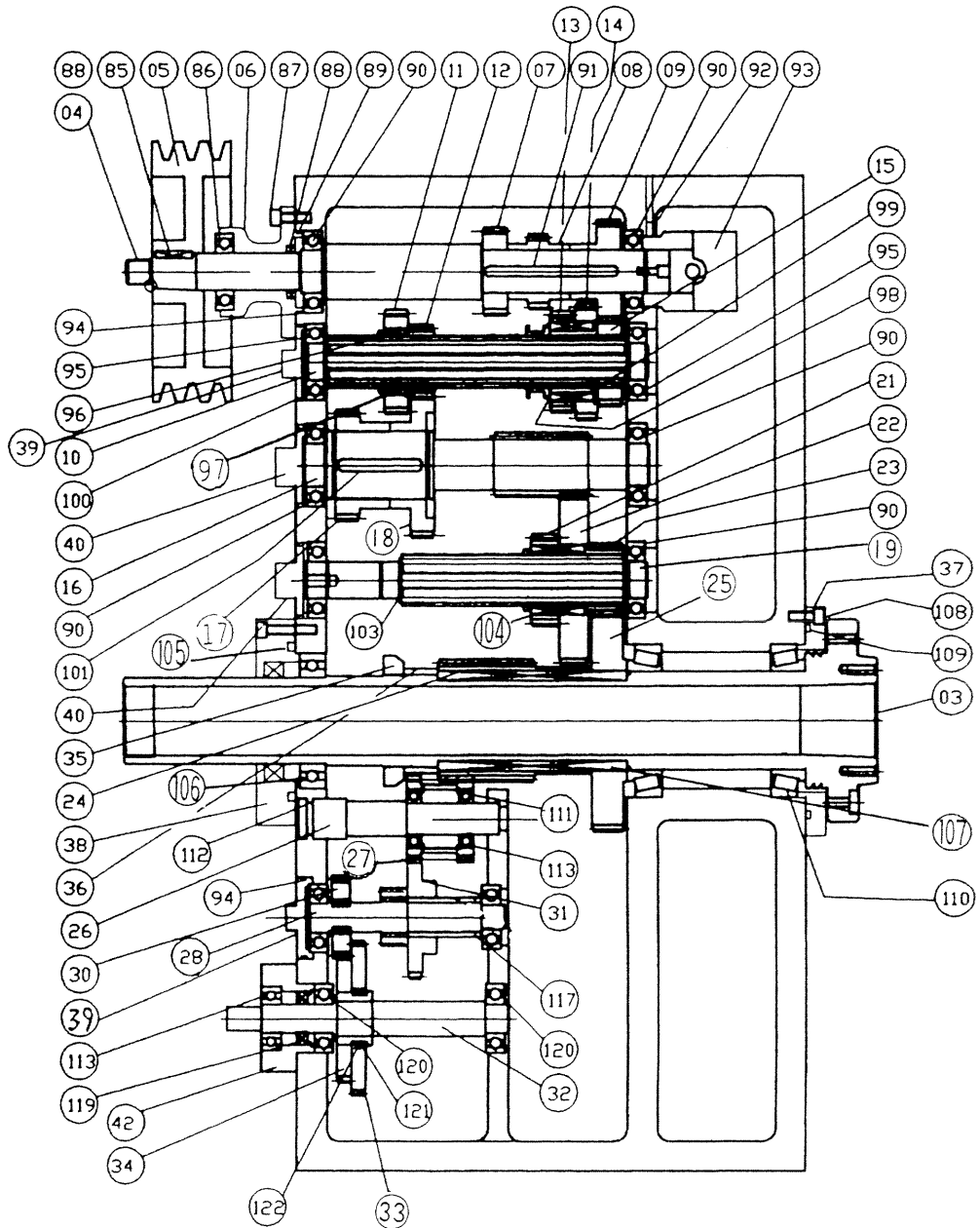


Mechanical Drawings & Parts Breakdown List

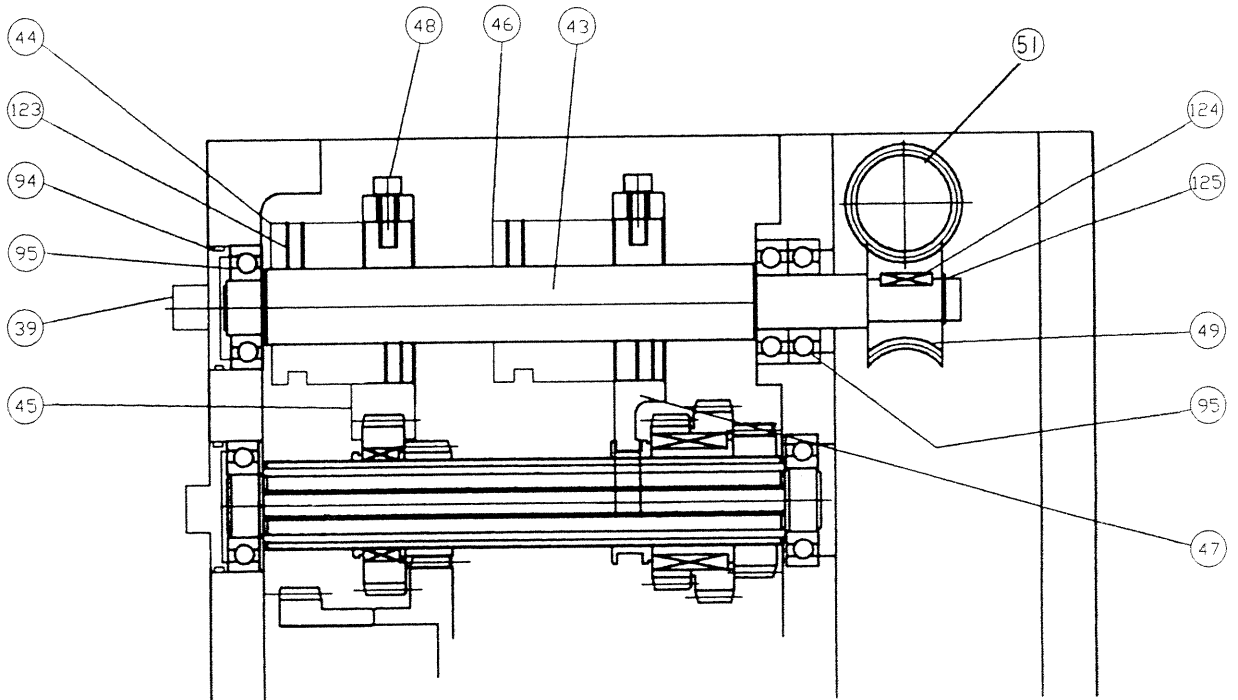
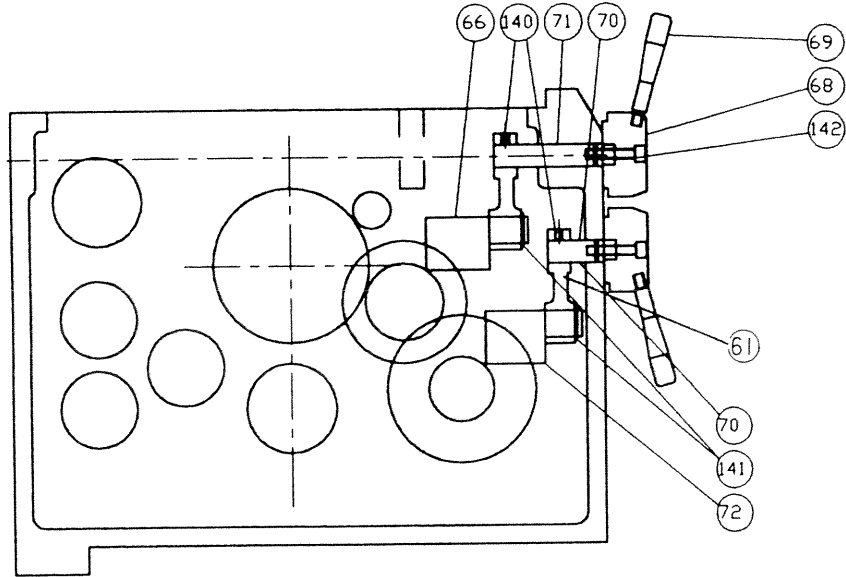
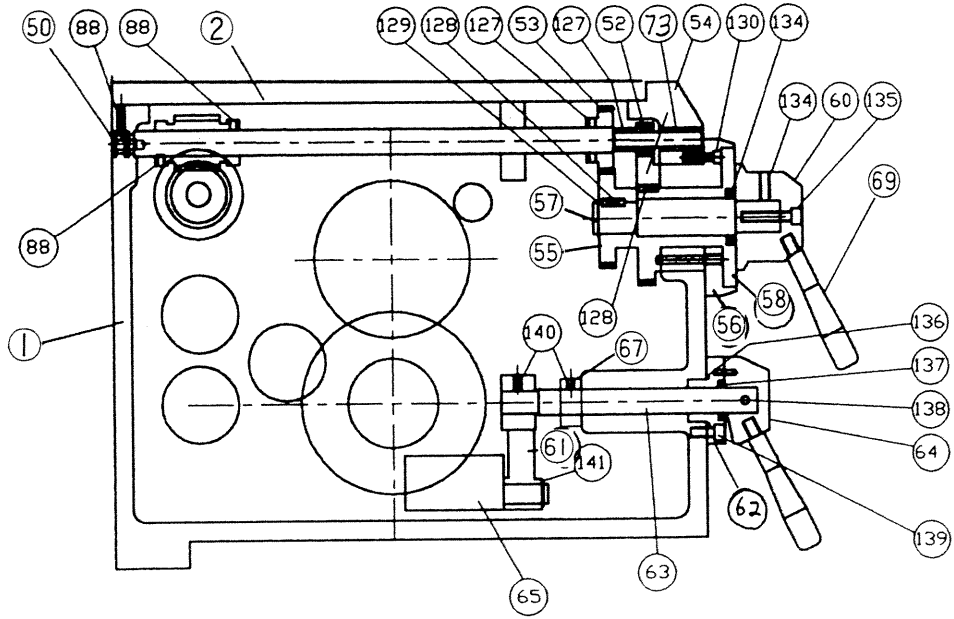
Note: When ordering parts, please be prepared with,

1. Machine model & serial number.
2. Item number.
3. Part number and description.
4. Year of Production.
5. Voltage & horsepower.
6. Quantity

HEADSTOCK (WITHOUT INVERTER)



Headstock



HEADSTOCK (WITHOUT INVERTER)

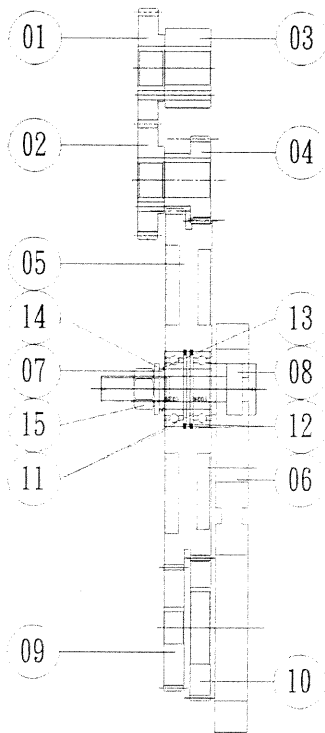
SERIAL NO.	PARTS No.	DESCRIPTION	Q'TY
1	25HA-001	Headstock	1
2	25HA-002	Cover	1
3	25HA-003	Spindle	1
4	25HA-004	Shaft	1
5	25HA-005	V-Pulley	1
6	25HA-006	Cover	1
7	25HA-007	Spur Gear	1
8	25HA-008	Spur Gear	1
9	25HA-009	Spur Gear	1
10	25HA-010	Keyway Shaft	1
11	25HA-011	Spur Gear	1
12	25HA-012	Spur Gear	1
13	25HA-013	Spur Gear	1
14	25HA-014	Spur Gear	1
15	25HA-015	Spur Gear	1
16	25HA-016	Spur Gear	1
17	25HA-017	Spur Gear	1
18	25HA-018	Spur Gear	1
19	25HA-019	Keyway Shaft	1
20			
21	25HA-021	Spur Gear	1
22	25HA-022	Spur Gear	1
23	25HA-023		1
24	25HA-024		1
25	25HA-025		1
26	25HA-026	Shaft	1
27	25HA-027	Spur Gear	1
28	25HA-028	Shaft	1
29			
30	25HA-030	Spur Gear	1
31	25HA-031	Spur Gear	1
32	25HA-032	Keyway Shaft	1
33	25HA-033	Spur Gear	1
34	25HA-034	Spur Gear	1
35	25HA-035	Master Nut	1
36	25HA-036	Spacer Ring	1
37	25HA-037	Snap Cover	1
38	25HA-038	Snap Cover	1
39	25HA-039	Snap Cover	1
40	25HA-040	Snap Cover	1

SERIAL NO.	PARTS No.	DESCRIPTION	Q'TY
41			
42	25HA-042	Snap Cover	1
43	25HA-043	Cam Shaft	1
44	25HA-044	Cam	1
45	25HA-045	Speed Change Fork	1
46	25HA-046	Cam	1
47	25HA-047	Speed Change Fork	1
48	25HA-048	Counter-Sink Screw	2
49	25HA-049	Worm Gear	1
50	25HA-050	Pinion Shaft	1
51	25HA-051	Worm Gear	1
52			
53	25HA-053	Spur Gear	1
54	25HA-053	Spur Gear	1
55	25HA-053	Spur Gear	1
56	25HA-056	Locking Post	1
57	25HA-057	Shaft	1
58	25HA-058	Snap Cover	1
59			
60	25HA-060	Lever Boss	1
61	25HA-061	Rocker Arm	1
62	25HA-062	Snap Cover	1
63	25HA-063	Shaft	1
64	25HA-064	Lever Boss	1
65	25HA-065	Speed Change Fork	1
66	25HA-066	Speed Change Fork	1
67	25HA-067	Rocker Arm	1
68	25HA-068	Lever Boss	1
69	25HA-069	Handle	2
70	25HA-070	Shaft	1
71	25HA-071	Shaft	1
72	25HA-072	Speed Change Fork	2
73	25HA-073	Sleeve	1
74			1
75			1
76			1
77			1
78			1
79			1
80			1

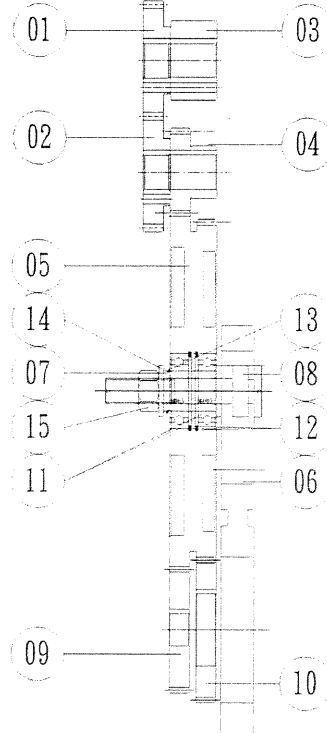
SERIAL NO.	PARTS No.	DESCRIPTION	Q'TY
81			
82			
83			
84			
85	25HA-085	Key (8×7×29)	1
86	25HA-086	Bearings (6206ZZ)	1
87	25HA-087	Screw (CAP6×30)	7
88	25HA-088	Oil Seal (45×30×8)	1
89	25HA-089	Oil Ring (P65)	4
90	25HA-090	Bearings (6207)	7
91	25HA-091	Key (8×7×128)	2
92	25HA-092	Screw (M8×25)	1
93	25HA-093	Pump	1
94	25HA-094	Bearings (6306)	1
95	25HA-095	Bearings (6206)	4
96	25HA-096	Key (8×7×30)	2
97	25HA-097	C Locker (S50)	1
98	25HA-098	C Locker (S55)	1
99	25HA-099	Key (8×7×35)	2
100	25HA-100	O Ring (P55)	3
101	25HA-101	Key (10×7×76)	2
102	25HA-102	C Locker (s52)	1
103	25HA-103	C Locker (S35)	1
104	25HA-104	C Locker (S50)	1
105	25HA-105	O Ring (G115)	1
106	25HA-106	Bearings (6020Z)	1
107	25HA-107	Key (10×8×70)	4
108	25HA-108	Screw (Cap6×25)	15
109	25HA-109	O Ring (P170)	1
110	25HA-110	Bearings (32021/32022)	2
111	25HA-111	C Locker (R47)	2
112	25HA-112	O Ring (P25)	1
113	25HA-113	Bearings (6005)	3
114	25HA-114	Bearings (6305)	1
115	25HA-115	Key (8×7×18)	2
116			
117	25HA-117	Key (8×7×30)	1
118	25HA-118	Screw (Cap6×35)	3
119	25HA-119	Oil Seal (38×25×8)	1
120	25HA-120	Bearings (6205)	3

SERIAL NO.	PARTS No.	DESCRIPTION	Q'TY
121	25HA-121	Key(6×6×10)	2
122	25HA-122	C Locker (S45)	1
123	25HA-123	Screw (M10×15)	9
124	25HA-124	Key (6×6×30)	1
125	25HA-125	C Locker (S20)	1
126	25HA-126	Screw (M6×P10)	2
127			
128	25HA-128	Key (8×7×25)	2
129	25HA-129	C Locker (S20)	1
130	25HA-130	Screw (Cap M6×1)	3
131	25HA-131	(M10×10)	1
132	25HA-132	(ϕ 8×30)	1
133	25HA-133	Steel Ball (ϕ 8)	1
134	25HA-134	Oil Seal (38×25×8)	1
135	25HA-135	Screw (Cap M8×25)	3
136	25HA-136	Oil Seal (P40)	1
137	25HA-137	Oil Seal (38×22×8)	1
138	25HA-138	Spring Pin (ϕ 6×70)	1

GEAR TRAIN FOR 21" SERIES



METRIC UNITS

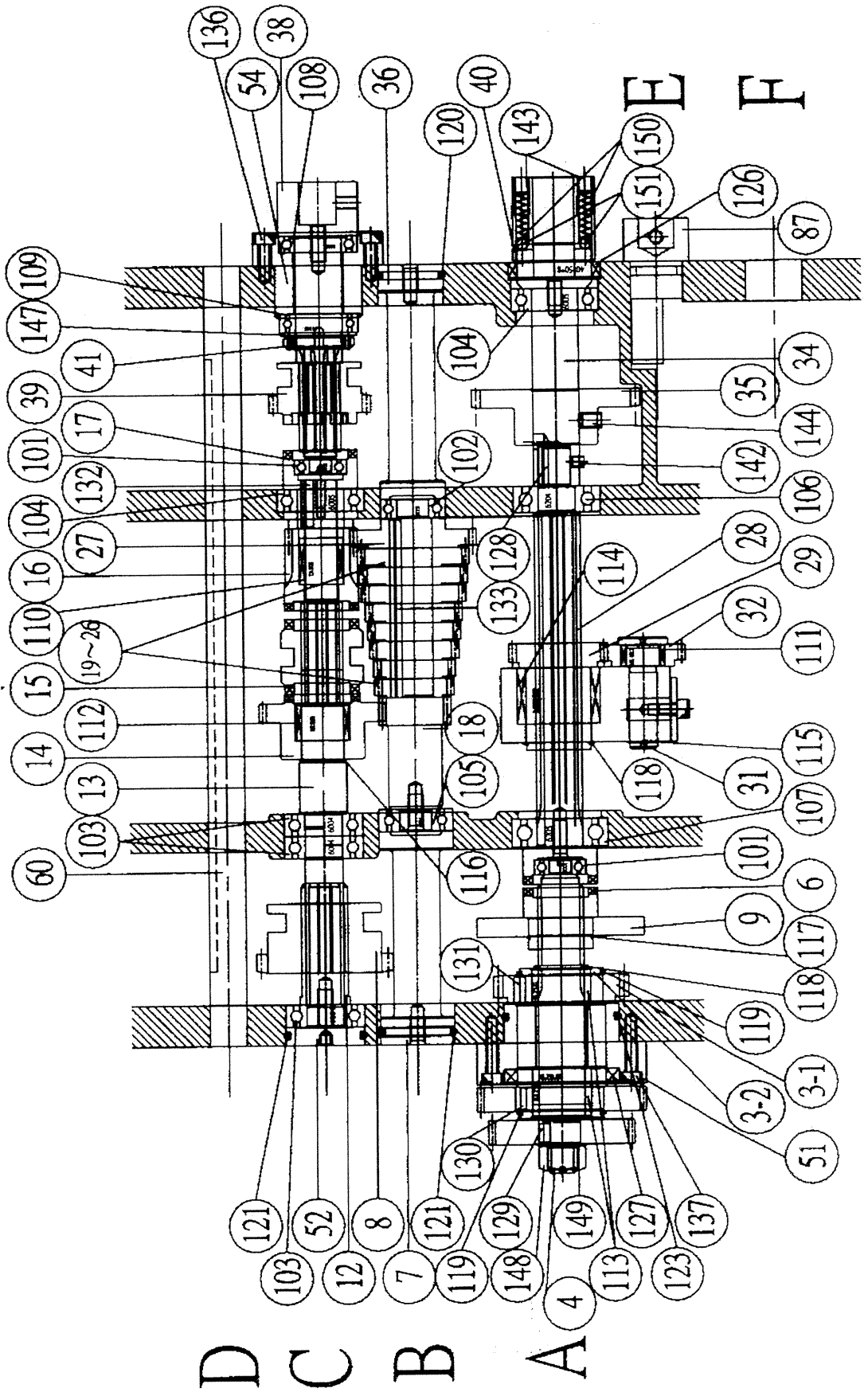


IMPERIAL UNITS

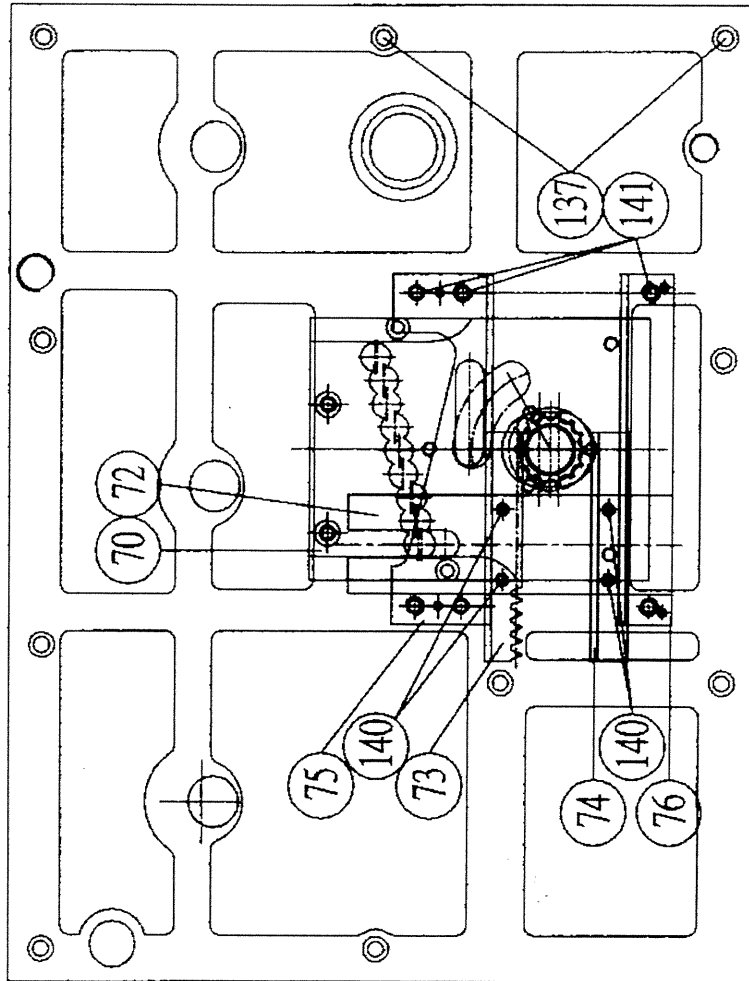
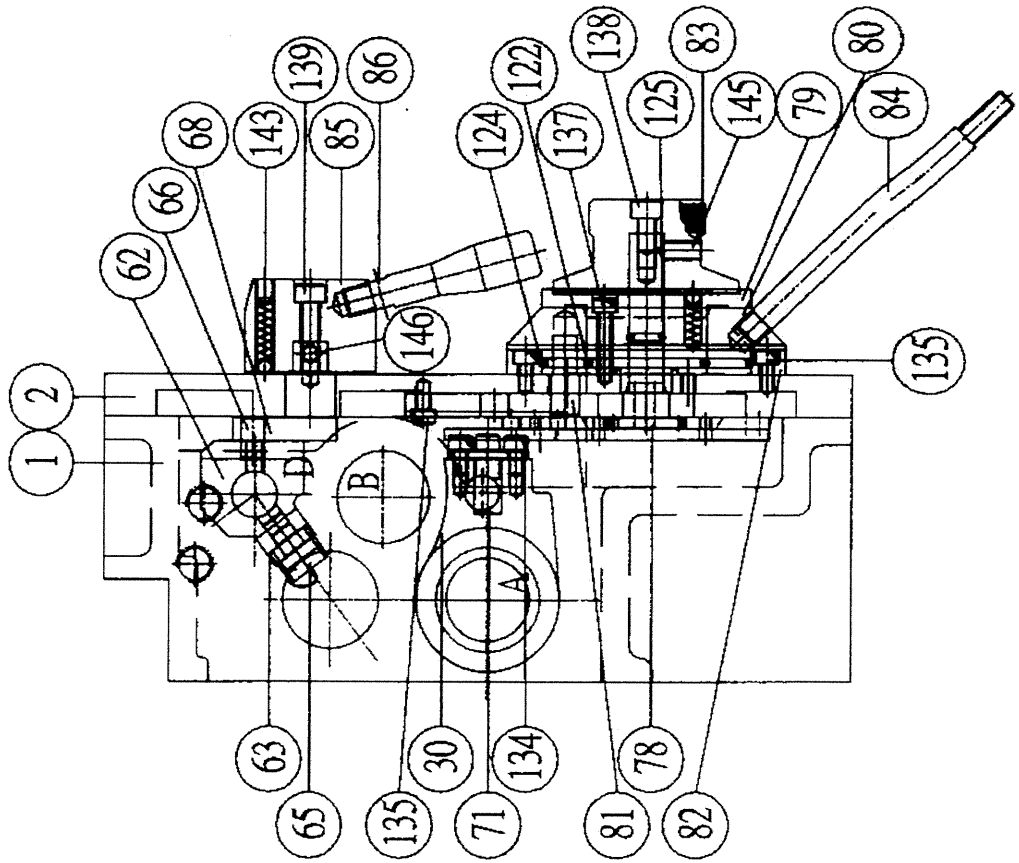
GEAR TRAIN FOR 21" SERIES, SPINDLE BORE 85MM (3")

NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARK
01	25HA-081000	GEAR 42T, M2.5	1	
02	25HA-082000	GEAR 56T, M2.5	1	
03	18HA-080000	SAFE PIN BASE	1	
04	16B-031000	GEAR 28T, M1.75	1	
05	20B-033000	HAVING TWO LAYERS END GEAR 128T, M1.75 HAVING TWO LAYERS END GEAR 120T, M1.75	1	
06	20B-038A00	BRACKET	1	
07	20B-037000	SHAFT	1	
08	20B-036000	SHAFT	1	
09	20B-035000	END GEAR 42T, M1.75	1	
10	20B-034000	END GEAR 49T, M1.75	1	
11		BEARING 6005	2	
12		C LOCKER R47	2	
13		C LOCKER S25	1	
14		SPRING WASHER M16	1	
15		NUT M16	1	

Feed Gear Box



Feed Gear Box



NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARK
01	20G-001000	GEAR BOX BODY	1	
02	20G-002000	FRONT COVER	1	
03-1	20G-003100	GEAR	1	
03-2	20G-003200	SLEEVE	1	
04	20G-004000	SHAFT	1	
06	20G-006000	CLUTCH	1	
07	20G-007000	SHAFT	1	(SECOND)
008	20G-008000	GEAR OF CLUTCH	1	
09	20G-009000	COLLAR	1	
12	20G-012000	GEAR	1	
13	20G-013000	SHAFT	1	(THIRD)
14	20G-014000	GEAR	1	
15	20G-015000	CLUTCH	1	
16	20G-016000	GEAR OF CLUTCH	1	
17	20G-017000	GEAR OF CLUTCH	1	
18	20G-018000	SHAFT	1	(FOUR)
19	20G-019000	GEAR	1	NINE STEP
20	20G-020000	GEAR	1	NINE STEP
21	20G-021000	GEAR	1	NINE STEP
22	20G-022000	GEAR	1	NINE STEP
23	20G-023000	GEAR	1	NINE STEP
24	20G-024000	GEAR	1	NINE STEP
25	20G-025000	GEAR	1	NINE STEP
26	25G-026000	GEAR	1	NINE STEP
27	20G-027000	GEAR	1	
28	20G-028000	SHAFT	1	
29	20G-029000	GEAR	1	
30	20G-030000	SHELF OF ROCKER ARM / HOUSING	1	
31	20G-031000	SHAFT	1	
32	20G-032000	GEAR	1	
34	20G-034000	SHIFT FORK	1	
35	20G-035000	FEED SHAFT	1	
36	20G-036000	MIDDLE SHAFT	1	
38	20G-038000	LEAD SCREW SHAFT	1	
39	20G-039000	GEAR	1	
40	20G-040000	COUPLING SOCKET	1	
41	20G-041000	NUT	1	
51	20G-051000	COVER	1	

NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARK
52	20G-052000	STUFF	1	
54	20G-054000	COVER	1	
60	20G-060000	SHAFT	1	
62	20G-062000	CHANGE SPEED SHIFT BLOCK	1	
63	20G-063000	CHANGE SPEED SHIFT BLOCK	2	
65	20G-065000	CHANGE SPEED SHIFT FORK	3	
66	20G-066000	CHANGE SPEED SHIFT FORK	3	
68	20G-068000	ROCKER	3	
70	20G-070000	SETTING PLATE	1	
71	20G-071000	SHIFT SHAFT	1	
72	20G-072000	SHIFT FORK	1	
73	20G-073000	SHIFT RACK	1	
74	20G-074000	SHIFT PIN	1	
75	20G-075000	SLIDE WEDGE	1	
76	20G-076000	SLIDE WEDGE	1	
78	20G-078000	TURNTABLE GEAR	1	
79	20G-079000	SHELF / HOUSING	1	
80	20G-080000	SHAFT BASE	1	
81	20G-081000	SHORT PILLAR	1	
82	20G-082000	COVER	1	
83	20G-083000	SPEED CHANGE DISC	1	
84	20G-084000	ROCKING LEVER	1	
85	18HA-068000	SPEED CHANGE LINK BASE	3	
86	18HA-069000	SPEED CHANGE SHAFT	3	
87	20B-017000	SHORT SHAFT	1	
88	20B-034000	GEAR	1	
101		BEARING 6001	2	
102		BEARING 6003	1	
103		BEARING 6004	3	
104		BEARING 6005	2	
105		BEARING 6203	1	
106		BEARING 6204	1	
107		BEARING 6205	1	
108		BEARING 6905ZZ	1	
109		BEARING 51105	1	
110		BEARING TA1725	1	
111		BEARING HK1812	1	
112		BEARING HK2220	1	
113		BEARING HK2520	1	

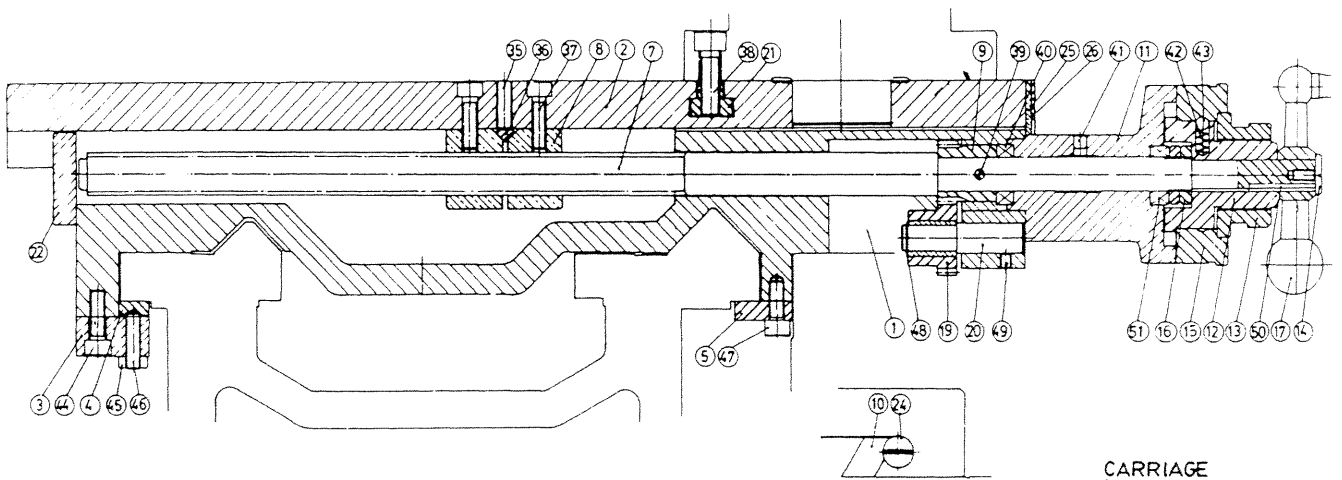
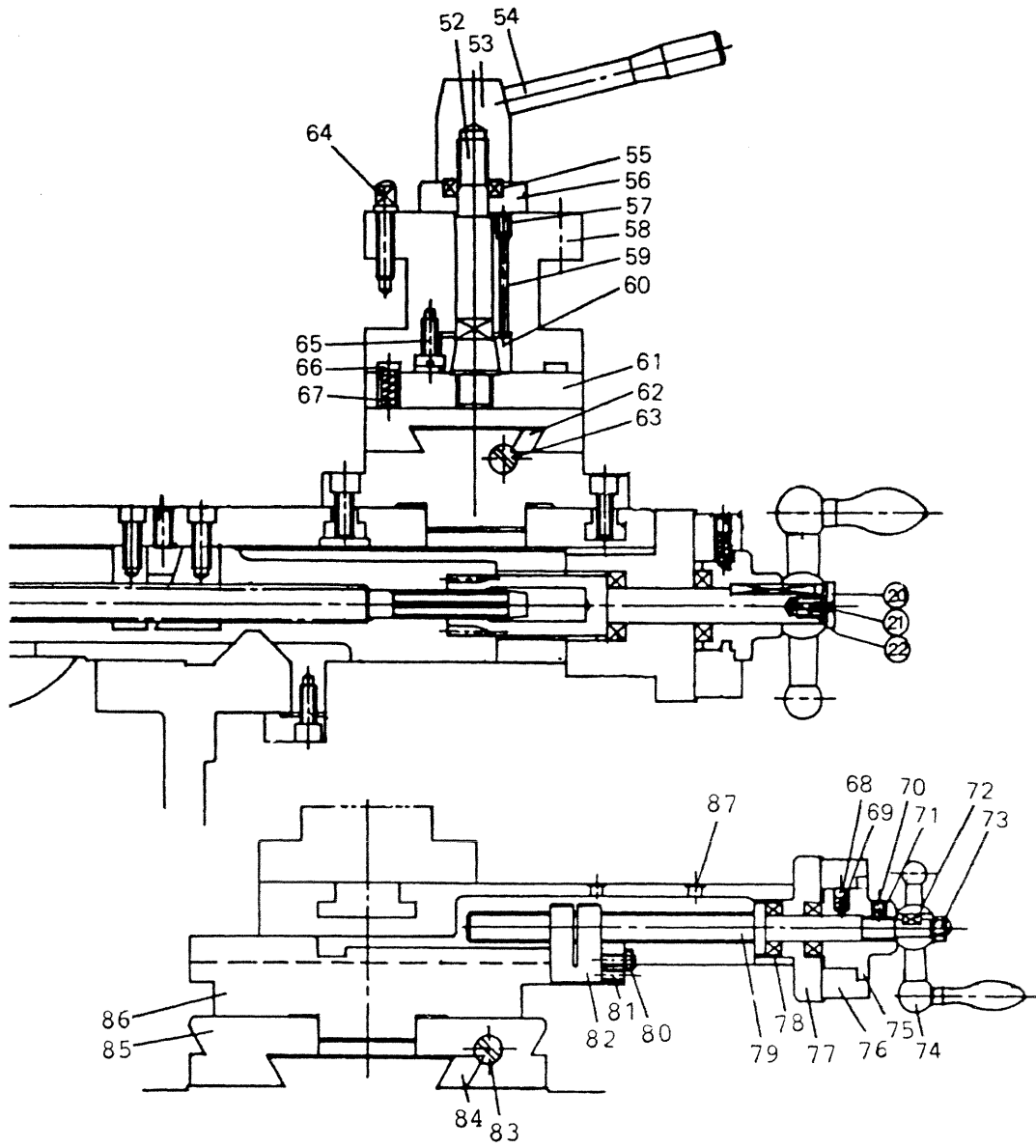
NO.	PARTS NO.	DESCRIPTION	Q'TY	REMARK
114		BEARING TA3530	1	
115		C LOCKER S15	1	
116		C LOCKER S22	1	
117		C LOCKER S25	1	
118		C LOCKER S35	2	
119		C LOCKER S45	2	
120		O RING G30	1	
121		O RING G35	2	
122		O RING G45	1	
123		O RING G55	1	
124		O RING G85	1	
125		O RING P11	1	
126		OIL SEAL 40*55*8	1	
127		OIL SEAL 48*62*8	1	
128		KEY 5*5*20	1	
129		KEY 6*6*10	1	
130		KEY 6*6*12	1	
131		KEY 6*6*14	1	
132		KEY 6*6*25	1	
133		KEY 6*6*95	1	
134		CAP SCREW M6*10	2	
135		CAP SCREW M6*12	5	
136		CAP SCREW M6*20	4	
137		CAP SCREW M6*30	16	
138		CAP SCREW M8*14	1	
139		CAP SCREW M8*30	3	
140		SEMICIRCLE SCREW M5*10	4	
141		SEMICIRCLE SCREW M6*20	6	
142		SETSCREW M6*6	1	
143		SETSCREW M8*8	5	
144		SETSCREW M8*10	1	
145		SETSCREW M8*16	1	
146		SETSCREW M8*20	3	
147		SPACER	1	
148		NUT M16	1	
149		SPRING SPACER M16	1	
150		SPRING DIA.6MM	6	
151		STEEL BALL DIA.6MM	6	

APRON

SERIAL NO.	PARTS NO.	DESCRIPTION	Q'TY
1	20A-001	Apron Body	1
2	20A-002	Cover	1
3	20A-003	Cover	1
4	20A-004	Shaft	1
5	20A-005	Graduated Collar	1
6	20A-006	Housing	1
7	20A-007	Pinion Shaft	1
8	20A-008	Spur Gear	1
9	20A-009	Housing	1
10	20A-010	Handwheel	1
11	20A-011	Handle Grip	2
12	20A-012	Lever Boss	2
13	20A-013	Shaft	2
15	20A-015	Gear	1
16	20A-016	Shaft	1
17	20A-017	Shaft	1
18	20A-018	Housing	1
19	20A-019	Housing	1
20	20A-020	Worm Gear	1
21	20A-021	Gear	1
22	20A-022	Shaft	1
23	20A-023	Shaft	1
24	20A-024	Shaft	1
25	20A-025	Half Nut Support	1
26	20A-026	Half Nut	1
27	20A-027	Gib	1
28	20A-028	Gear	1
29	20A-029	Axle	1
30	20A-030	Bush	1
31	20A-031	Bush	1
32	20A-032	Gear	1
33	20A-033	Worm Box	1
34	20A-034	Buffle	1
35	20A-035	Shaft Gear	1
36	20A-036	Collar	1
37	20A-037	Housing	1
38	20A-038	Shaft	1
39	20A-039	Rocking Arm	1
40	20A-040	Safety Block	1
41	20A-041	Stick Bar	1

42	20A-042	Housing	1
43	20A-043	Shaft	1
45	20A-045	Hand Knob	1
48		Bearing 51104	1
49	20A-049	Lock Nut	1
54	20A-054	Oil Seal (30×40×5)	1
55	20A-055	Thrust Bearing 51103	2
56	20A-056	Bearing 6005	1
58	20A-058	Bearing 6004	2

Carriage & Tool Post



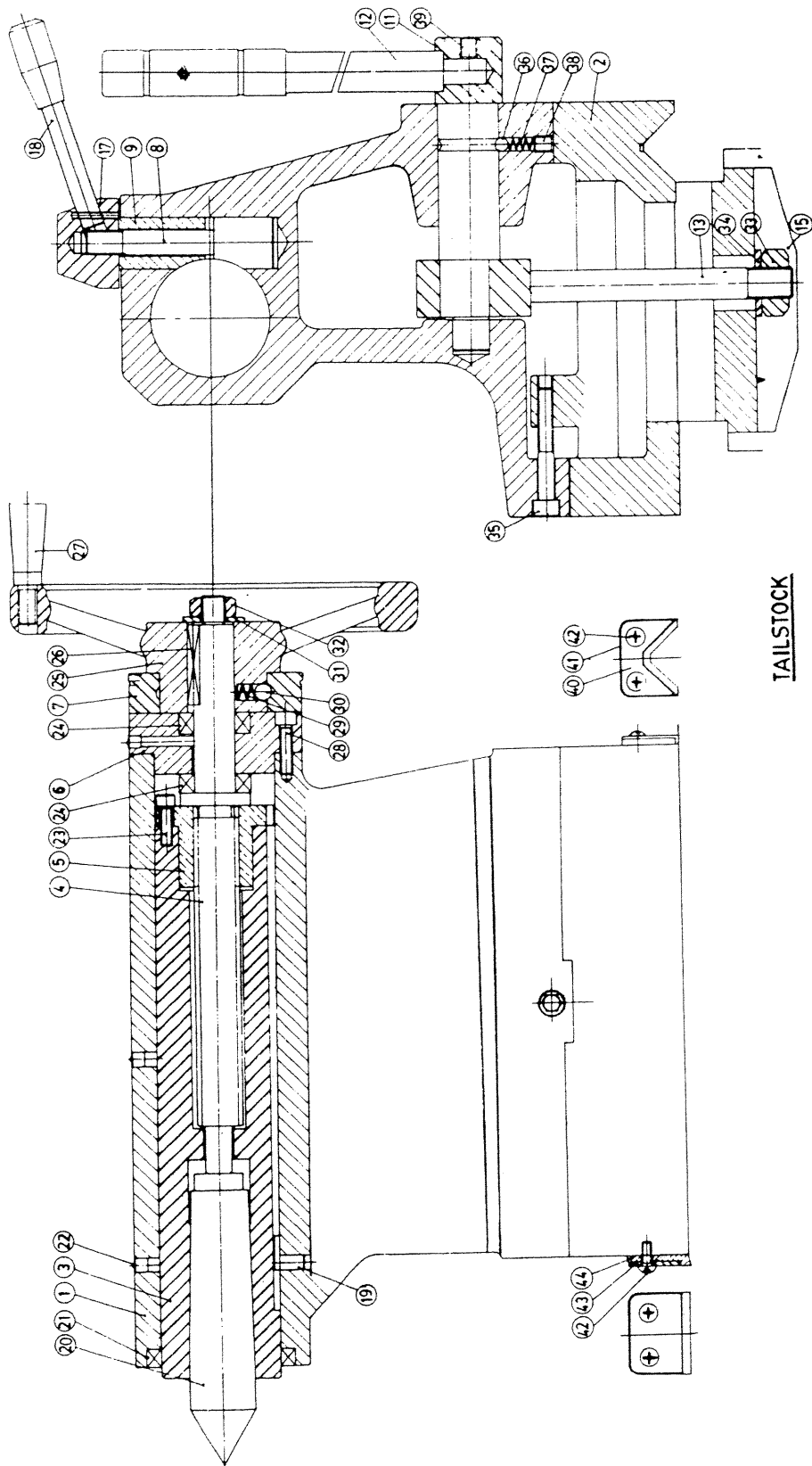
CARRIAGE

CARRIAGE AND TOOL POST

SERIAL NO.	PARTS NO.	DESCRIPTION	Q'TY
1	20S-001	Carriage	1
2	20S-002	Cross Slide	1
3	20S-003	Plate	1
4	20S-004	Lock Gib	1
5	20S-005	Plate	2
6	20S-006	Lock Plate	1
7	20S-007	Screw	1
8	20S-008	Nut	1
9	20S-009	Gear	1
10	20S-010	Gib	1
11	20S-011	Bracket	1
12	20S-012	Screw Boss	1
13	20S-013	Lock Nut	1
14	20S-014	Screw	1
15	20S-015	Graduated Collar	1
16	20S-016	Nut	2
17	20S-017	Handle	1
18	20S-018	Handle Grip	1
19	20S-019	Gear	1
20	20S-020	Shaft	1
21	20S-021	Nut	2
22	20S-022	Bracket	1
23	20S-023	Lock Screw	1
24	20S-024	Adjusting Bolt For Gib	2
25	20S-025	Wiper	1
26	20S-026	Plate	1
27	20S-027	Wiper	2
28	20S-028	Plate	2
29	20S-029	Wiper	2
30	20S-030	Plate	2
33	20S-033	Screw	1
34	20S-034	Plate	1
35	20S-035	Set Screw M8×25	1
36	20S-036	Key	1
37	20S-037	Cap Screws M8×25	3
38	20S-038	Cap Screws M10×35	2
39	20S-039	Spring Pin ϕ 5×28	1
40	20S-040	Thrust Bearing 51103	1
41	20S-041	Oiler ϕ 1/4"	1
42	20S-042	Spring ϕ 1/4"	2

SERIAL NO.	PARTS NO.	DESCRIPTION	Q'TY
43	20S-043	Steel Ball ϕ 1/4"	2
44	20S-044	Cap Screws M8 \times 20	5
45	20S-045	Nuts M8	5
46	20S-046	Set Screws M8 \times 30	5
47	20S-047	Cap Screws M8 \times 16	4
48	20S-048	Snap Screws S13	1
49	20S-049	Set Screws M6 \times 6	1
50	20S-050	Key 4 \times 4 \times 25	1
51	20S-051	Thrust Bearing 51103	1
52	20S-052	Clamping Bolt	1
53	20S-053	Hcnolle Boss	1
54	20S-054	Seven	1
55	20S-055	Thrust Bearing 51104	1
56	20S-056	Washer	1
57	20S-057	Hex. Set Screw	3
58	20S-058	Turret Tool Post	1
59	20S-059	Pin	3
60	20S-060	Sleeve	1
61	20S-061	Locking Block	1
62	20S-062	Gib	1
63	20S-063	Cam Screw	1
64	20S-064	Sacating Screw	12
65	20S-065	Screw	3
66	20S-066	Pin	1
67	20S-067	Spring ϕ .5/12	1
68	20S-068	Steel Ball ϕ 3/16"	1
69	20S-069	Spring ϕ 3/16"	1
70	20S-070	Hex. Set Screw M6 \times 91 \times 61	1
71	20S-071	Wasker	1
72	20S-072	Key	1
73	20S-073	Nut	1
74	20S-074	Lever	1
75	20S-075	Indexing Base	1
76	20S-076	Indexing Ring	1
77	20S-077	Bracket	1
78	20S-078	Thrust Bearing 51102	2
79	20S-079	Locking Screw 20S-079	1
80	20S-080	Nut M6 \times P1	1
81	20S-081	Hex. Set Screw M6 \times P1 \times 201	
82	20S-082	Screw Nut	1
83	20S-083	Adjusting Screw	1
84	20S-084	Gib	1
85	20S-085	Cover	1
86	20S-086	Tool Slide	1
87	20S-087	Ailer	2

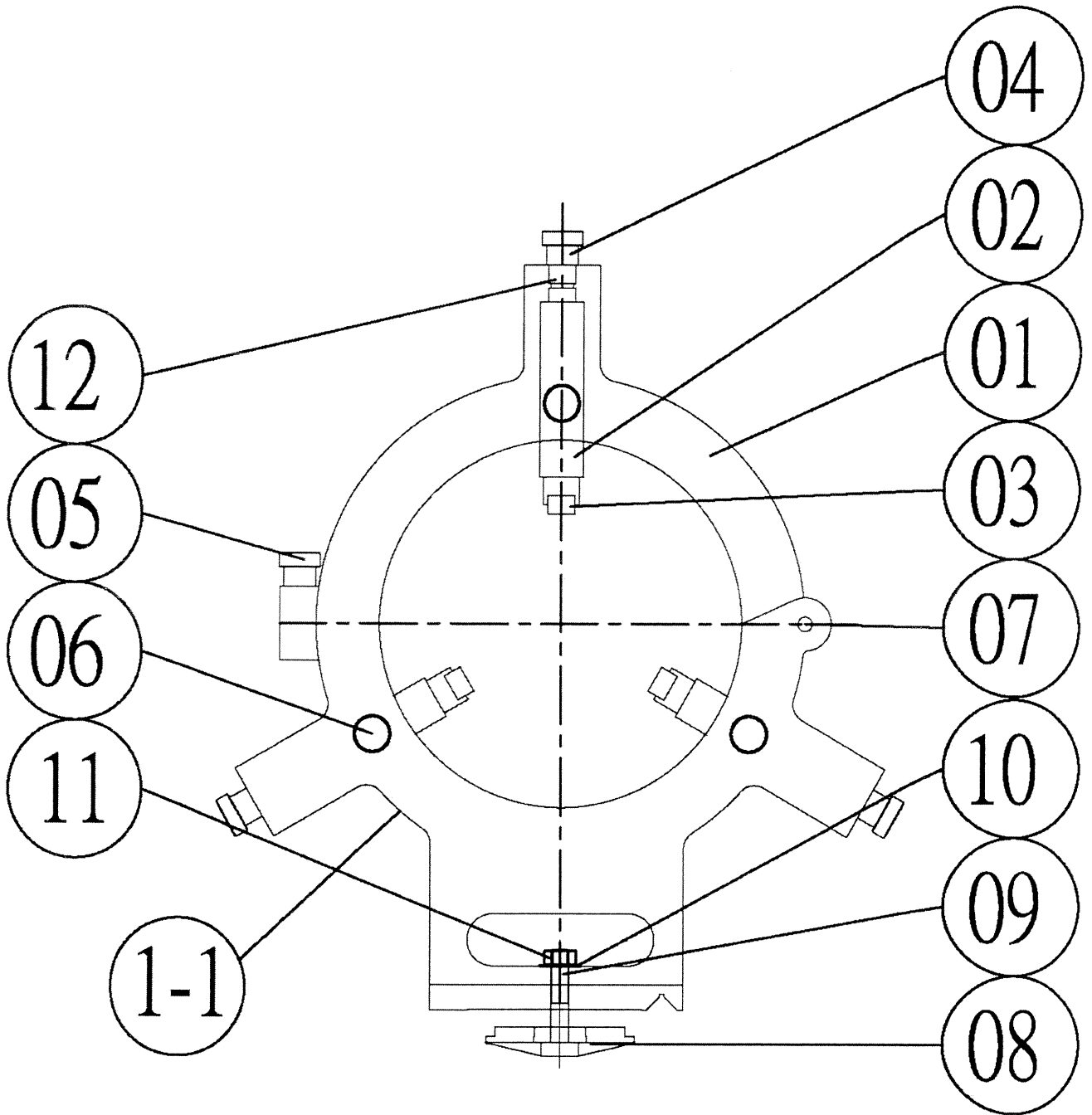
Tailstock



TAILSTOCK

SERIAL NO.	PARTS NO.	DESCRIPTION	Q'TY
1	20T-001	Tailstock	1
2	20T-002	Tailstock Base	1
3	20T-003	Quill	1
4	20T-004	Screw	1
5	20T-005	Nut	1
6	20T-006	Bracket	1
7	20T-007	Dial	1
8	20T-008	Nipping Stud	1
9	20T-009	Nipping Bush	1
11	20T-011	Eccentric Lock Stud	1
12	20T-012	Locking Lever	1
13	20T-013	Clamping Bolt	1
14	20T-014	Clamping Bolt	1
15	20T-015	Holding Down Plate	1
16	20T-016	Stop Pin	1
17	20T-017	Nipping Nut	1
18	20T-018	Locking Handle	1
19	20T-019	Key	1
20	20T-020	Center	1
21	20T-021	Oil Seal (58×72×9)	1
22	20T-022	Oiler	1
23	20T-023	Cap Screws	3
24	20T-024	Thrust Bearing 51104	2
25	20A-010	HandWheel	1
26	20T-026	Key	1
27	20A-057	Handle	1
28	20T-028	Cap Screws	4
29	20T-029	Spring	1
30	20T-030	Steel Ball	1
31	20T-031	Washer	1
32	20T-032	Nut	1
33	20T-033	Nut	1
34	20T-034	Washer	1
35	20T-035	Cap Screw	2
36	20T-036	Steel Ball	1
37	20T-037	Spring	1
38	20T 038	Set Screw	1
39	20T-039	Set Screw	1
40	20T-040	Plate	2
41	20T-041	Wiper	2
42	20T-042	Screw	8
43	20T-043	Plate	2
44	20T-044	Wiper	2

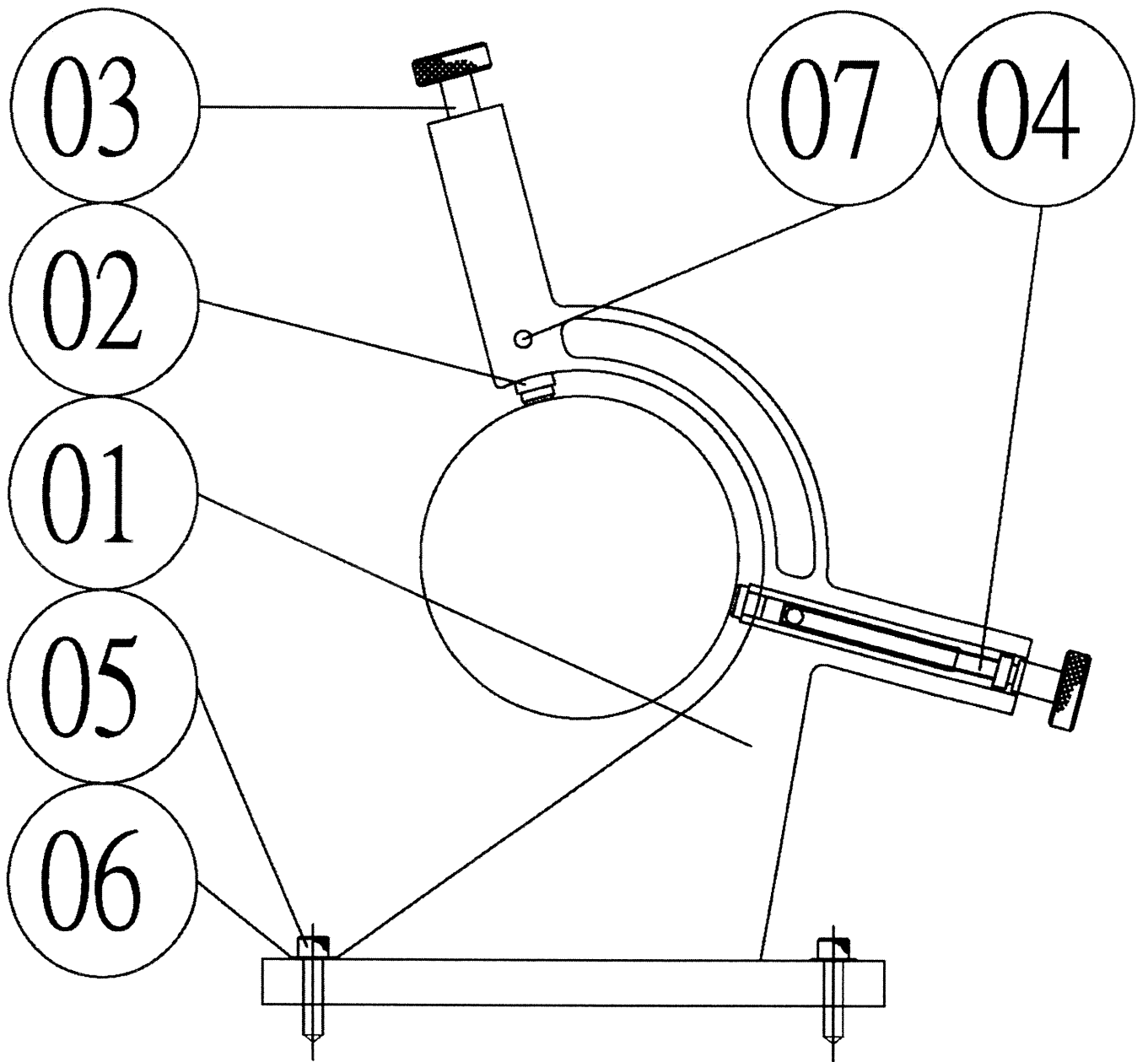
Steady Rest



Steady Rest

Serial No.	Part No.	Description	Q'ty
1	21SR-001	Steady rest housing-top	1
1-1	21SR-002	Steady rest housing-lower	1
2	21SR-003	Roller shaft	3
3	21SR-004	Shaft roller	3
4	21SR-005	Adjusting knob	3
5	21SR-006	Housings tighten knob	1
6	21SR-007	Shaft locating screw	3
7	21SR-008	Housings connecting screw	1
8	25T-015100	Locating plate	1
9		Square head cap screw	1
10		Square washer	1
11		Hex nut	1
12	21SR-009	Adjusting shaft	1

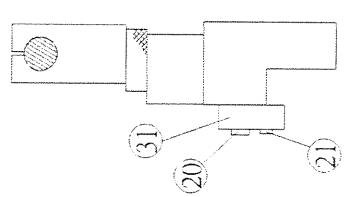
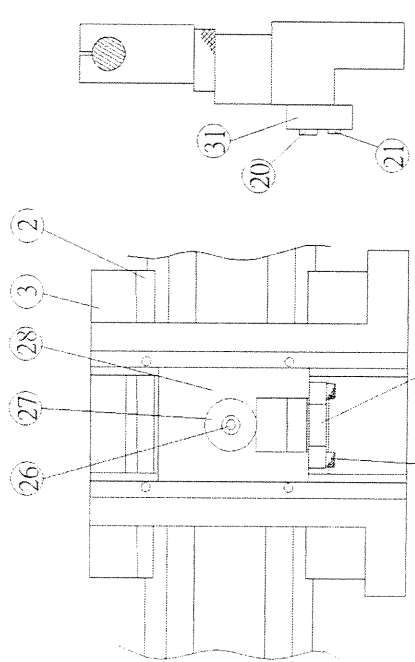
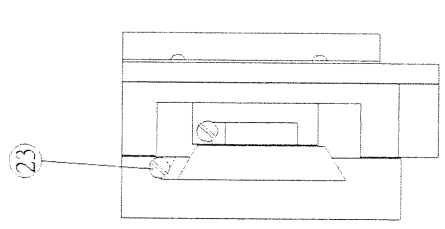
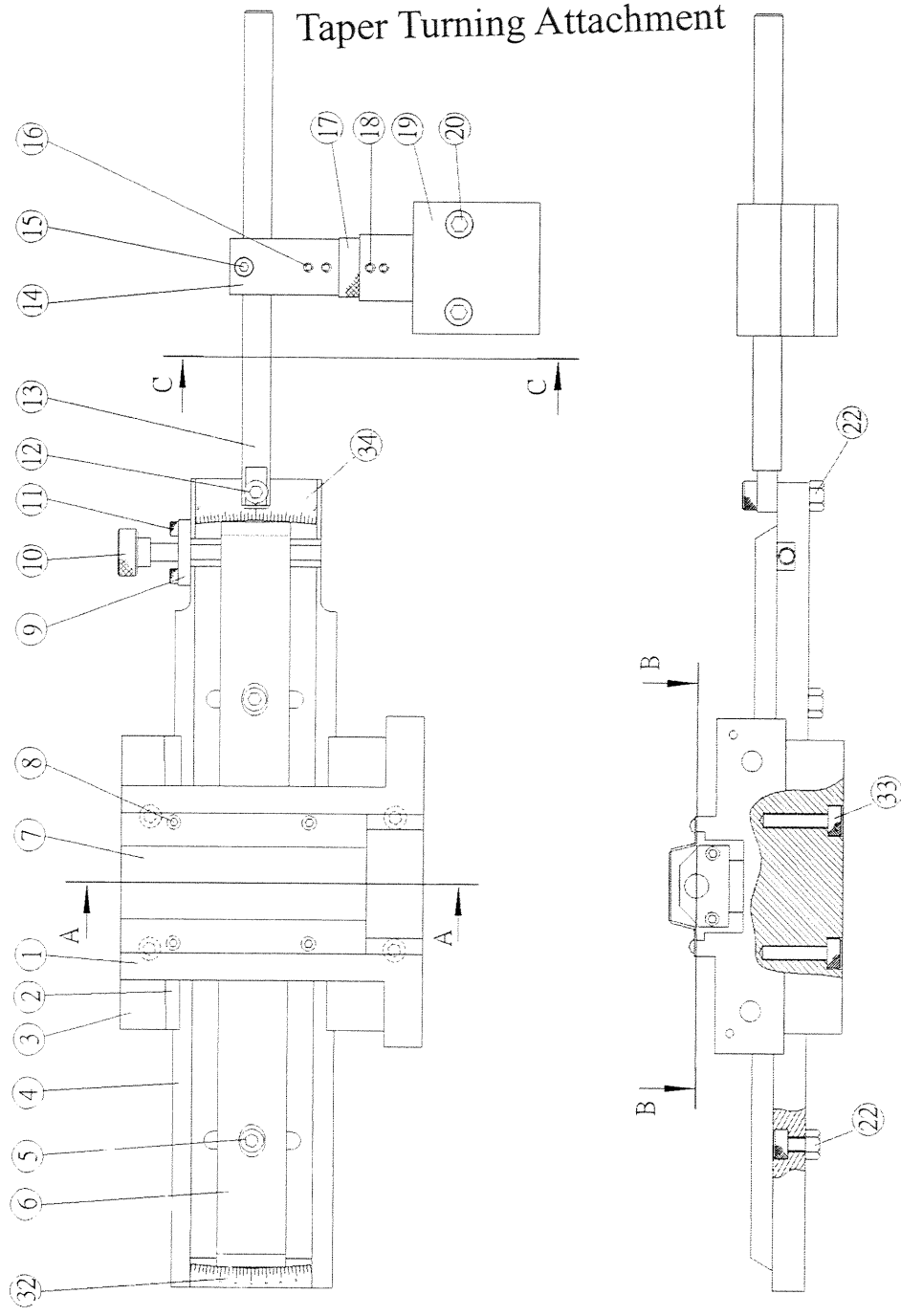
Follow Rest



Follow Rest

Serial No.	Part No.	Description	Q'ty
1	21FR-001	Follow rest housing	1
2	21FR-002	Shaft with brass tip	2
3	21FR-003	Adjust knob	2
4	21FR-004	Shaft screw	2
5		Socket head cap screw	2
6		Washer	2
7		Socket head set screw	2

Taper Turning Attachment



Taper Turning Attachment

Serial No.	Part No.	Description	Q'ty
1	21TA-001	Taper attachment body	1
2	21TA-002	Gib-taper turning attachment	1
3	21TA-003	Top slide casting	1
4	21TA-004	Sliding body	1
5	21TA-005	Socket head cap screw	2
6	21TA-006	Rotating/sliding plate	1
7	21TA-007	Top cover	1
8	21TA-008	Round head cap screw +	4
9	21TA-009	Locating plate	1
10	21TA-010	Screw with knob	1
11	21TA-011	Socket head cap screw	2
12	21TA-012	Socket head cap screw	1
13	21TA-013	Connecting shaft	1
14	21TA-014	Connecting bracket	1
15	21TA-015	Socket head cap screw	1
16	21TA-016	Socket cap set screw	2
17	21TA-017	Dual side connecting shaft	1
18	21TA-018	Socket cap set screw	2
19	21TA-019	Shaft locating bracket	1
20	21TA-020	Socket head cap screw	2
21	21TA-021	Socket cap set screw	1
22	21TA-022	Hex nut	2
23	21TA-023	Gib screw-taper attachment	2
24	21TA-024	Socket head cap screw	4
25	21TA-025	Screw connecting bracket	1
26	21TA-026	Socket head cap screw	1
27	21TA-027	Sleeve	1
28	21TA-028	Connecting plate	1
29	21TA-029	Plate	1
30	21TA-030	Gib	1