KENT USA®
Since 1979

SGS-1020, 1230, 1640AHD
Automatic Surface Grinders
Operation Manual

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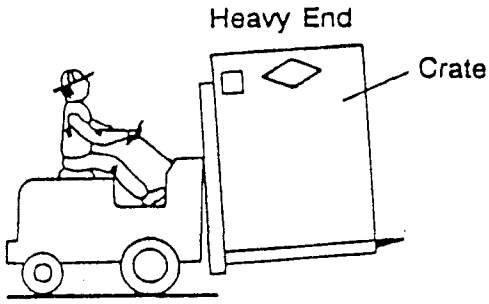
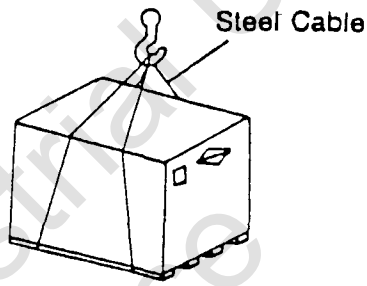
THIS MACHINE HAS BEEN FULLY TESTED,ADJUSTED AND INSPECTED FOR CORRECT ALIGNMENT AND OPERATION PRIOR TO SHIPMENT.IN TRANSIT OR INSTALLATION, PLEASE ENSURE THAT THE MACHINE IS NOT BUMPED WHEN BEING ROLLED OR SET DOWN TO AVOID ANY FAILURE.

A).TRANSIT

By Fork Lifter



By Hoist or Chain Block



Machine Weight Chart

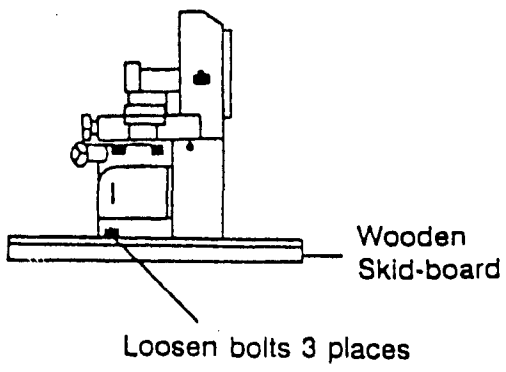
UNIT:KG

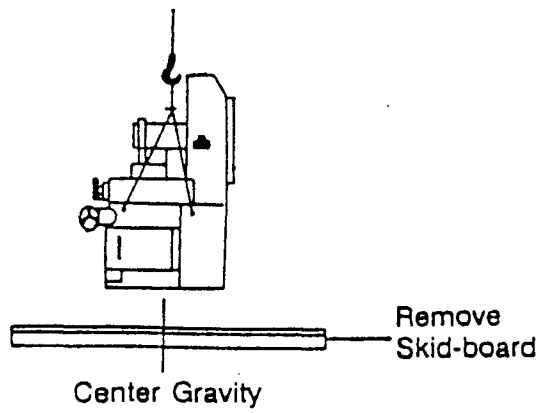
M/C WGT.	1020	1020H	1020AH	1020AHD	N1224AH	N1224AHD
NET.	1200	1200	1250	1300	1300	1350
Gross.	1450	1450	1450	1550	1550	1600

M/C WGT.	1224AH	1224AHD	1230AH	1230AHD	1632AH	1632AHD
NET.	1850	1900	1900	1950	2750	2800
Gross.	2150	2200	2250	2300	3250	3300

B).UNPACKING

1.When unpacking the crate,starts from the upper cover,then follow the sequence of front,rear,left and right.
2.Do not use hammer to break down the crate,please use nail extruder in stead of.
3.To avoid damaging the machine or paint,please pay more attention when taking away the wooden cover.
4.Loosen the fixing screws before lifting machine.





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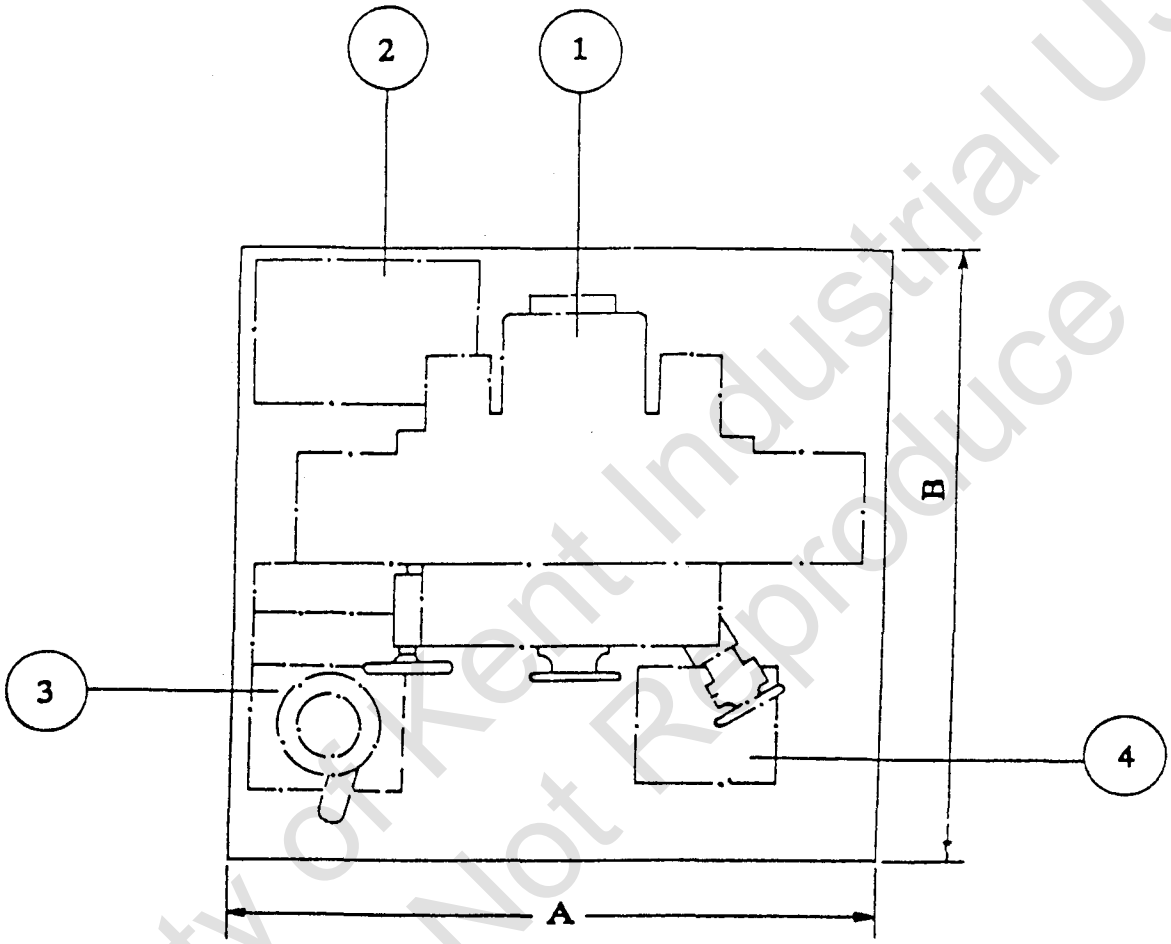
For 1020H,1020AH,1020AHD,N1224H,N1224AH,N1224AHD,1224AH
1224AHD,1230AH,1230AHD,1632AH,1632AHD

PACKING DIAGRAM



1.Machine
2.Hydraulic Tank
3.Dust-Suction Coolant System
4.Standard Accessories

Unit:mm

Model	A	B	Height
1020H,AH	1500(59")	1840(72 1/2")	2000(79")
1020AHD	1700(67")	2070(81 1/2")	2100(83")
N1224AH, 1224AH	1560(61 1/2")	2120(83 1/2")	2000(79")
N1224AHD 1224AHD	1690(66 1/2")	2120(83 1/2")	2260(89")
1230AH	1690(66 1/2")	2120(89 1/2")	2260(89")
1230AHD	1690(66 1/2")	2270(89 1/2")	2260(89")
1632AH	1690(66 1/2")	2270(89 1/2")	2260(89")
1632AHD	2700(106 1/2")	2220(87 1/2")	2285(90")

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C). CHOICE OF SITE

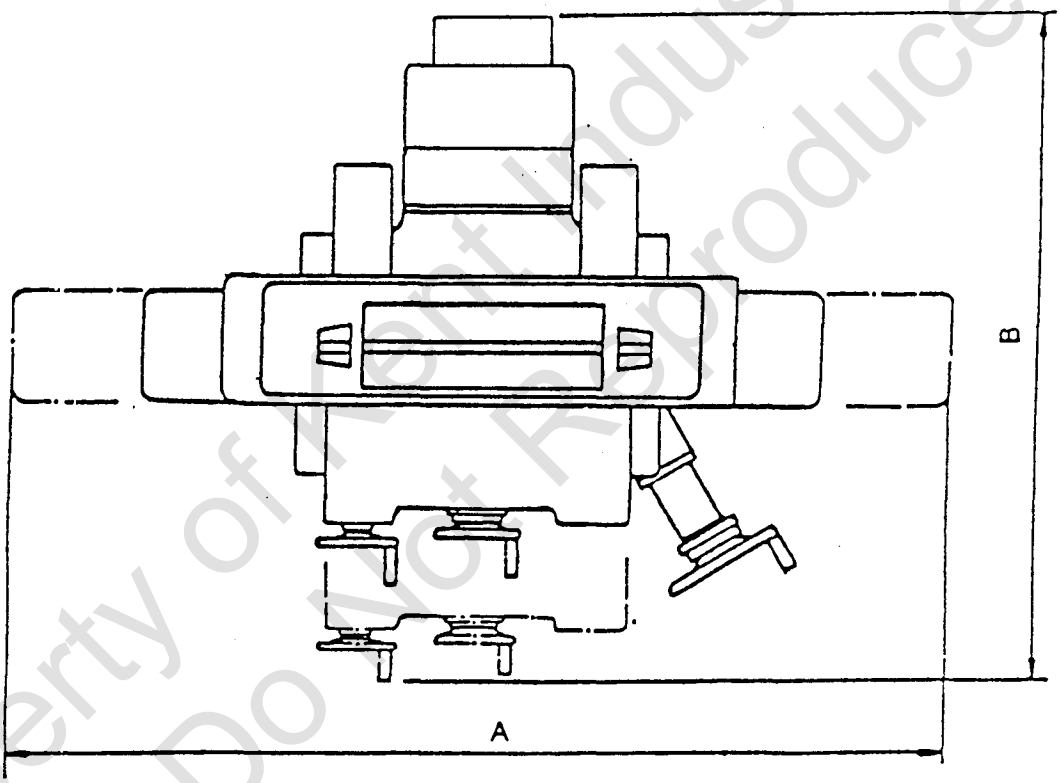
The output of the machine and the degree of accuracy of the components produced depend to a very special degree on the correct choice of site for the erection of the machine.

The grinding machine should be handled just as carefully as a jig- borer.After all extreme precision is demanded of both types of machine.

Grinding machines are often found between milling,shaping,drilling and even slotting machines,without any thought of the consequences of such planning. In such cases,it is impossible to achieve good surface finishes,as the vibrations from the milling machines or jerks from the reversal of the shaper stroke, etc. are transmitted to the grinding machine. Chatter marks can be found on the ground surface,which are due to these extraneous influences.

Unsolid floor is unsuitable for taking the machine as it results in distortion of the machine bed.

Floor Plan:



Unit:mm

M/C Type / Statement	1020 M,H,AH, AHD	N1224 H,AH,AHD	1224 AH,AHD	1230 AH,AHD	1632 AH.AHD
A	2040	2475	2510	2930	3350
B	1796	1845	2085	2085	2475

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D). INSTALLATION

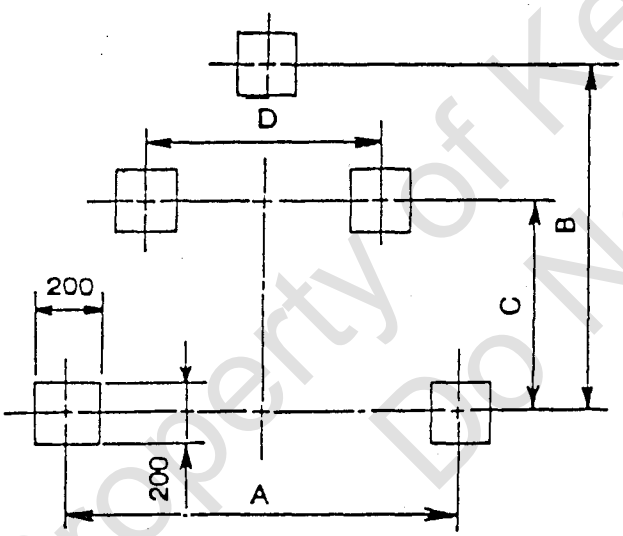
(1)Power Consumption

M/C Type / Staement	1020	1020H N1224H	1020AH N1224AH	1020AHD N1224AHD	1224AH 1230AH
Machine	1.5KW	2.4KW	2.4KW	3.3KW	5.4KW
Coolant	0.093KW	0.093KW	0.093KW	0.093KW	0.093KW
Dust-Suction	0.373KW	0.373KW	0.373KW	0.373KW	0.373KW
Ele.Mag.Chuck	0.15KW	0.15KW	0.15KW	0.15KW	0.15KW
Total	2.2KW	3.1KW	3.1KW	4KW	6.1KW

M/C Type / Staement	1224AHD 1230AHD	1632AH	1632AHD
Machine	5.4KW	7.125KW	7.125KW
Coolant	0.093KW	0.093KW	0.093KW
Dust-Suction	0.373KW	0.373KW	0.373KW
Ele.Mag.Chuck	0.15KW	0.15KW	0.15KW
Total	6.1KW	7.8KW	7.8KW

(2)Foundation

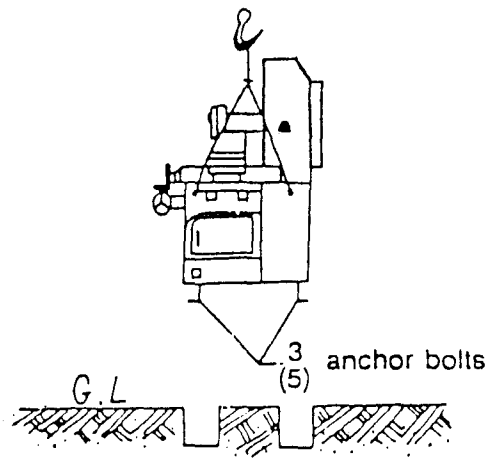
a.Dimension



Dimension / M/C Type	A	B	C	D
1020,H,AH, AHD	840	785		
N1224AH,AHD	950	953		
1224AH,AHD 1230AH,AHD	950	945	565	650
1632AH,AHD	1000	1215	680	1000

b.Use the Anchor bolts

* Lock the anchor bolts on the machine by nuts, and let the thread portion at least 30mm for adjust.
* Lay down the machine slowly to aim anchor bolts at foundation holes.
* Levelling the machine by taper block.
* Fill up foundation holes with concrete.



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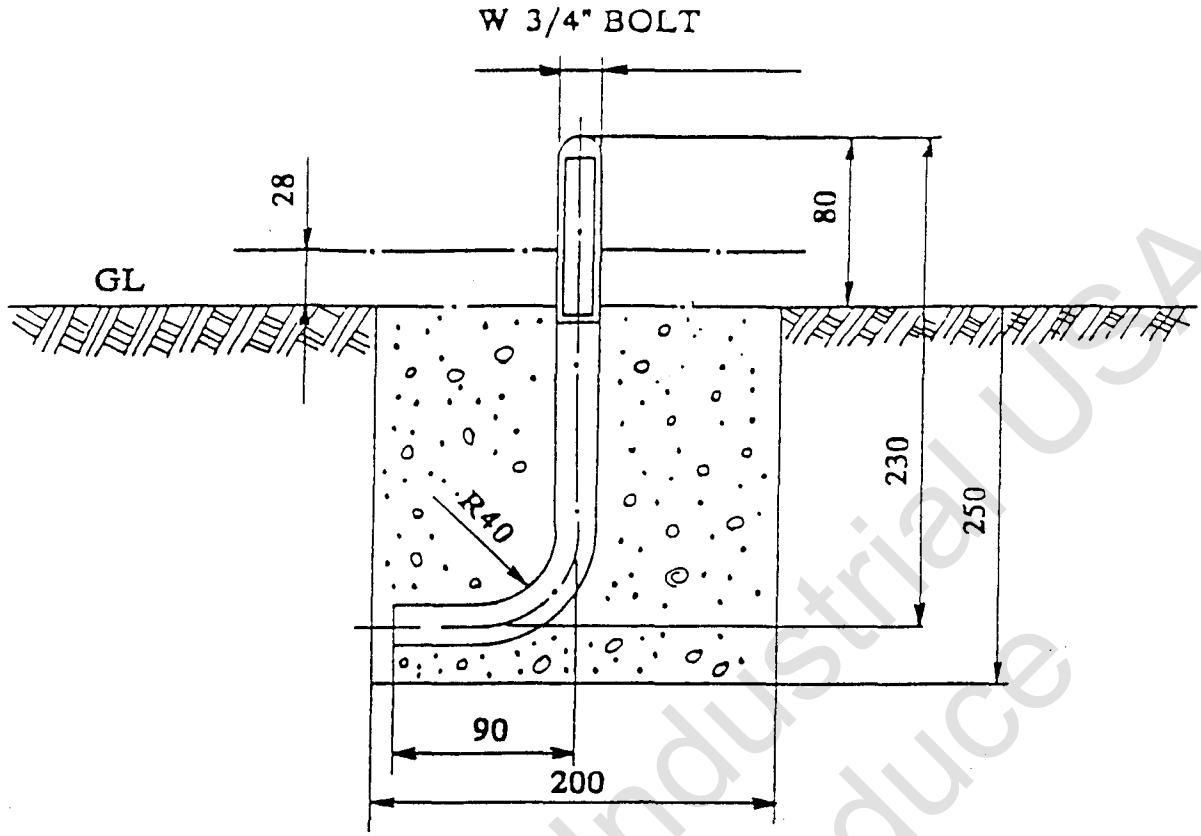
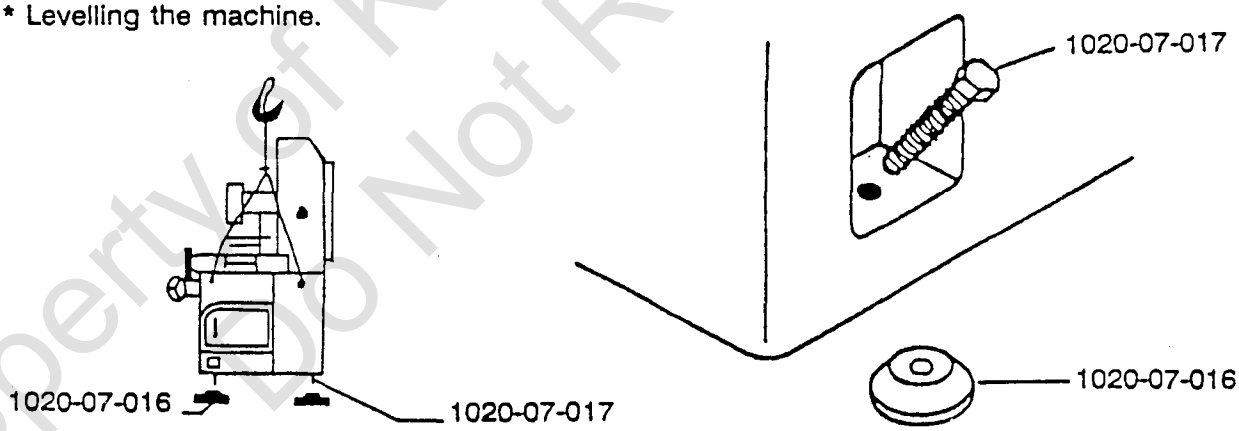
*Anchor bolts

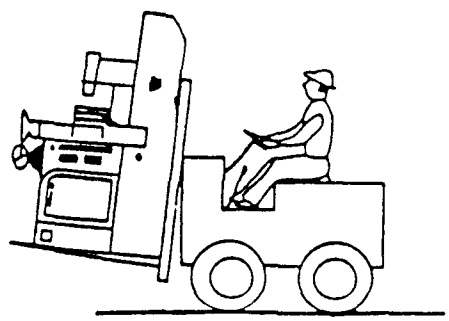


c.Use the levelling pads and screws

* Screw the levelling screws (1020-07-017)on the machine base as figure shown. For easy levelling and more steady of the machine,make levelling screw as deep as possible.
* Lay down the machine slowly to let screws fall into the center hole of levelling pads (1020-07-016).
* Lay (1020-07-016).
* Levelling the machine.



Caution:If you use Fork Lifter instead of Hoist,please lift as figure shown under:



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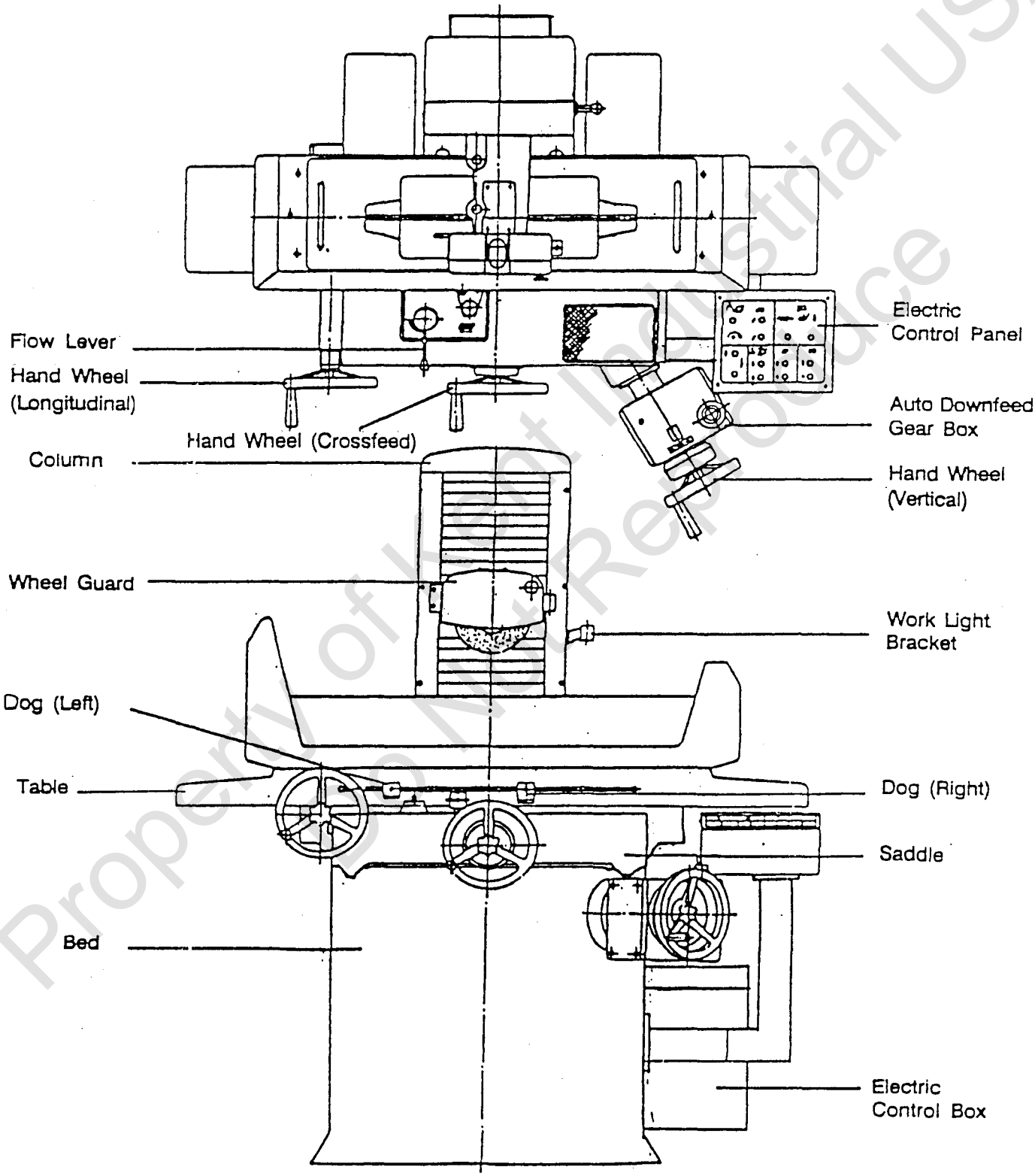
(3) Contour And Nomenclature

a. 1020AHD,N1224AHD



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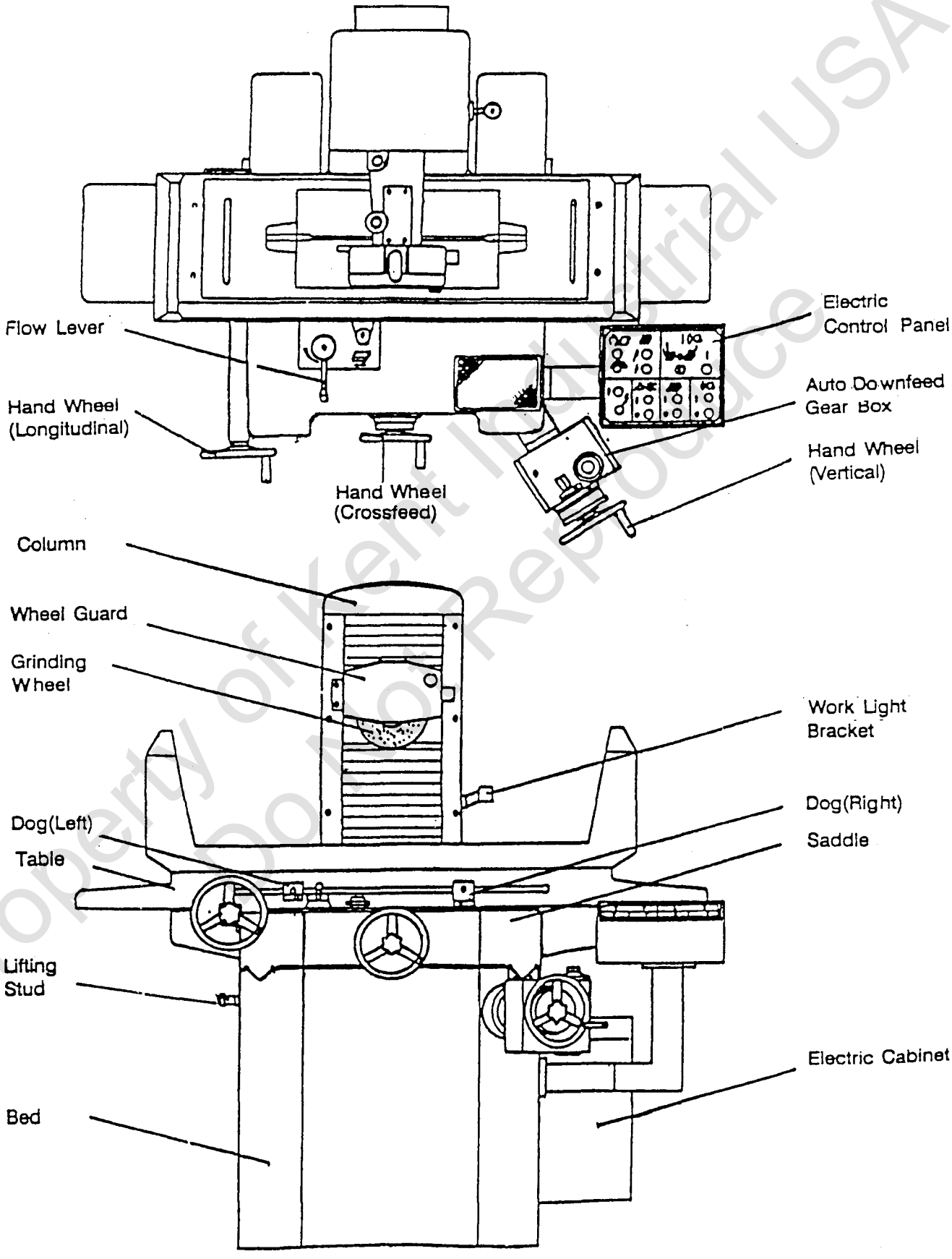
b. 1224AHD,1230AHD,1632AHD



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(4) cleaning &location the machine

• Clean machine

After opening the wooden case, you have to prevent process surface from rust. You will find the machine is coated with thin rustproof oil. Please wipe off the rustproof oil by soft cloth and light oil. Iron plat or knife will damage the paint.

• Fastening equipment for movement or packing

when move (or pack) the machine, working table is fixed from front-left and rear right sides, and crossfeed of saddle is fixed from the right and left sides of saddle and base body. This is only used while move of the machine. As soon as the machine is well installed, you have to loosen the fixed equipment.

• Location of the machine:

Location of the machine will influence the grinding precision and effeciency. You have to carefully dispose it as well as boring machine. Very precise process is asked by any kind of grinding machine. But in the fact, many grinding machines always be located among with milling machine, drilling machine, shaping machine and slotting machine. Obviously, we won't be satisfied with the process from these grinding machines, because the vibration from other machines will transmit to grinding machine and produce lines on grind surface.

* Unsteady land cannot be located grinding machine, otherwise, the machine will lose its correct shape.

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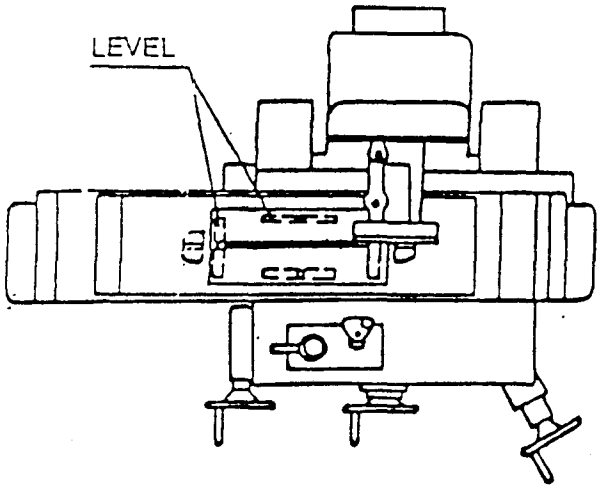
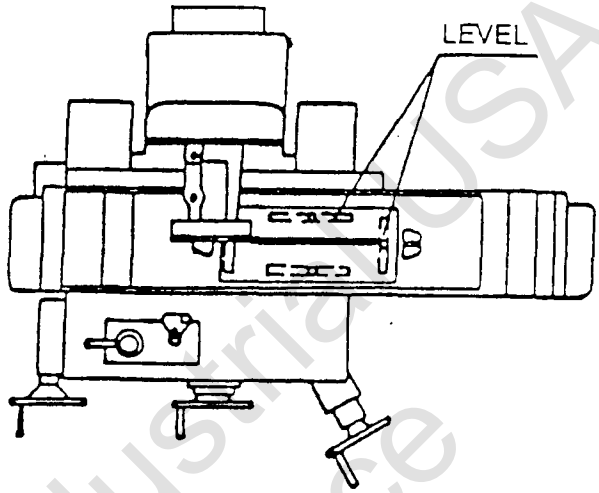
(5).Levelling The Machine

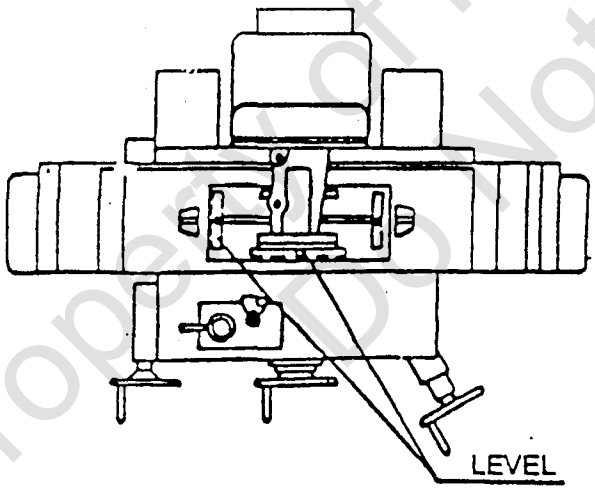
As following procedures:



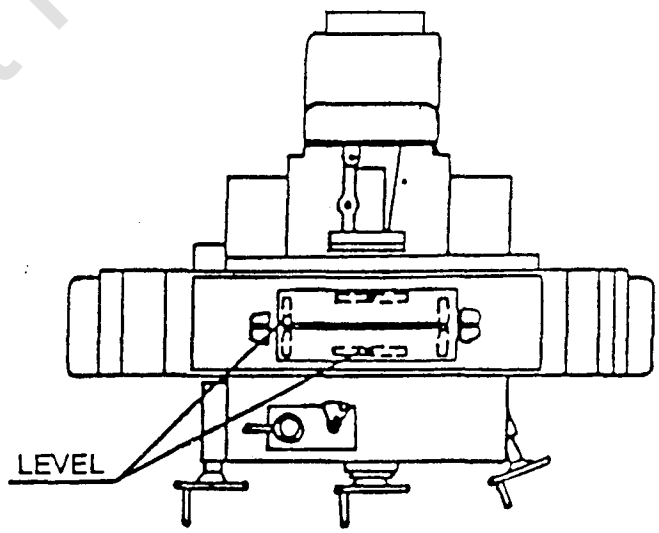
a) Use longitudinal handwheel to let table at left end position.
Levelling the machine by a Spirit Level in longitudinal and latitudinal direction.



b) Use longitudinal handwheel to let table at right end position.
Levelling the machine in longitudinal and latitudinal direction.



c) Use crossfeed handwheel to let table at front end position.
Levelling the machine by a Spirit Level in longitudinal and latitudinal direction.



d) Use crossfeed handwheel to let table at rear end position.
Levelling the machine in longitudinal and latitudinal direction.

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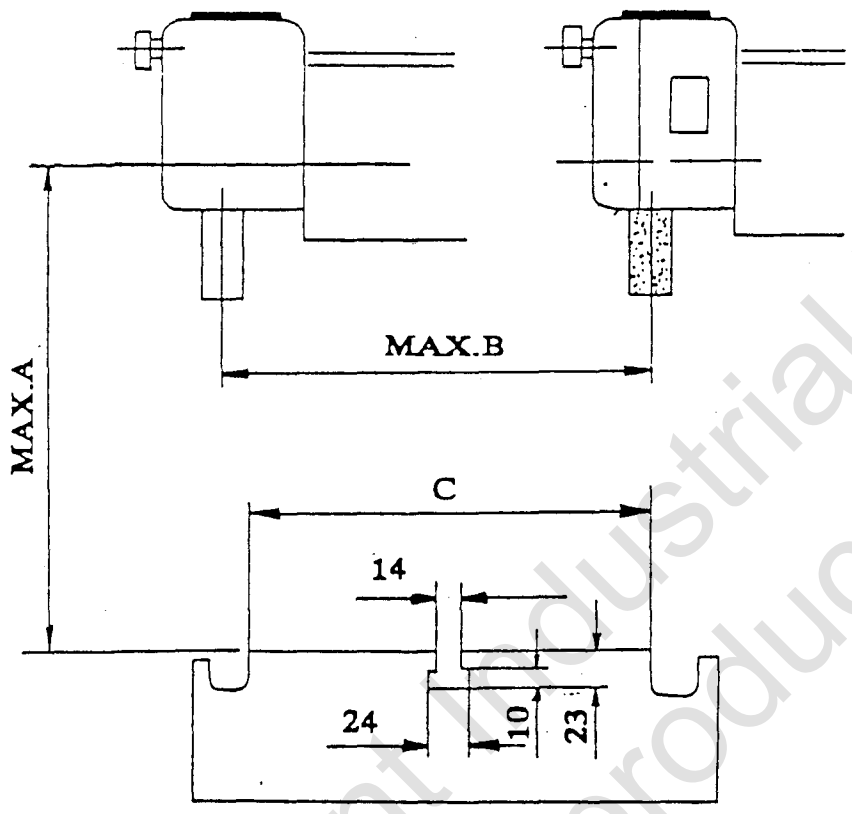
(6).Table Size And Grinding Capacity



Unit:mm

Model	A	B	C
1020M,H,AH, AHD	520	250	230
N1224 } AH,AHD	520	300	260
1224 } AH,AHD	635	300	260
1230 } AH,AHD	635	300	260
1632AH,AHD	635	405	400

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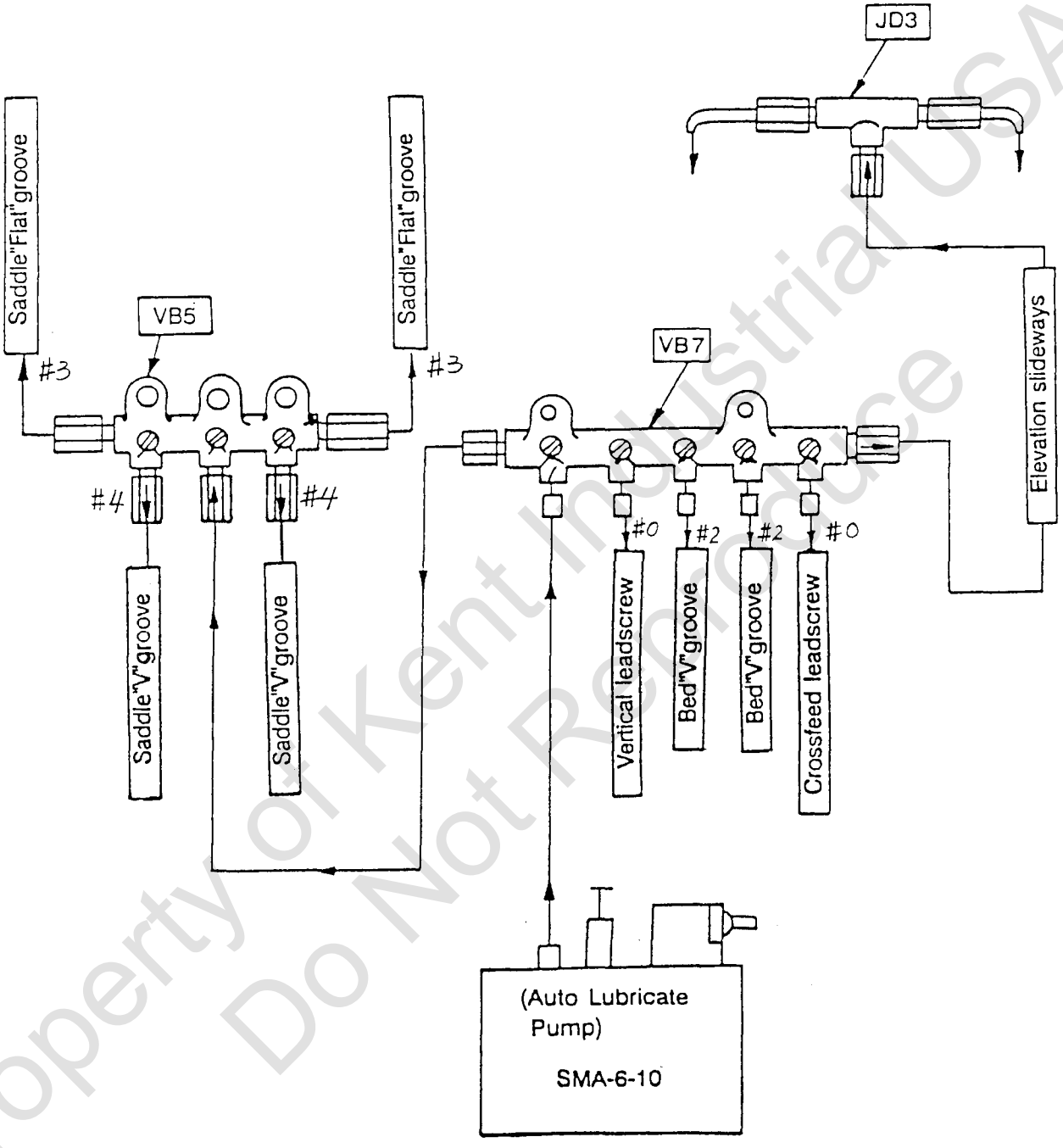
(7) Lubrication Instruction

For 1020H,1020AH,1020AHD,N1224H,N1224AH,N1224AHD,1224AH,1224AHD
1230AH,1230AHD,1632AH,1632AHD.

Lubrication Flow Chart



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Reliability of the machine and economic running ensured only by the correct choice of lubrication for the individual lubricating points.

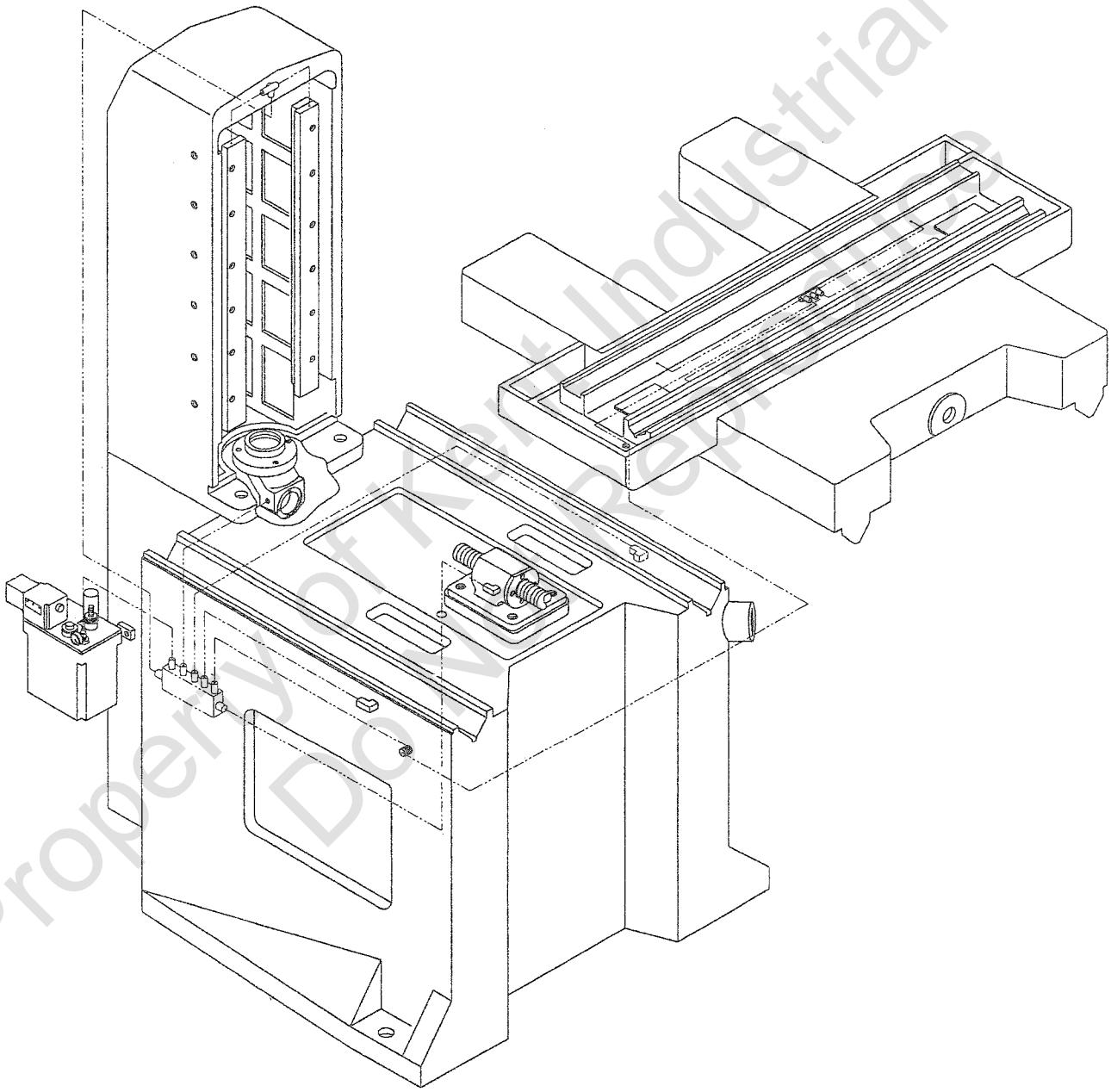
1.Lubrication pump:Auto lubrication pump will be operated when machine power is ON,then pump 3-6cc.(adjustable)in every minutes.

2.Lubricant Tank:1.5 liters

3.Lubricant:SAE30,or lubrication oil of BP,ESSO,MOBIL or SHELL.

4.Lubricating points: Saddle"Flat" groove Saddle"V"groove
Crossfeed leadscrew
Bed"V"grooves Elevation slidway
*Auto.downfeed gear box (by grease gun)

Lubrication System Diagram



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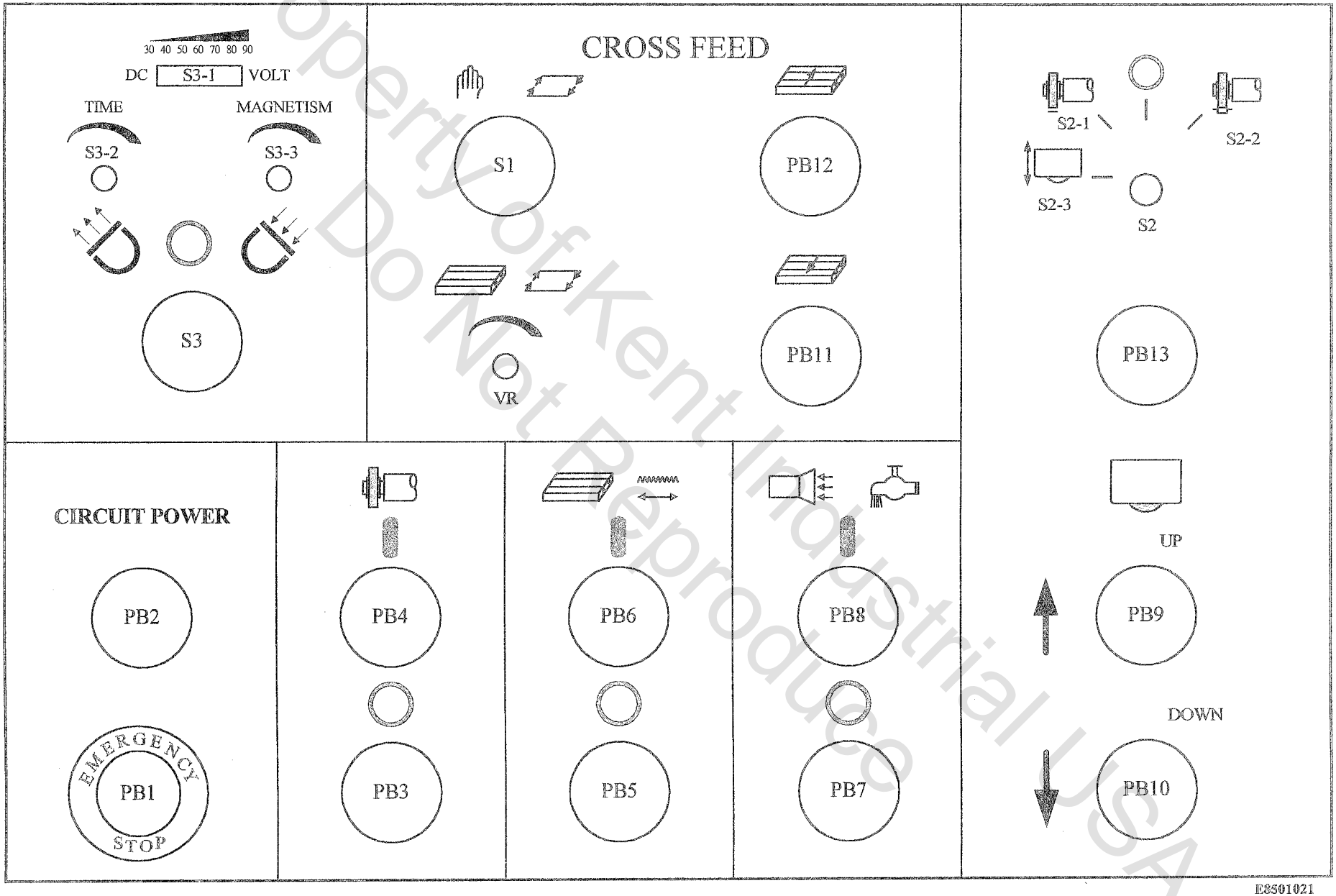
(8) 1020/N1224/1224/1632/1640AHD CONTROL PANEL



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PB2 : Open switch--when button is pressed , inner bulb lights and power stands by.

PB1 : Emergency "OFF" switch--when button is pressed,whole machine stops . This is designed for emergency conditions.

PB4 : Spindle start button--when pressed , spindle is at "ON"position

PB3 : Spindle stop button--when pressed , spindle is at "OFF"position

PB6 : Oil tank start button--when pressed , oil tank motor is at "ON" position.

PB5 : Oil tank stop button--when pressed , oil tank is at "OFF" position.

PB8 : Coolduster start button--when pressed , coolduster motor is at "ON" position.

PB7 : Coolduster stop button--when pressed , coolduster motor is at "OFF" position.

PB9 : Spindle rapid up feed push button.

PB10: Spindle rapid down feed button.

S1 : Cross feed selecting switch--turn right for "automatic"turn left for "handfeed".S1 has to be coordinated with PB12 , PB11 and S2 to obtain right function . when S2 is turned to S2-1 , then S1 ,PB12 and PB11 function ; when S2 is turned to S2-2 , the switches S1 ,PB12 and PB11 do not function.

VR : Cross feed capacity adjusting button--it functions only when S1 , PB12 , PB11 and S2-1 are selected for automatic feeding . Thd right turn angle is bigger making the auto feeding capacity larger ; if otherwise , feeding capacity is smaller.

PB12: Table forward push button--when S1 is at handfeed position , press PB12 , then table continuously moves rapidly forward; loosen hand to stop table.

PB11: Table backward push button--when S1 is at handfeed position , press PB11 making table continuously move rapidly backward ; loosen hand to stop table.
when S1 is at automatic position , press PB11 to get automatic backward feed.

S2 : Selecting switch--when switch is at middle position , press PB11 and PB12 and table does crossfeed ; when switch is at S2-1 , it does flat grinding ; when at S2-2 , it does cutting ; when switch is at S2-3 , it goes up and down working.

PB13:Auto downfeed push button--when S2 is located at S2-1, press PB13 and wait till bulb lights and the feeding starts . When bulb does not light , it means downfeed limit switch is at "O" ,readjust the feeding capacity for automatic feed.

S3 : Selecting switch--for electro-magnetic chuck-rignt turn for magnetizer; left turn for de-magnetizer ; middle is neutral . S3-2 is for adjusting time of demagnetizer ; S3-3 for adjusting magnetic capacity ; S3-1 shows magnetic capacity .

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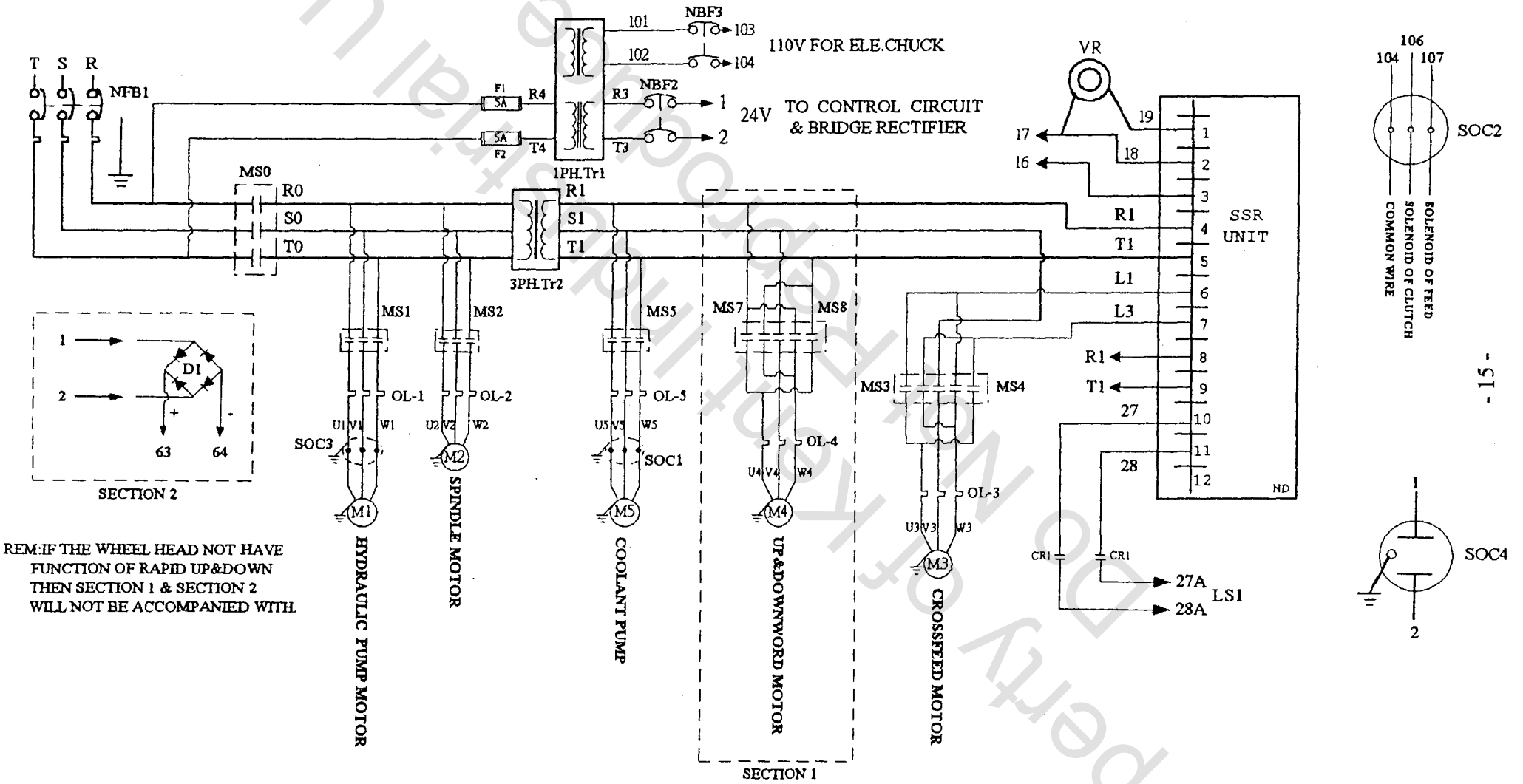
1020/1224/1632AHD SERIES MAIN CIRCUIT DIAGRAM



REM:IF THE WHEEL HEAD NOT HAVE FUNCTION OF RAPID UP&DOWN THEN SECTION 1 & SECTION 2 WILL NOT BE ACCOMPANIED WITH.

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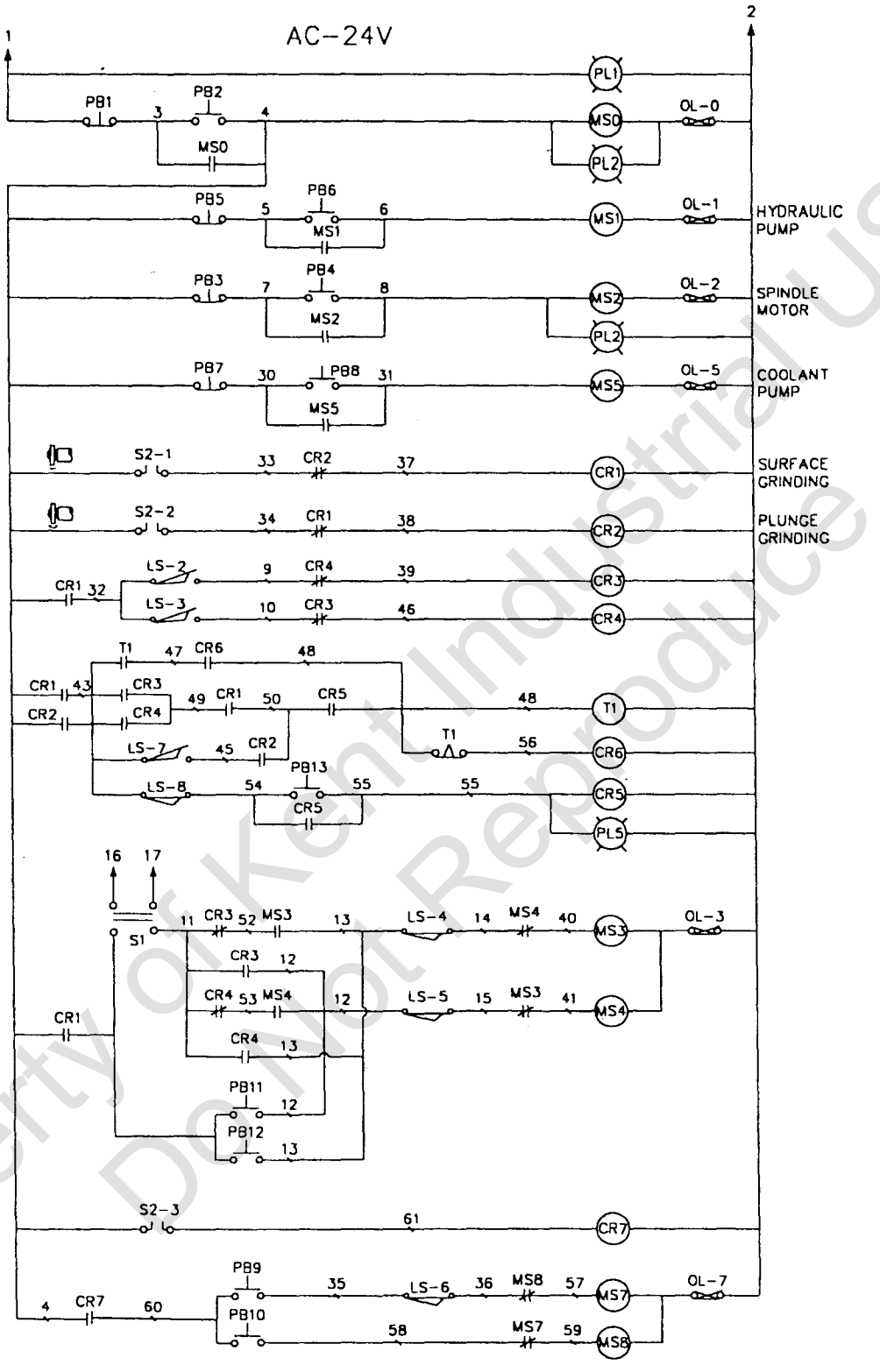
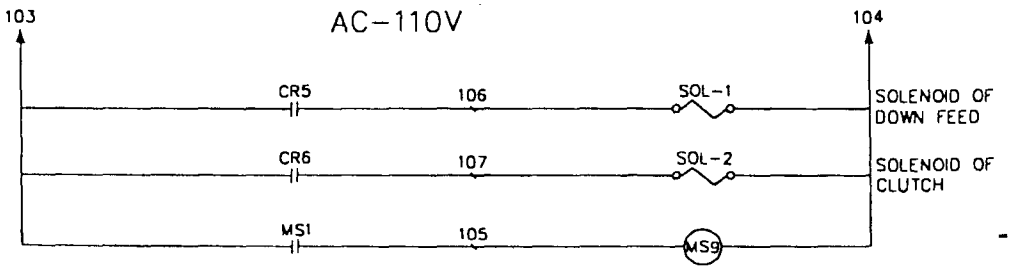
1020---1632AHD SERIES CONTROL CIRCUIT DIAGRAM





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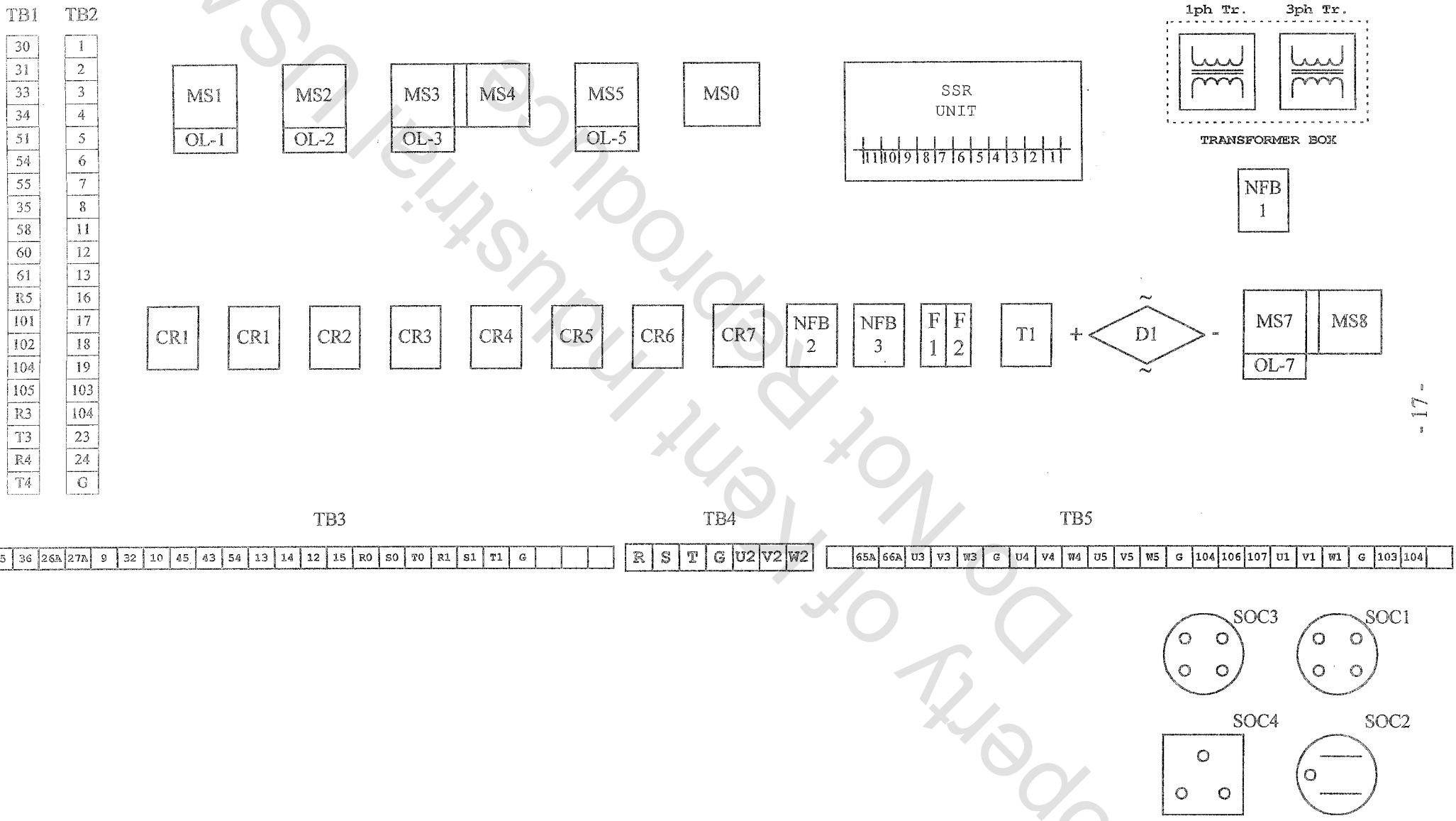
LAYOUT OF MAIN ELECTRICAL BOX



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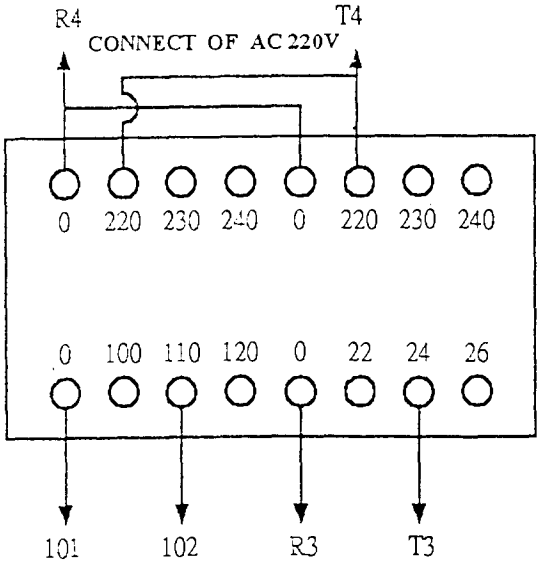
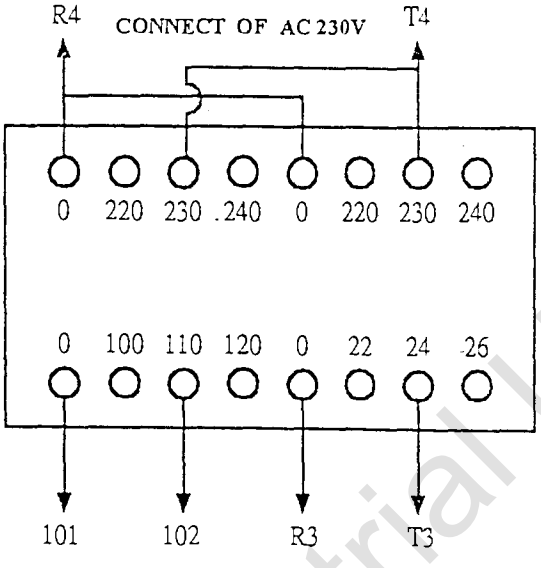
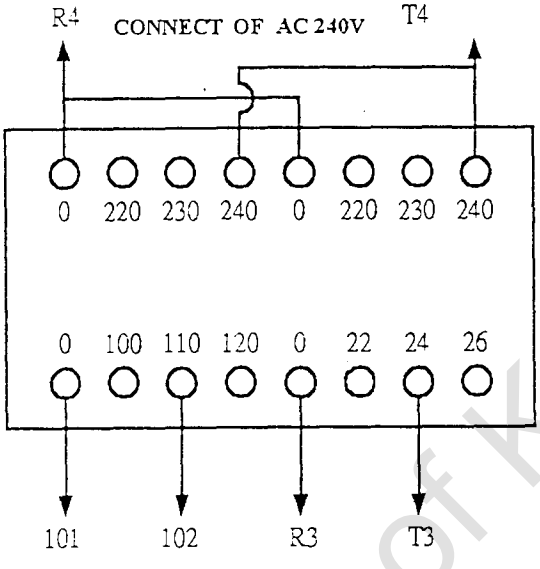
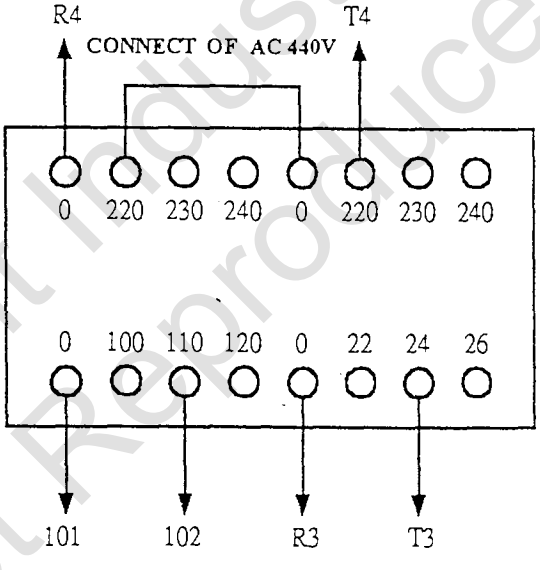
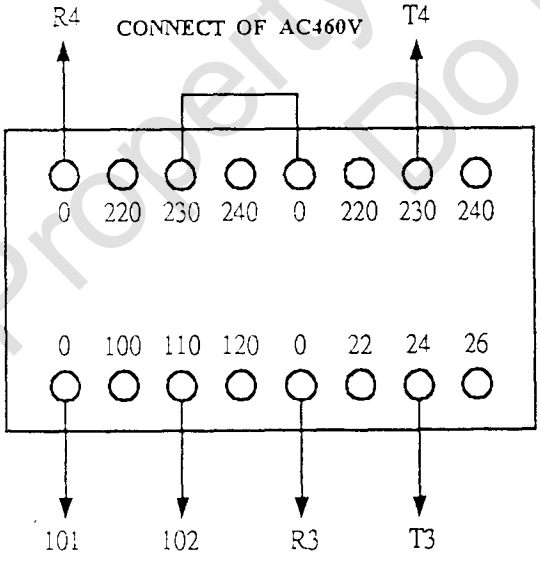
CONNECT OF 1PH. TRANSFORMER

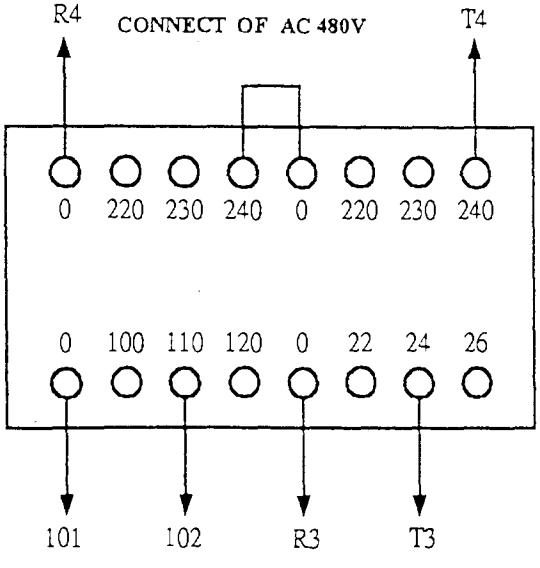












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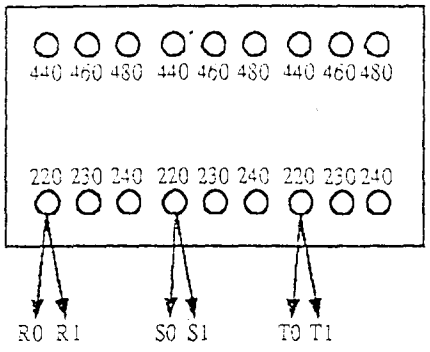
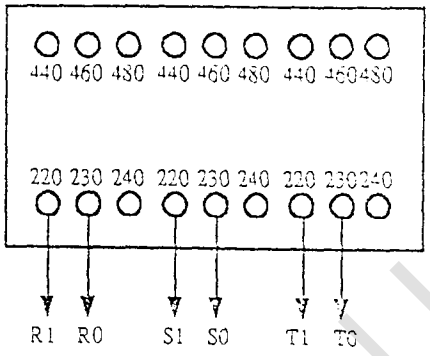
CONNECT OF 3PH. TRANSFORMER

CONNECT OF AC 220V



CONNECT OF AC 230V



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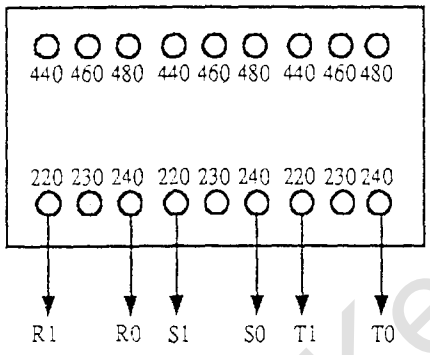

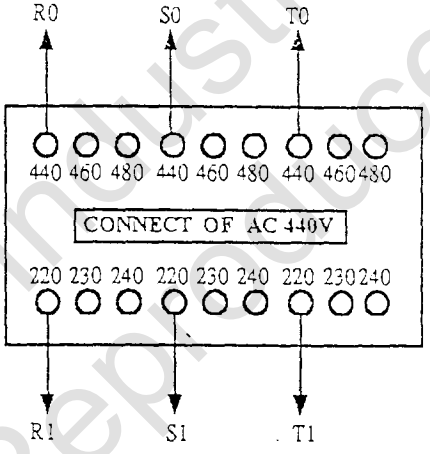

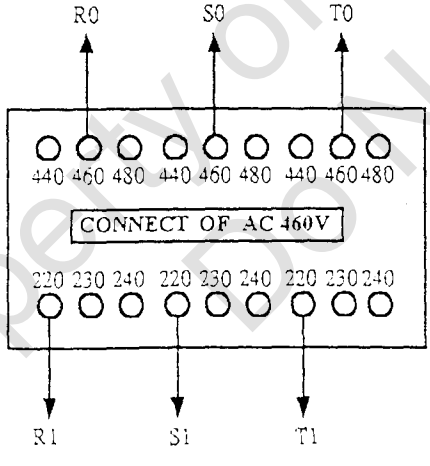

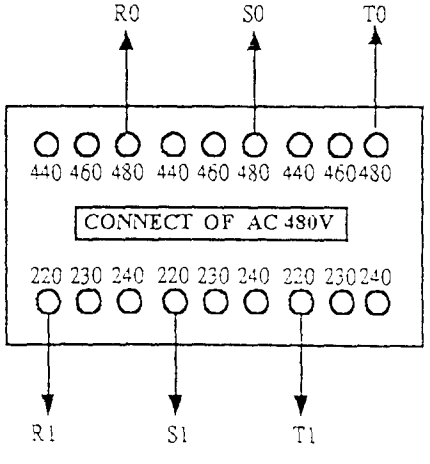

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PB1	: Push button to turn the power source "OFF"
PB2	: Push button (With lamp) to turn the power source and PL2"ON"
PB3	: Push button Spindle stop switch
PB4	: Push button Spindle open switch
PB5	: Push button oil tank stop switch
PB6	: Push button oil tank open switch
PB7	: Push button Coolduster stop switch
PB8	: Push button Coolduster open switch
PB9	: Push button Spindle rapid up feed switch
PB10	: Push button Spindle rapid down feed switch
PB11	: Push button Table rapid backward switch
PB12	: Push button Table rapid forward switch
PB13	: Push button Automatic feed switch
S1	: Select switch Switch of auto/manual cross feed
S2	: Select switch Switch of flat/slot grinding
VR	: Variable resistance Control crossfeed capacity
S3	: Select switch For electro-magnetic chuck
S3-1	: Indicater Shown on the magnetic capacity
S3-2	: Turn switch Time of demagnetizer
S3-3	: Turn switch Magnetic capacity
MSO	: Magnetic switch Control power source
MS1	: Magnetic switch For Hydraulic pump
MS2	: Magnetic switch For spindle motor
MS3,MS4	: Magnetic switch For saddle forward and backward.
MS5	: Magnetic switch For coolduster motor
CR1~CR6	: Relay Auxiliary relay of electric control system
NFB1	: No fuse breaker No fuse breaker of power source
NFB1,2	: No fuse breaker No fuse breaker of electric control system
F1,F2	: Fuse for protect electric circuit
T1	: Timer Auto down feed cycle controller
SOC1	: Socket For coolant or dust suction
SOC2	: Socket For work light
SOC3	: Socket For hydraulic motor
SOC4	: Socket For solenoid valve
1 PH TR.	: Transformer For electric control system
3 PH TR.	: Transformer For power source
TB1,2,3,5	: Terminal board For wire connect
OL1,2,3,4,5,6	: Over load relay Motor over load protect replay
S.S.R. UNIT	: Crossfeed controller For controlling auto/manual connect
SM-5BO5A	: Demagnetizer For electro-magnetic chuck.

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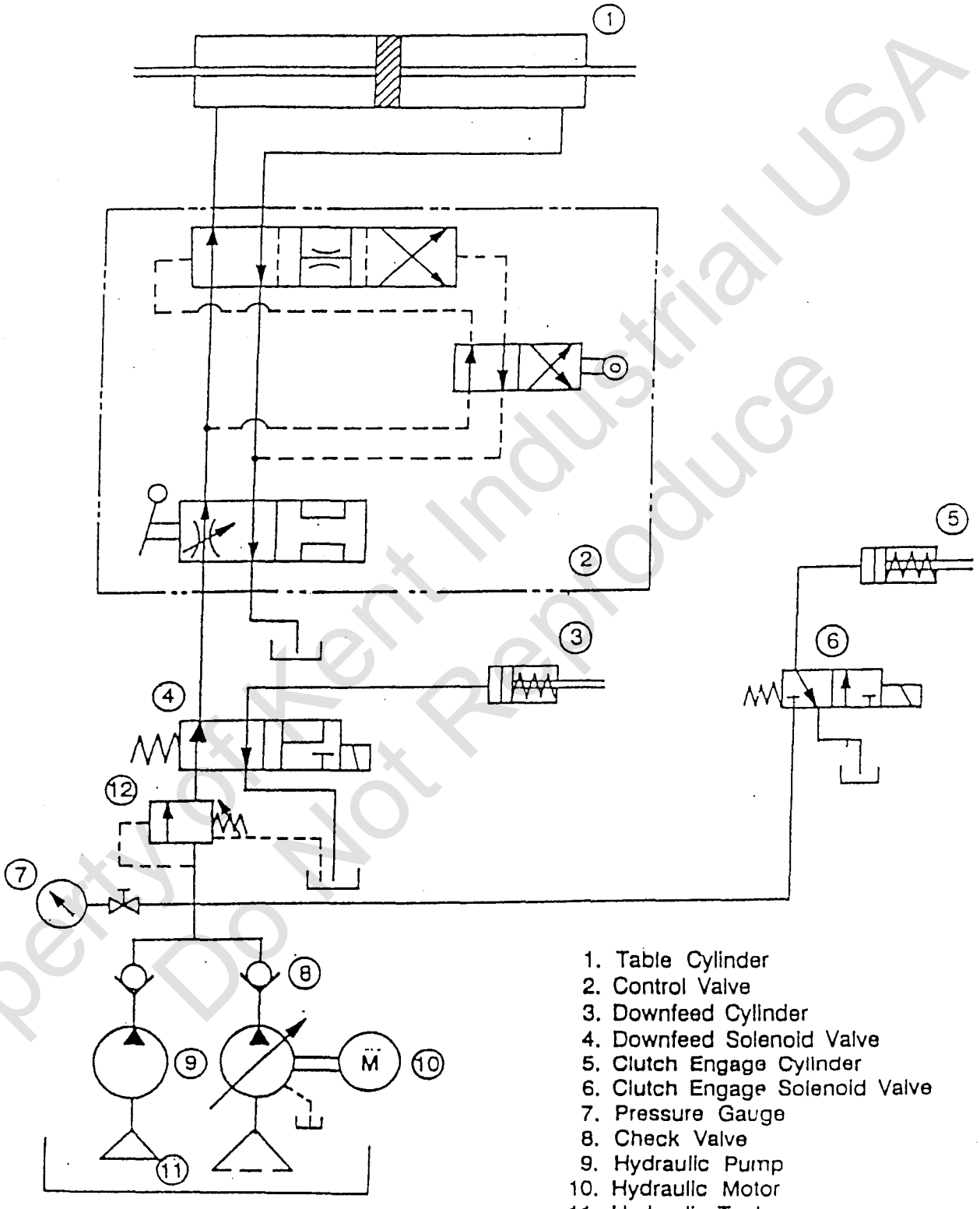
(9) Hydraulic System

For 1020AHD,N1224AHD,1224AHD,1230AHD,1632AHD

Hydraulic Diagram



1. Table Cylinder
2. Control Valve
3. Downfeed Cylinder
4. Downfeed Solenoid Valve
5. Clutch Engage Cylinder
6. Clutch Engage Solenoid Valve
7. Pressure Gauge
8. Check Valve
9. Hydraulic Pump
10. Hydraulic Motor
11. Hydraulic Tank
12. Sequence Valve

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(10) Hydraulic Oil

Hydraulic tank volumn:

1020H,1020AH,N1224H,N1224AH——40liters (10 gallons)
1020AHD,N1224AHD,1224AH,1224AHD,1230AH,1230AHD——60liters (15 gallons)
1632AH,1632AHD——80liters (20 gallons)

Re-fill frequency:

Change new hydraulic oil and clean hydraulic tank after first month, then rechange once every six months.

Hydraulic oil:

CPC	BP	ESSO	MOBIL _	SHELL
R-68	ENGRGOL	ESSTIC 50	D.T.E Oil	SHELL
.	HL100		Medium	Tellus Oil 29
	4.5° E/50℃	4.7° E/50℃	3.93° E/50℃	4.0° E/50℃
.	33cst/50℃	35cst/50℃	28.9cst/50℃	29cst/50℃

* Fill up the hydraulic oil before starting the hydraulic motor.
* Table driven by hydraulic force, please ensure that there is no people or objects within the range of table movement before starting the longitudinal travel.
* Maximum hydraulic pressure: 18-25kgs/cm²
* Clean filter or change a new one if damaged when changing new oil.

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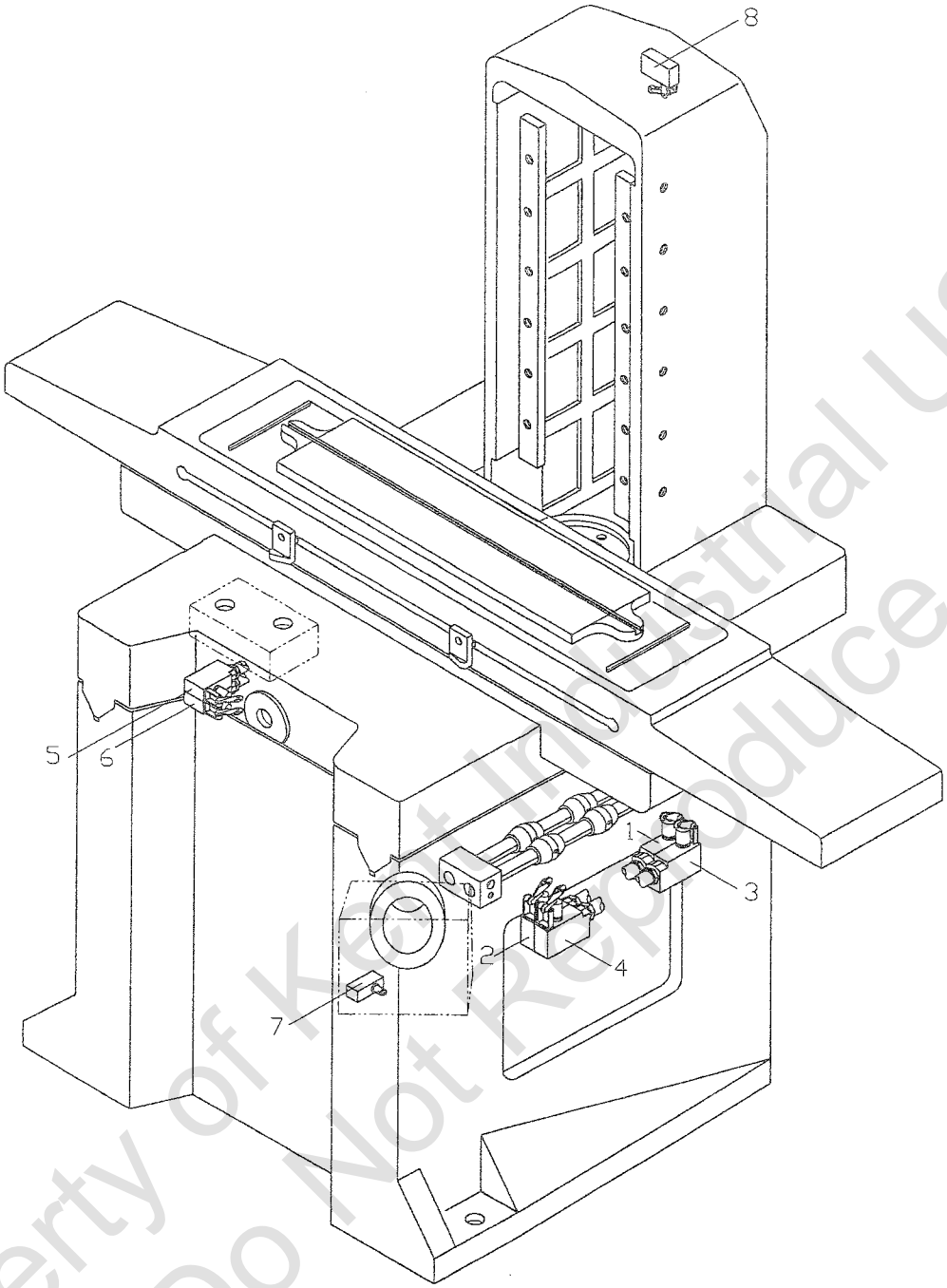
(11). Limit Switches Position



Description:

(1).Rear Limit:LS-5
(2).Front Limit:LS-4
(3).Rear Reversal Limit :LS-2
(4).Front Reversal Limit :LS-3
(5).Auto.Downfeed Trigger Switch:LS-7
(6).Auto.Crossfeed Trigger Switch:LS-1
(7).Auto.Downfeed Stroke Control Switch:LS-8
(8).Upper Limit Of Elevation Switch:LS-6
*For Above-Mention Cord No., Please Refer To Circuit Diagram.

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(12).Balancing the grinding wheel

Efficient balancing which is essential to eliminate unnecessary and additional stress in the wheel is also important in order to obtain high quality results. Grinding accuracy and surface finish as well as life of grinding wheel ,wheel spindle and bearings depend to some considerable extent on careful balancing. Static balancing will frequently sufficed for this purpose.

The grinding wheel together with the wheel flange is fitted to balancing arbor and this assembly is then placed on two accurate parallel knife edges of the wheel balancing base,and balancing can be effected as follows: (see Fig.2)

* The wheel balancing base must be levelled(Fig.1)
* Allow the wheel to oscillate to find the center of gravity which is then marked "S" with chalk (Fig.3)
* Apply the first balancing weight "G" opposite to this point "S"and screw it up. It can not be moved again (Fig.4)
* Place two correction weight "K" anywhere around the periphery ,but at equal distance "a" from weight "G" (Fig. 5)
* Turn the wheel through 90° at a time and see if it is balance. If not, the correction weight "K" must be moved until the wheel is in balance in any position (Fig. 6)
* After balancing, the wheel must be given a test run of at least five minutes at full working speed before being used or starting re-balance.

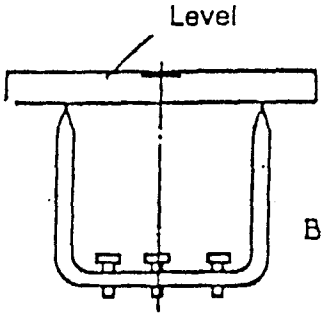

Fig. 1

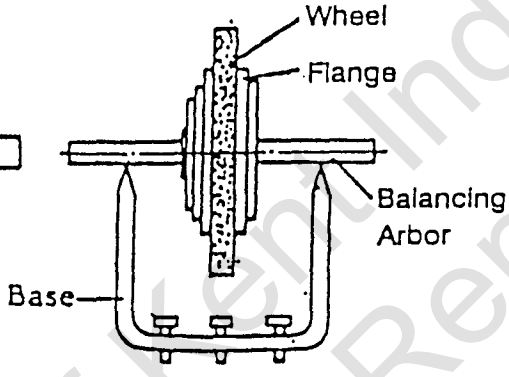

Fig. 2

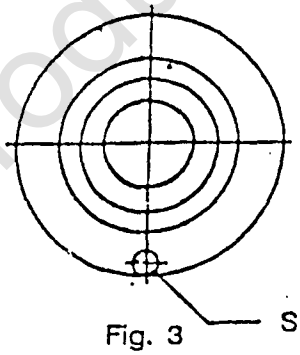

Fig. 3

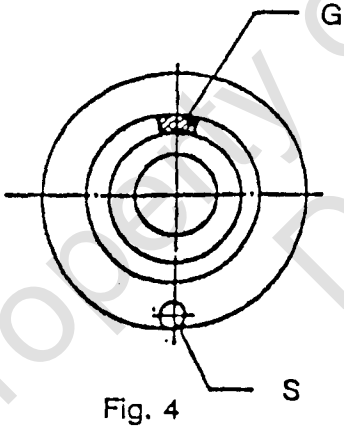

Fig. 4

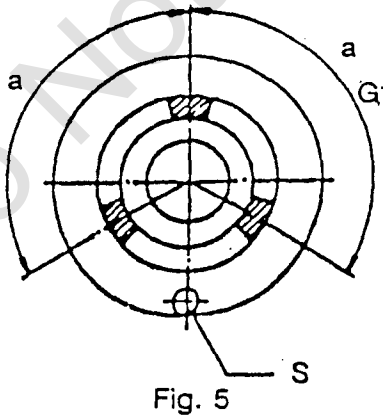

Fig. 5

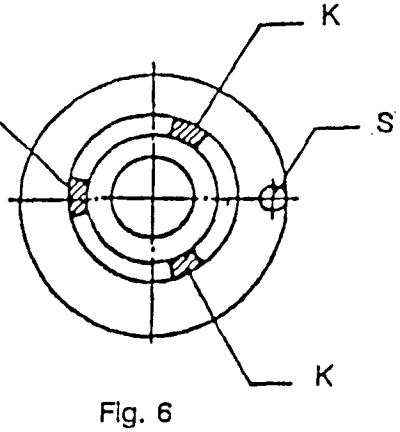

Fig. 6

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After being balanced for the first time ,the wheel must be mounted on the grinding spindle of the machine and dressed. This can be done with the parallel dresser on the spindle carrier or with one fitted on the table. When dressing the wheel from the table, the table must be locked longitudinally and then cross-traversed with handwheel. The wheel must be dressed until it runs dead true. The grinding finish is improved, if any out-of-truth in the side walls of the wheel is also removed.

After this first balancing, the wheel must be removed from the spindle again and then carefully re-balanced. After being fitted to the spindle again and re-dressed ,it is ready for use.

As wear can lead to unbalance, the wheel should be re-checked and, if necessary, re-balanced.

Grinding wheel absorbs humidity and coolant ,it is therefore advisable not to start coolant supply when the wheel is stationary, otherwise the wheel will absorb liquid on one side only and will then be out of balance. If the wheel is allowed to stand for any length of time coolant will collect at the lowest point. Unbalance will also be generated if the wheel is not allowed to idle after operation. Idling is essential to throw-off coolant by centrifugal force.

* If various material have to be ground, so that the wheel has to be changed frequently, it is more advantageous to change the wheel complete with flange. It would involve unnecessary loss of time and wheel waste to remove the wheel from its mounting every time and re-balance and re-dress it.

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(13) Installation and dismantling of the grinding wheel

Installation:

1.Prior to place the flange-mounted grinding wheel to the spindle,flange bore and spindle taper must be absoulutely clean.

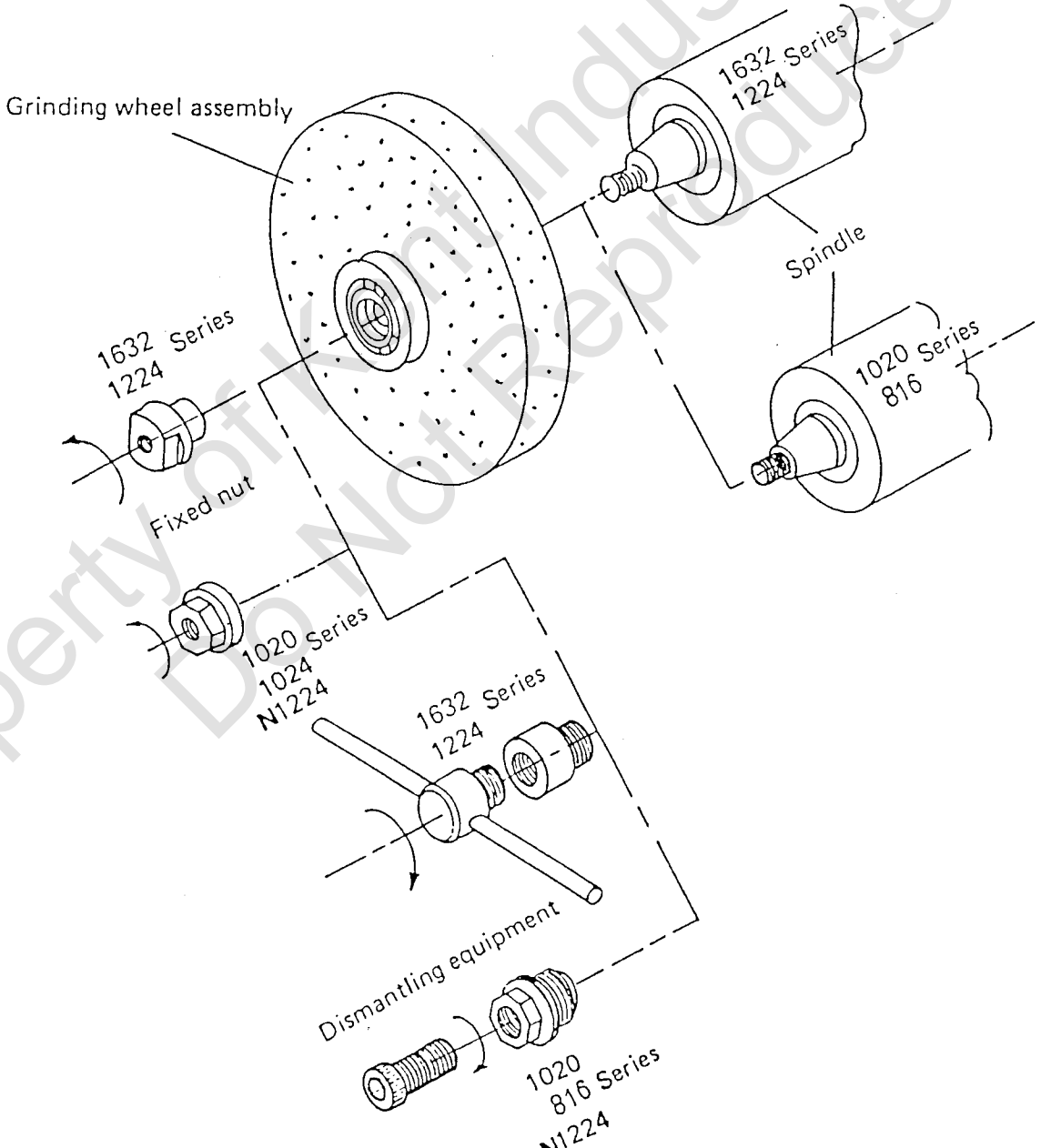
2.Choose install the bigger conical surface of grinding wheel toward inside, and carefully put it on the spindle.

3.Firmly tighten the nut counterclockwise(by moveable wrench or open wrench).

Dismantling:

1.loosen the fixed nut clockwise.

2.Firmly hold the grinding wheel by one hand, and dismantle it clockwise until the grinding wheel breaks away spindle, Then,you can take down the grinding wheel.



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(14) Operation of machine

(1) **Please pay best attention to the following instruction before operate the machine.**

1.The machine must be located on the vibration-proof ground.

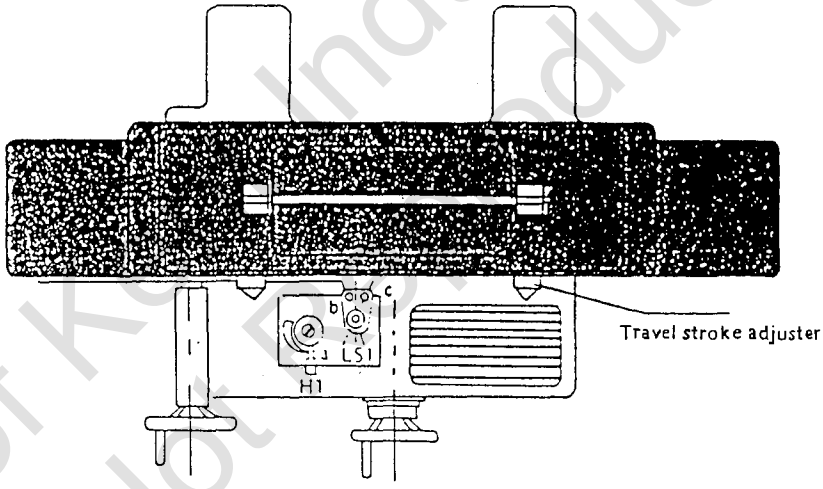
2.Installation and levelling of the machine.

3 Lubrication.

4.The hydraulic tank must have adequate oil.

5.Lever "H1"of the hydraulic table traverse must be parallel to the crossfeed direction "a" (ref. to drawing below).

6.Before starting the spindle motor, please do not install the wheel until you ensure it rotates at clockwise direction.



(2) **Table Longitudinal Movement.**

1.Press the push-button PB6 for starting the hydraulic pump motor.

2.Turn the lever "H1" clockwise until the table moving slowly.

3.If the table unable to travel automatically, you can rotate at anti-direction "b.c" by hand, in this case, you can check the neutral point and set the right position "LS1".

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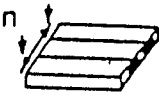
3).Cross travel (For AH, AHD models)

1.Turn SW4 to left and press PB10 to make saddle traverse backward continuously; press PB9 to make saddle traverse forward continuously. For AHD model, this function is effective only when SW5 is in left position (surface grinding), it's the safety device to interlock saddle traverse when SW5 is in right position for plunge grinding.

2.Turn SW4 to right, press PB9 or PB10 and release, adjust VR, the saddle now feeds automatically and is effected with each reversal of the table when surface grinding. By acturating SW4 to left ,this function can be interrupted at once. The crossfeed distance can be limited by setting the two stopper dogs' distance to touch the two limit switches located on the right side of the machine base, which effects the reversal of the saddle.

3.There are two limit switches, in addition, on the left side of machine base for limitting the maximum cross travel of the saddle. They are also used as safety device in case of accident when any failure of the crossfeed mechanism.

4).Automatic downfeed control (For AHD model)

1.Turn selector switch SW5 on (plunge grinding)position, press pushbutton PB11 then grinding wheel will be auto.downfeed when table longitudinal traverse at left end; turn selector switch SW5 on  (surface grinding) position, press PB11, then grinding wheel will be auto.downfeed at both ends of crossfeed travel; turn selector switch SW5 on position, grinding wheel stops auto. downfeed.

2.Downfeed increment can be pre-set by preset dial at 0.002, 0.004, 0.006, 0.008 0.01, 0.012, 0.014,0.016,0.018,0.02mm,10 steps (metric type); or 0.0001, 0.0002, 0.0003, 0.0004, 0.0005,0.0006,0.0007,0.0008,0.0009 ,0.001 inch, 10 steps (inch type).

Figure shown under is downfeed increment be set at 0.02mm

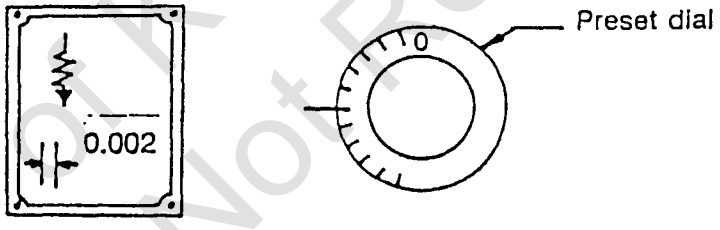
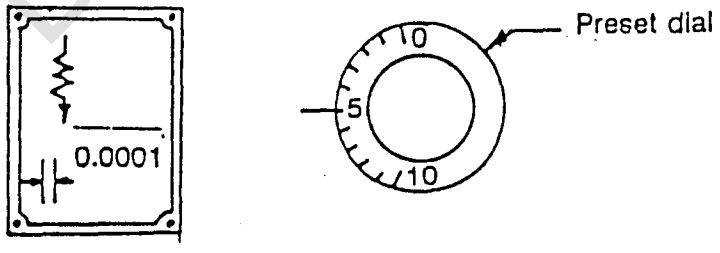


Figure shown under is downfeed increment be set at 0.0005inch



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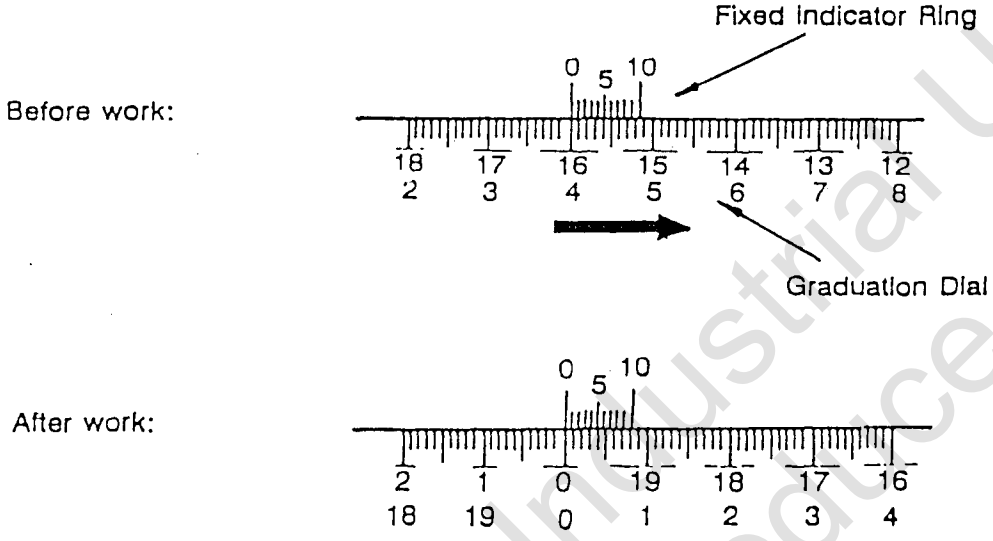
3.For instance, total work piece downfeed removal is 0.4mm, and auto. downfeed increment be set at 0.02mm:

Loosen the set-screw on the graduation dial and turn the dial to let the scale "4" aim at the mark "O" on the fixed indicator ring. (one revolution of downfeed hand wheel is 2mm minus total removal 0.4mm leaves 1.6mm) After auto. downfeed 20 times at each time 0.02mm (0.02mm × 20 = 0.4mm), the mark "O"of graduation dial will meet "O"of fixed indicator ring and auto. downfeed stop.



4.Stop grinding wheel by press pushbutton PB2 when work is done; stop the table longitudinal traverse by press pushbutton PB4.

Caution:Don't push the auto downfeed button while the table is traveling close to the right end. (or the left stop dog is approaching the direction control arm.) The Cylinder might be hit at its left end, especially when the longitudinal traverse is at its maximum distance.
The best time to push the auto downfeed button:
When the direction control arm is near the middle range of the two dogs.

5).Coolant system (optional accessory)
1.Press PB7 to start coolant pump.
2.Adjust valve to get suitable coolant flow.

6).Dust-suction coolant system (optional accessory)
1.Press PB7 to start suction motor or coolant pump.
2.Adjust valve to get suitable coolant flow (when wet grinding).
3.Press PB6 to stop.
Caution:There are two sets of ON-OFF switches on this accessory: one is for dust-collector (dry grinding)and the other one is for coolant pump (wet grinding),It depends on your work situation. These two switches can not be used simultaneously.

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E)General Comments Of Grinding

The grinding results depend to a very degree on the choice of the correct grinding wheel and suitable operation.

(1)Stock removal efficiency
For intensive stock removal a coarse grain (about 30-36)should be used. The wheel is dressed by passing the diamond over quickly so that the surface of the wheel is roughened and bites well.

(2)Surface finish required
If fine finish is to be produced, a finer grain wheel is required (40-80). The diamond in this case is passed slowlyover the wheel so as to break up the grain.

(3)Distortion of the workpiece
If the workpiece shows too much distortion when being ground, this means that the stock removal was too great and the longitudinal and cross movements of the table was too slow, or the grinding wheel in "clogged".

(4)Undesirable burns and grinding cracks
If burn marks and grinding cracks appear, this means that the wheel is too hard, or the wheel "clogged"

F).Wheel Inspection

It is absolutely essential to comply fully with following safety rules. These are intended to protect the operator against danger.

Wheel inspection and fitting:
Prior to fitting any grinding wheel, it should always be tested. Sounding the wheel is a generally accepted test method.

The wheel should be suspended from a mandrel secured to its bore and should then be lightly sounded with a wooden hammer. Even wheels with hair cracks not visible with the bare eye will produce a distorted note in comparison with perfect wheel where the sound is clear. Defective grinding wheel must not be used.

There are two pieces of paper washer on both faces of wheel and serve as plastic packings between wheel and mounting flange. The packing washer must not be removed, when mounting the wheel should slide onto the flange easily by hand without the need for force. Wheel flange must be absolutely clean especially on the clamping and location surface, in the spindle bore and thread.

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G)Dressing The Wheel And Correct Treatment Of Dressing Diamond

The diamond is inserted in the dressing device. The sleeve of the dressing device is arranged at an angle of about 5° , so that, when the diamond loses its keenness, it can be turned in the sleeve, along with its holder, thus ensuring that there is always a sharp diamond edge available.

Various degrees of roughness can be produced in the ground component by varying the speed at which the diamond is passed over the grinding wheel.

If there is only about 0.2mm to 0.3mm stock removal, it is advisable to roughen the grinding wheel. This is done by feeding the diamond in about 0.03mm and turning the handwheel rapidly, so that the dressing diamond moves quickly over the wheel. This makes the wheel bite well and the stock removal is good.

If the component is finishedly ground to size with the same grinding wheel, the wheel must be dressed again, this time slowly, in two or three passes, with the diamond fed in only about 0.01mm.

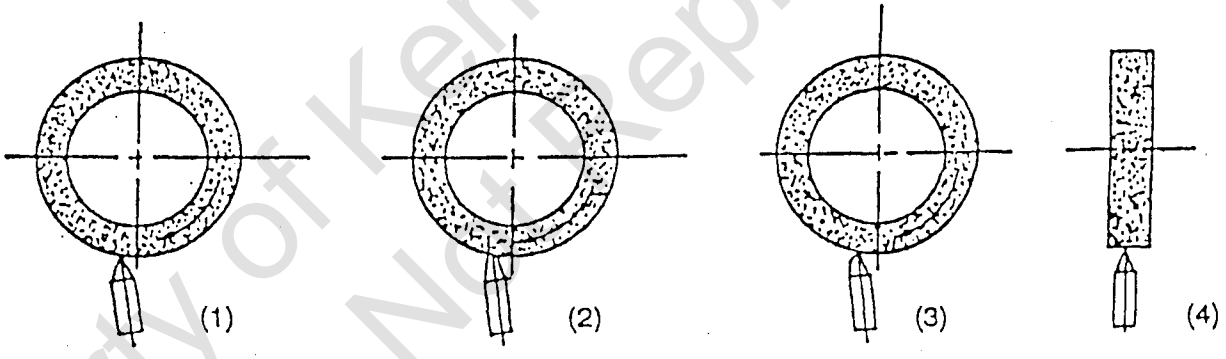
Frequent light dressing is better for the life of the grinding wheel and the diamond than a heavy cut.

When dressing, the diamond should always be cooled, if possible. Sudden cooling is dangerous, as it can lead the diamond to be split.

The diamond is very brittle because of its extraordinary hardness thus it's sensitive to even the slightest knock, and naturally cracks easily.

When dressing, please begin in the center, as the edges are usually worn down further. If dressing is begun at the worn edges, there is dangerous of the higher pressure in the center overstressing the diamond and shattering it.

Experience has shown that, with highly accurate grinding, dressing with the hand-operated dressing device on the spindle carrier is inadequate. The hand operation might necessarily causes slight undulations on the surface of the wheel.



(1)The new diamond is inclined at the correct angle to the wheel.
(2)As a face has formed on the diamond, it must be turned about its axis.
(3)The new point acts like a new diamond again.
(4)Begin in the middle of the width.

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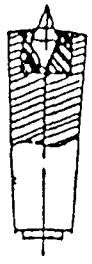
After a certain time, the diamond must be changed in its holder, i.e. it must be reset to ensure economical operation. This re-setting should be undertaken in time before any of the holder itself has been ground off. Otherwise, there is, first of all, the danger of breaking the diamond and losing it, and secondly, it might become too small to be reset.

This is really false economy.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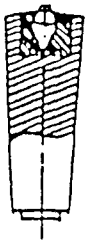
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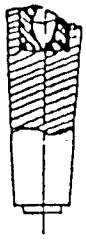
(3)

(1)The new diamond.
(2)The diamond now be reset..
(3)Too late. The diamond can no longer be reset, as it has no more holder. Resetting should be done by specialists only.

H).Storage Of Grinding Wheels

The wheels should be kept in special racks in a dry place and must be protected from knocks and jolts, expecially when they are being transported.

Normally a rule, they should be stood on edge, but thin wheels and wheels with a sharp edge must be laid flat on an even surface.

Grinding wheels must not be allowed to come into contact with oil or grease. An oil-soaked wheel will lose its bite and its application is very limited.

I).Selection Of Suitable Grinding Wheels

Grinding wheel markings: For instance WA 46K8V
WA: Kind of abrasive
46: Grain size
K: Grade
8: Structure
V: Bond type

(a)Kinds of abrasive
A: For common steel grinding
WA: For higher hardness material grinding, such as heat-treated steel, alloy steel, etc.
H: Suitable for higher hardness material, particularly high speed steel
C: For cast iron and non-ferrous grinding
GC: For super hard grinding such as tungsten carbide steel

(b)Grain size
Coarse: 10,12,14,16,20,24
Medium: 30,36,46,54,60
Fine: 70,80,90,100,120,150,180

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Grain / Grinding Condition	Coarse	Fine
Stock removal	much	little
Surface roughness	coarse	fine
Works hardness	soft	hard
Surface Contacted	wide	narrow
Dia.of the Wheel	big	small

(c). Grade: It indicate the strength of the bond which hold abrasive

Soft: A to H

Medium: I to P

Hard: Q to Z

Grain / Grinding Condition	Soft	Hard
Works hardness	hard	soft
Surface be contacted	wide	narrow
Movement of work	slow	quick
Wheel speed	quick	slow

(d). Structure: The structure number of a wheel refers to the relative spacing of the grains of abrasive; the larger the number is the wider the grain spacing will be.

Close: 0,1,2,3,4,5,

Medium:6,7,8,9,

Wide: 10,11,12.

Structure / Grinding Condition	Wide	Close
Surface roughness	Coarse	fine
Surface be contacted	wide	narrow
Works hardness	soft	hard

(c). Bond:

V: Vitrified,

S: Silicate,

B: Resinoid,

R: Rubber,

E: Shellac

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J). Wheel Be Recommended

Material be ground \ Wheel diameter		Under 205mm	205 to 355mm
Carbon stell	under HRC25°	WA A 46K	WA A 46J
	above HRC25°	WA 46J	WA 46I
Alloy steel	under HRC55°	SA WA 46J	SA WA 46I
	above HRC55°	SA WA 46H	SA WA 46G
Tool steel	under HRC60°	SA WA 46I	SA WA 46H
	above HRC60°	SA WA 46H	SA WA 46H
Stainless steel		SA WA 46I	SA WA 46H
Cast iron		C 46J	C 46 I
Brass		C 30J	C 30 I
Aluminum alloy		C 30J	C 30 I
Tungsten Carbide		GC 60H-100I	GC 60H-100I
Glass		C 60K	C 60K
Marble		C GC 36M	C GC 36M

K). Choice Of The Grinding Condition

(1). Down feed of grinding wheel

Work material / Finish	Down feed: Cast Iron, Soft steel, Hardened steel	Down feed: Stainless & Heat resistant steel	Down feed: Tool steel	Cross feed
Fine	0.0002-0.0004" 0.005-0.01mm		0.0002-0.0006" 0.005-0.015mm	under 1/4 of wheel thickness
Rough	0.0006-0.0012" 0.015-0.03mm	0.0008-0.0012" 0.02-0.03mm	0.0008-0.0012" 0.02-0.03mm	under 1/2 of wheel thickness

Down feed	Great	Small
Grinding resistance	great	small
Heat produced	much	less
Surface finish	rough	fine
Wheel worn out	much	little

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(2).Cross feed

Cross feed	Great	Small
Grinding resistance	great	small
Heat produced	much	less
Surface finjsh	rough	fine
Wheel worn out	much	little

(3). Table longitudinal traverse

Table traverse	Quick	Slow
Grinding resistance	great	small
Heat produced	less	much
Surface finish	rough	fine
Wheel worn out	much	little

Suitable speeds of the table traverse

Work material	Soft steel	Heat treated steel	Tool steel	Cast iron
Speed: M/Min.	6-15	20-25	6-25	16-20

(4). Suitable peripheral speeds of wheel: 1200-1800M/Min.

Wheel speed / Condition	Quick	Slow
Grinding resistance	small	great
Heat produced	much	less
Surface finish	fine	rough
Wheel worn out	small	great
Safety	bad	better

Material	Peripheral speed
Steel	20-30M/Min
Cast iron	18-20M/Min
Tungsten Carbide	8-18M/Min
Zinc alloy and light metal	25-30M/Min

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(5).Degree and block gauge thickness conversion table

Deg.	Sin.	Block gauge thickness	Deg.	Sin	Block gauge thickness	Deg.	Sin	Block gauge thickness
1°	0.0175	0.875	22°	0.3746	18.730	43°	0.6820	34.100
2°	0.0349	1.745	23°	0.3907	19.535	44°	0.6947	34.735
3°	0.0523	2.615	24°	0.4067	20.335	45°	0.7071	35.355
4°	0.0698	3.490	25°	0.4226	21.130			
5°	0.0872	4.360	26°	0.4384	21.920			
6°	0.1045	5.225	27°	0.4540	22.700			
7°	0.1219	6.095	28°	0.4695	23.475			
8°	0.1392	6.960	29°	0.4848	24.240			
9°	0.1564	7.820	30°	0.5000	25.000			
10°	0.1736	8.680	31°	0.5150	25.750			
11°	0.1908	9.540	32°	0.5299	26.495			
12°	0.2079	10.395	33°	0.5446	27.230			
13°	0.2250	11.250	34°	0.5592	27.960			
14°	0.2419	12.095	35°	0.5736	28.680			
15°	0.2588	12.940	36°	0.5878	29.390			
16°	0.2756	13.780	37°	0.6018	30.090			
17°	0.2924	14.620	38°	0.6157	30.785			
18°	0.3090	15.450	39°	0.6293	31.465			
19°	0.3256	16.280	40°	0.6428	32.140			
20°	0.3420	17.100	41°	0.6561	32.805			
21°	0.3584	17.920	42°	0.6691	33.455			

* The value of Block gauge thickness must times 2 when apply this table to Sine Bar attachment.

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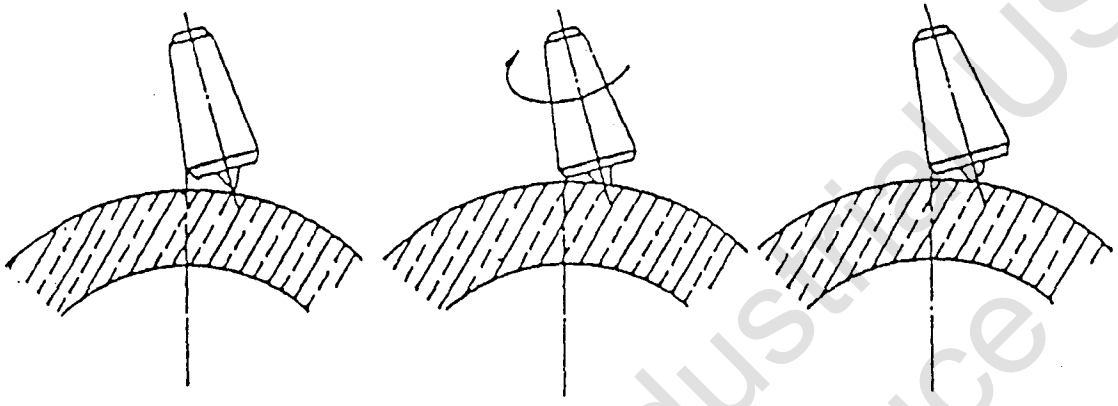
L)Use Of The Optional Attachment

(a)Parallel Dressing attachment

The wheel can be dressed either by diamond tool on the chuck or on the parallel dressing attachment which is mounted on spindle carrier. The diamond tool is arranged at an angle to the center line of the wheel as shown on Figure, so that when the diamond loses its keenness it can be turned an angle, ensuring that there is always a sharp diamond edge available. The dressing method and points are the same as "Dressing the wheel".

Experience has shown that with highly accurate grinding, dressing with the diamond mounted on the magnetic chuck is better than that with diamond on the spindle carrier(the former with highly accurate grinding is more stable than the latter)as the latter condition will cause slight undulation in the surface of the wheel.



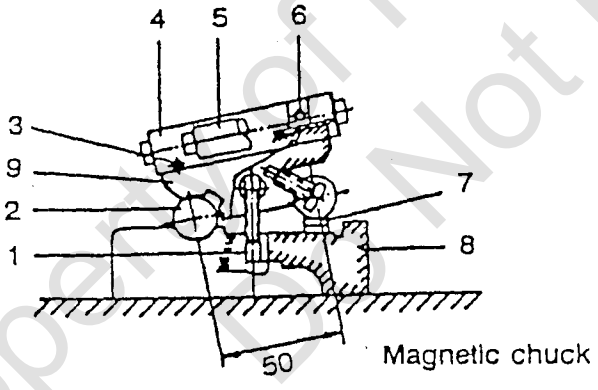
(b)Angle forming attachment

(1)Let the Attachment be attracted to the magnetic chuck, keeping a 90° right angle between the attachment and the wheel. The magnetic chuck should be kept level.

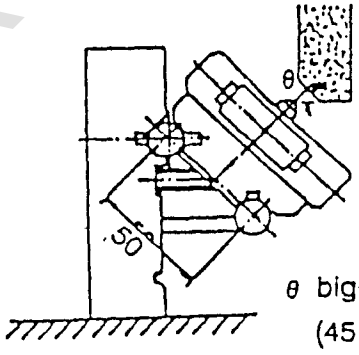
(2)The value in question will be the Sine of the angle times 50. That is $B = \text{Sin}\,\theta \times 50$

(3)Get a Block gauge under the thickness of which equals that of B (or mark one)

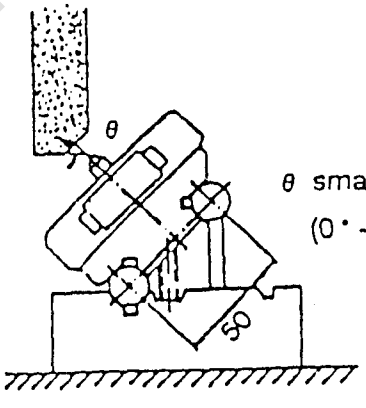
(4)Put this Block gauge under the base of the Sine Bar stand. Fix with the fastening bolts and the forming is done.



Magnetic chuck



θ bigger than 45°
(45°-90°)



θ smaller than 45°
(0°-45°)

1.Fastening bolt
2.Mandrel
3.Slide adjustment bolt
4.Slide base
5.Handle
6.Diamond fixed hole
7.Block gauge
8.Build-in base
9.Sine Bar stand

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(c) Sine Bar

The Sine Bar is used to chuck the inclined angle of the magnetic chuck, when the angle forming surface is large.

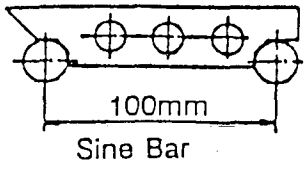
(1)The value in question equals the Sine of the angle times 100, $B = \sin\theta \times 100$

(2)Get a block gauge the thickness of which equals that of B.

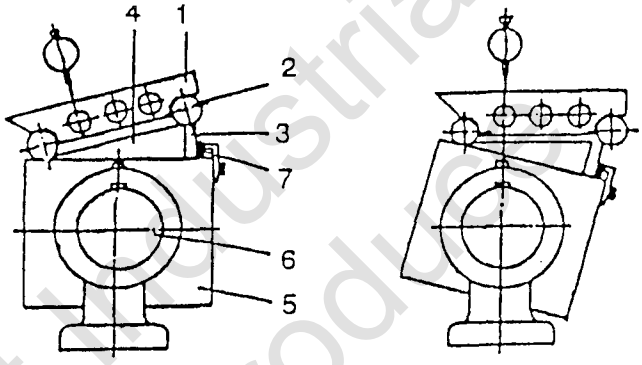
(3)Put this gauge at one end of the Sine Bar and let it be attracted to the inclinable magnetic chuck. This Sine Bar shall be kept parallel to the longitudinal direction of the machine.

(4)Press the dial gauge against the surface of the Sine Bar and meanwhile turn the cross feed hand wheel, so that the saddle moves back and forth for the checking of the accuracy of the angle of the magnetic chuck

1.Mandrel
2.Sine Bar
3.Block gauge
4.Application of the trigonometry
5.Inclinable Magnetic Chuck
6.Mandrel of the Magnetic Chuck
7.Stop block



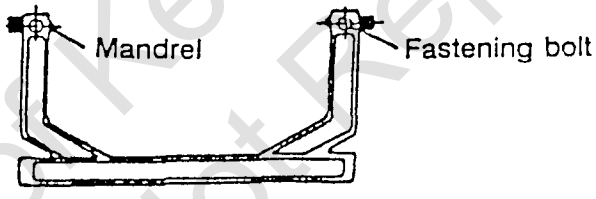
Sine Bar



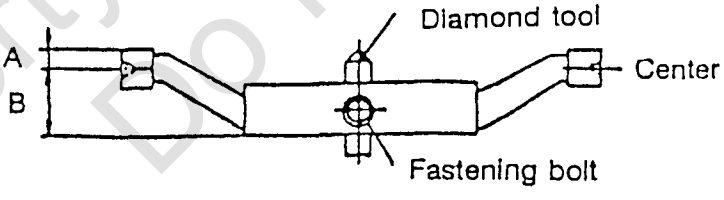
(d) Radius Forming Attachment

The Radius Forming Attachment is composed of a main stand, several swing rods and a diamond tool.

(1)Main Stand



(2)Swing rod and diamond tool



A name plate is attached to the swing rod with the A and B to mean:
A: the distance between the upper rim and the center
B: the distance between the bottom rim and the center
The R forming is the adjustment of the distance between the diamond tool and the swing rod center so that the R shaping results.

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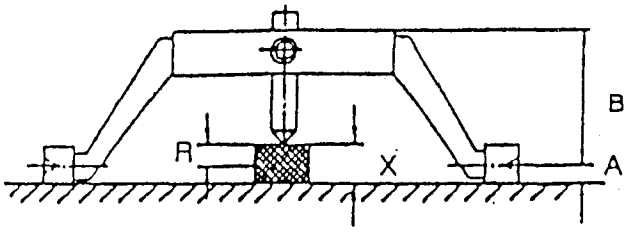
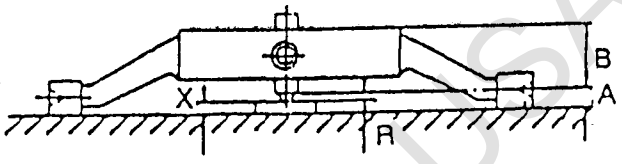
(3)To determine the concave and convex R:

a.If the tool is parallel to the center line, it equals OR.

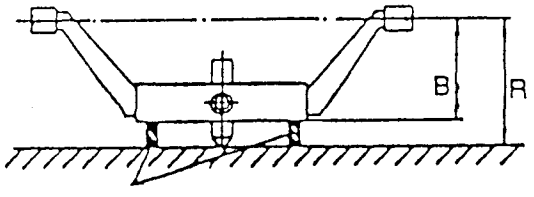
b.To determine the convex R: Put the swing rod on a place disk. Put a block gauge of proper thickness under the diamond tool. Then R=X-A

c.To determine the small concave R:R=A-X

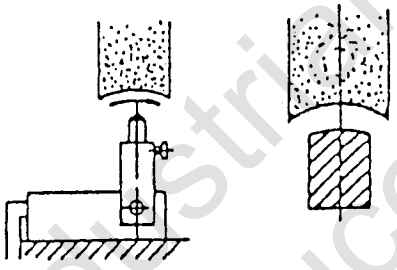




d.To determine the big concave R:R=B+X.



Same thickness block gauge (X)

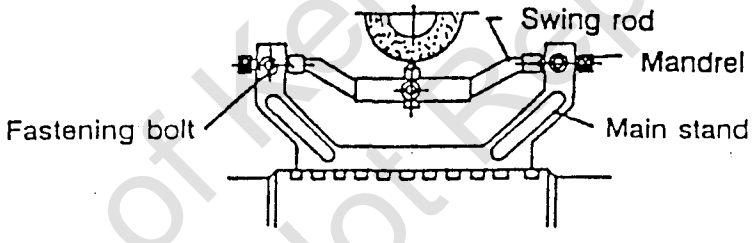


e.Note:

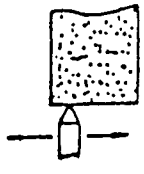
1. The base and side of the grinding wheel shall be well-dressed.
2. The Radius Forming Attachment shall be parallel to the grinding wheel.
3. The diamond tool shall be parallel to the Radius Forming Attachment.

(4)Operation of the Radius forming attachment:

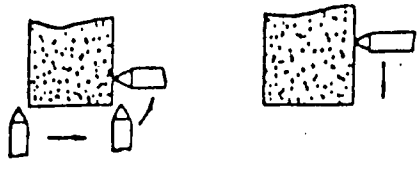
a.Find the center of the grinding wheel, then fix the work table.



b.Turn the down-feed handwheel at 1/3 on the width of the wheel so that the wheel cuts into 0.02mm of the diamond tool. Now turn the cross feed handwheel to dress the grinding wheel, and turn the calibration reading on the down feed back to zero.



c.Turn the diamond tool over an angle 90° and elevate it into a proper position(greater than the R size in question)



d.Elevate the grinding wheel so that it goes away from the diamond tool and the wheel in such a position that the distance between the side of the wheel and the center of the Diamond tool is just R.

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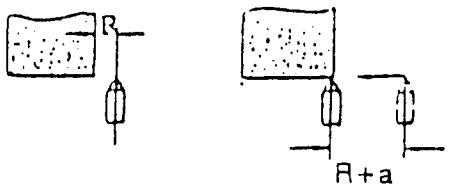
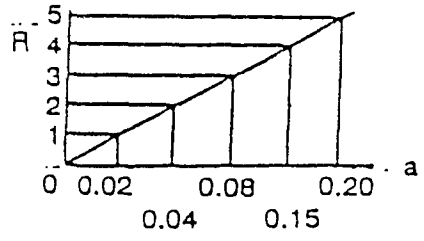
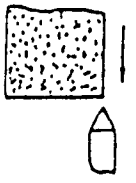


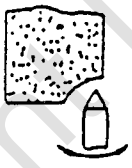
e.Move the diamond tool(R+a) leftward, with "a" found in the following table.



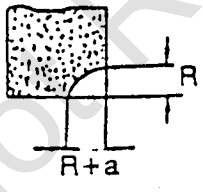
f. Turn the downfeed handwheel so that the grinding wheel approaches the diamond tool.



g.Turn the swing rods 90° each time, inching 0.05mm till the R is determinded.



h.The wheel finally becomes the following shape.

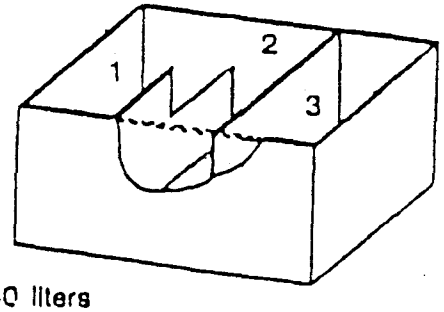


(e)Coolant System

Insert the power source plug in socket (at the rear side of electric control box). Press the pushbutton switch to start the coolant pump; the pump should rotate in clockwise direction, if not, interchange any two cords of the three-cord cable.

Adjust coolant flow by turning the ball valve to suitable rate.

Cooling water collected from table returns to coolant tank through return hose then will be filtered in the coolant tank by turns of cabinet # 1,2,3.



* Coolant tank capacity: 40 liters
* Coolant pump: 1/8 HP x 2P

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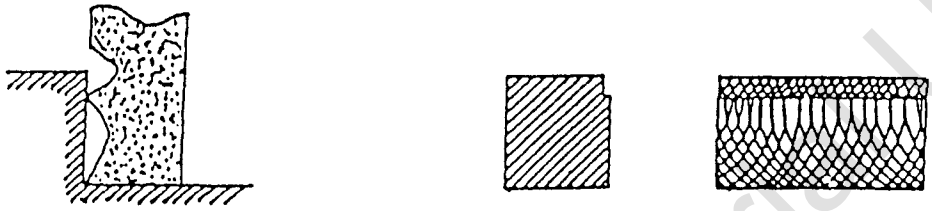
(f) Common cases in Side Grinding

(1)

In the case shown in the figure above, the side-grinding wheel and the work have a smaller contact surface, in which case the efficiency is higher, and the surface roughness is better.

(2)



In the figure above, the wheel and the work have two sections of contact, and the surface of grinding is bad. The surface has to be corrected into the shape shown in (1).

(3)

The wheel did not cut to "Relief Angle", thus it contacts the whole face of the work, causing the surface of processing rough and rugged . Also, the greater face of contact will cause burns and cracks.

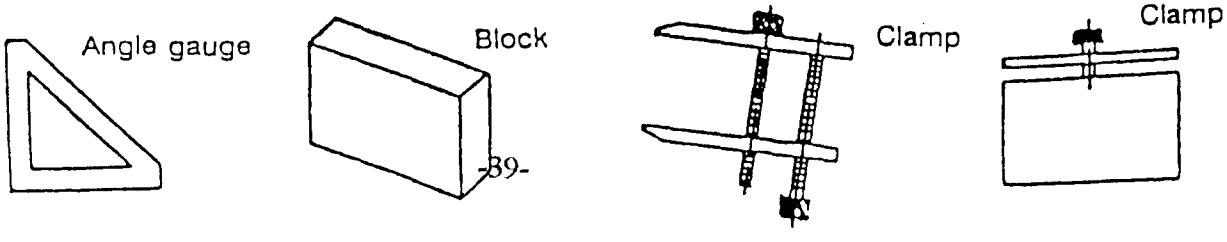
(4)

The "Relief Angle" of the wheel is lower than the surface of the work, so that the work face becomes two sections, the upper section resembling that in (3) and the lower section in (1). Now it is necessary to enlarge the "Relief Angle" part so that it will higher than the face of the work.

(5) If the spindle does not constitute a right angle with the work table surface, the side faces will turn out to be as shown:

(g) Right Angle Grinding

(1) Tools



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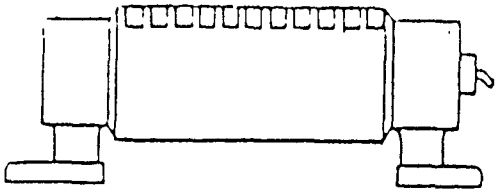
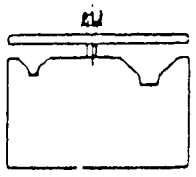


Inclinable Magnetic Chuck

Block gauge

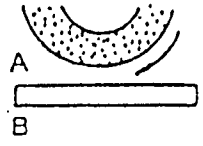


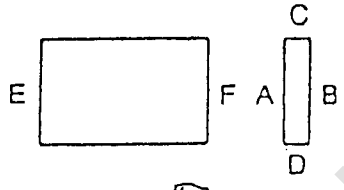
Clamp

(2)Use of the jigs and tools: take the grinding of the block of six faces A,B,C,D,E,F. For example:

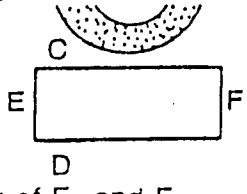
a.Under 200mm:

* Grinding of the first basic face, or the surface grinding of A and B,

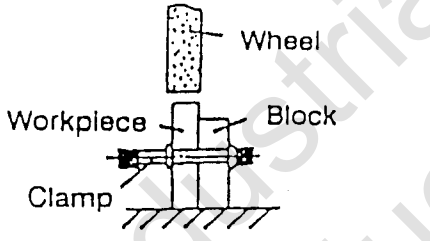


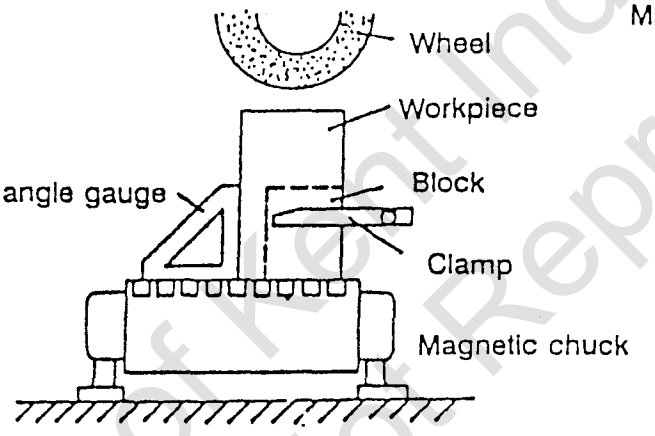


* Grinding of C and D



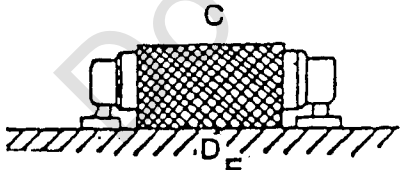
* Grinding of E and F



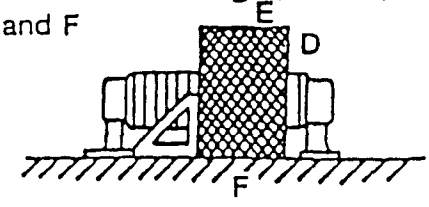


b. Over 200mm:

* Grinding of the first basic face or A,
* Grinding of C and D: turn the inclinable magnetic chuck into 90°



* Grinding of E and F



(3)Precaution: The grinding of right angle depends on the patience and clever mindedness of the operator for its precision. For instance, whether the burrs after grinding is done well, whether the tools are kept clean, whether the work table are kept clean, the accuracy of the angle gauge, etc. all will have a direct influence over the precision of the product.

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M).Complete Knockdown Drawing & Parts List

WHEN ORDERING PARTS,PLEASE MENTION:

1.MACHINE MODEL SERIAL NUMBER.
2.INDEX NUMBER.
3.PARTS NO,AND PARTS NAME.
4.QUANITY.

CONTENTS

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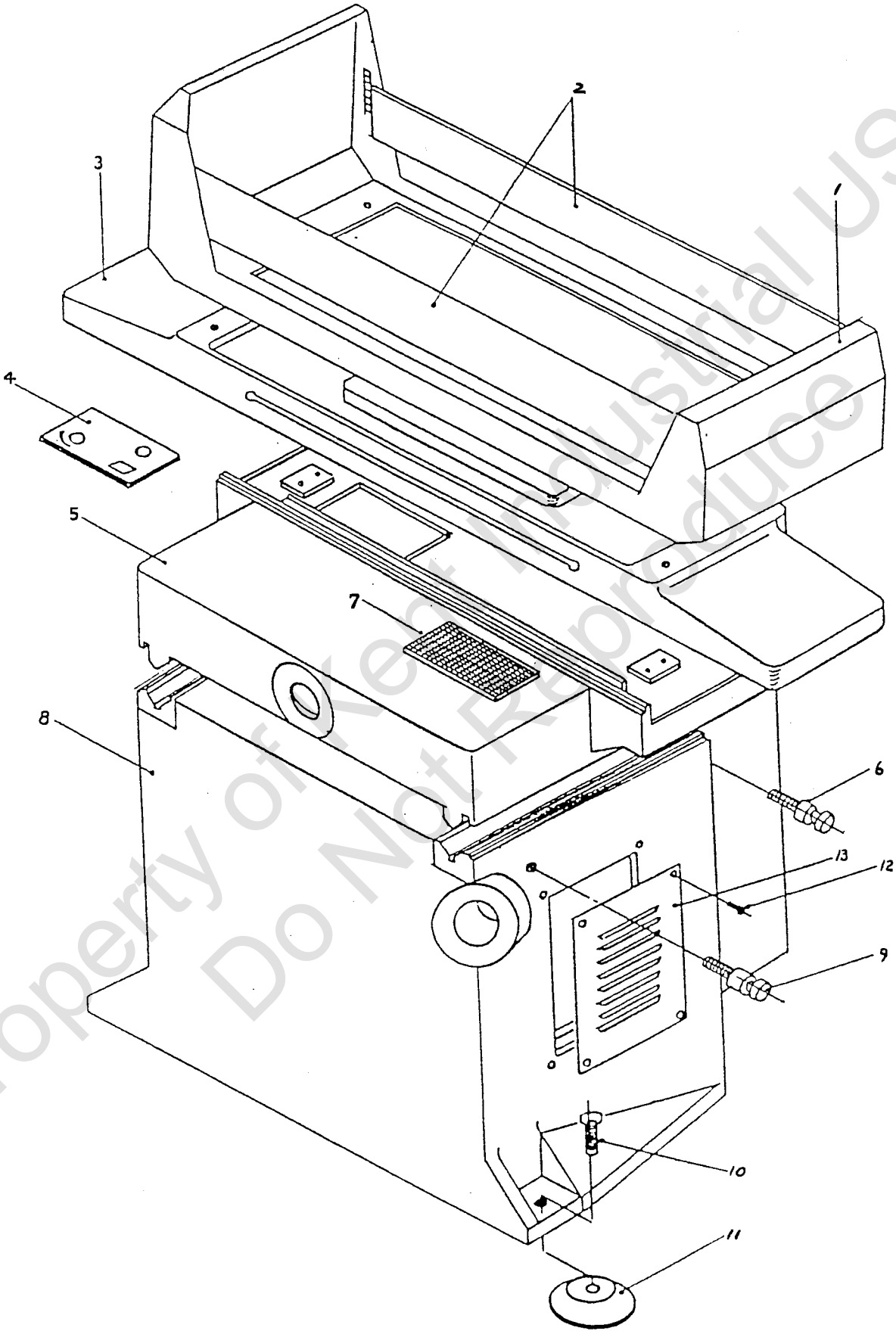
TABLE,SADDLE&BASE ASS'Y

(816H ,1020,N1224)



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TABLE,SADDLE&BASE ASS'Y

(1020 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-308	Splash Guard (Frame)	1
2.	1020-308	Splash Guard (Plate)	4
3.	1020-301	Table	1
4.	1020-725	Indication Plate	1
5.	1020-401	Saddle	1
6.	1020-703	Lifting Bolt	1
7.	1020-711	Rubber Plate	1
8.	1020-501	Base	1
9.	1020-704	Lifting Bolt	1
10.	1020-717	Levelling Screw	3
11.	1020-716	Levelling Pad	3
12.	W1/4"*1/4"	Socket Head Cap Screw	8
13.	1020-710	Side Cover	2

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TABLE,SADDLE&BASE ASS'Y

(N1224 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1224-308	Splash Guard (Frame)	1
2.	1224-308	Splash Guard (Plate)	4
3.	N1224-301	Table	1
4.	1020-725	Indication Plate	1
5.	N1224-401	Saddle	1
6.	1020-703	Lifting Bolt	1
7.	1020-711	Rubber Plate	1
8.	N1224-501	Base	1
9.	1020-704	Lifting Bolt	1
10.	1020-717	Levelling Screw	3
11.	1020-716	Levelling Pad	3
12.	W1/4"*1/4"	Socket Head Cap Screw	8
13.	1020-710	Side Cover	2

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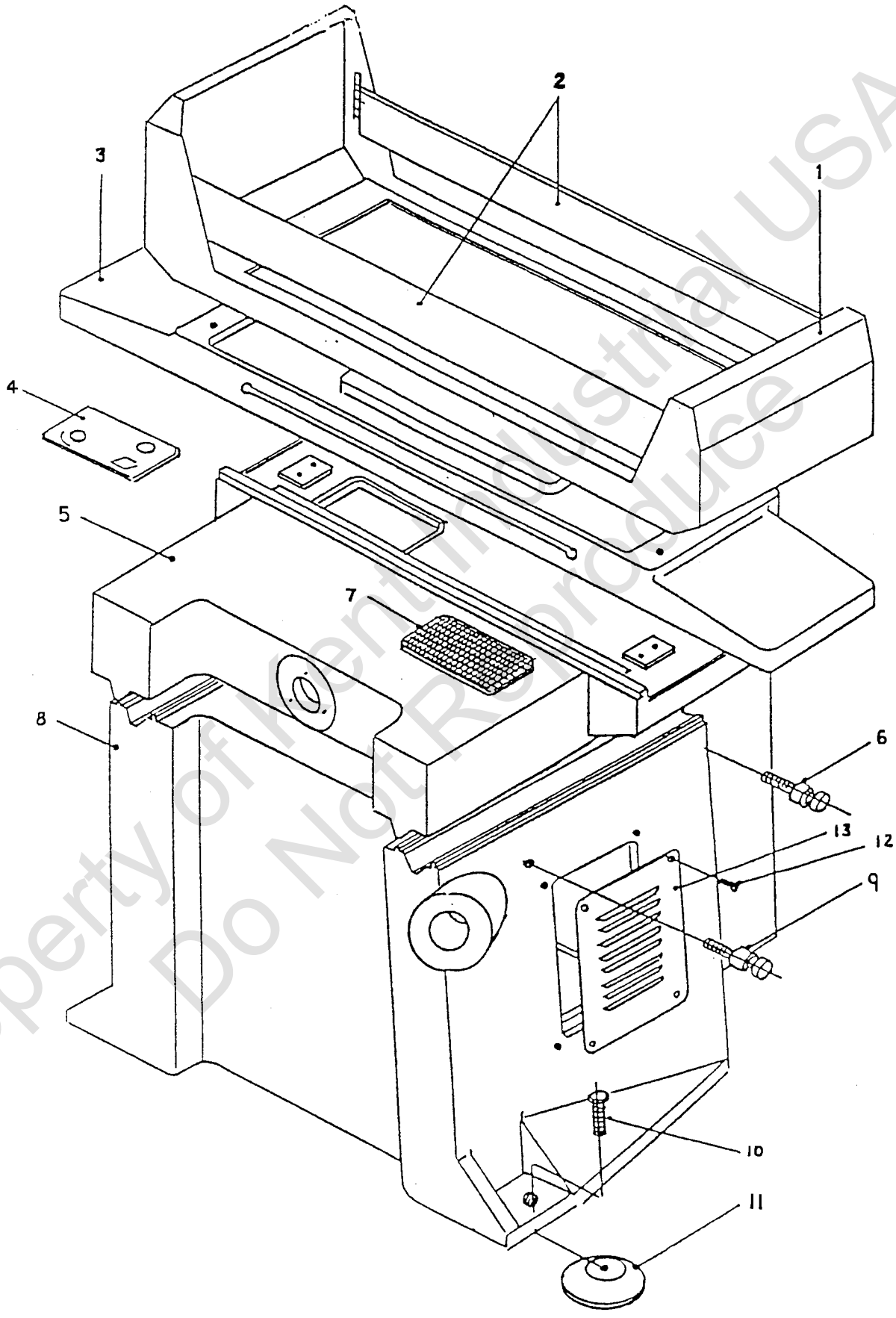
TABLE,SADDLE&BASE ASS'Y
(1224,1230,1632 SERIES)



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TABLE,SADDLE&BASE ASS'Y

(1224,1230 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1224-308	Splash Guard (Frame)	1
	1230-308	Splash Guard ((Frame)	4
2.	1224-308	Splash Guard (Plate)	4
	1230-308	Splash Guard (Plate)	4
3.	1224-301	Table	1
	1230-301	Table	1
4.	1020-725	Indication Plate	1
5.	1224-401	Saddle	1
6.	1020-703	Lifting Bolt	1
7.	1020-711	Rubber Plate	1
8.	1224-501	Base	1
9.	1020-704	Lifting Bolt	1
10.	1020-717	Levelling Screw	5
11.	1020-716	Levelling Pad	5
12.	W1/4"*1/4"	Socket Head Cap Screw	8
13.	1020-710	Side Cover	2

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TABLE,SADDLE&BASE ASS'Y

(1632 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1632-308	Splash Guard (Frame)	1
2.	1632-308	Splash Guard (Plate)	4
3.	1632-301	Table	1
4.	1020-725	Indication Plate	1
5.	1632-401	Saddle	1
6.	1632-703	Lifting Bolt	2
7.	1020-711	Rubber Plate	1
8.	1632-501	Base	1
9.	1632-704	Lifting Bolt	2
10.	1020-717	Levelling Screw	5
11.	1020-716	Levelling Pad	5
12.	W1/4"*1/4"	Socket Head Cap Screw	8
13.	1632-710	Side Cover	2

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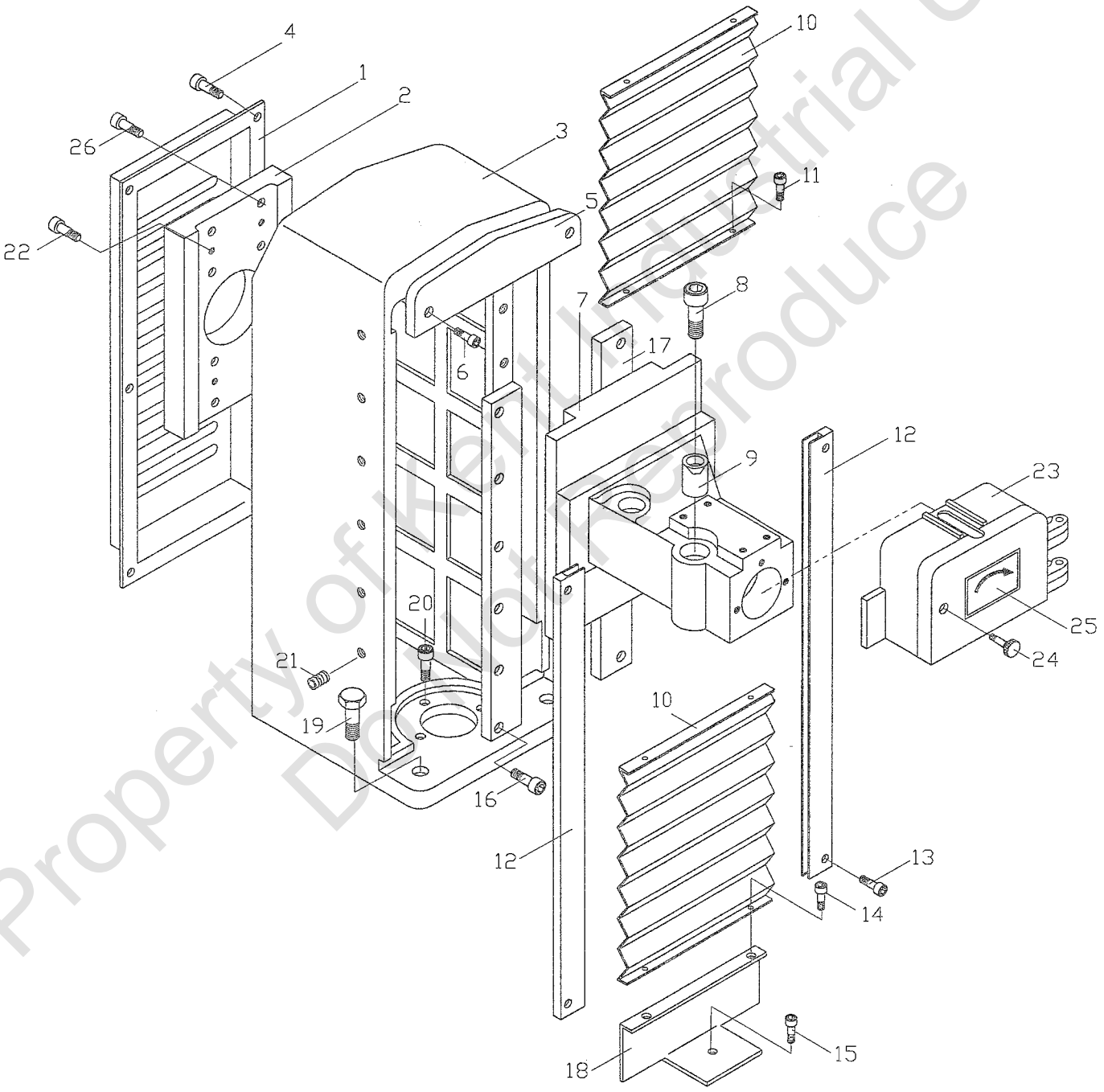
COLUMN ASS'Y
(1020,N1224 Series)



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COLUMN ASS'Y
(1020,N1020 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-205	Column Rear Cover	1
2.	1020-102-1	Head B	1
3.	1020-201	Column	1
4.	W1/4"*1/4"L	Round Head Screw	6
5.	1020-204A	Upper Cover Of Column	1
6.	W1/4"*3/4"L	Socket Head Cap Screw	2
7.	1020-101	Head A	1
	N1020-101	Head A	1
8.	W5/8"*3"L	Socket Head Cap Screw	2
9.	1020-112	Copper collar	2
10.	1020-224	Dust Protection Fold Fabric	2
11.	W1/4"*1/4"L	Round Head Screw	4
12.	1020-203A	Shield Dust Guide Rail	2
13.	W3/16"*3/8"L	Round Head Screwl	4
14.	W1/4"*1/4"L	Round Head Screw	4
15.	W1/4"*1/4"L	Socket Head Cap Screw	1
16.	W3/8"*1"L	Socket Head Cap Screw	12
17.	1020-202	Vertical Guide Rail	2
18.	1020-207A	Shield Dust	1
19.	W3/4"*2"L	Hexagonal Head Screw	4
20.	W1/2"*2 1/2"L	Socket Head Cap Screw	3
21.	W3/8"*1"L	Set Screw	12
22.	W1/2"*1 1/2"L	Socket Head Cap Screw	4
23.	1020-114A	Wheel Guard Cover	1 Set
24.	1020-116	Wheel Guard Cover Set Screw	1
25.	INP1	Indicate Name Plate	1
26.	W1/2"*2 1/2"L	Socket Head Cap Screw	8

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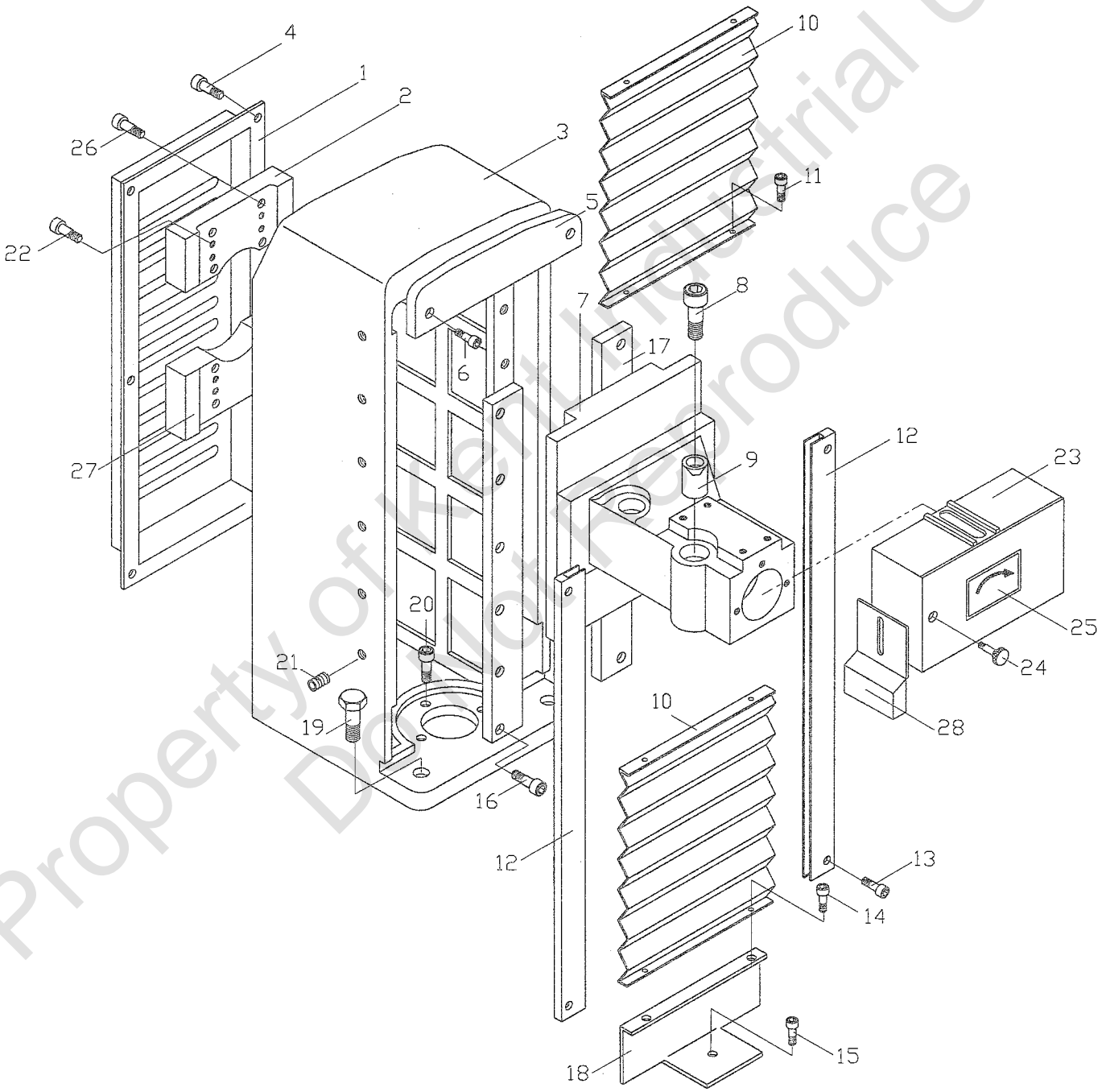
COLUMN ASS'Y
(1224,1230 Series)



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COLUMN ASS'Y
(1224,1230 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1224-205	Column Rear Cover	1
2.	1224-102-1	Head B(Upper)	1
3.	1224-201	Column	1
4.	W1/4"*1/4"L	Round Head Screw	6
5.	1224-204A	Upper Cover Of Column	1
6.	W1/4"*3/4"L	Socket Head Cap Screw	2
7.	1224-101	Head A	1
8.	W5/8"*3"L	Socket Head Cap Screw	2
9.	1224-112	Copper collar	2
10.	1224-224	Dust Protection Fold Fabric	2
11.	W1/4"*1/4"L	Round Head Screw	4
12.	1224-203	Shield Dust Guide Rail	2
13.	W3/16"*3/8"L	Round Head Screwl	4
14.	W1/4"*1/4"L	Round Head Screw	4
15.	W1/4"*1/4"L	Socket Head Cap Screw	1
16.	W3/8"*1"L	Socket Head Cap Screw	12
17.	1224-202A	Vertical Guide Rail	2
18.	1224-207A	Shield Dust	1
19.	W3/4"*2"L	Hexagonal Head Screw	4
20.	W1/2"*2 1/2"L	Socket Head Cap Screw	3
21.	W3/8"*1"L	Set Screw	12
22.	W1/2"*1 3/4"L	Socket Head Cap Screw	8
23.	1224-114	Wheel Guard Cover	1 Set
24.	1020-116	Wheel Guard Cover Set Screw	1
25.	INP1	Indicate Name Plate	1
26.	W1/2"*1 3/4"L	Socket Head Cap Screw	8
27.	1224-102	Head B(Lower)	1
28.	1512-115	Splash Guard	1

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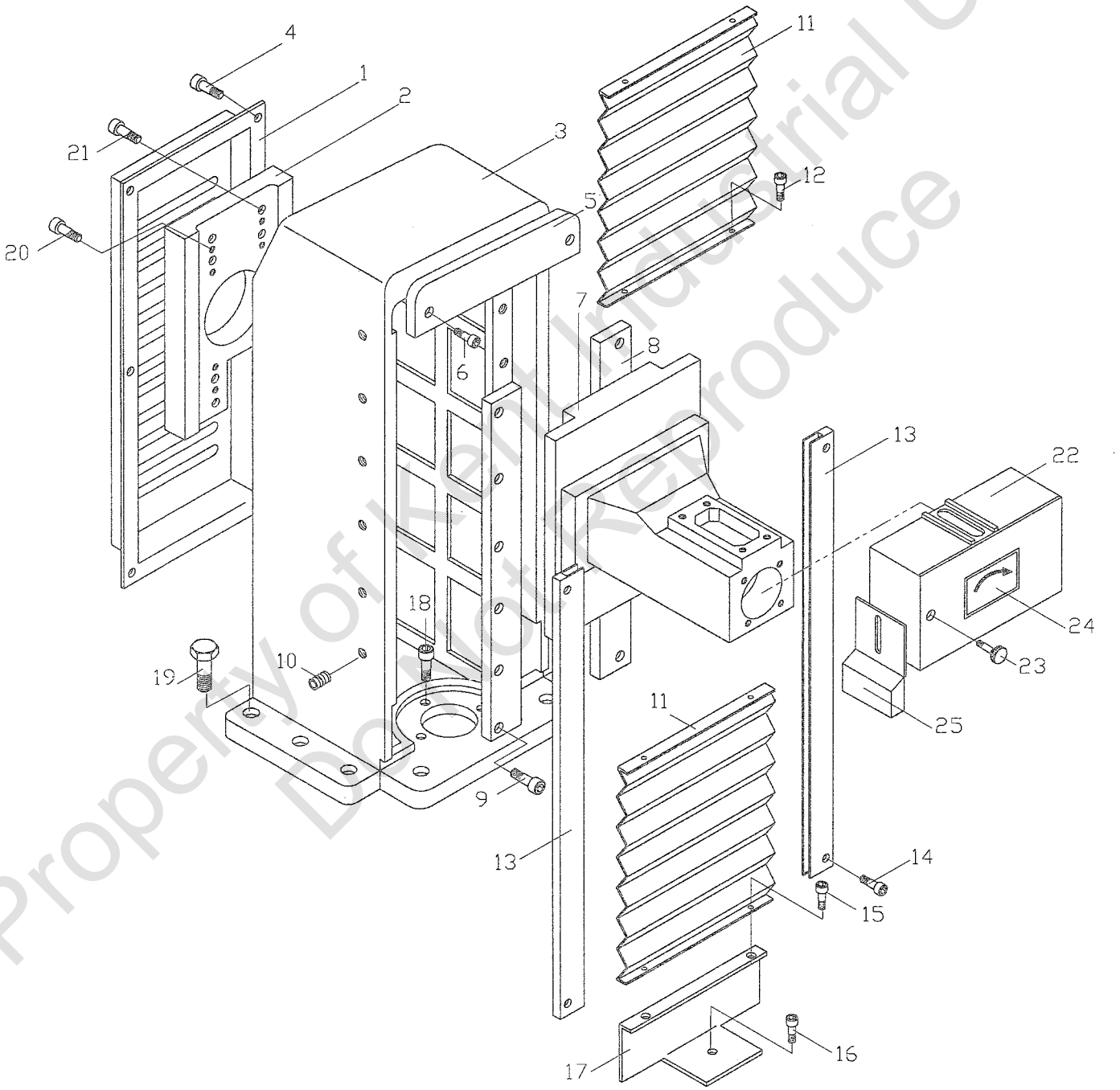
COLUMN ASS'Y
(1632,1640 Series)



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COLUMN ASS'Y
(1632,1640 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1632-205A	Column Rear Cover	1
2.	1632-102A	Head B	1
3.	1632-201	Column	1
4.	W1/4"*1/4"L	Round Head Screw	6
5.	1632-204	Upper Cover Of Column	1
6.	W1/4"*1"L	Socket Head Cap Screw	2
7.	1632-101	Head A	1
8.	1632-202	Vertical Guide Rail	2
9.	W1/2"* 1 1/2"L	Socket Head Cap Screw	16
10.	W1/2"* 1 "L	Socket Head Cap Screw	16
11.	1632-206	Dust Protection Fold Fabric	2
12.	W3/16"*1/4"L	Round Head Screw	4
13.	1632-203	Shield Dust Guide Rail	2
14.	W3/16"*1/4"L	Round Head Screwl	4
15.	W3/16"*1/4"L	Round Head Screw	4
16.	W3/16"*1/4"L	Round Head Screw	2
17.	1632-207	Shield Dust Socket	1
18.	W1/2"*2 1/2"L	Socket Head Cap Screw	3
19.	W3/4"*2"L	Hexagonal Head Screw	8
20.	W5/8"*1 3/4"L	Socket Head Cap Screw	8
21.	W5/8"*1 1/2"L	Socket Head Cap Screw	8
22.	1632-114C	Wheel Guard Cover	1 Set
23.	1020-116	Wheel Guard Cover Set Screw	1
24.	INP1	Indicate Name Plate	1
25.	1512-115	Splash Guard	1

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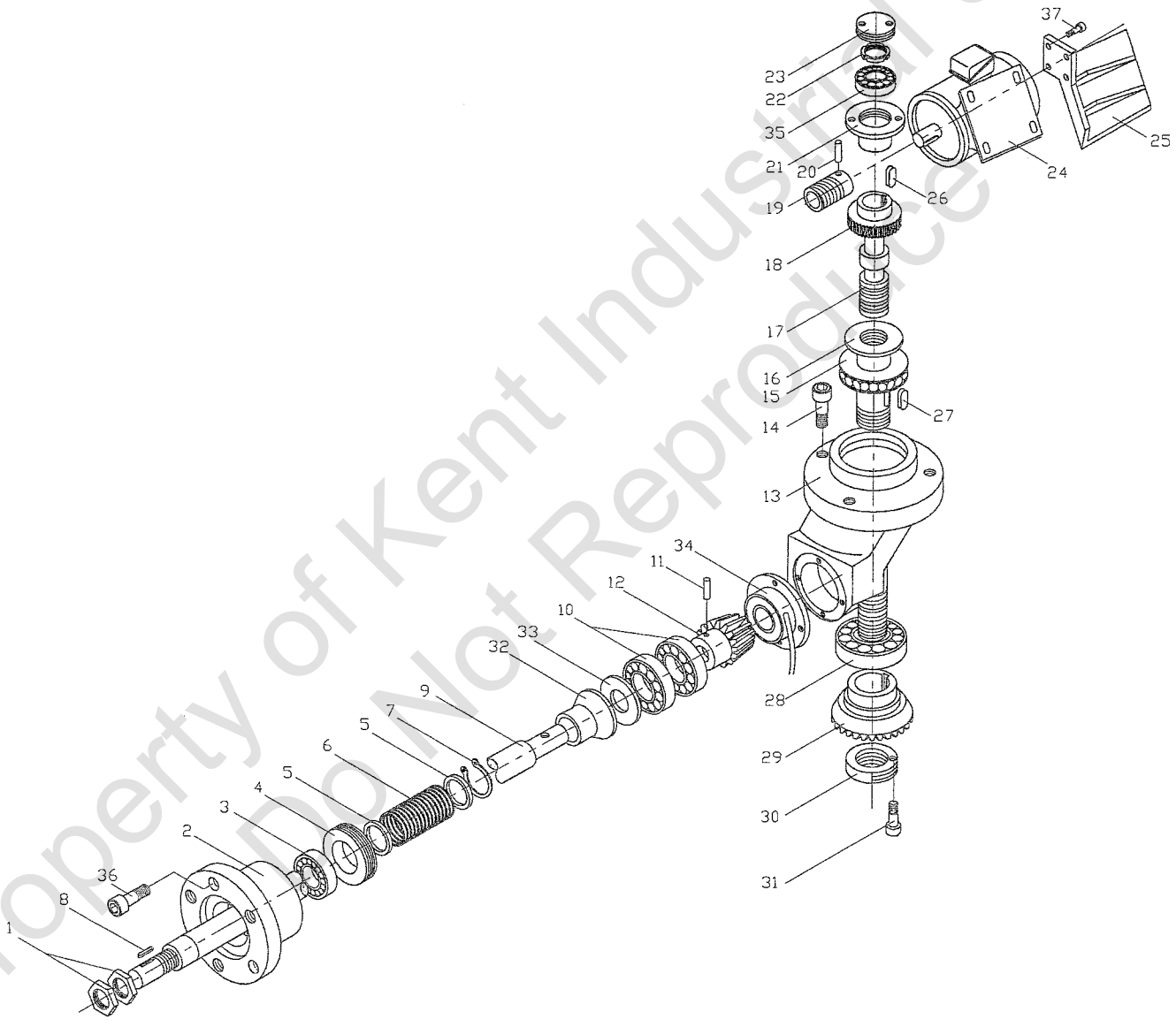
UPPER&LOWER TRANSMISSION ASS'Y
(1020~1640AHD)



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UPPER&LOWER TRANSMISSION ASS'Y
(1020,N1224,1224,1230AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-410	Hexagonal Nut	2
2.	1224-804	Connect Flange	1
3.	# 6005	Ball Bearing	1
4.	1224-871	Nut Of Flange	1
5.	1020-506	Washer	2
6.	1020-507	Spring	1
7.	S 25	Snap Ring	1
8.	5*5*20L	Key	1
9.	1020-805	Transmission shaft	1
	N1224-805	Transmission shaft	1
	1224-805 (1224,1230)	Transmission shaft	1
10.	# 6204	Ball Bearing	2
11.	φ 3*30L	Spring Pin	1
12.	1020-217	Bevel Pinion	1
13.	1020-214	Gear Seat	1
14.	W1/2"*2"L	Socket Head Cap Screw	3
15.	# 51108	Thrust Bearing	1
16.	1020-213 (1020,N1224)	Upper&lower Lead Screw Socket	1
	1224-213 (1224,1230)	Upper&lower Lead Screw Socket	1
17.	1020-212 (1020,N1224)	Upper&lower Lead Screw	1
	1224-212 (1224,1230)	Upper&lower Lead Screw	1
18.	1632-225	Worm Gear	1
19.	1632-229	Worm Screw	1
20.	φ 3*30L	Spring Pin	1
21.	1632-226	Connect Bracket	1
22.	M20*P1	Nut	1
23.	1632-227	Connect Bracket Cover	1
24.	1/5HP*6P	Rapid Up&Down Motor	1
25.	1020-226	Motor base	1
	1224-226	Motor base	1
26.	5*5**30L	Key	1
27.	7*7**25L	Key	1
28.	B6011Z	Ball Bearing	1
29.	1020-216	Bevel Gear	1
30.	1020-215	Lock Nut	1
31.	W1/4"*1/2"L	Socket Head Cap Screw	1
32.	1224-515	Clutch Base	1
33.	0.75kg-M	Clutch A	1
34.	0.75kg-M	Clutch B	1
35.	B1204	Bearing	1
36.	W1/4"*3/4"L	Socket Head Cap Screw	3
37.	W5/16"*1"L	Socket Head Cap Screw	4

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UPPER&LOWER TRANSMISSION ASS'Y
(1632,1640AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-410	Hexagonal Nut	2
2.	1224-804	Connect Flange	1
3.	# 6005	Ball Bearing	1
4.	1224-871	Nut Of Flange	1
5.	1020-506	Washer	2
6.	1020-507	Spring	1
7.	S 25	Snap Ring	1
8.	5*5*20L	Key	1
9.	1632-805	Transmission shaft	1
10.	# 6204	Ball Bearing	1
11.	φ 6*30L	Spring Pin	1
12.	1632-221	Bevel Pinion	2
13.	1632-223	Gear Seat	1
14.	W1/2"*2"L	Socket Head Cap Screw	3
15.	# 51110	Thrust Bearing	1
16.	1632-213	Upper&lower Lead Screw Socket	1
17.	1632-212	Upper&lower Lead Screw	1
18.	1632-225	Worm Gear	1
19.	1632-229	Worm Screw	1
20.	φ 3*30L	Spring Pin	1
21.	1632-226	Connect Bracket	1
22.	M20*P1	Nut	1
23.	1632-227	Connect Bracket Cover	1
24.	1/5HP*6P	Rapid Up&Down Motor	1
25.	1632-228	Motor base	1
26.	5*5**30L	Key	1
27.	7*7**25L	Key	1
28.	B6213Z	Ball Bearing	1
29.	1632-222	Bevel Gear	1
30.	1632-215	Lock Nut	1
31.	W1/4"*1/2"L	Socket Head Cap Screw	1
32.	1224-515	Clutch Base	1
33.	0.75kg-M	Clutch A	1
34.	0.75kg-M	Clutch B	1
35.	B1204	Bearing	1
36.	W1/4"*3/4"L	Socket Head Cap Screw	3
37.	W5/16"*1"L	Socket Head Cap Screw	4

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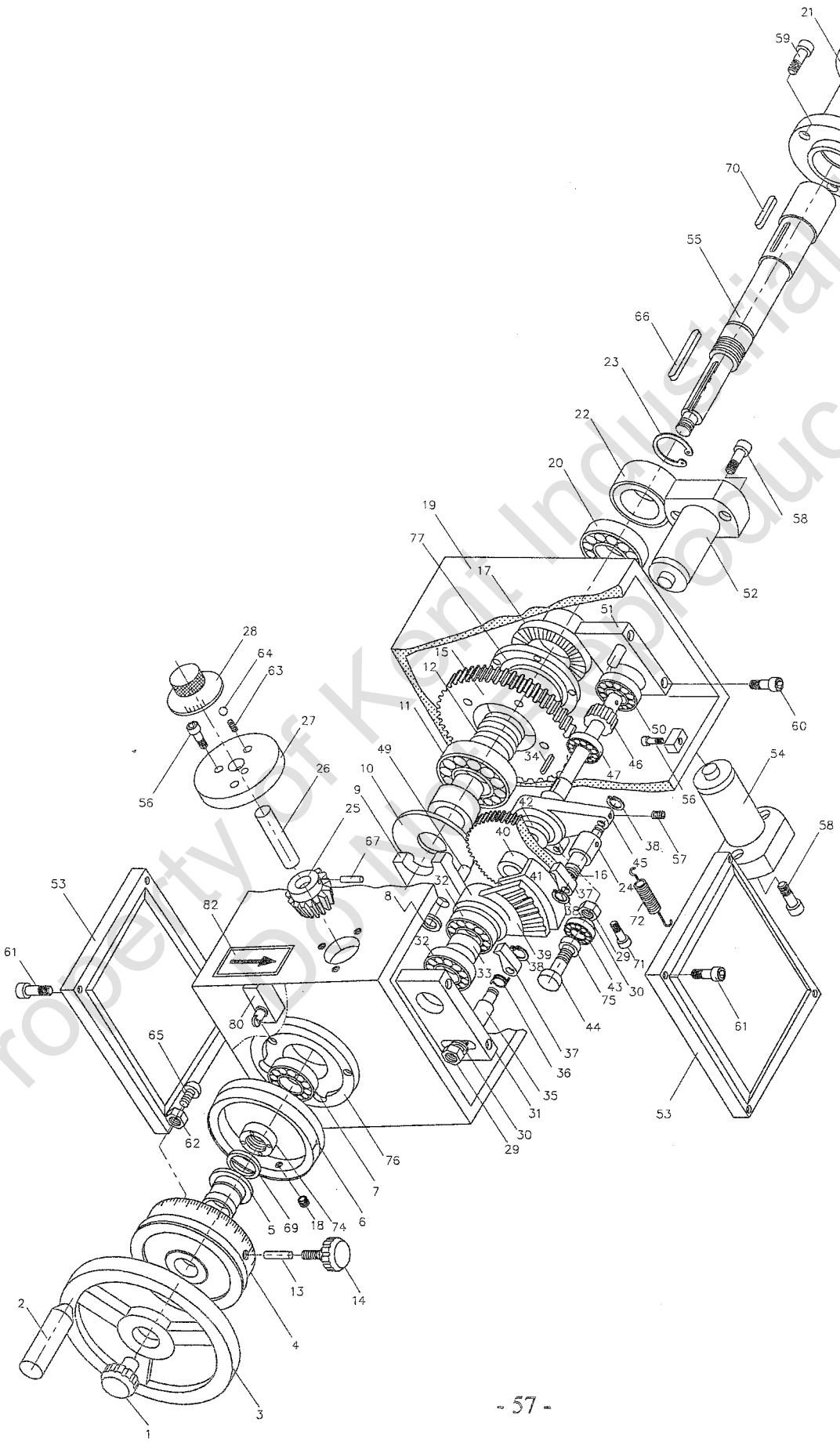
AUTO-DOWNFEED UNIT ASS'Y
(1020~1640AHD)



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AUTO-DOWNFEED UNIT ASS'Y
(1020,N1224,1224,1632AHD SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-729	Cap Nut	1
2.	1020-728	Hand Grip	1
3.	1020-714	Hand Wheel	1
4.	1020-N801	Graduation Dial	1
	1632-N801(1632 SERIES)	Graduation Dial	1
5.	1020-N804	Collar	1
6.	1020-N803A	Graduation Dial Holder	1
7.	B6204Z	Bearing	1
8.	1020-N842	Spacer	1
9.	1020-N810	Holder	1
10.	1020-N811	Holder	1
11.	B6006Z	Bearing	1
12.	1020-N813-1	Spring	1
13.	φ 6*30L	Pin	1
14.	φ 5/16	Cap Screw	1
15.	1020-N812	Gear	1
	1632-N812(1632 SERIES)	Gear	1
16.	1020-N828	Spring	1
17.	1020-N814	Clutch	1
18.	W 1/4"*3/8"L	Set Screw	1
19.	1020-N802A	Gear Box	1
20.	B6005Z	Bearing	1
21.	1020-N845	Connect Bracket	1
22.	1020-N843	Spacer	1
23.	R-47	Snap Ring	1
24.	1020-N826	Shaft	1
25.	1020-N830	Bevel Gear	1
26.	1020-N831	Pin	1
27.	1020-N832	Plate	1
28.	1020-N833	Pre-Set Dial	1
29.	W 1/4"	Hexagonal Nut	2
30.	W 1/4"	Spring Washer	2
31.	1020-N815	Bracket	1
32.	B6300Z	Bearing	3
33.	1020-N817	Spacer	1
34.	5*5*15L	Key	1
35.	1020-N815-1	Pin	1
36.	1020-N827	Spring	1
37.	1020-N825	Transmission Claw	1
38.	E7	Snap Ring	3
39.	1020-N818	Bevel Gear (Half)	1
40.	1020-N820	Ratcher Gear	1
41.	1020-N819	Slipper	1

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AUTO-DOWNFEED UNIT ASS'Y
(1020,N1224,1224,1632AHD SERIES)

Index No.	Parts No.	Parts Name	Q'ty
42.	1020-N821	Spacer	1
43.	B608ZZ	Bearing	1
44.	1020-N823	Pin	1
45.	1020-N822	Transmission Arm	1
46.	1020-N816	Gear Shaft	1
	1632-N816(1632 SERIES)	Gear Shaft	1
47.	B6202	Bearing	
48.		Gear	1
49.	W 1/4"*3"L	Socket Head Cap Screw	1
50.	B6201	Bearing	1
51.	1020-N829	Bracket	1
52.	1020-N834A	Cylinder Of Clutch	1
53.	1020-N809	Cover	2
54.	1020-N834B	Cylinder Of Feed	1
55.	1020-N807	Shaft	1
56.	W 3/16"*1/2"L	Socket Head Cap Screw	4
57.	W 3/16"*1/4"L	Set Screw	1
58.	W 3/16"*1"L	Socket Head Cap Screw	4
59.	W 1/4"*3/4"L	Socket Head Cap Screw	3
60.	W 1/4"*1 1/4"L	Socket Head Cap Screw	4
61.	W 1/4"*3/8"L	Socket Head Cap Screw	8
62.	W 1/4"	Hexagonal Nut	1
63.	1020-N833-2	Spring	1
64.	φ 4	Steel Ball	1
65.	W 1/4"*5/8"L	Round Head Screw	1
66.	5*5*40L	Key	1
67.	φ 3*30L	Pin	1
68.			1
69.	1020-N805	Spacer	1
70.	7*7*15L	Key	1
71.	W 3/16"*3/8"L	Socket Head Cap Screw	1
72.	1020-N822-1	Spring	1
73.			
74.	1020-N806	Nut	1
75.	1020-N824	Spacer	1
76.	1020-N808-1	Spacer	1
77.	1020-N813	Clutch	1
78.			
79.			
80.	LS7 (Z-15GQ22-B)	Limit Switch	1
81.			
82.	R	Rotate Indicate Name Plate	1

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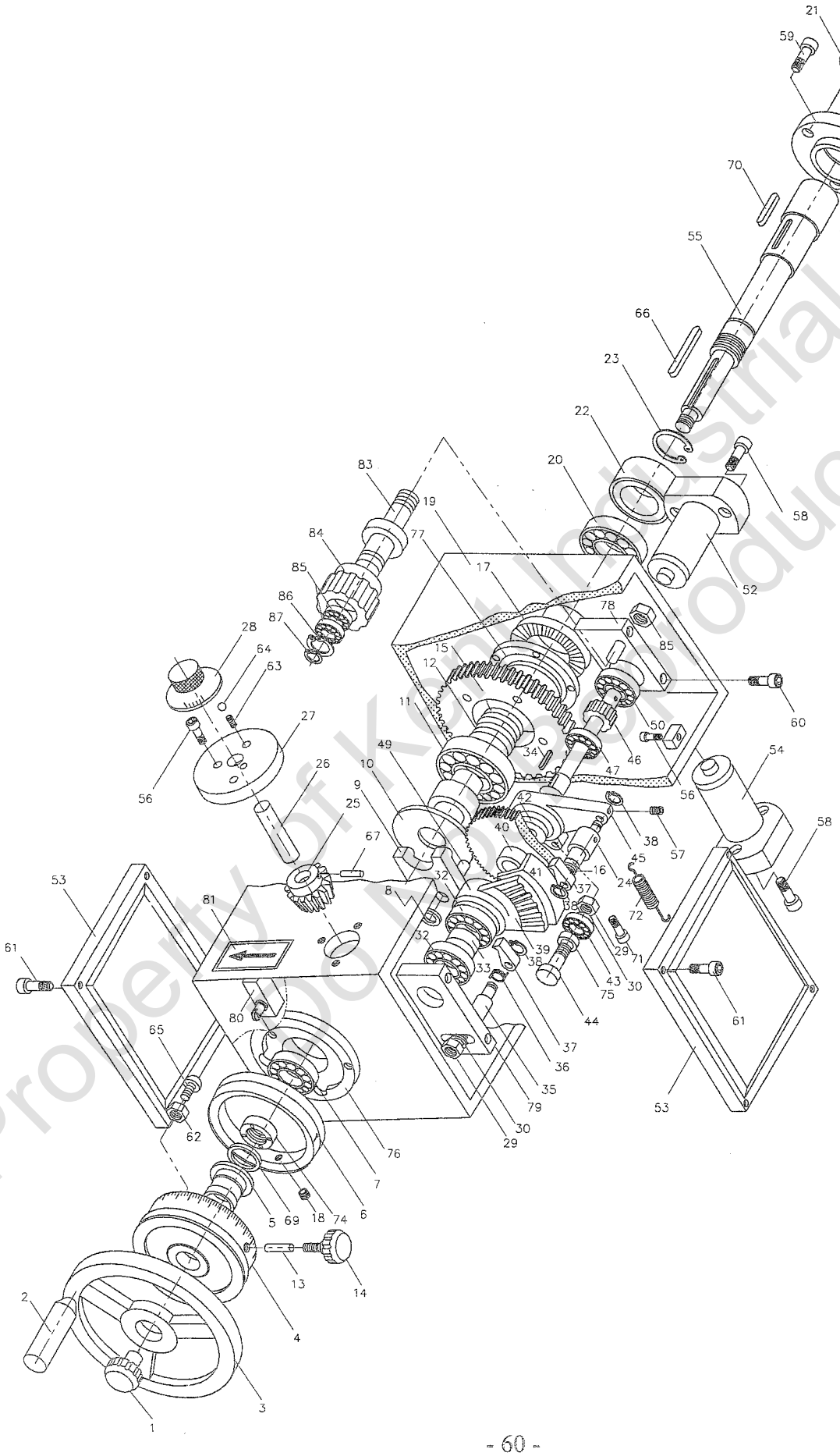
AUTO-DOWNFEED UNIT ASS'Y(L-TYPE)
(1020~1640AHD)



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AUTO-DOWNFEED UNIT ASS'Y(L TYPE)

(1020,N1224,1224,1632,1640AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-729	Cap Nut	1
2.	1020-728	Hand Grip	1
3.	1020-714	Hand Wheel	1
4.	1020-N801	Graduation Dial	1
	1632-N801(1632 SERIES)	Graduation Dial	1
5.	1020-N804	Collar	1
6.	1020-N803A	Graduation Dial Holder	1
7.	B6204Z	Bearing	1
8.	1020-N842	Spacer	1
9.	1020-N810	Holder	1
10.	1020-N811	Holder	1
11.	B6006Z	Bearing	1
12.	1020-N813-1	Spring	1
13.	φ 6*30L	Pin	1
14.	φ 5/16	Cap Screw	1
15.	1020-N812	Gear	1
	1632-N812(1632 SERIES)	Gear	1
16.	1020-N828	Spring	1
17.	1020-N814	Clutch	1
18.	W 1/4"*3/8"L	Set Screw	1
19.	1020-N802A	Gear Box	1
20.	B6005Z	Bearing	1
21.	1020-N845	Connect Bracket	1
22.	1020-N843	Spacer	1
23.	R-47	Snap Ring	1
24.	1020-N826	Shaft	1
25.	1020-N830	Bevel Gear	1
26.	1020-N831	Pin	1
27.	1020-N832	Plate	1
28.	1020-N833	Pre-Set Dial	1
29.	W 1/4"	Hexagonal Nut	2
30.	W 1/4"	Spring Washer	2
31.	1020-N815	Bracket	1
32.	B6300Z	Bearing	3
33.	1020-N817	Spacer	1
34.	5*5*15L	Key	1
35.	1020-N815-1	Pin	1
36.	1020-N827	Spring	1
37.	1020-N825	Transmission Claw	1
38.	E7	Snap Ring	3
39.	1020-N818	Bevel Gear (Half)	1
40.	1020-N820	Ratcher Gear	1
41.	1020-N819	Slipper	1
42.	1020-N821	Spacer	1
43.	B608ZZ	Bearing	1

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AUTO-DOWNFEED UNIT ASS'Y(L TYPE)

(1020,N1224,1224,1632,1640AHD)

Index No.	Parts No.	Parts Name	Q'ty
44.	1020-N823	Pin	1
45.	1020-N822	Transmission Arm	1
46.	1020-N816	Pinion	1
	1632-N816(1632 SERIES)	Pinion	1
47.	B6202	Bearing	1
48.			
49.	W 1/4"*3"L	Socket Head Cap Screw	1
50.	B6201	Bearing	1
51.	1020-N829	Bracket	1
52.	1020-N834A	Cylinder Of Clutch	1
53.	1020-N809	Cover	2
54.	1020-N834B	Cylinder Of Feed	1
55.	1020-N807	Shaft	1
56.	W 3/16"*1/2"L	Socket Head Cap Screw	4
57.	W 3/16"*1/4"L	Set Screw	1
58.	W 3/16"*1"L	Socket Head Cap Screw	4
59.	W 1/4"*3/4"L	Socket Head Cap Screw	3
60.	W 1/4"*1 1/4"L	Socket Head Cap Screw	4
61.	W 1/4"*3/8"L	Socket Head Cap Screw	8
62.	W 1/4"	Hexagonal Nut	1
63.	1020-N833-2	Spring	1
64.	φ 4	Steel Ball	1
65.	W 1/4"*5/8"L	Round Head Screw	1
66.	5*5*40L	Key	1
67.	φ 3*30L	Pin	1
68.			1
69.	1020-N805	Spacer	1
70.	7*7*15L	Key	1
71.	W 3/16"*3/8"L	Socket Head Cap Screw	1
72.	1020-N822-1	Spring	1
73.			
74.	1020-N806	Nut	1
75.	1020-N824	Spacer	1
76.	1020-N808-1	Spacer	1
77.	1020-N813	Clutch	1
78.	1020-N829-L	Shaft Base	1
79.	1020-N815-L	Shaft Base	1
80.	LS7 (Z-15GQ22-B)	Limit Switch	1
81.	L	Rotate Indicate Name Plate	1
82.			
83.	1020-N862-L	Shaft	1
84.	1020-N861-L	Idle Wheel	1
85.	B6901	Bearing	2
86.	R24	Snap	1
87.	S-12	Snap	1

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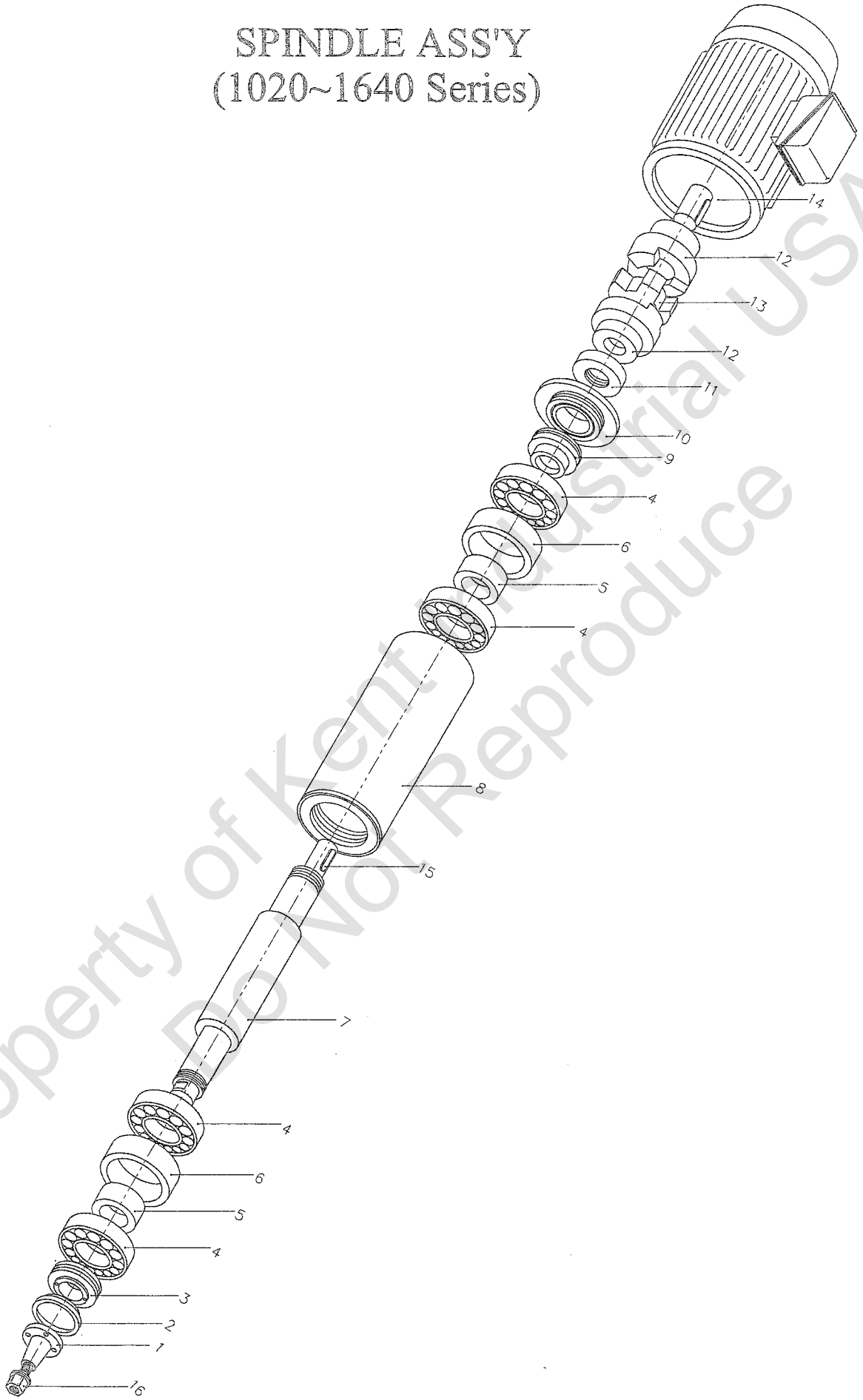
SPINDLE ASS'Y
(1020~1640 Series)



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SPINDLE ASS'Y
(1020,N1224 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-106	Spindle Nut	1
2.	1020-105	Spindle Cover	1
3.	1020-107	Spindle Cover Bush	1
4.	B7206 CP4	Angular Contact Bearing	4
5.	1020-108	Spacer	2
6.	1020-109	Spacer	2
7.	1020-144	Spindle Shaft	1
	N1224-144	Spindle Shaft	1
8.	1020-103	Spindle Housing	1
	N1224-103	Spindle Housing	1
9.	1020-110	Spindle Cover Bush	1
10.	1020-128	Spindle Cover	1
11.	1020-127	Spindle Nut	1
12.	1020-111	Coupling	2
13.	1020-113	Rubber Coupling	1
14.	2HP*2P	Spindle Motor	1
15.	7*7*25	Key	1
16.	1020-149	Fix Nut	1

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SPINDLE ASS'Y
(1224,1230 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1224-106	Spindle Nut	1
2.	1224-105	Spindle Cover	1
3.	1224-107	Spindle Cover Bush	1
4.	B7208 CP4	Angular Contact Bearing	4
5.	1224-108	Spacer	2
6.	1224-109	Spacer	2
7.	1224-104	Spindle Shaft	1
8.	1224-103	Spindle Housing	1
9.	1224-110	Spindle Cover Bush	1
10.	1224-128	Spindle Cover	1
11.	1224-127	Spindle Nut	1
12.	1224-111	Coupling	2
13.	1224-113	Rubber Coupling	1
14.	5HP*4P	Spindle Motor	1
15.	8*8*35	Key	1
16.	1224-120A	Fix Nut	1

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SPINDLE ASS'Y
(1632,1640 SERIES)

Index No.	Parts No.	Parts Name	Q'ty
1.	1632-112	Spindle Nut	1
2.	1632-105	Spindle Cover	1
3.	1632-106	Spindle Cover Bush	1
4.	B7209 CP4	Angular Contact Bearing	4
5.	1632-109	Spacer	2
6.	1632-110	Spacer	2
7.	1632-104A	Spindle Shaft	1
8.	1632-103	Spindle Housing	1
9.	1632-107	Spindle Cover Bush	1
10.	1632-108	Spindle Cover	1
11.	1632-115	Spindle Nut	1
12.	1632-111	Coupling	1
13.	1632-113	Rubber Coupling	1
14.	7 1/2HP*4P	Spindle Motor	2
15.	10*10*35	Key	1
16.	1632-120	Fix Nut	1
			1
			1

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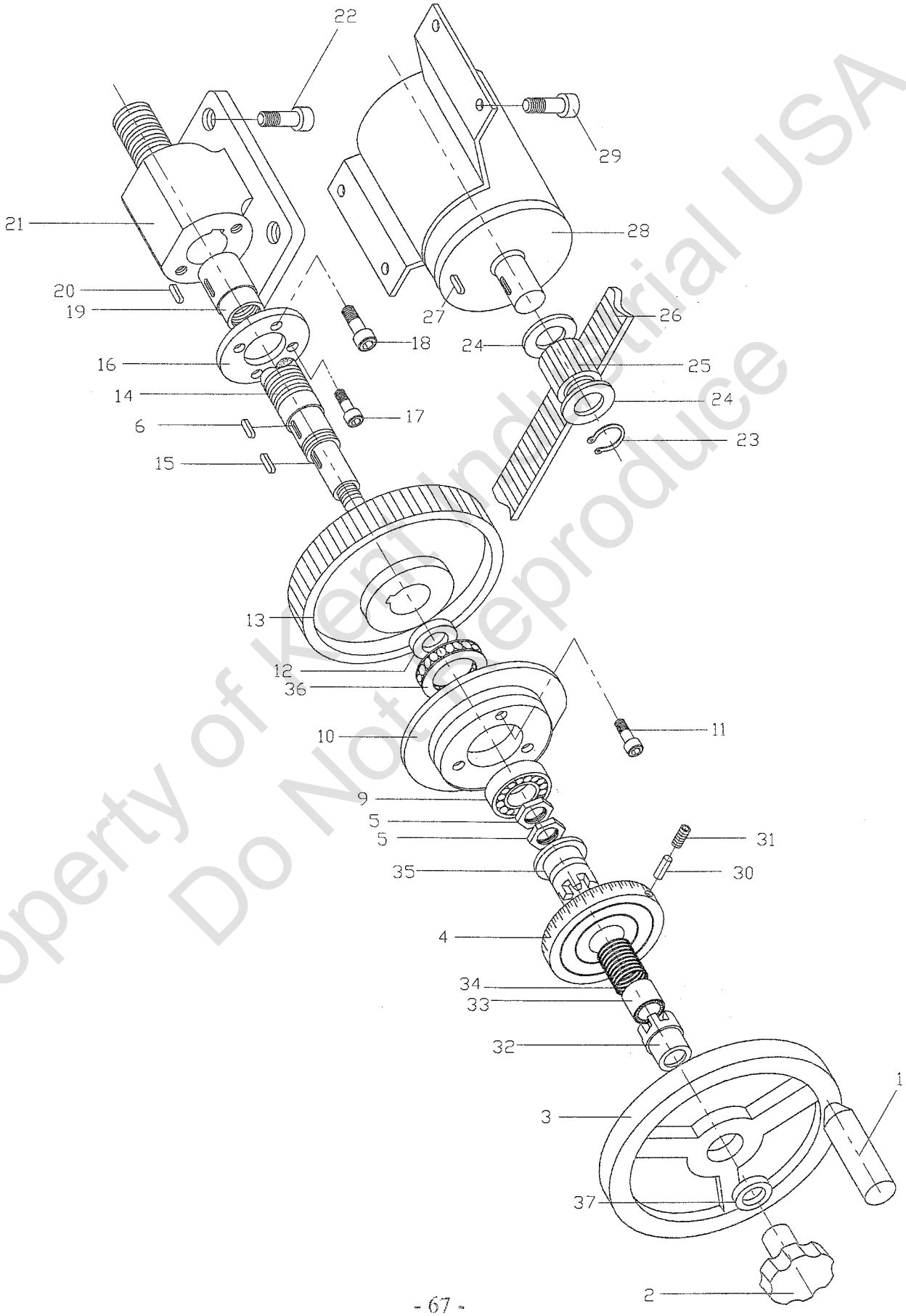
CROSS FEED ASS'Y
(1020~1640 AH,AHD Series)



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CROSS FEED ASS'Y
(1020/N1224/1224/1230/1632AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-728	Grip	1
2.	1020-729	Cap Nut	1
3.	1020-714	Handwheel	1
4.	1020-406B	Graduation Dial	1
5.	1020-410	Hexagonal Nut	2
6.	5*5*15L	Key	1
7.			
8.			
9.	B5204ZZ	Bearing	1
10.	1020-407	Graduation Dial Holder	1
11.	W1/4"*1"L	Socket Head Cap Screw	3
12.	1020-638	Spacer	1
13.	1020-601	Timing Belt Pulley(Large)	1
14.	1020-402	Crossfeed Leadscrew	1
	1224-402(N1224-1230)	Crossfeed Leadscrew	1
	1632-402(1632,1640)	Crossfeed Leadscrew	1
15.	5*5*15L	Key	1
16.	1020-405(1020-1230)	Leadscrew Backlash Adjuster	1
17.	W5/16"*1/2"L	Socket Head Cap Screw	2
18.	W5/16"*1/2"L	Socket Head Cap Screw	2
19.	1020-404 (1020-1230)	Leadscrew Nut	1
	1632-404(1632,1640)	Leadscrew Nut	1
20.	5*5*20L	Key	1
21.	1020-403(1020-1230)	Leadscrew Nut Base	4
	1632-403(1632,1640)	Leadscrew Nut Base	1
22.	W3/8"*2"L	Socket Head Cap Screw	2
23.	S-11	Snap Ring	1
24.	1020-604	Spacer	1
25.	1020-602	Timing Belt Pulley(Small)	1
26.	187L075(1020-1230)	Timing Belt	1
	225L075(1632,1640)	Timing Belt	1
27.	4*4*20L	Key	1
28.	1/5HP*6P	Crossfeed Motor	1
29.	W1/4"*3/4"L	Socket Head Cap Screw	4
30.	φ 5*10L	Round Pin	1
31.	W1/4"*3/4"L	Ajusting screw	1
32.	1224-422	Clutch B	1
33.	TA1715	Needle Bearing	1
34.	1224-425	Spring	1
35.	1224-424	Clutch A	1
36.	B51104	Bearing	1
37.	1020-425	Washer	1

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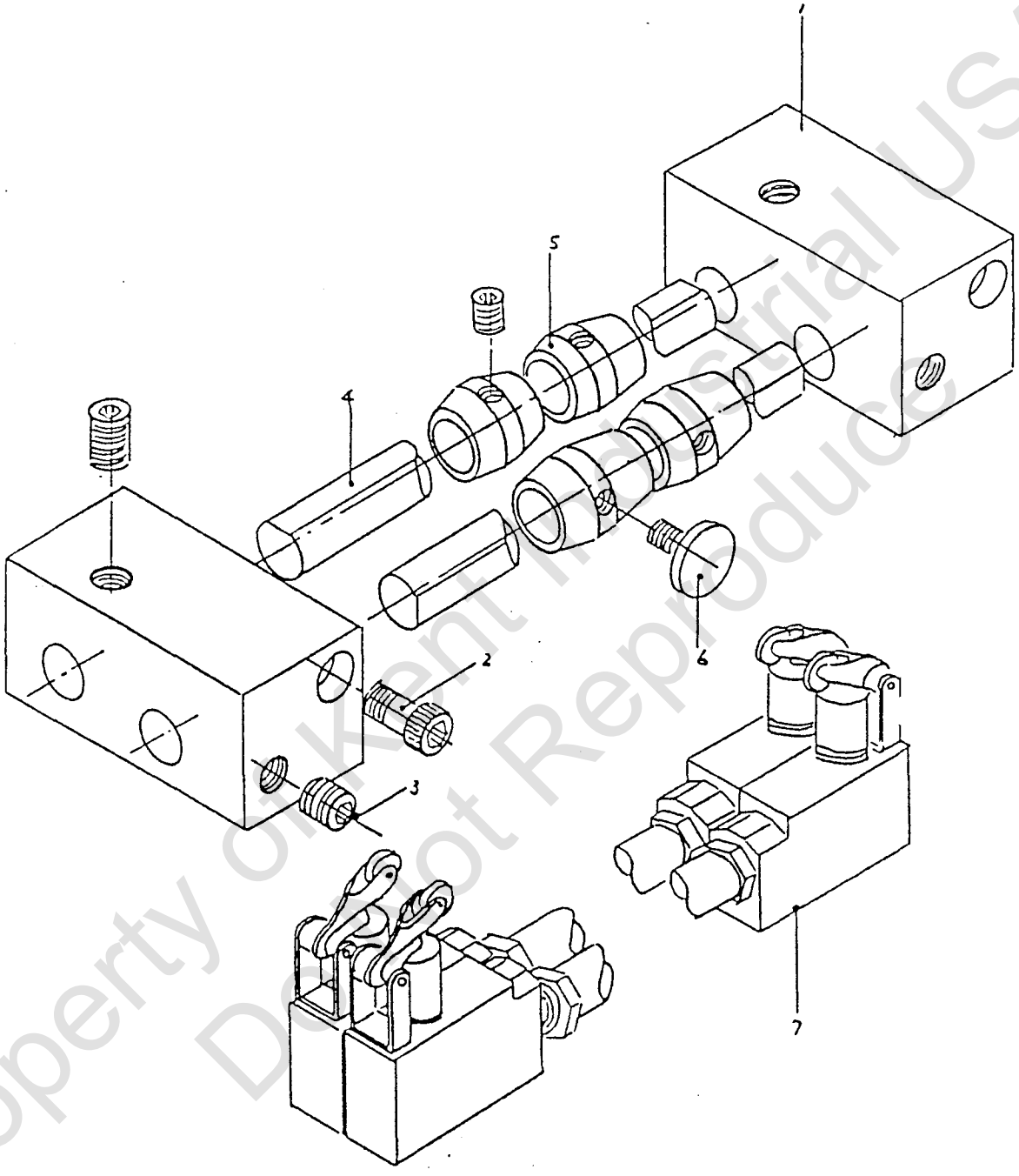
CROSSFEED CONTROL LIMIT SWITCH ASS'Y

(1020AH,AHD,N1224AH,AHD,1224&1230AH,AHD,1632AH,AHD)



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CROSSFEED CONTROL LIMIT SWITCH ASS'Y

(1020AH,AHD,N1224AH,AHD,1224&1230AH,AHD,1632AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-609-1	Mouting Block	2
2.	W1/4"*2 1/2"L	Socket Head Cap Screw	2
3.	W1/4"*5/8"L	Headless Socket Screw	4
4.	1020-607	Pad Rod	2
	1224-607	Pad Rod	2
	1632-607	Pad Rod	2
5.	1020-608	Dog	4
6.	1020-N808	Set Screw	2
7.	ZE-NA2-2	Limit Switch	4
8.	W1/4"*1/4"L	Headless Socket Screw	2

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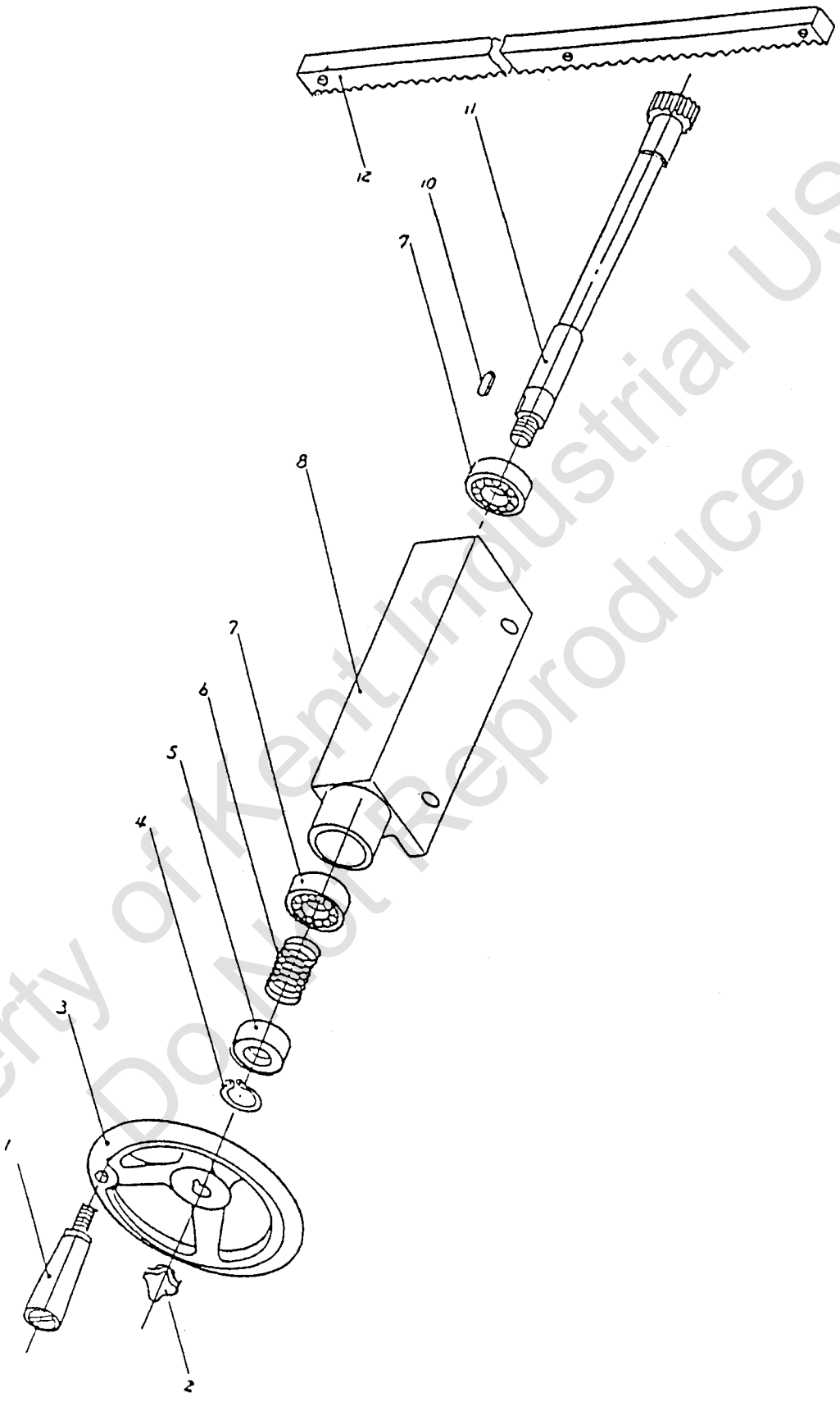
LONGITUDINAL HAND FEED ASS'Y

(816H,1020H,AH,AHD&N1224,1224,1230,1632 SERIES)



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LONGITUDINAL HAND FEED ASS'Y
(816H,1020H,AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-728	Grip	1
2.	1020-729	Cap Nut	1
3.	1020-714	Handwheel	1
4.	S-17	Snap Ring	1
5.	1020-623	Bush	1
6.	1020-626	Spring	1
7.	# 6003ZZ	Ball Bearing	2
8.	1020-621	Frame	1
9.	R-35	Snap Ring	1
10.	5*5*15L	Key	1
11.	1020-622	Pinion Shaft	1
12.	1020-310	Gear Rack	1

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LONGITUDINAL HAND FEED ASS'Y

(N1224H,AH,AHD,1224AH,AHD,1230AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-728	Grip	1
2.	1020-729	Cap Nut	1
3.	1020-714	Handwheel	1
4.	S-17	Snap Ring	1
5.	1020-623	Bush	1
6.	1020-626	Spring	1
7.	# 6003ZZ	Ball Bearing	2
8.	1224-621	Frame	1
9.	R-35	Snap Ring	1
10.	5*5*15L	Key	1
11.	1224-622	Pinion Shaft	1
12.	1224-310	Gear Rack	1
	1230-310	Gear Rack	1

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LONGITUDINAL HAND FEED ASS'Y

(1632AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-728	Grip	1
2.	1020-729	Cap Nut	1
3.	1020-714	Handwheel	1
4.	S-17	Snap Ring	1
5.	1020-623	Bush	1
6.	1020-626	Spring	1
7.	# 6003ZZ	Ball Bearing	2
8.	1632-621	Frame	1
9.	R-35	Snap Ring	1
10.	5*5*15L	Key	1
11.	1632-622	Pinion Shaft	1
12.	1632-310	Gear Rack	1

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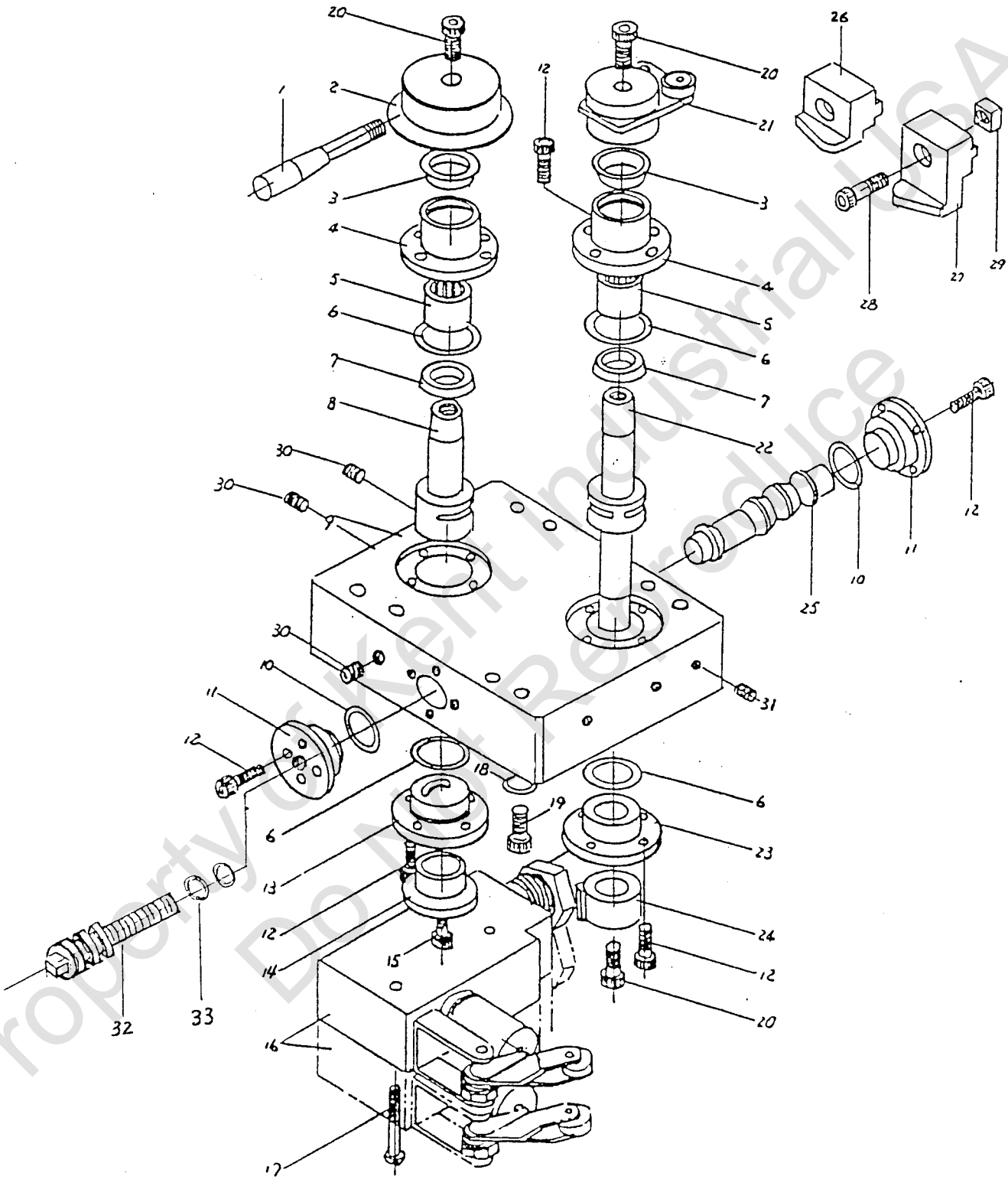
VALVE ASS'Y

(1020AH,AHD&N1224,1224,1230,1632 SERIES)



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VALVE ASS'Y

(1020AHD,N1224AHD,1224AHD,1230AHD,1632AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	S2334	Flow Control Lever	1
2.	S2333	Flow Control Knob	1
3.	DH14*24*6	Dust Seal	2
4.	S2615	Upper Cover	2
5.	CB1512	DU Bush	2
6.	28.25*2.62	O-Ring	4
	26.7*2.62 (1632 series)	O-Ring	4
7.	UN15	U-Packing	3
	VP15238 (1632 series)	U-Packing	3
8.	S2612	Flow Control Shaft	1
9.	S2611	Flow Control Valve Body	1
10.	P21	O-Ring	2
	P25(1224&1632 series)	O-Ring	2
11.	S2619	Side Cover	1
12.	W3/16"*5/8"L	Socket Head Cap Screw	24
13.	S2614	Bottom Cover	1
14.	S2332	Limit Switch Fixed Seat	1
15.	W5/16"*1"L	Socket Head Cap Screw	2
16.	ZE-NA2-2	Limit Switch	1
16.	Z-15GW2277B	Limit Switch	1
17.	M4*2 1/2"L	Round Head Cap Screw	2
18.	P8	O-Ring	4
19.	S2618	Adjusting Screw	1
20.	W1/4"*3/4"L	Socket Head Cap Screw	3
21.	S2335	Direction Control Arm	1
22.	S2616	Direction Control Shaft	1
23.	S2617	Bottom Cover	1
24.	1020-605	Cam	1
	1632-605 (1632 series)	Cam	1
25.	S2620	Pivot Piston	1
26.	1020-617	Dog	1
27.	1020-618	Dog	1
28.	W5/16"*1/4"L	Socket Head Cap Screw	2
29.	1020-312	Nut	4
30.	W1/8PT	Set Screw	4
31.	W1/4"*5/16"L	Set Screw	5
32.	W3/8"*30L*P24T	Square head Adjusting Screw	2
33.	P8	O-Ring	2&2

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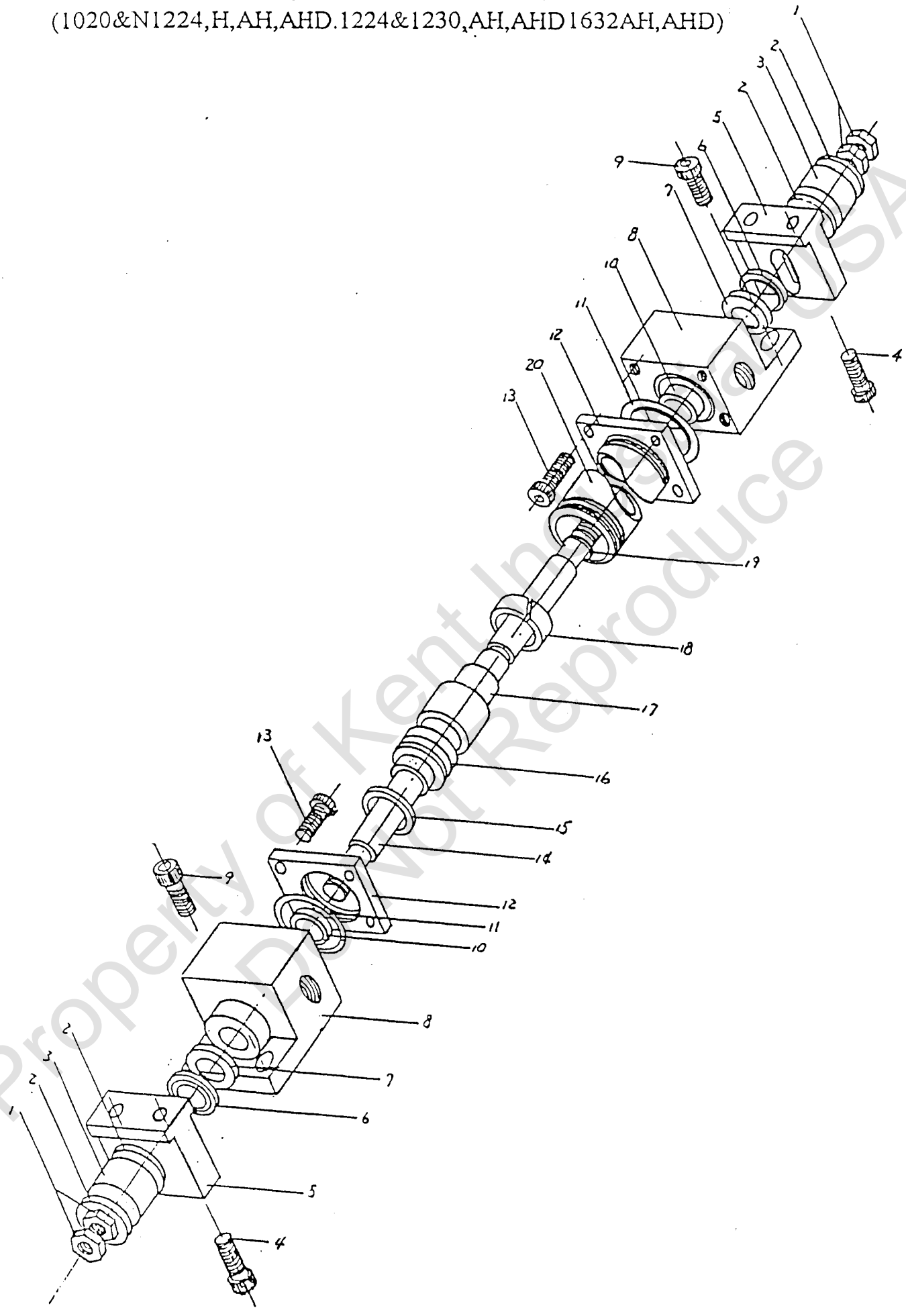
HYDRAULIC CYLINDER ASS'Y

(1020&N1224,H,AH,AHD.1224&1230,AH,AHD1632AH,AHD)



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HYDRAULIC CYLINDER ASS'Y

(1020&N1224,H,AH,AHD.1224&1230,AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	M10*P1.25	Hexagonal Nut	4
2.	1020-629	Washer	4
3.	1020-628	Rubber pad	2
4.	W3/8"*1 3/4"L	Socket Head Cap Screw	4
5.	1020-619	Drawing Seat	2
6.	LBH 20*28*4.5*6	Dust Seal	2
7.	USH 20*28*5	U-Packing	2
8.	1020-A4-06	End Cover	2
9.	W5/16"*3/4"L	Socket Head Cap Screw	4
10.	MB 2012	Du Bush	2
11.	G 30	O-Ring	2
12.	1020-A4-08	Fixed Plate	2
13.	W1/4"*1"L	Socket Head Cap Screw	4
14.	1020-A3-01	Piston Rod	1
15.	P24	O-Ring	1
16.	1020-A4-09	Piston A	1
17.	1020-A4-09-1	Piston B	1
18.	φ 25* φ 30*9.7W	Slide Ring	1
19.	P16	O-Ring	1
20.	1020-A3-02	Cylinder	1

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HYDRAULIC CYLINDER ASS'Y
(1632AH,AHD)

Index No.	Parts No.	Parts Name	Q'ty
1.	M12*P1.25	Hexagonal Nut	4
2.	1632-629	Washer	4
3.	1632-628	Rubber pad	2
4.	W3/8"*1 3/4"L	Socket Head Cap Screw	4
5.	1632-619	Drawing Seat	2
6.	LBH 25*33*4.5*6	Dust Seal	2
7.	USH 25*33*5	U-Packing	2
8.	1632-A4-06	End Cover	2
9.	W5/16"*3/4"L	Socket Head Cap Screw	4
10.	1632-A3-03	Du Bush	2
11.	G 35	O-Ring	2
12.	1632-A4-08	Fixed Plate	2
13.	W1/4"*1"L	Socket Head Cap Screw	4
14.	1632-A3-01	Piston Rod	1
15.	P34	O-Ring	1
16.	1632-A4-09	Piston A	1
17.	1632-A4-09-1	Piston B	1
18.	φ 35* φ 40*9.7W	Slide Ring	1
19.	P21	O-Ring	1
20.	1632-A3-02	Cylinder	1

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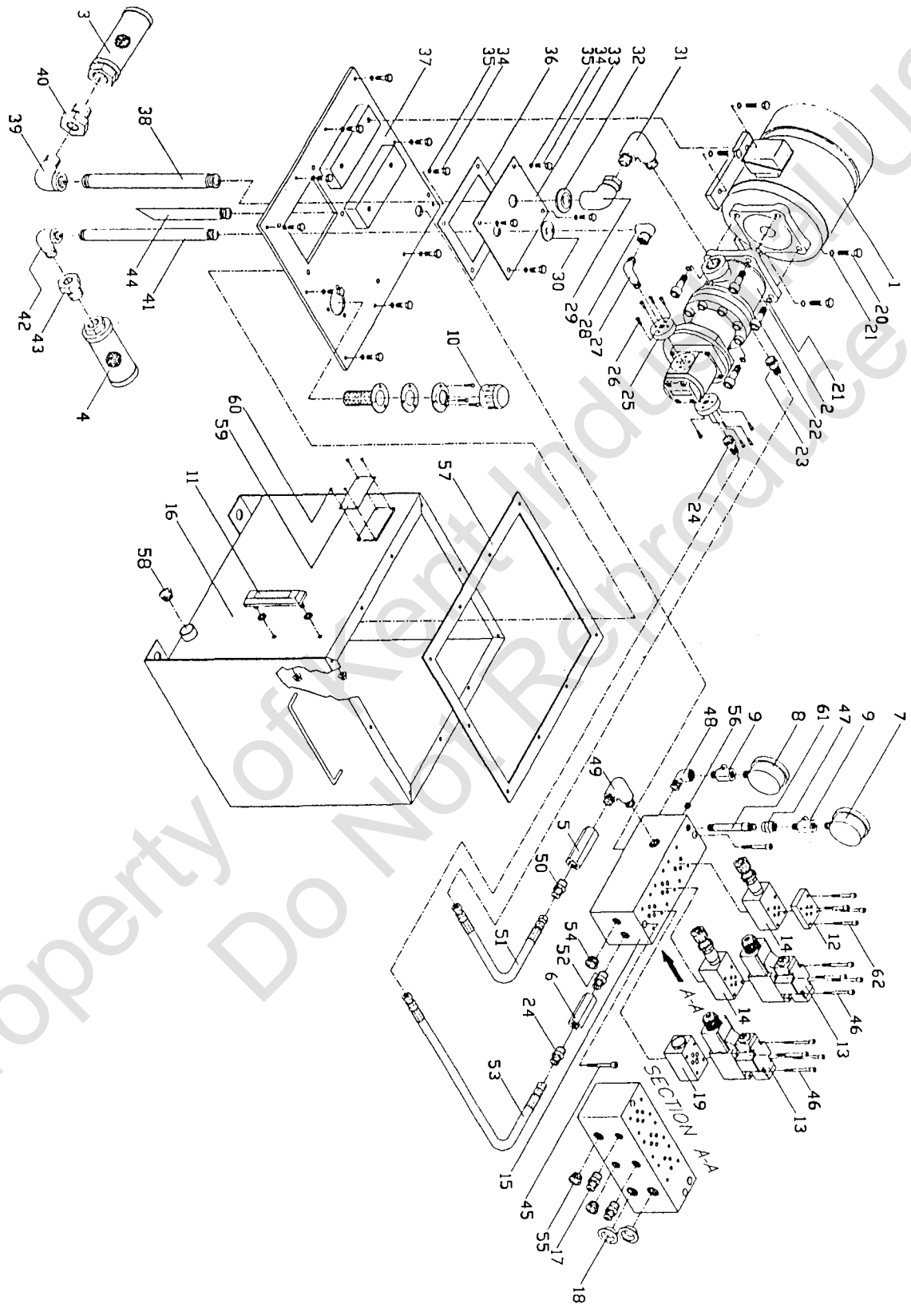
HYDRAULIC PUMP UNIT ASS'Y

(1020AHD,1224AHD)



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HYDRAULIC PUMP UNIT ASS'Y

(1020AHD,1224AHD,1230AHD)

B

Index No.	Parts No.	Parts Name	Q'ty
1.	2HP*6P	Motor	1
2.	VPNCG-F12/4,3-30	Pump	1
3.	SS-1-100	Oil Filter	1
4.	PS-06	Oil Filter	1
5.	CI-T04-05	Check Valve	1
6.	CI-T03-05	Check Valve	1
7.	2 1/2"*70KG	Pressure Gauge	1
8.	2 1/2"*35KG	Pressure Gauge	1
9.	1/4"PT	Gauge Cock	2
10.	AB-1163	Cover Of Hydraulic Oil Filler	1
11.	KS-5	Oil Level Indicator	1
12.	M02-P-A	Cover	1
13.	SWH-G02-C6B-A110-10	Solenoid Valve	2
14.	MRF-02P-0-K	Modular Relief Valve	2
15.	EM-165A	Combination border	1
16.	70T(560*500*460)	Hydraulic Tank	1
17.	1/4"PT*1/4PS	Connector	3
18.	3/8"	Plastic Plug	2
19.	MPC-02A-30	Check Valve	1
20.	M10*30L	Hexagonal Head Screw	4
21.	SWM10	Spring Washer	8
22.	M10*30L	Socket Head Cap Screw	4
23.	3/4"PT*3/8"PS	Connector	1
24.	3/8"PT*1/4"PS	Connector	2
25.	TFP4.3	Flange	2
26.	M5*20L	Socket Head Cap Screw	8
27.	3/8"PT*1/2"PS	Connector (90° Elbow)	1
28.	1/2"PT*1/2"PS(Female)	Connector (90° Elbow)	1
29.	3/4"PT*1/2"PS(Female)	Connector (90° Elbow)	1
30.	ST-04	Dust Rubber	1
31.	1"PT*3/4"PS	Connector (90° Elbow)	1

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HYDRAULIC PUMP UNIT ASS'Y

(1020AHD,1224AHD,1230AHD)

B P.2OF2

Index No.	Parts No.	Parts Name	Q'ty
32.	ST-06	Dust Rubber	1
33.	CP-01	Cover	1
34.	M8*20L	Hexagonal Head Screw	14
35.	SWM8	Spring Washer	14
36.	SS-B01	Asbestos Seal	1
37.	CT-B01	Cover Of Tank	1
38.	3/4"PT*420L	Zinc-Plate Pipe	1
39.	3/4"PT(F)*3/4"PT(M)	Connector (90° Elbow)	2
40.	3/4"PT(F)*1"PT	Bushing	1
41.	1/2"PT*420L	Zinc-Plate Pipe	1
42.	1/2"PT(F)*3/4"PT(M)	Connector (90° Elbow)	2
43.	1/2"PT(F)*3/4"PT(M)	Bushing	1
44.	1/2"PT*210L	Zinc-Plate Pipe	1
45.	M6*65L	Socket Head Cap Screw	2
46.	M5*85L	Socket Head Cap Screw	8
47.	1/4"PT*1/4"PT	Socket	1
48.	1/4"PT(F)*1/4PT(M)	Connector (90° Elbow)	1
49.	1/2"PT*1/2"PT	Connector (90° Elbow)	1
50.	1/2"PT*3/8"PS	Connector	1
51.	3/8"PS*3/8"PS*290L	High Pressure Tube	1
52.	3/8"PT*3/8"PT	Connector	1
53.	1/4"PS*1/4"PS*400L	High Pressure Tube	1
54.	3/8"PT	PT Plug	1
55.	1/4"PT	PT Plug	2
56.	1/16"PT	PT Plug	2
57.	SS-B02	Asbestos Seal	1
58.	1/2"PT	PT Plug	1
59.	NP-B01	Name Plate	1
60.	φ 2*6L	Rivet	4
61.	1/4"PT*1/4"PT	Connector Of Pressure Gauge	1
62.	M5*60L	Socket Head Cap Screw	4

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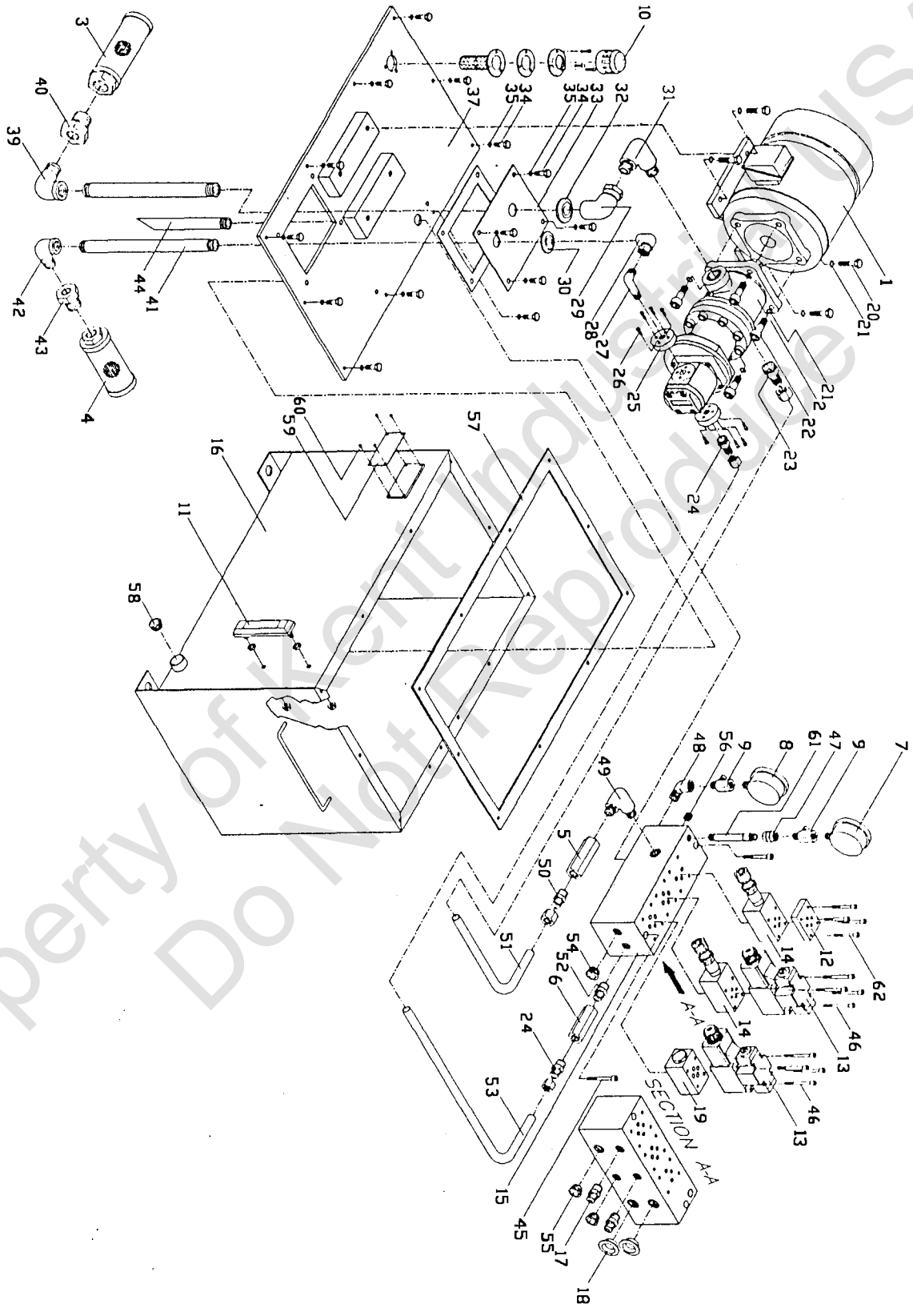
HYDRAULIC PUMP UNIT ASS'Y

(1632AHD)



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HYDRAULIC PUMP UNIT ASS'Y

(1632AHD)

B

Index No.	Parts No.	Parts Name	Q'ty
1.	2HP*6P(50T)	Motor	1
2.	VPNCG-F23/4.3-30	Pump	1
3.	SS-1-100	Oil Filter	1
4.	PS-06	Oil Filter	1
5.	CI-T04-05	Inlet Check	1
6.	CI-T03-05	Inlet Check	1
7.	2 1/2"*70KG	Pressure Gauge	1
8.	2 1/2"*35KG	Pressure Gauge	1
9.	1/4"PT	Gauge Cock	2
10.	AB-1163	Cover Of Hydraulic Oil Filler	1
11.	KS-5	Oil Level Indicator	1
12.	M02 P-A	Cover	1
13.	SWH-G02-B2S-A110-10	Solenoid Valve	2
14.	MRF-02P-0-K	Modular Relief Valve	2
15.	EM-165A	Combination border	1
16.	(800*550*340)	Hydraulic Tank	1
17.	1/4"PT*1/4PS	Connector	3
18.	3/8"	Plastic Plug	2
19.	MPC-02A-30	Check Valve	1
20.	M10*30L	Hexagonal Head Screw	4
21.	SWM10	Spring Washer	8
22.	M10*30L	Socket Head Cap Screw	4
23.	3/4"PT* φ 15mm	LE Connector	1
24.	3/8"PT* φ 12mm	LE Connector	2
25.	TFP4.3	Flange	2
26.	M5*20L	Socket Head Cap Screw	8
27.	3/8"PT*1/2"PS	Connector (90° Elbow)	1
28.	1/2"PT(F)*1/2"PS(F)	Connector (90° Elbow)	1
29.	3/4"PT(F)*1/2"PS(F)	Connector (90° Elbow)	1
30.	ST-04	Dust Rubber	1
31.	1"PT*3/4"PS	Connector (90° Elbow)	1

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B

Index No.	Parts No.	Parts Name	Q'ty
32.	ST-06	Dust Rubber	1
33.	CP-D01	Cover	1
34.	M8*20L	Hexagonal Head Screw	14
35.	SWM8	Spring Washer	14
36.	SS-D01	Asbestos Seal	1
37.	CT-D01	Cover Of Tank	1
38.	3/4"PT*360L	Connector	1
39.	3/4"PT(F)*3/4"PT(M)	Connector (90° Elbow)	2
40.	3/4"PT(F)*1"PT	Bushing	1
41.	1/2"PT*360L	Zinc-Plate Pipe	1
42.	1/2"PT(F)*1/2"PT(M)	Connector (90° Elbow)	2
43.	1/2"PT*210L	Bushing	1
44.	1/2"PT(F)*3/4"PT(M)	Zinc-Plate Pipe	1
45.	M6*65L	Socket Head Cap Screw	2
46.	M5*85L	Socket Head Cap Screw	12
47.	1/4"PT*1/4"PT	Socket	1
48.	1/4"PT(F)*1/4PT(M)	Connector (90° Elbow)	1
49.	1/2"PT*1/2"PT	Connector (90° Elbow)	1
50.	1/2"PT* φ 15mm	LE Connector	1
51.	φ 15mm*2.0t	OST2 Pipe	1
52.	3/8"PT* φ 15mm	LE Connector	1
53.	φ 15mm*1.5t	OST2 Pipe	1
54.	3/8"PT	PT Plug	2
55.	1/4"PT	PT Plug	1
56.	1/16"PT	PT Plug	1
57.	SS-D02	Asbestos Seal	1
58.	1/2"PT	PT Plug	1
59.	NP-D01	Name Plate	1
60.	φ 2*6L	Rivet	4
61.	1/4"PT*1/4"PT	Connector Of Pressure Gauge	1
62.	M5*60L	Socket Head Cap Screw	4

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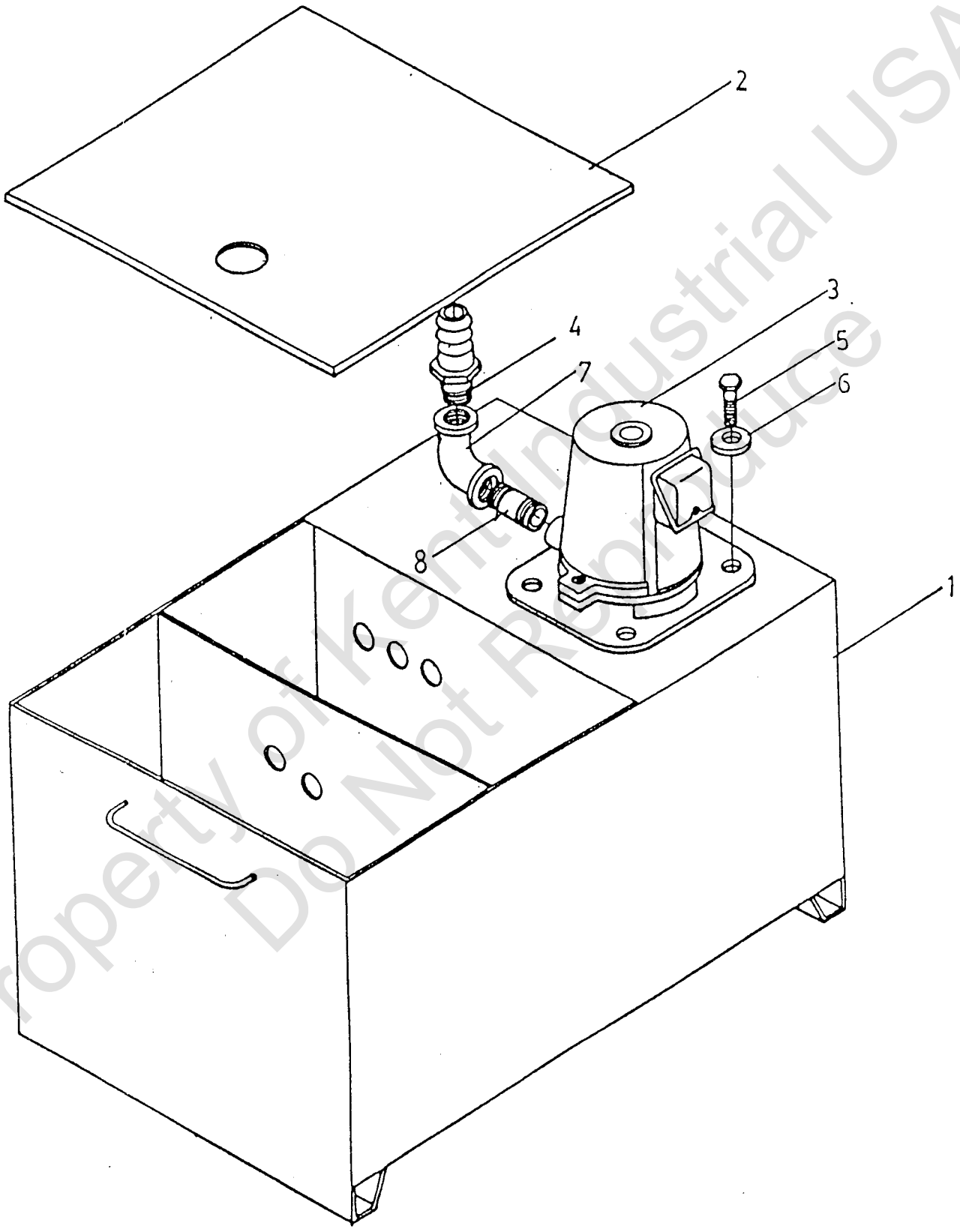
COOLANT SYSTEM (Optional Accessory)



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COOLANT SYSTEM (Optional Accessory)

Index No.	Parts No.	Parts Name	Q'ty
1.	921501	Coolant Tank	1
2.	921502	Coolant Tank Cover	1
3.	MPB1322	Coolant Pump	1
4.	921421	Pipe Connerctor	1
5.	F30404C	Hexagonal Head Screw	4
6.	WWS0004	Washer	4
7.	HELF003	90° Elbow	1
8.	HM00303	Nipple	1

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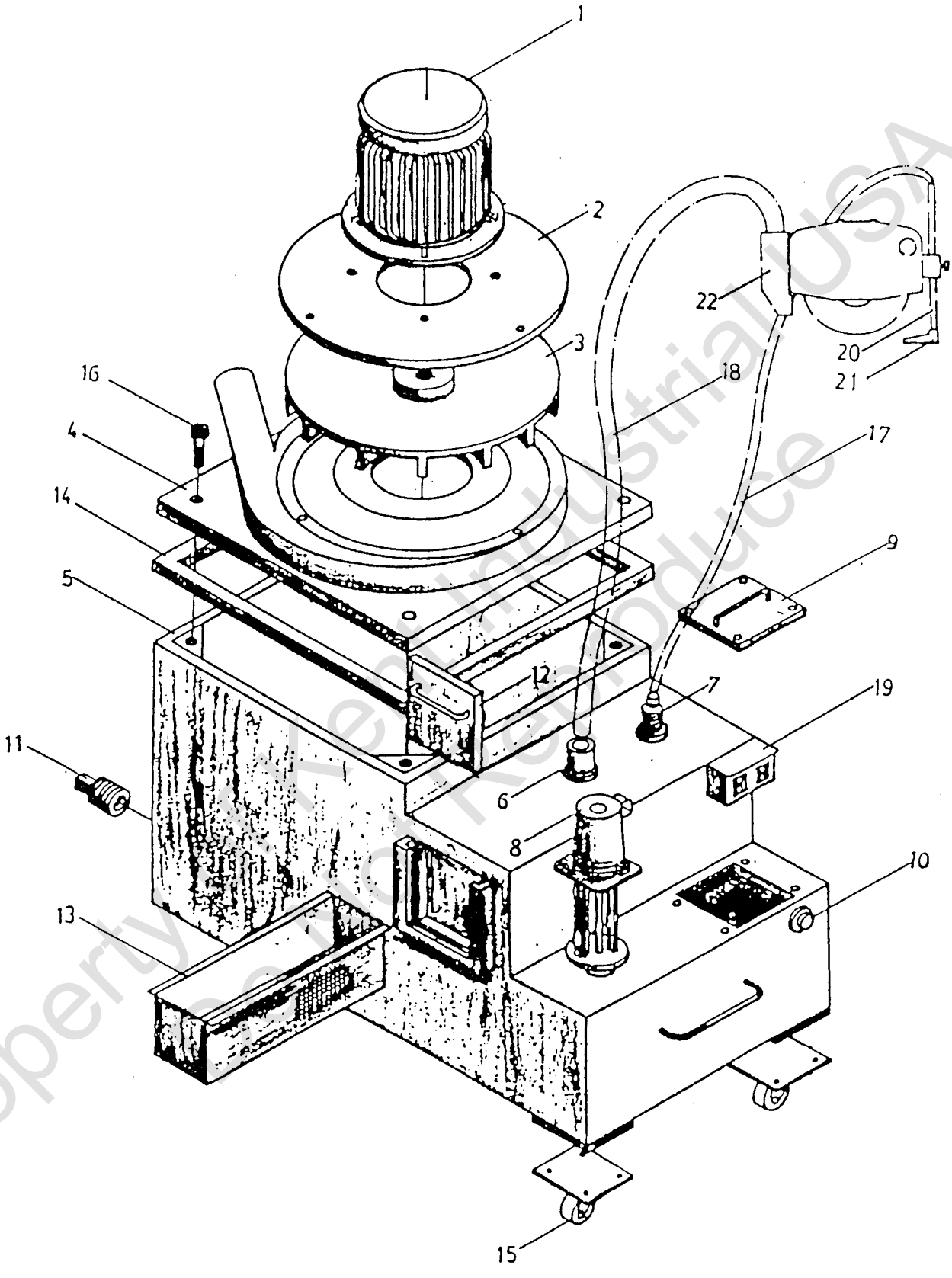
DUST-SUCTION COOLING SYSTEM (Optional Accessory)



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DUST-SUCTION COOLING SYSTEM

Index No.	Parts No.	Parts Name	Q'ty
1.	1/2HP× 2P	Motor	1
2.	1020-07-063	Motor Fixed Plate	1
3.	1020-07-062	Suction Fan	1
4.	1020-07-061	Upper Cover	1
5.	1020-07-060	Tank	1
6.	1020-07-068	Suction Hose Connector	1
7.	1020-07-069	Coolant Hose Connector	1
8.	1/8HP× 2P	Coolant Pump	1
9.	1020-07-064	Cover	1
10.	GM00006	Coolant Indicator	1
11.	W1"	Plug	1
12.	1020-07-065	Filter Cover	1
13.	1020-07-066	Filter	1
14.	1020-07-067	Cover Packing	1
15.	JA00003	Roller Bracked	4
16.	W3/8"× 1"L	Hexagonal Head Screw	4
17.	VA04010	Coolant Hose	1
18.	VB21020	Suction Hose	1
19.	ES9600	On-Off Switch	1
20.	1020-07-070	Coolant Pipe	1
21.	1020-07-008	Coolant Nozzle	1
22.	1020-07-071	Dust-Collector	1

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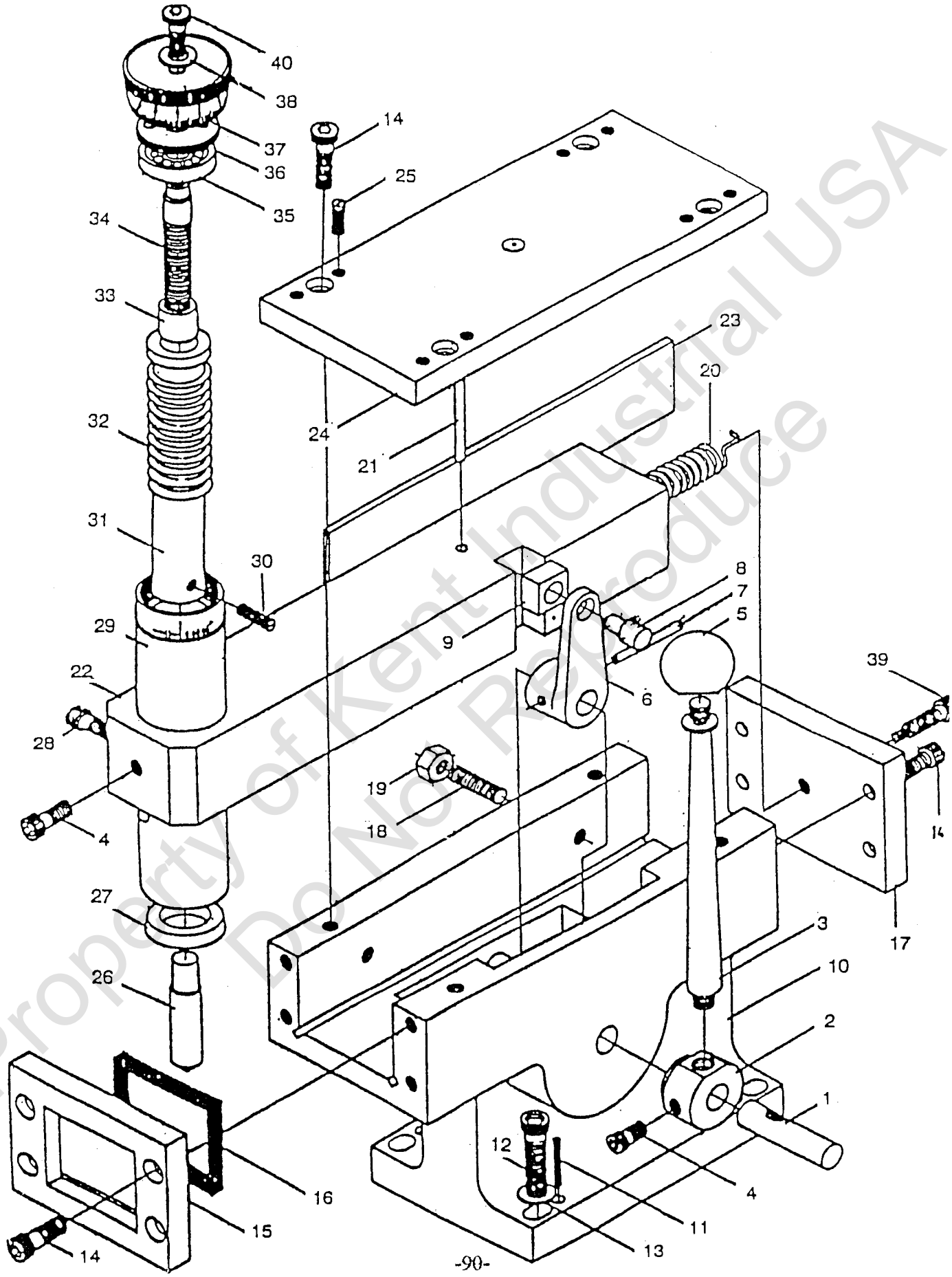
PARALLEL DRESSER
(Optional Accessory)



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PARALLEL DRESSER (Optional Accessory)

Index No.	Parts No.	Parts Name	Q'ty
1.	1020-07-037	Lever Shaft	1
2.	1020-07-038	Shaft Bushing	1
3.	1020-07-039	Lever	1
4.	W1/4"× 1/2"L	Socket Head Cap Screw	2
5.	1020-07-040	Knob	1
6.	1020-07-041	Arm	1
7.	ϕ 4× 20L	Pin	1
8.	1020-07-042	Pin Shaft	1
9.	1020-07-043	Slid Block	1
10.	1020-07-030	Parallel Dresser Base	1
11.	W1/4"× 3/8"L	Set Screw	2
12.	W1/4"× 1 1/2"L	Socket Head Cap Screw	4
13.	W1/4"	Washer	4
14.	W3/8"× 1/2"L	Socket Head Cap Screw	12
15.	1020-07-33	Front Cover	1
16.	1020-07-035	Oil-Immersed Pad	1
17.	1020-07-034	Rear Cover	1
18.	W1/4"× 1/2"L	Set Screw	3
19.	W1/4"	Nut	3
20.	1020-07-044	Spring	1
21.	ϕ 5× 24L	Pin	1
22.	1020-07-031	Slider	1
23.	1020-07-036	Gib	1
24.	1020-07-032	Upper Cover	1
25.	W1/4"× 3/8"L	Socket Head Cap Screw	8
26.	1020-07-045	Diamond Tip	1
27.	RZ-20	U-Packing	1
28.	W3/8"× 1"L	Socket Head Cap Screw	1
29.	1020-07-046	Adapter	1
30.	1020-07-047	Set Screw	1
31.	1020-07-048	Diamond Tip Holder	1
32.	1020-07-049	Spring	1
33.	1020-07-050	Copper bush	1
34.	1020-07-051	Leadscrew	1
35.	# 6200ZZ	Bearing	1
36.	1020-07-052	Cover	1
37.	1020-07-53	Graduation dial	1
38.	1020-07-054	Washer	1
39.	1020-07-055	Spring Fix Screw	1
40.	W3/8"× 1/2"L	Socket Head Cap Screw	1

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