft by hand to make sure there is no interference. If there is a scraping noise, it is possible that the pulley on the grinder shaft is scraping the adjacent metal baffle, and this can be corrected by opening the hood and shifting the shaft assembly slightly to the left or the right as required.

GRINDER START-UP

Plug the machine into a grounded 3-pole electrical outlet, and raise the variable speed unit to the minimum speed or "POLISH" position. The handle at the front of the machine is used to raise and lower the variable speed unit. The triangular plastic knob in front of the GRIND-SAND-POLISH label is used to lock the variable speed unit in position. Stand to one side of the machine NOT in line with the grinding wheels, and turn on the switch on the end of the motor. If the machine is running satisfactorily, slowly bring it up to full speed by moving the variable speed unit to the "GRIND" position.

VARIABLE SPEED ADJUSTMENT

In order to provide for slight variations in the belt and other components, the variable speed unit allows a range of positioning greater than is necessary for full actuation of the variable speed pulley. If the variable speed unit is positioned too far down in the "GRIND" position, the belt will be loose and will slap. The cure is to raise the unit slightly. If an attempt is made to raise the unit too high in the "POLISH" position, it will become hard to move and will put a heavy load on the motor shaft.

Open the lid on the variable speed unit (02-011-085) and watch the belt and pulley work as the speed is changed. You will soon develop a feel for the right settings, both up and down.

COOLANT SYSTEM

You are now ready to hook up the water supply to the machine and start cutting gemstones. Water is supplied to the grinding and sanding wheels through the brass valve on the back left side of the hood. The inlet of this valve has a compression fitting which will seal on  $\frac{1}{4}$ " diameter metal tubing. Either a gravity feed or a pressure feed can be used. Individual valves on the front of the hood adjust the flow to each of the two grinding wheels and two sanding drums.

In the unique Raytech coolant system, water drips from a plastic tube onto a terry cloth wick which absorbs the water and spreads it so that it can soak through the replaceable wheel wick. The wheel wicks are made from indoor-outdoor polypropylene carpeting and are easy to replace if they should wear out. The terry cloth absorbers can be replaced with a small piece of ordinary bath towel.

When the machine is turned off, the water supply should be shut off with the main valve on the back of the hood so that any water leakage through the control valves does not soak one side of the grinding wheel and cause it to be out of balance when the machine is restarted. After the main valve is shut off, the machine should be run for a minute or so in order to pull the residual water out of the wicks.

The drain in the bottom of the grinder can be connected to an ordinary garden hose if double hose washers are used for sealing. Drainage from the grinder can be run into a bucket and should never be put into a floor drain as the grinding sludge will settle and harden in low parts of the plumbing system.

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ACCESSORIES AVAILABLE  
FROM YOUR RAYTECH DEALER

1. COOLANT SYSTEM

An inexpensive system, which includes a water supply container, plastic tubing with adapters and a drain hose with double washers.

2. TOOL REST

Another useful accessory for your grinder is an adjustable tool rest which quickly and rigidly clamps in place without the use of tools. This easily removable tool rest can be used with either grinding wheel. It is useful when diamond dressing the grinding wheel, also, it can be used as a support when cutting a chamfer on the edge of a cabochon as it is first being roughed from a trimmed slab.

3. TRUE CIRCLE DIAMOND BANDS

Available in 325 and 1200 grits to replace the Silicon Carbide abrasive belts on your grinder. Raytech's Diamond Bands cut much faster than Silicon Carbide belts and are actually less expensive in the long run. To install the True Circle Diamond Bands, simply slip onto the two expandable drums. The Raytech stock number for the 8" x 3" 325 grit band is 55-153 and the 8" x 3" 1200 grit band is 55-155.