# OPERATION MANUAL

MODEL: **Supra** **618AH/AHD**
**818AHD**

# INDEX

# FOREWORDS

This machine is built by "FORMOSA SPRINGWOOD INTERNATIONAL INC.", #202-1 SENG TSO ROAD, SENG KARNG SHARNG TAICHUNG COUNTY, TAIWAN R. O. C. 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:**
6. INDEXIBLE TABLE HANDWHEEL:
7. INCOPERATED TOOL CABINET:
8. ONE-PIECE SADDLE:

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

Neverthless, 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.

## 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 enviroment.

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.

# SPECIFICATIONS

| DESCRIPTIONS \ MODEL | | Supra 618AH | Supra 618AHD | Supra 818AH | Supra 818AHD |
|---|---|---|---|---|---|
| Table size | | 152 x 460mm<br>6" x 18" | 152 x 460mm<br>6" x 18" | 203 x 460mm<br>8" x 18" | 203 x 460mm<br>8" x 18" |
| Max. grinding length | Longitudinal | 460mm<br>18" | 460mm<br>18" | 460mm<br>18" | 460mm<br>18" |
| Max. grinding width | Crosswise | 168mm<br>6 5/8" | 168mm<br>6 5/8" | 228mm<br>9" | 228mm<br>9" |
| Max. Distance From Table Surface to Spindle Centerline | | 460mm<br>18" | 460mm<br>18" | 460mm<br>18" | 460mm<br>18" |
| Standard magnetic chuck size | | 152 x 460mm<br>6" x 18" | 152 x 460mm<br>6" x 18" | 200 x 460mm<br>8" x 18" | 200 x 460mm<br>8" x 18" |
| Longitudinal movement of table | Max. travel, hydraulic | 482mm<br>19" | 482mm<br>19" | 482mm<br>19" | 482mm<br>19" |
| | Max. travel, Manual | 510mm<br>20" | 510mm<br>20" | 510mm<br>20" | 510mm<br>20" |
| | Table speed, infinitely variable | 5-28m/min | 5-28m/min | 5-25m/min | 5-25m/min |
| Cross transverse travel | ★ Auto transverse increment | 1-10mm<br>0.07"-0.4" | 1-10mm<br>0.07"-0.4" | 1-10mm<br>0.07"-0.4" | 1-10mm<br>0.07"-0.04" |
| | ★ Max. Auto transverse travel | 180mm<br>7" | 180mm<br>7" | 238mm<br>9 3/8" | 238mm<br>9 3/8" |
| | Max. manual transverse travel | 190mm<br>7 1/2" | 190mm<br>7 1/2" | 250mm<br>9 3/4" | 250mm<br>9 3/4" |
| | Handwheel per revolution | 5mm<br>0.2" | 5mm<br>0.2" | 5mm<br>0.2" | 5mm<br>0.2" |
| | Handwheel per graduation | 0.02mm<br>0.0005" | 0.02mm<br>0.0005" | 0.02mm<br>0.0005" | 0.02mm<br>0.0005" |
| Wheelhead vertical infeed | Automatic infeed | — | 0.001-0.04mm<br>0.00005"-0.002" | — | 0.001-0.04mm<br>0.00005"-0.002" |
| | Step feed | — | 0.001mm<br>0.00005" | — | 0.001mm<br>0.00005" |
| ■ | Rapid travel, Approx. | 60HZ, 280mm/min<br>50Hz, 240mm/min | 60HZ, 280mm/min<br>50HZ, 240mm/min | 60HZ, 280mm/min<br>50HZ, 240mm/min | 60HZ, 280mm/min<br>50HZ, 240mm/min |
| | Slow travel, Approx. | — | 6mm/min | — | 6mm/min |
| | Handwheel per revolution | 1mm<br>0.05" | 1mm<br>0.05" | 1mm<br>0.05" | 1mm<br>0.05" |
| | Handwheel per graduation | 0.005mm<br>0.0001" | 0.005mm<br>0.0001" | 0.005mm<br>0.0001" | 0.005mm<br>0.0001" |
| Grinding spindle drive | Speed | 60HZ, 3450R.P.M.<br>50HZ, 2850R.P.M. | 60HZ, 3450R.P.M.<br>50HZ, 2850R.P.M. | 60HZ, 3450R.P.M.<br>50HZ, 2850R.P.M. | 60HZ, 3450R.P.M.<br>50HZ, 2850R.P.M. |
| | Power Rating | 1.5HP | 1.5HP | 2.0HP | 2.0HP |
| Standard grinding wheel | Diameter | 203mm<br>8" | 203mm<br>8" | 203mm<br>8" | 203mm<br>8" |
| | Width | 12mm 1/2" MAX 19mm 3/4" | 12mm 1/2" MAX 19mm 3/4" | 12mm 1/2" MAX 19mm 3/4" | 12mm 1/2" MAX 19mm 3/4" |
| | Bore | 31.75mm<br>1 1/4" | 31.75mm<br>1 1/4" | 31.75mm<br>1 1/4" | 31.75mm<br>1 1/4" |
| Hydraulic motor | Power Rating | 1HP x 6P | 1HP x 6P | 1HP x 6P | 1HP x 6P |
| Crossfeed motor ★ | Power Rating | 1/6HP x 6P | 1/6HP x 6P | 1/6HP x 6P | 1/6HP x 6P |
| Elevating motor ■ | Power Rating | 40W x 4P | 40W x 4P | 40W x 4P | 40W x 4P |
| Floor space | Total space required | 1810x1133x1660mm<br>71" x 45" x 65" | 1810x1133x1660mm<br>71" x 45" x 65" | 1810x1285x1680mm<br>71" x 50 1/2" x 66" | 1810x1285x1680mm<br>71" x 50 1/2" x 66" |
| Weights | Net weight, Approx. | 820KGS<br>1804LBS | 820KGS<br>1804LBS | 1020KGS<br>2244LBS | 1020KGS<br>2244LBS |
| | Gross weight, Approx. | 970KGS<br>2134LBS | 970KGS<br>2134LBS | 1190KGS<br>2618LBS | 1190KGS<br>2618LBS |
| Rated power, approx. | | 2.5HP | 2.5HP | 3.0HP | 3.0HP |
| Packing dimensions | L x W x H | 1500x920x1850mm<br>59" x 36" x 73" | 1500x920x1850mm<br>59" x 36" x 73" | 1500x1040x1970mm<br>59" x 41" x 73 1/2" | 1500x1040x1970mm<br>59" x 41" x 73 1/2" |

NOTE: 1. The manufacturer reserves the right to modify the design, specifications, mechanisms, etc., to improve the performances of the machine without notice. All the specifications shown above are just for reference.

PARTS NAME OF MACHINE:

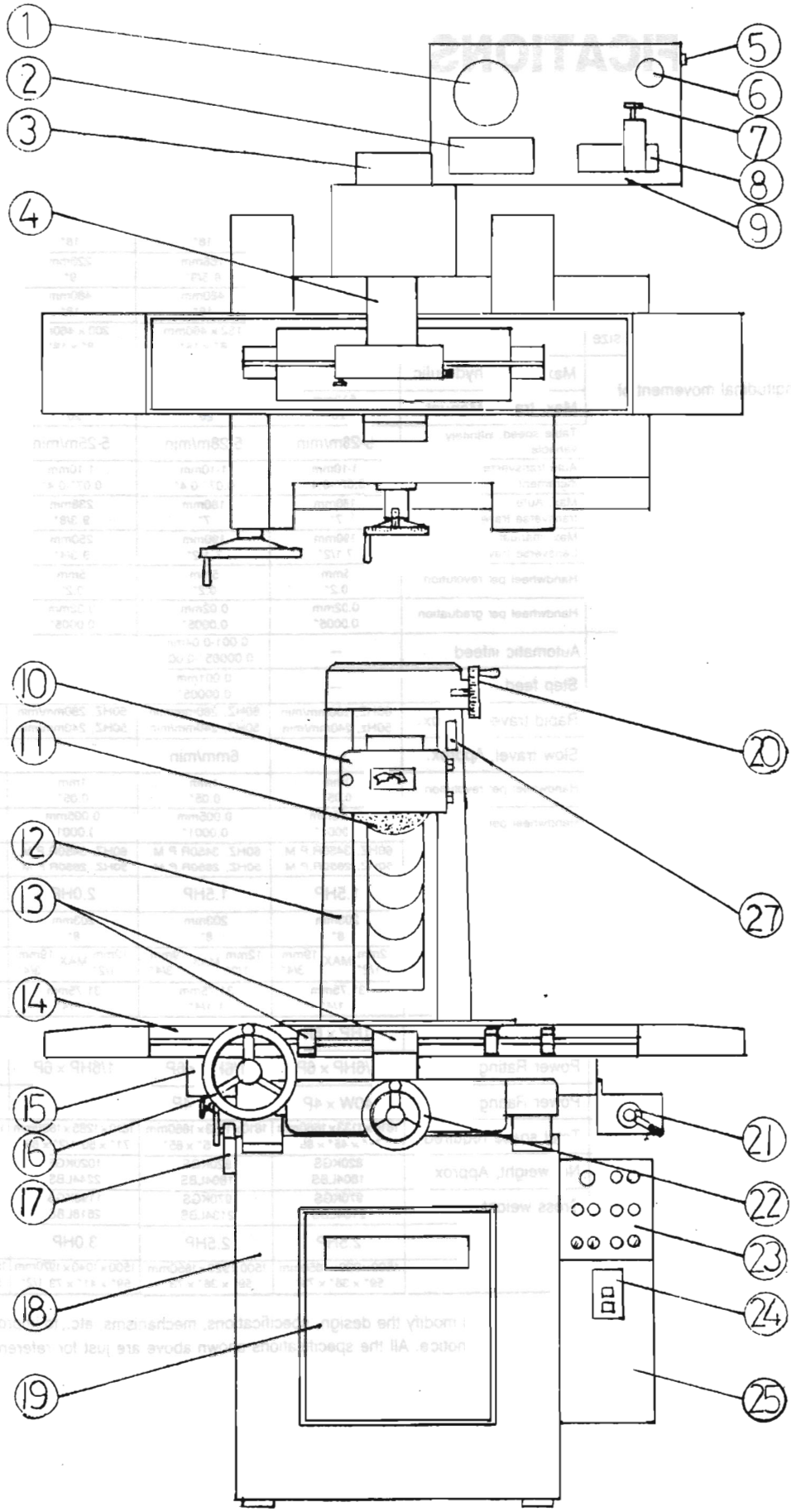
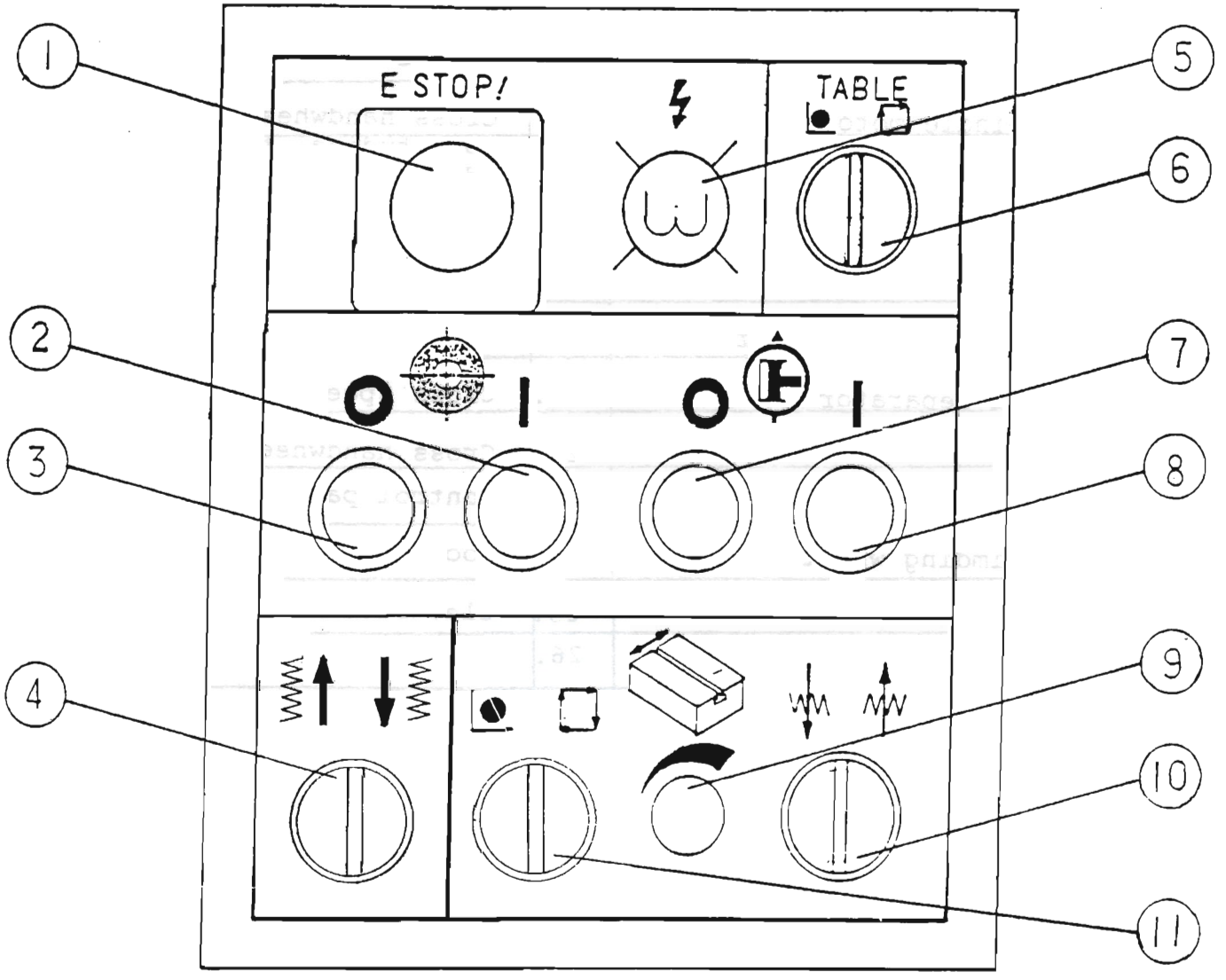



Fig.1

| | | | |
|---|---|---|---|
| 1. | Hydraulic motor | 14. | Table |
| 2. | Pilot operated directional valve | 15. | Saddle |
| 3. | Spindle motor | 16. | Cross handwheel |
| 4. | Spindle | 17. | Longitudinal travel adjuster |
| 5. | Oil gauge | 18. | Base |
| 6. | Oil hole | 19. | Tool cabinet |
| 7. | Pressure regulator | 20. | Downfeed handwheel |
| 8. | Oil separator | 21. | Cross speed control |
| 9. | Oil tank | 22. | Cross handwheel |
| 10. | Wheel guard & spindle | 23. | Control panel |
| 11. | Grimding wheel | 24. | Coolant & dust switch |
| 12. | Column | 25. | Electrical panel |
| 13. | Cross travel adjuster | 26. | |
| | | 27. | Lubricating oil sight gage |

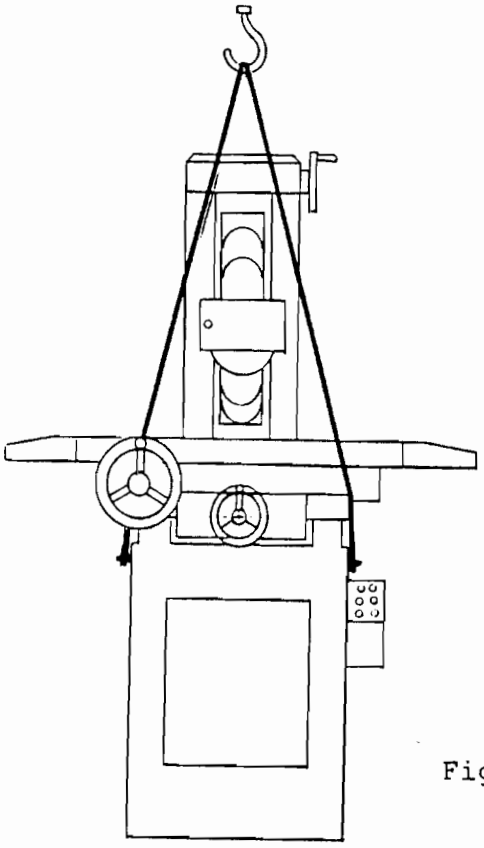
CONTROL PANEL: ( 618AH )




| | | | |
|---|---|---|---|
| 1. | Emergency stop switch | 8. | Motor start button |
| 2. | Spindle-on switch | 9. | Micro longitudinal manual adjusting button (618AH) |
| 3. | Spindle-off switch | | |
| 4. | Rapid up/down switch | 10. | Longitudinal change-over switch |
| 5. | Pilot lamp | 11. | Longitudinal semi-auto & automatic change-over switch |
| 6. | Table automatic & manual | | |
| 7. | Motor stop button | | |

## INSTALLATIONS

A. Lifting:



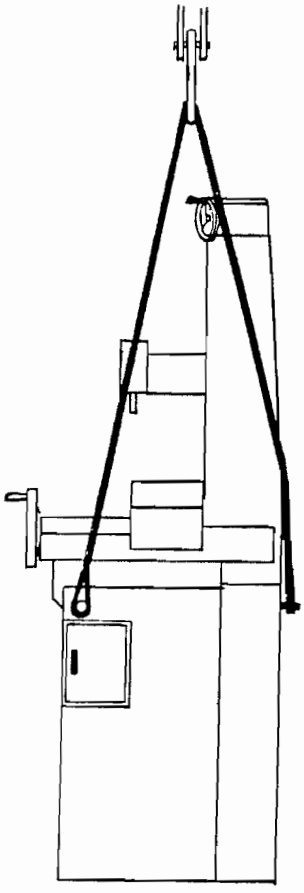


Fig. 3

Use the following facilities to lift the machine:

1. Overhead crane
2. 2 pcs of cables, each at ϕ12.7mm(½") 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:

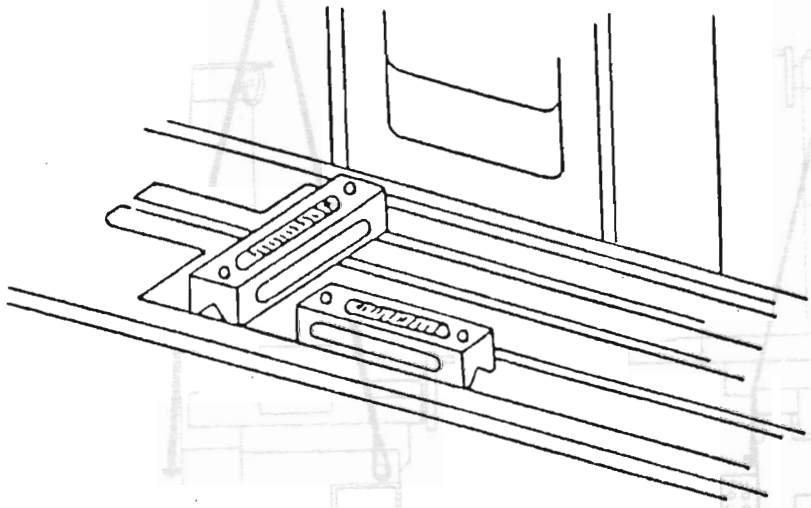


Fig. 4

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 0.02mm/1000mm (0.001"/4FT) on both longitudinal and cross directions. Then lock the nuts on the screws and check the readings again till 0.02mm/1000mm.

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

D. Wheel extracting:

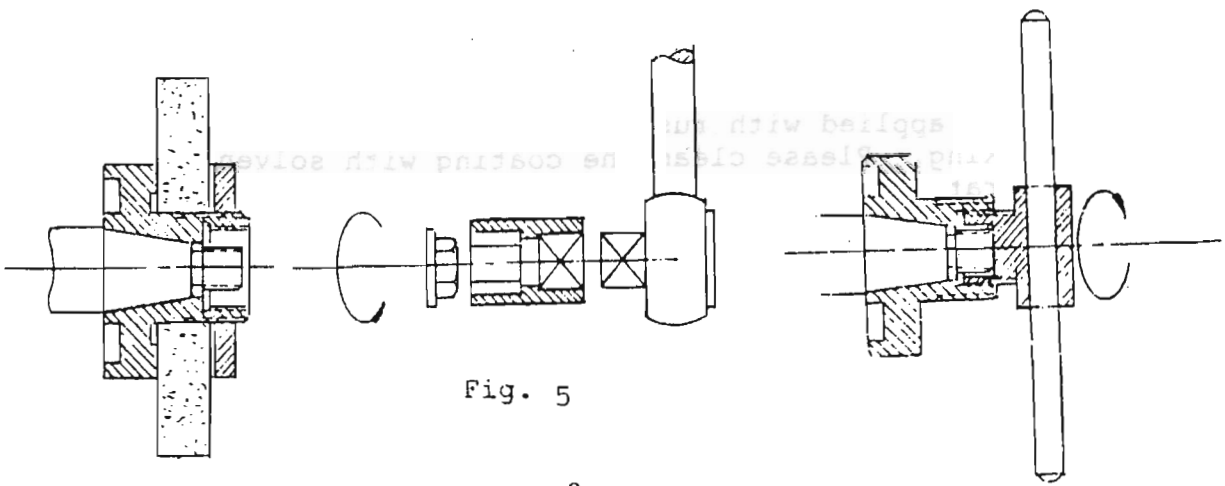


Fig. 5

E. Oil passage installation diagram:

1. Please according to this diagram to fix the position of column and oil tank.
2. Oil pipe connection: In comply with mark on oil pipe and oil tank A→A . B→B. P1→P1. T→T P→P. then tight them by a wrench for avoid oil leakage.
3. Fromc(oil hole) put the oil into oil pressure tank until the oil scale on 1/3~2/3. the capacity of oil about 18 gallon (72l).
4. Please fill in hydraulic tank with any of the following oils after installation but before starting hydraulic motor.
5. Please change hydraulic oil after 3 months use in the begining and then once every 6 months.
6. Recommended oils:

| | | | |
|---|---|---|---|
| SUN | SUNVIS 916 | SHELL | TELUS 32 |
| SHOWA | A-R32 | MOBIL | D.T.E. 24 |
| ESSO | NUTO H32 | TEXACO | LUBE TAC #2 |
| BP | ENERGOL HLP 32 | ARAL | VITAM GF 32 |

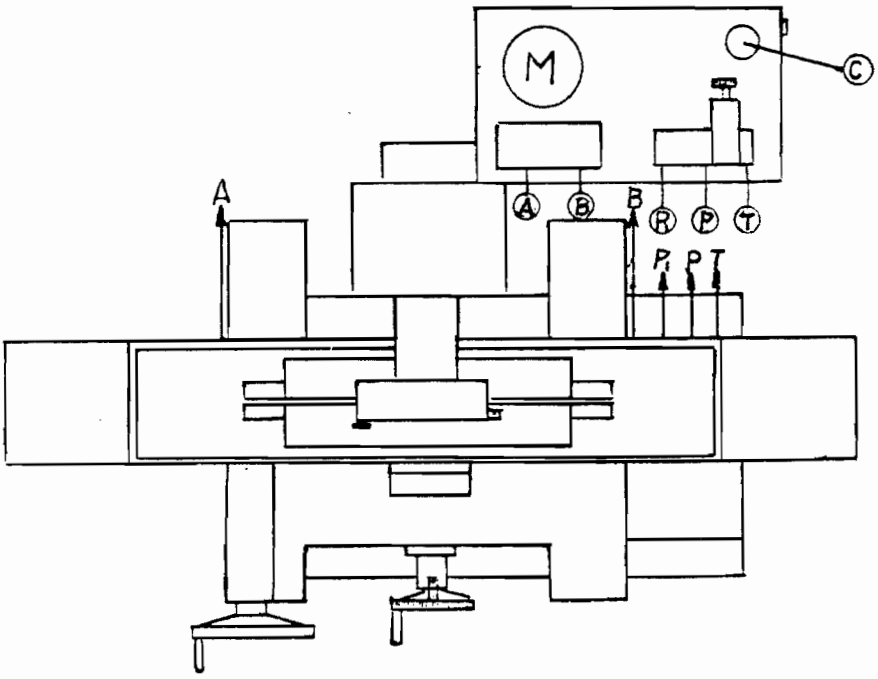



Fig.6

## 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. Selection of grinding wheel:

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

D. Standard wheel markings: ( Fig. 6 )

Grinding wheel selection guide table

Grinding wheel selection guide table(Surfacé grinding)

| | Materials to be ground | Hardness(Rockwell) | Wheel specification |
|---|---|---|---|
| Carbon steel | steel plate<br>carbon steel<br>forged carbon steel<br>cast carbon steel | under HRC 25 | WA A 46H |
| | | above HRC 25 | WA 40J |
| Alloy steel | Ni,Cr steel<br>Ni,Cr,Mo steel<br>Cr steel<br>Cr,Mo steel<br>Al,Cr,Mo steel | under HRC 55 | WA 46J |
| | high carbon, alloy | above HRC 55 | WA 46I |
| | Alloy cast steel<br>tool carbon steel. | HRC 55 | WA 46I |
| tool steel | High speed steel | under HRC 60 | WA 46I |
| | Alloy tool steel | above HRC 60 | WA 46H |
| stainless steel | Stainless steel | | WA 46I |
| | antiheat steel | | WA 36J |
| cast iron | grey cast iron | | C 46J |
| | special cast iron | | GC46I |
| | cold rolling cast iron | | GC46I |
| | malleable cast iron | | WA46K |
| nonferous metal | brass | | C 30J |
| | bronge | | A 46K |
| | aluminum alloy | | C 30J |
| | sintered carbide | | GC60-100HI |

Fig. 7

Standard wheel markings

1 - A - 305x25x127 WA 46 K 8 V 7N 2000M

| Form | Faces | size | Abra-sive type | Grain size | | Grade | Struc-ture | Bend 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 |
| 3. Relieved one side | C | width:W | PW | 14 | 280 | CQ | 2 | R | recor | 1700 |
| 4. Relieved two-side | D | Bore:B | C | 16 | 320 | DR | 3 | | for | 2000 |
| 5. Single recess | E | | CC | 20 | 400 | ES | 4 | S | the | 2400 |
| 6. Straight cup | F | | AZ | 24 | 500 | FT | 5 | E | wheel | 2700 |
| 7. Double recess | M | | | 30 | 600 | GU | 6 | | | 3000 |
| 9. Double cup | N | | | 36 | 700 | HV | 7 | | | 3600 |
| | P | | | 46 | 800 | IW | 8 | | | 4300 |
| | | | | 60 | 1000 | JX | 99 | | | 4800 |
| | | | | 80 | 1200 | KY | 10 | | | |
| | | | | 100 | 1500 | LZ | 11 | | | |
| | | | | 120 | 2000 | M | 12 | | | |
| | | | | 150 | 2500 | N | 13 | | | |
| | | | | 180 | 3000 | | 141 | | | |
| | | | | | 4000 | | 15 | | | |

Fig. 8

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

Dressing of wheel:

a. Dress the wheel with diamond dresser when it is filled with chips or when a poor surface finish is obtained.

b. The installation of a diamond dresser should be inclined to an angle 5-10° from the wheel centerline. When the diamond bit become dull, just turn the diamond collar to the desired angles, shown as Fig. 9.

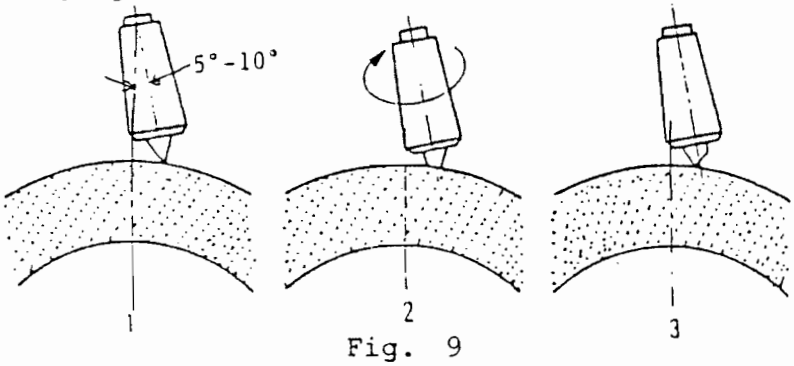



Fig. 9

c. Due to the hadness 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.

d. Recommended dressing speeds

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

F:crossfeed speed(mm/min).

d:grind diamenter( $\mu$ )

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

$$(N = \frac{2000 \times 11000}{\pi \times 510} \approx 1248)$$

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

e. Balance of grinding wheel

To obtain fine surface finish and accuracy, the grinding wheel must be checked and rebalanced periodicaly. (Fig.10) A standard and balanced grinding wheel is supplied with the grinder from manufacturer. Please follow the follwing procedures for balancing.

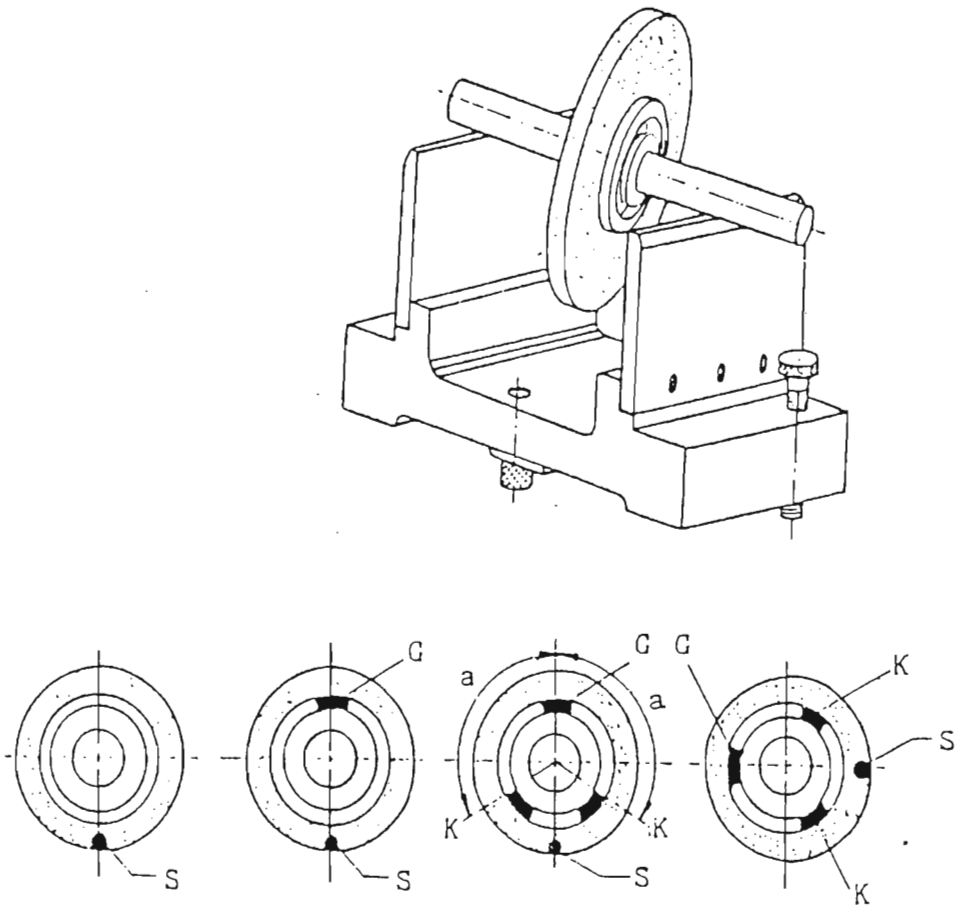
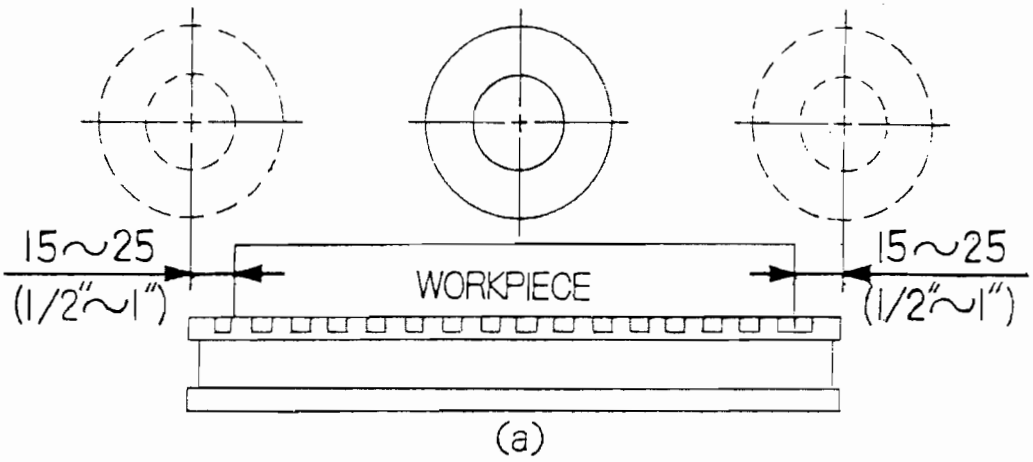
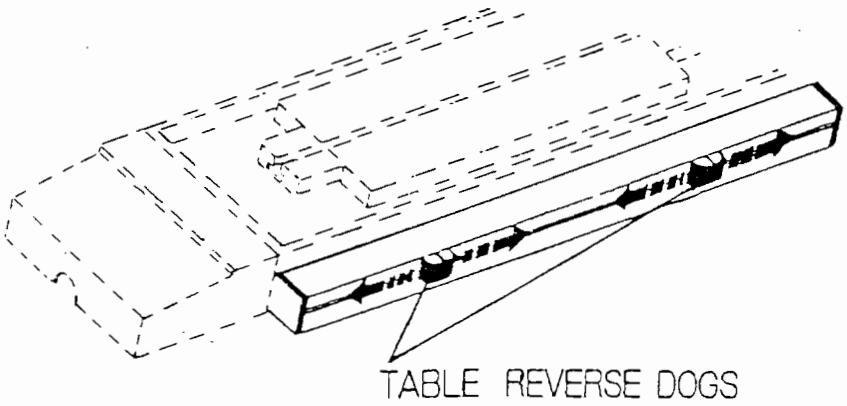



Fig. 10

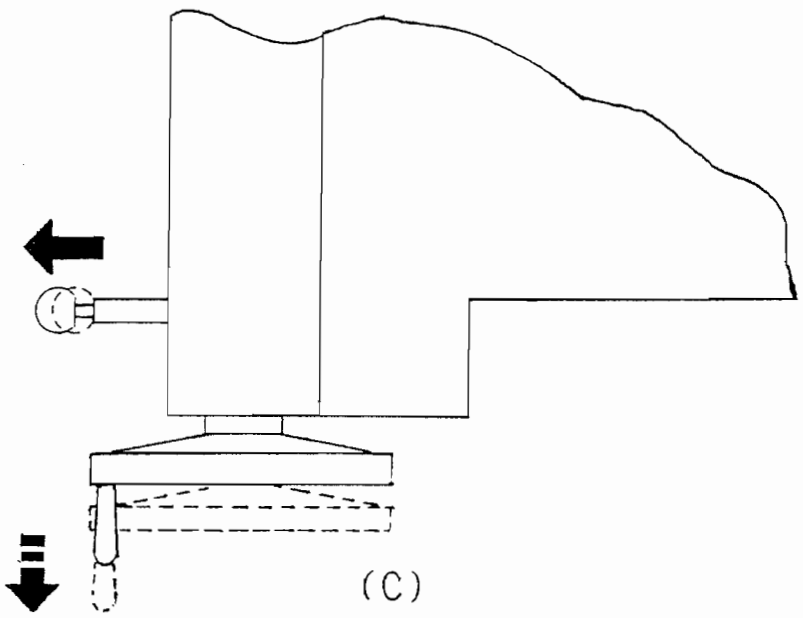
1. Let the wheel roll freely on the stand to find out it's gravity center "S" and mark it with chalk.
2. Insert a balancing block on the opposite side "G" of "S", rotate the wheel 90° to find out "S" or "G" side is heavier.
3. Insert the second balancing block at heavier side "K" which are of the same arc from "G" point.
4. Rotate the wheel 90° to check the baiance 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)




(b)



(C)

Fig. 11

CROSS OIL PRESSURE:(Fig.11)

A. The proper longitudinal travel for grinding process is limited within 15 - 25 mm(1/2" - 1") over workpiece by grinding wheel as shown in fig.11(a). Longitudinal travel relates to the position of the two table reverse dogs (fig.11(b)).

B. Moving the table by cross handwheel: Fig.11(c)

1. At first turn the oil switch (7 off or turn the change-over switch of table at ● (6).
2. Press the cross handwheel matches with the gears cross movement and the table will cross movement, too. (When the hand loosen the handwheel, it will back to original.)

*CAUTION: Disengage table handwheel before operating machine hydraulically.

C. Control the speed of cross oil pressure movement:

1. Turn on the oil pressure motor (8) and turn table switch (6) at □
2. Adjust the handle (P4. 21) to fast speed on clock wise direction. On the other hand, turn it on counter clock wise direction.

REAR-FRNT MANUAL.AUTOMATIC. RAPID FEED OPERATION:( 618AH/ AHR , 818AHD )

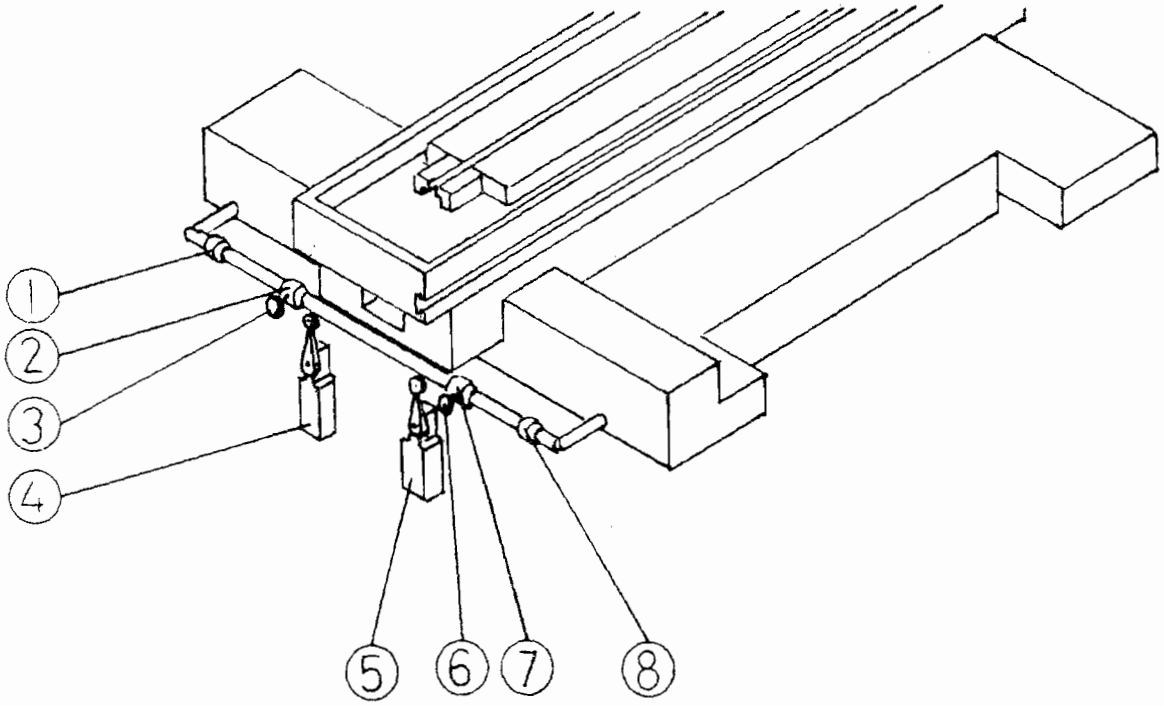



Fig. 12

| | | | |
|---|---|---|---|
| 1. | Rear travel safety limited | 5. | Front travel switch |
| 2. | Rear travel moving set | 6. | Front moving fixed handle |
| 3. | Rear moving travel fixed handle | 7. | Front travel moving set |
| 4. | Rear travel switch | 8. | Front travel safety limited |

Rear-Front manual.Automatic.rapid feed operation:(Fig.12)

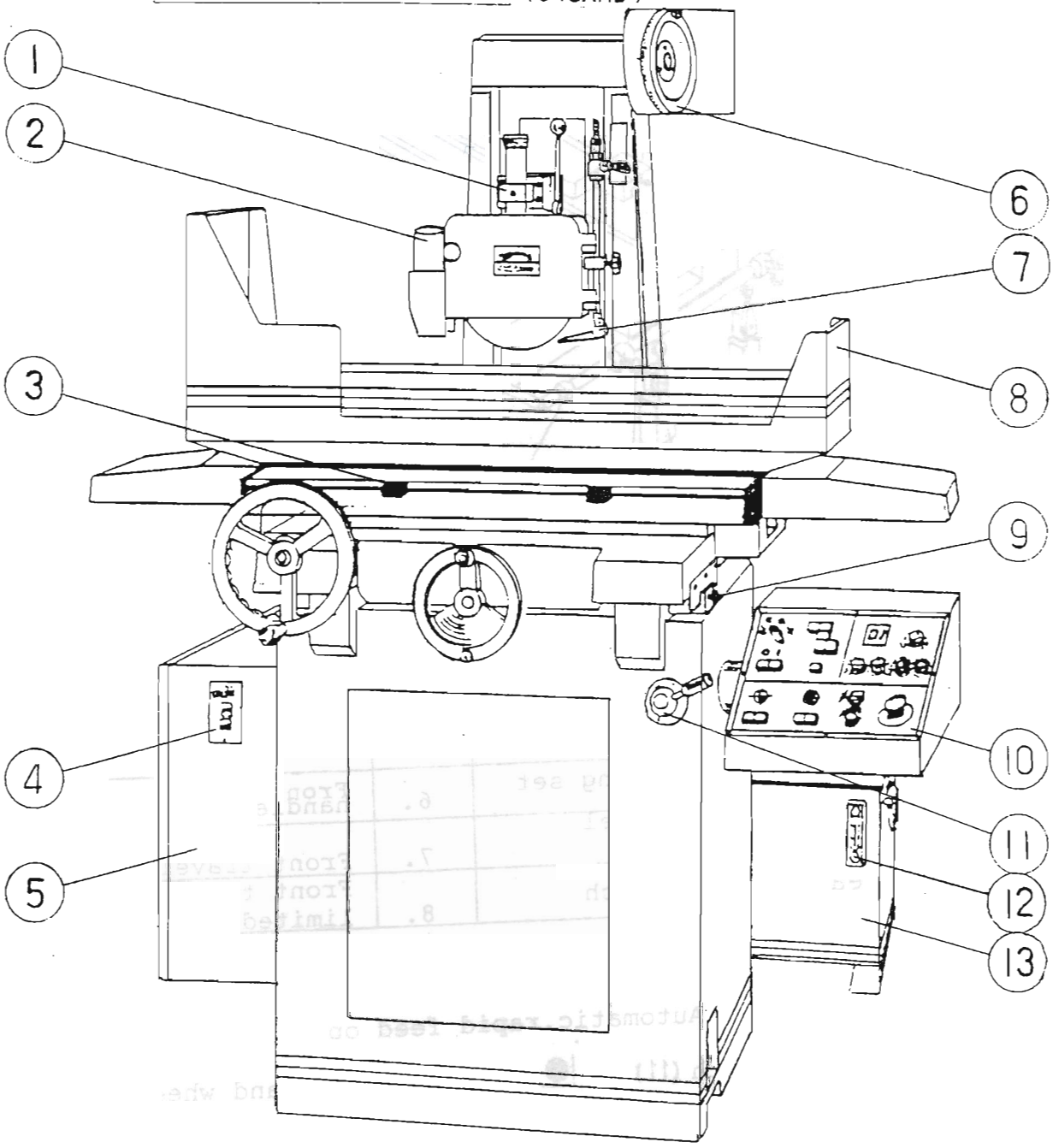
A.Munal:Turn switch (11) at ● then turn the hand wheel directly.

B.Rapid:Please turn the halld wheel into inside direction (it will avoid the operator hurt dy rapid or automatic) then operated (10) for cross rapid movement directly.

C.Automatic:

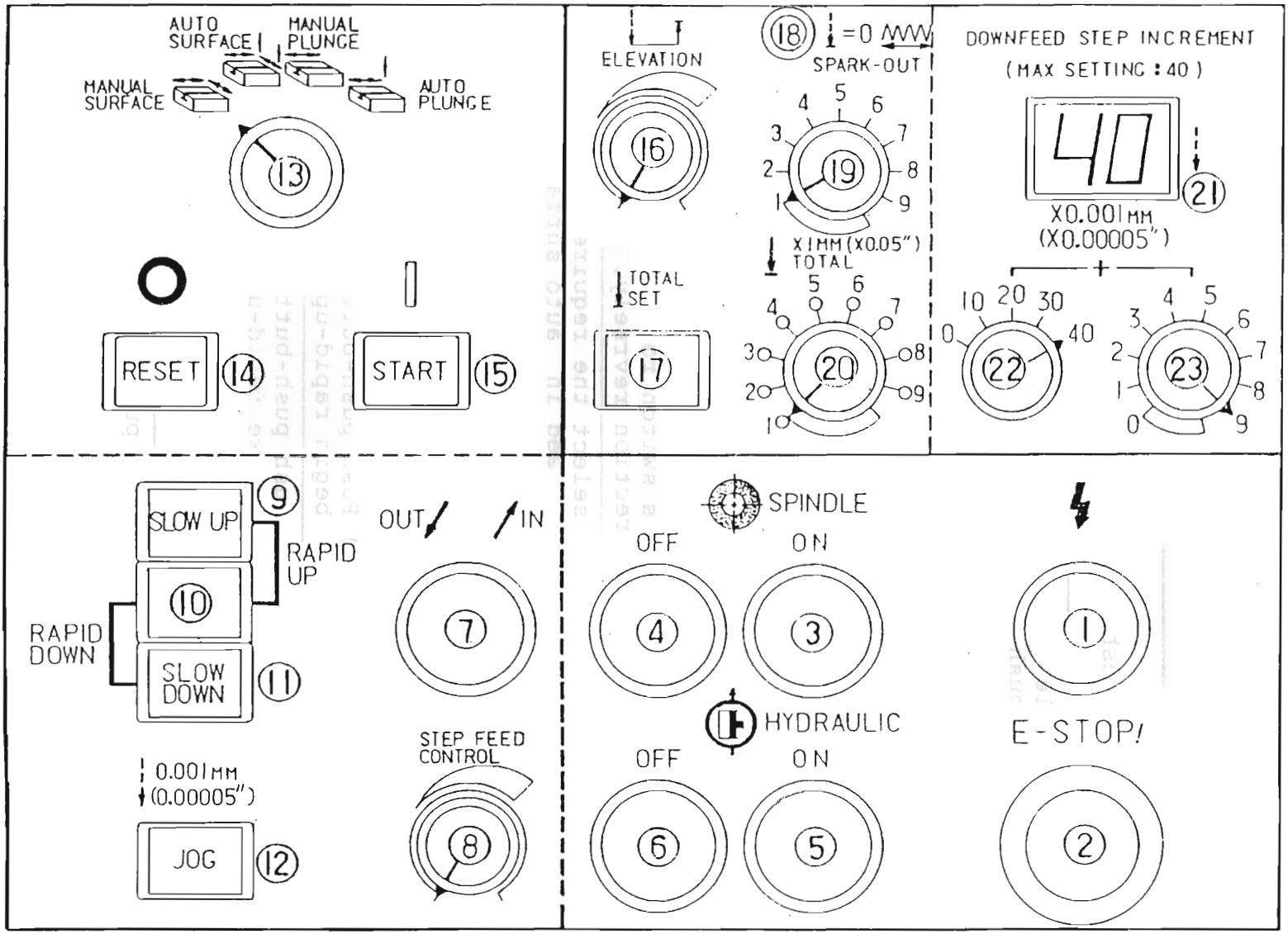
1. At firt turn the handwheel into the ınside direction.
2. Turn switch (11) ai ⟳
3. According to the speed of cross oil pressure to control it.when the table moving to ihe end of both sides it wi (11) forward or retreat automalic.
4. The incremet length of cross movemene is adjusted by no(9)in control panel (Ref to Fig.2)
5. Grinding middle plate (10) and also have forcible change dirctianfunction forimprove the grinding effect.

PARTS NAME OF MACHINE (818AHD)




| | | | |
|---|---|---|---|
| 1 | *Parallel dressing attach. | 8 | *Splash guard |
| 2 | Dust collecting nozzle | 9 | Cross saddle lock |
| 3 | Hydr. table travel adjust | 10 | Control panel |
| 4 | Coolant/Dust system ON/OFF | 11 | Table speed control unit |
| 5 | Electric box | 12 | Oil theromometer/guage |
| 6 | Vertical feed handwheel | 13 | Hydraulic oil tank |
| 7 | *Coolant nozzle | | |

*Items marked with asterisk are optional at extra cost


AUTO SURFACE
MANUAL PLUNGE
MANUAL SURFACE
AUTO PLUNGE
13
RESET
14
START
15
ELEVATION
16
TOTAL SET
17
18
=0
SPARK-OUT
19
X1MM(X0.05")
TOTAL
20
DOWNFEED STEP INCREMENT
(MAX SETTING : 40)
40
21
X0.001MM
(X0.00005")
22
23
SLOW UP
9
RAPID UP
10
RAPID DOWN
SLOW DOWN
11
OUT
IN
7
0.001MM
(0.00005")
JOG
12
STEP FEED CONTROL
8
SPINDLE
OFF
ON
4
3
HYDRAULIC
OFF
ON
6
5
1
E-STOP!
2

# DEFINITION OF AHD CONTROL PANEL (OPERATION INSTRUCTION)

| NO | ELECTRICAL CODE NO | SYMBOLIC DEFINITION | DESCRIPTION |
|---|---|---|---|
| 1 | | Power indicator lamp | Light-on represents normal power supply |
| 2 | | Emergency stop push-button | To stop all motors and functions |
| 3 | | Spindle start push-button | To start the spindle(wheel head) |
| 4 | | Spindle stop push-button | To stop the spindle(wheel head) |
| 5 | | Hydraulic start push-button | To start hydraulic system for table reversal motion |
| 6 | | Hydraulic stop push-button | To stop hydraulic system |
| 7 | | Rapid in/out switch | To select rapid inward or outward saddle motion<br><br>In auto surface mode, the operator can use this switch to toggle the proceeding direction revrsely. |
| 8 | | Variable step increment of crossfeed selector | To select the required step increment of crossfeed in auto surface mode |
| 9 | | Wheelhead slow-up push-button | a) Push push-button (9) to begin slow-up motion on wheelhead<br><br>b) Push push-button (9) & 10 together to begin rapid-up motion on wheelhead |
| 10 | | Rapid up/down push -button | a) Push push-button (9) & (10) together to invoke rapid-up motion on wheelhead<br><br>b) Push push-button (11) & (10) together to invoke rapid-down motion on wheelhead |
| 11 | | Wheelhead slow-down push-button | a) Push push-button (11) to invoke slow-down motion on wheelhead<br><br>b) Push push-button (11) & (10) together to invoke rapid-down motion on wheelhead |
| 12 | | Downfeed jogging push-button | In inches, 0.00005" downfeed increment/ per push<br><br>In metric, 0.001mm downfeed increment/ per push |

# DEFINITION OF AHD CONTROL PANEL (OPERATION INSTRUCTION)

| NO | ELECTRICAL CODE NO | SYMBOLIC DEFINITION | DESCRIPTION |
|---|---|---|---|
| 13 | | Grinding mode selector | There are four selections as follows:<br><br>A. Manual surface mode:<br>In this mode,<br>(a) When light of button (14) is on, below functions are available:<br>1) Rapid in/out by push-button (7)<br>2) Rapid/slow up/down by push-button (9) , (10) , (11)<br>3) Jogging by push-button (12)<br><br>(b) When light of button (15) is on, and the the table has been started by turning table speed control and the required step increment of crossfeed has been set on selector (8) ,<br>1) Table running direction toggle by switch (7)<br>2) Workpiece approaching by push-button (9) , (10) , (11)<br>3) Jogging by push-button (12)<br><br>B. Auto surface mode:<br>In this mode,<br>(a) When light of push-button (14) is on, below functions are available:<br>1) Rapid in/out by push-button (7)<br>2) Jogging by push-button (12)<br><br>(b) When light of push-button (15) is on, auot downfeed surface mode is already invoked, and auto downfeed will start on the access of table and saddle motion<br><br>The wheelhead is raised up and all motors stopped automatically upon completion of spark-out passes<br><br>1) Step increment of crossfeed by selector (8)<br>2) Table running director toggle by switch (7)<br>3) Jogging by push-button (12)<br>4) Selector (16) , (17) , (19) , (20) , (22) , (23) may be adjusted in the cycle, but the change will effect the current cycle.<br><br>C. Manual plunge mode:<br>In this mode, |

# DEFINITION OF AHD CONTROL PANEL (OPERATION INSTRUCTION)

| NO | ELECTRICAL CODE NO | SYMBOLIC DEFINITION | DESCRIPTION |
|---|---|---|---|
| | | | Auto step feed, rapid in/out on cross travel are disabled, only manual feed on cross travel available.<br><br>1) Jogging by push-button (12)<br>2) Rapid/slow up/down by push-button (9) , (10) , (11)<br><br>D. Auto plunge mode:<br>In this mode,<br><br>a) When light of push-button (15) on, auto downfeed plunge mode is already invoded, and auto downfeed will start upon the access of table strokes.<br><br>The wheelhead is raised and all motors are auotmatically stopped upon completion of spark-put passes.<br><br>1) Jogging by push-button (12) .<br>2) Selector (16) , (17) , (19) , (20) , (22) , (23) may be adjusted in the cycle, and the cange will effect the current cycle.<br><br>b) When light of push-button (14) on,<br><br>1) Jogging by push-button (12) .<br>2) Rapid up/down, rapid in/out not available. |
| 14 | | Reset push-button | To cancel the previous setting on selector (13) , which have been in effect. |
| 15 | | Set push-button | To invoke the current setting on selector (13) , put the setting into effect. |
| 16 | | Elevation amount selector | To set the required amount to be elevated upon the completion of spark-out passes. |
| 17 | | Total amount setting push-button | To invoke the current setting on total amount selector (20) .<br><br>The setting on total amount selector (20) won't re-effect the current downfeed |

# DEFINITION OF AHD CONTROL PANEL (OPERATION INSTRUCTION)

| NO | ELECTRICAL CODE NO | SYMBOLIC DEFINITION | DESCRIPTION |
|---|---|---|---|
| | | | Useful occasion:<br><br>After the workpiece changed and the required total downfeed amount selected, push this push-button as confirmation of the current setting.<br><br>pushing this push-button during the proceeding downfeed cycle will change the proceeding total downfeed amount |
| 18 | | Zero downfeed indicator lamp | The lamp light goes on on completion of downfeed increments, preset spark-out passes will be proceeded at this time. |
| 19 | | Sparks-out passes selector | To set the required spark-out passes, which will be proceeded upon completion of downfeed increments. |
| 20 | | Total downfeed amount (increments) selector | To set the required downfeed increments for either auto plunge mode or auto surface mode. |
| 21 | | Downfeed step increment display window | The display window shows the current downfeed increment being proceeded.<br><br>Actual downfeed step increment<br><br>=displayed value X 0.001mm(in metric),<br>=displayed value X 0.00005"(in inches) |
| 22<br>23 | | Downfeed step increment selector | In metric:<br><br>Selectable downfeed step increment goes from 0.001,0.002,0.003,.....,0.039, 0.040mm(40 steps).<br><br>Downfeed step increment= selected value on selector (22) X0.001mm + selected value on selector (23) X 0.001mm<br><br>In inches:<br><br>Selectable downfeed step increment goes goes from 0.00005", 0.00010",....., 0.002"(40 steps).<br><br>Downfeed step increment= selected value on selector (22) X 0.00005" + selected value on selector (23) X 0.001mm |

# GRINDING PROCEDURES IN AUTO GRINDING MODE

| NO | ACTION | FUNCTION SWITCH |
|---|---|---|
| 1 | Rapid down approaching | Switch to manual surface/plunge mode on selector switch (12), then push button (10),(11) at the same time |
| 2 | Slow down approaching | Switch to manual surface/plunge mode on selector switch (13), then push button (11) |
| 3 | Jogging | Push button (12) |
| 4 | Auto increments | Switch to auto surface/plunge mode push button (15) till light of it on (in auto surface mode, check selector switch (8) not on zero-position).<br>Then access auto downfeed cycle. During auto downfeed cycle, the machine will lower the wheelhead according to the increment amount set on slector (22) , (23) and the total downfeed amount set on selector (20).<br>*Real downfeed amount is relative to the setting on selector (20) and the setting on vertical handwheel. |
| 5 | Zero-downfeed spark-out | Execute spark-out passes relative to selector button (19) . |
| 6 | Table parks automatically | The table parks automatically at table end and all motors are stopped |
| 7 | Wheelhead rise-up | Wheelhead rises relative to selector switch (16) . |
| 8 | Repeat | After replacing workpieces for grinding, push-button (5) to start the hydraulic system, push push-button (3) to start the spindle, then push push-button (15) to access auto downfeed cycle( step 4 - 8).<br>The operator may need to re-approach the workpiece after the workpiece is changed, the elevation amount after auto grinding cycle is relative to selector switch (16) and adjust may be needed till proper elevation amount obtained. |

MAINTENANCE

A. Lubrication: (Fig.13)

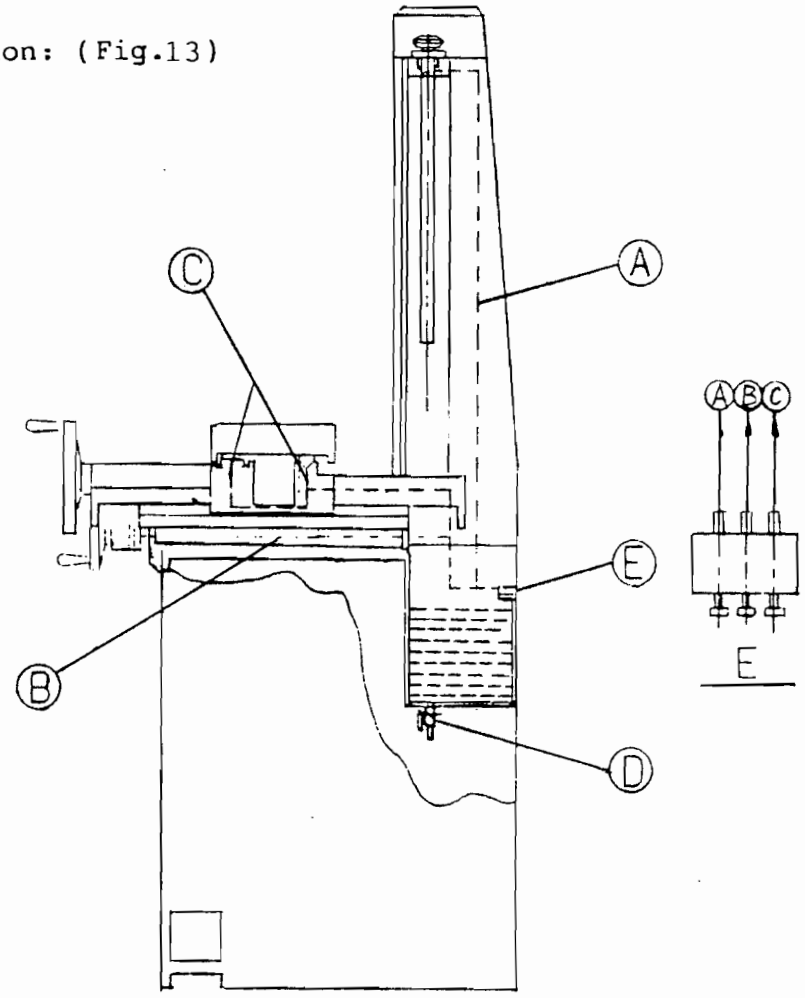



Fig.13

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

B. 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

C. RECOMMENDED OILS:

Mobil ISO VG32 (SW32)
FBK OIL RO#32
ESSC FEBI SK#53

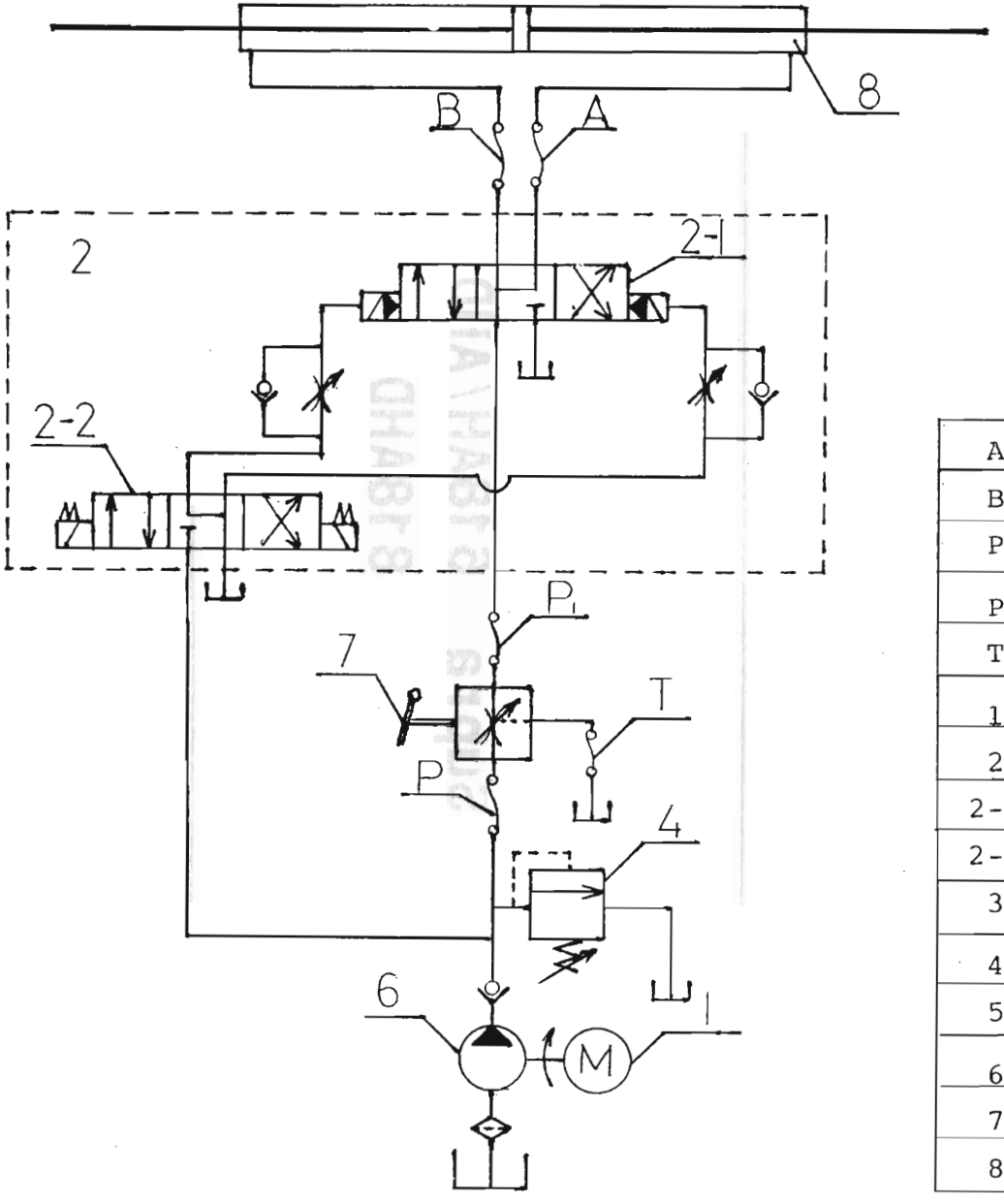
## MAINTENANCE

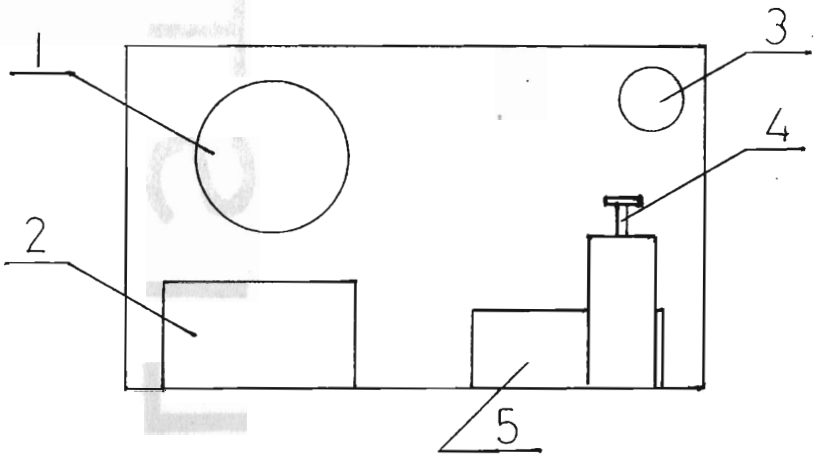
1. Clean the machine daily after jobs but do not use compressed air.
2. Do not allow dust or chips get in the slide ways. To do so, it is suggested to use a dust unit during dry grindings.
3. The spindle motor should be cleaned with a vacuum yearly. At no time should you use compressed air to clean motor.
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.<br>2.Check the spindle. |
| | Grinding wheel is unbalanced. | 1.Dress the wheel again.<br>2.Balance the wheel. |
| | Wheel is too hard | 1.Use a soft wheel.<br>2.Use a rough wheel.<br>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.<br>2.Slow the crossfeed speed.<br>3.Block in the work piece to prevent movement. |
| | Improper dressing the wheel | 1.Slow the dressing speed.<br>2.Tighten the dresser well.<br>3.Use the proper dressing speed.<br>4.Don't dress too deep at a time. |
| Burning spots and cracks | Improper operation | 1.Reduce the feeding amount.<br>2.Use the proper crossfeed speed. |
| | Improper heat treatment | Re-heat treat |
| | Unsuitable grinding wheel | 1.Dress the wheel finely and frequently.<br>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.<br>2.Slow the wheel revolution, (reduce the wheel diameter or width).<br>3.Use the sharp diamond to dress the wheel.<br>4.Chose a rougher wheel. |
| Wheel dulls and the grit falk off | Wheel is too soft | 1.Reduce the table speed and crosfeed speed.<br>2.Increase the wheel revolution speed,or enlarge the wheel diameter,if possible<br>3.Dress the wheel lightly and repeatly. |

# HYDRAULIC CIRCUIT DIAGRAM



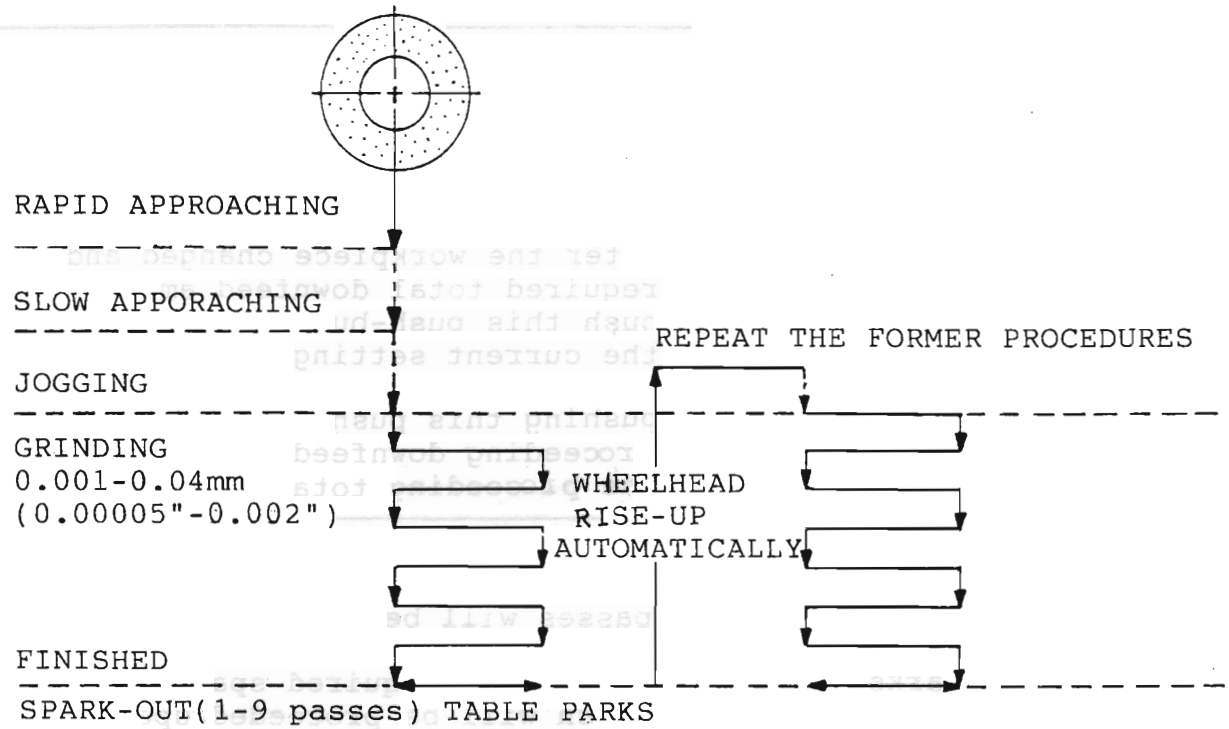




| | | |
|---|---|---|
| A. | Hight pressure hose | 3/8"x950L |
| B. | " | 3/8"x1350L |
| P. | " | 3/8"x950L |
| P1. | " | " |
| T. | " | " |
| 1. | Hydraulic system motor | 1HP/6P |
| 2. | Directonal valve with | |
| 2-1. | Directional valve | |
| 2-2. | Solenoid control valve | |
| 3. | Strainer | |
| 4. | Presure reducing valve | |
| 5. | Hydraulic circuit plate | |
| 6. | Positive vane pump | 16cc/REV |
| 7. | volume control valve to regulate the longitudinal speed of grinder | |
| 8. | Longitudinal cylinder | |

# PARTS LIST

MODEL: **Supra 618AH/AHD**
**818AHD**

# INDEX




**AUTO SURFACE GRINDING MODE**

Downfeed increment occurs at the same as cross direction reverses.

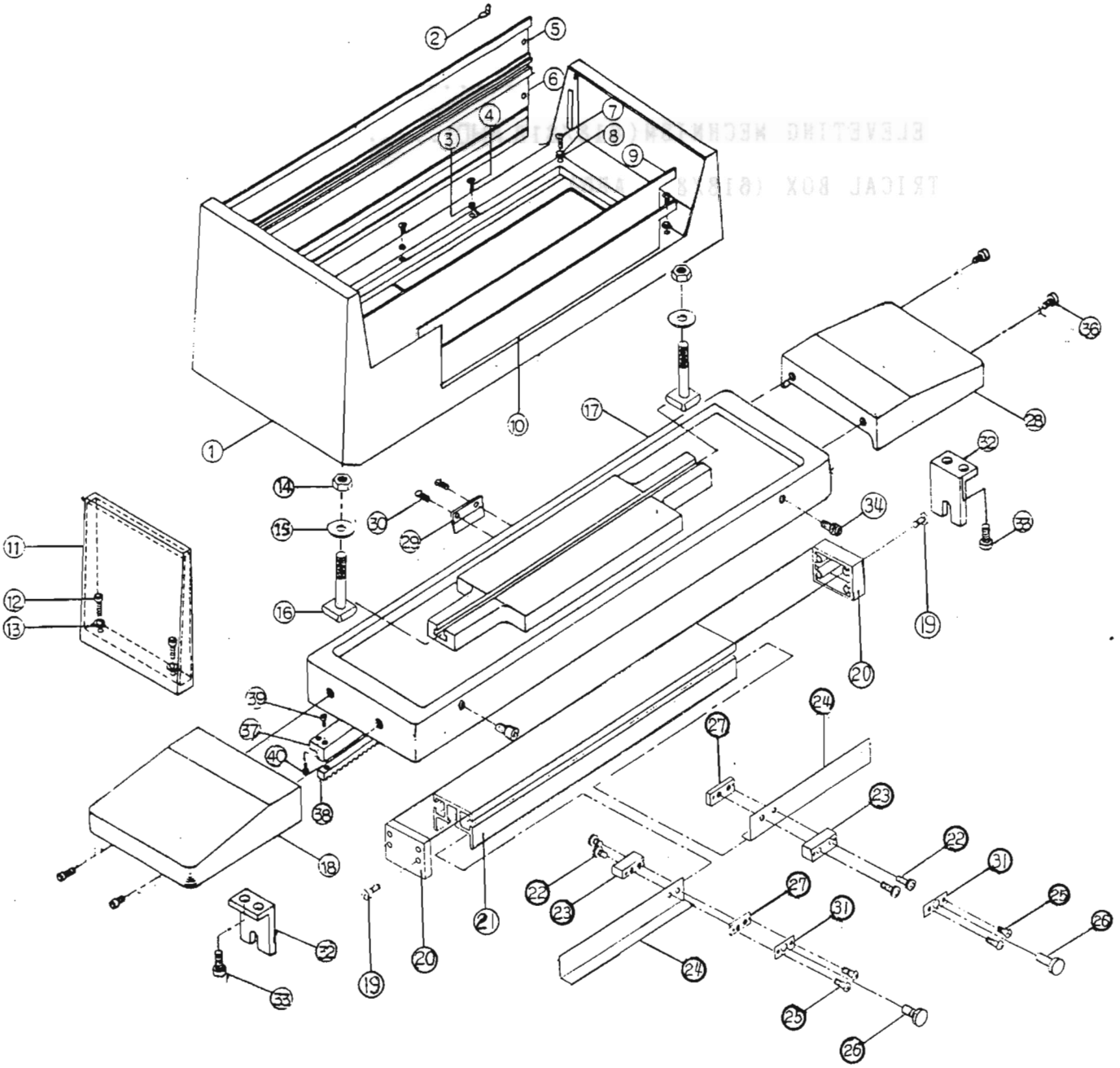
After grinding cycle completed, table parks, wheelhead stops, and rises up automatically

**AUTO PLUNGE GRINDING MODE**

Crossfeed is not moved, downfeed increment occurs at the time that table reverses from right end.

After grinding cycle completed, table parks, wheelhead stops and rises up auotmatically.

# TABLE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A:618AH
B:818AHD

## TABLE

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 1. | 100809<br>100822 | Splash guard | 1 | | A<br>B |
| 2. | | Wing nut | 2 | 1/4" | |
| 3. | | Plate washer | 4 | $\phi$ 6 | |
| 4. | | Cross head screw | 4 | M6x25L | |
| 5. | 100810 | Rear splash plate | 1 | | |
| 6. | 100810 | Rear splash plate | 1 | | |
| 7. | | Cross head screw | 4 | M6x25L | |
| 8. | | Plate washer | 1 | $\phi$ 6 | |
| 9. | 100811 | Front splash guard | 1 | | |
| 10. | 100811 | Front splash plate | 1 | | |
| 11. | 100808<br>214004 | Left-hand splasher | 1 | | A<br>B |
| 12. | | Hex screw | 2 | M6x25L | |
| 13. | | Plate washer | 2 | $\phi$ 6 | |
| 14. | | Hex nut | 2 | 3/8" | |
| 15. | | Plate washer | 2 | $\phi$ 10 | |
| 16. | 100432-1 | T-nut | 2 | | |
| 17. | 100401<br>224001 | Table | 1 | | A<br>B |
| 18. | 200407<br>224002 | Left-end cover | 1 | | A<br>B |
| 19. | | Cross head screw | 8 | M4x16L | |
| 20. | 200431 | Side cover of induction rail | 2 | | |
| 21. | 200425 | Longitudinal induction rail | 1 | | |
| 22. | | Sock head cap screw | 4 | M5x14L | |
| 23. | 200432 | Locking block of sensor-detected sheet | 2 | | |
| 24. | 200434 | Longitudinal sensor-detected sheet | 2 | | |

TABLE

A:618AH
B:818AHD

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 25. | | Cross head screw | 4 | M4x20L | |
| 26. | 200436 | Cross head screw | 2 | | |
| 27. | 200427 | Clamping block of sensor-detected sheet | 2 | | |
| 28. | 200408<br>224003 | Right end cover | 1 | | A<br>B |
| 29. | 100428 | Anti-water plate | 1 | | |
| 30. | | Hex screw | 1 | M4x10L | |
| 31. | 200428-1 | Longitudinal sensor adjusting block | 2 | | |
| 32. | 200409 | Cylinder supporter | 2 | | |
| 33. | | Hex screw | 4 | M8x25L | |
| 34. | | Sock head cap screw | 2 | M6x16L | |
| | | | | | |
| 36. | | Hex screw | 4 | M8x20L | |
| 37. | 200403 | Longitudinal rack seat | 1 | | |
| 38. | 200404 | Longitudinal rack | 1 | | |
| 39. | | Hex screw | 6 | M6x20L | |
| 40. | | Hex screw | 5 | M6x12L | |
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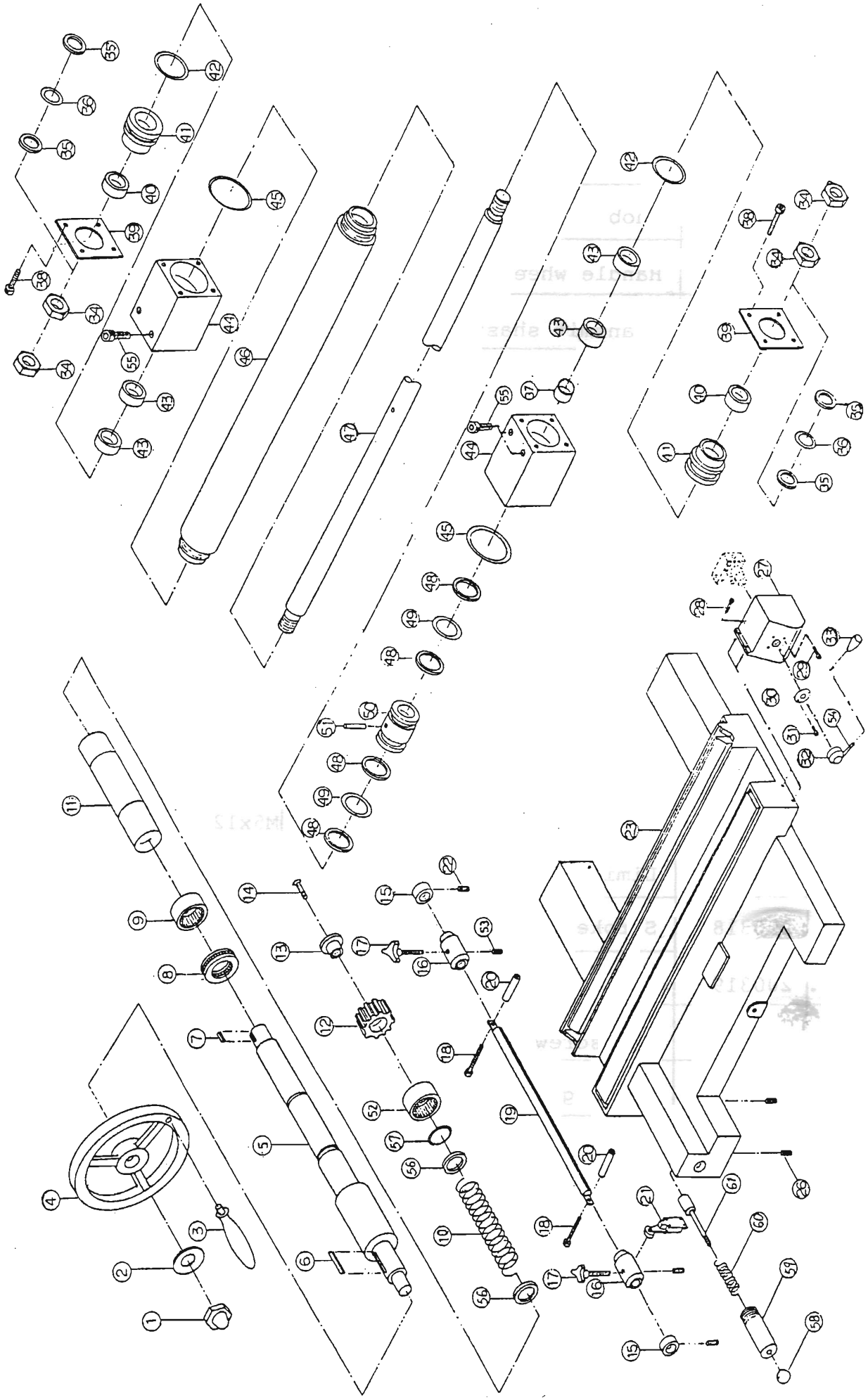

A:618AH/AHD
B:818AHD

## SADDLE

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 1. | | Cup nut | 1 | M12 | |
| 2. | | Washer | 1 | $\phi$12 | |
| 3. | 100430 | Knob | 1 | | |
| 4. | 100422 | Handle wheel | 1 | | |
| 5. | 200410-1<br>224004 | Transmit shast | 1 | | A<br>B |
| 6. | | Wood ruff key | 1 | 5x5x20L | |
| 7. | | Wood ruff key | 1 | 4x4x12L | |
| 8. | | Thrust bearing | 1 | 51103 | |
| 9. | | Needle bearing | 1 | DHK1712 | |
| 10. | | | | | |
| 11. | 200402-1<br>224005 | Shaft sleeve | 1 | | A<br>B |
| 12. | 200405 | Gear | 1 | | |
| 13. | 200406 | Washev | 1 | | |
| 14. | | Inner hex screw | 1 | M5x12L | |
| 15. | 200317 | Limit ring | 2 | | A,B |
| 16. | 200318 | Stroke seat | 2 | | A,B |
| 17. | 200319 | Fixing handle | 2 | | A,B |
| 18. | | Hex screw | 2 | M6x60L | A,B |
| 19. | 200316<br>223004 | Cross guide rod | 1 | | A<br>B |
| 20. | 200315 | Fixing pin | 2 | | C,D |
| 21. | | Cross limit switch | 2 | TEND<br>TZ8104 | C,D |
| 22. | | Inner hex screw | 2 | M6x6L | C,D |
| 23. | 200301<br>223001 | Saddle | 1 | | A<br>B |
| 24. | | | | | |

A:618AH/AHD

B:818AHD

## SADDLE

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 25. | | | | | |
| 26. | | Inner hex screw | 2 | M6x14L | |
| 27. | 200615 | Throttle valve seat | 1 | | |
| 28. | | Hex screw | 2 | M6x22L | |
| 29. | | Hex screw | 4 | 3/16"x3/4L | |
| 30. | 101014 | Threttling indicater piate | 1 | | |
| 31. | | Cross head screw | 2 | M4x8L | |
| 32. | 200605 | Handle seat | 1 | | |
| 33. | 200606 | Handle | 1 | | |
| 34. | | Hex nut | 4 | M12 | |
| 35. | | Plate washer | 4 | ø12 | |
| 36. | | Spring washer | 8 | ø25xø12.2 x0.9 | |
| 37. | | Anti-abrassive ring | 2 | 1410DU | |
| 38. | | Hex screw | 8 | M4x10L | |
| 39. | 200613 | Sealing plate | 2 | | |
| 40. | | Protecting oil ring | 2 | DH-14 | |
| 41. | 200611 | Sealing seat | 2 | | |
| 42. | | O-ring | 2 | P28 | |
| 43. | | Seal | 4 | UHS14 | |
| 44. | 200610 -1 | Cyindar head | 2 | | |
| 45. | | O- ring | 2 | P29 | |
| 46. | 200607 | Cylinder | 1 | | |
| 47. | 200608-1 | Piston rod | 1 | | |
| 48. | | Piston ring | 4 | FD21 | |

A:618AH/AHD

B:818AHD

## SADDLE

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 49. | | Oring | 2 | P21 | |
| 50. | 200609-1 | Piston | 1 | | |
| 51. | | Taper pin | 1 | 4#x22L | |
| 52. | | Neddle bearing | 1 | DHK1416 | |
| 53. | | Inner nex screw | 2 | M5x5L | A,B |
| 54. | 200606 | Handle | 1 | | |
| 55. | | Hex screw | 4 | M6x60L | |
| 56. | 200415 | Washer | 2 | | |
| 57. | | Snap ring | 1 | $\phi$14 | |
| 58. | 200418 | Circular handle | 1 | | |
| 59. | 200416 | Positing seat | 1 | | |
| 60. | 200419 | Spring | 1 | | |
| 61. | 200417<br>224010 | Moving pin | | | A<br>B |
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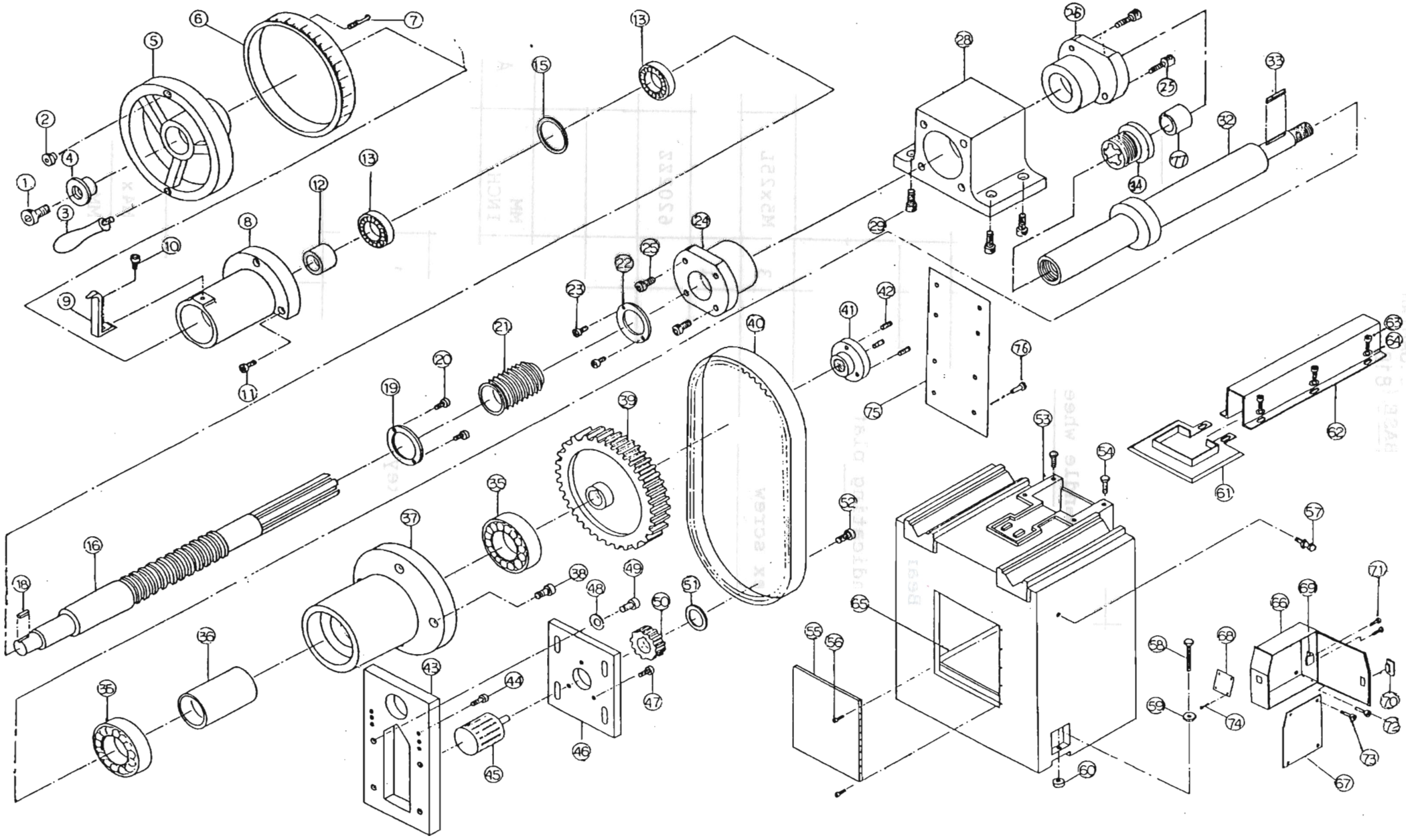
# BASE (618AH/AHD 818AHD)



## BASE (618AH/AHD, 818AHD)

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMAFKS |
|---|---|---|---|---|---|
| 1. | | Hex screw | 1 | M4x20L | |
| 2. | 100217 | Locking nut | 1 | | |
| 3. | 100237 | Handle | 1 | | |
| 4. | 100415 | Washer | 1 | | |
| 5. | 100318 | Cross handle wheel | 1 | | |
| 6. | 100319<br>100320 | Scale ring | 1 | MM<br>INCH | |
| 7. | 100218 | Key-screws | 1 | | |
| 8. | 100314 | Bearing seat | 1 | | |
| 9. | 100321 | Indicating plate | 1 | | |
| 10. | | Cross head screw | 1 | M5x8L | |
| 11. | | Hex screw | 3 | M5x25L | |
| 12. | 100317 | Sleeve | 1 | | |
| 13. | | Bearings | 2 | 6202ZZ | |
| 14. | | | | | |
| 15. | 100315-1 | Washer | 1 | | |
| 16. | 200307-1<br>200308-1 | Cross transfer shaft | 1 | MM<br>INCH | A |
| 16. | 223002 A/B | " | | | B |
| 18. | | Setting key | 1 | 5x5x12L | |
| 19. | 100324 | Washer | 1 | | |
| 20. | | Cross head screw | 2 | M4x10L | |
| 21. | 100323 | Protect plastic cover | 1 | | |
| 22. | 100324 | Ring washer | 1 | | |
| 23. | | Cross head screw | 2 | M4x10L | |
| 24. | 100305-1<br>100306-1 | Tront t-thread nut | 1 | MM<br>INCH | |

## BASE (618AH/AHD 818AHD)

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMAFKS |
|---|---|---|---|---|---|
| 25. | | Hex screw | 4 | M5x20L | |
| 26. | 100307-1<br>100308-1 | T-thread nut | 1 | MM<br>INCH | |
| 27. | | | | | |
| 28. | 100309-1 | Nut seat | 1 | | |
| 29. | | Hex screw | 4 | M8x45L<br>M8x50L | A<br>B |
| 30. | | | | | |
| 31. | | | | | |
| 32. | 200306-1<br>223003 | Connecting shaft | 1 | | A<br>B |
| 33. | | Setting Key | 1 | 5x5x16L | |
| 34. | 200321 | Internal six-Spline sleeve | | | |
| 35. | | Bearings | 2 | 6007Z | |
| 36. | 200314-1 | Bearing sleeve | 1 | | |
| 37. | 200305-1 | Bearing seat | 1 | | |
| 38. | | Hex screw | 4 | M8x25L | |
| 39. | 200309 | Timing belt pully | 1 | | |
| 40. | 200320 | Timing belt | 1 | | |
| 41. | 200311 | Locking nut | 1 | | |
| 42. | | Inner hex screw | 3 | M6x12L | |
| 43. | 200304 | Motor supporter | 1 | | |
| 44. | | Hex screw | 6 | M8x40L | |
| 45. | | Cross morement motor | 1 | 220v-40w<br>516A | |
| 46. | 200303 | Motor fixing plate | 1 | | |
| 47. | | Hex head | 3 | M6x16L | |
| 48. | | Plate washer | 4 | ø8 | |

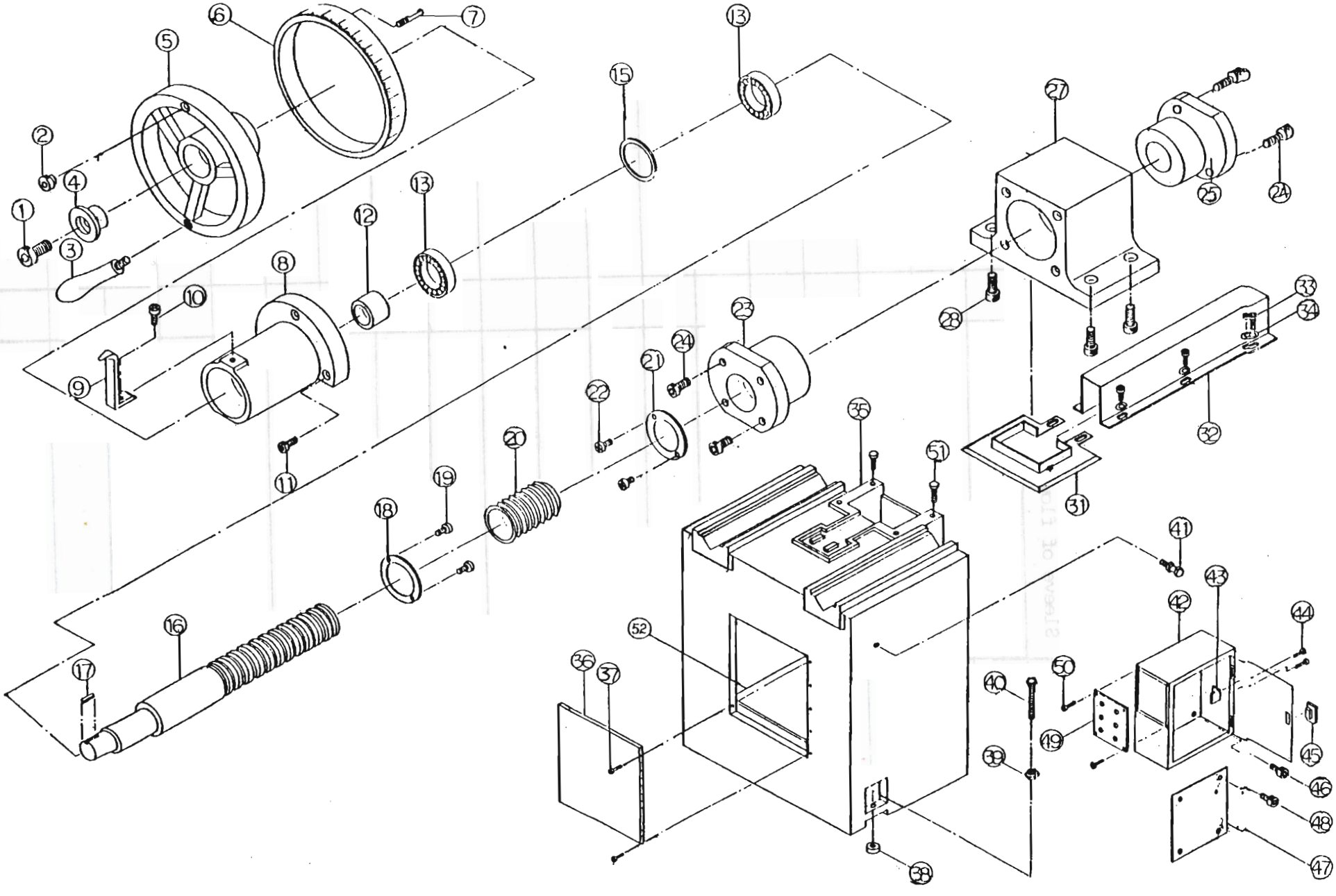
## BASE (618AH/AHD, 818AHD)

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMAFKS |
|---|---|---|---|---|---|
| 49. | | Hex screw | 4 | M8x20 | |
| 50. | 200310 | Timing belt pully (small) | 1 | | |
| 51. | 200312 | Ring washer | 1 | | |
| 52. | | Hex screw | 1 | M4x14L | |
| 53. | 100501<br>215001 | Base | 1 | | A<br>B |
| 54. | | Hex screw | 4 | M16x60L | |
| 55. | 100502 | Door | 1 | | |
| 56. | | Cross head screw | 5 | M5x10L | |
| 57. | 100504 | Eye bolt | 4 | | |
| 58. | 100505 | Levelling plate | 3<br>5 | | A<br>B |
| 59. | | Hex nut | 3<br>5 | M22 | A<br>B |
| 60. | 100506 | Levelling plate | 3<br>5 | | A<br>B |
| 61. | 100322 | Oil cover | 1 | | |
| 62. | 100302<br>213003 | Shaft cover | 1 | | A<br>B |
| 63. | | Cross head screw | 6 | M5x10L | |
| 64. | | Washer | 6 | ø5 | |
| 65. | 100501<br>215001 | Cabinet | 1 | | A<br>B |
| 66. | 200901 | Electric box | 1 | | |
| 67. | 200902 | Electric assemole plate | 1 | | |
| 68. | 101012-1 | Control pannel | 1 | | |
| 69. | 100903 | Fixing plate | 1 | | |
| 70. | 200901-1 | Pressure button | 1 | | |
| 71. | | Cross head screw | 1 | M5x10L | |
| 72. | | Hex screw | 4 | M8x20L | |

BASE (618AH/AHD, 818AHD)

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMAFKS |
|---|---|---|---|---|---|
| 73. | | Hex screw | 4 | M6x20L | |
| 74. | | Cross head screw | 4 | M4x10L | |
| 75. | 200302 | Safrty cover | 1 | | |
| 76. | | Crass head screw | 8 | M5x10L | |
| 77. | | Sleeve of flowing oil | 1 | | |

# BASE ( 618H )



## BASE ( 618H )

| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| 1. | | Lock screw | 1 | M4x20L | |
| 2. | 100217 | Lock nut | 1 | | |
| 3. | 100232 | Knob | 1 | | |
| 4. | 100415 | Washer | 1 | | |
| 5. | 100318 | Handwheel | 1 | | |
| 6. | 100319<br>100320 | Handwheel dial | 1 | MM<br>INCH | |
| 7. | 100218 | Fix pin | 1 | | |
| 8. | 100314 | Bearing seat | 1 | | |
| 9. | 100321 | Indicator | 1 | | |
| 10. | | Cross head screw | 1 | M5x8L | |
| 11. | | Socket screw | 3 | M5x25L | |
| 12. | 100317 | Collar | 1 | | |
| 13. | | Ball bearing | 2 | 6202ZZ | |
| 15. | 100315 -1 | Outer spacer | 1 | | |
| 16. | 100303<br>100304 | Cross leadscrew | 1 | MM<br>INCH | |
| 16. | 213002 A/B | Cross leadscrew | 1 | MM<br>INCH | |
| 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<br>100306-1 | Leadscrew nut | 1 | MM<br>INCH | |
| 24. | | Socket screw | 4 | M5x20L | |

## BASE ( 618H )

| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| 25. | 100307-1<br>100308-1 | Leadscrew nut | 1 | MM<br>INCH | |
| 26. | | | | | |
| 27. | 100309-1 | Leadscrew seat | 1 | | |
| 28. | | Socket screw | 4 | M8x45L<br>M8x50L | |
| 29. | | | | | |
| 30. | | | | | |
| 31. | 100322 | Tank cover | 1 | | |
| 32. | 100302<br>213003 | Leadscrew metal cover | 1 | | |
| 33. | | Cross head screw | 6 | M5 x 10L | |
| 34. | | Washer | 6 | ø5 | |
| 35. | 100501<br>215001 | Base | 1 | | |
| 36. | 100502 | Door of tool cabinet | 1 | | |
| 37. | | Cross head screw | 5 | M5 x 10L | |
| 38. | 100506 | Levelling block | 3<br>5 | | |
| 39. | | Hex nut | 3<br>5 | M22 | |
| 40. | 100505 | Levelling screw | 3<br>5 | | |
| 41. | 100504 | Lifting bolt | 4 | | |
| 42. | 200901 | Control box | 1 | | |
| 43. | 100903 | Switch bracket | 1 | | |
| 44. | | Cross head screw | 2 | M5 x 10L | |
| 45. | 200901-1 | Door lock | 1 | | |
| 46. | | Socket screw | 4 | M8x20L | |
| 47. | 200902-1 | Electrical board | 1 | | |
| 48. | | Socket screw | 4 | M6x20L | |

## BASE ( 618H )

| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| 49. | 101012 -1 | Operation panel | 1 | | |
| 50. | | Cross head screw | 4 | M4 x 10L | |
| 51. | | Hex screw | 4 | M16 x 60L | |
| 52. | 100503<br>215002 | Wooden board | 1 | | |
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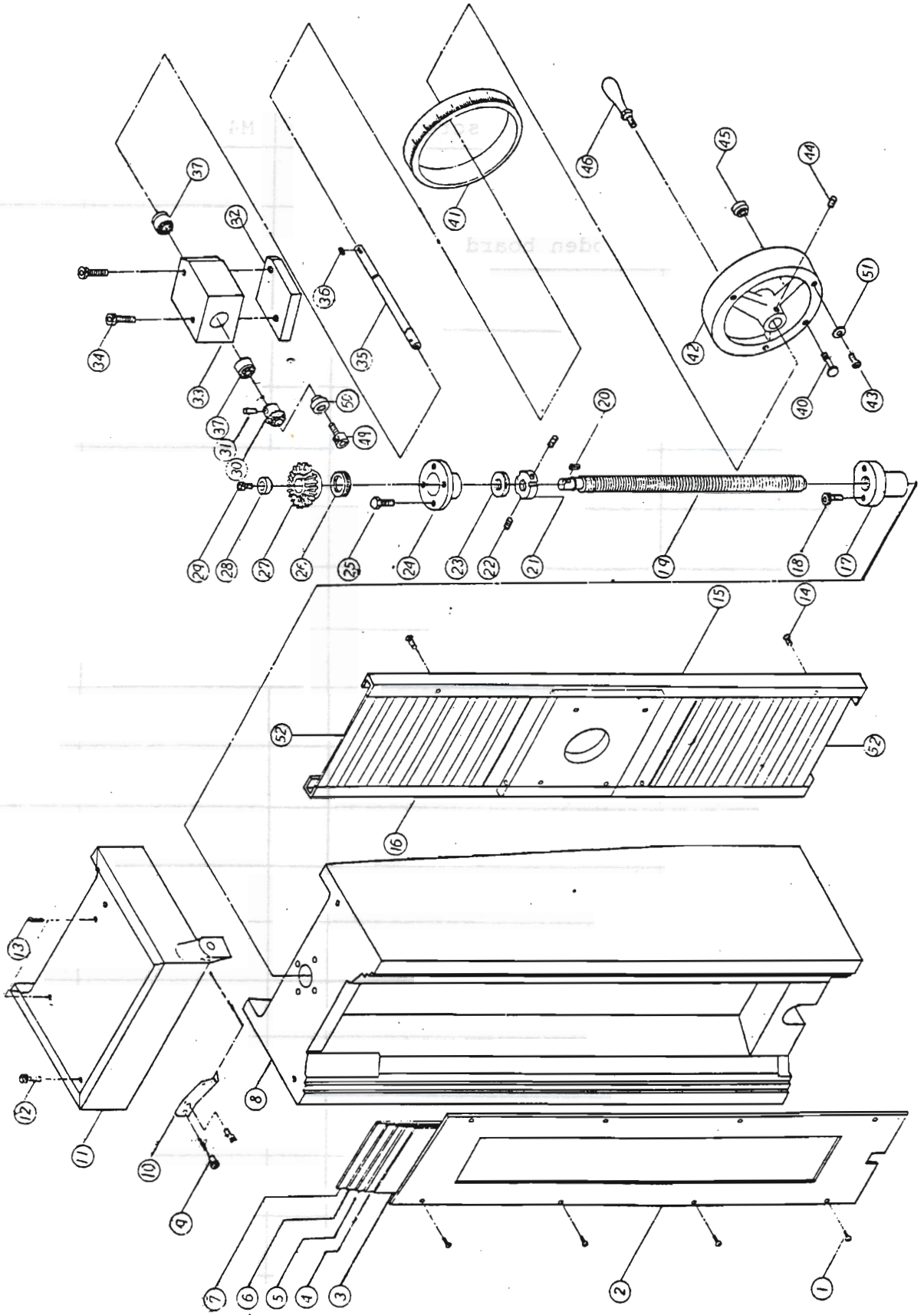
COLUMN



A:618AH/AHD
B:818AHD

## COLUMN

| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS. |
|---|---|---|---|---|---|
| 1. | | Round head screw | 8 | M6x20L | |
| 2. | 100221<br>212002 | Front guard | 1 | | A<br>B |
| 3. | 100222<br>212004 | Front guard | 1 | | A<br>B |
| 4. | 100223<br>212005 | Front guard | 1 | | A<br>B |
| 5. | 100224<br>212006 | Front guard | 1 | | A<br>B |
| 6. | 100225<br>212008 | Front guard | 1 | | A<br>B |
| 7. | 100226<br>212008 | Front guard | 1 | | A<br>B |
| 8. | 100201 | Column | 1 | | |
| 9. | | Round head screw | 2 | M4x8L | |
| 10. | 100219 | Indicator | 1 | | |
| 11. | 100220 | Top cover | 1 | | |
| 12. | | Socket head screw | 2 | M6x85L | |
| 13. | | Round head screw | 8 | M4x8L | |
| 14. | | Round head screw | 4 | M4x10L | |
| 15. | 100227 | Plate seat . | 1 | | |
| 16. | 100228 | Plate seat | 1 | | |
| 17. | 100204<br>100205 | Leadscrew nut | 1 | MM<br>INCH | |
| 18. | | Hex. screw | 2 | M6x20L | |
| 19. | 100202<br>100203 | Elevating leadscrew | 1 | MM<br>INCH | |
| 20. | | Setting key | 1 | 5x5x15L | |
| 21. | 100111 | Lock nut | 1 | | |
| 22. | | Socket screw | 2 | M5x8L | |
| 23. | | Thrust needle bearing | 1 | ANK1730<br>AS1730,CS1730 | |
| 24. | 100207 | Bearing seat | 1 | | |

## COLUMN

A:618AH/AHD
B:818AHD

| 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 | Height pad | 1 | | |
| 33. | 100213 | Shaft seat | 1 | | |
| 34. | | Hex. screw | 2 | M6x65L | |
| 35. | 100211-1 | Shaft | 1 | | |
| 36. | | Setting key | 1 | 4x4x12L | |
| 37. | | Ball bearing | 2 | 6002NR | |
| 38. | | | | | |
| 39. | | | | | |
| 40. | 100218 | Bolt | 1 | | |
| 41. | 100215<br>100216 | Index disc | 1 | MM<br>INCH | |
| 42. | 100231 | Hand wheel | 1 | | |
| 43. | | Socket screw | 2 | M4x6L | |
| 44. | | Socket screw | 2 | M5x8L | |
| 45. | 100217 | Setting nut | 1 | | |
| 46. | 100232 | Adjusting handle | 1 | | |
| 47. | | | | | |
| 48. | | | | | |

## COLUMN

| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| 49. | | Hex screw | 1 | M5 x 14L | |
| 50. | 100234 | Washer | 1 | | |
| 51. | | Flat washer | 2 | ϕ4 | |
| 52. | 100229-1 | Telescopic cover | 2 | | |
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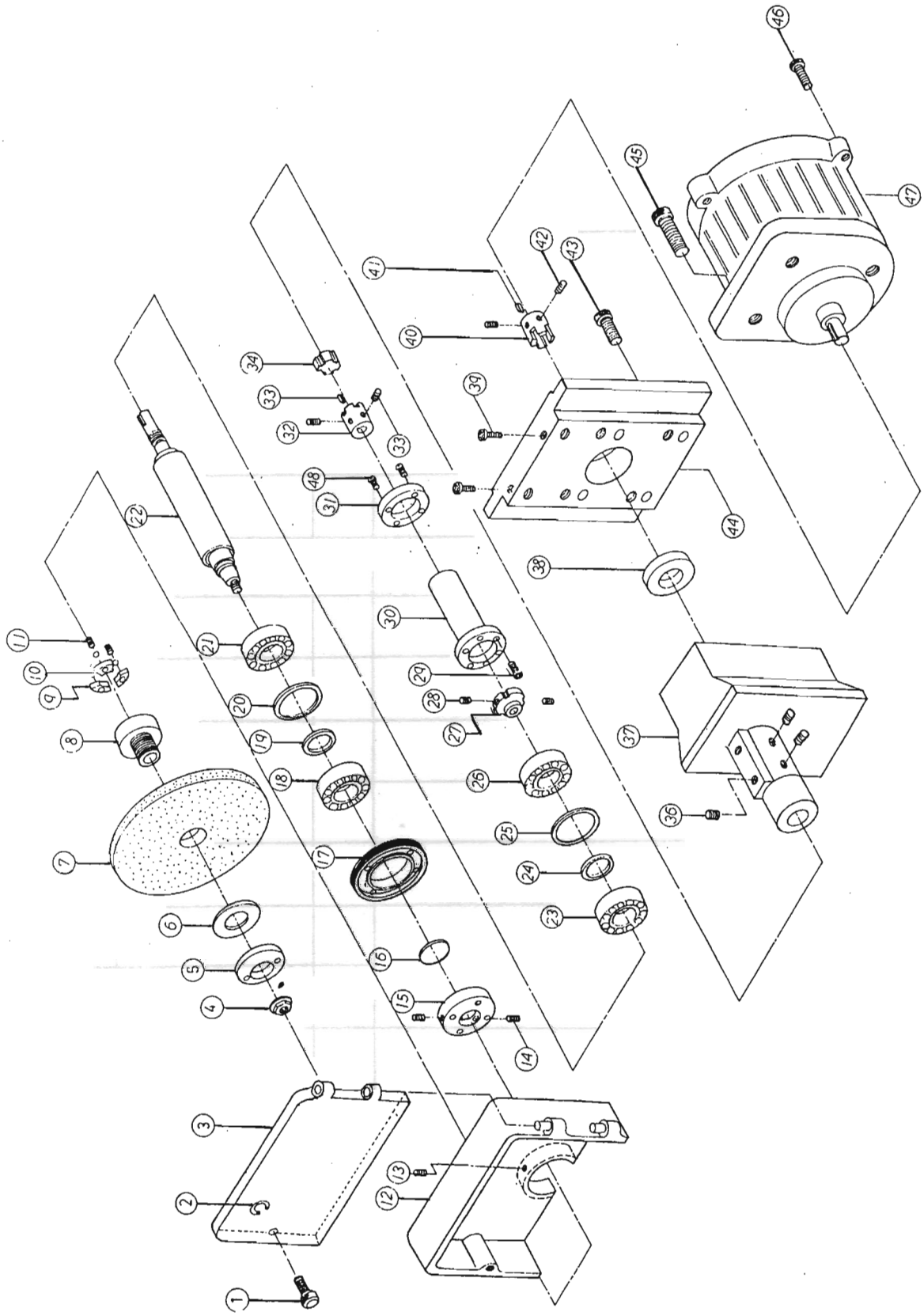
## SPINDLE



A:618AH/AHD
B:818AHD

## SPINDLE

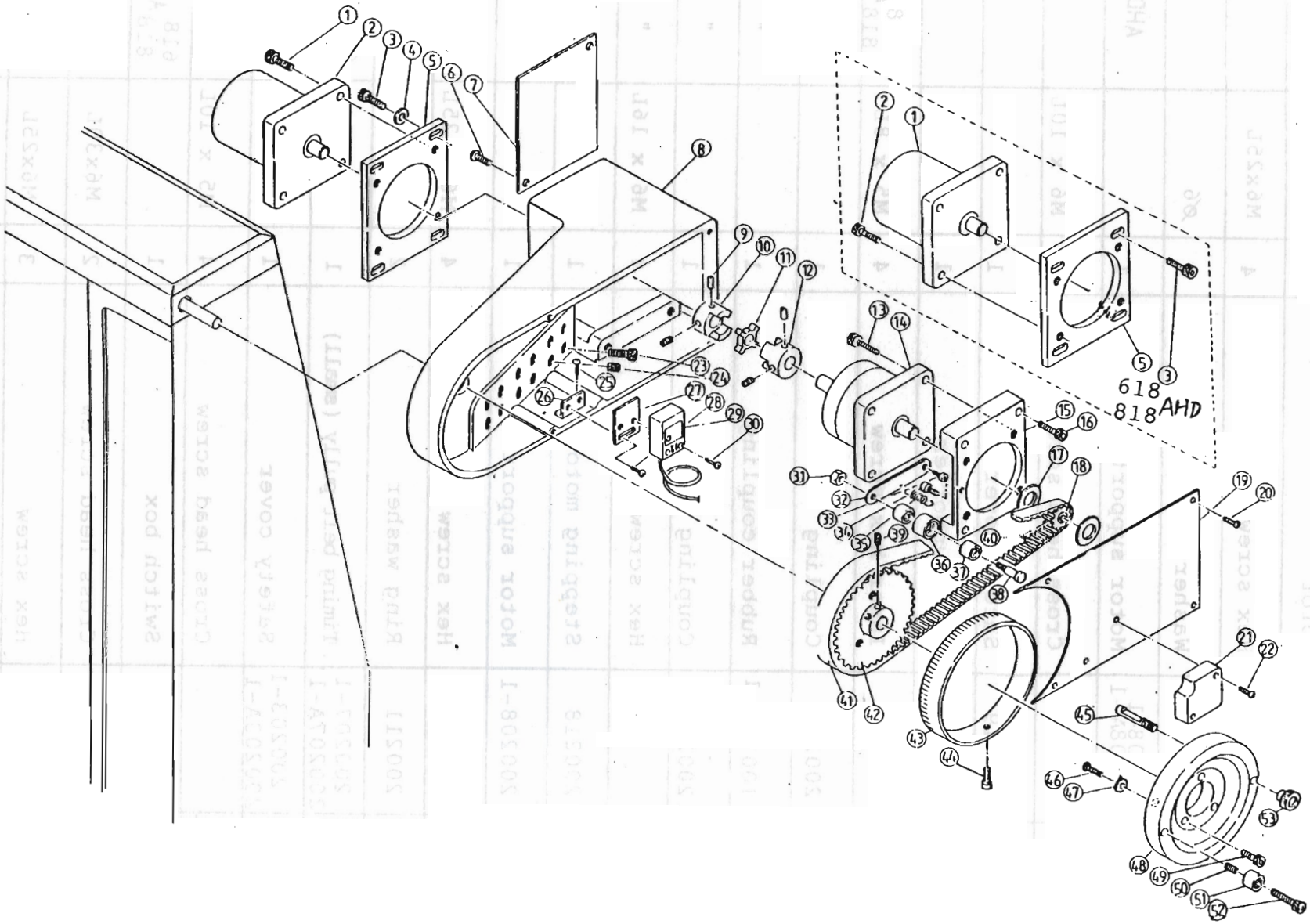
| NO. | PART NO. | DESCRIPTION | Q'TY | SPECIFICATION | REMARKS |
|---|---|---|---|---|---|
| 1. | 100127 | Lock screw | 1 | | |
| 2. | | Retaining ring | 1 | E8 | |
| 3. | 100125 | Wheel guard door | 1 | | |
| 4. | 100115 | Nut | 1 | | |
| 5. | 100117-1 | Wheel setting nut | 1 | | |
| 6. | 100116-1 | Washer | 1 | | |
| 7. | 100131 | Grinding wheel | 1 | | |
| 8. | 100113 | Wheel hub | 1 | | |
| 9. | 100119 | Balance block | 3 | | |
| 10. | | Steel ball | 3 | ø4 | |
| 11. | | Socket screw | 3 | M5 x 6L | |
| 12. | 100126 | Wheel guard | 1 | | |
| 13. | | Bolt | 1 | M8x8L | |
| 14. | | Headless screw | 2 | M5x6L | |
| 15. | 100110 | Setting nut | 1 | | |
| 16. | 100108 | O-ring | 1 | | |
| 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<br>211002 | Spindle | 1 | | A<br>B |
| 23. | | Ball bearing | 1 | #7204C | |
| 24. | 100106 | Bearing washer | 1 | | |

A:618AH/AHD
B:818AHD

## 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 | M6 x 8L | |
| 29. | | Hex. screw | 6 | M6 x 30L | |
| 30. | 100103<br>211003 | Spindle housing | 1 | | A<br>B |
| 31. | 100112 | Rear cover | 1 | | |
| 32. | 100120 | Coupling | 1 | | |
| 33. | | Pin | 1 | 6x6x15L | |
| 34. | 100121-1 | Rubber coupling | 1 | | |
| 35. | | Socket screw | 2 | M6 x 8L | |
| 36. | | Socket screw | 6 | M6 x 12L | |
| 37. | 100101<br>211001 | Headstock | 1 | | A<br>B |
| 38. | 100123 | Bushing | 1 | | |
| 39. | | Screw | 4 | M4x12L | |
| 40. | 100120 | Coupling | 1 | | |
| 41. | | Setting key | 1 | 6x6x15L | |
| 42. | | Socket screw | 2 | M8 x 8L | |
| 43. | | Socket screw | 6 | M8 x 25L | |
| 44. | 100122A<br>100122B | Motor support | 1 | | A<br>B |
| 45. | | Inner hex screw<br>Outer hex screw | 4 | M10 x 35L | 1.5HP<br>2.0HP |
| 46. | | Socket screw | 3 | M6 x 30L | |
| 47. | 100124<br>211004 | Motor | 1 | 1.5HP<br>2.0HP | |
| 48. | | Round head screw | 4 | M6x16L | |

# AUTO ELEVETING MECHNISM (618AHD 818AHD)



## AUTO ELEVETING MECHNISM

( 618AHD 818AHD )

| | | | | | |
|---|---|---|---|---|---|
| 1. | | Hex screw | 4 | M6x20L | |
| 2. | 200209-1 | Motor | 1 | | |
| 3. | | Hex screw | 4 | M6x25L | |
| 4. | | Washer | 4 | ⌀6 | |
| 5. | 200208-1<br>200208A-1 | Motor support | 1 | | AHD |
| 6. | | Cross head screw | 2 | M6 x 10L | |
| 7. | 200219 | Safety cover | 1 | | |
| 8. | 200202-1 | Moto supporter | 1 | | |
| 9. | | Inner hex screw | 4 | M5 x 8L | 618<br>818 AHD |
| 10. | 200215 | Coupling | 1 | | " |
| 11. | 100121-1 | Rubber coupling | 1 | | " |
| 12. | 200214 | Coupling | 1 | | " |
| 13. | | Hex screw | 4 | M6 x 16L | " |
| 14. | 200218 | Stepping motor | 1 | | " |
| 15. | 200208-1 | Motor support | 1 | | " |
| 16. | | Hex screw | 4 | M6 x 25L | " |
| 17. | 200211 | Ring washer | 2 | | |
| 18. | 200207-1<br>200207A-1 | Timing belt pully (small) | 1 | | 618,818AHD |
| 19. | 200203-1<br>200203A-1 | Safety cover | 1 | | " |
| 20. | | Cross head screw | 4 | M5 x 10L | |
| 21. | 200204 | Switch box | 1 | | 618<br>818 AHD |
| 22. | | Cross head screw | 2 | M6x30L | " |
| 23. | | Hex screw | 3 | M6x25L | |
| 24. | | Inner hex screw | 1 | M8x20L | |
| | | | | | |

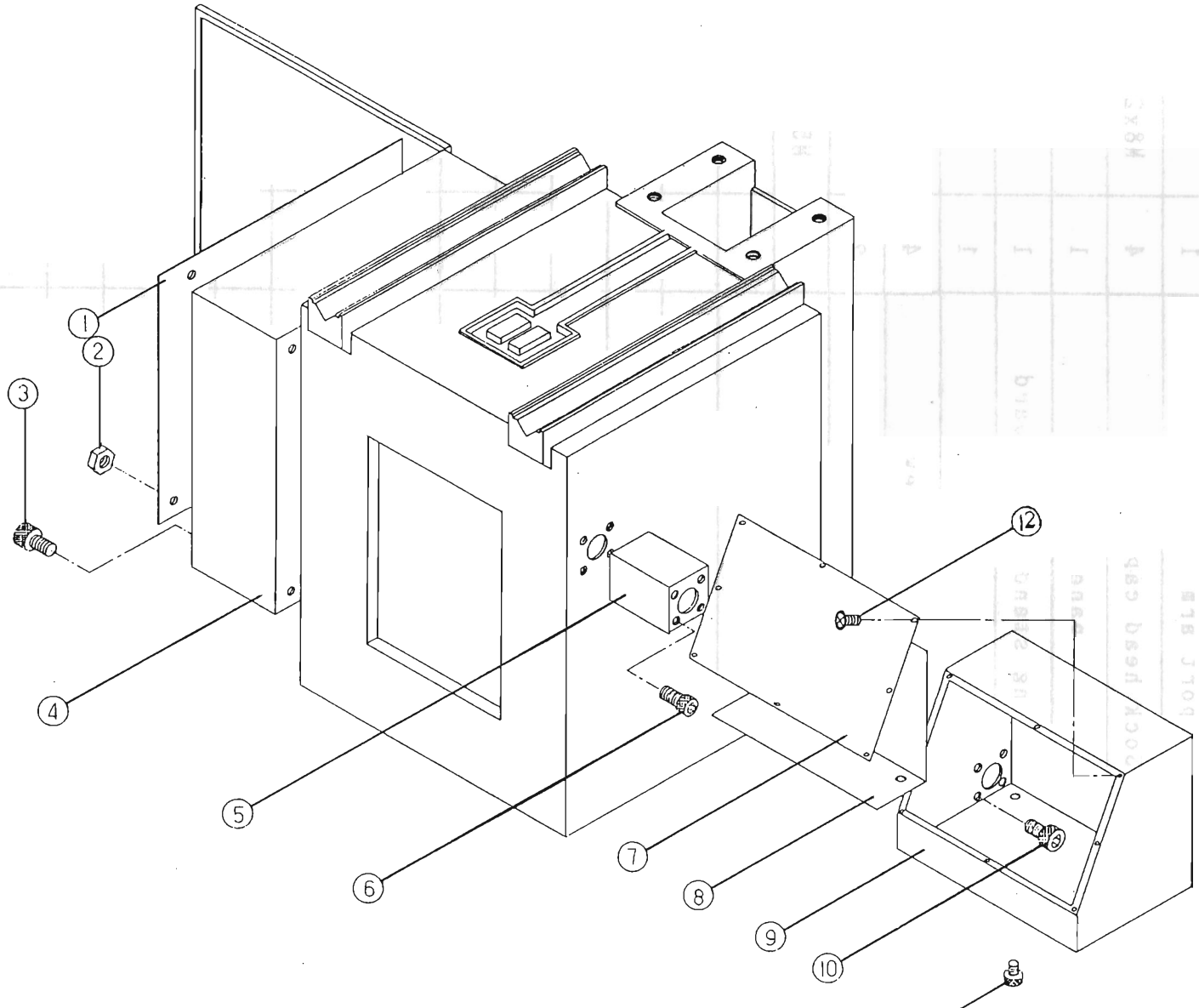
618AHD
( 818AHD )

AUTO ELEVETING MECHNISM

| | | | | | |
|---|---|---|---|---|---|
| 25. | | Inner hex screw | 2 | M5x16L | 618 818AHD |
| 26. | 200213 | Switch bracket | 1 | | " |
| 27. | 220212 | " | 1 | | " |
| 28. | | Cross head screw | 1 | M5x8L | " |
| 29. | | Proximity switch | 1 | TL-B5NE1 | " |
| 30. | | Cross head screw | 2 | M5x25L | " |
| 31. | | Hexagonal nut | 1 | M8 | " |
| 32. | 200316 | Pressing bar of belt | 1 | | " |
| 33. | | Hex screw | 1 | M6x20L | " |
| 34. | | " | 1 | M4 x 10L | " |
| 35. | | Spring | 1 | | " |
| 36. | 100409 | Bushing | 1 | | " |
| 37. | | Needle bearing | 2 | DHK-1212 | " |
| 38. | 100408-1 | Gear shaft | 1 | | " |
| 39. | | Inner hex screw | 2 | M5 x 8L | |
| 40. | | " | 2 | " | |
| 41. | 200210 | Timing belt | 1 | | |
| 42. | 200206 | Timing belt pully | 1 | | |
| 43. | 100215<br>100216 | Index disc | 1 | MM<br>INCH | |
| 44. | | Hex screw | 1 | M4 x 6L | |
| 45. | 100218 | Bolt | 1 | | |
| 46. | | Cross head screw | 2 | M4 x 8L | |
| 47. | | Washer | 2 | $\phi$4 | |
| 48. | 200205 | Hand wheel | 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| 49. | | Hex screw | 3 | M6 x 16L | |
| 50. | | Inner hex screw | 1 | M10 x 10L | |
| 51. | | Needle bearing | 1 | DHK-1212 | |
| 52. | | Inner hex screw | 1 | M10x35L | |
| 53. | 100217 | Setting nut | 1 | | |

# ELECTRICAL BOX (618 AHD)
(818 AHD)



# ELECTRICAL BOX (618/818 AHD)

| NO. | PART NO. | DESCRIPTION | Q'TY | SIZE | REMARKS |
|---|---|---|---|---|---|
| 1. | 229007-1 | Electrical fixing plate | 1 | | |
| 2. | | Hex socket nut | 4 | M6 | |
| 3. | | Sock head cap screw | 4 | M8x16L | |
| 4. | 229006-1 | Electrical box | 1 | | |
| 5. | 229009 | Support arm | 1 | | |
| 6. | | Sock head cap screw | 4 | M8x20L | |
| 7. | 101012-2 | Control panel | 1 | | |
| 8. | 229010 | Fixing stand of pc board | 1 | | |
| 9. | 229008 | Control box | 1 | | |
| 10. | | Sock head cap screw | 4 | M8x20L | |
| 11. | | Sock head cap screw | 2 | M6x12L | |
| 12. | | Cross head screw | 8 | M5x10L | |
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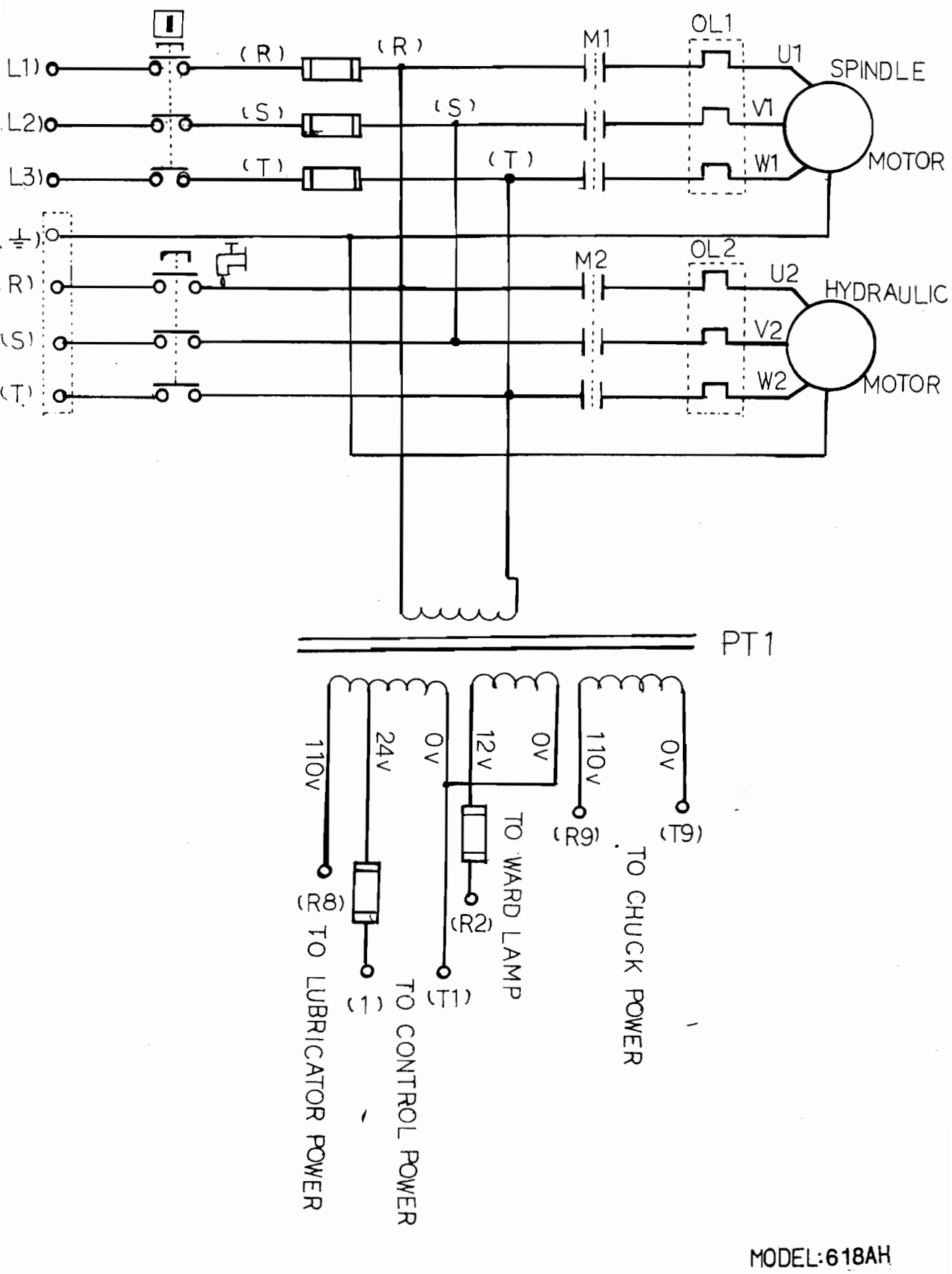
# ELECTRIC DIAGRAM

MODEL: **Supra** **618AH**
**618AH/818AHD**

# INDEX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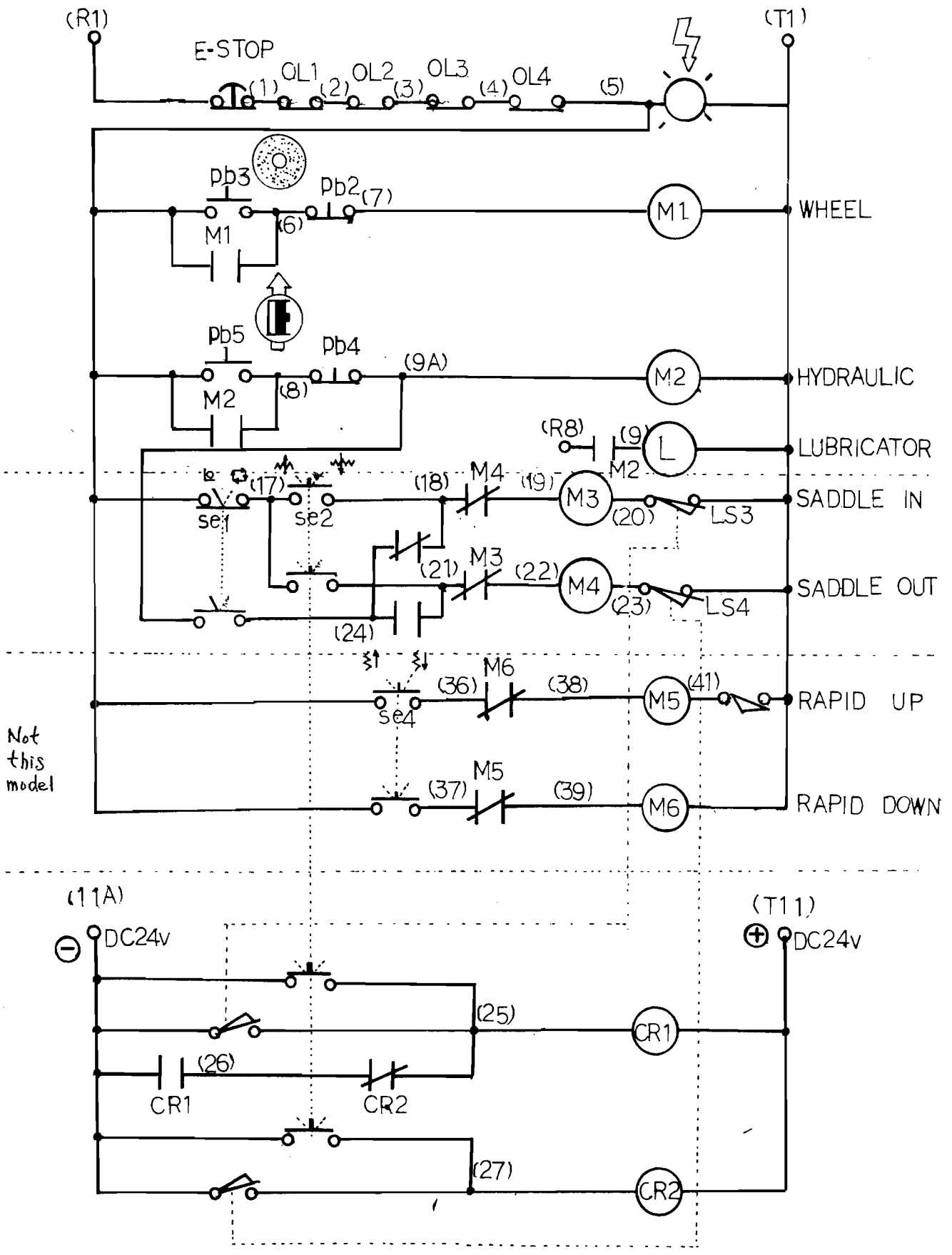
TO CONTROL POWER
TO WARD LAMP
TO CHUCK POWER

MODEL:618AH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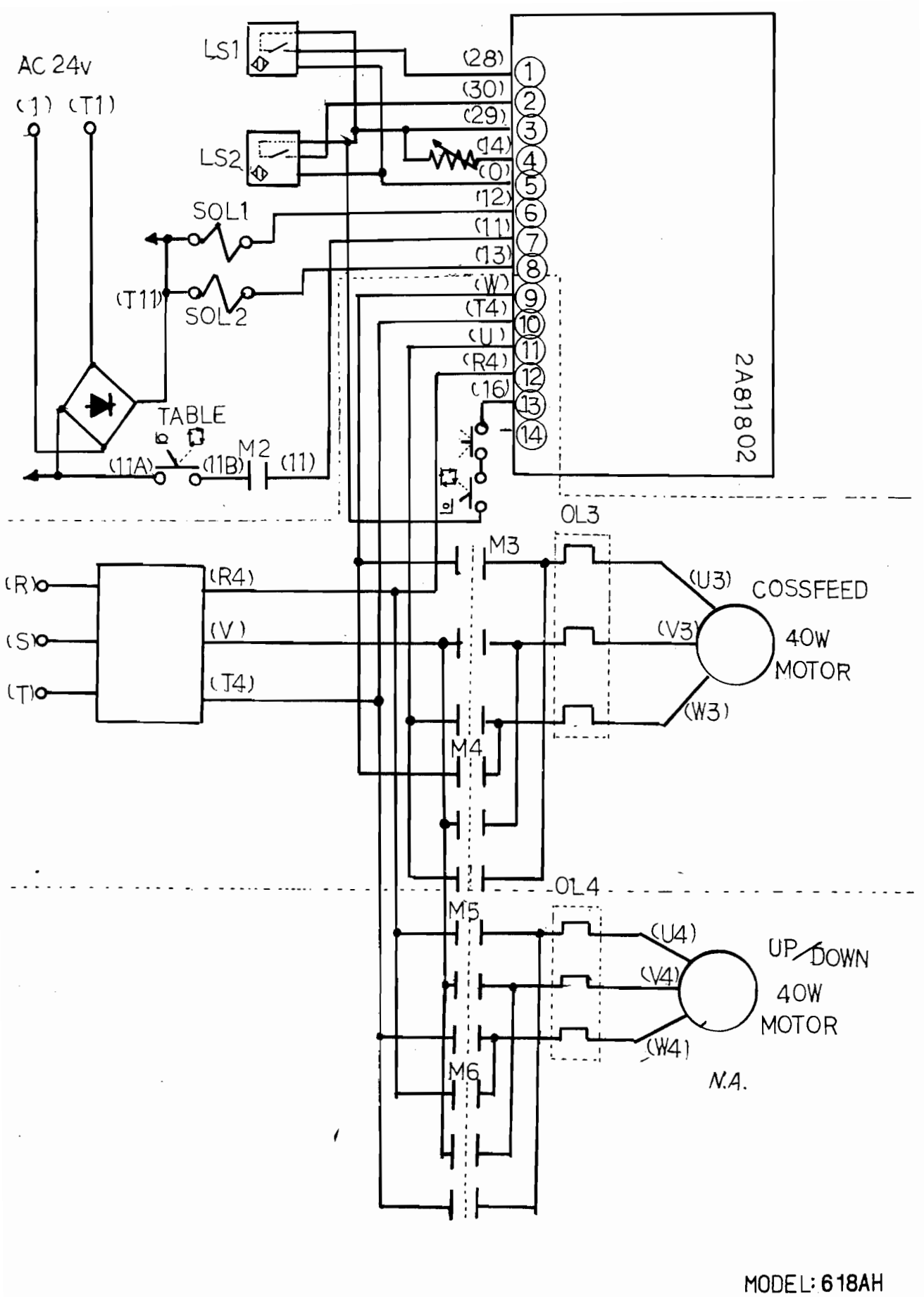
MODEL: 618AH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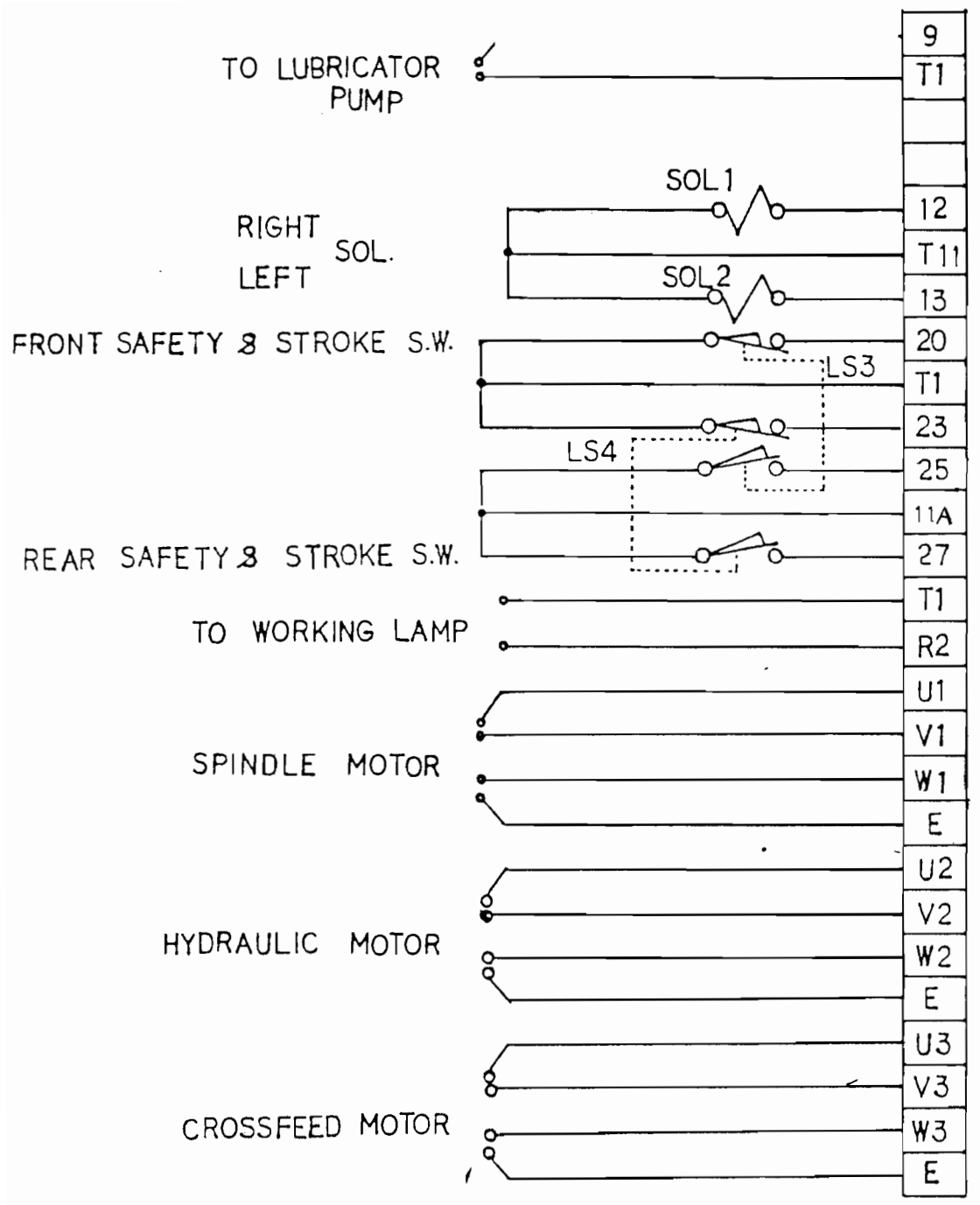
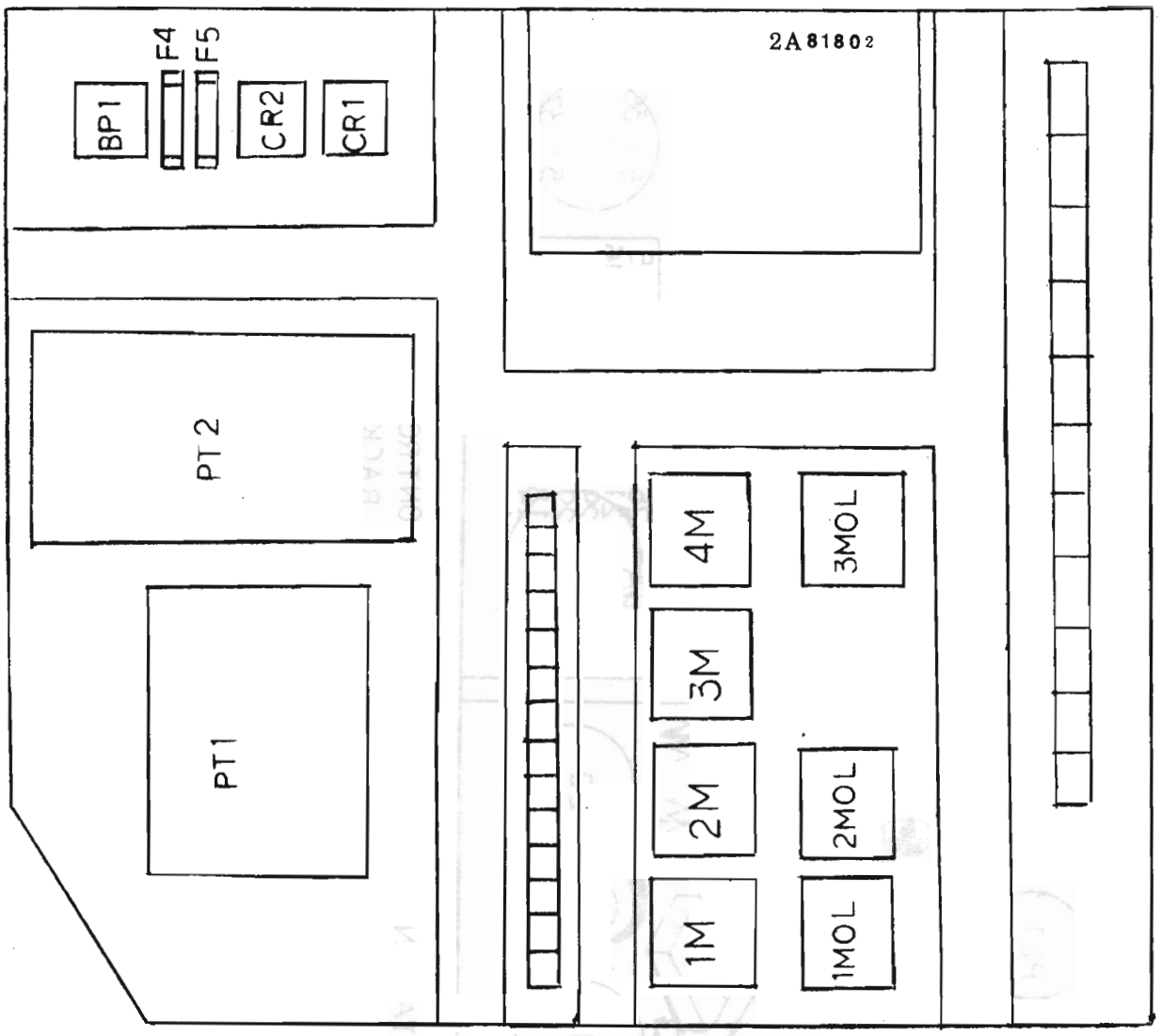
N.A.
MODEL: 618AH


TO LUBRICATOR PUMP
RIGHT
SOL.
LEFT
SOL1
SOL2
FRONT SAFETY & STROKE S.W.
LS3
LS4
REAR SAFETY & STROKE S.W.
TO WORKING LAMP
SPINDLE MOTOR
HYDRAULIC MOTOR
CROSSFEED MOTOR
9
T1
12
T11
13
20
T1
23
25
11A
27
T1
R2
U1
V1
W1
E
U2
V2
W2
E
U3
V3
W3
E

MODEL: **618AH**

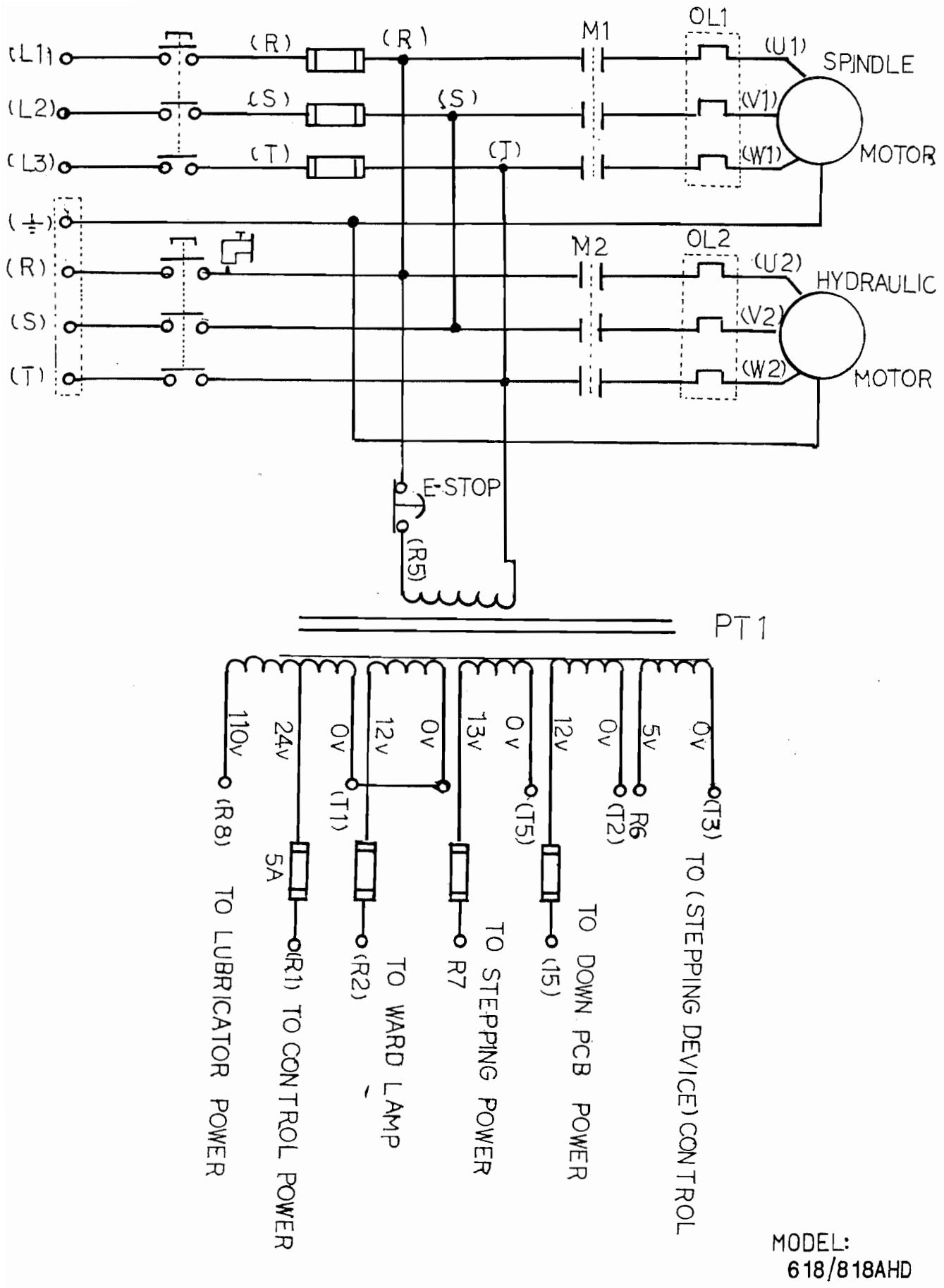
E-STOP
PB1
PB2
PB3
PB4
PB5
PL1
SE1
SE2
SE3
SE4
VR1
TABLE
T1
11A
11B
CONTROL STATION
CONTROL STATION
BACK VIEW

MODEL: 618AH

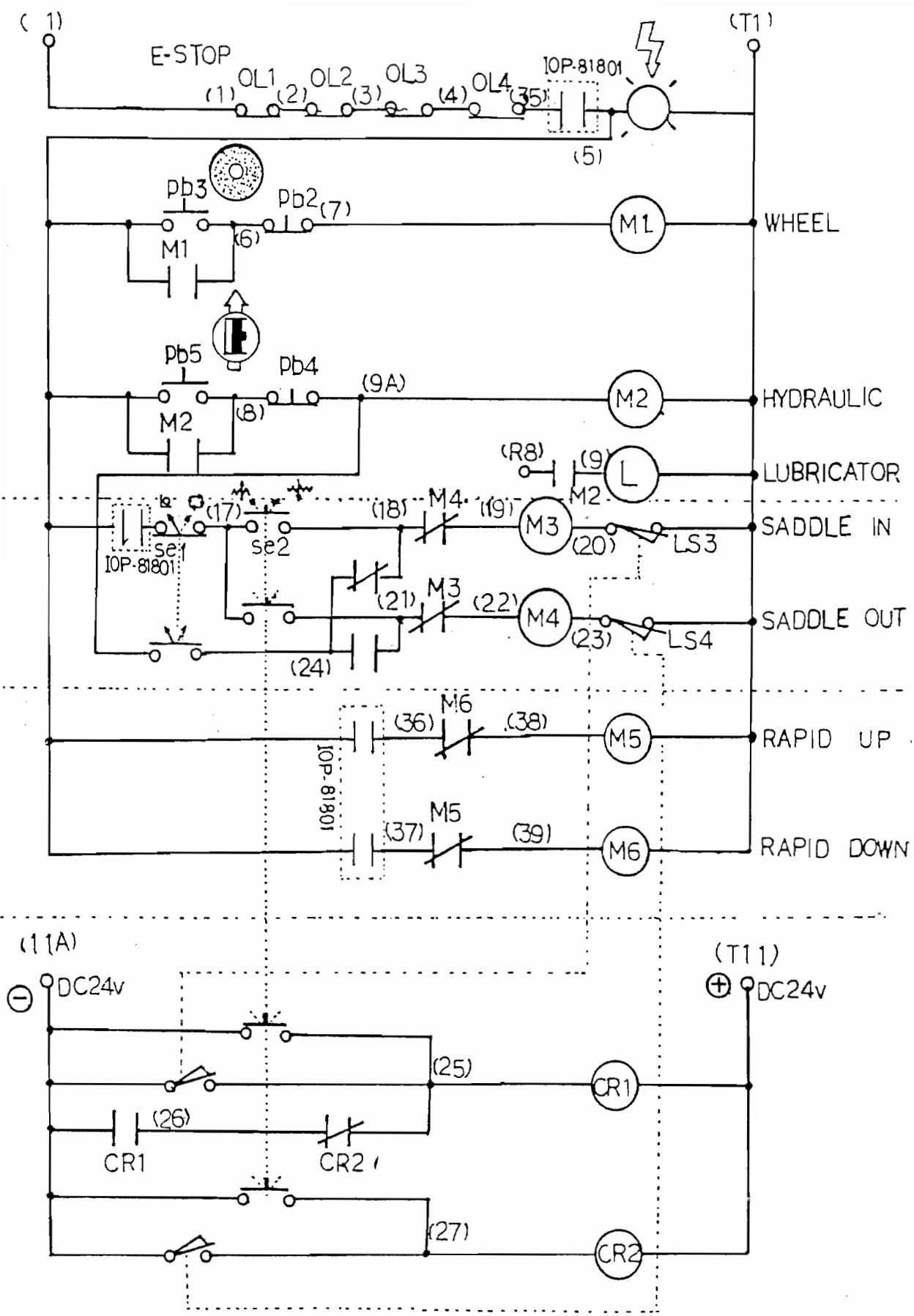



CONTROL PANEL

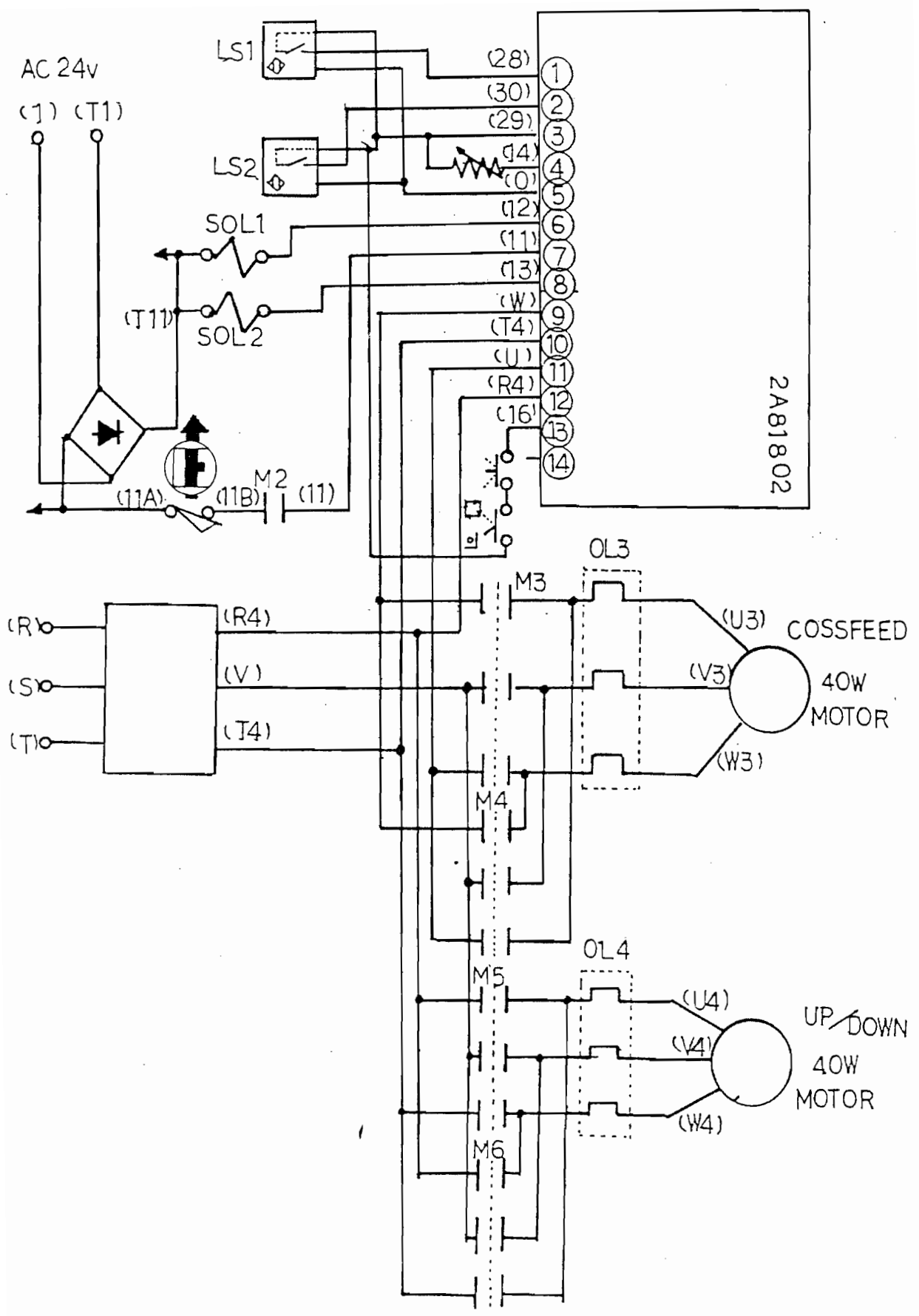
MODEL:618AH




MODEL:
618/818AHD




MODEL:
618/818AHD

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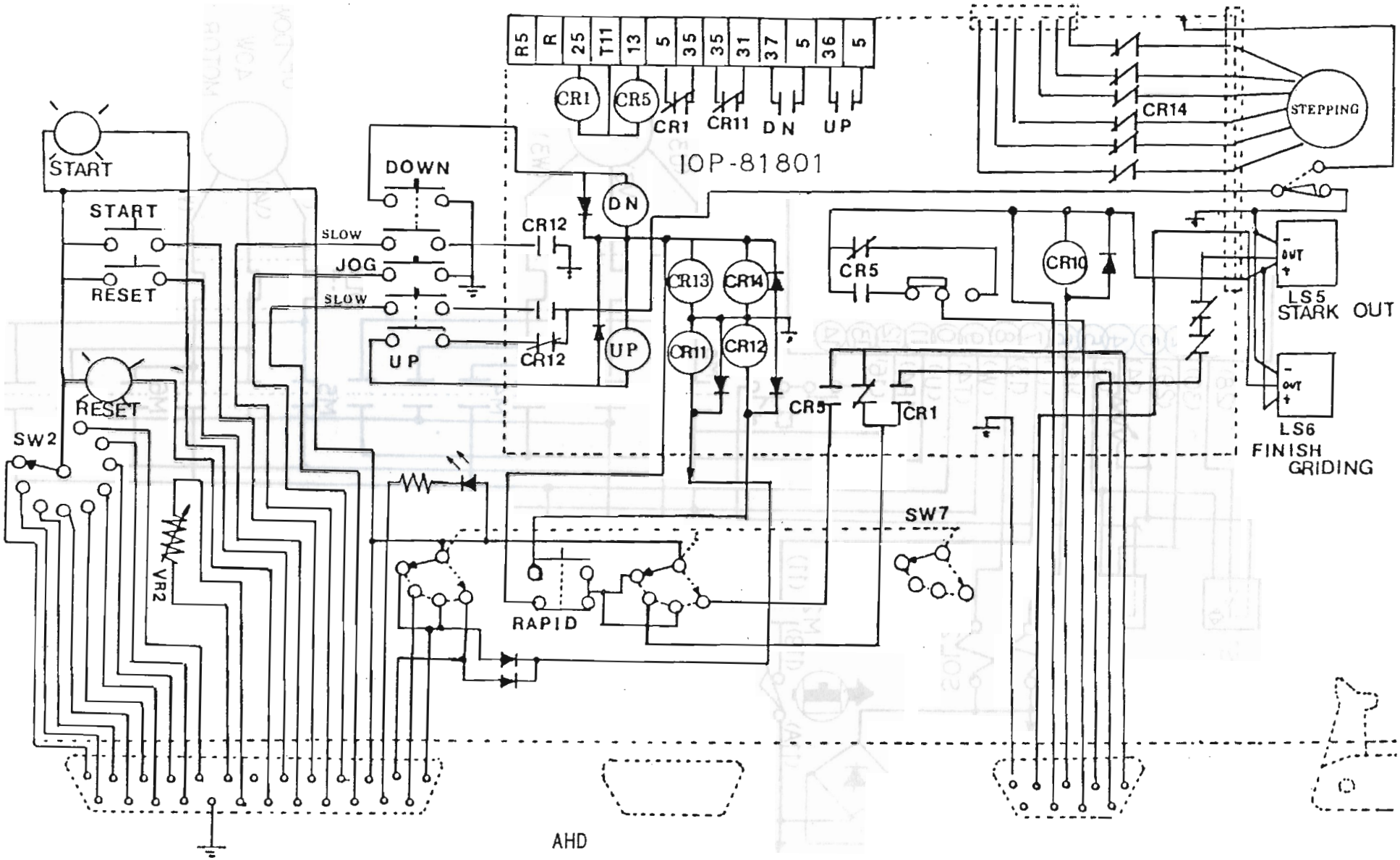
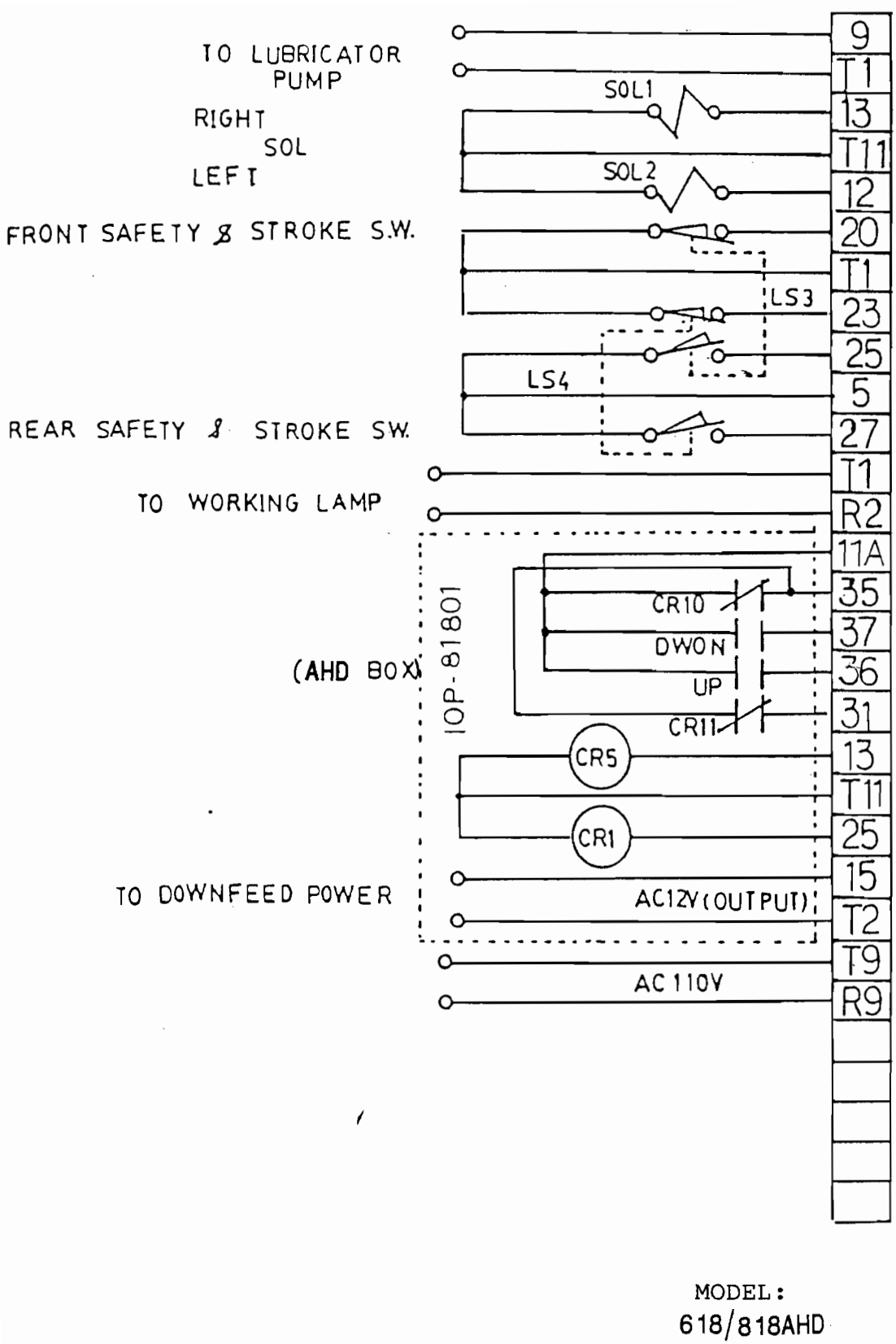
618/818AHD




MODEL:
618/818AHD

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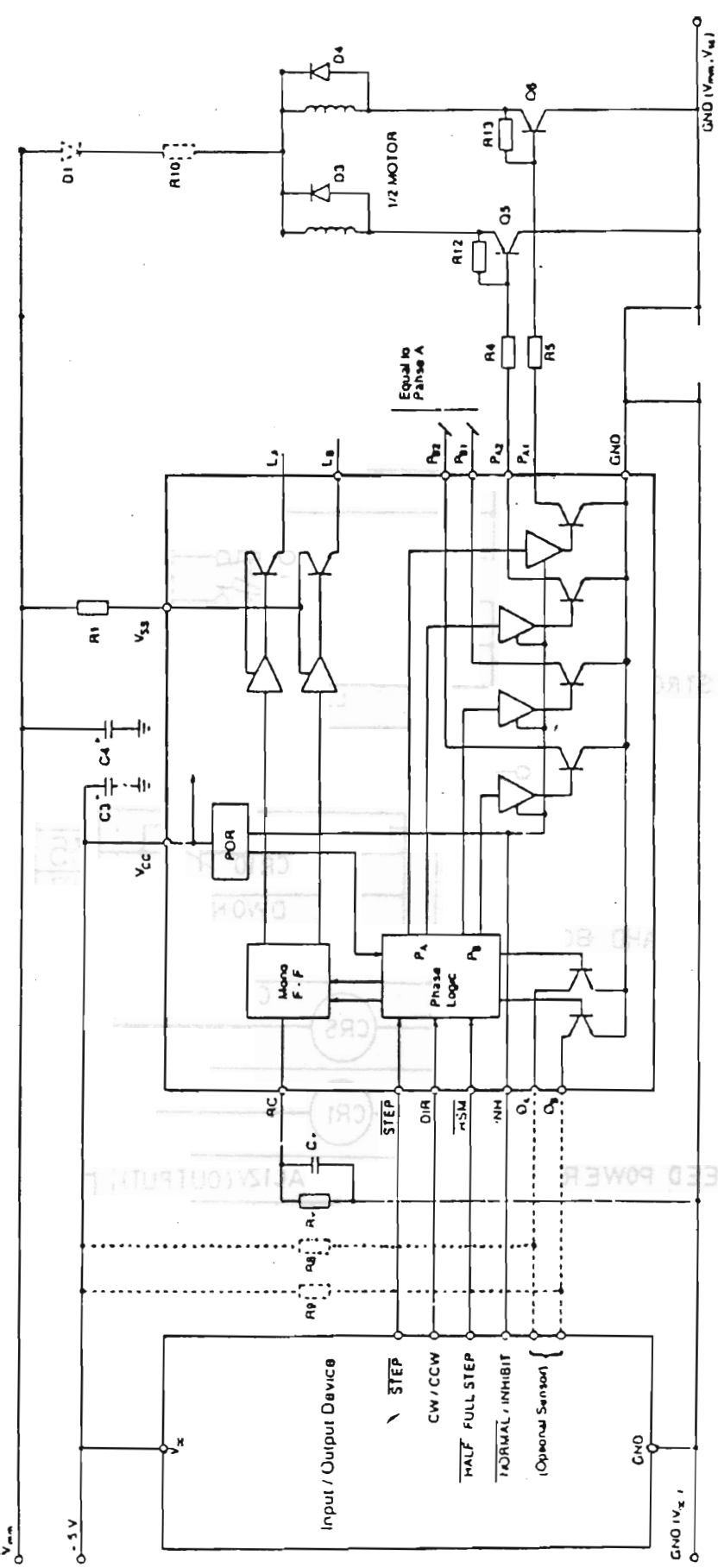
618/818AHD




MODEL:
618/818AHD