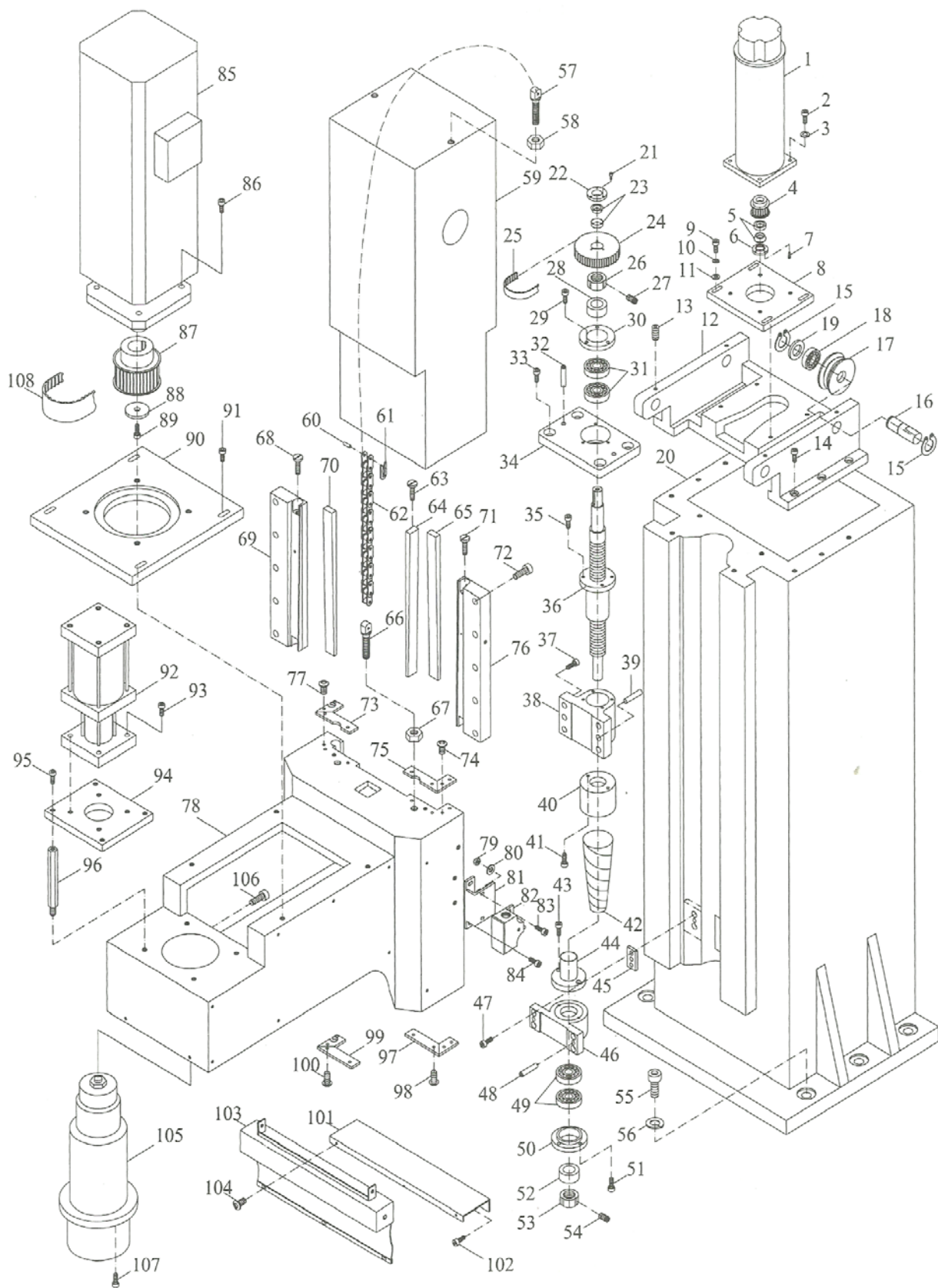


# 11. Mechanical Drawings & Parts Breakdown List

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

# 11-1. SPINDLE HOUSING ASSEMBLY



ITEM NO.	PART NO.	DESCRIPTION	QT'Y
1	MCCP-004	Servo Motor	1
2	MBSHS0830	Socket Head Cap Screw	4
3	MBSWM08	Spring Washer	1
4	MCCP-005	Motor Pulley (5GT30T)	1
5	MCCP-006	Pulley Sleeve Set (2428)	1
6	MCCP-007	Pulley End Cap	1
7	MBSHS0625	Socket Head Cap Screw	3
8	MBCZ-001	Z Axis Motor Plate	1
9	MBSHS0830	Socket Head Cap Screw	4
10	MBSWM08	Spring Washer	4
11	MBWM08	Washer	4
12	MBCZ-002	Chain Roller Seat	1
13	MBSS0806	Set Screw	8
14	MBSHS0825	Socket Head Cap Screw	6
15	MBSR25	Snap Ring	4
16	MBCZ-003	Chain Roller Shaft	4
17	MBCZ-004	Chain Wheel	4
18	MBNA4905	Ball Bearing NA4905R	4
19	MBCZ-005	Spacer	4
20	MBCZ-006	Column	1
21	MBSHS0625	Socket Head Cap Screw	3
22	MCCP-003	Pulley End Cap (2025)	1
23	MCCP-002	Pulley Sleeve Set	1
24	MCCP-001	Ball Screw Pulley (5GT60T)	1
25	MCTB5GT-600	Timing Belt	1
26	MBYSF-M25*1.5P	Lock Nut	1
27	MBSS0604	Set Screw	3
28	MBCZ-007	Spacer	1
29	MBSHS0615	Socket Head Cap Screw	3
30	MBCZ-008	Bearing Retainer	1
31	MBBST2562	Ball Bearing (Angular)	2
32	MBTP4#	Taper Pin	2

ITEM NO.	PART NO.	DESCRIPTION	QT'Y
33	MBSHS1235	Socket Head Cap Screw	4
34	MBCZ-009	Z Axis Bearing Seat	1
35	MBSHS0612	Socket Head Cap Screw	5
36	MBCZ-010	Z Axis Ball Screw W/Nut	1
37	MBSHS1225	Socket Head Cap Screw	4
38	MBCZ-011	Ball Screw Nut Seat	1
39	MBTP4#	Taper Pin	2
40	MBCZ-012	Ball Screw Upper End Cover	1
41	MBSHS0612	Socket Head Cap Screw	2
42	MBCZ-013	Ball Screw Cover	1
43	MBSHS0612	Socket Head Cap Screw	2
44	MBCZ-014	Ball Screw Lower End Cover	1
45	MBCZ-015	Spacer Plate	2
46	MBCZ-016	Z Axis Ball Screw Bracket	1
47	MBSHS0825	Socket Head Cap Screw	4
48	MBTP4#	Taper Pin	2
49	MBTVP7205B	Ball Bearing (Angular)	2
50	MBXYZ7842	Bearing Retainer (X. Y. Z.)	1
51	MBSHS0615	Socket Head Cap Screw	3
52	MBXYZ4217	Spacer	1
53	MBYSR-M25*1.5P	Lock Nut	1
54	MBSS0604	Set Screw	3
55	MBSHS2080	Socket Head Cap Screw	7
56	MBSWM20	Spring Washer	7
57	MBCZ-017	Balancing Block Screw	2
58	MBNUTM14	Hex Nut	2
59	MBCZ-018-1	Balancing Block	1
60	MBRP5	Roller Pin (5/8x68+ 2)	2
61	MBSR5	Clip Ring (5/8x68+ 2)	2
62	MCCZ-001	Chain (5/8x68+ 2)	2
63	MB-3028	Gib Adj-Screw	2
64	MCCZ-002	Center Housing Gib (7x32x520)	1



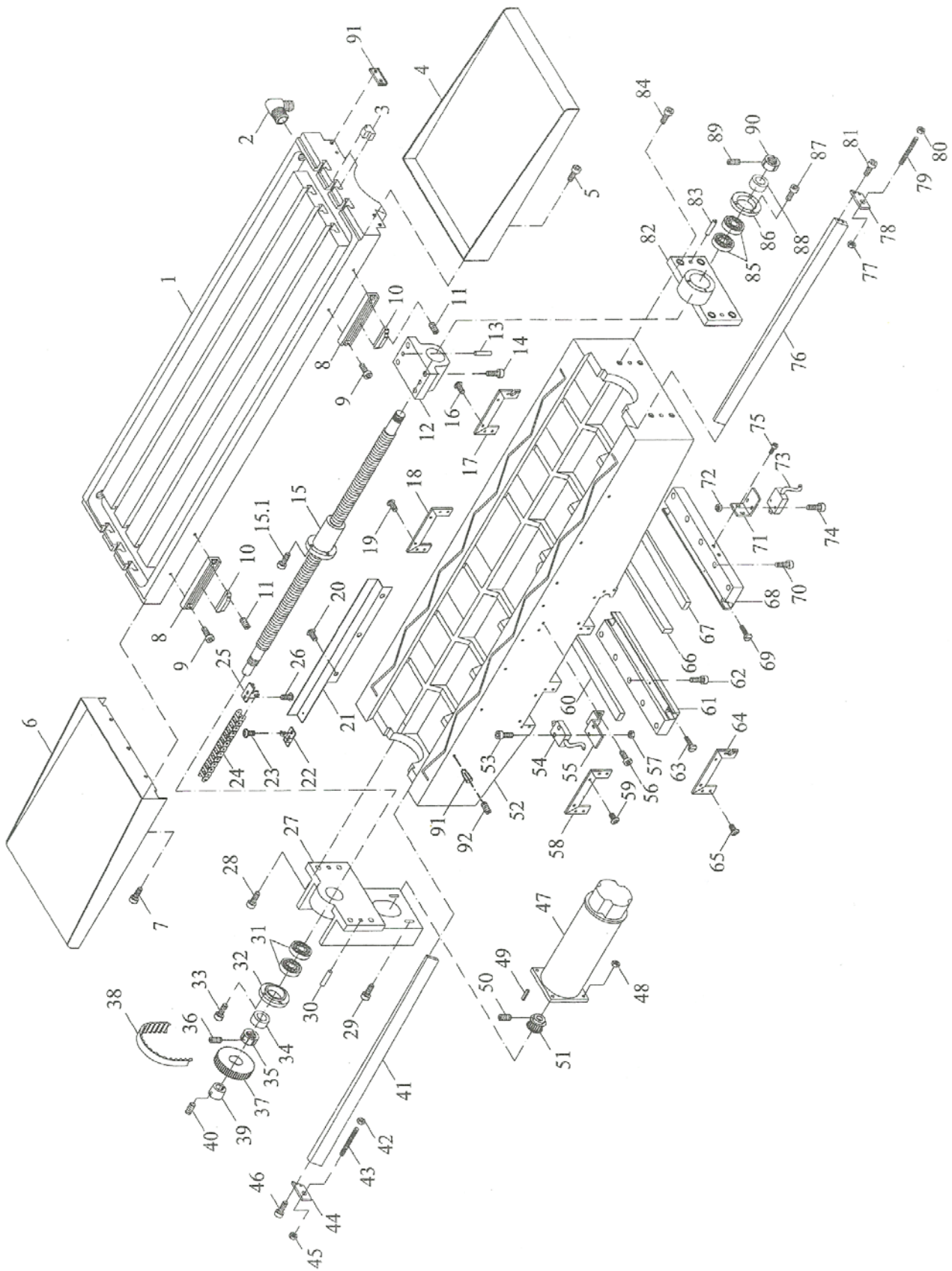
ITEM NO.	PART NO.	DESCRIPTION	QT'Y
65	MCCZ-003	Right Housing Gib (7x25x520)	1
66	MBCZ-017	Balancing Block Screw	2
67	MBM14P2	Hex. Nut	2
68	MB-3028	Gib Adj-Screw	2
69	MCCZ-004	Left Gib Plate (32x77x420)	1
70	MCCZ-003	Left Housing Gib	1
71	MB-3028	Gib Adj-Screw	2
72	MBSHS1240	Socket Head Cap Screw	10
73	MBCZ-022	Left Housing Wiper (Top)	1
74	MBRHS0510	Round Head Socket Cap Screw	4
75	MBCZ-023	Right Housing Wiper (Top)	1
76	MCCZ-006	Right Gib Plate (32x77x420)	1
77	MBRHS0510	Round Head Socket Cap Screw	4
78	MCCZ-007	Spindle Housing	1
79	MBM06P1	Hex Nut	2
80	MBWM06	Washer	2
81	MCCZ-008	Travel Limit Bracket	1
82	MCCP-008	Travel Limit Switch	1
83	MBSHS0625	Socket Head Cap Screw	2
84	MBSHS0616	Socket Head Cap Screw	2
85	MCCZ-009	Spindle Servo Motor	1
86	MBSHS1235	Socket Head Cap Screw	4
87	MCCZ-010	Spindle Motor Pulley	1
88	MCCZ-011	End Washer	1
89	MBSHS1235	Socket Head Cap Screw	1
90	MCCZ-012	Spindle Motor Plate	1
91	MBSHS1240	Socket Head Cap Screw	4
92	MCCZ-013	Air Cylinder Ass'y	1
93	MBSHS1055	Socket Head Cap Screw	4
94	MCCZ-014	Air Cylinder plate	1
95	MBSHS1030	Socket Head Cap Screw	4
96	MCCZ-015	Cylinder Support Shaft	4

ITEM NO.	PART NO.	DESCRIPTION	QT'Y
97	MBCZ-028	Right Housing Wiper (Lower)	1
98	MBRHS0510	Round Head Socket Cap Screw	4
99	MBCZ-029	Left Housing Wiper (Lower)	1
100	MBRHS0510	Round Head Socket Cap Screw	4
101	MBCZ-030	Bracket	1
102	MBSHS0608	Socket Head Cap Screw	2
103	MBCZ-031-1	Way Cover Assembly	1
104	MBRHS0506	Round Head Socket Cap Screw	3
105	MCCZ-016	Spindle Ass'y	1
106	MBSHS0635	Socket Head Cap Screw	1
107	MBSHS0825	Socket Head Cap Screw	6
108	MCTB8YU800	Leather Belt	1



Spindle Assembly			KL1212
Item#	Part #	Description	Quantity
1	KL121202-A	Spindle Shaft	1
2	KL121206-B	External Jacket	1
3	KL121207	Spacer	1
4	KL121208	Spacer	1
5	KL121211-A	Spindle Pulley	1
6	KL121212	Screw Nut	1
7	KL121213-B	Magnetic Switch Seat	1
8	KL121214-A	Screw Nut	1
9	KL121220-A	Nut of Drawbar	1
10	KL121224	Alignment Key	1
11	MV121001	Spindle Housing	1
12	MV121003	Front Cover	1
13	MV121009-A	Drawbar	1
14	MV121010	Washer	2
15	HP100906	Spacer	1
16	HP100907	Spacer	1
17	KD601205	Dust Proof Cap	1
18	KD601206	Dust Proof Cap	1
19	KD601208	Spacer	1
20	B7012	Ball Bearing	2
21	B7010	Ball Bearing	2
22	M5xP0.8x6L	Set Screw	6
23	M6xP1.0x20L	Socket HD Cap Screw	10
24	P22A	O Ring	1
25	P26	O Ring	1
26	G115	O Ring	2
27	YSR M60XP1.5	Precision Ground Lock Nut-Left Hand Thread	1
28	8x8x30L	Key	2
29	31.5x16.3x2	Disk Spring	90
30	BT40-45°	Clamping Jaw-same for CAT#40	1

# 11-3. BED MILL X AXIS SECTION





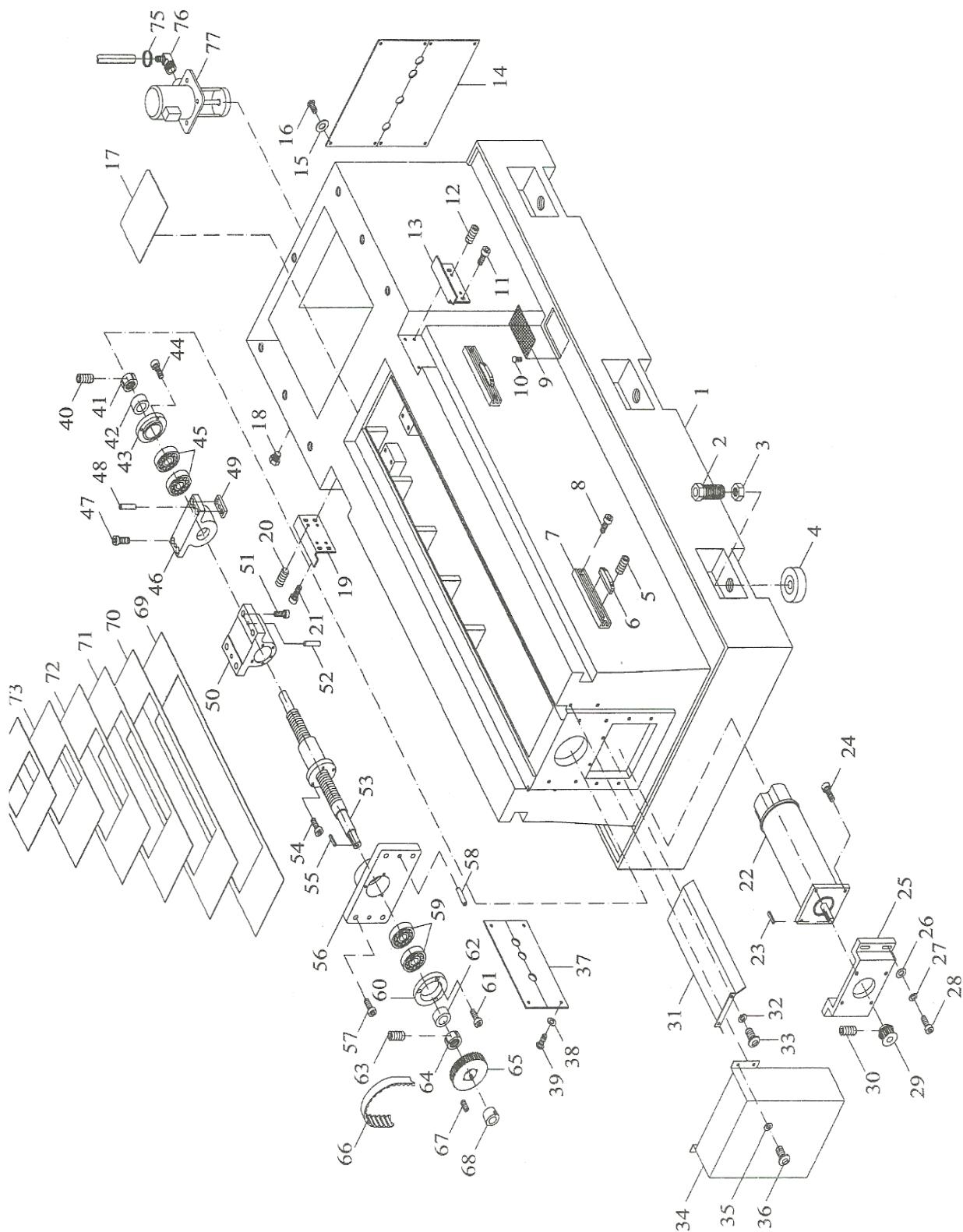
ITEM NO.	PART NO.	DESCRIPTION	QT'Y
1	MBTSX-001	Table	1
2	MB1"PT*1E	90 Degree Coolant Hose Connector	2
3	MBTSX-002	Rubber Plug	6
4	MBSMS-001	Right Table End Cover	1
5	MBSHS0816	Socket Head Cap Screw	3
6	MBSMS-002	Left Table End Cover	1
7	MBSHS0816	Socket Head Cap Screw	3
8	MBCP-001	Limit block Travel Rail	2
9	MBSHS0616	Socket Head Cap Screw	4
10	MBCP-002	Limit block	4
11	MBCP-003	Special Set Screw	8
12	MBTSX-003	Ball Screw Nut Seat (X. Y.)	1
13	MBTP4#	Taper Pin	2
14	MBSHS1225	Socket Head Cap Screw	4
15	MBTSX-004	X Axis Ball Screw W/Nut	1
15.1	MBSHS0612	Socket Head Cap Screw	5
16	MBRHS0510	Round Head Socket Cap Screw	6
17	MBTSX-005	Saddle Way Wiper	1
18	MBTSX-006	Saddle Way Wiper	1
19	MBRHS0510	Round Head Socket Cap Screw	6
20	MBRHS0608	Round Head Socket Cap Screw	3
21	MBSMS-003	Guide Rail	1
22	MBSQ604-U	Flange	1
23	MBRHS0406	Round Head Socket Cap Screw	2
24	MBSQ604-R20	Cable Protector Housing	1
25	MBSQ604-L	Flange	1
26	MBRHS0406	Round Head Socket Cap Screw	2
27	MBTSX-006	X Axis Servo Motor Bracket	1
28	MBSHS1225	Socket Head Cap Screw	4
29	MBSHS0630	Socket Head Cap Screw	4
30	MBTP4#	Taper Pin	2
31	MBBST2562	Ball Bearing	2
32	MBTSX-007	Bearing Retainer	1



ITEM NO.	PART NO.	DESCRIPTION	
33	MBSHS0615	Socket Head Cap Screw	3
34	MBCP4217	Spacer	1
35	MBYSF-M25*1.5P	Lock Nut	1
36	MBSS0604	Set Screw	3
37	MBPDL16	Ball Screw Pulley	1
38	MBTB5M550	Timing Belt	1
39	MBPDLT02	Pulley Sleeve	1
40	MBSS1/4-20*1/2	Set Screw	2
41	MBTSX-008	Left Table Gib	1
42	MBNUTM10	Hex. Nut	1
43	MBTSX-009	Stud	1
44	MBTSX-010	Gib Detent Plate	1
45	MBNUTM10	Hex. Nut	2
46	MBSHS0612	Socket Head Cap Screw	2
47	MBMD07	Servo Motor	1
48	MBNUTM06	Hex. Nut	4
49	MBKEY0530	Key	1
50	MBSSW5/16	Set Screw	3
51	MBPDL17	Motor Pulley	1
52	MBTSX-011	Saddle	1
53	MBSHS0630	Socket Head Cap Screw	2
54	MBTZ-3310	Travel Limit Switch	1
55	MBTSX-012	Travel Limit Switch Bracket	1
56	MBSHS0612	Socket Head Cap Screw	2
57	MBNUTM05	Hex Nut	2
58	MBTSX-013	Saddle Way Wiper	1
59	MBRHS0510	Round Head Socket Cap Screw	6
60	MBTSX-021	Left Lower Adj-Gib	1
61	MBTSX-014	Left Gib Plate	1
62	MBSHS1240	Socket Head Cap Screw	5
63	MB-3028	Gib Adj-Screw	2
64	MBTSX-015	Saddle Way Wiper	1

ITEM NO.	PART NO.	DESCRIPTION	QT'Y
65	MBRHS0510	Round Head Socket Cap Screw	6
66	MBTSX-016	Center Adj-Gib	1
67	MBTSX-014	Right/Lower Gib	1
68	MBTSX-017	Right/Lower Gib Plate	1
69	MB-3028	Gib Adj-Screw	4
70	MBSHS1240	Socket Head Cap Screw	5
71	MBTSX-018	Travel Limit Switch Bracket	1
72	MBNUTM05	Hex. Nut	2
73	MBTZ-3310	Travel Limit Switch	1
74	MBSHS0630	Socket Head Cap Screw	2
75	MBSHS0612	Socket Head Cap Screw	2
76	MBTSX-019	Right Table Gib	1
77	MBNUTM10	Hex. Nut	1
78	MBTSX-010	Gib Detent Plate	1
79	MBTSX-009	Stud	1
80	MBNUTM10	Hex. Nut	2
81	MBSHS0612	Socket Head Cap Screw	2
82	MBTSX-020	X Axis Bearing Seat	1
83	MBTP4#	Taper Pin	2
84	MBSHS1235	Socket Head Cap Screw	4
85	MBTVP7205B	Ball Bearing	2
86	MBCP7842	Bearing Retainer	1
87	MBSHS0615	Socket Head Cap Screw	3
88	MBCP4217	Spacer	1
89	MBSSW5/16	Set Screw	3
90	MBYSF-M25*1.5P	Lock Nut	1
91	MBTSX-021	Saddle Lock Plunger	8
92	MBSSW1/2	Set Screw	8

# 11-4. BED MILL Y AXIS SECTION



ITEM NO.	PART NO.	DESCRIPTION	QTY
1	MBBY-001	Machine Base	1
2	MBBY-002	Leveing Screw	6
3	MBBY-003	Nut	6
4	MBBY-004	Leveing Pad	6
5	MBCP-003	Special Set Screw	4
6	MBCP-002	Limit block	2
7	MBCP-001	Limit block Travel Rail	2
8	MBSHS0616	Socket Head Cap Screw	4
9	MBSMS-004	Filter	2
10	MBRD-001	Round HD Drive Screw	8
11	MBSHS0612	Socket Head Cap Screw	4
12	MBSS0610	Set Screw	4
13	MBSMS-005	Way Cover Bracket	1
14	MBSMS-006	Base Back Cover	1
15	MBWM08	Washer	8
16	MBSHS0610	Socket Head Cap Screw	8
17	MBSMS-007	Y Axis Way Cover Plate	1
18	MB1/2PT	Plug	1
19	MBSMS-008	Way Cover Bracket	1
20	MBSS0610	Set Screw	4
21	MBSHS0612	Socket Head Cap Screw	4
22	MBMD07	Servo Motor	1
23	MBKEY0530	Key	1
24	MBSHS0625	Socket Head Cap Screw	4
25	MBBY-004	Y Axis Motor Plate	1
26	MBWM08	Washer	4
27	MBSWM08	Spring Washer	4
28	MBSHS0825	Socket Head Cap Screw	4
29	MBPDL17	Motor Pulley	1
30	MBSSW5/16	Set Screw	3
31	MBSMS-009	Y Axis Motor Upper Cover Plate	1
32	MBWM06	Washer	2

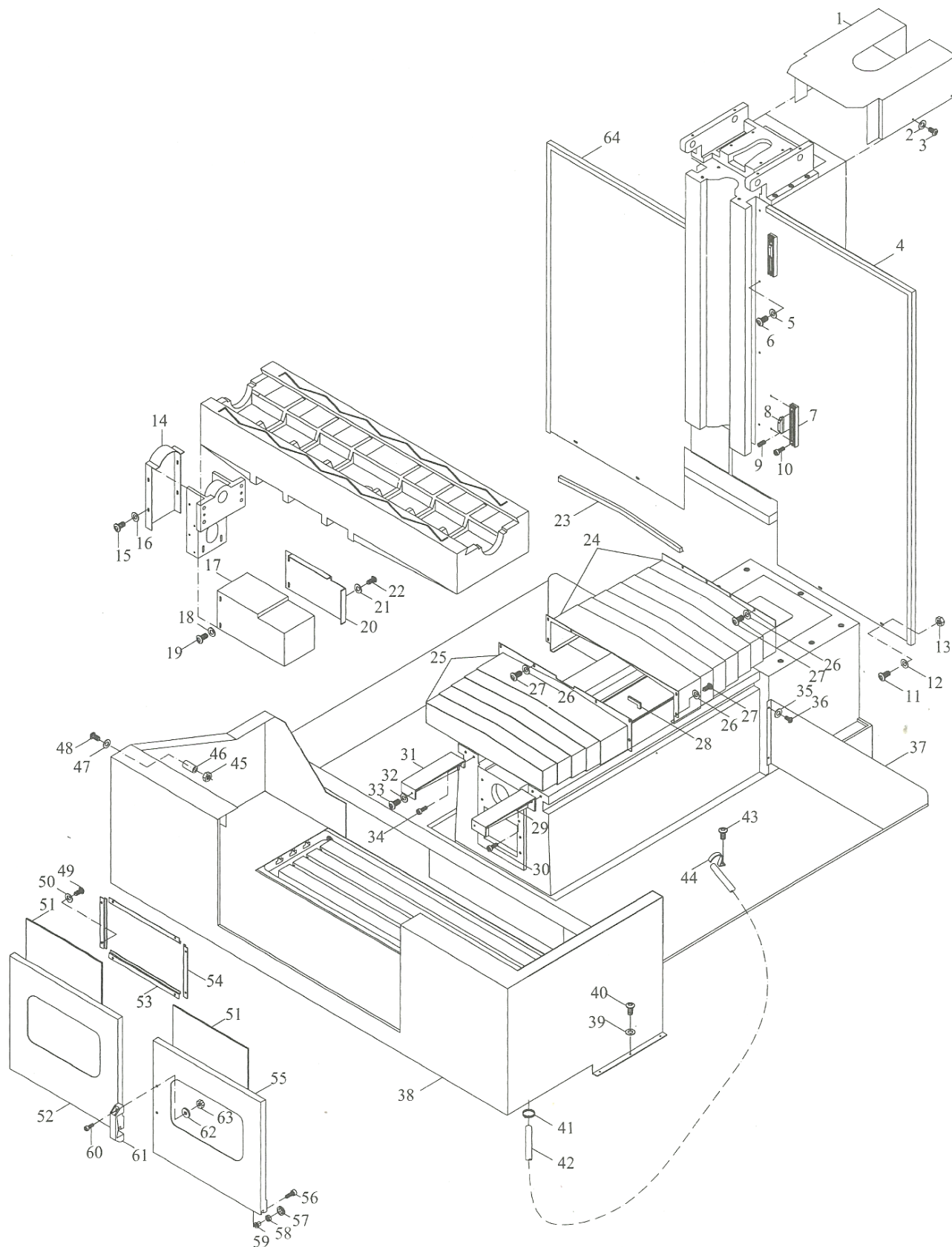
ITEM NO.	PART NO.	DESCRIPTION	
33	MBSHS0610	Round Head Socket Cap Screw	2
34	MBSMS-010	Base Front Cover	1
35	MBWM06	Washer	4
36	MBSHS0610	Round Head Socket Cap Screw	4
37	MBSMS-011	Left Cover	1
38	MBWM06	Washer	6
39	MBSHS0610	Round Head Socket Cap Screw	6
40	MBSS0604	Set Screw	3
41	MBYSF-M25*1.5P	Nut	1
42	MBXYZ4217	Spacer	1
43	MBXYZ7842	Bearing Retainer	1
44	MBSHS0615	Socket Head Cap Screw	3
45	MBTVP7205B	Ball Bearing	2
46	MBBY-005	Y Axis Ball Screw Bracket	1
47	MBSHS0825	Socket Head Cap Screw	4
48	MBTP4#	Taper Pin	2
49	MBCZ-015	Spacer Plate	2
50	MBTSX-003	Ball Screw Nut Seat	1
51	MBSHS1225	Socket Head Cap Screw	4
52	MBTP4#	Taper Pin	2
53	MBBY-006	Y Axis Ball Screw W/Nut	1
54	MBSHS0612	Socket Head Cap Screw	5
55	MBKEY0620	Key	1
56	MBCZ-009	Bearing Seat	1
57	MBSHS1235	Socket Head Cap Screw	4
58	MBTP4#	Taper Pin	2
59	MBBST2562	Ball Bearing	2
60	MBTSX-007	Bearing Retainer	1
61	MBSHS0612	Socket Head Cap Screw	3
62	MBXYZ4217	Spacer	1
63	MBSS0604	Set Screw	3
64	MBTB5M550	Timing Belt	1



<b>ITEM NO.</b>	<b>PART NO.</b>	<b>DESCRIPTION</b>	<b>QT'Y</b>
65	MBPDL16	Ball Screw Pulley	1
66	MBTB5M550	Timing Belt	1
67	MBSS1/4-20*1/2	Set Screw	2
68	MBPDLT02	Pulley Sleeve	1
69	MBSMS-012	Y Axis Way Cover Plate	1
70	MBSMS-013	Y Axis Way Cover Plate	1
71	MBSMS-014	Y Axis Way Cover Plate	1
72	MBSMS-015	Y Axis Way Cover Plate	1
73	MBSMS-016	Y Axis Way Cover Plate	1
74	MBSMS-017	Y Axis Way Cover Plate	1
75	MBHC1/2	Hose Clamp	1
76	MB1/2PT1/2PE	Coolant Hose Connector	1
77	MB1/8HP*2P	Coolant Pump	1



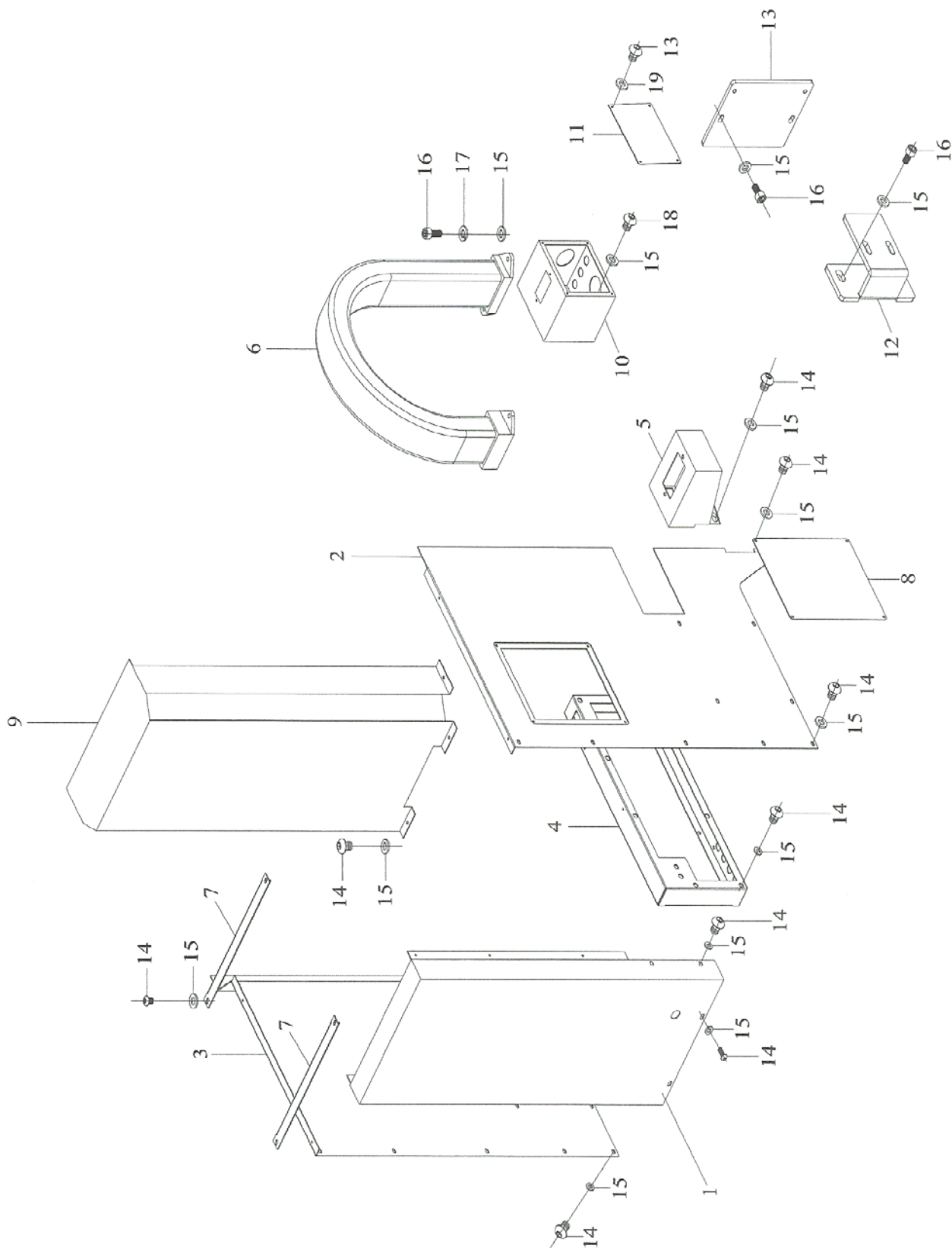
# 11-5. SHEETMETAL SECTION I



ITEM NO.	PART NO.	DESCRIPTION	QT'Y
1	MBSMS-016	Column Top Cover	1
2	MBWM06	Washer	10
3	MBRHS0608	Round Head Socket Cap Screw	10
4	MBSMS-019	Right Column Side Guard	1
5	MBWM06	Washer	6
6	MBRHS0608	Round Head Socket Cap Screw	6
7	MBCP-001	Limit Block	4
8	MBCP-002	Limit Block Travel Rail	2
9	MBCP-003	Special Set Screw	4
10	MBSHS1240	Socket Head Cap Screw	4
11	MBRHS0608	Round Head Socket Cap Screw	4
12	MBWM06	Washer	4
13	MBNUTM06	Hex Nut	4
14	MBSMS-023	X Axis Motor Bracket Cover	1
15	MBRHS0608	Round Head Socket Cap Screw	4
16	MBWM06	Washer	4
17	MCSMS-025	X Axis Motor Cover	1
18	MBWM06	Washer	2
19	MBRHS0608	Round Head Socket Cap Screw	2
20	MCSMS-026	X Axis Motor Side Cover	1
21	MBWM06	Washer	4
22	MBRHS0608	Round Head Socket Cap Screw	4
23	MBCP-004	Wiper Plate	10
24	MBCP-005	Back Way Cover	1
25	MBCP-006	Front Way Cover	1
26	MBWM06	Washer	16
27	MBRHS0608	Round Head Socket Cap Screw	16
28	MBCP-007	Plastic Guide	18
29	MBSMS-026	Right Way Cover Bracket	1
30	MBSHS1240	Socket Head Cap Screw	2
31	MBSMS-027	Left Way Cover Bracket	1
32	MBWM06	Washer	2

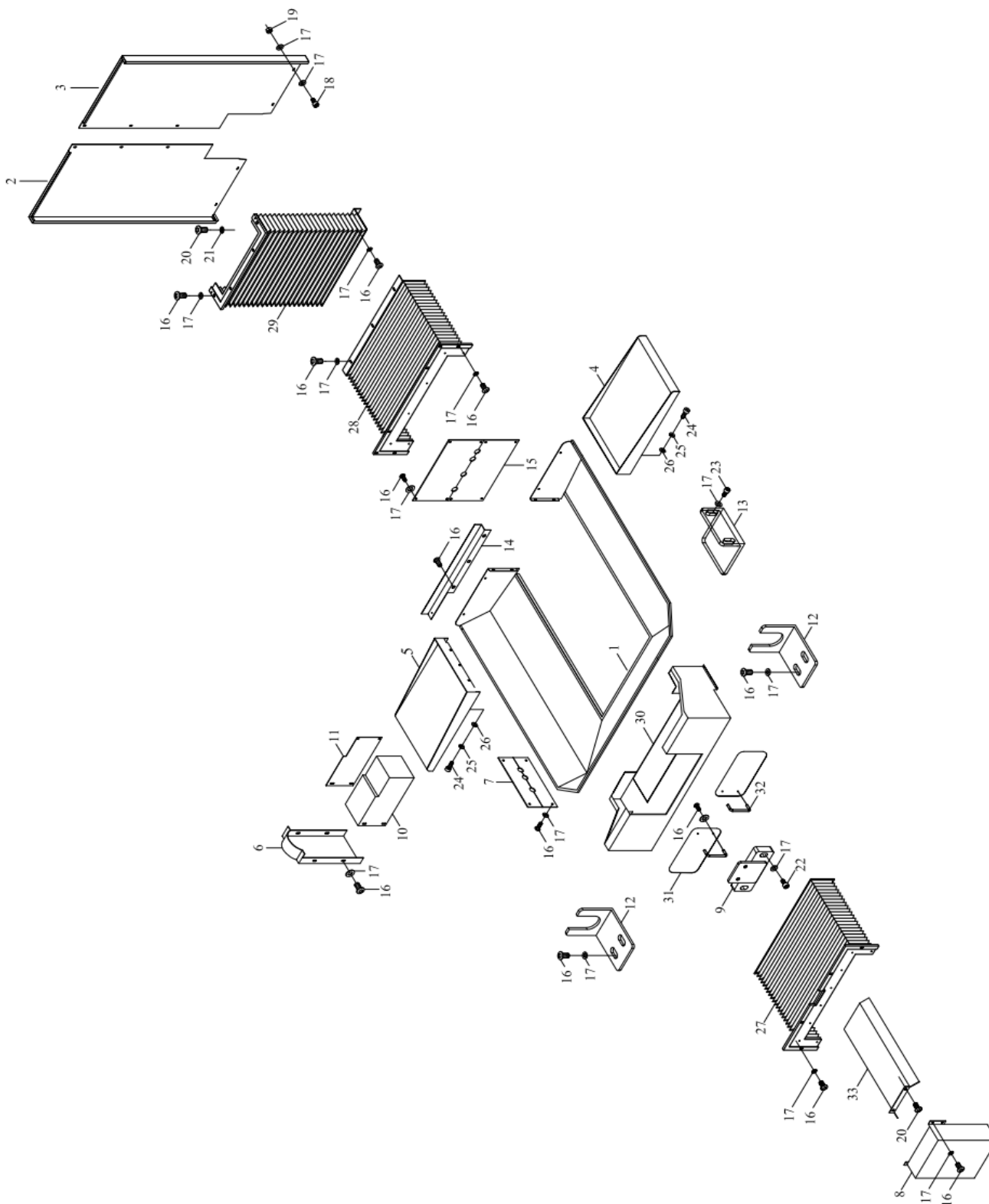
ITEM NO.	PART NO.	DESCRIPTION	QT'Y
33	MBRHS0608	Round Head Socket Cap Screw	2
34	MBSHS1240	Socket Head Cap Screw	2
35	MBWM06	Washer	4
36	MBRHS0608	Round Head Socket Cap Screw	4
37	MBSMS-028	Coolant Chip Pan	1
38	MBSMS-029	Table Splash Guard	1
39	MBWM06	Washer	25
40	MBRHS0608	Round Head Socket Cap Screw	25
41	MBCH1"	Hose Clamp	2
42	MBH1"	Hose	2
43	MBRHS0608	Round Head Socket Cap Screw	2
44	MBCP-008	Hose Set Clamp	2
45	MBNUTM06	Hex Nut	2
46	MBCP-009	PU Plastic	2
47	MBWM06	Washer	2
48	MBRHS0608	Round Head Socket Cap Screw	2
49	MBRHS0608	Round Head Socket Cap Screw	16
50	MBWM06	Washer	16
51	MBCP-010	Acrylic Board	2
52	MBSMS-030	Left Moving Door	1
53	MBSMS-031	Acrylic Cocating Plate Long	4
54	MBSMS-032	Acrylic Cocating Plate Short	4
55	MBSMS-033	Right Moving Door	1
56	MBSHS1240	Socket Head Cap Screw	6
57	MBCP-011	Roller Wheel	6
58	MB627	Bearing 627ZZCNM/1KT	6
59	MBCP-012	Special Nut	6
60	MBSHS0825	Socket Head Cap Screw	4
61	MCCB-002	Side Handle	2
62	MBWM08	Washer	4
63	MBNUTM08	Hex Nut	4
64	MCSMS-001	Left Column Side Guard	1

# 11-6. SHEETMETAL SPINDLE SECTION



<b>Item #</b>	<b>Part #</b>	<b>Description</b>	<b>QTY</b>
1	EMC2240-01	Front Housing Connector Box	1
2	EMC2240-02	Right Housing Cover	1
3	EMC2240-05	Light Housing Cover	1
4	EMC2240-03	Housing Coolant Bracket	1
5	EMC2240-04	Head Housing Connector Box	1
6	ACU-SQ303II	Cable Protector Housing (SQ303II*KR100*1036L*NO8)	1
7	EMC2240-06	Top Housing Bracket	2
8	EMC2240-02-1	Right Housing Cover	1
9	MBSMS-022A	Upper Housing Cover	1
10	ACU-B09+	Electric Joint Box Main Body	1
11	ACER-B10+	Joint Box Cover	1
12	MBCZ-027	Z Axis Travel Limit Bracket	1
13	MBSMS-035	Z Axis Limit Block Travel Bracket	1
14		M6*10 Round Head Socket Cap Screw	50
15		M6 Washer	67
16		M6*16 Socket Head Cap Screw	8
17		M6 Spring Washer	4
18		M6*12 Round Head Socket Cap Screw	4
19		M6*8 Round Head Socket Cap Screw	4

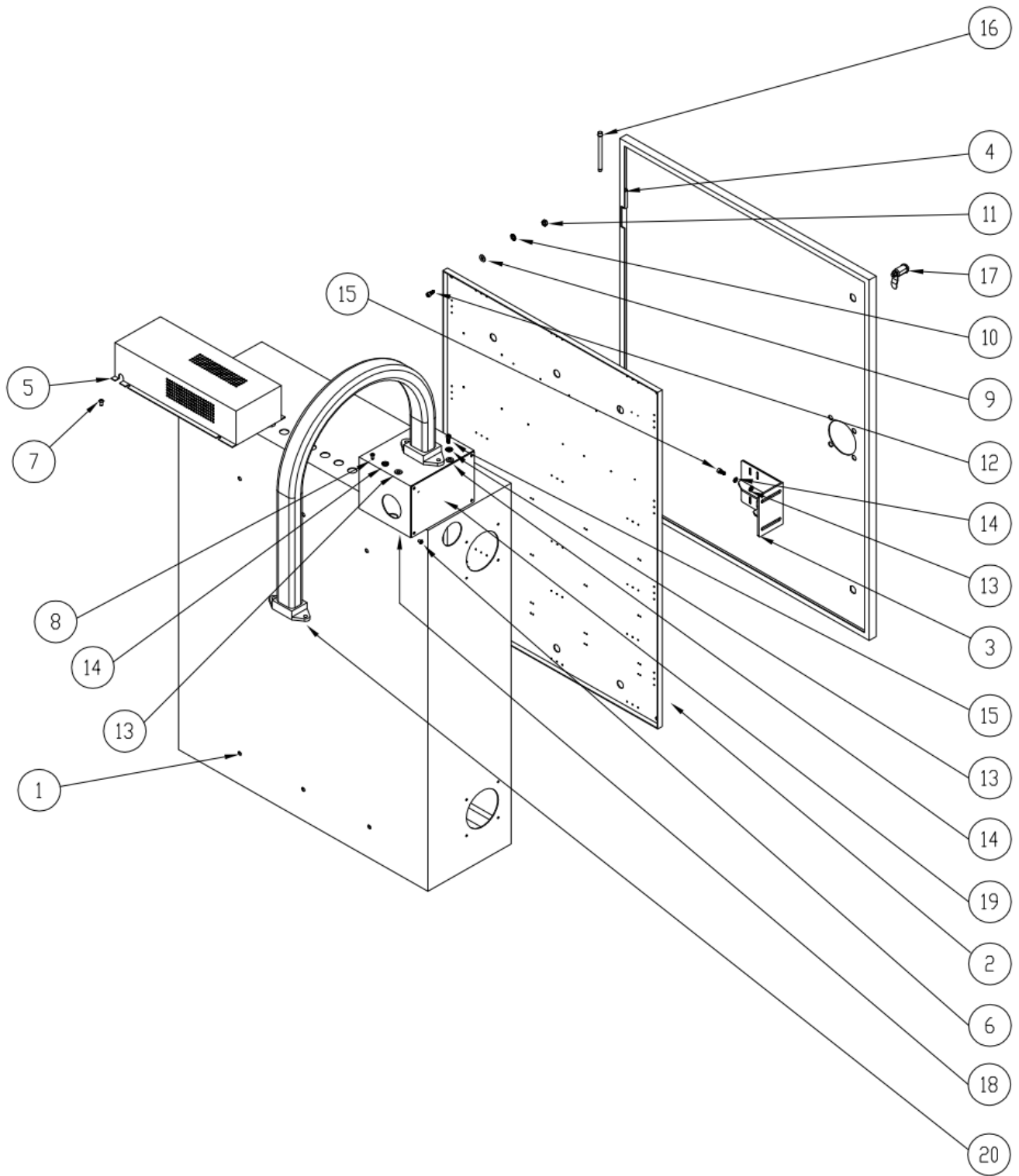
# 11-7. SHEETMETAL SECTION II FOR ATM 1454+ AND BED MILL 1454II





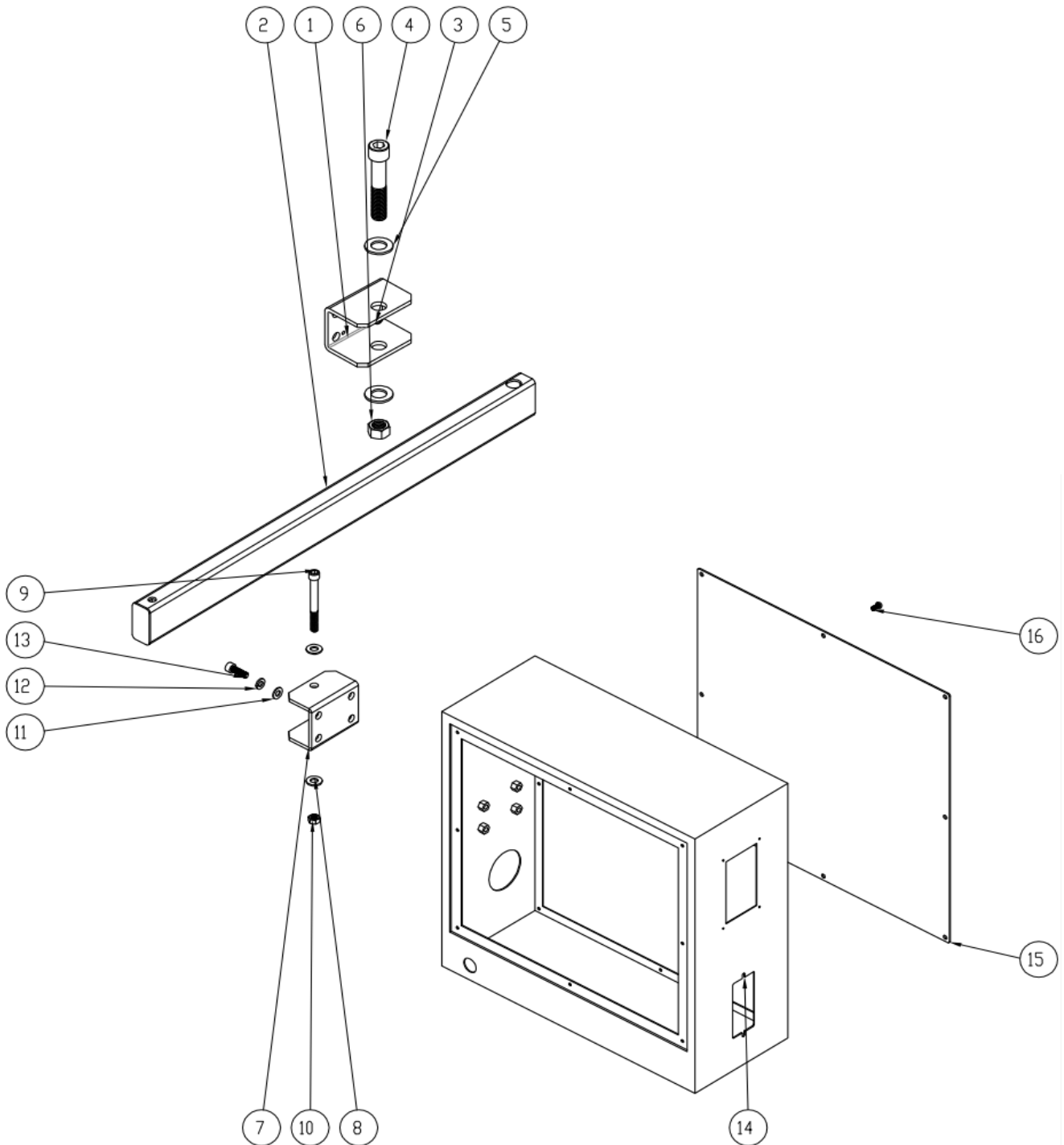
<b>Item</b>	<b>Part#</b>	<b>Description</b>	<b>QTY</b>
1.	ATM-028	Coolant Chip Pan	1
2.	ATM-019	Left Column Side Guard	1
3.	ATM-020	Right Column Side Guard	1
4.	MBSMS-001	Right Table End Cover	1
5.	MBSMS-002	Left Table End Cover	1
6.	MBSMS-023	X Axis Motor Bracket Cover	1
7.	MBSMS-004	Left Cover Set	1
8.	MBSMS-010	Base Front Cover	1
9.	MBSMS-012	X Axis Travel Limit Switch Bracket (Fagor)	1
10.	MBSMS-041	X Axis Front Cover	1
11.	MBSMS-042	X Axis Back Cover	1
12.	MBTSX-021	X , Y Wire Collection Tubing Bracket	2
13.	MBTSX-018	Y Axis Travel Limit Switch Bracket (Fagor)	1
14.	MBSMS-003	Guide Rail	1
15.	MBSMS-004	Base Back Cover Set	1
16.		M6*10 Round Head Socket Cap Screw	64
17.		M6 Washer	73
18.		M6*16 Socket Head Cap Screw	4
19.		M6*P1 Hex Nut	4
20.		M5*10 Round Head Socket Cap Screw	4
21.		M5 Washer	2
22.		M6*20 Socket Head Cap Screw	2
23.		M6*12 Socket Head Cap Screw	2
24.		M8*20 Socket Head Cap Screw	6
25.		M8 Spring Washer	6
26.		M8 Washer	6
27.	MPCP-006A	Y Axis Accordion Way Cover-Front	1
28.	MPCP-006A	Y Axis Accordion Way Cover-Back	1
29.	MBCZ-031A	Z Axis Accordion Way Cover-Lower One	1
30.	MBSMS-029C	Table Splash Guard	1
31.	MPCP-010A	Acrylic Board	2
32.	MCCB-002A	Side Handle	2
33.	MBSMS-009	Y Axis Motor Upper Cover Plate	1

# 11-8. ELECTRIC CABINET



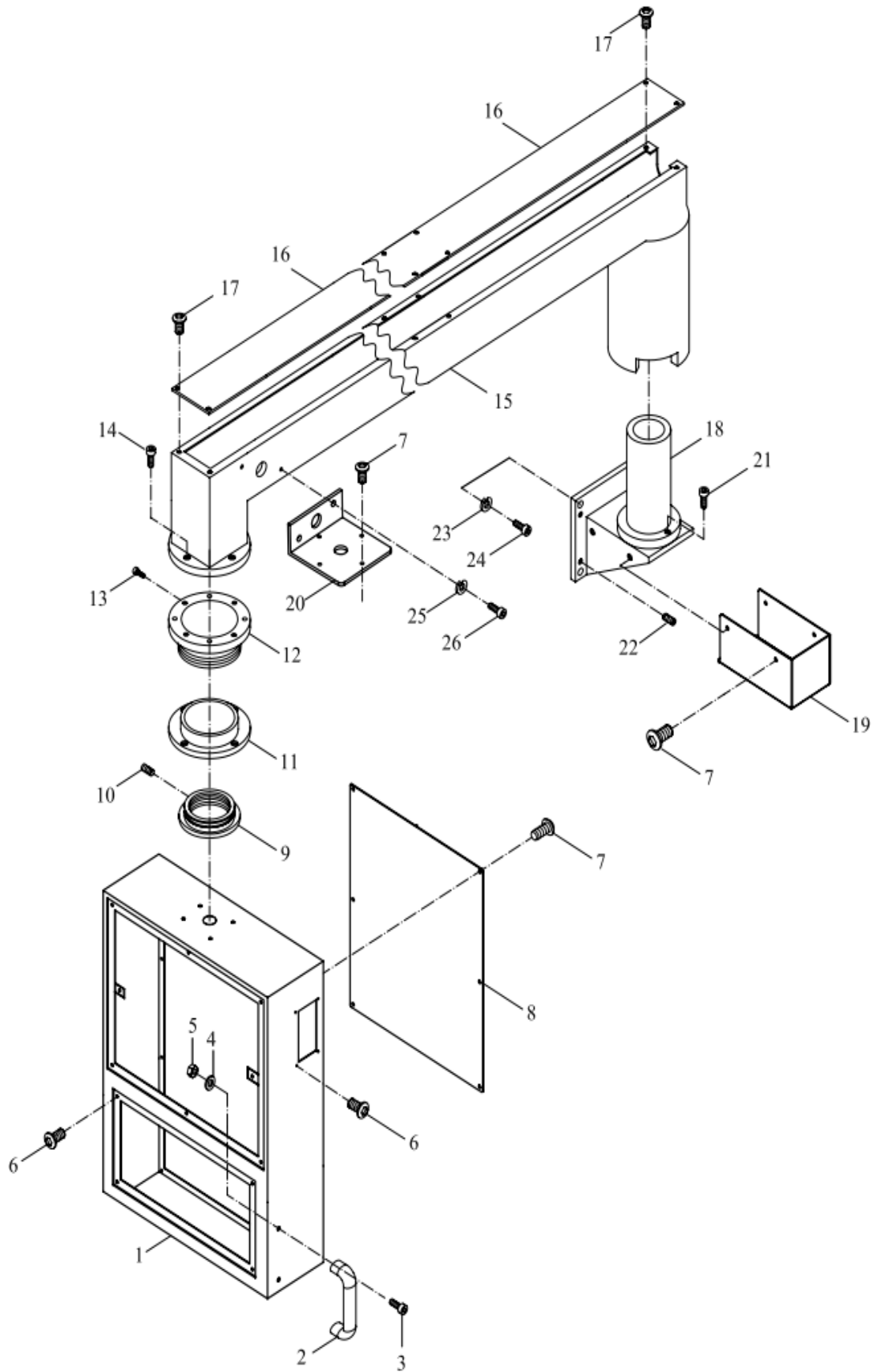
<b>Item#</b>	<b>Part#</b>	<b>Description</b>	<b>QTY</b>
1	ACU-A01FG	Electric Cabinet	1
2	ACU-A02FG	Electric Component Plate	1
3	ACU-A04	Power Switch Locating Bracket	1
4	ACU-A03FG	Electric Component Plate for Fagor Servo System	1
4	ACU-A03FA	Electric Component Plate for Fanuc Servo System	1
5	ACU-A14F	Bracket Resistor-Cover	1
6		B18.3.4M-5*0.8*8 SBHCH--C	4
7		B18.3.4M-6*1.0*12 SBHCH--C	4
8		B18.3.1M6*1.0*16 SBHCH--C	4
9		M8 Washer	6
10		M8 Spring Washer	6
11		M8 Hex Nut	6
12		B18.3.1M-8*1.25*30 SHCS--30CHX	6
13		B18.3.22M-Plan Washer , 6mm, narrow	6
14		M6 Spring Washer	6
15		M6*16 Socket Head Cap Screw	4
16	ACU-003	Hinge Roll Pin	2
17	ACU-004	Door Lock Set	2
18	ACU-B09	Electric Joint Box	1
19	ACU-B10	Electric Joint Box Cover	1
20	ACU-SQ303II	Cable Protector Housing(SQ303II*KR100*NO8)	1

# 11-9. CONTROL ARM ASSEMBLY FOR ATM-1454II/ATC 1454 FAGOR CONTROL



Item #	Part #	Description	QTY
1	ACER-B1-F001	Control Arm Locating Bracket-Column Side	1
2	ACER-B1-F002A	Control Arm for Fagor Control	1
3		3/4" x 4" Socket Head Cap Screw	1
4		M20 Flat Washer	1
5		3/4" Hex Nut	1
6	ACER-B1-F003	Control Arm Locating Bracket-Panel Side	1
7		M10 Flat Washer	2
8		3/8" x 16UNC x 88.9 Socket Head Cap Screw	1
9		3/8" x 16UNC Hex Nut	1
10		M8 Flat Washer	4
11		M8 Spring Washer	4
12		M8 x 1.25 x 25 Socket Head Cap Screw	4
13	ACER-B1-F004	Control Box	1
	ACER-B1-F004F	Control Box for Fagor Control	1
14	ACER-B1-F005	Control Box Cover	1
15		M5 x 0.8 x 12 Round Head Socket Cap Screw	8
16	ACU-010	Handle Hinge 508	1
17	AM-M4-C	Screw Nut	2
18		M10 Spring Washer	4
19		M10 x 1.5 x 30 Socket Head Cap Screw	4

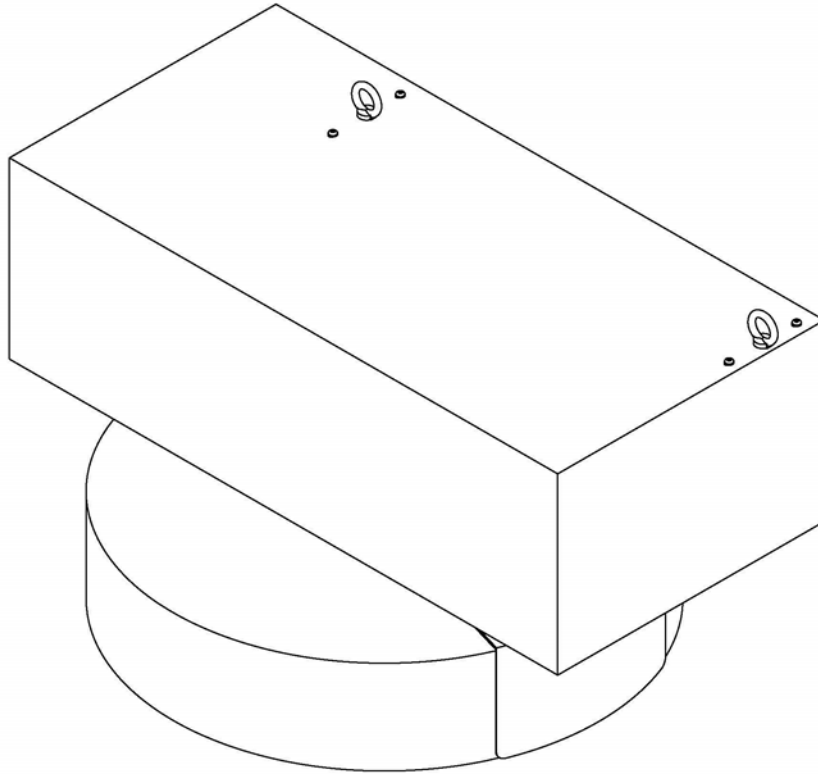
# 11-10. CONTROL ARM ASSEMBLY FOR ATM-1454II/ATC 1454 FANUC CONTROL





<b>Item #</b>	<b>Part #</b>	<b>Description</b>	<b>QTY</b>
1.	<b>MVBCV-024A</b>	<b>Control Box</b>	1
2.	<b>ECCB-002</b>	<b>Side Handle</b>	1
3.	<b>MBSHS0825</b>	<b>Socket Head Cap Screw</b>	2
4.	<b>MBWM08</b>	<b>Washer</b>	2
5.	<b>MBNUT08</b>	<b>Hex Nut</b>	2
6.	<b>MBRSH0410</b>	<b>Round Head Socket Screw</b>	16
7.	<b>MBRSH0510</b>	<b>Round Head Socket Screw</b>	14
8.	<b>MVBCV-025A</b>	<b>Back Cover</b>	1
9.	<b>MBVCB-012A</b>	<b>Bracket Ring Adaptor</b>	1
10.	<b>MBSS0806</b>	<b>Set Screw</b>	1
11.	<b>MVBCV-02A</b>	<b>Box Ring Adaptor</b>	1
12.	<b>MVBCV-03A</b>	<b>Control Arm Ring Adaptor</b>	1
13.	<b>MBSHS0825</b>	<b>Socket Head Cap Screw</b>	1
14.	<b>MBSHS0620</b>	<b>Socket Head Cap Screw</b>	4
15.	<b>MBVCB-015A</b>	<b>Control Arm</b>	1
16.	<b>MBVCB-016A</b>	<b>Arm Cover</b>	1
17.	<b>MBRSH0610</b>	<b>Round Head Socket Screw</b>	6
18.	<b>MBVCB-020A</b>	<b>Connector Bracket</b>	1
19.	<b>MBVCB-026A</b>	<b>Connector Bracket Cover</b>	1
20.	<b>MBVCB-027A</b>	<b>Bracket of Warning Light</b>	1
21.	<b>MBSHS0820</b>	<b>Socket Head Cap Screw</b>	1
22.	<b>MBSS0810</b>	<b>Set Screw</b>	4
23.	<b>MBWM10</b>	<b>Spring Washer</b>	4
24.	<b>MBSHS1025</b>	<b>Socket Head Cap Screw</b>	4
25.	<b>MBSWM6</b>	<b>Spring Washer</b>	2
26.	<b>MBSHS0610</b>	<b>Socket Head Cap Screw</b>	2

Ya-Gin Machine Tool Manufacturing, Inc.



## **#40 UMBRELLA TYPE AUTOMATIC TOOL CHANGER**

**HYG-408/412**

### **AUTOMATIC TOOL CHANGER**

### **OPERATION MANUAL**

No. 101, 506 Lane, Shen-Tso Rd. ,Shen Karng District, Taichung City, 429 Taiwan.

Tel: 886-4-2520-4120

Fax: 886-4-2520-4123

E-mail: [info@acerlinks.com](mailto:info@acerlinks.com)

Website: [www.acerlinks.com](http://www.acerlinks.com)

# **CONTENTS**

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## **#40 UMBRELLA TYPE AUTOMATIC TOOL CHANGER HYG-408/412 OPERATION MANUAL**

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<b>DIMENSIONAL DRAWING.....</b>	<b>64</b>
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**#40 UMBRELLA TYPE  
AUTOMATIC  
TOOL CHANGER  
HYG-408/412  
OPERATION MANUAL**

## MECHANICAL SPECIFICATION

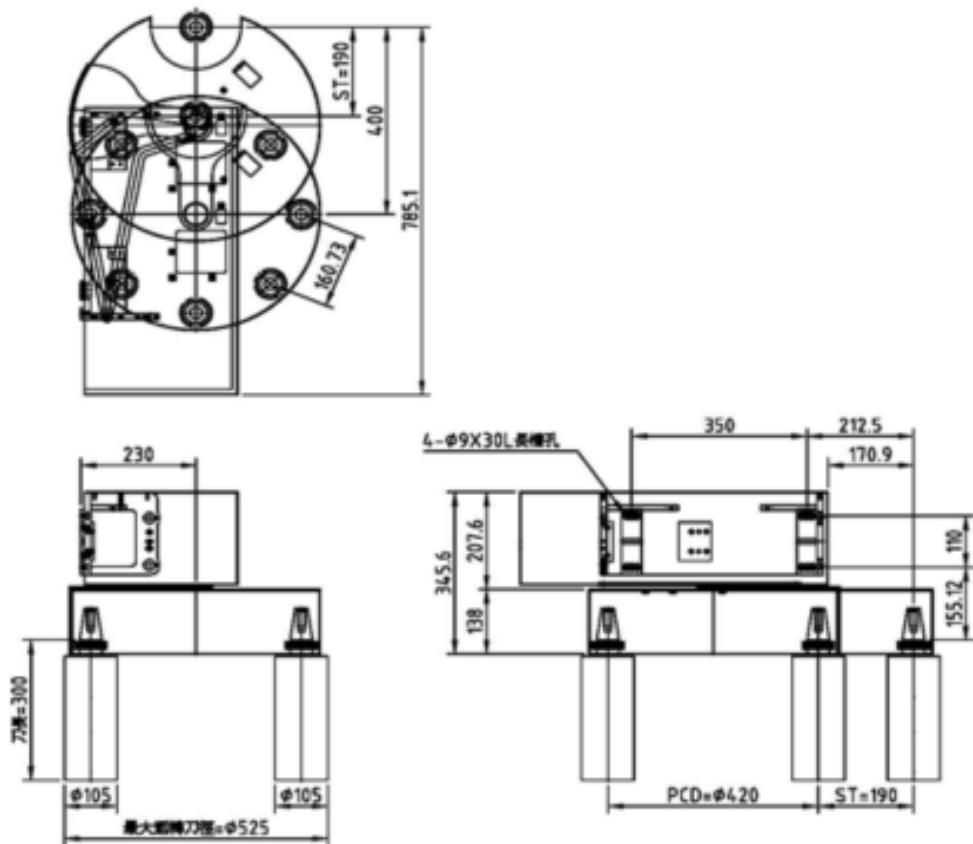
1.	Number of Tools	8	12
2.	Max. Tool Weight	8 kgs/17.6 lbs	8 kgs/17.6 lbs
3.	Max. Tool Diameter	105mm(4.13") / 160mm(6.30")	105mm(4.13")/ 160mm(4.30")
4.	Max. Tool Length	300mm(11.81")	300mm(11.81")
5.	Tool to Tool	1.35sec (60HZ)	1.35sec (60HZ)
6.	Pattern of Selecting Tool Holder	Bi-directional Random Select	Bi-directional Random Select
7.	Input Voltage	AC220V3Ø 60HZ /380V 3Ø 50HZ	AC220V3Ø 60HZ /380V 3Ø 50HZ
8.	Source of Pressure	5~6Kg/cm <sup>2</sup> (71.12~85.34psi)	5~6Kg/cm <sup>2</sup> (71.12~85.34psi)

# **DIMENSIONAL DRAWING**

# ACER

Customer Confirmation Figure	客戶 Customer	機種 Machine Model
刀庫型式 Magazine Spec.	<b>HGY-408 (#40 x 8T)</b>	卸刀分割時間 Mag. Indexing Time
刀套規格 Pocket Spec.	BT40,CAT40,DIN40	50Hz 1.6 sec
刀盤直徑 Cutter Diameter	420 mm	60Hz 1.35 sec
刀庫淨重 Magazine Weight	KG	氣缸往復時間 Cylinder Redracting Time
		2.0 sec
		最大刀徑 Maximum Tool Dia.
		MAX: $\phi 105$
		刀具重量 Tool Weight (Kgf)
		MAX: 8
		TOTAL: 64

客戶編號	銘額編號	品名	刀套	刀臂	電壓	頻率	顏色



### 配件表 Accessories

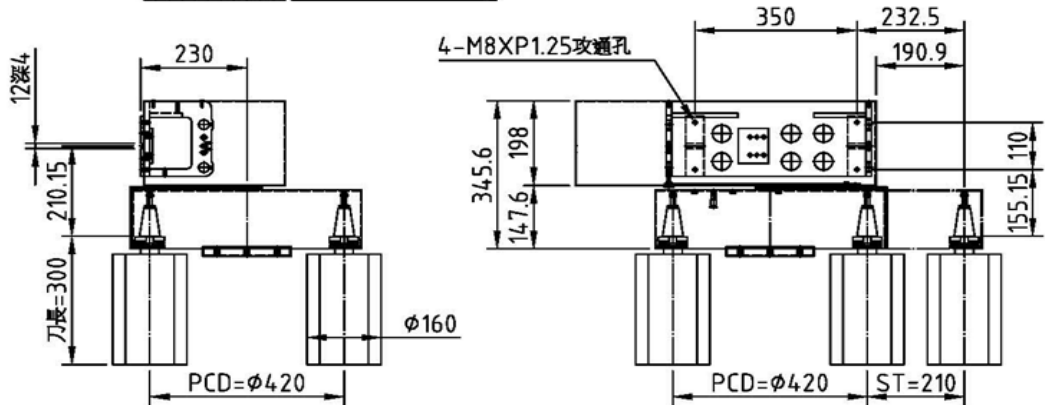
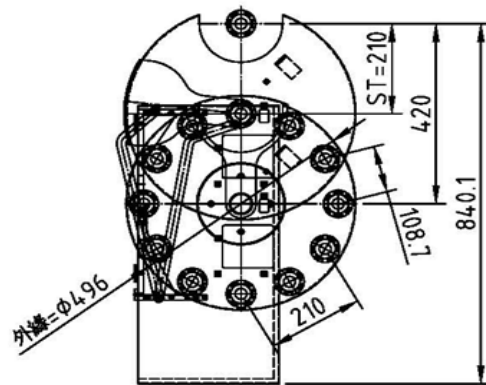
1.	7.
2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

客戶確認 Customer Confirm: \_\_\_\_\_ 繪圖者 Designer: \_\_\_\_\_  
 確認日期 Confirm Date: \_\_\_\_\_ 繪圖日期 Draw Date: \_\_\_\_\_

# ACER

Customer Confirmation Figure		客戶 Customer	機種 Machine Model	
刀庫型式 Magazine Spec.	HYG-412 (40# X 12T)		鄰刀分割時間 Mag. Indexing Time	50Hz 1.6 sec    60Hz 1.35 sec
刀套規格 Pocket Spec.	BT40		氣缸往復時間 Cylinder Reciprocating Time	2.0 sec
刀盤直徑 Cutter Diameter	420 mm (210L)		最大刀徑 Maximum Tool Dia.	MAX: $\phi 105$ / $\phi 160$
刀庫淨重 Magazine Weight	KG		刀具重量 Tool Weight (Kgf)	MAX: 8    TOTAL: 96

客戶編號	錠類編號	品名	刀套	刀臂	電壓	頻率	顏色



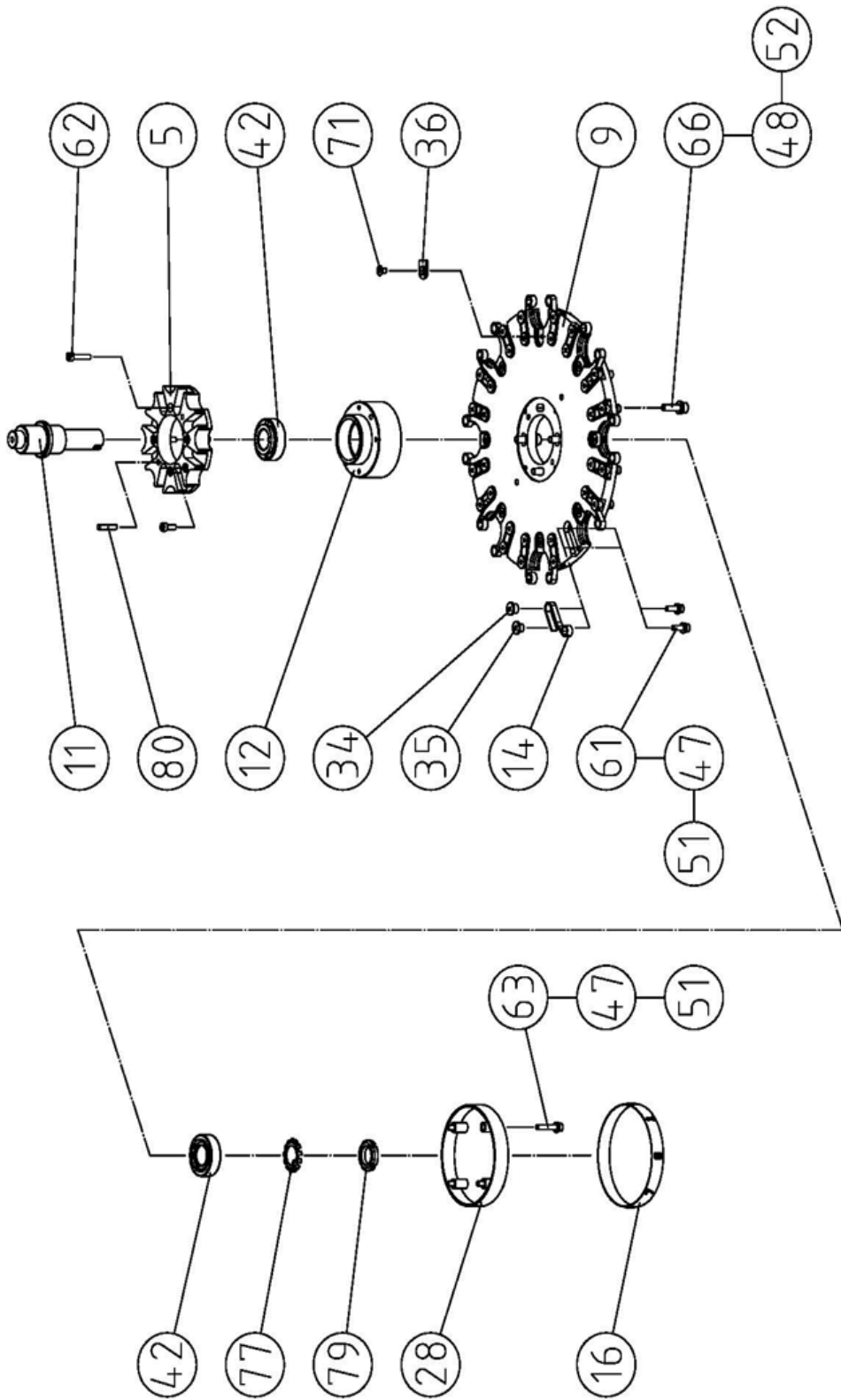
### 配件表 Accessories

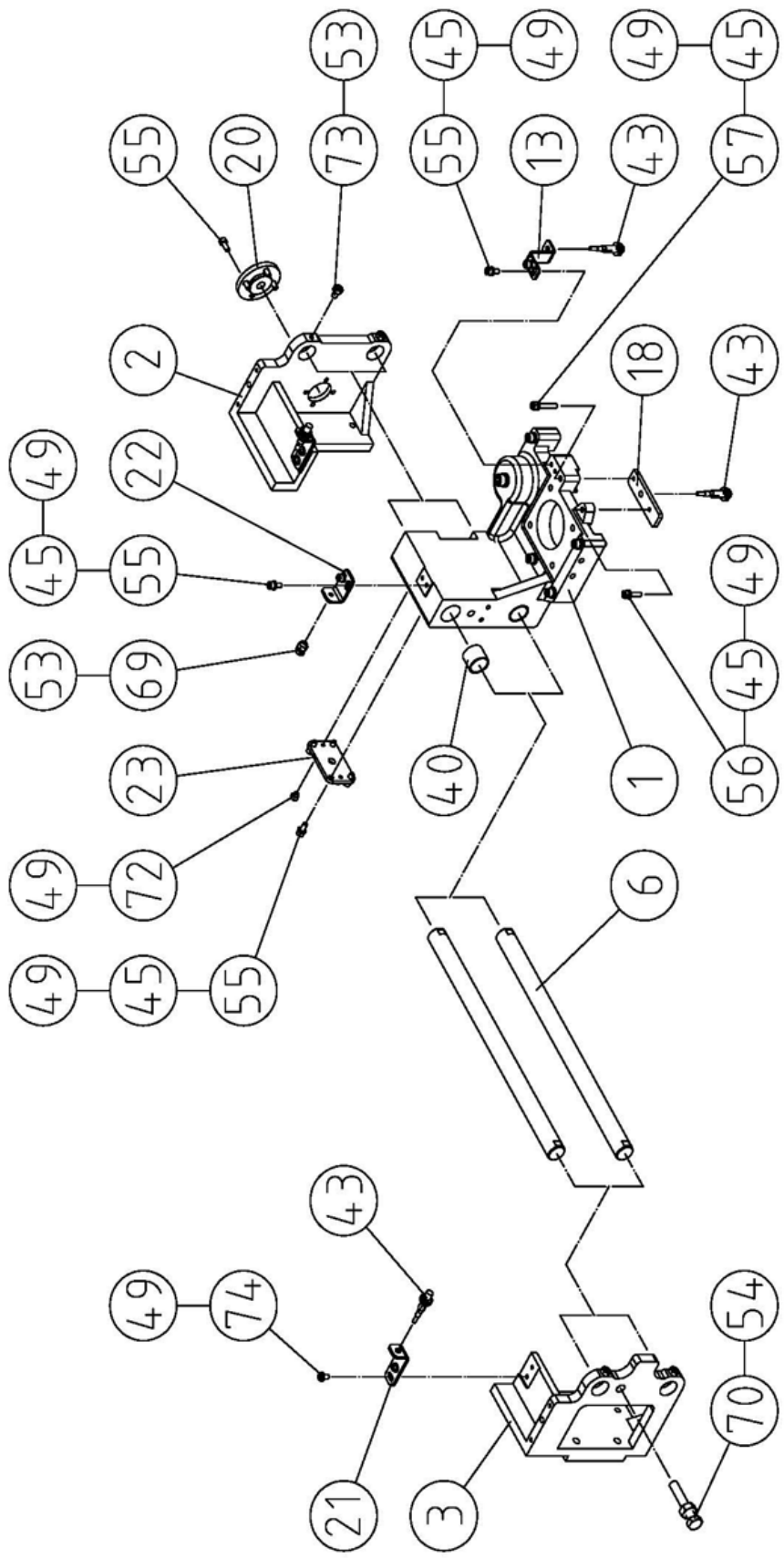
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2.	8.
3.	9.
4.	10.
5.	11.
6.	12.

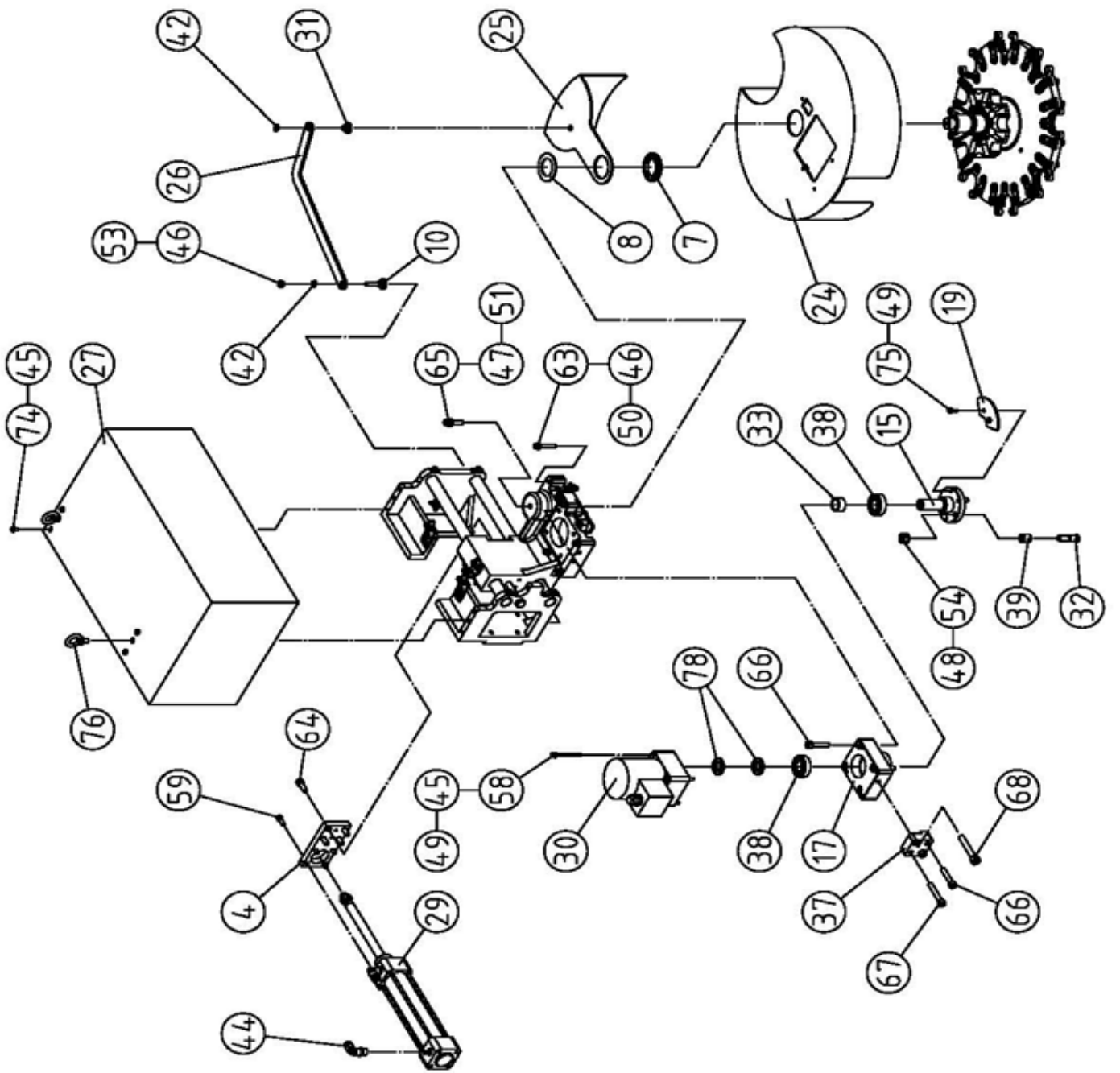
客戶確認 Customer Confirm: \_\_\_\_\_ 繪圖者 Designer: \_\_\_\_\_  
 確認日期 Confirm Date: \_\_\_\_\_ 繪圖日期 Draw Date: 2017.11.10



# **PARTS LIST**







		HYG-412/408	ASSEM.PART NO.		
		2013.08.01	ASSEM.DWG. NAME	(UMBRELLA TYPE)	
NO.	PART NO.	DESCRIPTION	SPECIFICATION /MATERIAL	QTY	REMARK
1	GA-31000010	Slide rest body 8T	FC25	1	
	GA-41000050	Slide rest body 12T	FC25	1	
2	GA-31000020	Fixed body (right)	SS41	1	
3	GA-31000030	Fixed body (left)	SS41	1	
4	GA-32000010	Air cylinder fixed plate 8T	SS41	1	
	GA-42000320	Air cylinder fixed plate 12T	SS41	1	
5	GA-32000020	Dividing dial 8T	SS41	1	
	GA-42000310	Dividing dial 12T	SS41	1	
6	GA-32000030	Slider 8T	Chrome plated shaft	2	Travel 150mm
	GA-32000270	Slider 12T	Chrome plated shaft	2	Travel 190mm
7	GA-32000040	Rod pad	Plastic steel	1	
8	GA-32000050	Rod flake	Plastic steel	1	
9	GA-32000060	Disk CAT40-8T	Aluminum 5052	1	BT Opt.
	GA-42000300	Disk CAT40-12T	Aluminum 5052	1	BT Opt.
10	GA-32000070	Pull rod fixed axis	SS41	1	
11	GA-32000080	Disk rod 8T	S45C	1	
	GA-32000220	Disk rod 12T	S45C	1	
12	GA-32000090	Bearing seat 8T	S45C	1	
	GA-32000230	Bearing seat 12T	S45C	1	
13	GA-32000100	Origin proximity fixed plate	SPHC	1	
14	GA-32000110	Tool spring 8T	SWP	16	
	GA-42000120	Tool spring 12T	SWP	16	
15	GA-32000120	Disk driveshaft 8T	S45C	1	
	GA-42000350	Disk driveshaft 12T	S45C	1	
16	GA-32000130	Nameplate(8T)	AL	1	
	GA-42000360	Nameplate(12T)	AL	1	
17	GA-32000140	Motor holder 8T	FC25	1	
	GA-42000340	Motor holder 12T	FC25	1	
18	GA-32000150	Proximity sensor holder	SPHC	1	
19	GA-32000170	Fixed position piece	SPHC	1	
20	GA-32000180	Air cylinder fixed holder	SS41	1	

		HYG-412/408	ASSEM.PART NO.		
		2013.08.01	ASSEM.DWG. NAME	(UMBRELLA TYPE)	
21	GA-32000190	Magnetic reed switch fixed holder 1	SPHC	2	
22	GA-32000200	Magnetic reed switch fixed holder 2	SPHC	1	
23	GA-32000210	Body flange	SPHC	2	
24	GA-34000010	Round tool cover 8T	SPHC	1	
	GA-44000190	Round tool cover 12T	SPHC	1	
25	GA-34000020	Dodge gate cover	SPHC	1	
26	GA-34000030	Dodge gate pull rod	SPHC	1	
27	GA-34000040	Tool magazine cover 8T	SPHC	1	
	GA-44000180	Tool magazine cover 12T	SPHC	1	
28	GA-34000050	Number card cover 8T	SPHC	1	
	GA-44000210	Number card cover 12T	SPHC	1	
29	GA-36000010	Air cylinder 8T	MCQV2-11-50-150	1	Travel 150mm
	GA-46000090	Air cylinder 12T	MCQV2-11-50-190M	1	Travel 190mm
30	GA-36000060	Mini motor gear reducer 8T	CGMT25-B06(25W/1:25)	1	
	GA-36000170	Mini motor gear reducer 12T	CGMT36-B06(36W/1:36)	1	
31	GA-42000060	Kier door fixed axis	SPHC	1	
32	US-42000050	Bushing rod	SCM440	1	
33	US-42000080	Spacer ring	S45C	1	
34	US-42000090	Spring pin bush	S45C	16	
35	US-42000100	Spring pin bush	S45C	16	
36	US-42000150	Key	SPHC	8	
37	ZA-41000020	Adjusted piece	SS41	1	
38	BA0006004ZZ	Deep groove ball bearing	6004ZZ	2	
39	BF012016165	bushing	IKO IRT-1216-1	1	
40	BL022025020	Self lubricating bearing	Ø30xØ34x20L	4	LFB-2220
41	BN000032205	Roller bearing	32205	2	
42	CA000000S10	“C” snap ring	S-10	2	

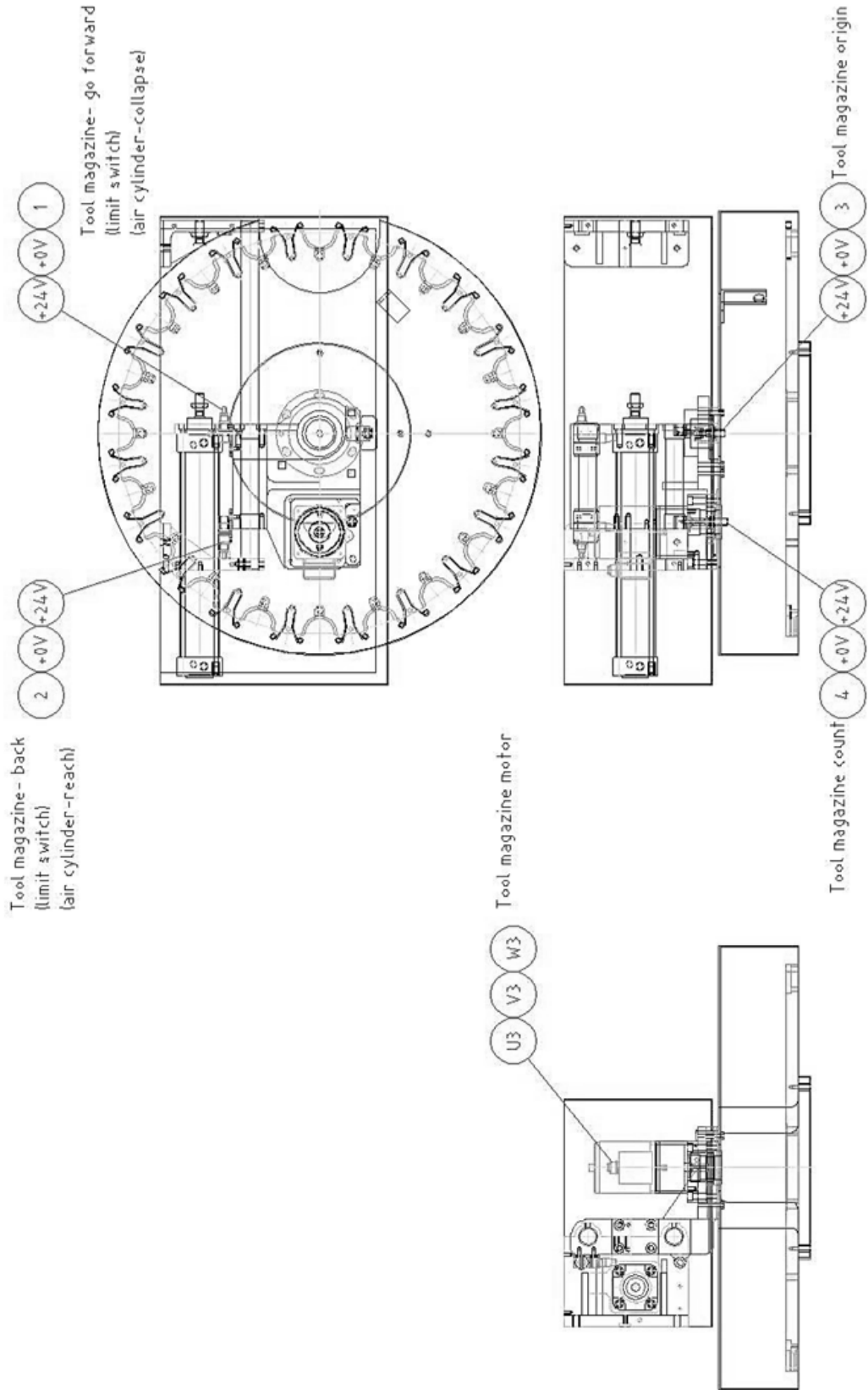
		HYG-412/408	ASSEM.PART NO.	(UMBRELLA TYPE)	
		2013.08.01	ASSEM.DWG. NAME		
43	EA000000005		E2E-X1R5F1	4	
44	JA008000104	90°quick coupling	Ø8-1/4"	2	
45	WA000000005	Spring washer	M5	24	
46	WA000000006	Spring washer	M6	41	
47	WA000000008	Spring washer	M8	5	
48	WA000000010	Spring washer	M10	1	
49	WB000000500	Flat washer	M5	26	
50	WB000000600	Flat washer	M6	40	
51	WB000000800	Flat washer	M8	5	
52	WC005080050	Hex. nut	M5XP0.8X4T	4	
53	WC006100050	Hex. nut	M6XP1.0X5T	6	
54	WC010015080	Hex. nut	M10XP1.5X8T	2	
55	WD005008012	Hex. socket head screw	M5XP0.8X12L	16	
56	WD005008020	Hex. socket head screw	M5XP0.8X20L	1	
57	WD005008030	Hex. socket head screw	M5XP0.8X30L	1	
58	WD005008060	Hex. socket head screw	M5XP0.8X60L	4	
59	WD006010016	Hex. socket head screw	M6XP1.0X16L	5	
60	WD006010020	Hex. socket head screw	M6XP1.0X20L	32	
61	WD006010030	Hex. socket head screw	M6XP1.0X30L	4	
62	WD006010035	Hex. socket head screw	M6XP1.0X35L	4	
63	WD006010040	Hex. socket head screw	M6XP1.0X40L	4	
64	WD008125020	Hex. socket head screw	M8XP1.25X20L	4	
65	WD008125030	Hex. socket head screw	M8XP1.25X30L	5	
66	WD008125040	Hex. socket head screw	M8XP1.25X40L	6	
67	WD008125050	Hex. socket head screw	M8XP1.25X50L	1	
68	WD010015060	Hex. socket head screw	M10XP1.5X60L	2	
69	WE06010012A	Hex. head screw	M6XP1.0X12L	1	
70	WE10015060A	Hex. head screw	M10XP1.5X60L	1	
71	WF006010010	Flat head screw	M6XP1.0X10L	8	
72	WG005008010	Set screw	M5XP0.8X10L	4	
73	WG006010016	Set screw	M6XP1.0X16L	4	
74	WH005080010	Oval socket head screw	M5XP0.8X10L	8	
75	WH005080016	Oval socket head screw	M5XP0.8X16L	2	
76	WK000000008	Hand ring	M8	2	
77	WL00000AW05	Bearing lock washer	AW05	1	
78	WM00000AN04	Bearing lock nut	AN04 M20xP1.0	2	

		HYG-412/408	ASSEM.PART NO.		
		2013.08.01	ASSEM.DWG. NAME	(UMBRELLA TYPE)	
79	WM00000AN05	Bearing lock nut	AN05 M25xP1.5	1	
80	XD000006030	Straight pin	Ø6x30L	2	



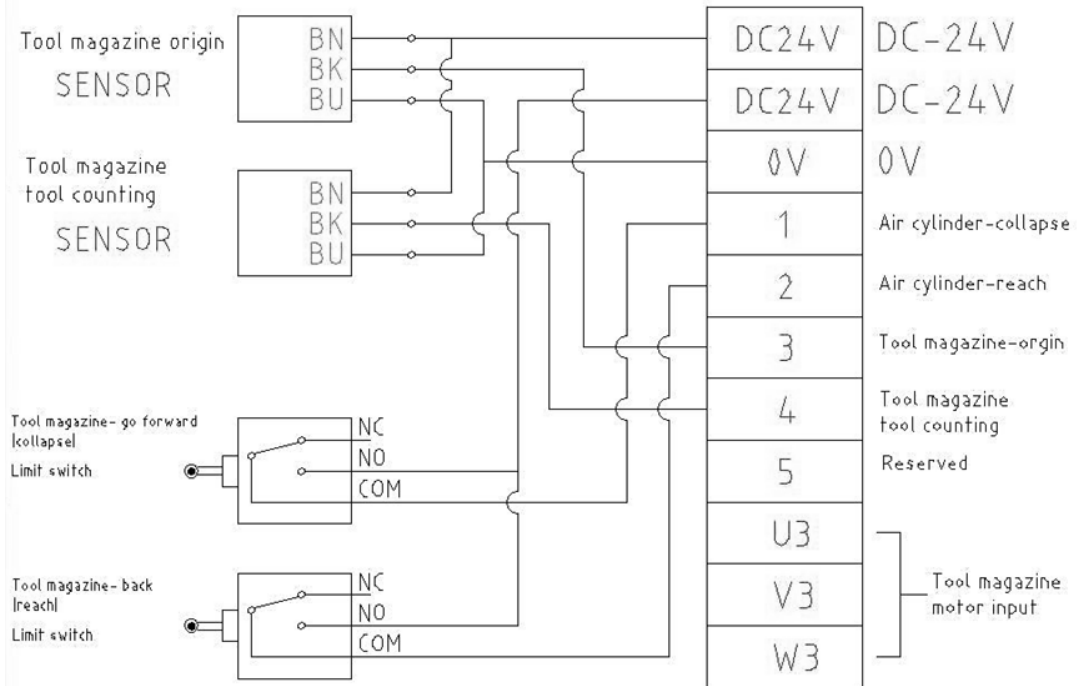
**ELECTRIC CONTROL  
AND  
AIR COMPRESSOR UNIT**

# EXPLANATION DRAWING OF CONTROL ELEMENT LOCATION





## WIRING DIAGRAM FOR #50 DRUM & UMBRELLA TYPE TOOL MAGAZINE



# CIRCUIT DIAGRAM OF PRESSURE

