

Keep this instruction in order to reference in the future
Attention: Read instruction before operating

Z3050 × 16/1
RADIAL DRILLING MACHINE

INSTRUCTION

The max. Drilling diameter 50 mm

Distance 1600 mm

Serial No.

MADE IN CHINA

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Specification subject to change without prior notice.

1、 Main application and feature

1.1 Purpose:

The machine has wide range application in machinery process process,such as drilling,tapping,reaming,even boring if with essential device.

1.2 feature:

- 1、 Beautiful out look,uniqueness of the design.
- 2、 An hydraulic system is employed for changing the speed ,efficiency can be improved.
- 3、 The same one handle control the rotation, reverse, braking,changing speed,race rotation, it's easy to operate.
- 4、 The separated hydraulic clamping of the arm, column and gearbox ensure the clamping firmly ,also the each clamping alone can be relieved.
- 5、 The quenched precision ground arm slides is durable.
- 6、 Safety device.
- 7、 the safety of electronic element are in accordance with the international standard.
- 8、 solid design and construction or high precision and longevity.

2、 Main parameter and dimension

2.1 Specification:

Drilling Capacity:	50mm
Distance colume surface to spindle center:	350~1600mm
The Max. travel of spindle.....	435mm
Max.distance base to spindle.....	350-1250mm
Spindle travel.....	435mm
Spindle tap.....	MT5
Number of spindle speed.....	16
Range of spindle speed.....	25-2000r/mm
Number of feed:	16
Range of feed:	0.04~3.2 mm/r
Elevating speed:	1.2 m/min
Angle of arm rotation:	360°
Max torque of spindle:	400 N•m
Max feed load:	16000 N
Spindle driving motor:	4 KW
Arm elevation motor:	1.1 KW
Clamping motor:	0.75 KW
Coolant pump:	0.120 KW
weight:	3500 Kg

2.2 Dimension

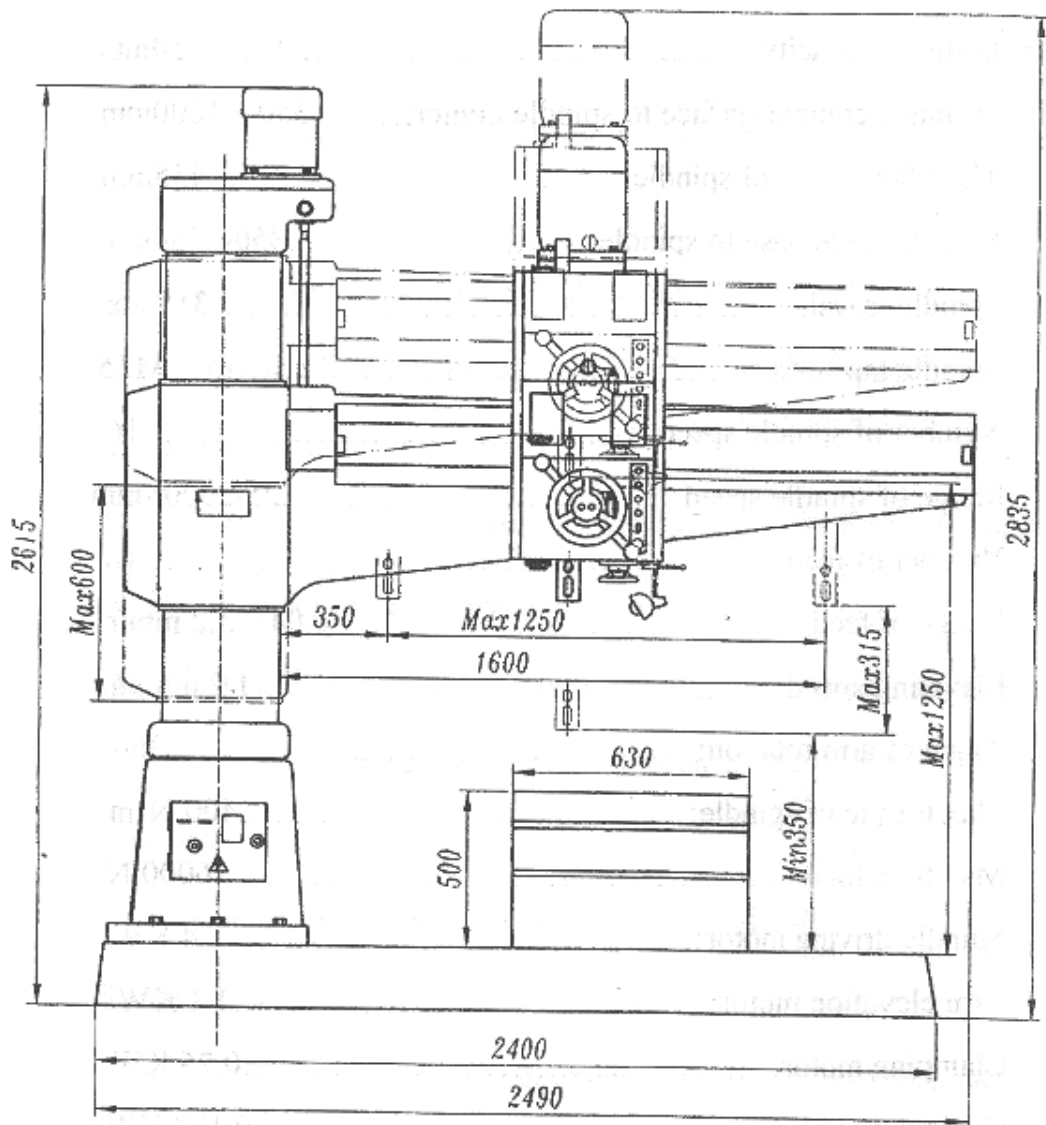


Fig. 2-1

3、 transportation and installation

3.1 Transportation(fig.3-1)

Package case tilting prohibited. Putting a soft thing between the machine surface and loading rope and keeping the balance when loading the machine without package case to protect machine. Pay attention to the arm back door.

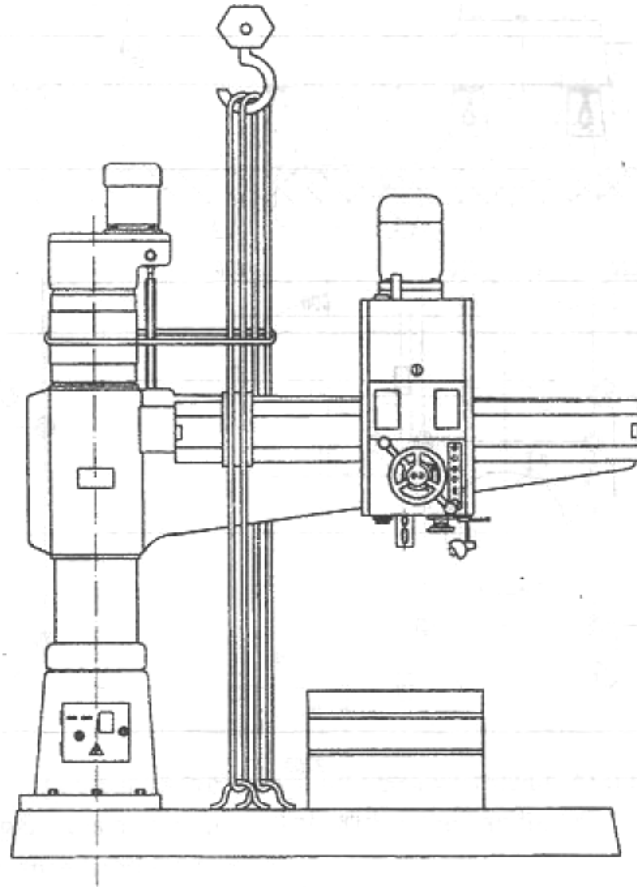


Fig. 3-1

3.2 Installation and adjustment (fig3-2)

The Max. area of installation is a 2.130 square metre circle.

Don't relieved column clamping to avoid the title of machine before the ground base being ready. First put the bolts into the base back plate and then set the base plate on the ground while put the pairs of back blocks I、II、III as the Fig.3-2. The longitudinal and cross plate lever should within 0.04/1000. Start to adjust the each precision value after the installation and the machine running according the values stipulated on the certificates of the manufacturer which was got in the measurement procedure by the manufacturer. After adjustment, fix bolts and back blocks by concrete. Fasten the bolts, and check the precision

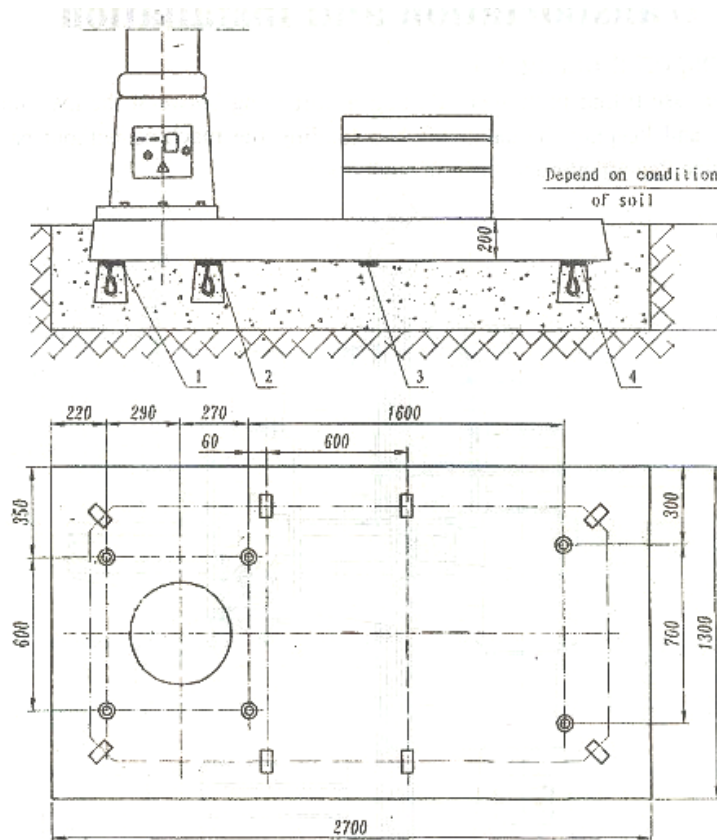


Fig. 3-2

3.3 Preparation before first running:

Connect power , put down the relieving button,, swing the column,,check for proper power connecting.get ready for arm elevating.

Clean the rust-resist liquid with clean cotton cloth at same time keep the sleeve out the coal oil.Lubricant the sleeve surface by No.30 oil, then lower the arm 50 mm, clean and lubricant the surface without lubricant before, raise the arm 100mm again and do cleaning and lubricating again.These procedure must be done,otherwise the arm would be scratched.

Relieve the 2 bolts as fig.10-1,inject the oil as fig.5-1 ,then check the lubricant condition.

Run the machine ater every preparation get ready,and inspect the parts of machine under race rotation running condition.If the machine run smoothly and properly, the machine can be in use.

4、 operation

The function of handle,hand wheel, button is showed in fig,4-4.

Turn on the power switch first,the power signal lights,then beegin to operate.

1. Driving the spindle.

Put down the button 9,the botton lights,turn the handle to rotation or reverse position,the spindle will rotate clockwise or counter clockwise.

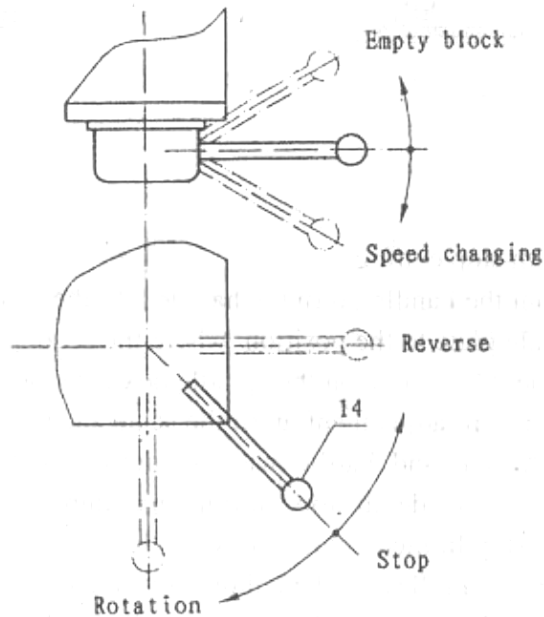


Fig. 4-1

2、 Spindle race rotation.

Put up the handle, you can move the spindle easily by hand.If you want start driving the spindle again,it is a must to putting down the handle 14

3、 Changing spindle speed and feed speed.

Turn the pre-selection button 3 or 4 to the target speed or feed.put down the handle 14, then speed is changed.The speed still can be pre-selected while the spindle is turning.There are 3 high spindle speed and 3 big feeding speed which can't be in use t the same time.That meen, just one speed among 2000,1250,800r/min group,just one among 3.20,2.00,1.25mm/r can be in use at a running condition.

4、 Feeding

Auto-feeding——put down the handle 16, then pull out the handle 6.。

Manual feeding——push the handle 6, then turn it, the spindle can be driven to feed down or move up.

Micro feeding: turn the handle to lever position,then pull out the handle 6,turn the hand wheel 17,the micro feeding be effected.

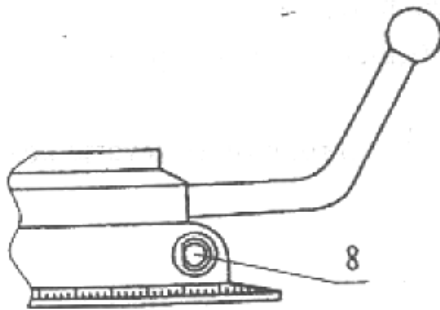


Fig. 4-2

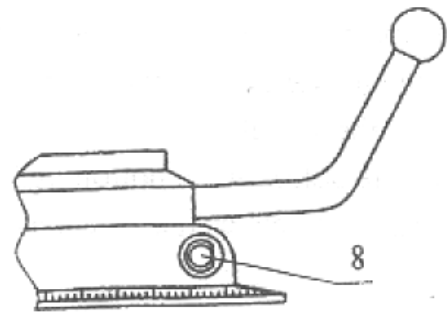


Fig. 4-3

5、 Depth stop cutting

pull out the handle ,turn the handle 8 to the position indicated in fig.4-3,then then turn the scale plate to the position where the set depth value scale is in approximating a line with the 0 lever line on the spindle box,turn the handle8 to the position indicated as fig.4-3,do macro adjustment,until the scale and 0 in a line lever,push handle 7,auto-feeding effected,and handle will rise automatically when the drilling depth arrive at the stop value,the depth stop cutting procedure is over.It is prohibited to set a value beyond the stop limited value,otherwise the lever shaft will be hamed easily.◦

6、 mping and relieving the column and spindle head

Clamping or relieving the column and spindle head is within the same time.Push button 19 and the button lights showing the column and head have been clamped firmly.If the button doesn't light,the push the button several times until it light.

Pushing button 18 extinguish light of button 19,at the same time the button 18 lights,showing the column and head has been relieved.

7、 Arm elevating:

Push the button 11 , arm rising, push the button 12, arm down, when the arm arriving the target position,relieve the button,elevating stopping and the arm being clamped automatically.,

8、 Caution:Don't always move the arm along a same direction to circle.

Operation illustration

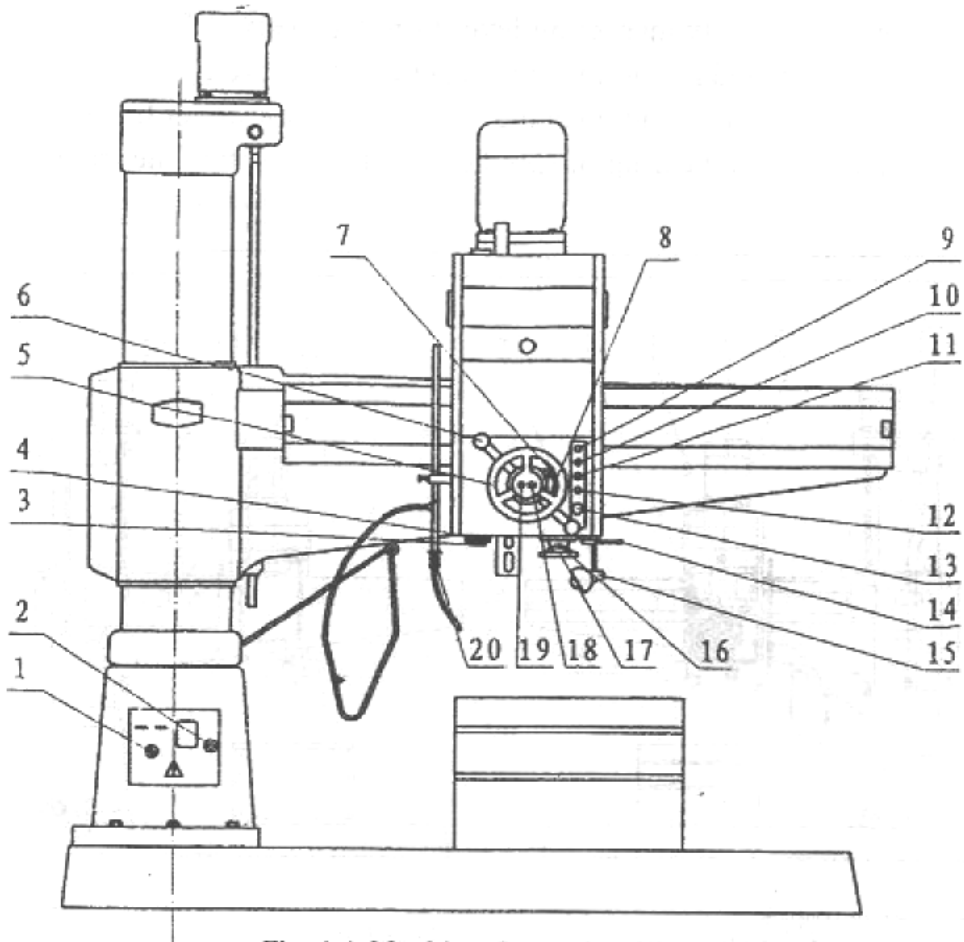


Fig. 4-4 Machine Operation illustration

Number	Operation part name	Number	Operation part name	Number	Operation part name
1	Coolant pump switch	8	Dial micro-adjusting handle	15	Machine lamp switch
2	Main power supply switch	9	Main motor start button	16	Connect, disconnect mechanical feed handle
3	Spindle speed pre-selection button	10	Main motor stop button	17	Micro-feed handle
4	Spindle feed capacity pre-selection button	11	Arm rise button	18	Spindle head, column release button
5	Spindle head moving handle	12	Arm fall button	19	Spindle head, column clamp column
6	Spindle moving handle	13	Overall stop button	20	Cooling fluid
7	Pin limitation handle	14	Spindle speed change and race rotation handle		

5、 Lubricant

The operator must usually inspect oil level from the every indicated oil level cover as fig.5-1. The oil lever should not be above the centre of the cover.

Before injecting oil into head, open the oil lever plastic cover. If exchange the oil from head or inject oil into bearing of spindle and under oil box, the front mark plate should be unloaded.

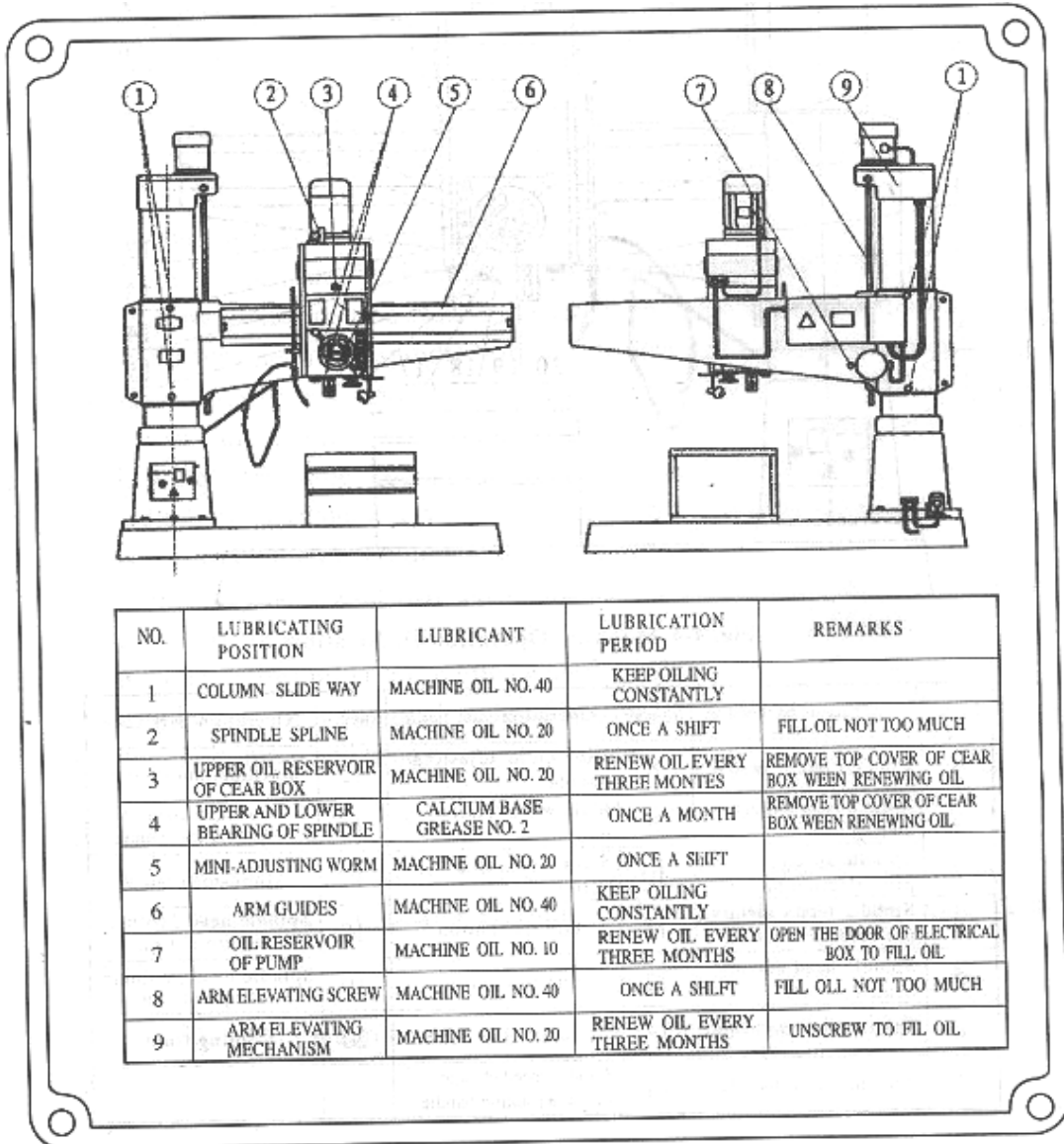


Fig. 5-1

6、Coolant

Turn the switch 1 as fig.4-4, start the coolant pump, the coolant liquid is being supplied and the cutting tool is cooling. Coolant liquid flow volume could be controlled by switch 20 indicated in fig.4-4.

7、Driving system

7.1 Driving system.

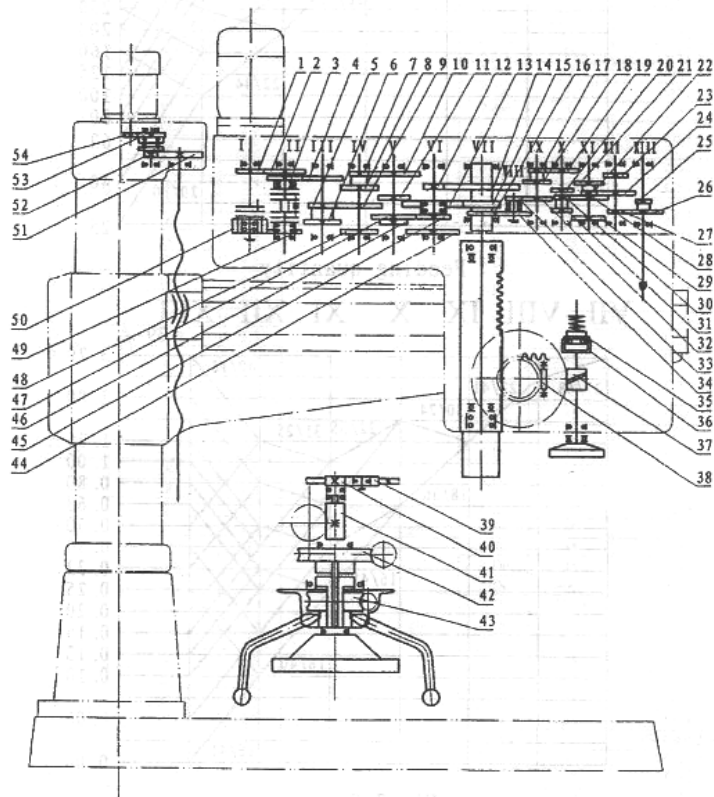
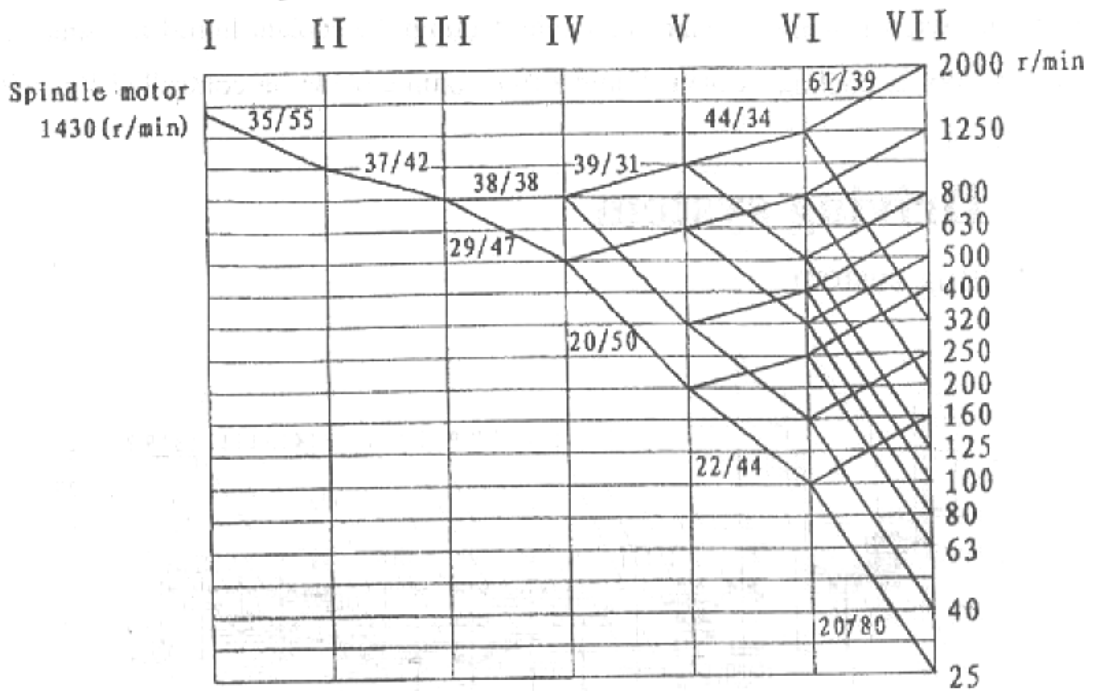


Fig. 7-1

Spindle speed



Feeding quantity

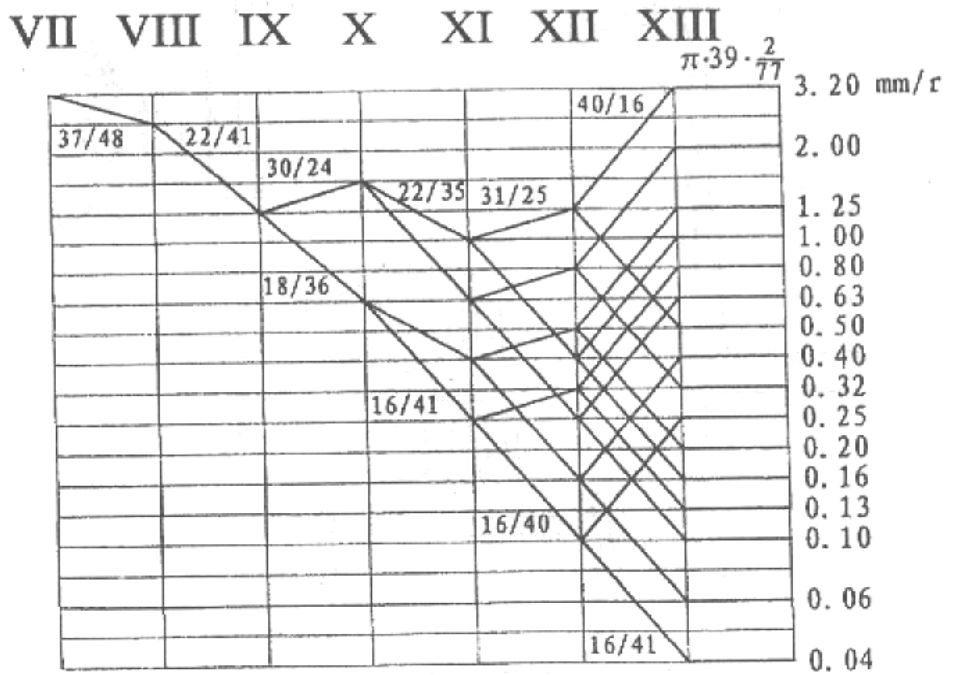


Fig. 7-2

7.2 Parts of driving system

Position No.	No. of pitch or start	Modu-lus	Spiral angle and direction	Precision grade	Materials item	Heat treatment and hardness
1	35	2		7-Dc	45	G54
2	55	2		7-Dc	45	G54
3	37	2.5		7-Dc	45	G54 Claw H42
4	42	2.5		7-Dc	45	G54
5	29	2.5		7-Dc	40Cr	T235,D0.35-450
6	38	2.5			40Cr	T235,D0.35-450
7	20	2.5		7-Dc	45	G54
8	39	2.5			45	G54
9	47	2.5		7-Dc	45	G54
10	50	2.5			45	G54
11	43	2.5		7-Dc	45	G54
12	20	2.5			40Cr	G52
13	61	2.5		6-Dc	40Cr	G48
14	80	2.5		7-Dc	40Cr	G48
15	39	2.5		6-Dc	45	G54
16	37	2		7-Dc	45	G54
17	18	2.5		8-Dc	45	G54
18	30	2.5			45	G54
19	36	2.5		8-Dc	45	G54
20	24	2.5			45	G54
21	43	2.5		8-Dc	45	G54
22	16	2.5			45	G54
23	25	2.5		8-Dc	45	G54
24	40	2.5			45	G54
25	16	2.5		8-Dc	45	G54
26	41	2.5			45	G54
27	16	2.5		8-Dc	45	G54
28	41	2.5			45	G54
29	35	2.5		8-Dc	45	G54
30	16	2.5			45	G54
43	22	2.5		8-Dc	45	G54
32	41	2			45	G52
33	22	2		8-Dc	45	G54
34	48	2			45	G54
35	38	1.5		8-Dc	45	
36	38	1.5			45	
37	2	2	4° 58' right	8-Dc	40Cr	T235
38	2	1.5	5° 42' 38" right	8-Dc	45	
39	35	2		9-Dc	45	G48
40	20	2		9-Dc	45	G48
41	13	3	8-Dc	40Cr	T235,D0.3-500	
42	77	2		4° 58' right	8-Dc	HT300
43	72	1.5	5° 42' 38" right	8-Dc	40Cr	
44	44	3	7-Dc	45	G54	
45	34	2.5		45	G54	
46	22	3	7-Dc	40Cr	G54	
47	44	2.5	7-Dc	45	G54	
48	38	2.5	7-Dc	45	G54	
49	36	2.5	7-Dc	45	G54 Claw H42	
50	36	2.5	7-Dc	45	G54 Claw H42	
51	54	2.5	8-Dc	45	G48	
52	16	2.5		45	G48	
53	42	2.5	8-Dc	45	G48	
54	20	2.5		45	G48	

7.3 Bearing

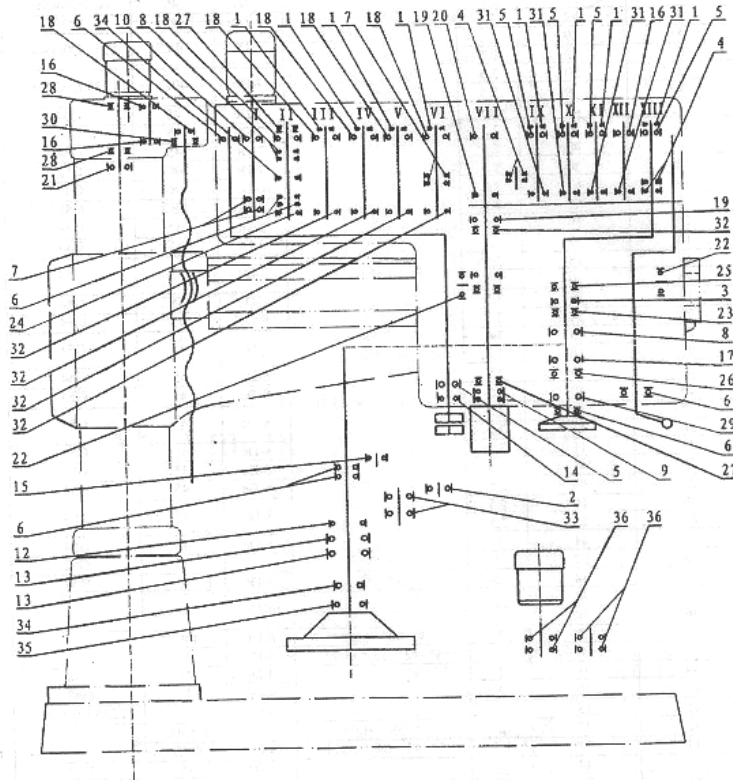


Fig. 7-3

7.4Position of roll bearing

No.	Item	specification	precision	Qty
1	626	6×19×6	G	8
2	6000	10×26×8		1
3	6001	12×28×8		1
4	6004	20×42×12		4
5	6005	25×47×12		5
6	6006	30×55×13		5
7	6007	35×62×14		4
8	6008	40×68×15		2
9	D6008	40×68×15	D	3
10	6009	45×75×16	G	1
11	6010	50×80×16		1
12	6011	55×90×18		1
13	6016	80×125×22		2
14	6201	12×32×10		1
15	6203	17×40×12		1
16	6204	20×47×14		3
17	6205	25×52×15		1
18	6206	30×62×16		5
19	6210	50×90×20		1
20	6211	55×100×21		1
21	6217	85×150×28		1
22	2305	25×62×24		2
23	51101	12×29×9		1
24	51105	24×42×11		2
25	51106	30×47×11		1
26	51107	35×52×12		1
27	51108	40×60×13	D	2
28	51117	85×110×19	G	2
29	51205	25×47×15		1
30	51207	35×62×18		1
43	6204N	20×47×14		4
32	6206N	30×62×16		4
33	16005	25×47×8		2
34	16006	30×55×9		5
35	16010	50×80×10		1
36	94.1/15	15×20×12		4

VIII, Hydraulic system

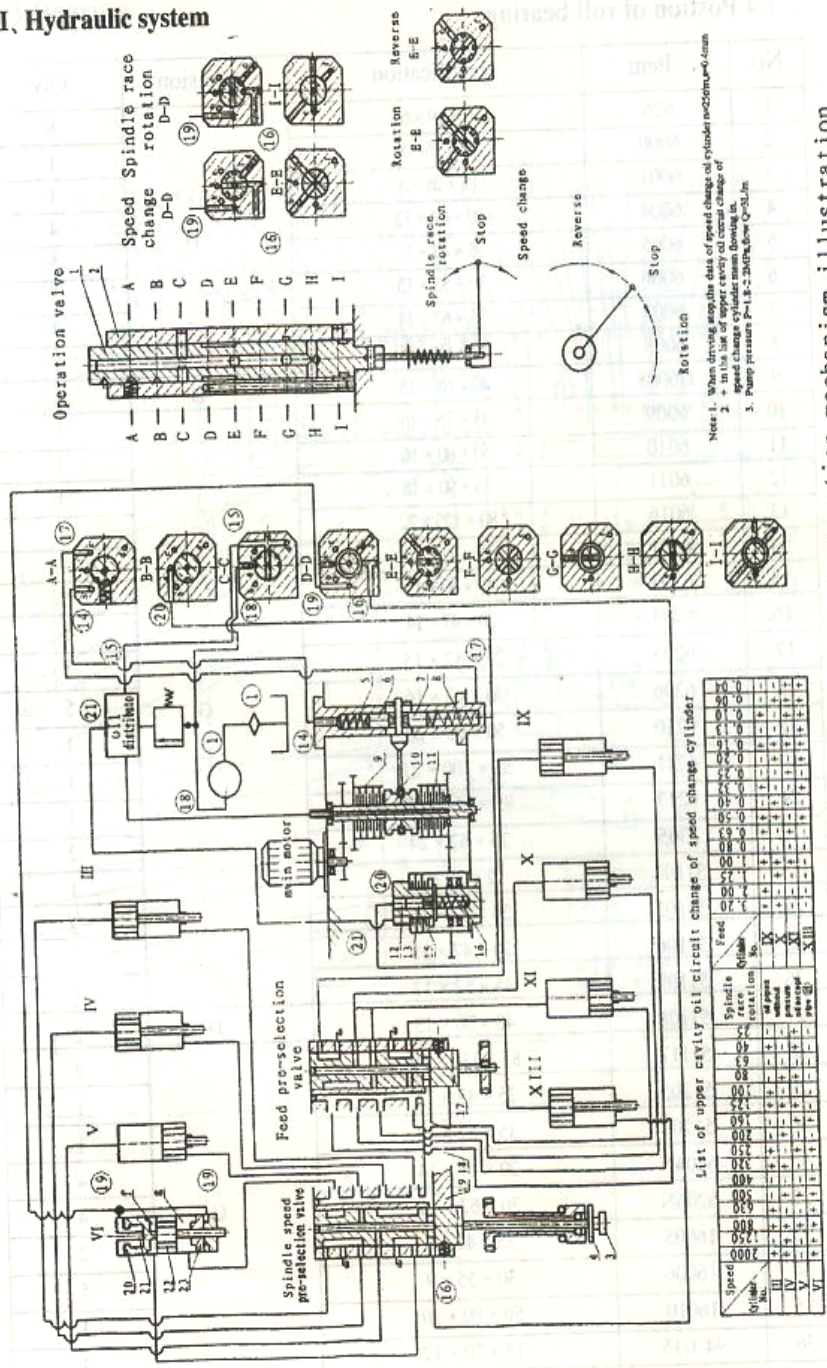


Fig. 8-1 Hydraulic system or operation mechanism illustration

Note 1. When driving, supply the date of speed change of cylinder and 250mm²±0.4mm
 2. Speed change cylinder every oil circuit change of speed change cylinder min flow in
 3. Pump pressure P=1.8-2.3MPa, flow Q=30L/min

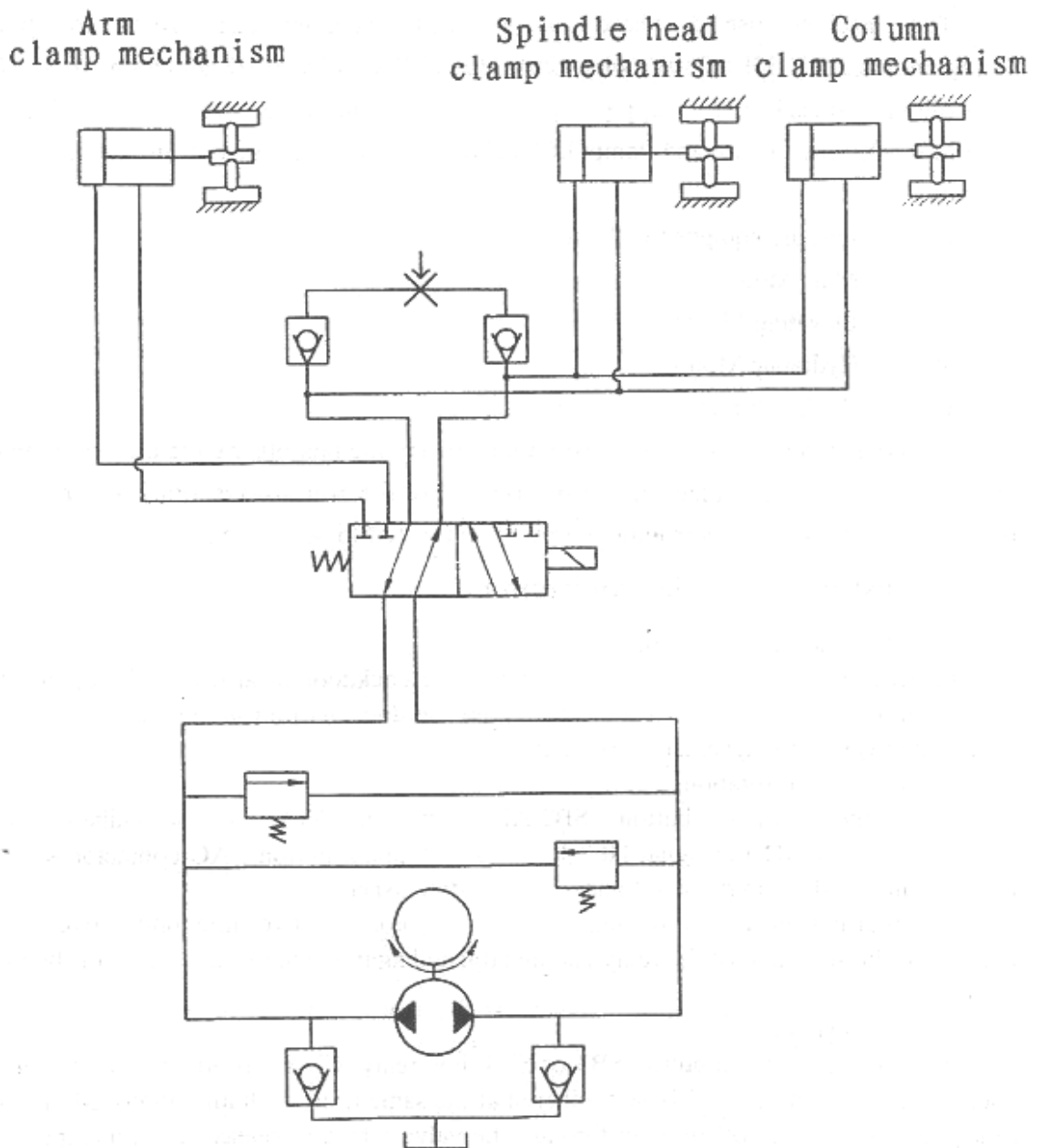


Fig. 8-2 clamp hydraulic mechanism and oil circuit illustration

9、Electronic

1、Brief instruction

The machine use 3 phase AC power,if manufactured according to special requirements,220V 50Hz,380V 60Hz,420V 50Hz,220V/440V 60HZ all can be in use.The controlling transformer supply power to controlling circuit(110V),lighting circuit(24V),signal lamp and lamp(6.3V),above elements stipulated in the electronic elements item list

The machine are equipped with motors as below:

M1——Main Motor

M2——Elevating Motor

M3——Hydraulic Motor

M4——Coolant Pump

The coolant pump is connected with under electronic box,other electronic equipments are connected with arm electronic box.Don't move the arm always along a same circlr direction otherwise the electronic wire will be twisted to be broken.

2、Instruction of electronic circuit.

(1) Preparation for running

In order to ensure the safety of operator, the backdoor of arm is to be opened,the power is to be shut off.So it is a must to close the door before run the machine.Turn on the switch QS1 ,yhe signal lamp HL1 light.

(2) Main motor rotation

Push the starting button SB2,AC contactor KM1 is self-adhered and self-locked,motor M1 run,signal HL2 light.Push stopping button , AC contactor KM1 is released,motor M1 stop running,signal HL2 is extinguished. The thermal-relay will prevent the main motor run overtime under overloaded condition.The set value of the relay can be adjusted against the rating currant of the main motor.

(3) rm elevation

Push the up or down button SB3 or SB4,time relay KT is self-adhered ,it makes the magnet YA and contactor KM4 self-adhered at the same time, hydraulic motor M3 rotates to supply the pressing oil flowing through the valve into arm releasing cylinder,pushing piston and rhombic block to release the arm,at the same time the piston shaft press position switch SQ2 through the spring sheet.Contactor KM4 is released,KM1 or KM3 is sel-adhered,motor M3 stop running,elevating motor M2 runs to raise or lower the arm.

If the are is not released, SQ2 can't close its contactor points, KM2 (orKM3) can't be adhered,thus the arm can't elevate.

When the arm move to the target position,release button SB3 or SB4,K2,K3 and time relay KT is released , elevating motor stop running and the arm stop elevation.Because the time relay KT is released,1-3 second later,contactor KM5 and magnet are self-adhered, hydraulic motor M3 reverse to supply the pressing oil flowing through the valve into arm clamping cylinder,pushing piston shaft and rhombic block along the counter direction to clamp the arm,at the same time the piston shaft press position switch SQ3 through the spring sheet.KM4 and YA is released,hydraulic motor M3 stop running.

The main function of the time relay is to control the controlling contactor being adhering time,which make the arm is clamped after elevating motor stop running.The delay time need 1-3 second.

Combined switch is for limiting the arm travel.When the arm is raised to the limited position,SQ1 Move,KM2 is released, elevating motor stop running. .When the arm is lowed to the limited position,SQ1 Move,KM3 is released, elevating motor stop running.

Switch SQ3 is for controlling auto-clamping of the arm.The problems with the hydraulic clamping system such as auto-clamping couldn't be finished,SQ3 were adjusted improperly to make the SQ3 contacting point opened,will make the hydraulic pump overloaded running overtime to be harmed. Thermal relay in the circuit which set value can be adjusted according to the rated current of motor is to prevent these thing.

(4) The clamping and releasing of column and spindle head.

The clamping and releasing of column and spindle head are effected at the same time. Push the releasing or clamping button SB5 or SB6, contactor KM4 is self-adhered , hydraulic motor M3 rotates to supply the pressing oil flowing through the valve into column clamping or releasing cylinder, pushing piston and rhombic block to clamp or release the arm. Clamping or releasing signal lamp lights.

3、 Inspection off the power phase sequence

After installation of the machine,turn on the power,push the start button SB3,main motor start to run,signal lamp is extinguished.Turn the handle16 to the rotation or reversal position and the spindle can rotate in clockwise or counter clockwise, it show the correct phase sequence,otherwise it is a must to exchange the position between the 2 electronic wire.

4、 Maintenance of the electronic equipment

Caution: Although the power will be shut off upon the door being opened,but the voltage still exist near the switch.If it is necessary to inspect under power supplying condition, pull out the pin SQ7, the power off upon door opened will lost.

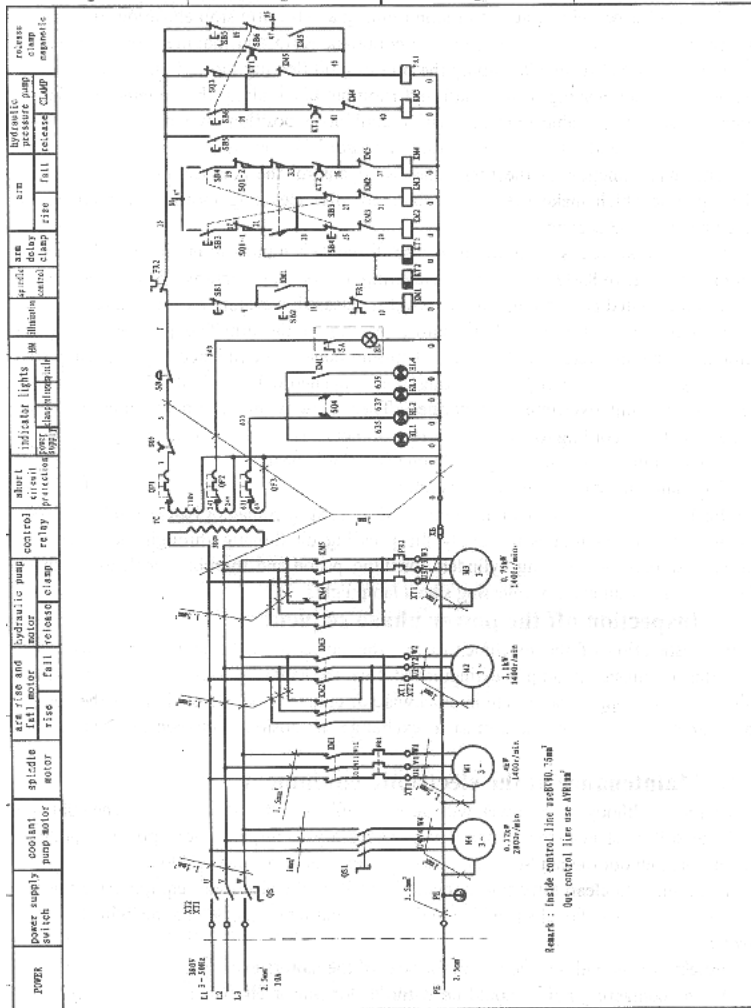
It is a must to clean dirty,smear regularly to keep the electronic equipment cleaning. Prohibition to wash the electronic winding by coal-tar,oil.Dirty can be wiped by air blowing.

Inspect , repair and replace the oil for bear of the motors every year.

All the contacting-point should be without dust,smear.The wearing contacting-point should be taken place by new one,and burning or Oxygenating point should be softly filed off.

The tolerance between practising voltage and rated voltage should be within +/-10%.

Electronic elements illustration



Eletronic elements item list

No	Part No.	qty	Specification	Part	Memo.
1	M1	1	Y112L1-4, B5	3 phase motor	
2	M2	1	Y90S4, B5	3 phase motor	
3	M3	1	Y8024	3 phase motor	
4	M4	1	AOB-25	Coolant pump	With pump
5	QF1、QF2、QF3、QF4	7	18A、9A、4A、2.0A	Fuse cartridge	
	QF5、QF6、QF7		2A、3A、3A		
6	TC	1	JBK5-160VA 400/24 24	Controlling relay	
7	KM1	1	3TB42-22 24v	AC contactor	
8	KM2、KM3、KM4	6	3BT40-22 24V	AC contactor	
	KM5、KM6、KM7				
9	FR	1	LR2-D1305C 0.63~1A	Thermal relay	
10	KA	1	MY2N 24V	Relay	
11	KT1	1	JSZ3F	Time relay	
12	SA	1	HZ5-10/1,7LO2	Combination switch	
13	SQ1a、SQ1b	3	XZ-15G-B	Limit switches	
14	SQ2、SQ3	2	LXW5-11G2	Limit switches	
15	SQ4	1	JWM6-11	Door switch	
16	SB2、SB4、SB5	3	LAY3	Control button	
17	SB3、SB6、SB7	3	LA19-11	Control button	
18	SB8	1	LY42	Control button	
19	SB9	1	LA42H-11	Control button	
20	SB1	1	LAY3-01ZS/1,	Control button	
21	QS1	1	HZ12-40/03	Changeover switch	
22	YA1、YA2、YA3	3	24V	Magnet	
23	EL	1	40W, 24V	Lamp	
24	HL	1	XD1, 6.3V	Indicator lamp	
25		1	JL40A-7	Work lamp	

10、 Main structure

1、 Spindle speed change transmission mechanism (fig.10-1)

Spindle speed change transmission mechanism is equipped on upper hand of spindle head box which has 7 pieces transmission shaft ,through the different joggle between 4pieces slippage gear and fixed gear enable spindle achieve 16 serials speeds.。 There is a spindle friction clutch on shaft II which can not only make spindle start stable and change circulation way without impact but also friction piece skid and motor over-load while spindle load is over motor rated power , there has three claws on outer side of friction piece in order to reduce abrasion when there has interspace between neighbouring friction pieces 。 outer friction piece was divided into two kinds due to the way of three claw, the way of two outer friction piece claw on shaft should be consistent when they range on shaft. Slippage gear on shaft III could cut off the transmission chain between main motor and spindle through operation mechanism moving to the middle , (Check with “spindle race rotation ”)。 Cut off the transmission chain between main motor and spindle , spindle rotation can be rotated easily, we called “spindle race rotation”. In order to equip and release tools and aim at the hole will be processed 。

On structure arrangement , spindle head box was divided into three floor, if you want to takedown the spindle head box , move out the main motor and then unpack the organic glass cover on two side of spindle head cover ,take out the stopper pin with a bolts on its side , unpack the fasten screws, then second floor spindle head box can be unpacked . Hence , all the parts of transmission system exposure outside ,all transmission shaft can pull out directly from spindle head body.

2、 Spindle feed speed change transmission mechanism . (fig.10-2)

Structure model、 position、 structure arrangement、 assemble and unpack procedure of Spindle feed speed change transmission mechanism is similar to the spindle speed change transmission mechanism.

3、 Spindle feed machanism .

Spindle feed mechanism include two part :worm shaft and plane shaft , motivity is transmitted from spindle feed speed change transmission mechanism to worm shaft , via worm wheel , transmitted from plane shaft to spindle cover at last , make spindle got feed motivation .

(1) Worm shaft (fig.10-3)

fig.10-3 shows manual feed micro-feed position, handle 15 was at steel ball insurance clutch on upper limitation place gear 8. Spindle feed speed change mechanism drive unload race .I f you want to connect mechanical feed , press handle 15 to the limitation place , push parts such as gear cover 1 and haulm 3, upward moving inner gear cover 7 8mm, and joggle with outer gear , circulation movement via spline 9 and spline hole on inner gear cover 7 transmitted to worm shaft 5, make worm wheel 4 reverse , plane shaft drive spindle feed at last. Hand wheel 17 circumgyrate

altogether , if you want to connect micro-feed , push handle 15 to the upper limitation place , push parts like cover 1 etc , let inner gear 7 and 8 come away with joggle , turning handle wheel 17, worm shaft reverse directly , via feed worm wheel 4, at last micro-feed effected due to plane shaft drive spindle, herewith , plane shaft with manual feed if not turning handle wheel 17.

The steel ball insurance clutch is a insurance function device which can be cut off the mechanical feed while feed assistant power is over the rated value, it can cut off the mechanical feed also while fixing pin .

When unpack, unpack the front mark plate of spindle head , upper part pf worm shaft emerged unpack the small pin 10 on spline sleeve , draw out the steel ball insurance clutch set from the upper side , if you want to unpack the worm shaft , you need to unpack the pin 6 on inner gear sleeve , and then inner gear sleeve , screw off six fixing screws on bearing sleeve , and all these parts complete with sleeve 2, all the worm shaft parts pull out from thr spindle head body

(2) Plane shaft (fig.10-4)

Plane shaft unpack and assemble:

Loosen the nut 1, unpack the hand wheel 5, plane shaft parts can unpack completely. Must pay more attention that when unpack the plane shaft, spindle must move to the upper position , release spindle balance spring ,pad in prevent the spindle down suddenly.

Assemble the horizontal shaft, the spindle must move to upper position. The shaft balance cam must be in suitable position.

The clutch adjustment :

When the clutch in a proper position, the handle 4 put in the “mechanism” position. Tight the nut 3.

Attention: The 36 pcs 9VIB steel ball control the connection or move away of clutch. Disassemble, the steel ball can't loose. And assemble; pay attention the number of it. I t also can't instead by others steel ball. Otherwise, it will destroy the clutch.

8、 Arm elevating (10-9、 10-10)

Inside of elevating shell 13, equipped with a arm elevating framework (fig.10-9 B-B section shows), elevating motor driven elevating link 23 via lower speed motor and steel ball insurance clutch 15, due to (fig.10-10 A-Asection shows) elevating nuts 21wad limited by pin 22, can not rotation , sp link 23 reverse can drive arm up and down ,to ensure the affluent lubrication of all transmission parts in elevating framework , there is a splash set equipped on motor shaft 14 ,for the consideration of elevating nut 21 abrasioin after long time working and probably out of it, there is a insurance nut 20. When elevating nut 21damaged, arm moving down to contact with pressure cover 18, pressure 18 supporting arm , in order to contingency happens 。 Nut 17 is used for link 23 limitation in shaft way ,when arm up and down to the travel end , not till steel ball insurance clutch 15

function ,link will press electric switch and let elevating motor stop rotation ,and then stop up and down 。While arm up and down , if suddenness happens or electric switch failed turn on ,steel ball will press spring skid , up and down movement stopped 。

Arm up and down movement has relationship with auto-circulation of arm clamp , pls reference to the narration of “Electric Part ”

9、 Arm clamp (图 10-10)

Arm clamp mechanism is similar with spindle head and inner outer clamp mechanism, but still use rhombic block mechanism 。 clamp mechanism hydraulic system pressure oil entry into oil cylinder 1, push piston 2, make rhombic block stand and exceeding center about 0.5mm and auto-lock。 Link 4 rotation around with shaft , via screws fasten arm on outer column .

10、 Hydraulic mechanism for clamp purpose (fig.10-11)

Clamp of three parts of this machine (spindle head ,arm ,outer and inner column), both use clamp oil pump which equipped on arm providing oil , (fig.10-11)。 Pressure transmitted to all clamp oil cylinder via distribution valve, distribution valve is equipped inside of arm electric box.

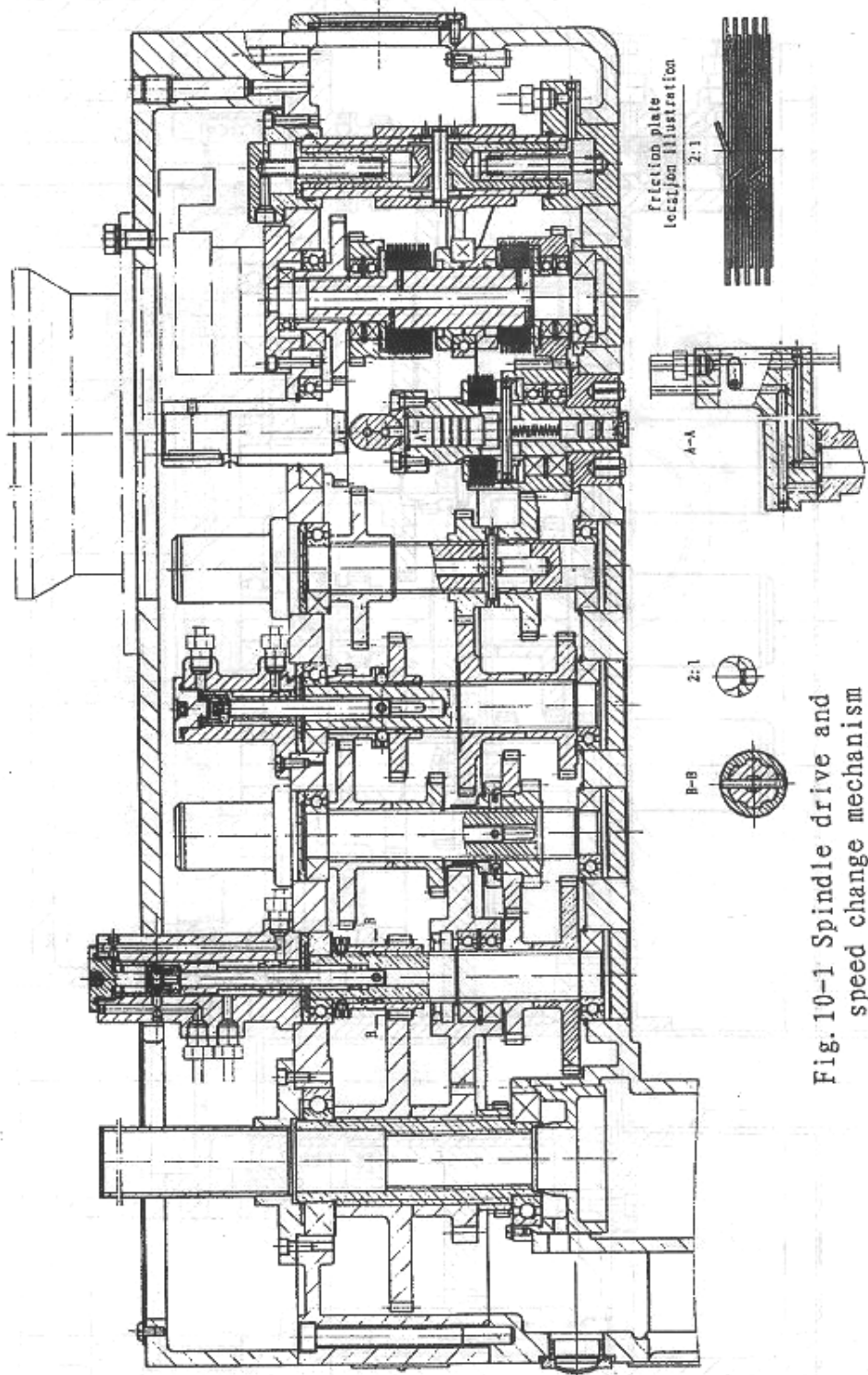


Fig. 10-1 Spindle drive and speed change mechanism

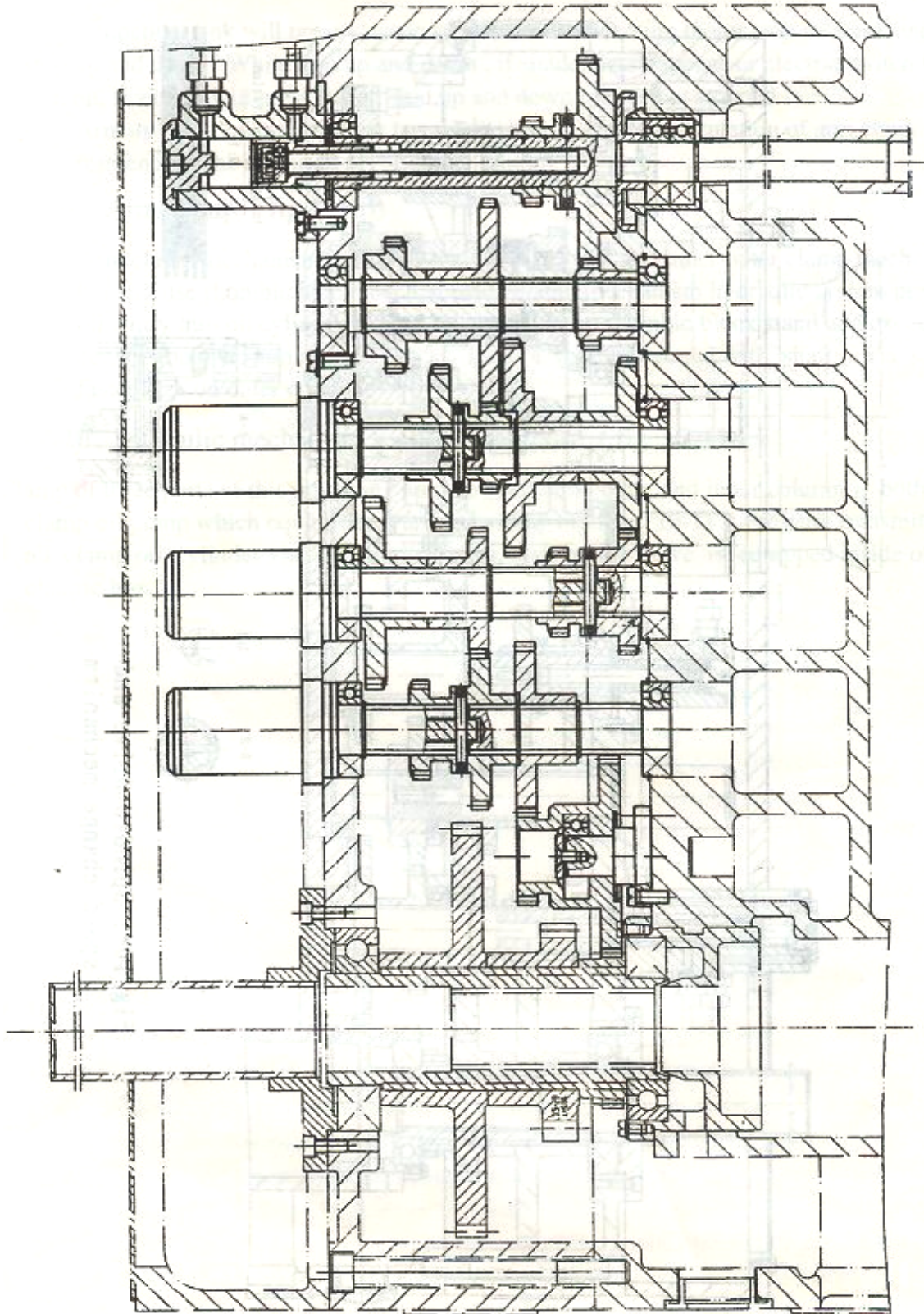


Fig. 10-2 Spindle feed speed change mechanism

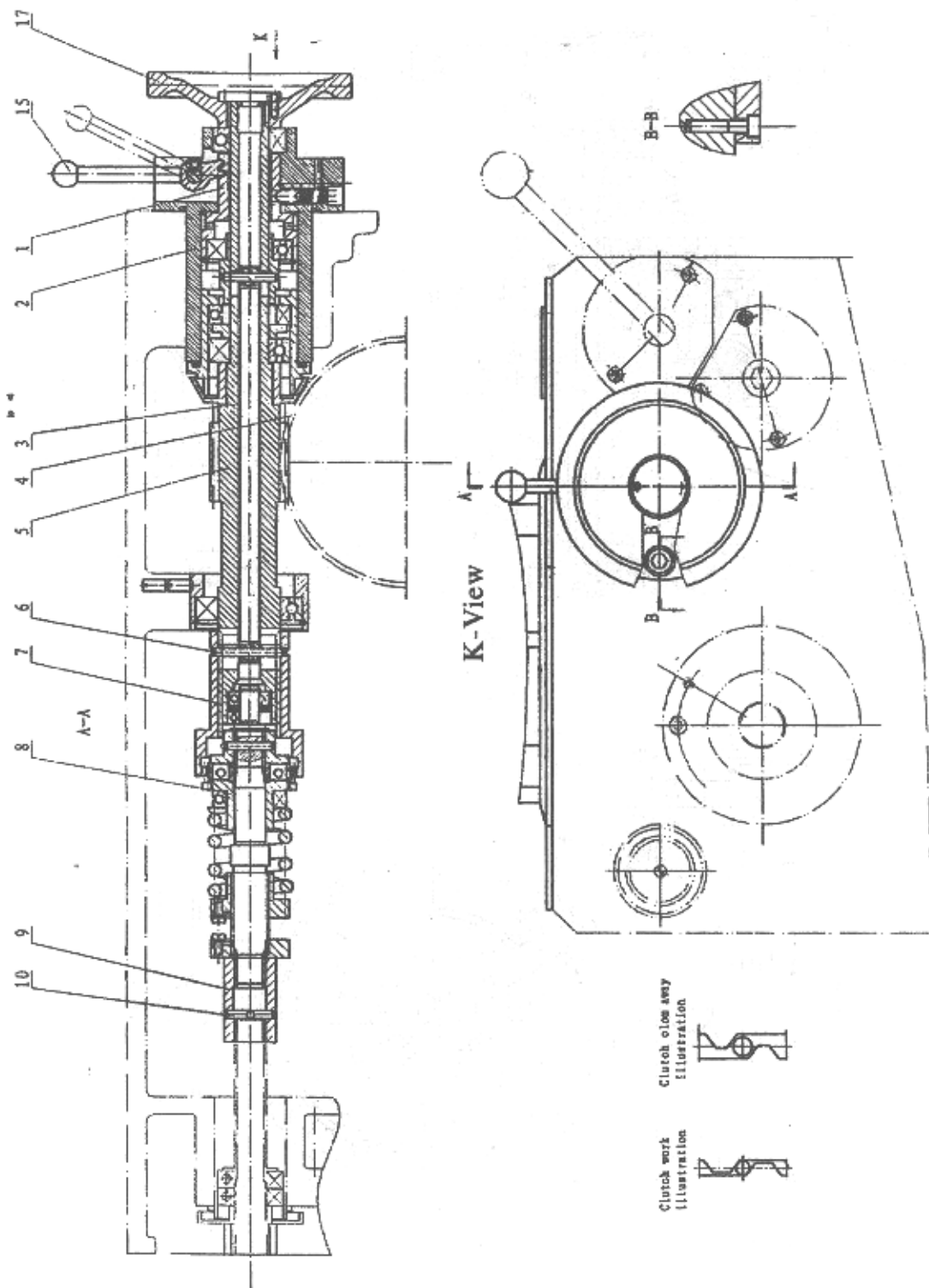


Fig. 10-3 Worm

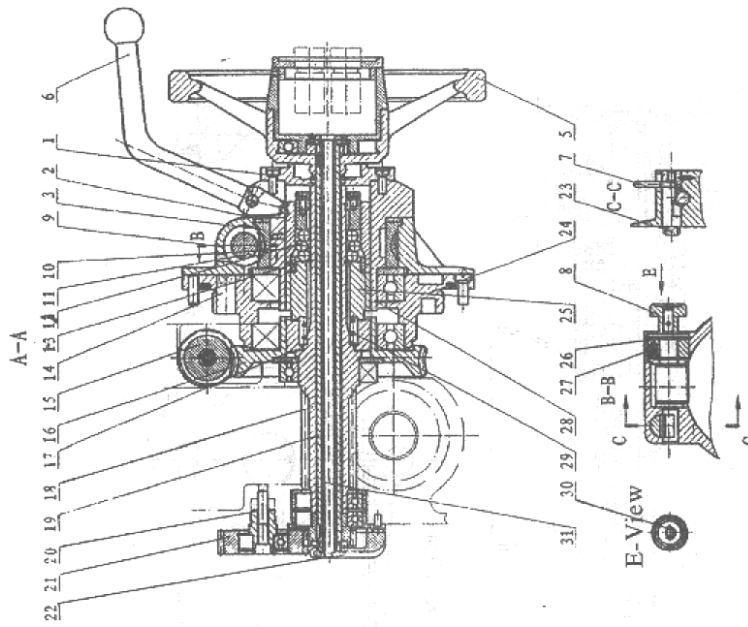
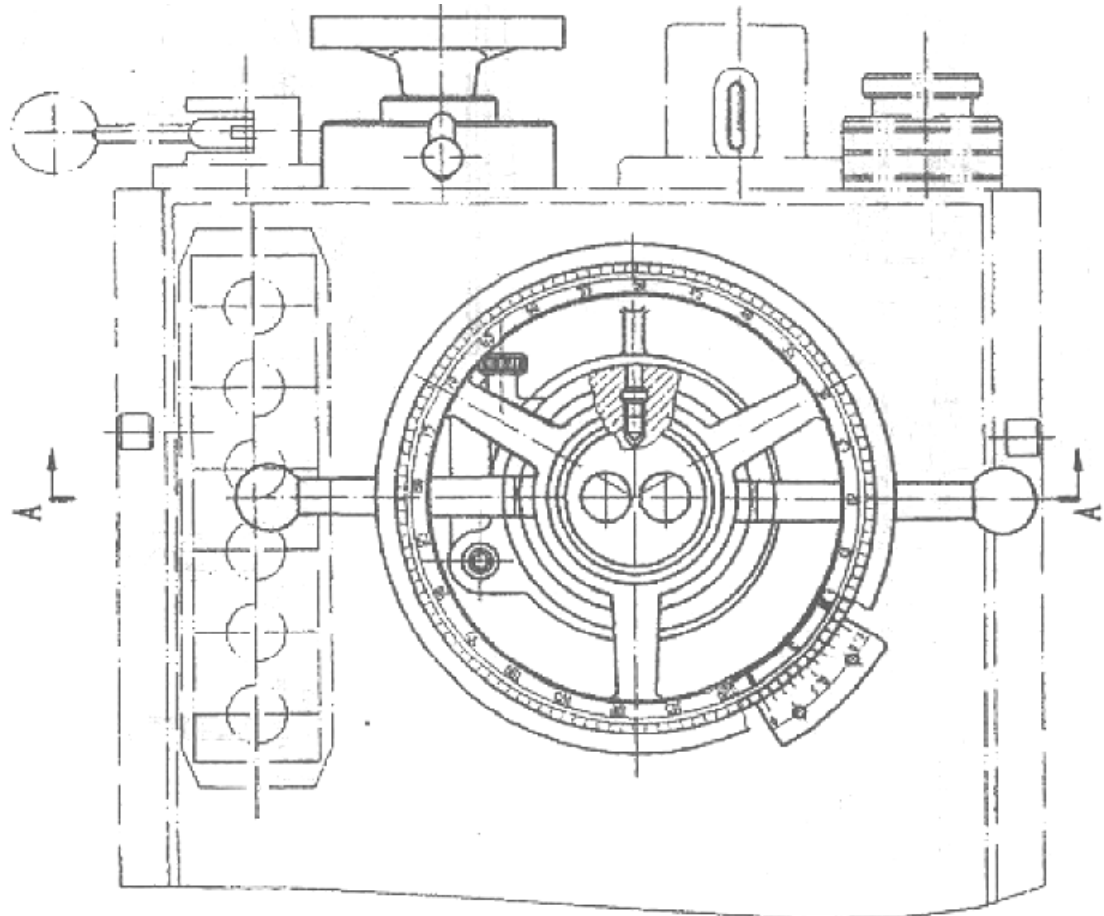


Fig. 10-4 Lever shaft



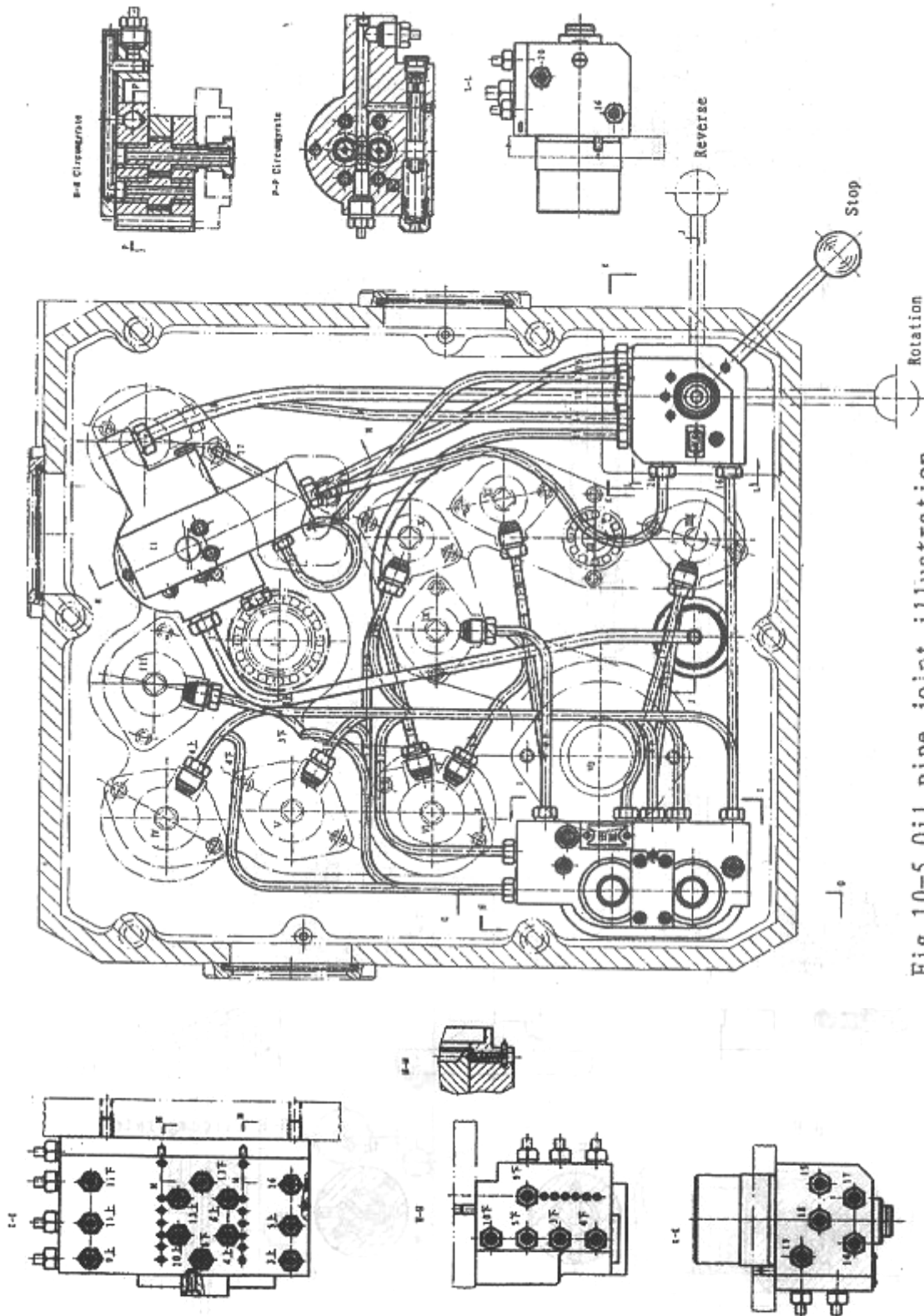


Fig.10-5 Oil pipe joint illustration

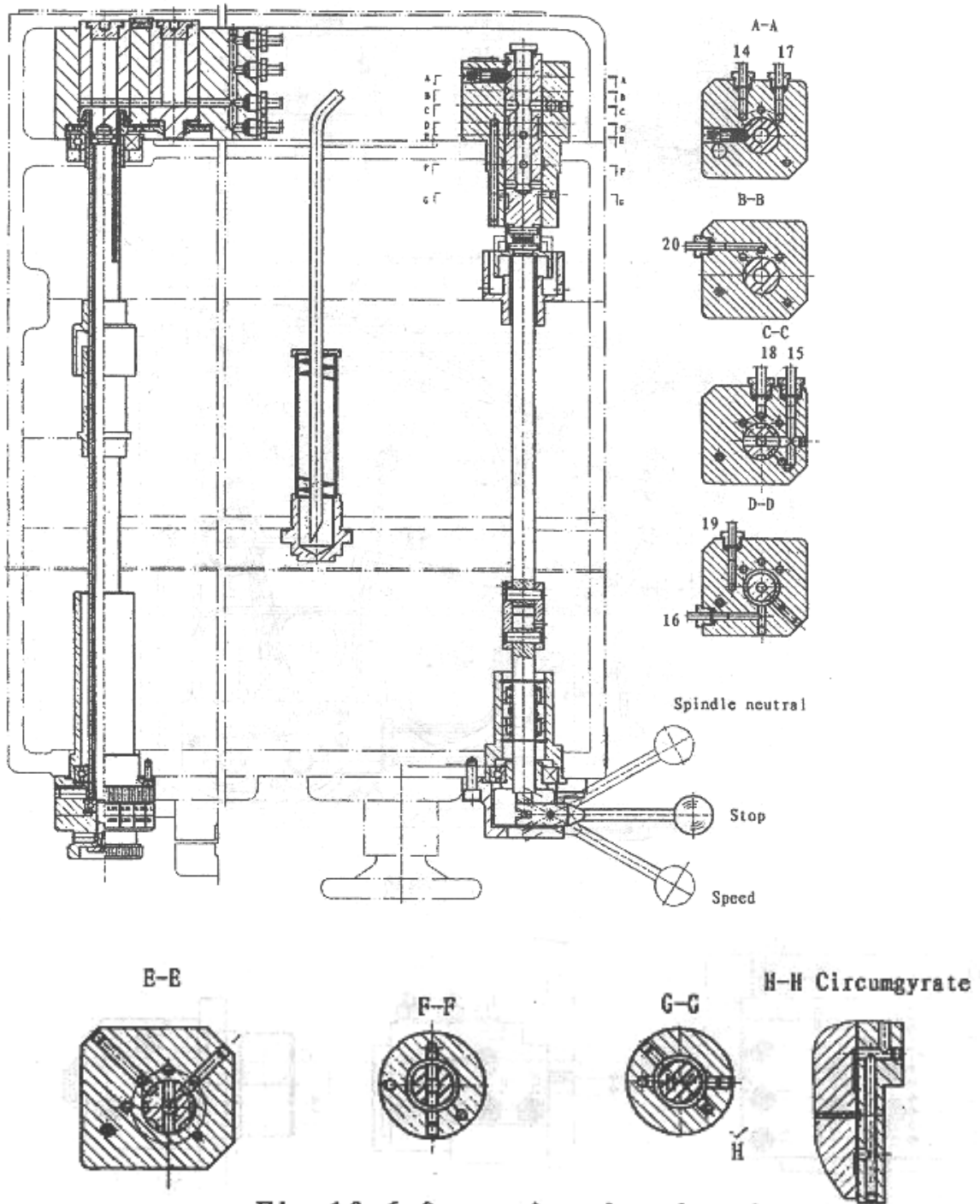


Fig.10-6 Operation institution

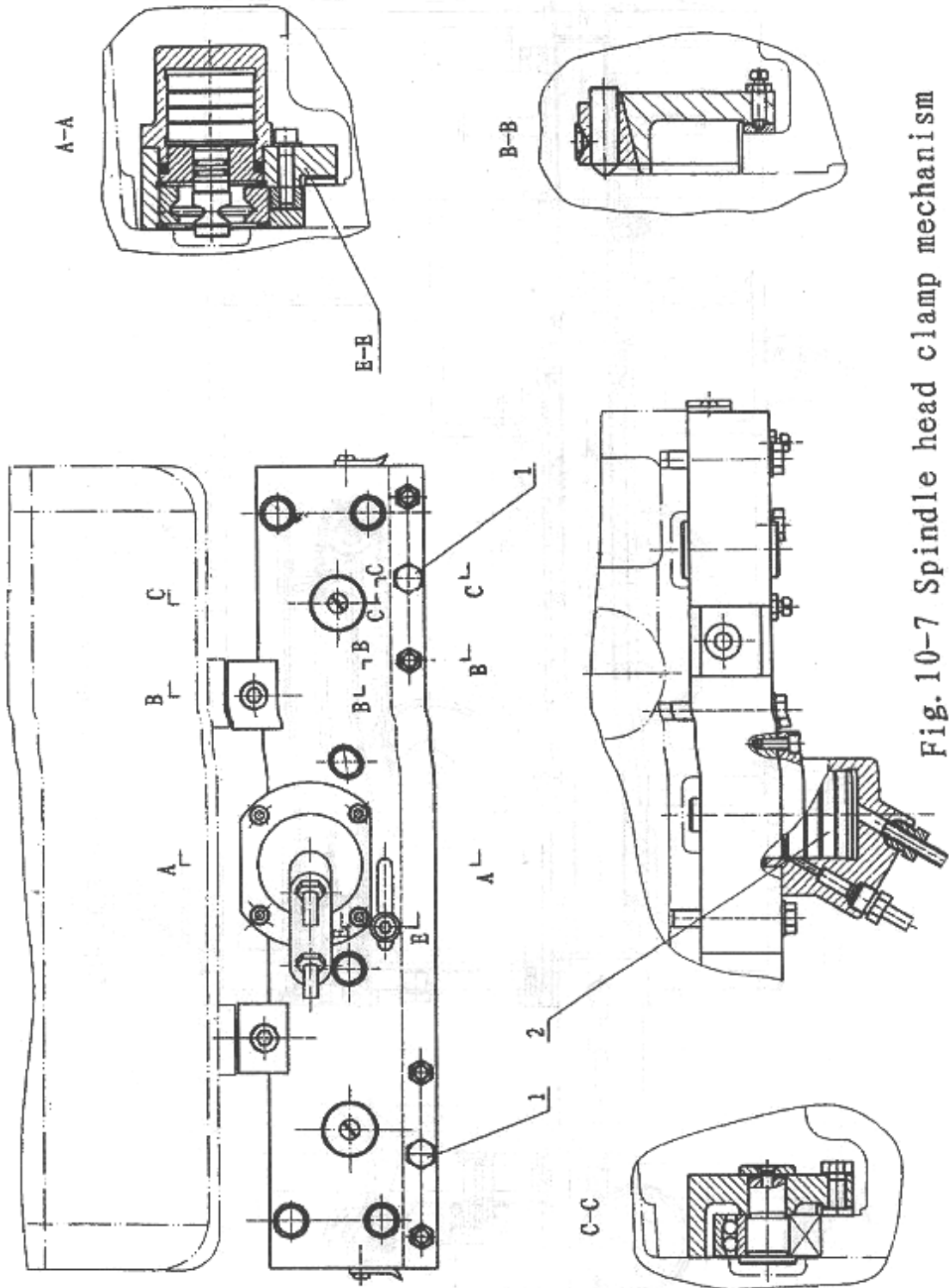


Fig. 10-7 Spindle head clamp mechanism

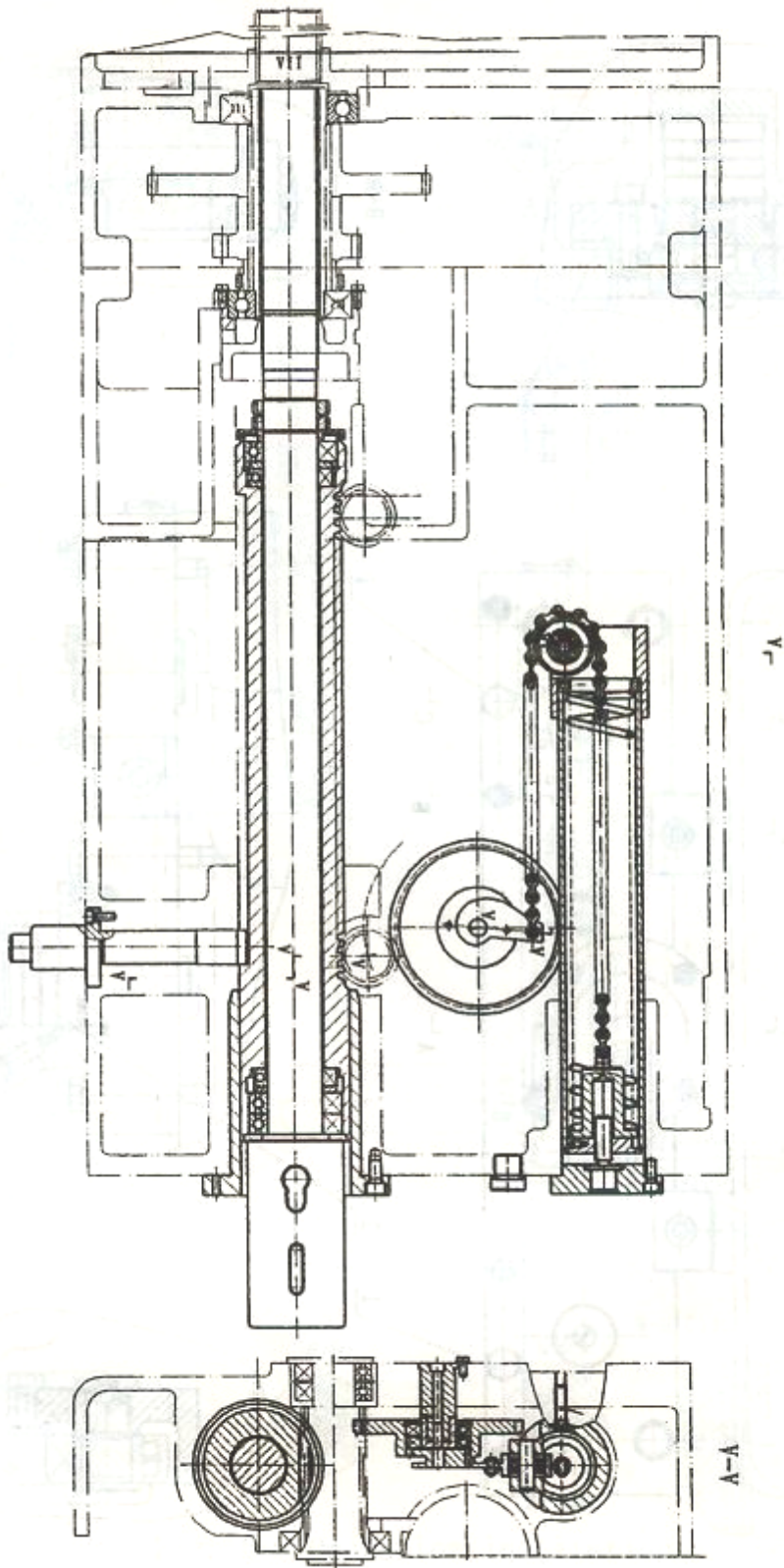


Fig. 10-8 Spindle balance mechanism

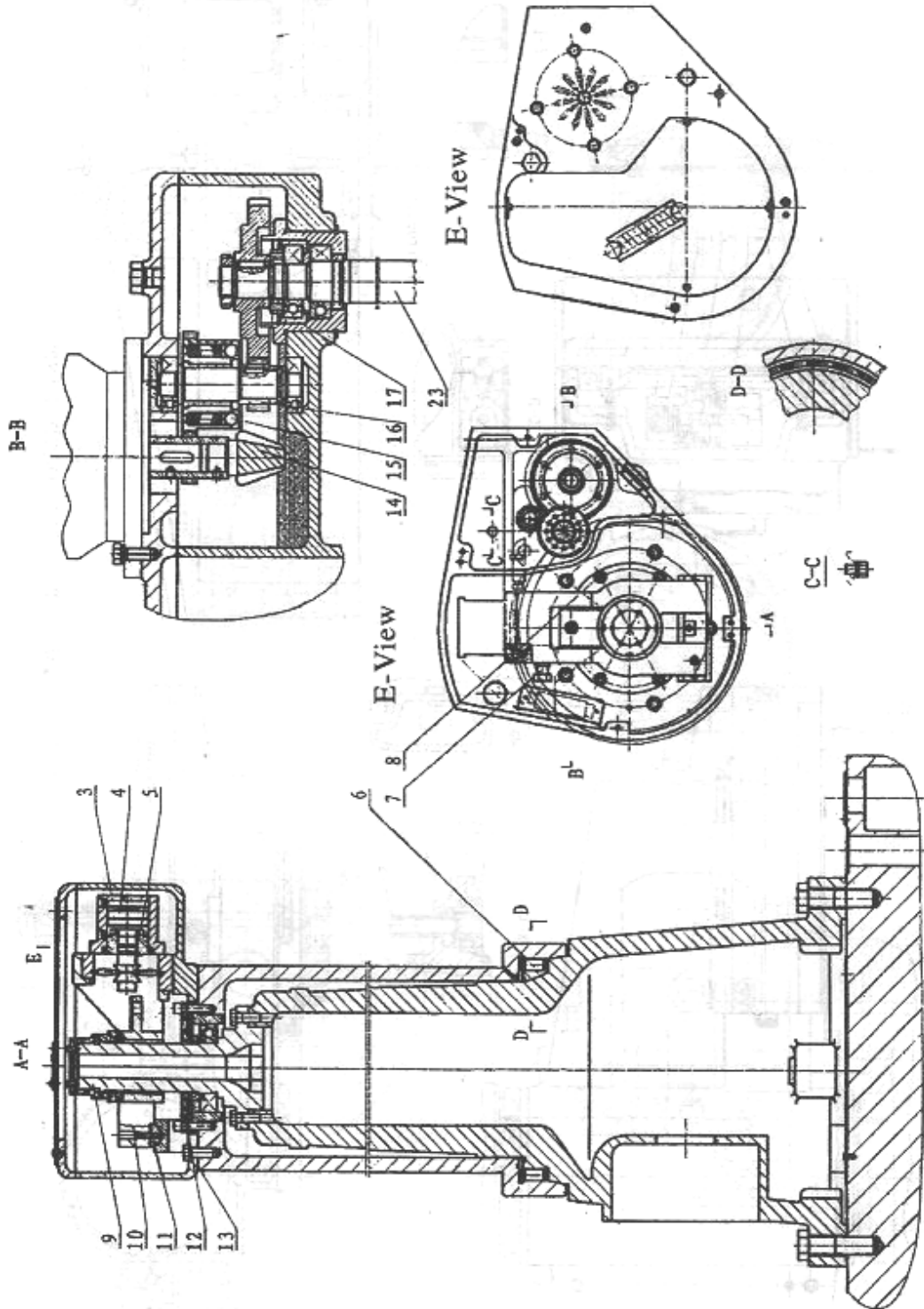


Fig.10-9 Column clamp and arm elevation

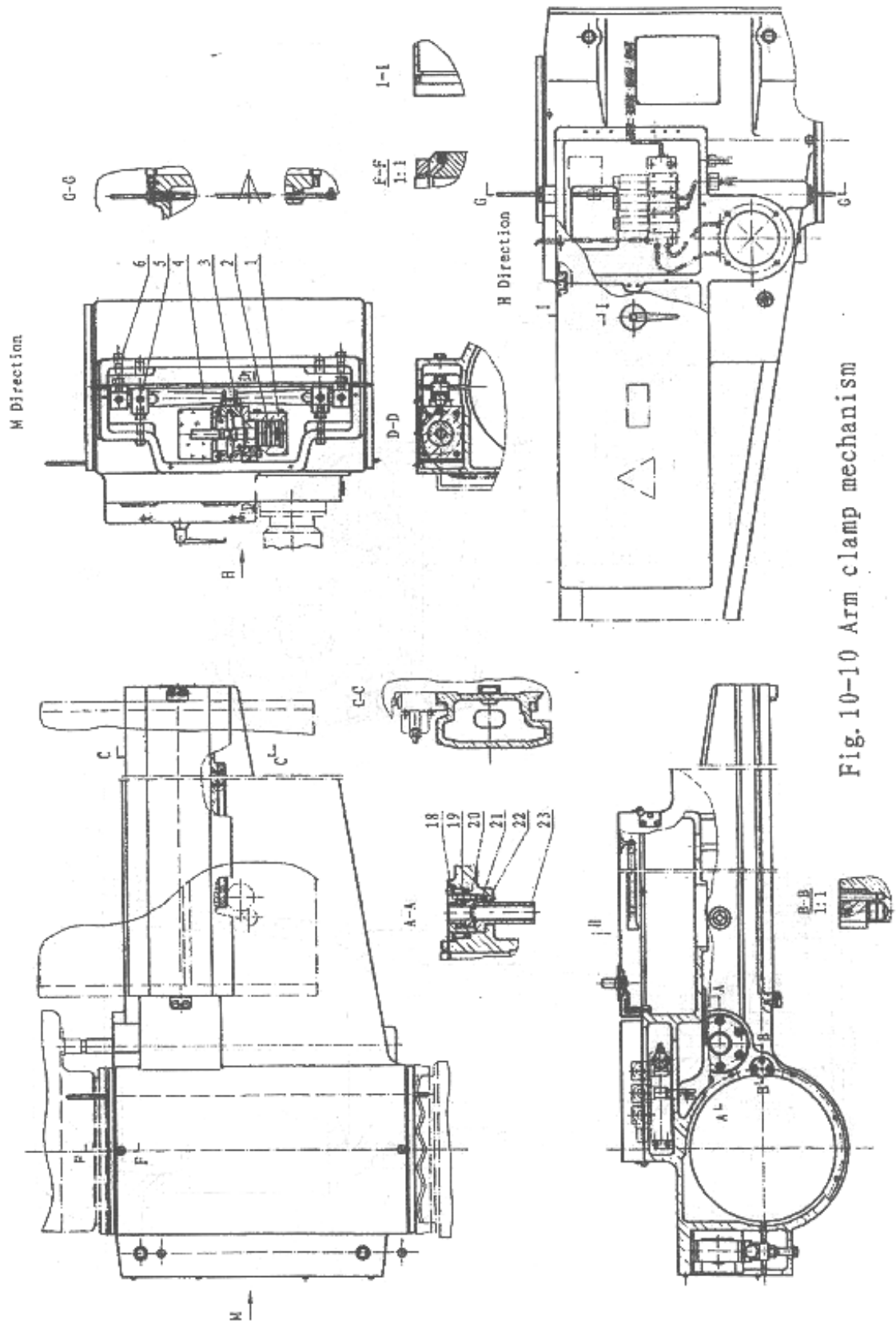


Fig. 10-10 Arm clamp mechanism

11、 Adjustment and mainenance

11.1、 adjustment

(1) adjustment of clamping strength of spindle head (fig.10-7)

When clamping strength of spindle head is not strong enough,release the spindle box and the bolts under clamping cylinder(fig.e-e),move the bolt to the right position along the slot,clamp the bolts and spindle head firmly again.Twist the hand wheel along circle with 40KG strength,if the head don't move,the adjustment of clamping strength of spindle head has been workable.

After adjustment of clamping strength,inspect releasing condition.Realease the spindle head, twist the hand wheel along circle with strength 3-4 KG,the spindle head should move. Under the condition that the spindle head is clamped firmly,insert a thickness 0.04mm insert ruler between the head and 55 arm slide face and front face ,depth should be not exceeding 20mm.

(2) adjustment of clamping strength of column (fig.10-9)

When clamping strength of column is not strong enough,release the column,unload the cover on the top,swist firmly the lock nut, clamp the column firmly.Load 160 kg thrust strength to the end of the arm,if there is no movement of outer column against inner column, the adjustment of clamping column has been workable.

If the lock nut have been at the limited position,clamping strength still not enough,release the column,release the inner hex. head screw above the spring plate 12,adjust again.

After adjustment of clamping strength,inspect releasing condition.Realease the column, load 160 kg thrust strength to the end of the arm,the column can be turn.

(3) adjustment of clamping strength of arm (fig.10-10)

When clamping strength of arm is not strong enough,shut of the power while the arm is elevating make the arm released, fasten the screw 6 along clockwise,then turn on the power, ,if a thickness 0.04mm insert ruler can't be inserted into the mounting place of the arm sleeve and outer sleeve.(It is better to fasten the screw until the rhombic can stand up vertically.

(4) adjustment of balance strength of spindle (fig.10-8)

Balance strength of spindle have been adjusted well by manufacturer.When the spindle lost its balance because of the change of the cutter,adjustment by turning the screw 14.

(5) adjustment of resistance of feeding- load (fig.10-3)

Resistance of feeding load have been adjusted well by manufacturer, usually do not adjust it in the operation .Under some special condition,the user can turn the lock nut above the gear 8 to strengthen or loosen the strength of the spring,the resistance of feeding- load will be strengthened or loosened.When the resistance of feeding- load is 1600-1760KG, the

overload safety protection device is in the normal work condition.If load over 1760-2000KG,the device will make the feed drive not work.The resistance strength should be measured by resistance strength testing instrument.

(6) adjustment of pressure strength of the hydraulic clamping system. (fig.10-11)

pressure strength of the hydraulic clamping system been adjusted well by manufacturer, usually do not adjust it in the operation .Under some special condition,the user can adjust it by changing the spring. (fig.10-11)。

There is screw plug on the distribution valve ,unload the plug and install a oil pressure meter on the hole.And release the all the plugs of the fig.B-B alternatively, the readout of the meter is the system pressure which should be 20-25 Pa.

Note:the clamp of spindle head ,column and arm all are effected by rhombic block structure.In the operation,it is possible that the mechanism was released after your hand leave the pushed down button。 The reason maybe are rhombic and back block are installed with a wrong angel,or the distance H is not correct to make the vertically standing up rhombic block not exceeding the centre to self-lock,or the strength of clamp is too strong ,hydraulic pressure is not enough.The opperater can take these factors into consideration we meet this problem.

11.2、 Maintanance

(1) the maintenance of the machine must be done according to the requirments in this manual,lubricate the machine on time by stipulated lubricant oil.Oil screen should be washed regularly and keep the oil pure.

(2) Arm slide and column should be wiped by precision emery paper regularly to prevent the surface scratched.

(3) the cutting wok must obey the technical data stipulated in this manual and not beyond the machine capacity,loading strength should not exceed the spindle torque capacity 40KG.M and feeding- resistance strength 1600KG.

(4) When cutting,the spinble head,column should be clamped firmly under common situation,otherwise it will be easy to bring the bad consequence and harm the machine precision and durability.

(5) Prohibition to move the arm always along a same direction.

12、 Accessories 、 spare part and fragile part**a、 Accessories and Tools**

NO.	Specialist and Models	Name	Quantity
1	400011C	Case shape worktable	1
2	M20	Six angle nut	4
3	M24	Six angle nut	8
4	M24×400	Foot bolt	4
5	M20×70	T slotted bolt	4
6	M24×120	T slotted bolt	4
7	20	washer	4
8	24	washer	8
9	3	drift	1
10	4	drift	1
11	22	wrentch	1
12	φ 16mm	Chuck	1
13	MT3/MT2	Arbor	1
14	MT4/MT3	Arbor	1
15	MT5/MT4	Arbor	1
16	MT4/B18	Arbor	1

b、 spare part

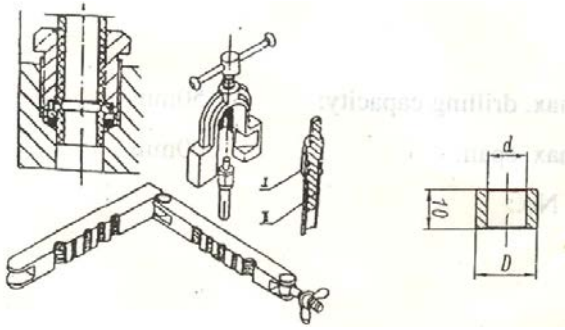
No.	Specialist and Models	Name	Quantity	
1	6	SZSG91-2	washer	20
2	8	SZSG91-2	washer	5
3	10	SZSG91-2	washer	5

c、 Fragile part

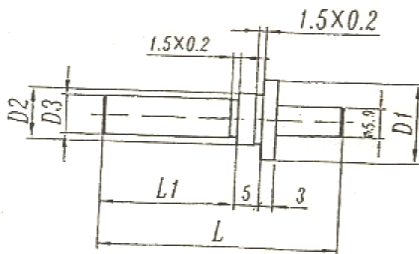
No.	Specialist and Models	name	quantity	
1	9×1.9	G21-2	O ring	20
2	11×1.9	G21-2	O ring	5
3	13×1.9	G21-2	O ring	5
4	Ø5 x 30		Current limit fuse	Fuse wire

13、 Operation of nylon tube shaped tools

The nylon tube which designed by our corporation used in this machine is connected by a special way. The head of the nylon tube must extrusion by special tools according to the map. The shaping tools may use the tools that used in repairing the car, but must accompany with the cover I and core II .Please pay attention, before extrusion ,make the terminals covered the tube.



Diameter of vitta	d1(H7)	D1
6	6.2	14
8	8.2	14
10	10.2	16



Diameter of vitta	D1	D2 (r6)	D3 (-0.1)	L	L1
6	14	6.2	3.7	47	25
8	14	8.2	5.7	50	28
10	16	10.2	7.7	50	28