WHEEL BALANCER

I. Overview of Wheel Balancer

The unbalance of wheel causes the jitter of steering wheel, decreasing the adhesion of motor vehicle, making the wheel hop, damaging the wheel, shock absorber and steering parts, affecting the riding comfort and handling stability and increasing the fuel consumption so as to affect the economic index of vehicle directly. Wheel balancing will prevent the adverse effect and damage caused by this.

1.1 Functions and Characteristics

☐The machine adopts the imported electronic component and has the leading electric driven system in the world.

☐The plastic protective cover with high intensity confirms to the national operation procedure for safety. (Optional)

☐In emergency conditions, press stop to stop the wheel rotation.

☐The function of standard correction confirms the device test to be accurate.

☐Have OPT function and optimize the coordination of wheel and rim.

☐Display by multi-modulation scheme: gram - ounce switching; length unit: millimeter - inch switching.

☐Multi-balance modes apply to various passenger cars wheels extensively.

☐The balance precision reaches ±1g and the balance time is short.

☐Have the function of self-correction and full-automatic fault diagnosis.

☐Have HID function: Dismantle and conceal the unbalance to the back of rim and spoke.

☐Have the guide and instruction of up and down laser.

☐2D system: Measure the parameters of input wheel distance and diameter automatically.

☐3D system: Measure the parameters of input wheel distance, diameter and width automatically (optional).

1.2 Advice for Safety

☐Only those who have proper authorization and training can operate this machine

□Operators shall not wear necktie, long hair and loose clothes. When the wheel rotates, the operator shall stand in the side of machine and non-operators shall not be close.

□Before using balancer, please read the instruction carefully. If there are any questions, consult the factory party please but must not operate in a blind way. Save the instruction so as for future reference.

□Refitting the machine and dismantling the safety device are not allowed.

□When transporting , installing and using the machine, the revolving shaft of the machine shall not be moved or it will cause perpetual damage

□In the areas where the voltage is not stable, the power supply after being stabilized is advised to use.

□The cleaning machine to compress air with too high voltage are not allowed to be used.

□Detergent is used regularly to clean the plastic penal and plastic frame.

□In the process of using, the range of this machine shall not be beyond.

□All electric installation shall be carried out by professional electrician and note that the colored wire with yellow and green is ground wire.

□The machine needs grounding and the power supply shall be cut off for maintenance.

□Before the operation of balance, confirm that the wheel is fixed on the chuck safely

1.3 Technical Data

Power supply voltage: AC220V

Power consumption: ≤250W/ operation;   ≤15W/ waiting

Balanced speed: 180rpm

Balanced precision: ±1g

Operation time: 7s in average

Measurement error: ≤1%

Running noise: ≤70db

Device net: 118kg

Working environment: Temperature is 0□□50□, and relative humidity is ≤85%

Altitude: <1000m

Storage and transportation: Relative humidity: 20%-95%; temperature:

-10□-+60□

Range of measurement:

Rim width	Steel wheel diameter	Wheel weight	Center hole of wheel	Wheel limiting diameter
1.5—20″	12—24″	≤65kg	□135mm	800mm

II. Transportation and Installation

2.1 Transportation and Installation of Overall Unit

□Only the chassis of machine can be moved in the transportation of balancer. In no cases the main shaft can be moved and pay attention to lifting and lowering.
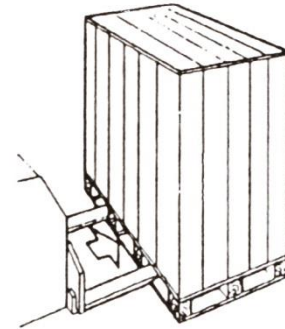
□The balancer shall be placed on the solid and stable ground and there shall be enough space around (no less than 500 mm).　There is screw hole on the chassis of the machine, which can be fixed to the cement ground by expansion screw. Measurement error shall be caused if it is not fixed securely.

2.2 Installation of Main Shaft

Before installation, clean the main shaft, center hole of the matcher by alcohol or gasoline and fix the matcher to the main shaft by spanner through screw rod.

There is "0" mark on the main shaft and matcher respectively. When two "0"s are on the right above, assemble it in alignment.

After place it on the above direction according to the "O" mark, fasten the M14 bolt by hexagon spanner or fault is easy to occur.

III. Structure of Wheel Balancer

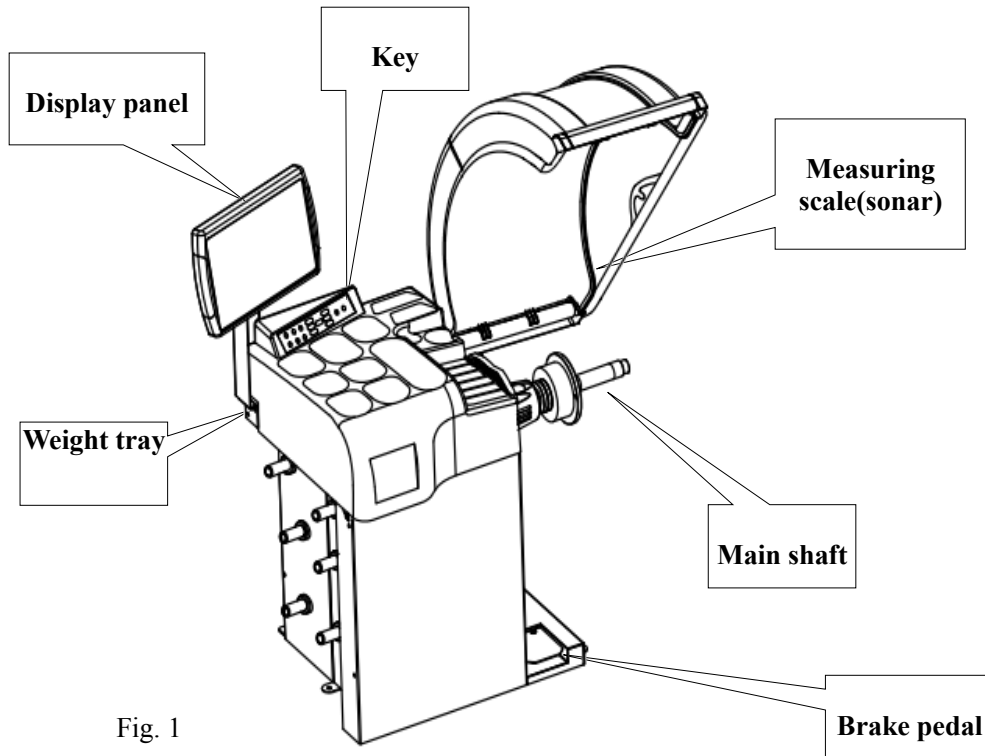3.1 Overall structure is as Fig. 1

Fig. 1

Measuring scale- - Used for measuring gauge and wheel diameter automatically
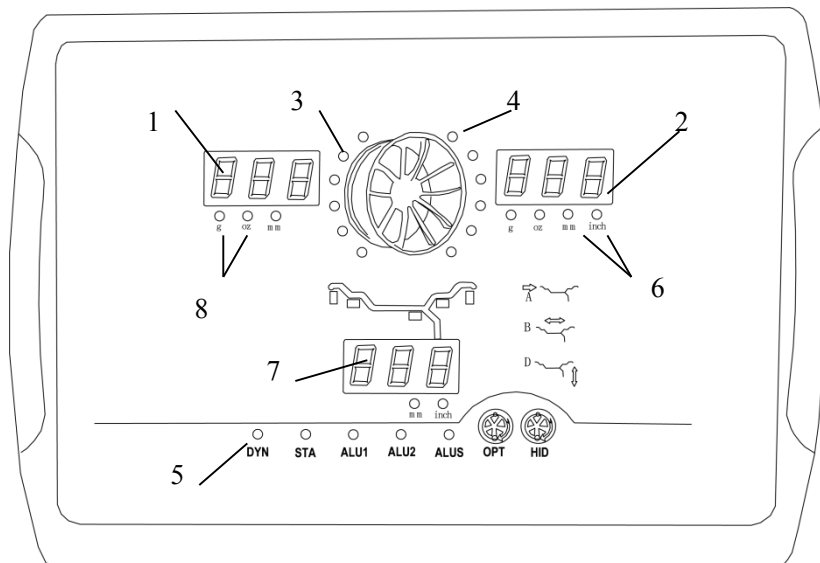Display panel - Display operating interface
Key - -Realize conversation between human beings and machine
Lead block cover - -Used for installing heavy lead in sort
Main shaft - Assemble wheel to be balanced
Brake pedal - Used for fixing wheel to be convenient for sticking lead

## 3.2 Graphic Representation for Display Panel

Fig. 2

1□The left display screen, displays the unbalance in the inside of the wheel or A size of reference range.

2□The right display screen, displays the unbalance outside of the wheel or D size of diameter.

3□The indicator of unbalance position in the inside (The inside is equipped with important warning).

4□Indicator of unbalance position in the outside (The outside is equipped with important warning)

5□Indication for balanced function and balanced mode.

6□The unit is "mm/INCH" (millimeter/inch) switch to display.

7□Display screen in the middle displays the static balance, B size of rim width and indicator of pasting lead.

8□Unit is G/OZ (gram and ounce) switch to display.

3.3 Graphic Representation for Key Panel

Fig. 3
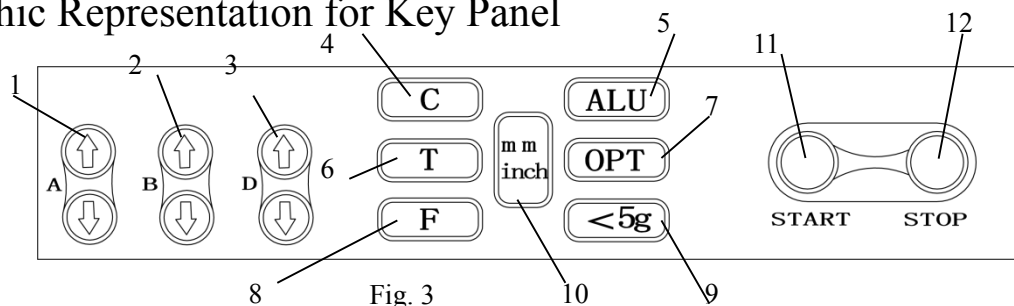
1----A Input the distance size for reference manually and press A. Press the upside arrow to increase the input size and press downside arrow to decrease the input size.

2----B Input the B size manually and press A. Press the upside arrow to increase the input size and press downside arrow to decrease the input size

3----D Input the D size manually and press A. Press the upside arrow to increase the input size and press downside arrow to decrease the input size

4----C Correct key/ reset key

5----ALU Selection key of measurement for aluminum ring dynamic balance

6----T Test key, which is used for test of computer board of balancer

7----OPT is used for optimizing and assembling wheel and rim

8----F Switching key of dynamic and static functions

9----<5g   The key displays□5g(0.3oz), and displays the unbalance

10----mm/inch   Used for switching display of millimeter and inch

11----START   Starting key

12----STOP Emergency stop key

3.4 Key Combination for Switching Functions

3.4.1 Shut down but still save after switching functions.

[STOP] + [A↑] + [A↓] switching key of gram-ounce

[STOP]□[C] Stating mode of protective cover is closed

[STOP]+[5G] Correct the A and D of the inner ruler

[C]+[T]   Weight correction

[T]+[OPT]   Dismantle and conceal the unbalance to the back of spoke

{stop}+{OPT}, correct B value of the outside of ruler

3.4.2 After the switching of functions, the LED light of the corresponding function on the panel lights up. It recovers the dynamic balance after shutdown.

[inch/mm] Unit switching of millimeter/inch

Attention: Display by inch whenever starting up.

Attention: Press only by hand but not gripper or other sharp objects.

IV. Operation Process of Wheel Balancing

4.1 Power supply connection: Open the power supply and the device code is displayed. When the display window displays "8.0 5.7 14.0", it demonstrates that the machine is in normal state.

4.2   Install Wheel

(1) Preparation before test: Clear the dust and earth of wheel and check if there are foreign matter such as medal and stones; check if the pressure of wheel confirm to the specified value; check if there is deformation on the positioning surface of rim and installation hole, and foreign matter inside the wheel; remove the original balancer.

(2) There are three forms for the installation of wheel: Clamping, reverse clamping and special flange clamping. Select one clamping form according to the actual condition.

4.2.1 Clamping (shown in Fig. 4)

The clamping is the used in general and its operation is brief. It mainly apply to normal steel ring and thin aluminum alloy ring. This kind of clamping applies to the situation that the deformation of steel ring is not serious.

Fig. 4

Main shaft□wheel (the fitting surface of rim is inward)□put proper cone (small head is inward)□quick nut
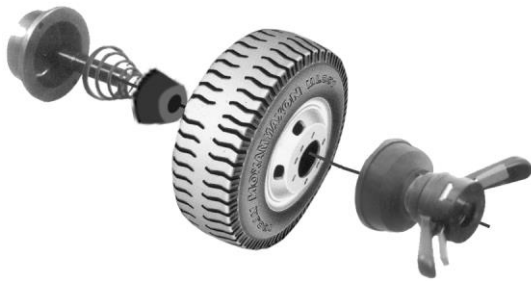
4.2.2 Reverse Clamping (shown in Fig. 5)

When the deformation of center hole of the wheel is serious, reverse clamping is adopted to make sure that the clamping of the inner hole of steel ring and main shaft is accurate. It applies to steel ring, especially for relatively thick aluminum alloy ring and its precision is relatively high.

Fig. 5

Main shaft - put spring - put proper cone (big head is inward) - wheel - reverse bowl - quick nut

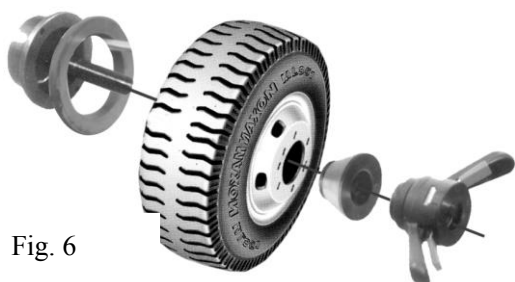## 4.2.3 Specific flange clamping (shown in Fig. 6) (no such for the time being)

This clamping mode applies to the installation of tire that the center hole of tire is below Φ135.

Fig. 6

Fix the flange into the matcher - wheel - big cone - quick nut

Attention: The selection of cone shall be in consistent in the center hole of rim. Pay attention to its direction or measurement error will occur.

4.3 Input the Size of Rim Structure

4.3.1 The inner ruler input size automatically:

Pull the ruler to make the ruler head contact with the fringe inside of the wheel and keep still. After hearing warning tone, confirm the result of measurement. Pull the ruler to zero point and the display windows A and D display the result of measurement. Input the width of wheel manually, for example: Contact the outside ruler head installed to the fringe of the outside of the wheel. After hearing the warning tone, pull the ruler head back to the original place for measurement.

4.3.2. Input the size manually

Use A, B, D in the keyboard, press [↑↓] to change data and input the size of rime structure.

Attention: If there occurs numerical flashing, it demonstrates that the ruler does not return to the zero point.

4.4 Selection of Balance Mode

Press F to select static balance mode and press ALU for other choices.

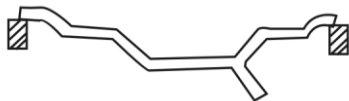### 4.4.1 DYN balance mode (shown in Fig. 7)

Fig. 7

Dynamic balance DYN is the default boot mode - Clamp balancer in the both side of rim and adopt balanced steel and aluminum alloy rim at the same time.

1. install and clamp the wheel on the shaft, input the correct parameter of wheel, and lay down the protective cover or press [START] to rotate the wheel. The result of balance is as follows:

2. Rotate the wheel to light up 6 indicators in the outside, shown as Fig. 8

Fig. 8 Six Indicator Light up Fig. 9 The Position of 12 'clock of Wheel
3. Clamp a 30g balancer on the position of 12 o'clock in the outside of hub (shown as Fig. 9) and the operation is as above
4. Press **[START]** for the result of balance.

4.4.2 STA balance mode (shown in Fig. 10)

Input the size of A, B and D of the wheel to be tested according to the DYN mode. Press [F] to switch to the STA mode and press the starting-up key to rotate. After the wheel is stopped and the right window occurs unbalance, rotate the wheel until all the indicators light up, input the lead in accordance with the unbalance to the position of 12 o'clock of the inside wheel to be tested.

Static balance STA - apply to the tire of motorcycle.

Fig. 10

4.4.3 The ALU1 and ALU2 balance mode (shown in Fig. 11 and Fig. 12)

ALU1□Balance alloy rim, the method to paste balancer inward and outward.

Fig. 11

Press DYN first to input A, B, D parameters of wheel and press ALU to measure the window on left and right side of wheel in ALU1 mode to display the unbalance. Rotate the wheel to make the indicator in the inside phase light up, and make the lead with the same unbalance displayed in the left window paste in the 12 o'clock position inside the wheel (the closer to the fringe of rim, the better). Then rotate the wheel to make the indicator in the outside phase light up, and make the lead with the same unbalance displayed in the right window paste in the 12 o'clock position in the outside of the wheel and measure once more. If the left and right windows display unbalance, repeat the process above until the left and right window display 00.
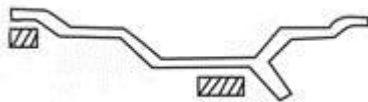
ALU2□Clamp lead and paste lead inside.

Fig. 12

①、 Press ALU to select ALU2 and rotate wheel. Pull the inside ruler to the position of clamping lead inside of wheel to be tested and wait. After hearing the warning tone, continue to pull the inside ruler to the position of pasting lead inside of wheel to be tested to wait for the second warning tone, and then return the inner ruler to the original position. Then measure the unbalance of the left and right window, rotate the wheel to make the indicator in the inside phase light up, and make the lead with the same unbalance displayed in the right window paste in the 12 o'clock position in the inside of the wheel. Then rotate the wheel to be tested to make the indicator in the outside phase light up, and make the lead with the same unbalance displayed in the right window paste in the inside of the ruler head. The pedal device fix the wheel, pull the inside of the ruler and look at the value in the middle window to display——□and hear a warning tone. At this time, pull the ruler head, paste the lead to the inside wall of wheel to be tested, and put the inside ruler to the original place for

measurement. If the left and right windows display unbalance, repeat the process above until the left and right window display 00

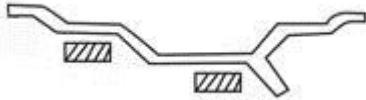## 4.4.4 The ALUS balance mode, (shown in Fig. 13)

ALUS□Paste lead at any place inside the rim.

Fig. 13

ALUS balance mode can be carried out automatically by using inner ruler. Pull the inside ruler to the position A of pasting lead, that is [Di]. After the warning tone alarm, pull the ruler to B point, that is [DE] point. After the warning tome confirms, reset the ruler and the procedure switches to the state of ALUS automatically.
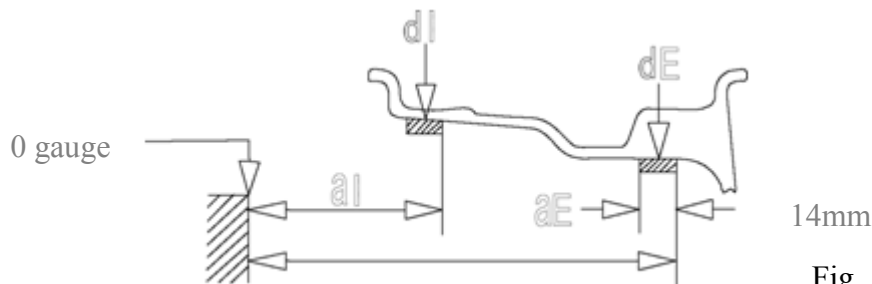

0 gauge

14mm

Fig. 14

The positioning of the unbalance phase point of ALUS balanced mode is dependent on the inner ruler. After one measurement is completed, the left and right window display the unbalance. Rotate the wheel to light up all phase lights in the inside, tread the fixing pedal to fix wheel, install the responding pasting lead on the ruler head, and pull the inner ruler. When the middle window displays □——with warning tone, swing the ruler head and the contact position with ruler head is the phase point of unbalance inside of the wheel. After pasting the lead, return the inner ruler to the original position. The operation of the outside of wheel is the same. And then measure the unbalance. If the left and right windows display unbalance, repeat the process above until the left and right window display 00.

4.4.5   HID Procedure

When the balancer is under the state of ALU2 or ALUS, press T+OPT after one measurement and operate the HID function. The function dismantle the static unbalance out of

the rim to conceal the lead to the back of spoke.　When the HID indicator on the penal lights up, it indicates that the HID function is in operation.

The operation procedures are as follows:

1. Under the balance mode of ALUS2 or ALUS, press T+OPT after one rotation measurement is completed. The display window B displays the information of 12h and rotate wheel slowing until the phase lights in the outside light up and then press ALU for confirmation.

2. The window B displays -1- and rotate the wheel to adjust the spoke on the left side of the phase point of unbalance to the position of 12 o'clock on the right above of the main shaft. Press ALU for confirmation.

3. The window B displays -2- and rotate the wheel to adjust the spoke on the right side of the phase point of unbalance to the position of 12 o'clock on the right above of the main shaft. Press ALU for confirmation.

4. Window B displays SPL and two unbalance points have been discomposed. Rotate the wheel. When all phase lights in the outside lights up for the first time (the left spoke), tread the fixing pedal and fixing wheel, install the responding pasting lead on the ruler head and pull the inner ruler. When B window displays ——□ with warning tone, swing the ruler head and the contact position with ruler is phase point of the first balance. Paste the lead and return it to the inner ruler.

　　　Rotate the wheel. When all the phase lights in the outside light up for the second time (the right spoke), tread the fixing pedal and fixing wheel, install the responding pasting lead on the ruler head and pull the inner ruler. When B window displays ——□ with warning tone, swing the ruler head and the contact position with ruler is phase point of the first balance. Paste the lead and return it to the inner ruler for re-measurement.

4.4.6　OPT Function:

OPT function optimizes the coordination of wheel and rim and minimizes the static unbalance.

The operation process is as follows:

1. After a rotation measurement is completed, press the S/D key to get the static balance value, while the OPT function is necessary if the value is relatively large (greater than 30g in general). Press the OPT key to enforce the OPT function.

2. Check and confirm that the Window A is displayed with the sign "opt" and the Window D

with the number "180". Let down the tyre and demount it,

then rotate the tyre 180° relative to the rim, mount the tyre and inflate it.

3. After a rotation measurement for the tyre is completed, confirm the Window A is displayed

with the sign "SPT", then rotate the tyre

till the Window B inside is displayed with the sign "—r—", and mark at the 12 o'clock position

right above the rim.

4. Rotate the tyre till the Window D outside is displayed with the sign "—t—", then mark at the

12 o'clock position right above the tyre.

Next, press the ENTER key, and the operation is over if the window is displayed with the sign

"End   OPT".

5. Let down the tyre and demount it, replace with a new one and ensure the marks on the tyre

coincide with that on the rim.

Then re-inflate the tyre and mount it on the wheel balancer for dynamic balance.

NOTICE

1□ Push the tyre with the hand to assist the startup during the startup of single-phase power device, so as to prolong the life of the motor.
2□ Check whether the balance mode is consistent with the rim structure.   (See article 4.4 Selection of Balance Mode for details)
3□ Check whether the jam nut is tightened.
4□ After the balance operation is over, pay attention to handling the tyre properly when remove it, in case hitting the main shaft.
5□ Gently pin the balance block with clips to the rim edge during the balancing till it cannot be detached, after the balancing is over, put it on the ground and knock tight, do not hit hard on the main shaft, so as not to damage the sensor; keep the sticking-joint of balance block dry free of grease and dust.

4.5   Instructions of Upper and Lower Laser

4.5.1 Instructions of Upper Laser Function of Wheel Balancer
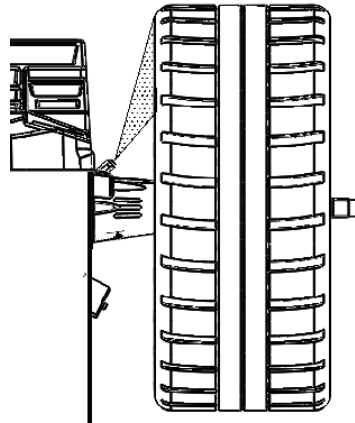
1.   Functions:
        The laser guiding function designed for the upper end of the machine's main shaft cover, could be intuitive to indicate the hook-type balance block placement, and identify the number and internal & external position according to the display of screen,   which applies to the DYN mode.

II. Methods of application:

      1. The wheel balancer could start automatically under the fixed mode of hook-type lead block, and stop under the fixed mode of sticky lead block, without having to set it.

      2. After the unbalance amount of the tyre detected emerges on the wheel balancer, it's necessary to rotate the tyre till all the phase lamps inside or outside the display panel are on, then the upper laser will point to the 12 o'clock position of main shaft.

4.5.2 Instructions of Lower Laser Function of Wheel Balancer

Ⅰ.   Functions:

      The laser guiding device designed right below the machine's main shaft cover, could be intuitive to identify the 6 o'clock position right below the main shaft.

Ⅱ.   Methods of application:

1. The laser guiding function should be closed when the wheel balancer is delivered for the factory, which shall be started according to the steps, if needed.

2. After the lower laser function is enforced, the wheel balancer switches to the sticky lead block fixed mode, and the tyre detected shall be rotated till all the phase lamps inside or outside the display panel are on when its unbalance amount emerges on the wheel balancer, then the lower laser will point to the 6 o'clock position below the main shaft.
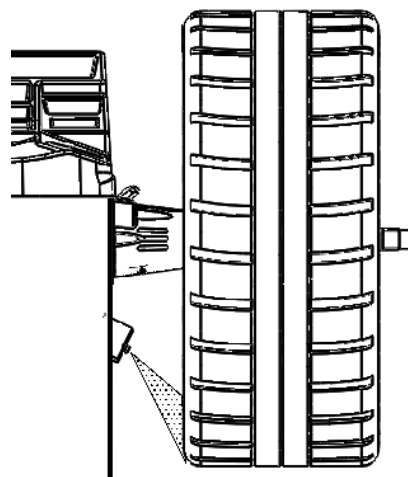
ⅠⅠⅠ. Steps for start/stop of lower laser:

Step one: Press C and then the T key to enter the calibration program interface, when the phase light is not flashing, release the key.

Step two: Press the ↑ key of the A-size input key, then the ↓ key, and last the ALU key respectively to enter the internal setting interface of the program.

Step three: Press the ↑ key of the A-size input key to enter the fifth column of the program, when the sign of "LAS" emerges on the right window of the display panel and the "OFF" on its left window, press the ↑ key of the B-size input key to adjust the window on the right to display "on", then press the ↑ key of the A-size input key to close the internal setting interface of the program, so as to successfully set the lower laser guiding function.

ⅠⅤ. Precautions for use

1. When the lower laser guiding function is turned on, the lead block cannot be pasted with an internal automatic measuring scale.

2. After the lower laser guiding function is enforced, the program will automatically switch to the dimension input interface when all the sticky lead blocks re-pull the measure gauge to stick lead blocks under the fixed mode, thus facilitating the dimension input of wheels detected under the fixed mode of sticky lead block.

3. After the lower laser guiding function is enforced, all the phase points of the wheel balancer's sticky lead blocks under the fixed mode will point to the 6 o'clock position of the main shaft.

# V. Maintenance and Repair of Wheel Balancer

5.1 Self-calibration

The self-calibration of tyre has been completed in the factory, which could be re-conducted in the event of long service life, replacement of parts or large errors in balance suspected.　It shall select a type of 14″ or 15″ tyre for the main shaft, and input the correct value of this tyre under the DYN mode.

> Note: it's important to select a tyre with good quality for the self-calibration and input correct value, otherwise the measurement value will inaccurate.

Self-calibration with the Tyre Balanced
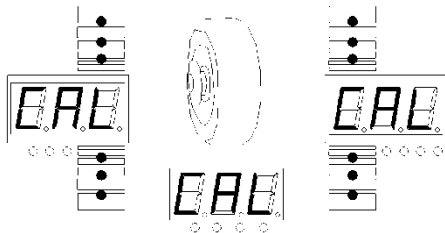
I Press and hold the□C□key for half a second, next, press the□T□key at the same time, thus the sign "CAL" will emerge on the display panel, also, all the "CAL" indicator lights will be on and flashing, and then let go the keys after all the indicator lights stop flashing.
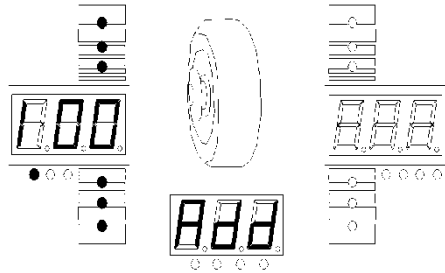
II Press the START key (remove the protective cover on the machine configured with protective cover), that the wheel will automatically brake after a few seconds of rotation, and the signs of "ADD""100" "lnn" will emerge on the display panel, then rotate the tyre till all the indicator lights inside are on, and place 100g balance blocks at the 12 o'clock position inside the wheel.
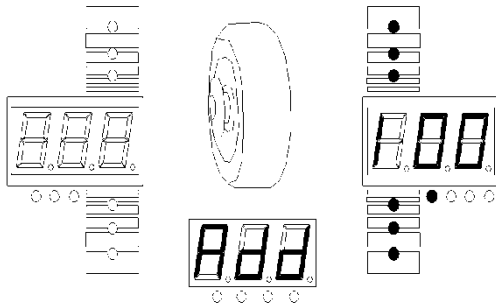
III Press the START key (remove the protective cover on the machine configured with protective cover), that the wheel will automatically brake after a few seconds of rotation, and the signs of "ADD""100" "Out" will emerge on the display panel, then rotate the tyre till all the indicator lights outside are on, next, remove the balance block of inside edge and place it at the 12 o'clock position outside the wheel.
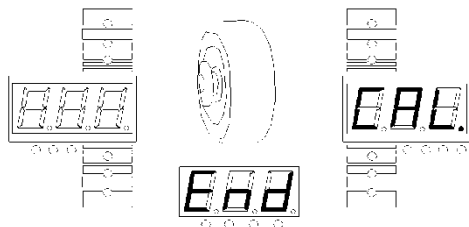
□ Press the START key (remove the protective cover on the machine configured with protective cover), that the wheel will automatically brake after a few seconds of rotation. After the signs of "CAL""END" emerge on the display panel, the self-calibration is over.

V Press the START key (remove the protective cover on the machine configured with protective cover) to check if the machine is stopped in eight seconds and displaying the data. This step is to visually check if the self-calibration is successful and accurate.

Two factors for determination of self-calibration:
1□ The numerical value displayed is accurate (the panel displays "00"□"100", and the allowable deviation is ±4g)
2□ The phase displayed is accurate (all indicator lights outside are on, and the allowable deviation of the 100g lead block right below the shaft is ±4°)

If using the unbalanced wheel for self-calibration, identify the missing gravity point before self-calibration, and hit the100g lead block at the missing gravity point, which will ensure the accurate phase. For example:
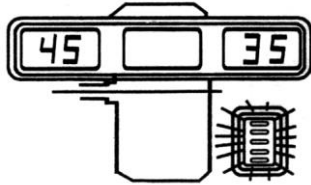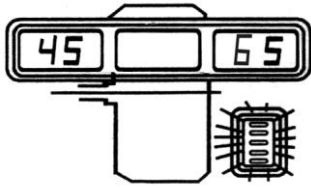
□   The self-calibration shall be carried out through the steps from the "I" to "II" in article 5.1

□   1. Rotate the wheel till all the indicator lights outside are on, then place the 100g lead block right above the wheel to check if the balance amount outside is 35g, after all the phase lamps outside are on, check whether the 100g lead block points to the 6 o'clock position outside. As specified in the figure
2. The interior examination is the same as above.

100g铅块位置在轴正下方指示灯全亮

Abnormalities of self-calibration and troubleshooting

Faults	Cause analysis	Troubleshooting
E-rr-8- emerges	1.Lack of the 100g lead block used for self-calibration 2.The pressure sensor leads are broken 3.Computer board fault 4.Power board fault	1.Add the 100g lead block 2.Check and connect the connecting line 3.Replace the computer board 4.Replace the power board
The numerical error is too large after the self-calibration	1.The error of tyre is too large 2.Three memory parameters are wrong	1.Select a standard tyre, especially one balanced 2.Then conduct self-calibration
The value of 100g is not accurate, the position is not directly below, and the balance of tyre needs to use too many lead blocks	1.The tyre specifications are not standard or there're foreign matters 2.The memory value is not proper 3.The numerical value displayed is unstable	1.Replace with a new tyre 2. Re-conduct the weight calibration 3.Check the computer board and pressure transducer

Please contact the professional personnel if the faults cannot be solved through the above methods.

Note: The self-calibration shall be re-conducted if the computer board and pressure transducer need to be replaced. Also, the parameters should be set according to the label in the machine before the self-calibration during the replacement of computer board.

5.2 Internal Scale Pulling Calibration:

① When the measuring scale moves at the zero position, press [STOP]+[<5G] key combination to enable the digital tube display CAL 100

② When the measuring scale moves at the 10cm position, press the ALU key for confirmation to enable the digital tube display CAL 215

③ Move the measuring scale to the position of 215, to make the lower end of the measuring scale head contact with the outer circle of the matcher, and ensure the side is parallel with the end face of the matcher, then press the ALU button. At this time, the B window displays CAL and the D window displays 15:0.

④ Press the <ALU> twice for confirmation after the 15″ tyre is mounted (the 14□tyre is available if there's no 15□, also, press the D<↓> key to correct 15□to 14□, then press <ALU> key for confirmation).
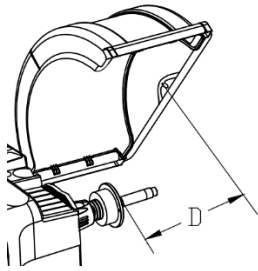

⑤ If the digital tube displays 000 000 000, or displays the size, the calibration passed,
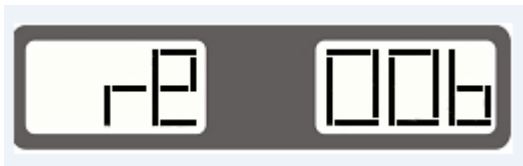
⑥ If the measuring scale calibration fails to pass, the CAL100 will remain to be displayed on the digital tube for requesting recalibration.

5.3 calibration for external scale (sonar)

1. Measuring the distance between sonar and mainshaft

2. Press [C]+[T] key, enter into caliberation mode, [A↓]、[A↑] then press ALU key. The dispaly show as follow :

3. Press [A↑] key two times, disply show as follow: (The numerical value shall be based on the actual situation)

4. Press [B↑] or [B↓] key ,input the D value, then press [A↑] two times exit interface , calibration is finished.

## 5.4 Modification on Setting Parameters of Local Computer

The following adjustments can be made to restore the broken-down computer due to operational errors or other reasons. Only the correct operations for the machine setting parameters correctly could ensure the balance accuracy.

The modification method is as follows:
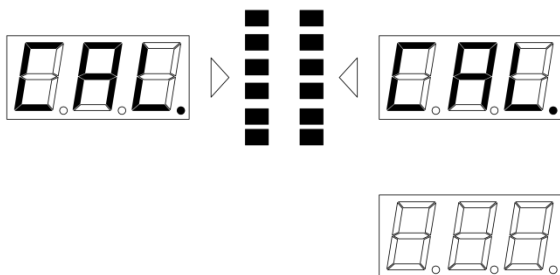
1□ Press and hold the C key for half a second, next, press the T key at the same time, thus the sign "CAL CAL" will emerge on the display panel, also, all the phase indicator lights will be on and flashing, and then let go the keys after all the indicator lights stop flashing.

`ר.ᴿ.` ▷		◁ `0.05.`
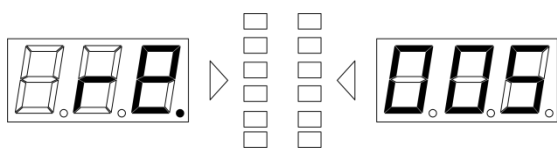
2□ Continuously press the distance dimension A key □↓□, A key □↑□, AUL key to enable the display window show the signs as shown in the left picture, and note that the residual grams could not be displayed through this parameter setting. Press the B ↓, ↑ keys for setting.

`ס.ם.E.` ▷		◁ `OFF.`
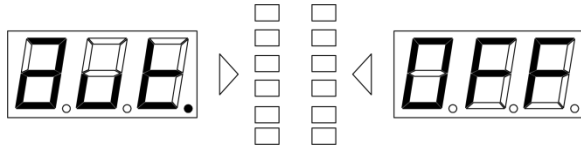
3□ Press A key □↑□, to get a parameter for the external measuring scale switch setting. Press the B ↓, ↑ keys for setting.

`d.ᴬ.ᴴ` ▷		◁ `0.02`
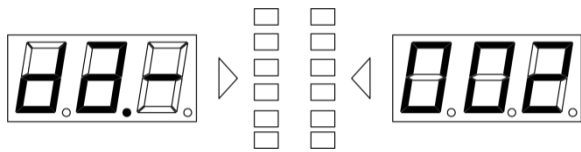
4□ Re-press A key □↑□, to get this parameter for adjusting the compensation value of internal measuring scale. Press B key ↓, ↑ for setting

`d.b.ᴴ.` ▷		◁ `0.00`
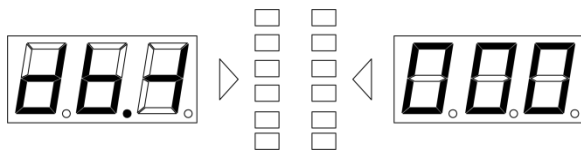
5□ Re-press A key □↑□, to get a parameter for adjusting the compensation value of external measuring scale. Press B key ↓, ↑ for setting

Note: The memory value in the above right window is the standard setting value, which is the default. Actually, the machine's memory value is not consistent with the standard setting value. When the memory is lost or the computer board needs to be replaced, the standard setting value shall be changed according to chart value attached to the machine. If the above operation failed, please contact the manufacturer.

5.5   Common Fault Assembly of Wheel Balancer (Please contact the professional personnel if the faults cannot be solved through the above methods)

Faults	Causes	Troubleshooting
No display after startup	1.Faults in external circuit 2.Faults in switch	1.Check with multimeter 2.Replace a new one
Display normally after the startup, while display the sign Err1 with boominess when shutdown	1.Failure of motor capacitor 2.Defaultphase of 380V power supply	1.Replace a capacitor 2.Check the power supply
Display the sign Err-1-	1.The main shaft does not work when pressing the START key 2.The brake is failed when	1. Check the motor 2. Check the computer board , power panel and PV Module

	pressing the START key	
Display the sign Err2	1.The wheel is not mounted 2.Only the steel wheel is mounted, the tyre is not 3.The matcher of main shaft is not fastened 4.The wheel is mounted wrongly and not locked tightly 5.Belt gets too loose and tight	1.Mount the wheel 2.Mount the wheel 3.Re-screw the fixing bolt 4.Choose the right cone and mount correctly 5.Re-adjust
Display the sign Err3	The unbalance amount of wheel is too large	Replace a new wheel or re-conduct the self-calibration
Display the sign Err4	1.If reversed, the phase line is connected wrongly. 2.If not reversed, the position sensor has faults	1.Modify the phase for three-phase electrical equipment 2.Re-adjust the position or replace a new one
Display the sign Err5	The wheel protection cover is not put down	Put down the protective cover
Display the sign Err7	Memory data loss	Re-conduct the self-calibration
Only display 00-00 or no numerical value	1.Sensor leads are broken or in poor contact 2.Memory value loss	1.Re-connect 2.Re-conduct the self-calibration according to the instructions
The numerical value varies over 5g in every rotation	1.Tyres have foreign bodies or the rim center mounting surface is deformed 2.The sensor is damp, or the lock nut is not clamped 3.The external supply voltage is low or tyre pressure is insufficient , the locker is not locked, etc.	1.Replace the wheel 2.Dry the sensor and re-adjust it 3.Screw the anchor screw and check the matcher bolt
The numerical value varies over dozens of grams in every rotation	1.The wheel has foreign matters or its unbalance amount is too large 2.The sensor is damaged 3.The external power supply voltage is low	1.Replace the wheel 2.Check the sensor and its connecting line 3.Check the power supply or install a voltage regulator
Non-stop time longer than 10 seconds	1.Bad grounding of external power supply 2.Interference	1.Check the external power line or connect the power in another place 2.Reboot after shutdown
The balance operation is not accurate, and it is difficult to level up to 00	1.The sensor is damp or damaged 2.The program is chaotic	1.Re-adjust the sensor, conduct self-calibration after drying it or replace a new one 2.Re-conduct the self-calibration
No brakes after a value is displayed	1.The brake system is damaged 2.The brake resistor is damaged	1.Replace the power board 2.Replace the brake resistor
The error exceeds 10g in the secondary disassembly	1.The wheel inner hole is irregular	1.Replace the wheel 2.Re-check the installation

	2.The matcher is not mounted properly	surface
Display Err8 when self-calibration	See article 5.1	
The error exceeds a few hundred grams	1.The computer board has operation errors 2.The error of tyre is too large	1.Re-conduct the calibration 2.Replace a tyre

5.6 Self-inspection Program (inspect the position sensor and indicator light)

Press the <T> key to enable the indicator lights from left to right flash one by one, after the system detects the indicator light of display screen, ensure the screen display the signs of□□□POS□□0□   then detect the position sensor by rotating the tyre slowly till the indicator light on the photoelectric panel starts to flash, thus it could observe that the value of the right window changes cyclically from 0 to 127.

Press the <ALU> key to display □Inn□□445]: Variation of horizontal pressure sensor.

Press the <ALU> key to display [OUT][530]: Variation of vertical pressure sensor.

Press the <ALU> key to display [dis][40: Variation of A value potentiometer.

Press the <ALU> key to display [dia][235: Variation of D value potentiometer.

Press the <ALU> key to display [lar][0]: Variation of B value potentiometer.

Note: The values mentioned above are hypothetical. The actual values are randomly generated according to the installation and debugging of the machine, which could be modified as required.

VI. Structure and Adjustment Steps of Pressure Sensor
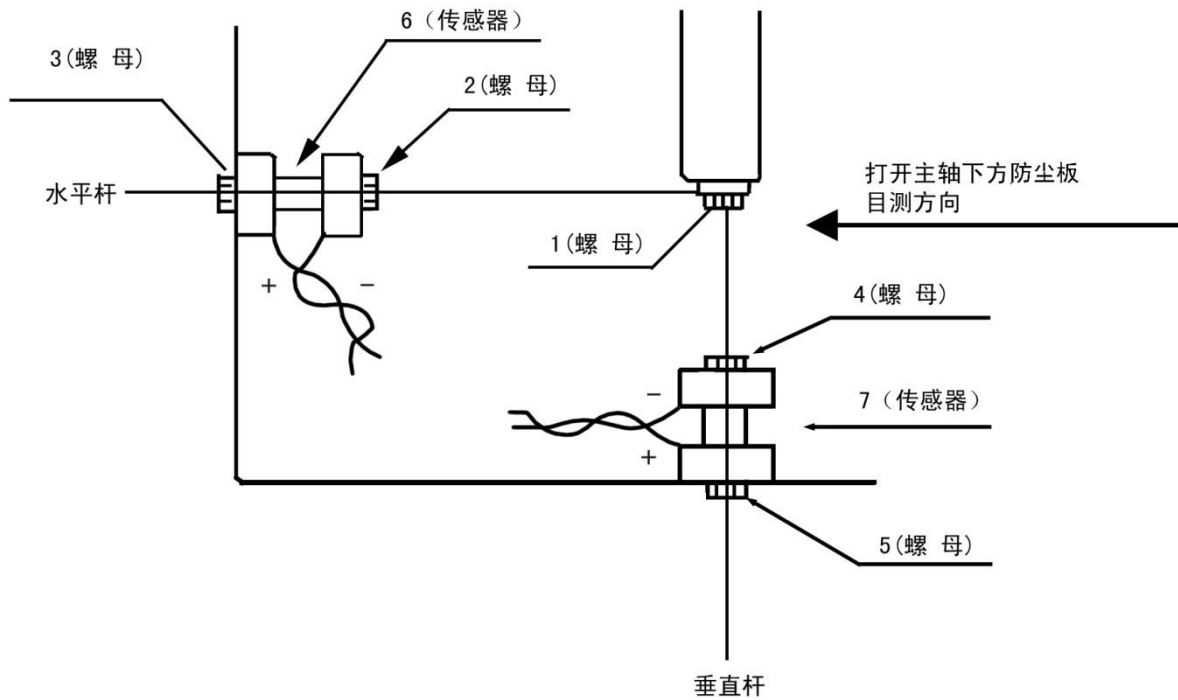
(I) Loosen the nuts 2, 3, 4, and 5.

(II) Then loosen the nut 1 and unscrew the vertical rod.

(III) Take out the sensor and check it or replace the pressure sensor.

(IV) Put the long line of the sensor on the vertical rod, the short line on the horizontal rod, and keep the anodes of two sensors downwards.

(V) After combining the horizontal rod with the vertical rod, screw the vertical rod into the square deformed beam 1 to 1.5 cm.

(VI) Adjust the horizontal rod to be parallel to the main shaft and prevent it from scratching the cabinet, then tighten the 1 nut firmly.

(VII) Visually check whether the main shaft is vertical to the cabinet, if not, adjust the 2 or 3

nuts.

(VIII) Tighten the 4 nut a half turn with a wrench after tightening it by hand, then tighten the 5 nut firmly.

(IX) Tighten the 2 nut a half turn with a wrench after tightening it by hand, then tight the 3 nut firmly.

□After the installation, use a steel wire to connect the sensor connector for discharging.

Note: Be sure to stop the machine before repairing the pressure sensor. Do not disassemble the sensor when the machine is turned on, otherwise, the computer board will be burnt out. While the fatigue test is required after maintenance.

Step: Mount a 15" or more tyre on the machine, connect the computer board pins 1 and 4 to enable the machine run automatically, after continuous running of 15 minutes or so, turn off the power for about 30 minutes, then re-turn it on, and repeat the fatigue test more than 5 times.

VII. Routine Maintenance (non-professional)

□Disconnect the power supply before conducting any maintenance operation.

7.1 Belt Tension Adjustment

7.1.1 Remove the cover

7.1.2 Loosen the motor screw, then move the motor till the belt tensioning is proper, and press the belt with force to lower it about 4mm;

7.1.3 Tighten the motor screw and put the cover on.

7.2 Fuse Replacement

Mount the two fuses on the power board and ensure the fuses could be removed from the fuse holder for replacement of the same-sized fuse, if necessary.