

# OPERATION MANUAL & PARTS LIST

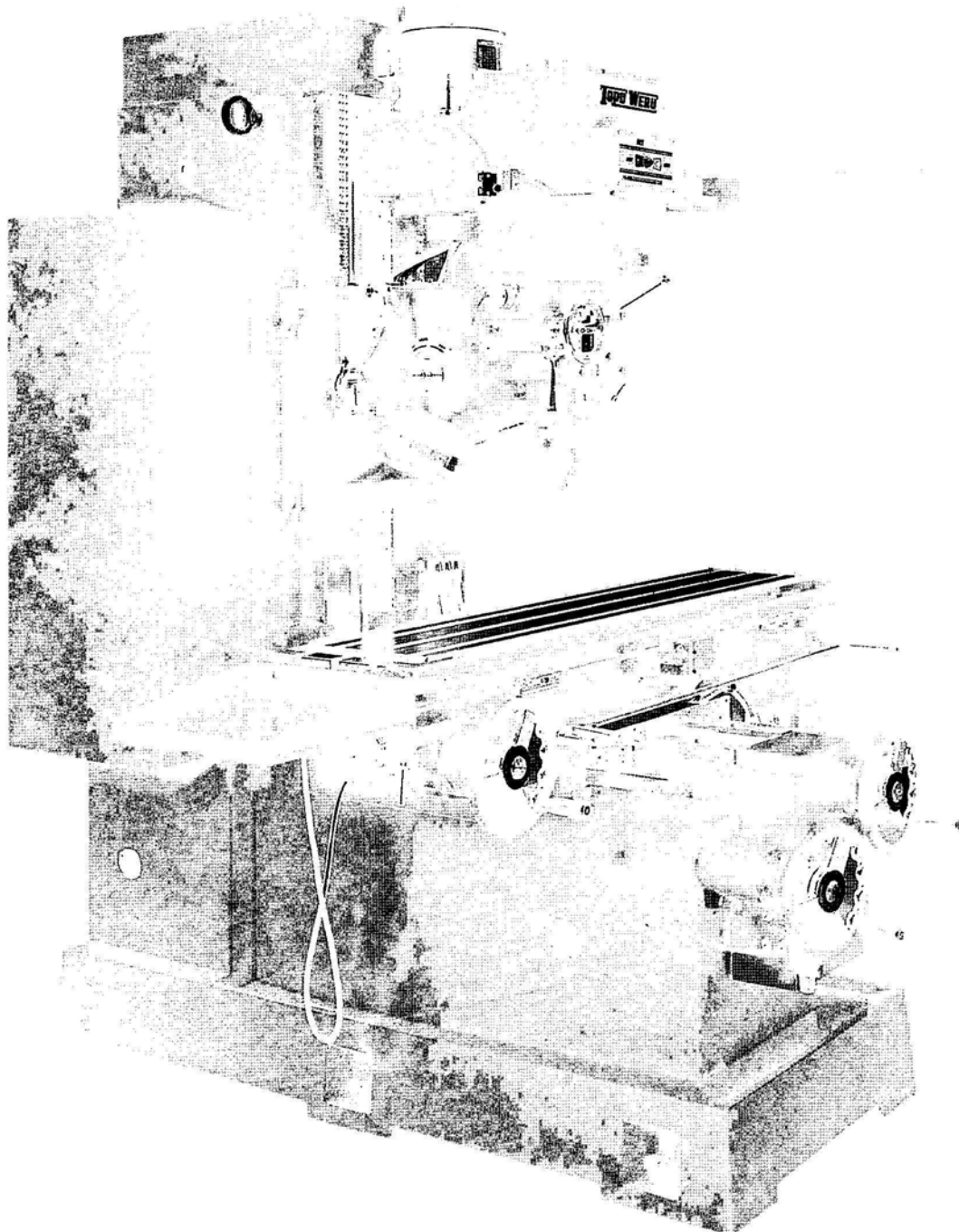
**TW-96 Q, TW-96 RH, TW-96 TRH**

**TW-105 Q, TW-105 RH, TW-105 TRH**

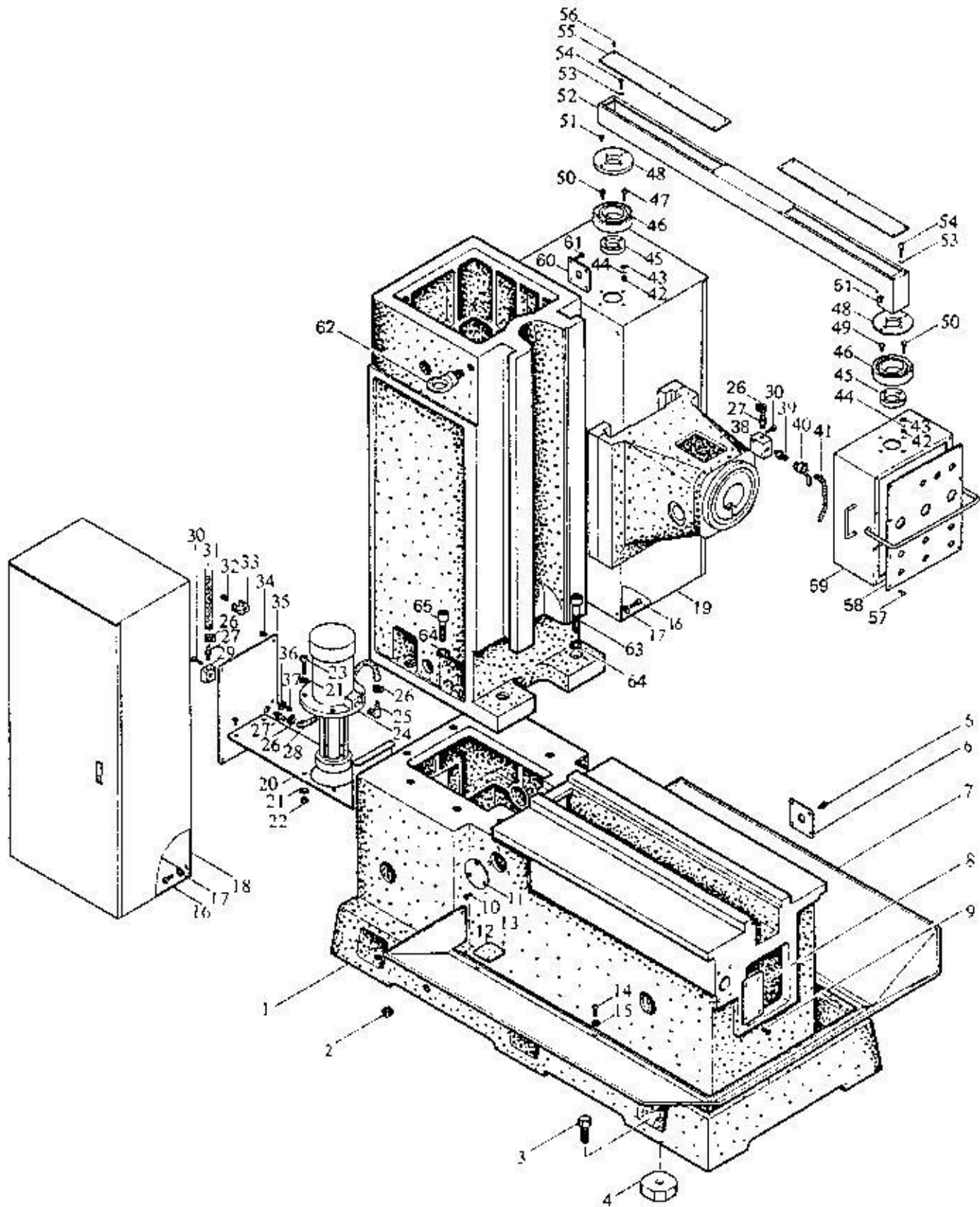
**TW-31 Q, TW-31 TRH, TW-31 MVI, TW-31 MCO**

**TW-40 Q, TW-40 TRH, TW-40 MVI, TW-40 MCO**

**TW-50 Q, TW-50 TRH, TW-50 MVI, TW-50 MCO**



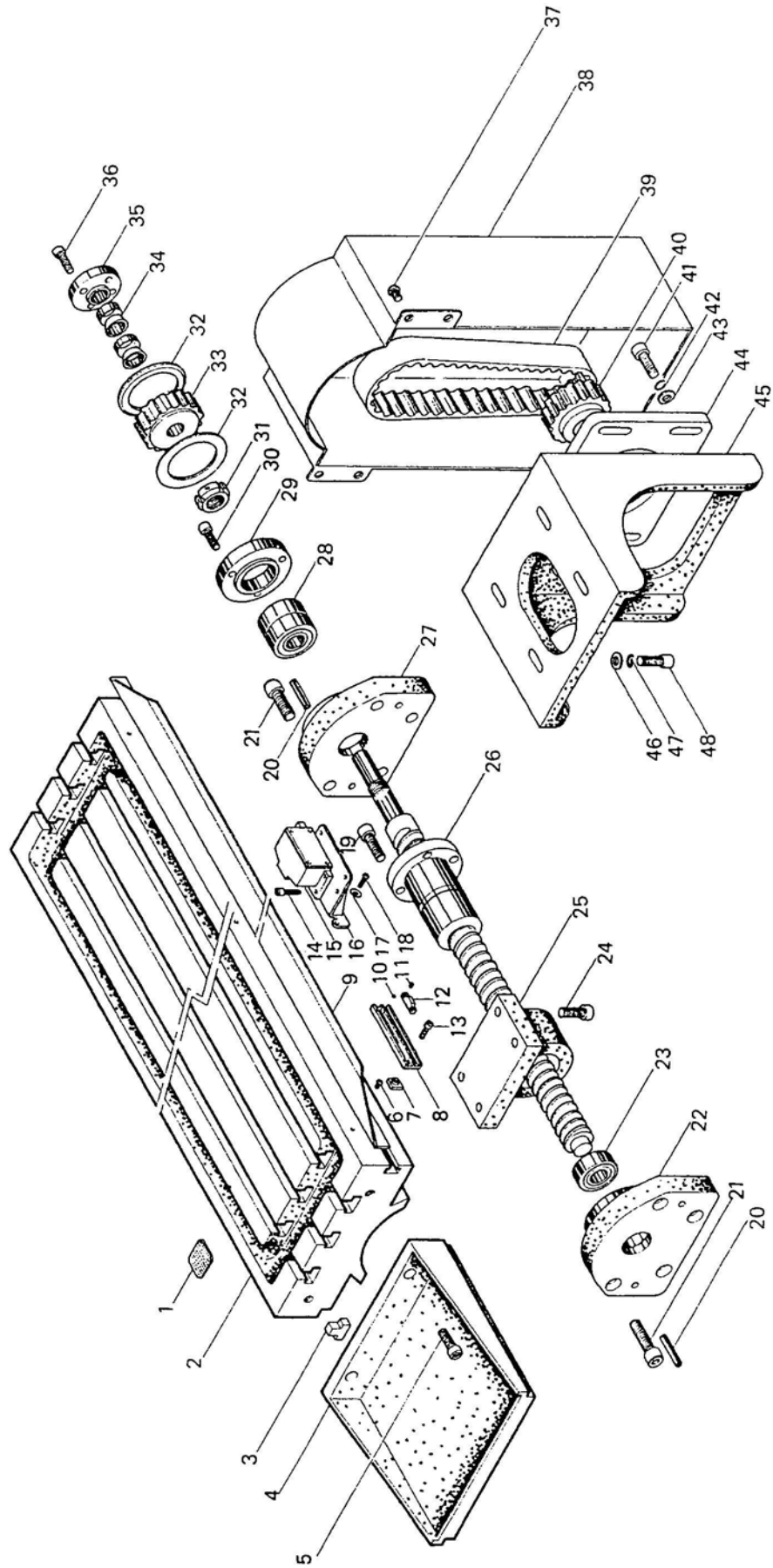
TW-105 TW-105 CNC COLUMN & BASE



TW-105 TW-105CNC COLUMN & BASE

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TB1001	Base	34	TB1011	Socket Head Cap Screw (M6×10) (4 Req)
2	TB1002	Set Screw (PT 1/2")	35	TB1005	Cover
3	4H1001-2	Adj. Balance Bolt (6 Req)	36	TB1217	Washer (M6) (2 Req)
4	TP1066	Adj. Balance Disc (6 Req)	37	TB1218	Hexagon Nut (M6) (2 Req)
5	TB1003	Socket Head Cap Screw (M6×10) (4 Req)	38	3A6045A	Tap Bracket
6	5A4001-1	Cover	39	TB1219	Hexagon Double Joint (PT 3/8"×3/8")
7	TB1204	Coolant Tray	40	TB1220	Water Switch (PT 3/8"×3/8")
8	TB1004	Cover	41	TB1221	Spraying Pipe (PT 3/8"×1/4")
9	TB1006	Socket Head Cap Screw (M6×10) (4 Req)	42	5A1110	Hexagon Nut (M6) (8 Req)
10	TB1007	Socket Head Cap Screw (M6×10) (3 Req)	43	5A1111	Washer (M6) (8 Req)
11	5B6007	Cover	44	5A112	Spring Washer (M6) (8 Req)
12	4H1004	Strainer (2 Req)	45	5A1106	Retainer Ring (2 Req)
13	5032	Drive Screw (8 Req)	46	5A1104	Arm Adapter (2 Req)
14	TB1205	Socket Head Cap Screw (M6×16) (8 Req)	47	5A1117	Socket Head Cap Screw (M6×25) (2 Req)
15	TB1206	Washer (M6) (8 Req)	48	5A1105	Rotary Disc (2 Req)
16	TB1109	Socket Head Cap Screw (M6×16) (8 Req)	49	5A1113	Socket Head Cap Screw (M6×16) (2 Req)
17	TB1112	Washer (M6) (8 Req)	50	5A1109	Socket Head Cap Screw (M6×20) (4 Req)
18	5A1108	Tool Box	51	5A1114	Socket Head Cap Screw (M6×10) (4 Req)
19	5A1107	Electric Cabinet	52	TB1101	Arm
20	TB1202	Pump Bracket	53	5A1116	Spring Washer (M6) (8 Req)
21	TB1208	Washer (M6) (8 Req)	54	5A1115	Socket Head Cap Screw (M6×25) (8 Req)
22	TB1207	Hexagon Nut (M6 (4 Req))	55	TB1101-1	Arm Cover (2 Req)
23	TB1203	Socket Head Cap Screw (M6×25) (4 Req)	56	TB1103	Socket Head Cap Screw (M4×6) (12 Req)
24	TB1201	Pump (1/2 HP-4P)	57	TB1111	Socket Head Cap Screw (M4×6) (8 Req)
25	TB1209	L. Type Inserting Pipe Joint (PT 3/4×PE 1/2)	58	TB1110	Pendant Plate
26	TB1210	Hose Clip (3/4") (4 Req)	59	5A1102	Pendant Box
27	TB1211	Gas Adapter (PT 1/4×PE 1/2) (3 Req)	60	5A4001-1	Cover Plate
28	TB1212	Plastic Hose (1/2"×750mm)	61	TB1008	Socket Head Cap Screw (M6×10) (4 Req)
29	3A6045	Tap Bracket	62	TB1009	Eye Hook (1") (2 Req)
30	TB1213	Socket Head Cap Screw (M6×35) (4 Req)	63	TB1010	Socket Head Cap Screw (3/4"×4") (2 Req)
31	TB1214	Net Plastic Pipe (1/2"×3300mm)	64	TB1012	Spring Washer (3/4") (8 Req)
32	TB1215	Socket Head Cap Screw (M6×10) (3 Req)	65	TB1011	Socket Head Cap Screw (3/4"×3") (6 Req)
33	TB1216	Clip (3 Req)			

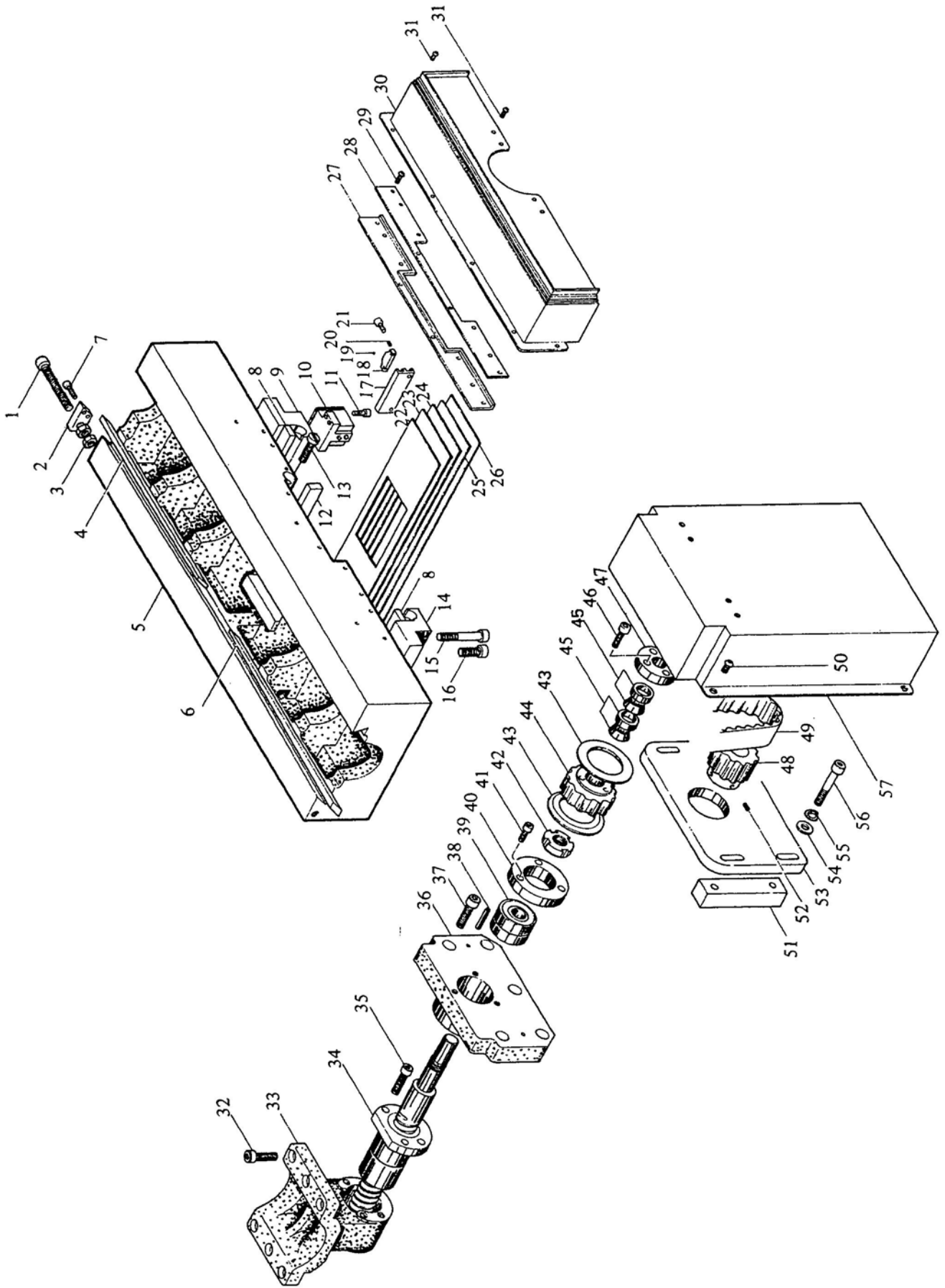
# TW-105 CNC X-AXIS ASSEMBLY



## TW-105 CNC X-AXIS ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	5A2001-1	Strainer (2 Req)	25	3B3023	Longitudinal Feed Bracket
2	5A2001-1000	Table (13"×59")	26	TB2002A	X-Axis Ball Screw
3	3B2001-1	Protection Shield Rubber (6 Req)	27	3B2006	Bearing Bracket
4	5A2003	Table End Couer (2 Req)	28	3A2008	Precision Ball Screw Bearing (BST20×47) (2 Req)
5	5A2003-1	Socket Head Cap Screw (M10×25) (4 Req)	29	3A2011	Bearing Retainer Ring
6	3B2021-1	Socket Head Cap Screw (M6×10) (4 Req)	30	3A2010	Socket Head Cap Screw (M6×16) (3 Req)
7	5A2043	Blocking (4 Req)	31	3B2009	Lock Nut
8	4B2031	Limit Dog Bracekt (2 Req)	32	5B2012	Timing Belt Pulley Flange (2 Req)
9	5A2021-1000	Table Front Couer	33	5B2013H	Timing Belt Pulley
10	4B2030	Steel Ball (φ4) (6 Req)	34	5B2010	Cone Ring Key (18×22) (2 Req)
11	4B2032	Set Screw (M5×5) (6 Req)	35	5B2014	Fixed Block for Come Ring Key
12	4B2029	Limit Dog (3 Req)	36	5B2014-1	Socket Head Cap Screw (M5×20) (4 Req)
13	TB2054	Socket Head Cap Screw (M6×20) (4 Req)	37	5B2016-1	Socket Head Cap Screw (M6×10) (4 Req)
14	3A2038	Socket Head Cap Screw (M6×25) (4 Req)	38	5B2016	Timing Belt Pulley Cover
15	3A2034	Limit Switch	39	TB2020A	Timing Belt
16	4B2036	Limit Switch Bracket	40	3B2018F	Timing Belt Pulley
17	4B2037-1	Washer (M6) (2 Req)	41	3B3008	Socket Head Cap Screw (M8×30) (4 Req)
18	4B2037	Socket Head Cap Screw (M6×16) (2 Req)	42	3B3007-1	Spring Washer (M8) (4 Req)
19	TB2006	Socket Head Cap Screw (M8×30) (4 Req)	43	3B3007	Washer (M8) (4 Req)
20	3A2005	Roll Pin (5×40) (4 Req)	44	5B3006F	Moitor Bracket
21	3A2004	Socket Head Cap Screw (M10×35) (8 Req)	45	3B2006-1	Motor Support
22	3B2025	Bearing Bracket	46	3B2006-2	Washer (M8) (4 Req)
23	3B2025-1	Ball Bearing (#6204)	47	3B2006-3	Spring Washer (M8) (4 Req)
24	TB2007	Socket Head Cap Screw (M8×30) (4 Req)	48	3B2006-4	Socket Head Cap Screw (M8×30) (4 Req)

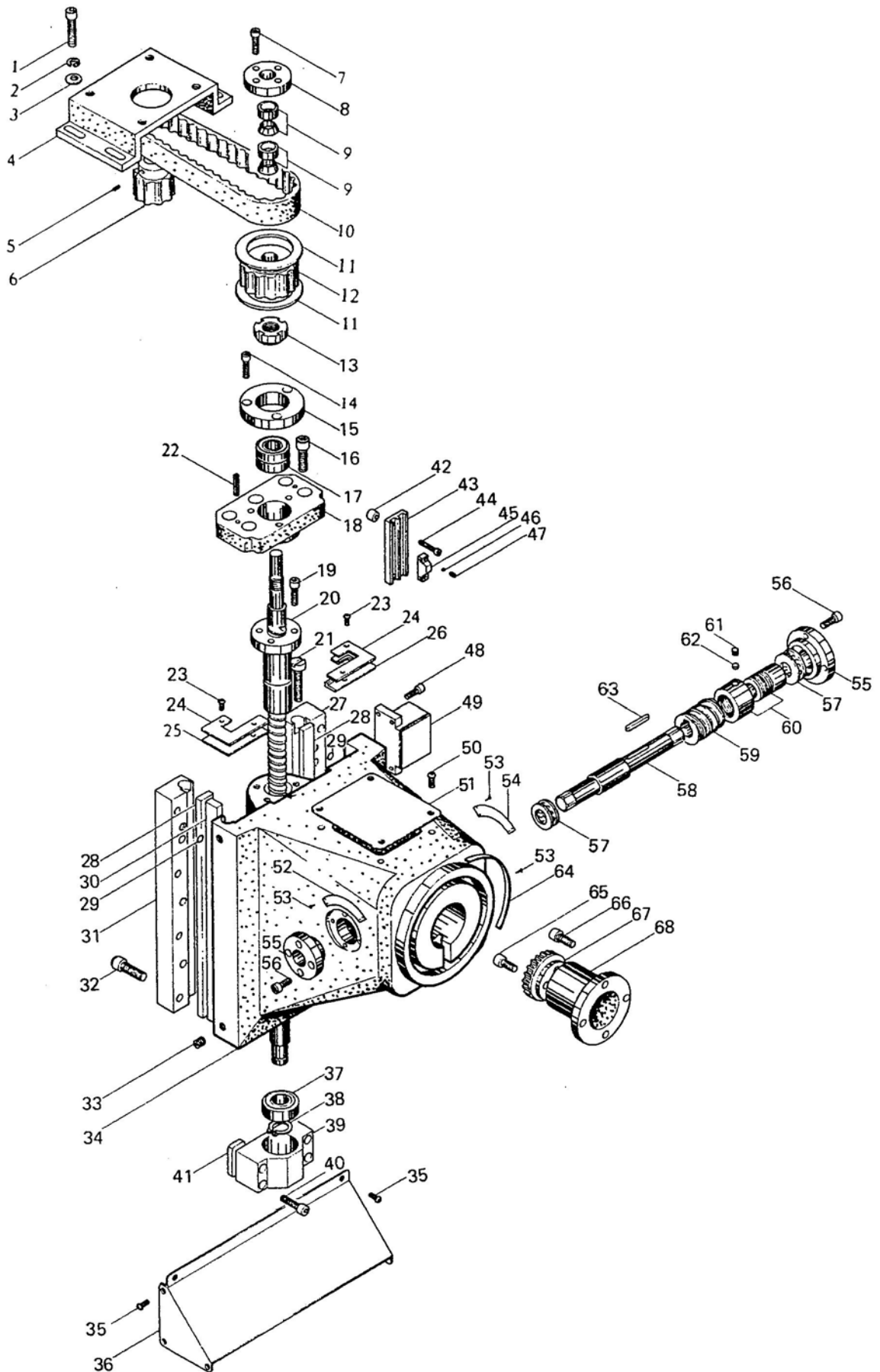
TW-105 CNC Y-AXIS ASSEMBLY



## TW-105 CNC Y-AXIS ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	3B3010	Socket Head Cap Screw (M10×70) (2 Req)	30	TB3037	Telescopic Cover
2	3B3009	Fixed Block for Adj. Plate (2 Req)	31	TB3038	Socket Head Cap Screw (M6×10) (10 Req)
3	3B3011	Hex. Nut (M10) (4 Req)	32	TB3004	Socket Head Cap Screw (M8×30) (6 Req)
4	3B3026-1	Saddle/Table Gib	33	3B3022	Bracket for Y-Axis Ballscrew
5	5A3001-1000	Saddle	34	TB3002A	Y Axis Ball Screw
6	3B3026	Saddle/Table Gib	35	TB3003	Socket Head Cap Screw (M8×30) (4 Req)
7	3B3012	Socket Head Cap Screw (M5×20) (4 Req)	36	5A3005	Cross Feed Bearing Bracket
8	TP3043	Saddle/Base Gib (2 Req)	37	5A3006	Socket Head Cap Screw (M10×30) (5 Req)
9	TP3045	Saddle/Base Gib Support	38	5A3007	Roll Pin (5×40) (2 Req)
10	3A2034	Limit Switch	39	3A2008	Precision Ball Screw Bearing (BST20×47) (2Req)
11	3A2038	Socket Head Cap Screw (M6×25) (4 Req)	40	3A2011	Rearing Retainer Ring
12	TP3043	Saddle/Bese Gib	41	3A2010	Socket Head Cap Screw (M6×16) (3 Req)
13	3028	Gib Adj-Screw (6 Req)	42	3B2009	Lock Nut
14	TP3044	Saddle/Bose Gib Support	43	5B2012	Timing Belt Pulley Flange (2 Req)
15	TP3046	Socket Head Cap Screw (M8×75) (8 Req)	44	5B2013H	Timing Belt Pulley
16	TP3047	Socket Head Cap Screw (M8×40) (8 Req)	45	5B2010	Cone Ring Key (18×22) (2 Req)
17	4B2031	Limit Dog Bracket (2 Req)	46	5B2014-1	Socket Head Cap Screw (M5×20) (4 Req)
18	4B2029	Limit Dog (3 Req)	47	5B2014	Fled Block for Cone Ring Key
19	4B2030	Steel Ball (φ4) (6 Req)	48	3B2018F	Timing Belt Pulley
20	4B2032	Set Screw (M5×5) (6 Req)	49	TB3017A	Timing Belt
21	4B2033	Socket Head Cap Screw (M6×12) (4 Req)	50	TB3006	Socket Head Cap Screw (M6×10) (4 Req)
22	TB3010	Chip Guards	51	TB3020-1	Block (2 Req)
23	TB3011	Chip Guards	52	TB3018	Set Screw (M5×5) (2 Req)
24	TB3012	Chip Guards	53	TB3020F	Motor Bracket
25	TB3013	Chip Guards	54	TB3023	Washer (M8) (4 Req)
26	TB3014	Chip Guards	55	TB3022	Spring Washer (M8) (4 Req)
27	TB3015-1	Felt Wipers (2 Req)	56	TB3021	Socket Head Cap Screw (M8×50) (4 Req)
28	TB3015	Wiper Holder (2 Req)	57	TB3005A	Cross Feed Pulley Cover
29	TB3016	Socket Head Cap Screw (M6×16) (16 Req)			

# TW-105 CNC Z-AXIS ASSEMBLY

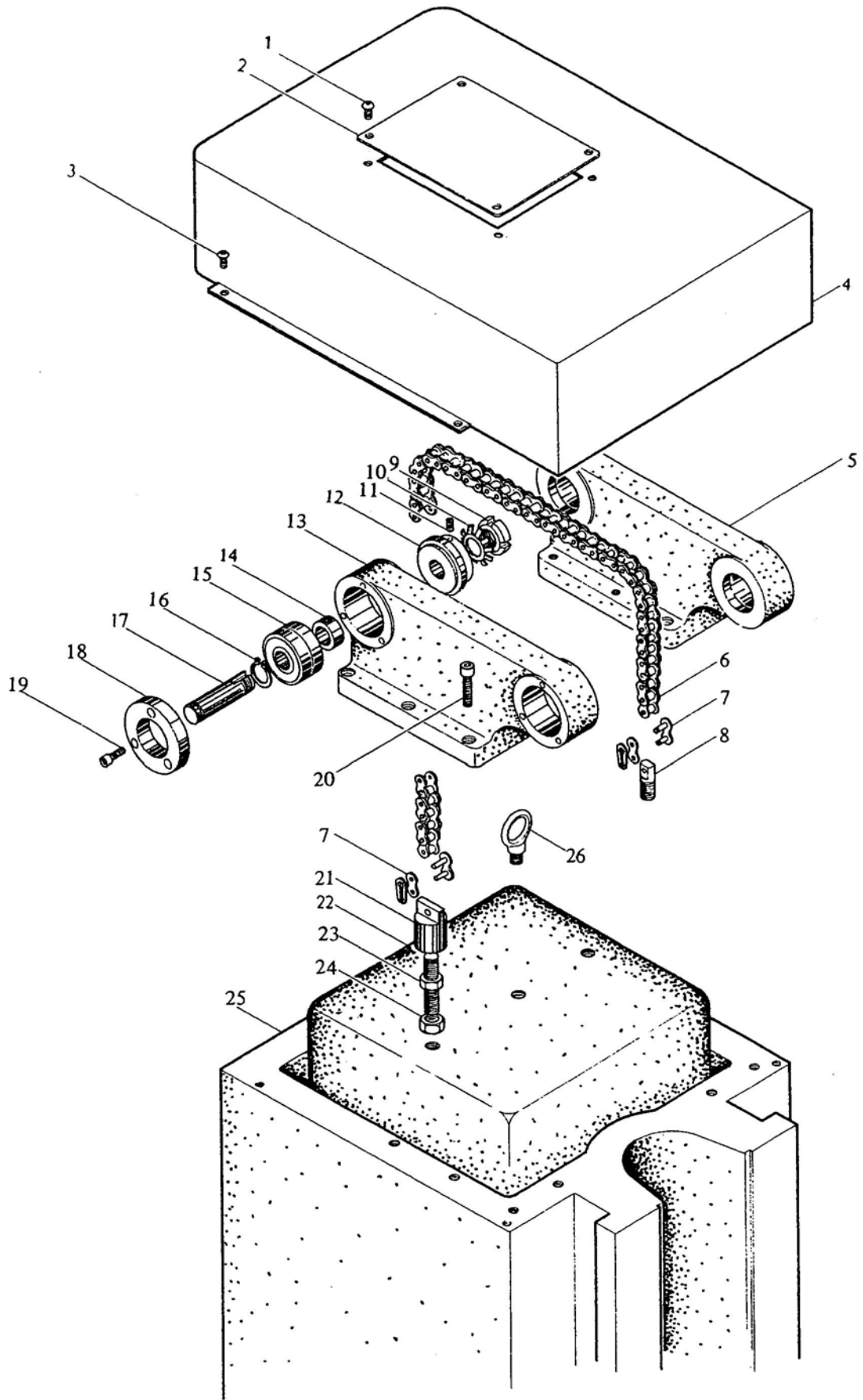




## TW-105 CNC Z-AXIS ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TB4069	Socket Head Cap Screw (M8×30) (4 Req)	35	TB4002A-2	Socket Head Cap Screw (M6×10) (8 Req)
2	TB4070	Spring Washer (M8) (4 Req)	36	TB4002A-1	Cover
3	TB4071	Washer (M8) (4 Req)	37	TB4030	Ball Bearing (#6204)
4	TB4075	Motor Bracket	38	TB4029	Snap Ring (S20)
5	TB3018	Set Screw (M5×5) (2 Req)	39	TP3035	Ball Bearing Housing
6	3B2018F	Motor Timing Belt Pulley	40	TP3025	Socket Head Cap Screw (M10×50) (4 Req)
7	5B2014-1	Socket Head Cap Screw (M5×20) (4 Req)	41	TP3035-1	Spacer (2 Req)
8	5B2014	Cone Ring Clamping Block	42	TP2039	Washer (4 Req)
9	5B2010	Cone Ring Key (18×22) (2 Req)	43	4B2031	Limit Dog Bracket (2 Req)
10	TB4066A	Timing Belt	44	TB4012	Socket Head Cap Screw (M6×25) (4 Req)
11	5B2012	Timing Belt Pulley Flange (2 Req)	45	4B2029	Limit Dog (3 Req)
12	5B2013H	Timing Belt Pulley	46	4B2030	Steel Ball (φ4) (6 Req)
13	3B2009	Lock Nut	47	4B2032	Set Screw (M5×5) (6 Req)
14	3A2010	Socket Head Cap Screw (M6×16) (3 Req)	48	3A2038	Socket Head Cap Screw (M6×25) (4 Req)
15	3A2011	Bearing Retainer Ring	49	3A2034	Limit Switch
16	5A3006	Socket Head Cap Screw (M10×35) (5 Req)	50	5A5007	Socket Head Cap Screw (M6×10) (4 Req)
17	3A2008	Precision Ball Screw Bearing (BST20×47) (2 Req)	51	5A5006	Cover
18	5A3005	Bearing Bracket	52	5A5043	Head Swivel Plate
19	TB4004	Socket Head Cap Screw (M8×30) (4 Req)	53	5032	Drive Sorew (11 Req)
20	TB4002A	Ball Screw	54	5A5043-1	Head Swivel Plate
21	3028	Gib Adj-Screw (6 Req)	55	5K5040-2	Worm Fixd Cover (2 Req)
22	5A3007	Roll Pin (5×40) (2 Req)	56	5K5040-3	Socket Head Cap Screw (M6×16) (8 Req)
23	TB4011-3	Socket Head Cap Screw (M6×16) (8 Req)	57	5K5042	Single Direction Thrust Ball Bearing (#51105) (2 Req)
24	TB4011-2	Wiper Holder (4 Req)	58	5A5040	Worm Shaft
25	TB4011	Felt Wipers (2 Req)	59	5K5039	Worm
26	TB4011-1	Felt Wipers (2 Req)	60	5A5040-1	Adj. Bushing (1 SET)
27	TB4006	Gib Support	61	5K5040-4	Set Screw (M6×6)
28	4H4053	Column/Head Slide Block Gib (2 Req)	62	6199-1	Brass Plug
29	TB4009	O Ring (P9) (2 Req)	63	5K5041	Key (6×6×45)
30	4H4038	Column/Head Slide Block Gib	64	5K5016	Angle Plate
31	TB4005	Gib Support	65	5K5033-3	Socket Head Cap Screw (M8×35) (4 Req)
32	TB4007	Socket Head Cap Screw (M10×60) (14 Req)	66	5K5033-2	Socket Head Cap Screw (M8×25) (4 Req)
33	TB4005-1	Set Sorew (1/2"×1/2") (2 Req)	67	5K5033	Worm Gear
34	TB4001	Head Slde-Block	68	5K5033-1	Worm Shaft

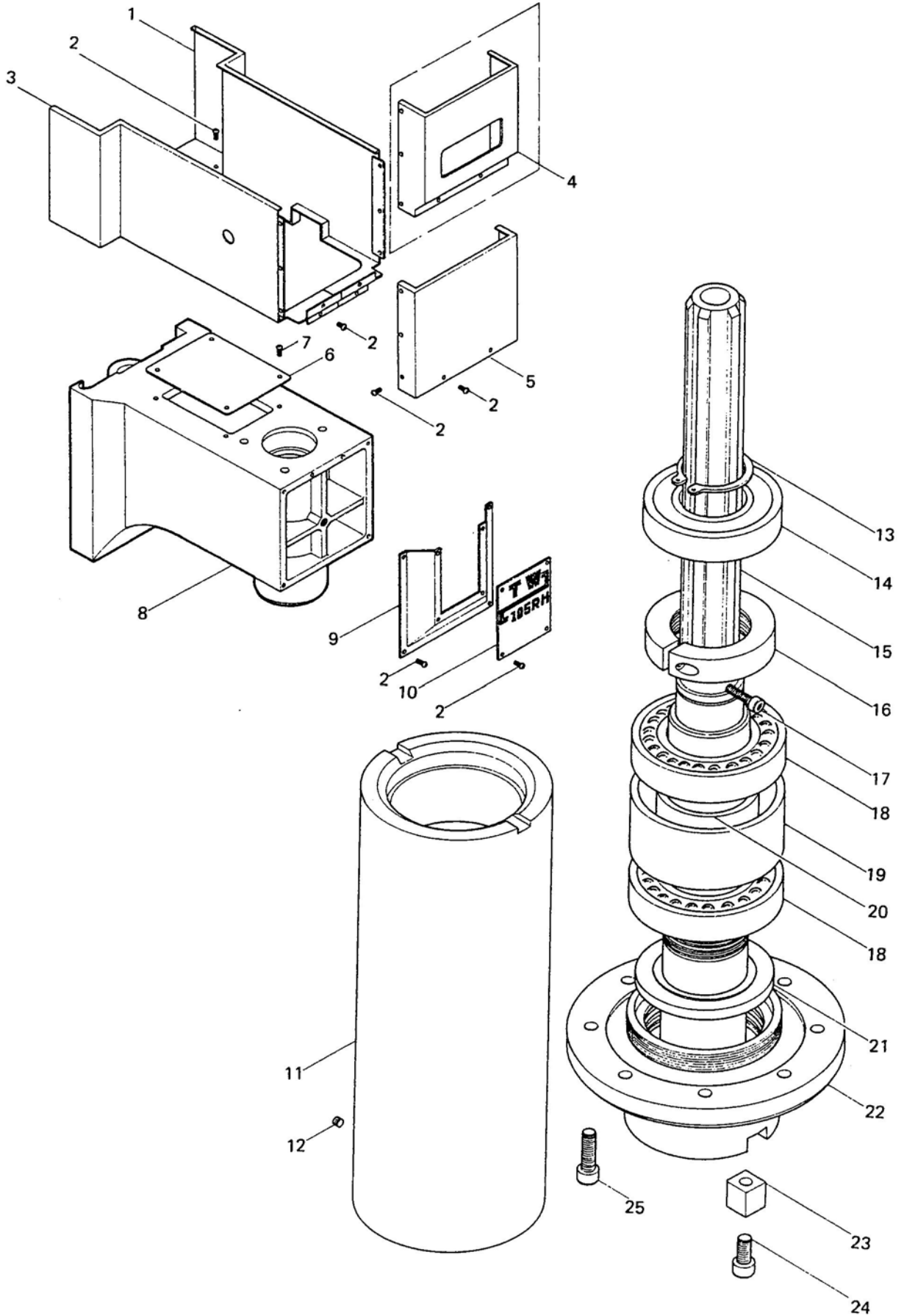
TW-105 TW-105 CNC HEAD & COUNTER WEIGHT



## TW-105 TW-105CNC HEAD & COUNTERWEIGHT

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TB5004-3	Socket Head Cap Screw (M6×10) (4 Req)	14	5BH5014	Washer (4 Req)
2	TB5004-1	Cover	15	TB5009	Ball bearing (#6305) (8 Req)
3	TB5004-2	Socket Head Cap Screw (M6×10) (4 Req)	16	TB5008	Snap Ring (S25) (4 Req)
4	TB5004	Cover	17	TB5007	Chain Wheel Shaft (4 Req)
5	TB5003	Right Chain Bracivet	18	5A2020	Ball Bearing Retainer Ring (4 Req)
6	TB5014	Chain (TW-105: #50×89 TW105CNC: #50×81)	19	TB5013	Socket Head Cap Screw (M6×12) (12 Req)
7	TP5013	Chain Joint (No:50) (4 Req)	20	TB5006	Socket Head Cap Screw (M8×40) (8 Req)
8	TP5016	Chain Joint Bolt (2 Req)	21	TP5010	Counterweight Chain Joint (2 Req)
9	5A2019	Lock Nut (ANG) (4 Req)	22	TB5026	Counter-Weight
10	5A2018	Lock Washer (AW05) (4 Req)	23	TP5017	Counter-Weight Adj. Screw (2 Req)
11	TB5012	Set Screw (M6×12) (4 Req)	24	TP5012	Hex. Nut (5/8") (2 Req)
12	5BH15015	Chain Whell	25	TB5001	Column
13	TB5002	Left Chain Bracket	26	TB5027	Eye Ring (5/8")

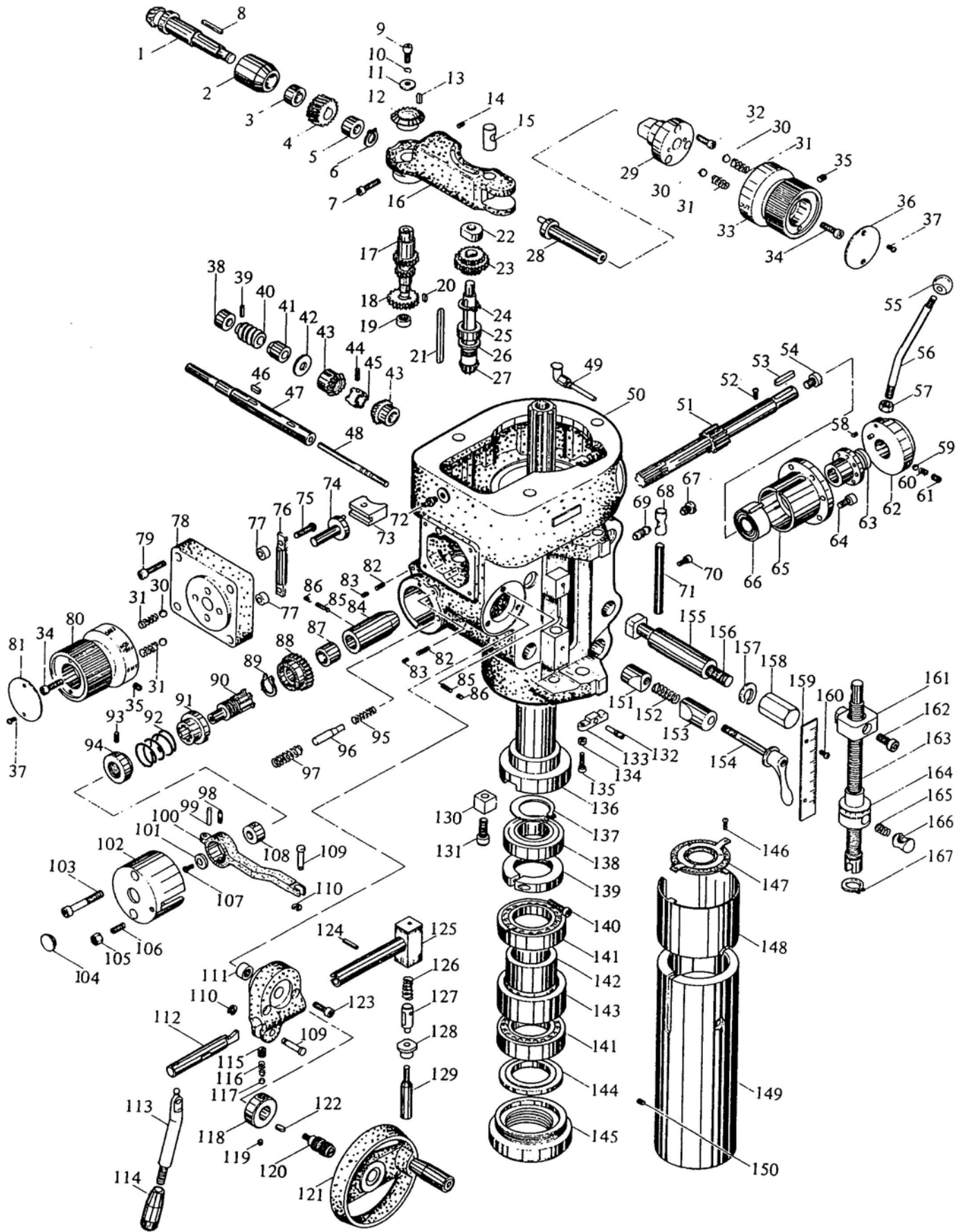
TW-105 RH RIGID HEAD



## TW-105 RH RIGID HEAD

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TRH-4003	Right Cover For Head	14	5K6092	Bearing (6208#)
2	TRH-4007	Cap Screw (M6×10) (22 Req)	15	5K6084	Spindle
3	TRH-4002	Lift Cover For Head	16	5K6094	Nut
4	TRH-4004	Front Cover For Variable Head	17	5K6094-1	Cap Screw (M6×25)
5	TRH-4004I	Front Cover For Inverter Head	18	5K6093	Precision Ball Screw Bearing (2 Req)
6	TRH-4001-1	Top Cover For Head	19	5K6095	Bearing Spacer-Large
7	TRH-4008	Cap Screw (M6×10) (4 Req)	20	5K6096	Bearing Spacer-Small
8	TRH-4001	Milling Head	21	5K6097	Spindle Dirt Shield
9	TRH-4005	Front Cover For Head	22	TRH-6098	Nose-Piece
10	TRH-4006	Face Plate	23	6099	Keeper key (2 Req)
11	5B-6085	Quill	24	5K6100	Cap Screw (M8×20) (2 Req)
12	6085-1	Set Screw (M5×5×P 0.9)	25	TRH4009	Cap Screw (M8×25) (8 Req)
13	5K6090	Snap Ring (S40)			

# 5K 5VK TW-105 HEAD



TW-105 HEAD

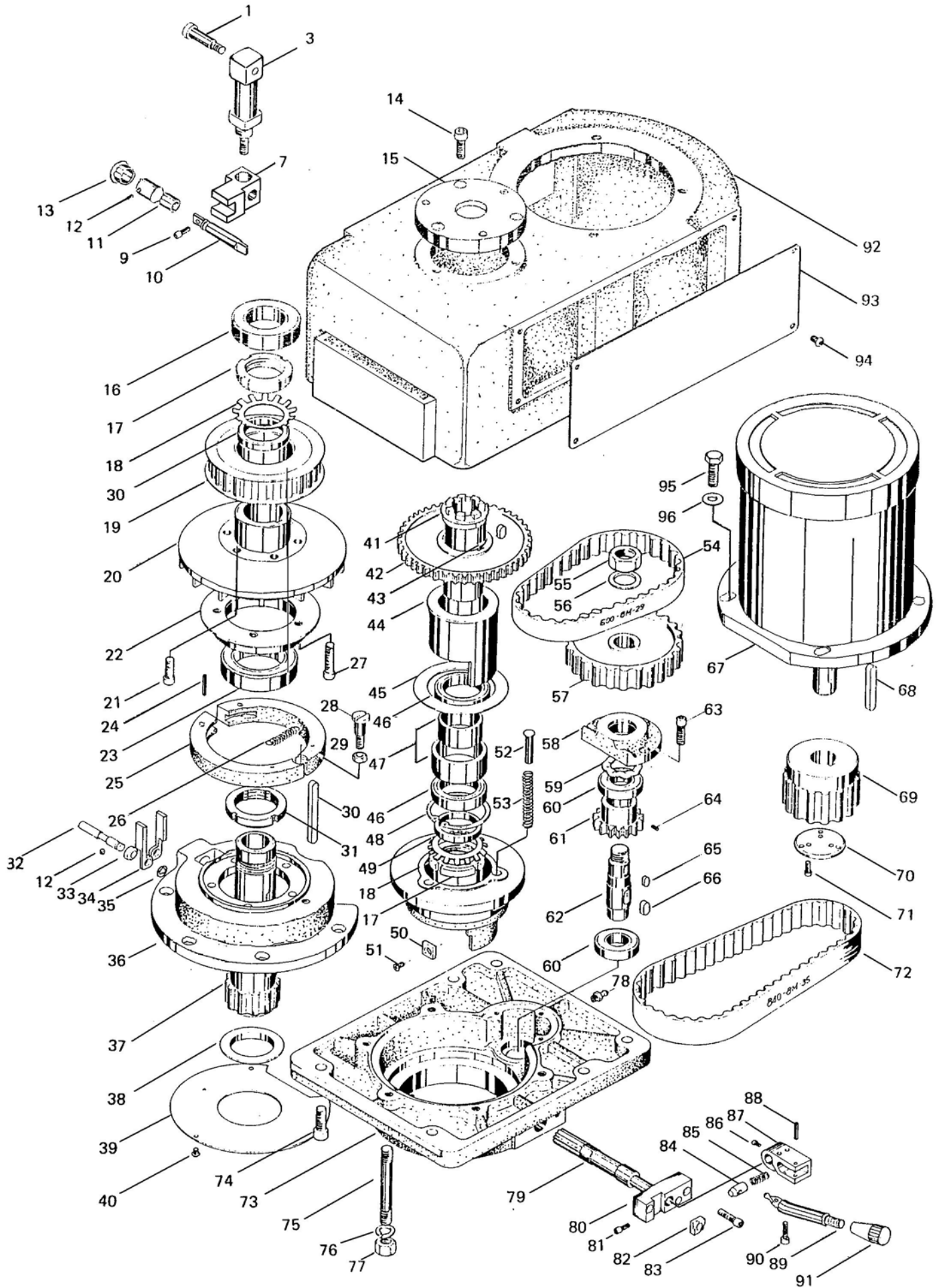
ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	5K6139	Feed Bevel Pinion	43	5K6220	Feed Reverse Bevel Gear (2 Req)
2	5K6137	Worm Geadle Bushing	44	5K6217	Roll Pin ( $\phi 4 \times 22$ )
3	5K6136	Worm Gear Spacer	45	5K6222	Feed Reverse Clutch
4	5K6134	Feed Drive Worm Gear	46	5K6230	Key ( $4 \times 4 \times 15$ )
5	5K6136-1	Worm Gear Bushing	47	5K6209	Feed Worm Shaft
6	5K6140	Snap Ring (S12)	48	5K6216	Reverse Clutch Rod
7	5K6124	Cap Screw (M6 $\times$ 16)	49	5K6133	Oil Cap (PT 1/8")
8	5K6135	Key ( $5 \times 5 \times 25$ )	50	5K6101	Quill Housing
9	5K6150	Cap Sorew (M8 $\times$ 16)	51	5K6172	Quill Pinion Shaft
10	6149-1	Spring Washer (M8)	52	5K6172-1	Cap Sorew (M4 $\times$ 8)
11	5K6149	Washer	53	5K6184	Key ( $5 \times 5 \times 20$ )
12	5K6148	Feed Reverse Bevel Gear	54	5K6183	Pinion Shaft Hub Sorew
13	5K6147	Key ( $4 \times 4 \times 10$ )	55	5K6173	Black Plastic Ball Handle ( $3/8$ ")
14	5K6123	Set Screw (M6 $\times$ 6)	56	5K6174	Pinion Shaft Hub Handle
15	5K6122	Feed Engage Pin	57	5K6174-1	Hex. Nat ( $1/2$ ")
16	5K6121	Worm Gear Cradle	58	5K6178-1	Set Screw (M5 $\times$ 5)
17	5K6143	Feed Driving Gear	59	5K6176	Steel Ball ( $\phi 1/4$ ")
18	5K6144	Feed Drive Gear	60	6175	Compression Spring
19	5K6252	Needle Bearing (#TLA1210)	61	5K6177	Set Screw (M8 $\times$ 8)
20	5K6145	Key ( $4 \times 4 \times 10$ )	62	5K6178	Rack Feed Handle Hub
21	5K6160	Cluster Gear Key ( $4 \times 4 \times 45$ )	63	5K6182	Pinion Shaft Hub Sleeve
22	5K6157	Cluster Gear Sht Upper Bearing	64	5K6180-1	Cap Screw (M6 $\times$ 16) (2 Req)
23	5K6153	Cluster Gear Assembly	65	5K6180	Spring Cover
24	5K6158	Snap Ring (S18)	66	5K6181	Clock Spring
25	5K6156	Berel Gear Bearing	67	5K6114	Reverse Trip Ball Lever Screw
26	5K6159	Bevel Gear Thrust Spacer	68	5K6109	Feed Reverse Trip Plunger
27	5K6151	Cluster Gear Shaft	69	5K6110	Reverse Trip Ball Lever
28	5K6126	Worm Gear Cradle Throw-out	70	5K6253	Cap Screw (M6 $\times$ 16)
29	5K6125	Shaft Sleeve	71	6251	Set Bar
30	5K6130	Steel Ball ( $\phi 1/4$ ) (4 Req)	72	5K6131	Grease Nipple (PT 1/8")
31	5K7067	Spring (4 Req)	73	5K6162	Feed Gear Shift Fork
32	5K6132	Cap Sorew (M6 $\times$ 20) (3 Req)	74	5K6166	Cluster Gear Shift Crank
33	5K6168A	Clutch Handle	75	5K6161-2	Cap Sorew (M5 $\times$ 20) (2 Req)
34	5K6128	Cap Screw (M6 $\times$ 16) (2 Req)	76	5K6163	Feed Shift Rod
35	5K6169	Set Screw (M6 $\times$ 8) (2 Req)	77	5K6161-1	Washer (2 Req)
36	5K8061A	Quill Feed Namepleta	78	5K6161	Cluster Gear Cover
37	5K6129	Cap Screw (M4 $\times$ 8) (4 Req)	79	5K6165	Cap Screw (M5 $\times$ 25) (4 Req)
38	5K6227	Bushing	80	5K6168	Handle
39	5K6226	Roll Pin ( $\phi 4 \times 14$ )	81	5K8061	Cover
40	5K6225	Worm	82	5K6228	Set Screw (M6 $\times$ 12) (2 Req)
41	5K6224	Feed Worm Shaft Bushing	83	5K6228-1	Set Screw (M6 $\times$ 6) (2 Req)
42	5K6223	Feed Worm Shaft Thrust Washer	84	5K6186	Quill Pinion Shaft Bushing

## TW-105 HEAD

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
85	5K6246	Set Screw (M6×16) (2 Req)	127	5K6240	Trip Plunger
86	5K6246-1	Set Screw (M6×6) (2 Req)	128	5K6118-1	Trip Plunger Bushing
87	5K6190	Pinion Shaft Worm Gear Spacer	129	5K6118	Feed Trip Plunger
88	5K6187	Overload Clutch Worm Gear & Clutch Ring	130	5K6099	Keeper Key (2 Req)
89	5K6188-1	Snap Ring (S20)	131	5K6100	Cap Screw (M8×20) (2 Req)
90	5K6195	Overload Clutch Sleeve	132	5K6112	Trip Lever Pin
91	5K6194	Overload Clutch	133	5K6111	Feed Trip Lever
92	5K6197	Safety Clutch Spring	134	5K6113-1	Hex. Nut (M4)
93	5K6199	Set Screw (M6×8)	135	5K6113	Cap Screw (M4×20)
94	5K6198	Overload Clutch Locknut	136	5K6084	Spindle NT #40
95	5K6191	Compression Spring	137	5K6090	Snap Ring (S40)
96	5K6193	Overload Clutch Lever Spring Plunger	138	5K6092	Ball Bearing (#6208)
97	5K6192	Compression Spring	139	5K6294	Locknut
98	6202	Clutch Ring Pin (2 Req)	140	5K6094-1	Cap Screw (M6×25)
99	5K6204	Pin (φ6×20)	141	5K6093	Super Precision Spindle Bearings (#7210-P4)
100	5K6203	Overload Clutch Trip Lever	142	5K6096	Bearing Spacer-Small
101	5K6200-1	Washer	143	5K6095	Bearing Spacer-Large
102	5K6205	Clutch Arm Cover	144	5K6097	Spindle Dirt Shield
103	5K6206	Cap Screw (M6×50) (2 Req)	145	5K6098	Nose-Piece
104	5K6205-1	Cover	146	6088-1	Felt Washer Screw (3/16×3/8) (2 Req)
105	5K6208	Hex. Nut (M6)	147	5K6088	Felt Washer
106	5K6207	Set Screw (M6×16)	148	5K6086	Quill Skirt
107	5K6200-2	Cap Screw (M5×12)	149	5K6085	Quill
108	5K6200	Clutch Ring	150	6085-1	Set Screw (M5×5×0.9)
109	5K6231-1	Dowel Pin (2 Req)	151	5K6116B	Quill Lock Sleeve
110	5K6231-2	Snap Ring (E5) (2 Req)	152	5K6116-1	Compression Spring
111	5K6231-3	Needle Bearing (RNA 4900)	153	5K6118A	Quill Lock Sleeve Tapped
112	5K6239	Cam Rod	154	5K6117.19	Quill Lock Bolt Handle
113	5K6234	Trip Handle	155	5K6120	Lower Clamping Bolt Spacer (2 Req)
114	3117069	Plastic Handle	156	5K5036	T-Bolt Assy (4 Req)
115	6219-1	Handwheel Clutch Spring Screw	157	5K5037	Spring Washer (5/8) (4 Req)
116	6219-2	Compression Spring	158	5K5038	Locknut (4 Req)
117	6255	Steel Ball (φ3/16)	159	5K6243	Micrometer Scale
118	5K6218	Hand Wheel Clutch	160	5K6244	Chem Bracket RD. HD. Screws (M4×5) (2 Req)
119	5K6219	Set Screw (M6×6)	161	5K6105	Quill Stop Knob
120	5K6213.14	Feed Reverse Knob Stud	162	5K6106	Cap Screw (M10×20)
121	5K6210	Hand Wheel	163	5K6104	Quill Stop Micro-Screw
122	5K6229	Key (4×4×10)	164	5K6107	Micrometer
123	5K6232	Cap Screw (M8×25) (2 Req)	165	5K6108-1	Compression Spring
124	5K6237	Roll Pin (φ4×18)	166	5K6108	Quill Micro-Screw Stop Nut
125	5K6236	Cam Rod Sleeve Assy	167	5K6115	Snap Ring (S18)
126	5K6242	Compression Spring			



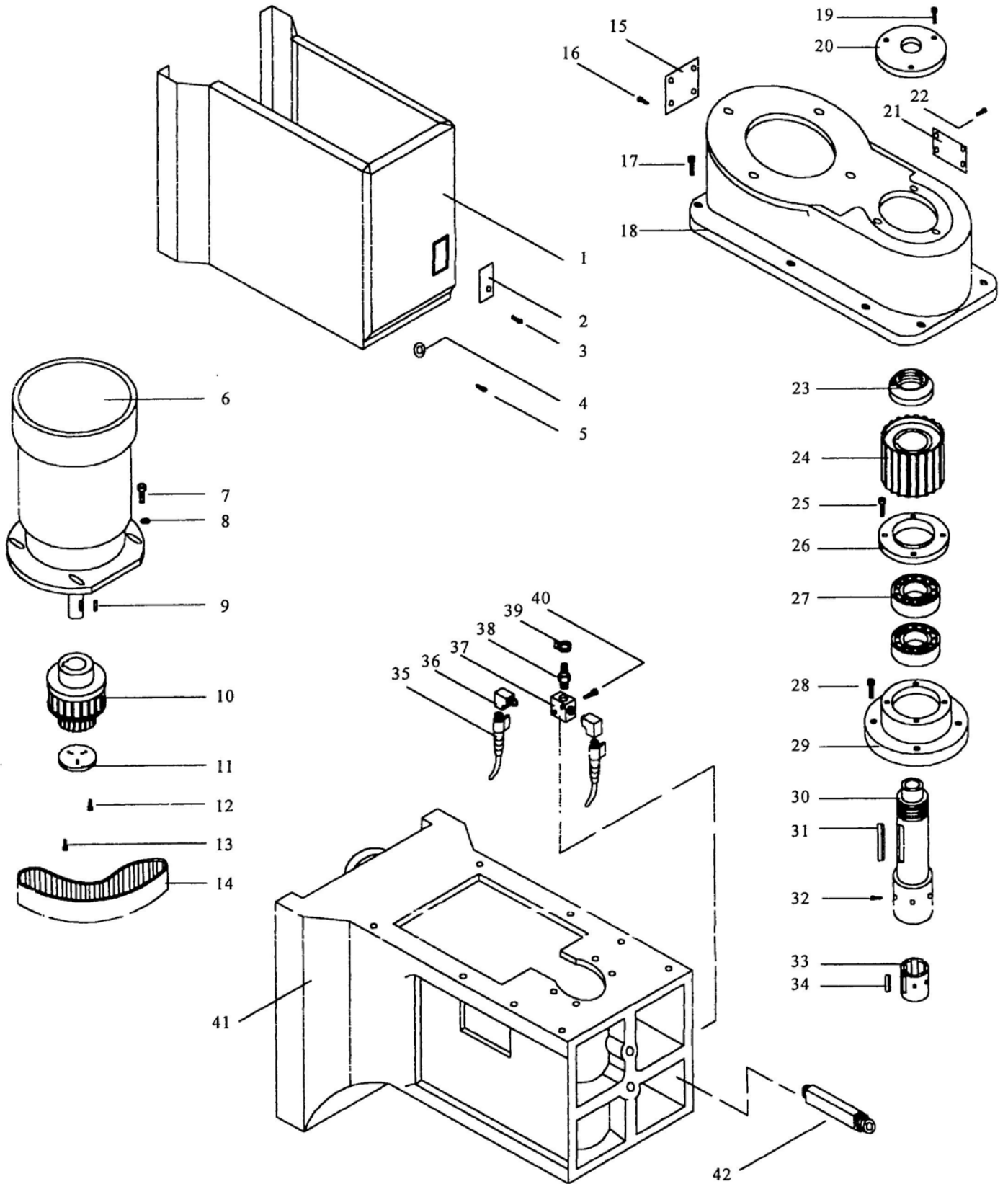
TW-105 HEAD TOP HOUSING OF INVERTER MOTOR TYPE.



TW-105 HEAD TOP HOUSING OF INVERTER MOTOR TYPE.

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	3A-5106	Screw (M8×50)	53	5K-7055	Compression Spring (3 Req)
3	3A-5108	Cylinder	54	5K-7036	Timing Belt (600-8M-29)
7	3A-5102	Brake Lock Stud	55	5K-7087	Jam Nut (5/8" UNF)
9	5K-8072	Socket Cap Screw (M6×20)	56	5K-7087-1	Spring Washer (5/8")
10	5K-8074	Brake Lock Shaft	57	5K-7086	Timing Belt Pulley
11	5K-8073	Sleeve for Brake Lock Shaft	58	5K-7084	Bull Gear Pinion Bearing
12	5K-8076	Set Screw (2 Req) (M6×6)	59	5K-7082	Wave Spring Washer (BWW-6204)
13	8075	Rubber Busing	60	5K-7079	Ball Bearing (2 Req) 6204#
14	5K-8001	Socket Cap Screw (3 Req) (M8×40)	61	5K-7083	Bull Gear Pinion
15	5K-7013	Top Bearing Cap	62	5K-7080	Gear Shaft
16	5K-8004	Bearing 6209#	63	5K-7085	Socket HD Cap Screw (3 Req) (M6×16)
17	5K-7056	Bearing Locknut (2 Req)	64	5K-7077	Socket Set Screw (M6×6)
18	5K-7057-2	Lock Washer (2 Req) (AW10)	65	5K-7078	Key (6×6×20)
19	5BI-6048A	Spindle Timing Belt Pulley	66	5K-7078-1	Key (6×6×20)
20	5BI-6048B	Brake Wheel	67	5BI-6001	5HP Inverter Motor
21	5BI-6048B-1	Socket HD Cap Screw (6 Req) (M8×20)	68	5BI-6001-1	Key (10×8×60)
22	5K-8029	Brake Bearing Cap	69	5BI-6009	Motor Timing Pulley
23	5K-8023	Ball Bearing 6013#	70	TA-4040	Pulley Washer
24	5K-8030	Roll Pin (4 Req) (3×20)	71	5BI-6009-1	Socket Cap Screw (6 Req) (M4×20)
25	5K-8032	Brake Shoe Assembly	72	5BI-6034	Timing Belt (880-8M-35)
26	5K-8031	Brake Spring (2 Req)	73	5K-8063	Gear Housing
27	5K-8029-1	Socket HD Cap Screw (5 Req) (M6×20)	74	5K-8064	Socket Cap Screw (6 Req) (M10×30)
28	5K-8036	Brake Shoe Pivot Sleeve	75	5K-7063	Socket Cap Screw (3 Req)
29	5K-8035	Jam Nut (M8)	75	TRH-7063	For TW-105RH
30	5K-6039	Key (8×7×60)	76	5K-7062	Lock Washer (3 Req) (1/2")
31	5K-8033	Spindle Pulley Spacer (2 Req)	77	5K-7061	Hex Nut (3 Req) (1/2")
32	5K-8068	Brake Operating Finger	78	5K-8063-1	Grease Nipple (1/8")
33	5K-8068-1	Washer	79	5K-7059	Bull Gear Shift Pinion
34	5K-8067	Brake Finger Pivot Stud (2 Req)	79	TRH-7059	For TW-105RH
35	5K-8066	Snap Ring (E5)	80	5K-7060	Hi-Low Detent Plate
36	5K-8053	Belt Housing Base	80	TRH-7060	For TW-105RH
37	5K-6040	Spindle Pulley Hub	81	7064	Socket Set Screw (M6×12)
38	5K-7038	Timing Pulley Clutch Sleeve	82	5K-7065	Adjustable Plate
39	5K-8065	Gear Cover	83	5K-7068	Socket Cap Screw (2 Req) (M6×30)
40	5K-8065-1	Cap Screw (3 Req) (M4×8)	83	TRH-7068	For TW-105RH (M6×50)
41	5K-7039	Splined Gear Hub (For 5K, 5VK, TW-105)	84	5K-7066	Hi-Low Detent Plunger
41	5B-7039	Splined Gear Hub (For TW-105RH, 5BVK)	85	5K-7067	Spring
42	5K-7040	Spindle Bull Gear Assembly	86	5K-7064	Set Screw (M5×6)
43	5K-7081	Key (10×8×14)	87	5K-7071	Hi-Low Pinion Block
44	5K-7057	Bearing Sleeve	88	5K-7072	Roll Pin (4×20)
45	5K-7048	Ball Bearing Gear Sleeve Washer	89	5K-7070	Hi-Low Shift Crank
46	5K-7041	Ball Bearing (2 Req) 6910#	90	5K-7072	Socket Cap Screw (2 Req) (M4×20)
47	5K-7043	Ball Bearing Spacer	91	3H-7069	Bakelite Ball Handle
48	5K-7042	Snap Ring (R-72)	92	5K-6013	Belt Housing
49	5K-7057-1	Washer (AW10)	92	TRH-6013	For TW-105RH
50	5K-7051	Guib for Clutch Bracket (2 Req)	93	5K-6012-1	Cover (2 Req)
51	5K-7052	Flat HD Socket Cap Screw (2 Req)	94	5K-6012-2	Cap Screw (8 Req) (M6×10)
52	7055-1	Adjust Pin (3 Req) (M5×10)			

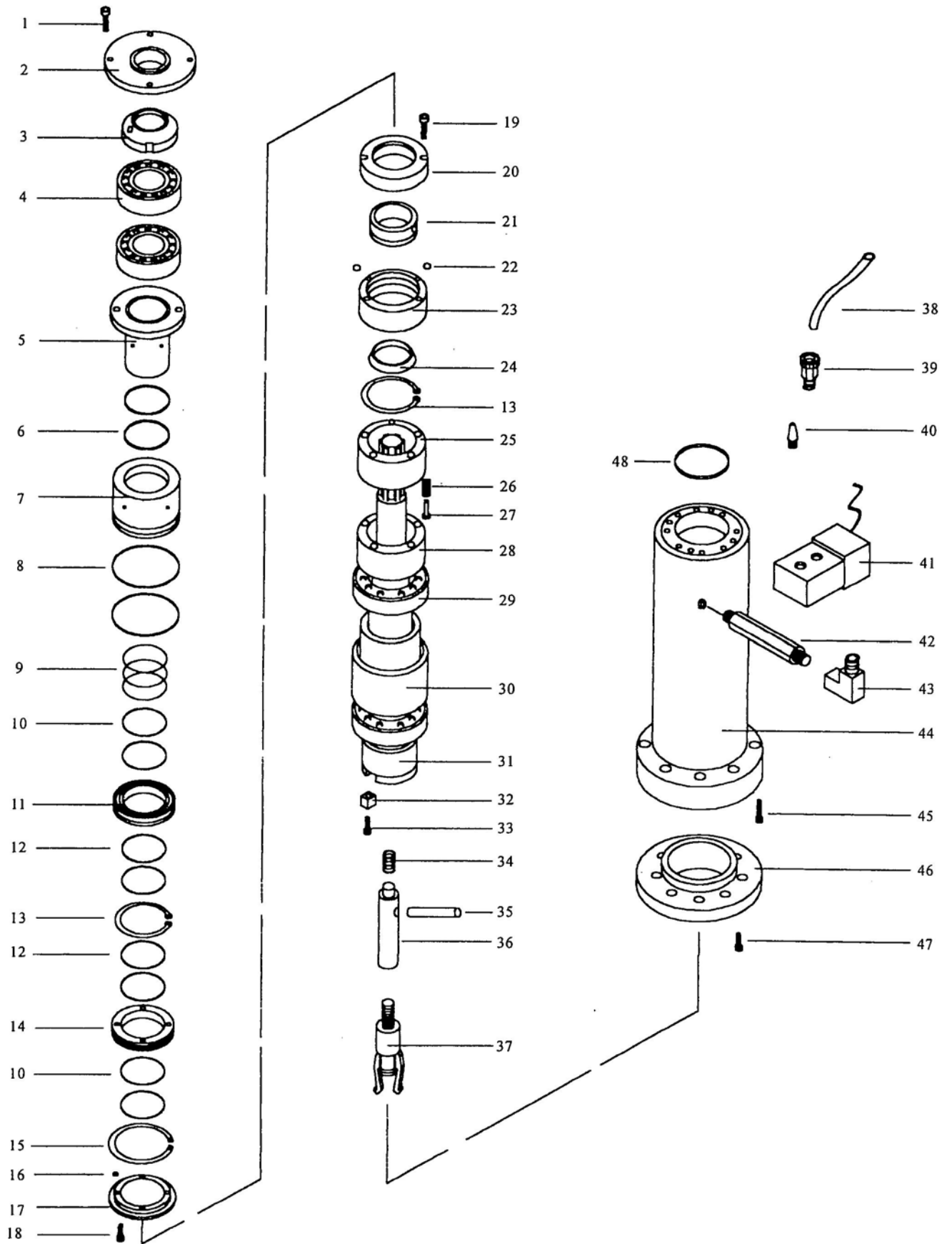
# TW-31/ TW-40 TRH RIGID HEAD



## TW-31/TW-40 TRH RIGID HEAD

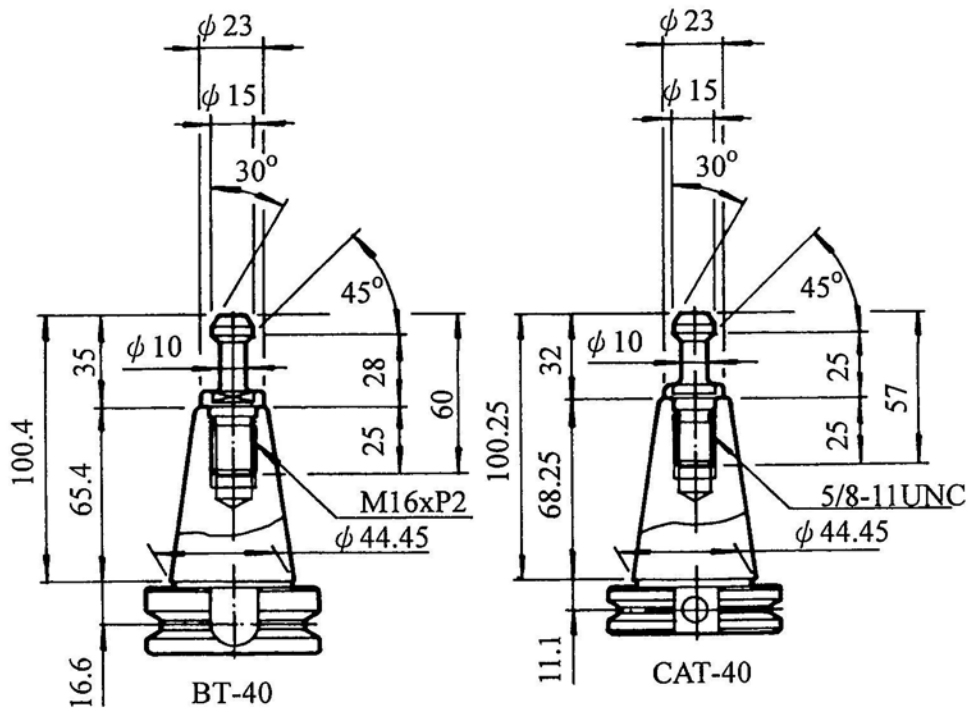
ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TRM4002N	Cover For Head	23	TRH8034-2	Lock Nut
2	TM4052	Push Button Switch Plate	24	TRH6048H	Spindle Timing Belt Pulley
3	TRH4053	Cap Screw (M4 x S)(4 Req)	25	TRH8053-2	Cap Screw (M6 X 16)(4 Req)
4	TRH4002N-2	Washer (M6) (20 Req)	26	TRH8053-1	Cover
5	TRH4002N-1	Cap Screw (M6 x 10)(20 Req)	27	TRH8054	Bearing (#6010)(2 Req)
6	TRH4050	Inverter Motor	28	TRH8055	Cap Screw (M8 X 25)(4 Req)
7	TRH4044	Cap Screw (M12 x 30)(4 Req)	29	TRH8053	Bearing Housing
8	TRH4044-1	Washer (M12)	30	TRH8034	Spindle Pulley Hub
9	TRH4056	Key (10x 8 x 60)	31	TRH8035	Key
10	TRH6009	Motor Timing Pulley	32	TRH8034-3	Cap Screw (M6 X 10)(3 Req)
11	TRH6009E	Pulley Washer	33	TRH8034-1	Splined Hub
12	TRH6009E-1	Cap Screw (M4 x 40)(3 Req)	34	TRH8034-2	Key (10x8x35)
13	TRH6009E-2	Cap Screw (M4 x 12)(3 Req)	35	TRH4048	Switch / Praying Pipe (PT3/8 x 4)
14	TRH4038	Timing Belt (720-5GT-30)	36	TRH4047	L Type Pipe Joint (PT3/4) (2 Req)
15	TP3024	Cover	37	TRH4645	Tap Bracket
16	TRH3024-1	Cap Screw(M6x10)(4 Req)	38	TRH4045-1	Gas Adapter (PT 1/4 x PE1/2)
17	TRH8010-1	Cap Screw (M8 x 30)(4 Req)	39	TRH4045-2	Hose Clip (3/4)
18	TRH8010	Belt Housing	40	TRH4046	Cap Screw (M6 x 35)(2 Req)
19	TRH7014	Cap Screw (M8 x 30)(3 Req)	41	TRH4001	Milling Head
20	5K7013	Top Bearing Cap	42	TRH6113	Air Pipe joint (PT3/8)
21	5K6013F-3	Cover			
22	TRH7015	Cap Screw (M6 x 10)(4 Req)			

# TW31/TW-40 TRH SPINDLE ASSEMBLY



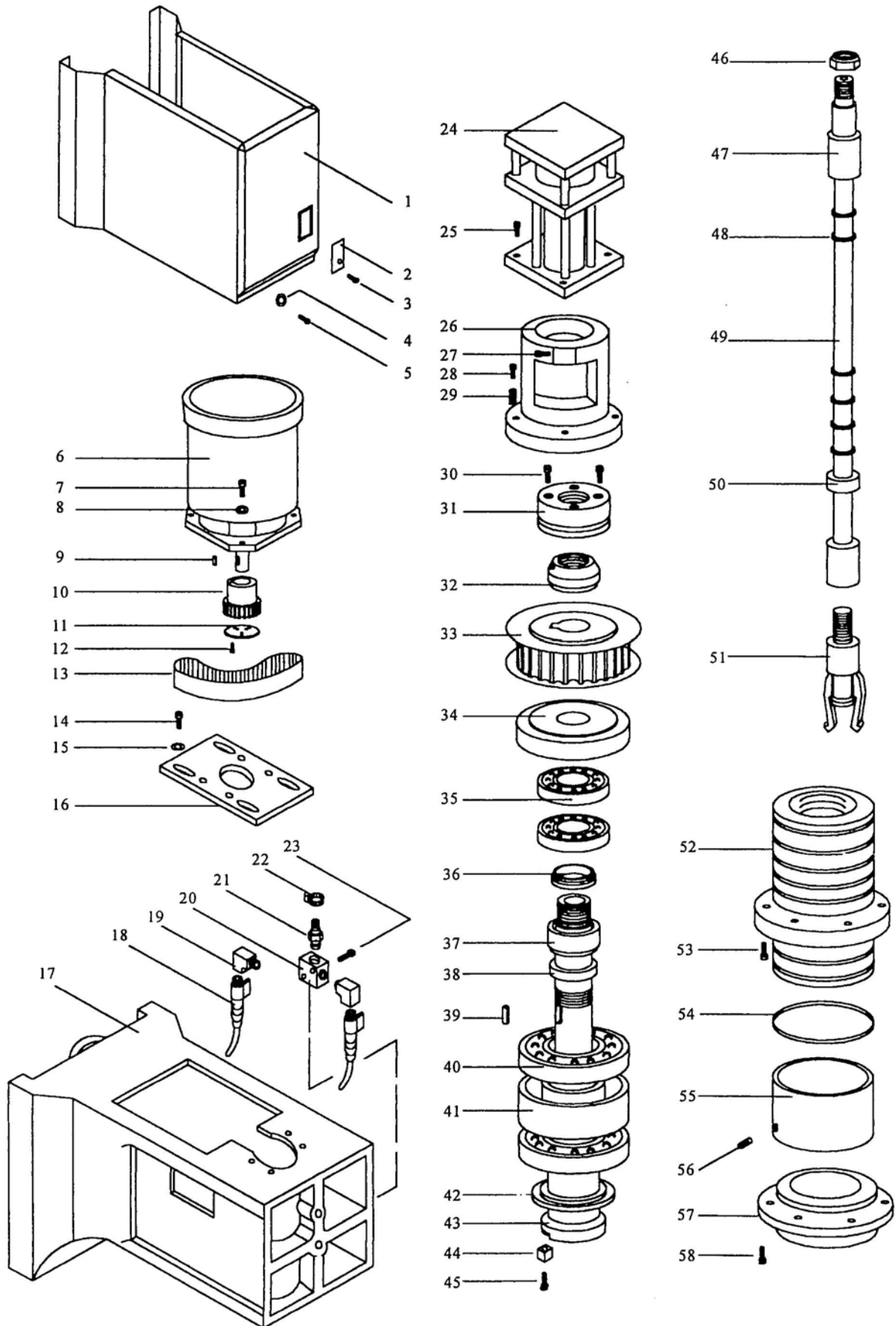
# TW-31/TW - 40 TRH SPINDLE ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TRH6100-1	Cap Screw (M5 x 10)(4Req)	25	TRH6089N	Spring Holder
2	TRH6100N	Cover	26	TRH6087N	Spring (5 Req)
3	TRH6109N	Lock Nut	27	TRH6088N	Adjust Pin (5 Req)
4	TRH6116N	Bearing(#7208P4)(2req)	28	TRH6086N	Lock Nut
5	TRH6097N	Actuator Slide	29	TRH6112N	Bearing (#7012P4)(2req)
6	TRH6096N-1	O-Ring (56x2)(2Req)	30	TRH6114N	Bearing Spacer
7	TRH6096N	Top Piston	31	TRH6084N	Spindle (BT40# OR CAT40#)
8	TRH6096N-2	O-Ring (80x2)(2Req)	32	TRH6099	Keeper key (2req)
9	TRH6102N	Spring	33	TRH6099-1	Cap Screw (M5 x 16)(2 Req)
10	TRH6095N-1	O-Ring (74 x 2)(4Req)	34	TRH6107	Spring
11	TRH6095N	Divider Wall	35	TRH6106N	Cross Kickout Bar
12	TRH6096N-3	O-Ring (55 x 2)(4Req)	36	TRH6104N	Draw Bar
13	TRH6110N	Ret. Ring (2Req)	37	TRH6115	4. Jaws Collet
14	TRH6094N	Piston	38	TRH6120-1	Plastic Pipe (8 x 6 x 3100L)
15	TRH6092N-2	Snap Ring	39	TRH6120	Gas Adapter (TS8-01)
16	TRH6094N-3	O-Ring (4 x 0.5)(4 Req)	40	TRH6118	Silencer (KM-1)
17	TRH6094N-1	Retaining Ring Plate	41	TRH6117	Solenoid Air Valve (100E1)
18	TRH6094N-2	Cap Screw (M4 x12)(4 Req)	42	TRH6113	Straight Join (PT1/8 x PT1/8)
19	TRH6093-1	Cap Screw (M4 x 40)(2 Req)	43	TRH6119	Elbow Joint (PT1/8 X PT1/8)
20	TRH6093N	Retaining Ring Plate	44	TRH6085AN	Quill
21	TRH6092N	Taper Ring Multiplier	45	TRH6085A-1	Cap Screw (M8 X 35)(8 Req)
22	TRH6103-1	Steel Ball (3/16) (37 Req)	46	TRH6098N	Spindle Tacking Cover
23	TRH6091N	Cam Ring	47	TRH6098N-1	Cap Screw (M6 X 20)(6 Req)
24	TRH6090N	Taper Ring Multiplier	48	TRH6097N-1	O-Ring (90 X 2)



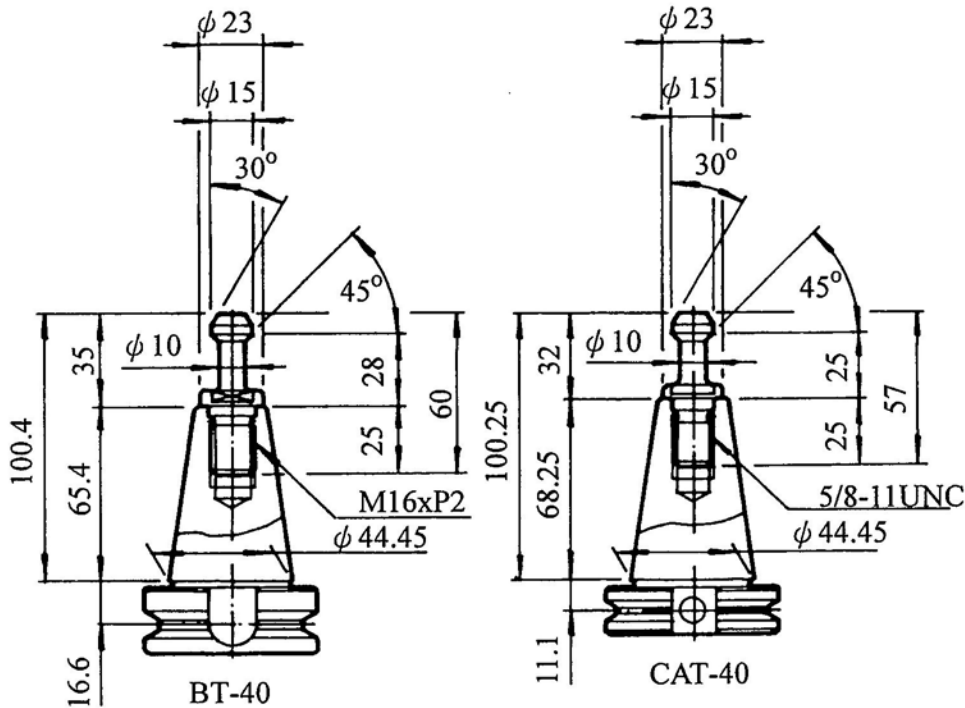
Pull Stud & Tool Shank

# TW-31 MV / TW-40 MV RIGID HEAD & SPINDLE



# TW-31 MV / TW-40 MV RIGID HEAD & SPINDLE

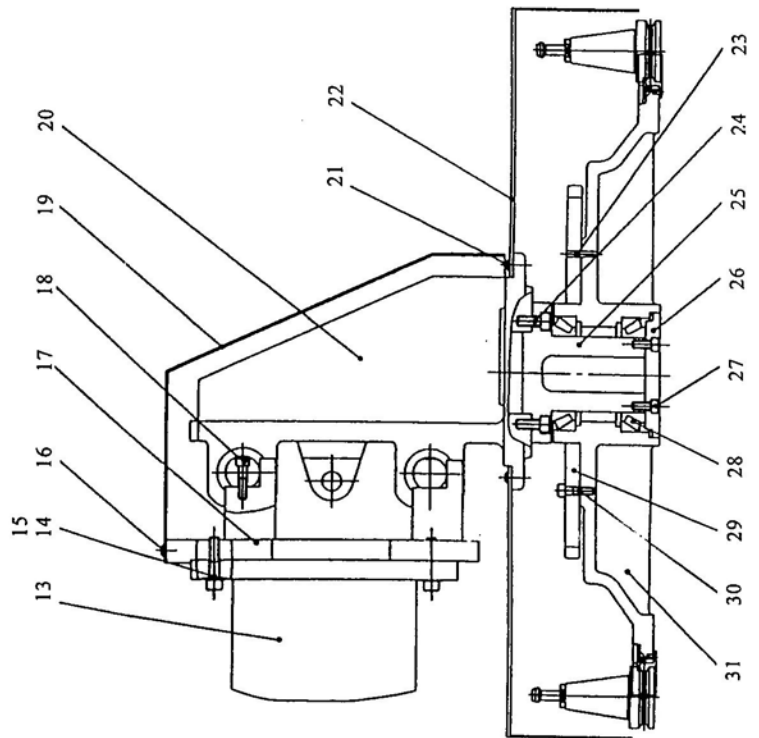
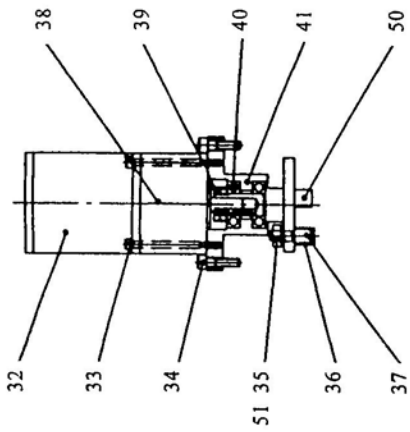
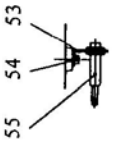
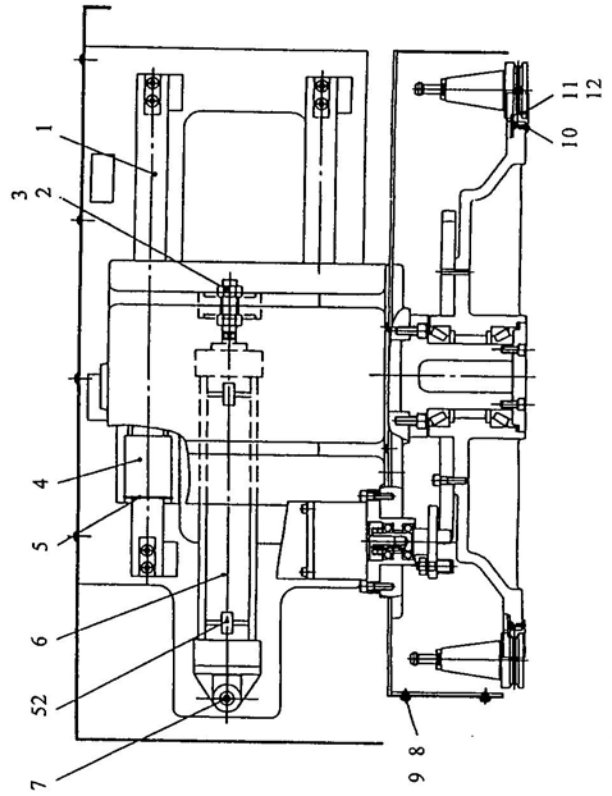
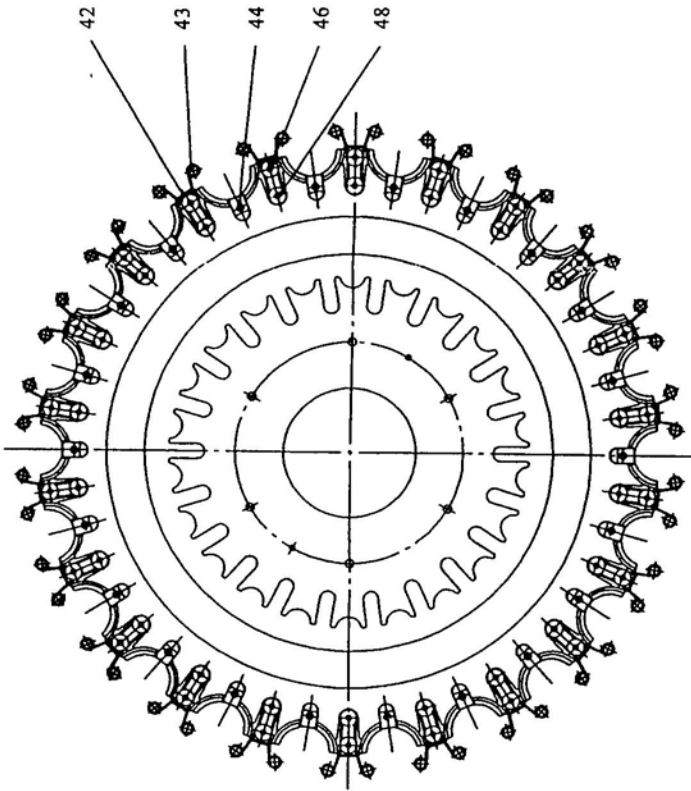
ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	TRM4002N	Cover For Head	31	TM4026	Adj. Lock Nut
2	TM4052	Push Button Switch Plate	32	TM4018	Lock Nut
3	Tm4053	Cap Screw (M4 X 8)(4 Req)	33	TRM4617	Spindle Timing Belt Pulley
4	TM4002N-2	Washer (M6) (20 Req)	34	TRM4016	Cover
5	TM4002N-1	Cap Screw (M6 X 10)(20 Req)	35	Tm4014	Precision Bearing (#7012-P4)(2 Req)
6	TM-4050	Inverter Motor	36	TM4015	Bearing Spacer
7	TM4044	Cap Screw (M12 X 30)(4 Req)	37	TM4013	Lock Nut
8	TM4044-1	Washer (M12)	38	TM4012	Spacer
9	TM4056	Kcy (10x 8x60)	39	TM4019	Key (16x 10x30)
10	5B6009	Motor Timing Pulley	40	TM4010	Precision Bearing (#7014-P4)(2 Req)
11	TA4044	Pulley Washer	41	TM4011	Bearing Spacer
12	5B6009-1	Cap Screw (M4 x 20)(6 Req)	42	TM4009	Spindle Dirt Shied
13	TM4038	Timing Belt (740-5GT-30)	43	Tm4002	Spindle
14	TM4043-1	Cap Screw (M12 x 30)(4 Req)	44	TM4031	Keeper Key (2 Req)
15	TM4043-2	Washer (M12) (4 Req)	45	TM4030	Cap Screw (M8 x 20)(2 Req)
16	TM4043	Motor Bracket	46	TM4029	Lock Nut (M16 x P1.5)
17	TRM4001	Milling Head	47	Tm4028	Bushing
18	TM4048	Switch / Praying Pipe (Pt3/8" 1 x 4")	48	TM4024	Spring (31.5 x 16.3 x 2) (132 Req)
19	TM4047	L Type Pipe Joint (PT3/4) (2 Req)	49	TM4025	Draw Bar
20	TM4045	Tap Bracket	50	TM4023	Bushing
21	TM4045-1	Gas Adapter (PT 1/4 X PE1/2)	51	TM4022	4. Jews Collet
22	TM4045-2	Hose Clip (3/4")	52	TM4003	Quill
23	TM4046	Cap Screw (M6 X 35)(2 Req)	53	TM4035	Cap Screw (M8x 25)( 6Req)
24	TM4033	Oil Cylinder	54	TM4007	O- Ring (G135)
25	TM4034	Cap Screw (M10 X 40 )(4 Req)	55	TM4006	O-Ring Cover
26	TM4032	Oil Cylinder Seating	56	TM4005	Set Screw (M5 x 5)(2req)
27	TM4036	Cap Screw (M8 X 30)(4 Req)	57	TM4004	Nose -Piece
28	5K8036	Lock Spring Screw(4 Req)	58	TM4008	Cap Screw (M6 x16)(8req)
29	5K6242	Spring(4 Req)			
30	TM4027	Cap Screw (M8 X 30)(4 Rcq)			



Pull Stud & Tool Shank



# TOOL MAGAZINE ASSEMBLY



# TOOL MAGAZINE ASSEMBLY

ITEM NO.	PARTS NO.	DESCRIPTION	ITEM NO.	PARTS NO.	DESCRIPTION
1	MT416-04	Guide rail (2 Req)	29	MT22-301	Dividing plate
2		Hex. nut (M18x1.25P)(2 Req)	30		Hex. socket bolt(M8x1.25Px30L)(6 Req)
3		Spring washer(φ 18) (2 Req)	31	MT22-101	Tool magazine
4		Steel ball guide sleeve(LM355270-UU)(4 Req)	32		Induction motor(5RK40GN-A )
5		C retainer for hole(R52)(4 Req)	33		Hex. socket bolt(M6x1.0 Px80 L )(4 Req)
6		Air cylinder(63x255)	34		Hex. socket bolt(M5x1.25 Px30L)(4 Req)
7		Hex. socket bolt (M10x1.5Px50L)(4 Req)	35		Hex. nut( M10x1.5 P)
8		Round head inside hex. screw(M6x1.0Px8L) (4 Req)	36		Needle roller bearing inside ring(1RT1216-1 )
9		Flat washer(M6)(4 Req)	37	VA0056600	Driving pin
10		Sunk head inside hex. Screw(M5x0.7x10L)(40 Req)	38		Reduction gear(5GN25 )
11	MT22-402	Tool holder(For BT)(20 Req)	39		Bearing locking nut(AN20)(2 Req)
12	MT22-403	Tool holder(For CT)(20 Req)	40		Groove needle roller bearing(6205 ZZ )(2 Req)
13	MT22-103	Support stand	41	MT416-14	Bearing seat
14		Spring washer(M10)(8 Req)	42	MT22-406	No. Plate(20 Req)
15		Hex. socket bolt (M10x1.5Px45L)(8 Req)	43	MT22-407	Spring (20 Req)
16		Round head inside hex. Screw(M6x1.0Px10L)(4 Req)	44	MT22-408	Tool fixing block(20 Req)
17	MT22-401	Fixing plate	45		Flat head inside hex. screw(M4x0.7 Px10 L )
18		Hex. socket bolt(M8x1.25Px40L)(8 Req)	46		(20 Req)
19	MT420201	Slide seat guard cover	47	MT22-409	Spring pin sleeve (outside)(20 Req)
20	MT420103	Slide seat	48		Hex. socket bolt(M6x1.0 Px20 L )
21		Round head inside hex. screw (M6x1.0Px10L)(8 Req)	49	MT22-410	Spring pin sleeve (inside)(20 Req)
22	MT4203302	Tool magazine cover	50		Hex. socket bolt(M6x1.0 Px20 L )(20 Req)
23		Bevel pin (inside thread) #5x32L-M4x0.7Px8D (2 Req)	51	MT22-401	Driving shaft
24		Hex. socket bolt (M10x1.5Px50L)(4 Req)	52		Spring washer(φ 10)
25	MT416-08	Fixing shaft	53		Reed switch (2 Req)
26	MT22-404	Lower press plate	54	VA041-000	Sensor seat
27		Hex. socket bolt(M8x1.25Px25L) (4 Req)	55		Hex. socket bolt(M6x1.0 Px16 L ) (2 Req)
28		Conical roller bearing (32015)(2 Req)			Sensor(ILCT 1214)