

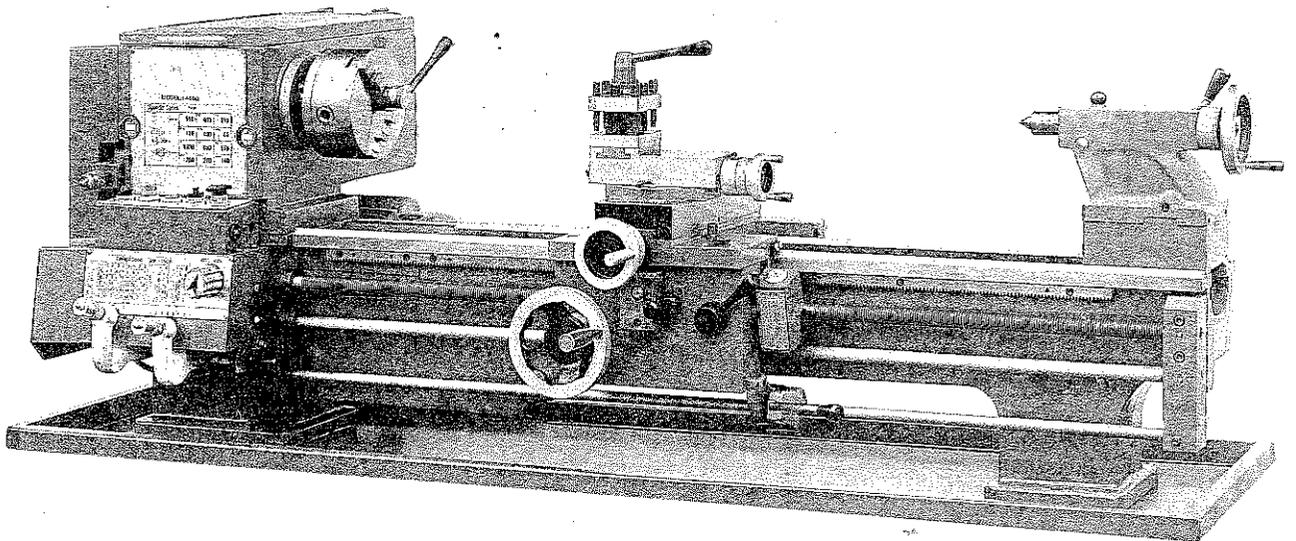
# PRECISION BENCH LATHE

## Instruction manual



**MODEL: CT-1440B**

**Back Gear Type**



## GENERAL SAFETY RULES FOR POWER TOOLS

**WARNING — DO NOT ATTEMPT TO OPERATE UNTIL YOU HAVE READ THOROUGHLY AND UNDERSTAND COMPLETELY ALL INSTRUCTIONS, RULES, ETC. CONTAINED IN THIS MANUAL. FAILURE TO COMPLY CAN RESULT IN ACCIDENTS INVOLVING FIRE, ELECTRIC SHOCK, OR SERIOUS PERSONAL INJURY. MAINTAIN OWNERS MANUAL AND REVIEW FREQUENTLY FOR CONTINUING SAFE OPERATION, AND INSTRUCTING POSSIBLE THIRD-PARTY USER.**

### READ ALL INSTRUCTIONS

- 1. KNOW YOUR POWER TOOL**  
For your own safety, read the owner's manual carefully. Learn its application and limitations as well as the specific potential hazards peculiar to this tool.
- 2. GUARD AGAINST ELECTRICAL SHOCK BY PREVENTING BODY CONTACT WITH GROUNDED SURFACES.** For example: Pipes, radiators, ranges, refrigerator enclosures.
- 3. KEEP GUARDS IN PLACE** and in working order.
- 4. REMOVE ADJUSTING KEYS AND WRENCHES**  
Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning on tool.
- 5. KEEP WORK AREA CLEAN**  
Cluttered areas and benches invite accidents.
- 6. DON'T USE IN DANGEROUS ENVIRONMENT**  
Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well illuminated.
- 7. KEEP CHILDREN AWAY**  
All visitors should be kept a safe distance from work area.
- 8. MAKE WORKSHOP KID PROOF**  
With padlocks, master switches, or by removing starter keys.
- 9. DON'T FORCE TOOL**  
It will do the job better and be safer at the rate for which it was designed.
- 10. USE RIGHT TOOL**  
Don't force tool or attachment to do a job for which it was not designed.
- 11. WEAR PROPER APPAREL**  
No loose clothing, gloves, neckties, rings bracelets, or jewelry to get caught in moving parts. Nonslip footwear is recommended. Wear protective hair covering to contain long hair.
- 12. ALWAYS USE SAFETY GLASSES**  
Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact-resistant lenses. They are NOT safety glasses.
- 13. SECURE WORK**  
Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
- 14. DON'T OVERREACH**  
Keep your proper footing and balance at all times.
- 15. MAINTAIN TOOLS IN TOP CONDITION**  
Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
- 16. DISCONNECT TOOLS FROM POWER SOURCE**  
Before servicing and when changing accessories such as blades, bits, cutters, or when mounting and re-mounting motor.
- 17. AVOID ACCIDENTAL STARTING**  
Make sure switch is in "OFF" position before plugging in cord.
- 18. USE RECOMMENDED ACCESSORIES**  
CONSULT THE OWNER'S manual for recommended accessories. Use of improper accessories may be hazardous.
- 19. NEVER STAND ON TOOL**  
Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
- 20. CHECK DAMAGED PARTS**  
Before further use of the tool, a guard or other part that is damaged should be carefully checked to ensure that it will operate properly and perform its intended function - check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
- 21. DIRECTION OF FEED**  
Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
- 22. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.**  
Don't leave tool until it comes to a complete stop.



The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety glasses or eye shields before using your Lathe. We recommend Wide Vision Safety Mask for use over spectacles, or standard safety glasses.

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## SAFETY RULES FOR LATHES

Safety is a combination of operator common sense and alertness at all times when the Lathe is being used. Study these safety rules and general safety rules before operating and retain for future use.

1. Wear eye protection.
2. Never attempt any operation or adjustment if procedure is not understood.
3. Keep fingers away from revolving parts and cutting tools while in operation.
4. Never force cutting action.
5. Never perform an abnormal or little used operation without study and use of adequate blocks, jigs, stops, fixtures etc.
6. Use of shop manual such as "Machinery's Handbook" or similar is recommended for cutting speeds, feeds and operation detail.
7. Do not remove drive cover while in operation and make sure it is always closed.
8. Always remove chuck key, even when machine is not in operation.
9. Do not attempt to adjust or remove tools when in operation.
10. Always keep cutters sharp.
11. Never use in an explosive atmosphere or where a spark could ignite a fire.
12. Always use identical replacement parts when servicing.

**WARNING: DO NOT ALLOW FAMILIARITY (GAINED FROM FREQUENT USE OF YOUR LATHE) TO BECOME COMMONPLACE. A CARELESS FRACTION OF A SECOND CAN ALLOW FOR SEVERE INJURY.**

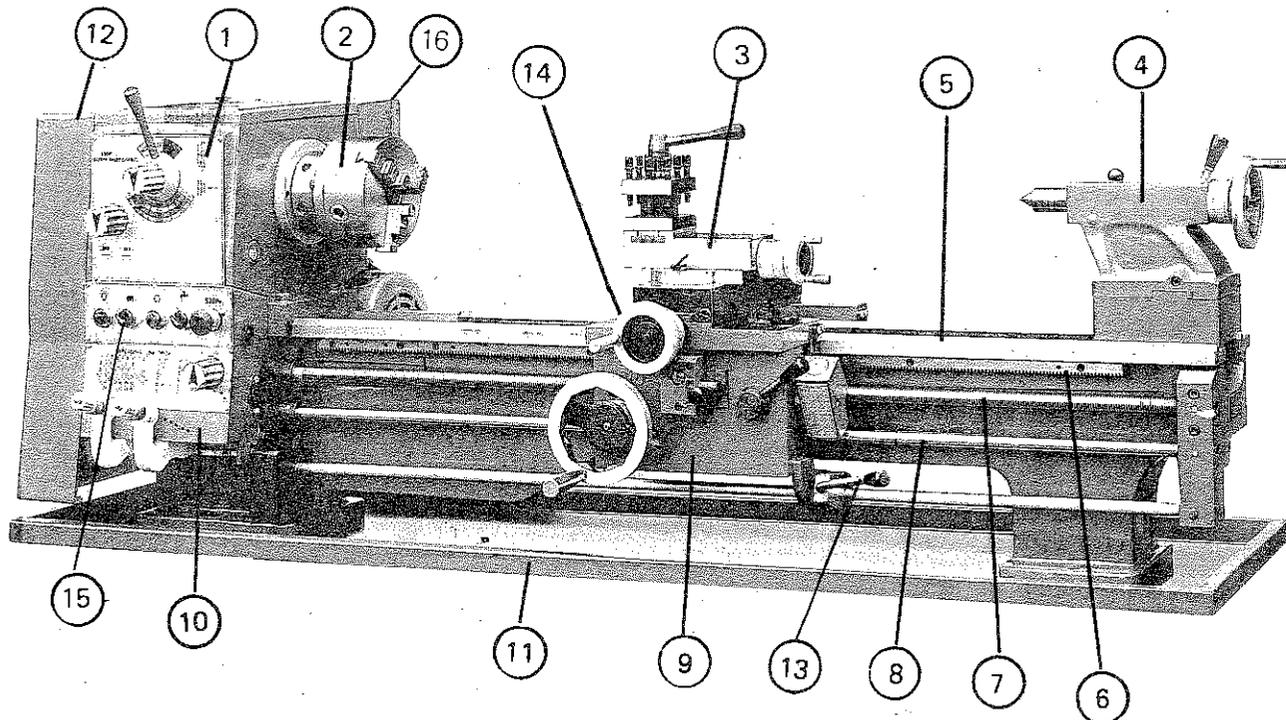
Before using the machine, the instruction book should be read thoroughly by its operator so that he is completely familiar and confident with the machine and its controls.

# ALL GEAR HEAD BENCH LATHE



1. Headstock
2. Spindle
3. Top Slide
4. Tailstock
5. Bed
6. Rack
7. Leadscrew
8. Feed Shaft

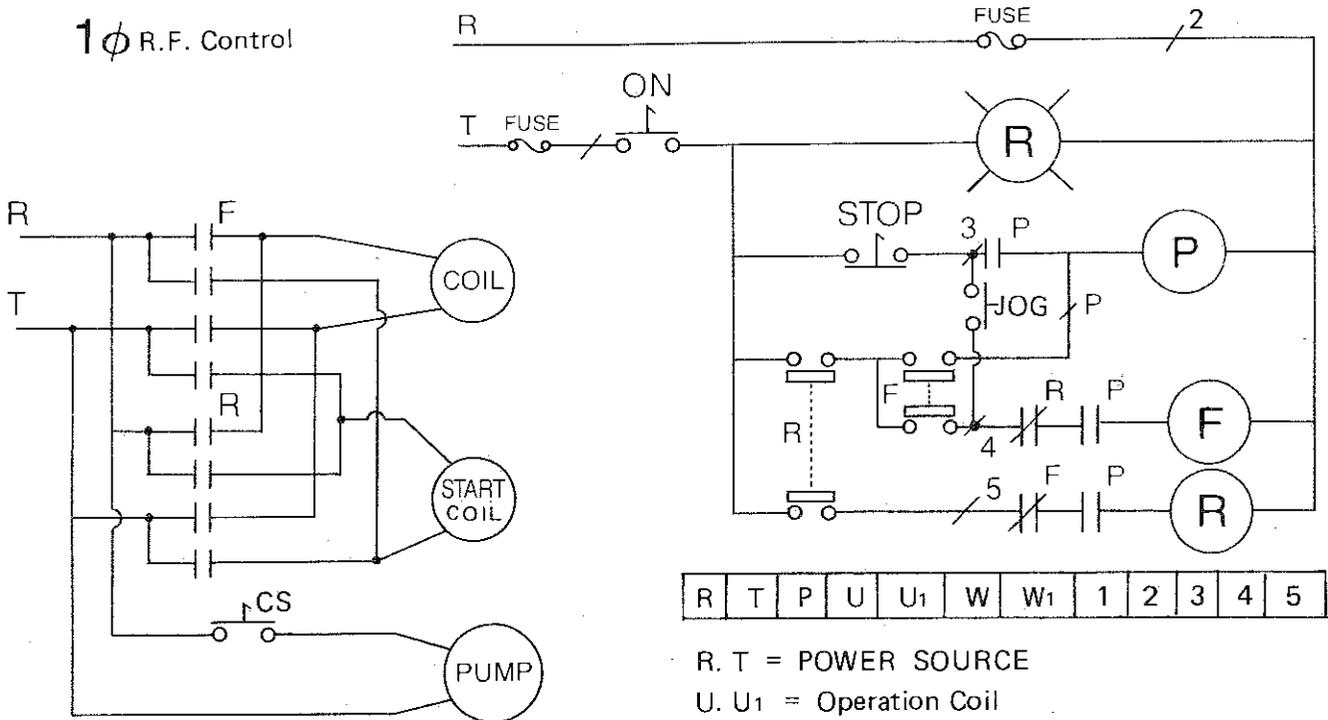
9. Apron
10. Gear Box
11. Chip Pan
12. End Cover
13. Start
14. Saddle
15. Switch (ON-OFF)
16. Electrical Box



MODEL	CT-1440G	
SPECIFICATION:	METRIC	INCH
1. Swing over bed	360mm	14"
2. Swing over cross slide	200mm	8"
3. Swing over gap	530mm	20 <sup>7</sup> / <sub>8</sub> "
4. Width of gap	200mm	7 <sup>7</sup> / <sub>8</sub> "
5. Distance between centers	1015mm	40"
6. Length of bed	1630mm	64"
7. Width of bed	182mm	7 <sup>1</sup> / <sub>2</sub> "
8. Hole through spindle	38mm	1 <sup>1</sup> / <sub>2</sub> "
9. Tailstock spindle travel	95mm	3 <sup>3</sup> / <sub>4</sub> "
10. Cross slide travel	175mm	6 <sup>7</sup> / <sub>8</sub> "
11. Tool slide travel	95mm	3 <sup>3</sup> / <sub>4</sub> "
12. Saddle travel	895mm	35 <sup>1</sup> / <sub>4</sub> "
13. Taper of spindle Taper of center, Morse taper	MT #5 D1-4	
14. Tailstock taper of center	MT #3	
15. Range of spindle speeds	12 speeds 70-1350RPM	
16. Lead screw diameter	22mm	7 <sup>7</sup> / <sub>8</sub> "
17. Feed rod diameter	19mm	3 <sup>3</sup> / <sub>4</sub> "
18. Threads per inch of lead screw	3mm/T	8 TPI
19. Thread can be cut	mm 28 kinds 0.25-11	50 kinds 4-112 TPI
20. Main spindle motor	1 <sup>1</sup> / <sub>2</sub> HP 1.125KW	
21. Net weight (without floor stand) (Approx.)	350 kg	
22. Net weight (with floor stand 27") (Approx.)	400 kg	
23. Packing size (without floor stand) (Approx.)	1850mm x 770mm x 690mm	72 <sup>7</sup> / <sub>8</sub> " x 30 <sup>3</sup> / <sub>8</sub> " x 27 <sup>1</sup> / <sub>8</sub> "

# WIRING DIAGRAM

1 $\phi$  R.F. Control



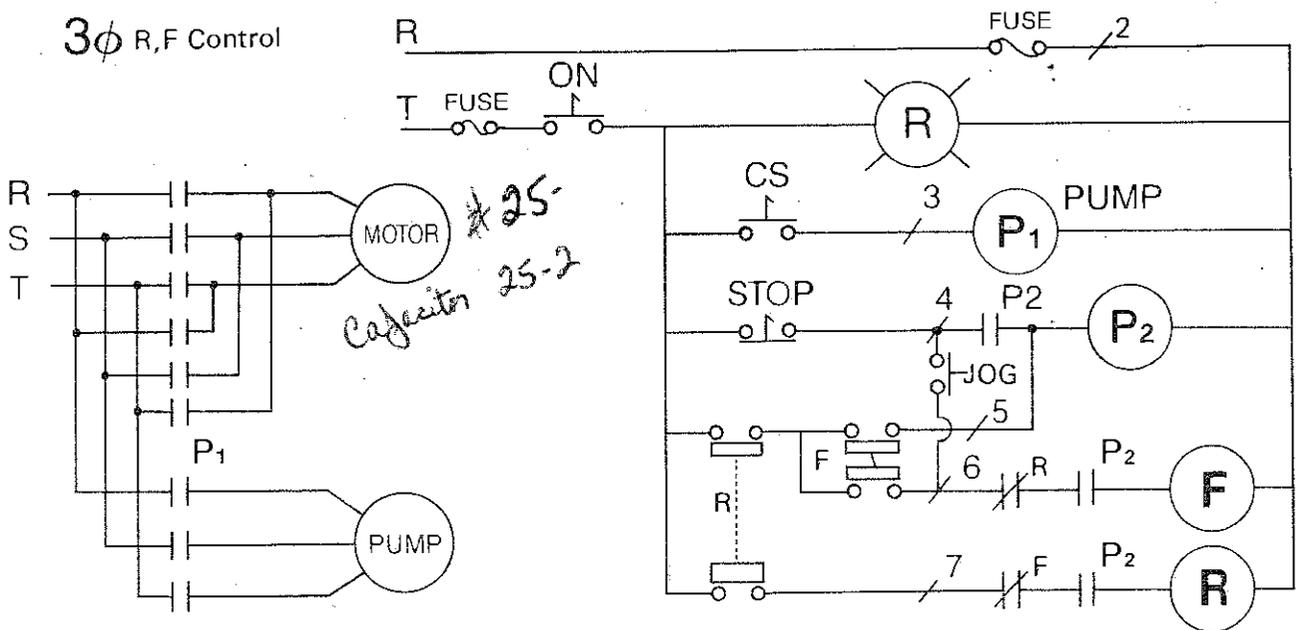
R. T = POWER SOURCE

U. U<sub>1</sub> = Operation Coil

W. W<sub>1</sub> = Start Coil

1,2,3,4,5 = Control Line

3 $\phi$  R,F Control



R.S.T. = POWER SOURCE

U.V.W. = Motor Coil

P.P.P. = 3 $\phi$  Pump Coil

1 - 7 = Control Line

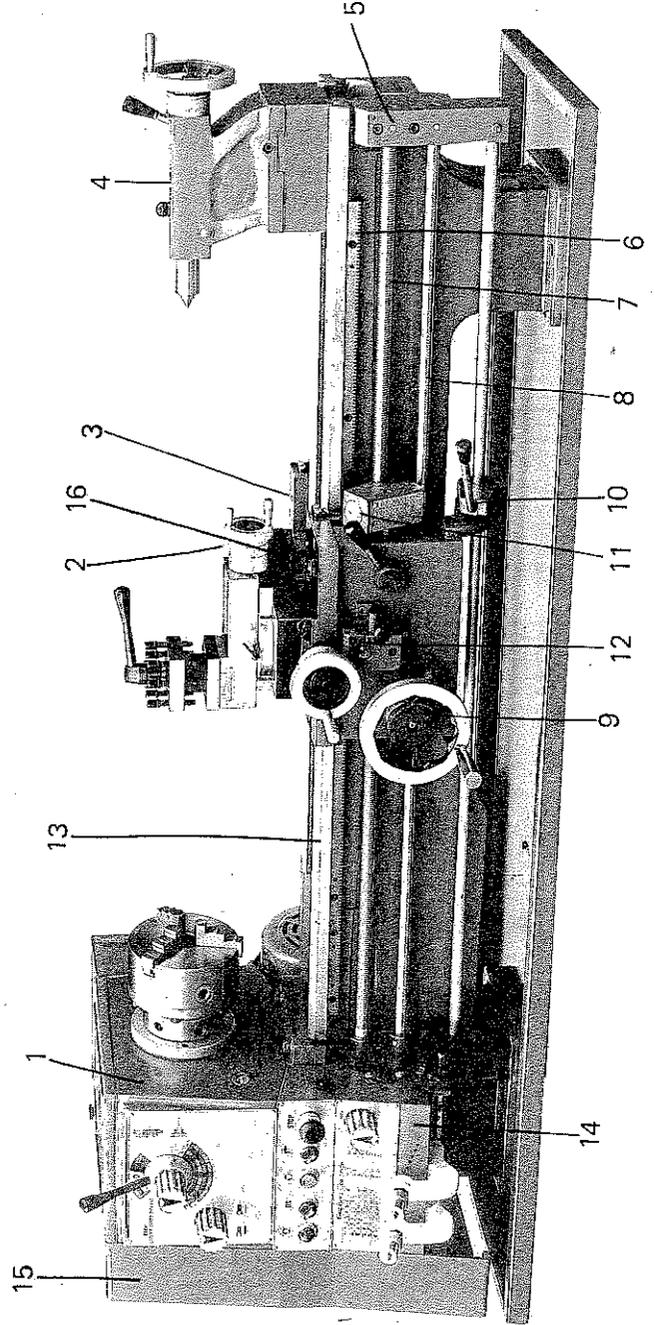
*\*25-  
Capacitor 25-2*



LUBRICATION PLAN

No.	Position	Interval	Suitable Types of Oil
1	Head stock	When operated more than 2,500 house	HD-100 Mobil Gear 627
2	Top slide	Frequently	SAE-30
3	Saddle	Frequently	SAE-30
4	Tail stock	Frequently	SAE-30
5	Bracket	Frequently	SAE-30
6	Rack	Frequently	Clean and SAE-30
7	Lead screw	Frequently	Clean and SAE-30
8	Feed shaft	Frequently	SAE-30
9	Bush	Frequently	

No.	Position	Interval	Suitable Types of Oil
10	Start	Frequently	SAE-30
11	Shaft	Frequently	SAE-30
12	Shaft	Frequently	SAE-30
13	Bed	Frequently	Clean
14	Gear Box	Frequently	Clean
15	Gear	Frequently	SAE-30
16	Apron	Frequently	Clean
17			
18			



## CHUCKS AND CHUCK MOUNTING

When fitting chucks or faceplates first ensure that spindle and chuck tapers are perfectly clean and that all cams lock in the correct position see Fig. 4 It may be necessary when mounting a new chuck to re-set the camlock studs (A). To do this, remove the cap-head locking screws (B) and set each stud so that the scribed ring (C) is flush with the rear face of the chuck-with the slot lining up with the locking screw hole.

Now mount the chuck or faceplate on the spindle nose and tighten the six cams in turn. When fully tightened, the cam lock line on each cam should be between the two V marks on the spindle nose.

If any of the cams do not tighten fully within these limit marks, remove the chuck or faceplate and re-adjust the stud as indicated in the illustration. Fit and tighten the locking screw (B) at each stud before remounting the chuck for work. A reference mark should be made on each correctly fitted chuck or faceplate to coincide with the reference mark scribed on the spindle nose.

This will assist subsequent remounting. **DO NOT INTERCHANGE CHUCKS OR FACE PLATES BETWEEN LATHES WITHOUT CHECKING FOR CORRECT CAM LOCKING.**

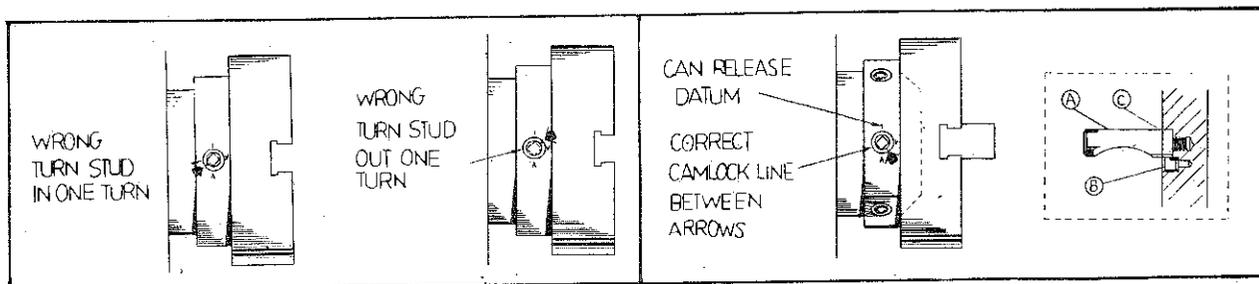


Fig. 1

## HEADSTOCK CHECK

Take one piece of steel bar, it's length is over six inches, and it's diameter is 2 inches. Clamp one side of it and make another side free, cutting it's surface smoothly and then check it's both side by way of use indicated meter touching it's surface and rotating test bar. We can check aren't the measuring value under the tolerance? We have sent the machine accuracy check report with the delivery machine and you can check it again that you can make sure the machine accuracy.

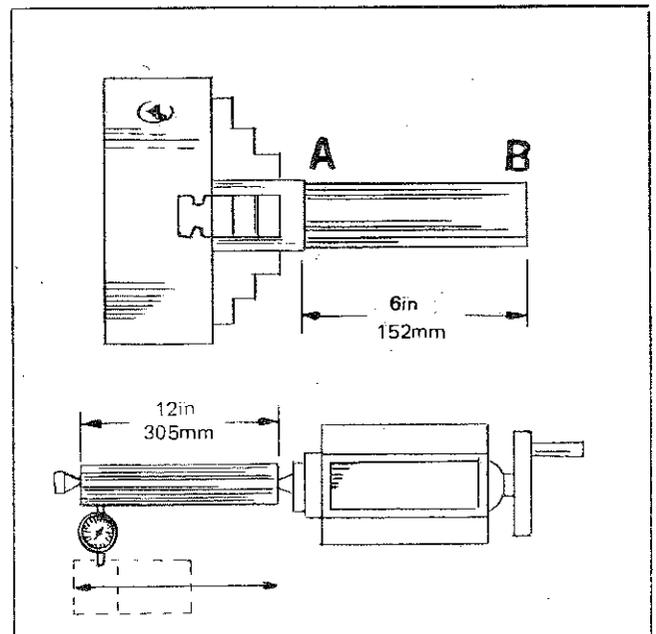


Fig. 2

### MACHING ASSEMBLY:

It's necessary to use special hanger to carry lathe out when you unpacking the machine, you must use a ring type hook to fix on the bed, and must have it tighten. It's necessary to make sure the hanger position should be at right and balance point before hang the machine up. The standard way of hanging way and position are show as fig.

### WARNING:

Expect special carrying position, the other area on the machine just like tail stock, longitudinal direction tool feed set, gear box, center fixture, feed lever, feed screw.... etc. those parts are hanger prevent for the reason of keep the machine accuracy.

### CLEANING:

The machine have done rust protecting treatment on the ground or smoothly surface, feed screw and shaft area before it delivery. It's necessary to clean rust protecting oil off, use diesel fuel or cleaning oil with soft clothe, and have all the parts of machine supply a little lubrication oil before the machine start running.

### WARNING:

1. It's prevent to use steel parts, knife or sharpen tool on the machine that's for keep the original accuracy of machine.
2. It's prevent to use gasoline or oil to clean machine, that's for protect on fire or explosion.

### LEVEL ADJUSTING:

The level adjusting on the table, it's put level gauge on the slide way of bed, and check level on the longitudinal and crossing direction. When the level is adjusted, you can fix the bed at final.

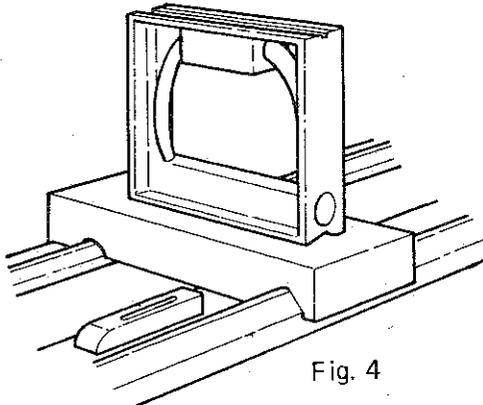


Fig. 4

### ELECTRIC SUPPLY CONNECTION:

All of input electric power are connecting to the electric box completely, and then interlocking control to each operating switch. The electric box is set at the back side of head.

### WARNING:

This machine is use high pressure electric power. It's prevent to open electric box to do any kind of repair work when the machine is running. It's should be direction by the electric professional people.

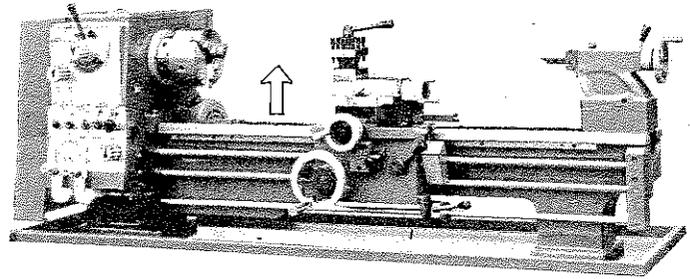


Fig. 3

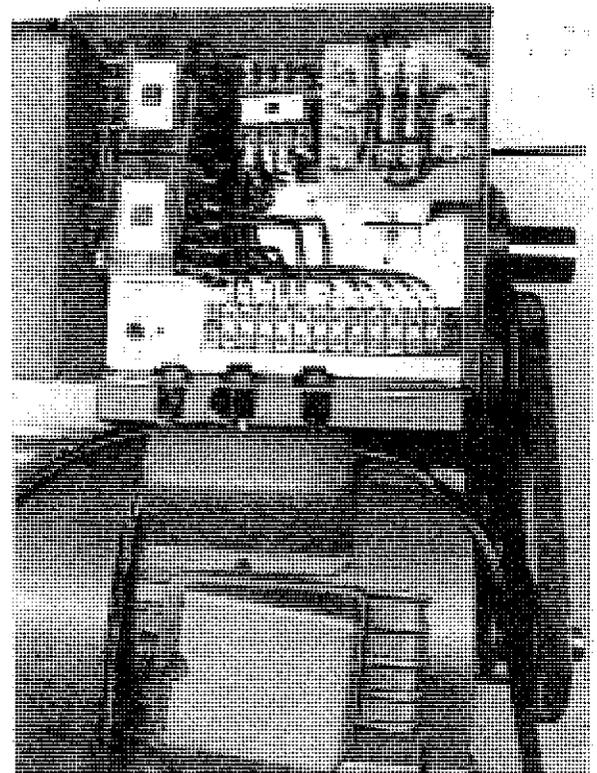


Fig. 5

## LATHE BED

The composition of bed is special cast structure, and its rib strip structure are crossing casting, that can make the bed more stronger. The slide way of bed have high precision heating treatment and surface grinding. It's kept accuracy sliding between saddle and tail stock.

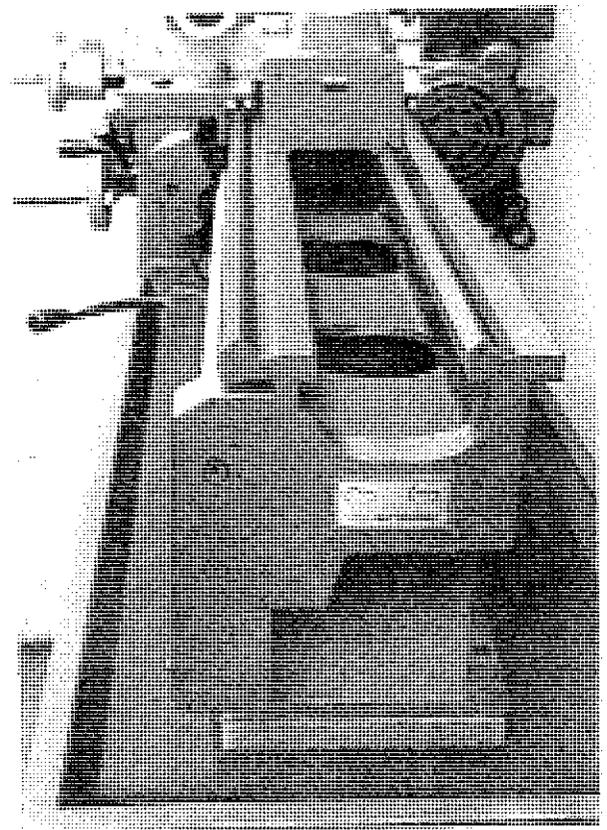


Fig. 6

## HEAD STOCK

1. The head stock is fixed from four pieces bolts those are fix on the bed surface and have four pieces adjusting bolts, those could move it to the precision position. It's have one adjustable taper roller bearing in longitudinal direction, that's used for adjust clearance of bearing from the rear nut of spindle after the machine running a long time.
2. The head stock is gear transmission type for the reason of kept machine accuracy, the speed change when the gear rotation is prevent.
3. When you change speed and have the gear insert is difficult or have the gear micromotion, you must push the micromotion switch directly, please. Because that's change gear easily.

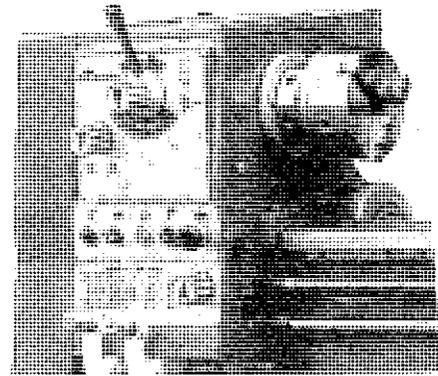
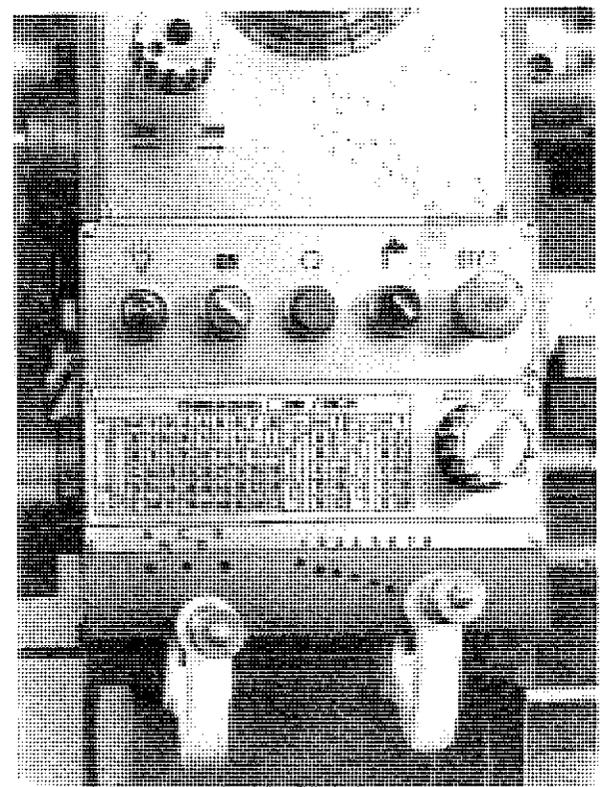


Fig. 7

## GEAR BOX

The gear box is composited of high quantity casting, and it's fixed at front left side of bed. The transmission power is by way of motor to spindle and then to gear reducer system. It's have 40 speeds, and you can choose any kind of speed that you like when you just moving the level to the plug hole.



**APRON**

The half matching nut guide for apron. It's can adjusting the clearance from apron side that is show as fig.

Apron transmission power is came from gear box that connecting with lead screw or feed bar. Lead screw is use for screw thread cutting, and feed bar is just for longitudinal feed cutting. Longitudinal feed cutting and screw thread cutting are separated. For prevent the simultaneous working, it's have the interlock safety control system.

Lead screw of 8T.P.I. screw thread production classification.

Lead screw of 3mm pitch, the screw thread production classification.

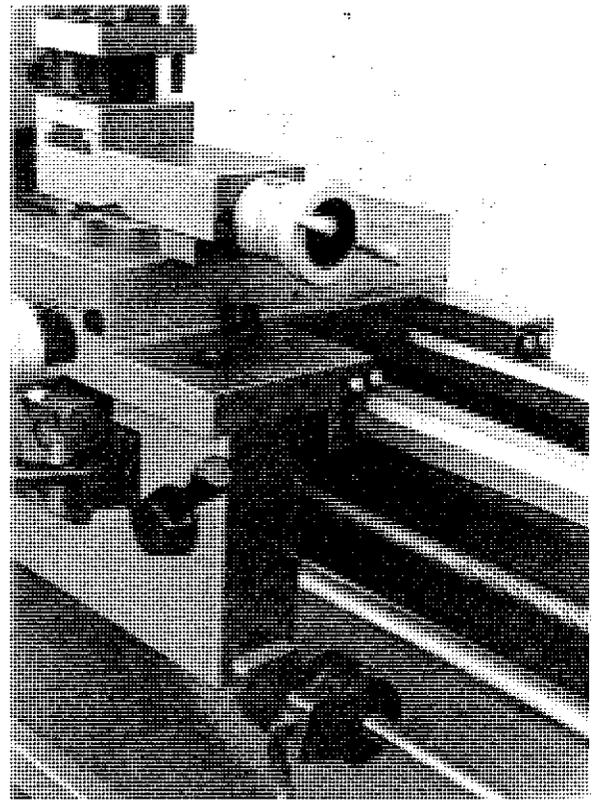


Fig. 9

Screw leading stick 8 T.P.I. manufacturing various categories of screw

THREADING  / INCH									
 40T 127T 120T 48T	Lever	1	2	3	4	5	6	7	8
	A	4	4½	4¾	5	5½	6	6½	7
	B	8	9	9½	10	11	12	13	14
	C	16	18	19	20	22	24	26	28
	D	32	36	38	40	44	48	52	56
E	64	72	76	80	88	96	104	112	

Fig. 10

THREADING  / mm									
 40T 127T 120T 48T	Lever	1	2	3	4	5	6	7	8
	A	6			4.8		4		
	B	3			2.4		2		
	C	1.5			1.2		1		
	D	6.75			0.6		0.5		
E				0.3		0.25			

Fig. 11

Screw leading stick 3mm pitch manufacturing various categories of screw

THREADING  / mm						
 35T 127T	Lever	1	2	1	1	1
	a	42	54	54	60	66
	A	7	8	9	10	11
	B	3.5	4	4.5	5	5.5
	C	1.75	2	2.25	2.5	2.25
	D		1		1.25	

Fig. 12

THREADING  / INCH									
 40T 120T	Lever	1	2	3	4	5	6	7	8
	A	4	4½	4¾	5	5½	6	6½	7
	B	8	9	9½	10	11	12	13	14
	C	16	18	19	20	22	24	26	28
	D	32	36	38	40	44	48	52	56
E	64	72	76	80	88	96	104	112	

Fig. 13

## SLIDES

Saddle is touching on the bed slide way that have scrapping on the surface. It's usefully for the lubrication. The dovetail groove of crossing slide way that can adjusting and could be average the touching surface to use gib. It's very convenient to move to any position when you wanted, and it's just rotating handle wheel at crossing slide way. The area of gib adjusting, reference fig. If you want have saddle tighten and have no moving when you are cutting that just have the nut tighten, please reference fig.

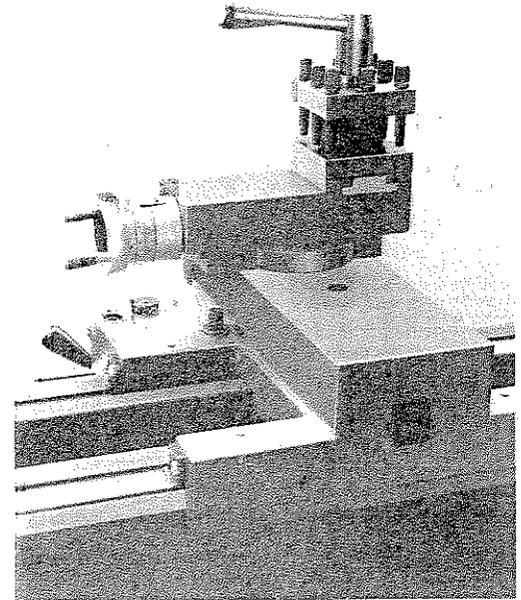


Fig. 14

## TAPER TURNING BY SETTING THE TOP SLIDE

The rotation of angle plate that's on the longitudinal slide way. It's will reaching the cutting angle what you wanted.

The adjusting way of longitudinal slide way:

- (1) Loosen 2 screw "A" and rotating the angle of slide way to the position that you wanted, and then have the screw "A" tighten. But this way is just fit for the shorter taper.

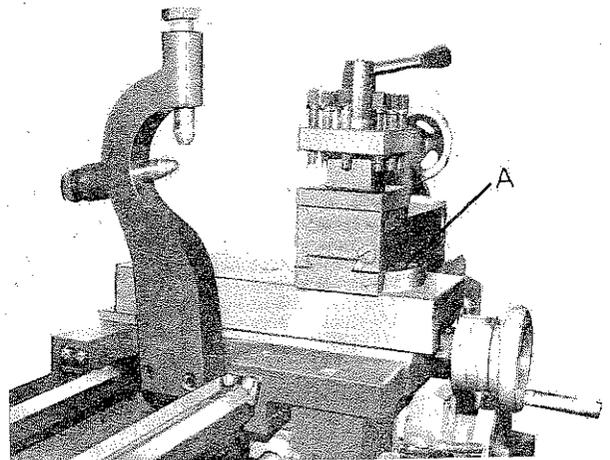


Fig. 15

## CLUTCH

For prevent over load when it's heavy cutting. It's have the instrument about safety sliding clutch on feed bar. It's will be have sliding noise generated when the over load transmission happened, and at this time you should have the cutting depth reducing.

It's necessary to use th

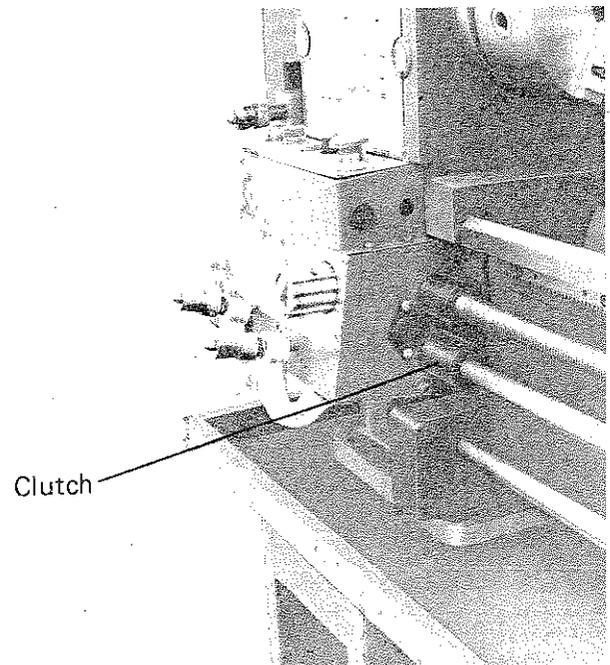


Fig. 16

## CENTER REST

It's necessary to use the center rest to support end point of working parts when the working parts is longer. Although it's can use tail stock to support working parts, but it's can't cutting always when it's end side cutting. Center rest can fix on any position of bed. It's necessary to have the bolts locking tighten that's making working parts stability when it's rotation. The friction position of working pieces and stay needle of center rest must be keep continue lubrication. It's for prevent damage by friction.

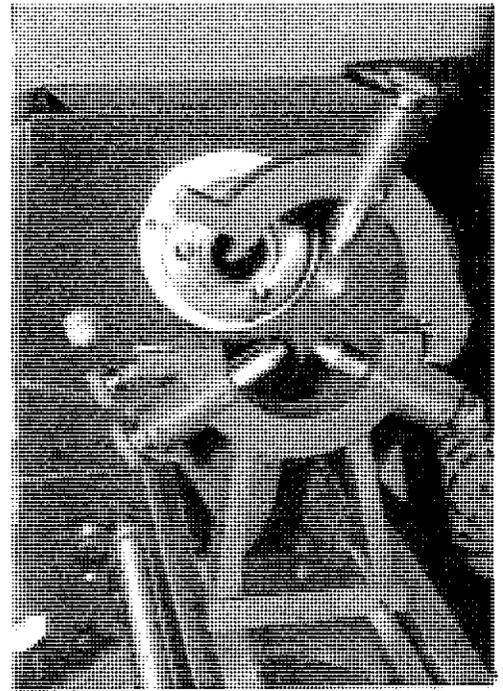


Fig. 17

## TRAVELLING STEADY REST

This parts with tool rest are fix on the saddle at same position. It's keep moving with cutting tool anytime, and it's keep constant distance with tool height at center hole of center rest. It's used for support working parts that's narrow and longer. It's can eliminated the work piece have elastic bending that generated from cutting force. The fixing way of stay needle is same as center rest that can't press too tight when it's stay working parts. It's necessary to have continue lubrication when it's operating.

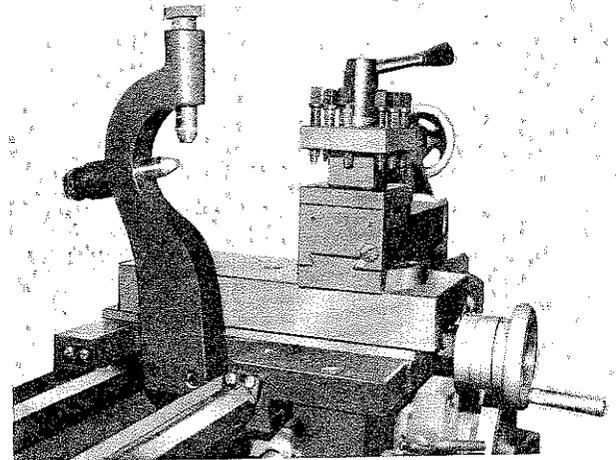


Fig. 18

## SETTING THE STEADY

1. Tight nut "A".
2. Unclamping 3 pieces If locating hexagon head screw and nut "B" at side area.
3. Rotating the screw that head has embossing, it's will make stay needle moving and have enough place to adjusting working piece.
4. Rotating the screw that head has embossing, it's will make stay needle moving and touch working piece, but it's necessary to have constant clearance. Don't let it tighten too much. Tight 3 sets of screw and nut "B" at last.
5. Lubricating the friction area between stay needle and working piece.

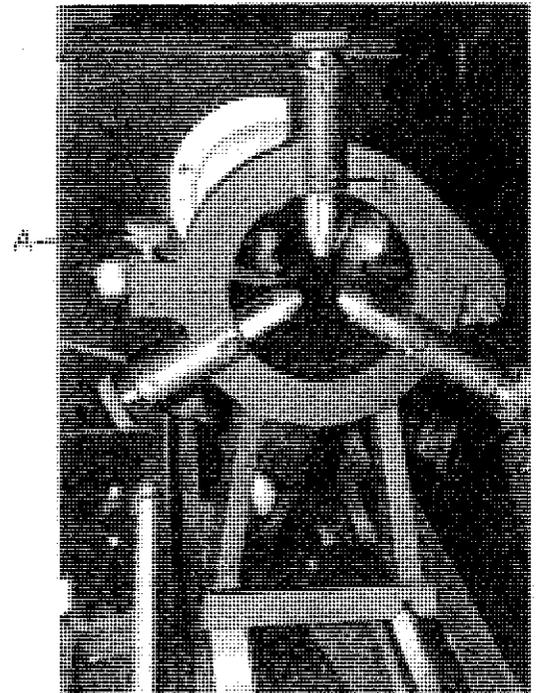


Fig. 19

### SCREW CUTTING (With Change Wheels)

Screw cutting have Metric and English system two kind, and it's matching from different gear. The gear matching must order the indicator. The backlash between couple of gear in the series must keep as newspaper's thickness. The screw cutting about English system that should be use number indicator of the screw cutting bracket.

For example:

- (1) If you want cutting screw thread 20 T.P.I. that show as 1-8 at indicator table, and you can push half matching nut to fitting with screw from each number of 1-8, and then start cutting screw thread.
- (2) If you want cutting screw thread 19 T.P.I. that show as 1, 3, 5, 7 at indicator table, and you can push half matching nut to fitting with screw that per rotation of indicator table reached any one number of 1, 3, 5, 7, and then start cutting screw thread. It's show as fig.

INCH

INDICATOR TABLE					
T.P.I	SCALE	T.P.I	SCALE	T.P.I	SCALE
4	1-8	12	1-8	36	1-8
4½	3.7	13	1.35.7	38	1-8
5	1.35.7	14	1-8	40	1-8
5½	3.7	16	1-8	44	1-8
6	1-8	18	1-8	48	1-8
6½	3.7	19	1.35.7	52	1-8
7	1.35.7	20	1-8	56	1-8
7½	3.7	22	1-8	60	1-8
8	1-8	24	1-8	64	1-8
9	1.35.7	26	1-8	80	1-8
9½	3.7	28	1-8	90	1-8
10	1-8	30	1-8	104	1-8
11	1.35.7	32	1-8	112	1-8

Fig. 20

MM

INDICATOR TABLE		
Pitch	Worm Gear	Scale
0.25	0.3	32
0.5	0.6	
0.75	1.0	
1.2	1.5	
2.0	2.4	
3.0	6	
4	4.8	1 • 3 5 • 7
8		1 — 8
2.25		30
4.5		
9		
		35
1.75		
3.5		
7		1
1.25	2.5	40
5		
10		

Fig. 21.

### CHANGE GEAR

- (1) The gear of lathe that fit for English system screw are put in tool box. Those are (30<sup>t</sup>, 32<sup>t</sup>, 46<sup>t</sup>) each one piece, and have 2 pieces of 40<sup>t</sup> gear are set on machine.
- (2) The gear of lathe that fit for Metric system screw are put in tool box. Those are (36<sup>t</sup>, 42<sup>t</sup>, 54<sup>t</sup>, 60<sup>t</sup>, 66<sup>t</sup>) each one piece, and have 2 pieces of 40<sup>t</sup> gear are set on machine.

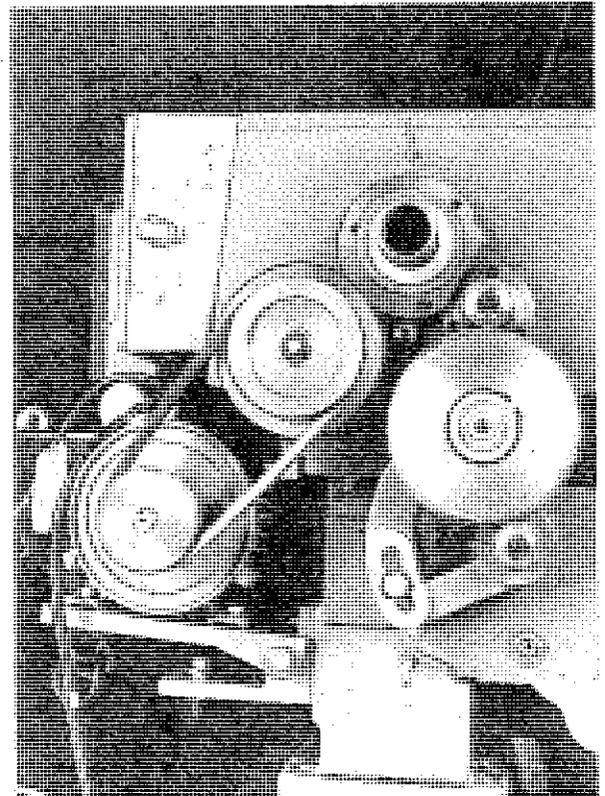


Fig. 22

## TAPER TURNING USING TAILSTOCK SET-OVER

Set taper cutting at tail stock when you want to cut work piece to tapering form. (Cutting tapering work pieces must have work piece and tail stock offset production). Tail stock offset setting method:

- (1) Have the tail stock fixing lever unclamping.
- (2) Adjusting each bolt "B" at front and rear side.
- (3) After selecting the necessity dimension and have the tail stock lock tight.

### WARNING

After cutting tapering work piece, it's necessary to have tail stock adjusted to the original position, and then use the stay needle test bar to test, and adjusting to absolute straight.

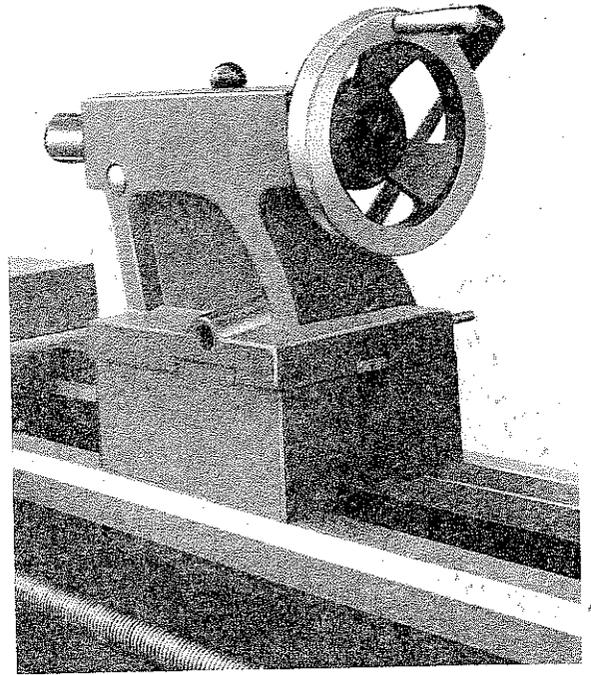


Fig. 23

## AUTOMATIC FEED AT LONGITUDINAL AND CROSSING DIRECTION

The detail rotation speed of automatical feed are show as table. And you can selecting the speed that you wanted.

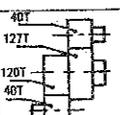
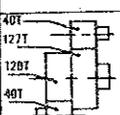
		mm / 								
		Lever	1	2	3	4	5	6	7	8
 40T 122T 120T 40T	A	2.206	1.981	1.858	1.765	1.684	1.47	1.358	1.26	
	B	1.103	0.98	0.928	0.88	0.802	0.735	0.68	0.36	
	C	0.55	0.49	0.464	0.44	0.401	0.368	0.34	0.315	
	D	0.275	0.245	0.232	0.22	0.2	0.184	0.17	0.157	
	E	0.134	0.123	0.12	0.11	0.1	0.092	0.085	0.079	
		mm / 								
		Lever	1	2	3	4	5	6	7	8
 40T 122T 120T 40T	A	0.266	0.237	0.225	0.213	0.19	0.178	0.164	0.152	
	B	0.133	0.118	0.112	0.106	0.097	0.089	0.08	0.076	
	C	0.066	0.6	0.06	0.05	0.046	0.045	0.04	0.038	
	D	0.033	0.3	0.03	0.27	0.024	0.023	0.02	0.019	
	E	0.016	0.015	0.014	0.013	0.012	0.011	0.01	0.009	

Fig. 24

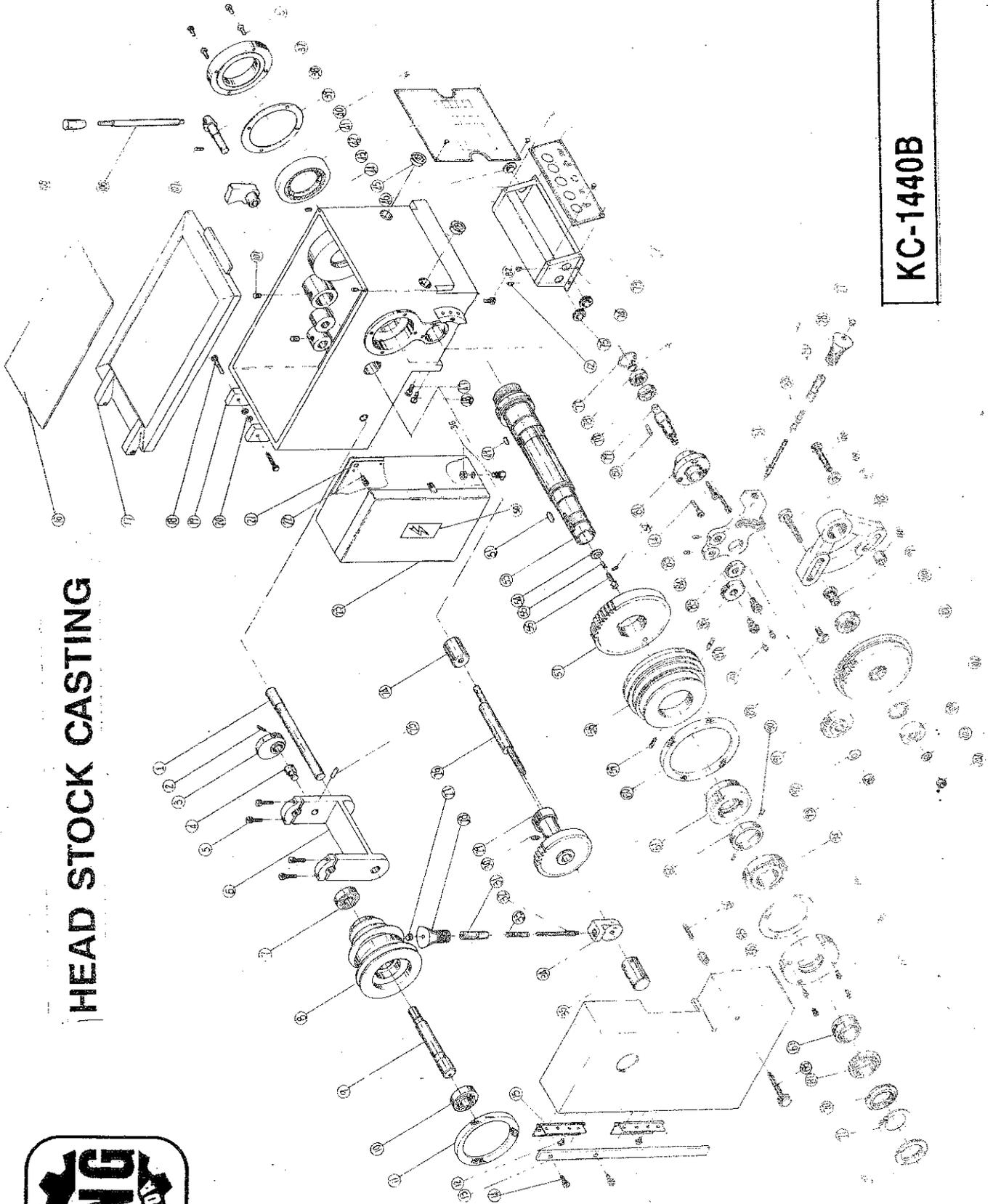
# HEAD STOCK CASTING

Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1	B1029	Shaft	1	
2		Set Screw	1	M8x1.25P-20
3	B1031	Cam	1	
4	B1032	Shaft	1	
5		CAP Screw	16	M6x1.0P-20
6	B1028	Bracket	1	
7		Bearing	1	#6204 Z
8	B1033	Pulley	1	
9	B1030	Shaft	1	
10		Bearing	1	#6205 Z
11		V-Belt	1	
12		Screw	20	M5x0.8P-8
13	B1051	Cover Mount	1	
14		CAP Screw	5	M6x1.0P-15
15	B1071	Pivot	2	
16	B1070	Plastics	1	
17	B1040	Cover	1	
18		Hex. Hd. Scr.	2	M6x1.0P-45
19	B1001	CASTING	1	
20		Nut	2	M6x1.0P
21	B1086	Mount	1	
22		CAP Screw	7	M6x1.0P-10
23	B1062	Electric Box	1	
24	B1024	Bush	1	
25		Spring Pin	1	φ5x25
26	B1022	Eccentric Shaft	1	
27		CAP Nut	2	M6x1.0P
28	918-1022	Handle	2	
29	B1021	Gear	1	
30		Oil Feeder	3	
31	918-1021	Bush	2	
32	918-1019	Plunger	2	
33	918-1020	Spring	2	
34	B1020	Bracket	1	
35	B1023	Bush	1	
36		Relief Bushing	4	
37	B1013	Shaft Cover	1	
38	B1026	Shaft	1	
39	B1015	Plunger	1	
40		Rivit	4	φ2.5
41	B1025	Bracket	1	
42		Baring	1	#30212
43	B1064	Plate	1	
44	B1089	Packing Piece	1	
45		Scale	2	
46		Oil Plug	1	3/8"-PS19
47		CAP Screw	2	M8x1.25P-25
48		CAP Screw	2	M8x1.25P-30
49		Key	1	8x7x20
50	918-0063	Plate	1	
51		Key	1	6x6x15
52		Spring Pin	1	φ3x25
53	B1002	Spandle	1	
54	B1004	Knob	1	
55	B1006	Spring	1	

Ref. No.	Parts No.	Parts Name	Q'ty	Remark
56	B1006	Key	1	
57	B1003	Gear	1	
58	B1007	Pulley	1	
59		Set Screw	2	M6x1.0P-15
60		V-Belt	1	
61	B1008	Gear	1	
62	B1009	Coller	1	
63		Retaining Ring	1	STW-17
64	918-7005	Bolt	1	
65	B1055	Nut	1	
66	B1052	Cover	1	
67	B1010	Coller	1	
68	B1053	Bolt	1	
69	B1011	Gear	1	
70	B1012	Nut	2	
71		Washer	1	
72		Screw	4	M4x0.7P-8
73	B1063	Switch Plate	1	
74	B1065	Switch Box	1	
75		Relief Bushing	2	
76				
77		Retaining Ring	1	RTW-37
78		Bearing	2	#6003 Z
79	B1035	Shaft	1	
80		Key	1	5x5x30
81	B1034	Bearing Housing	1	
82		CAP Screw	4	M10x1.5P-30
83		Set Screw	2	M6x1.0P-8
84	B1036	Bracket	1	
85	B1038	Gear	1	
86	B1039	Gear	1	
87	B1037	Shaft	2	
88				
89	B1073	Bolt	1	
90		Set Screw	2	M6x1.0P-6
91	B1041	Gear	1	
92	7010	Washer	1	
93		Nut	1	M12x1.75P
94		Bearing	1	#30210
95	B1016	Packing	1	
96	B1014	Cover	1	
97	B1049	Shaft	1	
98	B1046	Bracket	1	
99	B1048	Coiler	1	
100		Bearing	2	#6203 Z
101	B1047	Gear	1	
102		Retaining Ring	1	RTW-40
103	B1072	Washer	1	
104		Nut	1	M10x1.5P
105	3012	Knob	1	
106	B1027	Bar	1	
107		Set Screw	3	M8x1.25P-10
108		Hex. Hd. Scr.	1	M12x1.75P-60
109	CT-1117	Washer	1	φ1/2x φ28x2.5
110	B1050	Coller	1	



# HEAD STOCK CASTING

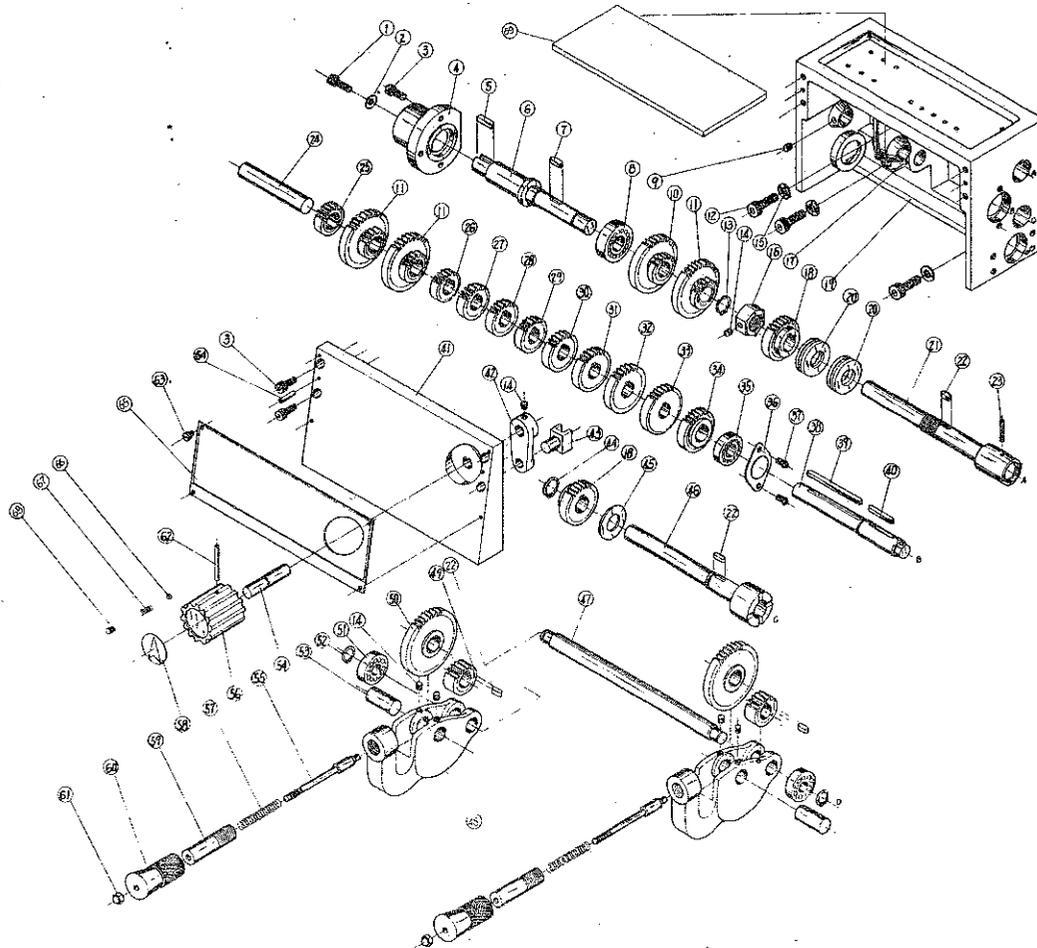


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# GEAR BOX

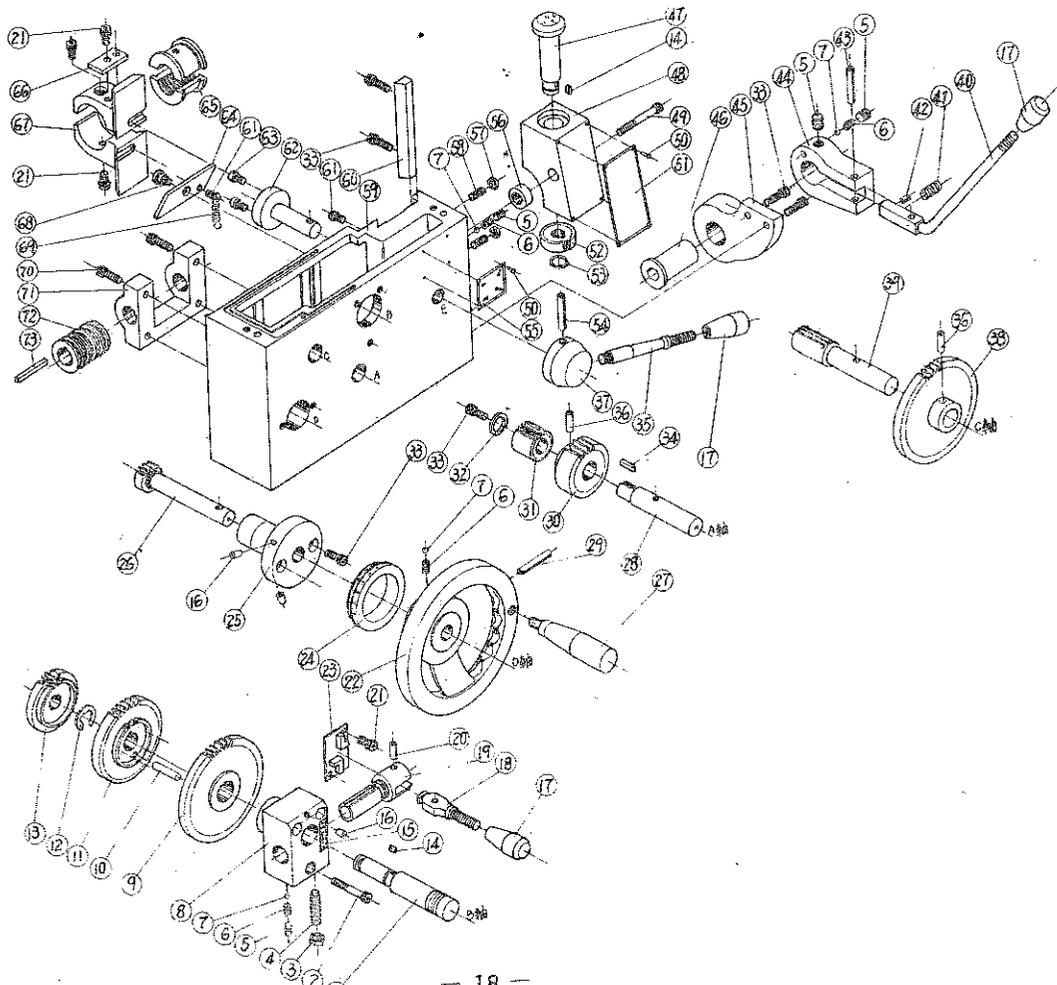
Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1		CAP Screw	1	M6×1.0P-20
2	20-1018	Washer	1	
3		CAP Screw	3	M6×1.0P-15
4	2002	Cover	1	
5		Key	1	5×5×20
6	2003	Shaft	1	
7		Key	1	5×5×16
8		Bearing	1	#6203 ZZ
9		Set Screw	1	M6×1.0P-8
10	2004	Gear	1	
11	2005	Gear	3	
12		CAP Screw	3	M8×1.25P-25
13		Retaining Ring	1	STW-16
14		Set Screw	6	M6×1.0P-6
15		Spring Washer	3	M8
16	2010	Nut	1	
17		Oil Pipe	2	φ3
18	2009	Gear	2	
19	2001	Gear Box	1	
20		Bearing	2	#2903
21	2008	Shaft	1	
22		Key	4	5×5×12
23		Taper Pin	1	#3-1"
24	2007	Shaft	1	
25	2006	Gear	1	T=16
26	2013	Gear	1	T=16
27	2014	Gear	1	T=18
28	2015	Gear	1	T=19
29	2016	Gear	1	T=20
30	2017	Gear	1	T=22
31	2018	Gear	1	T=24
32	2019	Gear	1	T=26
33	2020	Gear	1	T=28
34	2021	Gear	1	T=24
35		Bearing	1	#6002 Z

Ref. No.	Parts No.	Parts Name	Q'ty	Remark
36	2024	Cover	1	
37		Mach Screw	2	M6×1.0P-10
38	2012	Shaft	1	
39	2038	Key	1	5×5×74
40	2039	Key	1	5×5×34
41	2030	Cover	1	
42	2032	Lever	1	
43	2033	Förk	1	
44		Retaining Ring	1	STW-18
45	2023	Collar	1	
46	2022	Shaft "C"	1	
47	2025	Shaft "D"	1	
48	2027	Lever	2	
49	2026	Gear	2	T=16
50	2029	Gear	2	T=36
51		Bearing	2	#6201 ZZ
52		Retaining Ring	2	STW-12
53	2028	Shaft	2	
54	2031	Shaft	1	
55	918-1019	Plunger	2	
56	G1057	Knob	1	
57	918-1020	Spring	2	
58	G1042	Pointer	1	
59	918-1021	Bush	2	
60	918-1022	Handle	2	
61		CAP Nut	2	M6×1.0P
62		Spring Pin	1	φ5-40
63		Mach Scr	4	M5×0.8P-6
64		Spring Pin	2	φ4-20
65	2036	Plate	1	
66		Ball	1	φ6
67	G1061	Spring	1	
68		Set Screw	1	M8×1.25P-8
69	2037	Sponge	1	



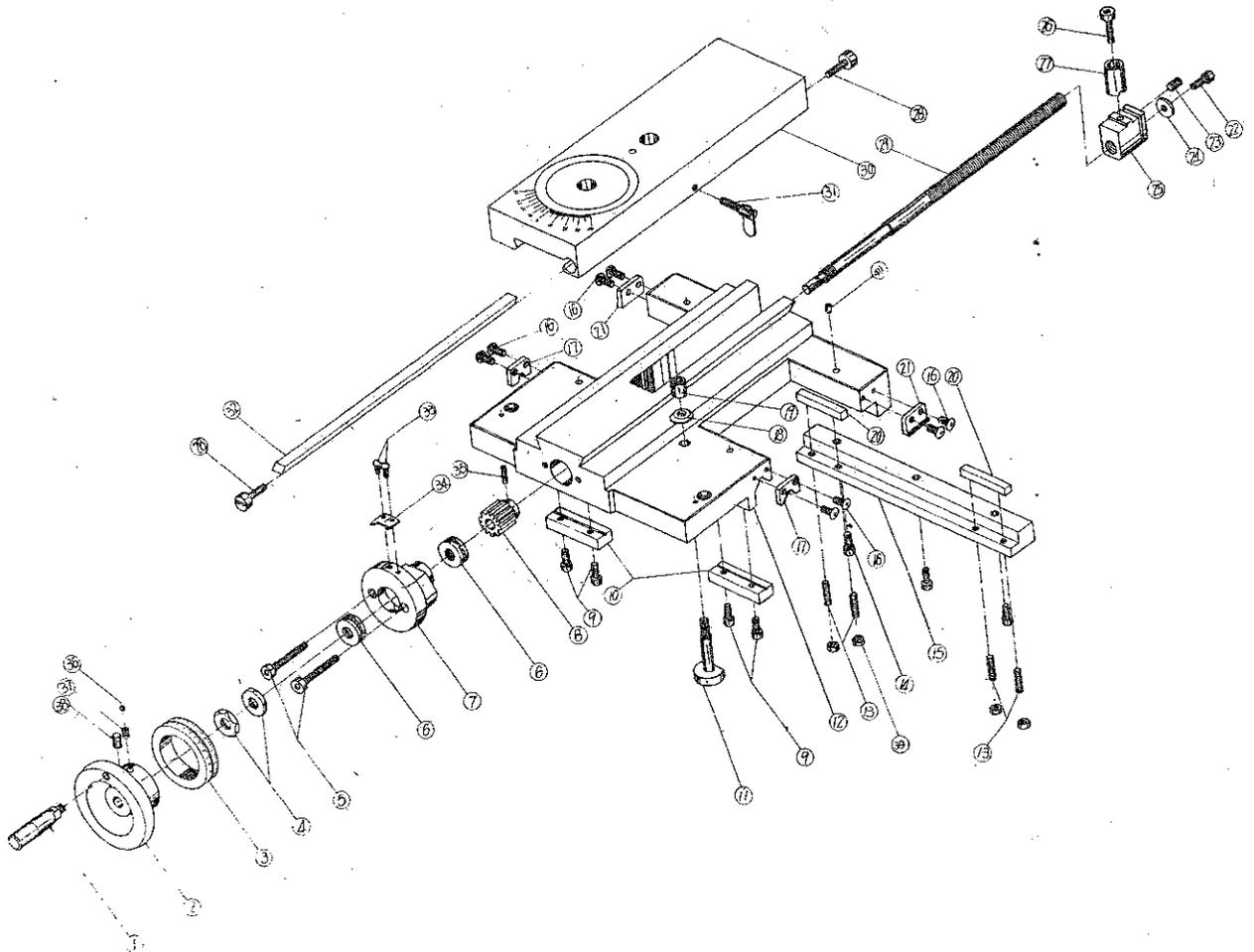
# APRON

Ref. No.	Parts No.	Parts Name	Q'ty	Remark	Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1	3015	Shaft	1		38	3024	Gear	1	
2		CAP Screw	3	M6x1.0P-40	39	3023	Gear	1	
3		Nut	1	M8x1.25P	40	3046	Switch Key	1	
4	3014	Set Bolt	1		41	3047	Spring	1	
5		Set Screw	4	M8x1.25P-8	42		Pin	1	φ3x8
6	3029	Spring	4		43		Pin	1	φ5x36
7		Ball	4	φ6	44	3044	Bracket	1	
8	3008	Bracket	1		45	3043	Bracket	1	
9	3016	Gear	1		46	3045	Shaft	1	
10	3018	Pin	3		47	3040	Shaft	1	
11	3017	Gear	1		48	3039	Thread Dial Body	1	
12		"E" Ring	1	ETW-12	49		CAP Screw	1	M6x1.0P-60
13	3019	Gear	1		50		Rivit	10	φ2.5
14		Key	2	5x5x7	51	3042	Plate	1	
15	3009	Plate	1		52	3041	Gear	1	
16		Oil Feeder	3	1/4"	53		Snap Ring	1	STW-13
17	3012	Knob	3		54		Pin	1	φ5x40
18	3011	Joint Plate	1		55	3054	Plate	1	
19	3010	Gear	1		56	3051	Coller	1	
20		Spring Pin	1	φ5x20	57		Nut	2	M6
21		CAP Screw	6	M6x1.0P-10	58		Set Screw	2	M6x1.0P-20
22	3027	Handle	1		59	3001	Apron	1	
23	3013	Joint Plate	1		60	3036	Gib	1	
24	3028	Graduation Ring	1		61		Screw	2	M6x1.0P-10
25	3025	Bracket	1		62	3030	Shaft	1	
26	3026	Shaft	1		63	3031	Pin	2	
27	1117-4017	Knob	1		64	3020	Joint Plate	1	
28	3002	"A" Shaft	1		65	3035	Half Nut	1	
29		Spring Pin	1	φ5x60	66	3038	Control Plate	1	
30	3003	Gear	1		67	3034	Nut Bracket	1	
31	3004	Wrom	1		68	3021	Shaft	1	
32	20-1018	Washer	1		69	3022	Spring	1	
33		CAP Screw	7	M6x1.0P-15	70		CAP Screw	4	M6x1.0P-20
34		Key	1	4x4x16	71	3007	Bracket	1	
35	3032	Hand	1		72	3006	Wrom Gear	1	
36		Pin	2	φ5x30	73		Key	1	5x5x40
37	3033	Bracket	1						



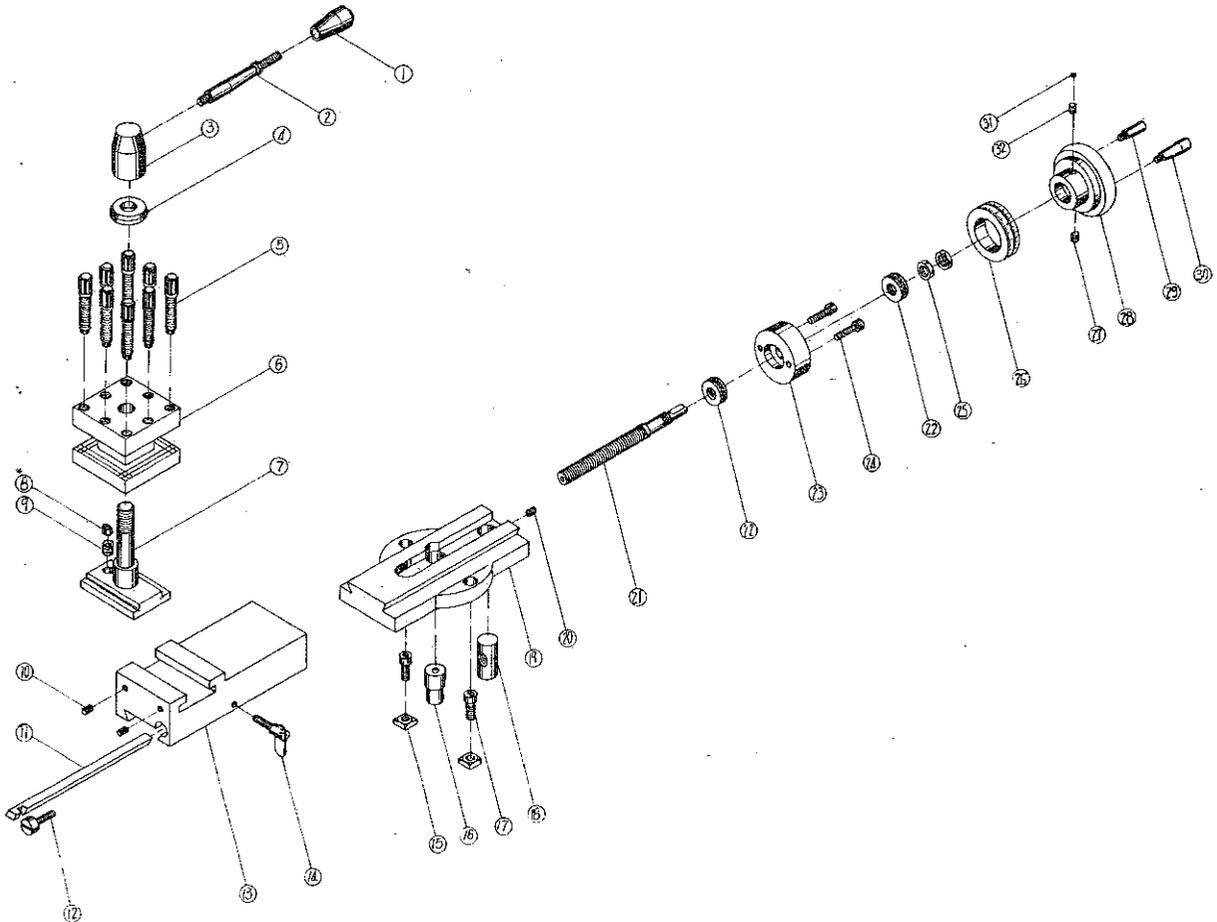
# CARRIAGE

Ref. No.	Parts No.	Parts Name	Q'ty	Remark	Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1	4020	Handle	1		21	4002	Wiper	2	
2	4016	Handle Wheel	1		22		CAP Screw	1	M6x1.0P-12
3	4017	Graduation Ring	1		23		Set Screw	1	M8x1.25P-12
4	4021	Nut	2		24	20-1018	Washer	1	
5		CAP Screw	2	M6x1.0P-45	25	4012	Nut	1	
6		Bearing	2	#51201	26		CAP Screw	1	M6x1.0P-30
7	4015	Bracket	1		27	4011	Collar	1	
8	4014	Gear	1		28	4009	Screw	2	
9		CAP Screw	2	M6x1.0P-15	29	4013	Feed Screw	1	
10	4004	Strip	2		30	4007	Cross Slide	1	
11	4006	Bolt	1		31	4010	Screw	1	
12	4001	Saddle	1		32	4008	Gib	1	
13		Set Screw	4	M6x1.0P-25	33		Rivit	2	φ2.5
14		CAP Screw	3	M6x1.0P-20	34	4019	Pointer	1	
15	4005	Strip	1		35		Spring Pin	1	φ4-20
16		Screw	8	M5x0.8P-10	36		Ball	1	φ6
17	4003	Wiper	2		37	4018	Spring	1	
18	918-4028	Washer	1		38		Set Screw	1	M6x1.0P-8
19	918-4019	Nut	1		39		Nut	4	M6x1.0P
20	4023	Gip	1		40		Oil Feeder	6	¼"



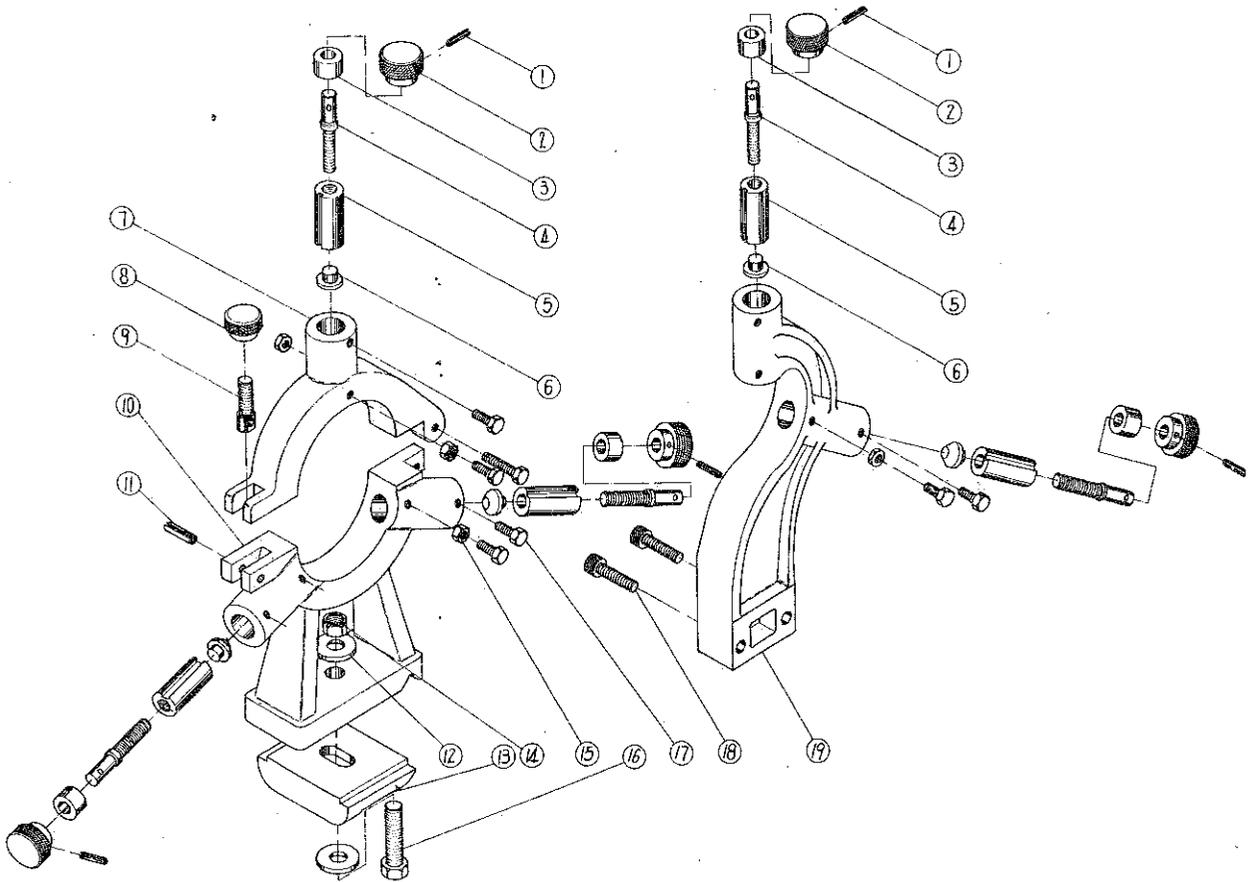
# CROSS & COMPOUND SLIDES

Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1	3012	Knob	1	
2	5019	Lever	1	
3	5017	Lever Seat	1	
4	5016	Washer	1	
5	5018	Tool Post Screw	8	
6	5015	Tool Post	1	
7	5012	Bolt	1	
8	5013	Pin	1	
9	5014	Spring	1	
10		Set Screw	2	M6x1.0P-10
11	5003	Gib	1	
12	4009	Screw	1	
13	5002	Topslide	1	
14	4010	Clamping Bolt	1	
15	5023	Nut	2	
16	5022	Shaft	1	
17		CAP Screw	2	M8x1.25P-20
18	5004	Nut	1	
19	5001	Swivel Base	1	
20		Set Screw	1	M6x1.0P-6
21	5005	Feed Screw	1	
22		Bearing	2	#51101
23	5006	Bracket	1	
24		CAP Screw	2	M6x1.0P-25
25	4021	Nut	2	
26	5008	Graduation Ring	1	
27		Set Screw	1	M6x1.0P-8
28	5007	Handle Wheel	1	
29	5010	Handle	1	
30	5009	Handle	1	
31		Ball	1	ø6
32	4018	Spring	1	



# CENTER REST

Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1		Pin	5	φ4-20
2	6007	Handle	5	
3	6006	Coiler	5	
4	6003	Lead Screw	5	
5	6005	Coiler	5	
6	6004	Center	5	
7	6002	Casting	1	
8	6009	Nut	1	
9	6008	Bolt	1	
10	6001	Base	1	
11		Pin	1	φ6-25
12	7022	Washer	2	
13	6011	Clamping Plate	1	
14		Nut	1	M12×1.75P
15		Hex. Nut	6	M6×1.0P
16		Screw	1	M12×1.25P-50
17		Screw	10	M6×1.0P-12
18		CAP Screw	2	M8×1.25P-35
19	6010	TRAVELLING STEADY REST		



# BED

Ref. No.	Parts No.	Parts Name	Q'ty	Remark	Ref. No.	Parts No.	Parts Name	Q'ty	Remark
1		CAP Screw	9	M6×1.0P-15	22	8008	Switch Cover	1	
2	8014	Rack	1		23	8007	Cam	1	
3	8003	Lead Screw	1		24				
4	8026	Shaft	1		25	8006	Switch Mount	1	
5	8005	Bar	1		26	8017	Tray	1	
6	8027	Spring	1		27	8018	Head end Plinth	1	
7		Ball	1	φ6	28	8023	Plate	1	
8	8025	Clutch	1		29	8002	Bracket	1	
9		Set Screw	1	M6×1.0P-10	30		Pin	2	φ6-65
10		CAP Screw	7	M8×1.25P-30	31		CAP Screw	2	M8×1.25P-60
11	8013	Joint Plate	1		32	8016	Rack	1	
12	8011	Bolt	2		33		Screw	4	M5×0.8P-10
13	B8009	Motor Mount	1		34		Screw	2	M4×0.7P-40
14					35	8020	Plate	1	
15		Spring Washer	3	M8	36		CAP Screw	12	M6×1.0P-10
16	B8010	Bracket	1		37	8019	Tail end Plinth	1	
17	8012	Bed	1		38	8024	Plate	1	
18		CAP Screw	6	M12×1.75P-35	39		Bearing	1	#6002
19	8004	Feed Bar	1		40		Bearing	1	#6202
20		Set Screw	2	M8×1.25P-10	41		Pin	2	#3-50f
21		Taper Pin	1	#4-38f	42	2024	Cover	2	

