

*We follow the way that wheel moving!*

# WHEEL BALANCER

## WB-1850



**INSTRUCTION & MAINTENANCE MANUAL**

**\_\_\_\_\_ Wheel Balancing Machine**  
**Instruction Manual**  
**Catalogue**

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# 1. Summary of the balancing machine

## A. Brief introduction of appearance

### Product destination

The wheel balancing machine is designed exclusively for balancing the tires of wheels with maximum dimensions defined in the general section of this manual.

During ordinary maintenance of the apparatus, it is the responsibility of the maintenance operator (who should be suitably trained and professionally qualified) to turn the main switch to OFF, ensuring that it cannot be accidentally switched on, unplugging the connection to the power supply if necessary.

This machine should only be used for the purpose for which it was designed. Any other use is to be considered improper and unreasonable.

The manufacturer may not be considered responsible for any damage caused by improper, incorrect and unreasonable use.

### Training and information for the machine operators

The machine should only be used by specially trained and authorized personnel.

The training and informing of the operating staff should be done so as to enable them to operate the machine as described in the instructions provided by the manufacturer, so that the machine performs in the best possible way and the operations are carried out efficiently and safely.

For any doubts relating to the use, installation and maintenance of the machine, please refer to the instructions manual or if necessary contact the authorized service centres or the technical services office .

## B. Performance and characteristic

- This machine adopts imported large-scale integrated circuit to make up the microcomputer system with high intelligence and high stability. This machine is equipped with the counterweight optimization procedure.
- Main shaft of balancing adopts imported bearing for transmission, it is processed accurately. It is wear-resisting and low noise.
- The most advanced motor driving system in 21<sup>st</sup> century in the world with extremely high stability.
- Test function of full-automatic dynamic balance and static balance.
- Functions to balance three kinds of aluminium alloy wheel rim.
- Balance precision is up to  $\pm 1g$ , balance takes at least 8 seconds each time.
- Functions of self correction and full automatic diagnosis.
- With pneumatical lifting device and international standard jig.
- With pedal positioning brake, stable positioning and convenient counterweight.

### C. Technical data table

<b>Scope of application</b>	Garage, transportation company , Department motorcade, The professional service station of tyre
Width of steel rim	1.5"~20" (38.1~508mm)
Diameter of steel rim	13"~24"(330.2~609.6mm)
Maximum diameter of wheel	51.18"(1300mm)
Maximum weight of wheel	150kg
Measurement time	8 seconds each time

## 2. Use of balancing machine

### A. Attention before using

※Carrying the balance machine can only lift the machine chassis , can't lift the main shaft in any case.

※Balancing machine and Pneumatical lifting device must place at steady ground (can be fixed with expansion screw ) and guarantee enough space all around or it will cause the balance error if the machine is unstable.

※Outer power must have protective devices to prevent electricity leak, the machine case must be grounded (earth connection is in rear of the machine).

※Balancing machine can't be placed in a moist environment , otherwise machine will be damaged.

※While installing the lead screw on the shaft , clean the main shaft and lead screw level with alcohol or petrol first , then connect the lead screw to the main shaft and fasten by spanner

※While balancing medium and small sized tire , choose suitable cone. Then lock the tyre with cone and nut (inside of the tyre is close to the machine case)

※While balancing the large sized tyre , first fasten clean matching device on the main shaft, then clamp the tyre on the main shaft with cone which is suitable for the tyre centre bore and balance tyre.

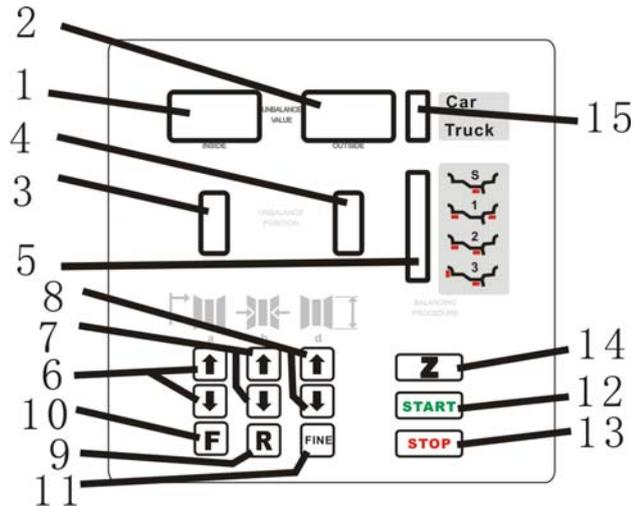
※While installing the large sized tire, pneumatical lifting device can be used to assist installation.

※The external air source connected to pneumatical lifting device must guarantee to be about 0.8 MPa (moves the pneumatic switch to lift or drop).

(For unidentified name, please see brief introduction of appearance and accessories accompanying machines.)

## Introduction of panel:

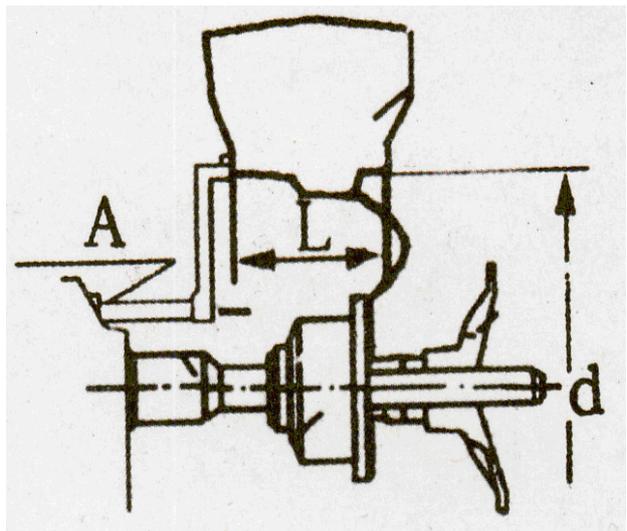
- (1) indication window for imbalance data of the inside of the tire
- (2) indication window for imbalance data of the outside of the tire
- (3) lamp for inside of the tire
- (4) lamp for outside of the tire
- (5) balancing mode
- (6) input key for distance between wheel and balancing machine
- (7) input key for width of wheel steel
- (8) input key for diameter of wheel steel
- (9) key for restoration and adjustment
- (10) option key for balance mode
- (11) key for highly accurate balance
- (12) start key
- (13) key for emergency stop
- (14) car tire or truck tire choice
- (15) indication for the type of the tire



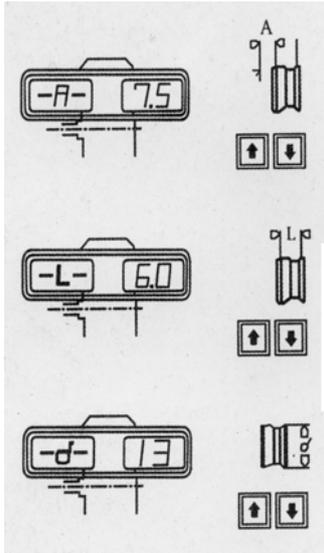
## B. Putting through the power and number input

### B1. Putting through the power

Switching on power, the machine display board shows that it marks "001", in the computer memory; it shows A-8.0 several seconds later which indicates that machine operation is normal. Then input set wheel size, see following instruction about input method (note that balancing machine computer automatically sets up dynamic balance each time when turning on computer)



## B2. Size input



★For example testing luxurious wheel rim of Santana, please see picture on last page, use ruler that this machine has to measure distance between the machine and tyre:  
A=7.5cm

Press ↑, number increases  
Press ↓, number decreases

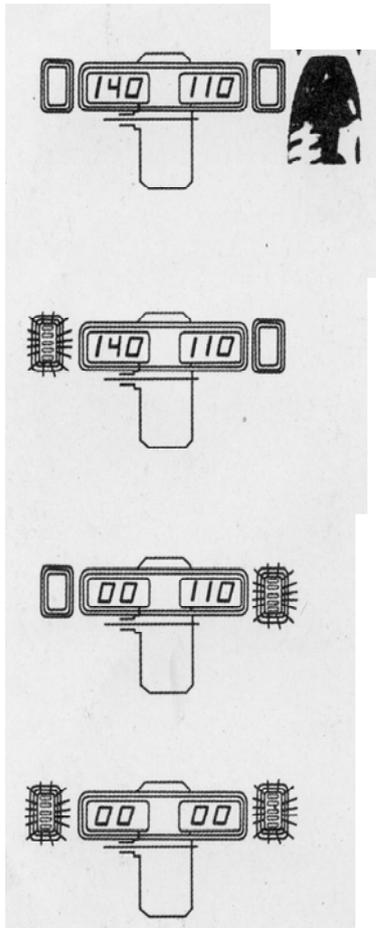
★Use calliper to measure tyre width, see picture L=6 inch

Press ↑, number increases  
Press ↓, number decreases

This size needn't to be measured, see tyre model "185/70 R13" d=13 inch

Press ↑, number increases  
Press ↓, number decreases

## C. Some examples about balancing



☆Press Start key, 8 seconds later, automatic brake shows as pictures:

Note: The data in the picture is only for your reference.

140 is error value inside tyre

110 is error value outside tyre

☆Rotate wheel by hand to make inside indicator lamp lightening totally and then clip 140g counterbalance onto the rim on the 12 o'clock position (you can lock the tire through the pedal).

☆Press Start key, after the tire stops itself, the indicate window will show "00" on the left side (see picture), then rotate wheel by hand to make outside lamp lightening totally and then clip 110g counterbalance onto the rim on the 12 o'clock position, then press Start key, the indicate window will show "00"- "00" both sides after the tire stops (see picture). This means the tire is finished balancing.

## **D. Precautions in the process of use and balancing experiences**

Attention: • When power starts, push the wheel by hands to assist starting which will extend motor's life. Due to balance angle error, please find out by yourself when this machine rotates wheel to find balance point, pay attention which direction is much more accurate when wheel turns inward or outward.

- As the balance is over, unload the tyre, pay attention to handling with care , don't strike the main shaft.

- While assisting braking , by the time when the window has data to show , then you can step on the pedal brake at the lower right corner of the machine , otherwise diminish the life-span of the machine.

### **balancing experiences:**

As indicated data is less than 50g,you can clip the counterbalance at the same time onto both sides,please note the position to clip on the counterbalance is 12 o'clock where the lamp lightening totally.

When data is more than 50g , we suggest to balance one side after another, please see the above procedure "C".

If you choose the truck tire balancing mode,the minimum data be showed is 50g,that means if there have imbalance less than 50g on both sides of the tire,the window will show 00-00,you should press FINE to see the true data.

If you choose the car tire balancing mode,the minimum data be showed is 5g.

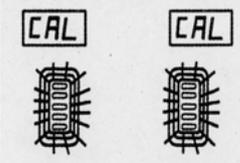
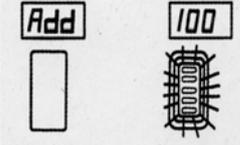
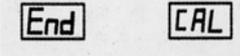
**Comments:** This experience is only for reference. Hope user can grasp machine performance skillfully for better use.

### 3. Self-calibration

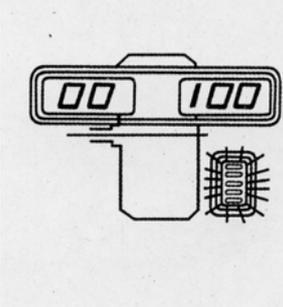
Self calibration has been finished in the factory. If you use for a period of time or change part inside or the result of the balance is not correct, you can self correct it again.( Choose one medium-size tyre to install on main shaft , 13 or14 inches are perfect).

Input correct datas of this tyre A, L , D.

**Attention:** Fail to input the correct size will lead to the machine works wrong.

	<p>◎ Press R key, at the same time press START key in half a second ,the window shows “CAL”-“CAL”, lamps are all lightning. Only after lamps go out can you move your finger away.</p>
	<p>◎ Press START key, after the tire stops, the window shows “ADD”-“100”, please clip 100g counterbalance onto the outside of the tire on the position of 12 o'clock when the lamps lightning totally(see picture).</p>
	<p>◎ Press START key, after the tire stops, the window shows END-CAL, that means the self correction is over.</p>




◎ Don't move away the counterbalance from the tire.Press START key, after the tire stops, if it shows “00”-“100”, that means the self-calibration is successful.

◎ Well-balanced tire will show “00”-“100” ( $\pm 4g$ ) after self calibration. 100g counterbalance is rightly under main shaft when outside lamps are all on (  $4^\circ$  error is allowed), this proves phase angle is correct.

Lamps are all on when 100g counterbalance is rightly under main shaft.

Two key elements to judge if self calibration is accurate or not

1. Accurate data indication
2. Show that phase is right (namely outside lamps are all lightening and 100g counterbalance is rightly under shaft).

Problems that occur after self calibration:

◎ Data indicated is ok, but phase is inaccurate, deviation is very great.  
Trouble: do not reduce after finishing clipping the counterbalance, usually the store device is damaged . Change it.

◎ Showing ERR (this machine screen shows Err. -8-)

A .Problems with computer board.

B .The circuit of sensor is broken.

◎ Data indicated has a big deviation, namely within 10g(not affect using ).

A. Generally use counterbalance of 100g inaccurately.

B. The edge outside wheel is irregular and under bad condition, you can take off the counterbalance from the rim and clip it again on the opposite side and make comparison through drawing 2 times average.

◎ Self calibration can't be done because of different practices, fingers can slightly give a push. Time difference between two fingers is half a second.

◎ Data indicated deviates a lot , generally because the computer board be damaged or the sensor is broken.

#### **4. Diagnosis of automatic trouble**

Err 1 Motor or the computer board has problems and change it or maybe the power plug is not connected well.

Err 2 The tire is not installed well or the belt is not in its best condition,please check the tire or whether the belt is too loose or tight.

Err 3 Imbalance of wheel is too big, change it for a trial.

Err 4 Power system has problems, direction of rotation of the motor is not right. Please check inside the motor whether the wires are connected right or not.

Err 5 Make sure that the safe guard is put off when you press START key.

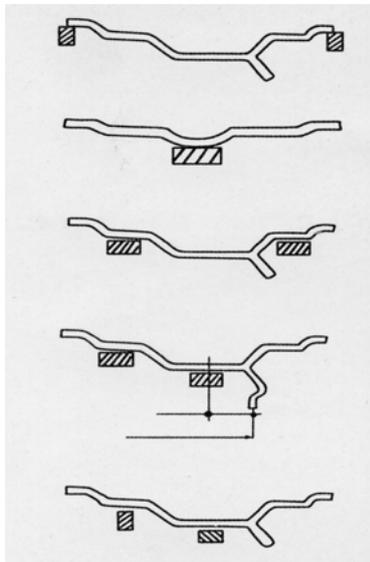
Err 7 There is wrong with the self-calibration or the result of the self-calibration is lost,please try the self calibration again.

Err 8 The self-calibration is not right or computer board is broken or sensor is damaged.

Note:When you change the computer board,please reset the data of the computer by the data inside the cabinet which is offered by the manufactory.

## 5. Options for mode of balancing

According to wheel material and rim structure , choose the following balance mode to press F key in succession and can show the balance mode that rim needs for different structure and material .



Dynamic balance: Normal- The light-alloy wheel rim of dynamic balance adopts a method of adding counterbalance at the edge of rim.

Dynamic balance: Normal-Dynamic and static balances revision is adopted when counterbalance can't be clipped on motorcycle or both sides of rim.

ALU1- Balance the light-alloy rim, adopt a way of adhering counterbalance on the two shoulders in the rim.

ALU2- Balance the light-alloy rim, adopt a way of glueing counterbalance hidden inside.

ALU3- Inner circle clips balance lump, outside adhere to counterbalance ( counterbalance position outside is as ALU2).

Attention: Every time when switching on, computer automatically sets a state of dynamic balance. Key F needn't to be pressed.

## 6. Accessories accompanying machines

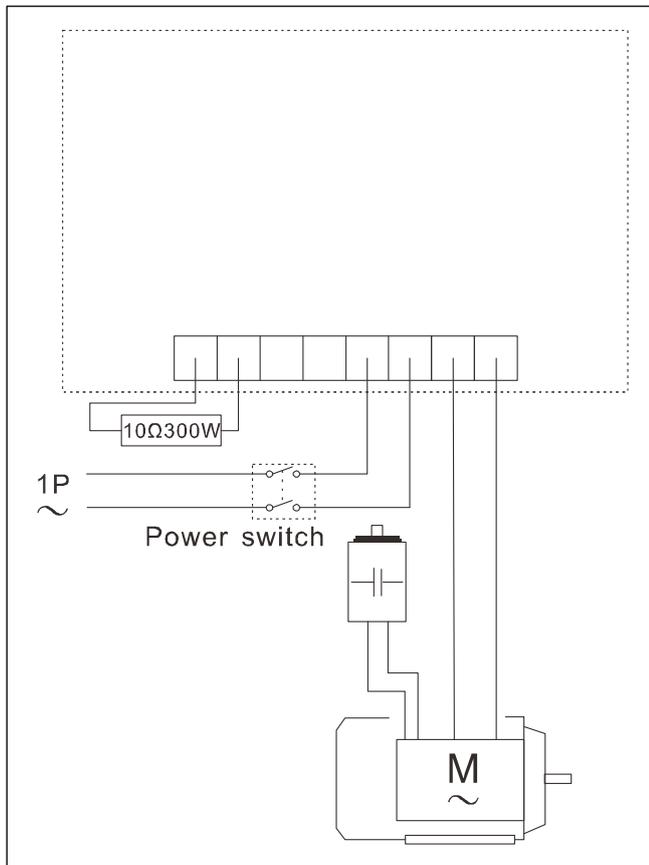
A set of balancing machine and name of all accessories

1. one lead screw connecting with main shaft	6.three cones,(scope is 45mm-190mm)
2.one plastic calliper	7.one nut
3.two bags of lead lump	8.one center wheel with bolt
4.one balance pincers	9.Matching machine outside shaft
5.Catalog, card of warranty, certificate of conformity in one copy.	

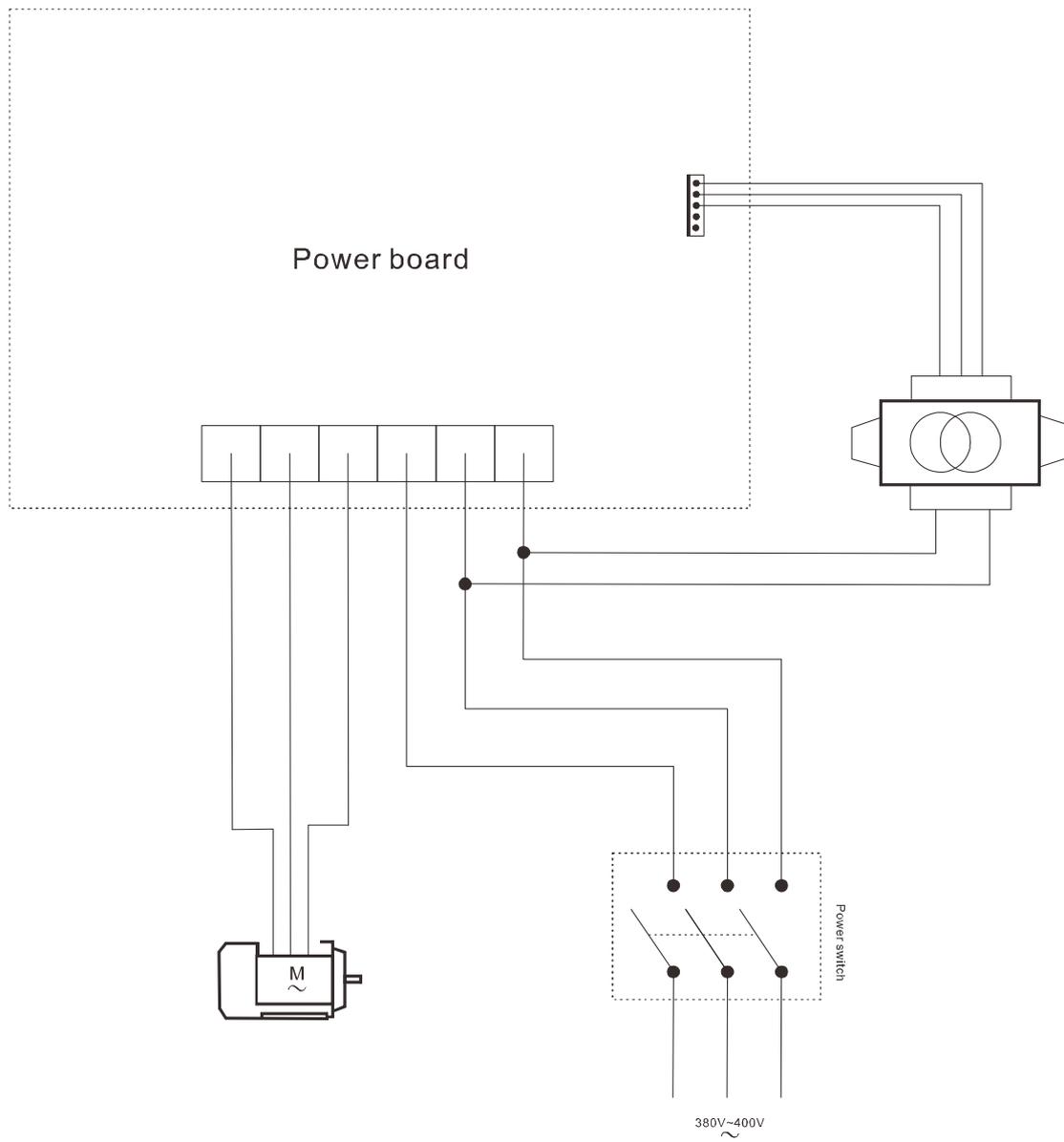
Diameter of center holes × bolt holes(  $\phi 214 \times 8$        $\phi 221 \times 8$   
 $\phi 221 \times 10$        $\phi 281 \times 10$  )

## 7. Power supply layout diagram

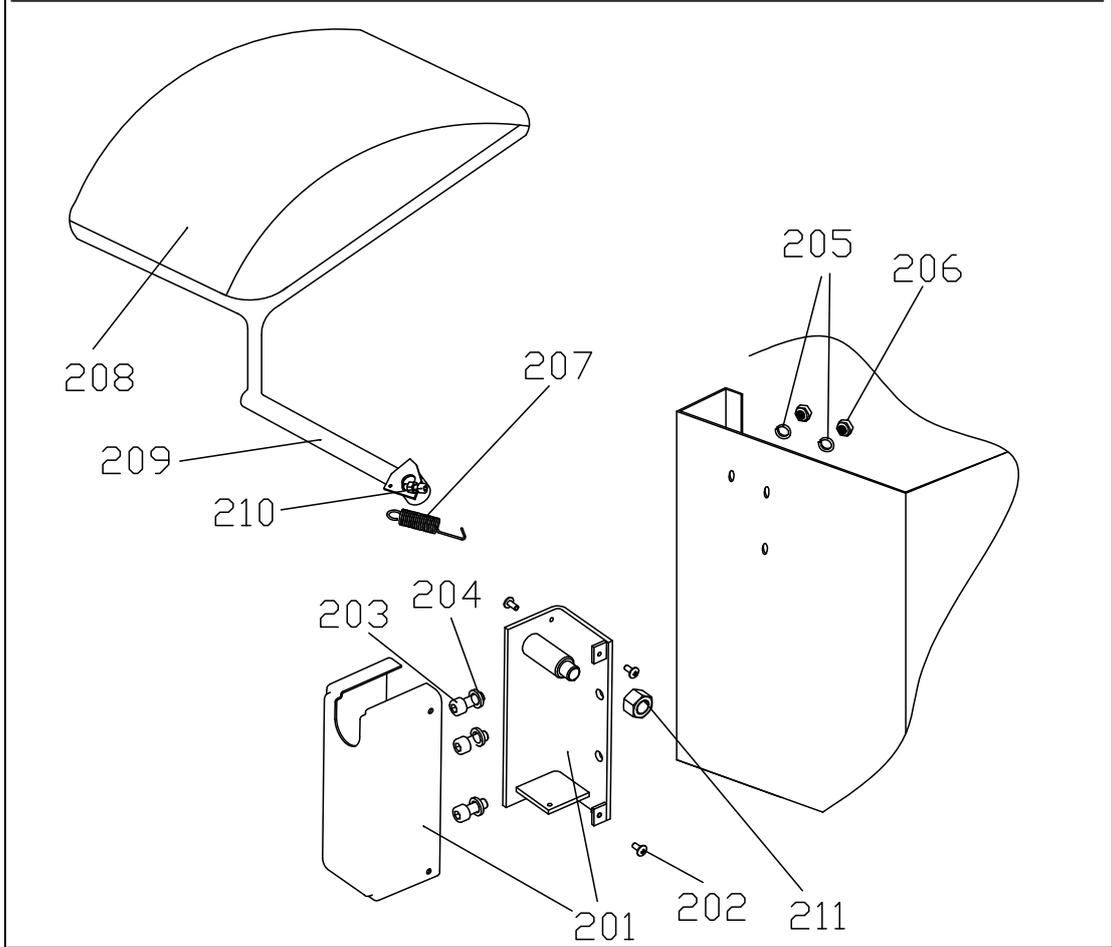
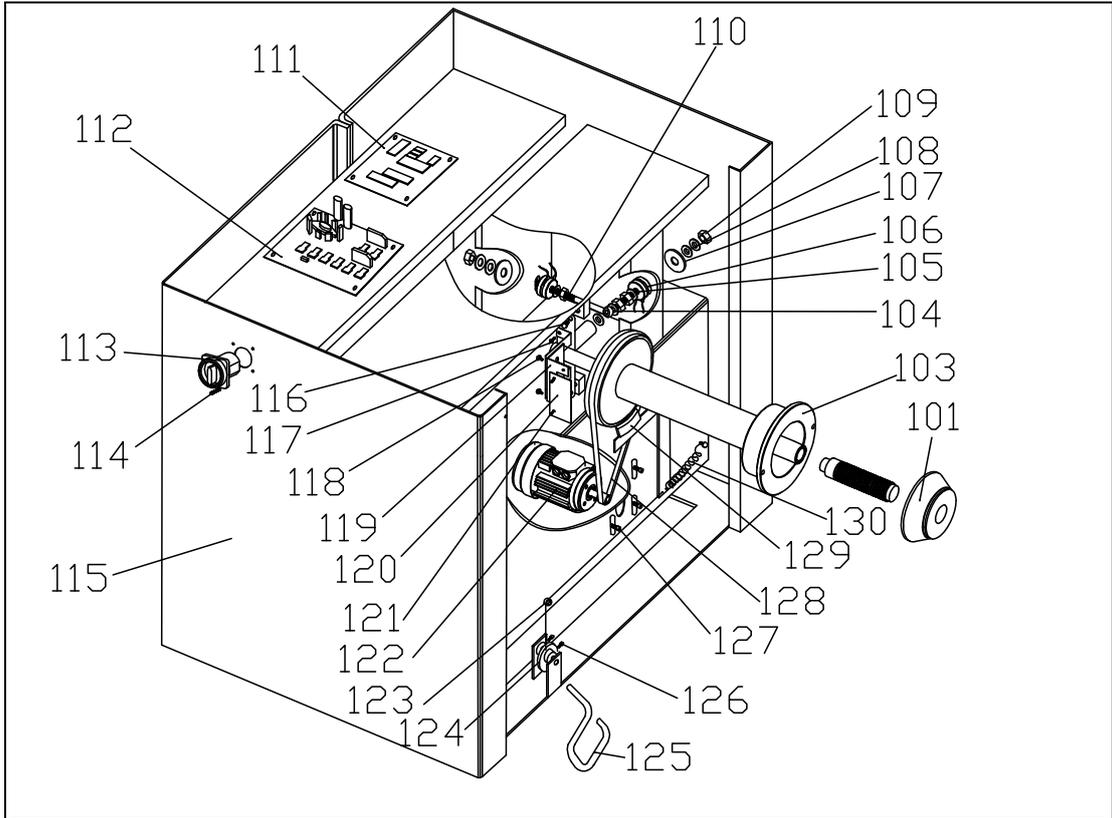
### A. 220 V Connection

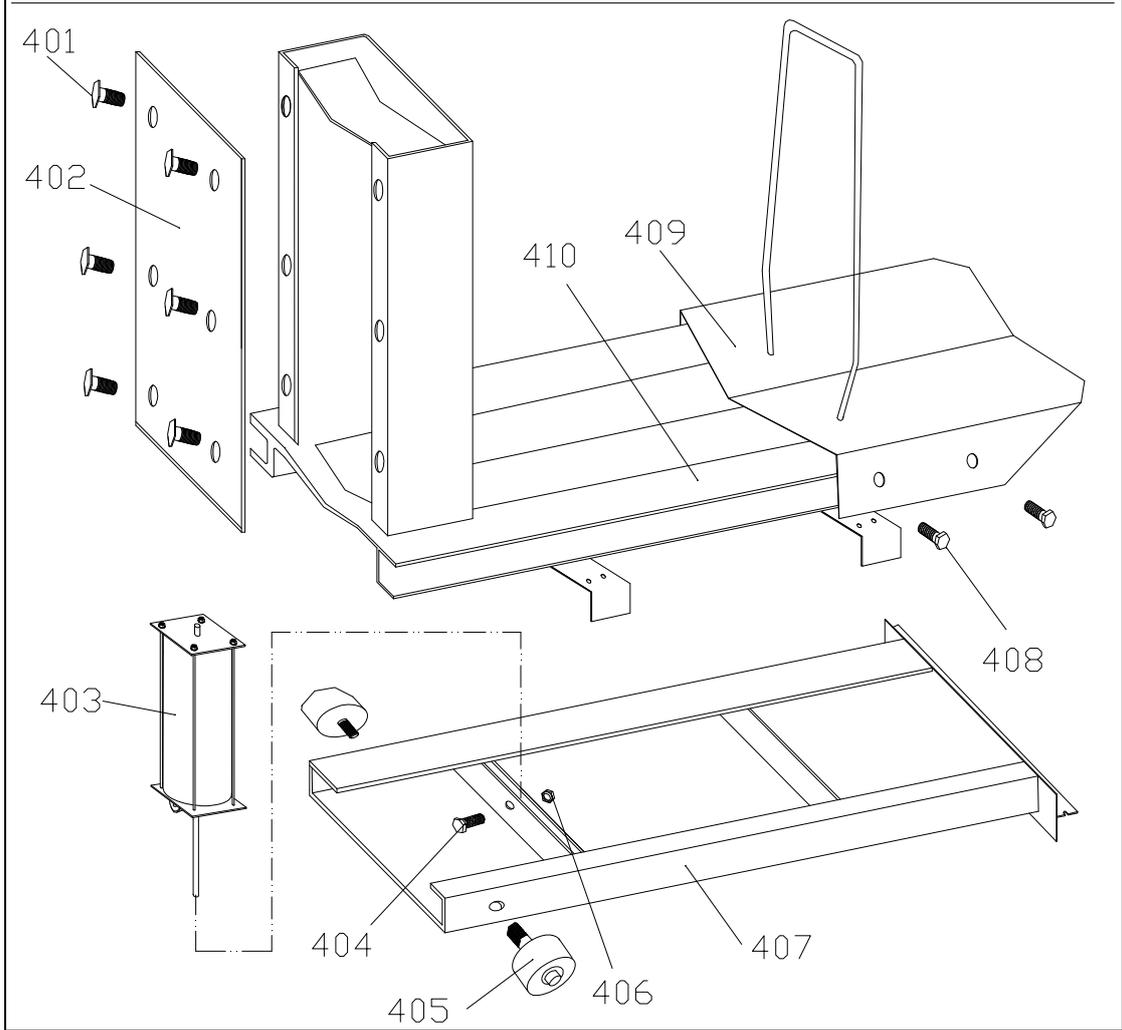
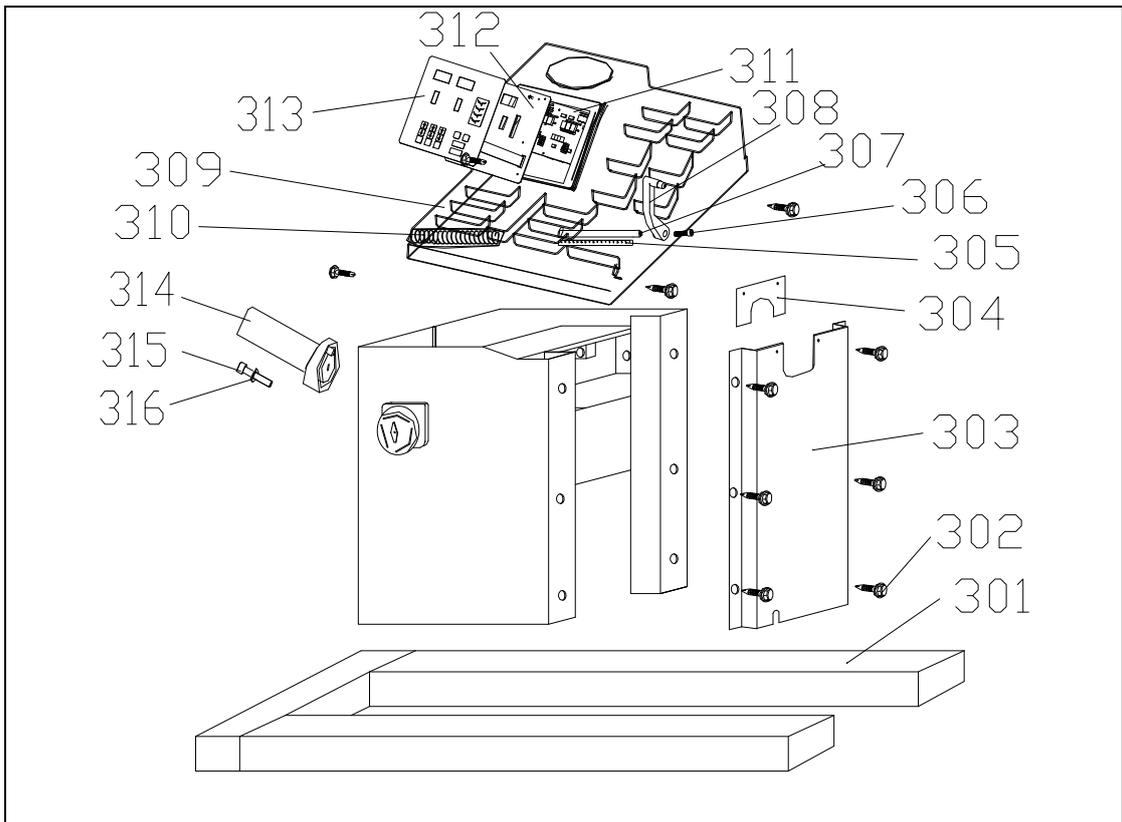


## B. 380 V Connection



# 8. EXPLODED DRAWINGS





## 9. SPARE PARTS LIST

NO.	Code	Description	Qty	NO.	Code	Description	Q
101	S-100-085000-0	Set of cones	4	206	B-004-080001-0	Nut	8
103	S-100-000020-0	Bearing	1	207	P-850-330000-0	Spring	1
104	B-040-123030-1	Washer	4	208	P-850-200000-0	Plastic cover	1
105	P-850-080000-0	Through bolt (H)	1	209	PX-850-200200-0	Support	1
106	S-131-000020-0	Sensor assembly	2	210	B-010-100551-0	Screw	1
107	B-040-124030-1	Washer	2	211	B-004-200001-0	Nut	1
108	B-048-122830-1	Butterfly washer	4				
109	B-004-120001-2	Nut	5	301	PX-850-010000-1	Pedestal	1
110	P-850-070000-0	Through bolt (V)	1	302	B-010-060161-0	Screw	1
111	PZ-000-010850-0	Computer board	1	303	PX-850-014000-0	Big plate	1
112	PZ-000-020850-0	Power board	1	304	PX-850-110000-0	Small plate	1
113	S-060-000200-0	Switch	1	305	Y-004-000070-0	Graduated strip	1
114	B-024-040301-0	Screw	4	306	B-010-060161-0	Screw	1
115	PX-850-010000-0	Body	1	307	PZ-100-090000-0	Rim gauge	1
116	B-014-100251-0	Screw	5	308	P-100-160000-0	Handle bar	1
117	B-024-040101-0	Screw	2	309	P-850-190000-0	Head with tools-tray	1
118	B-024-040081-0	Screw	2	310	P-100-210000-0	Spring	1
119	P-850-220000-0	Support	1	311	PZ-000-010850-0	Display board	1
120	PZ-000-040100-0	Position Pick-up Board	1	312	PX-850-100000-0	Display fixed plate	1
121	B-024-030081-0	Screw	2	313	S-115-008500-0	Key board	1
122	S-051-220050-0	Motor	1	314	P-000-001001-0	Tools hang	1
123	P-120-260000-0	Idler pulley	1	315	B-024-050251-0	Screw	3
124	PZ-850-020800-0	Rotate pulley	1	316	B-040-050000-1	Washer	3
125	PX-850-020400-0	pedal	1				
126	B-010-060161-0	Screw	2	501	B-014-080151-0	Screw	6
127	B-010-060201-0	Screw	4	502	PX-850-500100-0	Cover board	1
128	S-042-000370-0	Belt	1	503	PW-150-085000-0	Cylinder casing	1
129	P-000-002001-0	Brake patch	1	504	B-014-100351-0	Screw	1
130	C-200-380000-0	Spring	1	505	PZ-850-500500-0	Pulley	2
				506	B-004-100001-0	Nut	1
201	P-850-030000-0	Cover	1	507	PX-850-500700-0	Lift pedestal	1
202	B-017-040121-0	Screw	4	508	B-014-100301-0	Screw	4
203	B-014-080151-0	Screw	4	509	PX-850-500900-0	Move board	1
204	B-040-081715-1	Washer	4	510	PX-850-501000-0	Lift desk	1
205	B-014-080251-0	Washer	2				