

CHAPTER 10

Parts list for 20" Series

MECHANICAL PARTS LIST FOR 20" SERIES

When ordering parts, please specify the following:

- 1. Series number**
- 2. Model & year of production**
- 3. Part number, page number & description**
- 4. Quantity**

CHAPTER 8

ELECTRICAL PARTS LIST AND CIRCUIT

8.1 ELECTRICAL PARTS LIST (CE)

Item designation	Description and function	Technical data	Quantity	Supplier	Remarks
T1	Transformer	Input-AC220/380V Output-AC110/24V 250VA	1		
QS1	Main power switch	220V/32A 380V/25A	1	BREMAS or equivalent	IEC-947 VDE0660
F1	Fuse blocks	32A/400V 10 x 38	3	Legrand or equivalent	NFC-63210
F2	Fuse blocks	32A/400V 10 x 38	1	Legrand or equivalent	NFC-63210
F1	Fuse	32A/220V 25A/380V	3	Legrand or equivalent	NFC-63210
F2	Fuse	6A/220V 4A/380V	1	Legrand or equivalent	NFC-63210
KM1 KA1	Magnetic contactors	100-A09NJ3-B24V Max. 9A 4KW	2	A.B. or equivalent	IEC-947 VDE0660
KM2 KM3	Magnetic contactors	100-A24NJ3-B24V Max. 24A 5.5KW	2	A.B. or equivalent	IEC-947 VDE0660
SQ3 SQ4	Limit switch(c.w) Limit switch(c.c.w)	Z-15GW22-B 15A 250VAC	2	Omrom or equivalent	EN-61058-1
SQ2	Limit switch (chuck)	Z-15GL2-B 15A 250VAC	2	Omrom or equivalent	EN-61058-1
SQ1	Limit switch(brake)	ATO-11-1-ZB A 230V/6A 400V/4A	1	Moeleler or equivalent	IEC-947 VDE0660
SQ5	Limit switch(door)	WL CA2-2 15A 250VAC	1	Omrom or equivalent	EN-61058-1
FR1	Spindle overload	193-BSC32 22-32A	1	A.B. or equivalent	IEC-947 VDE0660
FR2	Coolant overload	193-BSA70 0.4-0.6A	1	A.B. or equivalent	IEC-947 VDE0660
SB2 SB3	Switch button	E K10	2	Moeleler or equivalent	IEC-947 VDE0660
E-stop		E K01	1	Moeleler or equivalent	IEC-947 VDE0660

SB4	Push button(jog)	E K10	1	Moeleler or equivalent	IEC-947 VDE0660
HL1	Indicator(coolant)	EF Max.2W	1	Moeleler or equivalent	IEC-947 VDE0660
HL2	Indicator(spindle)	EF Max.2W	1	Moeleler or equivalent	IEC-947 VDE0660
HL3	Work lamp	GY-635 75W 24V 250VAC	1	HALOSTAR or equivalent	
TB1	Terminal blocks	3P 30A 600V	1	TEND or equivalent	
TB2	Terminal blocks	19P 30A 600V	1	TEND or equivalent	
TB3	Terminal blocks	6P 25A 600V	1	TEND or equivalent	

LS1: FORWARD LIMIT SWITCH	MP : COOLANT PUMP MAGNETIC SWITCH
LS2: REVERSE LIMIT SWITCH	PL1: POWER SOURCE INDICATOR
LS3: BRAKE LIMIT SWITCH	CR : BRAKE AUXILIARY RELAY
LS4: SAFETY LIMIT SWITCH	OL1: MAIN MOTOR OVER-CURRENT RELAY
LS5: CHUCK GUARD LIMIT SWITCH	OL2: PUMP MOTOR OVER-CURRENT RELAY
M2 : COOLANT PNMP	S1 : POWER SOURCE SELECTOR SWITCH
K1 : DOOR-TYPE SWITCH	S2 : COOLANT PUMP SWITCH
PC : PLUG BRACKET	PB1: JOGGING SWITCH
M1 : MAIN MOTOR	S3 : EMERGENCY STOP SWITCH
MF : FORWARD MAGNETIC SWITCH	TR : TRANSFORMER
MR : REVERSE MAGNETIC SWITCH	

8.2 POWER SOURCE WIRING

Be sure to carefully protect electric wires exposed outside of the machine, which are liable to be damaged by chips. This will reduce accidents. The respective wirings should be connected with terminals R,S,T, at the control housing

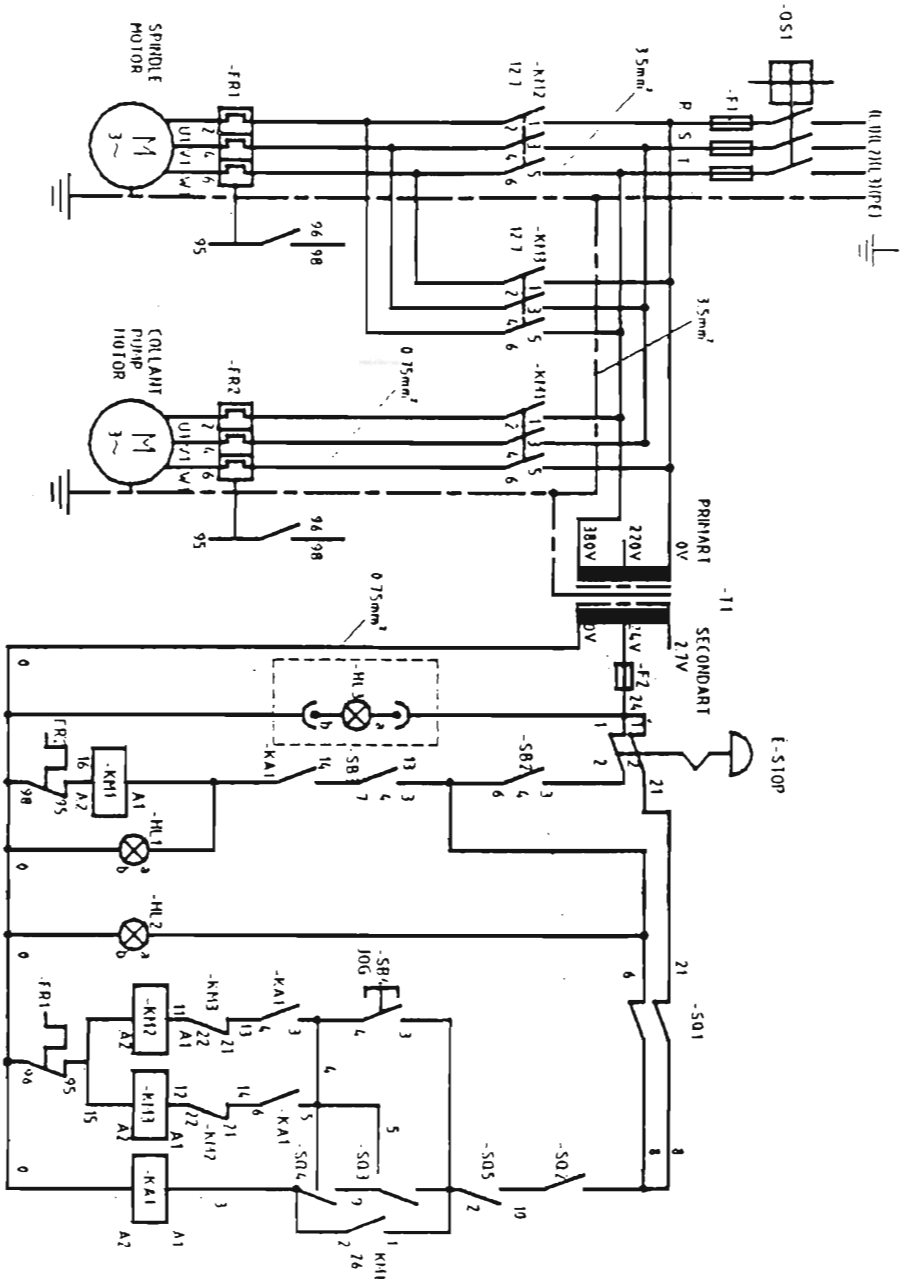
8.2.1 CAUTION

After wiring, check the spindle rotating direction. Turn on the power source switch and push the jogging switch button (T) If spindle turns forward the wiring is correct. If not, switch two of the three wires (R,S,T.). Then check the rotation again.

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 switch, reset the thermal overload relay and restart the machine.

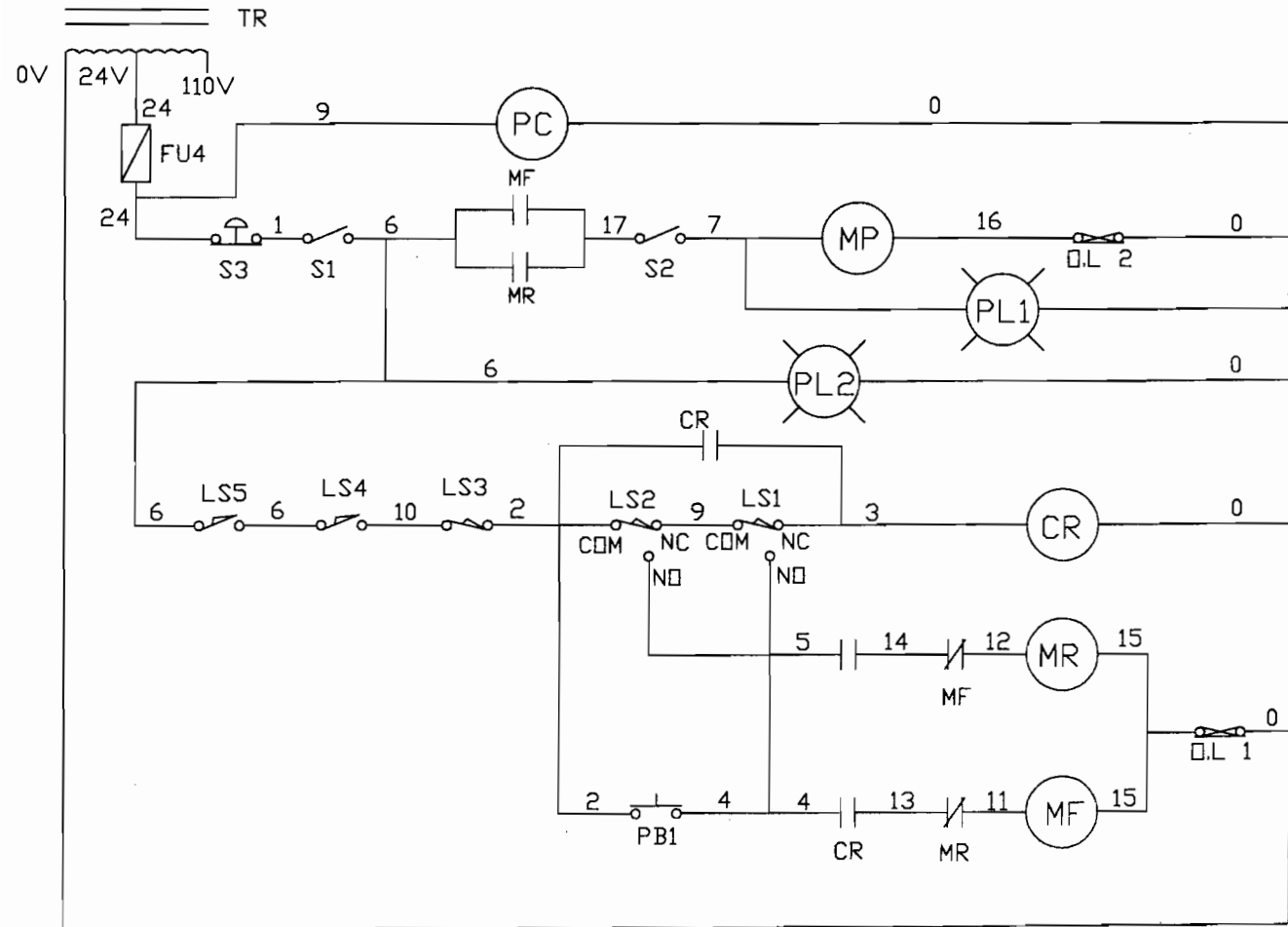
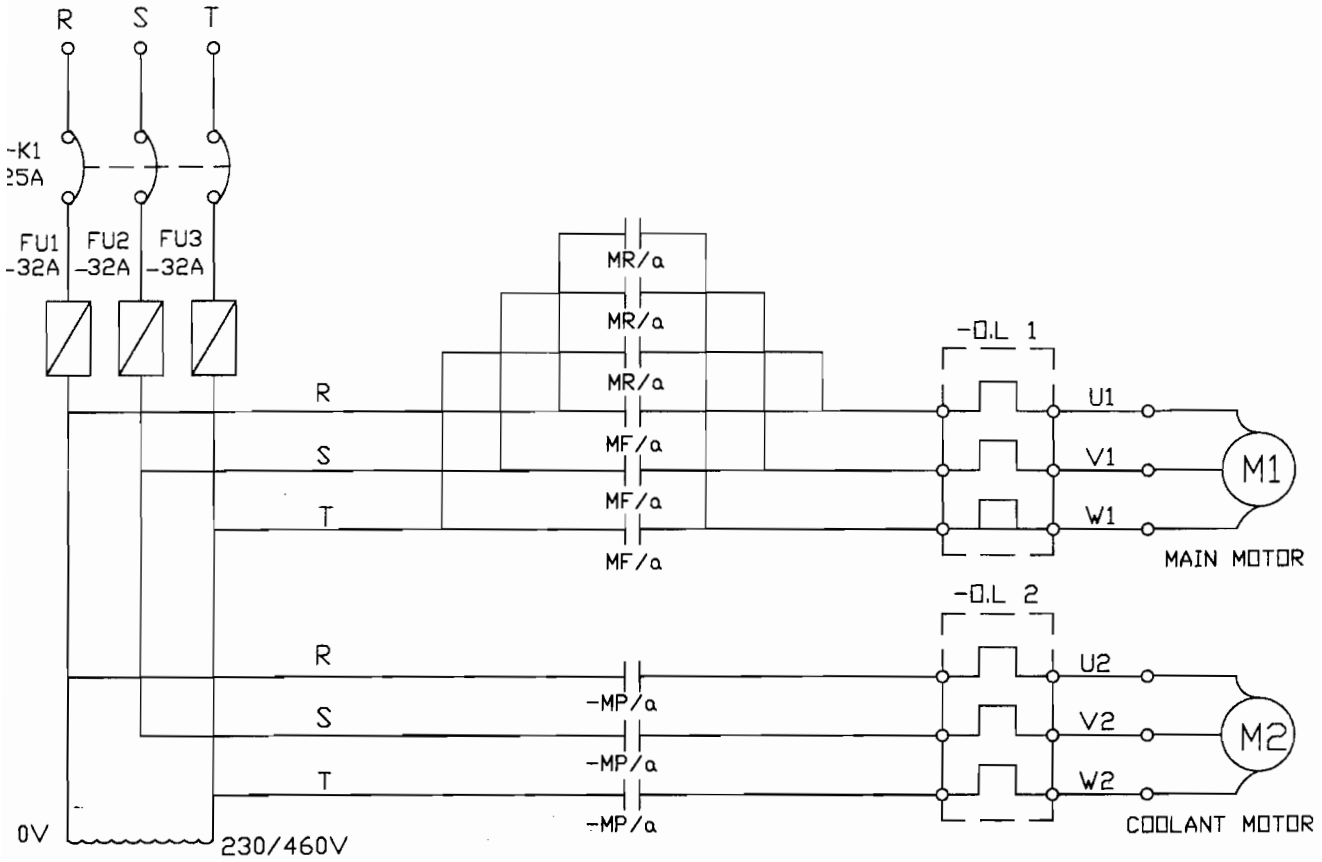
8.2 ELECTRICAL CIRCUIT

CE Standard

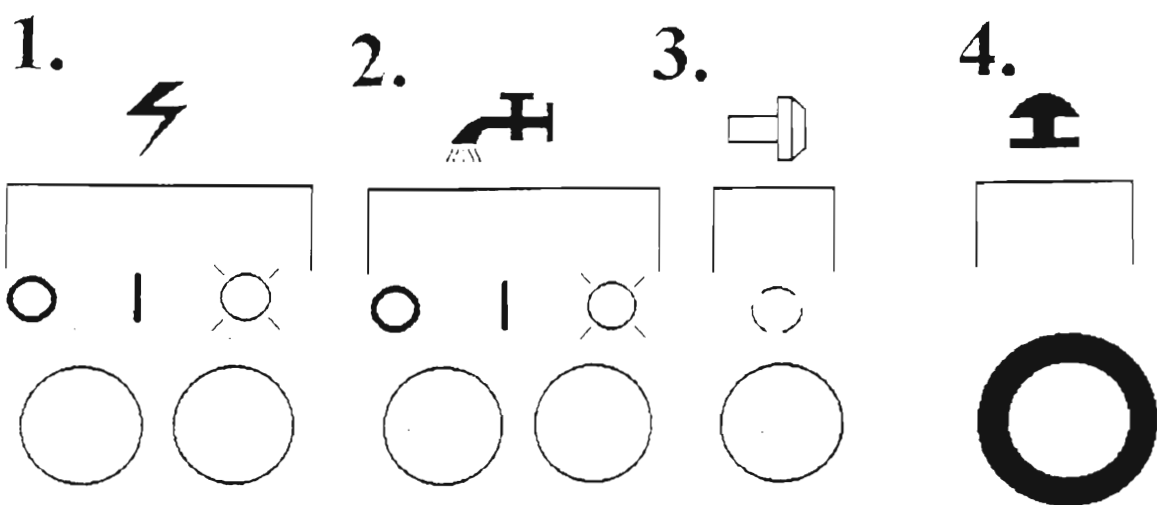


DESCRIPTION	SYMBOL
MAIN POWER SWITCH	
OVERLOAD	
TRANSFORMER	
MOTOR	
E-STOP	
LAMP	
CONTACTOR	
FUSE BLOCK	

U.S. Standard 17" Control Circuit

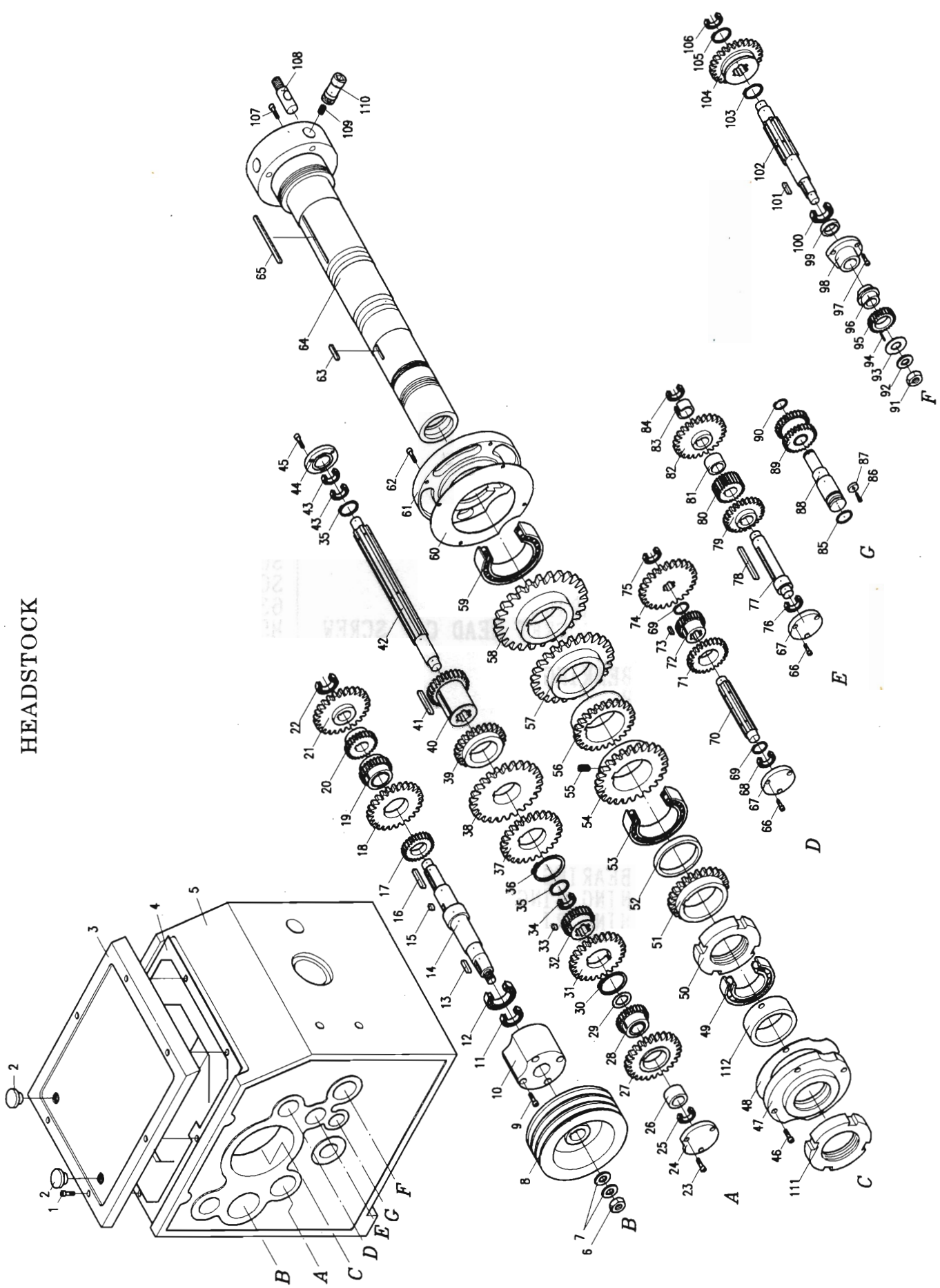


8.3 PUSH BUTTON FOR PANEL



- 1. Power Supply Button
- 2. Coolant Control Button
- 3. Spindle Jog Button
- 4. Emergency Stop Button

HEADSTOCK



HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x25L	6
2	5H-40800	PLUG	Plastic	2
3	7H-30020	COVER	FC20	1
4	7H-40830N	PACKING	PACKING	1
5	20H-10010	HEAD STOCK	FC25	1
6		NUT	M16xP2.0	1
7		WASHER	Φ 16	2
8	18H-40310	PULLEY	FC20	1
9		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	4
10	7H-40300	COVER	FC20	1
11		BALL BEARING	6006Z	1
12		BALL BEARING	6007-2RS	1
13		KEY	7x7x28L	1
14	7H-30450	SHAFT	S45C	1
15		KEY	7x7x12L	1
16		KEY	7x7x45L	1
17	7H-40040	GEAR	SCM21,23T	1
18	7H-40050B	GEAR	SCM21,43T	1
19	7H-40050A	GEAR	SCM21,23T	1
20	7H-40060	GEAR	SCM21,23T	1
21	7H-40070	GEAR	SCM21,43T	1
22		BALL BEARING	6304	1
23		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
24	7H-40330	COVER	Plastic	1
25		BALL BEARING	6304	1
26	7H-40360	COLLAR	SS41	1
27	7H-40080B	GEAR	SCM21,43T	1
28	7H-40080A	GEAR	SCM21,23T	1
29	7H-40500	WASHER	SS41	1
30		RETAINING RING	S38	1
31	7H-40090B	GEAR	SCM21,43T	1
32	7H-40090A	GEAR	SCM21,23T	1
33		KEY	7x7x12L	2
34		BALL BEARING	62/32	1
35		RETAINING RING	S32	2
36		RETAINING RING	R65	1
37	7H-40100B	GEAR	SCB21,39T	1
38	7H-40100C	GEAR	SCM21,47T	1
39	7H-40100D	GEAR	SCM21,32T	1
40	7H-40100A	GEAR	SCM21,25T	1
41		KEY	10x8x58L	1
42	7H-30110	SHAFT	SCM4	1
43		BALL BEARING	6004	2
44	7H-40320	COVER	AL	1
45		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
46		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x20L	4
47	20H-40290	COVER	FC20	1
48	7H-40960	PACKING		1
49		BALL BEARING	32215	1
50	20H-40480	LOCKING NUT	AN16	1
51	7H-40160	GEAR	SCM21,44T	1
52	7H-40910	SPARCER	FC20	1
53		BALL BEARING	32016X	1
54	7H-40150	GEAR	SCM21,47T	1
55		HEXAGON SOCKET SET SCREW	M10xP1.5x10L	1

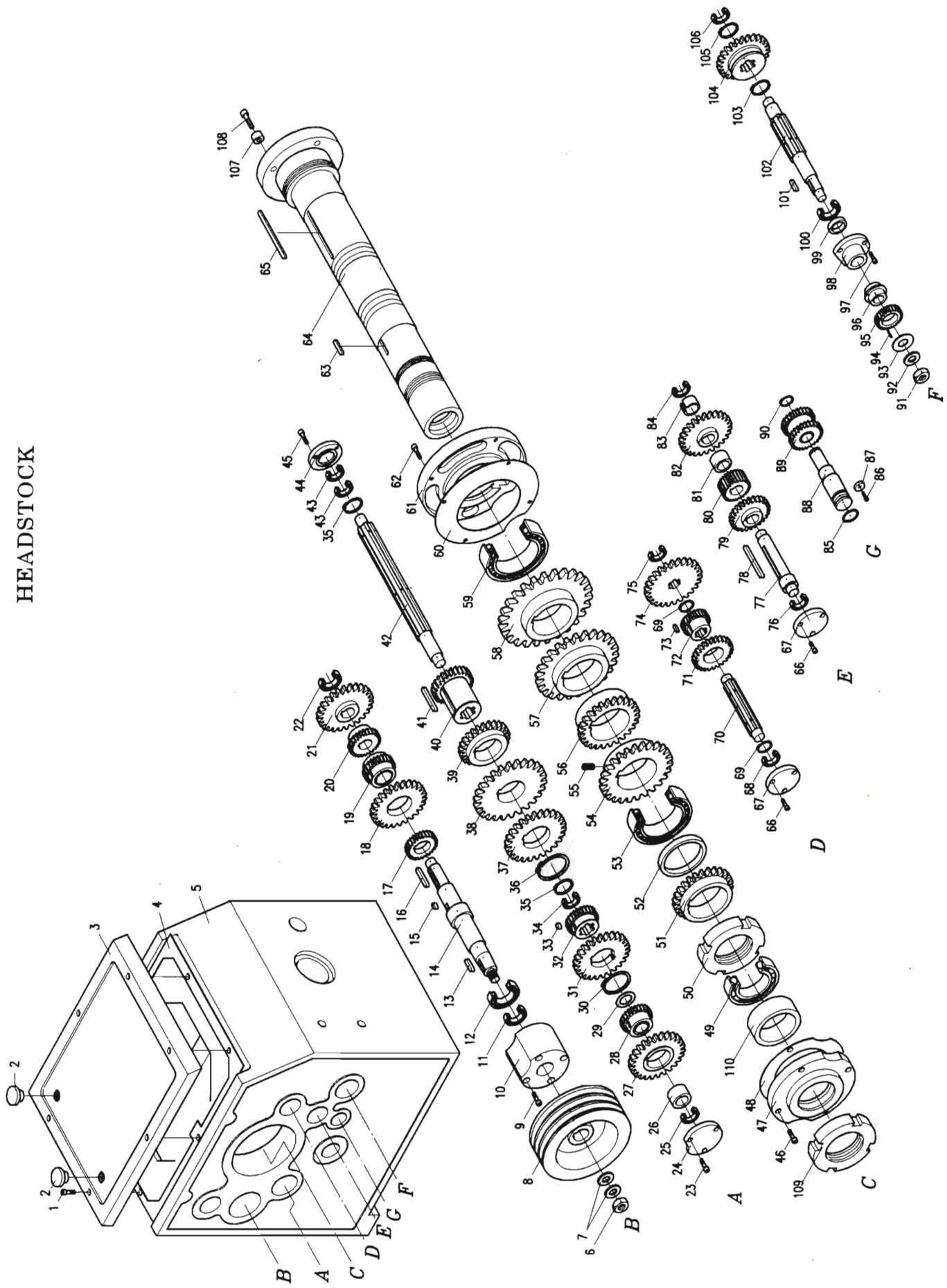
HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56	7H-40140	GEAR	SCM21,39T	1
57	7H-30130	GEAR	SCM21,54T	1
58	7H-30120	GEAR	SCM21,61T	1
59		BALL BEARING	32017X	1
60	7H-40970	PACKING		1
61	7H-40280D	FRONT COVER	FC20	1
62		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x25L	4
63		KEY	12x8x22L	1
64	20H-30030D	SPINDLE	S45C	1
65		KEY	15x10x140L	1
66		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	6
67	7H-40340	COVER	Plastic	2
68		BALL BEARING	6004	1
69		RETAINING RING	S25	2
70	7H-30190	SHAFT	S45C	1
71	7H-40180B	GEAR	SCM21,30T	1
72	7H-40180A	GEAR	SCM21,20T	1
73		KEY	5x5x17L	1
74	7H-40170	GEAR	SCM21,44T	1
75		BALL BEARING	6004	1
76		BALL BEARING	6004	1
77	7H-40260	SHAFT	S45C	1
78		KEY	7x7x80L	1
79	7H-40200	GEAR	SCM21,30T	1
80	7H-40240	GEAR	SCM21,20T	1
81	7H-40380	COLLER	SS41	1
82	7H-40250	GEAR	SCM21,40T	1
83	7H-40370	COLLER	SS41	1
84		BALL BEARING	6004	1
85		"O" RING	G-26	1
86		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	1
87	7H-40510	WASHER	SS41	1
88	7H-40270	SHAFT	S45C	1
89	7H-40210	GEAR	SCM21,24T	1
90		RETAINING RING	S22	1
91		NUT	M16	1
92		WASHER	φ 16	1
93	20B-40430	WASHER	SS41	1
94		PIN	φ 3	1
95	20B-40110	GEAR	S45C,28T	1
96	20B-40970	COLLER	SS41	1
97		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
98	7H-40350	COVER	AL	1
99		OIL SEAL	25x35x8	1
100		BALL BEARING	6005CMZ	1
101		KEY	6x6x27L	1
102	7H-30230	SHAFT	S45C	1
103		RETAINING RING	S32	1
104	7H-40220	GEAR	SCM21,40T	1
105		RETAINING RING	S32	1
106		BALL BEARING	6204	1
107	7H-40400	HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	6
108	7H-40410	CAM BOLT	S45C	6
109	7H-40420	SPRING	SWPA	6
110	7H-30390	CAM	SCM21	6

HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
111 112	20H-40040 20H-40300	LOCKING NUT SPARCER	AN15 S45C	1 1

HEADSTOCK



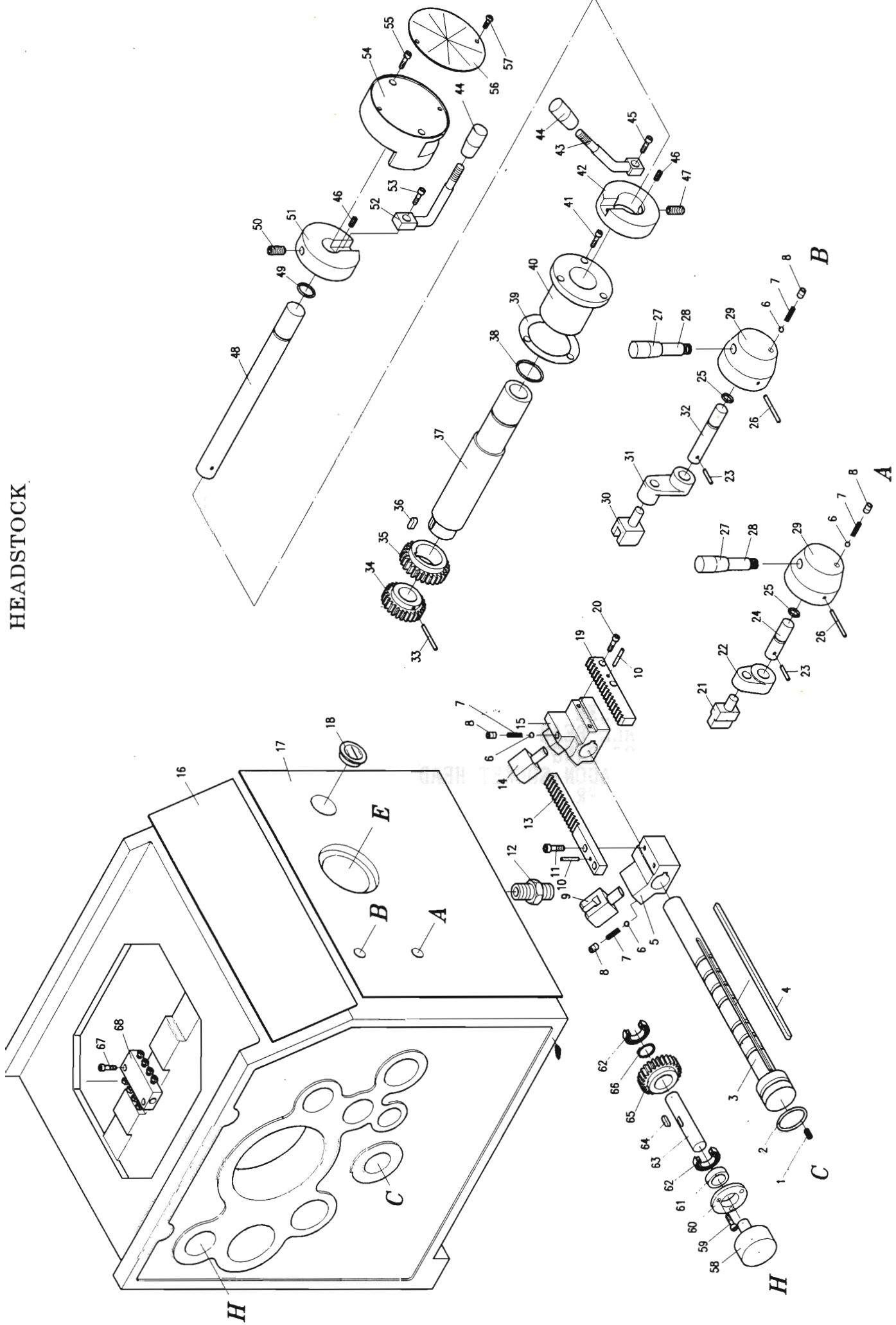
HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x25L	6
2	5H-40800	PLUG	Plastic	2
3	7H-30020	COVER	FC20	1
4	7H-40830N	PACKING	PACKING	1
5	20H-10010	HEAD STOCK	FC25	1
6		NUT	M16xP2.0	1
7		WASHER	∅ 16	2
8	18H-40310	PULLEY	FC20	1
9		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	4
10	7H-40300	COVER	FC20	1
11		BALL BEARING	6006Z	1
12		BALL BEARING	6007-2RS	1
13		KEY	7x7x28L	1
14	7H-30450	SHAFT	S45C	1
15		KEY	7x7x12L	1
16		KEY	7x7x45L	1
17	7H-40040	GEAR	SCM21,23T	1
18	7H-40050B	GEAR	SCM21,43T	1
19	7H-40050A	GEAR	SCM21,23T	1
20	7H-40060	GEAR	SCM21,23T	1
21	7H-40070	GEAR	SCM21,43T	1
22		BALL BEARING	6304	1
23		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
24	7H-40330	COVER	Plastic	1
25		BALL BEARING	6304	1
26	7H-40360	COLLAR	SS41	1
27	7H-40080B	GEAR	SCM21,43T	1
28	7H-40080A	GEAR	SCM21,23T	1
29	7H-40500	WASHER	SS41	1
30		RETAINING RING	S38	1
31	7H-40090B	GEAR	SCM21,43T	1
32	7H-40090A	GEAR	SCM21,23T	1
33		KEY	7x7x12L	2
34		BALL BEARING	62/32	1
35		RETAINING RING	S32	2
36		RETAINING RING	R65	1
37	7H-40100B	GEAR	SCB21,39T	1
38	7H-40100C	GEAR	SCM21,47T	1
39	7H-40100D	GEAR	SCM21,32T	1
40	7H-40100A	GEAR	SCM21,25T	1
41		KEY	10x8x58L	1
42	7H-30110	SHAFT	SCM4	1
43		BALL BEARING	6004	2
44	7H-40320	COVER	AL	1
45		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
46		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x20L	4
47	20H-40290	COVER	FC20	1
48	7H-40960	PACKING		1
49		BALL BEARING	32215	1
50		LOCKING NUT	AN16	1
51	7H-40160	GEAR	SCM21,44T	1
52	7H-40910	SPARCER	FC20	1
53		BALL BEARING	32016X	1
54	7H-40150	GEAR	SCM21,47T	1
55		HEXAGON SOCKET SET SCREW	M10xP1.5x10L	1

HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56	7H-40140	GEAR	SCM21,39T	1
57	7H-30130	GEAR	SCM21,54T	1
58	7H-30120	GEAR	SCM21,61T	1
59		BALL BEARING	32017X	1
60	7H-40970	PACKING		1
61	7H-40280A	FRONT COVER	FC20	1
62		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x25L	4
63		KEY	12x8x22L	1
64	20H-30030A	SPINDLE	S45C	1
65		KEY	15x10x140L	1
66		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	6
67	7H-40340	COVER	Plastic	2
68		BALL BEARING	6004	1
69		RETAINING RING	S25	2
70	7H-30190	SHAFT	S45C	1
71	7H-40180B	GEAR	SCM21,30T	1
72	7H-40180A	GEAR	SCM21,20T	1
73		KEY	5x5x17L	1
74	7H-40170	GEAR	SCM21,44T	1
75		BALL BEARING	6004	1
76		BALL BEARING	6004	1
77	7H-40260	SHAFT	S45C	1
78		KEY	7x7x80L	1
79	7H-40200	GEAR	SCM21,30T	1
80	7H-40240	GEAR	SCM21,20T	1
81	7H-40380	COLLER	SS41	1
82	7H-40250	GEAR	SCM21,40T	1
83	7H-40370	COLLER	SS41	1
84		BALL BEARING	6004	1
85		"O" RING	G-26	1
86		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	1
87	7H-40510	WASHER	SS41	1
88	7H-40270	SHAFT	S45C	1
89	7H-40210	GEAR	SCM21,24T	1
90		RETAINING RING	S22	1
91		NUT	M16	1
92		WASHER	φ 16	1
93	20B-40430	WASHER	SS41	1
94		PIN	φ 3	1
95	20B-40110	GEAR	S45C,28T	1
96	20B-40970	COLLER	SS41	1
97		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
98	7H-40350	COVER	AL	1
99		OIL SEAL	25x35x8	1
100		BALL BEARING	6005CMZ	1
101		KEY	6x6x27L	1
102	7H-30230	SHAFT	S45C	1
103		RETAINING RING	S32	1
104	7H-40220	GEAR	SCM21,40T	1
105		RETAINING RING	S32	1
106		BALL BEARING	6204	1
107	7H-40460	DRIVE KEY	SS41	1
108		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	1
109	20H-40040	LOCKING NUT	AN15	1
110	20H-40300	SPARCER	S45C	1

HEADSTOCK



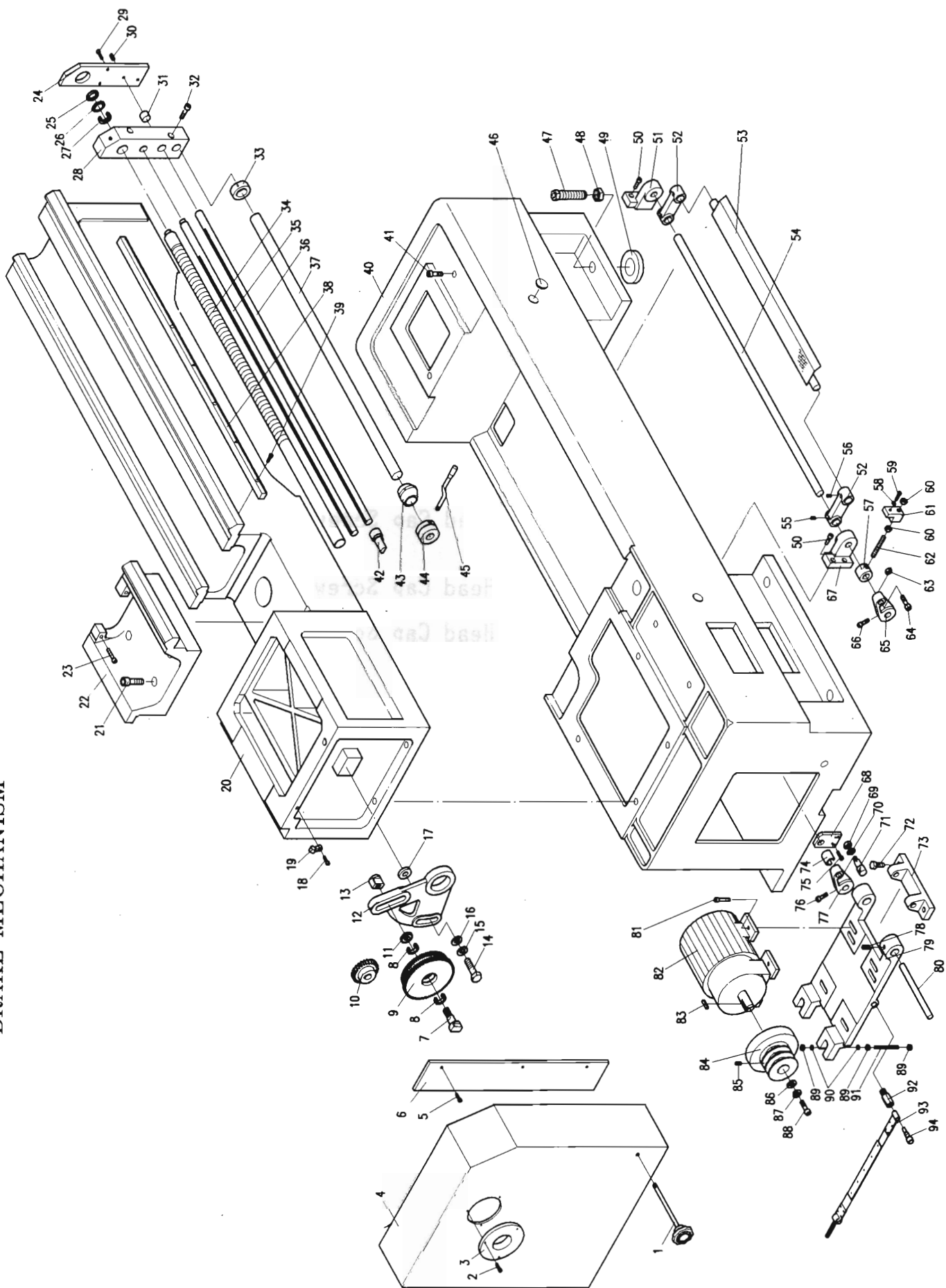
HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1		HEALESS, SOCKET SET SCRWE	M6xP1.0x6L	1
2		"O" RING	P26	1
3	20H-40660	SHAFT	SS41	1
4		KEY	6x6x230L	1
5	7H-40630	ROCKER ARM	FC15	1
6		STEEL BALL	∅ 1/4"	4
7		SPRING	O.D.6xWIREx0.8	4
8		HEALESS, SOCKET SET SCRWE	M8xP1.25x6L	4
9	7H-40650	CHANGE SPEED BLOCK	BC2	1
10		PIN	∅ 4x20L	2
11		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x14L	2
12	20H-40920	CONTROLLER OF PROPORTION	SS41	1
13	7H-40640	RACK	SS41	1
14	7H-40620	CHANGE SPEED BLOCK	BC2	1
15	7H-40610	ROCKER ARM	FC15	1
16	CH-20H1	NAME PLATE	AL	1
17	CH-20H2	NAME PLATE	AL	1
18		OIL WINDOWS	∅ 29	1
19	7H-40600	RACK	S45C	1
20		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x14L	2
21	7H-40670	CHANGE SPEED BLOCK	BC2	1
22	7H-40680	ROCKER ARM	FC15	1
23		PIN	∅ 5x36L	1
24	7H-40690	SHAFT	SS41	1
25		"O" RING	P12	2
26		PIN	∅ 3x45L	2
27	7A-40580	KNOB	Plastic	2
28	3A-40380	LEVER	SS41	2
29	3H-40380	HANDLE BOSS	SS41	2
30	7H-40700	CHANGE SPEED BLOCK	BC2	1
31	7H-40710	ROCKER ARM	FC15	1
32	7H-40730	SHAFT	SS41	1
33		PIN	∅ 5x40L	1
34	7H-40590	GEAR	S45C,26T	1
35	7H-40580	GEAR	S45C,26T	1
36		KEY	6x6x16L	1
37	7H-40530	CHANGE SPEED SHAFT	S45C	1
38		"O" RING	P32	1
39		PACKING	PACKING	1
40	7H-40540	BUSHING	FC20	1
41		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
42	7H-40550	HANDLE BOSS	SS41	1
43	7H-40760	LEVER	SS41	1
44	7A-40580	KNOB	Plastic	2
45		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x12L	1
46		HEALESS, SOCKET SET SCRWE	M6xP1.0x6L	2
47		HEALESS, SOCKET SET SCRWE	M10xP1.5x10L	1
48	7H-40520	CHANGE SPEED ROD	S35C	1
49		"O" RING	P20	1
50		HEALESS, SOCKET SET SCRWE	M10xP1.5x10L	1
51	7H-40560	HANDLE BOSS	SS41	1
52	7H-40800	LEVER	SS41	1
53		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x12L	1
54	7H-30570	COVER	Plastic	1
55		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x45L	2

HEADSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56		NAME PLATE	AL	1
57		ROUND HEAD SCREW	M5xP0.8x8L	2
58	7L-40070	PUMP		1
59		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	3
60	7L-40010	COVER	SS41	1
61	7L-40040	COLLER	SS41	1
62		BEARING	6203	2
63	7L-40020	SHAFT	SS41	1
64		KEY	5x5x16	1
65	7L-40030	GEAR	Plastic	1
66		SNAP RING	S-20	1
67		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x20L	2
68	7L-40150	OIL-DISTRIBUTING SEAT		1

BRAKE MECHANISM



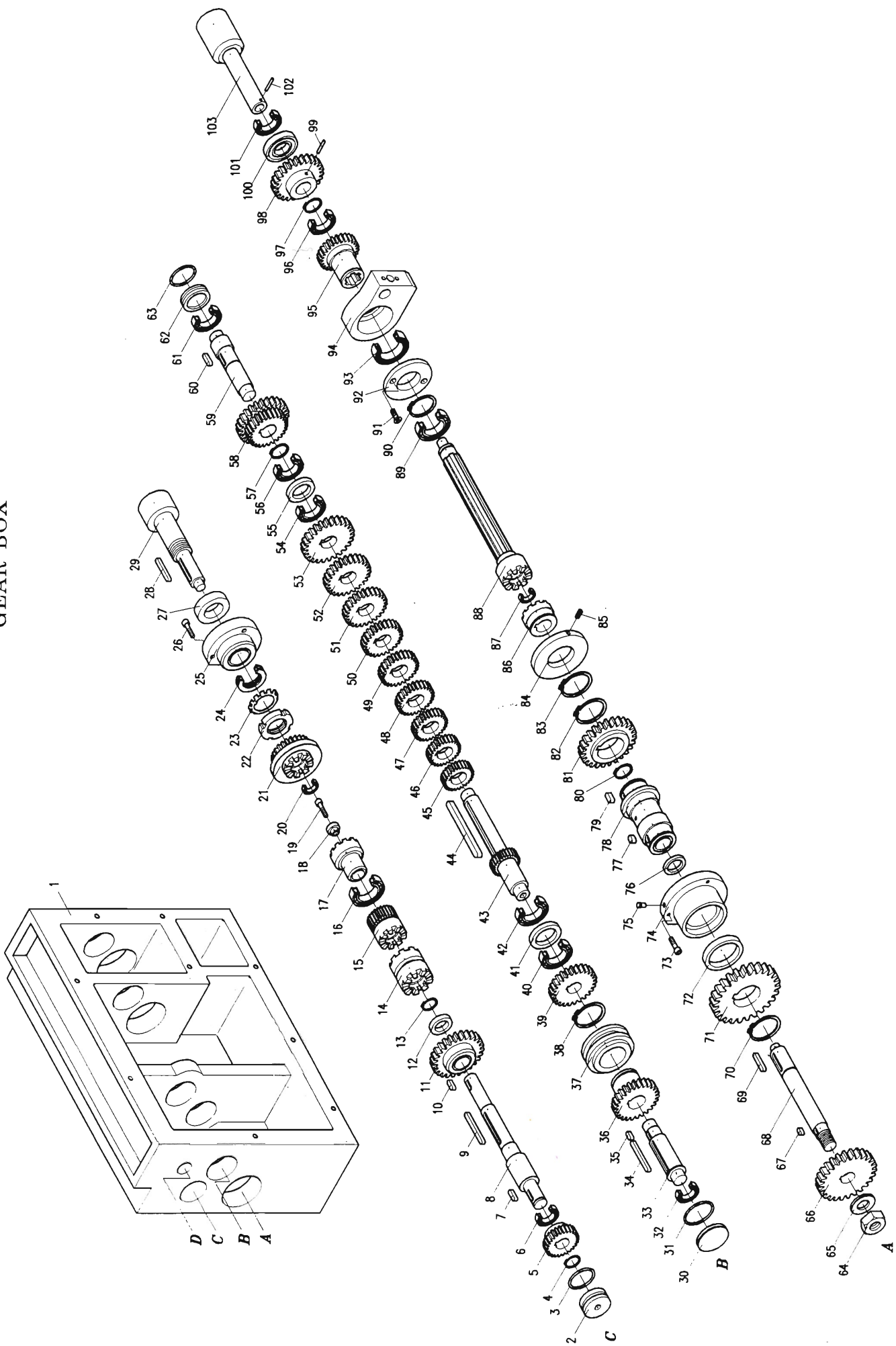
BRAKE MECHANISM

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1	7B-40220	Locating rod	SS41	1
2		Hexagon Socket Head Cap Screw	M6xP1.0x12L	3
3	7B-40330	Cover	SS41	1
4	20B-20170	Cover	AL	1
5		Hexagon Socket Head Cap Screw	M6xP1.0x20L	3
6	20B-40180	Side Plate	SS41	1
7	7B-40140	Shaft	SS41	1
8		Ball Bearing	6004	2
9	20B-30120	Gear	FC15 120T×127T	1
10	20B-40440	Gear	S45C, 28T	1
11	7B-40150	Washer	SS41	1
12	7B-40160	Quadrant Bracket	FC15	1
13	7B-40130	Sliding Block	SS41	1
14		Hex. Cap Screw	M16xP2.0x50L	1
15		Spring Washer	Φ 16	1
16		Washer	Φ 16	1
17	7B-40470	Washer	SS41	1
18		Hexagon Socket Head Cap Screw	3/16W24x3/8L	1
19		Cable Clamps	SS41	1
20	7B-30010	Bed	FC25	1
21		Hexagon Socket Head Cap Screw	M12xP1.5x80L	4
22	7B-40720	Gap	FC25	1
23		Hexagon Socket Head Cap Screw	M8xP1.25x45L	2
24	7B-30200	Bracket, Cover	Plastic	1
25		Nut	S45C	1
26		Washer	SPC	1
27		Thrust Bearing	51105	1
28	7B-30190	Bracket	FC15	1
29		Hexagon Socket Head Cap Screw	M6xP1.0x12L	4
30		Hexagon Socket Set Screw	M8xP1.25x16L	1
31	7B-40280	Adjusting Block	SS41	1
32		Hexagon Socket Head Cap Screw	M10xP1.5x80L	2
33	7B-41290	Shaft Collar	SS41	1
34	7B-40040	Lead Screw	SS41	1
35	7B-40050	Feed Rod	SS41	1
36	7B-40060	Starting Rod	SS41	1
37	7B-40260	Stoper Rod	SS41	1
38	7B-40030	Rack	SS41	1
39		Hexagon Socket Head Cap Screw	M6xP1.0x25L	6
40	7B-10020	End Plinte	FFC25	1
41		Hexagon Socket Head Cap Screw	M10xP1.5x80L	3
42	7B-40460	Shaft	Plastic	1
43	7B-40070	Position Collar	Plastic	4
44	7B-41080	Graduate Collar	SS41	1
45	7B-41490	Lever	SS41	1
46	7B-40790	Cover	SPC	4
47	7B-40950	Foundation Bolt	SS41	6
48	7B-41270	Nut	SS41	6
49	7B-41240	Base Block	SS41	6
50		Hexagon Socket Head Cap Screw	M8xP1.25x20L	4
51	7B-41160-1	Bracket	FC15	1
52	7B-41170	Brakt Arm	FC15	2
53	7B-40300	Pedal	SS41	1
54	7B-40310	Shaft	SS41	1
55		Hexagon Socket Set Screw	M8xP1.25x16L	2

BRAKE MECHANISM

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56		Hexagon Socket Set Screw	M8xP1.25x12L	2
57	7B-41570	Coller	SS41	1
58		Washer	Φ 6	1
59		Hexagon Socket Head Cap Screw	M6xP1.0x25L	1
60		Nut	M10	2
61	7B-41560	Base	FC20	1
62	7B-41580	Blot	SS41	1
63		Nut	M10	2
64		Hexagon Socket Head Cap Screw	M10xP1.5x80L	1
65	7B-40360CA	Brack Arm	FC15	1
66		Hexagon Socket Head Cap Screw	M8xP1.25x30L	1
67	7B-41160-2	Bracket	FC15	1
68	7B-41260	Bracket	FC15	1
69		Nut	M10	1
70		Washer	Φ 10	1
71	7B-40370	Shaft	SS41	1
72		Hex. Cap Screw	M10xP1.5x35L	3
73	7B-41190	Support Base	FC15	1
74	7B-41300	Coller	SS41	1
75		Hexagon Socket Head Cap Screw	M6xP1.0x20L	2
76		Hexagon Socket Head Cap Screw	M8xP1.25x25L	1
77	7B-40360	Brack Arm	FC15	1
78		Hexagon Socket Head Cap Screw	M10xP1.5x10L	1
79	7B-30270	Motor Base	FC15	1
80	7B-41130	Shaft	SS41	1
81		Hexagon Socket Head Cap Screw	M10xP1.5x50L	4
82		Motor	5HP / 7-1/2HP	1
83		Key	6x6x20L	1
84	7B-40320	Motor Pully	FC15	1
85		Hexagon Socket Set Screw	M8xP1.25x12L	1
86	7B-40820	Washer	SS41	1
87		Spring Washer	Φ 16	1
88		Hexagon Socket Head Cap Screw	M10xP1.5x50L	1
89		Nut	M16	6
90		Washer	Φ 16	4
91	7B-41120	Blot	SS41	2
92	7B-40340	Blot	SS41	1
93	7B-30350	Brake Band	5HP / 7-1/2HP	1
94		Hexagon Socket Head Cap Screw	M10xP1.5x40L	1

GEAR BOX



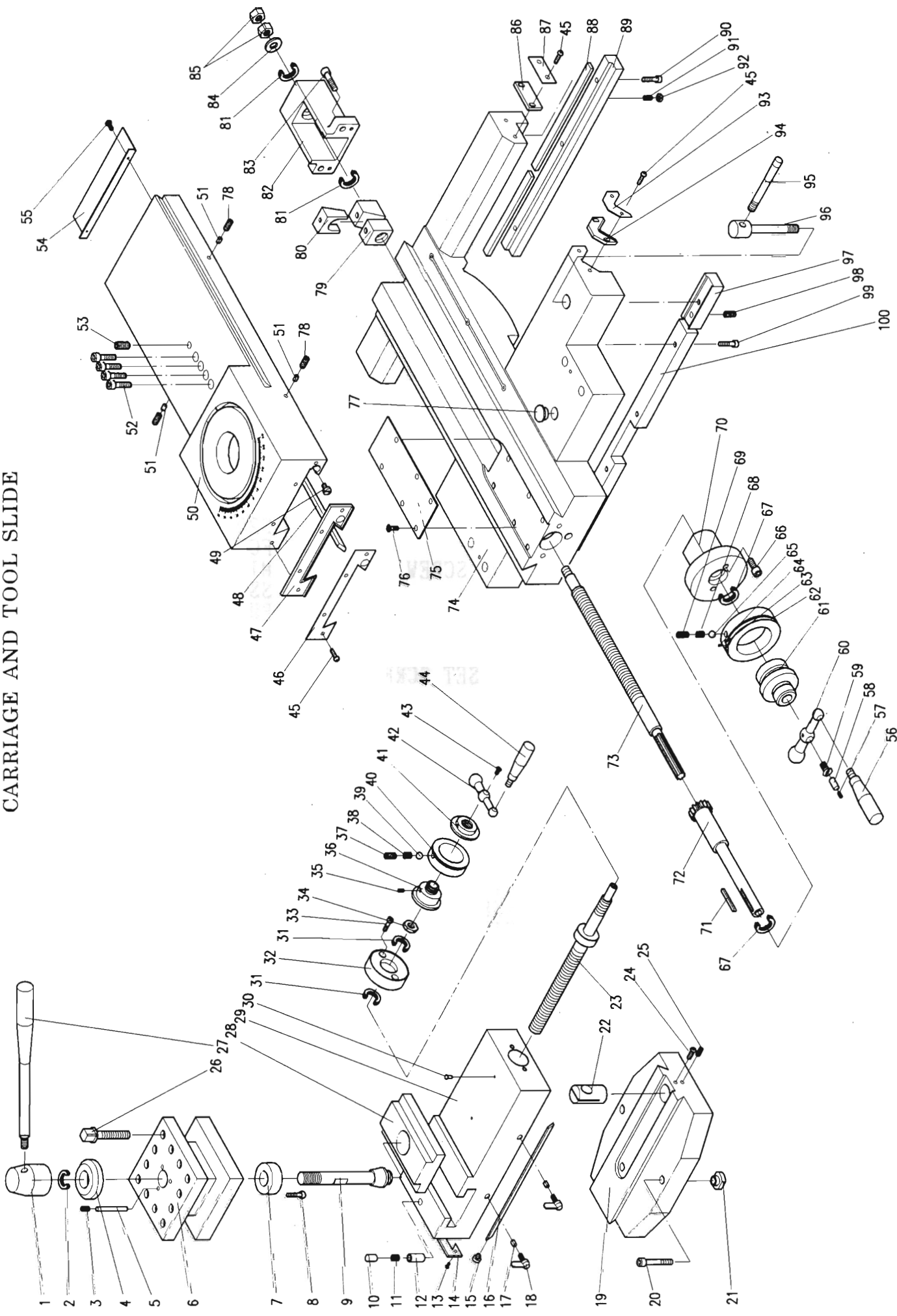
GEAR BOX

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1	7G-30010	Gear box	FC20	1
2	7G-40140	Hole plug	SS41	1
3		"O" Ring	P28	1
4	CS-17	Snap ring	C type. I.D.17	1
5	7G-40040	Supr gear	S45C, M2x20T	1
6	BB-6003	Ball bearing	#6003	1
7	KP-5517	Key	5x5x17	1
8	7G-40030	Shaft	S45C	1
9	KP-5551	Key	5x5x51	1
10	KP-5515	Key	5x5x15	1
11	7G-40050	Clutch gear	S45C, M2x32Tx18T	1
12	7G-40060	Space collar	SS41	1
13	CS-17	Snap ring	C type. I.D.17	1
14	7G-40070	Clutch gear	S45C, M2x18T	1
15	7G-40080	Clutch gear	S45C, M2x16T	1
16	BB-6005	Ball bearing	#6005	1
17	7G-40090	Clutch gear	S45C	1
18	7G-40750	Washer	SS41	1
19	SH-0516	Socket head cap screw	M5xP0.8x16L	1
20	BB-6001	Ball bearing	#6001	1
21	7G-40100	Clutch gear	S45C, M2x24T	1
22		Locking Nut	AN5	1
23		Locking Washer	AW5	1
24	BS-51105	Thrust bearing	#51105	1
25	7G-40120	Cover	FC15	1
26	SH-0516	Socket head cap screw	M5xP0.8x16L	3
27		Oil Seal	25x35x5	1
28	KP-5536	Key	5x5x36L	1
29	7G-40130	Shaft	S45C	1
30	7G-40150B	Hole plug	SS41	1
31		"O" Ring	P35	1
32	BB-16003	Ball bearing	#16003	1
33	7G-40150A	Shaft	S45C	1
34	KP-5550	Key	5x5x50	1
35	KP-5513	Key	5x5x13	1
36	7G-40170	Spur gear	S45C, M2x28T	1
37	7G-40180	Rocking collar	SS41	1
38	CS-35	Snap ring	C type. I.D.35	1
39	7G-40160	Spur gear	S45C, M2x28T	1
40	BB-6203	Ball bearing	#6203	1
41	7G-40190	Space collar	SS41	1
42	BB-6203	Ball bearing	#6203	1
43	7G-40200	Gear shaft	S45C	1
44	KP-7790	Key	7x7x90L	1
45	7G-40210	Cupr gear	S45C, M2x18T	1
46	7G-40220	Cupr gear	S45C, M2x19T	1
47	7G-40230	Cupr gear	S45C, M2x20T	1
48	7G-40240	Cupr gear	S45C, M2x22T	1
49	7G-40250	Cupr gear	S45C, M2x23T	1
50	7G-40260	Cupr gear	S45C, M2x24T	1
51	7G-40270	Cupr gear	S45C, M2x26T	1
52	7G-40280	Cupr gear	S45C, M2x28T	1
53	7G-40290	Cupr gear	S45C, M2x32T	1
54	BB-6003	Ball bearing	#6003	1
55	7G-40320	Space collar	SS41	1

GEAR BOX

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56	BB-6003	Ball bearing	#6003	1
57	CS-20	Snap ring	C type. I.D.20	1
58	7G-40310	Supr gear	S45C, M2.25x28T	1
59	7G-40300	Shaft	SS41	1
60	KP-5518	Key	5x5x18L	1
61	BB-6003	Ball bearing	#6003	1
62	7G-40330	Hole plug	SS41	1
63		"O" Ring	P28	1
64	N-16	Hexagon nut	M16xP2.0	1
65	WP-16	Washer	M16	1
66	20G-40490	Spur gear	S45C. M1.75x42T	1
67	KP-5510	Key	5x5x10L	1
68	7G-40340	Shaft	S45C	1
69	KP-5528	Key	5x5x28L	1
70	CS-35	Snap ring	C type. I.D.35	1
71	20G-40480	Spur gear	S45C, M1.75x49T	1
72		Oil Seal	40x50x8	1
73	SH-0516	Socket head cap screw	M5xP0.8x16L	3
74	7G-40450	Shaft cover	FC15	1
75	OB-04	Oiler	∅ 1/4"	1
76		Oil Seal	20x28x4	1
77	KP-6610	Key	6x6x10L	1
78	7G-40360	Socket shaft	S45C	1
79	KP-6615	Key	6x6x15L	1
80	CS-20	Snap ring	C type. I.D.20	1
81	7G-40350	Spur gear	S45C, M2x36T	1
82	CS-35	Snap ring	C type. I.D.35	1
83	CS-35	Snap ring	C type. I.D.35	1
84	7G-40370	Guide collar	BC2	1
85	SS-0508	Socket set screw	M5xP0.8x8L	1
86	7G-40380	Face fear	S45C, M2x17T	1
87	BB-6001	Ball bearing	#6001	1
88	7G-40390	Spline shaft	S45C	1
89	BB-6205	Ball bearing	#6205	1
90	CS-30	Snap ring	C type. I.D.30	1
91	SH-0516	Socket head cap screw	M5xP0.8x16L	2
92	7G-40400	Cover	SS41	1
93	NA-4906	Needle bearing	na4906	1
94	7G-40600	Rocking arm	FC15	1
95	7G-40410	Spur gear	S45C, M2x24T	1
96	BB-6004	Ball bearing	#6004	1
97	CS-20	Snap ring	C type. I.D.20	1
98	7G-40420	Spur gear	S45C, M2.25x28T	1
99	PT-0338	Taper pin	#3x38	1
100		Oil Seal	20x28x4	1
101	BB-6004	Ball bearing	#6004	1
102	PT-0319	Taper pin	#3x19	1
103	7G-40430	Shaft	S45C	1

CARRIAGE AND TOOL SLIDE



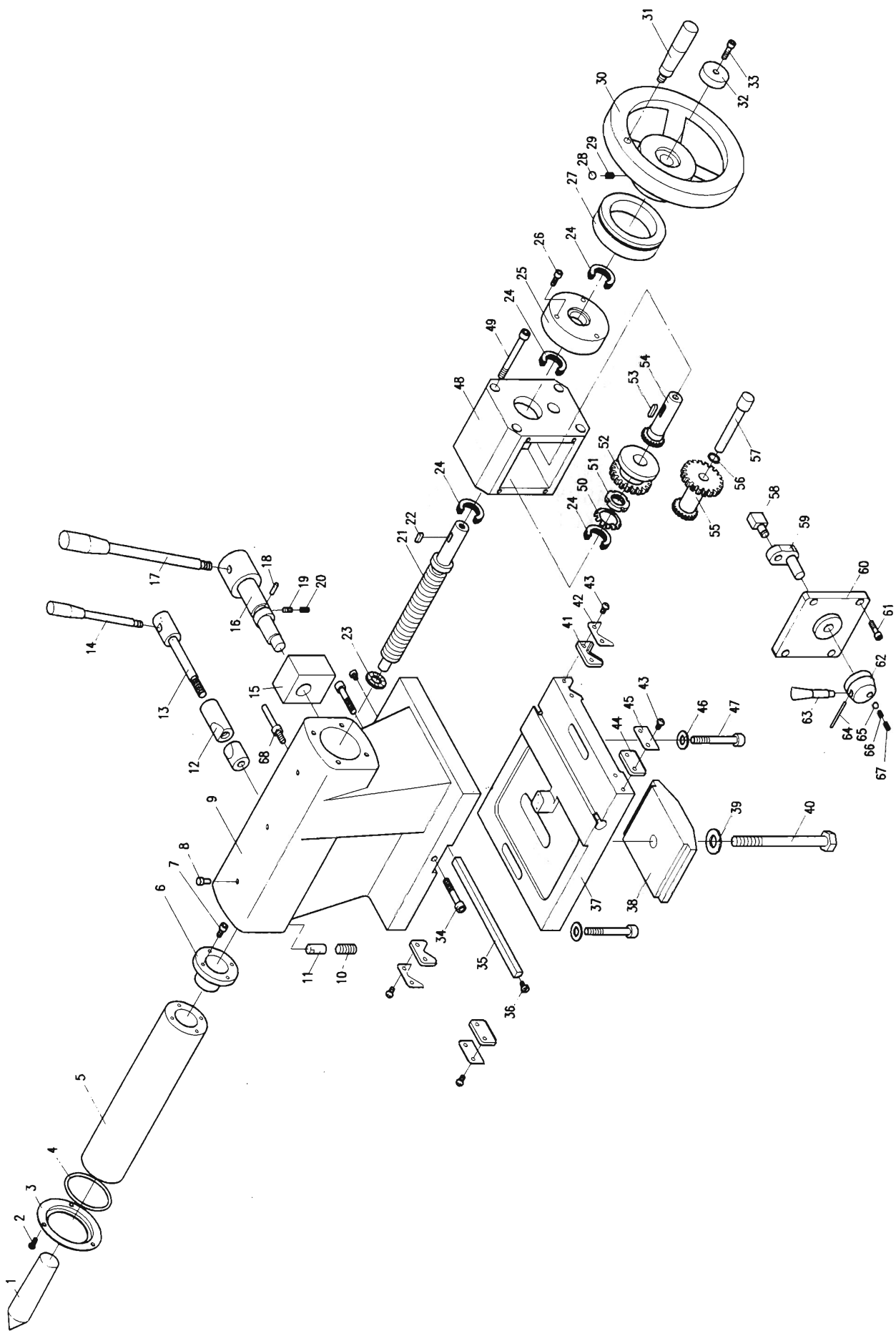
CARRIAGE AND TOOL SLIDE

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1	7S-40360	HANDLE BOSS	S20C-D	1
2		THRUST BEARING	51104	1
3		HEXAGON SOCKET SET SCREW	M6xP1.0x12L	1
4	7S-40370	WASHER	S20C-D	1
5	7S-40770	PIN	SS41	1
6	7S-40260	TURRET TOOL POST	S45C	1
7	7S-40650	SLEEVE	S45C	1
8	SH-0816	SOCKET HEAD CAP SCREW	M8xP1.25x16L	3
9	7S-40250	CLAMPING BOLT	S45C	1
10		PIN	SS41	1
11		SPRING	Φ 5/16	1
12	7S-40480	PIN	SCM21	1
13		SCREW	M5xP0.8x8L	4
14		WIPER	PLASTIC	1
15	7S-40500	HEXAGON SOCKET HEAD CAP SCREW	SS41	1
16	7S-40050	GIB	FC20	1
17	7S-40520	SET BLOCK	PUB2	2
18	7S-40510	SET SCREW	S20C-D	2
19	7S-40030	TOOL SLIDE	FC25	1
20	SH-1028	SOCKET HEAD CAP SCREW	M10xP1.5x28L	3
21	7S-40060	NUT	SS41	3
22	7S-40170	LEAD SCREW NUT	PUC 2	1
23	7S-40160	LEAD SCREW	S45C	1
24		NUT	M6xP1.0	1
25	BS-51105	HEXAGON SOCKET SET SCREW	M6xP1.0x20L	1
26	7S-40270	LOCATING SCREW	SCM4	12
27	7S-40380	LEVER	SS41	1
28	7S-40300	LOCKING BLOCK	FC15	1
29	7S-40040	SLIDING TABLE	FC20	1
30		OILER	Φ 1/4"	2
31		THRUST BEARING	51102	2
32	7S-40190	BRACKET	SS41	1
33		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	2
34	7S-40580	NUT	S20C-D	1
35		HEXAGON SOCKET SET SCREW	M6xP1.0x16L	1
36	7S-40180	INDEX RING BASE	SS41	1
37		HEXAGON SOCKET SET SCREW	M8xP1.25x8L	1
38		SPRING	Φ 6x Φ 0.8x15L	1
39		STEEL BALL	Φ 1/4"	1
40	7S-40200	INDEX RING	SS41	1
41	7S-40720	NUT	SS41	1
42	7S-40700	LEVER	SS41	1
43		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	1
44	7S-40780	HANDLE	SS41	1
45		SCREW	M5xP0.8x8L	16
46	7S-40570	COVER	STAINLESS STEEL	2
47	7S-40400	WIPER	PLASTIC	2
48	18S-40150	GIB	FC20	1
49	7S-40420	ADJUSTING SCREW	SS41	2
50	20S-30020	COVER	FC25	1
51	7S-40520	SET BLOCK	PUB2	3
52		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	4
53		HEXAGON SOCKET SET SCREW	M10xP1.5x10L	1
54	20S-40750	COVER	SS41	1
55		SCREW	M5xP0.8x12L	2

CARRIAGE AND TOOL SLIDE

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
56	7S-40460	HANDLE	SS41	1
57		HEXAGON SOCKET SET SCREW	M6xP1.0x25L	1
58	7S-40670	PIN	SS41	1
59	7S-40120	SCREW	SS41	1
60	7S-40110	LEVER	S20C	1
61	7S-40130	INDEX RING BASE	SS41	1
62	7S-40100I	INDEXRING	SS41	1
	7S-40100M	INDEXRING	SS41	1
63		STEEL BALL	Φ 1/4"	2
64		NAME PLATE	AL	1
65		ROUND HEAD RIVET		2
66		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x90L	2
67		THRUST BEARING	51103	2
68		SPRING	Φ 6x Φ 0.8x15L	2
69		HEXAGON SOCKET SET SCREW	M8xP1.25x6L	2
70	18S-40090	BRACKET	FC15	1
71		KEY	4x4x45L	1
72	20S-40080	SHAFT	SS41	1
73	20S-30070I	LEAD SCREW	S45C	1
	20S-30070M	LEAD SCREW	S45C	1
74	20S-30010	CARRIAGE	FC25	1
75	20S-40430	COVER	SS41	1
76		SCREW	M4xP0.7x6L	6
77		PLUG	Φ 3/4"	1
78		HEXAGON SOCKET SET SCREW	M8xP1.25x25L	3
79	7S-40220	LEAD SCREW NUT	PBC2	1
80	18S-40640	ADJUSTMENT BOLK	PBC2	1
81		THRUST BEARING	51102	2
82	20S-40140	BRACKET	FC15	1
83		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	2
84		WASHER	Φ 12	1
85		NUT	M12	2
86	7S-40340	WIPER	PLASTIC	2
87	7S-40540	COVER	STAINLESS STEEL	2
88	7S-40320	GIB	SS41	2
89	7S-40310	ADJUSTMENT GIB	FC20	1
90		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	5
91		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.25x18L	4
92		NUT	M6	4
93	7S-40530	COVER	STAINLESS STEEL	2
94	7S-40330	WIPER	PLASTIC	2
95	7S-40730	LEVER	SS41	1
96	7S-40740	HEXAGON BOLT	SS41	1
97	7S-40290	LOCK PLATE	SS41	1
98		HEXAGON SOCKET SET SCREW	M8xP1.25x30L	1
99		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x20L	4
100	7S-40280	LOCK PLATE	FC15	1

TAILSTO



TAILSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
1		CENTER	MT 4#	1
2		CROSS RECESSED HEAD MACHINE SCREW	M5xP0.8x10L	3
3	7T-40200	COVER	SS41	1
4		"O" RING	P58	1
5	7T-40030	BARREL	S45C	1
6	20T-40050I	INDEXRING	SS41	1
	20T-40050M	INDEXRING	SS41	1
7		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x12L	4
8		OILERS	1/4	3
9	18T-10010	TAILSTOCK CASTING	FC25	1
10		HEXAGON SOCKET SET SCREW	M14x14L	1
11	7T-40100	KEY	SS41	1
12	7T-40220	LOCATING NUT	FC15	1
13	7T-40110	LOCATING BOLT	SS41	1
14	7T-40120	BARREL LEVER	SS41	1
15	7T-40130	PIVOT BLOCK	SS41	1
16	7T-40140	CAM SHAFT	S45C	1
17	7T-40170	CLAMP LEVER	SS41	1
18	7T-40150-1	PIN	SS41	1
19	7T-40160	SCREW	M10xP1.0x8L	1
20		HEXAGON SOCKET SET SCREW	M10xP1.0x8L	1
21	18T-40040I	SCREW	S45C	1
	18T-40040M	SCREW	S45C	1
22		KEY	6x6x15	1
23	7T-40230	WASHER	SS41	1
24		THRUST BEARING	51105	4
25	7T-40060	FLANGE	FC20	1
26		HEXAGON SOCKET HEAD CAP SCREW	M6xP1.0x16L	4
27	18T-40070I	INDEXRING	SS41	1
	18T-40070M	INDEXRING	SS41	1
28		BALL	φ 1/4	3
29		SPRING	6x0.8x10L	3
30	7T-30080	HANDLE WHEEL	FC20	1
31	7A-40410	HANDLE	SS41	1
32	20T-40130	SCREW	SS41	1
33		HEXAGON SOCKET CAP SCREW	M8xP1.25x25L	1
34		HEXAGON SOCKET HEAD CAP SCREW	M10x1.5x50L	2
35	7T-40190	GIB	FC20	1
36	7T-40210	ADJUSTING SCREW	SS41	2
37	20T-30020	BASE	FC25	1
38	7T-40240	CLAMP PLATE	FC20	1
39	7T-40250	WASHER	SS41	1
40		BOLT	M16xP2.0x130L	1
41	7T-40260	WIPER	RUBBER	2
42	7T-40270	WIPER COVER	STAINLESS STEEL	2
43		CROSS RECESSED HEAD MACHINE SCREW	M5xP0.8x10L	8
44	7T-40280	WIPER	RUBBER	2
45	7T-40290	WIPER COVER	STAINLESS STEEL	2
46		WASHER	φ 10	2
47		BOLT	M10xP1.5x80L	2
48	20T-30010A	CHANGE SPEED BOX	FC20	1
49		HEXAGON SOCKET HEAD CAP SCREW	M8xP1.25x35L	4
50		LOCKING WASHER	AW-05	1
51		LOCKING NUT	AN-05	1
52	20T-40080	GEAR	S45C	1

TAILSTOCK

REF NO.	PART NO.	PART NAME	SPECIFICATION	USED Q'TY
53		KEY	6x6x25L	1
54	20T-40070	GEAR SHAFT	S45C	1
55	20T-40090	GEAR	S45C	1
56		SNAP RING	S16	1
57	20T-40100	SHAFT	S45C	1
58	9T-402400	CHANGE SREED BLOCK	BC2	1
59	20T-40110	ROCKER ARM	FC15	1
60	20T-40020B	COVER	FC20	1
61		HEXAGON SOCKET HEAD CAP SCREW	M5xP0.8x12L	4
62	3H-40380	BARREL	S45C	1
63	3A-40380	INDEXRING	SS41	1
64		SPRING PIN	Φ 5x45L	1
65		BALL	Φ 1/4	1
66		SPRING	6x0.8x10L	1
67		HEXAGON SOCKET SET SCREW	M8x1.0x6L	1
68	7T-40150-2	BOLT	SS41	1