



ZX45A POWER FEED

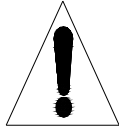
BENCH MILLING&DRILLING MACHINE

OPERATING MANUAL



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SAFETY WARNING

1. READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE
2. KEEP GUARDS IN PLACE AND IN WORKING ORDER
3. KEEP WORK AREA CLEAN, CLUTTERED AREA INVITE INJURIES
4. KEEP CHILDREN AND VISITORS AWAY FROM WORK AREA
5. DRESS PROPERLY, NO LOOSE CLOTHING, GLOVES NECKTIES, OR OTHER JEWELRY TO GET CAUGHT IN MOVING PARTS, WEAR PROTECTIVE HAIR COVERING TO CONTAIN LONG HAIR.
6. ALWAYS WEAR EYE PROTECTION, ALSO USE FACE OR DUST MASK IF OPERATION IS DUSTY.
7. REMOVE ADJUSTING KEYS AND WRENCHES FROM TOOL BEFORE STARTING.
8. BE SURE DRILL BIT OR CUTTING TOOL IS SECURELY LOCKED IN THE CHUCK.
9. AVOID UNINTENTIONAL STARTING
10. KEEP PROPER FOOTING AND BALANCE AT ALL TIMES, DO NOT REACH OVER OR ACROSS RUNNING MACHINES.
11. MAINTAIN TOOLS WITH CARE, KEEP TOOLS SHARP AND CLEAN FOR BETTER AND SAFER PERFORMANCE
12. DO NOT OPERATE THIS MACHINE WHILE THE INFLUENCE OF DRUG, ALCOHOL OR ANY MEDICATION
13. USE THE RIGHT TOOL FOR THE JOB. DO NOT ATTEMPT TO FORCE A SMALL TOOL OR ATTACHMENT TO DO THE WORK OF A LARGER INDUSTRIAL TOOL.
14. ENSURE THIS MACHINE IS PROPERLY GROUNDED
15. SECURE WORKPIECE TO KEEP WORKPIECE FROM ROTATING WITH THE DRILL BIT OR CUTTING TOOL

SPECIFICATION

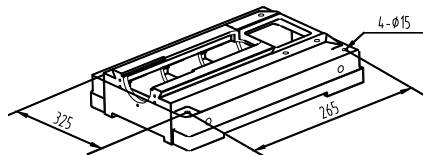
Model	ZX45A	
Max.drilling capacity	1 7/9"	
Max.face mill capacity	3 1/7"	
Max.end mill capacity	1 1/9"	
Max.tapping capacity	M12	
Max.spindle stroke	5 1/8"	
Swivel angle of headstock at perpendicular direction	±90°	
Max.distance between spindle nose to table	15 5/9"	
Distance between axes of spindle to Column slide	10 1/4"	
Spindle taper	M. T. 4 OR R8	
Working area of table	31 1/2" × 9 4/9"	
Forward and backward travel of table	6 1/2"	
Left and right travel of table	17 5/7"	
Spindle speeds (4P)	50HZ	80, 145, 260, 375, 710, 1250 RPM
	60HZ	95, 175, 310, 450, 850, 1500 RPM
Main motor	Power	1.5KW
	Speed	1400RPM
Feed motor	0.25KW	
Length	33 1/4"	
Width	35 5/6"	
Overall height (without stand)	40 1/6"	
Net weight/gross weight	345kg/395kg	
Standard accessories	Wrench MAG 24	
	Allen wrench 1/8, 1/6, 1/5, 1/4	
	Screwdriver (-) 6"	
	Drill stock	
	Wedge	
	Drawbar	
	Drawbar washer	

FEATURES

- (1) This machine may be used for surface cutting, drilling, milling, boring and tapping.
- (2) This machine is of fine quality, can be operated easily, it is not limited to skilled operator.
- (3) The drilling and milling operation can be performed by two methods:
 - 1) Hand operation, which makes quick feeding drilling or slow feeding milling
 - 2) Auto-feed operation, the machine have six different feeding for drilling.
- (4) Many of the adjustable nuts are bronze, for adjusting thread clearance and reducing wear. these bronze parts also allow screws to rotate smoothly and improve accuracy.
- (5) The vertical column is very strong and stiff, which makes the machine very stable and improves accuracy of manufactured parts.
- (6) The machine headstock is cast iron, it has been heat-treated, stress-relieved, and precision machined.
- (7) Machine gears are ground for smooth operation.
- (8) Speeds and feeding can be easily changed.
- (9) Tapping can be done in either rotation, working depth can be controlled by using a positive stop gauge.
- (10) The head can be turned in two rotation for a satisfying desired angle.

INSTALLATION

- (1) Ensure the headstock is as lower as possible, and be fixed on the column tightly before moving machine. while moving machine, keep its balance and safety.
- (2) Don' t mount the machine at the sunshine place to avoid the deformity of machine and the loss of accuracy.
- (3) Mount machine to a sturdy table or a solid concrete foundation, it' s advisable that the base you choose be well constructed to avoid any vibration during operation.



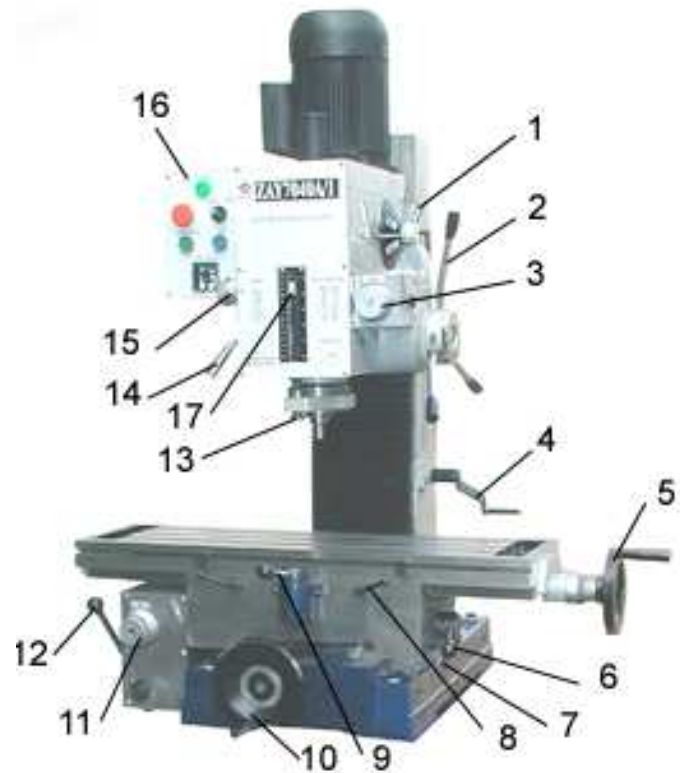
- (4) Thoroughly clean the machine with a commercial degreaser, and then coat all bright metal with a light lubricant to prevent corrosion.
- (5) Level the surface of the worktable on both lengthwise and crosswise by using a precision level.
- (6) Remove the oil filler plug and fill the oil to the gear box until the oil level reaches the middle of the oil fluid level indicator. Lubricate all

points

OPERATION

Notice: Check all parts and safety precautions for proper condition before operation

1. Change speed handle
2. Feed handle 3. micro feed knob
4. Crank 5. Longitudinal handwheel
6. Cross auto-feed handle
7. Cross lock handle 8. Longitudinal lock handle
9. Longitudinal auto-feed handle
10. Cross handwheel
11. Change table feeding knob
12. Quick-feed handle 13. Adjust positive stop gauge knob
14. Rack quill lock handle
15. Change spindle feeding Knob
16. Electric box
17. Positive depth stop gauge



1. Use of main machine parts

- (1) Raise and lower the headstock on its rack and pinion mechanism by using the crank(4). when the desired height is reached, tighten the bolts to avoid vibration.
- (2) Head may be rotated 180° by loosening the three lock nuts. Adjust the head to the desired angle, then tighten the heavy duty head lock nuts.
- (3) The knobs is setted for MILLING & DRILLING, TAPPING , STOP AND TABLE FEED. The mushroom head red push button for emergency stop while milling and drilling, the green push button for starting.
- (4) When hand-feeding the spindle, push the feed handle(2) in; and micro-feeding the spindle, push the handle(2) out, turn the knob(15) to “0” position, then operate the knob(3). when auto-feeding the spindle, turn the knob(3) to select a mount of feeding.
- (5) Move the table from side to side by using longitudinal handwheel(5), and from front to back by using the cross handwheel(10).

- (6) Adjust the positive depth stop gauge (17) according to working depth.
- (7) When move the table by hand, adjust longitudinal/cross auto-feed handle (6, 9) to middle position, then turn the longitudinal/cross handwheel (5, 10) to move the table. When move the table by power, open the switch for table feed, turn the knob (11) to select the amount of feed at first, then, press down the handle (9) to turn left for longitudinal moving the table left, press down the handle (9) to turn right for longitudinal moving the table right. Press left the handle (6) to turn up for cross moving the table forward, Press left the handle (6) to turn down for cross moving the table backward. When the handle (6 or 9) is on the working state, press down the quick-feed handle (12) to make longitudinal/cross quick feed. Trips of table are controlled by limiting position block.

2. Drilling operation

- (1) For drilling blind hole (which do not pass through the workpiece), push the feed handle (2) in, then adjust the positive depth stop gauge (17) so that the distance from the tip of the drilling bit to the end of the blind hole is equal to the desired depth.
- (2) For drilling pass hole (which pass through the workpiece), set the positive depth stop gauge in its uppermost position.

3. Milling operation

- (1) Adjust the positive depth stop gauge to its uppermost position
- (2) Using the spindle feed handle (2), adjust the cutter to approximately the correct height, push the handle (2) out.
- (3) Set the working depth by using the micro feed knob (3).
- (4) Lock the rack sleeve at the height with the fixed bolt.
- (5) When longitudinal feeding milling, it is a good idea to lock the across feeding table to ensure the accuracy of your work. To do this, tighten the two screws (7) located on the right side of the table base.
- (6) When cross feeding milling, lock the longitudinal feeding travel, do this by tightening the two screws (8) on the front of the table base.

4. Tapping operation

- (1) Push the feed handle (2) in
- (2) Adjust the positive depth gauge to the required position.
- (3) The switch point to "tapping". When tapping is overload, press down the red emergency switch, and the spindle reverse, the taper turn out.

5. Adjustment

- (1) Adjustable moveable fixed rings are mounted on the front of the table to limit cross travel.
- (2) Your machine is equipped with gib strip adjustment to compensate for wear and excess slack on cross and longitudinal travel.
- (3) Rotate the gib strip bolt slightly clockwise to tighten the gib trip.

rotate it slightly counter-clockwise to loosen the gib trip.

(4) Adjust the gib trip bolt until very slight drag is felt when moving the table.

6. Changing machine speed

(1) Turn the power off.

(2) To select the proper speed, move the handle(1) to the desired position .

(3) If the gear are not engaged, remove the arbor bolt cover. rotate the spindle slightly to engage the gears, then replace the arbor bolt cover.

(4) Recheck the handle setting, then turn the power on.

RPM HZ						
50HZ	80	145	260	375	710	1250
60HZ	95	175	310	450	850	1500

7. Installing and changing tools

WARNING: BE SURE THE POWER IS TURNED OFF AND THE MACHINE UNPLUGGED BEFORE INSTALLING OR CHANGING TOOL BITS.
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(1) Removing face mill or drill chuck arbor.

Loosen the arbor bolt at the top of the spindle shaft approximately 2 turns with a wrench. rap the top of the arbor bolt with a mallet. After taper has been broken loose, holding chuck arbor on a hand and turn the arbor bolt with the other hand.

(2) To install face mill or cutter arbor

Insert cutter and cutter arbor into the taper of spindle. Tighten arbor bolt securely, but do not overtighten.

(3) Removing taper drills

(a) Turn down the arbor bolt and insert the taper drill into the spindle shaft.

(b) Turn down the rack sleeve until the oblong hole in the rack sleeve appears, lock the rack sleeve, insert wedge though holes and strike lightly with a mallet, this will force the taper drill out.

8. Ordering replacement parts

Complete parts list is attached , if parts are needed, contact your local distributor.

9. Additional tools and accessories you will find helping

Each of machine is equipped with a M.T. 3 or R8 , contact your local distributor or a main cutting tool distributor to obtain any of these accessories.

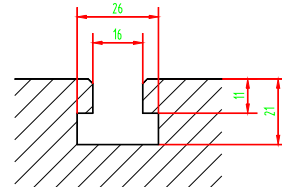
Taper drill

Reamers

End mills
 Cutter arbor
 Taps
 Collets
 Adapters and sleeves

10. Specification of the T-slot

Please refer to figure, purchase or make T-bolts and other table top fixtures to these dimensions.



ELECTRICAL SYSTEM

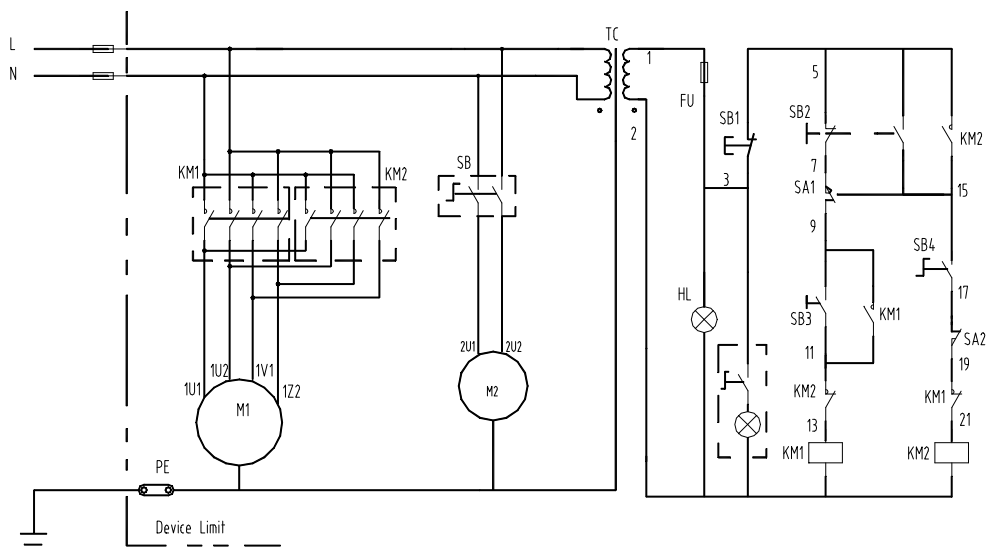
WARNING:

1. A fuse must be connected between machine and power.
2. The ground terminal of machine must be grounded properly
3. Don't open electrical box during operation, if something is wrong with machine, please ask repairman for help.

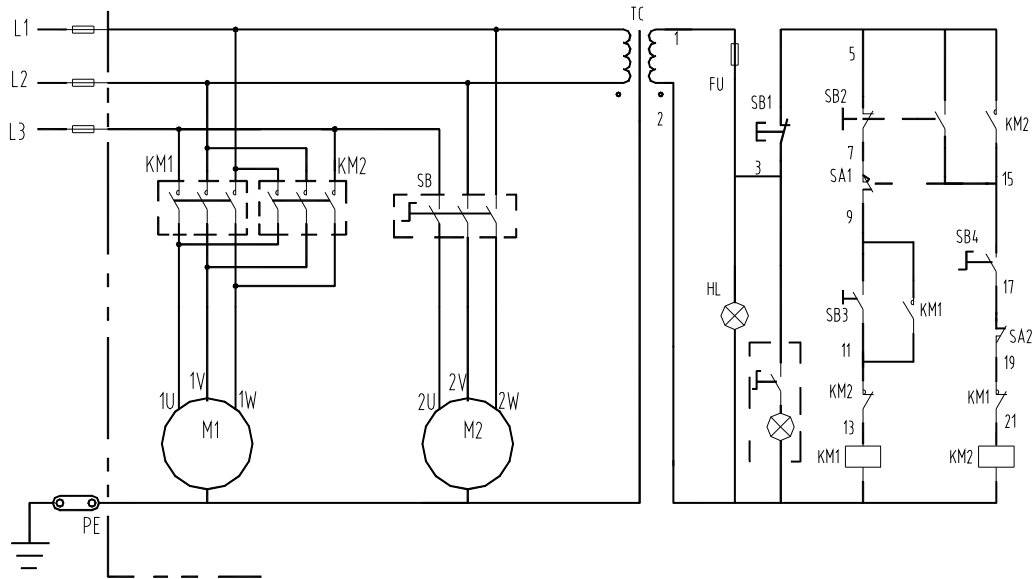
SPECIFICATIONS OF THE FUSE

Voltage \ phase	Single phase	Three phase
110V	20A	
220V	10A	5A
380V		5A

THREE PHASE CIRCUIT



SINGLE PHASE CIRCUIT



TROUBLE SHOOTING

1. The machine doesn't run when the power switch is turned ON

- (a) The knob is in the STOP position
- (b) A fuse has burned out---Check in the switch box, and replace it necessary.
- (c) If there is a surge in the current, the circuit breaker may have opened---Press the circuit breaker back, if it is in the open position.
- (d) The gear may not be engaged---Adjust the speed lever to be sure it is engaged.

2. The motor overheats, or there is insufficient power

- (a) The machine is overloaded---Reduce the load of feed.
- (b) The voltage supply is too low---provide with a reliable power supply.
- (c) The switch may have a burned or broken contact point---Replace the switch.
- (d) The contactor relay may be broken---Replace it.
- (e) There may be a poor electrical connection. Have a qualified electrician check the wiring and power supply.
- (f) The motor is poor---replace with new one.
- (g) The drill bit or cutting blade may be worn---Sharpen or replace the bits as needed.

3. The spindle bearing is very hot.

- (a) There is insufficient lubrication---Turn off the power, and check the bearing for lubrication. If necessary, apply bearing grease.

- (b) The spindle bearing is worn, or is fixed too tight---Turn off the power, unplug the electrical connection, and rotate the spindle by hand. Be sure it freely. If not, adjustment the bearing. If you feel no use in the bearing, you will have to replace it.
- (c) The spindle has been turning at high speed for a long time---After Long use, turn the machine off for a while to give it a rest, and allow it to cool off.

4. Table travel is not balanced

- (a) The gap of the table guide is too wide or feel a heavy drag when moving the table---Adjust gib strip in proper
- (b) The locked bolts may be loose---Check and tighten them if necessary.
- (c) The feed is too deep---Reduce the depth of cutting, make several passes to reach the required depth.

5. There is vibration, and roughness of working surface during performance.

- (a) The gap of spindle bearing is too wide---Adjust the gap in proper or replace bearing with new one.
- (b) Spindle loosening up and down---Check the adjustment of the two inner bearing covers. adjust them so there is no free play in the taper bearing, and the bearing turns freely. Tighten them against each other to save this adjustment.
- (c) The gap of the taper sliding plate is too wide---Adjust the bolt tension.
- (d) The chuck is loose---Tighten the chuck.
- (e) The drill bit or cutter is dull---Sharpen or replace it. be sure to use cutting fluid to preserve tool life.
- (f) The workpiece is not held firmly---Check the clamps or vise you are using, and assure to tighten the workpiece

6. The micro feed does not work smoothly

- (a) The clutch may be loose ---Check this and tighten if necessary.
- (b) The worm or worm shaft may be worn---Check these and replace if necessary
- (c) The handwheel fixed screw may be loose---Check it and tighten if necessary.

7. The workpiece is not machined accurately

- (a) Imbalance of heavy workpiece---Check to see that heavy workpiece are held in balance. the workpiece Out of balance may shift when being machined
- (b) A hammer has been used on the workpiece---never strike the workpiece with a hammer.
- (c) The table may not be level---check the table with a level to be sure it is level both side to side and front to back.

- (d) The machine may not be stable in the floor--- be sure the machine is firmly mounted to the floor.

MAINTENANCE

1. After each use

- (a) Turn off the power switch.
- (b) Remove any tool bits, clean and lubricate them, and return them to their storage case.
- (c) Using a stiff bristle brush, brush off all chips.
- (d) Using a rag, wipe off any excess or dirty oil or cutting fluid left on the machine.
- (e) Lubricate the points, apply light grease or oil to all unpainted metal to prevent corrosion.
- (f) Cover the machine to prevent dust or dirt contamination when not in use.

2. Daily maintenance

- (a) Fill the oil reservoir to the proper level before each use
- (b) Check the tightness of the bolts holding the head in place.
- (c) If overheating or unusual noises are produced, stop the machine immediately to check for lack of lubrication, faulty adjustments, dull tool bits or other deficiencies, correct any problems before resuming work.
- (d) Keep the work area clean.

3. Weekly maintenance

- (a) Clean and coat the lead screw with oil.
- (b) Check the lubrication of the sliding parts of the table. apply light grease if needed.

4. Monthly maintenance

- (a) Adjust the accuracy of the slides on both the cross and longitudinal feeding.
- (b) Lubricate the bearings, worm gear and worm shaft with light grease.

5. Yearly maintenance

- (a) Adjust the table to assure that it is level in all directions.
- (b) Check the electrical cord, plug, circuit breakers and related connections to assure that they are secure and safe.
- (c) Drain the lubricant from the gear box and replace it.

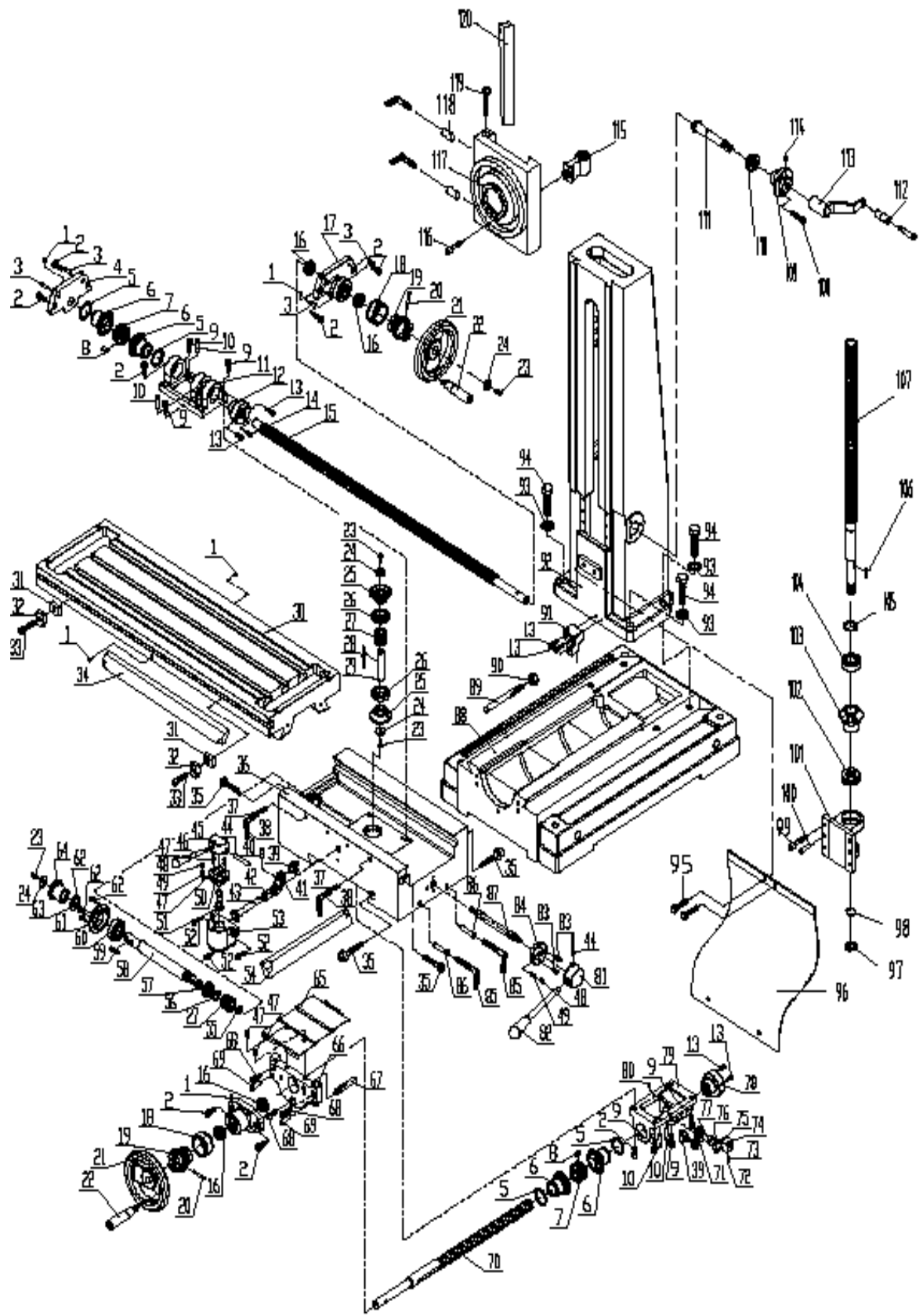
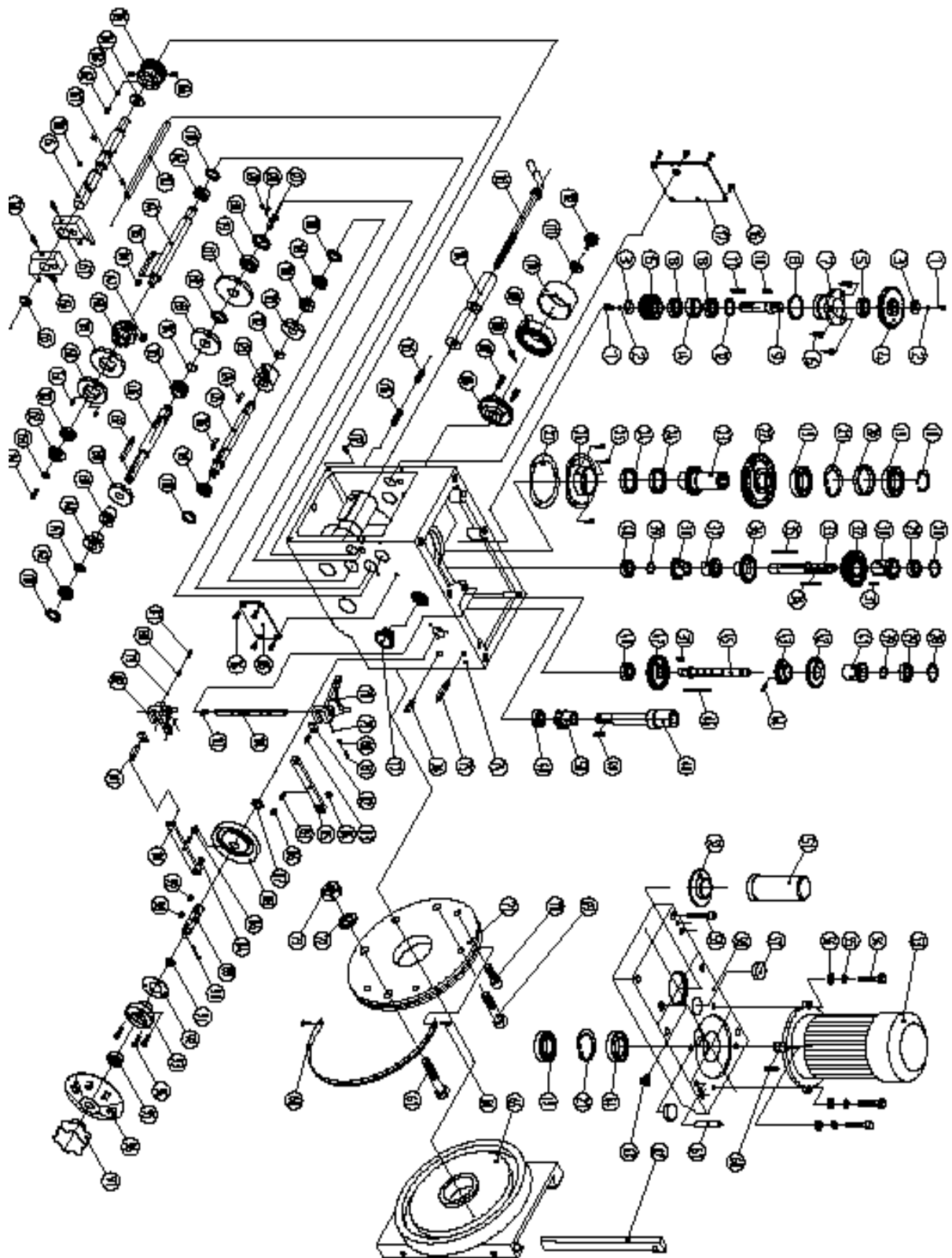


TABLE ASSEMBLY

NO.	PART NO.	DESCRIPTION	QTY.
1	JB/T7940.4-1995	Oiler 6	5
2	GB/T70-86	Screw M8×16	8
3	GB/T117-85	Taper pin 6×25	4
4	ZAY7040A-01-021	Leadscrew seat B	1
5	GB/T8941-85	Retainer ring (external) A34	4
6	ZAY7040A-01-005	Bevel gear A	2
7	ZAY7040A-01-006	Clutch A	2
8	ZAY7040A-01-037	T-key	2
9	GB/T70-86	Screw M8×20	8
10	GB/T118-85	Taper pin 6×20	8
11	ZAY7040A-01-033	Leadscrew seat B	1
12	ZAY7040A-01-041	Leadscrew nutA	1
13	GB/70-85	Screw M6×25	6
14	GB/T70-85	Screw M5×10	2
15	ZAY7040A-01-022	Longitudinal leadscrew	1
16	GB/T301-94	Bearing 51103	4
17	ZAY7040A-01-009	Leadscrew seat A	1
18	ZX32-01-022	Dial ring	2
19	ZX32-01-023	Clutch	2
20	GB/T879-86	Spring pin 5×40	2
21	ZX32-01-028	Handwheel	2
22	JB/T7270.4-94	Handle M10×80	2
23	GB/T819-85	Screw M6×12	3
24	ZAY7040A-01-023	Washer	3
25	ZAY7040A-01-007	Bevel gear B	2
26	GB/T276-94	Bearing 61905	2
27	ZAY7040A-01-030	Spiral gear	2
28	GB/T1096-79	Key 5×70	1
29	ZAY7040A-01-031	Shaft	1
30	ZX32W-01-001	Table	1
31	ZX32-01-012	Fixing block	2
32	ZAY7040A-01-043	Limiting block	2
33	GB/T70-85	Screw M6×12	2
34	ZAY7040A-01-036	Gib (long)	1
35	ZX32-01-004	Set screw	4
36	ZAY7040A-01-014	Middle base	1
37	HQ400-11-015	Locking block	2
38	GB/T270.12-94	Adjusting position handle BM10×32	2
39	ZAY7040A-01-018	Fork	2
40	GB/T119-86	Taper pin 6×20	1
41	ZAY7040A-01-024	Fork arm B	1
42	ZAY7040A-01-025	Shaft gear A	1
43	ZAY7040A-01-042	Adjusting sleeve	1
44	GB/T119-86	Pin 5×45 B	2

45	ZAY7040A-01-026	Handle seat B	1
46	JB/T7270.11-94	Handle HY8310.28, 8×100	4
47	GB/T819-85	Screw M5×10	2
48	GB/T119-86	Pin 6×10 A	2
49	GB/T2089-80	Spring 14.5×12	1
50	ZAY7040A-01-028	Cover	1
51	ZAY7040A-01-027	Shaft gear B	3
52	GB/T70-85	Screw M6×15	1
53	ZAY7040A-01-029	Seat	1
54	ZX32-01-019	Gib (short)	1
55	GB/T894.1-94	Retainer ring (external) 16 A	1
56	GB/T894.1-94	Retainer ring (external) 20 A	1
57	GB/T276-94	Bearing 61804	1
58	ZAY7040A-01-019	Input shaft	1
59	GB/T1096-79	Key 6×30	1
60	GB/T276-94	Bearing 6204	1
61	ZAY7040A-01-020	Cover	3
62	GB/T70-85	Screw M5×15	1
63	ZAY7040A-01-032	Adjustive washer	1
64	ZAY7040A-01-011	Bevel gear	1
65	ZAY7040A-01-034	Guard	1
66	ZAY7040A-01-001	Support seat	1
67	ZAY7040A-01-038	Limiting rod A	3
68	GB/T70-85	Screw M8×25	2
69	GB/T119-86	Taper pin 6×30	1
70	ZAY7040A-01-002	Cross leadscrew	1
71	ZAY7040A-01-017	Fork arm A	1
72	GB/T78-85	Screw M5×6	1
73	GB/T78-85	Screw M5×4	1
74	ZAY7040A-01-015	Eccentricity plectrum	1
75	GB/T879-85	Pin 3×10	1
76	ZAY7040A-01-015(A)	Pin	1
77	ZAY7040A-01-016	Axis	1
78	ZAY7040A-01-008	Leadscrew nut	1
79	ZAY7040A-01-004	Nut seat A	1
80	GB/T78-85	Screw M4×4	1
81	ZAY7040A-01-011	Handle seat A	1
82	JB/T7270.11-94	Handle HY8310.28, 12×60	1
83	GB/T70-85	Screw M5×12	2
84	ZAY7040A-01-013	Location seat	1
85	ZAY7040A-01-010	Locking screw suit	2
86	ZAY7040A-01-010(2)	Bevel block	2
87	ZAY7040A-01-012	Shaft	1
88	ZAY7040A-01-003	Base	1
89	ZAY7040A-01-039	Limiting rod B	1
90	GB/T6170-86	Nut M12	1

91	ZAY7040A-01-040	Seat	1
92	ZAY7040A-01T02-001	Square column (A)	1
93	GB/T93-87	Spring washer 16	4
94	GB/T5780-86	Bolt M16×60	4
95	GB/T5781-86	Screw M8×12	2
96	ZX32-01-010	Guide guard	1
97	GB/T810-88	Thin nut M16×1.5	1
98	GB/T858-77	Stopping washer 16	1
99	GB/T70-85	Screw M8×20	4
100	GB/T119-86	Pin 8×20	2
101	ZX32W-01-006	Support seat	1
102	GB/T301-94	Bearing 51103	1
103	ZX32W-01-007	Bevel gear	1
104	GB/T276-94	Bearing 6204-2RS	1
105	GB/T984.1-86	Retainer ring (external) 20	1
106	GB/T1096-79	Key 5×12	1
107	ZX32W-01T02-002	Leadscrew(A)	1
108	GB/T70-85	Screw M6×20	3
109	ZX32W-01-009	Seat	1
110	GB/T301-94	Bearing 6204-2RS	1
111	ZX32W-01-008	Bevel gear	1
112	JB/T7270.1-94	Handle 8×63×12	1
113	ZX32W-01-017	Crank	1
114	JB/T7940.4-1995	Oiler 6	1
115	ZX32W-01-002	Leadscrew nut	1
116	GB/T70-85	Screw M8×40	1
117	ZX32W-01-001	Bracket	1
118	ZX32W-01-013	Locking block	2
119	ZX32W-01-014	Adjustive screw	2
120	ZX32W-01-003	Gib	1



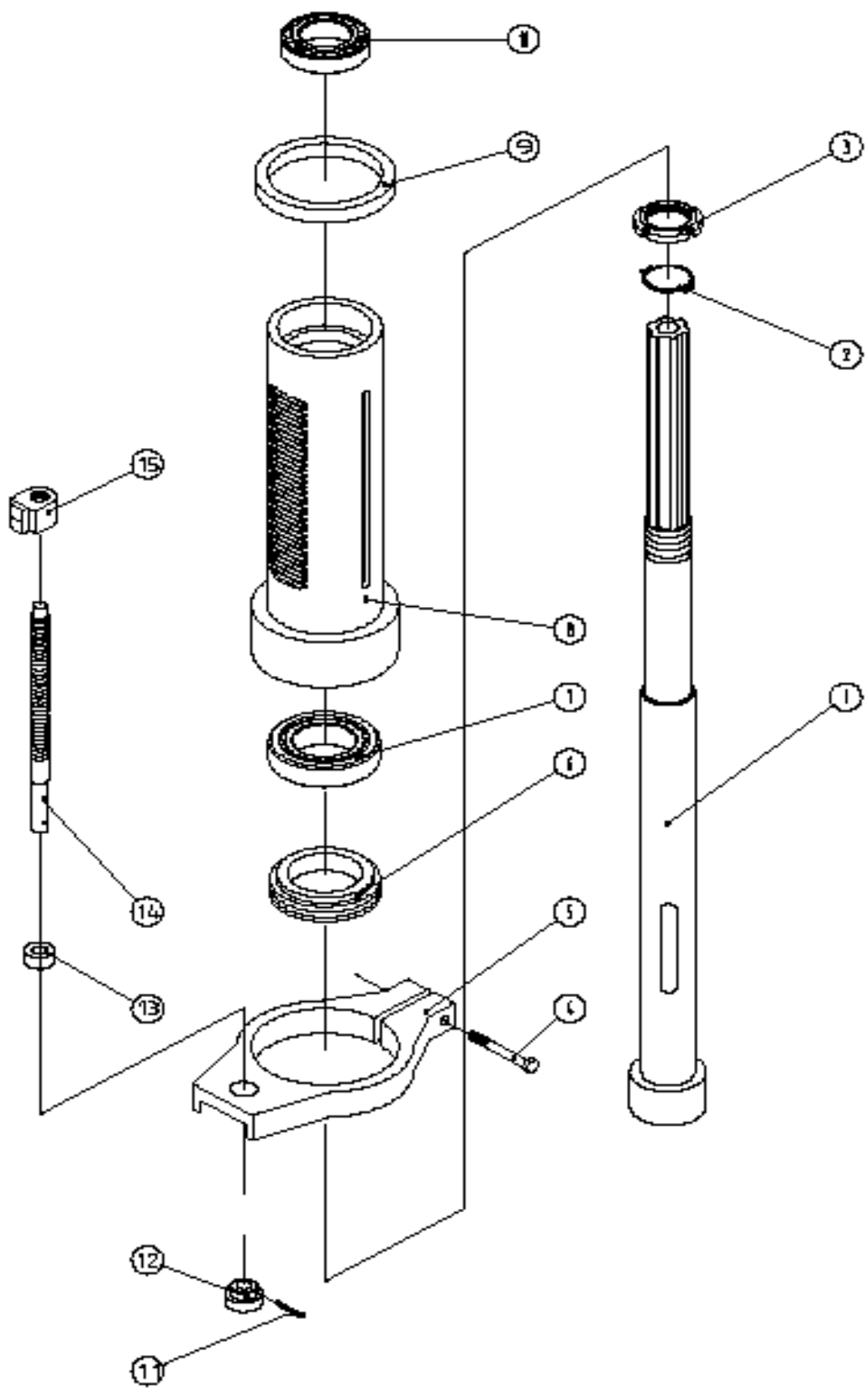
No	PART NO.	Name	QTY
01	GB/T70-85	Inner hexagonal screw M6×15	2
02	GB/T93-87	Spring washer 10	2
03	ZXT45G-02-004	Washer	2
04	ZXT45G-02-031	Gear (Z=34, m=2)	1
05	GB/T9877.1-88	Oil seal 20×35×10	1
06	GB65-85	Screw M6×15	3
07	ZXT45G-02-033	Bush	1
08	JB/T 7757.2-95	O shape seal 39.5×3.1	1
09	ZXT45G-02-032	Shaft	1
10	GB/T1096	Key 5×8	1
11	GB/T1096	Key 5×25	1
12	GB893-76	Inner ring 35	1
13	GB/T276-94	Bearing 16003/P6	2
14	ZXT45G-02-034	Spacer A	1
15	ZXT45G-02-005	Spiral gear A	1
16	GB68-85	Screw M5×12	10
17	ZXT45G-02-063	Left cover plate	1
18	GB/T894.2	Snap ring 35	1
19	GB/T276-94	Bearing 6007-2RS/P6	3
20	ZX32G-02-012	Spacer	1
21	GB/T893.2-86	Inner ring B62	2
22	ZX32G-02-010	Gear	1
23	ZX32G-02-009(1)	Spindle sleeve gear	1
24	GB/T9877.1-88	Oil seal B35×45×10	2
25	GB/T822-85	Round head screw M5×15	3
26	ZXT45G-02-006	Oil filler plug	1
27	ZXT45G-02-007	Washer	1
28	GB/T893.2-86	Inner ring B35	2
29	GB/T276-94	Bearing 6202-2RZ/P6	2
30	ZX32G-02-016	Gear	1
31	GB/T1096	Key 6×12	2

32	ZX32G-02-014(1)	Gear	1
33	ZX32G-02-003	Shaft	1
34	GB/T1096	Key 5×50	1
35	GB/T1096	Key 6×75	1
36	ZX32G-02-006(1)	Gear	1
37	ZX32G-02-005(1)	Gear	1
38	ZX32G-02-004(1)	Gear	1
39	GB/T894.1-86	Snap ring 18	2
40	GB/T276-94	Bearing 6003-Z/P6	3
41	ZX32G-02-018(1)	Gear	1
42	ZX32G-02-019(1)	Gear	1
43	ZX32G-02-020(1)	Gear	1
44	GB/T73-85	Tapered head fasten screw M5×8	1
45	ZX32G-02-017	Shaft	1
46	GB/T1096	Key 5×60	1
47	ZX32G-02-024	Gear	1
48	ZX32G-02-023	Shaft	1
49	GB/T1096	Key 5×25	1
50	ZX32G-02-022	Gear	1
51	HQ400-24-021	Arbor bolt cover	1
52	ZX32G-02-013	Arbor bolt cover base	1
53		Motor	1
54	GB/T5782-86	Bolt M10×30	4
55	GB/T93-87	Spring washer 10	4
56	GB/T95-87	washer 10	4
57	ZX32G-02-015	Cap	2
58	ZXT45G-02-008	Head body cover	1
59	GB/T70-85	Inner hexagonal screw M8×55	6
60	GB/T1096	Key 6×35	1
61	GB/T118-86	Taper pin 10×50	2
62	ZXT45G-02-015	Gib strip	1
63	ZX32G-02-045	Airflow plug	1

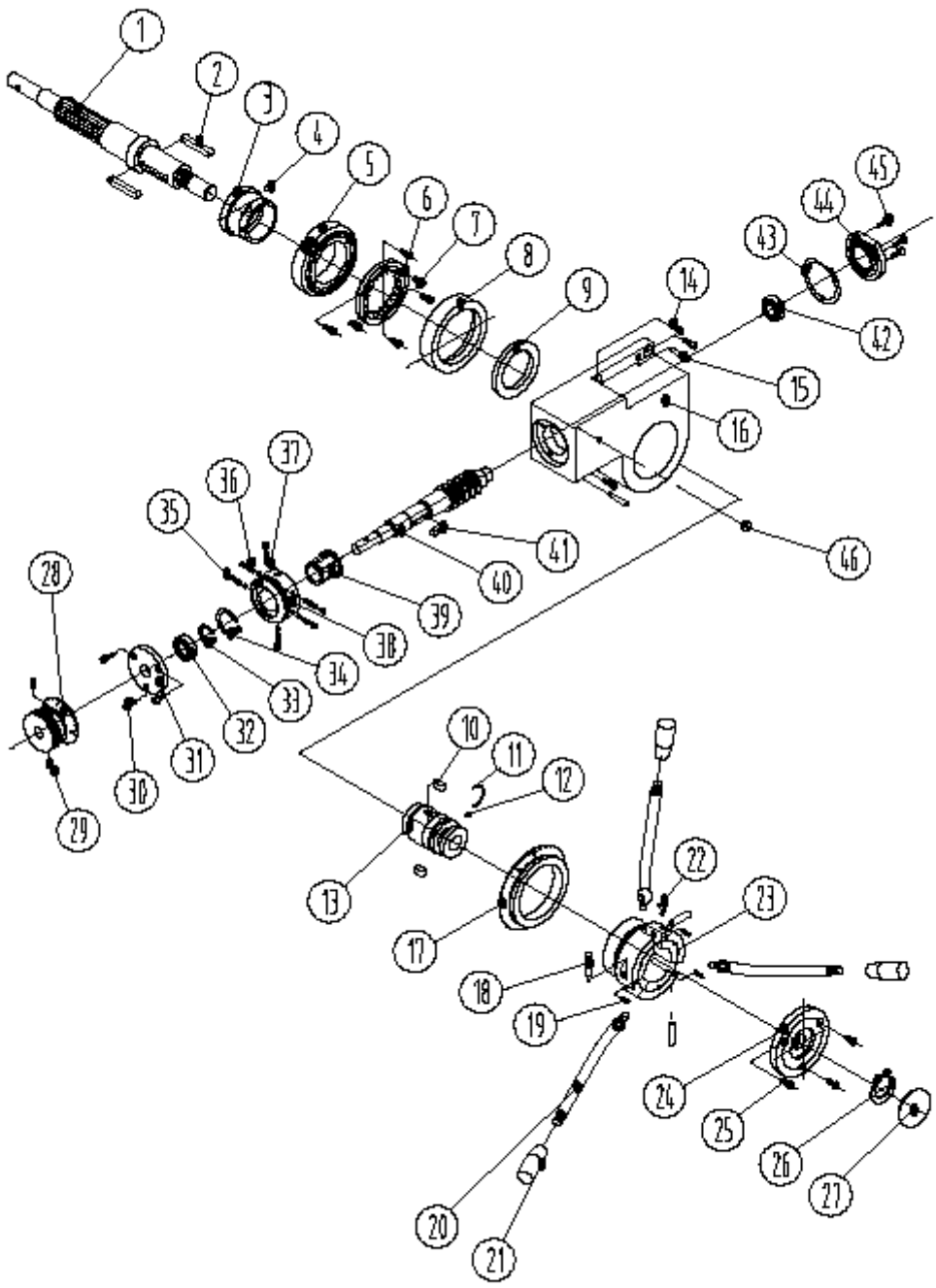
64	GB/T9877.1-88	Oil seal B35×62×12	1
65	ZXT45G-02-011	Connective base	1
66	GB/T818-85	Screw M5×10	2
67	GB/T5782-86	Bolt M16×70	1
68	ZXT45G-02-010	Angle meter	1
69	GB/T5782-86	Bolt M16×60	2
70	GB/T70-85	Inner hexagonal screw M12×25	5
71	ZXT45G-02-012	Connective plate	1
72	GB/T93-87	Spring washer 16	3
73	GB/T6182-86	Lock nut M16	3
74	ZXT45G-02-001	Head body	1
75	ZXT45G-02-029	Shaft B	1
76	ZXT45G-02-027	Shaft A	1
77	JB/T 7941.2-1995	Fluid lever indicator M27×1.5	1
78	ZXT45G-02-024	Lever A	1
79	GB/T308-84	Steel ball 5	2
80	GB/T2089-84	Spring 0.8×5×14	2
81	GB77-85	Screw M6×10	2
82	ZXT45G-02-022	Slip block	2
83	ZXT45G-02-019	Short pin shaft	3
84	GB894-76	Snap ring 8	2
85	ZXT45G-02-030	Shift Lever B	1
86	ZXT45G-02-026	Idler wheel B	2
87	GB894-76	Snap ring 16	1
88	ZXT45G-02-021	Curved wheel	1
89	ZXT45G-02-020	Joy stick	1
90	GB879-86	Spring pin 3×30	1
91	JB/T 7757.2-95	O shape seal 11.6×2.4	1
92	ZXT45G-02-017	Washer	1
93	ZXT45G-02-016	Bush	1
94	GB/T70-85	Inner hexagonal screw M6×12	3
95	GB/T9877.1-88	Oil seal B17×30×9	1
96	ZXT45G-02-014	Changing speed dial	1
97	ZXT45G-02-013	Handle	1

98	GB/T1096	Key 5×10	1
99	GB/T1096	Key 5×8	1
100	ZXT45G-02-028	Shift Lever A	1
101	ZXT45G-02-018	Long pin shaft	1
102	ZXT45G-02-025	Lever B	1
103	GB71-85	Tapered head fasten screw M6×8	1
104	ZXT45G-02-023	Pole	1
105	ZXT45G-02-057	Dexter cover plate	1
106	ZX32G-02-040	Spring base	1
107	GB/T70-85	Screw M5×10	3
108	GB/T68-85	Screw M5×8	1
109	ZX32G-02-047	Spring	1
110	ZX32G-02-043	Spring cover	1
111	ZX32G-02-042	Washer	1
112	ZX32G-02-041	Screw knob	1
113	ZX32G-02-039	Lock handle	1
114	ZX32G-02-038	Fixed tight collar A、B	各 1
115	GB/T77-85	Screw M10×20	1
116	GB/T79-85	Screw M10×25	1
117	GB/T818-85	Screw M5×8	10
118	ZXT45G-02-036	Set washer A	4
119	GB/T292-94	Bearing B7001C/P6	2
120	ZXT45G-02-054	Gear (Z=17, m=1.5)	1
121	ZXT45G-02-055	Gear (Z=27, m=1.5)	1
122	GB894-76	Snap ring 17	1
123	ZXT45G-02-035	Spiral gear B	1
124	GB/T1096	Key 5×18	1
125	ZXT45G-02-037	Shaft	1
126	GB/T1096	Key 5×25	1
127	ZXT45G-02-052	Hookish Key	1
128	ZXT45G-02-051	Spring	1
129	GB119-86	Pin 2×6	1
130	ZXT45G-02-062	Set washer B	1
131	ZXT45G-02-047	Gear (Z=47, m=1.5)	1
132	ZXT45G-02-048	Spacer C	1
133	ZXT45G-02-049	Gear (Z=37, m=1.5)	1
134	GB894-76	Snap ring 20	1
135	ZXT45G-02-050	Lever sheath	1
136	ZXT45G-02-053	Shaft	1
137	GB/T1096	Key 5×55	1
138	ZXT45G-02-041	Gear (Z=30, m=1.5)	1
139	ZXT45G-02-040	Gear (Z=17, m=1.5)	1
140	ZXT45G-02-039	Gear (Z=22, m=1.5)	1
141	ZXT45G-02-038	Spacer B	1
142	GB/T276-94	Bearing 16001/P6	3
143	ZXT45G-02-003	Lead lever shaft	1

144	ZXT45G-02-046	Shaft	1
145	GB/T1096	Key 6×63	1
146	GB/T1096-79	Key 5×12	1
147	GB/T1096	Key 8×15	1
148	ZXT45G-02-045	Gear (Z=30, m=1.5)	1
149	ZXT45G-02-044	Gear (Z=43, m=1.5)	1
150	ZXT45G-02-043	Gear (Z=38, m=1.5)	1
151	GB71-85	Tapered head fasten screw M6×8	2
152	ZXT45G-02-042	Subulate gear Z=15, m=2	1
153	GB96-85	Washer 5	1
154	GB/T70-85	Inner hexagonal screw M5×12	1
155	ZXT45G-02-061	Cap	1
156	ZXT45G-02-059	Lever D	1
157	ZXT45G-02-058	Lever C	1
158	ZXT45G-02-009	Pin	2
159	ZXT45G-02-060	Curved groove shaft	1
160	ZXT45G-02-002	Idler wheel A	2
161	GB71-85	Tapered head fasten screw M5×15	1
162	GB/T2089-80	Spring 0.5×4×8	1
163	GB/T308-84	Steel ball 5	1
164	ZXT45G-02-065	Half washer	2
165	ZXT45G-02-064	Feeding dial	1
166	GB71-85	Tapered head fasten screw M6×10	2



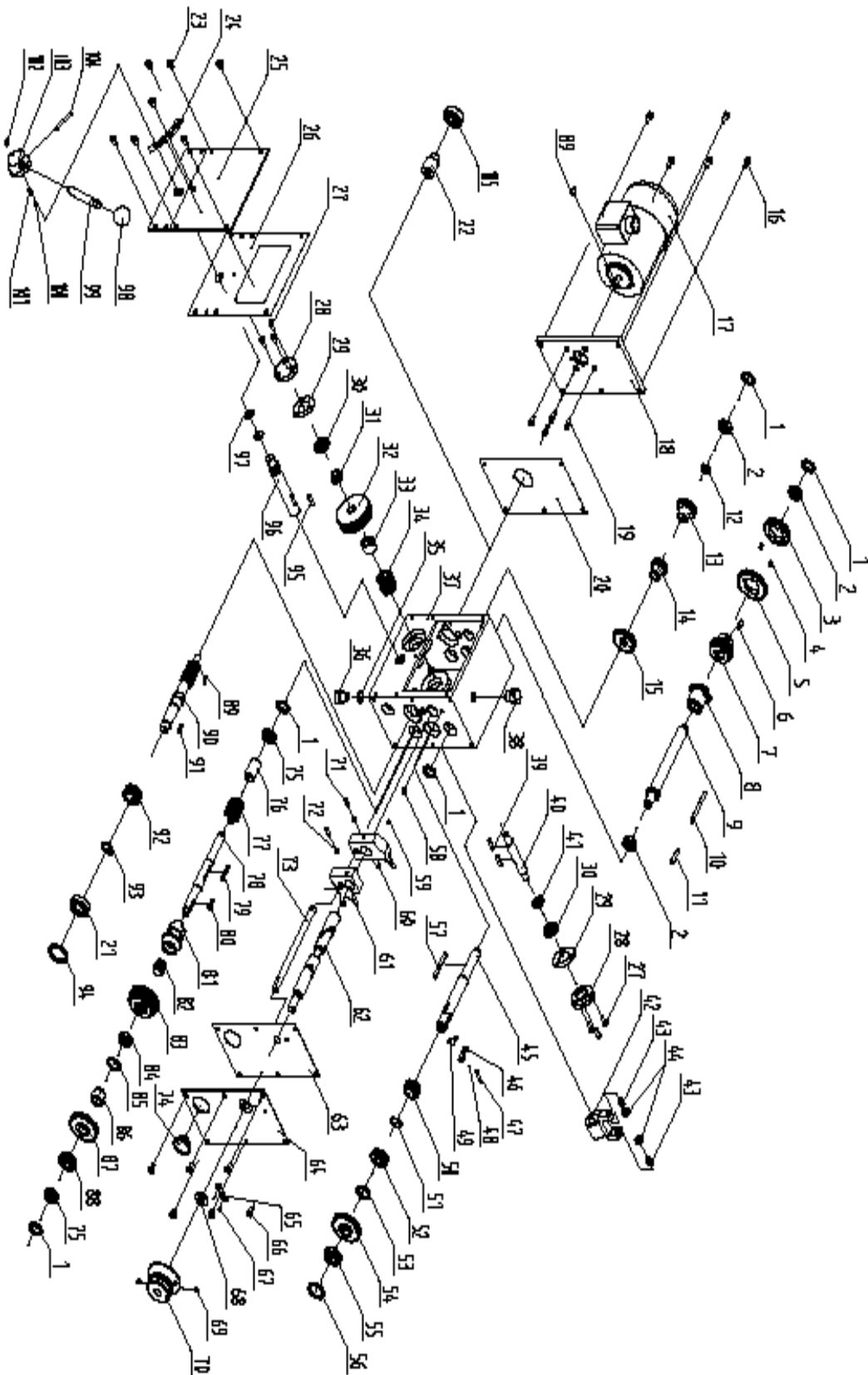
NO.	PART NO.	DESCRIPTION	QTY
001	ZX32G-03-001	Spindle	1
002	GB/T858-88	Stop washer 30	1
003	GB/T810-86	Nut M30×1.5	1
004	GB/T5780-86	Bolt M6×32	1
005	ZXT45G-03-001	Graduate rod base	1
006	ZX32G-03-002	Anti-dust cover	1
007	GB/T297-94	Bearing 30207/P6	1
008	ZX32-03-002	Rack sleeve	1
009	ZX32G-03-004	Rubber flange	1
010	GB/T297-94	Bearing 30206/P6	1
011	GB/T879-86	Spring pin $\phi 3 \times 18$	1
012	ZX32G-03-010	Handle	1
013	ZXT45G-03-003	Spacer	1
014	ZX32G-03-006	Graduate rod	1
015	ZXT45G -03-002	Set position	1



FEED BOX ASSEMBLY

NO	PART NO.	DESCRIPTION	QTY
01	ZXT45G-04-001	Gear shaft	1
02	GB/T1096-79	Key 8×52	2
03	ZXT45G-04-002	Bearing spacer	1
04	GB/T308-84	Steel ball 7	6
05	ZXT45G-04-003	Worm	1
06	ZXT45G-04-005	Clutch	1
07	GB65-85	Round head screw M5×15	6
08	ZXT45G-04-006	Spacer	1
09	ZXT45G-04-007	Spacer	1
010	GB/T1096-79	Key 8×15	2
011	ZXT45G-04-011	Spring	1
012	GB/T308-84	Steel ball 7	2
013	ZXT45G-04-012	Slide set	1
014	GB/T70-85	Inner hexagonal screw M8×20	3
015	GB117-86	Taper pin 6×30	2
016	ZXT45G-04-004	Feed cover	1
017	ZXT45G-04-008	Dial	1
018	GB120-86	Taper pin 8×30	3
019	GB71-85	Tapered head fasten screw M4×10	3
020	ZXT45G-04-014	Knob rod	3
021	GB4141.12-84	Knob	3
022	ZXT45G-04-010	Spring	1
023	ZXT45G-04-009	Fixing set	1
024	ZXT45G-04-013	Cover A	1
025	GB65-85	Round head screw M5×15	3
026	GB894-76	Snap ring 20	1
027	ZXT45G-04-023	Cap	1
028	ZXT45G-04-021	Feeding dial	1
029	GB71-85	Tapered head fasten screw M6×12	2
030	GB/70-85	Inner hexagonal screw M5×15	3
031	ZXT45G-04-020	Cover C	1
032	GB/T297-94	Bearing 30203/P6	1
033	GB894-76	Snap ring 22	1
034	GB894-76	Snap ring 30	1
035	GB73-85	Tapered head fasten screw M6×6	6
036	GB/T2089-80	Spring 0.5×4×10	6
037	GB/T308-84	Steel ball 5	6
038	ZXT45G-04-019	Subulate gear	1
039	ZXT45G-04-018	Bush	1

040	ZXT45G-04-017	Worm shaft	1
041	GB/T1096-79	Key 6×25	1
042	GB/T297-94	Bearing 30203/P6	1
043	ZXT45G-04-016	Set washer	2
044	ZXT45G-04-015	Cover B	1
045	GB/70-85	Inner hexagonal screw M5×15	3
046	CM1224C-03-034	Cover	1



ORDER	CODE	NAME	QUANTITY
1	ZXT45G-02-036	Set Washer A	5
2	GB/T276-94	Bearing 16001/P6	3
3	ZAY7040A-06-020	Gear (Z=35 m=1.5)	1
4	GB71-85	Tap Tapered head fasten screw M6*8	2
5	ZAY7040A-06-021	Gear (Z=40 m=1.5)	1
6	GB/T1096	Key 8*14	1
7	ZXT45G-02-045	Gear Z=30, m=1.5	1
8	ZAY7040A-06-011	Subulate gear	1
9	ZAY7040A-06-023	Shaft	1
10	GB/T1096	Key 6*63	1
11	GB/T1096	Key 6*30	1
12	ZXT45G-02-038	Spacer B	1
13	ZAY7040A-06-019	Gear (Z=25 m=1.5)	1
14	ZAY7040A-06-022	Gear (Z=20 m=1.5)	1
15	ZXT45G-02-041	Gear (Z=30 m=1.5)	1
16	GB/T70-85	Inner hexagonal screw M6*12	5
17		Motor	1
18	ZAY7040A-06-012	Motor cover plate	1
19	GB/T70-85	Inner hexagonal screw M5*14	4
20	ZAY7040A-06-013	Paper Washer	1
21	GB/T 297-94	Bearing 30302	1
22	ZAY7040A-06-014	Connective Spæer	1
23	GB818-85	screw M6X12	7
24	ZAY7040A-06-040	Indicator	1
25	ZAY7040A-06-009	Left cover plate	1
26	ZAY7040A-06-010	Paper Washer	1
27	GB/T70-85	Inner hexagonal screw M5*12	6
28	ZAY7040A-06-003	Cover	2
29	ZAY7040A-06-004	Paper Washer	2
30	GB/T276-94	Bearing 61901/P6	2
31	ZAY7040A-06-006	Spacer A	1
32	ZAY7040A-06-002	Worm wheel	1
33	ZAY7040A-06-007	Spacer B	1
34	ZAY7040A-01-030	Spiral gear	1
35	GB3452.1 11.8*2.65	O shape seal	1
36	GB/T70-85	Inner hexagonal screw M12*1*15	1
37	ZAY7040A-06-001	Shift gears box	1
38	ZX32G-02-045	Airflow plug	1
39	GB/T1096	Key 5*22	2
40	ZAY7040A-06-005	Shaft	1

41	ZAY7040A-06-008	Spacer C	1
42	ZAY7040A-06-036	Shift Lever	1
43	ZAY7040A-06-037	Small shaft	1
44	GB/T276-94	bearing 618/8 P6	2
45	ZXT45G-02-053	Shaft	1
46	ZXT45G-02-052	Hookish Key	1
47	GB119-86	Pin $\Phi 4*25$	1
48	GB119-86	Pin $\Phi 2*6$	1
49	ZXT45G-02-051	Torsion spring	1
50	ZXT45G-02-050	Lever sheath	1
51	GB894.1-86	Snap ring 20	1
52	ZAY7040A-06-024	Gear (Z=22 m=1.5)	1
53	ZXT45G-02-048	Spacer C	1
54	ZAY7040A-06-025	Gear (Z=38 m=1.5)	1
55	GB/T276-94	Bearing 16003/P6	1
56	ZXT45G-02-062	Set washer B	1
57	GB/T1096	Key 6*55	1
58	GB/T2089-80	Spring 0.5*4*12	1
59	GB/T308-84	Steel ball $\Phi 5$	1
60	ZXT45G-02-059	Lever D	1
61	ZXT45G-02-058	Lever C	1
62	ZXT45G-02-060	Curved groove shaft	1
63	ZAY7040A-06-017	Paper Washer	1
64	ZAY7040A-06-016	Frontal cover plate	1
65	ZXT45G-02-067	Speed Indicator	1
66	GB818-85	screw M6X12	6
67		Rivet 2.5	2
68	ZXT45G-02-065	Half washer	2
69	GB71-85	Tapered head fasten screw M6*14	2
70	ZAY7040A-06-018	Feeding dial	1
71	ZXT45G-02-009	Pin	2
72	ZXT45G-02-002	Idler wheel A	2
73	ZXT45G-02-003	Lead lever shaft	1
74	GB/T1160.2-89	Fluid lever indicator M27*1.5	1
75	GB/T 292-94	Bearing 7001C P6	2
76	ZAY7040A-06-031	Spacer	1
77	ZAY7040A-06-033	Spacer gear	1
78	ZAY7040A-06-032	Shaft	1
79	GB/T1096	Key 5*25	1
80	GB/T1096	Key 5*20	1
81	ZAY7040A-06-030	Clutch	1
82	GB/T2089-80	Spring 1.4*20*22	1

83	ZAY7040A-06-029	Gear (Z=38 m=1.5)	1
84	GB/T276-94	Bearing 61902/P6	1
85	GB893.1-86	Inner ring 28	1
86	ZAY7040A-06-028	Spacer	
87	ZAY7040A-06-026	Gear (Z=38 m=1.5)	1
88	ZAY7040A-06-027	Gear (Z=22 m=1.5)	1
89	GB/T1096	Key 4*16	2
90	ZAY7040A-06-015	Worm shaft	1
91	GB/T1096	Key 6*10	1
92	ZAY7040A-06-034	Gear (Z=22 m=1.5)	1
93	GB894.1-86	Snap ring 20	1
94	ZAY7040A-06-035	Set Washer	1
95	GB/T1096	Key 5*25	1
96	ZAY7040A-06-039	Shaft	1
97	GB3452.1 16*2.65	O shape seal	2
98	JB/T7271.1-94	Ball knob M10*Φ32	1
99	ZAY7040A-06-038	Handle lever	1
100	GB/T308-84	Steel ballΦ6.5	1
101	GB/T2089	Compress springs1*5*15	1
102	GB/T77	Screw M8*8	
103	CM-1224C-04-036	Handle	1
104	GB879-86	Spring pin 5*40	1
105	GB/T 297-94	Bearing 30204	1