

W H E E L B L A N C E R

1 Performance and characteristics:

- In case of emergency, press the STOP button to stop the wheel from spinning.
- With OPT function, optimize tire rim fit.
- With unit conversion function.
- Multiple balancing methods for your choice.
- Balancing accuracy up to ± 1 g, short balancing time.
- With self-correction and automatic fault diagnosis function.
- Balance decomposition (hidden lead) function (hide behind spokes)
- With automatic ruler ranging and measuring function

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2 Technical Data

The maximum wheel weight	65kg
Rated power supply	110V、220V
Balance accuracy	$\pm 1g$
Width of rim	1.5" – 20"
Diameter of rim	8" – 30"

3. Control panel:

3.1 Display panel meaning

No. 1-1 window, showing tire inboard unbalance value or reference distance A size.

Window 2-2, showing tire outside unbalance value or diameter D size.

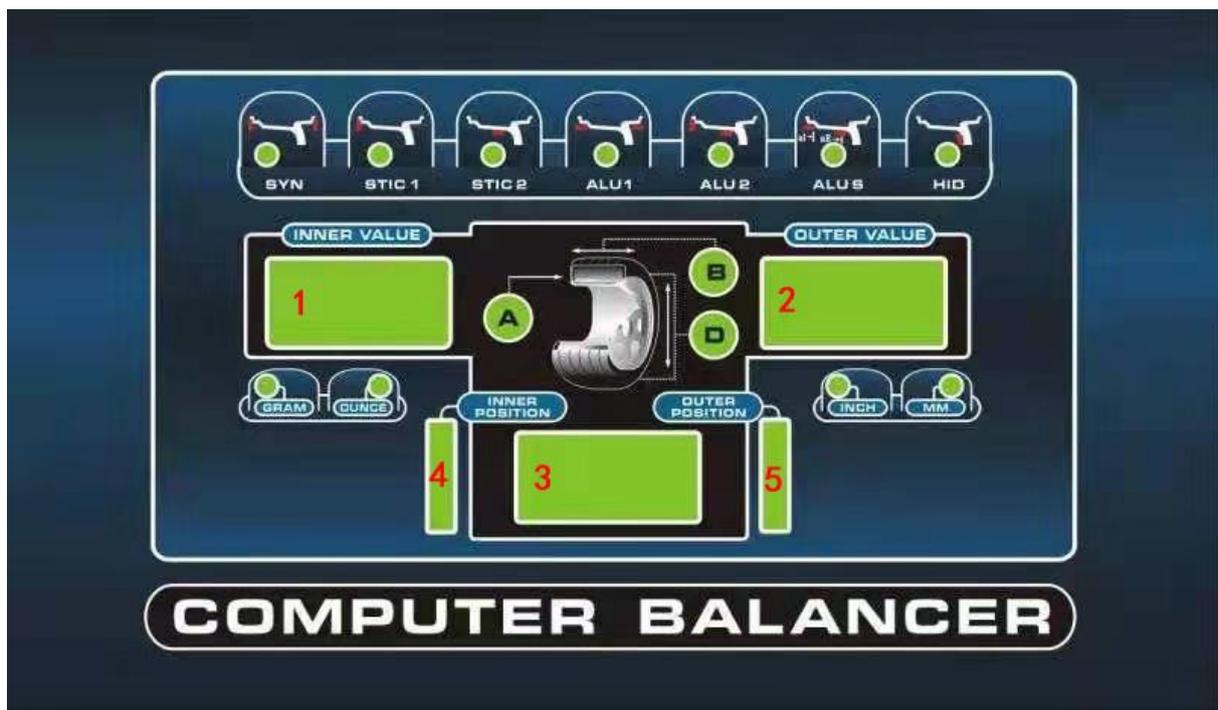
Window 3-3, showing tire width B dimensions and suggestive characters.

No. 4-4 window, inner side unbalance position indication (inner side with key indication).

No. 5-5 window, indication of unbalanced position on the outside (with key indicator on the outside)

6- The first five lights on the top row are in balance mode (as shown in the icon), and the last one is hidden indicator for unbalanced block segmentation.

The two lights below window 7-1 represent the gram and ounce switching instructions, and the two lights below window 2 indicate the tire size unit "mm/INCH" (mm/INCH) switching instructions.



3.2.keyboard

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1. A Manually enter the reference distance size button A, press the arrow to go up, increase the input size, press the arrow to go down, reduce the input size.
2. B Manual input size B, press the arrow to go up, the input size increases, press the arrow to go down, the input size decreases
- 3, D Manually enter size D, press the arrow to go up, the input size increases, press the arrow to go down, the input size decreases
- 4, C correction key/reset key
- 5, ALU aluminum ring measurement and dynamic balance measurement selection key
- 6, D test key, used for balancing machine computer board test
- 7 OPT balancing machine optimization function operation key, used for tire rim optimization combination
8. F static and static balance function switch key

9, The FINE button displays < 5g(0.3oz) actual unbalance value

10, mm/inch for size unit mm/inch switch display

11. Start button

12, STOP emergency STOP and electromagnetic lock button

3. 3 function conversion key combination

3.3.1 After function conversion, shutdown is still saved.

[STOP]+[A ↑]+[A ↓] Grand-ounce conversion key

[STOP]+[C] Start under cover

[STOP]+[FINE] Calibration distance measuring ruler A

[STOP]+[OPT] Calibration Diameter Measurement Ruler D

[F]+[C] Machine System Balance Calibration and Set Machine Parameter Values

[F]+[START] The machine ages automatically

[D]+[OPT] unbalanced decomposition

Note: Use hand buttons only, do not use clamps or any other sharp objects.

4. Tire Balance operation

4.1 After the power is turned on and the device code is displayed, the display window displays "8.0 5.7 14.0", which proves that the machine is normal.

4.2 Installation of Wheels

(1) preparation before the test: check and remove the dust, soil and tread of the tire whether there are metal, stone and other foreign bodies; Check whether the tire pressure is in line with the specified value; Check whether the positioning surface and mounting hole of the rim are deformed, check whether there are foreign bodies in the tire; Remove the original balance block.

(2) There are three types of wheel installation, including positive positioning, reverse positioning and additional flanges for large and medium tires. A positioning method can be selected arbitrarily according to the actual situation.

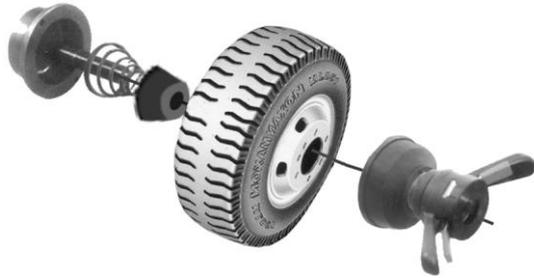
4.2.1 forward positioning



forward positioning is a common positioning method, the operation is simple and fast, mainly suitable for ordinary steel ring and thin aluminum alloy ring, this positioning is suitable for the steel ring deformation is

Spindle - Wheels (rim mounting face inwards)- Fit cone (small head inwards)- Wheels - Quick nut

4.2.2 Reverse positioning



When the wheel outside deformation is large, the reverse positioning is used to ensure the accurate positioning of the inner hole and spindle of the steel ring. It is suitable for steel ring, especially for measuring thick aluminum alloy

Spindle - spring - fit cone (big head inward)- wheel - quick nut

4.2.3 Special flange positioning



This positioning method is suitable for the wheel center hole $\Phi 148$ below the tire installation.

Fix the large flange to the matcher - wheel - large cone - quick nut

Note: the choice of cone should be adapted to the center hole of the rim, and pay attention to its direction, otherwise it will cause inaccurate measurement.

4.3 Size of the input

4.3.1 Input steps:

I First enter the size "a"

The distance measuring ruler of the machine itself is used to measure the distance between the body of the balancing machine and the rim of the inner edge "A" value

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Note: use automatic pull feet enter A value, in '0 bit position, pull the pull rod, the pull end, roof and the tire along, stop for A few seconds, until the left side of the display window shows the three rung, back on the pull rod, the pull rod position, at this time on the left side of the digital tube display the value of reference for the pull rod input size A value, on the right side of the value of digital tube display is the wheel diameter size D value of reference. If the size value flashes, the ruler does not return to zero position.

II Then enter the size "b"

Measure rim width "b" with width caliper

Increase by the value []; Decrease by [↓]

Until the measured "B" value is displayed

III Then enter the size "d"

Find the nominal diameter "D" marked on the tire.

Increase by [+]; Decrease by [↓]

Until the set "D" value is displayed

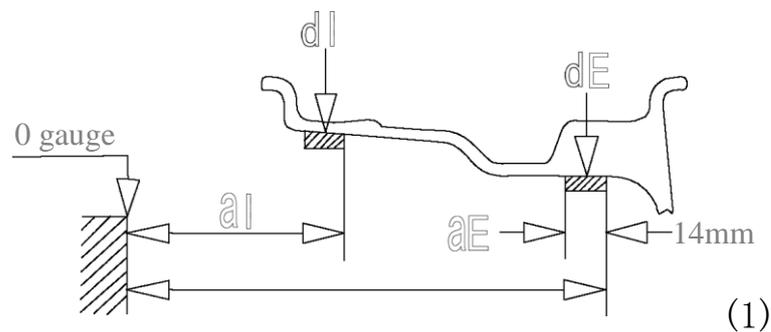
Note: If the radar width measuring device is available, the machine will automatically measure the width B value of the tire at the same time as the protective cover is lowered, without the need to manually input the size "B".

4.3.2 ALU-S balance mode dimension input method

Do not clamp lead on the outside of the aluminum rim balance (S balance).

1) Manual input of rim data

Press key to select "S" balance mode (corresponding indicator light is on), please refer to (figure)



A) To change AL value, press A \uparrow , A \downarrow to change.

B) Change AE value by pressing B \uparrow , B \downarrow .

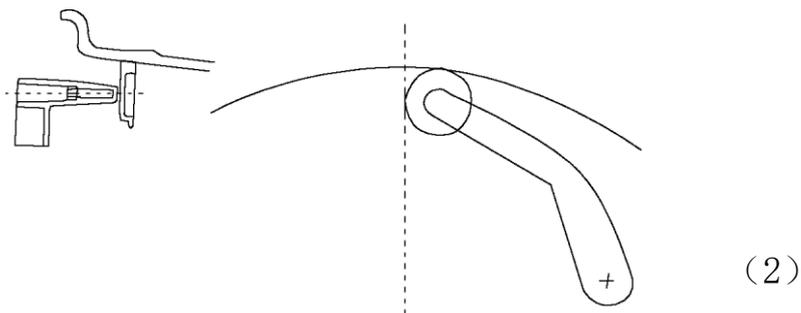
C) To change the DL value, press D \uparrow , D \downarrow to change.

D) To change the DE value, press < FINE > and hold it all the time, and press D \uparrow , D \downarrow to change.

Note: The default value $DE = 0.8dL$. When the dL is changed, DE returns to the default value. When the system calculates the center of gravity of the balance block and the distance of the balancing machine, it will automatically consider the balance block according to 14mm.

2) Automatic rim data

Pull the pull rod, the pull rod to measure the tyres in the first place, stop for a few seconds, the digital tube display 5.7, aI your measurements first position and continue to pull the pull rod, to measure the second position, the digital tube display, ALU S second position after aE measurement, loosen the pull rod position 0, the value on the left side of the digital tube display is the aI, The intermediate digital tube display is AE value.

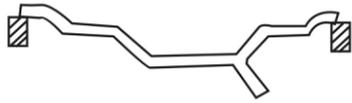


4.4 Balance mode selection

Press F to select static balance and ALU to select other modes.

4.4.1 Select the following different balancing modes according to the position and mode of adding the balancing block. Press F and ALU continuously in the display window of balancing mode (such as the control panel diagram) to display the following different balancing modes. Every time the boot automatically into the dynamic balance, no need to make a choice.

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Dynamic Balancing - A balancing block is sandwiched between both sides of the rim for

steel and aluminum alloy rims.

Static balance static-. Static balance

correction is performed on the tire.



ALU1- Balanced aluminum alloy rim,

adhesive balancing block method is

adopted on both sides.

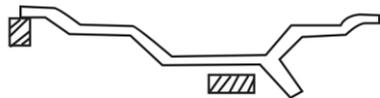


ALU2- The inner side is clamped with the balance

block, and the outer side is adhered to the balance block

(the position of the outer balance block is shown in the

figure).



4.4.2 Special shape rim balancing operation (ALU-S balancing mode)

Press < ALU > key to select "S" balance mode (corresponding indicator light is on), enter rim data by "S" balance mode, and start the machine for unbalance calculation. After the machine balance is completed and the unbalance is displayed:

A. Rotate the tire slowly, and fix the tire when the left position indicating diode is

all bright and there is buzzing sound (it will be automatically locked when there is electromagnetic device), clamp the lead block with the same inner imbalance value on the ruler fixture, pull the ruler until there is buzzing sound and it shows [***][O--][***], it means that it has reached the horizontal position attached to the inner lead block. At this time the ruler will be close to the hub, so that the lead firmly stuck on the hub.

B. Rotate the tire slowly, and fix the tire when the position indicator diode on the right side is all bright and there is beep (it will automatically lock when there is electromagnetic device). Clamp the lead block with the same unbalanced value on the outside side on the ruler clamp, pull the ruler until there is beep and display [***][--O][***], it means that it has reached the horizontal position attached to the outside lead block. At this time the ruler will be close to the hub, so that the lead firmly stuck on the hub.

C, the above operation is in the absence of the laser pointer lead operation, if there is under the condition of the laser pointer, where there are lead balance mode, after the complete balance not calculate, slowly turn the tires to the unbalanced position, tire lock, a laser designator light up automatically, then match the size of the lead weights on the laser indicating location.

4.4.3 Unbalanced decomposition

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Decomposition is used on the outer side of the static balance or ALU-S balancing mode and can be used to covertly attach the balancing block to the rim behind the spokes. Press < START > to complete the ALU-S balance calculation of the tire. When the imbalance value is displayed:

4.4.3.1 Number of input wheel frames

Enter any size, press < D > + < OPT > key

Press < ↑ > or < ↓ > to set the number of wheels (3-12).

Press < D > + < OPT > to confirm.

4.4.3.2 Unbalance of decomposition

Make any bar at 12 o'clock and press < ALU > to decompose.

The center display displays "SPL".

Rotate the tire slowly until an imbalance value appears on the right display. At this time, if there is a laser device, the corresponding weight of lead block is attached behind the spokes in the laser indicated position, otherwise, the

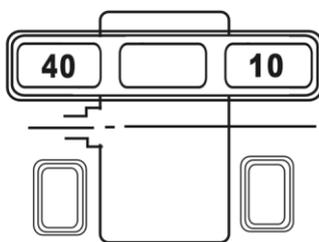
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corresponding weight of lead block is attached behind the spokes by pulling the ruler.

Rotate the tire slowly again until the second unbalance value appears on the middle display screen. At this time, stick the lead block with the corresponding weight in the way above, and the tire is balanced.

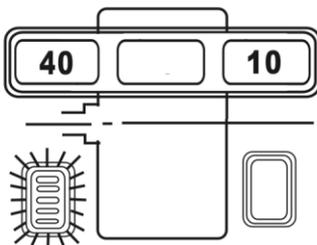
Note: At this point, press < FINE > to see that the balance precision is 1g. To return to the normal unbalance value display, press < START > or < C >.

4. 5 Tires Balance



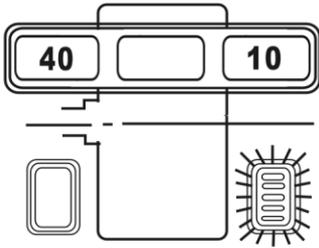
I Press Start button to START. After automatic braking, the display is as shown in the figure below:

40 Is the inside error of the tire
10 Is the error value of tire outside

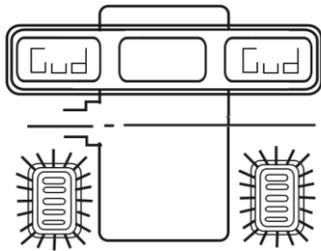


II Slowly turn the tire, when the inside lights are all on, put a 40g lead block on the inside side of the rim just above the vertical spindle, as shown in the figure:

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III Slowly turn the tire so that the outer indicator lights are all on. Put a 10g lead block just above the outer rim, as shown in the figure:



IV Press Start button to START. After braking, the display window shows 00. After balancing, remove the tire. If it does not reach 00, follow the steps above

Reoperate until it reaches 00.

Press FINE to observe residual errors.

4.6 Unbalance optimization

It is recommended to run this program when the unbalance value shows more than 30 g, which can reduce the unbalance of the tire and add the balance block when reducing the balance.

4.6.1 Normal balancing operation has been performed and the wheel has rotated once.

If the unbalance value is more than 30G, the display screen "OPT" (displays in the center when doing dynamic balancing)

Between the display screen, static balance display on the left screen) press <

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OPT > key.

Display: [] [180] Display 180° means that the rim and the tire should rotate 180° each other. Make a mark on the same position of the taper plate and the rim hole, so that the rim can be installed back to the same position. Use the tire remover to rotate the tire 180° on the rim and reinstall the tire back to the rim.

Display: [82] [35] Left display - shows the percentage of unbalance value that can be reduced by the current wheel position (% symbol is shown as).

Middle display - current unbalance value, which can be reduced by rotating the tire around the rim.

An imbalance value of 35g in the example is reduced by 82%, leaving only about 6g unbalance after running the program.

[82] [35] A mark is made at the top of the tire (12 o'clock position) when the small light in the middle of the unbalance indicator lights on both sides of the tire is turned on at the same time.

[82] [35] When the tire is rotated again until the small lights on both sides of the unbalance indicator light are on at the same time, make a mark at the top of the rim (12 o'clock). Remove the wheel and use a tire splitter to overlap the tire with the rim mark.

4.6.2 Wheel not yet rotating (or static unbalance value less than 30g)

Press the < OPT > key, and the left screen displays "OPT".

Press < Start >, the wheel rotates for the first time. After the rotation is completed, it will display [] [180]. The following can be operated by pressing

4.6.1 Balancing machine maintenance and repair

5.1 Automatic correction A value of drawing rule:

(1) When the ruler is back in position, press [STOP]+[FINE] to display CAL 100 on the digital tube. At this time, pull the ruler back to the position of 10CM.

② After pressing ALU key, display CAL-0 -

③ When pulling the ruler to the flange position of the balance shaft, press the ALU key.

(4) If the digital tube shows Cal End, the correction is passed.

5.3 D value of drawing rule automatic correction:

② Press the [STOP]+[OPT] key combination at the ruler position (0 position)

(2) Press [D+], [D-] keys to adjust the diameter of the tire, such as 15 inches, press [ALU] key to confirm, the window shows [POS][15.0]

③ Install the 15 "tire, pull out the ruler and put the ruler against the inner rim, keep it still and press it at the same time

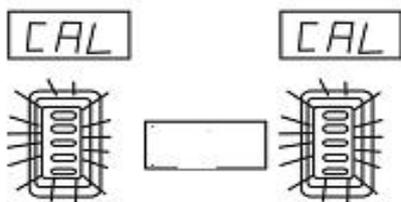
[ALU] key to confirm, digital tube display CAL END, indicating that the correction has passed.

5.4 Self-correction

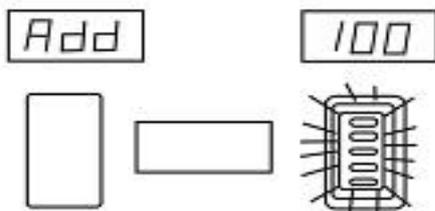
Self-correction can be re-corrected when the manufacturer has finished, used for many years, replaced parts or suspected that the balance error is too large. Select a medium tire (13 ", 14 "rims) on the spindle and enter the correct value for this tire.

Note: select a better tire for self-correction and enter the size correctly, otherwise the subsequent measurement value will be inaccurate.

Self - correct with a balanced tire

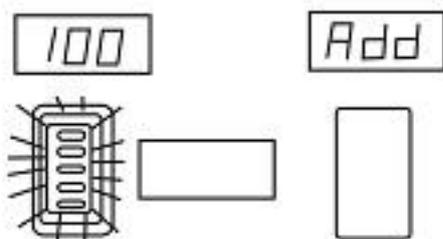


. I press < F > key, and then press < C > key at the same time. The display board displays "Cal" and "Cal" indicator lights are on and flashing. When the indicator lights go out, let go. Press the START button, the wheel rotates for a few seconds and then brakes automatically.

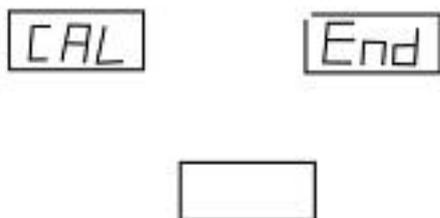


II At this point, the display board displays "Add" "100". Slowly turn the tire until the outside indicator is fully on and add a 100g counterweight at 12 on the outside of the wheel. Then, press the Start button, and the wheel spins for a few seconds and then brakes automatically.

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III At this point, the display board displays "100" "Add". Slowly turn the tire until the inboard indicator is fully on and add 100g counterweight at 12 o'clock on the inside of the wheel. Then, press the Start button, and the wheel spins for a few seconds and then brakes automatically.



IV At this point, the display board displays "END" and "CAL" to indicate the END of self-correction. If there is an error code prompt, please press the error prompt to detect the balancing machine.

Note: Before and after the system balance, the last step is to clear the base of the balance shaft as described in 5.7.1.

Abnormal phenomena and elimination of self – calibration

The fault	Cause	method
E-rr-8-	<ol style="list-style-type: none"> 1. 100g self - calibrating lead is not added 2. The lead wire of pressure sensor is broken 3. Computer board failure 	<ol style="list-style-type: none"> 1. Plus 100 grams of lead 2. Check the connection wire and connect it properly 3. Replace the computer board
E-rr-6-	<ol style="list-style-type: none"> 1. The pressure sensor is not installed correctly 2. The calibration sequence is wrong first lateral then medial 	<ol style="list-style-type: none"> 1. Check whether the piezoelectric sensor is reversed 2. Calibrate according to correct operation

If you cannot solve the problem through the above methods, please contact our service

Note: When the computer board, phase sensor or pressure sensor is replaced, it must be self-calibrated again. When the computer board is replaced, its parameters should be set according to the parameter values marked in the machine or the parameters of the original board. After modification, it must be self-calibrated again.

5.5 Modify the memory parameters of the local computer

If the program is lost due to operation error or other reasons, you can make the following adjustments to make the computer work again. Correct setting of machine parameters can ensure its balance accuracy.

Fault phenomenon: self - calibration after the phase is not accurate or large numerical deviation.

The correction method is as follows:



(左显示窗) (中间显示窗) (右显示窗)

(图1)

1. After holding C key, press F key and hold at the same time, the display window will display "Cal Cal Cal" phase indicator light on and flashing, and let go when the indicator light does not flash.

2. After pressing the distance dimension A [↓], A [↑] and F keys continuously, the display window displays "Re" and "5", indicating unbalance and below 5 grams display 0. Can press the B button [↓], B button [↑], adjust to 10 grams, 20 grams and 50 grams.

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3. Press A [↑] button again and the display window displays: "AUT" and "ON/OFF", indicating whether there is width ruler measurement. Press B button [↓] and B button [↑] to select "ON" or "OFF".

4. Press A [↑] button again and the display window displays: "LAS" and "ON/OFF", indicating whether the laser indicating device is installed. Press B button [↓] and B button [↑] to select "ON" or "OFF".

5. Press A [↑] button again and the display window displays: "DA +" "02", diameter measurement fine-tuning parameters. Because the ruler and the balance shaft is not parallel, may make the diameter of the size of the tire measurement is not too accurate, can press the B key [↓], B key [↑] for minor adjustment.

5.6 Collection of common faults of wheel balancing instrument (if the above methods cannot be solved, please contact with service)

The fault	Cause	method
No display on boot	<ol style="list-style-type: none"> 1. Check the external circuit 2. Check whether the switch is damaged 	<ol style="list-style-type: none"> 1. Check with a multimeter 2. replace
After boot, the display is normal, but it does not start and has a buzzing sound. ERR1 is displayed	<ol style="list-style-type: none"> 1. Motor capacitance failure 2. 380V power supply phase loss 	<ol style="list-style-type: none"> 1. Replace a capacitor of 20uF /400V 2. Check the power supply
Err-1-	<ol style="list-style-type: none"> 1. Press Start to stop the car 2. Press Start without brakes 	Check the computer board, power board and photoelectric board
Err2	<ol style="list-style-type: none"> 1. Did not install the wheel 2. Only one steel ring, not on the tire 3. The spindle matcher is not installed tightly 4. The wheel was installed incorrectly and did not lock properly 5. The belt is too loose or tight 	<ol style="list-style-type: none"> 1. Try it on a wheel 2. On the tire 3. Retighten the retaining bolts 4. Choose the right cone and install it correctly 5. To readjust

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Err3	The wheel unbalance is too b	Replace the tire test, or re-calibrate
Err4	<ol style="list-style-type: none"> 1 If inverted, the phase line is wrong 2. Forward rotation is a problem with the position sensor 	<ol style="list-style-type: none"> 1. Three-phase electrical equipment, phase adjustment can be 2. To reposition or replace
Err5	Wheel guard is not down	Put Wheel guard down
Err7	Memory data loss	The self-calibration
Shows only 00-00 innumerable value displays	<ol style="list-style-type: none"> 1. Sensor leads broken or poor contact 2. Memory value missing 	<ol style="list-style-type: none"> 1. reconnect 2. Correct the memory value according to the instruction
The range of each rotation value is over 5g	<ol style="list-style-type: none"> 1. Foreign body in tire or deformation of center mounting surface of rim 2. The sensor is damp or the lock nut is not clamped 3. Low external power supply or insufficient tire pressure, the matcher is not locked 	<ol style="list-style-type: none"> 1. Change the wheel 2. Dry and readjust the sensor 3. Put in the anchor screw
Each rotation value range of dozens of grams	<ol style="list-style-type: none"> 1. There is a foreign body in the wheel or the wheel unbalance is too large 2. Sensor is bad 3. The external power supply is low 	<ol style="list-style-type: none"> 1. Change the wheel and try 2. Check the sensor and wiring 3. Check and repair or install the voltage regulator
More than 10 seconds of non-stop time	<ol style="list-style-type: none"> 1. Bad grounding of external power supply 2. interference 	<ol style="list-style-type: none"> 1. Check the external power line or switch it on in another place 2. Turn off the machine and restart the machine
1 do the balance is not accurate left and right interference, it is difficult to flat to 00	<ol style="list-style-type: none"> 1. Damp or damage to the sensor 2. Program chaos 	<ol style="list-style-type: none"> 1. Readjust, dry and self-calibrate or replace 2. The self-calibration
Do not brake after displaying the value	<ol style="list-style-type: none"> 1. Brake system damage 2. Outside interference 	<ol style="list-style-type: none"> 1. Replace the power board 2. Restart the machine and try
The error of secondary disassembly exceeds 10g	<ol style="list-style-type: none"> 1. The inner hole of the wheel is irregular 2. The matcher is not installed 	<ol style="list-style-type: none"> 1 Change the wheel and try 2. Re-examine the mounting surface and try it

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	properly	
Err8	5.1	
Display an error of a few hundred grams	<ol style="list-style-type: none"> 1. Memory value three parameters messed up 2. The tire error is too big 	<ol style="list-style-type: none"> 1. Correct to standard value according to instruction 2. Change a tire and try it

5.7 Self-check procedure (detect position sensor and indicator light)

Press < D > key, all indicator lights and digital tubes on the system panel are on (if there is an electromagnet, the electromagnet will close; if there is a laser indicating device, the laser will be lit) to check whether the display (electromagnet and laser indicating) is normal.

5.7.1 Press < ALU >, and the display screen displays [POS] [XX]. At this time, it can detect whether the position sensor is normal, and slowly rotate the tire (XX) value by hand.

Note: In this state, when turning to [POS] [18], press key, and the display screen displays [CAL] [-o -], indicating that the balance shaft base and zero clearance can be carried out at this time. Under the condition that the balance shaft is not loaded with tires, press the key to START the balancing machine for balance calculation, until the display [CAL] [END] indicates that zero clearance is completed. However, this kind of zero clearance because of the interference of the belt and the box can not guarantee the absolute zero clearance shaft, but it can be guaranteed within 4 grams.

5.7.2 Press < ALU > button to display [P0.] [XX]. At this time, the quality of

horizontal piezoelectric can be checked. The normal value is between 300~400. At this time, pressing the balance shaft can see that the number has a large jump change is normal, otherwise the horizontal piezoelectric line or the circuit board part has a fault.

5.7.3 Press < ALU > key and display [P1.] [XX]. At this time, the quality of vertical piezoelectric can be checked. The normal value is between 300~400. At this time, pressing the balance shaft can see that the number has a large jump change is normal, otherwise the vertical piezoelectric line or the circuit board part has a fault.

5.7.4 Press < ALU > key to display [DIS] [xx] at this time pull the ruler can check the quality of the distance ruler. For repeatedly pulled to a certain position, its display value is basically the same.

5.7.5 Press < ALU > again to display [DIA] [XX]. Rotate the drawing ruler at this time to check the quality of the diameter ruler. The value should not be between 750 and 900 when the ruler is leaning against the rotation axis. For repeated rotation to a certain position, the value displayed is basically the same.

5.7.6 If there is radar width measurement, press < ALU > to display [LAR] [360]. "360" indicates the distance between radar transmitting head and the flange face of balance shaft. Can press B button [↓], B button [↑], adjust. For the specific adjustment, the protective cover can be lowered at this time to start the radar width measurement (pay attention to the correct distance value), until the measurement is accurate.

Press < ALU > to exit

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Note: press < C > at any time to exit the self-check operation.