LAUNCH

Operation Manual

KWB-402 Wheel Balancer

*Read these instructions before placing unit in service.

**Keep these and other materials with the unit in a binder near the machine for easy reference by supervisors and operators.

***You will need the manual for the information of the machine, such as safety warning and precautions, assembly, operating, maintenance and parts list / assembly diagrams.

****Keep your invoice with this manual for future reference. Manufacturer shall not be liable for any injury to persons on damage to thins caused by failure to comply with these regulations and can cancel warranty coverage.

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Installation—Operation—Maintenance

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1.Specification Table

Item	Description
Electrical Requirements	See the manufacturer's Serial plate
Product Compatibility	For Most Passenger Car And Light Truck Wheels
Maximum Tire Diameter Capacity	31.5"/800mm
Maximum Tire Width Capacity	20"
Minimum/ Maximum Rim Diameter Capacity	10″-20″
Minimum/ Maximum Rim Width Capacity	1.5″-20″
Maximum Tire/ Rim Weight Capacity	143Pounds/ 65KG
Balancing Speed	200RPM
Tire/ Rim Balancing Modes	Normal, ALU1, ALU2, ALU3, ALU-S, Static
Cycle Time	18 Seconds
Type of Data Entry	Keypad w/L.E.D. Display Indicators
Self –Calibrating Function	Semi-Automatic ,User –Assisted Data Entry (1st Set –Up ,Or When Desired)
Automatic Start Feature	Starts When Safety Guard is Closed
Brake Type	Automatic
Wheel Stops	At Top
Weight /Length Selections	Ounce And Gram /Inch And Millimeter
Balancing Accuracy	.035 Ounce (1Gram)
Overall Dimensions	52″Wx40″Lx65″H(Safety Guard Open) 52″Wx38″Lx50-1/4″H(Safety Guard Closed)

				
WWP	SCWW (100g)	Manual	5mm Allen key	8mm Allen key
				
74-111.5mm	55-80mm	44.1-65mm	36mm/40mm quick nut	HDRWMC
				
36/40mm thread spin shaft	Spin shaft bolt	SRR	PL	PPC

Standard Accessories

2.Operator Protective Equipment

Personal protective equipment helps make tire servicing safer. However, equipment does not take the place of safe operating practices. Always wear durable work clothing during tire service activity. Loose fitting clothing should be avoided. Tight fitting leather gloves are recommended to protect operator's hands when handling worn tires and wheels. Sturdy leather work shoes with steel toes and oil resistant soles should be used by tire service personnel to help prevent injury in typical shop activities. Eye protection is essential during tire service activity. Safety glasses with side shields, goggles, or face shields are acceptable. Back belts provide support during lifting activities and are also helpful in providing operator protection. Consideration should also be given to the use of hearing protection if tire service activity is performed in an enclosed area, or if noise levels are high.

3.Owner's Responsibility

To maintain machine and user safety, the responsibility of the owner is to read and follow these instructions:
Follow all installation instructions.

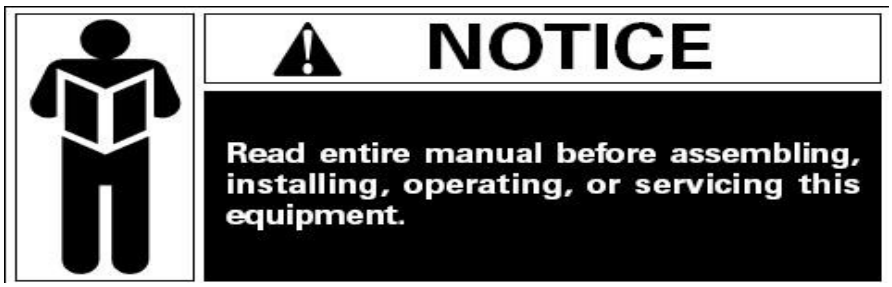
- Make sure installation conforms to all applicable Local, State, and Federal Codes, Rules, and Regulations; such as State and Federal OSHA Regulations and Electrical Codes.

Carefully check the unit for correct initial function.
Read and follow the safety instructions. Keep them readily available for machine operators.
Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.

- Allow unit operation only with all parts in place and operating safely.

Carefully inspect the unit on a regular basis and perform all maintenance as required.
Service and maintain the unit only with authorized or approved replacement parts.
Keep all instructions permanently with the unit and all decals/labels/notices on the unit clean and visible.

Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property. Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual.



4.SAFETY INSTRUCTION

GENERAL SAFETY WARNINGS AND PRECAUTIONS

4.1.1 KEEP WORK AREA CLEAN AND DRY. Cluttered, damp, or wet work are-as invite injuries.

KEEP CHILDREN AWAY FROM WORK AREA. Do not allow children to handle this product.

STORE IDLE EQUIPMENT. When not in use, tools and equipment should be stored in a dry location to inhibit rust. Always lock up tools and equipment, and keep out of reach of children.

DO NOT USE THIS PRODUCT IF UNDER THE INFLUENCE OF ALCO-HOL OR DRUGS. Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not attempt to use this product.

USE EYE PROTECTION. Wear ANSI approved safety impact eyeglasses when using this product.

DRESS SAFELY. Do not wear loose clothing or jewelry, as they can be-come caught in moving parts. Wear a protective hair covering to prevent long hair from becoming caught in moving parts. If wearing a long-sleeve shirt, roll sleeves up above elbows.

DO NOT OVERREACH. Keep proper footing and balance at all times to prevent tripping, falling, back injury.

INDUSTRIAL APPLICATIONS MUST FOLLOW OSHA REQUIREMENT.

STAY ALERT. Watch what you are doing at all times. Use common sense. Do not use this product when you are tired or distracted from the job at hand.

CHECK FOR DAMAGED PARTS. Before using this product, carefully check that it will operate properly and perform its intended function. Check for damaged parts and any other conditions that may affect the operation of this product. Replace or repair damaged or worn parts immediately.

REPLACEMENT PARTS AND ACCESSORIES: When servicing, use only identical replacement parts. Only use accessories intended for use with this product.

MAINTAIN THIS PRODUCT WITH CARE. Keep this product clean and dry for better and safer performance.

MAINTENANCE: For your safety, service and maintenance should be per-formed regularly by a qualified technician.

USE THE RIGHT TOOL FOR THE JOB. Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. It will do the job better and more safely at the rate for which it was intended. Do not modify this tool, and do not use this tool for a purpose for which it was not intended.

WARNING: The warnings, precautions, and instructions discussed in this manual cannot cover all possible conditions and situations that may occur. The operator must understand that common sense and caution are factors, which cannot be built into this product, but must be supplied by the opera-

SPECIFIC PRODUCT WARNINGS AND PRECAUTIONS

Make sure this machine is used on a dry, flat, level, oil/grease free, concrete surface capable of supporting the weight of the Wheel Balancer, the tire being balanced, and any additional tools and equipment.

Before each use, always examine the wheel balancer for structural cracks and bends, damage to the safety guard and electrical wiring, and any other condition that may affect the safe operation of the machine**.** Do not use the Wheel Balancer even if minor damage appears.

Maintain a safe working environment. Keep the work area well lit. Make sure there is adequate surrounding workspace. Always keep the work area free of obstructions, grease, oil, trash, and other debris. Do not use the Wheel Balancer in a damp or wet location. Do not use the Wheel Balancer in areas near flammable chemicals, dusts, and vapors.

This wheel balancer is designed for use with most passenger car and light duty truck wheels. Do not attempt to exceed this machine's maxi-mum wheel diameter capacity of 31-1/2" or the maximum wheel width capacity of 20".

Prior to beginning a job, make sure the safety guard is in the proper lowered position. do not raise the safety guard until the spinning wheel comes to a complete stop**.**

Always keep hands, fingers, and feet away from the moving parts of the wheel balancer while the machine is in use. Remain clear of the spinning wheel while it is being balanced.

Never leave the wheel balancer unattended when it is running. After completing a wheel balancing job, always turn the Power Switch to its "OFF" position, and wait until the machine comes to a complete stop before leaving.

Make sure to read and understand all instructions and safety precautions as outlined in the manufacturer's manual for the wheel you are balancing, and the vehicle the wheel is to be used on.

Before turning the machine on, make sure tools, tool trays, wheel weights, and all other parts and equipment are removed from the immediately vicinity of the mounted wheel that is to be balanced.

Never stand or allow an observer to stand in line with the spinning wheel.

To comply with the National Electric Code, and to provide additional protection from the risk of electrical shock, the Power Plug should only be connected to a 3-hole electrical outlet that is protected by a Ground Fault Circuit Interrupter.

If an extension cord (not provided) is used, make sure to use only UL approved cords having the correct gauge and length.

Always unplug the wheel balancer from its electrical supply source before performing any inspection, maintenance, or cleaning procedures.

4.2.14 WARNING: This product contains or produces a chemical known to the State of California to cause cancer and birth defects (or other reproductive harm). (California Health & Safety Code 25249.5 et seq.)
WARNING: People with pacemakers should consult their physician(s) before using this product. Operation of electrical equipment in close proximity to a heart pacemaker could cause interference or failure of the pacemaker.

Single phase motor	Capacity of circuit breaker
110V to 120V	25A
220V to 240V	16A

3 Phase motor	Capacity of circuit breaker
220V to 230V	16A
380V to 415V	10A

5.UNPACKING

When unpacking, check to make sure all the parts shown on the **Packing Lists** are included. If any parts are missing or broken, please call the distributor as soon as possible.

6.INSTALLATION AND ASSEMBLY INSTRUCTIONS

NOTE: For additional references to the parts listed below, refer to the **Assembly Diagrams).**
CAUTION - DO NOT REMOVE OIL/GREASE COMPOUND FROM THE SPIN SHAFT AND FROM TIME TO TIME SWAB A GOOD QUALITY GRAPHITE GREASE TO AVOID RUSTING.

6.1To Determine The Proper Location For The Wheel Balancer:

1. **WARNING:** Make sure this machine is used on a dry, oil/grease free, flat, level **CONCRETE** surface capable of supporting the weight of the Wheel Balancer, the wheel being balanced, and any additional tools and equipment.
2. The Wheel Balancer is designed for indoors use only. Do not install or use the Wheel Balancer outdoors, or in damp or wet locations.
3. Make sure to check the desired location for possible obstructions such as a low ceiling, overhead lines, adequate working area, access ways, exits, etcetera.
   The Wheel Balancer should be located in an area free of flammable materials and liquids.

6.2 To Mount The Wheel Balancer On A Floor Surface:

1. With assistance, and with the use of a lifting device, stand the Wheel Balancer in its upright position in the desired work location. Use the three, 1/2” machine mounting holes located at the base of the Body as a template to mark the points where three floor anchor holes will be drilled in the floor surface. Then, temporarily remove the Wheel Balancer. **(See Figure B, next page.)**
2. Where previously marked on the concrete floor surface, drill three 1/2” diameter, minimum 4” deep, anchor holes. **NOTE:** Be sure to blow out the cement dust from the drilled holes.

3.Move the Wheel Balancer back to the desired location, and align the three ma-chine mounting holes at the base of the Body with the three previously drilled floor anchor holes. If necessary, level the Wheel Balancer by inserting steel shims between the base of the machine and the concrete floor surface. Do not exceed more than 1/2" thickness of shims.

4.Secure the Wheel Balancer to the concrete floor surface, using three 1/2" diameter concrete anchor bolts of appropriate length, three washers, and three nuts (not provided). **(See Figure B.)**

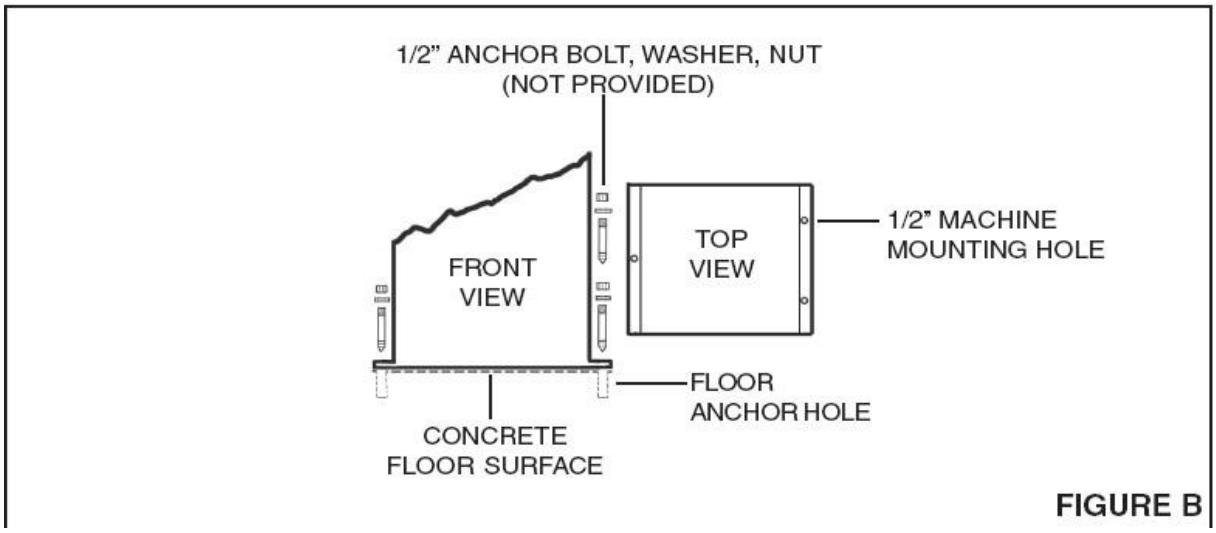


FIGURE B

6.3 To Attach The Safety Guard To The Wheel Balancer:

1.Slide the Sheath onto the Shaft . Align the mounting hole of the Sheath with the rear mounting hole of the Shaft. Then, secure the Sheath to the Shaft, using the Screw

2.Slide the mounting hole of the Safety Guard onto the Shaft . Make sure to position the mounting hole of the Safety Guard against the pre-attached Sheath .

3.Slide the Plastic Lip onto the exposed end of the Shaft . Align the mounting hole of the Plastic Lip with the remaining mounting hole of the Shaft. Then, se-cure the Plastic Lip to the Shaft, using the Screw . Attaching the Safety Guard to the machine is now completed.

4.The Safety Guard must always be in place while the Wheel Balancer is in operation.

7. Control Panel

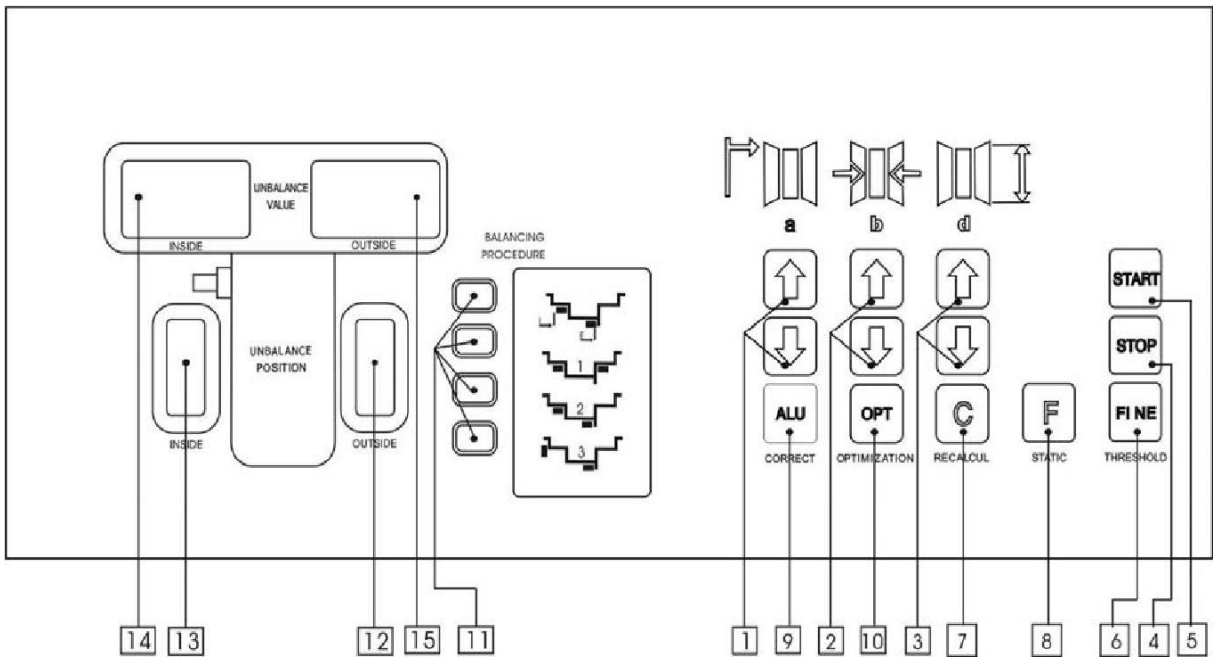


FIGURE 1

DISPLAYS IDENTIFICATION

14INNER side display window, indicates readings of balancing weight to be attached on Inner side of wheel.

15OUTER side display window, indicates readings of balancing weight to be attached on outer side of wheel.

13 Weight Position LEDs for INNER side- Full LEDs flash when correct weight position is at top-dead-center.

12 Weight Position LEDs for OUTER side- Full LEDs flash when correct weight position is at top-dead-center.

11Mode display window-indicates balancing modes.

KEYPAD- User enters information and selects function using these keys.

5 Start Button - Press to start a spin cycle.
4 Stop button- Press to interrupt operating cycle.
6 FINE key- Press to indicate weight amount reading below 5gram (0.3oz), applicable only after spinning stops

9 ALU Key-Press to select desired balancing mode.
7 Key- Press to recalculate weight amount to be attached to the wheel; Or hold this key to perform Calibration (see the chapter of calibration).
1Wheel offset (a) enter keys –press to enter wheel offset a(The distance between the inner rim flange and the edge of the balancer.)
2Rim Width (b) enter keys –press to enter rim width b
3Rim diameter (d) enter keys –press to enter rim diameter d
10 OPT Key-press to optimize weight to be attached to the wheel.
8 F key- press to select static or dynamic balancing mode.

CAUTION: Press the keys with finger only, NEVER use other hard parts to press keys.

7.3 Function switching keys
7.3.1 The following function switches will be saved to memory and kept after system power off. Gram –Oz unit switching : press the key [F] and [a↓] at the same time when the amount of weights need to attached on the rim was displayed.
2) SPIN MODES
Manual - Operator closes the hood and must press [START] to initiate the spin cycle.
Automatic - Operator close the hood and balancer automatically initiates the spin cycle. Important –

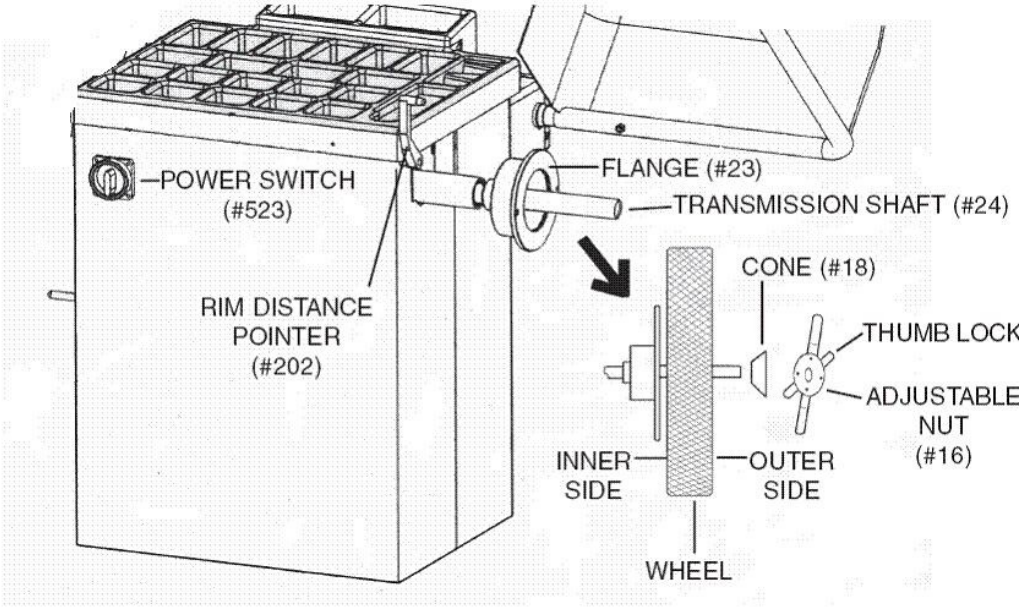
A. In calibration mode the spin function is always set to manual.
B. The standard factory setting is automatic.

To change between manual and automatic spin modes and vice-versa the following steps are required.
Press and hold [F] then press [STOP]. All lights on touch panel will turn off. After 5 seconds release [F] and [STOP] and lights on touch panel will turn on. This is the confirmation that the spin mode has been changed.

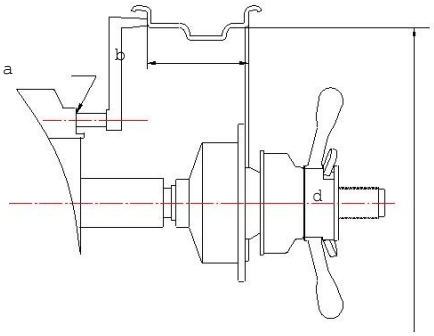
7.3.2 The following function switching will not be kept after system power off.
Inch/mm unit switching:
1.for rim width b, press and hold the key [F] , then [b↑] or [b↓]
2.For rim diameter d, press and hold the key [F] , then [d↑] or [d↓]
Remarks: the default unit for each start up of the machine is inch.
7.3.3 Mode switching.
Press key [F] to toggle between modes: Dynamic ←→ Static
Press key [ALU] to toggle between modes: ALU-s→ALU-1→ALU-2→ALU-3→ ALUs
Calibration press and hold the key [F] , then [C]

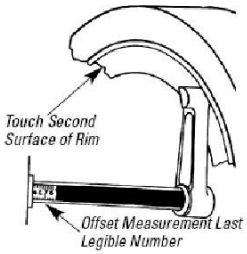
8.To Mount A Wheel Onto The Balancer
Connect the Plug of the Power Cord into a properly grounded, 3-hole, electrical receptacle.
Insert the center hole of the wheel rim (not provided) onto the Transmission shaft (part #24).
Make sure to position the inner side of the wheel rim against the Flange (part #23).

8.4 Hold the Adjustable Nut (part #16) with both hands. While doing so, use your thumb to move the Thumb Lock on the Adjustable Nut to the right. While holding the Thumb Lock in position, slide the Adjustable Nut onto the Trans-mission Shaft (part #24) and firmly against the Cone (part #18). Then, re-lease the Thumb Lock and allow it to lock the wheel rim in place on the Transmission Shaft.



9. Wheel data entry .





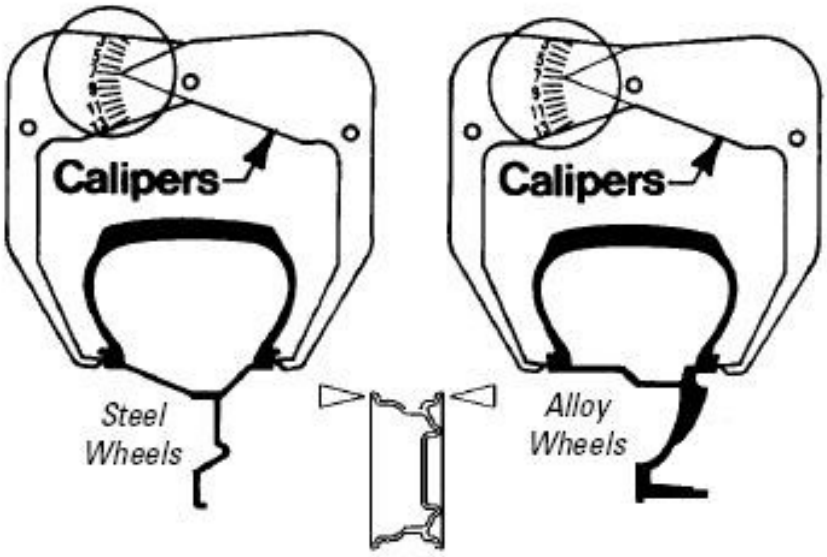
Manual enter wheel offset a

As shown in the figure , Pull the rim distance pointer out from the side of the balancer, Rotate it until the handle end of the gauge contacts the inner wheel flange. Hold the gauge against the wheel flange and read the measurement on the gauge. Use the keypad to enter the measurement (by each pressing of the key, 0.5 cm will be added of deducted, total length is 85 cm)

9.2 Enter rim width b

Open the calipers wide enough to reach around the tire. Close the calipers so both tips contact the rim flanges. Read the rim width on the calipers. As shown in the following figure. Enter rim width b by using the rim width keys (each pressing value will be added or deducted as following table indicated.)
Table : Value variation for rim width b.

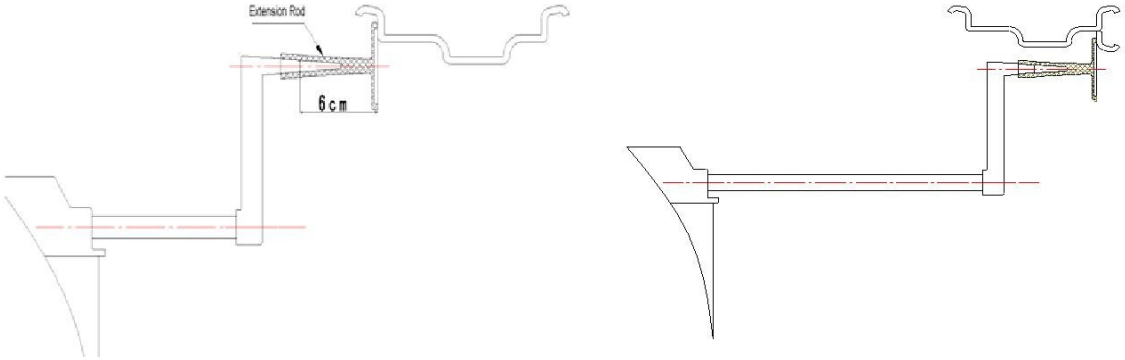
Interval Value variation on display window	Actual rim width variation (inches)
0.2	1/4
0.5	1/2
0.7	3/4



9.3 Enter rim diameter d.

The rim diameter is indicated on tire side wall, as shown in the following figure. Enter rim diameter d accordingly by using the rim diameter enter keys (each pressing value will be changed by 0.5 inch.)

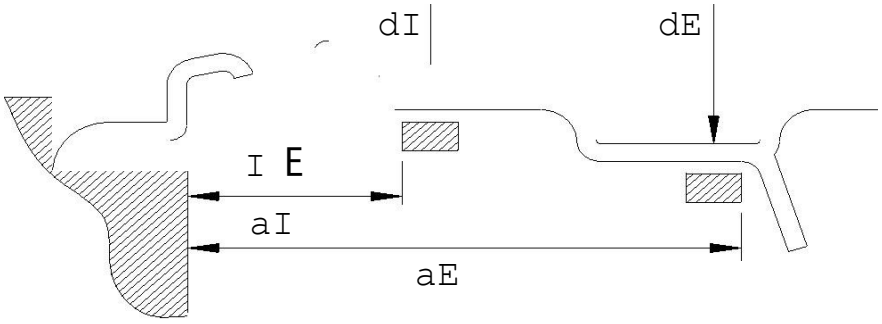
Rim data entry with extension rod(6cm) As shown in the following figures, the extension rod (6cm) is adapted on the rim distance pointer, for application of special profile rims.



Put extension rod on the rim distance pointer as shown in the above figures.
Use the same method mentioned above, take reading from the distance gauge.
Release the rim distance pointer to home position, enter the wheel offset a value (a=the above mention reading +6)

The procedure to enter rim diameter d and rim width b are described in the section 5.2.and 5.3

9.5 Rim data entry for ALU-s mode. Mode ALU-s for rims with special profile. Press [ALU] key to toggle balancing modes , the corresponding LED of ALU-s light up on the display window on the operation panel.



Refer to the above figure, take measurement of each distances, enter wheel data according to the following procedure.

Press key [a↑] [a↓] to change aI value.
Press key [b↑] [b↓] to change aE value.
Press key[d↑] [d↓] to change dI value.
Press and hold key [ALU], then press key [d↑] [d↓] to change dE value.

10. Procedure of system calibration and parameter setting

10.1 Balancing calibration Important: Calibration is needed when: a)First time operation; b) Incorrect test result suspected. **The procedure of calibration:**

Put a medium size wheel, mount on the shaft and lock it well. Input the data of the rim.

Press and hold the key **[F]** and key **[C]**. The display reads: **[CAL][CAL],** hold the keys until the unbalancing position LEDs light on and blinking. Put down the protective cover and press **[start]** key.

After first spin, rotate the wheel until outer LED light fully flash. The display reads:**[ADD] [100]**, which tells to add 100g(3.5oz) weight to the outer circumference edge of the rim. the 100g must attach on 12 o'clock position of rim. Put down the protective cover, press [start] to proceed second spin.

after second spin, rotate the wheel until inner LED light fully flash. The display reads:**[ADD] [100]**, which tells to add 100g(3.5oz) weight to the inner circumference edge of the rim. the 100g must attach on 12 o'clock position of rim. Put down the protective cover, press [start] to proceed third spin. When the cycle of spin finished, the calibration ended with the data memorized in the machine and the display will read:**[End] [Cal]**.

Error shows during balancing calibration.

[Err] [-8-] forget to attach 100g or power board is out function.

[Err][-9-] forget to attach 100g

[Err][-6] sequence of outer and inner attach 100g incorrect.

[Err][-r-] hardware installation was not correct. calibration cannot completed.

PARAMETER SETTING AND UPDATE PROCESS.

ALL COSENG WHEEL BALANCERS HAVE ITS DYNAMIC PARAMETERS ([dF], [I] an d [S]) SET DURING PRODUCTION. THE VALUES ARE A VAILABLE ON ALABEL C LEARLY POST ED INSIDE T HE WHEEL BALANCER. TO KNOW THESE VALUES YOU MUST REMOVE THE TOP COVER.

AFTER CHANGING TO A NEW COMPUTER BOARD IT IS REQUIRED THAT THE PARAMETERS ([dF], [I] and [S]) BE CORRECTLY SET AND SAVED INTO THE COMPUTER BOARD.

WHEN [dF], [I] and [S] P ARAMETERS VALUES ARE NOT CORRECTLY SET THEN THE ACCURACY OF THE BALANCER CANNOT BE GUARANTEED. IT IS RECOMMENDED THAT THE PARAMETERS BE PE-RIODICALLY CHECKED FOR ACCURACY AND CORRECTED IF NEC ESSARY ON AN EXISTING COM-PUTER BOARD.

PARAMETER UPDATE PROCEDURE

Press and hold the **[F]** and **[C]** keys until display lights stop blinking. This takes about 5 seconds. Then proceed with the following steps.

Press **[a↓]** and **[a↑]** at the same time. The display panel will go blank (no lights). Press the button to start.

First display will automatically show **[dF][nnn]** where [nnn] represents a positive numeric value. The numeric value of [dF] must match the label inside the wheel balancer. To modify press **[b↑]** to increase or **[b↓]** to decrease value.

To go to the second display press **[a↑]** and this will switch the display to show the <I> value in the form **[I.-][nnn]** for a negative value or **[I.-¦][nnn]** for a positive value where [nnn] represents a numerical value. To change the <I> value press **[b↑]** to increase or **[b↓]** to decrease value. Be careful to note that the value is correctly entered as indicated on the label in the wheel balancer. This value may be negative or positive.

To go to the third display press **[a↑]** again. This will switch the display to the <S> setting. A value will be shown as **[S.][nnn]** where [nnn] is always a positive value. To change it to the correct value as listed on the label press **[b↑]** to increase or **[b↓]** to decrease value.

To go to the fourth display press **[a↑]** again. This will switch the display to the < Buzzer> set-ting. A value will be shown as **[bee.][nnn]** where [nnn] show either [On] or [OFF]. [On] means the keypad tone is turned on. [OFF] means the keypad tone is turned off. To changed it by pressing **[b↑]** or **[b↓]**

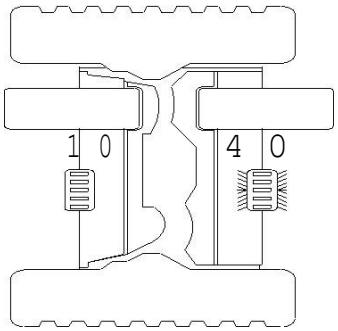
to go the fifth display press of unbalancing value show> setting. A value will be shown as**[EC.][nnn]** where [nnn] is one of [05], [10] or [50]. [nnn] means the display will show [00] when the unbalancing value less than [nnn]. To change it press **[b↑]** to increase or **[b↓]** to decrease value.

To complete the process and save the new values (overwrites the old values) into the computer board press key **[a↑]**

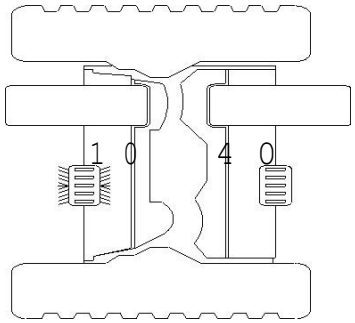
11. Balancing a Wheel.

11.1 Procedure for passenger car wheels and light truck wheels.

- Switch on power, mount the wheel, enter rim data.
- Put down protective cover, press key **[START].** The wheel start spinning, and after spin ended, the amount of weights need to attached on the rim will be displayed on the INEER and OUTER display window. Prepare weights as per the displayed value.
- Slightly rotate the wheel counterclockwise, see the Weight Position LEDs for OUTER side- Full LEDs flash when correct weight position is at top-dead-center(12o'clock) .as shown in the following figure. Attach the balance weight on the correct position of the rim.



- Slightly rotate the wheel counterclockwise again, see the Weight Position LEDs for INNER side- Full LEDs flash when correct weight position is at top-dead-center (12o'clock) .as shown in the following figure. Attach the balance weight on the correct position of the rim.



- Put down protective cover, press key [START]. The wheel start spinning, and after spin end, see the display window of reads: [00] [00] , that means balancing cycle is success fully completed.

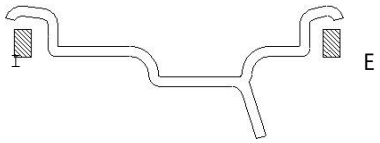
Normally, the above procedure to reach display reading [00] [00] shall not be more than 3 times.

Weight Recalculation . Re-enter rim data, without spinning wheel, press Key [C], the recalculated balancing weights are displayed on the windows.

To display actual imbalance weight less than 5 gram. For the reason that the available standard weights interval is 5 gram, increased by every 5 gram, so even after balance weight attached on the rim , there might be weight below 4 gram not balanced, to know how much of it, press key [FINE], the actual imbalance weight remained (1~4 grams) can be indicated. Actually, below 5 gram is acceptable for wheel balancing cases.

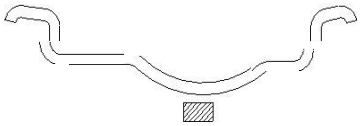
Balancing modes. Press key [ALU] or [F] to select the desire balance mode, corresponding LED of the mode will be flashed on the display board.

- **Normal mode**: the weight to be attached (clipped on) on edge of both side of the rim, illustrated as following figure.



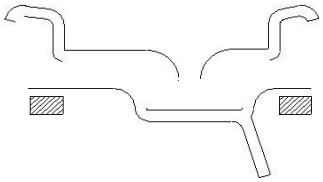
Normal mode

- **Static mode:** this mode is for Motorcycle wheel or the wheel cannot be attached with weight on both sides. Weight location is illustrated in following figure.



Static Mode

- **ALU-1 mode:** Weights to be attached (stuck on) inside and outside of the rim, as illustrated in the following figure.

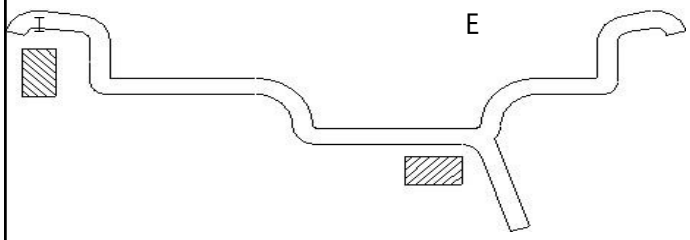


ALU-1 mode

- ALU-2 mode: weight to be attached inside the rim. As illustrated in the following figure.

ALU-2 mode

- ALU-3 mode: INNER weight to be attached (clipped on) on the edge of rim, and OUTER weight to be stuck inside the rim. As illustrated in the following figure.



ALU-3 mode

11.5 ALU-s mode.

This mode is for special profiled rims, as introduced in the chapter 5.5. Press [ALU] key to toggle balancing modes, the corresponding LED of ALU-s light up on the display window on the operation panel. Enter rim data as per the procedure of chapter 5.5. then use same procedure of wheel balancing described in chapter 7.1~7.3.
Proceed the following procedure to make the result more accurate.

Press [START] key to initiate wheel spin, follow the procedure described in chapter 7.1 to find out the weights radius position, then find out the axial position of the weight to be attached as follows:

- Pull out the distance pointer to the distance of **aI**, hold the pointer position , locate a balance weight on the pointer,, then stick the weight on the position where the Left LED fully flashes .
- Pull out the distance pointer to the distance of **aE**, hold the pointer position , locate a balance weight on the pointer,, then stick the weight on the position where the Right LED fully flashes .

Press [START] key, to spin the wheel again, as soon as the remaining weight less then 5 gram, the balancing finished.

12. Optimize balancing function

This function is recommended only when static balancing value over 30 grams, to optimize the balancing and reduce weight to be added.

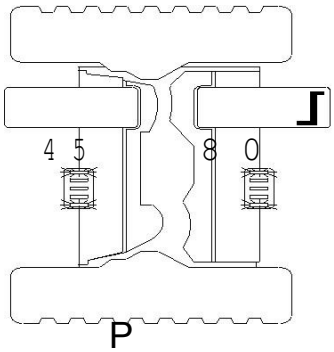
12.1 To get the best result, proceed the following procedure carefully. Press key [OPT], the display reads:

[OPT] [ ], Press [START] to activate a spin cycle, with the spinning finished, the display reads:

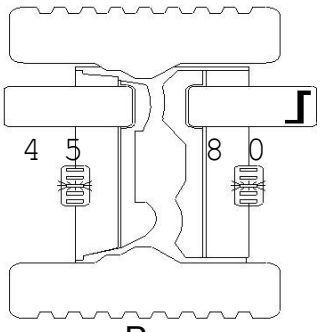
[I] [180] , Where as 180 displayed in the middle means the tire and the rim need to be remounted by 180 degree rotating each other. Before demount the whole wheel form balancer, mark the rim and cone so that the same mounting position can be re-mounted for next operation. Use tire changer to re-mount the tire on the rim by 180 degree rotated each other, fully inflated, and put back the re-mounted wheel on the balancer. Mount on the shaft on the same location of previous cycle, Press key [START], after one spin cycle completed, the display reads:

[45] [80 ⌐┘], the right window indicates the static balance weight reduction rate after re-mounting tire, in percentage(" ⌐┘ "=%); the left window tells the weight to be added after tire remounted, which is: 45x(1-0.80)=9 gram, it means only 9 gram weight needed for balancing the wheel.

12.2 Rotate the wheel slowly by hand, till the display indicates as following figure P_{tyre} , make a mark on 12 o'clock position of the tire. Name as P_{tyre}



P_{tyre}



P_{rim}

12.3 Again , Rotate the wheel slowly by hand, till the display indicates as above figure P_{rim}, make a mark on 12 o'clock position of the rim. Name as P_{rim}.

12.4 Remove the wheel from balancer, use tire changer to re-mount the tire with the rim by matching positions of P_{tyre} and P_{rim}.

12.5 As mentioned above, instead of 45 gram, only 9 gram weight needed for balancing the wheel, select a 10 gram weight to put on the wheel.

13. Trouble shooting.

Machine failure can be detected and identified by the system, and display on the windows with Err codes. The following table indicates the Err code and the definitions.

Error Code	Definition
Err1	Rotation signal failure possible causes Motor failure Position location error Sensor broken Connector contact error Computer board fail
Err2	When spin speed under speed of 60rpm possible causes Wheel not mounted Transmission belt improperly mounted
Err3	Calculation error, out of range
Err4	Spin rotation reversed or receive unknown signal from pick up sensor board.
Err5	Protective cover in open position when the [start] key pressed
Err6	Sequence of outer and inner attach 100g incorrect.
Err7	Calibration error or calibration data loss, re calibrate the system is needed.
Err8	Calibration error, possible causes 100gram weight not a added. Power board is out of function. Pickup sensor cable broken or connector failure
Err9	Forget adding 100g on inner rim during calibration.
ErrR	Hardware installation was not correct. Calibration cannot completed.

14. INSPECTION, MAINTENANCE, AND CLEANING

CAUTION: Always turn the Power S witch to its “OFF” position and unplug the Power Cord from its electrical outlet before performing any inspection, maintenance, or cleaning.

BEFORE EACH USE, inspect the general condition of the Wheel Balancer. Check for loose screws, loose floor bolts, misalignment or moving parts, cracked or broken parts, damaged electrical wiring, and any other condition that may affect its safe operation. If abnormal noise or vibration occurs, have the problem corrected before further use. **Do not use damaged equipment.**

PERIODICALLY, use a premium quality, lightweight oil to lubricate all moving parts.

TO TIGHTEN OR REPLACE THE PULLEY BELT: Periodically, it may be necessary to tighten the tension or replace the Pulley Belt. To do so, remove the two Screws on the front and two Screws on the back of the Tool Tray. Empty the Tool Tray of all

weights, tools, etc, and remove the Tool Tray from the rest of the machine. Loosen the four Nuts so that the Motor may be moved horizontally forward and backward. To tighten the tension, move the Motor backward until the Pulley Belt is tight to the touch and re-tighten the four Nuts. To replace the Pulley Belt, move the Motor forward to-ward the Pulley. Remove the Pulley Belt from the Motor and Pulley, and replace it with a new Pulley Belt. Then, move the Motor backward until the Pulley Belt is tight to the touch and re-tighten the four Nuts. Attach the Tool Tray back onto the machine, and secure it in place with the two Screws previously removed on the front and two Screws previously removed on the back of the Tool Tray.

TO REPLACE THE FUSES: If it becomes necessary to replace the two electrical circuit Fuses, remove the two Screws on the front and two Screws on the back of the Tool Tray. Empty the Tool Tray of all weights, tools, etc., and remove the Tool Tray from the rest of the machine. Remove the two Fuses from the Power Board and re-place them with two new Fuses. **NOTE:** Even if only one Fuse is defective, it is recommended to always replace both Fuses at the same time.

With a soft brush, cloth, or vacuum, remove all debris from the Wheel Balancer.

When necessary, wipe with a damp cloth, using a mild detergent or mild solvent.

When storing, keep the Wheel Balancer covered with a clean cloth.

PLEASE READ THE FOLLOWING CAREFULLY

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