

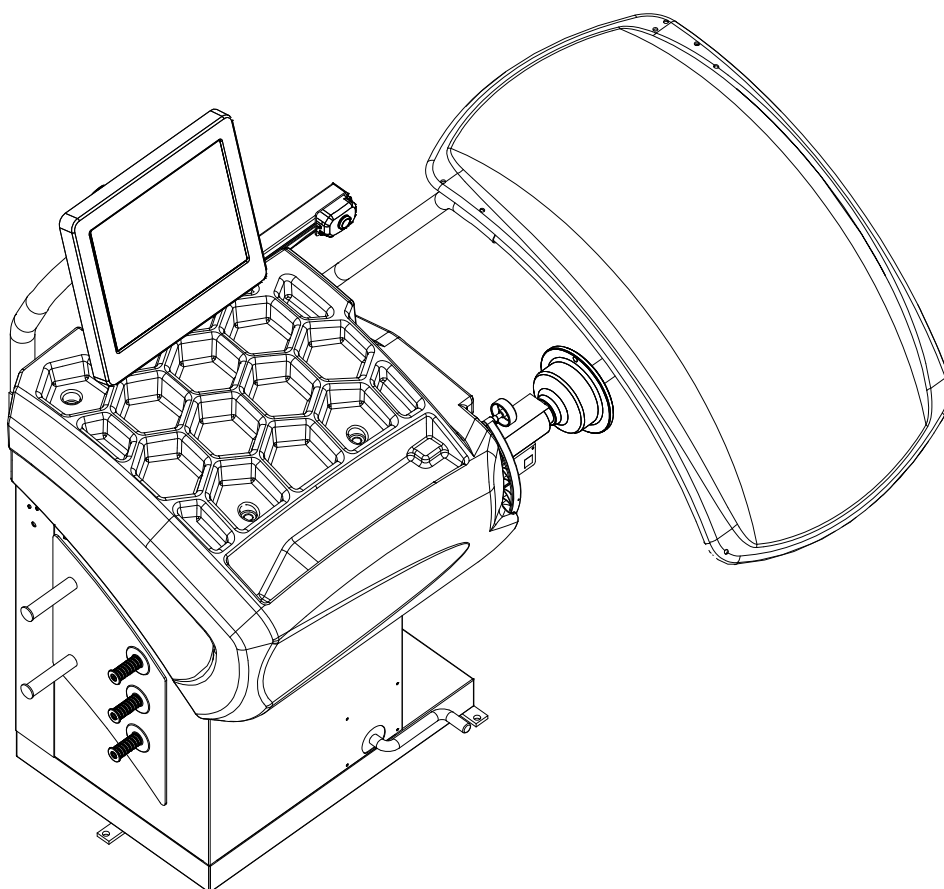


CEMB

BALANCING MACHINES

EN *User's manual*

ES *Manual por el usuario*



ER75TD CSA/UL

CEMB S.p.A.

Via Risorgimento, 9 - 23826 Mandello del Lario (LC) ITALY

Telefono: + 39 0341 706369 Fax: + 39 0341 700725 www.cemb.com - garage@cemb.com

Cemb Spa declines all liability for any damage to people or property caused by incorrect use of this product.
Subject to change without prior notice.



ENGLISH



ESPAÑOL





Translation of the original instructions
Traducción de las instrucciones originales



ENGLISH



EN

Use and maintenance manual

General Index

1. FOREWORD	3
1.1 GENERAL	3
1.2 PURPOSE OF THE MANUAL	3
1.3 WHERE AND HOW TO KEEP THE MANUAL	4
1.4 MANUAL UPGRADES	4
1.5 COLLABORATION WITH USERS	4
1.6 MANUFACTURER	4
1.7 MANUFACTURER'S RESPONSIBILITY AND WARRANTY	4
1.7.1 Terms of warranty	5
1.8 TECHNICAL ASSISTANCE SERVICE	5
1.9 COPYRIGHT	5
2. MACHINE DESCRIPTION	6
2.1 TECHNICAL SPECIFICATIONS	6
2.2 DIMENSIONS	6
2.3 COMPONENTS	6
3. STARTING	8
4. CORRECTION PLANE IDENTIFICATION	10
5. USE OF THE WHEEL BALANCER	11
5.1 INITIAL SCREEN	11
5.2 STANDARD BALANCING (CLIP-ON COUNTERWEIGHTS)	12
5.2.1 Wheel dimensions setting	12
5.2.2 Result of the measurement and weight application	13
5.3 BALANCING WITH ADHESIVE WEIGHTS (ALU)	14
5.3.1 Wheel dimensions setting	14
5.3.2 Result of the measurement and weight application	15
5.4 BALANCING WITH A MIX OF ADHESIVE AND CLIP-ON WEIGHTS (STATIC BALANCING)	16
5.5 STATIC UNBALANCE	17
5.5.1 OPB (One plane balancing)	18
5.6 HIDE THE ADHESIVE WEIGHTS (SPLIT)	19
5.7 SPOTTER	20
5.8 MULTIPLE USERS	20
5.9 AUTOMATIC MINIMIZATION OF STATIC UNBALANCE	20
5.10 UNBALANCE OPTIMIZATION	21
5.11 WHEEL ECCENTRICITY MEASUREMENT AND OPTIMISATION (OPTION)	21
5.11.1 Wheel eccentricity measurement	21
5.11.2 Wheel eccentricity optimisation	22
5.12 ECCENTRICITY AND MATCHING: THEORY	23
5.12.1 Presetting of tolerance on the machine	24
5.12.2 Value of static unbalance, correlated with eccentricity	24
5.12.3 Value of unbalance corresponding to eccentricity	24
6. MENU	25
6.1 MENU ACCESS DIAGRAM	25
6.2 STATISTICS	26

6.2.1	<i>Weight statistics screen</i>	26
6.3	CALIBRATIONS	26
6.3.1	<i>Sensors calibration</i>	27
6.3.1.1	<i>Distance gauge calibration</i>	27
6.3.1.2	<i>Diameter gauge calibration</i>	27
6.3.1.3	<i>Width gauge calibration</i>	27
6.3.1.4	<i>Spotter device calibration</i>	28
6.3.2	<i>Balancing machine calibration</i>	28
6.3.3	<i>Adhesive weight width</i>	28
6.3.4	<i>Touch screen calibration</i>	28
7.	SETUP	29
7.1	LANGUAGE	29
7.2	SCREEN-SAVER TIME	29
7.3	ACOUSTIC SIGNAL	29
7.4	SETTING THE CLOCK	29
7.5	RUNOUT SETUP (OPTION)	29
7.6	HUBMATCH™	29
7.7	ADHESIVE WEIGHT APPLICATION METHOD POP-UP	30
7.8	OPTIONS	30
7.8.1	<i>Radial runout (option)</i>	30
7.8.2	<i>Rim interior light</i>	30
7.8.3	<i>Wheel locking enable</i>	30
7.8.4	<i>Tyre train (option)</i>	30
7.8.5	<i>Weight statistics</i>	31
7.8.6	<i>User</i>	31
7.8.7	<i>Date</i>	31
7.8.8	<i>Time</i>	31
7.8.9	<i>Unbalance resolution in ounces</i>	31
7.8.10	<i>LT automatic (option)</i>	31
7.8.11	<i>Enabling of serial output RS232C (option)</i>	31
7.8.12	<i>Printer enabling (option)</i>	32
7.8.13	<i>Spotter</i>	32
7.9	BALANCING SETUP	32
7.9.1	<i>Unit of unbalance measurement</i>	32
7.9.2	<i>Unbalance display pitch</i>	32
7.9.3	<i>Tolerance</i>	32
7.10	AUTOADAPTIVE CORRECTION MODE	32
7.11	STATIC ALWAYS ENABLED	32
7.12	OPB AUTOMATIC SELECTION	32
7.13	SPECIAL FUNCTIONS	32
7.13.1	<i>Presetting the customer and user name</i>	32
7.13.2	<i>Wheel balancing machine SELF TEST</i>	32
8.	DIAGNOSTICS	33
8.1	INCONSISTENT UNBALANCE READINGS	33
9.	MAINTENANCE	36
9.1	GENERAL	36
9.1.1	<i>Introductory notes</i>	36
9.1.2	<i>Safety rules</i>	36
9.1.3	<i>Replacing fuses</i>	37
9.1.4	<i>Cleaning the screen</i>	37
10.	DISPOSAL	37
10.1	DISPOSING OF THE BALANCER	37
10.2	DISPOSING OF ELECTRONICS COMPONENTS	37
11.	SPARE PARTS	38
11.1	IDENTIFICATION AND ORDERING METHOD	38
12.	ATTACHED DOCUMENTATION	38

1. Foreword



THIS MANUAL IS AN INTEGRAL PART OF THE INSTALLATION MANUAL WHICH SHOULD BE CONSULTED CONCERNING STARTING AND USING THE MACHINE SAFELY.
READ CAREFULLY BEFORE CONTINUING.

1.1 GENERAL

The machine has been constructed in conformity with the current EC Directives and the technical standards implementing the requirements, as stated in the declaration of conformity issued by the manufacturer and attached to the manual.

This publication, hereinafter simply referred to as '**manual**', contains all the information required to safely use and service the machine referred to in the Declaration of Conformity.

This appliance, hereinafter is generically referred to as '**machine**'.

The manual addresses operators instructed on the precautions to take in relation to the presence of electric current and moving devices.

This publication is intended for all 'users' who as far as within their competence need to and/or are obliged to give instructions to others or operate on the machine themselves.

These persons can be identified as follows:

- operators directly involved in transporting, storing, installing, using and servicing the machine from when it is put on the market until when it is scrapped
- direct private users.

The original Italian text of this publication constitutes the only reference to resolve any interpretation controversies related to the translation into the European Community languages.

This publication forms an integral part of the machine and must therefore be kept for future reference until final dismantling and scrapping of the machine.

1.2 PURPOSE OF THE MANUAL

This manual, and the installation manual, contains the instructions required to use the machine safely and carry out routine maintenance work.

Any calibrations, adjustments and extraordinary maintenance operations are not considered in this document as they may only be performed by the service engineer who must work on the machine according to the technical and rated characteristics for which it was built.

Though it is fundamental to read this manual, it cannot replace skilled technical staff who must be adequately trained beforehand.

The foreseen use and configurations of the machine are the only ones allowed by the manufacturer; do not attempt to use the machine in a different way.

Any other use or configuration must be agreed in advance with the manufacturer in writing and in this case an annex will be attached to this manual.

For use, the user must also comply with the specific workplace legislation in force in the country where the machine is installed.

The manual also refers to laws, directives, etc., that the user must know and consult in order to accomplish the goals that the manual sets out to achieve.

1.3 WHERE AND HOW TO KEEP THE MANUAL

This manual (and relative attachments) must be kept in a safe and dry place and must always be available for consultation.

Make a copy and keep it in the archive.

When exchanging information with the manufacturer or the technical assistance staff authorised by the former, quote the rating plate information and the serial number of the machine.

This manual must be kept for the entire lifetime of the machine, and if necessary (e.g.: damage making all or some of it illegible, etc.) the user must request another copy exclusively from the manufacturer, quoting the publication code indicated on the cover.

1.4 MANUAL UPGRADES

This manual is an integral part of the machine and reflects the state of the art at the moment it was put on the market. The publication complies with the directives in force on that date; the manual cannot be considered inadequate as a result of regulatory updates or modifications to the machine.

Any manual upgrades that the manufacturer may see fit to send to users will become an integral part of the manual and must be kept together with it.

1.5 COLLABORATION WITH USERS

The manufacturer will be pleased to provide its customers with any further information they may require and will consider proposals for improving this manual in order to more fully satisfy the requirements it was written for.

In case of transfer of ownership of the machine, which must always be accompanied by the use and maintenance manual, the original user must inform the manufacturer of the name and address of the new user in order to allow it to send the new user any communications and/or updates deemed to be indispensable.

This publication is the property of the Manufacturer and may not be fully or partly reproduced without prior written agreement.

1.6 MANUFACTURER

The machine identification data is indicated on the plate mounted on the machine.

The plate below is shown for the sake of example.

MODEL		VER	
SER. N°			
☒ V		CE	KW
☒ A			Hz
PHASE	1	T° [C]	
AIR SUPPLY Kg/cm²			

1.7 MANUFACTURER'S RESPONSIBILITY AND WARRANTY

In order to make use of the manufacturer's warranty, the user must scrupulously observe the precautions contained in the manual, in particular he must:

- never exceed the limits of use of the machine
- always constantly and carefully clean and service the machine
- have the machine used by people of proven capacity and attitude, adequately trained for the purpose.

The manufacturer declines all direct and indirect liability caused by:

- use of the machine in a different way from that indicated in this manual
- use of the machine by people who have not read and fully understood the contents of this manual
- use in breach of specific regulations in force in the country of installation
- modifications made to the machine, software and operating logic, unless authorised by the manufacturer in writing
- unauthorised repairs
- exceptional events.

Transfer of the machine to a third party must also include this manual; failure to include the manual automatically invalidates all the rights of the purchaser, including the terms of warranty, where applicable.

If the machine is transferred to a third party in a country with a different language from the one written in this manual, the original user shall provide a faithful translation of this manual in the language of country in which the machine will operate.

1.7.1 Terms of warranty

The Manufacturer guarantees the machines it manufactures against all manufacturing or assembly faults for 12 (twelve) months from the date of collection or delivery.

The Manufacturer undertakes to replace or repair any part which it deems to be faulty free of charge at its factory, carriage paid.

If a Manufacturer's repairman (or a person authorised by the same) is required to work at the user's facilities, the relative travel expenses and board and lodging shall be charged to the user.

The free supply of parts under warranty is always subject to the faulty part being inspected by the manufacturer (or a person authorised by the same).

The warranty is not extended following repairs or other work done to the machine.

The warranty does not cover damage to the machine deriving from:

- transport
- neglect
- improper use and/or use not in compliance with the instructions in the operating manual
- incorrect electrical connections.

The warranty is invalidated in case of:

- repairs made by people who were not authorised by the manufacturer
- modifications that were not authorised by the manufacturer
- use of parts and/or equipment that were not supplied or approved by the manufacturer
- removal or alteration of the machine identification plate.

1.8 TECHNICAL ASSISTANCE SERVICE

For any technical service operation, contact the manufacturer directly or an authorised dealer always quoting the model, the version and the serial number of the machine.

1.9 COPYRIGHT

The information contained in this manual may not be disclosed to third parties. Partial or total duplication, unless authorised by the Manufacturer in writing, through photocopying, duplication or other systems, including electronic acquisition, is breach of copyright and can lead to prosecution.

2. Machine description

It is used to balance the wheels of cars, vans, 4-WD, motorcycles and scooters. The wheels must weigh less than 75 kg. and, when fitted on the balancing machine, must not interfere with any fixed part of the machine, excluding the shaft and support adaptor. The machine is supplied with equipment enabling the vast majority of car wheels available on the market to be fitted. Other wheels with special dimensions, geometry and centring require special adaptors supplied on request (consult the attached sheet “**CEMB ORIGINAL ADAPTORS**”). The machine can operate only on flat non resilient floor.

Do not mount anything other than motorbike, car or truck tyres on the wheel balancer.

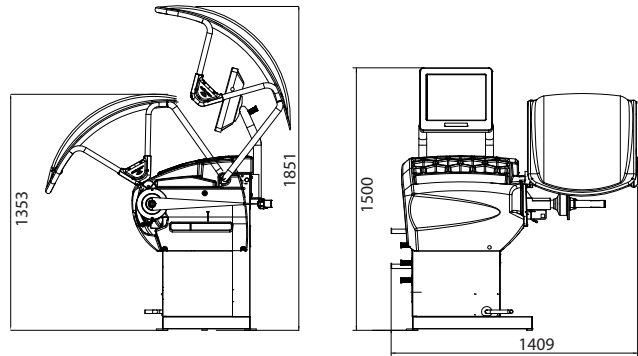
Thanks to the new and exclusive VDD (Virtual Direct Drive - **CEMB PATENT**) system, reliable unbalance measurements can be made in a short time, almost half the time of the cycle used with respect to other balancers in this range.

2.1 TECHNICAL SPECIFICATIONS

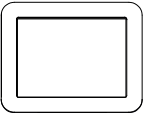
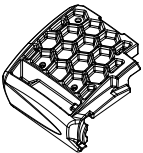
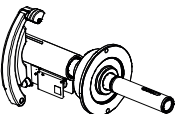
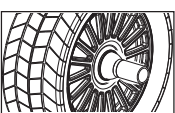
The following data refers to the balancer in its standard configuration.

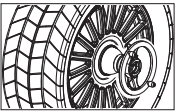
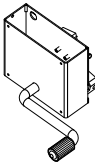
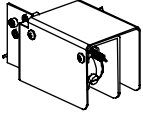
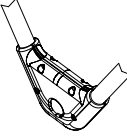
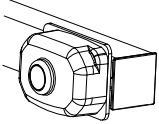
Single-phase power supply	115 / 230 V 50/60 Hz
Protection class	IP 54
Rated power	0,15 kW
Balancing speed	100 min ⁻¹
Cycle time for wheel	4.7 s (5 3/4"x14") 15 kg
Measurement uncertainty	0,5 g
Average noise	< 70 dB (A)
Rim width setting range	1.5" ÷ 20" or 40 ÷ 510 mm
Diameter setting range	10" ÷ 30" or 265 ÷ 765 mm
Min/max. compressed air pressure	7 ÷ 10 kg/cm ²
	approx. 0.7 to 1 MPa
	approx. 7 to 10 bar
	approx. 105 to 145 psi
Maximum wheel weight	< 75 kg
Machine weight	120 kg

2.2 DIMENSIONS



2.3 COMPONENTS

		ER73TD	ER75TD
TOUCH CONTROL PANEL		✓	✓
WEIGHT-TOOL HOLDER		✓	✓
AUTOMATIC GAUGE		✓	✓
COLLAR			✓

LOCK NUT		✓	
BP PEDAL			✓
SPOTTER LASER + RIM INTERIOR LIGHT		✓	✓
LA SONAR		✓ (option)	✓ (option)
EMS SONAR		✓ (option)	✓ (option)

3. Starting

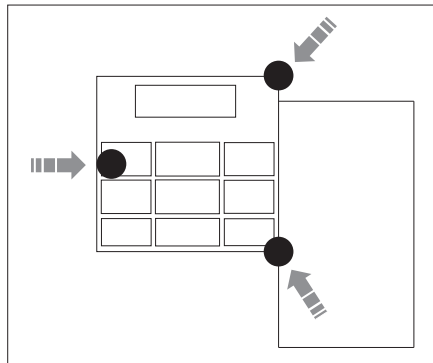


BEFORE SWITCHING ON THE MACHINE, MAKE SURE THAT ALL THE CONNECTIONS DESCRIBED IN THE INSTALLATION CHAPTER HAVE BEEN MADE CORRECTLY.

THE FOLLOWING OPERATIONS INVOLVE A POTENTIAL RISK FOR THE OPERATOR, GIVEN THE PRESENCE OF VOLTAGE ON THE EQUIPMENT. THE PERSONAL PROTECTIVE EQUIPMENT DESCRIBED IN THE INSTALLATION MANUAL MUST BE WORN AND WORK MUST BE DONE WITH DUE CARE AND ATTENTION. OPERATIONS MAY ONLY BE PERFORMED BY A SPECIALISED TECHNICIAN.

Before powering the machine, carry out the following checks:

1. Check that the balancing machine touches the floor at the three support points.

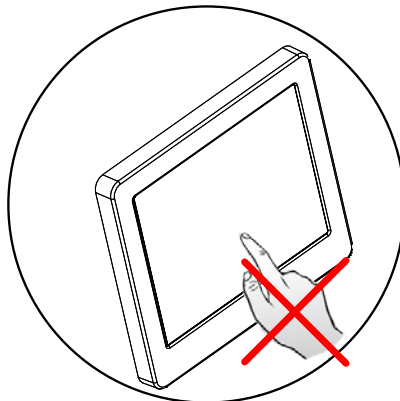


2. Make sure that all the parts of the balancer are correctly connected and fixed.
3. Make sure that the parameters (voltage and frequency) of the mains power supply are compatible with those indicated on the rating plate of the balancer.
4. Make sure the power cable is correctly connected.
5. Make sure the machine shaft and flange hole are clean.



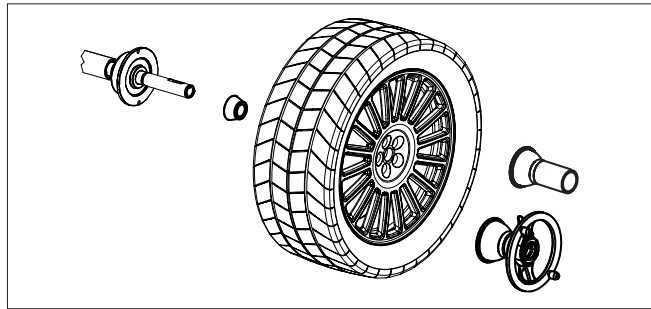
ANY TRACES OF DIRT MAY AFFECT BALANCING ACCURACY.

6. To turn on the wheel balancer press the switch on the side or back of the same; for the models with touchscreen don't touch the screen.



PRESS THE BUTTONS WITH YOUR FINGERS. NEVER USE THE COUNTERWEIGHT GRIPPERS OR OTHER POINTED OBJECTS!

7. Position the wheel on the terminal with the inner part facing the balancer.



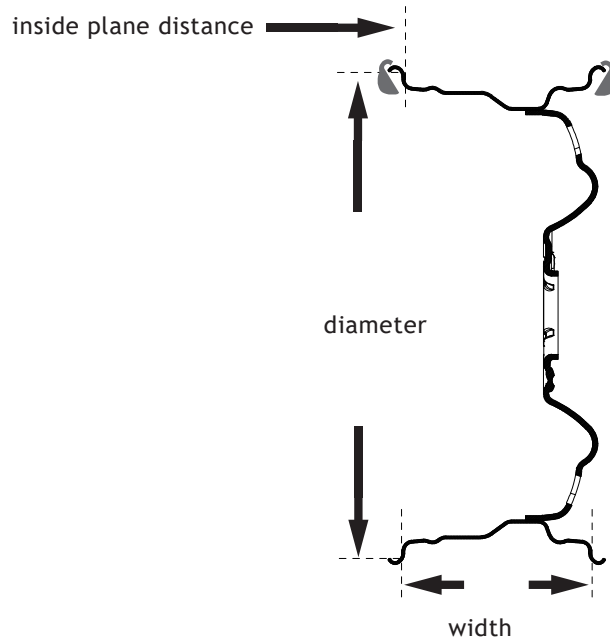
8. Firmly attach the wheel to the balancer shaft using the lock nut. In the pneumatic version, use the specific collar provided. For operation of the spindle with pneumatic locking (constant thrust air spring) connect the wheel balancer to the compressed air mains. The connection fitting is located at the back of the machine. At least 7 kg/cm^2 ($\sim 0.7 \text{ MPa}$; $\sim 7 \text{ bar}$; $\sim 105 \text{ psi}$) pressure is needed for correct operation of the release device.
9. In the pneumatic version, the pedal allows fastening/releasing the wheel on the adapter using the collar.
10. At this point, you can read the tyre measurements and perform balancing.
11. To perform the spin, lower the splash guard, when fitted and, if necessary and available, press the START button.
12. The wheel is automatically locked when reaching the correct angular position for weight application on the inside and outside, turning it slowly by hand. To unlock the wheel, turn it hard to move it from the correct correction position. If the unbalance is within tolerance, the wheel is locked automatically.



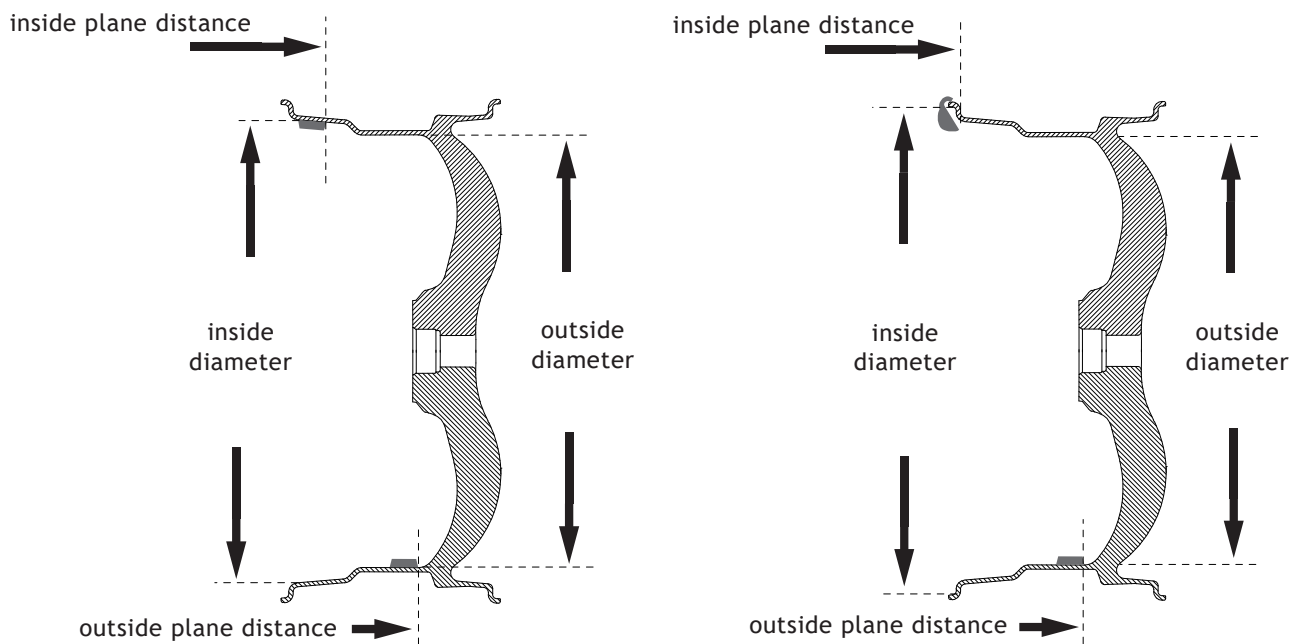
IT IS PROHIBITED TO TOUCH ANY PART OF THE MACHINE DURING THE BALANCING CYCLE.

4. Correction plane identification

- Standard dynamic balancing using only clip-on weights:



- Standard dynamic balancing using adhesive weights or a mix of adhesive and clip-on weights:



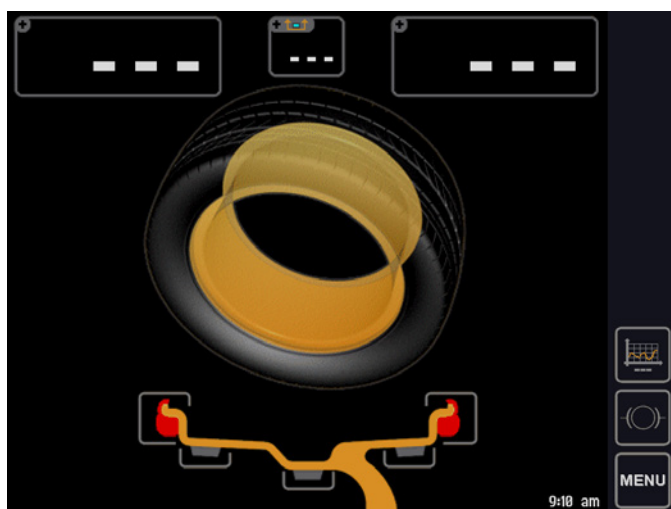
5. Use of the wheel balancer

5.1 INITIAL SCREEN

If the laser spotter and “Adhesive weight application method pop-up” (👉 **SETUP**) are enabled, when the wheel balancer is turned on, the adhesive weight application convention is displayed. The adhesive weights must always be applied starting from the laser reference point emitted by the spotter towards the inside of the rim.



enables the start screen



selects the type of weight to be applied



selects the eccentricity screen



wheel locks/unlocks



main functions screen
(👉 **MENU ACCESS DIAGRAM**)

Dimensions gauge: pulling it out, it measures the wheel dimensions (👉 **WHEEL DIMENSIONS SETTING**).

If the machine remains on the initial screen for a certain amount of time without being used, the system is automatically switched to a screen-save. Striking of any key, movement of the wheel of distance + diameter gauge will cause automatic switching from the screen-save menu to the initial screen.

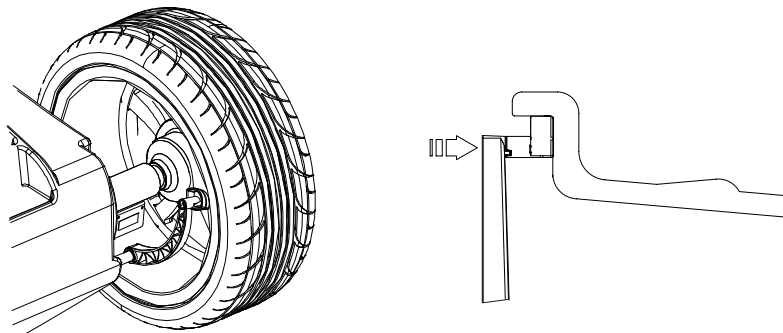


WHEN THE SCREENSAVER IS ACTIVE, AUTOMATIC STARTING ACTIVATED BY THE GUARD IS NOT AVAILABLE FOR SAFETY REASONS.

5.2 STANDARD BALANCING (clip-on counterweights)

5.2.1 Wheel dimensions setting

Using the special grip, move the end of gauge against the rim as shown in the figure:



Hold the gauge in position for at least 2 seconds.

If the acoustic signal is enabled (🔊 ACOUSTIC SIGNAL), the acquisition of the dimensions is accompanied by a "beep".

Set the gauge to the rest position.



selects the type of weight to be applied



improves the dimensional calibration of large-diameter wheels such as off-road, trucks, wheels which protrude significantly from the rim. Press it several times to select the type of tyre projection (from 1.0" to 2.0"). The option is disengaged at the end of current width Measurement.



returns to the initial screen



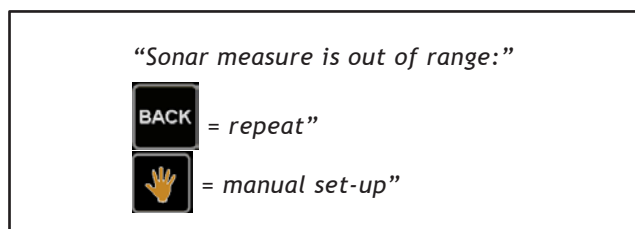
FUNCTION ON
INDICATOR: Sonar
"WIDTH"



L.T. /SUV FUNCTION ON
INDICATOR
(see enabled buttons)

Slowly lower the guard to automatically measure the wheel width with LA sonar and perform a measurement spin.

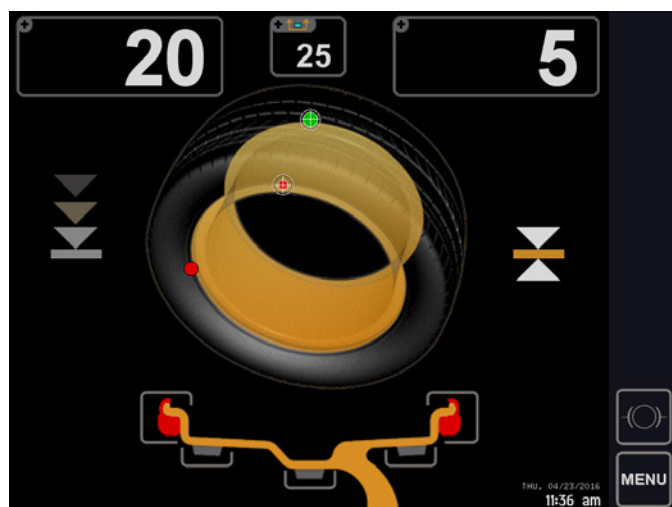
If the width measured is incorrect (out of range), the following message appears:



Press **BACK** to re-lower the guard and repeat the width measurement.

Press  to go to the dimensions panel where you can manually enter the width measurement.

5.2.2 Result of the measurement and weight application



20	Inside unbalance indicator
25	Static unbalance indicator
5	Outside unbalance indicator

If the unbalance is out of tolerance:

- When the spin is complete, bring the unbalance into correction position by turning the wheel by hand. The spindle is automatically locked in correction position (if not disabled the spindle lock and for rotation speeds less than 20 rpm). If the acoustic signal is enabled (👉 **MENU - ACOUSTIC SIGNAL**), a beep will sound when the correction position has been reached.
- If the buttons **ONE PLANE BALANCING** / **ONE PLANE BALANCING** are displayed (👉 **OPB**)
- The symbol is shown on the display on the side corresponding to the active correction plane
- Manually apply the number of weights shown on the display on the rim at 12 o'clock using clip-on weights:



If the out-of-balance is less than the chosen threshold value, "OK" appears instead of the out-of-balance value to indicate, on that particular side, that the wheel is in tolerance; press on the unbalance indicators to display the residual value below the chosen threshold.

- After applying the weights, spin the wheel to check the correction made checking that both planes are within tolerance.

If appears (👉 **HUBMATCH™**).

Enabled buttons:



selects the correction mode. When the mode is changed, the unbalance values are recalculated automatically on the basis of the previous spin. Simultaneous display of the dynamic+static unbalance can be enabled through the special function in Setup (👉 **STATIC ALWAYS ENABLED**)



enables the eccentricity measurement graph (option)

1. The symbol above the key is displayed in yellow if the first harmonic eccentricity exceeds the limit set in the setup parameters (👉 **RUNOUT SETUP - FIRST HARMONIC LIMIT**)
2. When this push button is held down for more than 1.5 seconds, eccentricity measurement is temporarily disabled (enabled in **SETUP**). To re-enable eccentricity measurement, press the same button again for more than 1.5 seconds.

Every time the machine is switched on, the status of eccentricity measurement reflects the settings in **SETUP**



wheel locks/unlocks

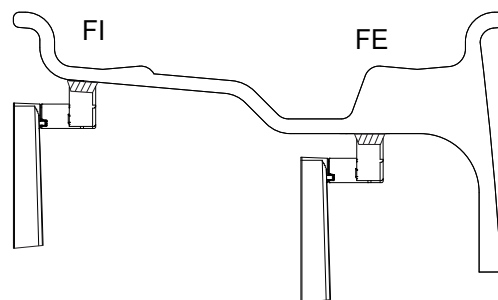


selects the special functions

5.3 BALANCING WITH ADHESIVE WEIGHTS (ALU)

5.3.1 Wheel dimensions setting

Using the dedicated grip, move the gauge tip up against the inside of the rim and make two consecutive measurements starting from the inside (FI) as shown in the figure. The two preselected positions coincide with the point where the counterweight is to be applied.



When the gauge is pulled out (👉 **SPOTTER, OPTIONS**), the spotter projects a laser reference inside the rim at 6 o'clock. The light point indicates the left-hand side of the position where the counterweight is to be applied. When the dimensions have been acquired, the laser reference point emitted by the spotter flashes fast accompanied by a beep if the acoustic signal is enabled (👉 **ACOUSTIC SIGNAL**).

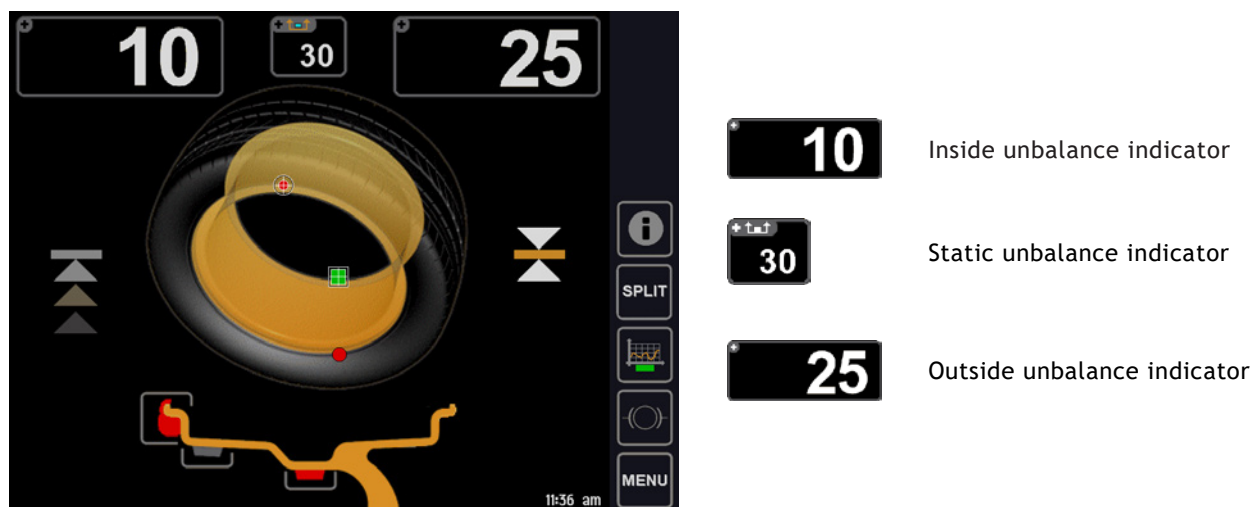
Set the gauge to the rest position.



IF AUTOADAPTIVE CORRECTION METHOD IS ENABLED (👉 **MENU - SETUP BALANCING**), THE WIDTH HAS TO BE ACQUIRED AS INDICATED IN THE PARAGRAPH **STANDARD BALANCING - SETTING THE WHEEL DIMENSIONS**.

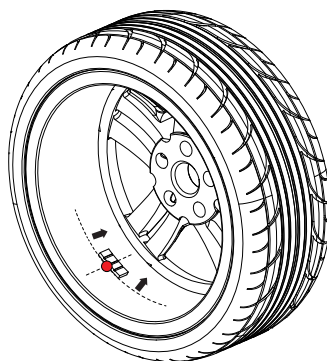
Slowly lower the guard and perform a measurement spin.

5.3.2 Result of the measurement and weight application



If the unbalance is out of tolerance:

- When the spin is complete, bring the unbalance into correction position by turning the wheel by hand. The spindle is automatically locked in correction position (if not disabled the spindle lock and for rotation speeds less than 20 rpm). If the acoustic signal is enabled (☞ **MENU - ACOUSTIC SIGNAL**), a beep will sound when the correction position has been reached.
- If the buttons **ONE PLANE BALANCING** / **ONE PLANE BALANCING** are displayed (☞ **OPB**)
- The symbol  is shown on the display on the side corresponding to the active correction plane.
- The spotter projects a laser indication inside the rim.
- Apply the number of weights shown on the display on the side corresponding to the active plane. The weight is to be applied according to the following convention:



THE ADHESIVE WEIGHTS MUST ALWAYS BE APPLIED STARTING FROM THE LASER SPOTTER INDICATION TOWARDS THE INSIDE OF THE RIM.

If the out-of-balance is less than the chosen threshold value, "OK" appears instead of the out-of-balance value to indicate, on that particular side, that the wheel is in tolerance; press on the unbalance indicators to display the residual value below the chosen threshold.

- After applying the weights, spin the wheel to check the correction made checking that both planes are within tolerance.



If  appears (☞ **HUBMATCH™**).

Enabled buttons:



selects the correction mode. When the mode is changed, the unbalance values are recalculated automatically on the basis of the previous spin. Simultaneous display of the dynamic+static unbalance can be enabled through the special function in Setup (👉 **STATIC ALWAYS ENABLED**)



displays a pop-up window indicating the adhesive weight application convention with the aid of the spotter



enables the unbalance SPLIT function



enables the eccentricity measurement graph (option)

1. The symbol above the key is displayed in yellow if the first harmonic eccentricity exceeds the limit set in the setup parameters (👉 **RUNOUT SETUP - FIRST HARMONIC LIMIT**)
2. When this push button is held down for more than 1.5 seconds, eccentricity measurement is temporarily disabled (enabled in **SETUP**). To re-enable eccentricity measurement, press the same button again for more than 1.5 seconds.

Every time the machine is switched on, the status of eccentricity measurement reflects the settings in **SETUP**



wheel locks/unlocks



selects the special functions

5.4 BALANCING WITH A MIX OF ADHESIVE AND CLIP-ON WEIGHTS (STATIC BALANCING)

After dimension acquisition in standard balancing mode, pressing the buttons



you can select one of the following correction modes.

 WEIGHT APPLICATION POSITION		
Correction type	Inside	Outside
	Clip-on weight at 12 o'clock	Clip-on weight at 12 o'clock
	Clip-on weight at 12 o'clock	Adhesive weight at 12 o'clock
	Adhesive weight at the point indicated by the internal laser	Clip-on weight at 12 o'clock
	Adhesive weight at the point indicated by the internal laser	Adhesive weight at 12 o'clock
STATIC 	Adhesive weight at the point indicated by the internal laser	

After dimension acquisition in ALU mode, pressing the buttons  you can select one of the following correction modes. The adhesive weight application distance and diameter are measured by means of the automatic distance and diameter gauge, except for the static unbalance where the dimensions acquired are modified following some fixed parameters.

 WEIGHT APPLICATION POSITION		
Correction type	Inside	Outside
	Adhesive weight at the point indicated by the internal laser	Adhesive weight at the point indicated by the internal laser
	Clip-on weight at 12 o'clock	Adhesive weight at the point indicated by the internal laser
STATIC 	Adhesive weight at the point indicated by the internal laser	



IF THE SPOTTER IS DISABLED, THE WEIGHT APPLICATION POSITIONS REMAIN AS INDICATED IN THE TABLE.

5.5 STATIC UNBALANCE

Press the button [3]  to show the static unbalance.

The correction weight application diameter cannot be set, but is deduced from the dimensions acquired in standard or ALU mode through interpolation algorithms and the use of fixed parameters. The axial application distance of the adhesive weight inside the rim is calculated so as to reduce the residual unbalance on the planes to a minimum and is indicated by the device spotter laser.



IF THE SPOTTER IS DISABLED, APPLY AN ADHESIVE WEIGHT IN THE MID OF THE TWO CORRECTION PLANES.

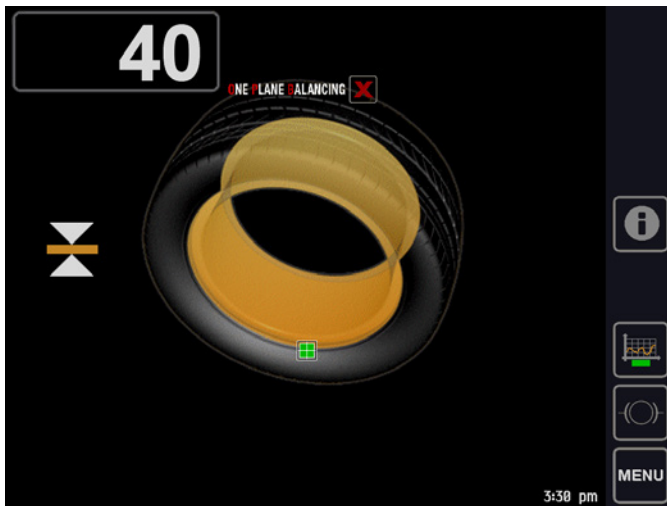
Tolerance, brake and spotter control is the same as for standard balancing, only that it refers to a single correction plane.

5.5.1 OPB (One plane balancing)

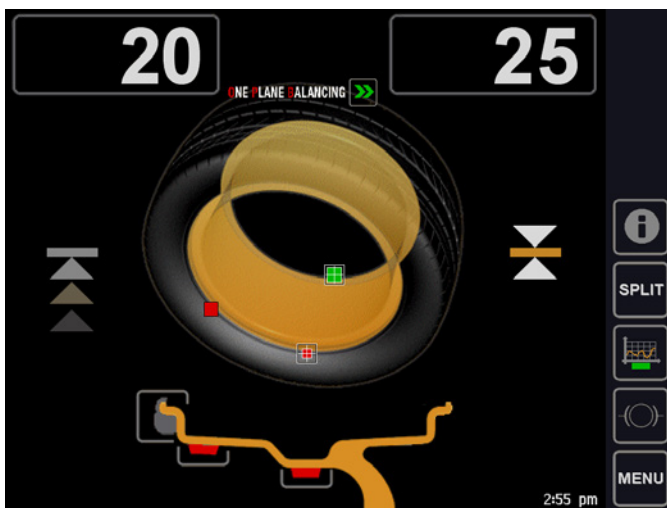
One Plane Balancing allows correcting the wheel unbalance by applying a single correction weight that cancels out the static unbalance and also reduces the remaining unbalance in the correction planes to a minimum and within tolerance.

When the spin is complete, if OPB is possible, the machine automatically (👉 **GENERAL SETUP 2/3**) suggests applying a single correction weight:

- **ADHESIVE WEIGHT:** apply the required weight in correspondence to the internal laser indication.
- **CLIP-ON WEIGHT:** apply the required weight on the side indicated by the wheel balancer in correspondence to the laser indication at 12 o'clock.



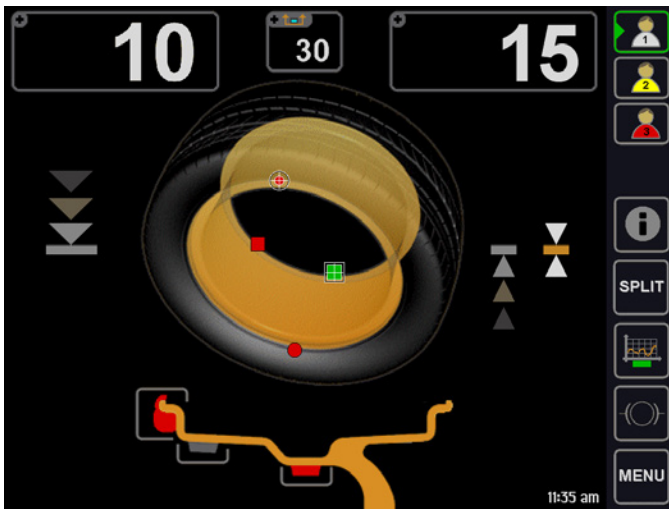
To go back to plane correction, press the **ONE PLANE BALANCING**  button .



Pressing the **ONE PLANE BALANCING**  / **ONE PLANE BALANCING**  buttons, you can at any time switch between OPB correction and plane correction.

5.6 HIDE THE ADHESIVE WEIGHTS (SPLIT)

SPLIT is only possible in the event of static unbalance or ALU external side and is used to hide any adhesive weights correcting unbalance behind the rim spokes.



1. Position the static unbalance or outside ALU in the in the correction position: .
2. Press  and hold down until the laser points to the spoke where you want to hide the weight.
3. Release the  button.
4. Turn the wheel in the unbalance rotation direction indicated on the screen until the second spoke is in the position indicated by the laser and press the  button.
5. Two indications appear on the screen for positioning of the outside correction plane.
6. Turn the wheel to the correction positions indicated and correct the value displayed.

5.7 SPOTTER

The spotter emits a laser reference to help you select the correction planes and indicates the correct position during correction.

- **Inside plane measurement, configuration on-1/on-2**

- > ON-1: the spotter emits a laser reference point only after having acquired the dimensions relating to the weight to be applied on the inside of the wheel.
- > ON-2: the spotter emits a laser reference point as soon as the automatic gauge is pulled out.

- **Outside plane measurement**

After acquiring the inside dimension, move the distance and diameter gauge at least 40 mm towards the inside of the rim. At this point, the laser reference starts moving together with the automatic distance and diameter gauge to help the user select the position where to apply the adhesive weight on the outside.

When the dimensions have been acquired, the laser reference point emitted by the spotter flashes fast.

- **Weight application**

The adhesive weights must always be applied starting from the laser indication towards the inside of the rim.

- **Pop-up**

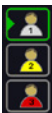
When the “Adhesive weight application method pop-up” is enabled, the adhesive weight application convention will be displayed when the wheel balancer is turned on (👉 **INITIAL SCREEN**).



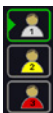
IN ORDER TO OBTAIN A CORRECT LASER REFERENCE POINT,
THE TIP OF THE AUTOMATIC GAUGE MUST ALWAYS REMAIN IN CONTACT WITH THE RIM.

5.8 MULTIPLE USERS

It is possible to operate on three different vehicles at the same time, using the same wheel balancer. The system keeps three programs in memory, each with different dimensions set.

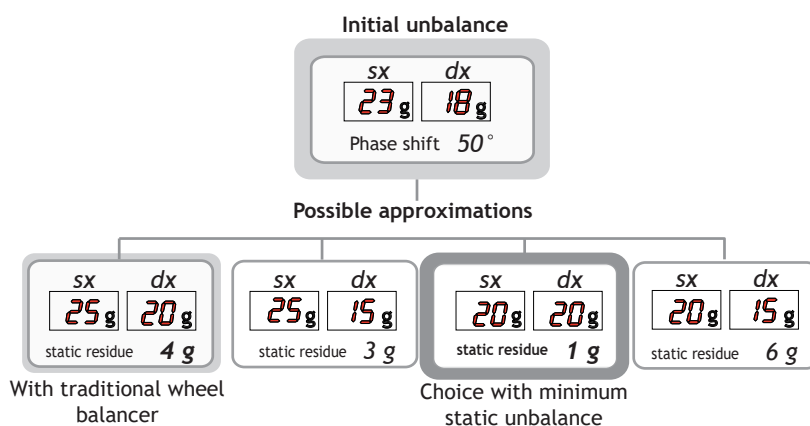
1. Press one of the three buttons to select the user  (1, 2, 3)

2. Lower the guard to balance the wheels

3. Selecting the user , the relative program (1, 2 or 3) is called for subsequent wheel balancing operations

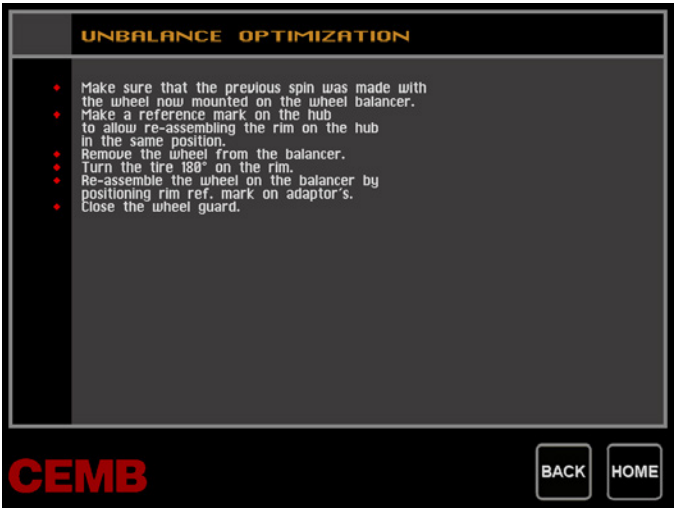
without having to enter the dimensions again.

5.9 AUTOMATIC MINIMIZATION OF STATIC UNBALANCE



This program is designed to improve the quality of balancing without any mental effort or loss of time by the operator. In fact by using the normal commercially available weights, with pitch of 5 in every 5 g, and by applying the two counterweights which a conventional wheel balancer rounds to the nearest value, there could be a residual static unbalance of up to 4 g. The damage of such approximation is emphasized by the fact that static unbalance is cause of most of disturbances on the vehicle. This new function, resident in the machine, automatically indicates the optimum entity of the weights to be applied by approximating them in an “intelligent” way according to their position in order to minimize residual static unbalance.

5.10 UNBALANCE OPTIMIZATION



returns to the measurement screen



returns to the initial screen

The program allows total wheel out-of-balance to be reduced by compensating, when possible, tyre and rim out-of-balance values. It requires two runs, rotating the tyre on the rim on the second run.

Having performed a run, press  +   and follow the on-screen instructions.

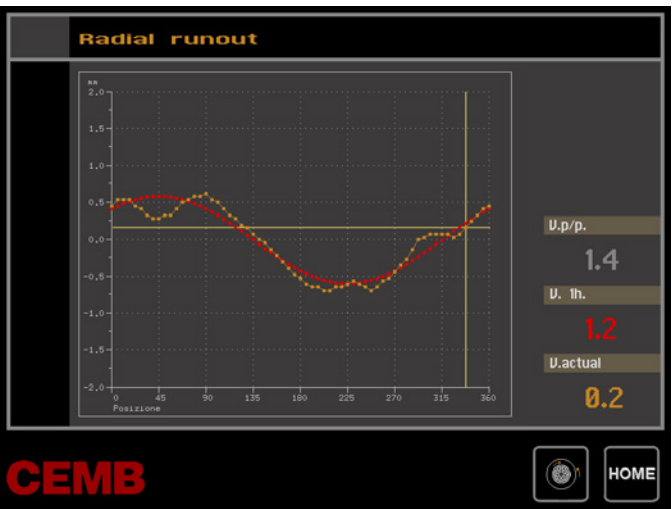
5.11 WHEEL ECCENTRICITY MEASUREMENT AND OPTIMISATION (OPTION)

5.11.1 Wheel eccentricity measurement

If the EMS sonar (Eccentricity Measurement System) is present and correctly positioned in the centre of the tread, it automatically measures the wheel eccentricity ( **ECCENTRICITY AND MATCHING: THEORY**) during the unbalance measurement spin.

When the first harmonic tolerance limit is exceeded ( **RUNOUT SETUP - FIRST HARMONIC LIMIT**), the  button is shown on the display with a red band.

From the unbalance measurement screen, press  to display the eccentricity measurement graph:



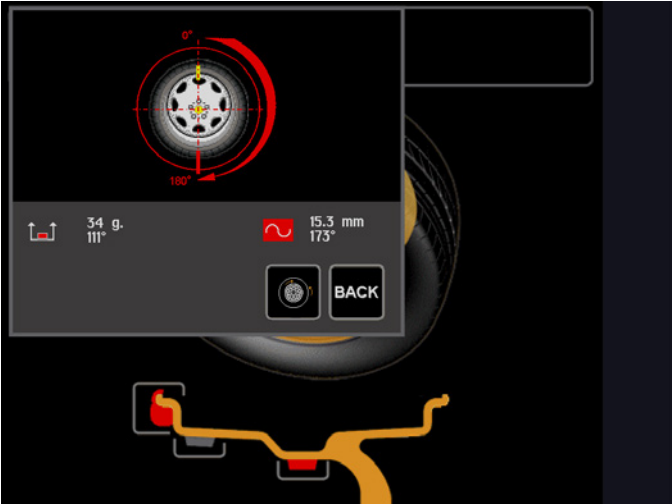
starts an eccentricity optimization ( **WHEEL ECCENTRICITY OPTIMIZATION**)



returns to the measurement screen

GRAPH 1 (yellow): shows the real peak-to-peak eccentricity.
GRAPH 2 (red): shows the first harmonic eccentricity.

When the wheel is moved the cursor on the graph indicates the current value with the phase referred to the measurement sensor.
If the value of the first harmonic is greater than the maximum limit, at the end of the eccentricity measurement, the following window appears:



-  starts an eccentricity optimization (👉 **WHEEL ECCENTRICITY OPTIMIZATION**)
-  **BACK** returns to the initial screen

5.11.2 Wheel eccentricity optimisation

This procedure is used to assess the possibility of rotating the tyre on the rim to reduce the eccentricity of the wheel to a minimum. The eccentricity optimisation procedure is normally recommended for first harmonic values greater than the maximum limit (👉 **RUNOUT SETUP - FIRST HARMONIC LIMIT**). Follow the simple instructions shown on the monitor.

The following is displayed at the end of the procedure:



-  **BACK**  **HOME** return to the initial screen

Mark the rim and tyre in the positions indicated on the monitor and rotate the tyre on the rim until the positions are aligned.

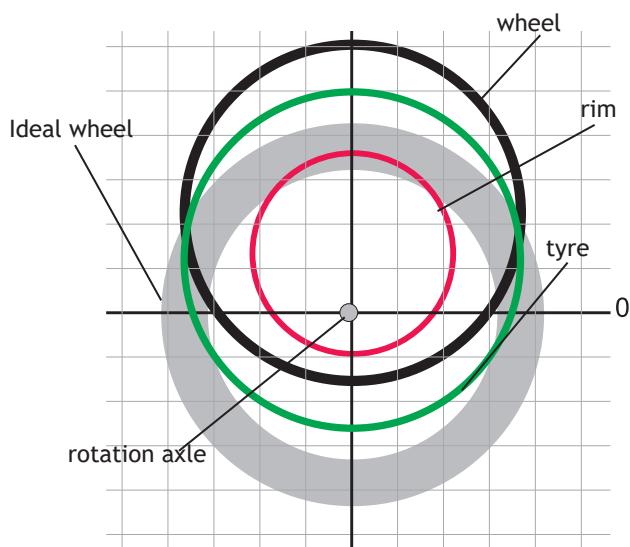
5.12 ECCENTRICITY AND MATCHING: THEORY

The software associated with eccentricity measurement is a powerful tool for determining the need to perform relative rotation between the rim and tyre in order to reduce the eccentricity of the wheel down to acceptable limits. The principle adopted is based on the consideration that a rim with acceptable tolerance, mounted with an acceptable tyre, can statistically generate a total eccentricity which is not acceptable but can be improved by matching.

Generally speaking, rim measurement is not necessary, accurate or useful because:

- To measure the rim it is necessary to remove the tyre. There can be coarse errors on the outside (e.g. aluminium wheels!)
- The two rim sides can be eccentric in a very different way. Therefore to which one to make reference? What is the effect on the tyre mounted?
- To improve the eccentricity of a wheel, **the rim should be eccentric**, to compensate the tyre. And viceversa.
- If after a rotation by 180° of a wheel, the value is still out-of-tolerance, either the tyre or rim are too eccentric: One of the two must be replaced!

Example 1



Rim + 0.8 mm

Tyre + 0.6 mm

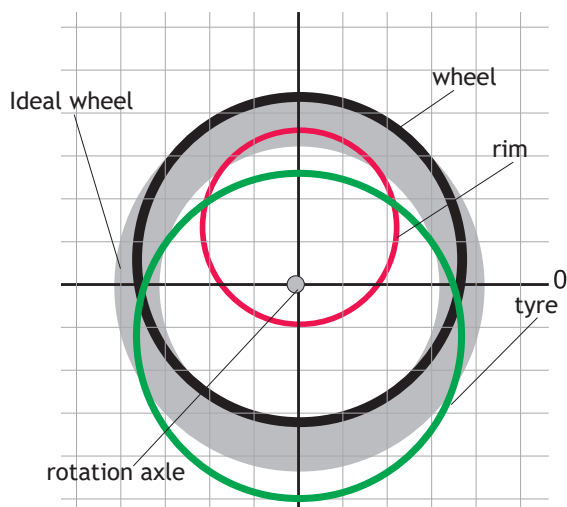
Wheel + 1.3 mm

Eccentricity of the wheel is excessive, due to an acceptable rim or tyre but randomly placed in an "unfortunate" relative position.

SOLUTION: Rotate the tyre on the rim by 180°

RESULT: wheel eccentricity 0.3 - 0.4 mm
(in tolerance)

Example 2



Rim + 0.8 mm

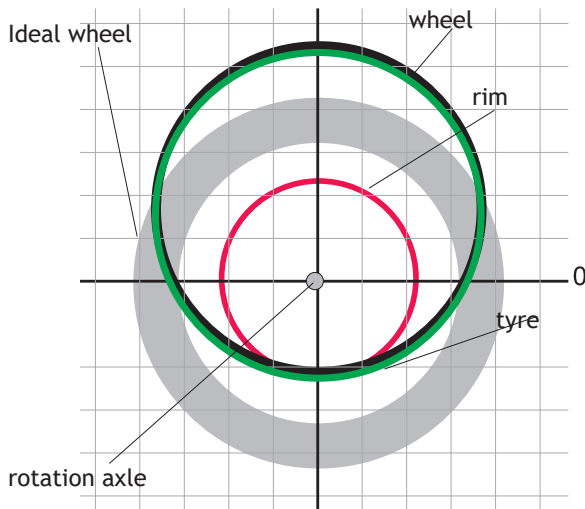
Tyre - 0.6 mm

Wheel + 0.3 mm

Eccentricity of the single items has been compensated.

The wheel is acceptable.

Example 3



Rim 0 mm
Tyre + 1.2 mm

Wheel + 1.2 mm

Eccentricity of the wheel cannot be compensated by the rotation because the rim is perfect!

SOLUTION: rotate the tyre on the rim by 180°

RESULT: no improvement is obtained.

5.12.1 Presetting of tolerance on the machine

There is no general rule concerning acceptability of an eccentricity value. As a first approximation we consider it correct to use a threshold of 1 to 1.5 mm. The E/ECE/324 standard prescribes 1.5 mm as max. eccentricity of a rebuilt tyre.

5.12.2 Value of static unbalance, correlated with eccentricity

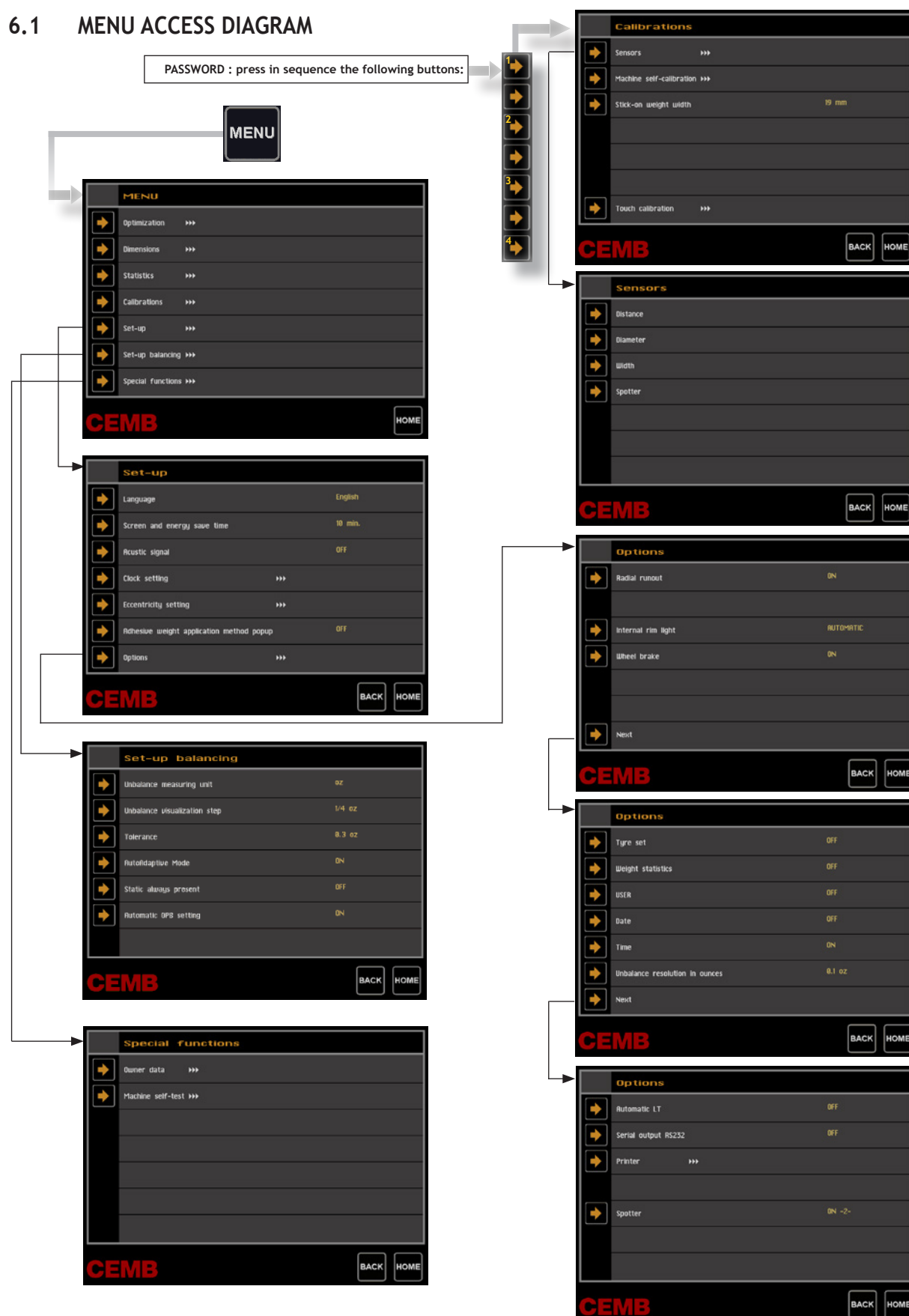
Clear indication is given in the Measurement screen of both the value and position of the static unbalance as well as the eccentricity. In fact, it is interesting to check the correlations of the two values, above all of the two positions. When the two positions have a similar angle ($\pm 30^\circ$ one from the other), there is a **clear sign that an eccentricity is present which can be compensated by matching**.

5.12.3 Value of unbalance corresponding to eccentricity

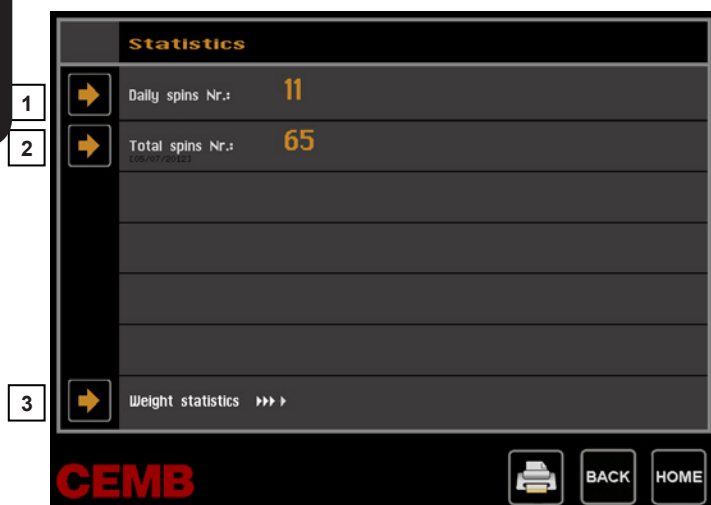
For user's reference, the centrifugal force is calculated corresponding to a certain speed, compared to the force generated by the eccentricity present on the tyre (calculated with an approximate average elastic constant).

6. Menu

6.1 MENU ACCESS DIAGRAM



6.2 STATISTICS



resets the relative counter

For the TOTAL counters a correct password must be entered.



accesses to the weight statistics screen



prints (option)



returns to the previous screen



returns to the measurement screen

DAILY N° OF RUNS:

Indicates the number of runs performed as from switching on the machine. Such parameter is automatically reset after switching the machine off.

TOTAL N° OF RUNS:

Indicates the number of runs starting from the date indicated in square brackets. This parameter remains memorized even when the machine is switched off.

6.2.1 Weight statistics screen



prints (option)



resets the weight statistics screen by pressing and entering the password



returns to the previous screen



returns to the measurement screen

Each horizontal line indicates the number of clip-on and adhesive weights used to balance the wheels in the period between the two dates indicated on the screen (in square brackets).

- **Tot g (Tot oz):** indicates the total weight value (clip-on and adhesive weights) used to balance the wheels in the interval indicated on the screen
- **Tot n:** indicates the total number of clip-on and adhesive weights used to balance the wheels in the interval indicated on the screen.



TO ENABLE SAVING OF THE WEIGHT STATISTICS ( **WEIGHT STATISTICS SCREEN**).

THE WEIGHTS ARE SAVED ONLY IF THE UNBALANCE DISPLAY PITCH IS SET TO 5 IN 5.

6.3 CALIBRATIONS

When  is pressed from the Special Functions menu, access is gained to the Calibration menu.

6.3.1 Sensors calibration

6.3.1.1 Distance gauge calibration

To calibrate the distance gauge, set it in rest position and then on the adapter plane.

When done, set the gauge in rest position. If calibration is correct, the wheel balancer is ready for operation, otherwise an error message may be displayed if there are errors or malfunctioning; in this case repeat calibration.

Enabled buttons:



confirms

cancels the distance gauge calibration function if has erroneously been accessed



AFTER CALIBRATING THE DISTANCE GAUGE, THE DIAMETER GAUGE OR BOTH, ALWAYS CALIBRATE THE SPOTTER.

6.3.1.2 Diameter gauge calibration

Position the gauge rod of the spindle sleeve as indicated in the figure and press .

Rotate the gauge downwards and place the gauge rod in contact with the spindle sleeve as indicated in the figure and press .

Enabled buttons:



confirms

cancels the diameter gauge calibration function if has erroneously been accessed

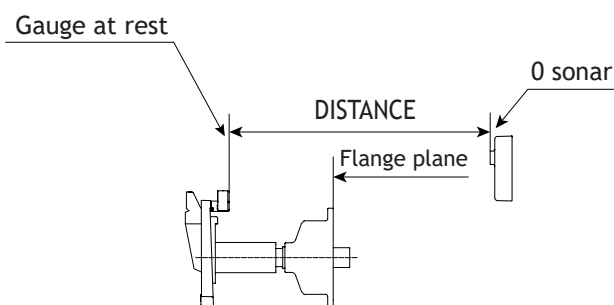


AFTER CALIBRATING THE DISTANCE GAUGE, THE DIAMETER GAUGE OR BOTH, ALWAYS CALIBRATE THE SPOTTER.

6.3.1.3 Width gauge calibration

When calibrating the width gauge, set a measurable dimension as follows:

Distance: Gauge at rest → "0" sonar



CHECK THE CALIBRATION BY MAKING A MEASUREMENT ON A WHEEL WITH A STEEL RIM OF KNOWN WIDTH.
SHOULD THE MEASUREMENT BE INCORRECT, CORRECT THE CALIBRATION VALUE PROPORTIONAL TO THE ERROR.

Enabled buttons:



sets the distance in mm between the SONAR sensor and the tip of the distance gauge in rest position



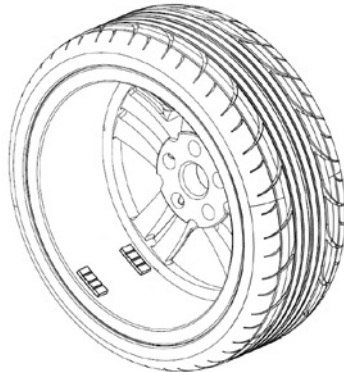
confirms



cancels the width gauge calibration function if has erroneously been accessed

6.3.1.4 Spotter device calibration

To calibrate the spotter device, it is advisable to use a commercial wheel with an aluminium rim smooth on the inside so that you can apply two adhesive weights as far away from each other as possible: minimum 40 mm (1.5").



The two adhesive weights must be securely applied in order to execute two measurements using the automatic distance and diameter gauge and two spotter device positions using the on-screen buttons.

If you accidentally lose a weight during calibration, the procedure needs to be repeated from scratch.

During calibration, use the automatic distance and diameter gauge with the necessary accuracy.

It is possible to adjust the laser spotter brightness. Before modifying this parameter, always check the laser regulations in force in the country where the machine is installed. The value is expressed in percentage. Recommended

value: 30%. Follow the on-screen instructions and confirm each calibration step by pressing the button



Enabled buttons:



sets the recommended brightness value



changes the increase/decrease value for the spotter device position in steps of 1 / 10 / 100



increases /decreases the spotter device position



confirms



cancels calibration

6.3.2 Balancing machine calibration

To calibrate the balancing machine, use a wheel with steel rim of average dimensions, e.g. 6" x 15" (± 1 ").

To properly perform the procedure:

- Mount a wheel on the machine, even unbalanced, and very carefully set its dimensions.



SETTING INCORRECT MEASUREMENTS WILL RESULT IN THE MACHINE NOT BEING CORRECTLY CALIBRATED, AND BALANCING OF SUBSEQUENT WHEELS WILL HENCE BE INCORRECT UNTIL THE MACHINE IS RECALIBRATED WITH THE CORRECT MEASUREMENTS!!

- Follow the on-screen instructions.

6.3.3 Adhesive weight width

Indicates the average width of the adhesive weights on the market.

Change ONLY if the width of the adhesive weights used for unbalance correction differ ± 3 mm with respect to that shown on the screen (default=19mm).

6.3.4 Touch screen calibration

Sequentially tap the three points indicated on the touch screen. Calibrate ONLY if the on-screen buttons malfunction.

7. Setup

The Setup screen provides the user with many possibilities required for presetting the machine according to his own requirements. Such settings remain unaltered even when the machine is switched off.

Enabled buttons:



returns to measurement screen



returns to previous screen



selects the parameter.

7.1 LANGUAGE

This function allows selecting the language to be used for displaying descriptive and diagnostic messages regarding machine operation.

7.2 SCREEN-SAVER TIME

If this function is enabled, the screensaver will automatically be activated when the machine is not used for a certain period of time. This function can be disabled by setting it to 0.

7.3 ACOUSTIC SIGNAL

When “ON” is selected, the sending of an acoustic signal (beep) is enabled in the following cases:

- when any push button is pressed;
- when dimensions are acquired in automatic mode;
- when the correct angular position for weight application is reached in the Measurement screen.

7.4 SETTING THE CLOCK

Used to set date and time correctly. Follow the instructions on the screen.

7.5 RUNOUT SETUP (OPTION)

Enables display of a menu where the following parameters can be set:

<u>Runout unit of measure</u>	It is possible to select display of runout measurements in mm or inches.
<u>First harmonic limit</u>	The first harmonic limit beyond which it is felt suitable to rotate the tyre on the 180° rim. Recommended Limit = 1.1 mm.
<u>Matching</u>	At the end of the spin, enables/disables display of the window that recommends optimising the runout for values greater than the first harmonic limit set.

7.6 HUBMATCH™

After performing a check spin, the HubMatch™ box will give indication on where to mark the tire in correspondence of the first harmonic (RFV)

Results will be shown in 3 different colors:

0-6 RFV Green (): HubMatch™ suggested

6-11 RFV Yellow (): HubMatch™ suggested and Match Mounting recommended

>11 RFV Red (): HubMatch™ and Match Mounting possible but RFV will result out of tolerance.

(To modify tolerance  **FIRST HARMONIC LIMIT**)

The  symbol indicates that first harmonic is in position at 12 o'clock.

7.7 ADHESIVE WEIGHT APPLICATION METHOD POP-UP

Enables/disables display of a pop-up window indicating the adhesive weight application convention with the aid of the spotter each time the wheel balancer is turned on ( **INITIAL SCREEN**).

7.8 OPTIONS

7.8.1 Radial runout (option)

Enables/disables radial runout measurement.

7.8.2 Rim interior light

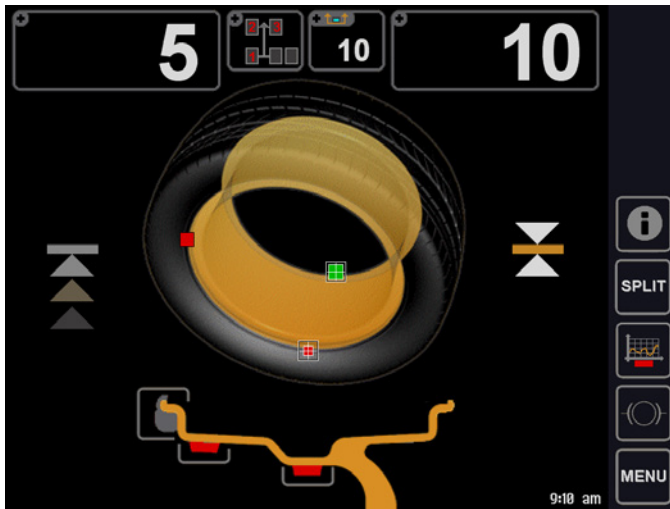
AUTOMATIC: enables/disables the rim interior light to automatically switch on.

MANUAL: enables/disables display of the  button on the measurement screen that allows turning the rim interior light on/off.

7.8.3 Wheel locking enable

Enables/disables wheel locking in the correction position.

7.8.4 Tyre train (option)



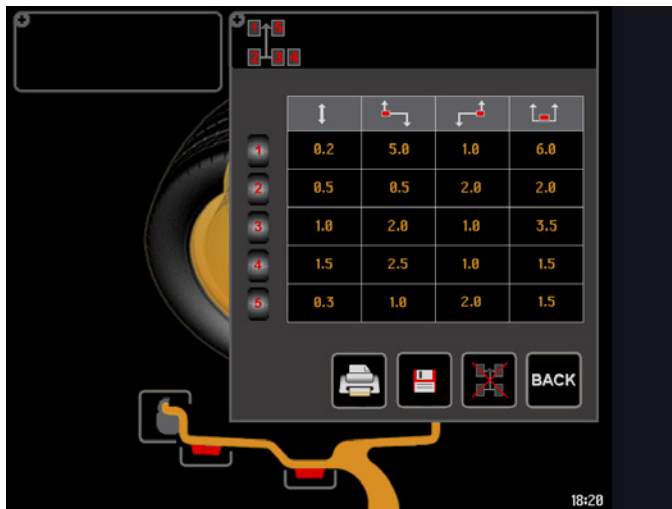
This function allows balancing the four wheels of a vehicle, plus the spare wheel if necessary, and obtaining the information on how to fit these wheels on the vehicle in such a way that the vibrations due to residual eccentricity of each wheel is reduced to a minimum. The 'TYRE TRAIN' function can be enabled and disabled from the MENU ( **MENU ACCESS DIAGRAM**). For best use of this function proceed as follows:

1. Gather together adhesive symbols to identify the wheels
2. Press  and  to start the procedure
3. Fit the first wheel and place the radial eccentricity measurement sonar in the correct position
4. Balance the wheel, identify it using the number 1 and press  .
5. Repeat points 3 and 4 for the other three wheels and identify the wheels using the numbers 2, 3 and 4.
6. Each time data is saved, the balancing machine highlights the best fitting solution for the wheels balanced up to that moment.
7. The middle part of the screen shows a stylised vehicle with four tyres; at each spin the number of the wheel to be fitted in each position (rear/front axle left/right) is indicated on each of the tyres.

The procedure can be rest at any time by pressing  and .

To obtain an overview of the wheel balancing values, press the  symbol.

A window appears:



prints (option)



saves the wheel data



resets the tyre set



returns to the measurement screen.

7.8.5 Weight statistics

Enables/disables saving of the weight type used to balance the wheels (**WEIGHT STATISTICS SCREEN**) .

7.8.6 User

Enables/disables user selection display.

7.8.7 Date

Enables/disables date display.

7.8.8 Time

Enables/disables time display.

7.8.9 Unbalance resolution in ounces

Sets the unbalance resolution in ounces to a tenth or a hundredth of an ounce.

The setting is valid only if the unbalance is displayed when pressing in correspondence to the indicators, otherwise what has been set as 'Unbalance display pitch' remains valid (**MENU** -> **BALANCING SETUP**).

7.8.10 LT automatic (option)

If set to ON, the wheel bulges are automatically calculated; the calculated value can however be modified by pressing

the button (**WHEEL DIMENSIONS SETTING**).

7.8.11 Enabling of serial output RS232C (option)

This option enables/disables the sending of the measured unbalance and phase values to serial output RS232C.

Transmission speed 9600 baud
Data format 1 bit Start
 8 bit Data
 None parity
 1 bit Stop

At the end of each unbalancing measuring spin, the balancing machine transmits the data regarding the measured unbalance. The items of data transmitted via serial line are in ASCII format and are separated between each other by the <cr> character (0x0d).

Sending sequence is as follows:

- 00000 <cr>
- Value of correction weight, left side <cr>
- Correction phase, left side <cr>
- Value of correction weight, right side <cr>
- Correction phase, right side <cr>

The first 5 zero bytes represents the start of transmission message. The correction values are expressed in grams, in steps of .1 gram.

The phase values are expressed in degrees, in the range 0 ÷ 359.

7.8.12 Printer enabling (option)

Enable/disable printer and relative print options.



IF THE OPTIONS RS232 SERIAL PORT AND PRINTER ARE ENABLED AT THE SAME TIME, BOTH WILL MALFUNCTION.

7.8.13 Spotter

Enables/disables control of the spotter used in acquisition of the dimensions ( **WHEEL DIMENSIONS SETTING**) and in application of the adhesive weights for unbalance correction ( **RESULT OF THE MEASUREMENT AND WEIGHT APPLICATION**).

The adhesive weights must always be applied starting from the laser indication towards the inside of the rim.



IF THE SPOTTER IS DISABLED, THE ADHESIVE WEIGHTS MUST BE APPLIED STARTING FROM THE DISTANCE ACQUIRED TOWARDS THE LEFT.

7.9 BALANCING SETUP

7.9.1 Unit of unbalance measurement

It is possible to select whether to display the unbalance values expressed in grams or ounces.

7.9.2 Unbalance display pitch

You can view the unbalances in steps of 5 grams or 1 gram.



FOR FULL USE OF THE WHEEL BALANCER FUNCTIONS, IT IS ADVISABLE TO ALWAYS SET A DISPLAY STEP OF 5 GRAMS (1/4 OZ.).

7.9.3 Tolerance

This is the unbalance threshold below which OK appears on the screen at the end of the spin instead of the numerical value.

7.10 AUTOADAPTIVE CORRECTION MODE

Enables/disables the AutoAdaptive correction method.

The innovative tolerance calculation system AutoAdaptive Mode is based on the evaluation of the residual imbalance limit value corresponding to an acceptable perceived vibration. For each wheel that is balanced, the software AutoAdaptive Mode detects weight and dimensions and calculates the tolerance value that will cancel any vibration perceived on the steering wheel. AutoAdaptive Mode grants the highest comfort when driving, and together with OPB program, saves balancing time.

7.11 STATIC ALWAYS ENABLED

Enables/disables the simultaneous display of the selected correction plane and STATIC unbalance.

7.12 OPB AUTOMATIC SELECTION

Enables/disables the automatic display of the OPB correction mode at the end of the balancing spin.

If the OPB correction mode is available, by pressing the  /  buttons, it is always possible switch between OPB and external plane correction method.

7.13 SPECIAL FUNCTIONS

7.13.1 Presetting the customer and user name

The machine can be customised by setting the name that appears on the screensaver.

7.13.2 Wheel balancing machine SELF TEST

An automatic self-diagnostic cycle is provided for easier trouble-shooting.

(Consult the extraordinary maintenance manual or contact Technical Service).

8. Diagnostics

8.1 INCONSISTENT UNBALANCE READINGS

In some cases, when a wheel that has just been balanced is repositioned on the balancer, the machine can detect an unbalance.

This is not a machine problem but is due to faulty mounting of the wheel on the flange. In other words, when mounting the wheel after initial balancing, it has taken another position with respect to the balancer shaft axis.

If the wheel has been mounted on the flange with screws, the screws may not have been tightened correctly (criss-cross sequence) or the tolerances of the holes drilled in the wheel may be too large. Small errors, up to 10 grams (0.4 oz), are to be considered normal in wheels locked with the relative cone: The error is normally greater for wheels locked with screws or studs.

If, after balancing, the wheel is still unbalanced when refitted on the vehicle, this could be due to an unbalanced brake drum or, very often, the tolerances of the holes drilled in the rim and drum are too large. In this case, balancing should be performed using a balancer with the wheel mounted on the vehicle.



THE INFORMATION IN THE POSSIBLE REMEDY COLUMN REQUIRES WORK TO BE PERFORMED BY SPECIALIST TECHNICIANS OR OTHER AUTHORISED PEOPLE WHO MUST ALWAYS WORK USING THE PERSONAL PROTECTIVE EQUIPMENT INDICATED IN THE INSTALLATION MANUAL. IN SOME CASES, THIS WORK CAN BE PERFORMED BY A NORMAL OPERATOR.

ERROR	PROBLEM	POSSIBLE SOLUTIONS
Black	The wheel balancer does not switch on	- Verify correct connection to the mains - Verify and eventually replace the fuses on the power card - Verify monitor function - Replace the computer board
Err. 1	No rotation signal	- Check in self-diagnostics that the encoder functions properly - Replace the phase pick-up board - Replace the computer board
Err. 2	Speed too low during detection During the unbalance measurement revolutions, the wheel speed has fallen to below 42 rpm	- Make sure that a vehicle wheel is mounted on the wheel balancer - Use the self-diagnostics function to check the encoder - Disconnect the piezo connectors from the board and do a spin (if no error is detected, replace the piezo sensors) - Replace the CPU board
Err. 3	Unbalance too high	- Verify wheel dimension settings - Check detection unit connections - Perform machine calibration - Mount a wheel with more or less known unbalance (less than 100 grammes) and verify the response of the machine - Replace the computer board
Err. 4	Rotation in opposite direction After pressing [START], the wheel starts turning in the opposite direction (anticlockwise)	- Check in self-diagnostics that the encoder functions properly - Check the bearing/spring of the phase generator
Err. 5	Guard open	- Reset the error - Close the guard - Verify the function of the protection Switch

Err. 7/ Err. 8/ Err. 10	NOVRAM parameter read error	▪ Repeat machine calibration ▪ Shut down the machine ▪ Wait for a minimum time of ~ 1 min ▪ Re-start the machine and verify correct operation ▪ Replace the computer board
Err. 9	NOVRAM parameter write error	▪ Replace the computer board
Err. 11	Speed too high error During unbalance measurement rotation, wheel speed is more than 270 rpm	▪ Check if there is any damage or dirt on the timing disc ▪ Check in self-diagnostics that the encoder functions properly ▪ Replace the computer board
Err.14 / Err.15 / Err.16 / Err.17 / Err.18 / Err.19	Unbalance measurement error	▪ Check in self-diagnostics that the encoder functions properly ▪ Check detection unit connections ▪ Verify machine earth/ground connection ▪ Mount a wheel with more or less known unbalance (less than 100 grammes) and verify the response of the machine ▪ Replace the computer board
Err. 22	Maximum number of spins possible for the unbalance measurement has been exceeded	▪ Check that a vehicle wheel has been mounted on the wheel balancer ▪ Check in self-diagnostics that the encoder functions properly ▪ Replace the computer board
Err. 30	Clock error	▪ Replace the computer board
Err.40/ Err.41/ Err.42/ Err.43	Eccentricity graph plotting procedure error	▪ Perform a new eccentricity measurement
Err.45/ Err.46/ Err.47/ Err.48	Eccentricity graph value display readout error	▪ Perform a new eccentricity measurement
Err.50/ Err.51/ Err.52/ Err.53	Eccentricity graph current value cursor plotting procedure error	▪ Perform a new eccentricity measurement
Err.54	Sonar readout error Sonar value readout impossible	▪ Position the eccentricity measurement sonar correctly before performing the measurement ▪ Check eccentricity sonar connections ▪ Check the power supplies on the power board ▪ Replace the eccentricity measurement sonar ▪ Make sure that the wheel does not halt before completing at least 4/5 revolutions after the first braking impulse ▪ Replace the computer board
Err.55	Sonar readout error Sonar values are insufficient for correct measurement of eccentricity	▪ Position the eccentricity measurement sonar correctly before performing the measurement ▪ Make sure that the wheel does not halt before completing at least 4/5 revolutions after the first braking impulse ▪ Mount a wheel of medium dimensions (14"x5 3/4") and perform an eccentricity measurement . If in these conditions error 55 no longer occurs, this means that the wheel inertia causing the problem is such as to half the wheel before having acquired the minimum number of values necessary for reliable eccentricity measurement
Err. 65	Printer timeout	▪ Check that a printer is present ▪ Check the code of the processor card ▪ Check the printer <-> processor card connection ▪ Run the printer test function
Err. 66	Printer buffer error	▪ Reset the printer ▪ Repeat the print function
Err. 80	Spotter operating error	▪ Check spotter connection ▪ Replace the spotter

Err. 81	Spotter control microswitch operating error	▪ Check the mechanical opening/closing control of the microswitch inside the spotter ▪ Turn the machine off and on again and check that the spotter correctly positions on zero ▪ Replace the spotter
Err. 82/ Err. 83	Spotter motor operating error	▪ Check spotter connection ▪ Check the mechanical opening/closing control of the microswitch inside the spotter ▪ Check that there are no mechanical obstacles to the Spotter device movement ▪ Replace the spotter
Err. 96	Spotter device calibration error	▪ Repeat the Spotter device calibration by following the instructions
Err. 97	Error in number of steps calculated for spotter movement	▪ Repeat automatic measurement of the distance and diameter ▪ Calibrate the spotter ▪ Calibrate the distance gauge ▪ Calibrate the diameter gauge ▪ Check mechanical fitting of the spotter
Err. 98	Dimensions error	▪ Repeat the automatic measurement of the dimensions ▪ Calibrate the diameter gauge
Err. 99	Spotter home function timeout error	▪ Repeat automatic measurement of the distance and diameter moving the gauge slowly ▪ Check spotter connection ▪ Replace the spotter
Err.100÷108	Spotter using error	▪ Repeat automatic measurement of the distance and diameter moving the gauge slowly
Unbalance incorrect with back centring cones	Mount the wheel in vertical position and push the sleeve up against the wheel. If necessary, repeat locking/unlocking/locking and perform the procedure again	▪ Mount the wheel in vertical position and push the sleeve up against the wheel. If necessary, repeat locking/unlocking/locking and perform the procedure again.

9. Maintenance

9.1 GENERAL



BEFORE PERFORMING ANY MAINTENANCE OPERATIONS, MAKE SURE THE MACHINE HAS BEEN DISCONNECTED FROM THE MAINS POWER SUPPLY. ALWAYS USE THE PERSONAL PROTECTIVE EQUIPMENT INDICATED IN THE INSTALLATION MANUAL.

9.1.1 Introductory notes

This machine has been designed so as not to require routine maintenance, apart from accurate periodic cleaning. It is important to keep the machine perfectly clean in order to prevent dust or impurities from compromising the operation of the balancer.



THE PEOPLE RESPONSIBLE FOR CLEANING THE AREA WHERE THE MACHINE IS INSTALLED MUST WEAR PERSONAL PROTECTIVE EQUIPMENT IN ORDER TO WORK IN SAFETY AND ACCORDING TO THE CURRENT OCCUPATIONAL HEALTH AND SAFETY REGULATIONS. IN ANY EVENT, THE MAINTENANCE MUST BE CARRIED OUT EXCLUSIVELY BY A SPECIALISED TECHNICIAN TRAINED TO OPERATE ACCORDING TO CEI EN 50110-1 (NFPA70E-2004 SECTION 400.11).

As extraordinary maintenance must be performed by service staff or, in any case, by specifically authorised and trained people, is not dealt with in this manual.

9.1.2 Safety rules

Performing specialist activities on the equipment, particularly if the guards need to be dismantled, exposes people to serious danger due to the presence of potentially live parts.

The rules shown below must be scrupulously followed.

People must always use the Personal Protective Equipment indicated in the Installation Manual. During activities, unauthorised people may not access the equipment and WORK IN PROGRESS signs will be erected in the department in such a way that they are visible from every place of access.

Specialist staff must be authorised and especially trained concerning the dangers that may arise during operation and the correct methods for avoiding them.

They must always work with great care and pay full attention.

If, exceptionally, the staff removes the guards to carry out a particular specialist technical maintenance, inspection or repair job, they are required to put them back after work.

After work, staff must make sure that foreign objects, in particular mechanical pieces, tools or devices used during the operative procedure that could cause damage or malfunctions are not left inside the balancer.

For safety, before starting work, maintenance, inspection and repair staff must disconnect all power sources and take all the necessary preventive safety measures.

As well as operating frequencies, the operations described below indicate the qualifications that staff must possess in order to perform the operation.

9.1.3 Replacing fuses

Some protection fuses are located on the power board (see wiring diagrams) accessible by dismantling the weight shelf). If fuses require replacement, use ones with an identical current intensity.

9.1.4 Cleaning the screen

Use a soft cloth and NON-ABRASIVE commercial glass/plastic cleaning spray or ethanol or natural detergents.

DO NOT USE:

- Organic solvents type nitro thinner
- Turpentine
- Petrol
- Trichloroethylene
- Acetone

10. Disposal



THE INSTRUCTIONS IN THIS CHAPTER ARE INDICATIVE. REFER TO THE REGULATIONS IN FORCE IN THE COUNTRY WHERE THE EQUIPMENT IS USED.

10.1 DISPOSING OF THE BALANCER

The balancer must be disposed of after dismantling the various parts.

For disposal operations, as well as wearing the Personal Protective Equipment indicated in the INSTALLATION MANUAL, refer to the instructions and diagrams in this manual. If necessary, request specific information from the manufacturer.

Once you have removed the various parts and components, separate them into the different types of materials according to the differentiated waste disposal regulations in force in the country where the machine is dismantled.

If the various components must be stored before being taken to the dump, make sure to keep them in a safe place protected from atmospheric agents in order to prevent them from contaminating the ground and the water table.

10.2 DISPOSING OF ELECTRONICS COMPONENTS



Community directive 2002/96/EC, assimilated in Italy with legislative decree n° 151 of 25th July 2005, requires electrical and electronic equipment manufacturers and users to comply with a number of obligations concerning the collection, treatment, recovery and disposal of this waste.

Please scrupulously comply with these waste disposal regulations.

Remember that abusive dumping of this waste leads to the application of the administrative penalties established by current law.

11. Spare parts

11.1 IDENTIFICATION AND ORDERING METHOD

The various parts can be identified using the exploded drawings, the electrical drawings and diagrams in the machine technical file which is archived by the Manufacturer to which a request can be made.

For off-the-shelf parts, the technical manuals or the supplier's original documents can be provided if the Manufacturer deems this to be useful.

If not supplied, this documentation is also included in the machine Technical File, archived by the Manufacturer, as regards by Ministerial Decree 2006/42/CE.

In this case, contact the Technical Service to identify the required piece.

If the required pieces are not in any position or they cannot be identified, contact the Technical Service, specifying the type of machine, its serial number and year of construction.

This information is indicated on the machine identification plate.

12. Attached documentation

If not supplied, this documentation is included in the Technical File of the machine, archived by the Manufacturer.

In this case, contact the Technical Service for detailed information concerning the machine.