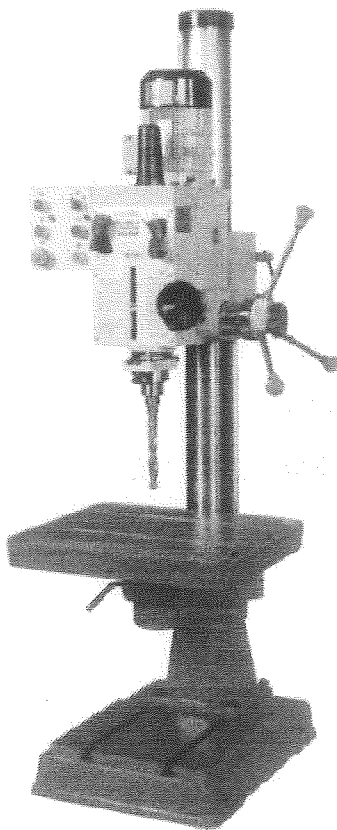




DRILLING & TAPPING MACHINE

MODEL : ZS-40PS



Instruction manual

ENGLISH

CE

CONTENTS

I、 Safety Rules.....	2
II、 Main Application and Suitable Scope.....	3
III、 Technical Parameter.....	3
V、 Unpacking, Checking and Installing.....	4
VI、 Main Structure and work principle.....	6
VII、 Operation.....	8
VIII、 Accessory.....	10
IX、 Maintenance.....	10
X、 Bearing.....	11
XI、 Trouble Shooting.....	11
XII、 Parts Diagram & Parts List.....	13

II、 Main Application

The machine can be used in drilling、 extending or reaming within 40mm hole on the cast iron and tapping within M32mm screw. On the steel it can drill、 extend or ream within 32mm hole and tapping within M24mm the common screw. It is suit for cutting and face process and fix of a little batch accessory.

III、 Technical Parameter

Max. Drilling Capacity steel/cast iron.....	40mm
Max. Tapping Capacity steel/cast iron.....	32mm
Spindle travel.....	120mm
Spindle taper.....	MT4
Spindle speed (6 speed with 1400r/min motor).....	95、 170、 280、 540、 960、 1600min ⁻¹
Max. Distance spindle nose to worktable.....	745mm
Max. Distance spindle nose to base.....	ZS-40HS: 1200mm ZS-40PS: 1230mm
Distance spindle to column surface.....	272.5mm
Dimension of worktable surface.....	455×385mm
Dimension of base.....	410×375mm
Motor.....	1100W
Packing Dimension.....	74×64×198cm
N.W/G.W.....	310kg/340kg

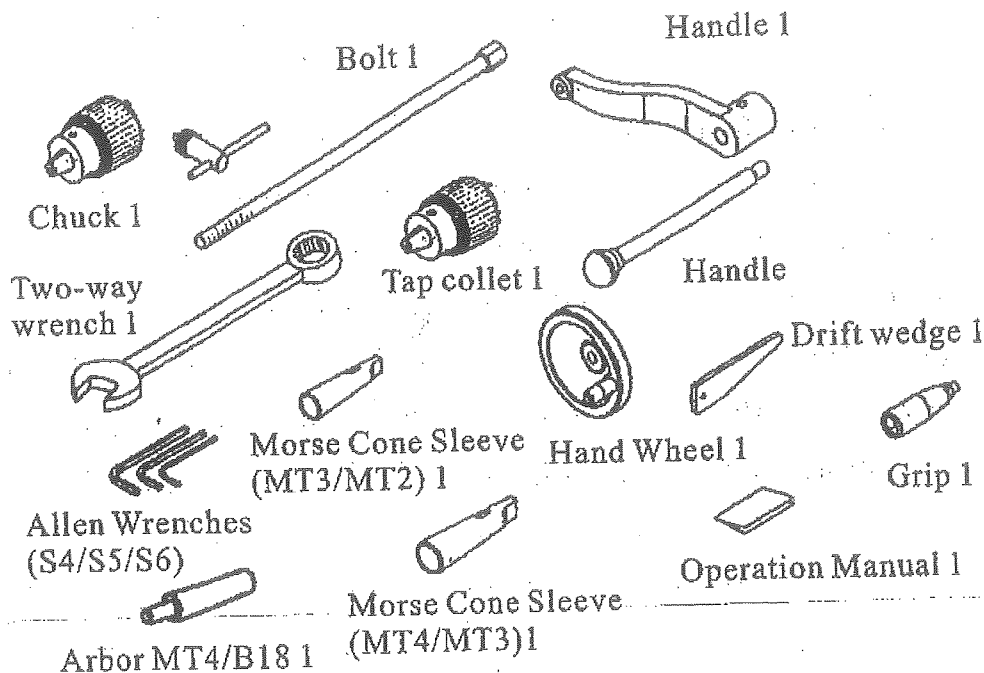
TEST FOR GEOMETRIC ACCURACY

No.	Tested Item	Diagram	mm	
			Permissible Error	Real Error
G1	Checking flatness of worktable surface		$L \leq 500$ 0.05 $L > 500$ 0.08 0.025 at any 200 measured length	
G2	Checking square-ness of longitudinal movement of work table to spindle		0.04/300	
G3	Checking of parallelism of worktable to movement of worktable a. Transverse movement b. Longitudinal movement		a. At any measured length of 100: 0.02 b. $L \leq 400$ 0.05 $L > 400$ 0.08	
G4	Measurement of run-out of the spindle bore axis a. At close to spindle end face b. At location of 100mm from point "a"		a 0.015 b 0.020	
G5	Checking of square-ness of spindle bore axis to working table surface a. Transverse plane surface b. Longitudinal plane surface		a. 0.05/300 $\alpha \leq 90^\circ$ b. 0.05/300	

IV、 Unpacking, Chucking and Installing

The machine is packed by wooden case. When you unpacking it, please open the accessories box first. Then do as follows:

- Besides the drilling and tapping machine, please you check your machine to see parts listed below (Quantity as follows):



- Put these parts at a suitable place after check our. Move away machine from the baseboard (put some soft material under the spindle case, avoid damaging the varnish), clear the oil from the surface of the machine process, and paste lubricant.
- Fixed machine
 - If your machine have stand, you only have to fix it on the stand.
 - If the machine haven't the stand. Then you should drill holes on the base table as the machine measurement diagram (See fig.1). Then fix it on the baseboard by screw.

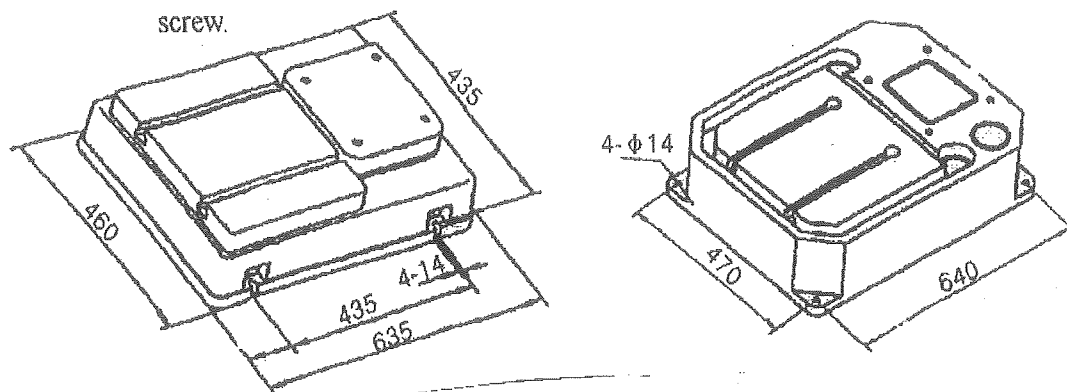


Fig.1

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VI. Main Structure and work principle

The position of main structure and every handle, please see fig.3.

The mainly transmission route: the spindle rotated by pulley insert which the motor through three-class gear. When use the 1400r/min motor as power source, you can get six classes speed by the changing position of moving gear (transmission system, see fig 4)

The spindle feeding structure has two forms. Direct feeding form: the spindle feeding is drove by the feeding handle which installed on the gear spindle, the spindle feeding 88mm when the gear moving one cycle. Jiggle feeding form: the jiggle feeding handle drive the worm, through the prick clutch drive the gear to moving, make the spindle feed, the spindle feeding 2.5mm when jiggle running one cycle.

It can realize the drilling and tapping function, which controlled by diversion switch.

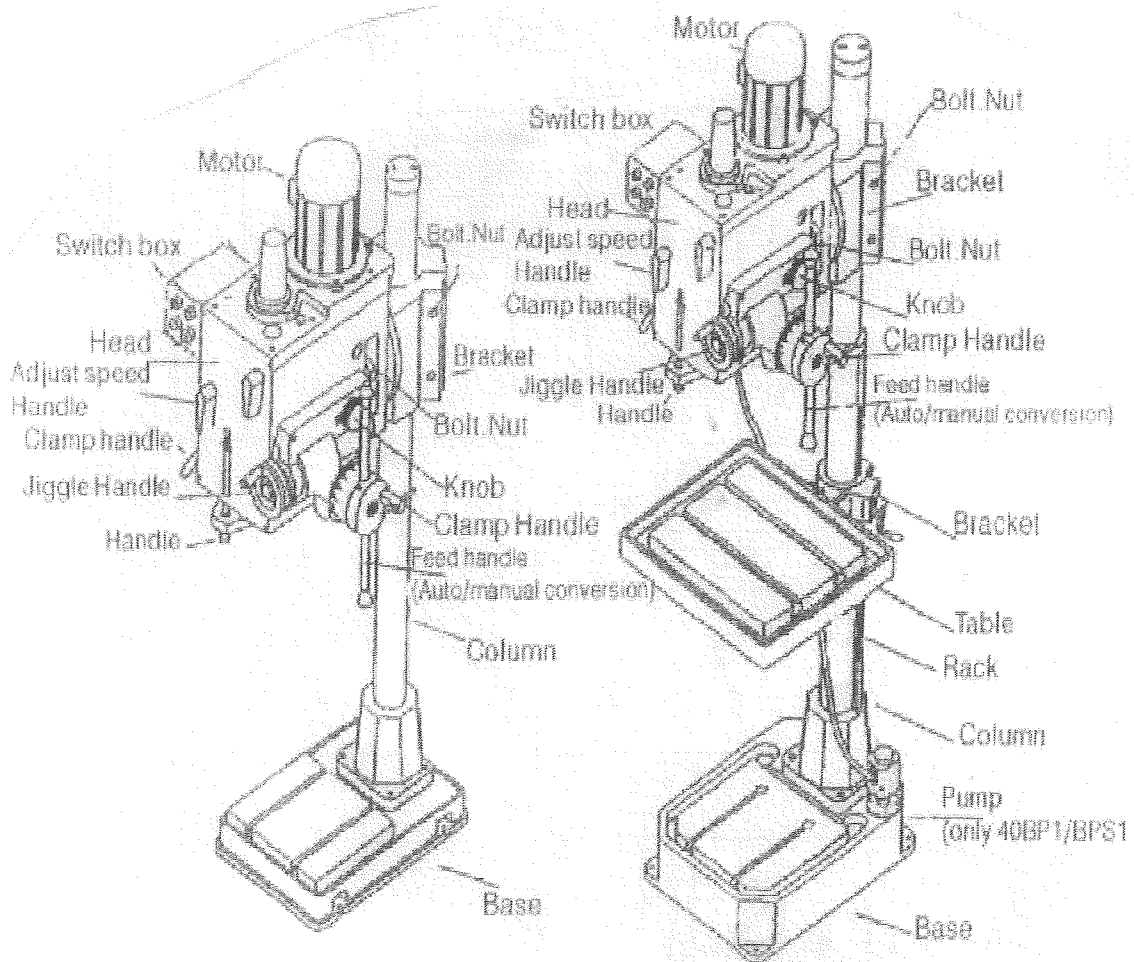
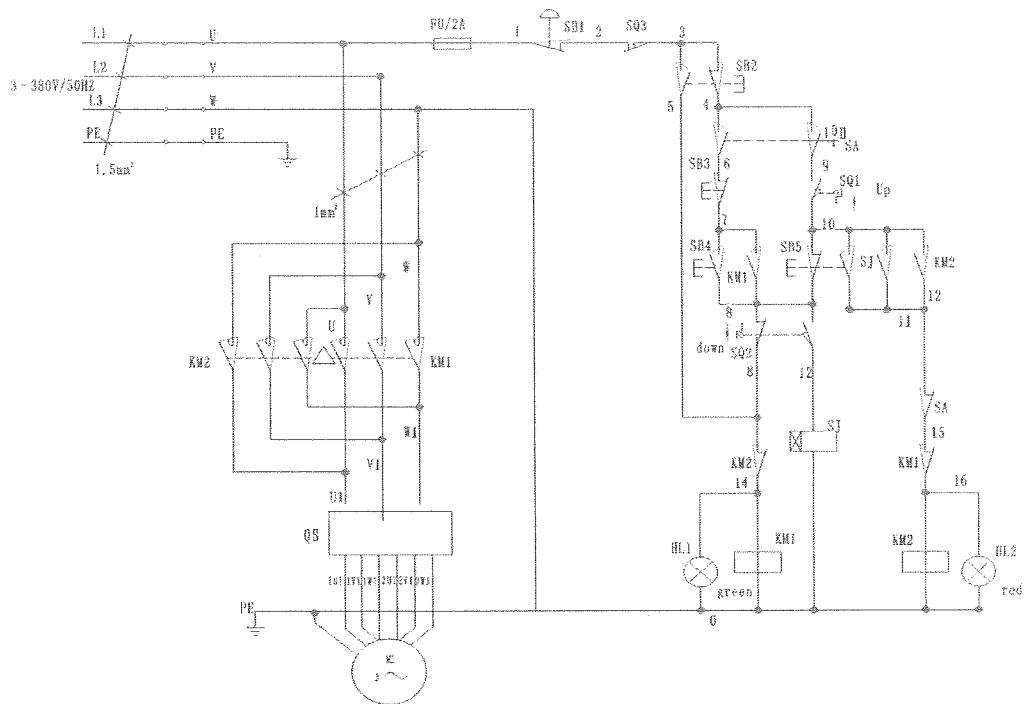


Fig.3

V、 Power connection

When you use the machine first time, you should ask a qualified electrician to install fuse and turn the power supply switch to STOP position. Connect the power, the power supply in a stop position.(electric principle diagram, see fig.2)



VII、 Operation (see fig.3)

1、 Attention these items

(1)、 Operate hint

Before Operation	After Operation
(a) Fill in lubricant	(a) Cut off power
(b) Make sure no sundries on worktable	(b) Take off tools
(c) Make sure jig is correctly installed, work piece is tighten	(c) Wash the machine
(d) Make sure the spindle speed is proper	(d) Fill in Lubricant
(e) Make sure everything is ready before use	(e) Use cover (or a piece of clean cloth) cover machine

(2)、 In order to avoid damaging the machine, you'd better use the drill which drilling capacity within 40mm.

2、 Adjustment of head

(1)、 Up and down of the head

Loosen firm handle of column, rotate the handle make the spindle to the position you want, then firm the handle.

(2)、 Rotate of the head

The head can move around the spindle 360°, loosen the firm handle and screw , adjust the angle of head, then firm the handle.

(3)、 The rotating of the head.(see the fig5.)

The head can move around stand, using 24mm two-ways wrench to loose pulley nrt, screw, rotate the head to viewed nagle, then tighten screw.

3、 Adjust the spindle speed(see fig.6)

Adjust the spindle speed, you must be reference to the speed plate and adjust the speed handle to proper position. If the speed handle isn't agile, please take move the cover and rotate the spindle. Then do it. If the speed handle appears to skid, please you tighten the screw.

4、 Drilling (see fig.7)

(1)、 Installing drill chuck or drill. Use clean cloth to clear all parts of drill chuck or drill, and then put it in the end of spindle. For the drill chuck you should use bolt to pull it, in order to take away the cover, put the bolt into the spindle hole, rotate and fasten the bolt, let it pull the drill chuck, then cover the cover. (See figure 6) rotate the cover of drill chuck make the jaw has enough patulous, then put the drill in, then fasten the jaw by drill chuck key, tighten the drill.

(2)、 Adjust the drill hole depth. Rotate the button to the arranged position according to the ruler of the instruction board.

(3)、 Drilling Rotate the handle, make the handle and worm wheel move away, rotate the spindle feeding handle. That's Ok. Also can rotate the jiggle feeding wheel, make the jiggle cutting.

(4)、 Discharge of drill chuck and drill When discharge the drill chuck, firstly pull out the bolt from spindle, rotate spindle handle, make the quill reduce to the waist slot, put the drift wedge into it, strike the drift wedge with wood stick, then hold the drill chuck or drill so it is discharged.

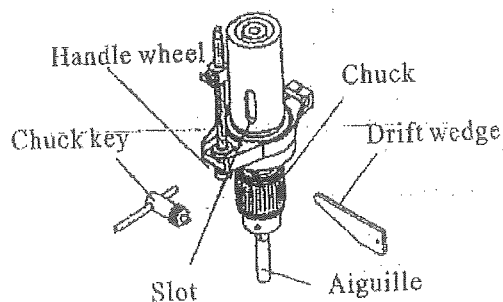


Fig.7

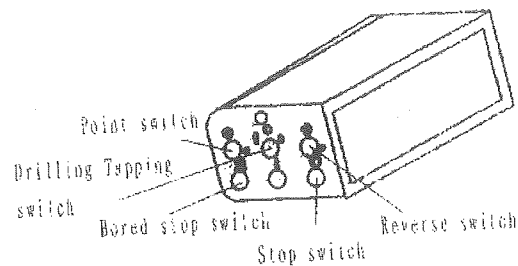


Fig.8

5、 Tapping (see fig.8)

(1)、 Rotate the knob which below the spindle, adjust the tapping depth.

(2)、 Make the power supply knob to the tapping position, press the green know, the spindle rotate. When the tapping to a certain depth, the machine counter-rotate immediately, make the tapping chuck drop out.

(3)、 If some emergent thing occur in the working process, press the red-mushroom button, the spindle counter-rotate at once and drop out. Rotate the red-mushroom button according to arrowhead direction.

VIII、 Accessories

(1)、 Φ 16mm chuck	1/set
(2)、 Taping chuck	1/set
(3)、 Arbor MT3/MT2	1/pc
(4)、 Arbor MT4/MT3	1/pc
(5)、 Drift wedge	1/pc
(6)、 Allen key 4,5,6	each of 1/pc
(7)、 24mm Two-way wrench	1/pc
(8)、 Bolt	1/pc
(9)、 Handle	1/set
(10)、 Arbor MT4/B18	1/pc

IX、 Maintenance

It is easily to keep the good condition by maintaining the machine regularly than at will.

a) Daily maintenance (by operator)

- (1)、 Fill the lubricant on the point before starting machine (include every oil cups and track surface on the worktable).
- (2)、 If the temperature of spindle too hot or have deviant noisy, stop the machine immediately to check it.
- (3)、 Keep work area clean: Release vise, tools and so on from the worktable and leave after lubricate the machine.

b) Weekly maintenance

Check to see whether sliding surface and turning parts lack of lubricant. If yes, Please fill it in time.

c) Monthly maintenance

- (1)、 Adjust the accurate gap of slide both on portrait & landscape orientation feeding.
- (2)、 Lubricate bearing, gear and rack.

d) Yearly maintenance

- (1)、 Adjust table to horizontal position for keep a accurate.
- (2)、 Check wires, plug at least per a year to avoid loosening or wearing our.
- (3)、 Replace the lubricant in head every year.
 - a、 Place a container below the head
 - b、 Loosen the head block nut
 - c、 Turn the oil plug out, let oil flow in the container
 - d、 Block the oil plug when the oil turn out
 - e、 Place the head in a suitable position and fix it
 - f、 Open the oil cover, flow new lubricant until the mark is covered most part.
 - g、 Covered the oil plug

ZS-40HS/PS	INSTRUCTION MANUAL	P15-10
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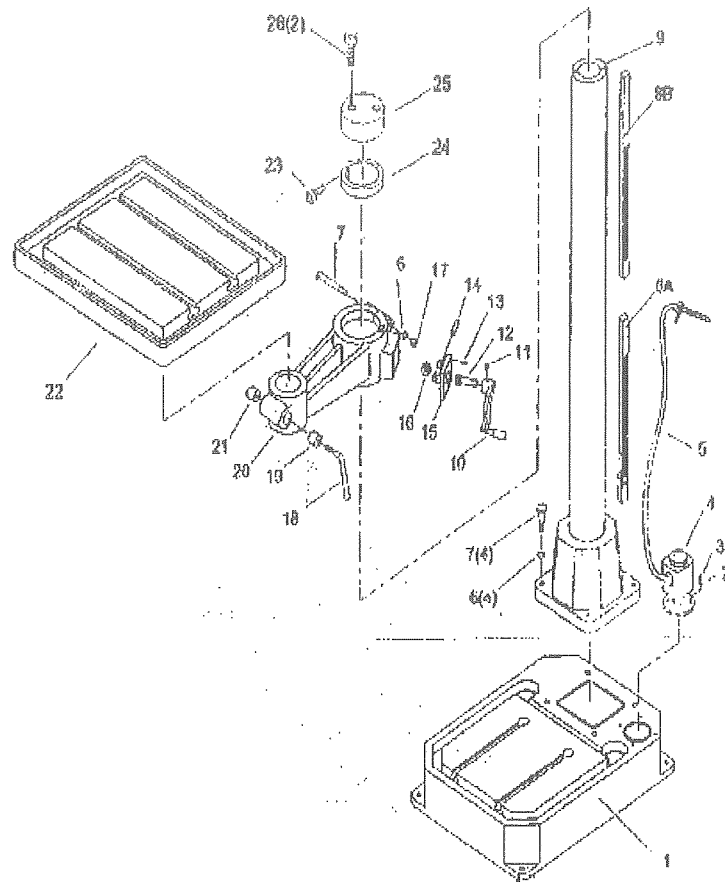
X、 Bearing (reference to the transmission system draft)

NO	MODEL	DIMENSION	INSTALLION POSITION	QUANTITY	LUBRICATE POSITON	MEMO
1	6202-2RS	15×35×11	SPINDLE II SPINDLE III	3	OIL LUBRICATE	
2	6007-2RS	35×62×14	SPINDLE I SPINDLE IV	3	OIL LUBRICATE	
3	30206	30×62×17	SPINDLE QUILL	1	GREASE LUBRICATE	
4	6202	15×35×11	FEEDING WORM	2	GREASE LUBRICATE	
5	32008	40×68×19	SPINDLE QUILL	1	GREASE LUBRICATE	
6	6003-RS	17×35×10	SPINDLE I SPINDLE II SPINDLE III	3	OIL LUBRICATE	

XI、 Trouble shooting

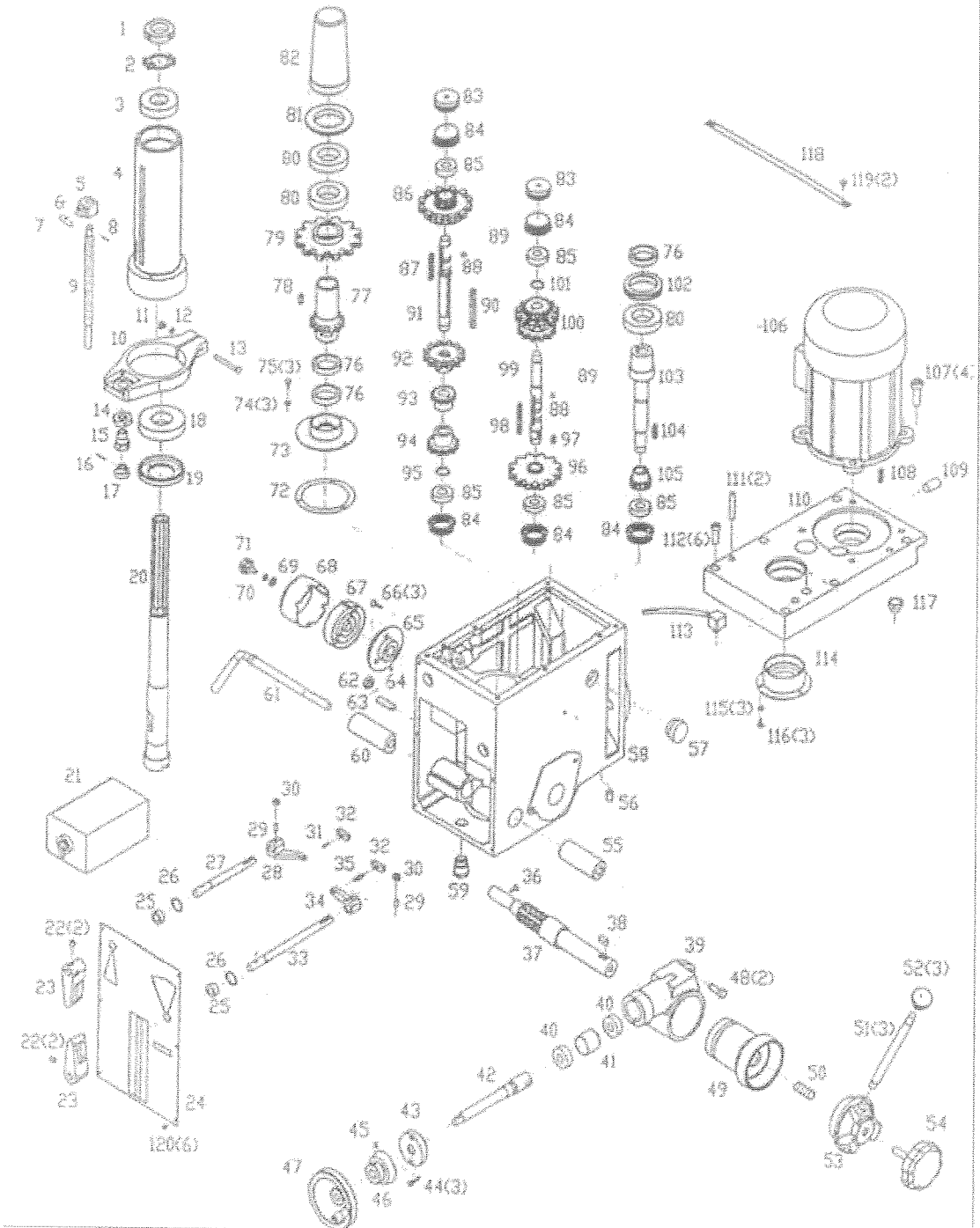
Trouble	Problem Cause	Remedy
Motor over heating or no power	<ol style="list-style-type: none"> 1. Over-load 2. Lower voltage 3. Damaged motor 4. Poor contact or aging wire 	<ol style="list-style-type: none"> 1. Decrease the feed load 2. Adjust voltage 3. Replace with new one 4. Check the wire and replace it
The temperature of the spindle bearing is too hot	<ol style="list-style-type: none"> 1. Spindle bearing isn't enough lubricate 2. Turning with high speed for a long time 	<ol style="list-style-type: none"> 1. Fill in the lubricant 2. Adjust the spindle speed
Unsteady jig feeding work	<ol style="list-style-type: none"> 1. Not connect between base handle and worm wheel 2. Damaged worm wheel and worm 3. Loosen screw on the jig feeding handle wheel 	<ol style="list-style-type: none"> 1. Tighten the handle 2. Replace worm wheel and worm 3. Tighten the screw

Trouble	Problem Cause	Remedy
Unbalance of worktable travel	<ol style="list-style-type: none"> 1. Loosen portrait leaf screw 2. Feeding too deep 	<ol style="list-style-type: none"> 1. Adjust the screw 2. Decrease depth of feeding
Excessive spindle and roughness of working surface	<ol style="list-style-type: none"> 1. The gap of spindle bearing too wide 2. Loosen drill chuck 3. Dull cutter 4. Loosen work piece 	<ol style="list-style-type: none"> 1. Adjust the gap in proper or replace bearing with new one 2. Fasten drill chuck 3. Reshaped it 4. Tighten work piece
Drill burns	<ol style="list-style-type: none"> 1. Improper speed 2. Removing bits not smoothly 3. dull drill 4. feed too slow 	<ol style="list-style-type: none"> 1. Adjust the speed 2. Withdraw drill, clean up it 3. resharpen drill 4. speed up it
Without accuracy in performance	<ol style="list-style-type: none"> 1. Imbalance of heavy work piece 2. Often us hammer to strike work piece 3. Inaccurate horizontal table 	<ol style="list-style-type: none"> 1. Must consider the principle of balance while holding work piece 2. Forbidden to use hammer 3. Maintain table regularly
Work piece or clamp loosen or rotated	Work piece or clamp not fasten tightly on the work table	Fasten it completely



BASE & COLUMN PARTS DIAGRAM

No.	NAME	No.	NAME	No.	NAME
1	Base	2	Column	3	Bolt
4	Rack	5	Clamp handle	6	Movement clamp block
7	Peg clamp block	8	Bolt	9	Support
10	Worm	11	Axis	12	Gear
13	Bolt	14	Gasket	15	Nut
16	Bolt	17	Gasket	18	Column cover
19	Rack hoop				



ZS-40PS

Test Certificate

1/3

DRILLING & TAPPING MACHINE

MODEL: ZS-40PS

TEST CERTIFICATE

MAX.DRILLING CAPACITY : 40mm

SERIAL NO:

ZS-40PS

Test Certificate

2/3

The machine had been tested according to the specified standard JB/T7421.2-2006 and technical requirements, and found satisfactory for dispatch

Director:

Chief of Inspection Department:

Date:

Annexed : Test for Geometric Accuracy