

# MODEL V

## END GRINDING MACHINE

JUNE 2003



# INSTALLATION AND OPERATING MANUAL

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## **Receiving and Installation Instructions**

The machine should be received bolted to a skid with ½” diameter bolts.

Check for any visible damage prior to unbolting the machine.

If the machine is damaged, or the skid appears to have been dropped, report to the transport carrier within 7 days of receipt.

### **Accessories packaged in the collection tray are as follows:**

1. ½” wrench
2. 10mm wrench
3. 1 set allen wrenches
4. Half moon handle
5. Small threaded handle
6. Allen key – 3/16”
7. Allen key – 5/16”
8. Oil can

Unbolt the four ½” bolts from the skid. Save these bolts to use for machine levelling later.

## Positioning of Machine

Machine must be positioned at least 6 feet from a back wall to facilitate removal of the debris collection tray. Side to side the machine requires 7 feet to allow protection doors to open fully.

The 15 amp electric power plug is located at the back right hand corner of the machine. It must be plugged into a 110V electric power supply. The pump has a separate power plug at the same side of the machine. **DO NOT PLUG IN BEFORE READING THIS PARAGRAPH.**

Remove the machine from the skid. Install the levelling bolts in the four machine feet using the wrench provided.

## Lubrication Instructions

Unplug the machine from the 110V power supply. The machine comes pre-lubricated . Regular light lubrication is recommended weekly under regular use or twice a week with heavy use. To access the oil ports remove the back hinged panel by removing the four screws across the top using the 3/32 allen wrench supplied. Panel will bend backwards at the hinge. If complete access to the interior of the machine is required, the entire hinged panel may be slid upwards and out.

The blue carriage has five stamped oil ports in the top. The center hole lubricates the drive screw. The two ports at each end of the carriage lubricate the slide bars. For a quick lubrication a few drops of oil may be placed directly on the drive screw or side bars. Otherwise a few drops of oil should be placed in each of the 5 oil port holes.

## Tray Removal and Cleaning

Disconnect the pump from the 110V power supply and remove pump from tray. Disconnect machine 110V power supply. Grasp tray handle and slide tray back and out away from the machine. Remove debris from tray, slide tray back into machine until tray touches front travel stop. Put fresh water into the tray. Replace pump in the tray. Check that pump on/off toggle switch is in the off position. Reconnect pump cord to 110V power supply. Check that the main black power switch on the front of machine is in the off position. Reconnect the machine 110V power supply.

## Installation of Handles

The small latch handle on the front, (see figure 3) is threaded. Screw in by hand and then finish tightening with the 10mm open end wrench provided.



Fig. 3

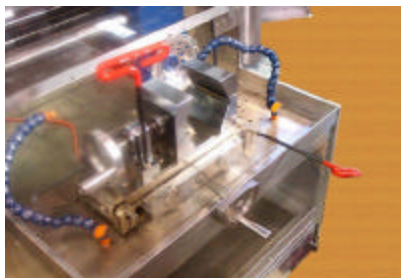


Fig. 5

The half-moon handle should be inserted at the front of the machine, below the doors, (see figure 5).

The handle must be inserted fitted to the keyway provided. After insertion, tighten down the Allen headed set screw with the 1/8" Allen screw wrench provided.

## Operating the Grinding Machine

Ensure that the front black switch box is in the **off** position.

Open machine doors. The standard factory setting for the cylinder holder is the 4" to 6" diameter range. To grind cylinders as small as 3" diameter please see section entitled "Grinding 3" Cylinders".

**NOTE:** To ensure planeness all cylinders must be at least 5 ½" long.

Retract the vise to the furthest position from the grinding wheel by turning the ½ moon handle counter clockwise.

Place the cylinder centrally in the vise in a horizontal position. Turn the handle on the left clockwise until the cylinder is picked up and centered tightly in the vise. Turn the ½ moon handle clockwise until the cylinder end just touches the grinding wheel.

**\*\*WARNING\*\***  
**NEVER FORCE THE VISE INTO THE GRINDING WHEEL!**

Turn the water pump on by flipping up the metal toggle switch on the front control panel. Position the water spouts as desired. The water flow is adjustable via the orange valves at the base of the water spouts. Close the machine doors and latch them. Turn the black control switch on the front panel to the “ON” position. Turn on the grinding wheel and feed speed by pressing the green buttons on the front panel. Let the grinding wheel make one complete pass. The default speed of feed is set at 120 RPM which translates into 40 seconds for each complete pass. Turn the ½ moon crank ¼ turn clockwise to grind the cylinder 1/16”. One full turn of the ½ moon crank equals ¼” cut per each end of cylinder. Usually one or two passes per end is sufficient to ensure planeness and smoothness.

Turn off the pump feed and speed switches using the toggle and red buttons on the front. Unlatch the doors and open them. Retract the vise to the furthest position from the grinding wheel by turning the ½ moon handle counter clockwise. Using the 5/16” Allenkey provided (see figure 1) release the drop lock and rotate the vise from left to right. Raise the right hand drop lock and tighten vise into place.

**NEVER REMOVE THE CYLINDER FROM THE VISE BEFORE BOTH ENDS ARE MACHINED.**



Fig. 1

Repeat above operating procedure to machine this end of cylinder.

## Grinding 3” X 6” Cylinders

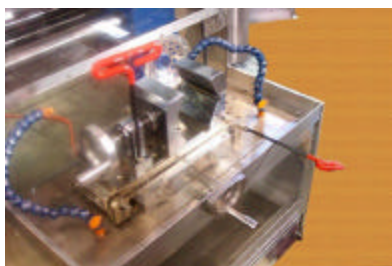


Fig. 5

Refer to figure 5. Using the 3/8” Allen key supplied (this is the vertical key in figure 5), loosen the ways stop. Move the ways stop horizontally to the right to the next tapped hole. Tighten the ways stop in this port. The screw handle will now adjust the vise to accept cylinders or cores from 3” to 5” diameter. Note that the cylinders must be at least 5 ½” long to ensure plane ends.

## Maintenance and Adjustments

Regular lubrication of the drive screw and slide bars through the rear panel access port (see figure 6) will reduce machine vibration and extend machine longevity.

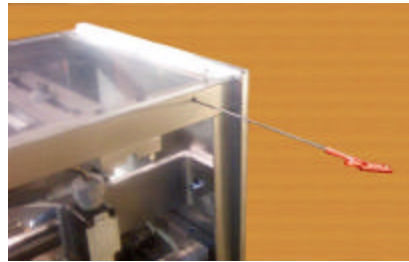


Fig. 6

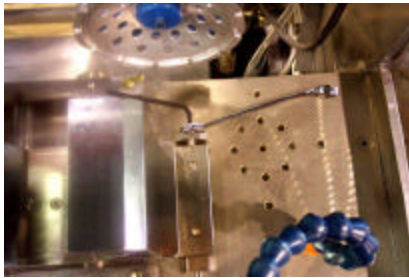


Fig. 4

Eventually (usually 5 to 6 years) the diamond cutting wheel may wear to the point where replacement is necessary. If the vise adjustment becomes sloppy it can be adjusted using the Allen key and wrench provided (see figure 4).



Fig. 2

If the motor or belt adjustment becomes necessary, these components may be accessed through the rear left access panel using the Allen key provided (see figure 2).

## Safety Tips

- 1) Always turn the black on/off switch on the front of the machine to off – **BEFORE** opening machine doors.
- 2) Always disconnect from 110V electrical power **BEFORE** doing any maintenance, including lubrication.
- 3) Always verify that vise is securely locked into position using the drop lock and allen key **BEFORE** starting the machine.
- 4) **NEVER** start the grinding machine with the cylinder pressed tightly against the grinding wheel.

## Grinding Tips

- 1) Removing more than 1/16" of material per pass (1/4 turn on the 1/2 moon handle) tends to produce chipping at the edge of the concrete cylinder.
- 2) Increasing the water spray at the wheel tends to remove cut particles faster and to produce a smoother ground end.
- 3) Starting the machine with the grinding wheel to the left side of the cylinder allows the grinding wheel to cut on the first pass and polish on the return pass.
- 4) Each complete pass and return of the grinding wheel takes 40 seconds with the travel setting at the default position of 120 rpm. This default position is considered optimum.
- 5) The default position of the rpm of the grinding wheel is 6000 rpm. This is considered optimum for a finely polished surface after one or two passes.
- 6) Removing cylinder before grinding both ends usually results in unparallel ends.
- 7) Cylinders that are badly cast with a differential of 1/4" or more side to side should be cut with a saw before grinding; otherwise incremental grinding time is wasted.

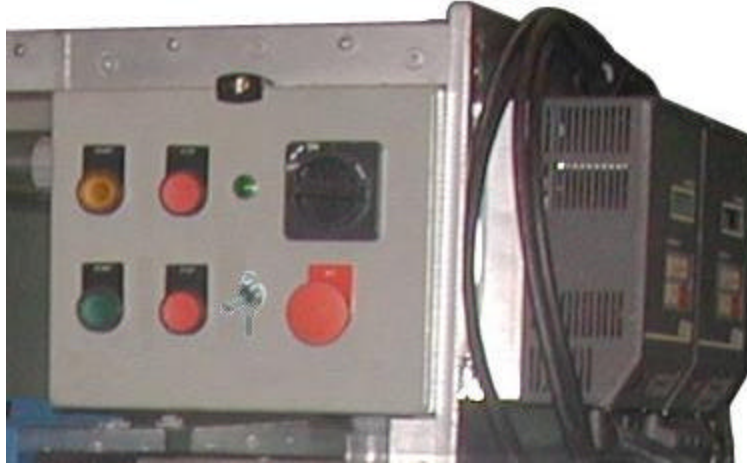
## Electrical Boxes - Right Side Panel

There are two digital speed control boxes on the right hand side of the machine when looking at the machine from the front.

The control box on the left controls the rpm of the grinding wheel. The factory default of this box is 6000 rpm. This is considered optimum for cutting and polishing to a fine finish in one or two passes of the grinding wheel. If heavy cutting (1/8" or more) is required – this speed may be reduced for the first or second pass. For a fine finish the speed must be returned to 6000 rpm. If you experience scoring on the face of the cylinder it is likely that the grinding wheel rpm speed is set below 6000 rpm.

The right hand control box governs the horizontal travel speed of the grinding wheel. The factory default speed is 120 rpm. This speed translates into a 40 second travel of the grinding wheel left to right, and back again. Essentially each pass requires about 20 seconds. For normal concrete and aggregates this speed is optimum. It can be adjusted slower to compensate for a worn blade or very hard aggregates and to reduce chipping at the edges of the cylinder.

## APPENDIX “B”



**Fig. 8**

Refer to electrical control panel, (figure 8) above. It shows the two digital speed control boxes on the right hand side of the grinding machine. These controls have been discussed previously. See page 7.

### **The Front Panel is configured as follows:**

- 1) The top right hand black on/off switch controls all power to the grinding wheel. When this is switched on the small green pilot light immediately to the left will light if power is present.
- 2) The left amber light actuates the travel feed speed of the grinding wheel.
- 3) The red light immediately to the right of the amber light stops the travel feed speed.
- 4) The green light in the bottom left hand corner of the control panel activates the rotation of the grinding wheel at the default speed preset in the side control box.
- 5) The red light immediately to the right of the green light stops the rotation of the grinding wheel.
- 6) For a **PANIC STOP** - hit the bottom right hand large red button to kill all power to the grinding wheel.