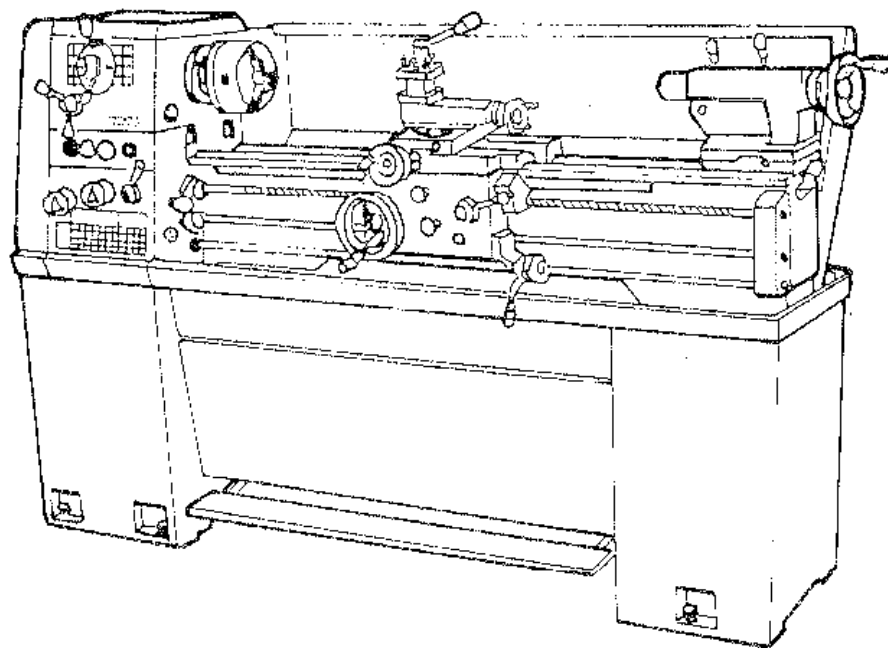


# PRECISION CENTER LATHE

## INSTRUCTION MANUAL AND PARTS LIST

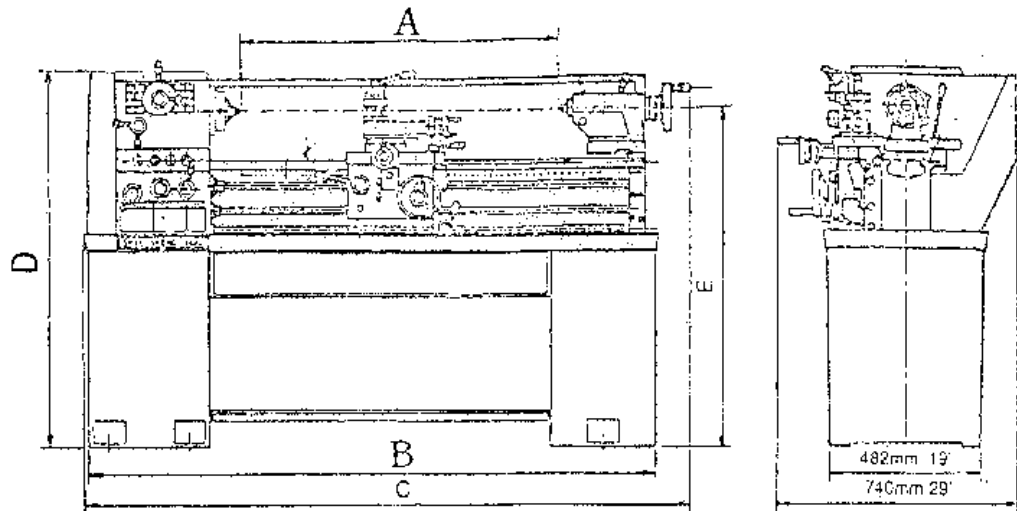


MODEL: 1340.1440

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## BRIEF SPECIFICATION

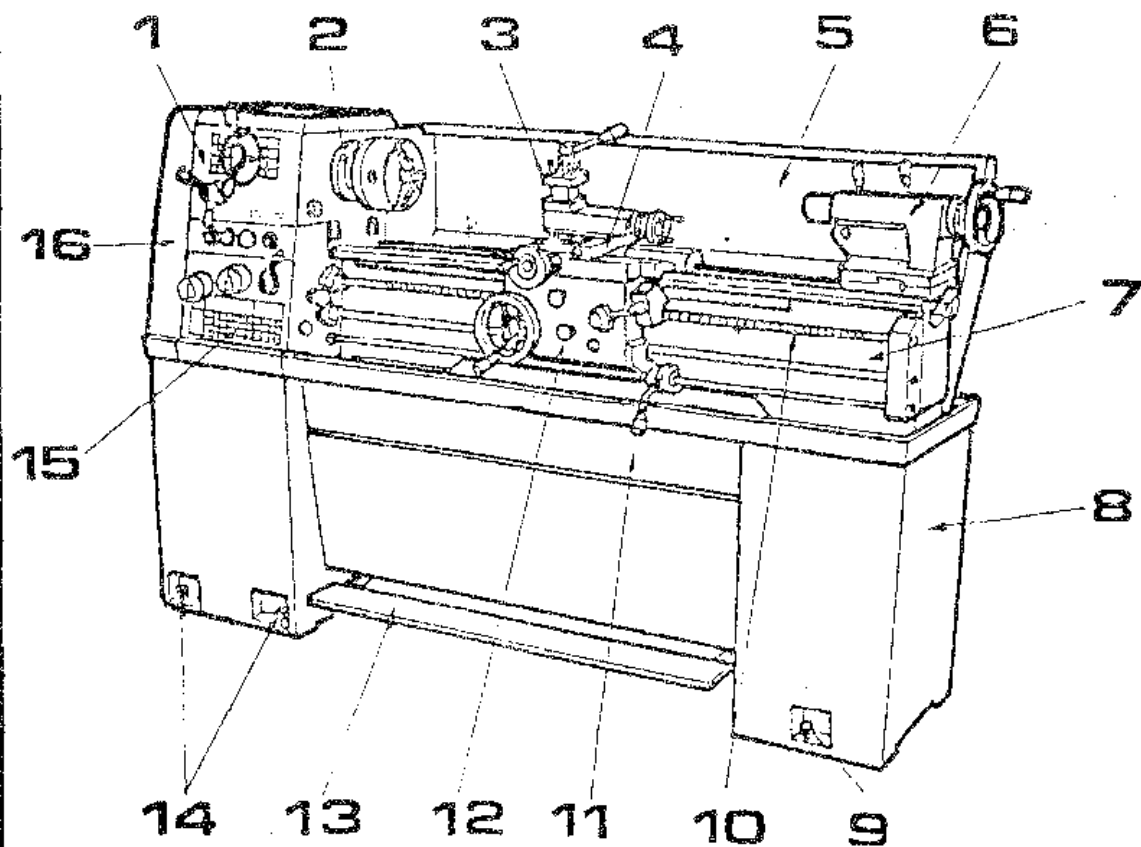


MODEL \ SIZE	A	B	C	D	E
1340	1000mm 40in	1800mm 71in	1920mm 75 1/2 in	1150mm 46 1/4 in	1054mm 41 1/2 in
1440	1000mm 40in	1800mm 71in	1920mm 75 1/2 in	1194mm 47in	1067mm 42in

## SPECIFICATIONS

DESCRIPTION	INCH SYSTEM		METRIC SYSTEM	
MODEL	1340	1440	1340	1440
SWING OVER BED	13	14	330	356
SWING OVER CROSS SLIDE	7-5/8"	8-5/8"	195	220
DISTANCE BETWEEN CENTERS	40	40	1000	1000
SWING OVER GAP	19	20	480	506
WIDTH OF BED	8-1/9"	8-1/9"	206	206
NUMBERED OF SPINDLE SPEEDS	8 or 16 (2 speed motor)		8 or 16 (2 speed motor)	
RANGE OF SPINDLE SPEEDS	90 or 45 - 1800 RPM		90 or 45 - 1800 RPM	
HOLE THROUGH SPINDLE	1-1/2"		38	
SPINDLE NOSE	D1-4 Camlock		D1-4 Camlock	
TAPER OF SPINDLE BORE	M.T.No.5		M.T.No.5	
TAILSTOCK QUILL TAPER	M.T.No.3		M.T.No.3	
TAILSTOCK QUILL TRAVEL	4-1/2"		115	
CROSS SLIDE TRAVEL	8-1/2"	7"	165	180
COMPOUND REST TRAVEL	3-1/2"	4"	90	100
NUMBER OF METRIC THREADS	22		37	
RANGE OF METRIC THREADS	0.45-7.5MM		0.4-7.0MM	
NUMBER OF INCH THREADS	40		28	
RANGE OF INCH THREADS	4-112 TPI		4-56 TPI	
LONGITUDINAL FEEDS	(40) 0.0012 - 0.0294 in/rev.		(42) 0.043 - 0.653 mm/rev.	
CROSS FEEDS	(40) 0.0003 - 0.0100 in/rev		(42) 0.015 - 0.220 mm/rev.	
MACHINE NET WEIGHT	1540 lb	1650 lb	700 kg	750 kg
GROSS WEIGHT	1810 lb	1936 lb	820 kg	880 kg

# GENERAL LAYOUT OF LATHE

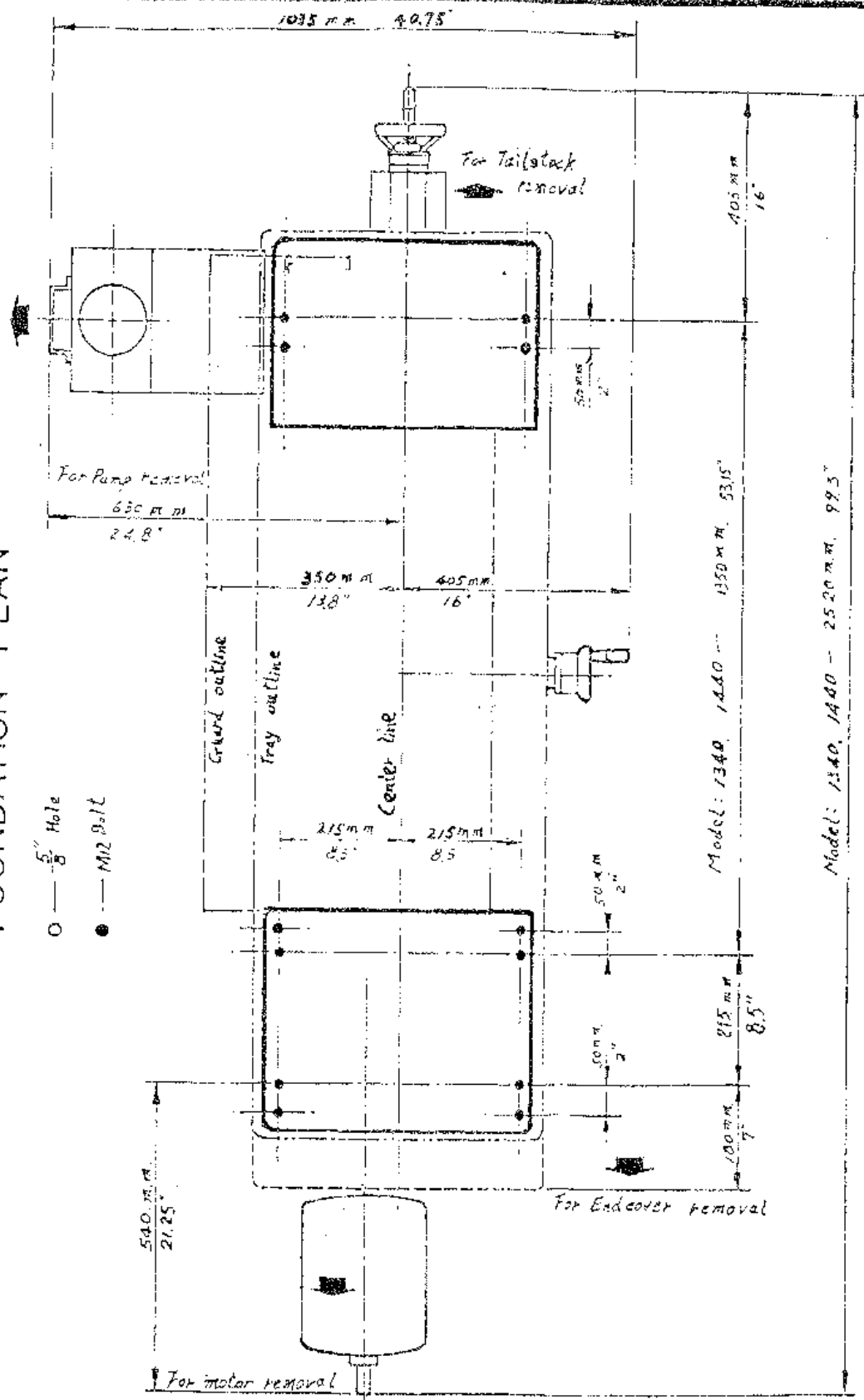


- |                         |                     |
|-------------------------|---------------------|
| 1. Headstock            | 9. Tail-end plinth  |
| 2. Spindle              | 10. Lead screw      |
| 3. Top slide            | 11. Chip pan        |
| 4. Saddle & cross-slide | 12. Apron           |
| 5. Splash guard         | 13. Foot brake      |
| 6. Tailstock            | 14. Head-end plinth |
| 7. Bed                  | 15. Gear box        |
| 8. Mounting feet        | 16. End cover       |

# FOUNDATION PLAN

○ —  $\frac{5}{8}$ " Hole

● — M12 Bolt



## LIFTING

Use the sling-chain to sling Lathe showed as in fig 4 position the saddle and tailstock along the bed to obtain balance.

**IMPORTANT: DO NOT USE SLINGS AROUND BED AS LEADSCRW AND FEEDSHAFT MAY BE U-BENT.**

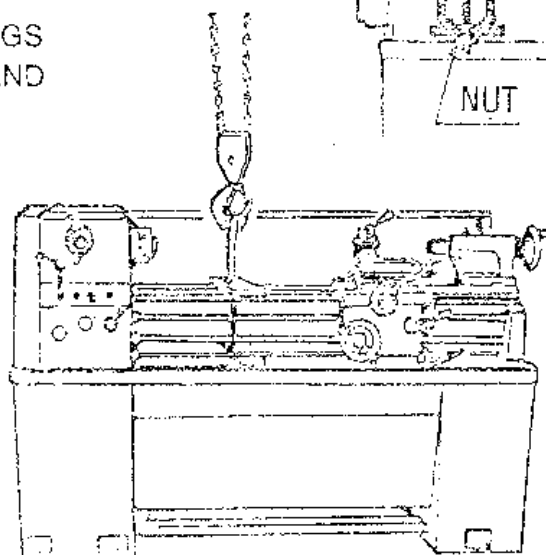
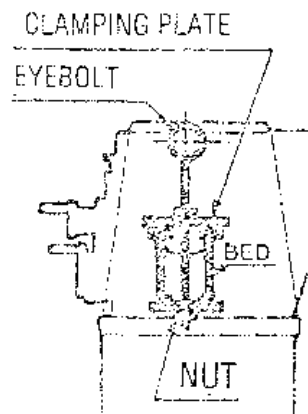


Fig 4

## CLEANING

Before operating any controls, use white spirit or kerosene to remove the anticorrosion coating from all slideways and the endgear train.

**DO NOT USE CELLULOSE SOLVENTS FOR CLEANING AS THEY WILL DAMAGE THE PAINT FINISH.**

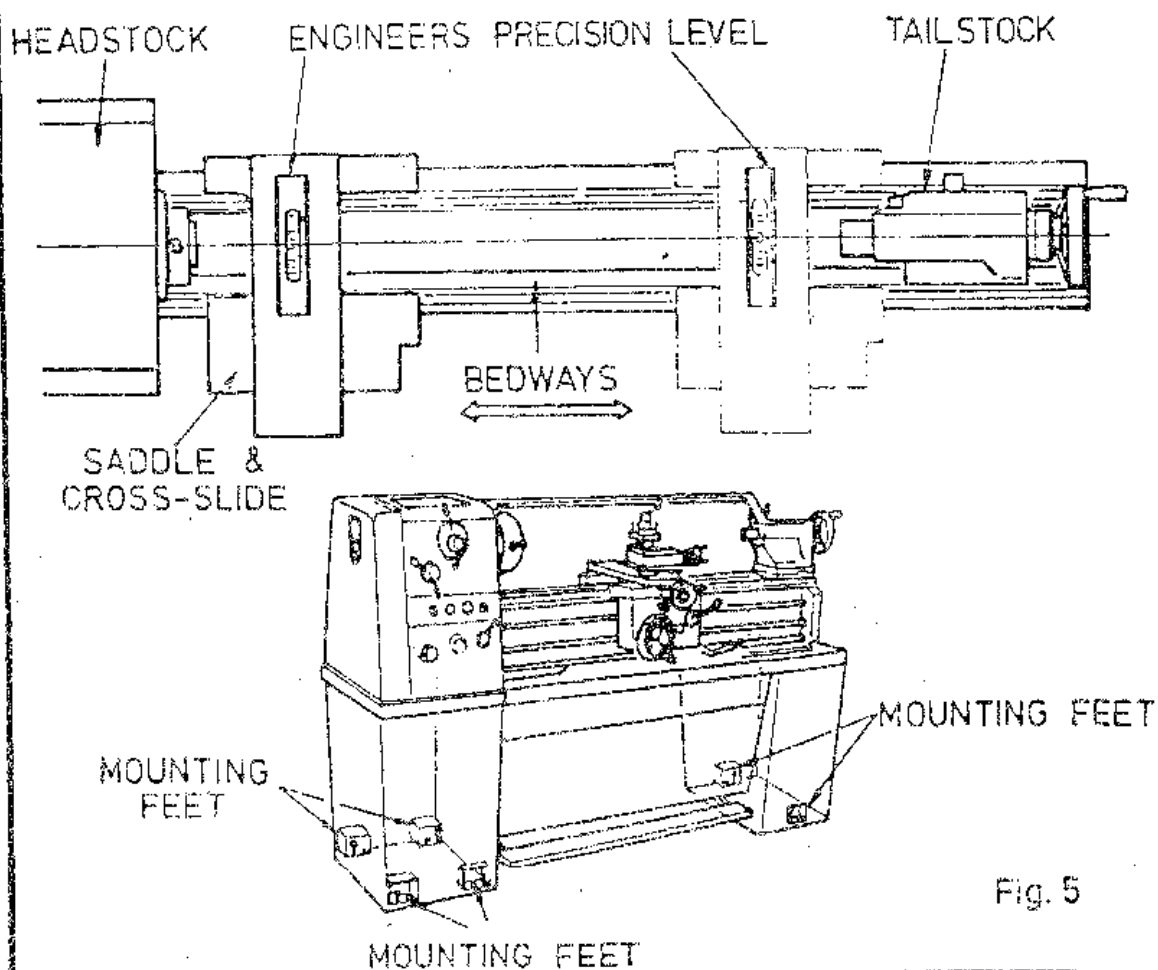
Machine surface becomes bright immediately after cleaning using machine oil or slideway lubricant. Use heavy oil or grease on the end gears.

## INSTALLING

Located the machine on a solid foundation, allowing sufficient area all round for easy working and maintenance (see Foundation Plan). The lathe may be used free-standing or bolted to the foundation.

Free-standing: Position lathe on foundation and adjust each of the six mounting feet to take equal share of the load. Then using an engineers precision level on the bedways (as in Fig 5) adjust the feet to level up machine. periodically check bed level to ensure continued lathe accuracy.

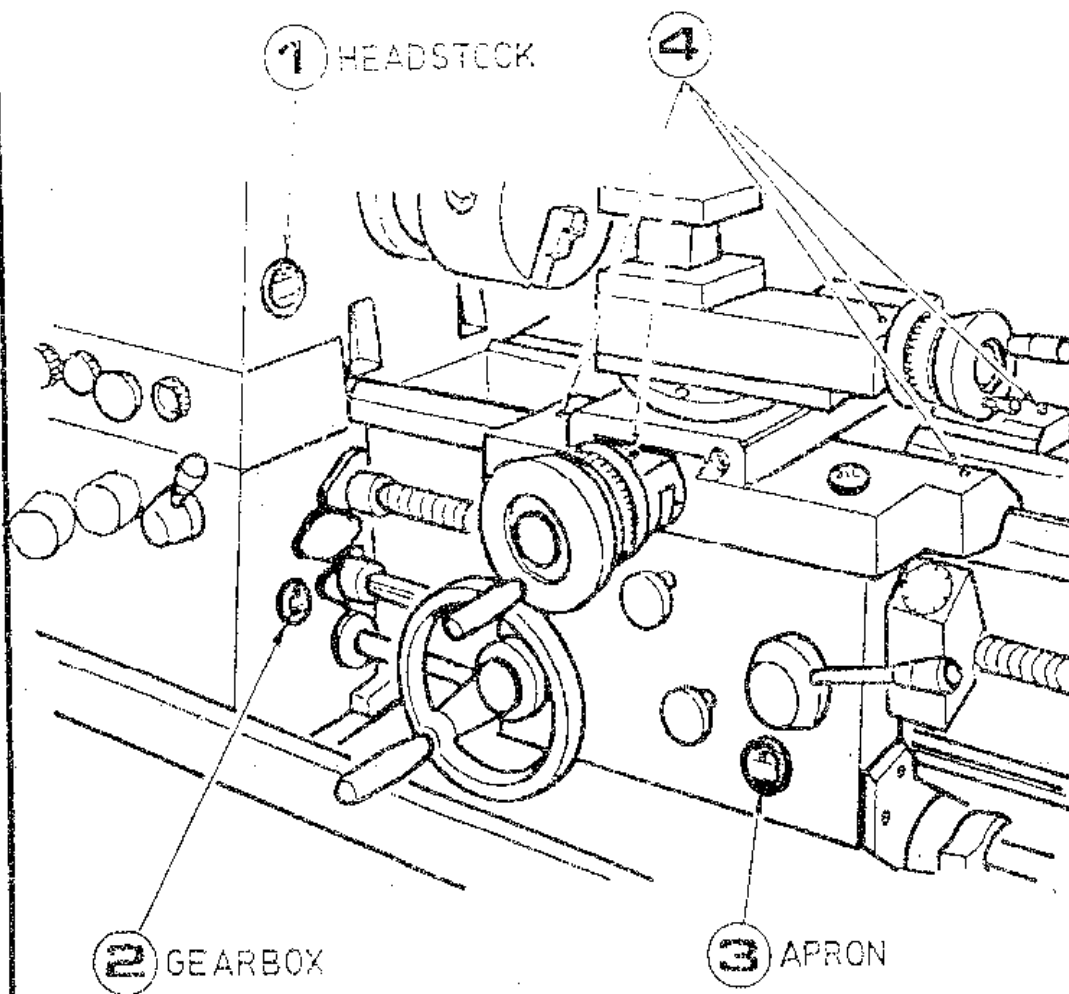
Fixed installation: Position lathe over six bolts ( $1/2$  in. or 12 mm. diam.), set into the foundation to correspond with holes in the mounting feet. Accurately level the machine as in Fig 5, then tighten hold-down bolts and recheck bed level.



## LUBRICATION CHECKS

Before operating the machine, make the following important checks:

1. The headstock is filled to level marked on oil sight window with Shell Tellus Oil 27.
2. The gearbox is filled to level marked on oil sight window with Shell Tellus Oil 27.
3. The carriage apron is filled to level marked on oil sight window with Shell Tonna 33.
4. In addition, apply light machine oil or way lubricant to the points shown on lubrication diagram which require daily oiling.





## CHUCKS AND CHUCK MOUNTING

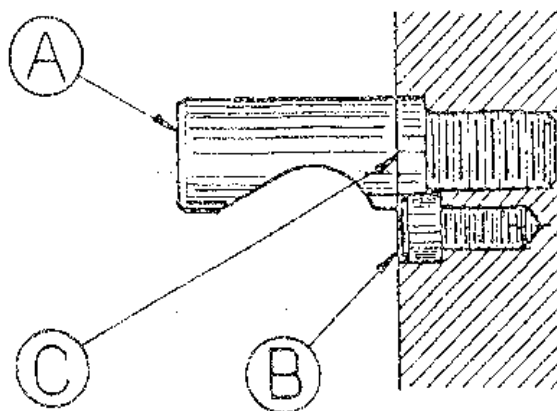
WARNING: GREY-IRON CHUCKS MUST NOT BE FITTED ON THIS HIGH-SPEED LATHE. USE ONLY DUCTILE IRON CHUCKS.

When fitting chucks or faceplate, first ensure that spindle and chuck tapers are scrupulously clean and that all cams lock in the correct positions. See Fig 7, 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 slit lining up with the locking screw hole (see Fig 7).

Now mount the chuck or faceplate on the spindle nose and tighten the three cams in turn. It must be fully tightened. If any of the cams do not tighten fully remove the chuck or faceplate and re-adjust the stud. Fit and tighten the locking screw (B) at each stud before remounting the chuck for work.

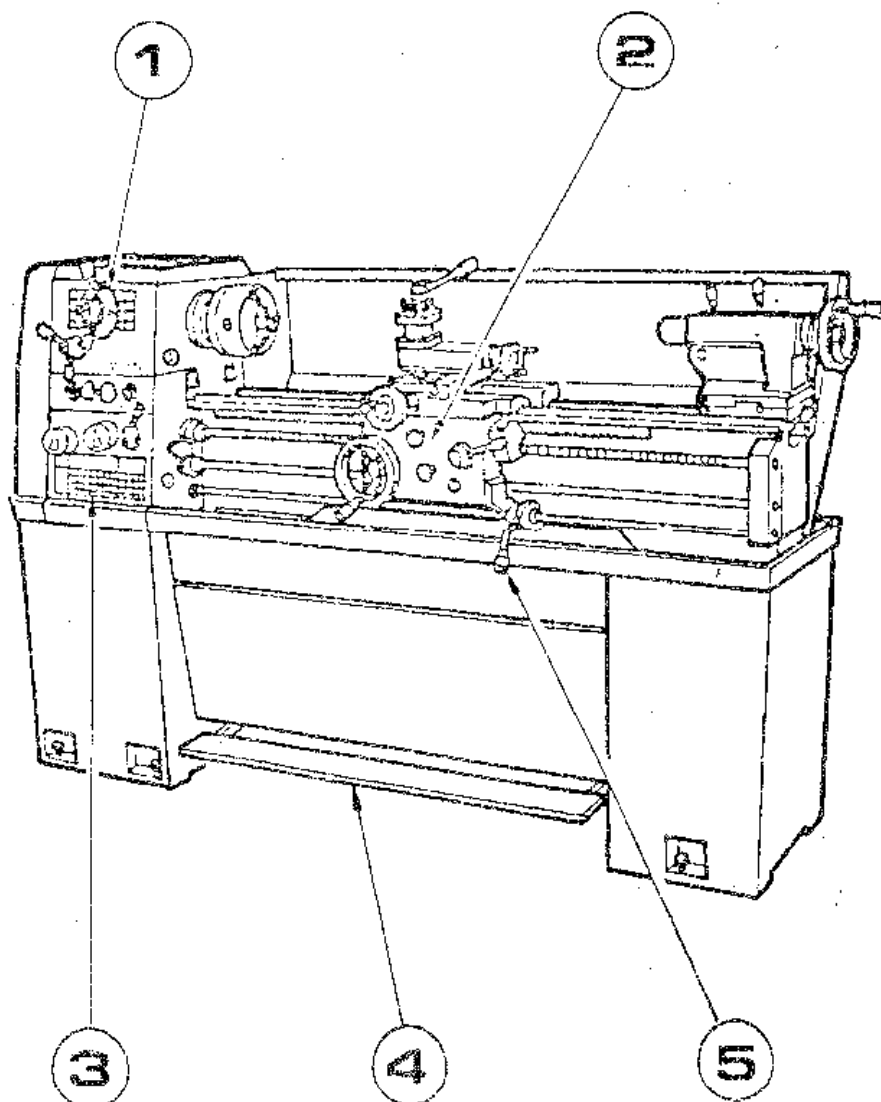
This will assist subsequent remounting. Do NOT INTERCHANGE CHUCKS OR FACE PLATES IF LATHE WITHOUT CHECKING UP CORRECT CAMLOCKING.

IMPORTANT: Take care note of speed limitations when using faceplate. 10 in. faceplates should not be run at speeds greater than 770 rev/min.



## LATHE CONTROLS

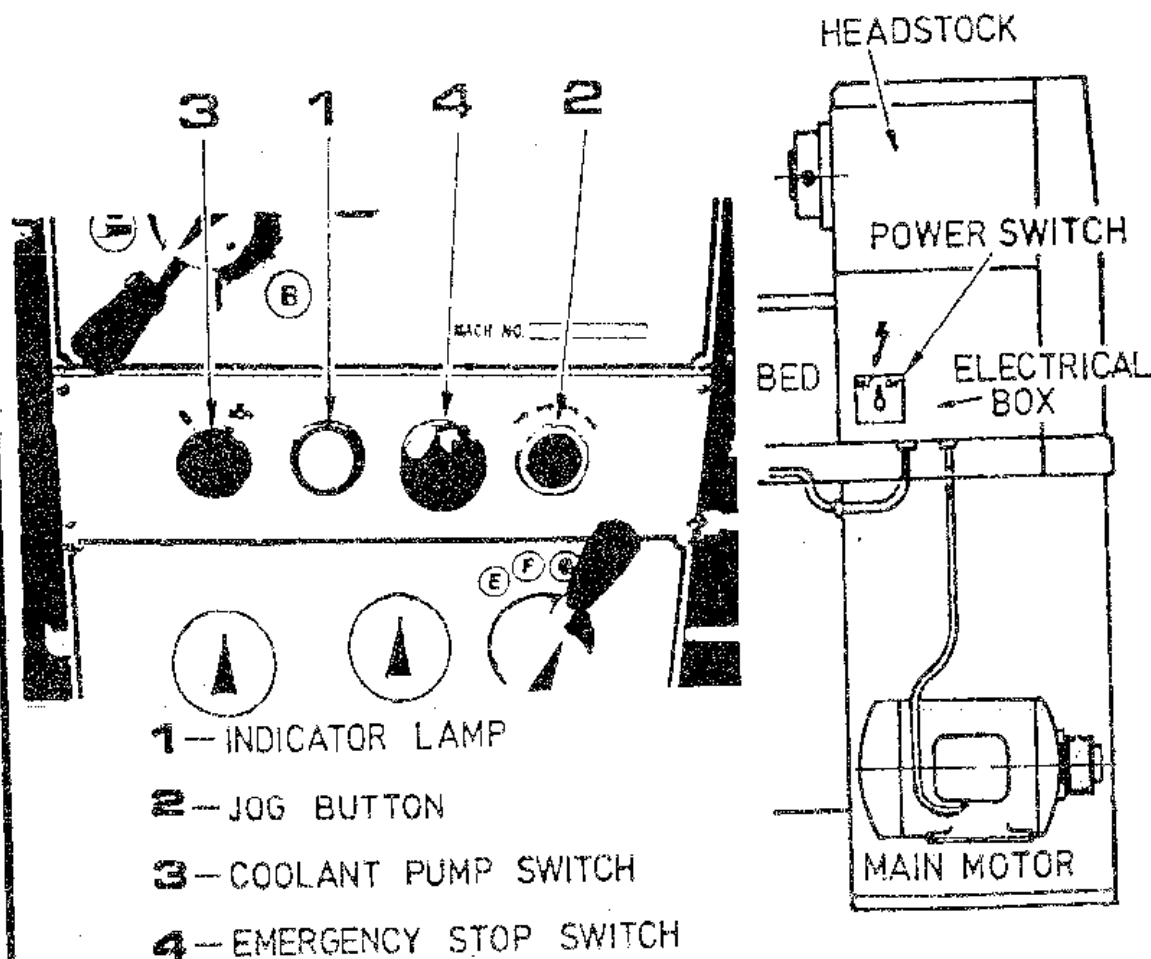
1. Spindle speed selector.
2. Apron, surfacing or sliding feeds.
3. Gearbox, threads and feeds.
4. Footbrake.
5. Main motor rotation (forward and revers).



## ELECTRICAL CONTROLS

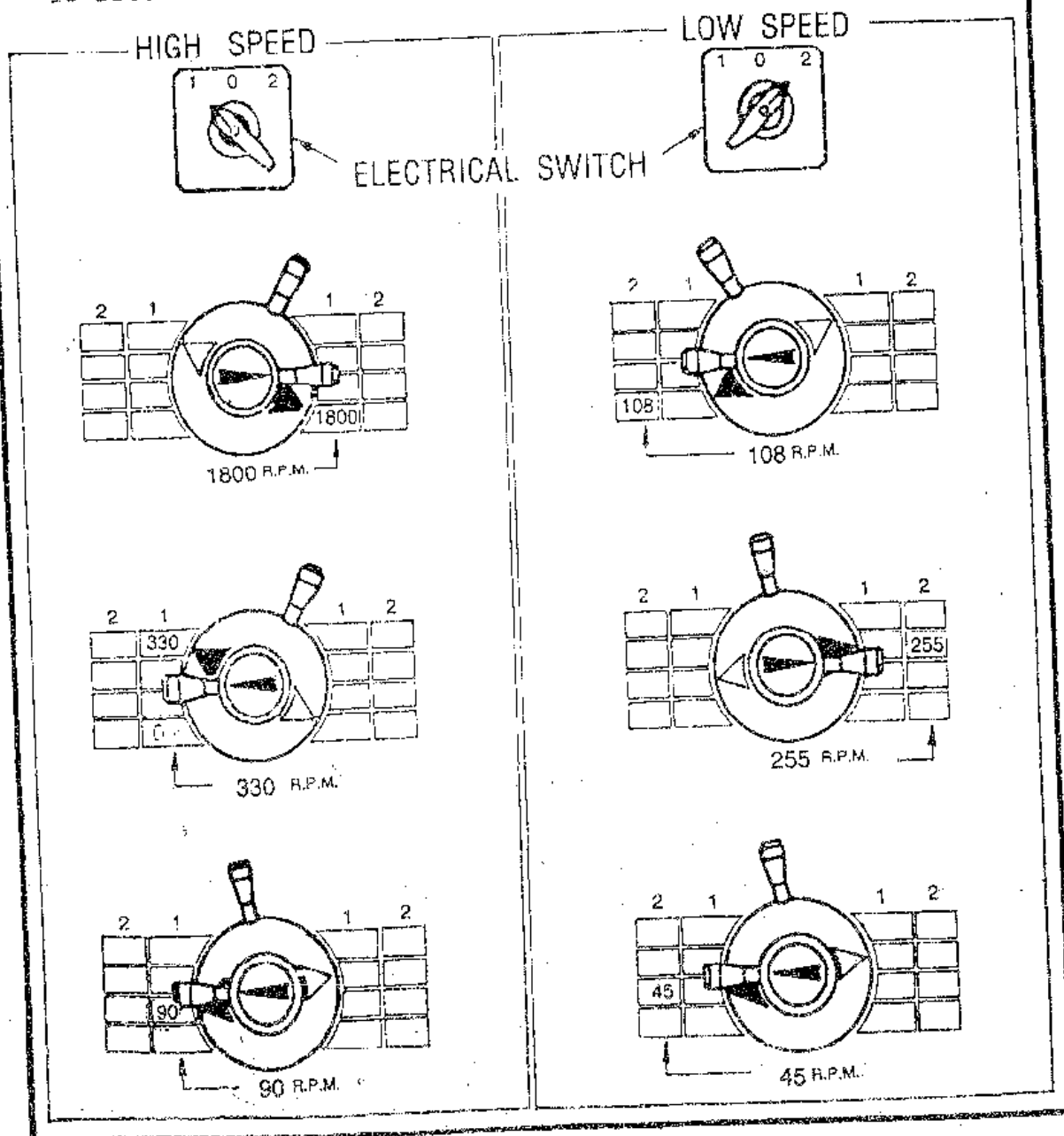
The power switches are fitted on the face of electrical box in back of the bed and below the headstock. Except the main switch, all electrical controls are fitted in the front of the headstock.

1. Move the power switch set at ON position then the indicator lamp glows.
2. Press the GREEN button. The main drive motor can be running with a moment. (While the main motor rotation lever is set in the neutral position.)
3. Coolant pump ON/OFF push button.
4. Press the RED button to stop the main motor and coolant pump.



# SPEED CONTROLS (2 SPEED MOTOR)

Spindle speeds: Selected by the two lever controls and an electrical switch, on the headstock and stand. The sixteen available speeds are shown directly on the data plate. While the electrical switch set at (1) position, the small lever rotated right-hand side, it provides speeds from 1800-510 r.p.m., and rotated to left-hand side, it provides speeds from 330-90 r.p.m. Then move the large lever to the appropriately coloured arrow aligned with the required speed on the data plate. While the electrical switch set at (2) position, it provides speeds from 900-255 r.p.m. and 165-45 r.p.m. When the small lever set at upper or bottom position, the spindle is free for hand rotation.

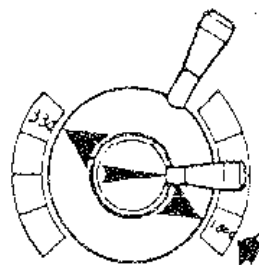


## SPEED CONTROLS

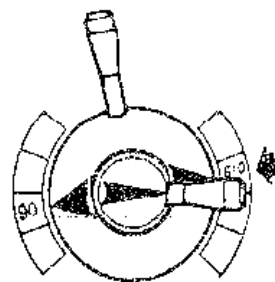
Spindle speeds: Selected by the two lever controls on the head-stock. The eight available speeds are shown directly on the data plate. Rotate the small lever to right-hand side, speeds can run from 1800-510 r.p.m. and rotate to left-hand side, provided speeds can be from 330-90 r.p.m. Then move the large lever until the appropriately coloured arrow is aligned with the required speed on the data plate.

When the small lever set at upper or bottom position the spindle is free for hand rotation.

HIGH SPEED

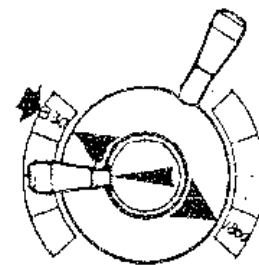


1800 r.p.m.

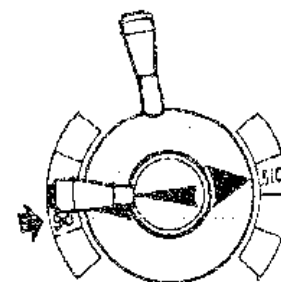


510 r.p.m.

LOW SPEED



330 r.p.m.



90 r.p.m.

( Metric Gearbox )

The B position of lever (Y) can provide a range of fine threads; the A position a coarse thread range. Do not select the range (A position) at spindle speeds higher than 770 rev/min.

37 Metric threads 0.4 to 7.0 mm.pitch

28 Whitworth threads 4 to 56 t.p.i.

Feeds: longitudinal feeds per  
 idle revolution range from  
 3 to 0.653 mm.

spindle	cross feeds	per	from
revolution		range	
0.015 to 0.220 mm			

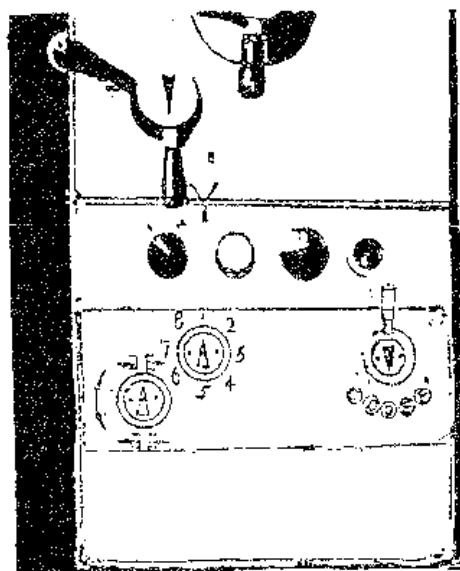


Fig.12

		1	2	3	4	6	7	8			1	2	3	4	6	7	8			2	1	2	2	1	1	1	
	C	A	4.2	4.5	5.0	5.5	6.0	6.5	7.0	D	A	0.730	0.42	0.45	0.515	0.551	0.595	0.553		40	40	32	32	30	30	30	
		B	2.0	2.25	2.5	2.75	3.0	3.25	3.5		B	0.166	0.224	0.235	0.256	0.260	0.263	0.267		60	60	60	66	60	63	70	
	E	A	1.0	1.125	1.25	1.375	1.5	1.625	1.75	F	A	0.1030	0.122	0.136	0.149	0.163	0.177	0.180	C	A	4	4.5	5	5.5	6	6.5	7
		B	0.5		0.625		0.75		0.875		B	0.054	0.065	0.07	0.074	0.081	0.088	0.093		B	8	9	10	11	12	13	14
	E	A	0.8	0.9	1.0	1.1	1.2	1.3	1.4	F	A	0.087	0.098	0.105	0.119	0.131	0.141	0.153	E	A	16	18	20	22	24	26	28
		B	0.4	0.45	0.5	0.55	0.6	0.65	0.7		B	0.0410	0.045	0.051	0.055	0.055	0.071	0.076		B	32	36	40	44	48	52	56

(Inch Gearbox)

All the threads and feeds directly available from the gear box are shown on the data plate fitted on the front of the gear—box. The setting of control levers is shown in Fig 13.

The B position of lever (Y) can provide a range of fine threads; the A position a coarse thread range. Do not select the range (A position) at spindle speeds higher than 770 rev/min.

THREADS AVAILABLE

40 Whitworth threads 4.0 to 112 t.p.i.

22 Metric threads 0.45 to 7.5 mm. pitch

The endgear train should be arranged as in the diagrams shown on the data plate to suit threading requirements.

Feeds: longitudinal feeds per spindle revolution range from .0012 to .0294 in (.0030 to 0.746 mm.)

cross feeds per  
spindle revolution range from  
.0004 to .0108 in. (0.010 to  
0.271 mm.)

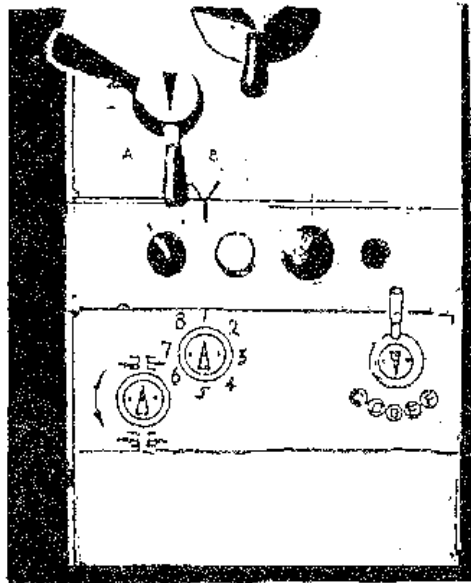

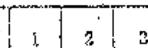
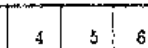




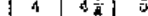




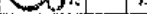





















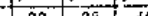


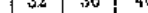





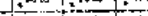
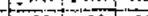











Fig.13

# THREADING DIAL INDICATOR

## A. Whitworth threads

Located on right-hand side of the apron on lathes having an English leadscrew. Engage the indicator pinion with the leadscrew and tighten the handnut to retain indicator in engagement.

To cut threads of an even number per inch, close the leadscrew nut as ANY line on the dial passes the datum mark. To cut threads of odd numbers per inch, close the leadscrew nut at any NUMBERED line.

Fractional threads of  $\frac{1}{2}$  or  $\frac{1}{4}$  t.p.i. may be cut by closing the nut at the SAME numbered line on each pass of the tool.

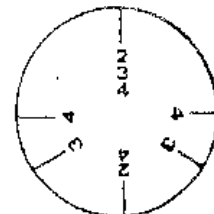
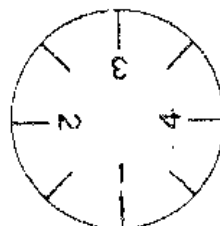
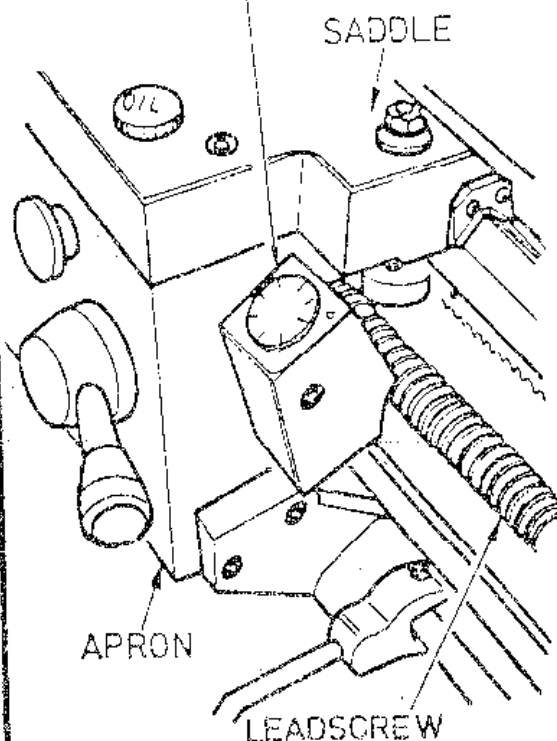
This dial cannot be used with an English leadscrew to cut metric threads, or fractional threads. For these the leadscrew nut must be kept closed and the machine reversed by use of the Change-over switch, after each cutting pass and tool with drawal.

## B. Metric threads

The thread dial used for cutting metric screw threads on lathes equipped with metric leadscrew. To provide for the various pitches of metric threads, several gears having different numbers of teeth are mounted on the lower end of the shaft. The vertical position of the thread dial indicator is changed as required so that the correct gear for the pitch of the thread to be cut will mesh with the leadscrew.

Each graduation on the dial is marked with a letter which indicates the points at which the halfnuts may be engaged for certain threads. A diagram is supplied with the thread dial to show which gear and which graduations must be used for each pitch of metric screw thread.

## THREADING DIAL INDICATOR



WHITWORTH THREAD DIAL

TPI	1	TPI	1	TPI	1
4	1-8	12	1-8	38	1-8
4 1/2	1-8	13	1-4	40	1-8
4 3/4	1	14	1-8	44	1-8
5	1-4	15	1-8	48	1-8
5 1/2	1-8	18	1-8	52	1-8
6	1-8	19	1-4	56	1-8
6 1/2	1-8	20	1-8	64	1-8
7	1-4	22	1-8	72	1-8
8	1-8	24	1-8	76	1-8
9	1-4	26	1-8	80	1-8
9 1/2	1-8	28	1-8	88	1-8
10	1-8	32	1-8	96	1-8
11	1-4	36	1-8	100	1-8

LEADSCREW PITCH 8 TPI.

METRIC THREAD DIAL

P.C.	T	P.C.	T
0.2	20 4	1.4	21 3
0.45	27 3	1.5	27 3
0.5	20 4	1.625	26 2
0.55	22 2	1.75	21 3
0.6	27 3	2.0	20 4
0.625	20 4	2.25	27 3
0.65	26 2	2.5	20 4
0.7	21 3	2.75	22 2
0.75	27 3	3.0	17 3
0.8	20 4	3.25	26 2
0.875	21 3	3.5	21 3
0.9	27 3	4.0	20 4
1.0	20 4	4.5	27 1
1.1	22 2	5.0	20 4
1.125	27 3	5.5	22 2
1.2	27 3	6.0	27 3
1.25	20 4	6.5	26 2
1.3	26 2	7.0	21 3
1.375	22 2		

LEAD SCREW PITCH 4 MM



## APRON CONTROLS

In addition to handwheel traverse, the carriage can be power-operated through controls on the front of the apron, see Fig 16 knob(A). If move handle(A) upwards, carriage would do longitudinal-feed operation. If move handle(A) in middle position, it would do manual operation. If move handle (A) downwards, it would do cross-feed operation.

Lever (B) is pressed downward to engage the leadscrew nut for screwcutting. To avoid undue wear. Release the nut except when screwcutting.

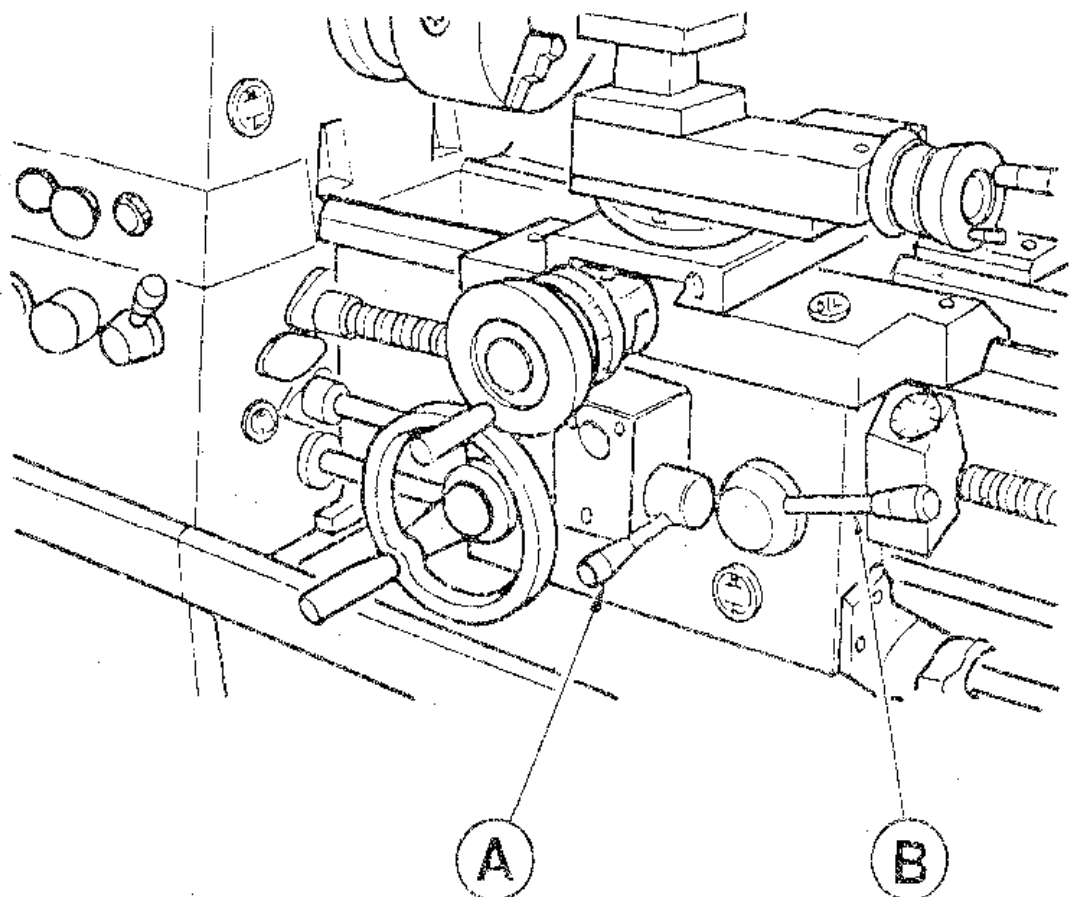


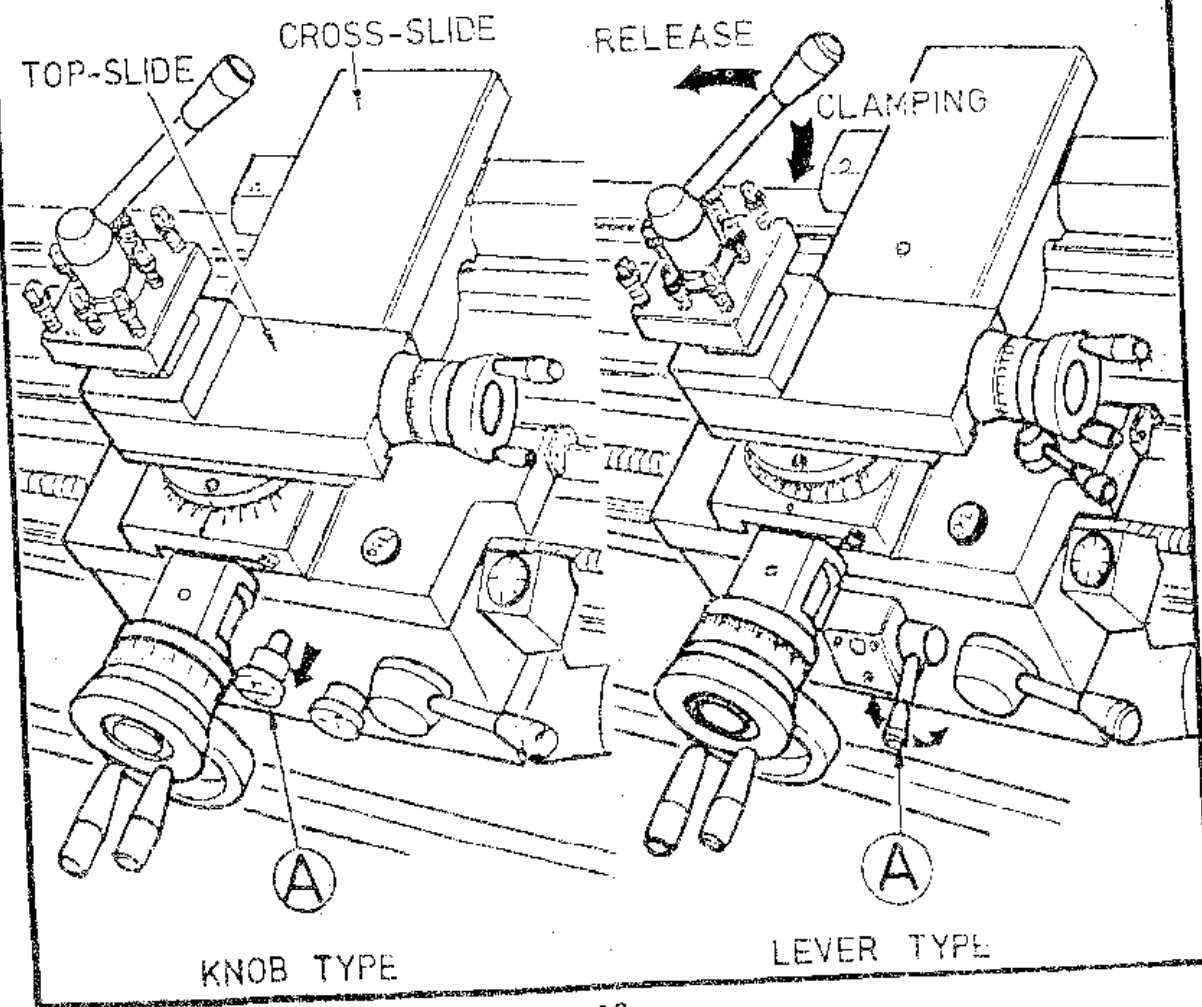
Fig. 16

## CROSS-SLIDE AND TOP-SLIDE

A solid topslide is fitted as standard to the cross-slide. Carried on a rotatable base, the cross-slide is marked 45-0-45 deg. for accurate indexing.

Handwheel dials are graduated in inch or metric divisions to suit the operating screw and nut fitted.

The cross-slide can be power operated by pulling out the hand knob (A), at one-third sliding feed per spindle revolution, or it can be hand-operated using the large-diameter dial graduated in either inch or metric division to suit the operating screw and nut fitted.



## TAIL STOCK

Can be free movement along the bed by unlocking the clamp lever (A)

The tailstock barrel is locked by lever (B).

The tailstock can be set-over for production of shallow tapers or for re-alignment. Release the clamping lever and adjust screws (S) at each side of the base to move tailstock laterally across the base. An indication of the setover is given by the datum mark (C) at the tailstock end face, as shown in Fig 18. Apply clamp lever after adjustment of set-over.

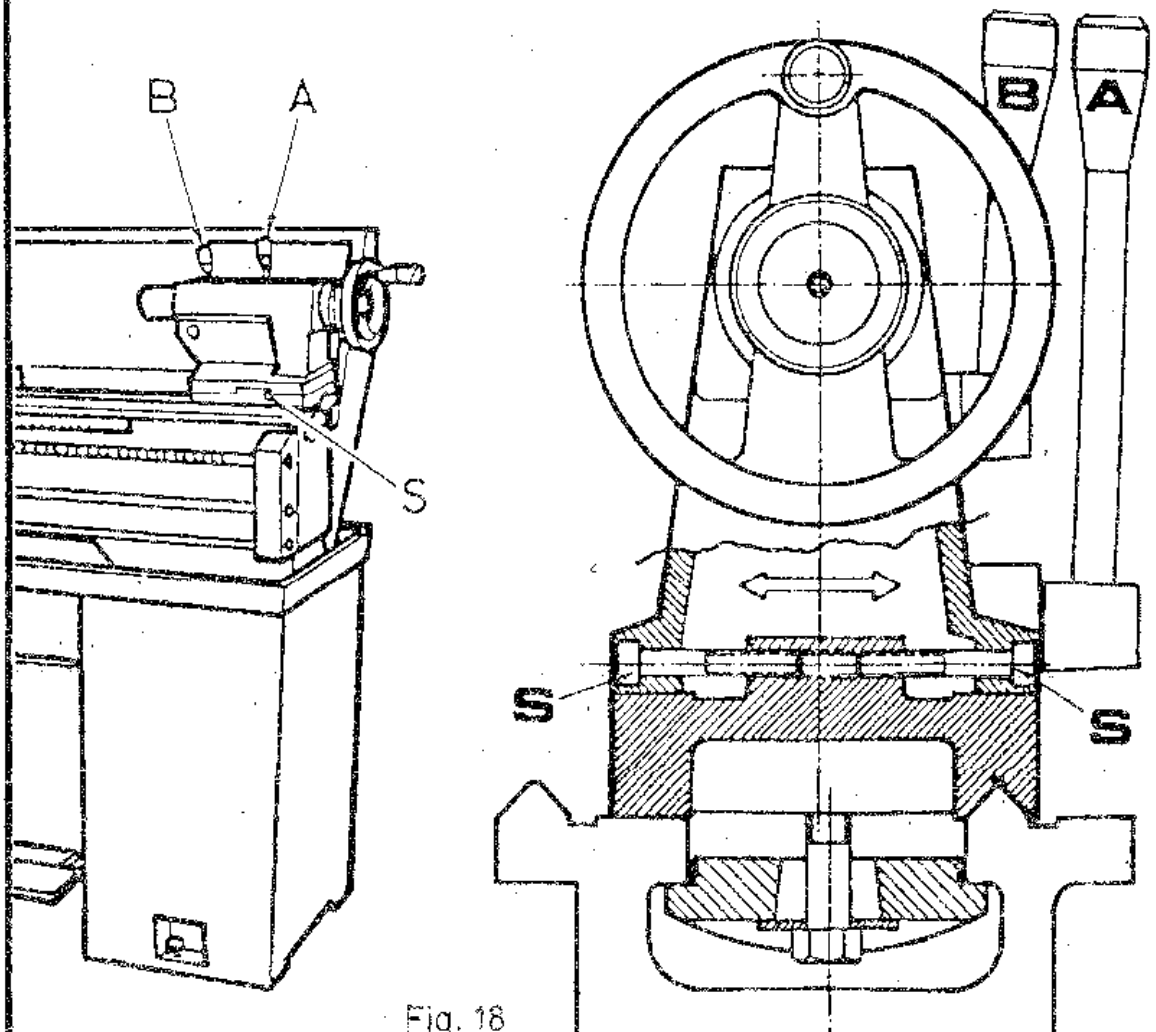


Fig. 18

## LATHE ALIGNMENT (part 1)

With the lathe installed and running, we recommend a check on machine alignment before commencing work. Check levelling and machine alignment at regular periods to ensure continued lathe accuracy.

Headstock check: Take a light cut-with a keen tool over a 6 in. (150mm.) length of 2 in. dia. (50mm.) steel bar gripped in the chuck but not supported at the free end. Micrometer readings at each end of the turned length (at A and B of Fig 19) should be the same.

To correct a difference in readings, slacken and release the four headstock hold-down screws (J) shown in Fig 18 and adjust the set-over pad (K) beneath the headstock. Then tighten all screws. After adjustment, repeat the test-cut/micrometer-reading until micrometer readings are identical so that machine cutting will be absolutely parallel.

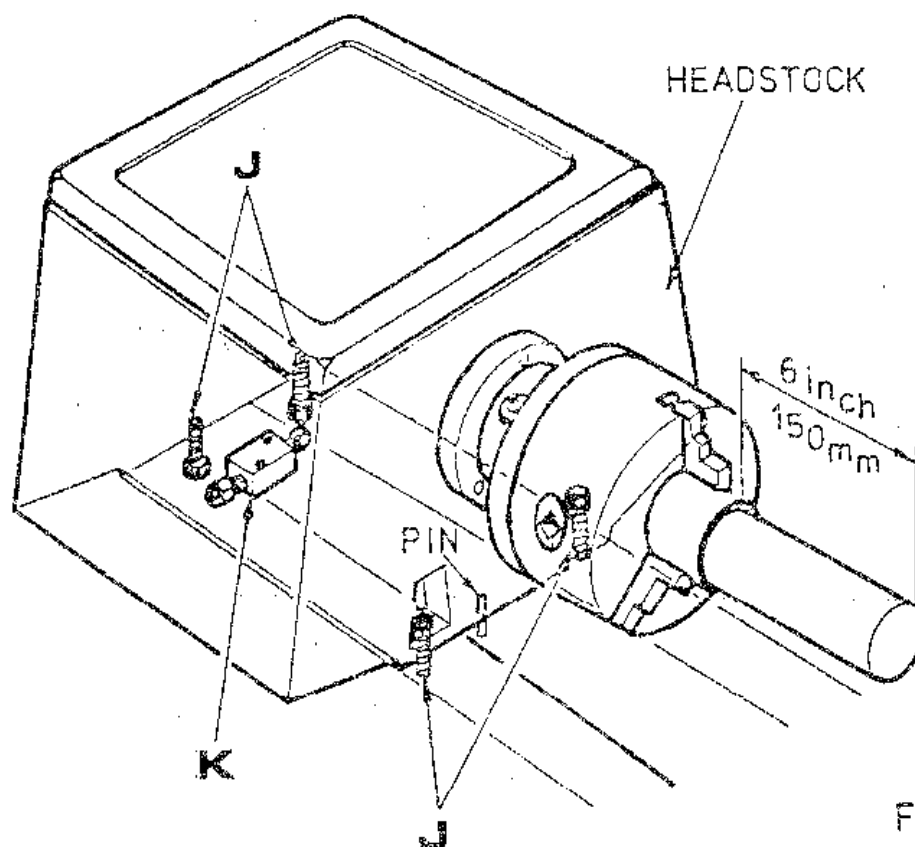
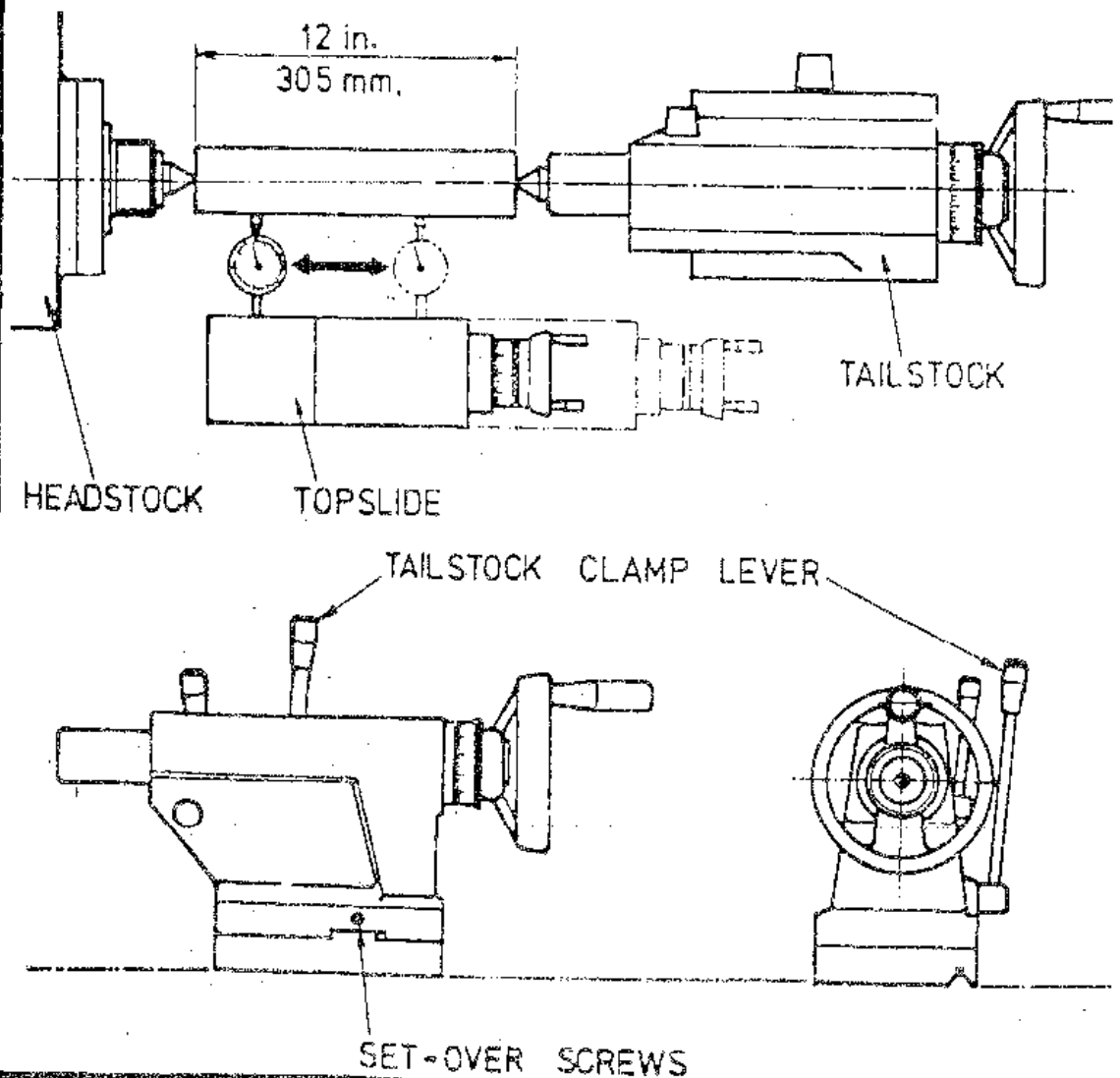


Fig. 19

## LATHE ALIGNMENT (part 2)

Tailstock check: Using a 12 in. (305 mm.) ground steel bar fitted between centers of headstock and tailstock. Check the alignment by fitting a dial-test indicator to the topslide and traversing the center line of the bar.

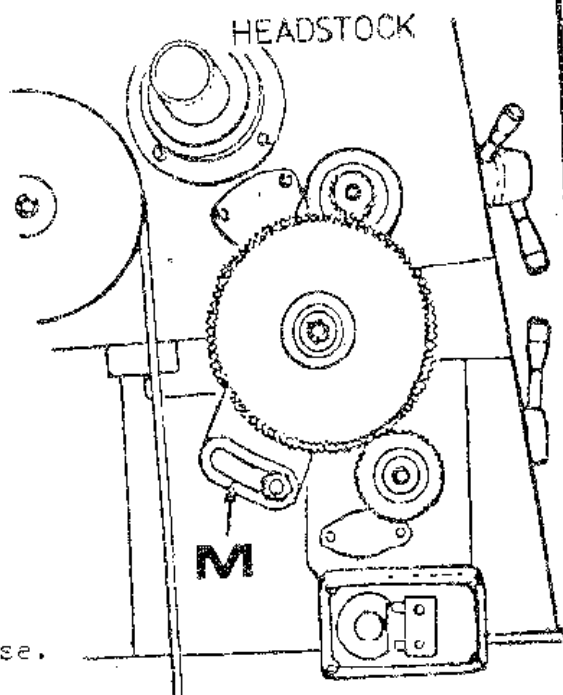
To correct error, release the tailstock clamp lever and adjust the two set-over screws provided. Continuously check and correct until the alignment is perfect.



## END GEAR TRAIN

Drive from headstock to gear-box is transmitted through a gear train enclosed by the headstock end-guard. Intermediate gears are carried on an adjustable swing frame (M).

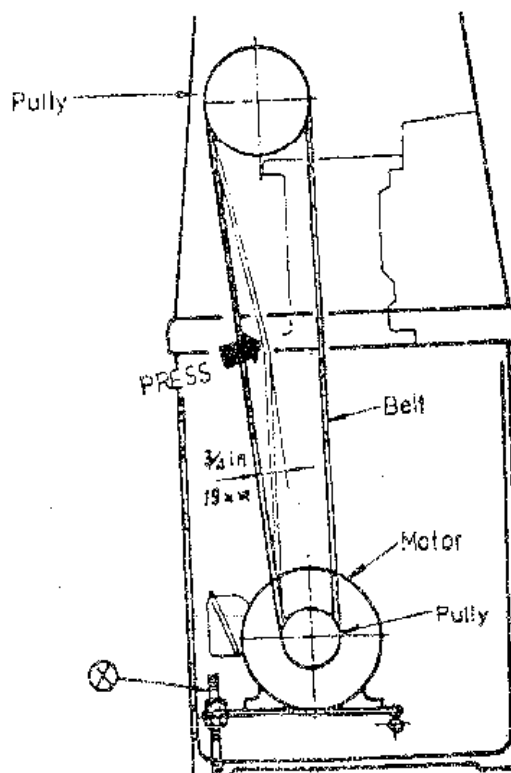
Gears must be thoroughly cleaned before fitting and backlash maintained at .005 in. (.127 mm.) Lubricate gears regularly with thick oil or grease.



## DRIVING BELTS

To alter belt tension, remove the coverplate in back of the headstock plinth and adjust the two screws (X) on the hinged motor platform. Ensure that the motor is correctly aligned with the lathe axis.

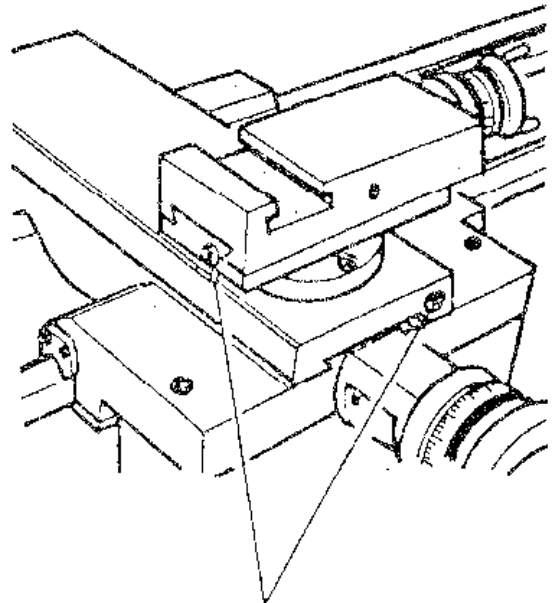
Light finger pressure at a point midway between motor and headstock pulleys should produce about  $\frac{3}{4}$  in. (19mm.) movement of each belt when under correct tension.



## SLIDE   WAYS   ATTENTION

Tapered gib strips are fitted to slideways of saddle cross-slide and top (compound) slides so that any slackness which may develop can be rectified.

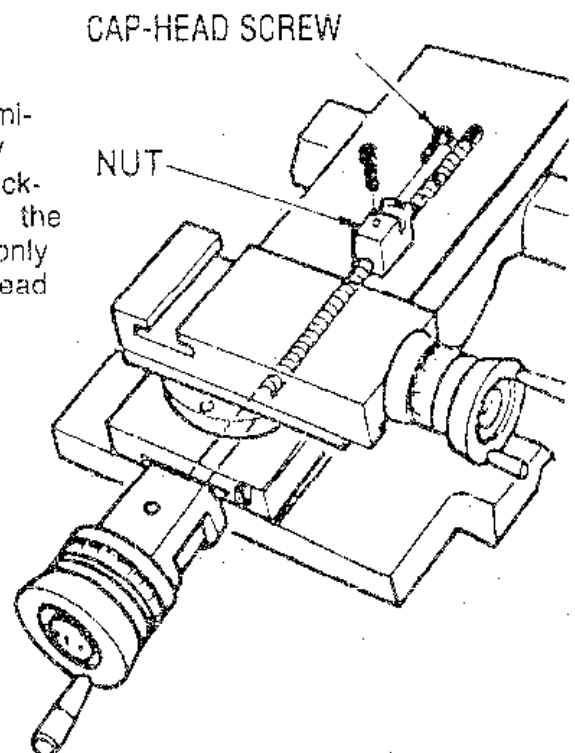
Ensure that slideways are thoroughly cleaned and lubricated before attempting adjustment. Then reset the gibs by slackening the rear gib screw and tightening the front screw. Check constantly for smooth action throughout full slide travel. avoid over-adjustment which can result in increased wear-rate and stiff or jerky action.



GIB ADJUSTERS

## CROSS-SLIDE   NUT

This is adjustable for elimination of slackness which may develop in service. Reduce backlash by the cap-head screw in the rear of the nut. Then make only small adjustment by the cap-head screw. Before operating the cross-slide, check several times by hand to be sure of smooth operation throughout travel.

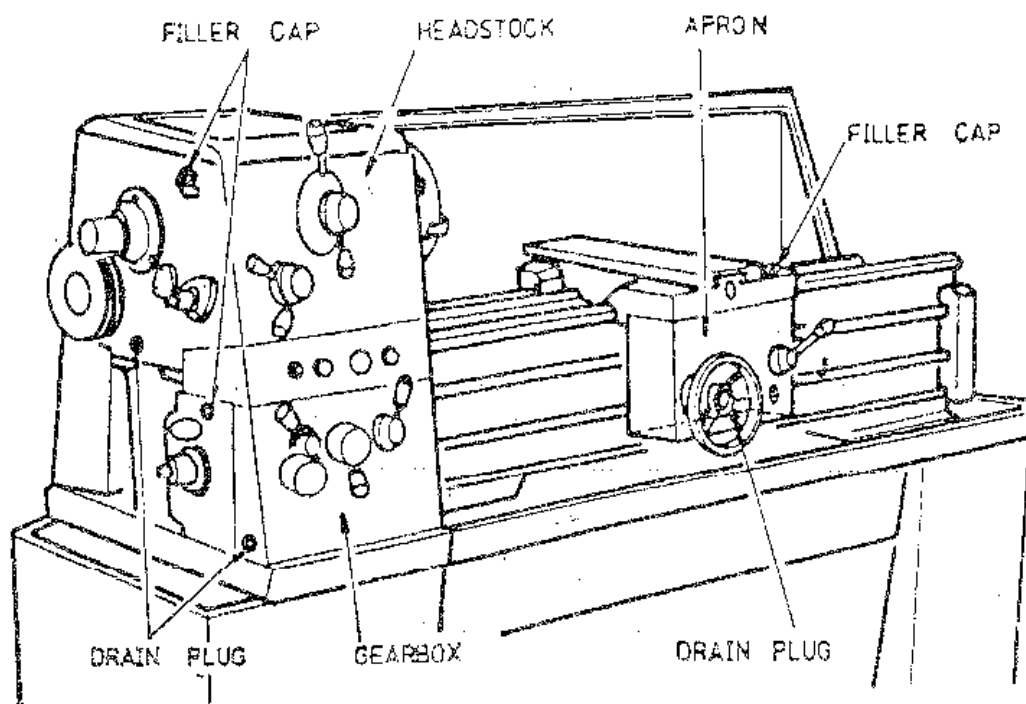


## LUBRICATION

( part 1 )

The headstock and gearbox are splash-lubricated from an internal reservoir of oil (Shell Tellus 27). Check the oil level constantly to the mark on the oil sight window in the front end face of the headstock and gearbox. A weekly check is recommended. The oil need be changed every year. Oil through a filler cap in the top of the headstock and gearbox is covered by the end-guard. Drain from a drain plug in the bottom of the headstock and gearbox.

The apron is lubricated from an internal reservoir of oil. The oil sight window is in the front of the apron. A filler cap is in the top of the saddle. Refill the reservoir to the level of the oilsight with Shell Tonna oil 33. The apron can be drained by unscrewing a hexheaded drain plug in the bottom.





## LUBRICATION

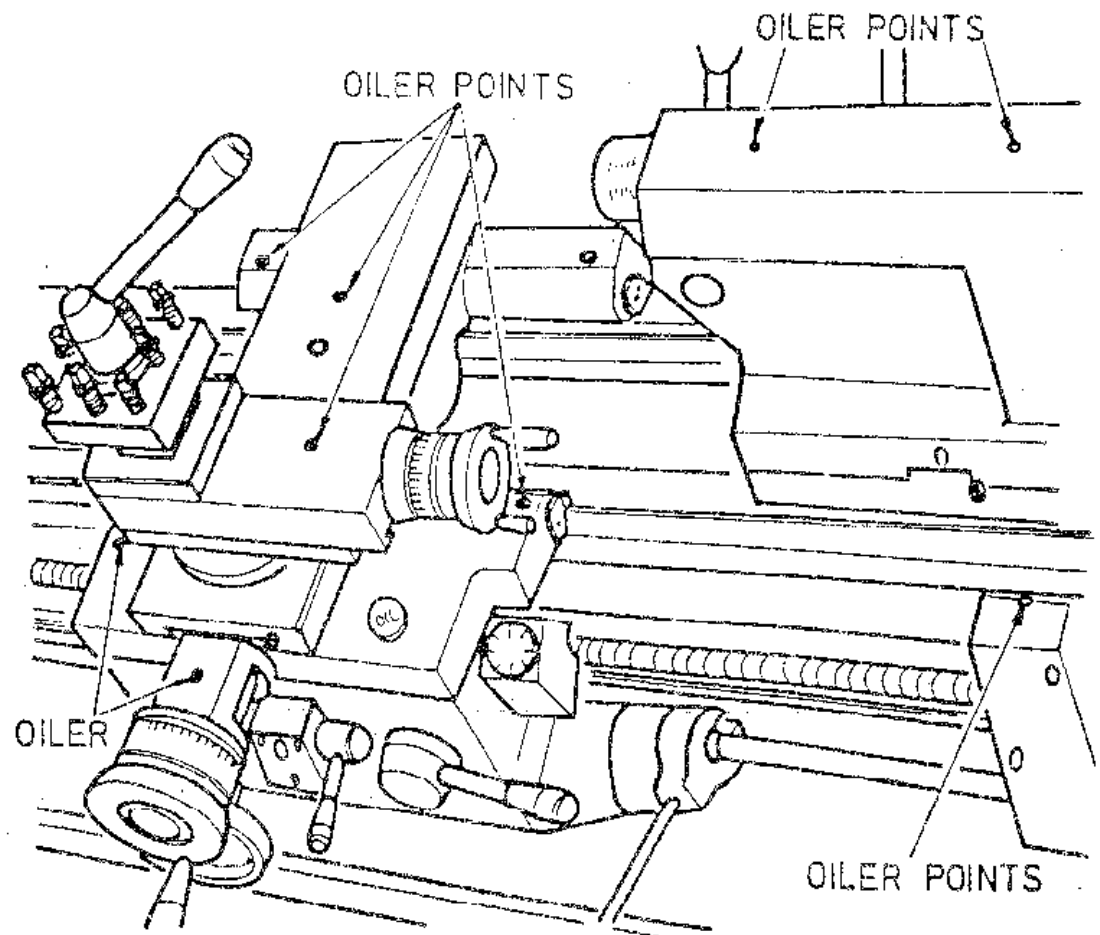
### ( part 2 )

In addition, oil gun is provided for the saddle, cross-slide crossslide nut and top-slide(compound slide) to oil. Leadscrew using a oil gun can be oild with light machine oil or way lubricant.

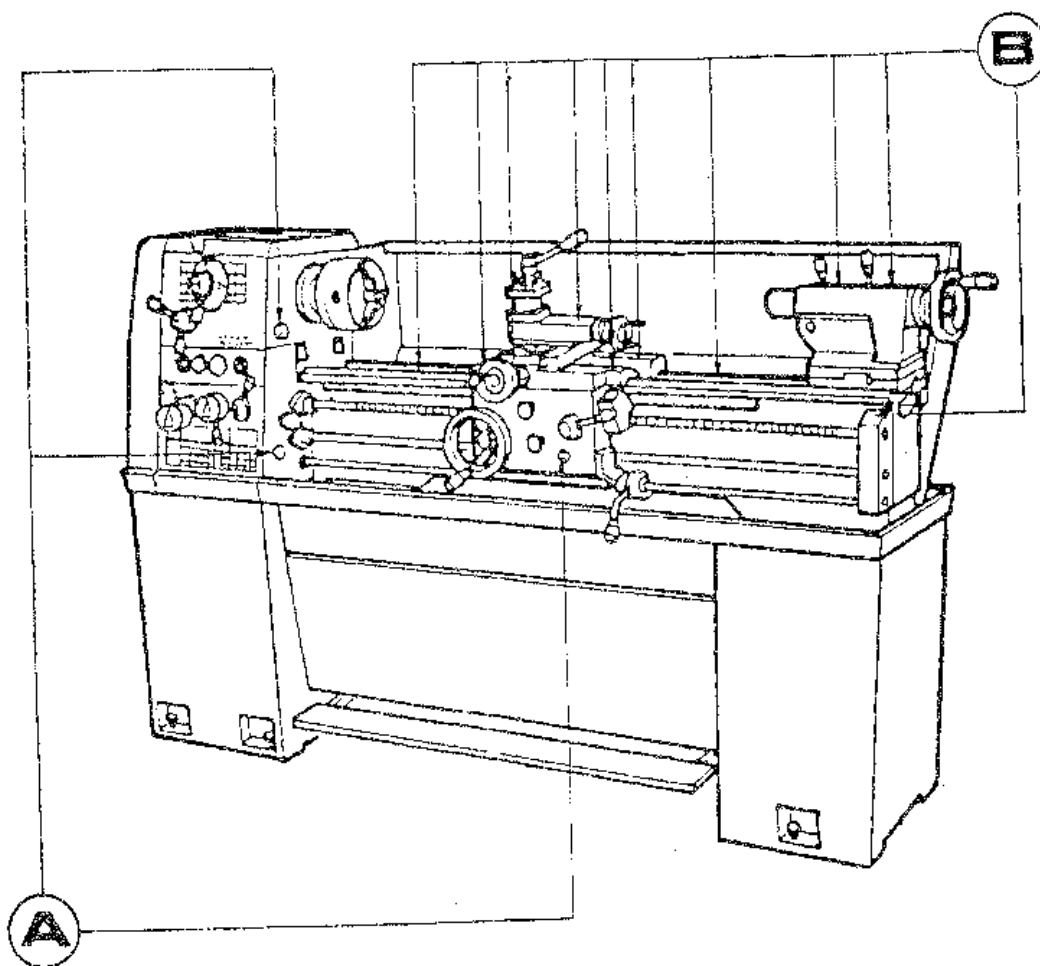
On the tailstock, oil points are provided for daily attentio from a standard oil can.

It is recommended that all slideways, leadscrew and feed shaft are cleaned off (a bristle paint brush is useful for this and lightly oiled after each period of work.

NOTE: Using incorrect grades of oil can cause damage.

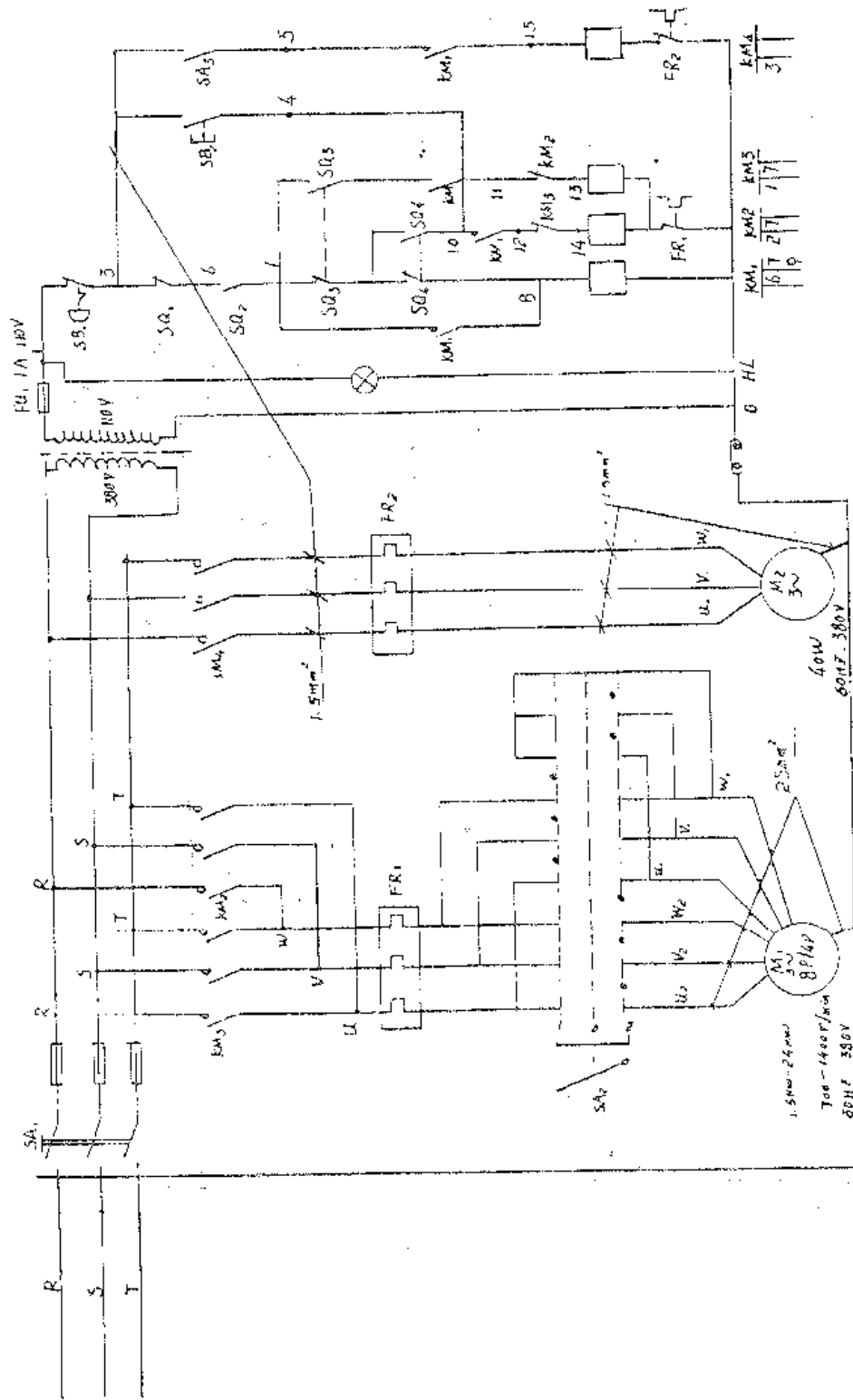


# LUBRICATION DIAGRAM

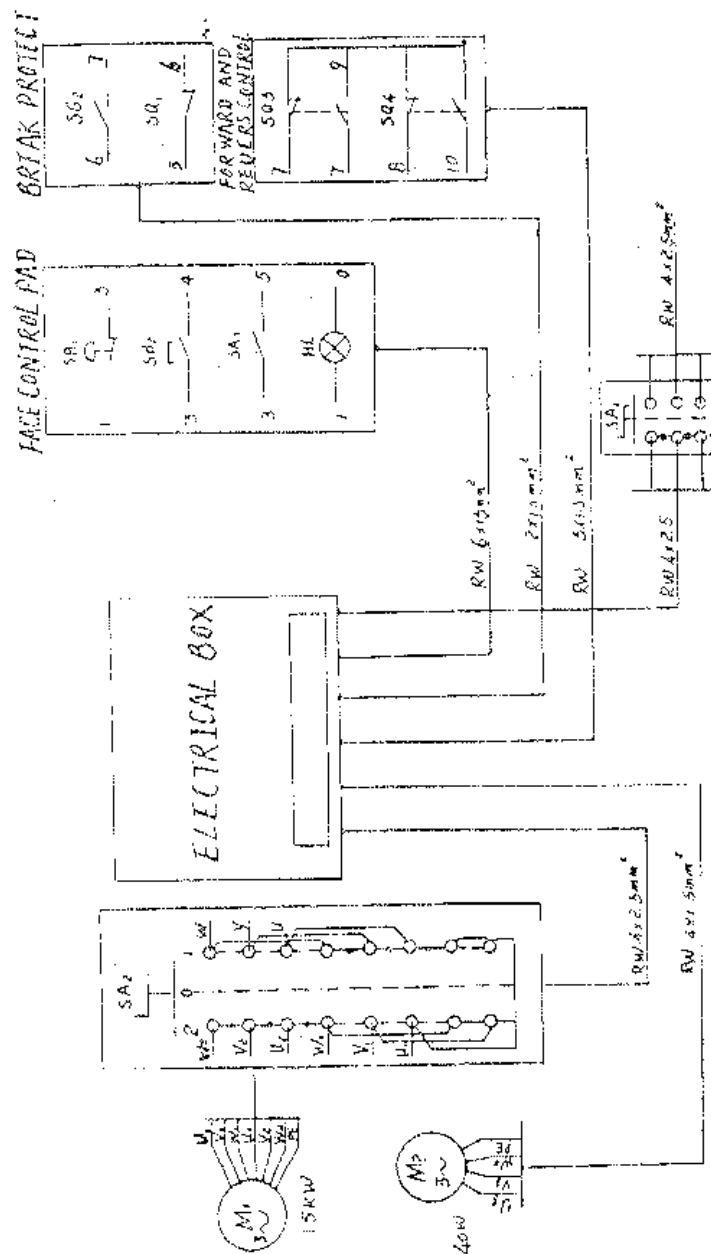


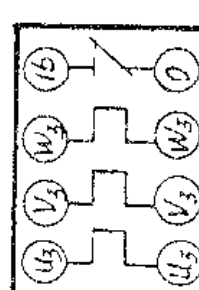
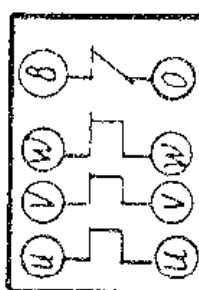
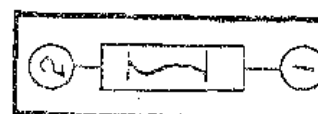
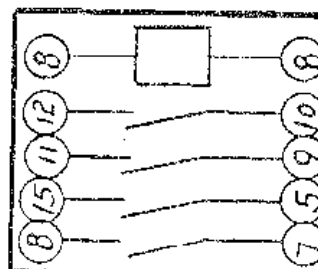
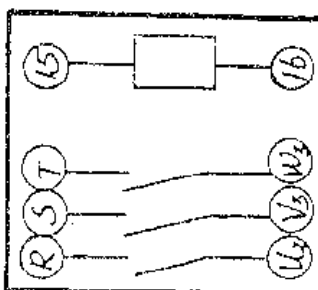
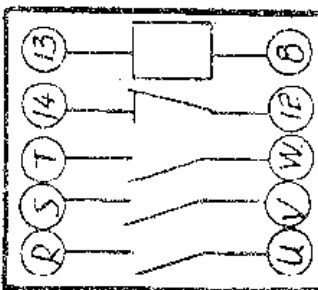
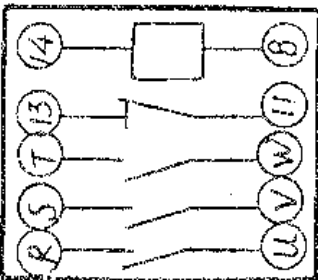
Ⓐ ——— TOP-UP EVERY WEEK

Ⓑ ——— OIL EVERY DAY



1	2	3	4	5	6	7	8	9
FORWARD	REVERS	PUMP	TRANSFORMER LIGHT	BREAK	FORWARD AND REVERSING PUMP	REVERSE CONTROL	CONTROL	



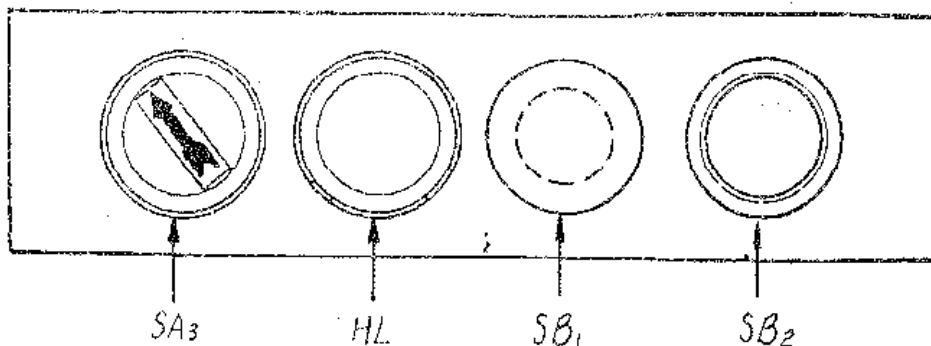


S	T
380	0

110V	0
1	0

R	S	T	U	V	W	U <sub>3</sub>	V <sub>3</sub>	W <sub>3</sub>	0	2	3	4	5	6	7	8	9	10
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SA1: Power switch 3 $\phi$  3w 10A.

T: Control circuit Transformer 100VA.

M1: Main Motor.

M2: Pump motor.

SB2: Push button switch(jogging switch)type SB 3051A.

SB1: Flate type push button type SB 3091B.

HL: Pilot light type.SP 301,110V/15V, color:white.

SA3: Selecting switch. type ST 3021A.

FU1: Fuse base 600V, 30A, type SR—833.

FU2: Grass tube fuse 1A.

KM4: For main motor Reverse AC magnetic contactor coil AC 110V. type c—11G3A1B.

KM5: For main motor Forward AC magnetic contactor coil AC110V. type c—11G3A1B.

KM2: For pump motor AC magnetic contactor coil AC 110V. type c—11G3A1a.

FR1: Thermal overload relay for main motor. type RH—18M.

FR2: Thermal overload relay for pump motor. type RH—10E.

M: AC magnetic contactor coil AC 110V. type c—11G3A1a.

SQ1: Limit switch End cover safety switch type 15G 22—B.

SQ2: Limit switch Brake precision. type 15GD—B.

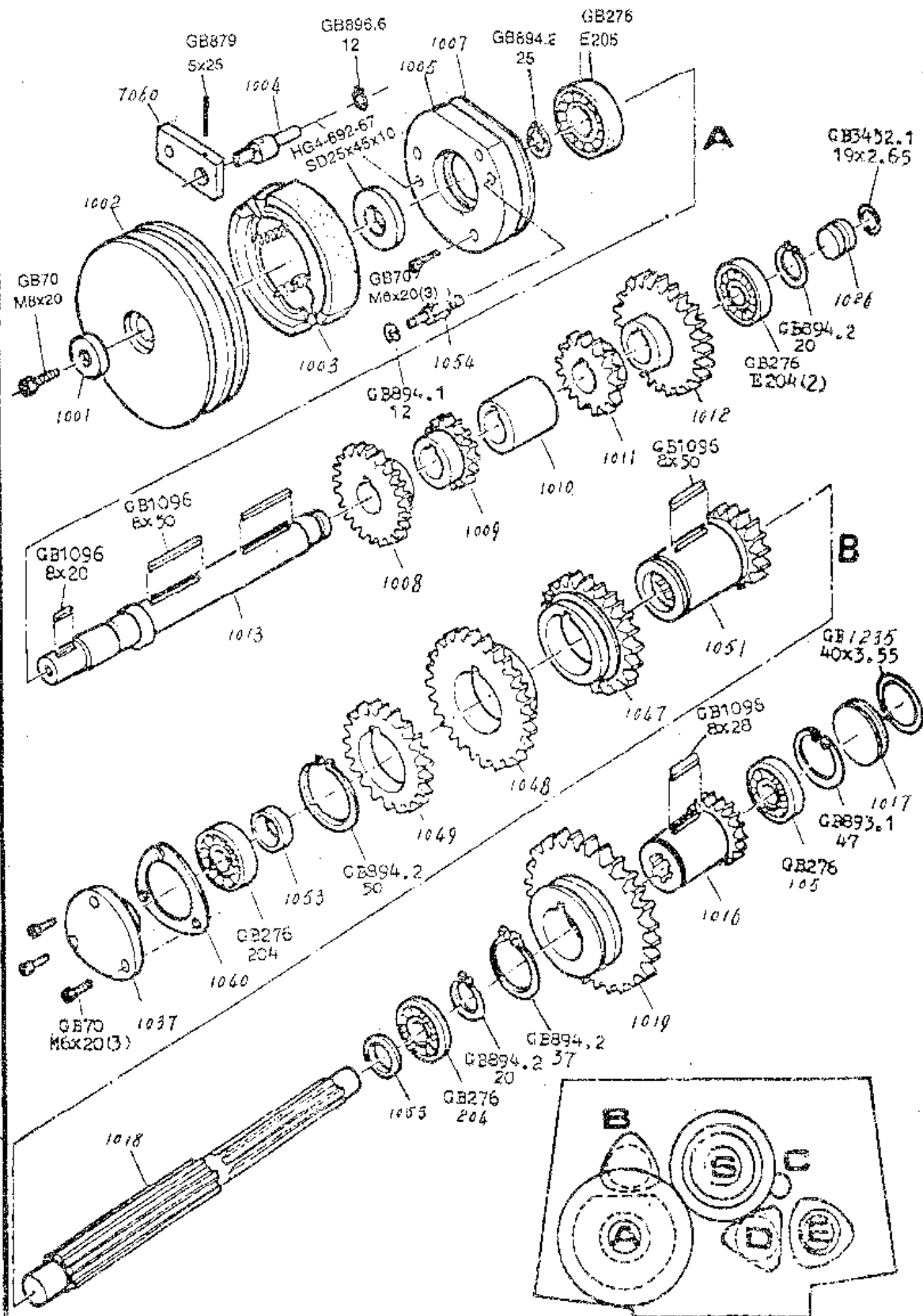
SQ3: Limit switch Reverse precision. type 15GD—B.

SQ4: Limit switch Forward precision. type 15GD—B.

SA2: 2 Speed Motor switch.

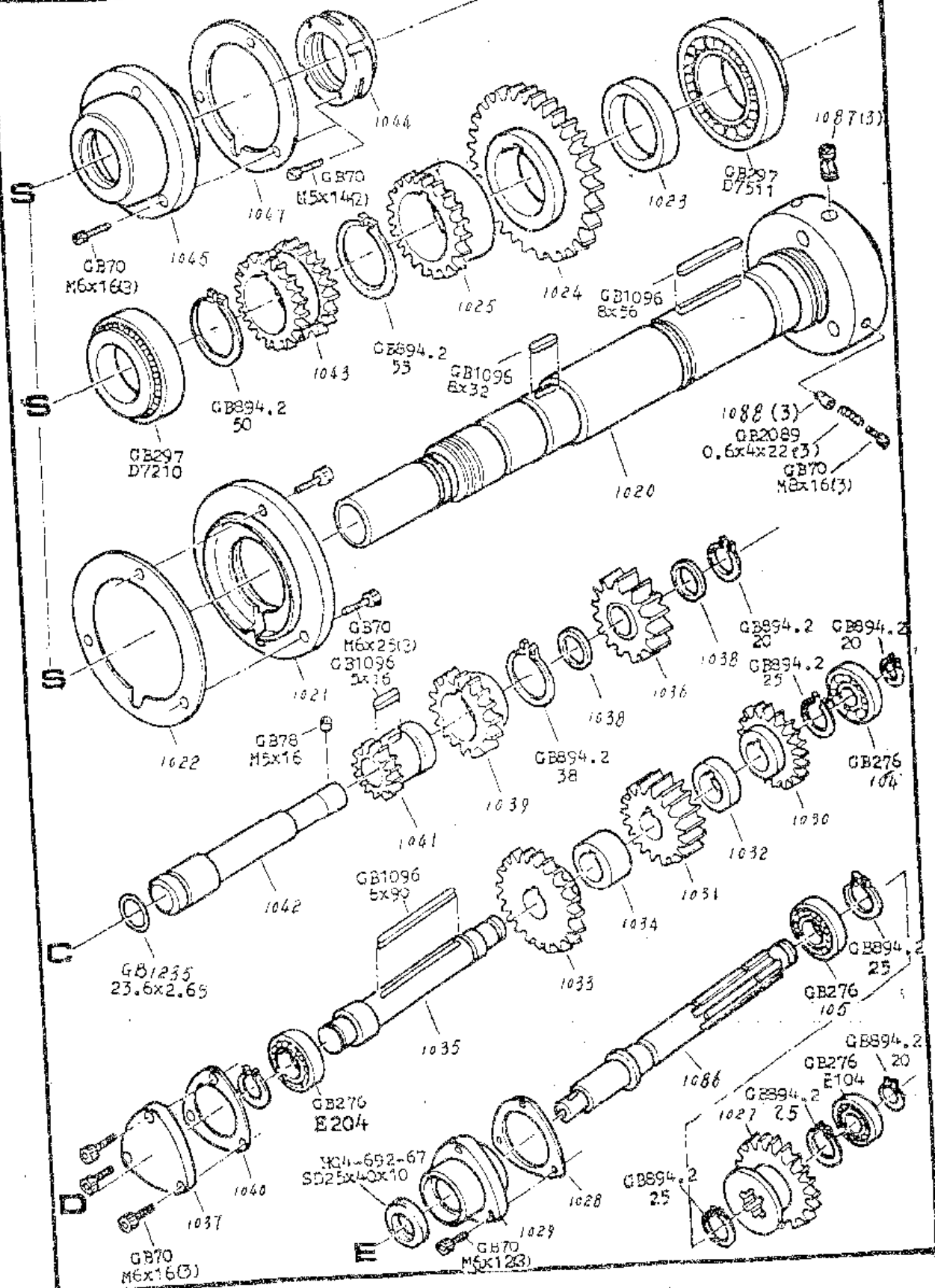


# HEADSTOCK





# HEADSTOCK



# HEAD STOCK

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Bushing	1	1001	31	Gear	1	1031
2	Pulley	1	1002	32	Bushing	1	1032
3	Brake Wheel	1	1003	33	Gear	1	1033
4	Brake Shaft	1	1004	34	Bushing	1	1034
5	Cover	1	1005	35	Shaft 5	1	1035
6	Head Stock Box	1	1006	36	Gear	1	1036
7	Oil Seal	1	1007	37	Cover	2	1037
8	Gear	1	1008	38	Bushing	2	1038
9	Gear	1	1009	39	Gear	1	1039
10	Bushing	1	1010	40	Oil Seal	2	1040
11	Gear	1	1011	41	Gear	1	1041
12	Gear	1	1012	42	Shaft 4	1	1042
13	Shaft 1	1	1013	43	Gear	1	1043
14	Shaft	2	1014	44	Adjuster	1	1044
15	Collar	1	1015	45	Cover	1	1045
16	Gear	1	1016	46	Gear	1	1046
17	Cover	1	1017	47	Oil Seal	1	1047
18	Shaft 2	1	1018	48	Gear	1	1048
19	Gear	1	1019	49	Gear	1	1049
20	Spindle	1	1020	50	Boss	1	1050
21	Cover	1	1021	51	Gear	1	1051
22	Oil Seal	1	1022	52	Oil Seal	1	1052
23	Bushing	1	1023	53	Bushing	1	1053
24	Gear	1	1024	54	Shaft	1	1054
25	Gear	1	1025	55	Cover	2	1055
26	Cover	3	1026	56	Washer	2	1056
27	Gear	1	1027	57	Ball	1	1057
28	Oil Seal	1	1028	58	Handle	2	1058
29	Cover	1	1029	59	Spring	1	1059
30	Gear	1	1030	60	Sign Board	3	1060

# HEAD STOCK

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
61	Shifter Arm	1	1061	77	Shaft	1	1077
62	Shifter Arm	1	1062	78	Handle	1	1078
63	Shifter	1	1063	79	Handle	4	1079
64	Shaft	1	1064	80	Handle	2	1080
65	Shifter	1	1065	81	Screw	1	1081
66	Sign Board	1	1066	82	Shifter	2	1082
67	Screw	2	1067	83	Shifter Arm	1	1083
68	Block	1	1068	84	Gear	1	1084
69	Shaft	1	1069	85	Block	1	1085
70	Cover	1	1070	86	Shaft G	1	1086
71	Shifter Arm	1	1071	87	Eccentric Shaft	3	1087
72	Shaft	1	1072	88	Lock Pin	5	1088
73	Shifter Arm	1	1073	89	Spring	3	1089
74	Spring	1	1074	90	Sign Board	1	1090
75	Screw	1	1075	91	Boat	2	1091
76	Shaft	1	1076	92	Cover	1	1092
				93	Cover	2	1093

# GEARBOX

This technical drawing is an exploded view of a gearbox assembly. It shows the main housing, internal shafts, gears, and various fasteners. Key components and their labels include:

- Top Cover:** 3009, 3005, 3004.
- Front Plate:** 3049.
- Internal Components:** 3063, 3065, 3051, 3037, 3038, 3039, 3036, 3046(3), 3048, 3050, 3047.
- Fasteners:** GB819 10(8), GB870 M8x40, GB879 5x20(2), GB879 5x28(2), GB879 6x10(2), GB879 M5x8, GB879 5x25, GB1096 4x10(3), GB1096 4x10, GB1096 4x10(3), GB878 M6x8, GB278 M6x8(2), GB877 M8x8(2), GB819 M5x10, GB870 M6x16, GB818 M7x6.
- Other Labels:** 091160 12, GB879 5x20(2), GB879 5x25, GB1096 4x10(3), GB879 5x20, GB1096 4x10, GB878 M6x8, GB278 M6x8(2), GB877 M8x8(2), GB819 M5x10, GB870 M6x16, GB818 M7x6, 0/2B285.3 203/B\*, 3066, 3068, 3058, 3040, 3061, 3042, 3043, 3057.

[illegible]

[illegible]

# GEAR BOX

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Shaft 2	1	3001	31	Gear	1	3031
2	Oil Seal	1	3002	32	Oil Seal	2	3032
3	Cover	1	3003	33	Shaft 4	1	3033
4	Gear Box	1	3004	34	Cover	2	3034
5	Cover	1	3005	35	Cover	1	3035
6	Bushing	1	3006	36	Shifter	1	3036
7	Gear	1	3007	37	Gear	1	3037
8	Gear	1	3008	38	Rack	1	3038
9	Cover	1	3009	39	Shaft	1	3039
10	Bushing	1	3010	40	Plate	1	3040
11	Gear	1	3011	41	Handle Wheel	2	3041
12	Nut	2	3012	42	Washer	2	3042
13	Cover	1	3013	43	Sign Board	2	3043
14	Shaft	1	3014	44	Shaft	1	3044
15	Shaft 1	1	3015	45	Sign Board	1	3045
16	Bushing	1	3016	46	Key	3	3046
17	Shaft	1	3017	47	Cover	1	3047
18	Gear	1	3018	48	Block	1	3048
19	Gear	1	3019	49	Oil Seal	1	3049
20	Oil Seal	2	3020	50	Block	1	3050
21	Gear	1	3021	51	Shaft	1	3051
22	Washer	1	3022	52	Shaft	1	3052
23	Gear	1	3023	53	Shifter	1	3053
24	Gear	1	3024	54	Shaft	1	3054
25	Gear	1	3025	55	Shaft	1	3055
26	Gear	1	3026	56	Handle	1	3056
27	Gear	1	3027	57	Sign Board	1	3057
28	Gear	1	3028	58	Box	1	3058
29	Gear	2	3029	59	Spring	4	3059
30	Gear	1	3030	60	Plate	1	3060

# GEAR BOX

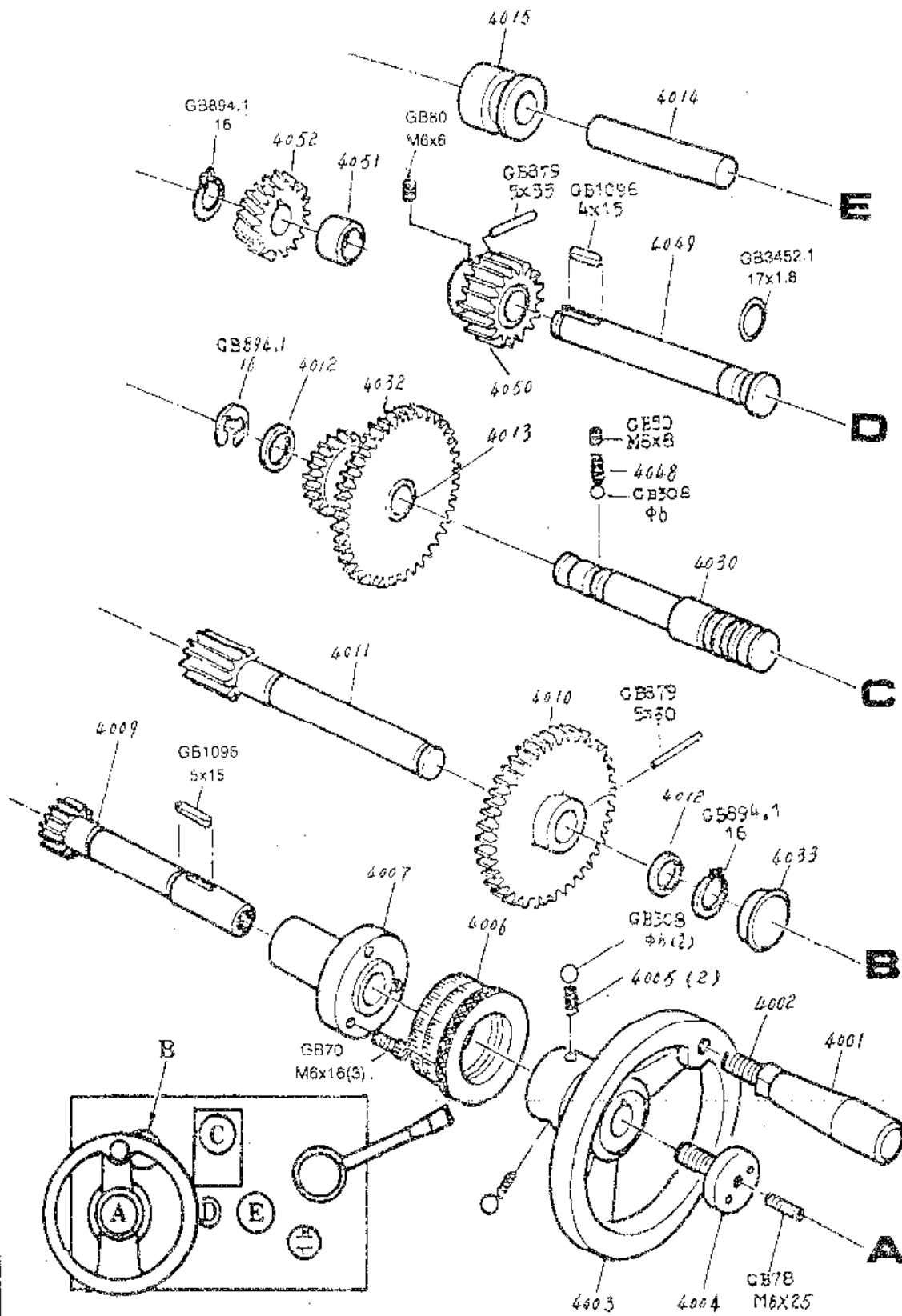
Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
61	Plate	1	3061	65	Gear	1	3064
62	Shaft	1	3062-1	66	Shaft	1	3065
63	Pin	1	3062-2	67	Handle Sleeve	1	3066
64	Gear	1	3063	68	Screw	2	3067



This diagram illustrates the exploded view of a mechanical assembly. The components are labeled as follows:

- GB70 M6x10(2)**: Two screws for the top cover.
- 4017**: Top cover plate.
- GB70 M6x16(2)**: Two screws for the top cover.
- 4019**: Vertical support plate.
- GB70 M6x10(3)**: Three screws for the vertical support plate.
- 4016 Q (IN)** and **4016 (M)**: Two types of bushings.
- GB80 M2x8**: Two screws for the top cover.
- 4036** and **GB308 Φ5**: Two types of pins.
- GB70 M6x40**: One long screw for the top cover.
- 4008**: Main body housing.
- 4018 (2)**: Two bushings for the side shaft.
- 4020**: Side shaft component.
- 4021**: Side bracket component.
- 4024**: Side bracket component.
- GB8879 5x35** and **GB80 M5x5**: Two types of screws for the side bracket.
- 4022**: Side bracket component.
- GB8879 5x50**: One screw for the side bracket.
- GB1160 12**: One pin for the side bracket.
- 4035**: Side bracket component.
- 4031**: Side bracket component.
- GB70 M6x16(2)** and **GB70 M6x12(2)**: Two types of screws for the side bracket.
- GB70 M6x45(1)**: One screw for the side bracket.
- 4027**: Side bracket component.
- 4026**: Side bracket component.
- 4022**: Side bracket component.
- GB70 M6x16(2)**: Two screws for the side bracket.
- 4053**: Side bracket component.
- 4054**: Side bracket component.
- GB70 M6x16(2)**: Two screws for the side bracket.
- GB1096 5x56**: One screw for the side bracket.
- GB8879 3x512**: One screw for the side bracket.
- 4054**: Side bracket component.
- GB70 M6x16(2)**: Two screws for the side bracket.

Left hand, Lever type

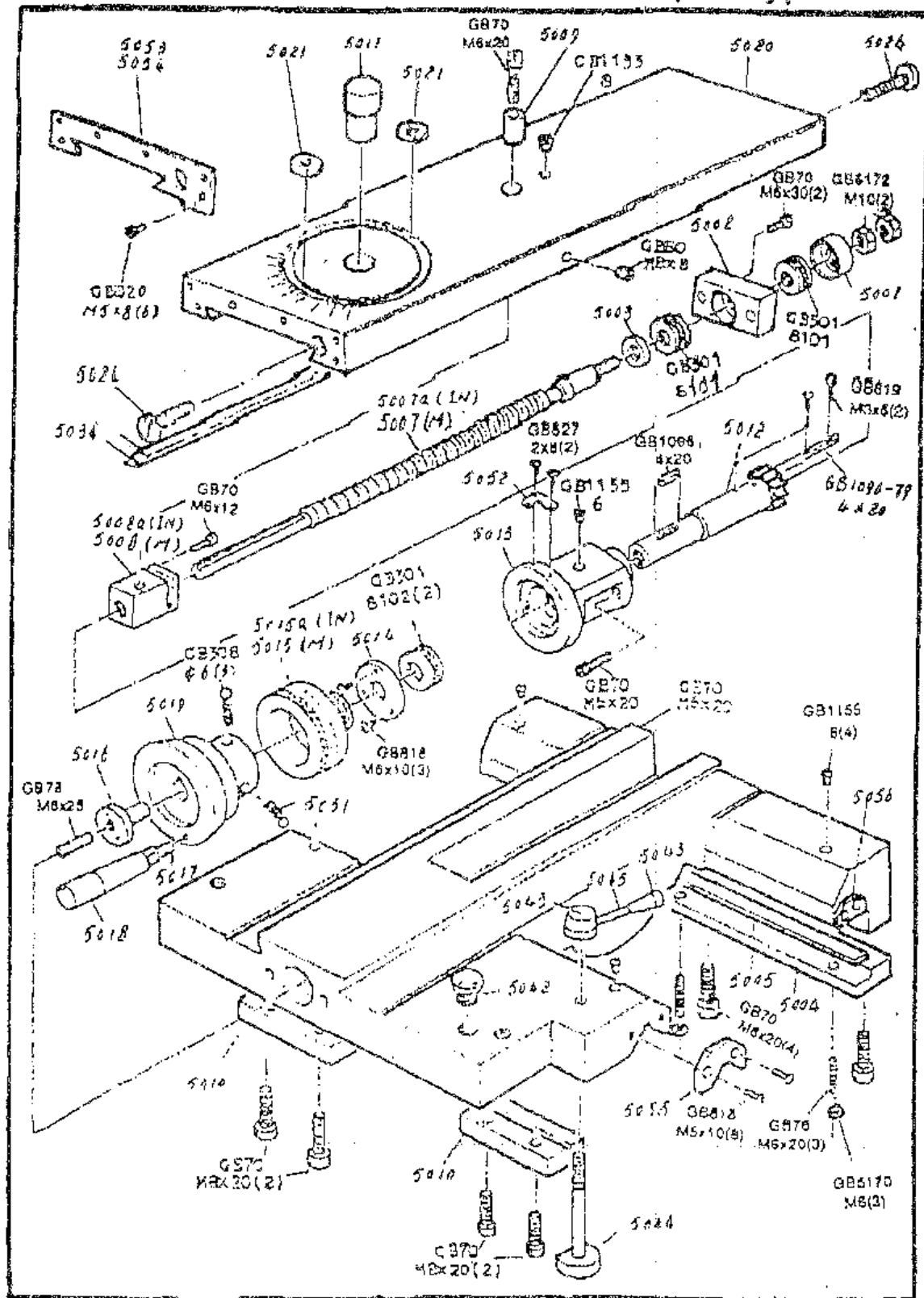


# APRON

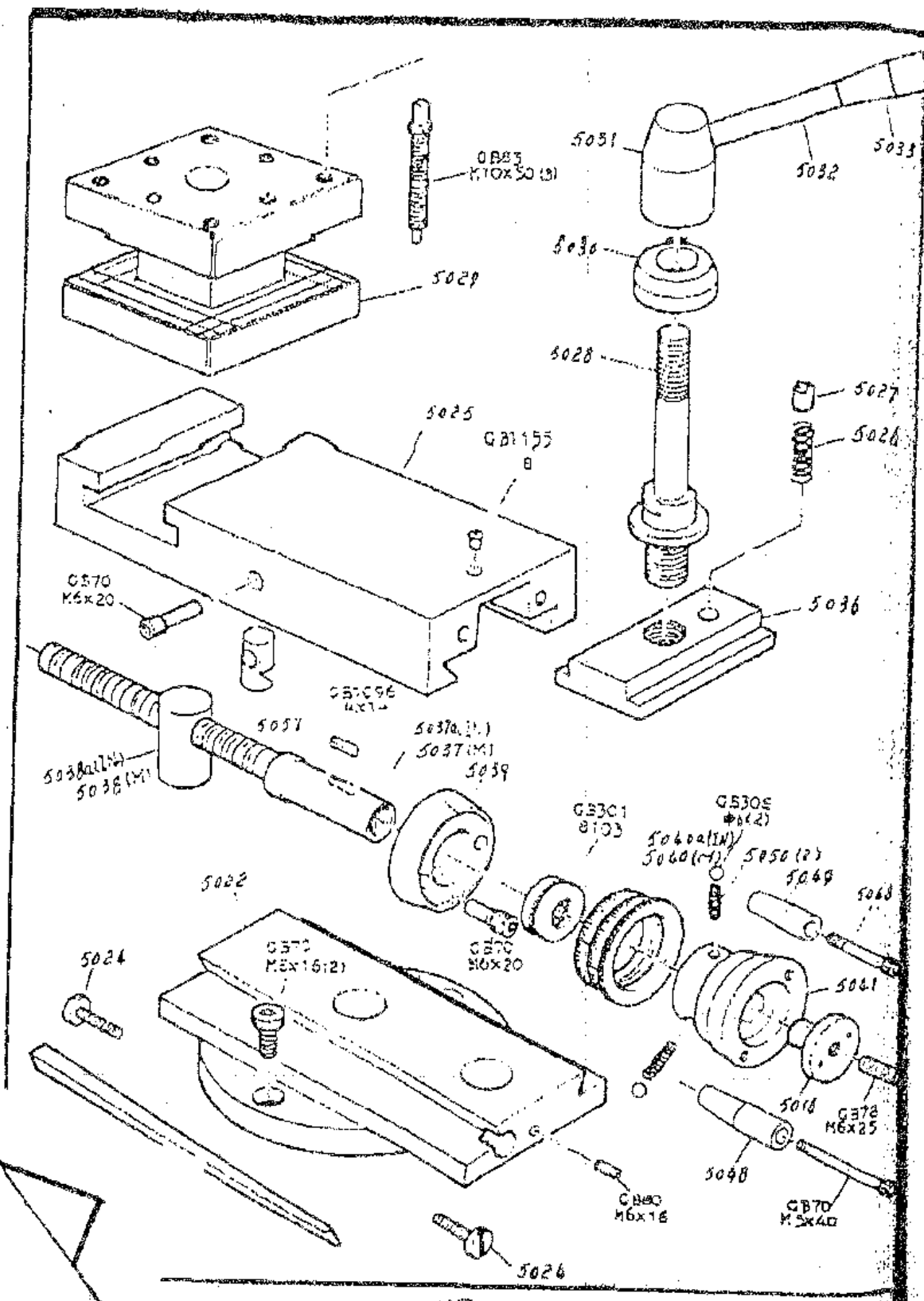
Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Handle	1	4001	31	Shifter	1	4031
2	Handle	1	4002	32	Gear	1	4032
3	Handle Wheel	0	4003	33	Cover	1	4033
4	Nut	1	4004	34	Sign Board	4	4034
5	Spring	2	4005	35	Cover	1	4035
6	Index Ring	1	4006	36	Spring	1	4036
7	Bushing	1	4007	37	Sign Board	1	4037
8	Apron Case	1	4008	38	Sign Board	1	4038
9	Gear Shaft	1	4009	39	Shaft	1	4039
10	Gear	1	4010	40	Housing	1	4040
11	Gear Shaft	1	4011	41	Gear	1	4041
12	Washer	2	4012	42	Gear	1	4042
13	Collar	1	4013	43	Gear	1	4043
14	Shaft	1	4014	44	Gear	1	4044
15	Safety Shifter	1	4015	45	Bushing	1	4045
16	Half Nut	1	4016	46	Gear	1	4046
17	Half Nut Housing	1	4017	47	Washer	1	4047
18	Lock Pin	2	4018	48	Spring	1	4048
19	Strip	1	4019	49	Shaft	1	4049
20	Shaft	1	4020	50	Gear	1	4050
21	Dog	1	4021	51	Bushing	1	4051
22	Handle Sleeve	1	4022	52	Worm Gear	1	4052
23	Handle	1	4023	53	Worm	1	4053
24	Boss	1	4024	54	Collar	2	4054
25	Block	1	4025	55	Screw	1	4055
26	Handle	1	4026	56	Cover	1	4056
27	Gear Shaft	1	4027	57	Plate	1	4057
28	Screw	1	4028	58	Washer	1	4058
29	Sign Board	1	4029				
30	Gear Shaft	1	4030				

# SADDLE & CROSS-SLIDE

## Telescopic type



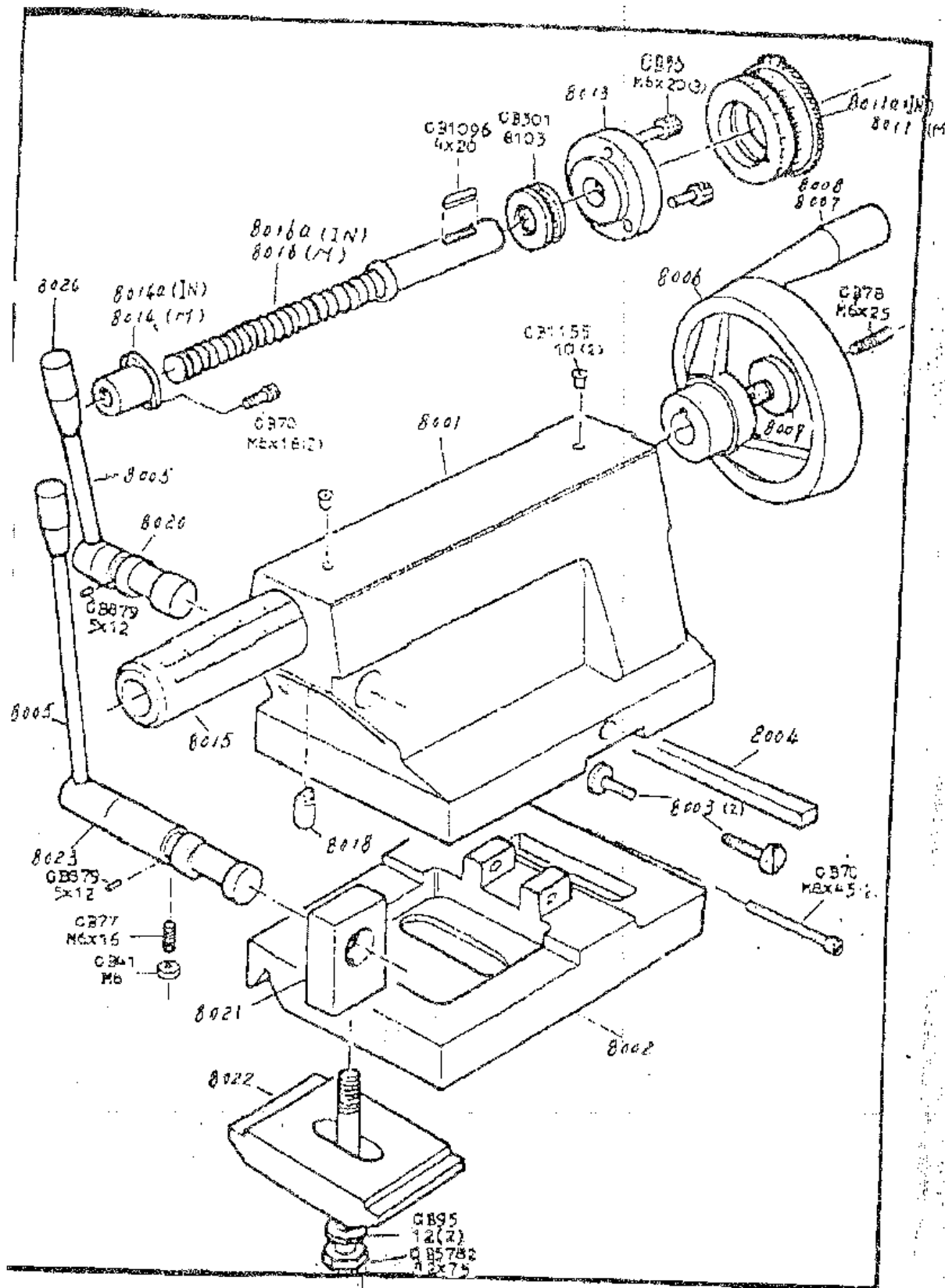
# TOP SLIDE, TOOL POST



# SADDLE, CROSS-SLIDE & TOOL POST

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Block	1	5001	30	Tool Post	1	5029
2	Block	1	5002	31	Washer	1	5030
3	Collar	1	5003	32	Boss	1	5031
4	Slide Plate	1	5004	33	Handle	1	5032
5	Adjuster	1	5005	34	Handle Sleeve	1	5033
6	Saddle	1	5006	35	Gib	1	5034
7	SCREW	1	5007	36	SCREW	2	5035
8	Nut	1	5008	37	T-Plate	1	5036
9	Bushing	1	5009	38	Screw	1	5037
10	Slide Plate	2	5010	39	Nut	1	5038
11	Shaft	1	5011	40	Bracket	1	5039
12	Gear Shaft	1	5012	41	Index Ring	1	5040
13	Key	1	5012-1	42	Handle Wheel	1	5041
14	Bracket	1	5013	43	Lock Handle	1	5043
15	Collar	1	5014	44	Housing	1	5044
16	Index Ring	1	5015	45	Shaft	1	5045
17	Nut	2	5016	46	Shaft	1	5045
18	Shaft	2	5017	47	Block	2	5046
19	Handle Sleeve	2	5018	48	Block	2	5047
20	Handle Wheel	1	5019	49	Handle	1	5048
21	Tool Post Slide	1	5020	50	Handle	1	5049
22	T-Nut	2	5021	51	Spring	2	5050
23	Compound Rest	1	5022	52	Spring	1	5051
24	Gib	1	5023	53	Sign Board	2	5052
25	Screw	2	5024	54	Block	1	5053
26	Compound Slide	1	5025	55	Block	1	5054
27	Spring	1	5026	56	Block	2	5055
28	Pin	1	5027	57	Block	2	5056
29	Shaft	1	5028	58	Adjuster	1	5057
					Sign Board	1	5058

# TAIL STOCK

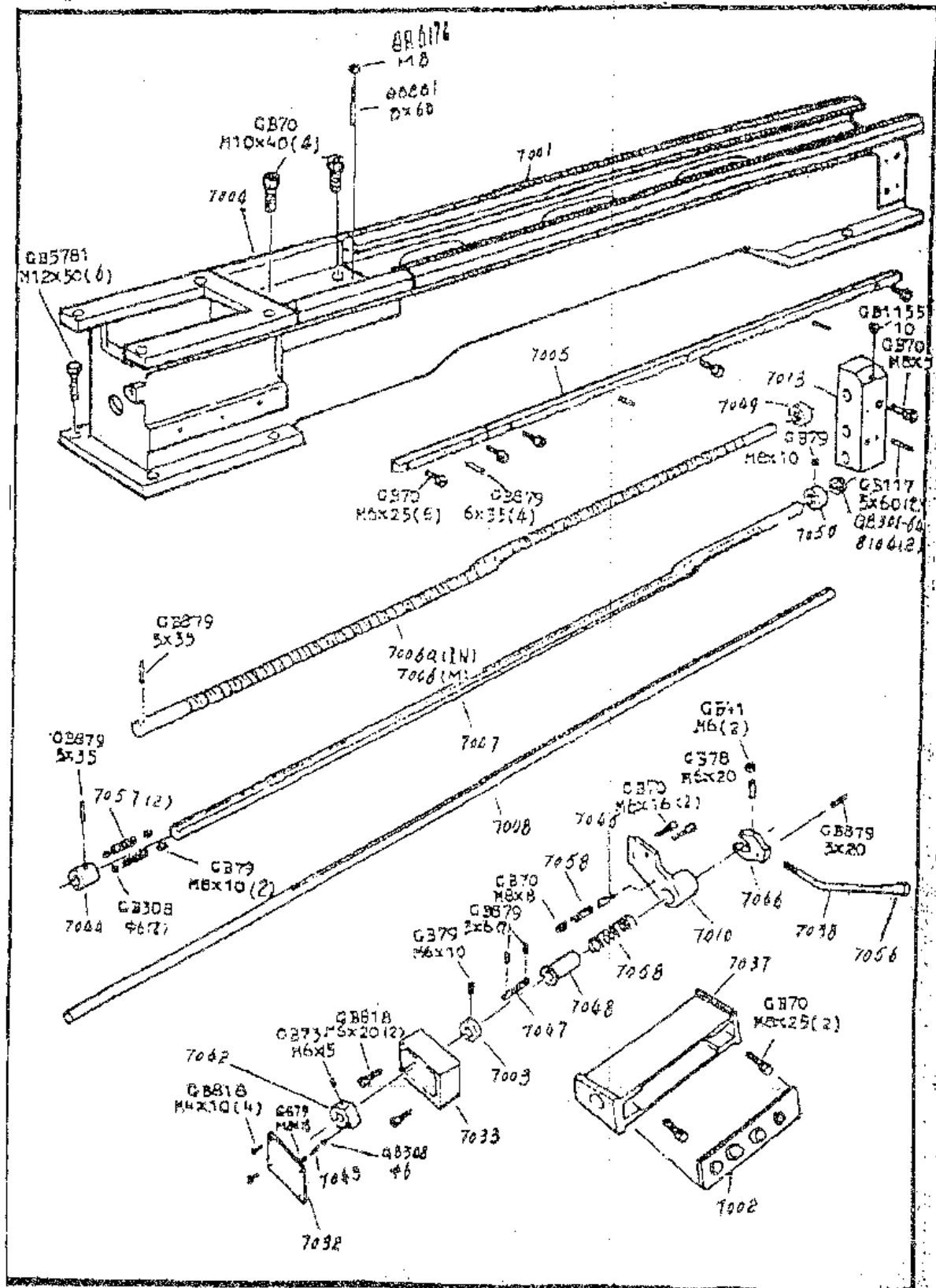


# TAIL STOCK

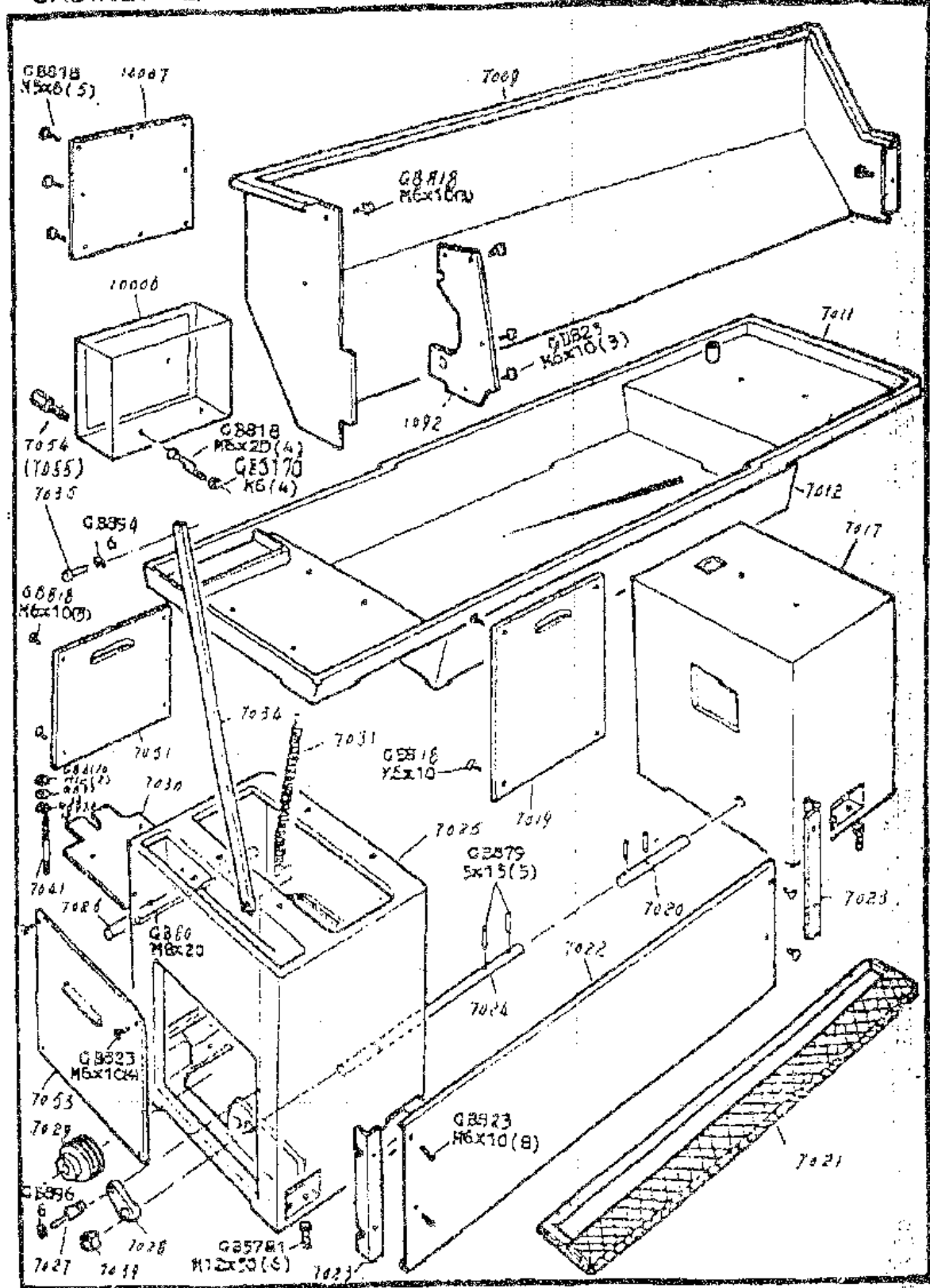
Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Tail Stock	1	8001	13	Cover	1	8013
2	Base	1	8002	14	Nut	1	8014
3	Adjust Screw	2	8003	15	Quill	1	8015
4	Strip	1	8004	16	Screw	1	8016
5	Handle	1	8005	17	Handle	1	8017
6	Handle Wheel	1	8006	18	Lock Pin	1	8018
7	Handle Sleeve	1	8007	19	Center	1	8019
8	Shaft	1	8008	20	Lock Shaft	1	8020
9	Adjust Screw	1	8009	21	Base Shoe Block	2	8021
10	Spring	2	8010	22	Clamp Plate	1	8022
11	Index Ring	1	8011	23	Lock Shaft	1	8023
12	Sign Board	1	8012	24	Handle Sleeve	2	8024



# BED & SHAFTS



# CABINET & PANELS

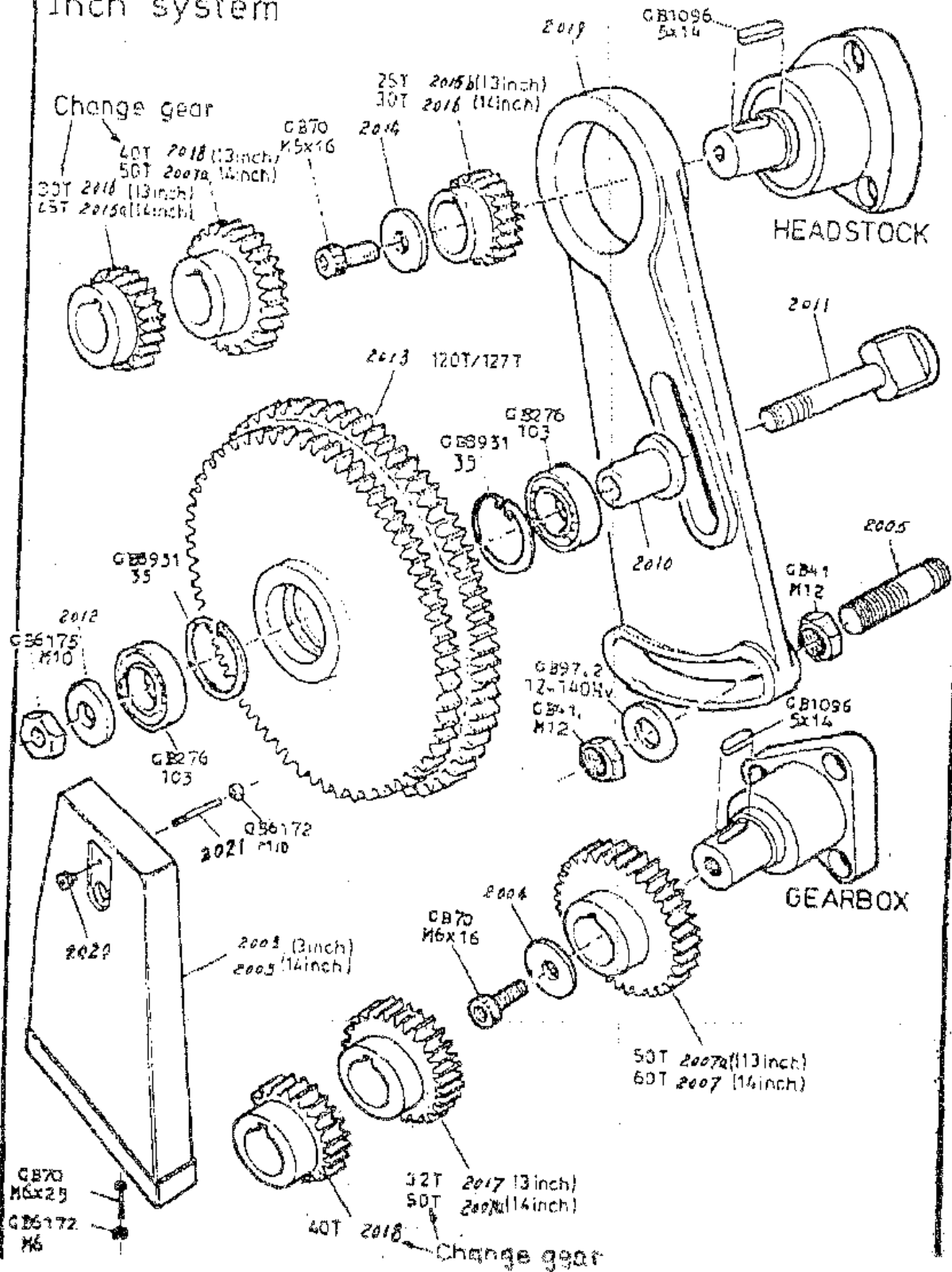


# CABINET, PANELS, BED & SHAFTS

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Bed	1	7001	34	Switch Box	1	7033
2	Sign Board	1	7002	35	Shaft	1	7034
3	Collar	1	7003	36	Pin Shaft	1	7035
4	Saddle	1	7004	37	Screw	1	7036
5	Rack	1	7005	38	Switch Box	1	7037
6	Lead Screw	1	7006	39	Handle	1	7038
7	Rod	1	7007	40	Collar	1	7039
8	Control Rod	1	7008	41	Screw	1	7040
9	Rear Splash Guard	1	7009	42	Screw	1	7041
10	Bracket	1	7010	43	Bushing	1	7042
11	Chip Pan	1	7011	44	Spring	1	7043
12	Collector	1	7012	45	Sleeve	1	7044
13	Bracket	1	7013	46	Lock Pin	1	7045
14	Cover	1	7014	47	Shifter	1	7046
15	Cover	1	7015	48	Key	1	7047
17	Right Stand	1	7017	49	Sleeve	1	7048
18	Oil Filter	1	7018	50	Bushing	1	7049
19	Cover	1	7019	51	Bushing	1	7050
20	Pin	1	7020	52	Cover	1	7051
21	Foot Plate	1	7021	53	Block	1	7052
22	Front Splash Guard	1	7022	54	Cover	1	7053
23	Angle Steel	2	7023	55	Screw	1	7054
24	Pin	1	7024	56	Screw	2	7055
25	Left Stand	1	7025	57	Handle Sleeve	1	7056
26	Shaft	1	7026	58	Spring	2	7057
27	Shaft	1	7027	59	Spring	1	7058
28	Shaft	1	7028	60	Spring	1	7059
29	Pulley	1	7029	61	Shaft	1	7060
31	Motor Plate	1	7030	62	Rack	1	7061
32	Spring	1	7031	63	Rack	1	7062
33	Cover	1	7032				

# SWING FRAME, END GEARS & COVER

Inch system

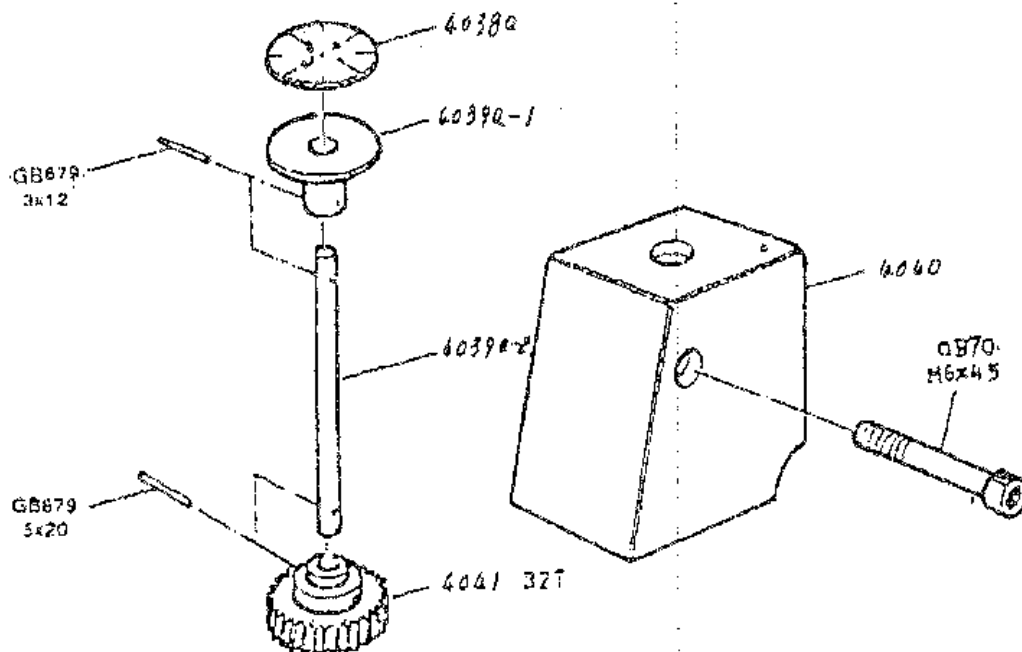


# SWING FRAME, END GEARES & COVER

Index	Parts name	QTY	Part No.	Index	Parts name	QTY	Part No.
1	Screw	1	2001	11	Shaft	1	2011
2	Angle Steel	1	2002	12	Washer	1	2012
3	Cover	1	2003	13	Gear	1	2013
4	Washer	1	2004	14	Washer	2	2014
5	Screw	1	2005	15	Change Gear	1	2015
6	Change Gear	1	2006	16	Change Gear	1	2016
7	Change Gear	1	2007	17	Change Gear	1	2017
8	Change Gear	1	2008	18	Change Gear	1	2018
9	Change Gear	1	2009	19	Quadrant	1	2019
10	Bushing	1	2010	20	Nut	2	2020
				21	Screw	1	2021

# THREADING DIALS

## INCH



## MM

