CATALOGUE

V2012.9

1. Introduction

An imbalanced wheel will make the wheel jump and steering wheel wobble while driving. It can baffle the driver to drive, aggrandize the cleft of combine area of steering system, damage the vibration damper and steering parts, and increase the probability of the traffic accidents. A balanced wheel will avoid all these problems.

This equipment adopts the new LSI (Large Scale Integrated circuit) to constitute the hardware system that acquires, processes and calculates information at a high speed. It has various key software of the dynamic balancer automatically, adopts high-definition 15″ LCD, flexible indicator operating function, and has the self-owned intellectual property right.

Read the manual carefully before operating the equipment to ensure normal and safe operation. Dismantling or replacing the parts of equipment should be avoided. When it needs repairing, please contact with technique service department. Before balancing, ensure the wheel fixed on the flange tightly. Operator should wear close-fitting smock to prevent from hanging up. Non-operator does not start the equipment.

No use while beyond the stated function range of manual.

1). Specification and Features

1.1) Specification:

- Max wheel weight: 65kg
- Motor power: 200W
- Power supply: 220V/50Hz
- Balancing precision: ±1g
- Rotating speed: 200r/min
- Position precision: 2.81°
- Cycle time: 8s
- Rim diameter: 10″~24″(256mm～610mm)
- Rim width: 1.5″~20″(40mm～510mm)
- Noise: ＜70dB
- Net weight:
- Dimensions:

1.2) Features:

- Adopt high-definition 15″ LCD, it displays various balancing modes and has flexible indicator operating function.
- Various balancing modes can carry out unbalance block to stick, clamp, or hidden stick etc.
- Input data of rim automatically by measure scale.
- Intelligent self-calibrating and measure scale self-labeling function.
- Self fault diagnosis and protection function.
- Applicable for various rims of steel structure and duralumin structure.

1.3) Working Environment

- Temperature: 5~50℃
- Height above sea level: ≤4000m
- Humidity: ≤85%

2). The Constitution of Dynamic Balancer

Two major components of the dynamic balancer are: machine and electricity:

2.1) Machine:

The part of machine consists of support, swing support and main shaft; they are together fixed on the frame.

2.2) Main parts of electricity: (refer to figure 1-1)

a).The microcomputer system is made up of the LSI such as new high speed ARM CPU system, LCD and keyboard.

b). Automatic measure scale.

c). Testing speed and positioning system consists of gear and opto-electronic coupler.

d). Two-phase asynchronous motor supplies and controling circuit.

e). Horizontal and vertical pressure sensor.

f). Hood protection.

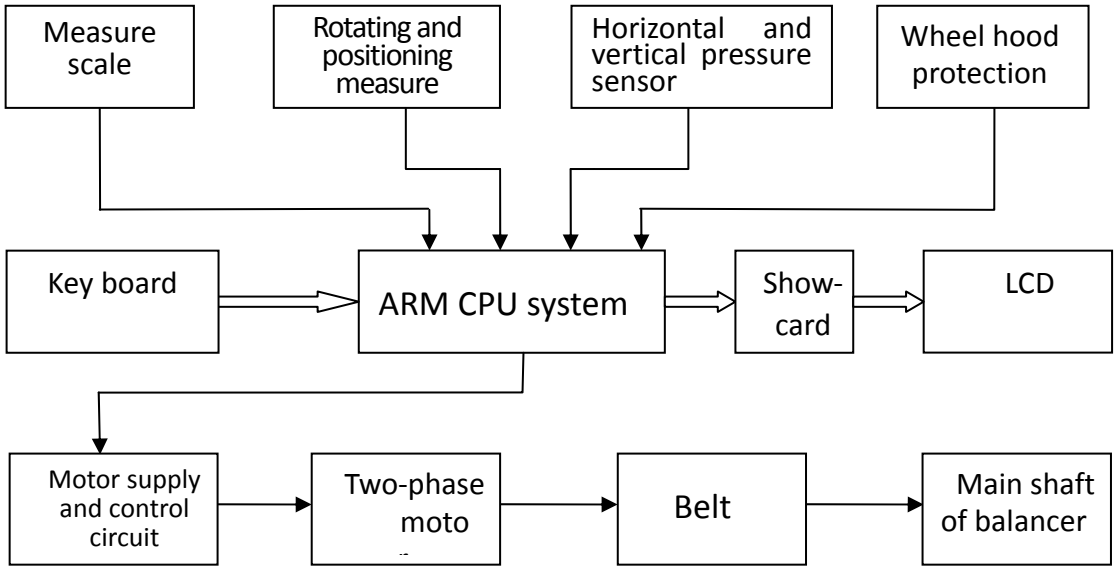


Figure 1-1

2.3)Schematic diagram of electricity part (refer to attached figure 1)

2. Installation of Dynamic Balancer

1).Opening and Checking

Open the package and check whether there are damaged parts. If there are some problems, please do not use the equipment and contact with the supplier.

Standard accessories with equipment are shown as follow:

Screw stud of drive shaft	1
Balancing pliers	1
Allen wrench	1
Measure caliper	1
Locking nut	1
Adapter (cone)	4
Counterweight (100g)	1
LCD support	1
Protection hood (optional)	1

2).Installing machine

2.1) The balancer must be installed on the solid cement or similar ground, unsolidified ground can bring measuring errors.

2.2) There should be 50cm around the balancer in order to operate conveniently.

2.3) Nail anchor bolts on the base's mounting hole of balancer to fix the balancer.

3).Installing hood

Install the frame of hood on the equipment (optional): plug the pipe of protection hood into the hood shift (behind the cabinet), then fix with M10×65 screws.

4).Installing screw stud of drive shaft

Install screw stud of drive shaft on the main shaft with M10 × 150 socket bolt, then screw down the bolt. (Refer to figure 2-1)

(**Notice:** a wheel can be installed on the main shaft before screwing down, then hold the wheel by hands in order to prevent the main shaft revolving together with the bolt.)

Figure 2-1

5).Installing LCD

Install the LCD on the support with 4 M5 longer screws, and then fix LCD support onto the cover of the cabinet with 2 M5 screws; connect signal line of the LCD with the VGA interface of the cabinet and screw down. Plug power output port (12V) into the LCD.

6).Installing the Wheel

Clean the wheel clear, and no soil left, and demount the added Lead weights on the wheel, and then check whether the air pressure in the tire are conform to the stated value, and check whether the locating surface of the rim and the mounting hole are aeroelastic.

Main shaft - Wheel (installing face of rim forward inside)- Cone (tip pointing to inside) - fast clamp

Main shaft-- spring(it has been already installed when the unit is manufactured), cone(tip point to outside)-- wheel--fast clamp

Notice: do not slip wheel on main shaft to prevent main shaft from scuffing while installating and demounting the wheel.

3. The meaning of the icons on the screen

Model select bar, press the number buttons to select model.

Model one: icon(M1), when it has a yellow frame, it means the system is under the balance model of M1, and the choose of the compensating side is shown as the icon, and we can clamp the

unbalance block at the compensating side on two sides of the rim.

Model two: icon(M2), the system is under the balance model of M2, and the choose of the compensating side is shown as the icon, and we can stick the unbalance block on the two compensating sides by the inner side of the rim's spoke.

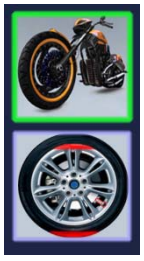
Model three: icon(M3), the system is under the balance model of M3, and the choose of the compensating side is shown as the icon, and we can stick the unbalance block on the two compensating sides by both inner and outer side of the rim's spoke.

Model four: icon(M4), the system is under the balance model of M4, and the choose of the compensating side is shown as the icon, and we can clamp the unbalance block at the side of the compensating side by the inner side of the rim, stick the unbalance block on the compensating side by the outer side of the rim.

Model five: icon(M5), the system is under the balance model of M5, and the choose of the compensating side is shown as the icon, and we can clamp the unbalance block at the side of the compensating side by the inner side of the rim, and stick it to the compensating side by the outer side of the spoke.

Model six: icon(M6), the system is under the balance model of M6, and the choose of the compensating side is shown as the icon, and we can stick the unbalance block to the compensating side by the inner side of the rim's spoke, clamp it at the outer side of the spoke.

Model seven : icon(M7), the system is under the balance model of M7, , in current situation, we can go on to choose the static balance model or the OPT model.



To choose the static unbalance model or the OPT model, we can press the number button 7 to make choose, and press the START button to confirm.

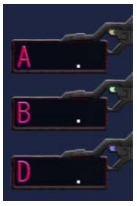
The system is under the system setting model, and we can press the number button 8 to choose this model, and when entering the system setting menu for the first time after the unit is turned on, an inputting frame of the keywords will appear, and we can input the keywords: "321", and press the "START" button to confirm, and then entering the choose of the setting menu.

The helpful information

The system is under the static balance mode.

The current system is under the OPT mode, and we can make the tire match the rim's static unbalance, and make the wheel's unbalance to be the smallest.

The word prompt bar , to make simple prompt on words for the operation of the laser Positioning Wheel Dynamic Balancer.



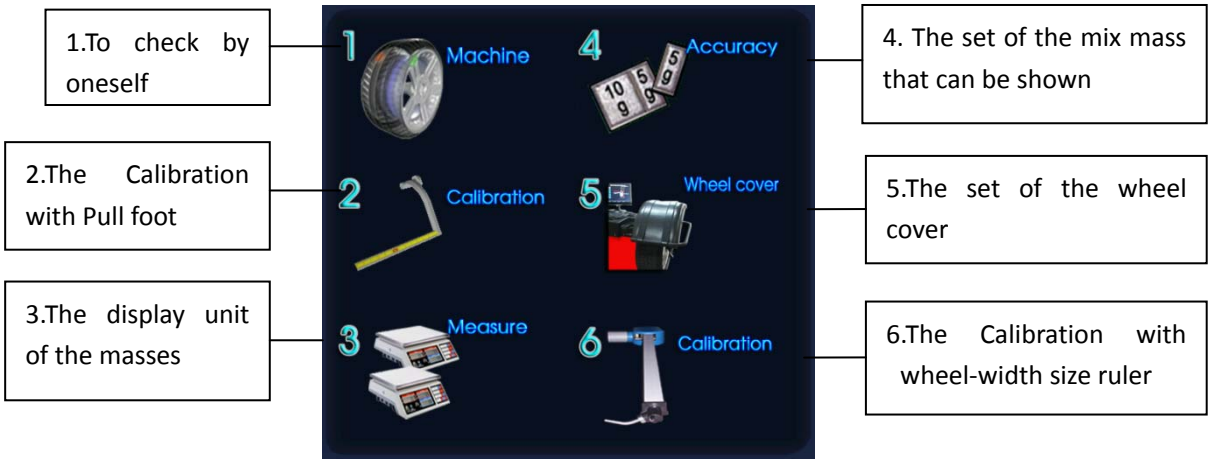
To display the parameters of the wheel's size : A, B (or A+), D.

Under the model of OPT, showing the various static balance masses. And show the static unbalance mass of the rim of the wheel, the static unbalance mass of the tire, the current static unbalance mass of the wheel, the mix static unbalance mass that can reach after the OPT of the wheel from the upside to the down side.

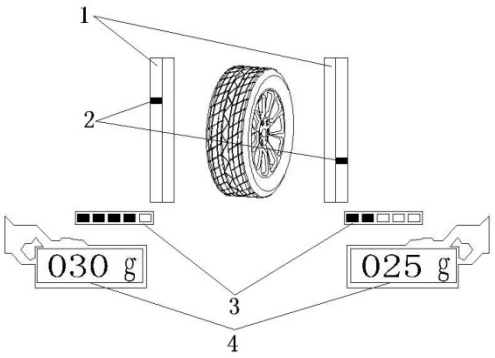
When the system's display mass is set to be "g", it will prompt the user to clamp a standard balance block of 100g by the outer side or the inner side of the wheel when checking by itself.

When the display mass of the system is set to be "Oz", it will prompt the user to clamp a standard balance block of 3.5Oz by the outer side or the inner side of the wheel when checking by itself.

The setting menu, to calibration the system or set the system parameters.



The display interface of the texting result to the wheel



1). The indicating bar of the unbalance block's position;
2). The indicating piece of the unbalance block's position(when it is on the top of the indicating bar and turn to be red, it means the unbalance block is just at the final position);
3). The indicating bar of the position to which the unbalance block is sticked, and this content can only be shown when the balance block is sticked by the inner side of spoke.
4). To display the mass of the unbalance block.

4. The operation with keyboard

The number buttons:

0,1,2, ……9 and also the decimal "." is used to input the value or choose the balance model.

The rim parameter buttons:

A: The distance value measured of the compensating side by the inner side of the rim.

B: The rim width value or the distance value measured of the compensating side by the outer side of the rim.

D: The diameter value of the compensating side of the rim.

The other function buttons:

START: the run button or confirm button;

STOP: the procedure stops and return to the original interface;

＜T: show the unbalance block's mass value exactly.

5. The inputting method of parameters

The parameters need to be inputted are different when it is under different models.

If the compensating sides for dynamic balancing are by the two sides of the wheel's spoke,(including the models of M1, M3, M5, M6), we need to input the value of A, B, D.

If the compensating sides are all by the inner side of the wheel's spoke(including the M2,M4 model), we need to input the value of A, A+, D.

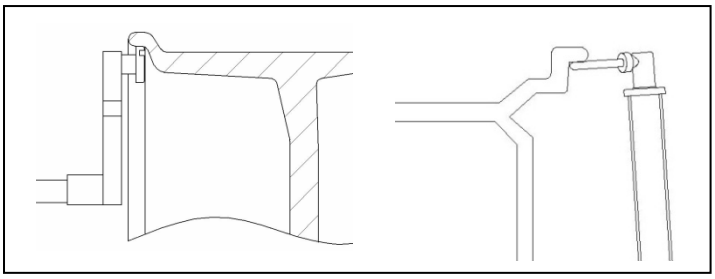
We only need to input the value of D under the static balance model and the OPT model.

The value of A,A+,D is get from the the automatic sizing ruler's measurement, we should pull the automatic sizing ruler out and rotate it to make its head touch the rim's unbalance block compensating side by the inner side and then the value of A,D will be inputed automatically after about two seconds, and after the measurement of A,if we need to measure the value of A+, we should pull the ruler out to the compensating side by the outer side, and rotate the automatic sizing ruler to make the head of it touch the rim, about 2 seconds later the value of A+ will be inputed automatically, after the measurement we should push the automatic sizing ruler back.

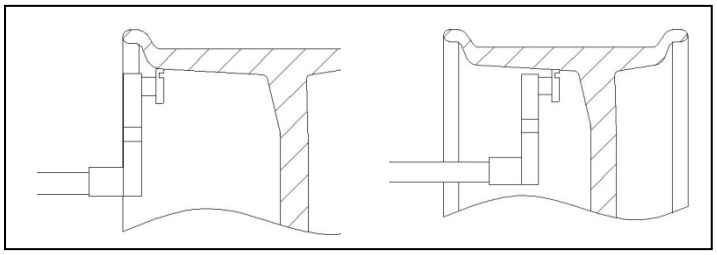
The value of B is get from the measurement by the wheel-width size ruler automaticly, after the

measurement of A, rotate the wheel-width size ruler to the unbalance block compensating side by the outer side of the rim, and the value of B will be inputed automaticly after about 2 seconds. After the measurement push the wheel-width size ruler back.

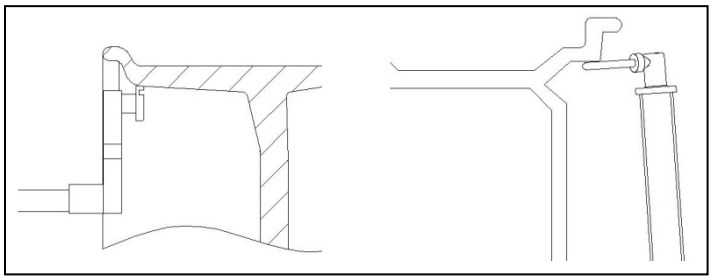
Under each model the Electronic scale's and the wheel-width size ruler's positions for measuring are as following:



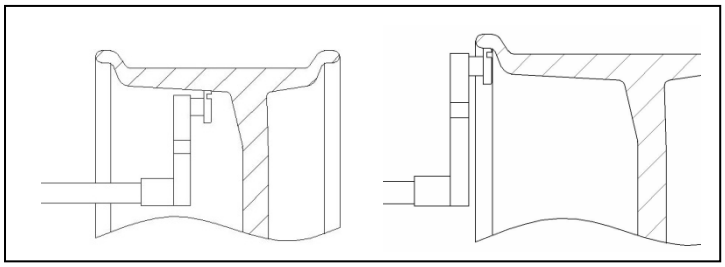
To measure the wheel's parameters under model M1,We should measure the value of the parameters of A and B.



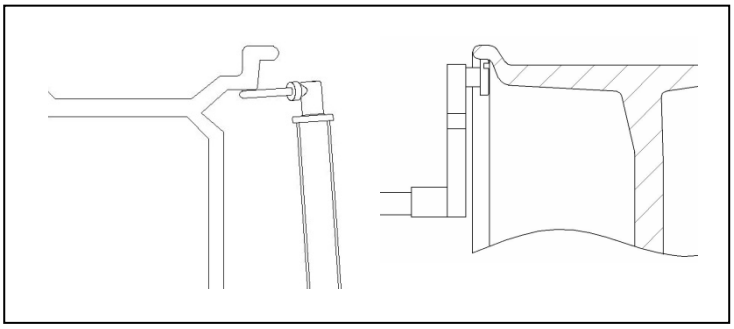
To measure the wheel's parameters under model M2, We should measure the value of the parameters of A and A+.



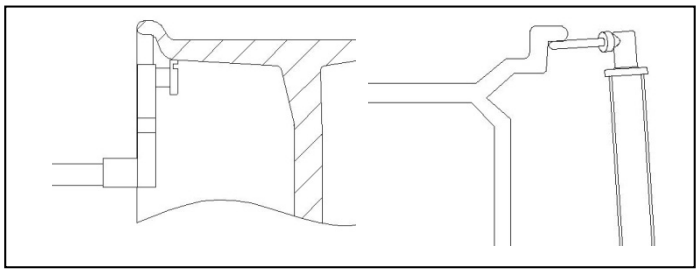
To measure the wheel's parameters under model M3,We should measure the value of the parameters of A and B.



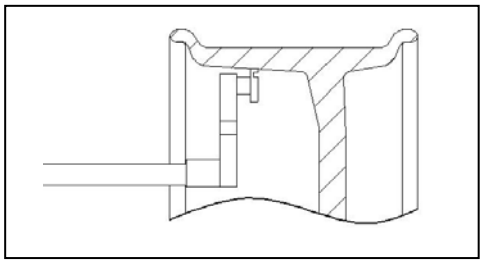
To measure the wheel's parameters under model M4,We should measure the value of the parameters of A and A+.



To measure the wheel's parameters under model M5,We should measure the value of the parameters of A and B.



To measure the wheel's parameters under model M6,We should measure the value of the parameters of A and B.



To measure the wheel's parameters under the model of static balanced or OPT , we need to measure the value of the parameter A .

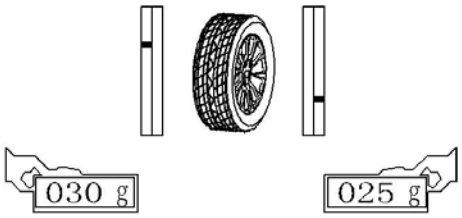
6. The operation of the unit under various models

The operation under the balance model of M1

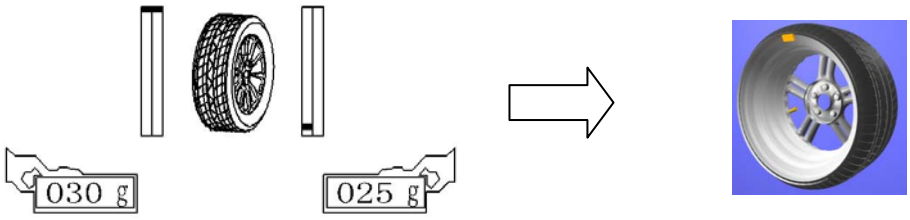
1). Input the value of the wheel's parameter A, B.

2). Run the wheel balancer.

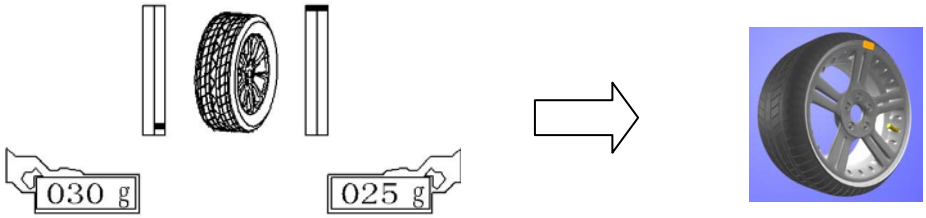
3). After the wheel balancer stops the car, the result will be shown on the screen .



4). Rotate the wheel by hand , and make the position indicating piece by the inner side turn red, and clamp a balance block of the right mass at the 12 point position by the inner side.



5).Rotate the wheel by hand , and make the position indicating piece by the outer side turn red, and clamp a balance block of the right mass at the 12 point position by the outer side.



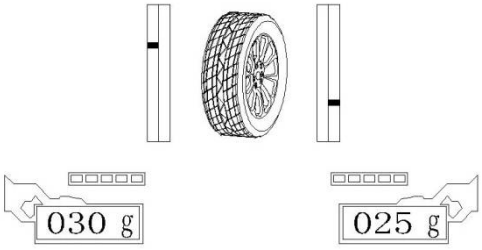
6).After setting the balance block, run the wheel balancer again, and the results will be shown.

The operation under the balance model of M2

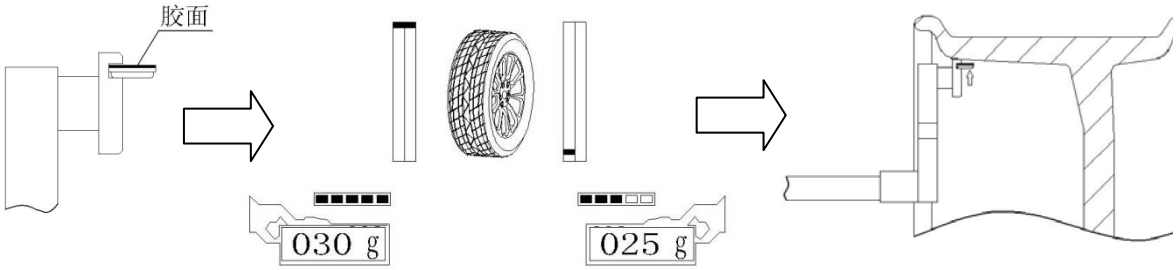
1). Input the value of the wheel's parameters of A, A+.

2). Run the wheel balancer.

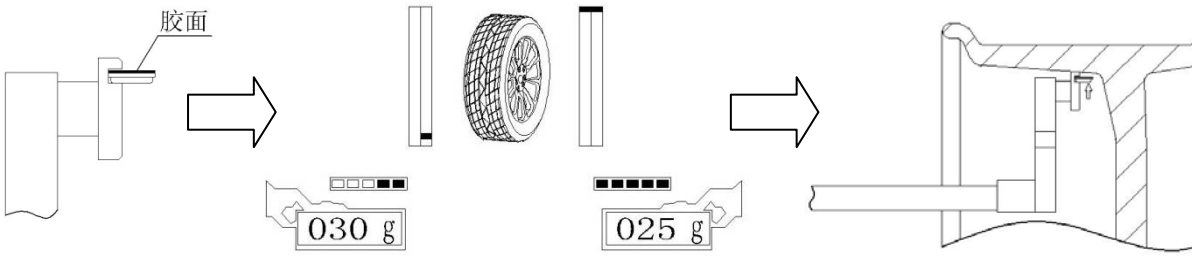
3). After the unit's stopping the car, the screen will show the results.



4). Tear down the adhesive tape used to stick the unbalance block by the inner side, and the balance block's plastic surface appears, make the plastic surface face to the upside and pug the middle of the balance block in the horizontal groove on the head of the ruler. rotate the wheel by hand, make the position indicating piece by the inner side turn to be red, and keep the wheel's position, pull out the electronic scale until the sticking position indicating bar upon the mass by the inner side become full, and when the two conditions above are all meets, the buzzer will make noise, rotate the electronic scale, and make the head of it touch the rim, and then press the balance block on the rim of the wheel tightly, then take the electronic scale back.



5). Following the sticking method of the unbalance block by the inner side, and when the position indicating piece by the outer side turn red, and also the sticking position indicating bar upon the mass by the outer side become full, we can stick the unbalance block by the outer side to the wheel rim with the electronic scale.



The operation under the balance models of M3—M6:

To operate following the methods under the balance models of M1 and M2.

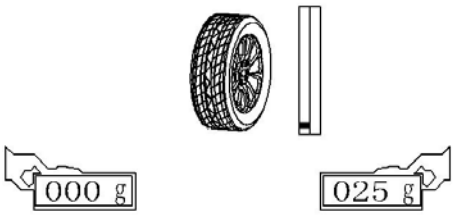
The operation under the static balance model:

1).Press the number button 7 to choose the “M7/OPT”model,press the  number button 7 again to shift from the static balance model and the OPT model, choose the static balance icon, press the START button to enter the static balance model.

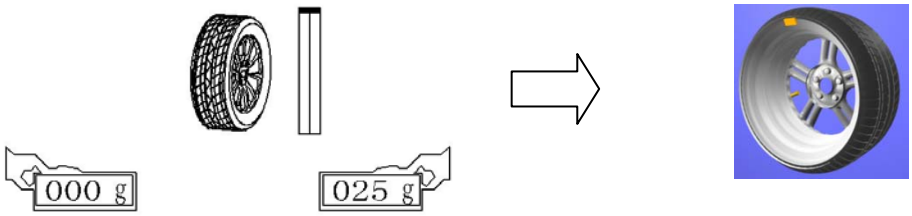
2).Input the wheel Parameter of D.

3). Run the wheel balancer.

4).After it stops the car, the result will shown on the screen.



5).Rotate the wheel by hand ,to make the position indicating piece by the outer side turn red, and clamp a balance block with the corresponding mass at the 12 point position by the inner side or stick a balance block with the corresponding mass in the middle of the rim.



Pay attention: the results of the unbalance mass shown after the measurement should be divided by 5,(when the mass unit is setted to be oz, the value of the mass being shown should be divided by 0.25oz),so that we can find a balance block with profitable mass, if to find its real unbalance mass, we can find and watch it by pressing the ＜T button.

7. The function of the balance block's hidden sticking

The function can divide the unbalance block being between the two spokes into two parts, and make the two parts fall behind the two spokes which are next to each other, so to hide the unbalance block , and not to influnce the beatify of the wheel.

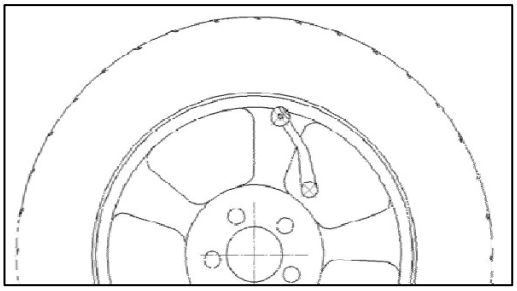
This function is only adopt to the two models of M2, M4 of this unit, and we will show the operating method of the hidden sticking function with the example of the model of M2.

Under the model of M2, after getting the testing result by running the unit, if the outer sticked balance block fall between the two spokes, then we can use this function. The course is as following:

1).Press the number button 7 to enter this function

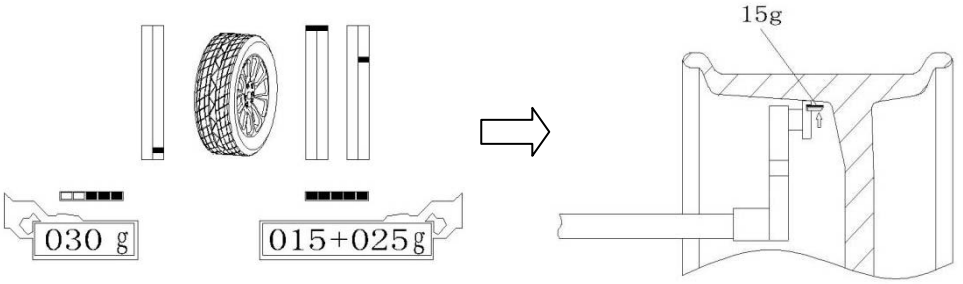
2).The screen will prompt to input the amount of the wheel's spokes, and press the number buttons to input. After the inputing press the START button to confirm.

3).Pull the automatic sizing ruler out , and make it get near the wheel spoke, rotate the automatic sizing ruler, and make the head of it touch the rim, rotate the wheel, and make the head of the automatic sizing ruler fall behind a any wheel's spoke, keep the wheel's position, then take back the automatic sizing ruler, and press the START button to confirm.

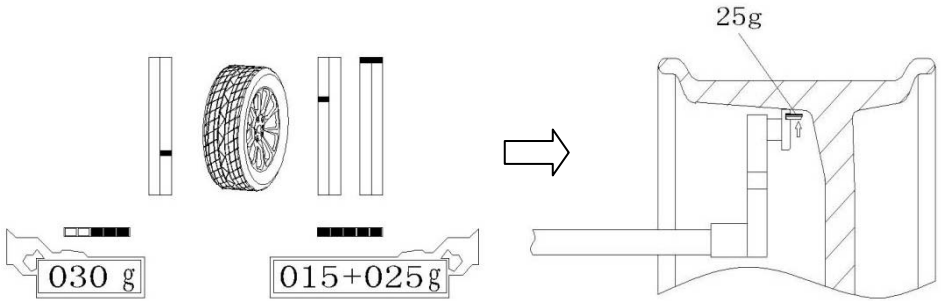


After finishing the steps above, the screen will display the unbalance mass after the division.

The unbalance block's location by the inner side is the same as the sticking method of the balance block by the inner side under the model of M2, rotate the wheel by hand to make the two unbalance blocks by the outer side to be at their right position, and stick them following the indication by the laser.



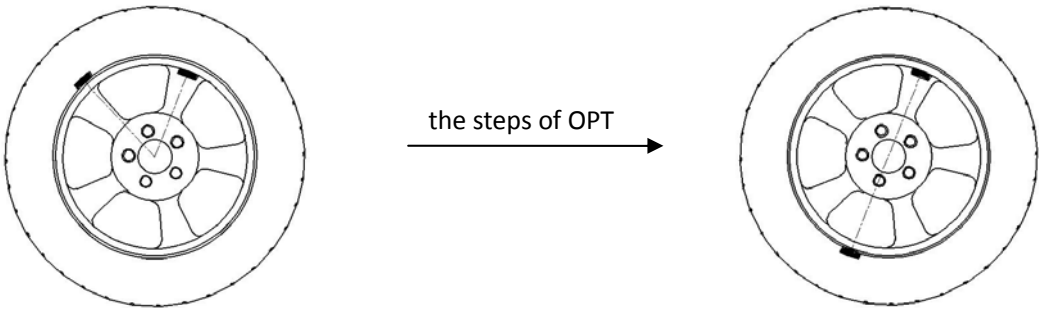
The unbalance block of 15g is at its final position, we can stick it following the method on the picture.



The unbalance block of 25g is at its final position, we can stick it following the method on the picture.

8. The OPT function

When the wheel's static unbalance is too large(over 50g), we can make use of the OPT function. This can make the tire match the position of rim's static unbalance, to reduce the added unbalance block's mass.



The 1th step:

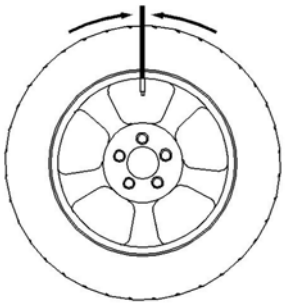
Press the number button 7 to select the "M7/OPT" model, press the number button 7 again to

shift from the static balance model to the OPT model, select the OPT icon, and press the START button to enter the OPT model.

The 2th step:

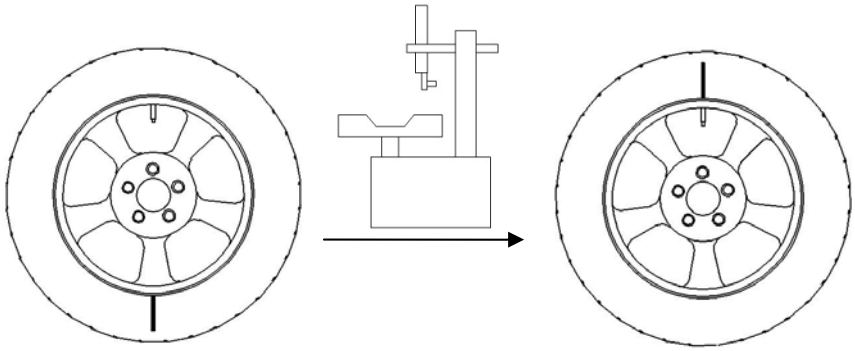
Measure and input the wheel's parameters following the content in section 5 , and run the wheel balancer by pressing the START button.

The 3th step:



Turn the mouth of the wheel to the 12 point position, keep the wheel not move and confirm it by pressing the STAR T button.

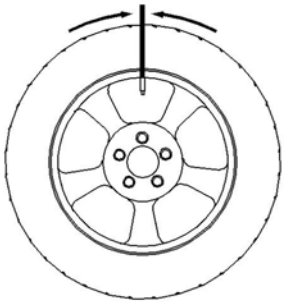
The 4th step:



Take down the wheel, set it on the tire separating unit, and turn the realated position between the tire and the rim 180 degree.

The 5th step: set the wheel on the wheel balancer, and run it by pressing the START button.

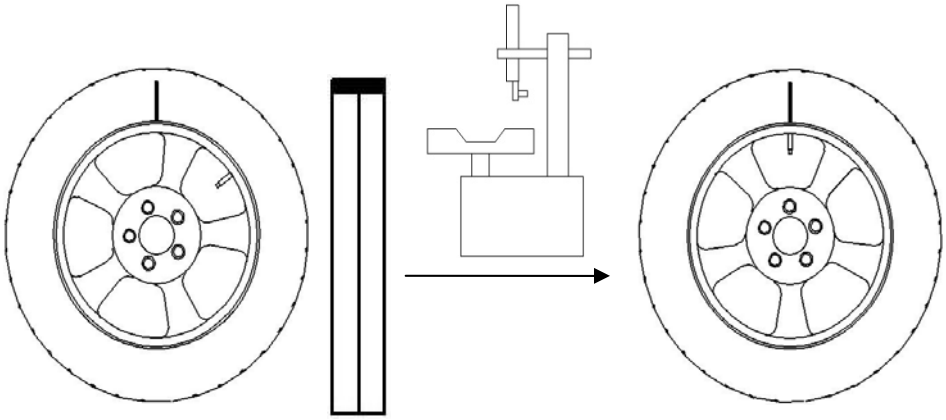
The 6th step:



Turn the mouth of the wheel to the 12 point position, keep the wheel's position and confirm it by pressing the rocker. And the screen will show the rim's static unbalance mass, the tire's static unbalance mass, the current wheel's static unbalance mass, and the mix static unbalance mass that the wheel can reach.

We can decide whether to continue enhancing the wheel or not according to the current wheel's static unbalance mass and the mix static unbalance mass that the wheel can reach.

The 7th step:



Rotate the wheel by hand, turn the balance block's position indicating piece to the top, and it turn to be red, keep the wheel's position, mark at the tire's 12 point position, then take down the wheel, set it on the tire separating machine, and make the mark face to the air mouth of the rim.

The 8th step:

Set the wheel on the wheel balancer again, run the wheel balancer by pressing the START button, and the screen will display the current wheel's static unbalance mass and the ideal mix static unbalance mass that the wheel can reach , and the word prompting bar will prompt whether the wheel's enhancing is successful.

9. The user's self proofread

1).Press the [8] button to enter the system setting model, and the keywords inputing frame will appear, input the keywords "321" (you need the keywords when entering the setting menu for the first time after turning on the machine, but not need to input it if entering the setting menu again when the machine has not been turned off), press the confirm button to enter the setting menu.

2).Press the number button 1 to enter the user's self proofreading sequence, and set on a well balanced 14"-16" wheel.

3).Input the wheel's parameters correctly following the balance model of M1.

4).Press the START button to run.

5).After stopping the car, rotate the wheel by hand, when the unbalance position indicating piece turn red, clamp the 100g balance block at the 12 point position by the outer side of the wheel following the prompt on the screen.

6).Press the START button to run.

7).After stopping the car, take down the 100g balance block, rotate the wheel by hand, when the unbalance position indicating piece turn red, clamp the 100g balance block at the 12 point position by the inner side of the wheel following the prompt on the screen.

8).Press the START button to run, after stopping the car, the screen will prompt whether the self proofreading to be successful, and you can return to the model sececting interface by pressing a any button.

10. The Calibration with Pull foot

1).Enter the system setting menu, and choose The Calibration with Pull foot selection on the system setting menu by pressing the number button 2.

2). Pull the Pull foot out 0cm following the prompt on the screen, and press START button to confirm.

3).Pull the Pull foot out 15cm following the prompt on the screen, and press START button to confirm.

4).Pull the Pull foot out and rotate it to make the head of it fall on the spindle of the wheel balancer following the prompt on the screen, press the START button to confirm.

5).Set on a 13"-18" wheel following the prompt on the screen, and press the number button "1" or "4" to input the wheel's diameter, pull the Pull foot out and rotate it to make the head of it touch the edge of the rim by the inner side, press the START button to confirm.

6).The Calibration with Pull foot is successful, press the START button to return.

11.The Calibration with wheel-width size ruler

1).Enter the system setting menu, and press the number button 6 on the menu to choose the selection of The Calibration with wheel-width size ruler.

2).Press the wheel-width size ruler on the end plane of the Pressed axis following the prompt on the screen, and press the "START" button to confirm.

3).Press the wheel-width size ruler on the end plane of the Disc of the Matcher following the prompt on the screen, and press the "START" button to confirm.

4).The Calibration with wheel-width size ruler is successful, press the "START" button to return.

12.The setting of the system

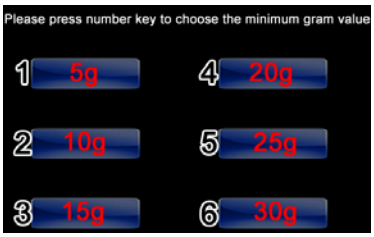
Enter the system setting menu, and the menu also has another three setting item, as following:

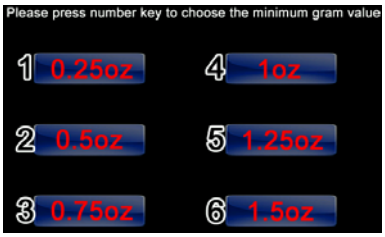
1).Press the number button 3 to set the unit of mass

Press the number button 3 to shift the mass unit from g to oz in the system.

2).The setting of the mix mass that can be shown

To set the mix mass that can be shown, when the unbalance mass is less than the setted one, the mass value shown is 0. Press the number button 4 to set the mix mass that can be shown, and when the unit is setted to be g, it means every 5g there has a setted value, and when the unit is setted to be oz, it means every 0.25oz there has a setted value, and choose the mix mass setted that can be shown following the data before the setting value.





3).The setting of the wheel cover's switch

Press the number button 5 to shift the setting of the wheel cover's switch from ON to OFF in the system.

If the wheel cover's switch is setted to be ON, we can run the wheel balancer automatically after taking down the wheel cover, and when it is setted to be OFF,we can run the unit by pressing the START button after taking down the cover.

13.Recover the parameters of the time when the unit leaves the factory

If due to the mistake made from the operation of the automatic sizing rule's calibration or the system's self proofread, to lead the measurement's inaccurate by the equipment, and it also cannot recover the origainal condition of the equipment, so you can try to use this function.

1).Press the number button 9 to check the system's equipment information.

2).The screen displays the equipment's information bar, press the number buttons to input the keywords"123", and press the START button to confirm.

3).The screen prompts whether to get and read the parameters, and you can recover the parameters of the time when the machine leaves the factory by pressing the START button again, and the screen will display the progress of the recovery, and when it is completed press the START button to confrim and then can return to the main interface of the system.

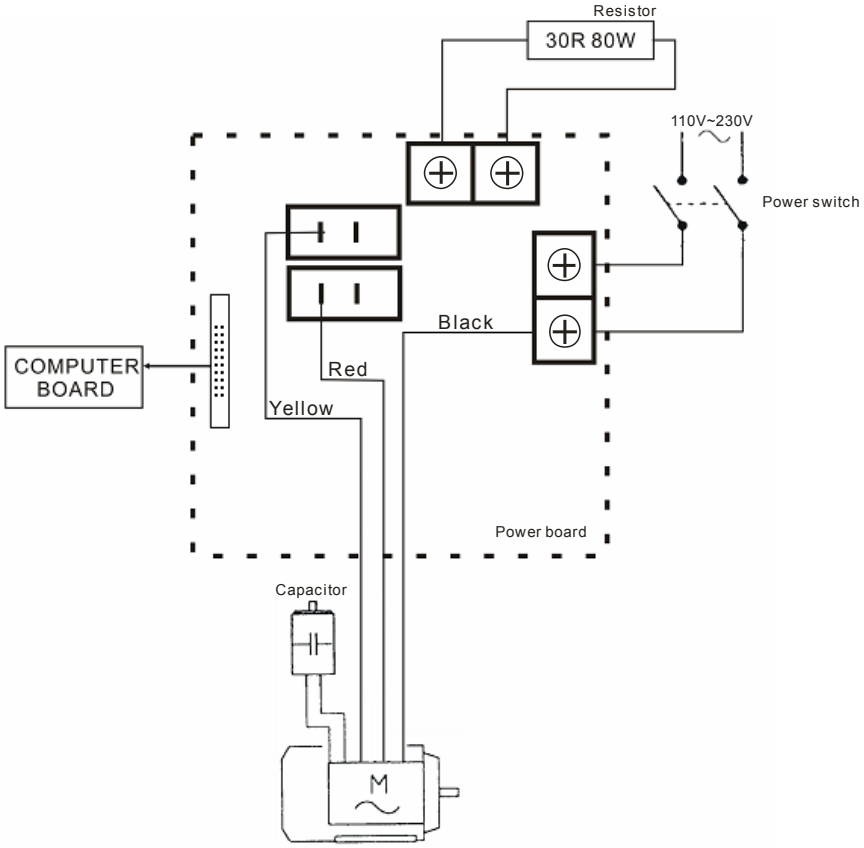
14. The analyse of the wheel balancer's failure

the appearance	the analyse
Nothing appears on the screen after the machine is turned on.	1. the switch of the power is broken. 2. the signal line from the LCD to the computer board dosen't connect well, you should check the line connected end. 3. the LCD panel is broken 4. the power board is broken
When the machine is turned on, the screen displays "the system's installing is successful, please input the order", but no origainal interface appears	1. the line from the computer board to the Graphics board dose not connect well. 2. the computer board is broken, you should change it. 3. the Graphics is broken.
After the machine is turned on, the LCD works well, after it is started, the motor dosen't rotate.	1. the cover hasn't been taken down(this will be prompted on the screen). 2. the three lines from the motor don't connect the relay. 3. the relay's control by the computer board is fall, you should change the computer board. 4. the relay is broken, and you should change the power panel. 5. the motor is broken.
After being started, the motor rotates fast, and not to stop the car.	1. the position sensor fall in touch of the computor board, and the connecting line should be checked. 2. the signal of the position sensor is not normal,and you should adjust the height of the position sensor a bit, (after the adjustment, rotate the wheel by hand, and check whether the sensor touches the Tooth plate, so that not to let the Optocoupler on the position sensor get broken. 3. the Optocoupler on the position sensor gets broken, you should change the sensor.
After being turned on it displays well, but has no reaction after the buttons are pressed, or during the testment , it dosen't stop the car, and the shows on the screen dosen't change.	the computer board is dead because of the disturb, you should turn off the power, and start it again.
The equipment makes mistake when having the self-calibrating, and the screen will prompt the unsuccess of the self-calibrating.	1. you haven't tampped the 100g balance block(it will be prompted on the screen). 2. the Piezoelectric sensor's connecting line is broken, or it dosen't connect well at the connector.

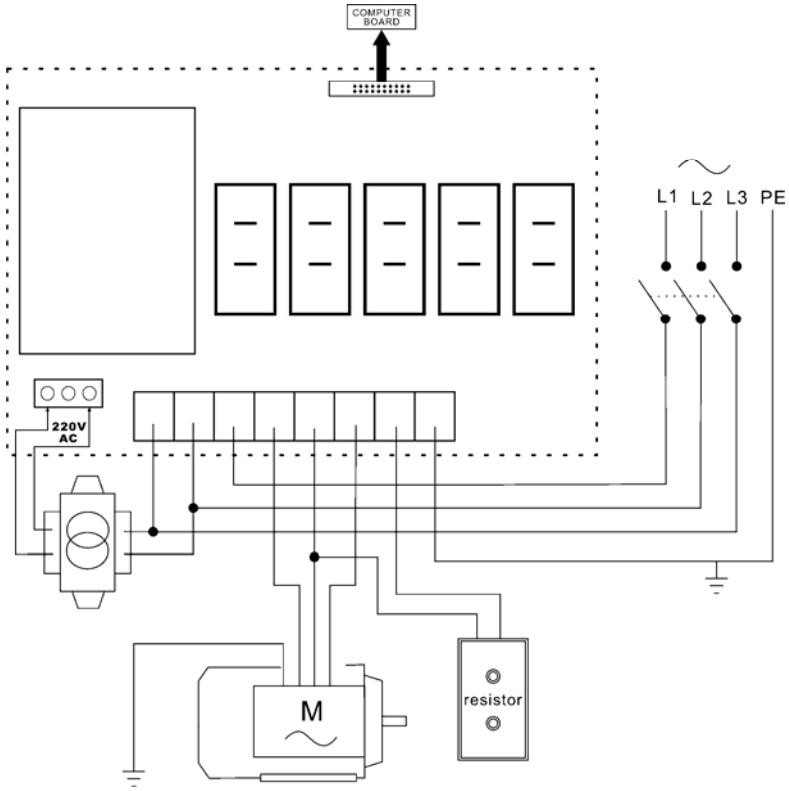
	3. the sensor is broken.
The wheel's size measured by the Automatic sizing ruler has obvious error.	1. check whether the line from the Pull foot's Potentiometer to the computer board connects well. 2. the Potentiometer is broken, you should change it. 3. Calibrat the Automatic sizing ruler again.
The testing course is right, but the unbalance mass being shown has obvious error.	1. the input of the wheel's size is incorrect, you should check the input of the wheel's size. 2. please use the 14"or 15" balanced wheel, and clamp a balance block of which mass is already known on it, then have the measurement, if the error of the testing result is more than ±10% of the balance block's mass, you should let the equipment have a self-calibrarting again.
When rotate for different times, the results displayed change a lot, more than 5g.	1. there is foreign matter in the tire, or the atmospheric pressure in the tire is not enough. 2. the matcher is not set on tightly or the wheel is not set on tightly. 3. the ground is not flat, and the case has been shock a bit during the testment, please set on the ground bolts. 4. if necessary, please use a 14" or 15" wheel to let the equipment have a self-Calibration again.
The displayed testing result is 0-0.	1. the mix gram that can be shown is set too large, please set it to be 5g. 2. the Piezoelectric sensor's connecting line is broken, or it dosen't connect well at the connector.

15. Power supply layout diagram

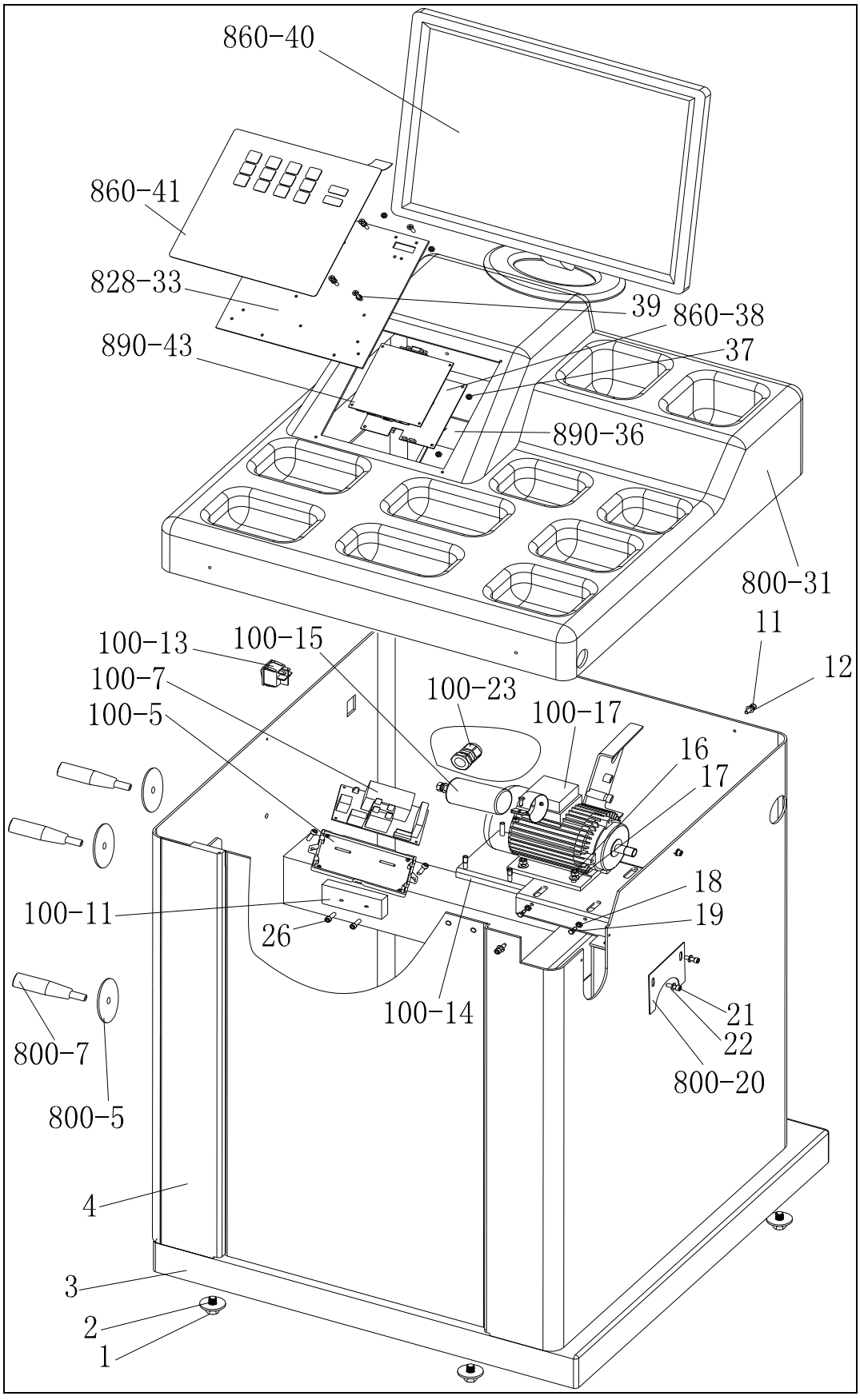
1) 220 V Connection

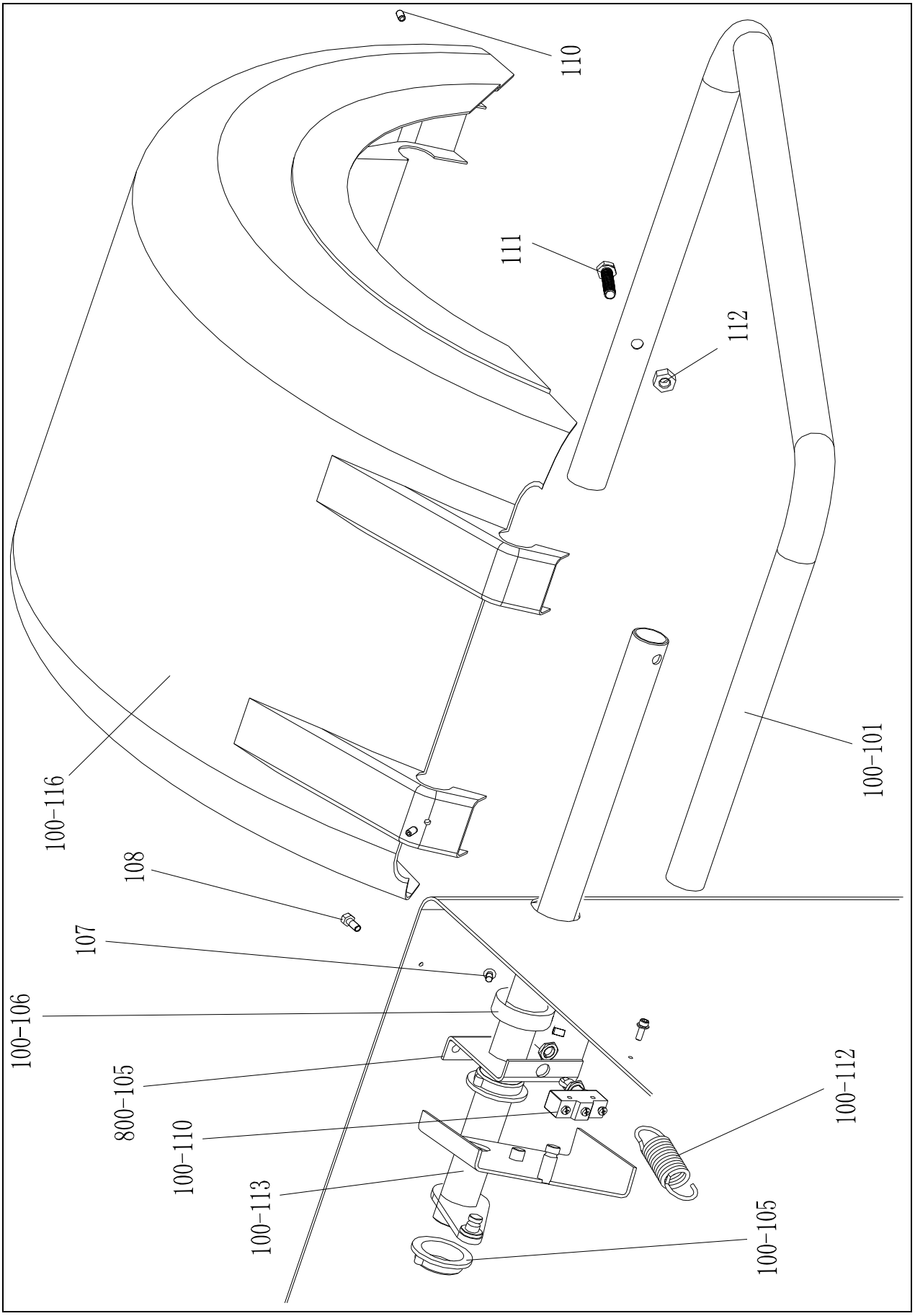


2) 380 V Connection



16. Exploded drawings

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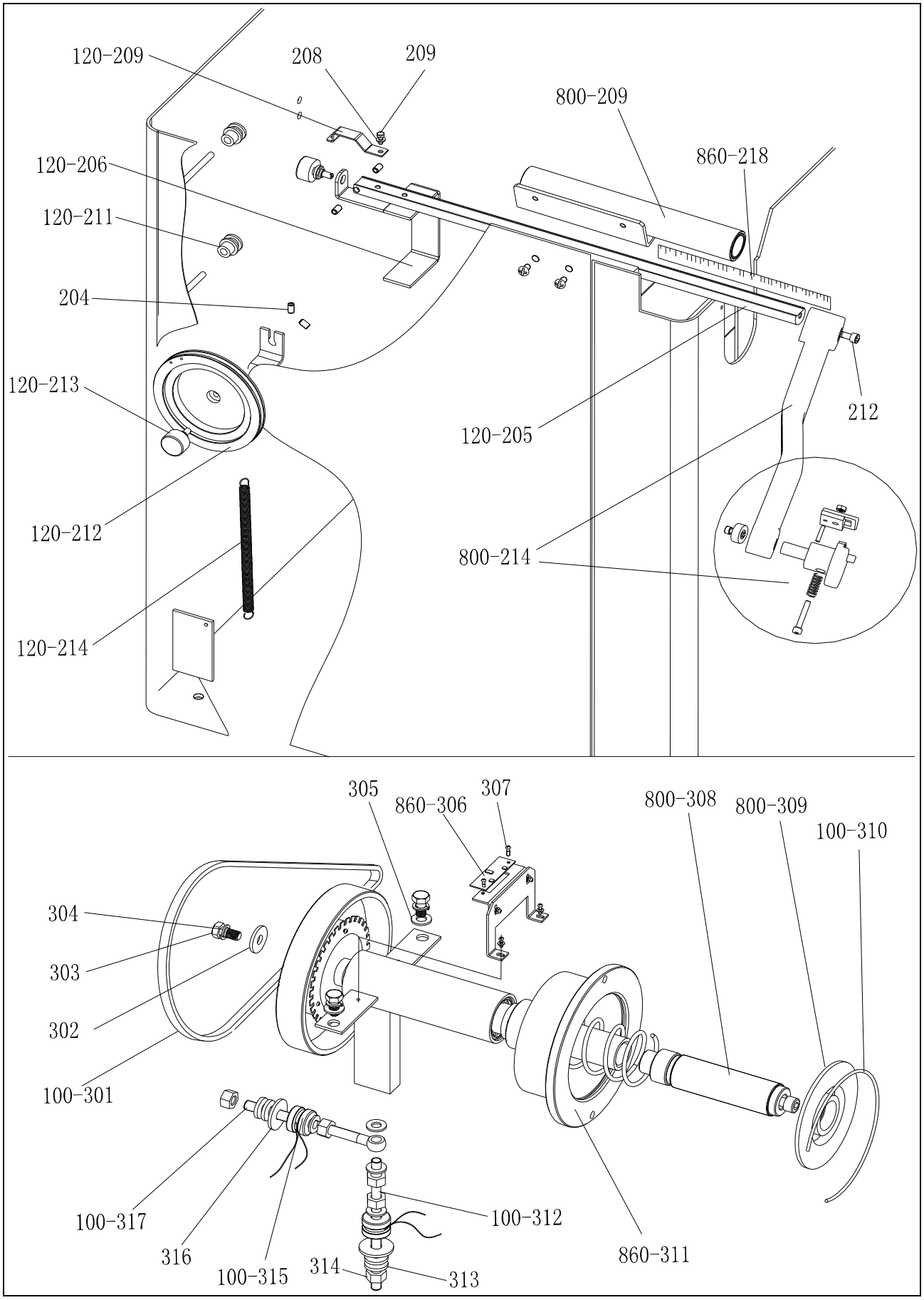
100-101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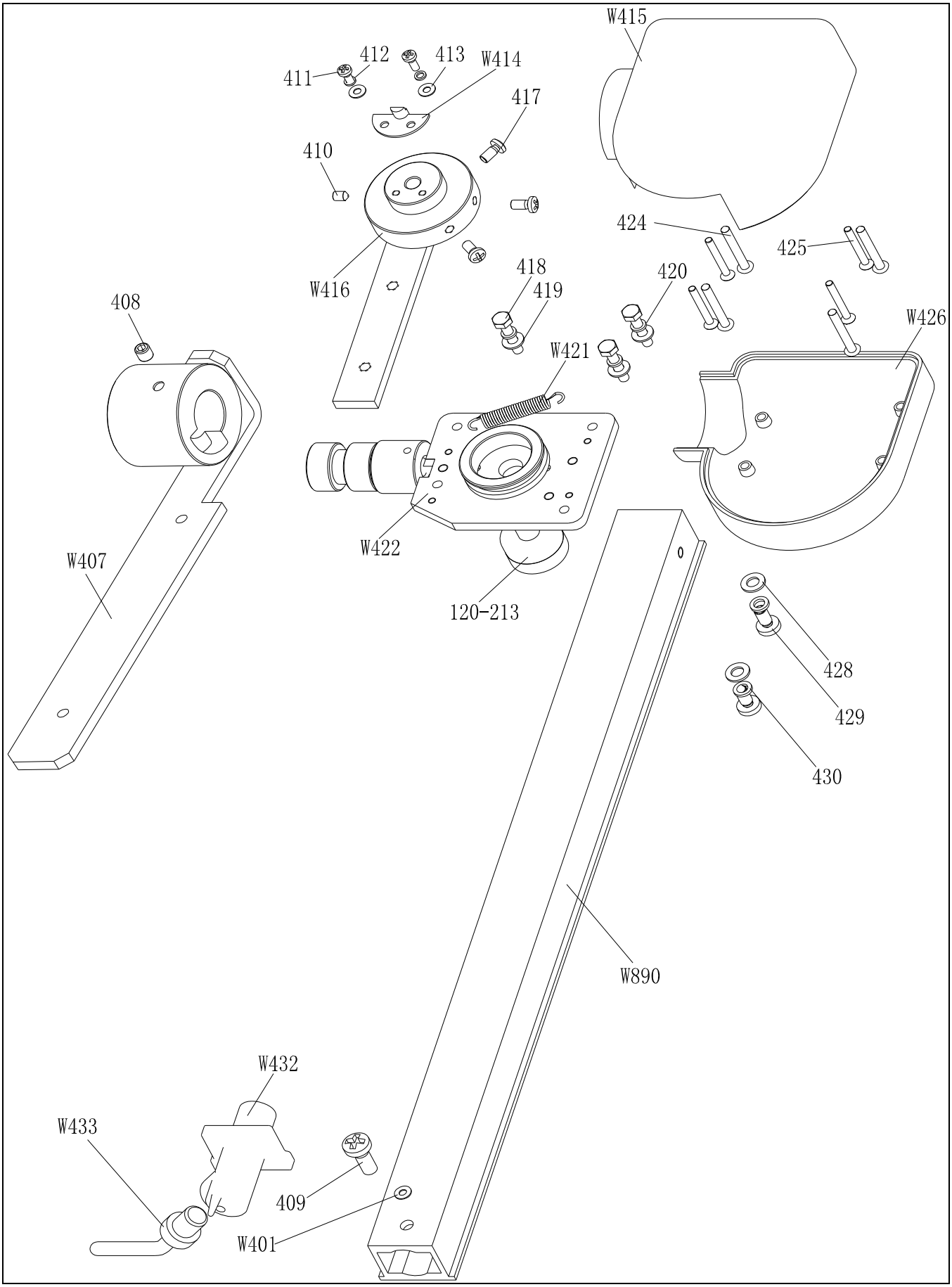
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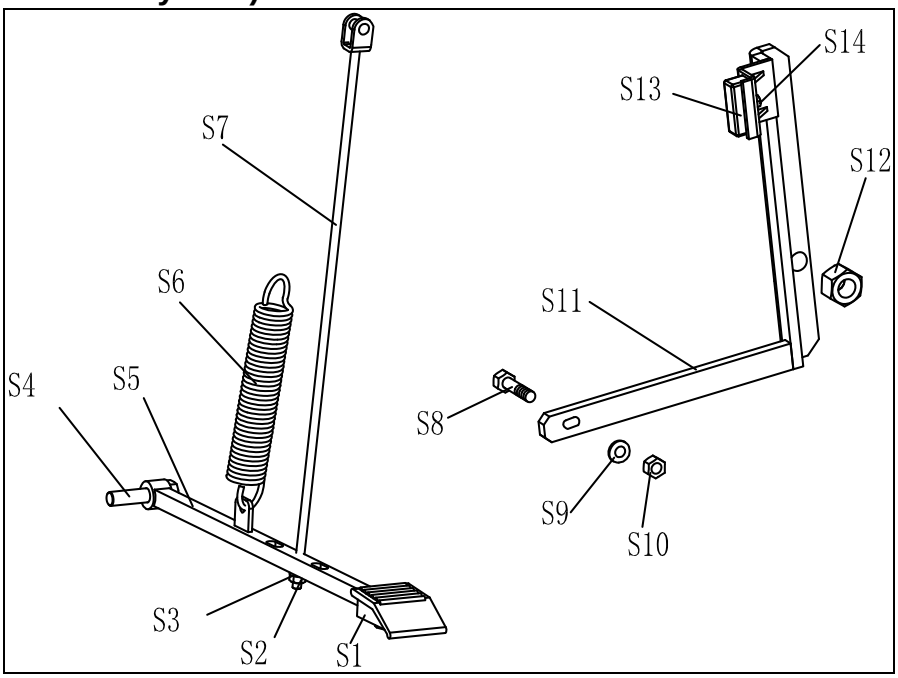
W890
W432
W433
409
W401

17. Spare parts list

No.	Code	Description	Qt.		No.	Code	Description	Qt.
1	B-014-100251-0	Screw	4		108	B-010-080201-1	Screw	2
2	B-040-103030-1	Washer	2		100-116	P-100-200100-0	Hood	1
3	PX-800-020000-0	Base	1		110	B-007-060081-0	Screw	3
4	PX-800-010000-0	Body	1		111	B-014-100451-0	Screw	1
800-5	P-000-009002-0	ABS Washer	3		112	B-001-100001-0	Nut	1
800-7	P-000-009000-0	Tools hang	3		100-101	PX-100-200200-0	Shaft	1
100-13	S-060-000210-0	Power switch	1					
100-23	S-025-000135-0	Cable circlip	1		120-214	P-120-210000-0	Spring	1
100-14	PX-100-010920-0	Motor adjust board	1		120-212	P-120-250000-0	Bobbin winder pulley	1
11	B-024-050161-1	Screw	4		120-213	S-132-000010-0	Gauge sensor	2
12	B-040-050000-1	Washer	4		204	B-007-060081-0	Screw	5
100-15	S-063-002000-0	Capacitor	1		120-211	PZ-120-260000-0	Pulley	2
100-17	S-051-230020-0	Motor	1		120-206	PX-120-240000-0	Heavy	1
16	B-004-060001-1	Nut	4		120-209	PX-120-230000-0	Caliper Hook	1
17	B-040-061412-1	Washer	4		208	B-040-050000-1	Washer	1
18	B-004-050001-1	Nut	2		209	B-024-050161-1	Screw	1
19	B-014-050351-1	Screw	2		800-209	PX-820-570000-0	Gauge support	1
800-20	PX-100-110000-0	Plate	1		212	B-010-060161-0	Screw	1
21	B-024-050061-0	Screw	2		120-205	PZ-120-090000-0	Rim Distance Gauge	1
22	B-040-050000-1	Washer	2		860-218	Y-004-000073-0	Graduated Strip	1
100-7	PZ-000-020822-0	Power board	1		800-214	PW-109-082800-0	Handle Bar	1
100-5	P-100-120000-0	Electric Board Support	1					
26	B-024-050251-0	Screw	2		100-301	S-042-000380-0	Belt	1
100-11	D-010-100300-1	Resistor	1		302	B-040-103030-1	Washer	1
800-31	P-800-190000-0	Head with tools-tray	1		303	B-014-100251-0	Screw	3
890-36	S-140-000030-5	CPU board	1		304	B-050-100000-0	Washer	3
37	B-004-030001-1	Nut	8		305	B-040-102020-1	Washer	6
860-38	PZ-000-010860-0	Support board	1		860-306	PZ-000-060822-0	Position Pick-up Board	1
39	B-017-030251-0	Screw	4		307	B-024-030061-0	Screw	4
860-40	S-135-001700-0	LCD	1		800-308		Thread	1
860-41	S-115-008600-0	Key board	1		800-309	P-100-420000-0	Plastic Lid	1
828-33	PX-830-100000-0	Key plate	1		100-310	P-100-340000-0	Spring	1
890-43	S-140-000040-5	Show-card	1		860-311	S-100-000064-0	Complete Shaft	1
					100-312	P-100-080000-0	Screw	1
100-112	P-100-210000-0	Spring	1		313	B-048-102330-1	Washer	4
100-105	P-800-180000-0	Sheath	2		314	B-004-100001-2	Nut	5
100-113	PX-800-040000-0	Shaft	1		100-315	S-131-000010-0	Sensor Assembly	2
100-110	S-060-000400-0	Micro switch	1		316	B-040-124030-1	Washer	2
800-105	PX-100-200200-0	Shaft support	1		100-317	P-100-070000-0	Screw	1
100-106	PX-800-050000-0	Shaft sheath	1			S-140-000101-0	Memory Card	1
107	B-024-060061-0	Screw	1					

No.	Code	Description	Qt.		No.	Code	Description	Qt.
W401	P-870-011800-0	Magnet	1		420	B-050-040000-0	Spring washer	3
W407	P-870-011001-0	Installation board assembly	1		421	P-870-010900-0	spring	1
408	B-007-060081-0	Screw	1		W422	P-870-010100-0	Revolve shaft assembly	1
409	B-019-420161-0	Screw	1		120-213	S-132-000010-0	Gauge sensor	1
410	B-007-040061-0	Screw	2		424	B-024-350281-0	Screw	4
411	B-024-030081-0	Screw	2		425	B-017-030251-0	Screw	4
412	B-050-030000-0	Spring washer	2		W426	P-870-010700-0	Bottom cover	1
413	B-040-030000-1	Flat washer	1		428	B-040-050000-1	Flat washer	2
W414	P-870-010600-0	Fix the slice	1		429	B-024-050101-0	Screw	2
W415	P-870-010400-0	Top cover	1		430	B-050-050000-0	Spring washer	2
W416	P-870-010500-0	Connection of arm assembly	1		W890	P-870-010800-0	Ruler seat	1
417	B-024-040081-0	Screw	3		W432	P-870-011500-0	Ruler head support	1
418	B-010-040201-0	Screw	3		W433	P-870-011400-0	Ruler head	1
419	B-040-040000-1	Flat washer	3					

S Version Exploded drawings and spare parts list
(Optional pedal brake system)



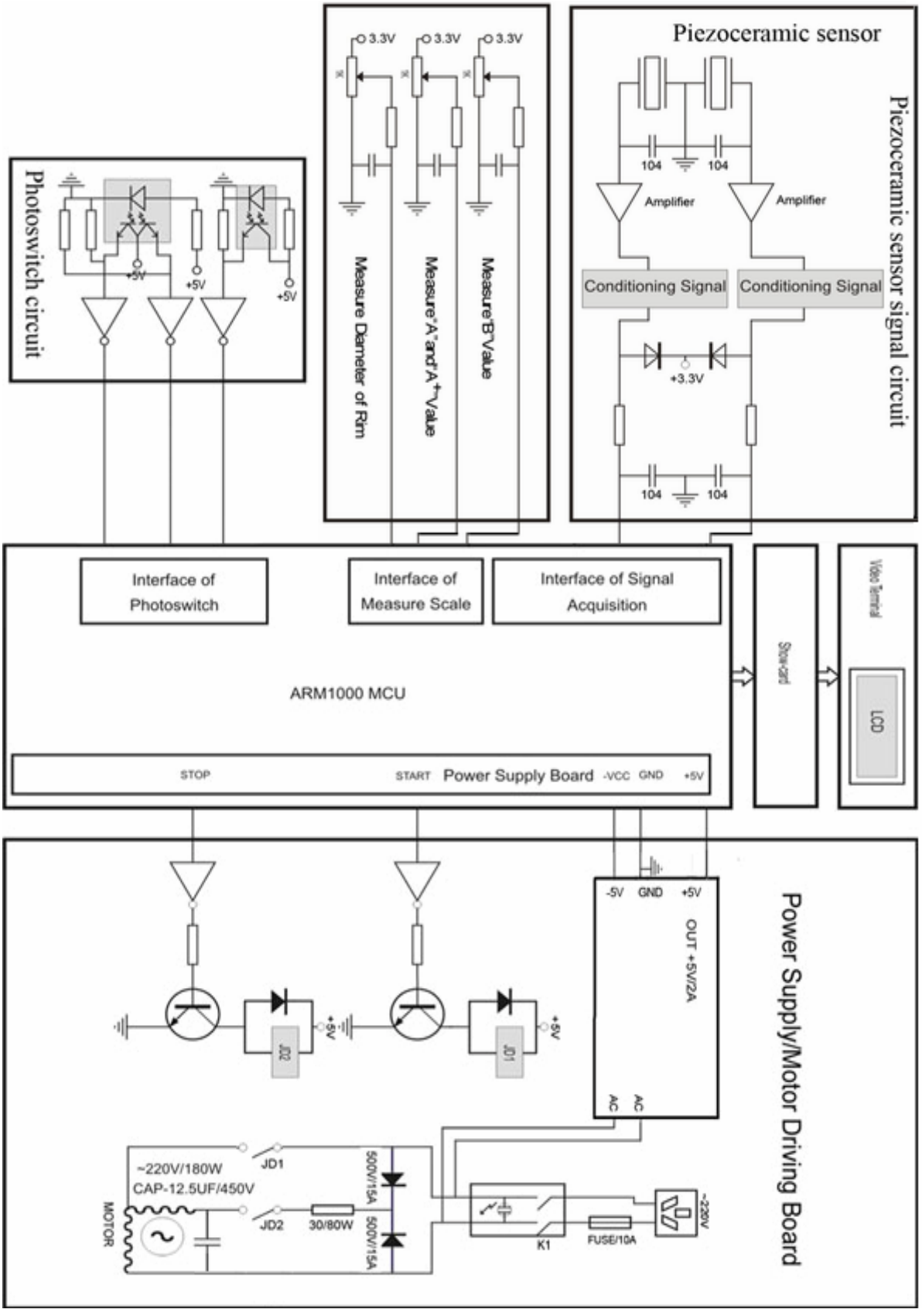
No.	Code	Description	Qt.		No.	Code	Description	Qt.
S1	C-221-640000-A	Rubber cover	1		S8	B-010-060301-0	Screw	1
S2	B-001-060001-0	Nut	1		S9	B-040-061412-1	Washer	1
S3	B-040-061412-1	Washer	1		S10	B-004-060001-1	Nut	1
S4	B-014-100251-0	Screw	1		S11	PX-100-020200-0	Brake lever	1
S5	PX-800-020300-0	Foot lever	1		S12	B-001-120001-0	Nut	1
S6	C-200-380000-0	Spring	1		S13	P-000-002001-1	Brake pads	4
S7	PX-100-020400-0	Connecting rod	1		S14	B-004-060001-1	Nut	2

Accessories list
Specification options 1: 36☐ 2: 40☐

CODE	ITEM	QTY	PHOTO	
1:S-100-036000-1	1# CONE	1		1: ϕ36
2:S-100-040000-1				2: ϕ40
1:S-100-036000-2	2# CONE	1		1: ϕ36
2:S-100-040000-2				2: ϕ40
1:S-100-036000-3	3# CONE	1		1: ϕ36
2:S-100-040000-3				2: ϕ40
1:S-100-036000-4	4# CONE	1		1: ϕ36
2:S-100-040000-4				2: ϕ40
1:P-005-100000-0	COMPLETE QUICK RELEASE NUT	1		1: ϕ36
2:P-005-100040-0				2: ϕ40
1:P-100-400000-0	THREADED SHAFT	1		1:Tr36
2:P-828-400000-0				2:Tr40
Y-032-020890-0	MANUAL	1		
PX-100-200400-0	WRENCH	1		
S-105-000080-0	HEX WRENCH	1		
S-105-000060-0	HEX WRENCH	1		
S-110-001000-0	STANDARD WEIGHTS 100G	1		
P-000-001-008-0	CALIPER	1		
S-108-000010-0	PLIER	1		
P-100-490000-0	PLASTIC LID	1		
P-000-001002-0	RUBBER BUFFER	1		

For one item with two codes, please select as per Specification Options, or select by measuring real object.

Attach figure 1 System Circuit Diagram



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