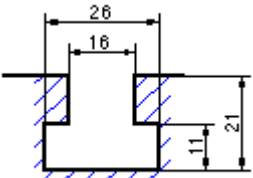


MODEL:ZX25
MILLING & DRILLING MACHINE
OPERATION MANUAL

Thank you for purchasing the ZX25 Milling & Drilling machine. If properly cared for and operated, this machine can provide you with years of accurate service.

Please read this manual carefully before using your machine.

1. SPECIFICATION

Model	ZX25	
Max. Drilling capacity	1"	
Max. Face milling capacity	2-1/2"	
Max. End milling capacity	4/5"	
Swivel angle of head-stock at perpendicular direction	$\pm 90^\circ$	
Spindle travel	3-1/10"	
Max. Distance between spindle nose and table	17-1/2"	
Distance between spindle axis and surface of square column	8"	
Spindle taper	M.T.3 or R8	
Spindle speed (1400r/min motor)	50Hz	95、180、270、500、930、1420r/min
	60Hz	115、220、320、600、1120、1700r/min
T-solt		
Forward and backward travel of table	5-1/2"	
Left and right travel of table	11-2/5"	
Table size	20-1/2" × 6- 3/10"	
Motor	0.5PH、 1400r/min	
Net weight	290 lbs	
Special accessories	Milling cutter holder Ø63 Vice 90mm end mill cutter 2-20mm drill 1-20mm machine stand	
Standard accessories	Double-head wrench 19mm×22mm 1pc Allen wrench 5mm,6mm 1pc each Screw driver(-) 150mm 1pc Drill stock MT3 1pc Drill chuck 1-13mm 1pc Wedge Drawbar 1pc Drawbar washer 1pc	

2. USES AND FEATURES

2.1 This machine has several functions: milling, drilling, boring, grinding, working face and tapping etc.

2.2 It's suitable for cutting, processing and repairing single or small batches parts of all professions. It is of high quality, good function, easy operation, and not limited to skill operator.

2.3 Operating drilling and milling by two ways:

- (1) Manual operation for rapid drilling;
- (2) Worm feed operation for slow milling.

2.4 Bronze adjustable nut, which adjust the thread clearance, reduce the wear, and also make screws rotated smoothly and increase the thread accuracy.

2.5 Whole-piece cast iron column make this machine strong and stable, and also keeps high accuracy.

2.6 The tough cast headstock ensures its accuracy lasting enduring through the treatment of precise boring, honing, and relieving internal stress.

2.7 The machine gears are ground for steady precision.

2.8 Easy to change speed.

3. PRESERVING MANUAL

Please preserve the manual because it gives you such operation, maintenance, fixing breakdown, parts subsidiary form, circuit diagram; Meanwhile, please reverse your invoice of purchasing machine.

Please write your invoice number on the called of manual, store up the invoice and manual in safe, dry place in order to be consulted.

4. Warning

The warning of our manual couldn't include all situations happening on all condition and circumstances. Operator must understand that he only could operate and couldn't repair by himself.

5. General safe rule

Warning! You should look up manual to know basic safe preventive measures in order to reducing the danger of fire and electricity shocking before operating, processing or saving.

5.1 Keep the product circumstance clean. The confusion circumstance is easy to bring danger.

5.2 Idea work condition. Don't make the power source drenched by the rain; don't make the power source equipment on damp place.

5.3 Don't allow child nearby workshop, and not allow child or visitor to touch the machine (or subsidiary equipment). They should far from the work place.

5.4 Store up idle tool. You should put it on dry, high or locked place, and not allow child to hold when you don't use it.

5.5 Don't make the machine overload. You should draw up quota load for safety.

5.6 Using tool right. Don't make small tool and subsidiary equipment overload or excess function (For example: Don't use round saw to cut the pipe feed or wood.)

5.7 Proper dress. Don't wear oversized clothes or jewelry. You should wear rubber gloves, anti-slippery shoes and cover long hair as carrying parts outdoor.

5.8 Wearing protective glasses. Operator usually should wear protective glasses on the dusty circumstance.

5.9 Don't abuse power line. Don't take out power line from conduct, and make it far from scorching hot, grease dirt place and the sharp edge of knife.

5.10 Do not work the overlong work-piece. The length of the work-piece should be in the standard scope and keep balance in the process of working.

5.11 Keep the tools under careful maintenance. To keep the edge of knife clean, and make it has good safe function. You should keep tool accessories and tools clean and dry as changing and storing up, and also should be coated with antirust grease, check the extend of power line regularly, exchange it if you find damage.

5.12 Taking away keys and wrench for adjustment. As usual, Operator should take away the keys and wrench which be used to adjust and lock work-piece to avoid danger before start the machine.

5.13 Avoiding unconscious starting. Don't allow the finger touch the switch turning on in order to ensuring safe when cutting off the power source.

5.14 Keeping vigilance. Don't start machine to operate when the operator feel tired.

5.15 Don't start machine after drinking wine or taking medicine.

5.16 Check on damaged part. In order to get normal function, you should check on and determine if the protection board and others parts are damaged as usual before using the machine again. Check on and calibrate the running condition of sliding parts, to repair or change it if you find it damaged. If the switch can't work (the damage except manual rule), you can ask service center for changing.

5.17 Exchanging parts or accessories. You should replace the part of tool by the same parts as repairing, and have right reasons to change any part.

5.18 Operate machine rightly. Don't use small machine as big machine, because it should be used in a regular scope. Don't repair machine and do something out of its duty.

5.19 The user should know the maintenance of power machine and should ask profession for maintenance, which is the necessary term ensuring the machine accuracy and safety.

6. Special warning.

Please take attention on special danger as operating, and protect those safe

protective equipments beside you.

6.1 Electricity danger, Do not operate the machine on electrified and wet place; Do not use extend of power source or power line wrongly. Make sure the power source of the machine is ground wired.

6.2 The danger of splashing things. Before using machine, you should avoid the danger of metal splashing things because its speed is very fast as running, and wear protective glasses; Don't make the machine overload; You should stand on one side of the machine in avoid the hurt of metal things; Don't allow visitor nearby the machine when it's running.

6.3 The danger of tangled body (things). Carry out protective measures to protect those easy moving parts of the machine. Don't wear oversized clothes, jewelry, and keep long hair when operating machine because it could touch machine or work-piece; you should stop the machine as soon as it touch the machine.

7. Mounting and carrying.

7.1 Don't install the machine at the sunshine place to avoid the deformation of machine and loss of accuracy.

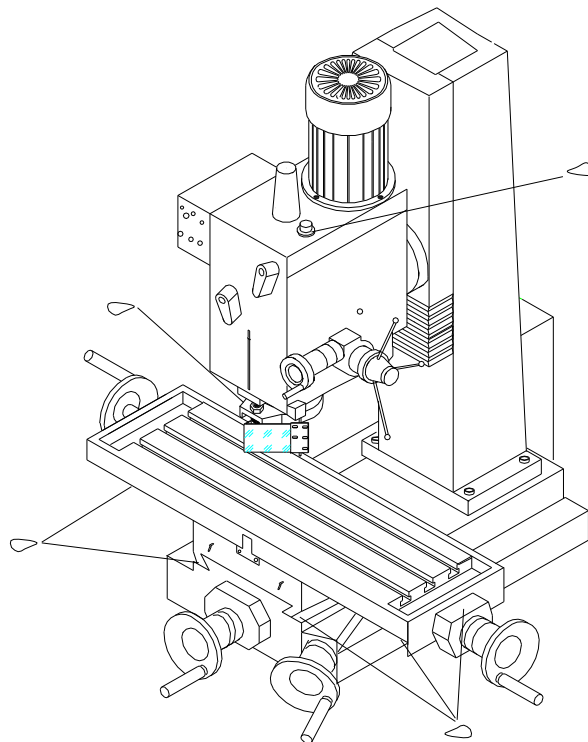


Fig 1

7.2 Mount machine to a sturdy table or base. It is advisable that the table you choose be well constructed to avoid any vibration during operation.

7.3 Four holes are provided on the machine base for mounting the machine. Four holes

are provided on the machine base for mounting. Before tightening bolts make sure the working table on the machine is level lengthwise and crosswise. Use shims if necessary.

7.4 The hoisting should be fit for the net weight of machine with good hoist. The load-bearing of hoist should exceed the weight of machine in order to protect machine and personal safety.

8.Cleaning and lubricating

8.1 The machine has been coated with antirust grease before packing. You should clean the grease and lubricating it before operating it.

8.2 Before starting machine. Please lubricate all bright work and guide surface as the lubricate manual (see fig 1). The level of oil should keep the middle of oil gauge.

8.3 Take off the oil filler plug, fill the lubricant in such as SAE68 oil in level to the gear box until the oil level reach the middle of oil fluid level indicator, then lock the plug.

9.Protecting for accuracy

Make sure the balance of level of table surface of machine in the length and breath before operating machine. As milling or drilling, it can't guarantee the processing accuracy if it don't keep on the level purely.

10.Using and Maintenance.

10.1Main parts of machine

- (1)To raise and lower the head by head handle.
- (2)Choose the forward, reverse and stop of changing-direction switch to control the motor running or stop, then the machine can milling, drilling or stop.
- (3)Feeding by spindle feed handle.
- (4)To adjust the table left and right travel by the table feed handle wheel.
- (5)To adjust the table forward and backward travel by the table feed handle wheel.
- (6)To operate the micro handle wheel for micro feed.
- (7)To adjust the scale size according to working need.

10.2 Preparing for operation

Please confirm if all the parts is the fit place before operation. The machine can offer accuracy service if the normal safe equipment cared for carefully (see Fig 1).

(1) Before operation

- ① Fill in lubrication
- ② The table should be protected from rust and grease dirt to protect machine accuracy.
- ③ Check if the tool is in the effective situation and the work-piece is locked firmly.
- ④ Be sure of that the speed is suitable.
- ⑤ Be sure of everything is ready before using.

(2) After operation

- ① Turn off the power switch
- ② Take down the tools
- ③ Clean the machine and coat with lubrication.
- ④ Cover the machine with cloth to keep out the dust.

(3) Adjusting the gearbox

- ① To raise and lower the gearbox, loosen the two lock nuts, revolve the crank handle, when the desired height is reached, tightened the lock nuts. Make sure the gear box is tightened at the column.
- ② As drilling bevel, please loose three nuts connecting gearbox and slip saddle up to the angle on the indicator you need, and then lock them.

(4) Preparing for drilling (except the machine which is installed mechanical power feed system)

As drilling, revolve handle against clockwise, make the worm gear break away from handle base, then drilling pass hole, you also can put the positive depth stop gauge on the depth you need to drill blind hole.

(5) Preparing for milling

- ① The micro feed handle wheel is used for adjusting feed depth. Revolve handle clockwise to make the worm gear connect with handle base, turn the micro handle wheel to make milling cutter reach demanded place. Regarding its rigidity, the socket couldn't extend too long.
- ② The locking socket handle is used for locking socket. You can use locking handle to lock socket when the milling cutter up to demanded place.
- ③ here are two lock screws at the front of and in the left of table separately to lock the table. If necessary, you can lock the table to stop it moving.
- ④ The movable fixed block in the front of the table is ready for spacing as working. Loosen screw, move the fixed block to the requisite position, then tighten up the screw before operating.
- ⑤ When you want to change the gearbox angle in the left or right, please loose the three nuts linking with gearbox and the slip saddle, then adjust it to demanded place. Lock the three screws again.
- ⑥ If the machine has a strange voice or has breakdown. You should cut off power source at once, to find reason and fix it in time.

10.3 The safe rule of drilling and milling

- (1) Be sure that drill bit or cutting tool is securely fastened in the chuck.
- (2) Before starting the operation, make sure the clip keys have taken away.
- (3) Adjust the table gauge and the depth gauge to the proper position so that the drilling head drill will not touch the worktable.
- (4) After finishing operation, take off drilling head or milling cutter and clean the machine.
- (5) Warning: When drilling or milling, you should use the proper vice to hold the work-piece.

(6) Warning: Do not wear glove when operating machine.

10.4 The compensation for wearing and gap adjustment of table (see fig.2)

- (1) The machine is equipped with gib strip for the compensation for wear and the extra gab in the vertical, length.
- (2) When the gap is too big, turn the bolt of gib strip clockwise, or if the gap is too tight, turn it the reverse way.
- (3) Adjust the bolt of gib strip until the table doesn't rock.

10.5 Fasten the worktable and base (see Fig.2)

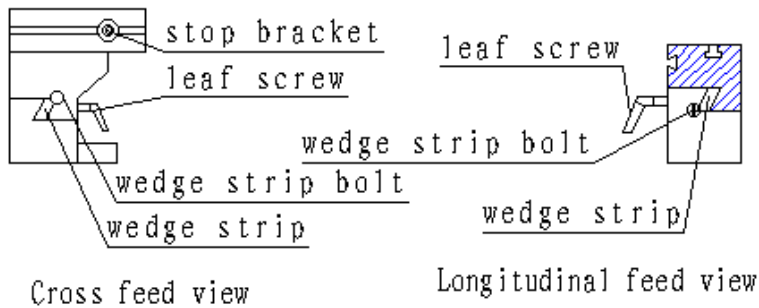


Fig2

- (1) When operating longitudinal feed, Make sure to fasten the cross feed travel to ensure the processing accuracy, to do this by fasten two small lock screws located on the right side of the worktable base.
- (2) When operating the cross feed, make sure to fasten the longitudinal feed travel of the worktable, to do this by fasten the lock screws on the front of the table.
- (3) Adjusting the travel stops on the front of worktable to control the longitudinal travel and the length of milling - drilling.

10.6 Changing the speed

- (1) Cut off the power source.
- (2) Revolving the speed handle to choose the proper speed.
- (3) If the gears don't engage, you should take away the cover of Spindle (19), turn the spindle to make the gears engaged, then cover it.
- (4) Be sure that everything is normal, and turn on the power source.

Place R/min	L-1	L-2	L-3	H-1	H-2	H-3
50Hz	95	180	270	500	930	1420
60Hz	115	220	320	600	1120	1700

10.7 Changing tools

- (1) Changing face mills or drill chuck arbor.

Loosen the arbor bolt at the top of the spindle shaft about two rounds with a wrench. Rap the top of the drawbar bolt with mallet. Hold the chuck arbor on hand and

detach the drawbar bolt with the other hand after loosening the taper.

(2) Installing the face mill cutter or milling cutter holder

Insert the mills and mills arbor into the taper of spindle, turn the drawbar bolt, but do not over tightening.

(3) Changing the taper drills

① Turn down the drawbar bolt and insert the taper drills into the spindle hole.

② Turn the spindle feed handle to move the spindle downward until the rectangle hole in the rack shaft sleeve appear. Insert key punch keys through this hole and the rectangle hole in the spindle, and then strike light with mallet to force the taper drills out.

11.Noise

The biggest noise doesn't exceed 83dB(A) at the front, in the left and right of every tested point (500mm) without other noise.

12. Maintenance

Day-to-day maintenance is easier to keep machine in good conditions and have a better processing accuracy than to remedy after being out of order at any time.

12.1 Daily maintenance (by operator)

(1) Fill the lubricant before using the machine every day.

(2) If the temperature of spindle causes overheating or strange noise, you should stop machine immediate to check it for keeping accurate performance.

(3) Keep work area clean, release vise, cutter and work-piece from table, turn off power source, take chip or dust away from machine. Fill the lubricant and coating, antirust oil before leaving according to the manual.

12.2 Weekly maintenance

(1) Clean and coat the cross, longitudinal and vertical screw with oil.

(2) Check to see if sliding rotation and surface is lack of lubricant. If it's not enough, please fill it.

12.3 Monthly maintenance

(1) Adjust the gap of every feed gap strip.

(2) Lubricate worm gear, worm shaft and bearing to avoid wear.

12.4 Yearly maintenance

(1) Adjust table to horizontal position for guarantee accuracy.

(2) Check electric cord, plugs and switches to avoid loosening or wearing.

13. Trouble shooting

13.1 The spindle don't revolve after putting through the power source

(1) The voltage is wrong and the main switch is cut off. — to adjust the enter voltage, turn on the main switch.

(2) The fuse is cut off in the switch box. — to change a new switch.

(3) The overload protective relay separate automatically when the power source is too strong. — to press it and make it on the normal position.

13.2 The motor is too hot or has no power.

(1) Overload — to reduce the load.

(2) The voltage is too weak. — to adjust to right voltage.

(3) The feeler of the electromagnetic switch fall off.— to change a new one.

(4) The overload protective relay doesn't work. — to connect the electric wire again or changing a new one.

(5) The motor is too bad. — to change a new one.

(6) The fuse of electric wire isn't connected well. (It's easy to make the motor hold up.) — to cut off the power source at once, and change a new one.

(7) The cutting tool is too blunt. — to grind it.

13.3 The temperature of spindle bearing is too high

(1) The lubricant is not efficiency. — to fill lubricant.

(2) The spindle bearing is installed too tightly. — to rotate the spindle by handle to loosen it.

(3) The time of high-speed rotation is too long. — to reduce the cutting load.

13.4 The spindle is lack of power.

(1) The change-speed handle can't change the gears on right position — to turn it to make it on corresponding position.

(2) The motor is burnt up. — to change a new one.

(3) The fuse is cut. — to change a new one

13.5 The movement of worktable, elevation table and cross beam is balance.

(1) The gab is too big. — to adjust to a fit gab.

(2) The leaf screw isn't locked tightly. — to turn it tightly and fix it on a proper position.

(3) The feeding is too deep. — to reduce the depth of cutting.

13.6 The spindle shake as processing. The surface of work-piece is too rough.

(1) The gab of spindle is too big. — to adjust it on a proper position or change new one.

(2) The spindle moves downward or upward too loosely. — to rotate the inner cover of two bearing but not too tightly. It's best when there is no gab between two bearings.

(3) The gab of taper face is too big. — to adjust the pulling force of bearing to a proper degree.

(4) The clip head don't hard up. — to adjust it.

(5) The milling cutter is blunt. — to grind it.

(6) The work-piece doesn't carry hard. — to make sure of carrying it tightly.

13.7 The micro feeding can't work smoothly

(1) The clutch don't hard up. — Be sure to fasten it.

(2) The worm gear and worm shaft are worn seriously. — to change a new one.

(3) The bolt of fixing handle doesn't hard up. — Be sure of fasten.

13.8 The accuracy is too bad

(1) The work-piece is too heavy to balance. — to hold it according to the balance

principle when fastening the work-piece.

- (2) Often beating the work-piece with mallet. — It should be forbid.
- (3) The level accuracy of the table is too bad. — to check up and maintain the accuracy of worktable after using it for some time.

14. Ordering replacement parts

Complete parts list is attached. If the parts are needed, please contact your local supplier.

15. Extra tools and accessories.

Each of machines is equipped with a M.T.3 or R8 spindle taper arbor, please contact with your local supplier or mater cutting tool supplier to obtain any of these accessories.

Taper drill

Reamers

End mills

Milling cutter arbor

Clips

Adapter sleeves

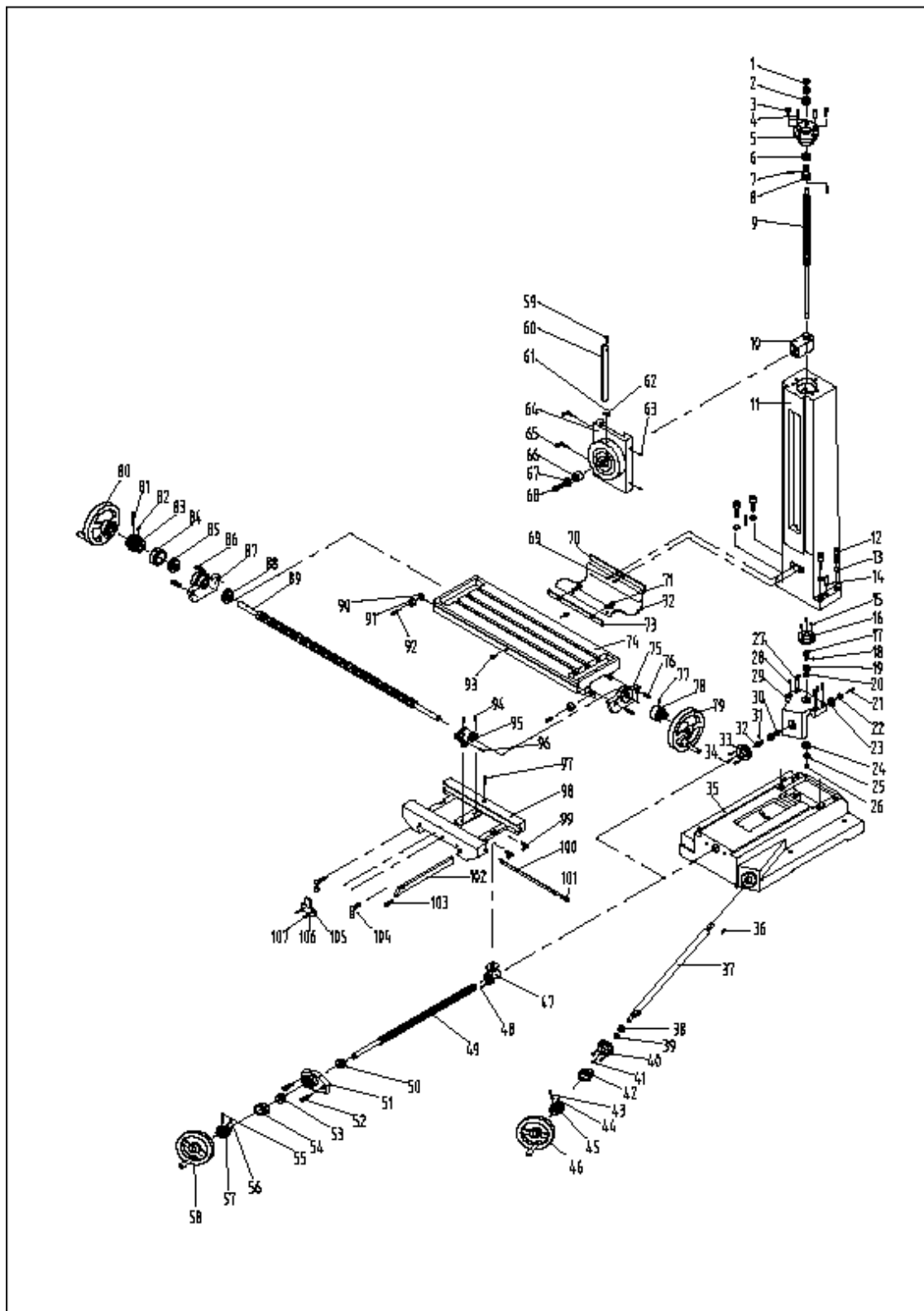
16. Bearing list

No.	Model	Name	position	Amount
1	8103	Push ball bearing	Worktable	4
2	7205E	Conic ball bearing	spindle	1
3	7207E	Conic ball bearing	spindle	1
4	80106	Deep trenches ball bearing	Gear box	1
5	80101	Deep trenches ball bearing	Gear box	5
6	80207	Deep trenches ball bearing	Gear box	2
7	200	Deep trenches ball bearing	Micro feed	2

17. ELECTRIC CONTROL SYSTEM (Attached Circuit diagram)

The voltage of the power source is 220V/50Hz. We suggest that user should install a 10A protective switch against leak electricity or fuse box. The grounding protection must be good.

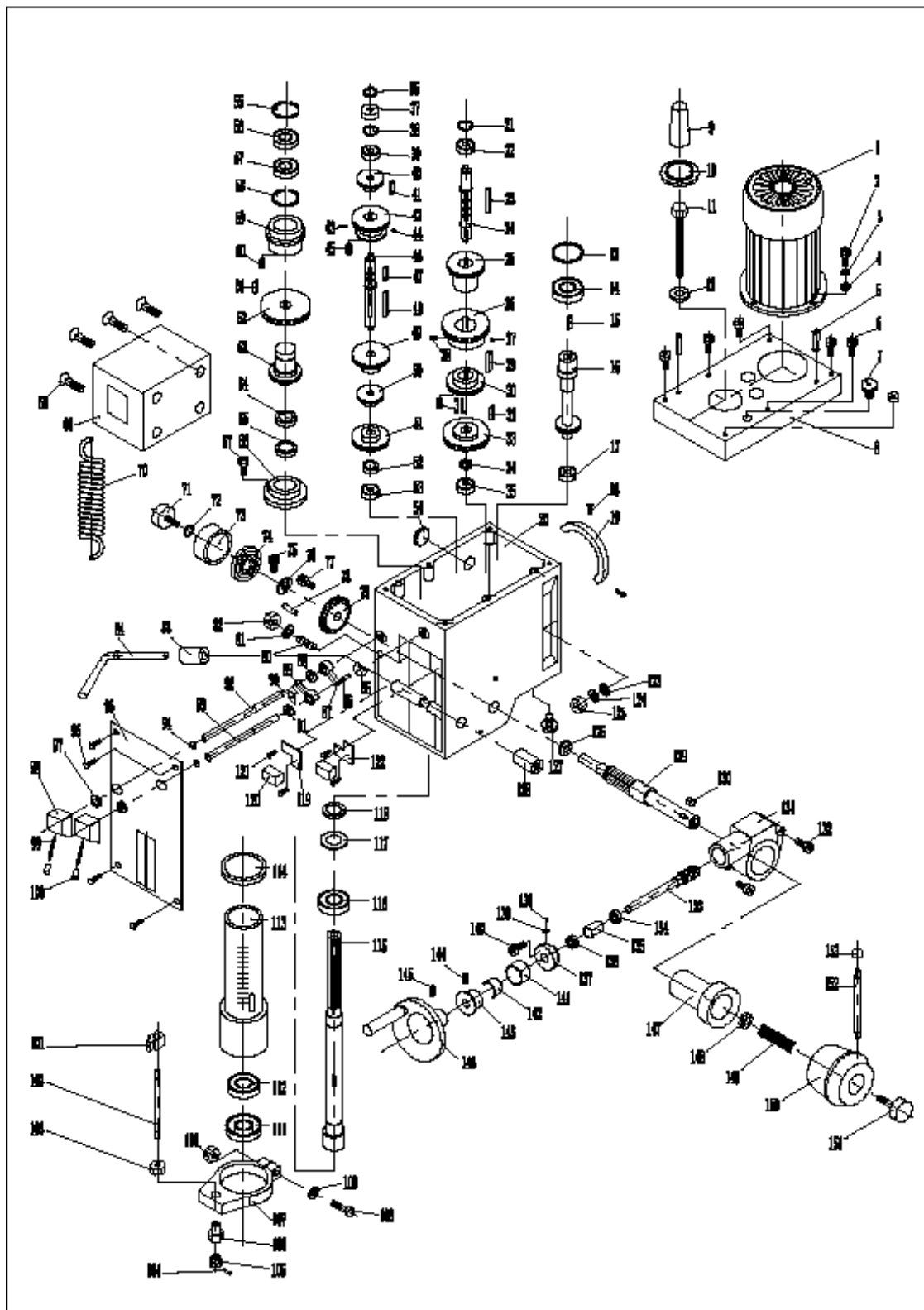
When starting machine, turn the manual combine switch in the left of head body which control the spindle motor running and stop. Put the combine switch on the “forward” or “reverse”, then the spindle running. When stopping machine, put the combine switch on the position, then the motor stop at once.



Parts of Base

No.	Name of parts	Amount	No.	Name of parts	Amount
1-01	Round Nut	2	1-31	Key	1
1-02	Flat Thrust Bearing	1	1-32	Conic Gear Shaft	1
1-03	Screw	3	1-33	Bearing Cover	1
1-04	Conic pin	2	1-34	Screw	3
1-05	Screw Seat	1	1-35	Plasmodium Base	1
1-06	Flat Thrust Bearing	1	1-36	Key	1
1-07	Conic pin	2	1-37	Supporting Shaft	3
1-08	The end of Srew	1	1-38	Bearing	1
1-09	Lift Srew	1	1-39	Adjusting Washer	1
1-10	Nut	1	1-40	Bearing Cover	1
1-11	Square Column	1	1-41	Screw	3
1-12	Screw	4	1-42	Graduated Ring	1
1-13	Spring Washer	4	1-43	Spring Pin	1
1-14	Conic pin	2	1-44	Spring Leaf	1
1-15	Screw	3	1-45	Binding Gear	1
1-16	Bearing Cover	1	1-46	Handle Wheel	1
1-17	Conic Gear Shaft	1	1-47	Horizontal Nut	1
1-18	Key	1	1-48	Screw	1
1-19	Bearing	1	1-49	Horizontal Screw	1
1-20	Adjusting Washer	1	1-50	Bearing	1
1-21	Screw	1	1-51	Screw Base	1
1-22	Ring on the end of Shaft	1	1-52	Screw	1
1-23	Driven Conic Gear	1	1-53	Bearing	2
1-24	Driving Conic Gear	1	1-54	Graduated Ring	1
1-25	Ring on the end of Shaft	1	1-55	Spring Pin	1
1-26	Screw	1	1-56	Spring Leaf	1
1-27	Conic pin	2	1-57	Binding Gear	1
1-28	Screw	2	1-58	Handle Wheel	1
1-29	Conic Gear Base	1	1-59	Adjusting Screw	1
1-30	Adjusting Washer	1	1-60	Gib Strip	1

No.	Name of parts	Amount	No.	Name of parts	Amount
1-61	Aluminium Rivet	2	1-85	Bearing	1
1-62	Alignment Plate	1	1-86	Screw	2
1-63	Oil Cup	2	1-87	Screw Base	1
1-64	Supporting Bracket	1	1-88	Bearing	2
1-65	Adjustable Lock Screw	1	1-89	Vertical Screw	1
1-66	Link Parts of Nut	1	1-90	Fixed Block	2
1-67	Nut Washer	2	1-91	Fixed Base	2
1-68	Srew	1	1-92	Screw	2
1-69	Srew	2	1-93	Oil Cup	1
1-70	Protective Part for Guid	1	1-94	Screw	2
1-71	Screw	2	1-95	Vertical Nut	1
1-72	Rubber	1	1-96	Screw	1
1-73	Protective Part for Guid	1	1-97	Screw	1
1-74	Table	2	1-98	Center Base	1
1-75	Screw Base	1	1-99	Adjustable Lock Screw	2
1-76	Screw	2	1-100	Gib Strip	1
1-77	Spring Pin	1	1-101	Adjusting Screw	1
1-78	Binding Gear	1	1-102	Gib Strip	1
1-79	Handle Wheel	1	1-103	Adjusting Screw	1
1-80	Handle Wheel	1	1-104	Adjustable Lock Screw	2
1-81	Spring Pin	1	1-105	Fixed Block	1
1-82	Spring Leaf	1	1-106	Washer	2
1-83	Clutch Gear	1	1-107	Bolt	2
1-84	Graduated Ring	1			



Parts Of Head

No.	Name of parts	Amount	No.	Name of parts	Amount
01	Motor	1	36	Seal ring	1
02	Hexagon bolt	4	37	Seal plug	1
03	Spring washer	4	38	Inner ring	1
04	Washer	4	39	Bearing (80101)	1
05	Conic pin	2	40	Gear 8	1
06	Screw	6	41	Key	1
07	Airflow plug	1	42	Gear 9	1
08	Head body cover	1	43	Spring	1
09	Arbor bolt cover	1	44	Steel ball	1
10	Oil seal	1	45	Screw	1
11	Arbor bolt	1	46	Shaft 2	1
12	Washer	1	47	Key	1
13	Inner ring	1	48	Key	1
14	Bearing (80106)	1	49	Gear 7	1
15	Key	1	50	Gear 6	1
16	Shaft	1	51	Gear 5	1
17	Bearing (80101)	1	52	Spacing collar	1
18	Screw	2	53	Bearing (80101)	1
19	Scale	1	54	Oil level	1
20	Head body	1	55	Shaft ring	1
21	Inner ring	1	56	Bearing (80107)	1
22	Bearing (80101)	1	57	Bearing (80107)	1
23	Key	1	58	Inner ring	2
24	Shaft 1	1	59	Bearing seat	1
25	Gear 4	1	60	Screw	1
26	Gear 3	1	61	Key	1
27	Steel ball	1	62	Gear 10	1
28	Spring	1	63	Spindle sleeve gear	1
29	Key	1	64	Oil seal	1
30	Gear 2	1	65	Oil seal	1
31	Screw	2	66	Seal seat	1
32	Key	1	67	Screw	3
33	Gear 1	1	68	Screw	4
34	Spacing collar	1	69	Switch box	1
35	Bearing (80101)	1	70	Cable	1

No.	Name of parts	Amount	No.	Name of parts	Amount
71	Screw handle	1	108	Hexagon bolt	1
72	Washer	1	109	Spring washer	1
73	Spring cover	1	110	Nut	1
74	Eddy spring	1	111	Oil seal	1
75	Screw	1	112	Bearing (7207E)	1
76	Shaft ring	1	113	Rack sleeve	1
77	Screw	3	114	Rubber washer	1
78	Spring pin	2	115	Spindle	1
79	Spring base	1	116	Bearing (7205E)	1
80	Guide screw	1	117	Lock washer	1
81	Spring washer	1	118	Circular nut	1
82	Nut	1	119	Travel switch seat(A)	1
83	Braking block A	1	120	Travel switch	2
84	Handle rod	1	121	Screw	4
85	Copper block 2	1	122	Travel switch seat(B)	1
86	Spring pin	2	123	Washer	1
87	Driving lever A	1	124	Elasticity washer	1
88	Washer	1	125	Nut	1
89	Driving lever B	1	126	Inner ring for shaft	1
90	Spacing collar	1	127	Oil plug	1
91	Washer	1	128	Braking block	1
92	Lever shaft A	1	129	Shaft with gear	1
93	Lever shaft B	1	130	Key	1
94	Inner ring for shaft	1	131	Feed seat	1
95	Name plate	1	132	Hexagon-socketlead screw	2
96	Screw	2	133	Worm shaft	1
97	Oil seal	2	134	Ball bearing	1
98	Handle seat	2	135	Spacing collar	1
99	Handle lever	2	136	Ball bearing	1
100	Handle sheath	2	137	Worm-wheel cover	1
101	Locating block	1	138	Rivet	1
102	Lever for scale	1	139	Indicator	1
103	Nut	1	140	Hexagon-socketlead screw	1
104	Pin	1	141	Scale -loop	1
105	Handle with pattern	1	142	Spring piece	1
106	Base for lever	1	143	Scale -loop seat	1
107	Base for scale lever	1	144	Screw	1

No.	Name of parts	Amount
145	Screw	1
146	Handle -wheel	1
147	Worm-wheel	1
148	Inner ring for shaft	1
149	Spring	1
150	Spring base	1
151	Lock screw	1
152	Handle lever	1
153	Plastic ball	1