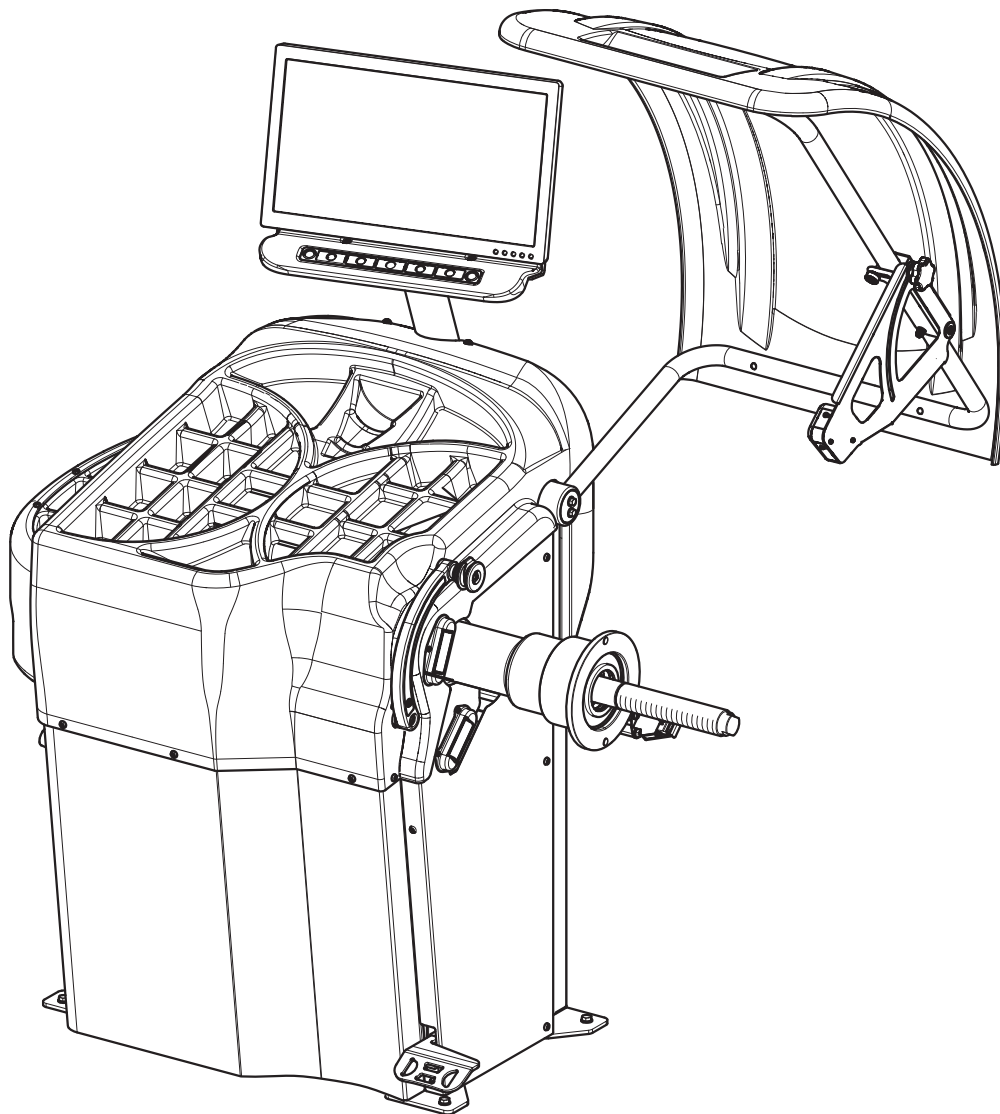




RWB380.3DTEC (R180) Wheel Balancer



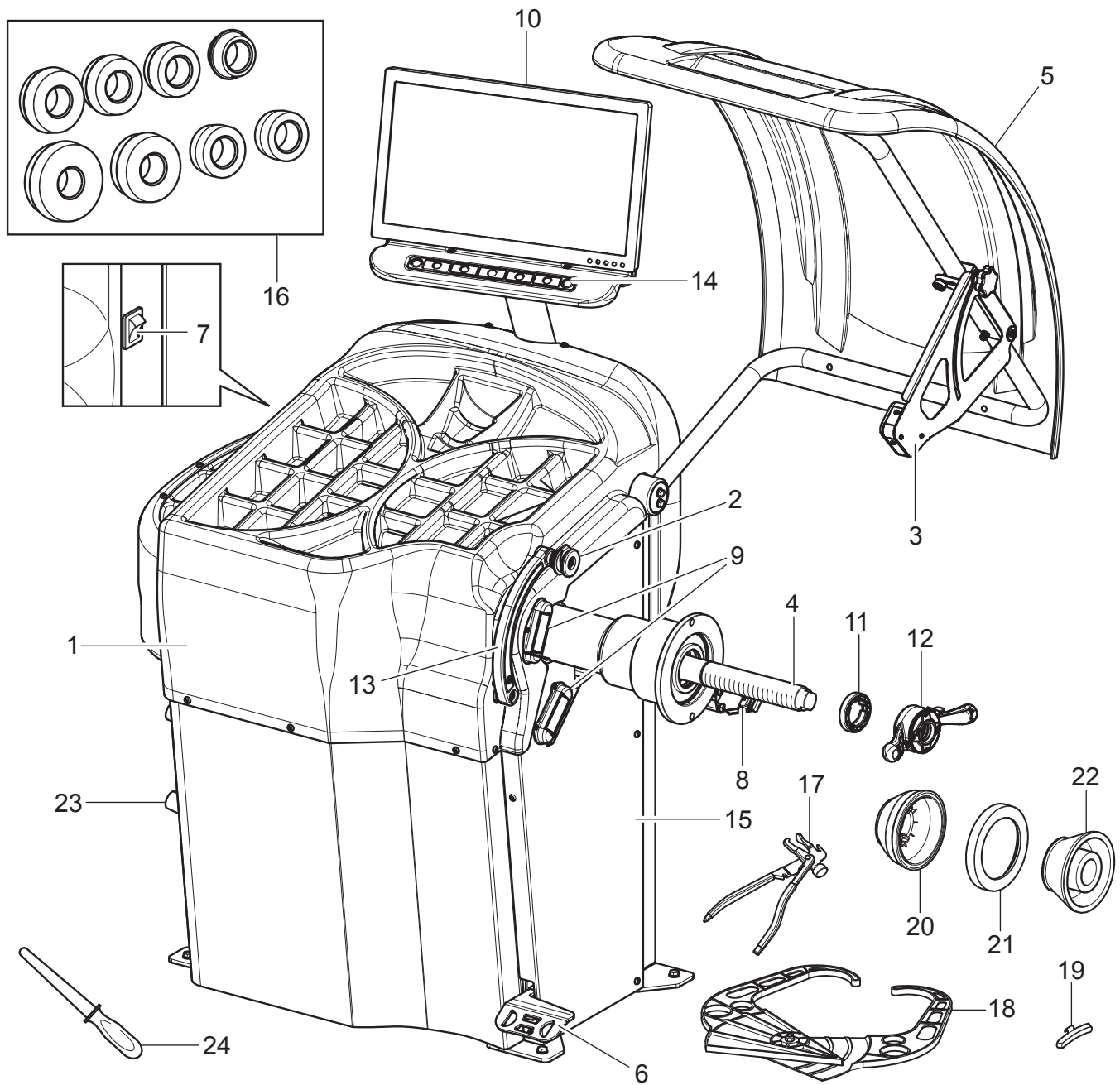
OPERATION
&
MAINTENANCE
MANUAL

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

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KEY

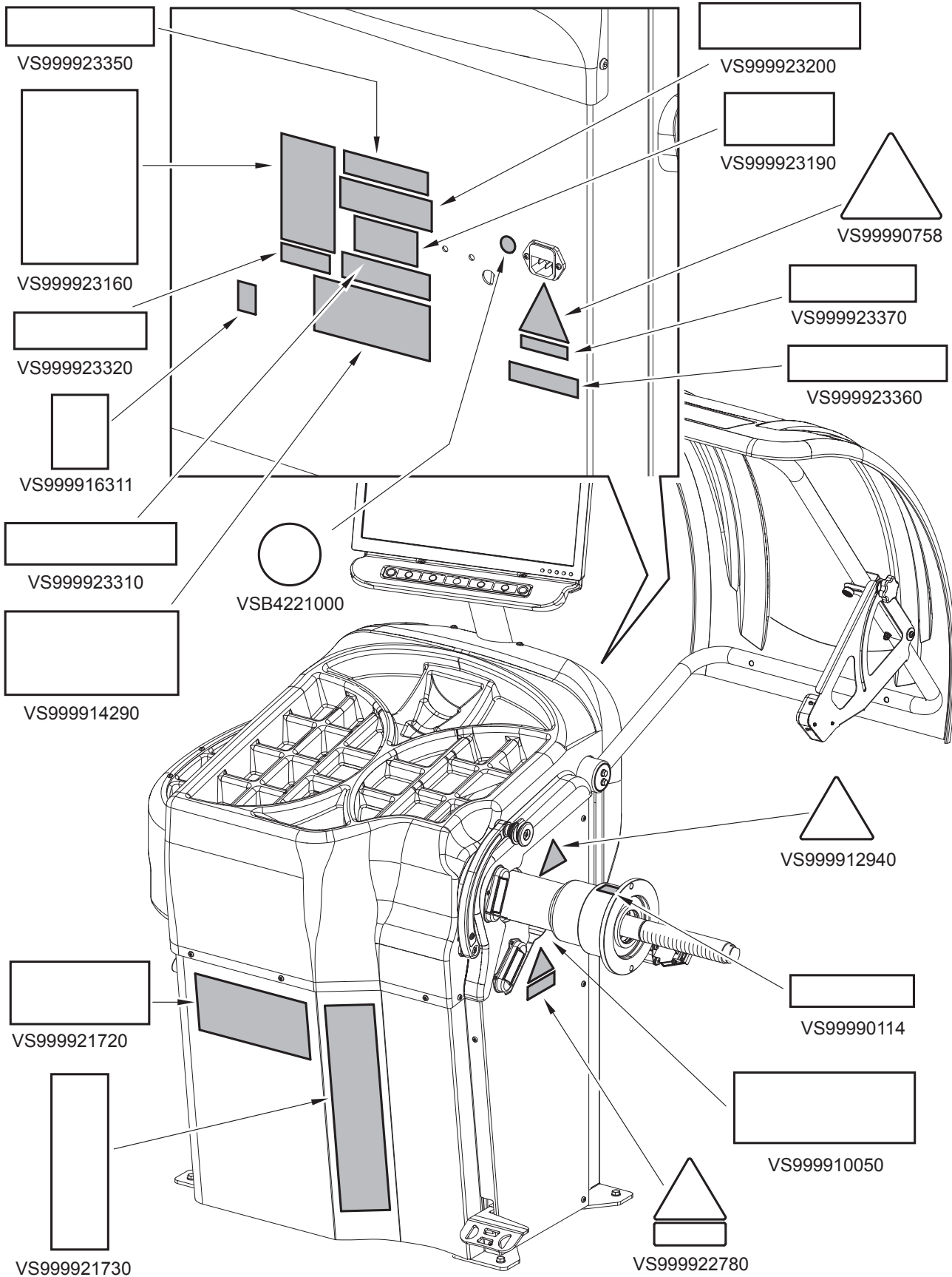
- | | |
|-----------------------------------------------|-------------------------------------|
| 1 – Weight top cover | 13 – Distance-diameter caliper |
| 2 – Pliers for weight fitting | 14 – 7-keys-keyboard |
| 3 – Automatic width measuring device assembly | 15 – Lateral guard |
| 4 – Threaded chuck | 16 – Wheels adapter Kit |
| 5 – Protection guard | 17 – Weight pliers |
| 6 – Foot brake | 18 – Manual caliper |
| 7 – Main switch | 19 – Carriages counterweight |
| 8 – Laser assembly | 20 – Protection cup |
| 9 – LED light assembly | 21 – Casing for cup protection |
| 10 – Monitor | 22 – Off-road vehicle cone D.88-132 |
| 11 – Pressure ring | 23 – Cones support panel |
| 12 – Car ring nut | 24 – Weights removing shovel |

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.
	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 equipment by means of the chuck.
	Danger! Laser presence.

PLATES LOCATION DRAWING

FIG. 2



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
VS999921720	Rotary 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
VS999923370	110 V - 1 Ph - 60 Hz plate



IF ONE OR MORE PLATES ARE MISSING FROM THE EQUIPMENT 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 EQUIPMENTS AND ACCESSORIES CAN BE DIFFERENT THAN PICTURED.

1.0 GENERAL INTRODUCTION

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



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



THE MANUFACTURER CAN NOT BE HELD RESPONSIBLE FOR ANY DAMAGE TO THE SHOP, EQUIPMENT OR CUSTOMER WHEEL/TIRE THAT MAY OCCUR WHEN THE INSTRUCTIONS GIVEN IN THIS MANUAL ARE NOT FOLLOWED. DISREGARDING THESE INSTRUCTIONS MAY CAUSE INJURY OR DEATH.

1.1 *Introduction*

Thanks for purchasing the RWB380.3DTEC (R180) tire balancer! The RWB380.3DTEC (R180) is designed and built for professional garages. The tire balancer is easy to use with safety in mind. Following the care and maintenance outlined in this tire balancer manual your tire balancer will provide years of service.

2.0 INTENDED USE

The equipment described in this manual is a wheels balancing machine for car and light transport, intended 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



EMPLOYING THIS EQUIPEMENT OUTSIDE THE USE DESTINATION IT HAS 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 equipment to be operated only by suitably trained and authorized personnel. Given the complexity of the operations necessary to manage the equipment and 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 equipment as intended by the manufacturer.



CAREFULLY READING THIS INSTRUCTION MANUAL AND A SHORT PERIOD OF TRAINING BY SKILLED PERSONNEL REPRESENT A SATISFACTORY FORM OF TRAINING.

3.0 SAFETY DEVICES


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

- Main switch located on the side of the equipment.
Its function is to disconnect equipment 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 equipment (with Class II/2 embedded). During normal operation it does not permit human access to laser radiation in excess of Class I/1. This equipment 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 equipment is a violation of Safety Standards which this equipment complies with, and the protection provided by the equipment may be impaired.

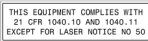
	USE OF CONTROLS OR ADJUSTMENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIATION EXPOSURE.
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APERTURE
Side of product nearest port (see "Plates location Drawing").



CLASSIFICATION
Rear of equipment (see "Plates location drawing").



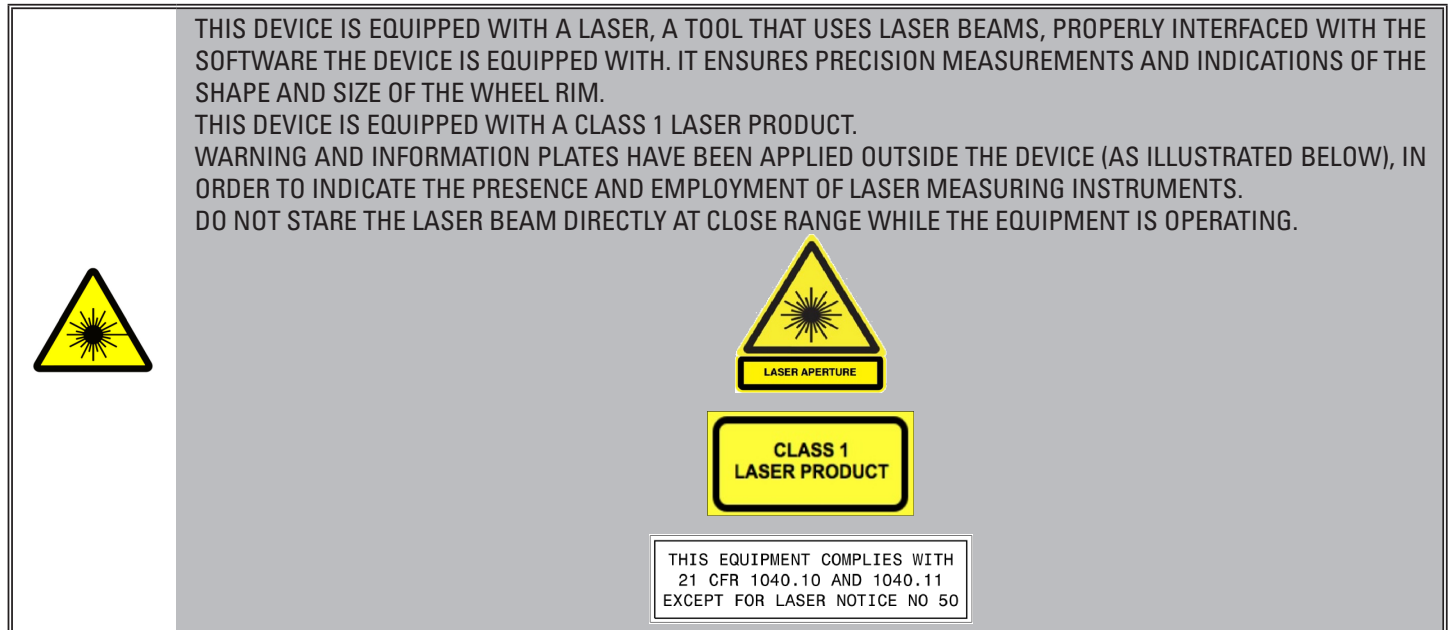
CERTIFICATION
Rear of equipment (see "Plates location drawing").

3.1 Residual risks

The equipment 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 equipment functionality.

Possible residual risks have been emphasized through pictorial representations and warnings whose location is indicated in "PLATES LOCATION DRAWING" (see Fig. 2).

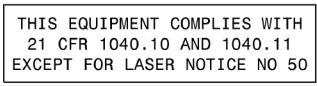





THIS DEVICE IS EQUIPPED WITH A LASER, A TOOL THAT USES LASER BEAMS, PROPERLY INTERFACED WITH THE SOFTWARE THE DEVICE IS EQUIPPED WITH. IT ENSURES PRECISION MEASUREMENTS AND INDICATIONS OF THE SHAPE AND SIZE OF THE WHEEL RIM.

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 in case 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 equipment 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 equipment leads to serious dangers and represents a transgression of OSHA safety standards.
- Use of the equipment 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 CANNOT BE HELD RESPONSIBLE FOR ANY DAMAGE CAUSED BY IMPROPER, ERRONEOUS, OR UNACCEPTABLE USE.

- 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 equipment operating manoeuvres. Immediately stop the equipment if it malfunctions and contact the customer service of the authorized dealer.
- In emergency conditions , and before any maintenance or repair work, isolate the equipment from energy sources by disconnecting the power supply using the main switch.
- The equipment power supply system must be supplied with an appropriate ground wire, to which the yellow-green equipment protection wire must be connected.
- Ensure that the area around the equipment is free of potentially dangerous objects and that the area is oil free since this could damage the tire. Oil on the floor is also a potential danger for the operator.
- **UNDER NO CIRCUMSTANCES** must the equipment 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 equipment handles and operating grips must be kept clean and free from oil.
- The workshop must be kept clean and dry and not in an out doors location. Make sure that the working premises are properly lit. The equipment can be operated by a single operator at a time. Unauthorized personnel must remain outside the working area, as shown in Fig. 4.
Avoid any hazardous situations. Do not use this equipment when the shop is damp or the floor slippery and do not use this equipment out doors.
- When operating and servicing this equipment, carefully follow all applicable safety and accident-prevention precautions. The equipment must not be operated by untrained personnel.

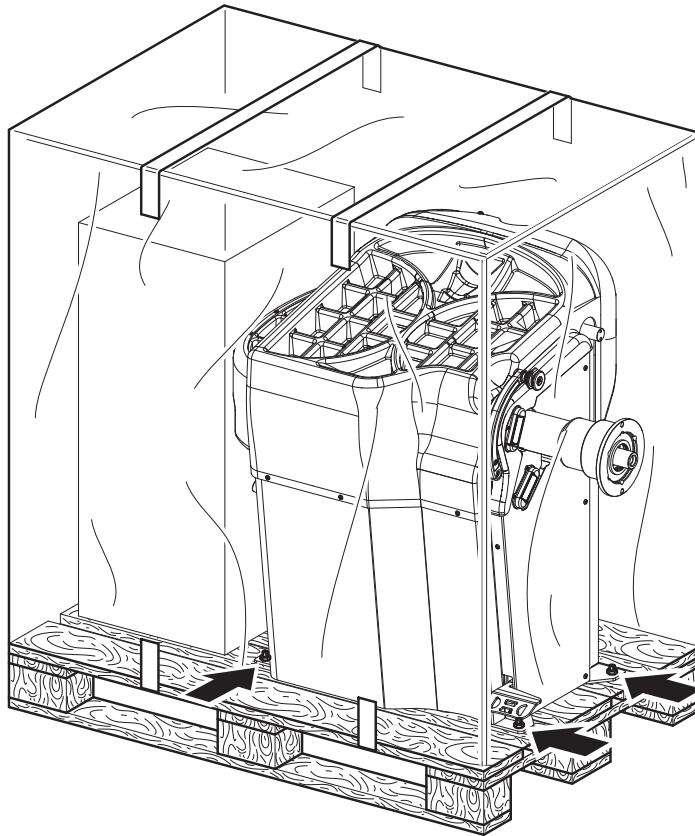
5.0 PACKING AND MOBILIZATION FOR TRANSPORT



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

The equipment is packed partially assembled.
Handling must be by pallet-lift or fork-lift trolley, Fig. 3.
The fork lifting points are indicated on the packing.

Fig. 3



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 unmail the cardboard box from the pallet it is fixed to. After removing the packing, and in the case of the equipment packed fully assembled, check that the equipment is complete and that there is no visible damage.

If in doubt do not use the equipment 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 ACCESSORIES 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 EQUIPMENT (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). DO NOT ALLOW THE LIFTED EQUIPMENT TO SWING.



NEVER LIFT THE EQUIPMENT BY MEANS OF THE CHUCK.

If the equipment has to be moved from its normal work post the transport must be conducted by 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 of the equipment is not connected.
- Place again the equipment onto the original pallet with whom it was delivered.
- Use transpallet or fork-lift for handling.

8.0 WORKING ENVIRONMENT CONDITIONS

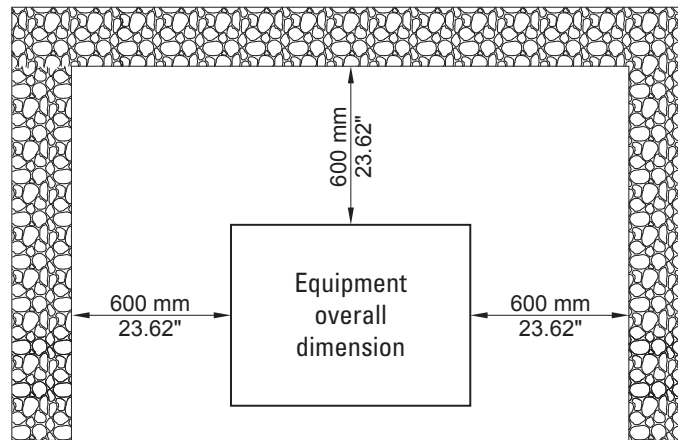
The equipment must be operated under proper conditions as follows:

- temperature: +5 °C - +40 °C (+41 °F - +104 °F)
- relative humidity: 30 - 95% (dew-free)
- atmospheric pressure: 860 - 1060 hPa (mbar) (12.5 - 15.4 psi).

The use of the equipment 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. 4



USE THE EQUIPMENT IN A DRY AND ADEQUATELY LIT PLACE, PROTECTED FROM ALL WEATHER CONDITIONS, THIS PLACE MUST BE IN COMPLIANCE WITH APPLICABLE SAFETY REGULATIONS.

The location of the equipment requires a usable space as indicated in Fig. 4. The positioning of the equipment must be executed according to the distances shown. From the control position the operator is able to observe all the equipment and surrounding area. He must prevent unauthorized personnel or objects that could be dangerous from entering the area.

The equipment 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 (100 lb/ft²).

The depth of the solid floor must be sufficient to guarantee that the anchors hold.

8.2 Lighting

The equipment must be located in an adequately lit environment.



EACH TIME THE ROD OF THE GAGE IS EXTRACTED FROM ITS HOUSING, THE LED LIGHT (FIG. 1 REF. 9) TURNS ON MAKING THE INSIDE OF THE WHEEL WHERE THE OPERATOR MUST WORK BRIGHTER.

9.0 EQUIPMENT ASSEMBLY



ALL EQUIPMENT ASSEMBLY OR ADJUSTMENTS MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

After removing the various components from the packing, check that they are complete, and that there are no missing or damaged parts, then comply with the following instructions for the assembly of the components making use of the following series of illustrations.

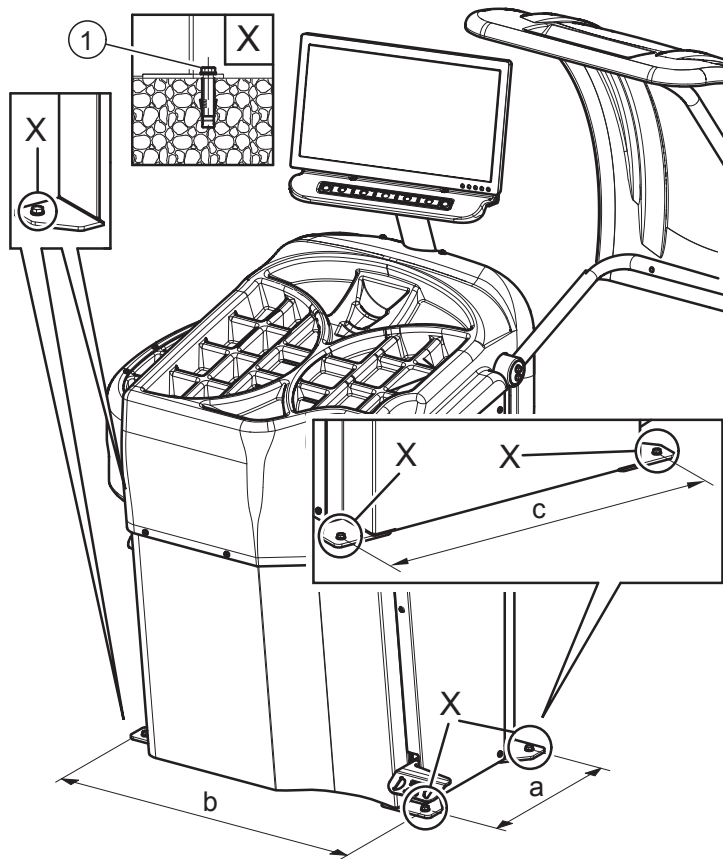
9.1 Anchoring system

The packed equipment is secured to the support pallet through the holes on the chassis and indicated in the figure below. Such holes can be used also to secure the equipment to the floor, using suitable concrete anchors (not included). Before concrete anchoring to floor, check that all the anchor points are flat, or level in contact with the floor. Shim between the equipment and the floor, as indicated in Fig. 5.



IN CASE OF WHEEL WEIGHING MORE THAN 30 kg (67 lbs), IT IS MANDATORY TO SECURE TO THE GROUND BY MEANS OF SCREW ANCHORS.

Fig. 5



a = 374 mm / 14.72"
b = 686.5 mm / 27.03"

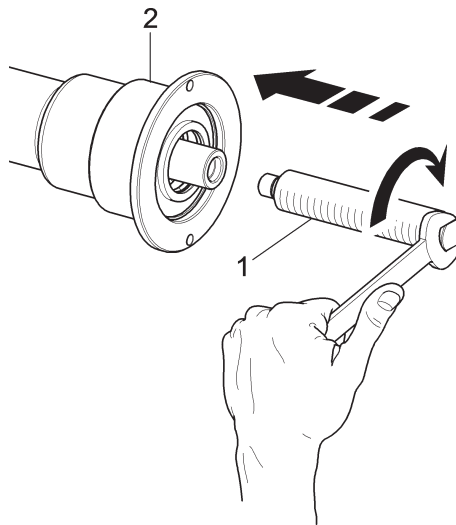
- To secure the equipment to the ground, use anchoring bolts/studs (Fig. 5 ref. 1) with a threaded shank M8 (UNC 5/16) suitable for the floor on which the wheel balancer will be secured and in a number equal to the number of mounting holes on the bottom chassis;
- drill holes in the floor, suitable for inserting the chosen anchors, in correspondence with the holes on the bottom chassis;
- insert the anchors into the holes drilled in the floor through the holes on the bottom chassis and tighten the anchors;
- tighten the anchors on the base chassis and torque as indicated by the manufacturer of the anchors.

9.2 Assembly procedures

9.2.1 Fitting the chuck on the flange

Screw the chuck with a 27 mm open wrench (Fig. 6 ref. 1) on the flange (Fig. 6 ref. 2).

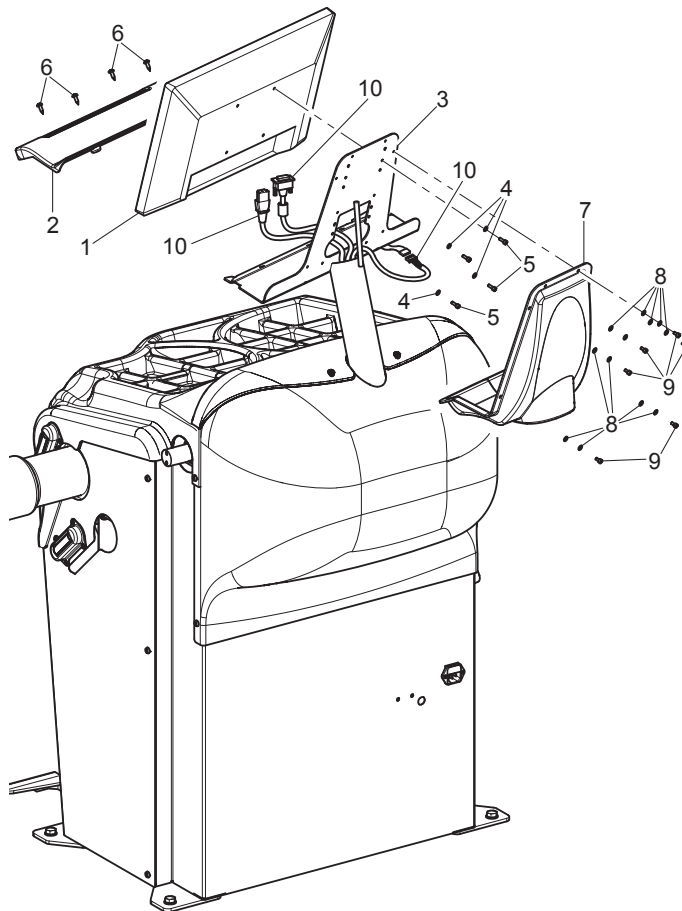
Fig. 6



9.2.2 Monitor fitting

1. Mount the monitor (Fig. 7 ref. 1) and the keyboard cover (Fig. 7 ref. 2) to the monitor support (Fig. 7 ref. 3) using the washers (Fig. 7 ref. 4), the screws (Fig. 7 ref. 5) and (Fig. 7 ref. 6), supplied;
2. connect the plugs (Fig. 7 ref. 10) on the power supply sockets and monitor signal. Connect the wiring of the keyboard;
3. mount the guard (Fig. 7 ref. 7) to the monitor support (Fig. 7 ref. 3) using the washers (Fig. 7 ref. 8), and the screws Fig. 7 ref. 9), supplied;

Fig. 7



9.2.3 Fitting the protection guard

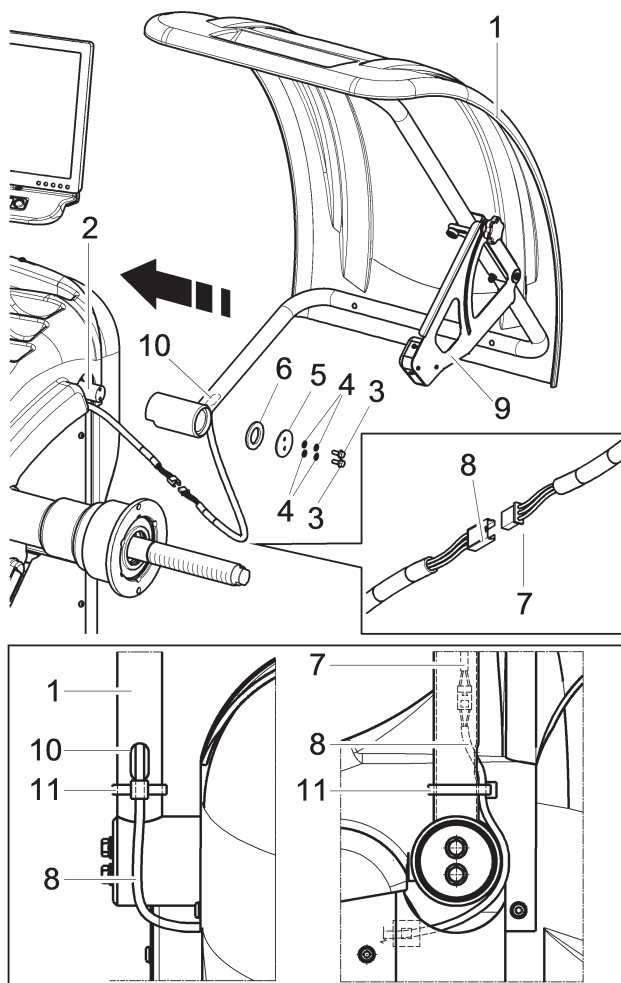
1. Mount the protection guard (Fig. 8 ref. 1) to the support (Fig. 8 ref. 2) using the bolts (Fig. 8 ref. 3), interposing the Belleville washers (Fig. 8 ref. 4) and the tab washers (Fig. 8 ref. 5 - 6);
2. tighten the bolts (Fig. 8 ref. 3) in order to make the guard (Fig. 8 ref. 1) lift or lower without bumping against the limit switch. Carry out the adjustment so that it's possible to manually guide the guard both during closing and opening;



DURING GUARD MOUNTING, PAY ATTENTION TO THE MICRO PLACED INSIDE THE EQUIPMENT.

3. connect the ultrasound sensor cable (Fig. 8 ref. 7) of the automatic width measuring device (Fig. 8 ref. 9) to the pre-arranged connector (Fig. 8 ref. 8);
4. at the end of the connection, introduce the connectors in wheel cover slot (Fig. 8 ref. 10), as illustrated in Fig. 8. Eventually, fasten connector's cable (Fig. 8 ref. 8) with a clamp (Fig. 8 ref. 11).

Fig. 8



10.0 ELECTRICAL CONNECTIONS



ALL ELECTRICAL CONNECTIONS ARE TO BE DONE BY QUALIFIED PERSONNEL ONLY.



BEFORE CONNECTING THE EQUIPMENT MAKE SURE THAT:

- THE MAIN POWER RATING CORRESPONDS TO EQUIPMENT RATING AS SHOWN ON THE CORRESPONDING 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 PADLOCKABLE MAIN SWITCH AND A CUTOUT WITH DIFFERENTIAL PROTECTION SET AT 30 mA.

Connect the equipment up to the mains by means of the 3-pole plug provided (110 V).

If the plug supplied is not suitable for the wall socket, provide the equipment with a plug complying with the local laws and with the applicable rules and regulations. This operation must be performed by expert and professional personnel.



FIT A TYPE-APPROVED (AS REPORTED ABOVE) PLUG TO THE EQUIPMENT 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 REQUIREMENTS 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 AND MAY DAMAGE THE EQUIPMENT.

10.1 Electrical checks



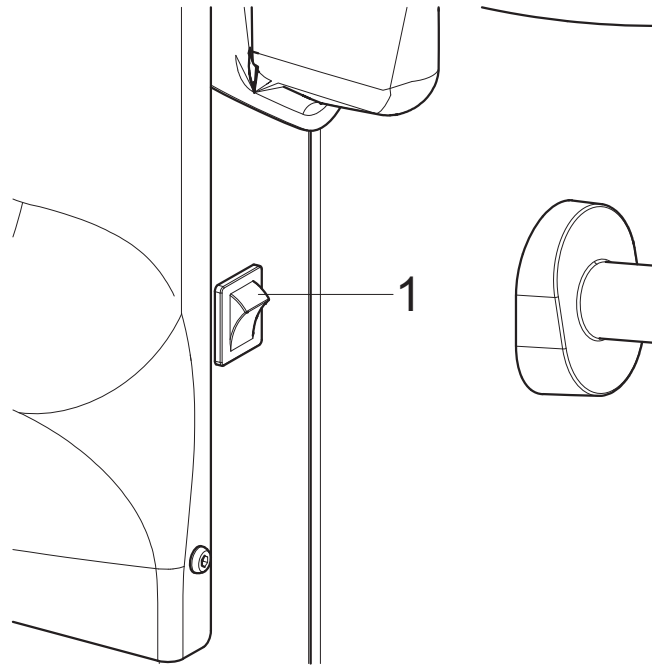
BEFORE STARTING UP THE WHEEL-BALANCER, BE SURE TO BECOME FAMILIAR WITH THE LOCATION AND OPERATION OF ALL CONTROLS AND CHECK THEIR PROPER OPERATION (SEE PAR. "CONTROLS").



CARRY OUT A DAILY CHECK OF MAINTAINED-TYPE CONTROLS FOR PROPER FUNCTIONING, BEFORE STARTING EQUIPMENT OPERATION.

Once the plug/socket connection has been made, turn on the equipment using the master switch (Fig. 9 ref. 1).

Fig. 9



11.0 FITTING THE WHEEL ON THE CHUCK



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



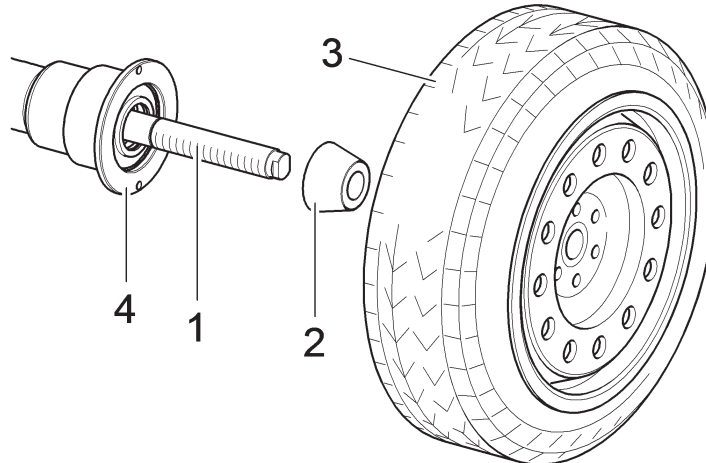
IMPORTANT ONLY ORIGINAL CONES AND ACCESSORIES, SPECIALLY DESIGNED FOR USE WITH THE WHEEL BALANCERS, ARE TO BE USED.

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*

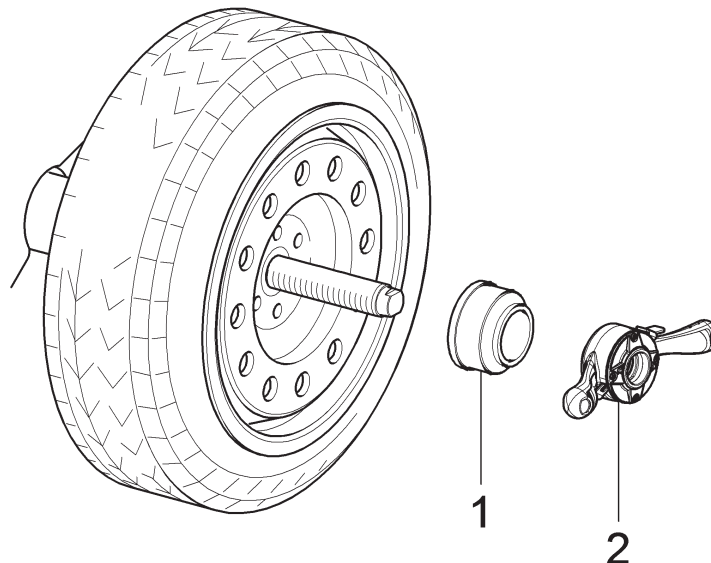
1. Remove any type of foreign body from the wheel (Fig. 10 ref. 3): pre-existing weights, stones and mud, and make sure the chuck (Fig. 10 ref. 1) and the rim centering area are clean before fitting the wheel on the chuck;
2. carefully choose the cone (Fig. 10 ref. 2) most suitable for the wheel to be balanced. These accessories must be selected according to the shape of the rim. Position the wheel (Fig. 10 ref. 3), fitting the cone (Fig. 10 ref. 2) on the chuck (Fig. 10 ref. 1): be careful (otherwise this could seize) until this rests against the support flange (Fig. 10 ref. 4);
3. fit the wheel with the inner side of the rim towards the wheel balancer and against the cone;

Fig. 10



4. fit the protection cap (Fig. 11 ref. 1) in the locknut (Fig. 11 ref. 2) and fasten against the wheel.

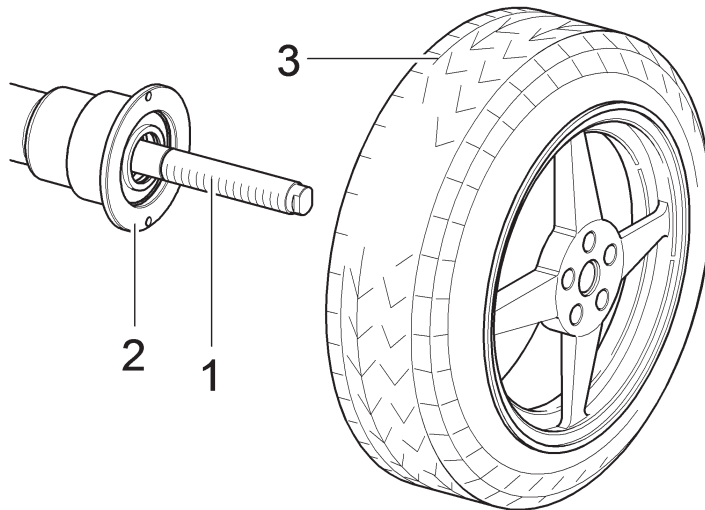
Fig. 11



Some aluminium wheels, with very high centering, must be fitted with the cone outside the wheel:

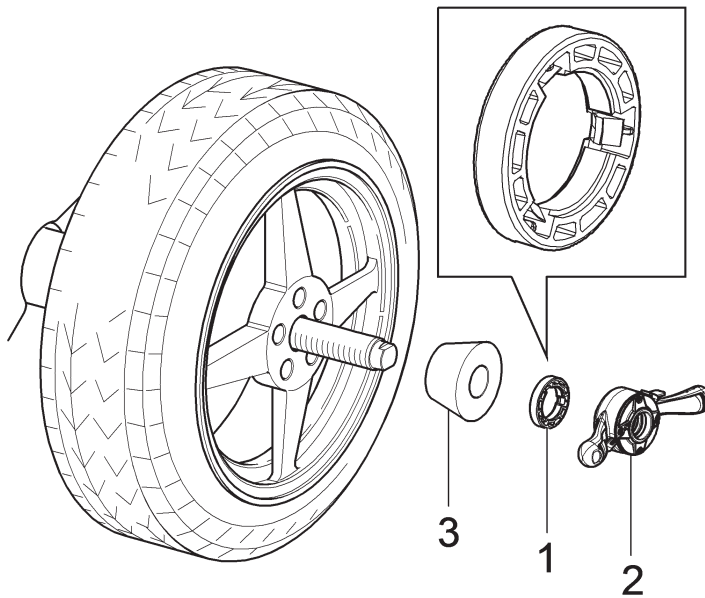
5. clean the chuck (Fig. 12 ref. 1) before fitting the wheel;
6. fit the wheel (Fig. 12 ref. 3) with the inside of the rim towards the wheel balancer, until the wheel is up against the support flange (Fig. 12 ref. 2);

Fig. 12



7. fit the cone (Fig. 13 ref. 3) with the narrowest part turned towards the wheel;
8. fit the pressure ring (Fig. 13 ref. 1) in the nut (Fig. 13 ref. 2) and fasten the cone (Fig. 13 ref. 3).

Fig. 13



THE PRESSURE RING (FIG. 13 REF. 1) MUST BE MOUNTED WITH THE TEETH OR DISCHARGE SIDE TOWARDS THE RING NUT (FIG. 13 REF. 2).

11.2 *Ultrasound sensor support adjustment*

Ultrasound sensor support (Fig. 14-15 ref. 1) must be used in the “fully-lowered” position, as shown in Fig. 14. However with wheels with great diameter, you can set it higher so that the wheel can be mounted easily onto the chuck (see Fig. 15). In order to carry out the adjustment, just loosen the handwheel (Fig. 15 ref. 2) and place the support in the desired position. At the end tighten the handwheel (Fig. 15 ref. 2).

Fig. 14

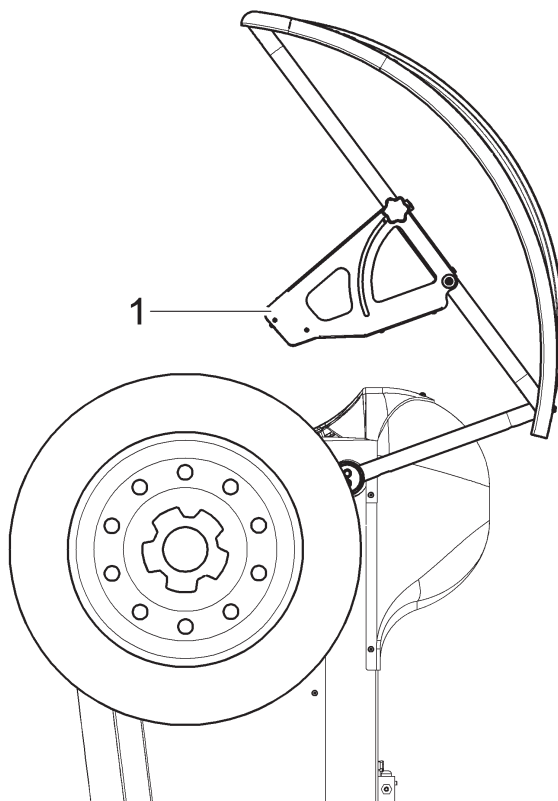
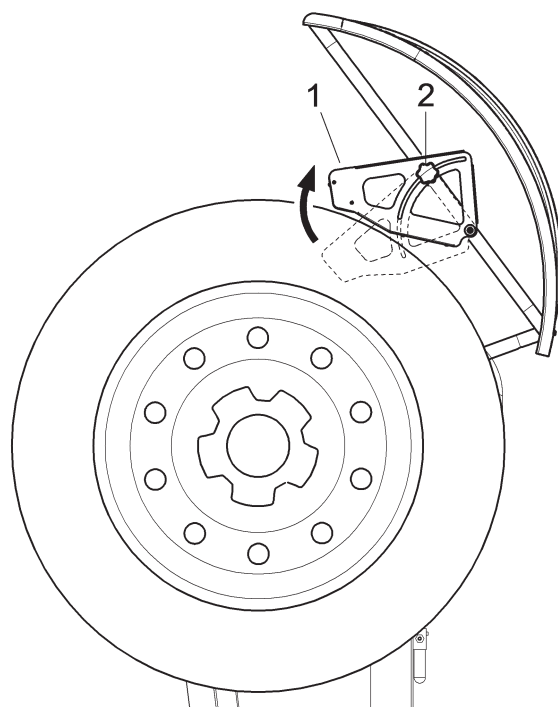


Fig. 15



For what concerns exceptionally large wheels, sensor support may be moved outside the loading space of the same wheel, so that it can be easily mounted onto the chuck:

1. slacken the handwheels (Fig. 16 ref. 1) secured to the protection guard's tubular and open sensor support (Fig. 16 ref. 2) by making it slide in the slot (Fig. 16 ref. 3);
2. slacken handwheel (Fig. 16 ref. 4) and raise sensor support (Fig. 16 ref. 5) then move it to the desired position, as indicated in Fig. 17 ref. 1.

At the end tighten the handwheel (Fig. 17 ref. 2).

Fig. 16

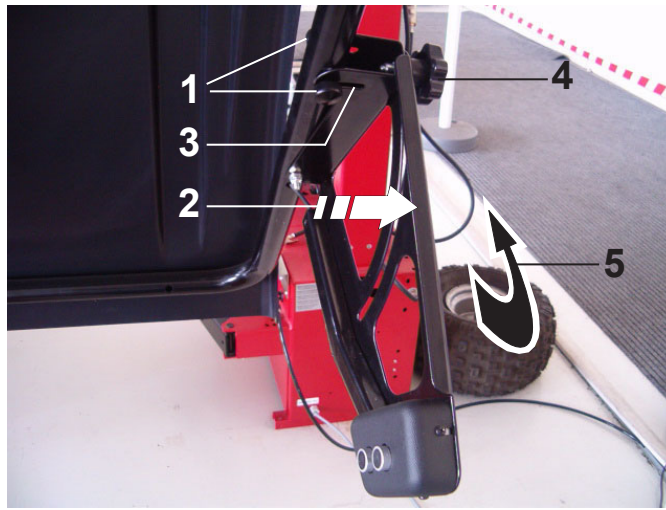


Fig. 17



12.0 CONTROL PANEL

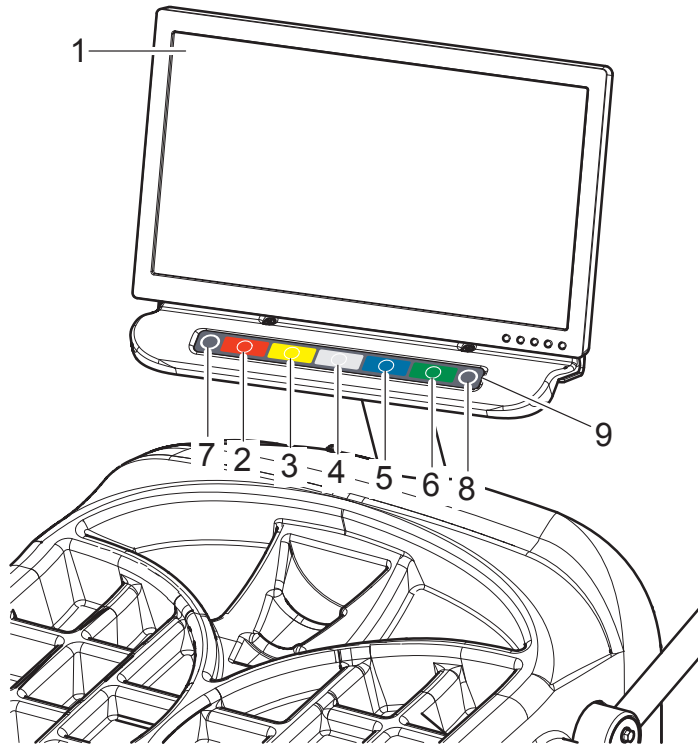
The wheel balancers are equipped with a control panel equipped with a keyboard to interact/operate the controls presented in graphical form on the monitor.

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.



TO INTERACT/OPERATE THE CONTROLS GRAPHICALLY DEPICTED ON THE MONITOR, PRESS THE CORRESPONDING KEY ON THE LOWER KEYBOARD.

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 – Keyboard (7-keys-keyboard)

13.0 WHEEL BALANCING

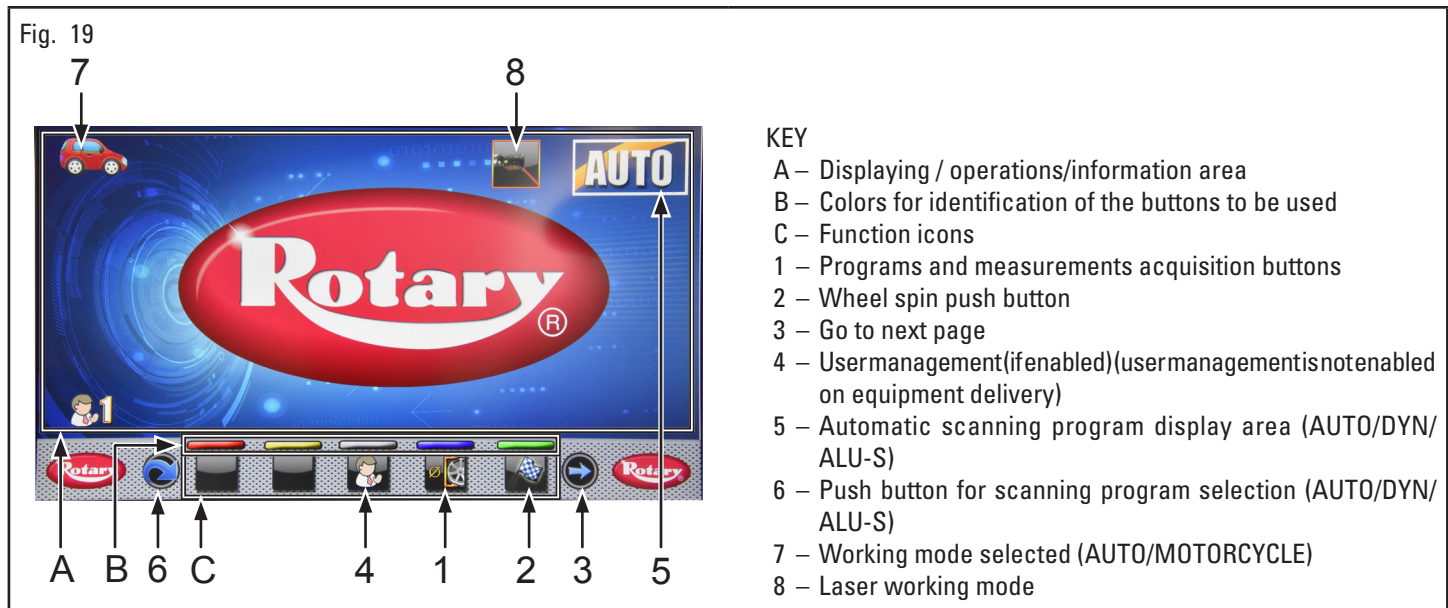
13.1 Switching the machine on and off

Press the "ON" main switch (Fig. 9 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.



ALL SCREEN PAGES LISTED IN THE MANUAL, UNLESS OTHERWISE SPECIFIED, DISPLAY THE MEASUREMENTS EXPRESSED IN GRAMS.



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).


By pressing button (Fig. 19 ref. 3) a second page is displayed, where You can access "Technical assistance" and "Run-out" Menu (see Fig. 20A).

Fig. 20A




KEY

- 1 – User Menu/Assistance Menu
- 2 – Run-out menu (visible only if active)
- 3 – Return to previous page
- 4 – Wheel spin push button
- 5 – Automatic scanning program display area (AUTO/DYN/ALU-S)
- 6 – Go to next page
- 7 – Measurement unit setting

The equipment is supplied with "ounces" option  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  is activated from user menu (see Chap. 14.0), "grams" weight displaying

mode is set, and push button  will be displayed. Press

the button  to set equipment weight display in ounces

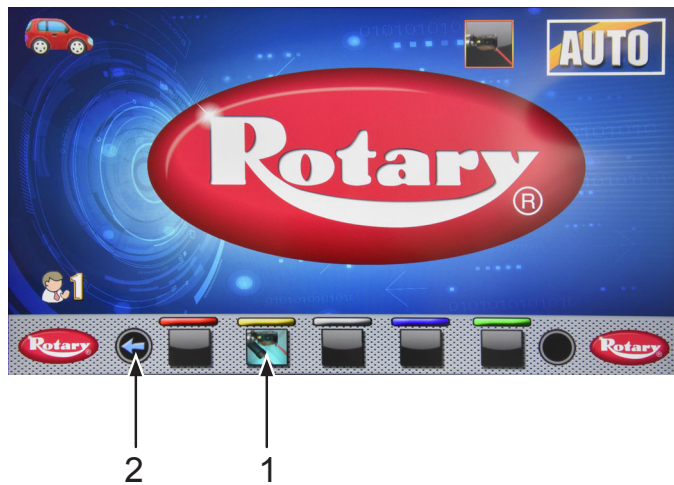
and on the screen will be displayed icon .

Press the button  to set equipment weight display in grams and

on the screen will be displayed icon .

By pressing button (Fig. 19 ref. 6) the third page is displayed, where You can select the type of laser working mode (see Fig. 20B).

Fig. 20B



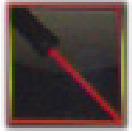
KEY

- 1 – Push button for selection of laser working mode
- 2 – Return to previous page

By pressing button (Fig. 20B ref. 1) You can cyclically select the following laser working modes:



Wheel automatic scanning and weight fitting through laser




Weight fitting through laser



Laser disabled

In order to turn off the equipment, simply press the "OFF" main switch (Fig. 9 ref. 1).



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

13.2 **Balancing programs setting**

The setting of the balancing programs can be performed in three ways:

- through the equipment automatic detection system (rapid setting);



- through “Measurements acquisition” screen page, appearing when the button is pressed (Fig. 19 ref. 1) from the main page “Home”;

- through the distance-diameter caliper arm (if enabled).

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

13.2.1 **Use of the equipment automatic system**

The use of the equipment automatic system allows the detection of all the wheel measurements and allows to choose the balancing program in a few seconds.

From the “Home” page (Fig. 19) (with wheel correctly mounted on the chuck):

- close the protection guard;

- the wheel starts rotating. At the end of the cycle, the wheel stops in place to apply the first weight;

- open the protection guard.

Fig. 21



THE EQUIPMENT HAS DETERMINED AUTOMATICALLY ALL THE WHEEL MEASUREMENTS AND THE BALANCING PROGRAM THAT SUITS THE BEST THE SCANNED WHEEL.



IN CASE THE PROGRAM “ALU-S OR “DYN” IS SELECTED FROM “HOME” PAGE THROUGH THE PUSH BUTTON (FIG. 19 REF. 6), THE EQUIPMENT DISPLAYS (AFTER THE WHEEL SCAN) THE WEIGHTS FITTING POINTS, DEPENDING ON THE TYPE OF PROGRAM SELECTED.

If the operator thinks that the program and the weights fitting points are correct, just proceed as described in Par. 13.5.



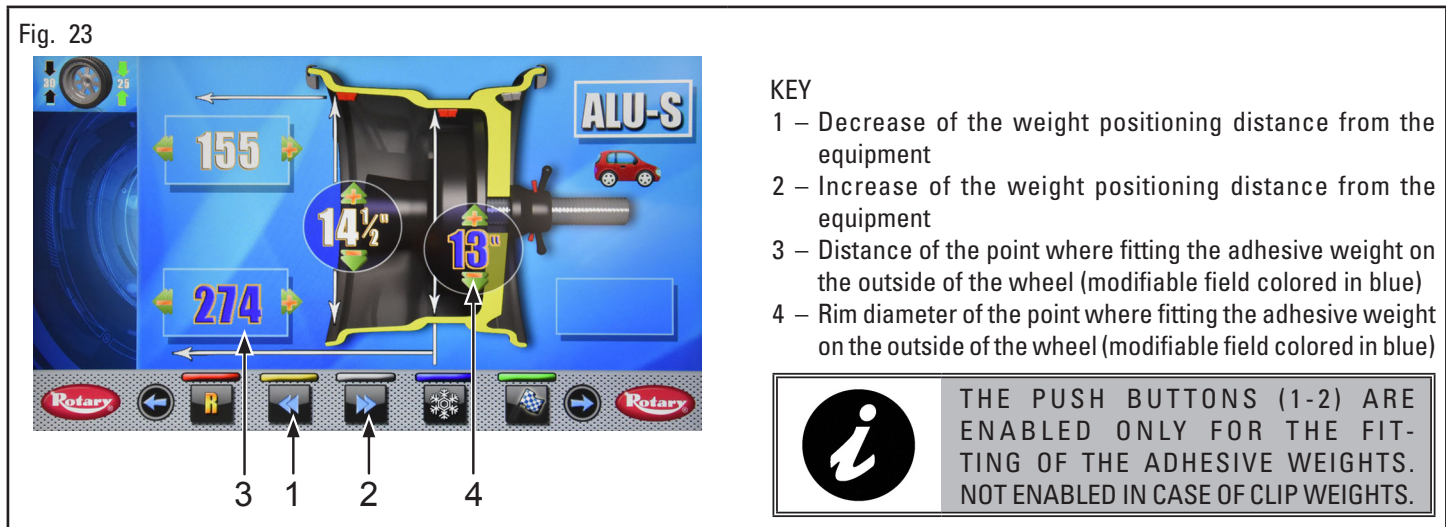
ON THE MARKET THERE CAN BE PARTICULARLY COMPLEX TYPES OF RIMS SHAPES AND/OR PROFILES SO THE EQUIPMENT COULD SUGGEST BALANCING PROGRAMS OR POINTS FOR POSITIONING THE WEIGHTS BEHIND THE SPOKES THAT DO NOT SUIT THE ACTUAL SHAPE OF THE RIM ITSELF. IN THIS CASE PLACE MANUALLY THE LASER TO REASSIGN CORRECTLY THE BALANCING LEVELS AND THE WEIGHTS FITTING POINTS.





In case the operator wants to modify the weight fitting point "wheel outer side", proceed as described hereafter:

- from the page for wheel outer side weight fitting (Fig. 22) press "programs and measurements acquisition" push button (Fig. 22 ref. 1).



The following screen page is displayed:



- Press the arrows  or  to modify the fitting of the adhesive weight on the wheel outer side (movement of the laser pointer) (blue-highlighted-values). Once the desired position is reached press . When the push button  is pressed, the blue highlighted values are updated with the new set position;






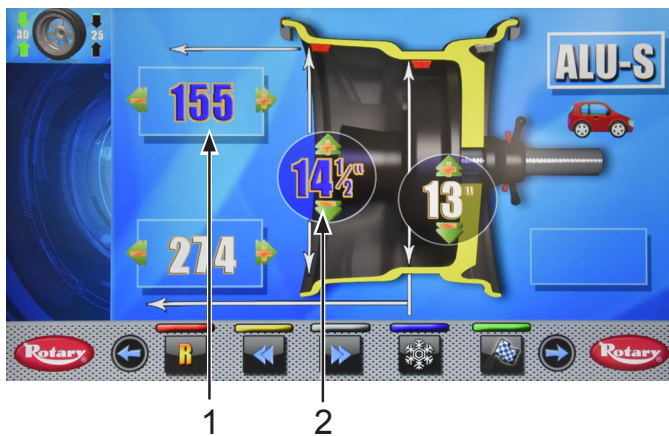
- press the  push button to perform the recalculation of the value of the weight to be fitted in the new set position. The screen page in (Fig. 22) is displayed again with the updated values.
- in case the operator wants to modify the weight fitting point "wheel outer side", simply press the push button (Fig. 22 ref. 2). The wheel, the laser and the screen page are pre-arranged for the application of such weight.
The following screen page is displayed:

Fig. 24



- press the "programs and measurements acquisition" button (Fig. 24 ref. 1). The following screen page is displayed:

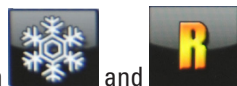
Fig. 25





KEY

- 1 – Distance of the point where fitting the adhesive weight on the inside of the wheel (modifiable field colored in blue)
- 2 – Rim diameter of the point where fitting the adhesive weight on the inside of the wheel (modifiable field colored in blue)

- proceed as described before for the modification of the weight fitting point "wheel outer side";



- at the end press push button  and .



IN CASE OF BALANCING OF WHEELS HAVING THE SAME CHARACTERISTICS AND DIMENSION SIMPLY:

- GO TO SCREEN PAGE (FIG. 22 OR FIG. 24) (SCREEN PAGE DISPLAYING THE MEASUREMENTS ACQUIRED BY THE EQUIPMENT/MODIFIED BY THE OPERATOR),
- FIT THE WHEELS TO BALANCE ON THE EQUIPMENT,
- START THE DETECTION OF THE UNBALANCE BY CLOSING THE GUARD.

IN THIS WAY THE EQUIPMENT WILL USE THE WEIGHT FITTING MEASUREMENTS IN FIG. 22 OR FIG. 24 FOR ALL THE WHEELS TO BE BALANCED.

IF THE MEASUREMENT NEED TO BE RESET, GO TO "HOME" PAGE AND PERFORM THE AUTOMATIC SPIN AS DESCRIBED IN PAR. 13.2.1.


AT THE END OF THE OPERATION, OPEN THE PROTECTION GUARD.

IN CASE THE "WEIGHTS HIDDEN BEHIND SPOKES" OPTION IS ENABLED (AUTOMATIC), THE WHEEL STOPS WITH THE LASER INDICATING THE POSITION OF THE 1ST WEIGHT TO FIT AND ON MONITOR IS DISPLAYED THE NEXT SCREEN PAGE:



AFTER THE FITTING OF THE 1ST WEIGHT BEHIND THE SPOKE, SIMPLY PRESS THE  BUTTON TO POSITION THE WHEEL AND THE LASER FOR THE FITTING OF THE 2ND WEIGHT.



AT THE END JUST PRESS  TO RETURN TO THE PREVIOUS SCREEN PAGE AND FOR BEING ABLE TO FIT THE FOLLOWING WEIGHT ON THE WHEEL INNER SIDE (POSITION INDICATED BY THE LASER AGAIN) (SEE FIG. 41). AT THE END PERFORM A TESTING SPIN BY CLOSING THE PROTECTION GUARD.

- In case the operator wants to modify the balancing program, push button (Fig. 19 ref. 6) can be pressed. AUTO/DYN/ALU-S programs will cyclically alternate each time the button is pressed.
- If the operator wishes to select a further balancing program, from "HOME page", he just has to press push button (Fig. 19 ref. 1) to display "Measurements acquisition" page.






After having made sure scanning program display area (Fig. 19 ref. 5) is blue, press push button  to display the following program selection screen page:

Fig. 26




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



At the end press push button 



- After the balancing program modification, simply press  to carry out the recalculation of the weights and the new fitting points.
- Proceed as described in Para 13.5.

- Procedure for electronic automatic RUN-OUT (rim inner side with laser).
The electronic RUN-OUT measuring device is useful to check if the rim has some imperfections.



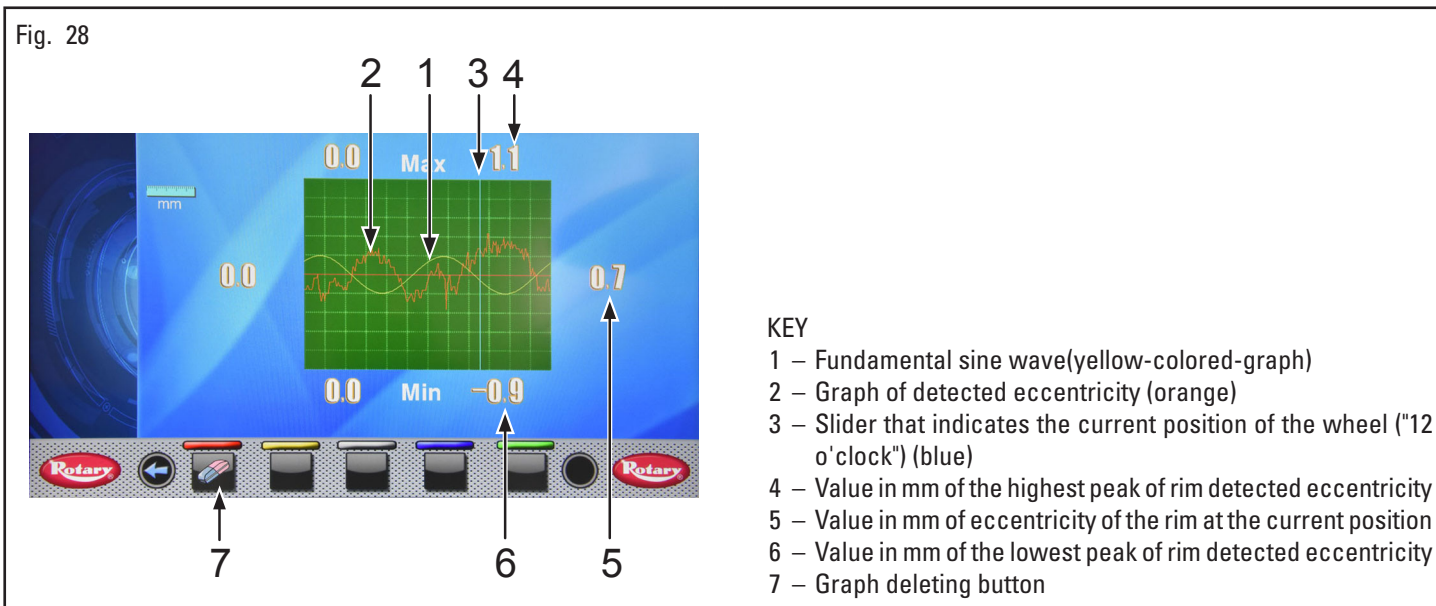
MAKE SURE THE ICON  IN THE OPTIONS MENU IS ENABLED (SEE PAR. 14.1).

In order to display the eccentricity graph/wheel imperfection screen page, proceed as described hereafter:

- perform the wheel spin by closing the guard.
- After executing the spin of the tire with any kind of program, the weights fitting page is displayed.
Open the protection guard.
Here follows an example of the mentioned page:



By pressing the button  (if on this screen page), it is possible to display the roundness graph reported here as follows.



The orange 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 eccentricity in the graph by manually turning the rim, the blue-colored-slider (Fig. 28 ref. 3), indicates the position of the rim in "12 o'clock" position.


The three numeric values (Fig. 28 ref. 4-5-6), expressed in mm, indicate respectively the highest peak, the eccentricity in the current position and rim minimum peak.

The graph can be erased with push button (Fig. 28 ref. 7).


13.2.2 Programs setting and measurements through distance-diameter caliper arm (if enabled)

- Enabling of distance-diameter caliper arm

From the "Home" page, press the (Fig. 19 ref. 3) button to display the second page (Fig. 20A). From the second page, press the (Fig. 20A

ref. 6) button to display the third page (Fig. 20B). From the third page, press the (Fig. 20B ref. 1) button to display the symbol . The display of such icon confirms the enabling of the distance/diameter caliper for the detection of the measurements.

The laser device will no longer detect the measurements of the rim but it will only operate on the adhesive weights positioning.

Press the button (Fig. 20B ref. 1) twice, to display the icon . The laser device will be fully disabled.

To enable again the laser device, press the (Fig. 20B ref. 1) button until displaying symbol .

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

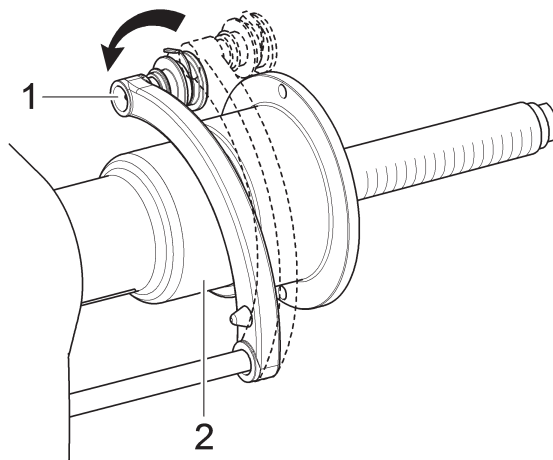
- bring into contact the weights fitting pliers with the inner part of the rim (1 contact only) to select "STATIC" program (see Fig. 29).

Fig. 29



REPEATEDLY BRINGING THE GAGE ARM (FIG. 30 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 30 REF. 2), THE PROGRAM WILL CYCLE FROM "STATIC" TO "STATIC 1" TO "STATIC 2" RETURNING THEN AT THE BEGINNING.

Fig. 30



- bring into contact the weights fitting pliers with the inner part of the rim (2 contact points) (see Fig. 29) to select "ALU-S" program.



REPEATEDLY BRINGING THE CALIPER ARM (FIG. 30 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 30 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 IS KEPT IN POSITION FOR A FEW SECONDS AGAINST THE RIM (UNTIL THE EQUIPMENT 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 closing the protective guard.
- At the end of the operation, open the protection guard.
- Measuring procedure of electronic RUN-OUT with distance-diameter caliper arm (function to be enabled - see Par. 14.1 "Options menu").



The electronic RUN-OUT measuring device is useful to check if the rim has some imperfections. Make sure icon in the options menu is enabled (see Par. 14.1).

To access the screen to choose the rim control mode, proceed as follows:



- from the "Home" page, press the button (Fig. 31 ref. 1) and then the button (see Fig. 32 ref. 1).

Fig. 31

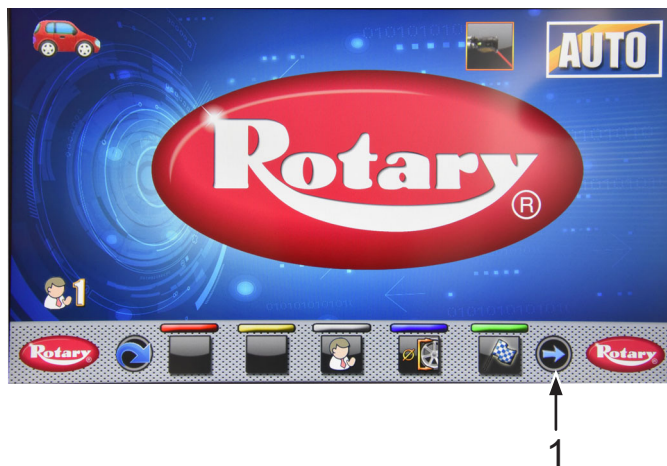


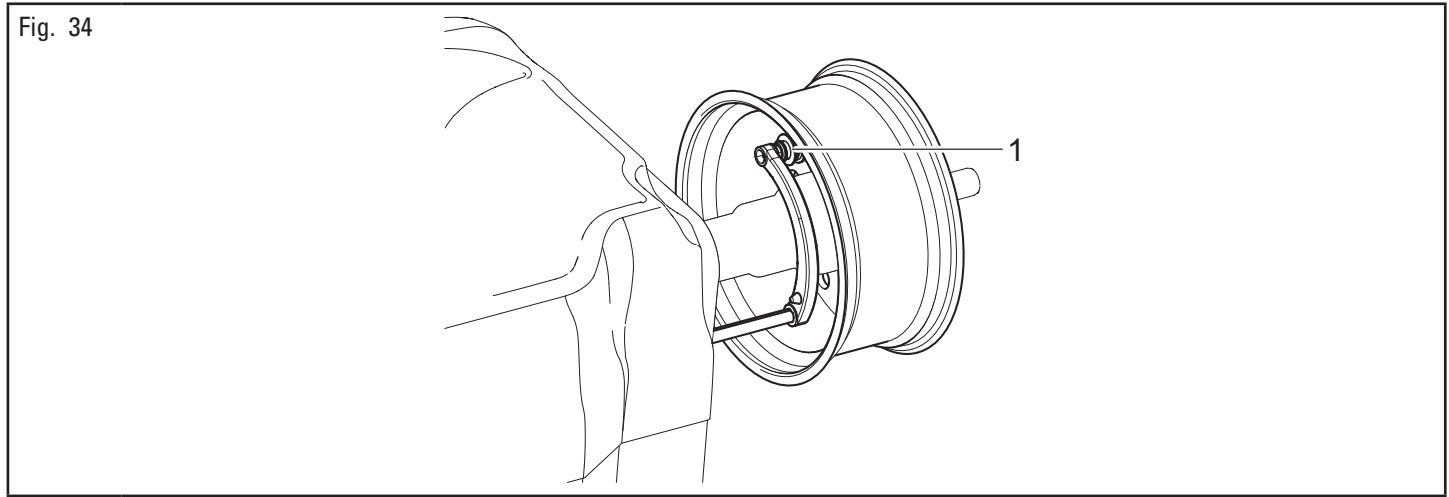
Fig. 32



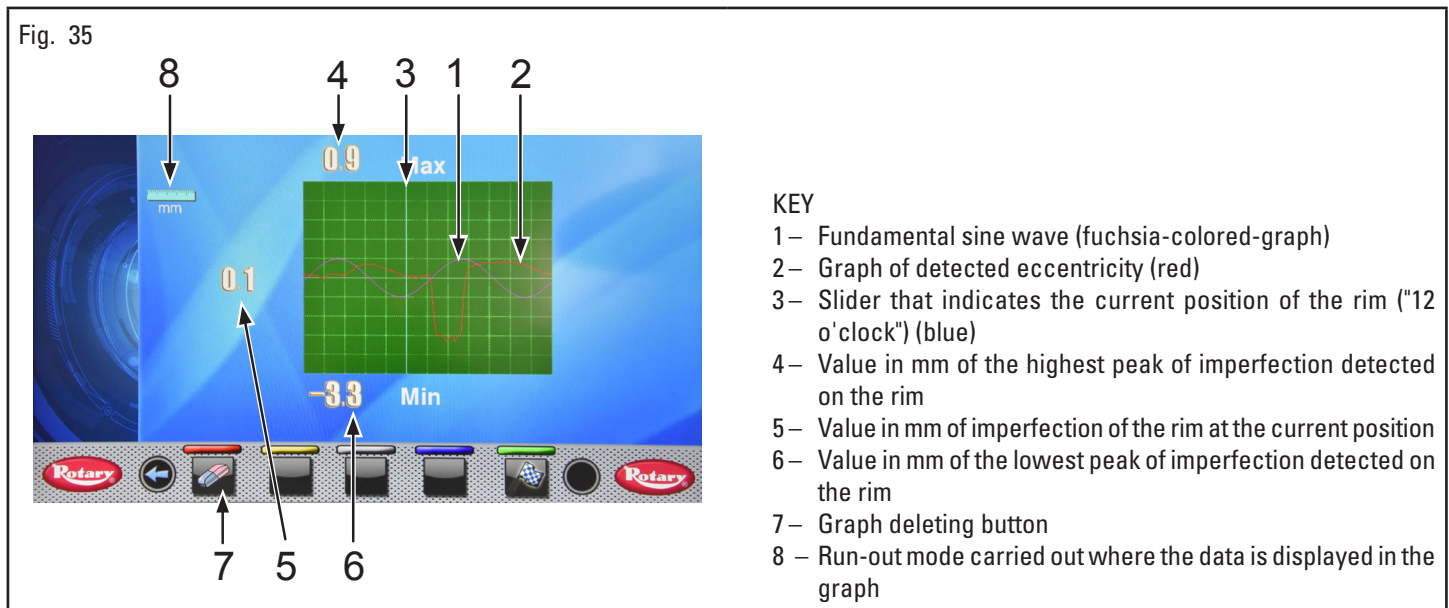
- The following screen page will appear on the monitor:



- Place the distance-diameter caliper pliers (Fig. 34 ref. 1) in contact with the rim.



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. 35.



The red graph (Fig. 35 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 eccentricity in the graph by manually turning the rim, the blue-colored-slider (Fig. 35 ref. 3), indicates the position of the rim in "12 o'clock" position.


13.2.3 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:

Fig. 36





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. 13.2.2. 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).

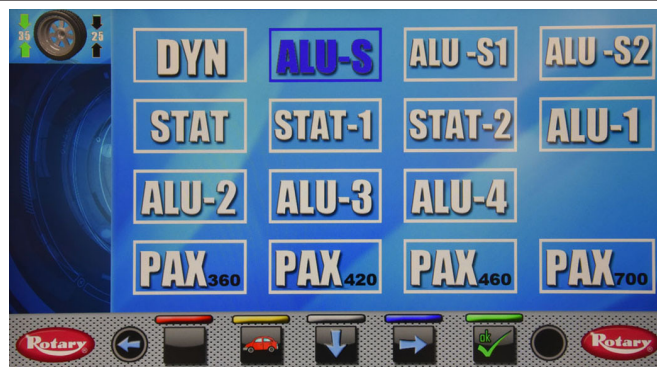




IF THE PROGRAM NAME IS NOT HIGHLIGHTED (YELLOW), PRESS THE BUTTON  REPEATEDLY UNTIL THE ABOVE CONDITION IS REACHED.



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

Fig. 37



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



At the end press push button .



AFTER YOU HAVE SELECTED THE DESIRED PROGRAM, CLOSE THE PROTECTION GUARD TO AUTOMATICALLY DETECT THE MEASURES REQUIRED BY THE PROGRAM.



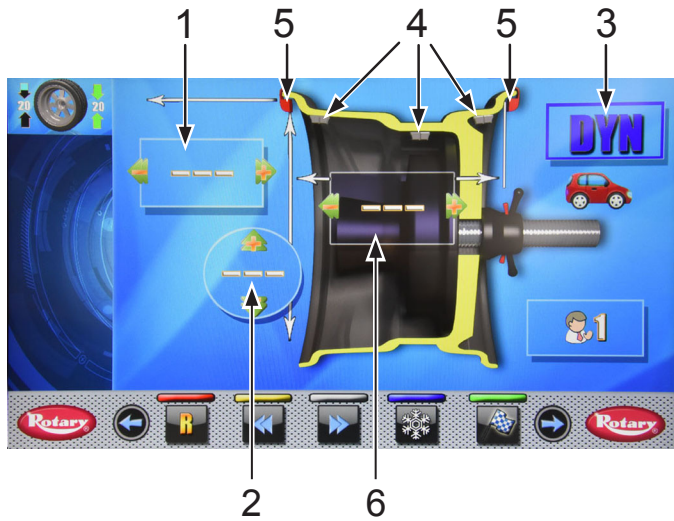
DURING THE WHEEL MEASUREMENTS DETECTION, THE EQUIPMENT CARRIES OUT SIMULTANEOUSLY THE UNBALANCE MEASUREMENT.

- At the end of the operation, open the protection guard.

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

Depending on the type of program selected, the equipment shows on the monitor the guideline points where to take measures and, consequently, where you must apply weights (Fig. 38 ref. 4-5).

Fig. 38



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

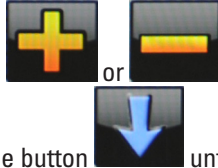





IF ALL MEASURES REQUIRED BY THE PROGRAM HAVE NOT BEEN TAKEN/INSERTED, THE EQUIPMENT DOES NOT ALLOW THE WHEEL SPIN TO DETECT THE UNBALANCE.

13.4 *Displaying the active/modifiable field*

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

Fig. 39

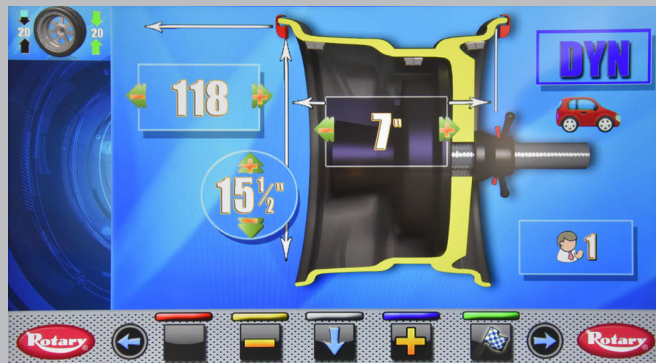


Pressing the buttons  or  you can change the value and/or program inside the active field. To change the selected active field, simply press the button  until the desired field is colored yellow.

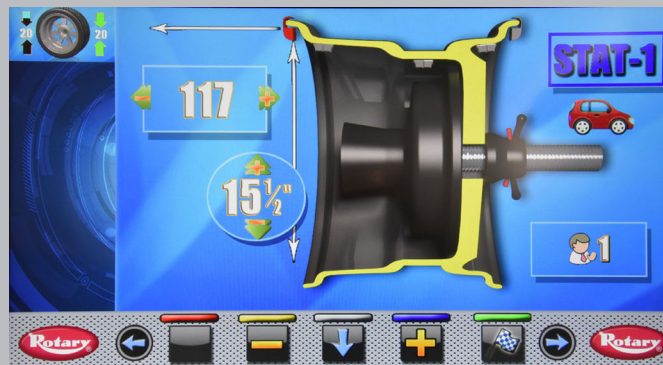


THE SELECTION OF THE ACTIVE FIELD IS DONE BY HIGHLIGHTING THE FIELDS IN A CLOCKWISE DIRECTION.

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.

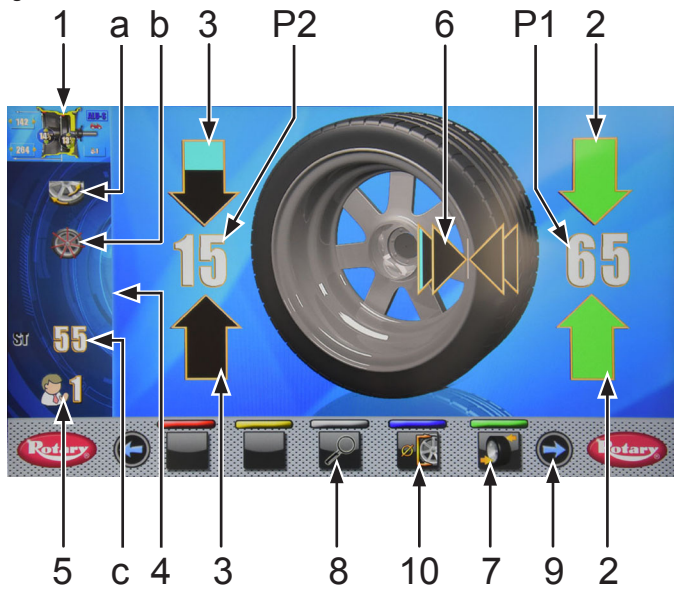


THIS CASE WILL OCCUR ONLY IF FROM "HOME" PAGE IS DETECTED ONLY ONE MEASUREMENT INSIDE THE RIM. THE PROGRAM WILL AUTOMATICALLY SET TO "STATIC" BUT IT WILL MAKE IT POSSIBLE (IN CASE OF ABSENCE OF EXTERNAL DATA GAGE) TO MANUALLY ENTER RIM WIDTH AND TO QUICKLY SWITCH TO THE PROGRAM "DYNAMIC".




13.5 Wheel balancing screen page description

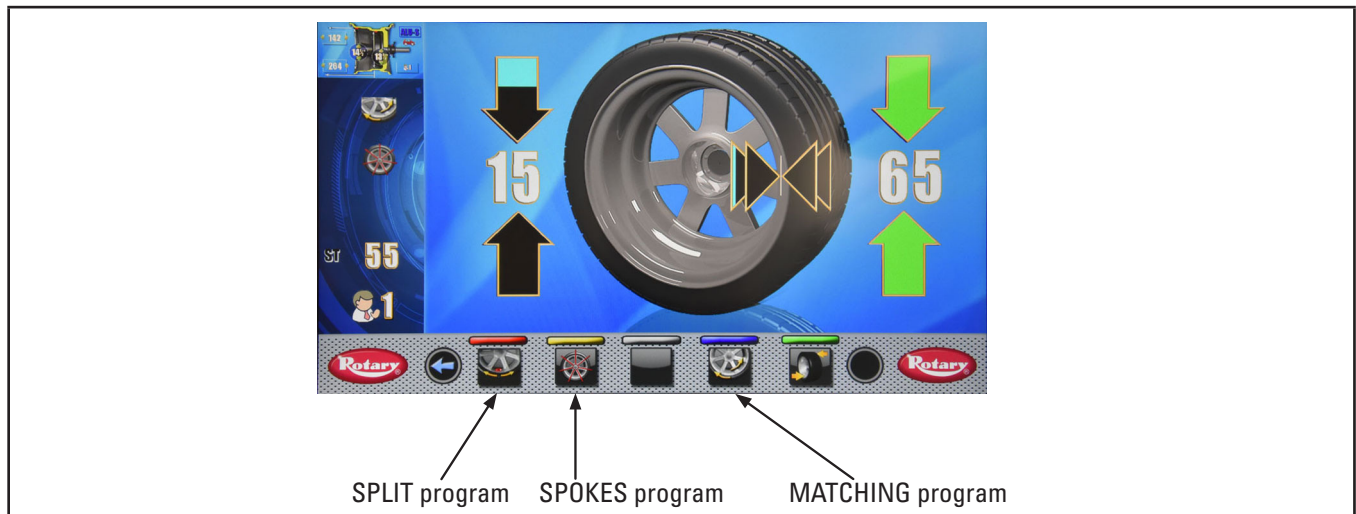
After executing the spin of the wheel, the monitor displays a series of important information that helps the operator in his operations and subsequent choices.


Fig. 40



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 equipment.
- 10 – MATCHING program




IF THE GUARD AND REPOSITIONING FUNCTION ARE DISABLED, ON THE BUTTON (Fig. 40 ref. 6) WILL BE DISPLAYED THE ICON , WHICH ALLOWS THE WHEEL SPIN WITHOUT RETURNING TO THE PREVIOUS PAGE. WHEEL POSITIONING FOR WEIGHTS FITTING MUST BE CARRIED OUT 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 equipment allows to perform the balancing (adhesive weights fitting) in two different ways:

- using the laser pointer;
 - using the distance-diameter caliper arm with weights fitting pliers;
- Weights fitting with laser pointer.

 ON DELIVERY, THE EQUIPMENT IS CONFIGURED WITH THE CORRESPONDING OPTION SELECTED.

At the end of the spin, on the rim is displayed a laser pointer indicating the exact point where the adhesive weight has to be applied.


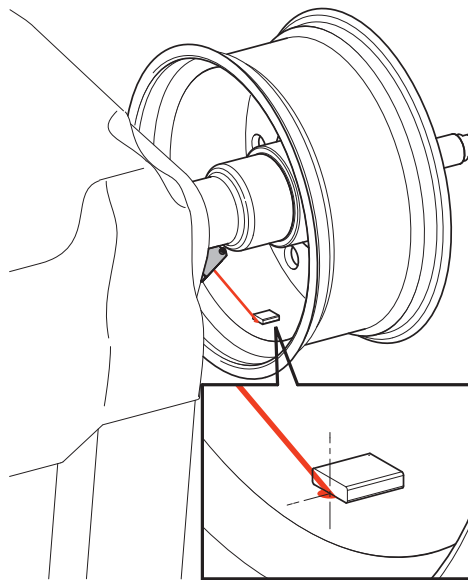
 THE ADHESIVE WEIGHT HAS TO BE APPLIED FROM THE POINT HIGHLIGHTED BY THE POINTER TOWARDS THE INSIDE OF THE RIM, AND ITS CENTER LINE MUST BE RIGHT BY THE SAME POINTER (SEE FIG. 41).

Fig. 41



In case the operator thinks that the point marked by the laser is not correct, you can modify it by proceeding as described hereafter:

- from the page for wheel outer side weight fitting (Fig. 42) press "programs and measurements acquisition" push button (Fig. 42 ref. 1).

Fig. 42



The following screen page is displayed:

Fig. 43

KEY

- 1 – Decrease of the weight positioning distance from the equipment
- 2 – Increase of the weight positioning distance from the equipment
- 3 – Distance of the point where fitting the adhesive weight on the outside of the wheel (modifiable field colored in blue)
- 4 – Rim diameter of the point where fitting the adhesive weight on the outside of the wheel (modifiable field colored in blue)

THE PUSH BUTTONS (1-2) ARE ENABLED ONLY FOR THE FITTING OF THE ADHESIVE WEIGHTS. NOT ENABLED IN CASE OF CLIP WEIGHTS.

- Press the arrows or to modify the fitting of the adhesive weight on the wheel outer side (movement of the laser pointer) (blue-highlighted-values). Once the desired position is reached press . When the push button is pressed, the blue highlighted values are updated with the new set position.

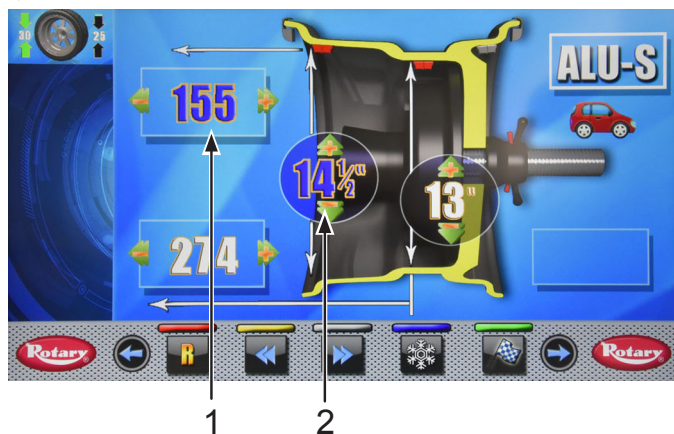
DURING THE MODIFICATION OF THE WEIGHTS FITTING POINT (LASER POINTER MOVEMENT) THE BLUE-HIGHLIGHTED-VALUES ARE NOT UPDATED UNTIL THE BUTTON IS PRESSED .

- Press the push button to perform the recalculation of the value of the weight to be fitted in the new set position. The screen page in (Fig. 42) is displayed again with the updated values.
- In case the operator wants to modify the weight fitting point "wheel outer side", simply press the push button (Fig. 42 ref. 2). The wheel, the laser and the screen page are pre-arranged for the application of such weight. The following screen page is displayed:

Fig. 44

- Press the “programs and measurements acquisition” button (Fig. 44 ref. 1). The following screen page is displayed:

Fig. 45



KEY

- 1 – Distance of the point where fitting the adhesive weight on the inside of the wheel (modifiable field colored in blue)
- 2 – Rim diameter of the point where fitting the adhesive weight on the inside of the wheel (modifiable field colored in blue)

– Proceed as described before for the modification of the weight fitting point “wheel outer side”.

– At the end press push button  and .

- Weights fitting with distance-diameter caliper arm and pliers (only with disabled laser pointer).
 1. Place the adhesive weight on the arm pliers;

Fig. 46



Fit the adhesive weight in the pliers of the gage rod

2. pull out the gage until the arrows (Fig. 40 ref. 6) both turn green;
3. rotate the gage arm until the weight touches the rim;


Fig. 47



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.

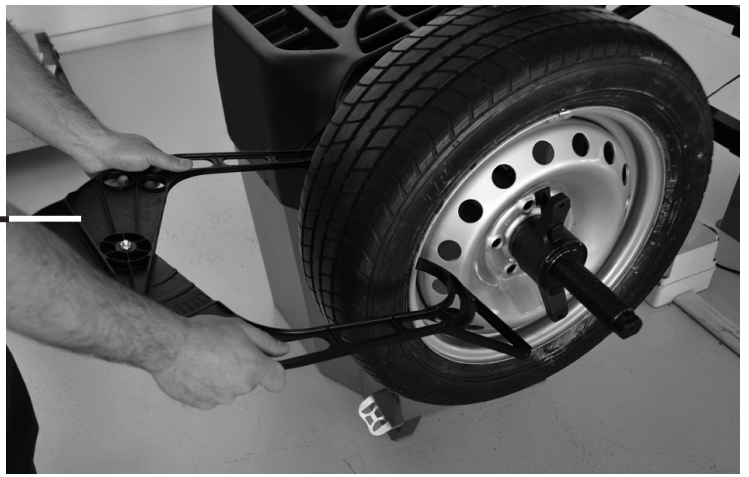
13.6 Use of equipment with automatic width measuring device assembly disabled

If the automatic width measuring device assembly is disabled, the insertion of the measurements of diameter, width and distance of the rim from the equipment 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).

Fig. 48

MANUAL CALIPER.
Width manual detection

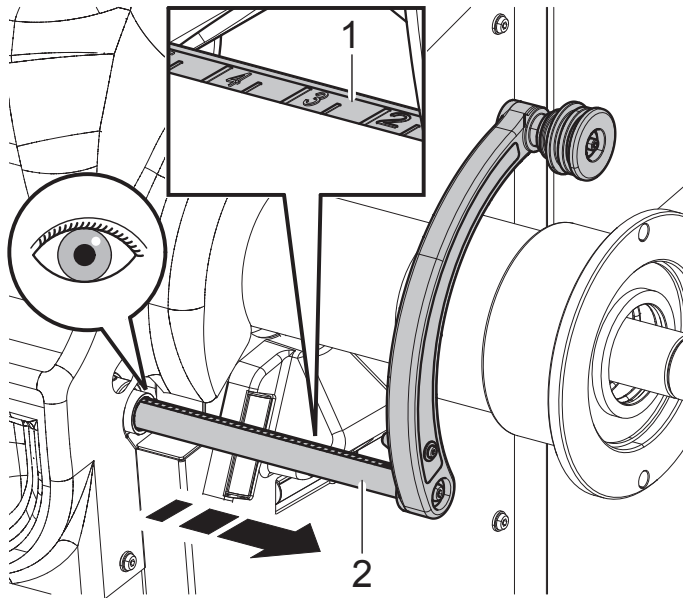


• Visual readout on caliper graduated scale (distance)




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

- remove the distance/diameter caliper arm and bring the weight application pliers in contact with the inner part of the rim as shown in Fig. 29;
- read the value indicated on the graduated scale (Fig. 49 ref. 1) secured to the arm of the distance/diameter caliper (Fig. 49 ref. 2);

Fig. 49



- 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 	VALUE IN INCHES TO ENTER 
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

13.7 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) and proceed with balancing operations.

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



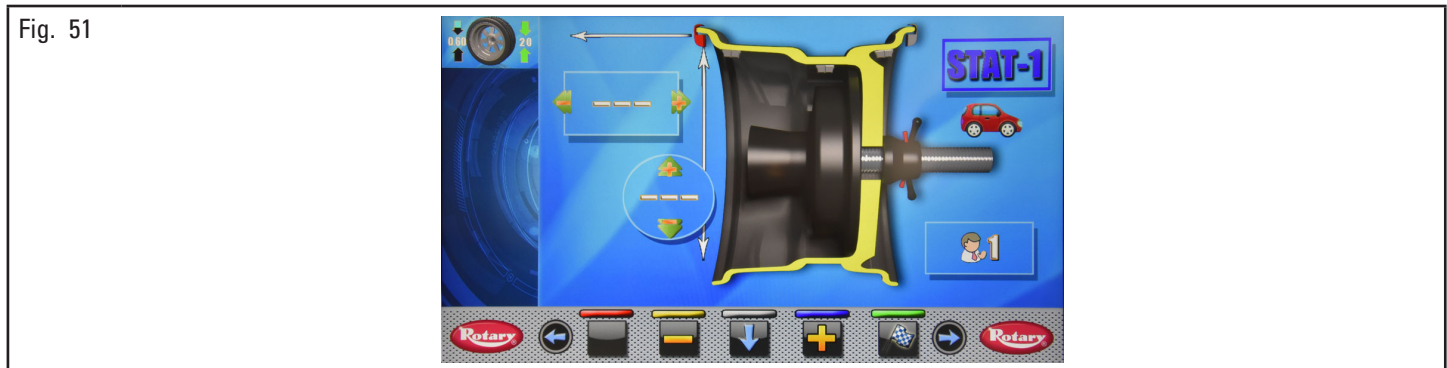
The procedure has now been completed.

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) and proceed with balancing operations.

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



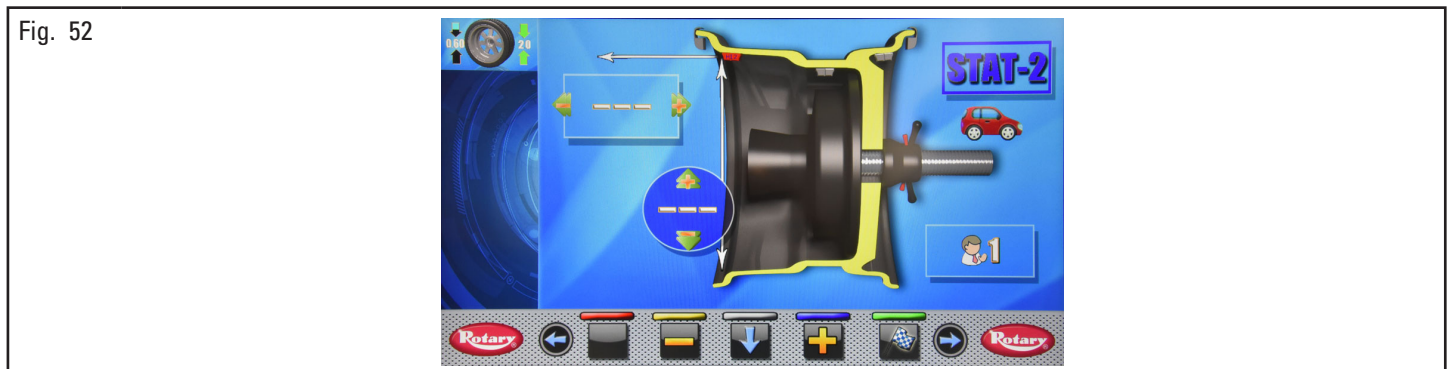
The procedure has now been completed.

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) and proceed with balancing operations.

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

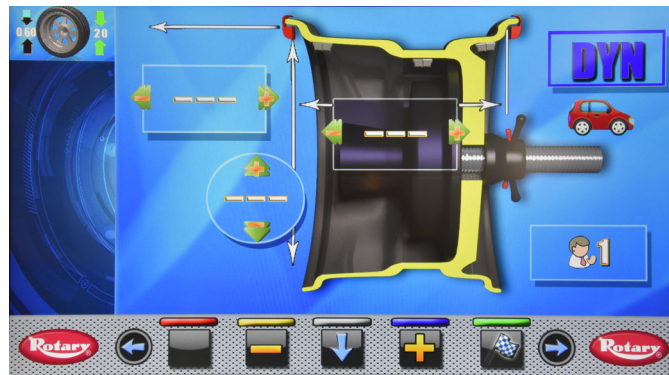


The procedure has now been completed.

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) and proceed with balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

Fig. 53

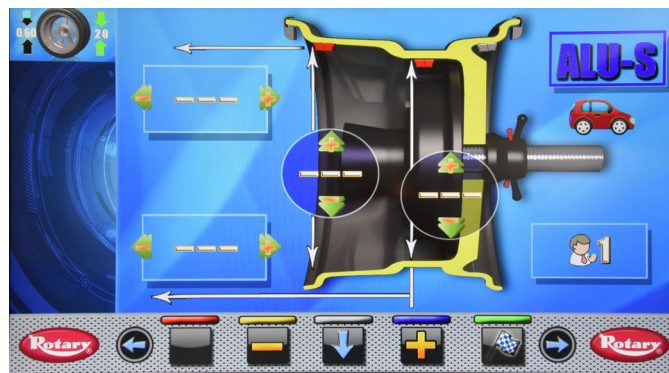


The procedure has now been completed.

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) and proceed with balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

Fig. 54

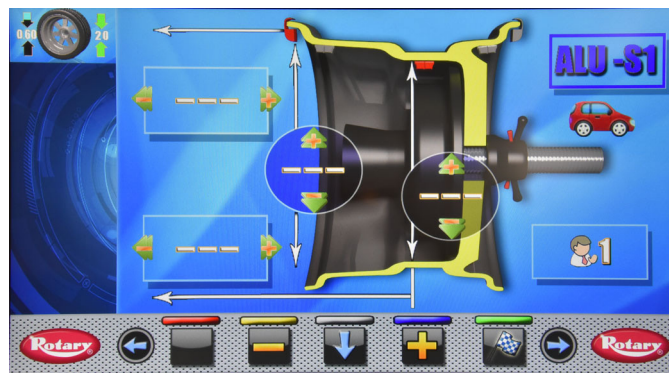


The procedure has now been completed.

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) and proceed with the balancing operations (the inner weight is with clip). At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

Fig. 55



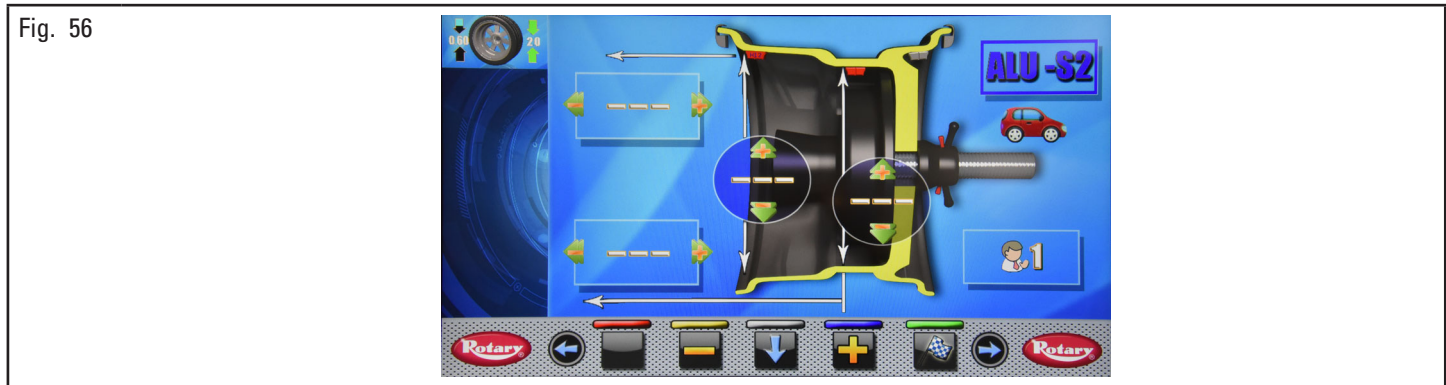
The procedure has now been completed.

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) and proceed with balancing operations.

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



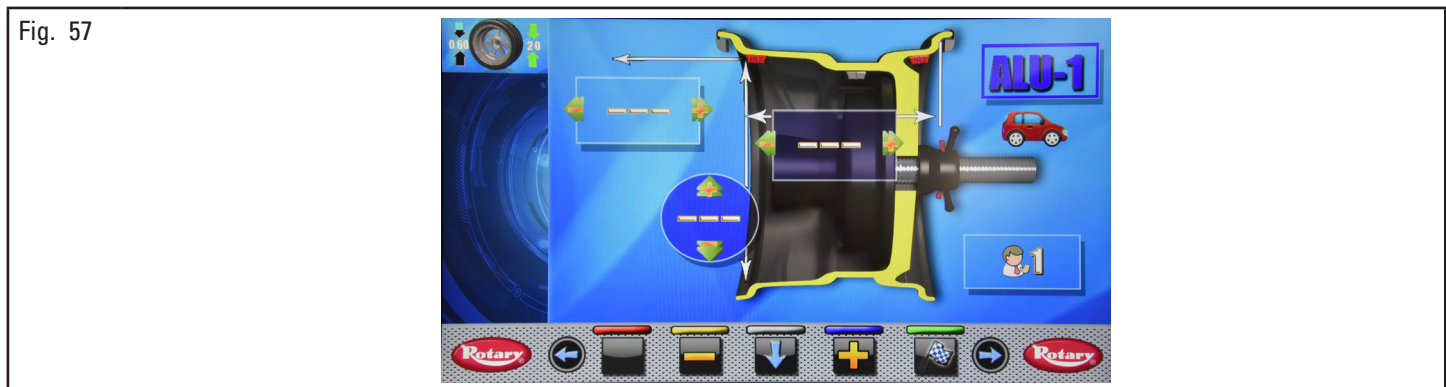
The procedure has now been completed.

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) and proceed with balancing operations.

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.

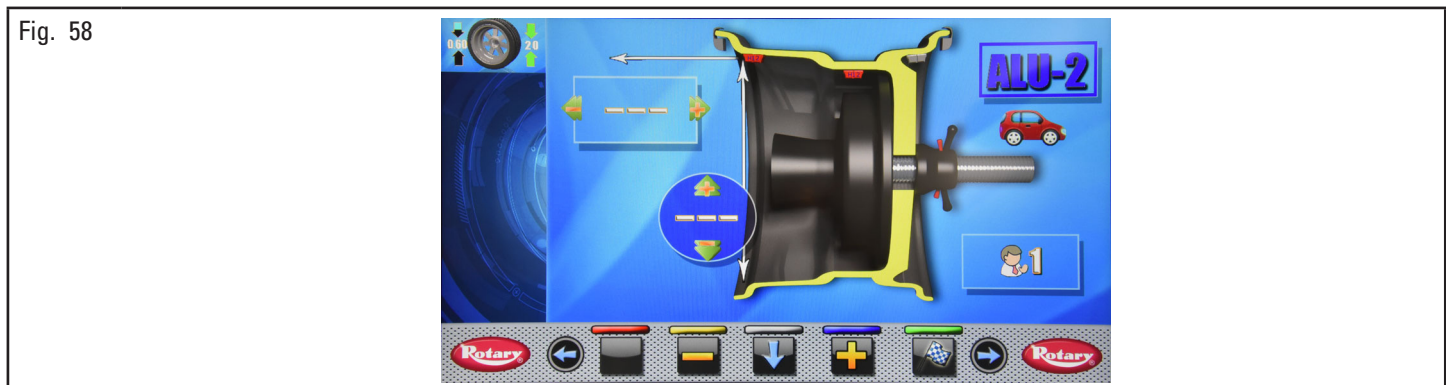


The procedure has now been completed.

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).

At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

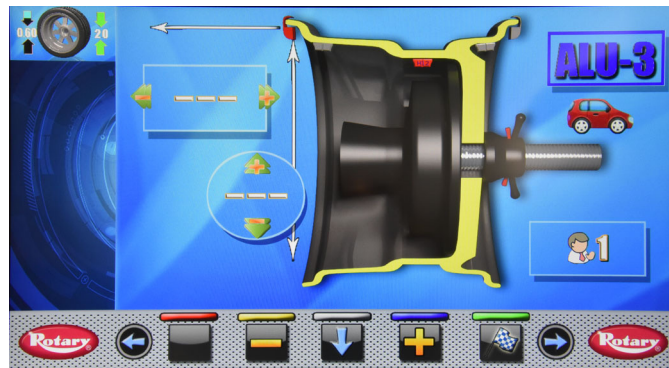
13.7.10 ALU-3

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) 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.

Fig. 59



The procedure has now been completed.

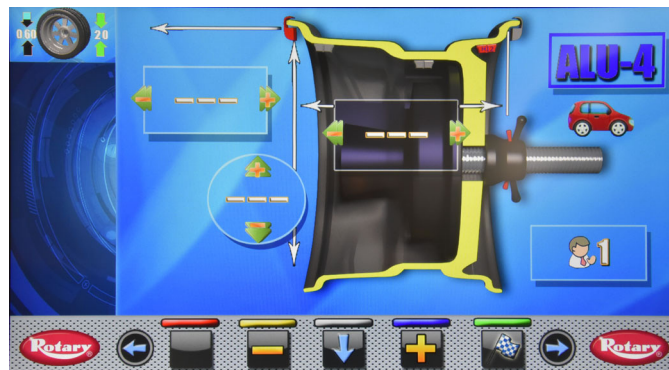
13.7.11 ALU-4

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) 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.

Fig. 60



The procedure has now been completed.

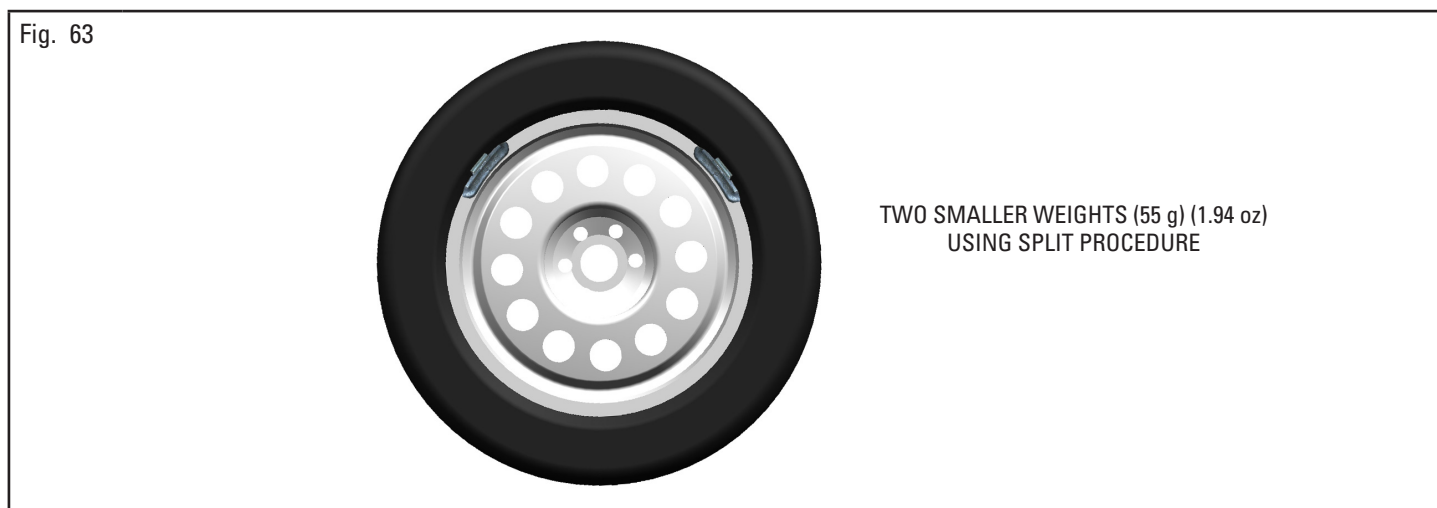
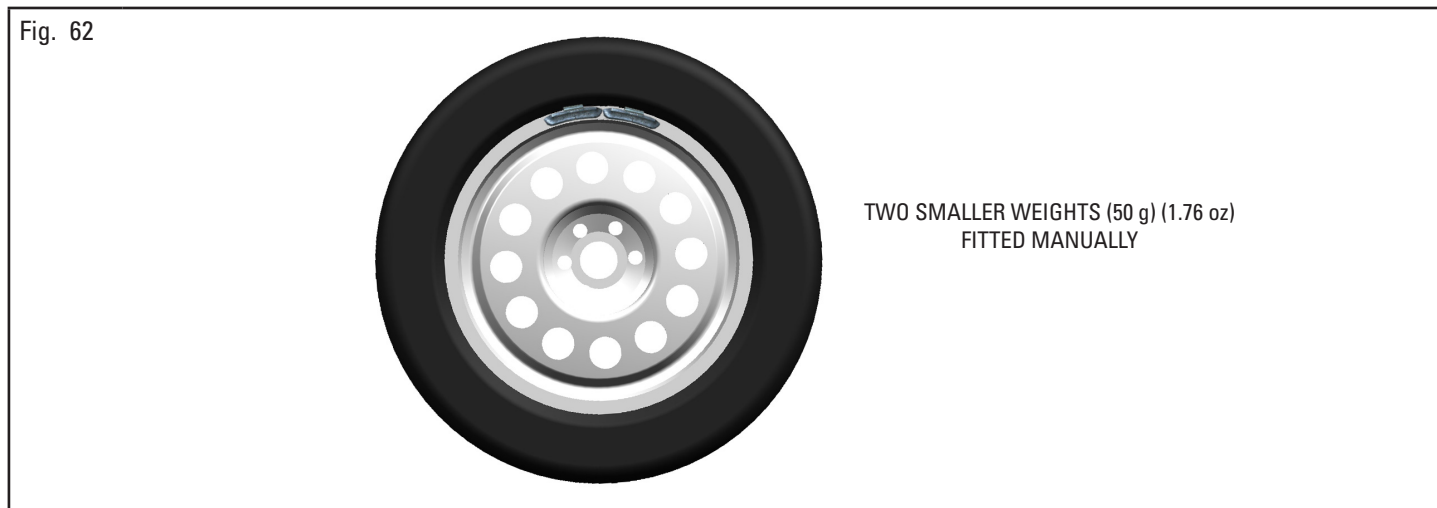
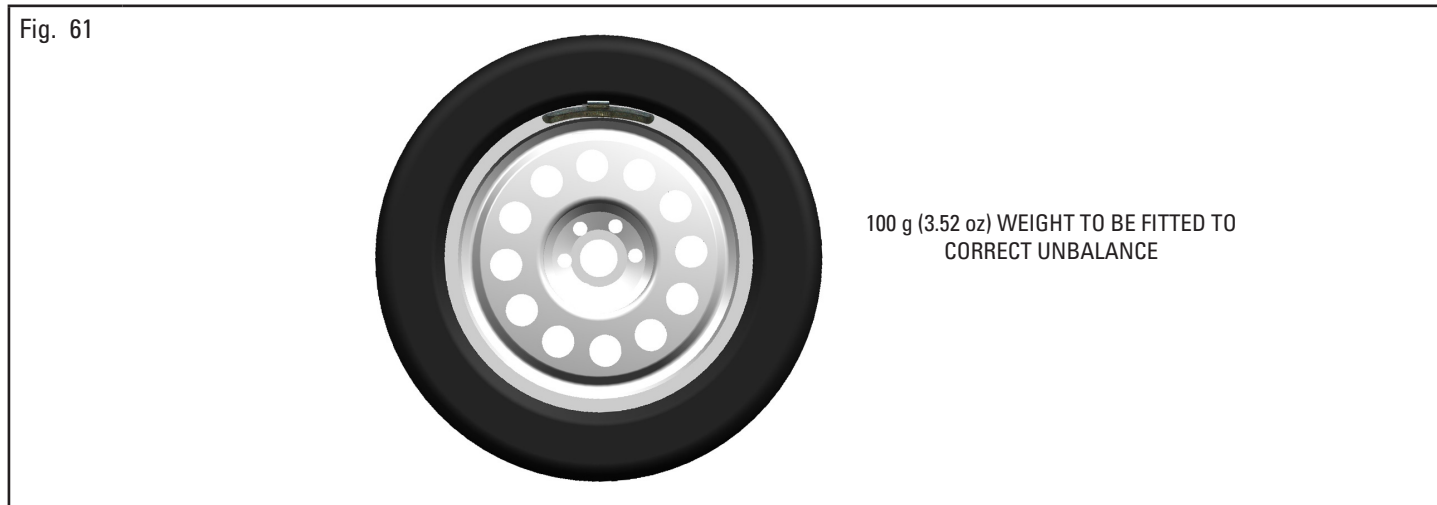
13.8 *Optional balancing programs*

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 g (3.52 oz) one.

For example:



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

Fig. 64



Once detected the unbalance values, verify that the equipment displays the ability to use the "SPLIT" option (Fig. 40 ref. 4a). Press button



to shift to the next screen page.

Fig. 65




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.

Fig. 66



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.

Fig. 67



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.

Fig. 68




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.

Fig. 69



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.

To set these modes, consult Par. 14.1.



It **AUTOMATICALLY** enables weights hidden behind spokes mode (disabled on equipment delivery).

After the scanning, the equipment places the wheel for the fitting of the weight behind the first spoke (spokes position detected by the scan).



It **SEMIAUTOMATICALLY** enables weights hidden behind spokes mode (enabled on equipment delivery).

After the scanning, the equipment places the wheel for the fitting of the weight on the outer side, in the point indicated by the chosen program. In case the "weights hidden behind spokes" button is pushed, the equipment places the wheel for the fitting of the weight behind the first spoke (spokes position detected by the scan).



It **MANUALLY** enables weights hidden behind spokes mode (disabled on equipment delivery).

Proceed to ALU-S unbalance measurement displaying by performing a standard wheel spin.



Once detected the unbalance values, verify that the equipment displays the ability to use "spokes" option (Fig. 40 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 o'clock" the 2nd spoke. The equipment will automatically calculate the total number of spokes. If the value shown on the



screen (A) is correct, press the button

The equipment 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.



The laser pointer will mark the position where to fit the FIRST weight. After carrying out the fitting 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. Using as reference the laser pointer, fit the SECOND weight in the position shown by the equipment, 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).



ON THE MARKET THERE CAN BE PARTICULARLY COMPLEX TYPES OF RIMS SHAPES AND/OR PROFILES SO THE EQUIPMENT COULD SUGGEST BALANCING PROGRAMS OR POINTS FOR POSITIONING THE WEIGHTS BEHIND THE SPOKES THAT DO NOT SUIT THE ACTUAL SHAPE OF THE RIM ITSELF. IN THIS CASE PLACE MANUALLY THE LASER TO REASSIGN CORRECTLY THE BALANCING LEVELS AND THE WEIGHTS FITTING POINTS.

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).

Fig. 75



Once detected the unbalance values, verify that the equipment displays the ability to use the "matching" options (Fig. 40 ref. 10).





Press button  to shift to the next screen page.

Fig. 76



Press button  to enter the relevant function.

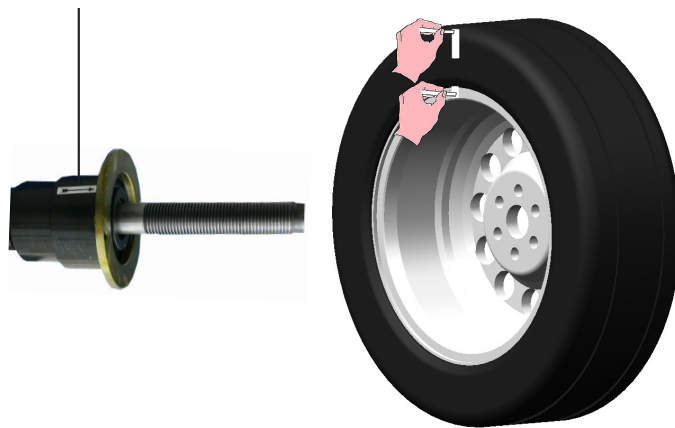
On the monitor the next screen page will be displayed:

Fig. 77



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 equipment.

Fig. 78 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:

Fig. 79



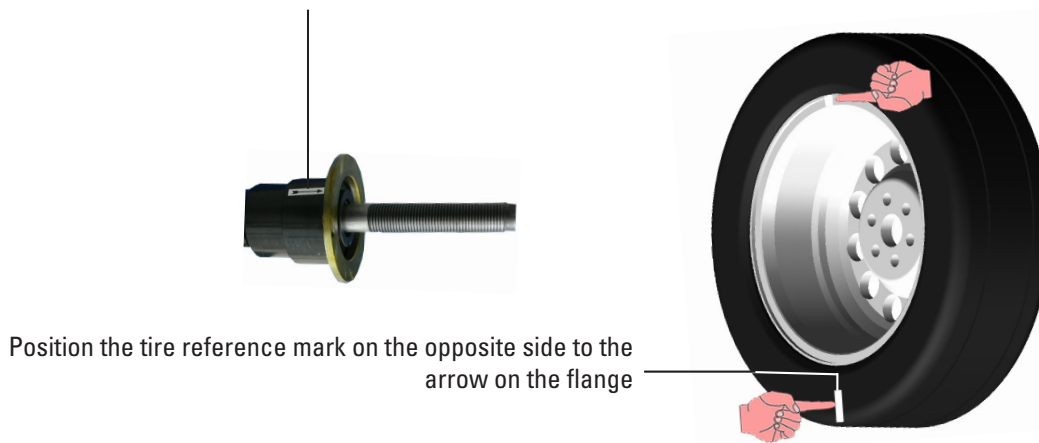
STEP 2. Remove the wheel from the wheel balancer. Remove the tire and turn it on the rim through 180°.


Fig. 80



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

Fig. 81 Position the reference mark on the rim in line with 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.

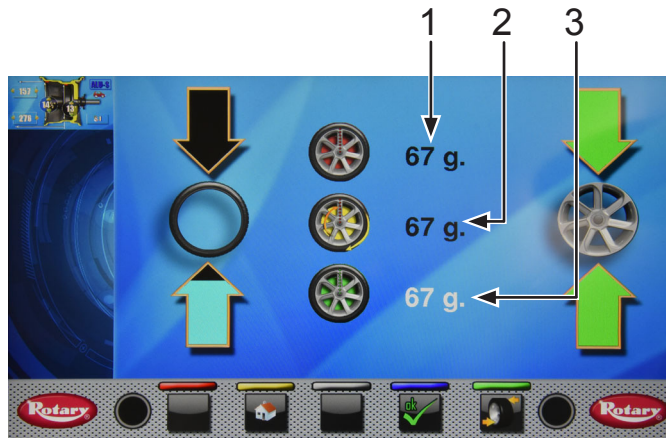
Fig. 82



After having fitted wheel back in position, close the protection guard to make an automatic wheel spin. Open the protection guard.

At the end of the spin the monitor will display the screen illustrated afterwards.

Fig. 83



In this screen you will see the dynamic unbalance that the wheel had before performing the operation (Fig. 83 ref. 1), the dynamic unbalance after having rotated the tire through 180° compared to the rim (Fig. 83 ref. 2) and the unbalance which can be obtained following the directions of the equipment (Fig. 83 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;

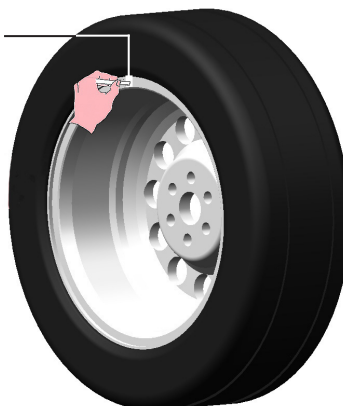
Fig. 84



- make the reference mark on RIM at "12 o'clock" (see Fig. 85);

Fig. 85

reference mark on RIM







- press the button  to bring the wheel into position.

Fig. 86



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

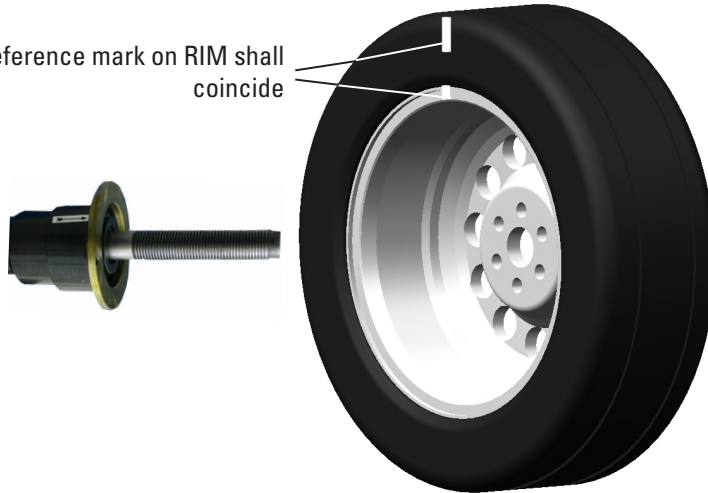



Press button  to confirm that step 3 has been completed.

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. 87) with the two reference marks next to the arrow on the flange.

Fig. 87

Reference mark on TIRE and reference mark on RIM shall coincide



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.

Open the protection guard.

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 Chapt. 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 equipment 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 equipment (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;



- 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 equipment, 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.

Fig. 89



Use arrows  and/or  to select the desired mode.

At the end press push button .

The equipment 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.

Fig. 90



The user login password is: 1234.

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

Fig. 91



KEY

1 – Options menu push button

2 – Calibrations menu push button




14.1 Options menu




Press the button (Fig. 91 ref. 1), to display the monitor screen to enable/disable options as shown below:

Fig. 92



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 measurement 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



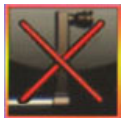
THE ICONS OF THE AVAILABLE OPTIONS WILL TURN BLUE WHEN THEY ARE SELECTED.



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



Enable/disable the protection guard/spin (enabled by default).



Enable/disable distance/diameter detection caliper (disabled by default).



Enable/disable the display of static threshold after each spin (enabled by default).



It allows you to set the thresholds for each of the balancing mode weights (see Par. 14.1.2).



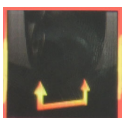
Enable/disable the lock function for caliper arm in position (disabled by default).



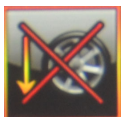
Enable/disable the weights+ultrasound sensor laser positioning/scanning function (enabled by default).



It allows you to change the unit of measurement of the weights from ounces to grams and vice versa.



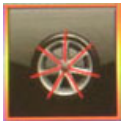
It allows to enable/disable the width function (enabled by default).



Enable/disable the positioning of weights at "6 o'clock" (disabled by default).



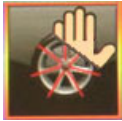
Enable/disable the pneumatic brake after the spin (disabled by default).



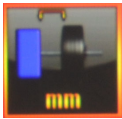
It enables the weights hidden behind spokes mode in automatic.
After the scanning, the machine places the wheel for the fitting of the weight behind the first spoke (spokes position detected by the scan) (disabled by default).



It enables the weights hidden behind spokes mode in manual (disabled by default).



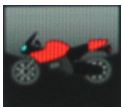
It enables the weights hidden behind spokes mode in semiautomatic.
After the scanning, the machine places the wheel for the fitting of the weight on the outer side, in the point indicated by the chosen program. In case the "weights behind spokes" button is pushed, the machine places the wheel for the fitting of the weight behind the first spoke (spokes position detected by the scan) (enabled by default).



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



Enable/disable the LED light functions (enabled by default).



Enable/disable the functions of motorbike balancing (disabled by default).



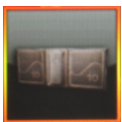
Enable/disable the encoder mounted on the spin motor (enabled by default).



Enable/disable the automatic RUN-OUT function (inside rim) (disabled by default).



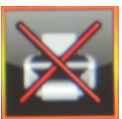
It allows you to change the unit of measurement of the rims width from mm to inches and vice versa.



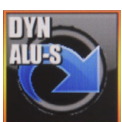
It allows you to set the size values of weights (see Par. 14.1.2).





Enable/disable the RUN-OUT functions (tire outside) (GAR338) (disabled by default).



Enable/disable the functions of machine printing (disabled by default).



It allows to select cyclically DYN and ALU-S modes, by pressing the button program selection (Fig. 19 rif. 6) from the "HOME" page (enabled on equipment delivery).

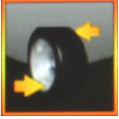
Press the icon  to display the icon , which allows to select cyclically DYN, ALU-S, ALU-S1 and STAT modes by pressing the button program selection (Fig. 19 rif. 6) from the "HOME" page (disabled on equipment delivery).



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 pointer function (disabled by default).



Enable/disable the repositioning of the wheel at the end of the spin (enabled by default).



Enable/disable the users function (disabled by default).




Enable/disable the function of weights positioning laser wheel inner/outer side "at 12 o'clock" (disabled by default).

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).

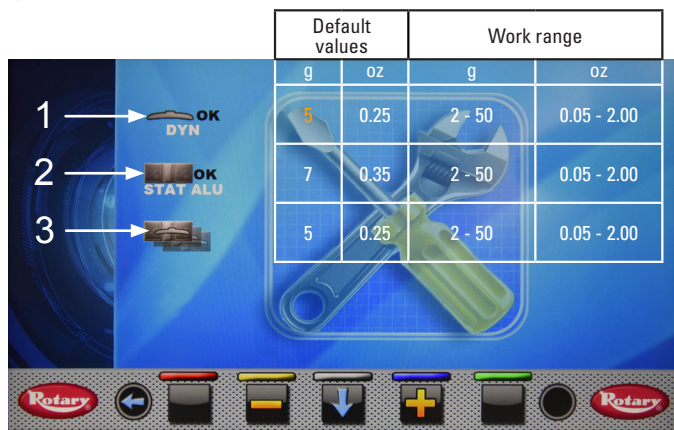


At the end of the spin however, by pressing the button , the weight can be displayed with max resolution of 1 g (0.05 oz), not considering the set lower limit.



LOWER LIMIT 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).

Fig. 93



	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

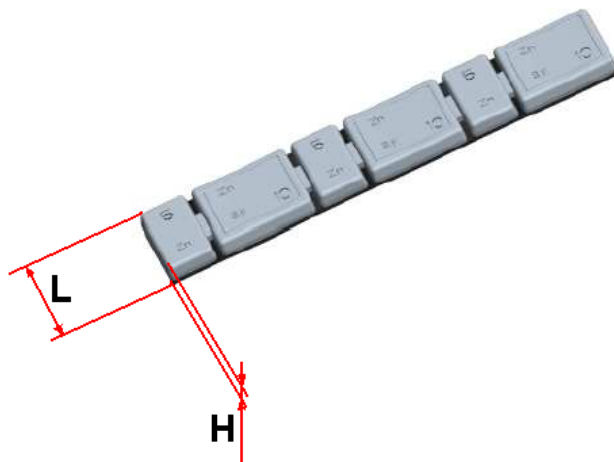
KEY

- 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. 94).

Fig. 94




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

Fig. 95



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



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

14.1.3 User management

The "User Management" function is disabled on equipment delivery. To enable it, proceed as described in Para 14.1. After enabling, the icon will be displayed on every page (Fig. 96 ref. 1).

The wheel balancers can be used simultaneously by 4 different users.

Fig. 96

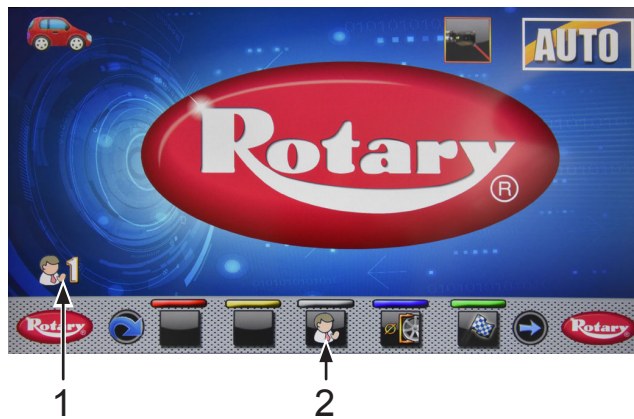
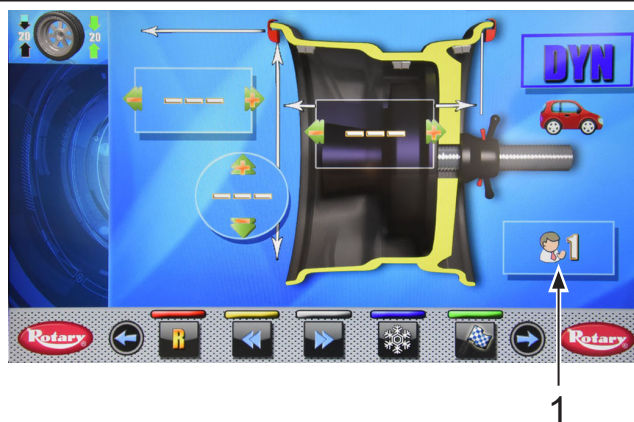


Fig. 97







Press button  (Fig. 96 ref. 2), shown on the monitor or select the field (Fig. 97 ref. 1) and subsequently press button  to display the screen page below:

Fig. 98



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. 96 ref. 2 and Fig. 97 ref. 1). The measurements stored for each user are lost when the equipment is switched off.

User management is valid for any wheel balancer function.

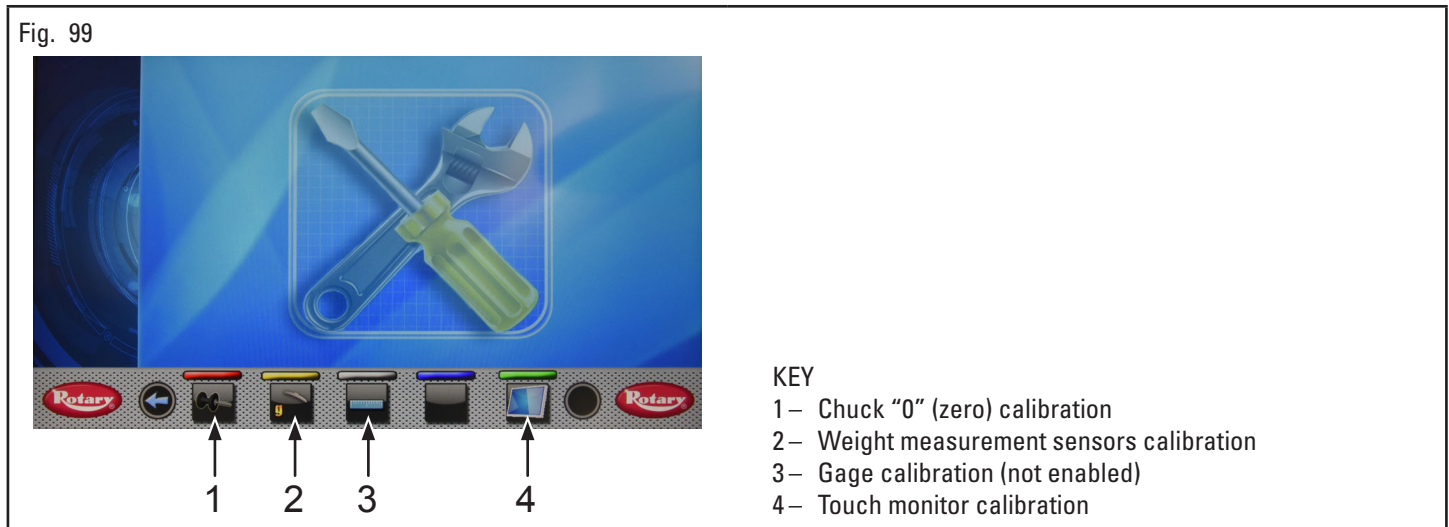


TO ENABLE OR DISABLE "USER MANAGEMENT" FUNCTION, SEE PARAGRAPH 14.1. IF THE FUNCTION IS DEACTIVATED, BUTTON  IS DISPLAYED.

14.2 Equipment calibrations



There are three types of calibrations displayed by pressing the button (Fig. 91 ref. 2).

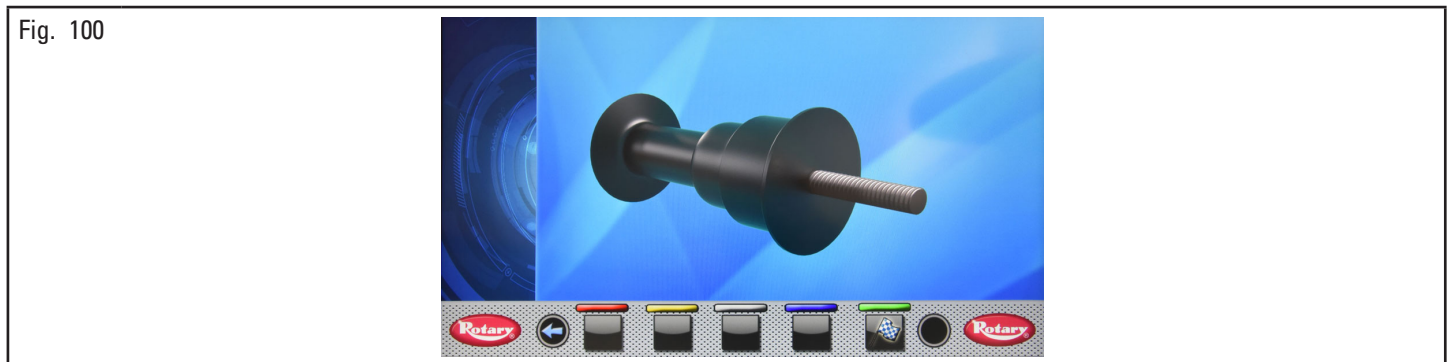


The three types will be explained in the next sections.

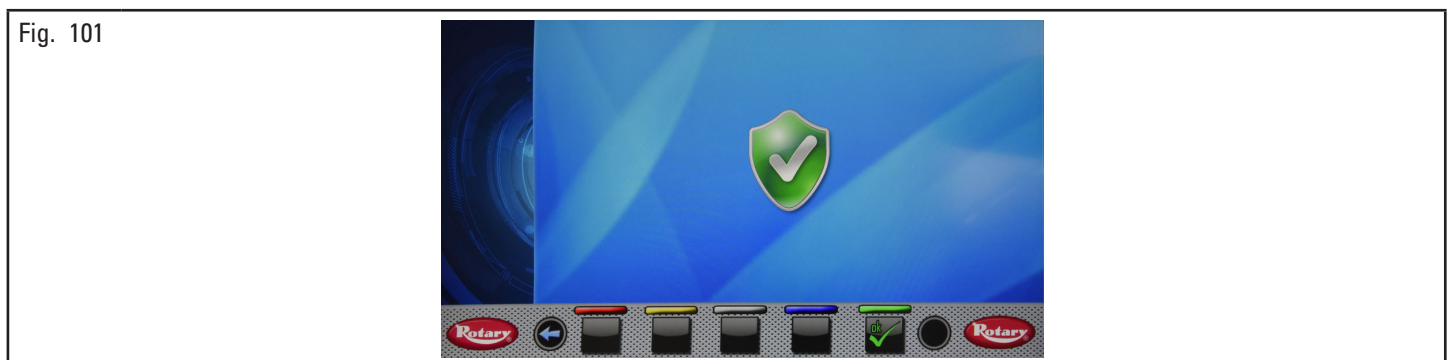
14.2.1 Chuck "0" (zero) calibration



Press the button (Fig. 99 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 equipment has all its measuring fields.
Open the protection guard.



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.



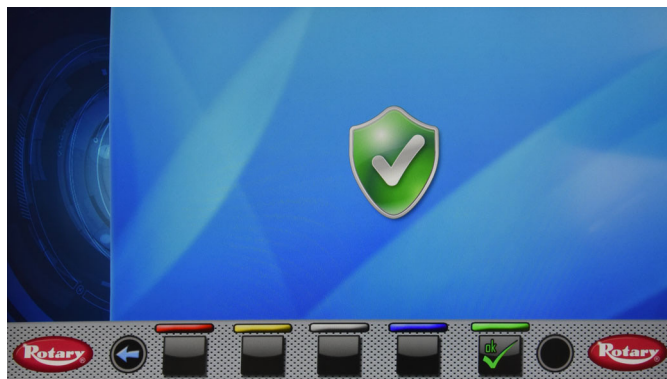
- Press the button  (Fig. 99 ref. 1) to display the following screen page on the monitor:

Fig. 102



- Close the guard. The chuck will rotate for a few minutes until you see the screen below:

Fig. 103



At this point the equipment has all its measuring fields.
Open the protection guard.




Press button  to return to calibrations screen page.

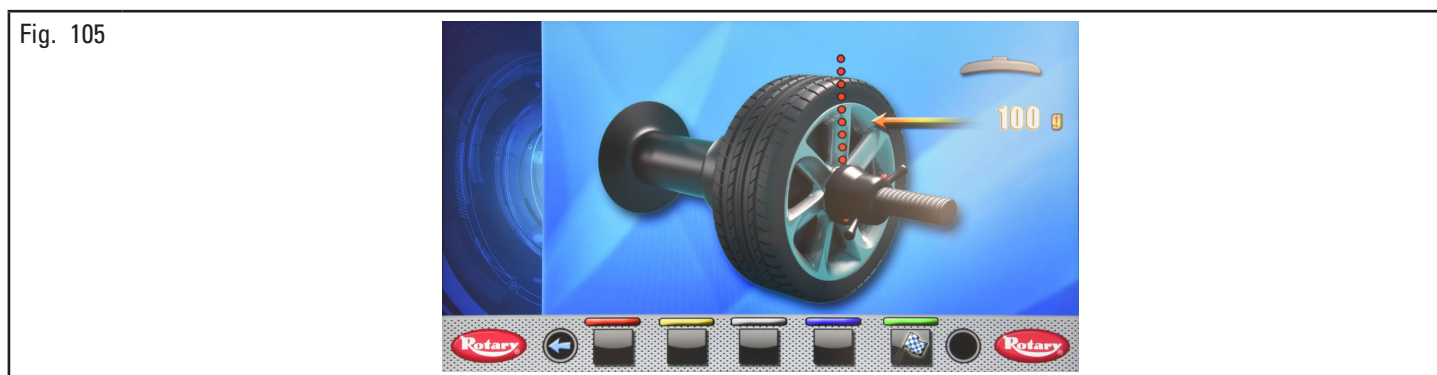
STEP 2

- Press the button  (Fig. 99 ref. 2) to display the following screen page on the monitor:



- Detect iron rim-wheel measurements with the laser, through "DYN" mode.

- Press button  and close the guard to 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.

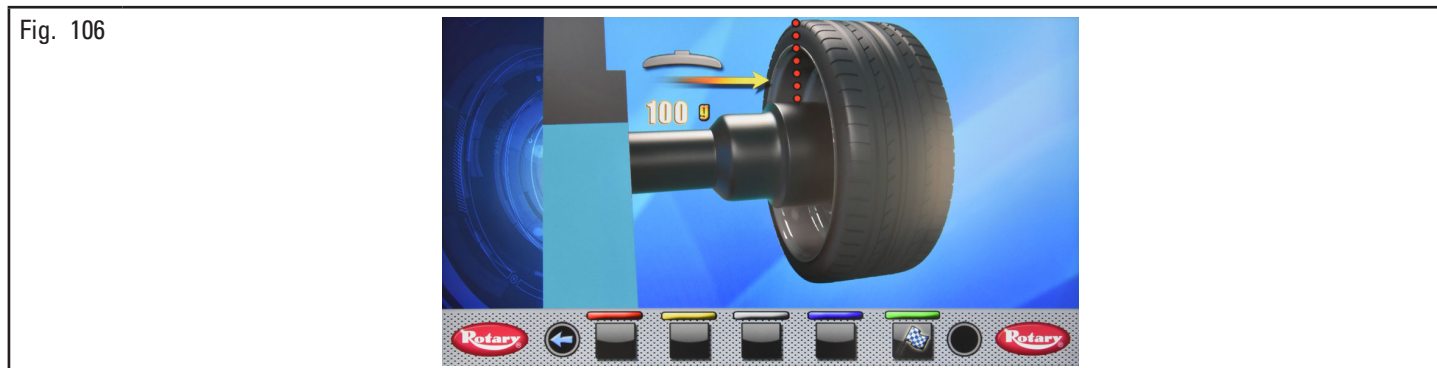


- Open the protection guard.



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".
- 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.

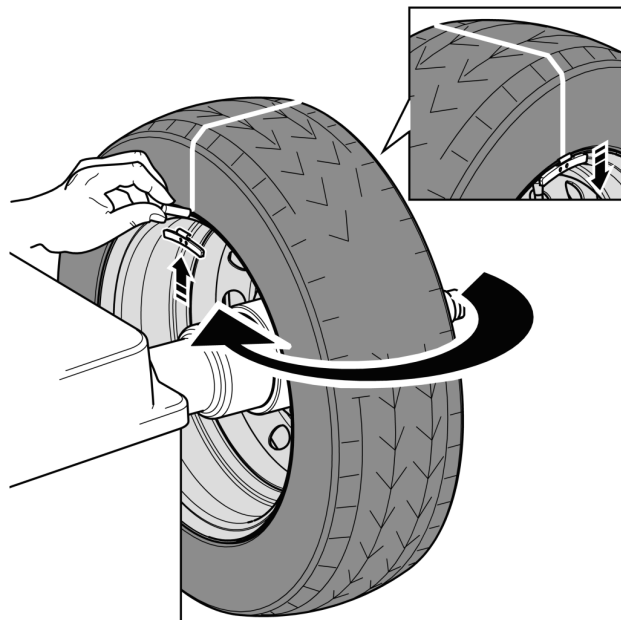


- Open the protection guard.
- Turn manually the wheel until You have the weight of 100 g (3.52 oz) on the outer side at "12 o'clock".
- Press the brake pedal and hold it down during the whole the following operation to avoid unexpected rotation of the chuck.
- Remove the weight from 100 g (3.52 oz)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



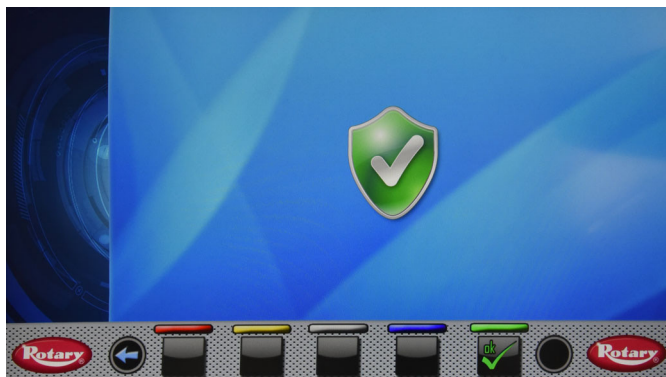
AT THIS POINT TAKE THE WEIGHT POSITIONED ON THE EXTERNAL SIDE AND PLACE IT EXACTLY IN THE SAME POSITION BUT ON THE INTERNAL SIDE, HELPING BY DRAWING A LINE ON THE TIRE AS A REFERENCE (SEE FIGURE BELOW).

Fig. 107



- 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.

Fig. 108



- Open the protection guard.



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.



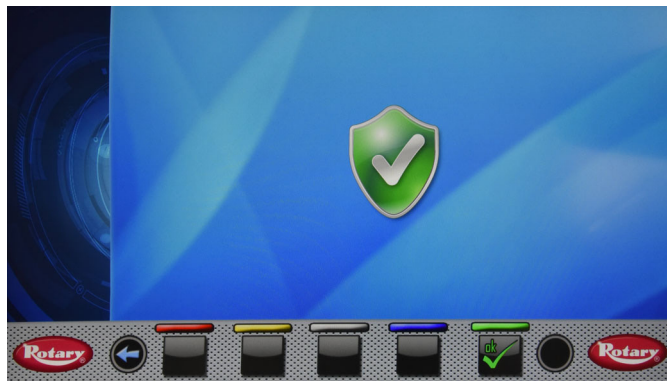
- Press the button (Fig. 99 ref. 1) to display the following screen page on the monitor:

Fig. 109



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

Fig. 110



- At this point the equipment has all its measuring ranges.
- Open the protection guard.



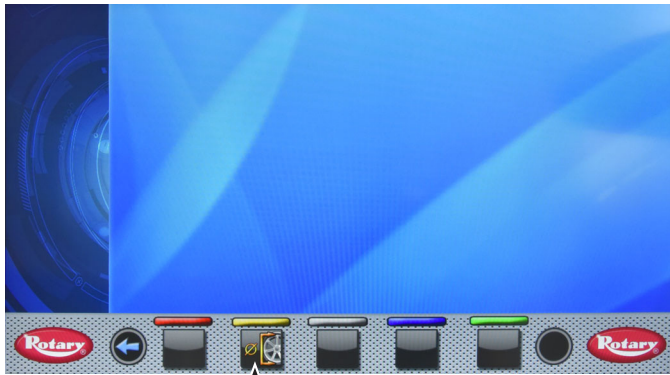
- Press the button to end calibration procedure.

14.2.3 Gage calibration



Press the button (Fig. 99 ref. 3) to display the following screen page on the monitor:

Fig. 111



KEY
1 – Distance-diameter caliper calibration

Distance-diameter caliper calibration

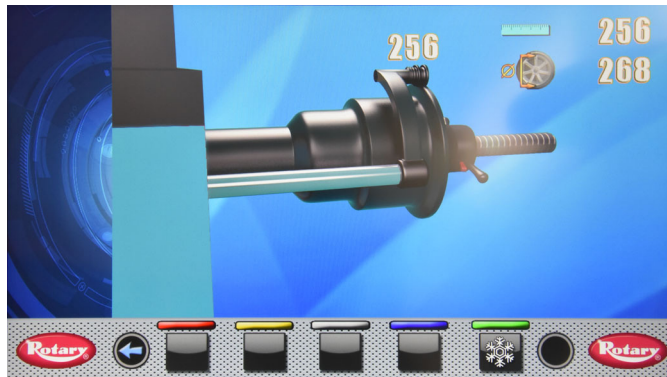


THE NUMERICAL VALUES SHOWN IN THE FIGURES BELOW ARE PURELY ILLUSTRATIVE.



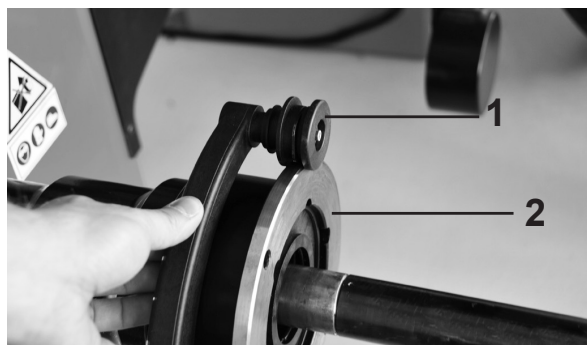
Press the button (Fig. 111 ref. 1) to display the following screen page on the monitor:

Fig. 112



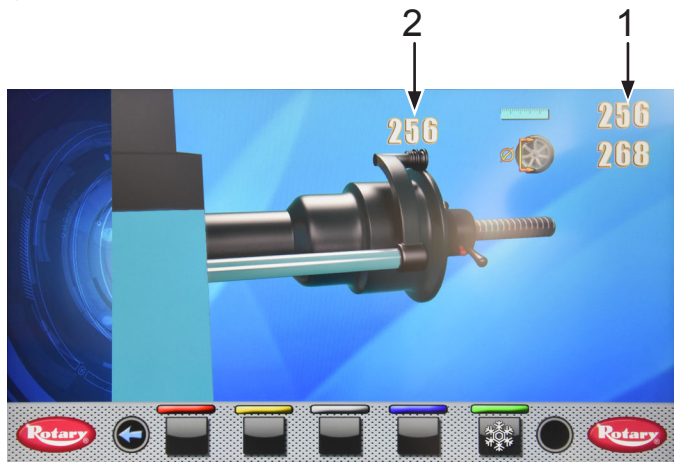
Place the gage (Fig. 113 ref. 1) on the chuck flange (Fig. 113 ref. 2).

Fig. 113



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

Fig. 114



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. 114 ref. 1) must be equal to or ± 1 mm (0.04 ") compared to what is indicated above the gage (Fig. 114 ref. 2).



- Press push button

The following screen will appear on the monitor:

Fig. 115



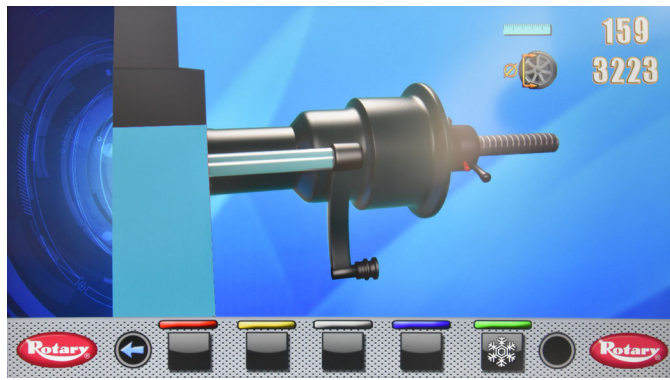
- Place the gage as shown in the following figure:

Fig. 116



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

Fig. 117



- 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:

Fig. 118





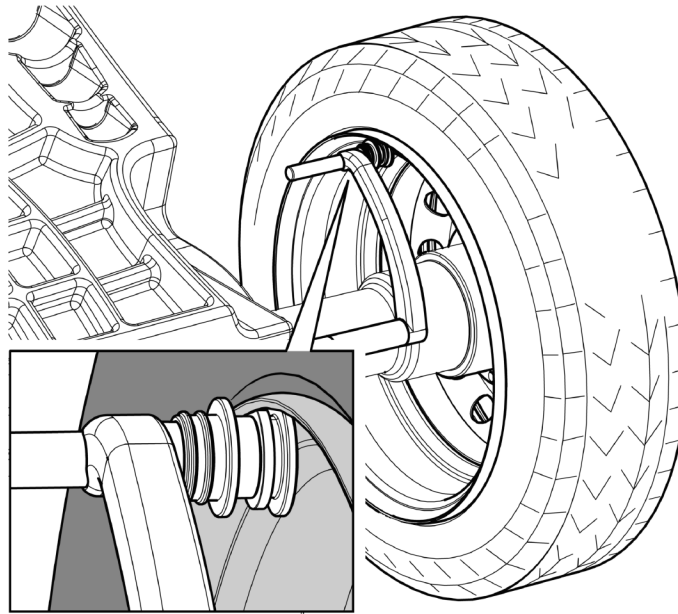
- Measure the exact diameter of a rim (see Fig. 119) and place it on the screen on the monitor by pressing the  or  buttons.

Fig. 119



- Fit the measured wheel on the balancer and lock it on the chuck.
- Turn the gage bushing on the inner edge of the wheel upwards (see Fig. 120).

Fig. 120




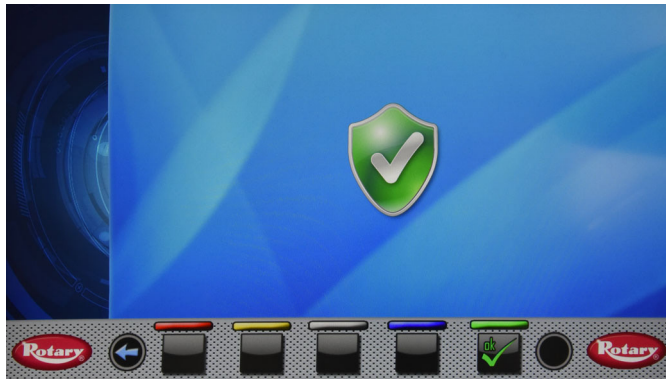
- Press button  to end the operation. On the monitor the next screen page will be displayed:

Fig. 121



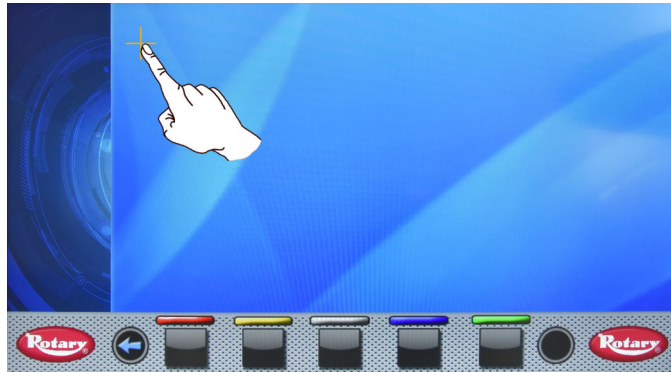
The calibration of the distance-diameter caliper is finished.

14.2.4 Touch monitor calibration



Press the button (Fig. 99 ref. 4) to display the following screen page on the monitor:

Fig. 122



Press the intersection of the lines that appear on the monitor. The points on which you need to press will be 4 and positioned near the corners of the monitor.

The calibration of the monitor 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 EQUIPMENT 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 equipment, 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 EQUIPMENT 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 (Hp)		0.15 (100 W)
Power supply	Voltage (V)	110
	Phases	1
	Frequency (Hz)	60
Typical current draw (A)		0.7
Rotating speed (revolutions/min)		< 100

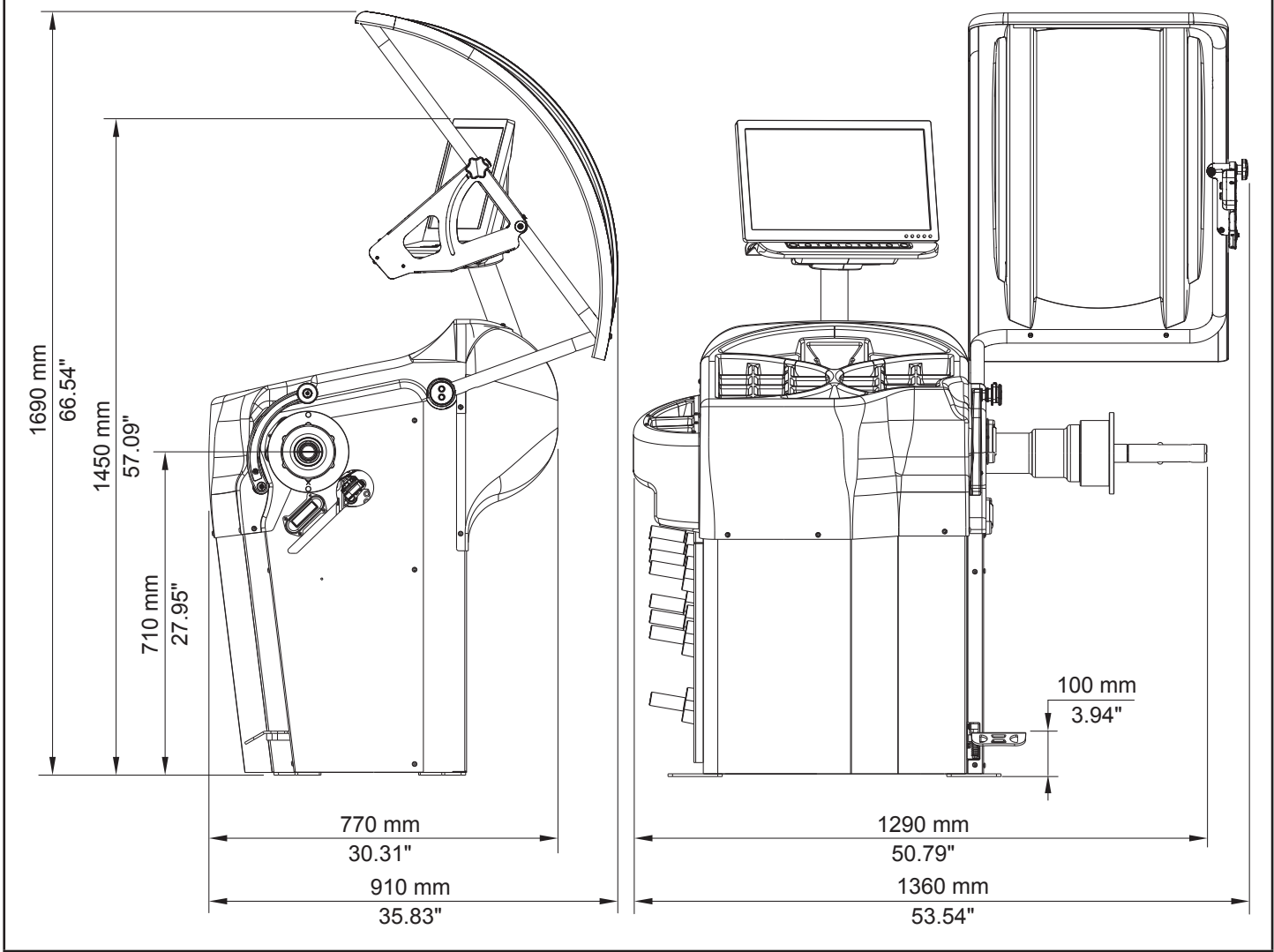
17.2 *Technical mechanical data*

Rim diameter setting (inches)		10 - 30
Wheel max. diameter (mm)		1120 (44")
Wheel max. width (mm)		560 (22")
Rim width setting (inches)		1.5 - 22
Balancing precision (g)		± 1
Balancing precision (oz)		± 0.05
Cycle time (sec)		6
Sound emission level (dBA)		< 70
Max. wheel weight (kg)		80 (176 lbs)

Weight (Kg)		145 (320 lbs)
-------------	--	---------------

17.3 Dimensions

Fig. 123



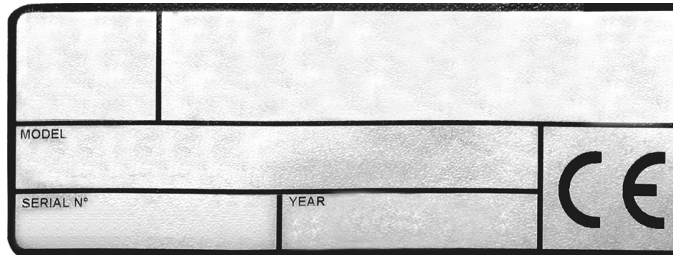
18.0 STORING

If storing for long periods disconnect the main power supply and take measures to protect the equipment 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 this equipment, make it inoperative by disconnecting it from the electrical power supply and the compressed air supply. This equipment is to be disposed of in accordance with applicable regulations.

20.0 REGISTRATION PLATE DATA



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



ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT 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 equipment, damaged or even partially illegible) inform immediately the manufacturer.

21.0 FUNCTIONAL DIAGRAMS

Here follows a list of the equipment functional diagrams.

KEY

- 1 – Power supply cable
- 2 – Net filter
- 3 – Fuse
- 4 – Cable from switch to filter to transformer
- 5 – Tilting switch
- 6 – Fuse
- 7 – Transformer
- 8 – Electronic kit
- 9 – Power board kit UL/CSA with connectors
- 10 – Monitor SBC kit
- 11 – Laser assembly actuator
- 12 – DSE Triangulation lasers (FDA certified equipments only)
- 13 – Ultrasound sensor board
- 14 – Serial width board cable assembly
- 15 – Serial extension cable assembly
- 16 – CAN BUS long extension cable with connectors
- 17 – Mobile laser supply cable assembly with connectors
- 18 – Motor 90W with UL/CSA encoder
- 19 – Motor encoder cable
- 20 – Motor support ground cable
- 21 – Supply cable with connectors
- 22 – Cable
- 23 – Buffered encoder board
- 24 – Piezo with front cable
- 25 – Piezo with cable
- 26 – LED light with connectors
- 27 – EV-0/EV-C chuck cable with connectors
- 28 – Mounting SV5
- 29 – Cable with connectors for pedal micro
- 30 – Limit switch
- 31 – Cable wheel micro protection with connectors
- 32 – Limit switch
- 33 – Potentiometer with cable
- 34 – Cable
- 35 – HDMI - DVI cable
- 36 – 7-keys-keyboard cables
- 37 – 7-keys-keyboard
- 38 – Monitor cable transformer diagram
- 39 – Monitor 22"
- 40 – Touch screen monitor 19"
- 41 – Cable from transformer to power supply
- 42 – Cable USB/A -USB/B
- 43 – HDMI-HDMI cable
- 44 – Ultrasounds sensor extension cable (on GAR338)
- 45 – Run-out board (for GAR338)
- 46 – Calibrated ultrasound sensor
- 47 – Wiring diagram GAR334, GAR335
- 48 – Printer kit
- 49 – Power supply cable USA plug
- 50 – Net filter
- 51 – UL/CSA fuse
- 52 – Wiring harness from net filter to UL/CSA transformer
- 53 – UL/CSA fuse

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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