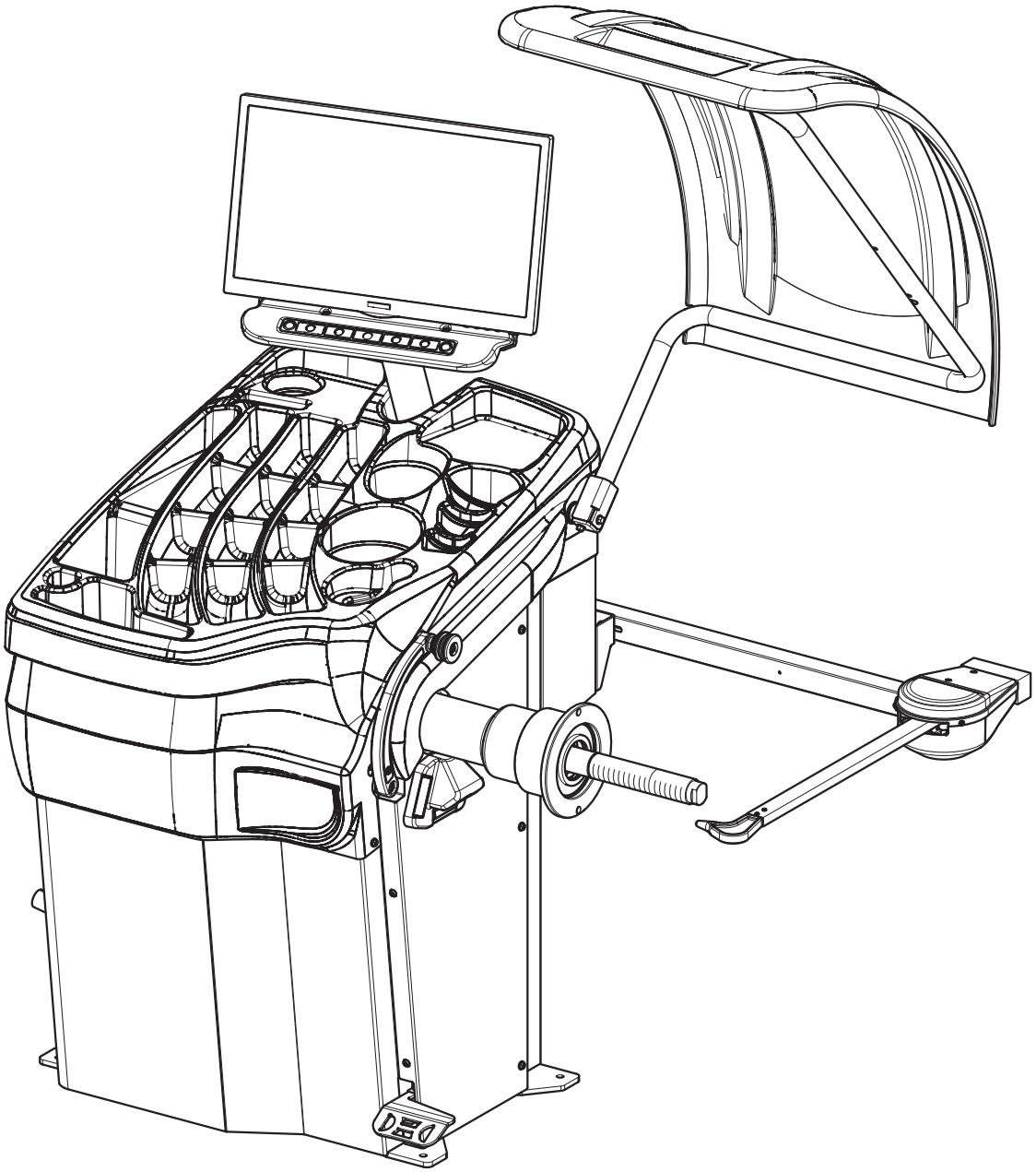
RWB160 Wheel Balancer



OPERATION & MAINTENANCE MANUAL

IMPORTANT **Any damage caused by failure to follow the instructions in this manual or improper machine use shall relieve the manufacturer of all liability.**

CO11631.1

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Rev. n. 00 (07/2021)

SUMMARY

GENERAL DESCRIPTION ____ 3

SYMBOLS USED IN THE MANUAL ____ 4

INFORMATION PLATE LOCATION DRAWING ____ 5

1.0 GENERAL INTRODUCTION ____ 7
1.1 Introduction ____ 7

2.0 INTENDED USE ____ 7
2.1 Training of personnel ____ 7

3.0 SAFETY DEVICES ____ 8
3.1 Residual risks ____ 8

4.0 IMPORTANT SAFETY INSTRUCTIONS ____ 9
4.1 GENERAL SAFETY RULES ____ 9

5.0 PACKING AND MOBILIZATION FOR TRANSPORT _ 10

6.0 UNPACKING ____ 11

7.0 MOBILIZATION ____ 11

8.0 WORKING ENVIRONMENT CONDITIONS ____ 12
8.1 Working area ____ 12
8.2 Lighting ____ 12

9.0 MACHINE ASSEMBLY ____ 13
9.1 Anchoring system ____ 13
9.2 Assembly procedures ____ 13
9.2.1 Fitting the chuck on the flange ____ 13
9.2.2 Monitor fitting ____ 14
9.2.3 Fitting of external data gage ____ 15
9.2.4 Fitting the protection guard ____ 16

10.0 ELECTRICAL CONNECTIONS ____ 16
10.1 Electrical checks ____ 17

11.0 FITTING THE WHEEL ON THE CHUCK ____ 17
11.1 Wheel assembly ____ 17

12.0 DISPLAY WITH KEYBOARD ____ 19

13.0 WHEEL BALANCING ____ 19
13.1 Switching the machine on and off ____ 19
13.2 Balancing programs setting ____ 20
13.2.1 Programs rapid setting and measurements through distance-diameter caliper arm ____ 21
13.2.2 Programs setting through "Measurements acquisition" screen page ____ 23
13.3 Indicative display of points where to detect measures/to fit weight ____ 24
13.3.1 Weights positioning ____ 25
13.4 Displaying the active/modifiable field ____ 25
13.5 Wheel balancing screen page description ____ 26
13.5.1 Balancing mode ____ 28
13.6 Use of machines with disabled automatic data gage _ 30
13.6.1 Manual setting of wheel dimensions ____ 31
13.7 Standard balancing programs ____ 31
13.7.1 Static ____ 31
13.7.2 Static-1 ____ 31
13.7.3 Static-2 ____ 32
13.7.4 Dynamic ____ 32
13.7.5 ALU-S ____ 32
13.7.6 ALU-S1 ____ 32
13.7.7 ALU-S2 ____ 33
13.7.8 ALU-1 ____ 33
13.7.9 ALU-2 ____ 33
13.7.10 ALU-3 ____ 33
13.7.11 ALU-4 ____ 34
13.8 Optional balancing programs ____ 34
13.8.1 SPLIT mode ____ 34
13.8.2 Weights hidden behind spokes mode ____ 36
13.8.3 Matching mode ____ 37
13.9 Special balancing programs ____ 40
13.9.1 Pax ____ 40
13.10 Recalculation function ____ 40
13.11 Wheel balancing in Motorcycle mode (with distance caliper extension Kit) ____ 41

14.0 USER MENU (OPTIONS AND CALIBRATION) ____ 41
14.1 Options menu ____ 42
14.1.1 Lower weight limit ____ 44
14.1.2 Setting adhesive weight dimensions and static threshold percentage ____ 44
14.1.3 User management ____ 45
14.2 Machine calibrations ____ 46
14.2.1 Chuck "0" (zero) calibration ____ 46
14.2.2 Weight measurement sensors calibration ____ 47
14.2.3 Gage calibration ____ 49

15.0 ERROR SIGNALS ____ 53

16.0 ROUTINE MAINTENANCE ____ 54

17.0 TECHNICAL DATA ____ 55
17.1 Technical electrical data ____ 55
17.2 Technical mechanical data ____ 55
17.3 Dimensions ____ 56

18.0 STORING ____ 57

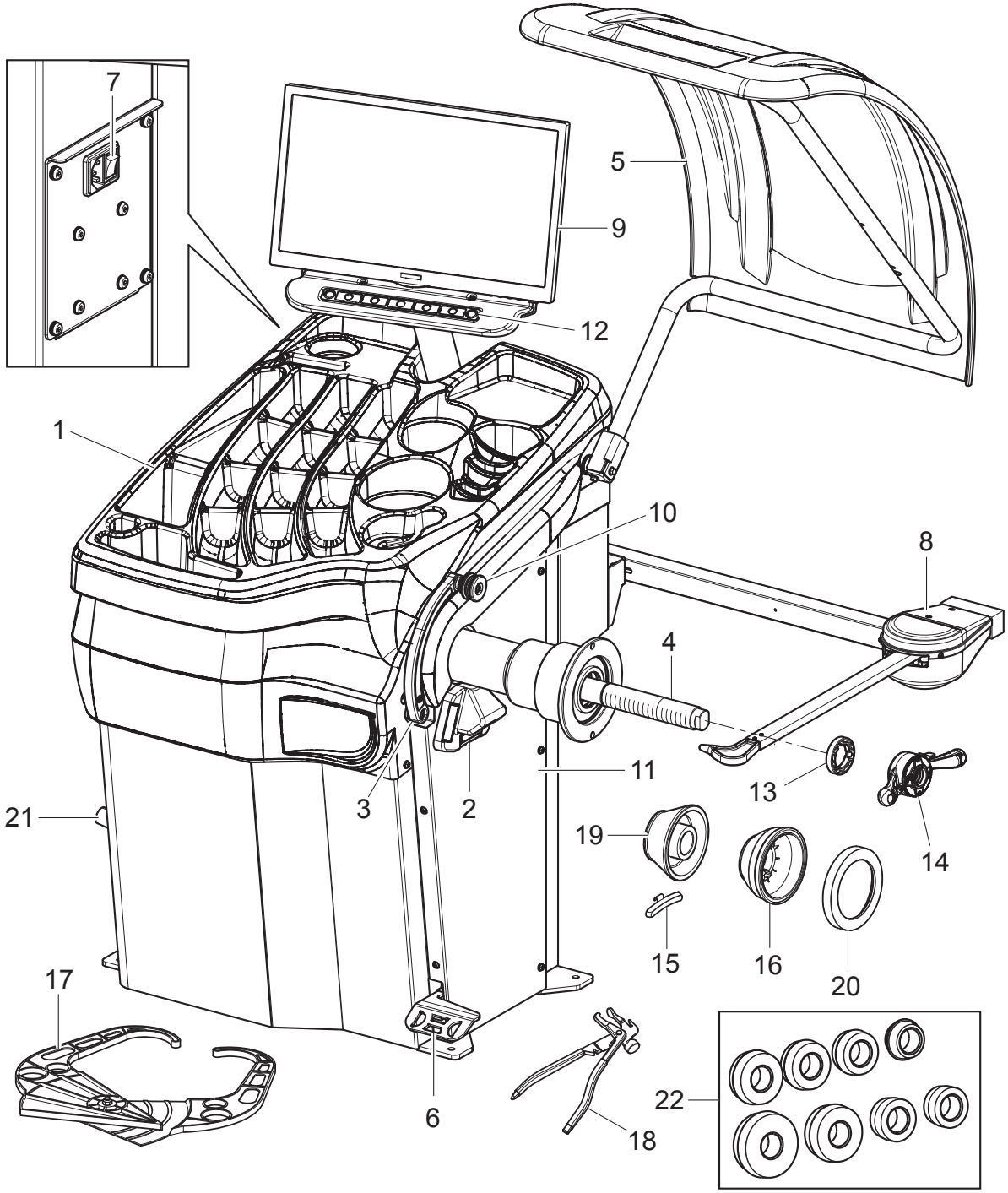
19.0 SCRAPPING ____ 57

20.0 REGISTRATION PLATE DATA ____ 57

21.0 FUNCTIONAL DIAGRAMS ____ 57
Drawing A - Wiring diagram ____ 58
Drawing B - Electronic boards disposition ____ 60

GENERAL DESCRIPTION

Fig. 1



KEY

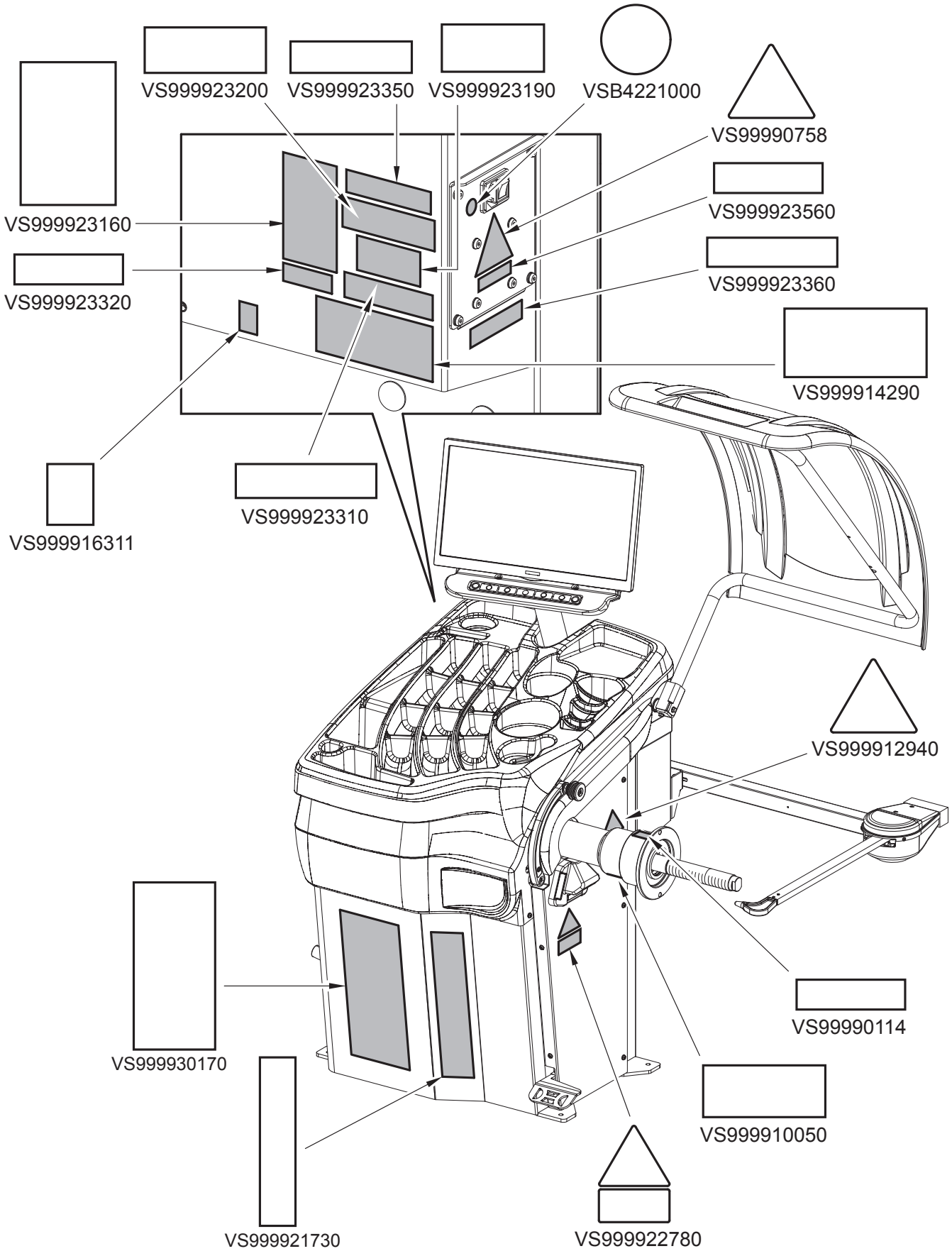
1 – Weight holding bridge
2 – Laser at “6 o'clock” unit + led light
3 – Distance-diameter caliper
4 – Threaded chuck
5 – Protection guard
6 – Pedal brake
7 – Main switch
8 – External data gage
9 – Monitor
10 – Gripper for weight fitting
11 – Lateral guard
12 – 7-keys keyboard
13 – Pressure ring
14 – Car ring nut
15 – Carriages counterweight
16 – Protection cap
17 – Manual caliper
18 – Weight pliers
19 – Off-road vehicle cone D.88 - 132
20 – Casing for cup protection
21 – Cones support panel
22 – Wheels adapter Kit

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.
	Danger! Be particularly careful.

Symbols	Description
	Warning. Be particularly careful (possible material damages).
	Move with fork lift truck or pallet truck.
	Lift from above.
	Note. Indication and/or useful information.
	Attention: never lift the machine by means of the chuck.
	Danger! Laser presence.

INFORMATION PLATE LOCATION DRAWING



Code numbers of plates	
VSB4221000	Grounding plate
VS99990114	Arrow plate
VS99990758	Electricity danger plate
VS999910050	Protection device use plate
VS999912940	Lifting plate
VS999914290	Serial number plate
VS999916311	Rubbish skip plate
VS999921730	Rotary plate
VS999922780	Laser aperture plate
VS999923160	Prop 65 Attention plate
VS999923190	Laser classification class 1 plate
VS999923200	Laser certification plate
VS999923310	Fuse-type-rating car plate
VS999923320	Replace fuse plate
VS999923350	For indoor use plate only
VS999923360	Disconnect power supply plate
VS999923560	1Ph 110V 10A 60Hz plate
VS999930170	Rotary 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 purchasing 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 car and light transport, 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 ENOUGH PREVENTIVE PREPARATION.

3.0 SAFETY DEVICES

DAILY CHECK THE INTEGRITY AND THE FUNCTIONALITY OF THE SAFETY AND PROTECTION DEVICES ON THE MACHINE.

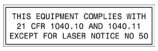
- Main switch positioned on the rear of the machine
  Its function is to disconnect machine electric supply.
- Protection guard
  Its function is to protect the operator from possible projections of materials on the wheel during its spin.
  Wheel spinning is normally prevented if the wheel protection guard is raised (open). When the protection guard is open, this interrupts the circuit that triggers the motor and automatic start is prevented, including in the case of an error.
  Press 

  stop key to stop wheel rotation in emergency conditions.
- Laser safety
  This is a Class I/1 laser product (with Class II/2 embedded). During normal operation it does not permit human access to laser radiation in excess of Class I/1. This product complies with 21CFR1040.10/.11 and IEC EN60825. The system is fully interlocked to prevent accidental access to laser radiation. Any attempt to defeat the safety interlock elements of this product is a violation of Safety Standards which this product complies with, and the protection provided by the product may be impaired.

USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.

APERTURE
Side of product nearest port (see “Plates location Drawing”).

CLASSIFICATION
Rear of product
(see “Plates location Drawing”).

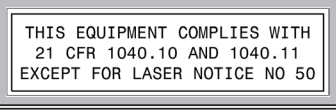


CERTIFICATION
Rear of product
(see “Plates location Drawing”).

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 DRAWING” at page 5.

THIS DEVICE IS EQUIPPED WITH A LASER, A TOOL THAT USES LASER BEAMS, PROPERLY INTERFACED WITH THE SOFTWARE THE DEVICE IS EQUIPPED WITH. IT ENSURES PRECISION MEASUREMENTS AND INDICATIONS OF THE SHAPE AND SIZE OF THE WHEEL RIM.
THIS DEVICE IS EQUIPPED WITH A CLASS 1 LASER PRODUCT.
WARNING AND INFORMATION PLATES HAVE BEEN APPLIED OUTSIDE THE DEVICE (AS ILLUSTRATED BELOW), IN ORDER TO INDICATE THE PRESENCE AND EMPLOYMENT OF LASER MEASURING INSTRUMENTS.
DO NOT STARE THE LASER BEAM DIRECTLY AT CLOSE RANGE WHILE THE EQUIPMENT IS OPERATING.



4.0 IMPORTANT SAFETY INSTRUCTIONS

When using your garage equipment, basic safety precautions should always be followed, including the following:

1. Read all instructions.
2. Care must be taken as burns can occur from touching hot parts.
3. Do not operate equipment with a damaged cord or if the equipment has been dropped or damaged – until it has been examined by a qualified service person.
4. Do not let a cord hang over the edge of the table, bench, or counter or come in contact with hot manifolds or moving fan blades.
5. If an extension cord is necessary, a cord with a current rating equal to or more than that of the equipment should be used. Cords rated for less current than the equipment may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.
6. Always unplug equipment from electrical outlet when not in use. Never use the cord to pull the plug from the outlet. Grasp plug and pull to disconnect.
7. Let equipment cool completely before putting away. Loop cord loosely around equipment when storing.
8. To reduce the risk of fire, do not operate equipment in the vicinity of open containers of flammable liquids (gasoline).
9. Adequate ventilation should be provided when working on operating internal combustion engines.
10. Keep hair, loose clothing, fingers, and all parts of body away from moving parts.
11. To reduce the risk of electric shock, do not use on wet surfaces or expose to rain.
12. Use only as described in this manual. Use only manufacturer's recommended attachments.
13. ALWAYS WEAR SAFETY GLASSES. Everyday eyeglasses only have impact resistant lenses, they are not safety glasses.

SAVE THESE INSTRUCTIONS

4.1 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 OSHA safety standards.
- 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.

- The installation must be performed by qualified and authorized personnel in full compliance with the instructions given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it missfunctions and contact the customer 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 power 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 tire. 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.

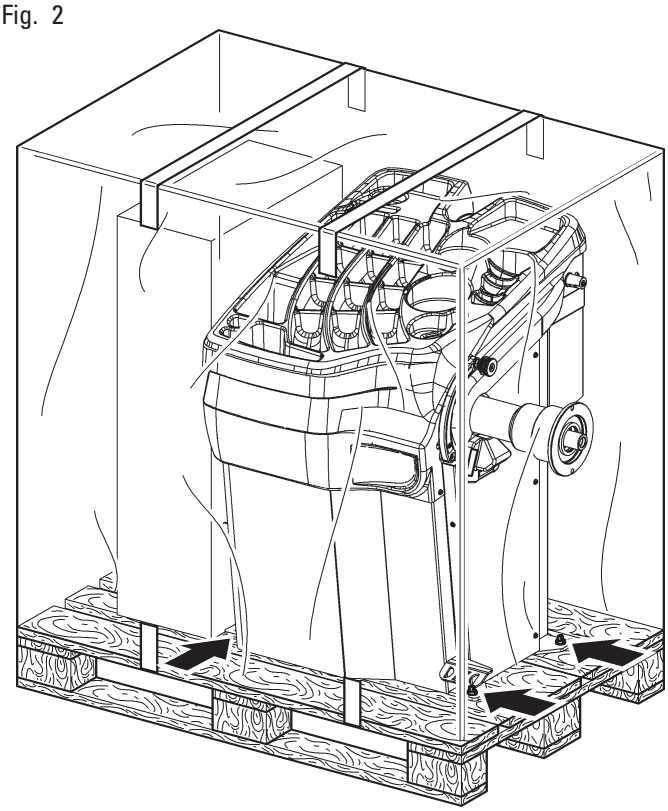
WHEN USING THE MODELS WITH WHEEL PNEUMATIC CLAMPING, DURING CHUCK OPENING/CLOSING OPERATIONS, BE EXTREMELY CAREFUL AND KEEP YOUR HANDS OR OTHER PARTS OF YOUR BODY AWAY FROM THE MOVING CHUCK.

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, bolts, 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 CHUCK.

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 power 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

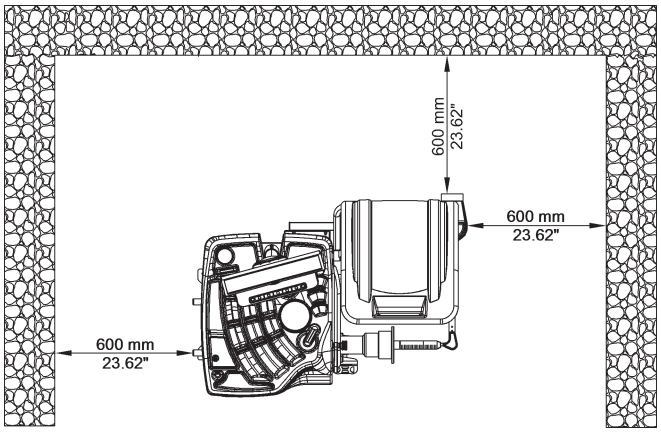
The machine must be operated under proper conditions as follows:

- temperature: 0° + 55° C (32°F ÷ 131°F)
- relative humidity: 30 - 95% (dew-free)
- atmospheric pressure: 860 - 1060 hPa (mbar) (12.5 ÷ 15.4 psi).

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 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 secured 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\m² (102 lb/ft²).

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.

EACH TIME THE ROD OF THE GAGE IS EXTRACTED FROM ITS HOUSING, THE LED LIGHT (FIG. 1 REF. 2) TURNS ON MAKING THE INSIDE OF THE WHEEL WHERE THE OPERATOR MUST WORK BRIGHTER.

9.0 MACHINE ASSEMBLY

EACH MECHANICAL INTERVENTION MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

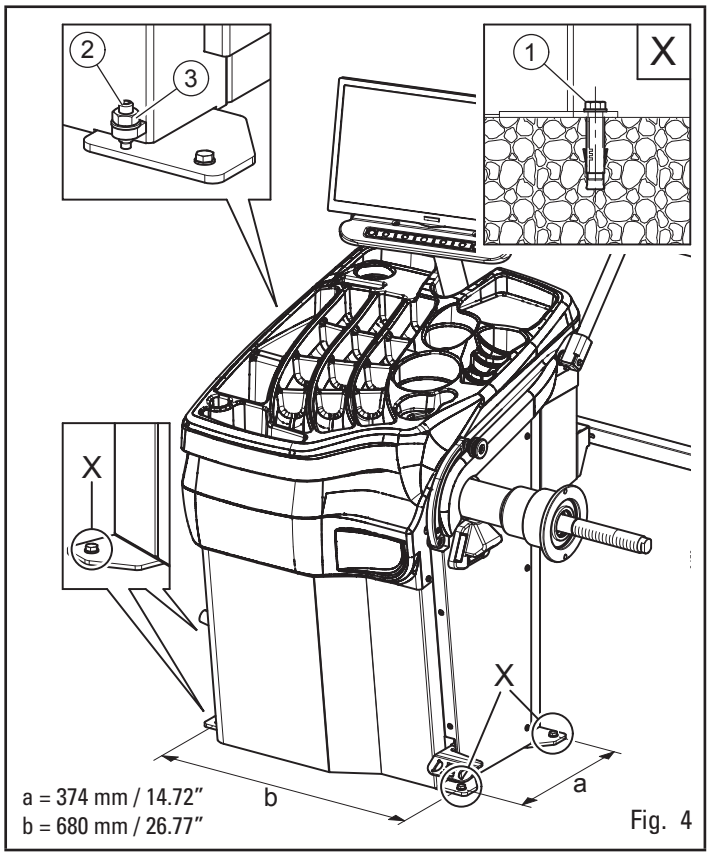
After having freed the various components from the packing check that they are complete, and that there are no anomalies, then comply with the following instructions for the assembly of the components making use of the attached series of illustrations.

9.1 Anchoring system

The packaged machine is fixed to the support surface by means of the pre-drilled holes on the frame. Such holes can also be used to secure the machine to the ground by means of floor anchors (not provided). Before carrying out the final fixing, check that all anchor points are correct in contact with the fixing surface itself, using the appropriate levelling bolt (Fig. 4 ref. 2), as indicated in Fig. 4. Once you are sure the balancer is flat, hold the bolt (Fig. 4 ref. 2) with the appropriate wrench and tighten the nut (Fig. 4 ref. 3)

TO SCREW/UNSCREW THE BOLT POS. 2, USE A 5 MM ALLEN WRENCH. TO TIGHTEN/LOOSEN THE NUT POS. 3, USE A 17 MM OPEN WRENCH.

IN CASE OF WHEEL WEIGHING MORE THAN 30 KG (67 LBS), IT IS COMPULSORY TO SECURE TO THE GROUND BY MEANS OF SCREW ANCHORS.



a = 374 mm / 14.72”
b = 680 mm / 26.77”

Fig. 4

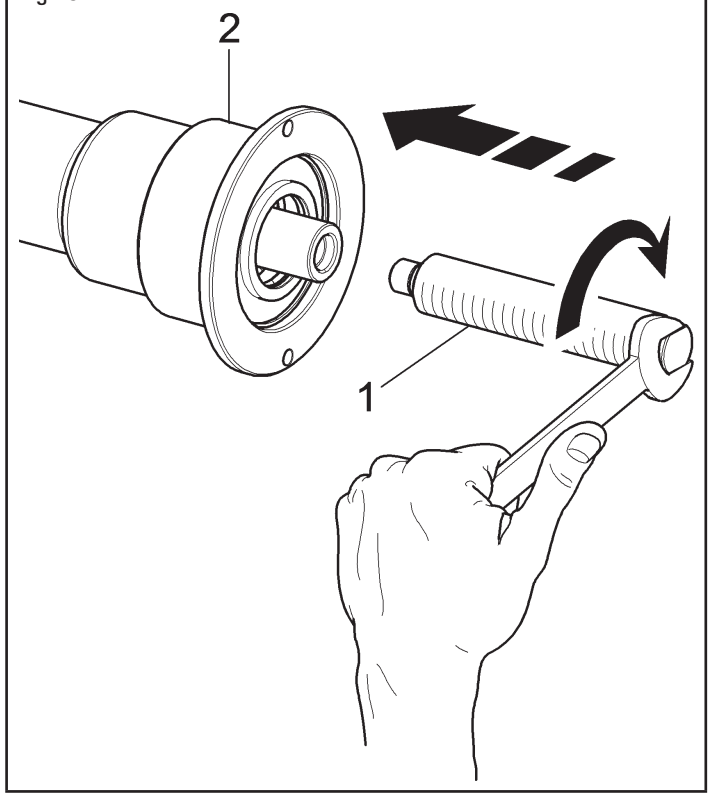
- Execute 4 holes with 10 mm (0.39”) diameter on the floor by the holes on the bottom floor;
- insert the small blocks (excluded from supply) into the holes;
- secure the machine to the ground with 4 M8x80 mm bolts (excluded from supply) (Fig. 4 ref. 1) (or with 4 8x80 mm stud bolts (excluded from supply)). Tighten the bolts with an approximate tightening torque of 70 Nm (52 ft·lbs).

9.2 Assembly procedures

9.2.1 Fitting the chuck on the flange

Screw the chuck with a 27 mm open wrench (Fig. 5 ref. 1) on the flange (Fig. 5 ref. 2).

Fig. 5

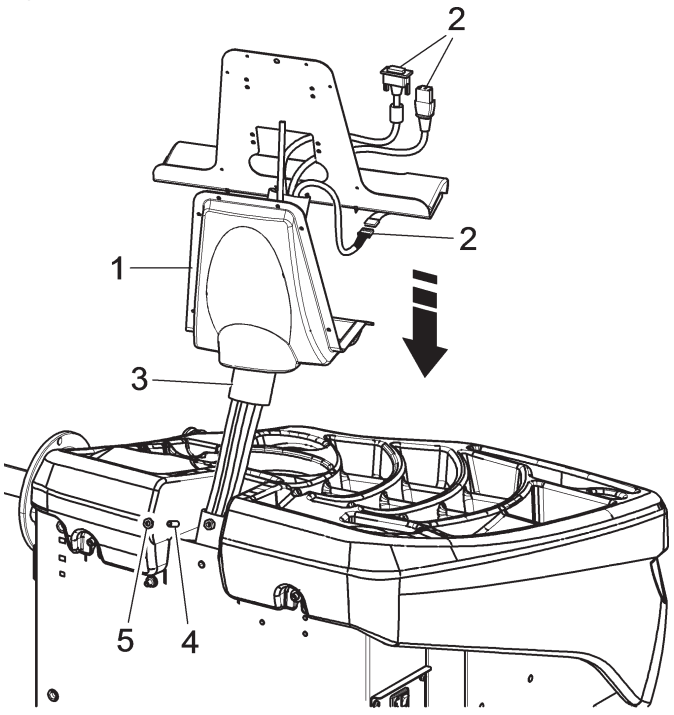


9.2.2 Monitor fitting

1. Place the monitor with its stand in the immediate vicinity of the mounting location. Support the guard (Fig. 6 ref. 1), as shown in the figure, and insert the monitor and keyboard cables (Fig. 6 ref. 2) through the support pipe (Fig. 6 ref. 3).
2. Mount the support (Fig. 6 ref. 3), complete with casing (Fig. 6 ref. 1), in the provided seat. Block the support with the dowel (Fig. 6 ref. 4) and the nut (Fig. 6 ref. 5), supplied.

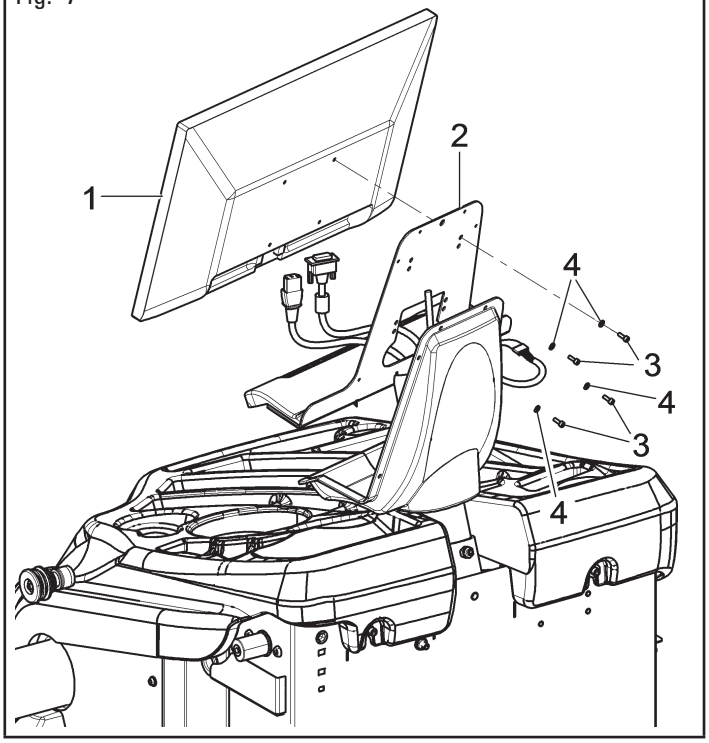
DURING THIS OPERATION, PAY PARTICULAR ATTENTION TO THE POWER SUPPLY CABLE, TO THE VGA CABLE AND TO THE KEYBOARD CABLES (FIG. 6 REF. 2) IN ORDER NOT TO DAMAGE THEM.
MAKE SURE THEY HAVE BEEN INTRODUCED IN THE SUPPORT PIPE, AS SHOWN IN FIG. 6.

Fig. 6



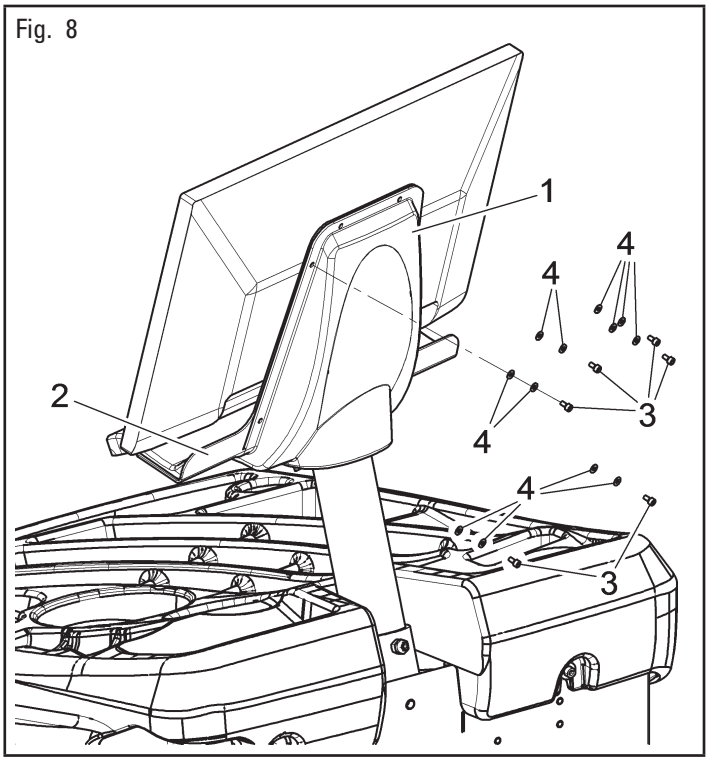
3. Secure the monitor (Fig. 7 ref. 1) to the support (Fig. 7 ref. 2) with the bolts (Fig. 7 ref. 3) and the washers (Fig. 7 ref. 4) supplied.
4. Connect the plugs on the power supply sockets and monitor signal. Connect the wiring of the keyboard.

Fig. 7



5. Secure the guard (Fig. 8 ref. 1) to the support (Fig. 8 ref. 2) with the bolts (Fig. 8 ref. 3) and the washers (Fig. 8 ref. 4) supplied.

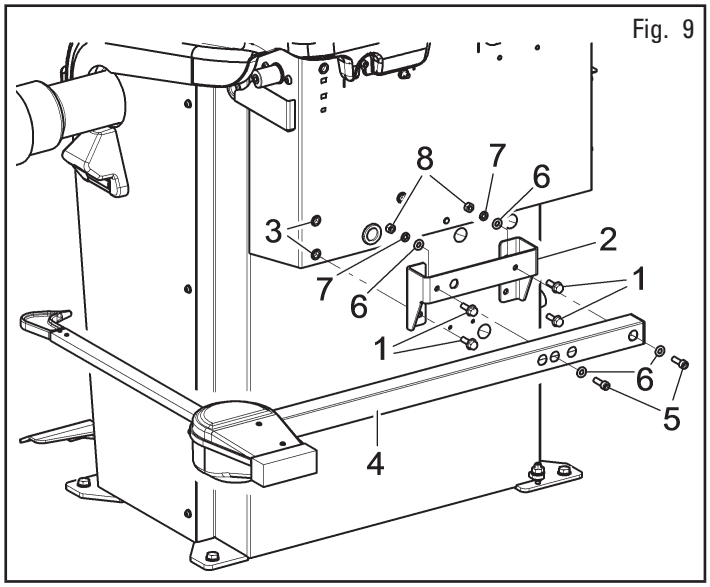
Fig. 8



9.2.3 Fitting of external data gage

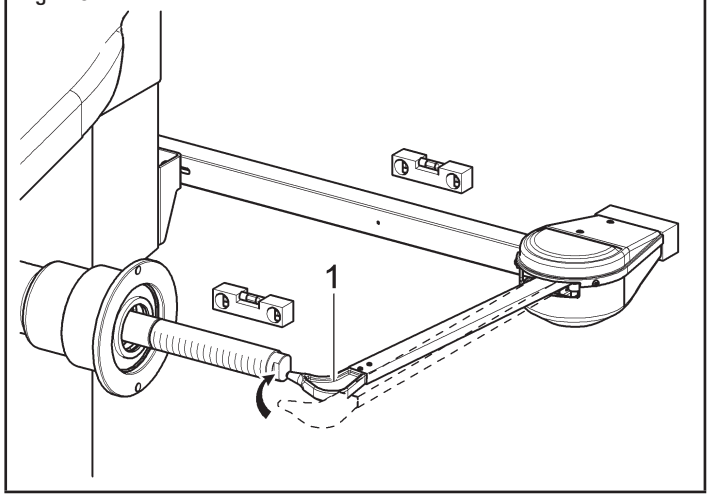
1. Screw the 4 bolts (Fig. 9 ref. 1) to the gage bracket (Fig. 9 ref. 2) and threaded rivets (Fig. 9 ref. 3) placed on the rear side of the frame.
   Secure the gage arm (Fig. 9 ref. 4) to the bracket (Fig. 9 ref. 2) screwing the 2 bolts provided (Fig. 9 ref. 5) and the washers (Fig. 9 ref. 6). Secure these bolts with the washers (Fig. 9 ref. 6), with the elastic washers (Fig. 9 ref. 7) and the nuts (Fig. 9 ref. 8) so that the chuck and the gage arm are levelled out (see Fig. 10).

Fig. 9



2. At the end of the assembly, manually make sure that the tip of the gage (Fig. 10 ref. 1) is able to touch the chuck head.

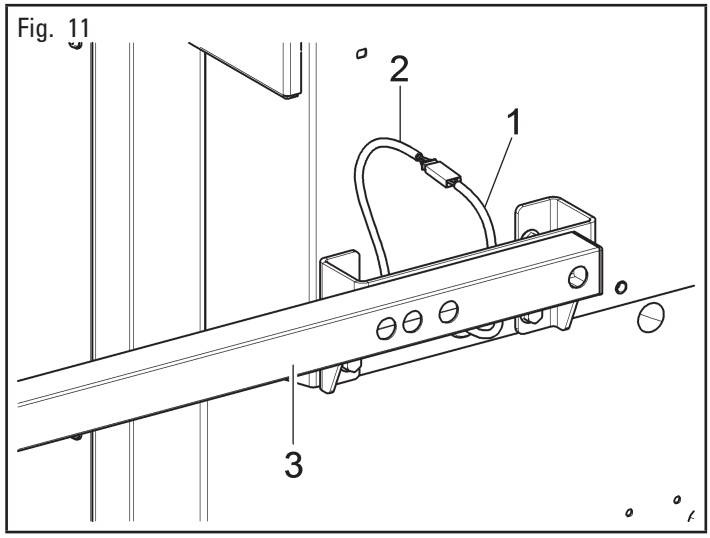
Fig. 10



IF THE ARM TIP DOES NOT TOUCH THE SHAFT END, THE GAGE NEEDS TO BE REPLACED. PLEASE CONTACT CUSTOMER SERVICE, PHONE NUMBER LOCATED IN THE BACK OF THIS MANUAL.

3. Connect connector (Fig. 11 ref. 1) of the cable coming from inside the machine to connector (Fig. 11 ref. 2) of the cable coming from the gage arm. Fit the section of the cable with the connectors inside the arm (Fig. 11 ref. 3).
4. Fasten the cable with clamps.
5. Enable the external data gage and carry out the device's calibration.

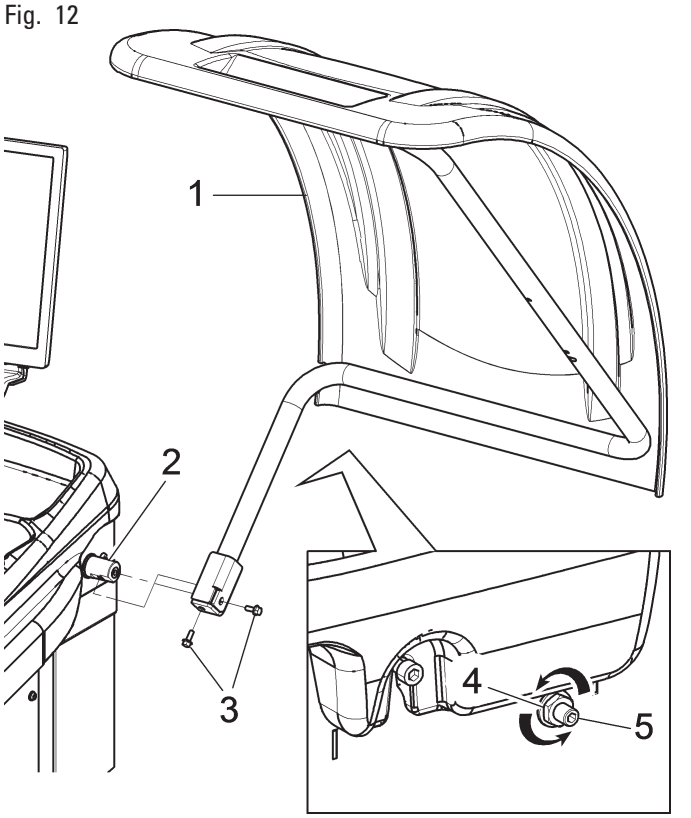
Fig. 11



9.2.4 Fitting the protection guard

1. Mount the protection guard (Fig. 12 ref. 1) to the support (Fig. 12 ref. 2) using the bolts (Fig. 12 ref. 3).
2. Adjust the casing movement by loosening the nut (Fig. 12 ref. 4) and screwing (rotation braking increase) or unscrewing (rotation braking decrease) the dowel (Fig. 12 ref. 5).

Fig. 12



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:

- POWER LINE SPECIFICATIONS CORRESPOND TO MACHINE REQUIREMENTS 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 (110 V 1-phase).
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.

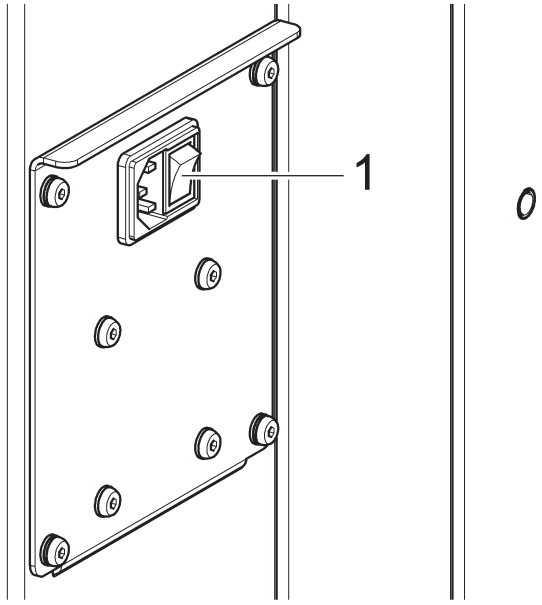
10.1 Electrical checks

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 main switch (Fig. 13 ref. 1).

Fig. 13



11.0 FITTING THE WHEEL ON THE CHUCK

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

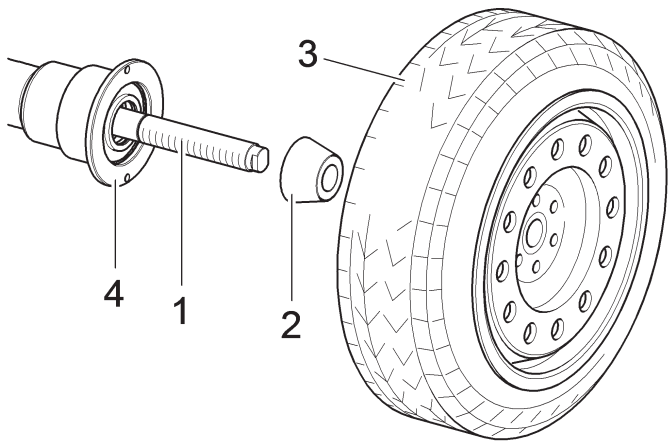
WHAT IS MOST IMPORTANT IS THAT ORIGINAL CONES AND ACCESSORIES, SPECIALLY DESIGNED TO BE EMPLOYED WITH THE WHEEL BALANCERS, ARE USED.

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

11.1 Wheel assembly

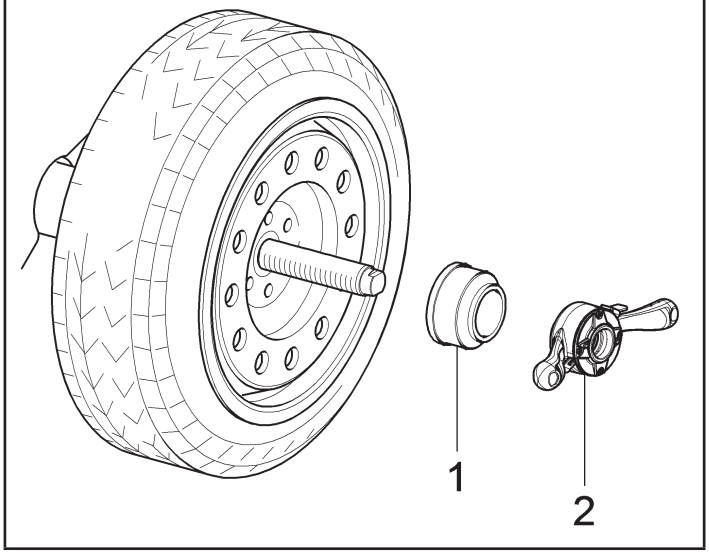
1. Remove any type of foreign body from the wheel (Fig. 14 ref. 3): pre-existing weights, stones and mud, and make sure the chuck (Fig. 14 ref. 1) and the rim centring area are clean before fitting the wheel on the chuck.
2. Carefully choose the cone (Fig. 14 ref. 2) most suitable for the wheel to be balanced. These accessories must be selected according to the shape of the rim. Position the wheel (Fig. 14 ref. 3), fitting the cone (Fig. 14 ref. 2) on the chuck (Fig. 14 ref. 1): be careful (otherwise this could seize) until this rests against the support flange (Fig. 14 ref. 4).
3. Fit the wheel with the inner side of the rim towards the wheel balancer and against the cone.

Fig. 14



4. Fit the protection cap (Fig. 15 ref. 1) in the locknut (Fig. 15 ref. 2) and fasten against the wheel.

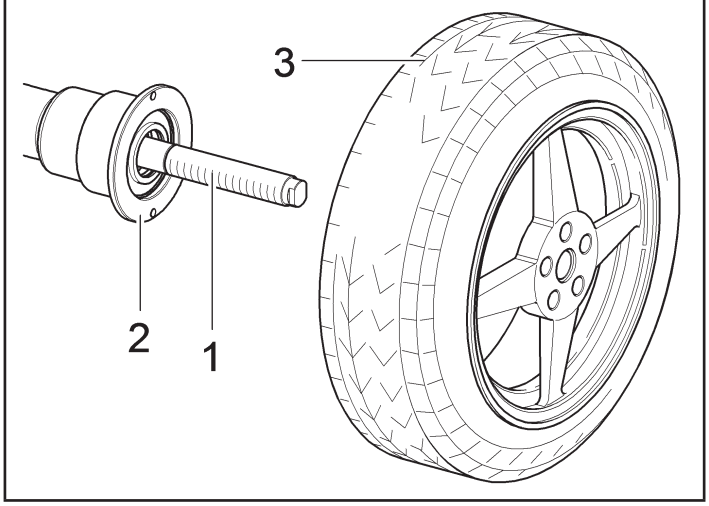
Fig. 15



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

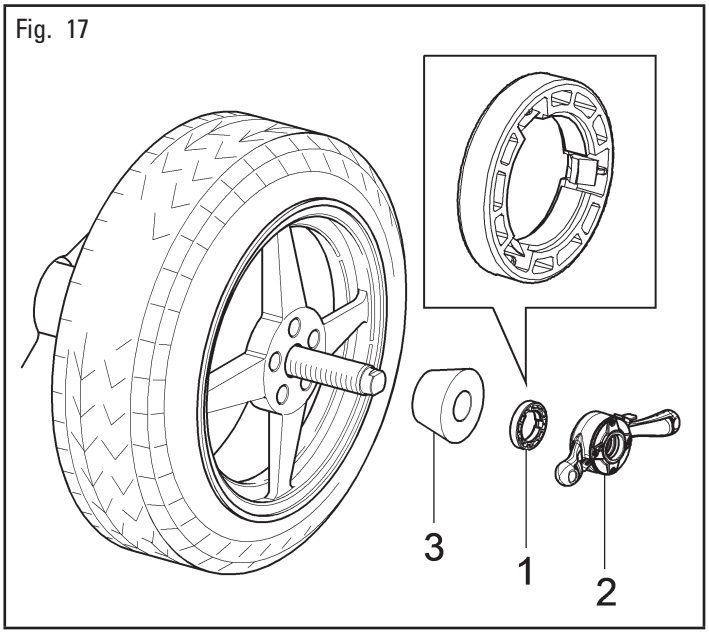
5. Clean the chuck (Fig. 16 ref. 1) before fitting the wheel.
6. Fit the wheel (Fig. 16 ref. 3) with the inside of the rim towards the wheel balancer, until the wheel is up against the support flange (Fig. 16 ref. 2).

Fig. 16



7. Fit the cone (Fig. 17 ref. 3) with the narrowest part turned towards the wheel.
8. Fit the pressure ring (Fig. 17 ref. 1) in the nut (Fig. 17 ref. 2) and fasten the cone (Fig. 17 ref. 3).

Fig. 17

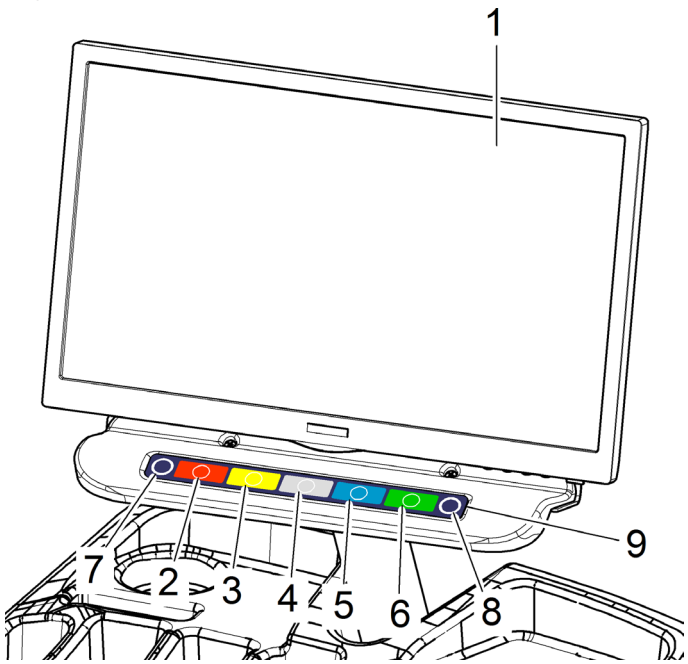


THE PRESSURE RING (FIG. 17 REF. 1) MUST BE , MOUNTED WITH THE TEETH , OR DISCHARGE SIDE TOWARDS THE RING-NUT (FIG. 17 REF. 2).

12.0 DISPLAY WITH KEYBOARD

The wheel balancers are equipped with a control panel equipped with a keyboard to interact/operate the controls presented in graphical form on the monitor.
On the monitor are displayed all the instructions for the correct wheel balancing, for example 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. 18



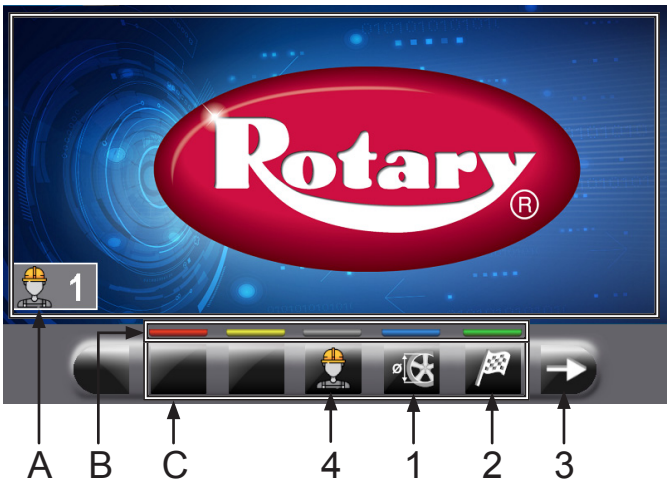
KEY
1 – Monitor
2 – Function push button (red)
3 – Function push button (yellow)
4 – Function push button (grey)
5 – Function push button (blue)
6 – Function push button (green)
7 – Previous page push button
8 – Next page/print push button
9 – Push button panel (keyboard with 7 keys)

13.0 WHEEL BALANCING

13.1 Switching the machine on and off

Press the "ON" main switch (Fig. 13 ref. 1), located in the rear part of the equipment.
Wait a few seconds until the complete loading of the operational program. The equipment is ready to operate when the main screen "Home" appears on the monitor.

Fig. 19

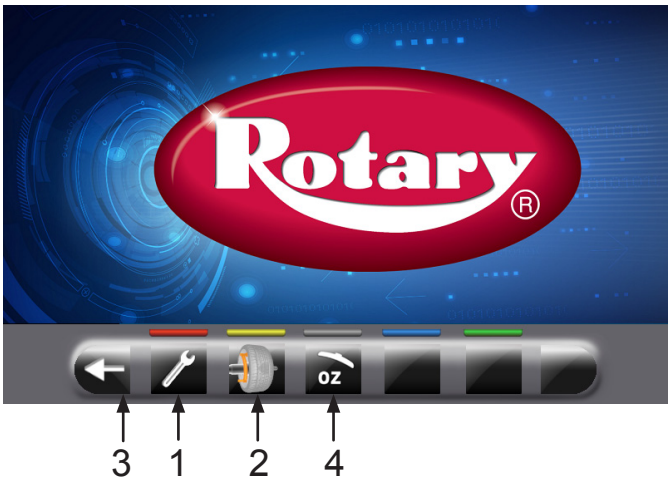


KEY
A – Displaying operations/information area
B – Colors for identification of the buttons to be used
C – Function icons
1 – Programs and measurements acquisition buttons
2 – Wheel spin push button
3 – Go to next page
4 – User management (if enabled) (user management is not enabled on machine delivery)

At the bottom of the main screen page and of each screen page described below, there will be colored rectangles (Fig. 19 ref. B) located above function identification icons (Fig. 19 ref. C). These functions are activated by pressing the appropriate colored button on the push-button panel (Fig. 18 ref. 9).

Press the button (Fig. 19 ref. 3) to display a second page where you can access “Technical assistance” and “Run-out” Menu (see Fig. 20).

Fig. 20



KEY
1 – User menu
2 – Run-out menu (visible only if active)
3 – Return to previous page
4 – Measurement unit setting.

The machine is supplied with “ounces” option oz enabled (see Chap. 14.0), so weights will be displayed only in ounces and the icon shown in the figure will be displayed on button 4. In order to modify the measurement unit carry out the following procedure: if “grams” option g is activated from user menu (see Chap. 14.0), “grams” weight displaying mode is set, and push button g→oz will be displayed. Press the button g→oz to set machine weight display in ounces and on the screen will be displayed icon oz→g. Press the button oz→g to set machine weight display in grams and on the screen will be displayed icon g→oz.

In order to turn off the machine, simply press the "OFF" main switch (Fig. 13 ref. 1).

WHEN THE EQUIPMENT IS TURNED OFF LOSES ALL THE MEASUREMENTS AND THE STORED DATA (SIZE, SPINS, USERS, ETC ...). AT RE-STARTING, PRESSING THE BUTTON (IN THE CASE HAVE NOT YET BEEN STORED ON THE NEW MEASURES AFTER THE SWITCHING ON), THE MACHINE DOES NOT PERFORM ANY OPERATION.

13.2 Balancing programs setting

The setting of the balancing programs can be performed in two ways:
- through the gage arm (rapid setting);
- through “Measurement being acquired” screen, appearing when the ø button is pressed (Fig. 19 ref. 1).

The setting modes are completely different even if they allow to reach the same result (but with different times).

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

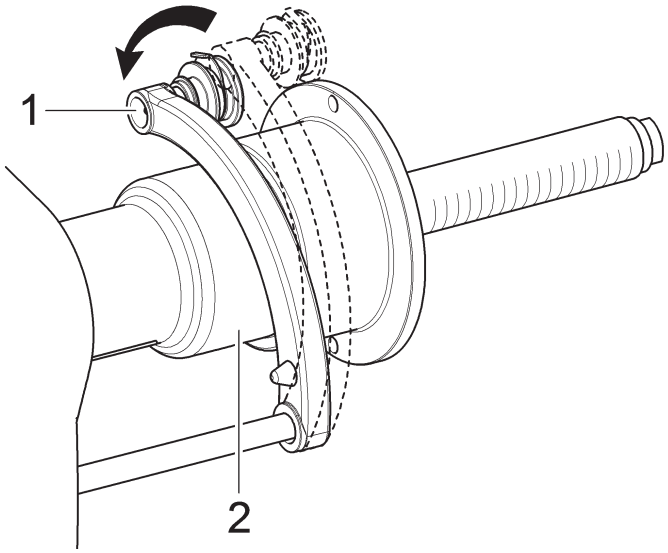
The use of the distance-diameter caliper arm allows the rapid automatic wheel balancing program and the measures entry. From page “Home”:

- 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 GAGE ARM (FIG. 22 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 22 REF. 2), THE PROGRAM WILL CYCLE FROM "STATIC" TO "STATIC 1" TO "STATIC 2" RETURNING THEN AT THE BEGINNING.

Fig. 22

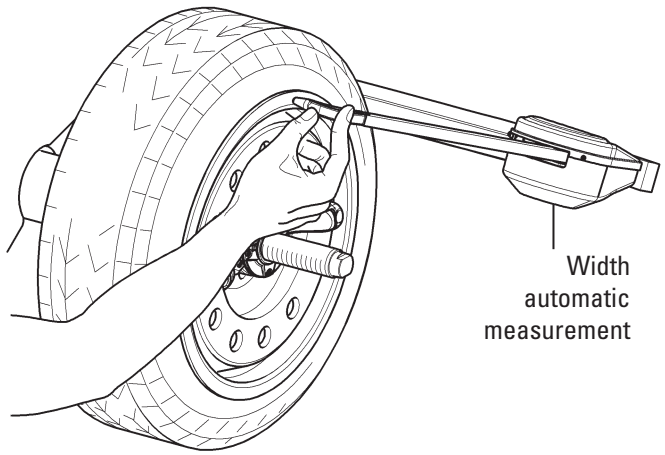


- bring into contact the weights fitting gripper with the inner part of the rim (2 contact points) (see Fig. 21) to select “ALU-S” program.

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

WHENEVER THE DISTANCE-DIAMETER CALIPER AND/OR THE EXTERNAL DATA GAGE (SEE FIG. 23) IS KEPT IN POSITION FOR A FEW SECONDS AGAINST THE RIM (UNTIL THE MACHINE MAKES AN APPROPRIATE SOUND NOTIFICATION), THE POSITION IS STORED AND THE VALUES MEASURED IN THE PRE-ARRANGED FIELDS IN THE SELECTED WHEEL BALANCING PROGRAM ARE LOADED.

Fig. 23



- After entering all the required measures, you can spin the wheel by pressing the button  and closing the protective guard.

- Measuring procedure of electronic RUN-OUT with the distance-diameter caliper arm.
  The electronic RUN-OUT measuring device is useful to check if the rim has some imperfections.
  To access the screen to choose the rim control mode, proceed as follows:

- from the "Home" page, press the button  (Fig. 24 ref. 1)

  and then the button  (see Fig. 25 ref. 1).

Fig. 24

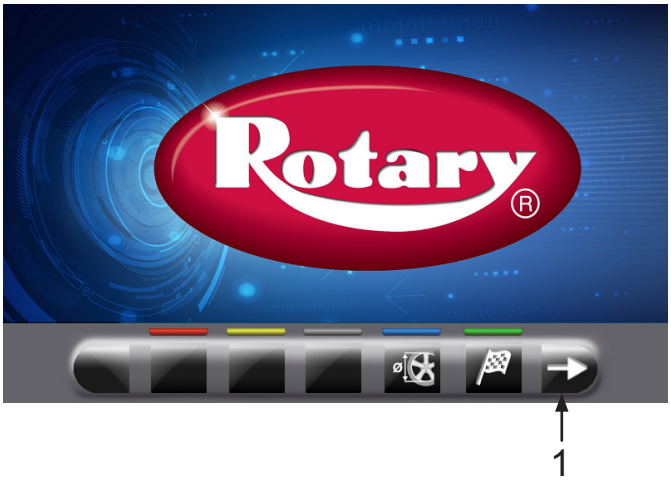
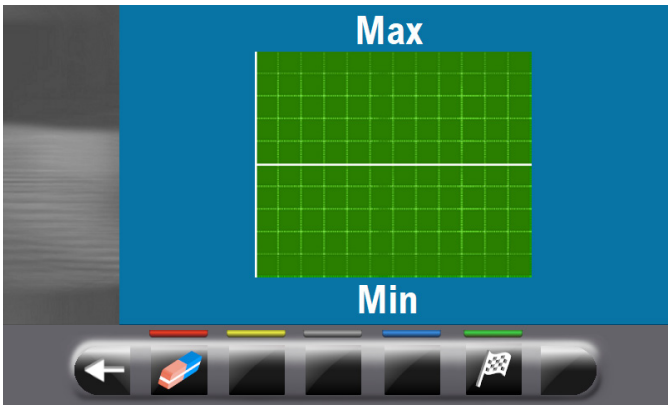


Fig. 25

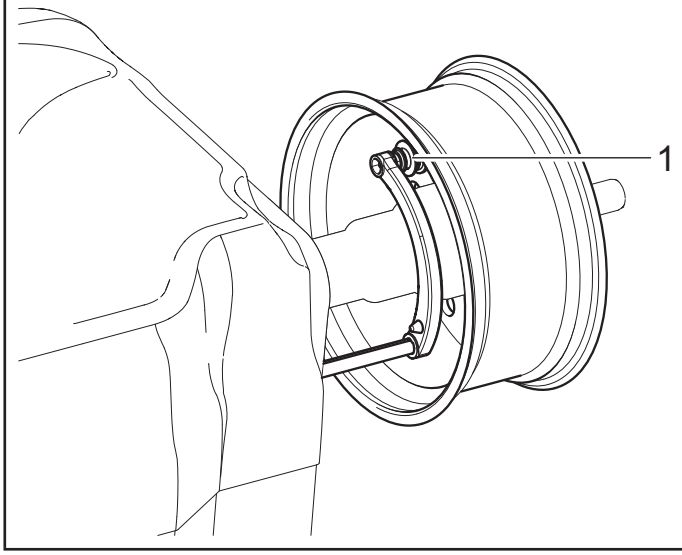
- The following screen page will appear on the monitor:

Fig. 26



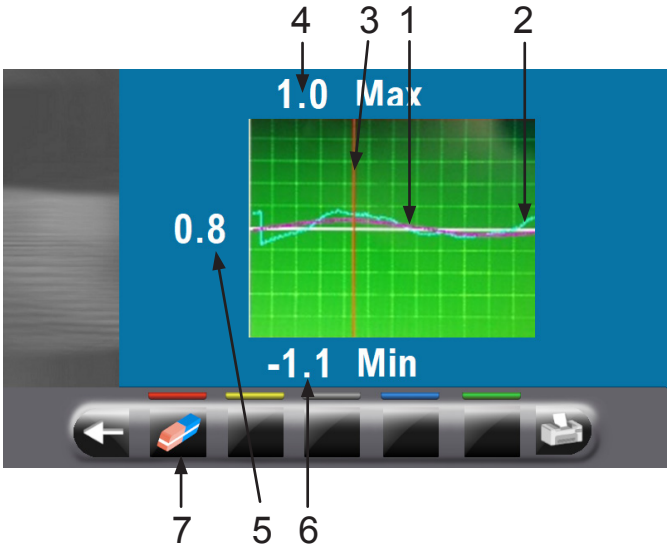
- Place the distance-diameter caliper grippers (Fig. 27 ref. 1) in contact with the rim.

Fig. 27



Press the green button on the monitor  to start the rim analysis procedure. The circle starts to spin at low speed (30 rpm) and at the end of the measurement the eccentricity graph appears, as shown in the Fig. 28.

Fig. 28



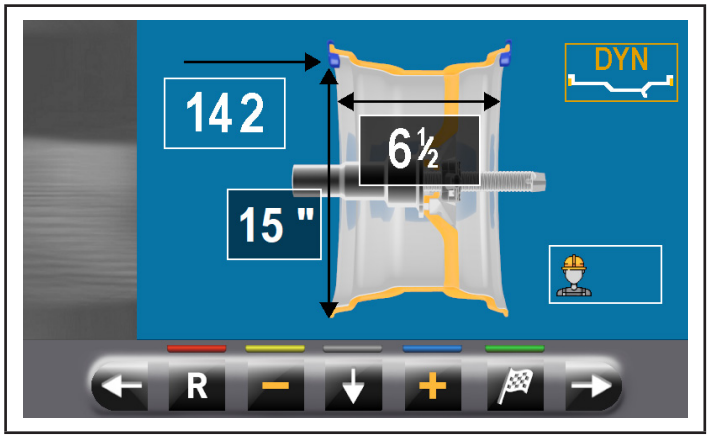
KEY

1 – Fundamental sine wave (fuchsia-colored-graph)
2 – Graph of detected roundness (blue)
3 – Slider that indicates the current position of the rim ("12 o'clock") (red)
4 – Value in mm of the highest peak of imperfection detected on the rim
5 – Value in mm of imperfection of the rim at the current position
6 – Value in mm of the lowest peak of imperfection detected on the rim
7 – Graph deleting button

The blue graph (Fig. 28 ref. 2) represents exactly the geometric shape of the rim. The more the circle is round and linear, the more the graph is flat, unlike the more the circle has deficiencies, the more the graph is large.
You can follow the roundness in the graph by manually turning the rim, the red-colored-slider (Fig. 28 ref. 3), indicates the position of the rim in "12 o'clock" position.

13.2.2 Programs setting through "Measurements acquisition" screen page

From the "Home" page, press the  (Fig. 19 ref. 1) button to display "Measurements acquisition" screen page below:



PRESS THE BUTTON  (Fig. 19 ref. 1) TO DISABLE THE AUTOMATIC FUNCTIONS FOR THE SELECTION OF THE BALANCING PROGRAM OF DISTANCE-DIAMETER CALIPER ARM, DESCRIBED IN PAR. 13.2.1. TO BE ABLE TO REUSE THE AUTOMATIC FUNCTION TO SELECT THE WHEEL BALANCING PROGRAM WITH GAGE ARM, IT IS NECESSARY TO RETURN TO "HOME" PAGE, BY PRESSING THE BUTTON  .

The selection of the wheel balancing program is possible in 2 ways:

- with highlighted program (yellow) by pressing the  or  until you see the desired program.
  With this mode only the 11 standard programs can be selected (DYN, ALU-S, ALU-S1, ALU-S2, STAT, STAT-1, STAT-2, ALU-1, ALU-2, ALU-3, ALU-4).

IF THE PROGRAM NAME IS NOT HIGHLIGHTED (YELLOW), PRESS THE BUTTON  REPEATEDLY UNTIL THE ABOVE CONDITION IS REACHED.

- Press the button  to display the following programs selection screen page:

Use the arrows  and/or  to select the wished mode (yellow). In this mode you can select the 11 standard programs (listed above) and special programs (PAX360, PAX420, PAX460, PAX700).

AFTER YOU HAVE SELECTED THE DESIRED PROGRAM, USE THE DISTANCE-DIAMETER CALIPER AND/OR THE EXTERNAL DATA GAGE TO DETECT THE MEASURES REQUIRED BY THE PROGRAM.

WHENEVER THE DISTANCE-DIAMETER CALIPER AND/OR THE EXTERNAL DATA GAGE (SEE FIG. 23) IS KEPT IN POSITION FOR A FEW SECONDS AGAINST THE RIM (UNTIL THE MACHINE MAKES AN APPROPRIATE SOUND NOTIFICATION), THE POSITION IS STORED AND THE VALUES MEASURED IN THE PRE-ARRANGED FIELDS IN THE SELECTED WHEEL BALANCING PROGRAM ARE LOADED.

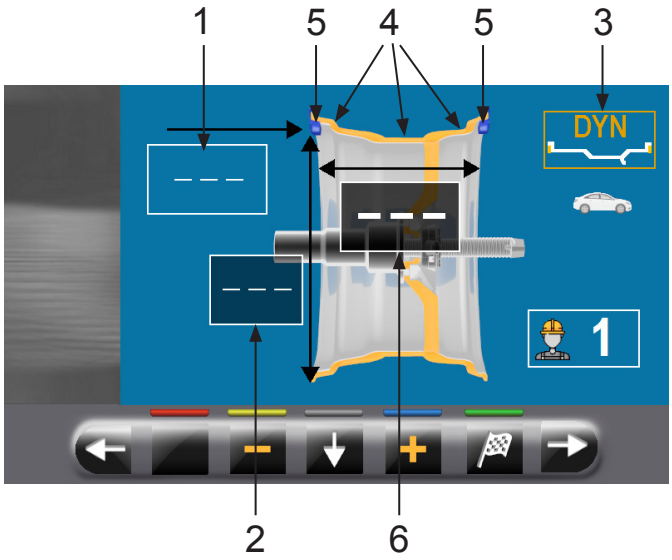
- After entering all the required measures, you can spin the wheel by pressing the button  and closing the protective guard.

13.3 *Indicative display of points where to detect measures/to fit weight*

IT IS VERY IMPORTANT TO REMEMBER THE POINTS SELECTED FOR MEASUREMENT INSIDE THE RIM SINCE DURING THE WEIGHTS FITTING WITH FIXED LASER YOU WILL NOT HAVE ANY OTHER REFERENCE EXCEPT FOR THE CROSS LINE ON THE RIM, GENERATED BY THE LASER ITSELF. THE POSITIONING IN DEPTH WILL BE AT THE DISCRETION OF THE OPERATOR.

Depending on the type of program selected,the machine shows on the monitor the guideline points where to take measures and, consequently, where you must apply weights (Fig. 29 ref. 4-5).

Fig. 29



KEY
1 – 1st weight fitting point distance
2 – Rim diameter
3 – Balancing mode
4 – Point at which to take the measure/adhesive weight fitting
5 – Point at which to take the measure/clip weight fitting
6 – Rim width

THE MORE THE POINTS CHOSEN FOR THE PROBING ARE DISTANT FROM EACH OTHER THE MORE THE BALANCING WILL BE EFFECTIVE.

13.3.1 Weights positioning

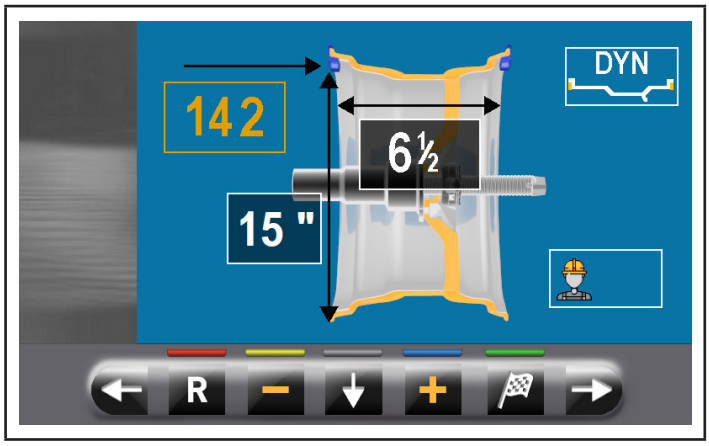
The monitor displays when it is absolutely necessary that the weight is applied at "12 o'clock" position. Pay particular attention to the content of the weights identification icons since if the following words 

are displayed, then the icon corresponding weight has to be applied at "12 o'clock" position (typical of STAT-2, ALU-S2 programs).

IF ALL MEASURES REQUIRED BY THE PROGRAM HAVE NOT BEEN TAKEN/INSERTED, THE MACHINE DOES NOT ALLOW THE WHEEL SPIN TO DETECT THE UNBALANCE.

13.4 Displaying the active/modifiable field

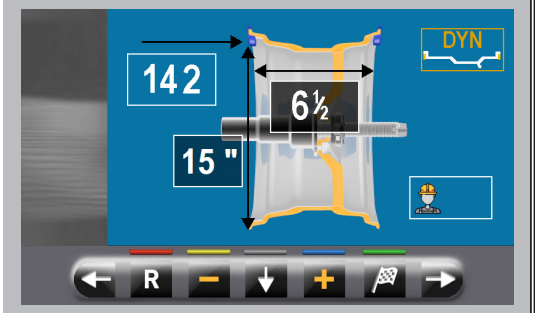
During the various phases of measures detection, the active field turns yellow.



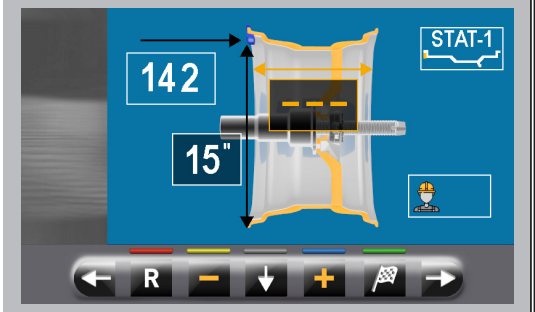
Pressing the buttons  or  you can change the value and/or program inside the active field. To change the selected active field, simply press the button  until the desired field is coloured yellow.

THE SELECTION OF THE ACTIVE FIELD IS DONE BY HIGHLIGHTING THE FIELDS IN A CLOCKWISE DIRECTION.

NORMALLY DURING THE DETECTION OF MEASUREMENTS, THE 1ST ACTIVE FIELD WILL BE THE ONE FOR THE SELECTION OF THE PROGRAM.



THERE IS A CASE, HOWEVER, IN WHICH THE 1ST ACTIVE FIELD WILL BE THE RIM WIDTH.

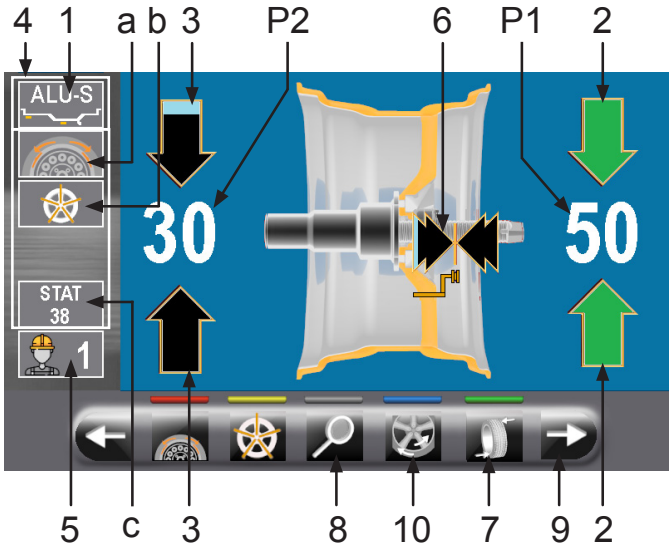


THIS CASE WILL OCCUR ONLY IF FROM "HOME" PAGE IS DETECTED ONLY ONE MEASUREMENT INSIDE THE RIM. THE PROGRAM WILL AUTOMATICALLY SET TO "STATIC" BUT IT WILL MAKE IT POSSIBLE (IN CASE OF ABSENCE OF EXTERNAL DATA GAGE) TO MANUALLY ENTER RIM WIDTH AND TO QUICKLY SWITCH TO THE PROGRAM "DYNAMIC".

13.5 Wheel balancing screen page description

After executing the spin of the wheel, the monitor displays a series of important information that helps the operator in his operations and subsequent choices.

Fig. 30



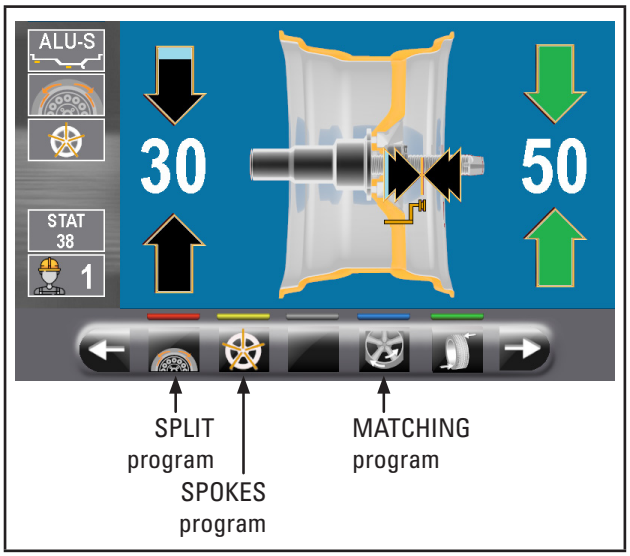
KEY

1 – Measures used by the program to perform the spin and detect the values in P1 - P2
P1 – Weight to be fitted on rim outer side
P2 – Weight to be fitted on rim inner side
2 – Wheel placed to fit the weight on wheel outer side (arrows both green)
3 – Wheel not placed to fit the weight on wheel inner side (blue/ black arrows)
4 – Wheel balancing suggestions
4a – SPLIT Program (Clip weights program)
4b – SPOKES Program (program with adhesive weights)
4c – STATIC Program
5 – N° user (if selected)
6 – Arrows indicating the weight fitting point with distance-diameter caliper arm
7 – Wheel repositioning button for weights fitting
8 – Display of the weight with the maximum resolution of 1 g / 0,05 oz

8a – Display of the weights in ounces/grams 

8b – Display of the weights in grams 

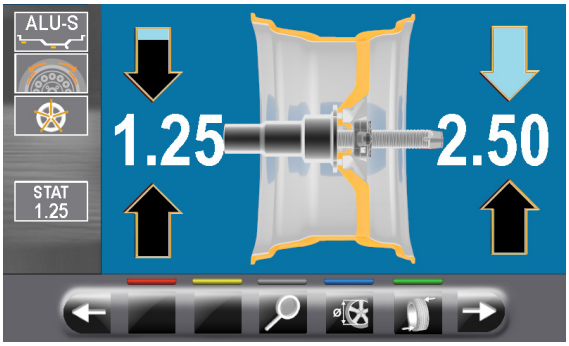
9 – By pressing the button  you will see the following page where you can select one of the programs suggested by the machine.
10 – MATCHING program



IF THE GUARD AND REPOSITIONING FUNCTION ARE DISABLED, ON THE BUTTON IN POS. 7 FIG. 30, YOU WILL SEE THE  ICON THAT WILL ALLOW WHEEL SPIN WITHOUT RETURNING TO THE PREVIOUS PAGE. THE POSITIONING OF THE WHEEL FOR THE APPLICATION OF THE WEIGHTS MUST BE DONE MANUALLY.

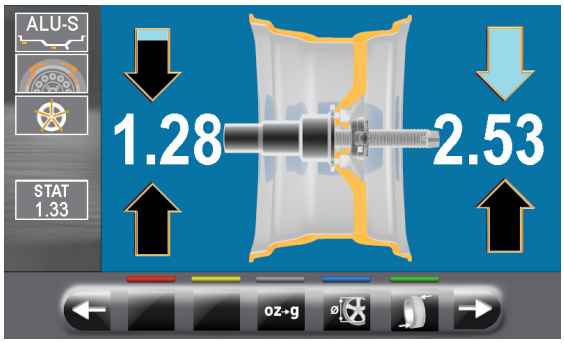
8a –Display of the weights in OUNCES/GRAMS

Set the unit of measurement for weights display to OUNCES/GRAMS  (see Par. 14.1 "Options menu"). On the following screen page:

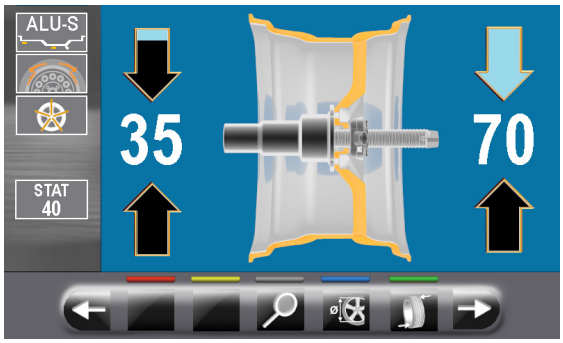


press the button  to display the weight with maximum resolution (0.05 oz) to be fitted on the wheel, expressed in ounces.

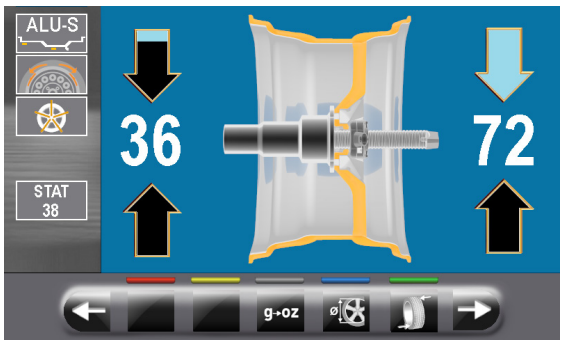
The following screen will appear on the monitor.



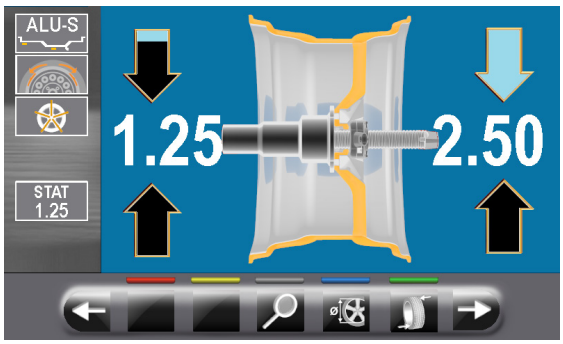
Press the button  to set the display of the weights to be fitted on the wheel in grams. The following screen will appear on the monitor:



Press the button  to display the weight with maximum resolution (1g) to be fitted on the wheel, expressed in grams. The following screen will appear on the monitor:



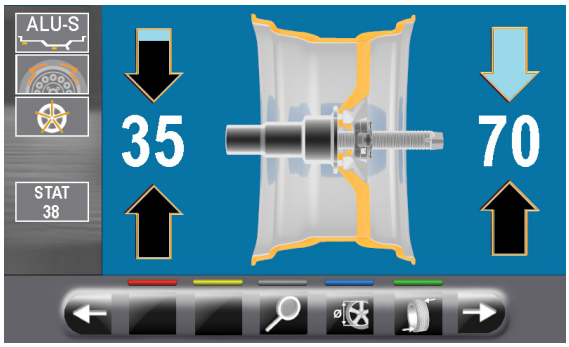
Press the button  to set the display of the weights to be fitted again in ounces. The following screen will appear on the monitor:



8b –Display of the weights in GRAMS

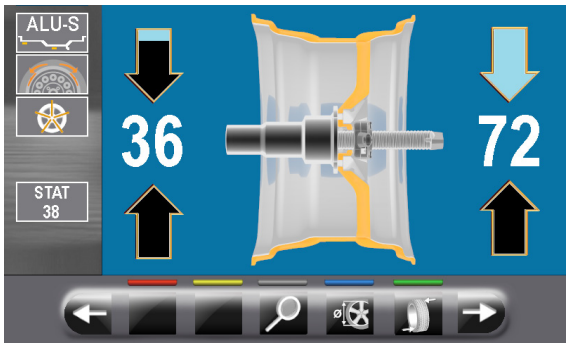
Set the unit of measurement for weights display to GRAMS  (see Par. 14.1 “Options menu”).

On the following screen page:

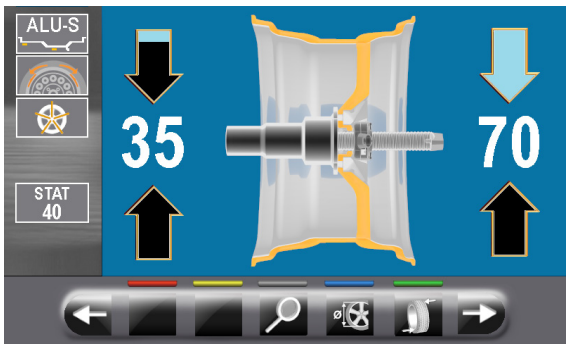


press the button  to display the weight with maximum resolution (1g) to be fitted on the wheel, expressed in grams.

The following screen will appear on the monitor:



Press again the button  to display the approximated weight to be fitted to the wheel, expressed in grams.



13.5.1 Balancing mode

The machine has the ability to perform the wheel balancing (weights fitting) in 4 different ways:

- using the distance-diameter caliper arm with weights fitting grippers;
- using the laser at “6 o'clock”;
- weights fitting at “6 o'clock” (without the use of lasers).

• Weights fitting with distance-diameter caliper arm.

1. Place the adhesive weight on the arm grippers.

Fit the adhesive weight
in the pliers of the gage rod

2. Pull out the gage until the arrows (Fig. 30 ref. 6) both turn green.
3. Rotate the gage arm until the weight touches the rim.

Fit weight on the position
where pliers touches the wheel

4. Bring the distance-diameter caliper arm in resting position, after having led it towards the chuck to unlock it from the position of weight application.
5. Press the  button to change the weight fitting side.
6. Proceed in the same way as described in points 1-2-3.

BEFORE REMOVING THE DIAMETER-DISTANCE CALIPER, PRESS THE BRAKE PEDAL AND HOLD IT DOWN UNTIL THE WEIGHT HAS NOT BEEN APPLIED, ENSURING IN THIS WAY THAT, DURING THESE PHASES, THE WHEEL CAN NOT ROTATE.

- Weights fitting with laser at “6 hours”.

TO USE THIS MODE, IT IS NECESSARY THAT  THE RELEVANT FUNCTION IS ENABLED ON THE MENU "OPTIONS" DESCRIBED IN PAR. 14.1.

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 THAT WOULD BE APPLIED WITH DISTANCE/DIAMETER CALIPER AT “6 O'CLOCK”. IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE 

ICON (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO “12 HOURS”.

At the end of the spin, on the rim at "6 hours" is displayed a laser beam (emitter) indicating the axis on which to apply the weight. The positioning of the weight (s) in depth shall be at the discretion of the operator, depending on where remembers taking the measure.

BE SURE TO APPLY THE (INTERNAL OR EXTERNAL) WEIGHT AS INDICATED BY THE 2 GREEN ARROWS (Fig. 30 ref. 2 or 3) ON THE CORRESPONDING MONITOR SCREEN.

- Weights fitting at “6 o'clock” (without the use of lasers).

TO USE THIS MODE, IT IS NECESSARY THAT  THE RELEVANT FUNCTION IS ENABLED ON THE MENU "OPTIONS" DESCRIBED IN PAR. 14.1.

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 THAT WOULD BE APPLIED WITH DISTANCE/DIAMETER CALIPER AT “6 O'CLOCK”. IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE 

ICON (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO “12 HOURS”.

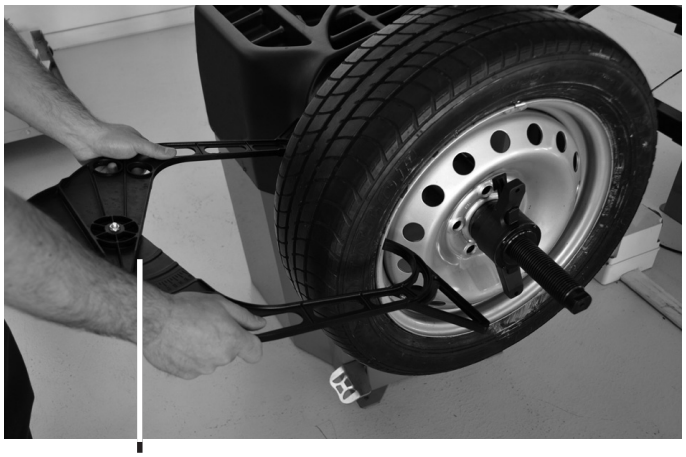
At the end of the spin, the wheel stops in place to apply the weight at "6 o'clock". The positioning of the weight (s) in depth shall be at the discretion of the operator, depending on where remembers taking the measure.

BE SURE TO APPLY THE (INTERNAL OR EXTERNAL) WEIGHT AS INDICATED BY THE 2 GREEN ARROWS (Fig. 30 ref. 2 or 3) ON THE CORRESPONDING MONITOR SCREEN.

13.6 Use of machines with disabled automatic data gage

If the automatic data gage is disabled, the insertion of the measurements of diameter, width and distance of the rim from the machine must be done manually. The reading of these measures can be made as follows:

- visual readout on caliper graduated scale (distance);
- values readout on rim (diameter and width);
- width value detection with manual caliper (width).

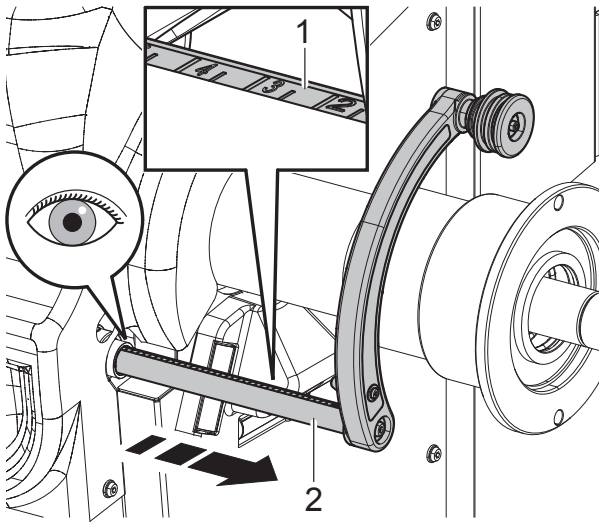


MANUAL CALIPER.
Width manual detection

• **Visual readout on caliper graduated scale (distance)**

If it is necessary or if you want to manually enter the distance of the rim from the machine, proceed as described below using the distance/diameter gauge arm:

- remove the distance/diameter gauge arm and bring the weight application pliers in contact with the inner part of the rim as shown in Fig. 21;
- read the value indicated on the graduated scale (ref. 1 shown in the following figure) fixed to the arm of the distance/diameter gauge (ref. 2 shown in the following figure);



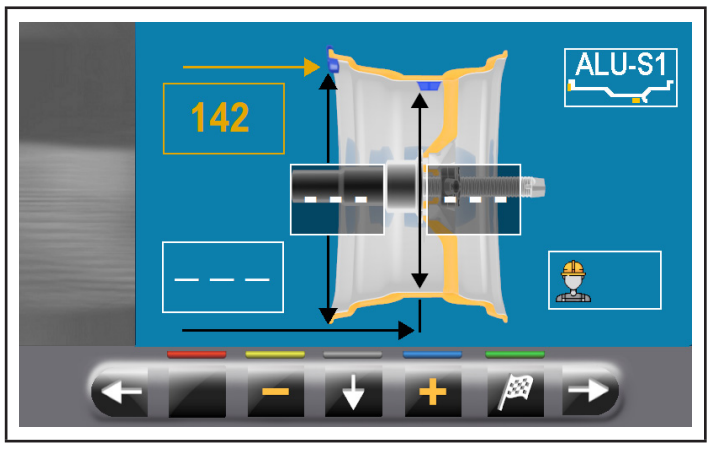
- in the column on the left of the table, locate the detected value and identify the corresponding value to be entered;
- type the value to be entered in the appropriate field on the display.

DETECTED VALUE ON THE GRADUATED SCALE	VALUE IN MILLIMETERS TO ENTER (mm)	VALUE IN INCHES TO ENTER (inches)
0.5	5	0.20
1	10	0.40
1.5	15	0.60
2	20	0.80
2.5	25	1.00
3	30	1.20
3.5	35	1.40
4	40	1.60
4.5	45	1.80
5	50	1.95
5.5	55	2.15
6	60	2.35
6.5	65	2.55
7	70	2.75
7.5	75	2.95
8	80	3.15
8.5	85	3.35
9	90	3.55
9.5	95	3.75
10	100	3.95
10.5	105	4.15
11	110	4.35
11.5	115	4.55
12	120	4.70
12.5	125	4.90
13	130	5.10
13.5	135	5.30
14	140	5.50
14.5	145	5.70
15	150	5.90
15.5	155	6.10
16	160	6.30
16.5	165	6.50
17	170	6.70
17.5	175	6.90
18	180	7.10
18.5	185	7.30
19	190	7.50
19.5	195	7.70
20	200	7.90
20.5	205	8.10
21	210	8.25
21.5	215	8.45
22	220	8.65
22.5	225	8.85
23	230	9.05
23.5	235	9.25
24	240	9.45
24.5	245	9.65
25	250	9.85
25.5	255	10.05
26	260	10.25
26.5	265	10.45
27	270	10.65
27.5	275	10.85
28	280	11.00
28.5	285	11.20
29	290	11.40
29.5	295	11.60
30	300	11.80
30.5	305	12.00
31	310	12.20
31.5	315	12.40
32	320	12.60
32.5	325	12.80
33	330	13.00
33.5	335	13.20
34	340	13.40

13.6.1 Manual setting of wheel dimensions

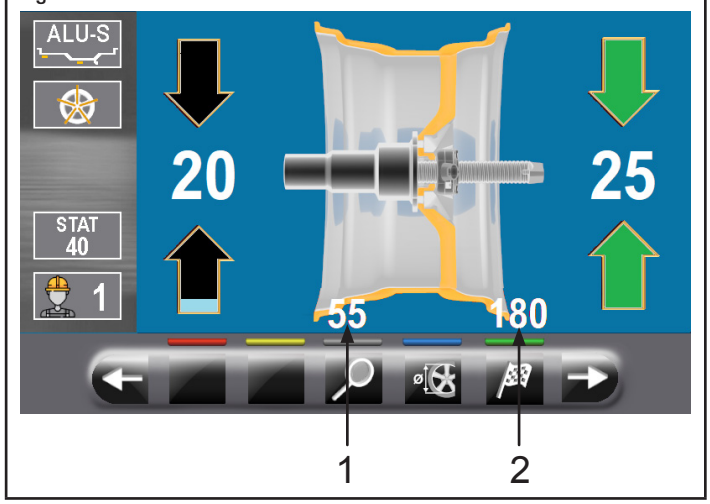
In case the operator wants to edit and/or manually enter the wheel dimensions, proceed as follows:

- from the desired measurement mode screen, press the button  until highlighting with yellow the field to modify/edit;
- press the buttons  or  until reaching the desired value;
- press button  to shift to the next value.



After entering all the required measures, you can spin the wheel by pressing the button  and closing the protective guard.
In case the distance-diameter caliper was disabled, the displayed page for detected unbalance is as follows:

Fig. 31

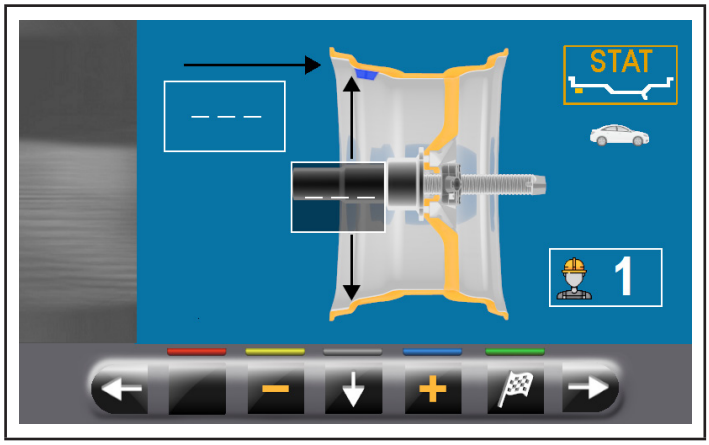


In this screen page,in addition to the information of the detected unbalance, there are measurements in mm where you must remove the gage arm (Fig. 31 ref. 1-2) to apply the weights inside the rim.

13.7 Standard balancing programs

13.7.1 Static

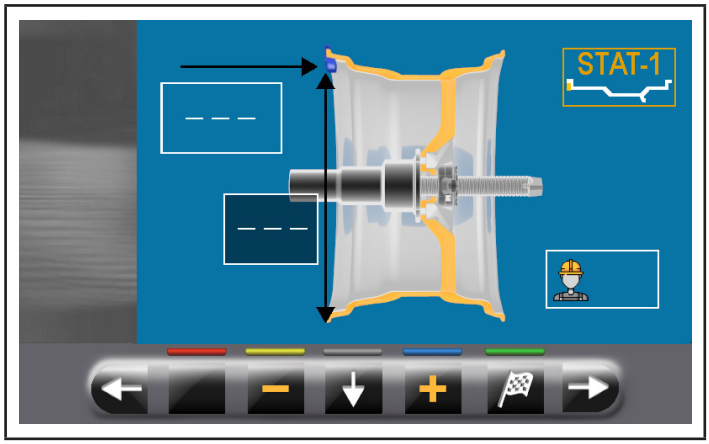
The STATIC program permits balancing wheels by fitting adhesive weights on the outer and inner sides of the rim. Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.2 Static-1

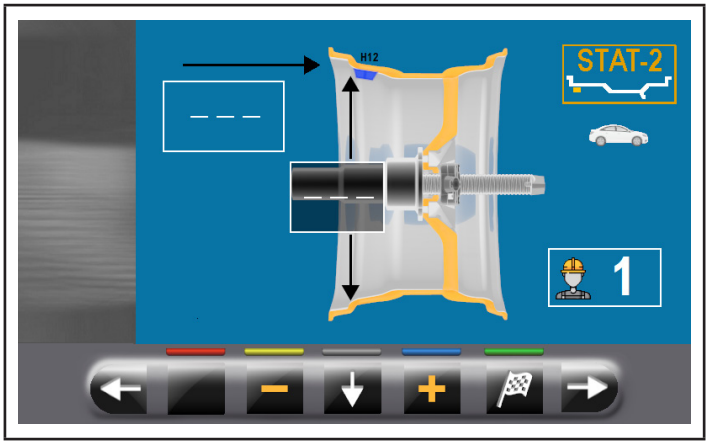
STATIC 1 function is a procedure that offsets wheel vibrations using a single weight with clip on a single plane positioned exactly at “12 o'clock”.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5 "Dynamic balancing" (wheel inner side only).
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.3 Static-2

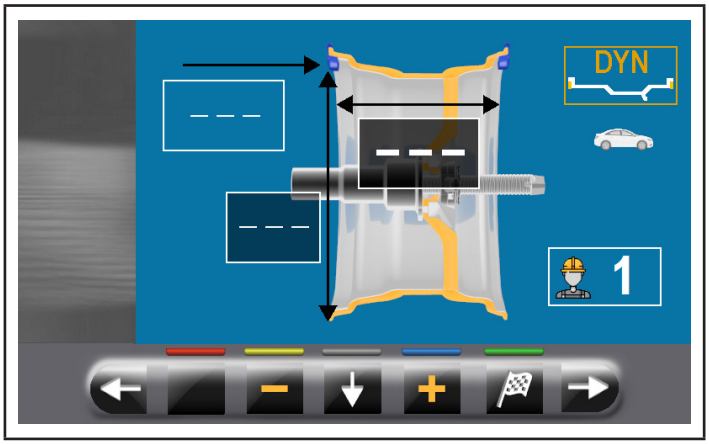
STATIC 2 function is a procedure that offsets wheel vibrations using a single adhesive weight on a single plane positioned exactly at “12 o'clock”.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.4 Dynamic

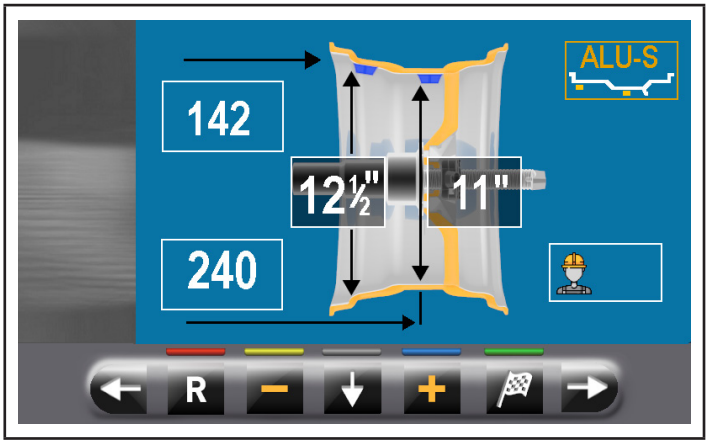
The DYNAMIC program allows the wheels balancing by fitting two clip adhesive weights: one on the outside and one on the inside rim.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.5 ALU-S

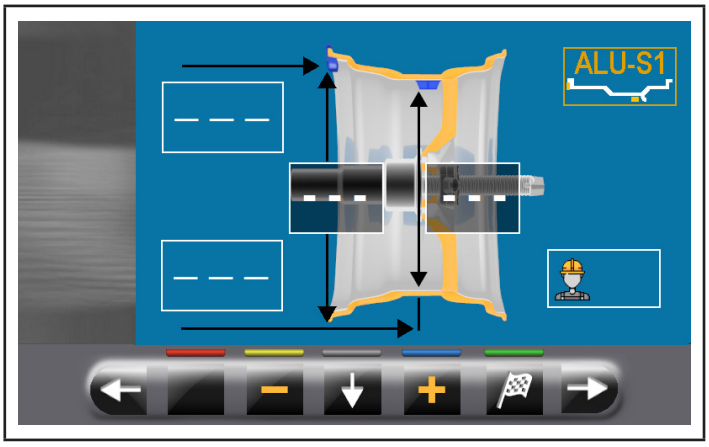
ALU-S program permits balancing wheels by two fitting adhesive weights on the outer and inner sides of the rim. Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.6 ALU-S1

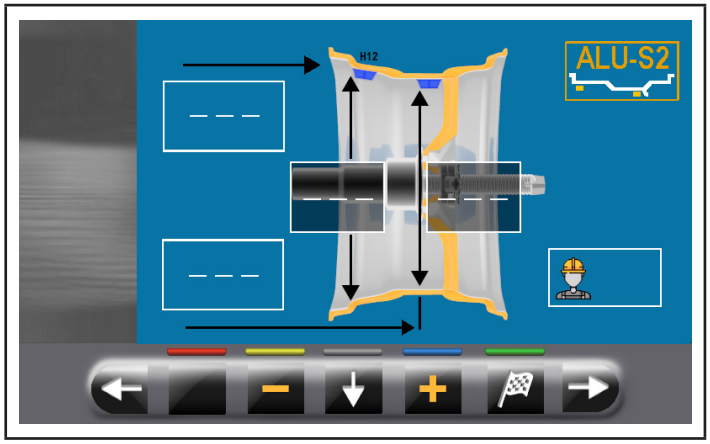
ALU-S1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer side and weight with clip on inner side of wheel (at “12 o'clock”).
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5 (the inner weight is with clip).
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.7 ALU-S2

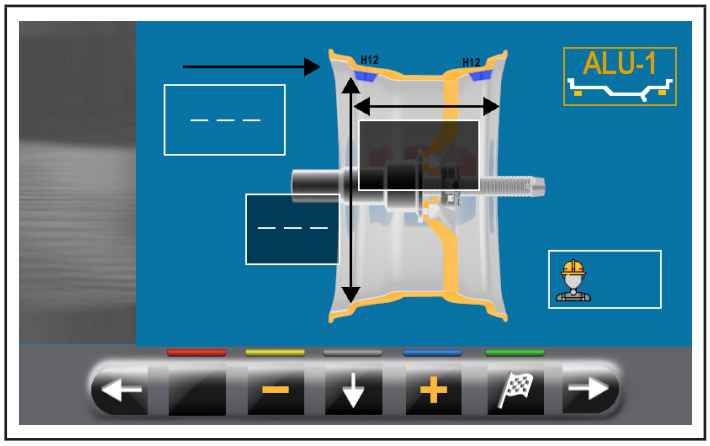
ALU-S2 function permits balancing wheels with light alloy rims by fitting two adhesive weights: one on the outer and one on inner sides of the rim (the inner weight is at “12 o’ clock”).
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.8 ALU-1

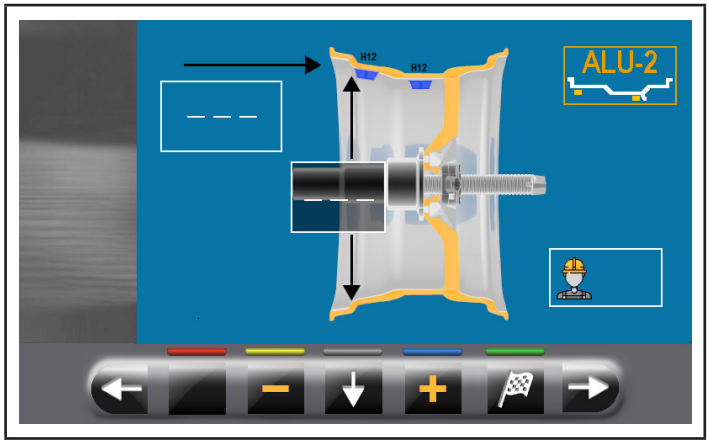
ALU-1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer and inner sides of the rim at “12 o'clock”.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as described in Par. 13.5.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.9 ALU-2

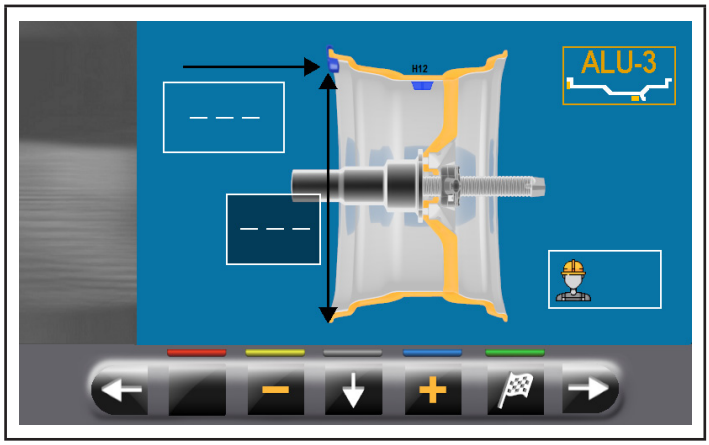
ALU-2 function balances wheels with light alloy rims by fitting adhesive weights on the outside and inside of the rim. The position of the outer weight is not visible but hidden inside. Enter the measurements (see Par. 13.2.1 or 13.6.1).
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.10 ALU-3

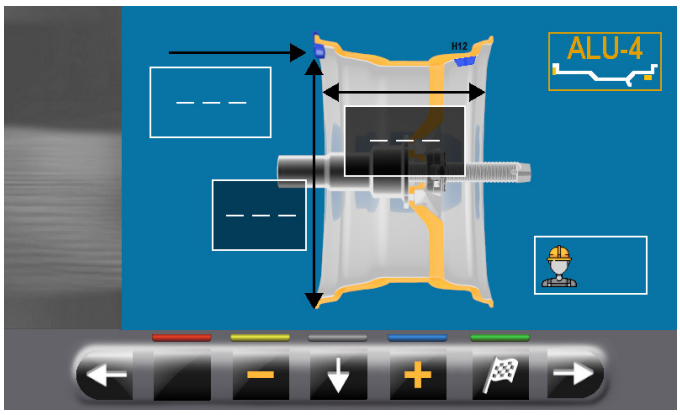
ALU-3 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight on outer side, not visible because inside the rim.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as for a dynamic unbalance only for the inner side of the wheel.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.7.11 ALU-4

ALU-4 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on inner side of wheel, adhesive weight on outer side.
Enter the measurements (see Par. 13.2.1 or 13.6.1) and proceed as for a dynamic unbalance only for the inner side of the wheel.
At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

13.8 Optional balancing programs

13.8.1 SPLIT mode

The Split procedure proves useful when the dynamic unbalance of a wheel is fairly high and the weight to be fitted is not available, for instance a 100 g (3.52 oz). The unbalance can be corrected by splitting the total weight into two smaller weights.
Split procedure eliminates errors by using “DYNAMIC” program, for example by manually fitting two 50 g (1.76 oz) weights close to one) another, instead of only a 100 gr (3.52 oz) one.

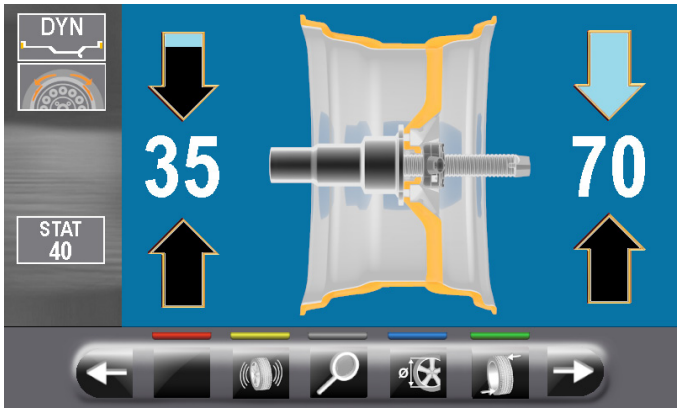
For example:

100 g (3.52 oz) WEIGHT TO BE FITTED TO CORRECT UNBALANCE

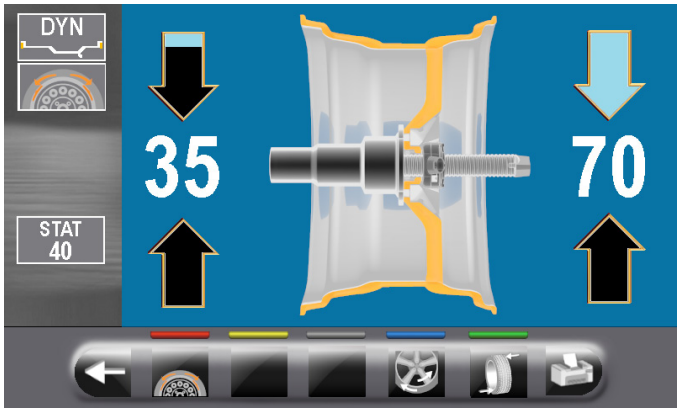
TWO SMALLER WEIGHTS (50 g) (1.76 oz) FITTED MANUALLY

TWO SMALLER WEIGHTS (55 g) (1.94 oz)
USING SPLIT PROCEDURE

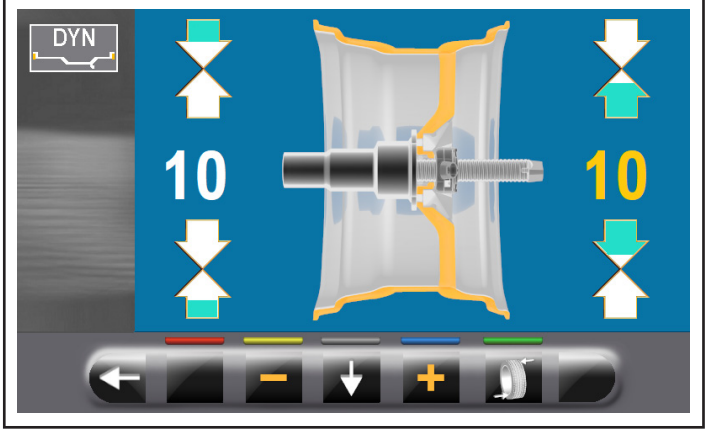
Proceed to “DYNAMIC” unbalance measurement displaying by performing a standard wheel spin.



Once detected the unbalance values, verify that the machine displays the ability to use the "SPLIT" option (Fig. 30 ref. 4a). Press button  to shift to the next screen page.



Press button  to enter “SPLIT” function.
On the monitor screen will be displayed where you must enter the value of the weights to be fitted.



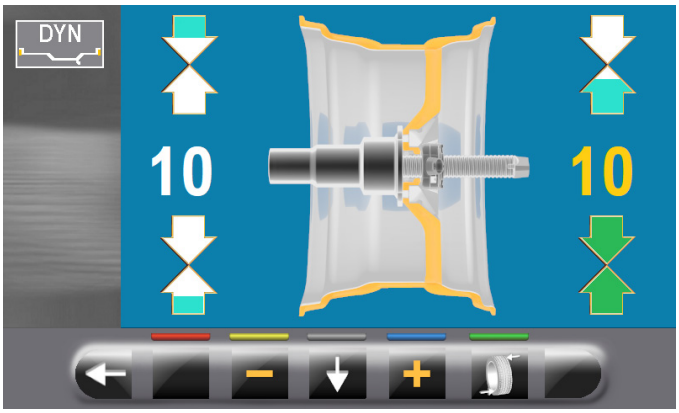
Press button  to select the outer weight to edit.

Press buttons  or  to increase or decrease the total weight to be fitted.

THE YELLOW VALUE INDICATES WHICH VALUE IS ACTIVE AND YOU ARE EDITING.

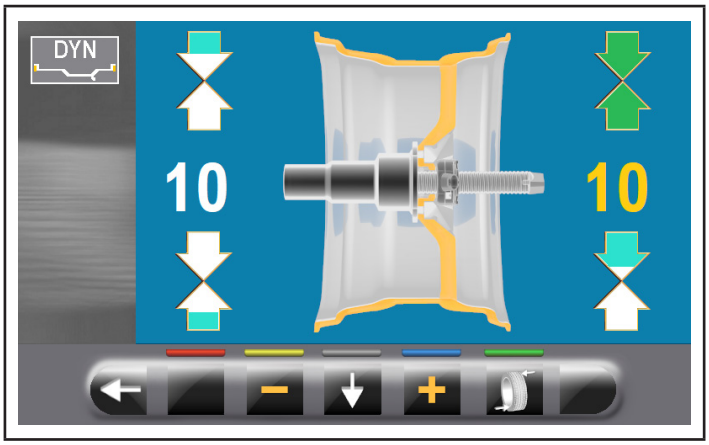
THE HIGHER THE CHOSEN WEIGHTS VALUE IS, THE MORE THEY WILL BE SPACED.

After choosing the value of the weights to be fitted, press button  to position the wheel for the application of the 1st clip weight.

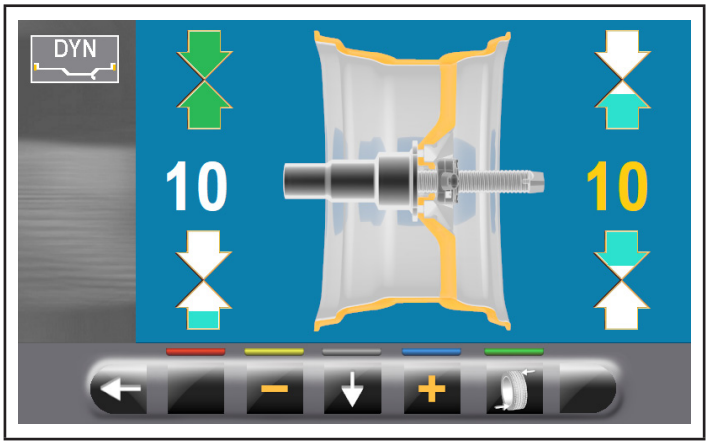


THE TWO GREEN ARROWS INDICATE THAT THE WHEEL IS PROPERLY POSITIONED FOR THE APPLICATION OF THE 1ST WEIGHT.

Fit the clip weight of the chosen value at “12 o'clock” on the outside of the wheel. Press again button  to position the wheel for the fitting of the 2nd clip weight.



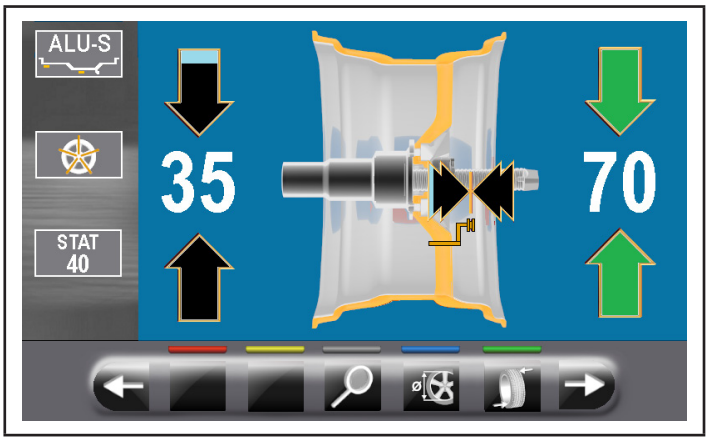
Fit the clip weight of the chosen value at “12 o'clock” on the outside of the wheel. Press button  to highlight the value of the weights to be fitted on the inside of the wheel.



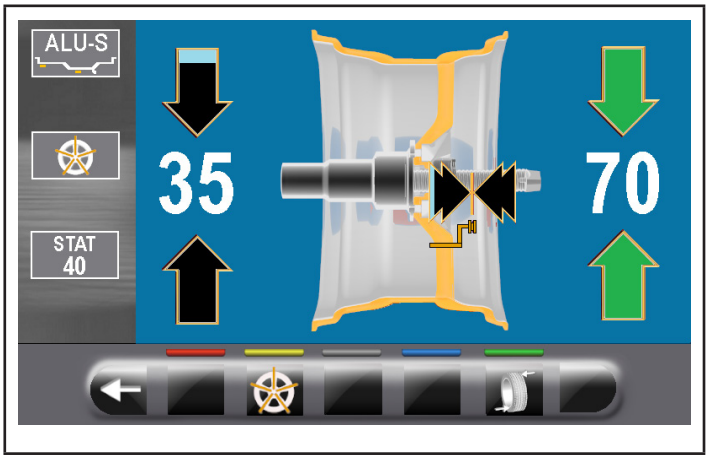
Repeat the above steps for the weights to be fitted inside the wheel. At the end perform again a checking spin to see that you have applied the weights correctly.

13.8.2 Weights hidden behind spokes mode

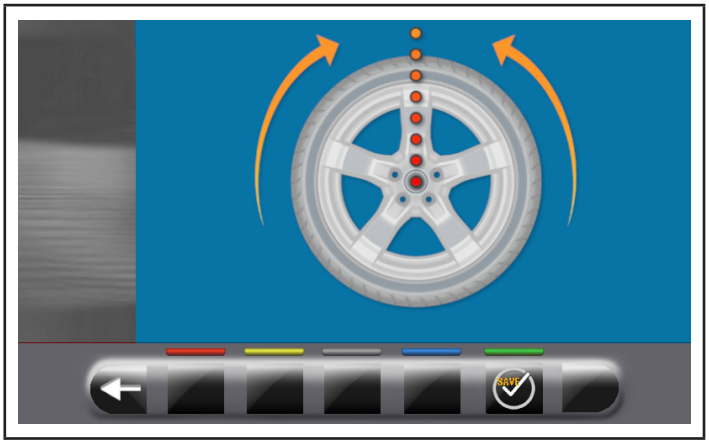
Adhesive correction weight positioning may not look attractive on some types of rims. In this case, "weights hidden behind spokes" mode can be used: it splits any correction weight on the outer side into two parts to be hidden behind rim spokes. It can be used in ALU-S Static mode.
Proceed to ALU-S unbalance measurement displaying by performing a standard wheel spin.



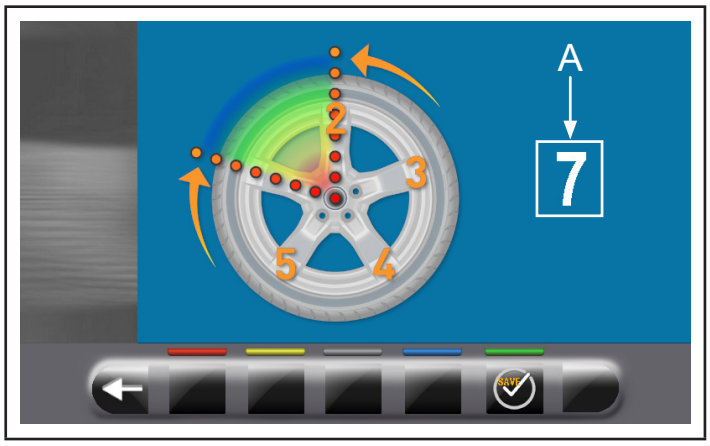
Once detected the unbalance values, verify that the machine displays the ability to use the "spokes" options (Fig. 30 ref. 4b). Press button  to shift to the next screen page.



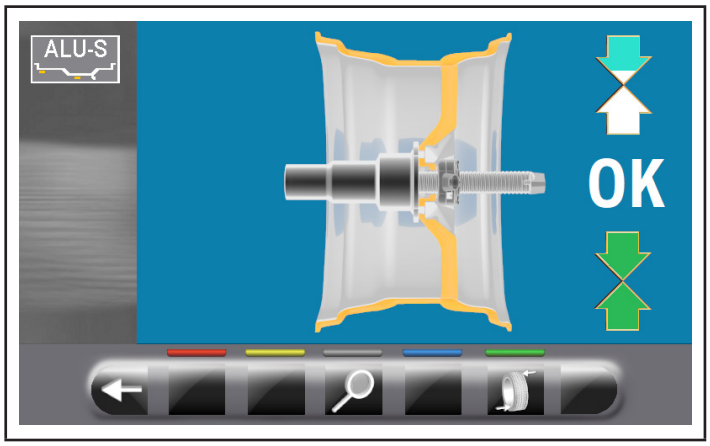
Press button  to enter the relevant function. On the monitor the next screen page will be displayed:



Bring any spoke upwards at "12 o'clock" position and press the button  to confirm and continue.



Lead to “12 hours” the 2nd spoke. The machine will automatically calculate the total number of spokes. If the value shown on the screen (A) is correct, press the button  .
The machine automatically calculates weight position in two positions hidden behind the spokes. The monitor shows the amount of weight to be applied behind the FIRST spoke and the rim will reach the position to apply the FIRST weight.



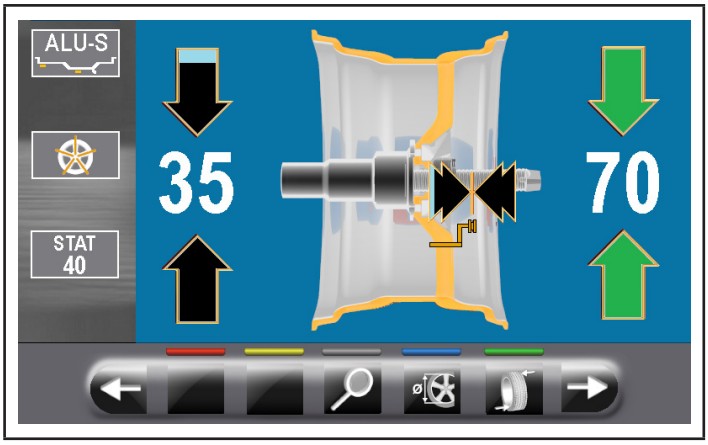
Extract the gage rod, and fit the FIRST weight in the position shown by the machine, as explained in Par. 13.5.1. Press the button  to confirm that they have applied the FIRST weight and to automatically position the wheel for the fitting of the 2nd weight.
The monitor shows the amount of weight to be applied behind the SECOND spoke. Pull out the gage rod and fit the SECOND weight in the position shown by the machine, as done for the first weight.

Press the button  to confirm that you have applied the SECOND weight and get back to the initial situation of unbalance, before performing the "weights hidden behind the spokes" procedure. Perform another test spin.
The “weights hidden behind spokes” procedure is completed.
Complete the operation by adding an additional weight inside the rim as required by the selected mode (ALU-S).

13.8.3 Matching mode

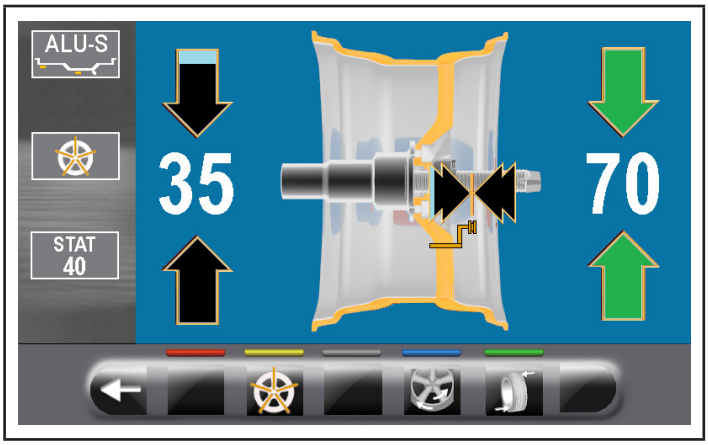
The Matching procedure offsets strong unbalance, reducing the weight quantity to be fitted on the wheel to achieve balancing. This procedure permits reducing unbalance as much as possible by offsetting the tire unbalance with that of the rim in any used program. Proceed to unbalance measurement displaying by performing a standard wheel spin.

⚠	THE MATCHING PROCEDURE CAN BE CARRIED OUT ONLY IF THE STATIC UNBALANCE IS > 30 gr (1.05 oz).



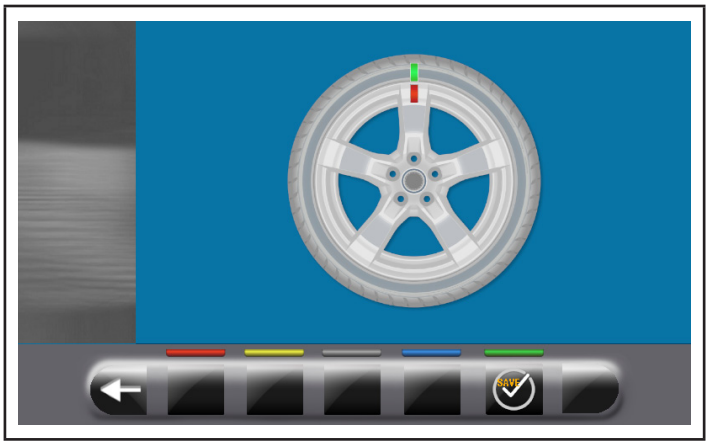
Once detected the unbalance values, verify that the machine displays the ability to use the “matching” options (Fig. 30 ref. 10).

Press button  to shift to the next screen page.



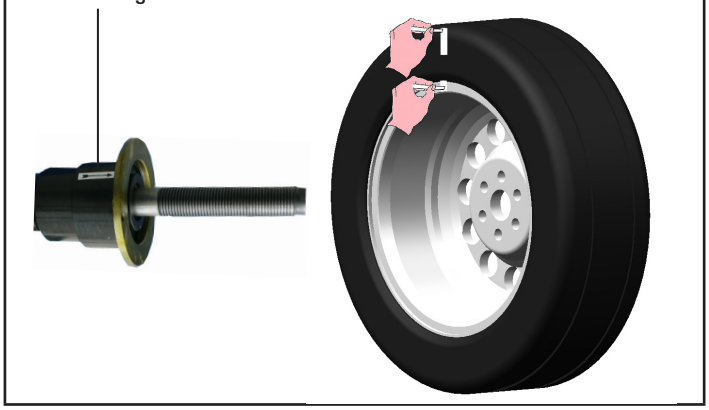
Press button  to enter the relevant function.

On the monitor the next screen page will be displayed:

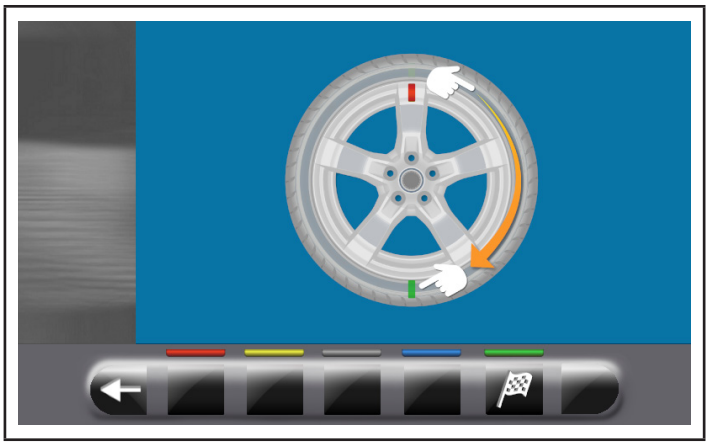


STEP 1. Move the slider on the flange to the "12 o'clock" position. Make a reference mark, using chalk for instance, on the rim and tire, in line with the arrow on the flange, so as to be able to fit the rim back on in the same position on the machine.

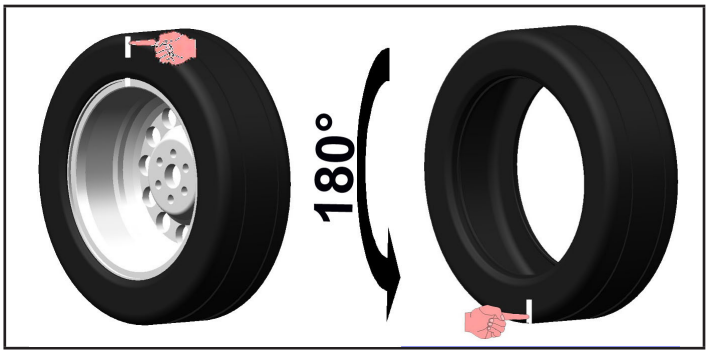
Make a reference mark on the rim and tire, in line with the arrow on the flange



Press button  to confirm that step 1 has been completed.
On the display the next screen page will be displayed:

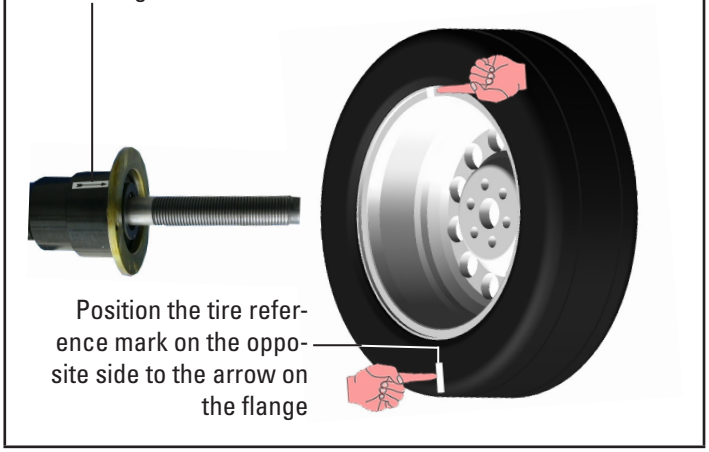


STEP 2. Remove the wheel from the wheel balancer. Remove the tire and turn it on the rim through 180°.



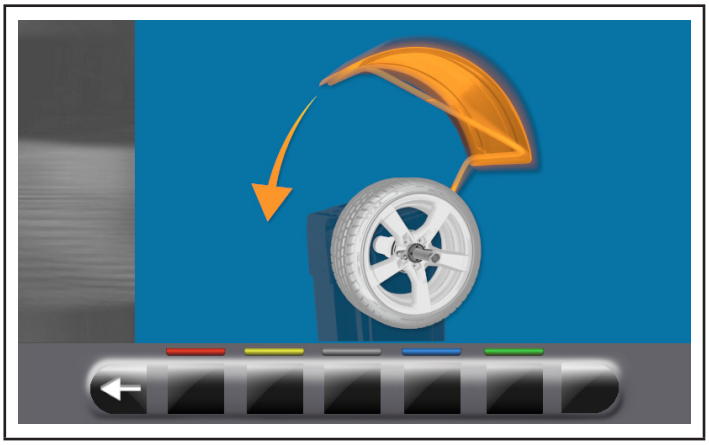
Fit the wheel back on the wheel balancer, positioning the reference mark on the rim in line with the arrow on the flange.

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



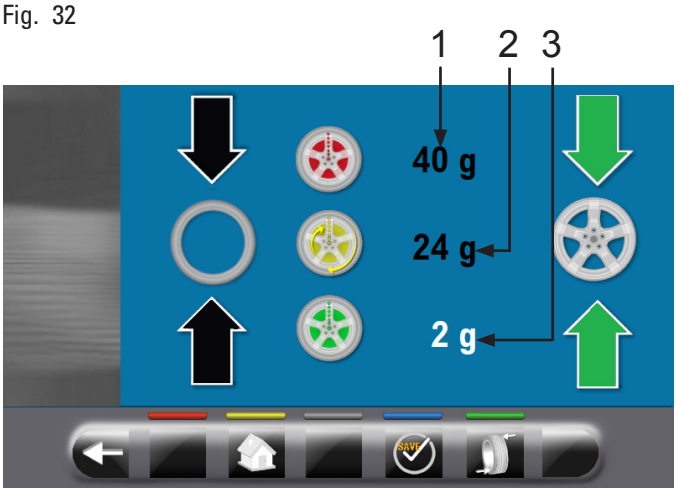
Position the tire reference mark on the opposite side to the arrow on the flange

Press button  to confirm that step 2 has been completed.
On the display the next screen page will be displayed suggesting to perform a spin of the wheel.



After having fitted wheel back in position, close the protection guard to make an automatic wheel spin.
At the end of the spin the monitor will display the screen illustrated afterwards.

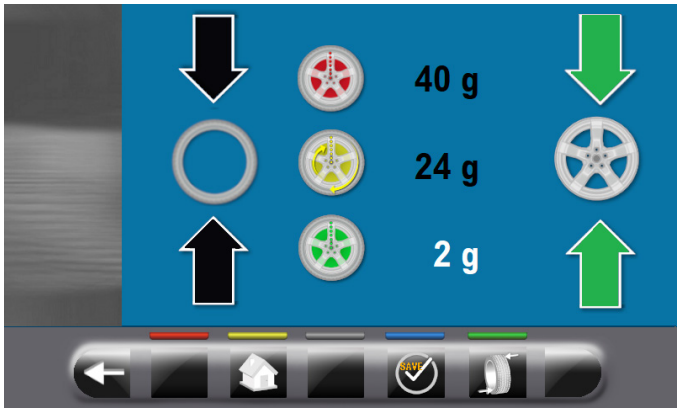
Fig. 32



In this screen you will see the dynamic unbalance that the wheel had before performing the operation (Fig. 32 ref. 1), the dynamic unbalance after having rotated the tire through 180° compared to the rim (Fig. 32 ref. 2) and the unbalance which can be obtained following the directions of the machine (Fig. 32 ref. 3).

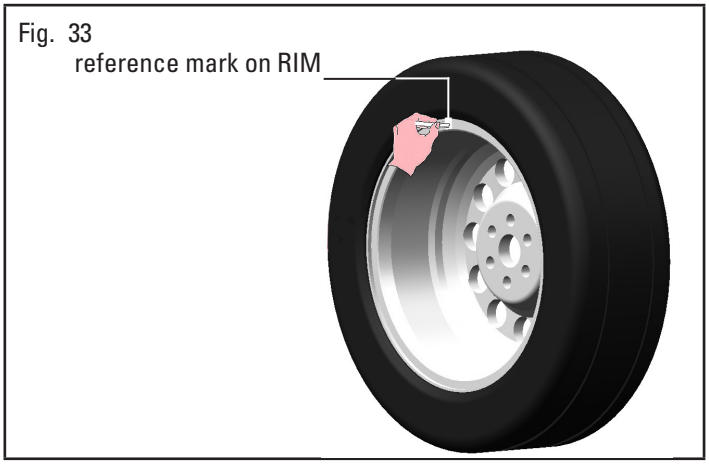
STEP 3. If the value of possible unbalance reduction is high, you can proceed as follows:

- Cancel the previously made reference marks. Put new signs, as described below.
- Press the button  to bring the wheel into position.

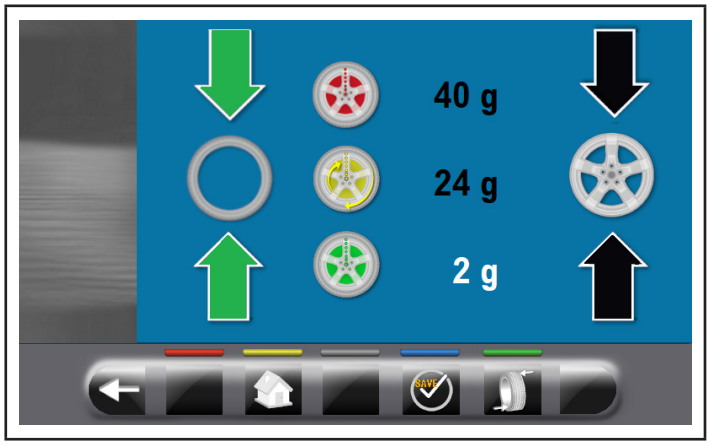


Make the reference mark on RIM at “12 o'clock” (see Fig. 33).

Fig. 33



- Press the button  to bring the wheel into position.

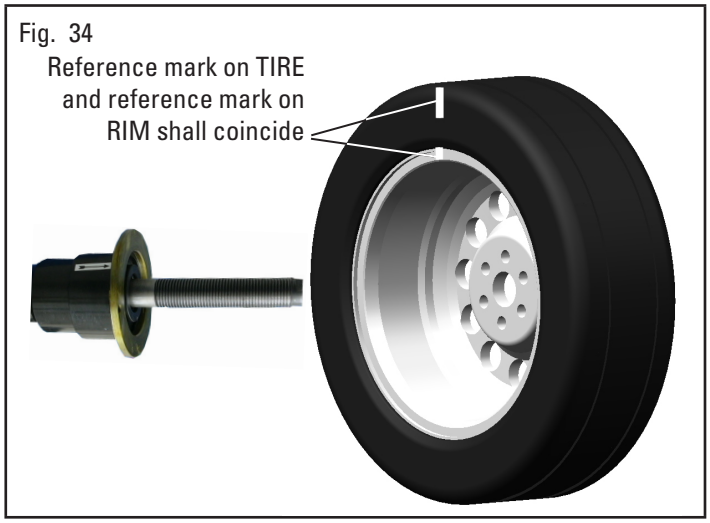


Mark the reference mark on the TIRE at "12 o'clock" position.

Press button  to confirm that step 3 has been completed.

STEP 4. Remove the wheel from the wheel balancer. Dismount and remount the tire on the rim so as to bring the two reference marks (rim and tire) to coincide. Refit the wheel on the balancer (see Fig. 34) with the two reference marks next to the arrow on the flange.

Fig. 34



Press button  to confirm that step 4 has been completed. Perform another spin closing the protection guard, to check the expected unbalance reduction and correct any residual unbalance, as described in Chap. 13.5.1.

13.9 Special balancing programs

13.9.1 Pax

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. 11).
- Press  button from "Home" page. On the screen that appears, press the button  to switch to measuring mode selection screen below.

Use the arrows  or  to select PAX mode. At the end press push button  . The machine will be configured as follows to perform the measurement and on the video screen will appear the indication of the specific measures of the selected wheel type.

- Close the protection guard to perform the automatic wheel spin.

In just a few seconds, the wheel runs at normal speed and the monitor shows wheel rotation.
After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the weight will be at "12 o'clock".
The monitor show the weight required to correct the unbalance.
Open the protection guard and proceed to fit the adhesive weight as shown for the ALU-S mode (see Par. 13.7.5).

13.10 Recalculation function

After making a spin, the wheel automatically stops, indicating the weight/s to be fitted and its/their position.
In case the operator does not want the type of wheel balance proposed by the machine (program type, weights size, etc ...), proceed with the re-calculation of the wheel balancing without rerunning the spin of the wheel.
To do this, proceed as described below:

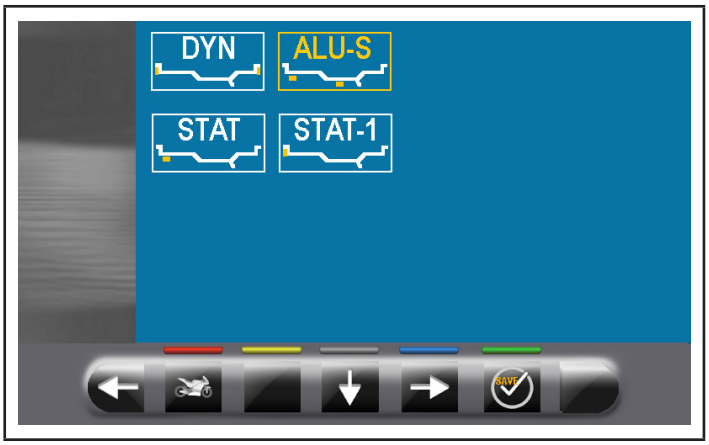
- press the button  to return to the measures detection/ program selection page;
- select a new balancing program as indicated in Par. 13.2.2;
- take with the gage arm the measures required by the selected program;
- press button  to perform the re-calculation. The monitor will display the weights and the positions in which they will be applied.

If also in this case the operator should decide to further modify the balancing program, it is sufficient to proceed as described above without having to spin the wheel.
When the result of the recalculation does not satisfy the operator, it is recommended to do a spin of the wheel to confirm the findings from the operation of recalculation itself.
After the launch of the wheel, the machine, in addition to displaying the unbalance value, draw up automatically all the programs measurement fields that are consistent with those measures that were taken previously and at the same time erases all measures which are not consistent.

13.11 Wheel balancing in Motorcycle mode (with distance caliper extension Kit)

By enabling “motorbike wheel balancing” function, the wheel balancers can also balance motorbike wheels. Before detecting the wheel sizes (see Par. 13.2.2), select motorcycle wheel balancing mode proceeding as described below:

press the button  , then the button  and, finally, press the button  to go to the measurement acquisition program selection screen.



Use arrows  and/or  to select the mode desired.

At the end press push button  .

The machine will be configured as follows to perform the measurement in the desired mode and on the screen will appear an indication showing the measures that will be acquired.

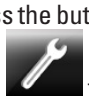
The "motorcycle" mode automatically recalculates the wheel distance measurement, increasing it by the length of the extension supplied with distance caliper extension kit (kit available on demand).

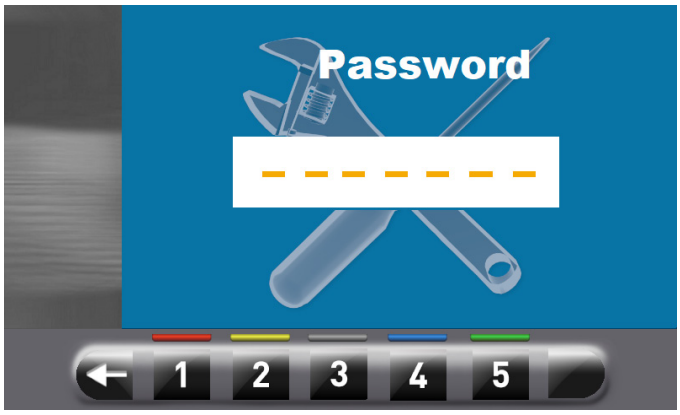
	THE EXTENSION MUST BE FITTED ONLY WHEN BALANCING IS PERFORMED IN "MOTORCYCLE" MODE.

	TO MOUNT THE EXTENSION AND THE COMPONENTS OF CALIPER EXTENSION KIT, PLEASE REFER TO THE SPECIFIC INSTRUCTIONS INCLUDED IN THE KIT.

Balancing procedures are identical for both modes (car/motorbike). By selecting motorcycle mode, besides DYNAMIC balancing (see Par. 13.7.4) STATIC balancing and/or ALU-S (Par. 13.7.1 and/or 13.7.5) can also be performed.

14.0 USER MENU (OPTIONS AND CALIBRATION)

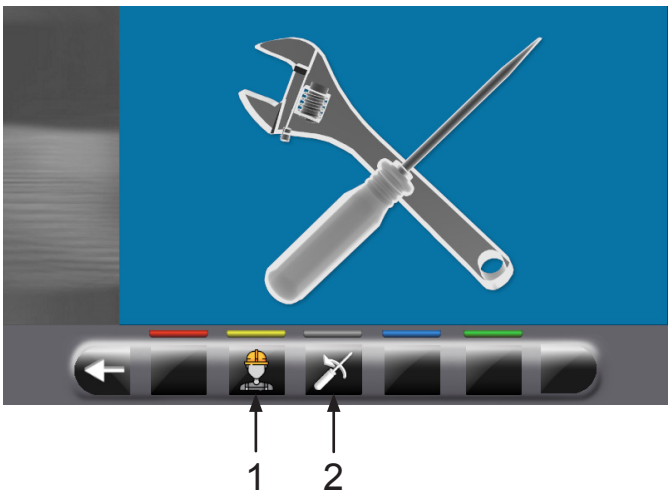
From the main page “Home” press the button  to move to the next screen page and the button  to access the user menu. On the monitor, the following screen appears where you can enter the password.



The user login password is: 1234.

After entering the correct password you will see the following screen:

Fig. 35



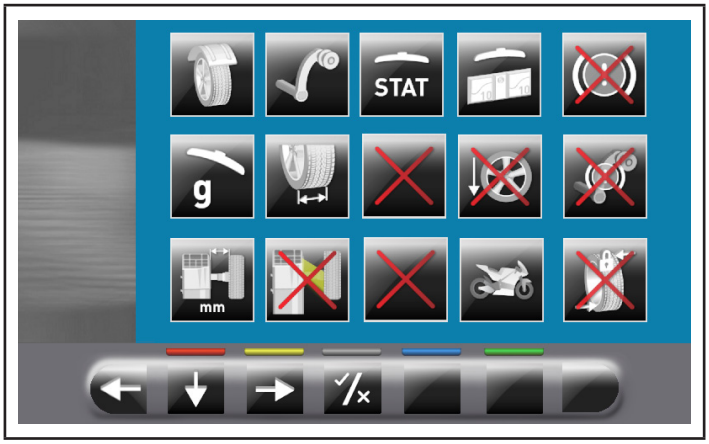
KEY

1 – Options menu push button

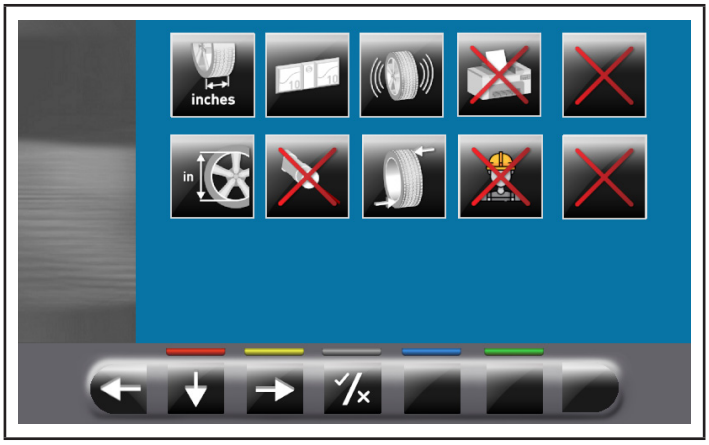
2 – Calibrations menu push button

14.1 Options menu

Press button  to display the monitor screen to enable/disable the options as shown below:



Press button  several times to display the second option screen below.



To enable / disable individual functions simply highlight the icon using the buttons  and/or  and press the button  .

Pressing the button  may involve, besides, the change in the unit of measure from "mm" to "inch" and vice versa (where applicable) or access to a sub-screen for values settings values (see Par. 14.1.1 or 14.1.2). After you select/deselect the desired options, exit the menu by pressing push button  .

List of available options

THE ICONS OF THE AVAILABLE OPTIONS WILL TURN BLUE WHEN THEY ARE SELECTED.

OPTIONS THAT ARE NOT AVAILABLE ARE MARKED WITH A RED "X".

Enables/disables the spin/protection carter.

Enables/disables the distance/diameter detection caliper.

Enable/disable the display of static threshold after each spin.

It allows you to set the thresholds for each of the balancing mode weights (see Par. 14.1.1).

Enable/disable the pneumatic brake after the spin.

When activated, grams weight display unit is set.

When activated, ounce weight display unit is set. When this option is enabled, weight display unit can be modified from ounces to grams and vice versa.

It allows you to enable/disable the width function detected by the width gage.

Enable/disable the positioning of adhesive weights at "6 o'clock".

Enable/disable the lock function for caliper arm in position.

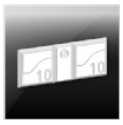
It allows you to change the unit of measure of the distance of the weights fitting point from mm to inches and vice versa.

Enable/disable the LED-light.

Enable/disable the functions of motorbike wheel balancing.

Enable/disable the encoder mounted on the spin motor.

It allows you to change the unit of measurement of the rims width from mm to inches and vice versa.



It allows you to set the size values of adhesive weights (see Par. 14.1.2).

Enable/disable the RUN-OUT functions.

Enable/disable the functions of machine printing.

It allows you to change the unit of measurement of the rim diameter from mm to inches and vice versa.

Enable/disable the weights positioning laser function.

Enable/disable the repositioning of the wheel at the end of the spin.

Enable/disable user function.

It allows the setting of the retrieval of the measures by eye: readout of measures printed on the rim and the graduated scale of the distance-diameter caliper.
NOTE: it is activated only if distance-diameter caliper is disabled.

Enable/disable the use of the manual caliper to measure rim width.
NOTE: it is activated only if distance-diameter caliper is disabled.

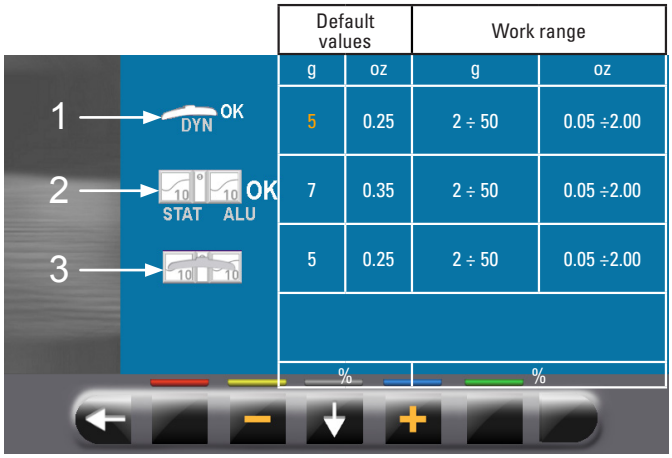
Enable/disable the function of clip weights positioning laser wheel inner/outer side “at 12 hours”.

14.1.1 Lower weight limit

Correction weight below a certain limit is normally shown equal to zero. This limit can be set from 10 g to 1 g (from 0.5 oz to 0.05 oz).

At the end of the spin however, by pressing the button  , the weight can be displayed with max resolution of 1 g (0.05 oz), not considering the set lower limit.

LOWER LIMIT'S FACTORY SETTING FOR DYNAMIC WHEEL BALANCING MODE IS 5 g (0.25 oz). THE LOWER LIMIT FOR ALL THE OTHER MODES IS SET AT 7 g (0.35 oz).



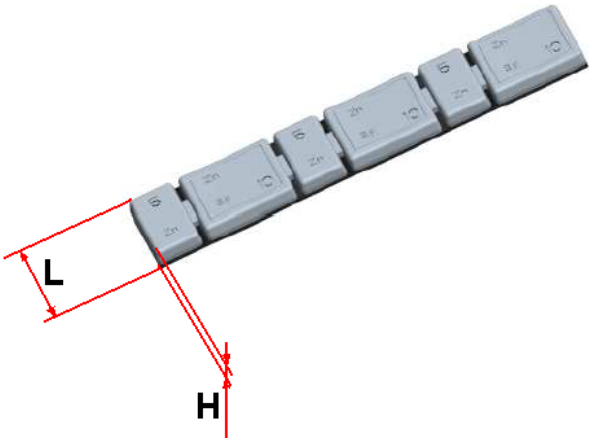
	Default values		Work range	
	g	oz	g	oz
1	5	0.25	2 ÷ 50	0.05 ÷2.00
2	7	0.35	2 ÷ 50	0.05 ÷2.00
3	5	0.25	2 ÷ 50	0.05 ÷2.00

KEY
1 – Lower weight limit in the DYNAMIC program to display "OK" (default value 5 g (0.25 oz))
2 – Lower weight limit in the ALU-STATIC program to display "OK" (default value 7 g (0.35 oz))
3 – Weights display resolution (default value 5 g (0.25 oz))

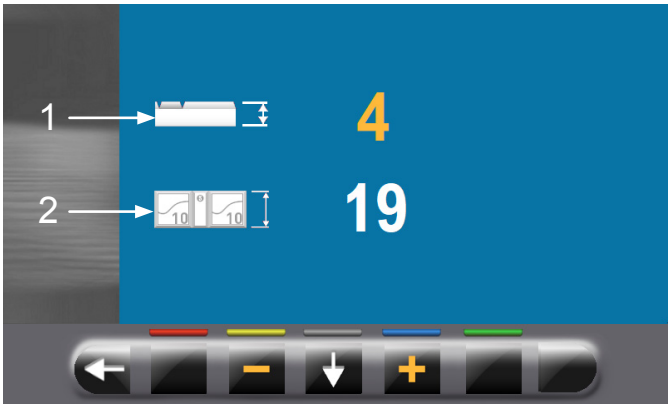
14.1.2 Setting adhesive weight dimensions and static threshold percentage

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. 36).

Fig. 36



To carry out this setting, press the icon  . You will see the following screen:



KEY
1 – Weights thickness (height) (default value 4 mm (0.16”))
2 – Weights width (default value 19 mm (0.75”))

From this screen page, change the size values of weights using the buttons  and  .

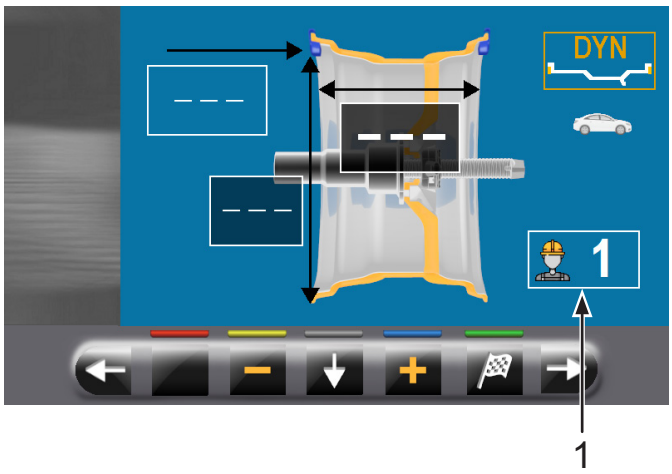
THE YELLOW-COLORED-VALUE IS THE ACTIVE FIELD AND THE MODIFIABLE ONE.

14.1.3 User management

The "User Management" function is disabled on machine delivery. To enable it, proceed as described in Para 14.1. After enabling, the icon will be displayed on every page (Fig. 37 ref. 1).
The wheel balancers can be used simultaneously by 4 different users.

Fig. 37

Fig. 38



Press button  (Fig. 37 ref. 2), shown on the monitor or select the field (Fig. 38 ref. 1) and subsequently press button  to display the screen page below:

KEY
A – Program used in the last carried out spin
B – Acquired measurements for the last carried out spin

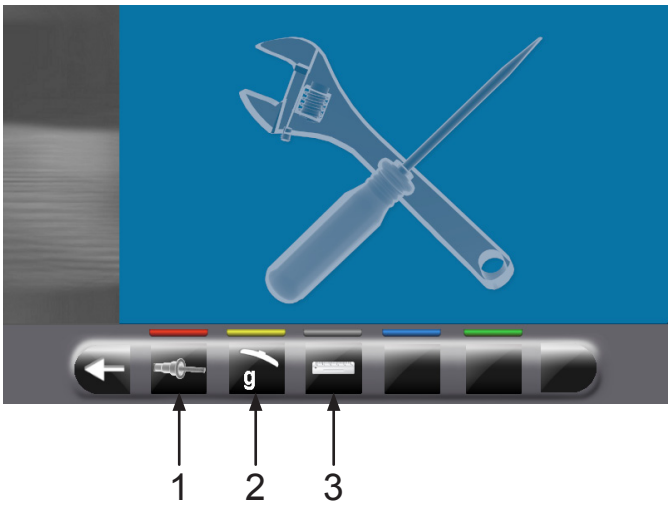
Press any of the available numbers on the buttons at the bottom of the page to select the corresponding user. The system stores the data relating to the last performed spin according to the different operators.
You can recall the desired user each time the program displays the specific button (Fig. 37 ref. 2 and Fig. 38 ref. 1). 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 "USER MANAGEMENT" FUNCTION, SEE PARAGRAPH 14.1. IF THE FUNCTION IS DEACTIVATED, BUTTON  IS DISPLAYED.

14.2 Machine calibrations

There are three types of calibrations displayed by pressing the button  (Fig. 35 ref. 2).

Fig. 39

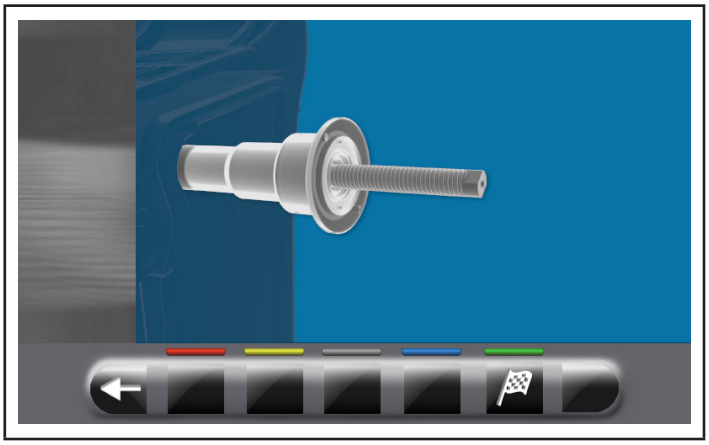


KEY
1 – Chuck "0" (zero) calibration
2 – Weight measurement sensors calibration
3 – Gage calibration

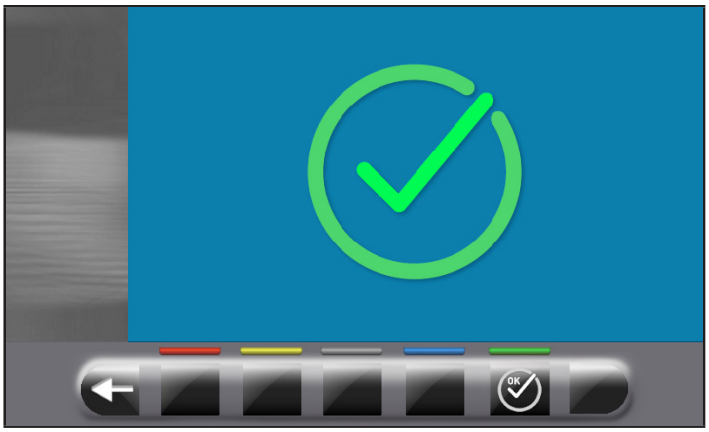
The three types will be explained in the next sections.

14.2.1 Chuck "0" (zero) calibration

Press the button  (Fig. 39 ref. 1) to display the following screen page on the monitor:



After making sure that the chuck is unloaded (no wheel or mounted accessories), press the button  and close the guard. The chuck will rotate for a few minutes until you see the screen below:



At this point the machine has all its measuring fields. Press button  to return to calibrations screen page.

14.2.2 Weight measurement sensors calibration

THE NUMERICAL VALUES SHOWN IN THE FIGURES BELOW ARE PURELY ILLUSTRATIVE.

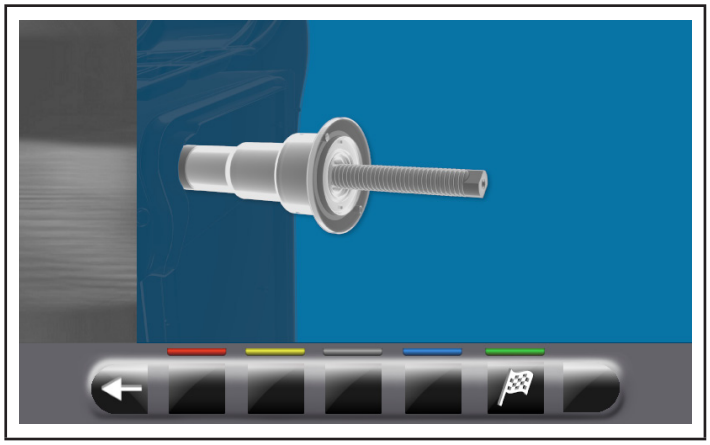
For the calibration of weight measurement sensors, follow three steps:

1. perform zero shaft calibration WITH wheel (and adapter);
2. perform weight measurement calibration WITH wheel (and adapter);
3. perform zero shaft calibration WITHOUT wheel and adapter.

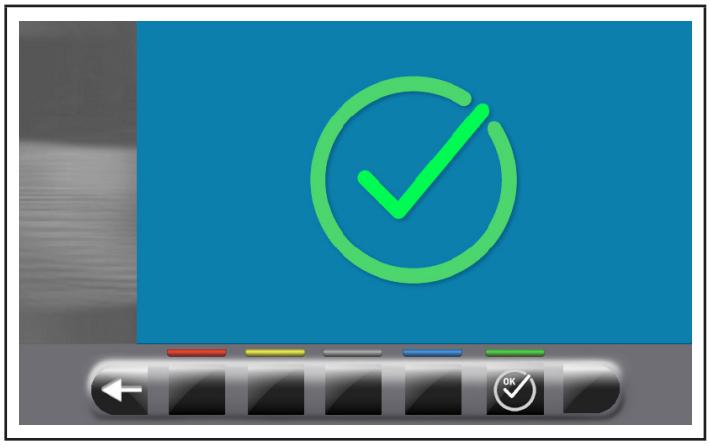
STEP 1

- Assemble a balanced wheel on the chuck and tighten with the appropriate adapter.

- Press the button  (Fig. 39 ref. 1) to display the following screen page on the monitor:



- Press button  and close the guard. The chuck will rotate for a few minutes until you see the screen below:

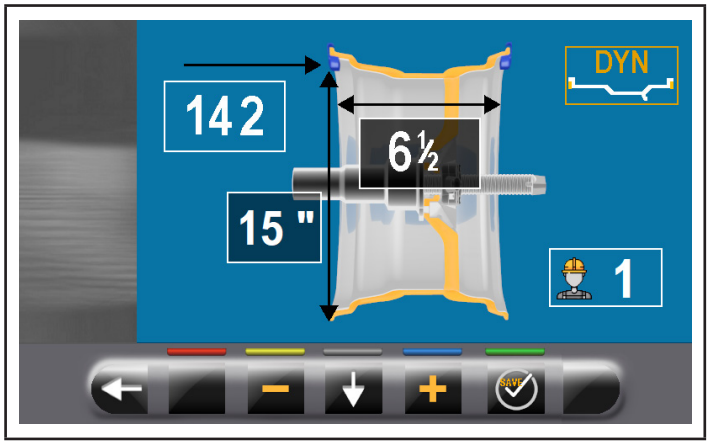


At this point the machine has all its measuring fields.

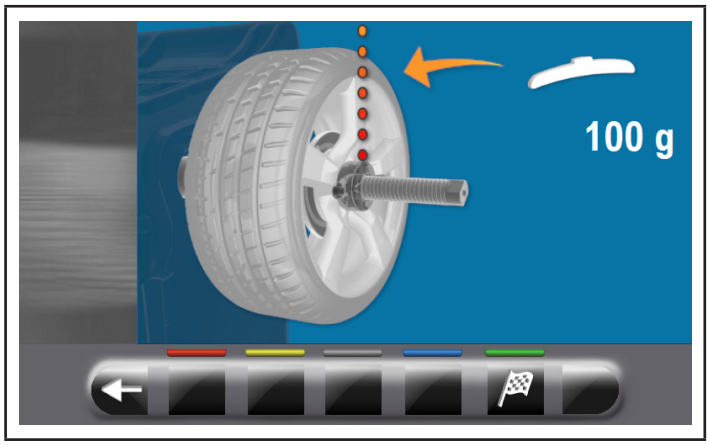
Press button  to return to calibrations screen page.

STEP 2

- Press the button  (Fig. 39 ref. 2) to display the following screen page on the monitor:



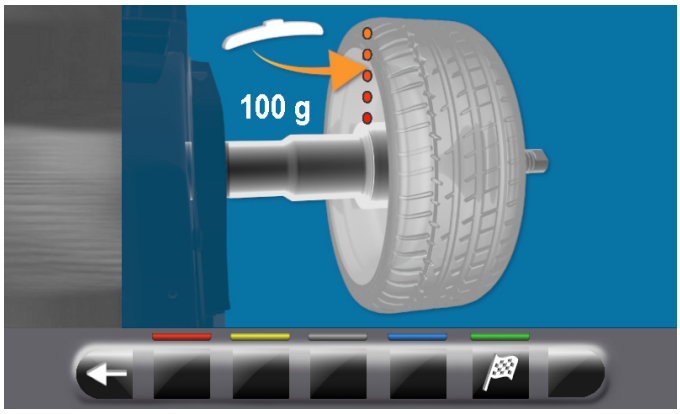
- Set the size of the rim on the chuck using the distance-diameter caliper arm.
- Set the rim width using one of the following calipers:
  • Manual caliper
  • External data gage
- Press button  and close the guard to the perform the 1st spin of the wheel without weights.
- At the end, on the monitor will appear the following screen, saying that you should apply a weight of 100 g (3.52 oz) to the “12 o'clock” outer rim.



APPLY THE WEIGHT AT A POINT IN WHICH BOTH SIDES OF THE RIM THERE IS THE POSSIBILITY OF APPLYING A CLIP WEIGHT OF 100 g (3.52 oz).

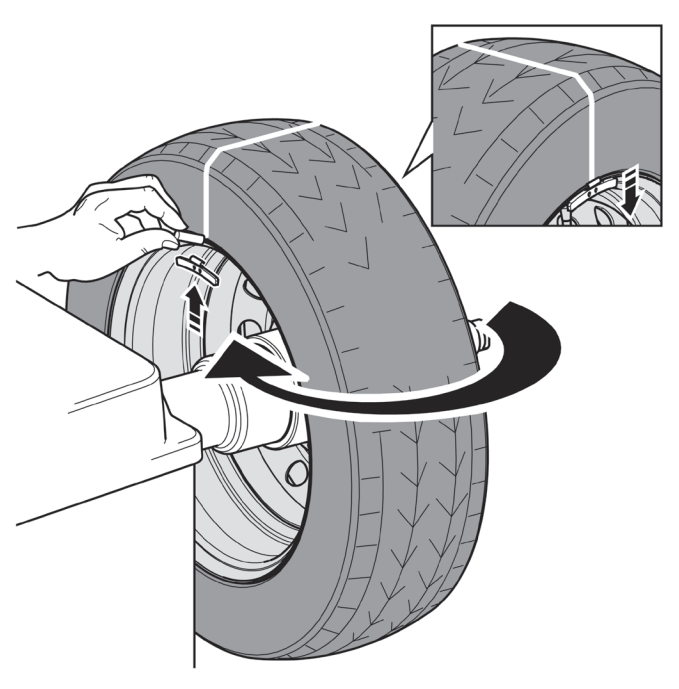
- Apply the weight and position it perfectly to the "12 o'clock".

- Press the button  and close the guard to perform the 2nd spin of the wheel (100 g (3.52 oz) weight placed on the outside of the wheel).
- At the end the following screen will appear on the monitor, suggesting to remove the weight of 100 g (3.52 oz) previously applied on the outer side and apply it on the inside of the rim.



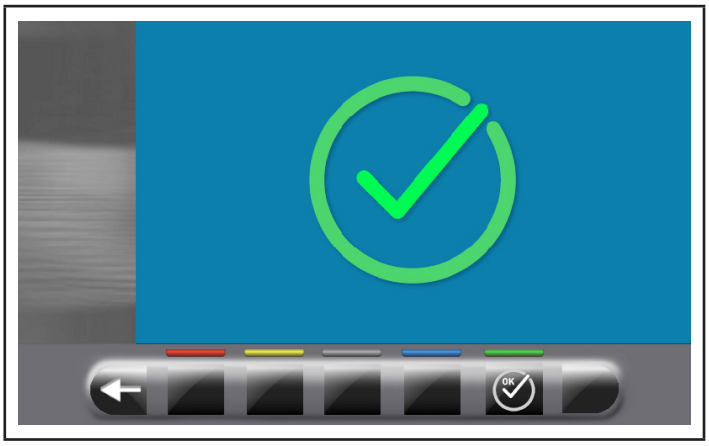
- Turn manually the wheel until You have the weight of 100 g (3.52 oz) on the outer side at "12 o'clock".
- Press the brake pedal and hold it down during the whole the following operation to avoid unexpected rotation of the chuck.
- Remove the weight from 100 g (3.52 oz) from the outside of the wheel and apply it on the inner side at “12 o'clock”.

AT THIS POINT TAKE THE WEIGHT POSITIONED ON THE EXTERNAL SIDE AND PLACE IT EXACTLY IN THE SAME POSITION BUT ON THE INTERNAL SIDE, HELPING BY DRAWING A LINE ON THE TIRE AS A REFERENCE (SEE FIGURE BELOW).



- Close the guard to perform the 3rd spin of the wheel (100 g (3.52 oz) weight placed on the inside wheel).

At the end of the rotation, the video screen below will be displayed to indicate that the operation is finished.

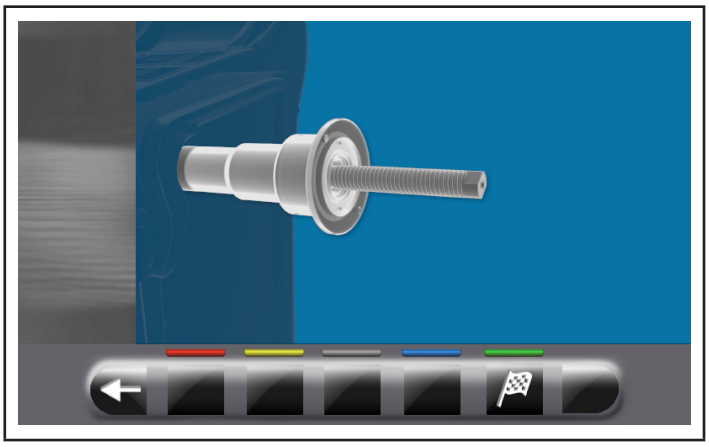


Press button 

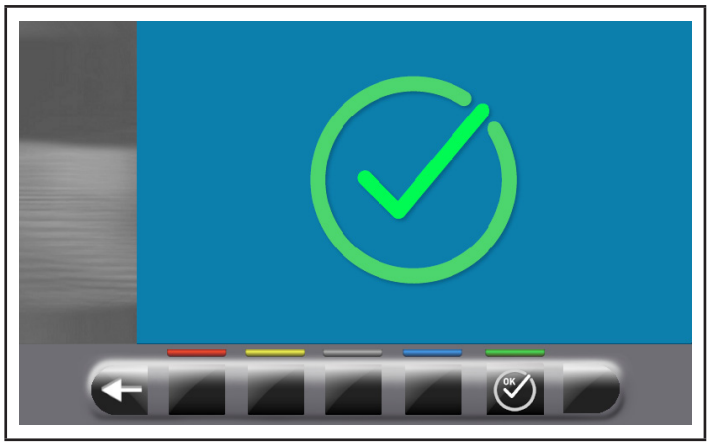
to return to calibrations screen page.

STEP 3

- Remove the wheel from the chuck and perform a complete calibration procedure “0” (zero) chuck as described below.
- Press the button  (Fig. 39 ref. 1) to display the following screen page on the monitor:



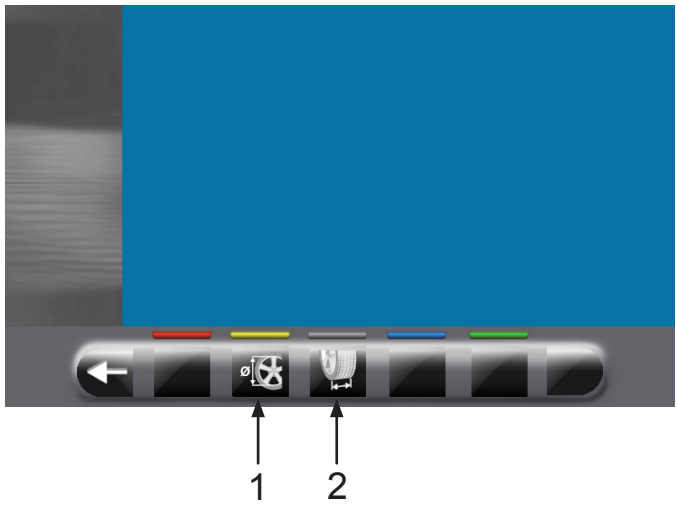
- After making sure that the chuck is unloaded (no wheel or mounted accessories), press the button  and close the guard. The chuck will rotate for a few minutes until you see the screen below:



At this point the machine has all its measuring ranges. Press the button  to end calibration procedure.

14.2.3 Gage calibration

Press the button  (Fig. 39 ref. 3) to display the following screen page on the monitor:

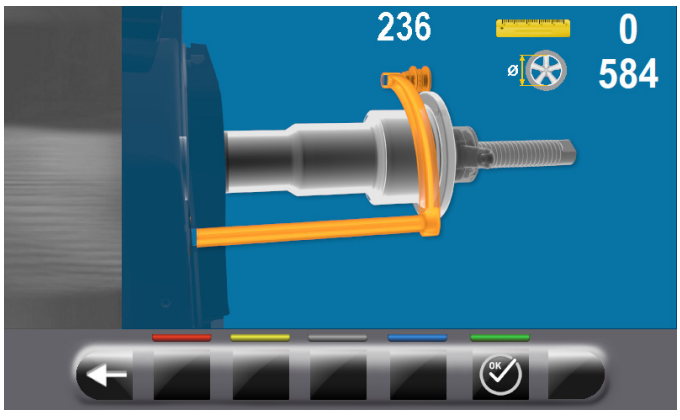


KEY
1 – Distance-diameter caliper calibration
2 – External data gage calibration

Distance-diameter caliper calibration

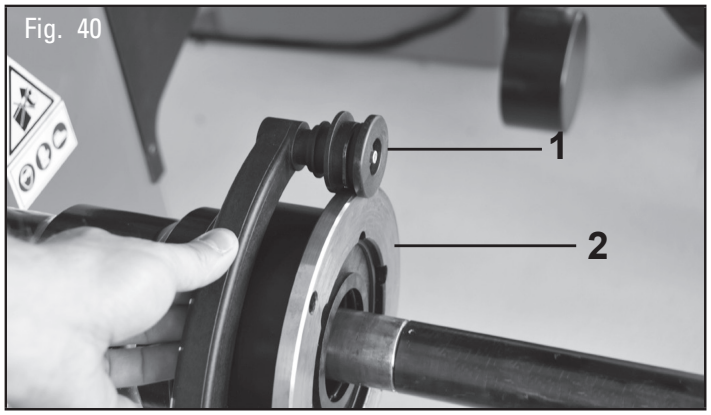
THE NUMERICAL VALUES SHOWN IN THE FIGURES BELOW ARE PURELY ILLUSTRATIVE.

Press the button  to display the following screen page on the monitor:



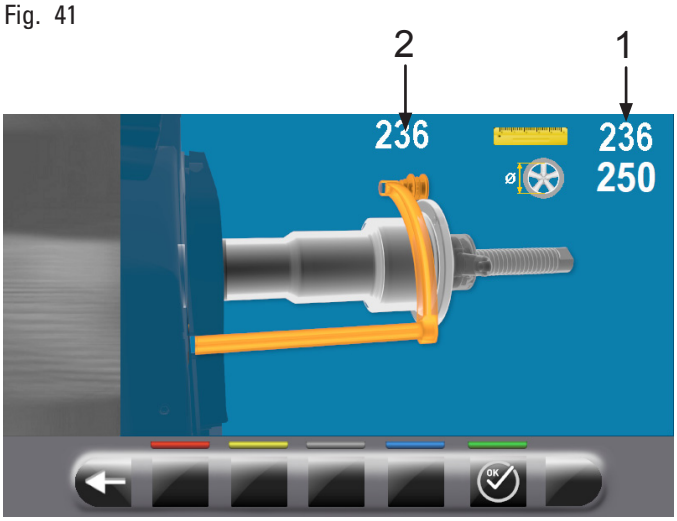
Place the gage (Fig. 40 ref. 1) on the chuck flange (Fig. 40 ref. 2).

Fig. 40



The following screen will appear on the monitor to indicate the measured values:

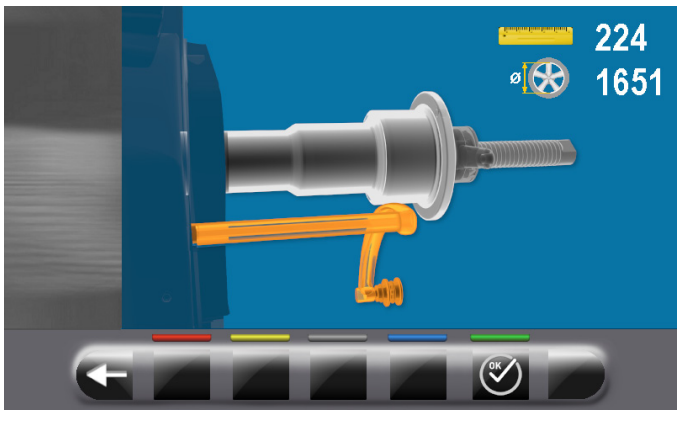
Fig. 41



KEY
1 – Example of value detected by the gage
2 – Example of value on threaded chuck

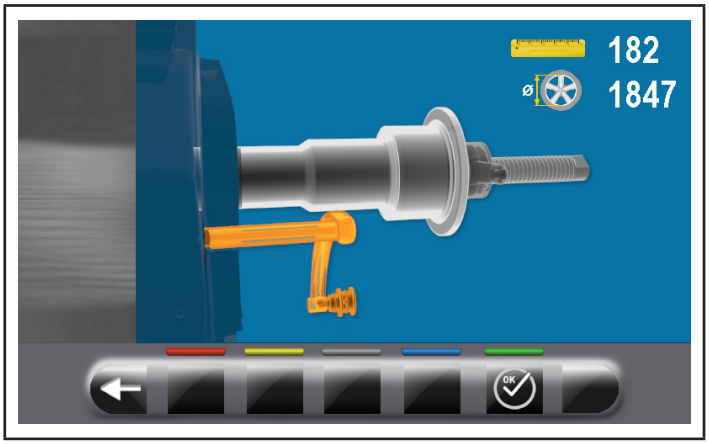
– The value indicated next to the ruler symbol (Fig. 41 ref. 1) must be equal to or ± 1 mm (0.04 ") compared to what is indicated above the gage (Fig. 41 ref. 2).

- Press push button  .
  The following screen will appear on the monitor:



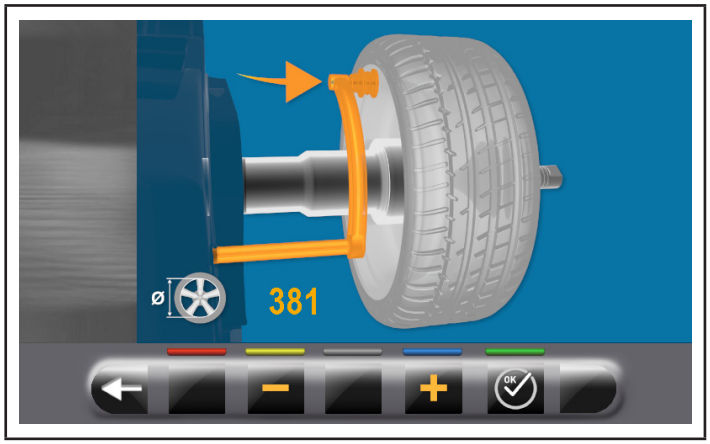
- Place the gage as shown in the following figure:

- Press push button  . Wait a few seconds until you see the following screen:



- Place the gage against the chuck in the lower part of the it but on a smaller diameter than before as indicated on the image on the monitor.

- Press push button  .
  On the monitor the next screen page will be displayed:



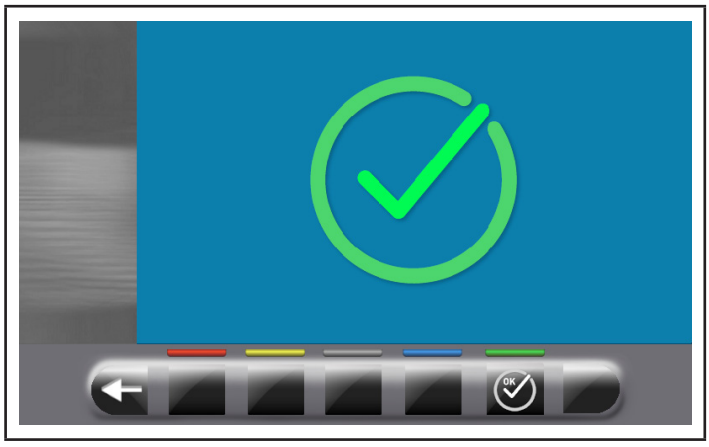
Measure the exact diameter of a rim (see Fig. 42) and place it on the screen on the monitor by pressing the  or  buttons.


Fig. 42

- Fit the measured wheel on the balancer and lock it on the chuck.
- Turn the gage ferrule (Fig. 43 ref. 1) on the inner edge of the wheel upwards (see Fig. 43).

Fig. 43

- Press button  to end the operation. On the monitor the next screen page will be displayed:

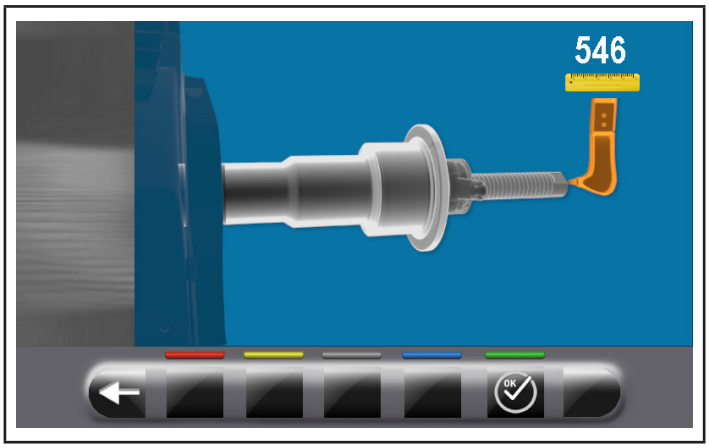


The calibration of the distance-diameter caliper is finished.

Calibration of external data gage

THE NUMERICAL VALUES SHOWN IN THE FIGURES BELOW ARE PURELY ILLUSTRATIVE.

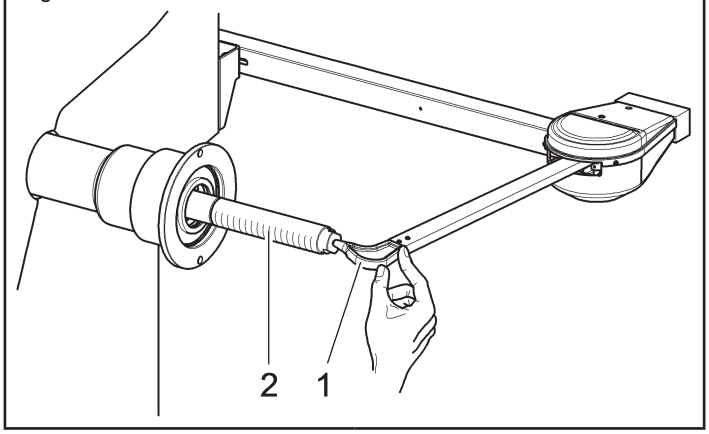
Press the button  to display the following screen page on the monitor:



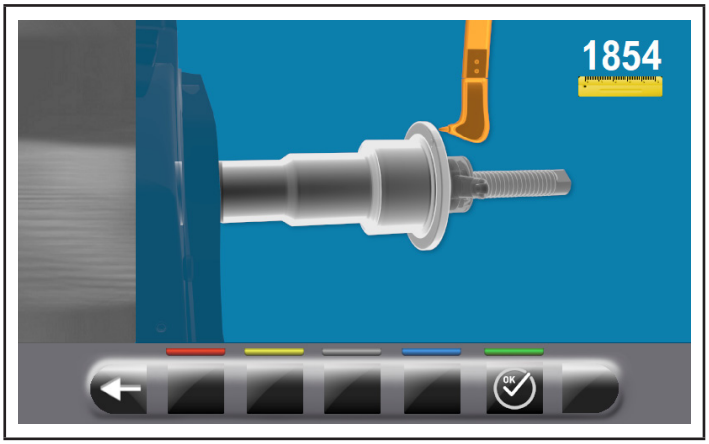
TO PERFORM THIS CALIBRATION, THE CHUCK MUST BE UNLOADED (NO WHEEL OR ACCESSORIES MOUNTED ON IT).

Move the tip of the width measuring device (Fig. 44 ref. 1) in line with the chuck edge (Fig. 44 ref. 2).

Fig. 44

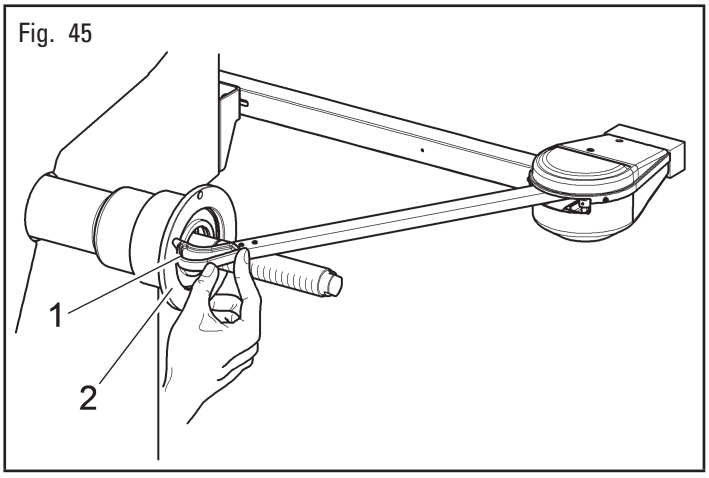


Press button  .
On the monitor the next screen page will be displayed:

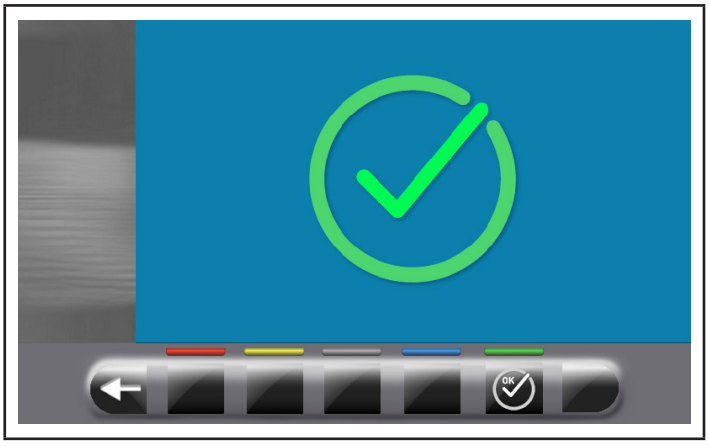


Move the tip of the width measuring device (Fig. 45 ref. 1) in line with the outer surface of the flange (Fig. 45 ref. 2).

Fig. 45



Press button  .
At the end of the operation, the following screen will appear on the monitor:



The calibration of the external data gage is finished.

15.0 ERROR SIGNALS

During wheel balancer operation, if wrong commands are given by the operator or device faults occur, an error code may appear on the monitor screen.
Below is a troubleshooting chart.

Error code	Description
2	Planned wheel speed not reached
3	Calibration overcoming
4	Wheel speed stability out of tolerance
5	Encoder calibration error
6	Encoder samples not sufficient
7	Chuck calibration error
8	Piezo calibration values out of tolerance
9	Wheel rotations not completed
11	Incorrect gain calibration
14	Firmware error
15	Runout samples not sufficient
27	Rotate the wheel to make a complete rotation
28	Piezo calibration error
29	Distance out of tolerance level
31	Distance-diameter caliper released
32	Parameters format incompatible

16.0 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 CHUCK.

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 tire 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!!

17.0 TECHNICAL DATA

17.1 Technical electrical data

Max. absorbed voltage (W)		100
Power supply	Voltage (V)	110 - 230
	Phases	1
	Frequency (Hz)	50/60
Rotating speed (revolutions/min)		< 100

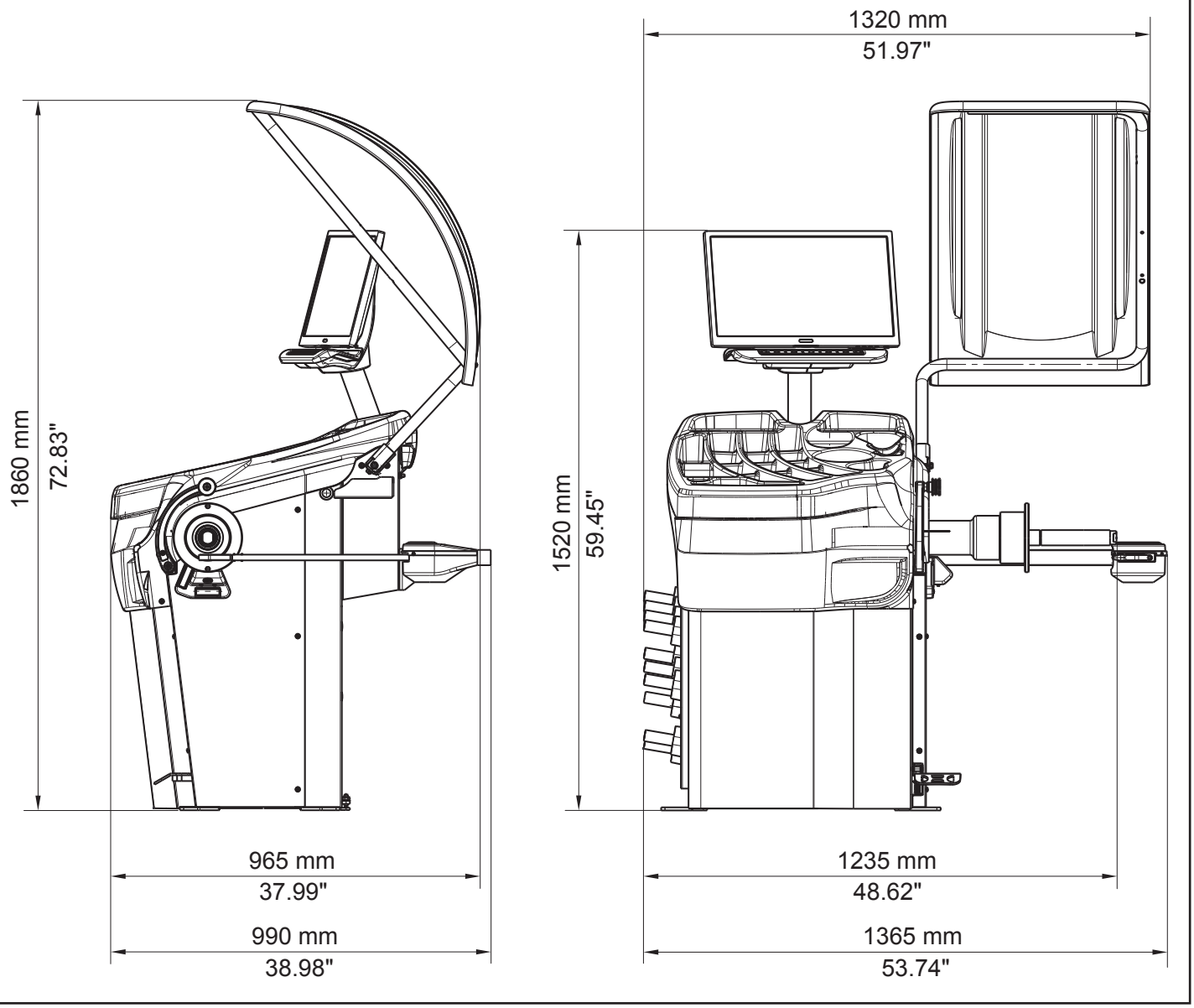
17.2 Technical mechanical data

Balancing precision (g)	± 1 (0.03 oz)
Rim width (inches)	1.5 ÷ 22
Rim diameter (inches)	10 ÷ 26 (manually up to 30)
Max. wheel diameter (inches)	43
Maximum wheel width (mm)	500 (19.69")
Cycle time (sec)	6
Sound emission level (dBA)	< 70
Max. wheel weight (kg)	70 (155 lbs)

Weight (Kg)	155 (342 lbs)

17.3 Dimensions

Fig. 46



18.0 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.

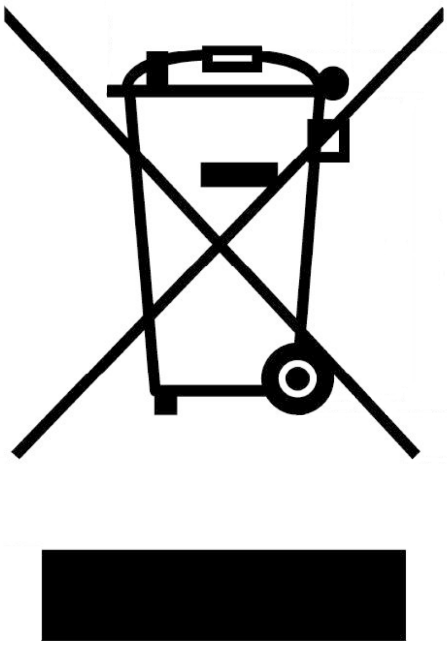
19.0 SCRAPPING

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.

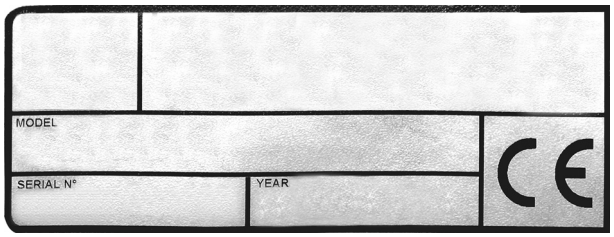
Instructions for the correct management of waste from electric and electronic equipment (WEEE) according to the Italian legislative decree 49/14 and subsequent amendments.

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. 47



20.0 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.

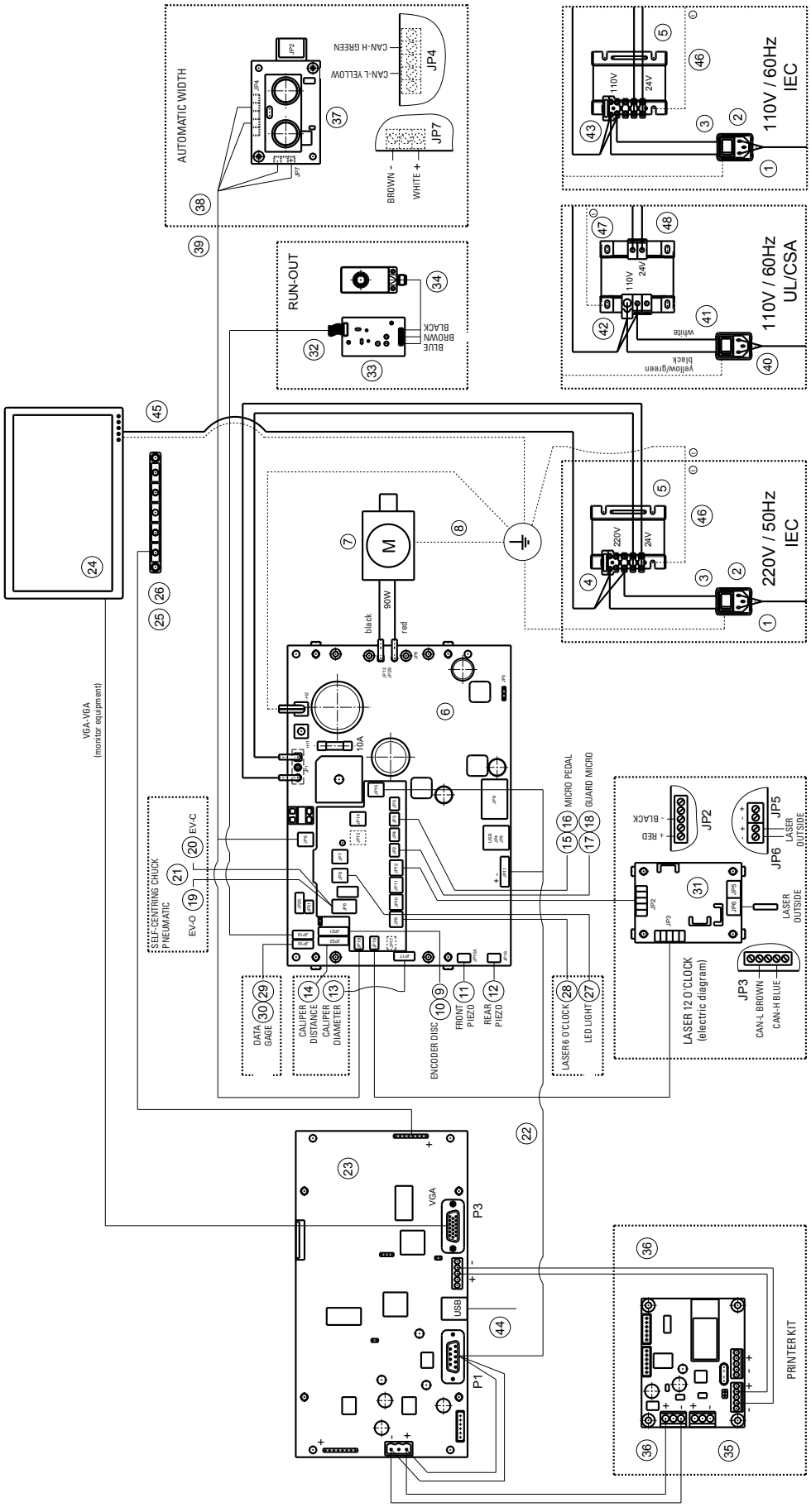
ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING MACHINE IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

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.

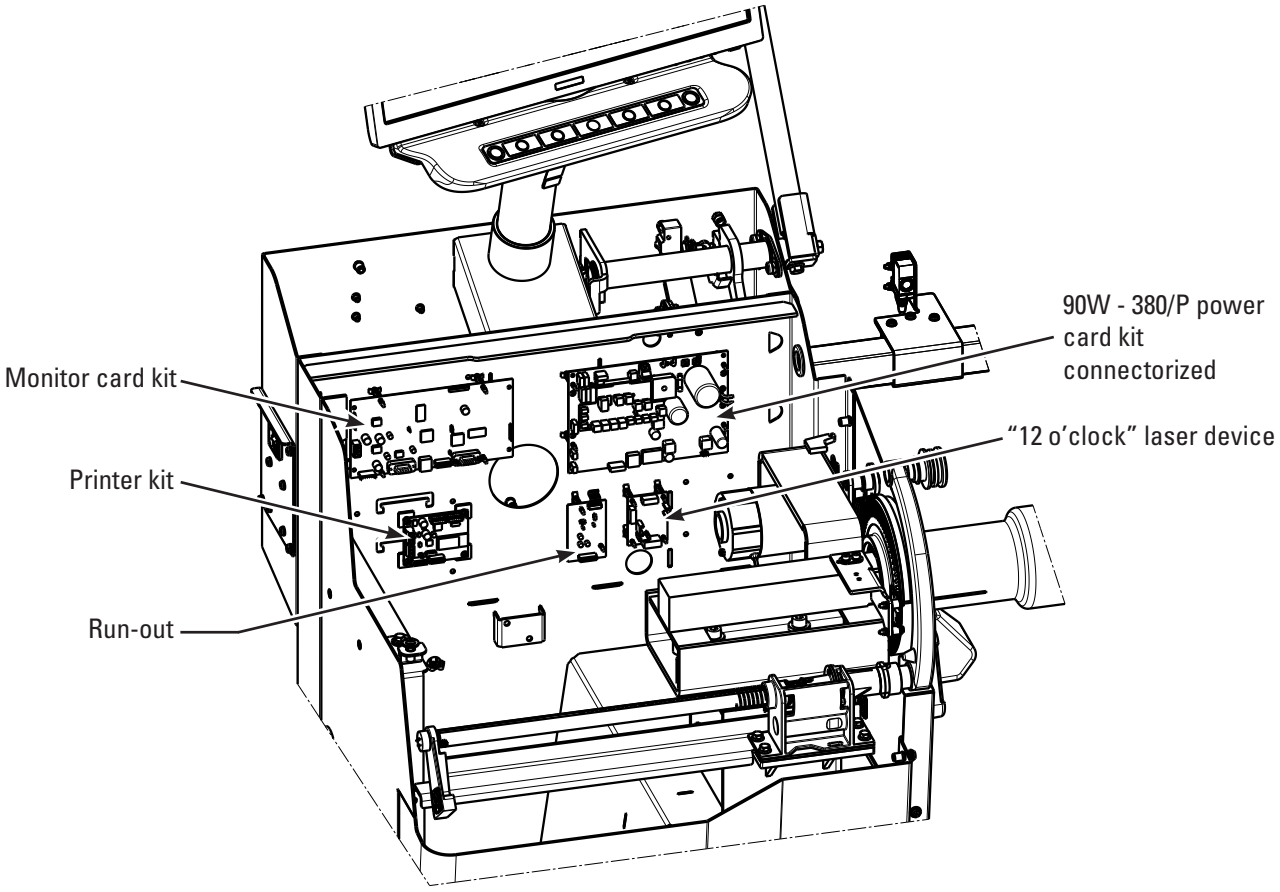
21.0 FUNCTIONAL DIAGRAMS

Here follows a list of the machine functional diagrams.


AUTOMATIC WIDTH
CAN-H GREEN
CAN-L YELLOW
JP4
JP7
BROWN -
WHITE +
RUN-OUT
BLUE
BROWN
BLACK
110V / 60Hz
IEC
110V / 60Hz
UL/CSA
220V / 50Hz
IEC
white
yellow/green
black
90W
black
red
10A
VGA-VGA
(monitor equipment)
SELF-CENTRING CHUCK
PNEUMATIC
EV-C
EV-O
DATA
GAGE
CALIPER
DISTANCE
CALIPER
DIAMETER
ENCODER DISC
FRONT
PIEZO
REAR
PIEZO
LASER 6 O'CLOCK
LED LIGHT
MICRO PEDAL
GUARD MICRO
JP2
JP5
JP6
LASER
OUTSIDE
LASER 12 O'CLOCK
(electric diagram)
JP3
CAN-L BROWN
CAN-H BLUE
VGA
P3
USB
P1
PRINTER KIT

KEY

1 – Power supply cable L=2000
2 – Wired switch with plug
3 – Cable from switch to transformer
4 – Fuse
5 – Transformer
6 – 90W-380/P power board kit
7 – DC motor
8 – Motor support ground cable
9 – Wheel position sensor cable
10 – Encoder card
11 – Piezo with front cable
12 – Piezo with cable
13 – Potentiometer with cable
14 – Optical line card
15 – Cable for pedal micro (on models with pneumatic chuck)
16 – MV15 limit switch (on models with pneumatic chuck)
17 – Cable for wheel micro protection
18 – MV15 limit switch
19 – Cable for SV-0 solenoid valve (on models with pneumatic chuck)
20 – Cable for solenoid valve SV-C (on models with pneumatic chuck)
21 – Fitting of solenoid valve (on models with pneumatic chuck)
22 – 24V power supply cable + serial
23 – Monitor card kit
24 – Monitor 22”
25 – Push-button panel with 7 keys cables
26 – 7-keys keyboard
27 – Led light
28 – Line laser (with cable) (for FDA certified wheel balancing machines with calibrated line laser)
29 – Width potentiometer extension cable
(for wheel balancers with data gage)
30 – Potentiometer with shielded cable (for wheel balancers with data gage)
31 – GAR374 electric diagram (only non-FDA certified machines)
32 – Ultrasounds sensor extension cable (for GAR373 Run-out)
33 – Run-out card (for GAR373 Run-out)
34 – Ultrasounds sensor (for GAR373 Run-out)
35 – CAN to BTH & RS232 (for GAR329)
36 – 2-wires cable (for GAR329)
37 – Ultrasounds sensor card (for wheel balancers with automatic width)
38 – Width card cable assembly (for wheel balancers with automatic width)
39 – Extension cable assembly (for wheel balancers with automatic width)
40 – Power supply cable 2 m USA plug
41 – Wired switch with plug - UL/CSA
42 – Fuse
43 – Fuse
44 – 1 m extension for USB A cable
45 – Monitor cable transformer diagram
46 – Frame transformer earth connection cable
47 – UL/CSA transformer earth connection cable
48 – Transformer


Monitor card kit
Printer kit
Run-out
90W - 380/P power card kit connectorized
"12 o'clock" laser device

Installer: Please return this booklet to literature package, and give it to the owner/ operator.

Thank You

Trained Operators and Regular Maintenance Ensures Satisfactory Performance of Your Wheel Service Equipment.

Contact Your Nearest Authorized Rotary Wheel Service Equipment Parts Distributor for Genuine Replacement Parts. See Literature Package for Parts Breakdown.

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Middle East / Northern Africa: +49.771.9233.0