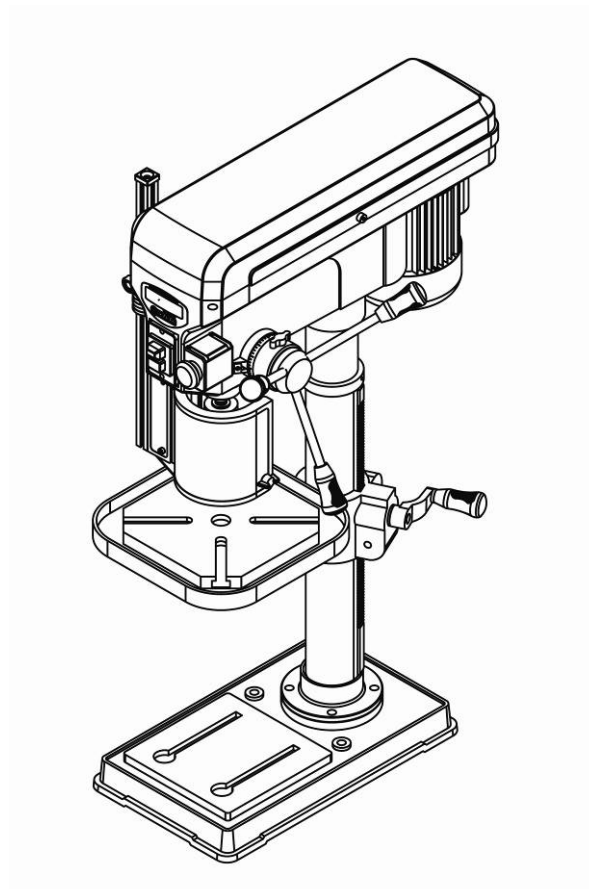

Operator's Manual

Drill Press



CAUTION: Read and follow all Safety Rules and operating Instructions before First Use of this Product.
Keep this manual with tool.

Introduction

To enjoy your new machine as long as possible, please read carefully the Operating Instructions before using it. Further, we recommend keeping the Operating Instructions to recall the product features in the future.

Within the continuous product development, we reserve the right to make technical changes to improve it.

Any reprints, even partial, are subject to approval.

This document represents translation of the original Operating Instructions.

Warranty

The express approval of manufacturer is required before technical modifications of any kind are carried out or the unit is used out of accordance with the instruction.

Please contact your supplier in case of any guarantee claims.

Any actions with regard to the guarantee may only be dealt with by the authorised supplier

Any repairs after the expiry of the guarantee period may be carried out by any qualified personnel

Use as designated

The drill press has been designed for drilling holes on cast iron, steel, aluminum, etc.

The machine can not be used for works other than for which the machine has been designed and that are specified in the Operating Instructions.

Any other use is a use in conflict with the designation. The manufacturer will not be liable for any consequential damage and injuries.

Operator requirements

The operator must carefully read the Operating Instructions before using the machine.

Qualification

No special qualification is necessary for using the machine apart from detailed instruction by an expert.

Minimum age

The machine can only be operated by persons over 18 years of age. An exception includes youngsters operating the machine within their professional education to achieve necessary skills under trainer's supervision.

Training

Using the machine only requires appropriate instructions by a professional or reading the Operating Instructions. No special training necessary.

Technical Specification

Drill press	BM 20 T	BM 25 T
Voltage / Frequency:	230(1~) 50Hz OR 400V(3~) 50Hz	230(1~) 50Hz OR 400V(3~) 50Hz
Motor Power	550W	750W
Chuck	16mm	16mm
Spindle Travel	82mm	82mm
Spindle Taper	MT2	MT2
Speed Change	16 Speeds	16 Speeds
Speed	220 - 2840 1/min	220 - 2840 1/min
Dist. Spindle to Column	162 mm	180 mm
Table Size	290x290 mm	305x305 mm
Base Size	420x250 mm	460x280 mm
Column	72mm	72mm
Total Height	980mm	990 mm

SAFETY

WARNING: To avoid electrical hazards, fire hazards, or damage to the tool, use proper circuit protection.

Use a separate electrical circuit for your tools. To avoid shock or fire, replace power cord immediately if it is worn, cut or damaged in any way.

GENERAL SAFETY INSTRUCTIONS

WARNING: To avoid mistakes that could cause serious injury, do not plug the Drill Press in until you have read and understood the following:

1. **READ** and become familiar with the entire instruction manual. **LEARN** the tool's application, limitations and possible hazards.
2. **KEEP GUARDS IN PLACE** and in working order.
3. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form a habit of checking to see that keys and adjusting wrenches are removed from the tool before turning ON.
4. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
5. **DON'T USE IN DANGEROUS ENVIRONMENT.** Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
6. **KEEP CHILDREN AWAY.** All visitors should be kept at a safe distance from work area.
7. **MAKE WORKSHOP CHILDPROOF** with padlocks.
8. **DON'T FORCE THE TOOL.** It will do the job better and safer at the rate for which it was designed.
9. **USE THE RIGHT TOOL.** Do not force tool or attachment to do a job for which it was not designed.
10. **USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will result in a drop in line voltage and in loss of power that will cause the tool to overheat.
11. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry that may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
12. **ALWAYS WEAR EYE PROTECTION.** Any Drill Press can throw foreign objects into the eyes that could cause permanent eye damage. ALWAYS wear Safety Goggles (not glasses). Everyday eyeglasses have only impact-resistance lenses. They ARE NOT safety glasses.
13. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and it frees both hands to operate tool.
14. **DISCONNECT TOOLS** before servicing; when changing accessories such as blades, bits, cutters, and the like.

15. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure switch is in OFF position before plugging in.
16. **USE RECOMMENDED ACCESSORIES.** Consult the instruction manual for recommended accessories. The use of improper accessories may cause serious injury.
17. **NEVER STAND ON TOOL.** Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
18. **CHECK FOR DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function – check for alignment of moving parts, binding of moving parts, breakage of parts, mounting, and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
19. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER “OFF”.** Don't leave tool until it comes to a complete stop.
20. **DON'T OVERREACH.** Keep proper footing and balance at all times.
21. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
22. **DO NOT** use power tools in the presence of flammable liquids or gases.
23. **DO NOT OPERATE** the tool if you are under the influence of any drugs, alcohol or medication that could affect your ability to use the tool properly.
24. **ALWAYS** operate the Drill Press in a well-ventilated area and provide for proper dust removal. Use dust collection systems whenever possible. Dust generated from certain materials can be hazardous to your health.

SPECIFIC SAFETY INSTRUCTIONS FOR THE DRILL PRESS

WARNING: For your own safety, do not try to use your drill press or plug it in until it is completely assembled and installed according to the instructions, and until you have read and understood this instruction manual.

1. **THIS DRILL PRESS** is intended for use in dry conditions, indoor use only.
2. **WEAR EYE PROTECTION.** USE a face or dust mask along with safety goggles if drilling operation is dusty. USE ear protectors, especially during extended periods of operation.
3. **DO NOT** wear gloves, neckties, or loose clothing.
4. **DO NOT** try to drill material too small to be securely held.
5. **ALWAYS** keep hands out of the path of a drill bit. Avoid awkward hand positions where a sudden slip could cause your hand to move into the drill bit.
6. **DO NOT** install or use any drill bit that exceeds 175mm in length or extends 150mm below the chuck jaws. They can suddenly bend outward or break.
7. **DO NOT USE** wire wheels, router bits, shaper cutters, circle (fly) cutters, or rotary planers on this drill press.
8. **WHEN** cutting a large piece of material, make sure it is fully supported at the table height.
9. **DO NOT** perform any operation freehand. **ALWAYS** hold the workpiece firmly against the table so it will not rock or twist. Use clamps or a vise for unstable workpieces.
10. **MAKE SURE** there are no nails or foreign objects in the part of the workpiece to be drilled.
11. **CLAMP THE WORKPIECE OR BRACE IT** against the left side of the column to prevent rotation. If it is too short or the table is tilted, clamp it solidly to the table.
12. **IF THE WORKPIECE** overhangs the table such that it will fall or tip if not held, clamp it to the table or provide auxiliary support.
13. **SECURE THE WORK.** Use clamps or a vise to hold the work when practical. It's safer than using your hand and it frees both hands to operate tool.
14. **MAKE SURE** all clamps and locks are firmly tightened before drilling.
15. **SECURELY LOCK THE HEAD** and table support to the column, and the table to the table support before operating the drill press.

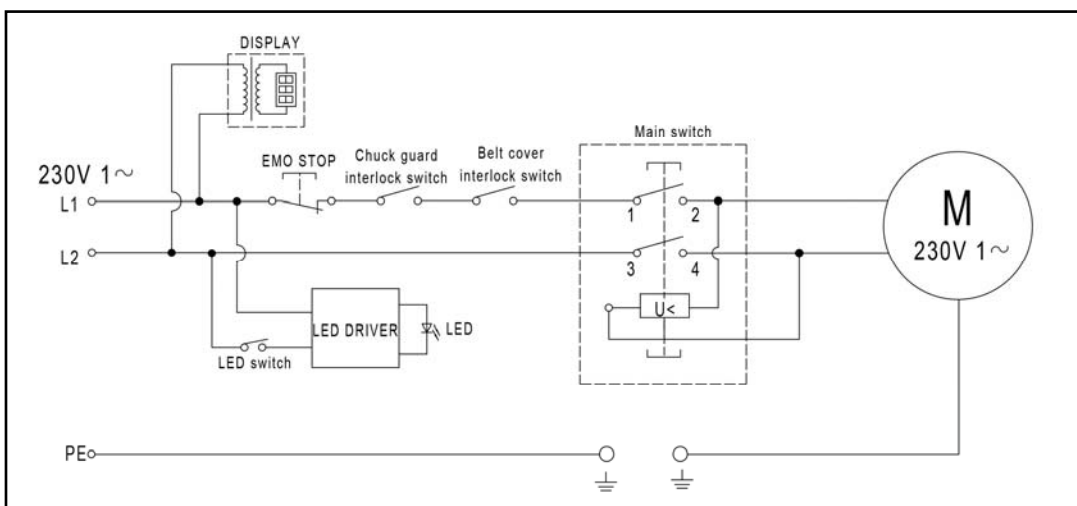
16. **NEVER** turn your drill press ON before clearing the table of all objects (tools, scraps of wood, etc.).
17. **BEFORE STARTING** the operation, jog the motor switch to make sure the drill bit does not wobble or vibrate.
18. **LET THE SPINDLE REACH FULL SPEED** before starting to drill. If your drill press makes an unfamiliar noise or if it vibrates excessively, stop immediately, turn the drill press OFF and unplug. Do not restart the unit until the problem is corrected.
19. **DO NOT** perform layout assembly or set up work on the table while the drill press is in operation.
20. **USE THE RECOMMENDED SPEED** for any drill press accessory and for different workpiece material.
21. **WHEN DRILLING** large diameter holes, clamp the workpiece firmly to the table. Otherwise, the bit may grab and spin the workpiece at high speeds. DO NOT USE fly cutters or multiple-part hold cutters, as they can come apart or become unbalanced in use.
22. **MAKE SURE** the spindle has come to a complete stop before touching the workpiece.
23. **TO AVOID INJURY** from accidental starting, always turn the switch OFF and unplug the drill press before installing or removing any accessory or attachment or making any adjustment.

ELECTRICAL REQUIREMENTS

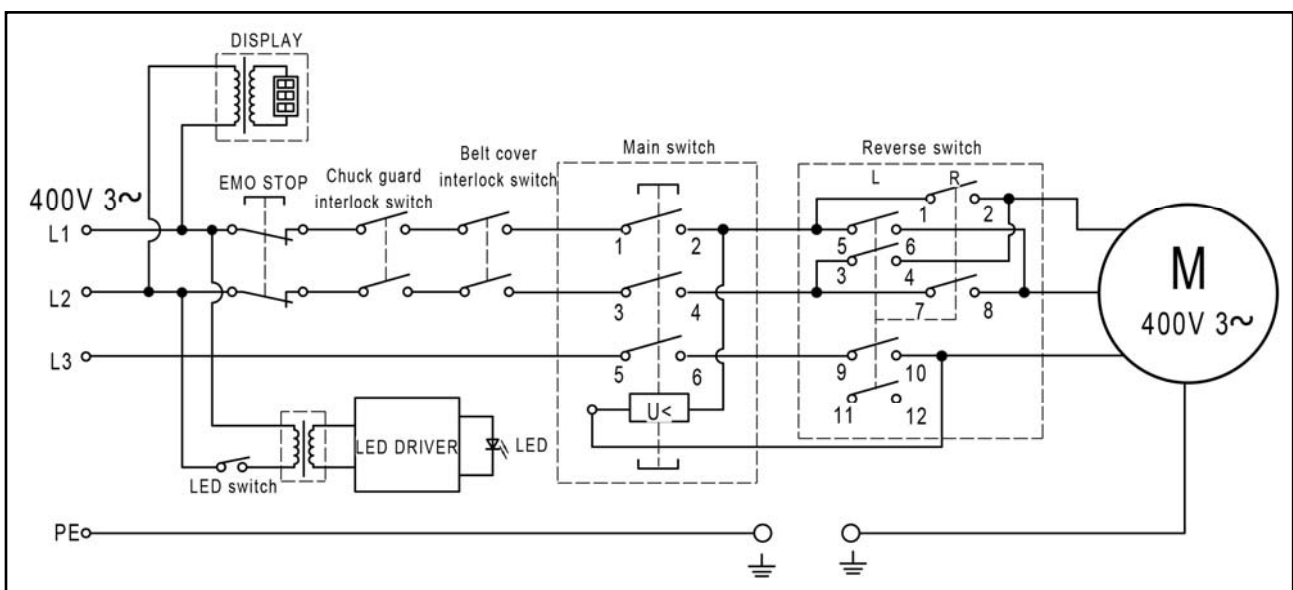
WARNING: To avoid electrical hazards, fire hazards, or damage to the tool, use proper circuit protection. Use a separate electrical circuit for your machine. To avoid shock or fire, if power cord is worn or cut, or damaged in any way, have it replaced immediately.

CIRCUIT DIAGRAM

230V(1~) model



400V(3~) model



GROUNDING INSTRUCTIONS

WARNING: This machine must be grounded while in use to protect the operator from electrical shock.

IN THE EVENT OF A MALFUNCTION OR BREAKDOWN, grounding provides a path of least resistance for electric current and reduces the risk of electric shock. This tool is equipped with an electric cord that has an equipment-grounding conductor and a grounding plug. The plug **MUST** be plugged into a matching receptacle that is properly installed and grounded in accordance with ALL local codes and ordinances.

DO NOT MODIFY THE PLUG PROVIDED. If it will not fit the receptacle, have the proper receptacle installed by a qualified electrician.

IMPROPER CONNECTION of the equipment-grounding conductor can result in risk of electric shock. The conductor with green insulation (with or without yellow stripes) is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, **DO NOT** connect the equipment-grounding conductor to a live terminal.

CHECK with a qualified electrician or service person if you do not completely understand the grounding instructions, or if you are not sure the tool is properly grounded.

WARNING: Improper connection of equipment grounding conductor can result in the risk of electrical shock. Equipment should be grounded while in use to protect operator from electrical shock.

WARNING: This machine is for indoor use only. Do not expose to rain or use in damp locations.

GUIDELINES FOR EXTENSION CORDS

USE PROPER EXTENSION CORD. Make sure your extension cord is in good condition. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage, resulting in loss of power and cause overheating.

Be sure your extension cord is properly wired and in good condition. Always replace a damaged extension cord or have it repaired by a qualified person before using it. Protect your extension cords from sharp objects, excessive heat and damp or wet areas.

ACCESSORIES AND ATTACHMENTS

RECOMMENDED ACCESSORIES

WARNING: To avoid injury:

- Use only accessories recommended for this machine.
- Follow instructions that accompany accessories. Use of improper accessories may cause hazards.
- Use only accessories designed for this machine to avoid injury from thrown broken parts or workpieces.
- Do not use any accessory unless you have completely read the instruction or operator's manual for that accessory.

CARTON CONTENTS

UNPACKING AND CHECKING CONTENTS

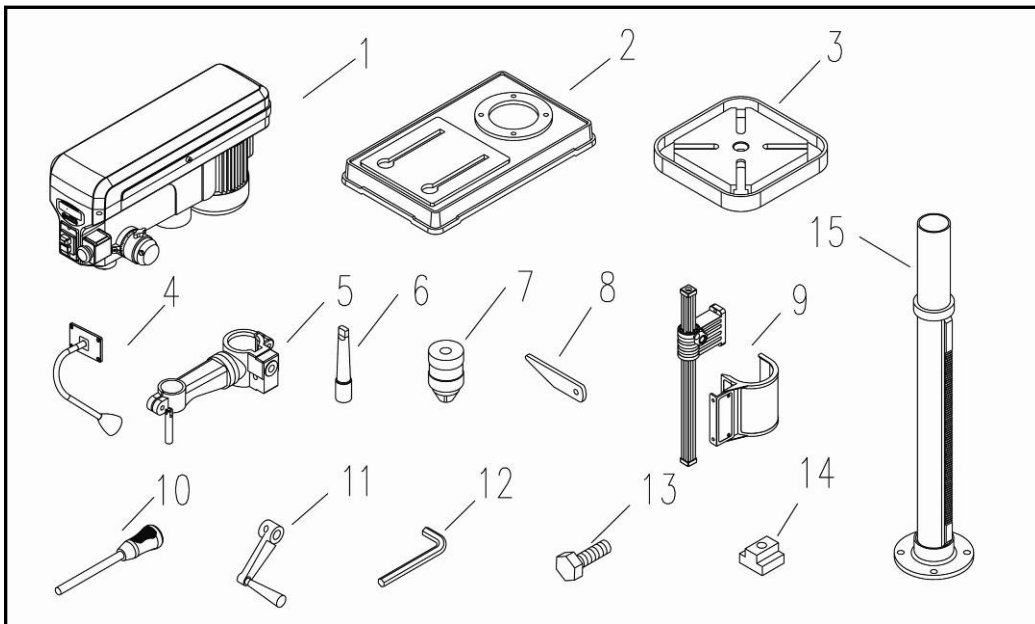
Carefully unpack the machine and all its parts, and compare against the illustration following.

WARNING:

- To avoid injury from unexpected starting, do not plug the power cord into a power source receptacle during unpacking and assembly. This cord must remain unplugged whenever you are assembling or adjusting the machine.
- If any part is missing or damaged, do not plug the machine in until the missing or damaged part is replaced, and assembly is complete.
- To protect the machine from moisture, a protective coating has been applied to the machined surfaces. Remove this coating with a soft cloth moistened with kerosene.

TABLE OF LOOSE PARTS

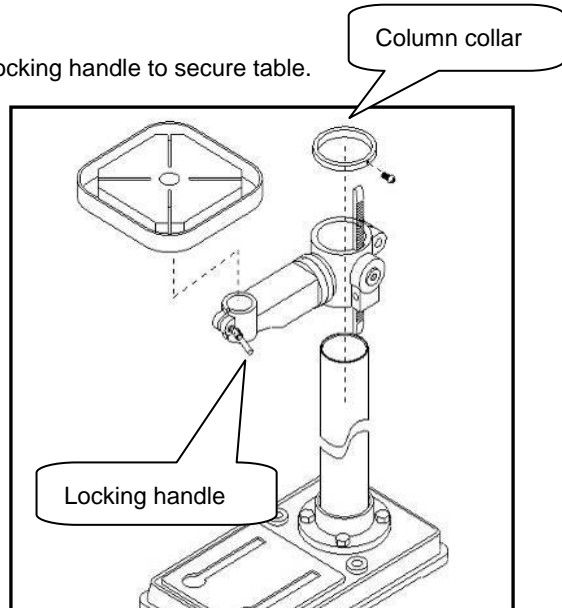
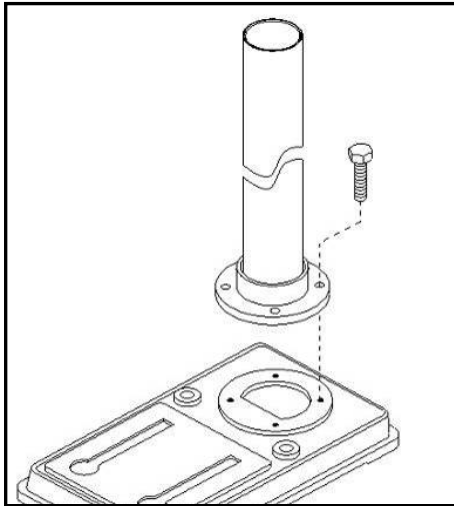
Unpack carton; check you machine to see parts listed below:



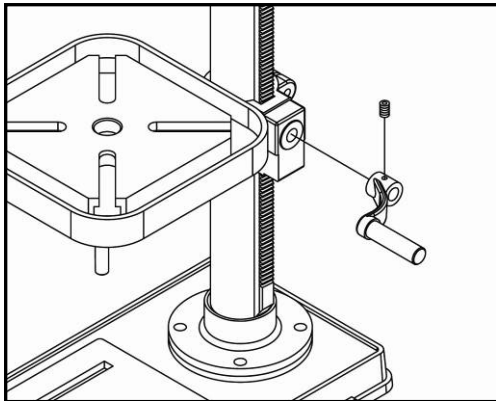
No.	Description	QTY
1	Head assembly	1
2	Base	1
3	Table	1
4	LED lamp	1
5	Table support assembly	1
6	Arbor	1
7	Chuck	1
8	Chuck tool	1
9	Chuck guard assembly	1
10	Feed handle	3
11	Table adjusting handle	1
12	Hex wrench	1
13	Hex bolt	4
14	T nut	2
15	Column assembly	1

ASSEMBLY

1. Position the base on floor or bench. Fix the column assembly to base using hex bolts
2. Slide the table support assembly with gear rack onto the column.
Fix the gear rack using the column collar.
Attach the table to table support. Tighten the locking handle to secure table.



3. Install table adjusting handle. Fix it by tightening the screw.



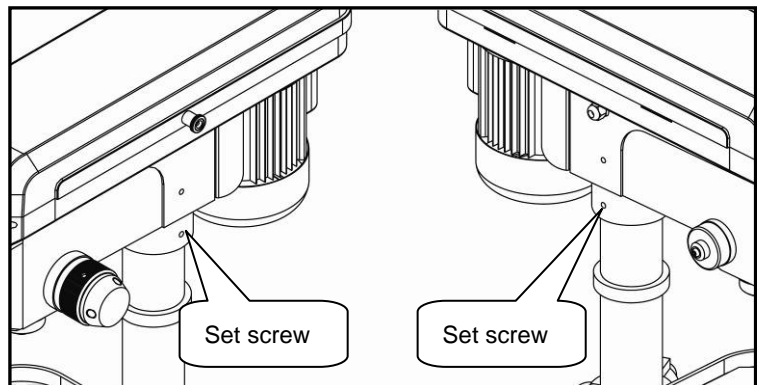
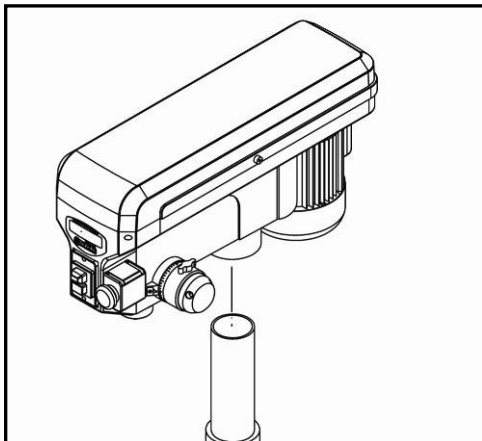
4. Install head assembly

- 4.1. Carefully lift the head above the column and slide it onto the column

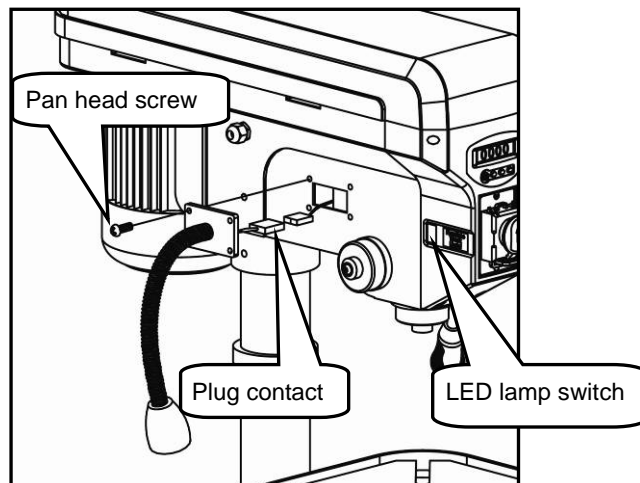
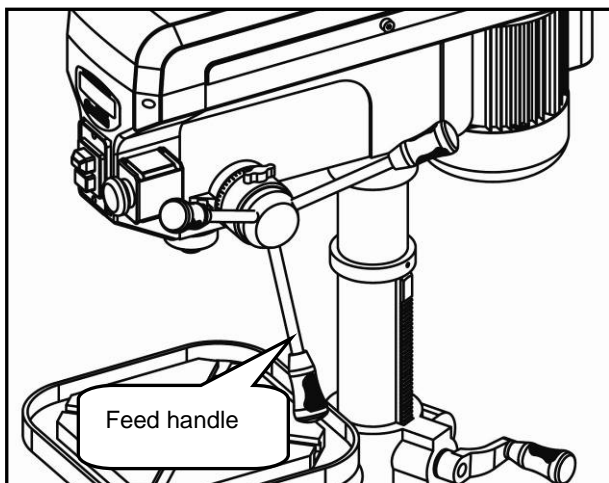
Make sure the head slides down over the column as far as possible.

Align the head with the base.

- 4.2. Using the hex wrench, tighten the set screws in the left or right side of head.



5. Install three feed handles into the hub.
6. Connect the lamp plug contact to the power source plug contact in the drill head. Use four pan head screws to install the lamp assembly to the head. Turn on the LED lamp switch to check the lamp.



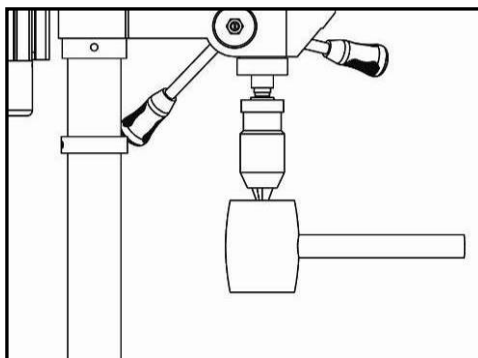
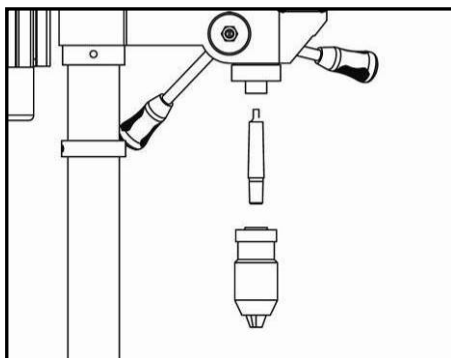
7. Install the chuck

WARNING: Before any assembly of the chuck and arbor to the drill press head, clean all mating surfaces with a non-petroleum based product; such as alcohol or lacquer thinner. Any oil or grease used in the packing of these parts must be removed; otherwise the chuck may come loose during operation.

7.1 Push the arbor onto the spindle

7.2 Push the chuck onto the arbor.

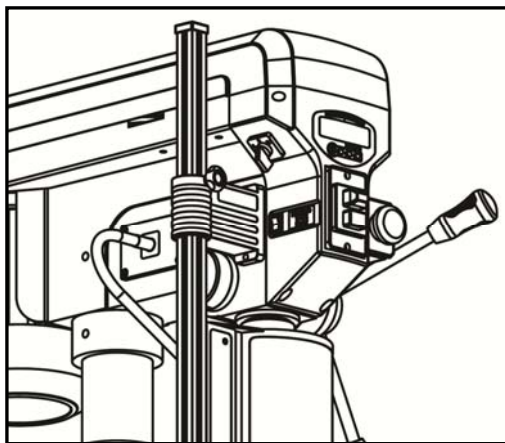
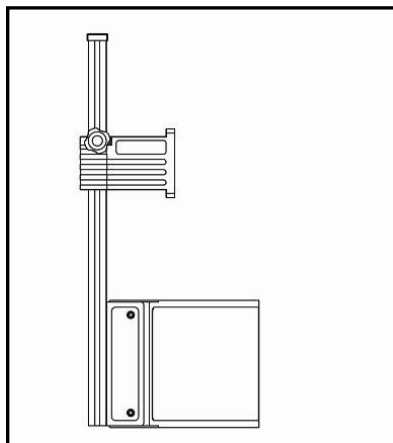
7.3. Using a wood mallet, firmly tap the chuck upward into position on the spindle shaft.



8. Install the chuck guard assembly

Assemble the chuck guard parts together.

Connect cable line plug connector of chuck guard to the machine plug connector. Install the chuck guard assembly to head by two screws.

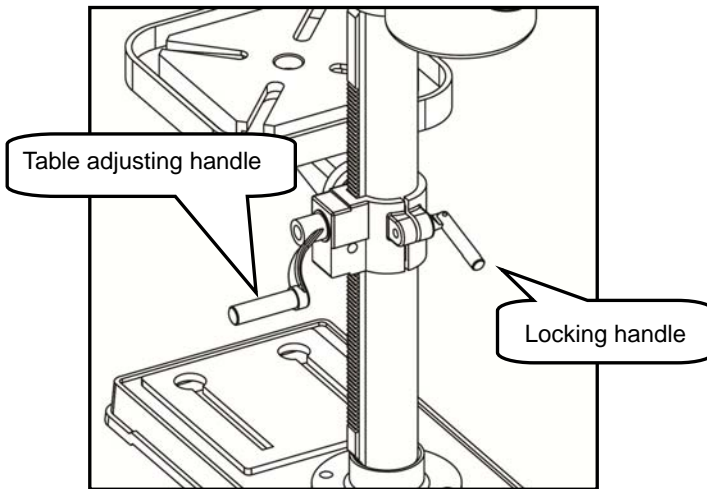


ADJUSTMENT

1. Table adjustment

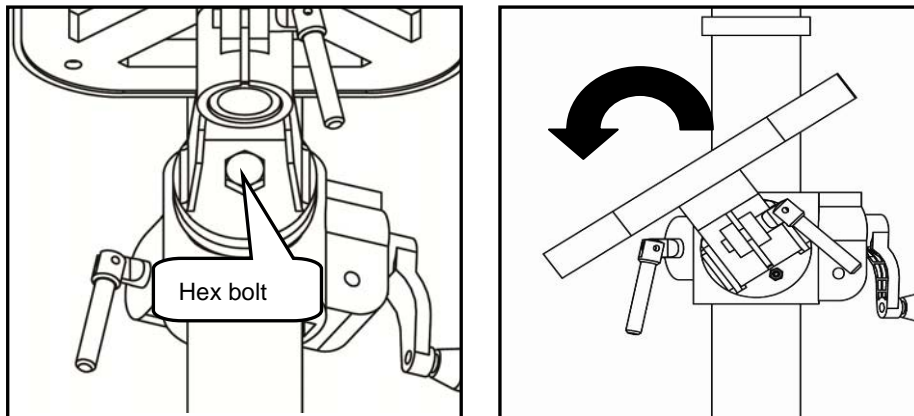
A. Height adjustment

Loosen the table bracket locking handle then adjust table to the desired position by turning the table adjusting handle.



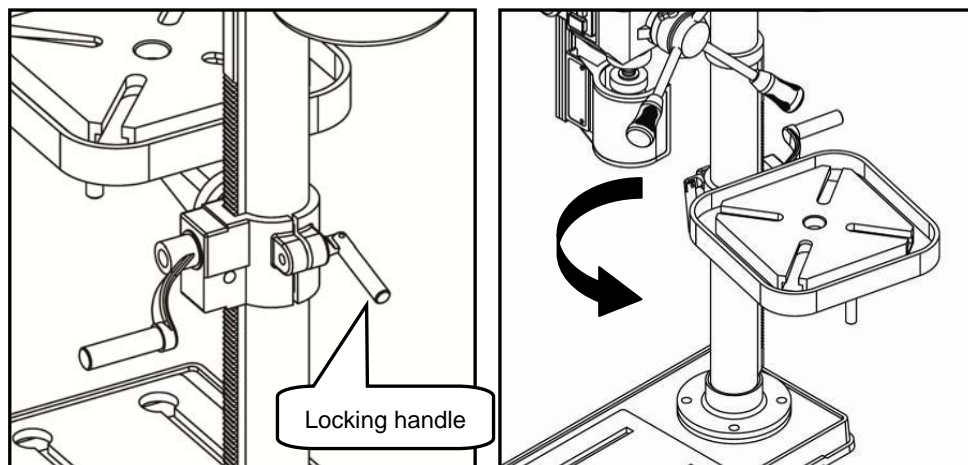
B. Tilting adjustment:

Loosen the hex bolt. Rotate the table to desired angle left or right. Tighten the hex bolt to secure table tilt.



C. Swing 360°

Loosen table bracket locking handle then swing table to appropriate position and retighten the locking handle.

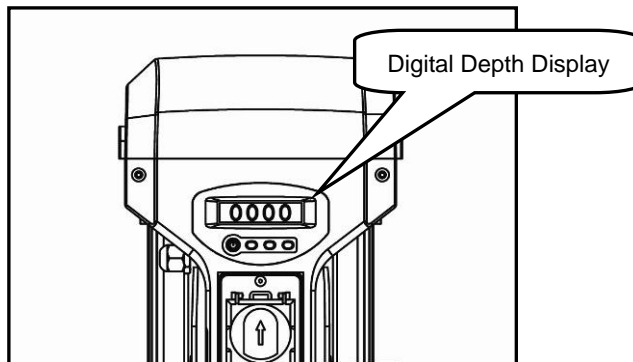
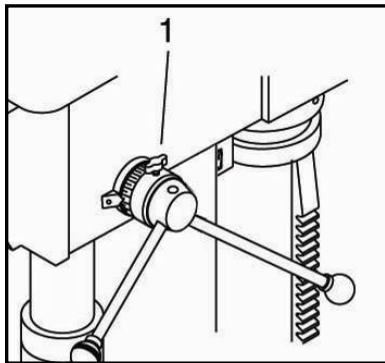


2. Feed Depth Adjustment

Turn the depth scale ring to the desired depth, lock the scale ring in place with the depth knob (1).

The drill bit will stop after traveling the distance selected on the depth scale.

Otherwise you can read the depth from the digital depth display.



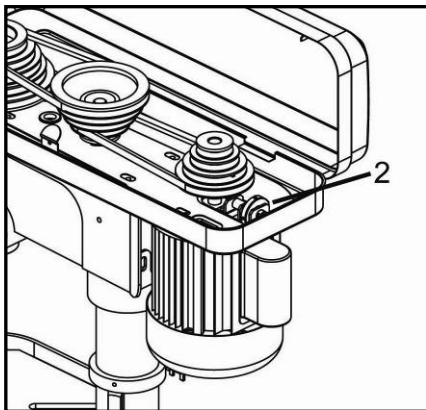
3. Speed Adjustment

To change the speed:

Open the belt cover.

Loosen the belt tension knob (2) to adjust the belt tension. Next, change the belt locations on the pulleys.

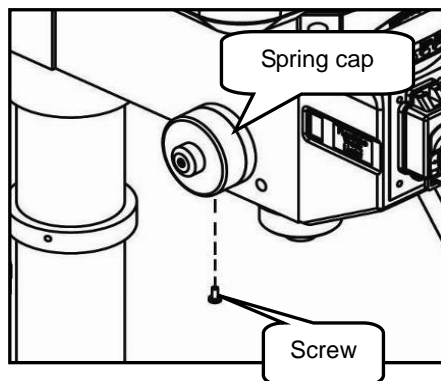
Tighten the belts again by rotating the belt tension knob.



4. Quill Spring Adjustment

The quill return spring may need adjustment if the tension causes the quill to return too rapidly or too slowly.

Take out the screw and carefully turn the spring cap counterclockwise, attach the screw to another hole of the spring cap.



OPERATIONS

1. Installing Drill Bit

For self-tighten drill chuck

- Rotate the chuck body **B** and the cap **A** in opposite directions by your hands, then the chuck jaws **C** will be opened or closed.
- Open the chuck jaws and insert the smooth end of drill bit in the chuck as far as it will go.
- Close the chuck jaws to secure the drill bit

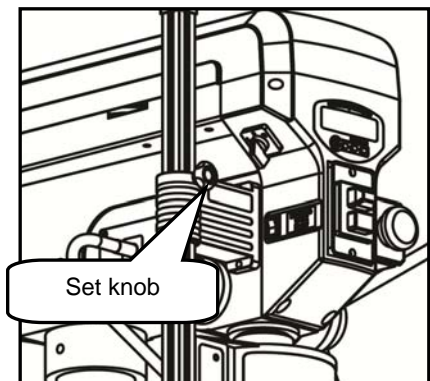


2. Positioning Workpiece

To prevent the workpiece or back-up material from being torn from your hands while drilling, you **MUST** position it against the **LEFT** side of the column. Failure to do this could result in personal injury.

3. Positioning chuck guard

Loosen the set knob, adjust the chuck guard upper or lower to guard the chuck and drill bit.



4. Using Vise

For small workpiece that cannot be clamped to the table, use a drill press vise. The vise must be clamped or bolted to the table.

Warning: The drill press vise **MUST** be clamped or bolted to the table to avoid injury from a spinning workpiece, or damaged vise or bit parts.

5. Correct Drilling Speeds

Use the recommended speed for the drill bit and workpiece.

Recommended Operating Speeds for twist drill bits (1/min)

Twist drill bit size	Material					
	SOFTWOOD	HARDWOOD	ACRYLIC	BRASS	ALUMINUM	STEEL
3-5mm	3000	3000	2500	3000	3000	3000
6-10mm	3000	1500	2000	1200	2500	1000
11-16mm	1500	750	1500	750	1500	600
17-25mm	750	500	NR	400	1000	250

NR-Not Recommended

For other type drill bits, please get the recommended operating speed from the drill bit seller.

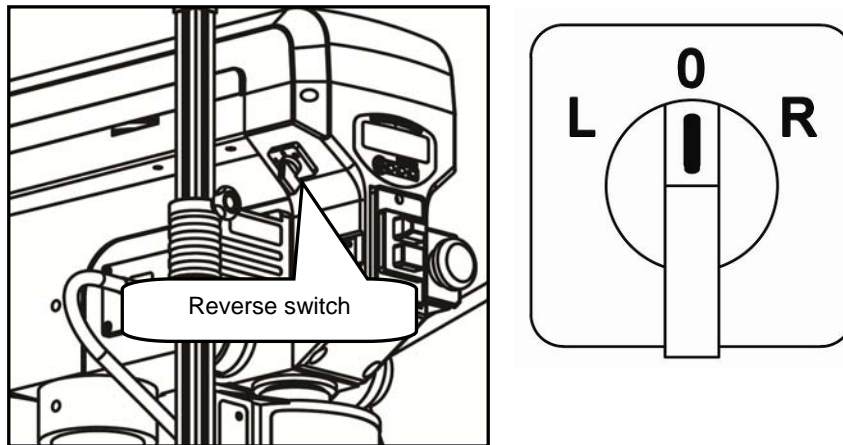
6. Normal-reverse rotation

The machine provides reverse rotation function for some tapping work.

To change the direction of rotation, turn the reverse switch knob to "L" or "R".

The machine will not work while the knob pointing "0".

Attention: This function is only provided by 400V(3~) model (with reverse switch).



MAINTENANCE

MAINTAINING YOUR DRILL PRESS

WARNING: For our own safety, turn the switch OFF and remove the plug from the power source outlet before maintaining or lubricating your drill press.

Frequently blow out any dust that accumulates inside the motor with an air compressor or dust vacuum. A coat of paste wax applied to the table and column will help to keep the surface clean & help avoid rust.

To avoid shock or fire hazard, if the power cord is worn or cut on any way, have it replaced immediately.

LUBRICATION

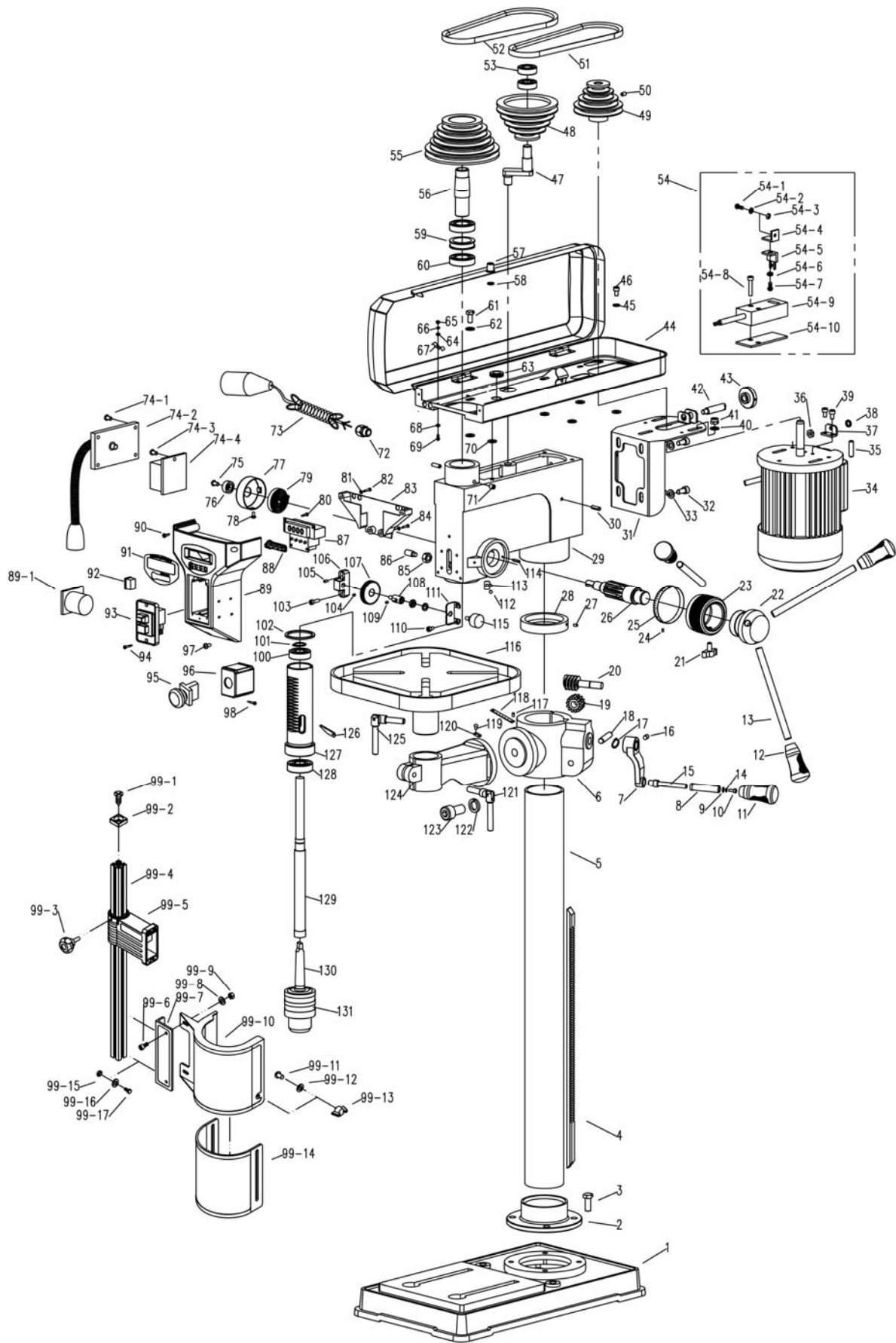
All of the drill press ball bearings are packed with grease at the factory. They require no further lubrication.

Lower spindle to maximum depth and oil moderately once every three months.

TROUBLESHOOTING

PROBLEM	CAUSE	SOLUTION
Machine does not operate	1. Power shortage 2. Interlock switch is off	1. Check the plug Check the cable Call for an electrician 2. Check the belt cover is proper closed, and the interlock switch is on Check the chuck guard is proper closed, and the interlock switch is on
Noisy operation	1. Incorrect belt tension 2. Dry spindle 3. Loose motor pulley	1. Adjust tension 2. Lubricate spindle 3. Tighten set screw in pulley
Bit burns or smokes	1. Incorrect speed 2. Chips not coming out of hole 3. Dull bit	1. Change speed 2. Retract bit frequently to clear chips 3. Sharpen or replace bit
Excessive drill bit run out or wobble	1. Bent bit 2. Bit not properly installed in chuck 3. Chuck not properly installed 4. Worn spindle bearings	1. Replace bit 2. Install bit properly 3. Install chuck properly 4. Replace bearings
Drill bit binds in workpiece	1. Workpiece pinching bit or excessive feed pressure 2. Improper belt tension	1. Support or clamp workpiece, decrease feed pressure 2. Adjust tension
Workpiece torn loose from hand	1. No supported or clamped properly	1. Support or clamp workpiece properly

Assembly diagram



Part list

No.	Description	QTY
1	Base	1
2	Column support	1
3	Hex head bolt	4
4	Gear rack	1
5	Column	1
6	Bracket	1
7	Crank	1
8	Bush	1
9	Flat washer	1
10	Pan head screw	1
11	Handle	1
12	Handle	3
13	Shaft	3
14	Lock washer	1
15	Handle	1
16	Set screw	1
17	Retaining ring	1
18	Pin	1
19	Worm gear	1
20	Worm	1
21	Depth setting knob	1
22	Hub	1
23	Scale bush	1
24	Rivet	1
25	Depth scale	1
26	Gear shaft	1
27	Set screw	1
28	Column collar	1
29	Head	1
30	Spring pin	2
31	Motor plate	1
32	Socket head bolt	4
33	Flat washer	4
34	Motor	1
35	Socket head bolt	3
36	Nut	1
37	Connecting plate	1
38	Lock washer	1
39	Pan head screw	2
40	Flat washer	3
41	Nut	3
42	Belt tension screw	1

No.	Description	QTY
43	Belt tension knob	1
44	Belt cover	1
45	Flat washer	2
46	Socket head bolt	2
47	Crank shaft	1
48	Idle pulley	1
49	Motor pulley	1
50	Set screw	1
51	V belt	1
52	V belt	1
53	Ball bearing	2
54-1	Pan head screw	1
54-2	Flat washer	1
54-3	Nut	1
54-4	Switch key seat	1
54-5	Switch key	1
54-6	Flat washer	1
54-7	Pan head screw	1
54-8	Socket heat bolt	2
54-9	Interlock switch	1
54-10	Switch plate	1
55	Spindle pulley	1
56	Sleeve	1
57	Screw	1
58	Retaining ring	1
59	Spacer	1
60	Ball bearing	2
61	Hex head bolt	4
62	Flat washer	4
63	Rubber bushing	1
64	Flat washer	2
65	Nut	2
66	Lock washer	2
67	Cord clamp	3
68	Flat washer	2
69	Pan head screw	2
70	Rubber washer	6
71	Set screw	3
72	Bushing	1
73	Cord	1
74-1	Pan head screw	4
74-2	Led switch assembly	1

No.	Description	QTY
74-3	Pan head screw	1
74-4	Led driver assembly	1
75	Socket head bolt	1
76	Round nut	1
77	Spring cover	1
78	Pan head screw	1
79	Spring	1
80	Thread forming screw	4
81	Flat washer	
82	Thread forming screw	2
83	Back plate	1
84	Thread forming screw	2
85	Nut	1
86	Set screw	1
87	Display	1
88	Rubber button	1
89	Switch box	1
89-1	Reverse switch	1
90	Pan head screw	2
91	Label	1
92	LED switch	1
93	Main switch	1
94	Thread forming screw	2
95	Emergency switch	1
96	Emergency switch box	1
97	Pan head screw	2
98	Thread forming screw	4
99-1	Flat head screw	1
99-2	Cap	1
99-3	Square bar	1
99-4	Set knob	1
99-5	Switch box assembly	1
99-6	Socket head bolt	2
99-7	Guard support	1
99-8	Flat washer	2
99-9	Hex nut	2
99-10	Upper guard	1
99-11	Carriage bolt	2
99-12	Flat washer	2

No.	Description	QTY
99-13	Knob	2
99-14	Lower guard	1
99-15	Nut	2
99-16	Flat washer	2
99-17	Socket head bolt	2
100	Ball bearing	1
101	Retaining ring	1
102	Rubber spacer	1
103	Socket head bolt	2
104	Set screw	1
105	Set screw	4
106	Support block	1
107	Gear	1
108	shaft	1
109	Set screw	1
110	Socket head bolt	2
111	Support plate	1
112	Rivet	1
113	Pointer	1
114	Pin	1
115	Potentiometer	1
116	Table	1
117	Rivet	2
118	Angle scale	1
119	Rivet	2
120	Pointer	1
121	Lock handle	1
122	Lock washer	1
123	Hex head bolt	1
124	Table support	1
125	Lock handle	1
126	Chuck tool	1
127	Quill	1
128	Ball bearing	1
129	Spindle shaft	1
130	Arbor	1
131	Chuck	1

Attention: There is no reverse switch(#89-1), if you machine is not the 400V(3~) model (with reverse switch).