22-4-09

 # M1605D
HM-50B
VERTICAL MILL 240V

 # M1615D
HM-52B
HORIZONTAL/VERTICAL MILL 240V

 # M1635D
HM-52GB
HORIZONTAL/VERTICAL MILL GEARED HEAD
415V

OPERATION AND SPARE PARTS MANUAL

DRILLING/MILLING MACHINE

OPERATION MANUAL

Model: HM-50B

NO: 0902033

⚠ WARNING

1. Read and understand the entire instruction manual before operating machine.

2. Always wear approved safety glasses/face shields while using this machine.

3. Make certain the machine is properly grounded.

4. Before operating the machine ,remove tie,rings,watches,other jewelry,and roll up sleeves above the elbows. Remove all loose clothing and confine long hair.DO NOT wear gloves.

5. Keep the floor around the machine clean and free of scrap material, oil and grease.

6. keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.

7. Do NOT over reach. Maintain a balanced stance at all time so that you do not fall or lean against blades or other moving parts.

8. Make all machine adjustments or maintenance with the machine

un-plugged from the power soure.

9. Use the right tool. Don't force a tool or attachment to do a job which it was not designed for.

10. Make certain the motor n switch is in the OFF position before con-necting the machine to the power supply.

11. Keep visitors a safe distance from the work area.

12. Never attempt any operation or adjustment if the procedure is not understood.

13.Keep fingers away from revolving parts and cutting tools while in operation.

14. Do not attempt to adjust or remove tools during operation.

15. Always keep cutters sharp.

16. Keep away from the turning handwheel, especially high speed.

17. Must pour the machine oil into the Gear Box and the power Feed ri (optional)rightly.

18. Failure to comply with all of these warnings may cause serious injury.

1. Attention

1.1 Inspection And Acceptance

Please check carefully when open the packge and make sure no parts are missing.

1.2 Safety

Please read the operation manual cafefully defore the installation and adjustment of the machine. when finish the installation, check all the details and trial run the machine idlly before put it into operation.

1.3 Caution

Keep in mind the safety measures for electrical and operating protection.

2. Work Environment

2.1 The elevation of workshop has to be 2000m or less.

2.2 No conductive dust allowed .

2.3 No explosive factor allowed .

2.4 No corrosive gas or steam which may corrode metal or damage the insulaton .

2.5 Keep away from the source of impact or vibration .

3 Operation Instruction

3.1.1 Befroe starting the machine, read carefally the operation manual and be fully acquainted with all the details .

3.1.2 The oprater should be familiar with all the rules and points of attention of running and maintaining the machine .

3.1.3 Remove all the anti-rust coating or grease from the machine.

3.1.4 There' s a reliable ground protection the ground wire must be connected properly before it in operation .

4. Lubrication

Lubricate the sliding and rotating part before trial run .

Pour NO. 40 machine oil into the Gear Box and the power Feed (op-tional). Till indicating through the oil level indicators then do a overall check .

Keep oil level above the mark .

5. Before run the machine at the hinghtest speed, must run the machine at the lovest speed for no less than 10 min' s, then in crease the speed to the highest .

I USAGE

The machine is used for cutting metals and nometals. It's suitable to drill, mill and widely use in the field for instrument, machining, repairing for cutting a single part or a batch of parts .

II USE AND MAINTENANCE

(Refer to chartl .)

1.The user must read the Operation Manual carefully , know structure and ability of every handle , the system of transmition and lubrication well.

2. Before operating , inspect the normal conditions of the column lock handle , the spindle sleeve and electric equipemnts . The ground line must be connect in the ground .

3. When the position of spindle Box to the working table need to be adjusted , two clamping shaft ① locating on the right side of Hoist —De-scend sliding must be lossed firstly , then turn the hoist—descend handle in front of machine, to hoist or descend the working table to the idea position, finally clamp the clamping shaft②.

4. A micro—feeding institute is applied to the machine, before using, pls turn the locking bolt ③ in right side to form the handle body with micro—gear, then turn the wheel ④ in front of the head , the micro—feeding can be realized. The spindle can revolve for tapping , through the universal switch equipped on the left side of the head.

But if the power motor is single phase, such function can't be realized .

5. The handle body must be seperated from micro—gear during

drill-ing and tapping. when drilling and tapping finished , loosen the handle ⑤ , the sleeve will reset automatically . The elastic force can be adjusted after loosing the screw locating in bottom of Spindle Box and turning the spring to different position . The spindle sleeve clamping handle ⑥ should be clamped for milling . To obtain the best effect , pls choose the 3 - blade vertical milling tool , the most , the working table must be hoisted to the nearest position to the spindle when the 2— blade milling tool is used .

6. The boring function can be realized after equipping relative accessaries . It is better to apply to micro—feeding during milling and boring .

7. The spindle box can turn 45° in vertical plane , for turning the spin-dle box , pls firstly loosen the tighting nut connecting with spindle box , turn the spindle to the needed angle through turning micro—worm ⑧ , finally pls tight the nut .

8. The cross—slide of spindle box can be realized through the ram moving . For cross—sliding , pls firstly loosen the two clamping bolts ⑨ locating on the right side of the ram , turn the gear shaft ⑩ ,to move the ram and spindle box , and tight the two clamping bolts .

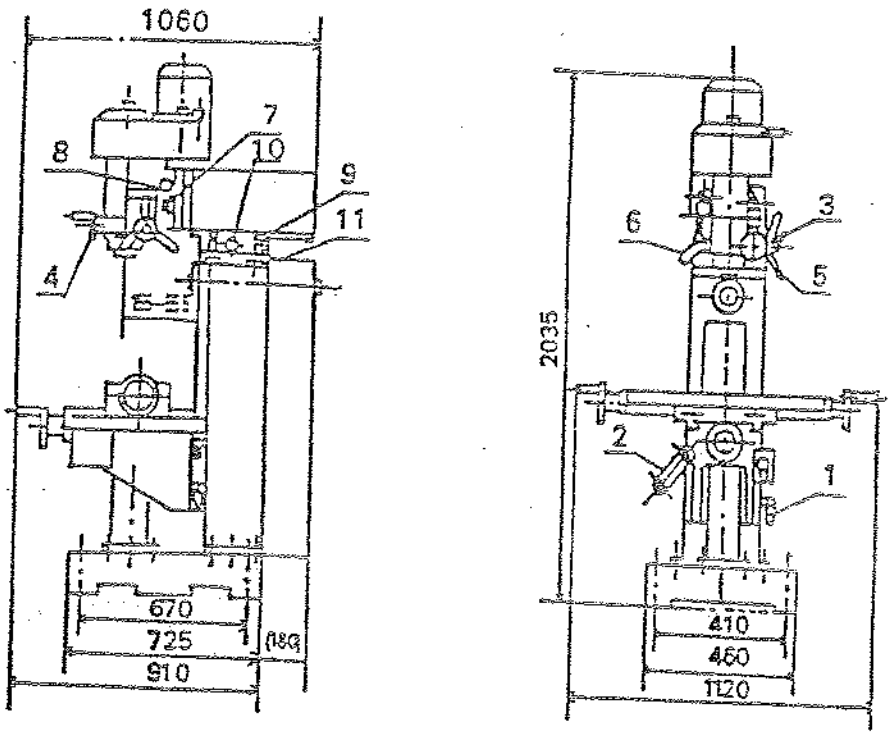
9. The spindle box can turn 360° around the column in the horizontal plane . To realize this , firstly loosen the 4 pcs of clamping nuts (11) under the ram , turn the ram to the suitablr position , finally tight the 4 pcs of clamping nuts .

10. The spindle' s tnrn and revolve can be realized by the switch loce-ted in right side of Hoist—descend sliding .

11. The Horizontal milling can be realized by turn the vertical spindle box 90 ° . The spindle box must be turn 180° when the Tool

shaft and jack applied for assistance.

12. If the machine doesn't work well or have irregular noise, pls imme-diately shut off machine.



III MAIN PARAM

Item	Model / Ability		Vertical Drill/Mill machine	
			3PH	IPH
1	Max drilling dia		30 (1 1/4") (ISO30 or R8)	30 (1 1/4") (ISO30 or R8)
			50 (M • T • 4) - (Iron)	50 (M • T • 4) - (Iron)
2	Max vertical milling dia		25 (1 ") - (Iron)	25 (1") - (Iron)
3	Spindle taper		ISO30 or R8 or MT4	ISO30 or R8 or MT4
4	Spindle speed number		8	9
5	Spindle speed range 50HZ (60HZ)		230 - 1825 (276 - 2190)	220 - 2400 (270~2950)
6	Distance between spindle and surface of column		200 - 500 (8" - 21")	200 - 500 (8" - 21")
7	Distance between spindle and table		100 - 480 (4" - 18")	100 - 480 (4" - 18")
8	Spindle travel		120 (5")	120 (5")
9	Table size	Standard	800×240× (31"×9")	800×240×(31"×9")
		Optional	1000×240(39"×9")	1000×240×(39"×9")
10	Table travel		400×230 (15"×8")	400×230 (15"×8")
			460×230 (18"×8")	460×230 (18"×8")
11	Overall size		1100×1100×2090 43"×43"×56"	1280×1100×2090 51"×43"×76"
	N.W.		700Kg	700Kg

MAIN PARAM

Item	Model / Abilty	H/V Drill/ Mill Machine	
		3PH	1PH
1	Max . drilling dia	30(1' / 4') (Iso 30 or R8)	30(1' / 4") (Iso 30 or R8)
		50 (M • T • 4)-(Iron)	50 (M • T • 4)-(Iron)
2	Max . vertical milling	25(1") - (Iron)	25(1") - (Iron)
3	Spindle taper	M. T. 4 or ISO or R8	M. T. 4 or(ISO 30 or R8)
4	Spindle speed number	8 (V) 9 (H)	9
5	Spindle speed range 50 / 60HZ	230-1825 (276-2190) 60 - 1350 (72 -1620)	220-2400(720-2950) 60 -1350(72-1620)
6	Distance between spindle and surface of column	200 - 700 (8" - 27")	200 - 700 (8" - 27")
7	Distance between spindle and table	0 - 380 (0 - 14")	0 - 380 (0 - 14")
8	Distance between the axis of spindle and table	0 - 380 (0 - 14")	0 - 380 (0 - 14")
9	Spindle travel	120 - 5"	120 - 5"
10	Table size	800 *240(31" ×9")	800 *240(31" ×9")
		1000*240(39" ×9")	1000*240(39" ×9")
11	Table travel	400*230(15" ×8")	400*230(15" ×8")
		460*230(18" ×8")	460*230(18" ×8")
12	Overall size	128×1100×2090	128×1100×2090
	N . w .	970kg	970kg

We reserve the right to modify and improve our products.

Ⅳ THE SYSTEM OF TRANSMITION AND CHANGED SPEED

1.Transmition of power

a.Vertical Milling machine transmit power from double speed motor to spindle through a V—belt.（3PH）

b.Vertical Milling machine transmit power from motor to spindle through two V—belt.（1PH）

2.Vertical shaft： when changing speed，open the two side cover of up-per spindle box，loosen the tightened bolt of motor，move handle on the rightside to loosen the belt，change belt to the position needed，remove motor and make belt fitted，tighten the tightende bolt and then work.

Horizontal shaft： when changing speed，open the cover of the rear verti-cal—column，first loale the nut lie between vertical—column and the sur-port of motor，then loosen nut that make belt loosed or tightened，adjust belt to the position required finally tighten the nut.

3.H/V Drilling and milling machine power is transmitted from motor to spindle through V—belt and trichanged speed.

NOTICE：Stop motor before changing speed!

V THE LUBRICATION OF MACHINE AND ROLLING BEARING

1.Each rolling bearing to be lubricated with lubricating fat on time (prefer to chart—2).

2.Spindle, sleeve, column, table etc, should be lubricated at the right moment.

VI ELECTRIC SYSTEM

1.The electrical control system to be equipped in the left—side machine head.The control electrical system of horizontal spindle to be equipped under the right—front.Electrical circuit adopt the advanced international component to make up, which make the machinge easy to operate and safe.

VIITRANSPORT AND ATTENTION

1.While transporting machine, must be careful to carry and put down.

2.Before Use the machine, the power feed the spindle's running and the coolant's running must be the same direction as the label.Otherwise two phase of power cord must be exchanged. (power feed and coolant system is optional accessories.)

Ⅷ SIMPLE MALFUNCTION & OBVIATION

1.If the motor does not turn, please inspect it is right to connect wire or check electrical source.

2.If the radial run out of spindle is big with noise and heat, please inspect wether spindle is too loose.

3.When the machine wobble, pls check the motor mount and lever lock nut screw, machine head surport on the spindle, if loosing, pls adjust and lock.

4.It is difficult for the spindle to rise, fall or not replacing, pls inspect wether there is scrap iron and other.something in the connection between spindle sleeve and gear shaft and fatigue of spindle, If finding them, pls clean them and apply oil and adjust spring to fittest.

5.If the knee table slide carrige does not rise steadily with noise, the table is steady, pls confirm wether wedge ship loose or not, and clean scrap iron.add oil adjust wedge ship to fittest.

6.If there is noise in gear box, pls stop machine immediately to conform the position you require, then check that the oil meet standard.

7.prohibitted maintaining the machine with electric.

NOTICE

I :The spindle box that transmitted by the belt can be surivled at ± 45° .when operating, pls loose the retaining nut and pay attention these nutes need only 1 pitch, then swivle scew lever by socket headscew wrench (s21 — 24) to make the spindle box swivle to the place required (clockwise turn the nut, the spindle box will counter clockwise turn, or otherwise) , while turning, pay attention to the following item:

i:While the spindle box turn from horizontal position clined position to vertical position pls help push the upper of spindle box and gently twitter it.

ii:While the spindle box turn from vertical position to horizontal position or clined position, pls push the upper of spindle box with hand and twitter it gently.

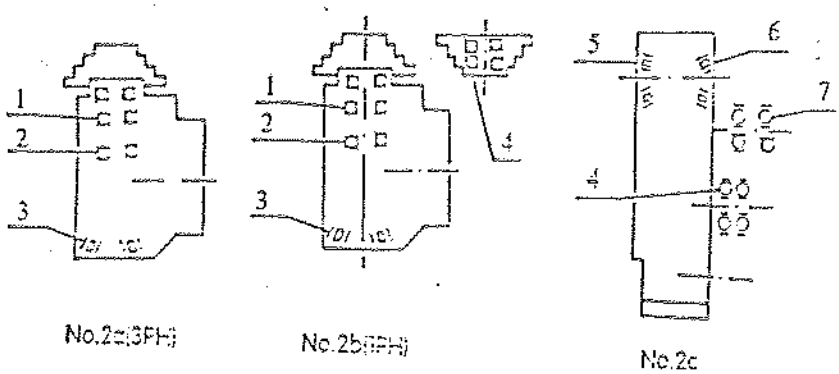
II :The rotary table (optional) can surivle at 45° when operate,first loose two screw of back way cover and remove the way cover.Then loose the four nut.turn the table to the direction you want.

III:Adjust the perpendicular between spindle and table gauge magnet-ize on end face of spindle.Tracing pin turn360° about dia Φ250—300mm on the surface of the table.This is perpendicular between spindle and table if measuring range is variable between 0 and 0.02mm.

ROLLING BEARING

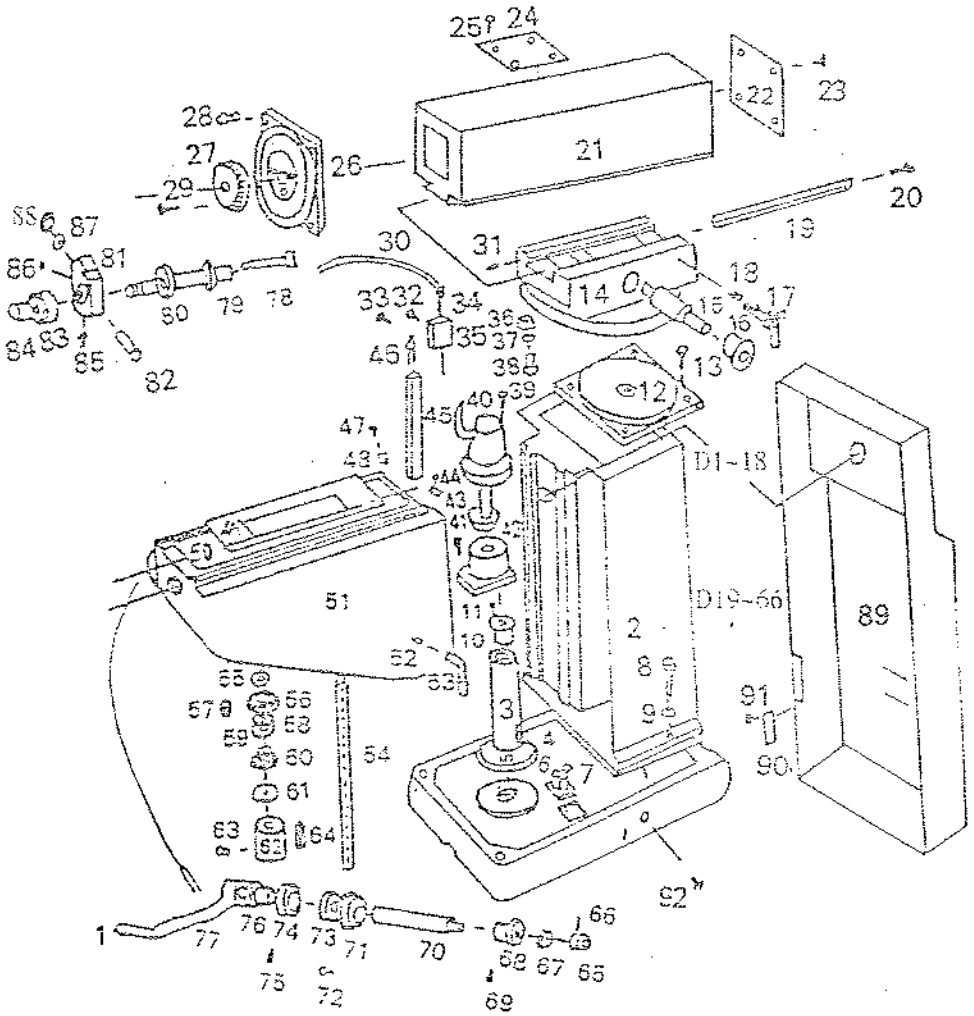
Item	Location points	Bearing	Modle	Quantity			
				Vertical Drill/Mill Machine		H/V Drill/Mill Machine	
				3PH	1PH	(3PH	1PH
1	Spindle & belt pulley	Single dustdefence radial ball bearing	60109/p6	2	2	2	2
2	Spindle sleeve	Single dustdefence radial ball bearing	60109/p6	1	1	1	1
3	Spindle sleeve	Single tapered roller bearing	2007110/p6	1	1	1	1
4	Middle wheel	Single dustdefence radial ball bearing	60103		2	2	4
5	Spindle	single tapered roller bearings	2007111/p6			1	1
6	Spindle	single tapered roller bearings	7308E/p6			1	1
7	wheel shaft	Single dustdefence radial ball bearing	60105			2	2

Rolling bearing position



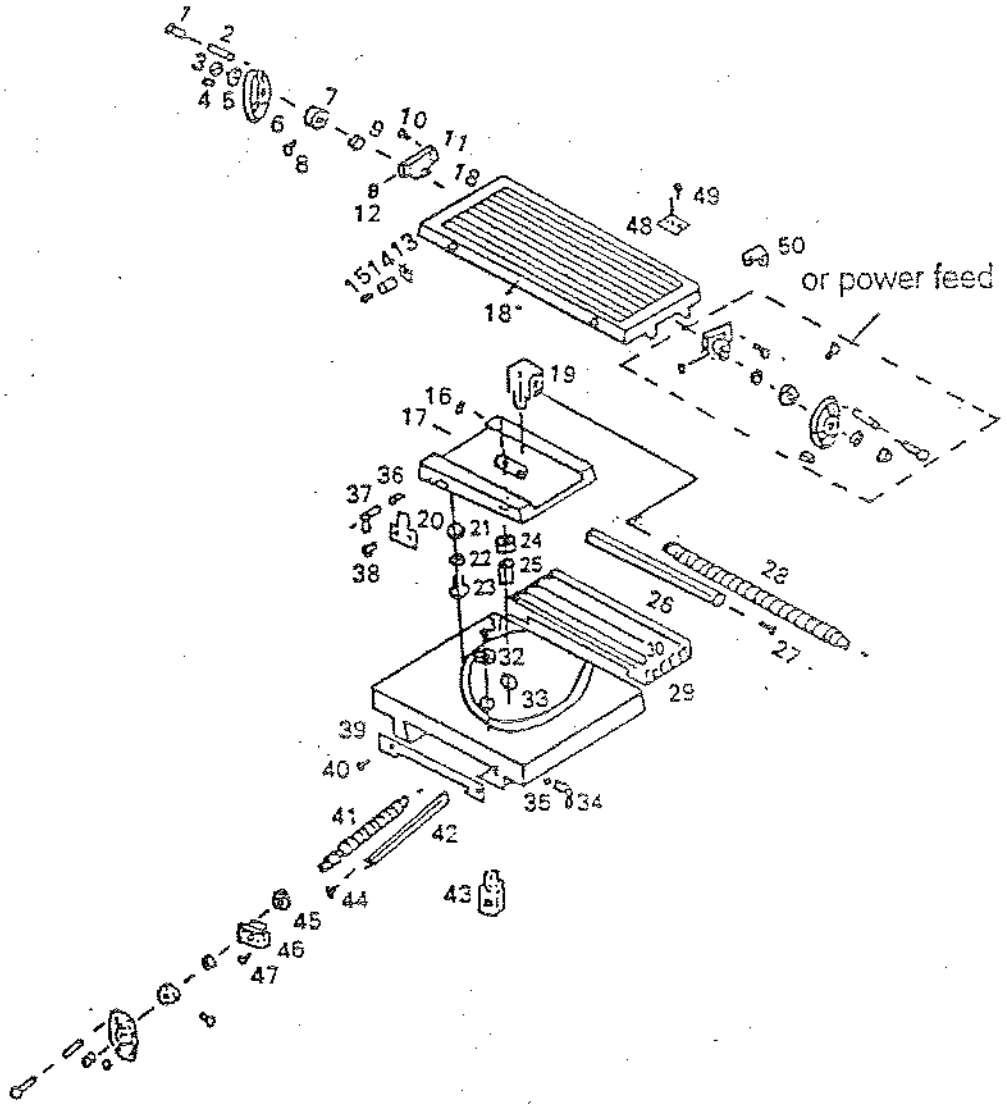
PARTS DIVISION AND PARTS LIST

A:COLUNM PART

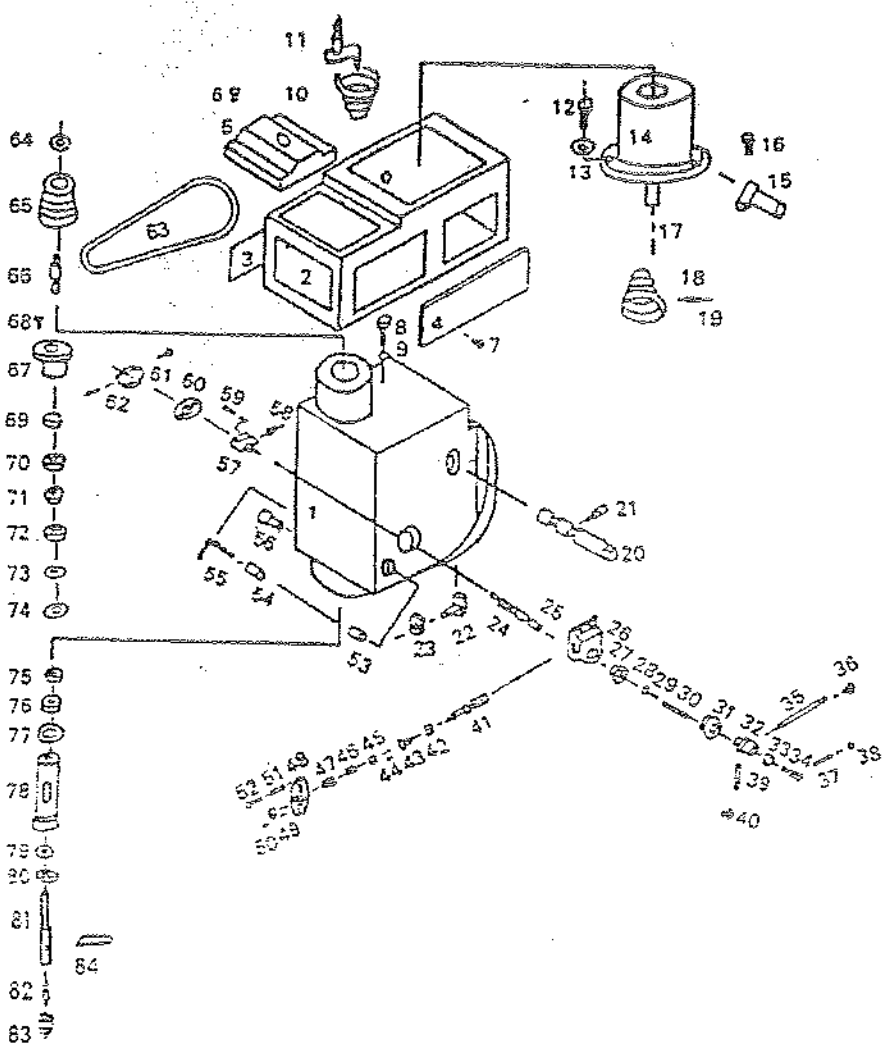


(optional accessory : cooling system)

B:Rotary table（optional）

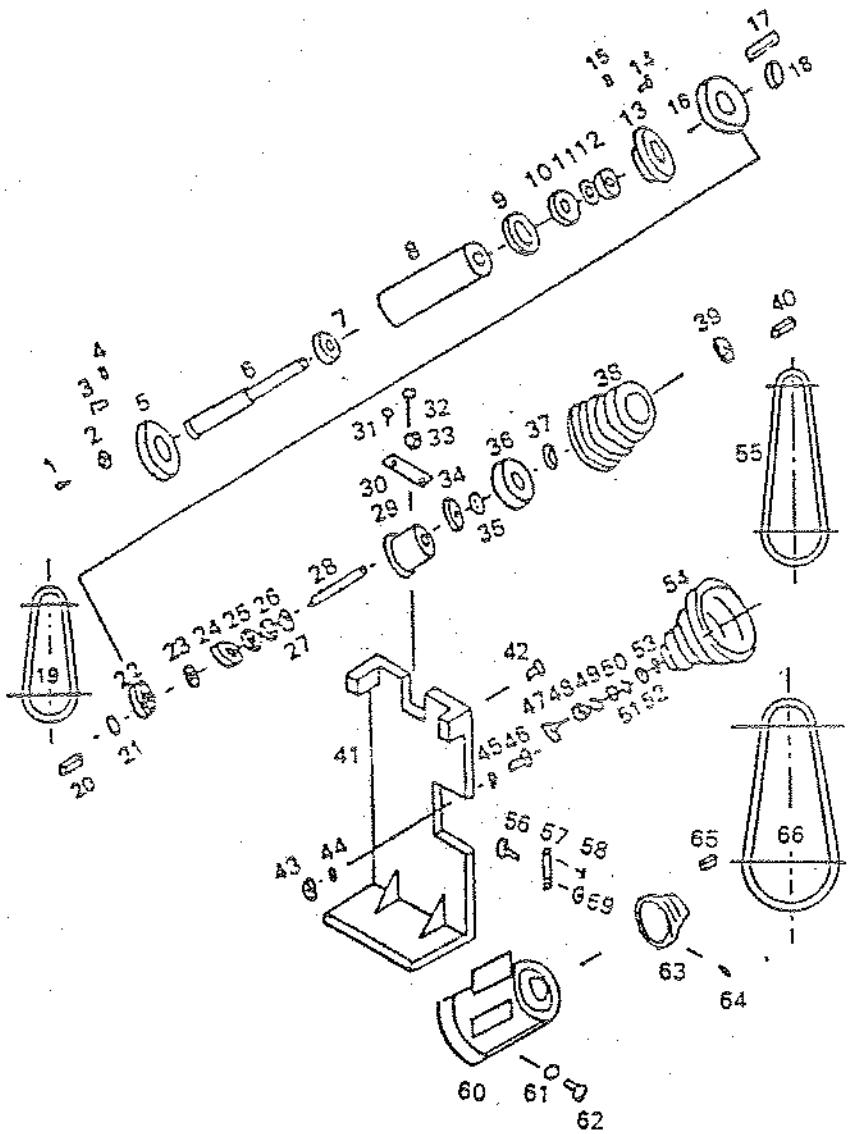


C:HEAD PART

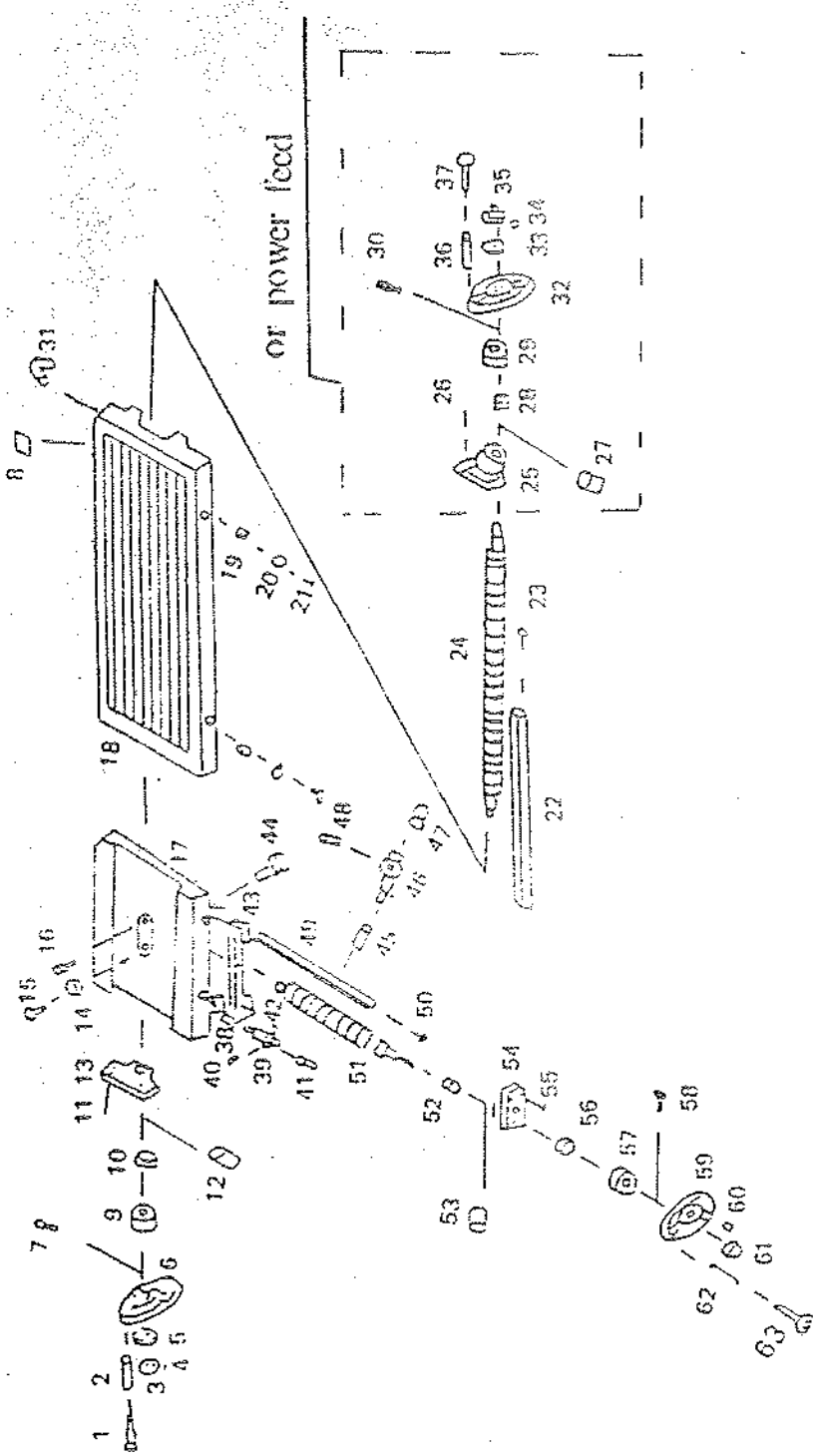


(Notice:Part 10 and 11 only for 1pH machine)

D:HORIZONTAL SPINDLE PART



E:Table



NUMBERP	NAME	QUASTITY
A1	BASE	1
2	COLUMN	1
3	ELEVATING SCREW HOUSING	1
4	SCREW	4
5	WASHER	4
6	CONNECT TUBE	1
7	SCREW	2
8	BOLT	6
9	WASHER	6
10	COLLAR	1
11	SCREW	4
12	HOLD SURRORT	1
13	SCREW	6
14	AROUND BRACKET	1
15	FEED SHAFT	1
16	COLLAR	1
17	CLAMP BOLT	2
18	CLAMP BLOCK	2
19	BEVEL IRON	1
20	SCREW	1
21	OVERARM	1
22	COVER	1
23	SCREW	4
24	COVER	1
25	SCREW	4
26	HOLD BRACDET	1
27	GEAR	1
28	SCREW	4
29	BOLT	2
30	NOZZLE	1
31	OIL CUP	2

NUMBERP	NAME	QUASTITY
32	SCREW	2
33	BOLT	1
34	CONNECT TUBE	1
35	HOLD BRACKET	1
36	NUT	4
37	WASHER	4
38	T BOLT	4
39	BOLT	4
40	ELECTRIC PUMP	1
41	BOLT	4
42	SUPPORT	1
43	DUST COVER	1
44	SCREW	2
45	BEVEL IRON	1
46	ADJUST SCREW	1
47	SCREW	2
48	WIPER PLATE	1
49	WIPER PLATE	1
50	WIPER PLATE	2
51	KNEE	1
52	CLAMP BLOCK	2
53	CLAMP BOLT	2
54	HOIST DESCEND LEAD SCREW	1
55	CIRCULAR NUT	2
56	CONICAL GEAR	1
57	KEY	1
58	BALL BEARING	1
59	ADJUST WASHER	1
60	COLLAR	1
61	BALL BEARING	1
62	NUT	1

NUMBERP	NAME	QUASTITY
63	SCREW	1
64	KEY	1
65	CONECAL GEAR	1
66	PIN	1
67	WASHER	1
68	COLLAR	1
69	SCREW	1
70	SHAFT	1
71	COLLAR	1
72	SCREW	4
73	BALL BEARINGP	1
74	SCALE RING	1
75	SCREW	1
76	COLLAR	1
77	HANDLE	1
78	LIFT BAR	1
79	TOOLHOLDER	2
80	CUTTER BAR COLLAR	10
81	SUPPORT	1
82	BOLT	1
83	COLLAR	1
84	NUT	1
85	SCREW	1
86	OIL CUP	1
87	WASHER	1
88	NUT	1
89	BEHIND COVER	1
90	HINGE	2
91	SCREW	16
92	SCREW	1

NUMBERP	NAME	QUTY
B1	HANDLE	3
2	HANDLE COLLAR	3
3	NUT	3
4	KEY	3
5	WASHER	3
6	HAND WHEEL	3
7	SCALE RING	3
8	SCREW	3
9	BEARING	3
10	SCREW	10
11	SUPPORT	2
12	OIL CUP	3
13	SCREW BRACKET	2
14	DOG	2
15	SCREW	2
16	OIL CUP	2
17	ROTARY BRACKET	1
18	TABLE	1
19	NUT	1
20	LIMIT ASSEMBLY	1
21	NUT	1
22	WASHER	4
23	T-BOLT	4
24	SHAFT MOUNT	1
25	SHAFT	1
26	LONG BEVEL IRON	1
27	ADJUST SCREW	1
28	LONGITUD INALLEAD SCREW	1
29	WAY COVER	

NUMBERP	NAME	QUTY
30	SCREW	2
31	SCREW	1
32	WASHER	1
33	SADDLE	1
34	SCREW	2
35	CLAMP BLOCK	2
36	CLAMP BLOCK	2
37	SCREW	2
38	SCREW	2
39	WIPER PLATE	1
40	SCREW	1
41	CROSSWISE LEAD SCREW	1
42	SHORT BEVEL IRON	1
43	NUT	1
44	ADJUST SCREW	1
45	BEARING	2
46	SUPPOT	1
47	SCREW	4
48	OIL COVER	1
49	SCREW	2
50	CONNECT TUBE	1

NUMBERP	NAME	QUASTITY
C1	SPINDLE BOX	1
2	MOTOR BASE	1
3	LEFT COVER	1
4	RIGHT COVER	1
5	PULLEY COVER	1
6	SCREW	4
7	SCREW	4
8	BOLT	6
9	WASHER	6
10	Center pulley	1(1PH)
11	Center pulley shaft	1(1PH)
12	BOLT	2
13	WASHER	1
14	MOTOR	1
15	HANDLE	1
16	BOLT	2
17	KEY	1
18	MOTOR PULLEY	1
19	HEADLESS SEAT SCREW	1
20	WORM GEAR	1
21	PIN	1
22	T BOLT	3
23	NUT	1
24	FEED SHAFT	1
25	KEY	1
26	WORM BOX	1
27	SCREW	3
28	BEVEL GEAR	1
29	RETAINING RING	1
30	SPRING	1
31	SCALE RING	1

NUMBERP	NAME	QUASTITY
32	HANDLE BRACKET	1
33	COVER	1
34	BOLT	1
35	HANDLE BAR	3
36	KNOB	3
37	HANDLE	1
38	HANDLE COLLAR	1
39	SCALE	1
40	RIVET	2
41	WORM GEAR	1
42	BALL BEARING	1
43	SMALL COVER	1
44	SCREW	3
45	BALL BEARING	1
46	COLLAR	1
47	SCALE RING	1
48	HANDLE WHEEL	1
49	HANDLE COLLAR	1
50	HANDLE	1
51	NUT	1
52	KEY	1
53	CLAMP BLOCK	1
54	CLAMP BLOCK	1
55	CLAMP HANDLE	1
56	SCREW	1
57	SPRING SEAT	1
58	SCREW	1
59	SCREW	1
60	SPRING PLATE	1
61	SPRING CAR	1
62	SCREW	2

NUMBERP	NAME	QUASTITY
63	V BELT	1
64	NUT	1
65	SPINDLE PULLEY	1
66	SPRING SLEEVE	1
67	COLLAR	1
68	SCREW	3
69	RETAINING RING	3
70	BALL BEARING	1
71	COLLAR	1
72	BALL BEARING	1
73	RETAINING RING	1
74	RETAINING RING	1
75	PULLEY NUT	1
76	WASHER	1
77	BALL BEARING	1
78	SLEEVE	1
79	BALL BEARING	1
80	DUST COVER	1
81	SPINDLE	1
82	SPINDLE BAR	1
83	DRILL CHUCK	1
84	WEDGE SHIFTER	1

NUMBERP	NAME	QUASTITY
D1	SCREW	4
2	KEY	2
3	SCREW	4
4	OIL CUP	1
5	COVER	1
6	SPINDLE	1
7	BALL BEARING	1
8	COLLAR	1
9	BALL BEARING	1
10	WASHER	1
11	WASHER	1
12	NUT	1
13	COVER	1
14	SCREW	4
15	OIL CUP	1
16	SPINDLE PULLEY	2
17	KEY	1
18	RETAINING RING	1
19	V BELT	2
20	KEY	1
21	RETAINING RING	1
22	WHEEL	1
23	BALL BEARING	1
24	BALL BEARING	1
25	BALL BEARING	1
26	COLLAR	1
27	BALL BEARING	1
28	SMALL SHAFT	1
29	COLLAR	1
30	SUPPORT	1
31	SCREW	2

NUMBERP	NAME	QUASTITY
32	BOLT	1
33	NUT	1
34	RETAINING RING	1
35	RETAINING RING	1
36	NUT	2
37	RETAINING RING	1
38	PULLEY	1
39	RETAINING RING	1
40	KEY	1
41	MOTOR BASE	1
42	SCREW	6
43	NUT	1
44	WASHER	1
45	WASHER	1
46	SMALL SHAFT	1
47	CONNECT	1
48	REAINING RING	1
49	BALL BEARING	1
50	COLLAR	1
51	BALL BEARING	1
52	RETAINING RING	1
53	RETAINING RING	1
54	PULLEY	1
55	V—BELT	1
56	ADJUST SCREW	1
57	SUPPORT	1
58	SCREW	1
59	NUT	1
60	MOTOR	1
61	WASHER	4
62	BOLT	4

NUMBERP	NAME	QUASTRTY
63	MOTOR	1
64	SCREW	1
65	KEY	1
66	V—BELT	1

NUMBERP	NAME	QUTY
E1	HANDLE	1
2	HANDLE COLLAR	1
3	NUT	1
4	KEY	1
5	WASHER	1
6	HAND WHEEL	1
7	SCREW	1
8	OIL COVER	1
9	SCALE RING	1
10	BALL BEARING	1
11	SCREW	1
12	OIL CUP	1
13	SUPPORT	1
14	WASHER	1
15	SCREW	1
16	NUT	1
17	SADDLE	1
18	TABLE	1
19	SCREW BRACKET	2
20	DOG	2
21	SCREW	2
22	LONG BEVEL IRON	1
23	ADJUST SCREW	1
24	BALL SCREW	1
25	SUPPORT	1
26	SCREW	4
27	OIL CUP	1
28	BALL BEARING	1
29	SCALE RING	1

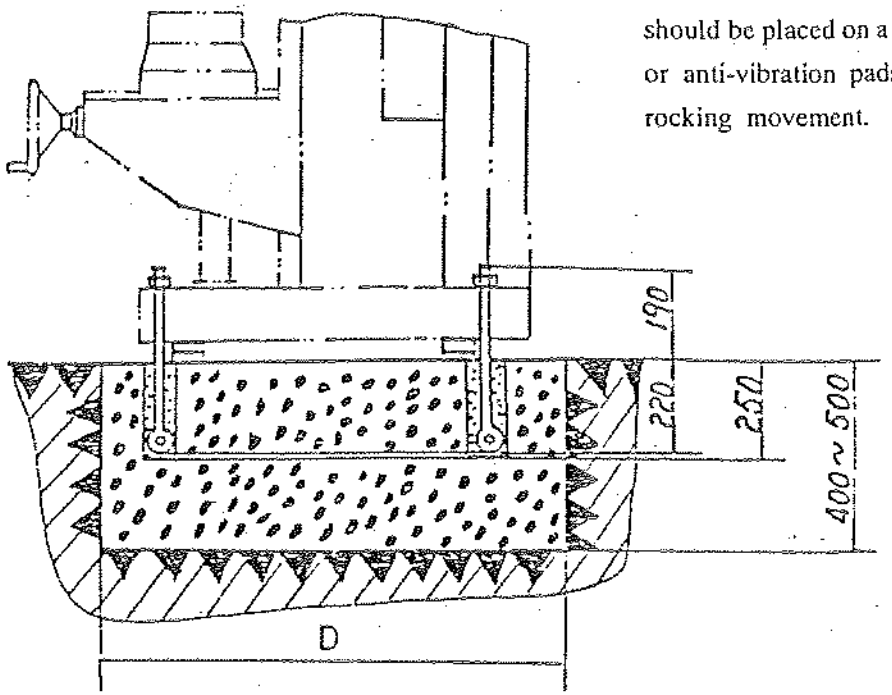
NUMBERP	NAME	QUTY
30	SCREW	1
31	CONNECT TUBE	1
32	HAND WHEEL	1
33	WASHER	1
34	KEY	1
35	NUT	1
36	HADLE COLLAR	1
37	HANDLE	2
38	CLAMP BLOCK	2
39	PIN	2
40	SCREW	2
41	HAND BOARD	2
42	SCREW	3
43	WIPER PLATE	2
44	NUT	1
45	CLAMP BLOCK	2
46	SCREW	2
47	HANDBOARD	2
48	PIN	2
49	BEVEL IRON	1
50	ADJUST SCREW	1
51	BALL SCREW	1
52	BALL BEARING	1
53	OIL CUP	1
54	SUPPORT	1
55	SCREW	1
56	BALL BEARING	1
57	SCALE RING	1
58	SCREW	1

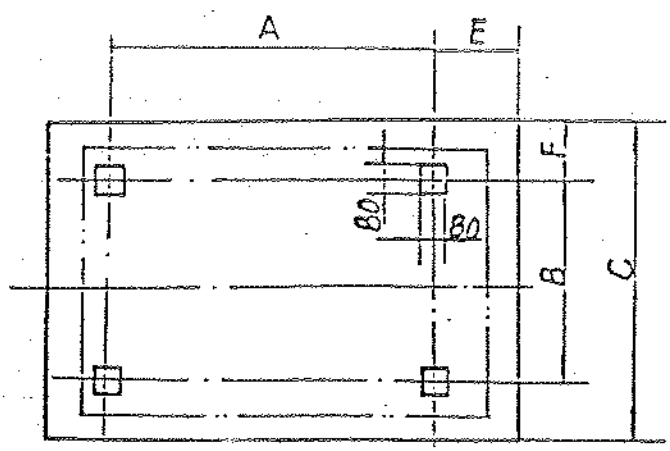
NUMBERP	NAME	QUTY
59	HANDLE WHEEL	1
60	KEY	1
61	NUT	1
62	HANDLE COLLAR	1
63	HANDLE BAR	1

nstaHation

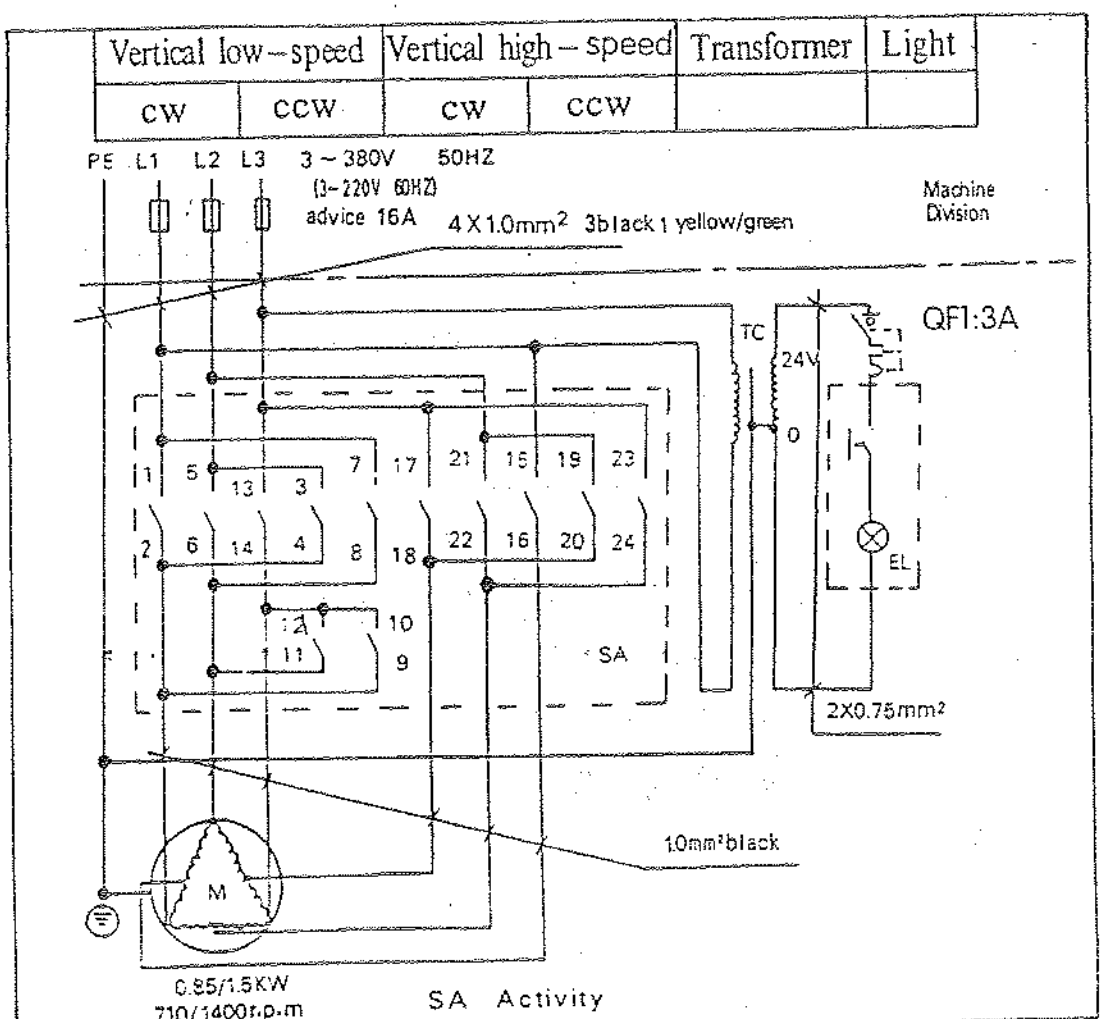
FOUNDATION PLAN

Ideally this machine shoule be bolted to a concrete foundation,The machine should be placed on a solid level floor. or anti-vibration pads to prevent any rocking movement.





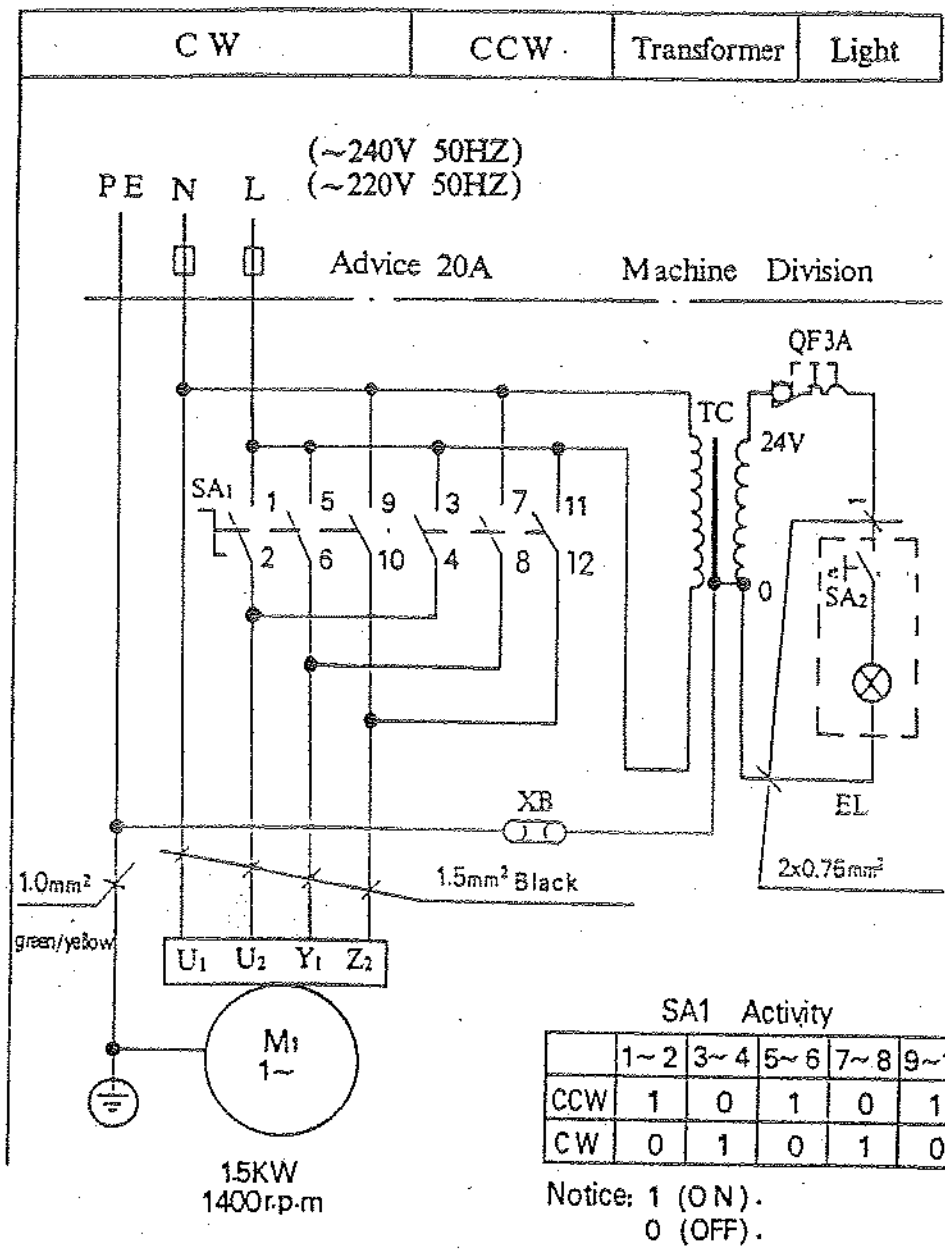
MODEL	A	B	C	D	E	F
Vertical drill/mill machine	678	445	745	1110	220	150
H/V Drill/mill Machine	845	466	760	1285	220	150



	1~2	3~4	5~6	7~8	9~10	11~12	13~14	15~16	17~18	19~20	21~22	23~24
135°					X	X		X	X		X	
45°	X		X				X					
0°												
45°		X		X			X					
135°					X	X		X		X		X

Used

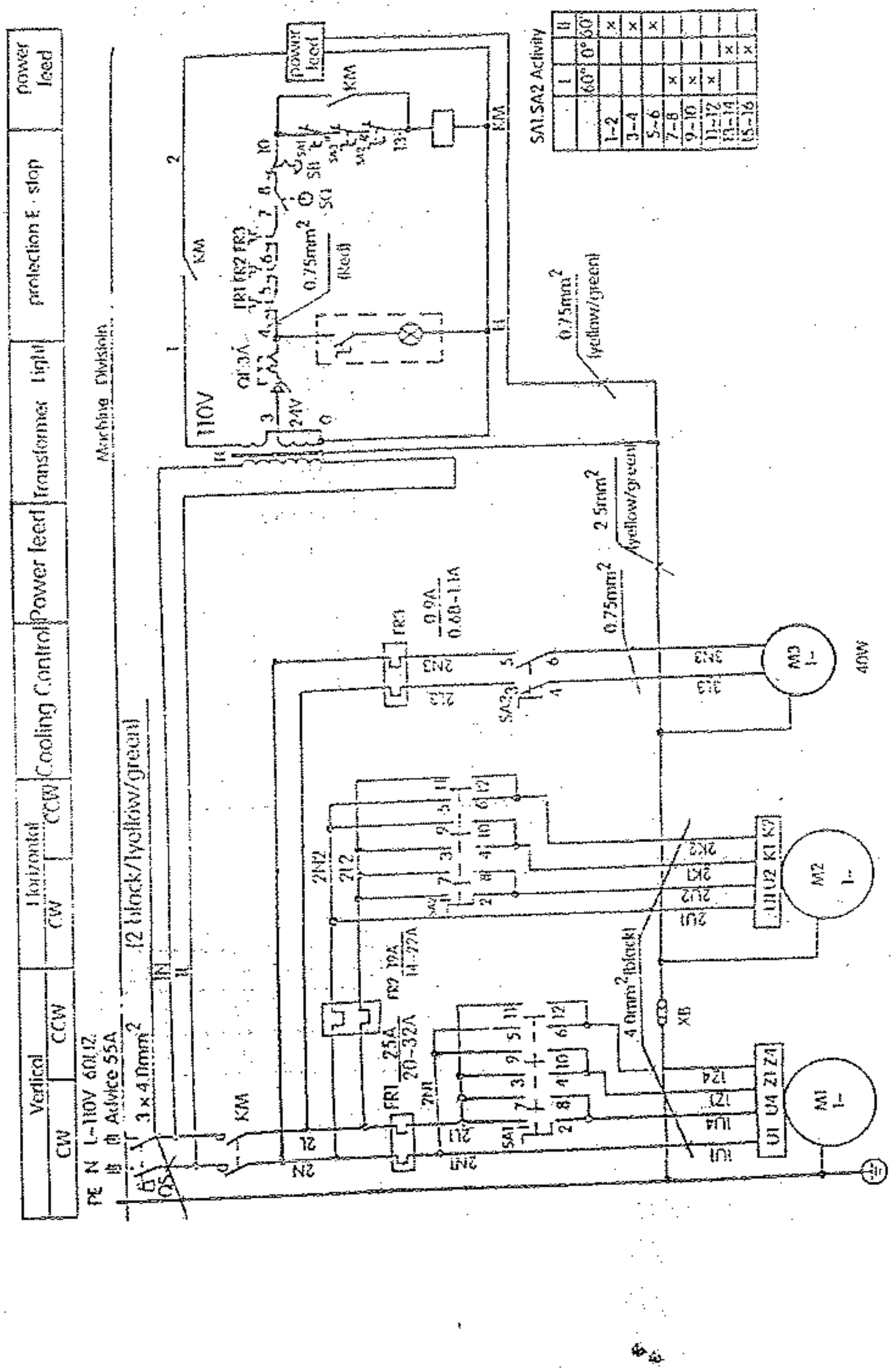
When power volatage of 220V 60HZ, the motor's Volatage, transformer's input and Ac contactor will be changed into 220V 60HZ, the others unchanged.



SA1 Activity

	1~2	3~4	5~6	7~8	9~10
CCW	1	0	1	0	1
CW	0	1	0	1	0

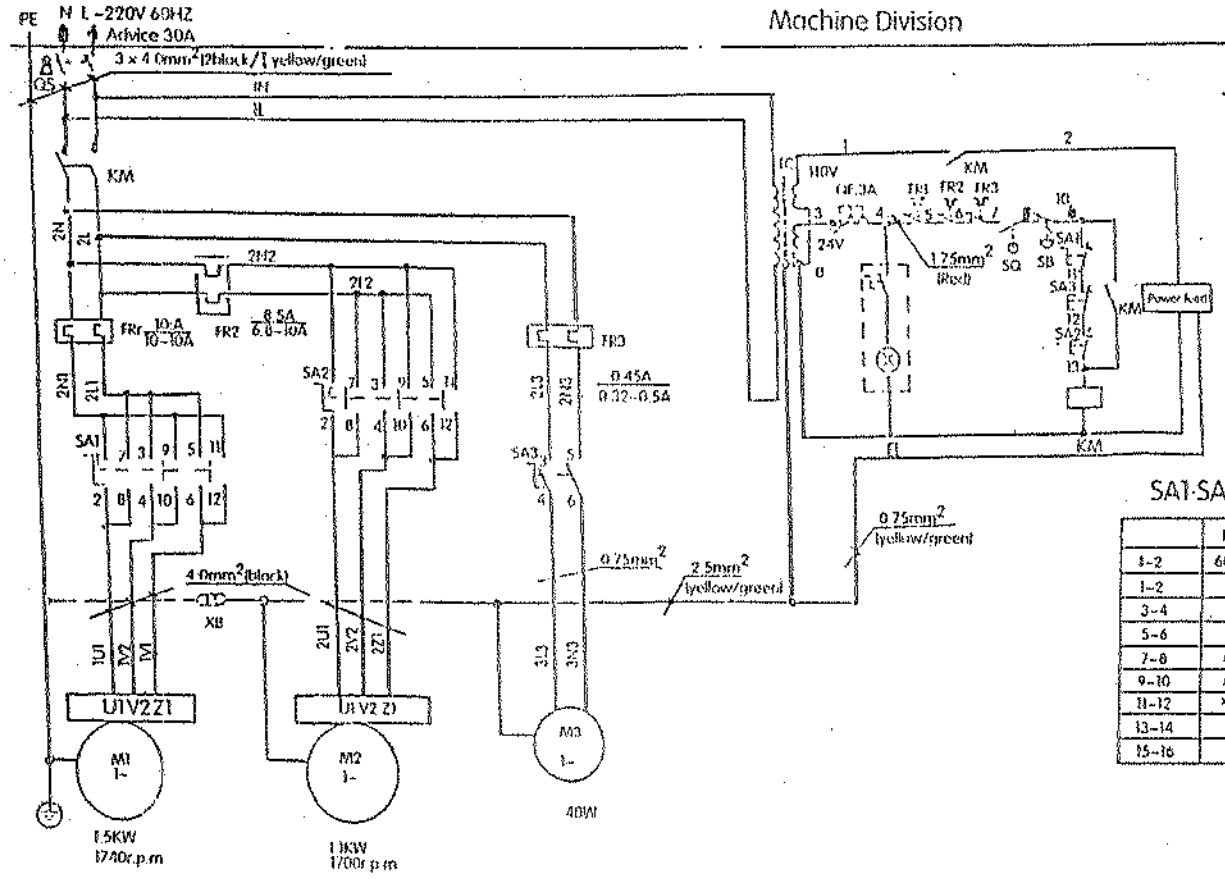
Notice: 1 (ON).
0 (OFF).


Vertical
CW
CCW
Horizontal
CW
CCW
Cooling Control
Power feed
Transformer
Light
protection E. stop
power feed
Machine Division
110V
24V
0.75mm²
2.5mm²
4.0mm²
(yellow/green)
SA1,SA2 Activity
M1
1.5KW
1740r.p.m
M2
1.1KW
1700r.p.m
M3
40W

COMPONENTS LIST

Item	Code	Name	Modotor speification	Quty	Note
1	M1	Single - phase motor<vertical>	Yc100L2 - 4 1ph 110v/220v 60hz 2hz	1	
2	M2	single - phase motor<Horizontal>	Yc90L - 4 1ph 110v . 220v 60hz 1.5Hp 1700r . p . m B3	1	
3	M3	Coolant pump	YDB - 12TH 40w 1ph 110v/220v 60hz 12L/min 3m	1	
4	A1	power feed	As - 235 (Ac:110v)	1	
5	KM	Ac contactor	CJX1- 32/22 (Ac: 24v 60hz)	1	
6	QS	Main Switch	Hz12 - 40 / 15	1	
7	FR1	Thermo Relay	JR16 - 20 / 3D 1e : 10 A Currcnt - range : 10~16A	1	
8	FR2	Thermo Relay	JR16 - 20 / 3D 1E :8.0 A Currcnt - range : 6.8 ~11A	1	
9	ER3	Thermo Relay	JR16 - 20 / 3D 1e :0.45 A Currcnt - range :0.32 ~0.5A	1	
10	SA1	Combination switch <for verical mill Control>	Hz5c - 25 / M4d035	1	
11	SA2	Combination switch <for horizontal Control>	Hz5c - 25 / M4d035	1	
12	AS3	Combination switch <for coolant Control>	Hz5c - 10 / M2Coo5	1	
13	SB	E • stop hutton	LAY3 - 02zs / 1 2NC	1	
14	SQ	Micro - switch	Lxw6 - 11DL 1e : 3A	1	
15	QF	Circuit breaker	DZ 47 - 63 (1p3A)	1	
16	TC	Transformer	JBK4 - 200 1:0 - 110v 0:0 - 110v 120VA 0 - 220V 0 - 24V 80VA	1	
17	EL	Halogen Lamp	JC - 38 (50w AC : 24V)		

Vertical		Horizontal		Cooling Control	Power feed	Light	protection E stop	power feed
cw	ccw	cw	ccw					



SA1·SA2 Activity

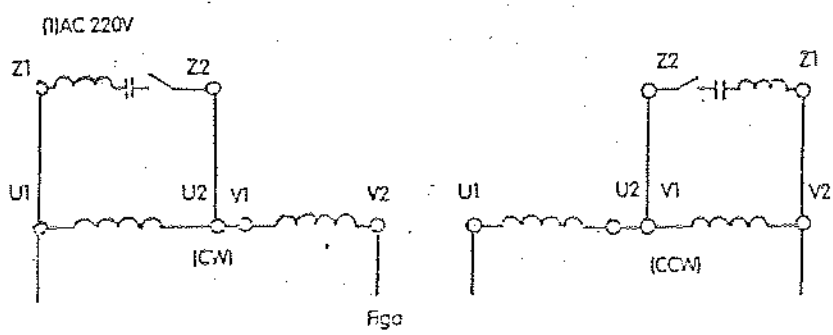
	I		II
1–2	60°	0°	60°
1–2			×
3–4			×
5–6			×
7–8	×		
9–10	×		
11–12	×		
13–14		×	
15–16		×	

Notion for power input is 110V/60Hz/1PH:

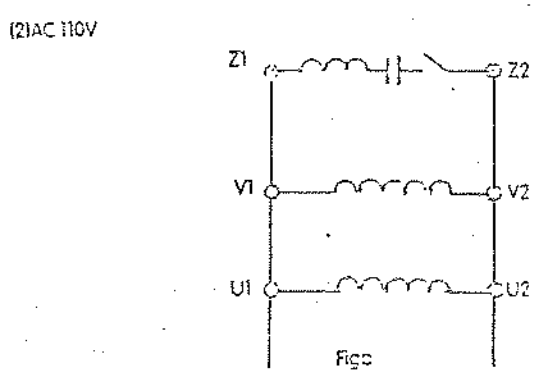
(I)The machine's circle schemes should be follow Fig2 instead of Fig .

(II)The motor's wiring should be follow Figb .

1 The motor's wiring schemes : (type YC100L2 - 4 1 . 5KW)



Figa



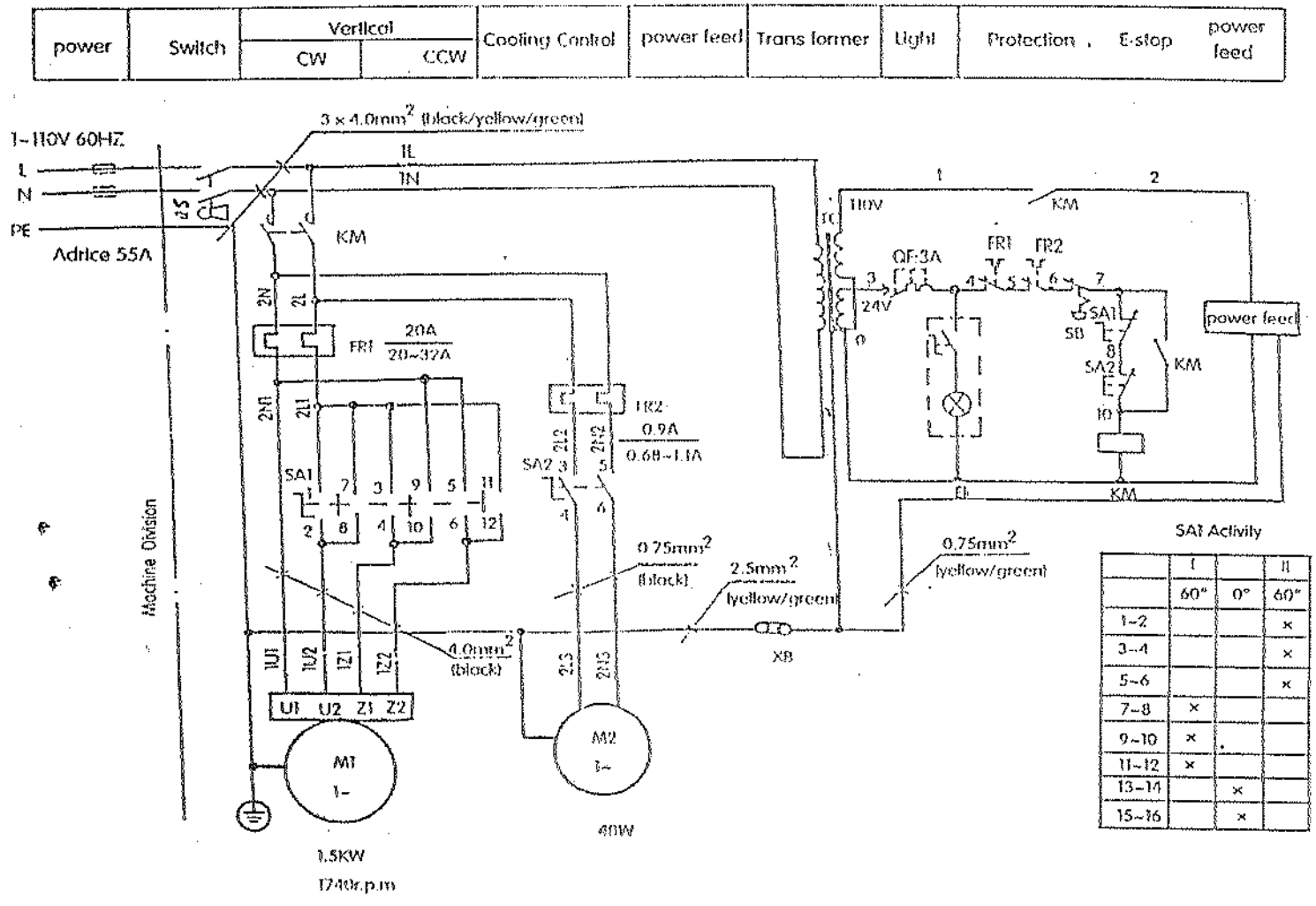
Figa

(exchange zl and z2 then the motor's running direction will be changed)

Notion for power input changes:

1: remove three 4. 0mm power wire that connecting the machine and the motor, then connect the four 4 . 0mm wires as per Figb and Fig2.

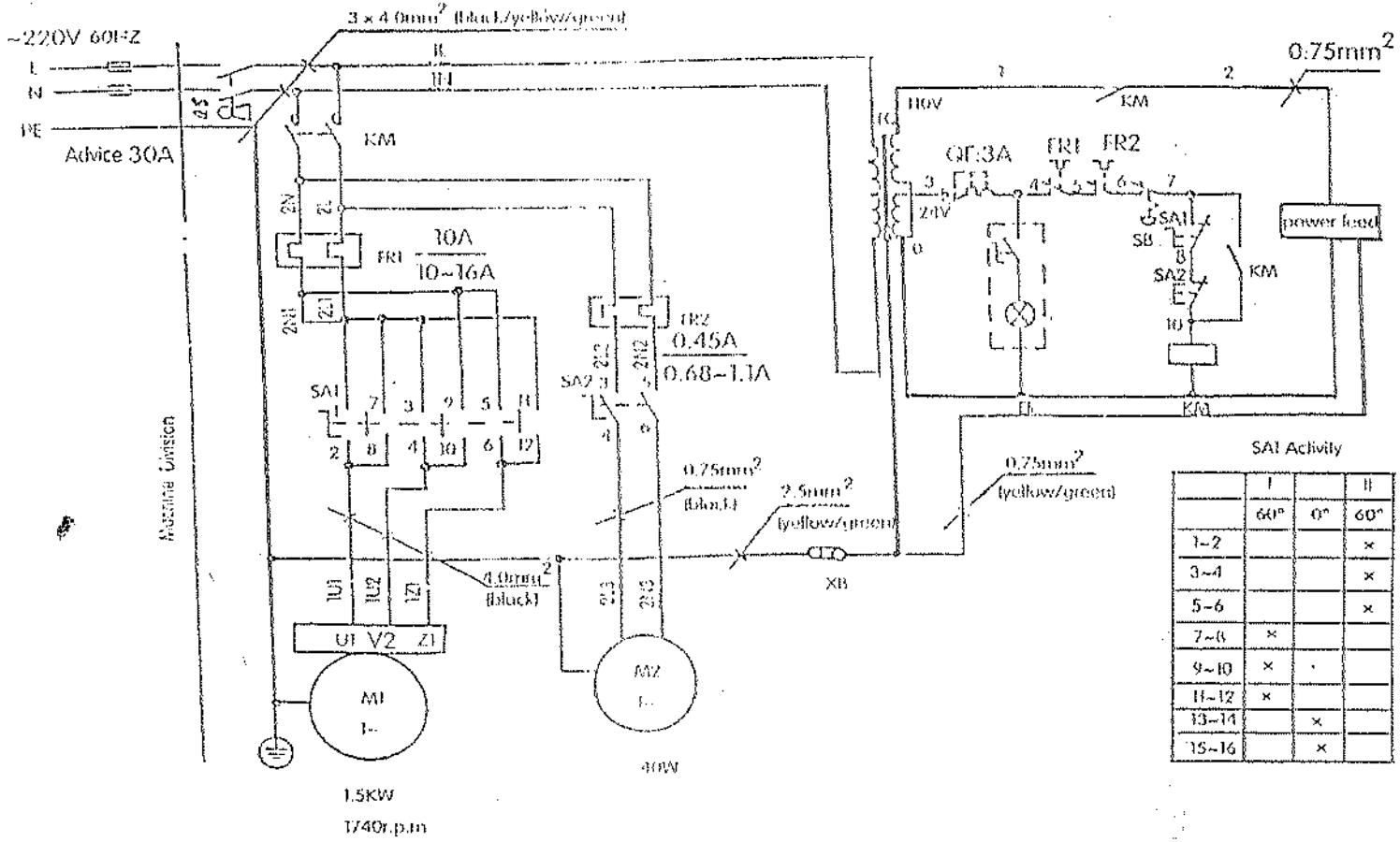
(III)Meanwhile change the transformer's input from "220" to "110" ,the thermo relay should be changed. others remain un-changed.


power
Switch
Vertical
CW
CCW
Cooling Control
power feed
Trans former
Light
Protection , E-stop
power feed
1~110V 60HZ
L
N
PE
Adrice 55A
3×4.0mm² (black/yellow/green)
1L
1N
KM
2N
2L
FR1 20A 20~32A
2N1
2L1
FR2 0.9A 0.68~1.1A
SA1
SA2
1U1
1U2
1Z1
1Z2
2U2
2N2
2U3
2N3
U1 U2 Z1 Z2
M1
1~
1.5KW
1740r.p.m
M2
1~
40W
0.75mm²
(black)
2.5mm²
(yellow/green)
4.0mm²
(black)
XB
0.75mm²
(yellow/green)
110V
KM
QF:3A
FR1
FR2
24V
SA1
SB
SA2
power feed
SA1 Activity
I
II
60°
0°
60°
1~2
3~4
5~6
7~8
9~10
11~12
13~14
15~16

COMPONENTS LIST

Item	Code	Name	Modotor speification ..	Quty	Note
1	M1	Single - phase motor <vertical>	Yc 100L2 - 4 1ph 110v / 220v 60hz 2hp 1740r . p . m V_i	1	
2	M2	Coolant pump	YDB - 12TH 40w 1ph 110v / 220v 60hz 12L / min 3m	1	
3	A1	Power feed	AS - 235 (AC :110V)	1	
4	km	Ac contactor	CJx1 - 32 / 22 (Ac : 24v 60HZ)	1	
5	QS	Main Switch	Hz12 - 40 / 15	1	
6	FR1	Thermo Relay	JR16 - 20 / 3D 1e :1 . 0... A Current - range : 6 .8 ~ 11A	1	
7	FR2	Thermo Relay	JR16 - 20 / 3D 1e :1 . 0.45 A Current - range : 0.32 ~ 0.5A	1	
8	SA1	Combination switch <for vertical mill Control>	Hz5c - 25 / M4D035	1	
9	SA2	Combination switch <for coolant Control>	Hz5c - 10 / M2Coo5	1	
10	SB	E • stop button	LAY3 - 02zs / 1 2NC	1	
11	QF	Circuit bracker	Dz47 - 63 (1p 3A)	1	
12	TC	Transformer	JBK4 - 200 1:0 - 110V 0:0 - 110V 120VA 0 - 220V 0 - 24V 80VA	1	
13	EL	Halogen lamp	JC - 38 (50w AC : 24V)	1	

power	Switch	Vertical		Cooling Control	power feed	Trans former	Light	Protection	E-stop	power feed
		CW	CCW							



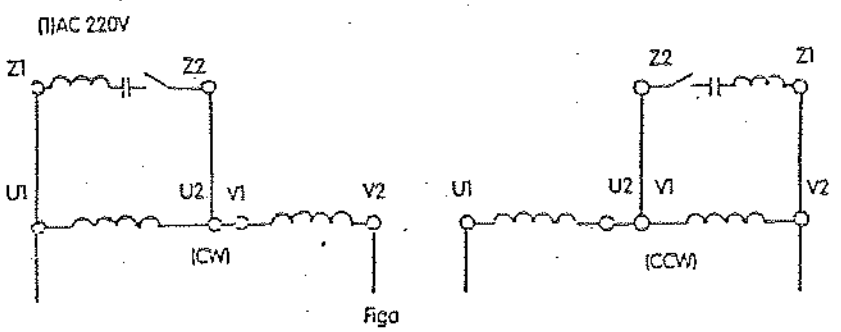
	I		II
	60°	0°	60°
1-2			×
3-4			×
5-6			×
7-8	×		
9-10	×		
11-12	×		
13-14		×	
15-16		×	

Notion for power input is 110V/60Hz/1PH:

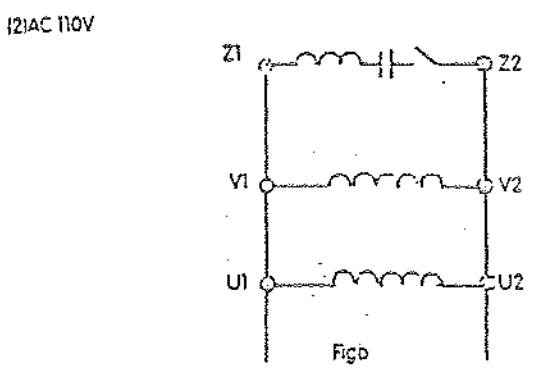
(I)The machine 's circle schemes should be follow Fig2 instead of Fig .

(II)The motor's wiring should be follow Figb .

1 The motor's wiring schemes : (type YC100L2 - 4 1 . 5KW)



Figa



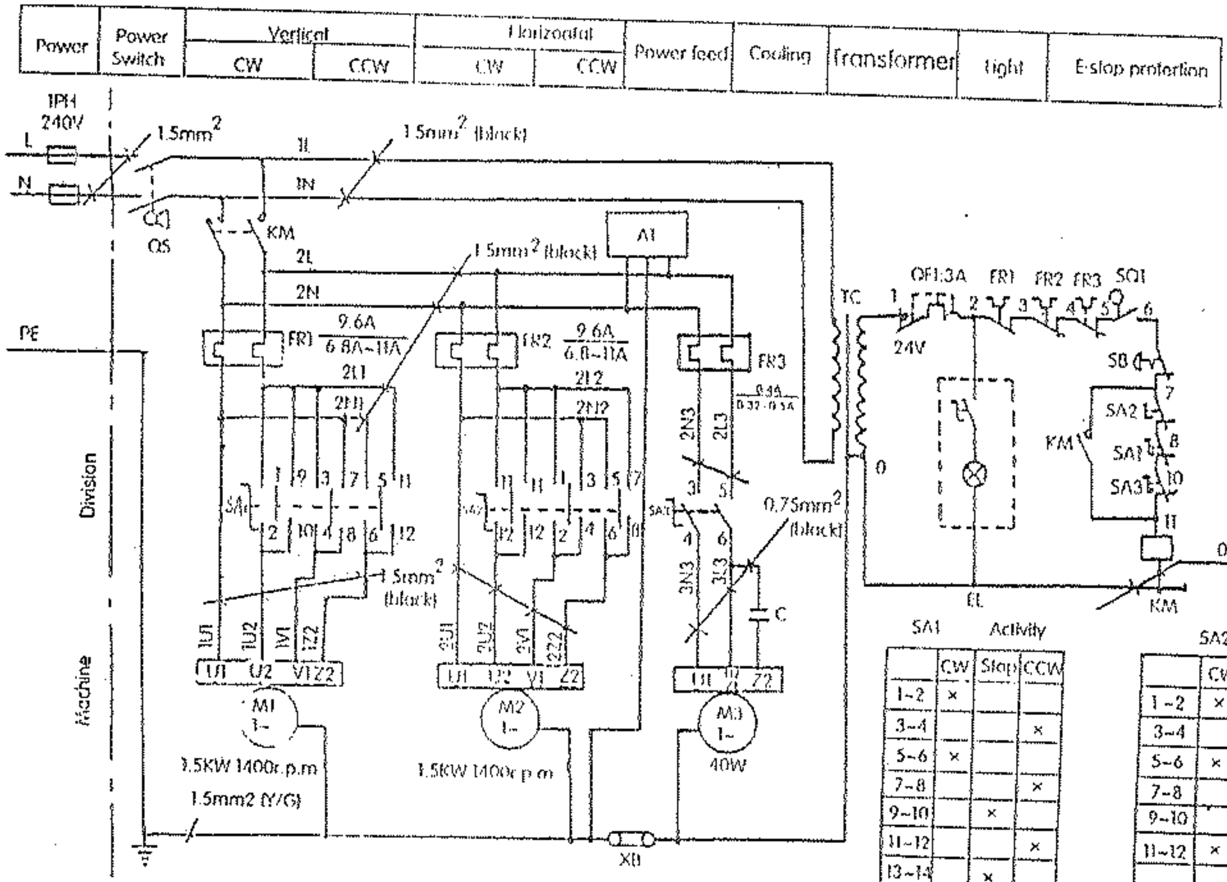
Figb

(exchange zl and z2 then the motor 's running direction will be changed)

Notion for power input changes:

1: remove three .4. 0mm power wire that connecting the machine and the motor, then connect the four 4 . 0mm wires as per Figb and Fig2.

(III)Meanwhile change the transformer 's input from "220" to " 110" ,the thermo relay should be changed. others remain un-changed.

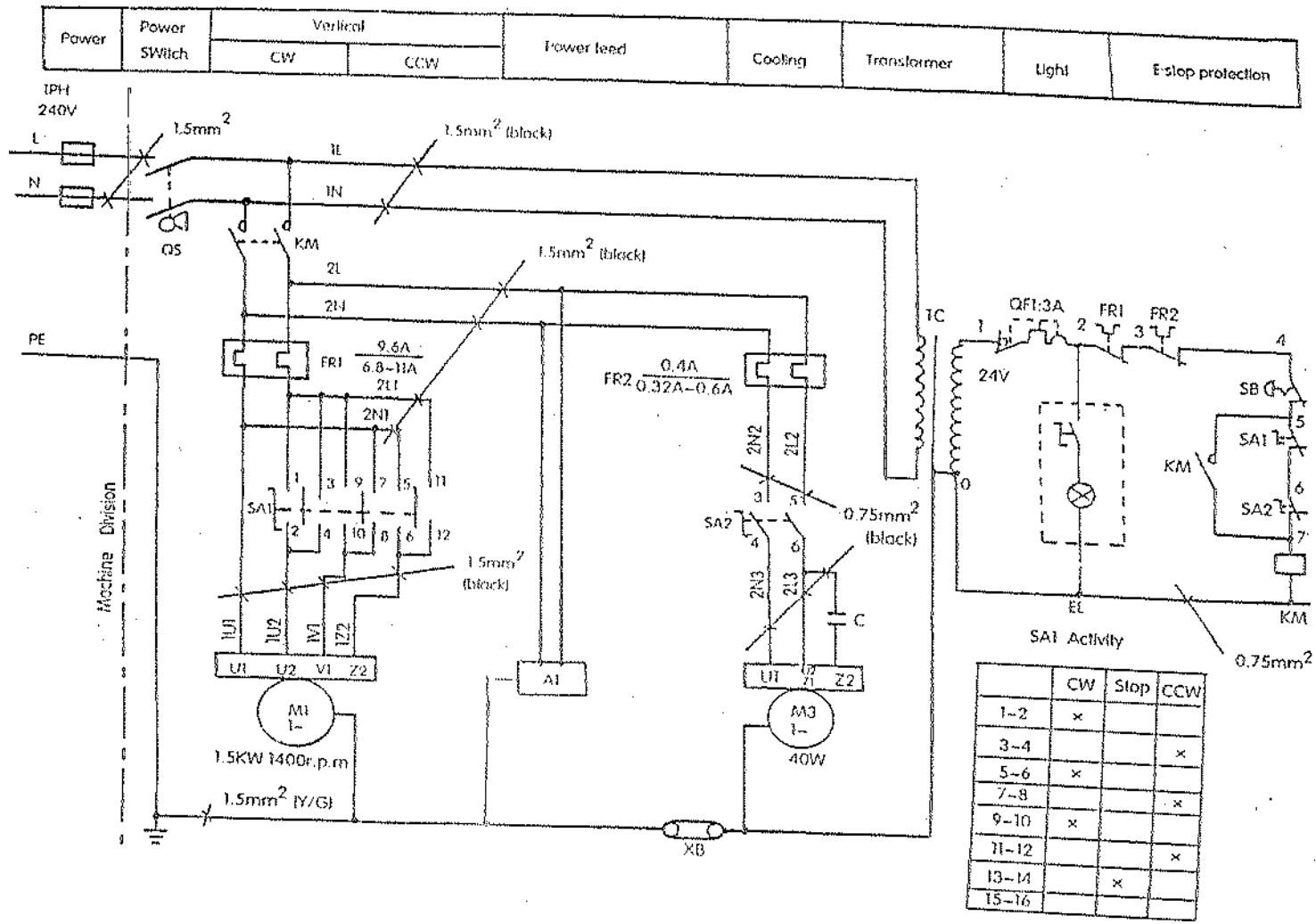


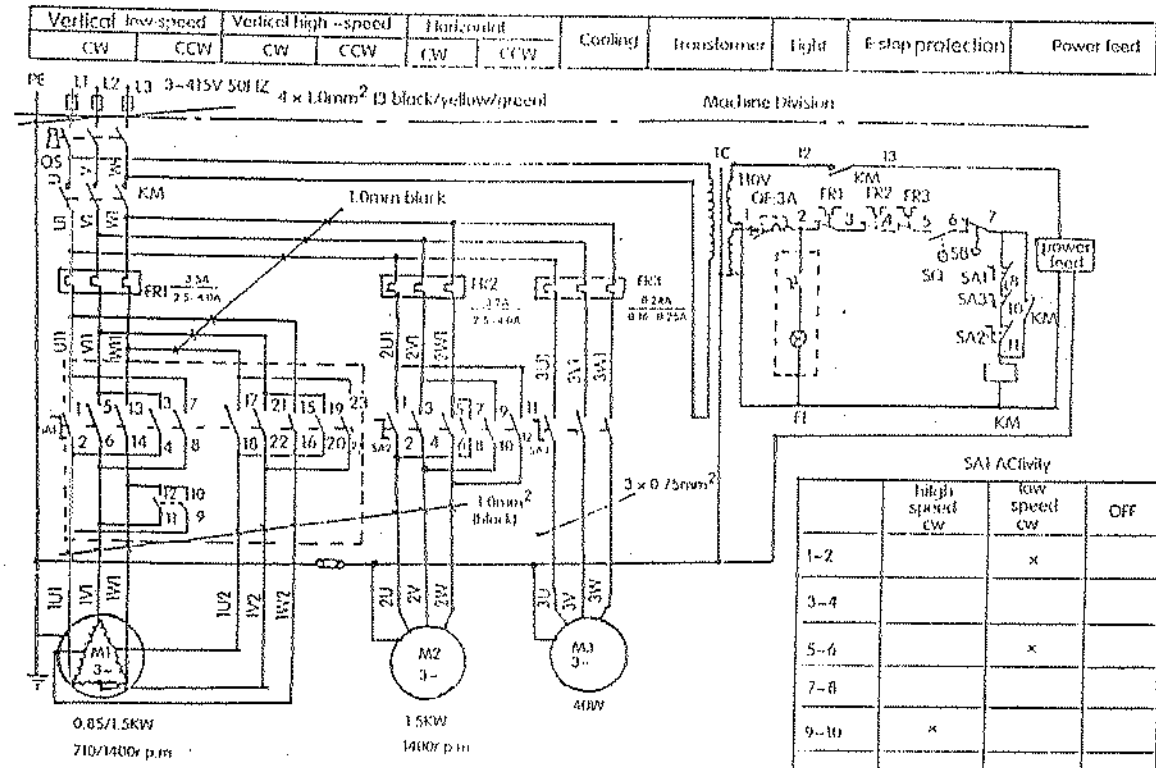
SA1 Activity

	CW	Stop	CCW
1~2	×		
3~4			×
5~6	×		
7~8			×
9~10		×	
11~12			×
13~14		×	
15~16			

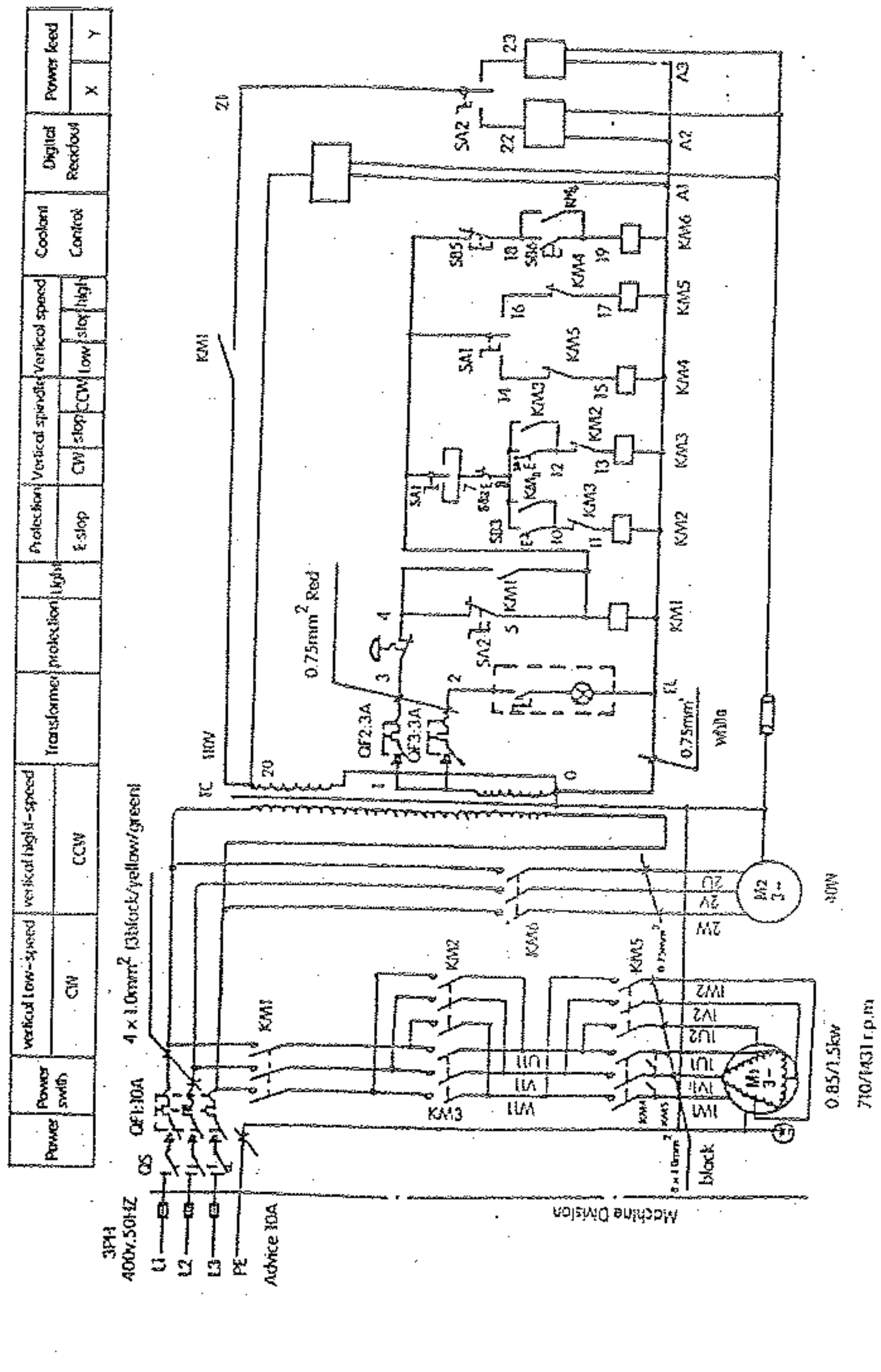
SA2 Activity

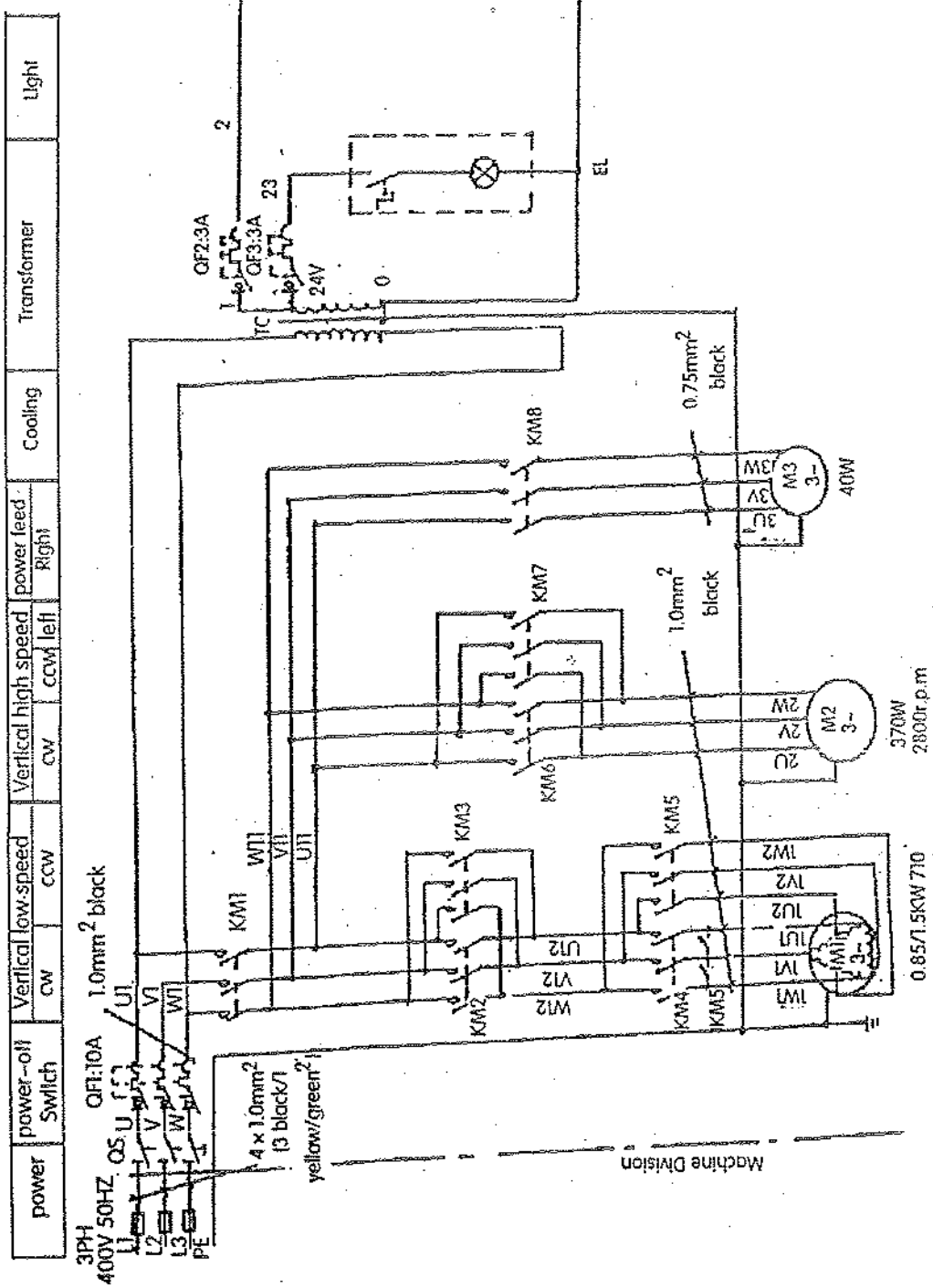
	CW	Stop	CCW
1~2	×		
3~4			×
5~6	×		
7~8			×
9~10		×	
11~12	×		×


Power
Power SWitch
Vertical
CW
CCW
Power feed
Cooling
Transformer
Light
E-stop protection
1PH 240V
L
N
1.5mm²
1.5mm² (black)
1L
1N
QS
KM
2L
2N
PE
FR1 9.6A 6.8-11A
FR2 0.4A 0.32A-0.6A
2L1
2N1
2L2
2N2
2L3
2N3
SA1
SA2
1.5mm² (black)
0.75mm² (black)
1U1
1U2
1V1
1V2
U1 U2 V1 Z2
M1 1~
1.5KW 1400r.p.m
1.5mm² (Y/G)
A1
XB
C
M3 1~
40W
TC
24V
QF1:3A
FR1
FR2
SB
SA1
SA2
KM
EL
0.75mm²
Machine Division
SA1 Activity
CW
Stop
CCW
1-2
3-4
5-6
7-8
9-10
11-12
13-14
15-16

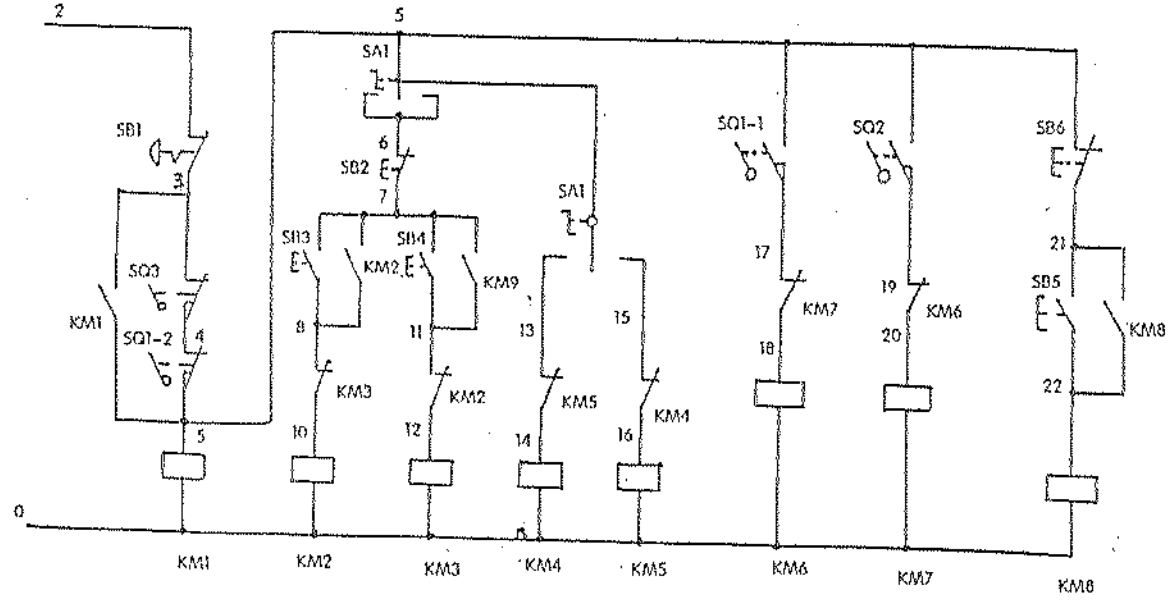


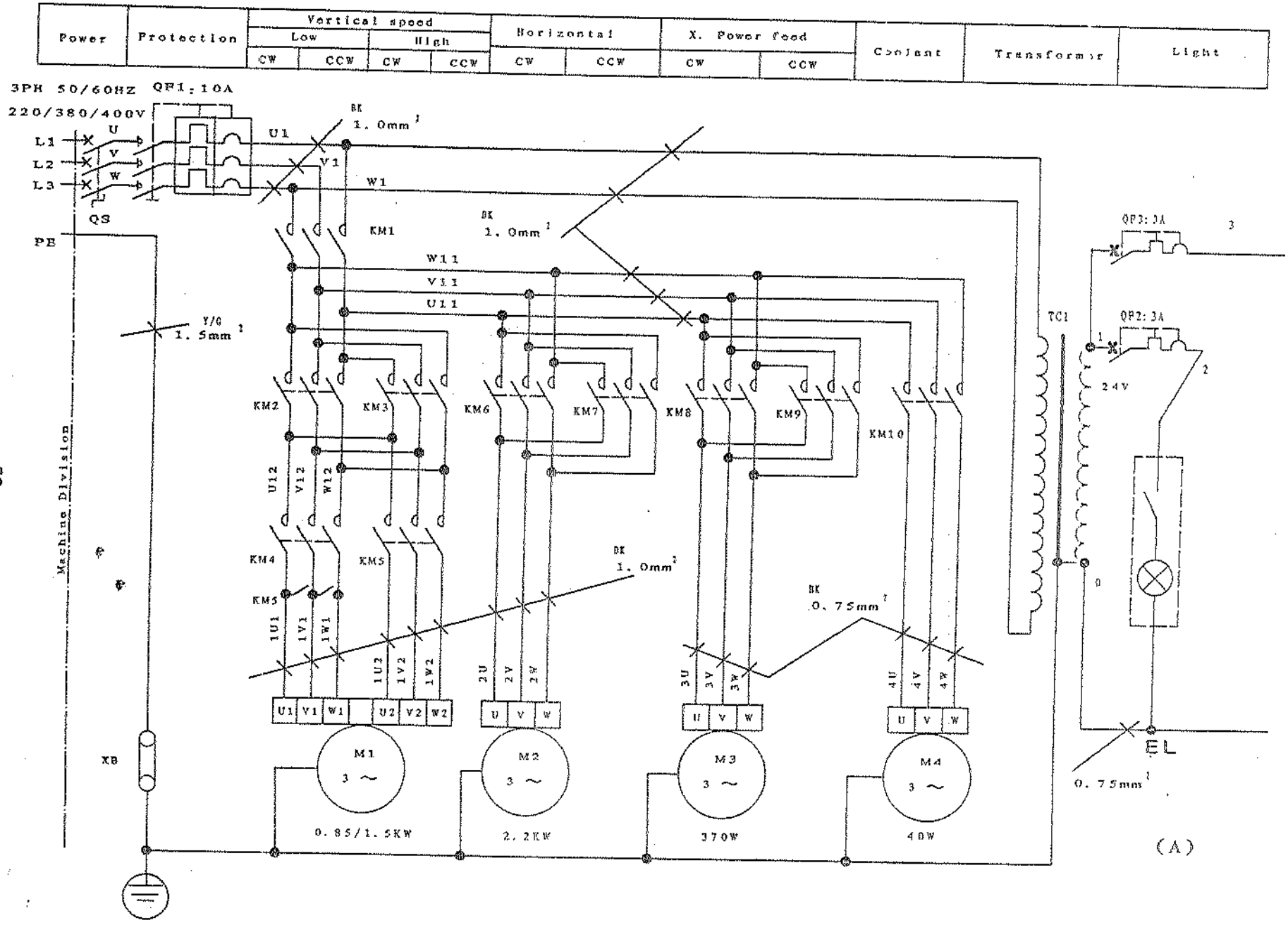
	high speed cw	low speed cw	OFF	low speed ccw	high speed ccw
1–2		×			
3–4				×	
5–6		×			
7–8				×	
9–10	×				×
11–12	×				×
13–14		×		×	
15–16	×				×
17–18	×				
19–20					×
21–22	×				
23–24					×
25–26			×		


Power
Power switch
vertical low-speed
CW
vertical high-speed
CCW
Transformer
protection
Light
Protection
E-stop
Vertical spindle
CW
stop
CCW
Vertical speed
low
stop
high
Coolant
Control
Digital
Readout
Power feed
X
Y
3PH
400v,50HZ
L1
L2
L3
PE
Advice 10A
QS
QF1:10A
4 x 1.0mm² (3black/yellow/green)
KM1
KM2
KM3
KM4
KM5
KM6
QF2:3A
QF3:3A
0.75mm² Red
0.75mm² White
SA1
SA2
SB3
SB5
SB6
A1
A2
A3
40W
0.85/1.5kw
710/1431 r.p.m
black
Machine Division

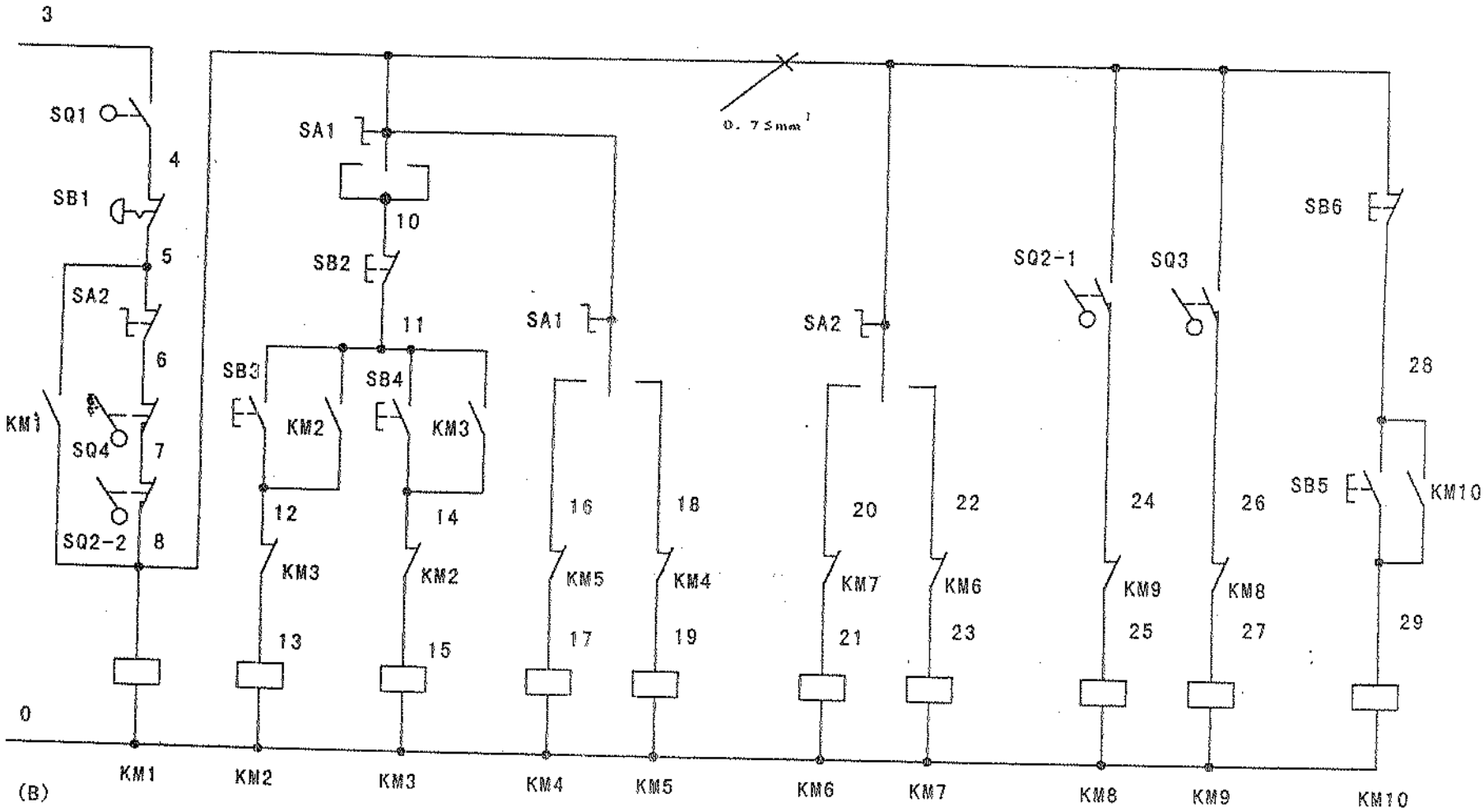

power
power-off Switch
Vertical low-speed
cw
ccw
Vertical high speed
cw
ccw left
power feed
Right
Cooling
Transformer
Light
3PH 400V 50HZ
QS
QF1:10A
1.0mm² black
4 x 1.0mm²
(3 black/1 yellow/green)
QF2:3A
QF3:3A
24V
EL
KM1
KM2
KM3
KM4
KM5
KM6
KM7
KM8
0.75mm² black
1.0mm² black
M3 3~ 40W
M2 3~ 370W 2800r.p.m
M1 3~ 0.85/1.5KW 710 1400r.p.m
Machine Division

Protection E stop	Vertical control				Power feed control		Cooling control
	cw	ccw	Low speed	high speed	Left	Right	

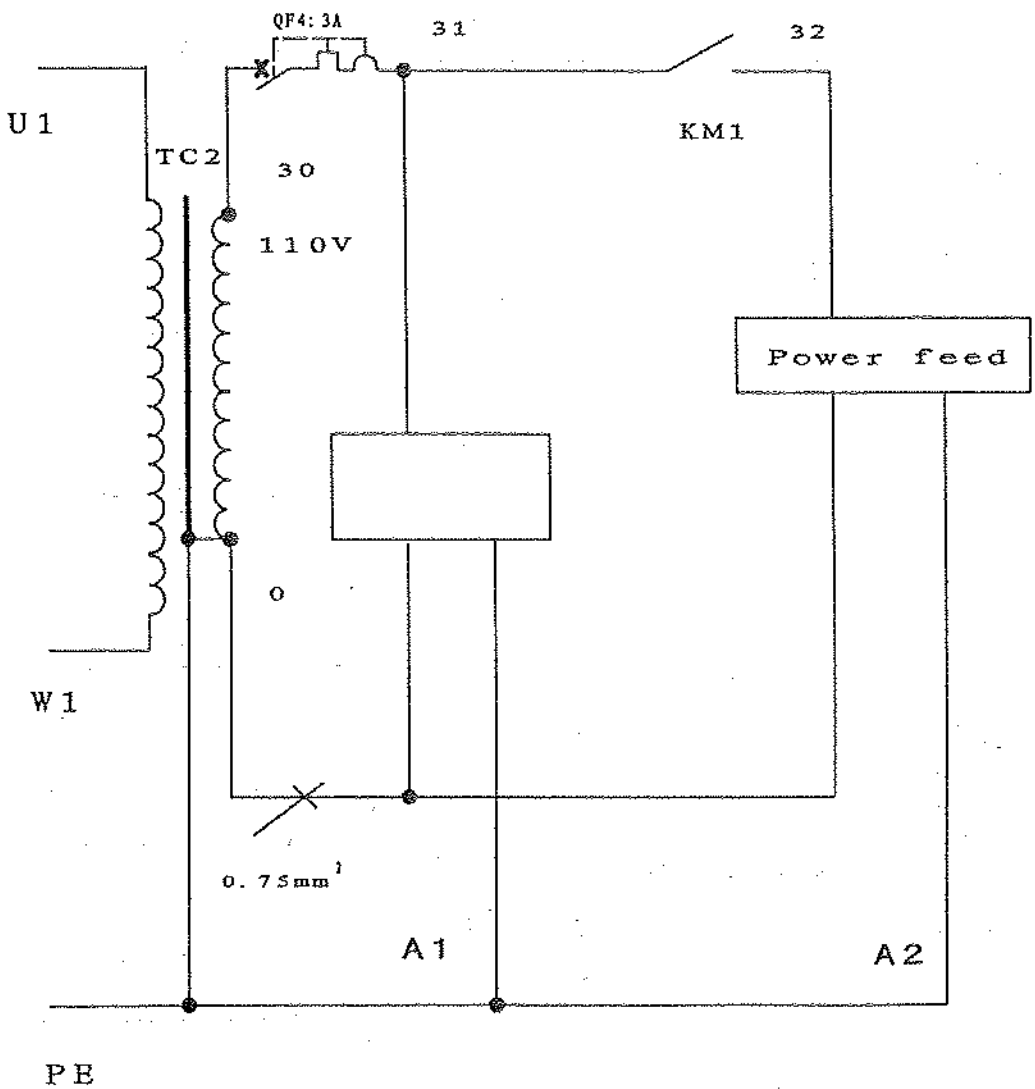



Power
Protection
Vertical speed
Low
High
CW
CCW
CW
CCW
Horizontal
CW
CCW
X. Power feed
CW
CCW
Coolant
Transformer
Light
3PH 50/60HZ QF1:10A
220/380/400V
L1
L2
L3
U
V
W
QS
PE
U1
V1
W1
BK
1.0mm²
KM1
W11
V11
U11
Y/G
1.5mm²
KM2
KM3
KM6
KM7
KM8
KM9
KM10
U12
V12
W12
KM4
KM5
1U1
1V1
1W1
1U2
1V2
1W2
2U
2V
2W
3U
3V
3W
4U
4V
4W
0.75mm²
TC1
QF3:3A
QF2:3A
24V
EL
XB
M1
3 ~
0.85/1.5KW
M2
2.2KW
M3
370W
M4
40W
Machine Division
(A)

E. stop Protection	Vertical control				Horizontal control		X. Power feed		Coolant control
	CW	CCW	Low speed	High speed	CW	CCW	Left	Right	



Transformer	Digital readout	Y. power feed



(C)

DRILLING / MILLING MACHINE

QUALITY CERTIFICATE

Accuracy Testing List				
1	Flatnese	A Horizontal B Cross	0.04 / 1000 0.04 / 1000	0.03 0.02
2	Work flatness		0.04 / 200	0.03
3	Run out of spindle bore	A . End spindle face B. 300mm to spindle face	0.02 0.04	0.01 0.03
4	Kick of spindle		0.02	0.01
5	The perpendicular between spindle and table	A Longitudinal B Cross	0 .10 / 200 0 .10 / 200	0.03 0.02
6	The perpendicular between Vertical movement of spindle and table	A Longitudinal B Cross	0 .10 / 100 0 .10 / 100	0.04 0.05
7	The parallelism betwen the work flatness and table	A Longitudinal B Cross	0 .05 / 200 0 .05 / 200	0.03 0.02
8	The straightness of basis" T"		0 .03 / 200	0.02
9	The parallelism between basis"T" and table		0 .15 / 200	0.04
10	The perpendicular between longitudinal move of table and cross move of table		0 .10 / 200	0.04
11	straightness of vertical movement of knee	A longitudinal B Cross	0 .05 / 200	0.04
12	The perpendicular between bedway and vertical guideway	A longitudinal B Cross	0 .10 / 200 0 .10 / 200	0.04 0.04
13	The paralleism between table and ram moving		0 .10 / 200	0.03
14	The paralleism between table and roating plate rotate	left 30° 0° right 30°	0 .10 / 200	0.04 0.04
15	The parallelism between spindle and worktable		0 .10 / 200	
16	The parallelism between cross move of work table and spindle	A longitudinal B Cross	0 .10 / 200 0 .10 / 200	
17	The parallelism between the guideway of ram and spindle	A longitudinal B Cross	0 .10 / 200 0 .10 / 200	
18	Coaxialism between the hole of surporthilt and axis of spindle	A longitudinal B Cross	0 .10 0 .10	

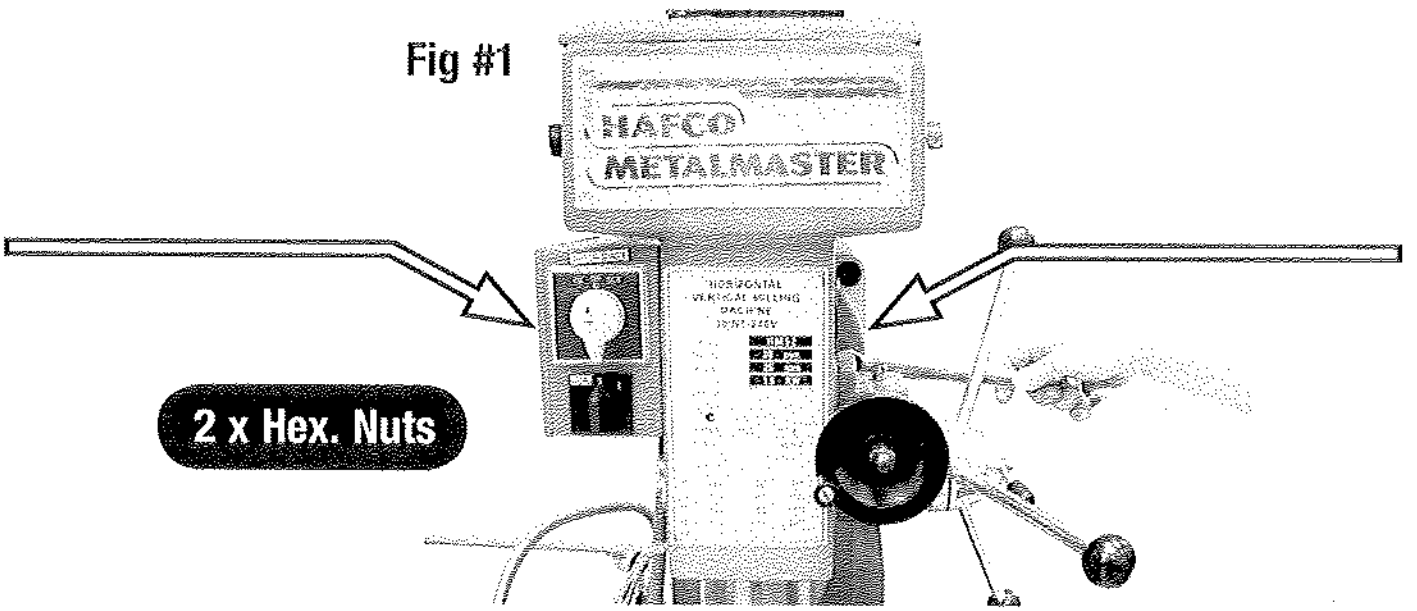
(Item 15 - 18 only for H /Y Drill ? Mill Machine)

PACKING LIST

ITEM	NAME	MODEL	QUTY	
			Vertical Drill/Mill machine	H/VDrill/Mill Machine
1	Drilling & milling machine		1	
2	Drill chuck	16	1	
3	Milling chuck		1	
4	Reduction sleeve		1 sets	
5	Maching Vice	160	1	
6	Wrench	S21-24	1	
7	Inner-hexagonal spanner	5	1	
8	Camlock		1	2
9	Wedge shifter		1	1
10	spindle arbor		1	1
11	Horizontal milling arbor			2
12	Bornig bar (optional)		1 (Only for M • T • 4 Taper)	
13	Operation manual		1	1
14	Certificate of inspection		1	1
15	Packing List		1	1

HM-52 MILL HEAD TILTING
INSTRUCTIONS

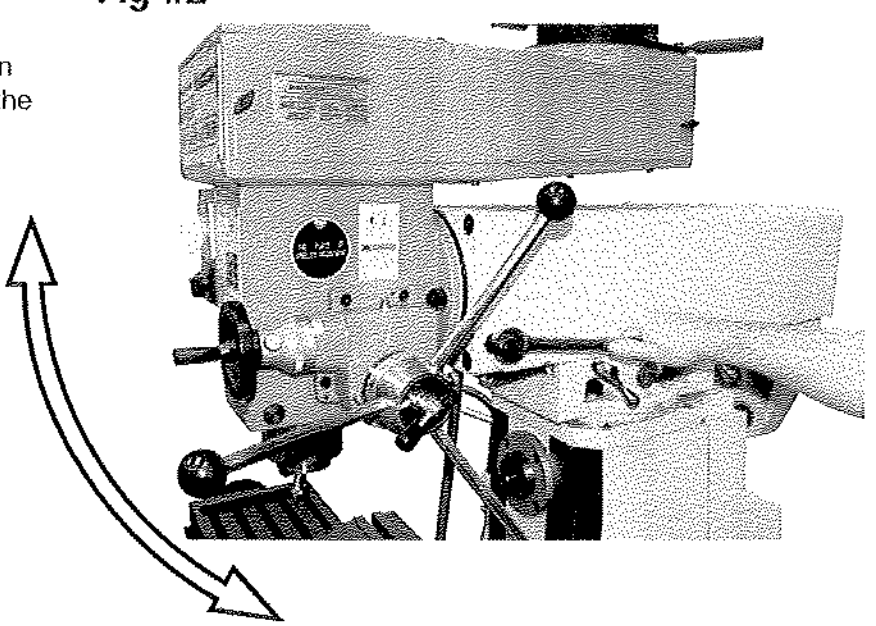
Fig #1



Step 1
Using a spanner, loosen anticlockwise the 2 hexagon nuts located at the rear of head end of the overarm as shown in **Fig #1.**

Please note that these 2 nuts must only be loosened one quarter to one half (1/4-1/2) of a turn maximum to avoid possibility of the head disengaging from its tilting mechanism and so dropping under its own weight.

Fig #2



Step 2
It then will be possible to tilt the head down to the required position, by slowly turning the hexagon crank bolt on the right hand side behind the spindle, as shown in **Fig #2** either clockwise or anticlockwise.

Step 3
When the correct angle of the head is obtained ensure the 2 x hexagon nuts located at the head end of the over arm are firmly re-tightened. See **Fig #1.**

Note:
Because of the Mill heads heavy overhung weight. It is strongly recommended that when returning the mill head of the machine back up to any position. That, while the hexagon crank bolt on the right hand side of the over arm is turned. A second person should give assistance to push the head back up as needed. Always ensure the 2 x hexagon nuts located at the head end of the over arm are firmly retightened after every move.