1294-M021-0

240RTLD

INSTRUCTION MANUAL

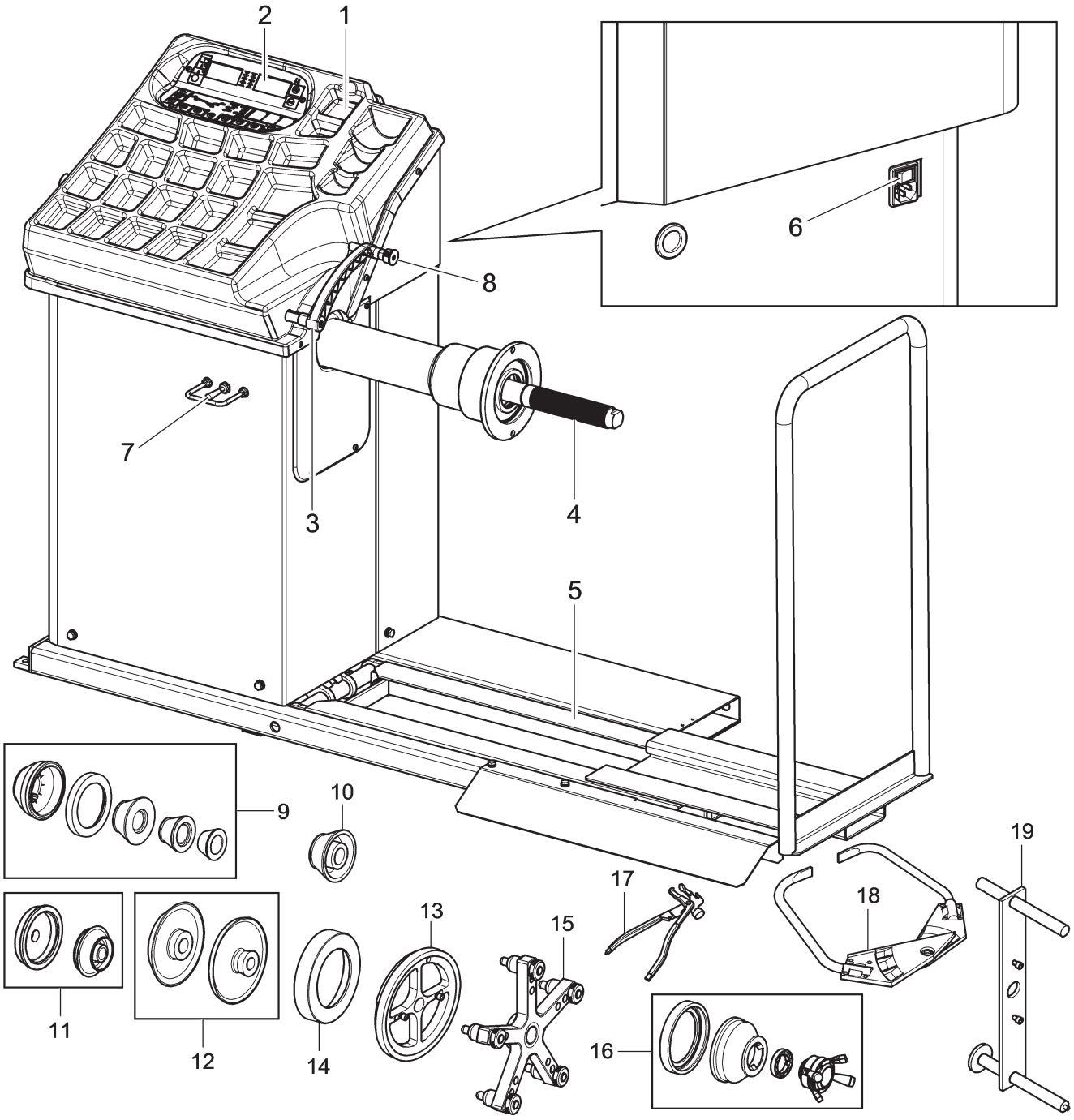
GB TRANSLATION FROM THE ORIGINAL INSTRUCTIONS

For spare parts drawings refer to "LIST OF COMPONENTS" section.

• For any further information please contact your local dealer.

SUMMARY

Fig. 1



KEY

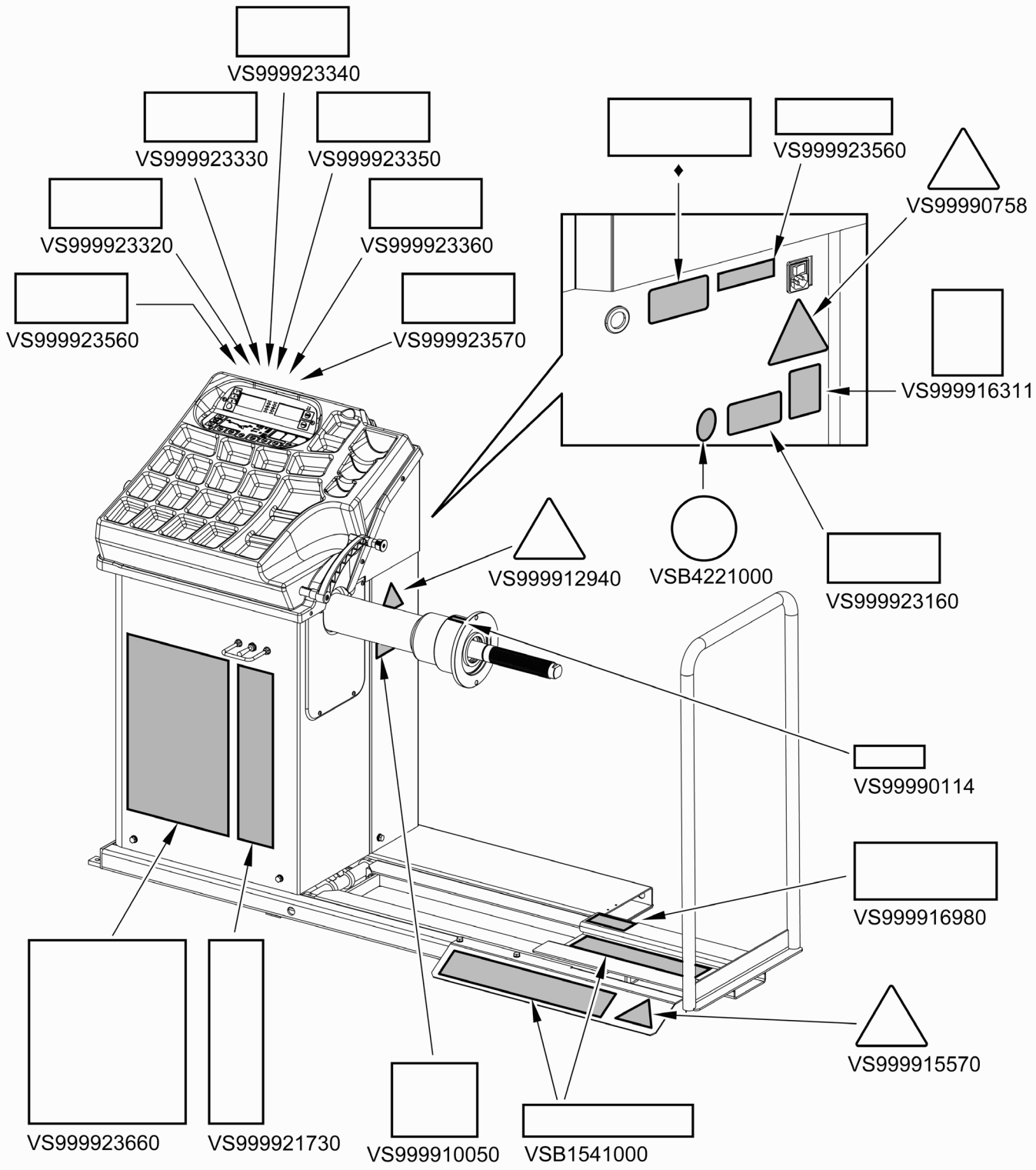
1 – Weight holding bridge
2 – Control panel/led display
3 – Distance-diameter caliper
4 – Threaded shaft
5 – Lifting device
6 – Main switch
7 – Lifting device control lever
8 – Weight fitting pliers
9 – Cones + protection cup
10 – Off-road vehicle cone D.88-132
11 – Cone D.118-174 + vans adapter
12 – 2 cones D.202-221, 281
13 – Flange for trucks wheels bearing
14 – Bearing flange spacer
15 – Flange for trucks
16 – Wheel locking ring nut
17 – Grippers for weights
18 – External data gauge
19 – Calibration tool

SYMBOLS USED IN THE MANUAL

Symbols	Description
	Read instruction manual.
	Wear work gloves.
	Wear work shoes.
	Wear safety goggles.
	Mandatory. Operations or jobs to be performed compulsorily.
	Warning. Be particularly careful (possible material damages).

Symbols	Description
	Danger! Be particularly careful.
	Note. Indication and/or useful information.
	Move with fork lift truck or pallet truck.
	Lift from above.
	Attention: never lift the machine by means of the mandrel.

INFORMATION PLATE LOCATION TABLE



Code numbers of plates	
VSB422100	*Grounding plate*
VSB1541000	*Danger plate*
VS99990114	*Arrow plate*
VS99990758	*Electricity danger plate*
VS999910050	*Protection device use plate*
VS999923560	*1Ph 110V 10A 60Hz plate*
VS999912940	*Lifting plate*
VS999915570	*Crushing danger plate*
VS999916311	*Rubbish skip label*
VS999916980	*Capacity load plate*
VS999921730	*Manufacturer plate*
VS999923160	*Prop 65 Attention plate*
VS999923320	*Replace fuse plate*
VS999923330	*Fuse F1 plate*
VS999923340	*Fuse F2 plate*
VS999923350	*For indoor use only plate*
VS999923360	*Disconnect power supply plate*
VS999923570	*Fuse-type-rating truck plate*
VS999923660	*Machine name*
♦	*Serial number plate*

IF ONE OR MORE PLATES DISAPPEAR FROM THE MACHINE OR BECOMES DIFFICULT TO READ. REPLACE IT AND QUOTE ITS/THEIR CODE NUMBER/S WHEN REORDERING.

SOME OF THE PICTURES AND/OR DISPLAY SCREEN PAGES PRESENT IN THIS MANUAL HAVE BEEN OBTAINED FROM PICTURES OF PROTOTYPES, THEREFORE THE STANDARD PRODUCTION MACHINES AND ACCESSORIES CAN BE DIFFERENT IN SOME COMPONENTS/DISPLAY SCREEN PAGES.

1.0 GENERAL INTRODUCTION

This manual is an integral part of the product and must be retained for the whole operating life of the machine.
Carefully study the warnings and instructions contained in this manual. It contains important instructions regarding **FUNCTIONING, SAFE USE and MAINTENANCE.**

KEEP THE MANUAL IN A KNOWN, EASILY ACCESSIBLE PLACE FOR ALL ACCESSORY OPERATORS TO CONSULT IT WHENEVER IN DOUBT.

THE MANUFACTURER DISCLAIMS ALL RESPONSIBILITY FOR ANY DAMAGE OCCURRED WHEN THE INDICATIONS GIVEN IN THIS MANUAL ARE NOT RESPECTED: AS A MATTER OF FACT, THE NON-COMPLIANCE WITH SUCH INDICATIONS MIGHT LEAD TO EVEN SERIOUS DANGERS.

1.1 Introduction

Thank you for preferring this wheel balancer. We feel sure you will not regret your decision.
This machine has been designed for use in professional workshops and stands out for its reliability and easy, safe and rapid operation. With just a small degree of maintenance and care, this wheel balancer will give you many years of trouble-free service and lots of satisfaction.

2.0 INTENDED USE

The machines described in this manual and their different versions, are wheels balancing machines for truck wheels, projected to be used exclusively to cancel out, or at least reduce to acceptable limits the vibrations of the wheels, by fitting counterweights of suitable size and in specific positions to the same wheels that are not correctly balanced.

DANGER: EMPLOYING THESE MACHINES OUTSIDE THE USE DESTINATION THEY HAVE BEEN DESIGNED FOR (AS INDICATED IN THIS MANUAL) IS INAPPROPRIATE AND DANGEROUS.

THE MANUFACTURER CANNOT BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY IMPROPER, ERRONEOUS, OR UNACCEPTABLE USE.

2.1 Training of personnel

The machine may be operated only by suitably trained and authorized personnel.

Given the complexity of the operations necessary to manage the machine and to carry out the operations safely and efficiently, the personnel must be trained in such a way that they learn all the information necessary to operate the machine as intended by the manufacturer.

A CAREFUL READING OF THIS INSTRUCTION MANUAL FOR USE AND MAINTENANCE AND A SHORT PERIOD OF TRAINING WITH SKILLED PERSONNEL CAN BE AN ENOUGH PREVENTIVE PREPARATION.

3.0 SAFETY DEVICES

PERIODICALLY, AT LEAST MONTHLY, CHECK THE INTEGRITY AND THE FUNCTIONALITY OF THE SAFETY AND PROTECTION DEVICES ON THE MACHINE.

- **Controls logic disposition**

  Its function is to prevent the operator from dangerous mistakes.

- **Master switch positioned on the rear of the machine**

  Its function is to disconnect machine electric supply.

3.1 Residual risks

The machine was subjected to a complete analysis of risks according to reference standard EN ISO 12100. Risks are as reduced as possible in relation with technology and product functionality.
Possible residual risks have been emphasized through pictorial representations and warnings which placing is indicated in " PLATE POSITIONING TABLE" at page 6.

4.0 GENERAL SAFETY RULES

- Any tampering with or modification to the machine not previously authorized by the manufacturer exempts the latter from all responsibility for damage caused by or derived from said actions.
- Removing of or tampering with the safety devices or with the warning signals placed on the machine leads to serious dangers and represents a transgression of European safety rules.
- Use of the machine is only permitted in places free from **explosion** or **fire** hazard and in **dry places under cover**.
- Original spare parts and accessories should be used.

THE MANUFACTURER DENIES ANY RESPONSIBILITY IN CASE OF DAMAGES CAUSED BY UNAUTHORIZED MODIFICATIONS OR BY THE USE OF NON ORIGINAL COMPONENTS OR EQUIPMENT.

- Installation must be conducted only by qualified personnel exactly according to the instructions that are given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it miss-functions and contact the assistance service of an authorized dealer.
- In emergency situations and before carrying out any maintenance or repairs, disconnect all supplies to the machine by using the main switch, placed on the machine itself, and unplugging the power supply.
- The machine electrical supply system must be equipped with an appropriate earthing, to which the yellow-green machine protection wire must be connected.
- Ensure that the work area around the machine is free of potentially dangerous objects and that there is no oil since this could damage the tyre. Oil on the floor is also a potential danger for the operator.
- UNDER NO CIRCUMSTANCES must the machine be used to spin anything but vehicle wheels. Bad locking can cause rotating parts to come loose, with potential damage to the machine and anything in the vicinity and injury to the operator.

OPERATORS MUST WEAR SUITABLE WORK CLOTHES, PROTECTIVE GLASSES AND GLOVES, AGAINST THE DANGER FROM THE SPRAYING OF DANGEROUS DUST, AND POSSIBLY LOWER BACK SUPPORTS FOR THE LIFTING OF HEAVY PARTS. DANGLING OBJECTS LIKE BRACELETS MUST NOT BE WORN, AND LONG HAIR MUST BE TIED UP. FOOTWEAR SHOULD BE ADEQUATE FOR THE TYPE OF OPERATIONS TO BE CARRIED OUT.

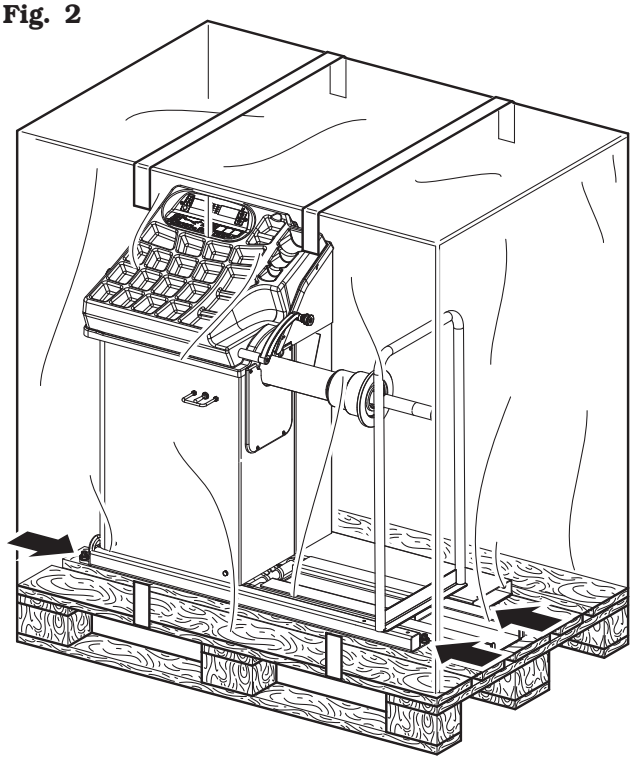
- The machine handles and operating grips must be kept clean and free from oil.
- The workshop must be kept clean and dry. Make sure that the working premises are properly lit.
  The machine can be operated by a single operator. Unauthorized personnel must remain outside the working area, as shown in **Fig. 3.**
  Avoid any hazardous situations. Do not use air-operated or electrical equipment when the shop is damp or the floor slippery and do not expose such tools to atmospheric agents.
- When operating and servicing this machine, carefully follow all applicable safety and accident-prevention precautions.
  The machine must not be operated by untrained personnel.

5.0 PACKING AND MOBILIZATION FOR TRANSPORT

HAVE THE MACHINE HANDLED BY SKILLED PERSONNEL ONLY.
THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED MACHINE (SEE PARAGRAPH "TECHNICAL SPECIFICATIONS").

The machine is packed partially assembled.
Movement must be by pallet-lift or fork-lift trolley.
The fork lifting points are indicated on the packing.

Fig. 2



6.0 UNPACKING

DURING UNPACKING, ALWAYS WEAR GLOVES TO PREVENT ANY INJURY CAUSED BY CONTACT WITH PACKAGING MATERIAL (NAILS, ETC.).

The cardboard box is supported with plastic strapping. Cut the strapping with suitable scissors. Use a small knife to cut along the lateral axis of the box and open it like a fan.
It is also possible to unnail the cardboard box from the pallet it is fixed to. After removing the packing, and in the case of the machine packed fully assembled, check that the machine is complete and that there is no visible damage.
If in doubt **do not use the machine** and refer to professionally qualified personnel (to the seller).
The packing (plastic bags, expanded polystyrene, nails, screws, timber, etc.) should not be left within reach of children since it is potentially dangerous. These materials should be deposited in the relevant collection points if they are pollutants or non biodegradable.

THE BOX CONTAINING THE FIXTURES IS CONTAINED IN THE WRAPPING. DO NOT THROW IT AWAY WITH THE PACKING.

7.0 MOBILIZATION

THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE MACHINE (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). DO NOT ALLOW THE LIFTED MACHINE TO SWING.

NEVER LIFT THE MACHINE BY MEANS OF THE MANDREL.

If the machine has to be moved from its normal work post, the movement must be conducted following the instructions listed below.

- Protect the exposed corners with suitable material (Pluribol/cardboard).
- Do not use metallic cables for lifting.
- Make sure that the electricity supply is not connected.
- Place again the machine onto the original pallet with whom it was delivered.
- Use transpallet or fork-lift for handling.

8.0 WORKING ENVIRONMENT CONDITIONS

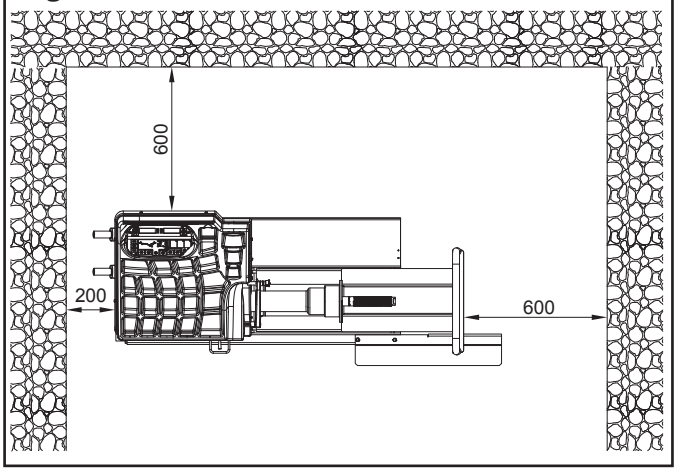
The machine must be operated under proper conditions as follows:

- temperature: 0° + 45° C
- relative humidity: 30 - 90% (dew-free)
- atmospheric pressure: 860 - 1060 hPa (mbar).

The use of the machine in ambient conditions other than those specified above is only allowed after prior agreement with and approval of the manufacturer.

8.1 Working area

Fig. 3



USE THE MACHINE IN A DRY AND ADEQUATELY LIT PLACE, POSSIBLY INDOORS OR ANYWAY IN A ROOFED AREA, THIS PLACE MUST BE IN COMPLIANCE WITH APPLICABLE SAFETY REGULATIONS.

The location of the machine requires a usable space as indicated in **Fig. 3**. The positioning of the machine must be according to the distances shown. From the control position the operator is able to observe all the machine and surrounding area. He must prevent unauthorized personnel or objects that could be dangerous from entering the area.
The machine must be fixed on a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.
The base floor must be able to support the loads transmitted during operation.
This surface must have a capacity load of at least 500 kg/m^2.
The depth of the solid floor must be sufficient to guarantee that the anchoring bolts hold.

8.2 Lighting

The machine does not require its own lighting for normal working operations. However, it must be used in an adequately lit environment.
In case of poor lighting use lamps having total power of 800/1200 Watt.

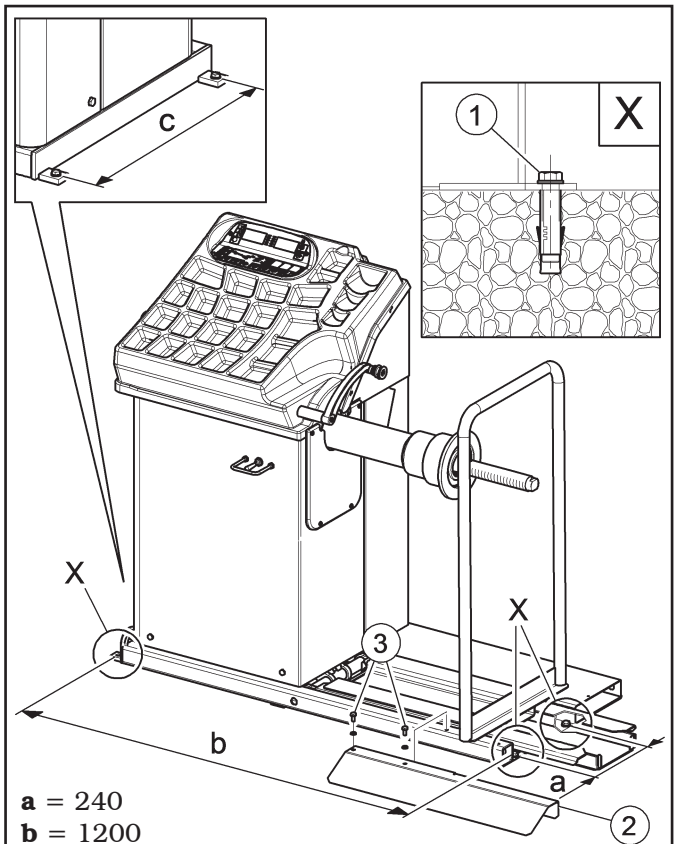
9.0 MACHINE ASSEMBLY

After having freed the various components from the packing check that they are complete, and that there are no anomalies, then comply with the following instructions for the assembly of the components making use of the attached series of illustrations.

9.1 Anchoring system

The packed machine is fixed to the support pallet through the holes prearranged on the frame. Such holes can be used also to fix the machine to the ground, through floor anchor small blocks (excluded from supply). Before carrying out the definitive fixing, check that all the anchor points are laid down flat and correctly in contact with the fixing surface itself. If not so, insert shimming profiles between the machine and the fixing lower surface, as indicated in **Fig. 4**.

IN CASE OF WHEEL WEIGHING MORE THAN 30 KG, IT IS COMPULSORY TO FIX TO THE GROUND BY MEANS OF SCREW ANCHORS.



a = 240
b = 1200
c = 485

Fig. 4

- Fix the foot guard protection (**Fig. 4 ref. 2**) in using the 2 issued screws (**Fig. 4 ref. 3**).
- Execute 4 holes with 10 mm diameter on the floor by the holes on the bottom floor;
- insert the small blocks (excluded from supply) into the holes;

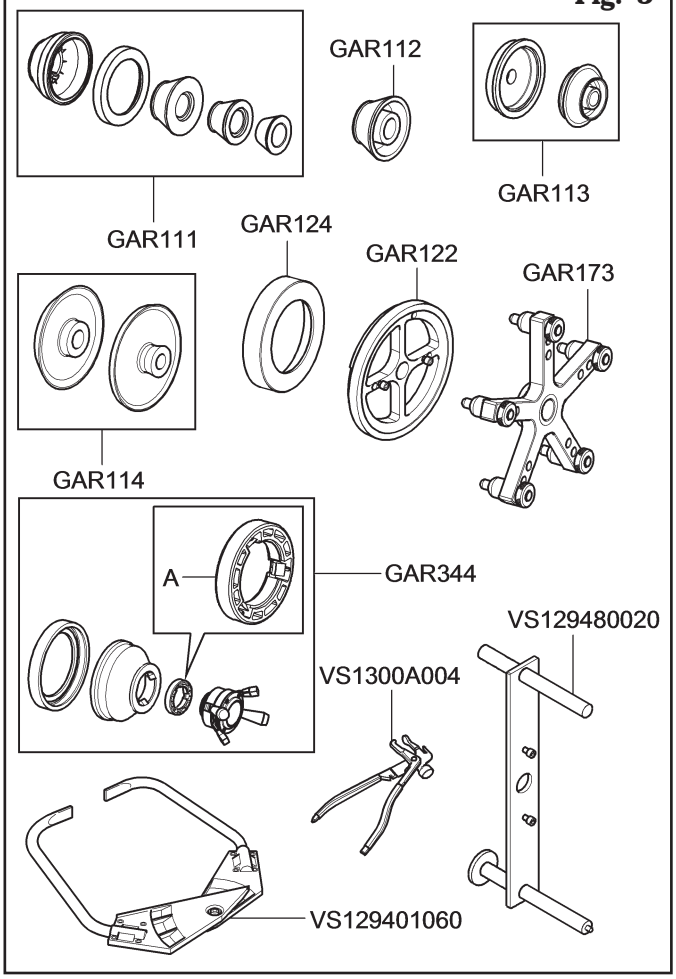
• fix the machine to the ground with 4 M8x80 mm screws (excluded from supply) (**Fig. 4 ref. 1**) (or with 4 8x80 mm stud bolts (excluded from supply)). Tighten the screws with an approximate tightening torque of 70 Nm.

9.2 Fixtures contained in the packing

The packing case contains also the fixtures box.
Check that all the parts listed below are there (see **Fig. 5**).

Code	*Description*	*N.*
GAR111	*Cones + protection cup*	**1**
GAR112	*Off-road vehicle cone D.88-132*	**1**
GAR113	*Cone D.118-174 + vans adapter*	**1**
GAR114	*2 cones D. 202-221;281*	**1**
GAR122	*Flange for trucks wheels bearing*	**1**
GAR124	*Bearing flange spacer*	**1**
GAR173	*Flange for trucks*	**1**
GAR344	*Wheels locking ring nut*	**1**
VS1300A004	*Weight pliers*	**1**
VS129401060	*External data gauge*	**1**
VS129480020	*Calibration tool*	**1**

Fig. 5



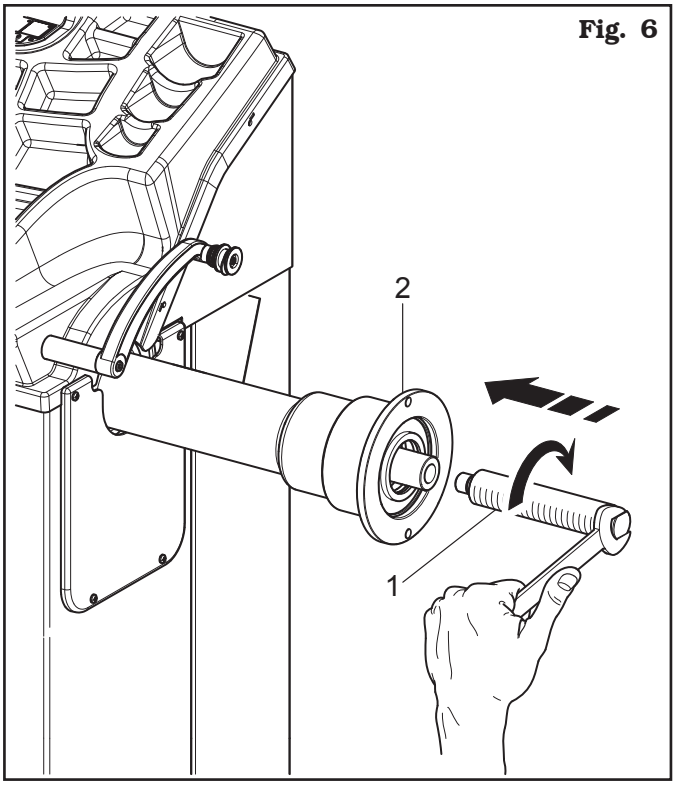
THE PRESSURE RING (FIG. 5 REF. A) MUST BE MOUNTED WITH THE TEETH OR DISCHARGE SIDE TOWARDS THE RING-NUT (SEE FIG. 5).

9.3 Assembly procedures

9.3.1 Fitting the shaft on the flange

Screw the shaft with an Allen wrench (**Fig. 6 ref. 1**) on the flange (**Fig. 6 ref. 2**).

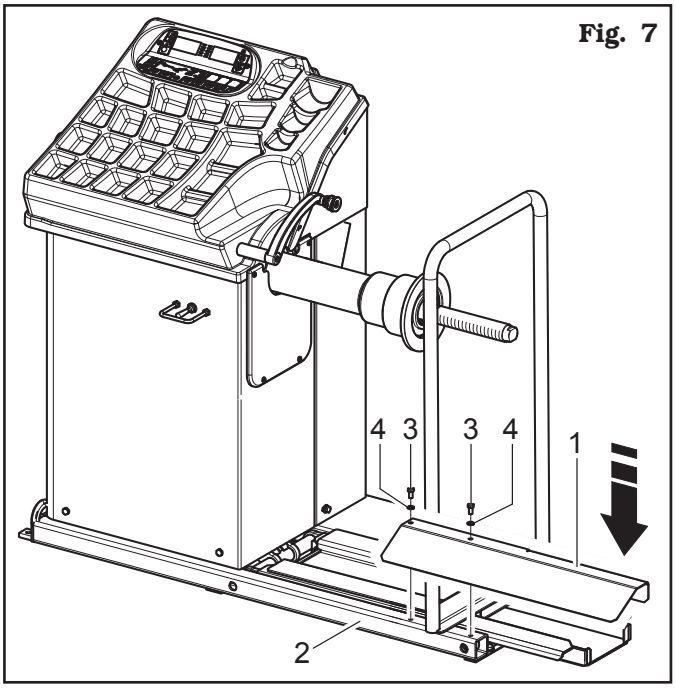
Fig. 6



9.3.2 Mounting of foot guard protection

Fasten the foot guard protection (**Fig. 7 ref. 1**) at the base of the lift (**Fig. 7 ref. 2**) using the screws (**Fig. 7 ref. 3**) and the washers (**Fig. 7 ref. 4**) supplied.

Fig. 7



10.0 ELECTRICAL CONNECTIONS

EVEN THE TINIEST PROCEDURE OF AN ELECTRICAL NATURE MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

BEFORE CONNECTING THE MACHINE MAKE SURE THAT:
- **THE MAIN POWER RATING CORRESPONDS TO THE MACHINE RATING AS SHOWN ON THE MACHINE PLATE;**
- **ALL MAIN POWER COMPONENTS ARE IN GOOD CONDITION;**
- **THE ELECTRICAL SYSTEM IS PROPERLY GROUNDED (GROUND WIRE MUST BE THE SAME CROSS-SECTION AREA AS THE LARGEST POWER SUPPLY CABLES OR GREATER);**
- **MAKE SURE THAT THE ELECTRICAL SYSTEM FEATURES A CUTOUT WITH DIFFERENTIAL PROTECTION SET AT 30 mA.**

Connect the machine up to the mains by means of the 3-pole plug provided (110V single - 1ph - 60Hz).
If the plug provided is not suitable for the wall socket, fit a plug that complies with local and applicable regulations. This operation must be performed by expert and professional personnel.

FIT A TYPE-APPROVED (AS REPORTED BEFORE) PLUG TO THE MACHINE CABLE (THE GROUND WIRE IS YELLOW/GREEN AND MUST NEVER BE CONNECTED TO ONE OF THE TWO PHASE LEADS).

MAKE SURE THAT THE ELECTRICAL SYSTEM IS COMPATIBLE WITH THE RATED POWER ABSORPTION SPECIFIED IN THIS MANUAL AND APT TO ENSURE THAT VOLTAGE DROP UNDER FULL LOAD WILL NOT EXCEED 4% OF RATED VOLTAGE (10% UPON START-UP).

FAILURE TO OBSERVE THE ABOVE INSTRUCTIONS WILL IMMEDIATELY INVALIDATE THE WARRANTY.

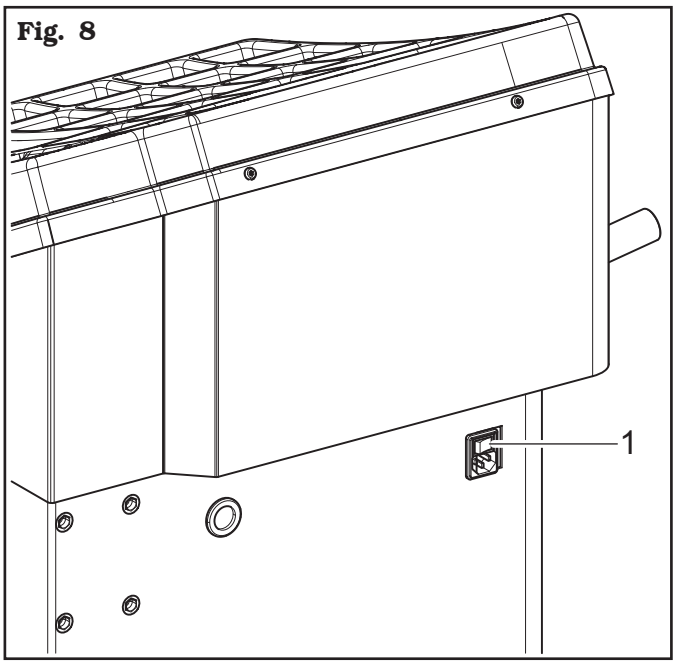
10.1 Electrical checks

BEFORE STARTING UP THE WHEEL-BALANCER, BE SURE TO BECOME FAMILIAR WITH THE LOCATION AND OPERATION OF ALL CONTROLS AND CHECK THEIR PROPER OPERATION (SEE PAR. "CONTROLS").

CARRY OUT A DAILY CHECK OF MAINTAINED-TYPE CONTROLS CORRECT FUNCTIONING, BEFORE STARTING MACHINE OPERATION.

Once the plug/socket connection has been made, turn on the machine using the master switch (**Fig. 8 ref. 1**).

Fig. 8



11.0 AIR CONNECTION

Connect the wheel balancer to the centralised compressed-air system by means of the connection on the back of the machine (see **Fig. 9**).
The air system supplying the machine must be able to supply filtered and de-humidified air at a pressure between 8 and 10 bar. It must feature an on-off valve upstream of the machine.

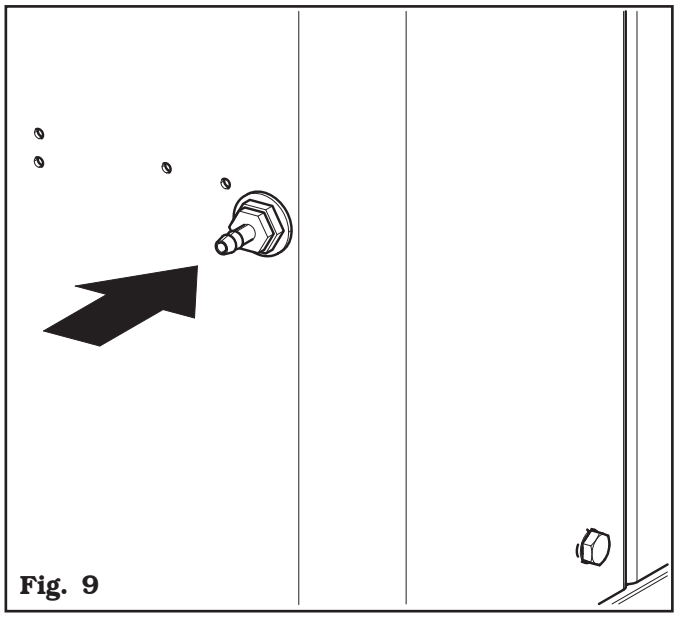
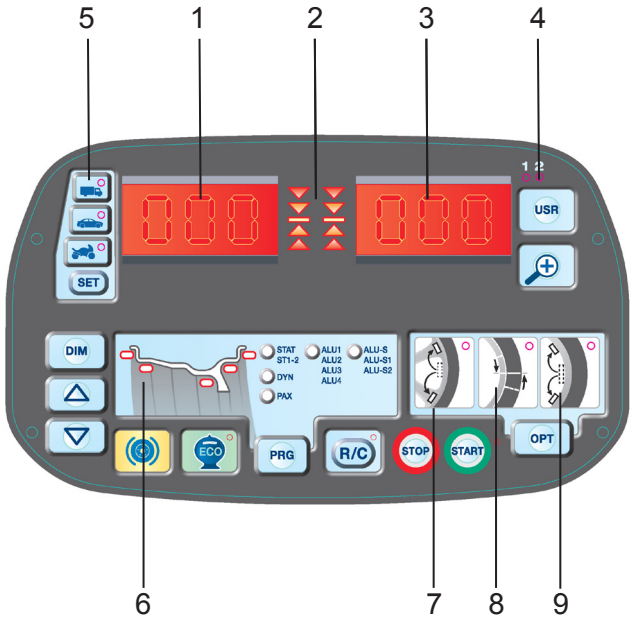


Fig. 9

12.0 MULTIFUNCTION LED PANEL

The wheel balancers are equipped with a multi-function display panel with signal LEDs, together with a silk-screen representing the shape of a rim and the various available options.
This panel also includes LEDs indicating where the operator shall fit adhesive or clip weights and the balancing mode and/or option used, as well as correct wheel rotation for inner/outer weights positioning.

Fig. 10



KEY
1 – Display screen **"D1"** showing INNER/DIMENSIONS unbalance
2 – LED showing wheel rotation inner/outer
3 – Display screen **"D2"** showing OUTER/DIMENSIONS unbalance
4 – Indication of the selected USER (see Par. 15.2)
5 – Selected mode indication
6 – Rim shape diagram with weights position
7 – OPTION Weights hidden behind spokes (see Chapter 18)
8 – MATCHING OPTION (see Chapter 19)
9 – SPLIT OPTION (see Chapter 17)

12.1 DISPLAY and LEDs brightness adjustment

Press the keys indicated below to adjust DISPLAY and LEDs brightness.

Keep key  , pressed and, at the same time, press key  to increase brightness.
Brightness is gradually increased until the max. level, then display screens and LEDS will become dark; if you continue brightness max. level will be reached again, and so on.

THE ADJUSTMENT IS STORED AUTOMATICALLY AND REMAINS ALSO AFTER MACHINE SHUTDOWN.

13.0 FITTING THE WHEEL ON THE MANDREL

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

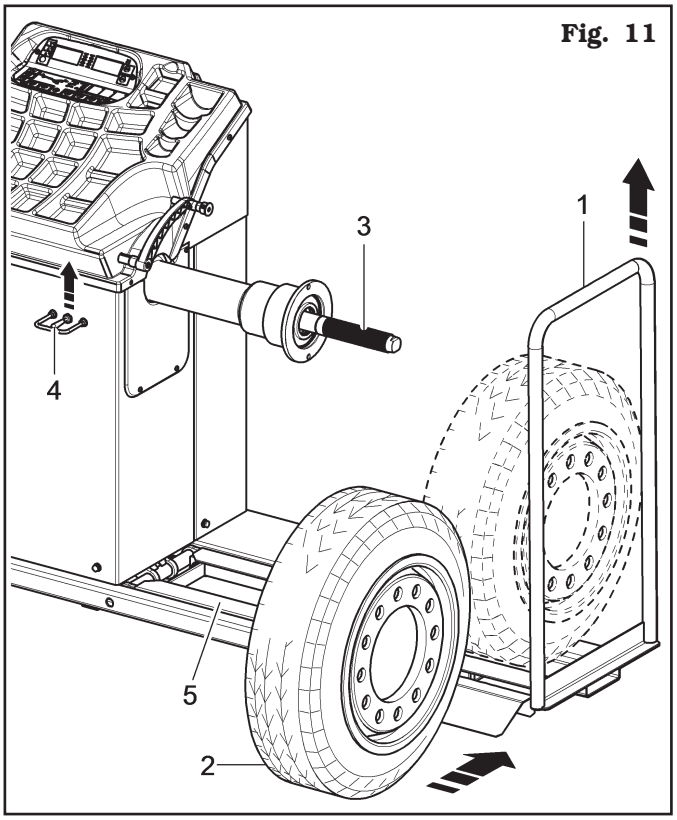
WHAT IS MOST IMPORTANT IS THAT ORIGINAL CONES AND ACCESSORIES, SPECIALLY DESIGNED TO BE EMPLOYED WITH THE WHEEL BALANCERS, ARE USED.

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

13.1 Wheel assembly

1. Move rightwards the wheel support (**Fig. 11 ref. 1**).
2. Remove any type of foreign body from the wheel (**Fig. 11 ref. 2**): pre-existing weights, stones and mud, and make sure the mandrel (**Fig. 11 ref. 3**) and the rim centring area are clean before fitting the wheel on the mandrel.

Fig. 11

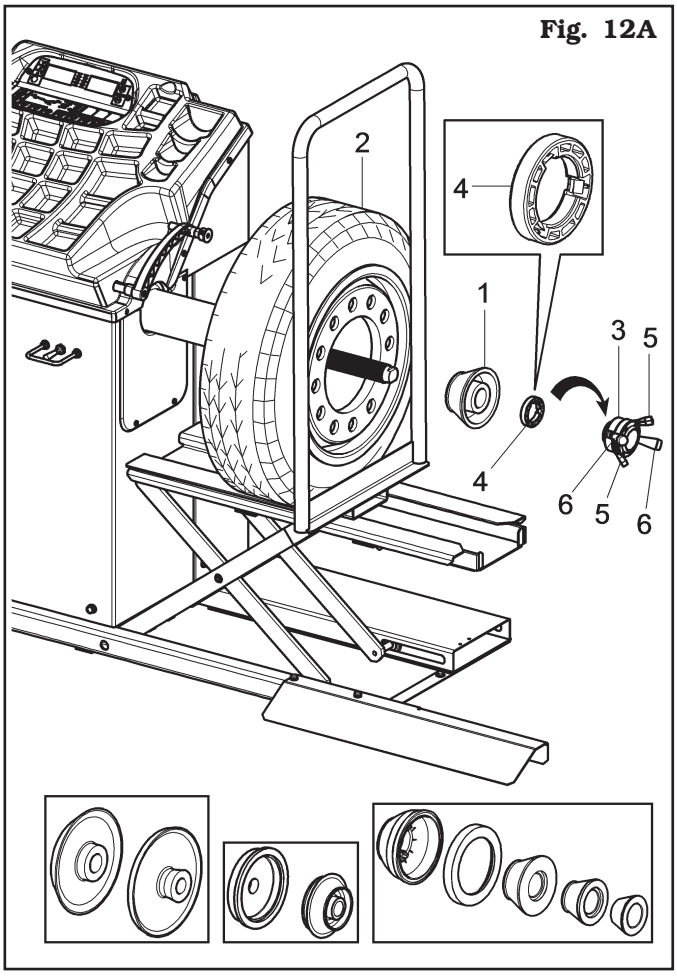


3. Place the wheel (**Fig. 11 ref. 2**) on the wheel support (**Fig. 11 ref. 1**) with rim inner side towards the wheel balancer. Operate the lifting device control (**Fig. 11 ref. 4**) and, keeping it lifted, lift the footboard (**Fig. 11 ref. 5**) and centre manually the wheel on the mandrel, with a minimum strain independently from its weight.

ONCE THE WISHED HEIGHT HAS BEEN REACHED, RELEASE THE LIFTING DEVICE CONTROL.

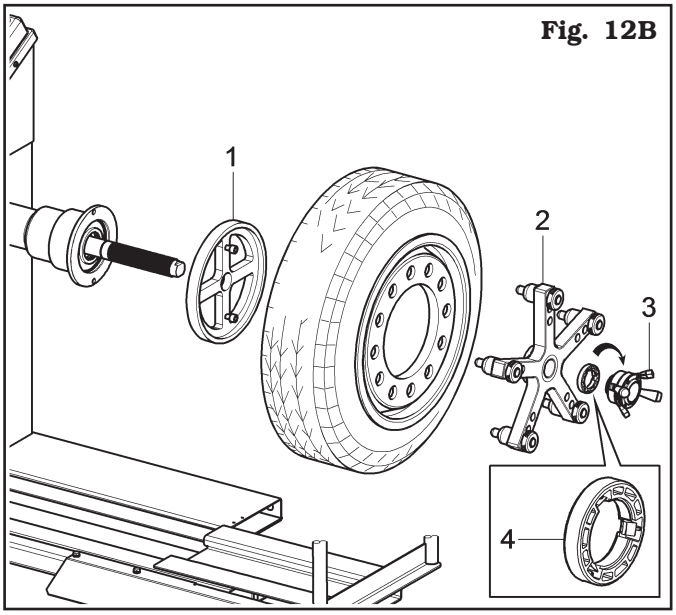
4. Move the wheel support leftwards (**Fig. 11 ref. 1**).
5. Carefully choose the most suitable cone (**Fig. 12A ref. 1**) for the wheel to be balanced (see **Fig. 12A**). Fit the cone (**Fig. 12A ref. 1**) with the narrower part against the wheel (**Fig. 12A ref. 2**). Insert the pressure ring (**Fig. 12A ref. 4**) into the locking ring nut (**Fig. 12A ref. 3**). Bring the locking the ring nut (**Fig. 12A ref. 3**) together with the pressure ring (**Fig. 12A ref. 4**) into contact with the cone (**Fig. 12A ref. 1**) using the internal little levers (**Fig. 12A ref. 5**). Tighten the locking ring nut (**Fig. 12A ref. 3**) onto the cone (**Fig. 12A ref. 1**) using the external little levers (**Fig. 12A ref. 6**).

Fig. 12A



In case of wheels with peculiar sizes and features, the wheel has to be fitted onto the mandrel according to the previous instructions, however, the accessories (**Fig. 12B ref. 1-2-3-4**) shown in **Fig. 12B** shall be used.

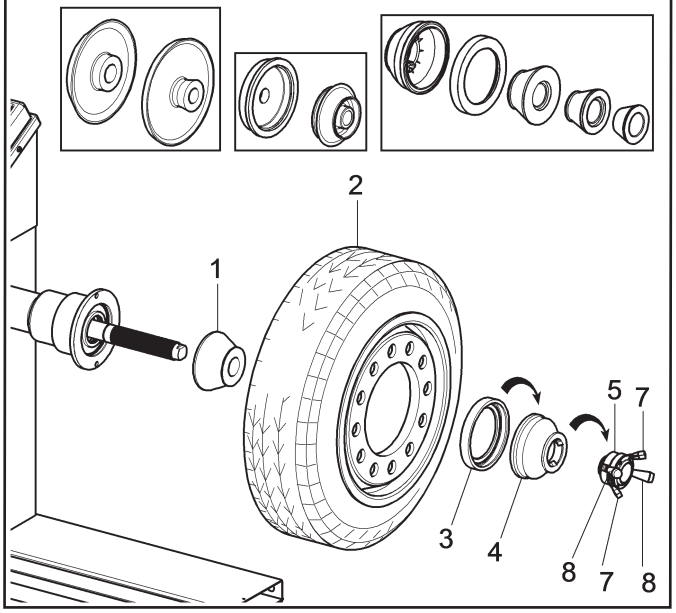
Fig. 12B



THE PRESSURE RING (FIG. 12A AND FIG. 12B REF. 4) MUST BE MOUNTED WITH THE TEETH OR DISCHARGE SIDE FACING TOWARDS THE RING NUT (FIG. 12A AND FIG. 12B REF. 3).

If the cone (**Fig. 12C ref. 1**) is inserted into the shaft before the wheel (**Fig. 12C ref. 2**) (make sure the selected cone (**Fig. 12C ref. 1**) is the most appropriate one for the wheel to be balanced (see insets **Fig. 12C**)), mount the casing (**Fig. 12C ref. 3**) onto the protection cup (**Fig. 12C ref. 4**) and insert both into the locking ring nut (**Fig. 12C ref. 5**). With the internal little levers (**Fig. 12C ref. 7**), bring the locking ring nut (**Fig. 12C ref. 5**) together with the protection cup (**Fig. 12C ref. 4**) into contact with the rim and clamp it onto this rim using the external little levers (**Fig. 12C ref. 8**).

Fig. 12C



6. Lower the lifting device control (**Fig. 13 ref. 1**) and then lower the footboard (**Fig. 13 ref. 2**).

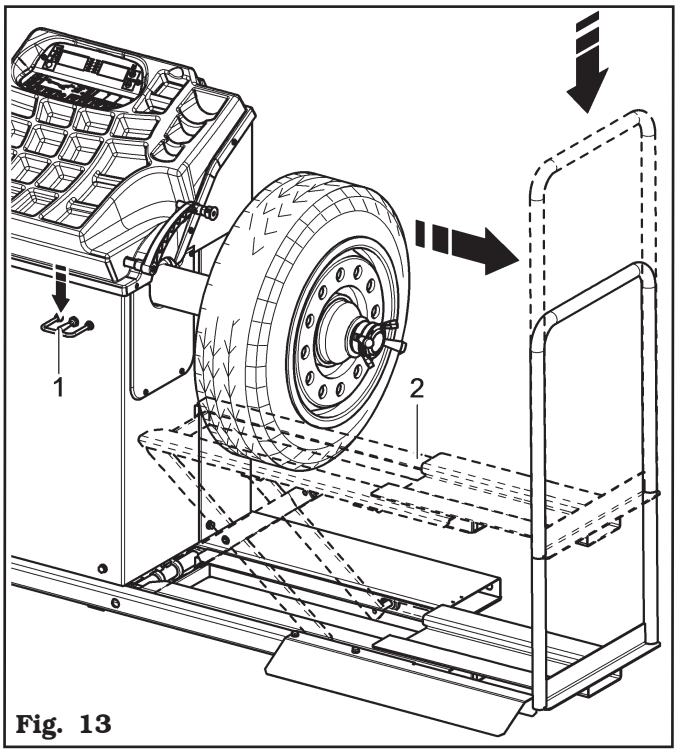


Fig. 13

13.2 Demounting of the wheel

1. Move leftwards the wheel support (**Fig. 14 ref. 1**) and bring the wheel support plane (**Fig. 14 ref. 5**) under the tyre (**Fig. 14 ref. 2**).
2. Lift the lifting device control (**Fig. 14 ref. 3**) and lift the footboard (**Fig. 14 ref. 4**) until the wheel bearing (**Fig. 14 ref. 5**) comes in contact with the tyre (**Fig. 14 ref. 2**).

ONCE THE WISHED HEIGHT HAS BEEN REACHED, RELEASE THE LIFTING DEVICE CONTROL.

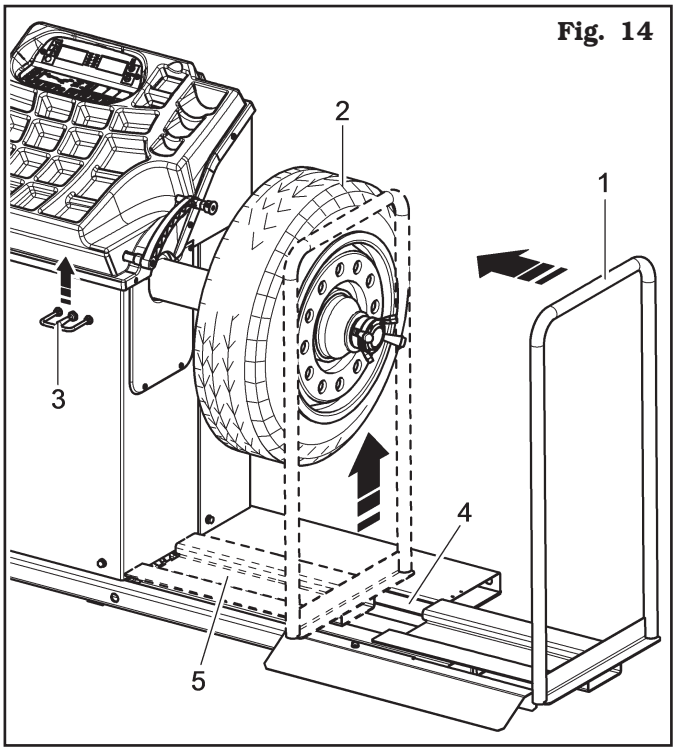


Fig. 14

3. Unlock the wheel (**Fig. 15 ref. 1**) engaged to the mandrel, removing the locking devices (**Fig. 15 ref. 2**).
4. Move rightwards the wheel support (**Fig. 15 ref. 3**) together with the tyre that is leaning against it.
5. Lower the lowering device control (**Fig. 15 ref. 4**) and then lower the footboard (**Fig. 15 ref. 5**).

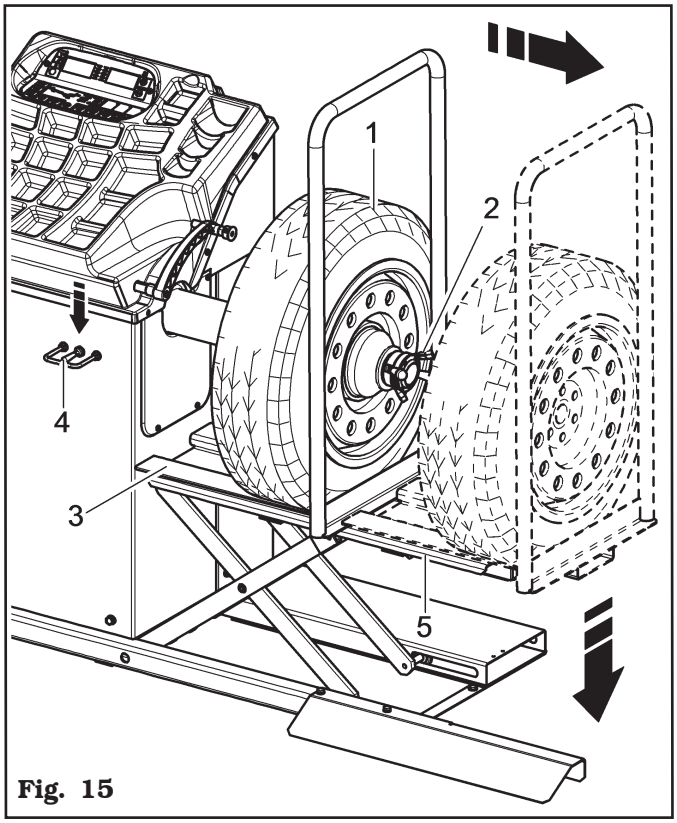


Fig. 15

7 - Remove the wheel from the lifting device.

14.0 SWITCHING THE MACHINE ON AND OFF

The ON/OFF master switch is located on the rear of the machine.
To start the machine and access the program, switch on the system by turning the master switch.
Wait a few seconds for the operating program to load and for the first program page to appear on the display screens D1 and D2: (flashing dashes  )
Use operative keyboard keys (see **Fig. 10**) to use all machine available functions.

Key for balancing cycle start.

Key for stop / end procedure.

Key for data recalculation / confirmation.

Key for wheel dimensions entry.



Keys to increase/decrease entered values.

Key for MOTORCYCLE/CAR/TRUCK wheel cycle.

Key for balancing program selection.

Key for Option selection.

Key for Eco-Weight procedure.


"Zoom" key for not rounded-off unbalance displaying.

Key for U1-U2 user selection.


Key for threaded shaft lock/unlock.

During program running, the different keys may have meanings different from the previously described ones. The following pages of this manual will supply a detailed description of these keys.
In addition, some functions are achieved by pressing a combination of several keys, that will be described later on in this manual.
Usually, to go back and abort the procedure, press 

.

15.0 WHEEL BALANCING

15.1 Determination of wheel dimensions

15.1.1 Automatic wheel dimension setting of distance/diameter

The wheel balancing machines are featured with an automatic rod; a simple and precise method that permits automatically acquiring the wheel diameter at the weight fitting point. The rod itself permits correctly positioning the weights inside the wheel.
Weight fitting distance from machine must be set with measurement unit “mm”. Rim width and diameter values, on the other hand, can be set in “inches” or “mm”; in the examples in this manual “inch” values introduction is indicated.
The automatic rod, for detecting the distance value, is started when it is removed from its initial position.
The automatic rod sometimes shall be positioned inside rim, at the distance where any adhesive weight shall be fitted (for example **ALU-S**), or sometimes against rim inner edge (for example **DYN**).

TO MAKE USER'S JOB EASIER, THE CORRESPONDING LED WILL FLASH ON RIM SHAPE GRAPHICAL DISPLAYING.

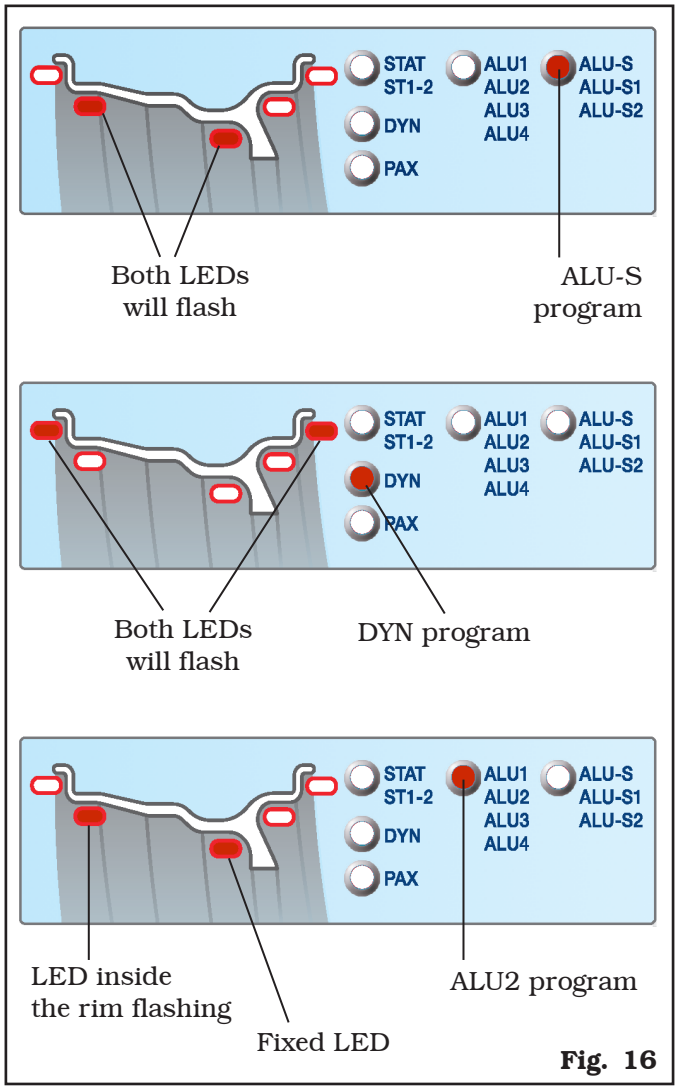


Fig. 16

• **To make a measurement in STATIC mode (STAT):**

Pull out the gauge rod and take it inside rim, at the distance where you wish to position the adhesive weight, if any (**Fig. 17**). Maintain this for a few seconds. The indication of the acquired measurement for the first point is given by the display of the rim diameter on D2 screen and symbol "d" on D1 screen (**Fig. 18**). The dimensions measurement in STATIC mode is completed.

Fig. 17

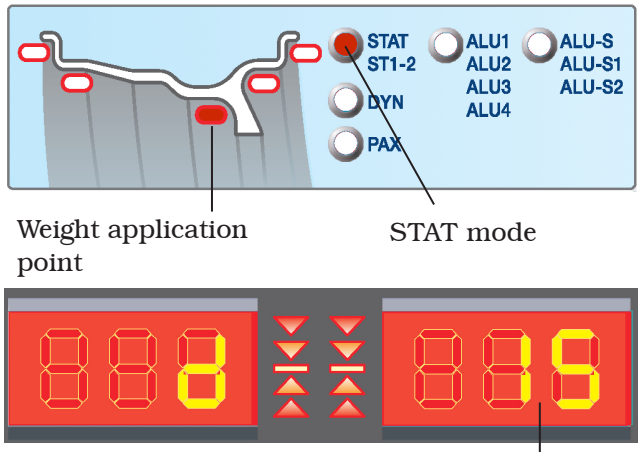
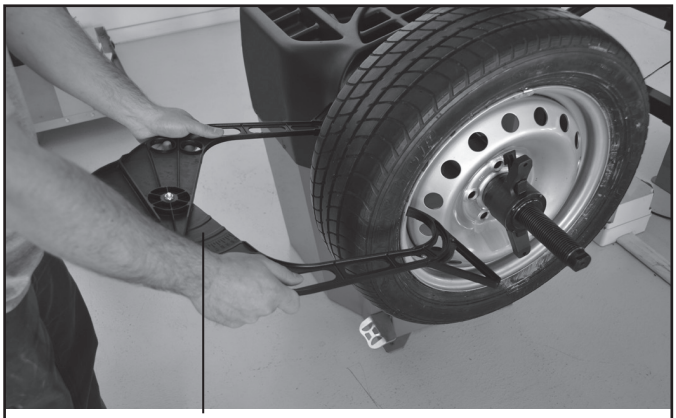


Fig. 18

• **To make a measurement in DYNAMIC mode (DYN):**

Pull out the gauge rod and move it against the rim inner edge (**Fig. 17**) in measurement position, and maintain that position for a few seconds; measurement will be acquired when the detected value is displayed (**Fig. 18**). To complete the entry of all the data necessary for the DYNAMIC mode, wheel width shall be entered. If the automatic external data gauge is not available, the operator must press / keys until the desired width value is reached. As soon as one of these keys is pressed, the program will enter DYNAMIC mode.

Input the nominal width shown on the rim, or manually check by using the graduated caliper, positioning it on the outer and inner side of the wheel (**Fig. 19**). The measurement will have been acquired when the detected rim width appears on “D2” display screen and the "b" symbol appears on “D1” display screen (**Fig. 20**).



MANUAL CALIPER.
Width manual setting

Fig. 19

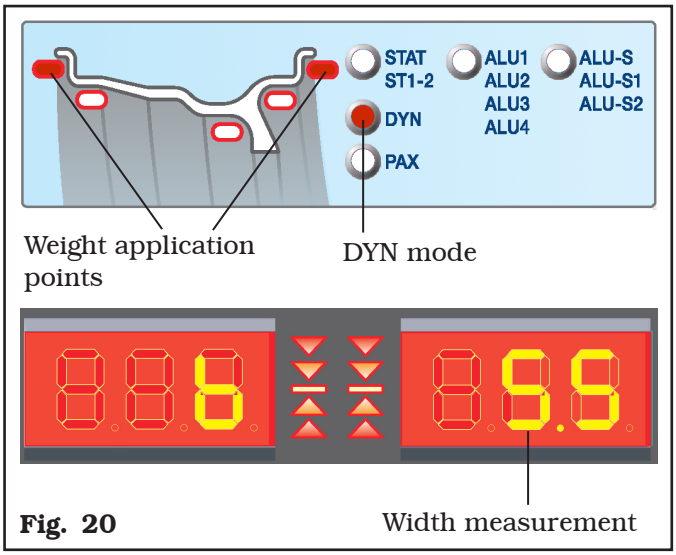


Fig. 20

The dimensions measurement in **DYNAMIC** mode is completed.

15.1.2 Programs rapid setting and measurements through distance-diameter caliper arm

TO USE THIS MODE, THE RELEVANT FUNCTION MUST BE ENABLED ON THE MENU USER - PARAMETERS CONFIGURATIONS - PARAMETER 15 (PAR. 21.4).

The use of the distance-diameter caliper arm allows the rapid automatic wheel balancing program and the measures entry. From page "Home":

- bring into contact the weights fitting gripper with the inner part of the rim (1 contact only) to select "STATIC" program (see **Fig. 21**).

Fig. 21

REPEATEDLY BRINGING THE CALIPER ARM (FIG. 22 REF. 1) IN CONTACT WITH THE MANDREL (FIG. 22 REF. 2), THE PROGRAM WILL CYCLE FROM "STATIC" TO "STATIC 1" TO "2 STATIC" THEN RETURNING TO THE BEGINNING.

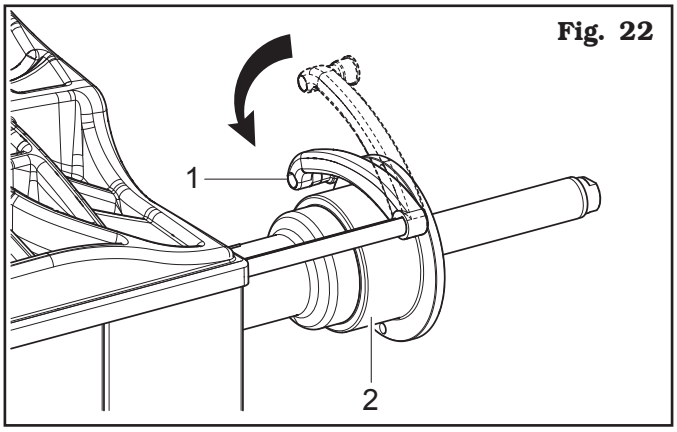


Fig. 22

- bring into contact the weights fitting gripper with the inner part of the rim (2 contact points) (see **Fig. 21**) to select "ALU-S" program.

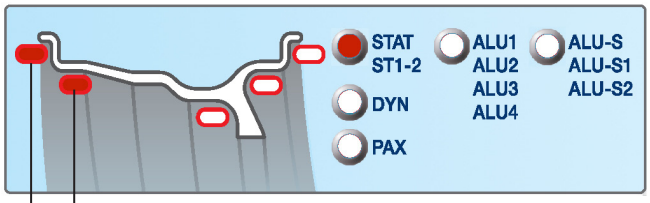
REPEATEDLY BRINGING THE CALIPER ARM (FIG. 22 REF. 1) IN CONTACT WITH THE MANDREL (FIG. 22 REF. 2), THE PROGRAM WILL CYCLE FROM "ALU-S" TO "ALU-S1" TO "ALU-S2" THEN RETURNING TO THE BEGINNING.

15.1.3 Entry of measures

- **To make a measurement in static mode ST1-ST2 there are two options:**

Option 1

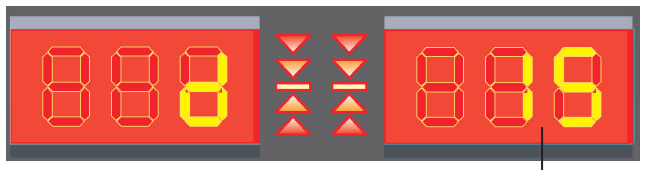
Press key PRG to select static mode. Take out the gauge rod and position it inside the rim, at the distance where any adhesive weight shall be fitted (ST2) at 12 o'clock or against rim inner edge (ST1).



STATIC 2 weight application point

STATIC 1 weight application point

Maintain the position for a few seconds. The measurement will have been acquired when the detected rim diameter is displayed.



Diameter measurement acquired

Option 2

Once the position on the rim has been reached, using the data gauge arm with one or two movements, it is possible to select the ST1 and ST2 mode

FIRST MOVEMENT: to pass from static (STAT) to ST1 (STATIC 1) in automatic mode, lean the gauge arm (**Fig. 22 ref. 1**) against the bell (**Fig. 22 ref. 2**).

SECOND MOVEMENT: lift and lower again the gauge arm to select ST2 (STATIC 2) mode (see **Fig. 22**).
Maintain the position for a few seconds.
The measurement will have been acquired when the detected rim diameter is displayed.

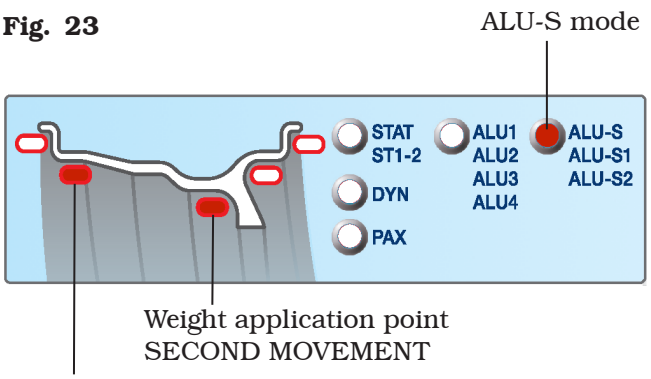
The dimensions measurement in **ST1** or **ST2** mode is completed.

- **To make a measurement in ALU-S modes there are two options:**

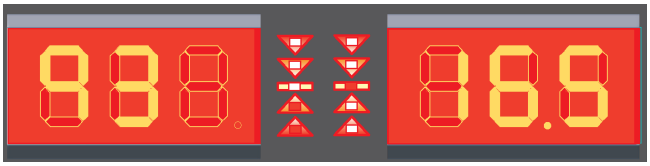
Option 1

Press key PRG to select ALU-S balancing program.
Take out the gauge rod and position it inside the rim, touching the 2 points where the weight is to be fitted (maintain the position of each point for a few seconds).

Fig. 23



The displays will show some values, as indicated in the example below:



Example of values in “mm”. **Fig. 24**

Option 2

Take out the gauge rod and position it inside the rim, touching the 2 points where the weight is to be fitted (maintain the position of each point for a few seconds) as explained in Par. 15.1.2.
The displays will show some values.

Dimension entry for **ALU-S** mode is completed.

- **To make a measurement in ALU-S1 and ALU-S2 modes there are two options:**

Option 1

Press key PRG until selecting **ALU-S1 (LED ALU-S + LED clip weight onto inner edge) or ALU-S2 (LED ALU-S + LED inner adhesive weight).**
Proceed with the acquisition of the first point inside the rim.

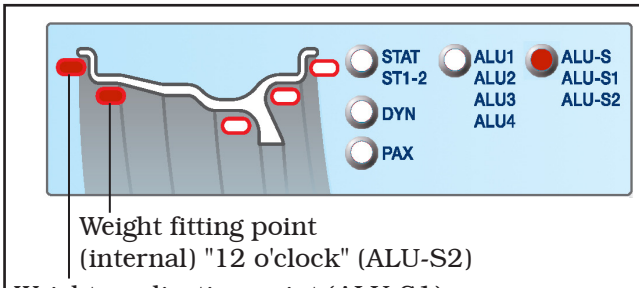


Fig. 25

Then proceed with the acquisition of the second point inside the rim (**Fig. 26**).

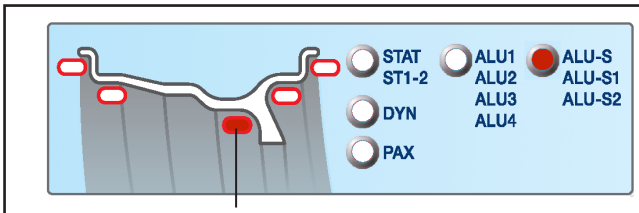
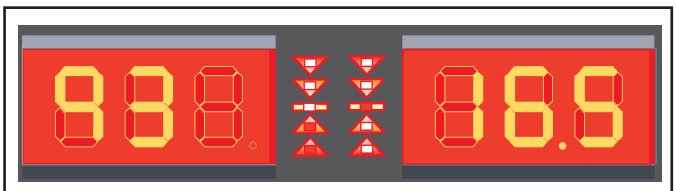


Fig. 26

Maintain that position for a few seconds, until the measurement is acquired.



Example of values in “mm”.

Option 2

Take out the gauge rod and position it against the internal rim edge (ALU-S1) or inside the rim, at the distance where any adhesive weight shall be fitted (ALU-S2) at “12 o’clock” (**Fig. 25**), and maintain the position for a few seconds. The measurement will have been acquired when the detected rim diameter is displayed (**Fig. 18**).
Then proceed with the acquisition of the second point inside the rim (**Fig. 26**).
To pass from static ALU-S to ALU-S1 in automatic mode, lean the gauge arm (**Fig. 22 ref. 1**) against the bell (**Fig. 22 ref. 2**).
Lift and lower again the gauge arm to select ALU-S2 mode (see **Fig. 22**).

Dimension entry for **ALU-S1** or **ALU-S2** mode is completed.

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

Press key 

until selecting **ALU1 (LED ALU1/2/3/4 + inner adhesive weight at "12 o'clock" + outer adhesive weight at "12 o'clock"), ALU2 (LED ALU1/2/3/4 + inner adhesive weight at "12 o'clock" + outer adhesive weight at "12 o'clock" not visible), ALU3 (LED ALU1/2/3/4 + clip weight onto inner edge + outer adhesive weight at "12 o'clock" not visible) or ALU4 (LED ALU1/2/3/4 + clip weight onto inner edge + outer adhesive weight at "12 o'clock").**
Remove the gauge rod and move it inside the rim, at the distance where you wish to position any adhesive weight (**ALU1** or **ALU2**) or against rim outer edge (**ALU3** or **ALU4**) and maintain this position for a few seconds, until the measurement is acquired (**Fig. 27**).

According to how many measurements are needed, the programs are divided into:

ALU2 - ALU3 →only one measurement is required (distance-diameter)

ALU1 - ALU4 →two measurements are required (distance-diameter and width)

ALU2 and **ALU3** modes require the entry of "distance" and "rim diameter" values.

- The letter  will appear on display "D1", to indicate to enter the value of the distance of the point of weight application on the rim.

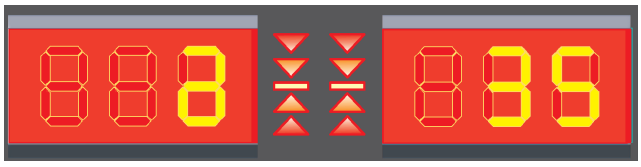


Fig. 27

The dimension entry for **ALU2** and **ALU3** mode is completed.

To complete the entry of all the data necessary for **ALU1** or **ALU4**, modes, wheel width shall be entered. Input the nominal width shown on the rim, using the keys  , or manually check by using the graduated caliper, positioning it on the outer and inner side of the wheel (**Fig. 19**).

The dimension entry/detection for **ALU1** or **ALU4** mode is completed.

15.2 User control function

Wheel balancers can be used by 2 different users at the same time, pressing the "user" 

, key, selecting user 1 or 2.

When the "user" key is pressed, the LED corresponding to the selected user comes on.

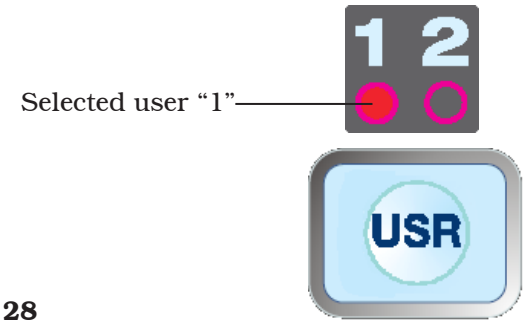


Fig. 28

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

TO ENABLE OR DISABLE THE "USER CONTROL" FUNCTION, SEE PAR. 21.2. IF THE FUNCTION IS DISABLED, NO LED WILL COME ON (FIG. 28), AND THE PRESSURE OF " 

" DOES NOT ENTAIL ANY PROGRAM CHANGE.

15.3 Unbalance measurement

15.3.1 Indicative display of points where to fit weight

IT IS VERY IMPORTANT TO REMEMBER THE POINTS SELECTED FOR MEASUREMENT INSIDE THE RIM SINCE DURING THE WEIGHTS FITTING AT "6 O'CLOCK" YOU WILL NOT HAVE ANY OTHER REFERENCE. THE POSITIONING IN DEPTH WILL BE AT THE DISCRETION OF THE OPERATOR.

15.3.2 Balancing mode

The machine has the ability to perform the wheel balancing (weights fitting) in 2 different ways:

- using the distance-diameter caliper arm with weights fitting grippers;
- weights fitting at “6 o'clock”.

• **Weights fitting with distance-diameter caliper arm**
Remove the gauge rod and fit the adhesive weight inside the pliers as shown in **Fig. 29**.

Fig. 29 Fit the adhesive weight in the pliers of the gauge rod

The nearing of the weight to correction position is indicated by an “arrow”, at a smaller or larger distance, displayed on the screen relating to the inner / outer position you are working on. Once the exact position is reached, a symbol with “2 opposite arrows” will be displayed (see **Fig. 30**).

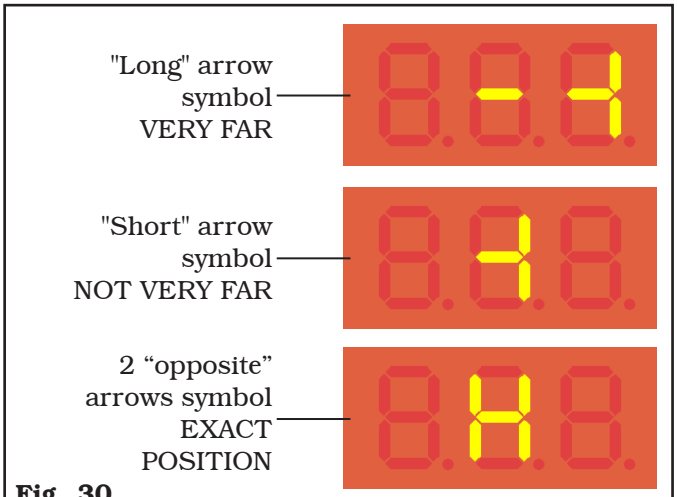


Fig. 30

Rotate the gauge arm until the weight touches the rim. The fact that the weight fitting position is no longer at “12 o’ clock” (**Fig. 31**) is automatically offset.

Fit weight on the position where weight pliers touches the wheel **Fig. 31**

Bring the distance-diameter caliper arm into resting position.

• **Weights fitting at “6 o'clock”.**

TO USE THIS MODE, THE RELEVANT FUNCTION MUST BE ENABLED ON THE MENU USER - PARAMETERS CONFIGURATIONS - PARAMETER 9 (PAR. 21.4).

TO USE THIS WEIGHT APPLICATION MODE THE OPERATOR MUST REMEMBER THE PRECISE POINT WHERE THE MEASUREMENT WAS TAKEN WITH THE DISTANCE-DIAMETER CALIPER ARM.

USING THIS MODE, THE MACHINE ALLOWS YOU TO APPLY ANY ADHESIVE WEIGHTS AT "6 O'CLOCK". AFTER YOU ENABLE THIS MODE, THE PROGRAMS WITH FIXED LED ON THE RESULTS PAGE WILL REQUIRE THE FITTING OF THE WEIGHT AT “12 HOURS”.

At the end of the spin, the wheel stops in place to apply the weight at "6 o'clock". The positioning of the weight (s) in depth shall be at the discretion of the operator, depending on where remembers taking the measure.

MAKE SURE TO FIT THE WEIGHT (INNER OR OUTER) AS INDICATED BY THE FLASHING LED ON THE RIM SHAPE GRAPHICAL DISPLAYING.

15.3.3 Dynamic balancing

Dynamic balancing is a procedure that offsets the wheel vibrations using 2 weights on different planes. Clip weights are used on rim inner/outer edge, and usually on iron rims.
To perform a dynamic measurement spin:

- make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chap. 13.0).
- Enter the wheel measurements (see Par. 15.1.1).
- Press key START to perform a manual wheel spin.

In just a few seconds, the wheel runs at normal speed and the display screens D1-D2 show wheel rotation.
After the spin, the wheel stops automatically, also taking into account the measured unbalance so that the fitting position of the outer weight is **exactly at “12 o' clock”**.
Display screens D1-D2 show the weight required to correct the unbalance. The nearby LEDs show the direction the wheel has to be moved into to fit the weights (**Fig. 32**).
Weight can be determined in "grams" or "ounces"; in this manual examples are shown in grams. To change the unit of measurement from "grams" to "ounces", (see Par. 21.1).
Once the unbalance of the inside and outside of the wheel is known, it is possible to proceed with positioning for correction of unbalance.
Should wheel dynamic unbalance be quite high and the weight to be fitted not available, the “SPLIT” procedure can be used so as to correct the dynamic unbalance dividing the weight amount into two smaller weights (see Chap. 17).

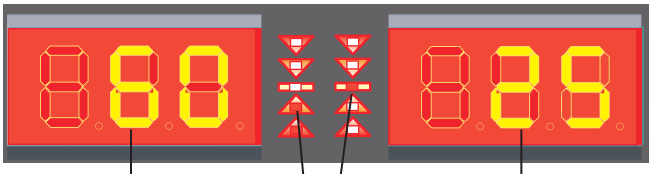


Fig. 32

The DYNAMIC balancing procedure is completed.

15.3.4 ALU-S procedure

The ALU-S balancing is a procedure that offsets the wheel vibrations using 2 weights on different planes. Adhesive weights are used inside the rim, and usually on alloy rims.
To launch a ALU-S measurement, proceed as follows:

- make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chap. 13.0).
- Enter the wheel measurements (see Par. 15.1.1).
- Press key 

to perform a manual wheel spin.

In just a few seconds, the wheel runs at normal speed and the display screens D1-D2 show wheel rotation.
After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the outer weight is at “12 o' clock”.
Display screens D1-D2 show the weight required to correct the unbalance. The nearby LEDs show the direction the wheel has to be moved into to fit the weights (**Fig. 33**).

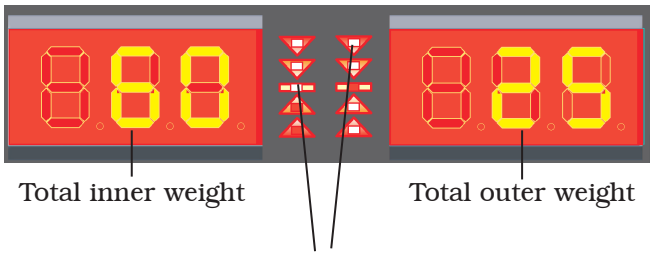


Fig. 33

Once the unbalance value of the inner and outer wheel side is known, the wheel can be positioned by turning it in the direction indicated by the LEDs until the correct position is reached (see Par. 15.3.6).
Fit the weight to the wheel as indicated in Par. 15.3.2.
Repeat wheel and weight positioning procedure for both inner/outer positions. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.
If the adhesive weight has to be hidden behind spokes, refer to “weights hidden behind spokes mode”, (see Chap. 18).

The ALU-S balancing procedure is completed.

15.3.5 Static balancing (STAT)

The STATIC balancing procedure is used to offset wheel vibrations using 1 weight on a single plane. An adhesive weight is used inside the rim.

To launch a STATIC measurement, proceed as follows:

- Make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chap. 13.0).
- Determine wheel dimensions (see Par. 15.1.1).

In just a few seconds, the wheel runs at normal speed and the display screens D1-D2 show wheel rotation.
After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the weight is around at “12 o' clock”.
The D2 display screen shows the weight required to correct the unbalance. The nearby LED show the direction wheel has to be moved in to fit the weight (**Fig. 34**).

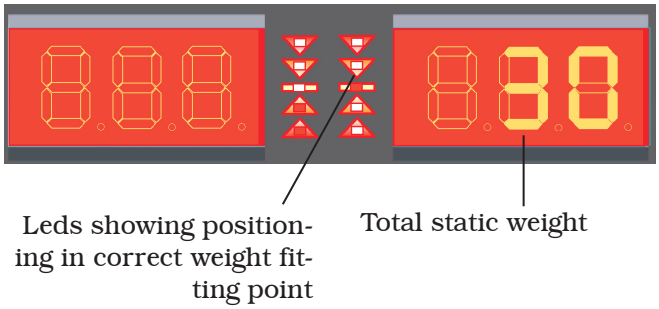


Fig. 34

Once the static unbalance value is known, the wheel can be positioned by turning it in the direction indicated by the LEDs until the correct position is reached (see Par. 15.3.6).
Fit the weight to the wheel as indicated in Par. 15.3.2.

Fig. 35 Fit the adhesive weight in the pliers of the gauge rod

The fact that the weight fitting position is no longer at "12 o' clock" (**Fig. 36**) is automatically offset.

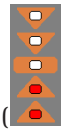
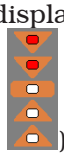
Fit weight on the position where weight pliers touches the wheel **Fig. 36**

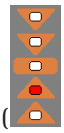
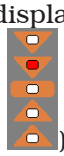
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.
If the adhesive weight has to be hidden behind spokes, refer to "weights hidden behind spokes mode", (see Chap. 18).

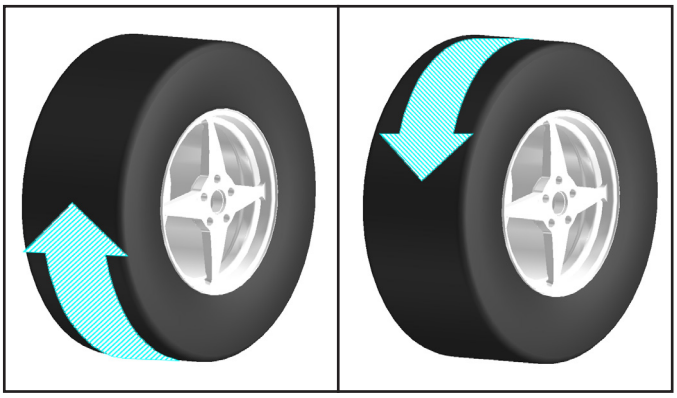
The STATIC balancing procedure is completed.

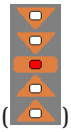
15.3.6 Positioning the correction weights on the wheel

The weights must be positioned at the top part of the wheel, at 12 o' clock, so that the unbalance will be at the bottom and the weight fitting point will be at the top.

When the wheel balancer display shows 2 led on at the top or bottom ( or ) this means you are far away from the point where the counterweight is to be positioned.
Wheel position is over 30° from the exact fitting point.

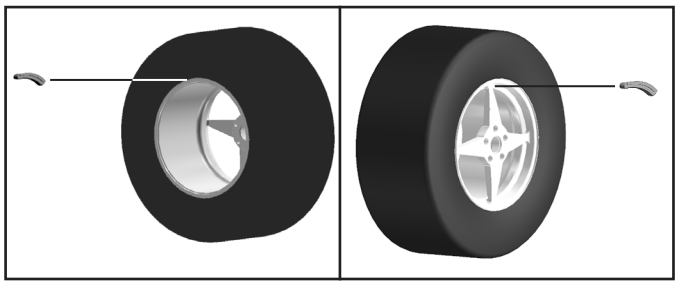
When the wheel balancer display shows 1 led on at the top or bottom ( or ) this means you are not far from the point where the counterweight is to be positioned.
Wheel position is within 30° from the exact fitting point.



When the wheel balancer display shows the central led on () the exact position for both sides has been reached and the pneumatic brake clamps the wheel in position.

TO RELEASE THE WHEEL AND THUS MOVE IT FROM ONE SIDE TO THE OTHER, PRESS KEY  .

The fitting point has been found. Now the unbalance can be corrected by fitting the necessary weight.



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

15.4 Measuring the unbalance with auxiliary programs

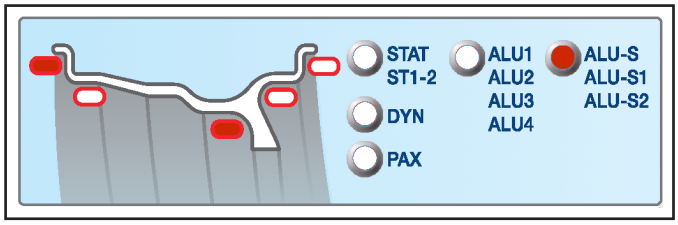
The available functions allow to select the appropriate weight positions to be placed in different positions compared to the standard ones (dynamic unbalance).

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

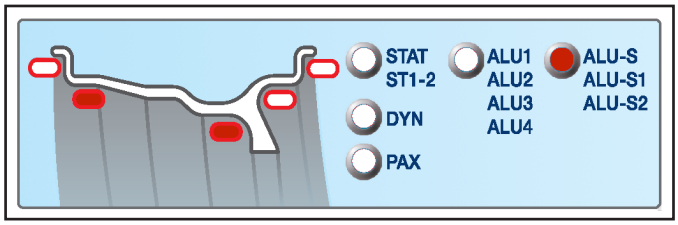
On the left side of the panel are indicated the possible selection modes. Select the desired function by means of key PRG and enter the measurements.

POSSIBLE SELECTABLE FUNCTIONS

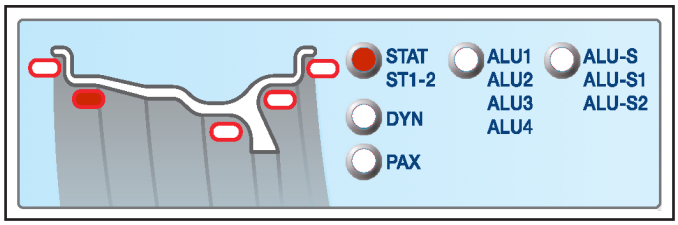
ALU-S1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer side and weight with clip on inner side of wheel (at "12 o'clock").
Enter the measurements (see Par. 15.1) and proceed as described in Par. 15.4.1 (the inner weight is with clip).



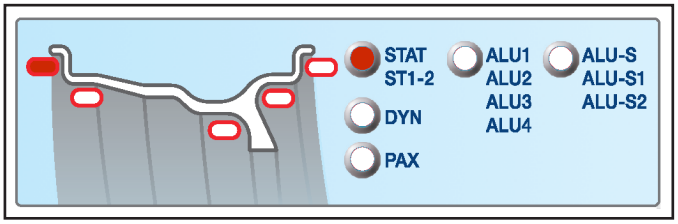
ALU-S2 function allows the balancing of wheels with light alloy rims by fitting two adhesive weights on rim outer and inner sides (both weights at "12 o'clock").
Enter the measurements (see Par. 15.1) and proceed as described in Par. 15.4.1 (the inner weight is adhesive).



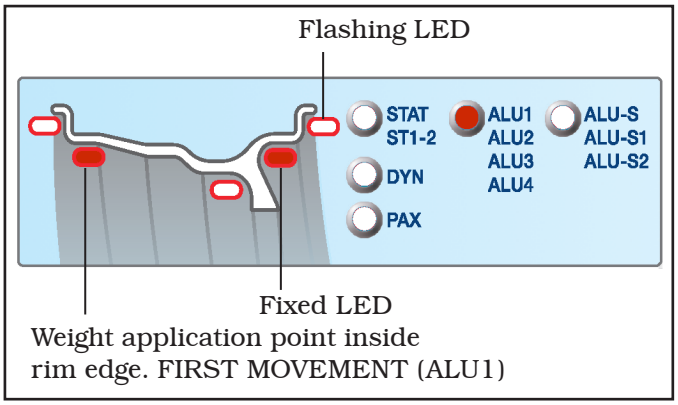
The ST2 function is a procedure that offsets wheel vibrations using a single adhesive weight on a single plane positioned exactly at 12 o' clock.
Enter the measurements (see Par. 15.1) and proceed as described in Par. 15.3.3 Dynamic balancing (only for wheel inner side).



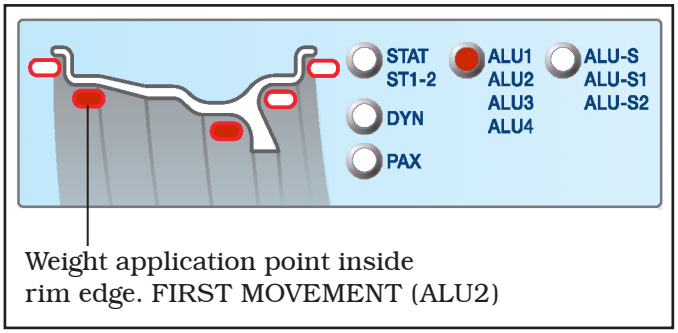
The ST1 function is a procedure that offsets wheel vibrations using a single weight with clip on a single plane positioned exactly at “12 o’ clock”.
Enter the measurements (see Par. 15.1) and proceed as described in Par. 15.3.3 Dynamic balancing (only for wheel inner side).



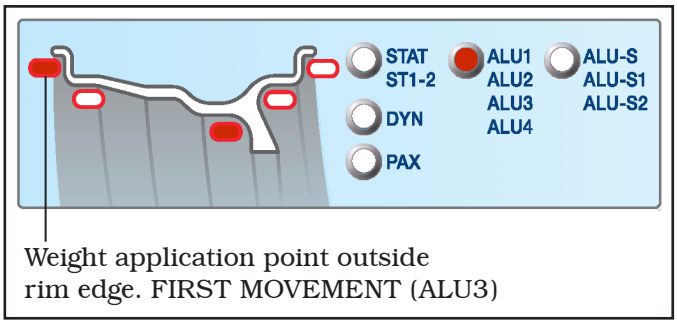
ALU1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer and inner sides of the rim at 12 o’clock (both).
Enter the measurements (see Par. 15.1) and proceed as described in Par. 15.4.1.



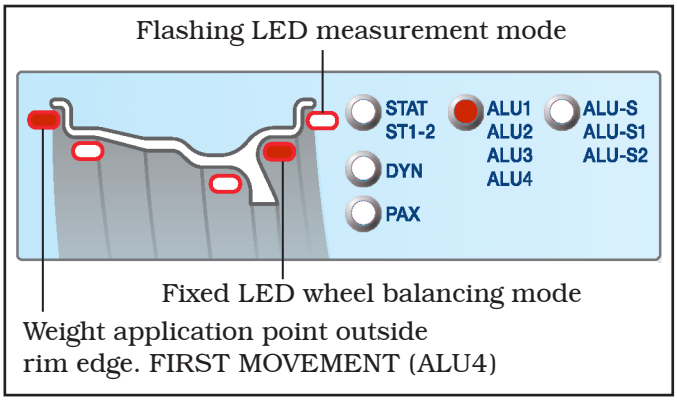
ALU2 function balances wheels with light alloy rims by fitting adhesive weights on the outside and inside of the rim. The position of the outer weight is not visible but hidden inside. Enter the measurements (see Par. 15.1) and proceed as for dynamic unbalance at 12 o’clock (both).



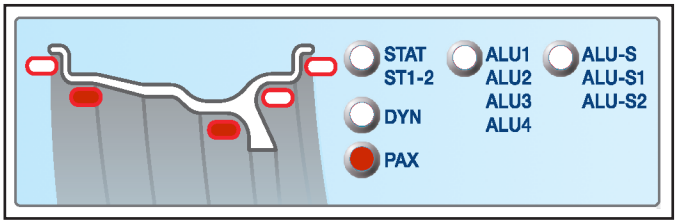
The ALU3 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight at 12 o’clock on outer side, not visible because inside the rim.
Enter the measurements (see Par. 15.1) and proceed as for dynamic unbalance.



The ALU4 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight on outer side “at 12 o’ clock”.
Enter the measurements (see Par. 15.1) and proceed as for dynamic unbalance.



PAX function is a procedure that permits balancing PAX wheels using adhesive weights at pre-set distances to offset wheel unbalance. Select the wheel type model and proceed as described in Par. 15.4.2.



For ALU-S, STATIC, ALU1 and PAX functions, see relevant paragraphs.
For all the other previously-indicated functions, wheel balancing will be done as indicated for dynamic balancing (see Par. 15.3.3).
The wheel balancer will automatically correct the measurements entered by the operator according to the selected function.

15.4.1 ALU1 procedure

ALU1 balancing is a procedure that offsets wheel vibrations using 2 weights on different planes. Adhesive weights are used on rim inner and outer edge, and is usually carried out on alloy rims.
To launch an ALU1 measurement, proceed as follows:

- make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chap. 13.0).
- Press key PRG to select the type of ALU1 correction (see Par. 15.4).
- Determine wheel dimensions (see Par. 15.1.1).
- Press key START to perform a wheel spin.

In just a few seconds, the wheel runs at normal speed and the display screens D1-D2 show wheel rotation.
After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the outer weight is around at "12 o' clock".
Display screens D1-D2 show the weight required to correct the unbalance. The nearby LEDs show the direction wheel has to be moved in to fit weights (see **Fig. 37**).

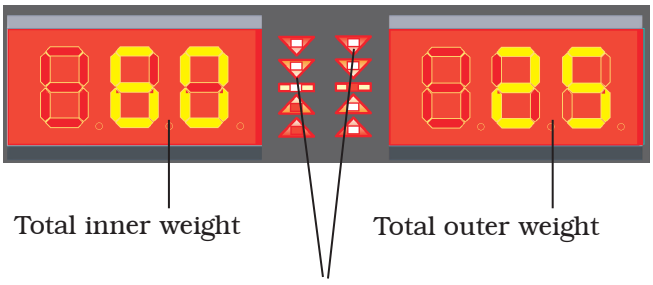


Fig. 37

To position wheel on the OUTER side, turn it in the direction shown by the LEDs, until reaching the correct position (see Par. 15.3.6). Upon reaching the correct position, the wheel is locked automatically.
Fit the adhesive weight on wheel outer side (in the example 25 g). The outer side weight must be positioned **by hand on the vertical – "at 12 o'clock"** (see **Fig. 38 ref. 1**).

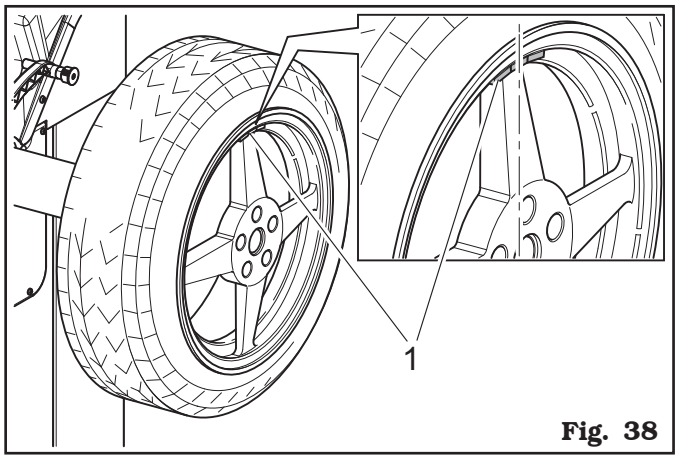


Fig. 38

Unlock the wheel by pressing key .
To fit the adhesive weight on the INNER part of the wheel, turn it in the direction shown by the LEDs until the correct position is reached "at 12 o'clock" (see Par. 15.3.6). Upon reaching the correct position, the wheel is locked automatically.
The adhesive weight on the inner side of the wheel. The inner side weight must be positioned **by hand on the vertical – at "12 o'clock"** (see **Fig. 39 ref. 1**).

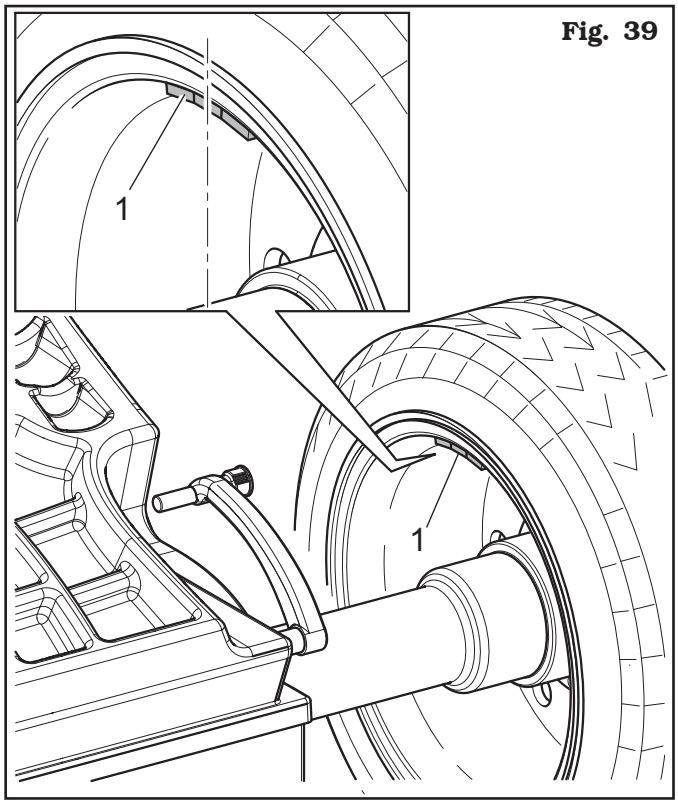


Fig. 39

ALU1 balancing procedure is completed.

15.4.2 PAX mode

PAX mode is a special procedure specially devised to balance wheels using the "PAX System ®". 2 adhesive weights on different planes are used on rim inner side.
To launch a PAX measurement, proceed as follows:
- make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chap. 13).
- Press key PRG repeatedly to select the type of PAX correction (see Par. 15.4). Then press key DIM. The selection of PAX wheel size will be displayed on the dimensions display screens (see **Fig. 40**).

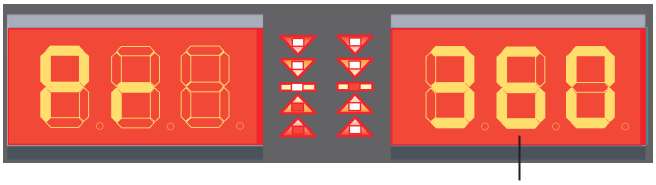


Fig. 40 PAX wheel dimension: you can select: 360, 420, 460 or 700

Select PAX wheel correct size using keys △/▽, until reaching the desired size.
- Press key START to perform a wheel spin.

In just a few seconds, the wheel runs at normal speed and the display screens D1-D2 show wheel rotation.
After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the outer weight is around at "12 o' clock".
Display screens D1-D2 show the weight required to correct the unbalance. The nearby LEDs show the direction wheel has to be moved in to fit weights. Proceed to fit the adhesive weights as shown for ALU-S mode (see Par. 15.3.4).

15.5 Recalculation Function

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

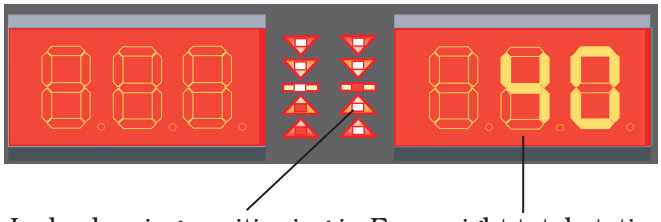
From the results page (see for example **Fig. 37**), press key DIM; the entered measurements page will be displayed (see Par. 15.1).
At this point, simply set the dimensions again, in ALU-S, STATIC or again DYNAMIC mode, as explained in Par. 15.1, and press key "Recalculation" R/C.
The display screens will show a new page with weights and position, in the new ALU-S, STATIC or DYNAMIC modes, taking also into account the new dimensions. **No new spin has to be made because the machine continues to store the data of the previous spin.**

Similarly, new weight and position data can be obtained by switching from an "Auxiliary Programs" mode (see Par. 15.4) to another mode (ALU-S1 – ALU-S2 - STATIC1 - STATIC2 - ALU1 – ALU2 – ALU3 - ALU4 – PAX) without making another spin.
If, for example, from the page where ALU1 results are shown (see **Fig. 37**), key PRG is pressed, the program displays the list of auxiliary programs (see Par. 15.4). At this point, if necessary, set the new dimensions, and press "Recalculation" R/C key again to obtain the weight and position values in the new mode, taking into account the new dimensions.

15.6 ECO-WEIGHT procedure

This procedure represents a system for the reset of the unbalance in order to reduce weights consumption. This procedure ensures a fastest execution of the operations, thanks to a lesser number of spins and repositioning.
After making the wheel spin in ALU-S mode, the monitor shows the total of 2 adhesive weights to precisely correct STATIC and DYNAMIC unbalance. It is possible to fit a single weight at a predetermined distance from the machine, so as to optimize the weight consumption and reduce both the DYNAMIC and any remaining STATIC unbalance as much as possible.
Unlike the standard STATIC procedure, the ECO-WEIGHT procedure, though only using one weight, also considerably reduces the DYNAMIC unbalance, because the fitting distance of the weight on the rim is also calculated.
From ALU-S unbalance result page (see **Fig. 35**), should a great static unbalance be present, the LED on key ECO will flash. Press Eco-Weight "ECO" key to select this procedure - the corresponding LED will turn on.

The page shown in **Fig. 41** will be displayed.



Leds showing positioning in correct weight fitting point
Eco-weight total static weight

Fig. 41

The wheel can be positioned by turning it in the direction indicated by the LEDs until the correct position is reached (see Par. 15.3.6).
Fit the weight to the wheel as indicated in Par. 15.3.2.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.
The ECO-WEIGHT procedure has now been completed.

IMMEDIATELY AFTER HAVING SELECTED THE ECO-WEIGHT PROCEDURE (SEE FIG. 41), YOU CAN KNOW IN ADVANCE THE TWO DYNAMIC UNBALANCES AND THE STATIC RESIDUE IN ORDER TO DECIDE WHETHER IT IS CONVENIENT TO CONTINUE.
IF BOTH DYNAMIC UNBALANCES AND STATIC RESIDUE ARE SHOWN AS STILL (NOT FLASHING) VALUES ON THE DISPLAY, THIS MEANS THAT THE PROGRAM HAS DECIDED THAT IT IS BETTER TO CONTINUE. WHILE IF, ON THE OTHER HAND, ONE OR MORE VALUES ARE FLASHING, THE PROGRAM SUGGESTS USING THE STANDARD ALU-S PROCEDURE.

PRESS KEY 

ONCE. THE TWO RESIDUAL DYNAMIC UNBALANCES WILL BE DISPLAYED ON D1 AND D2 SCREENS.

PRESS KEY 

ONCE MORE. THE CALCULATED REAL STATIC WEIGHT WILL BE DISPLAYED ON D1 AND THE RESIDUAL STATIC WEIGHT WILL BE DISPLAYED ON D2 SCREEN.
IF YOU DO NOT WISH TO OPERATE WITH THE ECO-WEIGHT PROCEDURE, PRESS KEY 

ONCE MORE, ALU-S UNBALANCE VALUES WILL BE DISPLAYED AGAIN (SEE FIG. 33).
WHILE IF YOU WISH TO OPERATE WITH THE ECO-WEIGHT PROCEDURE, PRESS KEY 

FOR A LONGER TIME (OR KEY 

) TO GO BACK TO THE RESIDUAL DYNAMIC / ECO-WEIGHT WEIGHT DISPLAY SCREENS (SEE FIG. 41).

16.0 WHEEL BALANCING IN MOTORCYCLE MODE

By enabling the “motorbike wheel balancing” function (see Par. 21.3), the wheel balancers can also balance motorbike wheels. Before measuring wheel size (see Par. 15.1), if you press key ”SET”, you can select motorcycle wheels balancing mode. The “MOTOR” symbol will come on the corresponding key (see **Fig. 42**).
To disable the MOTOR function, press ”SET” key once more, the corresponding LED will turn off.

Selected “BIKE” (MOTORCYCLE) function

Fig. 42

The "motorcycle" mode automatically recalculates the wheel distance measurement, increasing this by the length of the optional extension GAR181 A1.
To fit the extension (**Fig. 43 ref. 2**), first press the threaded ring nut (**Fig. 43 ref. 1**) in the hole provided and then screw the plastic terminal (see **Fig. 43**).

THE EXTENSION WILL ONLY HAVE TO BE SCREWED UP WHEN BALANCING IS PERFORMED IN "MOTORBIKE" MODE.

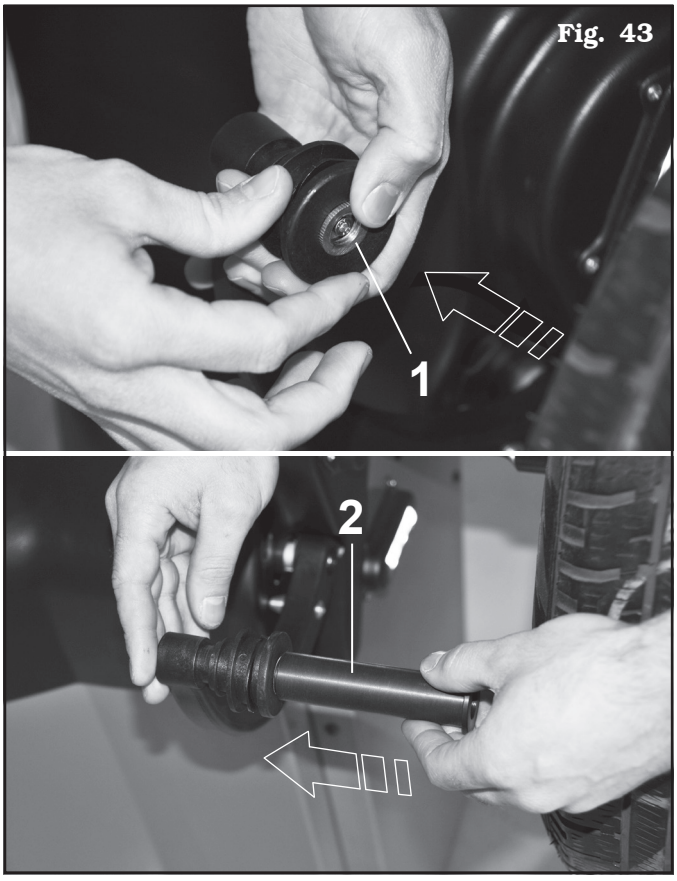


Fig. 43

Balancing procedures are identical for both modes (car/motorbike).
By selecting motorbike mode, besides dynamic balancing (see Par. 15.3.3) STATIC balancing and/or ALU-S (Par. 15.3.4 and/or 15.3.5) can also be performed.

17.0 SPLIT PROCEDURE

The SPLIT procedure proves useful when the dynamic unbalance (see Par. 15.3.3) of a wheel is fairly high and the weight to be fitted is not available, for instance a 100 g weight. It's possible then to correct the unbalance dividing the amount of weight into two weights of smaller size.
The SPLIT procedure eliminates errors caused by manually fitting two 50 g weights close to one another, which could leave considerable outstanding unbalance.

For example:

100 g WEIGHT
TO BE FITTED TO CORRECT
UNBALANCE

TWO SMALLER WEIGHTS (50g)
FITTED MANUALLY

TWO SMALLER WEIGHTS (55g) USING SPLIT PROCEDURE

Proceed to unbalance measurement displaying by performing a standard wheel spin (see Par. 15.3.3). Once the unbalance values have been determined, press the OPTIONS key OPT several times. The LED relevant to the "SPLIT" symbol (see **Fig. 44**).

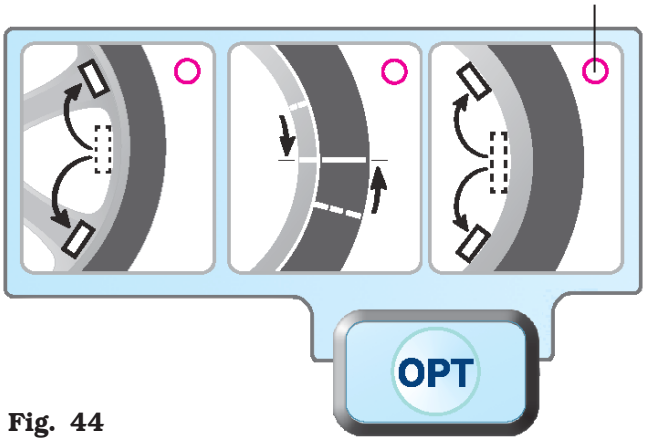


Fig. 44

Press key R/C to confirm. The LED close to D2 outer display indicate the SPLIT selection on the outer edge (see **Fig. 45**).

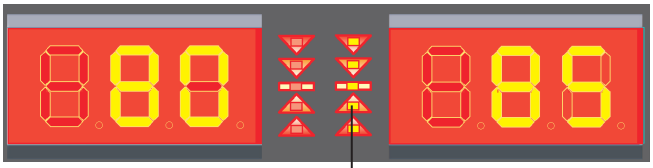


Fig. 45

If necessary, press key R/C again to select wheel INNER side, the LEDs close to the inner display D1 will turn on. The example below refers to the OUTER side.

Press keys △/▽ to confirm. The system will display the dimension of the two weights to be fitted on the wheel. Press keys △/▽ again to increase or decrease the dimension of the weights in the awareness that, the bigger the weights, the bigger the distance will automatically be between them.

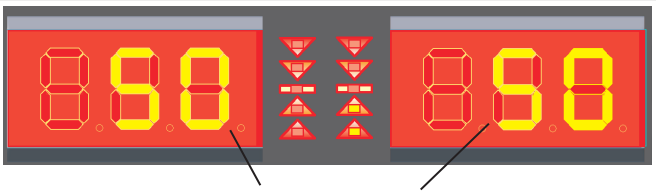


Fig. 46

Choose the value of the weights to be fitted and press key R/C to confirm.
The LEDs close to the D2 display now indicate the direction wheel shall be moved in to fit the FIRST weight. Turn the wheel at the point indicated by the LEDs, until the correct position has been reached to correct the unbalance (see Par. 15.3.6).
Upon reaching the correct position, the wheel is locked independently.
Fit the FIRST weight.

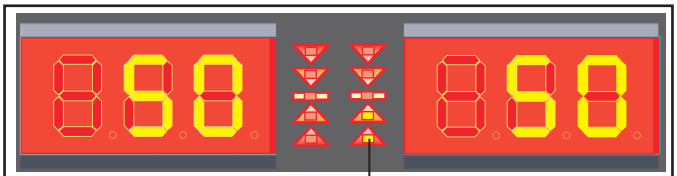


Fig. 47

Press key ◎ to release the wheel: the LED beside D2 display now indicate the direction in which the wheel shall be moved to fit the SECOND weight. Place the wheel at the point indicated by the direction LED. Upon reaching the correct position, the wheel is locked independently.
Fit the SECOND weight.
The outer side operation has been completed, press key STOP twice to quit.
If you wish to repeat the procedure also on wheel INNER side, select the SPLIT option, as shown above, and perform the same operation on the other side of the wheel, or simply fit the inner weight at 12 o'clock.

18.0 WEIGHTS HIDDEN BEHIND SPOKES MODE

Adhesive correction weight positioning may not look attractive on some types of rims. In this case, "weights hidden behind spokes" mode can be used: it splits any correction weight on the outer side into two parts to be hidden behind rim spokes. It can be used in both ALU-S or STATIC modes.
Proceed with ALU-S or STATIC unbalance measurement displaying by performing a standard wheel spin (see Par. 15.3.4 or 15.3.5).
Once the unbalance values have been determined, press OPTIONS key OPT; "SPOKES" symbol LED turns on (see **Fig. 48**).

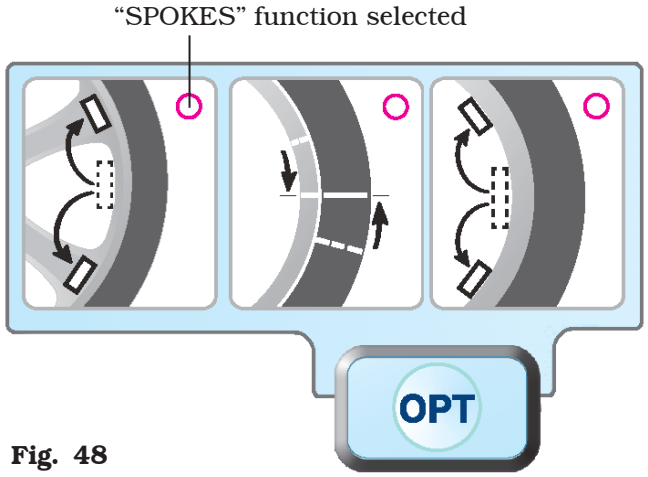
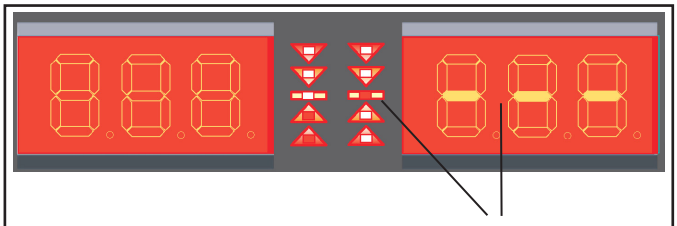


Fig. 48

Press key R/C to confirm the performance of the "weights hidden behind the spokes" mode.
The symbol "- - -" will flash on the outer display screen D2, and the beside LEDs will flash as well. (see **Fig. 49**).
Move any spoke up to "12 o' clock" (in many cases, the position could already be behind or near one of the spokes) and press key R/C to confirm and continue.



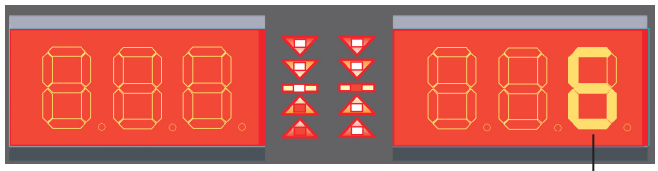
Symbol "- - -" and LEDs are flashing.
Move a spoke up to "12 o' clock" and confirm

Fig. 49

A number corresponding to the number of spokes of the wheel will be shown on display screen D2 (see **Fig. 50**).

Enter the correct number of spokes, increasing or decreasing it using keys ▲/▼. A minimum of 3 spokes and a maximum of 20 can be entered.

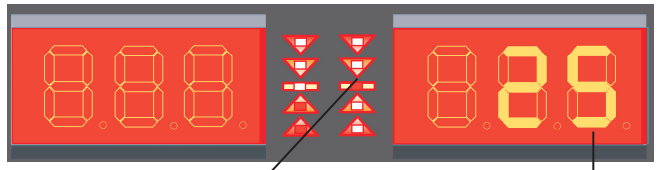
Press key R/C to confirm and continue.



Enter the correct number of spokes, and confirm

Fig. 50

The machine automatically calculates weight position in two positions hidden behind the spokes. The quantity of weight to be fitted behind the FIRST spoke is shown on D2 outer display; the LED close to D2 display show the direction the wheel shall be moved in to fit the FIRST weight (see **Fig. 51**). Turn the wheel at the point indicated by the LEDs, until the position has been reached to correct the unbalance (see Par. 15.3.6).



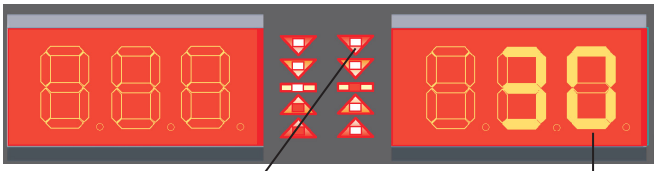
LEDs showing the positioning in the fitting point of the FIRST correction weight

Weight to be fitted behind the FIRST spoke

Fig. 51

Upon reaching the correct position, the wheel is locked independently.
Extract the gauge rod, and fit the FIRST weight (25 g) in the position shown by the machine, as explained in Par. 15.3.4.

Press key to release the wheel.
The quantity of weight to be fitted behind the SECOND spoke is shown on outer display screen D2; the LEDs close to the display screen D2 show the direction wheel shall be moved in to fit the SECOND weight (see **Fig. 52**). Turn the wheel at the point indicated by the LEDs, until the correct position has been reached to correct the unbalance (see Par. 15.3.6).



LEDs showing the positioning in the fitting point of the SECOND correction weight

Weight to be fitted behind the SECOND spoke

Fig. 52

Upon reaching the correct position, the wheel is locked independently.
Pull out the gauge rod and fit the SECOND weight (30 g) in the position shown by the machine, as done for the first weight.

Press key R/C to confirm.
The display screens D1 and D2 show again the initial unbalance situation before performing the "weights hidden behind spokes" procedure
Perform another test spin. The "weights hidden behind spokes" procedure is completed.

IF NECESSARY, YOU CAN PRESS KEY STOP TO GO BACK STEP-BY-STEP THROUGH THE DIFFERENT STAGES OF THIS PROCEDURE.

BY ALU-S MODE, ON REACHING WEIGHT APPLICATION POINT, D2 DISPLAY FLASHES AND SHOWS THE DISTANCE AT WHICH THE WEIGHT WITH CALIPER SHALL BE FITTED. IF YOU WISH TO DISPLAY BALANCING WEIGHT, PRESS KEY △. SUCH VALUE WILL BE DISPLAYED ONLY FOR A MOMENT, THEN WEIGHT FITTING DISTANCE IS DISPLAYED AGAIN.

19.0 MATCHING PROCEDURE (Rim - Tyre Optimization)

The "MATCHING" procedure offsets strong unbalance, reducing the weight quantity to be fitted on the wheel to achieve balancing. This procedure permits reducing unbalance as much as possible by offsetting the tyre unbalance with that of the rim.
Proceed to dynamic unbalance measurement displaying by performing a standard wheel spin (see Par. 15.3.4).

THE MATCHING PROCEDURE CAN BE CARRIED OUT ONLY IF THE STATIC UNBALANCE IS > 30 G.

Once the unbalance values have been determined, press the OPTIONS key OPT several times. The LED relevant to the "MATCHING" symbol (see **Fig. 53**).

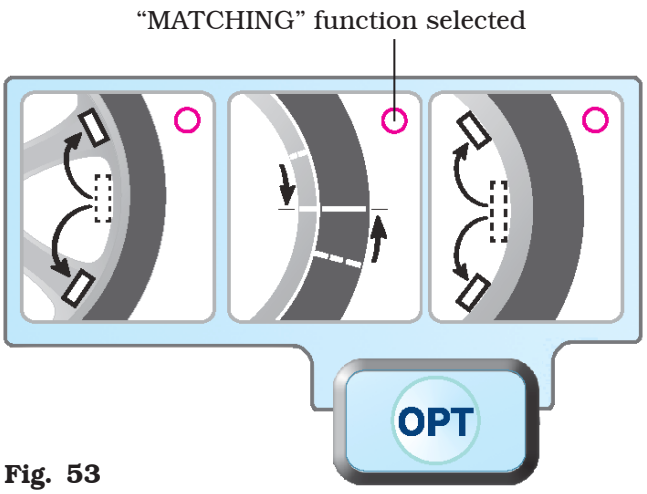
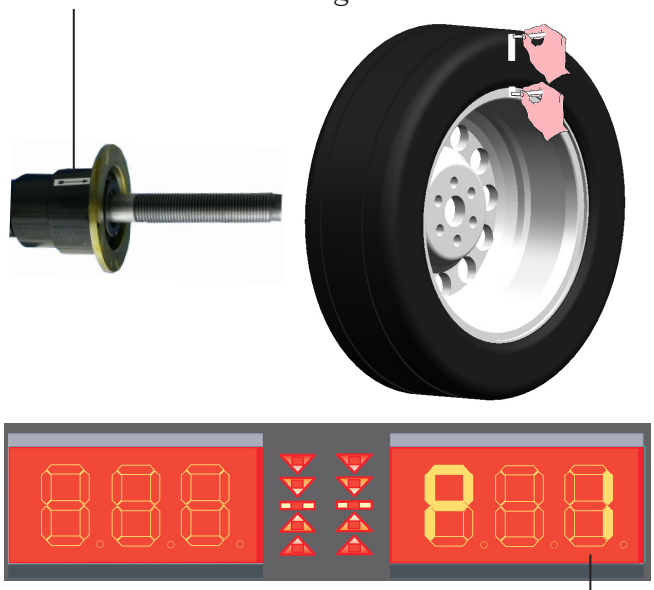


Fig. 53

Press key R/C to confirm "MATCHING" mode performance.
The "P 1" symbol flashes on outer D2 display to indicate that the 1st step of the procedure shall be carried out (see **Fig. 54**).

STEP 1. Make a reference mark, using chalk for instance, of the position of the rim and tyre, remaining in line with the arrow on the flange, so as to be able to fit the rim back on in the same position on the machine. Press key R/C to confirm that step 1 has been completed.

Make a reference mark on the rim and tyre, in line with the arrow on the flange

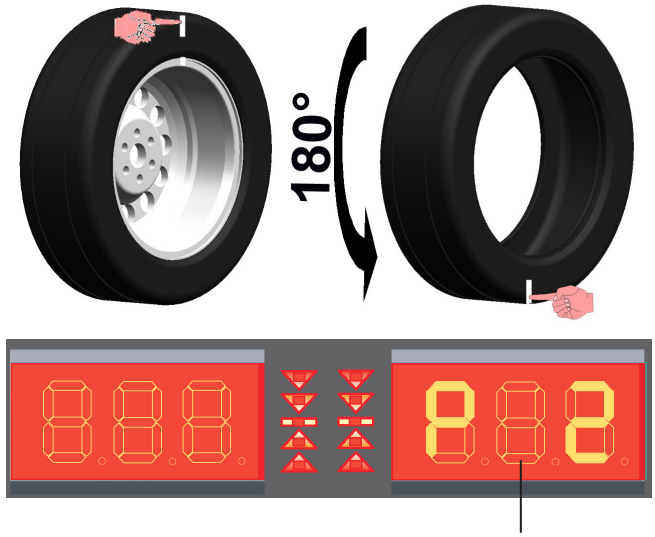


Once STEP 1 operations are completed, press key R/C to confirm

Fig. 54

STEP 2. Remove the wheel from the wheel balancer. Remove the tyre and turn it on the rim through 180°.

Press key R/C to confirm that step 2 has been completed.

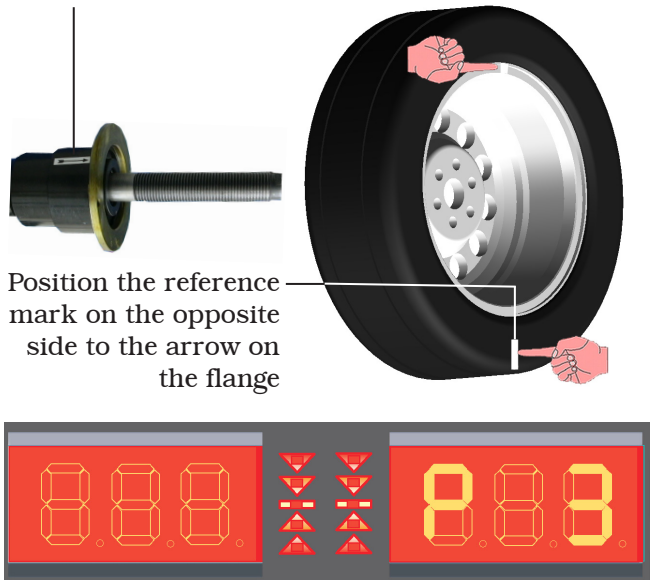


Once STEP 2 operations are completed, press key R/C to confirm

Fig. 55

STEP 3. Fit the wheel back on the wheel balancer, positioning the reference mark on the rim in line with the arrow on the flange.

Position the reference mark on the rim in line with the arrow on the flange

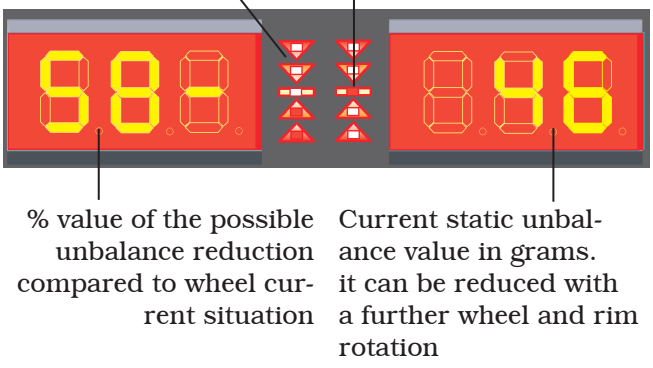


Position the reference mark on the opposite side to the arrow on the flange

Fig. 56

After having fitted wheel back in position, press key START to perform a wheel spin.

Once wheel spin is completed, D1 display shows the % value of possible unbalance reduction compared to wheel current situation, while D2 display shows current static unbalance in grams (see **Fig. 57**).



LEDs showing RIM reference mark positioning

LEDs showing TYRE reference mark positioning

% value of the possible unbalance reduction compared to wheel current situation

Current static unbalance value in grams. it can be reduced with a further wheel and rim rotation

Fig. 57

If the % value of possible unbalance reduction is high, you can proceed as follows:

- Cancel the previously made reference marks. Make new marks, as described hereinafter, on wheel TYRE and RIM (see **Fig. 58**).
- When the LEDs on the RIGHT show that the position has been reached (see Par. 15.3.6) make the reference mark on TYRE.

- When the LEDs on the LEFT show that the position has been reached (see Par. 15.3.6) make the reference mark on RIM.

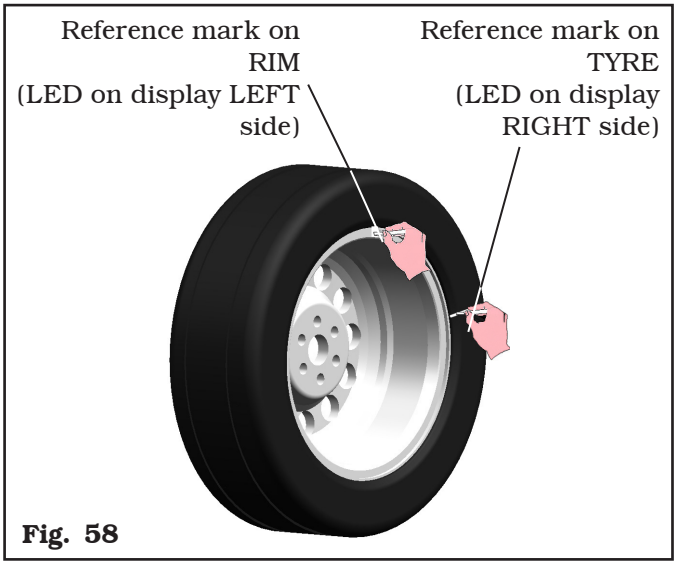
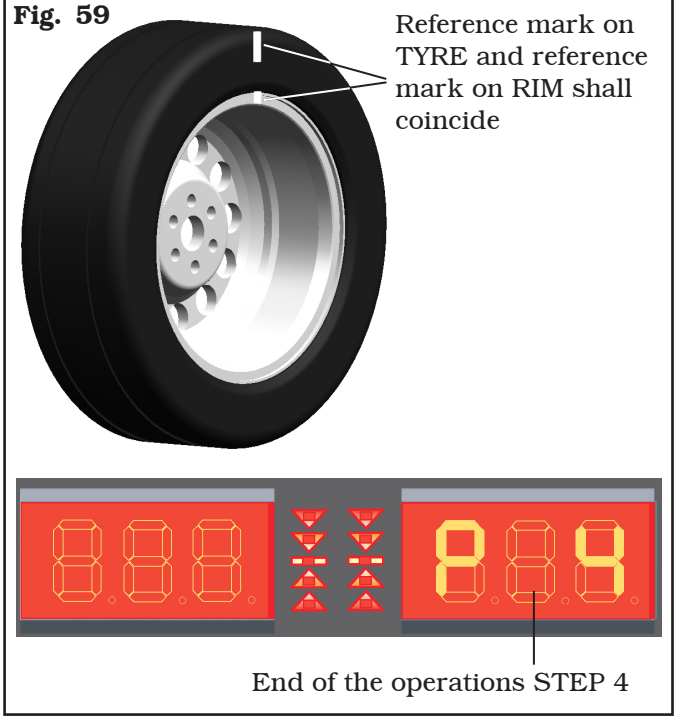


Fig. 58

Press key R/C to confirm that step 3 has been completed.

STEP 4. Remove the wheel from the wheel balancer. Remove the wheel and turn the tyre on the rim so that the two points coincide with the wheel when fitted back on the wheel balancer (see **Fig. 59**). The two reference marks must be in line with the arrow on the flange.

Fig. 59



Press key START to carry out a further spin.
If necessary, correct any residual unbalance, as indicated in Chapt. 15.3.

20.0 CALIBRATION

From the opening program presentation page press keys and DIM at the same time; the following symbols will be shown on D1 and D2 display screens:

Enter password USR, USR, USR, USR; the following symbols will be shown on D1 and D2 display screens:

Press key R/C again to confirm; the following symbols will be shown on D1 and D2 display screens:

Now you can perform “Zero mandrel” calibration (see Par. 20.2).

20.1 Diameter only gauge calibration

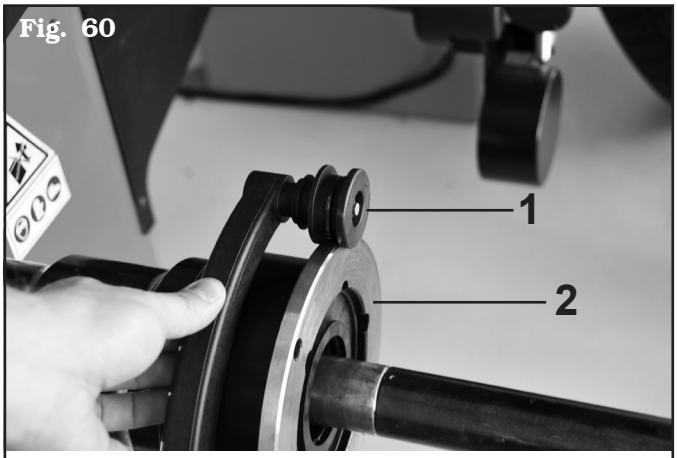
When the following symbols are shown on the display screens D1 and D2 (see Par. 21).

press key R/C to carry out diameter caliper calibration; the following symbols will be shown on display screens D1 and D2:

The first step is started, press key R/C to confirm. The following symbols will appear:

Press R/C and rest the end part of the caliper (**Fig. 60 ref. 1**) on the flange (**Fig. 60 ref. 2**); the D1 and D2 display screens will show the corresponding values.

Fig. 60



Distance in mm Diameter in bit

IF THE MEASUREMENT GAUGE IS NOT EXACTLY POSITIONED ALONG THE UPPER EDGE OF THE FLANGE AND CONSEQUENTLY IF THE DISTANCE MEASUREMENT (DISPLAY D1) IS NOT INCLUDED BETWEEN 205 MM AND 207 MM, WHEN THE MEASUREMENT IS CONFIRMED, THE PROGRAM WILL NOT PASS ON TO THE NEXT STAGE (F02). TRY REPOSITIONING THE GAUGE FERRULE ALONG THE UPPER EDGE OF THE FLANGE. IF THE MEASUREMENT CONTINUES NOT TO BE BETWEEN 205 MM AND 207 MM AND THE PROGRAM DOES NOT PASS ON TO THE NEXT CALIBRATION STAGE, CONTACT THE AFTER-SALES SERVICE.

Press key R/C twice to confirm and pass on to the next stage. The following symbols will be shown on display screens D1 and D2:

Rest the gauge (**Fig. 61 ref. 1**) down below on the largest cylindrical part of the bell (**Fig. 61 ref. 2**). Display screen D2 will show a value in bit.

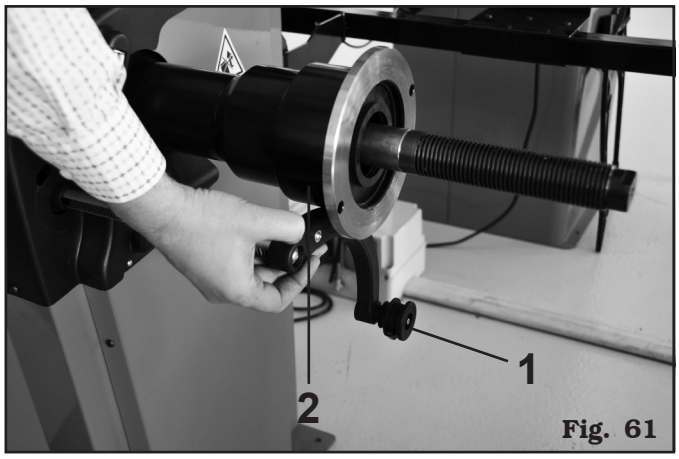


Fig. 61

Press key R/C twice to confirm and pass on to the next stage. The following symbols will be shown on display screens D1 and D2:

Fit a wheel with steel rim.

Press key R/C to confirm. The following symbols will be shown on D1 and D2 display screens:

The display screen D1 (see above) will show a Ø value in mm (381), measure the exact diameter (see **Fig. 62 ref. A**) and enter value using keys △/▽.

Fig. 62

Press key R/C to confirm; D1 and D2 displays will show symbols:

Bring the gauge ferrule (**Fig. 63 ref. 1**) on the inner edge of the wheel UPWARDS, touching the diameter point used previously for the "A" measurement detection (**Fig. 62**), display D2 will show a bit value.

Press keys R/C twice to confirm.

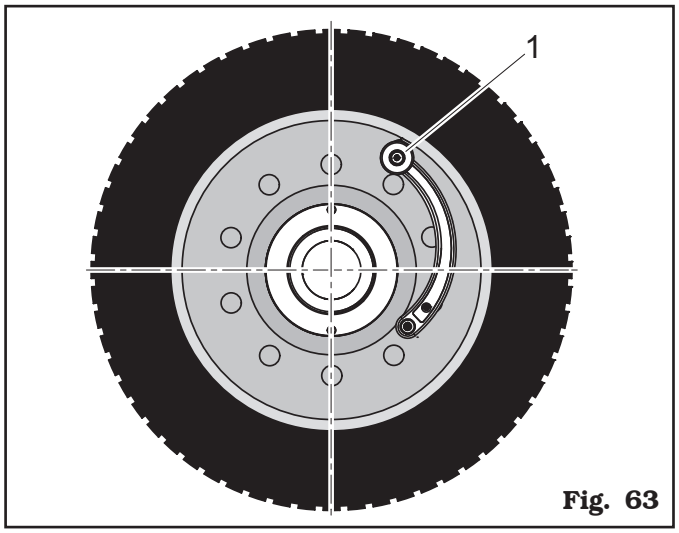


Fig. 63

Calibration of the diameter caliper is completed, the following symbols will be shown on display screens D1 and D2:

Press key STOP several times, in a sequence to quit the calibration stage and go back to program presentation page.

20.2 "Zero mandrel" setting

When the following symbols are shown on display screens D1 and D2 (see Chapt. 20.0):

use ▲/▼ keys to select calibration. The following symbols will be shown on D1 and D2 display screens (display D2 must scroll up until number 2):

Press key R/C to confirm "piezo" calibration procedure selection; the following symbols will be shown on D1 and D2 display screens:

Press key START to start the spin for mandrel reset without having fitted any part.
If after wheel spin, the following symbols will be shown on display screens D1 and D2:

the calibration has been completed.

Press key R/C to come back to the main menu.

20.3 Weight measurement sensors calibration (CAR mode)

START FROM SELECTED "CAR" MODE.

When the following symbols will be shown displays D1 and D2

using keys ▲/▼ select the weight measurement sensors calibration "Piezo sensors". These symbols will be shown on D1 and D2 displays:

Press key R/C. The following symbols will be shown on D1 and D2 display screens:

Press key DIM. The following symbols will be shown on D1 and D2 display screens:

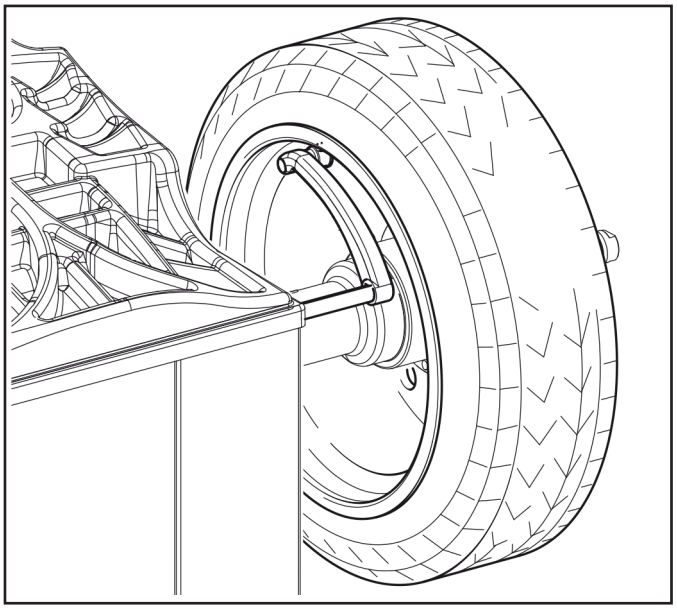
flashing
display D2

Now enter rim width pressing keys ▲ or ▼ manually and press key DIM to confirm.

The display shows symbols

Enter rim diameter and press key  .
The display shows symbols

Take the pliers of the automatic distance/diameter caliper and bring it to the rim edge



Detect the measure in mm and enter it through keys  :

DYN LEDs will be flashing as well.

Press the  key.
These symbols will be shown on D1 and D2 displays:

Press key  to perform wheel spin.
These symbols will be shown on D1 and D2 displays:

fit 100 g weight provided outside the rim, exactly at “12 o'clock”.

Press key  to perform wheel spin.
These symbols will be shown on D1 and D2 displays:

Press key  to release the wheel and to move the 100 gr weight on rim inner part, at “12 o'clock” again (in opposite position).
At the end of the spin the following symbols will be displayed:

if the procedure has been brought to a satisfactory conclusion; on the contrary the error code will be displayed.

Press key  to confirm and press key  , several times, to return to the starting page with blinking symbols

20.4 Weight measurement sensors calibration (TRUCK mode)

START FROM SELECTED "TRUCK" MODE.

When the following symbols will be shown displays D1 and D2

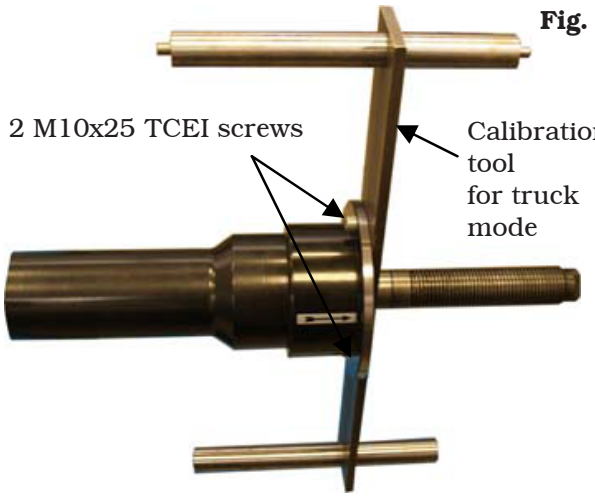
using keys ▲/▼ select the weight measurement sensors calibration “Piezo sensors”. These symbols will be shown on D1 and D2 displays:

Press key R/C to confirm “piezo” calibration procedure selection; the following symbols will be shown on D1 and D2 display screens:

Press key START to perform the spin.
Fit the calibration tool (see **Fig. 64**), using the two M10 screws provided.

THE CALIBRATION TOOL MUST BE POSITIONED WITH THE LONGER CYLINDERS IN THE MANDREL INNER SIDE.

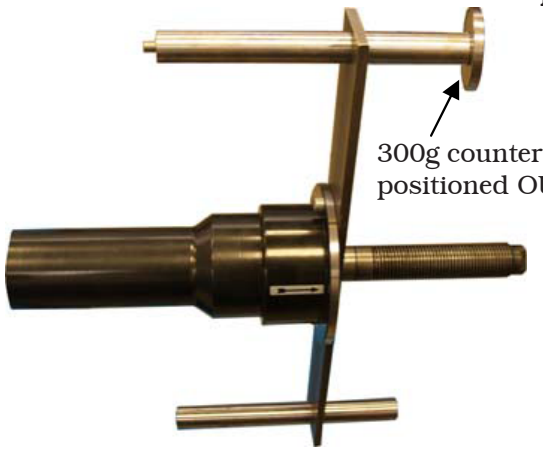
Fig. 64



After wheel spin, the following symbols will be shown on display screens D1 and D2:

Apply 300 g on the outer side of the wheel, **placing the weight at 12 o'clock** (see **Fig. 65**).

Fig. 65



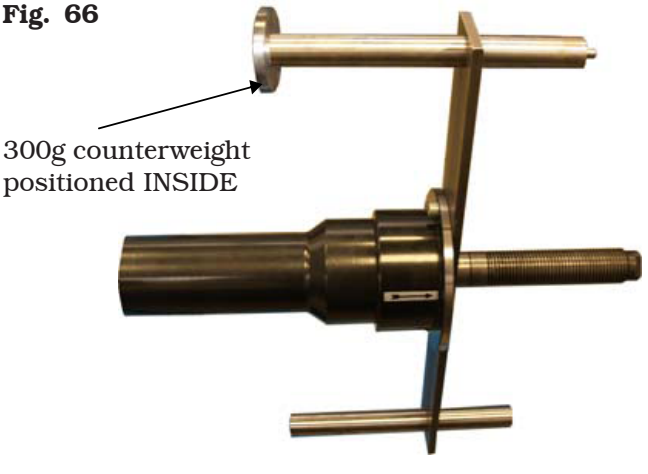
POSITION IT EXACTLY AT 12 O'CLOCK

Press key START to make a wheel spin with 300 g on the outer side.

After wheel spin, the following symbols will be shown on display screens D1 and D2:

Remove the 300 g weight from the outer side and apply it on the tool inner side (see **Fig. 66**).

Fig. 66



Press key START to make a wheel spin with 300 g on the inner side.

After wheel spin, the following symbols will be shown on display screens D1 and D2:

Weight measurement sensors calibration is over, press key R/C to confirm; D1 and D2 displays will shown these symbols:

Press keys STOP, STOP in a sequence to quit the calibration stage and to come back to program presentation page.

21.0 USER'S SETTING AND CUSTOMIZATIONS

From program starting page, press keys and DIM at the same time; the following symbols will be shown on D1 and D2 display screens:

Enter password USR, USR, USR, USR; the following symbols will be shown on D1 and D2 display screens:

Use keys / to select the **PARAMETERS setting** (**P** stands for Parameters). These symbols will be shown on D1 and D2 displays:

Press key R/C to confirm. The following symbols will be shown on D1 and D2 display screens:

PARAMETER NUMBER
At first it flashes (it can be scrolled)

PARAMETER VALUE
At first it does NOT flash

The D1 display screen on the left shows a parameter number, while the corresponding parameter value is shown on D2 display screen on the right side. The number on D1 display is flashing. To scroll parameters from 1 to 24, press keys /.

To edit a parameter value, press key R/C first to move the "flashing" on D2 right display, then press keys /.

To move again the "flashing" on D1 display screen on the left side, press R/C again.

A special setting is connected to each parameter, as described in the following paragraphs. Modifying the ones requiring it and at the end press STOP key to quit, press it several times to return to the starting page.

21.1 Selection of unit of measurement for weights display

Selection in ounces

To set the wheel balancer to ounces, follow the indications in Chapt. 21.0, in order to display the following values (see Parameters Par. 21.2):

At the end of the configuration, press key 

several times to return to the starting page.
Enter the wheel measurements and close the protection guard to perform the automatic wheel spin.
The values of the weights to be fitted on the wheel, expressed in ounces, will be shown on display screens D1 and D2, as shown below:

Press button  .
The values of the weights to be fitted on the wheel will be shown on display screens, at the highest resolution in ounces:

Press button  .
The values of the weights to be fitted on the wheel will be shown on display screens, approximated in grams:

Press button  .
The values of the weights to be fitted on the wheel will be shown on display screens, at the highest resolution in grams:

Press again the button  to return to the approximated measurement of the weights to be fitted on the wheel in ounces and D1 and D2 display screens will show again the values expressed in ounces:

Selection in grams

The values of the weights to be fitted on the wheel, approximated in grams, will be shown on display screens D1 and D2, as shown below:

Press button  .
The values of the weights to be fitted on the wheel will be shown on display screens, at the highest resolution in grams:

Press again the button  to return to the approximated measurement of the weights to be fitted on the wheel in grams and D1 and D2 display screens will show again the values expressed in grams:

21.2 Setting measurements units for rim weight and width/diameter

SOME OF THE PARAMETERS LISTED BELOW COULD NOT BE DISPLAYED FOR THIS TYPE OF MACHINE.

The weight determining wheel unbalance can be indicated on the display in "gram" or "ounce" measurement unit.

Parameter 1 (GRAMS/OUNCES)	**VALUE 000 = grams**
	VALUE 001 = ounces

The width and diameter can be indicated in "inches" or "mm"

Parameter 2 (MM/INCHES)	**VALUE 000 = millimetres**
	VALUE 001 = inches

21.3 Users' management - Motorbike mode - Eco-Weight - Residual static setting

"USERS' MANAGEMENT" function (see Par. 15.2) can be ENABLED or DISABLED

Parameter 3 (USER MANAGEMENT)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

The MOTORBIKES balancing procedure (see Chap. 16) can be ENABLED or DISABLED.

Parameter 5 (MOTORCYCLE PROGRAM)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"ECO WEIGHT" function (see Par. 15.6) can be ENABLED or DISABLED

Parameter 6* (ECO-WEIGHT PROGRAM)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

The residual static unbalance during the DYNAMIC or ALU-S procedure, can be ENABLED or DISABLED.

Parameter 7* (RESIDUAL STATIC)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

During the "ECO WEIGHT" procedure (see Par. 15.6) the static and dynamic residues can be ENABLED or NOT

Parameter 8* (RESIDUES IN ECO-WEIGHT)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

21.4 Setting of Repositioning - Comfort - Guard - Pax

"REPOSITIONING" function can be ENABLED or DISABLED

Parameter 4* (INNER SIDE REPOSITIONING)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"WEIGHT H6" function can be ENABLED or DISABLED

Parameter 9 (WEIGHT H6)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"LED-LIGHT" function can be ENABLED or DISABLED

Parameter 10* LED LIGHT	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"LASER BLADE" function can be ENABLED or DISABLED

Parameter 11* (LASER BLADE)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"LASER DBL EDGE H12" function can be ENABLED or DISABLED

Parameter 12* (LASER DBL EDGE H12)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"GUARD" Function can be ENABLED or DISABLED

Parameter 13 (GUARD)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"PAX PROGRAMS" Function can be ENABLED or DISABLED

Parameter 14 (PAX PROGRAMS)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

"PROGRAMS CHANGE" Function can be ENABLED or DISABLED

Parameter 15* (PROGRAMS CHANGE WITH CALIPER)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

21.5 Distance/diameter and width setting (optional)

The distance/diameter data gauge can be ENABLED or DISABLED (default setting: ENABLED)

Parameter 16 (DISTANCE/DIAMETER CALIPER)	**VALUE 000 = Disabled**
	VALUE 001 = Enabled

The automatic diameter meter can be set with a diameter entry data

Parameter 17 (TYPE OF DIAMETER ENTRY)	**VALUE 000 = diameter entry on rim/tyre**
	VALUE 001 = diameter entry with manual measurement
	VALUE 002 = diameter entry with automatic detection (potentiometer

The (OPTIONAL) automatic rim width meter= can be ENABLED or DISABLED (default setting: NOT ENABLED)

Parameter 18* (EXTERNAL DATA GAUGE)	**VALUE 0 = Disabled**
	VALUE 1 = Enabled

21.6 Weights display management

Parameter 19 (STEP)	**CAR = 2 or 5 grams (0.1 or 0.25 ounces)**
	TRUCK = 20 or 50 grams (1 or 2.5 ounces)

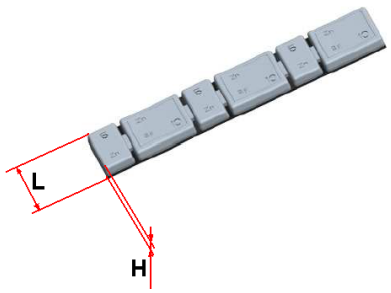
Parameter 20 (DYN PROGRAM LOWER LIMIT)	**CAR = from 1 to 20 grams (from 0.05 to 1 ounce)**
	TRUCK = from 10 to 200 grams (from 0.5 to 10 ounces)

Parameter 21 (ALU PROGRAM LOWER LIMIT)	**CAR = from 1 to 20 grams (from 0.05 to 1 ounce)**
	TRUCK = from 10 to 200 grams (from 0.5 to 10 ounces)

21.7 Setting adhesive weight dimensions

To ensure the balancing machine precisely calculates the dimensions and total adhesive weights, set the height (thickness) and width of the adhesive weights at your disposal (see **Fig. 67**).

Fig. 67



Adhesive weight height (H) is set with

Parameter 22 (HEIGHT ADHESIVE WEIGHT)	**CAR = from 1 to 20 mm**
	TRUCK = from 1 to 30 mm

Adhesive weight width (L) is set with

Parameter 23 (WIDTH ADHESIVE WEIGHT)	**CAR = from 5 to 50 mm**
	TRUCK = from 5 to 75 mm

It is also necessary to set the static threshold percentage used in the ECO-WEIGHT procedure with

Parameter 24* (STATIC THRESHOLD % IN ECO-WEIGHT)	**VALUE from 0% to 200%**

*= only for specific models

22.0 ERROR SIGNALS

During wheel balancer operation, if wrong commands are given by the operator or device faults occur, an error code or symbol may appear on the display screen D1. Press key 

to return to the previous program phase after remedying the fault. Below is a troubleshooting chart.

Error code		Cause
E. 2 →	No rotation signal	May be due to faulty position transducer or transducer not fitted correctly. Or else the motor is faulty or has not started because something is preventing its rotation.
E. 3 →	Excessive weight value in wheel balancer calibration	During the calibration procedure, the machine detects excessive weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
E. 8 →	Insufficient weight value in wheel balancer calibration	During the calibration procedure, the machine detects insufficient weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
E. 9 →	Calibration spin not completed	During the calibration procedure, the spin is not completed because key  has been pressed.
E. 11 →	Diameter sensor calibration value out of range	During the diameter potentiometer calibration procedure, the machine detects an out-of-range value. The gauge may not have been positioned properly; the sensor data acquisition board may be faulty.
E. 12 →	Diameter Error	During the balancing operation, the gauge is not in idle position. Turn the machine off and on with the gauge in correct idle position. If the error persists, the diameter sensor or else the data acquisition board could be faulty.

23.0 ROUTINE MAINTENANCE

BEFORE CARRYING OUT ANY ROUTINE MAINTENANCE OR ADJUSTMENT PROCEDURE, POSITION THE MAIN SWITCH "0", DISCONNECT THE MACHINE FROM THE ELECTRICITY SUPPLY USING THE SOCKET/PLUG COMBINATION AND CHECK THAT ALL MOBILE PARTS ARE AT A STANDSTILL.

BEFORE EXECUTING ANY MAINTENANCE OPERATION, MAKE SURE THERE ARE NO WHEELS LOCKED ONTO THE MANDREL.

To guarantee the efficiency and correct functioning of the machine, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below.
Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below.

- Remove deposits of tyre powder and other waste materials with a vacuum cleaner.

DO NOT BLOW IT WITH COMPRESSED AIR.

- Do not use solvents to clean the pressure regulator.

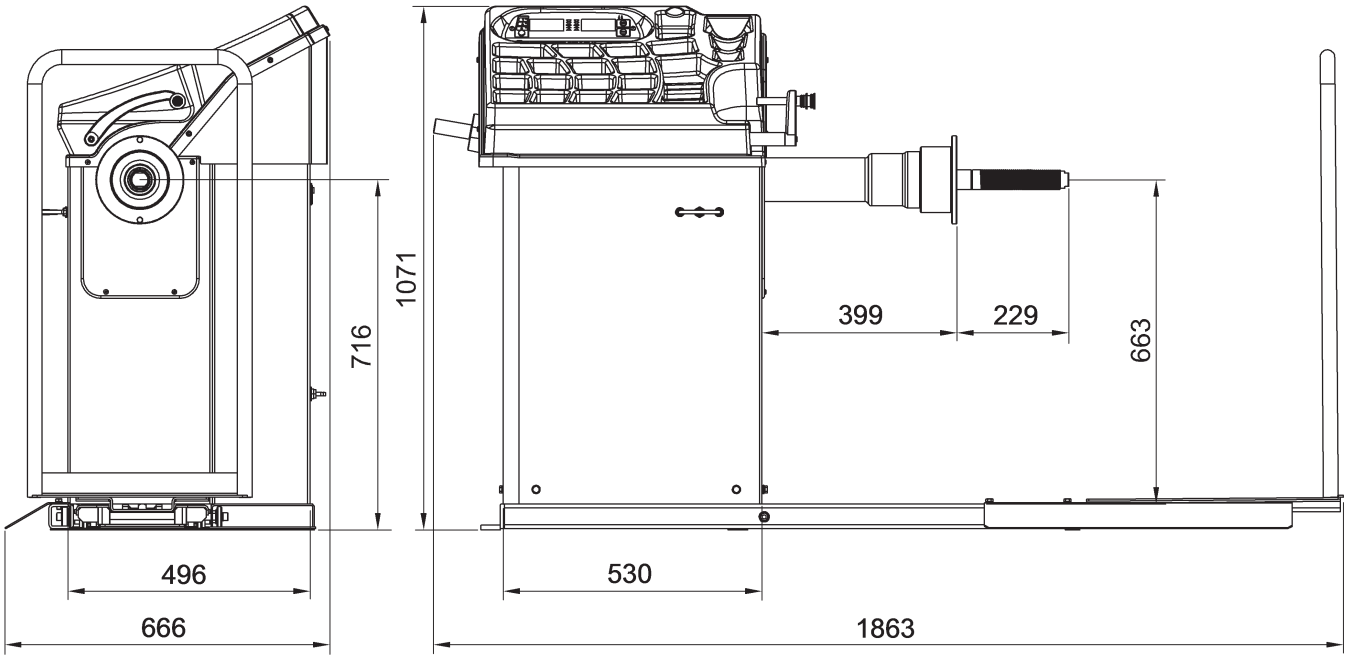
ANY DAMAGE TO THE MACHINE DEVICES RESULTING FROM THE USE OF LUBRICANTS OTHER THAN THOSE RECOMMENDED IN THIS MANUAL WILL RELEASE THE MANUFACTURER FROM ANY LIABILITY!!

24.0 TECHNICAL DATA

Wheel max. weight (Kg): **200**
Max. absorbed voltage (W):.....**250**
Power supply:.....**110V 60Hz 1 Ph**
Balancing precision (g):..... **± 5**
Balancing precision (oz): .....**± 0.25**
Balancing speed (rpm): ..... **<80**
Machine-rim
min/max distance (mm): .....**0÷400**
Rim width setting (inches):..... **15"÷22"**
Rim diameter (inches):.....
.....**10"÷26" (10"÷30" setting)**
Wheel max. diameter (mm): **1300**
Wheel max. width (mm): **700**
Sound emission level (dBA):..... **<70**
Weight (Kg): **165**
Air inlet (Bar): .....**4÷10**

24.1 Dimensions

Fig. 68



25.0 STORING

If storing for long periods disconnect the main power supply and take measures to protect the machine from dust build-up. Lubricate parts that could be damaged from drying out.

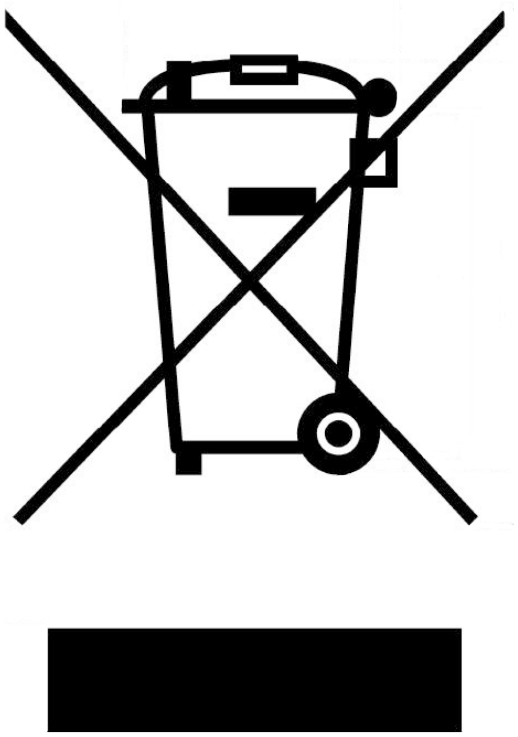
26.0 SCRAPPING

When the decision is taken not to make further use of the machine, it is advisable to make it inoperative by removing the connection pressure hoses. The machine is to be considered as special waste and should be dismantled into homogeneous parts. Dispose of it in accordance with current legislation.

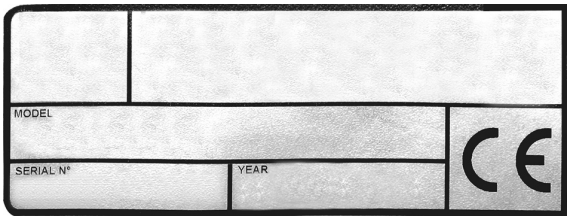
Instructions for the correct management of waste from electric and electronic equipment (WEEE) according to the Italian legislative decree 49/14 and subsequent amendments.

In order to inform the users on the correct way to dispose the product (as required by the article 26, paragraph 1 of the Italian legislative decree 49/14 and subsequent amendments), we communicate what follows: the meaning of the crossed dustbin symbol reported on the equipment indicates that the product must not be thrown among the undifferentiated rubbish (that is to say together with the "mixed urban waste"), but it has to be managed separately, to let the WEEE go through special operations for their reuse or treatment, in order to remove and dispose safely the waste that could be dangerous for the environment and to extract and recycle the raw materials to be reused.

Fig. 69



27.0 REGISTRATION PLATE DATA



The validity of the Conformity Declaration enclosed to this manual is also extended to products and/or devices the machine model object of the Conformity Declaration can be equipped with.

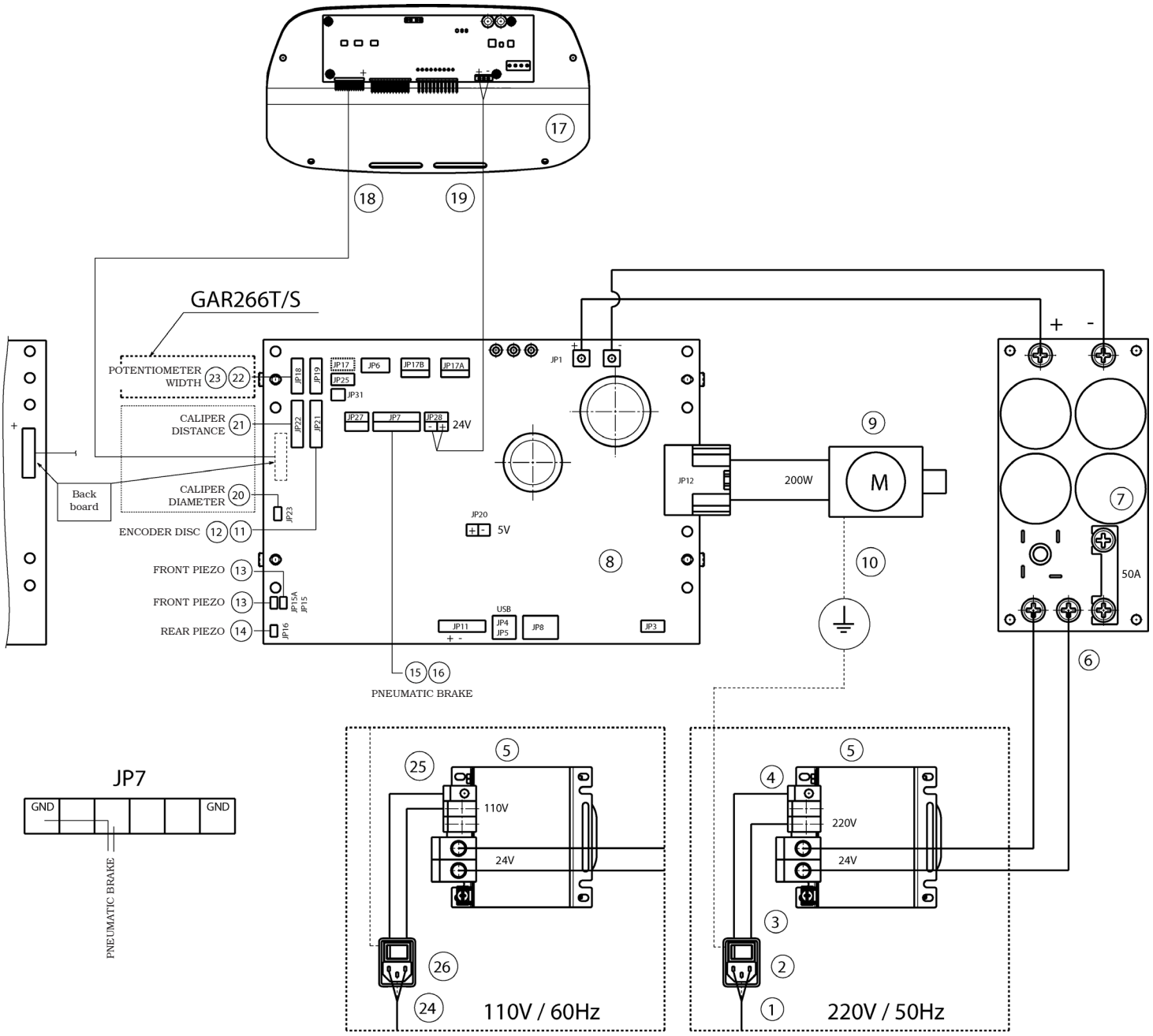
ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING MACHINE IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

Said plate must always be kept clean from grease residues or filth generally.

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

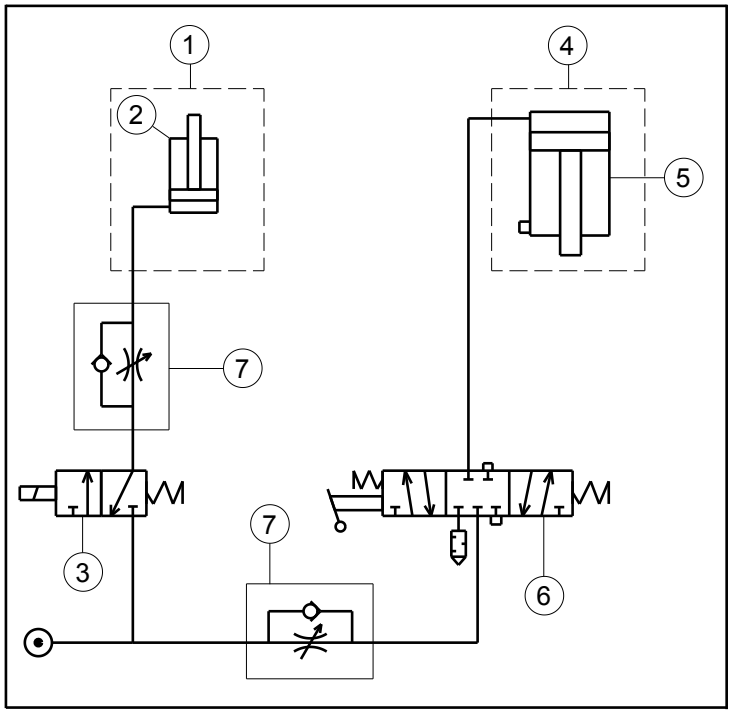
28.0 FUNCTIONAL DIAGRAMS

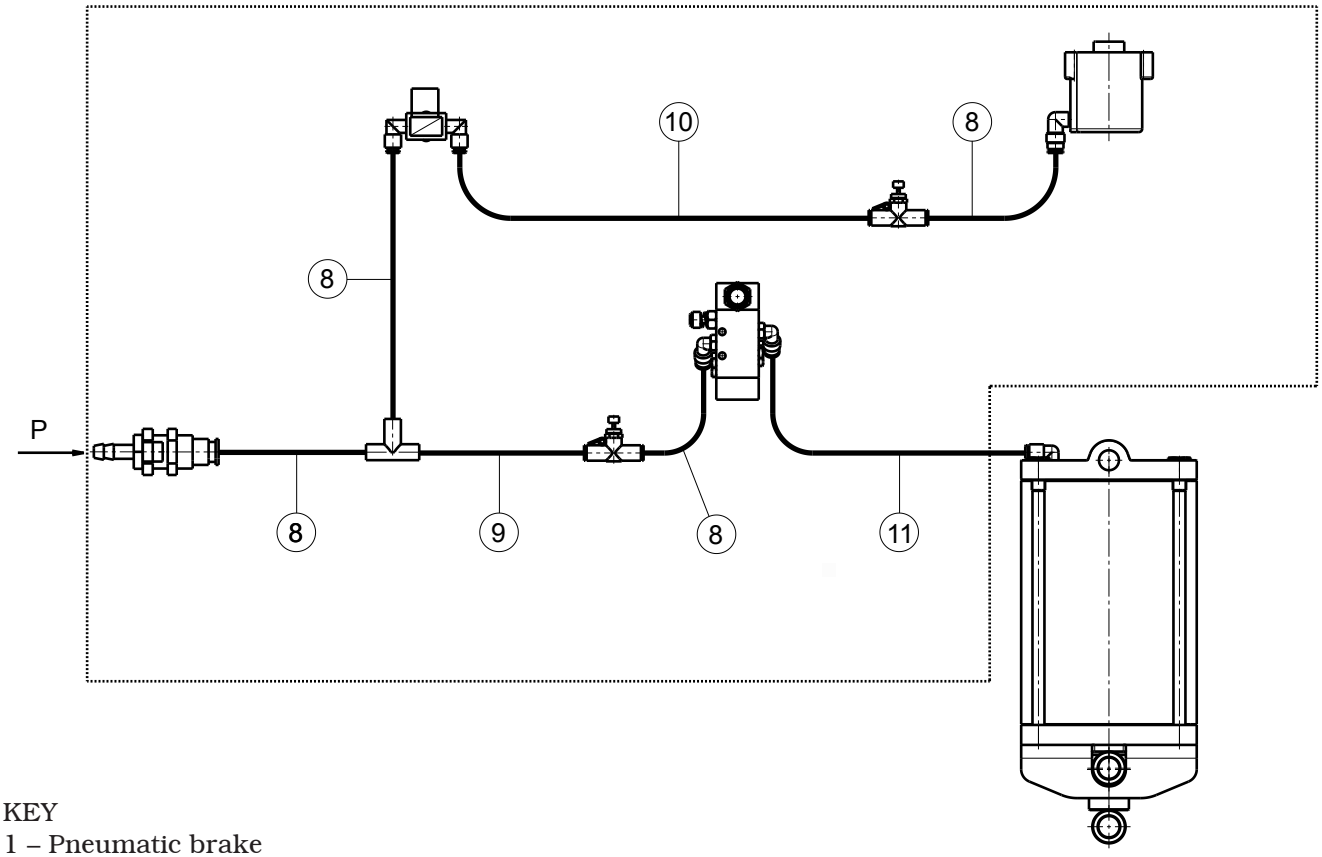
Here follows a list of the machine functional diagrams.



KEY

1 – Power supply cable
2 – Wired switch with plug
3 – Cable from switch to transformer
4 – Fuse
5 – Transformer
6 – Power card transformer cable
7 – Power card
8 – Power card kit
9 – Motor
10 – Motor support ground cable
11 – Wheel position sensor cable
12 – Encoder card
13 – Piezo with front cable
14 – Piezo with rear cable
15 – Cable for solenoid valve SV-B
16 – Solenoid valve mounting
17 – Kit for 6-DIGITS LED wheel balancer
18 – Short flat cable
19 – Display power supply cable
20 – Potentiometer with cable
21 – Buffered optical line card
22 – Width potentiometer extension cable
23 – Potentiometer with shielded cable
24 – Power supply cable USA plug
25 – Fuse
26 – Wired switch with plug UL/CSA





KEY
1 – Pneumatic brake
2 – Brake operating cylinder
3 – Pneumatic brake solenoid valve EV-B 3/2 NC
4 – Lifting device
5 – Lift operating cylinder
6 – Lever distributor 5/3 CC
7 – Unidirectional pneumatic reducer
8 – Rilsan Pipe 6x4 bl L=200
9 – Rilsan Pipe 6x4 bl L=350
10 – Rilsan Pipe 6x4 bl L=500
11 – Rilsan Pipe 6x4 bl L=700