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Whenever replacement parts are required, please advise of the followings for our reference and quick shipment.

1. Model number
2. Serial number
3. Parts number
4. Description
5. Quantity

If there is any service required, please call your nearest distributors.

## FOREWORDS

This machine is built by Acer Formosa Int., Inc. #202-1 Seng Karng Sharng, Taichung County, Taiwan With the following features:

1. ENLARGED COLUMN & BASE:
2. RIGID CONSTRUCTION OF BASE & SADDLE:
3. CARTRIDGE TYPE DIRECT DRIVE SPINDLE:
4. AUTOMATIC LUBRICATION SYSTEM:
5. TURCITE-B WAYS: ROLLER TABLE WAYS:
6. INDEXIBLE TABLE HANDWHEEL:
7. INCOPERATED TOOL CABINET:
8. ONE-PIECE SADDLE:

For your safety & machine performance, please study this manual carefully and thoroughly to assure that you understand this machine before operations. The working efficiency shall be maximized only after your careful study.

Nevertheless, the manufacturer reserves the right to improve machine without any prior notice. If you have any questions, services and/or comments to our grinders, please just feel free to call your nearest distributors or advise us at the followings.

Acer Machine Tool, Inc.  
1062 N. Kraemer Place  
Anaheim, CA , 92806

Klim Industrial, Inc.  
244 N. Randolphville Rd. Piscataway, NJ 08854  
TEL: (732)752-9100 FAX: (732)752-9101

## SAFETY PRACTICES

### A. TO PREVENT SERIOUS BODILY INJURIES:

It is the responsibility of an employer or owner to furnish all that is needed in operations, general or specific, and presettings. They shall further carry out a comprehensive training program and closer supervision to enforce exactly the safety rules as hereunder specified.

1. This machine shall be operated merely by the personnel who received special training and have a thorough understanding of the machine characteristics, sizes and safety rules.
2. Never place any part of your body near the moving parts of machine, nor any of their areas. In case there is a need to approach the machine, all power sources led to the said unit must be shut off.
3. Never wear loose clothings could be caught or tangle in the moving parts of the machine. Moreover, do not wear gloves. All open parts of clothing, especially the cuffs shall be buckled.
4. It is mandatory to wear goggles and safety shoes.
5. Never operate or maintain the machine without proper instructions and supervisions.
6. To change or adjust the workpiece, fixture and tools, it is a must to pull the spindle to a complete stop in the first place.
7. In case a user considers the machine is having safety problems, please stop using it immediately and notify, in writing or calling the distributors.
8. IT IS A SAFETY VIOLATION TO REMOVE ANY ONE OF THE WARNING SIGNS FROM THE MACHINE.

### B. SAFETY:

In order to eliminate any possible accident and upkeep the normal operations. The safety consciousness is highly essential. It applies to any other machine usages. Furthermore, general precautions are quite helpful to an accident free factory management. Meanwhile, they can invariably promote the productivity under an optimal working environment.

1. Goggles wearing.
2. Wearing safety boots.
3. Wearing hard hats and overalls. All opening parts must be buckled.
4. Do not wear gloves during machine operations.
5. Lighting around the machine shall be sufficient.
6. Do not use an air compressor to blast chips, dust off control unit or the floor of their immediate areas.
7. Operator's foot stand shall be the most solidly built one, furnished also with the fragment-proof surface.

SPECIFICATION

Model Description		SUPRA-618	SUPRA-818
Table size		6 x 18" (152x460mm)	8x18" (203x460mm)
Max long.travel		20" (508mm)	←
Max cross travel		7 1/16" (190 mm)	9 3/4" (250mm)
Max distance from table surface to spindel centerline		18" (460mm)	←
Max grinding length		18" (460mm)	←
Max grinding width		7" (178mm)	9 3/8" (238mm)
Lubrication		Auto Lube System	←
Spindle motor	Direct drive	1.5HP/3P/60Hz/3450RPM 1.5HP/3P/50Hz/2850RPM	2HP/3P/60HZ/3450RPM 2HP/3P/50HZ/2850RPM
Machine base		Cast iron	←
Downfeed handwheel	Per graduation	0.0001" (0.005mm)	←
	Per revolution	0.05" (1mm)	←
Crossfeed handwheel	Per graduation	0.0005" (0.02mm)	←
	Per revolution	0.2" (5mm)	←
Grinding wheel	Diameter	8" (203mm)	←
	Width	4" (12mm) <sup>Max</sup> 3/4" (19mm)	←
	Bore	1 1/2" (32mm)	←
Floor space	Total space	71"x45"(1810x1133mm)	71"x50 1/2" (1810x1285mm)
	Height	65" (1660mm)	66" (1680mm)
Weights	Net. approx	1430LBS (650kgs)	2024LBS (920kgs)
	Gross.appro	1710LBS (780kgs)	2710LBS (1050kgs)
Packing dimensions	L x W x H	42" x 36" x 73" (1060 x 920 x 1870mm)	←

NOTE: Above specifications are subject to change without prior notice.

Parts name of machine:

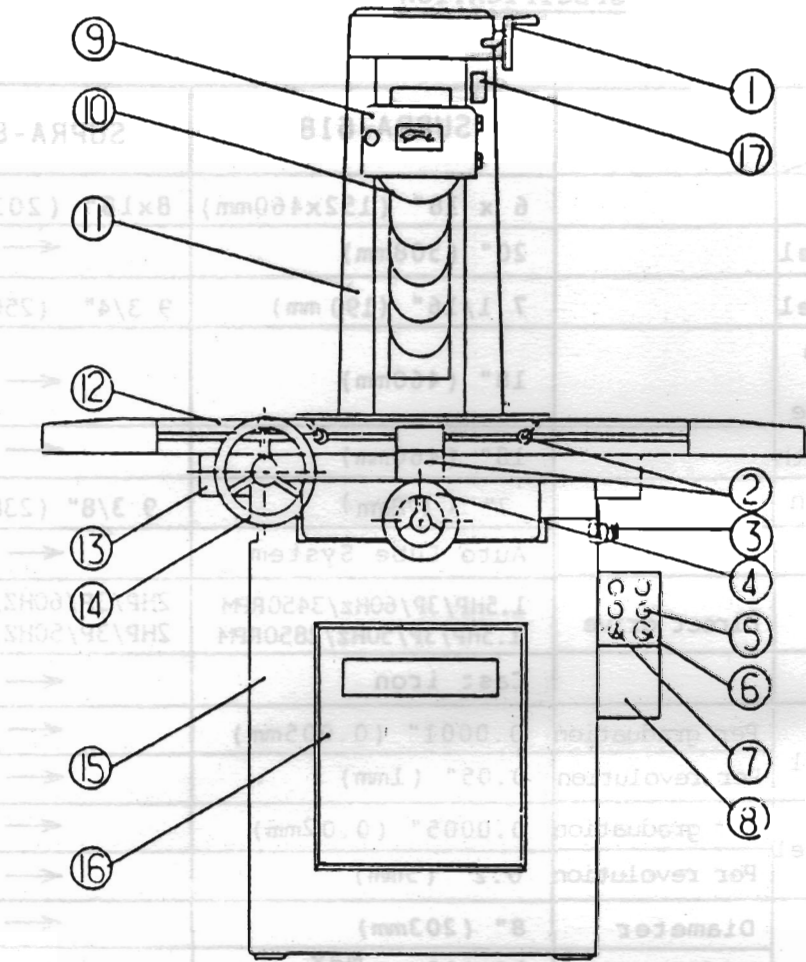


Fig. 1

1.	Downfeed handwheel	9.	Wheel guard
2.	Limited dog	10.	Grinding wheel
3.	Cross travel adjuster	11.	Column
4.	Cross handwheel	12.	Table
5.	Spindle-on switch	13.	Saddle
6.	Emergency stop switch	14.	Longitudinal handwheel
7.	Coolant or dust switch	15.	Base
8.	Electrical panel	16.	Tool cabinet
		17.	Lubricating oil sight gage

## INSTALLATIONS

### A. Lifting:

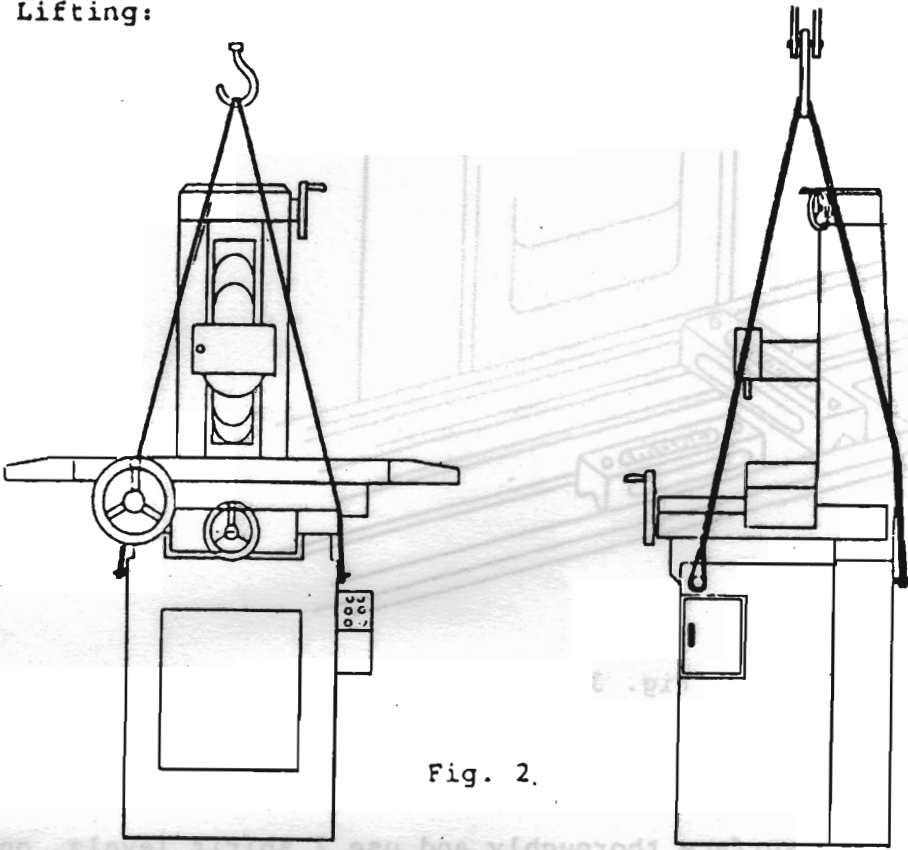


Fig. 2.

Use the following facilities to lift the machine:

1. Overhead crane
2. 2 pcs of cables, each at  $\phi 12.7\text{mm}$  ( $\frac{1}{2}$ " ) x 1830mm (72" ) long.
3. 1 steel bar

- NOTE:
1. Machine must always be kept balanced during lifting.
  2. Place protecting material, such as hard cardboard, wooden wedges, on any part of machine that might be contacted by the cables.
  3. Cables must be placed firmly at both ends of the steel bars to prevent the wires from slipping off.

### B. Cleaning:

Machines are applied with rust preventive in the manufacturer before packing. Please clean the coating with solvent solution before operations.

### C. Levelling:

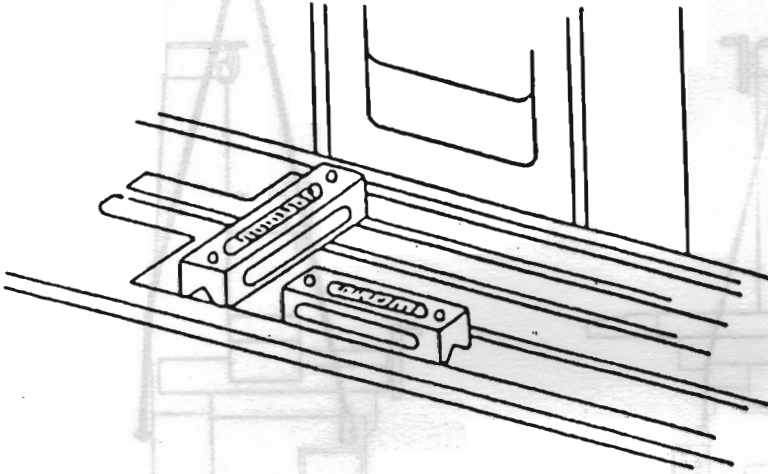


Fig. 3

Clean the table surface thoroughly and use 2 spirit levels, one on longitudinal direction while the other one on cross direction. Adjusting the 3 levelling screws at the base till the readings is  $0.02\text{mm}/1000\text{mm}$  ( $0.001''/4\text{FT}$ ) on both longitudinal and cross directions. Then lock the nuts on the screws and check the readings again till  $0.02\text{mm}/1000\text{mm}$ .

When levelling the machine, a solid floor or anti-vibration pads are highly recommended to prevent any rocking during grinding.

### D. Wheel extracting:

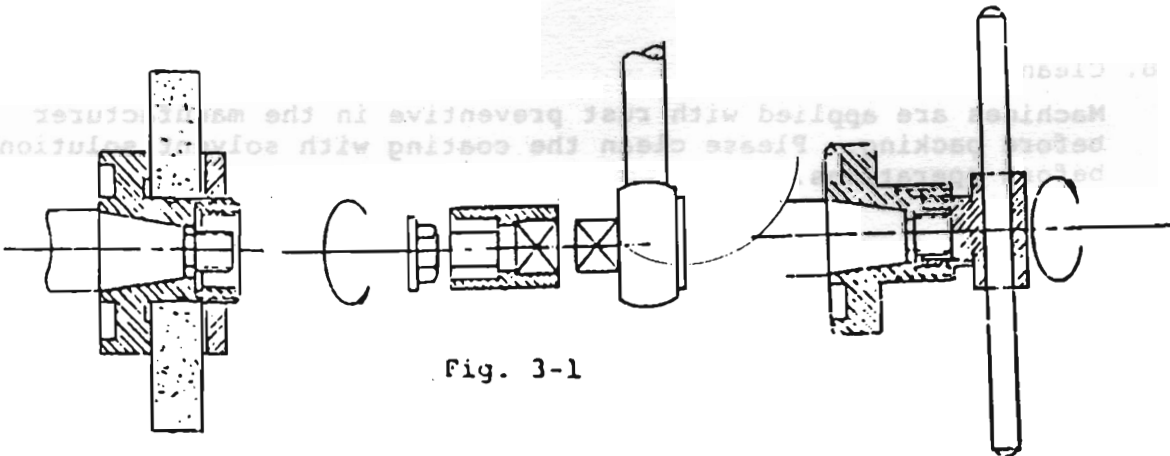


Fig. 3-1

## OPERATIONS

### A. Power connecting:

Machines would be prewired to 220V at the manufacturer unless otherwise specified by the purchaser. Please check the panel voltage against main supply before connecting the cable through a hole from the bottom of electrical cabinet to the terminals.

### B. Test of motor rotating:

After power connecting, turn on the main power switch to check if the rotation of the motor is clockwise. If not, just reconnet cables by changing any two of the wires from the primary supply.

### C. Timing belt adjustment: (Fig.4)

1. Timing belt will become loosen after use for a period of time. Under this circumstance, please move the table to the extremely left hand side for adjusting the tension of belt or it may slip off the gear.

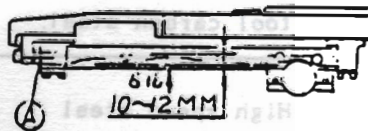


Fig. 4

2. The proper tension of the belt is the belt with a swing of  $3/8'' - 1/2''$  when applied with 6 LBS (2.7 kgs) force onto it by hand or a tensile gage.

3. Belt will break if it is adjusted too tight.

4. Belt will slip off gear easily if it is adjusted too loose.

5. The nut (A) must be tightly locked in the meantime.

### D. Selection of grinding wheel:

Please refer to the guide table of grinding wheels. (Fig. 5)

### E. Standard wheel markings: (Fig. 6)



Grinding wheel selection guide table

Grinding wheel selection guide table(Surface grinding)

	Materials to be ground	Hardness(Rockwell)	Wheel specification	
Carbon steel	steel plate carbon steel	under HRC 25	WA A 46H	
	forged carbon steel cast carbon steel	above HRC 25	WA 40J	
Alloy steel	Ni,Cr steel Ni,Cr,Mo steel Cr steel Cr,Mo steel	under  HRC 55	WA 46J	
	Al,Cr,Mo steel high carbon, alloy Alloy cast steel tool carbon steel.	above HRC 55 HRC 55	WA 46I WA 46I	
	tool steel	High speed steel	under HRC 60	WA 46I
		Alloy tool steel	above HRC 60	WA 46H
stainless steel	Stainless steel antiheat steel		WA 46I WA 36J	
	cast iron	grey cast iron		C 46J
special cast iron			GC46I	
cold rolling cast iron			GC46I	
malleable cast iron			WA46K	
nonferrous metal	brass		C 30J	
	bronge		A 46K	
	aluminum alloy		C 30J	
	sintered carbide		CC60-100HI	

Fig. 5

Standard wheel markings

Form	Faces	size	Abrasive type	Grain size	Grade	Structure	Bond type	Maker code	Max. R.P.M.
1. Straight (plain)	A	DxWxB	A	10 220	AO	0	V	maker	1400
2. Cylindrical	B	Dia:D	WA	12 240	BP	1	B	own	1500
				14 280	CQ	2	R	recor	1700
3. Relieved one side	C	width:W	PW	16 320	DR	3		for	2000
				20 400	ES	4	S	the	2400
4. Relieved two-side	D	Bore:B	C	24 500	FT	5	E	wheel	2700
5. Single recess	E		CC	30 600	CU	6			3000
6. Straight cup	F		AZ	36 700	HV	7			3600
				46 800	IW	8			4300
7. Double recess	M			60 1000	JX	99			4800
				80 1200	KY	10			
9. Double cup	N			100 1500	LZ	11			
				120 2000	M	12			
				150 2500	N	13			
				180 3000		14			
	P			4000		15			

Fig. 6

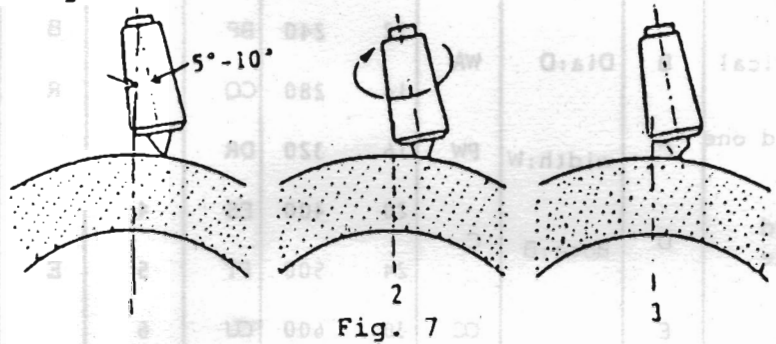
- S:Silicate
- V:Vitrified
- E:Shellac
- B:Resinoid(Synthetic resin)
- R:Rubber

NOTE:To obtain a good surface finish and accuracy, a appropriate grinding wheel must be used. The followings must be considered

1. Required accuracy and surface finish.
2. Contact area during grinding.
3. Special feature of grinding operations.
4. Wheel speed.
5. Feed rate

## F. Dressing of wheel:

- Dress the wheel with diamond dresser when it is filled with chips or when a poor surface finish is obtained.
- The installation of a diamond dresser should be inclined to an angle  $5-10^\circ$  from the wheel centerline. When the diamond bit become dull, just turn the diamond collar to the desired angles, shown as Fig. 7



- Due to the hardness or weakness of the diamond. Do not dress the wheel too deep at one time. The correct way to dress the wheel is to start from the center of the wheel.

- Recommended dressing speeds

$$F = \frac{d \times N}{2.5 \times 1000}$$

F: crossfeed speed (mm/min).

d: grind diameter ( $\mu$ )

N: R.P.M. of wheel

grain size	10	12	14	16	20	-	24	30	36	46	54	60	70	80	90	100	120	-	150	180	220
grain diameter (mm)	2.0	1.7	1.4	1.2	1.0	0.8	0.7	0.6	0.5	0.35	0.3	0.25	0.2	0.17	0.14	0.12	0.1	0.08	0.07	0.06	0.05

Example: The grind wheel diameter 510mm, grain size 60, velocity 2000m/min,

dressing speed 124.8mm/min. (4.9 IPM)

d=0.25mm=250 $\mu$  (grain size 60, refer to the table, d=0.25mm)

$$N = 1248 \text{ r.p.m. } (N = \frac{\text{velocity of wheel}}{\pi \times D})$$

$$(N = \frac{2000 \times 1900}{\pi \times 510} = 1248)$$

$$F = \frac{d \times N}{2.5 \times 1000} = \frac{250 \times 1248}{2.5 \times 1000} = 124.8 \text{ mm/min (4.9 IPM)}$$

#### e. Balance of grinding wheel

To obtain fine surface finish and accuracy, the grinding wheel must be checked and rebalanced periodically. (Fig.8 ) A standard and balanced grinding wheel is supplied with the grinder from manufacturer. Please follow the following procedures for balancing.

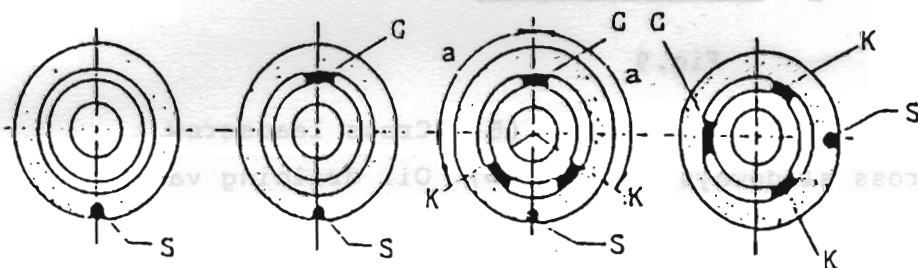
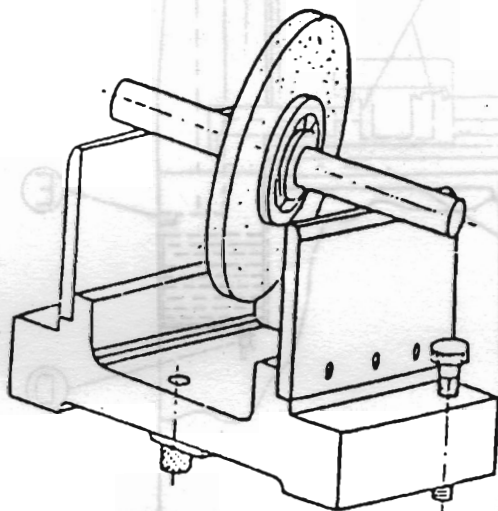


Fig. 8

1. Let the wheel roll freely on the stand to find out it's gravity center "S" and mark it with chalk.
2. Insert a balancing block on the opposite side "G" of "S", rotate the wheel 90° to find out "S" or "G" side is heavier
3. Insert the second balancing block at heavier side "K" which are of the same are from "G" point.
4. Rotate the wheel 90° to check the balance of the wheel. If it is still out of balance, readjust 2 blocks "K" position until grinding wheel is really balanced. When grinding workpiece with different materials, just change the wheel with its flange together to save time required for balancing the wheel.

A. Lubrication: ( Fig.9 )

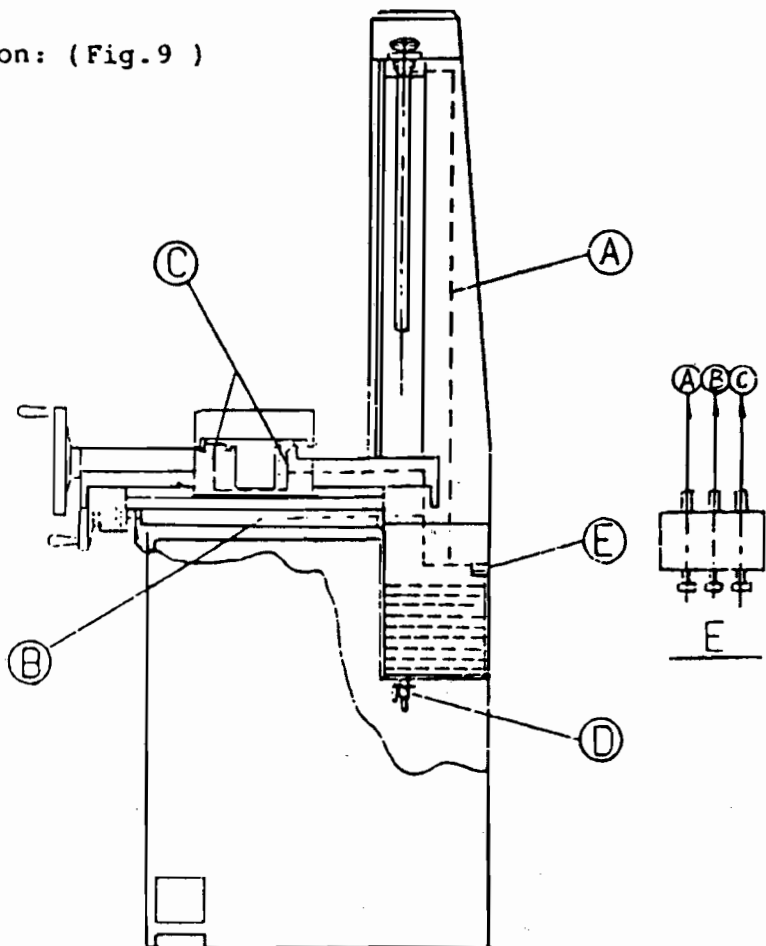


Fig. 9

- |                              |                         |
|------------------------------|-------------------------|
| (A). Elevating leadscrew     | (B). Cross leadscrew    |
| (C). Long. & cross slideways | (D). Oil draining valve |
| (E). Oil distributor         |                         |

This machine is equipped with "AUTO LUBE SYSTEM" as standard on rear part of the column. Once the spindle rotates the lubricant will flow over column, saddle & table automatically and consecutively until the spindle stops. Please change the lubricant every 3 months or refill the reservoir up whenever is less than the half, with the following suggested oils.

RECOMMENDED OILS:

Mobil ISO VG32 (SW32)

FBK OIL RO#32

ESSC FEBI SK#53

NOTE:1. Please do not adjust the oil distributor which is preadjusted in the manufacturer, unless it is necessary.

2. When machine is out of lubricant, the green lamp on the operating panel (Fig.10) will be shut off automatically by this time you are to fill up the lubricant reservoir when the lamp will light up again.

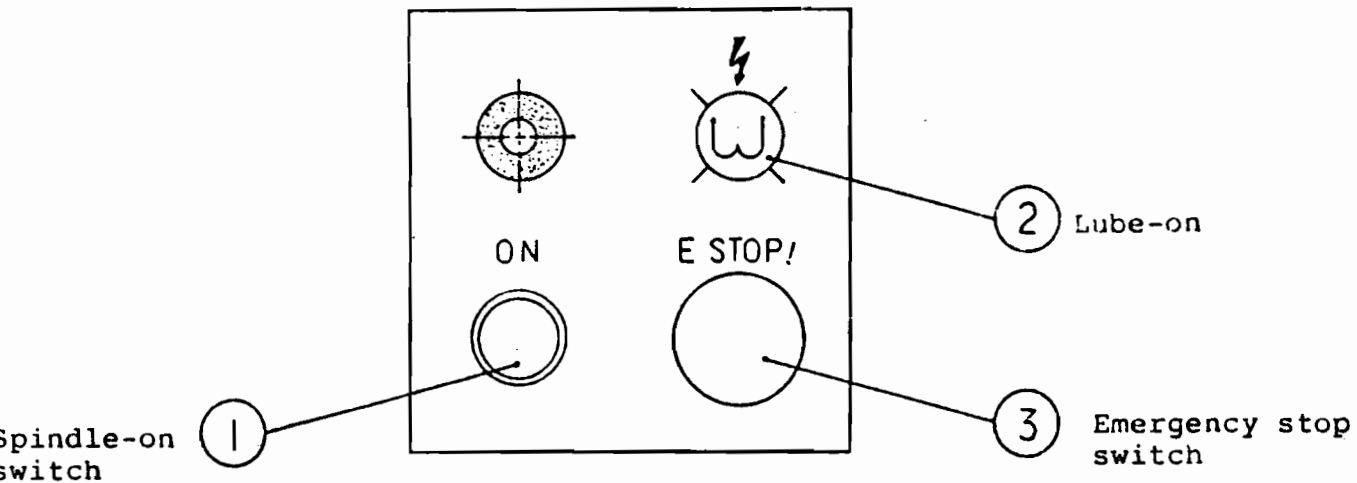


Fig.10

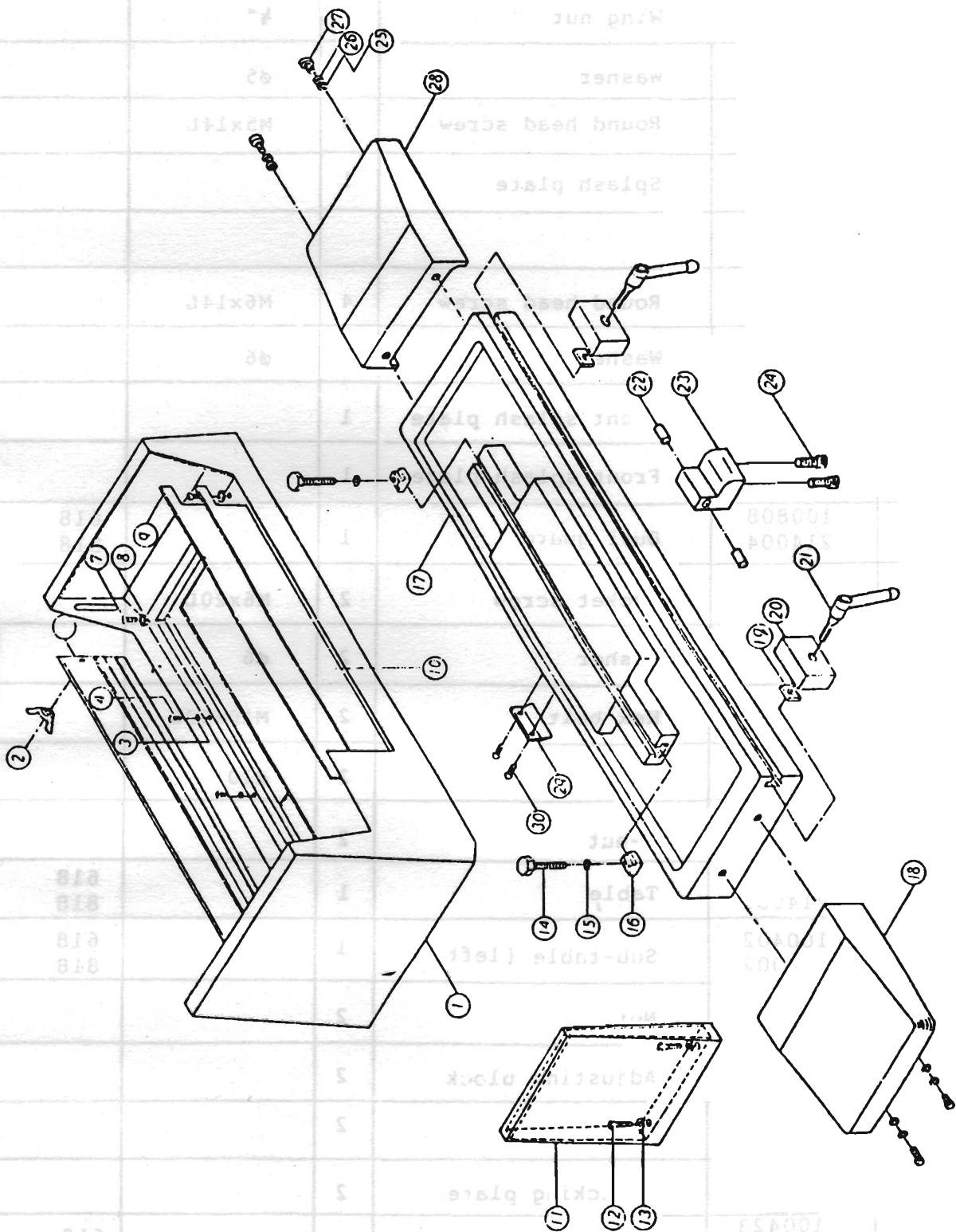
## MAINTENANCE

1. Clean the machine daily after jobs but do not use compressed air.
2. Do not allow dust or chips get in the slide ways. To do so, it is suggested to use a dust unit during dry grindings.
3. The spindle motor should be cleaned with a vacuum yearly. At no time should you use compressed air to clean motor.
4. Check all the circuit connections yearly and test them whenever necessary.
5. Check machine level at least once a year
6. Stop and check the machine whenever any abnormal noise occurs.

## TROUBLE SHOOTINGS

Problem	Cause	Remedy
Frequent wave on the surface of the work-piece	Vibration of the machine	1. Check the level of the machine and the sturdiness of the floor. 2. Check the spindle.
	Grinding wheel is unbalanced.	1. Dress the wheel again. 2. Balance the wheel.
	Wheel is too hard	1. Use a soft wheel. 2. Use a rough wheel. 3. Reduce the feed amount.
Minor scratch on the surface	Improper operation	1. Dress the wheel. And make sure that the wheel is parallel with work piece. if not, adjust the parallel dresser. 2. Slow the crossfeed speed. 3. Block in the work piece to prevent movement.
	Improper dressing the wheel	1. Slow the dressing speed. 2. Tighten the dresser well. 3. Use the proper dressing speed. 4. Don't dress too deep at a time.
Burning spots and cracks	Improper operation	1. Reduce the feeding amount. 2. Use the proper crossfeed speed.
	Improper heat treatment	Re-heat treat
	Unsuitable grinding wheel	1. Dress the wheel finely and frequently. 2. Use a softer and rougher wheel.
Poor grinding ability, and wheel clogs and workpiece shown Burn	Wheel is too hard	1. Increase the table speed and crossfeed speed. 2. Slow the wheel revolution, (reduce the wheel diameter or width). 3. Use the sharp diamond to dress the wheel. 4. Chose a rougher wheel.
Wheel dulls and the grit fall off	Wheel is too soft	1. Reduce the table speed and crossfeed speed. 2. Increase the wheel revolution speed, or enlarge the wheel diameter, if possible 3. Dress the wheel lightly and repeatedly.

TABLE



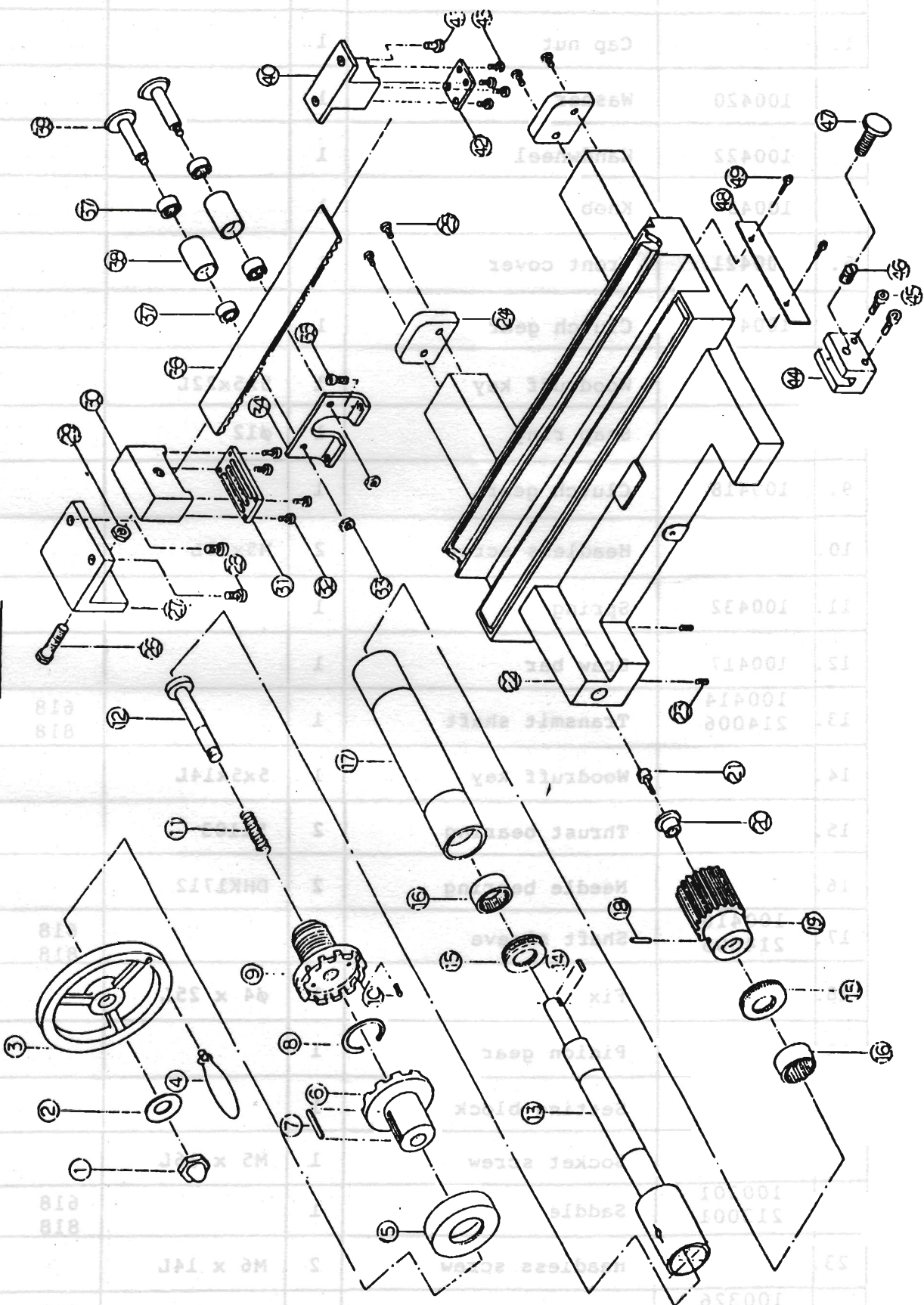


TABLE

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
1.	100809 100822	Splash guard	1		618 818
2.		Wing nut	4	½"	
3.		Washer	4	ø5	
4.		Round head screw	4	M5x14L	
5.	100410	Splash plate	1		
7.		Round head screw	4	M6x14L	
8.		Washer	4	ø6	
9.	100411	Front splash plate	1		
10.	100411	Front splash plate	1		
11.	100808 214004	Dust guard	1		618 818
12.		Socket screw	2	M6x20L	
13.		Washer	2	ø6	
14.		Hex bolt	2	M10x50L	
15.		Flat washer	2	ø10	
16.	100432	T-nut	2		
17.	100401 214001	Table	1		618 818
18.	100402 214002	Sub-table (left)	1		618 818
19.	100426	Nut	2		
20.	100425	Adjusting block	2		
21.	100433	Handle	2		
22.		Stricking plate	2		
23.	100423 214007	Setting block	1		618 818
24.		Hex. screw	2	M8x20L	



SADDLE



SADDLE

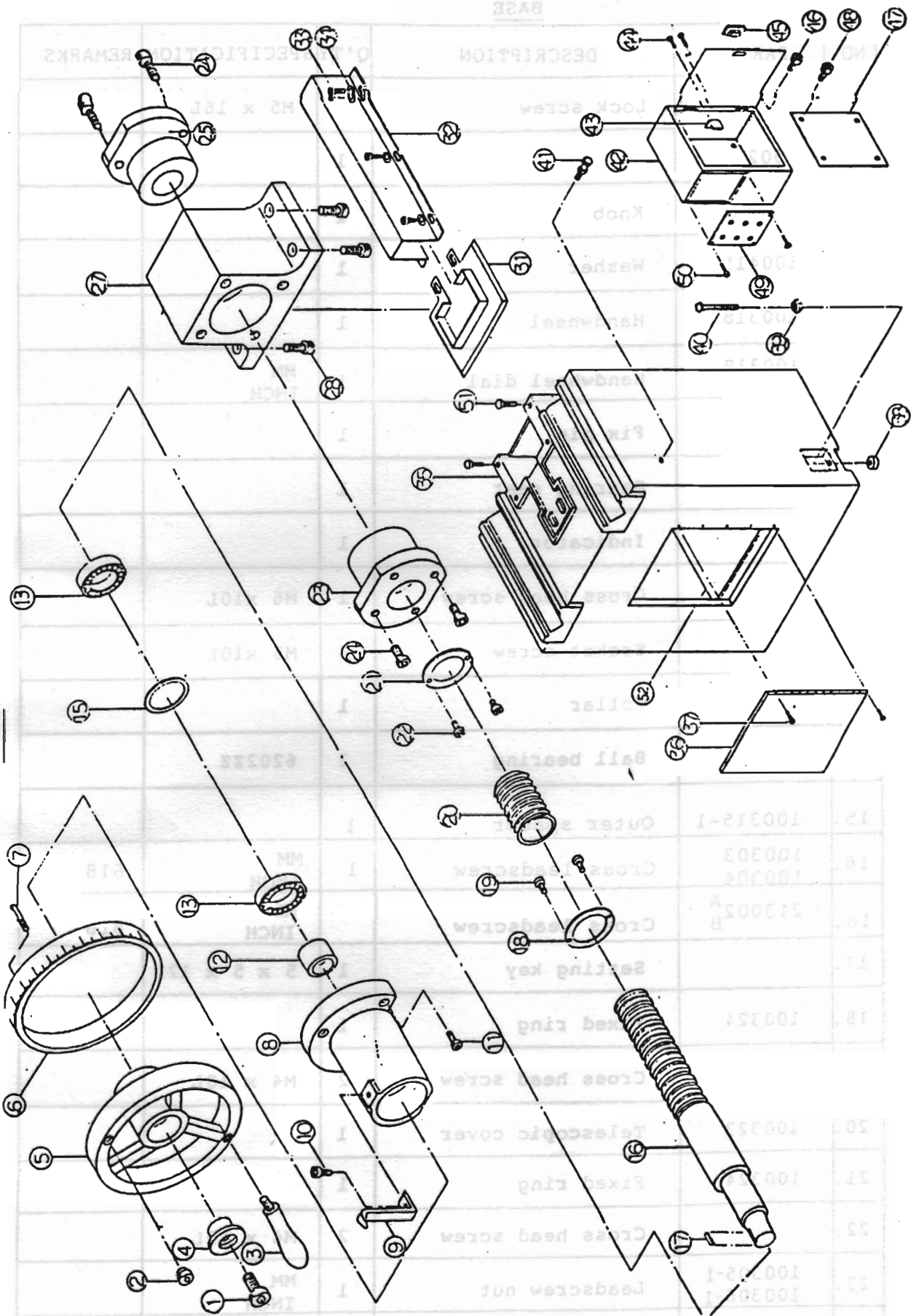
NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
1.		Cap nut	1		
2.	100420	Washer	1		
3.	100422	Handwheel	1		
4.	100433	Knob	1		
5.	100421	Front cover	1		
6.	100419	Clutch gear	1		
7.		Woodruff key	1	5x5x22L	
8.		Snap ring	1	ø12	
9.	100418	Clutch gear	1		
10.		Headless screw	2	M5x10L	
11.	100432	Spring	1		
12.	100417	Draw bar	1		
13.	100414 214006	Transmit shaft	1		618 818
14.		Woodruff key	1	5x5x14L	
15.		Thrust bearing	2	51103	
16.		Needle bearing	2	DHK1712	
17.	100416 214005	Shaft sleeve	1		618 818
18.		Fix pin	1	ø4 x 25L	
19.	100413	Pinion gear	1		
20.	100415	Setting block	1		
21.		Socket screw	1	M5 x 16L	
22.	100301 213001	Saddle	1		618 818
23.		Headless screw	2	M6 x 14L	
24.	100326 213005	Slideway stopper	2		618 818

SADDLE

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
25.		Socket screw	4	M8 x 14L	
26.		Socket screw	1	M8 x 50L	
27.	100403	Setting bracket	1		
28.		Socket screw	2	M6 x 20L	
29.		Nut	1	M8	
30.	100404	Belt seat	1		
31.	100405	Press plate	1		
32.		Flat head screw	4		
33.		Nut	2	M8	
34.	100407 214008	Bracket	1		618 818
35.		Socket screw	2	M6 x 14L	
36.	100406	Timing belt	1	T5 x 720L	
37.		Needle bearing	4	DHK1212	
38.	100409	Bushing	2		
39.	100408	Gear shaft	2		
40.	100411	Belt seat	1		
41.		Socket screw	1	M6 x 16L	
42.	100405	Press plate	1		
43.		Socket screw	4	M4 x 12L	
44.	100310	Travel setting block	1		
45.		Socket screw	2	M5 x 25L	
46.	100313	Screw	1		
47.	100312	Lock screw	1		
48.	100311 213004	Covering plate	1		618 818



BASE



BASE

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
1.		Lock screw	1	M5 x 16L	
2.	100217	Lock nut	1		
3.	100232	Knob	1		
4.	100415	Washer	1		
5.	100318	Handwheel	1		
6.	100319 100320	Handwheel dial	1	MM INCH	
7.	100218	Fix pin	1		
8.	100314	Bearing seat	1		
9.	100321	Indicator	1		
10.		Cross head screw	1	M6 x10L	
11.		Socket screw	3	M5 x10L	
12.	100317	Collar	1		
13.		Ball bearing	2	6202ZZ	
15.	100315-1	Outer spacer	1		
16.	100303 100304	Cross leadscrew	1	MM INCH	618
16.	213002 <sup>A</sup> <sub>B</sub>	Cross leadscrew		MM INCH	818
17.		Setting key	1	5 x 5 x 12L	
18.	100324	Fixed ring	1		
19.		Cross head screw	2	M4 x 10L	
20.	100323	Telescopic cover	1		
21.	100324	Fixed ring	1		
22.		Cross head screw	2	M4 x 10L	
23.	100305-1 100306-1	Leadscrew nut	1	MM INCH	
24.		Socket screw	4	M5 x 14L	

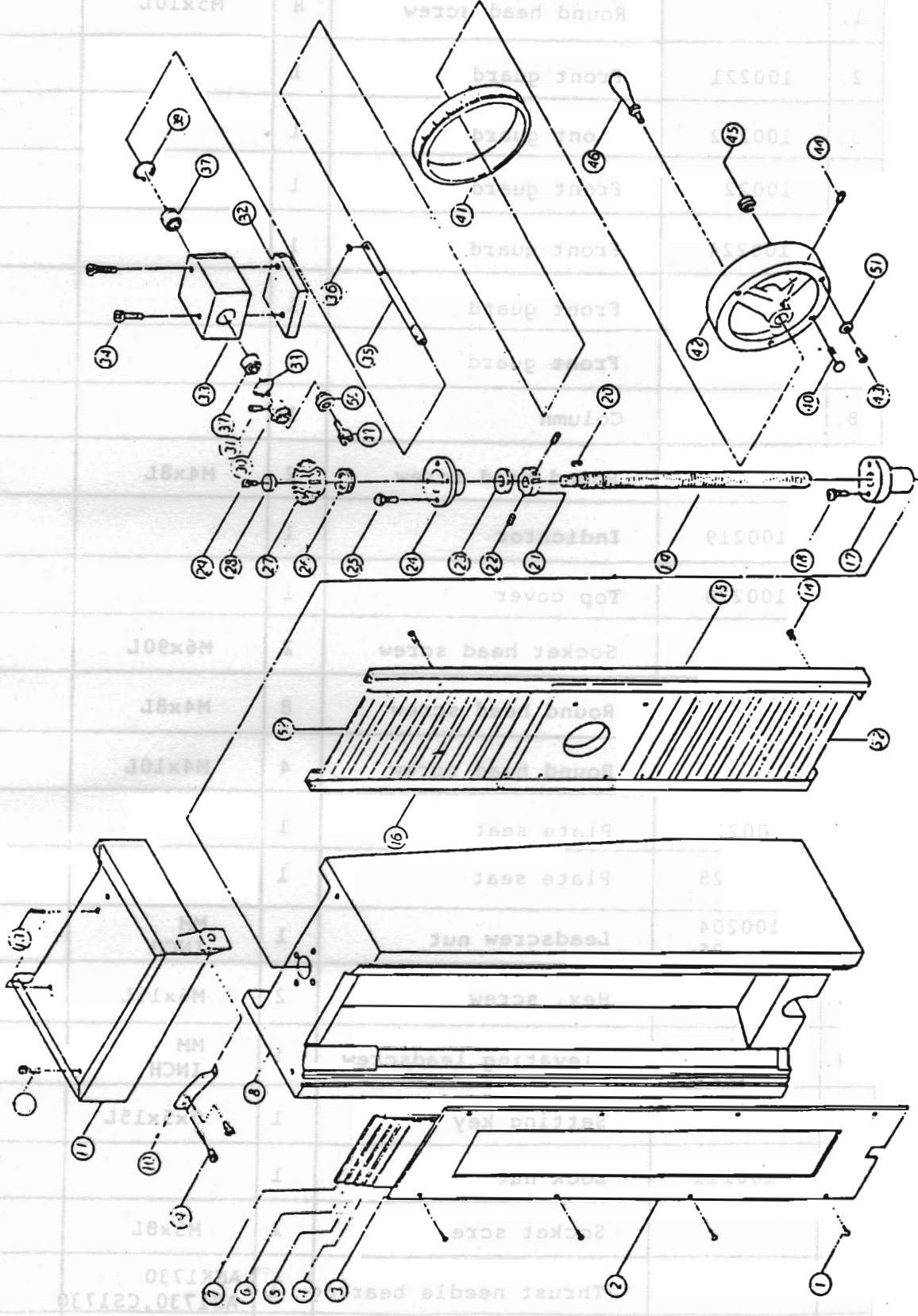


BASE

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
25.	100307-1 100308-1	Nut	1	MM INCH	
27.	100309-1	Leadscrew seat	1		
28.		Socket screw	4	M8 x 40L	
31.	100322	Tank cover	1		
32.	100302 213003	Leadscrew metal cover	1		618 818
33.		Cross head screw	6	M5 x 10L	
34.		Washer	6	ø5	
35.	100501 215001	Base	1		618 818
36.	100502	Door of tool cabinet	1		
37.		Cross head screw	5	M5 x 10L	
38.	100506	Levelling block	3 5		618 818
39.		Lock nut	3 5	M22	618 818
40.	100505	Levelling screw	3 5		618 818
41.	100504	Lifting bolt	4		
42.	100901	Control box	1		
43.	100903	Switch bracket	1		
44.		Cross head screw	2	M5 x 10L	
45.	100901-1	Door lock	1		
46.		Socket screw	4	M8 x 14L	
47.	100902	Electrical board	1		
48.		Socket screw	4	M6 x 8L	



COLUMN



COLUMN

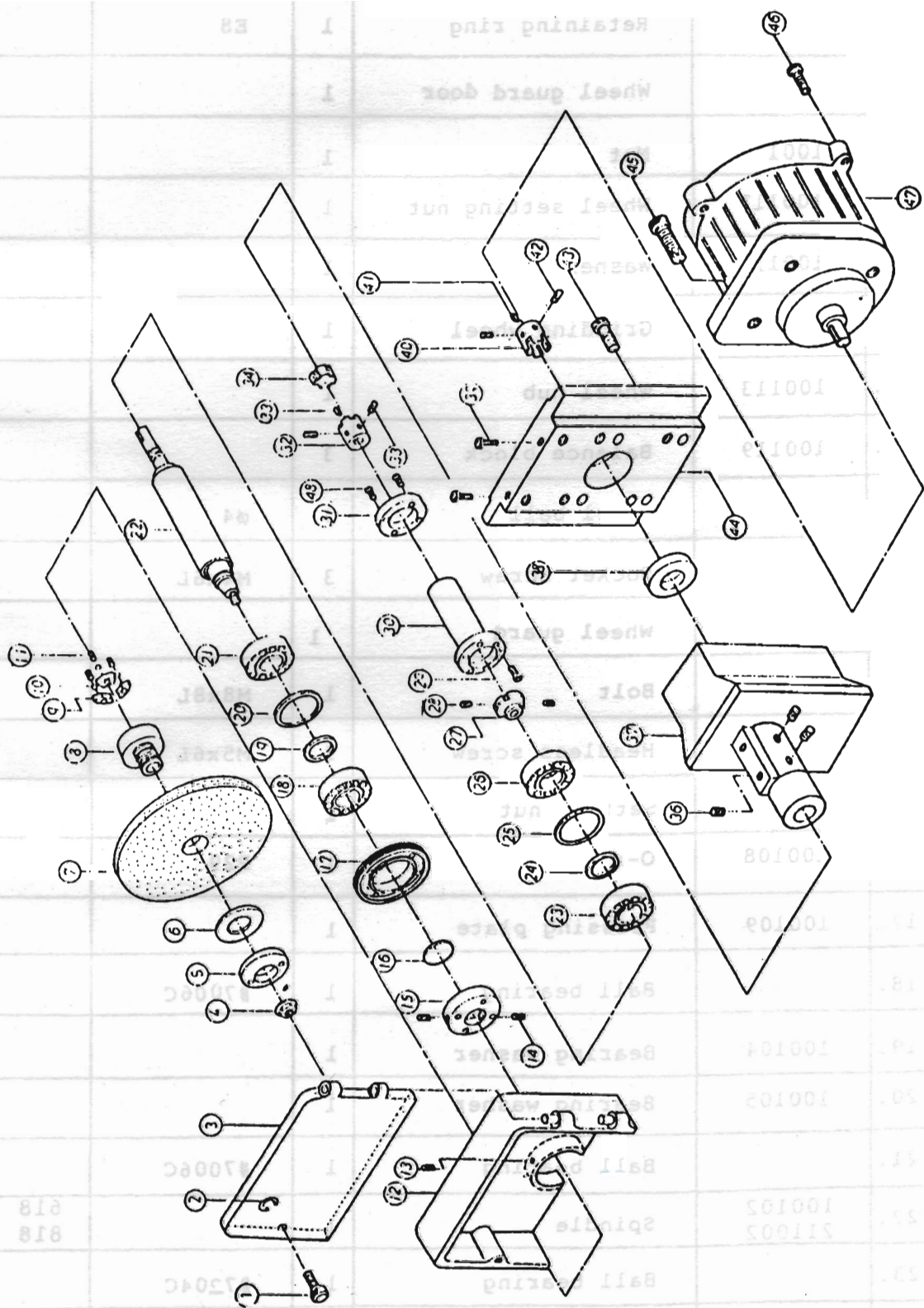
NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS.
1.		Round head screw	8	M5x10L	
2.	100221	Front guard	1		
3.	100222	Front guard	1		
4.	100223	Front guard	1		
5.	100224	Front guard	1		
6.	100225	Front guard	1		
7.	100226	Front guard	1		
8.	100201	Column	1		
9.		Round head screw	2	M4x8L	
10.	100219	Indicator	1		
11.	100220	Top cover	1		
12.		Socket head screw	2	M6x90L	
13.		Round head screw	8	M4x8L	
14.		Round head screw	4	M4x10L	
15.	100227	Plate seat	1		
16.	100228	Plate seat	1		
17.	100204 100205	Leadscrew nut	1	MM INCH	
18.		Hex. screw	2	M6x15L	
19.	100202 100203	Elevating leadscrew	1	MM INCH	
20.		Setting key	1	5x5x15L	
21.	100111	Lock nut	1		
22.		Socket screw	2	M5x8L	
23.		Thrust needle bearing	1	ANK1730 AS1730, CS1730	
24.	100207	Bearing seat	1		

COLUMN

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
25.		Hex. screw	4	M5x15L	
26.		Thrust ball bearing	1	51103	
27.	100209	Bevel gear	1		
28.	100208	Washer	1		
29.		Socket screw	1	M6x16L	
30.	100210	Pinion gear	1		
31.		Taper pin	1	#1x27L	
32.	100235	Pad of gear box	1		
33.	100213-1	Shaft seat	1		
34.		Hex. screw	2	M8x75L	
35.	100211-1	Shaft	1		
36.		Setting key	1	4x4x12L	
37.		Ball bearing	2	6002NR	
38.					
39.		Retaining ring	2	Ø 32	
40.	100218	Bolt	1		
41.	100215 100216	Index disc	1	MM INCH	
42.	100231	Hand wheel	1		
43.		Socket screw	2	M4x8x2	
44.		Socket screw	2	M6x10L	
45.	100217	Setting nut	1		
46.	100232	Adjusting handle	1		
47.					
48.					



SPINDLE



SPINDLE

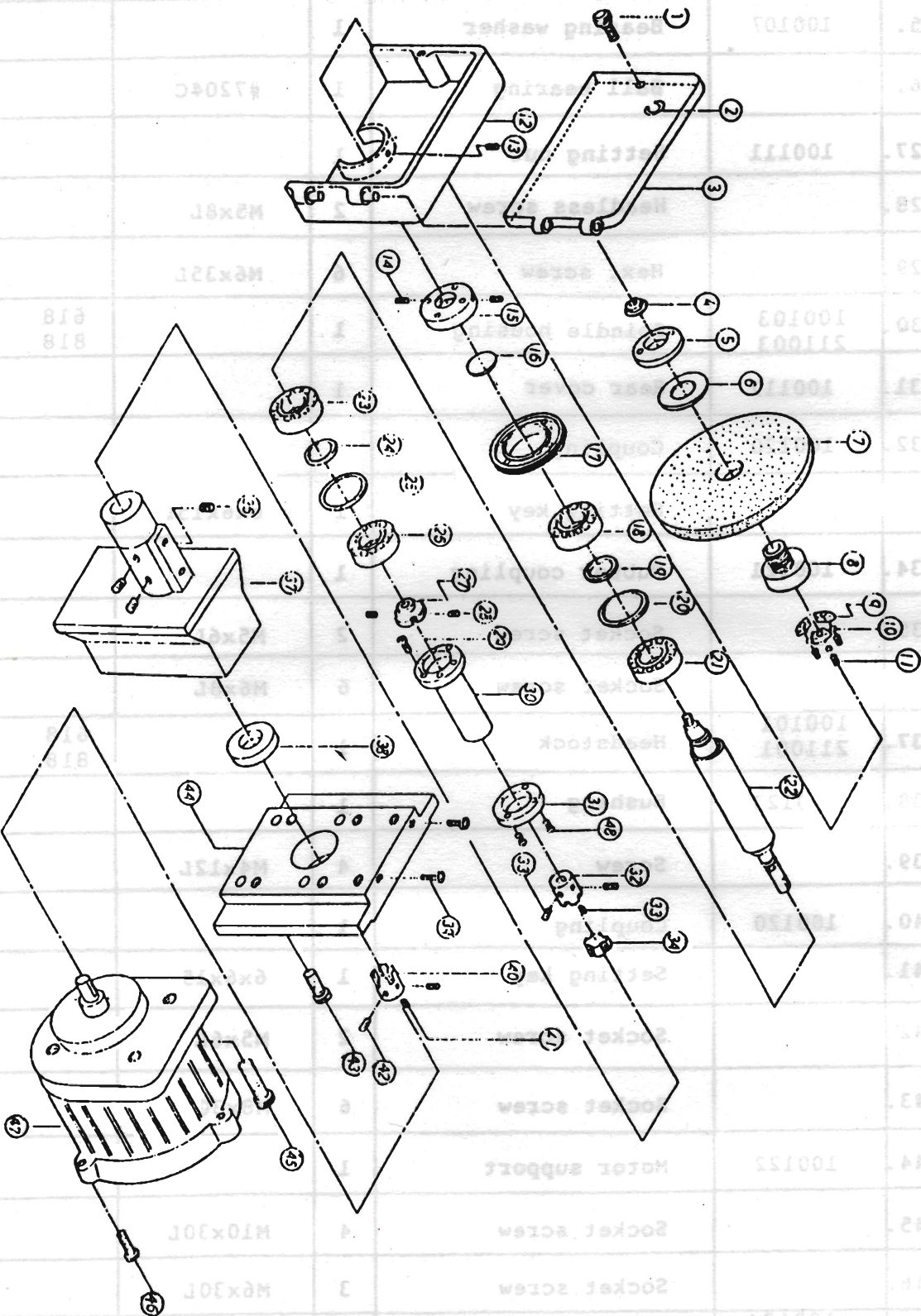
NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
1.	100127	Lock screw	1		
2.		Retaining ring	1	E8	
3.	100125	Wheel guard door	1		
4.	100115	Nut	1		
5.	100117	Wheel setting nut	1		
6.	100116	Washer	1		
7.	100130	Grinding wheel	1		
8.	100113	Wheel hub	1		
9.	100119	Balance block	3		
10.		Steel ball	3	ø4	
11.		Socket screw	3	M4x6L	
12.	100126	Wheel guard	1		
13.		Bolt	1	M8x8L	
14.		Headless screw	2	M5x6L	
15.	100110	Setting nut	1		
16.	100108	O-ring	1	P29	
17.	100109	Pressing plate	1		
18.		Ball bearing	1	#7006C	
19.	100104	Bearing washer	1		
20.	100105	Bearing washer	1		
21.		Ball bearing	1	#7006C	
22.	100102 211002	Spindle	1		618 818
23.		Ball bearing	1	#7204C	
24.	100106	Bearing washer	1		



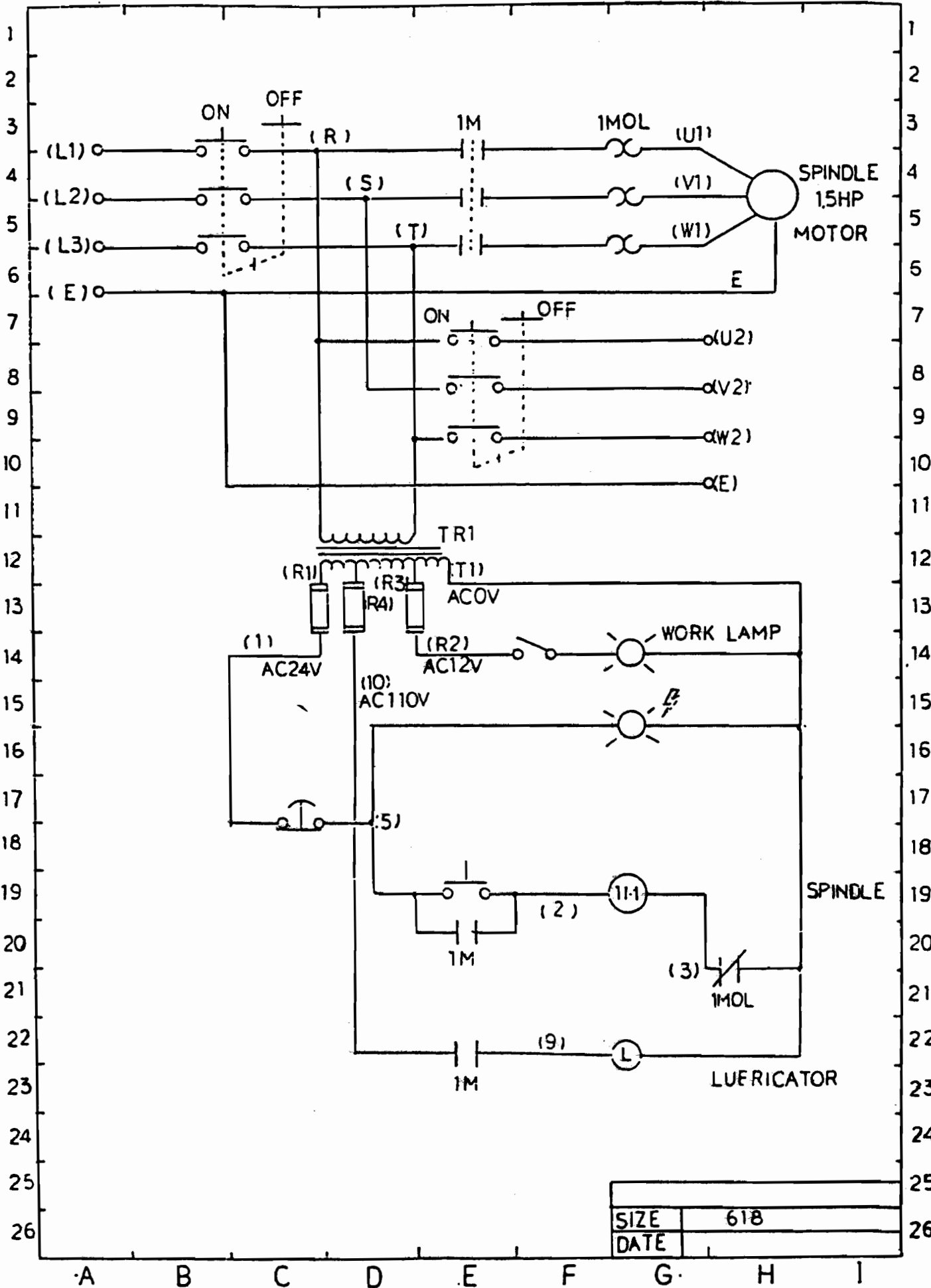
SPINDLE

NO.	PART NO.	DESCRIPTION	Q'TY	SPECIFICATION	REMARKS
25.	100107	Bearing washer	1		
26.		Ball bearing	1	#7204C	
27.	100111	Setting nut	1		
28.		Headless screw	2	M5x8L	
29.		Hex. screw	6	M6x35L	
30.	100103 211003	Spindle housing	1		618 818
31.	100112	Rear cover	1		
32.	100120	Coupling	1		
33.		Setting key	1	6x6x15L	
34.	100121	Rubber coupling	1		
35.		Socket screw	2	M5x6L	
36.		Socket screw	6	M6x8L	
37.	100101 211001	Headstock	1		618 818
38.	100123	Bushing	1		
39.		Screw	4	M4x12L	
40.	100120	Coupling	1		
41.		Setting key	1	6x6x15L	
42.		Socket screw	2	M5x6L	
43.		Socket screw	6	M8x30L	
44.	100122	Motor support	1		
45.		Socket screw	4	M10x30L	
46.		Socket screw	3	M6x30L	
47.	100124 211004	Motor	1	1.5HP	618 818
48.		Round head screw	4	M6x16L	

SPINDLE



ELECTRICAL DIAGRAM



SIZE	618
DATE	