EQUILIBRATRICE
WHEEL BALANCER
ÉQUILIBREUSE
AUSWUCHTMASCHINE
EQUILIBRADORA

B 335 Evo
B 335 C Evo

Cod. 4-119455E del 09/2020

Italiano	Manuale d'uso
English	Operator's manual
Français	Utilisation et entretien
Deutsch	Betriebs und Wartungsanleitung
Español	Uso y mantenimiento

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TRANSLATED FROM THE ORIGINAL (ITALIAN)

CONTENTS

INTRODUCTION

The purpose of this manual is to provide the owner and operator with effective and safe instructions for the use and maintenance of the wheel balancer.
Follow all of the instructions carefully and your machine will assist you in your work and give long-lasting and efficient service, in keeping with manufacturer traditions.
The following paragraphs define the levels of danger regarding the machine, associated with the warning captions found in this manual.

DANGER
Refers to immediate danger with the risk of serious injury or death.

CAUTION
Dangers or unsafe procedures that can cause serious injury or death.

WARNING
Dangers or unsafe procedures that can cause minor injuries or damage to property.

Read these instructions carefully before starting the machine. Keep this manual and all illustrative material supplied with the machine in a folder near it where it is readily accessible for consultation by the operators.
The technical documentation supplied is considered an integral part of the machine; in the event of sale all relative documentation must remain with the machine.
The manual is only to be considered valid for the machine model and serial number indicated on the data plate.

CAUTION
Adhere to the contents of this manual: The producer declines all liability in the case of actions not specifically described and authorised in this manual.

NOTE
Some of the illustrations contained in this manual were derived from photos of prototypes: the standard production machines may differ in some details.
These instructions are for the attention of personnel with basic mechanical skills. We have therefore condensed the descriptions of each operation by omitting detailed instructions regarding, for example, how to loosen or tighten the fixing devices on the machine. Do not attempt to perform operations unless properly qualified and with suitable experience. If in need of assistance, call an authorised assistance centre.

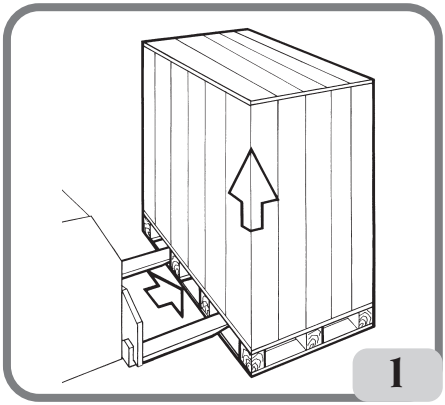
TRANSPORT, STORAGE AND HANDLING

Handling prior to installation

The basic wheel balancer packaging consists of 1 wooden crate containing:

- the wheel balancer (Fig.8)
- equipment;
- the wheel guard and corresponding mounting tube (C, fig.5a - D, fig. 5a).

Before installation, the wheel balancer must be shipped in its original packaging, making sure that the machine is maintained in the position indicated on the outer packaging. The machine can be moved by placing the packaging on a wheeled trolley or inserting the forks of a fork lift truck in the relative slots in the pallet (Fig. 1).



- Packaging dimensions:

Length	Depth	Height	Weight	Packaging weight
(mm)	(mm)	(mm)	(kg)	(kg)
1410	890	1260	198 (version NO C) 202 (version C)	80

- The machine must be stored in an environment meeting the following requirements:
  - relative humidity ranging from 20% to 95%;
  - temperature ranging from -10° to +60°C.

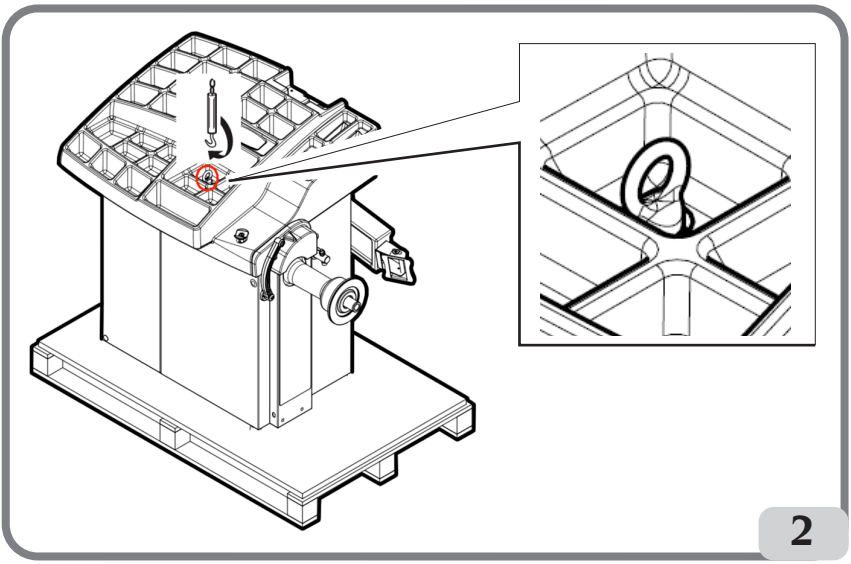
WARNING

Do not stack more than two packs to avoid damaging them.

Handling for installation

The machine may be handled and manoeuvred for installation as follows:

- Remove the three brackets anchoring the machine to the pallet
- Lift the machine with a hoisting hook for the weight of the machine, applied to the specific eye-bolt fixed to the machine for lifting as illustrated in figure 2
- Move the machine into the desired position and set down on the floor
- Detach the hoisting hook from the machine
- Remove the eye-bolt, then fit the specific plug supplied in the hole.



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CAUTION

When moving the machine, do not use:

- the wheel shaft

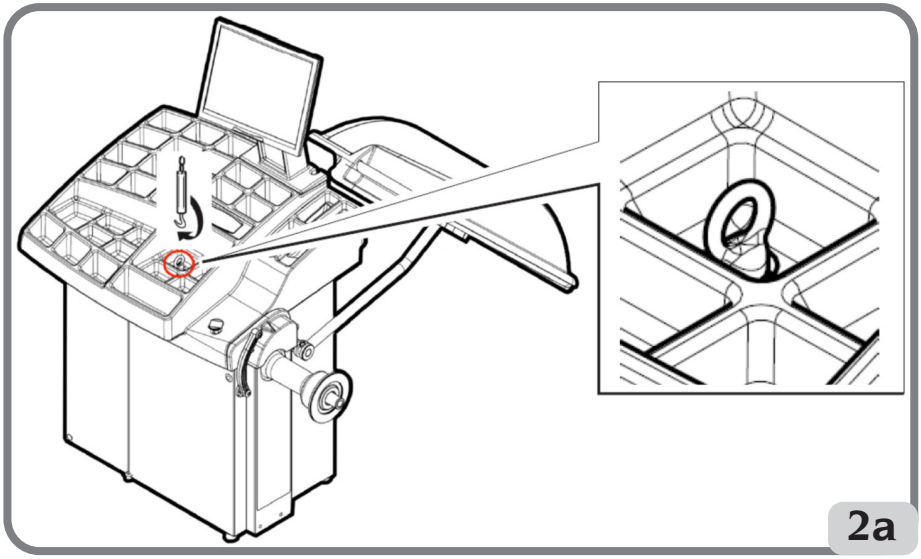
- the weight tray

- the display head as a gripping point.

Handling and manoeuvring after installation

The machine may be handled and manoeuvred after installation as follows:

- Disconnect the power cable from the socket
- Remove the plug in one of the trays of the weight holder cover
- Screw the eye-bolt supplied completely onto the threaded pin in the hole
- Lift the machine with a hoisting hook suitable for the weight of the machine, applied to the specific eye-bolt fixed to the machine for lifting as illustrated in figure 2a
- Move the machine as required and set down on the floor
- Detach the hoisting hook from the machine
- Remove the eye-bolt, then refit the plug removed previously from the weight tray cover



2a

CAUTION

When moving the machine, do not use:

- the wheel shaft

- the weight tray

- the display head as a gripping point.

INSTALLATION

CAUTION

Take the utmost care when unpacking, assembling, lifting and setting up the machine as indicated below.

Failure to observe these instructions can damage the machine and compromise the operator's safety.

Remove the original packaging materials after positioning them as indicated on the packaging and **keep them intact so the machine can be safely shipped at a later date if necessary**.

CAUTION

Choose the place of installation in compliance with local regulations on occupational safety.

In particular, the machine must only be installed and used in protected environments where there is no risk of anything dripping onto it.

IMPORTANT: for the correct and safe operation of the machine, the lighting level in the place of use should be at least 300 lux.

The floor must be strong enough to support a load equal to the weight of the equipment plus the maximum load allowed. The support base on the floor and the envisaged fixing means must also be taken into account.

Environmental operating conditions must comply with the following requirements:
- relative humidity ranging from 30% to 80% (without condensation);
- temperature ranging from 5° to +40°C.

WARNING

For information concerning the technical features, warnings and maintenance instructions consult the related operator manuals provided with the documentation of the machine.

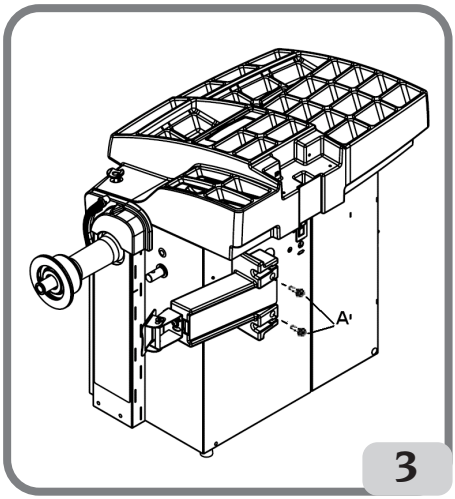
CAUTION

The machine must not be operated in potentially explosive atmospheres.

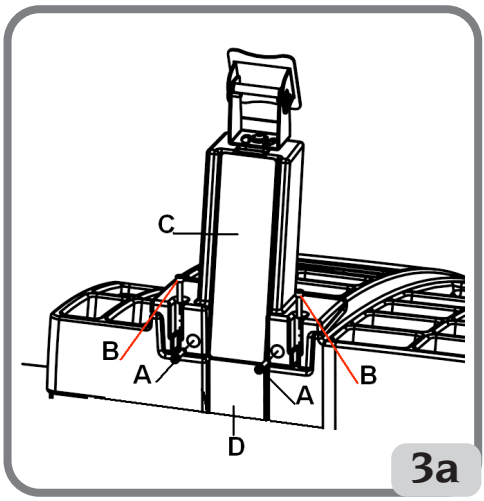
The machine is supplied partially disassembled and is to be assembled according to the procedures described below.

Head and LCD monitor installation instructions

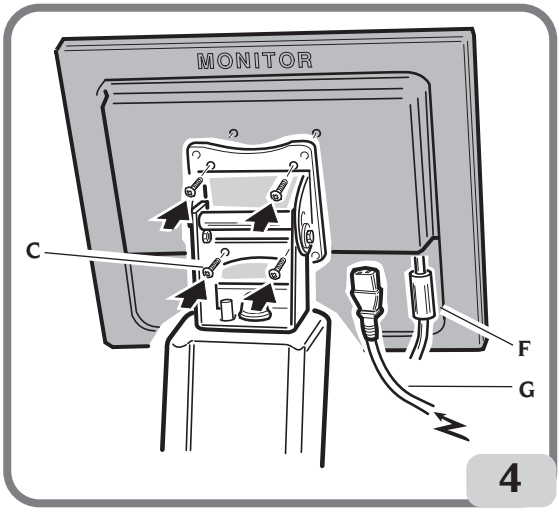
- loosen the screws M8 (A, Fig.3) that fasten the head to the body on the rear side of the machine;



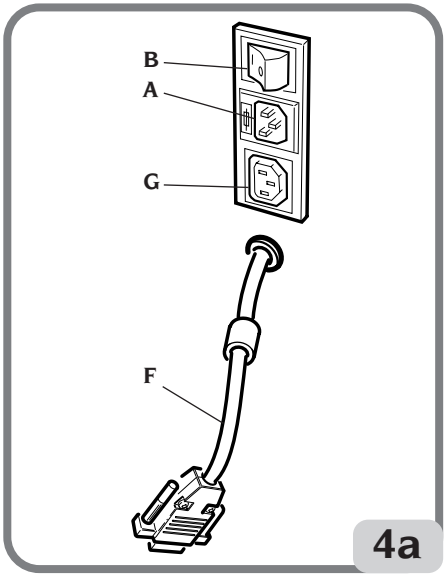
- turn the head to a vertical position and position it on the weight tray cover as shown in figure 3a;



- fix the head by first tightening the two screws A and then the two screws B shown in the previous figure;
- remove the plate C (fig.3a), then insert the signal cable (that emerges from under the machine's rear panel) and the monitor power supply cable inside the head, passing them through the hole in the closing plate D (fig.3a);
- refit the previously removed plate C;
- unpack the monitor and fix it to the support flange using the four screws supplied with the machine (C,fig. 4).

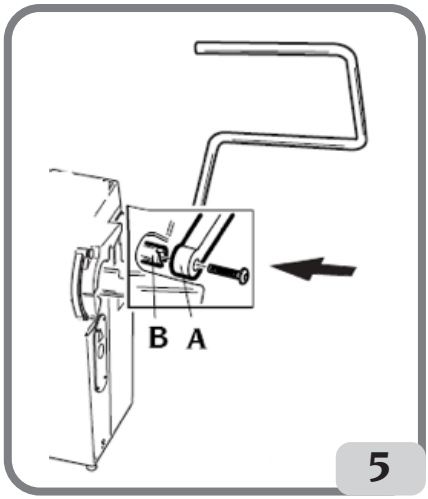


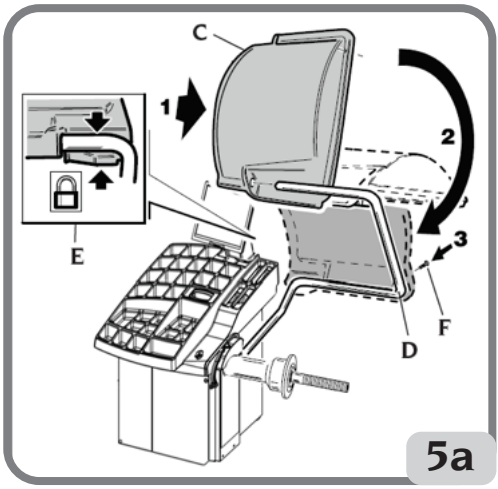
- connect the signal cable to the monitor (F, fig. 4) and the power supply cable (G, fig. 4) to the rear panel (F,G, fig. 4a) and to the monitor.



Installing the wheel guard with the corresponding mounting (Fig. 5)

- Install the bush (A, fig. 5) on the rotation pivot (B, fig. 5). While doing this, ensure that the groove on the pivot is aligned with the pin in the bush;
- Fasten the tube on the pivot using the M12 screw supplied.
- insert the metal tube (D, fig. 5a) into the two plastic guard front holes (C, Fig. 5a);
- Couple the guard to the rear side of the tube by inserting it into the correct position with snap-in coupling (E, Fig. 5a);
- Secure the wheel guard by tightening the screw provided (F, Fig. 5a).





Assembly of the ultrasonic sensor and its "optional accessory supplied on request" support for automatic width measurement

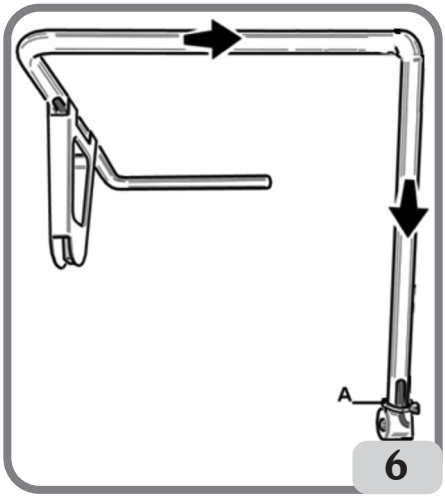
- insert the ultrasonic sensor cable in the slots on the metal pipe (see fig.6).
  CAUTION
  to facilitate the access of the cable in the slots on the metal tube, it is advisable to remove the tube from the rotation pin by unscrewing the M12 screw present.

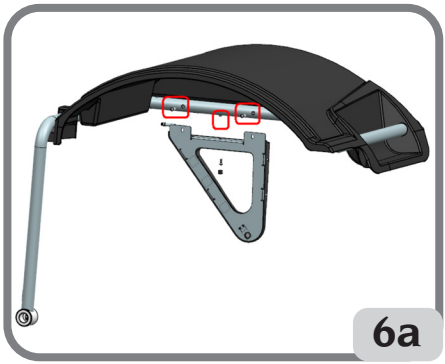
- fasten the ultrasonic sensor support to the guard pipe using the three screws provided (fig. 6a);

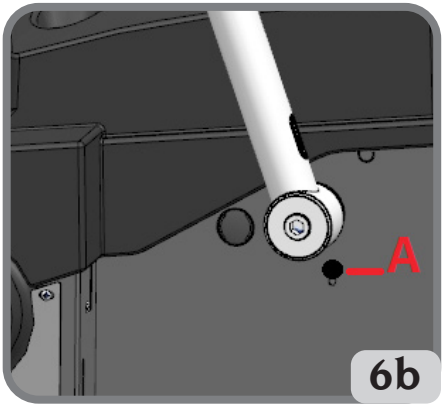
- connect the sensor cable to the connector on the side of the casing (A, fig.6b)

- Adjust the length of the ultrasonic sensor cable near the connector (A, fig.6b) with protection closed, in order to avoid a deformation of the connector during the movement of the wheel guard.

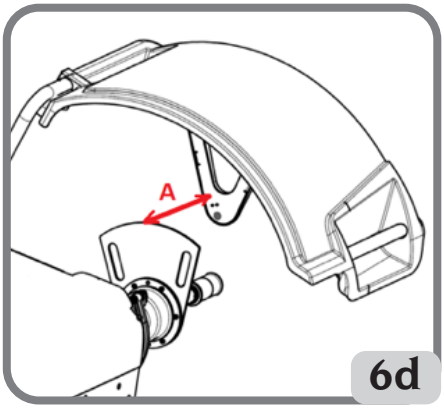
- Then lock the cable using the supplied clamp (A, fig.6). Any excess of the cable in question must be inserted and locked (using the bases already present) inside







the sensor support. To access the sensor support, remove the plastic casing by unscrewing the four fixing screws (Fig.6c).



- check and if necessary act on the ultrasonic sensor support until obtaining the required distance between the calibration template and the support itself (Fig.6d), proceeding as follows:

1. Fix the calibration jig of the ultrasonic sensor in the kit to the shaft of the oscillating unit using the centering accessories;
2. Lower the wheel guard;

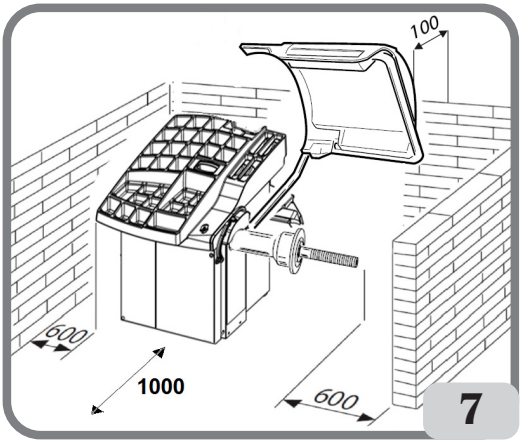
CAUTION

Lowering the wheel protection enables the launch of the oscillating unit with the template locked !!!

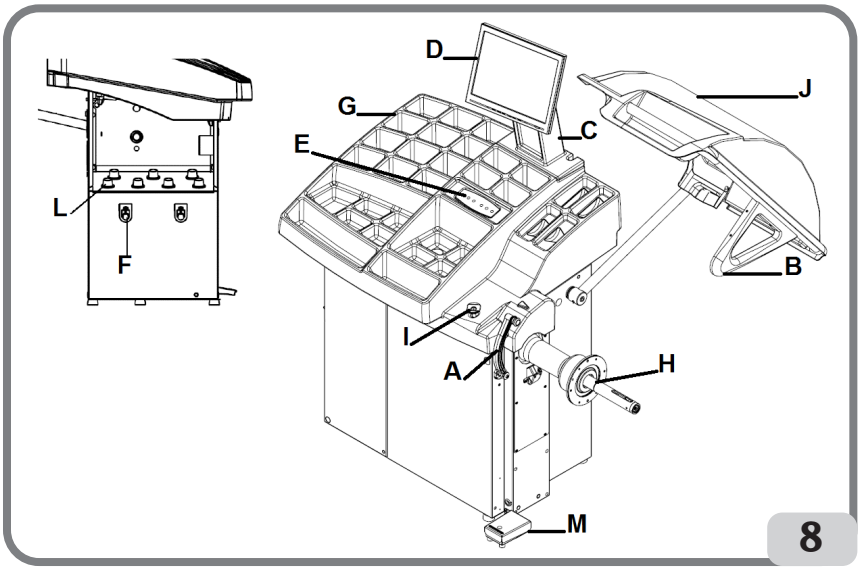
3. Align the calibration gauge of the ultrasonic sensor with the ultrasonic sensor holder and check its distance, ie:
   a. 270mm (tolerance +/- 5mm)

IMPORTANT: after installing the ultrasonic sensor, calibrate the sensor as described in the paragraph "Calibrating ultrasonic width measuring sensor".

After assembling the machine, position it in the selected place and make sure that the spaces surrounding it are at least equal to the ones indicated in fig.7.



Main working parts (Fig. 8)



(A) Automatic diameter and distance measuring arm
(B) Automatic ultrasonic sensor for measuring the width (optional)
(C) Head
(D) LCD monitor
(E) Control keypad
(F) Side flange holder
(G) Weight tray
(H) Wheel support shaft
(I) Anvil
(J) Wheel guard
(L) Cone holder
(M) Control pedals C

ELECTRICAL HOOK-UP

On request, the wheel balancer can be set up by the manufacturer to operate with the power supply available in the place of installation. The set-up data for each machine are given on the machine data plate and on a special label attached to the power supply connection cable.

CAUTION

Any operations for hooking up to the workshop electrical board must be carried out only by qualified technicians in compliance with the regulations in force, under the responsibility and at the charge of the customer.

- The electric hook-up must be performed according to:
  - absorbed power specifications indicated on the machine dataplate.
  - the distance between the machine and the electric hook-up point, so that voltage drops under full load do not exceed 4% (10% when starting up) of the rated voltage specified on the data plate.
- The user must:
  - fit a plug that respects the current regulations onto the power supply cable;
  - connect the machine to its own electrical connection fitted with a suitable 30-mA current sensitive circuit breaker;
  - fit power supply protection fuses sized in compliance with specifications in the main wiring diagram of this manual;
  - provide the workshop electric installation with an efficient grounding circuit.
- prevent unauthorised use of the machine, always disconnect the power supply plug when the machine is not used (switched off) for extended periods of time.
- If the machine is connected directly to the power supply by means of the main electrical board and without the use of a plug, install a key-operated switch or suitable lock-out device to restrict machine use exclusively to qualified personnel.

CAUTION

For the machine correct functioning it is vital to have a good ground connection. NEVER connect the machine ground wire to a gas pipe, water pipe, telephone cable or any other unsuitable object.

COMPRESSED AIR HOOK-UP

CAUTION

All compressed air hook-ups must be carried out by qualified personnel only.

- The hook-up to the workshop's pneumatic system must ensure a minimum pressure of 7 bar (100 psi). Lower pressure levels may prevent the machine's AUTOMATIC WHEEL LOCKING SYSTEM C from working properly.
- A universal union is used for connection to the compressed air system. No special or additional adaptor is needed for connection. A pressure-resistant hose with 6mm inner diameter and 14mm outer diameter must be fastened to the notched union using the clamp provided with the machine.

SAFETY REGULATIONS

CAUTION

Non-compliance with the instructions and danger warnings can cause serious injuries to the operator or other persons.

Do not operate the machine until you have read and understood all the danger/warning notices in this manual.

In order to operate the machine correctly, it is necessary to be a qualified and authorised operator, able to be trained and to know the safety regulations. Operators are expressly forbidden from using the machine under the influence of alcohol or drugs capable of affecting physical and mental capacity.

The following conditions are essential:

- the operator must be able to read and understand the contents of this manual;
- have a thorough knowledge of the features and characteristics of the machine;
- keep unauthorised persons well clear of the working area;
- make sure that the machine has been installed in compliance with all relevant standards and regulations in force;
- make sure that all machine operators are suitably trained, that they are capable of using the machine correctly and safely and that they are adequately supervised during work.
- do not touch power lines or the inside of electric motors or any other electrical equipment before making sure that they have been powered off;
- read this booklet carefully and learn how to use the machine correctly and safely;
- always keep this user manual in a place where it can be readily consulted and do not fail to refer to it.

CAUTION

Do not remove or deface the DANGER, WARNING, CAUTION or INSTRUCTION decals. Replace any missing or illegible decals. If one or more decals have been detached or damaged, they can be replaced by your nearest manufacturer dealer.

- When using and carrying out maintenance on the machine, observe the unified industrial accident prevention regulations for high voltage industrial equipment and rotating machinery.
- Any unauthorised modification to the machine releases the manufacturer of all liability in the event of damage or personal injury resulting from said modification. Specifically, tampering with or removal of the machine safety devices is a breach of the regulations relating to Safety at Work.

CAUTION

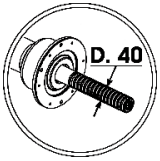
During work and maintenance operations, always tie back long hair and do not wear loose clothing, ties, necklaces, wristwatches or any other items that may get caught up in the moving parts.

Key to caution and instruction labels

Do not use the wheel spin shaft as a gripping point for lifting the machine.

Unplug the power supply plug before performing any maintenance/ repair operations on the machine.

Do not lift up the guard when the wheel is turning.



Please use centring accessories with hole diameter 40 mm.

MAIN FEATURES

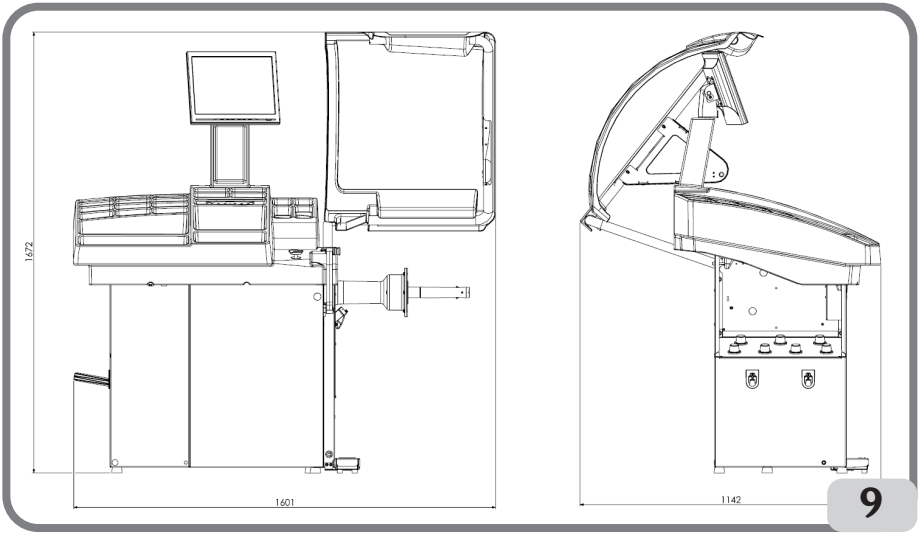
- Low balancing speed:
  - minimises wheel spin times;
  - reduces risk due to rotating parts;
  - saves energy.
- Automatic sensor for distance and diameter measurement.
- LaserRay pointer ie laser line inside the automatic detection arm to indicate the position of the balancing plane acquisition (available on request).
- AWD (Auto Width Device) programme for measuring the width using an ultrasonic sensor (if fitted).
- "AWC" (Auto Width Calculation) programme for enabling the manual insertion of the width.
- Automatic brake for stopping the wheel at the end of the spin.
- STOP button to stop the machine immediately.
- Side flange holders.
- Top tray to take weights of all types.
- Automatic start by lowering the guard.
- High-resolution LCD monitor, indispensable aid for executing new programmes.

- User-friendly graphics for fast and effective learning of the machine functions.
- Keypad with a reduced number of keys for data entry and programme selection.
- On-screen interactive help.
- Multi-language texts
- Microprocessor processing unit (32 bit).
- Resolution: 1g (1/10oz).
- Wide selection of programmes making the machine easy to use.
- Unbalance value display in grams or ounces.
- Unbalance display rounding-off setting.
- Balancing modes available:
  - *Standard* dynamic on both rim sides
  - *Alu* / ALU P seven different routines for alloy rims
  - *Motorcycle Dynamic* on both sides of motorcycle rims
  - *Motorcycle* ALU dynamic on both sides of alloy motorcycle rims
  - *Static* on a single side.
- **"Shift planes"** programme (in ALU P) for using multiple five gram weights, i.e.: available without the need for partial cuts.
- "**Hidden Weight**" programme (in ALU P) in order to divide the outer side balancing adhesive weights into two equal weights positioned behind the spokes of the rim.
- "**Split Weight**" programme (motorcycle programmes) to divide the weight into two equivalent values to be placed on either side of the spoke.
- **"OPT flash"** programme for rapid optimisation of operating noise reduction.
- "**FSP**" (Fast Selection Program) programme for the automatic selection of the balancing programme.
- General utility programmes:
  - independent calibration of the machine's components;
  - main screen customisation;
  - spin overall and partial number counter;
  - selection of the 2 most used programmes;
  - visualisation of the service and diagnostics page.
  - Independent working environments that allow a maximum of three operators to work in parallel with no need to reset any data.
  - RPA: - Automatic wheel positioning in the position where the balancing weight has to be applied.
- Possibility to select the position for applying the adhesive weight:
  - Vertical plane in the lower part of the wheel (H6) using the LASER line.
  - Vertical plane in the upper part of the wheel (H12)
  - CLIP: using the weight-holder terminal in the ALU P balancing programmes (in all the other H12 balancing programmes)
- LED light
- LASER indicator

TECHNICAL DATA

- Single-phase power supply voltage ..... 100/115 ±10%, 200/230 V ±10%, 50/60 Hz
- Rated power..... 122 W
- Rated current ..... 1.2 A at 100-115V, 0.6 A at 200-230V
- Balancing speed .....90/130 rpm
- Maximum unbalance value calculated ..... 999 grams
- Average spin time (with 5"x14" wheel) .....7 sec
- Shaft diameter ..... 40 mm
- Ambient work temperature .....5° to 40°C
- Weight of electrical / electronic components 4.5

Machine dimensions (Fig. 9/9a)



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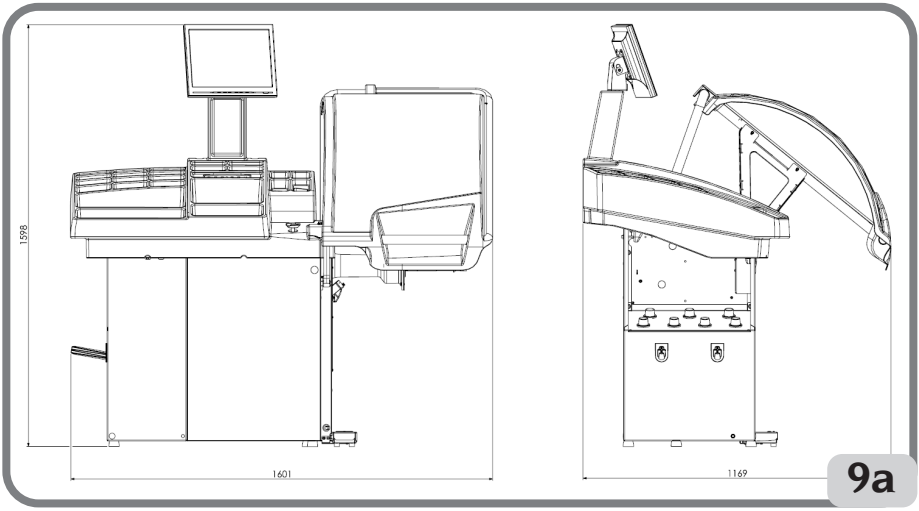


9a

- depth with guard closed ..... 1169 mm
- depth with guard open ..... 1142 mm
- width with guard ..... 1601 mm
- height with guard closed ..... 1598 mm
- height with guard open ..... 1672 mm

Working range

- settable rim widthfrom ..... 1.5" to 25"
- rim diameter measurable with the sensor (version with automatic sensor) ..... from 10" to 28"
- settable rim diameter from ..... 1" to 35"
- max. wheel/machine distance ..... 360 mm
- max. wheel width (with guard) ..... 600 mm
- max. wheel diameter (with guard) ..... 1117 mm
- maximum wheel weight ..... 75 Kg

- Machine weight with guard (without accessories) and without the external measuring sensor ..... 198 kg
- Machine weight with guard (without accessories) and with the external measuring sensor ..... 205 kg
- Noise level in operation ..... < 70 dB(A)

STANDARD ACCESSORIES

The following parts are supplied together with the machine.
Weight pliers
Calliper for wheel width measurement
Hexagon wrench, size 4
Hexagon wrench, size 6
Open wrench CH 10
Hexagon wrench, size 10
Calibration weight
Wheel balancer power supply cable
Monitor power supply cable
Small cone
Medium cone
Large cone
Small wheel fixing cap protection
Spacer cap
Small wheel fixing cap
Threaded hub
Quick fastener ring for locking wheel

OPTIONAL ACCESSORIES

Please refer to the relevant accessories catalogue.

GENERAL CONDITIONS OF USE

The equipment is intended for professional use only.

CAUTION

Only one operator at a time can work with the machine.

The wheel balancers described in this manual must be used **exclusively** to measure the extent and position of car wheel unbalances, within the limits specified in the Technical specification section. Furthermore, models equipped with motors must be provided with a suitable guard, fitted with a safety device, which must be lowered during the spin operation.

CAUTION

Any use of the machine other than the described use is to be considered as improper and unreasonable.

WARNING

Do not start the machine without the wheel locking equipment.

CAUTION

Do not use the machine without the guard and do not tamper with the safety device.

WARNING

Do not clean or wash the wheels mounted on the machine with compressed air or jets of water.

CAUTION

When working, never use equipment not manufactured by the manufacturer.

CAUTION

Get to know your machine: The best way to prevent accidents and obtain top performance from the machine is to ensure that all operators know how the machine works. Learn the function and location of all the controls.

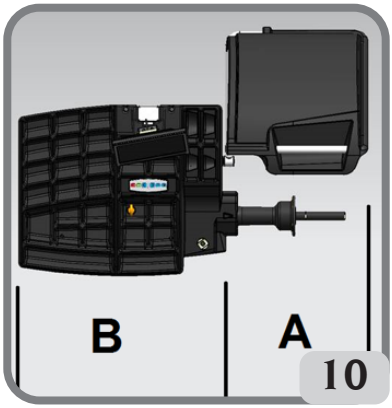
Carefully check that all controls on the machine are working properly.

To prevent accidents and personal injury, all the equipment must be correctly installed, correctly operated and correctly serviced.

OPERATOR POSITION

In fig. 10 are the positions occupied by the operator during the various work phases:
A Assembling / disassembling, launching, dimension detection (where foreseen) and wheel balancing operations
B Machine program selection

In this way, the operator is able to perform, monitor and check the outcome of each wheel balancing and intervene in case of unforeseen events.



SWITCHING ON THE MACHINE

Connect the power supply cable (A, fig.4a) supplied with the machine from the external electrical panel located on the rear side of the wheel balancer body to the mains.
Switch on the machine using the switch on the rear side of the body (B, Fig. 4b).
The wheel balancer performs a checking test and, if no anomaly is detected, a beeper sounds and the machine displays the customisation data and mark, then waits for the wheel geometric data to be entered.
Pressing enter the image of the unbalance values is displayed; the initial active status will be:
- dynamic balancing mode;
- values displayed: 000 000;
- unbalance display at 5-g (or 1/4-of-an-ounce) increments;
- sensor value rounding-off active;
- default geometric values: width = 5.5", diameter = 14", distance = 150.
- operator 1 active.

Note: if the image is not centred on the LCD monitor, adjust it using the controls located on the front part of the monitor. For further information on the adjustment procedure, refer to the monitor manual provided, which can be found inside the packaging.

Now the operator can set the data of the wheel to be balanced or select one of the programmes available.

GENERAL NOTES ON THE MAIN MENU

Graphics are completely icon-based (drawings and symbols that represent the function of the button). If an icon is selected, the relevant function is activated.
Four icons can be found on the left part of the monitor:

 help;

 highest accuracy;

 utility and configuration programmes;

 balancing programmes.

To select the desired icon, use the arrow keys on the keypad until the selector appears on top of the required icon.

Select by pressing the **enter button**  .

The functions of every icon in the main menu are listed below:

1. **balancing programs** icon

 ; if called up, it groups the functions relating to the balancing types.

2. the **utility and configuration programmes**  icon groups all utility and configuration programmes of the machine.

3. the **highest accuracy**  icon allows balancing results to be displayed with best possible accuracy (“Gr x1” or “Oz 1/10”);

4. the **help**  icon displays the information relating to the current screen. If an error message is displayed, the first piece of information displayed concerns the type of errors that may occur. The instructions called up by this icon integrate (but do not replace) this User Manual.

By default the icons relating to points 3 and 4 are those described above but can be replaced with more frequently used ones (refer to the "Preferred programme configuration" section).

USING THE AUTOMATIC WHEEL CLAMPING SYSTEM C

Procedure for locking the wheels with the automatic C system:

Centring with front cone

- Fit the wheel on the shaft, sliding it into place until it rests against the flange.
- Fit the most suitable cone on the shaft and insert it into the central hole of the wheel.
- Fit the locking device by making it slide on the hub until it comes into contact with the cone.
- Press the control pedal for at least one second.

Centring with rear cone

- Fit the most suitable cone for the central hole of the wheel on the shaft.
- Fit the wheel onto the cone, sliding it into place until the cone comes into contact with the plate that holds the spring.
- Apply the protective cap to the sleeve.
- Fit the locking device by making it slide on the hub until it comes into contact with the wheel.
- Press the control pedal for at least one second.

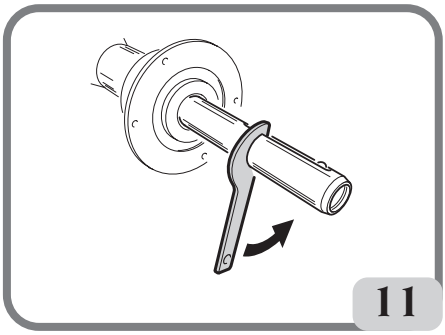
Wheel release

- Press the control pedal for at least one second to release the wheel from the flange.

Centring with flanges

Removing the C hub

- Insert the special C key (supplied with the machine) in the slot of the C hub (fig.11);
- Completely unscrew the C hub;
- Mount the flange on the shaft and lock it in place with the two screws (A, fig.12) using the CH 6 wrench.
- Lock the wheel onto the flange as usual.

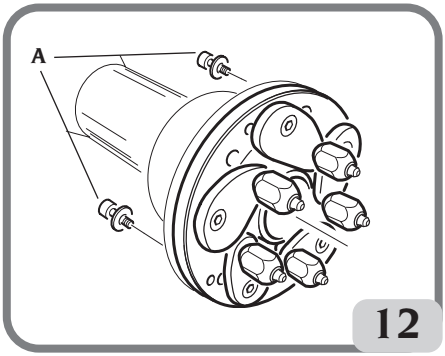


11

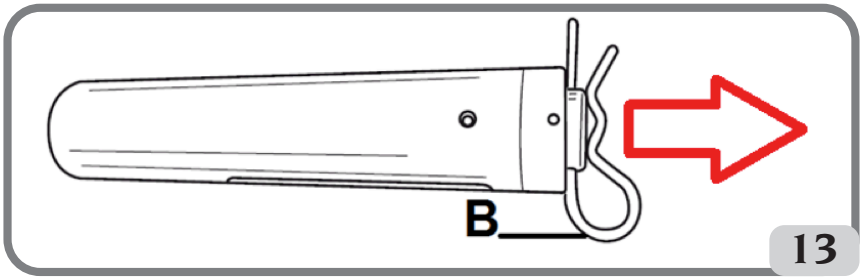
Assembling the C hub

To reassemble the C hub, proceed as follows:

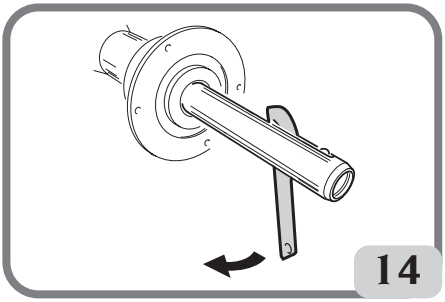
- Hold down the keyboard key  for at least 3 seconds to lock the shaft rotates and bring to the open position, the pneumatic cylinder of the clamping device C; The message A 52 will be displayed on the monitor.
- insert the split pin (supplied with the machine) in the cylindrical protection bush (B, fig.13)



12

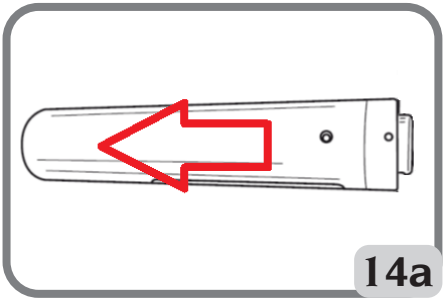


- Pull the split pin as per picture 13 then screw the C hub manually until it reaches the end position.
- Tighten the C hub by inserting the special C key in the C hub slot (fig.14).
- Remove the split pin from the cylindrical protection bush.
- To adequately tighten the hub must be given a hammer blow on the special key C (you can also use the pliers, hammer side, to fix the spring-loaded weights).



If during the assembly phase the hub C should freeze before completing the tightening phase, proceed as follows:

- Make a complete turn in the opposite direction of the hub C
- Remove the split pin B
- Push the hub C in the direction shown in figure 14a and then tighten the hub until it stops.



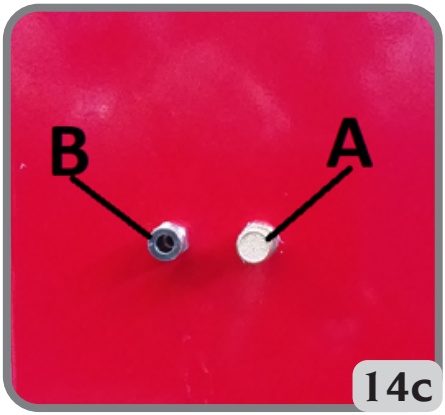
IMPORTANT

During the tightening phase, check that the ratchets are always closed inside the locking sleeve.

IMPORTANT

In case of failure of the automatic locking device, it is possible to remove the wheel that may be present on the machine acting on the rear side of the body as indicated in Figure 14b:

14b



14c

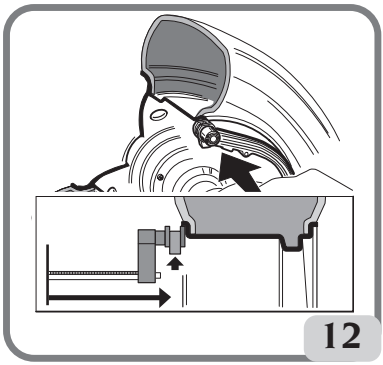
In machines where the adjustable discharge A of figure 14c is also present on the rear side of the body, it is possible to remove the wheel possibly present on the machine by proceeding as follows:
- Close the adjustable drain A (fig. 14c);
- Blow compressed air on the fitting B in the figure 14c;
- restore the correct functioning of the wheel locking device by returning the adjustable outlet A in the above conditions to closing.

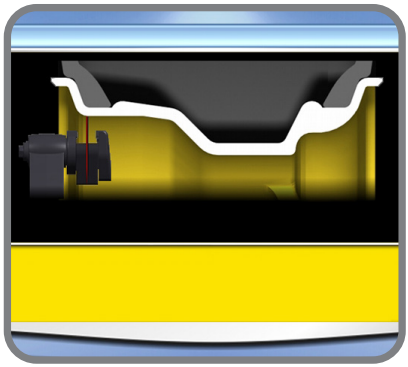
WHEEL DATA ENTRY

Wheel data entry for wheel balancers without an ultrasonic sensor

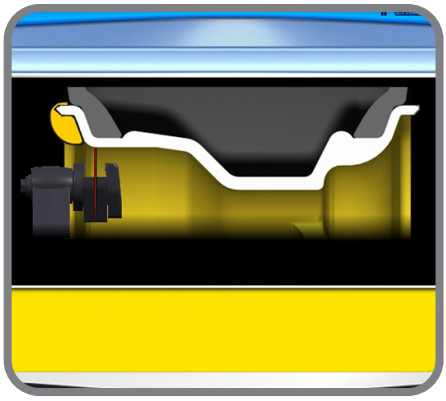
The machine allows for the diameter and distance values to be entered automatically; the width value can be entered using the keypad.

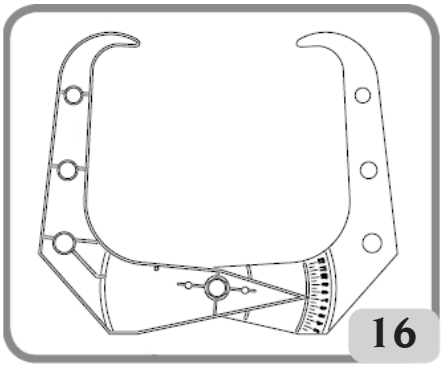
- Bring the automatic measuring arm into contact with the inner side of the rim (fig.15). Take great care to position the arm correctly so as to ensure accurate data reading.





- Keep the arm in contact with the rim until the machine has acquired the wheel's diameter and distance values. The following screen appears during this phase:

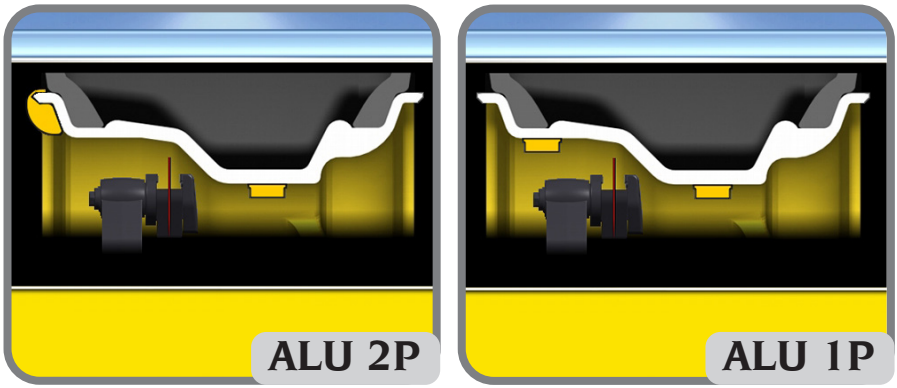




- if only one measurement is taken, the machine interprets the presence of a rim with balancing using a clip weight on both sides (Dynamic Balancing Programme)
- moving the arm to the rest position, the machine will set up for the manual WIDTH entry.
- in this phase, it is possible to perform an additional acquisition of the rim diameter and distance.
- Measure the width of the rim using the provided calliper (fig. 16).
- Change the displayed width value by increasing or decreasing the value using the keypad.

After updating the wheel data the user can:

1) press the exit  button to display the unbalance values recalculated according to the new dimensions;
2) press the ENTER button to access the manual dimensions programme to convert and/or change the wheel data.
   - if two subsequent measurements are taken inside the rim on two balancing planes, the machine interprets the presence of a rim with balancing using a clip weight on the inner plane and an adhesive weight on the external one (ALU 2P). In this phase, the machine could automatically change the type of weight on the inner plane from clip to adhesive (ALU 1P).



Returning the arm to its idle position makes it possible for the operator to change this setting, selecting and pressing the "enter" key  . In this case, the balancing programme switches from ALU 1P to ALU 2P and vice versa.

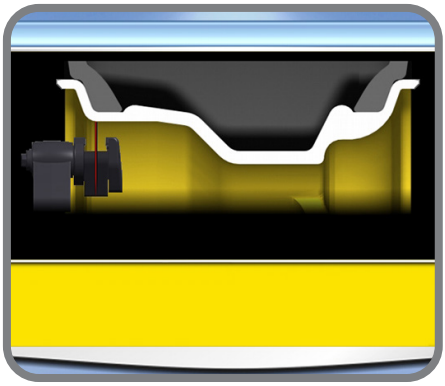
DETECTION PLANS BY POINTER LaserRay (IF PRESENT)

The detection of the geometrical data relative to the real balancing planes for the application of adhesive weights, can be facilitated by the laser line on the lever of the automatic detector.
To enable this line it is necessary to press the button on the automatic arm (A, Fig.16a).
The laser line is thus visible inside the rim for 10 seconds, after which, if necessary, the button on the automatic arm must be pressed again.

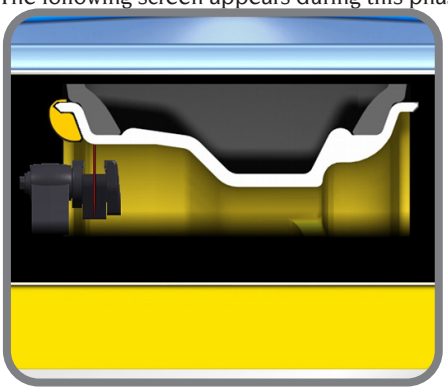
Wheel data entry for wheel balancers with an ultrasonic sensor (if installed)

To enter the distance, diameter and width values automatically, proceed as follows:

- bring the automatic internal measuring arm into contact with the inner side of the rim (fig.15). Take great care to position the arm correctly so as to ensure accurate data reading.



- Keep the arm in contact with the rim until the machine has acquired the wheel's diameter and distance values. The following screen appears during this phase:



- if only one measurement is taken, the machine interprets the presence of a rim with balancing using a clip weight (Dynamic Balancing Programme)
- when the automatic internal measurement arm returns to the rest position, the following icons are automatically displayed on the screen:

- : pressing the ENTER key, the type of tyre is enabled - i.e. P TYRE 

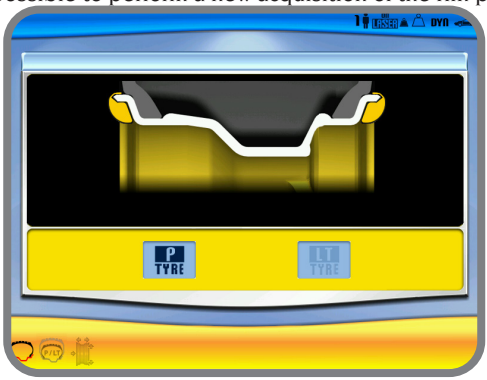
(Passenger Tyre) for average sized wheels (wheels in which the tyre shoulder protrudes only slightly from the rim) or LT TYRE 

(Light Truck Tyre) for large wheels (for off-road vehicles or lorries, or wheel in which the tyre shoulder protrudes notably from the rim);

- : every time the ENTER key is pressed, the machine automatically modifies the type of balancing programme (shown on the display) in the following sequence: DYNAMIC-ALU1-ALU2-ALU3-ALU4-ALU5-STATIC-DYNAMIC MOTORCYCLE-ALU MOTORCYCLE.

- : by pressing the dimensions key, manual width insertion is enabled;

- Pressing the button during the indicated phase returns to the working environment, maintaining the previous width.
- in this phase, it is possible to perform a new acquisition of the rim planes.



- lowering the guard confirms the selection that was made (manual width entry or wheel type selection) and the width scanning and spin are performed.

Note:

- automatic width acquisition is re-enabled only with a new acquisition of the automatic internal measuring arm;
- if the wheel guard is closed or in the case of a fault of the sensor located on the guard, the machine will automatically set up for manual width entry when the internal measuring arm is moved to the rest position;
- at the end of the spin, it is possible to change the width acquired automatically by the machine by selecting the following icon on the work page :

IMPORTANT

bear in mind that the wheel's nominal diameter (e.g. 14") refers to the planes on which the tyre bead rests, which are obviously inside the rim.

The values measured are with reference to external planes and, as a result, are smaller than the nominal values due to the thickness of the rim itself. The correction value

therefore refers to an average rim thickness. This means that the data measured on wheels with different thicknesses may vary slightly (2 or 3 tenths of an inch maximum) from the rated values. This is not a lack of accuracy of the measuring devices, but reflects reality.

If the automatic measuring arm fails to operate, the geometric data can be entered manually by following the procedure indicated in the "manual wheel data entry" section. This function is present in the utility and configuration programmes.

WHEEL SPIN

Wheel spins take place automatically by lowering the guard or pressing the start button with the guard lowered.
A special safety device stops rotation if the guard is lifted up during the spin; in this case, the A Cr message is displayed.

CAUTION
Do not operate the machine without the guard and/or if the safety device has been tampered with.

CAUTION
Never raise the guard before the wheel has come to a stop.

CAUTION
If the wheel keeps spinning permanently due to a fault on the machine, switch off the machine using the main switch or disconnect the plug from the power supply board (emergency stop) and wait until the wheel stops before raising the guard.

AUTOMATIC POSITION SEARCH

During position search, the wheel can rotate with the guard raised. Every time the start button is pressed  , the centred position of one side switches to the centred position of the other. This function is active only if the RPA programme is set to ON (see " Automatic position search configuration (RPA)", a function present in the configuration programmes).

This programme may also be performed by pressing buttons  and  simultaneously. This function is used in particular on machine versions WITHOUT the wheel guard.

BALANCING PROGRAMMES

Before starting a balancing operation, the following steps must be followed:
- mount the wheel on the hub using the most suitable centring system;
- make sure that the wheel is locked correctly to the shaft so that no displacement can occur during the spin and braking phases;
- remove any counterweight, pebble, dirt or other foreign body;
- set the wheel's geometric data correctly.

The balancing programmes are grouped within the **balancing programmes** icon in the main working screen.

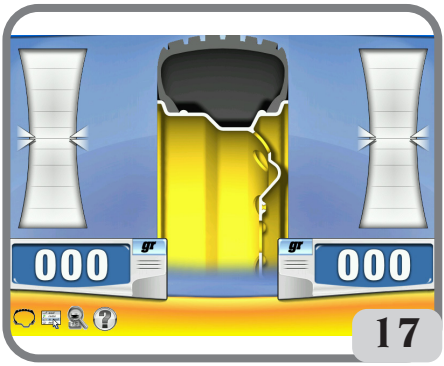
Select the icon  and press the keypad **Enter**  button.

The following balancing programmes are available:

Dynamic balancing (standard)

This balancing mode is the most commonly used one and the wheel balancer considers it standard; if a different balancing programme is being used, select the **balancing**

programme icon.
The following video page relating to this programme appears on the screen.



Now proceed as follows:
1. Set the wheel's geometric data.
2. Spin the wheel lowering the guard or by pressing the START key and the button in the version without guard.
   To obtain the most accurate results, do not apply any undue stress to the machine during wheel spin.
3. Wait for the wheel to stop automatically and for the calculated unbalance values to be displayed.
4. Select the first side to be balanced.
5. Turn the wheel until the central element of the corresponding position indicator lights

up.

6. Apply the indicated balancing weight in the position on the rim corresponding to 12 o'clock.
7. Repeat the operations listed above for the second side of the wheel.
8. Perform a test wheel spin to check the balancing accuracy.
   If it is not satisfactory, modify the value and position of the weights previously applied.

Bear in mind that a counterweight positioning error of just a few degrees may lead to a residual unbalance as large as 5-10 grams during the verification phase, especially in the case of large unbalances.

CAUTION

Check that the system which fits the weight to the rim is in optimum condition.
A weight which is not fitted properly or correctly may come off as the wheel rotates, thus creating a potential danger.

The wheel can be locked in three ways in order to make the weight application operation easier:

- by keeping the wheel in the centred position for one second. The brake activates automatically with a reduced braking force so as to allow the operator to move the wheel manually until the correct position for the other weight's application is reached;
- Pressing the STOP  key when the wheel is in one of the weight application positions; the wheel is unlocked by pressing the stop button again, by performing a spin or after about 30 seconds.

The shaft locking system can also be useful during installation of special centring accessories.

If the STOP key  is pressed when the wheel is spinning, the spin is interrupted even if it is not completed.

If the “RPA” (automatic position search) programme is active, at the end of each balancing spin the machine stops the wheel in the position for application of the weight on the inner side; if it is equal to zero, the wheel is stopped in the position for application on the outer side.

Pressing the START key  with the guard raised activates the automatic search for the second side position.

This function is described at length in the AUTOMATIC POSITION SEARCH section.

ALU 1P and ALU 2P programmes

These programmes are used for maximum precision balancing of light alloy rims that require both weights to be applied on the same side (inner) in relation to the rim disk.

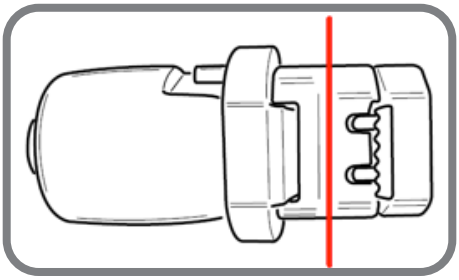
This type of wheel balancer is particularly suitable for application of adhesive weights on the rim, thanks to the forward position of the wheel in relation to the body, which allows

a large zone on the inside of the rim to be accessed freely.

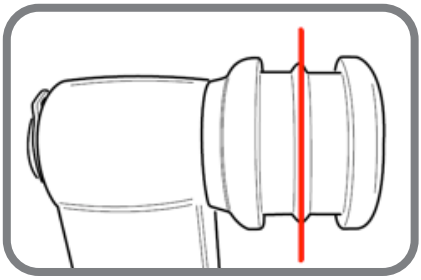
Wheel data acquisition

Geometric data **relating to the actual balancing planes** rather than the rated wheel data (as in standard ALU programmes) have to be set. The balancing planes where the **adhesive** weights are to be applied may be selected by the user according to the specific shape of the rim. However, bear in mind that it is always p**referable to select balancing planes as far apart as possible in order to reduce the quantity of the weight to be applied**; if the distance between the two planes is less than 37 mm (1.5"), the **A 5** message is displayed.

Move the end of the automatic measuring arm in line with the plane selected for the application of the inner weight. In ALU 1P, the reference of the weight mid-point is the centre of the gripper cavity.

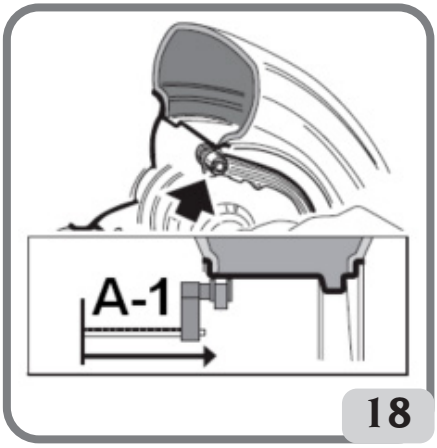


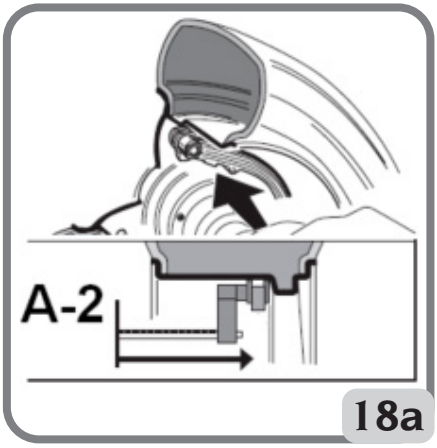
Centre of the weight-holder gripper cavity



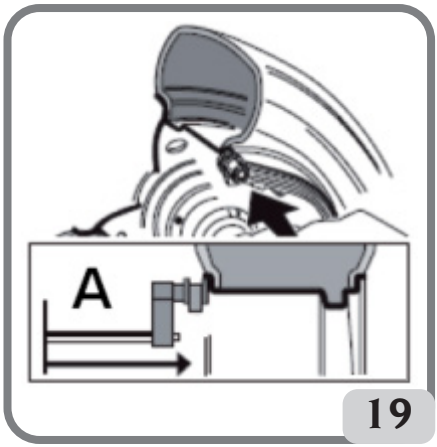
Centre of the gripper cavity without weight-holder

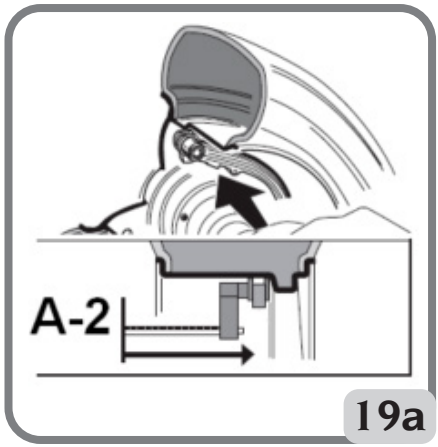
ALU 1P





ALU 2P





In ALU 1P, the balancing plane is about 15mm further back (weight mid-point) from the point where the measuring head touches the rim (fig.18/18a).

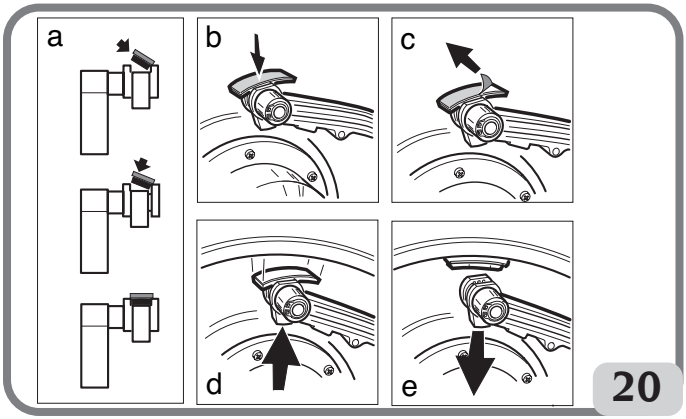
In ALU 2P the reference is the rim edge, as the inner weight is of the traditional spring type (fig.15).

Pay maximum attention when the end of the arm is being placed in an area of the rim free of discontinuity, so that the weight can be applied in that position.
- Keep the arm in position. After two seconds the machine emits an acoustic confirmation signal to indicate that the distance and diameter values have been acquired.
- Move the end of the automatic measuring arm in correspondence with the plane selected for the application of the outside balancing weight (fig. 19/19a), in the same manner as described previously for the inner side.
- Keep the arm in position and wait for the acoustic confirmation signal.
- Return the measuring arm to the rest position. Automatically the machine will set up in the ALU P balancing programmes (FSP programme).
- Perform a spin.
- At the end of the spin, if you want to change the balancing programme set automatically by the machine (FSP), select the balancing programme button and press ENTER until the required programme is selected.

Applying balancing weights. (Fig. 20)
- Adhesive weights applied with a weight-holder device (if available), after modifying the application position from 12 o'clock to CLIP in the “Adhesive weight application position” set-up menu
- Select the plane where the first balancing weight is to be applied.
- Rotate the wheel until the central element of the corresponding position indicator lights up.

If the weight to be applied is a conventional clip type (inner side in ALU 2P), apply it on the corresponding 12 o'clock position. If the weight to be applied is instead the adhesive type and the weight-holder device is installed, proceed as follows:

- centre it inside the cavity of the weight-holder terminal of the measuring arm (fig.20,a,b), with the backing paper of the adhesive strip facing upwards. Remove the protection (fig. 20c) and turn the terminal so that the adhesive faces the internal surface of the rim.
- Move the sensor until the two reference lines (green) coincide in the relevant windows on the screen.
- Turn the end of the measuring arm until the adhesive strip of the weight is in line with the rim surface.
- Press the key (fig.20d) to eject the weight and make it stick to the rim.
- Return the measuring arm to its idle position (fig. 20e).
- Repeat the operations to apply the second balancing weight.
- Perform a test wheel spin to check the balancing accuracy.
  The rim surface must be perfectly clean to make the weight stick efficiently to the rim. If necessary, clean the surface using suitable cleansing products.



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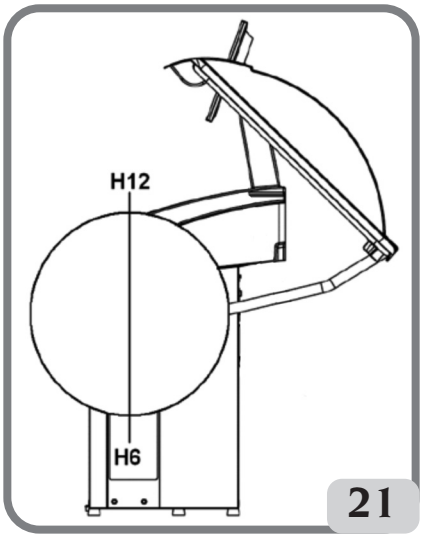
NOTE: On the wheel balancers for the German market, the weight must be applied as follows: apply the weight manually by positioning it so that its centre line is 15mm back from the contact point of the measuring head with the rim.

In the machine versions without a weight-holding device proceed as follows:

- Select the plane where the first balancing weight is to be applied.
- Turn the wheel until the central element of the corresponding position indicator (if fitted and enabled) lights up, together with the laser line.
- Apply the adhesive weight manually in the position in which the relative plane was measured, using the weight centre of mass as a reference.

The screen shows the target, indicating the



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correct application position of the adhesive weights **as shown in figure 21.**

- **Adhesive weights applied manually, without a weight-holder device ("CLIP adhesive weight application position" enabled)**

1 Select the first side to be balanced
2 Turn the wheel until the central element of the corresponding position indicator lights up. Holding the wheel stationary with the clamping brake, move the sensor until the two reference lines coincide in the relevant windows on the screen.
3 Manually apply the adhesive weight, taking the centre of the gripper cavity as the reference for the midway point of the weight.

"Movable planes" programme (available only with ALU P programmes and SELECTION POSITION APPLICATION ADHESIVE WEIGHTS configuration CLIP)

This function is automatically enabled when an ALU P programme is selected.
It modifies the former selected positions for the application of adhesive balancing weights, in order to allow perfect wheel balancing using commercially available adhesive weights in multiples of five grams. The accuracy of the machine is thereby improved, avoiding rounding-off or cutting the weights to be applied to come closer to the actual unbalance values.
The modified positions, where the adhesive weights are to be applied, are identified by the user according to the information given by the wheel balancer (see the Balancing weight application section).

"HIDDEN WEIGHTS" PROGRAMME (available on with ALU P programme)

This programme divides the outer weight Pe into two weights, P1 and P2, located in any position chosen by the operator.
The only condition is that the two weights must be within an angle of 120° (including the weight Pe), as shown in fig. 22.

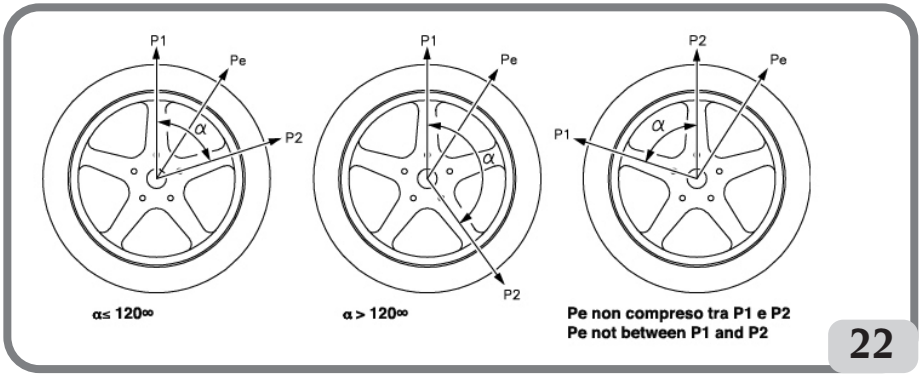


Figure 22. Conditions necessary for using the Hidden weights programme

The Hidden Weight programme is used on alloy rims, only and exclusively in conjunction with the ALU 1P/ALU 2P programme:

- when the outer weight would rather be hidden behind two spokes for aesthetic reasons;

To use this programme, proceed as follows:

1. Beforehand, select between one of the programmes, ALU 1P, ALU 2P by selecting the ALU 1P Balancing programme or the ALU 2P Balancing programme icon.
   The mask for measuring the unbalance on alloy rims is displayed.
2. Perform the wheel balancing with the procedure described in the “ALU 1P, ALU 2P Programme" chapter, without however applying the outer weight.
3. Select the  Hidden Weight icon. If the wheel is balanced on the outer side, the machine displays the message shown in Fig. 22a on the screen.

Figure 22a. Hidden Weights: procedure error

If there is an unbalance on the outer side (Pe) the machine will display the graphic that indicates the selection of the P1 weight position.

Press  at any time to exit the “hidden weights” programme.

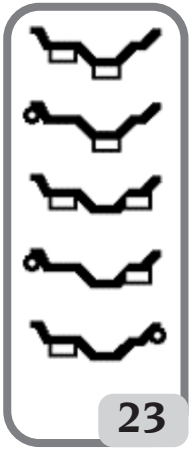
4. To make work easier mark the position of the unbalance Pe on the tyre. To do this, move the wheel to a centred position and make a chalk mark at 6 o'clock if the "LASER" configuration is active, at 12 o'clock if the "H12" or "CLIP" configuration is active.
5. Turn the wheel to the position in which you wish to apply the first outer weight (P1) and press  to confirm.
   To choose the exact position of weight P1 in relation to the unbalance Pe, use the 6 o'clock point as your reference if “LASER” configuration is active, or the 12 o'clock point if the “H12” or “CLIP” configuration is active.
   The angle between P1 and Pe must be less than 120°.
6. If the angle selected is greater than 120°, the machine displays Fig. 18a for approx. 3 seconds, to indicate that another position must be chosen. If instead the selected angle is less than 120 °, the machine displays the graphic that indicates the selection of the P2 weight position on the screen, allowing the user to continue with the next step.
7. Turn the wheel to the position in which you wish to apply the second outer weight (P2) and press  to confirm.
   To choose the exact position of weight P2 in relation to the unbalance Pe, use the 6 o'clock point as your reference if “LASER” configuration is active, or the 12 o'clock point if the “H12” or “CLIP” configuration is active.

The angle between P1 and P2 must be less than 120° and must include the outer weight Pe.

8. If the angle selected is greater than 120°, the machine displays Fig. 18a for approx. 3 seconds to indicate that the procedure in step 7 must be repeated correctly. If the angle selected is less than 120°, the machine immediately displays the value of the two outer weights P1 and P2 on the screen.
9. Move the wheel to a centred position (P1 or P2).
10. The brake intervenes automatically in the centred position, then apply the balancing weight indicated on the monitor as described in the chapter "ALU 1P, ALU 2P programmes".
11. Move the wheel to a centred position (P1 or P2).
12. Repeat the operations in step 10.
13. Once the Hidden Weights programme procedure is complete, you may continue working with any other balancing programme.

Standard ALU Programmes (ALU 1, 2, 3, 4, 5)

Standard ALU programmes take into account the different possibilities of weight application (fig. 23) and provide correct unbalance values while maintaining the rated geometric data setting of the alloy wheel.



ALU 1 balancing programme:
calculates statistically the balancing weights to be applied on the inner part of the rim, as illustrated by the relevant icon.

ALU 2 balancing programme:
calculates statistically the balancing weights to be applied on the inner side and the inner part of the rim, as illustrated by the icon.

ALU 3 balancing programme:
calculates statistically the balancing weights to be applied on the inner part (inner and outer side) of the rim, as illustrated by the icon.

ALU 4 balancing programme:
calculates statistically the balancing weights to be applied on the inner side and the inner part, outer side of the rim, as illustrated by the icon.

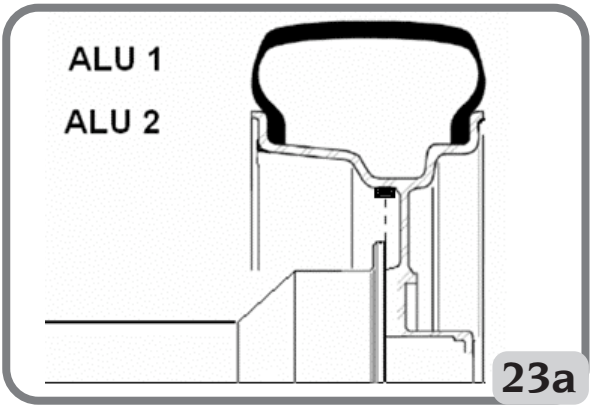
ALU 5 balancing programme:
calculates statistically the balancing weights to be applied on the inner part and the outer side of the rim, as illustrated by the icon.
Correctly set the geometric wheel data as described for the Dynamic balancing programme.
- Perform a spin.
- at the end of the spin, select the  balancing programme icon and press ENTER until the required programme is selected.

- When in a centred position, the video gives instructions for where to position the balancing weights for the selected programme: always at 12 o'clock if the weight is the conventional spring type (or adhesive, but outside the rim). For the application of the adhesive weight inside the rim, use 6 o'clock as your reference if the “LASER” configuration is active, or 12 o'clock if the “H12” or “CLIP” configuration is active.

- Set the wheel's rated geometric data by following the steps described in the WHEEL DATA ENTRY chapter. If the values of the diameter and of the distance between the balancing planes, recalculated on a statistical basis starting from the rated geometric data of the wheel, exceed the normally accepted interval stated in the TECHNICAL DATA section, the A5 message is displayed.

IMPORTANT
in ALU1 and ALU2 programmes the unbalance displayed by the machine on the outer side refers to the adhesive weight centre of gravity at the swinging unit bearing flange, (Fig. 23a)

Some minor residual unbalance may remain at the end of the spin test due to the considerable difference in shape found in rims with the same nominal diameters. Therefore change the value and position of the previously applied weights based on the configuration performed in the programme "SELECTION OF ADHESIVE WEIGHTS APPLICATION POSITION" until an accurate balance is obtained.



Motorcycle Wheel Balancing

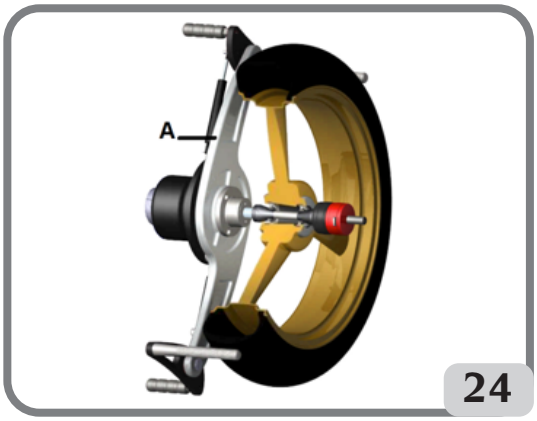
Motorcycle wheels can be balanced in:

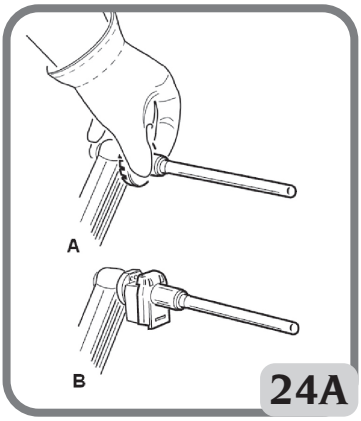
- dynamic mode; when the wheel width is such (over 3 inches) to generate significant unbalance components which cannot be eliminated with static balancing (the recommended procedure).
- dynamic mode for alloy rims; a programme similar to the ALU programmes for on-vehicle wheels, featuring the possibility of dividing the weight of one side into two parts in case of particularly large spokes;
- static mode; just one balancing weight, divided, if necessary, into equal parts on the two sides; procedure described in the STATIC BALANCING section.

Motorcycle Dynamic programme

Proceed as follows to balance a motorcycle wheel on two planes (dynamic balancing) using clip weights:

• remove the hub;
• fit the motorcycle wheel adapter on the wheel balancer (A Fig.24);





• insert the two screws provided into the holes on the wheel contact flange;
• tighten the screws on the adapter making sure that it rests on the flange correctly;

• mount the motorcycle shaft on the adapter
• mount the wheel after selecting the centring cones (one for each side of the wheel), tighten with the appropriate ring nut using the spacers necessary for coupling the securing cones to the threaded part of the shaft.

IMPORTANT: the wheel must be fixed to the flange so as to avoid any movement of the two during the spin or braking phases.

- Select the Balancing programme icon  and then press the ENTER button to set the MOTORCYCLE environment.
- Fit the appropriate extension on the inner measuring arm, specifically extension A on machines with no weight holder or extension B on machines with weight holder (Fig. 24a).
- Set the wheel data as usual.
- Proceed as described for dynamic balancing.

Motorcycle ALU programme

Proceed as follows to balance motorcycle wheels dynamically using adhesive weights:

- follow the instructions for mounting the motorcycle adapter described in the MOTORCYCLE DYNAMIC PROGRAM.
  Proceed as described previously for the "Motorcycle Dynamic" programme.
  Perform a spin.
- at the end of the spin, select the balancing programme icon  and press ENTER until the required programme is selected.
- When applying the adhesive weight, always use the 12 o'clock position as your reference, regardless of the setting made in "Adhesive Weight Application Position".
  Best results can be achieved if the adhesive weights are positioned with the outer edge being flush with the rim edge.

Split Weight Programme

Some rims have spokes so wide that it is not possible to place adhesive weights next to them; a programme which divides the counterweights into two parts has been introduced to solve this problem.
In this case, when the centred position is reached and it becomes obvious that the balancing weight will have to be applied in line with a spoke, proceed as follows:

- remain in the centred position;
- select the  Divide side weight icon (displayed instead of the “select ALU programmes” icon);
- select the spoke dimension on the displayed window using the keypad: small, medium, large or OFF (selection deactivated);

- confirm by pressing the enter button  ;
- apply two new counterweights in the positions indicated.

The weight division operations can be performed on both balancing sides.

Static balancing

A wheel can be balanced using a single counterweight on one of its two sides or in the centre of the well. in this case, the wheel is balanced **statically.** However, there is still the risk of dynamic unbalance, which becomes more significant as the width of the wheel increases.

Proceed as follows to balance motorcycle or car wheels statically:

- Perform a spin.
- at the end of the spin, select the **Balancing programmes**  icon and press ENTER until the required programme is selected.

The displayed image now shows only one position search.

- Apply the balancing weight at 6 o'clock through the LASER line or at 12 o'clock (see Chapter "Configuring Application Position Weights Stickers") on either the outer or inner side, or at the centre of the rim well, indifferently. If applied in the well, the weight is applied on a diameter smaller than the rated diameter of the rim. A value of 2 or 3 inches less than the rated value must therefore be entered when the diameter is set in order to obtain correct results.

Best results can be achieved if the weight is divided into two parts to be applied on the two sides of the rim.

UTILITY PROGRAMMES

The Utility programmes are all the functions of the machine that are useful for its operation but are not strictly connected to its normal operation.

Select the **Utility and configuration programmes icon to display the list (menu) of the utility programmes**  ;

Working environment programme

This wheel balancer allows three operators to work at the same time thanks to three different working environments.

- To call up a different working environment, select the **working environments**  icon.
- The following icons are displayed:

The lit icon shows the operator selected.

- Press the **Enter** button to select the icon desired  .
- Press the **Exit button** to save the setting and exit  .
- The selection can also be seen in the working screen status line.

By selecting a new operator, the machine resets the parameters that were active at the last recall. The stored parameters are:
- balancing mode; dynamic, ALU, motorcycle, etc.
- wheel dimensions: distance, diameter and width or those relating to the active ALU programme;
- OPT: last OPT.

The machine's general settings remain the same for all working environments: grams/ounces, sensitivity x5/x1, threshold, etc....

FLASH OPT
Optimisation Programme

This procedure reduces the possible vibrations still present in running vehicles after an accurate balancing. Based on our experiences, the programme can be recalled every time it is convenient to minimise the running noise produced by the vibrations mentioned above.
The machine also indicates whether or not it is necessary to carry out the procedure by displaying the following icon 

in the status bar.
The calculations performed by this programme are based on the unbalance values measured during the last spin performed which must therefore refer to the wheel being serviced.
Proceed as follows to recall this programme:

- Select the OPT Flash icon 

OPT STEP 1

1. take the valve to 12 o'clock;
2. press Enter  to confirm the operation;

OPT STEP 2

3. turn the wheel until the valve gets to 6 o'clock position (the bottom arrow turns from red to green);
4. make a chalk mark on the tyre external side at 12 o'clock;

5. confirm you marked the tyre by selecting Enter  ;
6. remove the wheel from the wheel balancer.
7. Turn the tyre on the rim until the mark made matches the valve (180° rotation).
8. Refit the wheel on the wheel balancer and confirm the operation described in points 6 and 7 by selecting enter  ;

Then, following the new indications on the monitor:

9. Turn the wheel until the valve gets to 12 o'clock position:
10. press the Enter button  to confirm the execution;
11. perform a spin.

Now, the real unbalance values of the wheel thus mounted on the wheel balancer are displayed. Take the wheel to the position shown on the monitor. The foreseen unbalances are displayed by performing the matching and the proportional improvement which can be obtained if the user decides to continue the optimisation procedure.
In case optimising is insufficient, or significant improvements cannot be obtained, select the Exit key  twice (first to exit the procedure and restart the menu, and then to exit the programme permanently); perform a spin to balance the wheel; otherwise, the system goes to the third and final programme phase.

OPT PHASE 3

Following the indications on the monitor:

12. turn the wheel up to the position shown on the position indicator;
13. make a double mark on the outer side of the tyre at the 12 o'clock position with a piece of chalk. If the screen indicates that the tyre should be switched around on the rim, make a double mark on the inner side using a piece of chalk.
14. confirm you marked the tyre again by selecting Enter  ;
15. remove the wheel from the wheel balancer;
16. turn the tyre on the rim (and invert mounting direction, if required) until the mark made before matches the valve;
17. refit the wheel on the wheel balancer;
18. press Enter  again to confirm the operation;
19. perform a spin. When the spin is over the optimisation programme has been completed and the weights to be applied to balance the wheel are displayed.

In case an error compromises the final result, the machine signals this with the

E 6 The procedure can now be repeated. The error message disappears by selecting any of the available functions.

Special Cases

- At the end of the first spin, the message "OUT 2" may be displayed on the screen.

  In this case, it is convenient to exit the programme by selecting exit  : the weight values needed to balance the wheel will be shown on the monitor. The programme execution is interrupted, thus not achieving the moderate improvement of the end results. However, the optimisation procedure can be run by selecting the **OPT continue procedure**  icon.

- At the end of the second spin, the indication to invert the tyre mounting on the rim may be displayed. If you do not want to invert it or it is impossible to do so, select the **disable tyre inversion**  icon. the machine will provide the instructions to complete the programme without inversion.

  The Enable tyre inversion icon  restores the inversion function.
- It is possible to exit the optimisation procedure at any time by simply selecting the Exit key twice  .
- If a different working environment is recalled between one step of the OPT programme and the next one, the OPT procedure always remains stored. Therefore, going back to the start environment, the programme resumes the execution from the point where it was interrupted. This situation is possible when the **Temporary Exit**  icon is selected.

CONTROL WEIGHT SUITE

CONTROL WEIGHT is a suite containing 4 programmes:

1. Hidden Weight
2. Split Weight
3. OPT flash
4. Minimal Weight.

Note: the Hidden Weight, Split Weight and OPT Flash programmes are available even when CONTROL WEIGHT is not enabled.

To access this suite you must:

- select the **Utility programmes** icon,
- select the **CONTROL WEIGHT** icon.

In this way you will access the main screen of CONTROL WEIGHT, showing 4 icons:

1. the **OPT Flash** icon for the unbalance minimisation programme,
2. the **Balancing programme** icon that unites all the available balancing programmes,
3. the **Statistics** icon, which visualises the statistics relating to the use of the Minimal Weight programme,
4. the **Minimal Weight icon** for the slow or fast vehicles weight savings programmes.

If programme ALU 1P or ALU 2P has been set to "auto" mode, the **Hidden weight** icon will also appear, while if the programme ALU MOTO has been set in "motorcycle" mode, the **Divide side weight** icon will appear.

Note: for Balancing programmes refer to the BALANCING PROGRAMMES paragraph.
Note: for the using the OPT Flash programme, see the paragraph OPTIMISATION PROGRAMME (OPT FLASH).

Weight savings programme (Minimal Weight)

This programme allows you to obtain the optimum balancing of the wheel, reducing the quantity of weight to be applied to a minimum.
To access this programme you must:

- select the **Utility programmes** icon,
- select the **CONTROL WEIGHT** icon.

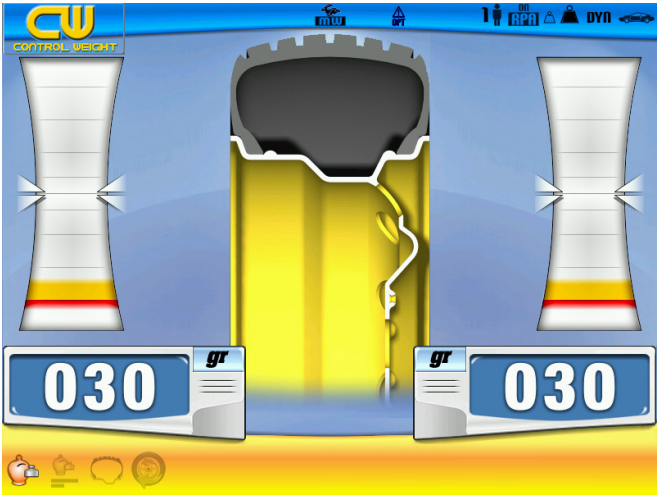
In this way you will access the main screen of CONTROL WEIGHT, and the unbalance values visualised will be automatically updated.
Selecting the **Minimal Weight** icon, it is possible to choose between 2 different weight savings programmes:

- optimised programme for fast vehicle wheels,
- optimised programme for slow vehicle wheels.

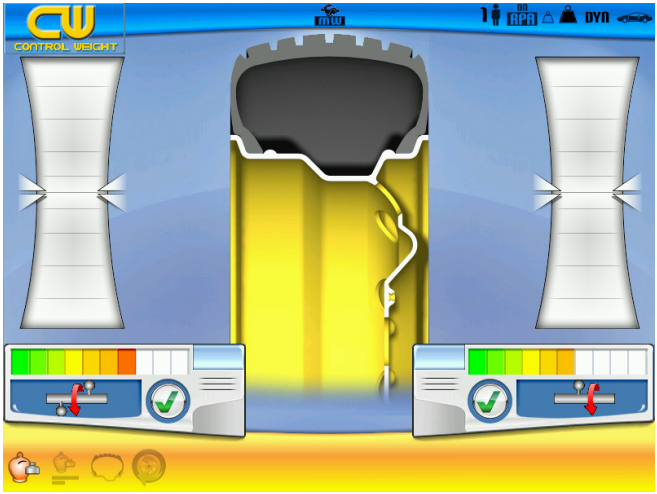
The status bar of the displayed screen will show:

- the **Fast wheel** icon, if the programme for fast vehicle wheels has been selected
- the **Slow wheel** icon, if the programme for slow vehicle wheels has been selected.

Note: each time the machine is switched on, if the CONTROL WEIGHT suite has been activated, the Fast wheel programme is automatically set.
At this point it is possible to perform the wheel balancing, using the required balancing programme.
At the end of the spin, if the wheel balancing is not satisfactory, a screen will display the values of the weights to be applied to the inner and outer sides of the rim.



If, on the other hand, the wheel balancing is satisfactory, the icons  are displayed in place of the weight values. Within the unbalance indicators, there are two semicircular bars showing the residual torque unbalance level (left-hand indicator) and the residual static unbalance level (right-hand indicator).



To visualise the statistics relating to the use of the CONTROL WEIGHT, it is necessary to select the **Statistics** icon.
The displayed screen shows:

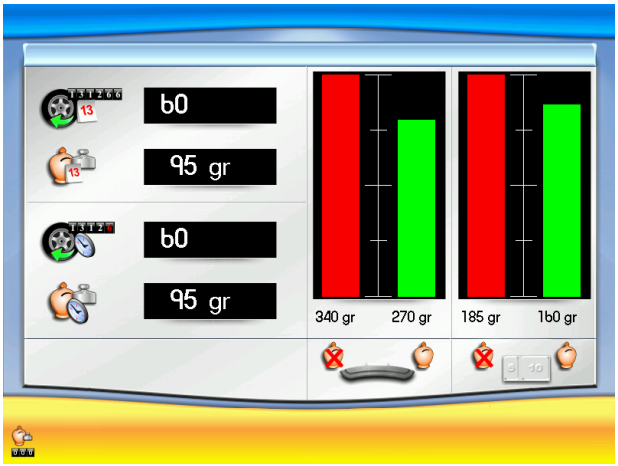
- the counter of all spins performed during the entire working life of the machine,
- the counter of the weight quantity (spring and adhesive) saved during the entire working

life of the machine 

,

- the counter of the spins performed since the last machine reset 

,
- the counter of the weight quantity saved since the last machine reset,
- a histogram showing a comparison between the spring weight quantity required if the Minimal Weight programme is not used (red rectangle), and the quantity required if the Minimal Weight programme is used (green rectangle), in relation to the entire working life of the machine,
- a histogram showing a comparison between the adhesive weight quantity required if the Minimal Weight programme is not used (red rectangle), and the quantity required if the Minimal Weight programme is used (green rectangle), in relation to the entire working life of the machine,



Note: the values shown by the counters are updated with each spin in relation to the Minimal Weight programme selected.
The **Reset** icon allows you to zero-set the partial counters.

Highest accuracy function

This function allows the operator to check the balancing results on the screen with the best possible accuracy ("Gr x1" or "Oz 1/10").

- select the **highest accuracy icon** 

;

- keep the **Enter**  **button pressed as long as desired.**

Spin counter function

After the list of the utility programmes is displayed:
- select the spin counter icon.

A window where the values of three counters are shown is displayed:
- the first counter value is the overall number of wheel spins performed by the machine since it was started up for the first time.
- the second counter value is the number of partial spins performed by the machine (it is reset each time the machine is turned off or by selecting the  icon);
- the third counter value is the number of wheel spins performed since the last sensitivity calibration.

Press the Exit button not to display the counters  .

Manual wheel data entry function

If the automatic measuring arm fails to operate, the **geometric data can be entered manually** by following the procedure below:

- select the **manual wheel data entry** icon  ;
- the data screen showing the icons is displayed:

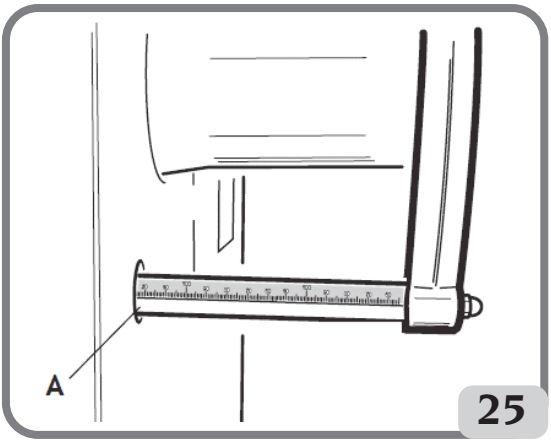
 manual wheel data change;

 unit-of-measurement (inch/mm) change;

 displays the help information regarding the current screen.

- Select the dimension change icon  ;

- the wheel balancer prepares for manual entry of the width;
- change the displayed value with the value measured with the manual calliper using the keypad;



- press the **Enter**  button to confirm and switch to the **diameter** value entry phase;
- change the value of the diameter displayed by entering that indicated on the tyre using the keypad;
- press the **Enter**  button to confirm and switch to the **distance** value entry phase;
- change the value of the distance displayed by entering that indicated on the internal sensor (A, fig.25) using the keypad;
- press the **exit**  **button to terminate the manual data setting.**

Automatic locking device C opening/closure function

If the control pedal C is not working (M, Fig.8), the locking system C can be opened/closed as follows:

- Select the  icon;
- press **enter** to open or close the automatic locking system C.

This function can be inserted in the bar of the main icons, as explained in **Preferred programme configuration**.

CONFIGURATION PROGRAMMES

The Configuration programmes are those functions that are intended for customising the machine's operation and are normally executed when the machine is installed.
The list of the configuration programmes can be displayed as follows:

- Select the **utility and configuration programmes icon**  ;

- Select the **configuration programmes**  icon;

Automatic Position Search (RPA) Configuration

Enables/disables the automatic positioning of the wheel at the end of the spin. After the list of the setting programmes is displayed, proceed as follows:

- Select the **Automatic position search configuration (RPA)** icon  .

The following icons are displayed:

RPA OFF; disables the automatic position search procedure.
RPA ON; enables the automatic position search procedure.

- Press the **Enter** button to select the icon desired  .

- Press the **Exit**  button to save the setting and quit.

The selection can also be seen in the working screen status line.

Selection of adhesive weights application position

To access this programme you must:
- select the Utility programmes icon,
- select the configuration programmes icon
- Three icons will appear on the display that represent the possible positions, as shown below:

H12: the balancing weight must always be applied in the 12 o'clock position regardless of the type of balancing programme selected or the type of weight to be applied (adhesive or spring);
LASER: the balancing adhesive weight must be applied in correspondence of the laser line (in all balancing programmes) whereas the clip weight must always be applied in the 12 o'clock position (Table A);
CLIP: adhesive balancing weights must be applied using the weight holder in the ALU 1P and ALU 2P programmes, while clip weights must always be applied in the 12 o'clock position.
- Select the desired position with the cursor keys. The selected icon is enabled if it is in the

following configuration:

- Press the Exit button to save the setting and exit .

The selected configuration is displayed on the status bar in the working environment.

In the case in which the laser line is faulty, the balancing adhesive weight is possible to apply it to 6 hours (Table A), while the spring always weight to 12 hours.

- On the screen appear the three icons that represent the possible positions as shown below:

The selected icon is enabled if it is presented in the following configuration:

TABLE A

Type Balancing Program	Adhesive weight application position Plan A	Adhesive weight application position Plan B
 ALU1 / ALU 1P	H6 or LASER	H6 or LASER
 ALU2 / ALU 2P	H12	H6 or LASER
 ALU3	H6 or LASER	H12

Type Balancing Program	Adhesive weight application position Plan A	Adhesive weight application position Plan B
 ALU4	H12	H12
 ALU5	H6 or LASER	H12
 STATIC	H6/LASER or H12	

Unbalance rounding-off configuration

Sets the unbalance rounding-off to grams x1 or grams x5, or, if set to ounces, to oz x 1/4 or oz x 1/10, with which the unbalance values are displayed.

- Select the **unbalance rounding-off**  **icon.**
- The following icons are displayed:

Set grams x1; displays the unbalance values gram by gram.
Set grams x 5; displays the unbalance values 5 grams by 5 grams.

If the unit of measure is ounces:

Set tenths of an ounce; displays the unbalance values in tenths of an ounce.

Set fourths of an ounce; displays the unbalance values in quarters of an ounce.

- Press the **Enter** button to select the icon desired  .
- Press the **Exit**  button to exit and save the setting.

Unbalance unit of measure (g/oz) configuration

Sets the unit of measure to grams or ounces.
After the list of the setting programmes is displayed, proceed as follows:

- Select the **unbalance unit of measurement icon** .
- The following icons are displayed:

g; displays the unbalance values in grams.
oz; displays the unbalance values in ounces.

- Press the **Enter** button to select the icon desired  .

- Press the **Exit button to save the setting and exit**  .

After selecting, the new setting is saved and the unbalance image is displayed again.

OPT warning configuration

Enables/disables the Optimisation programme warning at the end of the spin. After the list of the setting programmes is displayed, proceed as follows:

- Select the Enable/Disable OPT warning icon 

.
The following icons are displayed:

OPT OFF; deactivates the OPT warning.
OPT ON; activates the OPT warning;

- Press the **Enter** button to select the icon desired  .

- Press the **Exit button to save the setting and exit**  .

The selection can also be seen in the working screen status line.

Preferred programme configuration

Allows two preferred icons to be set on the main icon bar.
After the list of the configuration programmes is displayed, proceed as follows:

- Select the **preferred programmes** icon  .
- All the utility and balancing programmes icons are displayed.
- Select the two programmes to be displayed in the main window by using the **Enter** button  .
- Press the **Exit button to save the setting and exit**  .

Language configuration

The language of the messages displayed on the monitor can be selected.
After the list of the setting programmes is displayed:

- Select the **language setting**  icon.
- A list of flags is displayed. Select the flag corresponding to the desired language by pressing the **Enter**  button
- Press the **Exit button to save the setting and exit**  .

This programme can be exited only by selecting a language, then the unbalance image is displayed again.

Customisation Configuration

This programme allows the user to save some selected data permanently, e.g. name, city, address, telephone number, advertising messages, etc..
The data will subsequently be displayed on the initial image.

- Select the **Firm data setting icon**  .
- **The screen displays a page where the data can be set, comprising:**
  - 4 lines on which data can be entered (in the centre of the screen);
  - a keypad for setting characters;
  - 5 control icons;
  - 1 icon for exiting the programme;
  - 1 help icon.
- Select the character to be entered inside the circular sector shown on the screen.
- Confirm selection by pressing the **Enter**  button.

Control icons are:

Go to next line:
used for moving the cursor to the next line. If a word has already been entered on the new line, the word will be deleted automatically.

Go to previous line:
used for moving the cursor to the previous line. If a word has already been entered on the new line, the word will be deleted automatically.

Delete last character entered:
moves the cursor back to the left so that the character is deleted.

Set upper case/lower case characters:
selects upper case or lower case characters, alternately.

The set data is stored when the programme is exited, i.e. by selecting the **Exit**  icon.
You are advised to set your own surname and name on the first line, the name of the city on the second line, the street on the third line and the telephone number on the fourth line.

Lighting LED activation/deactivation

It is possible to activate or deactivate the LED light when present on the machine.
After the list of the setting programmes is displayed:

- Select the lighting LED activation/deactivation icon 
- Three icons will appear on the display, representing the possible light modes:

LED1. In this configuration, the light turns on when:
- an ALU P programme is set and the internal sensor is extracted. When the sensor returns to the rest position, the light turns off;
- at the end of a spin cycle if residual unbalances are present for 30 seconds;
- in CP (centred position) for an additional 30 seconds.

LED2. In this configuration, the light turns on in the conditions indicated for the **LED1** programme and, in addition, also in the following conditions:
- during the entire measuring cycle and with all balancing programmes;
- during the Hidden Weight programme when selecting the two planes behind the spokes.

LED OFF: deactivated

- Using the Enter button  , select the desired mode. The selected icon is enabled if it is in the following configuration:

- press  to confirm the selection made and exit the function.

LASER activation/deactivation

It is possible to activate or deactivate the laser when present on the machine.
After the list of the setting programmes is displayed:

- Select the LASER activation/deactivation icon
- Two icons will appear on the display that represent the possible LASER modes, as shown below:
  LASER OFF.
  LASER ON. In this configuration, the laser turns on in the following cases:
  - for the manual application of all adhesive weights.

IMPORTANT:
If the operator selected an ALU 1P or ALE2P (precise) balancing programme and there is a weight holder, the laser will not be activated as the weight is applied using the holder itself.
- in the Hidden Weight programme, the selection of the two new positions behind the spokes is done in the 6 o'clock position using the laser line.

- Using the Enter button , select the desired mode. The selected icon is enabled if it is in the following configuration:

- press  to confirm the selection made and exit the function.

CAUTION:
The list of the configuration programmes can be displayed as follows:

- Select the **utility and configuration programmes**  icon;

- Select the **configuration programmes**  icon;

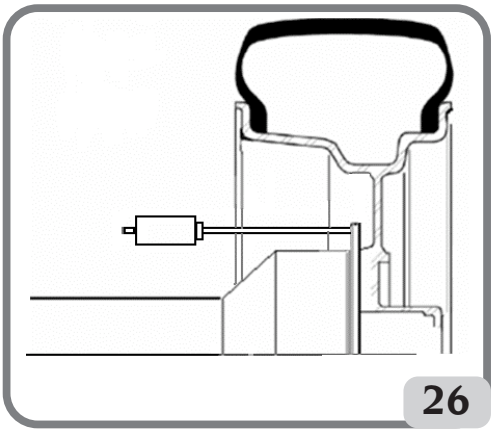
- Select **view other icons**  icon.

Sensitivity Calibration

Calibrate when detecting that the setting condition is out-of-tolerance or when the machine so requires as the E 1 message is displayed.

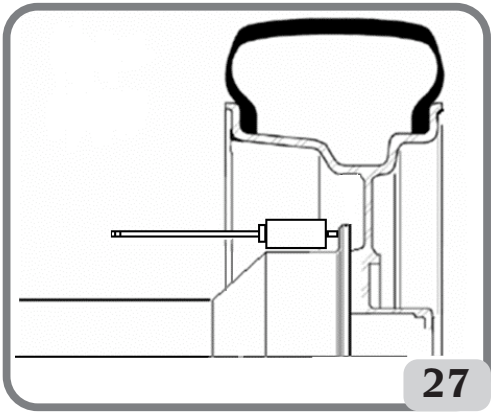
Calibrate as follows:

1. select the sensitivity calibration icon  in the configuration program menu  ;
2. fit a wheel of average dimensions (diameter no less than 14"), with preferably only a small unbalance, on the wheel balancer;
3. perform a spin;
4. At the end of the spin, fix the calibration weight supplied with the machine on the swinging unit bell as indicated in figure 26.



26

5. perform a second spin.
6. At the end of the spin, change the position of the calibration weight on the shaft assembly bell as indicated in figure 27;



27

7. Perform a third spin. This last calibration phase includes the execution of three consecutive spins in automatic mode.

If the calibration has been successful, a permission acoustic signal goes off at the end of the spin; otherwise, the E 2 message is temporarily displayed.

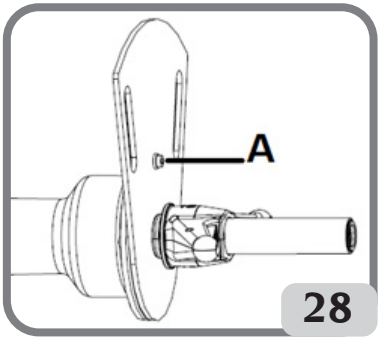
Notes:

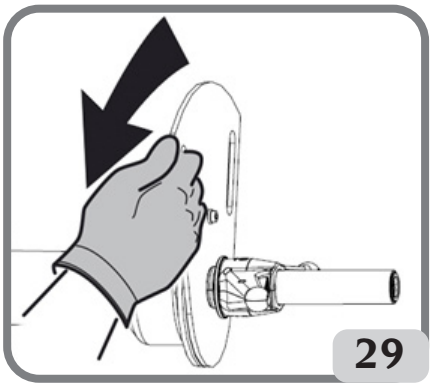
- Once the procedure is finished, remove the calibration weight;
- Press the  button to interrupt the calibration procedure at any time.
- This calibration is valid for any kind of wheel.

Calibration of the ultrasonic width sensor (if installed)

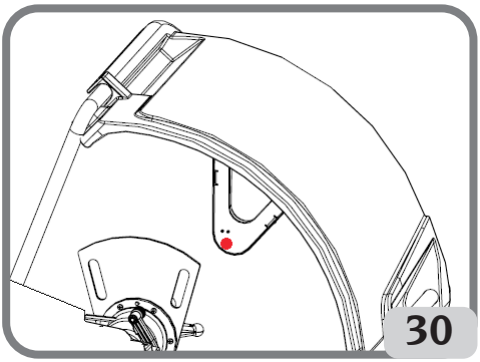
Used to calibrate the ultrasonic sensor located on the wheel guard pipe (width). It must be performed when the machine requests it by displaying the E4 message, or when the measured and the actual rim widths differ.

- select the ultrasonic width sensor calibration icon  located in the configuration programmes;
- fix the calibration template in correspondence of the threaded hole located in the shaft assembly bell using the M8 screw (A, Fig.28) supplied with the ultrasonic sensor;
- use the locking device with a wheel spacer (machine version with automatic locking system) or a cone and the wheel fixing nut to bring the template in contact with the shaft assembly bell (fig.28);
- press **ENTER** to confirm the securing of the template;
- slowly turn the template towards the operator to automatically enable the clamping brake (fig.29);





- slowly lower the wheel guard (fig. 30), the machine will automatically calibrate the sensor.



If the calibration has been carried out successfully, a confirmation message will be displayed. On the contrary, **the display of the message A20** indicates that:

- the position of the calibration template during the calibration phase is not correct. Therefore, position the template correctly, checking that the hole in the ultrasonic sensor support is aligned with the calibration template (see figure 30) and repeat the procedure.
- the internal sensor was not in the rest position. Position it to the rest position and repeat the procedure.

Select the **Exit**  key to exit the programme without performing the calibration.

Service

This programme displays some data that are used to test machine operation and to detect the malfunctioning of some devices. Since these data are not useful for the operator, it is recommended that only technical support technicians consult them.

Select the service programmes icon to display this programme  .

Monitor Auto Setting

This program is used to optimise the synchronisation of the LCD motor approved by the manufacturer. Proceed as follows to perform this synchronisation:

- select the 

MONITOR AUTO SETTING icon;
- once selected, the following screen will appear on the monitor

- to perform the synchronisation, press the corresponding key directly on the LCD monitor (read the instructions in the monitor user manual).

Push the exit key  to exit the program without performing the synchronisation.

IMPORTANT:
repeat the operation if necessary if synchronisation was not successful.

ERROR MESSAGES

The machine can recognise a certain number of malfunction conditions and signals them by displaying the relevant messages.

– A – Notice Messages

A 3 wheel not suitable for performing the sensitivity calibration, use a wheel of average dimensions (typically 5.5"X14") or larger, but NOT exceeding a weight of 40kg.

A 5 Incorrect dimension settings for an ALU programme. Correct the set dimensions.

A 7 The machine is temporarily unable to select the requested programme. Perform a wheel spin, then repeat the request.

A 20 Ultrasonic sensor calibration template in an incorrect position during calibration. Bring it to the position indicated and repeat the calibration.

A 26 Programme available only after selecting one of the following programmes: ALU 1P / ALU 2P / Motorcycle Dynamic / Motorcycle ALU or if selected in the Motorcycle Programme but with the wheel NOT in the centred position.

A 31 Optimisation procedure (OPT) already launched by another user.

A 52 Initiated the procedure for assembly of the hub of auto wheel locking system. After 60 seconds, the procedure ends automatically.

A Stp Wheel stop during the spin phase.
Wheel movement is not integral with swinging unit movement: Check correct wheel tightening.

A Cr Spin performed with the guard raised.
Lower the guard to perform the wheel spin.

– E – Error messages

E 1 Absence of sensitivity calibration.
Perform the sensitivity calibration procedure.

E 2 Error condition during sensitivity calibration.
Repeat sensitivity calibration paying attention to the first spin, which must be performed with the wheel as in the successive spins.
Take particular care NOT to knock the machine during calibration.

E 3 I/E 2/3 Error condition at the end of sensitivity calibration. Repeat the calibration, if the message persists perform the following checks:
- Correct sensitivity calibration procedure;
- Correct fastening and position of the calibration weight;
- Mechanical and geometric condition of the calibration weight;
- Geometry of the wheel used.

E 4 a) Error condition on ultrasonic sensor calibration. Calibrate the ultrasonic sensor.
b) ultrasonic sensor not present. Visualisation of this error can be disabled by performing the following procedure:

- Select the icon "Width measuring sensor calibration"  and press ENTER.

E 6 Error condition when executing optimisation programme.
Repeat the procedure from the beginning.

E 12 Ultrasonic width sensor not present, or faulty. Visualisation of this error can be disabled by performing the following procedure:

- Select the "Ultrasonic width sensor calibration" icon 
and press **ENTER**.

E 27 **Excessive braking time. If the problem persists, contact the technical support centre.**

E 28 Encoder counting error. If the error occurs frequently, call in the technical support centre.

E 30 Wheel spin device failure. Switch off the machine and call in the technical support centre.

E 32 The wheel balancer has been jolted during the reading phase. Repeat the spin.

E F0 Error in reading the 0 notch.

CCC CCC Unbalance values greater than 999 grams.

CHECK FOR CORRECT FUNCTIONING OF BALANCING ACCESSORIES

Checking balancing accessories allows the operator to make sure that wear has not altered the mechanical specifications of flanges, cones, etc. beyond the specified limits.
A perfectly balanced wheel, which has been disassembled and reassembled in a different position, should not show an unbalance value greater than 10 grams.

When a higher unbalance is found, check all the accessories carefully and replace the components that are not in perfect condition (e.g. showing dents, abnormal wear, flange unbalance, etc.).
Anyhow it is necessary to bear in mind that, if the cone is used to centre the wheel, satisfactory balancing results cannot be achieved if the central hole of the wheel is out-of-round or incorrectly centred; Better results can be achieved by centring the wheel using the securing holes.
Bear in mind that any re-centring error made when the wheel is mounted on the car can be removed only removed with an "on-the-vehicle balancing" of the wheel, using an on-the-vehicle wheel balancer to complement the work of the wheel balancer.

TROUBLESHOOTING

Below is a list of faults that may occur and that the user can solve if the cause is found among those indicated.
For any other malfunction or fault call in the technical support centre.

Machine does not switch on (monitor remains switched off)

No power at the socket.
Check the mains voltage is present.
Check the electrical power circuit in the workshop.

The machine plug is defective.
Check that the plug is undamaged.

One of the FU1-FU2 fuses of the rear electrical panel has blown
Replace the blown fuse.

The monitor has not been switched on (only after installation).
Switch on the monitor by pressing the button located on the front of the monitor

The monitor's power supply connector (located on the rear of the monitor) is not correctly inserted.
Check that the connector is inserted correctly.

The diameters and width values measured with the automatic measuring devices do not match the rated values of the rims.

The sensors have not been positioned correctly during measurement.
Bring the sensors to the position shown in the manual and follow the instructions in the WHEEL DATA ENTRY section.

The external sensor has not been calibrated.
Calibrate the ultrasonic sensor. See warning instructions at the end of the ULTRASONIC WIDTH SENSOR CALIBRATION section

The automatic measuring devices are not working

The sensors were not in the rest position when switching on the machine and the Enter button  **was selected, disabling control of the automatic sensors.**
Switch the machine off, bring its sensor into the correct rest positions and switch the machine back on.

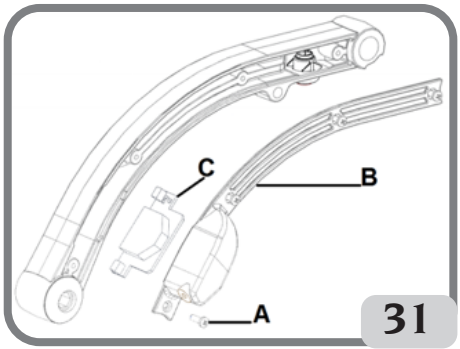
The automatic arm laser line does not work (if present)

Battery to replace, proceed as follows:

- Remove the four screws in the lever (A, Fig.31) and then remove the plastic cover (B, Fig.31)
- Remove the card (C, Fig.31) present inside it
- Replace the battery in the card with a new 3V CR2450;
- Proceed with the assembly of the lever in the opposite direction to disassembly.

CAUTION

Pay attention to the positioning of the cables inside the recess of the lever to avoid accidentally damaging the cable itself when closing the plastic casing.



If the laser line does not work with the new battery, call for technical assistance.

START has been pressed and the wheel fails to spin (the machine does not start)

The wheel guard is raised (the "A Cr" message is displayed).

- Lower the guard.

The wheel balancer provides unsteady unbalance values

The machine was jolted during the spin.

Repeat the spin, avoiding any unnecessary strain during the acquisition procedure.

The machine does not firmly rest on the floor.

Check that the machine stands evenly on a stable surface

The wheel is not locked correctly.

Tighten the clamping ring-nut firmly.

Several spins are to be performed to balance the wheel

The machine was jolted during the spin.

Repeat the spin, avoiding any unnecessary strain during the acquisition procedure.

The machine does not firmly rest on the floor.

Check that the supporting surface is firm and stable.

The wheel is not locked correctly.

Tighten the clamping ring-nut firmly.

The machine has not been calibrated correctly.

Carry out the sensitivity calibration procedure.

The entered geometric data are not correct.

Check that the data corresponds to the dimensions of the wheel and correct, if necessary.

Perform the width sensor calibration procedure.

LED light and/or laser indicator are NOT working

Check if the device(s) is (are) configured correctly as shown in the paragraphs "lighting LED

activation/deactivation" and "LASER activation/deactivation". If the problem persists after checking the correct device configuration, call the technical support centre.

CAUTION

The "Spare parts" handbook does not authorise the user to carry out work on the machine with the exception of those operations explicitly described in the User Manual. It only enables the user to provide the technical assistance service with precise information, to minimise delays.

MAINTENANCE

CAUTION

The company is not to be held responsible for any claims deriving from the use of non-original spare parts or accessories.

CAUTION

Unplug the machine from the socket and make sure that all moving parts have been locked before making any adjustments or maintenance work.

Do not remove or modify any part of the machine (except for service interventions).

WARNING

Keep the working area clean.

Never use compressed air and/or jets of water to remove dirt or residues from the machine. Take all possible measures to prevent dust from building up or raising during cleaning operations.

Keep the wheel balancer shaft, the securing ring nut, the centring cones and flange clean. These components can be cleaned using a brush previously dripped in environmentally friendly solvents.

Handle cones and flanges carefully so as to avoid accidental dropping and subsequent damage that would affect centring accuracy.

After use, store cones and flanges in a place where they are suitably protected from dust and dirt.

If necessary, use ethyl alcohol to clean the display panel.

Perform the calibration procedure at least once every six months.

INFORMATION REGARDING MACHINE DEMOLITION

If the machine is to be scrapped, remove all electrical, electronic, plastic and metal parts and dispose of them separately in accordance with current provisions as prescribed by law.

ENVIRONMENTAL INFORMATION

The disposal procedure described below only applies to machines with the symbol of the waste bin with a bar across it  on their data plates.

This product may contain substances that can be hazardous to the environment and to human health if it is not disposed of properly.
The following information is therefore provided to prevent the release of these substances and to improve the use of natural resources.

Electrical and electronic equipment must never be disposed of in the usual municipal waste but must be separately collected for their proper treatment.
The crossed-out bin symbol, placed on the product and on this page, reminds the user that the product must be disposed of properly at the end of its life.
In this way it is possible to prevent that a non specific treatment of the substances contained in these products, or their improper use, or improper use of their parts may be hazardous to the environment or to human health. Furthermore, this helps to recover, recycle and reuse many of the materials contained in these products.

Electrical and electronic manufacturers and distributors set up proper collection and treatment systems for these products for this purpose.
Contact your local distributor to obtain information on the collection procedures at the end of the life of your product.

When purchasing this product, your distributor will also inform you of the possibility to return another end-of-life piece of equipment free of charge as long as it is of equivalent type and had the same functions as the purchased product.

Any disposal of the product performed in a different way from that described above will be liable to the penalties provided for by the national regulations in force in the country where the product is disposed of.

Further measures for environmental protection are recommended: recycling of the internal and external packaging of the product and proper disposal of used batteries (only if contained in the product).

Your help is crucial in reducing the amount of natural resources used for manufacturing electrical and electronic equipment, minimise the use of landfills for product disposal and improve the quality of life, preventing potentially hazardous substances from being released in the environment.

FIRE-EXTINGUISHING MATERIALS TO BE USED

Consult the following table to choose the most suitable fire extinguisher.

	Dry materials	Flammable liquids	Electrical equipment
Water	**YES**	NO	NO
Foam	**YES**	**YES**	NO
Powder	YES*	**YES**	**YES**
CO_2	YES*	**YES**	**YES**

YES* *Use only if more appropriate extinguishers are not at hand or when the fire is small.*

CAUTION

The indications in this table are of a general nature. They are designed as a guideline for the user. The applications of each type of extinguisher will be illustrated fully by the respective manufacturers on request.

GLOSSARY

Below is a brief description of some technical terms used in this manual.

AWC
Auto Width Calculation acronym

AWD
Auto Width Device acronym

BALANCING CYCLE
Sequence of operations to be performed by the user and the machine from the beginning of the spin until the wheel is braked to a stop after calculating the unbalance values.

CALIBRATION
See SELF-CALIBRATION.

CENTRING
Procedure for positioning the wheel on the wheel balancer shaft to ensure that the shaft axis corresponds to the wheel rotation axis.

CONE
Conical element with a central hole which, when inserted on the wheel balancer shaft, is used to centre the wheels having central holes with a diameter ranging between maximum and minimum values.

DYNAMIC BALANCING
Procedure for unbalance compensation by applying two weights, one on each of the two wheel sides.

FLANGE (of the wheel balancer)
Circular crown-shaped disk against which the disk of the wheel mounted on the wheel balancer rests. Also used for keeping the wheel perfectly perpendicular to its rotation axis.

FLANGE (adapter - centring accessory)
Device for supporting and centring the wheel. Also used for keeping the wheel perfectly perpendicular to its rotation axis.

Mounted on the shaft of the wheel balancer by means of the central bore.

FSP
Fast Selection Program acronym

LOCKING DEVICE
Wheel clamping device on the wheel balancer only used for versions with the automatic wheel clamping system.

OPT
Optimisation abbreviation.

RING NUT
Wheel blocking device on the wheel balancer, fitted with elements for coupling with the threaded hub and side pins for tightening it.

RPA
Acronym of Ricerca Posizione Automatica (Automatic Position Search).

SELF-CALIBRATION
This procedure calculates suitable correction coefficients starting from known operating conditions. It improves the machine accuracy by correcting to a certain extent the calculation errors that may result from the alteration of the machine's features over the course of time.

SENSOR (measuring arm)
Mobile mechanical element that, when brought into contact with the rim in a specific position, measures the geometric data: distance, diameter. Data can be measured automatically if the sensor is equipped with suitable measurement transducers.

SPIN
Procedure starting from the action that causes the wheel to rotate and the subsequent rotation of the wheel.

STATIC BALANCING
Procedure for correcting only the static element of the unbalance, by applying only one weight, usually at the centre of the rim well. Accuracy increases as the width of the wheel decreases.

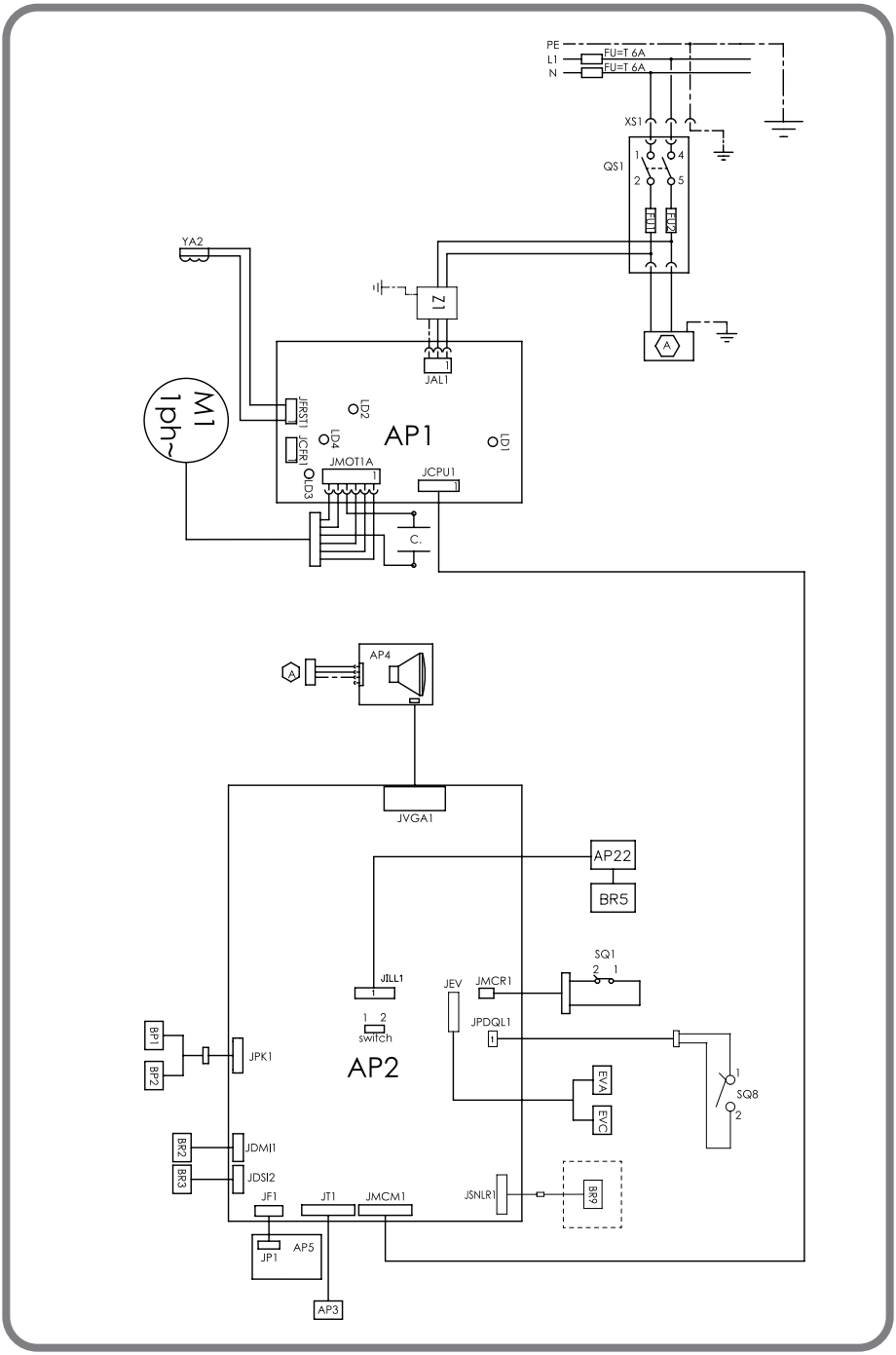
THREADED HUB
Threaded part of the shaft on which the ring nut is engaged to lock the wheel. It is supplied disassembled from the machine.

ULTRASONIC SENSOR
Electronic component that, together with the information collected by the internal measuring sensor, makes it possible to measure the wheel width. This measurement is taken by transmitting and receiving ultrasonic wave trains.

UNBALANCE
Uneven distribution of the wheel mass that generates centrifugal forces during rotation.

ELECTRICAL SYSTEM GENERAL DIAGRAM

AP1 Power supply unit card
AP2 Main board (CPU)
AP3 Keypad
AP4 Monitor
AP5 Search card
BP1 Internal Pick-up
BP2 External Pick-up
FU1 Fuse
FU2 Fuse
M1 Motor
QS1 Master switch
SQ1 Safety guard micro-switch / Start button
SQ8 Microswitch automatic wheel locking system
XS1 Power supply socket
YA2 Brake / motor disconnection coil
BR2 Diameter measuring sensor
BR3 Distance measuring sensor
BR5 LASER indicator
BR9 External distance sonar sensor
AP22 LED light
EVA opening solenoid valve
EVC closing solenoid valve
Z1 Net filter


PE
L1
N
FU=T 6A
FU=T 6A
XS1
QS1
1
2
4
5
FU1
FU2
YA2
Z1
JAL1
A
M1
1ph~
JFRST1
JCFR1
LD4
LD3
LD2
LD1
AP1
JMOT1A
JCPU1
C.
AP4
A
JVGA1
AP22
BR5
SQ1
2 1
JILL1
JEV
JMCR1
JPDQL1
1 2
switch
AP2
BP1
BP2
JPK1
EVA
EVC
SQ8
BR2
BR3
JDMI1
JDSI2
JF1
JT1
JMCM1
JSNLR1
BR9
AP5
JP1
AP3

PNEUMATIC DIAGRAM

Air supply: 7-10 bar (100-145 psi)