

1297-M040-02

LIBRAK355PWS

INSTRUCTION MANUAL

EN

TRANSLATION FROM THE
ORIGINAL INSTRUCTIONS

For spare parts drawings refer to the document "LIST OF COMPONENTS" to be requested from the manufacturer.

• For any further information please contact your local dealer.

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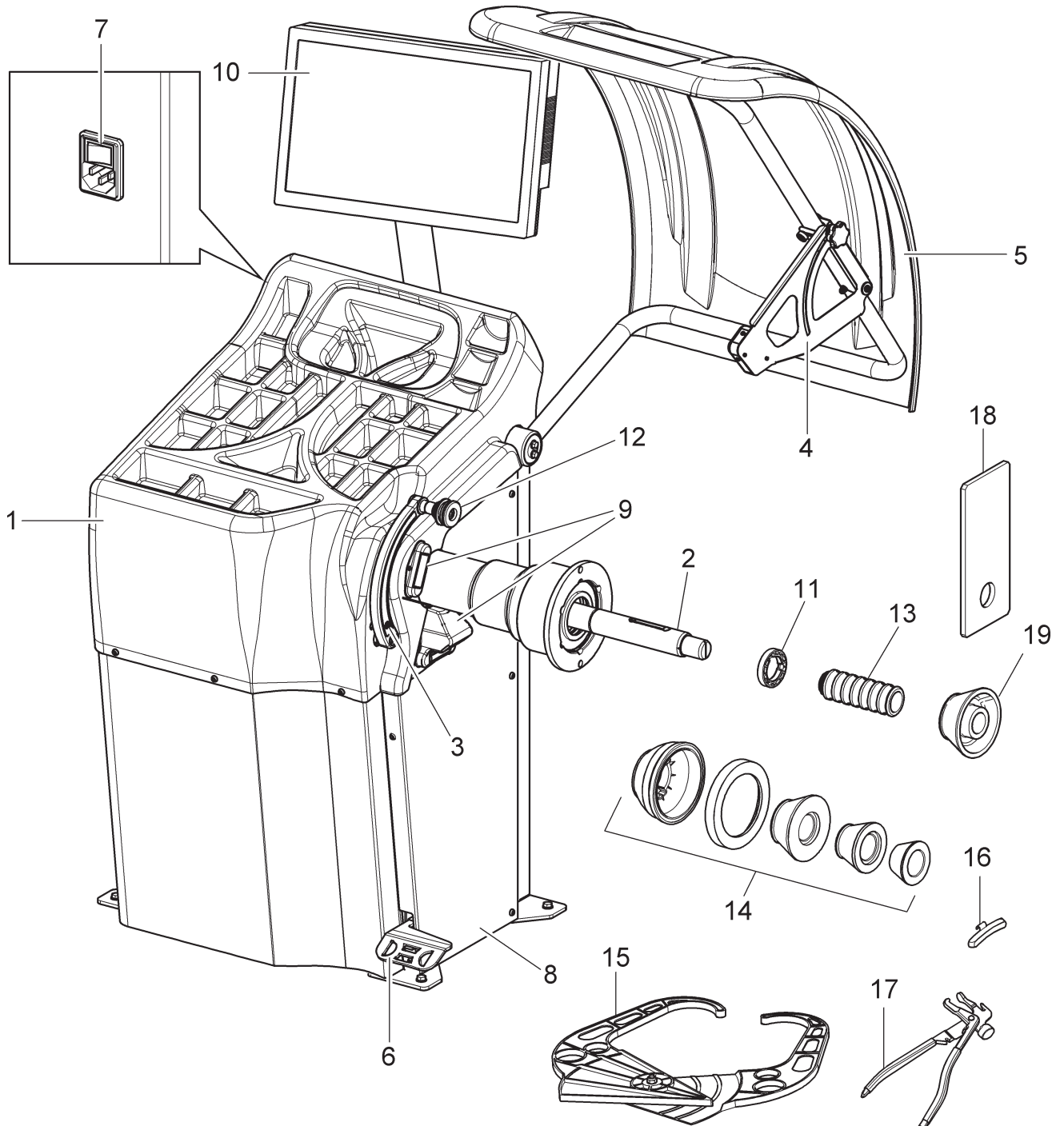
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GENERAL DESCRIPTION







Fig. 1









KEY

- | | |
|---|-------------------------------------|
| 1 - Weight top cover | 10 - 19" touch screen monitor |
| 2 - Pneumatic chuck | 11 - Pressure ring |
| 3 - Distance-diameter caliper | 12 - Pliers for weight fitting |
| 4 - Automatic width measuring device assembly | 13 - Tyre locking sleeve |
| 5 - Protection guard | 14 - Cones + protection cup |
| 6 - Foot brake / pneumatic chuck open-close pedal | 15 - Width manual caliper |
| 7 - Main switch | 16 - Carriages counterweight |
| 8 - Lateral guard | 17 - Pliers for weights |
| 9 - Fixed laser assembly + LED light | 18 - Calibrator body (optional) |
| | 19 - Off-road vehicle cone D.88-132 |

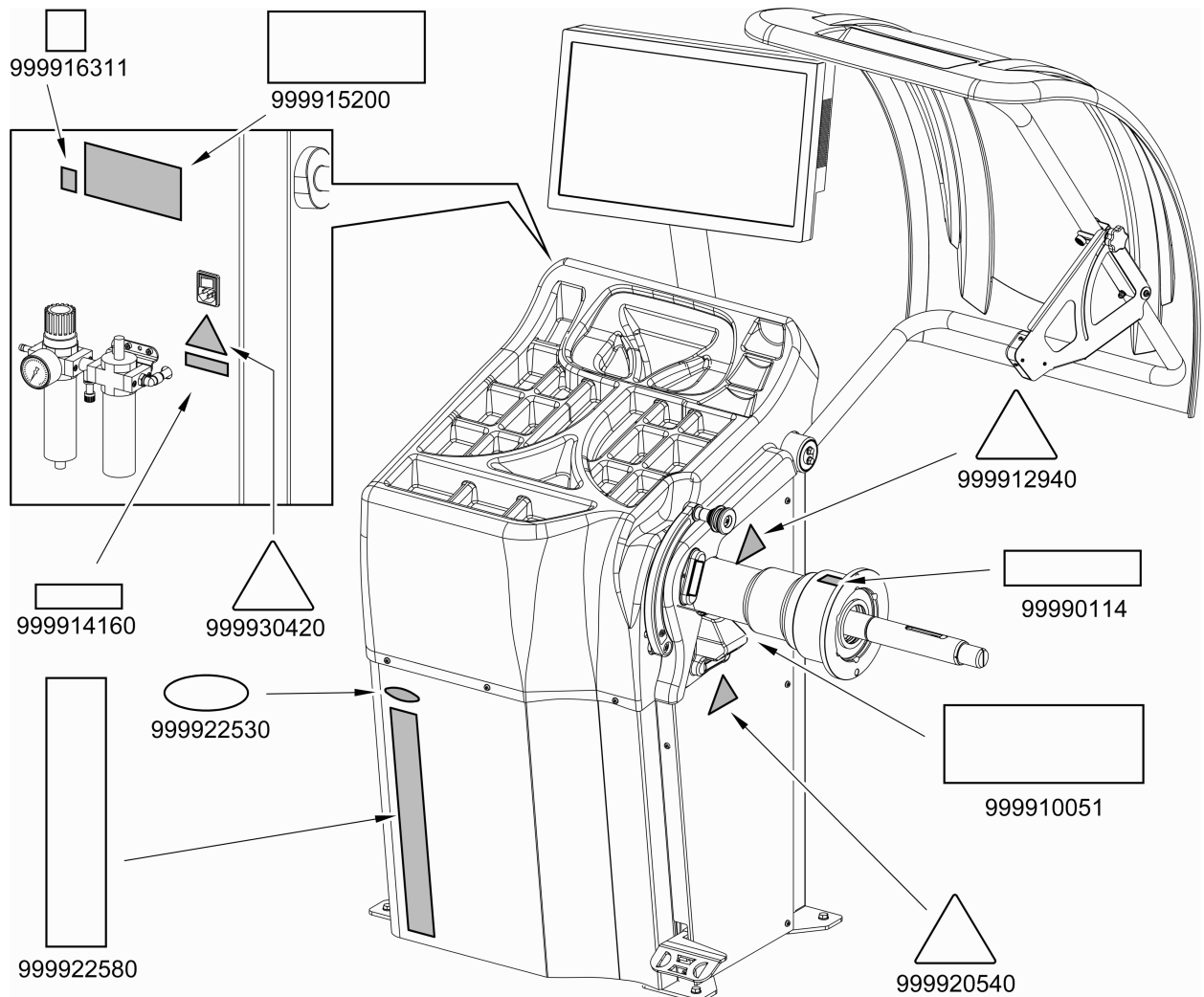
SYMBOLS USED IN THE MANUAL

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

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

NAMEPLATES LOCATION DRAWING

Fig. 2



Code numbers of nameplates

99990114	<i>Arrow nameplate</i>
999910051	<i>Protection device use nameplate</i>
999912940	<i>Lifting nameplate</i>
999914160	<i>230 V - 1 Ph - 50/60 Hz voltage nameplate</i>
999915200	<i>Serial number nameplate</i>
999916311	<i>Rubbish skip nameplate</i>
999920540	<i>Laser point danger nameplate</i>
999922530	<i>VAS stylized logo nameplate</i>
999922580	<i>VAS nameplate</i>
999930420	<i>Electric shock danger nameplate</i>



IF ONE OR MORE NAMEPLATES 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 IN SOME COMPONENTS/DISPLAY SCREEN PAGES.

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.

Carefully study the warnings and instructions contained in this manual. It contains important instructions regarding **FUNCTIONING, SAFE USE and MAINTENANCE.**



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



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

1.1 Introduction

Thank you for purchasing this wheel balancer. We feel sure you will not regret your decision.

This equipment has been designed for use in professional workshops and stands out for its reliability and easy, safe and quick operation. With just a small degree of maintenance and care, this wheel balancer will give you many years of trouble-free service and lots of satisfaction.

2.0 INTENDED USE

The equipment described in this manual, is a wheel 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.



DANGER: EMPLOYING THIS EQUIPMENT 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 DAMAGES CAUSED BY IMPROPER, ERRONEOUS, OR UNACCEPTABLE USE.

2.1 Training of personnel

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

Given the complexity of the operations necessary to manage the 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 machine 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 positioned on the rear 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**



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

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 which placing is indicated in "PLATES LOCATION DRAWING" (see **Fig. 2**).



THIS DEVICE IS EQUIPPED WITH SOFTWARE-CONTROLLED LASER EMITTERS.

WARNING AND INFORMATION NAMEPLATES HAVE BEEN APPLIED OUTSIDE THE DEVICE, IN ORDER TO INDICATE THE PRESENCE AND EMPLOYMENT OF LASER MEASURING INSTRUMENTS. DO NOT STARE AT THE LASER EMITTERS DIRECTLY AT CLOSE RANGE WHILE THE EQUIPMENT IS OPERATING.

4.0 GENERAL SAFETY RULES



- Any tampering with or modification to the machine not previously authorized by the manufacturer exempts the latter from all responsibility for damage caused by or derived from said actions.
- Removing of or tampering with the safety devices or with the warning signals placed on the equipment leads to serious dangers and represents a transgression of European 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 DENIES ANY RESPONSIBILITY IN CASE OF DAMAGES CAUSED BY UNAUTHORIZED MODIFICATIONS OR BY THE USE OF NON ORIGINAL COMPONENTS OR EQUIPMENT.

- The installation must be performed by qualified and authorized personnel in full compliance with the instructions given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the equipment if it malfunctions and contact the customer service of the authorized dealer.
- In emergency situations, and before carrying out any maintenance or repairs, 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 earth wire, to which the yellow-green equipment protection wire must be connected.
- Ensure that the area around the machine is free of potentially dangerous objects and that the area is oil free since this could damage the tyre. 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. 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 air-operated or electrical equipment when the shop is damp or the floor slippery and do not expose such tools to atmospheric agents.
- When operating and servicing this equipment, carefully follow all in force safety and accident-prevention precautions. The equipment must not be operated by untrained personnel.



DURING CHUCK OPENING/CLOSING OPERATIONS, BE CAREFUL NOT TO LET YOUR HANDS AND OTHER BODY PARTS NEAR THE MOVING CHUCK.

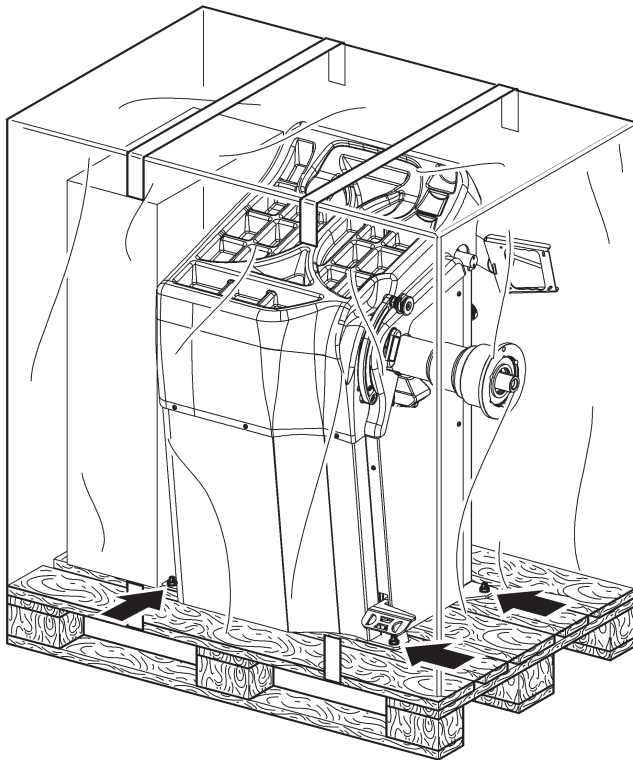
5.0 PACKING AND MOBILIZATION FOR TRANSPORT



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. Movement must be by pallet-lift or fork-lift trolley. The fork lifting points are indicated on the packing, (see **Fig. 3**).

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 unnailed 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 machine 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 the power and pneumatic supply of the equipment is disconnected.
- 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

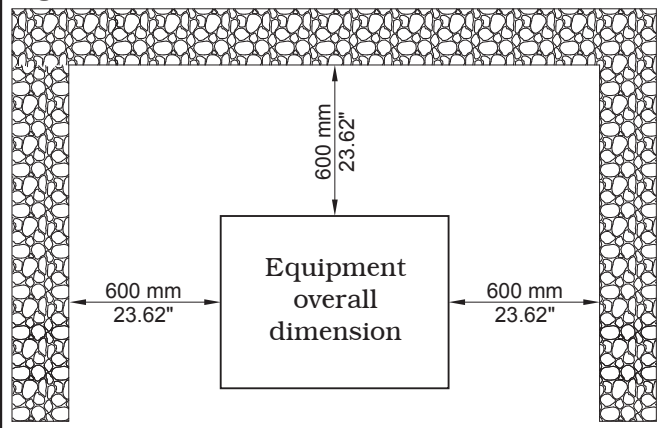
The equipment must be operated under proper conditions as follows:

- 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 SUFFICIENTLY ILLUMINATED PLACE, CLOSED, PROTECTED FROM ALL WEATHER CONDITIONS AND COMPLYING WITH THE REGULATIONS IN FORCE REGARDING WORK SAFETY.

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. Operator must prevent unauthorized personnel or objects that could be dangerous from entering the area. The equipment must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.

The equipment 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 guarantee the tightness of the anchor plugs.

8.2 Lighting

The equipment must be used in an adequately lit environment.



EACH TIME THE ROD OF THE GAUGE 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



ANY MECHANICAL ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF

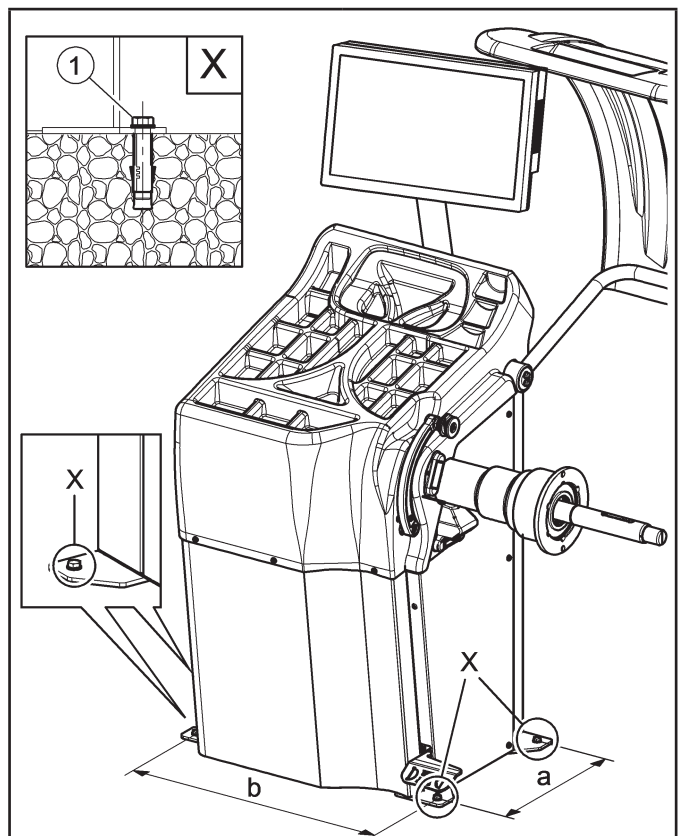
After having freed the various components from the packing check that they are complete, and that there are no anomalies, then comply with the following instructions for the assembly of the components making use of the attached series of illustrations.

9.1 Anchoring system

The packed equipment is fixed to the support pallet through the holes prearranged on the chassis and indicated in the figure below. Such holes can be used also to secure the machine to the ground, using floor anchors (not included in the supply). Before carrying out the definitive fixing, check that all the anchor points are laid down flat and correctly in contact with the fixing surface itself. If not so, insert shimming profiles between the equipment and the fixing lower surface, as indicated in **Fig. 5**.



IT IS MANDATORY TO SECURE, IF WHEELS WEIGHING MORE THAN 30 kg (67 lbs) ARE USED.



a = 374 mm / 14.72"
b = 616 mm / 24.25"

Fig. 5

- To fasten the equipment to the ground, use anchors (**Fig. 5 ref. 1**) with a threaded shank M8 (UNC 5/16) suitable for the floor on which the tyre changer will be fixed and in a number equal to the number of fixing holes arranged on the bottom chassis;
- drill holes in the floor, suitable for inserting the chosen anchors, in correspondence with the holes arranged on the bottom chassis;

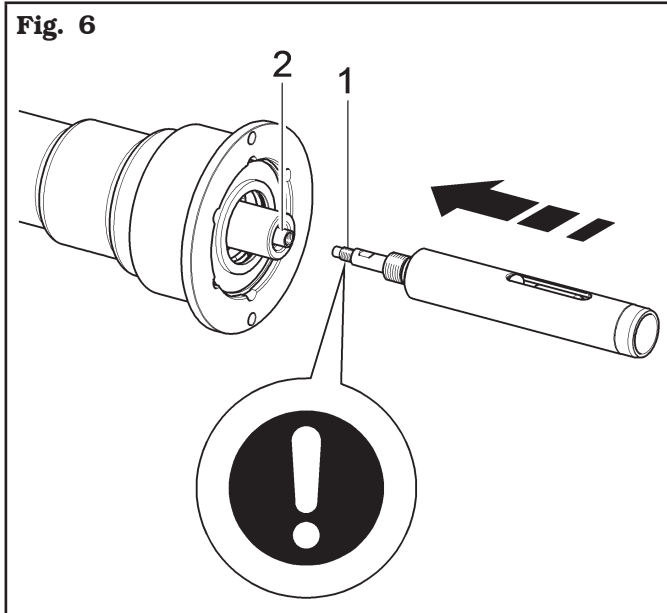
- insert the anchors into the holes made in the floor through the holes on the bottom chassis and tighten the threaded elements;
- tighten the anchors on the base chassis by applying a torque equal to that indicated by the manufacturer of the anchors.

9.2 Assembly procedures

9.2.1 Fitting and removal of the pneumatic chuck on the flange

FITTING

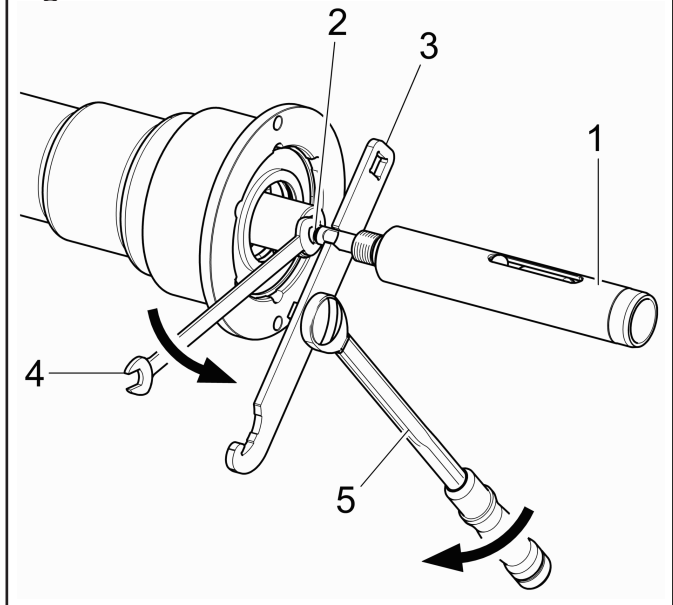
1. After making power and air connections switch on the machine (the pneumatic chuck always opens when the equipment is switched on);
2. switch the equipment off by using the main switch (Fig. 16 ref. 1). Couple tyre inner rod (Fig. 6 ref. 1) with flange inner rod (Fig. 6 ref. 2) (see Fig. 6);



FOR PNEUMATIC SHAFT KIT FITTING (FIG. 6 REF. 1) USE MEDIUM RESISTANCE LOCTITE 242 THREADLOCKERS OR EQUIVALENT ONLY ON M10 THREAD AND TIGHTEN TO 30 Nm (22 ft.lbs).

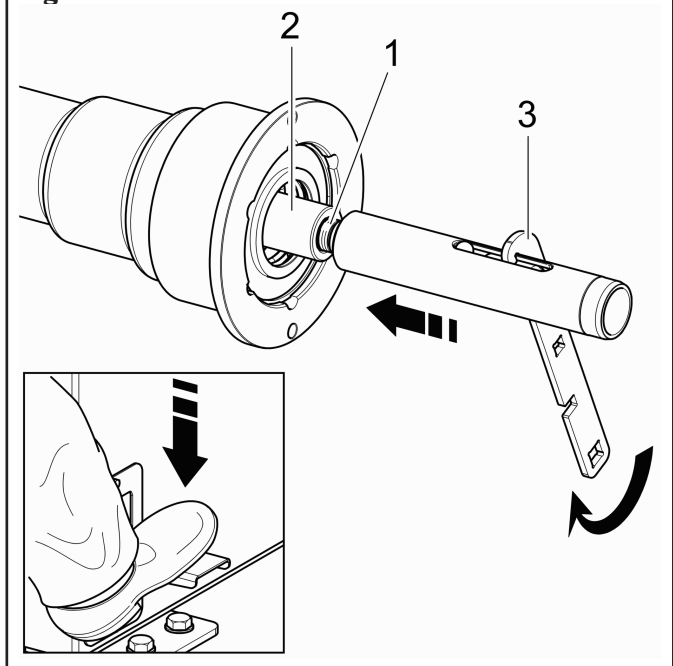
3. tighten tyre inner rod (Fig. 7 ref. 1) with flange inner rod (Fig. 7 ref. 2) by using the wrench provided (Fig. 7 ref. 3) and a 12 mm wrench (Fig. 7 ref. 4). Use also a torque wrench (Fig. 7 ref. 5) (not supplied) on one of the 2 openings on the provided wrench (Fig. 7 ref. 3);

Fig. 7



4. lock the chuck by pressing the brake and turn the pneumatic shaft screw (Fig. 8 ref. 1) onto the flange (Fig. 8 ref. 2) until it stops;

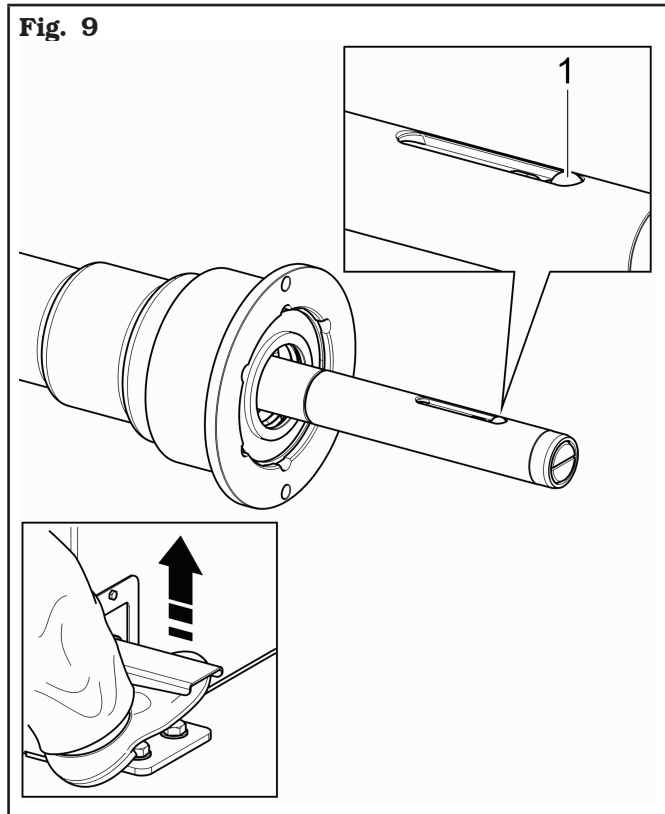
Fig. 8



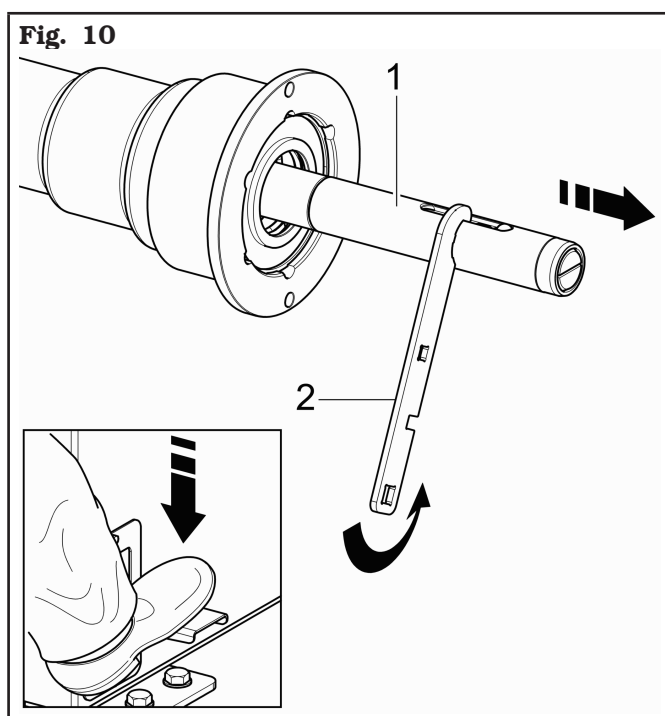
4. tighten with the wrench provided (Fig. 8 ref. 3).

REMOVAL

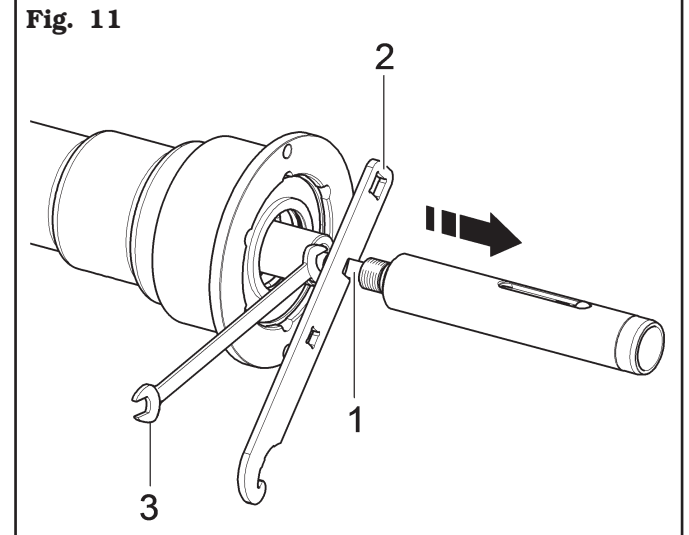
1. Open the pneumatic chuck by means of the pedal provided and make sure the outer ball (**Fig. 9 ref. 1**) is in the position indicated in **Fig. 9**;



2. lock the chuck by pressing the brake and unlock the pneumatic shaft (**Fig. 10 ref. 1**) using the wrench provided (**Fig. 10 ref. 2**);



3. remove pneumatic shaft bolt (**Fig. 11 ref. 1**) and release the two inner rods with the special wrench provided (**Fig. 11 ref. 2**) and a 12 mm wrench (**Fig. 11 ref. 3**).



IT

FIT THE TORQUE WRENCH INTO THE PROVIDED OPENINGS (REF. 1) OF THE SUPPLIED WRENCH AND TIGHTEN TO 30 Nm (22 ft.lbs).

9.2.2 Fitting the protection guard

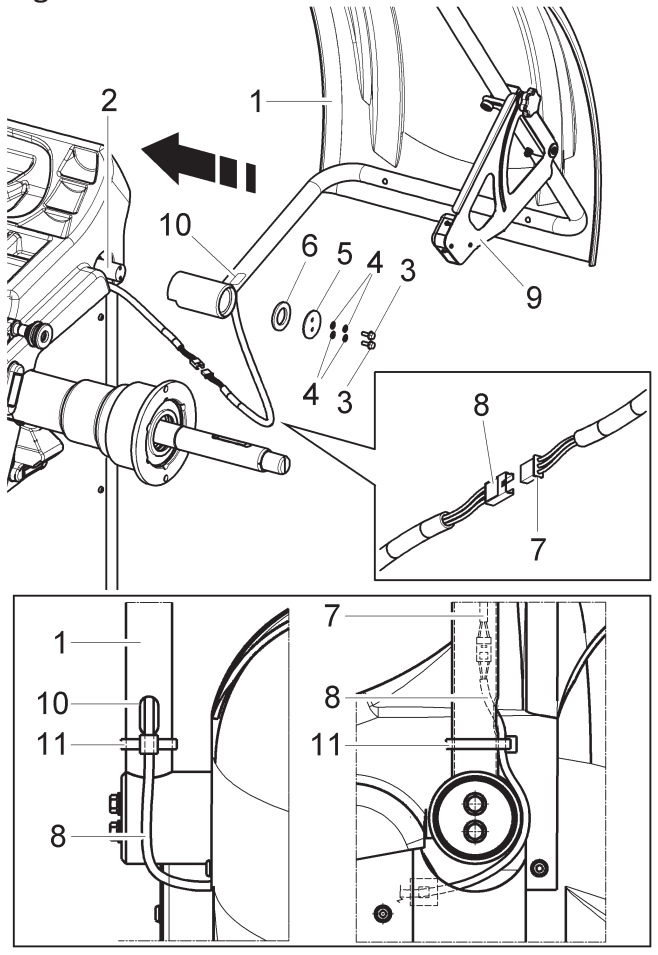
1. Mount the protection guard (**Fig. 12 ref. 1**) to the support (**Fig. 12 ref. 2**) using the bolts (**Fig. 12 ref. 3**), interposing the Belleville washers (**Fig. 12 ref. 4**) and the tab washers (**Fig. 12 ref. 5 - 6**);
2. tighten the bolts (**Fig. 12 ref. 3**) in order to make the guard (**Fig. 12 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 PROTECTION GUARD ASSEMBLY, PAY ATTENTION TO THE MICRO PLACED INSIDE THE EQUIPMENT.

3. connect the ultrasound sensor cable (**Fig. 12 ref. 7**) of the automatic width measuring device (**Fig. 12 ref. 9**) to the provided connector (**Fig. 12 ref. 8**);
4. at the end of the connection, insert the connectors in the slot (**Fig. 12 ref. 10**) of the protection guard, as illustrated in **Fig. 12**. Eventually, fasten connector's cable (**Fig. 12 ref. 8**) with a clamp (**Fig. 12 ref. 11**).

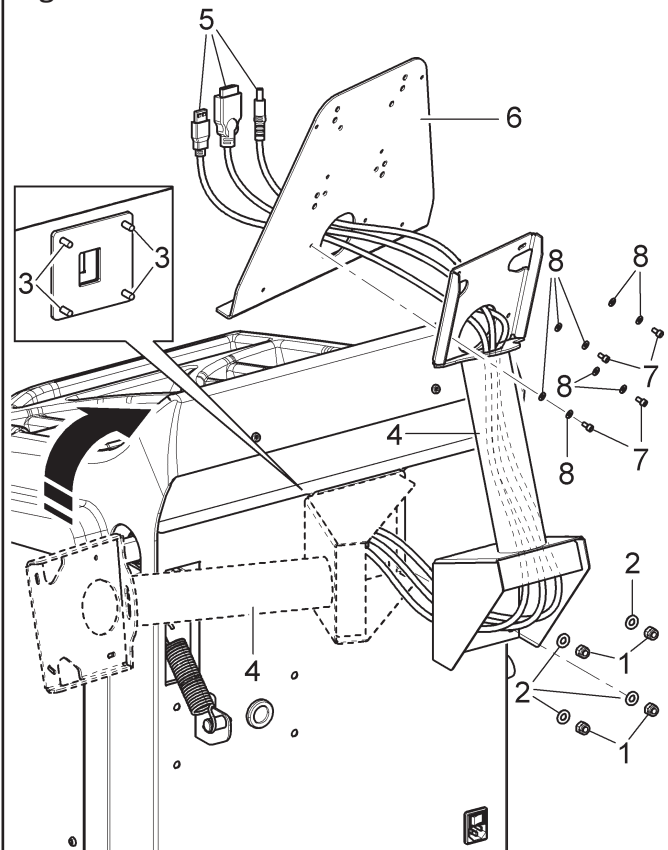
Fig. 12



9.2.3 Monitor fitting

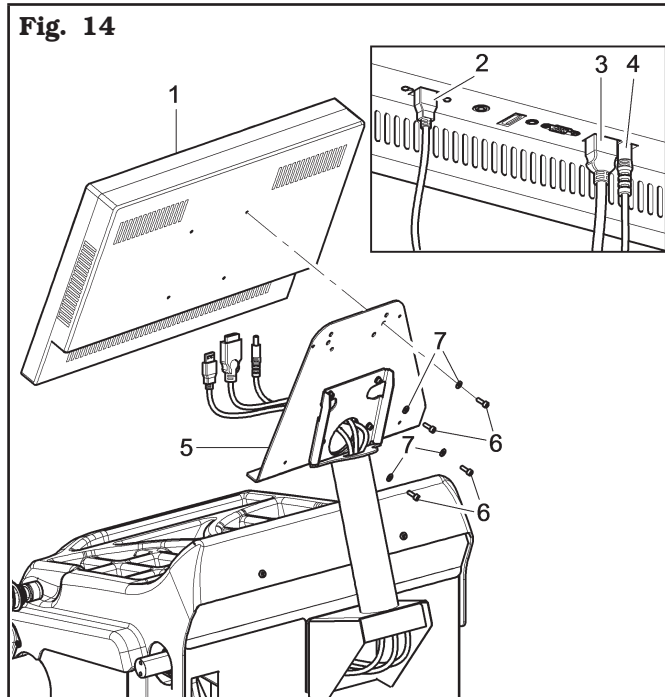
1. Remove the nuts (**Fig. 13 ref. 1**) and the washers (**Fig. 13 ref. 2**) from the bolts (**Fig. 13 ref. 3**). Fit the monitor support (**Fig. 13 ref. 4**) rotated through 90°. Then screw the previously removed nuts and washers again;
2. make the cables (**Fig. 13 ref. 5**) pass into the plate's hole (**Fig. 13 ref. 6**) and secure the latter to the monitor support (**Fig. 13 ref. 4**) by means of the supplied bolts (**Fig. 13 ref. 7**) and washers (**Fig. 13 ref. 8**).

Fig. 13

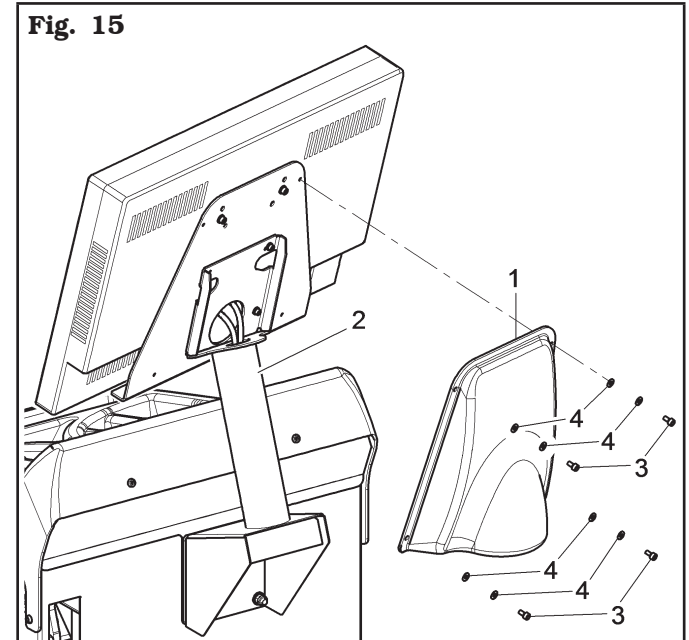


DURING THIS OPERATION PAY PARTICULAR ATTENTION TO THE POWER SUPPLY CABLE, TO THE HDMI CABLE AND TO THE USB CABLE (FIG. 13 REF. 5) IN ORDER NOT TO DAMAGE THEM. MAKE SURE THEY HAVE BEEN INTRODUCED IN THE SUPPORT HOSE, AS SHOWN IN FIG. 13.

3. connect the cables to the monitor (**Fig. 14 ref. 1**), as shown in **Fig. 14** (USB cable **ref. 2**, HDMI cable **ref. 3**, power supply cable **ref. 4**). Secure the monitor (**Fig. 14 ref. 1**) to the plate (**Fig. 14 ref. 5**) with the bolts (**Fig. 14 ref. 6**) and the washers (**Fig. 14 ref. 7**) supplied;



4. secure the guard (**Fig. 15 ref. 1**) to the monitor support (**Fig. 15 ref. 2**) with the bolts (**Fig. 15 ref. 3**) and the washers (**Fig. 15 ref. 4**) supplied.



DURING THIS OPERATION PAY PARTICULAR ATTENTION TO (POWER SUPPLY/SIGNAL/USB) CABLES CONNECTIONS TO THE MONITOR, IN ORDER NOT TO DAMAGE THEM AND TO ENSURE EQUIPMENT CORRECT OPERATION.

10.0 ELECTRICAL CONNECTIONS



ANY ELECTRICAL ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF



BEFORE CONNECTING THE EQUIPMENT MAKE SURE THAT:

- POWER LINE SPECIFICATIONS CORRESPOND TO EQUIPMENT REQUIREMENTS AS SHOWN ON THE MACHINE NAMEPLATE;
- ALL MAIN POWER COMPONENTS ARE IN GOOD CONDITION;
- THE ELECTRICAL SYSTEM IS PROPERLY GROUNDED (GROUND WIRE MUST BE THE SAME CROSS-SECTION AREA AS THE LARGEST POWER SUPPLY CABLES OR GREATER);
- MAKE SURE THAT THE ELECTRICAL SYSTEM FEATURES A CUTOUT WITH DIFFERENTIAL PROTECTION SET AT 30 mA.

Connect the equipment up to the mains by means of the 3-pole plug provided (230 V 1 Ph).

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 BEFORE) 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 ABSORPTION SPECIFIED IN THIS MANUAL AND APT TO ENSURE THAT VOLTAGE DROP UNDER FULL LOAD WILL NOT EXCEED 4% OF RATED VOLTAGE (10% UPON START-UP).



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

10.1 Electrical checks



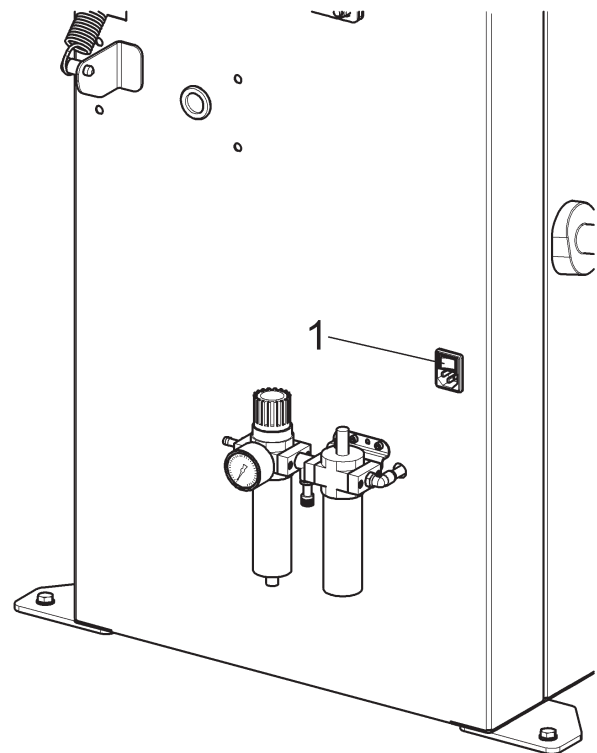
BEFORE STARTING UP THE WHEEL-BALANCER, BE SURE TO BECOME FAMILIAR WITH THE LOCATION AND OPERATION OF ALL CONTROLS AND CHECK THEIR PROPER OPERATION (SEE PAR. "CONTROLS").



CARRY OUT A DAILY CHECK OF THE HOLD-TO-RUN CONTROL CONTROLS FOR PROPER FUNCTIONING, BEFORE STARTING EQUIPMENT OPERATION.

Once the plug/socket connection has been made, turn on the equipment using the main switch (Fig. 16 ref. 1).

Fig. 16



11.0 CONNECTION TO THE COMPRESSED AIR SUPPLY



ANY PNEUMATIC ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF.

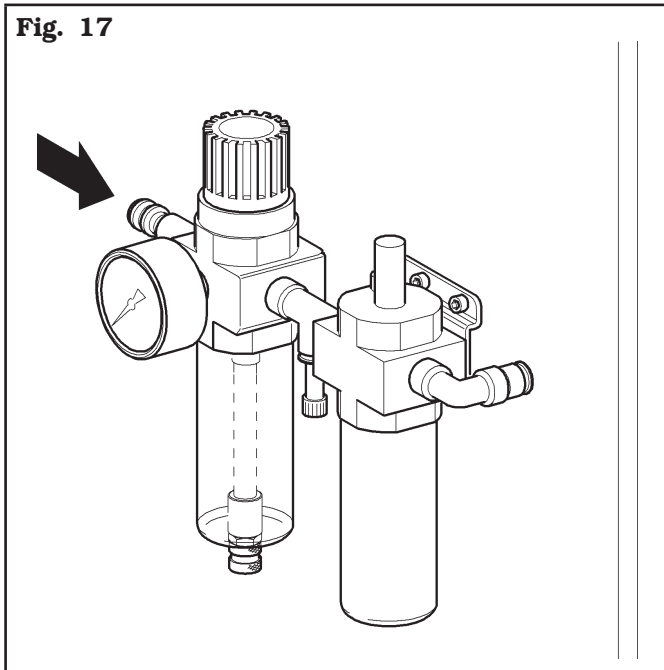


IN CASE OF A CHANCE SUPPLY FAILURE, AND/OR BEFORE ANY PNEUMATIC CONNECTIONS, MOVE THE CONTROLS TO THE NEUTRAL POSITION.

Connect the wheel balancer to the centralised compressed-air system by means of the connection on the back of the machine (see **Fig. 17**).

The air system supplying the equipment must be able to supply filtered and de-humidified air at a pressure between 8 - 10 bar (116 - 145 psi). It must feature an on-off valve upstream of the equipment.

Fig. 17



12.0 FITTING THE WHEEL ON THE CHUCK



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



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

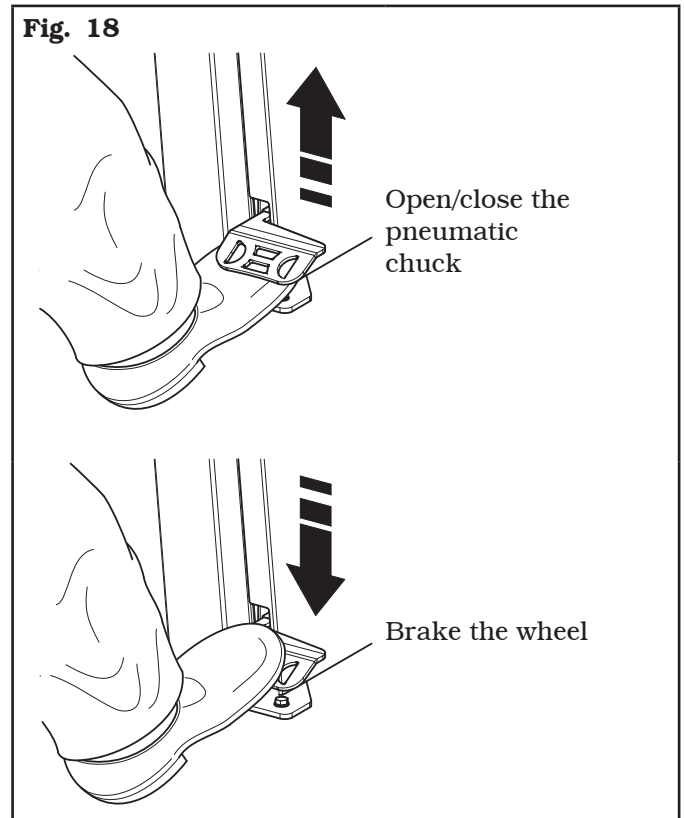
Wheel fitting using the cones provided is illustrated below. For alternative fittings, using optional accessories, refer to the special instructions provided separately.

12.1 Wheel assembly



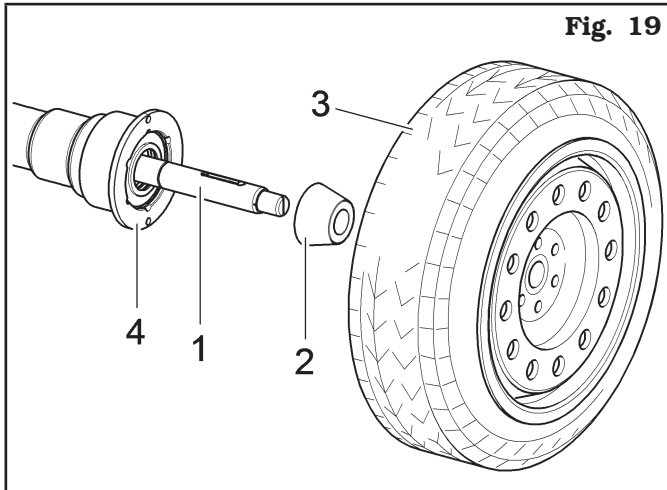
Open the pneumatic chuck by means of the special pedal, see **Fig. 18**.

Fig. 18

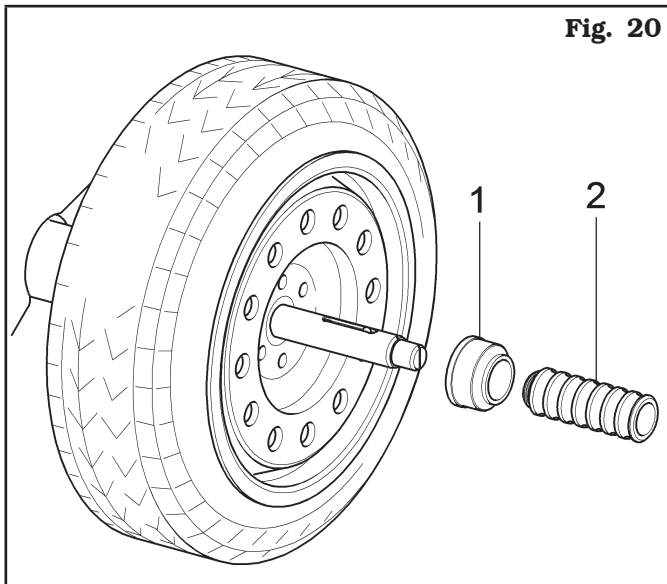


1. Remove any type of foreign body from the wheel (**Fig. 19 ref. 3**): pre-existing weights, stones and mud, and make sure the chuck (**Fig. 19 ref. 1**) and the rim centring area are clean before fitting the wheel on the chuck;

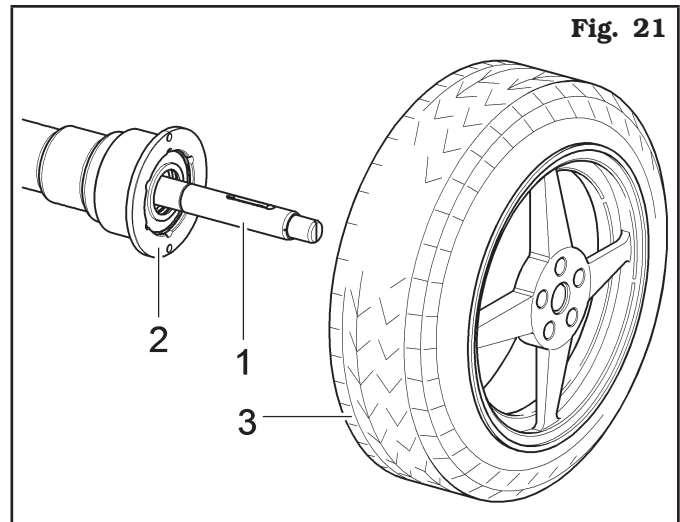
2. carefully choose the cone (**Fig. 19 ref. 2**) most suitable for the wheel to be balanced. These accessories must be selected according to the shape of the rim. Position the wheel (**Fig. 19 ref. 3**), fitting the cone (**Fig. 19 ref. 2**) on the chuck (**Fig. 19 ref. 1**): be careful (otherwise this could seize) until this rests against the support flange (**Fig. 19 ref. 4**);
3. fit the wheel with the inner side of the rim towards the wheel balancer and against the cone;



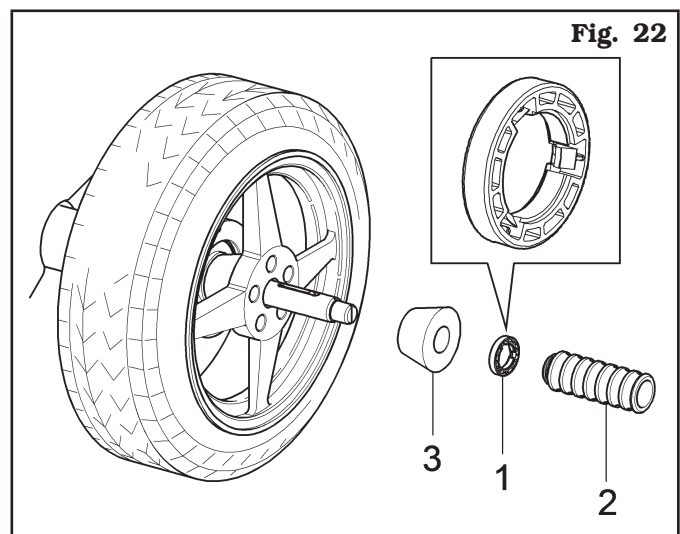
4. fit the protection cap (**Fig. 20 ref. 1**) in the pneumatic locking sleeve (**Fig. 20 ref. 2**) and bring everything against the wheel;



5. lift the control pedal to close the chuck and then clamp the wheel.
Some aluminium wheels, with very high centring, must be fitted with the cone outside the wheel;
6. clean the chuck (**Fig. 21 ref. 1**) before fitting the wheel;
7. fit the wheel (**Fig. 21 ref. 3**) with the inside of the rim towards the wheel balancer, until the wheel is up against the support flange (**Fig. 21 ref. 2**);



8. fit the cone (**Fig. 22 ref. 3**) with the narrowest part turned towards the wheel;
9. fit the pressure ring (**Fig. 22 ref. 1**) in the pneumatic locking sleeve (**Fig. 22 ref. 2**) and bring everything against the wheel;



THE PRESSURE RING (FIG. 22 REF. 1) MUST BE FITTED WITH THE TEETH OR DISCHARGE SIDE FACING THE PNEUMATIC LOCKING SLEEVE (FIG. 22 REF. 2).

10. close the pneumatic chuck by lifting the appropriate control pedal.



DURING CHUCK OPENING/CLOSING OPERATIONS, BE CAREFUL TO KEEP YOUR HANDS AND OTHER PARTS OF THE BODY AWAY FROM THE MOVING CHUCK.

12.2 Ultrasound sensor support adjustment

Ultrasound sensor support (**Fig. 23 e Fig. 24 ref. 1**) must be used in the “fully-lowered” position, as shown in **Fig. 23**.

However with wheels with great diameter, you can set it higher so that the wheel can be mounted easily onto the chuck (see **Fig. 24**).

In order to carry out the adjustment, just loosen the handwheel (**Fig. 24 ref. 2**) and place the support in the desired position.

At the end tighten the handwheel (**Fig. 24 ref. 2**).

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. 25 ref. 1**) secured to the protection guard’s tubular and open sensor support (**Fig. 25 ref. 2**) by making it slide in the slot (**Fig. 25 ref. 3**);
2. slacken handwheel (**Fig. 25 ref. 4**) and raise sensor support (**Fig. 25 ref. 5**) then move it to the desired position, as indicated in **Fig. 26 ref. 1**;
3. at the end tighten the handwheel (**Fig. 26 ref. 2**).

Fig. 23

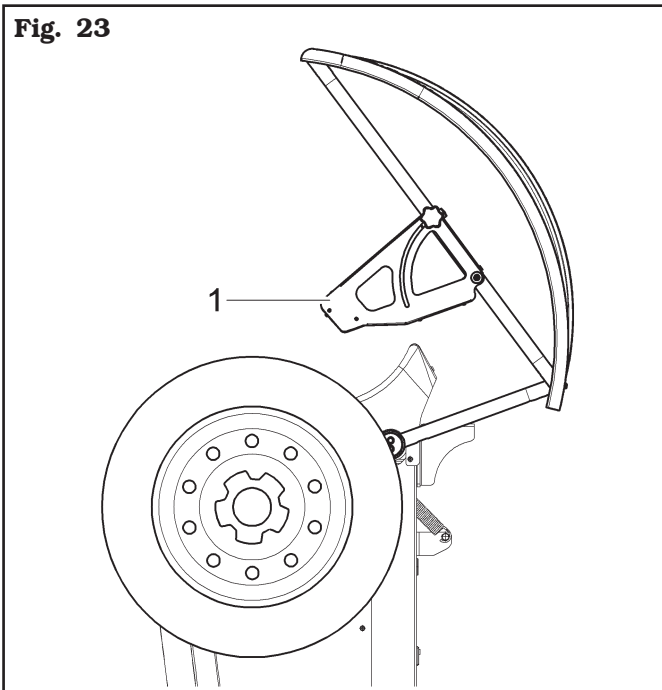


Fig. 24

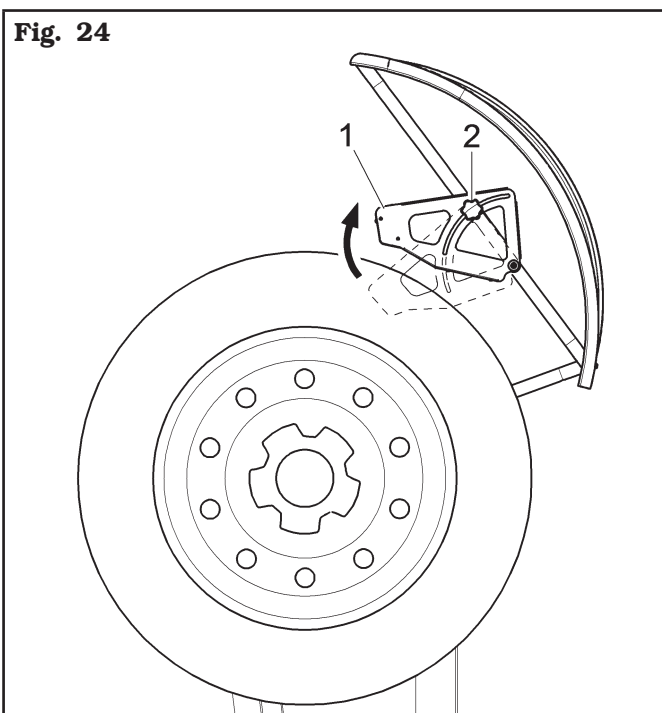


Fig. 25

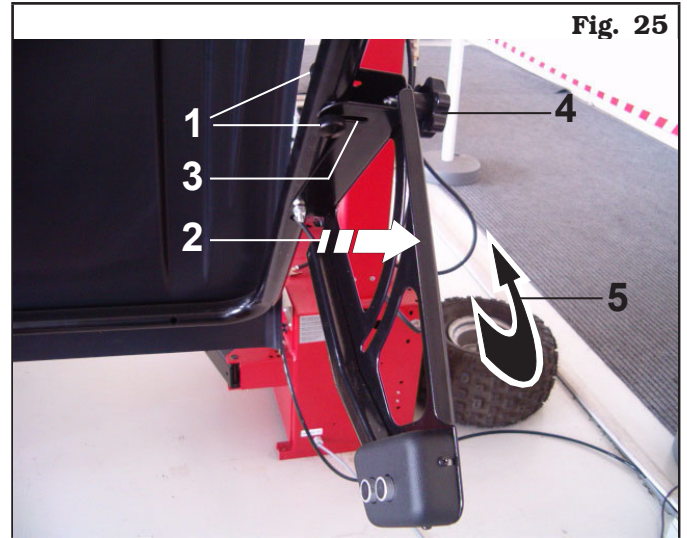


Fig. 26



EACH TIME THE WHEEL PROTECTION GUARD IS LOWERED, THE DEVICE AUTOMATICALLY DETECTS WHEEL WIDTH MEASUREMENT.

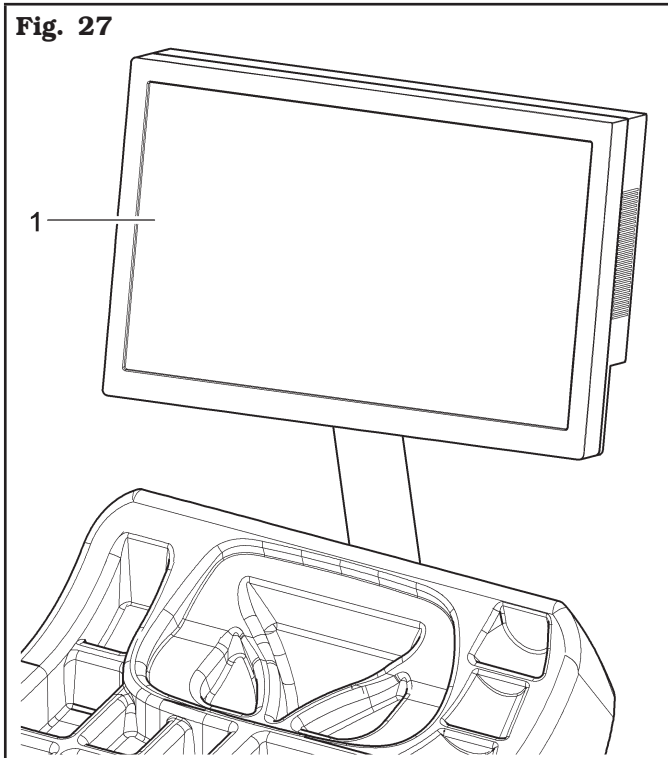
13.0 CONTROL PANEL

The wheel balancers are equipped with a touch control panel (**Fig. 27 ref. 1**) directly supplemented with the monitor.

Press on the monitor, next to determinate figures/icons, to select, set, modify all the equipment functions.

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.

Fig. 27



14.0 WHEEL BALANCING

14.1 *Switching the machine on and off*

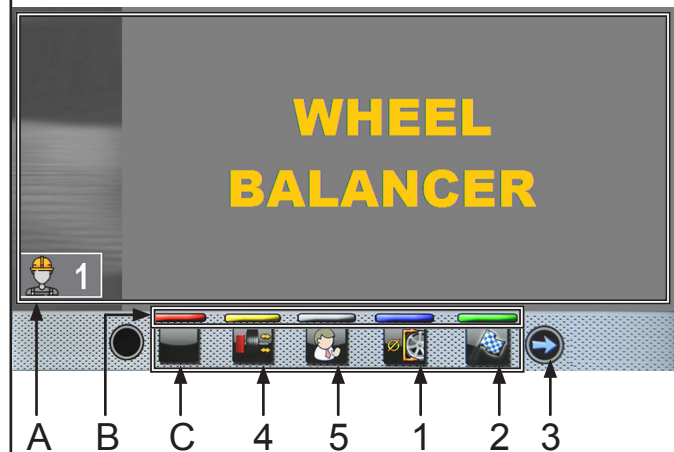
Press the "ON" switch (**Fig. 16 ref. 1**), located in the rear part of the equipment.



ON SWITCHING, THE PNEUMATIC CHUCK IS ALWAYS OPENED. ALWAYS KEEP YOUR HANDS AND OTHER PARTS OF THE BODY AWAY FROM THE MOVING CHUCK. ALSO TAKE CARE IF A WHEEL IS ALREADY FITTED ON THE CHUCK, AS THIS COULD BE FORCED OFF THE SHAFT DURING THE OPENING OF THE CHUCK ITSELF.

Wait a few seconds up to the complete loading of the operational program. The equipment is ready to operate when the main screen "Home" appears on the monitor.

Fig. 28

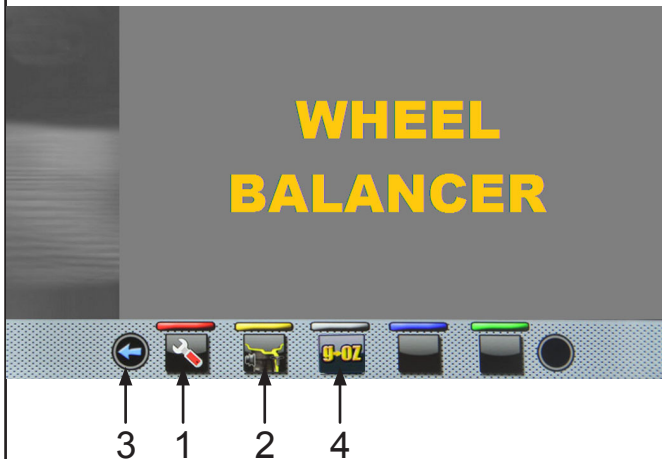


KEY

- A – Displaying operations/information area
- B – Colours for identification of the buttons to be used
- C – Function icons
- 1 – Programs and measurements acquisition buttons
- 2 – Wheel spin push button
- 3 – Go to next page
- 4 – Pneumatic chuck opening/closing (generally used in case of emergency)
- 5 – User management (if enabled) (user management is not enabled on equipment delivery)

At the bottom of the main screen page and of each screen page described below, there will be coloured rectangles (**Fig. 28 ref. B**) located above function identification icons (**Fig. 28 ref. C**). These functions will be activated by selecting them by touching the monitor. Press the button (**Fig. 28 ref. 3**) to display a second page where you can access the "Technical assistance" menu and the "Run-out" menu (see **Fig. 29**).

Fig. 29



KEY

- 1 – User menu
- 2 – Run-out menu (visible only if the equipment is fit or if Run-out device is enabled)
- 3 – Return to previous page
- 4 – Measurement unit setting.

The equipment is supplied with "grams" option




enabled (see Chap. 15.0), so weights will be displayed only in grams and no icons will be displayed onto push button 4.



In order to modify the measurement unit carry out the following procedure: if "ounce" option



is activated from user menu (see Chap. 15.0), "ounce" weight displaying mode is set,

and push button  will be displayed. Press


the button  to set equipment weight display in grams and on the screen will be displayed icon

. Press the button  to set machine weight display in ounces and on

the screen will be displayed icon .

In order to turn off the equipment, simply press the "OFF" main switch (**Fig. 16 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.

14.2 Balancing programs setting

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

1. through the gauge arm (quick setting);
2. through "Measurement being acquired" screen, ap-

pearing when the  button is pressed (**Fig. 28 ref. 1**).

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

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

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

1. bring into contact the weights fitting pliers with the inner part of the rim (1 contact only) to select "STATIC" program (see **Fig. 30**);

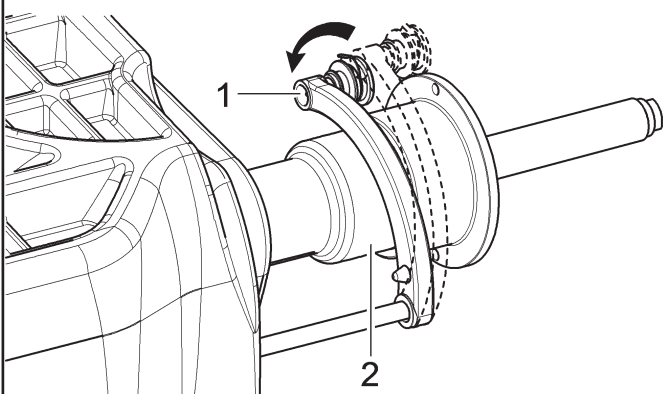
Fig. 30





REPEATEDLY BRINGING THE GAUGE ARM (FIG. 31 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 31 REF. 2), THE PROGRAM WILL CYCLE FROM "STATIC" TO "STATIC 1" TO "STATIC 2" THEN RETURNING TO THE BEGINNING.

Fig. 31




2. bring into contact the weights fitting pliers with the inner part of the rim (2 contact points) (see Fig. 30) to select "ALU-S" program;



REPEATEDLY BRINGING THE CALIPER ARM (FIG. 31 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 31 REF. 2), THE PROGRAM WILL CYCLE FROM "ALU-S" TO "ALU-S1" TO "ALU-S2", RETURNING THEN AT THE BEGINNING.



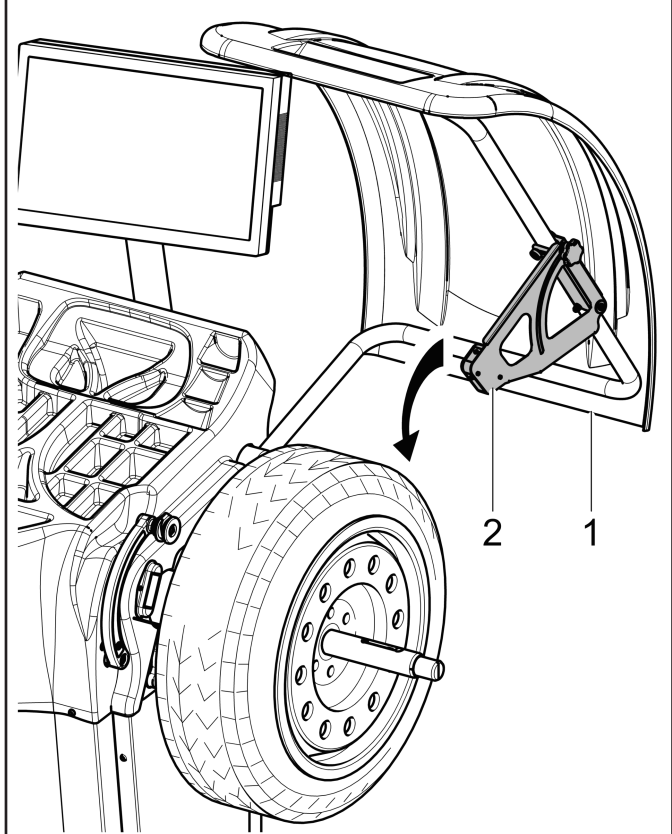
WHENEVER THE DISTANCE-DIAMETER CALIPER IS KEPT IN POSITION FOR A FEW SECONDS AGAINST THE RIM (UNTIL THE EQUIPMENT MAKES AN APPROPRIATE SOUND NOTIFICATION), THE POSITION IS STORED AND THE VALUES MEASURED IN THE PRE-ARRANGED FIELDS IN THE SELECTED WHEEL BALANCING PROGRAM ARE LOADED.

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



EACH TIME THAT WHEEL PROTECTION GUARD (FIG. 32 REF. 1) IS CLOSED, THE AUTOMATIC WIDTH MEASURING DEVICE UNIT (FIG. 32 REF. 2) MEASURES THE WIDTH OF THE WHEEL THAT IS MOUNTED ON THE CHUCK AND PERFORMS THE SPIN. THE RELEVANT VALUE IS STORED AUTOMATICALLY IN THE PRE-ARRANGED FIELD OF THE CHOSEN BALANCING PROGRAM.

Fig. 32




• **Measuring procedure of electronic RUN-OUT with the distance-diameter caliper arm.**

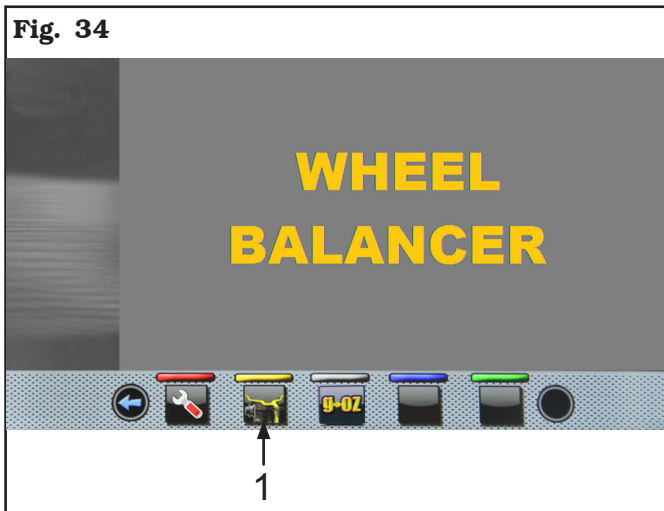
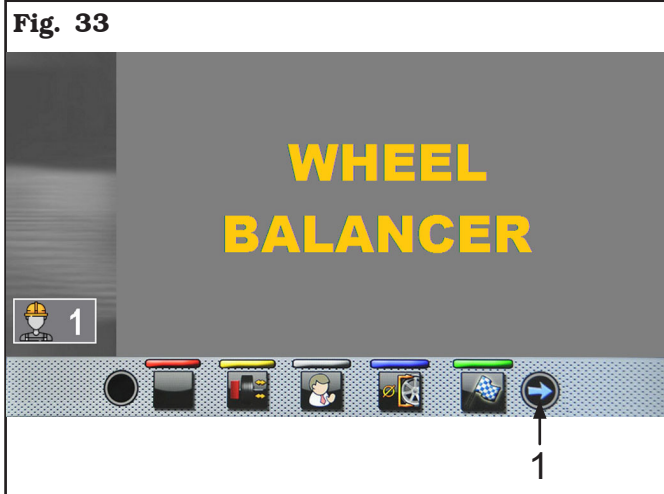
The electronic RUN-OUT measuring device is useful to check if the rim has some imperfections.

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

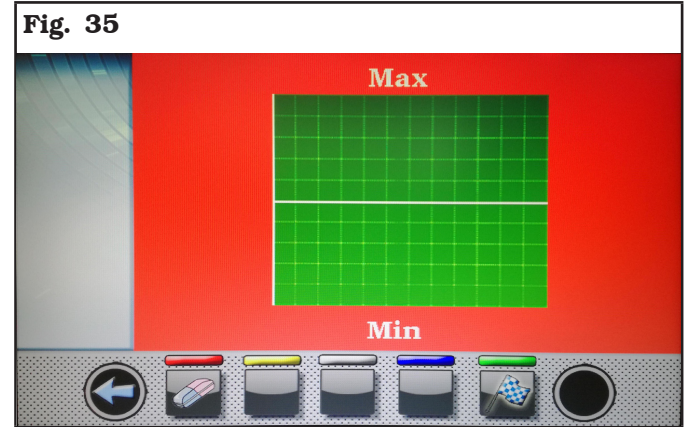
1. from the "Home" page, press the button



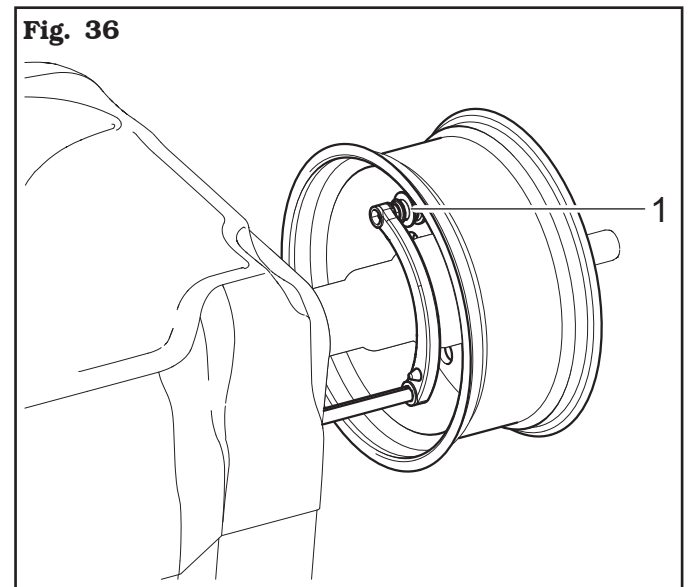
(Fig. 33 re. 1) and then the button  (see Fig. 34 ref. 1);



2. the following screen page will appear on the monitor:



3. place the distance-diameter caliper pliers (Fig. 36. ref. 1) in contact with the rim.






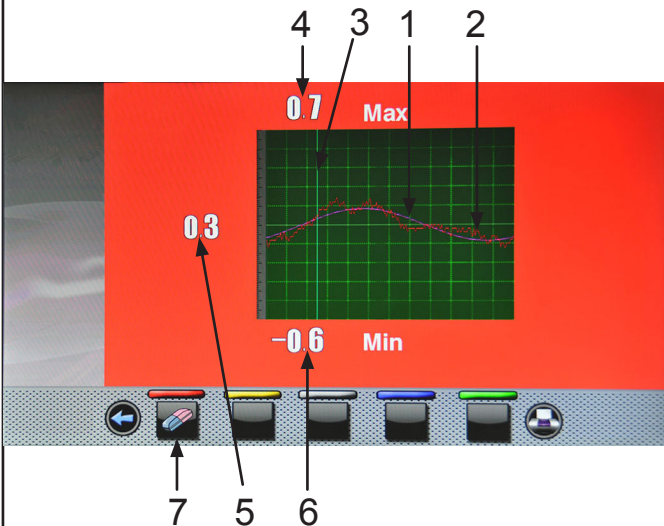
Press the green button on the monitor  to start the rim analysis procedure. The circle starts to spin at low speed (30 rpm) and at the end of the measurement the eccentricity graph appears, as shown in the **Fig. 37**.

Fig. 37



KEY

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

The red graph (**Fig. 37 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 green-coloured-slider (**Fig. 37 ref. 3**), indicates the position of the rim in "12 o'clock" position.

14.2.2 Programs setting through "Measurements acquisition" screen page




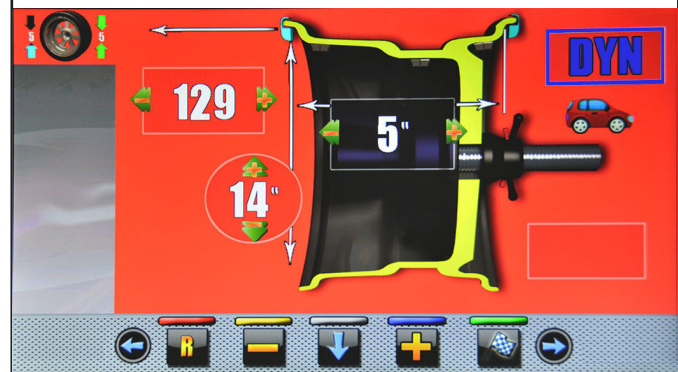
From the "Home" page, press the  (**Fig. 28 ref. 1**) button to display "Measurements acquisition" screen page below:

Fig. 38



PRESS THE BUTTON



(**FIG. 28 REF. 1**) TO DISABLE THE AUTOMATIC FUNCTIONS FOR THE SELECTION OF THE BALANCING PROGRAM OF DISTANCE-DIAMETER CALIPER ARM, DESCRIBED IN PAR. 14.2.1.

TO BE ABLE TO REUSE THE AUTOMATIC FUNCTION TO SELECT THE WHEEL BALANCING PROGRAM WITH GAUGE 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:

1. with highlighted program (blue colour) by pressing




ing 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 (BLUE), PRESS

THE BUTTON  **REPEATEDLY UNTIL THE ABOVE CONDITION IS REACHED.**

2. Press the button  to display the following programs selection screen page:



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).




AFTER YOU HAVE SELECTED THE DESIRED PROGRAM, USE THE DISTANCE-DIAMETER CALIPER TO DETECT THE MEASURES REQUIRED BY THE PROGRAM.



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.



Each time wheel protection guard is closed; the automatic width measuring device (GAR332) (Fig. 1 Ref. 4) measures the width of the wheel that is mounted on the chuck. The relevant value is stored automatically in the pre-arranged field of the chosen balancing program.

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

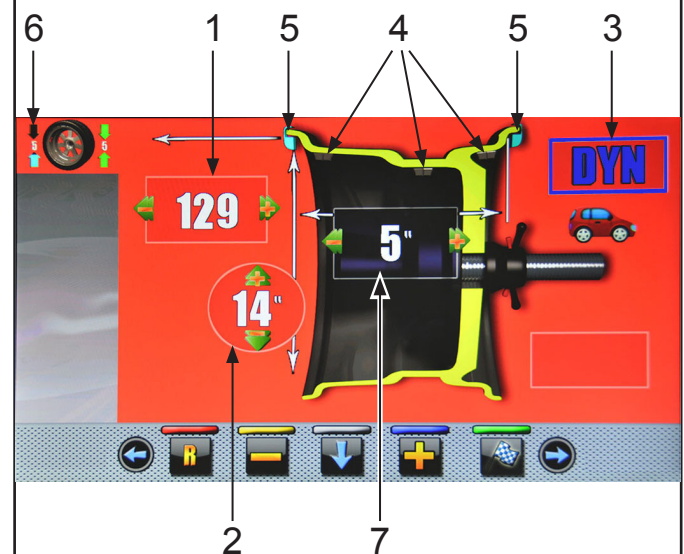
14.3 Indicative display of points where to detect measures/to fit weight



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

Depending on the type of program selected, the equipment shows on the monitor the guideline points where to take measures and, consequently, where you must apply weights (Fig. 40 ref. 4-5).

Fig. 40



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 - Last unbalance detected by the equipment
- 7 - Rim width



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

14.3.1 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 ALU-S1, ALU-S2 programs).

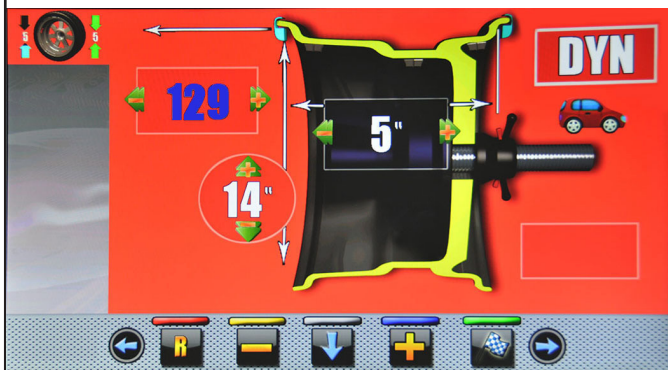




IF ALL MEASURES REQUIRED BY THE PROGRAM HAVE NOT BEEN TAKEN/INSERTED, THE EQUIPMENT DOES NOT ALLOW THE WHEEL SPIN TO DETECT THE UNBALANCE.

14.4 Displaying the active/modifiable field

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

Fig. 41



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



until the desired field is coloured blue.

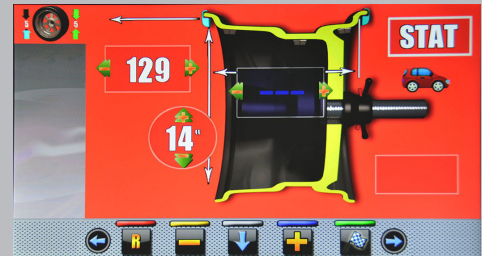


THE SELECTION OF THE ACTIVE FIELD IS DONE BY HIGHLIGHTING THE FIELDS IN A CLOCKWISE DIRECTION.

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.

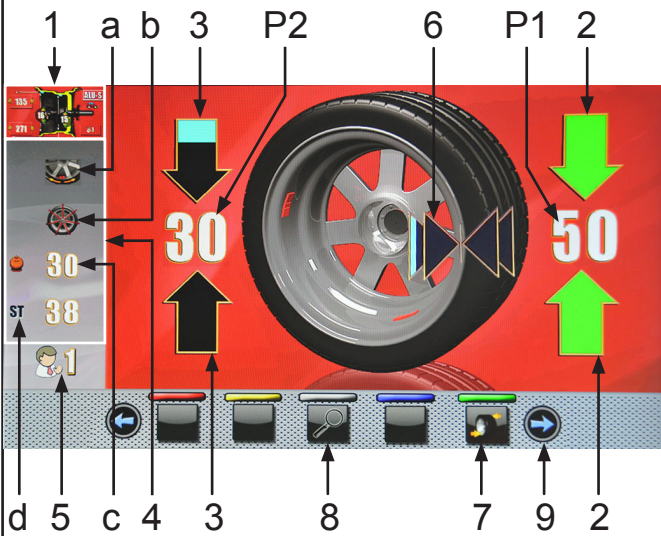


THIS CASE WILL OCCUR ONLY IF FROM "HOME" PAGE IS DETECTED ONLY ONE MEASUREMENT INSIDE THE RIM. THE PROGRAM WILL AUTOMATICALLY SET TO "STATIC" BUT IT WILL MAKE IT POSSIBLE (IN CASE OF ABSENCE OF EXTERNAL DATA GAUGE) TO MANUALLY ENTER RIM WIDTH AND TO QUICKLY SWITCH TO THE PROGRAM "DYNAMIC".

14.5 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. 42



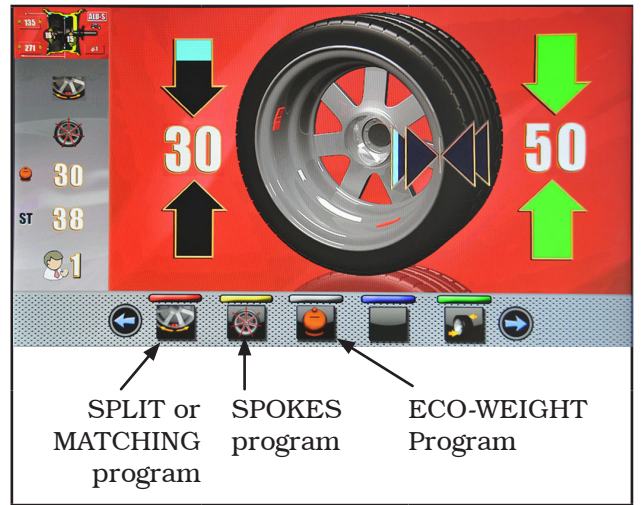
KEY

- 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) or MATCHING Program
- 4b- SPOKES Program (program with adhesive weights)
- 4c- ECO-WEIGHT Program with weight value to be fitted (if the value is of blue, the equipment advises not to use it)
- 4d- 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 grams

8b- Display of the weights in ounces/grams

9 - By pressing the button you will see the following page where you can select one of the programs suggested by the equipment.



IF THE PROTECTION GUARD AND REPOSITIONING FUNCTION ARE DISABLED, ON THE BUTTON IN POS. 7 (FIG. 42, YOU) WILL SEE THE ICON THAT WILL ALLOW THE WHEEL SPIN WITHOUT RETURNING TO THE PREVIOUS PAGE. THE POSITIONING OF THE WHEEL FOR THE APPLICATION OF THE WEIGHTS MUST BE DONE MANUALLY.

8a-Display of the weights in GRAMS
Set the unit of measurement for weights display to GRAMS (see Par. 15.1 "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.




7b–Display of the weights in OUNCES/GRAMS
Set the unit of measurement for weights


display to OUNCES/GRAMS  (see Par. 15.1 “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:



14.5.1 Balancing mode

The equipment has the ability to perform the wheel balancing (weights fitting) in 3 different ways:

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

• **Weights fitting with distance-diameter caliper and pliers.**

1. Place the adhesive weight on the arm pliers;

Fig. 43

Fit the adhesive weight in the pliers of the gauge rod



2. pull out the gauge until the arrows (Fig. 42 ref. 6) both turn green;
3. rotate the gauge arm until the weight touches the rim;

Fig. 44

Fit weight on the position where pliers touches the wheel



4. bring the distance-diameter caliper arm into resting position;



5. press the button to change the weight fitting side;
6. proceed in the same way as described in points 1-2-3.



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

• **Weights fitting with laser (at "6 o'clock").**



TO USE THIS MODE, IT IS NECESSARY THAT THE RELEVANT



FUNCTION IS ENABLED ON THE MENU "OPTIONS" DESCRIBED IN PAR. 15.1.



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



USING THIS MODE, THE EQUIPMENT ALLOWS YOU TO APPLY ANY ADHESIVE WEIGHTS THAT WOULD BE APPLIED WITH DISTANCE/DIAMETER CALIPER AT "6 O'CLOCK". IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE H 12 ICON (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO "12 O'CLOCK".


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



BE SURE TO APPLY THE (INTERNAL OR EXTERNAL) WEIGHT AS INDICATED BY THE 2 GREEN ARROWS (FIG. 42 REF. 2 or 3) ON THE CORRESPONDING MONITOR SCREEN.

- Weights fitting at "6 o'clock" (without the use of laser emitter).



TO USE THIS MODE, IT IS NECESSARY THAT THE RELEVANT FUNCTION IS ENABLED  ON THE MENU "OPTIONS" DESCRIBED IN PAR. 15.1.



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



USING THIS MODE, THE MACHINE ALLOWS YOU TO APPLY ANY ADHESIVE WEIGHTS THAT WOULD BE APPLIED WITH DISTANCE/DIAMETER CALIPER AT "6 O'CLOCK". IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE **H 12** ICON (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO "12 O'CLOCK".

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

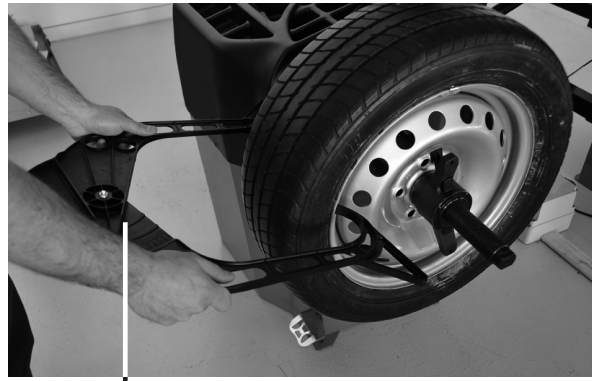


BE SURE TO APPLY THE (INTERNAL OR EXTERNAL) WEIGHT AS INDICATED BY THE 2 GREEN ARROWS (FIG. 42 REF. 2 or 3) ON THE CORRESPONDING MONITOR SCREEN.

14.6 Use of equipments with disabled automatic data gauge

The entry of diameter, width and distance measures of the equipment rim must be performed 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) (see Fig. 45).



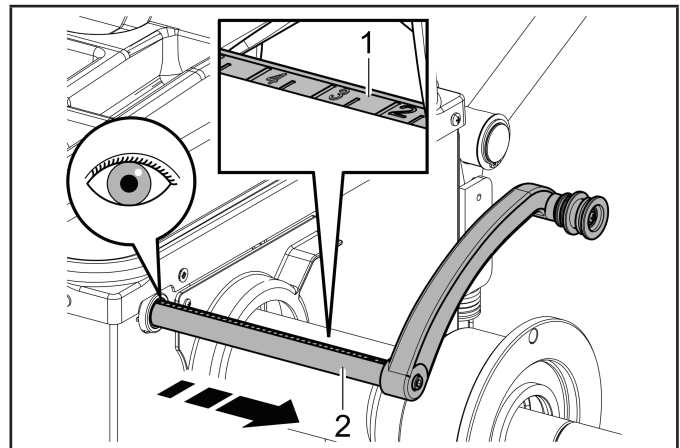
MANUAL CALIPER.
Width manual detection

Fig. 45




- **Visual readout on caliper graduated scale (distance);**

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

- remove the distance-diameter caliper arm and bring the weights fitting pliers into contact with the inner part of the rim as shown in Fig. 30;
- read the value indicated on the graduated scale (ref. 1 shown in the following figure) secured to the arm of the distance-diameter caliper (ref. 2 shown in the following figure);



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

VALUE DETECTED ON THE GRADUATED SCALE 	VALUE IN MILLIMETRES TO BE ENTERED 	VALUE IN INCHES TO BE ENTERED 
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

14.6.1 Manual setting of wheel dimensions

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

1. from the desired measurement mode screen, press



the button  until highlighting with blue the field to modify/edit;

2. press the buttons  or  until reaching the desired value;




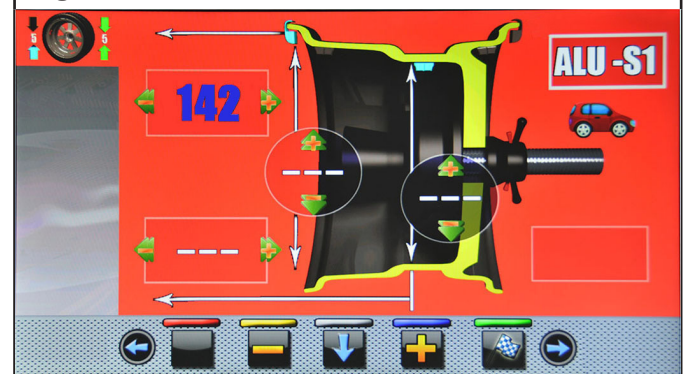

3. press button  to shift to the next value.

Fig. 46



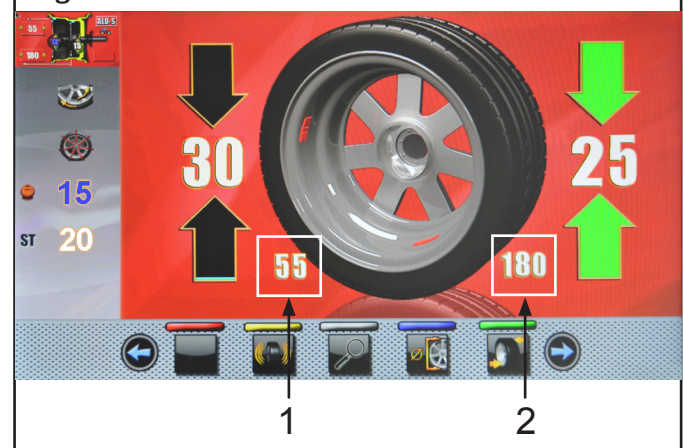
After entering all the required measures, you can spin



the wheel by pressing the button  and closing the protective guard.

In case the distance-diameter caliper was disabled, the displayed page for detected unbalance is as follows:

Fig. 47

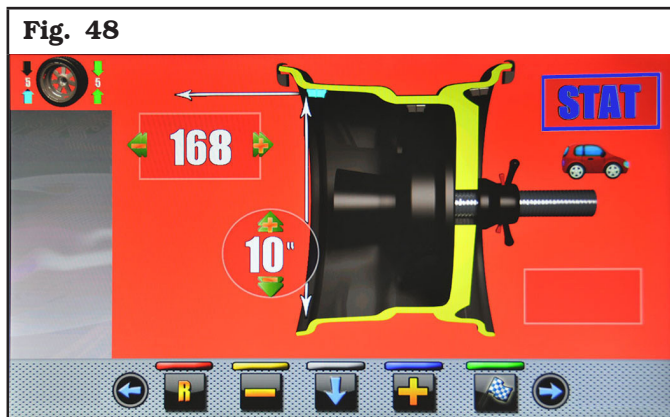


Open the protection guard. In this screen page, in addition to the information of the detected unbalance, there are measurements in mm where you must remove the gauge arm (**Fig. 47 ref. 1-2**) to apply the weights inside the rim.

14.7 Standard balancing programs

14.7.1 Static

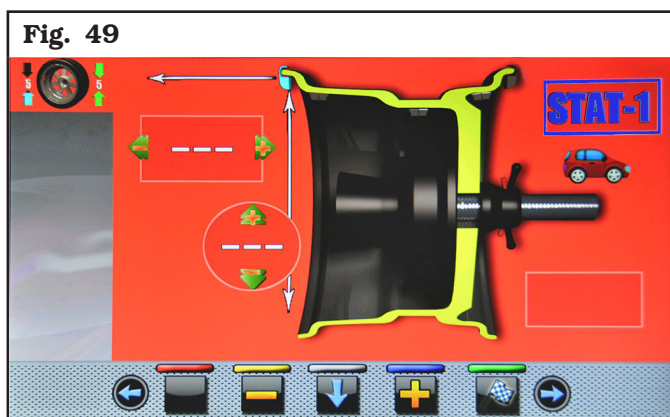
The STATIC program permits balancing wheels by fitting adhesive weights on the outer and inner sides of the rim. Enter the measurements (see Par. 14.2.1 or 14.6.1) and proceed with the balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

14.7.2 Static-1

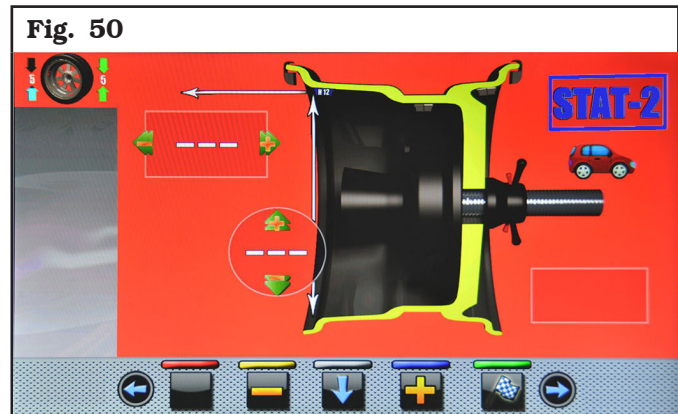
STATIC 1 function is a procedure that offsets wheel vibrations using a single weight with clip on a single plane positioned exactly at "12 o'clock". Enter the measurements (see Par. 14.2.1 or 14.6.1) and proceed with the balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

14.7.3 Static-2

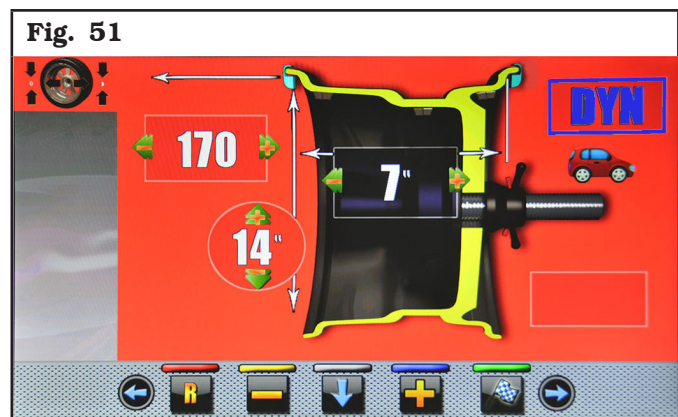
STATIC 2 function is a procedure that offsets wheel vibrations using a single adhesive weight on a single plane positioned exactly at "12 o'clock". Enter the measurements (see Par. 14.2.1 or 14.6.1) and proceed with the balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

14.7.4 Dynamic

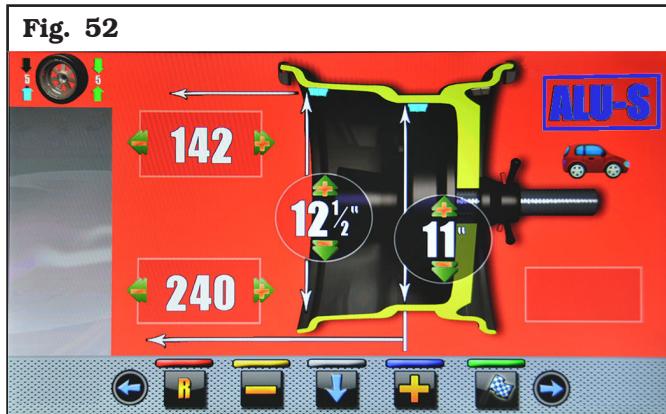
The DYNAMIC program allows the wheels balancing by fitting two clip adhesive weights: one on the outside and one on the inside rim. Enter the measurements (see Par. 14.2.1 or 14.6.1) and proceed with the balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



The procedure has now been completed.

14.7.5 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. 14.2.1 or 14.6.1) and proceed with the balancing operations. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.



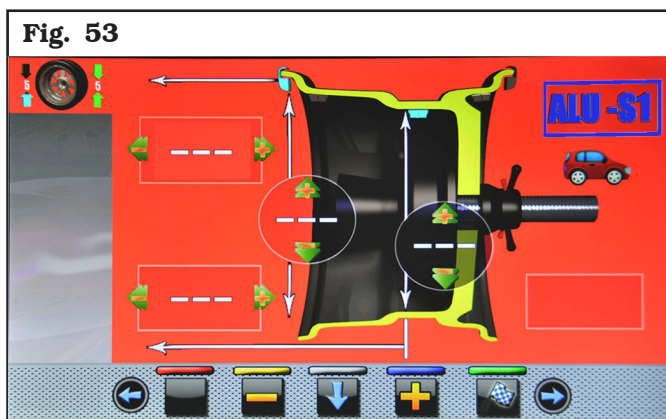
The procedure has now been completed.

14.7.6 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. 14.2.1 or 14.6.1) and proceed with the balancing operations.

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



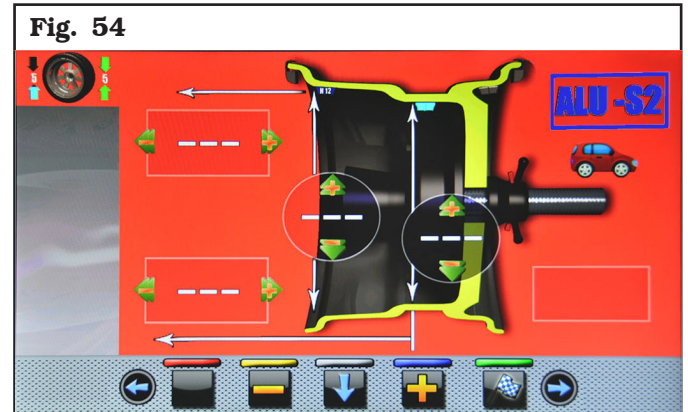
The procedure has now been completed.

14.7.7 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. 14.2.1 or 14.6.1) and proceed with the balancing operations.

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



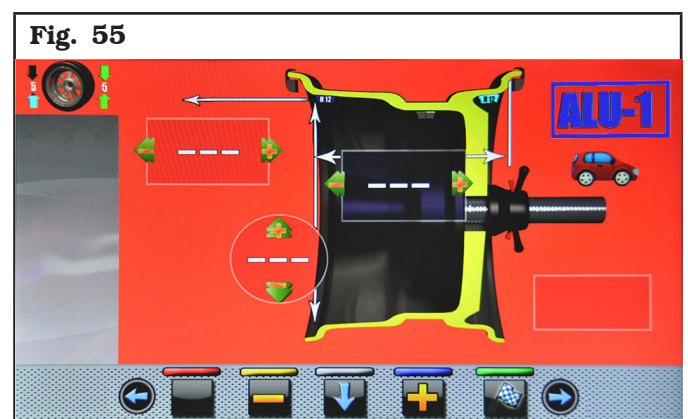
The procedure has now been completed.

14.7.8 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. 14.2.1 or 14.6.1) and proceed with the balancing operations.

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

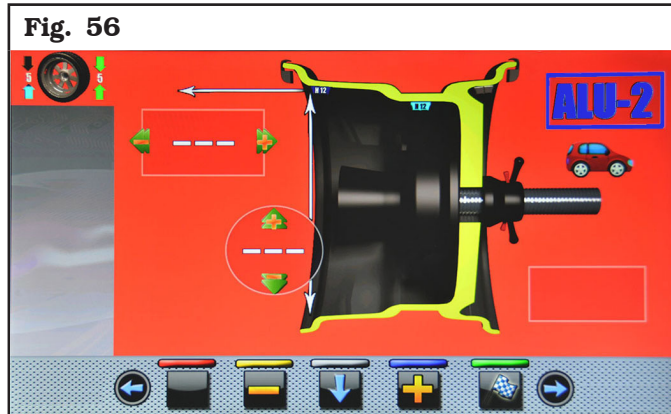


The procedure has now been completed.

14.7.9 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. 14.2.1 or 14.6.1) and proceed with the balancing operations.

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



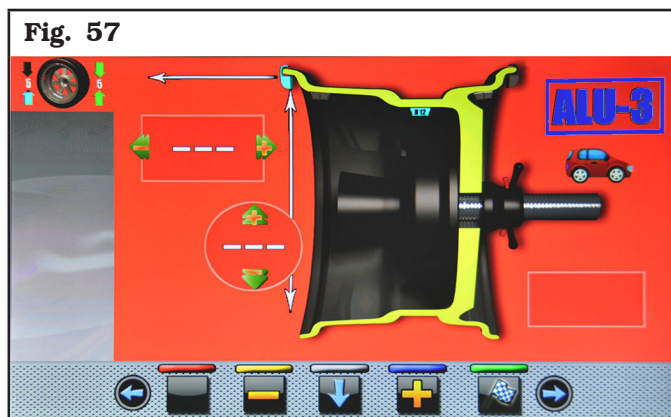
The procedure has now been completed.

14.7.10 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. 14.2.1 or 14.6.1) and proceed with the balancing operations.

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



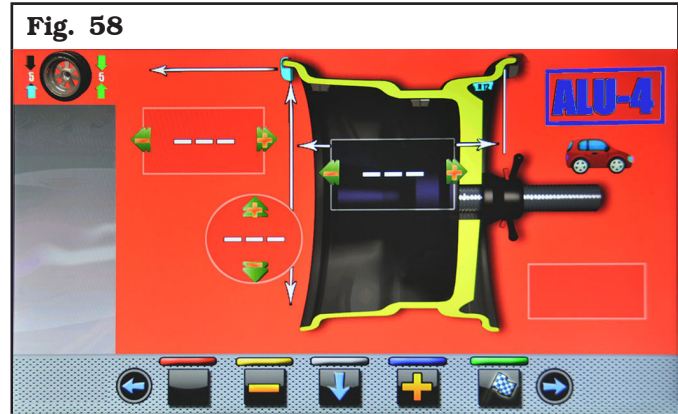
The procedure has now been completed.

14.7.11 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. 14.2.1 or 14.6.1) and proceed with the 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.

14.8 Optional balancing programs

14.8.1 ECO-WEIGHT mode



TO USE THE ECO-WEIGHT PROCEDURE IT IS NECESSARY THAT THE DISTANCE-DIAMETER CALIPER ARM IS ENABLED IN THE "OPTIONS" MENU DESCRIBED IN PAR. 15.1.



THE ECO-WEIGHT PROCEDURE CAN ONLY BE USED WITH THE PROGRAM ALU-S.


This procedure represents a modern system for the reset of the unbalance in order to reduce weights consumption. This procedure ensures a fastest execution of the operations, thanks to a lesser number of spins and repositioning.

After making the wheel spin in ALU-S mode, the monitor shows the total of 2 adhesive weights to precisely correct STATIC and DYNAMIC unbalance.




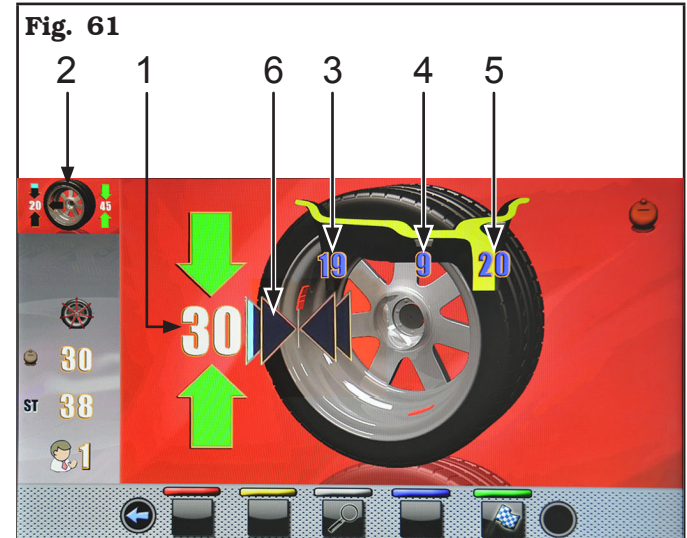
It is possible to fit a single weight at a predetermined distance from the equipment, so as to optimize the weight consumption and reduce both the DYNAMIC and any remaining STATIC unbalance as much as possible.

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

From ALU-S unbalance results page, if there is considerable static unbalance, press the button  to display on the following monitor screen:



Press button  to select such procedure and bring automatically the wheel into weight fitting position.



KEY

- 1 – Only weight to be fitted
- 2 – Last program and last values used for the spin
- 3 – Residual dynamic unbalance value (if the value is blue, it is not recommended to carry out ECO-WEIGHT procedure)
- 4 – Static unbalance value (if the value is blue it is not to carry out ECO-WEIGHT procedure)
- 5 – Residual dynamic unbalance value (if the value is blue, it is not recommended to carry out ECO-WEIGHT procedure)
- 6 – Arrows indicating the weight fitting point with distance-diameter caliper arm

Press the brake pedal and fit the adhesive weight on the pliers of the distance-diameter caliper as shown in **Fig. 62**.

Fig. 62

Fit the adhesive weight
in the pliers of the gauge rod



Pull out the gauge rod until the arrows (**Fig. 61 ref. 6**) turn green.

Fig. 63

Fit weight on the position where pliers
touches the wheel



At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin. The ECO-WEIGHT procedure has now been completed.



IMMEDIATELY AFTER HAVING SELECTED THE ECO-WEIGHT PROCEDURE, YOU CAN KNOW IN ADVANCE THE TWO DYNAMIC UNBALANCES AND THE STATIC RESIDUE IN ORDER TO DECIDE WHETHER IT IS CONVENIENT TO CONTINUE (SEE FIG. 61).

IF BOTH DYNAMIC UNBALANCES AND STATIC RESIDUE ARE SHOWN AS WHITE VALUES ON THE MONITOR, THIS MEANS THAT THE PROGRAM HAS DECIDED THAT IT IS BETTER TO CONTINUE. WHILE IF, ON THE OTHER HAND, ONE OR MORE VALUES ARE YELLOW, THE PROGRAM SUGGESTS USING THE STANDARD ALU-S PROCEDURE.

14.8.2 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) weight. 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:

Fig. 64

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



Fig. 65

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



Fig. 66

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



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

Fig. 67




Once detected the unbalance values, verify that the equipment displays the ability to use the "SPLIT" option (Fig. 42 ref. 4a). Press button  to shift to the next screen page.

Fig. 68




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. 69



Press button  to select the outer weight to edit.

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



THE BLUE 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. 70



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. 71



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. 72



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.

14.8.3 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 mode.

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 the "SPOKES" options (Fig. 42 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.




Extract the gauge rod, and fit the FIRST weight in the position shown by the equipment, as explained in



Par. 14.5.1. Press the button  to confirm that they have applied the FIRST weight and to automatically position the wheel for the fitting of the 2nd weight. The monitor shows the amount of weight to be applied behind the SECOND spoke.

Pull out the gauge rod and 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).

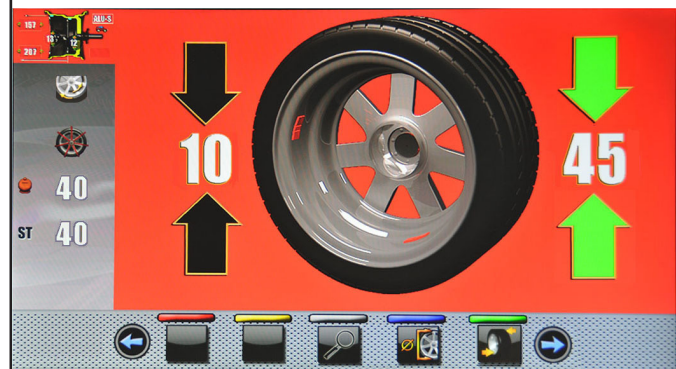
14.8.4 Matching mode

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 tyre 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 g (1.05 oz).


Fig. 78



Once detected the unbalance values, verify that the equipment displays the ability to use the "MATCHING" options (**Fig. 42 ref. 4a**).

Press button  to shift to the next screen page.



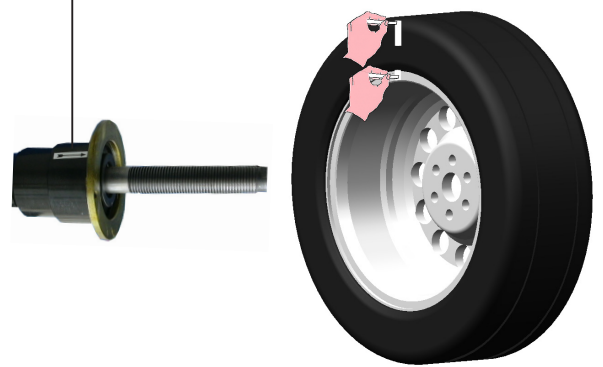
Press button  to enter the relevant function. On the monitor the next screen page will be displayed:



STEP 1. Move the slider on the flange to the "12 o'clock" position. Make a reference mark, using chalk for instance, on the rim and tyre, 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. 81

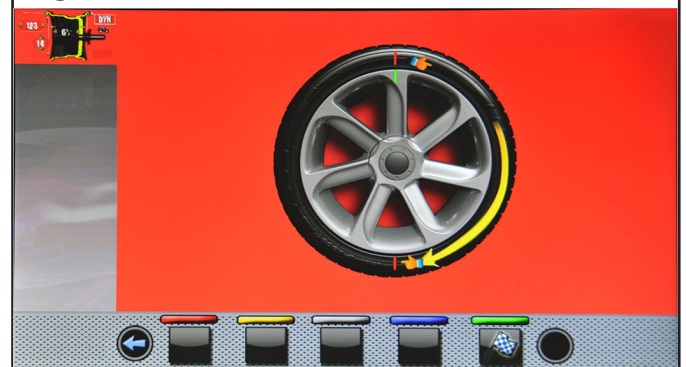
Make a reference mark on the rim and tyre, in line with the arrow on the flange



Press button  to confirm that step 1 has been completed.

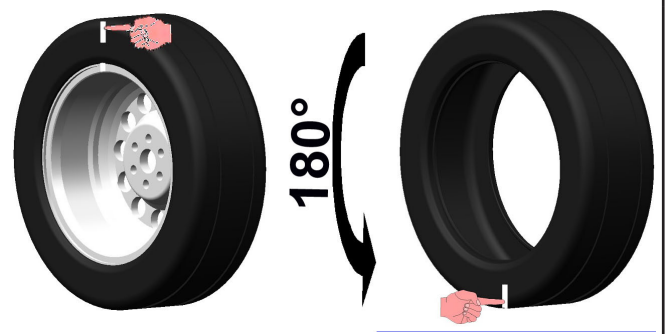
On the display the next screen page will be displayed:

Fig. 82



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

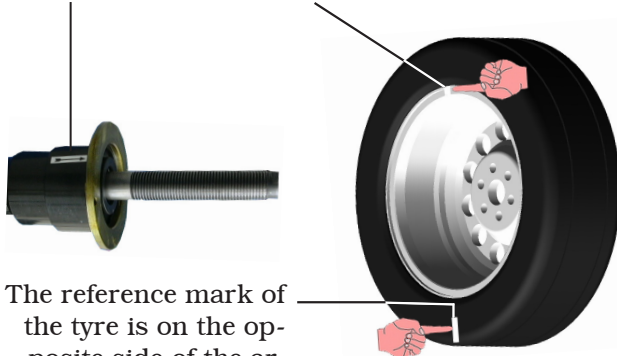
Fig. 83



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

Fig. 84

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



The reference mark of the tyre is on the opposite side of the arrow on the flange

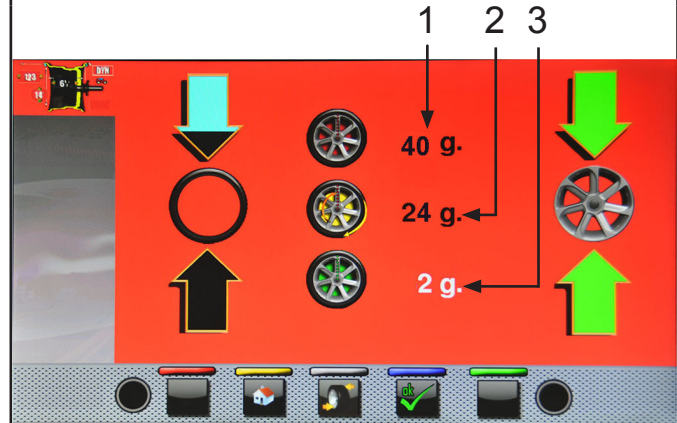


Press button  to confirm that step 2 has been completed.

On the display the next screen page will be displayed suggesting to perform a spin of the wheel.

Fig. 85

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

Fig. 86

In this screen you will see the dynamic unbalance that the wheel had before performing the operation (**Fig. 86 ref. 1**), the dynamic unbalance after having rotated the tyre through 180° compared to the rim (**Fig. 86 ref. 2**) and the unbalance which can be obtained following the directions of the equipment (**Fig. 86 ref. 3**).

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

1. cancel the previously made reference marks. Put new signs, as described below;




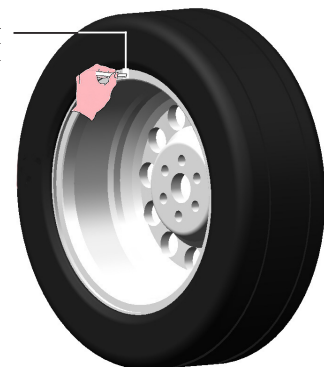
2. press the button  to bring the wheel into position.


Fig. 87

Make the reference mark on RIM at "12 o'clock" (see **Fig. 88**):

reference mark on RIM

**Fig. 88**



3. press the button  to bring the wheel into position.

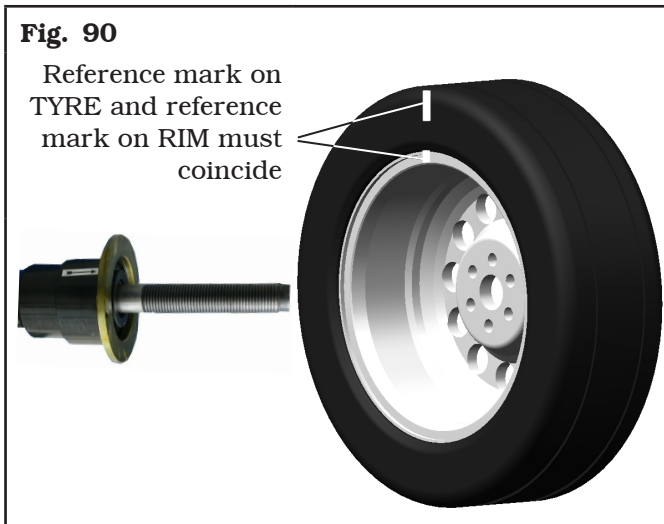


Mark the reference mark on the TYRE at "12 o'clock" position.



Press button  to confirm that step 3 has been completed.

STEP 4. Remove the wheel from the wheel balancer. Demount and mount the tyre again on the rim so as to bring the two reference marks (rim and tyre) to coincide. Refit the wheel on the balancer (see **Fig. 90**) with the two reference marks next to the arrow on the flange.



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. 14.5.1. Open the protection guard.

14.9 Special balancing programs

14.9.1 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:

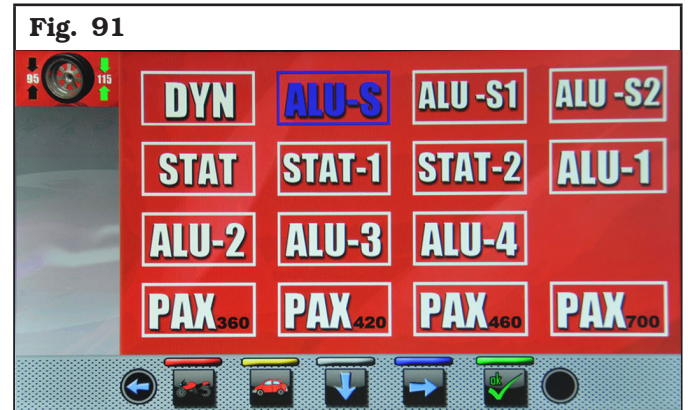
1. make sure there are no stones and/or mud on the wheel. Remove any counterweights. Fit the wheel and make sure it is properly fastened (see Chapt. 12);





2. 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 the desired



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;

3. 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. 14.7.5).

14.10 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:

1. press the button  to return to the measures detection/program selection page;
2. select a new balancing program as indicated in Par. 14.2.2;
3. take with the gauge arm the measures required by the selected program;
4. 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.

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

By enabling "motorcycle wheel balancing" function, the wheel balancers can also balance motorcycle wheels. Before detecting the wheel sizes (see Par. 14.2.2), select motorcycle wheel balancing mode proceeding as described below:




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

Fig. 92



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/motorcycle).

By selecting motorcycle mode, besides DYNAMIC balancing (see Par. 14.7.4) STATIC balancing and/or ALU-S (Par. 14.7.1 and/or 14.7.5) can also be performed.

15.0 USER MENU (OPTIONS AND CALIBRATION)

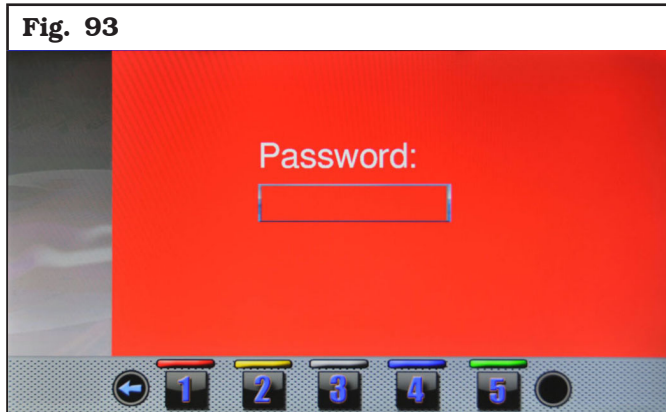
From the main page "Home" press the button



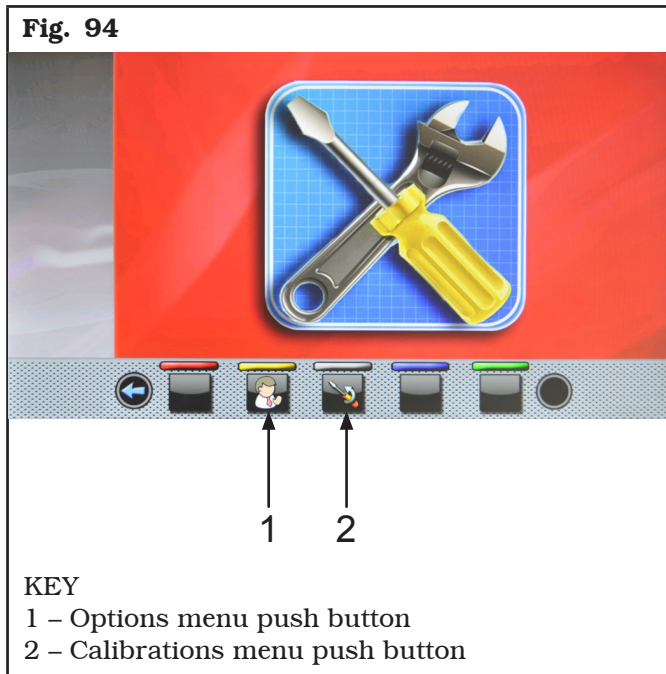
to move to the next screen page and the button



to access the user menu. On the monitor, the following screen appears where you can enter the password.



The user login password is: **1234**.
After entering the correct password you will see the following screen:



15.1 Options menu



Press the button (Fig. 94 ref. 1), to display the monitor screen to enable/disable options as shown below:

Fig. 95



To enable / disable individual functions simply highlight the icon using the buttons



and press the button



Pressing the button may involve, besides, the change in the unit of measure from "mm" to "inch" and vice versa (where applicable) or access to a sub-screen for values settings values (see Par. 15.1.1 or 15.1.2). After you select/deselect the desired options, exit the



menu by pressing push button

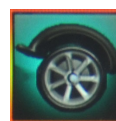
List of available options



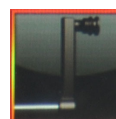
THE ICONS OF THE AVAILABLE OPTIONS WILL TURN BLUE WHEN THEY ARE SELECTED.



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



Enables/disables the spin/protection guard.



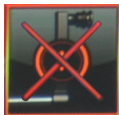
Enables/disables the distance/diameter detection caliper.



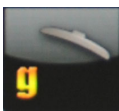
Enable/disable the display of static threshold after each spin.



It allows you to set the thresholds for each of the balancing mode weights (see Par. 15.1.1).



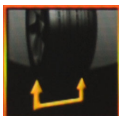
Enable/disable the lock function for caliper arm in position.



When activated, gram weight display unit is set.



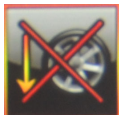
When activated, ounce weight display unit is set. When this option is enabled, weight display unit can be modified from ounces to grams and vice versa.



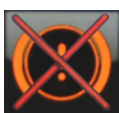
It allows to enable/disable the width function detected by external data gauge.



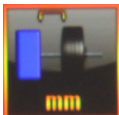
Enable/disable ECO-WEIGHT function.



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



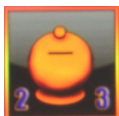
Enable/disable the pneumatic brake after the spin.



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



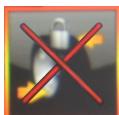
Enable/disable the LED light.



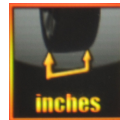
Enable/disable the dynamic residues in the ECO-WEIGHT function.



Enable/disable the functions of motor-cycle wheel balancing.



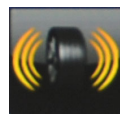
Enable/disable the encoder mounted on the spin motor.



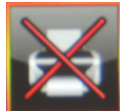
It allows you to change the unit of measurement of the rims width from mm to inches and vice versa.



It allows you to set the size values of weights (see Par. 15.1.2).



Enable/disable the RUN-OUT functions.

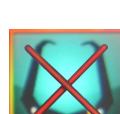


Enable/disable the functions of equipment printing.



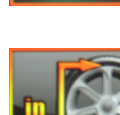
It allows the setting of the retrieval of the measures by eye: readout of measures printed on the rim and the graduated scale of the distance-diameter caliper (disabled on equipment delivery).

NOTE: it is activated only if distance-diameter caliper is disabled.

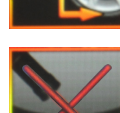


Enable/disable the use of the manual caliper to measure rim width (disabled on equipment delivery).

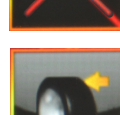
NOTE: it is activated only if distance-diameter caliper is disabled.



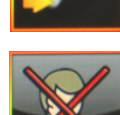
It allows you to change the unit of measurement of the rim diameter from mm to inches and vice versa.



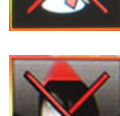
Enable/disable the weights positioning laser function.



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




Enable/disable user function.



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

15.1.1 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 maximum resolution of 1 g (0.05 oz), not considering the set lower limit.



BOTH THE RESOLUTION AND THE LOWER LIMIT FOR DYNAMIC WHEEL BALANCING MODE ARE FACTORY-SET AT g (0.25 oz). THE LOWER LIMIT FOR ALL THE OTHER MODES IS FACTORY-SET AT 7 g (0.35 oz).

Fig. 96

		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
4		100	100	0 - 50 - 100 150 - 200	0 - 50 - 100 150 - 200
		%		%	

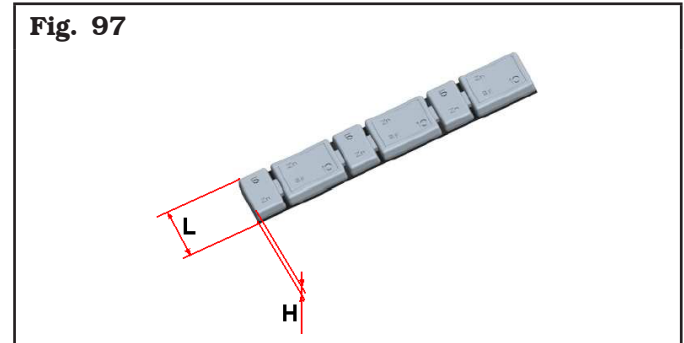
KEY

- 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))
- 2 - Weights display resolution (default value 5 g (0.25 oz))
- 4 - Weight % reduction in the ECO-WEIGHT function (0 - 200) (default value 100)

15.1.2 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. 97**).

Fig. 97




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

Fig. 98



KEY

- 1 - Weights thickness (height) (default value (4 mm (0.16")))
- 2 - Weights width (default value 19 mm (0.75"))

From this screen page, change the size values of weights

using the buttons  and .



THE BLUE-COLOURED-VALUE IS THE ACTIVE FIELD AND THE MODIFIABLE ONE.

15.1.3 User management

The "User Management" function is disabled on equipment delivery. To enable it, proceed as described in Para 15.1. After enabling, the icon will be displayed on every page (Fig. 99 ref. 1).

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

Fig. 99

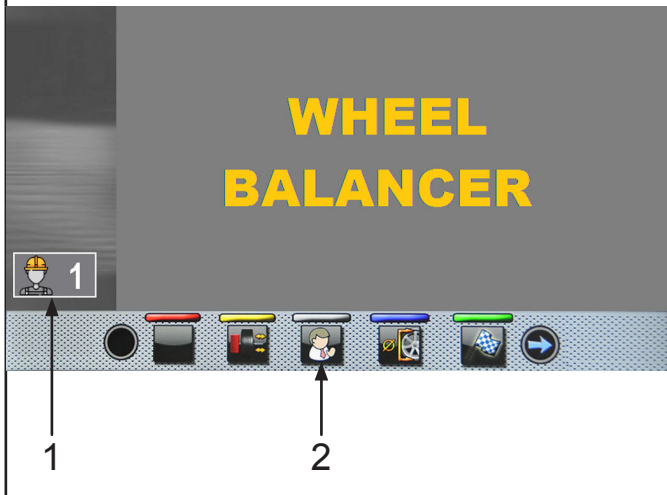



Fig. 100



Press button  (Fig. 99 ref. 2), shown on the monitor or select the field (Fig. 100 ref. 1) and sub-

sequently press button  to display the screen page below:

Fig. 101

**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. 99 ref. 2 and Fig. 100 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 15.1. IF THE FUNCTION IS DEACTIVATED, BUTTON

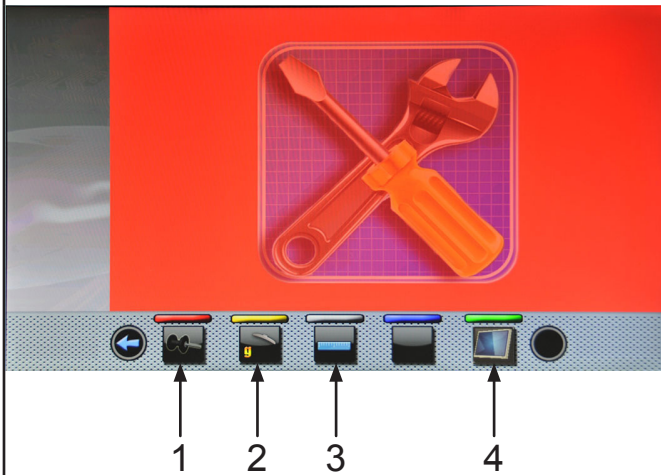


IS DISPLAYED.

15.2 Equipment calibration

Press the button  (Fig. 94 ref. 2) to display the following screen page on monitor:

Fig. 102



KEY

- 1 - Chuck "0" (zero) calibration
- 2 - Weight measurement sensors calibration
- 3 - Gauges calibration
- 4 - Touch monitor calibration

15.2.1 Chuck "0" (zero) calibration


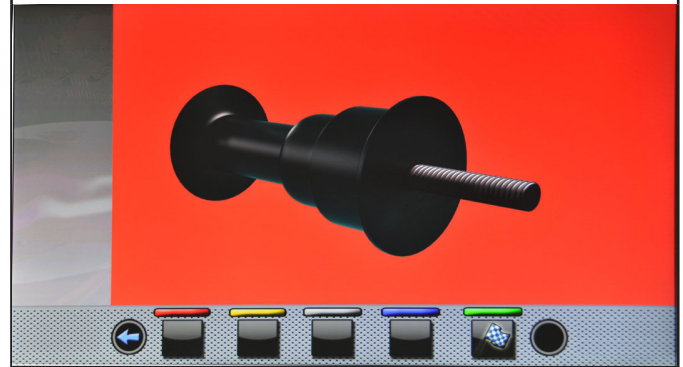
Press the button  (Fig. 102 ref. 1) to display the following screen page on the monitor:

Fig. 103

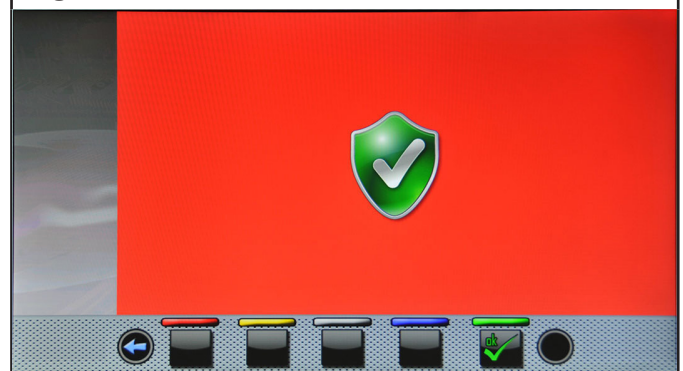


After making sure the chuck is unloaded (no wheel or mounted accessories) and closed, press the button



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

Fig. 104



At this point the equipment has zeroed all its measur-

ing ranges. Press button  to return to calibrations screen page.

Open the protection guard.

15.2.2 Weight measurement sensors calibration



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

To calibrate the weight measurement sensors, follow the following three steps:

1. Chuck "0" (zero) calibration WITH wheel mounted (and locking device);
2. Weight measurement sensors calibration WITH wheel mounted (and locking device);
3. Chuck "0" (zero) calibration WITHOUT wheel and locking device.

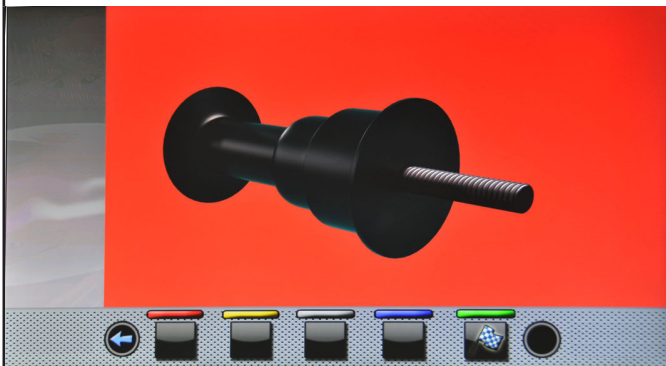
FASE 1

- Fit a balanced wheel on the chuck and secure it with the special locking device.



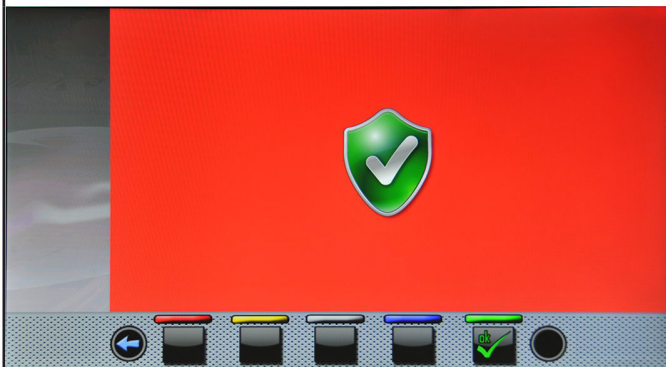
- Press the button (Fig. 102 ref. 1) to display the following screen page on the monitor:

Fig. 105



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

Fig. 106



At this point the equipment has zeroed all its measuring ranges.



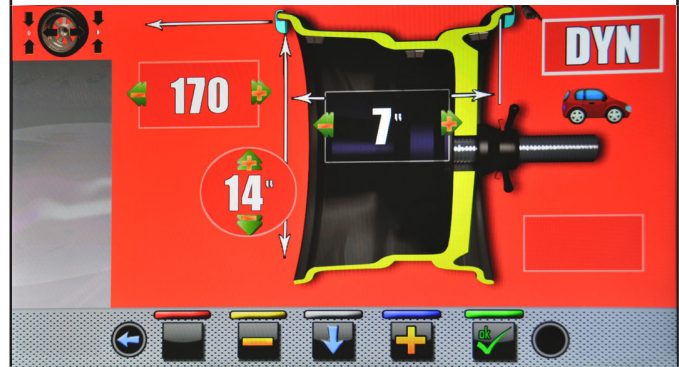
- Press button (Fig. 102 ref. 2) to return to calibrations screen page.

FASE 2



- Press the button (Fig. 102 ref. 2) to display the following screen page on the monitor:

Fig. 107

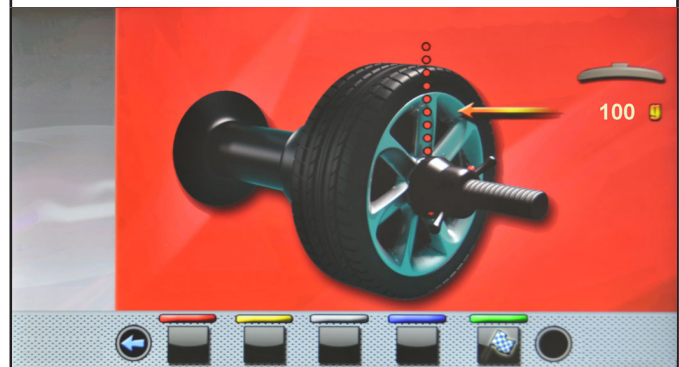


- Set the size of the rim on the chuck using the distance-diameter caliper arm.
- Set the rim width using one of the following calipers:
 - Manual caliper;
 - External data gauge.



- Press button and close the protection 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.

Fig. 108



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

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




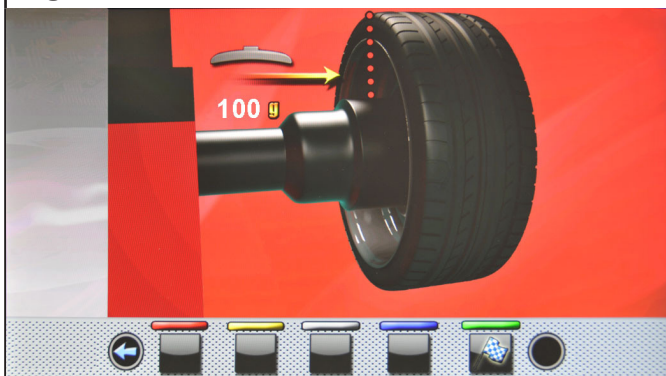
- Press the button  and close the protection guard to perform the 2nd spin of the wheel (100 g (3.52 oz) weight placed on the outside of the wheel).
- At the end the following screen will appear on the monitor, suggesting to remove the weight of 100 g (3.52 oz) previously applied on the outer side and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

Fig. 109

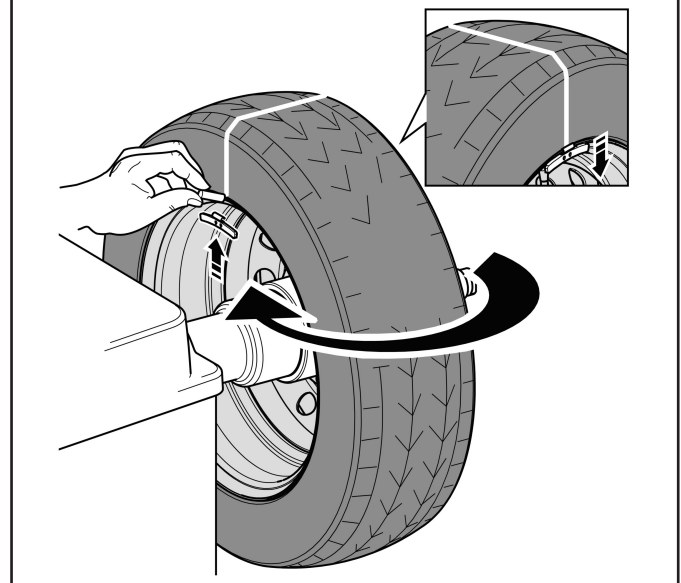


- Turn manually the wheel until You have the weight of 100 g (3.52 oz) on the outer side at "12 o'clock".
- Press the brake pedal and hold it down during the whole the following operation to avoid unexpected rotation of the chuck.
- Remove the weight from 100 g (3.52 oz) from the outside of the wheel 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 TYRE AS A REFERENCE (SEE FIG. 110).

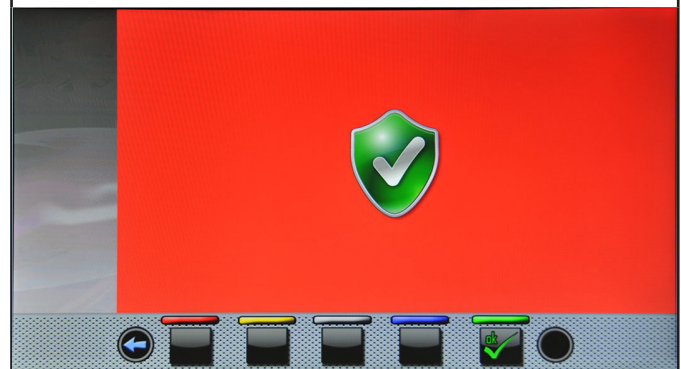
Fig. 110



- Close the protection guard to perform the 3rd spin of the wheel 100 g (3.52 oz) 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. 111



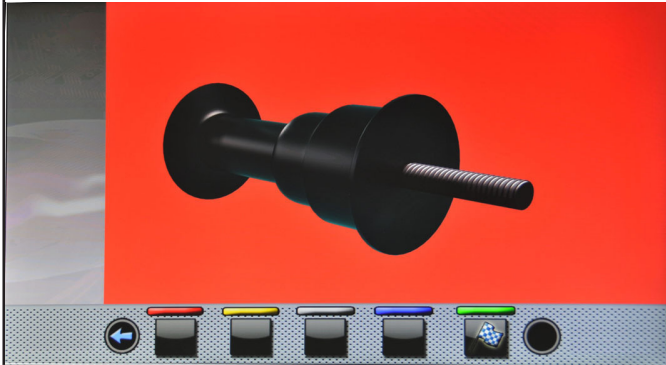
Press button  to return to calibrations screen page.

FASE 3

- Remove the wheel from the chuck and perform a complete calibration procedure "0" (zero) chuck as described hereafter.



- Press the button (Fig. 102 ref. 1) to display the following screen page on the monitor:

Fig. 112


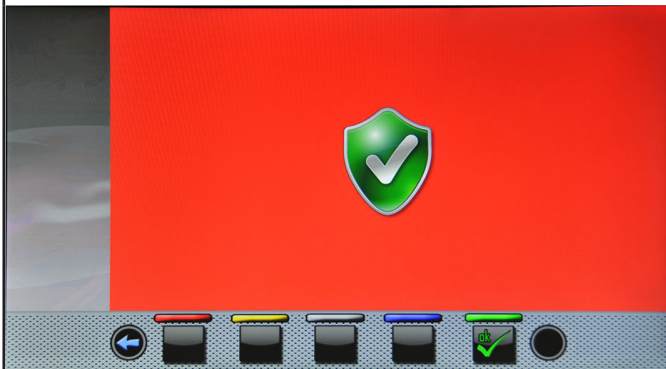

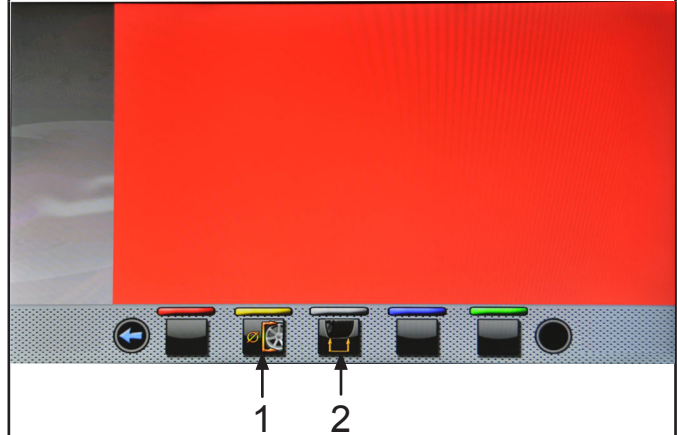
- After making sure the chuck is unloaded (no wheel or mounted accessories), press the button  and close the protection guard. The chuck will rotate for a few minutes until you see the screen below:

Fig. 113

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

15.2.3 Gauges calibration

Press the button (Fig. 102 ref. 3) to display the following screen page on the monitor:

Fig. 114**KEY**

- 1 – Distance-diameter caliper calibration
- 2 – Automatic external data gauge calibration

Distance-diameter caliper calibration



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



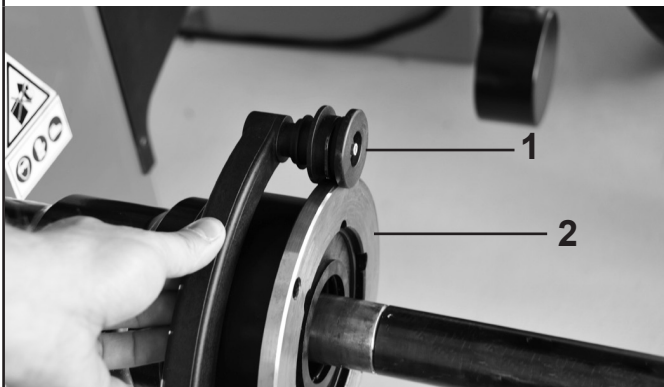
Press the button (Fig. 114 ref. 1) to display the following screen page on the monitor:

Fig. 115



Place the gauge (Fig. 116 ref. 1) on the chuck flange (Fig. 116 ref. 2).

Fig. 116



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

Fig. 117



KEY

- 1 – Example of value detected by the gauge
- 2 – Example of value on pneumatic chuck

The value next to the symbol "scale" (Fig. 117 ref. 1) must be equal to or ± 1 mm with respect to what is indicated above the caliper (Fig. 117 ref. 2).



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

Fig. 118



Place the gauge as shown in the following figure:

Fig. 119






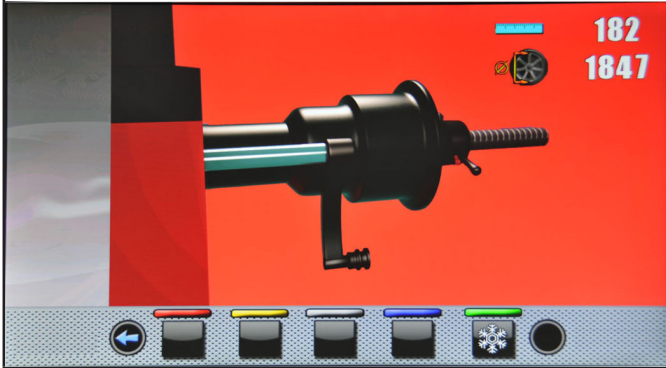
Press button . Wait a few seconds until you see the following screen:

Fig. 120



Place the gauge 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.




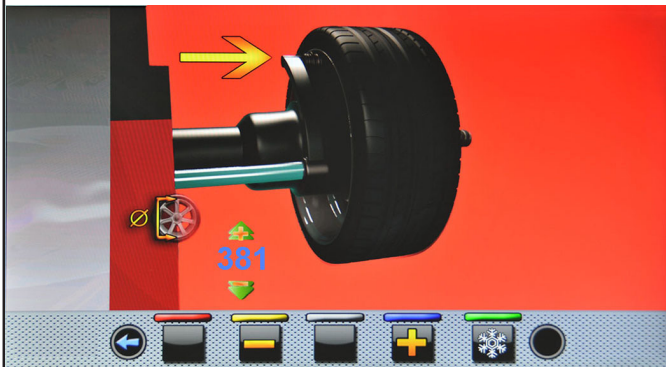
Press button . The following screen will appear on the monitor:

Fig. 121



Measure the exact diameter of a rim (see Fig. 122) and place it on the screen on the monitor by pressing



the  or  buttons.

Fig. 122



Fit the measured wheel on the balancer and lock it on the chuck.

Turn the gauge bushing (Fig. 123 ref. 1) on the inner edge of the wheel upwards (see Fig. 123).

Fig. 123




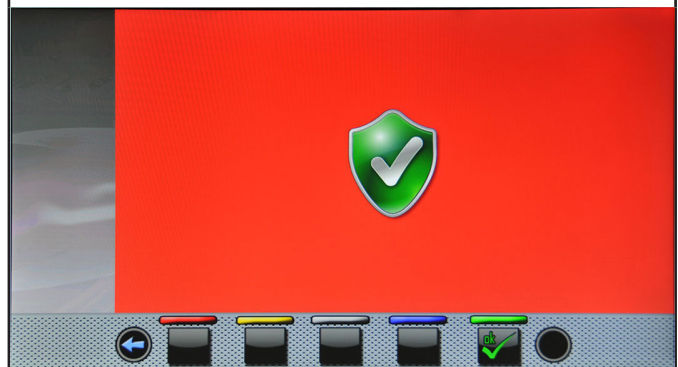
Press button  to end the operation. On the monitor the next screen page will be displayed:

Fig. 124



The calibration of the distance-diameter caliper is finished.

Calibration of automatic external data gauge



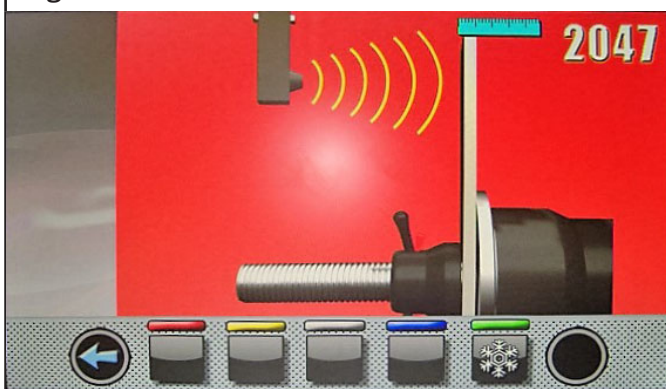
THE NUMERICAL VALUES SHOWN IN THE FIGURES BELOW ARE PURELY ILLUSTRATIVE.

Mount the calibrator body (optional) onto the chuck and fix it through the special locking devices.



Press the button (Fig. 114 ref. 2) to display the following screen page on the monitor:

Fig. 125

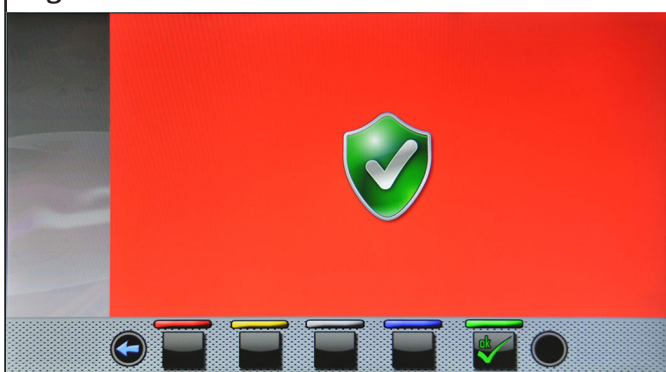


Close the protection guard until bringing the automatic width sensor next to the calibrator body previously installed.



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

Fig. 126



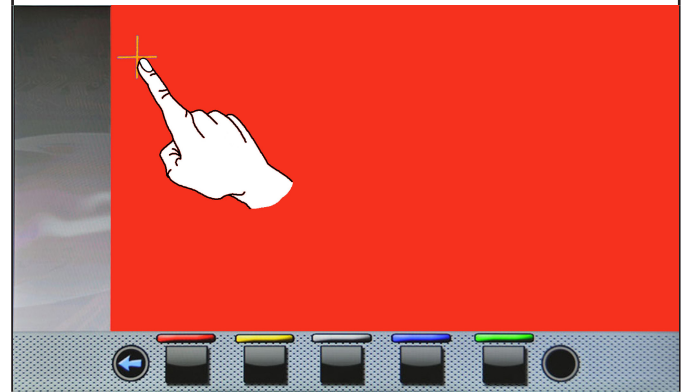
Open the protection guard.
The calibration of the automatic external data gauge is finished.

15.2.4 Touch monitor calibration



Press the button (Fig. 102 ref. 4) to display the following screen page on the monitor:

Fig. 127



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.

16.0 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.

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
28	Piezo calibration error
29	Distance out of tolerance level
31	Distance-diameter caliper released
32	Parameters format incompatible

17.0 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.



PNEUMATICALLY UNPLUG THE EQUIPMENT.

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 tyre powder and other waste materials with a vacuum.

DO NOT BLOW IT WITH COMPRESSED AIR.

- Do not use solvents to clean the pressure regulator.



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

18.0 TECHNICAL DATA***18.1 Technical electrical data***

Max. absorbed voltage (W)		100
Power supply	Voltage (V)	230
	Phases	1
	Frequency (Hz)	50/60
Typical current draw (A)		0.3
Rotation speed (rev/min)		< 100

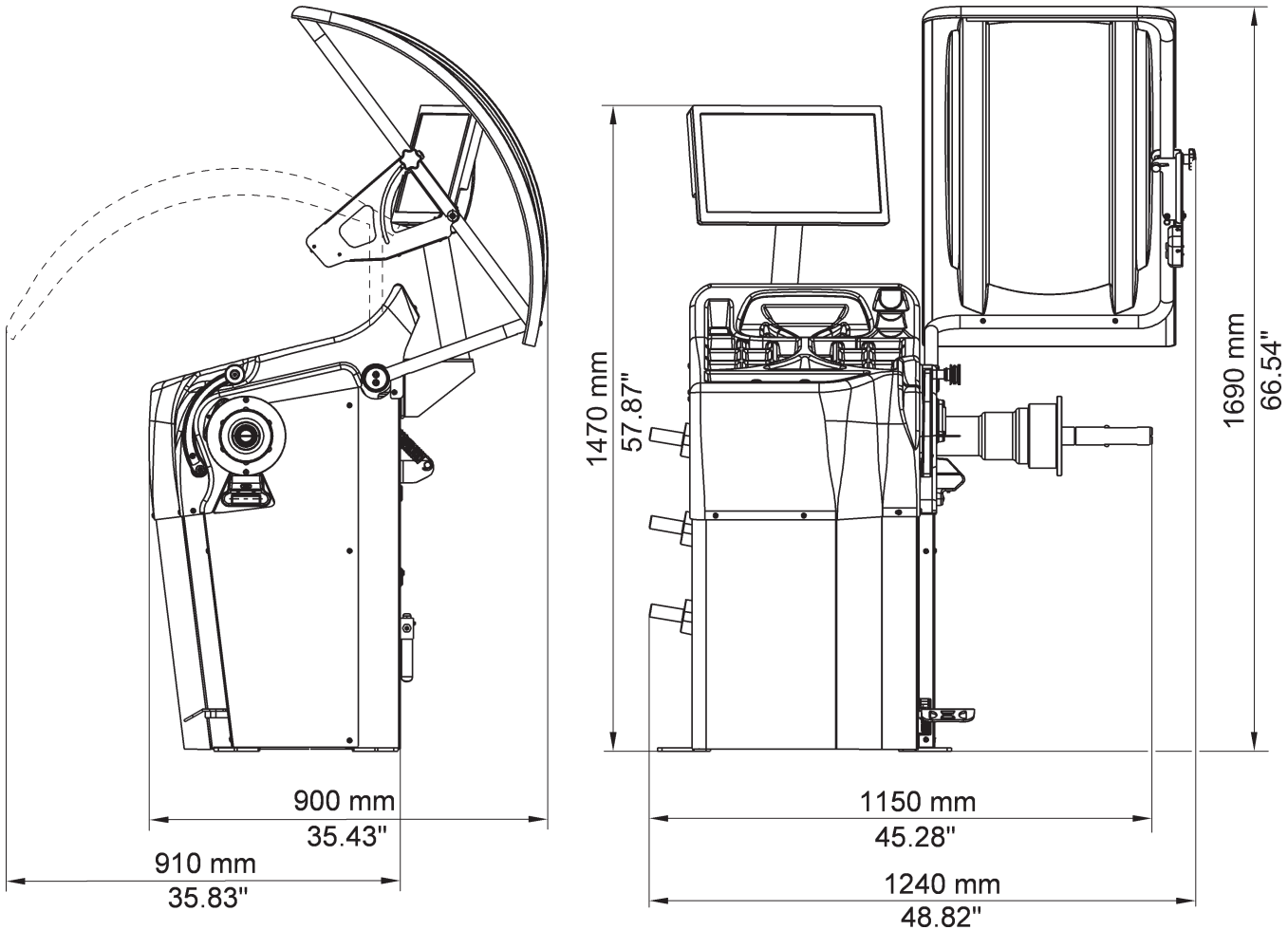
18.2 Technical mechanical data

Balancing precision (g)	± 1 (0.04 oz)
Rim width (inches)	1.5 - 22
Rim diameter (inches)	10 - 30
Wheel max. diameter (inches)	43
Cycle time (sec)	6
Sound emission level (dBA)	< 70
Wheel max. weight (kg)	70 (155 lbs)
Recommended air pressure (bar)	8 - 10 (116 - 145 psi)

Weight (kg)	120 (265 lbs)
-------------	---------------

18.3 Dimensions

Fig. 128



19.0 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.

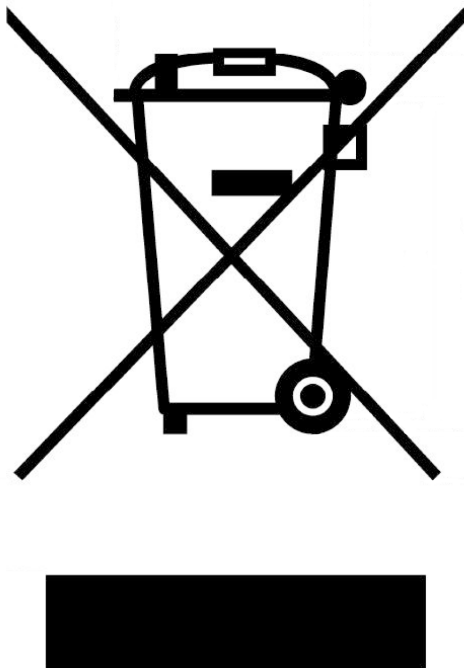
20.0 SCRAPPING

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

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

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

Fig. 129



21.0 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.



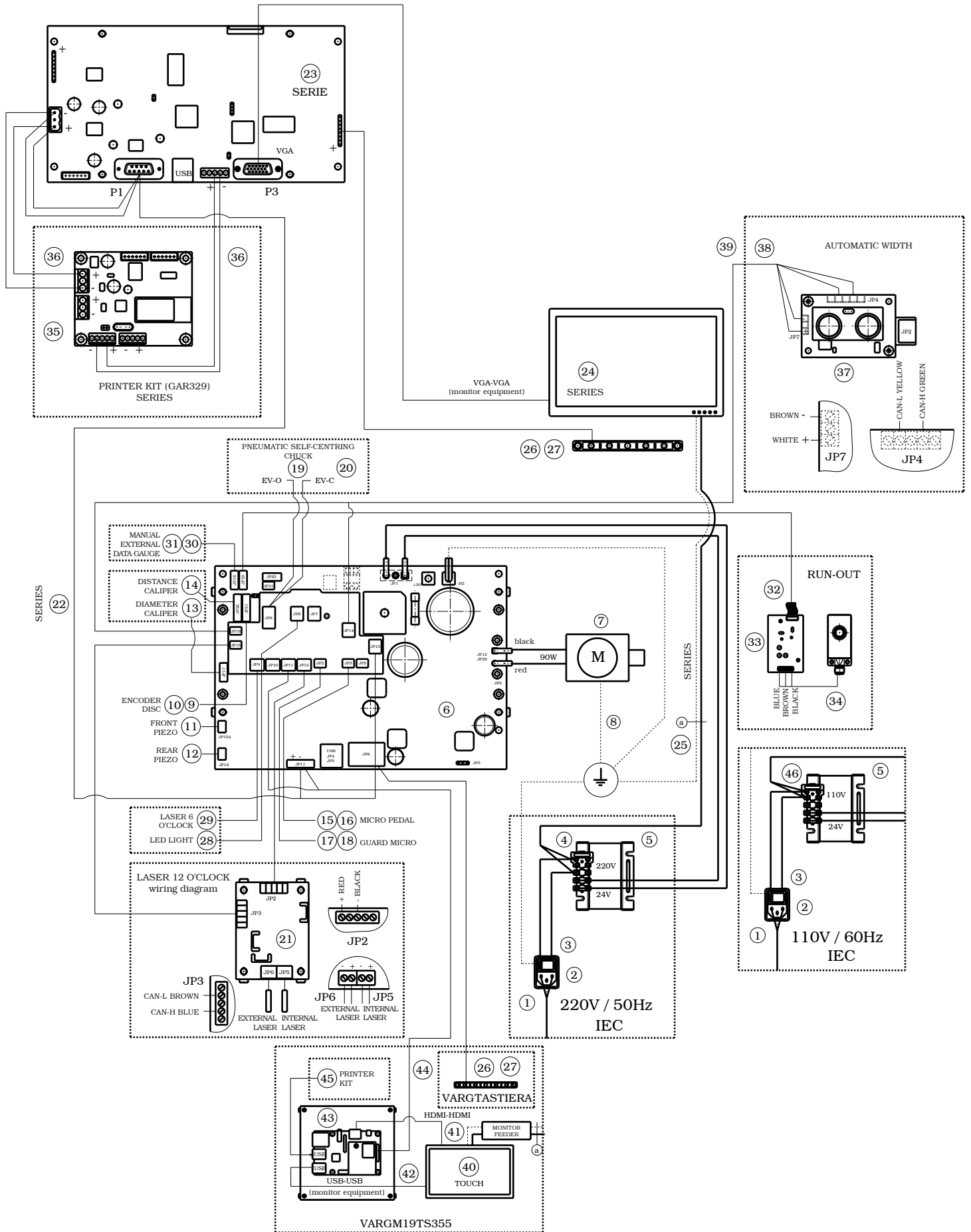
ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

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.

22.0 FUNCTIONAL DIAGRAMS

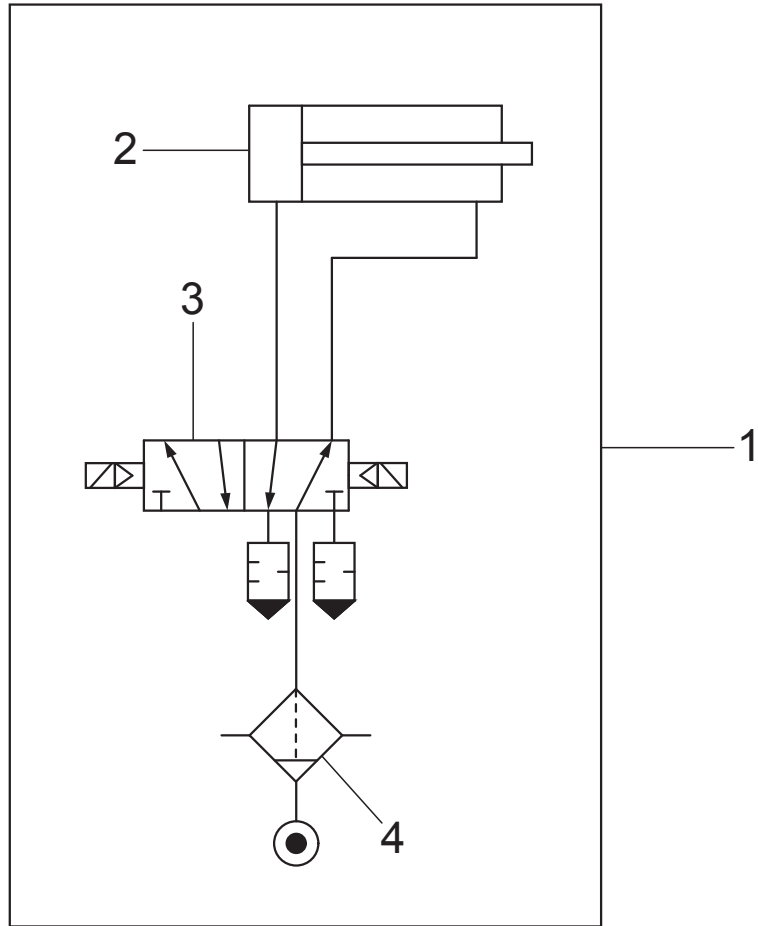
Here follows a list of the equipment functional diagrams.



KEY

- 1 - Power supply cable L=2000
- 2 - Wired switch with plug
- 3 - Cable from switch to transformer
- 4 - Fuse
- 5 - Transformer
- 6 - 90W-380/P power board kit
- 7 - DC motor
- 8 - Motor support ground cable
- 9 - Wheel position encoder cable
- 10 - Encoder board
- 11 - Piezo with front cable
- 12 - Piezo with cable
- 13 - Potentiometer with cable
- 14 - Cable
- 15 - Cable for pedal micro
- 16 - MV15 limit switch
- 17 - Cable for wheel micro protection
- 18 - MV15 limit switch
- 19 - Chuck EVO/EVC cable with connector
- 20 - Solenoid valve mounting EV5
- 21 - Wiring diagram
- 22 - 24V power supply cable + serial
- 23 - Monitor board kit
- 24 - Monitor 22"
- 25 - Cable from transformer to power supply
- 26 - 7-keys-keyboard cables
- 27 - 7-keys keyboard
- 28 - LED light with connector (for wheel balancers with LED light or GAR311)
- 29 - Line laser (with cable) (for wheel balancers with line laser or GAR311)
- 30 - Width potentiometer extension cable (for wheel balancers with external data gauge or GAR306)
- 31 - Potentiometer with shielded cable (for wheel balancers with external data gauge or GAR306)
- 32 - Ultrasounds sensor extension (for GAR315, GAR337)
- 33 - Run-out board (for GAR315, GAR337)
- 34 - Ultrasounds sensor (for GAR315, GAR337)
- 35 - CAN to BTH & RS232 (for GAR329)
- 36 - 2-wires cable (for GAR329)
- 37 - Ultrasounds sensor board (for wheel balancers with automatic width or GAR332)
- 38 - Width board cable assembly (for wheel balancers with automatic width or GAR332)
- 39 - Extension cable assembly with connector (for wheel balancers with automatic width or GAR332)
- 40 - Touch screen monitor 19"
- 41 - HDMI-HDMI cable
- 42 - Cable USB/A - USB/B
- 43 - Monitor SBC kit
- 44 - Supply cable with connector
- 45 - Printer kit
- 46 - Fuse

LIBRAK355PWS			
	WIRING CONNECTION DIAGRAM	1297-M040-02	
	Drawing N°A - Rev. 2	129705534	Page 63 of 64
			EN



KEY

- 1 - Pneumatic tightening diagram
- 2 - Tightening drive cylinder
- 3 - 5/2 NC solenoid valves
- 4 - Separating filter

LIBRAK355PWS		
	PNEUMATIC CONNECTION DIAGRAM	1297-M040-02
Drawing N°B - Rev. 0	129600170	Page 64 of 64
		EN



Noi
We / Wir / Nous / Nosotros

BUTLER ENGINEERING AND MARKETING S.p.A.s.u.
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42047 Rolo RE ITALIA

dichiariamo sotto la nostra esclusiva responsabilità che il prodotto

declare, undertaking sole responsibility, that the product
erklären unter unserer alleinigen Verantwortung, dass das Produkt
déclarons, sous notre entière responsabilité, que le produit
declaramos bajo nuestra exclusiva responsabilidad, que el producto

Equilibratrice
Wheel Balancer
Auswuchtmaschine
Équilibreuse de roue
Equilibradora

al quale questa dichiarazione si riferisce, risponde alle seguenti Direttive applicabili:

to which this declaration applies is in compliance with the following applicable Directives:
auf das sich diese Erklärung bezieht, den nachstehenden anwendbaren Normen entspricht:
objet de cette déclaration est conforme aux Directives applicables suivantes:
al que se refiere esta declaración cumple con las siguientes normas aplicables:

2006/42/CE

Direttiva Macchine

2014/30/UE

Direttiva Compatibilità Elettromagnetica

Per la conformità alle suddette direttive sono state seguite le seguenti norme Armonizzate:

To comply with the above mentioned Directives, we have followed the following harmonized directives:
In Übereinstimmung mit o.g. Richtlinien wurden folgende harmonisierte Normen befolgt:
Pour la conformité aux normes ci-dessus, nous avons suivi les normes harmonisées suivantes:
Para la conformidad a las Normas arriba mencionadas, hemos seguido las siguientes normas armonizadas:

UNI EN ISO 12100:2010

Sicurezza del macchinario – Principi generali di progettazione – Valutazione del rischio e riduzione del rischio

CEI EN 60204-1:2018

Sicurezza del macchinario – Equipaggiamento elettrico delle macchine – Parte 1: Regole generali

La persona preposta a costituire il fascicolo tecnico è Butler S.p.A. s.u.

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