LIBRAK 236H - LIBRAK238H/HM/HFM
LIBRAK 248H – LIBRAK 248HP
LIBRAK 250H – LIBRAK 250HP

MANUALE DI ISTRUZIONE
INSTRUCTION MANUAL
BETRIEBSANLEITUNG
MANUEL D'INSTRUCTIONS
MANUAL DE INSTRUCCIONES

COMPOSIZIONE
71 pagine (copertine comprese)
69 pagine numerate

COMPOSITION
71 pages (including cover pages)
69 numbered pages

ZUSAMMENSETZUNG
71 Seiten (inkl. Deckblätter)
69 numerierte Seiten

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71 pages (pages de la couverture incluses)
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SIMBOLOGIA UTILIZZATA NEL MANUALE
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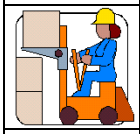
	SIMBOLI	SYMBOLS	ZEICHEN	SYMBOLES	SÍMBOLOS
	**VIETATO!**	**FORBIDDEN!**	**VERBOTEN**	**INTERDIT!**	**PROHIBIDO!**
	**Obbligo!** Operazioni o interventi da eseguire obbligatoriamente	**Mandatory!** Operations or jobs to be performed compulsorily	**Vorschirift Obligatorisch** auszuführende Arbeitsvorgänge oder Eingriffe	**Obligation.** Opérations ou interventions obligatoires	**Obigación.** Operaciones o intervenciones que hay que realizar obligatoriamente
	**Pericolo!** Prestare particolare attenzione	**Hazard!** Be especially careful	**Gefahr!** Äusserste Vorsicht ist geboten	**Dager!** Faire trés attention	**Peligro!** Prestar especial atención
	Movimentazione con carrello elevatore o transpallet	Handle using fork-lift or pallet transfer unit	Transport mit Dabelstapler oder Handgabelhub-wagen	Déplacement avec chariot élévateur ou traspalette	Desplazamiento con carretilla elevadora o estibadora
	Attenzione: carichi sospesi	Caution: hanging loads	Achtung: hängende Lasten	Attention: charge suspendue	Ateción: cargas suspendidas
	Attenzione: Non sollevare mai la macchina facendo presa sull'albero	Caution: Never lift the machine by means of the shaft	Achtung: Die Maschine nie an der Wuchtwelle anheben.	Attention: ne soulever pas l'équilibreuse en ayant prise sur l'arbre	Atención: no levantar jamás la máquina tomándola por su eje
	Pericolo: scariche elettriche	Shock hazard	Gefahr! elektrische Entladungen	Danger d'électrocution	Peligro de descargas eléctricas
	Indossare guanti da lavoro	Wear work gloves	Der Arbeit angemessene Handschuhe tragen	Porter des gants de travail	Colocarse guantes de trabajo
	Calzare scarpe da lavoro	Wear work shoes	Der Arbeit angemessene Schuhe tragen	Mettre des chaussures de travail	Usar zapatos de trabajo
	Indossare occhiali di sicurezza	Wear safety goggles	Schutzbrille tragen	Porter des lunet-tes de sécurité	Usar gafas de seguridad

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0 CAUTION

Any damage caused by failure to follow the instructions in this manual or improper machine use shall relieve BUTLER S.p.A. of all liability.

0.1 Preliminary safety information

Before starting the machine:

- Read the instructions and the entire manual before using or working on the wheel balancer. This manual represents an integral part of the product and is intended to inform the user on how to use the wheel balancer. Look after the manual for the entire life of the machine. Keep it in an easy to access place and refer to it every time the need arises. All machine operators must be able to read the manual.
- Make sure the power supply is in conformity with the specifications shown on the plate.
- Make sure the machine is properly positioned on the floor.
- Suitably position the machine power cables.

On starting the machine:

- In the case of models LIBRAK 248HP and LIBRAK 250HP, on starting, the pneumatic chucking table is always open. Always keep your hands and other parts of the body away from the moving chucking table. Also be careful, if a wheel is already fitted on the shaft as this could be forced off the shaft during chucking table opening.
- Remove any foreign bodies from the tyre before spinning the wheel.
- Always use the protection guard and do not touch the wheel when reading measurements.
- Make sure the counterweights are fitted properly before spinning the wheel again.

In emergency conditions and before performing any maintenance:

- Isolate the machine from any power sources by means of the machine master switch.

Work environment and machine cleaning:

- The work environment must be kept clean and dry and must not be exposed to atmospheric agents. It must also be well lit.
- Do not clean the machine using strong jets of water and compressed air.
- To clean plastic panels or tops, use alcohol (always avoid liquids containing solvents).

BUTLER S.p.A. shall be entitled to make any changes to the models described in this manual at any time for reasons of a technical and commercial nature.

1 INTENDED USE

BUTLER wheel balancers are automatic microprocessor-controlled professional machines. They are easy to use.
After automatically entering the rim data (diameter and distance) and manually entering the width, and after closing the guard to spin the wheel, wheel start and stop procedure becomes automatic until the required weight and position are determined.
Numerous reasons exist for wheel unbalance, but this is usually caused by a non-symmetric distribution of the rim fabrication materials, above all of the tyre with respect to the rotation axis and equatorial plane of the wheel, to imperfect mutual rim-tyre positioning and to incorrect wheel centring on the hub.

The purpose of this equipment is to cancel out, or at least reduce to within acceptable limits, the vibrations of the wheel that cause driving problems and damage mechanical parts. The equipment is suitable for all types of vehicle wheels and light commercial vehicles.

This aim can be achieved by fitting counterweights of suitable size and in specific positions to wheels that are not correctly balanced.

A wheel can be considered completely balanced only once it is dynamically balanced, as this also ensures static balancing.

The specifications are indicated in the "TECHNICAL DETAILS" paragraph (para. 3.6 on page 9).
As well as standard procedures, 4 options exist for light alloy wheels and the ALU/Special function, which enables the two counterweights to be fitted in the most appropriate positions.

Counterweight positioning is also reduced to a simple procedure. If, when balancing spokes alloy wheels, the external weight becomes visible, a special procedure exists (weights hidden behind spokes mode), which splits the weight in two and positions these behind two spokes. Autotest, auto-calibration and guided calibration of the measuring heads make it possible to always work with perfectly functional machines.

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2 OPERATOR TRAINING

The machine must only be used by specifically trained and authorised personnel. To ensure proper machine use and that measurements can be efficiently taken, operators must be correctly trained and acquire the skills consistent with the instructions provided by the manufacturer. In case of any doubts relating to machine use and maintenance, refer to the instruction manual and then, if such doubts persist, contact an authorised after-sales centre or BUTLER S.p.A. technical assistance directly.

2.1 General preventive measures

- During operation and maintenance of this machine, always abide by the safety and accident-prevention regulations in force.

- The machine must only be used by adequately trained and authorised persons.

- UNDER NO CIRCUMSTANCES must the machine be used to spin anything but vehicle wheels. Bad locking can cause rotating parts to come loose, with potential damage to the machine and anything in the vicinity and injury to the operator.

- This machine must only be used for the purpose for which it was expressly intended. BUTLER S.p.A. declines all liability for injury or damage to persons animals and things caused by improper machine use.

- Accessories and spare parts must be fitted by persons authorised by BUTLER S.p.A. and only original spare parts and accessories must be used.

- The machine must only be operated in places where there is no danger of explosions or fire.

- Operators should wear suitable protective clothing like gloves, safety

- In the case of models LIBRAK 248HP and LIBRAK 250HP, during chucking table opening/closing operations, be careful to keep your hands and other parts of the body away from the moving chucking table.

- Removal or changes made to safety devices, or warning signals on the machine can cause serious hazards and represents a violation of European safety regulations.

- Before doing any maintenance jobs on the system, always disconnect the power supply.
  In case of doubt, do not interpret, but contact BUTLER S.p.A. technical assistance in order to obtain instructions suitable for performing operations in total safety.

- Wheel balancer operators must not wear loose clothing, hanging ties, chains or other accessories that could become trapped. Long hair should be properly collected up and tied or protected.

- Do not allow unauthorised personnel to come near the wheel balancer during the cycle.

- Close the protection guard when performing a measuring cycle. Such cycle will not in fact start unless the guard is closed.

2.2 Indication of outstanding risks

The machine was designed and manufactured in compliance with applicable regulations. The risks connected to the use of the machine have been eliminated as far as possible. Other outstanding risks are described in this manual; the machine also features self-adhesive pictograms (chap. 3 on page 6) indicating hazard areas. In the event pictograms become illegible, please order them from a dealer or directly from BUTLER S.p.A., and replace them. Please refer to Spare Parts manuals.

3 EQUIPMENT COMPOSITION

3.1 Models LIBRAK 248H – LIBRAK 248HP

	CAUTION: Never lift the machine by means of the shaft
	SHOCK HAZARD
	WEAR WORK GLOVES
	WEAR WORK SHOES
	WEAR SAFETY GOGGLES

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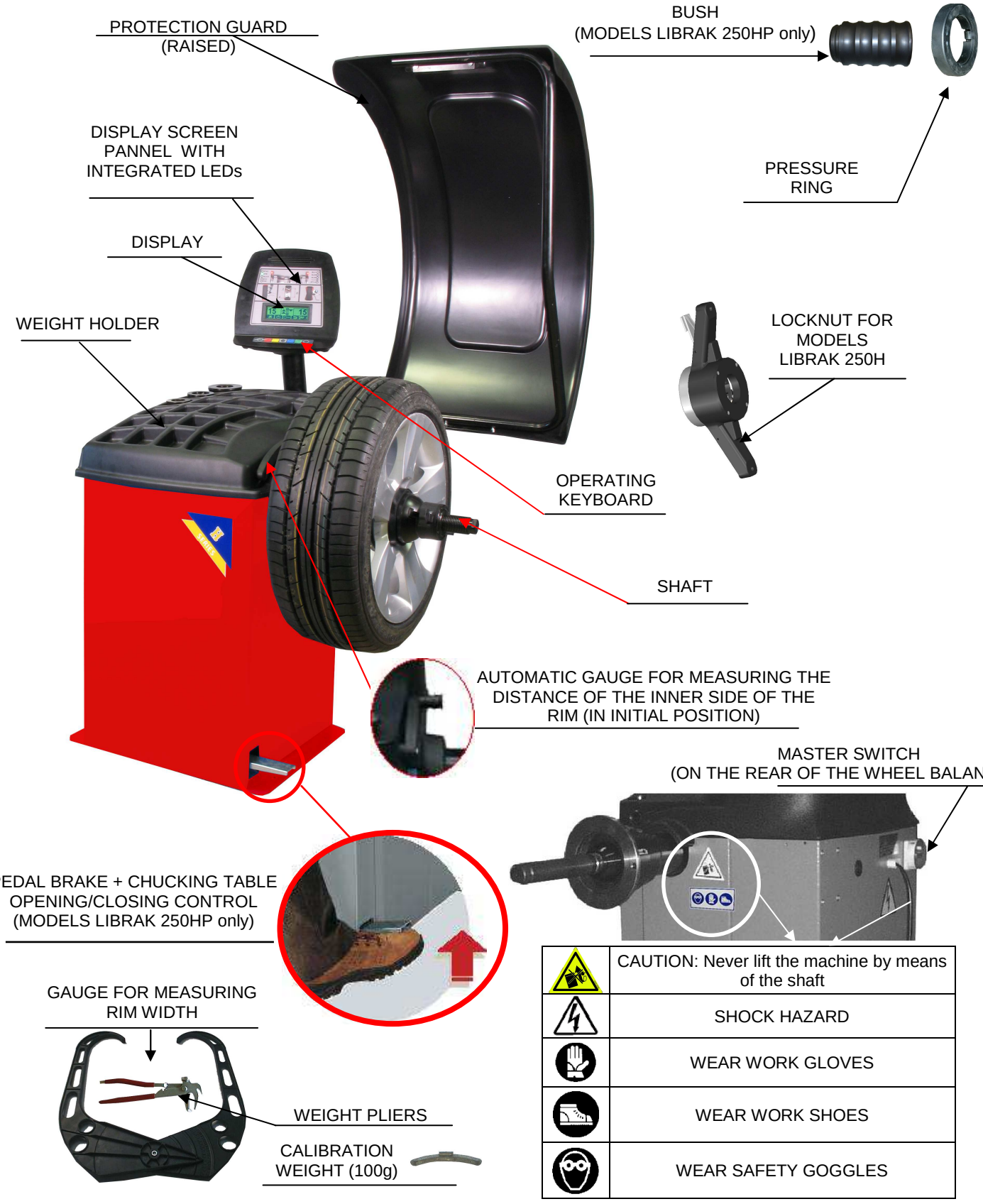
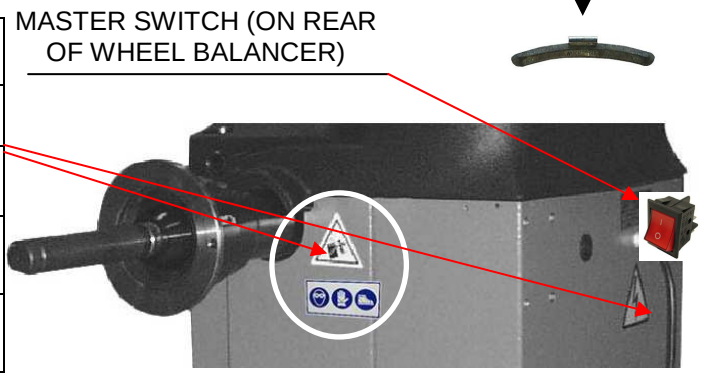
3.2 Models LIBRAK 250H – LIBRAK 250HP



	CAUTION: Never lift the machine by means of the shaft
	SHOCK HAZARD
	WEAR WORK GLOVES
	WEAR WORK SHOES
	WEAR SAFETY GOGGLES

3.3 Models LIBRAK 236H 238H/HM/HFM

	Caution: Never lift the machine by means of the shaft
	Shock hazard
	Wear work gloves
	Wear work shoes
	Wear safety goggles



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3.4 Optional accessories

3.4.1 GAR 213 – CALLIPER FOR AUTOMATIC MEASUREMENT OF RIM WIDTH

3.5 Safety devices

The wheel balancer features a number of safety devices. One of these is located on the rear of the machine (master switch), see chap. 3 on page 6. The master switch interrupts power to the machine when turned clockwise.

Wheel spinning is normally prevented if the wheel protection guard is raised (open). When the protection guard is open, this interrupts the circuit that triggers the motor and automatic start is prevented, including in the case of an error.

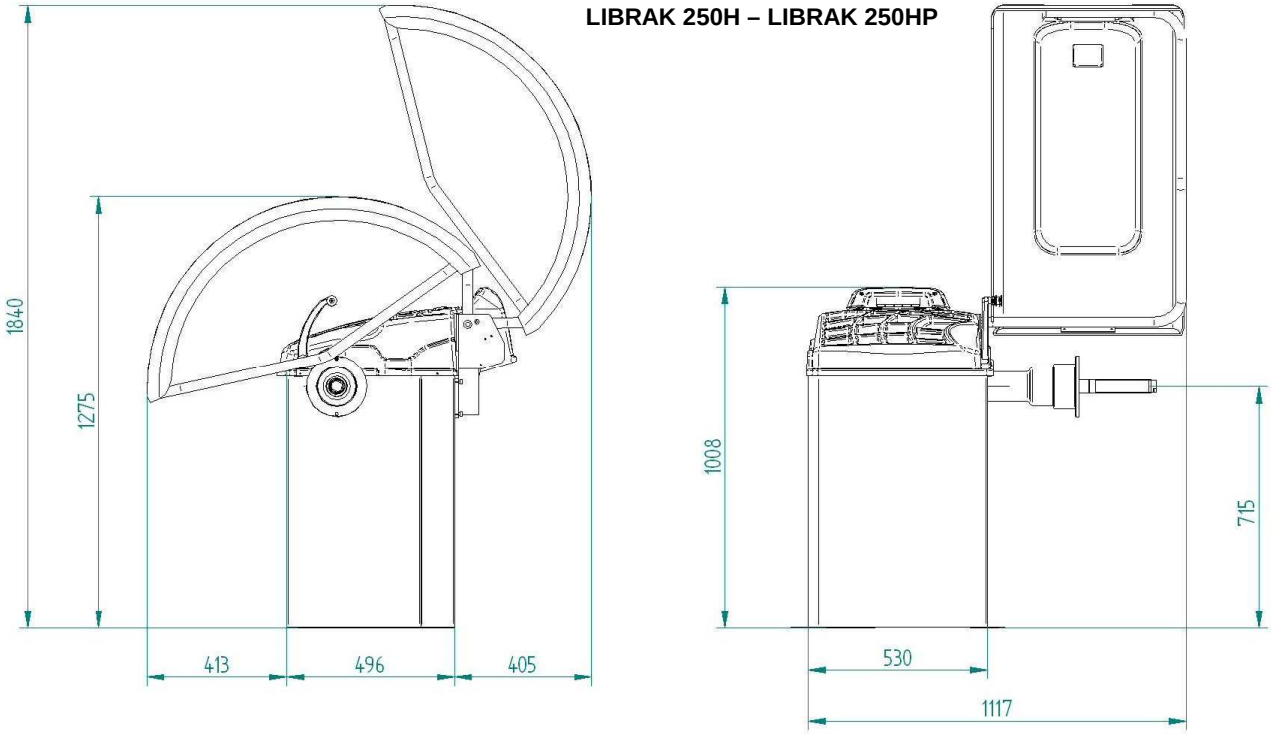
Press ■STOP the red key on the keyboard to stop the wheel in emergency conditions.

3.6 Technical details

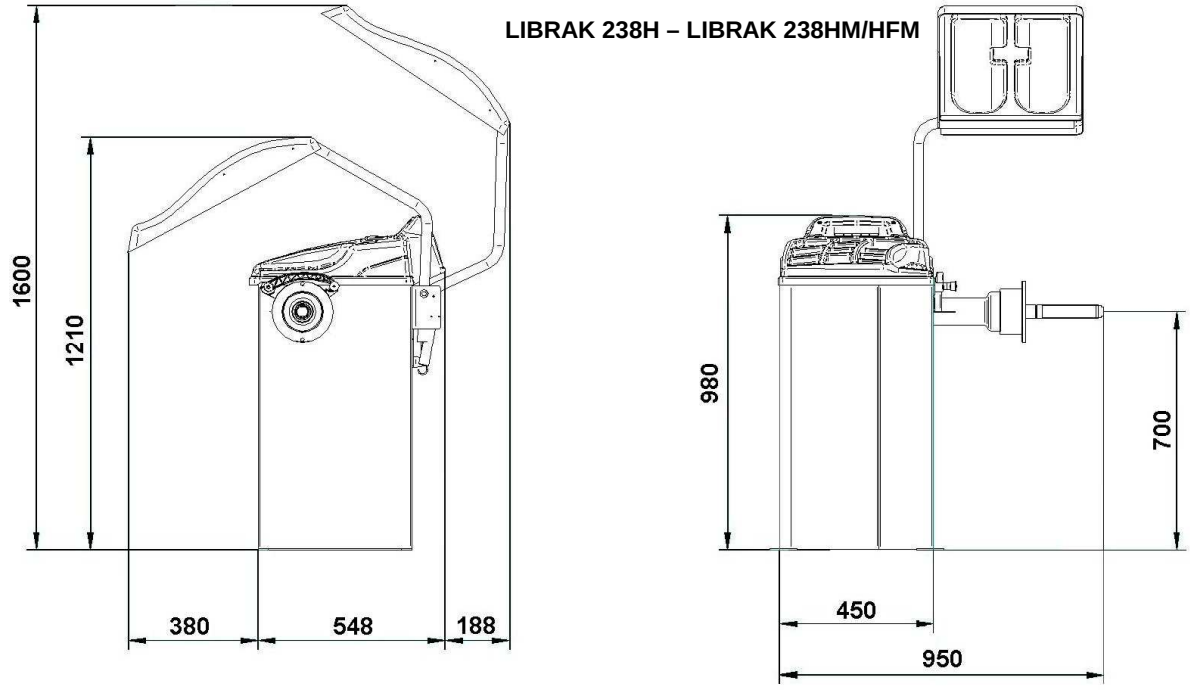
	LIBRAK 236H LIBRAK238H/HM/HFM	LIBRAK 248H LIBRAK 248HP	LIBRAK 250H LIBRAK 250HP
Max wheel weight	65kg	70kg	70kg
Max power absorption	100W	100W	100W
Power supply	230V 50/60Hz 1ph	230V 50/60Hz 1ph	230V 50/60Hz 1ph
Chucking table closing	Quick locknut	Quick locknut (G2) Pneumatic (GP2)	Quick locknut (G2) Pneumatic (GP2)
Balancing precision	± 1g	± 1g	± 1g
Balancing speed	99 rpm	99 rpm	99 rpm
Min/max rim - machine distance	0÷400mm	0 ÷ 400mm	0 ÷ 400mm
Rim width setting	1.5” ÷ 22”	1.5” ÷ 22”	1.5” ÷ 22”
Diameter setting	10” ÷ 26”	10 ÷ 26”	10 ÷ 26”
Max wheel diameter inside protection	900mm	1016mm	1016mm
Max wheel width inside protection	560mm	560mm	560mm
Sound emission level	< 70 dB	< 70 dB	< 70 dB
Cycle time	7 sec	6 sec	6 sec
Weight	80kg	90kg	100kg

3.7 Overall dimensions

LIBRAK 248H – LIBRAK 248HP
LIBRAK 250H – LIBRAK 250HP



LIBRAK 238H – LIBRAK 238HM/HFM



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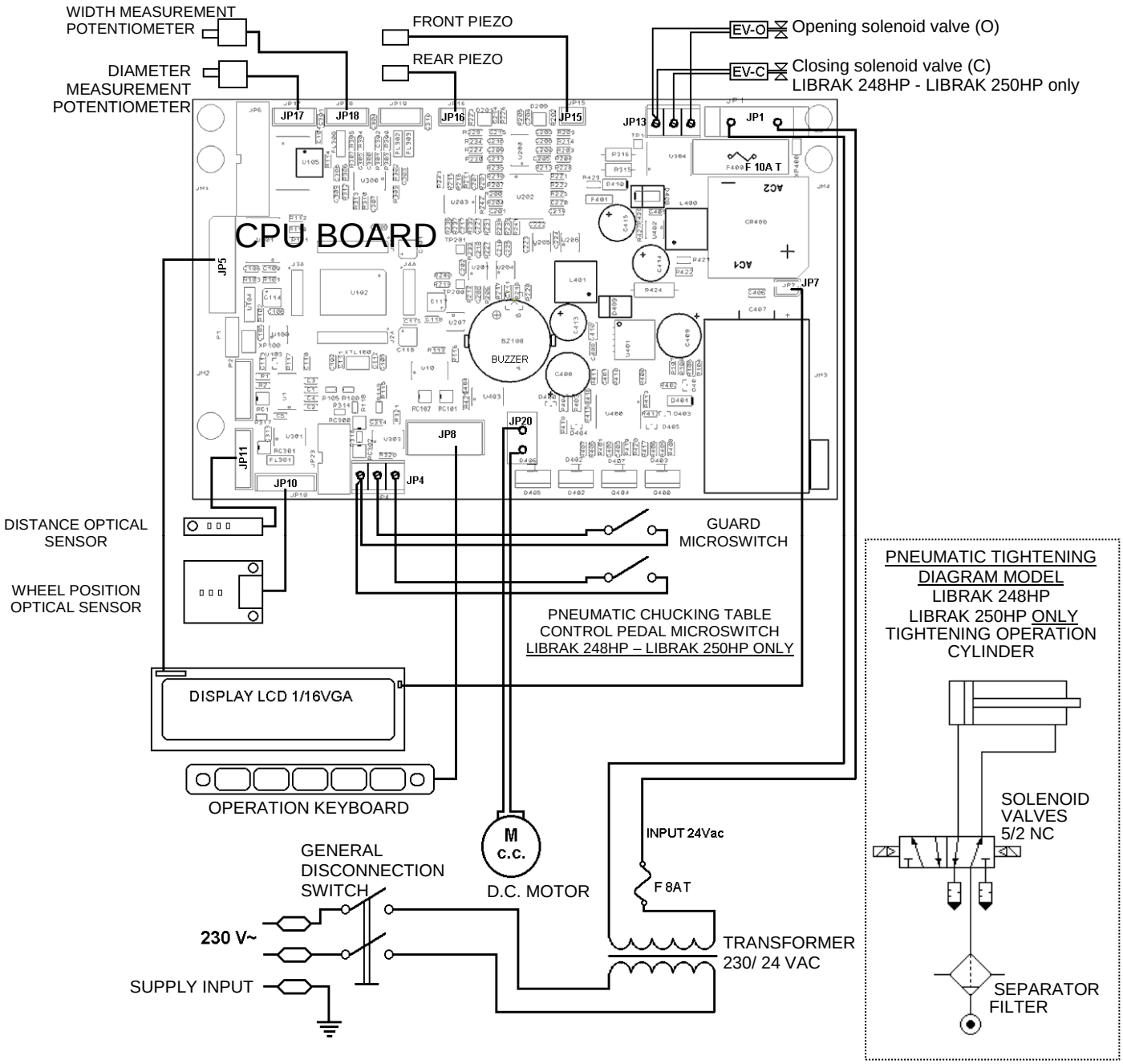
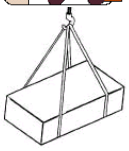
3.8 Electrical and pneumatic connections



4 TRANSPORT AND INSTALLATION

4.1 Transport and unpacking



The machine is supplied packed in a box fastened to a pallet to facilitate transport. To transport the machine to the point where it is to be installed, use a lifting and transport mechanism such as a fork-lift truck or lift with forks.
The lifting device must have a lifting capacity equal at least to the weight of the packed machine. During transport, prevent the lifted machine from swinging.
The machine must be stored in its packaging, in a dry and ventilated environment (with a temperature between -25° +55°C).
Never overturn or position the packaging horizontally. The pallet must always rest on a flat and solid surface. Do not stack other packages on top of the packaging. Always position so the instructions can be easily read.

DURING UNPACKING, ALWAYS WEAR GLOVES TO PREVENT ANY INJURY CAUSED BY CONTACT WITH PACKAGING MATERIAL (NAILS, ETC.).
Make sure you have received all standard parts as previously listed.

The packaging material (plastic bags, polystyrene, nails, screws, wood, etc.) must be collected up and disposed of through authorised channels, except for the pallet, which could be used again for subsequent machine handling.

4.2 Installation

Position the wheel balancer where this is to be used. Never lift the machine by means of the shaft.

Install the machine in a dry, covered and well-lit place, possibly closed or protected against the elements. Before positioning the machine, make sure the place chosen complies with applicable safety regulations and check the minimum distances from walls or other obstacles (see Figure 1).
The position must be such as to allow the operator to see the area around the machine. During operation in fact, the operator must make sure there is no one or nothing in the vicinity of the machine that could represent a hazard.

The characteristics of the machine operating environment must be maintained within the following limits:
- temperature: 0° + 45° C ; relative humidity: 30 ÷ 90 % (without dew);

The wheel balancer can operate on any solid and flat surface.
Make sure the 4 support points are resting properly on the floor and if necessary shim.
The machine is best secured to the floor at the 4 above anchor points (Figure 1). Anchoring is mandatory if wheels weighing more than 30 kg are used; use floor anchors for M8 x 80 mm screws.

- drill 4 x 10 mm dia. holes opposite the holes in the page;
- fit the anchors and install the machine so this coincides with the holes made and then tighten the screws (torque wrench setting: about 22 Nm).

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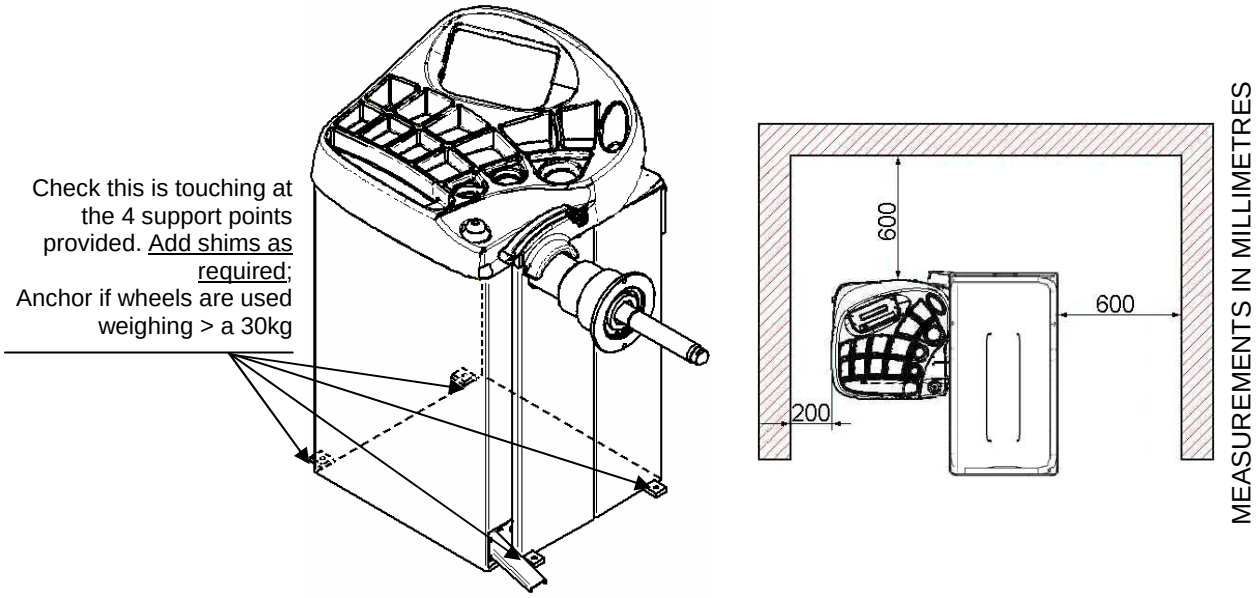

Figure 1

4.2.1 Fitting the shaft on the flange (LIBRAK 238H/HM/HFM, LIBRAK 248H and LIBRAK 250H)

Figure 2

4.2.2 Fitting and removing the pneumatic shaft on the flange (LIBRAK 248HP/ LIBRAK 250HP)

FITTING

Figure 3

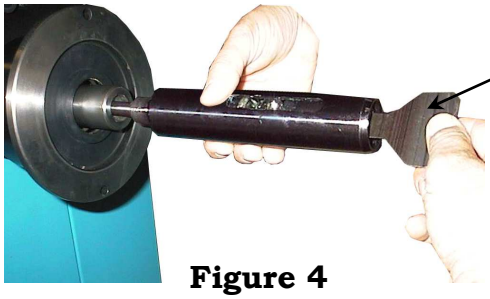

Figure 4

After making power and air connections (see para. 4.2.5 and 4.2.6) switch on the machine (the pneumatic spindle always opens when the machine is switched on, see chap. 6).

Switch the machine off

Fit the internal shaft on the flange and tighten it with the wrench provided (See Figure 3 and Figure 4)

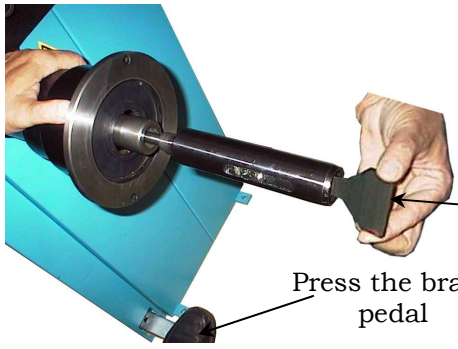

Figure 5

Press the brake pedal and, at the same time, tighten the internal shaft as far as it will go using the wrench provided (Figure 5).

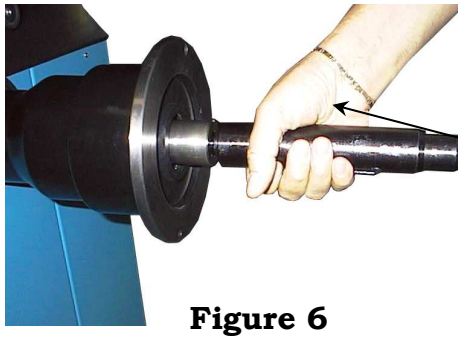

Figure 6

Fit the external shaft and tighten it manually (Figure 6).

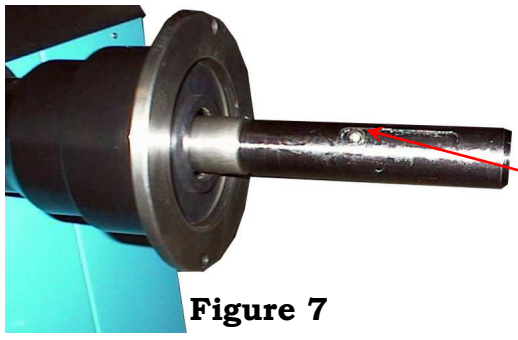

Figure 7

Close the pneumatic spindle by means of the pedal (para. 5.2 on page 20) to access the key socket (Figure 7)

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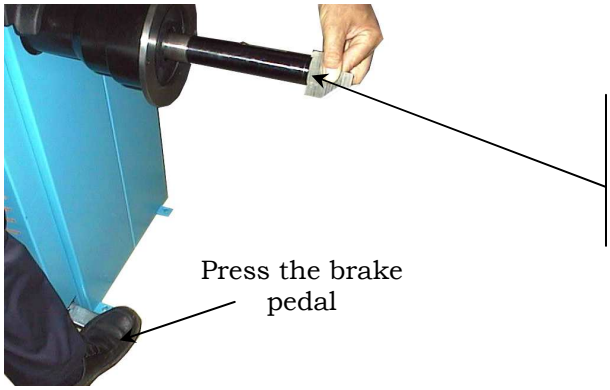

Figure 8

REMOVAL

- Close the pneumatic spindle by means of the pedal (para. 5.2 on page 20) to access the key socket (Figure 7)
- Press the brake pedal and at the same time release the external shaft using the wrench provided (Figure 8).
- Remove the external shaft, open the pneumatic spindle by means of the pedal (para. 5.2 on page 20) and loosen the internal shaft using the special key (Figure 5).

4.2.3 Fitting the protection guard

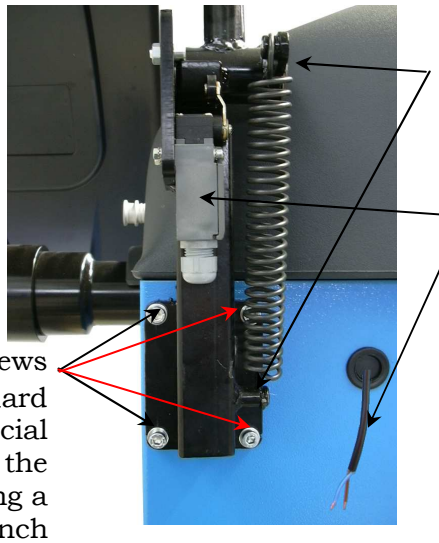

Figure 9

4.2.4 Fitting the automatic rim width measuring device (optional)

① Tighten the 4 screws that sustain the measuring device support together with the guard support in the specific inserts positioned on the rear of the unit, using an Allen wrench

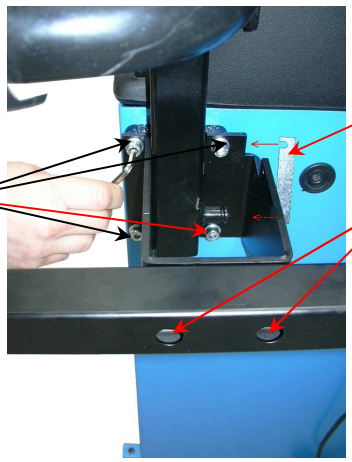

Figure 10

② Lock the measuring device arm by fastening the 2 screws shown in Figure 5. Lock these screws so the shaft and measuring device arm are at the same level (use a spirit level, see Figure 11). Make sure the small reference hole on the arm coincides with the flange table (use a rule, see Figure 11) Make sure the tip of the measuring device is positioned at the centre of the shaft. If necessary, fit a shim (provided) between 2 of the 4 screws that hold up the supports (see Figure 10 and Figure 11)

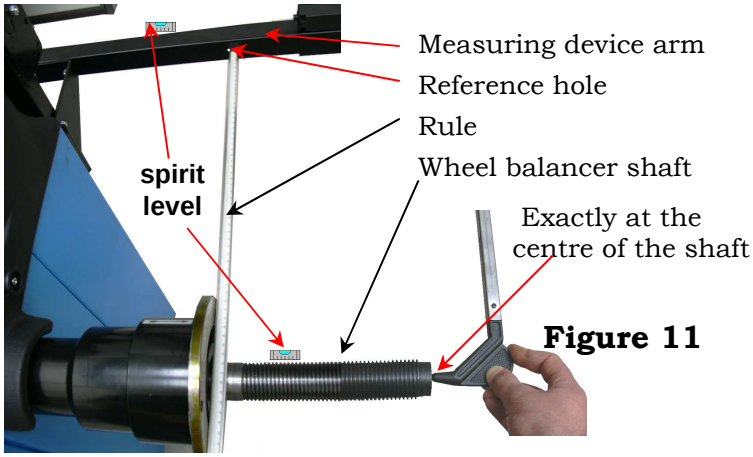

Figure 11

③ Connect connector JP14A of the cable coming from inside the machine to connector JP14A of the cable coming from the measuring device arm, see Figure 12.

Fit the section of the cable with the connectors inside the arm.

Fasten the cable with clamps.

Finish assembling the protection guard, if not already done, by fitting the spring and connecting the micro, see para. 4.2.3

Enable the automatic measuring device for the width as described in para. 12.3
Calibrate the device as described in para. 13.4

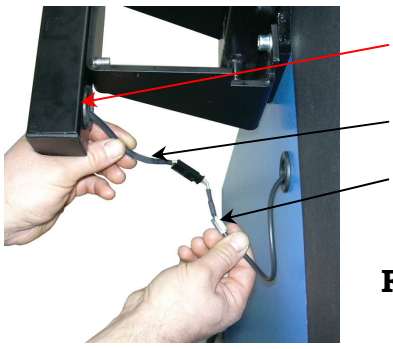

Figure 12

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4.2.5 Power connections

Before connecting up the machine, carefully check:

- power line specifications correspond to machine requirements as shown on the machine plate;
- there is an earth lead and this is of suitable size (section greater or same as max section of the power cables).
- that all the component parts of the power line are in good condition;
- that a wall switch exists solely for starting and stopping the machine. This must feature a residual current and thermal magnetic circuit breaker, taking into account the electrical power indicated on the wheel balancer.

Connect the machine up to the mains by means of the 3-pole plug provided (230 V single-phase) through the wall socket.
If the plug provided is not suitable for the wall socket, fit a plug that complies with local and applicable regulations. This operation must be performed by expert and professional personnel.

4.2.6 Air connections

Connect the wheel balancer to the centralised compressed-air system by means of the connection on the back of the machine, see Figure 13.
The air system supplying the machine must be able to supply filtered and de-humidified air at a pressure between 8 and 10 bar. It must feature an on-off valve upstream of the machine.

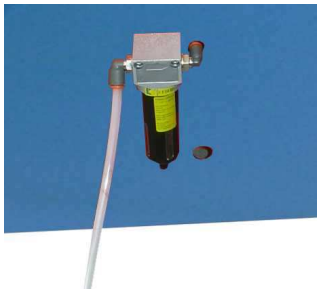

Figure 13

4.2.7 Brightness and contrast adjustment

In the first page of the program press the below indicated keys to adjust brightness and contrast. Such adjustment is identical for all display. See Figure 14. Try to find the best settings, going across the all steps, because the settings can pass through clear, dark and again clear.

NOTE: The settings done remains also after a shut-down.

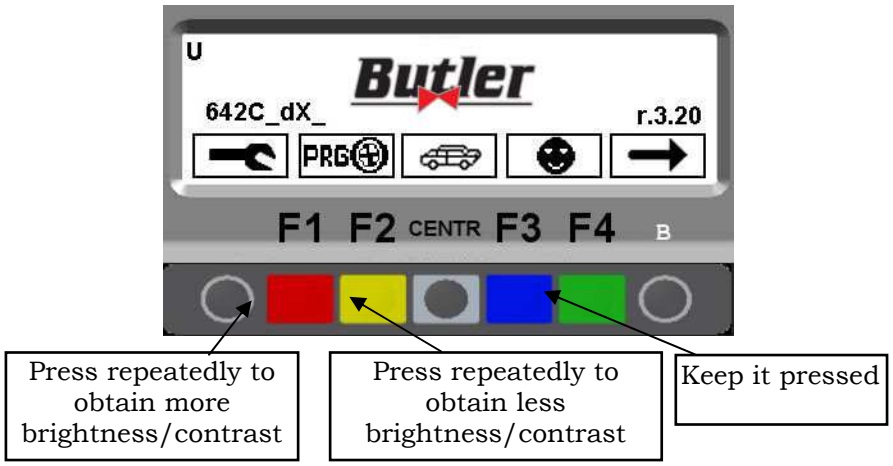

Figure 14

4.2.8 Panel with signal leds (LIBRAK 250H /LIBRAK 250HP only)

The wheel balancers LIBRAK 250H / LIBRAK 250HP are equipped with a display panel brings together a silkscreen representing the shape of a circle.
On this panel, LEDs are located indicating where the operator fit adhesive or clip weights and the methods of balancing used.

Figure 15

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5 FITTING THE WHEEL ON THE SHAFT

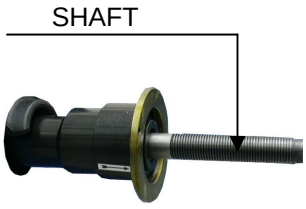
To achieve perfect balancing, the wheel must be carefully and properly fitted on the shaft. Imperfect centring will inevitably cause unbalances.

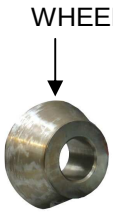
Most important is that original cones and accessories are used made specifically for use on the BUTLER wheel balancer.

Wheel fitting using the cones provided is illustrated below.
For alternative fittings, using optional accessories, refer to the special instructions provided separately.

5.1 Wheel fitting for models LIBRAK238H/HM/HFM, LIBRAK 248H and LIBRAK 250H

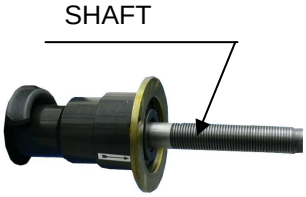
1. Remove any type of foreign body from the wheel: already-existing weights, stones and mud, and make sure the shaft and the rim centring area are clean before fitting the wheel on the shaft.
2. Carefully choose the cone most suitable for the wheel to be balanced. These accessories must be selected according to the shape of the rim. Carefully position the wheel using the cone (otherwise this could seize) until this rests against the support flange.
3. Fit the wheel with the inner side of the rim towards the wheel balancer and against the cone.
4. Fit the protection cap in the nut and fasten against the wheel.

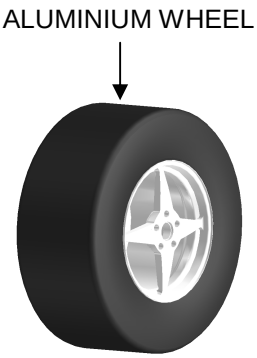


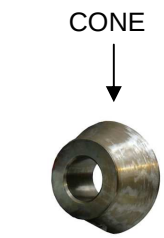


Some aluminium wheels, with very high centring, must be fitted with the cone outside the wheel.

1. Clean the shaft before fitting the wheel.
2. Fit the wheel with the outside of the rim towards the wheel balancer, until the wheel is up against the support flange.
3. Fit the cone with the narrowest part turned towards the wheel
4. Fit the grip-ring in the nut and fasten the cone.







5.2 Wheel fitting for models LIBRAK 248HP and LIBRAK 250HP

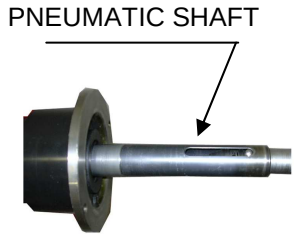
Open the pneumatic chucking table by pressing the "F4 key" from the configuration page or else open by means of the special pedal, see illustration alongside.

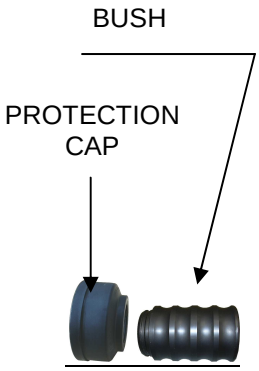
1. Remove any type of foreign body from the wheel: already-existing weights, stones and mud, and make sure the shaft and the rim centring area are clean before fitting the wheel on the shaft

5. Carefully choose the cone most suitable for the wheel to be balanced. These accessories must be selected according to the shape of the rim. Carefully position the wheel using the cone (otherwise this could seize) until this rests against the support flange.

2. Fit the wheel with the inner side of the rim towards the wheel balancer and against the cone.

3. Fit the protection cap in the bush and fasten against the wheel.





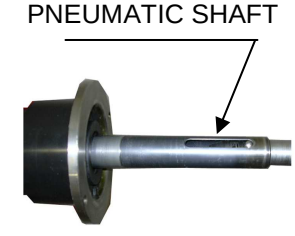
Some aluminium wheels, with very high centring, must be fitted with the cone outside the wheel.

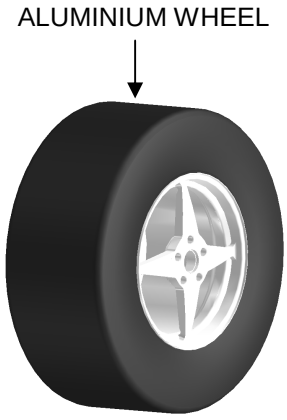
1. Clean the shaft before fitting the wheel.

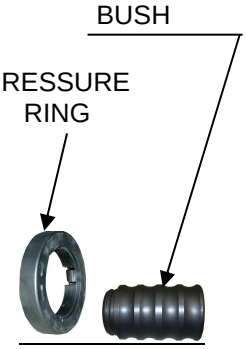
2. Fit the wheel with the inner side of the rim towards the wheel balancer, until you are up against the support flange.

3. Fit the cone with the narrowest part turned towards the wheel

4. Fit the presser ring in the bush and fasten the cone.







Close the pneumatic chucking table by pressing the "F4 key" from the configuration page (Figure 79) , or else close by means of the special pedal.

Important: during chucking table opening/closing operations, be careful to keep your hands and other parts of the body away from the moving chucking table.

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6 SWITCHING THE MACHINE ON AND OFF

The ON/OFF master switch is located on the rear of the machine.
To start the machine and access the program, switch on the system by turning the master switch.

Important: In the case of models LIBRAK 248HP and LIBRAK 250HP, on starting, the pneumatic chucking table is always open. Be careful to keep hands and other parts of the body away from the moving chucking table.
Also be careful if a wheel is already fitted to the shaft as this could be forced off the shaft during chucking table opening.

Wait a few seconds for the operating program to load and for the first program page to appear on the display screen.
The monitor shows various types of information and presents the user with numerous operation options.

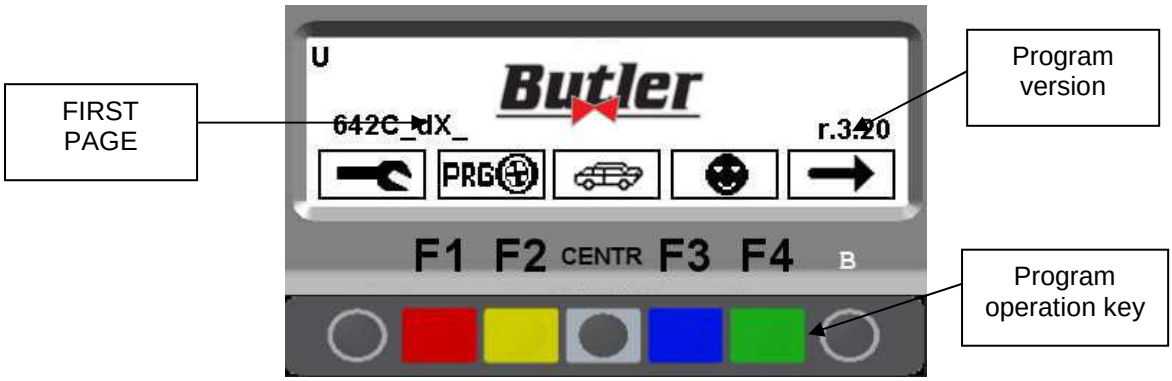
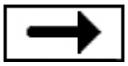


Figure 16

ICON	KEY	DESCRIPTION
	RED (F1)	Displays the program configuration panel
	YELLOW (F2)	Displays the auxiliary correction procedures (para. 7.4 on page 34)
	CENTRE	Displays car or motorcycle mode (para. 8 on page 41)
	BLUE (F3)	Displays the tests of the different services (4 different services are managed) para. 7.2 on page 26
	GREEN (F4)	The dynamic balancing test starts

By means of the 6 keys of the operating keyboard (F1-F2-CENTR-F3-B-F4) all the machine functions can be used.

During program running, the various display pages show the different keys by means of which the corresponding function can be immediately selected.

Many display pages contain several rows of keys. In this case, the next row of keys can be displayed by means of the key corresponding to the icon  .

To go back and display the previous row of keys, press the key corresponding to the icon 
or in some cases  .

7 WHEEL BALANCING

7.1 Determination of wheel dimensions

7.1.1 Automatic wheel dimension setting (distance and diameter)

The wheel balancing machines feature an automatic rod; a simple and precise method that permits automatically acquiring the distance from the machine and the wheel diameter at the weight fitting point. The rod itself permits correctly positioning the weights inside the wheel.

The dimension of the rim distance is always set with measurement unit “mm”.
The width and diameter dimension on the other hand can be set in “inches” or “mm”; in the examples in this manual “inches” are used. To change the measurement unit from “inches” to “mm”, see para. 12.1 on page 53.
The automatic rod, for storing the diameter and distance values, is started when it is removed from his initial position.

- **To make a measurement in DYNAMIC mode**:

Move the graduated rod against the inner edge (Figure 17) in measurement position and maintain that position for a few seconds; measurement will be acquired when the detected value is displayed (static mode Figure 18).

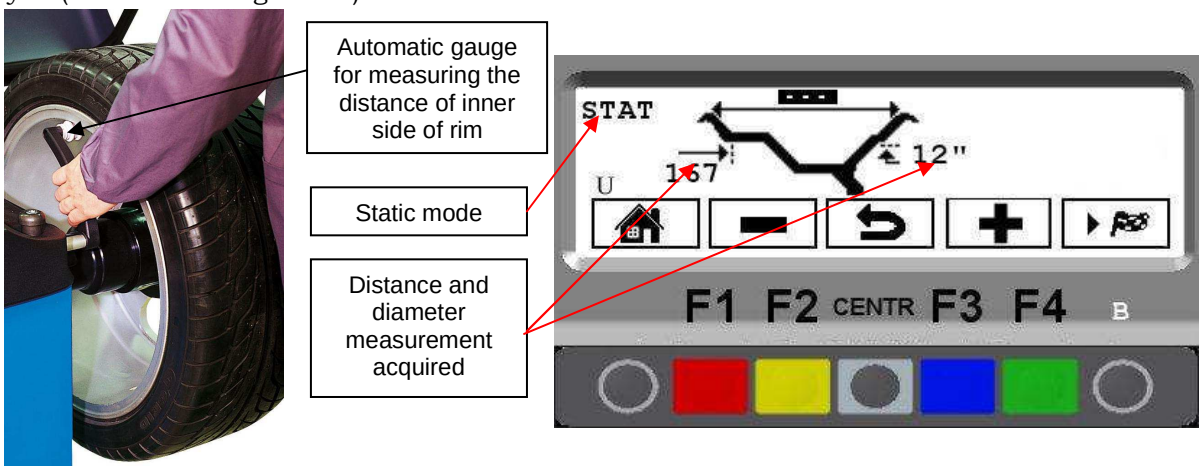


Figure 17 **Figure 18**

Enter the wheel width.
If the automatic width caliper is not available, the operator must press the “LESS” [−] or “MORE” [+] keys until the desired width value is reached (Figure 21).
Input the nominal width shown on the rim, or check manually by using the graduated gauge; to position the graduated gauge on the outer and inner side of the wheel as shown in Figure 19. In this case, the measure must be set to be reduced to ¼ inch.

If on the other hand, the automatic width caliper is available, position the pointer of the measuring device against the outer edge of the rim (Figure 20) . The measurement will have been acquired when the detected value is displayed accompanied by a beep (Figure 21).

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Figure 19

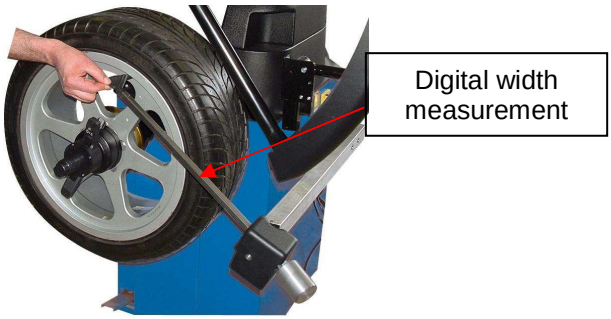

Figure 20

Once the wheel width has been acquired, the program prepares for dynamic mode measuring (Figure 21).

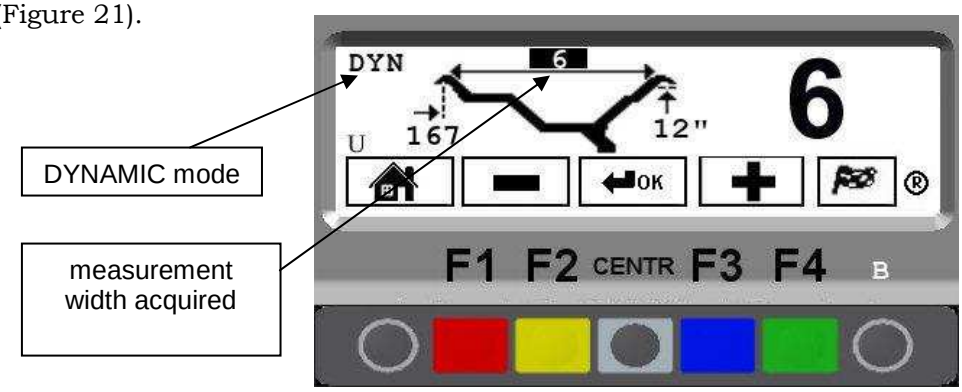

Figure 21

- **To measure in ALU-S and STATIC modes**:

Pull out the automatic rod and reach the position to be stored (Figure 17). Maintain this for a few seconds. The indication of the acquired measurement for the first point is given by the display of the detected value (static mode Figure 22). Without moving the caliper back to initial position, further remove the automatic rod and reach the position to be stored for the second point. Remain still for a few seconds. The indication of the acquired measurement for the second point is given by the display of the detected value.
In this case, the width (the distance at which the weights are positioned) is stored automatically. This measurement can be changed manually (para. 7.1.2 on page 25).

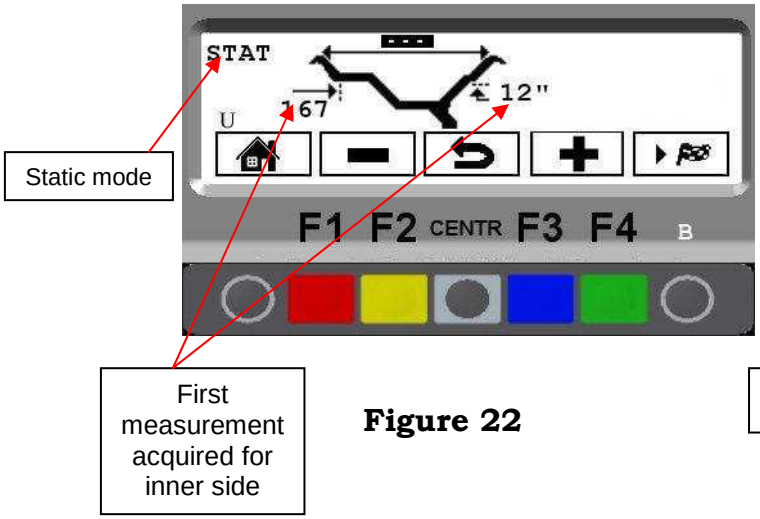

Figure 22

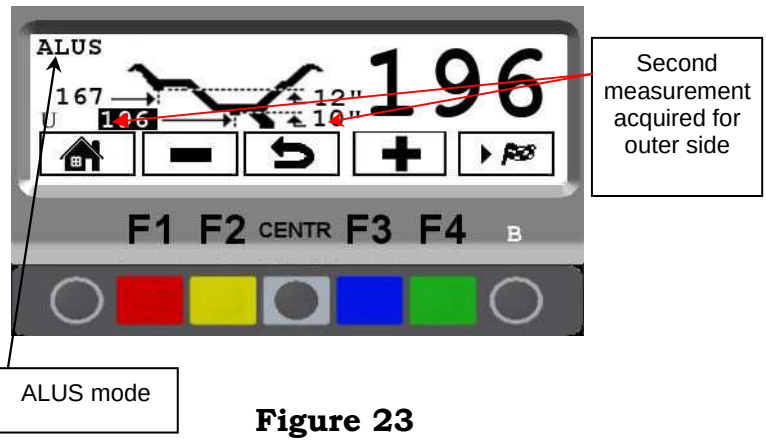

Figure 23

- **To take a measurement in STAT 1 and STAT 2 modes**:

Press the "F2 key" PRG from the initial box (para. 6 on page 21), choose the mode to be used by pressing the "F3 key" ▼ (e.g. STAT 1; Figure 24). Remove the automatic rod and reach the position to be stored inside the rim. Maintain this position for a few seconds. Acquired measurement indication is given by the display of the black arrow.

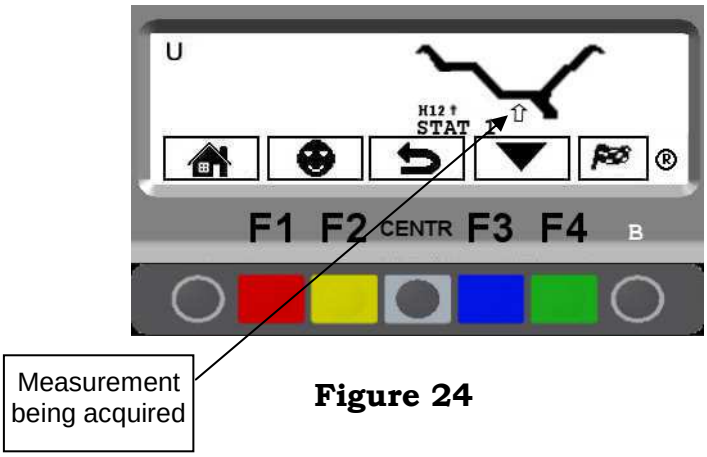

Figure 24

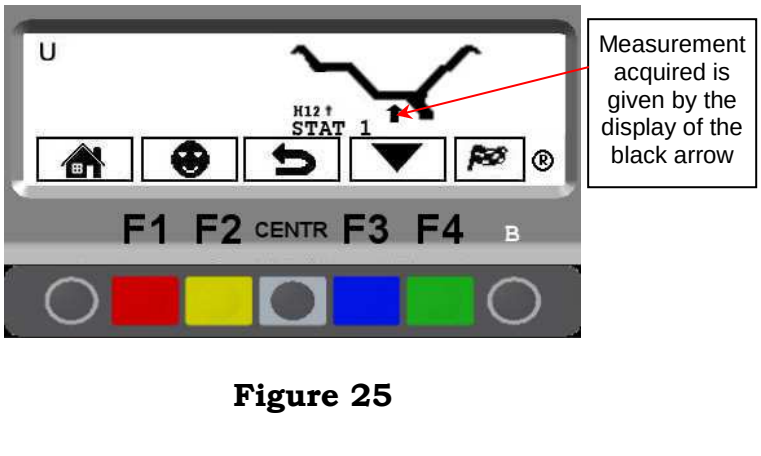

Figure 25

- **To take a measurement in ALU1, ALU2, ALU3 and ALU4 modes**:

Press the "F2 key" PRG from the initial box (para. 6 on page 21), choose the mode to be used by pressing the "F3 key" ▼ (e.g., ALU 3; Figure 26). Remove the automatic rod and reach the position to be stored. Maintain this position for a few seconds. Acquired measurement indication is given by the display of the black arrow. The second weight positioning point is calculated by the machine (inside the rim).

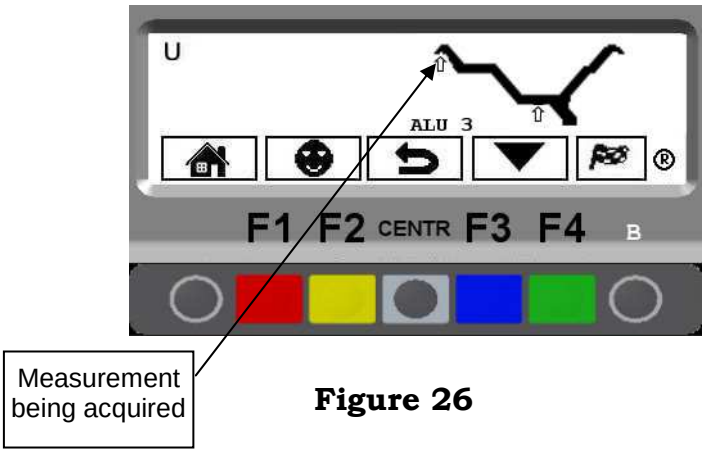

Figure 26

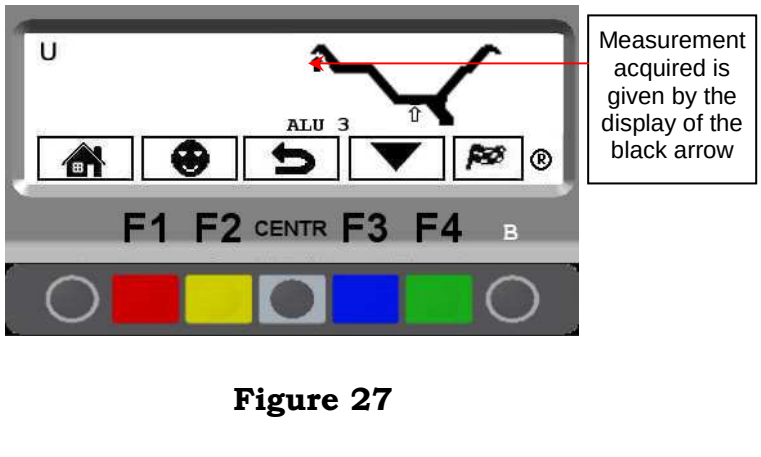

Figure 27

To change manually the entering values, the operator must press "CENTR key" ↩ from Figure 27 to display the dimensions box with the values to be manually entered and press the "centr key" ↵OK (Figure 28) until the wheel width value to be set has been selected.

If the automatic width caliper is not available, the operator must press the "LESS" − or "MORE" + keys until the desired width value is reached (Figure 28).

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To confirm all the entered measurements, press "CENTR key" again (OK). The program will display the box in Figure 29.

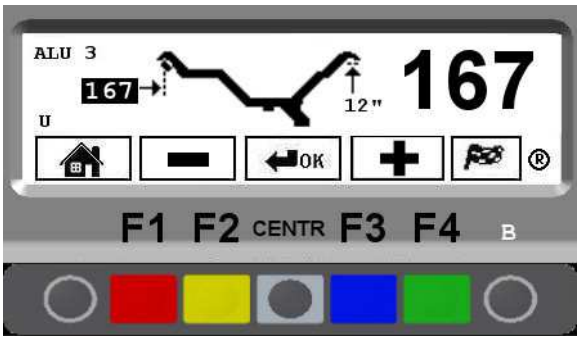


Figure 28

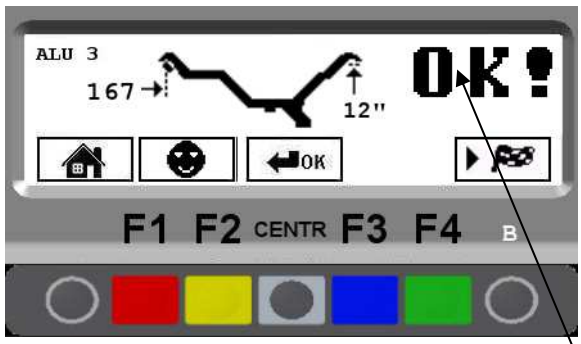


Figure 29

Dimensions introduced and confirmed

7.1.2 Manual setting of wheel dimensions

In case the operator wants to change and/or manually enter the wheel dimensions, proceed as follows:

From the automatic dimensions page (e.g. Figure 21 and Figure 23) press the "centre key" OK to select the figure to be changed or set.
The display screen will show the selected figure on a black background and, on the right, the same figure in large characters (Figure 30 and Figure 31)

Enter the dimensions, pressing the "MINUS" − or "PLUS" + key until the desired value is reached.

Press the "centre key" OK to confirm and to move to the next value to be changed or set.

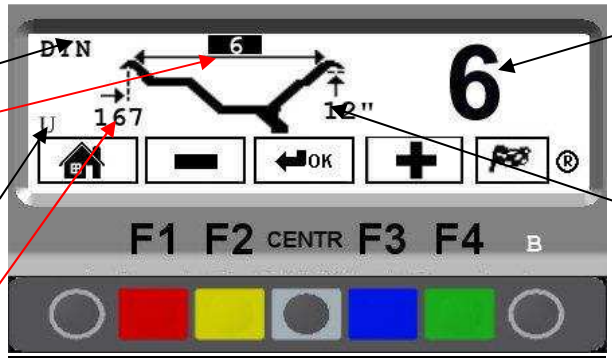
Example of DYNAMIC mode:

Mode selected

Rim width (selected dimension)

User no. in operation

Rim distance value



Selected dimension shown enlarged

Rim diameter

Figure 30

Example of ALU-S mode:

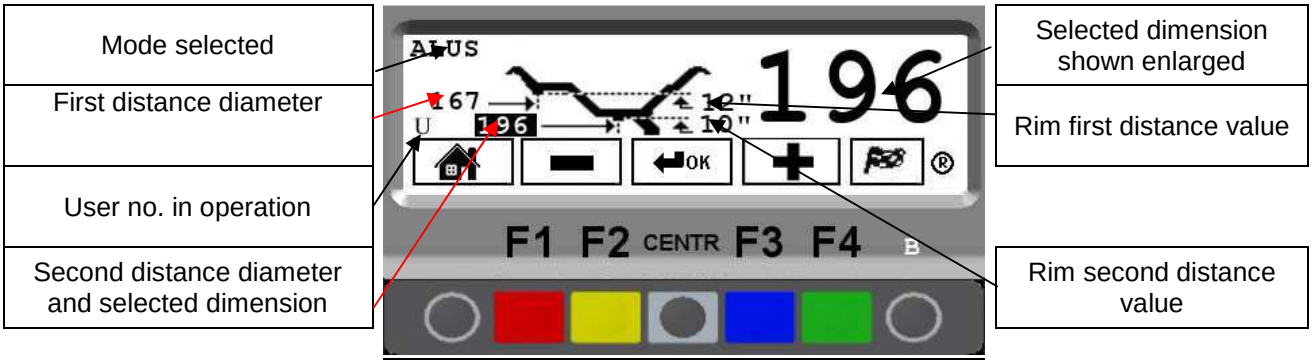


Figure 31

ICON	KEY	DESCRIPTION
	RED (F1)	Return to display the previous page
	YELLOW (F2)	Decrease wheel dimension values
OK	CENTRE	Select and confirm the figure to be set
	BLUE (F3)	Increase wheel dimension values
	GREEN (F4)	Run starts by closing the guard
Ⓡ	B	Function key used for “Recalculation program” (para. 7.5 on page 39)

7.2 User management

To select user management, select the following key on the presentation page (para. 6 on page 21).

BUTLER wheel balancers can be used by 4 different users at the same time, by selecting the above indicated key several times, until the desired user is reached.
When the user key is pressed, the current user number appears on the display screen (U1, U2, U3 and U4 in car mode or M1, M2, M3 and M4 in motorcycle mode).

The system stores the data relating to the last performed spin according to the different operators.
The desired user can be called every time the program displays the specific key.
The measurements stored for each user are lost when the machine is switched off.
User management is valid for any wheel balancer function.

IMPORTANT: To enable or disable the "User Control" function, see para. 12 (Figure 80 on page 53). Once this function has been disengaged by pressing the "User key F3" on the presentation page (para. 6 on page 21) on the top left of the monitor, the only used user appears “U” in car mode or “M” in motorcycle mode.

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7.3 Unbalance measurement

7.3.1 Dynamic balancing

Dynamic balancing is a procedure that offsets the wheel vibrations using 2 weights on different planes.

To perform a dynamic measurement spin:

Make sure the wheel is clean of any stones and/or mud.

Remove any counterweights.

Fit the wheel and make sure it is fastened properly (para. 5 on page 19)

Enter the wheel measurements (para. 7.1 page 22) and close the protection guard to perform the automatic wheel spin.

If the protection guard is already closed, press the "F4 key" to perform wheel spin manually.

In just a few seconds, the wheel runs at normal speed and the display screen shows wheel rotation (Figure 32). After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the outer weight is **exactly at 12 o' clock** (except LIBRAK 238H/HM/HFM). Open the protection guard.

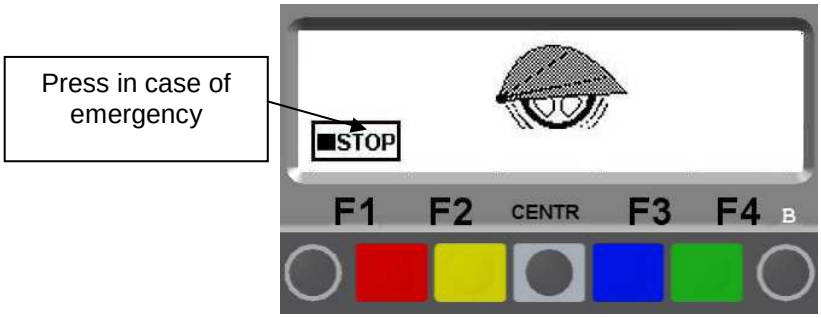


Figure 32

The display unit indicates the direction in which to move the wheel to fit the weights and how much weight is needed to correct the unbalance (Figure 33).

Weight can be determined in "grams" or "ounces"; in this manual examples are shown in grams. To change the unit of measurement from "grams" to "ounces", see chap. 11 page 49.

Once the unbalance of the inside and outside of the wheel is known, it is possible to proceed with positioning for correction of unbalance (para. 7.3.2 on page 29).

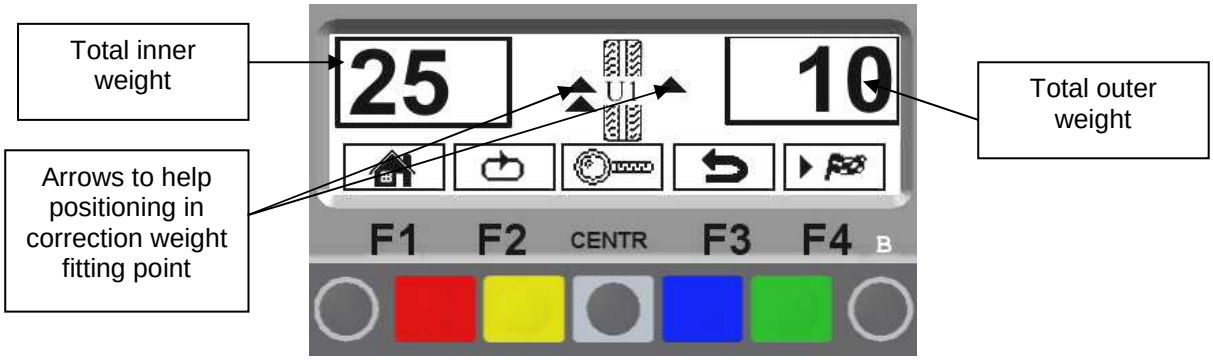
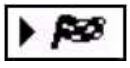


Figure 33

ICON	KEY	DESCRIPTION
	RED (F1)	Return to initial program phase
	YELLOW (F2)	Selected **once**: Displays the next row of keys (SPLIT and MATCHING function para. 11 on page 49) Selected **twice:** Displays the next row of keys (static unbalance Figure 33)
	CENTRE	Displays the exact unbalance (pitch 1g instead of 5g)
	BLUE (F3)	Displays the previous page
	GREEN (F4)	Spin performed on closing guard

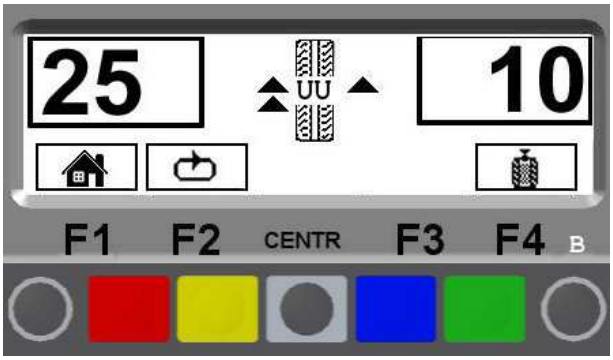


Figure 34

ICON	KEY	DESCRIPTION
	RED (F1)	Return to dynamic balancing (Figure 33)
	YELLOW (F2)	Displays the next row of keys
	GREEN (F4)	Displays the Static balancing (see par. 7.3.4 on page 32)

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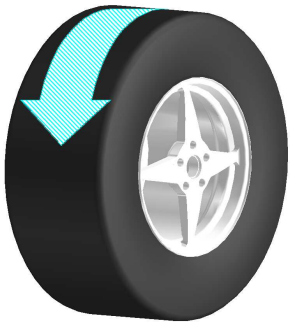
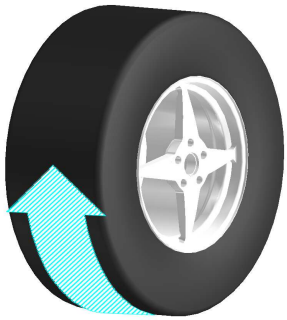
7.3.2 Positioning the correction weights on the wheel

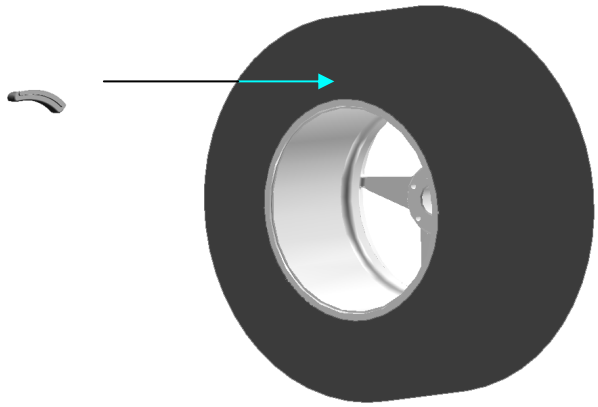
The weights must be positioned in the top part of the wheel, at 12 'o' clock, so unbalance is below and the weight fitting point is above.

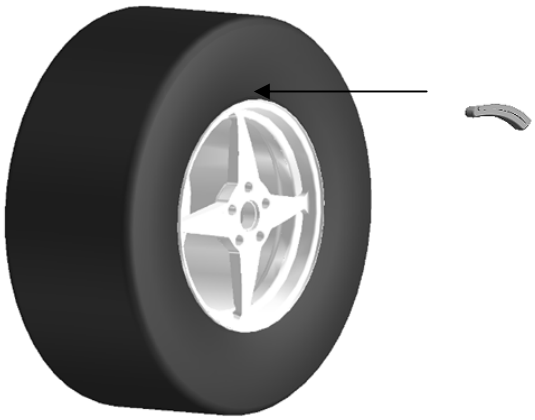
When the wheel balancer display screen shows ⏫ or ⏬ this means you are **far away** from the point where the counterweight is to be positioned.
Wheel position is over 30° from the exact fitting point.
When the wheel balancer display screen shows 🔺 or 🔻 this means you are **not far** from the point where the counterweight is to be positioned.
Wheel position is within 30° from the exact fitting point.





When the wheel balancer display screen shows ⏩ and ⏪ the exact position has been reached for one side and for the other. The fitting point has been found. Now the unbalance can be corrected by fitting the necessary weight.





Once the wheel has been correctly positioned, fit the weight indicated by the machine on both sides of the wheel. The program automatically indicates the best weights to be fitted and rounds these off according to their position.

In the event of the dynamic unbalance of a wheel being fairly high and the weight to be fitted not being available, the SPLIT procedure can be used to correct the unbalance by splitting the total weight into two smaller weights (chap. 9 on page 42).

After fitting the weights, check the wheel balancing conditions and make a trial spin.

The STANDARD unbalance calculation procedure is now completed.

7.3.3 ALU-S procedure

Make sure there are no stones and/or mud on the wheel.

Remove any counterweights.

Fit the wheel and make sure it is properly fastened (para. 5 on page 19)

Determine the wheel dimensions using the specific automatic rod as described in para. 7.1 on page 22.

After the data have been entered, close the protection guard to automatically start wheel spin.
In just a few seconds, the wheel will be spinning at operating speed. The display screen shows wheel rotation (
Figure 35).
After the spin, the wheel will stop automatically, also taking into account the measured unbalance, so the outer weight fitting position is around 12 o' clock (except LIBRAK 238H/HM/HFM). Open the protection guard.

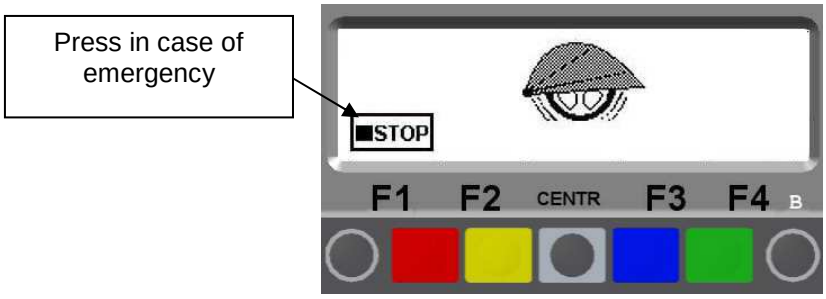


Figure 35

The display screen shows the direction in which the wheel will move to fit the weights and the total weight for correcting unbalance (Figure 36).

Once the unbalance value of the inner and outer wheel side is known, the wheel can be positioned by turning this in the direction indicated by the arrows until the correct position is reached (para. 7.3.2 on page 29).
Once correct position has been reached, press the pedal brake to stop the wheel.

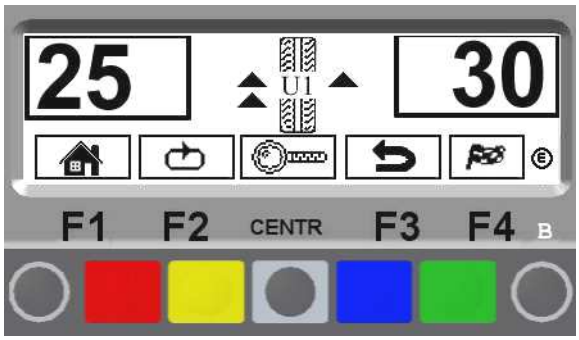


Figure 36

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ICON	KEY	DESCRIPTION
	RED (F1)	Return to initial program phase
	YELLOW (F2)	Displays next row of keys (MATCHING and HIDDEN WEIGHTS PROCEDURE)
	CENTRE	Displays the exact unbalance (pitch 1g instead of 5g)
	BLUE (F3)	Display previous page
	GREEN (F4)	Performs spin with protection guard closed
	B	Permits performing the ECO-WEIGHT program

Remove the automatic gauge and fit the adhesive weight in the pliers as shown in Figure 37.

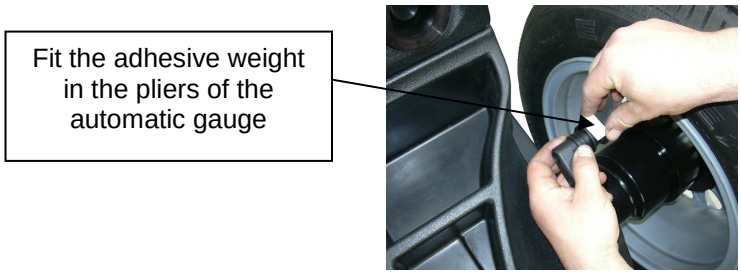

Figure 37

The nearing of the weight to correction position is indicated by an arrow that appears on the side of the wheel on which work is being done. When two fixed arrows are reached (Figure 38) fit the weight in the position where the weight pliers touch the wheel (Figure 39).

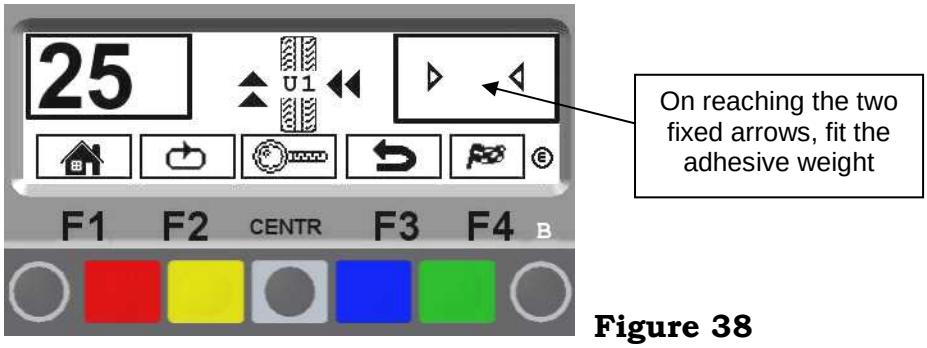

Figure 38

The fact that the weight fitting position is no longer at 12 'o' clock (Figure 17) is automatically offset. To hide the adhesive weight behind the spokes, refer to the procedure of weights hidden behind spokes at para. 10 on page 46.

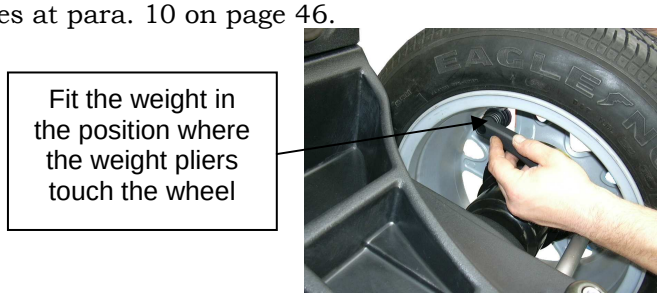

Figure 39

Repeat the wheel and weight positioning procedure for the inner side of the wheel as well.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

The ALU-S procedure is now completed.

7.3.4 Static balancing

Make sure there are no stones and/or mud on the wheel.

Remove any counterweights.

Fit the wheel and make sure it is properly fastened (para. 5 on page 19)

Determine the wheel dimensions using the specific automatic rod as described in para. 7.1 on page 22.

After data entering, close the protection guard to automatically start wheel spin.
In just a few seconds, the wheel will turn at normal speed and the wheel balancer display screen shows wheel rotation (Figure 40). Do not touch the wheel while taking measurements. At the end of the spin, the wheel will stop automatically, taking into account the measured unbalance so the weight fitting position is at approx. 12 'o' clock (except LIBRAK 238H/HM/HFM). Open the protection guard.

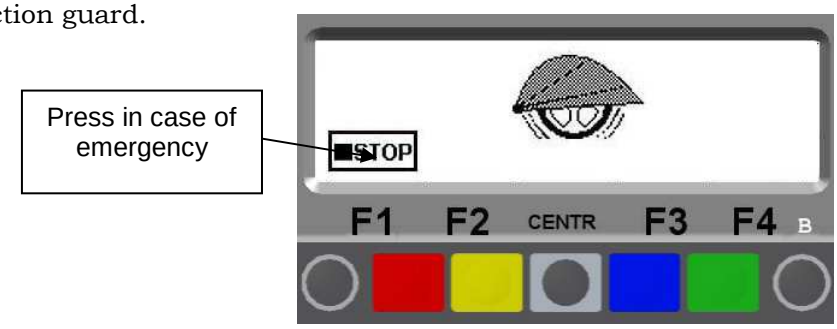

Figure 40

The display screen shows the weight required to correct the unbalance (Figure 41).

Turn the wheel in the direction indicated by the arrows, until the correct position is achieved for correction of unbalance (two horizontal arrows).
When this position is reached, press the pedal brake to stop the wheel.

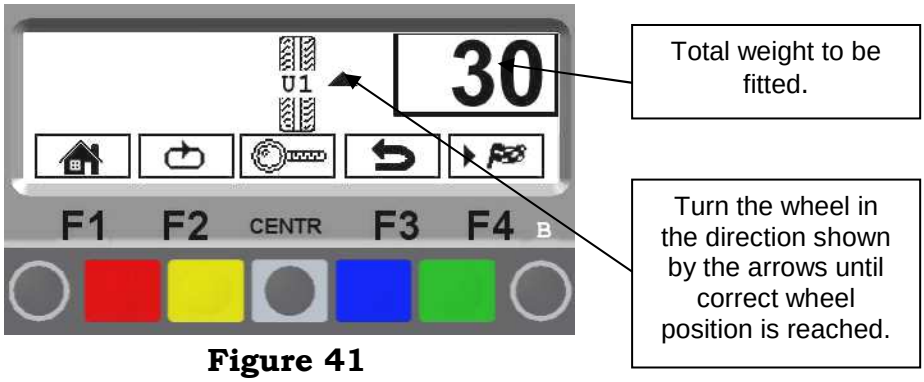

Figure 41

ICON	KEY	DESCRIPTION
	RED (F1)	Return to initial program phase
	YELLOW (F2)	Display next row of keys (MATCHING and HIDDEN WEIGHTS PROCEDURE)
	CENTRE	Display exact unbalance (pitch 1g instead of 5g)
	BLUE (F3)	Display previous page
	GREEN (F4)	Perform spin with protection guard closed

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Remove the automatic gauge and fit the adhesive weight in the pliers as shown in Figure 20, using a weight of pre-determined value (the example in Figure 41 shows 30g).

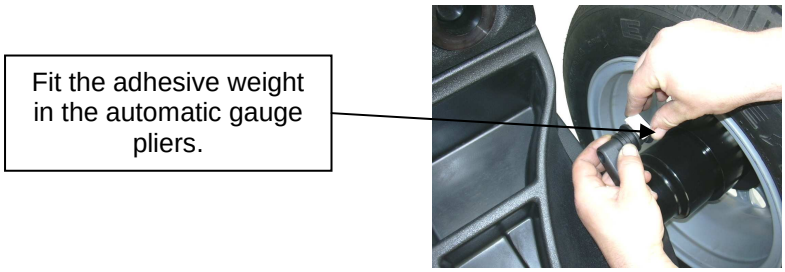


Figure 42

An arrow that appears in the box shows the weight is coming close to correction position. When two fixed arrows are achieved (Figure 38) fit the adhesive weight on the inner side in the position where the weight pliers touch the wheel.

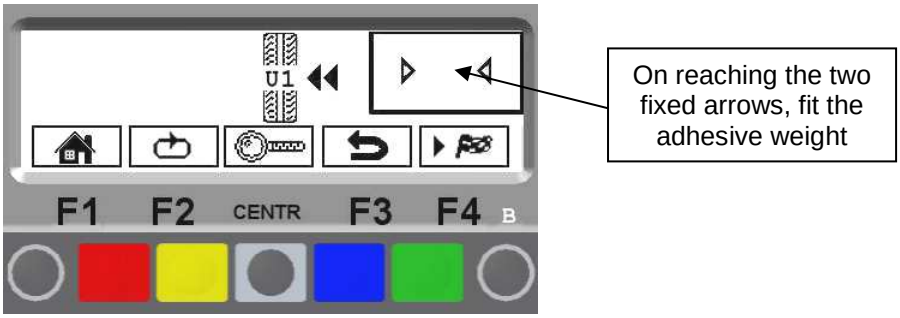


Figure 43

The fact that the weight fitting position is no longer at 12 'o' clock (Figure 44) is automatically offset. If you wish to hide the adhesive weight behind the spokes, refer to weights hidden behind spokes mode at para. 10 on page 46.

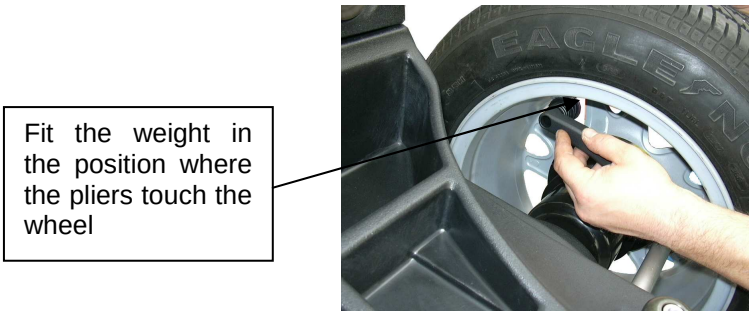


Figure 44

Check wheel balancing conditions by making a trial spin. The display screen will show an unbalance reset.

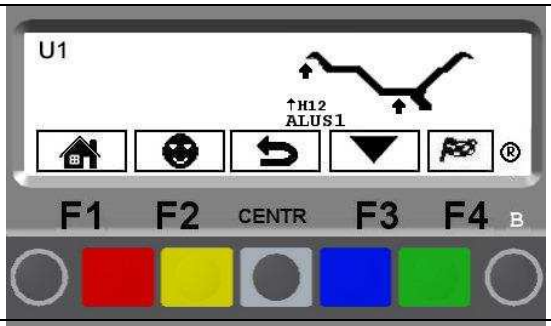
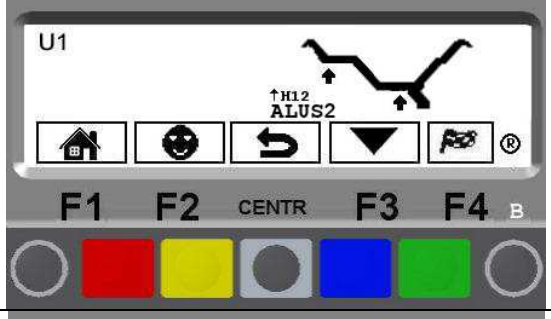
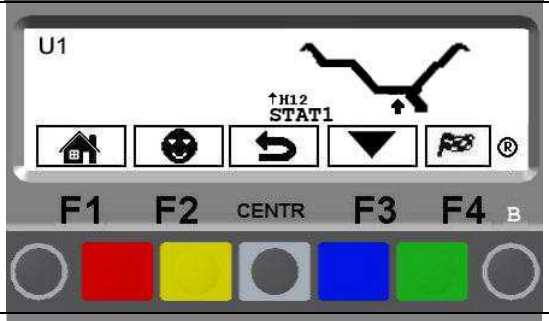
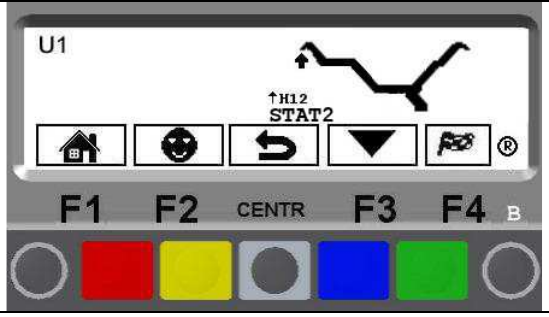
The STATIC procedure is now completed.

7.4 Measuring the unbalance with auxiliary programs

The available functions permit selecting the appropriate weight positions to be placed in positions different to standard (dynamic unbalance).

The ALU programs measure rims by means of data pre-set in the wheel balancer.
The measurements entered by the operator will therefore be automatically corrected by the machine according to the program selected.

From the initial program page (see para. 6 on page 21) press the “F2 key”.
The monitor shows a window with possible selection modes. Select the desired function by means of the “F3 key” ▼ and enter the measurements.

POSSIBLE SELECTION FUNCTIONS	DESCRIPTION
	The ALU-S 1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer and weight with clip on inner side of wheel (the inner weight is at 12 o’ clock) . Enter the measurements (para. 7.1 on page 22) and proceed as described in para. 7.4.1 on page 36 (the inner weight is with clip)
	The ALU-S 2 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer and inner sides of the rim(the inner weight is at 12 o’ clock) . Enter the measurements (para. 7.1 on page 22) and proceed as described in para. 7.4.1 on page 36 (the inner weight is adhesive)
	The STATIC 1 function is a procedure that offsets wheel vibrations using a single adhesive weight on a single place positioned exactly at 12 o’ clock. Enter the measurements (para. 7.1 on page 22) and proceed as described in para. 7.3.1 Dynamic balancing, for inner side of wheel only
	The STATIC 2 function is a procedure that offsets wheel vibrations using a single weight with clip on a single plane positioned exactly at 12 o’ clock. Enter the measurements (para. 7.1 on page 22) and proceed as described in para. 7.3.1 Dynamic balancing, for inner side of wheel only

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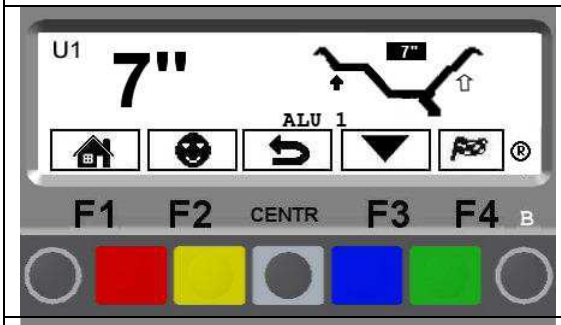
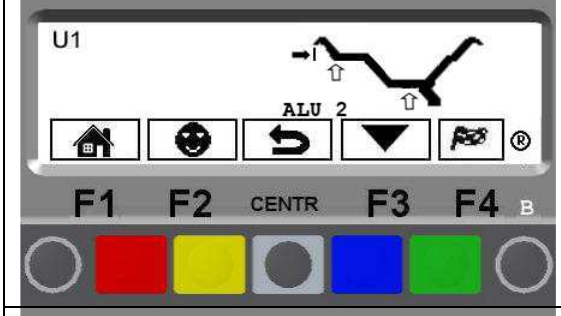
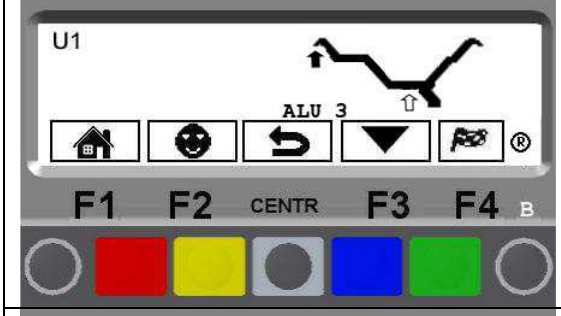
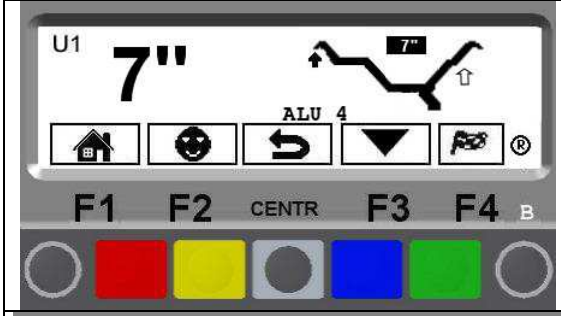
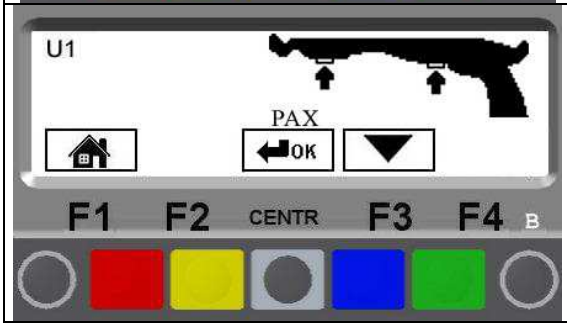
POSSIBLE SELECTION FUNCTIONS	DESCRIPTION
	The ALU 1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer and inner sides of the rim. Enter the measurements (para. 7.1 on page 22) and proceed as described in para. 7.4.1 on page 36.
	The ALU 2 function balances wheels with light alloy rims by fitting adhesive weights on the outside and inside of the rim. The position of the outer weight is not visible but hidden inside. Enter the measurements (para. 7.1 on page 22) and proceed as for dynamic unbalance.
	The ALU 3 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight on outer side, not visible because inside the rim. Enter the measurements (para. 7.1 on page 22 and proceed as for dynamic unbalance.
	The ALU 4 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight on outer side. Press the “CENTRE key” to confirm. Enter the measurements (para. 7.1 on page 22) and proceed as for dynamic unbalance.
	The PAX function is a procedure that permits balancing PAX wheels using adhesive weights at pre-set distances to offset wheel unbalance. Press the “CENTRE key” to confirm. Select the wheel type model and proceed as described in para. 7.4.2 on page 38.

For ALU-S, STATIC, ALU 1 and PAX functions, see separate paragraphs.
For all the other previously indicated functions, wheel balancing will be done as indicated for dynamic balancing para. 7.3.1 on page 27.
The wheel balancer will automatically correct the measurements entered by the operator according to the selected function.

7.4.1 ALU 1 Procedure

Make sure the wheel is devoid of any stones and/or mud.

Remove any counterweights.

Fit the wheel and make sure this is fastened properly (para. 5 on page 19)

From the first display page (para. 6 on page 21) press the “F2 key” PRG to select the type of desired correction; by means of the "F3 key” ▼ display the ALU 1 function and determine the dimensions of the wheel using the automatic gauge provided (para. 7.1 on page 22)
After data entering, close the protection guard to automatically start wheel spin.
In just a few seconds, the wheel will turn at normal speed and the wheel balancer display screen shows wheel rotation (Figure 45). Do not touch the wheel while taking measurements. At the end of the spin, the wheel will stop automatically, taking into account the measured unbalance so the outer weight fitting position is **exactly at 12 o’ clock** (except LIBRAK 238H/HM/HFM). Open the protection guard.

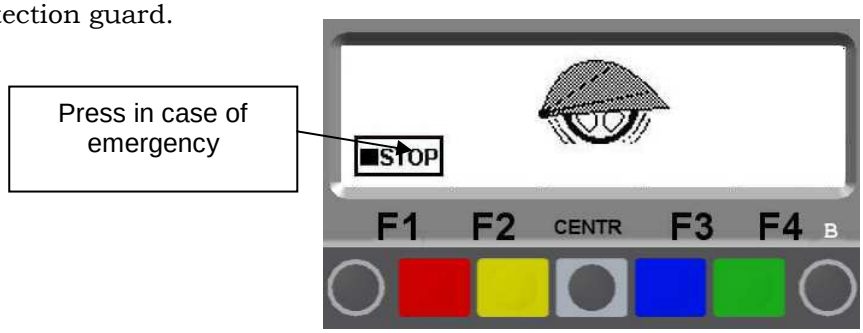


Figure 45

The display screen shows the weight required to correct the unbalance (Figure 46).

Turn this in the direction indicated by the arrows, until the correct position has been reached to correct the unbalance (para. 7.3.2 on page 29).
When this is reached, press the pedal brake to stop the wheel.

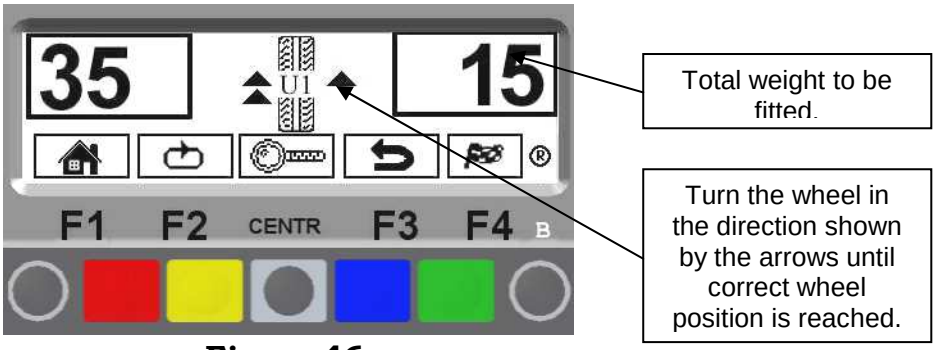


Figure 46

ICON	KEY	DESCRIPTION
	RED (F1)	Return to initial program phase
	YELLOW (F2)	Display next row of keys (MATCHING and HIDDEN WEIGHTS PROCEDURE)
	CENTRE	Display exact unbalance (pitch 1g instead of 5g)
	BLUE (F3)	Display previous page
	GREEN (F4)	Perform spin with protection guard closed
Ⓡ	B	Function key used for the “Recalculation” key (para. 7.5 on page 39)

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Once the tyre has been correctly positioned, fit the adhesive weight on the outer side of the wheel. The outer side weight must be positioned **by hand high up on the vertical** (Figure 47).

Figure 47

To fit the adhesive weight on the inner part of the wheel, turn the wheel in the direction of the arrows until the correct position is reached (the two arrows must be horizontal).
Pull out the automatic gauge and fit the adhesive weight in the pliers as shown in Figure 48, using a weight of pre-determined value (the example in Figure 46 shows 35g).

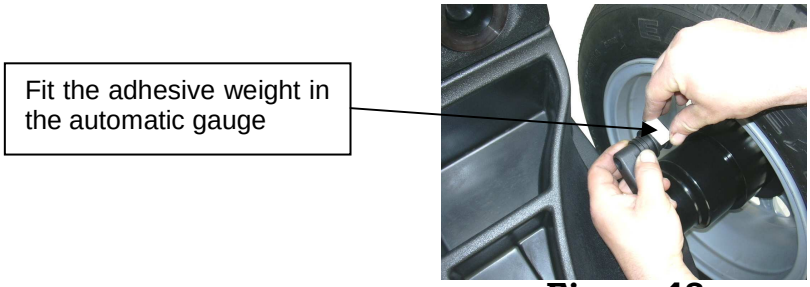

Figure 48

An arrow that appears in the box shows the weight is coming close to correction position. When two fixed arrows are achieved (Figure 49) fit the adhesive weight on the inner side in the position where the weight pliers touch the wheel.

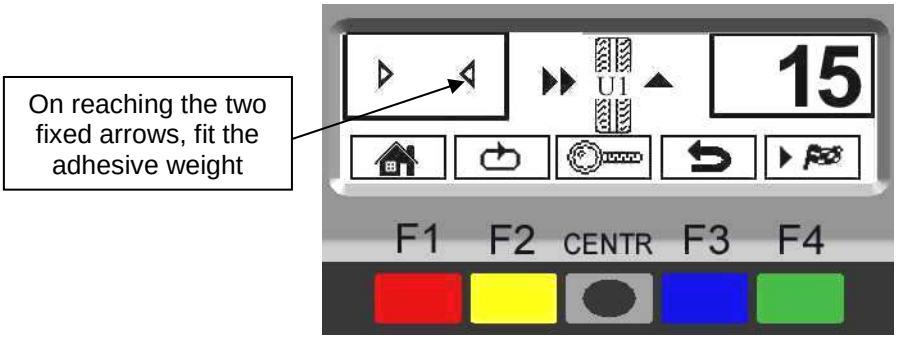

Figure 49

The fact that the weight fitting position is no longer at 12 'o' clock (Figure 50) is automatically offset. If you wish to hide the adhesive weight behind the spokes, refer to weights hidden behind spokes mode at para. 10 on page 46.

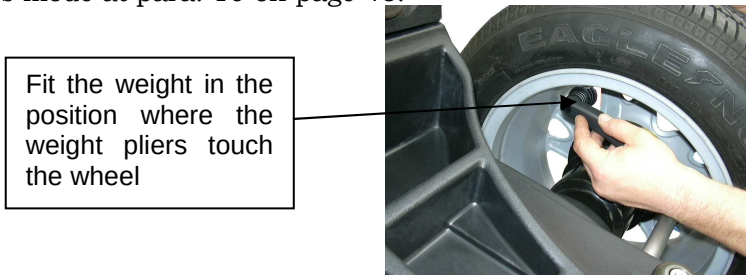

Figure 50

Check wheel balance conditions by making a trial spin.
The ALU 1 procedure is now completed.

7.4.2 PAX Mode

Make sure there are no stones and/or mud on the wheel.

Remove any counterweights.

Fit the wheel and make sure this is secured properly (para. 5 on page 19)
From the initial display page (para. 6 on page 21) press the "F2 key" PRG to select the type of desired correction. By means of the "F3 key" ▼ display the PAX function and select the "CENTRE key" OK.

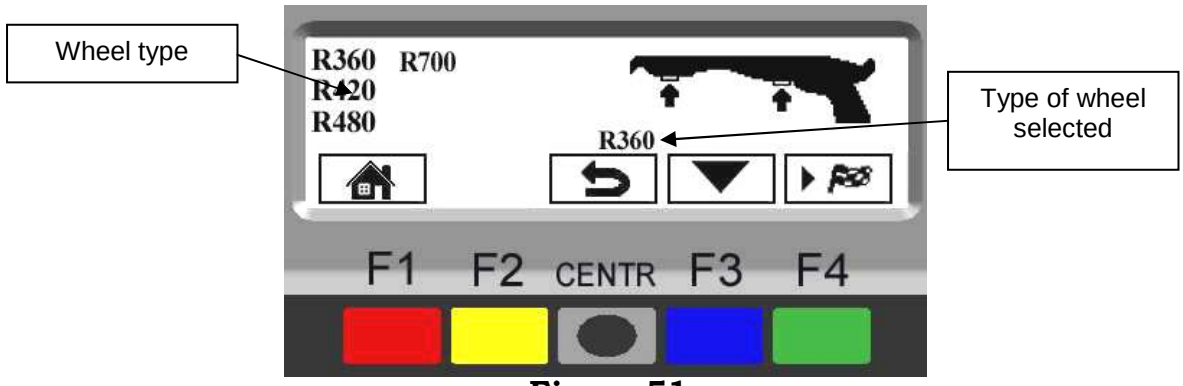

Figure 51

ICON	KEY	DESCRIPTION
	RED (F1)	Return to initial program phase
	CENTRE	Display wheel type measurements
	BLUE (F3)	Select wheel types
	GREEN (F4)	Perform spin with protection guard closed

Select the type of wheel using the "F3 key" and close the protection guard to automatically start wheel spin.
In just a few seconds, the wheel will spin at normal speed. The wheel balancer display screen shows wheel rotation (Figure 52). Do not touch the wheel while reading measurements. At the end of the spin, the wheel will stop automatically, also taking into account the measured unbalance, so the outer weight fitting position is around 12 'o' clock (except LIBRAK 238H/HM/HFM). Open the protection guard and proceed to fit the weight as shown for the ALU-S mode (para. 7.3.3 on page 30).

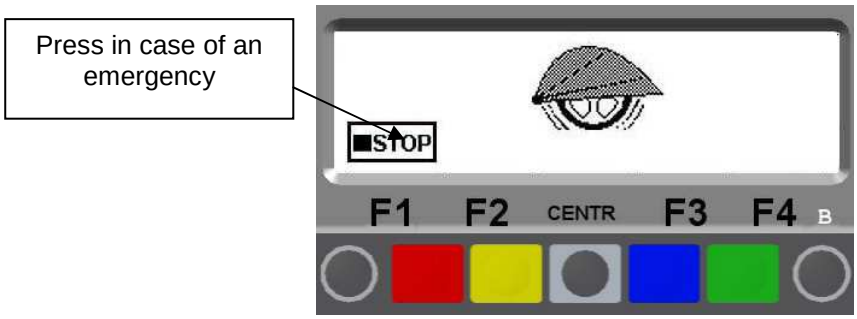

Figure 52

7.5 Recalculation function

After making a spin, the wheel automatically stops and the required weight/s and its/their position is/are always indicated.
If a test is performed in DYNAMIC, ALU-S, or STATIC mode, the data of the other modes can be obtained without making another spin by simply setting other dimensions and pressing the "Recalculation" key "Ⓡ"

From the results page (see for example Figure 33), press the key ⮌; the entered measurements page will be displayed (see Figure 30).

At this point, simply set the dimensions again, in ALU-S, STATIC or again DYNAMIC mode, as explained in para. 7.1, and press key R "Ⓡ"
The screen will show a new page with weights and position, in the new ALU-S, STATIC or DYNAMIC modes, taking into account the new dimensions.
No new spin has to be made because the machine continues to store the data of the previous spin.

Similarly, new weight and position data can be obtained by switching from an "Auxiliary Programs" mode (see para. 7.4) to another mode (ALU-S1 – ALU-S2 - STATIC1 - STATIC2 - ALU1 – ALU2 – ALU3 - ALU4 – PAX) without making another spin.

If, for example, key R "Ⓡ" is pressed from the page where the ALU1 results are shown (see Figure 46) the program displays the list of auxiliary programs (see para. 7.4).

At this point, select the required program by means of the key ▼, if necessary set the new dimensions and press key R "Ⓡ" again to obtain the weight and position values in the new mode, taking into account the new dimensions.

7.6 ECO-WEIGHT procedure (LIBRAK 248H/ HP - LIBRAK 250H/ HP)

After making the wheel spin in ALU-S mode, the monitor shows the total of 2 adhesive weights to precisely correct STATIC and DYNAMIC unbalance. (see Figure 36)
The possibility exists of fitting a single weight at a predetermined distance from the machine, so as to optimise the weight consumption and reduce both the DYNAMIC and any remaining STATIC unbalance as much as possible.

Unlike the standard STATIC procedure, the ECO-WEIGHT procedure, though only using one weight, also considerably reduces the DYNAMIC unbalance, because the fitting distance of the weight on the rim is also calculated.

From the ALU-S unbalance results page (see Figure 36), press the Eco-Weight "Ⓔ"key
The page shown in Figure 53 will appear.

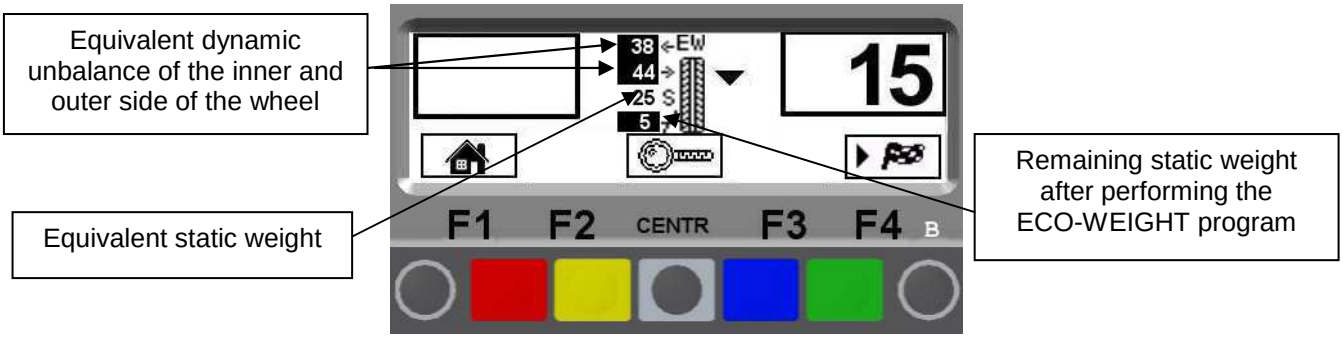

Figure 53

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous phase (display of ALU-S values)
	CENTR	Displays the exact unbalance (not approximate at >2/> 5g)
	GREEN (F4)	Performs test spin (with wheel cover closed)

Pull out the automatic gauge and fit the adhesive weight in the pliers as shown in Figure 54 using a weight of pre-determined value (the example in Figure 53 shows 15g).

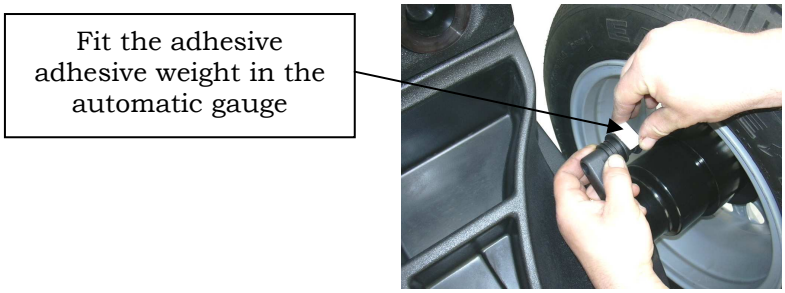

Figure 54

The moving of the weight close to the correction position is indicated by an arrow which appears in the box. When two fixed arrows are reached fit the adhesive weight on the inner side in the position in which the weight pliers touch the wheel.

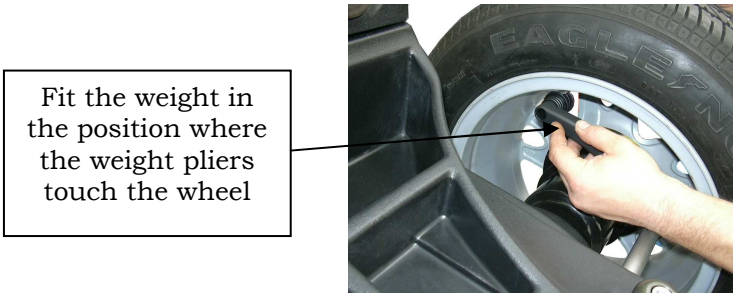

Figure 55

Check the wheel balance conditions, by making a test spin.
The ECO-WEIGHT procedure has now been completed

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8 WHEEL BALANCING IN MOTORCYCLE MODE

By enabling the “motor-cycle wheel balancing” function (see Figure 83 on page 55) the BUTLER wheel balancers can also balance motorcycle wheels.

From the opening page, press the "centre key" to select car (Figure 56) or motorcycle (Figure 57) balancing mode.

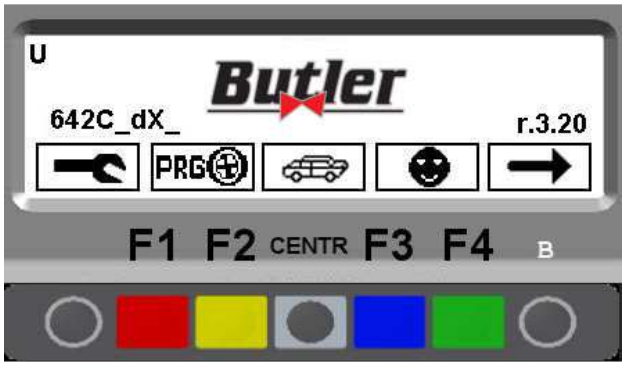

Figure 56

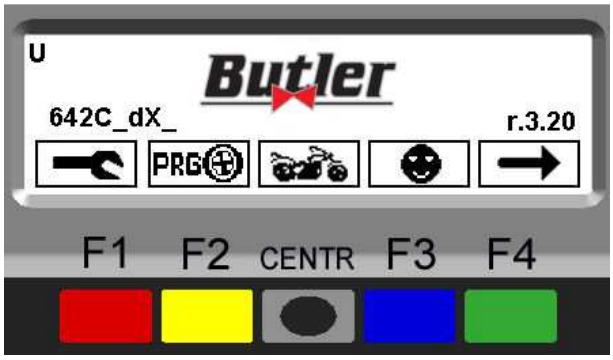

Figure 57

The "motorcycle" mode automatically recalculates the wheel distance measurement, increasing this by the length of the optional extension GAR181 A1.
To fit the distance extension, the old non-threaded end part of the arm must be removed and the threaded one fitted (see Figure 58). The extension will only have to be screwed up when balancing is performed in "motorcycle" mode.

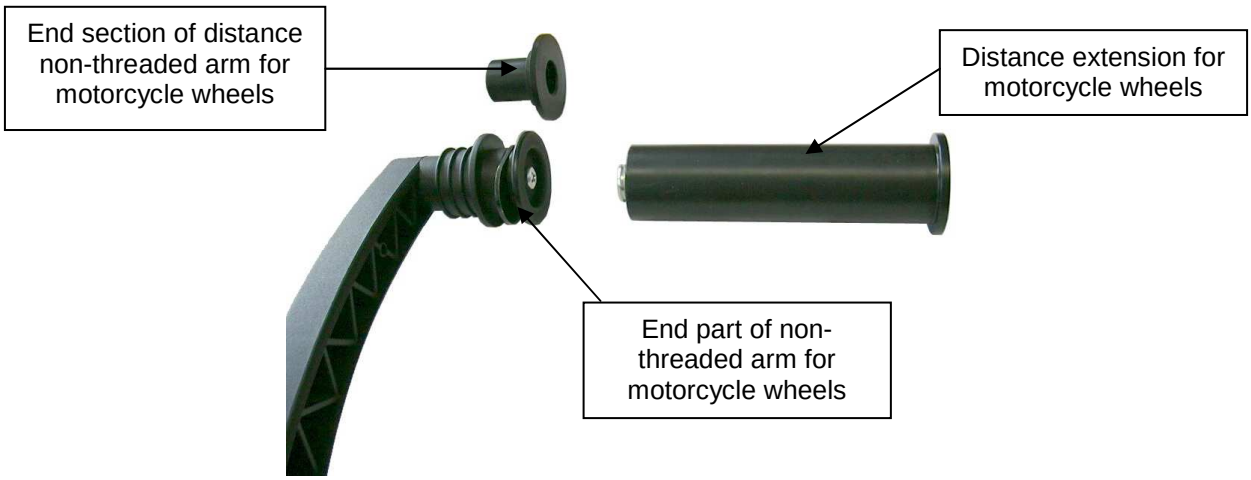

Figure 58

Balancing procedures are identical for both modes (car/motorcycle).
By selecting motorcycle, besides dynamic balancing (see para. 7.3.1 on page 27) STATIC balancing and/or ALU-S (para. 7.3.4 and/or 7.3.3 on page 32 and/or 30) can also be performed, by pressing the "F2 key" from the opening page.

9 SPLIT PROCEDURE

The Split procedure is useful when the dynamic unbalance (para. 7.3.1 on page 27) of a wheel is fairly high and the weight to be fitted is not available, for instance an 80 g weight. The unbalance can be corrected by splitting the total weight into two smaller weights.

The Split procedure eliminates errors caused by fitting two 40 g weights close to one another, which could leave considerable outstanding unbalance.

For example:

100 g WEIGHT
TO BE FITTED TO CORRECT UNBALANCE

TWO SMALLER WEIGHTS (50g)
FITTED MANUALLY

100g WEIGHT
TO BE FITTED TO CORRECT UNBALANCE

TWO SMALLER WEIGHTS (55g)
USING SPLIT PROCEDURE

Proceed to display the dynamic unbalance measurement by performing a normal wheel spin (para. 7.3.1 on page 27).

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Once the unbalance values have been found (Figure 59):

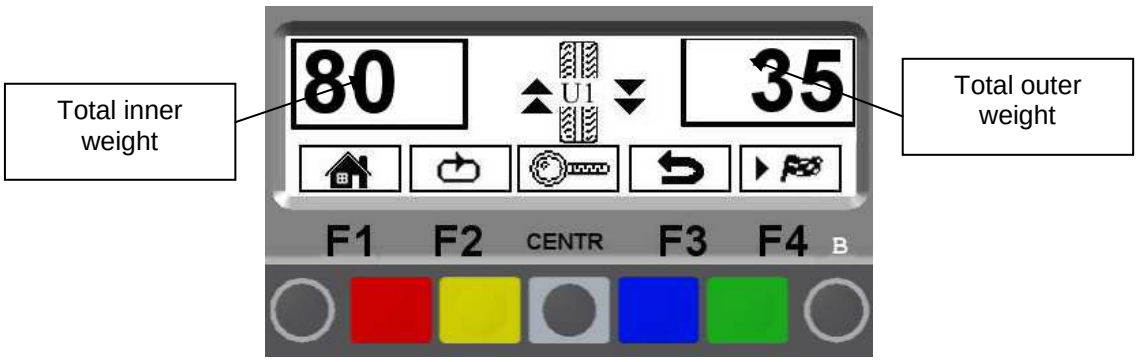

Figure 59

Press “key F2” corresponding to icon  .
The display screen will show another row of keys (Figure 60).

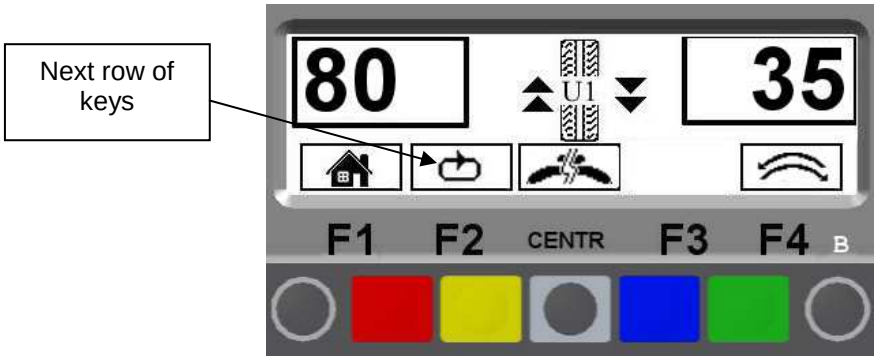

Figure 60

Press the key relating to the SPLIT function  , the system will display the page in Figure 61.

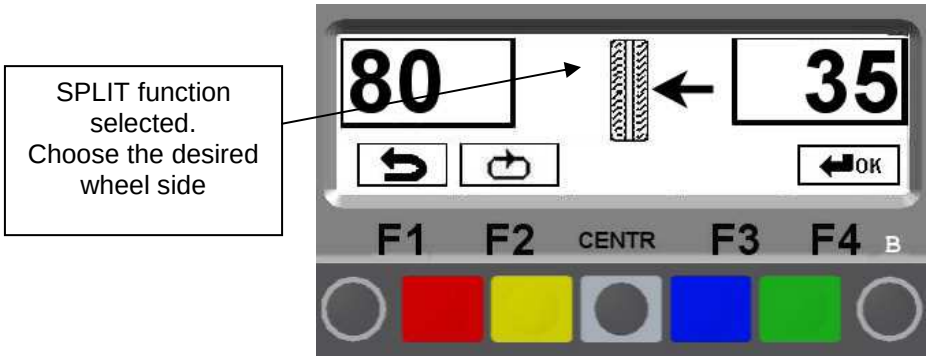

Figure 61

Press “key F2” corresponding to icon to select the desired wheel side (outer or inner). Depending on the selected side, the monitor will show the position of the direction arrows.

Press “key F4” to confirm.

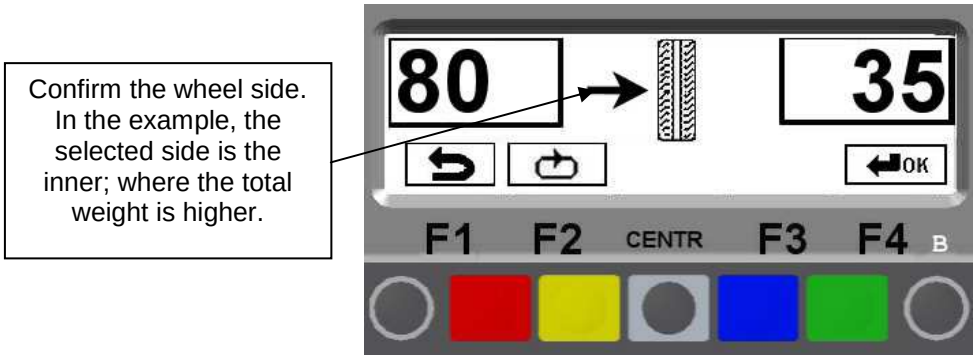

Figure 62

ICON	KEY	DESCRIPTION
	RED (F1)	Displays the previous program page
	YELLOW (F2)	Selects wheel side (outer or inner)
OK	GREEN (F4)	Confirms selection and continues

At this point, the system will display the quantity of the two weights to be fitted on the wheel (see Figure 63).

Using the keys corresponding to icons and , the operator can increase or decrease the quantity of the weights in the awareness that, the bigger the weights, the bigger the distance will automatically be between them.

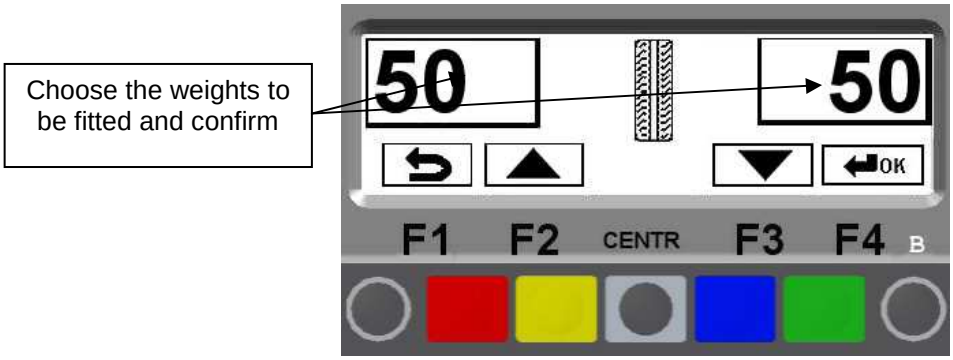

Figure 63

Choose the value of the weights to be fitted and press “key F4” to confirm.

ICON	KEY	DESCRIPTION
	RED (F1)	Displays the previous program page
	YELLOW (F2)	Increases the weight to be fitted
	BLUE (F3)	Decreases the weight to be fitted
OK	GREEN (F4)	Confirms the selection and continues

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Turn the wheel at the point indicated by the direction arrows, until the correct position has been reached to correct the unbalance (para. 7.3.2 on page 29).
When this position is reached, press the pedal brake to stop the wheel, fit the first weight.

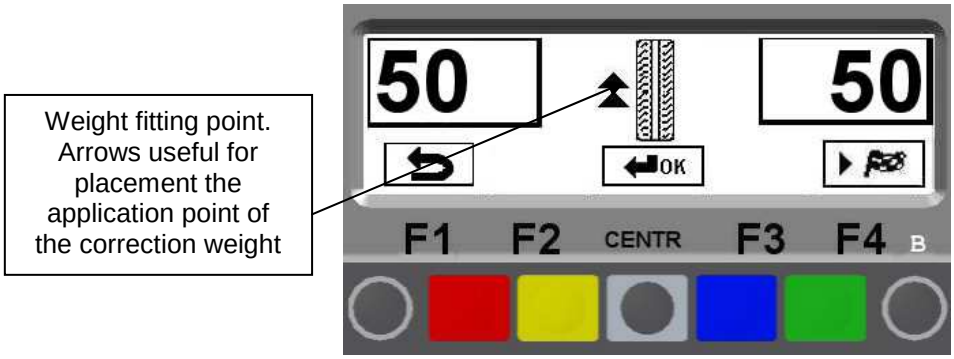

Figure 64

The monitor again displays Figure 64. Turn the wheel at the point indicated by the direction arrows, until the correct position has been reached to correct the unbalance (para. 7.3.2 on page 29).
When this position is reached, press the pedal brake to stop the wheel, fit the SECOND weight.

The inner side operation is complete. Press the SPLIT function key  again (to perform the same operation for the outer side of the wheel) or fit the outer weight on the top part of the wheel, at 12 'o' clock.

10 WEIGHTS HIDDEN BEHIND SPOKES MODE

Adhesive correction weight positioning may not look attractive on some types of rims. In this case, the "weights hidden behind spokes" mode can be used. This splits any correction weight on the outer side into two parts to be hidden behind the rim spokes. Can be used in both Static or ALU-S modes.

Proceed to display the static or ALU-S unbalance measurements (para. 7.3.3 on page 30) by performing a spin (Figure 65).

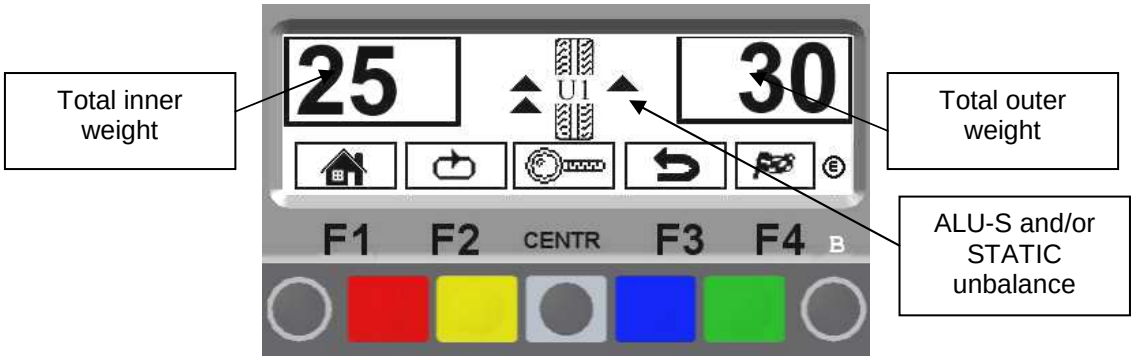

Figure 65

Once the unbalance values have been determined, press the “F2 key” corresponding to the icon  . At this point, the next row of keys is displayed on the monitor.

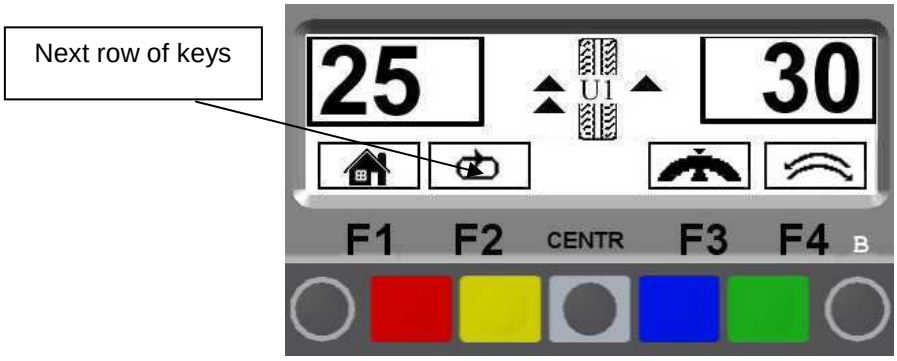

Figure 66

Press the “F3 key” relating to the weights hidden behind spokes mode  .The program will display the box in Figure 67.

Move any spoke up to 12 'o' clock (in many cases, the position could already be behind or near one of the spokes) and press the “F4 key” to confirm and continue.

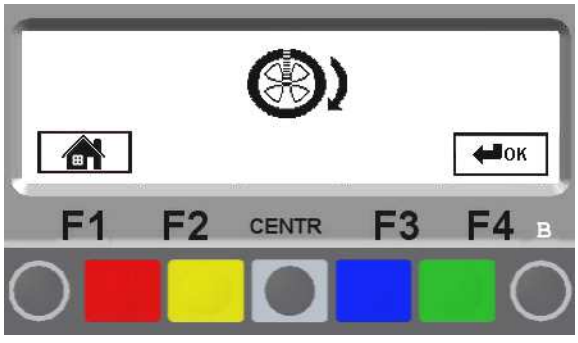

Figure 67

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ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page.
OK	GREEN (F4)	Confirm spoke positioning at 12 'o' clock

Enter the number of spokes existing on the wheel, using keys F2 and F3 (Figure 68).
A minimum of 3 spokes and a maximum of 12 can be entered.
Press the “F4 key” to confirm and continue.

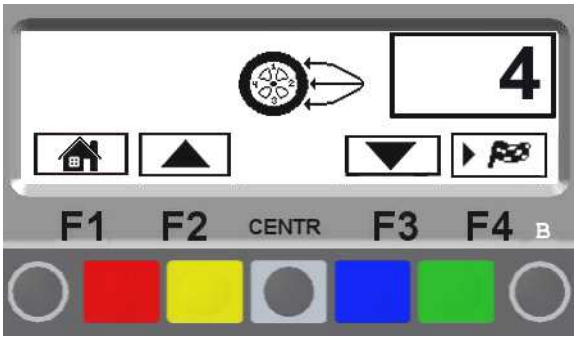

Figure 68

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page.
	YELLOW (F2)	Increase number of spokes
	BLUE (F3)	Decrease number of spokes
OK	GREEN (F4)	Confirm number of spokes

The machine automatically calculates weight position in two parts hidden behind the spokes.

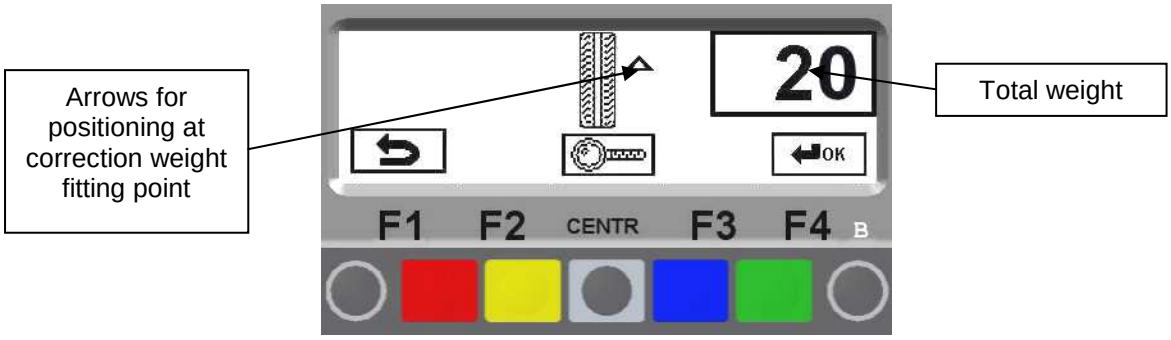

Figure 69

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page.
	CENTRE	Display exact unbalance (pitch 1g instead of 5g)
OK	GREEN (F4)	Confirm and continue second weight positioning

Position the wheel correctly (see para. 7.3.2 on page 29) and stop the wheel with the pedal brake. Fit the adhesive weight (in the example this is 20g) in the automatic gauge as shown in Figure 70.

Figure 70

Fit the adhesive weight inside the spoke at the point indicated on the display screen Figure 71.

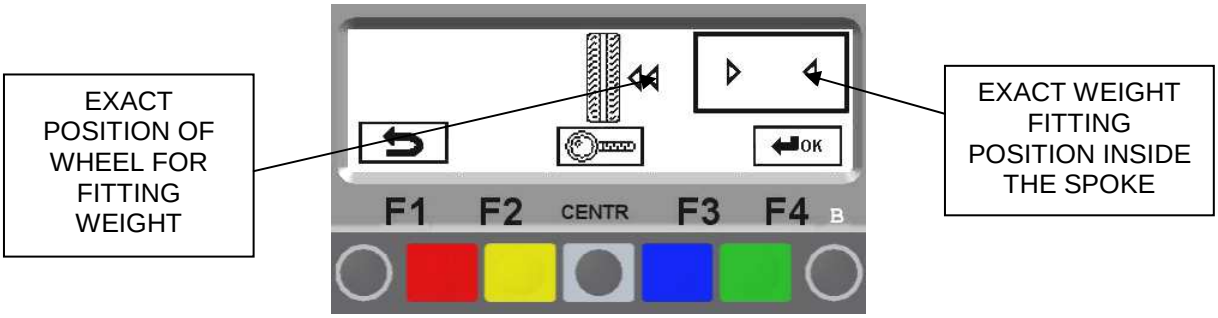

Figure 71

Press the “F4 key” to confirm weight positioning behind the spoke and continue.

The display screen will show the page in Figure 69 for fitting the second weight.

Correctly position the wheel (see para. 7.3.2 on page 29) and stop this by means of the pedal brake.

Fit the second adhesive weight in the automatic gauge as shown in Figure 70.

Fit the adhesive weight inside the spoke at the point indicated on the display screen Figure 71.

Press the “F4 key" to confirm positioning of second weight behind the spoke.

The system displays the initial unbalance situation before performing the RAZ procedure

Perform another trial spin.

The RAZ procedure is completed.

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11 MATCHING PROCEDURE (Rim-tyre optimisation)

The Matching procedure offsets strong unbalance, reducing the weight quantity to be fitted on the wheel to achieve balancing. This procedure permits reducing unbalance as much as possible by offsetting the tyre unbalance with that of the rim.

After displaying any unbalance measurement (see example in Figure 72)

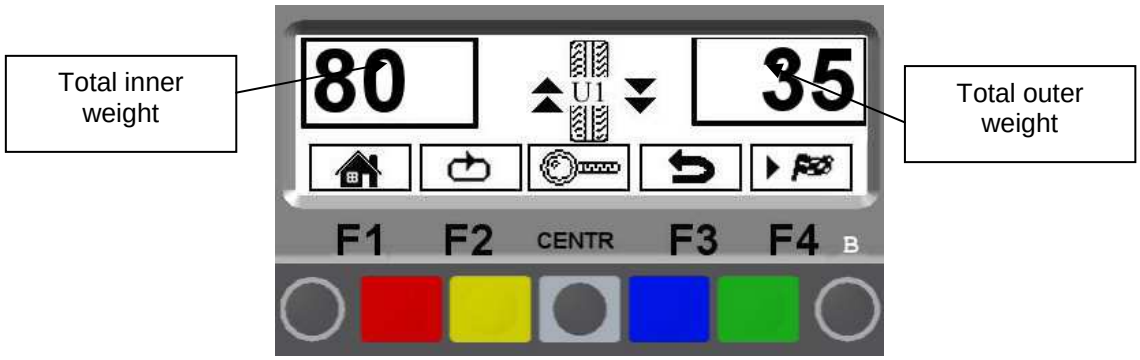

Figure 72

Once detected the unbalance measurements, press the F2 key corresponding to the icon  . The monitor will show a new key sequence (Figure 73).

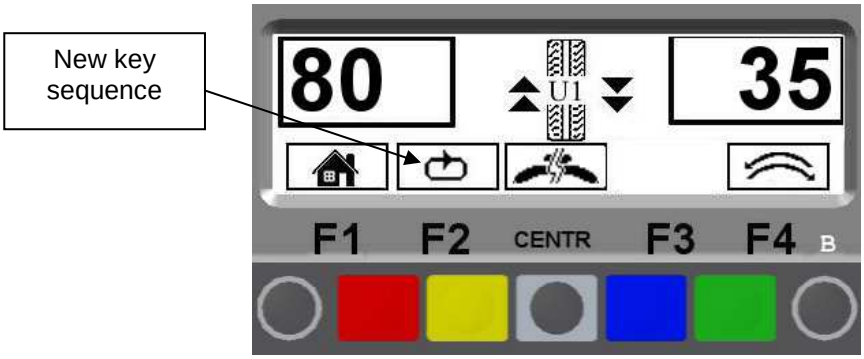

Figure 73

Press the key relating to the MATCHING function  (*). The system displays the page in Figure 74. The display screen instructs to perform rim-tyre rotation.

(*)  : The MATCHING operation can only be performed if the static unbalance is > of 30g. If it is less than this, the key relating to this operation is not displayed.

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous measurement page
	GREEN (F4)	Performs spin

Make a reference mark, using chalk for instance, of the position of the rim and tyre, remaining in line with the arrow on the flange, so as to be able to fit the rim back on in the same position.

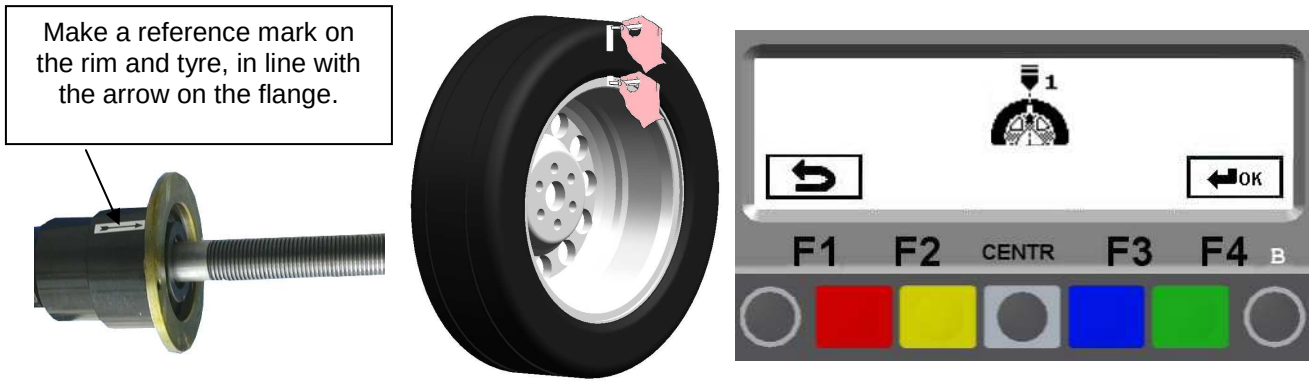

Figure 74

Remove the wheel from the wheel balancer. Remove the tyre and turn it on the rim by 180°.

Figure 75

Fit the wheel back on the wheel balancer, positioning the reference mark on the rim in line with the arrow on the flange.

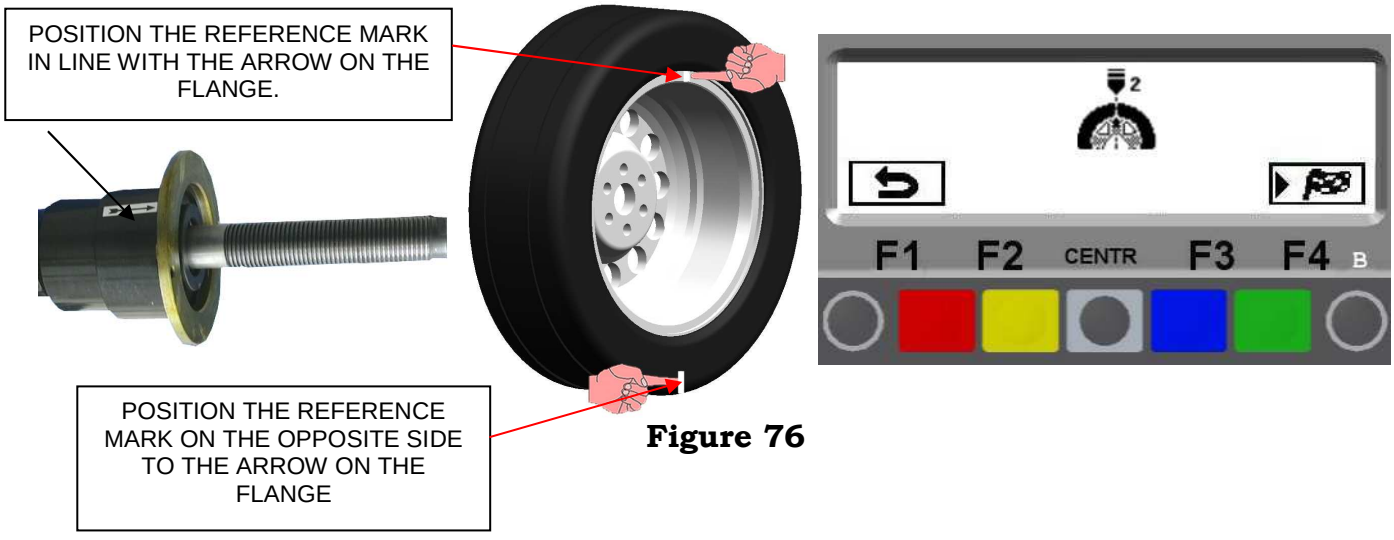

Figure 76

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Close the protection guard. Make the second spin by pressing the "F4 key". After the spin, the following page appears on the monitor:

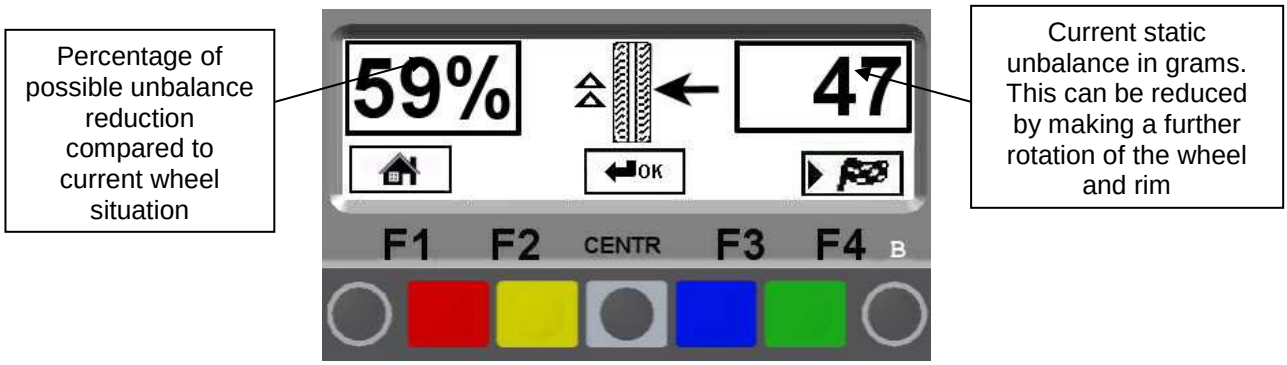
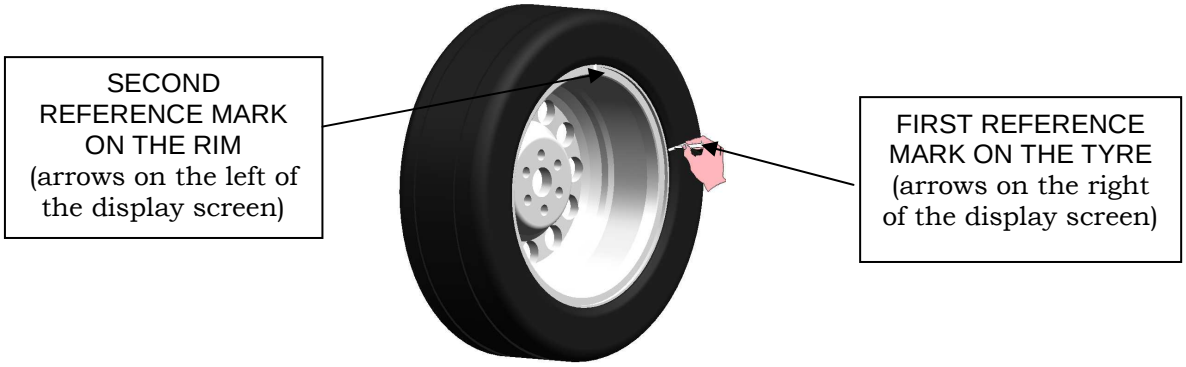


Figure 77

ICON	KEY	DESCRIPTION
OK	CENTRE	Once again displays the page with the unbalance values.

Cancel the previously made reference marks.
Position the wheel following the arrows on the display screen. Look at the arrows on the right. When these are horizontally (see para. 7.3.2. on page 29) make the first reference mark on the tyre.

Look at the arrows on the left. Turn the wheel again until second position is reached. When these are horizontally (see para. 7.3.2. on page 29) make the first reference mark on the rim.



Remove the wheel from the wheel balancer. Remove the wheel and turn the tyre on the rim so the two points coincide with the wheel when fitted back on the wheel balancer. (Figure 78). The two reference marks must be in line with the arrow on the flange.

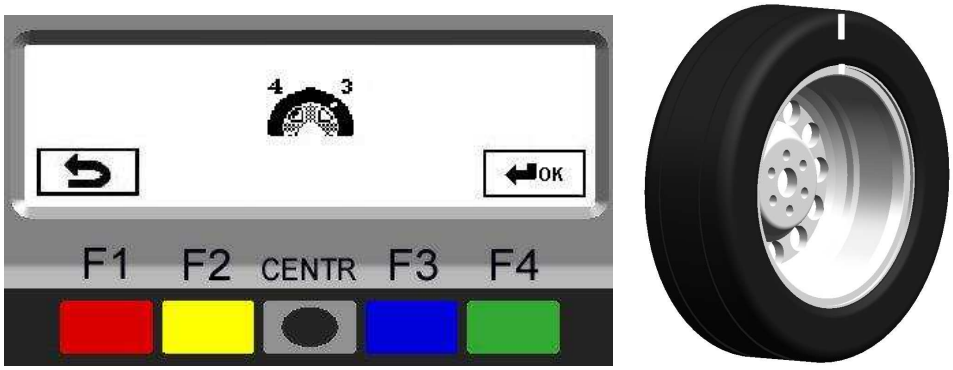


Figure 78

Press the green key corresponding to icon OK on the keyboard. The system will again display the page with previous unbalance values.

Perform another spin and correct any residual unbalance using the weights at disposal.

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12 SETUP OF MEASUREMENT, RESOLUTION, WIDTH MEASUREMENT OPTIONS AND SETTING CAR/MOTORCYCLE MODE

12.1 Unit for measuring the weight and width/diameter of the rim

The weight determining wheel unbalance can be indicated on the monitor with "gram" or "ounce" measurement unit.
The width and diameter can be indicated in "inches" or "mm"

To change the unit of measurement, press the "F1 key" from the opening presentation page (Figure 16 on page 21); the program will show the following display page:

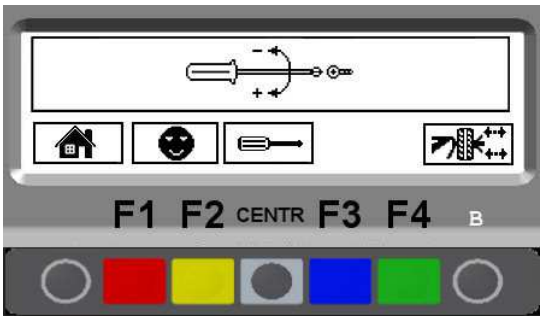


Figure 79

ICON	KEY	DESCRIPTION
	RED (F1)	Return to program opening page
	YELLOW (F2)	Client configuration. Enter the password: **F1-F2-CENTR-F3**
	CENTRE	For technical assistance only
	GREEN (F4)	Open/Close the pneumatic chucking

Press the “F2 key” 

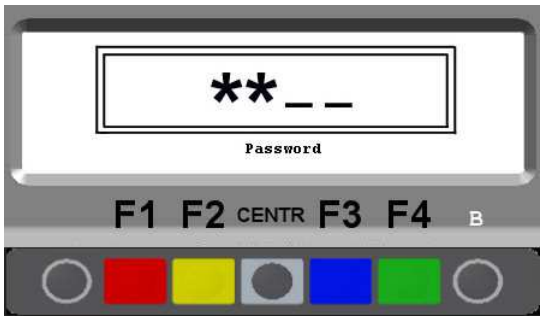


Figure 80

Enter the password **F1-F2-CENTR-F3**, the program will show display page in Figure 81:

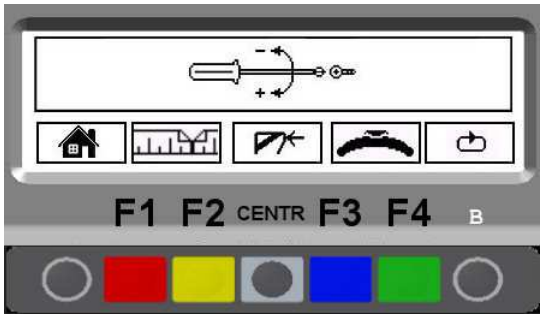


Figure 81

Press the "F4 key"  , the program will show the following display page:

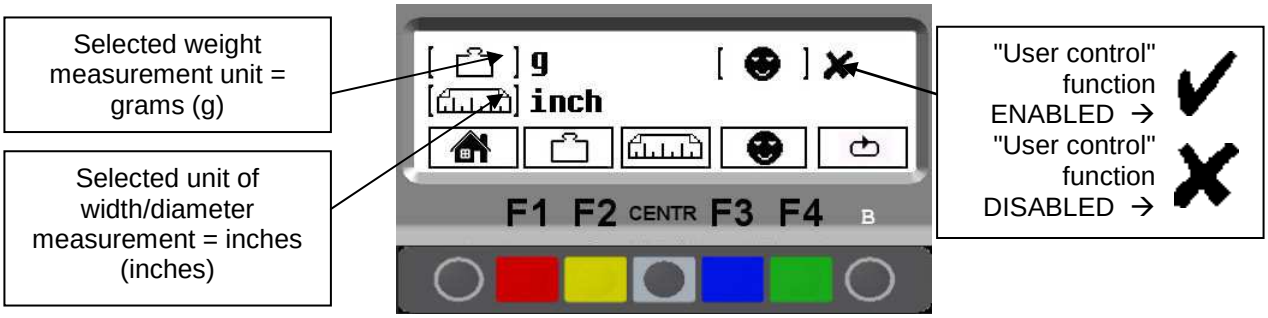
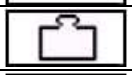


Figure 82

ICON	KEY	DESCRIPTION
	RED (F1)	Return to page in Figure 79.
	YELLOW (F2)	Change unit of weight measurement from grams (g) to ounces (oz) and vice versa
	CENTRE	Change unit of width/diameter measurements from inches (in) to millimetres (mm) and vice versa
	BLUE (F3)	Enable/disable "User control" function (see para. 7.2 on page 26)
	GREEN (F4)	Display subsequent operations

Press the "F2 key"  to change weight unit of measurement from grams to ounces and vice versa. The symbol "g" or "oz" appears on the monitor.

Press the "CENTR key"  to change the width and diameter unit of measurements from inches to millimetres and vice versa. The symbol "in" or "mm" appears on the monitor.

After setting the required measurement unit, to engage or disengage the motorcycle wheel balancing mode, press the "F4 key"  .

The program will show the following display page:

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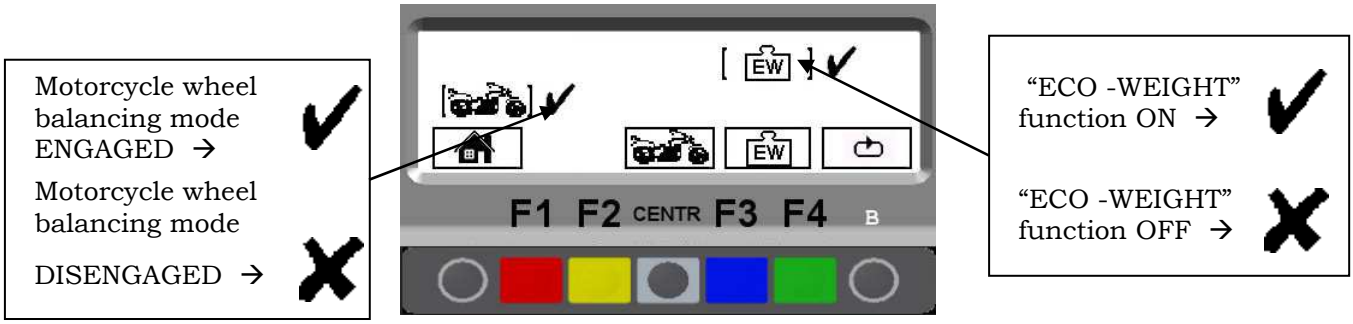

Figure 83

ICON	KEY	DESCRIPTION
	RED (F1)	Return to page in Figure 79.
	CENTRE	Engage/disengage motorcycle wheel balancing mode.
	BLUE (F3)	Engage/disengage "ECO -WEIGHT" function (see para. 7.6 on page 39)
	GREEN (F4)	Display subsequent operations

Press the "CENTR key"  to engage or disengage motorcycle wheel balancing mode.

Press the "F3 key"  to engage or disengage "ECO -WEIGHT" function (see para. 7.6 on page 39)

All the settings of the measurement unit are stored even after the machine is switched off.

12.2 Setting preview result of static and eco-weight

During the ECO-WEIGHT procedure (see par. 7.6) it is possible to enable or disable the preview of some result:

- Equivalent static unbalance of the wheel
- Eco-weight preview.

To unable or disable these result previews, press the "F1 key"  ; from the opening presentation page. The program will display the page in Figure 79.

Press the "F2 key"  . Enter the password **F1-F2-CENTR-F3** to access the "client configuration" page (Figure 81).

From the "client configuration" page (Figure 81), press "key F4"  **3 times in succession.** The page in Figure 85 will appear.

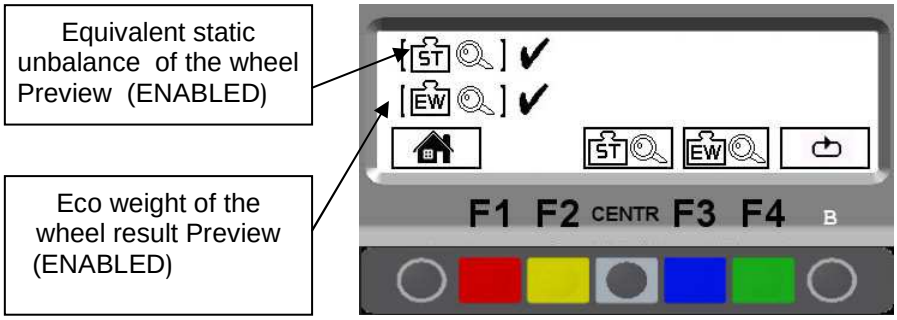

Figure 84

ICON	KEY	DESCRIPTION
	RED (F1)	Return to configuration page Figure 79
	CENTRE	enable/ disable static unbalance preview
	BLUE (F3)	enable/ disable eco-weight preview
	GREEN (F4)	Return to client configuration page Figure 81

To enable / disable required result preview, press the key  or 

When the preview is enabled, this is shown by a mark ✔, see the example above:

After terminating the operation, press the "F1 key"  to exit.

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12.3 Setting width and run-out measurement options

To enable the "automatic rim width measurement", optional devices, press the "F1 key"  ; from the opening presentation page. The program will display the page in Figure 79.

Press the "F2 key"  . Enter the password **F1-F2-CENTR-F3** to access the "client configuration" page (Figure 81).

From the "client configuration" page (Figure 81), press "key F4"  **4 times in succession.** The page in Figure 85 will appear.

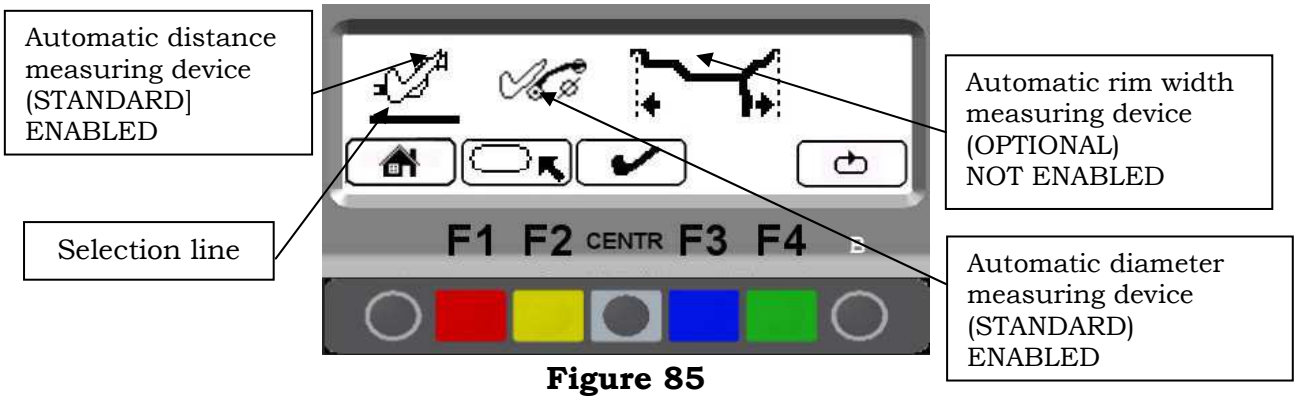

Figure 85

ICON	KEY	DESCRIPTION
	RED (F1)	Return to configuration page Figure 79
	CENTRE	Move the box onto the device to be enabled/disabled
	BLUE (F3)	Enable/disable the selected device
	GREEN (F4)	Return to client configuration page Figure 81

To enable the required device, move the box onto the symbol that represents it by means of the "F2 key"  and activate by means of the "CENTR key"  .

When the device is enabled, this is shown by a "mark off", see example below:

Automatic rim width measuring device ENABLED → 

Automatic rim width measuring device DISABLED → 

IMPORTANT: The automatic distance and diameter measuring device is always standard. It must only be disabled in case of faults.

After terminating the operation, press the "F1 key"  to exit.

12.4 Lower weight limit

Correction weights below a certain limit are normally shown equal to zero.
This limit can be set from 10g to 1g.

At the end of the spin however, by pressing the key  (see example Figure 33 on page 27), the weight can be displayed with max resolution of 1g, not considering the set lower limit.

To change the resolution and lower limit, from the opening presentation page (see chap. 6, Figure 16), press the “F1 key”  ; the program will display the page in Figure 79.

Press the “F2 key”  . Enter the password **F1-F2-CENTR-F3** to access the "client configuration" page (Figure 81).

From the "client configuration" page, press the "F4 key"  , **5 successive times**, the program will show the following page:

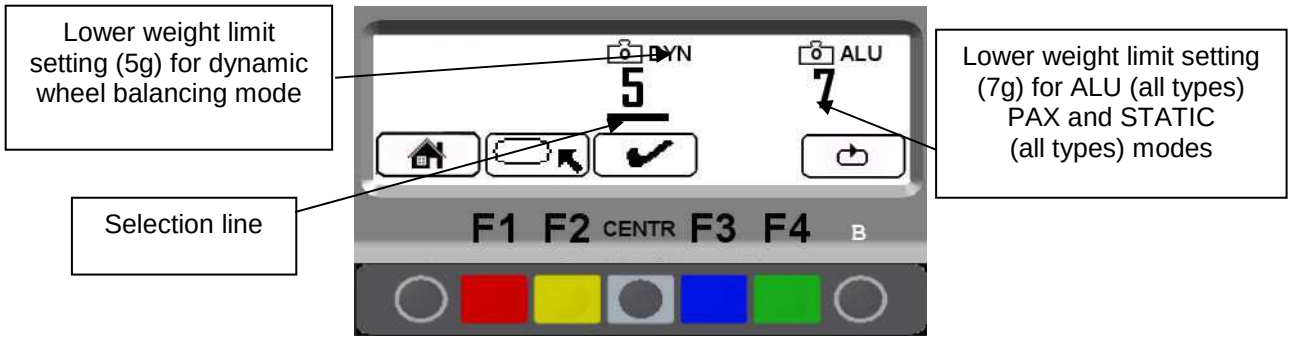

Figure 86

ICON	KEY	DESCRIPTION
	RED (F1)	Return to page in Figure 79
	YELLOW (F2)	Move the box onto resolution or lower limit value
	CENTRE	Changes values selected with the box
	GREEN (F4)	Displays client configuration pages (Figure 81)

Move the box onto the option to be changed by means of the “F2 key”  and set the lower limit from 1g to 5g by means of the “CENTRE key”  .
After terminating the operation press the “F1 key”  to exit.

Note: Both the resolution and the lower limit for dynamic wheel balancing mode are set at 5g. The lower limit for all the other modes is set at 7g.

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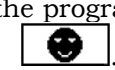
12.5 Setting adhesive weight dimensions and static threshold percentage

To ensure the balancing machine precisely calculates the dimensions and total adhesive weights, set the thickness and length of the adhesive weights at disposal.
It is also necessary to set the static threshold percentage used in the ECO-WEIGHT procedure.

To set the above values, from the initial presentation display page (see chap. 6, Figure 16), press the “F1 key"  ; the program will display the page in Figure 79.
Press the “F2 key”  . Enter the password **F1-F2-CENTR-F3** to access the "client configuration" page (Figure 81).

From the “client configuration” page, press “key F4”  **6 times in succession.** The program displays the following page:

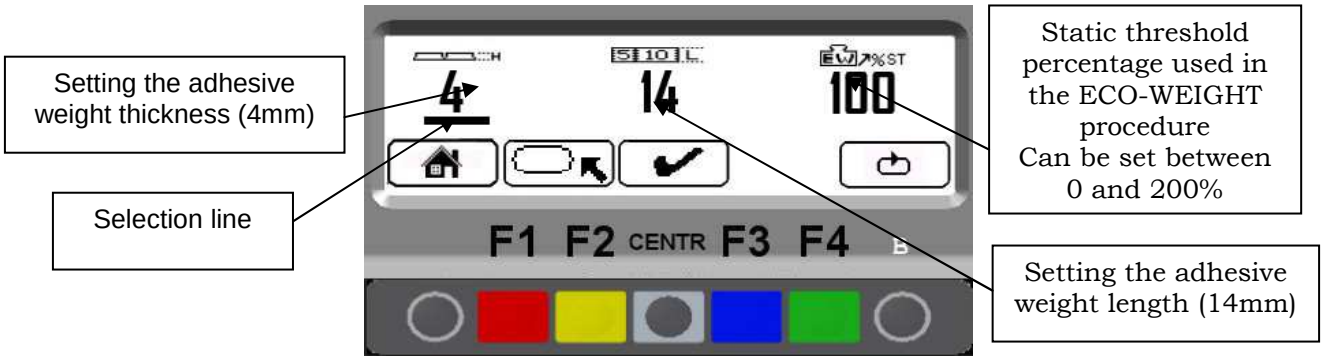


Figure 87

ICON	KEY	DESCRIPTION
	RED (F1)	Return to page in Figure 79
	YELLOW (F2)	Move the box onto adhesive weight dimension or static threshold percentage
	CENTRE	Changes values selected with the box
	GREEN (F4)	Displays client configuration pages (Figure 81)

Move the box on the option to be changed using “key F2”  Set the adhesive weight dimensions and the static threshold percentage by means of the “centr key”  .
After completing the operation, press “key F1”  to exit.

13 CALIBRATION

From the opening program presentation page (Figure 16 on page 21) press the “F1 key"; the program shows the following page:

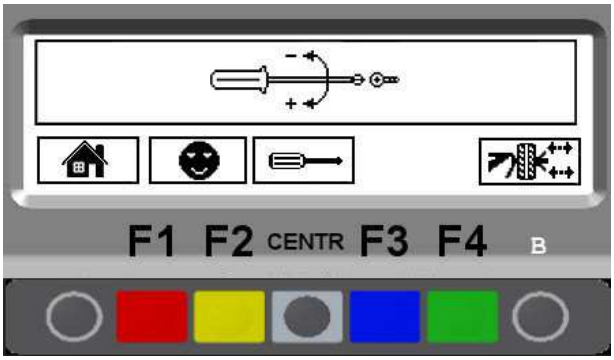


Figure 88

ICON	KEY	DESCRIPTION
	RED (F1)	Return to program opening page
	YELLOW (F2)	Client configuration. Enter the password: **F1-F2-CENTR-F3**
	CENTRE	Technical assistance only
	GREEN (F4)	Open/Close the pneumatic chucking

Press the “F2 key”  , enter the password **F1-F2-CENTR-F3**, the program displays the following page:

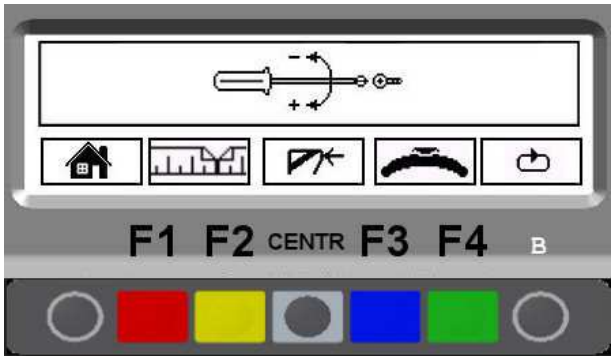
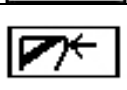


Figure 89

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page
	YELLOW (F2)	Performs distance and diameter calibration
	CENTRE	"Zero chucking-table" setting with empty shaft This operation must necessarily be performed after setting the weight sensor machine calibration.
	BLUE (F3)	Perform weight sensor machine calibration
	GREEN (F4)	Displays unit of measurement, resolution, width and run-out measurement option and car/motorcycle mode setting operations (chap. 12 page 53)

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13.1 Weight measurement sensor calibration

Fit a wheel of medium size, possibly balanced (ϕ =13÷14" , L = 4÷5").
From the calibration page menu (see Figure 88) press the weight sensor calibration "F3 key"; the program will display the following page:

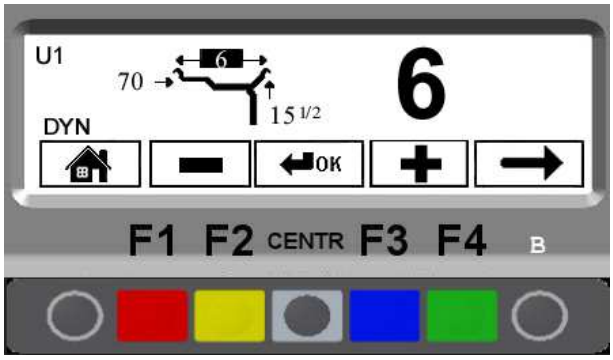

Figure 90

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page
	YELLOW (F2)	Decrease wheel dimension values
OK	CENTRE	Select measurements and confirm
	BLUE (F3)	Increase wheel dimension values
	GREEN (F4)	Display next page

Carefully enter distance, diameter and wheel width measurements, pressing the "CENTRE key" to select each measurement and confirm.
Select the "MINUS" or "PLUS" key to enter the desired values.

Press the "F4 key" to continue. The program will show the following page:

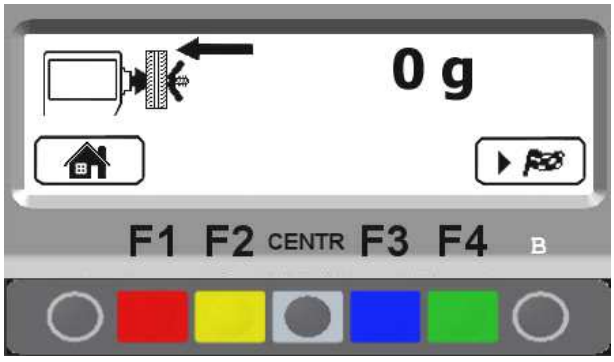

Figure 91

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page
	GREEN (F4)	Perform wheel spin

As shown in Figure 91, press the "F4 key" to perform a wheel spin without adding weights.

After making the spin, the program will show Figure 92:

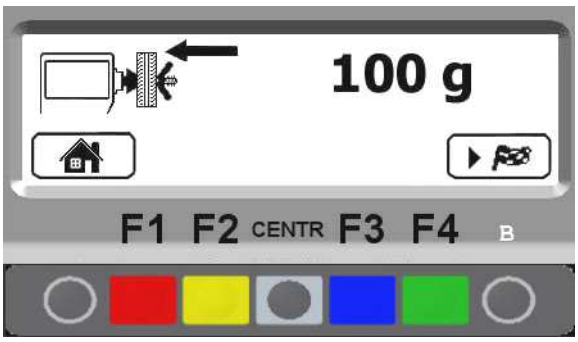

Figure 92

Fit 100g on the outside of the wheel, positioning the weight at 12 'o' clock.
Make a spin by pressing the “F4 key”.

After the spin, remove the 100 g weight from the outside and fit it inside the wheel, as shown in Figure 93.

IMPORTANT: Fit 100g on the inside of the wheel in the same position of the weight outside, positioning it **high up on the vertical.**

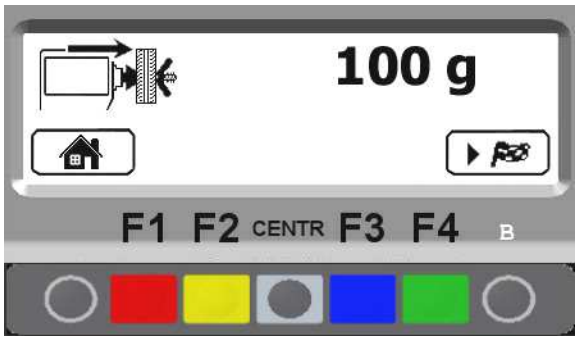

Figure 93

After the spin, remove the 100 g weight from the inside of the wheel and confirm by means of the “CENTRE key”.

Figure 94

The calibration operation is now over. The program displays Figure 88. Press the "CENTRE key" to return to the first program page.

13.2 "Zero chucking-table" setting without anything

From the setting menu page (see Figure 89) press the "CENTRE” key relating to the "zero chucking-table" setting. Press key “F4” to perform the chucking table reset spin without having fitted anything. Chucking table resetting is complete. Press key “F1” to exit.
NOTE: When performing chucking table zero resetting on models LIBRAK 248HP and LIBRAK 250HP, the chucking table must be closed, after fitting the specific bushing.

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13.3 Distance and diameter gauge calibration

From the calibration menu page (see Figure 88 on page 60) press the “F2 key” relating to distance and diameter gauge calibration; the program will display the following page:

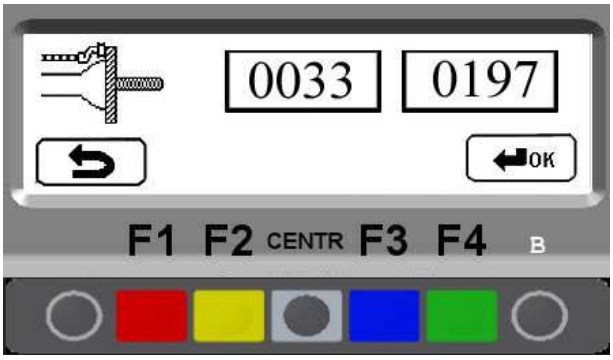

Figure 95

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from the gauge calibration procedure and return to the calibration menu page
	GREEN (F4)	Perform storing of gauge position on "upper edge"

Move the gauge ferrule in line with the upper edge of the flange and press “F4”, the program will display the following page:

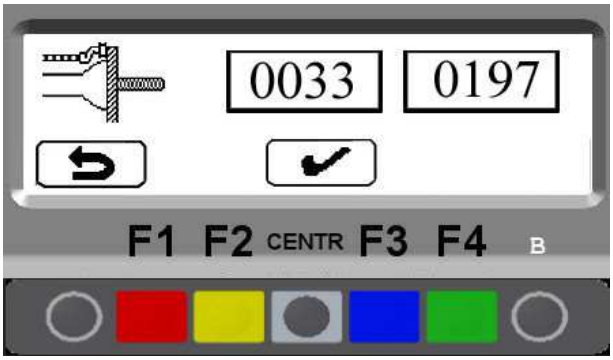

Figure 96

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from the gauge calibration procedure and return to calibration menu page
	CENTRE	Perform storing of gauge position on "upper edge"

IMPORTANT: If the measurement gauge is not exactly positioned along the upper edge of the flange and consequently if the measurement is not included between 233 and 237mm, when the measurement is confirmed (by pressing the "CENTR key"), the program will not pass on to the next stage Figure 97.
Try repositioning the bush of the gauge along the upper edge of the flange. If the measurement continues not to be between 233 and 237mm and the program does not pass on to the next calibration stage, contact the After-Sales service.

Press “CENTRE” to confirm measurement. The program will show the following page:

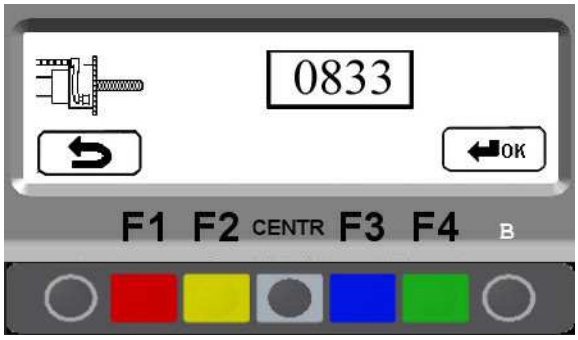

Figure 97

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from the gauge calibration procedure and return to calibration menu page
	GREEN (F4)	Perform storing of gauge position on "lower bell"

Rest the gauge down below on the largest cylindrical part of the bell and press “F4”. The program will display the following page:

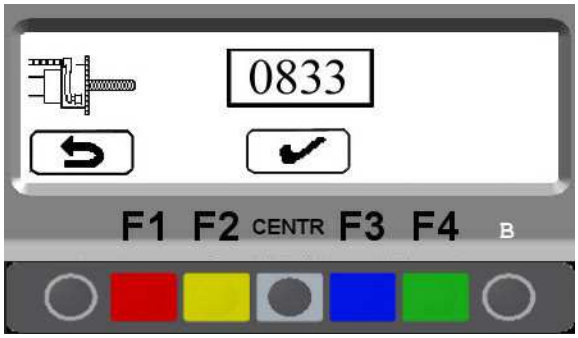

Figure 98

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page
	CENTRE	Confirm gauge position storage

Press “CENTRE” to confirm the measurement

Fit a wheel with ø 15” and set the correct internal diameter in mm by selecting the “PLUS” or “MINUS” key until the desired value is achieved, then press "F4” to confirm.

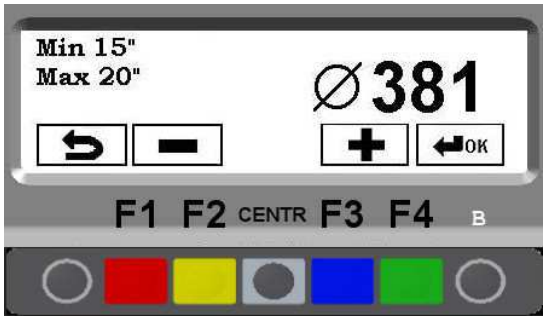

Figure 99

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Move the gauge bush onto the inner edge of the wheel UPWARDS and press “F4”.

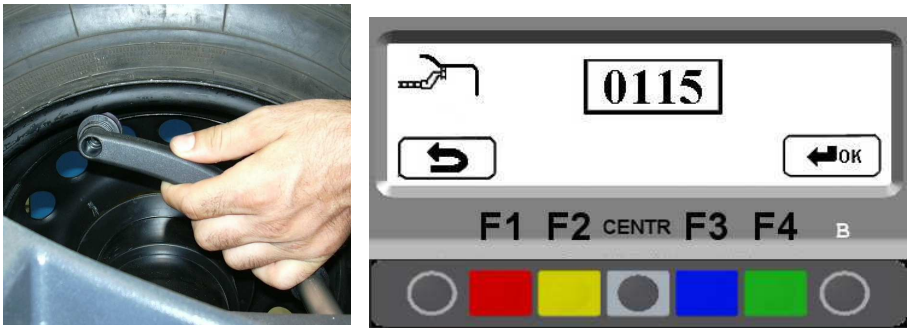


Figure 100

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from the gauge calibration procedure and return to calibration menu page
	GREEN (F4)	Perform storing of gauge position on " UPWARDS "

Press "CENTRE" to confirm. Calibration of the distance and diameter gauges is terminated, The program will again display the calibration menu page in Figure 88 on page 60.

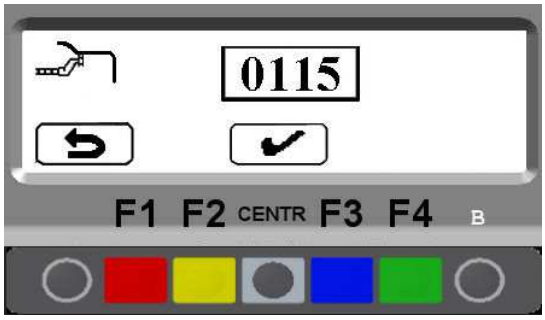


Figure 101

ICON	KEY	DESCRIPTION
	RED (F1)	Return to previous page
	CENTRE	Confirm gauge position storage

NOTE: if the automatic rim width measuring device is enabled, the calibration page will appear for this device (see para. 13.4).

13.4 Automatic rim width measuring device calibration (optional)

After performing distance and diameter gauge calibration (see para. 13.3) if the automatic rim width measuring device is enabled, the following page will appear:

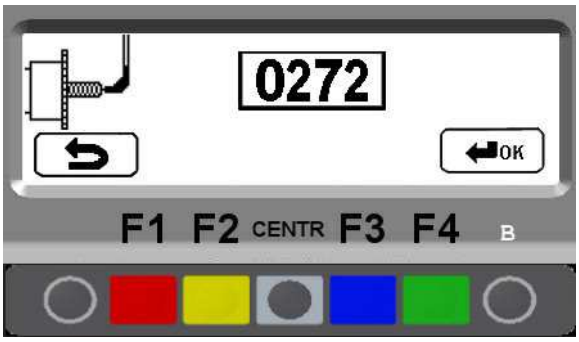
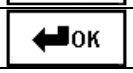


Figure 102

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from width measurement calibration procedure and return to calibration menu page
	GREEN (F4)	Stores width measuring device position on "end of shaft"

NORMAL SHAFT: Move the tip of the width measuring device into line with the end of the shaft and press "F4". The program will show the following page:

PNEUMATIC SHAFT: Move the tip of the width measuring device into line with the upper edge of the pneumatic shaft and press "F4". The program will display the following page:

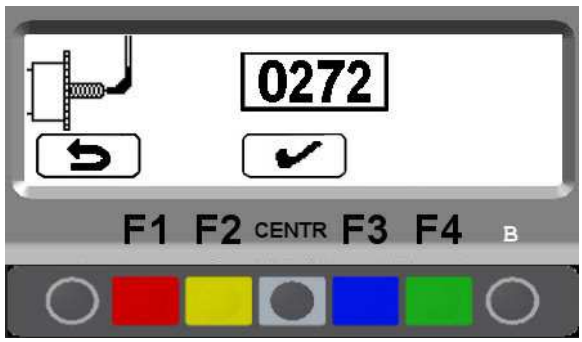


Figure 103

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from width measurement calibration procedure and return to calibration menu page
	CENTRE	Confirm storing of width measuring device position on "end of shaft"

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Press “CENTRE” to confirm the measurement. The program will display the following page:

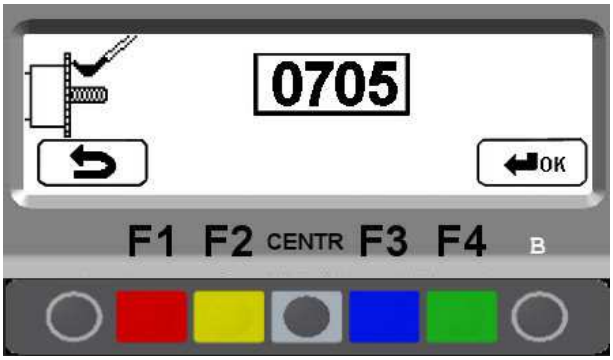
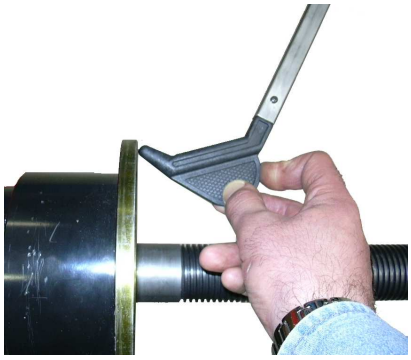


Figure 104

ICON	KEY	DESCRIPTION
	RED (F1)	Exit from width measurement calibration procedure and return to calibration menu page
	GREEN (F4)	Stores width measuring device position on "external flange surface”



Move the tip of the width measuring device into line with the outer surface of the flange and press “F4”. The program will display the following page:

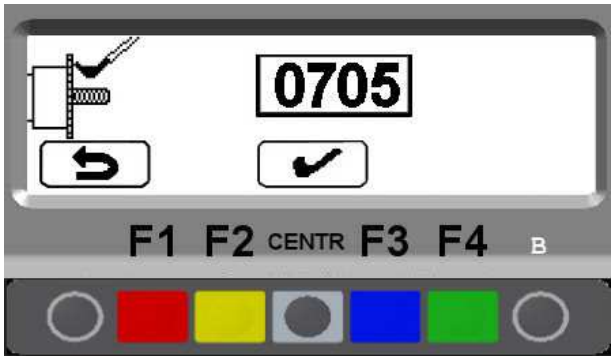


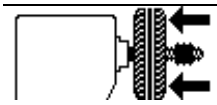
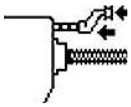
Figure 105

ICON	KEY	DESCRIPTION
	RED (F1)	Returns to previous page
	CENTRE	Confirms storage of width measuring device position on "external flange surface"

Press “CENTRE” to confirm the measurement. Rim width measuring device calibration is terminated. The program again displays the calibration menu page in Figure 89 on page 60.

14 ERROR SIGNALS

During wheel balancer operation, if wrong commands are given by the operator or device faults occur, an error code or symbol may appear on the display screen. Press key F1/ to return to the previous program phase after remedying the fault. Below is a troubleshooting chart.

ERROR CODE	CAUSE
 CARTER error **ERROR 1**	During the balancing procedure, the protection guard appears open. If the guard is correctly closed, the detection micro or acquisition board may be faulty. The cycle can in any case be performed, cutting out the open guard control, by pressing the F4+CENTRE keys simultaneously. This operation must be performed in max safety conditions, without moving anything close up to the rotating parts
2 No rotation signal	May be due to faulty position transducer or transducer not fitted correctly. Or else the motor is faulty or has not started because something is preventing its rotation.
3 Excessive weight value in wheel balancer calibration	During the calibration procedure, the machine detects excessive weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
8 Insufficient weight value in wheel balancer calibration	During the calibration procedure, the machine detects insufficient weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
9 Calibration spin not completed	During the calibration procedure, the spin is not completed because the (STOP) key has been pressed.
 Pneumatic chucking table error (MOD. LIBRAK 248HP and LIBRAK 250HP ONLY) **ERROR 10**	During the balancing procedure, the pneumatic chucking table is open. Close the chucking table before starting the spin. If necessary, switch the machine off and on. If the error continues, the micro on the pedal or the acquisition board could be faulty.
11 Diameter sensor calibration/width value out of range	During the diameter potentiometer calibration/width procedure, the machine detects an out-of-range value. The gauge may not have been positioned properly; the sensor data acquisition board may be faulty.
 Distance/Diameter error **ERROR 12/13**	During the balancing operation, the gauge is not in idle position. Turn the machine off and on with the gauge in correct idle position. If the error persists, the distance or diameter sensor or else the data acquisition board could be faulty.

15 MAINTENANCE

IMPORTANT!: Before doing any maintenance job, the machine will have to be disconnected from the power mains.

To clean plastic panels or surfaces use alcohol (AVOID USING LIQUIDS CONTAINING SOLVENTS).
The DISPLAY SCREEN must be cleaned with a dry cloth; if it is very dirty, clean with a damp cloth and then dry.
Do not spray the alcohol directly on the control panel and do not clean using strong jets of compressed air.

Do not use pneumatic or power tools in damp or slippery environments and do not leave these exposed to the elements.

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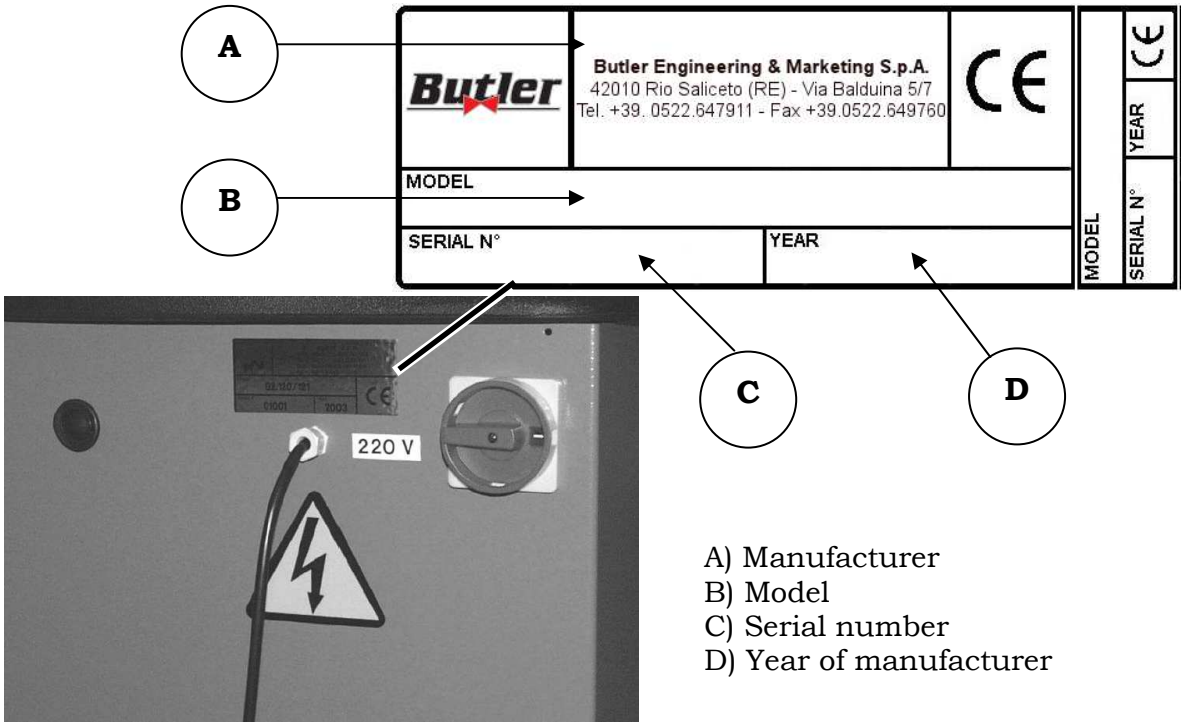
16 STORAGE AND SCRAPPING

Storage - If the machine has to be stored for a long period of time, disconnect all supply lines and protect the display screen, which could be damaged by excessive dust.
Grease any parts liable to be damaged by dryness.

Scrapping - If the machine is to be no longer used, it must be made inoperative:
All those parts that could represent a potential hazard risk must be correctly disposed of.
Dispose of parts according to category.
Scrap as iron scrap through authorised channels.
Parts considered as special waste must be removed and split up according to type and then disposed of through authorised channels according to applicable regulations.

17 MACHINE IDENTIFICATION DATA



A) Manufacturer
B) Model
C) Serial number
D) Year of manufacturer

CAUTION: Do not tamper with, carve, change or remove the identification plate; do not cover it with panels, etc., since it must always be visible.

Said plate must always be kept clean.

WARNING: Should the plate be accidentally damaged (removed from the machine damaged or even partially illegible) inform immediately the manufacturer.