

KLS-1540(C6236) Gap-bed Lathe  
KLS-1740(C6240)

# OPERATION MANUAL

Max. swing over bed: 15" /17" (380mm/430mm)

Max. length of workpiece: 40" (1000mm)

## WARNING

- Read and understand the entire instruction manual before attempting assembly or operation.
- These lathes are designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a lathe, do not use until proper training and knowledge have been obtained.
- Always wear approved safety glasses/face shields while using this machine.
- Make certain the machine is properly grounded.
- Before operating the machine, remove tie, rings, watches, other jewelry, and roll up sleeves above the elbows. Remove all loose clothing and confine long hair. Do **not** wear gloves.
- Keep the floor around the machine clean and free of scrap material, oil and grease.
- Keep machine guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
- Do **not** over reach. Maintain a balanced stance at all times so that you do not fall or lean against blades or other moving parts.
- Make all machine adjustments or maintenance with the machine unplugged from the power source.
- Use the right tool. Don't force a tool or attachment to do a job which it was not designed for.
- Replace warning labels if they become obscured or removed.
- Make certain the motor switch is in the **OFF** position before connecting the machine to the power supply.
- Give your work undivided attention. Looking around, carrying on a conversation, and "horse-play" are careless acts that can result in serious injury.
- Keep visitors a safe distance from the work area.
- Use recommended accessories; improper accessories may be hazardous.
- Make a habit of checking to see that keys and adjusting wrenches are removed before turning on the machine.
- Never attempt any operation or adjustment if the procedure is not understood.
- Keep fingers away from revolving parts and cutting tools while in operation.
- Keep belt guard in place and in working order.
- Never force the cutting action.
- Do **not** attempt to adjust or remove tools during operation.
- Always keep cutters sharp.
- Always use identical replacement parts when servicing.

Failure to comply with all of these warnings may cause serious injury.

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## 1. APPLICATION OF THE MACHINE

This type of universal lathe has wide range of uses. It is suitable for finishing and semi-finishing cut in machine workshops and tools workshops of the trades such as machinery, automobile, tractor, meter and instrument making industries. It is mainly for turning jobs including turning internal and external cylindrical and taper surfaces, grooving as well as cutting of metric, Whitworth, module and diametral threads. It can also be used for reaming, drilling, trepanning, expanding, knurling and oil groove breaching operations.

The machine possesses characteristics of proper arrangement, easy operation and maintenance, reliable working, and up-to-date shape. The guideways of the machine, having undergone supersonic frequency hardening, are high in durability. Owing to the excellent function of the external centralized pressure lubrication system of the headstock, the temperature rise of the machine main spindle bearing is rather low.

Different structures of the machine can be chosen by the orderer, for instance, metric or Whitworth lead screw; metric or/and English dials; right or left hand-wheel of the apron; magnetic or pedal braking device for the main spindle; screw-fastening or cam-locking type of the spindle nose, etc.

## 2. MAJOR SPECIFICATIONS OF THE MACHINE

1) Max. swing over bed		15" /17" (380mm/430mm)
2) Max. length of workpiece		40" (1000mm)
3) Max. turning diameter over carriage		10" (255mm)
4) Max. swing over gap		23" (590mm)
5) Gap length in front of faceplate		7-4/5" (200mm)
6) Spindle bore size		2" (52mm)
7) Spindle hole taper		Morse No. 6
8) Steps of spindle speeds		12
9) Range of spindle speeds		32-1800/40-1800rpm
10) Range of feeds /kinds		
Whitworth lead screw	Longitudinal	0.0016" -0.0940" /122
	Cross	0.00096" -0.056" /122
Metric lead screw	Longitudinal	0.042-2.5mm
	Cross	0.0252-1.5mm
11) Range of Threads /kinds		
	Metric Thread	0.5-20mm/24
	Inth Thread	1-5/8-72T.P.I /61
	Module Thread	0.25-10mm /24
	Diametral Thread	3-1/4-96 D.P /45
12) Maximum Tool Size		4/5" × 4/5" (20mm × 20mm)
13) Max. cross travel		9-1/2" (240mm)



14) Max. travel of top slide		4" (100mm)
Max. swivel of top slide		±45°
15) Max. cross displacement of tailstock		±2/5" (10mm)
16) Taper in center sleeve bore of tailstock		Morse No. 4
17) Max. travel of tailstock sleeve		3-3/4" (95mm)
18) Main motor power		3/4 or 3/4.5 kW
Speed	50Hz: 970/1440 or 720/1440 rpm	
	60Hz: 1170/1730 or 870/1730 rpm	
19) Lubrication pump motor power		120 kW
Speed	1380/50Hz; 1680/60Hz rpm	
20) Coolant pump motor power		40 kW
Speed	2800/50Hz; 3360/60Hz rpm	
21) V-belt type		A1905 / A2000
Quantity		4
22) Overall dimensions: L		97-1/2" (2478mm)
W		42" (1070mm)
H		48" (1220mm)
23) Net weight	15" MODEL	3740 lbs (1700 Kg)
	17" MODEL	3850 lbs (1750 Kg)

### 3. HANDLING, INSTALLATION & TRIAL RUNNING OF THE MACHINE

#### 3.1 Handling of the machine

When machines are craned, be sure to crane one package at a time so as to avoid shocking.

When rollers are used for transportation, their diameter should be 70 to 80 mm, and the ground slant should be less than 15°.

To crane the machine, use a steel wire rope to tie it on the ribs of the bed. The contact surface should be lined with cotton yarn, linen or wood pieces. Be sure to avoid collision of the operation levers and the surface of the machine. The tailstock and apron should be moved to the right end and locked tightly to the bed so as to prevent them from sliding. (Fig. 1)

#### 3.2 Installation of the machine

The machine should be mounted on a solid foundation where no vibration will be caused when it is working. Put a wedged iron heel (adjusting block) near each foot hole, and fasten the machine with foot screws. The dimensions of the foundation are shown in Fig. 2.

When the machine is to be mounted on a concrete foundation, it is necessary to prepare considerably deep foot screw holes beforehand. If the foundation is a concrete floor, the holes must be through.

For the installation of the machine, a level gauge must be used to set the levelness of the machine. Fix the foot screws with concrete. After the cement has become dry and solid, tighten the foot screw nuts evenly. After re-checking the machine level, pour cement down under the bed legs and seal them.

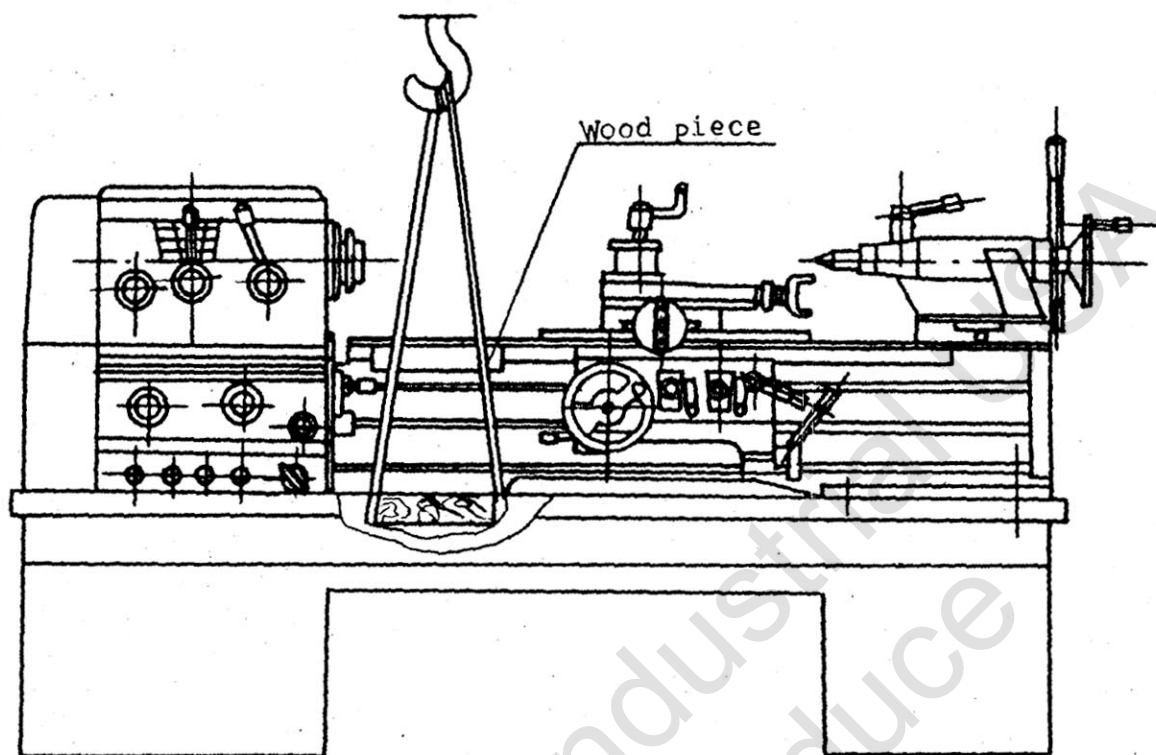


Figure 1 Craning the machine

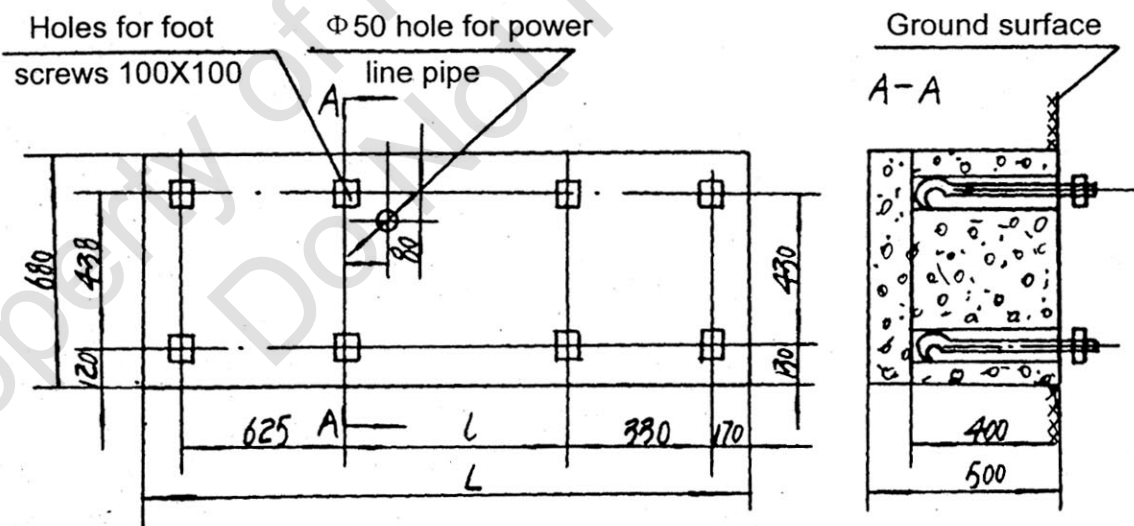


Figure 2 Drawing of foundation

### 3.2.1 Leveling of the machine

First move the carriage to the middle of the bed, then set the bed leg supports by adjusting iron blocks and tightening foot screws so that both ends of the guideways are at the same level. It is also necessary to rectify the distortion of the bed. So the level gauge should be placed longitudinally at a, b, c, d and transversally at e and f in sequence. The Max. readings at a, b, c and d must not exceed 3 scales and at e and f 2 scales with the accuracy of the level gauge being 0.02/1000 per scale.

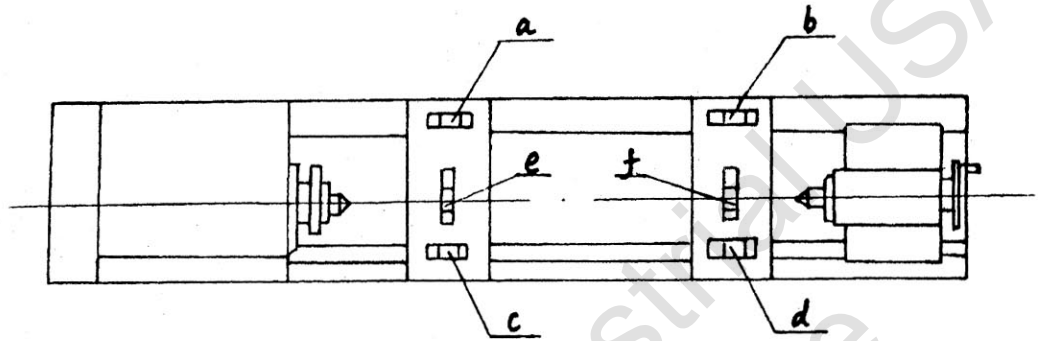


Figure 3 Leveling of the Machine

### 3.2.2 Adjustment of the machine accuracy

After leveling the machine, it is ready to adjust the installation accuracy of the machine. Put the level gauge on the carriage. Adjust the iron heels so that required accuracy of the machine is reached. Then tighten the foot bolts and the installation of the machine is completed. The inspection of the machine accuracy should be carried out as follows:

a) Remove the compound rest and put the level gauge on the slide carriage transversally. Move the carriage from the left end to the middle and then to the right end of the bed. Put down the readings. Set the bed leg supports so that linear error of the guideways in the same plane is less than 0.04/1000 for the entire inspected length.

b) Put the level gauge longitudinally on the carriage near the contact surface with the front guideway. Move the carriage from the left end to the middle and then to the right end of the bed. Put down the readings. Draw the diagram of motion curves of the carriage. The linear error of the guideway in the vertical plane should be less than 0.02 mm for the whole bed length.

### 3.3 Trial running of the machine

Before using the machine, read carefully the directions about the machine construction, control and lubrication system, and check the working conditions of all parts manually.

Before connecting the machine to the shop mains, check whether the electric system is in proper order, especially with respect to moisture. After the machine is connected to the mains, check whether the motor runs in correct direction. If it is all right, proceed with trial running without load. The machine must run smoothly with full lubrication and reliable braking.

## 4. DRIVING SYSTEM OF THE MACHINE

### 4.1 Main drive of the machine

The power of the double speed motor is transmitted to the headstock through pulleys and V-belts. 12 steps of different spindle speeds can be obtained by sliding gears in the headstock with handles.

Different spindle speeds are shown in Table 1.

Table 1

When a 3/4.5 kW motor is used, 2 groups of speeds can be obtained for different frequency of the electric mains.				
Position of levers		Spindle speed		
		50Hz (60Hz)		
H	A	1290	370	1800
	B	220	64	300
L	A	645	250	900
	B	110	32	150
When a 3/4 kW motor is used, 2 groups of speeds can be obtained by changing the diameter of the pulleys.				
Position of levers		Spindle speed		
		50Hz		
H	A	920(930)	370	1800
	B	155(140)	62	305
L	A	615(660)	250	1220
	B	100(95)	40	205

### 4.2 Feed train of the machine (See Table 2)

The feed train adopts sliding change gears for easy operation. The feed box construction ensures perfect functions.

When different types of threads are to be cut, just move the doubled gears in the direction of meshing position indicated on the thread sign plate, you can get threads of different sizes as well as different longitudinal and cross feeds.

Since a satisfactory variety of threads can be cut without change gears, we no longer provide any change gears.

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4.3 A summary of gears, worm gear and worm (See Fig. 4)

Table 3

Part	No.	No. of teeth or threads	Module	Modification	Tooth width	Material	Heat treatment	Part	No.	No. of teeth or threads	Module	Modification coefficient	Tooth width	Material	Heat treatment
Headstock	1	36	3.5		17	HG3302-1	G48	Feed Box	33	39	2		10	45	G48
	2	18	3.5		17	45	G48		34	26	2		10	45	G48
	3	48	2		12	40Cr	G48		35	39	2		10	45	G48
	4	38	2		12	40Cr	G48		36	26	2		10	45	G48
	5	38	2		12	40Cr	G48		37	52	2		10	45	G48
	6	48	2		25	45	G48	Gear Change		25	4		10	HT200	
	7	49	2.5		16	45	G48			27	3.5	+0.79	10	HT200	
	8	34	2.5		16	40Cr	G48			35	4		10	HG3302-1	
	9	64	2.5	-0.4	18	45	G48			40	3.5	+0.0597	10	HG3302-1	
	10	19	2.5	+0.4	20	18CrMnTi	S0.7-G59			25	4		10	HT200	
	11	41(50)	2.5		18	45	G48			65	1.25		13	45	
	12	42(33)	2.5		18	45	G48			70	1.25		13	45	
	13	52	3		16	45	G48			75	1.25		13	45	
	14	33	3		17	40Cr	G48			80	1.25		13	45	
	15	18	3	+0.42	27	40Cr	G48			90	1.25		13	45	
	16	67	3	-0.42	25	45	G48			91	1.25		13	45	
Feed Box	17	30	2		10	45	G48			127	1.25		13	45	
	18	38	2.25	-0.17	10	45	G48			30	2		13	HT200	
	19	27	3		10	45	G48			32	2		13	HT200	
	20	27	2.5	-0.12	10	45	G48			40	2		13	HT200	
	21	21	3.5	+0.3817	10	45	G48			55	2		13	HT200	
	22	26	2		10	45	G48			60	2		13	HT200	
	23	39	2		10	45	G48			87	2		13	HT200	
	24	39	2		10	45	G48		38	15	2		12	45	G48
	25	48	2		10	45	G48		39	55	2		12	45	G48
	26	32	2.25	-0.1548	10	45	G48		40	60	2		12	45	G48
	27	24	3		10	45	G48	Apron	41	25	2		12	45	G48
	28	36	2.5	-0.18	10	45	G48		42	45	2.5		14	HT200	
	29	21	3.5	+1.1532	10	45	G48		43	2	2.5		52	45	T235
	29a	24	3.5	-0.588	10	45	G48		44	24	2		12	45	G48
	30	26	2		10	45	G48		45	38	2		12	45	G48
	31	52	2		10	45	G48	Carriage	46	42(51)	2		12	45	G48
	32	52	2		10	45	G48		47	16	2		35	45	T235



4.4 Detail table for rolling bearings (See Fig. 4)

Table 4

Bearing code name	Specification	Description	Quantity	Mounting part	Serial No.
203	17×40×12	Single-row radial ball bearing	3	Feed box, apron	12, 26
E203	17×40×12	Single-row radial ball bearing	1	Headstock	9
104	20×42×12	Single-row radial ball bearing	4	Feed box	13, 14
204	20×47×14	Single-row radial ball bearing	2	Apron	20
105	25×47×12	Single-row radial ball bearing	1	Feed box	17
205	25×52×15	Single-row radial ball bearing	2	Feed box	1, 2
E207	35×72×17	Single-row radial ball bearing	2	Headstock	6
E208	40×80×18	Single-row radial ball bearing	1	Headstock	7
305	25×62×17	Single-row radial ball bearing	1	Feed box	15
E305	25×62×17	Single-row radial ball bearing	3	Headstock	5, 8, 11
36203	17×40×12	Single-row radial thrust ball bearing	2	Apron	21, 24
36204	20×47×14	Single-row radial thrust ball bearing	2	Apron	23, 25
60205	25×52×15	Single-row radial ball bearing	1	Apron	19
8102	15×28×9	Single thrust ball bearing	2	Carriage	27
E8105	25×42×11	Single thrust ball bearing	2	Feed box	16
808107	35×55×16	Single thrust ball bearing	1	Apron	22
D8211 (D8213)	55×90×25 (65×100×27)	Single thrust ball bearing	1	Headstock	4
1204	20×47×14	Double-row self-aligning spherical ball bearing	2	Lead screw, feed rod	28, 29
D7511 (D2007113)	55×100×25 (65×100×22)	Single-row tapered roller bearing	1	Headstock	3
D3182116 (D3182117)	80×125×34 (85×150×34)	Double-row cylindrical roller bearing	1	Headstock	10

Note: Bearings in parentheses are used for spindle bore of  $\Phi 52$  mm.

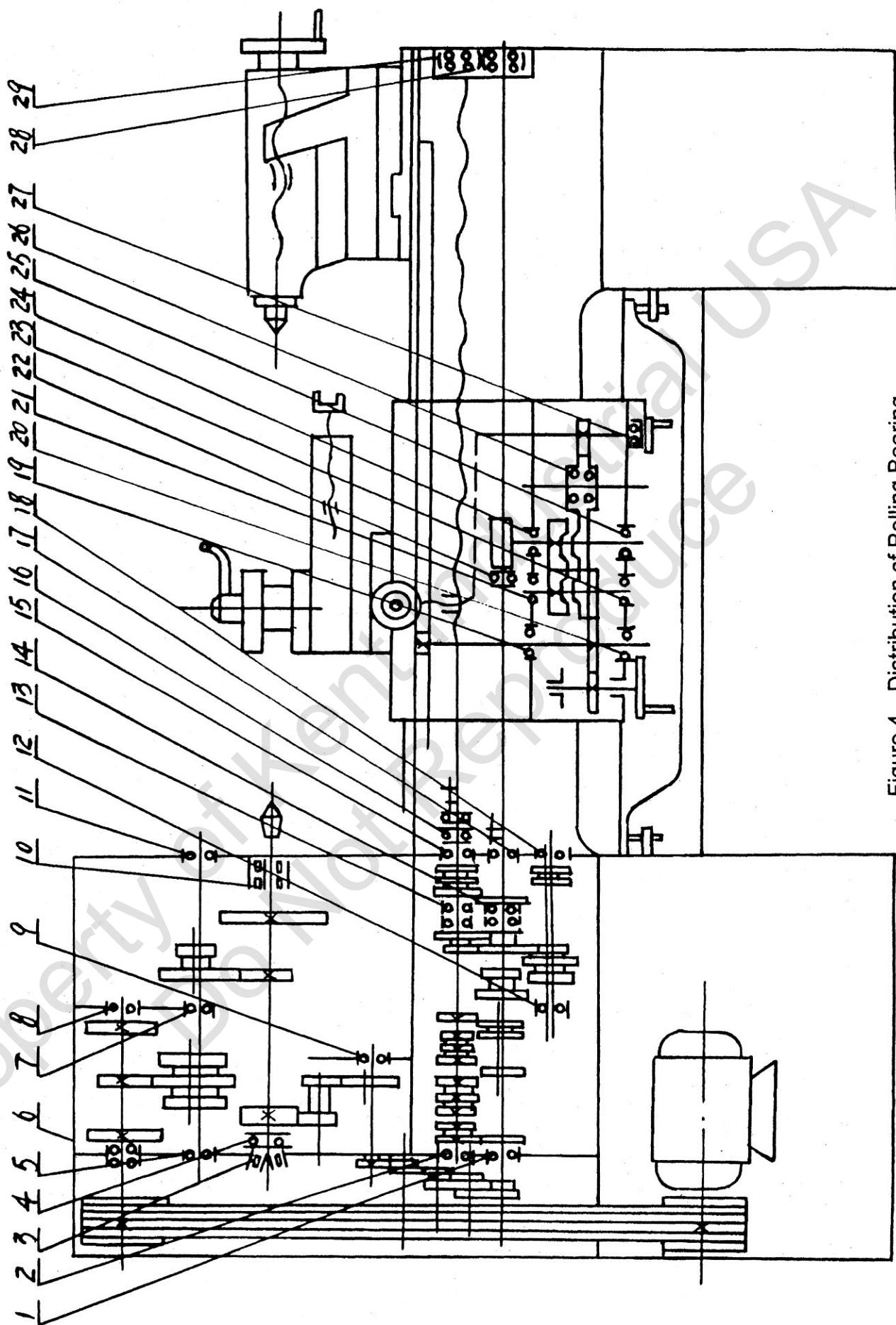


Figure 4 Distribution of Rolling Bearing



## 5. PROPERTY & ADJUSTMENT OF MAIN STRUCTURES OF THE MACHINE

### 5.1 Bed

The part of machine bed consists of the bed, the front and rear bed legs joining together with bolts. The guideways of the machine, having undergone supersonic frequency hardening, are high in durability. The double speed motor, the braking device and oil tank are set inside the front bed leg. Behind the bed is the electric apparatus. There is a cooling system inside the rear leg.

### 5.2 Headstock

With a triple and a double gear compounds inside the headstock and a double speed motor, 12 steps of spindle speeds can be realized.

The front bearing supporting the spindle is a double-row cylindrical roller bearing, and a single-row tapered roller bearing and a single thrust ball bearing are used as the rear support (See Fig.5).

The front and rear bearing clearances were set properly before delivery. When the clearances become great after working a long period, adjustment should be carried out as follows:

The front bearing clearance can be adjusted by Nuts 1 & 2. If the clearance is too great, first loosen the lock screw in Nut 2, and then loosen Nut 1, after that tighten Nut 2 so that the bearing has an axial displacement along the 1:12 taper. As a result, the clearance reduces. After getting a suitable clearance, tighten the lock screw in Nut 2 (Fig.7).

To adjust the clearance of the rear bearings, loosen the lock screw in Grip Nut 3 at the rear of the spindle. Tighten the nut to move the bearing rightward and the clearance reduces. When the clearance has been suitable, tighten lock screw in Nut 3.

The adoption of a standard flange type spindle nose ensures accurate positioning, easy mounting of the chucks and reliable working.

### 5.3 Feed box

Feed box is a sealed case. Different drives can be obtained by means of optional change gear meshing and varying the gear ratio in the feed box through changing the position of feed box handles. Threads of different pitches can be cut by leadscrew. Different longitudinal or cross feeds may be obtained by feed rod.

### 5.4 Apron

The apron is moved by the feed rod or a hand-wheel for most cutting jobs except cutting screws. When the feed rod is used, longitudinal or cross feed can be effected by turning Handle 9 (Fig. 9) as indicated by the sign plate. When cutting screws, use Lever 19 to close the halfnut. To avoid the feed rod and lead screw being engaged at the same time, an interlocking device is built in the apron. It is easy and reliable for operation.

In order to prevent the machine from damage caused by overload, there is an overload safety device on the end of the apron. When the machine is overloaded, the juncture of the device disengages automatically so that the carriage stops moving. After the load has reduced, it can be engaged again by Lever 12 (Fig. 9).

Either right or left apron handwheel is available. (Right handwheel is supplied according to the contract.)

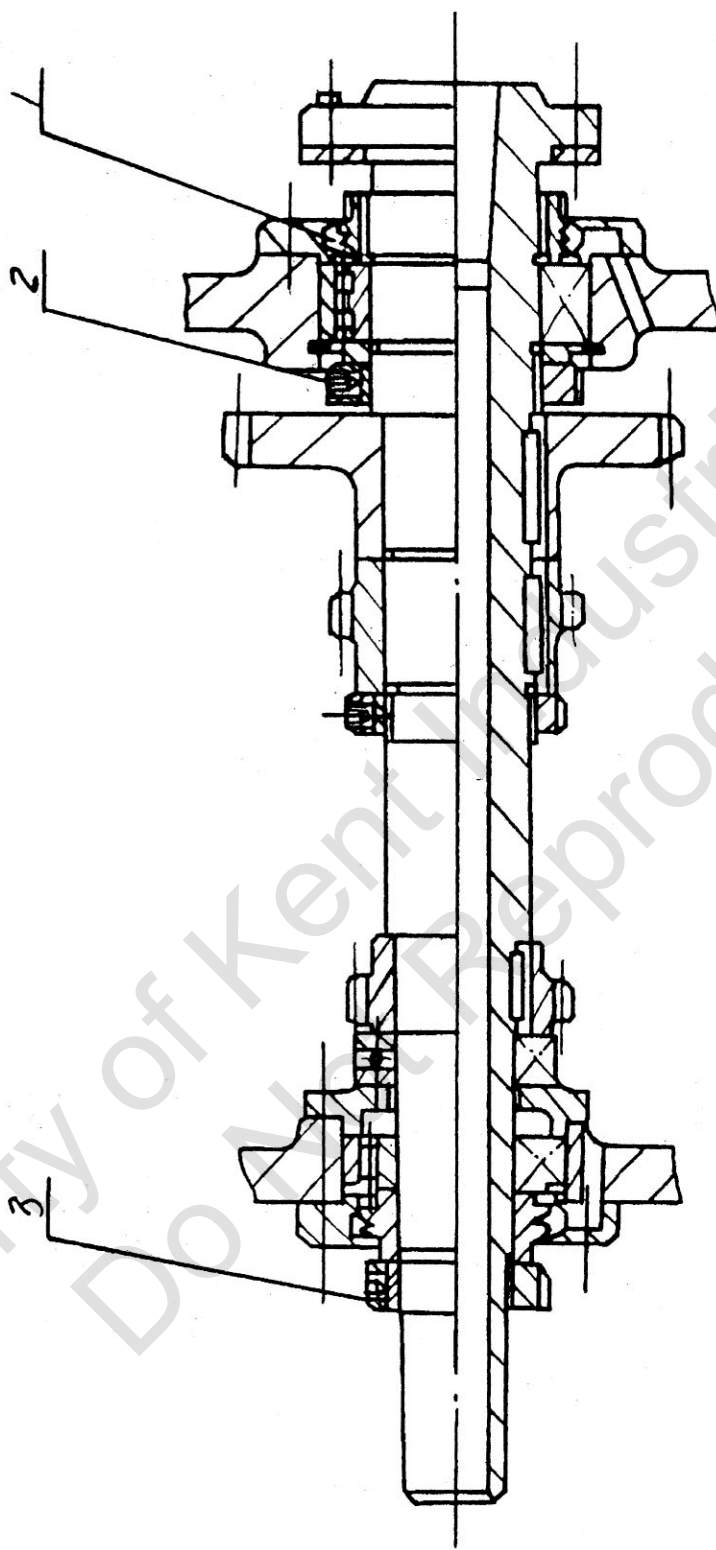


Figure 5 Structure of Spindle Component

### 5.5 Tool post

The tool post is mounted on the tool slide. The former can be fixed to the latter by turning Handle 15 (Fig. 9) clockwise. Turn it counterclockwise, the tool post can be swiveled for a desired angle.

Adjustment of the clearance between the cross lead screw and the nut (Fig. 6):

Screw 1 and 3 are used to fix the nut on the cross slide. As a rule, they should not be loosened. If the clearance is too great, first loosen Screw 1, then turn Screw 2 clockwise, at the same time turn the cross lead screw forward or reverse until the clearance is suitable. Finally tighten Screw 1.

### 5.6 Tailstock

Locking of the tailstock is effected by means of Eccentric Shaft Lever 1 (Fig. 7). When the force acting on the tailstock is rather great, further tighten the eccentric lock Shaft 2 behind the tailstock for auxiliary locking.

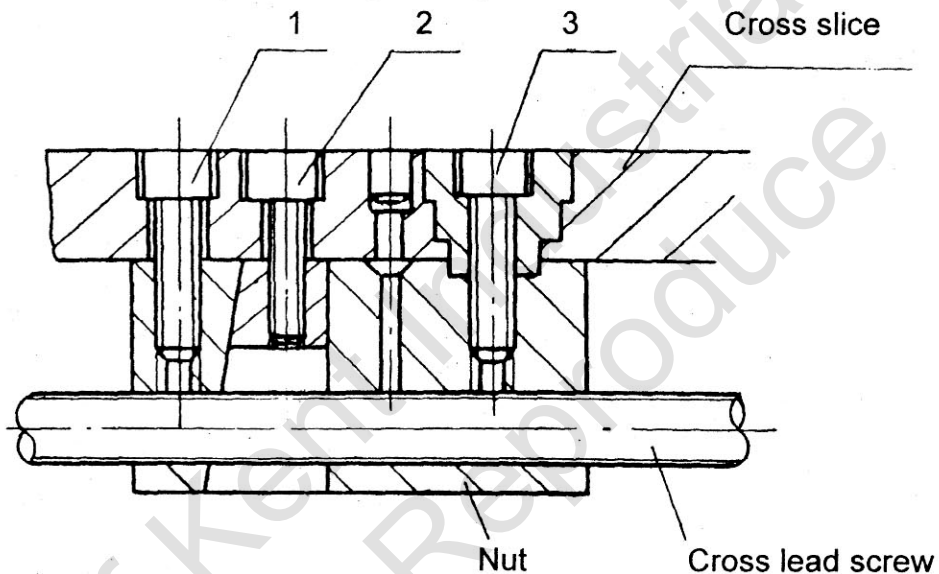


Figure 6

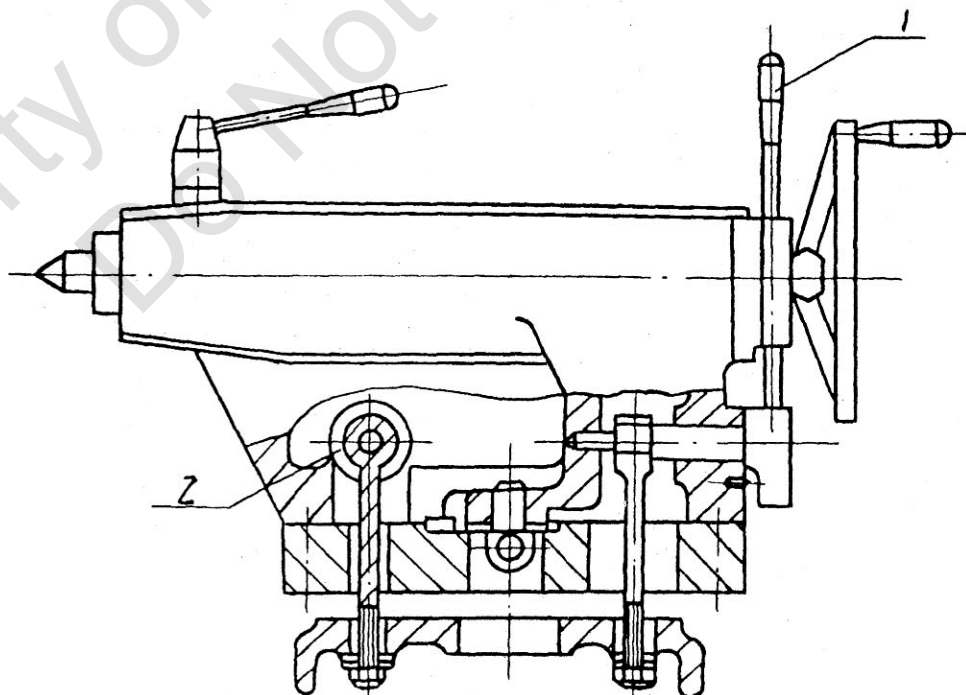


Figure 7

### 5.7 Pedal brake

The main spindle can be stopped by the pedal brake. Through a connecting rod mechanism, the brake shoes will be expanded by treading the pedal. As a result, the spindle overcomes its inertia and stops at once.

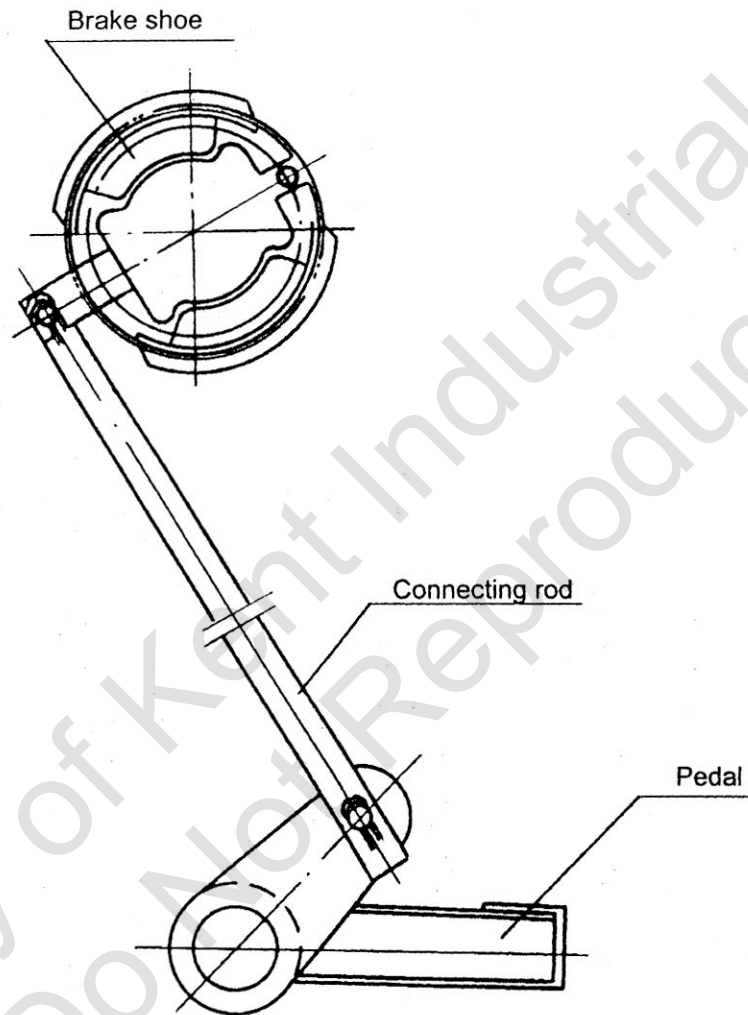


Figure 8

## 6. OPERATION OF THE MACHINE

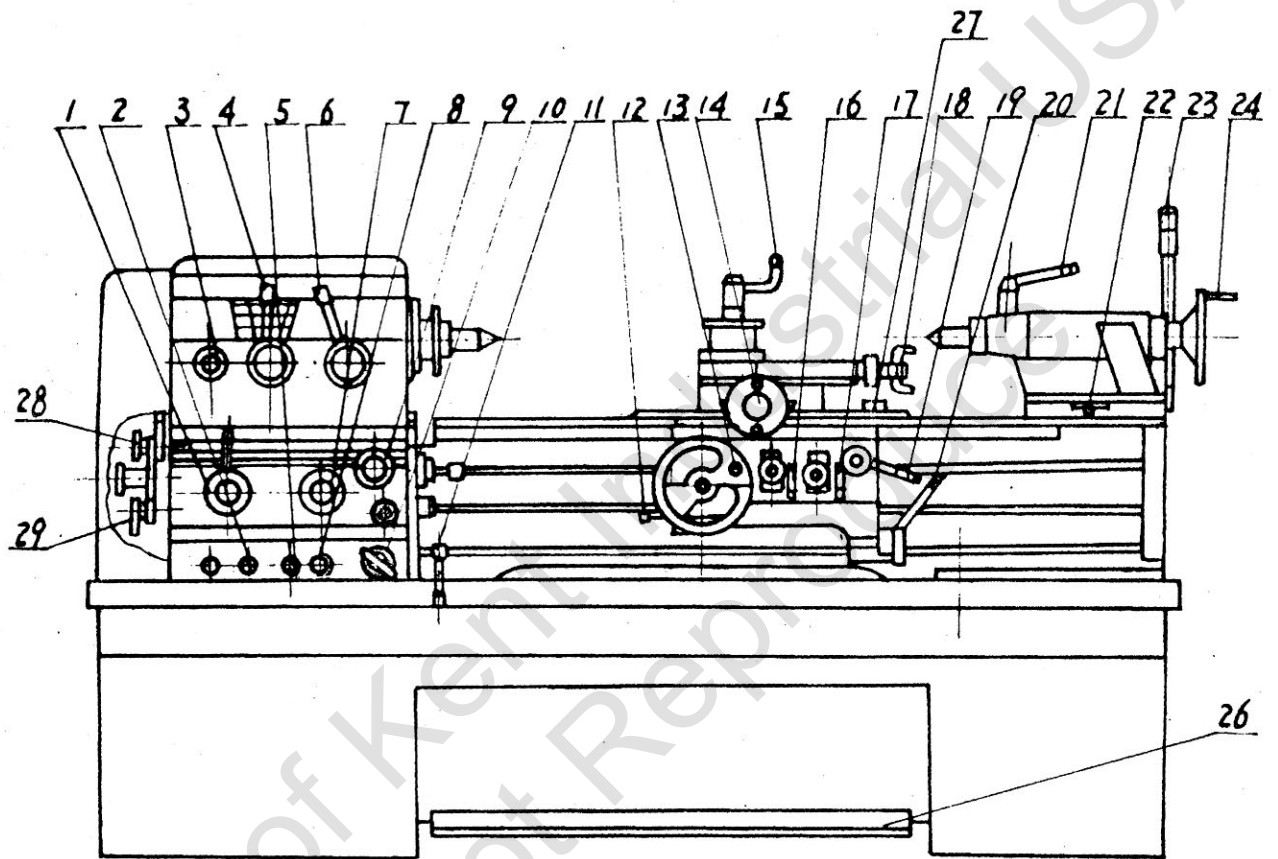


Figure 9 Diagram of Operation System

Serial No.	Description and function
1,7,9	Handle for selecting pitches or feeds
2	Switch for coolant pump
3	Handle for changing feed direction
4,6	Lever for selecting spindle speed
8	Lubrication pump button
9	Handle for connecting feed rod or lead screw
5	Overall stop button
10	Switch for double speed motor
11	Operation lever for controlling spindle turning direction or stopping
12	Lever for engaging overload safety juncture
13	Handwheel for manual longitudinal movement of carriage
14	Handle for manual cross movement of slide
15	Lever for fixing tool post
16	Lever for automatic longitudinal feed
17	Lever for automatic cross feed
18	Handle for moving tool post with hand
19	Lever for connecting half nut with lead screw
20	The same as No. 11
21	Lever for locking tailstock sleeve
22	Screw for setting cross displacement of tailstock
23	Lever for locking tailstock to bed
24	Handwheel for longitudinal movement of tailstock sleeve
25	Master switch of power (behind the bed)
26	Pedal of braking device (extra)
27	Screw for locking carriage
28,29	Sliding change gears for selecting type of thread

Cautions about the machine operation:

Before starting the machine, check the lubrication of all moving parts. Be sure that the starting lever is at neutral position. Turn on the power source and the indicator will light. Then press the lubrication pump button. Only when oil is seen at the oil indicator on the headstock, can the motor be started.

1) Be familiar enough with the machine driving system, the function and changing sequence of all operation levers or handles before starting the machine.

2) Check the accuracy of lever position. Be sure that levers are at a fixed position.

3) All lever positions must be changed only after the machine has been stopped except the switch lever of the double speed motor (over the front bed leg).

## 7. LUBRICATION OF THE MACHINE

To ensure the machine running smoothly and extend its service life, it is necessary to keep all moving parts under proper lubrication.

The headstock is lubricated with an external centralized pressure lubricating system. A cycloidal pump and an oil tank are mounted inside the front bed leg. Lubricating oil is pumped by the cycloidal pump and goes through a filter to a distributor in the headstock which oils all moving parts and bearings of it. The condition of lubrication can be observed from the oil indicator in the front of the headstock.

When oiling, first remove the screw in a tap hole on the cover of the headstock. Pour into it suitable lubricating oil which will flow into the tank through a hole at the bottom of the headstock. Control the amount of oil by observing the oil indicator on the tank. The oil can be discharged for a change by removing the tap at the lower part of the tank.

The gears, bearings, forks and other moving parts in the feed box are lubricated by splashing oil with turning gears. Remove the lid on top of the feed box. Fill in oil to the scratch on the indicator. If the oil is to be discharged for a change, just remove the tap on one side of the feed box.

The moving parts in the apron are also lubricated by gear splashing oil. There is also an oil indicator and a tap for the apron. The carriage and guideways are lubricated by direct injection of oil or by oil cups. Please often observe the condition of lubrication.

When using extra manual oil pump, be sure to check the oil level in the apron often and refill it when necessary.

As for the requirements of the machine lubrication, please refer to Diagram of Machine Lubrication (Fig. 10).

Purified Oil N32 should be used for the lubrication of the machine, with its viscosity being 28.8-35.2 cst (40°C)(analogous to ISO VG32). This may vary a bit according to the working conditions.

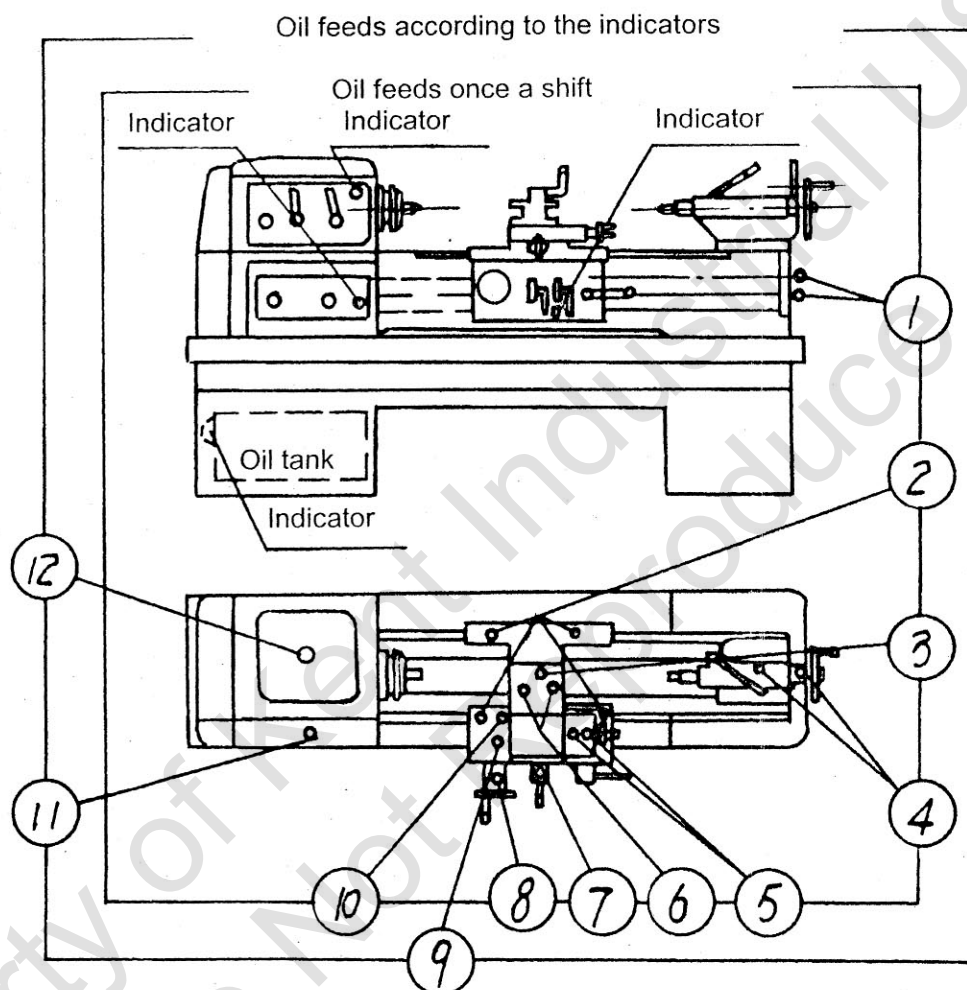


Figure 10 Diagram of Machine Lubrication



Lubrication details

Table 6

Serial No.	Lubricated parts	Hole No.	Kind of oil	Term of refilling	Term of change
1	Lead screw, feed rod, bearings	2	Engine oil	Once a shift	
2	Sliding surface between carriage and bed	4	Engine oil	Once a shift	
3	Cross feed nut	1	Engine oil	Once a shift	
4	Tailstock	2	Engine oil	Once a shift	
5	Top slide	2	Engine oil	Once a shift	
6	Cross slide	2	Engine oil	Once a shift	
7	Cross feed handle	1	Engine oil	Once a shift	
8	Longitudinal feed handwheel	1	Engine oil	Once a shift	
9	Apron	1	Engine oil 32#	According to indicator	6 months
10	Feed rod thrust bearing	1	Engine oil	Once a shift	
11	Feed box	1	Engine oil 32#	According to indicator	
12	Head stock	1	Engine oil 32#	According to indicator	6 months

## 8. ELECTRIC SYSTEM OF THE MACHINE

### 8.1 Characteristics of power

- a) Main circuit: 3 phases, 50 Hz, 380V(or 60Hz, 220V, 440V,etc.)
- b) Control circuit: a.c. 110V/24V
- c) Lighting circuit: a.c. 24V
- d) Signal indicator: a.c. 6V

### 8.2 Protective measure of the machine

8.2.1 Electrical Standard GB 5226-85 (GB refers to the national standard of China) has been implemented for the machine so that the door of the electric box can not be opened unless the master switch has been turned off, and the master switch can not be turned on unless the door of the electric box has been closed. Inside the box, the electric parts over 50V are all housed with organic glass for safety.

8.2.2 A stroke switch is mounted on one side of the gear change box so that only after the V-belt housing has been closed, can the main motor be started. As soon as the housing is opened, the main motor will stop automatically.

### 8.3 Operation of the machine

Tie the power source cable and ground wire (the end of which is marked with letters PE) respectively as indicated in Fig. 2. Close the V-belt housing and the door of the electric box. Turn on the master switch QF and the milky power indicator HL will light. This shows the power is on.

Then pull the operation lever to the middle position (neutral position). Put the headstock into any gear. Turn Switch SA3 of the double speed motor to the lower position (marked with L). Press the lubrication starting button SB1, KM1 is electrified and remains electrified. Motor M1 for the lubrication pump runs and the lubrication system works. At this moment, the oil indicator on the headstock should be inspected whether oil appears. If there is no oil, check the power source cable whether there is anything wrong with the sequence of phases or whether the pipe of the system has been locked up. Only when the lubrication system works normally, can the main drive be started. Otherwise, a damage to the machine may result.

Pull the operation lever to the higher position, Cummutator Switch SA4 (SA3 for machines with pedal brake) makes KM3 electrified and the spindle runs forward. Turn Button SA2 to the position shown as , KM2 is electrified and the cooling system works.

When the operation lever is pulled to the middle position again, KM3 or KM4 is de-electrified and the power of the motor cut. At the same time the electromagnetic braking device YB (if any) is electrified and the spindle stops at once. Since KT is a de-electrifying time-lapse relay, after a lapse of time (usually set at 1-2 seconds) YB loses electricity automatically. When an unexpected situation occurs, just press the red mushroom-like Button SB2, all contacts and relays de-electrified and the spindle soon stops running.

### 8.4 Maintenance of the electric apparatus

Principle layout of electric apparatus (Fig.11), connecting diagram of electric apparatus (Fig.14) and Bill of the electric apparatus (Table 7) may be referred to for the maintenance of the machine.

8.5 Points for attention:

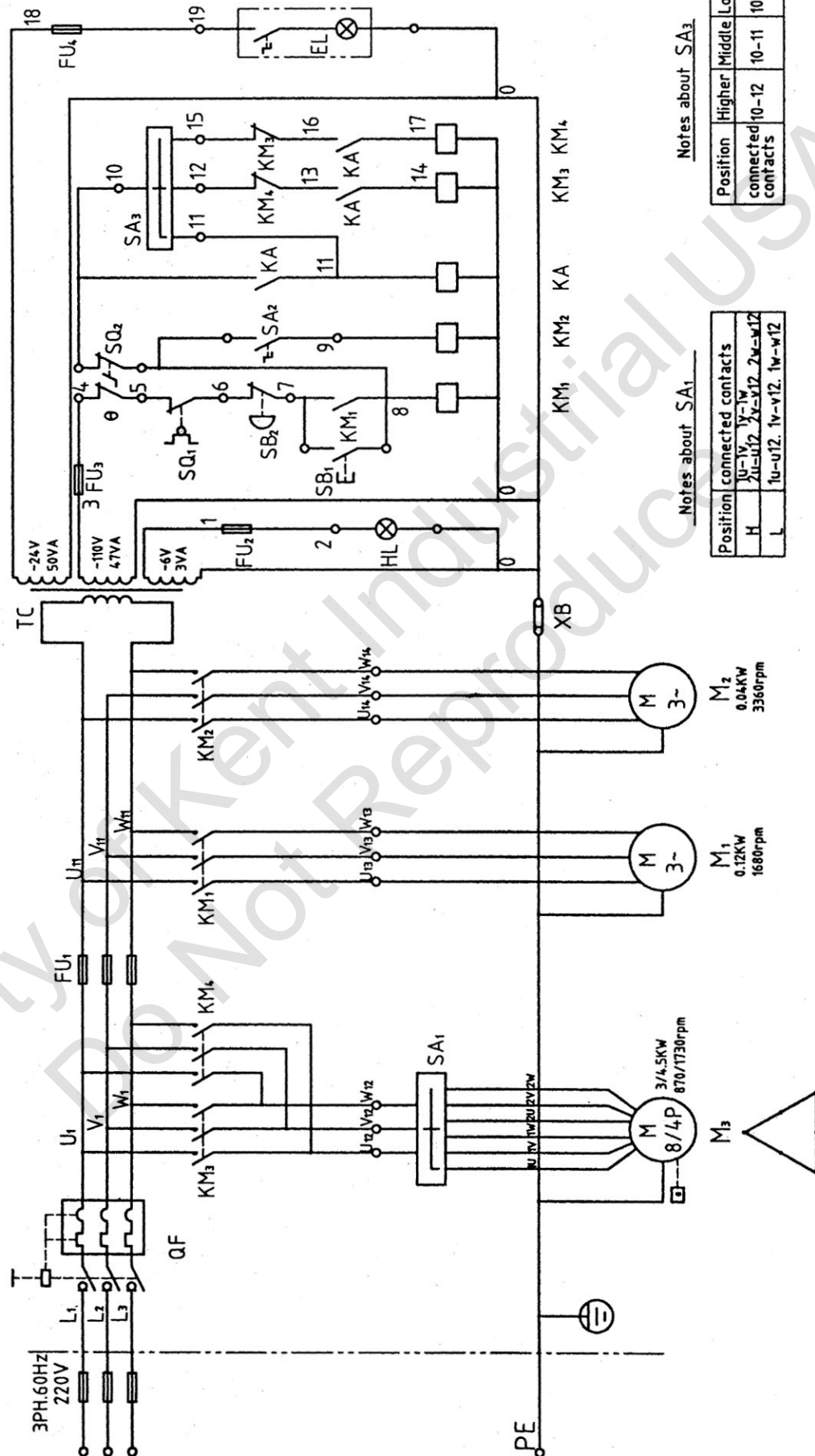
a) To open the door of the electric box, just turn the lock to the "OFF" position and then turn it counterclockwise for a small angle while pulling the door gently. To close it, just push the door handle with a bit force so that a clear sound is heard and the door has been securely closed.

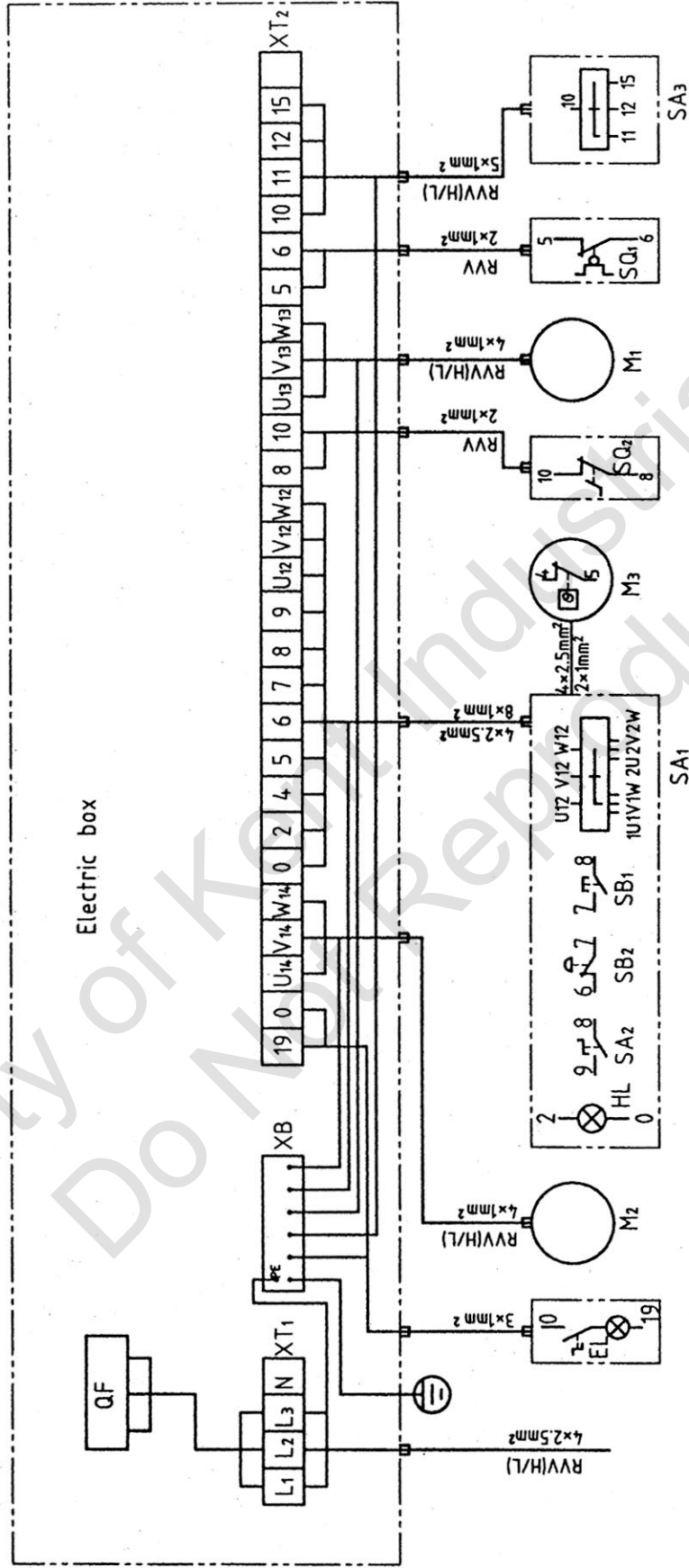
b) If the door of the electric box is to be locked, turn the lock to the "OFF" position, insert the key into the key hole, turn it clockwise for a certain angle. To unlock the door, just do the opposite.

c) For machines with electric magnetic braking device,

(1) the lapse of time relay in the electric box should be set to zero when threads are cut;

(2) The machine should not be started again while the braking device is functioning.





# Bill of the Electric Apparatus

Table 7

Code name	Sec	Description	Model	Technical data		Quantity
				3~380V 50Hz	3~220V 60Hz	
M3	3	Main motor	YD132M-8/4 or YD132S-6/4	3/4.5KW B35 Left wire connection 720/1440rpm 870/1730rpm 3/4KW B35 Left wire connection 970/1440rpm 1170/1730rpm		1
M2	6	Coolant pump motor	DB-12A	40W 2800rpm	40W 3360rpm	1
M1	5	Lubrication pump motor	A02-5634	0.12KM 1380rpm	0.12KM 1680rpm	1
QF	2	Automatic air switch	DZ15-40	3 poles Trip 15A	3 poles Trip 32A	1
TC	7	Control transformer	JBK3-100	380V/110,24,6V	220V/110,24,6V	1
SA1	3	Commutator switch	LW5-15/5	Positioning characteristic D1366		1
SA3	11	Commutator switch	HZ3-452	500V 10A		1
SA2	9	Button	LAY3-11X/2	Black		1
SB1	8	Button	LAY3-11	Green		1
SB2	9	Button	LAY3-01ZS/1	Red		1
SQ1	9	Stroke switch	LXW3-N	380V 2A		1
SQ2	9	Stroke switch	JW2A-11H/W1	220V 3A		1
KM1	11	A.C. contactor	CJX1-9/11	Coil voltage 110V 50/60HZ		1
KM2	11	A.C. contactor	CJX1-9/11	Coil voltage 110V 50/60HZ		1
KM3 KM4	9	A.C. contactor	50HZ:CJX-12/22 Coil voltage 110V 60HZ:CJX-16/22 Coil voltage 110V			2
FU1	5	Blow fuse	RL1-15	Fuse wire 2A	Fuse wire 4A	3
FU3	8	Blow fuse	RL1-15	Fuse wire 2A	Fuse wire 4A	1
FU2	8	Blow fuse	BLX-1	Fuse wire 0.5A		1
FU4	12	Blow fuse	BLX-1	Fuse wire 3A		1
θ	9	Temperature relay	JW6	Functioning value 100°C		1
HL	8	Indicator light	XD1-6.3	Milky		1
EL	12	Machine lamp	JC11-1	24V 40W		1
KA	10	Auxiliary contactor	JZC1	Coil voltage 110V 50/60HZ 3 groups of contacts		1