

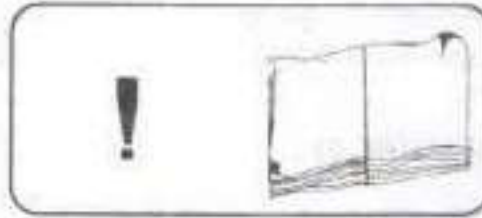
Please note:

****This machine is factory calibrated****

******Disregard manual inside of
caliper box******

******DO NOT CALIBRATE AFTER
ASSEMBLY******

KEEP THE MANUAL NEAR THE MACHINE ALL TIME
AND MAKE SURE ALL USERS HAVE READ THIS



Installation, Operation, Maintenance Manual

PWB 1535A / PWB 1530A

**THIS UNIT IS FACTORY CALIBRATED,
DO NOT CALIBRATE AFTER ASSEMBLY!**

FOLLOW THE INSTRUCTIONS CAREFULLY TO GRANT
THE MACHINE A CORRECT FUNCTION AND LONG

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1 Safety Instructions

- Make certain all operators are properly trained. Improper operations may result in incorrect measurement.
- Environments should conform to the regulations in this instruction manual.
- Keep the guard in working order.
- Transportation and operations should strictly follow the regulations in this manual, otherwise, the manufacturer will not be responsible for the damage caused by improper transportation or operation.
- To use the equipment beyond its measurement range may cause damage to it and can not ensure precise measurement.
- If operators violate safety regulations thus damage the machine by dismounting safety devices ,the manufacturer will immediately cease it's safety promise.

2、 Product Instruction

2.1 External Structural Drawing

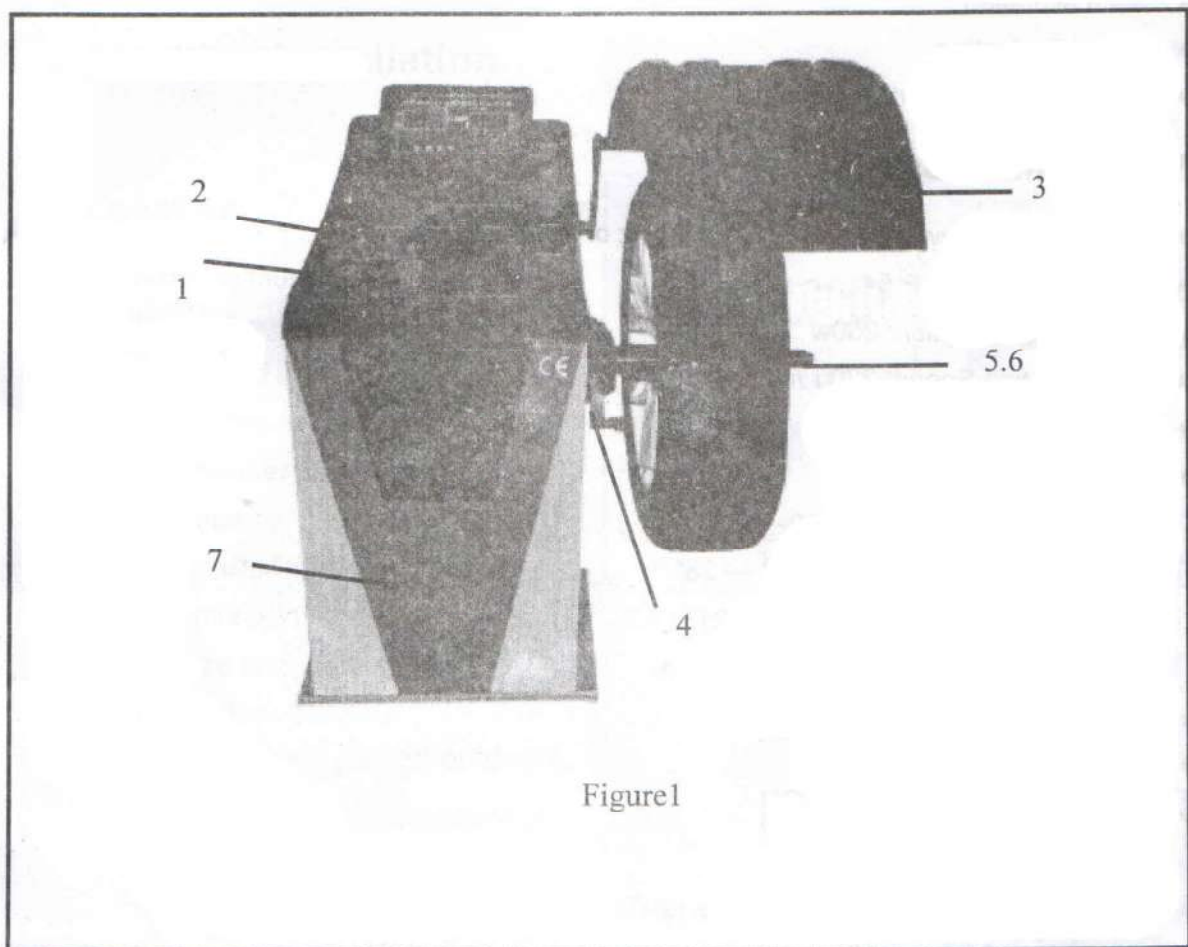


Figure1

1. Operation Panel 2. Counterweight Container

3. Safety Guard
4. Automatic Gauge
5. Shaft
6. threaded end
7. Balancer Body

2.2 Functions

- Dynamic Mode
- Static Mode
- Standard ALU1, ALU2, ALU3, Mode
- ALUS Mode
- OPT(OPTIMIZATION) mode
- SPLIT or Hidden Weight Function
- Unit Conversion in Different Countries (Areas)
g / oz, mm / inch
- Automatic Gauge
- Automatic Sticking Counterweights
- Self-calibration
- Guard Protection
- Self-check Error and Diagnostics

2.3 Specifications

- Single Phase Power Supply: 220V / 50 Hz or 110V / 60 Hz
- Protection Class: IP 54
- Power Consumption: 260w
- Max Rotating Speed: 220 r /min
- Cycle Time: Average 8-12s
- Measurement Ranges:
 - Gauge length 10 — 300mm
 - Rim Diameter: 9.5" — 28"
 - Wheel Width: 2.5" — 21"
 - Wheel Diameter: < 880 mm
- Error: $\leq \pm 1g$ 0.1 oz
- Noise: $\leq 70dB$
- Net Weight: 75kg
- Working Environment: Temperature: $-20^{\circ}C \sim 50^{\circ}C$, Humidity: $\leq 85\%$

3、Transportation

The balancer must be transported in the original package and be placed in the specified position

Use a forklift with corresponding capacity to move the packed machine and the direction of the forklift is shown in figure 2.

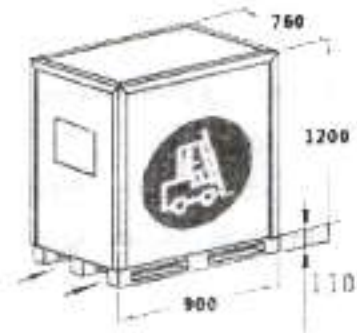


Figure 2

4、Opening Package

- Check the package. If there are some problems, please do not open it, and contact the supplier and the carrier at once.
- Make sure that the package is not damaged and then open the protection carton and plastic bag. Check the accessory case according to the packing list. Check whether the machine surface is in good condition and whether there is loss or damage to the parts.
- Dismount the bolts on the base and make the balancer steadily rest.
Please do not use the machine and contact the supplier at once if there are some problems

5、Machine Installation

5.1 Location

- The machine must be located in the working environment described in 2.3 and the ground should be solid.
- Sockets that match the power supply and motor power described in 2.3 are available nearby.
- Space for installing is big enough to meet the needs in figures 3 and 4 and ensures each part of the machine to work normally.
- Put up a shelter if placed outdoors.

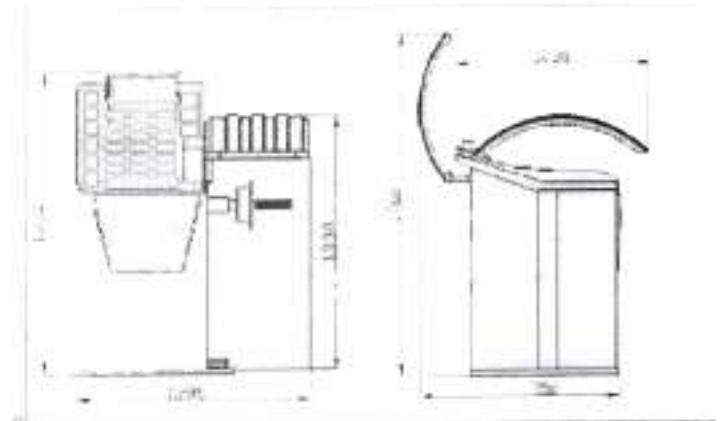


Figure 3

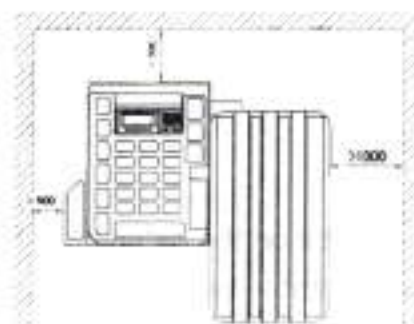


Figure 4

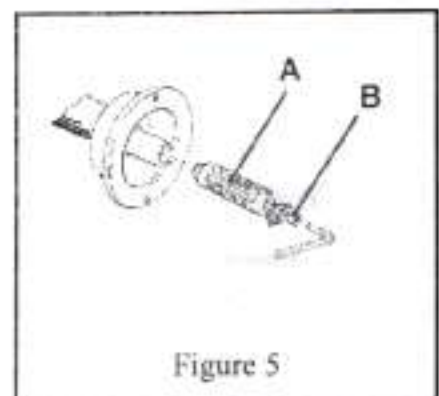


Figure 5

5.2 Installing parts

- Shaft: Take out the threaded end and bolts from the accessory case. Mount them firmly according to figure 5.
- Mount the cone on the corresponding arm.
- Mount the guard according to Appendix I.
- Put the plug in the socket to finish installing the balancer.

6. Control Unit (Figure 6)

- A. inside unbalance point
 B. inside unbalance display window
 C. standard dynamic mode indicator
 D. static mode indicator
 E. ALU mode indicator
 F. ALUS mode indicator
 G. OPT indicator
 H. sticking and clamping weight position indicator
 I. middle static mode display window
 J. SPLIT/HIDDEN weight indicator
 K. mm/inch indicator
 L. motorcycle mode indicator
 M. outside unbalance display window
 N. outside unbalance point
 O. size input shift key
 P. — function key
 Q. — function key
 R. Enter key
 S. dynamic/static key
 T. unit shift key
 U. ALU mode key
 V. motorcycle mode key
 W. opt/hid key
 X. fine display key
 Y. STOP key
 Z. START key

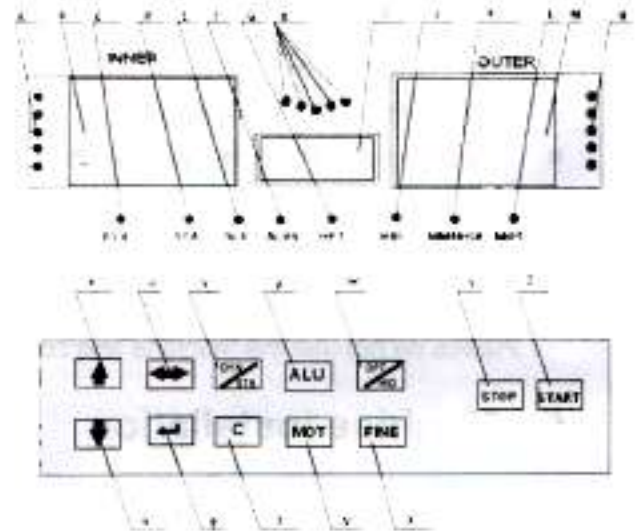


Figure 6

7. Operating Instructions

7.1 Self-check

When switched on, the system begins self-check and then enters standard dynamic mode measurement. (refer to figure 7)

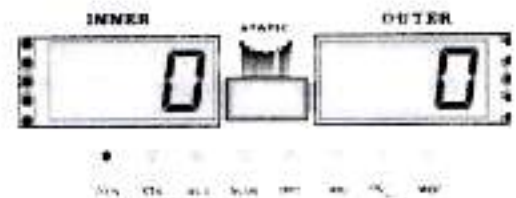


Figure 7

7.2 Installing Wheel

Choose the optimal cone for the center hole and mount it on the balancer (refer to figures 8 and 9). The method shown in figure 9 is preferable because it

approximates to installing wheel on a real car.

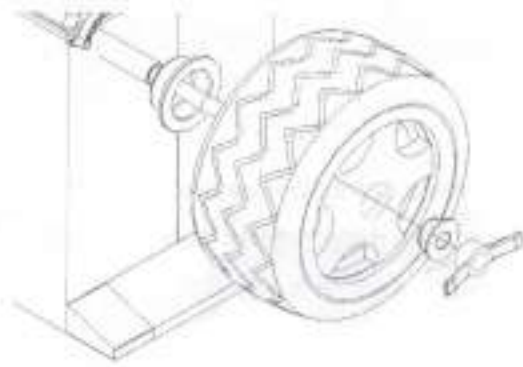


Figure 8

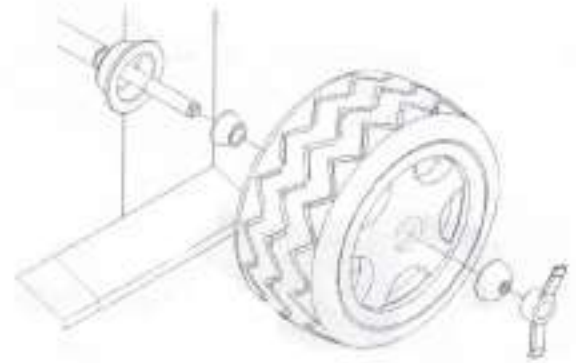


Figure 9

7.3 Wheel Parameters Input

Unlike ALUS which needs 4 parameters, other modes need 3 parameters.

Parameter values are shown in figure 10. (Dynamic and static modes, ALU1-3 mode, motorcycle mode)

Figure 11 (ALUS mode)

Note: Motorcycle tires automatic input parameters also need to install a dedicated extension rod. (refer to Figure 27)

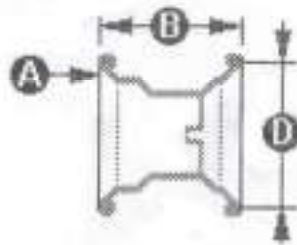


Figure 10

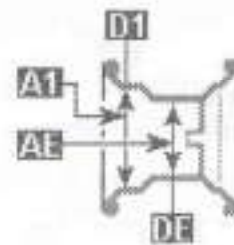


Figure 11

7.3.1 Input 3 Parameters of Wheel with Automatic Gauge

As is shown in figure 13, pull the gauge against the rim keeping it in position for 2 seconds, the computer will automatically input A and D values. Press $\uparrow \downarrow$ to input B value, then press \leftarrow to exit parameter input.

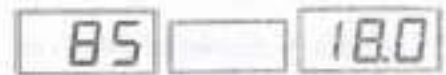
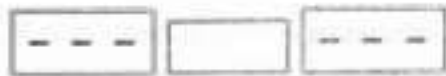
In dynamic, static, ALU mode



Pull the gauge against the rim.

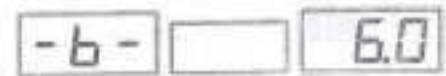
Steady the gauge on the inside bead seat. After the gauge is stable, the computer automatically finishes A and D measurements with a "beep."

The inside display window shows wheel distance A value and the outside shows D value of the rim diameter.



After returning the gauge, the balancer automatically goes to the wheel width input state.

Return the gauge to position 0



Press \uparrow \downarrow to input wheel width B value, then press \rightarrow to exit parameter input.

7.3.2 Input 4 Parameters of Type with Automatic Gauge

Input 4 type parameters with automatic gauge as shown in Figure 14.

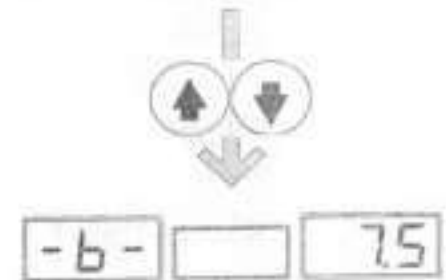

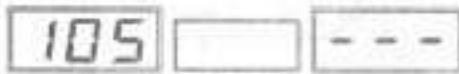


figure 13

In ALUS mode



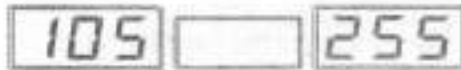
In ALUS mode, pull the gauge against the chosen correction plane on the inside of the rim, press  to automatically input.



Now A1 value is displayed on the left of the screen



Do not return the gauge and keep pulling the gauge until it is against the chosen correction plane on the outside of the rim, wait for measurement.



Now AE value is displayed on the right side of the screen.

Return the gauge to position 0

After the outside measurement, return the gauge to position 0 and ALUS parameters input finished.

figure14

7.3.3 Input parameters manually

Users can choose to finish parameters input manually

See figure 15. It is not advisable to input manually if the automatic gauge is enabled.

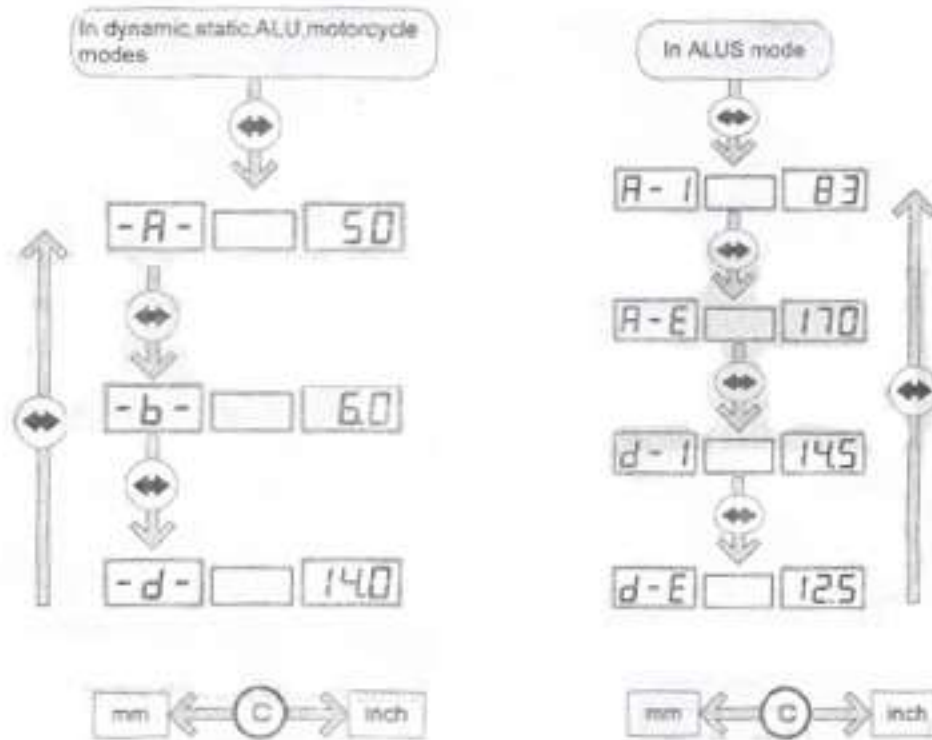


Figure 15

Press \leftarrow to choose parameter, and press \uparrow \downarrow to modify parameter value. After inputting the parameter press \rightarrow to save and enter next parameter input state. In the state of D value input, press \textcircled{C} to convert mm and inch.

7.4 Choose balance modes

The default mode of this equipment is standard dynamic mode. Choose other mode by pressing keys DYN/STA, ALU, MOT. (see figure 16) OPT and Hidden weight modes are two attached modes. Opt mode can be operated by pressing the key OPT/HID under dynamic and static modes.

Hidden weight mode can be operated by pressing OPT/HID and exit by pressing STOP under ALUS modes. Press STOP can stop measurement during measurement

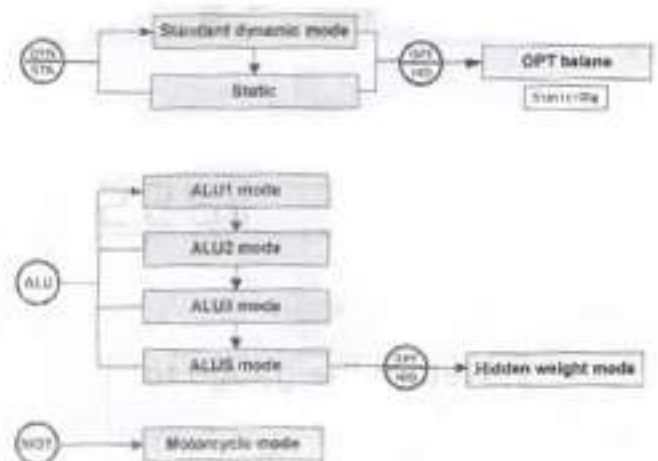


figure16

7.5 Standard Dynamic Mode

This function is to test the amount of unbalance on the inside and outside of the rim while a wheel is rotating. Placing counterweight on the tested position of both sides of the rim according to the

displayed unbalance value can eliminate unbalance.

First, choose standard dynamic mode, then install the Wheel and input parameters, (see 7.3) after that follow the process of standard dynamic operation in figure 17.

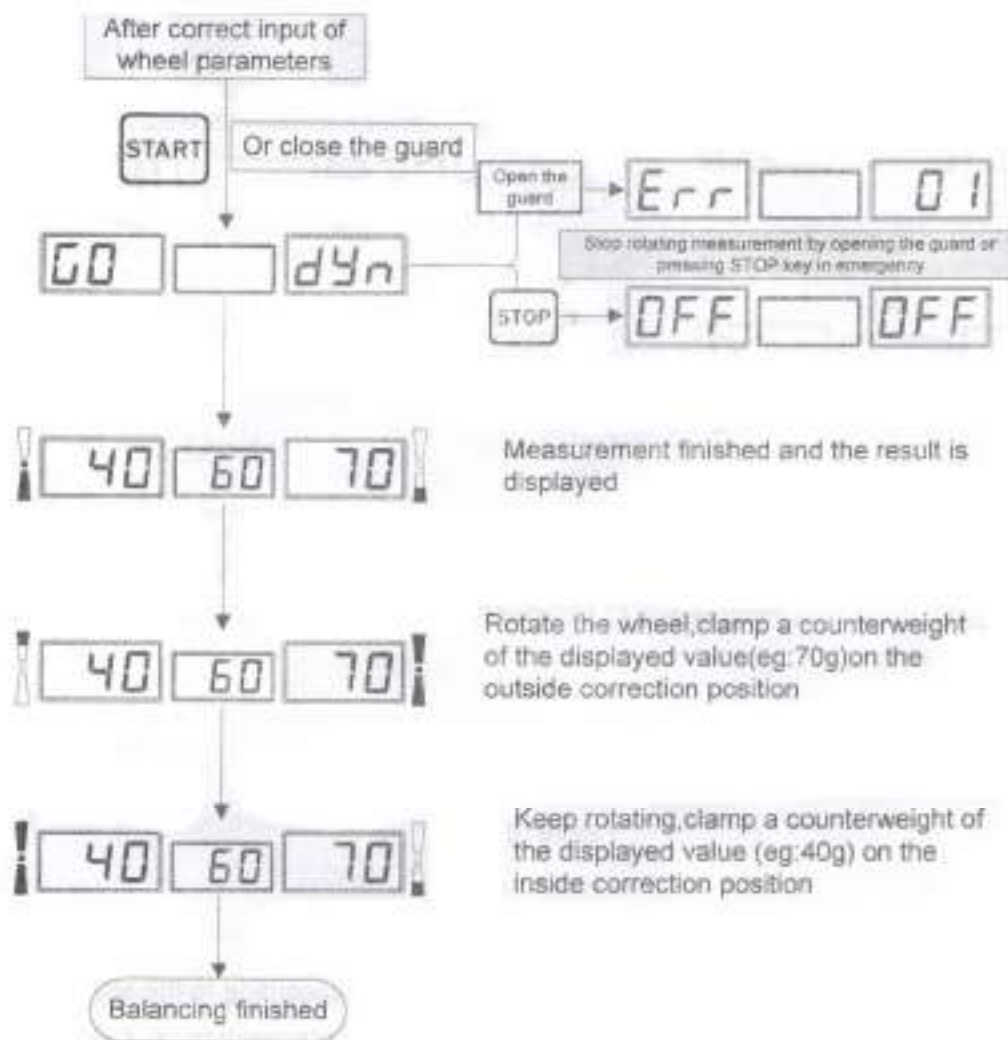


Figure 17

The three values from left to right shown in figure 17 are unbalance value of the inside rim, static value and unbalance value of the outside rim respectively. When the left and right unbalance values are 0 and the middle static value is more than 5g, by pressing FINE key the unbalance values less than 5g after standard dynamic balance will be displayed on the left and right side of the screen. Now it is recommended to do static balance to achieve complete balance.

7.6 Static Mode

After dynamic mode measurement, select static mode directly. The balancer will automatically calculate the result of static mode.

First, choose static mode, then install the Wheel and input parameters, (see 7.3) after that follow the process below.

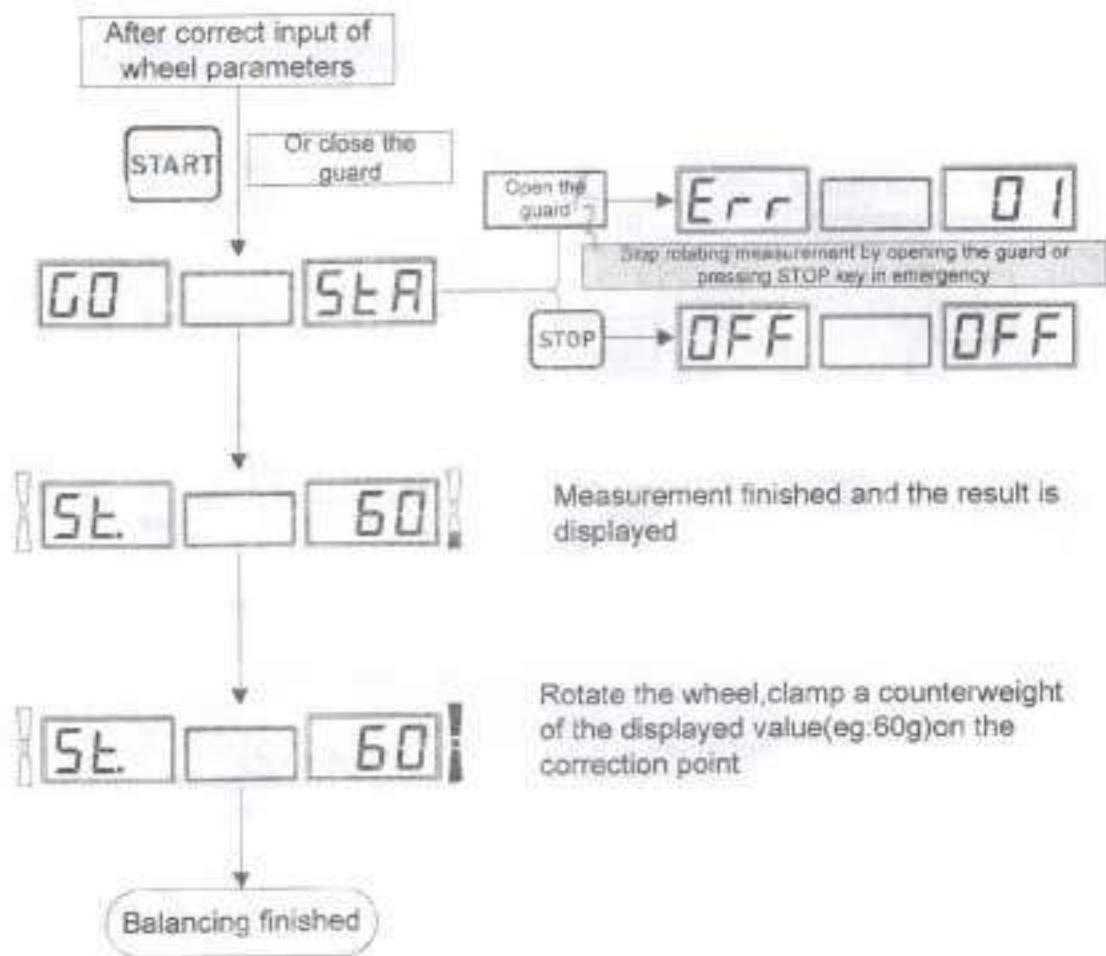


Figure18

7.7ALU1---ALU3 Modes

ALU1-3 mode refer to 3 counterweight sticking modes reduced according to the shapes and sizes of most rims. (refer to figure 19) At 1 o'clock positions clamp counterweights, at 2, 3 and 4 o'clock position, stick counterweights according to figure.20. A special purpose gauge can also be used to assist in sticking counterweights.

The measurement processes of ALU1-3 are the same as that of standard dynamic mode.



Figure 19



Figure 20

7.8 ALUS Mode

This mode can input the precise size of the correction plane with the aid of automatic gauge. It compensates for ALU1-3 and is more accurate than the traditional ALU mode. It is easier and faster to use as well.



Figure 21

7.8.1 ALUS Correction Plane choosing

ALUS has to choose two proper correction planes, one on each side of the rim. Clean the area to be used to accept stick-on weights.

7.8.2 ALUS Mode Operation

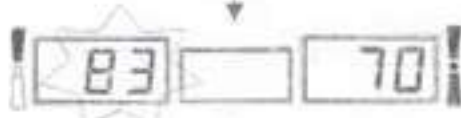
Mount the tyre and collect parameters according to 7.3.2. After collecting, close the guard, press START to measure. The process is the same as that of standard dynamic mode.

See figure 22 for the outside sticking process. After measurement, rotate the wheel to the outside correction plane position according to the figure. The position is calculated automatically by the parameters collected by automatic gauge, so the real correction position is not necessarily at 12 o'clock, in this case, locate the position with the gauge.

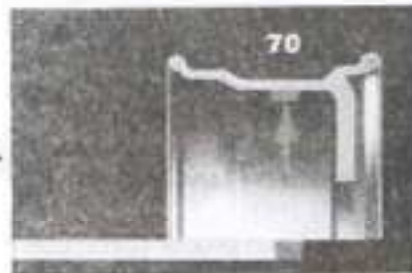
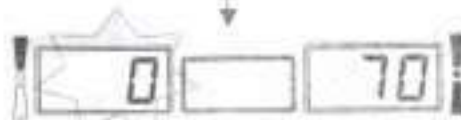
The inside sticking process is shown in figure 23.



ALU were shown around the inside and outside the imbalance value.



Rotate the wheel, when it comes to the outside correction position the inside display window blinks to show the distance between the correction point and the gauge tip



Pull the gauge and stick the counterweight on the exact "0" distance position shown on the inside display window

Lateral end of lead paste

Figure22

Note: The automatic gauge can only locate the 12 o'clock position, it will return to the measurement interface if at any other position.

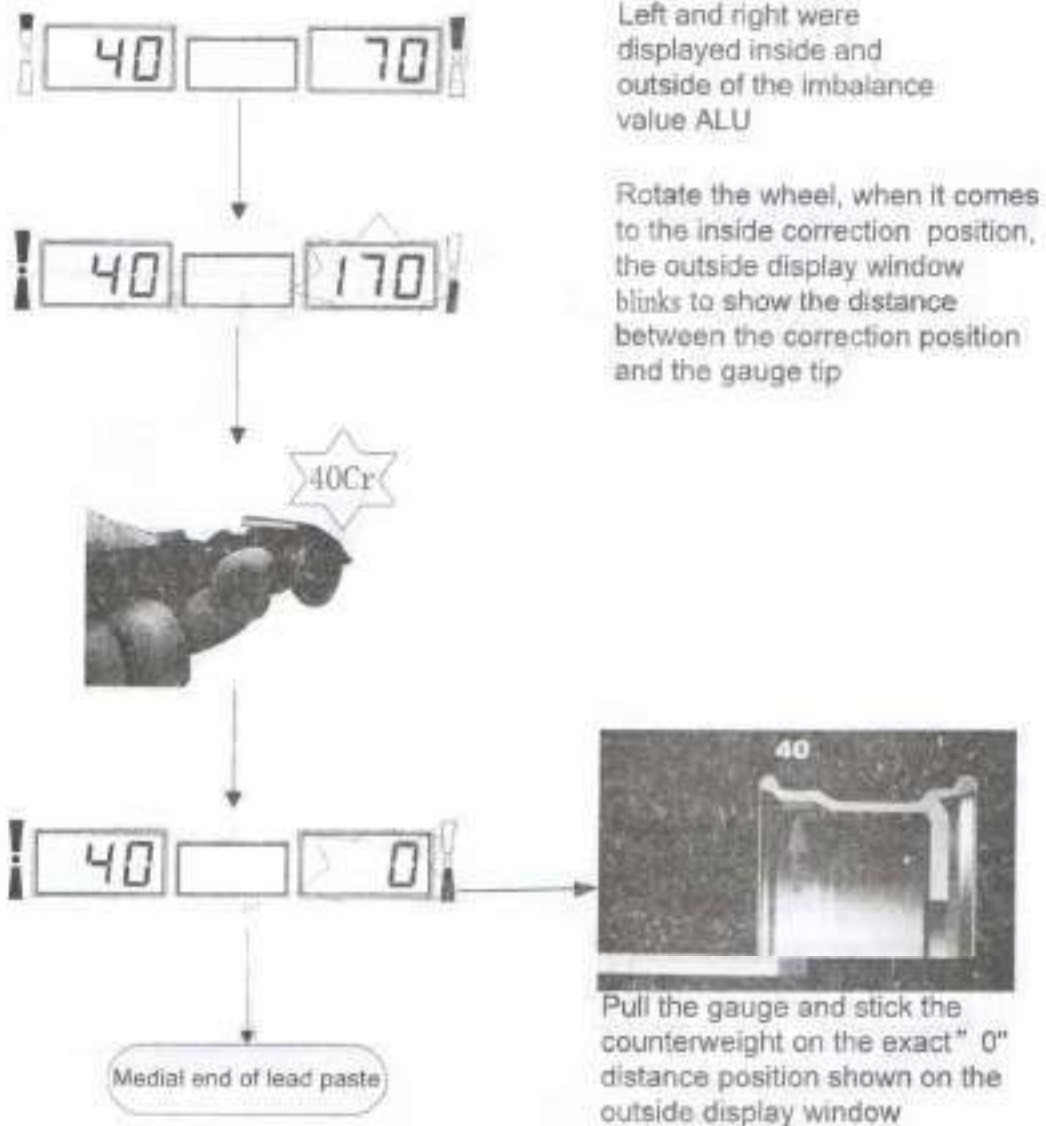



Figure 23

7.9 SPLIT Function

This function is used to vector split the unbalance weight between the two spokes on the outside of the wheel into two unbalance value so as to hide the counterweights behind the wheel spokes and makes the wheel look beautiful.

Under ALUS mode press  key to enter split function. Figure 24 shows the hidden weight procedure.

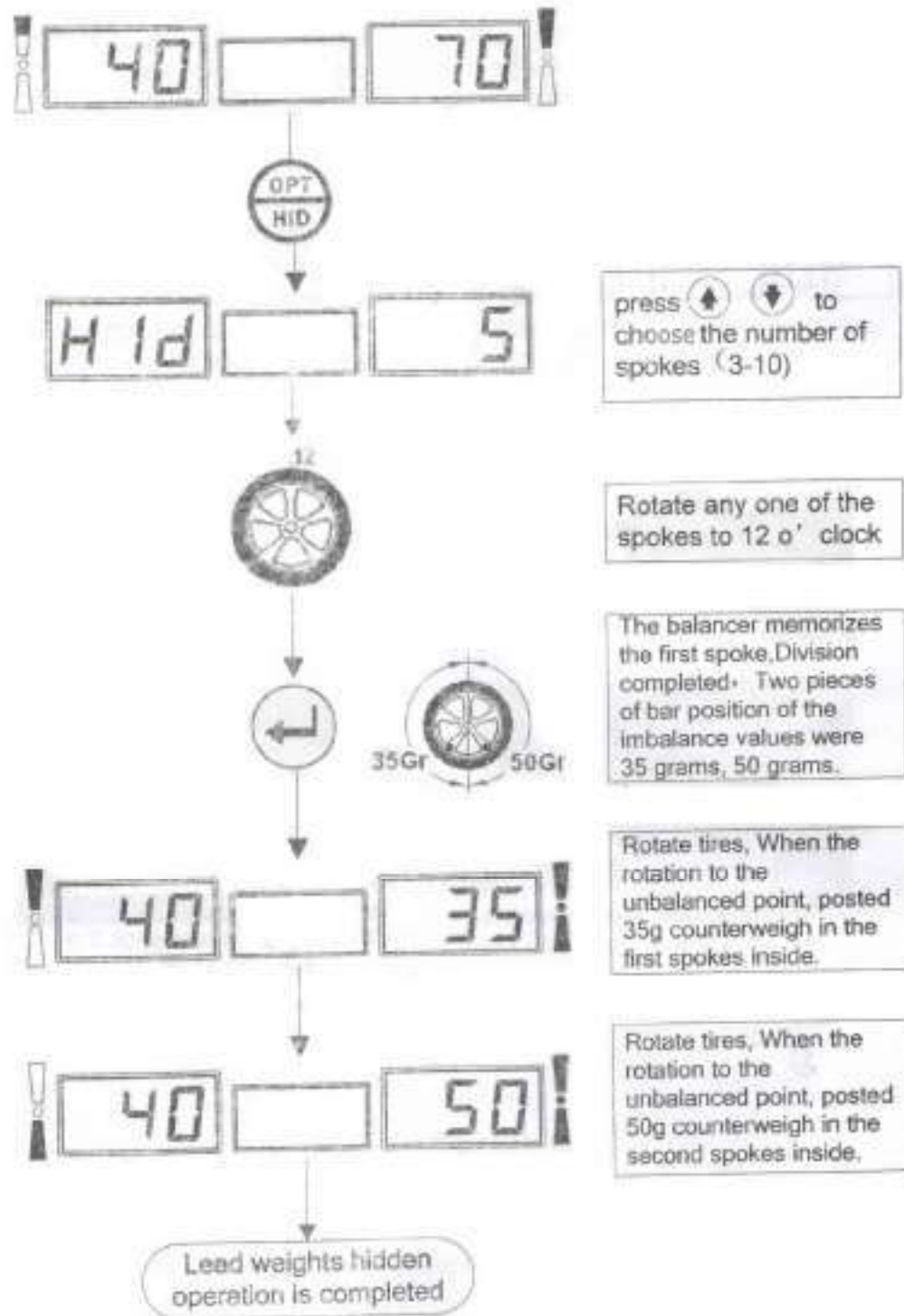

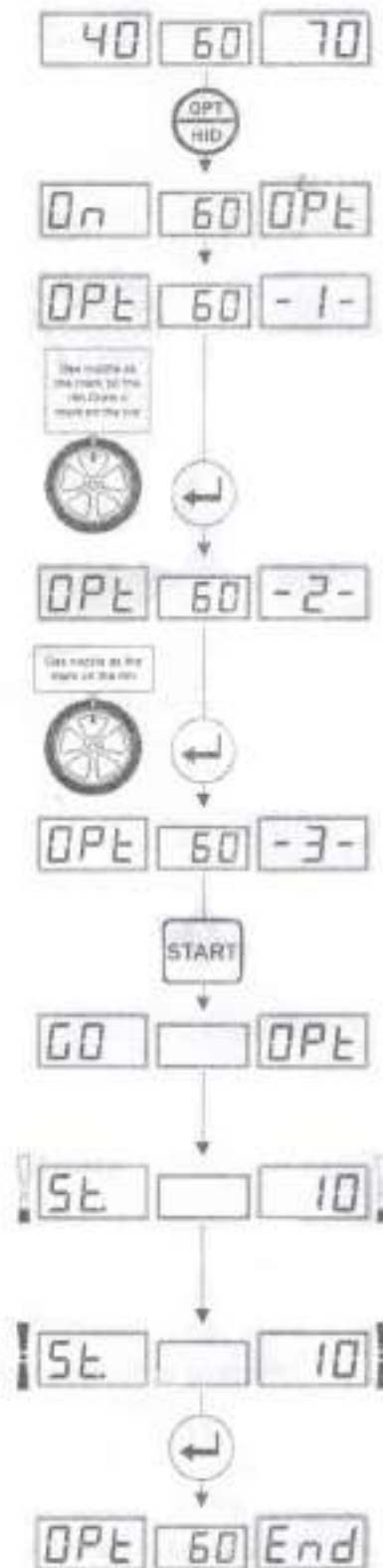


Figure 24

7.10 OPT Function

OPT function is used to determine the best mating of tire and rim. When doing dynamic and static modes, if the static mode value is greater than OPT value (implied 30g), the system will start optimization.

When optimization is possible, press  key to operate according to figure 25. When optimization is not possible, display "OFFOPT" and exit OPT operation.



Press OPT key to start

Step 1

Rotate the gas nozzle to 12 o'clock. Press ENTER key to memorize the point. Mark with a chalk a reference mark on the tire.

Step 2

Remove the wheel from the balancer using a tire changer. Align the nozzle and the mark by rotating the tire on the rim by 180 degrees

Step 3

Replace the wheel on the balancer and rotate the gas nozzle to 12 o'clock again. Press "ENTER" key to memorize.

Step 4

Press START key to start OPT measurement.

After measurement, mark with chalk again on the tire the marked point indicated on the screen.

Using the changer to assemble until the new mark and the gas nozzle coincide. Now the value displayed is the rest value after optimization. On this point add 10g counterweight.

Press ENTER to end optimization.

Figure 25

7.11 Motorcycle Mode

Motorcycle mode is the same as standard dynamic mode except that it needs special

motorcycle fixtures and extending arms. (see7.5)

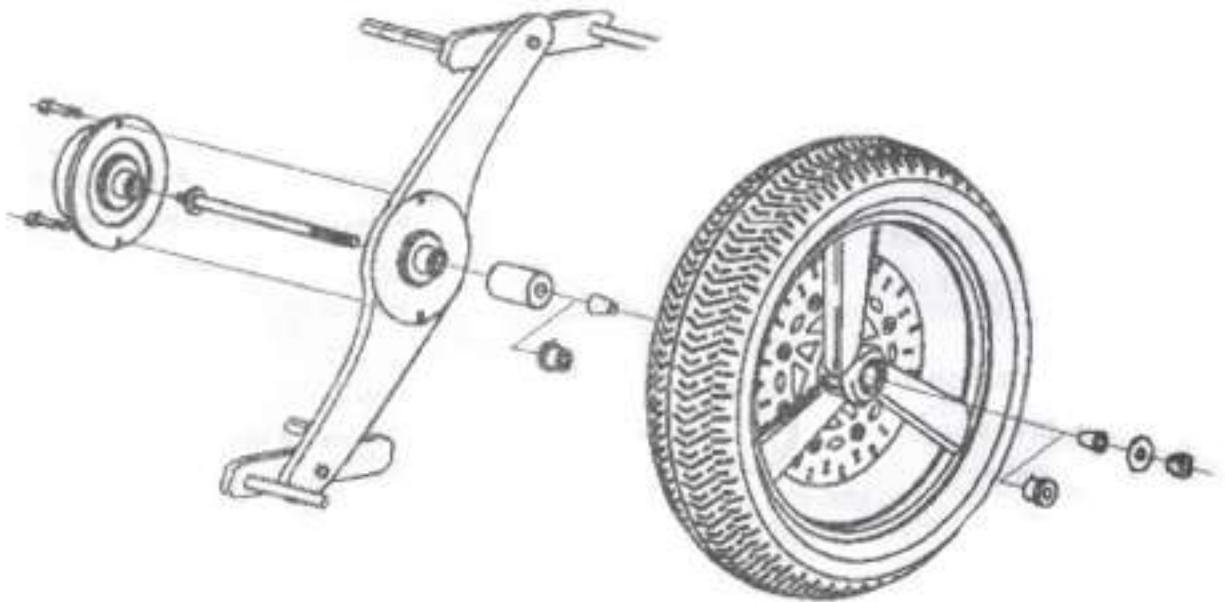


Figure 26

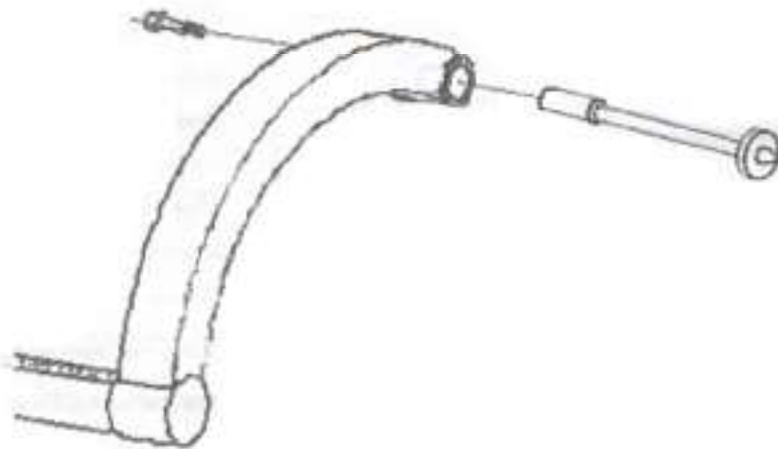


Figure 27

7.12 System setting

System setting (refer to figure 28) is used to set options , such as the application control state , the commonly used units of this equipment and so on.

Ways to enter: In any mode, press SET to enter.

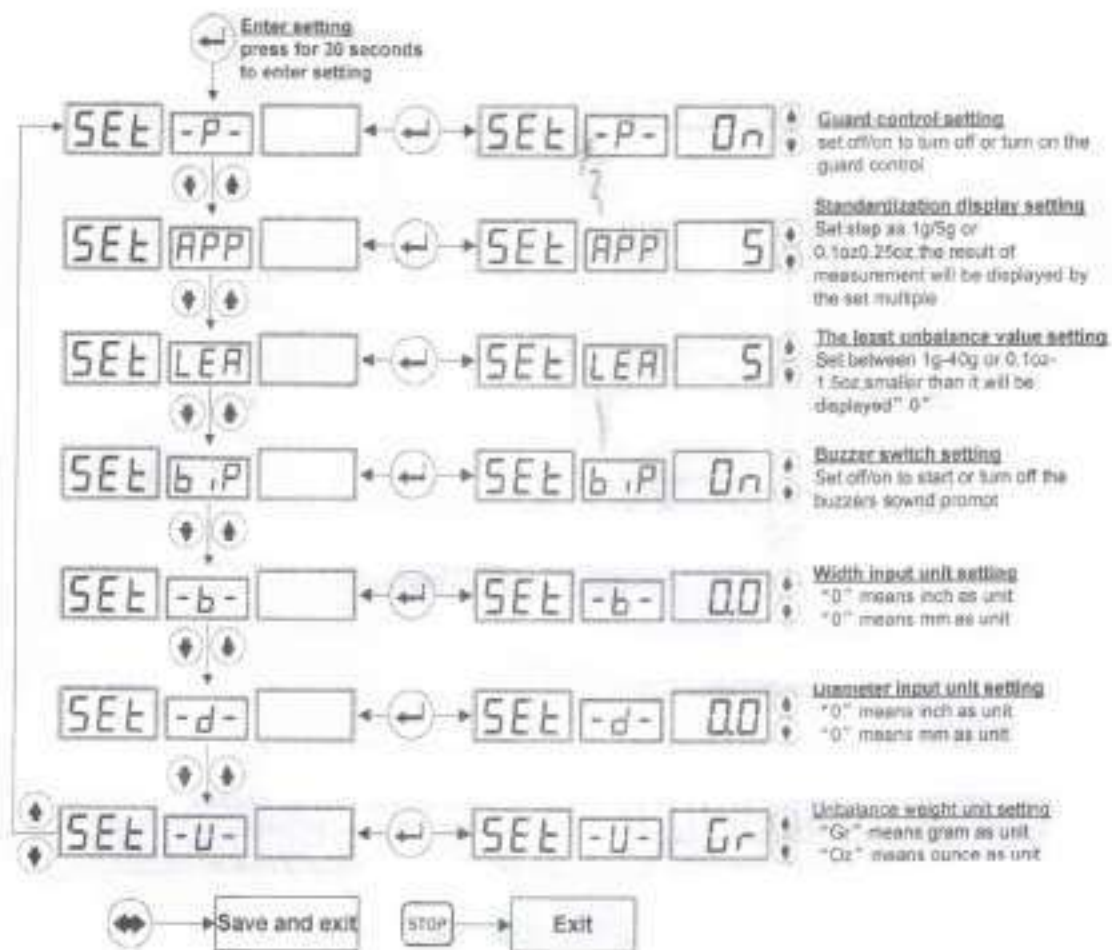


Figure28

7.13 Calibration programs

It is used to initialize the new machine and remove the old equipments' measurement errors caused by total loss from use , parts ageing and replacing, or strong impact.

Calibration procedures include unbalance calibration and automatic gauge calibration.

Press **STOP** or **↔** key to exit calibration program.

7.13.1 Unbalance Calibration

CHOOSE A 15" X 6" STEEL WHEEL WITH A TIRE MOUNTED ON IT . TRY TO FIND ONE THAT HAS AT WORST A SMALL AMOUNT OF IMBALANCE.

SET THE PARAMETERS (USING THE AUTO ENTRY ARM).

- 1) PRESS AND HOLD DOWN THE "FINE" BUTTON.
SCREEN WILL READ
(ADD) (SET) (0.00)
- 2) PRESS "START" AND SPIN THE TIRE THRU IT'S CYCLE
WHEN "START IS PRESSED A SCREEN READING
(GO) (SET) (CAL) APPEARS DURING THE SPIN CYCLE.
WHEN THE TIRE BRAKES TO A STOP THE SCREEN WILL READ
(ADD) (SET) (100)
- 3) ROTATE THE TIRE UNTIL ALL 5 OUTSIDE LIGHTS ILLUMINATE.
PLACE THE "100G" (3.5 OZ.) WEIGHT SUPPLIED WITH THE
ACCESSORIES AT 12 O'CLOCK HIGH ON THE OUTSIDE OF THE RIM.
PRESS "START" AND SPIN THE TIRE THRU IT'S CYCLE.
WHEN THE TIRE BRAKES TO A STOP THE SCREEN WILL READ
(100) (SET) (ADD)
- 4) ROTATE THE TIRE UNTIL ALL 5 INSIDE LIGHTS ILLUMINATE.
PLACE THE "100G" (3.5 OZ.) WEIGHT SUPPLIED WITH THE
ACCESSORIES AT 12 O'CLOCK HIGH ON THE INSIDE OF THE RIM.
PRESS "START" AND SPIN THE TIRE THRU IT'S CYCLE.
WHEN THE TIRE BRAKES TO A STOP THE SCREEN WILL READ
(SAV) (SET) (DAT)
AND "BEEP" 3 TIMES.

Figure 29

7.13.2 Automatic Entry Gauge Calibration

PULL OUT ARM AUTO ENTRY CALIBRATION FOR PWB1530A TIRE BALANCER
CHOOSE A 15" X 6" STEEL WHEEL WITH A TIRE MOUNTED ON
IT . MOUNT IT ON THE WHEEL BALANCER SHAFT.

- 1) PRESS AND HOLD DOWN THE "FINE" BUTTON.
SCREEN WILL READ
(ADD) (SET) (0.00)
- 2) PRESS AND HOLD DOWN THE "ENTER" BUTTON KEEPING THE "ENTER" BUTTON DEPRESSED . PRESS AND HOLD DOWN THE "FINE" BUTTON IMMEDIATELY AS YOU HEAR A BEEP, RELEASE BOTH BUTTONS. SCREEN WILL READ
(CA.2) (SET) (- 1 -)
- 3) PRESS THE "UP" ARROW . SCREEN WILL READ
(CA.2) (SET) (- 1 -)
- 4) PRESS THE "UP" ARROW AGAIN. SCREEN WILL READ
(CA.2) (SET) (- 2 -)
- 5) PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(CAL) (SET) (- A -)
- 6) PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(AO) (SET) (0.00)
- 7) WITH THE AUTOMATIC GAUGE AT "0"
PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(A.ST) (SET) (200)
- 8) PULL THE MEASURING GAUGE OUT TO "20" , HOLD STEADY AT "20" AND PRESS ENTER.
PUT THE GAUGE BACK TO REST POSITION . SCREEN WILL READ
(CAL) (SET) (- d -)
- 9) PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(dO) (SET) (0.00)
- 10) HOLD THE MEASURING WAND TOUCHING THE BALANCER SHAFT AS SHOWN.
PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(-d -) (SET) (14.0)
- 11) PULL THE MEASURING GAUGE OUT TO THE INSIDE BEAD SEAT , HOLD STEADY. THE INSIDE SCREEN DEFAULTS T
(14.0). USE THE "UP" AND "DOWN" ARROWS TO ADJUST THE READING TO THE ACTUAL TIRE/RIM DIAMETER.
PRESS AND RELEASE THE "ENTER" BUTTON. SCREEN WILL READ
(SAV) (SET) (DAT)

PRESS THE "DOUBLE ARROW" BUTTON TO EXIT.

Figure 30

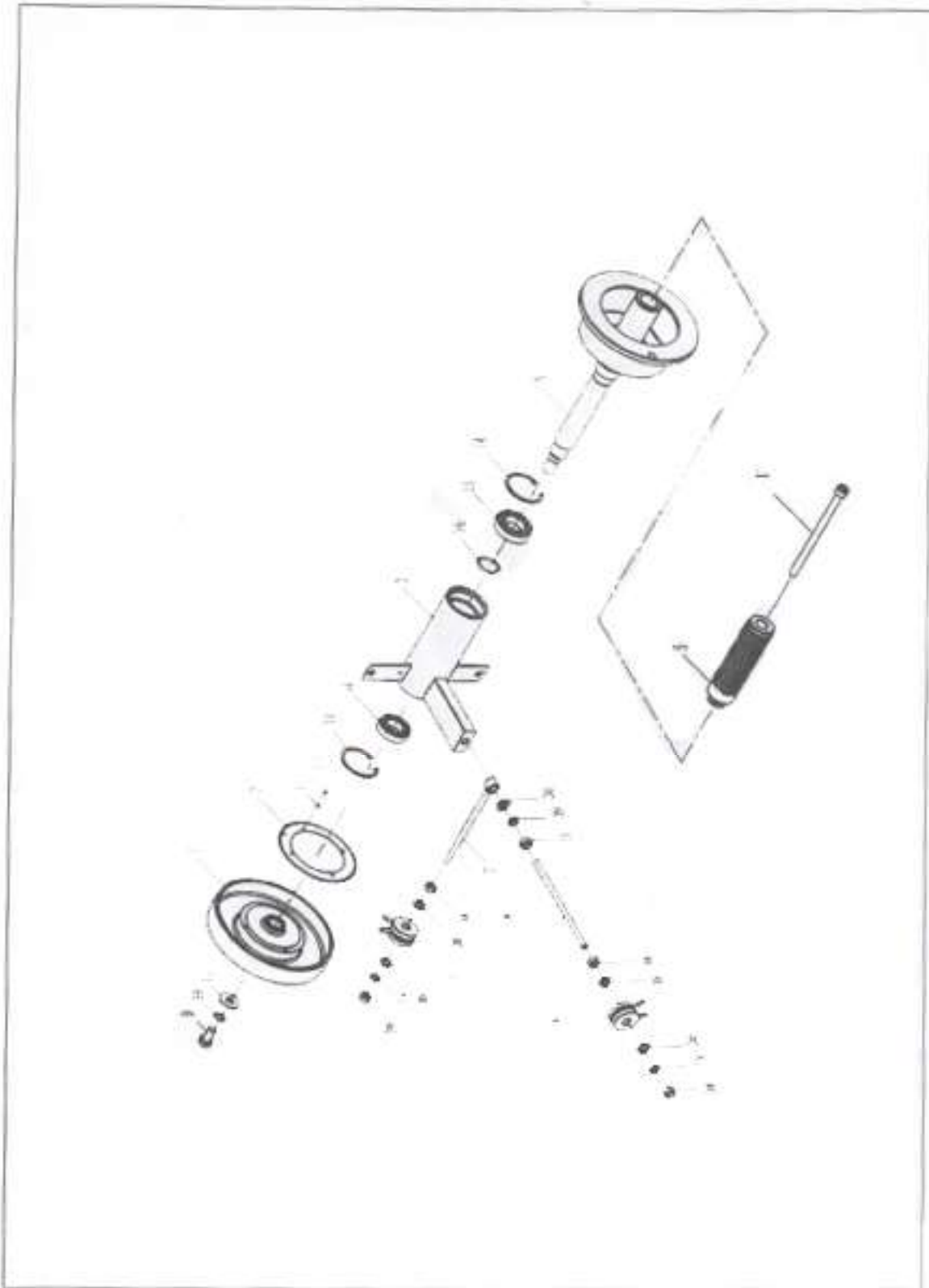
8 Error Information and Treatment

It provides the error diagnostics and prompting information of this equipment. Users can judge and deal with problems according to the prompting information and the solutions given in the

following form.

prompting information	meaning of the information	solutions
Ccc ccc	The result of measurement is beyond the range.	
OFF OFF	System gives the prompt when the STOP key is interrupted accidentally	
Err 01	When the guard is set enabled, press START key without closing it or open the guard artificially while the wheel is in rotating measurement. In either of these two cases, the balancer is braked suddenly and gives the prompt	Close the guard, or turn off the guard function option in setting items. However, because the laws and regulations of safety protection in different countries are not completely the same, we suggest not turning off the guard function option.
Err 02	Prompt is given and measurement is stopped when rotating speed is too low to meet the basic measurement needs.	Problems of the electrical motor shaft or the transmission belts. Check and adjust. Too light load also results in this phenomenon, so please adjust the load weight.
Err 03	The measurement rotation is in wrong direction. This usually will appear in the three-phase motor control balancer due to sequence errors	Adjust the sequence of the three-phase power.
ERR 10	Gauge error	Turn off the machine ,return the gauge to position 0,and then restart it. If the error still exists, calibrate the gauge following 7.13.2
ERR CAL	The machine is not calibrated.	Users calibrate the machine following 7.13
ERS CAL	Factory maintenance error.	Contact the manufacturer.

Appendix I



Appendix II

