

# **VERTICAL BAND SAW**

MODEL: VS-1611

VS-2012

VS-2313



**Operating Manual**

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## **I.INTRODUCTION**

The “Operating instructions” are an integral part of the machine and should be consulted before, during and after the start up of the machine and whenever else required. The content of these instructions should always be carefully observed.

The observance of the above is the only way to achieve the two fundamental aims of this manual:

- **Optimization of machine performance**
- **Prevent damage to the machine and injury to the operator**

<p style="text-align: center;"><b>CAUTION: BEFORE INSTALLING THE MACHINE, READ THE OPERATING INSTRUCTIONS CAREFULLY</b></p>
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## **II.INFORMATION ABOUT MAINTENANCE ASSISTANCE**

### **2.1 GUARANTEE**

- The products are guaranteed against material and manufacturing defects for a period of 12 months from the date of delivery.
- The buyer is only entitled to the replacement of parts which are acknowledged as faulty: carriage and packing are at the buyer's. In the event of the above, the following information should be supplied:
  1. Date and number of purchasing document
  2. Machine model
  3. Serial number
  4. Code of any relevant drawings
- Requests for compensation for the inactivity of the machine will not be accepted.
- The guarantee does not cover uses which are not in line with these operating instructions which are an integral part of the machine. Nor is maintenance covered if the instructions supplied are not observed.
- The guarantee will not cover machines which have undergone unauthorized modifications.
- Modification or tampering with the safety devices is strictly forbidden.

### III. SPECIFICATION

Item No.		188201	188202	188203
Model		VS-1611	VS-2012	VS-2313
Max. Cutting capacity	Height	285mm(11.2")	310mm(12.2")	336mm(13.2")
	Width	400mm (15.7")	500mm(19.7")	585mm(23")
Table Size		550x600mm (21.7"x23.6")	660x700mm (26"x27.6")	660x700mm (26"x27.6")
Blade Speed(50Hz)		0~1400rpm	0~1400rpm	0~1400rpm
Length of saw blade		3390-3467mm	3980-4050mm	4430-4520mm
Blade width		3-16mm	3-16mm	6-19mm
Table tilt		R-45° , L-15°	R-30° , L-15°	R-30° , L-15°
Main motor		1.5Kw(2HP)	1.5Kw(2HP)	1.5Kw(2HP)
Grinder motor		0.09Kw(1/8HP)	0.09Kw(1/8HP)	0.09Kw(1/8HP)
Electric welder		2.4KVA	2.4KVA	2.4KVA
Packing Size		108x80x200cm	140x90x220cm	147x95x230cm
N.W./G.W.		310/380 kg	484/548 kg	555/640kg

### IV. DESCRIPTION OF THE MACHINE AND ITS COMPONENTS

The band sawing machine produced by us has a sturdy frame made from welded and painted sheet-steel. The upper surface is designed to allow the complete draining away of the cutting fluid. The band holding bow is made of cast-iron and has generous dimensions, providing the cutting unit with the necessary strength and precision. The vice unit is made of cast-iron and clamps the material to be cut securely. The bar-stop device allows the length required to be preset and a constant level of performance for repeated cuts. The blade-holding bow is firmly attached to a reduction unit built onto the motor and to the base by means of a joint which allows 60° rotation to the right. This joint also allows the cutting movement to advance manually or by falling.

Tank is fitted near the machine table. The main switch is located on the front panel. The choice of one of the two motor rotation speeds and therefore cutting speed is carried out by the main switch. The front panel is also fitted with an emergency stop button and a START button. The control lever, fitted with an ergonomic hand-grip and activation button with safety release action, reduces fatigue during operation to a minimum. The blade is protected by a guard with interlock which covers the upper area and the hand wheels and by two adjustable lower guards which protect the operator from ejected shavings and coolant. The machine is supplied with a set of service spanners.

## **V. INSTRUCTION MANUAL**

PS. Please turn the Regulator to “the lowest speed” position before turning on the machine.

1. The mechanical construction of this machine is illustrated as shown on the Parts List.
2. The adjusting screws, above and under the Band Guides, can be adjusted as long as.
3. The worktable can be tilted.
4. This manual has been prepared for the operator who operates, and the maintenance of the Vertical Saw. The purpose is to promote safety through the use of accepted operation procedure.

The following instructions in operations and maintenance shall be observed in order to obtain the maximum efficiency of the unit.

The procedure is shown as follows:

- A. Power
- B. Sawing material selection
- C. Blade selection
- D. Blade cutting device
- E. Welder
- F. Grinder
- G. Blade installation
- H. Guide rod adjustment
- I. Inverter speed selection
- J. Air pump
- K. Angle cutting
- L. Safety and maintenance
- M. Inverter parameters

### **ACTION TAKEN**

#### **A. Power**

1. First, before operating the machine, be sure to check the voltage which is in accordance with the power supply system.

## **B. Sawing Material Selection:**

Before sawing, the operator must fully understand the quality of the sawing material. Example: With super high stencil steel, the machine should be run at a slower speed. Otherwise, the blade will overheat, be worn or broken easily. With thin material, it is recommended to use a wider blade pitch at high speeds; otherwise, the teeth will be ruined easily.

## **C. Blade Selection:**

1. Generally, there are three different types of blade. These are used for metal materials such as steel, brass, iron and aluminum or non-metal such as wood, plastic, rubber and paper materials.
2. Selection of the blade pitch is essential. As a general rule, the thicker the material the less teeth per in pitch, and a wider blade should be used.
3. When cutting 'Radius' – the smaller the 'Radius' the narrower the blade.
4. Refer to the Speed & Pitch Selector guide on the machine for proper radius and pitch.

**D. Blade cutting Device:** Use the Blade cutter only for cutting blades if you want to maintain the cutter for a long period of time. Do not use it as a general purpose cutter.

## **E. Welder:** Reference as the following

1. Prepare before welding
  - a. Cleaning the blades and cut the two ends straight with the cutter. Use grinding wheel deburring the ends if necessary.
  - b. Put the blade ends on the clamping points separately, and make sure the two ends contact closely. Then, turn the clamping handles to outsides and lock the electrode to blades.
  - c. Adjust voltage knob according to the blade thickness. The more thickness, the higher voltage (Turn the knob clockwise for higher voltage). The normal setting is 4 position.
2. Welding operation
  - a. Use your Thumb to press the Welding Button, then blade change to Red color and activities electrode driven the blade feed for welding. Please do not release the Weld

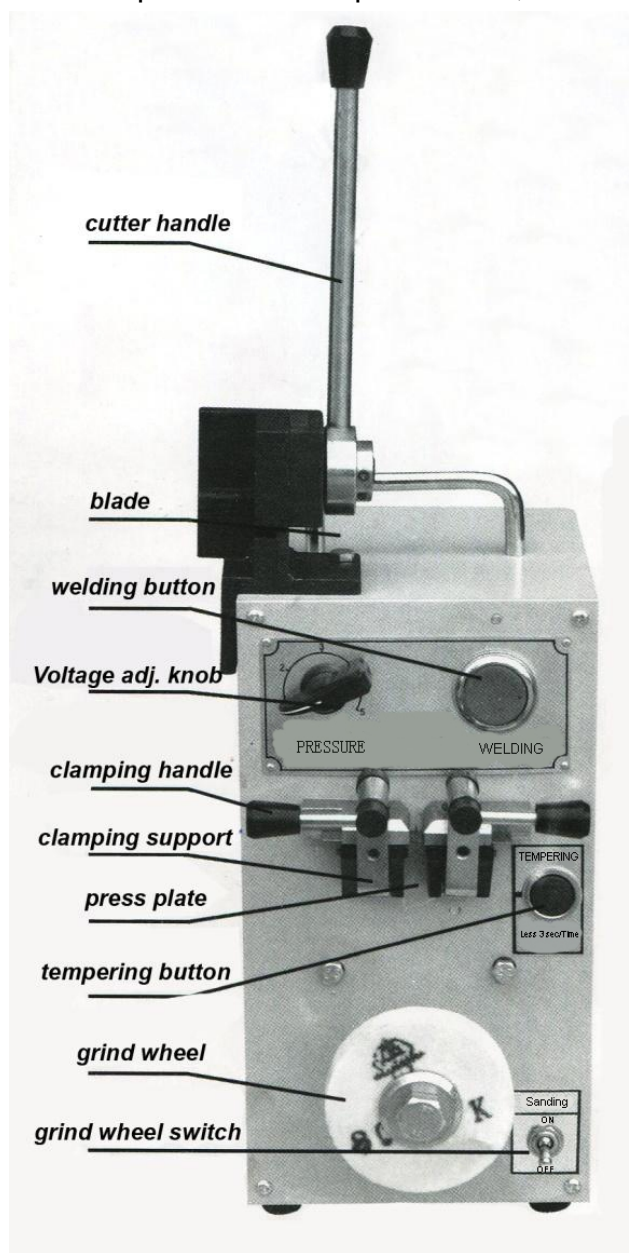
Button during the welding until the blade back to black color.

### 3. Tempering operation

- a. Press the tempering button until the welding points begin to appear red color. Then, after the blade back to the normal color, do the previous action again. Repeat this pressing 5-7 times. Please do not keep pressing over 3 seconds each time. Before tempering, please release the two clamping points first, then re-fix them in 1.b step.

### 4. Weld dressing

- a. Turn the clamping handles in vertical position and take blade out. Start the grinding wheel to polish the over parts. Then, the blades can be reused.



Pic. 1

# Maintenance and trouble shooting

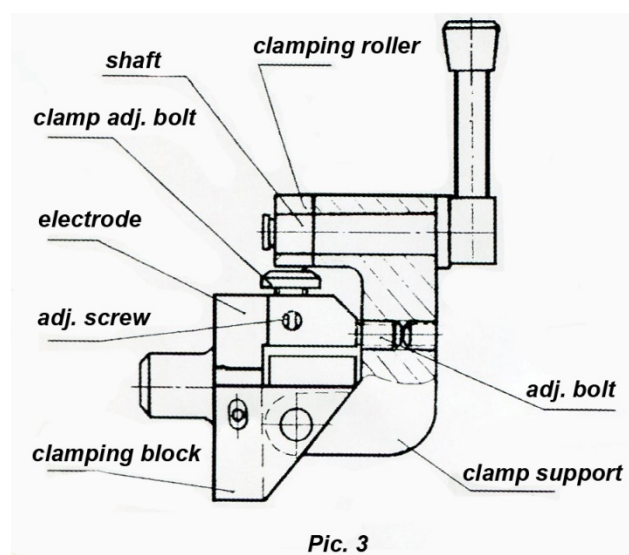
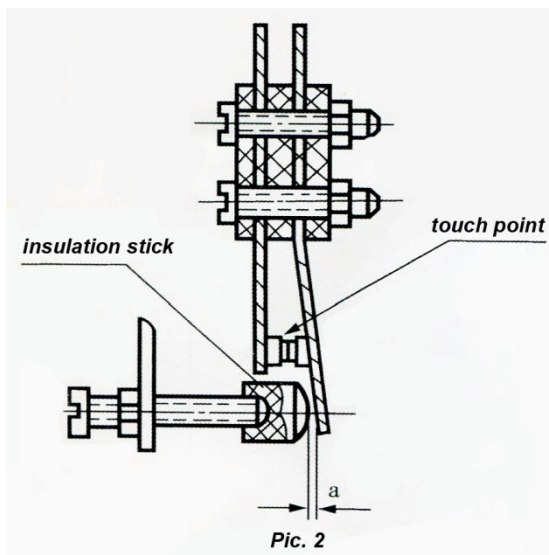
## 1. Maintenances

- a. put the voltage adj. knob back to mark of “i” when the machine is not working
- b. after half hour working, the machine can only be continue to work when the temperature is lowing down to the ambient temperature

## 2. trouble shooting

If the cut welding is not work, then open the panel, removal the switch of cut welding according to picture 2, polish the touch point by sand cloth,, then put on the switch of cut welding again, at this time, the insulation stick should jack-up the switch of cut welding, separate the second touch point. According to the time of welding needed to adjust the distance A. The bigger distance in A, the longer time for welding melt.

Trouble	Possible Reason	Solution
Welding seam broken	<ol style="list-style-type: none"> <li>a. Blades welding end is dirty</li> <li>b. Not proper welding voltage</li> <li>c. Two ends is not align</li> <li>d. Two ends do not melt at the same time.</li> </ol>	<ol style="list-style-type: none"> <li>a. Cleaning the blades with clothes.</li> <li>b. Increase the welding voltage.</li> <li>c. Align the blade Two ends.</li> <li>d. Adjust the “adjusting screw” in the clamping plate, to align the center of clamping roller and the bottom bolt.</li> </ol>





Trouble	Possible Reason	Solution
Blade do not melt	a. Blade two ends is not straight and flat b. Electrode is broken or worn. c. Cut welding switch not work d. Blade two ends do not contact. e. Blade clamping points have rust.	a. Cut the two ends straight and flat. b. Repair the electrode. c. Polish the touch points of the switch by sand cloth. d. Re-cut the blade two ends. e. Remove the rust by sand cloth.
Blade cannot clamp tightly	The distance between the clamping roller and bottom bolt is big.	Adjust the “adjusting screw” in the clamping plate, to align the center of clamping roller and the bottom bolt.

#### **F. Grinder:**

The grinder is used for grinding off both ends of the cut blade on the surface so that the blade can be welded together easily. Note: Do not exceed in running the grinder for more than 30 minutes at a time.

#### **G. Blade Installation:**

First turn off power and open the safety covers; then take off the old blade by turning the blade tension hand wheel and removing the guide bar from the table. Replace the blade with the teeth in the downward position. Be sure the safety covers have been closed.

#### **H. Guide Rod Adjustment:**

Adjustment to the guide rod is very essential. There are two rods: Top and Bottom. Only the top one can be adjusted about 1mm above the sawing working piece. Note: If the adjustment is made higher, the blade will be bent, so the support block of the supporting blade should also be adjusted in line with the blade width and thickness. When making adjustments, the power shall be shut off, and the support block shall be right in the middle position of the rear of the blade teeth (neither loose nor tight).

#### **I. Inverter Speed Selection and Operating:**

#### **J. See the Speed & Pitch selector on the front of your machine.**

Operation method: Switch on; then turn motor starter switch on, and then adjust to desirable speed by speed adjusting knob.

#### **K. Air pump:**

Voltage: 220V/60HZ    Current: 0.5mA    Flow rate:10-12(L/min)

Pressure: 0.20Kg/cm<sup>2</sup>    Type of fluid: Air

#### **L. Angles Cutting:**

1. Declination sawing: Loose table nuts; adjust the table into the desirable position, and retighten the nuts.
2. "R" shape sawing: Turn slowly because the sawing edge must remain flat, straight and smooth.
3. Smaller working piece sawing: Be careful to push or pull the work piece by using a wood block (not by hand); otherwise, the operator may get hurt.
4. Internal contour: First , drill a hole through the work piece large enough to fit the blade through. Weld the blade ends together (grinding smooth). Reinstall blade on wheels and make normal blade adjustment. Begin to perform contour sawing.
5. Working Speed: When sawing, the speed shall remain the same (neither fast nor slow); otherwise, blade breaking may occur.

#### **M. Safety and Maintenance:**

1. Be sure that the safety cover and the wheel doors are always closed before turning on the machine.
2. The band saw shall be installed in a dry place in order to avoid electrical shock.
3. Make sure the machine is grounded properly (green wire to ground).
4. After installing a new saw blade, start the motor and keep the blade turning without load about 1 minute; then proceed to cutting the work piece
5. Upon sawing, if any unusual noise, smell or blade breakage occurs, operator should immediately switch off the power.
6. Maintenance: After operating, switch the machine off. After clearing the machine, take away the chips, and slightly lubricate the surface of the machine and all joints to keep them from rusting.

## **VI.INVERTER PARAMETER:**

1. Consumers are not allowed to adjust the parameters without authorization .(In case that machine failure is caused by any consumer who alters any parameter without authorization, the consumer should be responsible for the failure.)
- 2.Inverter parameters are only provided for the qualified technician.

## **MAINTENANCE AND CAUTIONS**

### **Remarks:**

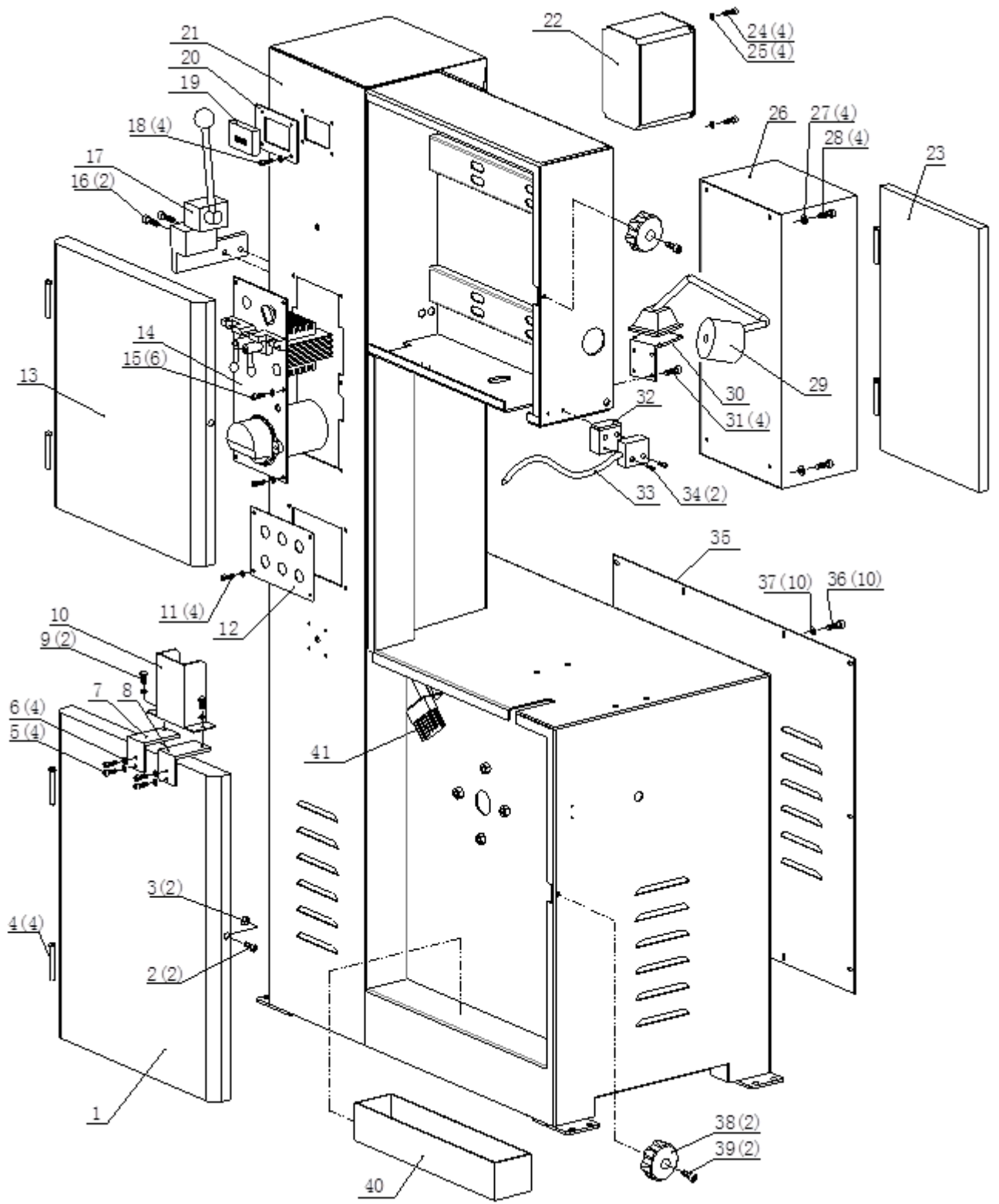
1. This welding device isn't recommended to weld saw blades made of high speed steel. Continuous welding should be avoided. After being used several times, turn the welder off for 15 minutes rest so that the transformer will not suffer from overheat. In case that transformer becomes overheated, the temperature controller will actuate the breaker. Reuse will not be allowed until the transformer cools down.

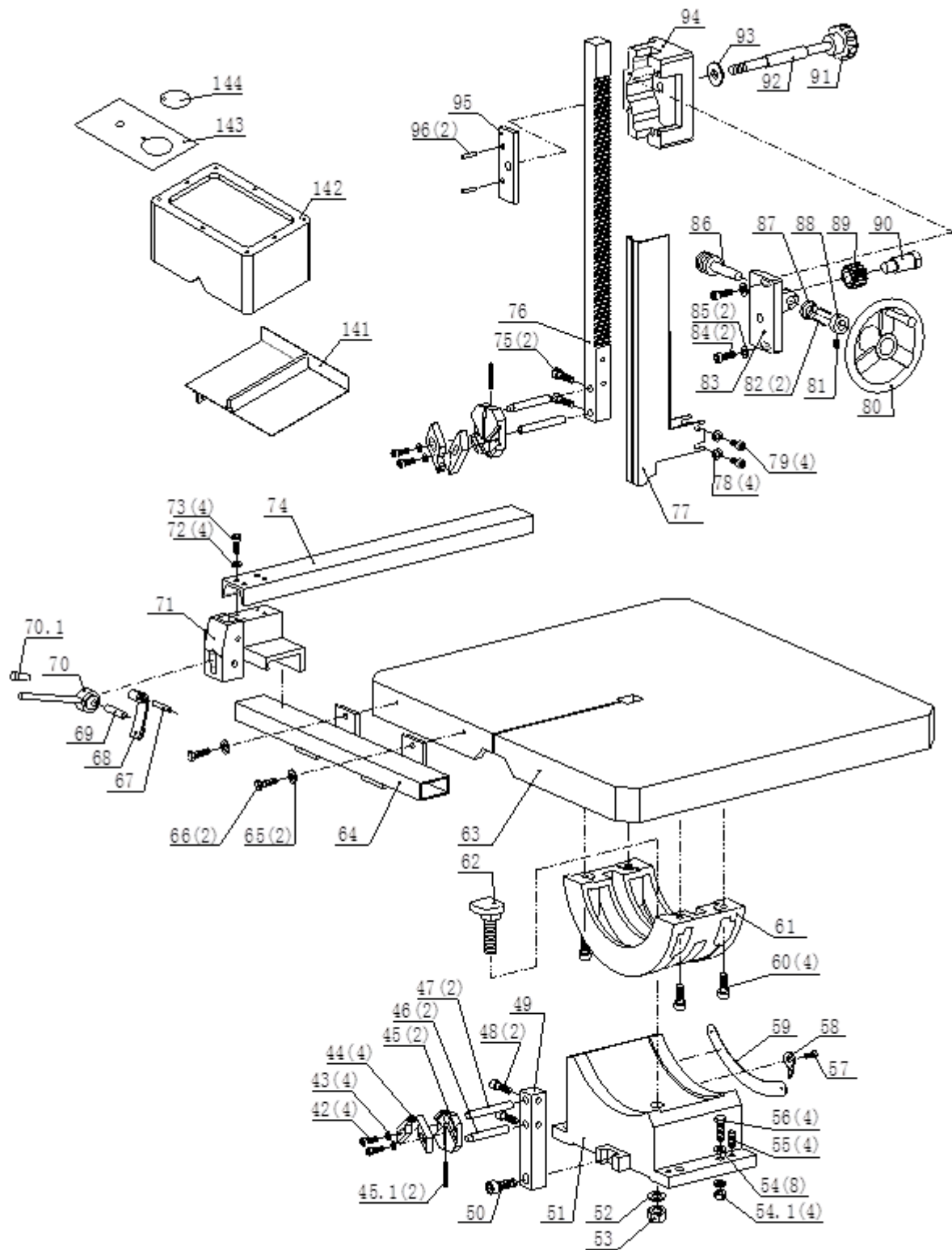
## VII. DRAWING AND PARTS LIST

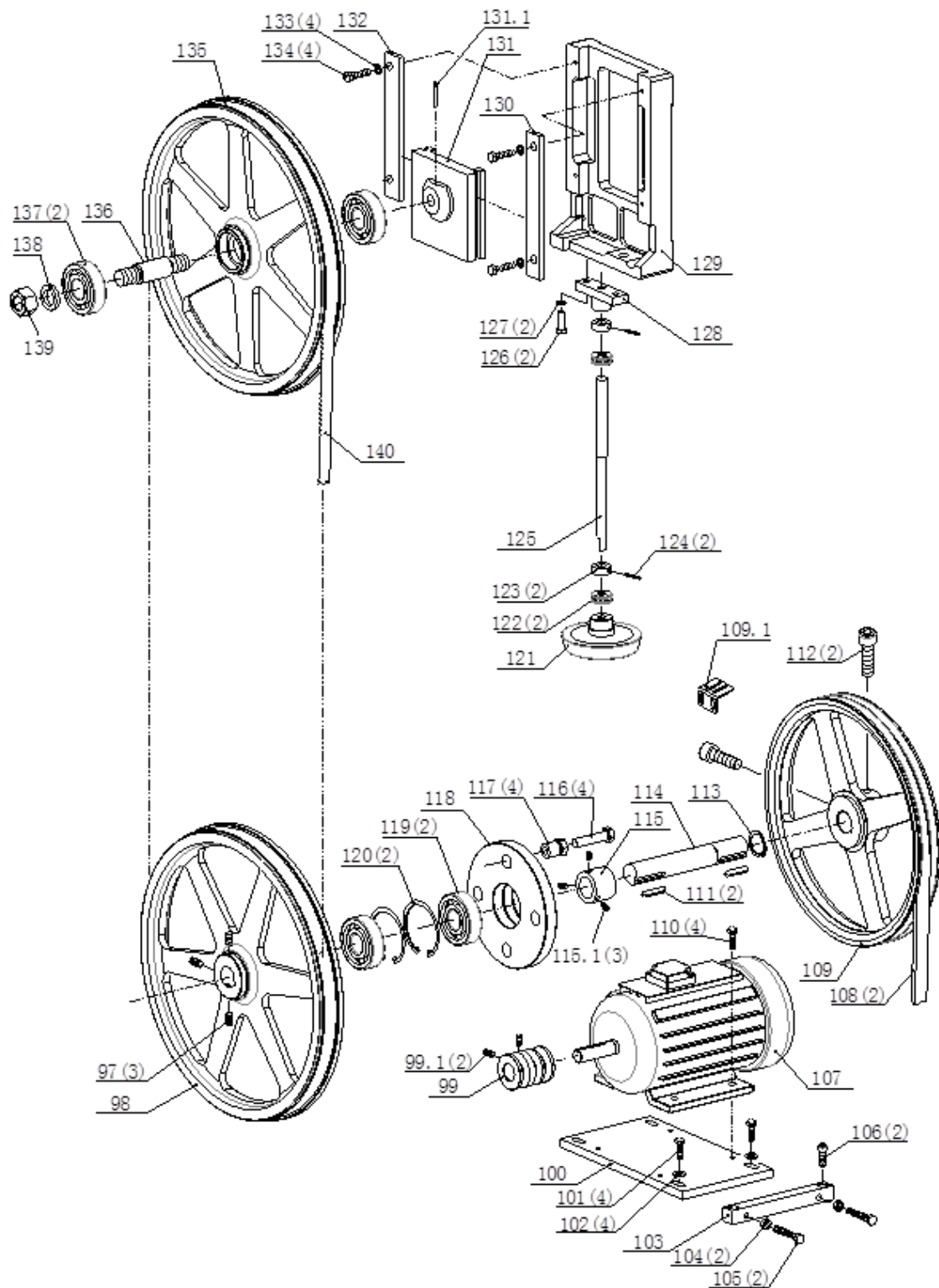
### VS-1611 packing list and drawing

Item	Description	Qty	Item	Description	Qty
1	Low door	1	41	Wood brush	1
2	Bolt M6X12	2	42	Bolt M5X20	4
3	Nut M6	2	43	Big washer 5	4
4	Pin	4	44	Block	4
5	Bolt M5X16	4	45	Blade block material seat	2
6	Washer 5	4	46	Blade stay bar	2
7	Left seat board	1	47	Blade back bar	2
8	Right seat board	1	48	Bolt M8X16	2
9	Bolt M6X8	2	49	Blade down guard	1
10	Blade down cover	1	50	Bolt M10X40	2
11	Bolt M5X10	4	51	Down seat	1
12	Panel	1	52	Washer 16	1
13	Up door	1	53	Nut M16	1
14	Blade weld	1	54	Big washer 8	8
15	Bolt M5X10	6	54.1	Nut M8	4
16	Bolt M8X16	2	55	Bolt M8X16	4
17	Blade cutter	1	56	Bolt M8X35	4
18	Bolt M5X10	4	57	Bolt M5X8	1
19	Transducer display	1	58	Finger	1
20	Transducer small fixed board	1	59	Scale	1
21	Machine stand	1	60	Bolt M8X25	4
22	Transducer	1	61	Up seat	1
23	Transducer seat board	1	62	bolt	1
24	Bolt M5X10	4	63	Working table	1
25	Washer 4	4	64	Gauge	1
26	Elec. box	1	65	Washer 6	2
27	Big washer 6	4	66	Bolt M6X20	2
28	Bolt M6X12	1	67	Pin shaft	1
29	Working light	1	68	Press sheet	1
30	Working light seat	1	69	Pin shaft	1
31	Bolt M6X10	4	70	Eccentric handle	1
32	Block	1	70.1	Handle sleeve BM8X32	1
33	Coolant nebulizer	1	71	Seat	1
34	Bolt M4X20	2	72	Washer 6	4
35	Back cover	1	73	Bolt M6X16	4
36	Bolt M6X12	10	74	Bar	1
37	Big washer 6	10	75	Bolt M8X16	2
38	Door bar	2	76	Gear sheet	1
39	Bolt M6X16	2	77	Blade protect cover	1
40	Water box	1	78	Washer 6	4

Item	Description	Qty	Item	Description	Qty
79	Bolt M6X12	4	118	Flange	1
80	Handle wheel	1	119	Bearing 6206-2Z	2
81	Bolt M6X6	1	120	Block 62	2
82	Elasticity pin 2X14	2	121	Handle	1
83	Gear seat	1	122	Bearing 51201	2
84	Bolt M6X25	2	123	Bolt washer	2
85	Big washer 6	2	124	Elasticity pin 3X24	2
86	Worm	1	125	Lead Screw	1
87	Washer	1	126	Bolt M8X25	2
88	Bolt washer	1	127	Washer 8	2
89	Slanting gear	1	128	Shaft seat	1
90	Shaft bolt	1	129	Up wheel seat	1
91	Handle $\phi$ 80X $\phi$ 10	1	130	Right wash board	1
92	Screw	1	131	Up wheel seat	1
93	Washer	1	131.1	Spring pin 3X24	1
94	Up guard seat	1	132	Left washer board	1
95	Press board	1	133	Elasticity washer 8	4
96	Elasticity pin 4X20	2	134	Bolt M8X25	4
97	Bolt M10X16	3	135	Up wheel	1
98	Big saw wheel	1	136	Up wheel shaft	1
99	Small saw wheel	1	137	Bearing 6304-2Z	2
99.1	Bolt M10X16	2	138	Elasticity washer 16	1
100	Motor seat board	1	139	Nut M16	1
101	Bolt M8X25	4	140	Blade 3450	1
102	Washer 8	4	141	Coolant box Seat	1
103	Adjust seat	1	142	Coolant Box	1
104	Nut M8	2	143	Coolant box Cover	1
105	Bolt M8X50	2	144	Cover	1
106	Bolt M8X20	2			
107	Motor	1			
108	Strap A-1160	2			
109	Big saw wheel	1			
109.1	Bracket	1			
110	Bolt M8X25	4			
111	Key 8X50	2			
112	Bolt M12X30	2			
113	Shaft washer 30	1			
114	Down wheel shaft	1			
115	Block cover	1			
116	Bolt M10X45	4			
117	Adjust bolt	4			





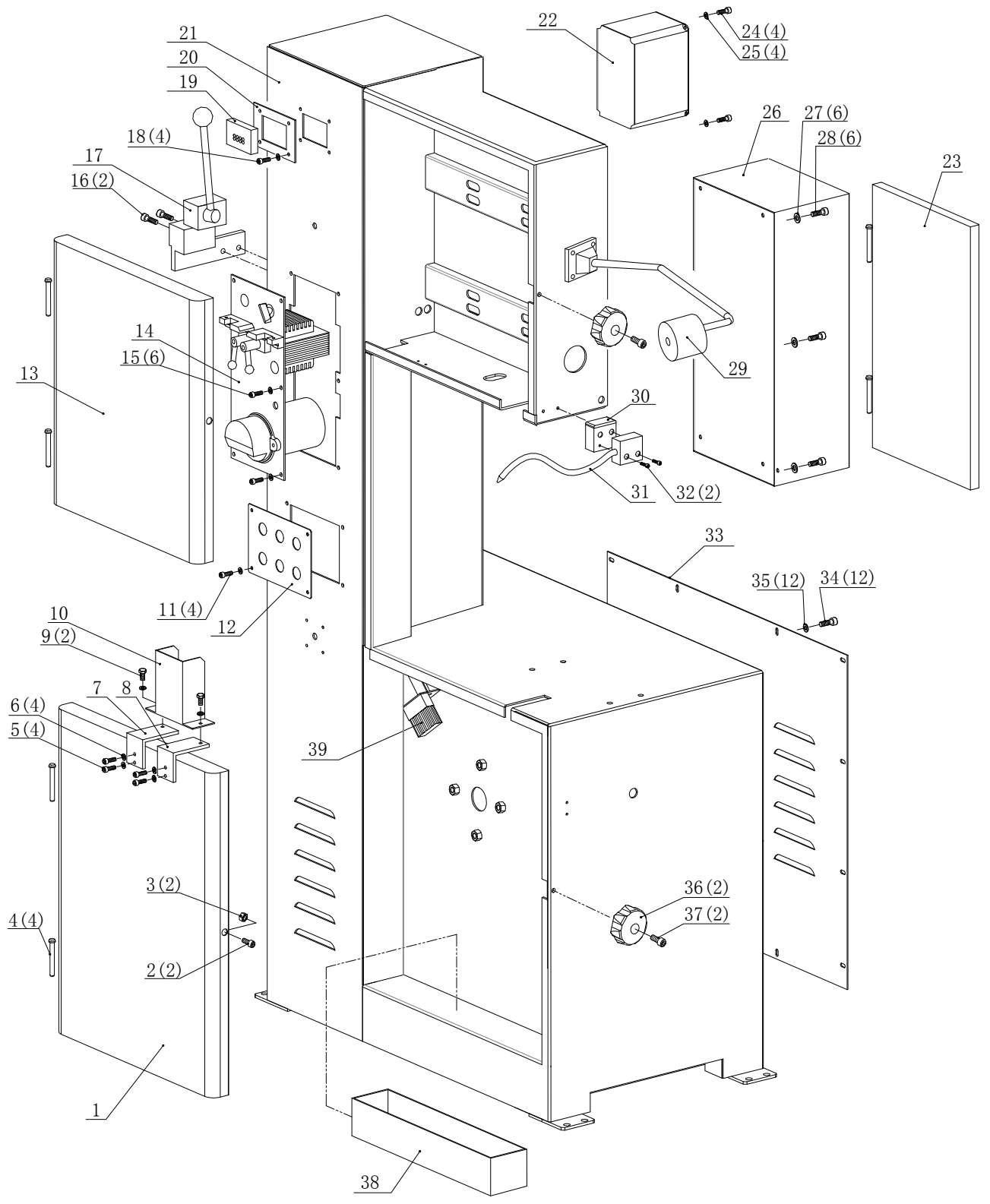


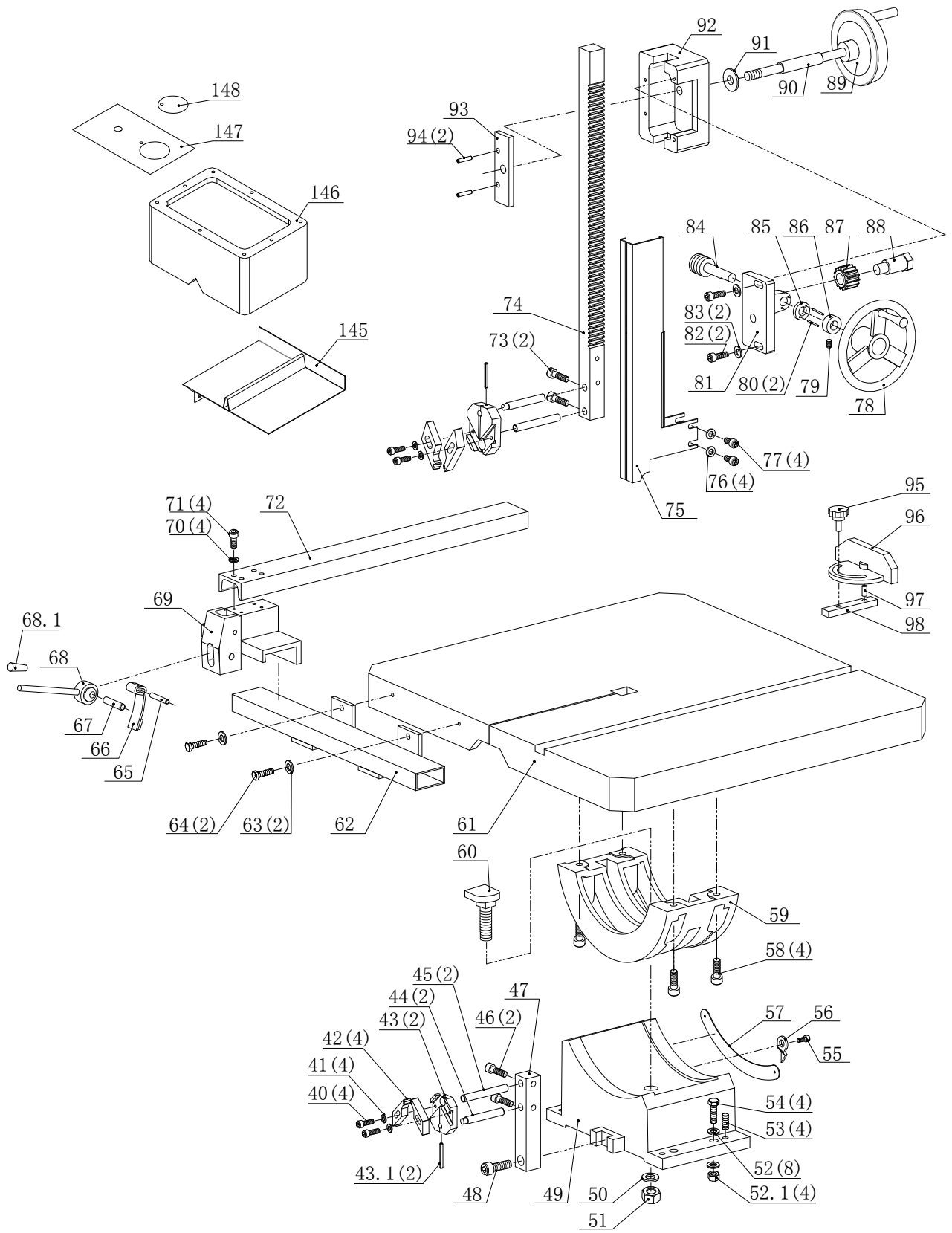


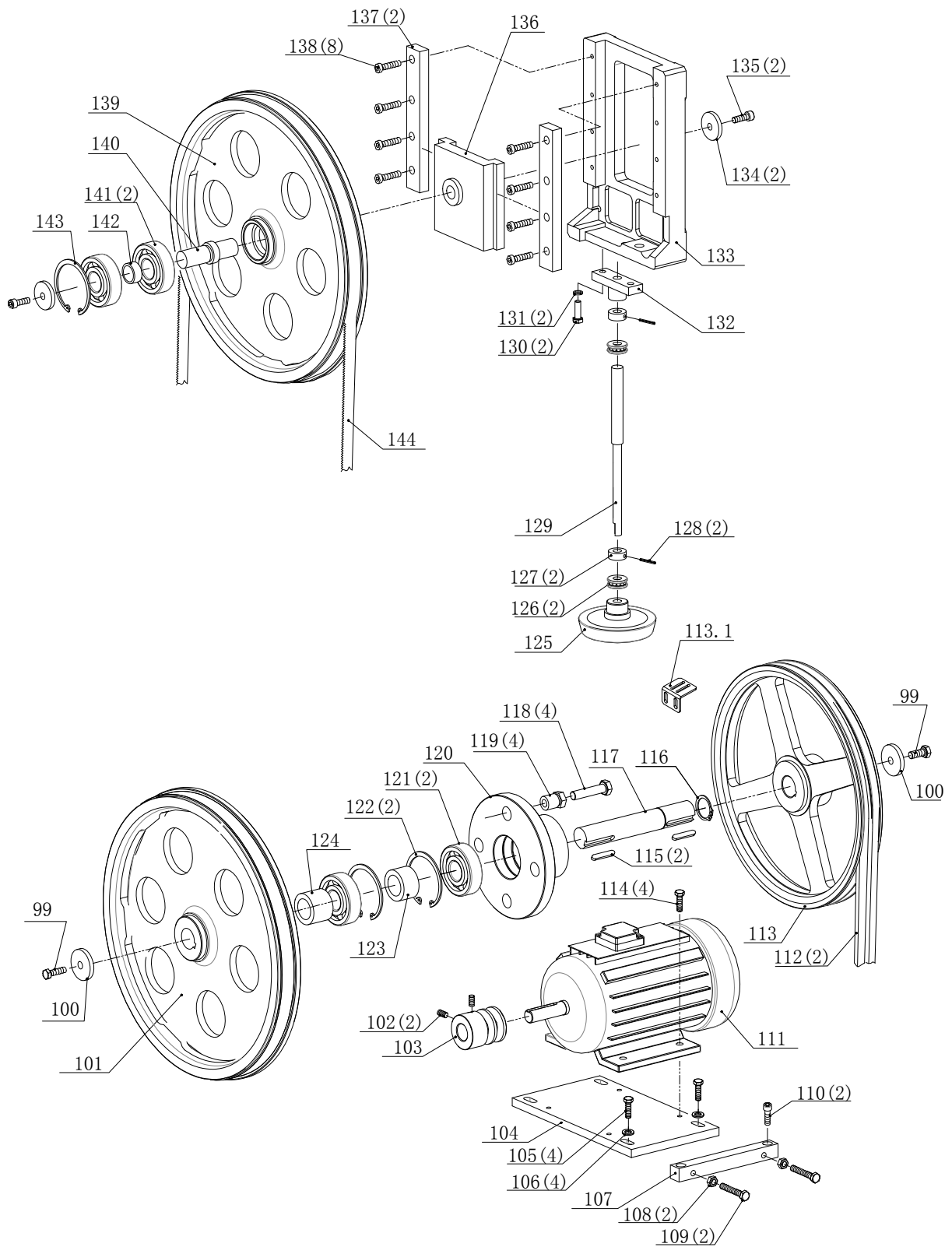
## VS-2012 and VS-2313 packing list and drawing

Item	Description	Qty	Item	Description	Qty
1	Low door	1	38	Water box	1
2	Bolt M6X12	2	39	Wood brush	1
3	Nut M6	2	40	Bolt M5X20	4
4	Pin	4	41	Big washer 5	4
5	Bolt M5X16	4	42	Block	4
6	Washer 5	4	43	Blade block material seat	2
7	Left seat board	1	43.1	Spring pin 3X18	2
8	Right seat board	1	44	Blade stay bar	2
9	Bolt M6X8	2	45	Blade back bar	2
10	Down blade cover	1	46	Bolt M8X16	2
11	Bolt M5X10	4	47	Blade down guard	1
12	Panel	1	48	Bolt M10X40	2
13	Up door	1	49	Down swivel base	1
14	Blade weld	1	50	Washer 16	1
15	Bolt M5X10	6	51	Nut M16	1
16	Bolt M8X16	2	52	Big washer 10	8
17	Blade cutter	1	52.1	Nut M10	4
18	Bolt M5X10	4	53	Bolt M10X16	4
19	Transducer display	1	54	Bolt M10X40	4
20	Small fixed board of Transducer	1	55	Bolt M5X8	1
21	Machine frame	1	56	Finger	1
22	Transducer	1	57	Scale	1
23	Seat board of Transducer	1	58	Bolt M10X30	4
24	Bolt M5X10	4	59	Up swivel base	1
25	Washer 5	4	60	Big head bolts	1
26	Elec. box	1	61	worktable	1
27	Big washer 6	6	62	Gauge	1
28	Bolt M6X12	6	63	Washer 6	2
29	Working light	1	64	Bolt M6X20	2
30	Block	1	65	Pin shaft	1
31	Coolant nebulizer	1	66	Press sheet	1
32	Bolt M4X20	2	67	Pin shaft	1
33	Back cover	1	68	Eccentric hand	1
34	Bolt M6X12	12	68.1	Handle sleeve BM8X32	1
35	Big Washer 6	12	69	Seat	
36	Door Bar	2	70	Washer 6	4
37	Bolt M6X16	2	71	Bolt M6X16	4

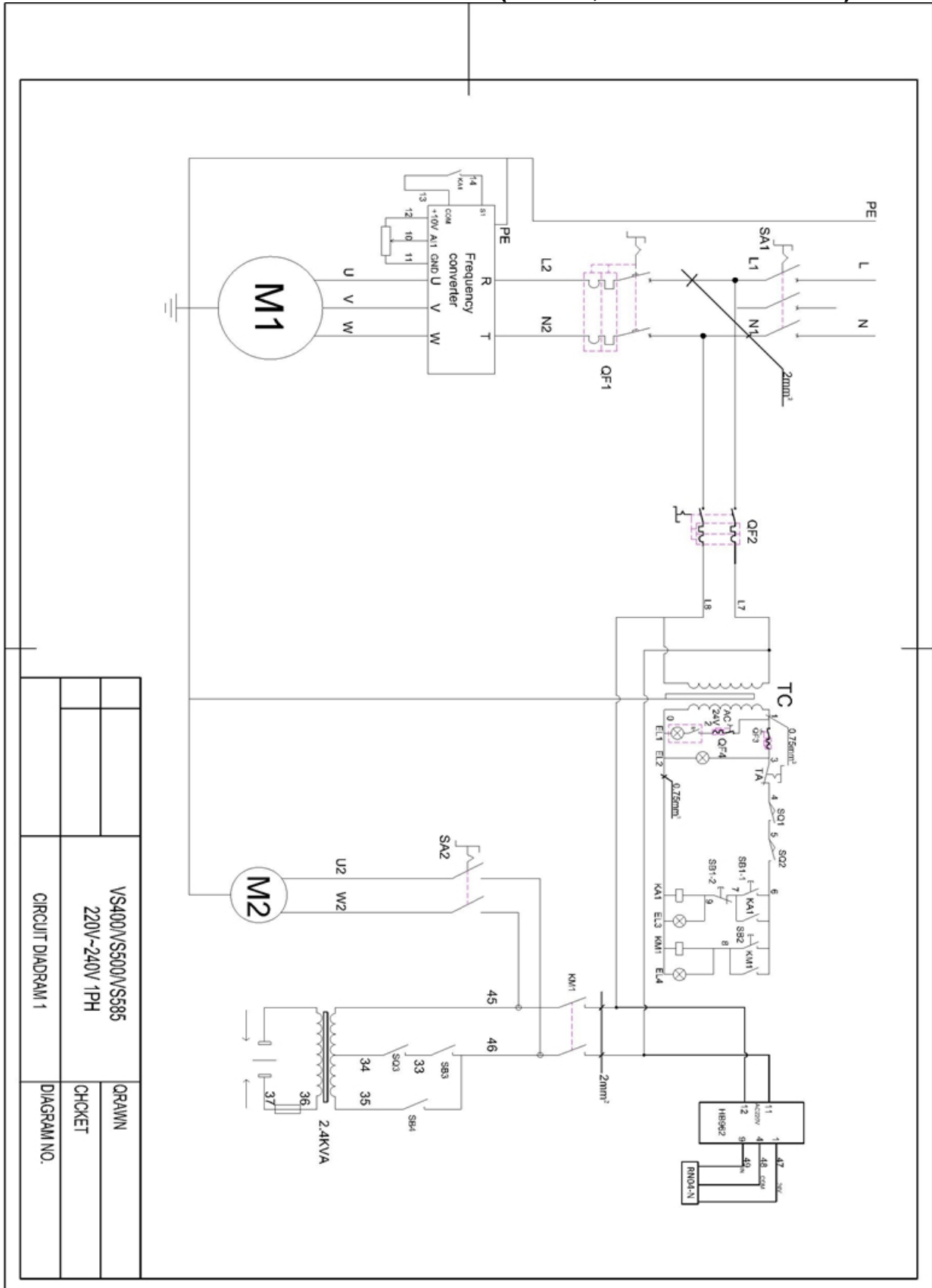
Item	Description	Qty		Item	Description	Qty
72	Gate	1		111	Motor	1
73	Bolt M8X16	2		112	Belt A-1750	2
74	Rack	1		113	Big saw wheel	1
75	Blade protect cover	1		113.1	Bracket	1
76	Washer 6	4		114	Bolt M8X25	4
77	Bolt M6X12	4		115	Flat key 12X50	2
78	Handle wheel	1		116	Checking ring 40	1
79	Bolt M6X6	1		117	Low wheel shaft	1
80	Elasticity pin 3X14	2		118	Bolt M12X55	4
81	Gear seat	1		119	Leveling bolt	4
82	Bolt M6X25	2		120	Flange	1
83	Big washer 6	2		121	Bearing 6208-2Z	2
84	Worm	1		122	Checking ring 80	2
85	Washer	1		123	Spacer bush	1
86	Bolt washer	1		124	Spacer bush	1
87	Slanting gear	1		125	Handle wheel	1
88	Shaft bolt	1		126	Bearing 51202	2
89	Handle	1		127	Spacer sleeve	2
90	Screw	1		128	Spring pin 4X30	2
91	Washer	1		129	Lead screw	1
92	Up guard seat	1		130	Bolt M8X30	2
93	Press board	1		131	Bolt 8	2
94	Elasticity pin 4X20	2		132	Axle seat	1
95	star grip knob $\Phi 10 \times \Phi 40$	1		133	Up wheel seat	1
96	Promote seat	1		134	End cover	2
97	Round pin 8X20	1		135	Bolt M10X20	2
98	Sliding plate	1		136	Sliding seat	1
99	Bolt M12X30	2		137	pressing plate	2
100	Washer	2		138	Bolt M10X25	8
101	The pulley	1		139	Upper belt wheel	1
102	Bolt M8X12	2		140	Up wheel shaft	1
103	Small pulley	1		141	Bearing 6207-2Z	2
104	Motor seat board	1		142	Spacer bush	1
105	Bolt M8X25	4		143	Check ring 72	1
106	Washer 8	4		144	Blade 4050	1
107	Adjusting bar	1		145	Coolant box Seat	1
108	Nut M8	2		146	Coolant Box	1
109	Bolt M8X50	2		147	Coolant box Cover	1
110	Nut M8X20	2		148	Cover	1

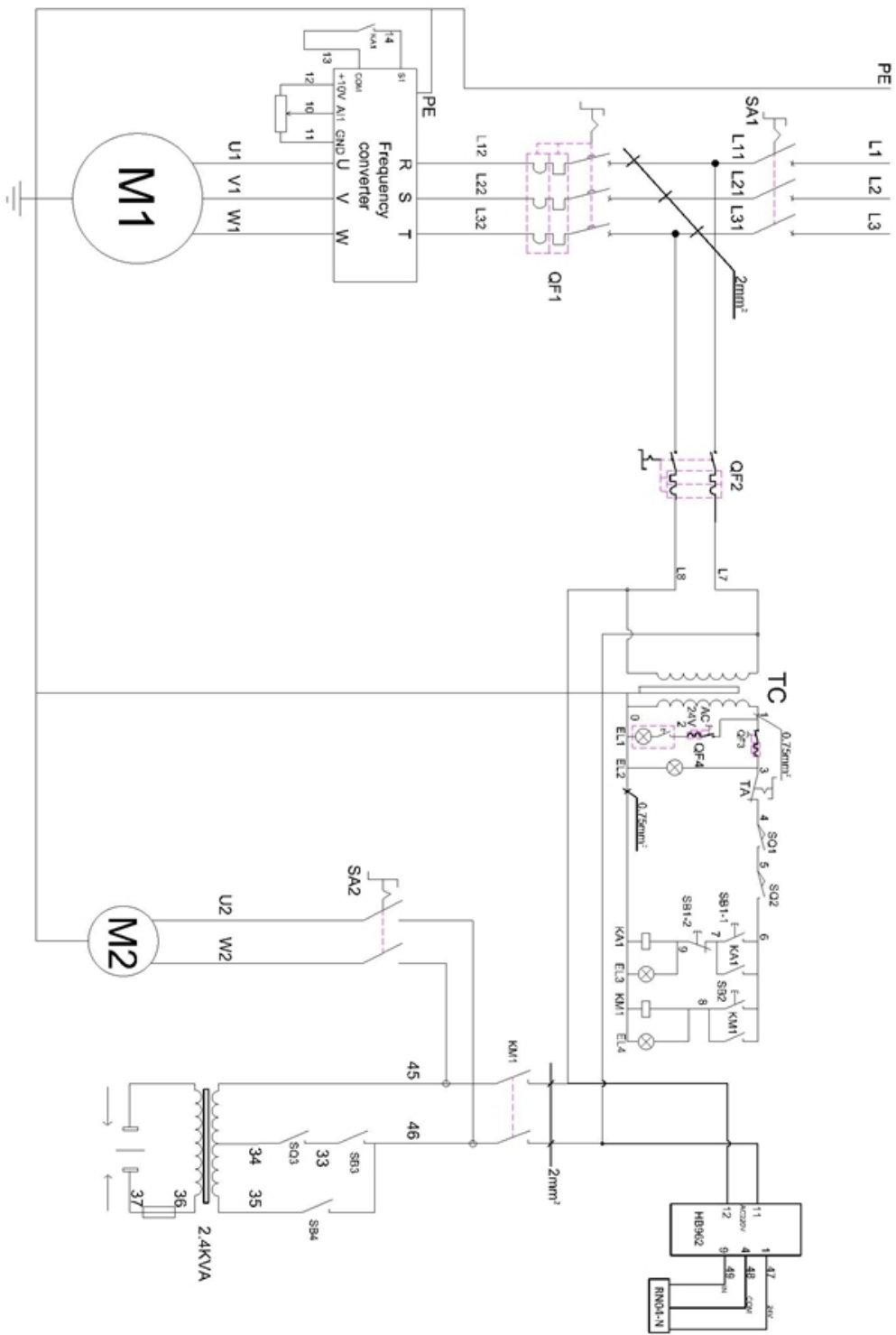




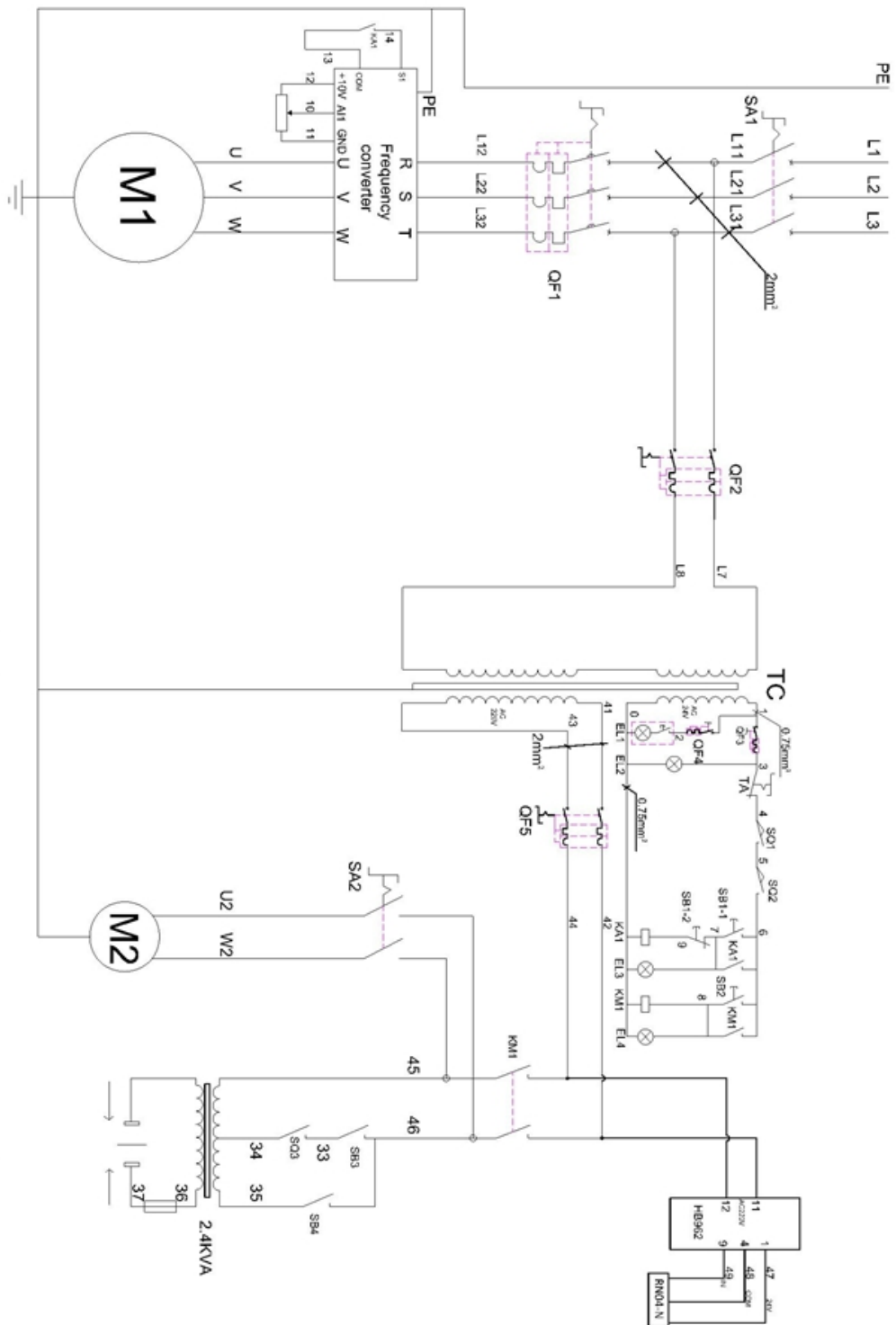


## VIII. ELECTRICAL DRAWING FOR VS-1611,VS-2012 and VS-2313 (VS400, VS500 and VS585)





	VS400VSS500VSS65	GRAWN
	220V~240V 3PH	CHCKET
	CIRCUIT DIADRAM 1	DIAGRAM NO.



VS400VSS500VSS65	GRAWN
380V-420V 3PH	CHCKET
CIRCUIT DIADRAM 1	DIAGRAM NO.



Note: This manual is only for your reference. Owing to continuous improvement of the machines, Changes may be made at any time without obligation on notice.