

POWERMATIC®

**OPERATING INSTRUCTIONS
AND
PARTS LIST**

**Model 1275
Surface Grinder**

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For Serial Numbers From 927500 up

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POWERMATIC  **HOUDAILLE**
McMinnville, Tennessee 37110

FOREWORD

This manual has been prepared as a guide to the owner and operators of the Powermatic Grinder. In order to obtain maximum life and efficiency from your Powermatic Grinder, we suggest reading this manual thoroughly and following all instructions carefully.

The specifications herein were in effect at the time this book was approved for printing Powermatic/Houdaille whose policy is one of continuous improvement, reserves the right to change specifications at any time without notice and without incurring obligations.

RECEIVING & SET UP

1. RECEIVING

Uncrate and check for shipping damage. Clean all coated and greased surfaces. Read instructions thoroughly. Locate all lubrication points, adjustments, methods of drive.

2. MOUNTING

Mount machine securely to solid foundation; concrete base mounting preferred. Locate in clean, dry and well ventilated building if possible. Motor and electrical connections should be protected when not in operation or if exposed to weather elements. Machine must be carefully leveled.

3. INSPECTION

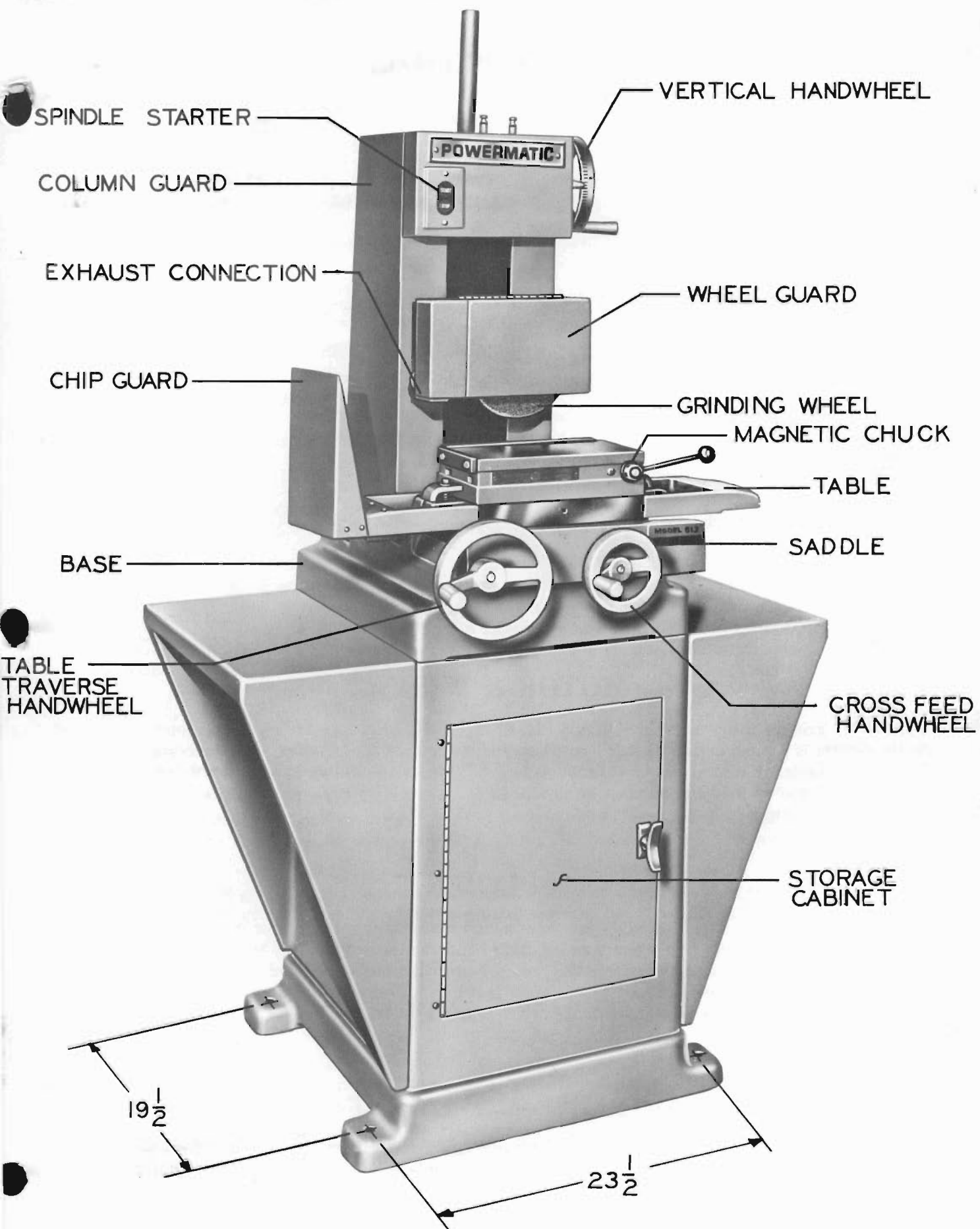
The above machine requires a minimum amount of attention in service. Periodic or regular inspections are recommended to insure machine is in proper adjustment and with positive electrical connections.

4. BEFORE OPERATING

Check motor nameplate data or wiring diagram of motor and switch for proper voltage connection before wiring into line. Run motor without load to check the connections and direction of rotation. Check the oil level in the spindle.

SAFETY RULES

1. Always wear safety glasses or eye protection.
2. Keep wheel guard in place when operating grinder.
3. Make sure workpiece is held securely before grinding.
4. Always use mounting blotters supplied on grinding wheel.
5. Start the grinding cut at the highest point of workpiece.
6. Remove loose items from table area.
7. Do not stand in line with the grinding wheel in its plane of rotation.
8. Check speed rating of grinding wheel to insure it is rated for 3600 RPM minimum.
9. Inspect grinding wheel by "ring test" before mounting.
10. Always disconnect power source before servicing machine.



MACHINE SPECIFICATIONS

Machine Type: Powermatic Model 1275 Grinder

Machine Serial Number _____

Table size	6" x 12"
Longitudinal travel	13"
Cross travel	6 $\frac{3}{4}$ "
Vertical adjustment	11"
Work height above table	10 $\frac{1}{4}$ "
Grinding wheel	7 x $\frac{1}{2}$ x 1 $\frac{1}{4}$ "
Spindle speed	3600 RPM
Spindle motor	$\frac{3}{4}$ -HP, 3600 RPM
Vertical feed graduations	.0005"
Vertical feed per turn of wheel	.050"
Cross feed graduations	.0005"
Cross feed per turn of wheel	.125"
Over-all height	72 $\frac{3}{4}$ "
Floor to table height	39"
Weight	675 lbs.

MOTOR & WIRING

The surface grinder is driven by a $\frac{3}{4}$ HP, 3 PH, 60 Hz., 3450 RPM totally enclosed motor. Standard motor control is a push button switch located on the column of the grinder. Magnetic starting is optionally available. External power connection is made to a terminal box located at the rear of the machine. The frame of the grinder must be grounded. If spindle rotation is not clockwise, transpose 2 leads in the terminal box.

SPINDLE

The spindle housing and vertical slide are constructed from a single casting for maximum rigidity. The spindle is driven by a flat belt over crowned pulleys to minimize vibration transmission from motor to spindle. The spindle is mounted in ABEC class 7 precision bearings. End thrust in both directions is taken up by two opposed preloaded ball thrust bearings. Preload adjustment is made by loosening lock screw and turning the rear outer labyrinth.

TABLE MOVEMENT

The table is mounted on ground and scraped ways. One flat and one "V" way are used to maintain traversing accuracy. A gear rack on the bottom of the table is lapped with the mating pinion gear for smooth operation. Table movement is accomplished by means of the traversing handwheel located at the left of the machine. "T" slots are provided in the table for clamping parts or a magnetic chuck.

SADDLE (CROSS FEED)

The saddle is mounted on ground and scraped ways. One flat and one "V" way is used to control alignment. An acme screw and split brass nut are used to control the table position. Movement is accomplished by turning the crossfeed handwheel. The handwheel is graduated in divisions of .0005". One revolution of the handwheel moves the saddle .125". Backlash may be eliminated from the crossfeed by tightening the clamping screw on the split brass nut.

VERTICAL MOVEMENT

Vertical adjustment of the spindle is made by turning the handwheel located on the side of the column. One revolution of the handwheel moves the spindle .050" and each graduation indicates .0005". A tapered adjustable brass gib is located between the column and the spindle housing to provide accurate fitting and permit wear adjustment. The gib is adjusted by a slotted head screw that is accessible through the slotted opening in the top of the column.

WHEEL MOUNTING

The wheel adapter sleeve is mounted to the tapered nose of the spindle and locked on with a left hand nut. The grinding wheel is mounted on the adapter sleeve and locked on with a spanner nut. The grinding wheel hole must closely fit the spindle adapter. Never remove the spindle adapter with a hammer but always use a wheel sleeve puller. Any blow to the spindle area will damage the precision spindle bearings.

MAGNETIC CHUCK

The magnetic chuck is used to conveniently hold a variety of ferrous materials for surface grinding. The chuck contains a permanent magnet that is turned off and on with a 180° swing of the control lever.

For accurate parallel grinding, it is necessary to grind the top of the chuck each time it is mounted on the grinder. Always grind the chuck with the control lever in the "On" position.

SURFACE FINISH

The quality of a finish ground surface is affected by many factors. The grinding machine must be both accurate and rigid. The correct grinding wheel must be carefully selected for the material to be ground and it must be properly dressed. The type of material being ground is important since materials vary greatly in their ability to accept a quality surface finish. The most significant factor affecting the quality of surface finish is the skill and technique of the operator.

An optical pattern on the workpiece does not necessarily mean that the surface is not flat. A profilometer or surface finish analyzer must be used to accurately measure the surface finish.

OPERATING SUGGESTIONS

1. Mount the surface grinder on shock absorbing pads to isolate it from external vibrations.
2. Level the machine with the four leveling screws in the base.
3. Do not use excessive clamping force when attaching the workpiece or magnetic chuck to the table because the table will spring.
4. Maintain a properly dressed grinding wheel. The wheel should be trued whenever it becomes dull, loaded or glazed. A wheel must always be trued each time it is mounted on the grinder.
5. Do not use excessive force to tighten the screw that locks the wheel guard to the spindle or possible spindle housing distortion may occur.
6. Avoid excessive tension on the spindle drive belt.

LUBRICATION SCHEDULE

Item No.	Check Interval	Location	Lubricant
1	Weekly	Spindle	Mobil Velocity 6
2	Each Operation	Table Way Cup	Mobil Vectra 2
3	Each Operation	Saddle Way Cups	Mobil Vectra 2
4	Each Operation	Column Way Cups (Elbow Cups in Way Guard)	Mobil Vectra 2
5	Weekly	Table Rack & Pinion	SAE #20
6	Weekly	Vertical Screw Cups (Top of Column)	SAE #20

COLUMN ASSEMBLY

Part Number	Part Name	Quantity Required
2090003	Dust Collector	1
2104011	Cover, Wheel Guard	1
2250045	Guard, Wheel, Dust Collector	1
3063081	Mounting Bracket, Motor	1
3063082	Mounting Bracket, Cover	1
3063083	Bracket Mounting Vertical Feed	1
3096061	Collar, Pinion	1
3098013	Column	1
3099001	Collet, Wheel Mounting	1
3104080	Cover, Traveling Way	1
3215006	Flange, Motor Mounting	1
3237043	Gear, Bevel Pinion	1
3237044	Gear, Vertical Feed Bevel	1
3244040	Gib, Taper	1
3250070	Guard, Wheel	1
3298071	Housing, Spindle	1
3388004	Key 3/16" x 3/16" x 1"	1
3412000	Labyrinth Front Outer	1
3412001	Labyrinth Rear Outer	1
3412002	Labyrinth Front Oil	1
3412003	Labyrinth Rear Oil	1
3526203	Nut, Hex 5/16"-18 L.H.	1
3530005	Retaining Nut, Wheel Collet	1
3610010	Pulley, Motor	1
3610011	Pulley, Spindle	1
3689007	Screw, Taper Gib	1
3692005	Screw, Vertical Feed	1
3710003	Shaft, Bevel Pinion	1
3742016	Spacer, Spindle	1
3749024	Spindle, Wheel Shaft	1
3816013	Tube, Feed Screw	1
3837025	Washer, Vibration Dampener	8
3838009	Washer, Bevel, Feed Screw	1
3841006	Retaining Washer, Wheel Collet	1
6060059	Bearing, Fafnir 2MM205W1	1
6060060	Bearing, Fafnir 2MM304W1	1
6064007	Bearing, MRC205R	1
6077105	Belt, Flat Panther #400	1
6098002	Button Plug 1/2"	2
6098007	Button Plug 1"	1
6174000	Cup, Oil, GITS 1207	2
6174002	Cup, Oil, GITS 1202	1
6353003	Hand Wheel, Vertical Feed	1
6470803	Motor, 3/4 H.P. 3600 RPM	1
6420000	Key, Woodruff #404	1
6514003	Wing Nut, 1/4"-20	1
6607008	Oiler, GITS #108	2
6627002	Taper Pin, #8 x 3/4"	1
6634044	Pipe Coupling, 1/8"	3
6634071	Pipe Fitting, Close Nipple 1/8" NPT x 3/4"	1
6634076	Pipe Fitting—Nipple 1/8" x 2 1/2"	2
6708048	Screw, Flat Hd. 8-32 x 3/8"	2
6710061	Screw, Button Hd. 10-24 x 1/4"	3
6710103	Screw, Soc. Flat Hd. 10-24 x 3/8"	4
6714003	Screw, Cup Pt. Soc. Set 1/4-20 x 3/8"	2
6714004	Screw, Cup Pt. Soc. Set 1/4-20 x 1/4"	2
6714009	Screw, Cup Pt. Soc. Set 1/4-20 x 1/2"	1
6714015	Screw, Soc. Hd. Cap 1/4-20 x 1/2"	3
6714157	Screw, Soc. Hd. Cap 1/4-20 x 1/4"	2
6716012	Screw, Soc. Hd. Cap 3/8-16 x 1"	3
6716013	Screw, Soc. Hd. Cap 3/8-16 x 1 1/4"	2

Part Number	Part Name	Quantity Required
6716031	Screw, Hex Hd. 3/8-16 x 1"	4
6716032	Screw, Hex Hd. 3/8-16 x 1 1/2"	4
6716101	Screw, Soc. Set Half-Dog 3/8-16 x 1"	1
6718003	Screw, Soc. Hd. Cap 1/2-13 x 1 1/2"	6
6861300	Washer, Helical Spring 3/8"	4
6861301	Washer, Flat St'l Plain 3/8"	16
6861500	Washer, Helical Spring 1/2"	6
6861507	Washer, Bellville Spring 1/2"	1
6900015	Wheel, Grinding 7" x 1 1/2" x 1 1/4" Hole LP-129	1

CABINET ASSEMBLY

2096001	Column Assembly (Weldment)	1
2136005	Door Assembly (Weldment)	1
3042075	Base, Cabinet	1
3042076	Base, Table	1
3694005	Screw, Hex Hd. Jack	4
3694006	Leveling Bolt	1
3806005	Tray, Slide	2
6350011	Handle, "T" Door Lock	1
6440004	Latch, Cam	1
6514001	Nut, Hex 1/4-20	15
6714114	Screw, Round Hd. 1/4-20 x 3/8"	3
6714127	Screw, Hex Hd. 1/4-20 x 1/4"	12
6716031	Screw, Hex Hd. Cap 3/8-16 x 1"	7
6716043	Screw, Hex Hd. Cap 3/8-16 x 2 3/4"	1
6861100	Washer, Lock, Helical 1/4"	15
6861300	Washer, Lock, Helical 3/8"	8
6861301	Washer, Flat St'l Plain 3/8"	8
6861501	Washer, Flat St'l Plain 1/2"	3

COWLING ASSEMBLY COLUMN

2104013	Cover Assembly, Column, R.H.	1
2104014	Cover Assembly, Column	1
2104015	Cover Assembly, Column, L.H.	1
3098013	Column	1
(REF.)		
3312251	Plate, I.D., Powermatic (Large)	1
3604023	Pointer, 1270, Feed, Handwheel	1
6098007	Plug, Button 1"	1
6680020	Rivet, Alum. 5/32" Dia. x 1/4"	2
6714083	Screw, Button Hd. Soc. 1/4-20 x 1/2"	6
6746001	Screw, Pan Hd. Self-Tapping #6 x 1/4" L.	16
6747000	Screw, Round Hd. Drive #4 x 3/16" L.	2
6821135	Switch, Push-button Furnas #12BA34P	1

SADDLE & TABLE ASSEMBLY

2106008	Cowling Assembly, Saddle	1
3055038	Block, Sandex Unit	1

208-220/440
3Ø
60Hz

L1
L2
L3

SI

IT1
IT2
IT3

IMTR

GRINDER MOTOR

REF.	POWERMATIC NO.	MFG. DESCRIPTION
SI	6821135	SWITCH, FURNAS 12BA34P
IMTR	6470803	MTR, ELEC. 3/4 HP, 3Ø, 3450 RPM.

MANUAL

208-220/440
3Ø
60Hz

L1
L2
L3

IM
IOL
IT1
IT2
IT3

IMTR

GRINDER MOTOR

IPB STOP

2PB START

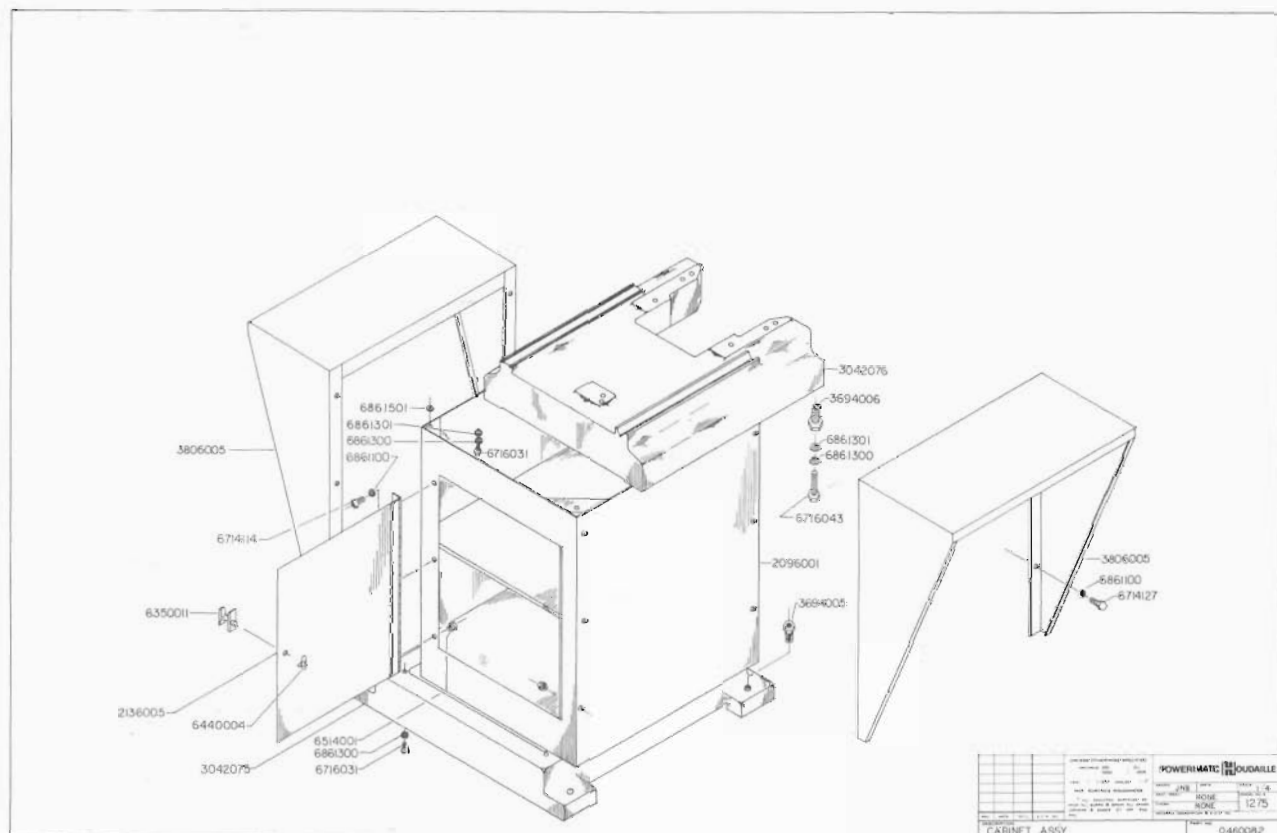
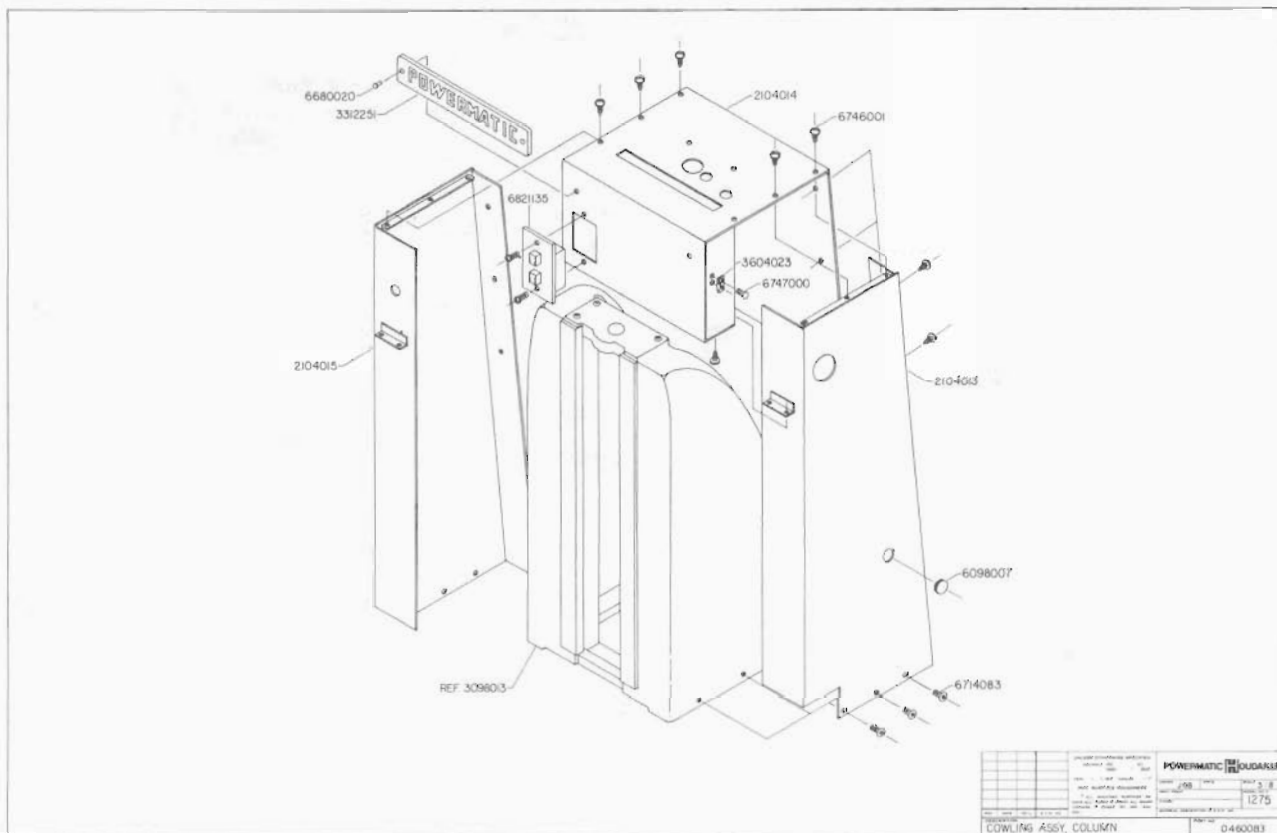
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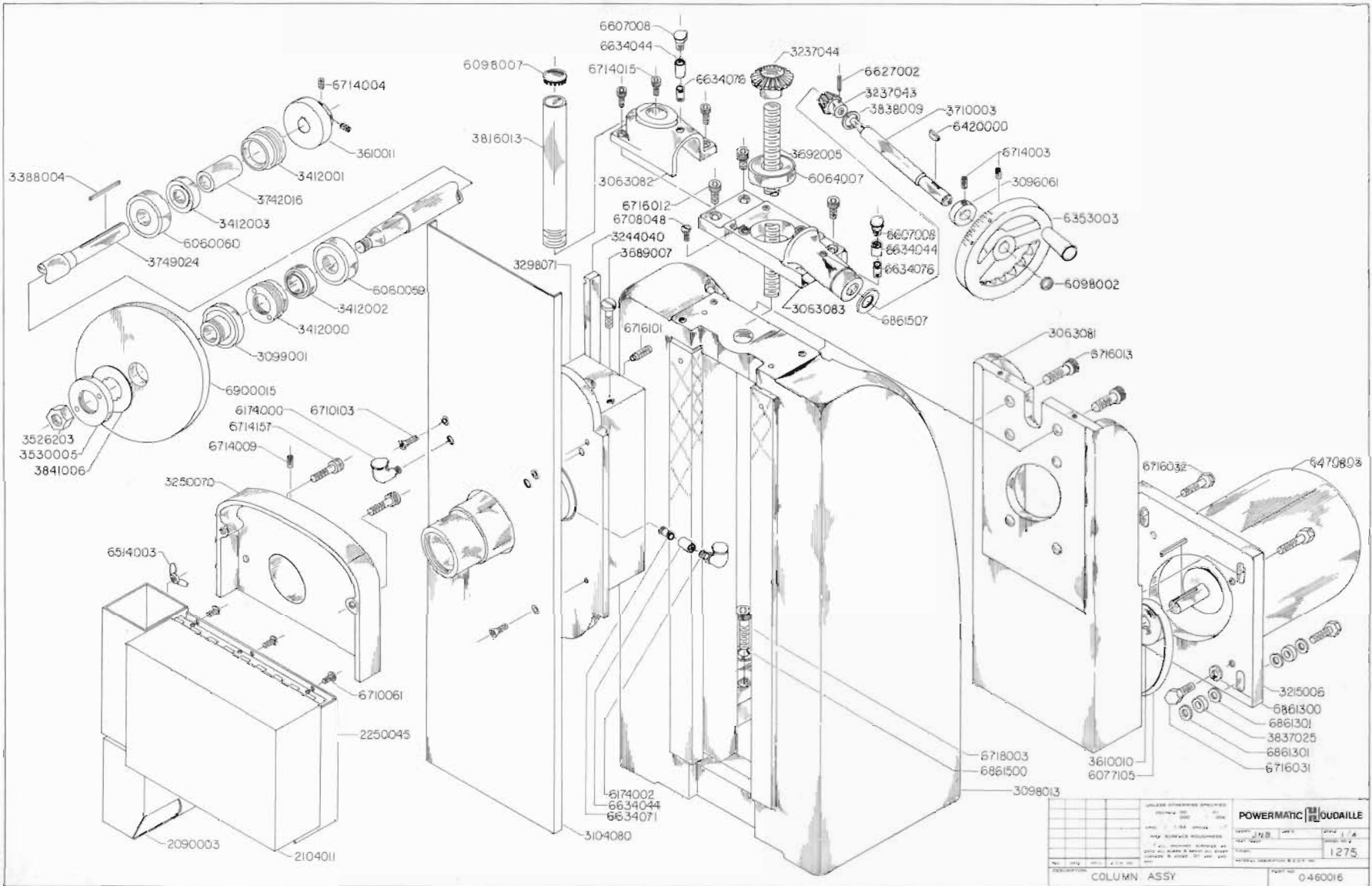
IOL

REF.	POWERMATIC NO.	MFG. DESCRIPTION
M1	6821019	STARTER, MAGNETIC FURNAS
PB1 & PB2	6821014	SWITCH, FURNAS, PB. B2873-1B
IMTR	6470803	MTR, ELEC. 3/4 HP, 3Ø, 3450 RPM.

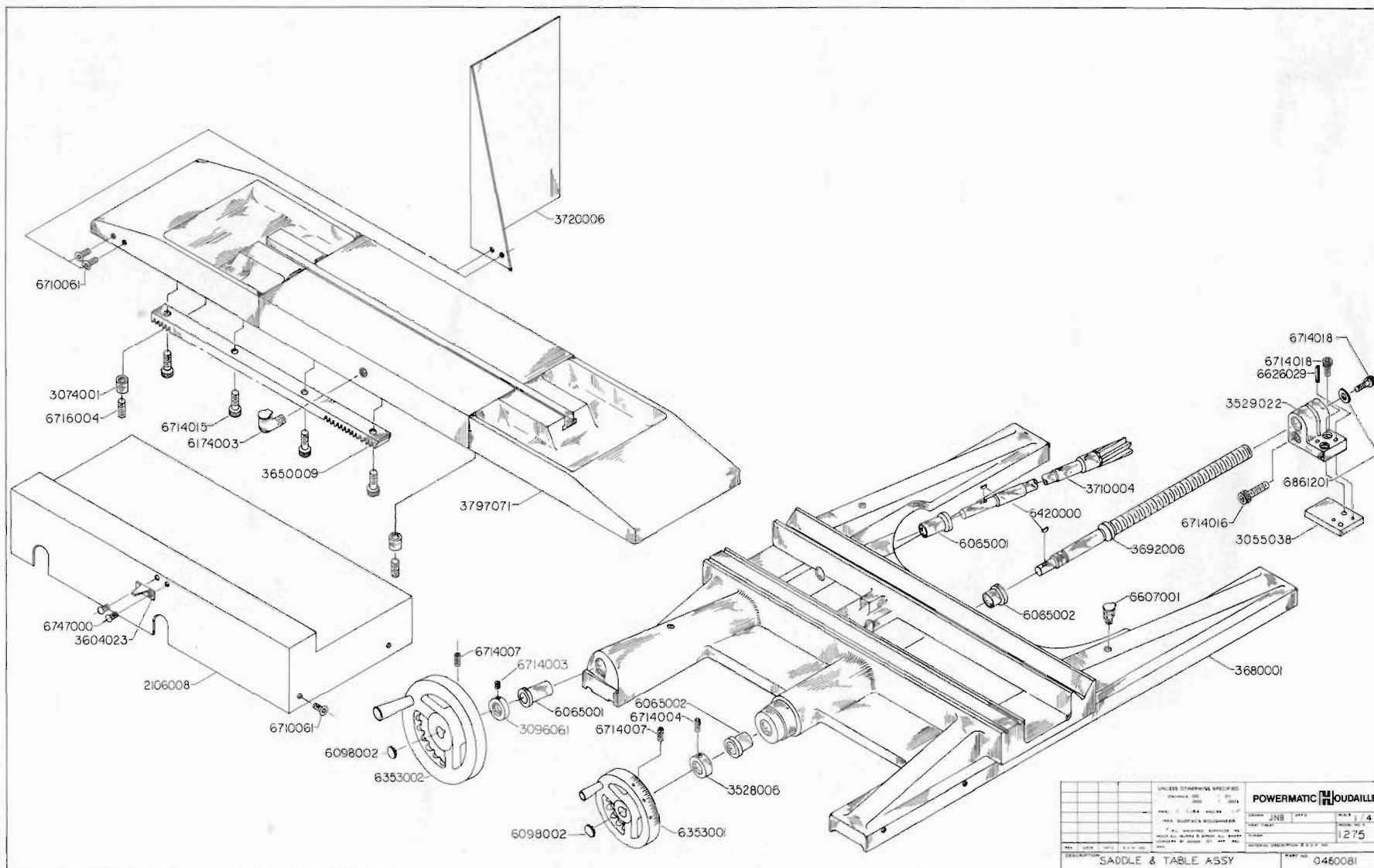
MAGNETIC

UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES FINISH: 1-1/2" X 1-1/2" X 1-1/2" MAT. SURFACE ROUGHNESS 125 ALL DIMENSIONS SHOWN IN INCHES & DECIMALS OF AN INCH UNLESS OTHERWISE SPECIFIED		POWERMATIC HOUDAILLE	
		DRAWN: _____ CHECKED: _____ DATE: _____	PART NO. 0940049
DESCRIPTION SCHEMATIC ELECTRICAL		SERIAL NO. 1275	





UNLESS OTHERWISE SPECIFIED		POWERMATIC/HOUDAILLE	
UNIT	INCHES	DATE	12/75
BY	12/75	DESIGNED BY	1275
CHECKED BY		APPROVED BY	
DRAWN BY		MANUFACTURED BY	
MATERIAL		FINISH	
QUANTITY		PART NO.	
COLUMN ASSY		0460016	



UNLESS OTHERWISE SPECIFIED				POWERMATIC HOUDAILLE			
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