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# Wheel balancer user manual

**WB220L**



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## 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.

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 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(install the anchor bolt)
- Motor power: 180w
- Power supply: 220v/50Hz
- Rotating speed: 200r/min
- Position precision: 2.81°
- Cycle time: 8s
- Rim diameter: 10"~24"(256mm~610mm)
- Back spacing: <190mm
- Noise: <70dB
- Net weight: 60Kg
- Dimensions:

### 1.2 Features:

- Display with 6 digit digital tube, flexible indicator operating function.
- Various balancing modes can carry out counterweights to stick, clamp etc.
- Input data of rim by hand
- Intelligent self-calibrating.
- Self fault diagnosis and protection function.
- Applicable for various rims of steel structure and duralumin structure.

### 1.3 Working Environment

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

## 2.The Constitution of Dynamic Balancer

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

### 2.1Machine

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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:

1. The microcomputer system is made up of the LSI such as new high speed ARM CPU system, digital tube display and keyboard.
2. Testing speed and positioning system consists of gear and optoelectronic coupler.
3. Two-phase asynchronous motor supplies and controls circuit.
4. Horizontal and vertical pressure sensor.
5. Hood protection

## 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 in packing list

### 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 space 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. Install screw stud of drive shaft

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

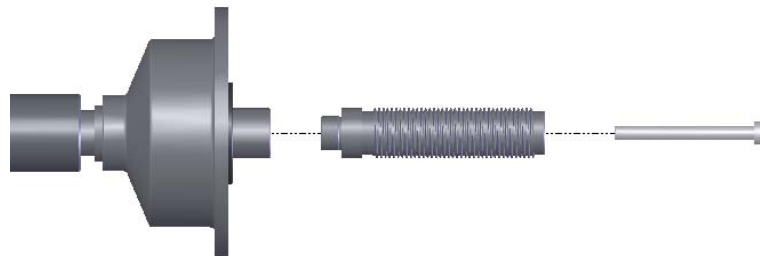


figure 2-1

(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.)

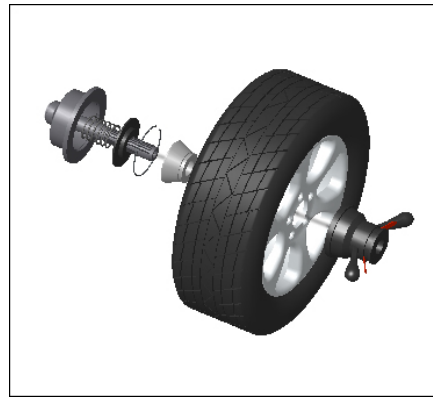
### 4. Install wheel

The wheel must be cleaning to clear, take all the lead on wheel out, check the pressure in wheel up, check the rim/hub/nave no deformation.

Front side installing



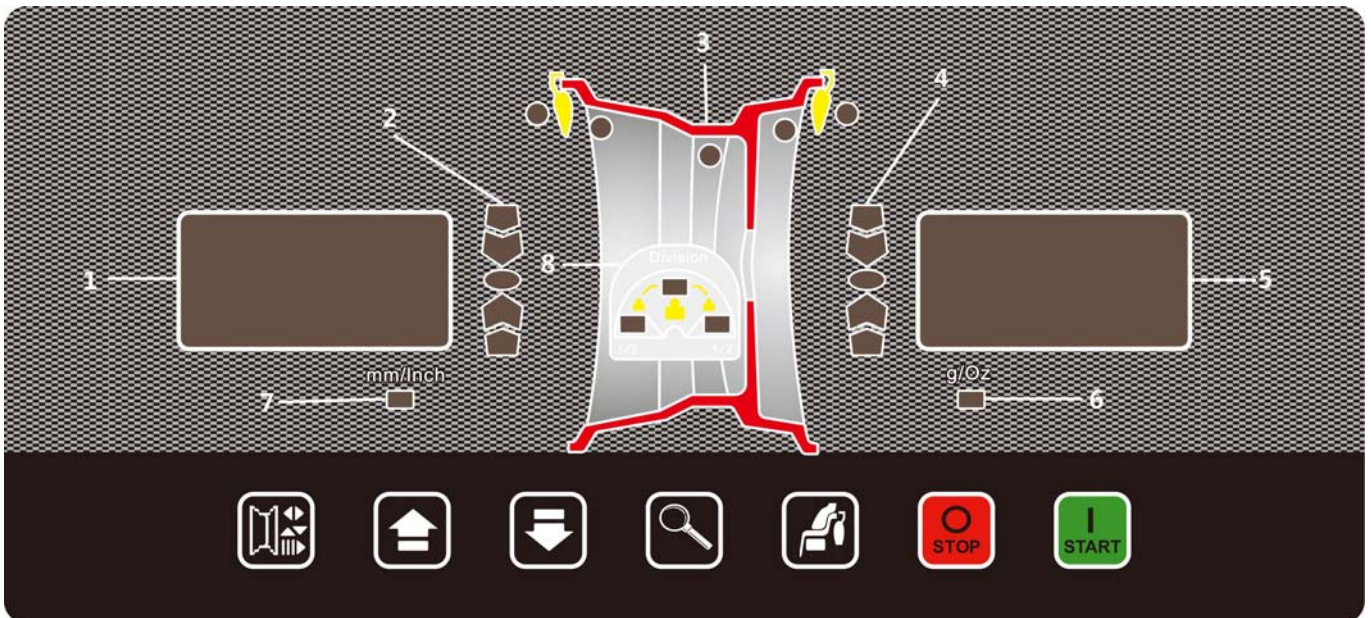
The other side installing



Pay attention:when install and uninstall the wheel, the user must take the main shaft care.

## Digital tube Display and Function Keys

### 1.Digital tube display interface



Note: name and function of operation interface:

1—INSIDE window,can show the OUTSIDE window values name, like A,B,D;and show the INSIDE unbalance value for the wheel.

2—INSIDE unbalance mass position indicator lights.



3—Model figure.press key , can change different model.

4—OUTSIDE unbalance mass position indicator lights.

5—OUTSIDE window,can show rim A/B/D values, and show the OUTSIDE unbalance value for the wheel.

6—g/oz select.

7—mm/inch select.

8—Division the weight and hidden it LED.

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## 2.Keys function

The operation with one key model and two keys model.

One key model:



: select the A/B/D values to input.



: Add the A or B or D value.



: Sub the A or B or D value.



: Show the real unbalance values.



: Select balance model.



: Stop or cancel.



: Run or make sure.

Two keys model:



+



: Select into 100g calibration function.



+



: Select g or oz unit



+



: Select mm or inch.



+



: Select scale calibration function



+



: Select system setting manu.



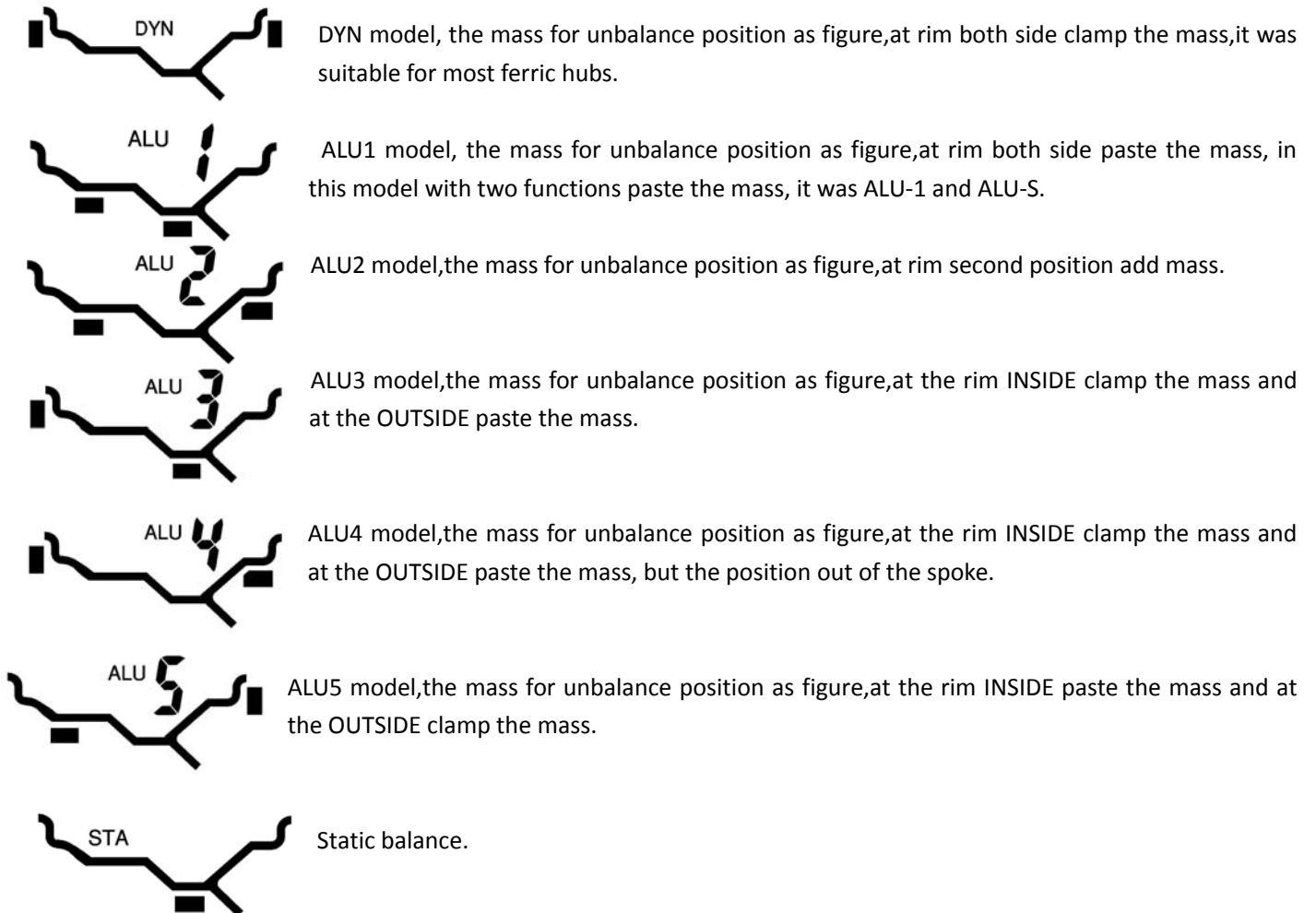
+



: Select sensor test function.


## Wheel balance operation

The equipment with 6 for dynamic balance models and 1 static balance mode.

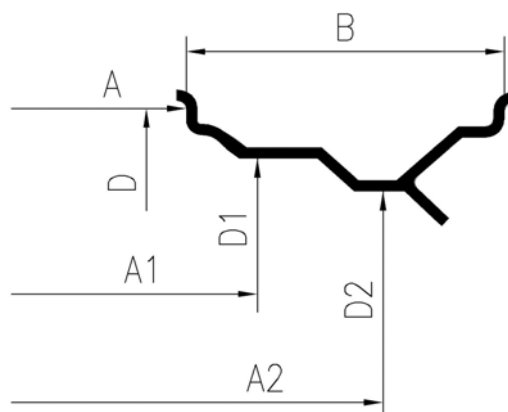


## Balance operation details.



1. refer to different rim shape, select different balance model, press  can select different balance model.

2. Different wheel need different parameter, the parameters as follow.








The wheel balancer can auto input the A (or A1,A2) values and the D(or D1,D2)values,but B value need input by hand.

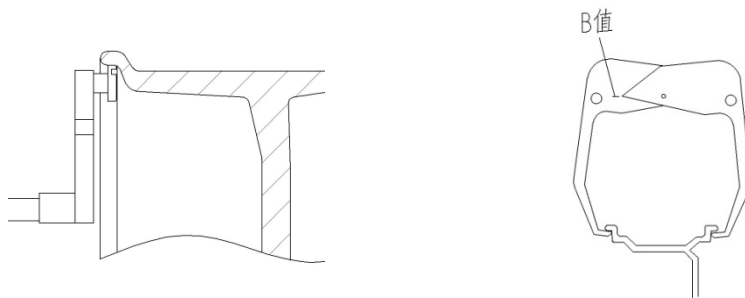
A(or A1,A2) value and D (or D1,D2) value input method:

Take the scale out , put the scale on the position in the rim where you want, hold it 2 seconds,then the A(or A1)and D(or D1) values input automation, then the system step to A2/D2 test state, put the scale on A2 position as the picture,hold 2 seconds,then A2 and D2 values input automation too.

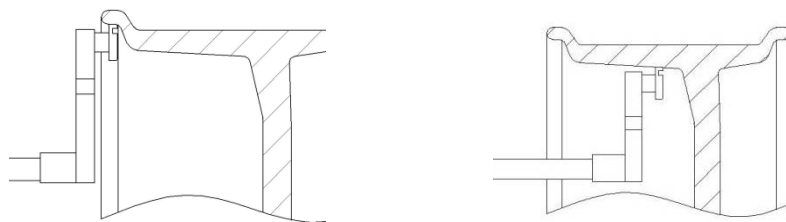
B value input method:

Press  key select b value input function, and press  and  keys input b value.

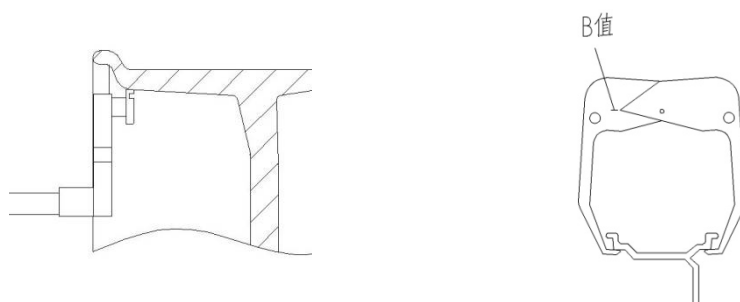
DYN model: Need parameters A/B/D values.



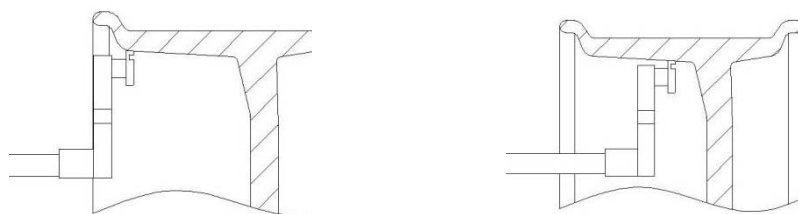
ALU1model: Need parameters A1、 D1、 A2、 D2 value.



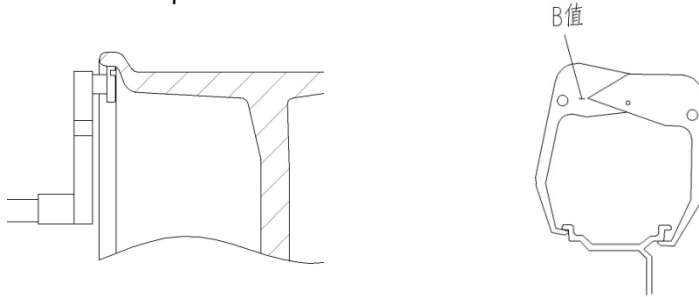
ALU2 model: Need parameters A1、 B、 D1 value



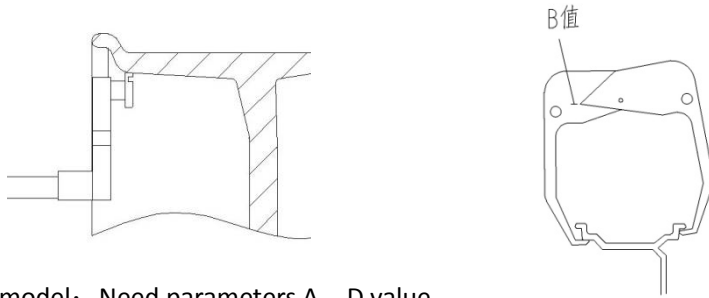
ALU3 model: Need parameters A、 D、 A2、 D2 value



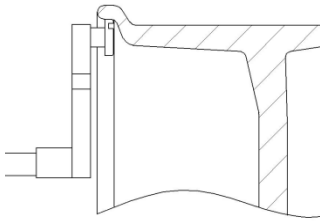
ALU4 model: Need parameters A、 B、 D value.





ALU5 model: Need parameters A1、 B、 D1 value



Sta model: Need parameters A、 D value



3. After parameters inputted, Press  key to run the wheel balancer, wheel will turn soon, when wheel

stopped the windows will show the mass for unbalance, press  key can check the real unbalance value.

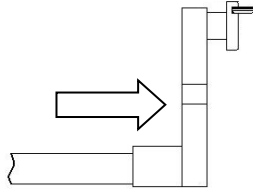
4. Turn the wheel by hand, until "INSIDE unbalance mass position indicator lights" or "OUTSIDE unbalance mass position indicator lights" all bright, and the bell will buzz 3 times, it means the position of unbalance at need position.

The put the unbalance mass have two method:

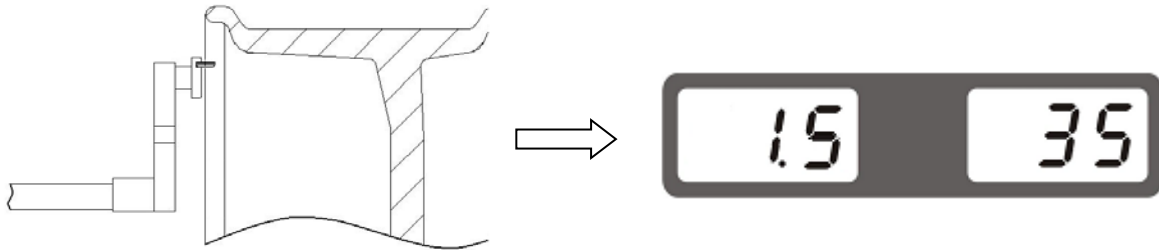
4.1 If the weight will clamp or paste out of spoke (as ALU2 and ALU4 model OUTSIDE), then the weight will put on 12 o'clock position.

4.2 If the weight paste in the spoke, then need the scale help putting, as ALU1/ALU2 and ALU5:

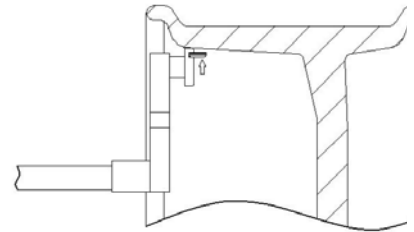
4.2.1 Take the self-adhesive paper down and put the weight into the scale header, let the rubber-faced to upward, pull the scale out. As follow.



4.2.2 When the scale near the position,INSIDE window will show the length value from scale to the position,as flow the value 1.5 means the length have 1.5cm.




4.2.3When the scale arrive the position, then the INSIDE windows will flash one time and show the weight for unbalance, Turn the wheel until “INSIDE unbalance mass position indicator lights” all bright,keep the wheel static, and rock the scale and paste the weight on the rim,the paste one weight process end.put the scale back.




ALU1 and ALU3 model OUTSIDE paste process same as font.Here no longer say.




5.After putted weight, press  key run equipment again,test the balance result.

Attention:




After run the unbalance wheel,If the wrong a/b/d values was inputed, can press  to return input



parameter model, input the right values again, and press the  long time, then the value will changed right parameters again.

After test, the value for unbalance will shown at 5g integral multiples( if at oz model ,as 0.25oz integral



multiples),because the weight for leap can easy choose,if want show the real values,press the  key to check.

**The mass of unbalance hidden model**

The mass of unbalance hidden model can hidden the mass in two spokes,it can vector decomposition the mass one to two, the new born mass hidden under the spoke both,then the other side looks very beautiful.

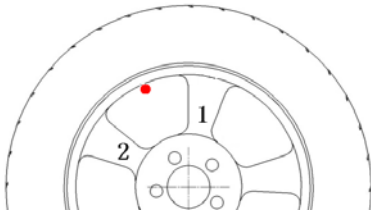


This model only fit to ALU1 and ALU3 models.now take ALU1 as examples to explain how to operation this function.

At ALU1model,inputted A1/D1/A2/D2 values, after run and test the result, If the weight position in two spokes, then it can use this model.operation step:



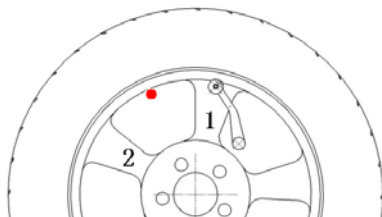
1.after have result for unbalance,press the key into this model.



2.The windows show "SPO.--1",pull the scale out and turn it and let it near spoke and touch the rim,turn the wheel,then



the scale head was hidden at spoke 1,hode the wheel static,put the scale back,and press key make sure.



3.The windows show "SPO.--2", pull the scale out and turn it and let it near spoke and touch the rim,turn the



wheel,then the scale head was hidden at spoke 2,hode the wheel static,put the scale back,and press key make sure.





4.Now the unbalance weight was vector decompositioned, press key can change into the weight was cut both.the next step same as paste the weight.

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5. After paste two weight, press the  key to run, test the result right or not.

## 100g calibration


when the equipment test the unbalance not good, please do the 100g calibration soon.

1. Install a wheel can clamp the leap mass both side, input the rim a/b/d values, Press  +  keys, until the LED no flash.




2. Press  key run the wheel balancer, when the wheel stop, turn the wheel until the OUTSIDE unbalance mass position indicator lights bright, and add the 100g mass at 12 o'clock.





3. Press  key run the wheel balancer, when the wheel stop, turn the wheel until the INSIDE unbalance mass position indicator lights bright, and add the 100g mass at 12 o'clock.



4. Press  key run the equipment again, after the wheel stop, the calibration end.

## Scale calibration

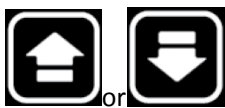
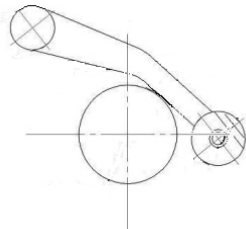
When the scale input the d value not good, then calibration the scale soon.

1. Install a wheel on the wheel balancer. Press the  +  keys, then the window will display "ruler-", after

1 second step into scale calibration function,INSIDE window display the “-1-”,and OUTSIDE window will display the scale sensor input value.



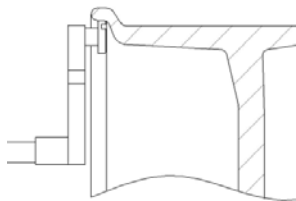
2.Turn the scale,let it on the main shaft,press the key to confirm the step 1.



3.INSIDE window will shown [d16], press the keys change the d value to installed the wheel diameter



value, and turn the scale to edge of the rim,press key ensure, then “End” in window,the calibration end.



### The system parameters set



Press + into system parameters set manu.






1.unbalance mass no shown : press keys to select the value, it can select 05,10,15g,




press key save the selection and into next function, press key was save and return.





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2.operation notice set: press  and  keys to select the value, it can select ON or OFF, ,press  key




save the selection and into next function, press  key was save and return.



3.LED luminance change : press  and  keys to select the value,the values from 1 to 6 can

chose,press  key save the selection and into next function, press  key was save and return.






4.Hood set: press  and  keys to select the value, can select on or off, ,press  key save the

selection and into next function, press  key was save and return.




## System sensor test

1.Press  +  key to into test the LED and notice,press  key to next function, and press




key return.



2.The scale angle sensor test,turn the scale by hand,then the right window's value will change,press  key to

next function, and press  key return.



3.The scale length sensor test,pull the scale by hand, then the right window's value will change,press  key to


next function, and press  key return.



4.Piezoelectric sensor test, press the main shaft, the windows value must be changed,then ,press  key to next

function, and press  key return.





5.Optical sensor test,turn the main shaft by hand the right side value changed was good,,press  key to next

function, and press  key return.





## Error List

Error Num.	Error cause	How to do
1	Optical sensor damaged or drive board damaged or Motor damaged	<ol style="list-style-type: none"> <li>1. If the main shaft run and show error 1, please change the Optical sensor.</li> <li>2. If the main shaft not run and show error 1, please change the drive board or motor.</li> </ol>
2	Not install the wheel on equipment, or the belt tighter	Install a wheel and let the belt sliper.
3	The mass value too large.	Check the wheel install position ,and check the wheel with other weight.
4	Wheel turn wrong side.	Check the motor lines wrong or not.
5	Hood not cover	Test the microswitch.
6	User stop the run	 Price  key restart.
7	The scale didn't back	Take scale back and restart.
8	At 100g calibration function second step not add 100 g	Reset the equipment and have a right operation to do 100g calibration.
9	At 100g calibration function third step not add 100 g	Reset the equipment and have a right operation to do 100g calibration.if always error 11 shown, please check the Piezoelectric sensor lines or change Piezoelectric sensor.
10	The parameters save error.	Change the drive board.
11	Chip damaged	Changed the CPU board.

**DEKLARACJA ZGODNOŚCI WE**  
*Declaration of Conformity EC*



**My**  
*We*

**Nortec Sp. z o. o.**  
**Świerkowa 32**  
**62-020 Rabowice, Poland**

**Deklarujemy z całą odpowiedzialnością, że produkt**

*Declare, undertaking sole responsibility, that the product*

<b>Wyważarka</b> <i>Wheel balancer</i>	<b>WB220L</b>	<b>Numer seryjny</b> <i>Serial number</i>
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**którego ta deklaracja dotyczy, jest zgodny z następującymi Dyrektywami mającymi zastosowanie:**

*to which this declaration applies is in compliance with the following applicable Directive(s):*

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Dyrektywa 2006/42/WE Parlamentu Europejskiego i Rady z dnia 17 maja 2006 r. w sprawie maszyn zmieniająca dyrektywę 95/16/WE (przekształcenie) / Dz. Urz. UE L 157 z 09.06.2006, str. 24-86/.

**W celu zapewnienia zgodności z wyżej wymienioną dyrektywą zostały zastosowane następujące normy:**

*in order to ensure compliance with the mentioned Directive(s) have been applied standards listed below:*

**EN 60204-1:2010+A1:2009**

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**Podmiotem odpowiedzialnym za dokumentację techniczną jest Nortec Sp. z o.o.**

*The technical documentation file is constituted by Nortec Sp. z o.o.*

Rabowice, 23.07.2020

Beata Broczkowska

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*The version of this declaration conforms to the regulation*

**EN ISO/IEC 17050-1**