INSTRUCTION MANUAL

GHD-20A

Geared Head Drill (415V)

31.5mm Drilling Capacity with Automatic Feed

D134

Contents

*This Document Is A General Purpose Instruction, Some Differences Between Drawings And The Specific Machines Are Permitted.

1.Outline Urawing

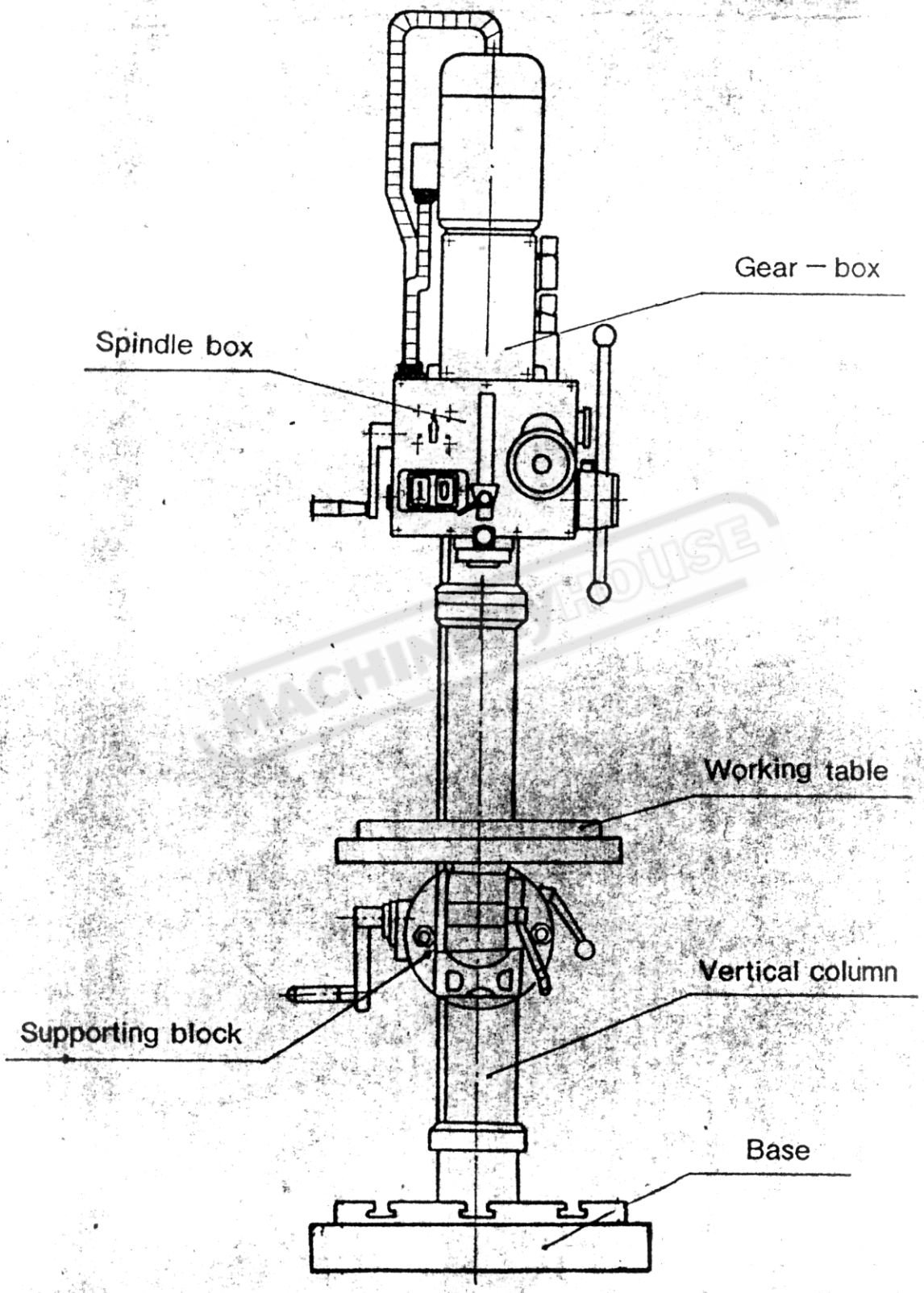

Figure 1

2. Main Specifications

No	Technical Specifications and Data		Unit	Z5025B	Z5025-1B	Z5025-3B
2.1	Maximum Drilling Diameter (σ_B=500—600mpa)		mm	25(1)		
2.2	Maximum Travel of Spindle		mm(in)	140(5½)		
2.3	Spindle Taper Hole			Morse No.3		
2.4	Distance Between the Center of Spindle and the Surface of the Vertical Column		mm(in)	315(12 3/8)	225(8 7/8)	
2.5	Maximum Distance Between the Spindle Nose and the Surface of Working Table		mm(in)	660(26)	620(24½)	600(23 5/8)
2.6	Maximum Distance Between the Spindle Nose and the Base Surface		mm(in)	1200 (47 1/4)	1075 (42 5/16)	
2.7	Maximum Travel of the Supporting Block of the Working Table		mm(in)	480 (18 7/8)	390 (15 3/8)	412 (16 1/4)
2.8	Maximum Travel of Spindle Box		mm(in)	240 (9 7/16)		
2.9	Speeds of Spindle	50Hz	r/min	100, 205, 345, 440, 690, 885, 1450, 2900		
		60Hz		120, 245, 415, 530, 830, 1060, 1740, 3480		
2.10	Spindle Speed Variations			8		
2.11	Spindle Feed Variations			3		
2.12	Feed Rate of Spindle		mm/r	0.08, 0.16, 0.24		
2.13	Dimensions of the Working Table (L * W)		mm(in)	315 X 415 (12 3/8)X(16 3/8)	ϕ390/ϕ440 (ϕ15 3/8)/(ϕ17 3/8)	275 X 315 (10 13/16)X(12 7/16)
2.14	Dimensions of the Base Surface		mm(in)	475 X 400 (18 11/16) X (15 3/4)		305 X 297 (12) X (11 11/16)
2.15	Double-Speed 3-Phase Motor	Type		As 802/4		
		Power	Kw	0.75/0.90		
		Speed	r/mm	50Hz: 1400/2800;	60Hz: 1680/3360	
2.16	Overall Dimensions (L * W * H)		mm(in)	785 X 560 X 1820 (31 X 22 X 71 5/8)		640 X 470 X 1670 (25 X 18½ X 66 6/8)
2.17	Net Weight		kg	465	290	295

3. Main Applications and Features

This machine tool is mainly applicable for enlarging, reaming, boring, countersinking and chamfering etc.

The gear transmission system has been applied, which results in the compact structure and high rigidity to meet the needs of strong force cutting operation.

The double-speed motor is applied in the transmission, leading a wide speed range. Feed motion can be realized by either manual or mechanical, with the advantage of quick, easy and safe operation.

Spindle box can be moved up and down and can be rotated 360° around the vertical column, so does the working table. the working table of Z5025B, Z5025-3B can be titled ±45°.

Up/down movement of spindle box and working table is by worm gear mechanism which is light to operate.

Drilling depth is controlled by a distance adjustment mechanism is addition to a auto-retract function.

Some gears in speed changing box are made of MC nylon to decrease noises.

Auto-reset function is provided to spindle sleeve.

4. Several Usage Regulations

1) Carefully read this user manual before start the machine.
2) Wearing gloves is not allowed when operate the machine. Contacting the spindle and tools by hands or other thing is strictly forbidden when it is running.
3) The machine has no short-circuit protection, the user is required to connect a 6A(rated Amper) protection switch. Earth protection must be well done in inlet circuit.
4) Strictly follow the lubrication requirements as noted.
5) When tapping, automatic feed is not allowed in order to avoid damaging machine.
6) Carefully clean the anti-rust grease before start machine, operate from low to high speed smoothly to check for the abnormal phenomena.
7) Whenever a failure happens, call the qualified person to repair it.

5.Main Stucturu

Main structure and parts(Fig.2-Fig.9)

1) bottom base
2) spring washer
3) hex nut
4) hose connector
5) cover plate
6) round head screw
7) vertical column
8) small shaft
9) worm gear
10) worm shaft
11) gear rack
12) spindle box fasten mechanism
13) spindle box up/down mechanism
14) lift gear rack
15) vertical column
16) flexible metal pipe
17) eye screw
18) speed changing box
19) spindle box
20) drill retract handle
21) working table
22) handle
23) press block
24) turning shaft
25) bracket
26) sliding box
27) speed changing combination switch
28) start/stop switch
29) motor
30) spindle speed changing handle
31) panel
32) feed handle
33) feed depth adjustment
34) bearing D1000906
35) round nut
36) gear Z28
37) clutch gear Z49
38) clutch
39) bearing 80103
40) worm shaft
41) limiter base
42) spindle
43) bearing D2007107
44) spindle sleeve
45) bearing 80103
46) shaft
47) worm gear Z18
48) gear Z25
49) gear Z39
50) position key set
51) bearing 80103
52) speed changing lever
53) worm shaft
54) bearing 80102
55) gear Z34
56) gear Z17
57) gear Z22
58) bearing 80102
59) bearing 8102
60) gear Z31
61) coil spring
62) up/down gear shaft
63) worm Z39
64) left clutch
65) clutch handle base
66) worm shaft
67) gear
68) gear rack
69) fasten handle
70) feed changing wheel handle
71) shaft
72) shaft II
73) shaft III
74) gear Z33
75) gear Z34
76) gear Z51
77) gear Z68
78) connector
79) inner gear sheet
80) gear Z42
81) bearing 3056203
82) gear Z42
83) gear Z16
84) bearing 80203
85) gear Z16
86) shaft I
87) shaft pin
88) pin
89) arm

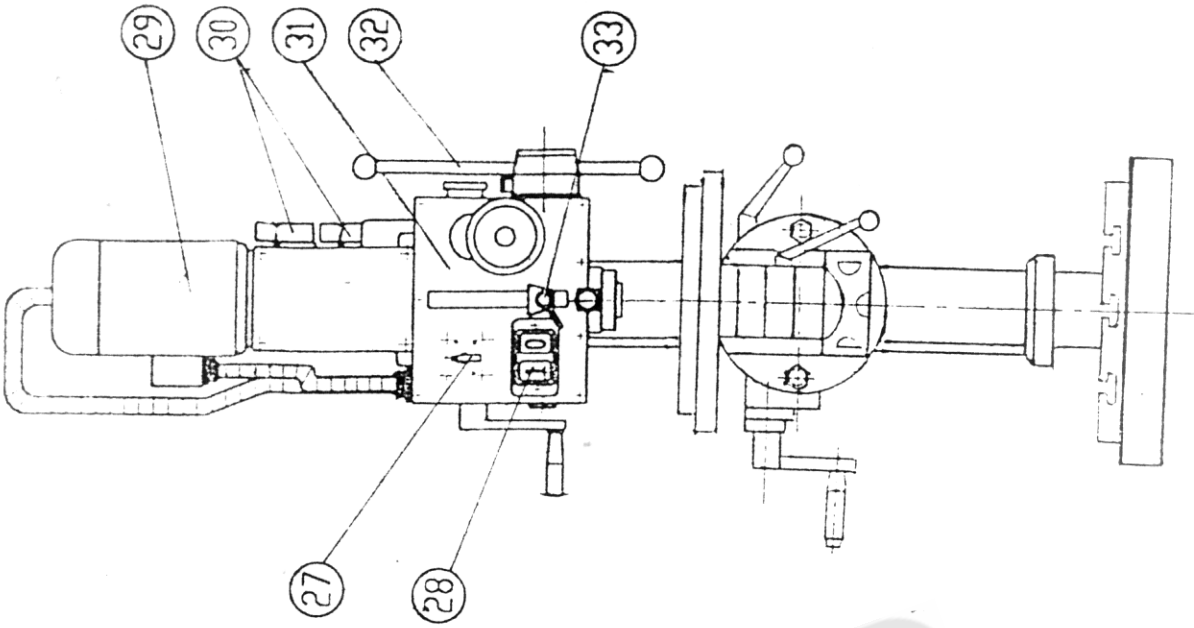

Figure 3

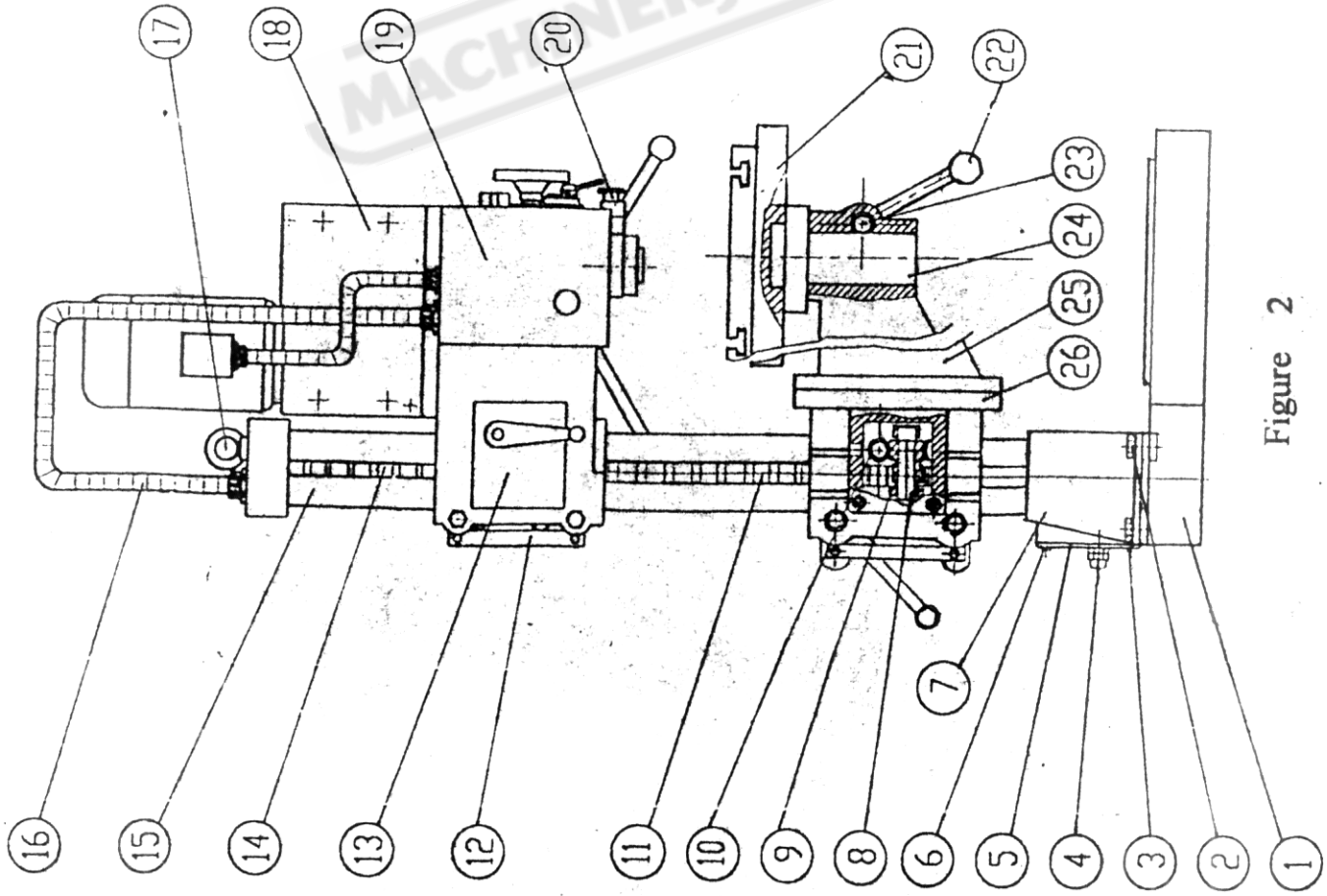

Figure 2

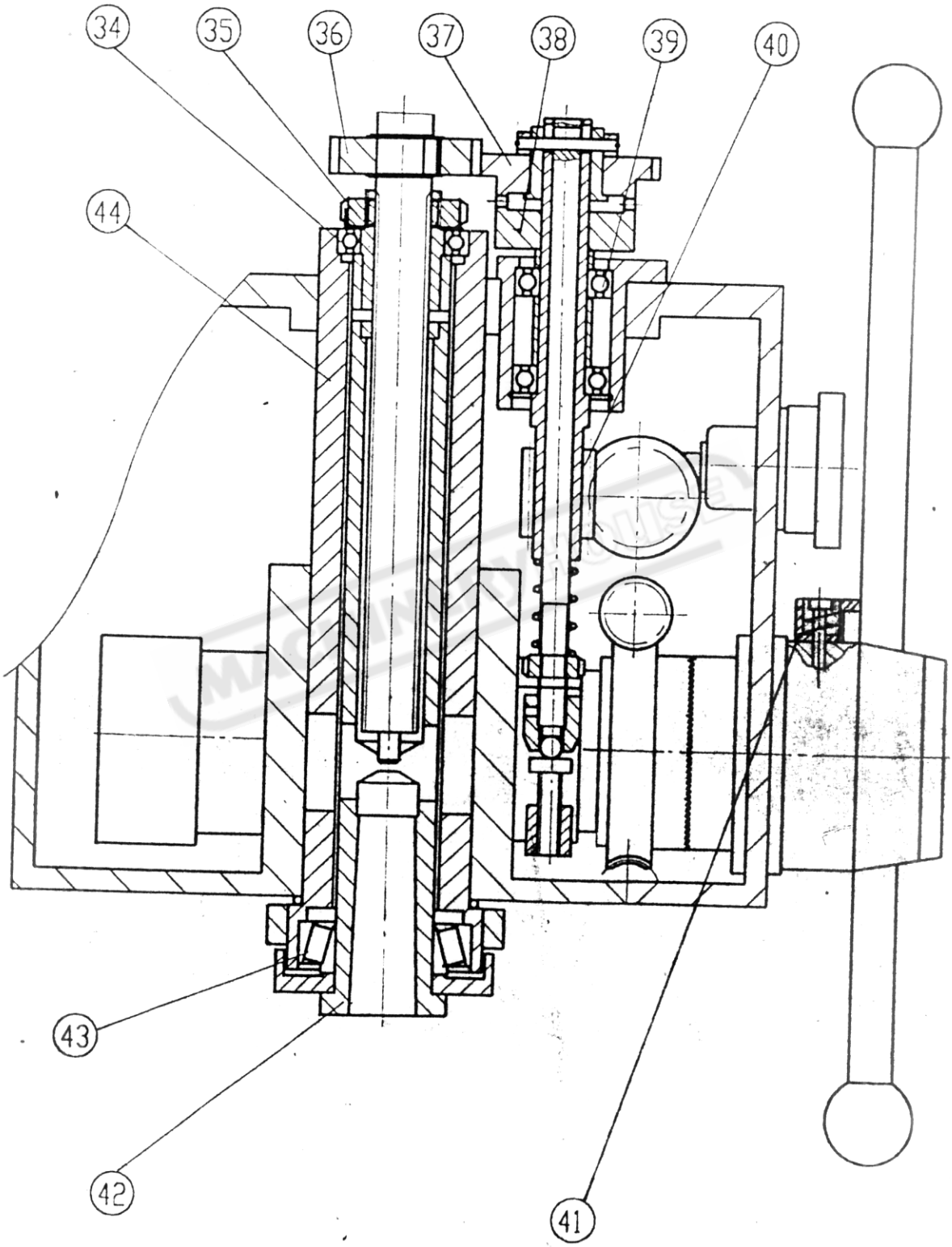

Figure 4

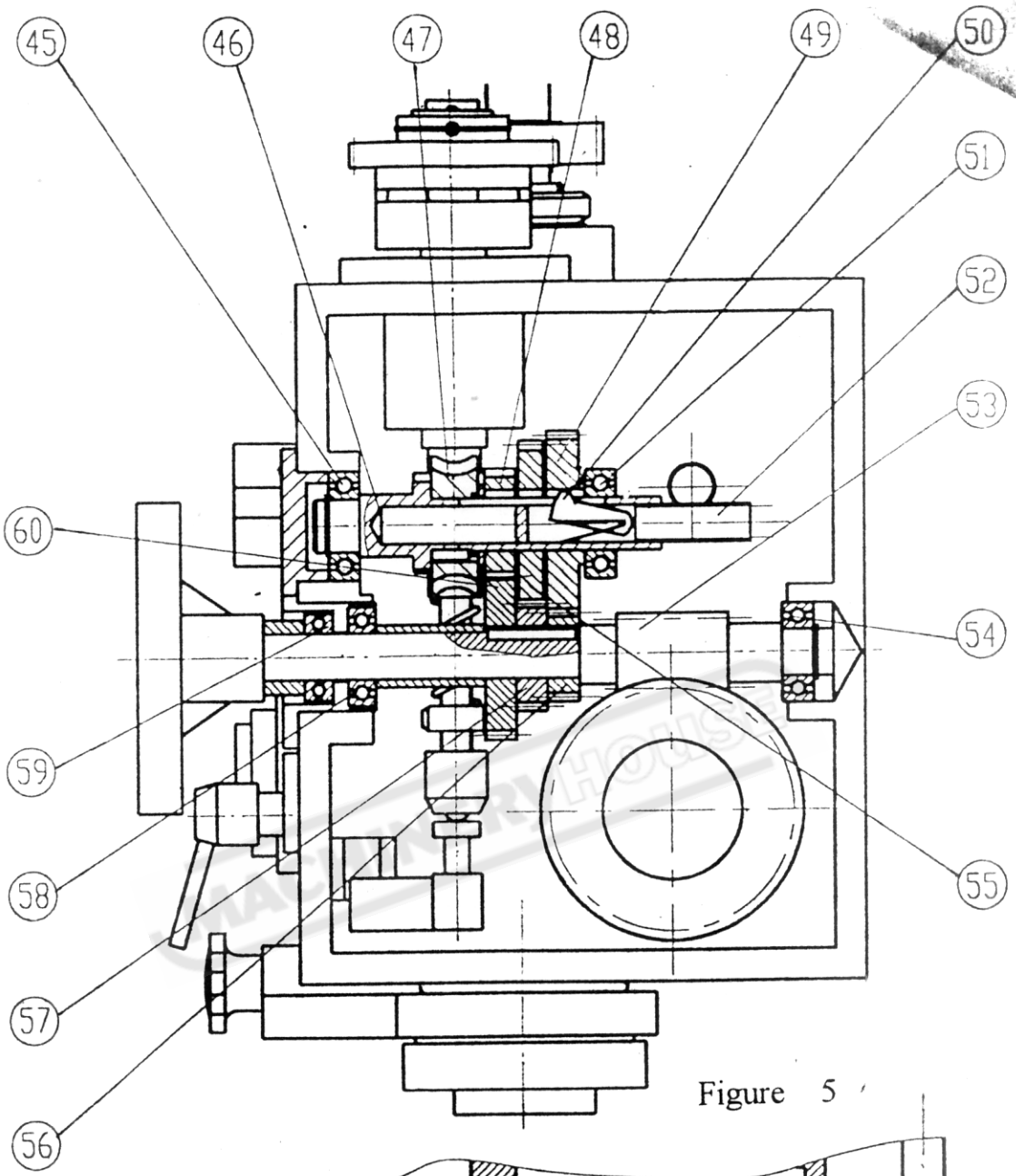

Figure 5

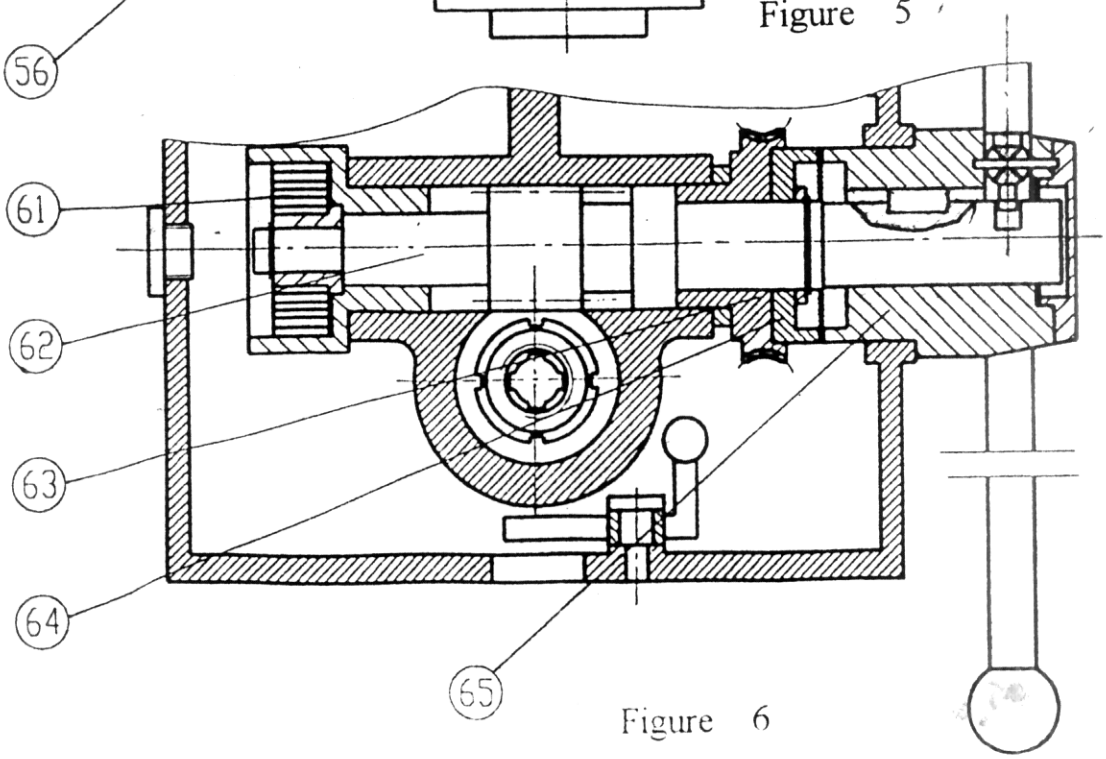

Figure 6

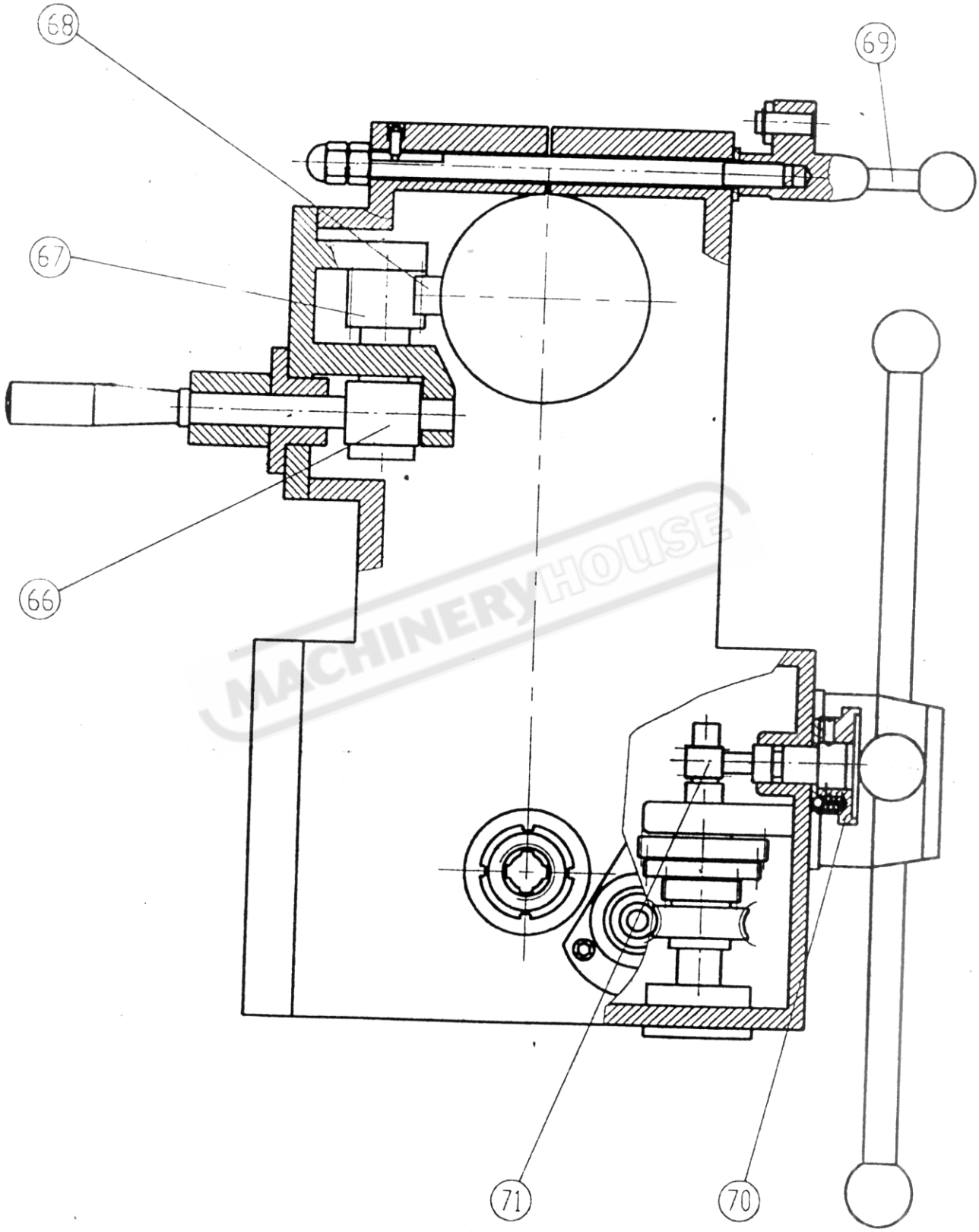

Figure 7

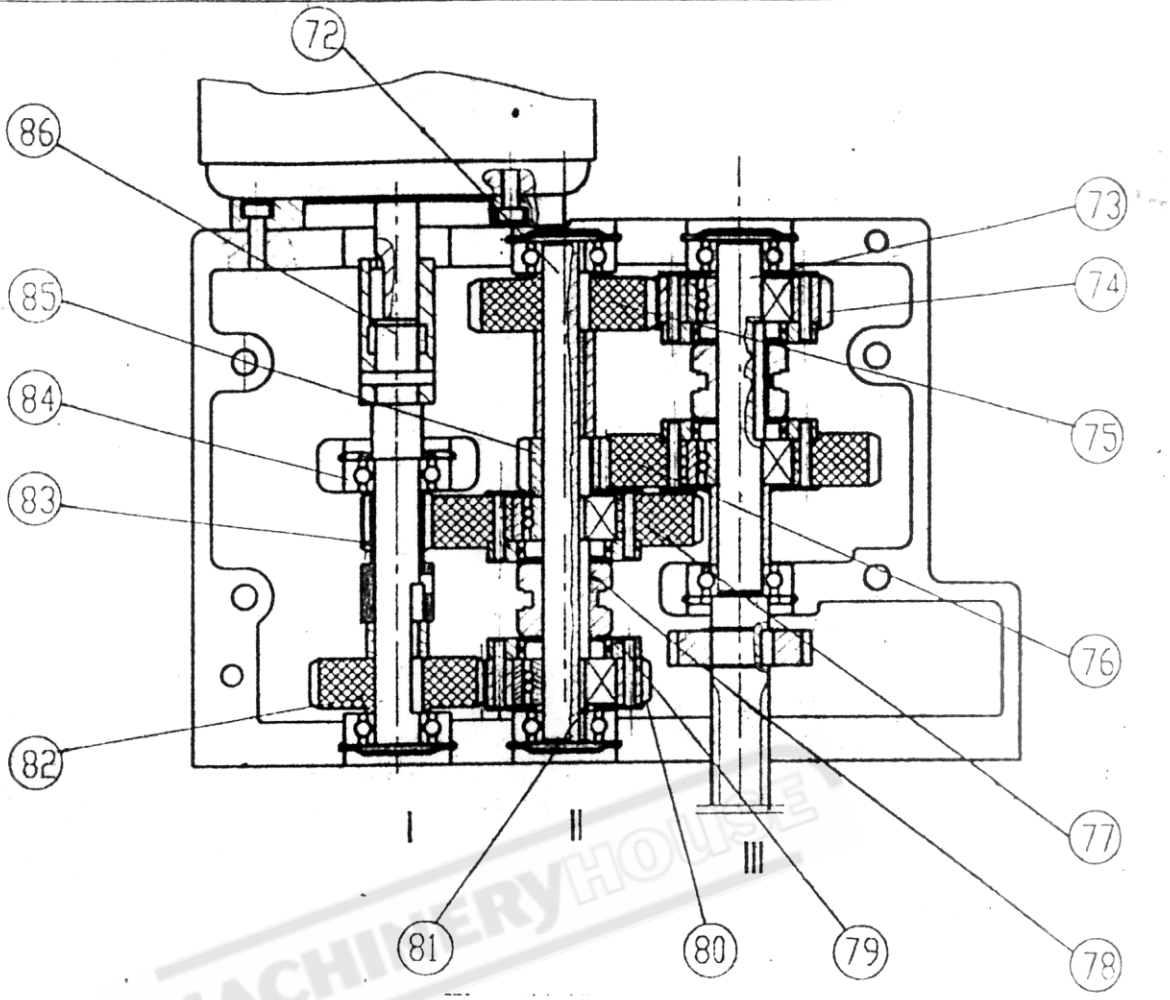

Figure 8

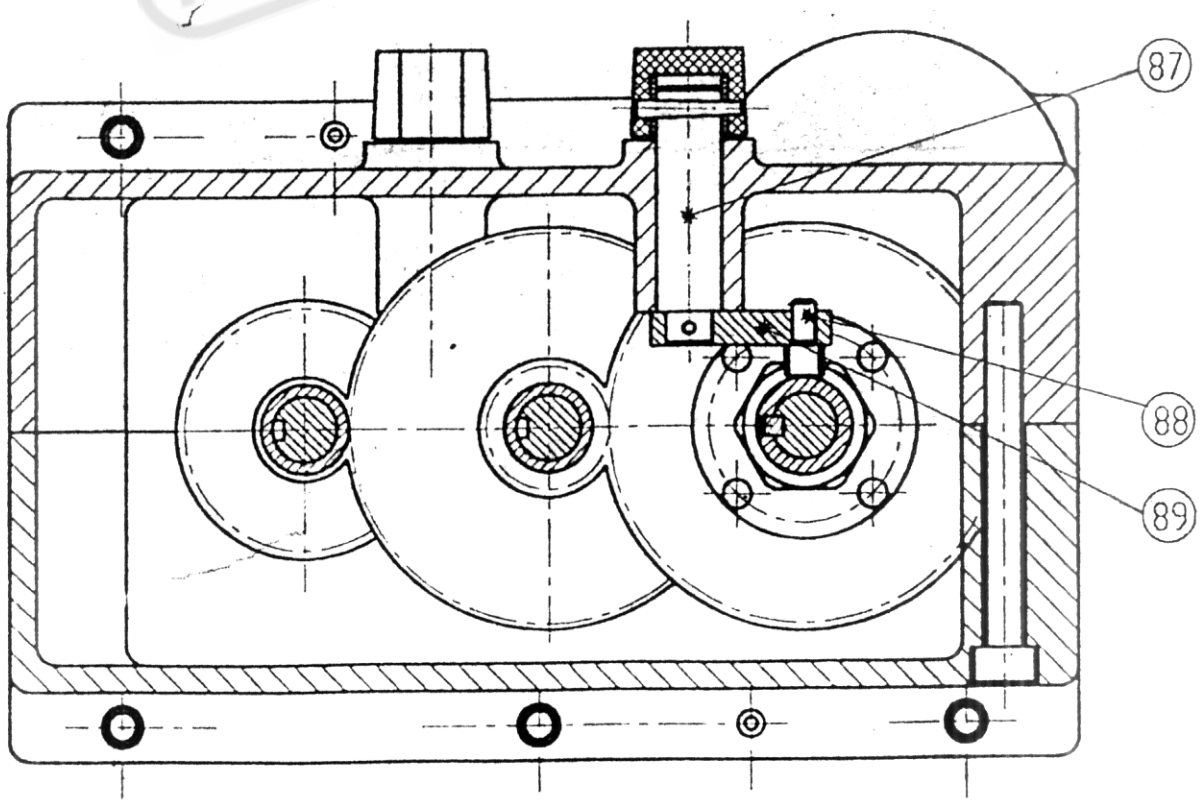

Figure 9

6.Transmission System

1) The spindle rotate(Fig.8)

Through motor to shaft I 86. Through gear 83, 77 or 82, 80 to shaft II. Through gear 85, 76 or gear 75, 74 to shaft III. Through integral key to spindle. the motor has double-speed, through changing the transmission gear, the spindle will rotate in 8 different speeds.

2) Spindle feed motion.

The spindle feed motion can be controlled manually or mechanically, through gear 36, 37, clutch 38, flat key to worm shaft 40 (Fig.4), worm gear 47, shaft 46 (Fig.5), through operating the feed changing gear handle 70 (Fig.7), drive speed changing lever 52, to gear 48, 60 or 55, 57 or 49, 56, then to worm gear shaft 53 (Fig.5) to worm gear 63, left clutch 65, clutch handle base 65, through flat key to up/down gear shaft 62 (Fig.6), through gear, gear rack transmission, to make the spindle sleeve and spindle make the mechanical feed motion. Turning the feed handle 32 (Fig.2) separate the clutch handle base 65 from the left clutch 61, then the manual feed motion can be realized.

3) The up/down and rotary of the spindle box(Fig.7)

It is controlled by hand, loose the fasten handle 69, the spindle box can rotate around the vertical column. Through worm transmission to gear 67, gear 68, the spindle box will move up or down.

4) The motion of working table (Fig.2)

It is controlled by hand. the supporting block of working table can be moved up or down through worm 10, worm gear 9, gear rack 11.

7. Lubrication

The transmission gear of the speed changing box, spindle bearing and the transmission gear of the feed box uses precision machine tool grease No.2. Change it every year.

the spindle box up/down handle and the up/down gear shaft should be oiled every shift by No. 30 oil.

8.Electric system

The circuit diagram is shown as Fig.11.the electric installation diagram is shown as Fig.12. the electric connection is shown as Fig.13.

The machine uses 3 phase, exchange power supply. It can be supplied according to user requirement. the machine has no short-circuit protection, the user is required to connect a 6A protection switch. Earth protection must be well down.

The double-speed motor rotates at 1400/2800 r/min for 50HZ and 1680/3360 r/min for 60HZ. the motor power is 550/750w. the two speeds are selected by SA switch. the reverse direction can also be selected. the start or stop is controlled by electromagnetism switch QS.

9. Lifting and installation

All locking handles must be locked before lift. (Fig.14)

The calculation of base edge depends on the maximum diameter which the working table turns 360° around the vertical column.

Figure 9 is the minimum dimension, you can adjust its height according to your request.

When installing the machine, bury the foot screw in a cement foundation according to the position of base holes, after the cement has condensed completely, place the machine on the cement foundation, adjust it to the demand of Go item on the inspection certificate with horizontal meter. the screw the foot screw steadily and evenly.

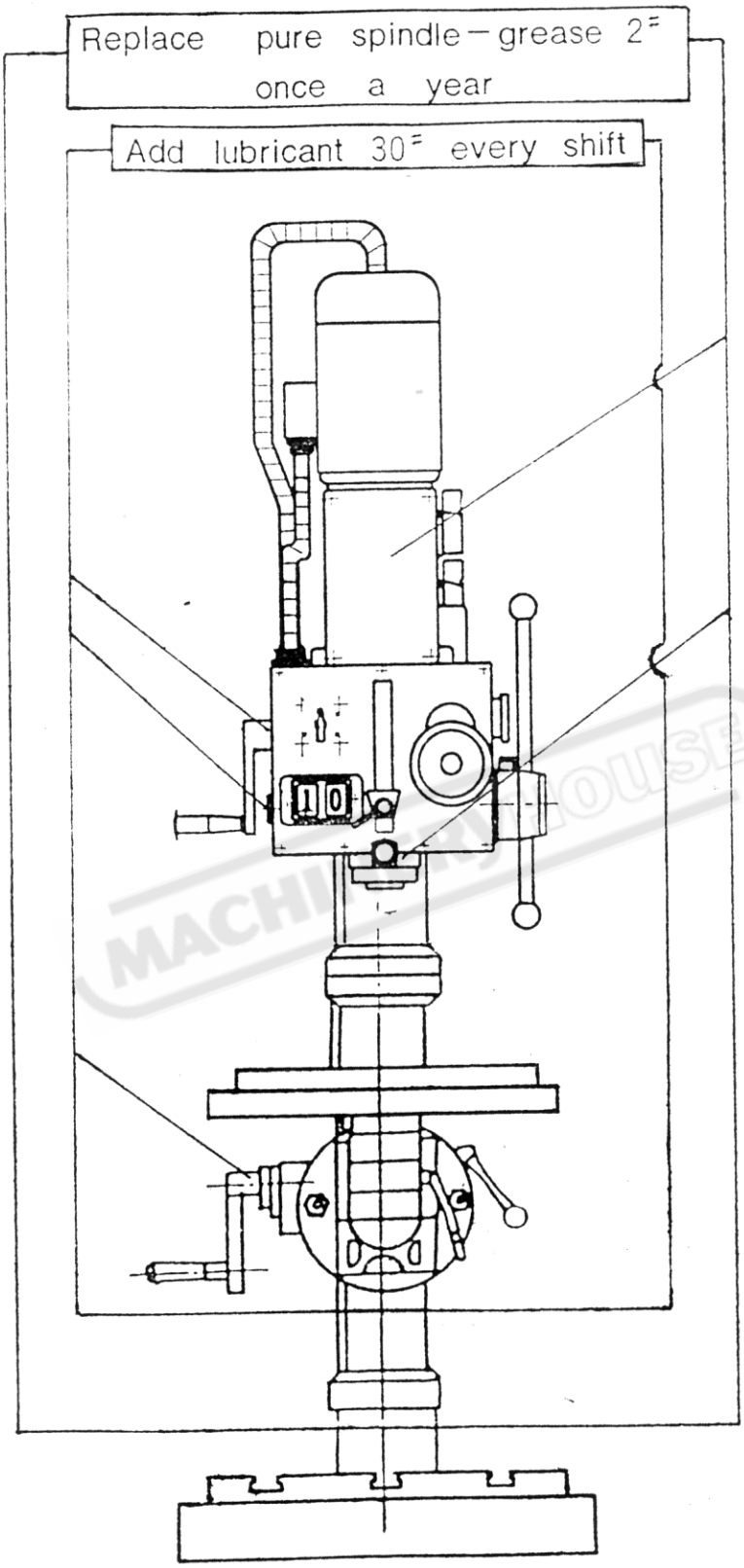

Figure 10 Location of Lubrication

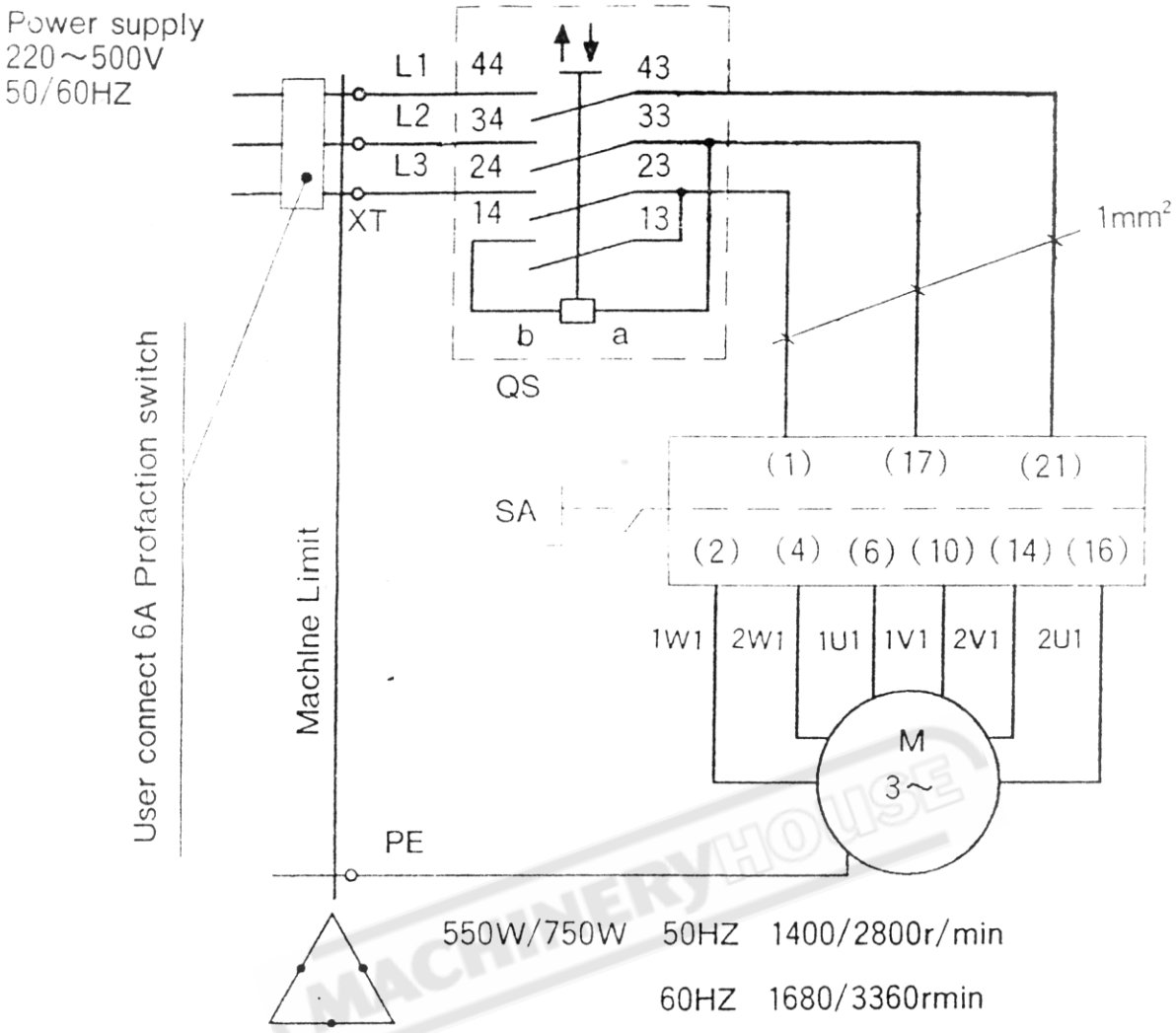

Figure 11 Circuit diagram

SA Connection(" + "means connected)

NO	LW6－4/F525	NO	L－speed				H－speed		
			1L ccw	o	1R cw	o	2R cw	o	2L ccw
(1)	W 1W1	(2)	+		+				
(3)	W 2W1	(4)					+		+
(5)	1U1	(6)	+		+				
(7)	1W1 1U1	(8)					+		+
(9)	1V1	(10)	+		+				
(11)	1W1 1V1	(12)					+		+
(13)	2V1	(14)					+		+
(15)	2U1	(16)					+		+
(17)	V	(18)			+		+		
(19)	V	(20)	+						+
(21)	U	(22)			+		+		
(23)	U	(24)	+						+

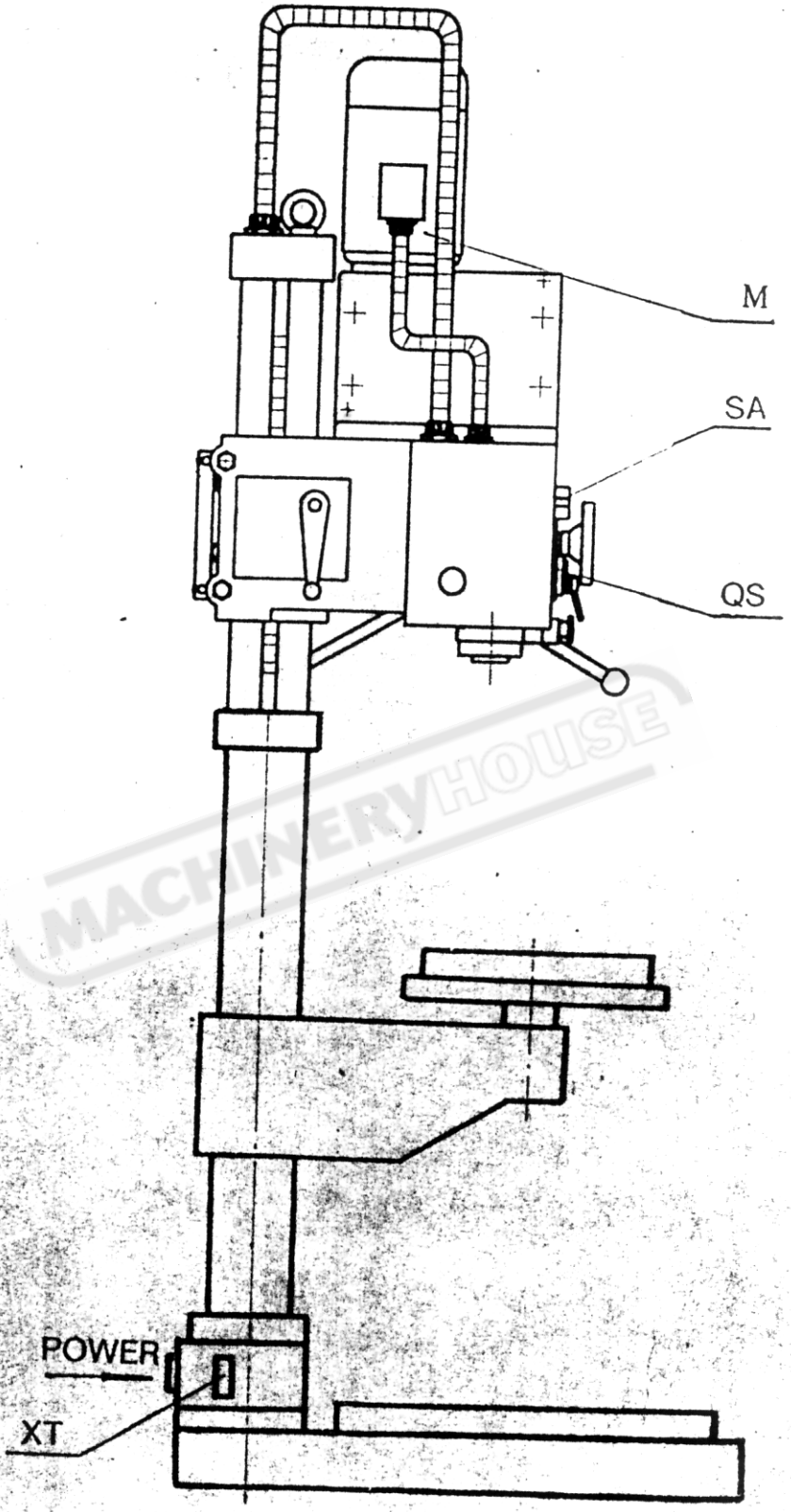

Figure 12 Installation diagram for electrics

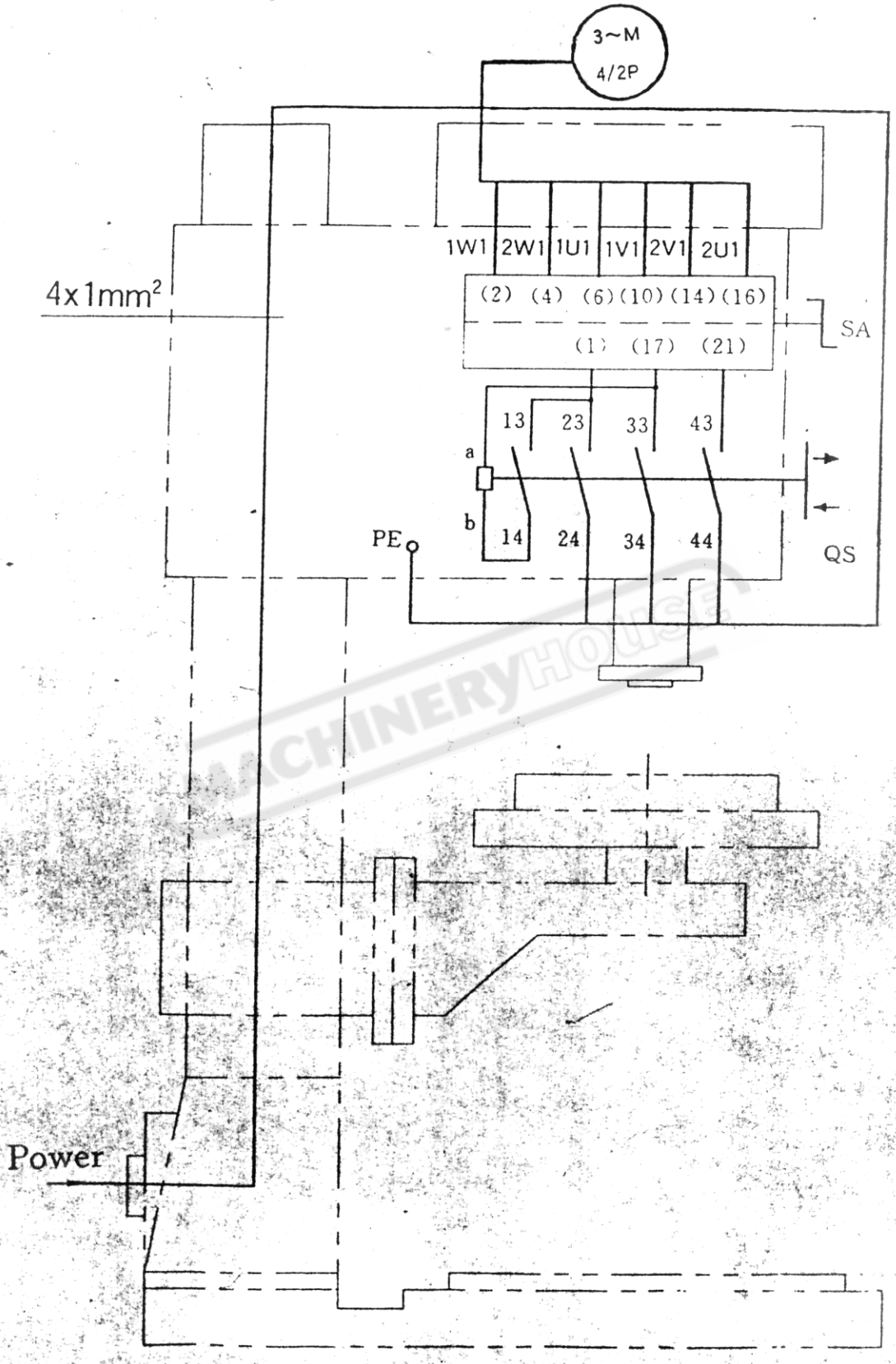

Figure 13 Interconnection diagram of electrics

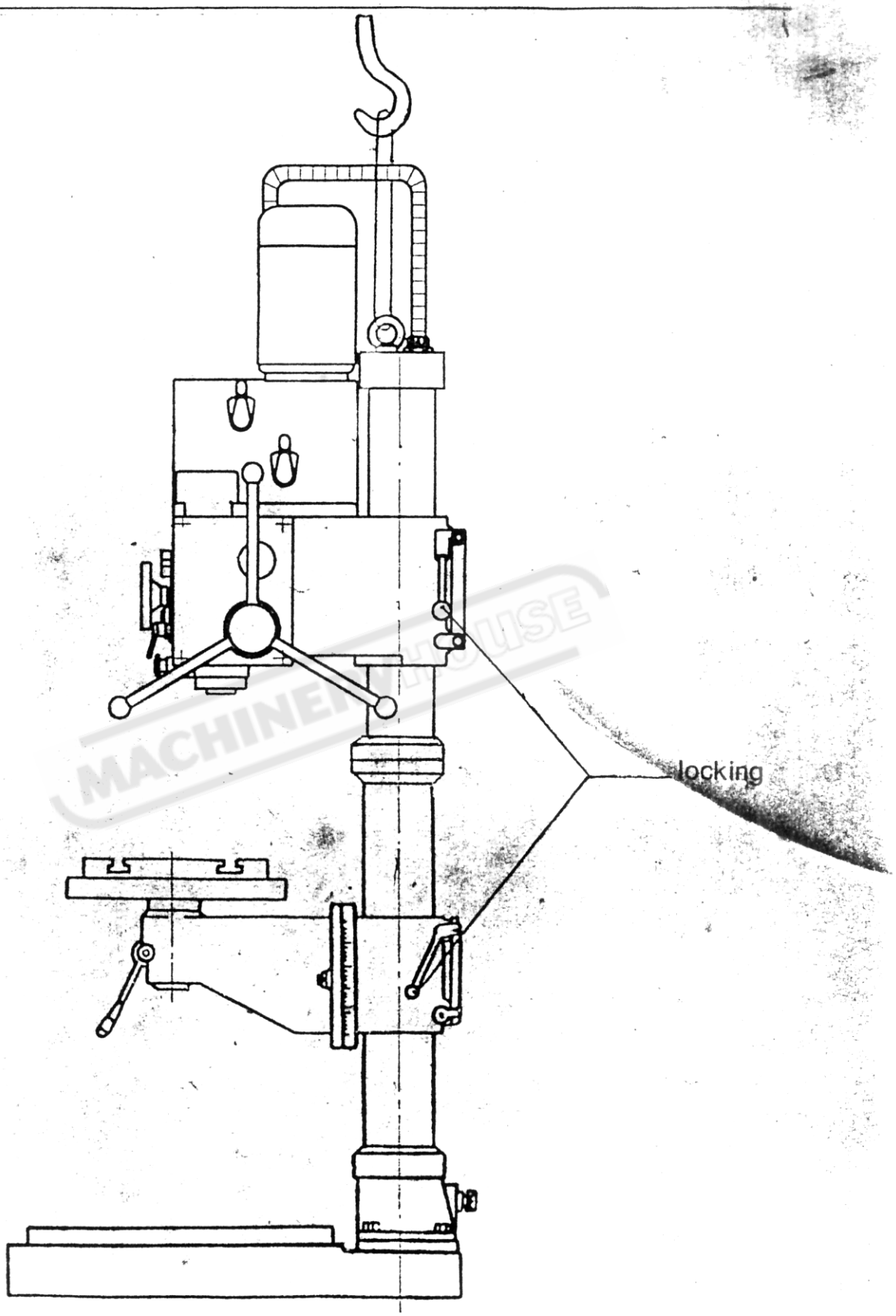

Figure 14 Location of Lifting

Model		Z5025B	Z5025－1B/3B
A×B	mm	635×360	360×265
	in	25×14 3/16	14 3/16×10 7/16

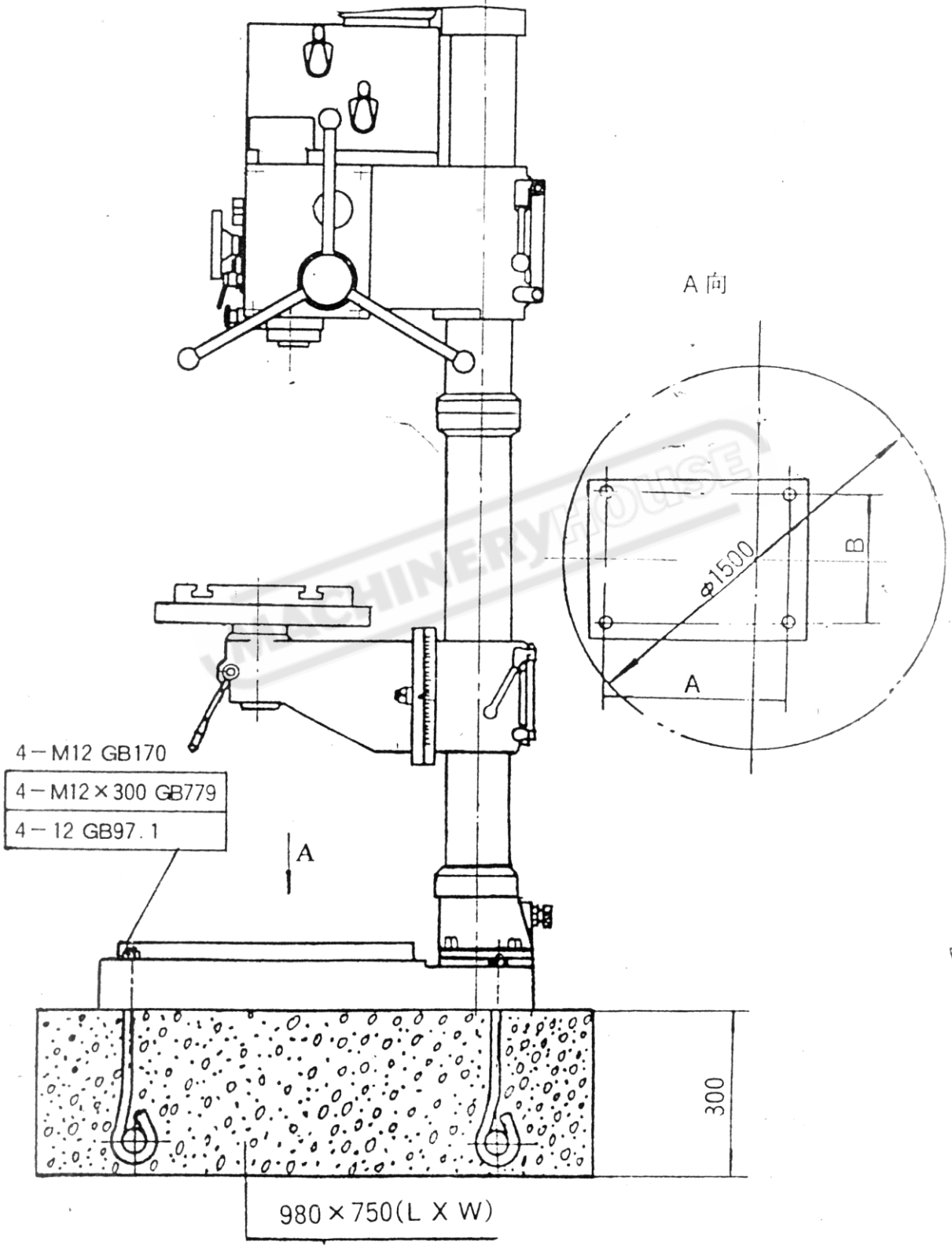

Figure 15 Installation of foundation

10.Operation and adjustment

When the spindle manual feed motion, first turninglimiter base41 (Fig4) 180° , touch to the spindle box , then rotating feed handle 10 (Fig.16), the spindle will move up or down along with the sleeve 44 (Fig.4). When It automatic feed motion. Note make separate the limiter base 41 from the spindle box. Swing the feed handle 32(Fig2). separate the clutch handle base 65 from the left clutch 64 after the automatic feed operation. the sleeve will be reset by the coil spring 61. (Fig.6).

Remove the speed changing box, loosen the anti-motion washer to adjust the round nut 35(Fig.4), then the clearance of the spindle bearing can be adjusted. Please note that if the clearance is too small, the spindle will overheat and the other troubles may happen.

The locking of the spindle box and the supporting block of the working table can be adjusted by the hex nut 11. Loosen the cover nut first, adjust the hex nut to the proper position, then fasten the cover nut.

The above parts have been property adjusted before shipping. Unqualified person is not allowed to make these adjustments.

List of the Parts of Operation (Fig16)

No.	Name	No.	Name
1	Lock Screw	9	Feed handle of spindle
2	Up/down Handle of Supporting block	10	Feed Changing Handle
3	Intermediate sleeve with tapper	11	Locking Screws and Nuts
4	Start/Stop Switch of the Motor	12	Locking Handle of Supporting Block
5	Up/down Handle of Spindle Box	13	Locking Handle of Working Table
6	Speed Changing Combination Switch	14	Tool Retracting Handle
7	Speed Changing Handle of the Spindle	15	Working Table
8	Speed Changing Handle of the Spindle	16	Supporting Block

Before starting the motor (Fig. 16), rotate the speed changing switch 6 to the required position ("2R" for high speed, "1R" for low speed, "2L" for high speed and reverse direction, "1L" for low speed and reverse direction). then press the button "1"(green) of the switch 4, the machine begins to work. Press "0" button (red) for stop the machine. When the spindle is rotating reverse, first, stop the machine. then rotate the speed changing combination switch 6. Wait until the motor stop completely, press the start switch.

The speed selection is realized through operating the spindle speed changing handle 7, and the feed rate selection through the feed changing wheel handle10. Note that the speed only can be changed when the machine has stopped to avoid damages to the gears and the clutches.

When loosen the lock handle 69 (Fig.7), the spindle box can turn 360° around the vertical column 15 (Fig.2). the spindle box can move up or down and lock at any position by operating the up/down handle 5 . (Fig.16). the working table can move up or down by loosening the lock handle 12, rotating the handle 2. the working table support block can turn around the vertical column by loosening handle 13. the working table can turn by loosening the lock nut 1 the working table can be titled ±45°.

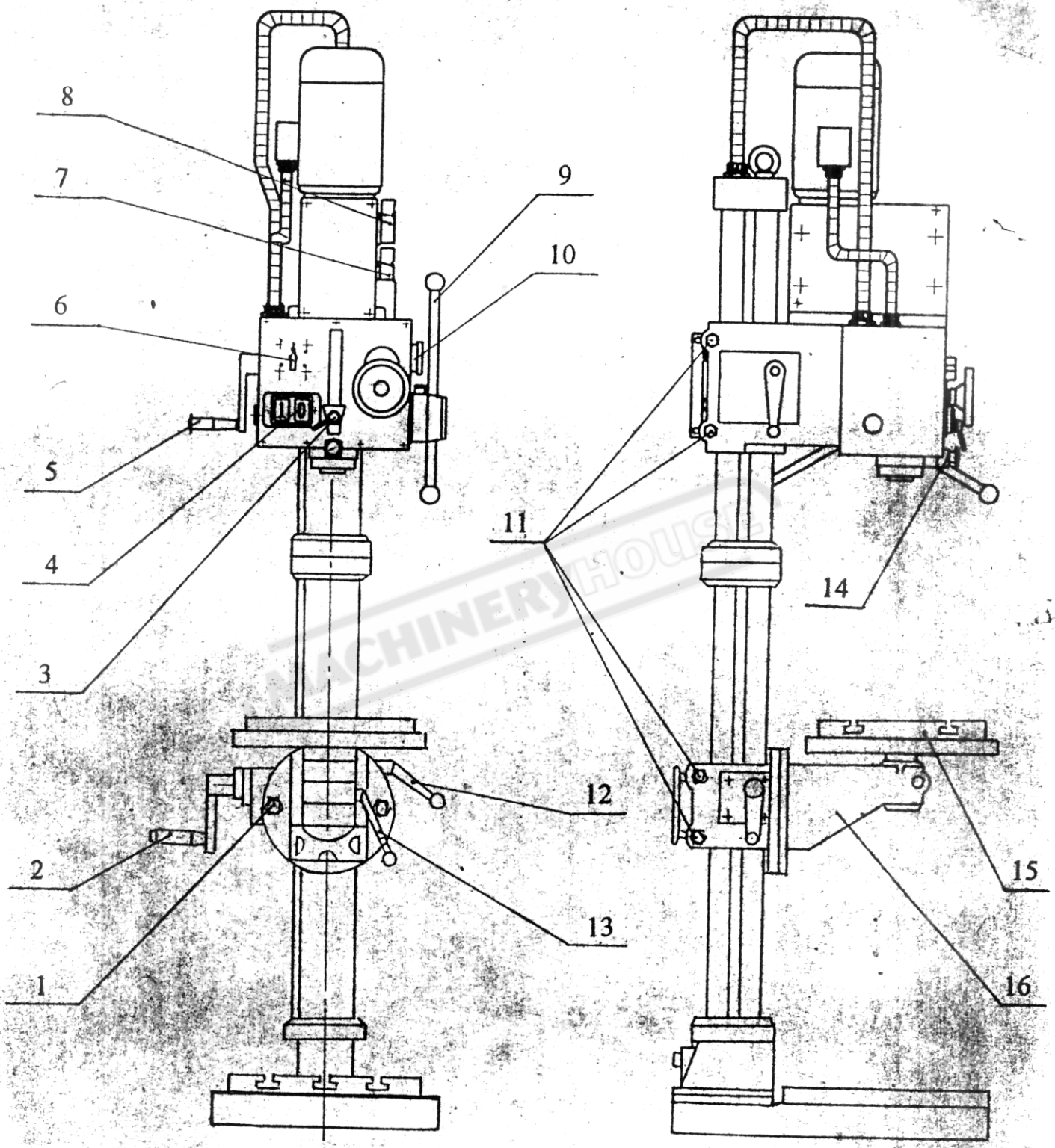

Figure 16

11.Accessories:

Name	Specification	Quantity	Remark
Three-jaw Drill Chuck	1—13 mm	1	
Taper Sleeve	3/2	1	
Taper Sleeve	3/1	1	
Drill Chuck Holder	ZF01	1	
Wedge for Taper Shank Tool	ZF02	1	

12.Safety Cover Equipment

The safety cover equipment is available as requirement .

The organic glass cover can protect the operator effectively. It can move up and down for covering different work-pieces.