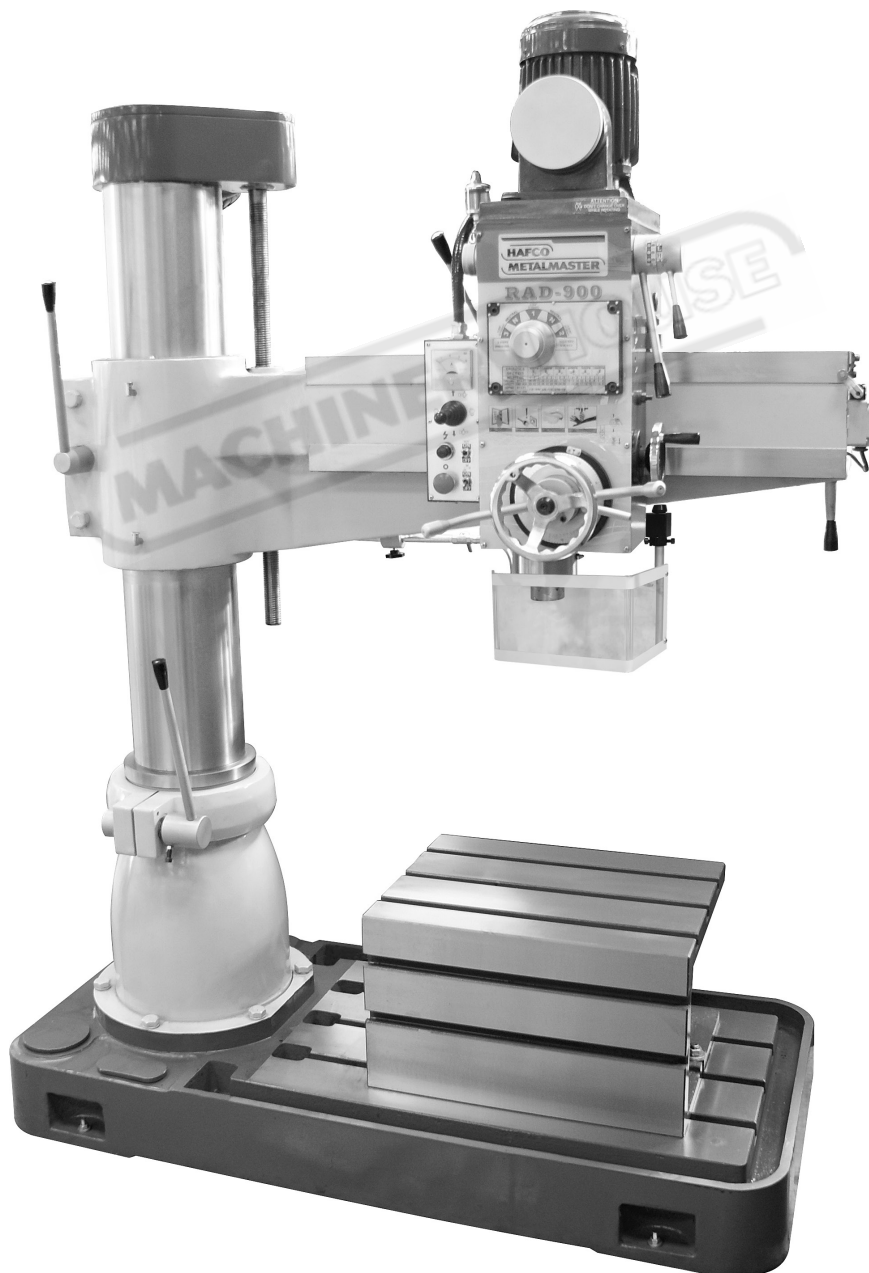


# INSTRUCTION MANUAL

## RAD-900 Radial Arm Drill (415V) 38mm Drilling Capacity



D165

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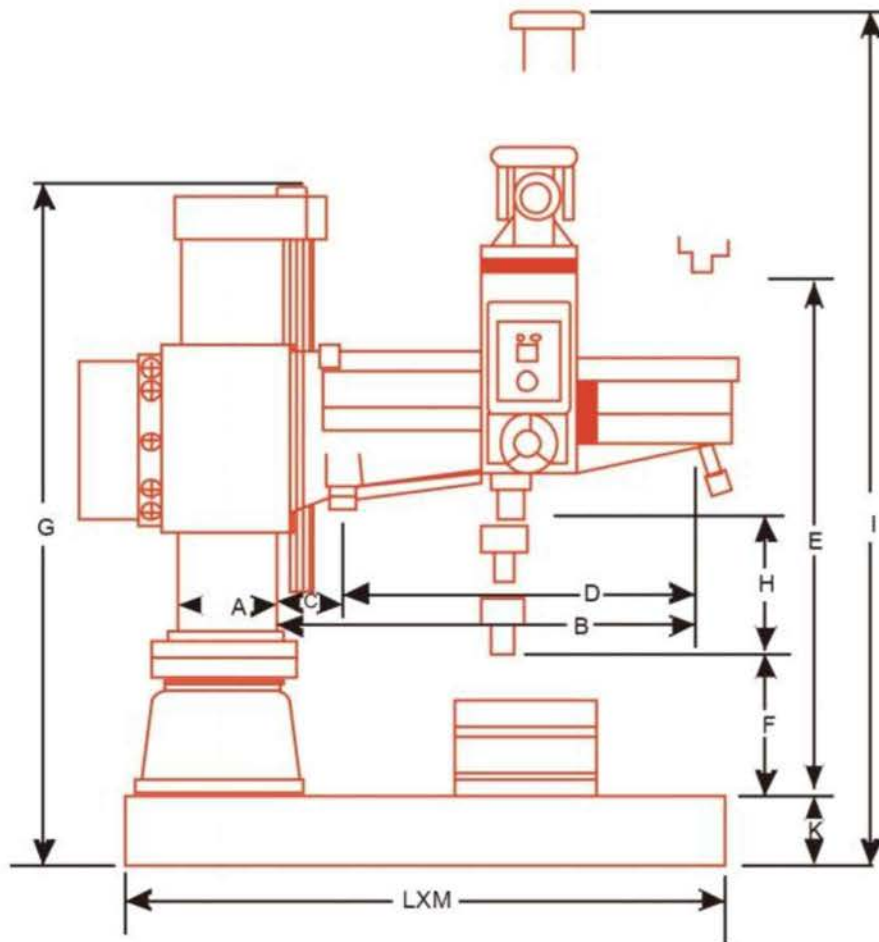
## *Machine Specification*

MODEL		unit: mm		<b>750 / 900</b>
Capacity	Drilling	Steel		Ø38
		Cast-iron		Ø50
	Tapping	Steel		Ø25
		Cast-iron		Ø32
	Boring	Steel		Ø75
		Cast-iron		Ø105
<b>Spindle stroke</b>			<b>H</b>	200
<b>Size of Morse Taper</b>				NO.4
<b>Spindle speed</b>				88-1500(6)
<b>Spindle Feeds</b>				(0.05-0.15)
<b>Column Diameter</b>			<b>A</b>	210
<b>Max. distance, column surface spindle center</b>			<b>B</b>	765/910
<b>Min. distance, column surface spindle center</b>			<b>C</b>	290
<b>Horizontal Travel of Headstock</b>			<b>D</b>	500/650
<b>Max. distance, base to spindle</b>			<b>E</b>	1110
<b>Min. distance, base to spindle</b>			<b>F</b>	282
<b>Overall height of column</b>			<b>G</b>	1850
<b>Machine height of column</b>			<b>I</b>	2175
<b>Dimensions of base [L x W x H]</b>			<b>750</b>	1280 x 640 x 150
			<b>900</b>	1435 x 640 x 150
<b>Effective area of table</b>				550 x 405 x 315
<b>Spindle drive motor [HP]</b>				2HP
<b>Arm elevation motor [HP]</b>				1HP
<b>Coolant pump [HP]</b>				1/8HP
<b>Net weight-Approx [kg]</b>				1100/1170kgs
<b>Gross weight -Approx [kg]</b>				1200/1270kgs
<b>Measurement [ L x W x H ]</b>			<b>750</b>	1430 x 820 x 2060
			<b>900</b>	1580 x 820 x 2060

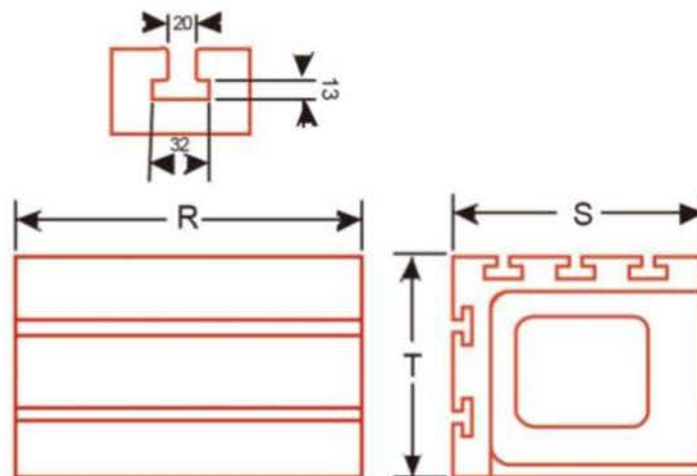
### Standard accessories:

Tools	1 set	Cooling pump	1set
Lamp	1 set	Table	1set

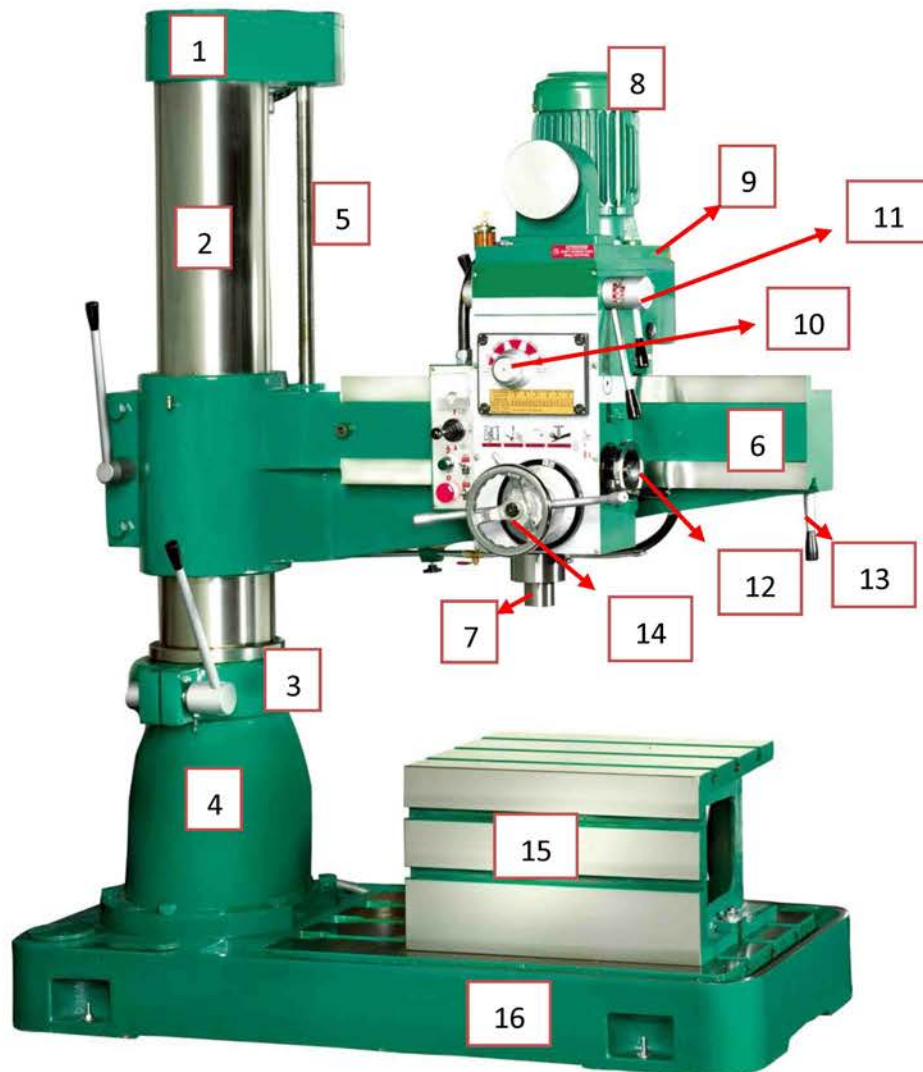
## Machine dimension



## Table & T slot



## *Machine Feature*



1. Elevating worm gear box and motor
2. Column sleeve
3. Column fixed ring
4. Column
5. Elevating screw
6. Radial Arm
7. Spindle
8. Spindle motor

9. Gear box
10. Feed change handle
11. Step speed handle
12. Feeding handle
13. Wheel manual
14. Gear box moving wheel
15. Table
16. Base



## *CE Optional tools*

Due to CE safety regulations, the electrical control panel box will be different compare to regular type. The spindle cover displays as the picture below equipped with power-off protection when the cover is opened.



*\*Electrical control panel box*

The quartz working lamp and the spindle safety cover are optional parts.



*\*The quartz working lamp and the spindle safety cover*

## *Machine Set up*

1. After dismantle wooden case, take out the manual, toolbox or other accessories shipped with the machine. After that, please loose the fixing screws used to fix machine on the skid.

(Photos: Machine set up before shipment)



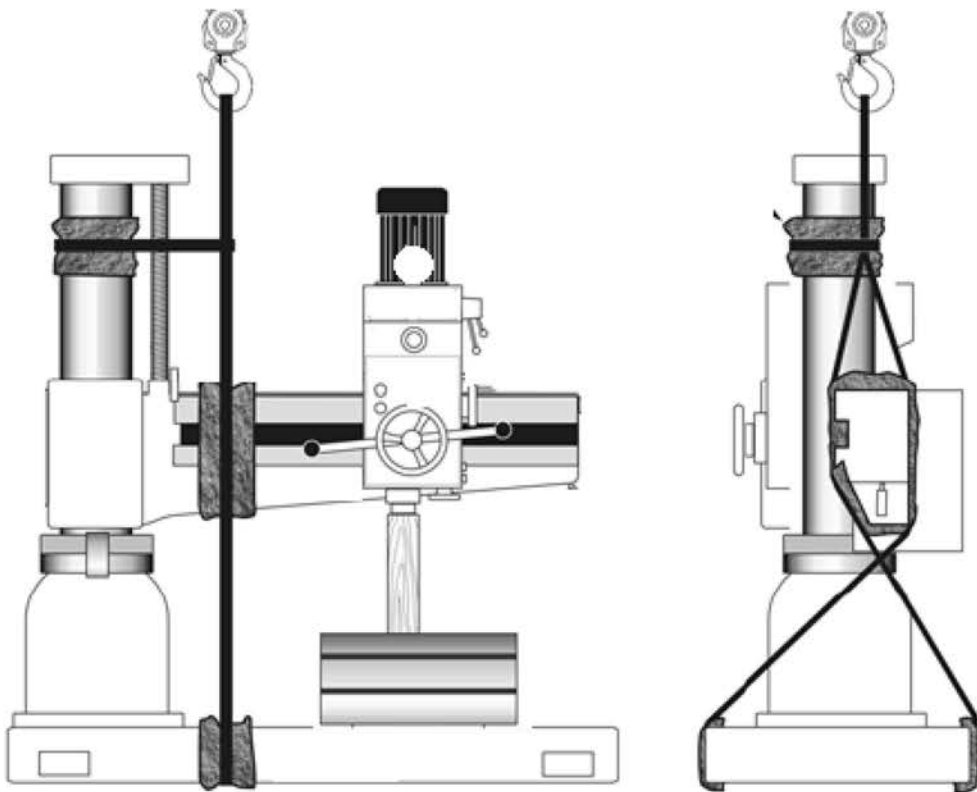
**2. Prepare the soft materials (as cushion), hook, ropes.**

**Lift equipment: Select the appropriate load of the crane device. (more than 3 ton)**

**The foundation floor must be very Good structure.**

- Rope the overall unit and put soft material at the place where the rope contact with the surface of the machine to prevent machine surface.
- Lift it up and move it to the position of installation.

***Hanging direction***



1. hole for J bolt
2. hole for levelling screw



Machine back side view



## Foundation Plan

The floor should be solid and well-structured and good level.

### 1. Using leveling screw and pad: standard accessories with machine.



Leveling screw

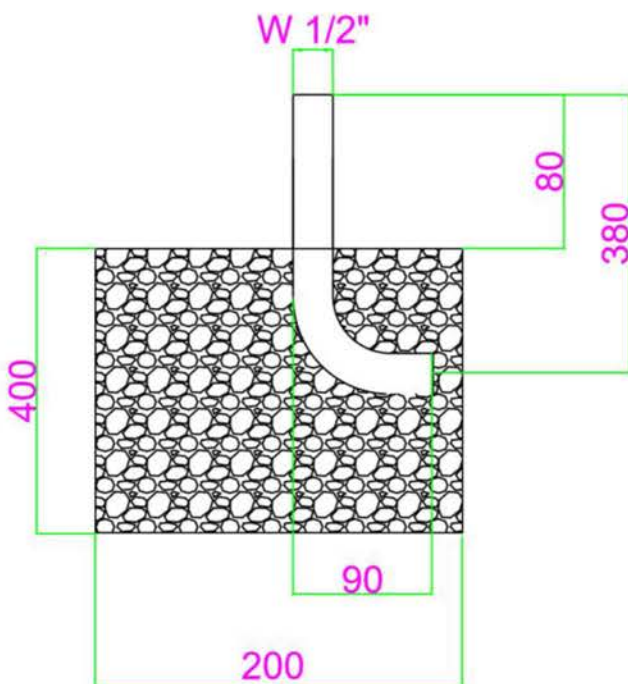
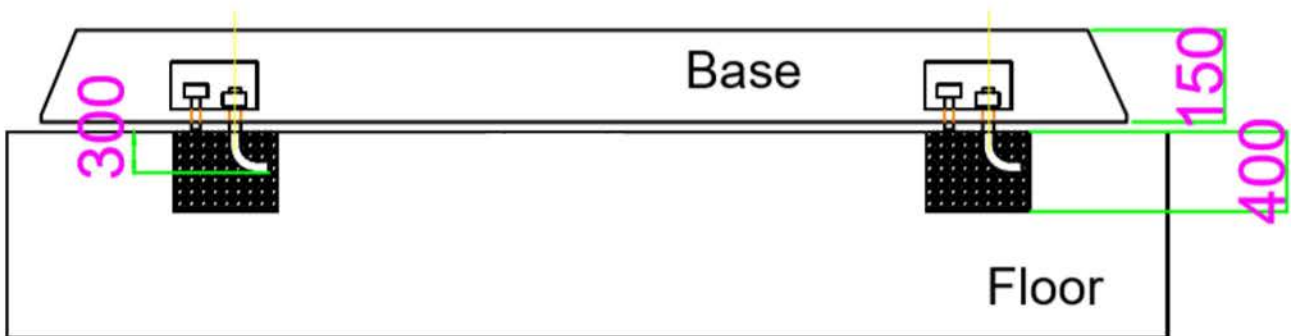


Leveling pad

(Machine back side view)

### 2. Using the foundation bolt. Supplied via end user.

Front side perspective

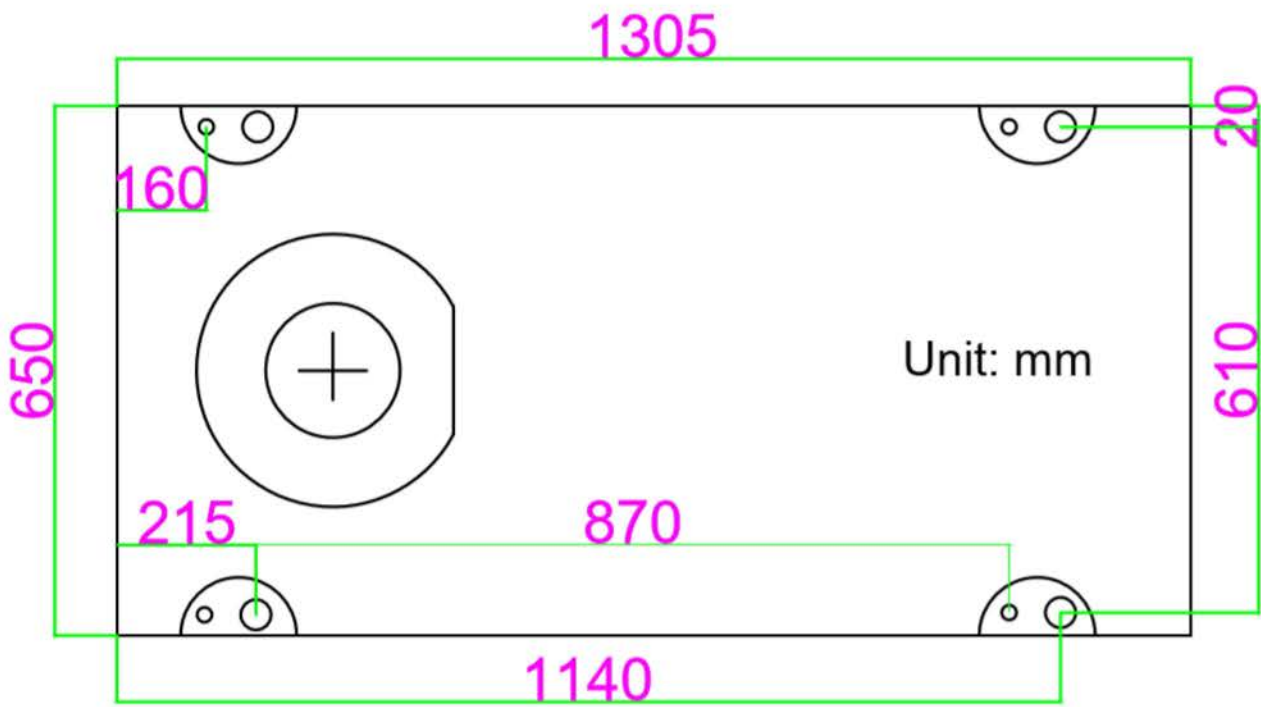


## **Floor dimension**

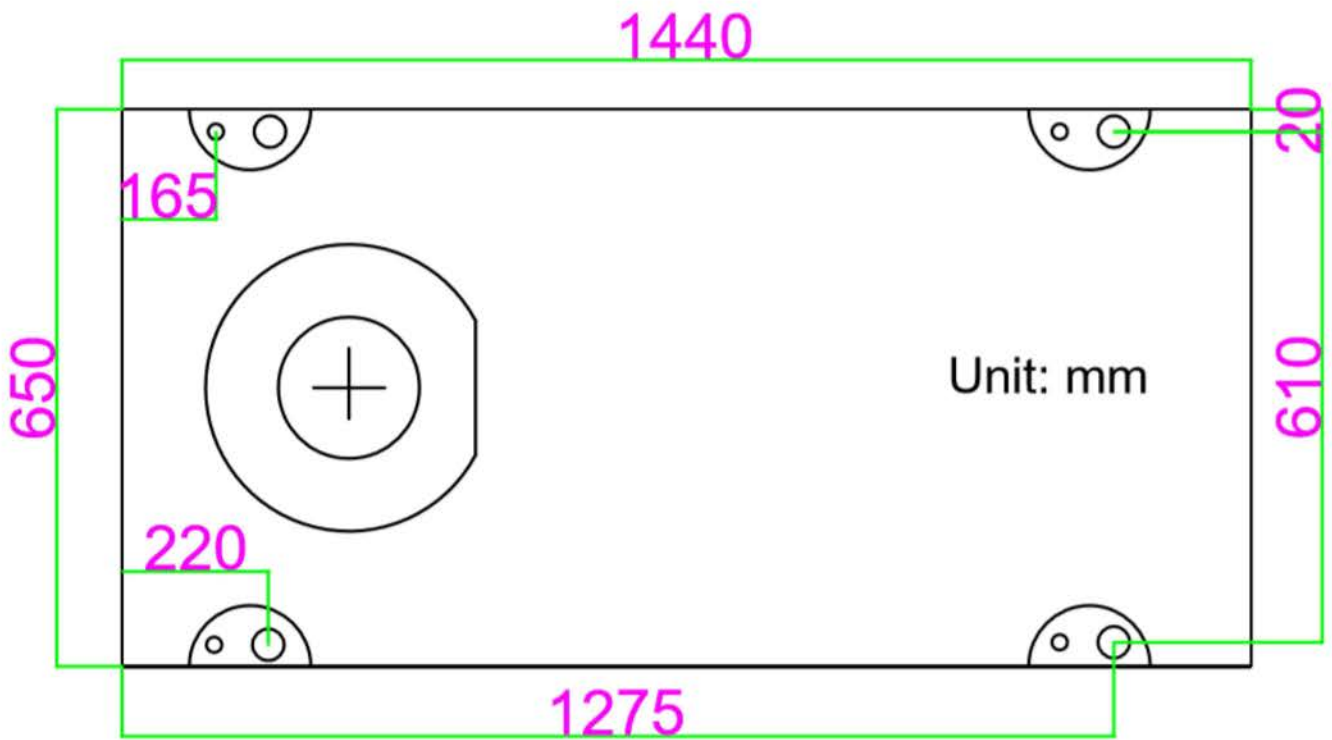
- **While installation**, let the leveling screw pass through the holes on the machine base, then put the machine on the foundation, put the leveling pad under the base.
  - Let the leveling anchor bolts (J bolt) pass through the holes on the machine base.
  - Wipe away the antirust oil on the surfaces of base, column, arm and spindle, etc. and check the machine surface.
- 
- **Level Adjustment:** It shall be performed following the sequence.
    1. Adjust all the precision accuracy and ensure that these precision values cannot be greater than the actual measured values recorded before shipment.
    2. After the machine is adjusted properly, tighten the nuts of the anchor bolts, and leveling screw.
    3. Fill the anchor bolts with cement.

**In order to prevent the level of the machine from changing, it is necessary to make a final correction with a level gauge.**

**Floor Dimension for 750**



**Floor Dimension for 900**



## ***Post-Installation***

- **Connect properly general power supply incoming line.**  
After the machine is properly installed, the most important point is that the main power cable is properly connected.
- **Inspect oil leakage at all the oil pipe joints, oil window, oil leveler and associated parts of the machine tool, please disassemble and reassemble if necessary.**
- **Start the machine and check function whether the moving parts of the machine is in normal state.**
  1. Positive and negative rotation of the spindle,
  2. Different stages of the spindle speed,
  3. Different levels of the spindle feed.
  4. Start and stop of the spindle,
  5. Lifting of the radial arm,
  6. Clamping and loosening of the column and spindle
  7. Limit stroke of the headstock, limit stroke of the radial arm, spindle and feed.

**If all the components mentioned above are in the normal state, let the machine run for 30 minutes.**

If all the conditions are running smoothly without warning signal, the machine should be good for use.

## **Erection and Test Run**

After moving the machine to the erection location, proceed as follows:

1. Put a level on the box table and level the machine.  
**(level gauge tolerance should be within 0.02mm/m)**
2. Keep the good level and tighten the leveling screw and nuts.
3. Release the fixation of each part.
4. Wipe the sliding surface and apply oil.

⇒ After cleaning each part, carry out grease or oil and prepare for the test.



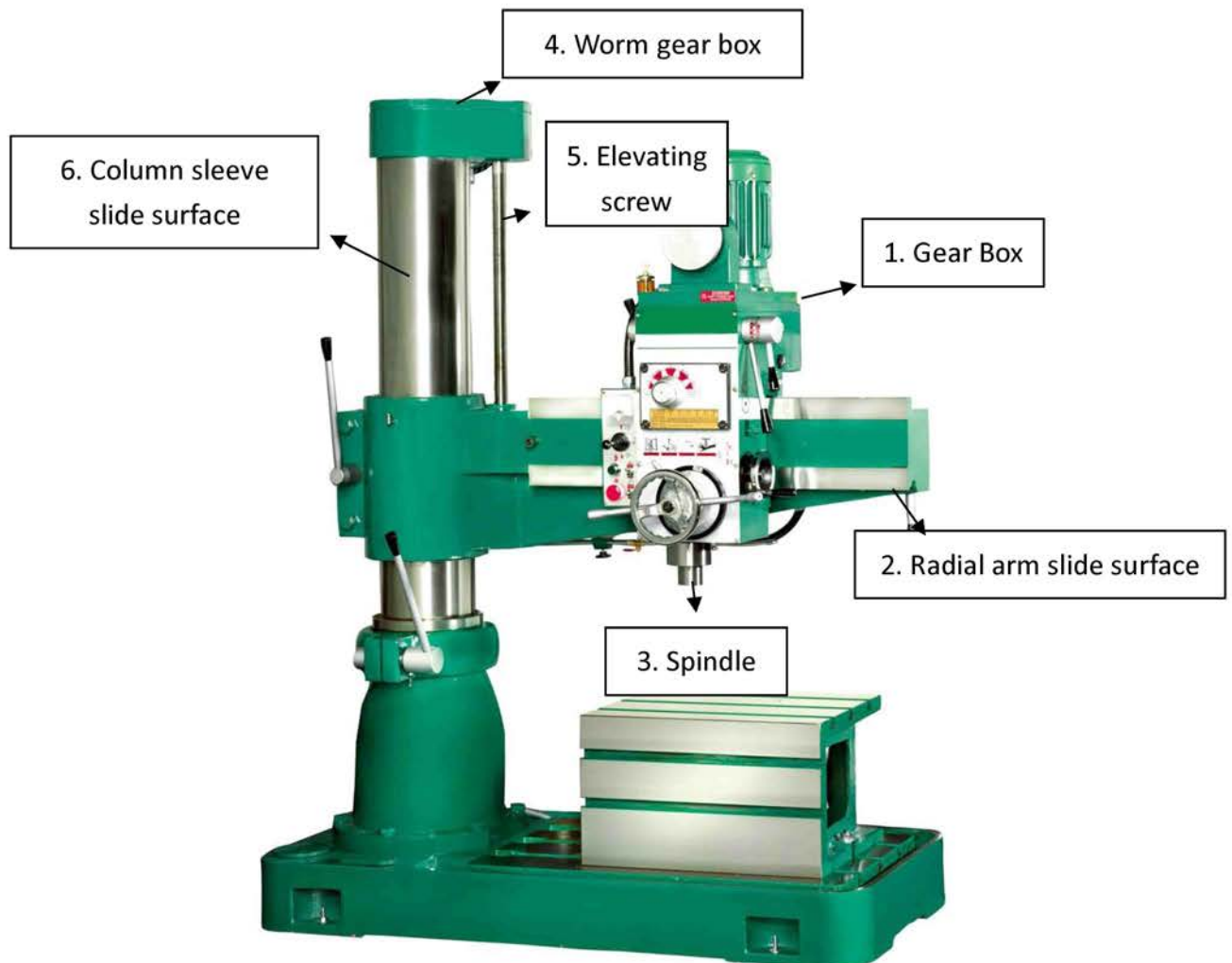
### ***Operation for Test run***

1. Wipe the dust and oil stain on the machine and apply a layer of oil.
2. Switching power supply.
3. Apply enough lubricant to each part.
4. First operate the rotating part by hand, then start the motor and turn each split turn.
5. Check the limitation of the automatic stop of the rotating parts.
6. Check that the lubrication path is good.
7. The spindle rotates at high speed for ten minutes. Check the rise temperature of the bearing.
8. Pay attention to each part whether there is any bad situation occurs or not.

## *Lubrication Maintenance*

<b>Maintenance Parts</b>	<b>Proper Oil</b>	<b>Time</b>	<b>Methods</b>
<b>1.Gear Box</b>	Shell Omala 220	Twice a year	Exchanging Oil
<b>2. Radial Am Slide Surface</b>	Shell Tonna T68	Once a month	Make Up
<b>3.Spindle</b>	Grease	Twice a year	Make Up
<b>4. Worm Gear Box</b>	Shell Omala 220	Twice a year	Exchanging Oil
<b>5.Elevating Screw</b>	Shell Tonna T68	Daily	Make Up
<b>6.Column Sleeve Slide Surface</b>	Shell Tonna T68	Daily	Make Up

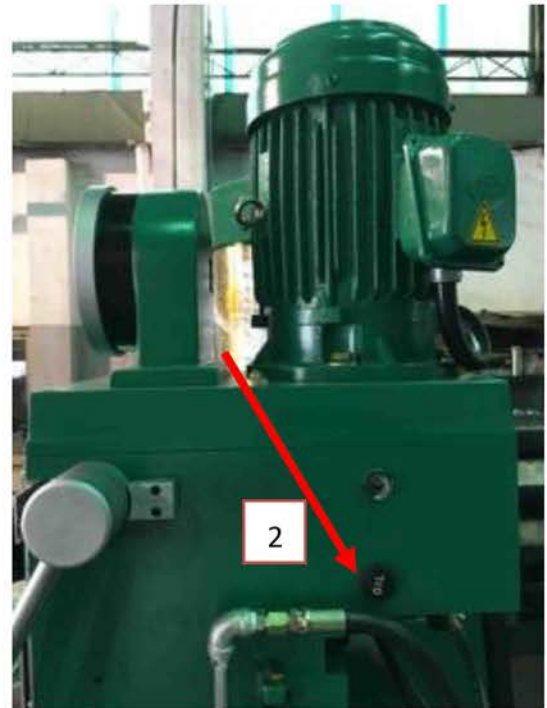
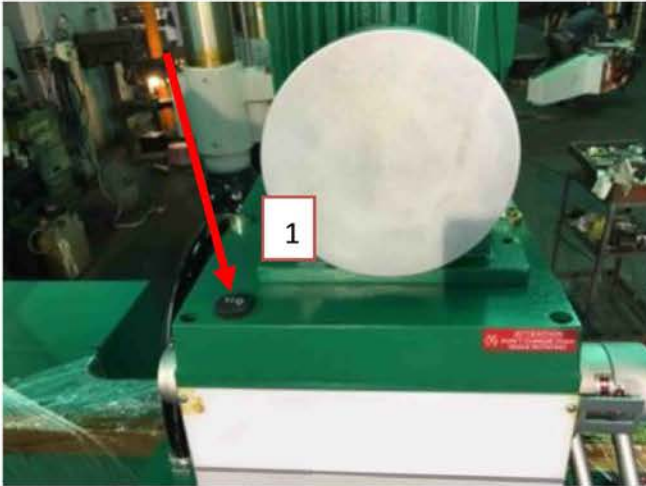
### *Lubrication details position*



## 1. Gear box (Shell Omala 220)

(1) Oil filter point (Drawing on page 42. Index no. 15)

(2) Oil gauge and drain outlet



## 2. Radial Arm Slide Surface (Shell Tonna T68)

Oil filter point (drawing on page 45 Index no.56)



### 3. Spindle (Grease)

Oil filter point (drawing on page 50. Index no.8)



### 4. Worm Gear Box (Shell Omala 220)

(1) Oil filter point on top of worm gear box cover (drawing on page 37. Index no. 14)

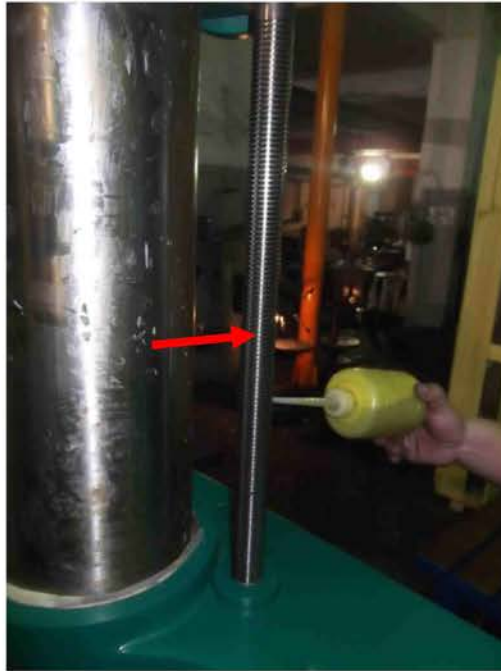
(2) Oil gauge and drain outlet (at side of worm gear box, see drawing on 37. Index 1, 30.31.)





**5.Elevating screw (Shell Tonna T68)**

Oiling on the surface directly



**6.Column Sleeve Slide Surface (Shell Tonna T68)**

Oil filter point (drawing on page 40. Index no. 18)



## *Machine Operation Manual*

### *1. Start and stop of machine spindle*

Start the machine spindle to the right position and reverse its rotation, then stop it.

### *2. Change speed and feed rate of the machine spindle*

The drill diameter is used according to the material of the processed product. Choose the right speed and feed rate.

### *3. Establishing processing depth*

The magnitude that needs to match the scale. Secure it with the handle.

### *4. Moving gear box*

Moving the front and operating with handle after revolving gear housing

### *5. Radial Arm-lift*

Operating radial lift with cross control handle switch. It indicates up, stop and down from the top to the bottom of the handle.

### *6. Safety Gear*

a. Feed of Machine spindle:

**Overload of self-feed. Stopping sliding feed through spherical clutch.**

b. Upper limit of machine spindle:

**Cut power supply through micro switch.**

c. Lower limit of machine spindle:

**Withdrawing self-feeder through arm and feeding through running idle.**

d. Radial arm lift:

**Equipping upper limit and lower limit with limit switch to cut off lift motor electrical return.**

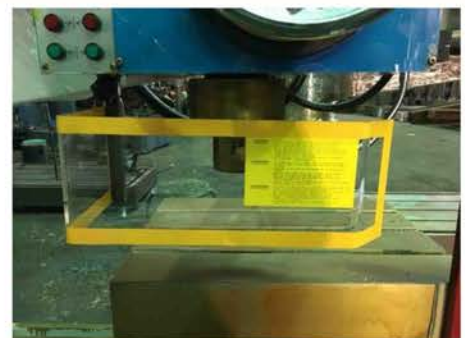
e. Motor overload:

**Each motor return is equipped with lead wire. Cutting off return immediately when it overloads.**

f. The protection cover must be close during machining. (CE optional accessory) the spindle must stop rotation, when the cover is open.

### **CE Safety Regulation**

*Due to CE safety regulations. After power off, all function keys need to be returned to its original positions. It can be restarted and used normally*



A. Ampere indicator: It control spindle motor loading, when the motor is overloaded, the load switch will be skipped.

B. 4 way select switch:

**Top: Arm-lift**

**Low: Arm-down**

**Right: Arm rotate right side**

**Left: Arm rotate left side**

C. Power ON switch

D. Power OFF switch

E. Work light switch

F. Coolant pump switch





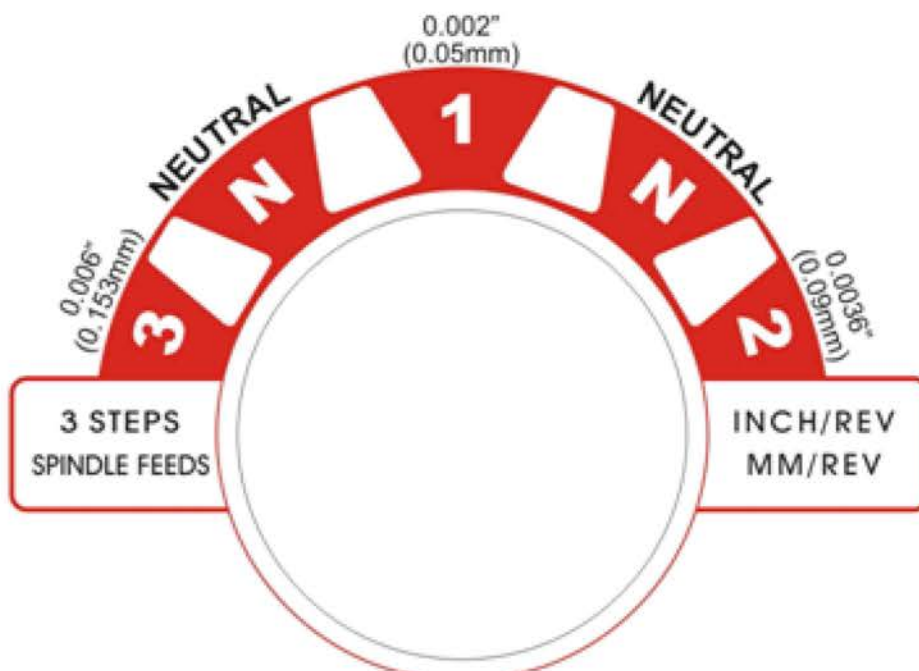
## Spindle speed chart

Data plate for the recommend spindle speed for drilling, tapping operation.

- **Speed list** ∞ (at 50 or 60HZ)
  - e.g. 88rpm is at 60HZ speed/ 73 is at 50HZ speed when it is at H speed mode.
- **H: High, L: Low:** (By switching Motor Switch to alter HP (4P/ 8P))
- **SELECTION 1, 2 or 3:**
- Feed-rate when the spindle rotates one revolution at auto feeding mode.
- **Drilling Capacity:** e.g. 40 which is drill diameter
- **Tapping Capacity:** Selection for different tapping capacity.

SPINDLE SPEEDS		88RPM (73)	154RPM (128)	282RPM (234)	455RPM (379)	796RPM (663)	1500RPM (1250)												
60 (50) ∞																			
SELECT ON		1	2	3	1	2	3	1	2	3	1	2	3	1	2	3			
DRILLING CAPACITY	STEEL	38	29	25	28	23	20	20	17	14	16	12	14	10	9	8	8	6	4
	CAST IRON	50	42	35	38	32	29	29	24	20	22	24	20	17	12	10	12	10	8
TAPPING CAPACITY	STEEL	32~12			10~6			5~3			/			/			/		
	CAST IRON	32~12			10~6			5~3			/			/			/		

## Feed rate control knob:

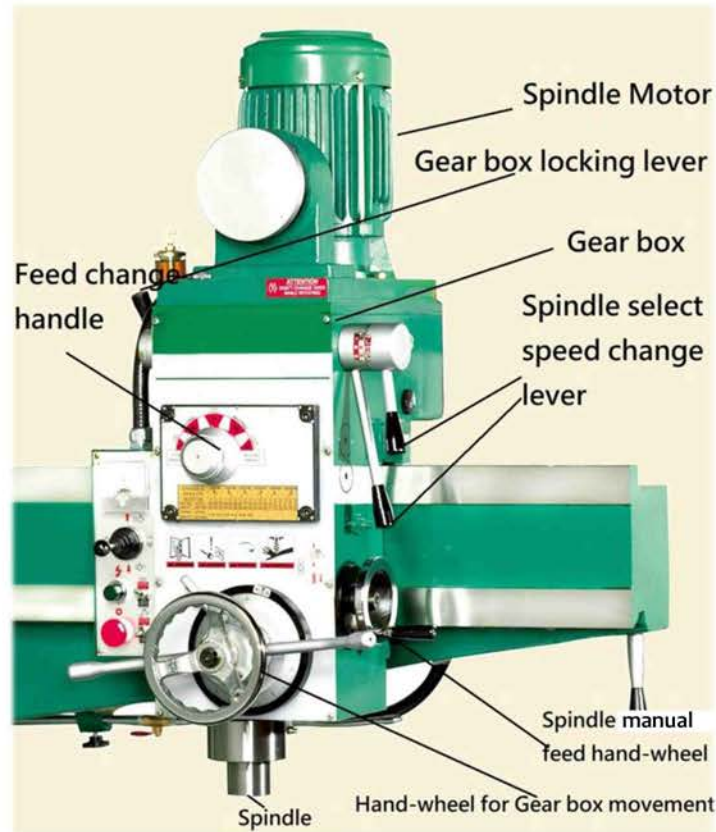


### CAUTION:

- When the gearbox is at **Neutral** position, the power feed is not operated on quill.
- Feed Lever should be at auto feed mode (Push-in the lever)



-when Perform **Spindle manual feed hand-wheel** (the speed feed knob should be at N position)



-Feed Lever: to change the feed to auto or manual mode:

**Auto mode: push in the lever**

**Manual mode: pull out the lever**

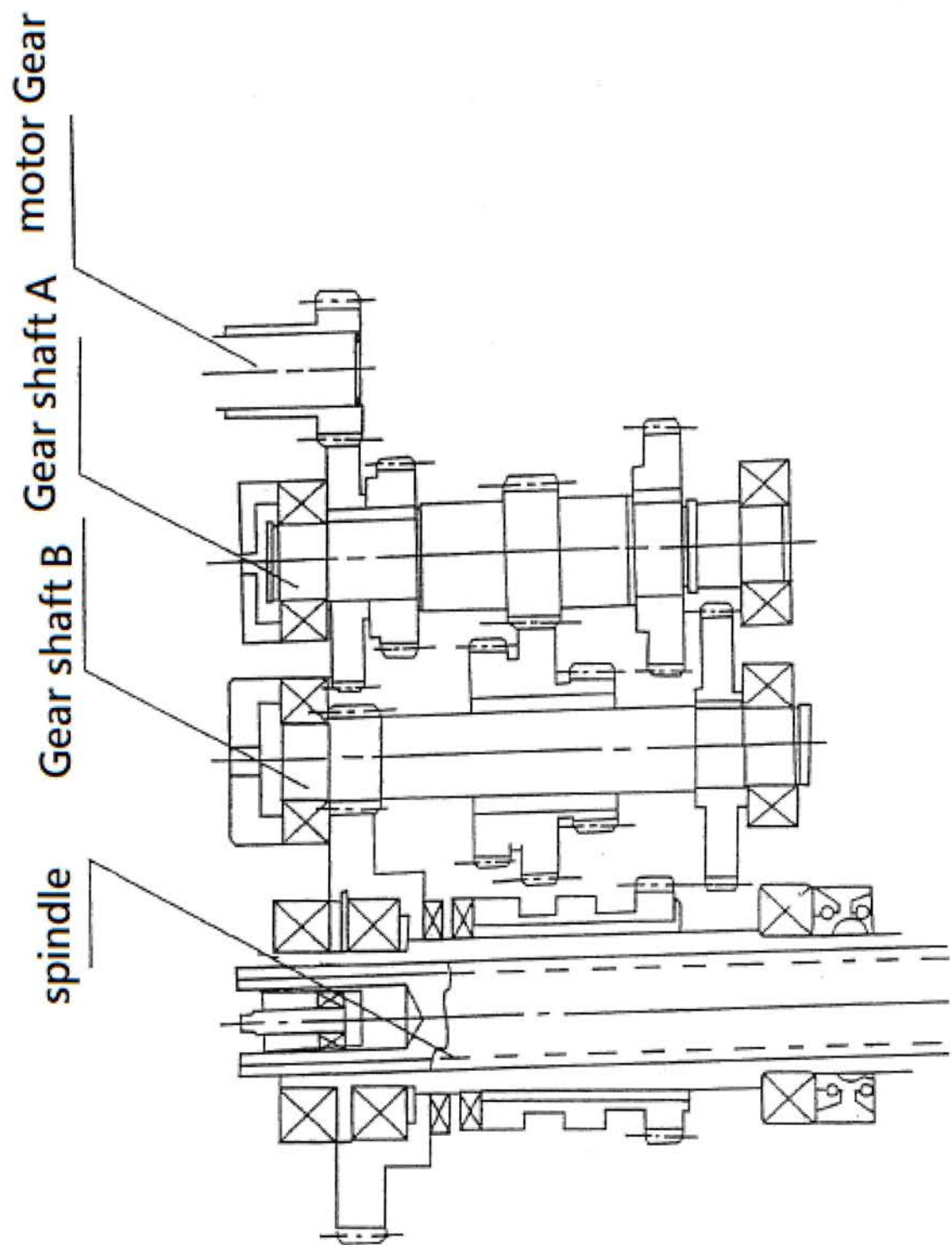
-Graduation collar to set the drilling depth, ex. when spindle drill touch the table surface,  
To perform the 30mm drilling process, Graduation should be set to 30.

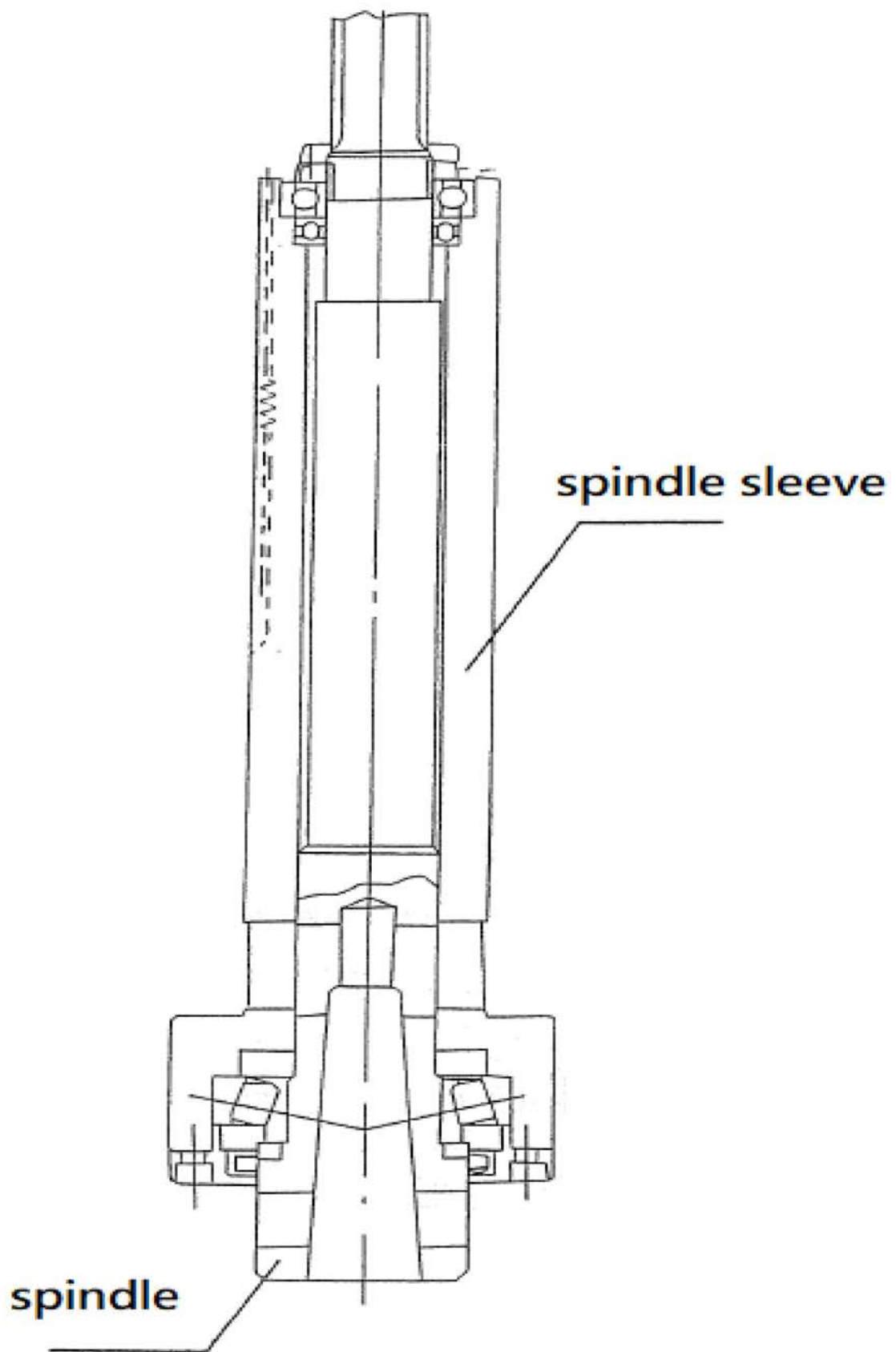
-Eccentric lever: it should lock when perform the auto feed.

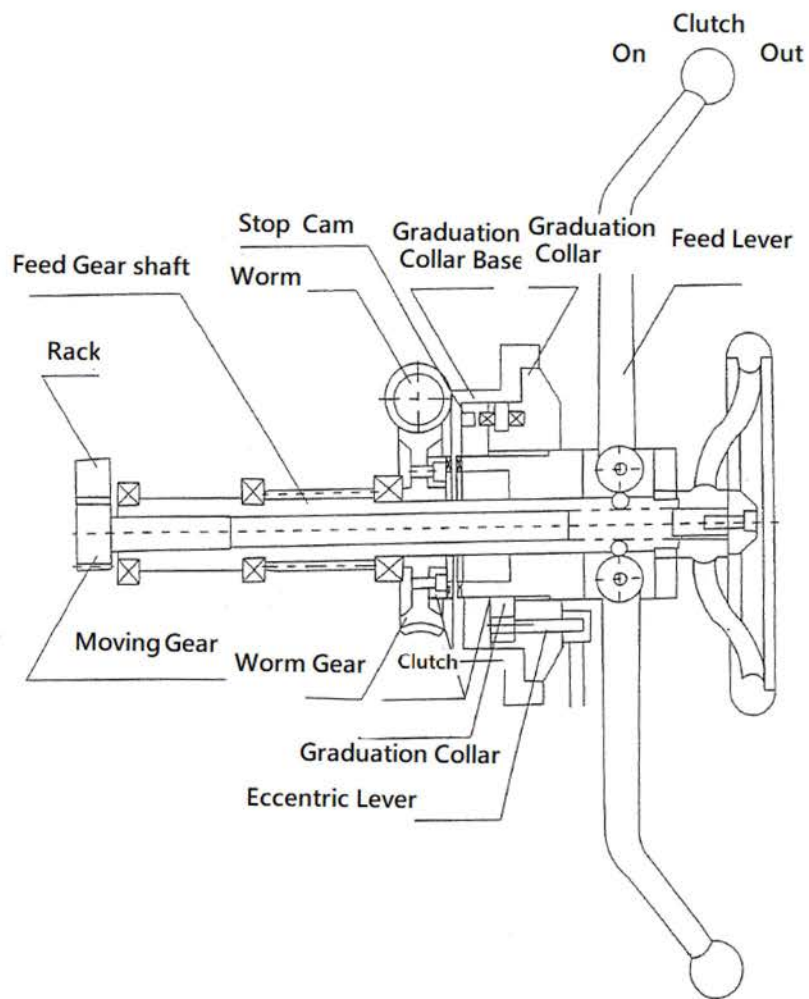
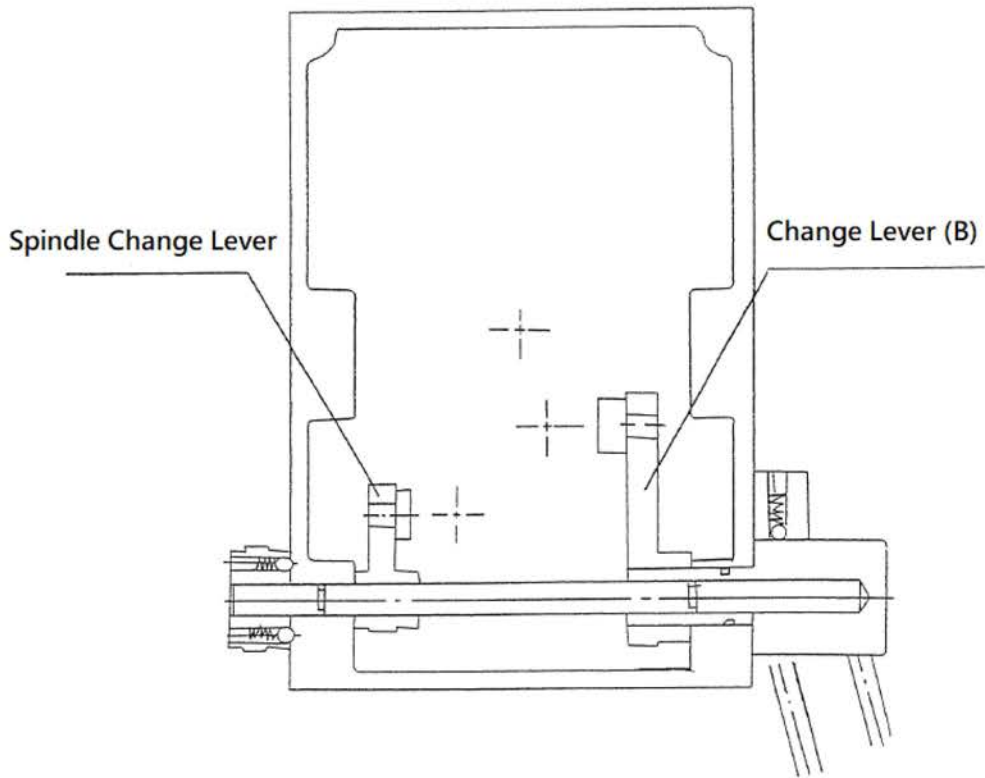


Feed lever

Eccentric lever









## Machine Adjustment

Adjustment is to make machinery manifest its most perfect action under good condition. Therefore, do not adjust without authority. If someone need to do the adjustment, please perform according to the following steps carefully.

### 1. Adjusting gapping place and clamp measure of radial arm.

It could be adjusted to be loose or tight through Front/ Rear of knob handle. Adjust gapping place with regulating bolt, **do not let motor overload.**

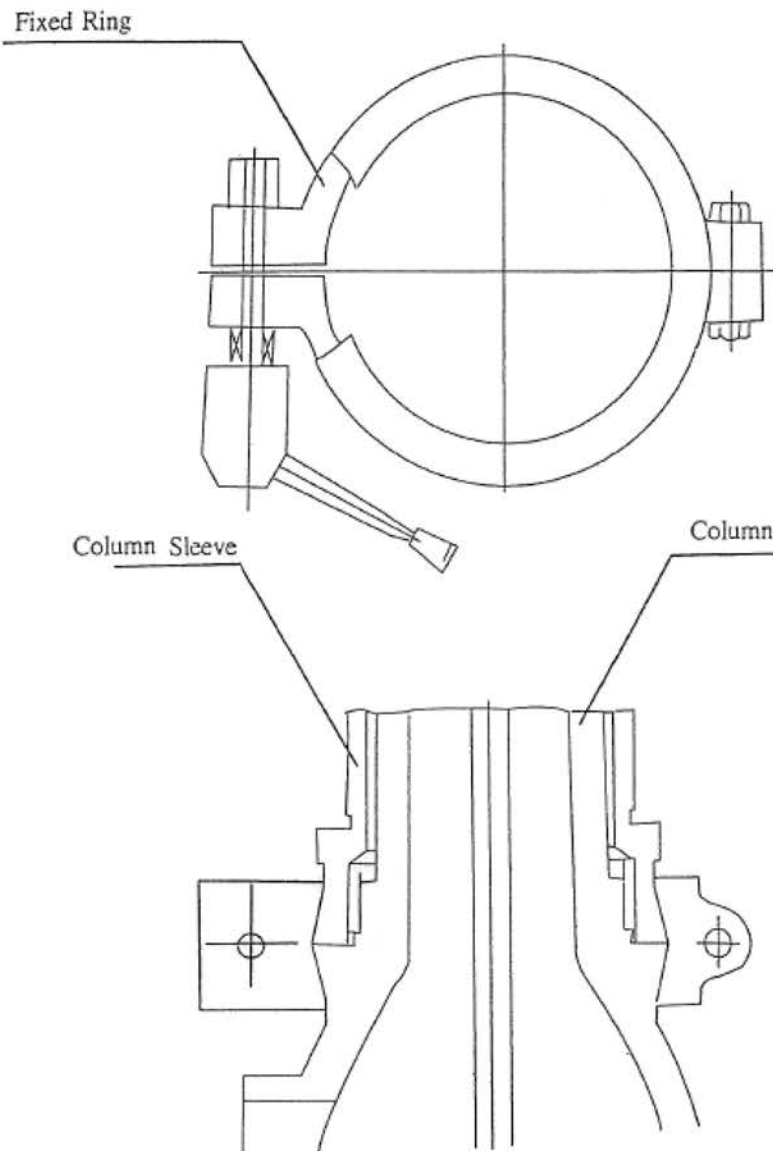
### 2. Loosening or tightening stand pillar

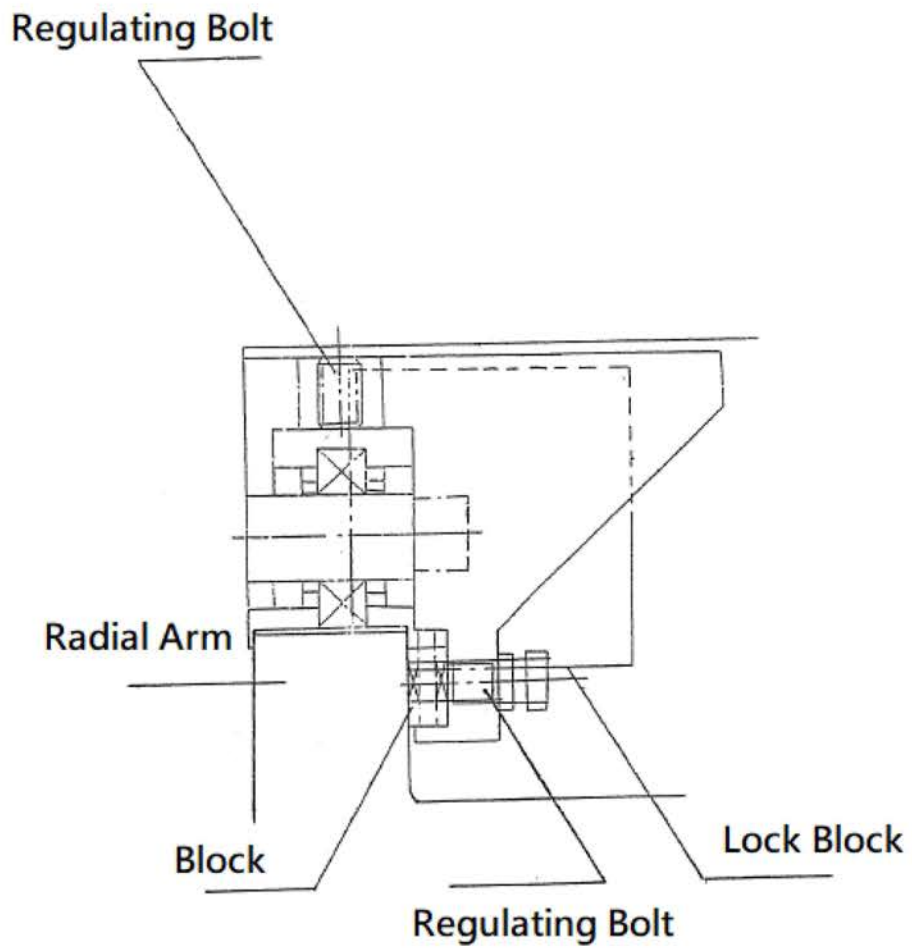
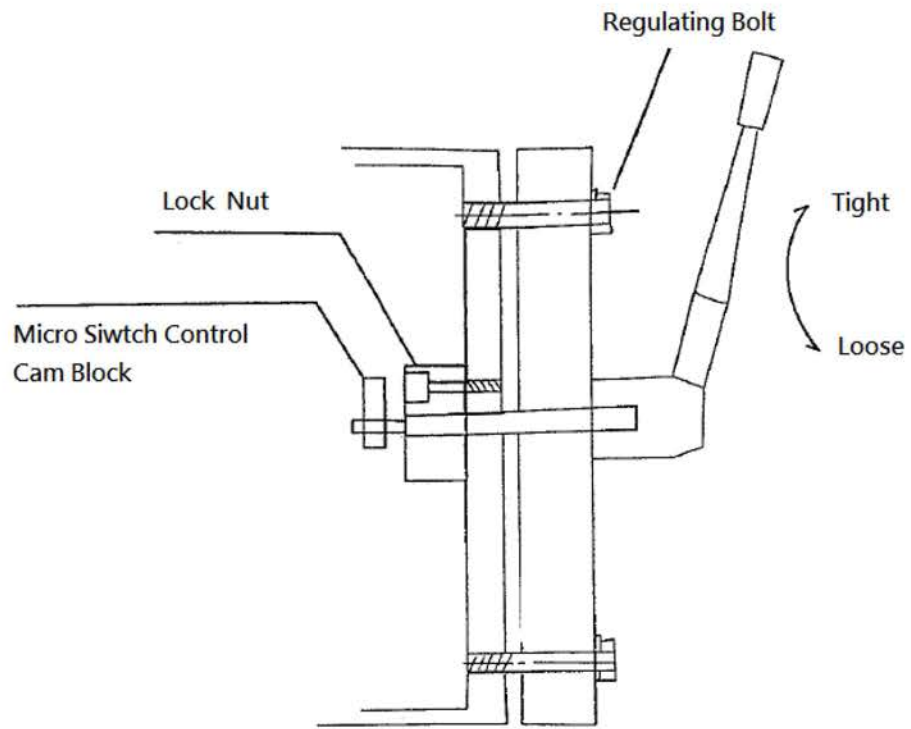
It could be loosened or tightened through forward or backward action of knob handle.

### 3. Fix loosening or tightening gear box

### 4. Adjusting gapping place and radial sliding rail

It could be loosened or tighten through forward or backward action of knob handle. It Could adjust gapping place with regulating screw.





# *Maintenance*

---

## *Daily Inspection*

---

### **1-1 Inspection before working:**

- a. If machine is clean.
- b. If the lubricant oil is enough.
- c. If the joint of each turning and movable parts is proper tightness.

### **Methods of inspection and Treatment:**

- @ The machine has no dust and iron residue on each sliding surface, and items are not allowed to be placed on the sliding surface. Avoid hinder the sliding or rotation of each component. Wipe off the dust on the parts to prevent rust.
- @ Adjust the daily oil level.
- @ Use both hands to push and check the radial arm turning and lateral movement. If it is too loose or too tight, the joint needs to be adjusted.

### **1-2 Inspection before starting the motor**

- a. If electricity control is punctual.
- b. If the machine control is sensitive and dependable.
- c. If the noise and vibration are not over limitation.
- d. Cooling system e. Lubricant path

### **Methods of inspection and Treatment:**

- @ Move the starting lever to the right side and reverse rotation position. Check the rotation and lifting of the spindle. Test - press the closed button. Check the worktable stiffness, positive and negative, start and stop operation and indicator lights.
- @ Identify the micro-switch action of the right and reverse rotation control levers, the automatic feed control lever and the spindle transmission control lever.
- @ Under the restriction of main rotation speed and feed speed, the operation is idle. Examine if the noise and vibration exceeds the limit.
- @ Check coolant, start the motor and check if there is any leakage.
- @ Check whether the lubricating oil flows into the lubricant position.



### 1-3 Check during the work period.

- a. Bearing temperature
- b. Motor temperature
- c. Noise and vibration
- d. Quality of the product
- e. Safety project

- @ Use hand to touch the bearing to check its temperature.
- @ It is necessary to check the motor temperature at high load cutting.
- @ While finding noise and vibration, stop operating and check the reason.
- @ When the quality is found to be abnormal. Find out the reason right away
- @ Stop running while leave the machine for some reason.

***It is necessary to stop running when changing spindle speed or feed speed.***

***It is forbidden to put any tools or part on the sliding surface.***



### 1-4 Check after work

- a. Test the clutch device.
- b. Cleaning tool
- c. Return the part to the previous position
- d. Cleaning machine

- @ Place the clutch control lever in the idling position
- @ Wipe and clean all the tools, then place them in a fixed place.
- @ Moves the radial arm and gear box to the most suitable position and clamp.
- @ Wipe and clean the oil stains and chips on the machine. In addition, a thin layer of oil is applied to the sliding surface.

### Maintenance and processing methods

- @ According to the inspection method of the drilling machinery, check accuracy of each item and make proper adjustment.
- @ Check isolation of each motor and the looseness of the motor bearing.
- @ Check if the paint on the exterior of the machine has come off. If there is paint falling off, make it up at once.
- @ Check if the exposed parts are damaged, rusted and repair it immediately



---

### ***Weekly Maintenance***

---

The following items are carried out every Saturday, after the stop operation.

Maintenance items:

- 1. Lubrication system**
- 2. Cooling system**
- 3. Transmission system**
- 4. Safety installation**

*Maintenance and treatment methods:*

- @Clean oil hole, oil channel, and replenishing oil tank.
- @Clean cooling oil channel and replenishing cooling oil.
- @ Check every transmission device and adjust its looseness and tightness.
- @ Check the limitation of lift and feed installation.

---

### ***Monthly Maintenance***

---

The following items are carried out on last Saturday of each month after stopping operation.

Maintenance items:

- 1. Cleaning machine**
- 2. Electricity system**

*Maintenance and treatment methods:*

- @ Clean dust and iron residue at the narrow openings of machines and parts.
- @ Check whether the connection of the wires is firm and secure, whether the fixing screws are loose, and whether each switch joint is good or not.

---

### *Semi-Annually Maintenance*

---

The following items are regularly implemented after half a year:

Maintenance items:

- 1. Change oil in gearbox**
- 2. Check wear and tear condition of gear and ball bearings**
- 3. Check each screw gapping position**

*Maintenance and treatment methods:*

- @ Release oil bolt (drain plug) of gear box to drain out old oil. Clean the dirt inside the gearbox and fill it with new oil to upper limit of oil gauge.
- @ When performing the above operations, check wear and tear condition of each gear in the gear box and also check the looseness of the shaft and bearing.

---

### *Annually Maintenance*

---

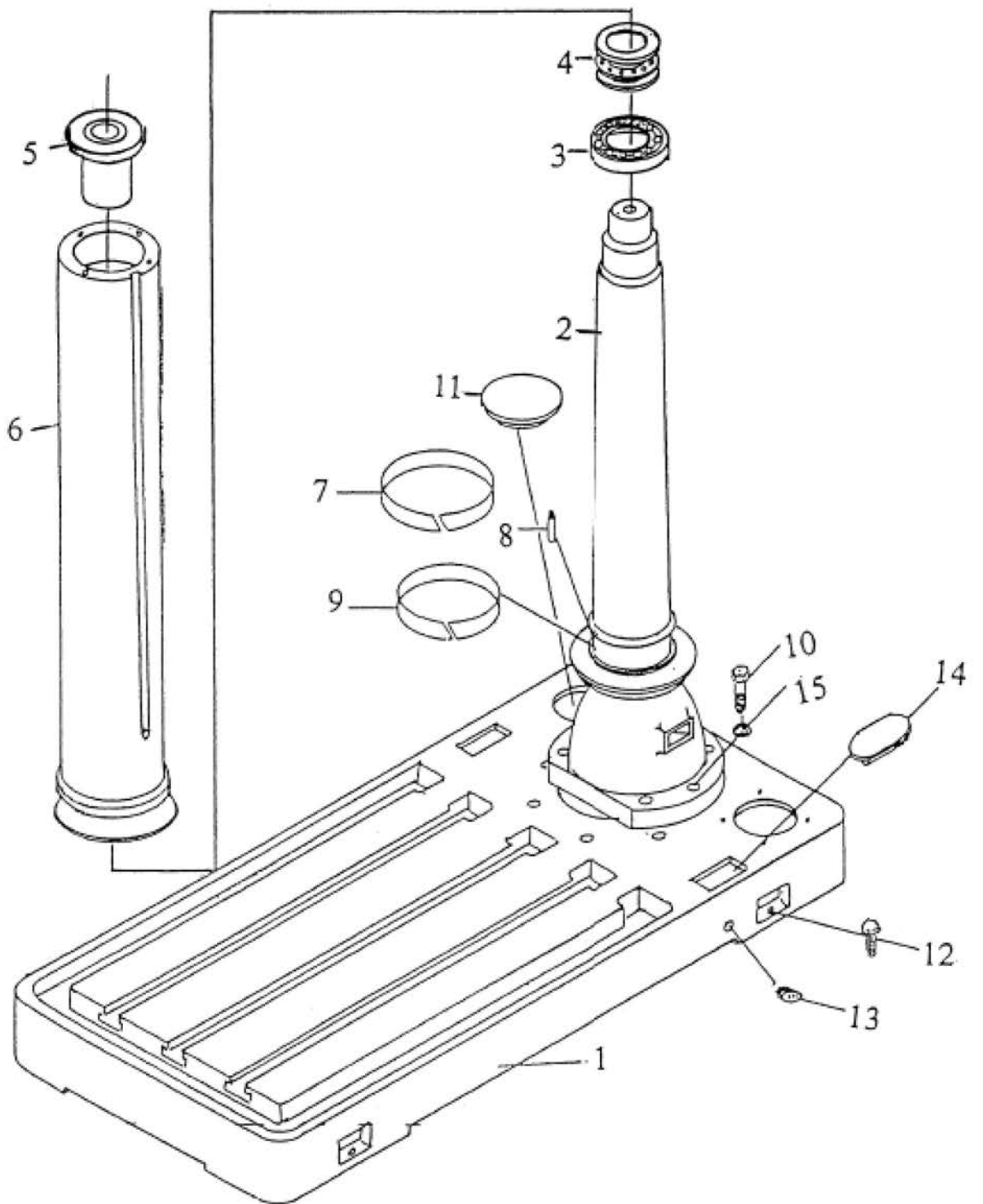
The following items are performed once a year.

Maintenance items:

- 1. Test run**
- 2. Check accuracy**
- 3. Check motor**
- 4. Making lists to check**



# COLUMN

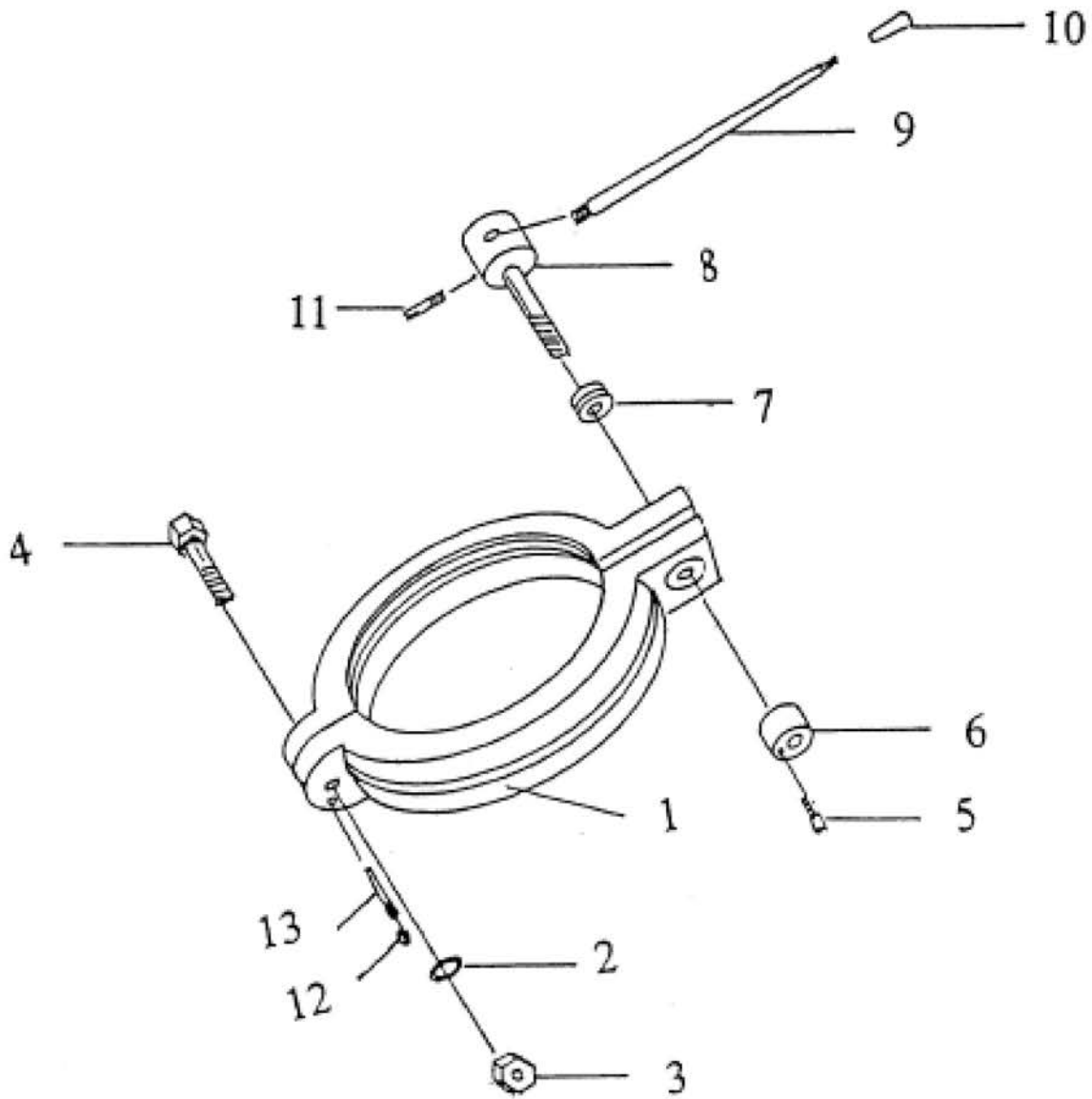


# COLUMN





# CLAMP

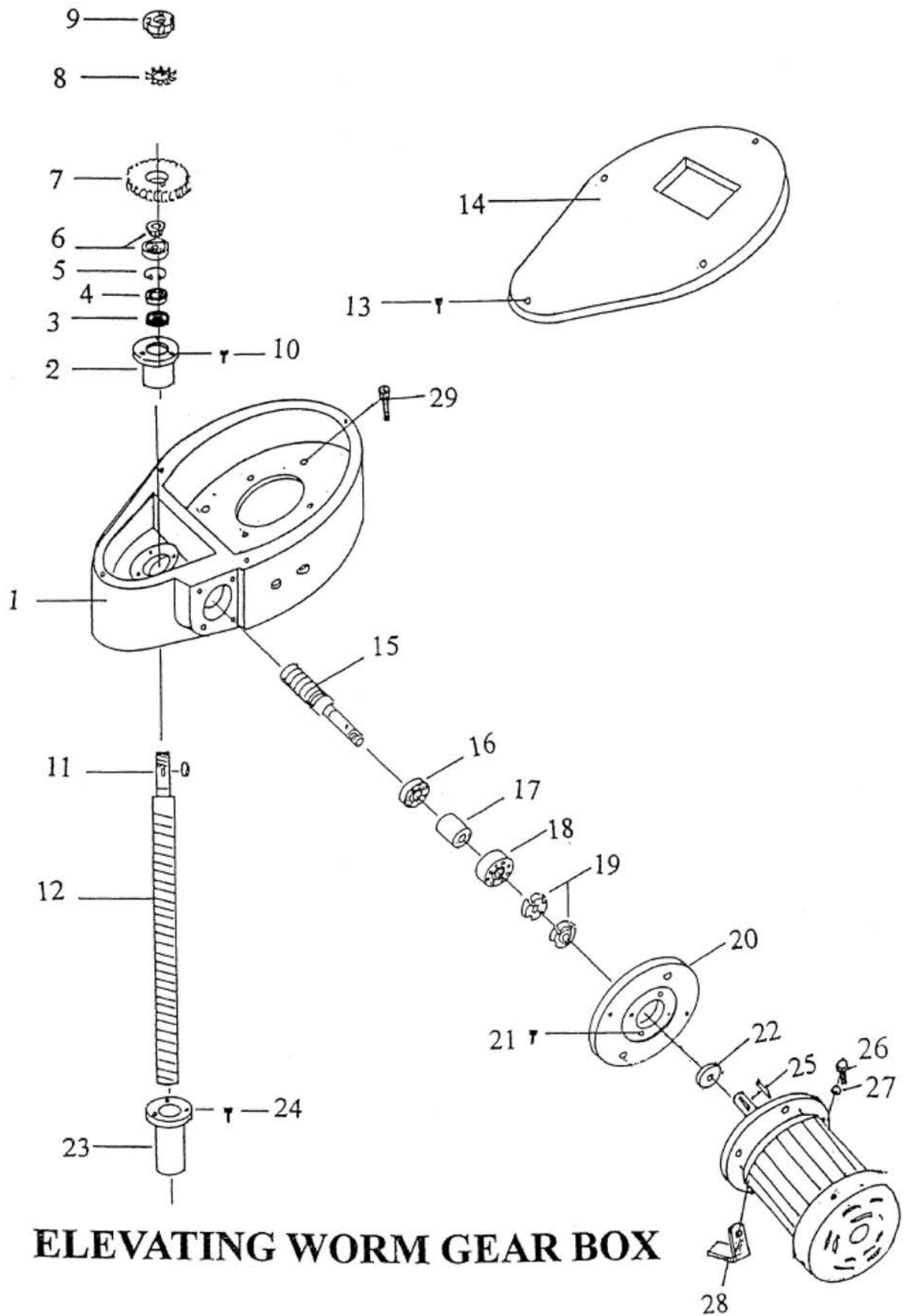


# CLAMP

## ELEVATING WORM GEAR BOX

<b>Index No.</b>	<b>Parts Name</b>	<b>Units</b>	<b>Parts No.</b>	<b>Remarks</b>
1	Gear Box	1	1119	
2	Seat	1	1132	
3	Oil Seal	1		TC305458
4	Roller Bearing	1		# 6005Z
5	C Snap Ring	1		R47
6	Taper Roller Bearing	1		# 30205
7	Worm Gear	1	1124	
8	Collar	1		AWO5
9	Nut	1	1133	
10	Bolt	3		M6x20L
11	Key	1		6x6x18L
12	Elevating Screw	1	1121	
13	Bolt	4		M8x25L
14	Cover	1	1120	
15	Bolt	1	1125	
16	Roller Bearing	1		# 6006Z
17	Bolt Bushing	1	1127	
18	Roller Bearing	1		# 6206
19	Nut	2	1126	
20	Motor Base	1	1128	
21	Bolt	4		M8x20L
22	Oil Seal	1		TC28488
23	Nut	1	1122	
24	Bolt	3		M6x25L
25	Motor	1		1HP/4P
26	Bolt	4		3/8"x1L"
27	Spring Washer	4		3/8"
28	Stop Seat	1	1501	
29	Bolt	7		M10x50L

# ELEVATING WORM GEAR BOX



# ELEVATING WORM GEAR BOX



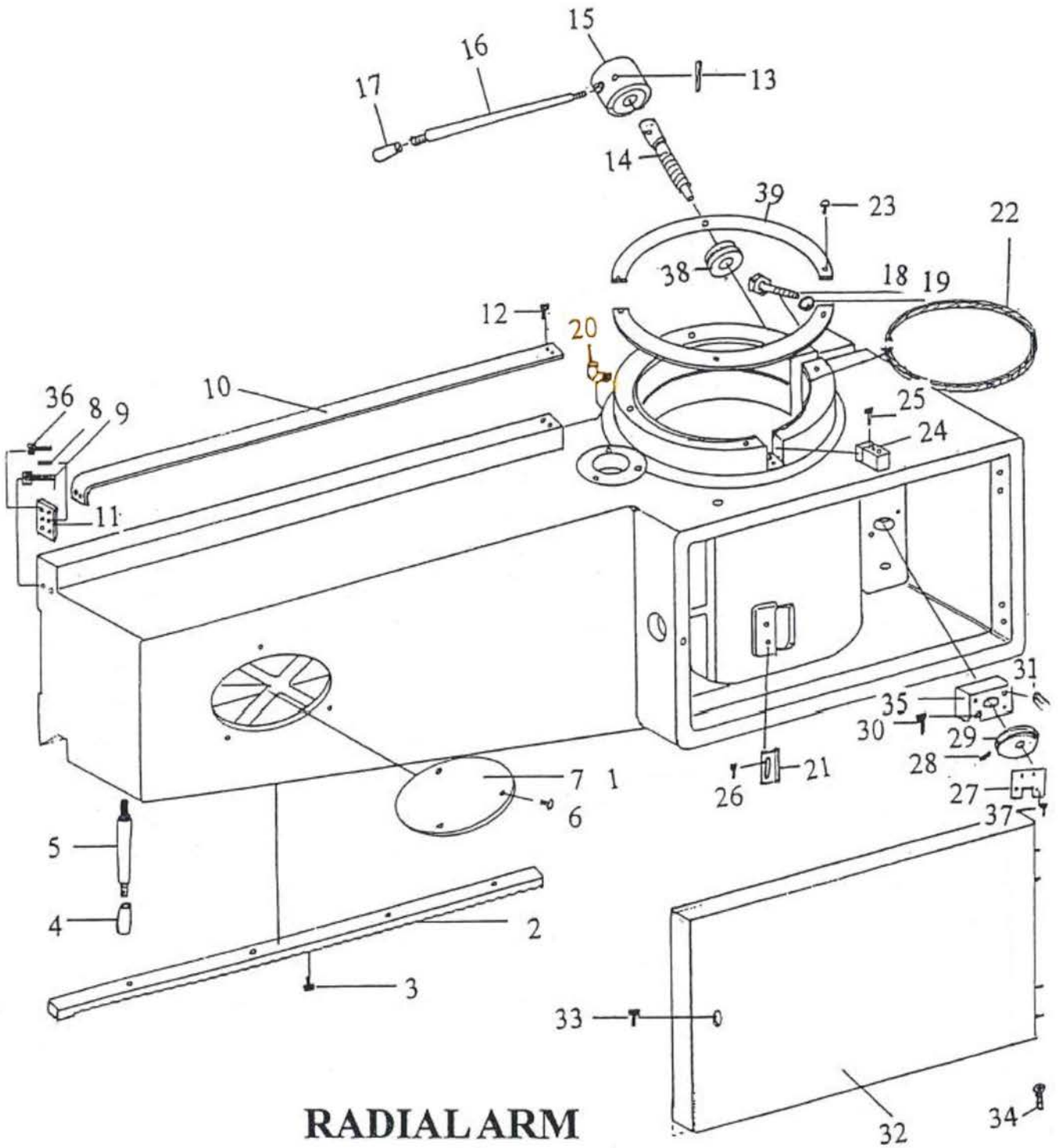
## RADIAL ARM

Index No.	Parts Name	Units	Parts No.	Remarks
1	Radial Arm	1	1105	
2	Rack	1	1417	
3	Bolt	4		M6x16L
4	Handle	1	1111	
5	Handle	1	1112	
6	Bolt	3		M6x10
7	Cover	1	304	
8	Bolt	2		Set6x16
9	Bolt	2		6x10
10	Steel Efflorescent	1	1152	
11	Adjustment seat	1	1107	
12	Bolt	2		M6x12
13	Pin	1		#4x50L
14	Locking bolt	1	1136	
15	Joint	1	1108	
16	Handle	1	1110	
17	Handle	1	1111	Plastic
18	Bolt	2		3/4"x4"
19	Spring Washer	2		3/4"
20	Oil Cup	2		PT1/8"
21	Micro Seat	1	314	
22	Oil Ligature	2	1153	
23	Bolt	10		M6x12L
24	Key	1	251	
25	Bolt	2		M6x25
26	Bolt	2		M6x12L
27	Micro Seat	1	313	
28	Bolt	1		Set 6x10L
29	Collar	1	1117	
30	Bolt	1		M6x25L
31	Pin	1		M5x50L
32	Cover of Electricity	1	302	
33	Bolt	1		M6x10L

## RADIAL ARM

<b>Index No.</b>	<b>Parts Name</b>	<b>Units</b>	<b>Parts No.</b>	<b>Remarks</b>
<b>34</b>	<b>Bolt</b>	<b>4</b>		<b>M6x10L</b>
<b>35</b>	<b>Handel Joint Nut</b>	<b>1</b>	<b>1135</b>	
<b>36</b>	<b>Bolt</b>	<b>2</b>		<b>M6x10L</b>
<b>37</b>	<b>Bolt</b>	<b>2</b>		<b>3/16" x 3/8" L</b>
<b>38</b>	<b>Thrust Bearing</b>	<b>1</b>		<b>#51104</b>
<b>39</b>	<b>Arm cover</b>	<b>4</b>	<b>306</b>	

# RADIAL ARM



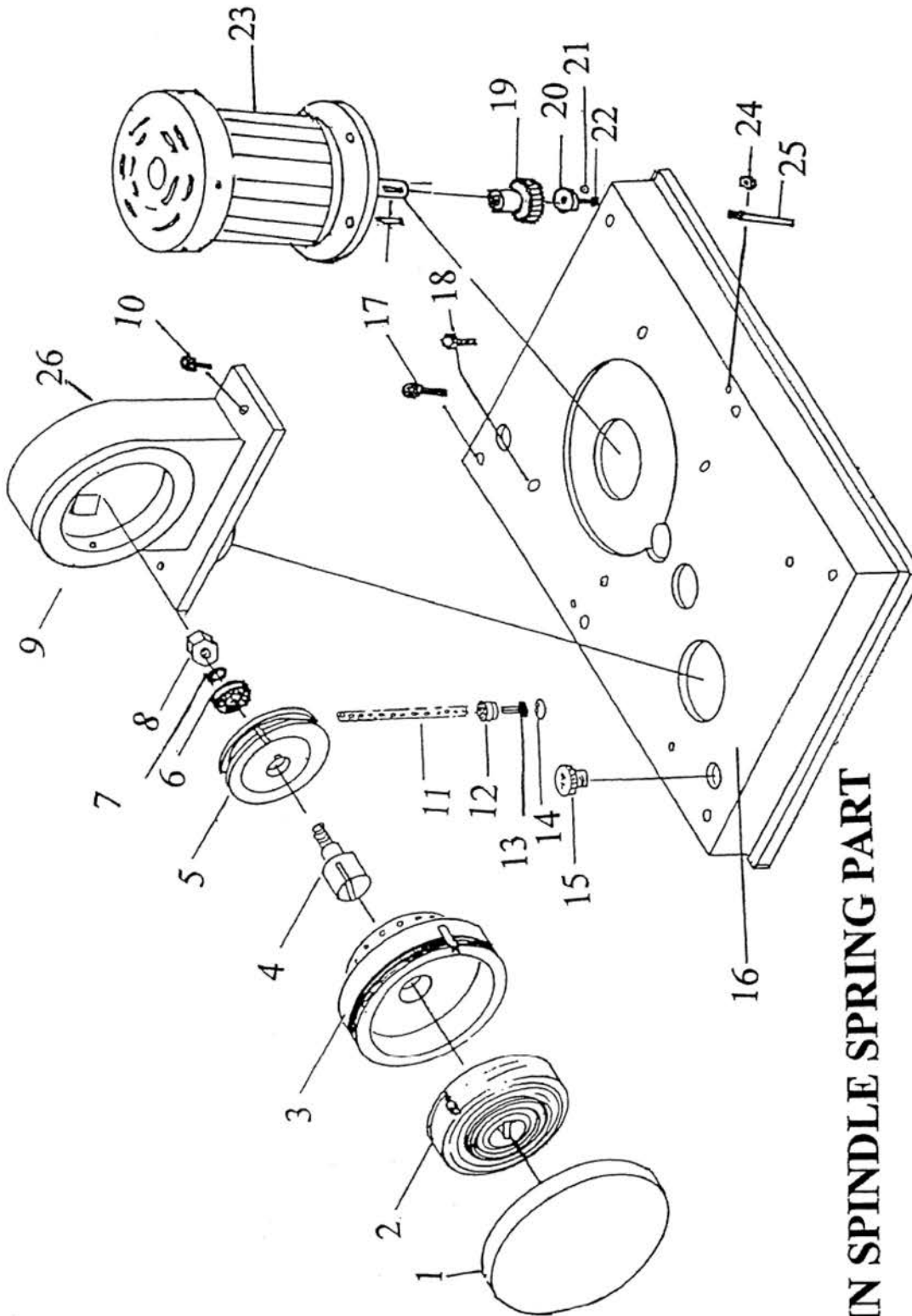
# RADIAL ARM

## MAIN SPINDLE SPRING PART

<b>Index No.</b>	<b>Parts Name</b>	<b>Units</b>	<b>Parts No.</b>	<b>Remarks</b>
1	Spring Cover	1	1215	
2	Spring	1	1503	
3	Spring Fix Seat	1	1214	
4	Spring Fix Bolt	1	1217	
5	Spring Adjusting seat	1	1216	
6	Bearing	1		# 6204
7	Spring Washer	1		1/2"
8	Nut	1		1/2"
9	Bolt	1		SetM8x30L
10	Bolt	2		M6x25L
11	Chain	1	1504	P=6.35
12	Bearing	2		# 696ZZ
13	Chain Connector	1	1224	
14	C Snap Ring	1		R15
15	Oil Bolt	1		3/4"xUNF16
16	Gear Box Cover	1	1202	
17	Bolt	6		M8x50L
18	Bolt	4		3/8"x1"
19	Motor Gear	1	1203	
20	Fixed Sleeve	1	1327	
21	Spring Washer	1		M5
22	Bolt	1		M5x25L
23	Motor	1		2HP. 4P
24	Nut	1		M8
25	Pin	1		#4x50L
26	Spring Seat	1	1213	



# MAIN SPINDLE SPRING PART



# MAIN SPINDLE SPRING PART

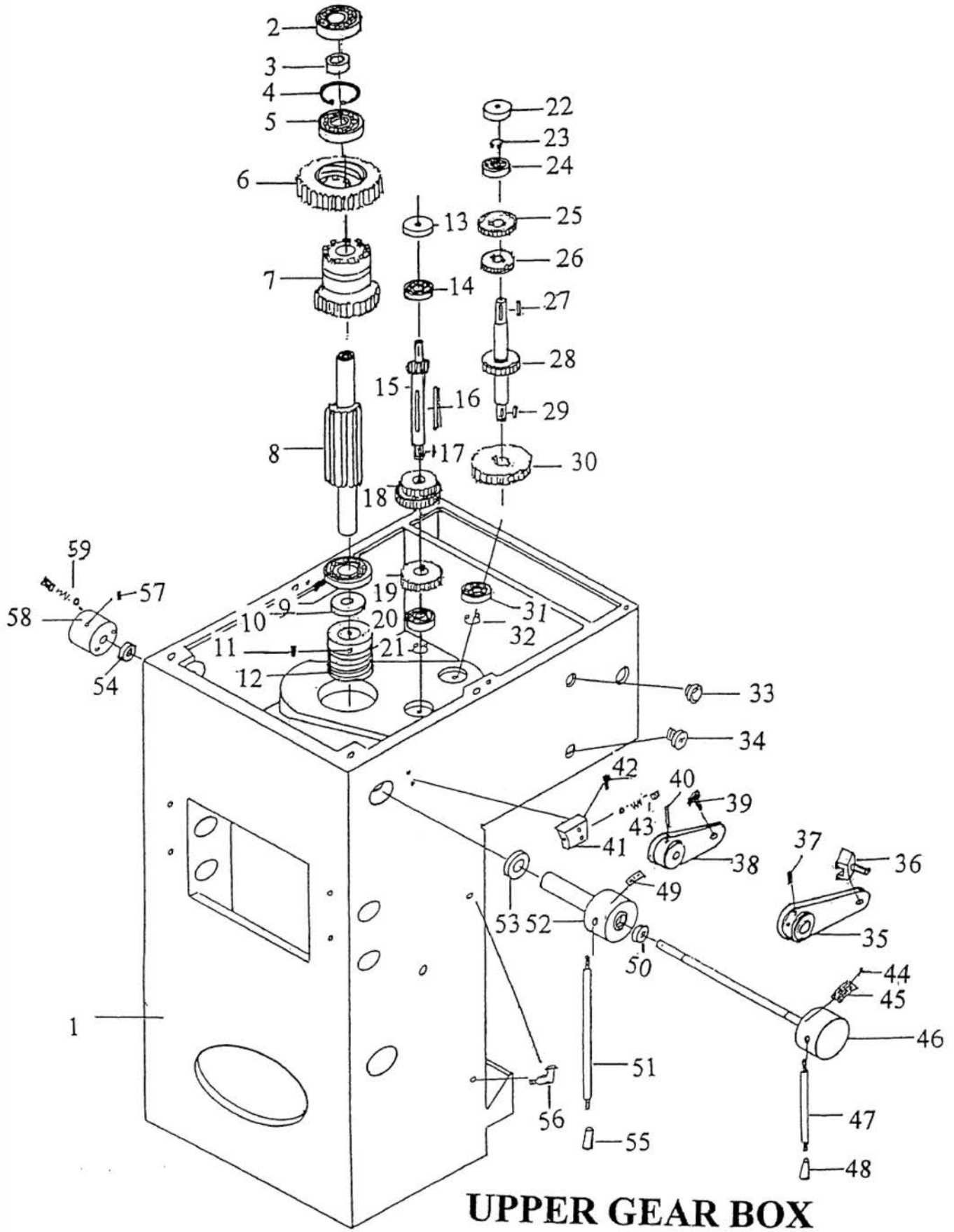
## UPPER GEAR BOX

Index No.	Parts Name	Units	Parts No.	Remarks
1	Gear box	1	1201	
2	Bearing	1		# 6007Z
3	Bearing Shim	1	1218	
4	C Snap Ring	1		R62
5	Bearing	1		# 6007Z
6	Gear A	1	1219	
7	Gear B	1	1220	
8	Spindle shaft	1	1221	
9	Bearing	1		# 6007Z
10	Oil Seal	1		TC35x55x8
11	Bolt	2		Set M6x10
12	Set Screw	1	1222	
13	Cover	1	1205	
14	Bearing	1		# 6004Z
15	Gear Shaft	1	1210	
16	Key	2		M6x50L
17	Key	2		M6x12L
18	Gear	1	1211-1-2-3	
19	Gear	1	1212	
20	Bearing	1		#6004Z
21	C Snap Ring	1		S20
22	Cover	1	1209	
23	C Snap Ring	1		S20
24	Bearing	1		# 6004Z
25	Gear	1	1204	
26	Gear	1	1207	
27	Key	2		M6x20L
28	Shaft	1	1206	
29	Key	2		M6x16L
30	Gear	1	1208	
31	Bearing	1		# 6004Z
32	C Snap Ring	1		S24
33	Oil glass	1		1/2"

## UPPER GEAR BOX

Index No.	Parts Name	Units	Parts No.	Remarks
34	Oil Bolt	1		3/4" xUNF16
35	Change Seat	1	1305	
36	Copper Seat	1	1306	
37	Bolt	2		M8x20L
38	Casting Seat	1	1308	
39	Steel Change Seat	1	1309	
40	Pin	1		M5x50L
41	Fixed Seat	1	1304-1	
42	Bolt	2		M5x25L
43	Ball& Spring Seat	1Set		1/4"xM8xM8
44	Motor Bolt	4		M2
45	Plate	1		6 Speed
46	Connector	1	1302	
47	Handle	1	1301	
48	Plastic Handel	1	1111	Plastic
49	Plate	1		H.L
50	Oil Seal	1		TC16x26x7
51	Handle	1	1303	
52	Seat	1	1304	
53	Oil Seal	1		TC30x45x8
54	Oil Seal	1		TC16x26x7
55	Plastic Handel	1	1111	
56	L. Oil Cup	2		PT1/8
57	Bolt	1		SetM8x30
58	Change Seat	1	1310	
59	Ball &Spring Seat	2Set		5/16"xM6.8xM8

# UPPER GEAR BOX



# UPPER GEAR BOX

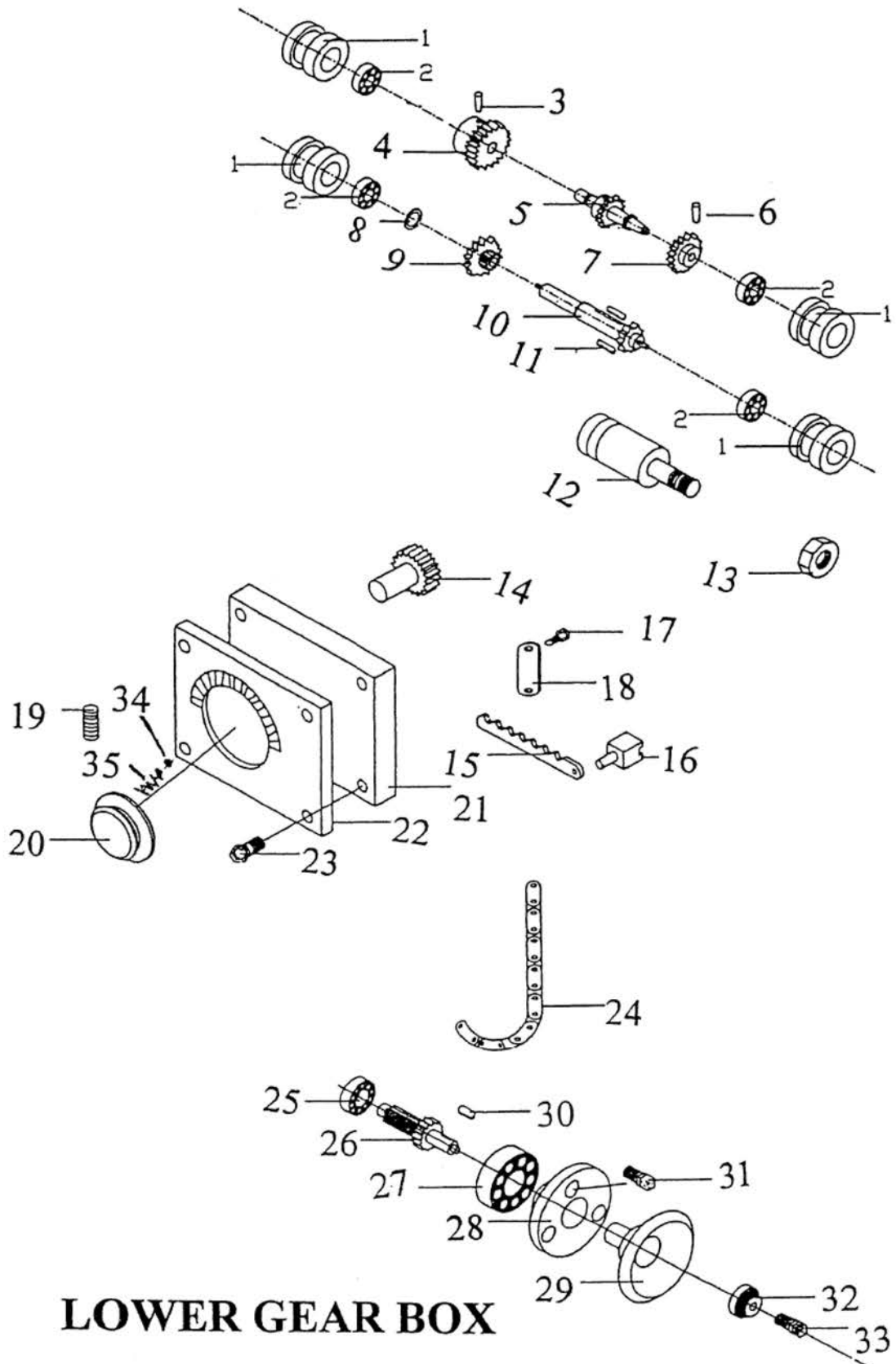


## LOWER GEAR BOX

Index No.	Parts Name	Units	Parts No.	Remarks
1	Bearing Block	4	1316	
2	Bearing	4		# 6002Z
3	Pin	1		# 4x50L
4	Worm Gear	1	1319	
5	Shaft	1	1317	
6	Pin	1		# 4x38L
7	Gear	1	1318	
8	C Snap Ring	1		S22
9	Gear	1	1322	
10	Shaft	1	1321	
11	Key	2		M6x50L
12	Idle Wheel	1	1323	
13	Nut	1		3/8"
14	Pinion	1	1313	
15	Rack	1	1314	
16	Fork	1	1315	
17	Bolt	2		3/16"x3/8
18	Plate	1	1505	
19	Bolt	1		M8x30L
20	Handel	1	1312	
21	Micro-Indfeed Base	1	1311	
22	Index Plate	1	1506	
23	Bolt	4		M8x20L
24	Chain	1		P=9.52
25	Bearing	1		# 6002Z
26	Shaft	1	1324	
27	Bearing	1		# 6204
28	Cover	1	1325	
29	Hand Wheel	1	1326	
30	Key	1		M5x12L
31	Bolt	3		M5x16L
32	Fixed Sleeve	1	1327	
33	Bolt	1		M5x30L



# LOWER GEAR BOX

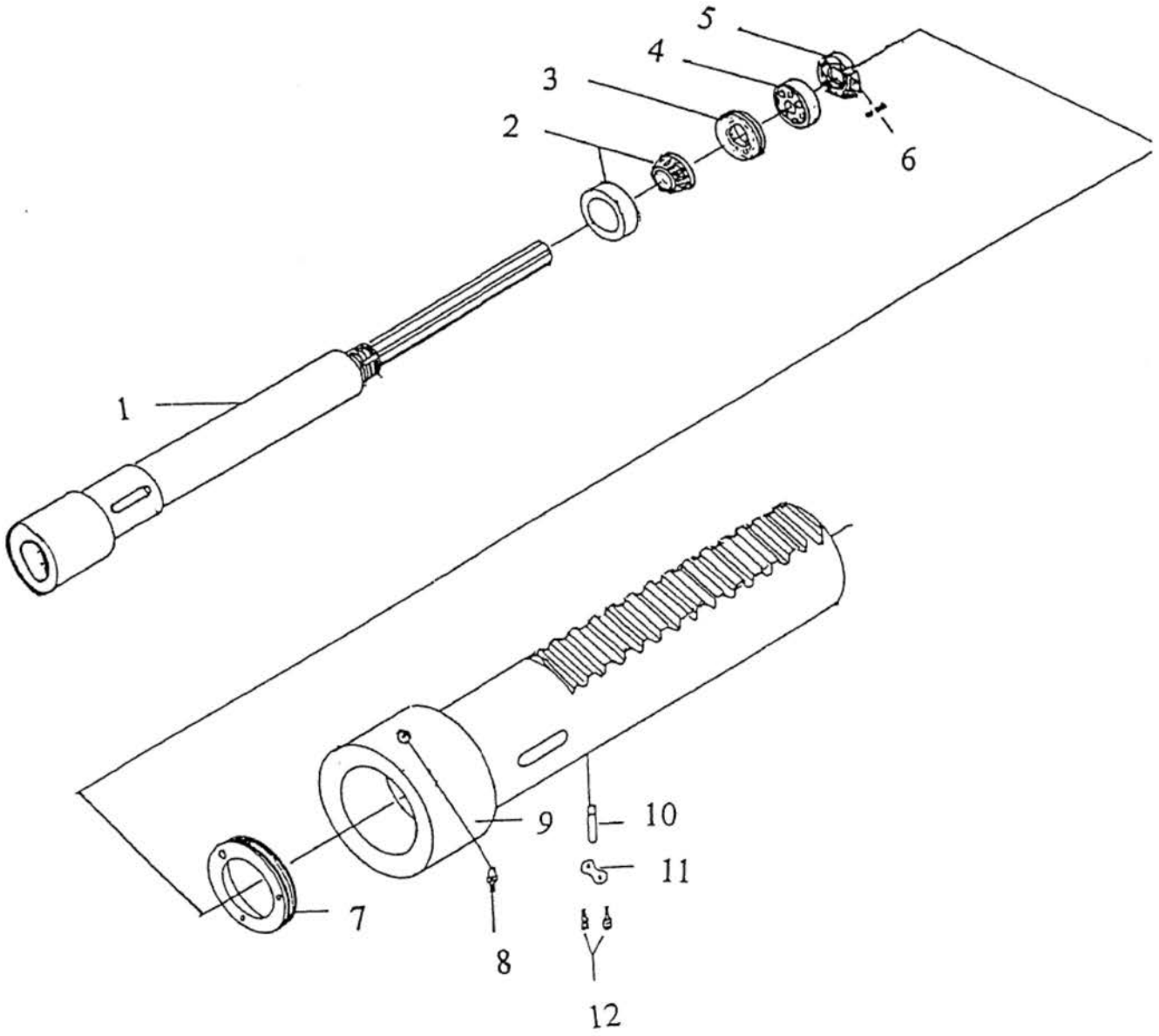


# LOWER GEAR BOX





# MAIN SPINDLE

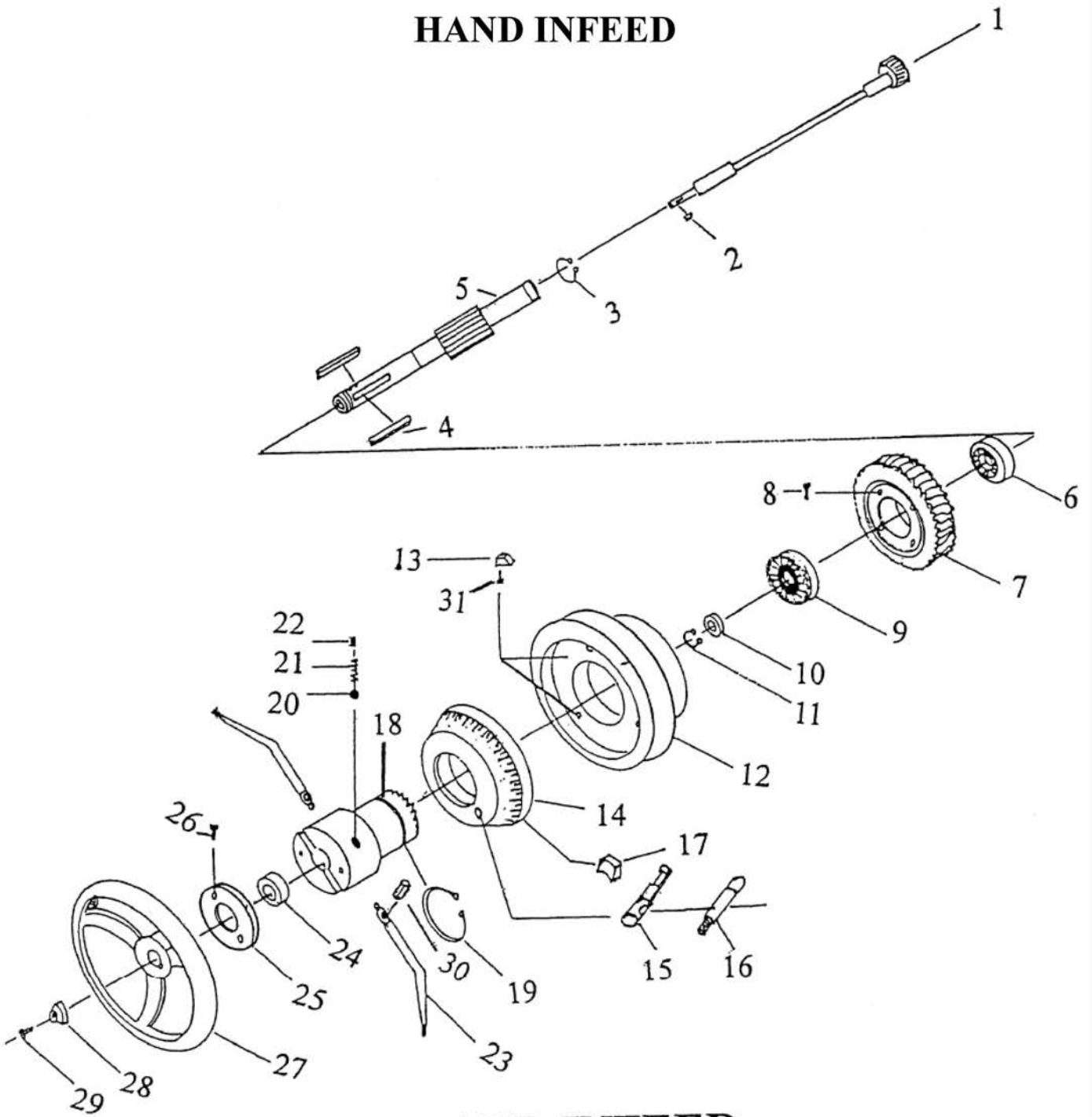


# MAIN SPINDLE

## HAND INFEED

Index No.	Parts Name	Units	Parts No.	Remarks
1	Gear Shaft	1	1415	
2	Key	1		M5x5x10
3	C Snap Ring	1		S24
4	Key	2		M6x6x50
5	Adjustment Wheel	1	1414	
6	Ball Bearing	1		# 6005Z
7	Worm Gear	1	1413	
8	Bolt	6		M5x12
9	Feed Gear	1	1408	
10	Covering	1	1412	
11	C Snap Ring	1		S25
12	Graduation Ring Base	1	1401	
13	Cam	1	1419	
14	Graduated Collar	1	1402	
15	Eccentric Lever	1	1410	
16	Handle	1	1410-1	
17	Block	1	1411	
18	Clutch	1	1405	
19	C Snap Ring	1		S68
20	Ball	1		1/4"
21	Spring	1		M8x20L
22	Bolt	1		Set8x10
23	Feed Handle	2	1406	
24	Locking Collar	1	1404	
25	Clutch Cover	1	1418	
26	Bolt	2		M5x12
27	Wheel	1	1403	
28	Fixed Sleeve	1	1327	
29	Bolt	1		M5x25
30	Pin	2		M8x50L
31	Bolt	4		M5x12L

# HAND INFEED

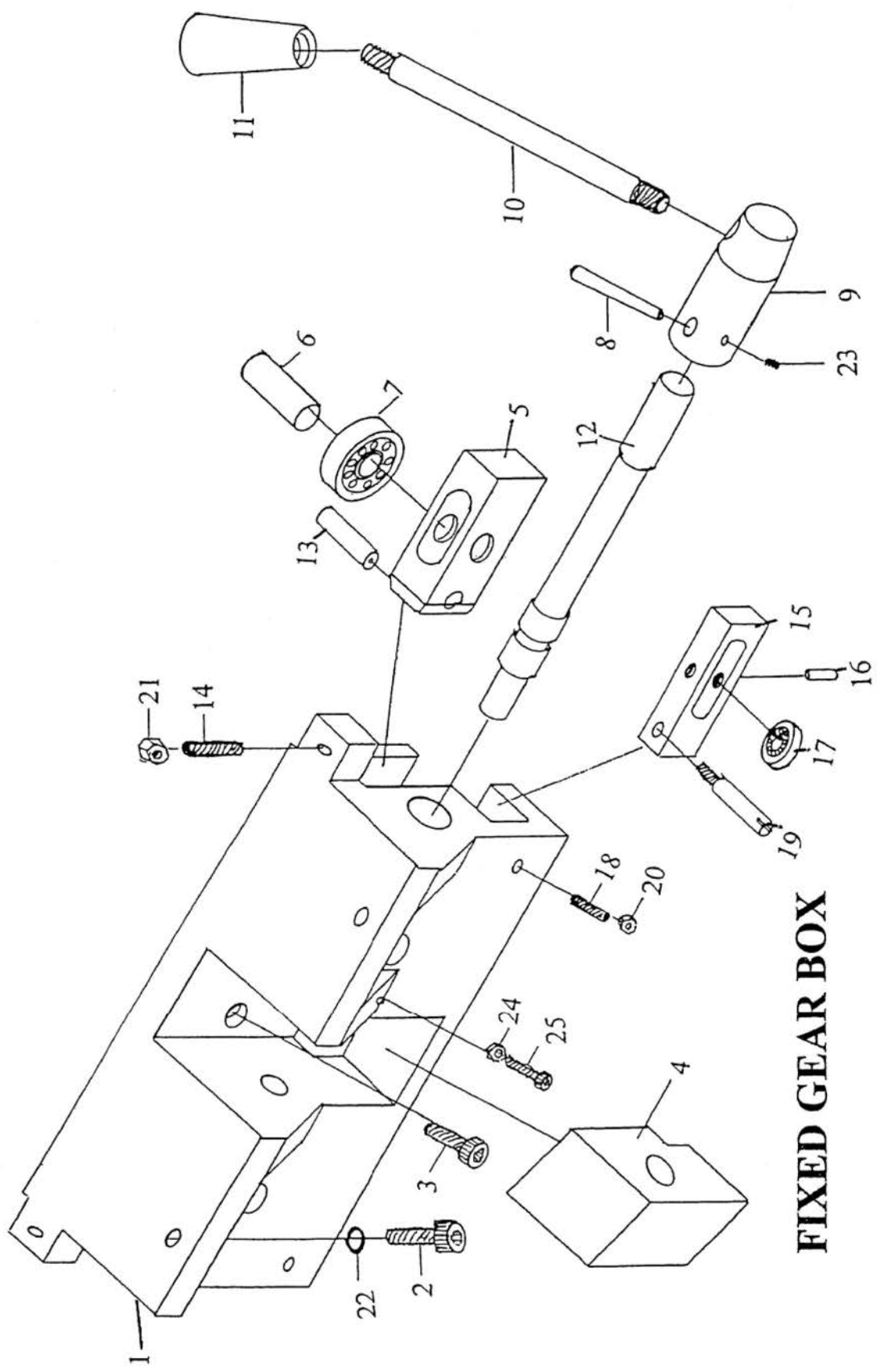


# HAND INFEED

## FIXED GEAR BOX

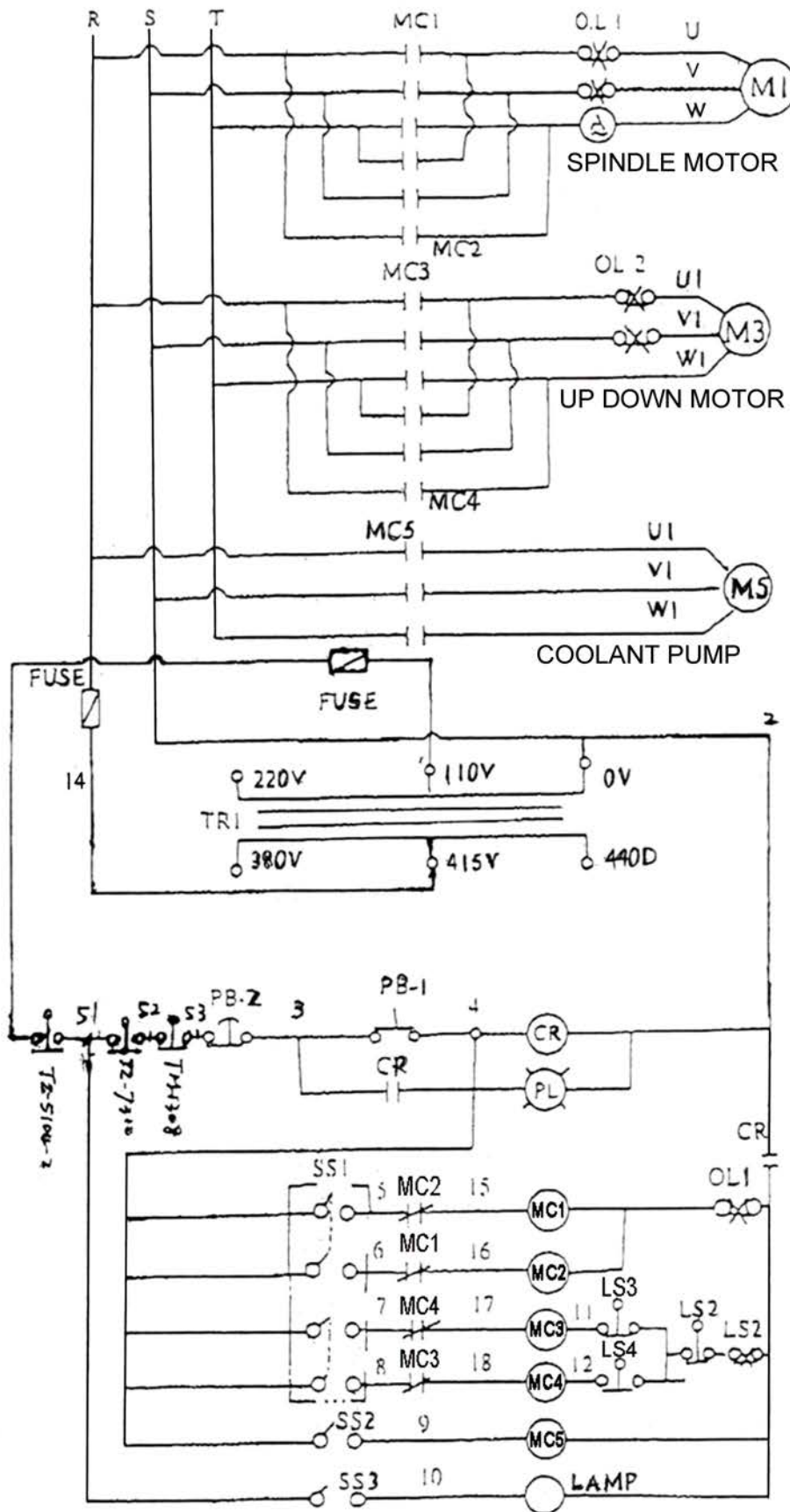
<b>Index No.</b>	<b>Parts Name</b>	<b>Units</b>	<b>Parts No.</b>	<b>Remarks</b>
1	Gear Box Fixed Seat	1	1229	
2	Bolt	2		M10x25L
3	Bolt	2		M8x25L
4	Lock Block	1	1232	
5	Bearing Seat	2	1230	
6	Bearing Shaft	2	1231	
7	Ball Bearing	2		#6202ZZ
8	Pin	1		#4x50L
9	Joint	1	1235	
10	Hand Lever	1	1303	
11	Handle	1	1111	Plastic
12	Eccentric Shaft	1	1234	
13	Fixed Bolt	2	1236	
14	Bolt	2		M8x25L
15	Bearing Seat	2	1233	
16	Bearing Shaft	2	1238	
17	Ball Bearing	2		#628ZZ
18	Bolt	2		M8x30L
19	Bearing Shaft	2	1236-2	
20	Nut	2		M8
21	Nut	2		M8
22	Spring Washer	2		M10
23	Bolt	1		Set M6x10
24	Nut	1		M6
25	Bolt	1		M6x25L

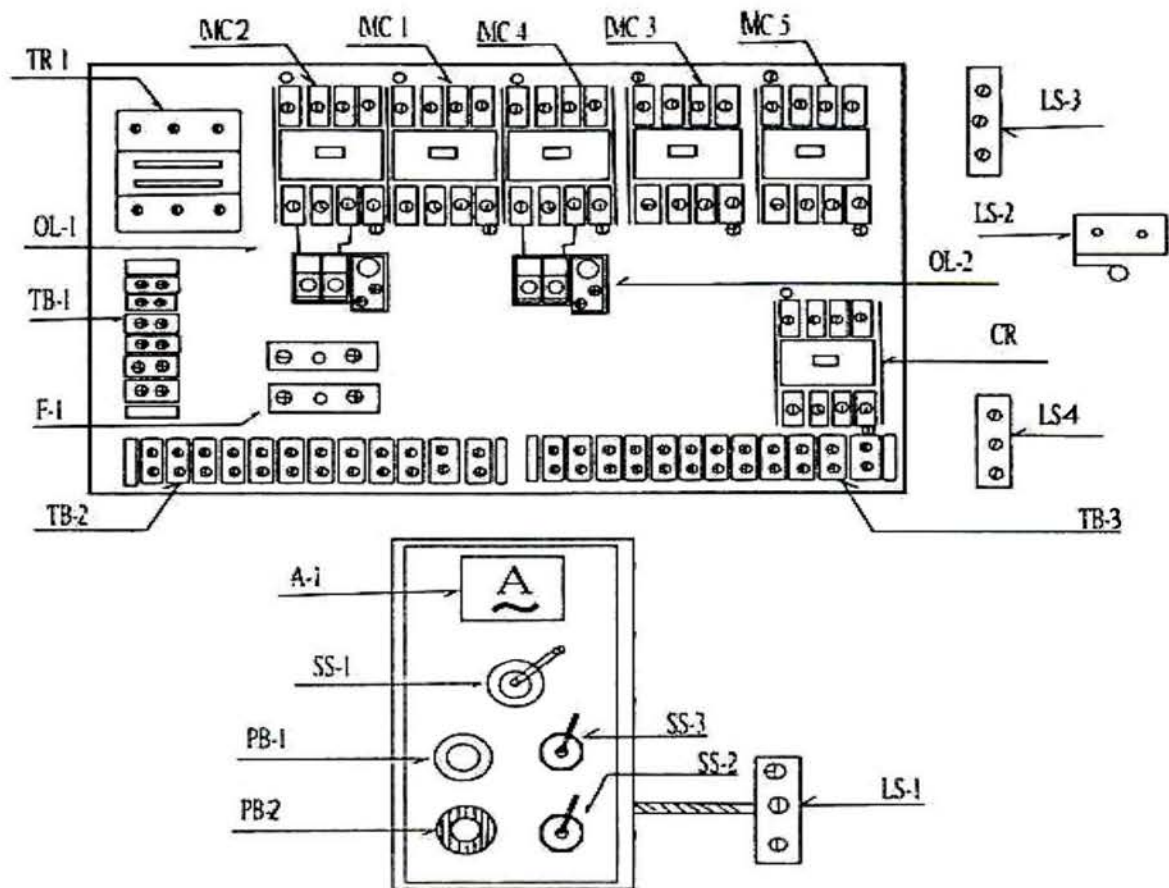




**FIXED GEAR BOX**

## Electrical Diagram for 750 / 900





NO.	Item
MC1	Magnetic Contactor
MC2	Magnetic Contactor
MC3	Magnetic Contactor
MC4	Magnetic Contactor
MC5	Magnetic Contactor
CR	Magnetic Contactor
TR1	Transformer
TB-1	Wire Connect Table Board
TB-2	Wire Connect Table Board
TB-3	Wire Connect Table Board
OL-1	Load-Relay
OL-2	Load-Relay
F-1	Euse
A-1	Ammeter
PB-1	Starter
PB-2	Off-Switch
SS-1	4 Direction-Switch
SS-2	Coolant Switch
SS-3	Worklight On-off Switch
CS-1	Electrode Exchange
LS-1	Microswitch AM-1308
LS-2	Microswitch AM-1704
LS-3	Microswitch AM-1308
LS-4	Microswitch AM-1308