

MODEL VI

END GRINDING MACHINE

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. Allen key – 5/16”
2. 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 2 feet from a back wall to facilitate removal of the debris collection tray. Side to side the machine requires 5 feet of operating space.

The 15 amp electric power plug is located at the back right hand corner of the machine. It must be plugged into a 230V electric power supply. The pump has a separate power plug at the left side of the machine. **DO NOT PLUG IN BEFORE READING THIS PARAGRAPH.**

Debris collection pan must be removed **PRIOR** to moving machine with a forklift. 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 230V 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 unscrewing the two black knobs at the top of the rear panel. Panel will bend backwards at the hinge.

The blue carriage has five stamped oil ports in the top. The center groove 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 the centre groove.

Operating the Grinding Machine

Ensure that the front right hand red power switch box is in the **off** position. (Turn left).

Lift open machine door. The standard factory setting for the cylinder holder is the 3” to 6” diameter range. Cylinders must be loaded horizontally.

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.

NEVER FORCE THE VISE INTO THE GRINDING WHEEL!

Turn the water pump on by pushing the water lubrication button on the front control panel. Water dispersal is positioned automatically. The flow is adjustable via the black valve at the left side panel of the machine. Drop down the machine door. Turn the square red control switch on the front panel to the “ON” position. Turn on the grinding wheel and feed speed by pressing the start buttons on the front panels. Push the green button on the control panel to initiate spin rate and travel option. 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.

SEE ADDENDUM FOR DEFAULT SETTINGS – DO NOT PLAY WITH THESE!

Turn off the water pump feed; turn off the travel and rotation speed. Retract the vise to the furthest position from the grinding wheel by turning the ½ moon handle counter clockwise. Release the vise thumb wheel to drop the vise lock. Rotate the vise completely and raise the vise lock and hand tighten firmly. Raise the right hand drop lock and tighten vise into place. **NEVER REMOVE THE CYLINDER FROM THE VISE BEFORE BOTH ENDS ARE MACHINED.**

Repeat above operating procedure to machine this end of cylinder.

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.

Tray Removal and Cleaning

Disconnect the pump from the 230V power supply and remove pump from tray. 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 230V power supply. Check that the main red power switch on the front of the machine is in the off position. Reconnect the machine 230V power supply.

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). If the motor or belt adjustment becomes necessary, these components may be accessed through the rear access panel. This top panel is secured.

Safety Tips

- 1) Always turn the red on/off switch on the front of the machine to off – **BEFORE** opening machine doors.
- 2) Always disconnect from 230V 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 - Front Panel

There are two digital speed control boxes on the front of the machine.

The control box on the top 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 lower 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.

See addendum for travel and RPM default settings.

APPENDIX “A”

FIGURES 1 – 7

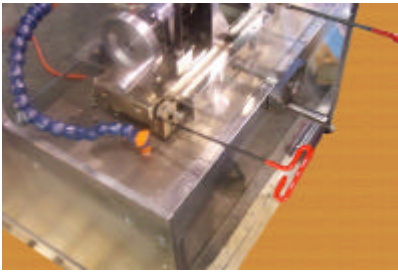


Fig. 1



Fig. 2

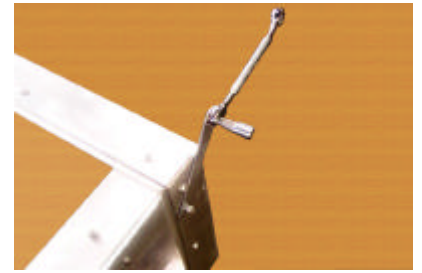


Fig. 3

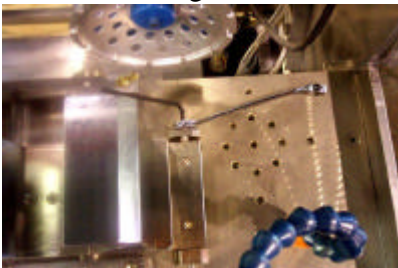


Fig. 4

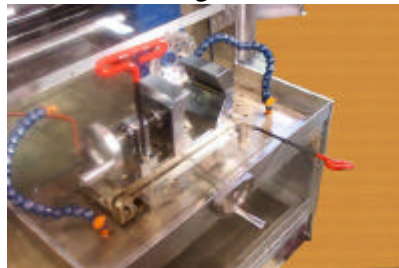


Fig. 5

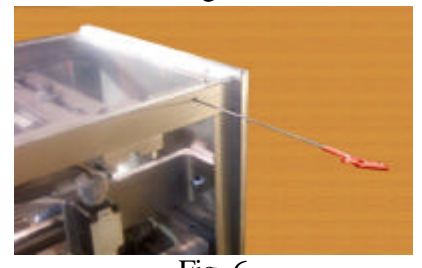


Fig. 6



Fig. 7

NOTE:
230V machines may have direct water spray instead of articulated water hoses.

APPENDIX “B”



Fig. 8

Refer to electrical control panel, (figure 8) above. It shows the two digital speed control boxes on the front 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 red 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) For a **PANIC STOP** - hit the bottom right hand large red button to kill all power to the grinding wheel.
- 3) Travel speed is adjustable by holding up and down arrows. A quick jog will do nothing. Adjustment is made only by holding down the arrow in the direction desired.
- 4) RPM (Spindle Speed) is adjusted as per above instructions for travel speed.

SPINDLE R.P.M.

ADDENDUM

PARAMETER MENU: USER SETTING RECORD			
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USER SETTING
0	LINE VOLTS	AUTO	
1	SPEED #1	20.00 Hz	
2	SPEED #2	20.00 Hz	
3	SPEED #3	20.00 Hz	
4	SPEED #4	20.00 Hz	
5	SNP #1	.00 Hz	
6	SNP #2	.00 Hz	
7	BAND WID	1.00 Hz	
8	ACCEL	30.0 SEC	3 SEC
9	DECEL	30.0 SEC	3 SEC
10	MIN FRQ	.50 Hz	0 Hz
11	MAX FRQ	60.00 Hz	120 Hz
12	CC BRNVE	.0 VDC	
13	CC TIME	.6 SEC	
14	DYN BRAKE	OFF	
16	CURRENT	163%	100
17	MOTOR CL	100%	70
18	BASE	60.00 Hz	
19	FK BOOST	(NOTE 1)	
20	AC BOOST	0.00%	

PARAMETER MENU: USER SETTING RECORD			
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USER SETTING
21	SLP C/UP	.0%	
22	TORQUE	CONSTANT	
23	CARRIER	2.5 kHz	
25	START	NORMAL	
26	STOP	COAST	
27	ROTATION	FORWARD	REVERSE
28	AUTOMAN	BOTH	
29	MANUAL	KEYPAD	
30	CONTROL	LOCAL	LOCAL
31	HZ LIMITS	HERTZ	RPM
32	HZ MULT	1.00	58
33	SPEED DP	XXXXX	
34	LOAD VLT	100%	
35	CONTRAST	HIGH	
39	TES MIN	.00 Hz	
40	TES MAX	60.00 Hz	3480 RPM
42	TBRA CUT	NONE	
43	ØTSPCA	60.00 Hz	
44	TBWB CUT	NONE	
45	ØTBWB	125%	
47	TB18A	NONE	
48	TB18B	NONE	

PARAMETER MENU: USER SETTING RECORD			
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USE SETT
49	TB18C	NONE	
50	TB18D	EXT FAULT	
52	TB14 CUT	NONE	
53	TB15 CUT	NONE	
54	RELAY	NONE	RUN
57	SERIAL	D.SERIAL	
58	ADDRESS	30	
61	PASSWORD	0019	
63	SOFTWARE	(VA)	
64	MONITOR	OK	
65	PROGRAM	RESET 60	
66	HISTORY	MAINTAN	
67	LANGUAGE	ENGLISH	
70	FAULT HISTORY	(N/A)	

TRAVEL FEED

ADDENDUM

PARAMETER MENU: USER SETTING RECORD				
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USER SETTING	USER SETTING
0	LINE VOLTS	AUTO		
1	SPEED #1	20.00 Hz		
2	SPEED #2	20.00 Hz		
3	SPEED #3	20.00 Hz		
4	SPEED #4	20.00 Hz		
5	SKIP #1	.00 Hz		
6	SKIP #2	.00 Hz		
7	BAND WID	1.00 Hz		
8	ACCEL	30.0 SEC	0.3 SEC	
9	DECEL	30.0 SEC	0.3 SEC	
10	MIN FRQ	.50 Hz	0 Hz	
11	MAX FRQ	60.00 Hz	120 Hz	
12	DC BRAKE	.0 VDC		
13	DC TIME	.0 SEC		
14	DYN BRAKE	OFF		
16	CURRENT	130 %	80	
17	MOTOR OL	100%	90	
18	BASE	60.00 Hz		
19	FX BOOST	(NOTE 1)		
20	AG BOOST	0.00%		

PARAMETER MENU: USER SETTING RECORD				
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USER SETTING	USER SETTING
21	S-UP CKP	0 %		
22	TORQUE	CONSTANT		
23	CARRIER	2.5 Hz		
25	START	NORMAL		
26	STOP	CONST		
27	ROTATION	FORWARD	FORWARD & REVERSE	
28	AUTOMAN	BOTH		
29	MANUAL	KEYPAD		
30	CONTROL	LOCAL	REMOTE	
31	HZ UNITS	HERTZ	RPM	
32	FZ HULT	1.00	0.85	
33	SPEED D?	XXXXX		
34	LOAD MLT	100%		
35	CONFRAST	HIGH		
39	TSS MIN	.00 Hz		
40	TSS MAX	60.00 Hz	114 RPM	
42	TB104 OUT	NONE		
43	TB104	60.00 Hz		
44	TB106 OUT	NONE		
45	TB106	125%		
47	TB12A	NONE		
48	TB133	NONE		

PARAMETER MENU: USER SETTING RECORD				
PARAM. NUMBER	PARAMETER NAME	FACTORY DEFAULT	USER SETTING	USER SETTING
49	TB13C	NONE		START REVERSE
50	TB13D	EXT FAULT		
52	TB14 OUT	NONE		
53	TB15 OUT	NONE		
54	RELAY	NONE		NONE
57	SERIAL	DISABLE		
58	ADDRESS	30		
61	PASSWORD	0019		
63	SOFTWARE	(N/A)		
64	MONITOR	ON		
65	PROGRAM	RESET 60		
66	HISTORY	MAINTAIN		
69	LANGUAGE	ENGLISH		
70	FAULT HISTORY	(N/A)		