



AUTOMATED GRINDER  
(12) POSITION DRUM CAM  
TYPE "NHA"

INSTRUCTION BOOK NO: 1362

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## (12) POSITION DRUM CAM

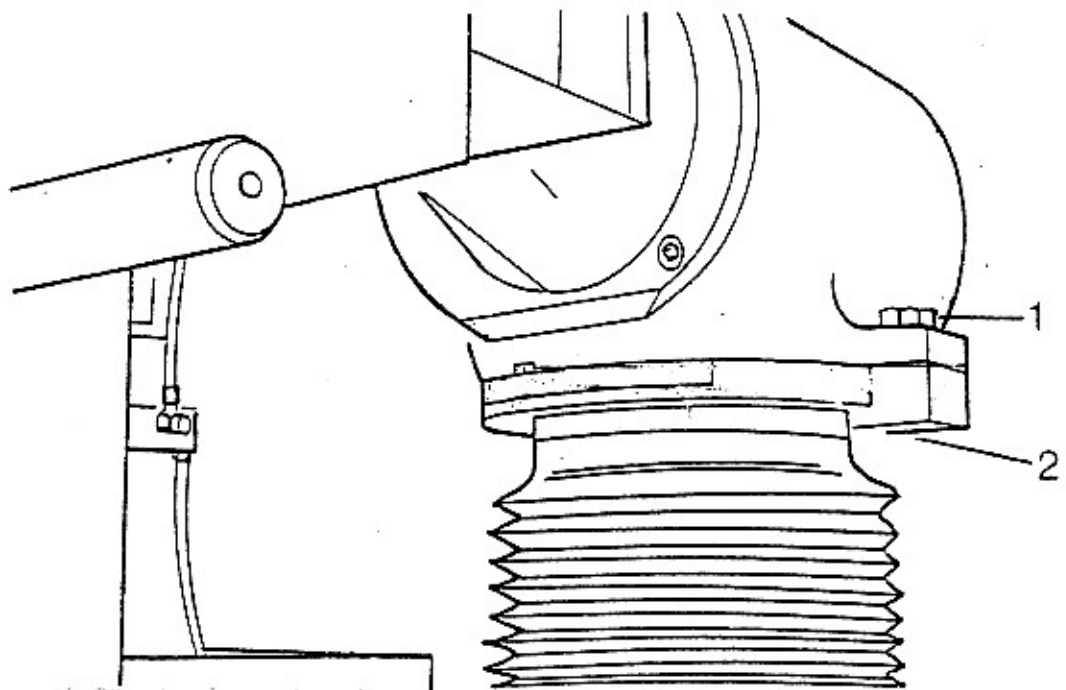
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AUTOMATED GRINDER - TYPE "NHA"

1) Grinding head.

Locknuts (1) Clamps (2)

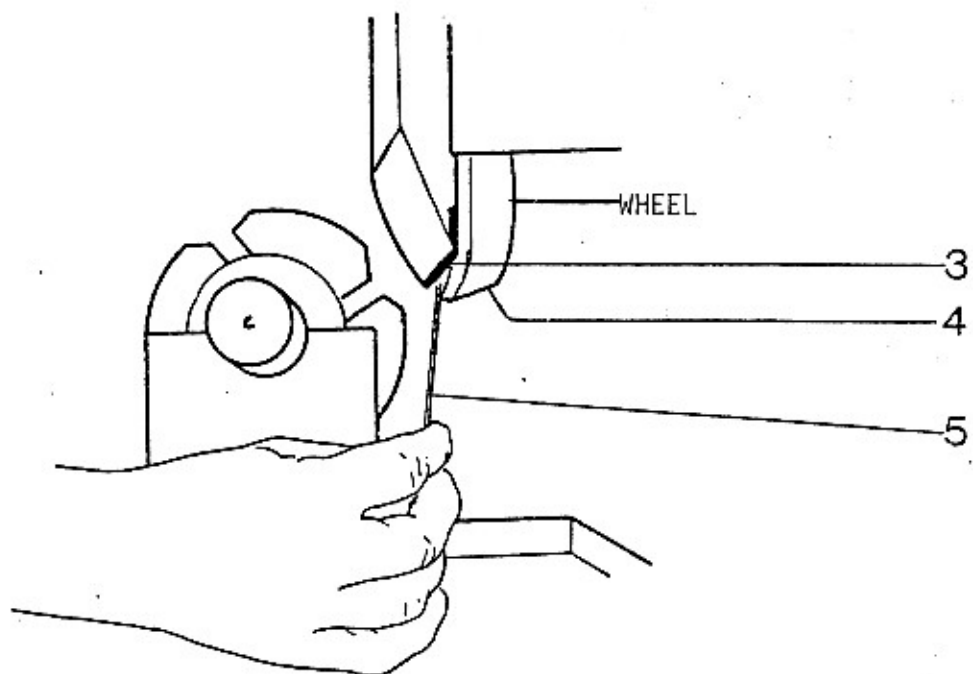
FIG.1.



2) The Finger plate will have been set in its correct relationship to the grinding wheel by the manufacturer and should not be interfered with.

Finger plate (3) Grinding wheel (4) 1.0mm. Feeler (5)

FIG.2.

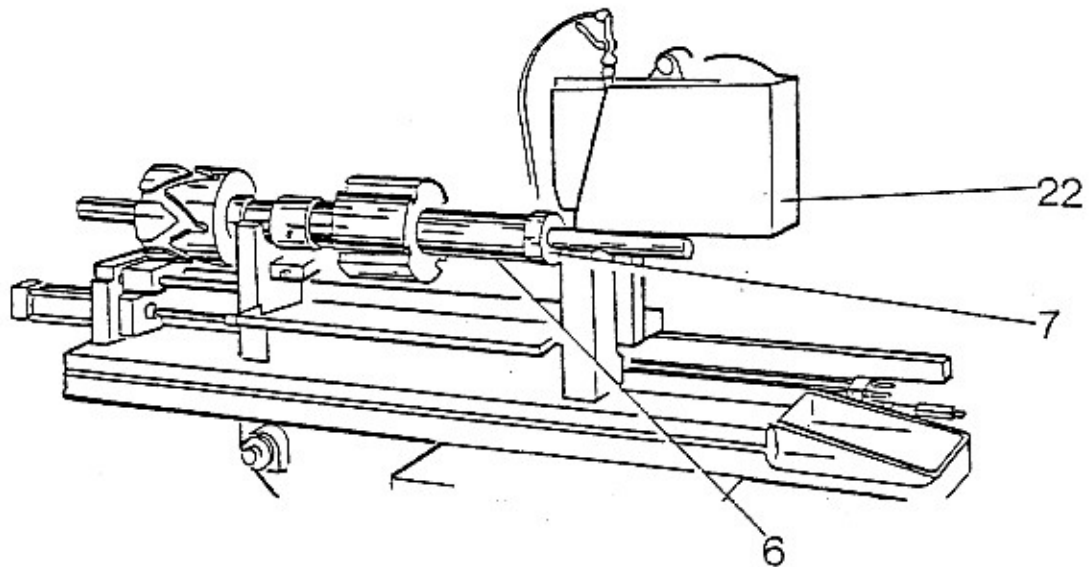


METHOD OF SETTING FINGER PLATE

## UNIT WITH 12 POSITION DRUM CAM

- 3) Clean the cutterblock, particularly the front and rear of the knives and the upperside of the wedges.
- 4) Insert the spindle into the bore of the cutterblock at the same time assemble the appropriate length spacing collar (6) in such a manner so as to give a clearance of 1mm. between the spacing collar and adjustable nut (7).

FIG.3.



- 5) Set the five instrument dials at the Control Station.


The function of these are as follows:-


- DIAL (a) Number of knives:- graduated 0 - 60 in sixty equal increments and enumerated on the scale 0 - 10 - 20 - 30 - 40 - 50 - 60
- DIAL (b) 12 divided by No. of knives:- graduated 0 - 60 in sixty equal increments and enumerated on the scale 0 - 10 - 20 - 30 - 40 - 50 - 60
- DIAL (c) Number of cross traverse movements.  
Set for the required number of cuts graduated 0 - 60 in sixty equal increments and enumerated on the scale 0 - 10 - 20 - 30 - 40 - 50 - 60
- DIAL (d) Finish grindings without cross traverse.  
Set for the required number of passes without actual grinding graduated 0 - 60 in sixty equal increments and enumerated on the scale 0 - 10 - 20 - 30 - 40 - 50 - 60.
- DIAL (e) Automatic traverse 1 second = 0.01mm.  
Set for the required number of cuts per pass graduated 0 - 10 in one hundred equal increments and enumerated on the scale 0 - 2 - 4 - 6 - 8 - 10

UNIT WITH 12 POSITION DRUM CAM.....CONTD

5) .....CONTD.

SWITCH (f) is a two-position for selecting the length of stroke

Position  = Long stroke

Position  = Short stroke

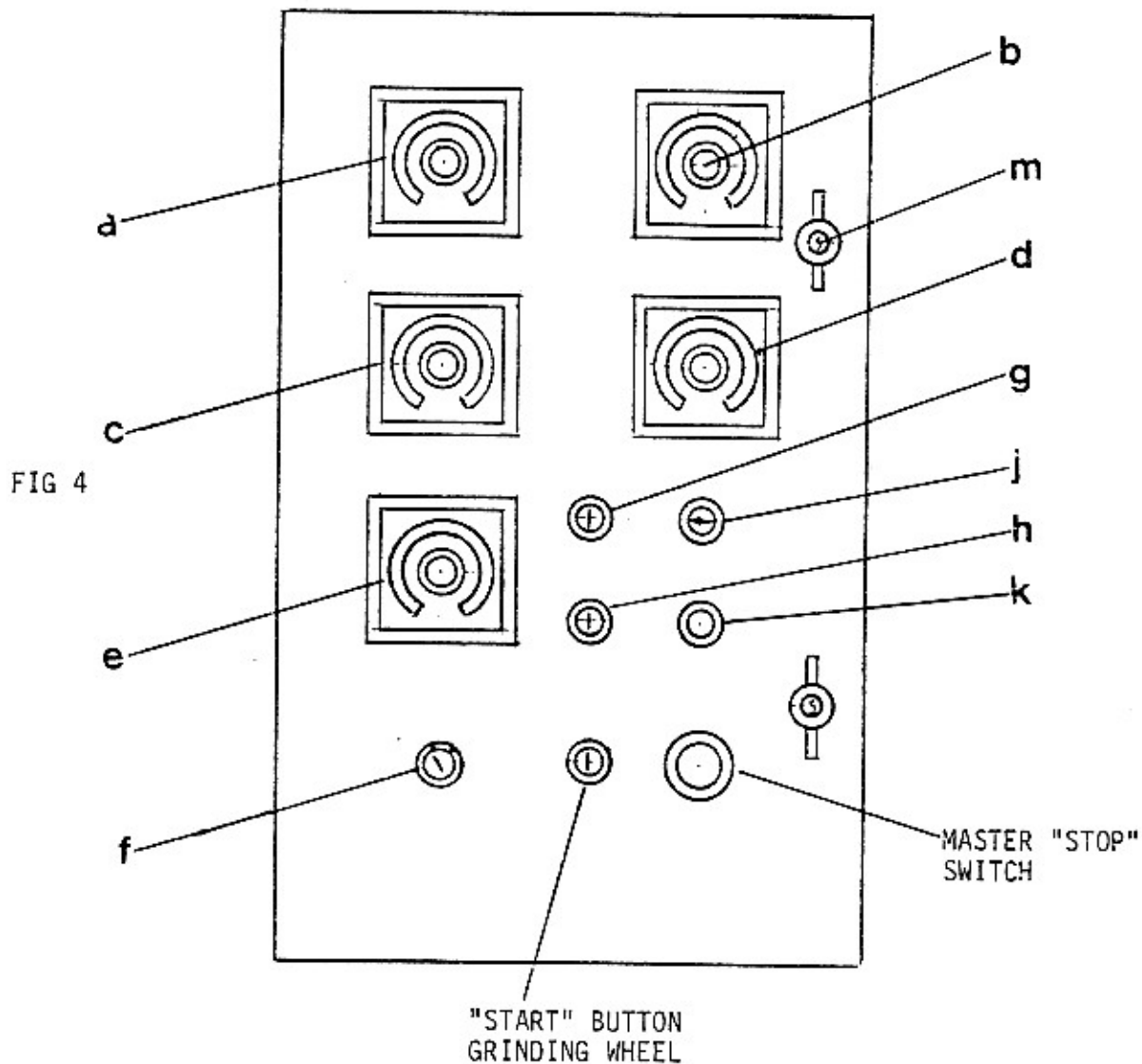
SWITCH (g) is a "START" push button for standby (Engage small roll (10) into drum cam)

SWITCH (h) is a "START" button (Starts cycle)

SWITCH (j) is a "START" button - moves table to the left.

SWITCH (k) is a "STOP" button

SWITCH (m) are locks for gaining access to the inside of the control panel



- 6) Switch on the "Disconnect" switch (Isolator) this is located under the table at the side of the main frame of the machine.

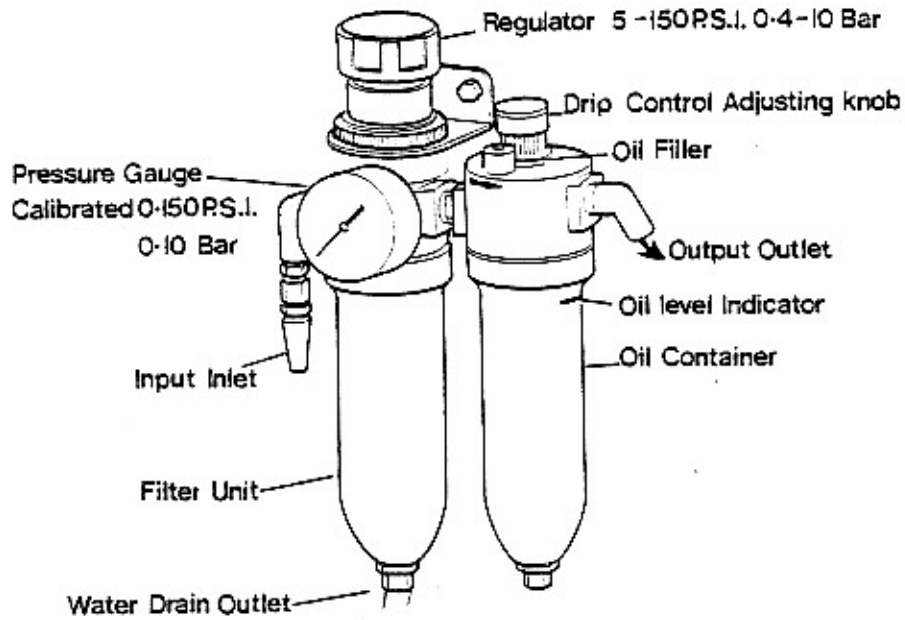


FIG.8.

LUBRO - CONTROL UNIT(15)

- 7) Rotate the spindle by hand until one of the slots in the rotary dividing cam (9) is located opposite the small roll (10) in the slide (11) below the head.

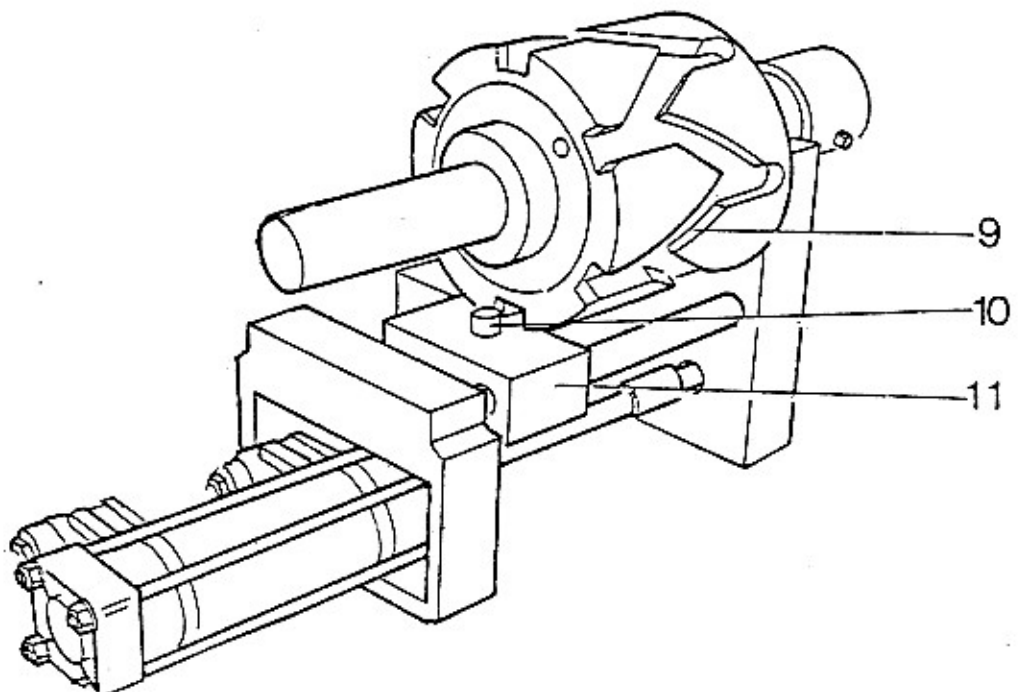


FIG.5.

- 8) Operate the stand-by button (g) at the Control Station and the roll will take up its position in the slot of the rotary cam.....See Fig.4.
- 9) Place an Engineers' square (12) on the table and rotate the cutterblock (13) until a clearance bevel is parallel to the straight edge (14) of the square. ....See Fig.6. Cutterblock is now set to give the correct lip angle.

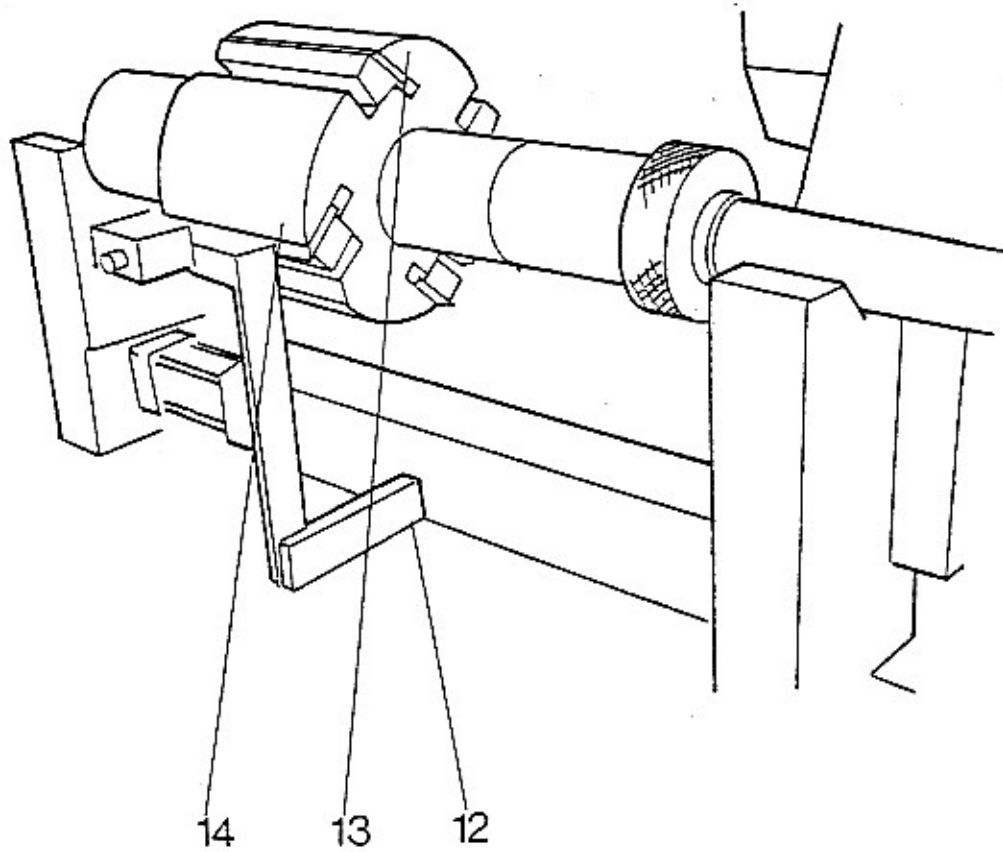


FIG.6.

METHOD OF SETTING KNIFE BLOCKS

- 10) The cutterblock is clamped to the spindle by employing a Hydro-grip device which consists of two hardened steel sleeves with an intermediate layer of grease as a pressure medium; when pressurised with a grease gun pump the outer sleeve expands towards the tool and the inner sleeve towards the spindle in consequence of which the cutterblock is automatically locked and centred. To achieve this close the 'breach' in the grease system by turning the socket set screw (15) in a clockwise direction.....See Fig.13. But before pressurising the cutterblock on the spindle close the valve (16) under the manometer (17) and pressurise by means of the grease gun pump (18) at a pressure of 200 bar; afterwhich withdraw the gun and open the valve (14). .....See Fig.7.

FIG.13.

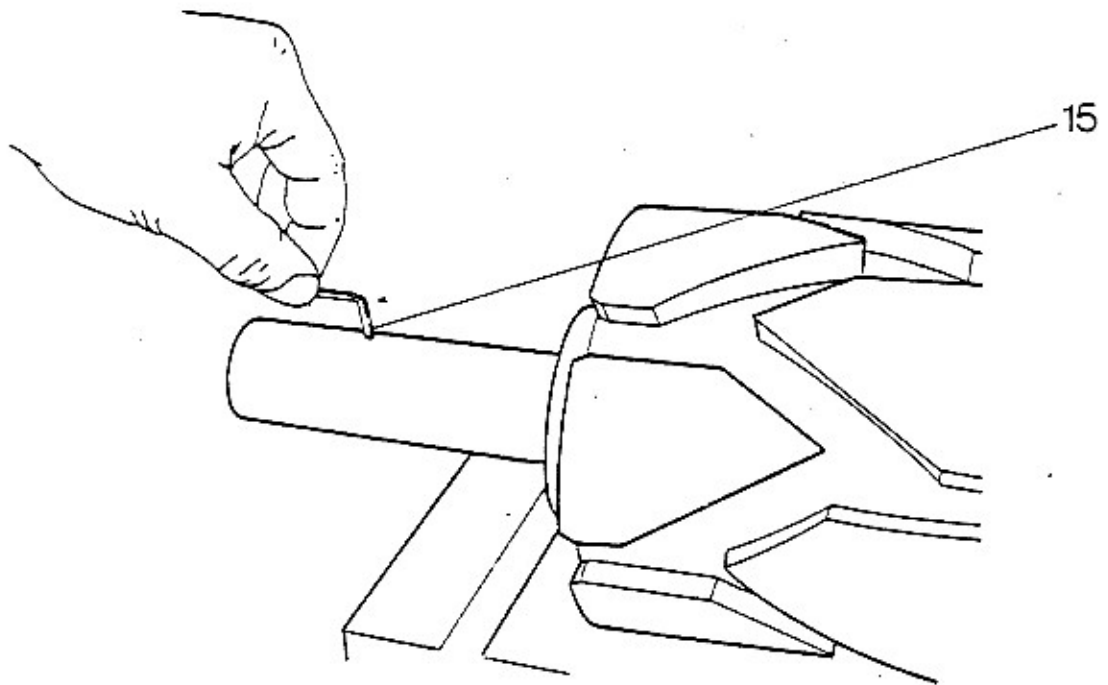
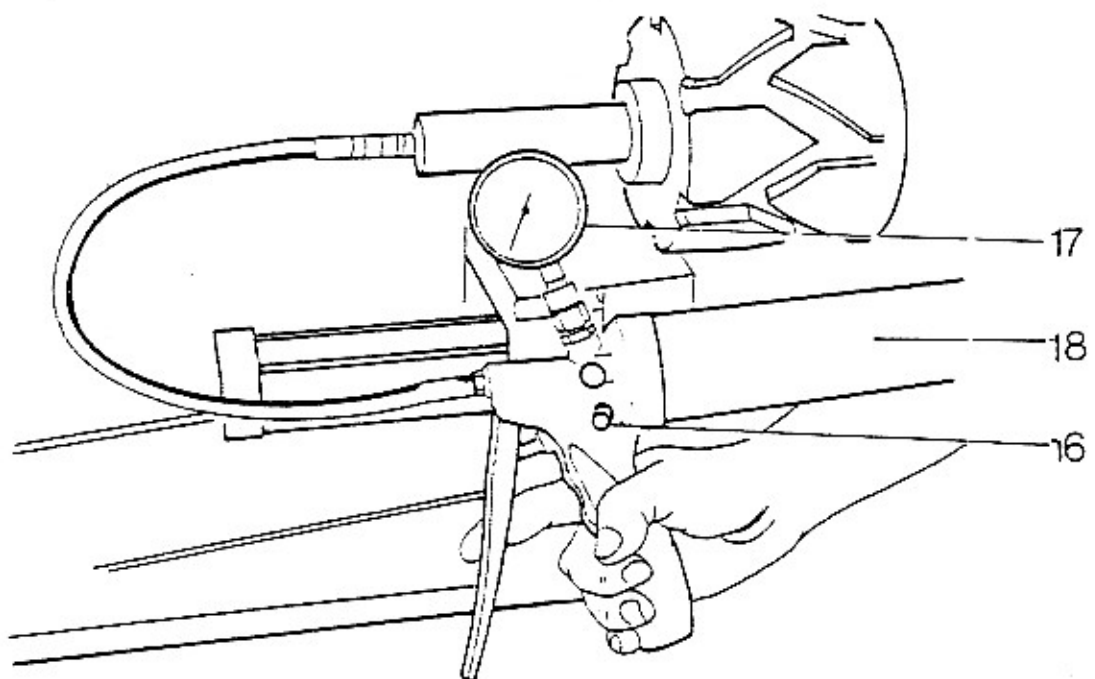


FIG.7.

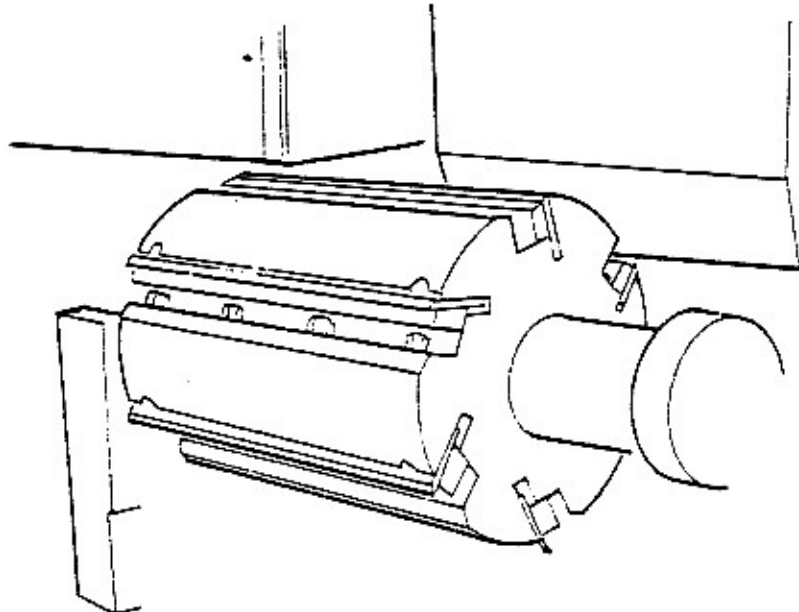




- 11) Locate the Grinding Wheel head "clear" of the path of the cutterblock.
- 12) Operate the "START" button (h).....See Fig.4. and momentarily remove the air pressure by "bleeding" the system by operating the restrictor flow control valve (located at \* right hand end rear of the machine \* when viewed from the front of the machine), to enable the table to stop when the cutterblock has reached slightly to the right of the centre of the finger plate such that the "knife" is just making contact with the finger plate.

If the table travels too far operate the Table to the left "START" button (j) .....See Fig.4. and repeat the process.

FIG.9.



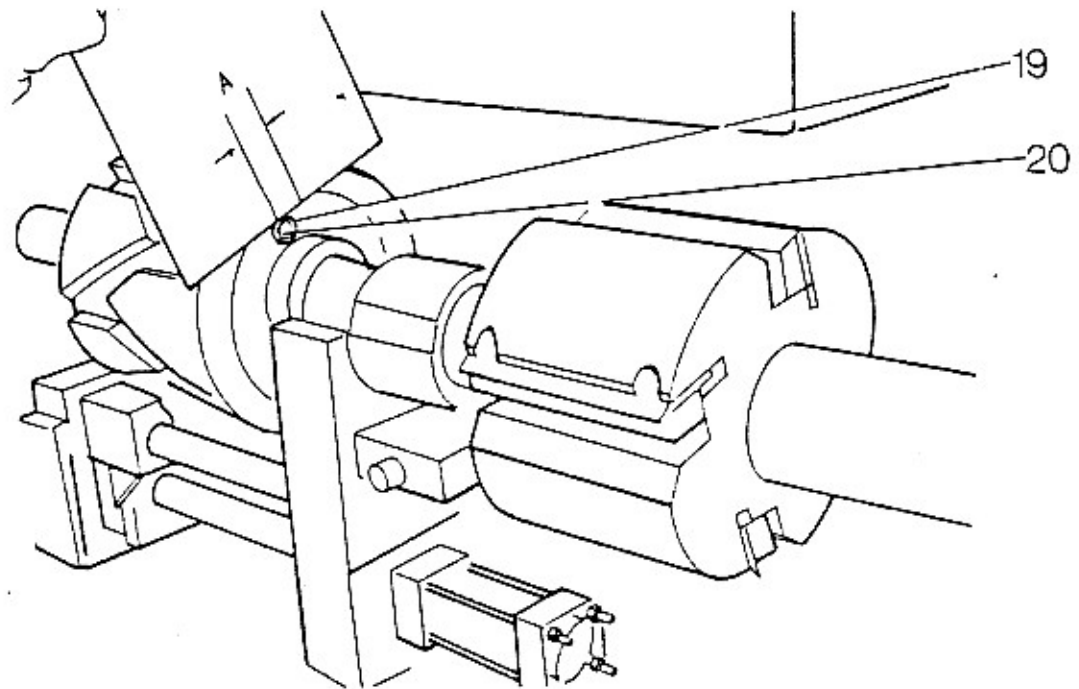
- 13) Move the workhead towards the knife and adjust the grindstone wheel so as to clear the clearance bevel by approximately 0.4mm. and screw down the workhead until the finger plate presses the knife down so that there is slight rotational movement of the spindle.

Hold this movement when the clearance at the hole (19) and pin (20) is approximately 1mm.....See Fig.10 and dimension 'A'.

Now lock the workhead in position so that there is no vertical movement.

**IMPORTANT:** ENSURE THAT THERE IS 0.2MM. CLEARANCE BETWEEN THE CLEARANCE BEVEL AND THE GRINDING WHEEL. IF NECESSARY ADJUST BY MEANS OF THE CROSS TRAVERSE HANDWHEEL AND AGAIN CHECK THE DIMENSION "A"....SEE FIG.10.

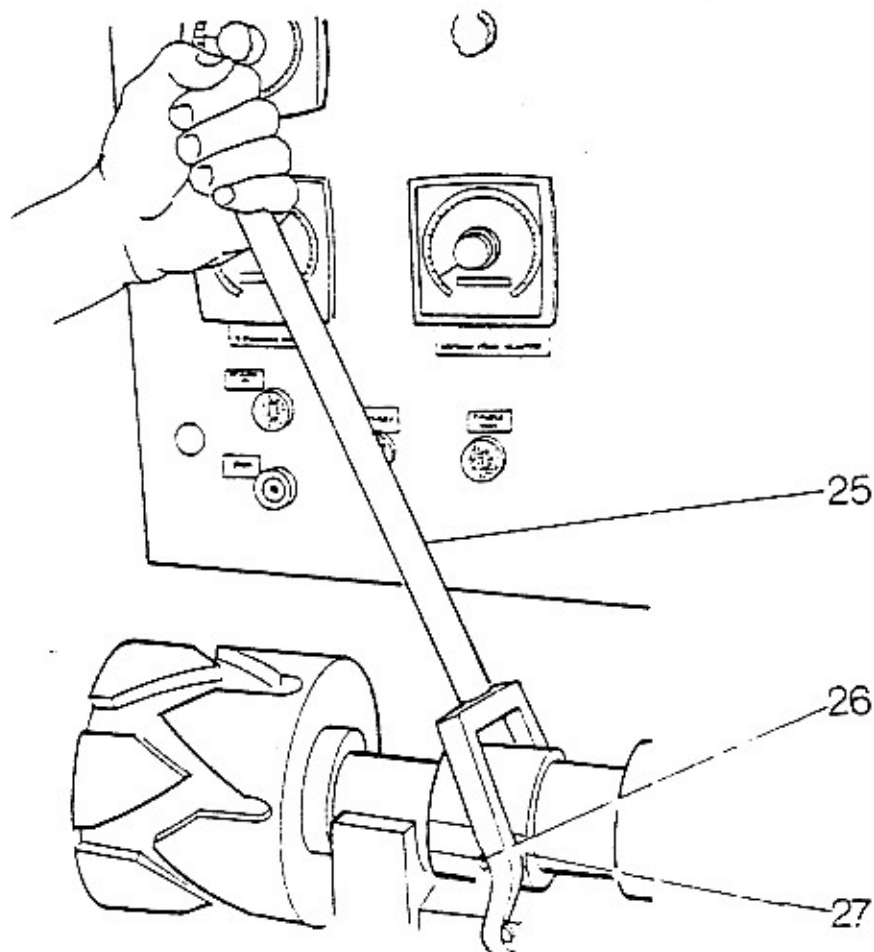
FIG.10.



- 14) Operate "PUSH" button "to Left" (j).....See Fig.4. and open main valve (pneumatic circuit).....See Fig.8.

- 17) Replace the splash guard (22).....See Fig.3. Press the "START" button of the Grinding Wheel Motor (the wheel should rotate in a counterclockwise direction)  
Finally operate the "START" Button (h) at the Control Station.....See Fig.4.
- 18) During the initial grinding "pass" slowly turn the cross traverse handwheel in a counterclockwise direction until the knife with the greatest projection contacts the grinding wheel.
- 19) At the end of the machining programme the table will stop at the end of the stroke (at the "Left" end of the machine), in such a position so that the small roll (10) moves out of the rotary dividing cam (11) slot.....See Fig.5. and Fig.13. At this point stop both the grinding wheel motor and the coolant pump motor.
- 20) Release the socket screw (15).....See Fig.13. and press the pressure sleeve (24) as far as it will go to the left by engaging the fork lever (25) on the projecting screws (26) located on the two flat faces (27) of the sleeve..... See Fig.14.

FIG.14.

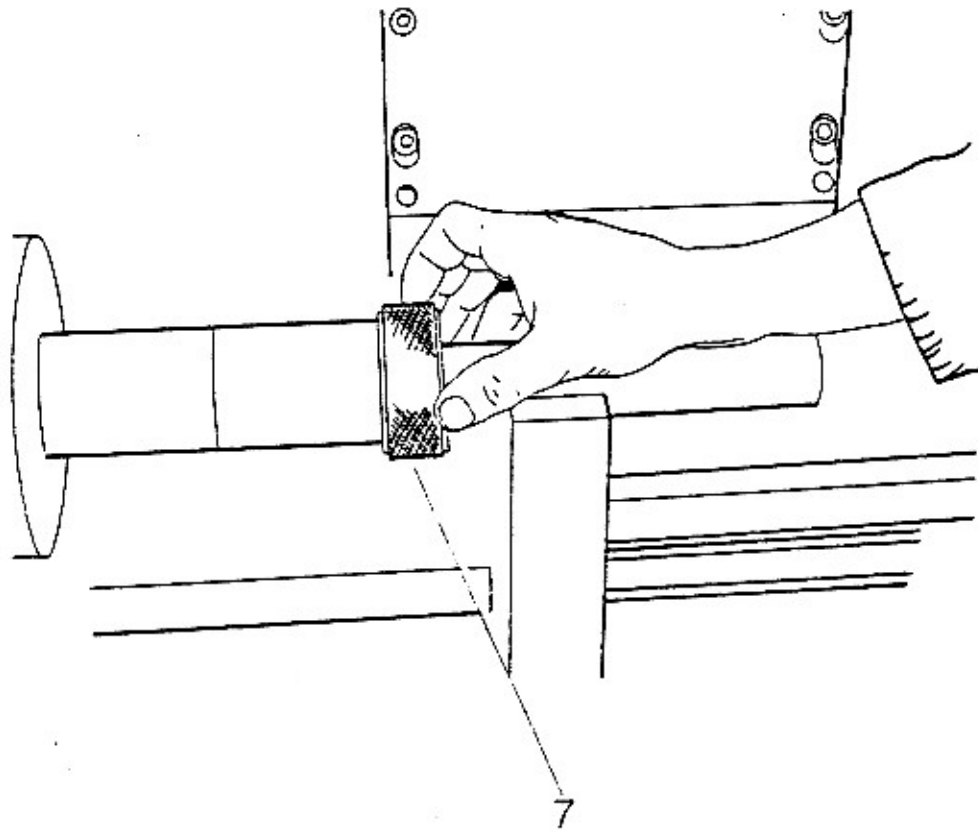


NOTE (a) For subsequent re-grinding operations for this cutterblock, the following procedures are unnecessary. Paragraphs 1), 11), 12), and 14).

NOTE (b) When grinding short cutterblocks, set the switch (4)..... See Fig.4. to "short" stroke.

IMPORTANT: THE NUT (7).....SEE FIG.15. MUST ONLY BE SCREWED BY HAND, UNDER NO CIRCUMSTANCES SHOULD TOOLS BE USED DISREGARD TO THIS MAY RESULT IN DAMAGE TO THE INDEXING MECHANISM.

FIG.15.



## LUBRICATION AND MAINTENANCE

In designing the "WADKIN" "NHA" Grinder much attention has been given to the question of maintenance and every endeavour has been made to keep lubrication maintenance to a minimum. In consequence of this 'sealed for life' bearings and 'oilite' bushes have been widely used.

However, there are exceptions which are as follows:-

In electric motors where 'sealed for life' bearings have not been fitted these are provided with grease nipples.

### DAILY

Oil machine slideways and raised and lower screws with "WADKIN" Grade L.4.Oil.

The pneumatic lubrication unit comprises of a filter, regulator and oil dispenser.

The latter should be filled with "MOBIL" ALMO NO: 1.Oil.

The oil dispenser should be adjusted to give one drip of oil every minute and the air pressure should be regulated to give a pressure of 5.63 kg/cm<sup>2</sup> (80lbs./sq.inch).

### IMPORTANT

If water condensation collects in the air line, it is recommended that an electrical extractor and water trap complete with 'turn off' gauge be incorporated in the circuit immediately before the filters.

It is strongly recommended that the valves be opened daily to ensure that water does not enter the air line.

### EVERY THREE MONTHS

Lubricate all electric motors with "WADKIN" Grade L.6. grease at the nipples provided.

### HYDRAULIC UNITS

Use only recommended oil "WADKIN" Grade L.1.Oil.

APPROVED LUBRICANTS

WADKIN GRADE	CASTROL	B.P.	SHELL	MOBIL	ESSO	GULF	CALTEX
L.1.	HYSPIN AWS 32	ENERGOL HLP 32	TELLUS 27	DTE OIL LIGHT 24	NUTO 44 OR ESSTIC H44	HARMONY 43 AW	RANDO OIL HDA
L.2.	ALPHA ZN 150	ENERGOL HP 150	VITREA 75	VACTRA EXTRA HEAVY	ESSTIC 65	SERVICE 13	URSA P40
L.4.	MAGNA 68	ENERGOL HP 68	VITREA 33	VACTRA OIL HEAVY MEDIUM	ESSTIC 50	SERVICE 51	URSA P20
L.6.	SPHEEROL AP 3	ENERGREASE LS 3	ALVANIA GREASE NO.3	MOBILPLEX GREASE NO.48	BEACON 3	GULFCROWN GREASE NO.3	REGAL STARTAK PREMIUM 3

- L.1. OIL Hydraulic oil with anti-corrosion, anti-oxidation, anti-wear, anti-foam performance.
- L.2. OIL Gear oil (viscosity 150 centi-stokes at 40°C.)
- L.4. OIL Plain mineral oil (viscosity 68 centi-stokes, at 40°C.)
- L.6. GREASE NLGI NO.3 consistency Lithium bearing grease.



SPARE PARTS BOOKLET

CONTENTS

1. Basic ordering requirements.
2. Sample type order.
3. List of item numbers and description of item.
4. Drawing showing item numbers.

12" & 24" NH

CUTTER GRINDER

SAMPLE TYPE ORDER

SPARE PARTS

Should spare parts be required due to breakage or wear full particulars including the machine and test number must be given. This information is on the nameplate attached to the machine and will be similar to the picture below.

TEST NO: 68972

<b>Wadkin Ltd.</b> <b>LECESTER ENGLAND</b>		
MACHINE SERIAL NO.	FD 6131	
MACHINE TEST NO.	78601	
PATENT NO.		
VOLTAGE	PHASE	CYCLES
400	3	50
SEE MAINTENANCE INSTRUCTION BOOK FOR LUBRICATION DETAILS		

Please see the next page for sample detail of how to order spare parts.



SAMPLE TYPE ORDER

MACHINE: NH

MACHINE NO: 1407

TEST NO: 68975

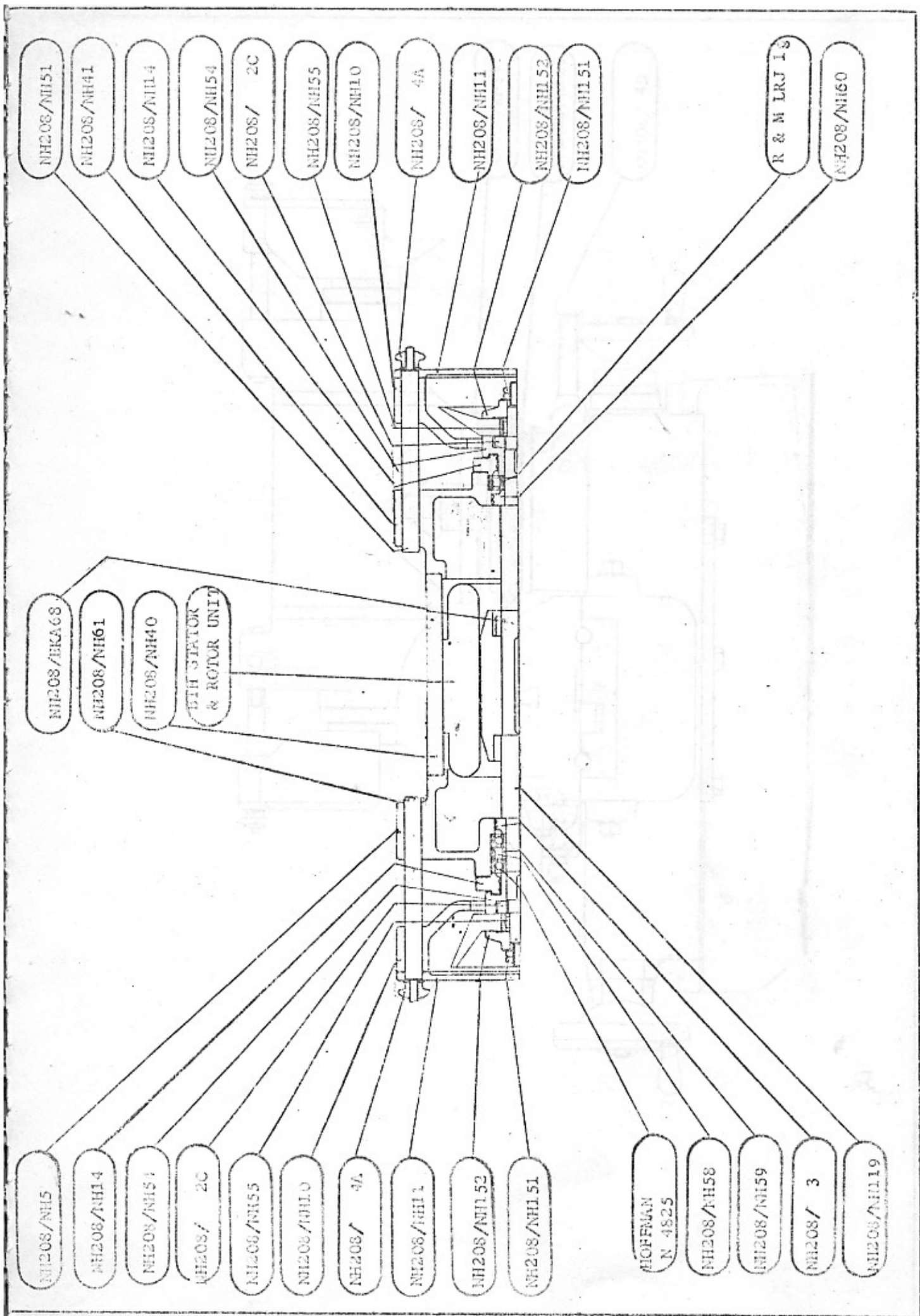
PARTS REQUIRED

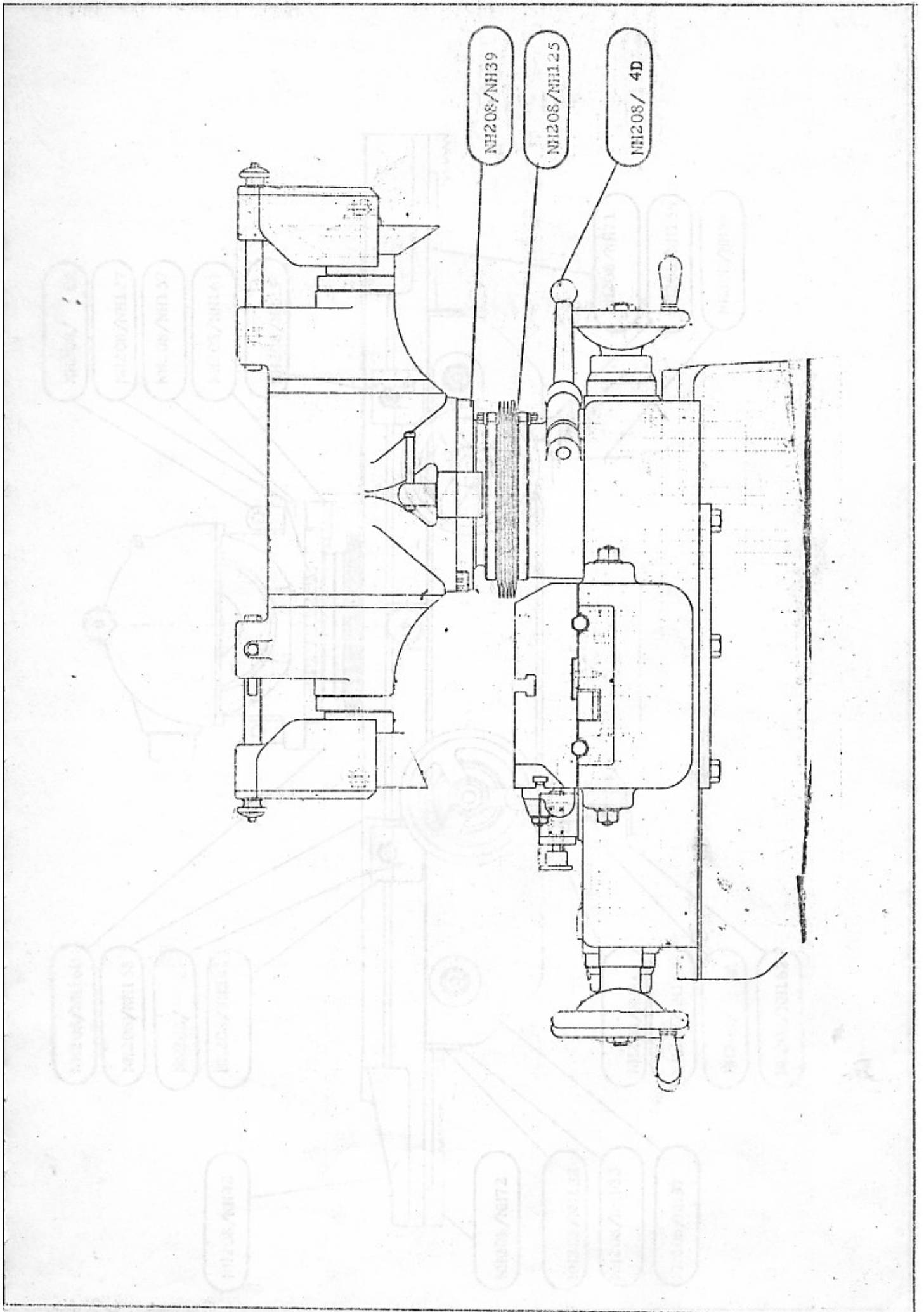
1	-	NH208/NH10	CUP WHEEL GUARD
1	-	NH208/NH76	REAR RACK PINION SHAFT
1	-	NH208/NH158	PLUNGER FOR TABLE STOP
1	-	NH209/NH36	MAIN FRAME
1	-	NH209/NH91	COUPLING FOR HANDWHEEL SHAFT

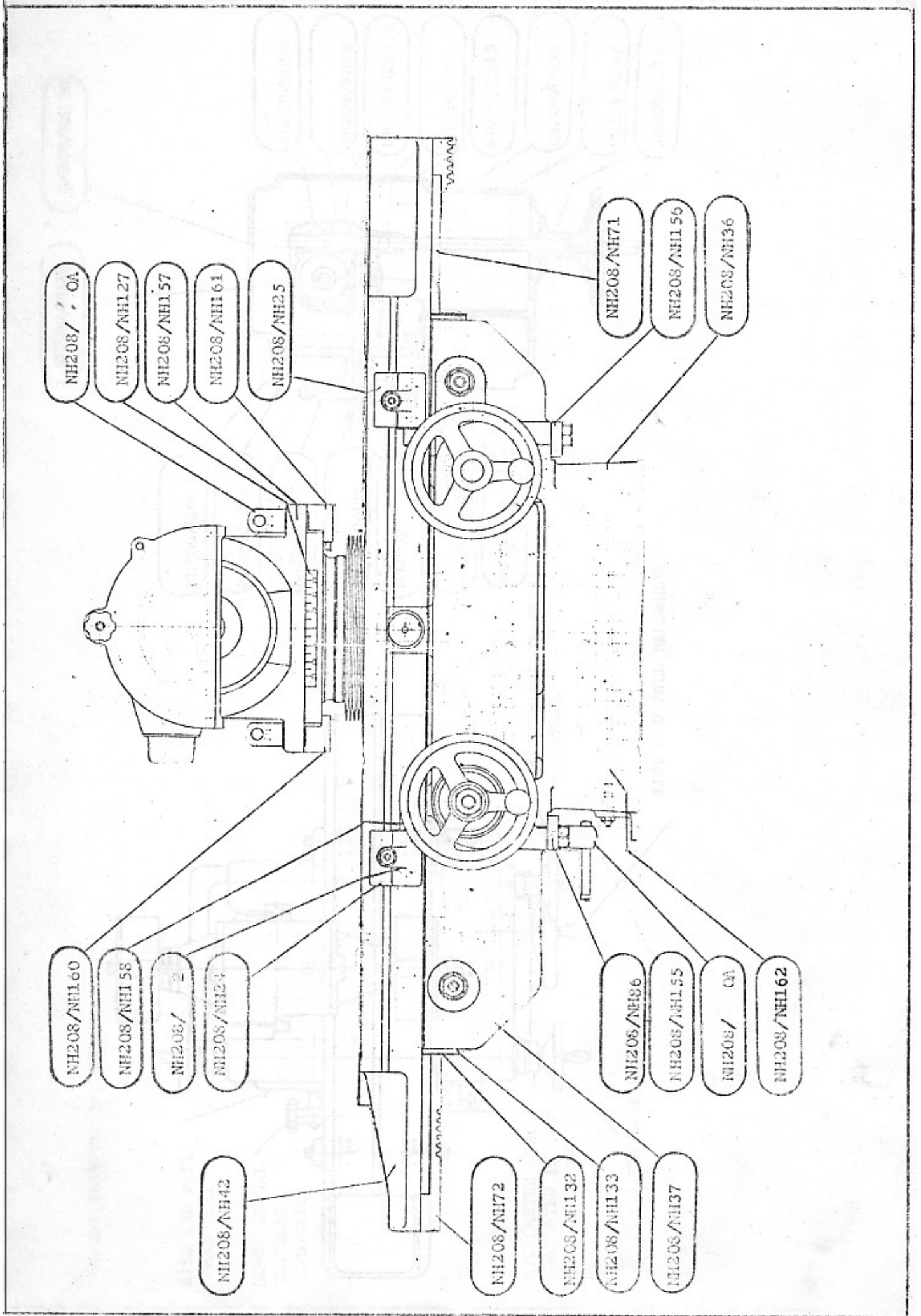
12" & 24" NH MACHINE SPARE PARTS LIST

NH208/NH5	FRONT BEARING HOUSING
NH208/NH10	CUP WHEEL GUARD
NH208/NH11	COVER FOR CUP WHEEL GUARD
NH208/NH14	END CAP FOR FRONT BEARING
NH208/NH21 ?	NUT FOR TRAVERSE MOTION
NH208/NH22	BEARING FOR CROSS TRAVERSE SCREW
NH208/NH23 -	CROSS TRAVERSE HANDWHEEL
NH208/NH24	L.H. TABLE STOP
NH208/NH25	R.H. TABLE STOP
NH208/NH36	MAIN FRAME
NH208/NH37	CROSS TRAVERSE SLIDE
NH208/NH39	WHEELHEAD RAM
NH208/NH40	STATOR FRAME
NH208/NH41	REAR BEARING HOUSING
NH208/NH42	TABLE
NH208/NH54 :	REAR FLANGE FOR CUP WHEEL
NH208/NH55	BUSH FLANGE FOR CUP WHEEL
NH208/NH58	OUTER SPACING RING FOR BEARINGS
NH208/NH59	INNER SPACING RING FOR BEARINGS
NH208/NH60	GREASE RETAINER FOR REAR BEARING
NH208/NH61	SHAFT FOR CUP WHEEL GUARD
NH208/NH70	TABLE ROLLER BUSH
NH208/ <del>NH71</del> <sup>12" 24</sup> <del>NH68</del> NH75	SLIDE ROD FOR TABLE
NH208/NH72	RACK FOR TABLE
NH208/NH75	RACK PINION
NH208/NH76	REAR RACK PINION SHAFT
NH208/NH79	BUSH FOR RACK PINION SHAFT
NH208/NH80	SLEEVE FOR MICROMETER DIAL
NH208/NH81	REAR MICROMETER DIAL
NH208/NH82	FRONT MICROMETER DIAL
NH208/NH83	TABLE ROLLER PIN

NH208/NH86	LOCK PLATE FOR CROSS TRAVERSE SLIDE
NH208/NH93	ECCENTRIC TABLE ROLLER PIN
NH208/NH119	GRINDING SPINDLE
NH208/NH125	GUARD FOR WHEELHEAD RAM
NH208/NH127	SCALE FOR ANGULAR SETTING
NH208/NH132	WIPER PLATE
NH208/NH133	WIPER FOR SLIDE RODS
NH208/NH151	LOCKNUT FOR GRINDING SPINDLE
NH208/NH152	FRONT FLANGE FOR CUP WHEEL
NH208/NH153	FRONT RACK PINION SHAFT
NH208/NH154	BUSH FOR RACK PINION SHAFT
NH208/NH155	LIP PLATE FOR CROSS TRAVERSE SLIDE
NH208/NH156	LIP PLATE FOR CROSS TRAVERSE SLIDE
NH208/NH157	STUD FOR WHEELHEAD CLAMP
NH208/NH158	PLUNGER FOR TABLE STOP
NH208/NH159	TEE BOLT FOR TABLE STOP
NH208/NH160	WHEELHEAD CLAMP (L.H.)
NH208/NH161	WHEELHEAD CLAMP (R.H.)
NH208/NH162	GREASE PIPE FOR NUT
NH208/NH164 ? NH140 SEE NOTES NH.	CROSS TRAVERSE SCREW
NH208/EKA68	COLLAR FOR SPINDLE
NH208/FG1035	FISCHER BEARING
NH208/LS863	SPRING FOR SPINDLE LOCK
NH208/N4825	BALL BEARING
NH208/OA	CLAMP NUT AND LEVER
NH208/2	SPRING
NH208/2B	HANDWHEEL
NH208/2C	BALL BEARING LOCKNUT
NH208/3	GREASE RETAINER
NH208/4	HORN HANDLE







CROSS TRAVERSE HANDWHEEL

RISE AND FALL  
HANDWHEEL

LONGITUDINAL  
TRAVERSE  
HANDWHEEL

MICROMETER DIALS  
GRADUATED IN .001  
INCH OR .1 MM

CROSS TRAVERSE HANDWHEEL

LONGITUDINAL TRAVERSE  
HANDWHEEL

RISE AND FALL HANDWHEEL

NH209/NH130

NH209/NH20

NH209/NH9

NH209/NH89

NH209/NH17

NH209/NH87

NH209/ 2

NH209/SKFC.8

NH209/NH88

NH209/NH90

NH209/NH88

NH209/SKFC.8

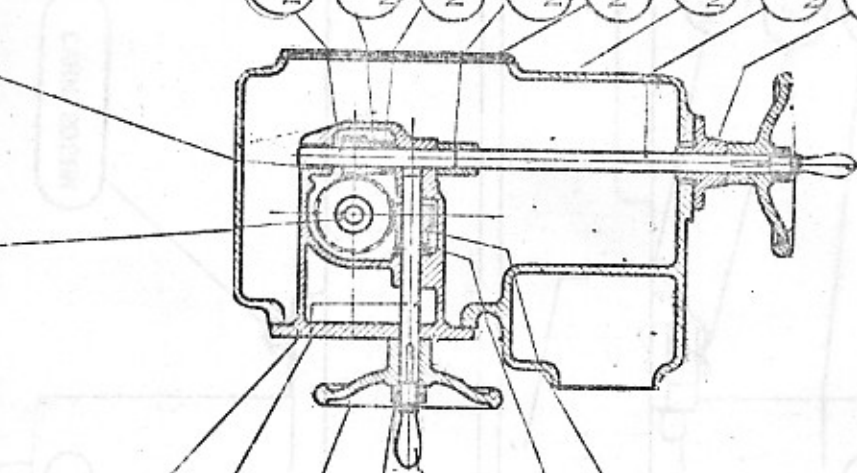
NH209/NH91

NH209/NH15

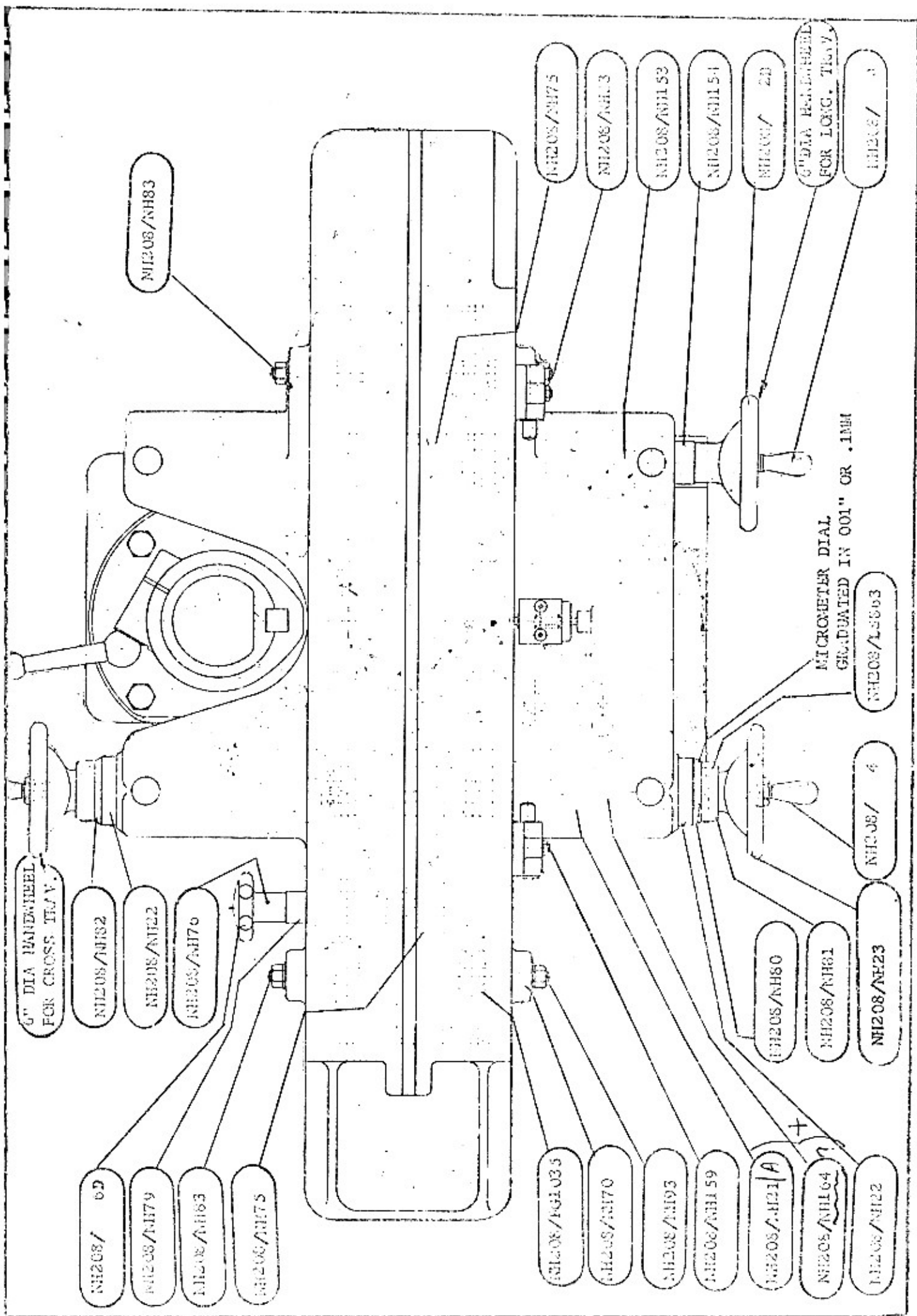
NH209/NH36

NH209/NH92

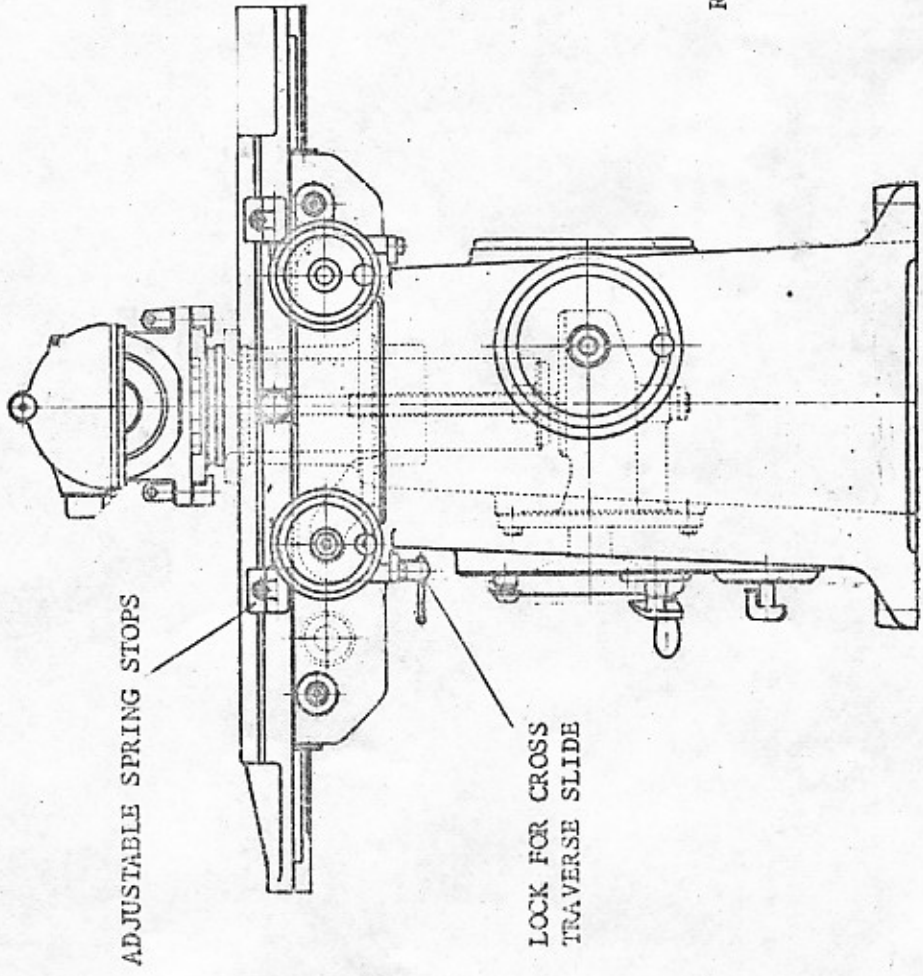
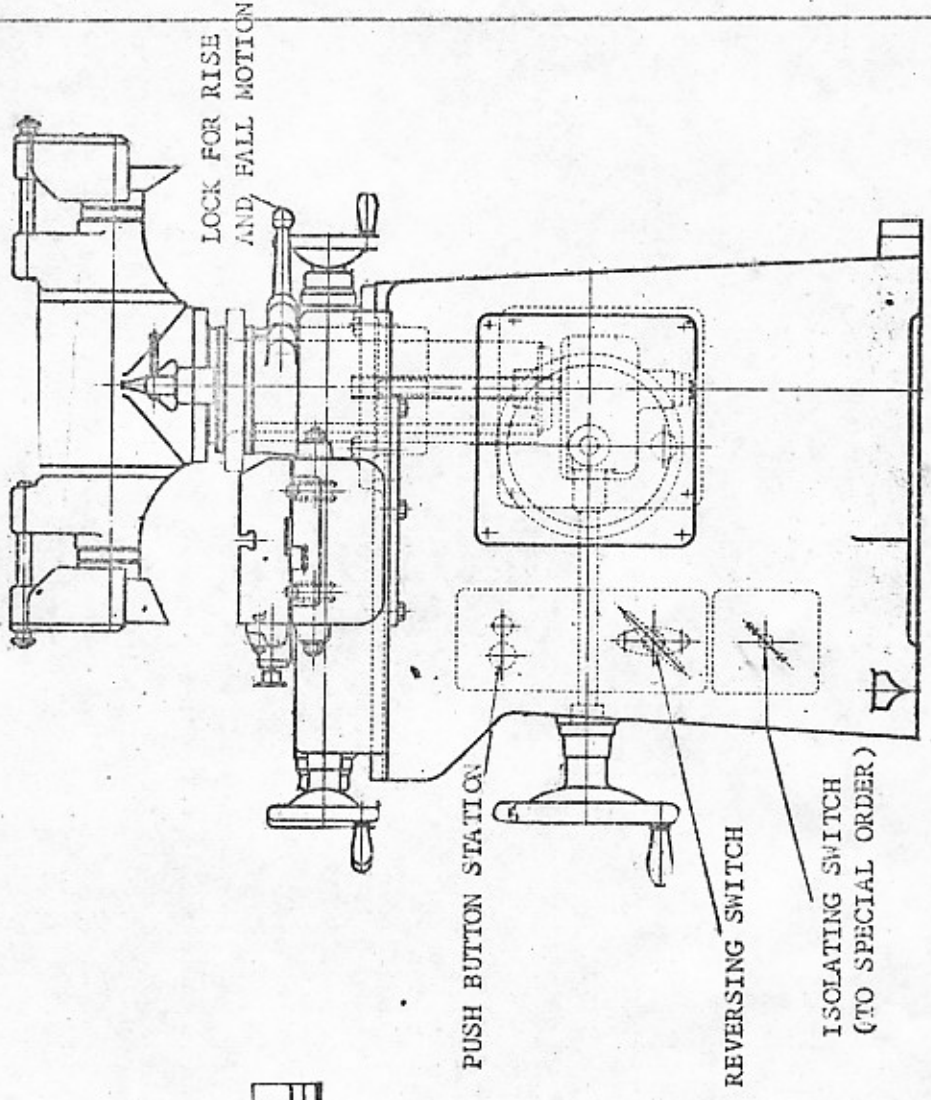
NH209/NH16



MICROMETER DIAL  
GRADUATED IN .001 INCH OR .1MM







12" & 24" CUTTER GRINDER NH