LUX-MATTER

INSTRUCTION MANUAL

AND

PARTS LISTS

FOR

1500/1600 SERIES

Description

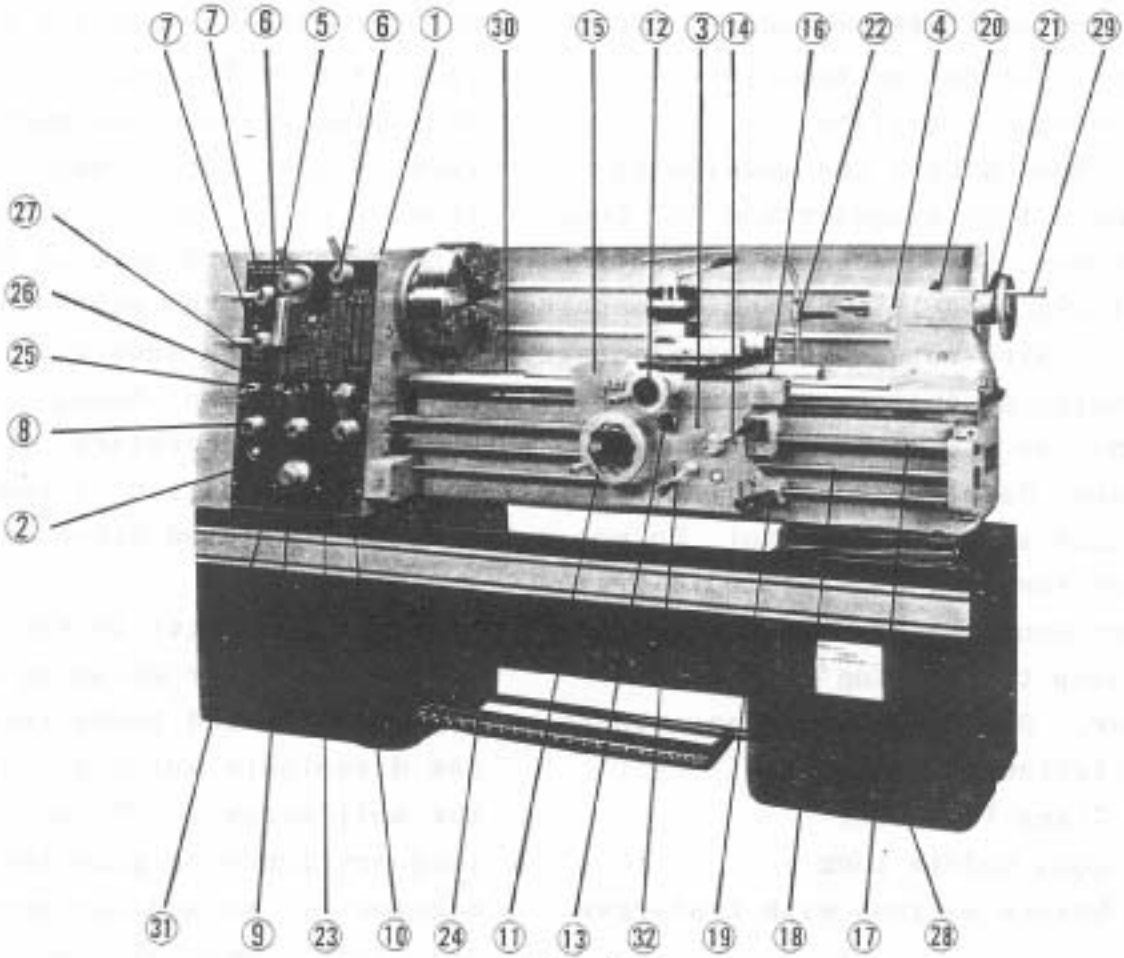


Fig 1

1. Headstock
2. Feed Gear Box
3. Apron
4. Tailstock
5. Spindle Speed selector
6. High-Low Speed Selector
7. Feed Direction Selector
8. Feed Selector
9. Feed Selector Dial
10. Feed-Threading selector
11. Longitudinal Transverse Handwheel
12. Cross Feed Handle
13. Longitudinal-Cross Feed Selector
14. Threadcutting Engagement Lever
15. Threading Indicator Dial
16. Carriage Lock
17. Leadscrew
18. Feed Bar
19. Spindle Control Lever
20. Quill Lock
21. Tailstock Clamp
22. Coolant Pipe
23. Jogging Switch
24. Brake Pedal
25. Drive Motor starter
26. Drive Motor Indicator
27. Coolant pump Starter
28. Foundation Bolts
29. Quill Transverse Handwheel
30. Gap
31. Feed Selector
32. Longitudinal-Cross feed clutch

Installation

2-1 UNPACKING

Inspect the machine. If there are any shortage or damage, contact your local dealer immediately.

2-2 MOVING & LIFTING

Move & Lift the machine by using a 1½" diameter and 32" Long iron bar. Go through the hole of left leg. and lift unpacking machine with a wire rope, which have enough capacity against gross weight of chine, as the method shown in the figure, Raising and Lowering the machine should be careful. Do not touch the leadscrew, spindle or other hand wheels. Be careful not to hump the machine against the floor. Before moving please check the following items:

(1) Clamp Tailstock
(2) Lock saddle lock
(3) Engage halfnut with leadscrew

2-3 FOUNDATION WORK

Au present, the super-hard alloy tools are used for high speed lathe. The cutting speed and the spindle speed are much higher then before. An incomplete foundation is apt to produce vibration. Since super-hard tool is easily influenced by the vibration, the foundation work should be done as the figure shown. Enough space and boundary are necessary. The machine Should be installed at least 2 ft. from the wall and other machines.

2-4 CLEAN UP

Anticorrosive is applied on the machine. For cleaning up the bed, slides, and leadscrew, etc., use dissoluble solvent to take off the anticorrosive. Do not use lacquerthinner or gasoline. Apply machine oil to all the necessary positions. Check all the handles and levers to see if it is functioning properly. Then set on neutral position.

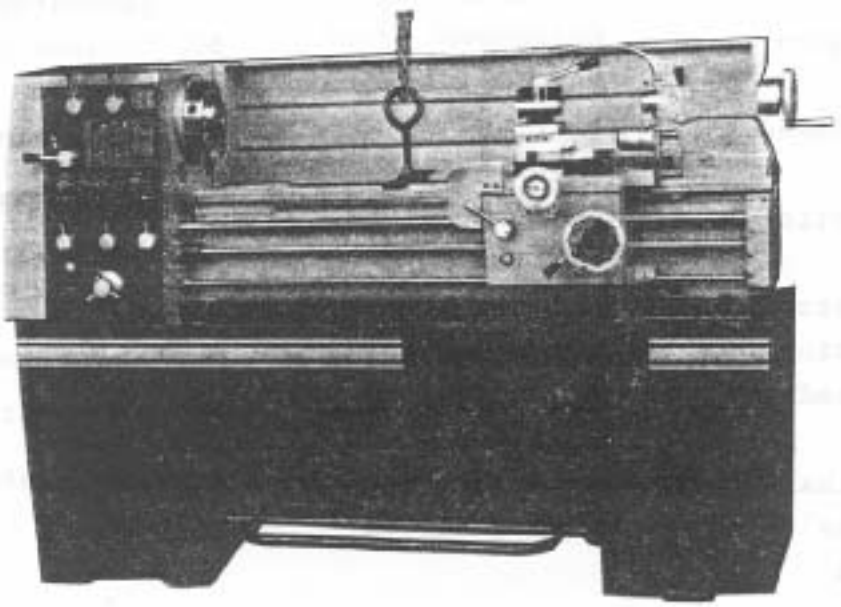
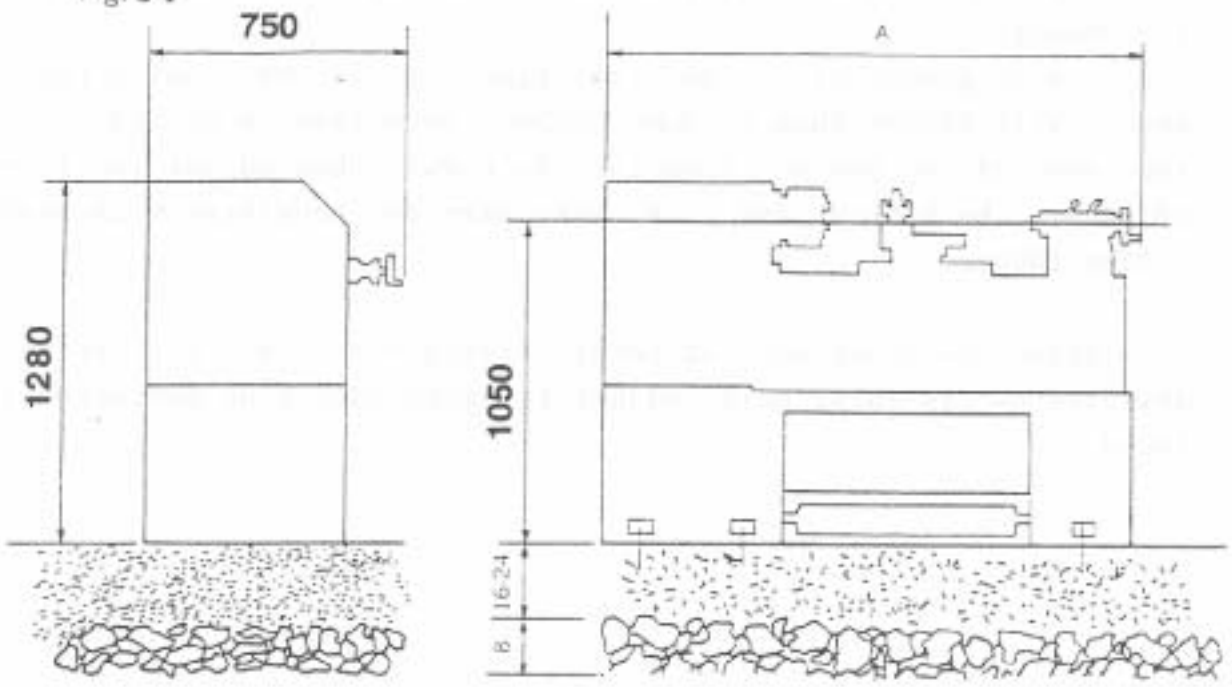


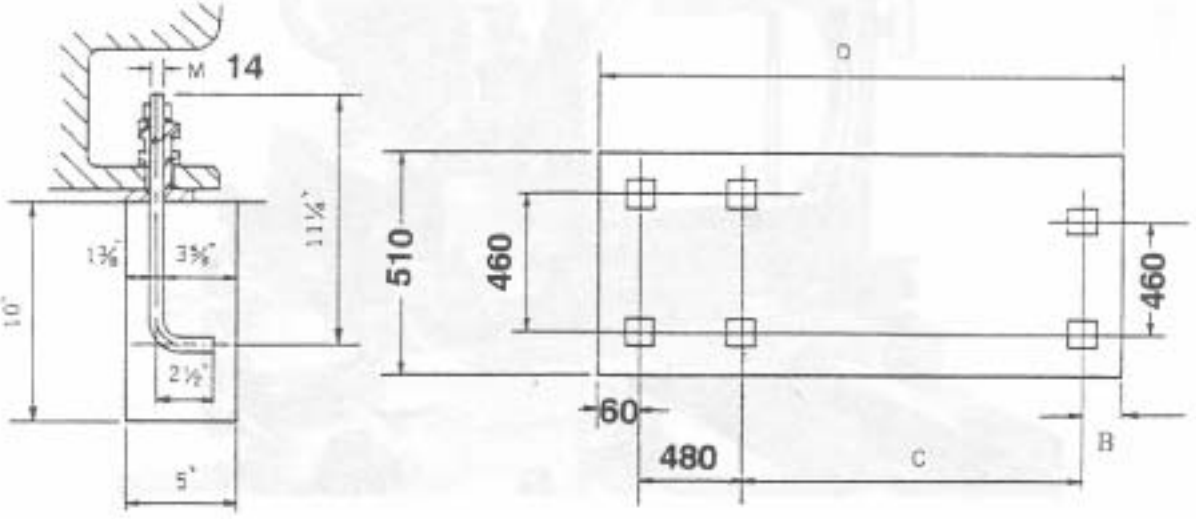
Fig 2

Installation

FOUNDATION DIAGRAM

Fig. 3-1





unit:mm

ITEM / TYPE	A	B	C	D
1540G	2000	250	1185	1980
1560G	2508	250	1693	2488

Installation

2-5 LEVEL OF LATHE

Anchor bolts and installation blocks must be fixed steadily to the cement.

For Alignment of the machine, place spirit level which has sensitivity Better than 0.02 mm/1000mm, on guideways of bed, adjust the level of the bed-way from left to right, then adjust the level of saddle, both front and rear, make sure the sensitivity is within 0.04mm/1000mm.

• After the adjustment of level, fasten the nuts, if flatness is deviated by fastening nuts, adjust it again untill no deviation is found.

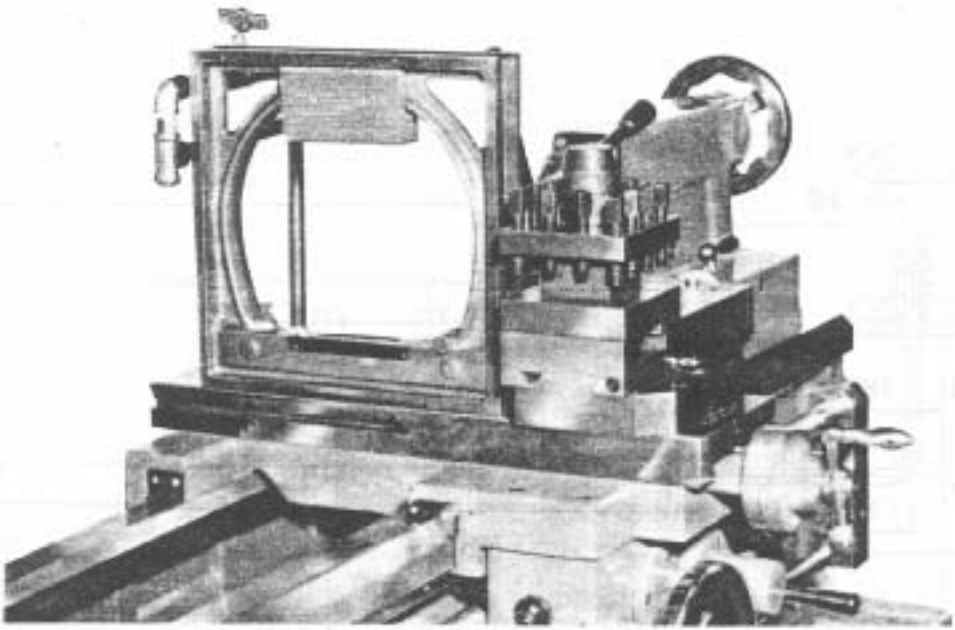


Fig 3

Power Security Control

3-1 POWER SOURCE WIRING

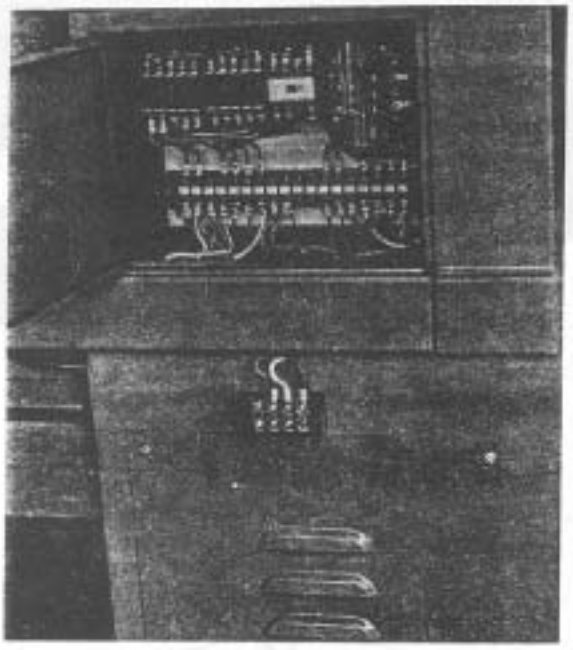


Fig 4

3-2 ELECTRICAL SAFETY FEATURES

1) The control panel of this machine is equipped with magnetic contactor and overload thermal relay.

2) Forward/reverse lever and limited microswitch are connected.

3) Pedal brake device is connected to limited microswitch.

4. There is a jogging switch push botton in the higher right hand side of norton feed gear box.

3-3 CAUTION

After wiring, check the spindle rotating direction. Turn on the power source switch and push the jogging switch button.

If it rotates counterclockwise, it is the correct wiring. If not, replace two of the three wires (R.S.T.). Then check the rotation again.

The overload thermal relay is connected to the magnetic contactor to protect from motor overload. If the spindle speed drops to zero during normal operation, but the pilot light is still on, it indicates that the overload thermal relay is working. Please turn off the main power switch, reset the thermal overload relay and restart the machine.

Preparation for operation

4-1 SPINDLE ROTATION, STOP AND RESTART

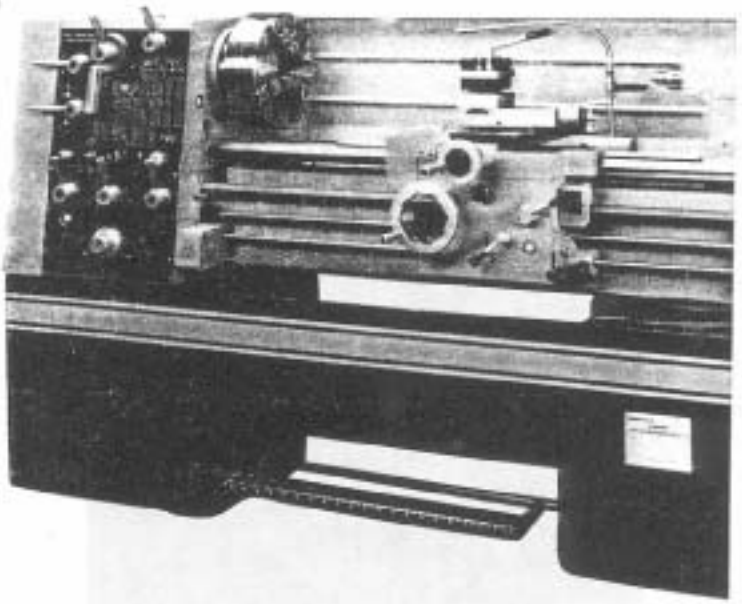


Fig 5

1) Turn on power source switch.

2) Set lever ⑦ at neutral position (Middle Position).

3) Set the spindle speed lever ⑤ to the needed speed. Then set ⑥ High/Low speed control lever to eigher high or low position and pole change switch to either ⊕ or ⊖ position according to the speed chart shown in Table-1.

4) Push Forward/Reverse control lever ⑲ to the Right and lift if up or push it down toget the forward or reverse revolution.

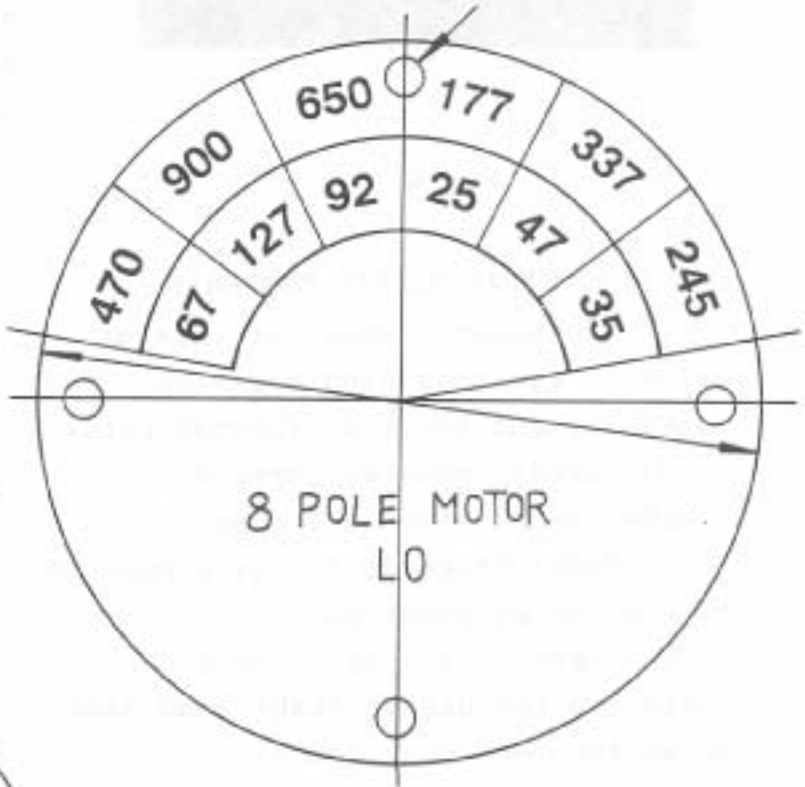
5) To stop the spindle rotation by using your foot to push the brake pedal.

6) To restart the spindle rotation, use the same Forward/Reverse control lever as before you stop. Then move it to neutral position and repeat step 4).

CAUTIONS !!!

1) Stop spindle rotation before changing spindle speed. Otherwise, the headstock gear will be damaged.

2) If it is hard to set the lever on position when change the speed, push the jogging switch push botton, then set the change gear lever again.



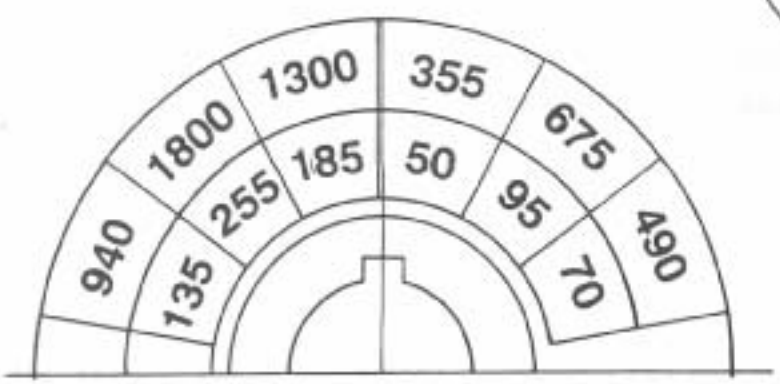


Table 1

Preparation for operation

4-2 OPERATION OF JOGGING SWITCH PUSH BOTTON

There is a push button ㉓ in the higher portion of norton feed gear box (see Fig. 7). Push it slightly. The spindle will run positively and stop automatically. This is for changing speed easier and adjusting the center for raw material when a 4-jaw chuck is used.

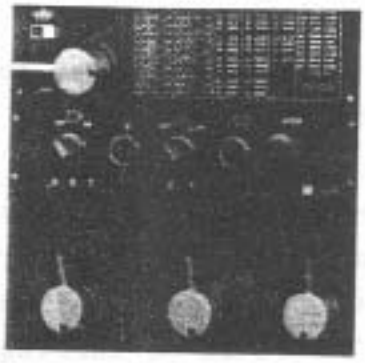


Fig 7

4-3 CHANGE GEAR SYSTEM

The change gear system is located at the left side of the headstock. please refer to thread cutting chart, table 2, Be sure that the gears are aligned after you have changed them.

Caution. Don't attempt to change gears while spindle is rotating.

DON'T CHANGE SPEED WHILE ROTATION

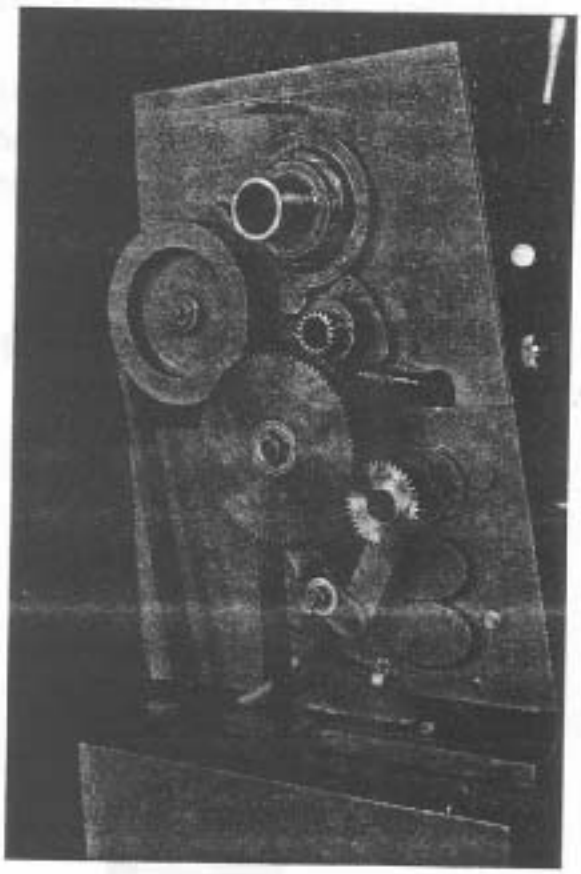


Fig 6

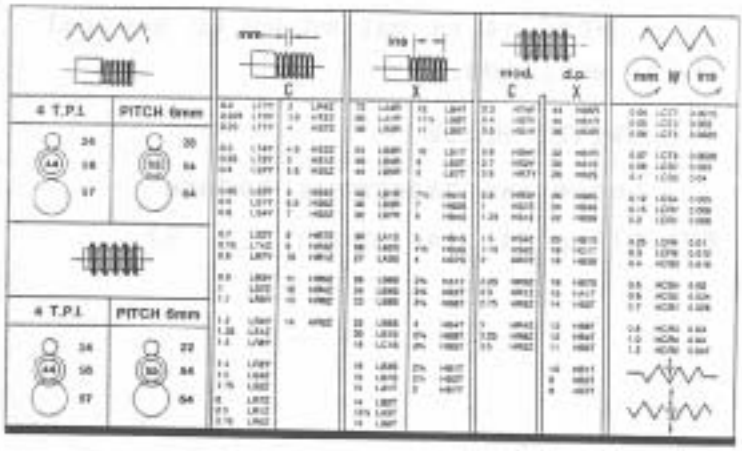


Table 2

Preparation for operation

For longitudinal feed, push down lever ⑬. For Cross Feed, pull up lever ⑬. please refer to Table 2.

4-4 MANUAL FEED

Carriage moves longitudinally by turning hand wheel 11 (Be sure to set lever ⑦ and ⑬ at neutral position, and pull levers ⑭ up). one division of hand wheel dial is corresponding to 0.006"and its one turn corresponds to 0.72"travel of carriage.

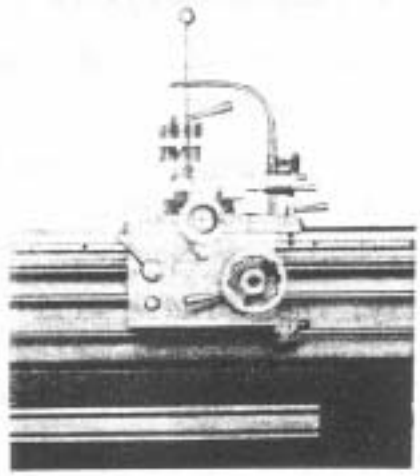


Fig 8

4-5 AUTOMATIC FEED

Automatic feed is operated as Follows:

1) Choose feed direction by lever ⑦.
2) Set change gears and shift levers ⑧ & ⑨ & ㉛ to desired feed value.
3) Shift lever ⑩ to feed position.
4) Pull lever ⑭ up.
5) Feed Selector ⑬ to select eithther longitudinal feed or cross feed.
6) Shift lever ⑲ to select direction of spindle rotation.
7) Automatic feed starts when ㉜ lever is operated and stops when it is pulled up to neutral position.

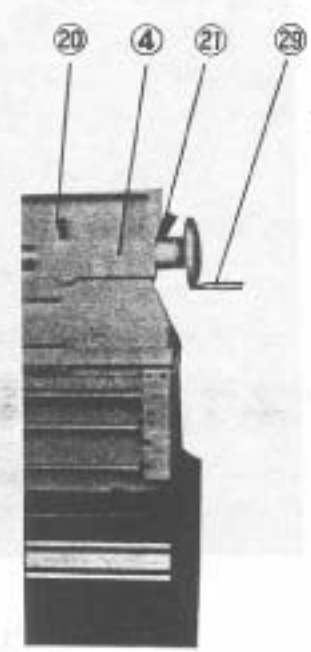
4-6 SWIVEL SLIDE

Loose two capscrews before swiveling it. (as shown Fig. 8)

4-7 TAILSTOCK

Tailstock spindle moves out by turning hand wheel ㉙ Either the arbor of drill chuck or tailstock spindle center comes out by excess returning of tailstock spindle.

Tailstock Spindle is clamped by pushing lever ⑳ reverse to headstock. The tailstock is clamped by pulling lever ㉑ upward.
One division of its hand wheel dial corresponds to 0.025" and its one turn corresponds to 0.125" travel of tailstock spindle.



Thread cutting

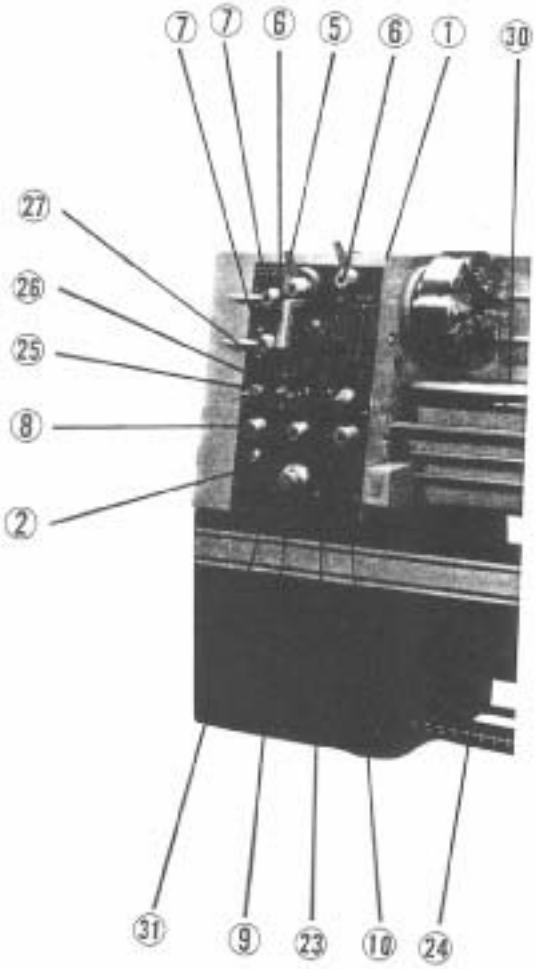
5-1 LEADSCREW OPERATION

Shift the lever ⑦ to the right or left, the leadscrew run forward or reverse rotation respectively.

5-2 INCH THREAD SYSTEM

The inch thread cutting is operated as follow:

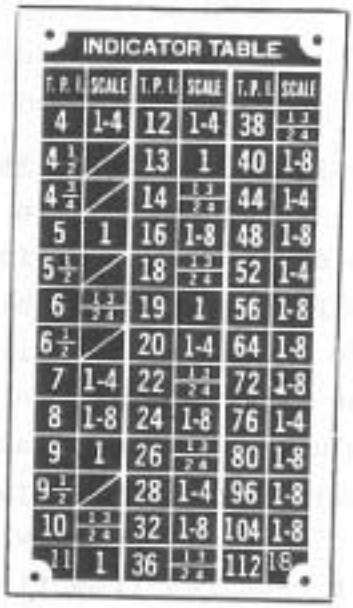
1) The change gears are aligned according to the Table 3.
2) Then according to Table 4, shift levers ⑧ c ⑩ & ㉛ to the desired position. Put lever ⑨ to one of 8 positions.
3) Shift lever ⑱ to select direction of spindle rotation.
4) Push lever ⑭ down (half nut engaged) to start threading.



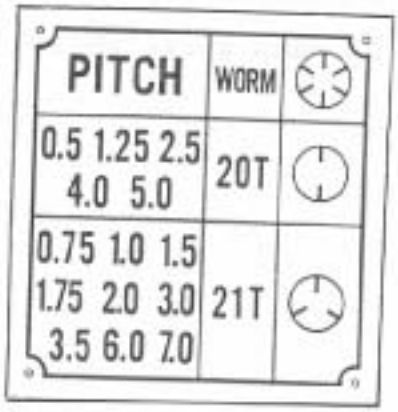
5-3 THREAD CUTTING INDICATOR

The thread cutting indicator installed on the headstock tag which has eight graduations. For cutting inch thread, the thread cutting indicator is prepared for correct position of half nut engaging conveninently and quickly.

As to metric thread cutting, half nut should be engaged with lead-screw completely(When leadscrew is inch). Let tool post back up to starting position by reversing spindle rotation, then feed again.



INCH



METRIC

Maintenance

6-1 LUBRICATIONS

6-1-1 LUBRICATION IN HEADSTOCK & NORTON FEED GEAR BOX.

oil-bathed lubrication for both gear boxes. please be sure the oil no lower than min. Level of oil window.

6-1-2

Lubrication in Change gears (Transmission gears) Open the V-Belt cover, Lubricating with oil for daily maintenance.

6-1-3

LUBRICATION IN CARRIAGE

Carriage Slides and Cross Screw to be oiled by Hand pump.

6-1-4 LUBRICATION IN APRON

The oil cap in the right hand side of apron are for oiling. Be sure oil on proper height of oil windown. To change the oil in apron, the oil can be removed by taking off the drain plug at bottom of apron.

6-1-5 LUBRICATION IN BEDWAYS, LEADSCREW

and Leadscrew Bracket Hand oiling is required from time to time.

6-1-6 Coolant for Cutting

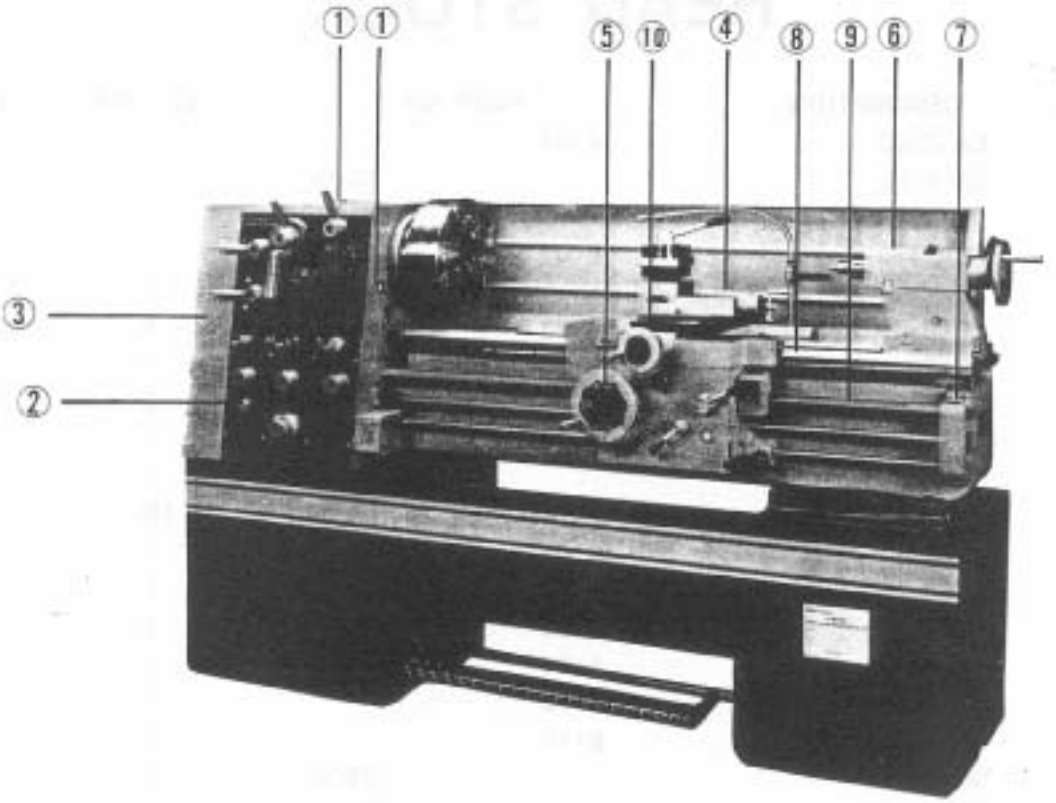
The coolant pump control switch is Located top of Norton Feed gear box. The pump works while turn on.

TROUBLE SHOOTING CHART		
TROUBLE	PROBABLE CAUSE	CORRECTION
Vibration	Loose leveling screws	Set all screws so they bear evenly on leveling plates.
	Torn or mismatched vee belts	Replace vee belts with matched set, or adjust roll.
	Work or chuck out of balance operating at high spindle speed.	Balance chuck or reduce spindle speed.
	Motor out of balance	Contact local representative of motor manufacturer.
Chatter	Tool bit improperly ground or not on center	Regrind tool bit or adjust tool holder so that area of contact between tool bit and work is decreased. Avoid extreme negative rake angle.
	Tool overhang too great	Keep point of tool bit as close as possible to tool holder.
	Using improper surface feet	Recuce or increase spindle Speed.
	Feed rate too high or too low	Reduce or increase feed.
	Gibs of cross slide or pound rest loose	adjust gibs.
	Spindle bearings worn	Adjustspindle bearings.
Chatter (cont'd)	Work Imporoperly supported	Adjust tailstock center. Use steady rest or follow rest on long slender shafts. Minimize tailstock barrel extension.
	Vibration	See "Vibration" trouble above.
	Spindle bearing loose	Adjust spindle bearings.
Work not turned straight	Headstock and tailstock centers not aligned	Align tailstock center.
	Work improperly supported	Use steady rest of follow rest.
		Reduce overhang from chuck.
	Bed not level	Relevel bed, using precision level.
	Tool not on center when using taper attachment	Put tool on center.
Work out of round	Work loose between centers or centers are excessively worn--work centers out of round	Adjust tailstock center. regrind centers. Lap work centers.
	Loose headstock spindle bearings	Adjust headstock spindle bearings.

Maintenance

TROUBLE SHOOTING CHART		
TROUBLE	PROBABLE CAUSE	CORRECTION
Cross slide or compound rest movement does not coincide with dial movement of respective adjusting screw.	Gib setting too tight or too loose	Adjust gibs.
	eork is too long and slender	Use steady rest or follow rest.

Maintenance



LUBRICATION DIAGRAM

No Inlet	Methods	Qty.	oil no.	Schedule	Oil change
1.Headstock	Open oil tank cover.			Gauge once a month of oil tank	New machine once a manth, later every other
2. Feed Gear Box.			1	in Left stand.	Month.
3. Change Gears	Open the V-pully cover.	few	2	Daily	
4. Compound	Use gun oiler	few	2	Daily	
5. Apron	Open the cup, fill by gun oiler	few	2	Daily	
6. Tailstock	Use Gun Oiler	few	2	Daily	
7. Leadscrew	Fill with gun oiler	few	2	Daily	
8. Bed way	Fill with Hand Pump	few	2	Daily	
9. Leadscrew	Fill with gun oiler	few	2	Daily	
10. Carriage-screw	Fill with Hand Pump	few	2	Daily	

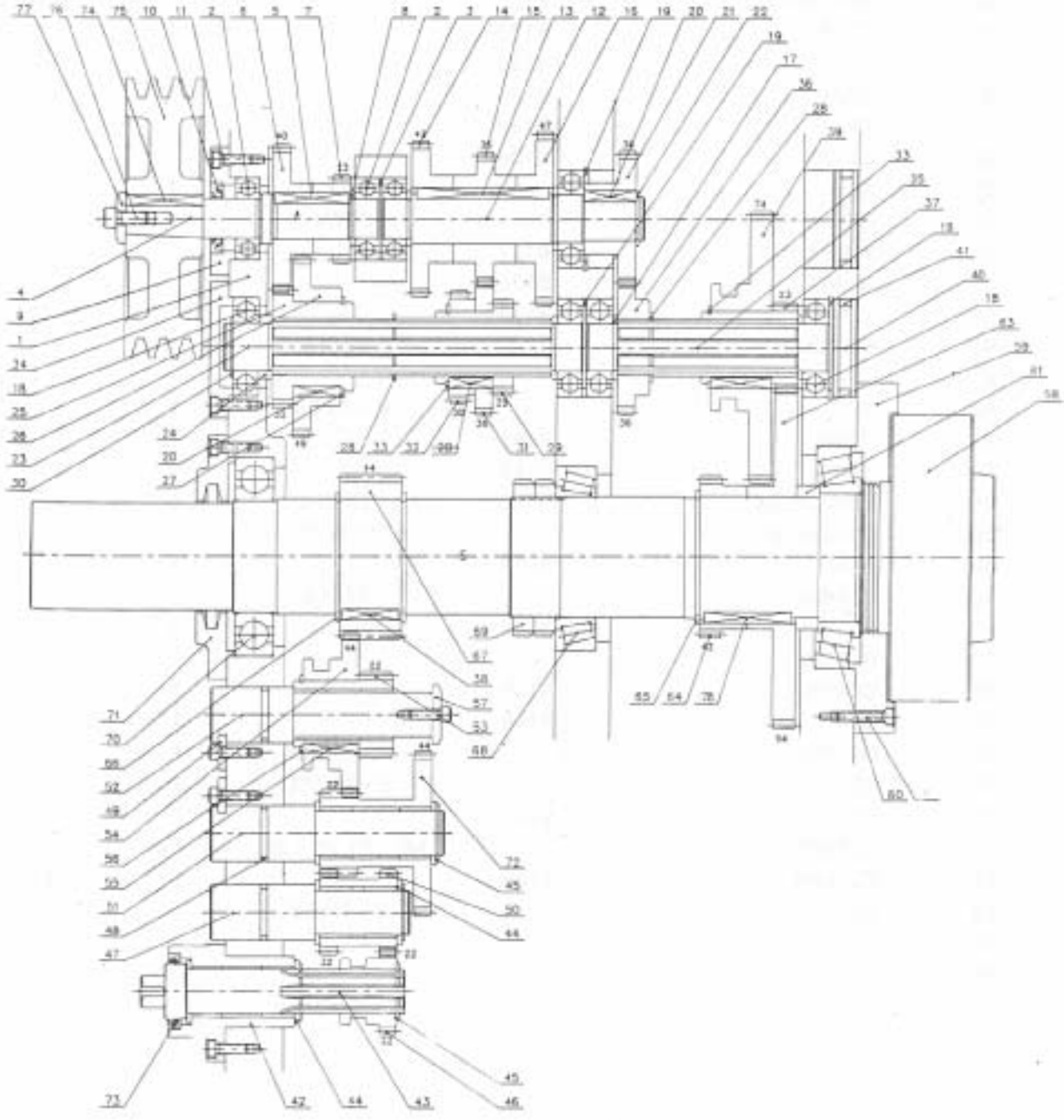
OIL NO.	MOBIL	ESSO	SHELL
1	D.T.E. Heavy Medium	Tellesso 52	Fellus 33
2	Vactra No.2	Febis K-53	Tonna Oil 27

HEAD STOCK

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	CASTING	8101		1	
2	BEARING		6205	3	
3	CIRCLIP (INT)		RTW52	1	
4	SHAFT	8102		1	
5	KEY		8×7×55L	1	
6	GEAR	8103		1	
7	GEAR	8104		1	
8	COLLAR	8105		2	7135
9	BUSH	8106		1	10115
10	OIL SEAL		TC254508	1	
11	SCREW		M6×P1.0×20L	16	
12	SHAFT	8107		1	
13	KEY		8×7×80L	1	
14	GEAR	8108		1	
15	GEAR	8109		1	
16	GEAR	8110		1	
17	WASHER	8111		4	
18	BEARING		6206	5	
19	CIRCLIP (INT)		RTW62	3	
20	KEY		8×7×30L	3	
21	GEAR	8112		1	
22	CIRCLIP (EXT.)		STW28	7	
23	SHAFT	8113		1	
24	WASHER	8114		1	1101009
25	GEAR	8115		1	
26	GEAR	8116		1	
27	CIRCLIP (EXT.)		STW56	1	
28	CIRCLIP (EXT.)		STW36	2	
29	GEAR	8117		1	
30	CIRCLIP (EXT.)		STW30	1	
31	GEAR	8118		1	
32	GEAR	8119		1	
33	CIRCLIP (EXT.)		STW45	2	
34	COVER	8120		1	1101020
35	SHAFT	8121		1	
36	GEAR	8122		1	
37	GEAR	8123		1	
38	KEY		8×7×35L	2	
39	GEAR	8124		1	
40	COVER	8125		2	
41	"O" RING		P52	2	
42	BUSH	8126		1	
43	SHAFT	8127		1	
44	COLLAR	8128		6	1101024
45	SCREW		M6×P1.0×30L	4	
46	GEAR	8129		1	
47	SHAFT	8130		1	
48	"O" RING		G30	3	

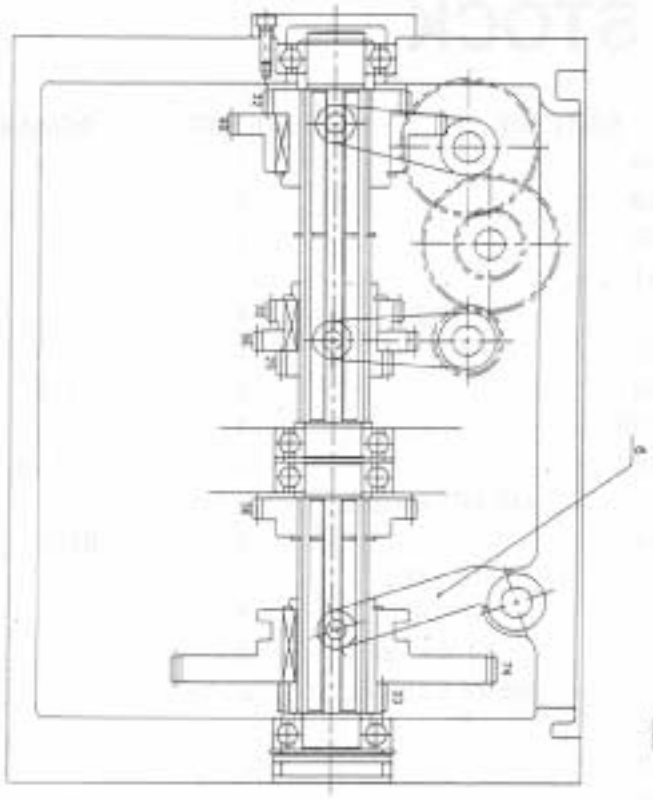
HEAD STOCK

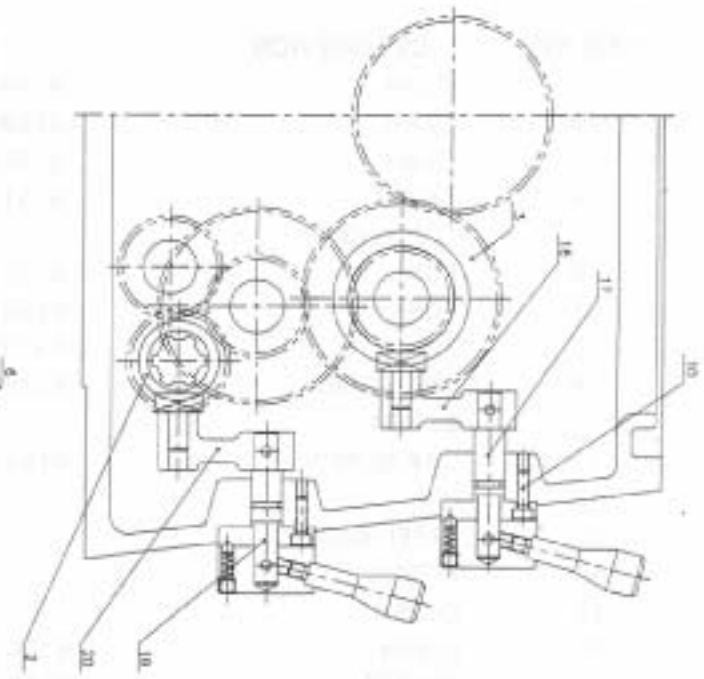
ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
49	WASHER	8131		3	7154
50	GEAR	8132		1	
51	SHAFT	8133		1	
52	SHAFT	8134		1	
53	GEAR	8135		1	
54	GEAR	8136		1	
55	KEY		6×6×35L	1	
56	CIRCLIP (EXT.)		STW42	1	
57	WASHER	8137		1	
58	SPINDLE	8138		1	
59	COVER	8139		1	10109
60	BEARING		32016	1	
61					
62	KEY		8×7×55L	1	
63	GEAR	8141		1	
64	GEAR	8142		1	
65	CIRCLIP (EXT.)		STW75	1	
66	CIRCLIP (EXT.)		STW72	2	
67	GEAR	8143		1	
68	BEARING		32015	1	
69	NUT	8144		2	
70	BEARING		6214	1	
71	COVER	8145		1	
72	GEAR	8146		1	
73	OIL SEAL		TC354808	1	
74	KEY		8×7×50L	1	
75	PULLEY	8147		1	
76	SCREW		M8×P1.25×25L	1	
77	COLLAR	8148		1	1101010
78	KEY		8×7×55	1	

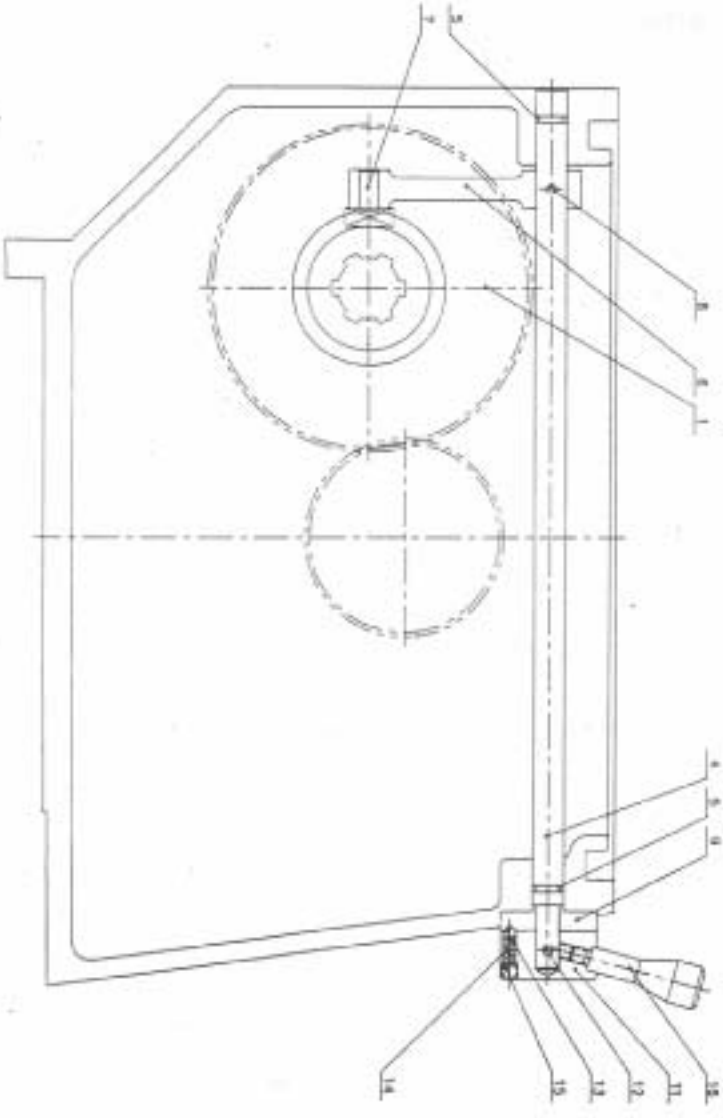


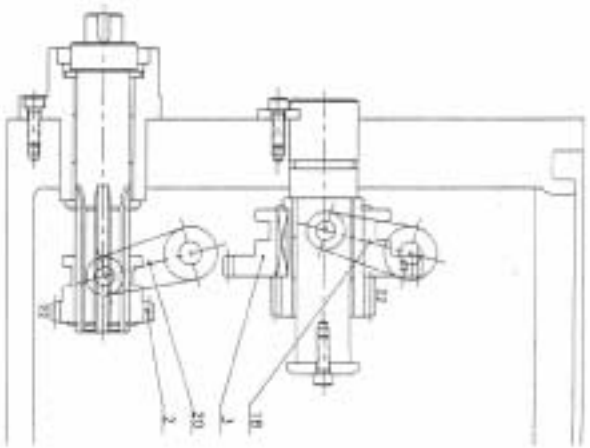
HEAD STOCK

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	GEAR	8124		1	
2	GEAR	8129		1	
3	GEAR	8136		1	
4	SHAFT	8151		1	
5	"O" RING		P12	4	
6	FORK	8152		1	
7	FORK	8153		3	7152
8	PIN	∅5×30L		3	
9	CAP SCREW	8154		3	10119
10	SCREW		M6×P1.0×20L	6	
11	CAP SCREW	8155		3	8169
12	PIN		∅5×50L	3	
13	STEEL BALL		∅1/4	3	
14	SPRING		∅1/4×18f	3	
15	SCREW		M8×P1.25×8L	3	
16	LEVER	8156		3	
17	SHAFT	8157		1	
18	FORK	8158		1	8160
19	SHAFT	8159		1	
20	FORK	8160		1	









HEAD STOCK

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	GEAR	8118		1	
2	GEAR	8116		2	
3	FORK	8161		1	
4	FORK	8162		2	
5	SHAFT	8163		1	
6	"O" RING		P12	4	
7	PIN		Ø5 x 30L	4	
8	CIRCLIP (EXT.)		STW16	3	
9		8164		3	
10	GEAR	8165		1	
11	"O" RING		G25	1	
12	CAP SCREW	8166		1	
13	SCREW		M6 x P1.0 x 20L	4	
14	KEY		6 x 6 x 15L	1	
15	DIAL	8167		1	
16	LEVER	8168		1	
17	CIRCLIP (EXT.)		STW25	1	
18		8169		1	
19	PIN		Ø5 x 40L	1	
20		8156		1	
21	SHAFT	8170		1	
22	"O" RING		P18	1	
23	GEAR	8171		1	
24	FORK	8161		1	
25	SHAFT	8173		1	
26	GEAR	8174		1	
27				1	
28				1	
29		8177	Ø1/4	2	
30				2	
31			M8 x P1.25 x 8L	2	
32	COVER	8177			
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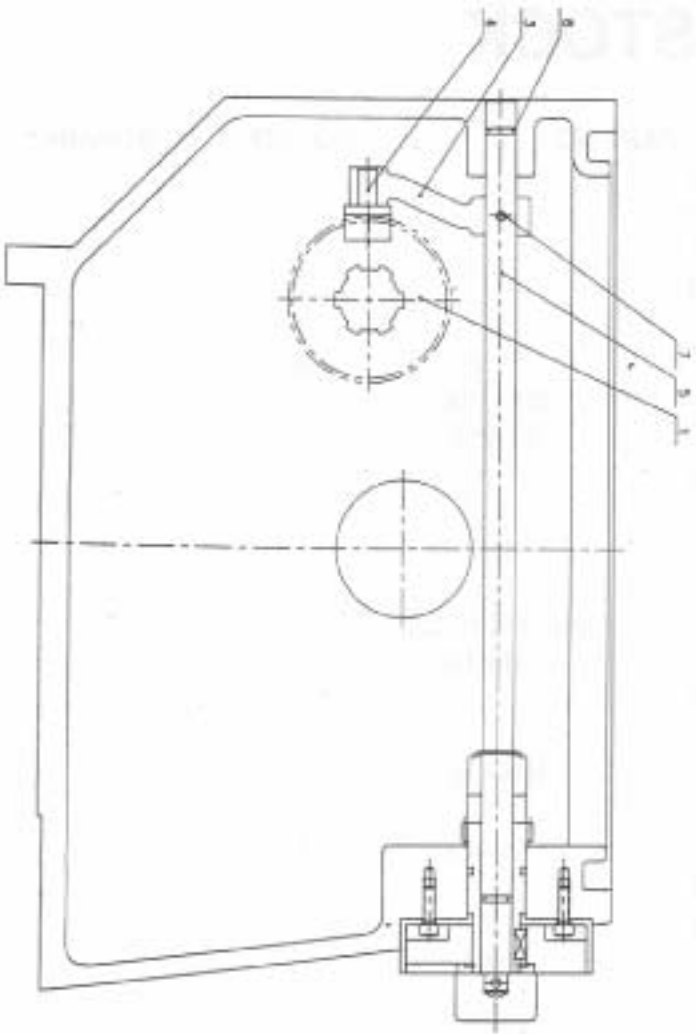
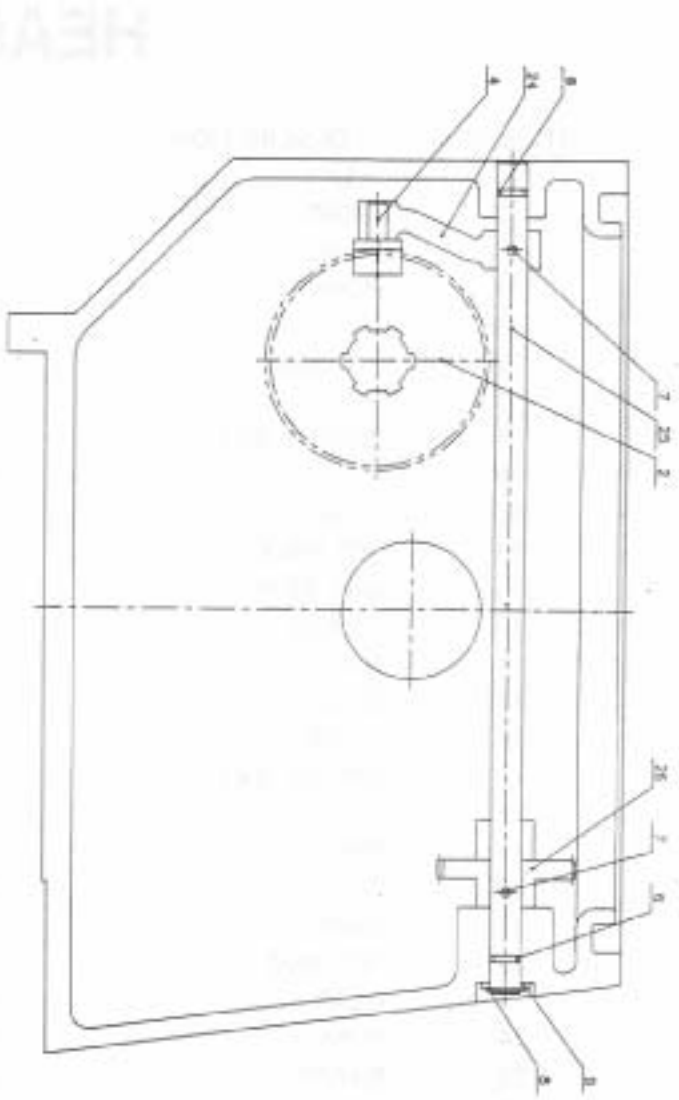
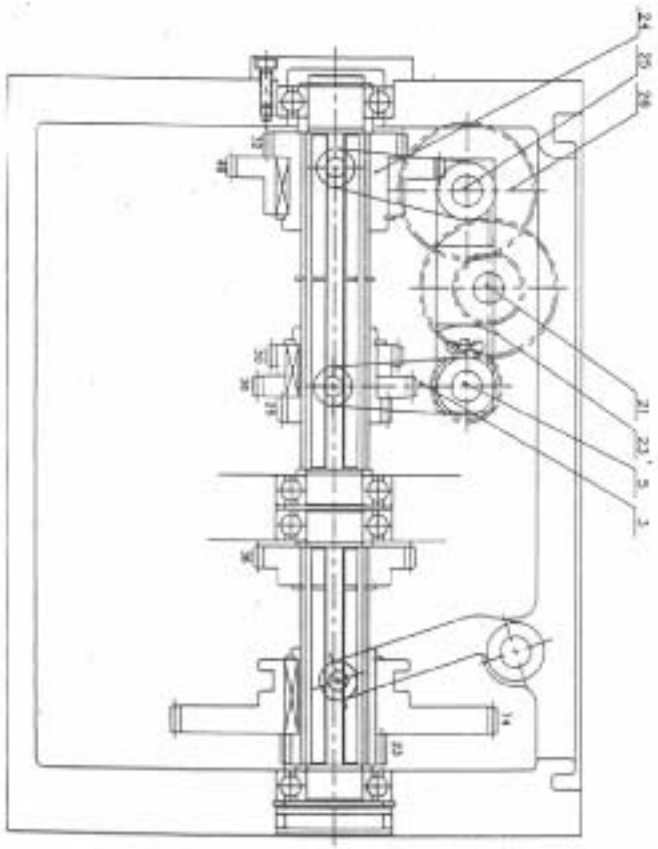
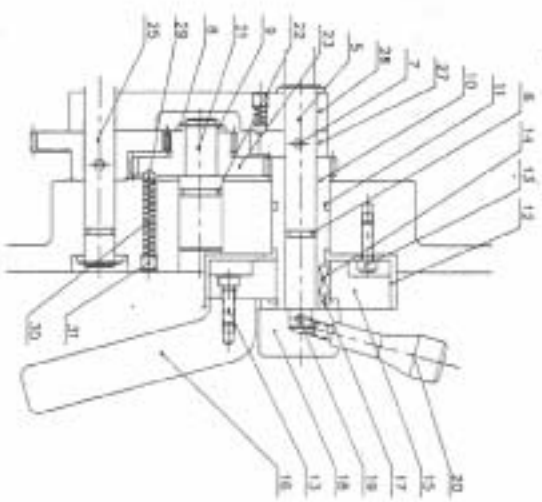






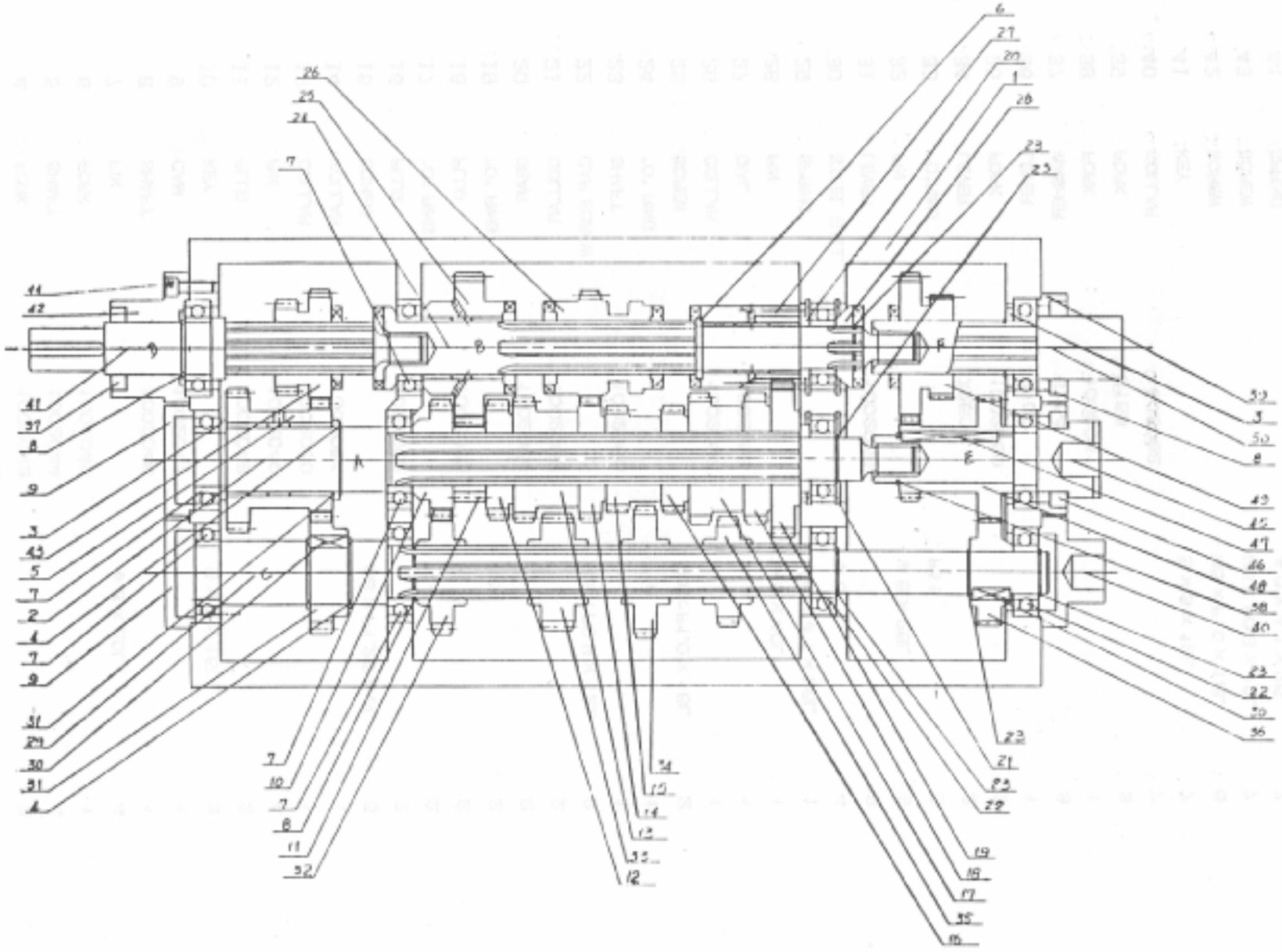


GEAR BOX

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	CASTING	1002001		1	
2	SHAFT	1002002		1	
3	WASHER	1002003		2	7135
4	CIRCLIP (EXT.)		S30	3	
5	GEAR	1002004		1	
6	COLLAR	1002005		1	
7	BEARING		6005	8	
8	CIRCLIP (EXT.)		S25	3	
9	COVER	1002006		2	
10	GEAR	1002007		1	
11	GEAR	1002008		1	
12	GEAR	1002009		1	
13	GEAR	1002010		1	
14	GEAR	1002011		1	
15	GEAR	1002012		1	
16	GEAR	1002013		1	
17	GEAR	1002014		1	
18	GEAR	1002015		1	
19	GEAR	1002016		1	
20	COLLAR	1002017		2	
21	CIRCLIP (INT.)		R42	4	
22	BEARING		6004	4	
23	CIRCLIP (EXT.)		S20	5	
24	SHAFT	1002018		1	
25	GEAR	1002019		1	
26	GEAR	1002020		1	
27	GEAR	1002021		1	
28	CLUCTH	1002022		1	
29	SHAFT	1002023		1	
30	KEY		8 × 6 × 15L	2	
31	GEAR	1002024		1	
32	GEAR	1002025		1	
33	GEAR	1002026		1	
34	GEAR	1002027		1	
35	GEAR	1002028		1	
36	GEAR	1002029		1	
37	OIL SEAL		25 × 40 × 8	1	
38	CIRCLIP (EXT.)		S22	1	
39	COVER	1002030		2	
40	COVER	1002031		1	7261
41	SHAFT	1002032		1	
42	COVER	1002033		1	
43	GEAR	1002034		1	
44	SCREW		M6 × P1.0 × 16L	13	
45	SHAFT	1002035		1	

GEAR BOX

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
46	OIL SEAL	32 x 45 x 8	2	
47	KEY	5 x 5 x 45L	1	
48	GEAR	1002036	1	
49	GEAR	1002037	1	
50	SHAFT	1002038	1	
51	COLLAR	1002039	1	9132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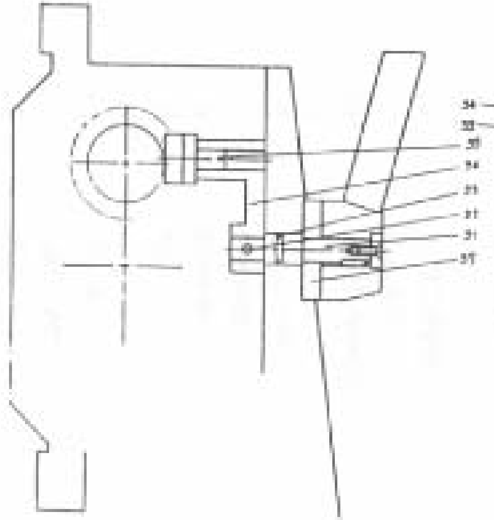
GEAR BOX

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	CASTING	1002001		1	
2	COVER	1002041		1	
3	SHAFT	1002042		1	
4	FORK	1002043		3	
5	SHAFT	1002044		4	
6	FORK	1002045		1	
7	PIN		ϕ 3 × 20L	4	
8	SHAFT	1002046		1	
9	CAM	1002047		1	
10	KEY		5 × 5 × 15L	3	
11	PLUG	1002048		2	
12	PIN	1002049		4	
13	COLLAR	1002050		1	
14	COLLAR	1002051		1	
15	SCREW		M8 × P1.25 × 8L	5	
16	PLUG	1002052		2	
17	"O" RING		P14	2	
18	PLUG	1002053		2	
19	"O" RING		P24	2	
20	GEAR	1002054		2	
21	COLLAR	1002055		2	
22	CAP SCREW		M5 × P0.8 × 12L	2	
23	SHAFT	1002056		1	
24	"O" RING		P16	1	
25	SCREW		M6 × P1.0 × 16L	2	
26	COLLAR	1002057		1	
27	DIAL	1002058		1	
28	PIN		ϕ 5 × 40L	1	
29	SPRING		ϕ 6 × ϕ 1 × 35L	1	
30	STEEL BALL		ϕ 6	4	
31	LEVER	1002059		3	
32	PIN		ϕ 5 × 25L	3	
33	"O"RING		P11	3	
34	LEVER	7250		2	
35	FORK	1002060		2	
36	LEVER	8160		1	
37	WASHER	8154		3	
38	FORK	1002061		1	
39	FORK	8155		3	
40	COLLAR	1002062		7	
41	KEY		3 × 3 × 12L	7	
42	SCREW		M6 × P10 × 12L	6	
43	SCREW		M5 × P0.8 × 12L	7	
44	SPRING		ϕ 6 × ϕ 1 × 25L	7	
45	NAME PLATE	1002063		1	



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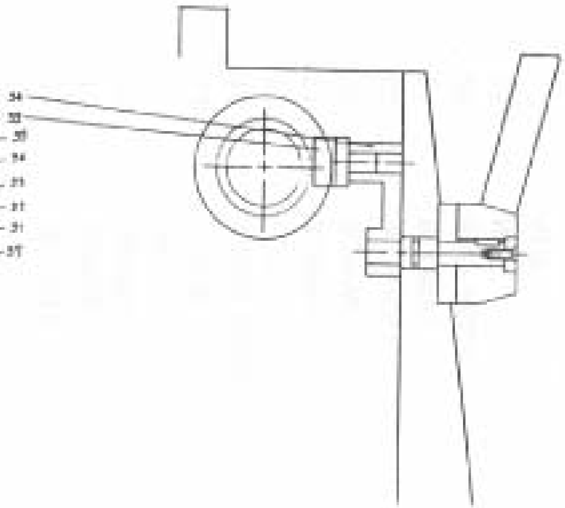

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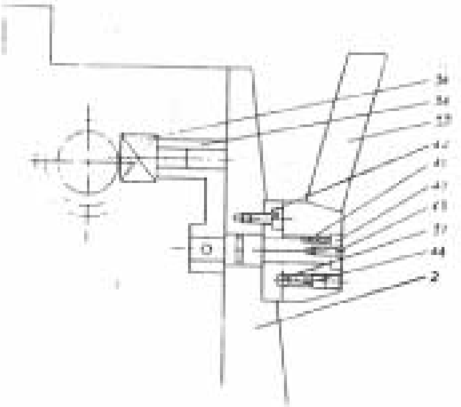

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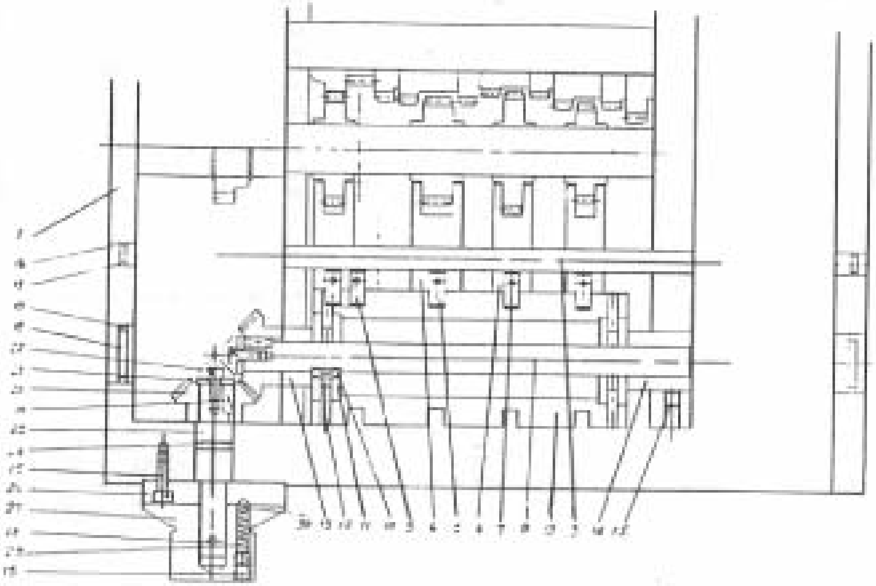

SADDLES AND TOP-SLIDE

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	BED	8601		1	
2	CASTING	8401		1	
3	ROCK	8616		1	10605 × 1000ℓ
4	PINION	8402		1	
5	KEY	8403		1	10407
6	SCREW		M6 × P1.0 × 6L	1	
7	BEARING			2	51104
8	KEEP ASSY	8404		1	10408
9			5 × 5 × 15L	1	
10	HAND WHEEL	8405		1	10411
11	SPRING		∅1/4 × 18ℓ	1	
12	STEEL BALL		∅1/4	1	
13	DIAL	8406		1	10410
14	WASHER	8407		1	10409
15	SCREW		M6 × P1.0 × 20L	1	
16	HANDLE	8408		1	10305
17	GIB	8409		1	
18	SCREW		M6 × P1.0 × 20L	3	
19	CROSS SLIDE	8410		1	
20	NUT	8411		1	10403
21	SCREW		M8 × P1.25 × 25L	1	
22	SCREW	8412		1	
23	WASHER	8413		1	10404
24	BEARING		51101	2	
25	KEEP ASSY	8414		1	10405
26	NUT	8415		2	7407
27	NUT	8416		2	
28	SWIVEL SLIDE	8417		1	
29	SCREW		M8 × P1.25 × 30L	2	
30	GIB	8418		1	
31	TOP-SLIDE	8419		1	
32	GIB	8438		1	
33	KEEP ASSY	8439		1	
34	NUT ASSY	8440			10423
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SADDLES AND TOP-SLIDE

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
1	CASTING	8401	1	
2	GIB	8420	1	
3	CROSS SLIDE	8410	1	
4	SWIVEL SLIDE	8417	1	
5	NUT	8421	1	
6	SCREW	M6 × P1.0 × 6L	1	
7	TOP-SLIDE	8419	1	
8	SCREW	8422	1	
9	BEARING	51101	2	
10	KEEP ASSY	8423	1	
11	NUT	8424	2	
12	HAND WHEEL	8425	1	
13	DIAL	8426	1	
14	SCREW	M6 × P1.0 × 10L	1	
15	SCREW	M6 × P1.0 × 20L	1	
16	HANDLE	8427	1	
17	HANDLE	8428	1	
18	T-SLOTTED	8429	1	
19	SHAFT	8430	1	
20	TURRET BODY	8431	1	
21	SCREW	8432	8	
22	WASHER	8433	1	
23	NUT	8434	1	
24	HANDLE	8435	1	
25	GEAR	8436	1	
26	COLUM	8437	1	
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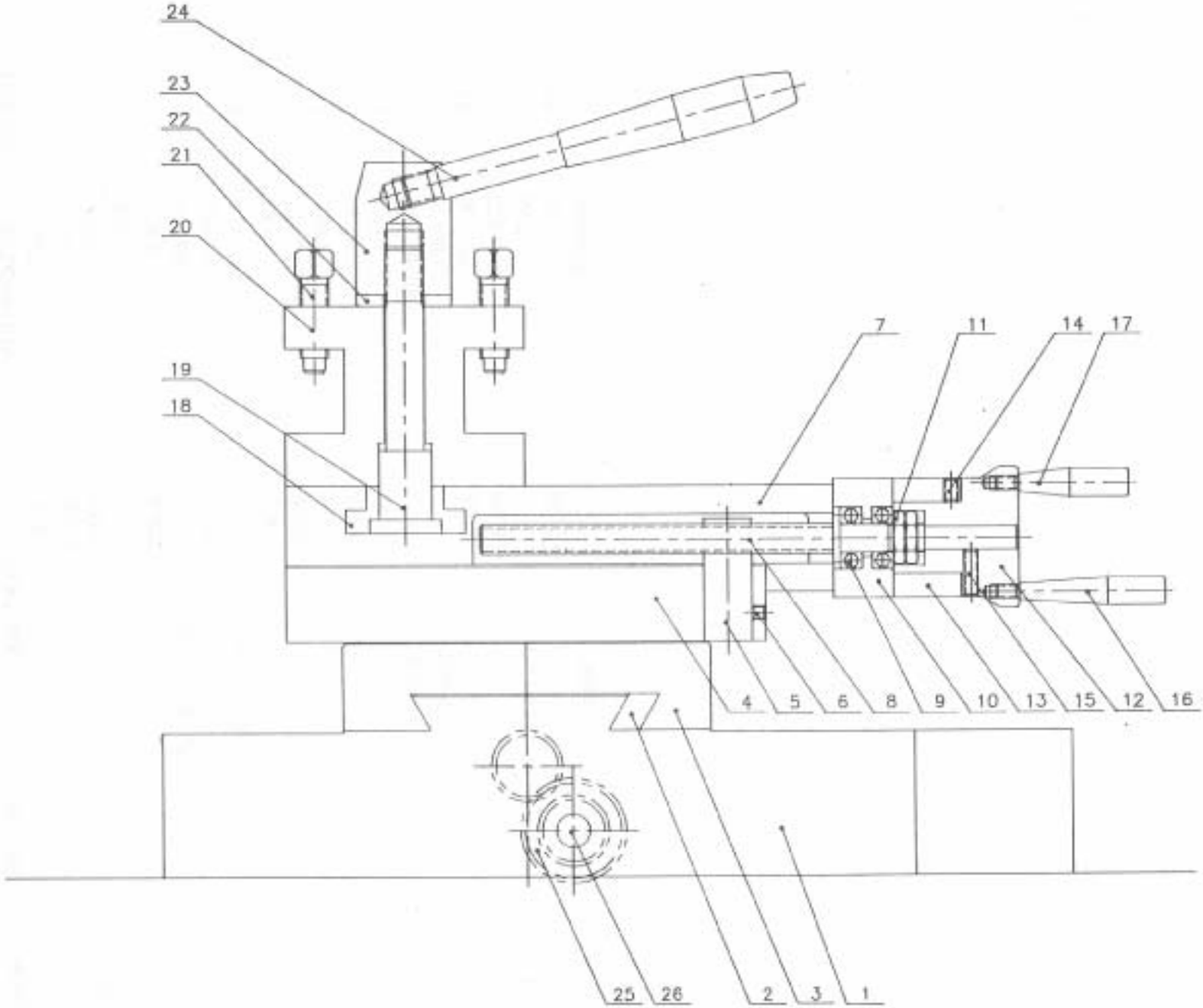
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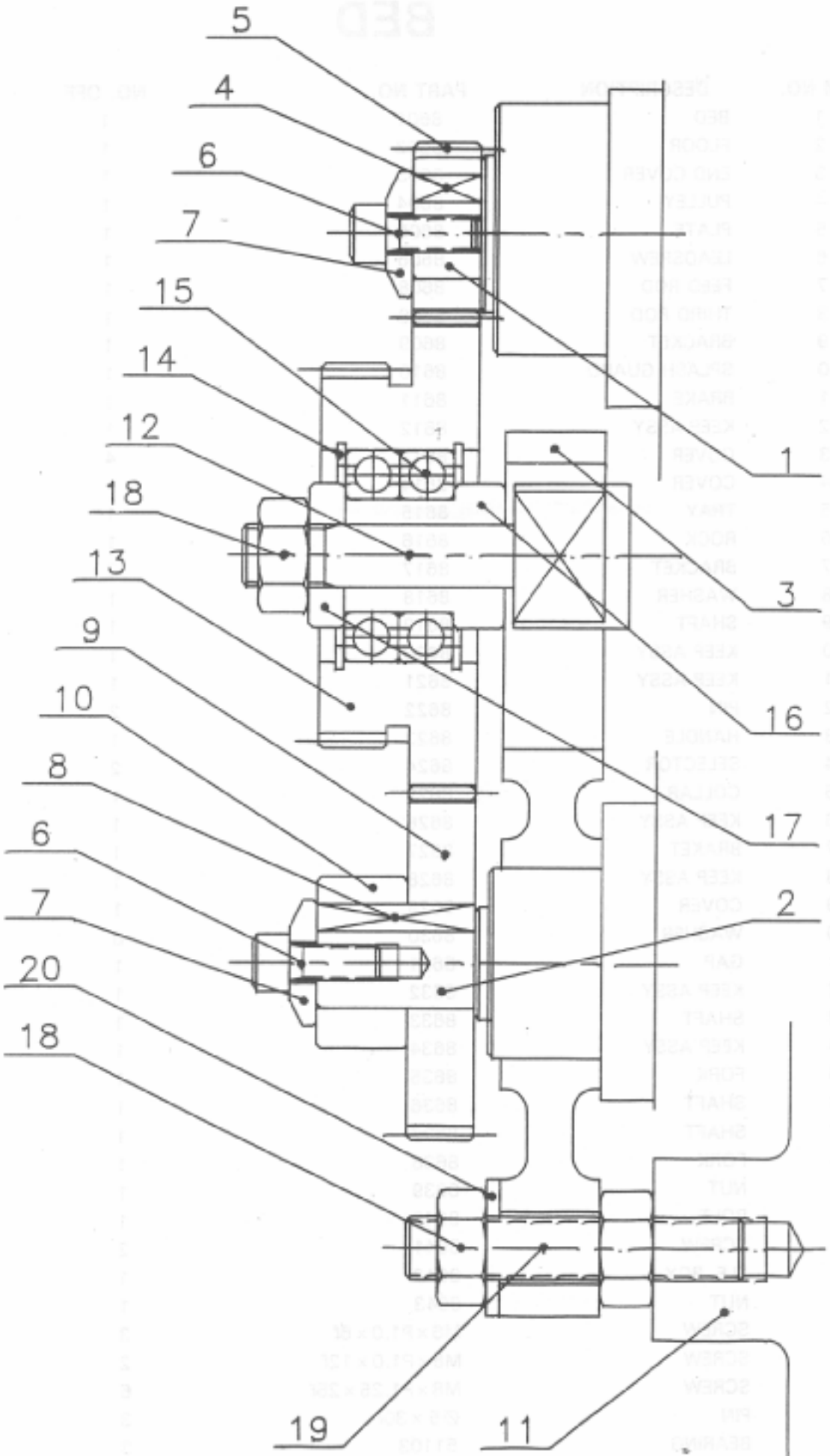
GEAR TRAIN

ITEM NO.	DESCRIPTION	PART NO.		NO. OFF	REMARK
1	SHAFT	8127		1	
2	SHAFT	8209		1	
3	KEEP ASSY	8501		1	10601
4	KEY		6×6×15L	1	
5	GEAR	8502		1	
6	SCREW		M6×P1.0×20ℓ	2	
7	WASHER	8503		2	7116
8	KEY		6×6×15ℓ	1	
9	GEAR	8504		1	
10	COLLAR	8505		1	
11	BED	8601		1	
12	SHAFT	8506		1	
13	GEAR	8507		1	
14	CIRCLIP (INT.)		RTW47	2	
15	BEARING		6005ZZ	2	
16	SLEEVE	8508		1	
17	COLLAR	8509		1	
18	NUT		M14×P2.0	3	
19	BOLT	8510		1	
20	WASHER		M14	1	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BED

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
1	BED	8601	1	
2	FLOOR	8602	1	
3	END COVER	8603	1	
4	PULLEY	8604	1	
5	PLATE	8605	1	
6	LEADSREW	8606	1	
7	FEED ROD	8608	1	
8	THIRD ROD	8608	1	
9	BRACKET	8609	1	
10	SPLASH GUARD	8610	1	1540G
11	BRAKE	8611	1	
12	KEEP ASSY	8612	1	
13	COVER	8613	4	
14	COVER	8614		
15	TRAY	8615	1	
16	ROCK	8616	1	
17	BRACKET	8617	2	
18	WASHER	8618	1	
19	SHAFT	8619	1	
20	KEEP ASSY	8620	1	
21	KEEP ASSY	8621	1	
22	PIN	8622	2	
23	HANDLE	8623	1	
24	SELECTOR	8624	2	
25	COLLAR	8625	1	
26	KEEP ASSY	8626	1	
27	BRAKET	8627	1	
28	KEEP ASSY	8628	1	
29	COVER	8629	1	
30	WASHER	8630	6	
31	GAP	8631	1	
32	KEEP ASSY	8632	1	
33	SHAFT	8633	1	
34	KEEP ASSY	8634	1	
35	FORK	8635	1	
36	SHAFT	8636	1	
37	SHAFT	8637	1	
38	FORK	8638	1	
39	NUT	8639	1	
40	BOLT	8640	1	
41	SCREW	8641	2	
42	ELE, BOX	8642	1	
43	NUT	8643	1	
44	SCREW	M6×P1.0×6ℓ	3	
45	SCREW	M5×P1.0×12ℓ	2	
46	SCREW	M8×P1.25×25ℓ	6	
47	PIN	Ø5×30ℓ	3	
48	BEARING	51103	3	

BED

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
49	PIN	∅5×12ℓ	1	
50	SCREW	M6×P1.0×12ℓ	4	
51	CIRCLIP (EXT.)	∅30	1	
52	SCREW	M6×P1.0×20ℓ	7	
53	PIN	∅5×20ℓ	5	
54	PIN	∅5×40ℓ	1	
55	COVER	8644	1	
56	SWITCH	1704	3	
57	STEEL BALL	∅6	4	
58	SPRING	∅6×∅1×25ℓ	4	
59	SCREW	M8×P1.25×8ℓ	4	
60	NUT	M10×P1.5	3	
61	BELT	A73	3	
62	BRAKE LINING		1	
63	SPRING	∅15×100ℓ	1	
64	SCREW	M8×P1.25×16ℓ	1	
65	SCREW	M16×P2.0×50ℓ	6	
66	MOTOR	5HP	1	
67	NUT	M12×P1.75	1	
68	SCREW	M6×P1.0×16	6	
69	WASHER	M12	1	
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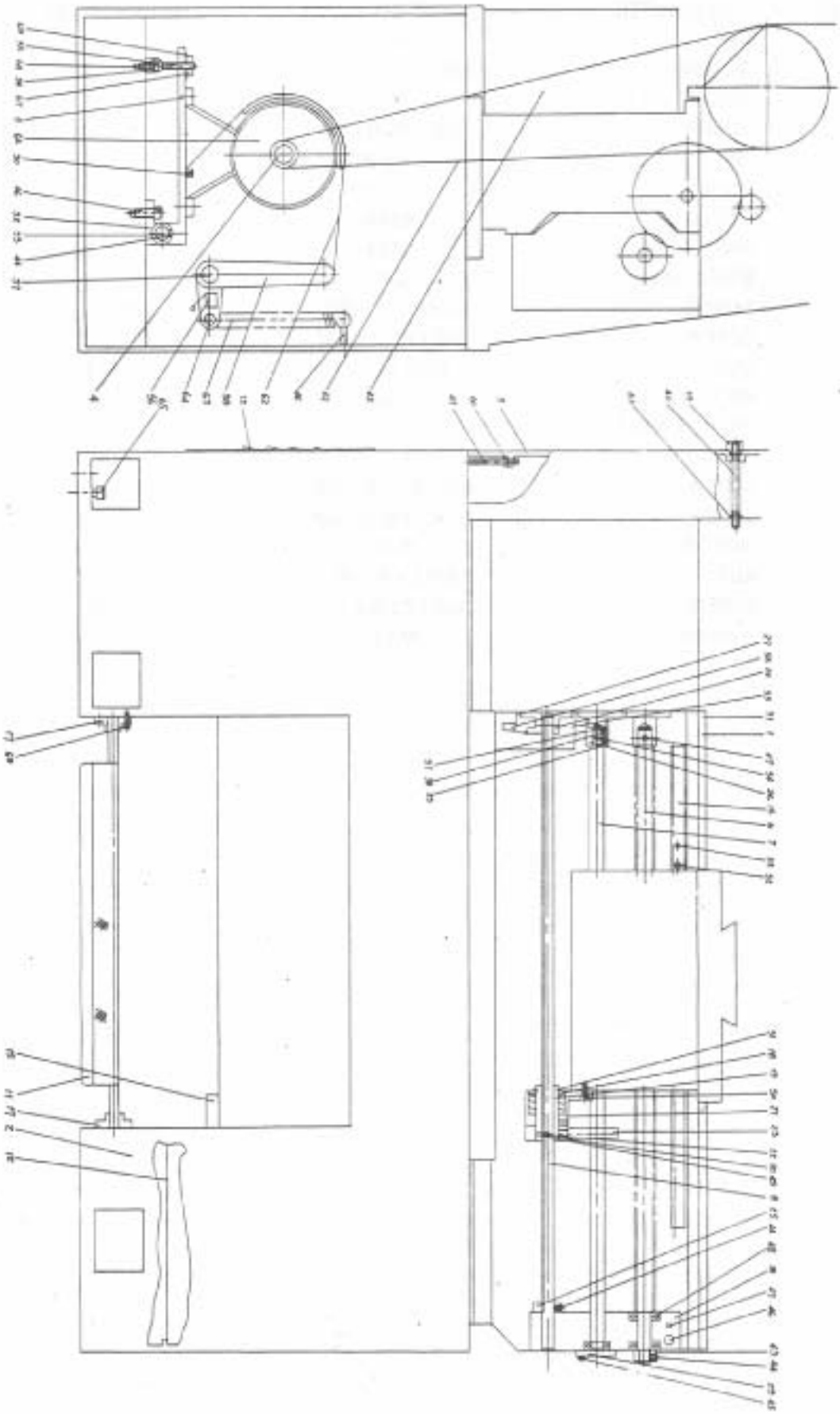
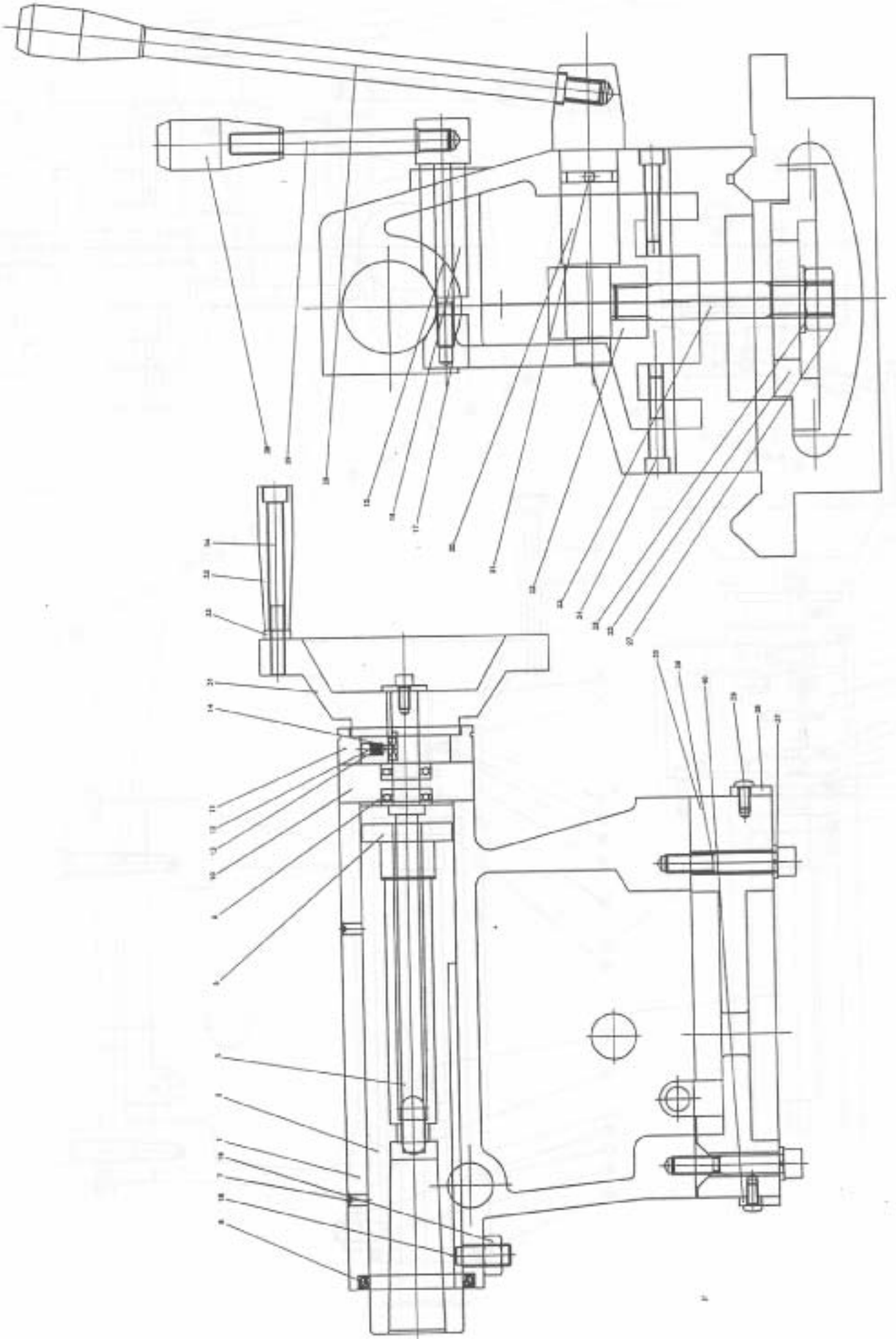


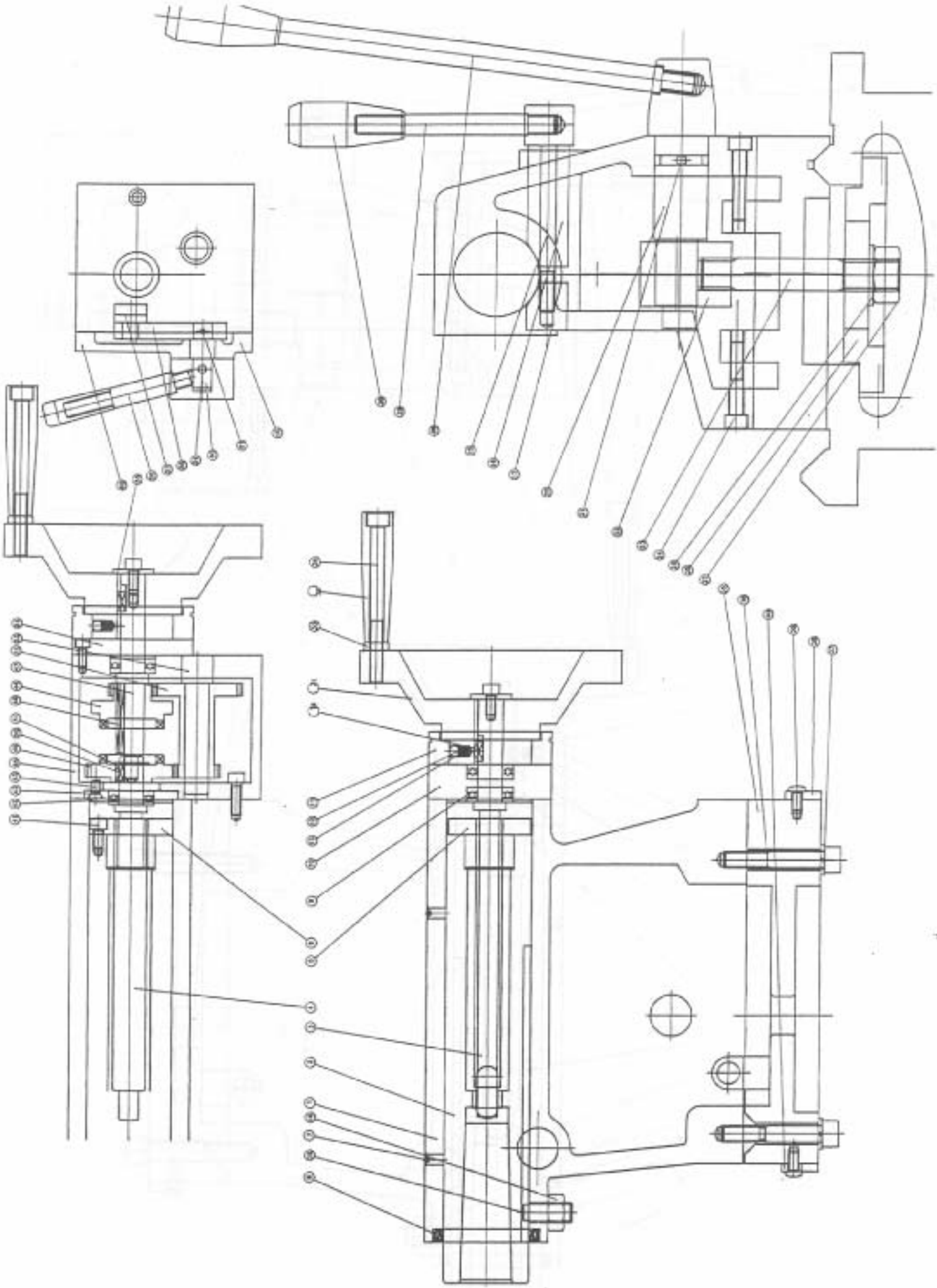
TAIL STOCK

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
1	CASTING	158801	1	
2	BARREL	158802	1	
3	SCREW	158803	1	
4	SCREW	158803-1	1	
5	NUT	158804	1	
6	NUT	158804-1	1	
7	OIL CUP	1/4"	2	
8	OIL SEAL	52*65*9	1	
9	BEARING	51102	2	
10	KEEY ASSY	158805	1	
11	DIAL	158806	1	
12	STEEL BALL	1/4"	1	
13	SPRING	Φ 6*Φ 1*8L	1	
14	KEY	5*5*15	1	
15	BOLT	158813	1	
16	NUT	158811	1	
17	NUT	158812	1	
18	SCREW	158810	1	M10*P1.5*20L
19	NUT	M10*P1.5	1	
20	SHAFT	158815	1	
21	SCREW	M8*P1.25*15L	1	
22	PIVOT BLOCK	158816	1	
23	BOLT	158817	1	
24	SCREW	M8*P1.25*45L	2	
25	CLAMP PLATE	158818	2	
26	WASHER	M20	2	
27	NUT	M20*P2.0	2	
28	HANDLE	158819	1	
29	HANDLE	158820	1	
30	HANDLE	3/8"-16NC	2	
31	HANDLE WHEEL	158807	1	
32	HANDLE	158808	1	
33	NUT	M10*P1.5	1	
34	SCREW	M10*P1.5*95L	1	
35	BASE	158809	1	
36	SCREW	M10*P1.5*60L	2	

TAIL STOCK

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
37	WASHER	M10	2	
38	WIPER		2	
39	SCREW	M6*P1.0*12L	8	
40	WIPER	158833	2	
41	SCREW	M6*P1.0*16L	5	
42	KEEY ASSY	158821	1	
43	SCREW	M5*P0.8*8L	3	
44	CHANGE BOX	158822	1	
45	COVER	158823	1	
46	GEAR	158824	1	
47	SHAFT	158825	1	
48	KEY	5*5*40L	1	
49	GEAR	158826	1	
50	KEY	5*5*10L	1	
51	CIRCLIP(EXT.)	S15	1	
52	GEAR	158827	1	
53	SHAFT	158828	1	
54	KEEY ASSY	158829	1	
55	WASHER	Φ 6.5*Φ 35*3L	1	
56	HANDLE	7246	1	
57	FORK	158832	1	
58	LEVER	158831	1	
59	SPRING PIN	5*5*40L	1	
60	SHAFT	158830	1	
61	SPRING PIN	Φ 3*25L	1	
62	SCREW	M5*P0.8*16L	4	



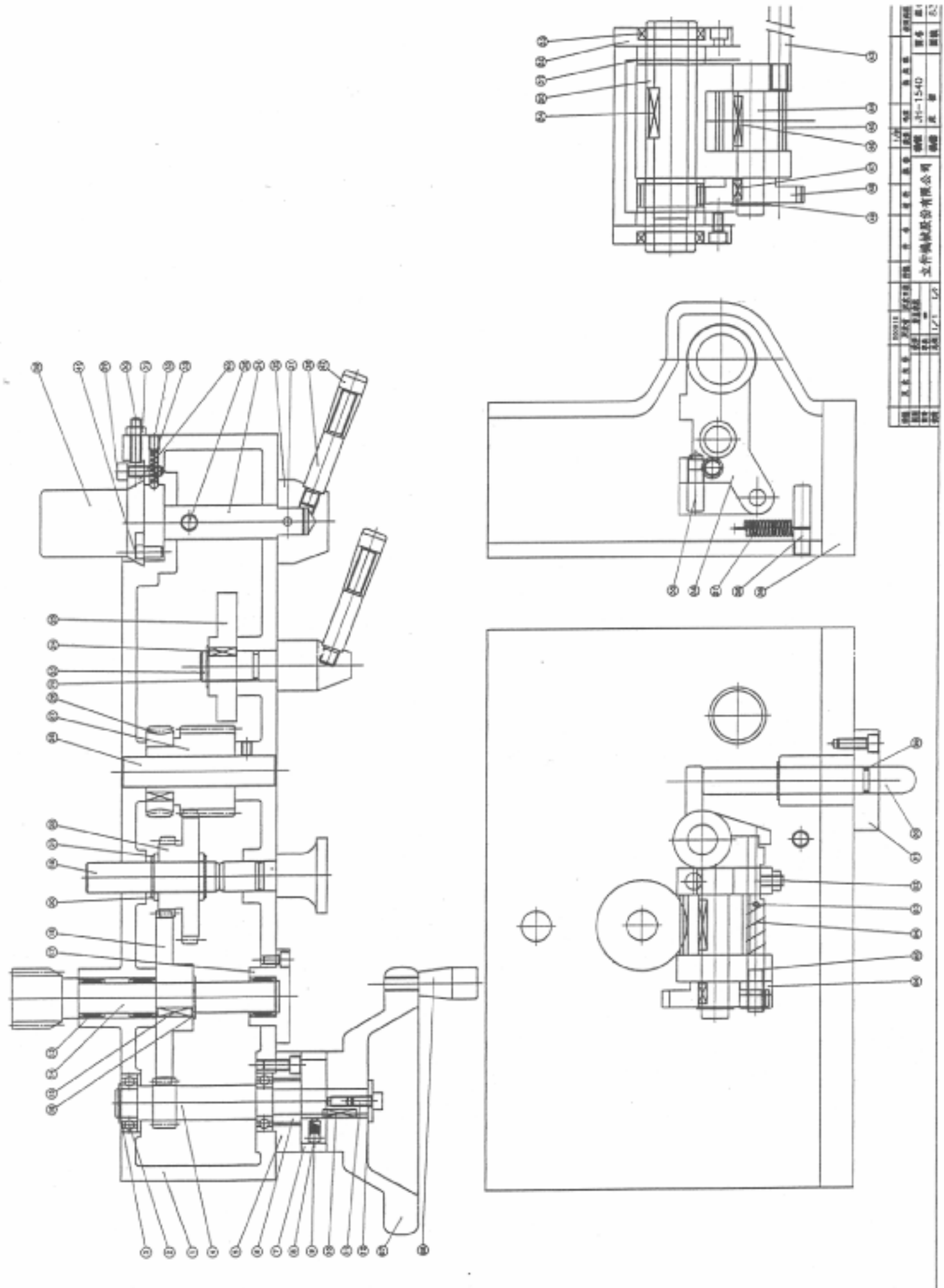


APRON

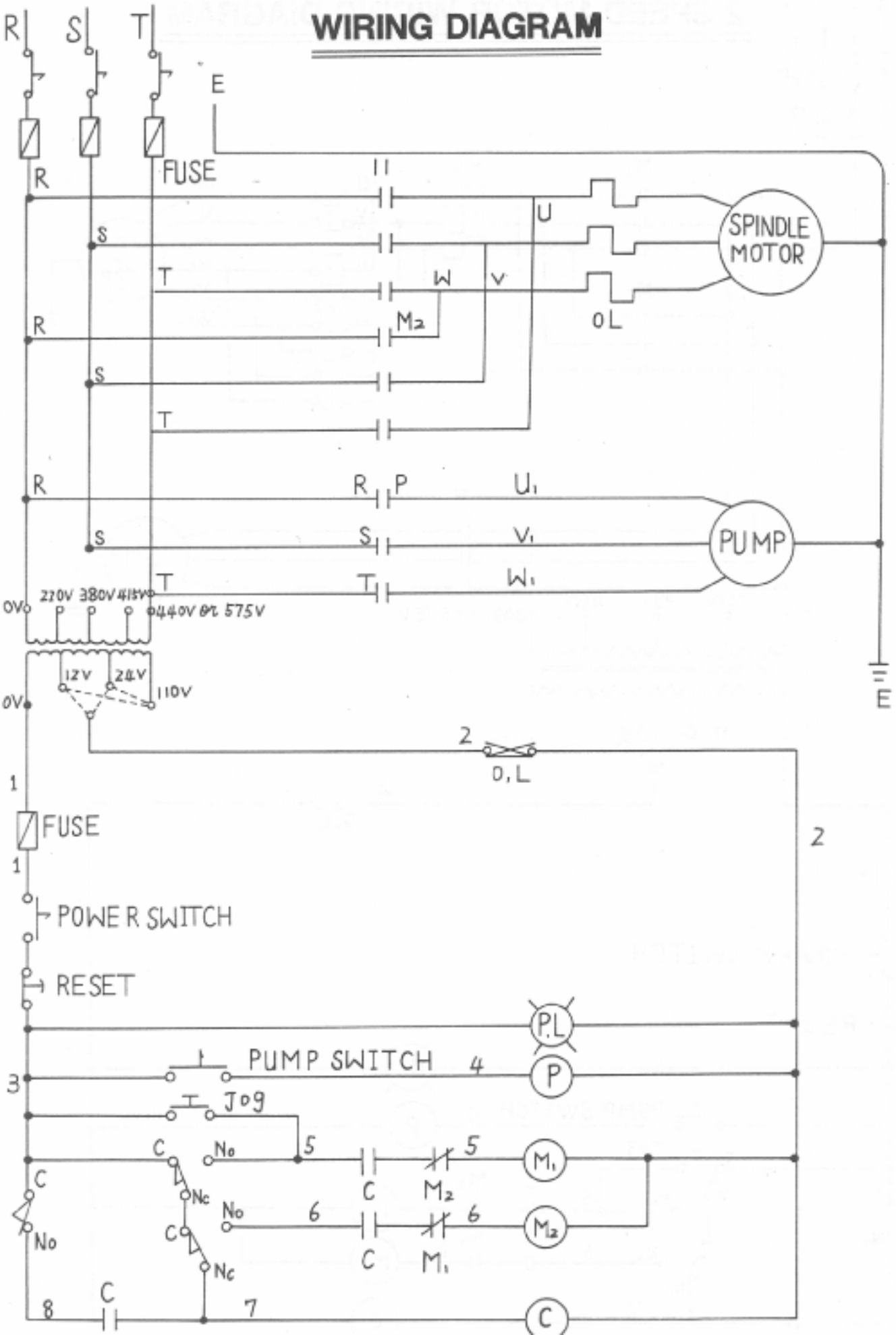
ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
1	CASTING	10301	1	
2	BEARING	6003ZZ	2	
3	CIRCLIP(EXT.)	S17	1	
4	PINION	10302-1	1	
5	KEEP ASSY	10302-2	1	
6	WASHER	10303-1	1	
7	DIAL	10304	1	
8	STEEL BALL	1/4"	3	
9	SPRING	Φ 6*Φ 1*6L	3	
10	KEY	5*5*20L	1	
11	SCREW	M6*P1.0*12L	11	
12	WASHER	M6*3*Φ 25	1	
13	BEARING	TLA 1816	3	
14	PINION	10306	1	
15	KEY	5*5*20L	1	
16	CIRCLIP(EXT.)	S18	1	
17	KEEY ASSEMBLY	10306-1	1	
18	GEAR	10307	1	
19	SHAFT	10308	1	
20	CIRCLIP(EXT.)	S18	2	
21	COLLAR	10309	2	
22	GEAR	10310	1	
23	SHAFT	10311	1	
24	KEY	5*5*16L	1	
25	CLUTCH	10312-1	1	
26	SHAFT	10313	1	
27	GEAR	10314	1	
28	GEAR	10315	1	
29	SCREW	M6*P1.0*20L	2	
30	SCREW	M6*P1.0*20L	2	
31	NUT	M6*P1.0	2	
32	SCREW	M8*P1.25	2	
33	SPRING	Φ 6*Φ 1*16L	2	
34	SHAFT	10316	1	
35	KEEP ASSY	10317	1	
36	SCREW	M8*P1.25*40L	1	

APRON

ITEM NO.	DESCRIPTION	PART NO.	NO. OFF	REMARK
37	SPRING PIN	Φ 5*50L	1	
38	HANDLE	10318	2	
39	NUT	10319	1	
40	GIB	7326	1	
41	PIN	7324	2	
42	HANDLE	3/8"-16NC	2	
43	SAFTY PIN	10321	1	
44	SHAFT	10323	1	
45	WORM	10324	1	
46	KEY	5*5*30L	1	
47	KEY	5*5*12L	1	
48	GEAR	10325	1	
49	CIRCLIP(EXT.)	S16	3	
50	PINION	10326	1	
51	COLLAR	10327	2	8618
52	COVER	10328	2	
53	OIL SEAL	30*40*7	2	
54	KEY	5*5*30L	1	
55	SCREW	10329	2	
56	KEEP ASSY	10332	1	
57	SPRING	Φ 12*Φ 1.5*35L	1	
58	SCREW	10335	1	
59	COVER	10334	1	
60	SHAFT	10312-2	1	
61	BUSH	7303	1	
62	SCREW	M6*P1.0*12L	1	
63	SPRING PIN	Φ 3*15L	1	
64	SPRING	Φ 14*Φ 11*35L	1	
65	SAFTY PIN	10330	1	
66	NUT	M10*P1.5	2	
67	HANDLE WHEEL	10336	1	
68	HANDLE	10305	1	
69	"O"RING	P12	1	
70	"O"RING	P14	1	



WIRING DIAGRAM



2 SPEED MOTOR WIRING DIAGRAM