BRUKS

OG

VEDLIKEHOLDS

MANUAL

GM – U116C

CATALOGUE

1. Introduction

An imbalanced wheel will make the wheel jump and steering 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. Equipped with 15'' LCD screen and self-designed software, this equipment displays the data in a more intelligent way. And this manufacturer owns the independent intellectual property rights.

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 the machine needs repairing, the customer can 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.

2. Specification and Features

2.1 Specification

Max wheel weight: 100kg
Motor power: 240W
Power supply: 220V/50Hz
Balancing precision: ±1g
Rotating speed: 200r/min
Position accuracy: 1.5°
Cycle time: 8s
Rim diameter: 10″~24″(256mm～610mm)
Rim width: 1.5″~20″(40mm～510mm)
Noise: ＜70dB
Net weight:
Dimensions: 960mm×560mm×1080mm

2.2 Features

Adopt high-definition LCD screen, 3D animation interface. Intelligent LCD screen with dynamic message displaying makes all balancing mode operation visualized.

Various balancing modes can carry out counterweights 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.

2.3 Working Environment

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

3. The Constitution of Dynamic Balancer

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

3.1 Machine

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

3.2 Electricity system

1. The microcomputer system is made up of the LSI such as new high speed MCU CPU system and keyboard.
2. Automatic measure scale.
3. Testing speed and positioning system consists of gear and opto-electronic coupler.
4. Two-phase asynchronous motor supplies and control circuit.
5. Horizontal and vertical pressure sensor.
6. Hood protection.

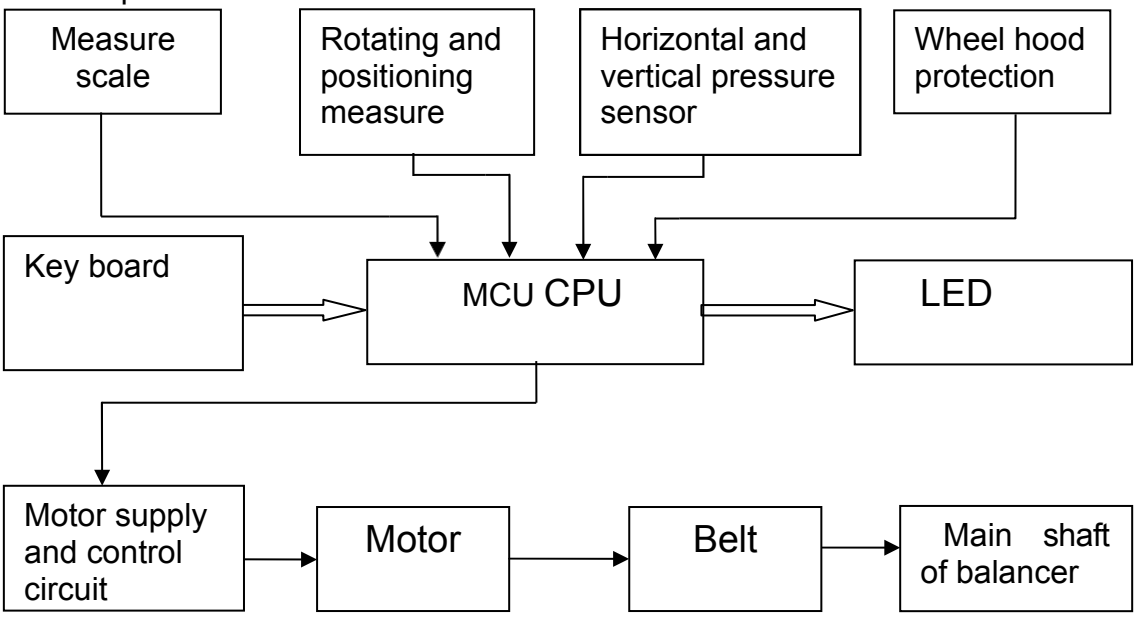


Figure 3-1

4. Installation of Dynamic Balancer

4.1 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
LED Screen support	1
Protection hood (optional)	1

4.2 Installing machine

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

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

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

4.3 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.

4.4 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 4-1)

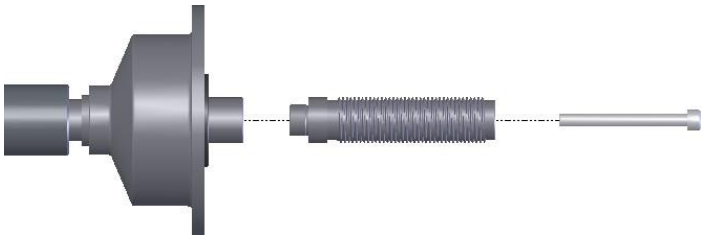


Figure 4-1

(**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.)

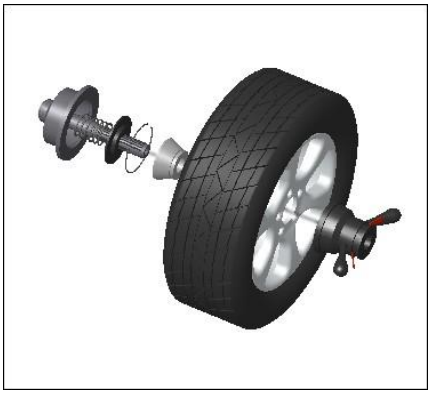
4.5 Installing of LCD screen

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

4.6 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)



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

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

5. The meaning of the icons on the screen

5.1 The meaning of the interface icons

The interface page is as below,

Select  : Enter main calibration page

Select  : Enter main setting page

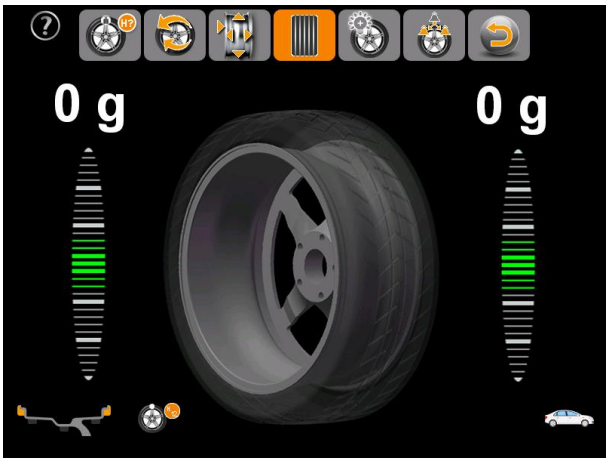
Select  : Enter main balancing page.

Select  : Enter main weight unit setting page.

Below picture shows the main the calibration page. The icons from left to right represent checking machine's technical data, self-calibration, return, calibration of distance measuring scale, calibration of diameter measuring scale and calibration of width measuring scale.

Main balancing page

Below picture shows the main balancing page. Icons from left to right represents as follow:Help, counterweight pasting mode between S1 and S2, Optimization tips, Measurement of rim and the selection of ALU mode, balancing function, split and conceal function and return.



Select  ,then enter [ok] to the main measurement page of rim, as follow:

Main measurement page of rim

Below page shows details of rim, the icons from left to right represent: unit of measurement (mm/inch), manually input rim diameter, manually input rim width, manually input distance, return, the selection of ALU mode, the default confirmation of ALU mode and tire type(motorcycle/ car).

Main setting page

Below page shows details of main setting page. The icons from top to bottom represent the activation function of language, disable function of sound, activate or disable the function of screen saver, activate or disable the function of automatically spin of protection hood, activate or disable the function of self-measure of distance scale and diameter scale, activate or disable the function of width scale, return and help.

Weight unit setting page.

Below page shows details of weight unit setting page. The icons from top to bottom represent: unit of measurement (g/oz), balancing accuracy (1g/5g), the minimized value of imbalance, return and help.

5.2 Main balancing page

Main details show as follow:

1. The value of counterweight.

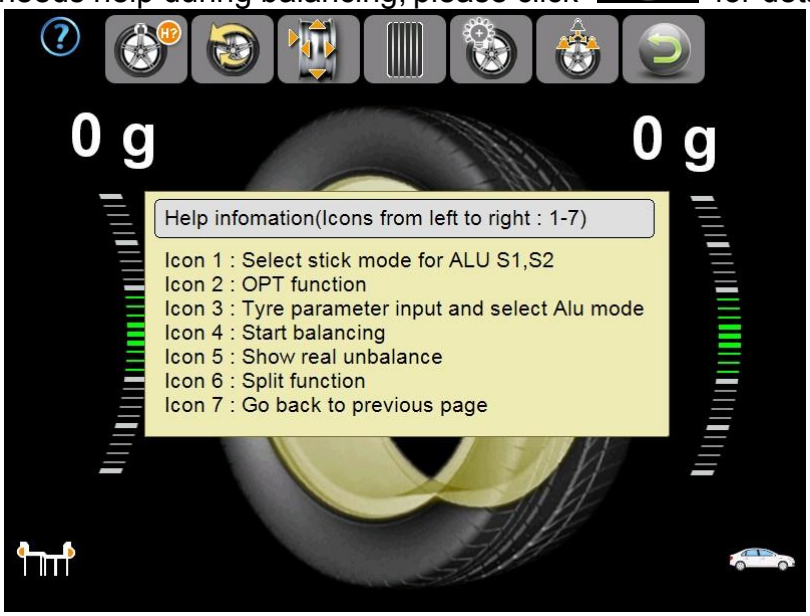
2. The indication of position of counterweight. (When the color turns from red to green, then it means we find the exact position of imbalance.)

3. Indication of how to paste counterweight only shows when we need to paste counterweights near rim inside.

(Tips: If the bar turns to green and shows this image, which means we need to paste the counterweight by using ruler. Otherwise, we just need to clip counterweight in 12 clock direction, and there will be an image shown like this  , or laser position.)

4. ALU Mode

When the user needs help during balancing, please click  for details:



5.3 Key board

Key function：

Up down left right: up down left right

OK: confirm key

ALU: Balancing mode conversion (presses [ALU], enter the balancing mode)

Return: to quit current tack and back to the interface of inputting rim data

N.B. Only use the fingers to press push buttons. Never use the counterweight pincers or other pointed objects.

6. ALU modes and the measurement of specific data of tire

6.1 Explanations of ALU modes

Selecting  while doing balancing, then enter [ok] to the main measurement page of tire, specified as below:

Select  in this page, to choose different ALU modes.

 ALU-NORM mode: clipping the weights on both edges of the wheel

 ALU-3 mode: sticking the weights to shoulder of rim inside and to the shoulder of rim outside

 ALU-S1 mode: sticking the weights to the left shoulder of rim inside and near to the rim spoke inside

 ALU-S2 mode: clipping the weights to the edge of rim inside and sticking the weights near to the rim spoke inside

 ALU-4 mode: clipping the weights to the edge of rim inside and sticking the weights to shoulder of rim outside

 ALU-5 mode: sticking the weights to the shoulder of rim inside and clipping the weights to the edge of rim outside

 ALU-6 mode: (static balance mode) clipping the weights on the left edge of rim outside

 ALU-7 mode: (static balance mode) sticking weights on the edges of rim inside

 ALU-8 mode: (static balance mode) sticking weights on the rim spoke inside

6.2 The selection of automatic ALU mode

Choosing  to activate or disable the automatic ALU mode.

ALU automatically mode: press [ok] to activate ALU automatically mode. Under this model, the computer can identify the mode type automatically by moving scales. For customers who are get used to ALU-NORM, ALU-S1 and ALU-SA, activating this function could be more convenient. But according to different tire types, sometimes, we still need to choose ALU mode manually.

Manually choose ALU mode: press [ok] to disable the function of ALU mode automatically selection. Under this mode, user need to manually select ALU mode, then move scales for measuring.

6.3 The tire measurement under different ALU modes

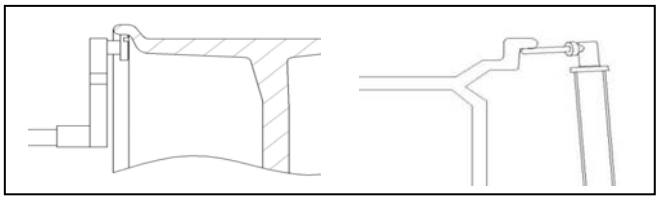
User needs to input distance, rim width and rim diameter during balancing.

Distance, width and diameter are measured by scales automatically. Rotate the measure scale; pull the scale head to inside concave on the edge of the rim, then put it back. After two seconds, the distance and rim diameter will be shown on screen automatically.

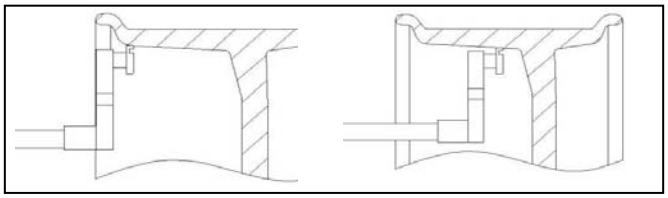
Under ALU-S1,ALU-S2, after measuring distance, move the width measuring scale, pull the ruler head to the edge of the rim outside. Wait for two seconds, when the width data shows on screen automatically, we can put the width measuring scale back.

Except ALU-S1, ALU-S2, all the width data can be obtained automatically. After measuring distance, move the width scale; pull the ruler head to the front surface of unbalanced counter weight outside. Wait for two seconds, when the width data shows on screen, we can put the width measuring scale back.

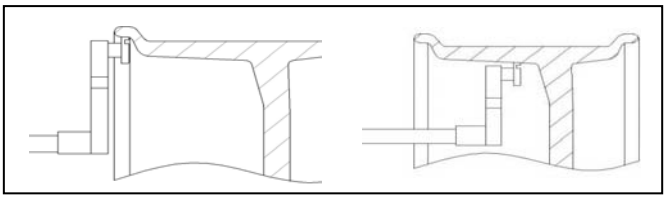
The specific position of measure scale and width scale under different modes:



The measurement of rim excludes situations under mode ALU-S1 & ALU-S2



The measurement of rim under mode ALU-S1



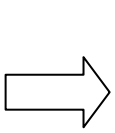
The measurement of rim under mode ALU-S2

7. The Balancing Operation of wheel

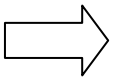
7.1 ALU-NORM mode operation process

1. Input tire data like distance, width and diameter.
2. Run the machine
3. When wheel stops spinning, the result will show in screen.

4. Manually rotate the wheel, when the inside counterweight position to green, clip the counterweight in 12 o'clock direction.



5. Manually rotate the wheel, when the outside counterweight position indicator lights turns to green, clip the counterweight in 12 o'clock direction.

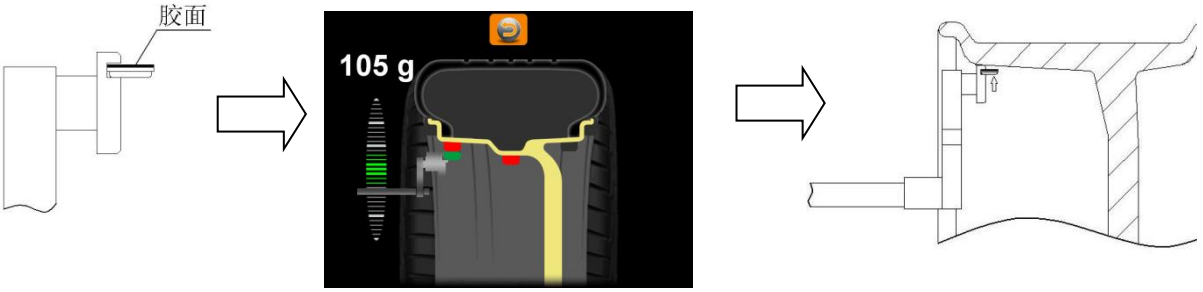


6. After clipping, run the machine again to re-test.

7.2 ALU-S1 mode operation process

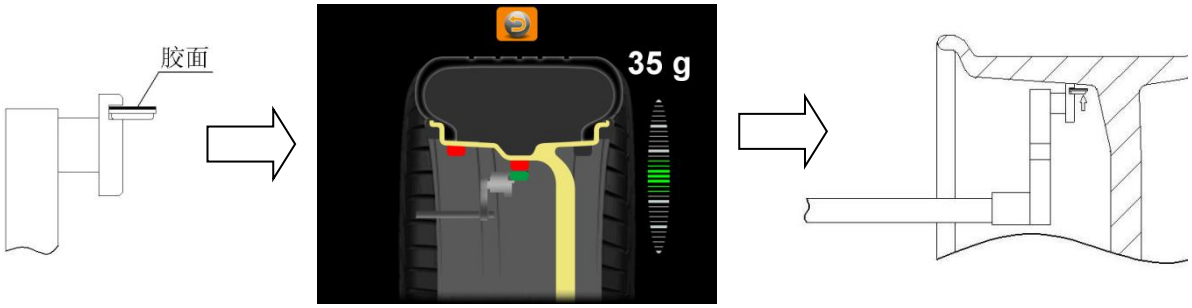
1. Moving the measuring scales to get rim data.
2. Run the machine.
3. When wheel stops spinning, the result will show in screen. When the counterweight position indicator lights turns to green, then the user can stick the counterweight accordingly.

4. Tear the cover of the counterweight, clip the inside sticking weights with glue side up on the measuring ruler head. Rotate the wheel, when the inside counterweight position indicator lights on, pull out the measuring scale. When the inside counterweight position indicator lights turn to green, then stick the counterweight. There will be a bee sound when the user found the right position. After pasting, pull back the measuring scale, it will return to balancing page automatically.



5. When doing balancing, the user must rotate the ruler to find the right position. When the right counterweight position indicator lights turn to green, and then stick the counterweight.

6. Follow the same process, when the outside counterweight position indicator lights turn to green, and the outside tracking sticking indicator light all on, spin the measuring scale and stick the weights on the rim.



7.3 ALU3--ALU5 and ALU-S2 mode operation process

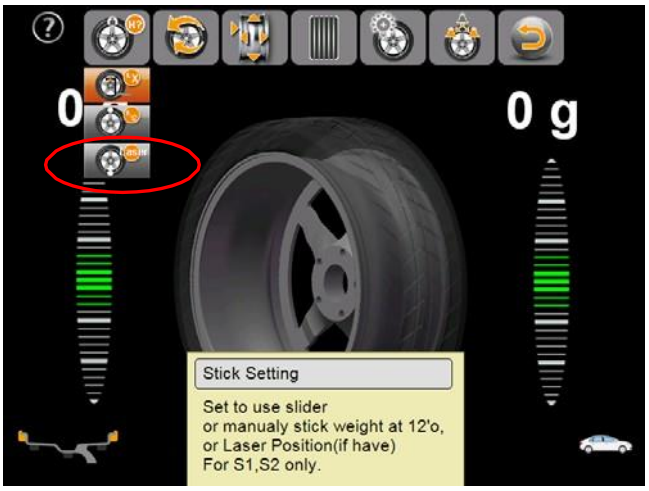
Please consult ALU-Norm and ALU-S1 mode operation.

Or get a reference from chapter 6.1 (ALU modes)

Tips: Under ALU-S1, ALU-S2, user can choose to stick counterweight by measuring scale or clip counterweight in 12 o'clock direction, specified as follow:

7.4 ALU-S1 and ALU-S2 laser stick(Optional)

Under ALU-S1, ALU-S2, set to use slider or manually stick counterweight in 12 clock direction, or laser position(if available),shown as picture below, choose the icon marked with red.



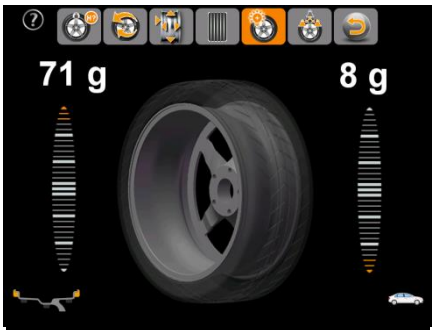
After choose laser mode, laser spot will show the place where the counterweight stick automatically when the counterweight position indicator lights turn to green. Under ALU-S1, both sides of the rim are laser position stick. Under ALU-S2, The outer side of the rim is manually stick counterweight in 12 clock direction, the inner side is laser position stick.

7.5 Dynamic balance mode（ALU6-ALU8）operation process

1. Choosing dynamic balance mode, press [ok] to switch into correspond balance mode.

2. Measuring related rim data by scales.
3. Run the machine.
4. When wheel stops spinning, the result will show in screen.

5. Manually rotate rim, when the outside counterweight position indicator lights turn to green, if it is under ALU-6 mode, then clip the counterweights in 12 o'clock direction inside of rim. If it is under ALU-7 mode, then stick counterweights in 12 o'clock direction inside of rim. If it is under ALU-8 mode, then stick counterweights in 12 o'clock direction in the middle of rim.



Tips: The final test results are multiples of 5g or 0.25oz.

User can press  to check the real imbalance results.

7.6 Counterweight Hide-Stick Mode

Counterweight Hide-stick function can cut imbalance position into two parts, and make these two new positions hide behind the spoke. This function can keep good aesthetic feeling of rim.

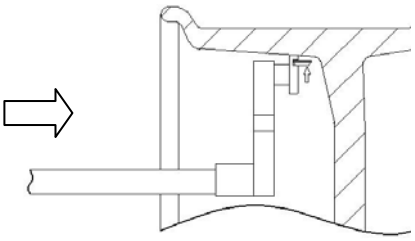
This function is only available in mode ALU-S1, ALU-S2. Below instruction under mode ALU-S1 is for customer's reference.

Under mode ALU-S1, when the final imbalance position is located in between of two rim spokes, users can use hide-stick function, steps as follow:

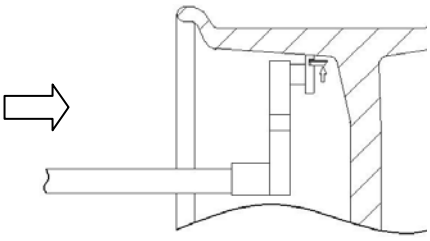
1. Press  to switch into correspond mode.
2. Firstly, put any spoke in 12 o'clock direction, then input spoke numbers, press [ok].

Following above steps, the two imbalanced counterweight indicators will be shown in screen.

When sticking the inside counterweight, please refer to ALU-S1 counterweight pasting process. Manually rotate rim to make this two counterweight position indicator lights turn to green, and then stick counterweights to rim by measure scales.



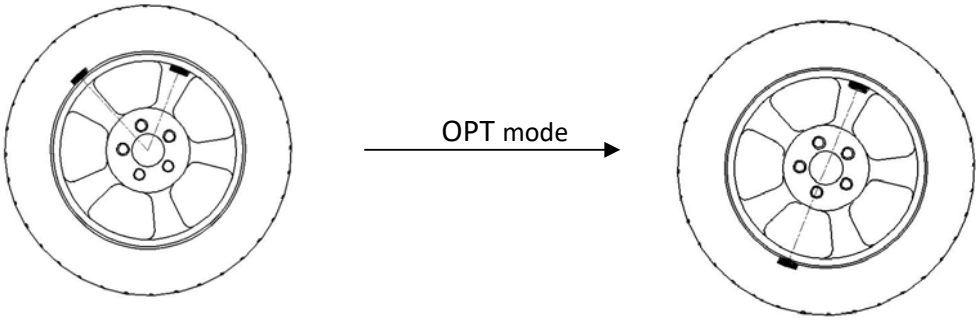
Please refer to this picture to stick 20g counterweight.



Please refer to this picture to stick 10g counterweight.

7.7 The OPT function

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



OPT operation process：

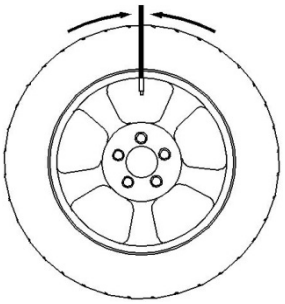
Step 1：

Choose  to switch into OPT mode.

Step 2：

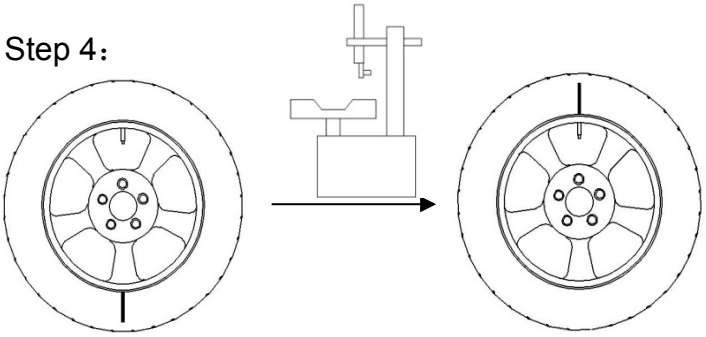
Input rim data accordingly, then press [ok] to run the machine.

Step 3:



Turn the mouth of the wheel to the 12 point position, fix wheel then press [ok] for confirmation

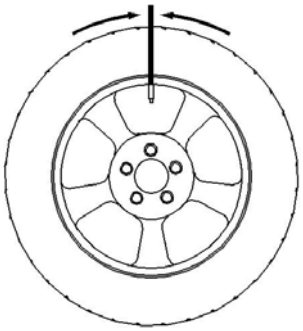
Step 4：



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

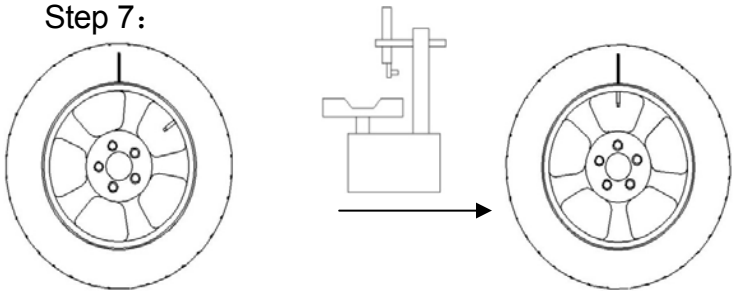
Step 5：Fix the rim on the wheel balancer, then press ok to run the machine.

Step 6：



Turn the mouth of the wheel to 12 o'clock position, keep the wheel's position and confirm it by pressing OK. 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. The user can decide to continue enhancing the wheel or not.

Step 7：



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 o'clock position, then take down the wheel, set it on the tire separating machine, and make the face to the air mouth of the rim.

Step 8：

Set the wheel on the wheel balancer again, run the wheel balancer by pressing [ok], 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 document will indicate whether the wheel's enhancing is successful or not.

8. Self-calibration

8.1 Enter the self-calibration interface

Choose this icon  in the choosing interface, press the [ok] and a textbox will appear， input the password "left" and "right" and enter the main interface of self-calibration.

The main interface of self-calibration is shown as below：

8.2 The self-calibrating of the machine

1. Choose this icon  and press [ok] to enter this programme.
2. Install a well-balanced wheel between 14"-17".
3. Input the diameters of the wheel following the instruction of the ALU-NORM mode.
4. Press [OK] to start the balancer.
5. Rotate the wheel manually after braking，when the indicator turns green ， clip a 100g counterweight on 12 o'clock position inside of the rim.
6. Press [OK] to start the balancer.
7. Take the counterweight after braking and rotate the wheel manually，when the indicator turns green ， clip a 100g counterweight on 12 o'clock position outside of the rim.
8. Press [OK] to start the balancer and "balance succeed" will be shown on the screen. When the motor stops totally, press [OK] to confirm and save the result.

8.3 Calibration of rim distance scale

1. Enter the main interface and press  . Press [OK] to enter "distance measuring scale calibration".
2. Put back the measuring scale and press [OK] to confirm.
3. According to the prompt to move the measuring scale to "0cm", press [OK] to confirm.
4. According to the prompt to move the measuring scale to "15cm", press [OK] to confirm.

8.4 Calibration of diameter scale

1. Enter the main interface of self-calibration and press this icon  , and then press [OK] to choose "diameter measuring scale calibration".

2. Install a wheel with the size of 14"-18"，press  and input diameter of the wheel，pull out the measuring scale and put the head of it on the edge of the inside rim. Press [OK] to confirm.
3. Pull out the measuring scale and bring up the head of it to the main shaft of the balancer, and press [OK] to confirm.
4. Press [OK] to turn back.

8.5 Calibration of width scale

1. Enter the main interface of self-calibration and press this icon  , and then press [OK] to choose "width measuring scale calibration".
2. Put the width measuring scale to the flange of the main shaft and press [OK] to confirm.
3. Put back the width measuring scale, and move the distance scale as the instruction on the screen, then press [OK] to confirm.
4. Press [OK] to turn back.

8.6 Laser mode parameter settings (Optional)

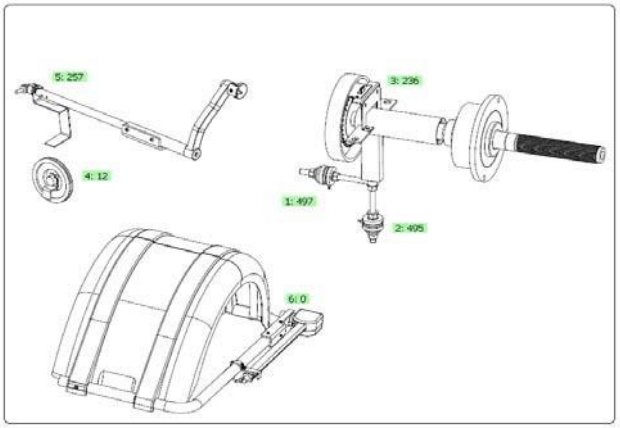
Note: Parameter setting only be needed when replace new laser assembly.

1. Firstly, choose laser mode under ALU-S1 in balancing page.
2. Enter in calibration page, choose laser parameter setting icon, press [OK] to enter this program.
3. Confirm the laser position function is opened according to the screen prompts, press [OK] to enter the next step.
4. Press Up/Down key to input parameter X according to the screen prompts, press [OK] to confirm.
5. Press Up/Down key to input parameter Y according to the screen prompts, press [OK] to confirm.
6. The laser mode parameter setting is succeed, press [OK] to return.

8.7 Check machine settings and self-test

Enter the system calibrating interface and press  . Press [OK] to choose "check machine status".

This information can be provided to the franchisor when the balancer is out of order.



This function can be used for checking all kinds of signals and provide information for fault analysis. (Pic. above)

8.7.1 Position sensor signal check

This function can be used for checking position sensor, main shaft and main board.

Rotate the main shaft slowly and the figure of (3) will change with it. When the main shaft rotates clockwise，the figure increases; When rotating counter-clockwise, the figure decreases; when in the normal position, figure ranges from 0 to 256.

8.7.2 Distance sensor signal check

This function can be used for checking distance sensor, main board signal processing circuit.

Move the measuring scale and the figure of (4) will change with it. The more the scale is been pulled out, the more the figure will be.

8.7.3 Diameter sensor signal check

This function can be used for checking diameter sensor, main board signal processing circuit.

Rotate the measuring scale and the figure of (5) will change with it. When rotate clockwise, the figure increases; on the contrary, the figure decreases.

8.7.4 Width sensor signal check（if any）

This function can be used for checking whether there is fault of the width sensor, main board signal processing circuit and power supply.

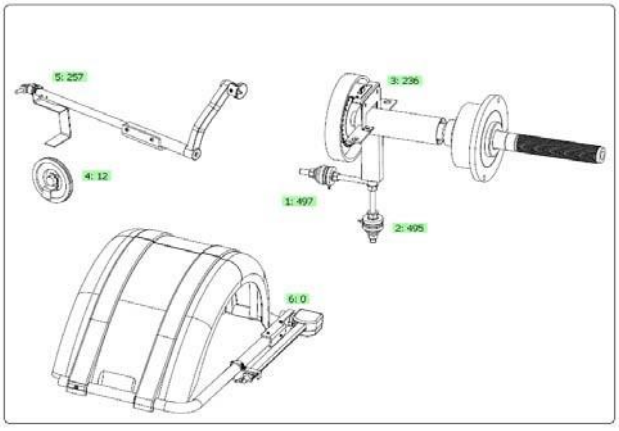
Swing the width measuring scale, figures of (6) should be changed in normal condition.

8.7.5 Piezoelectric sensor signal check

This function can be used for checking piezoelectric sensor，main board signal processing circuit，power supply.

Press the main shaft gently, figures on both sides of (6) change under normal condition.

8.8 Computer Board replacement setting



When replacing computer board, the setting should be done as follows:

a. Take down the code at the lower right corner when starting the machine with original computer board, or enter into the interface shown as section 8.7, and take down the code at the top right corner, which marked with red circle in the picture above.

b. Replace the new computer board. Follow the step shown in section9, turn on the automatic width measuring scale.

c. If the code of the new computer board is different from the one in step a, enter into the interface shown in the picture above.

   Press the key in following order: [Up], [Down], [Up], [OK], [Left], enter into the code input window, input the code that in step a.

   If the code isn't available in step a, please input 55022 for 64 teeth grating or 55522 for 128 teeth grating from right to left of the code window.

d. After finishing the setting, please follow the self-calibration shown in 8.1~8.5.

9. Machine settings

Choose this icon  in the main interface to enter this setting page：

 Language settings

 Sound on/off

 Screen saver on/off

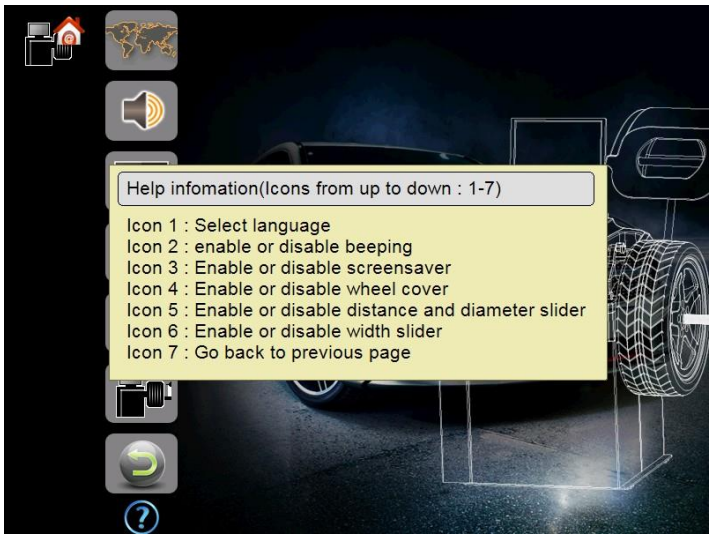
 Under this function, main shaft starts rotating automatically when the protector hood is put down. With this function turns on, lay down the protection hood and press

[OK] to start.

 Turn on/off the automatic distance and diameter measuring scale. With this function turns off, the balancer cannot measure distance and diameter automatically and the data should be input manually.

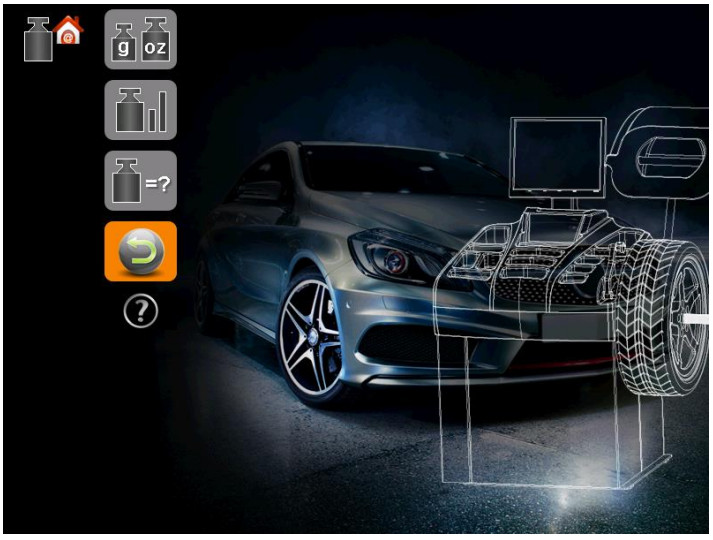
 Turn on/off the automatic width measuring scale. With this function turns off, the balancer cannot measure width automatically and the data should be input manually.

Press this icon  to view the information as listed below for help：



10. Weight unit settings

Press this icon  to enter the main page of weight unit settings as below：



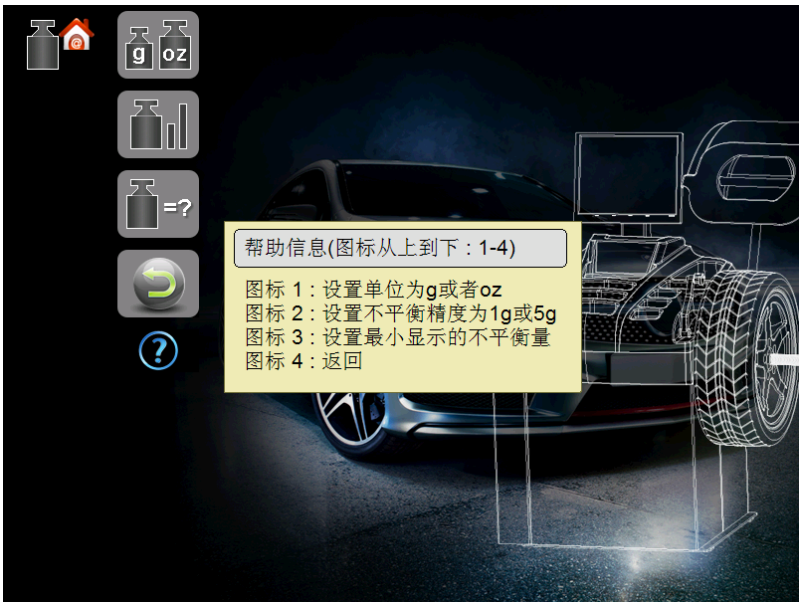
 Set "gram" or "ounce" as measurements unite

 Set "1g" or "5g" as unbalance accuracy

 Set minimum amount of imbalance displayed on the screen. When this amount is set, the amount which is less than this will be shown as 0 on the screen. If this

amount is set as5g, then then amount which is less than 5g will be shown as 0g. we propose to set this amount as 5g.

Press this icon  to view the information as listed below for help：



11. Safety protection and trouble shooting

11.1 Safety protection

11.1.1 If something unexpected happened during operation process , please press [OK] to stop the rotating wheel immediately.

11.1.2 If protection hood is not laid down, press [OK] to stop the rotating process.

11.1.3 If the protection hood is open during operation process, the rotating wheel will stop immediately.

11.2 Trouble shooting

11.2.1 The main shaft doesn't rotate after [OK] has been pressed. Please check the motor, power board, computer board, connecting wires, etc.

11.2.2 The main shaft rotates after [OK] has been pressed. Please check the position sensor, computer board, connecting wires, etc.

1.2.3 Main shaft rotates for a long time after the balance test ended. Please check the brake resistance, computer board, power board, connecting wires, etc.

11.2.4 When using the automatic rim measuring function, if the data shown on the screen is not so exact, please calibrate the measuring scale.

11.2.5 If the monitor doesn't work, please check power supply, power board, computer board, connecting wires, etc.

11.2.6 Wrong wheel installation, error of counterweight or 100g counterweight for self-calibration may cause inaccuracy. Please keep the original 100g counterweight properly for self-calibration.

11.2.7 Wrong wheel installation, the ground is not firm nor smooth, no earth wire may cause instability of the data and bad repetitiveness. It's better to fix the machine by using the screws.

Tips：Right method of accurately detecting：

Input right data of the wheel and do self-calibration follow the instruction. Press [OK] to start the operation and write down the data for the first time. Clip the 100g-counterweight on the outside of the wheel (in the top position that the green indicator shows). Press [OK] again, at this time the data shown on the screen and the first data in total should be 100±2. Rotate the wheel manually when the outside indicator turns green and check the 100g-counterweight. If the data is not 100g or the 100g-counterweight is not at the bottom, then the balancer is not accurate. If the date is 100g, then check inside of the wheel the same way.

12. Electromagnetic brake device

After the balance test is completed, rotate the tire by hand and when the unbalanced point is found, the main shaft can be automatically locked for easy operation of attaching the balance block.

13. Laser (Optional)

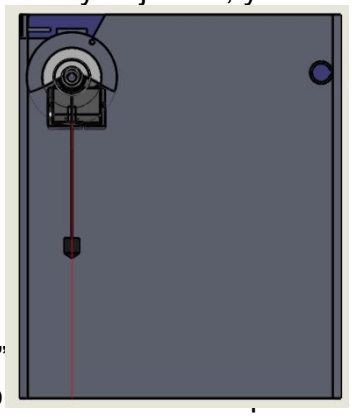
13.1 Laser Settings

Before enter the laser settings, please ensure that the machine is working properly, or the laser program can not be set arbitrarily.

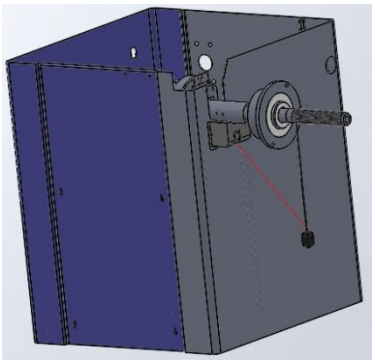
First, install a tire with iron rim, and input a, b, d value correctly, then remove the tire;

Press "STOP" key and "D" key to enter the menu interface.Then press "a+" key repeatedly and select "SET LAS" interface, press "b+" key to enter the laser setting, display “SET LAS -1-”.

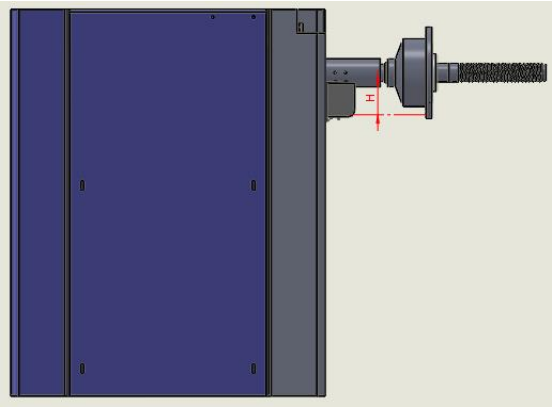
1、Hang an object on the inside of the shaft, and adjust the position of laser box, to make the laser point towards the bottom (factory adjusted, you can skip), then press "ALU" to the next step.



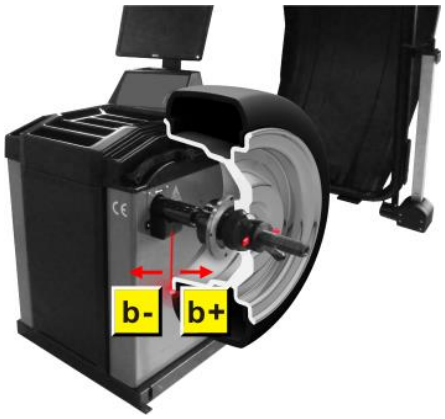
2、Display “SET LAS -2-” outside of the shaft, and adjust the screw at the bottom of the laser box, to nd the outer vertical line overlapped(factory adjusted, you can skip), then press "ALU" to the next step.



3、Display “SET H 66”, measure the distance between the laser and the center of the shaft, and press "b+" or "b-" to input the H value (factory adjusted, you can skip), then press "ALU" to the next step,



4、Display “SET LAS -3-”, install a tire with iron rim, press "b +" or "b-" to align the laser point to the inner edge of the rim (factory adjusted, you can skip), then press "AL u" to the next step.



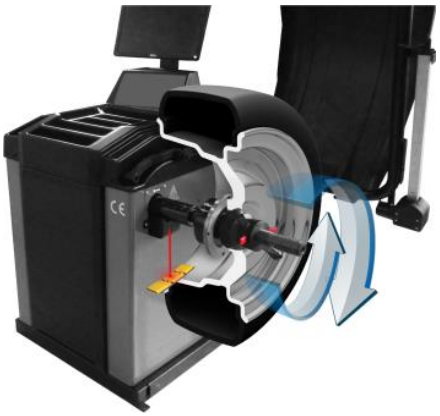
5、Display “SET LAS -4-”, put down the protective cover (press "START" button)and wait for the end of the balance test.

6、Display “SET LAS -5-”, turn the tire by hand to find the imbalance point, add 100g weight on the above of the tire, put down the protective cover (press "START" button), and wait for the end of the balance test.

7、Display “SET LAS -6-”, turn the tire by hand,to make the center of the weights align to the laser point.and press "ALU" to complete it.

13.2 The Usage of Laser

The laser can only be used in the ALU-S mode. After the balance finish, press "STOP" key and "F" key, rotate the tire by hand. When find the unbalanced position, the laser will point to the position where the weights can be pasted. Make the left side (the middle position) of the weight align to the laser point, then paste the weight on the rim. Do the same operation on both sides of rim till the tire balance finish.



14. LED Lighting (optional)

After the balance inspection is finished, turn the tire by hand. When the unbalanced position is found, the lighting device will be turned on automatically, otherwise it will be turned off.

15. Maintenance

15.1 The daily maintenance of non-professionals

Please switch off the power supply before the maintenance.

13.1.1 Adjust the belt tension.

13.1.1.1 Remove the protect hood.

13.1.1.2 Release the screws of the motor and move the belt until the belt in proper intention. Press the belt for 4mm.

13.1.1.3 Tighten the screws of the motor and cover the hood.

13.1.2 Check the electrical system and confirm every parts of it is well connected.

13.1.3 Check the clamping screw of the main shaft and make sure it is tight.
13.1.3.1 The locking handle should not lock the wheel to the main shaft.
13.1.3.2 Tighten the clamping screw of the main shaft by the hexagon wrench.

15.2 The daily maintenance of professionals

The maintenance of professionals can only be carried out by the professionals from the factory.

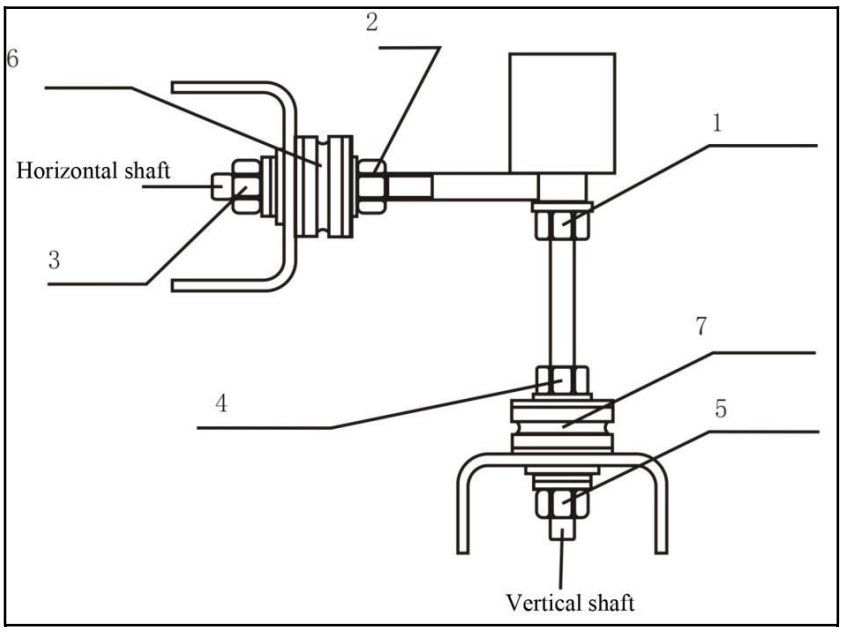
13.2.1 If the imbalance value of the wheel has obvious errors and does not improve after self-calibrate, this proves the parameter of the machine has altered, so the user should ask the professionals for help.

13.2.2 The replacement and adjustment of pressure sensor should be operated according to the following methods, and the operation should be carried out by professionals.

The steps are as follows：

① Unlash the No.1,2,3,4,5 nuts
② Remove the sensor and screw.
③ Change the No.6,7 sensing element.
④ Install the sensor and the screw according to the figure 18-1 (pay attention to the sensor's direction)
⑤ Tighten the No.1 nut emphatically.
⑥ Tighten the No.2 nut to make the main shaft and the flank of cabinet vertical, and then emphatically tighten the No.3 nut.
⑦ Tighten the No.4 nut (not too emphatically), then tighten No.5 nut.

13.2.3 The replacement of the circuit board and the components on it should be carried out by professionals.



1 (Nut)
2 (Nut)
3 (Nut)
4 (Nut)
5 (Nut)
6 (Sensor)
7 (Sensor)
(Horizontal shaft)
(Vertical shaft)

Figure 12-1

16. Fault analysis of balancer

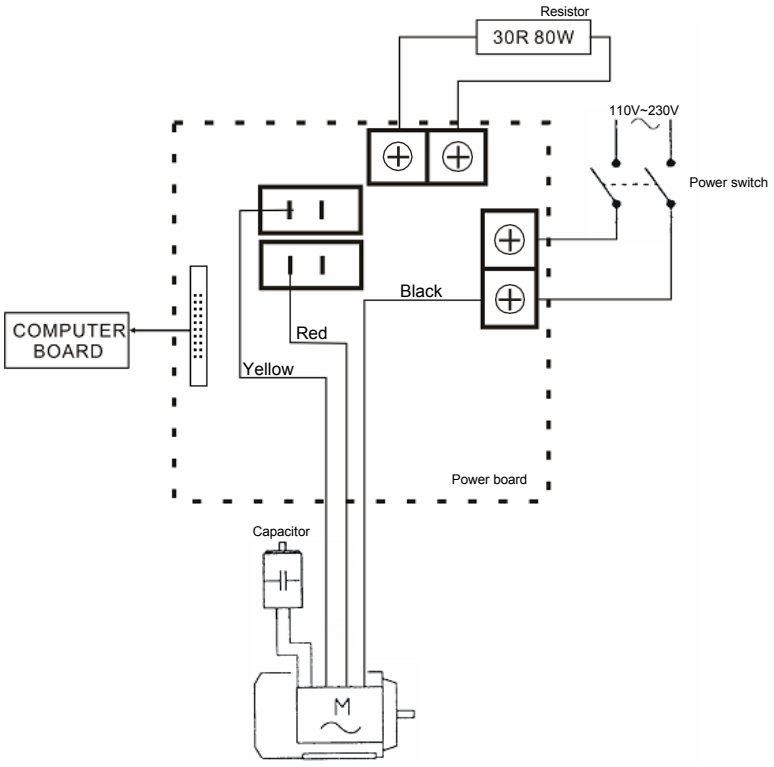
Error code and failure mode	Cause analysis
The motor brakes urgently	1. The keyboard has been touched when dynamic balance is being operated. 2. The protection hood has been opened when dynamic balance is being operated.
The speed of the motor cannot meet needs / Speed is too low	1. The motor has been damaged. 2. The wire of motor has been damaged.
Imbalance value is beyond range	Imbalance value of the wheel is too much and beyond the calculation.
The motor rotates inversely	1. Connecting wire of the power panel is wrong. 2. Connecting wire of the motor is wrong.
Protection hood is open	1. The protection hood has been opened 2. when dynamic balance is being operated.
Protection hood is not been covered	The protection hood has been opened before dynamic balance is being operated.
Inner/outer sensor is not detected Sensor error	1. Connecting wire of sensor is wrong or damaged. 2. Piezoelectric sensor is damaged. 3. Piezoelectric sensor is not connected.
Photoelectric sensor position detection error/ Photoelectric sensor is not detected	1. Photoelectric sensor is not connected. 2. Photoelectric sensor is damaged.
Input parameter of the tyre	1. Parameter of the tyre has not been measured before balance operation. 2. Tyre distance, diameter, width is zero.
Self-calibrate is failed	1. Calibration procedures are wrong. 2.100g counterweight is not been clipped.
Calibration of distance scale is failed	1. Calibration procedures are wrong. 2. Potentiometer is not connected or abnormal.
Calibration of diameter scale is failed	1. Calibration procedures are wrong. 2. Potentiometer is not connected or abnormal.
Calibration of width scale is failed	1. Calibration procedures are wrong. 2. Potentiometer is not connected or abnormal.
Lack of information database	1. Information database is lost. 2. Computer board is damaged.
The stored data is lost, the balancer needs to be tested	1. Test the balancer. 2. Computer board is damaged.
The automatic scale's position is beyond the range	1. The automatic scale is not in the normal range. 2. Calibrate the distance scale, diameter scale and width scale. 3. Potentiometer is not connected or damaged.
Blank display on the screen	1. The power switch is damaged. 2. The wire between display and computer is not well connected. 3. The liquid crystal board is damaged. 4. The power panel is damaged.

The displayer works normally but motor doesn't work	1. The protection hood is not been covered(Have a prompt on the screen). 2. 3 wires of the motor and the electric relay are not well connected. 3. Computer cannot control the electric relay. Change the computer. 4. The electric relay is damaged. Change the power panel. 5. The motor is damaged.
Motor speed is very high and cannot brake	1. The connecting wire between the position sensor and computer board is not well connected. Please check the connecting wire. 2. Signal of the position sensor is abnormal. Please adjust the height of position sensor. (After adjustment, please rotate the wheel manually to check if the position sensor and the fluted disc is contacted, and avoid damaging the optocoupler in the position sensor). 3. The optocoupler in the position sensor is damaged. Please change a new position sensor.
Displayer works well but the keyboard doesn't work. / Cannot brake in the test operation and information doesn’t been shown on the screen.	System halted. Please restart.
The balancer is failed in self-calibrating and on the screen shows information about this.	1. Didn't clip the 100g-counterweight. 2. The connecting wire of piezoelectric sensor is broken or not well connected. 3. The sensor is damaged.
Parameter of the wheel that measured by the electrical scale is obviously wrong.	1. Please check if the connecting wire between the scale potentiometer and the computer board is well connected. 2. The potentiometer is broken, please change a new one. 3.Please re-demarcate the electrical scale.
The testing process is normal but imbalance value is obviously wrong.	1. Wrong input of wheel parameter. Please check it again. 2. Please use a well-balanced tyre size of which is 14"-15" to test the balancer. If error is more or less than 10% of the counterweight, please do the self-calibration.
When the rotate is repeated, the result of measurement is rather changeable and more than 5g.	1. Foreign matter in the tyre or tyre pressure is low. 2. The adaptor or the wheel is not tight. 3. The ground is not even and main body of the balancer is waggling in the testing process. Please fix the foundation bolt. 4. If necessary， please do self-calibration by using the tyre size of which is 14"-15".

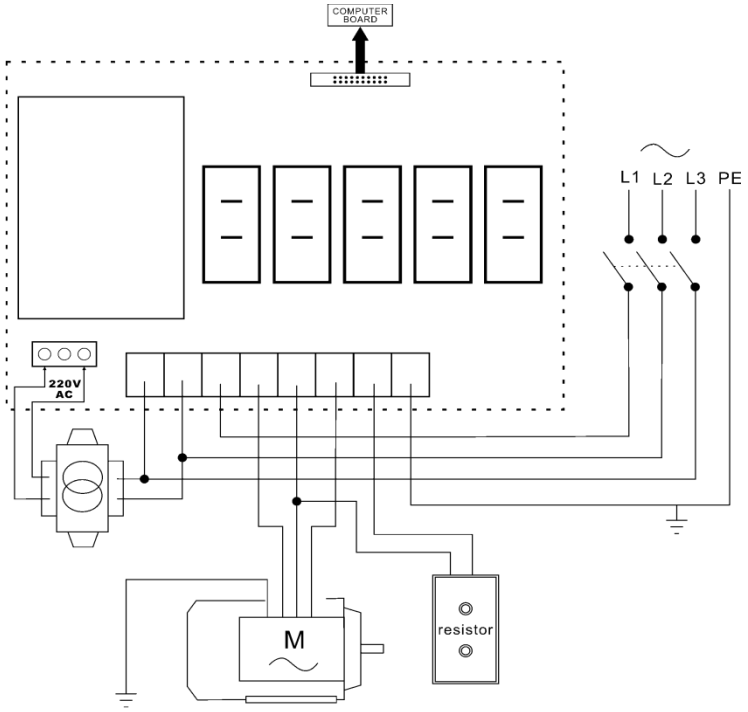
The result of measurement is shown as 0-0.	1. The minimum displayed amount on the screen is too much. Please set it as 5g. 2. The connecting wire of piezoelectric sensor is broken or not well connected.

17. Power supply layout diagram

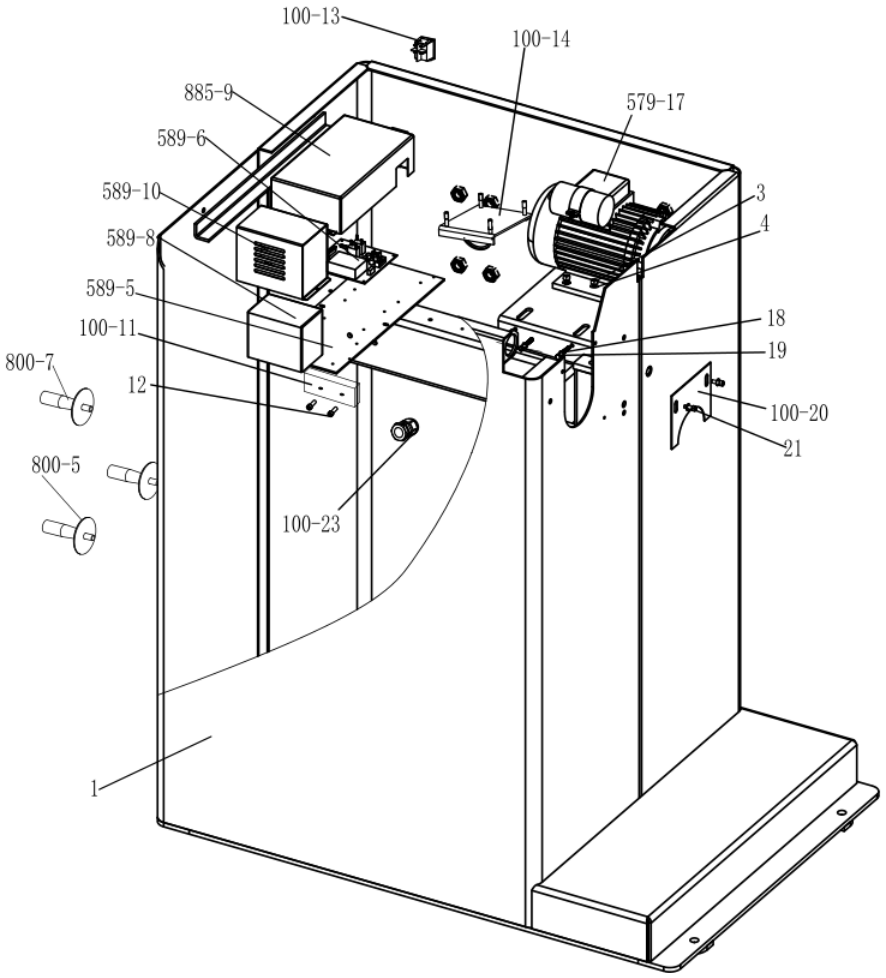
17.1 220 V Connection



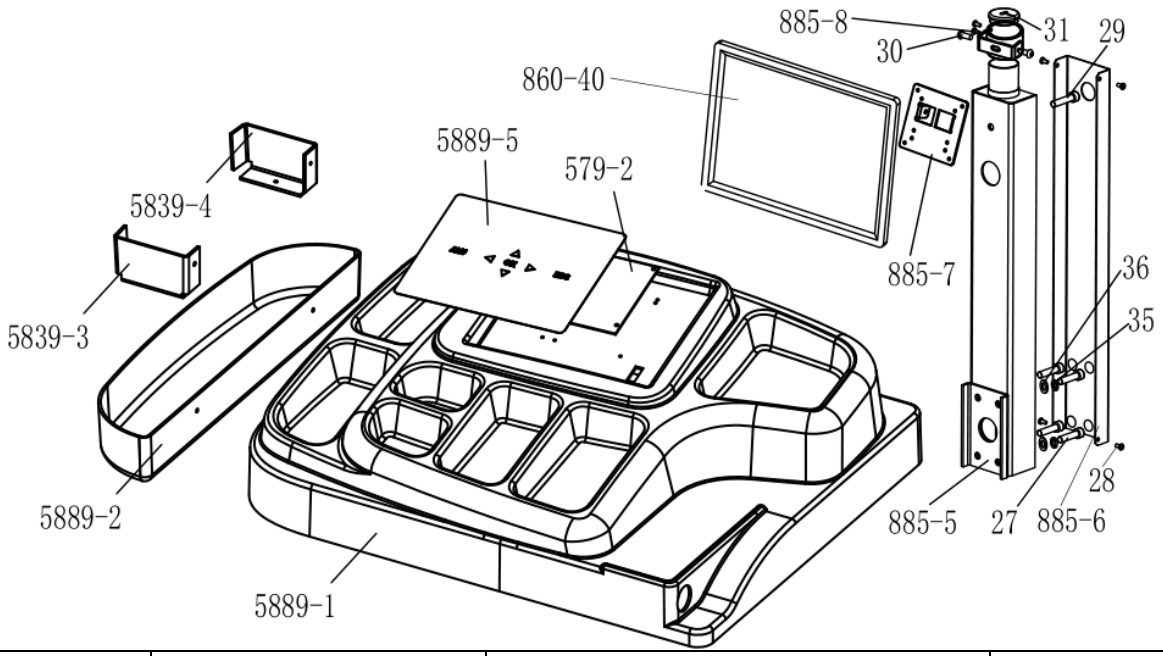
17.2 380 V Connection



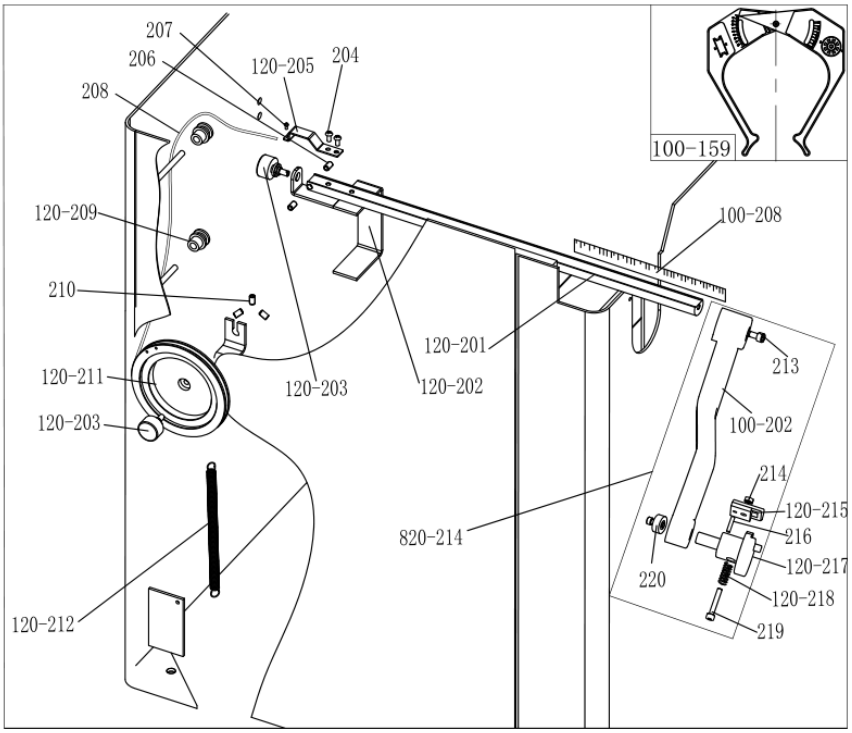
18. Exploded drawings and Spare parts list



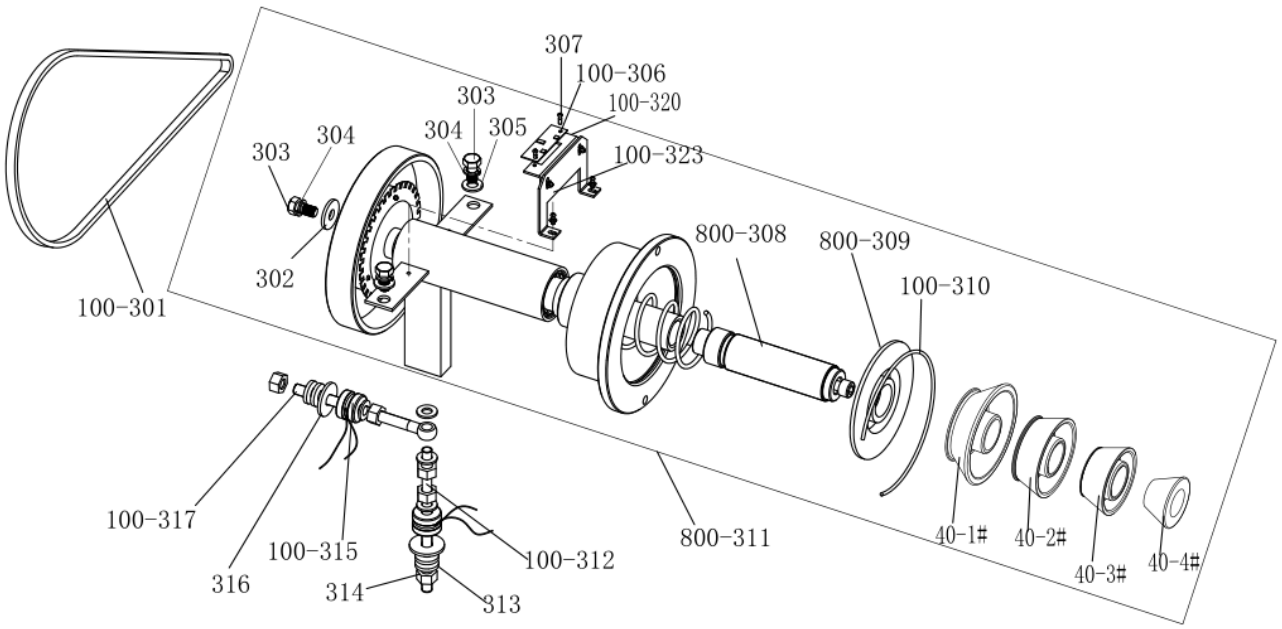
序号	名称	U8 编码	NC 编码
1	Machine body		
800-5	Tools hang washer	B-040-050000-1	JZ07002020948
800-7	Tools hang	B-024-050251-0	JZ07002020947
100-11	resistance	D-010-100100-1	DD04010002061
12	screw	B-024-050251-0	FJ04006004341
589-5	Computer board fixed board	PX-885-430102-0	JZ03002015940
589-6	Power board		JZ02008049117
885-9	Computer board protection box	PX-885-430100-0	JZ03002015939
589-8	Frequency converter assembly		DD03001055732
589-10	Frequency converter assembly Box		JZ03002056142
100-13	switch	S-060-000210-0	DD03009001576
100-14	Motor adjust board	PX-100-010920-0	JZ03002021444
579-17	Motor		DD01001055813
3	Nut	B-004-060001-1	FJ04008004513
4	Flat washer	B-040-061412-1	FJ04002003892
18	Nut	B-004-050001-1	FJ04008004512
19	Outer hex bolt	B-014-050351-1	FJ04009004849
100-20	Plate	PX-100-110000-0	JZ08002021424
21	screw	B-024-050061-1	FJ04006004408
100-23	Power cable socket	S-025-000135-0	DD02001001295



序号	名称	U8 编码	NC 编码
5889-5	Key board		JZ10001069879
579-2	Computer board 579	S-140-005790-0	JZ09002023318
5889-1	Top Cover		JZ07002069882
5889-2	Side Cover		JZ07002069886
885-5	LCD Screen support	PX-890E-040100-0	JZ08002021433
27	Screw	B-010-100401-0	FJ04009004586
885-6	Box	PX-890E-040600-0	JZ08002021415
28	Screw	B-013-050161-1	FJ04006004050
29	Screw	B-010-100551-0	FJ04009004589
30	Screw	B-010-080201-0	FJ04009004706
31	Rubber sheath	P-928-060500-0	JZ09002023532
885-7	Support board	PX-890E-040500-0	JZ08002021413
885-8	Support cover	PX-890E-040600-0	JZ08002021415
33	Spring washer	B-050-100000-0	FJ04002003773
34	Flat washer	B-040-112020-1,B-040-102020-1	FJ04002003800
885-5	LCD Screen support	PX-890E-040100-0	JZ08002021433

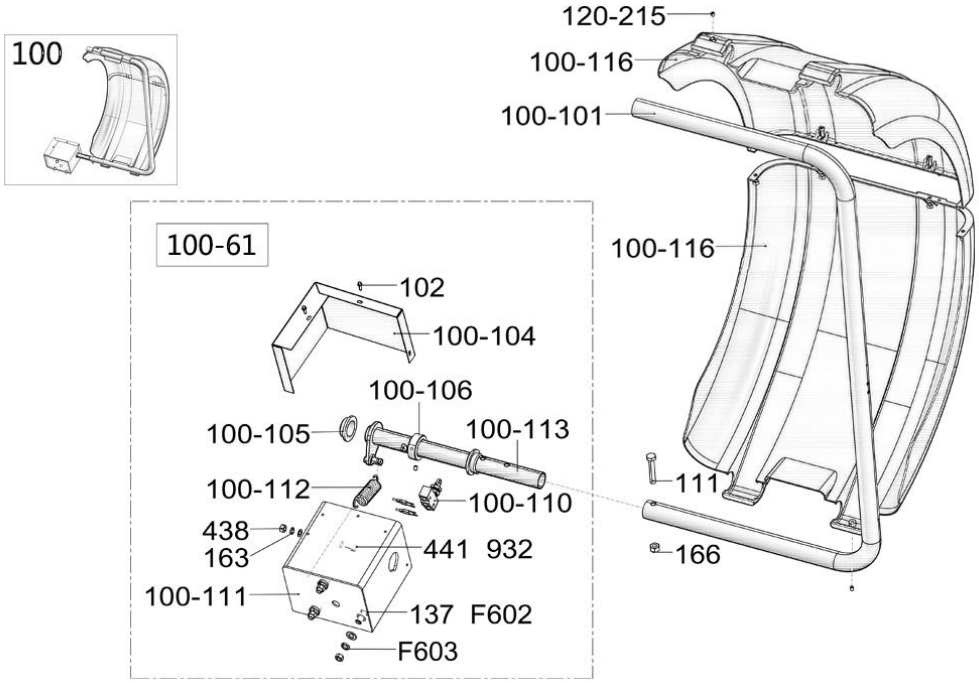


序号	名称	U8 编码	NC 编码
120-201	Measuring Scale	P-120-090000-0	JZ09002023423
120-202	heavy	PX-120-240000-0	JZ03002016087
120-203	Gauge sensor	S-132-000010-0	DD04010001969
204	screw	B-024-050101-1	FJ04006004254
120-205	caliper hook	PX-120-230000-0	JZ03002021386
206	screw	B-007-050081-0	FJ04006004061
207	screw	B-024-070301-0	FJ04006004364
208	Steel rope	P-000-030010-0	FJ09001005463
120-209	Pulley	P-120-260000-0	JZ07002020942
210	screw	B-007-060081-0	FJ04006004063
120-211	Bobbin winder pulley	P-120-250000-0	JZ07002020971
120-212	Spring	P-120-210000-0	JZ09002023435
820-214	Handle Bar	PA-009-082800-0	JZ04002018635
213	hex socket head cap screw	GZBLS-B-011-060161-0,B-010-060161-0	FJ04009004676
100-202	Handle bar 728	P-728-160100-0	JZ07002020965
214	Nut	GZBLS-B-004-040000-0,B-004-040001-1	FJ04008004510
120-215	clamping block	P-828-160902-0	JZ07002020954
216	Pin	B-061-003014-0	FJ06002004998
120-217	base of the stick handle	P-828-160901-0	JZ07002020987
120-218	Button spring	C-221-690400-A	JZ09001022793
219	hex socket head cap screw	B-010-040251-0	FJ04009004638
220	screw	B-024-050101-1	FJ04006004254
100-208	Graduated Strip	Y-004-000070-0	JZ09002023554
100-159	宽度尺	P-000-001008-0	JZ07002020959



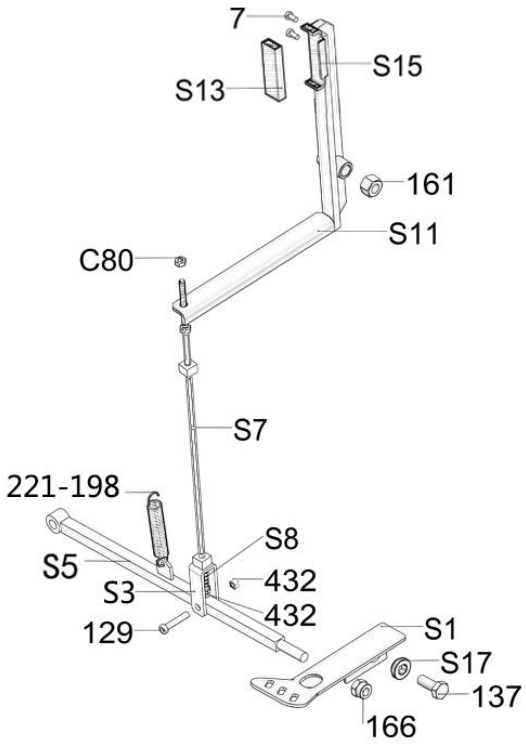
序号	名称	U8 编码	NC 编码
800-311	Complete shaft(64/U-9//Tr40)	S-100-000064-2	JZ04002018502
800-308	Threaded shaft Tr40	P-900-400000-0	JZ03002015932
800-309	Plastic Lid Tr40	P-100-420000-1	JZ07002020940
100-310	Big Spring	P-100-340000-0	JZ09002023333
307	screw	B-024-030061-0	FJ04006004367
100-306	Position Pick-up Board	PZ-000-040100-0	JZ02008012201
302	Flat washer	B-040-103030-1	FJ04002003804
303	Outer hex bolt	B-014-100251-0	FJ04009004742
304	Flat washer	B-050-100000-0	FJ04002003773
305	Flat washer	B-040-102020-1	FJ04002003800
100-312	Double-end sensing screw rod	P-100-080000-0	JZ09002023331
313	Washer	B-048-102330-1	FJ04002003766
314	Nut	B-004-100001-2	FJ04008004487
100-315	Sensor Assembly	S-131-000010-0	DD04007001858
316	Washer	B-040-124030-1	FJ04002003806
100-317	Single-end sensing screw rod	P-100-070000-0	JZ09002023329
800-318	Shaft spring	P-100-350000-0	JZ03002016086
100-301	Balancer Belt	S-042-000380-0	FJ02003003528
100-320	Support of Position Pick-up Board 100	P-800-220000-1	JZ09002023341
100-323	Support of Position Pick-up Board	P-800-680900-0	JZ09002023340
40-1#	1 CONE Tr40,big	S-100-040000-1	JZ03002016062
40-2#	2 CONE Tr40,medium	S-100-040000-2	JZ03002016063
40-3#	3 CONE Tr40,med-small	S-100-040000-3	JZ03002016064
40-4#	4 CONE Tr40,small	S-100-040000-4	JZ03002016061

Set of protection hood spare parts list



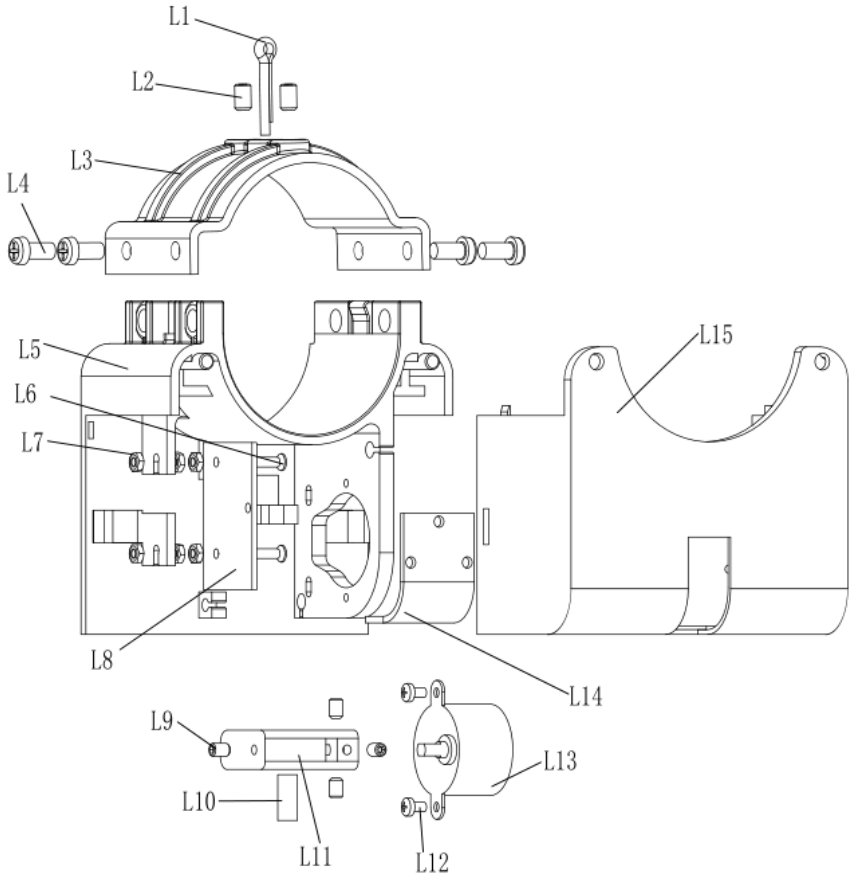
Graph code	Name	U8 code	NC CODE
100-116	Protection Hood Assembly	P-100-200100-0	JZ07002020936
100-104	Cover for protection hood box	PX-100-030000-0	JZ08002021368
F603	Flat washer	B-050-100000-0	FJ04002003773
163	Flat washer	B-050-080000-0	FJ04002003792
F602	Flat washer	B-040-112020-1,B-040-102020-1	FJ04002003800
932	Flat washer	B-040-081820-1	FJ04002003906
441	hex socket head cap screw	B-010-080201-0	FJ04009004706
131	hex socket head cap screw	GZBLS-B-011-060161-0,B-010-06016	FJ04009004676
	Hex wrench	S-105-000050-0,G-035-050050-0	HG02001028227
100	LW-Hood100	PW-108-010000-0	JZ06002020459
100-110	Micro switch	S-060-000410-0	DD03009001605
	Micro switch wire	PZ-000-180520-1	JZ02008026590
166	Nut	GZBLS-B-001-100000-0,B-001-10000	FJ04008004444
438	Nut	B-004-080001-0	FJ04008004515
432	Nut	GZBLS-B-001-060000-0,B-001-06000	FJ04008004458
111	Outer hex bolt	B-014-100451-0	FJ04009004777
137	Outer hex bolt	B-014-100251-0	FJ04009004770
102	screw M4.8*16	B-013-050161-1	FJ04006004050
100-61	Protect axle box assembly 100	PW-108-010000-2	JZ06002020461
100-111	Protection Hood Box	PX-100-020000-0	JZ08002021366
	Protection Hood cable	PZ-000-180100-1	JZ02008026562
100-101	Protection Hood Rotating Shaft	PX-100-200200-0	JZ09002023655
100-113	Protection hood shaft	PX-800-040000-0	JZ08002021365
	Protection Hood shaft block	P-100-200300-0	JZ09002023297
100-106	Protection hood shaft sleeve	PX-800-050000-0	JZ07002020994
100-112	Protection hood spring	P-800-330000-0	JZ09002023294
120-215	screw	B-007-060081-0	FJ04006004063
4231	screw	B-019-350161-0	FJ04006004231
100-105	Sheath	P-800-180000-0	JZ07002020937
	Wrench	PX-100-200400-0	JZ03002016059

S Version Exploded drawings and spare parts list (Optional)



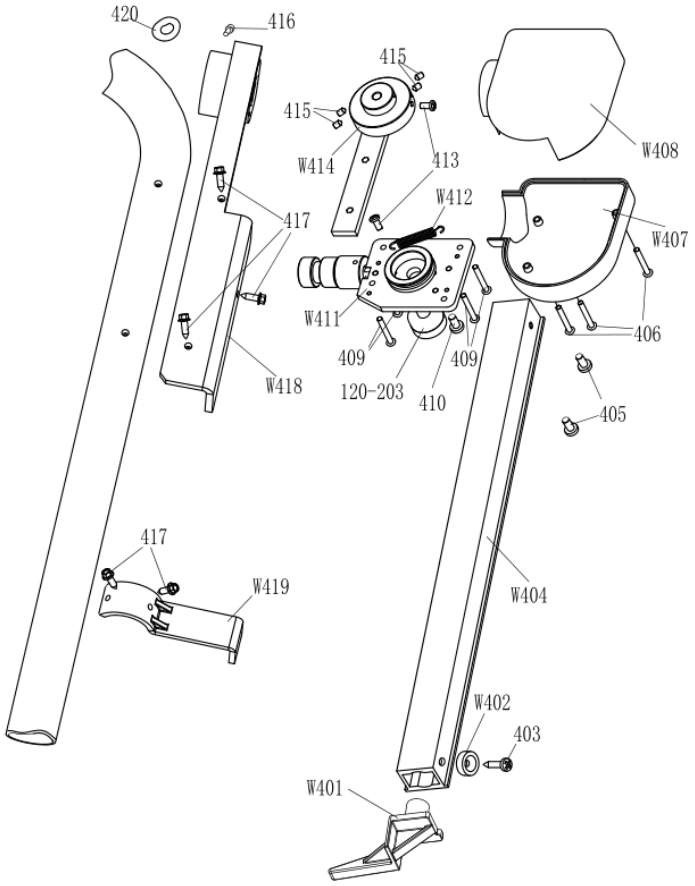
No.	Description	U8 Code	NC Code
S11	Brake lever	PX-100-020200-0	JZ03002015963
S15	Brake pads base	PX-100-020700-0	JZ03002015917
S13	Brake pads		JZ02008044808
S1	Footrest	PX-100-020500-0	JZ03002021371
S7	Connecting rod	PX-100-020400-0	JZ03002015977
S3	Draw hook	PX-100-020404-0	JZ03002015980
S5	Foot lever	PX-576-020500-0	JZ03002015960
221-198	Spring	C-221-400000-0	JZ09001022969
129	Screw	GZBLS-B-011-060351-0	FJ04009004686
166	Nut	GZBLS-B-001-100000-0,B-001-10000	FJ04008004444
161	Nut	GZBLS-B-001-120000-0,B-001-12000	FJ04008004445
C80	Nut	GZBLS-B-004-060000-0,B-004-06000	FJ04008004513
432	Nut	GZBLS-B-001-060000-0,B-001-06000	FJ04008004458
137	Screw	B-014-100251-0	FJ04009004770
S17	Rotary sleeve	PX-100-020600-0	JZ03002016039
420	Screw	B-019-290121-0	FJ04006004228
7	Screw	B-024-050101-1	FJ04006004254
S8	Spring	P-100-020800-0	JZ09002023304

Laser Version Exploded drawings and spare parts list (Optional)



No.	Description	U8 Code	NC Code
L1	cotter pin	B-070-040012-0	FJ06002005005
L2	Screw	B-007-050081-0	FJ04006004061
L3	Laser cover	P-579-310900-0	JZ07002020990
L4	Laser mounting base	P-579-310800-0	JZ07002020991
L5	Screw	B-024-050101-1	FJ04006004254
L6	Screw	B-017-030161-0	FJ04006004306
L7	Nut	GZBLS-B-004-030000-0,B-004-030001-1	FJ04008004509
L8	Controller	PZ-000-050579-0	JZ02008012215
L9	Screw	B-007-040061-0	FJ04006004060
L10	Laser	S-054-000002-0	DD04014002121
L11	Laser fixed block	P-579-310200-0	JZ07002020992
L12	Screw	B-024-070301-0	FJ04006004364
L13	motor	S-053-000001-0	DD01001001162
L14	Glass	P-800-310300-0	JZ09002023515
L15	Box	P-579-310100-0	JZ07002020989

Width measuring scale spare parts list



序号	名称	U8 编码	NC 编码
W401	COMPLETED RULER HEAD	P-870-011400-0	JZ07002020938
W402	Magnet	P-870-011800-0	JZ09002023312
403	screw	B-019-350161-0	FJ04006004231
W404	Arm U829010108	P-870-010800-0	JZ09002023306
405	screw	B-024-050101-0,B-024-050101-0,GZBLS-B-024-050100-0	FJ04006004336
406	screw	B-019-420301-0	FJ04006004241
W407	Width measuring scale Bottom cover	P-870-010700-0	JZ07002020975
W408	Width measuring scale Top cover	P-870-010400-0	JZ07002020973
409	screw	B-019-420251-0	FJ04006004240
410	screw	B-024-050161-1	FJ04006004255
120-203	Gauge sensor	S-132-000010-0	DD04010001969
W411	Revolve shaft assembly	PX-870-010100-0	JZ03002016040
W412	Spring	P-870-010900-0	JZ09002023434
413	screw	B-024-040101-0,B-024-040101-0,GZBLS-B-024-040100-0	FJ04006004318
W414	Ruler arm connecting assembly	PX-870-010500-0	JZ03002015921
415	screw	B-007-040061-0	FJ04006004060
416	hex socket head cap screw	GZBLS-B-011-060161-0,B-010-060161-0	FJ04009004676
417	outer hex self-tapping and self-auger screw M4.8*16	B-013-050161-1	FJ04006004050
W418	Installation board	PX-829-020000-0	JZ03002015981
W419	locating plate	PX-829-011900-0	JZ03002015945
420	bushings	S-036-201400-0	CF03002001046

Accessories list

Specification options 1: 36☐ 2: 40☐

CODE	ITEM	QTY	PHOTO	
1: JZ03001015878	1# CONE	1		1: ϕ 36
2: JZ03002016062				2: ϕ 40
1: JZ03001015879	2# CONE	1		1: ϕ 36
2: JZ03002016063				2 : ϕ 40
1: JZ03001015880	3# CONE	1		1: ϕ 36
2: JZ03002016064				2: ϕ 40
1: JZ03001015881	4# CONE	1		1: ϕ 36
2: JZ03002016061				2: ϕ 40
1:PW-105-010000-0	COMPLETE QUICK RELEASE NUT	1		1 : ϕ 36
2:PW-105-010000-4				2: ϕ 40
1: P-100-400000-3	THREADED SHAFT	1		1:Tr36
2: P-900-400000-0				2:Tr40
JZ03002016059	WRENCH	1		
HG02001028224	HEX WRENCH	1		
HG02001028227	HEX WRENCH	1		
JZ09002023492	STANDARD WEIGHTS 100G	1		
JZ07002020959	CALIPER	1		
JZ09002023563	PLIER	1		
JZ07002020974	PLASTIC LID	1		
JZ09002023408	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