RAV

1296-M021-01

**G2.124NR
G2.124RBMW
GP2.124NR
G2.124NWSPLUS**

INSTRUCTION MANUAL

EN TRANSLATION FROM THE
ORIGINAL INSTRUCTIONS

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

SUMMARY

GENERAL DESCRIPTION

Fig. 1

KEY

1 – Weight holding bridge
2 – Threaded chuck
3 – Distance-diameter caliper
4 – Protection guard
5 – Foot brake (for all models)
   Chuck open- close pedal
   (standard on models with pneumatic chuck)
6 – Main switch
7 – Grippers for weight fitting
8 – Display with keyboard
9 – Pneumatic chuck
10 – Automatic width measuring
    device unit (standard on some models)
11 – Laser unit + led light
    (standard on some models)
12 – Pressure ring
13 – Car ring nut (on models with threaded chuck)

14 – Locking sleeve
    (on models with pneumatic chuck)
15 – Cones + protection cup
16 – Manual caliper
17 – Carriages counterweight
18 – Grippers for weights
19 – Off-road cone D88 - 132
    (standard on some models)
20 – Wheel protection plate
    (standard on some models)
21 – Flange with gauge
    (standard on some models)
22 – "12 o'clock" laser device (optional)
23 – External data gauge (optional)
24 – Stud flange kit for BMW 5-holes wheels
    (standard on some models)

SYMBOLS USED IN THE MANUAL

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

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

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INFORMATION PLATE LOCATION DRAWING

999914160

99990758

999916311

999912940

99990114

999920530

999920540

999910050

999922900

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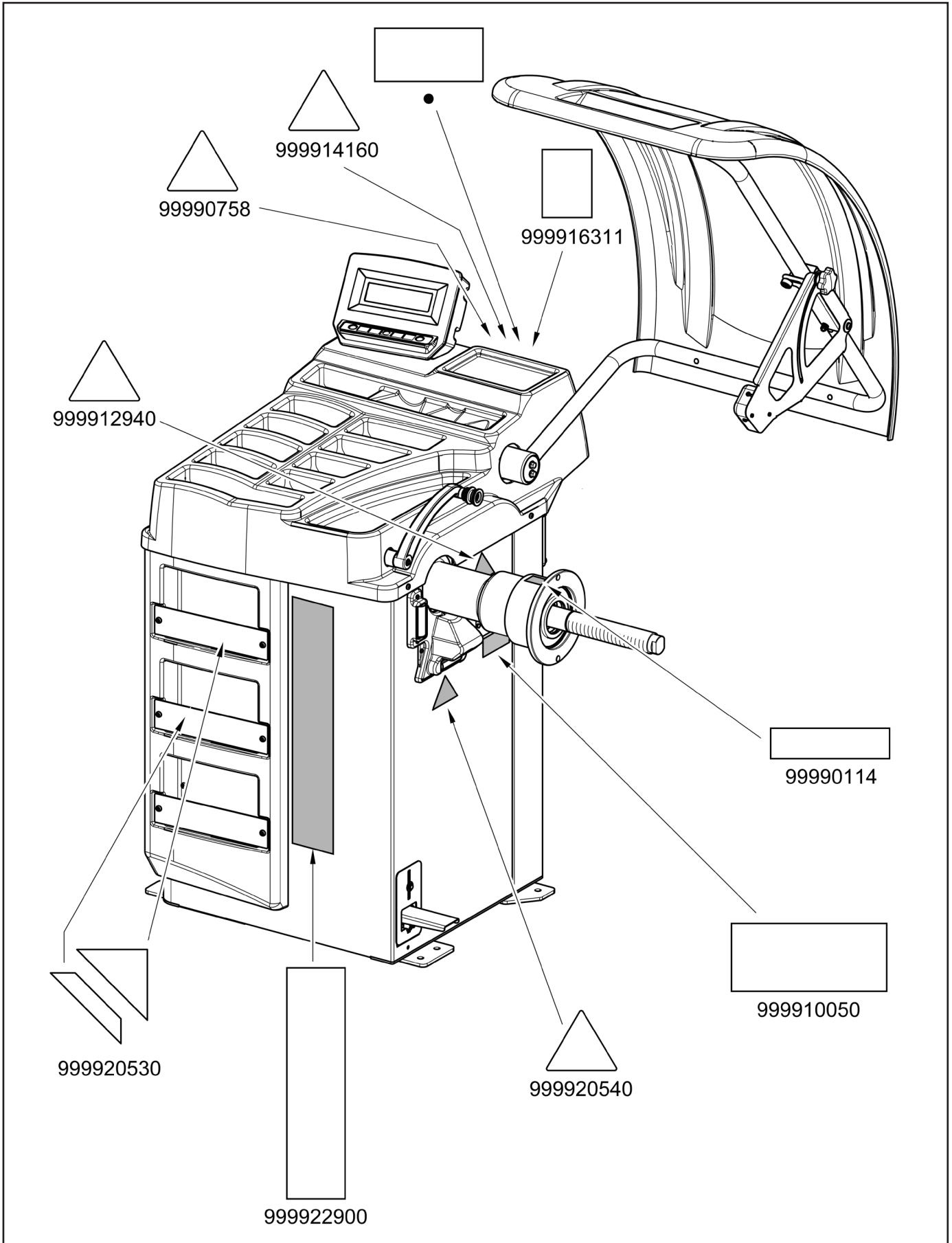
Code numbers of plates	
99990114	*Arrow plate*
99990758	*Electric shock danger plate*
999910050	*Protection device use plate*
999912940	*Lifting plate*
999914160	*230V 50/60 Hz 1 Ph voltage plate*
999916311	*Skip plate*
999920530	*New G2 logo plate*
999920540	*Laser point danger plate (if present)*
999922900	*Manufacturer trademark nameplate*
•	*Serial number plate*

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

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

1.0   GENERAL INTRODUCTION

This manual is an integral part of the product and must be retained for the whole operating life of the machine.

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

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

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

1.1   Introduction

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

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

2.0   INTENDED USE

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

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

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

2.1   Training of personnel

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

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

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

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INSTRUCTION, USE AND
MAINTENANCE MANUAL

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3.0 SAFETY DEVICES

PERIODICALLY, AT LEAST MONTH-LY, CHECK THE INTEGRITY AND THE FUNCTIONALITY OF THE SAFETY AND PROTECTION DE-VICES ON THE MACHINE.

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

  Its function is to disconnect machine electric supply.

- **Protection guard**

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

  Press [STOP] stop key to stop wheel rotation in emergency conditions.

- **Laser safety (in case the laser device is present)**

  USE OF CONTROLS OR ADJUST-MENTS OR PERFORMANCE OF PROCEDURES OTHER THAN THOSE SPECIFIED HEREIN MAY RESULT IN HAZARDOUS RADIA-TION EXPOSURE.

3.1 Residual risks

The machine was subjected to a complete analysis of risks according to reference standard EN ISO 12100. Risks are as reduced as possible in relation with technology and product functionality.

Possible residual risks have been emphasized through pictorial representations and warnings which placing is indicated in " PLATE POSITIONING DRAWING" at page 6.

In case the laser device is present

**THIS DEVICE IS EQUIPPED WITH SOFTWARE-CONTROLLED LASER EMITTERS.
WARNING AND INFORMATION PLATES HAVE BEEN APPLIED OUTSIDE THE DEVICE, IN ORDER TO INDICATE THE PRESENCE AND EMPLOYMENT OF LASER MEAS-URING 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 machine leads to serious dangers and represents a transgression of European safety rules.

- Use of the machine is only permitted in places free from **explosion** or **fire** hazard and in **dry places under cover**.

- Original spare parts and accessories should be used.

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

- The installation must be performed by qualified and authorized personnel in full compliance with the instructions given below.

- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it miss-functions and contact the assistance service of an authorized dealer.

- In emergency situations and before carrying out any maintenance or repairs, disconnect all supplies to the machine by using the main switch, placed on the machine itself, and unplugging the power supply.

- The machine power supply system must be equipped with an appropriate earthing, to which the yellow-green machine protection wire must be connected.

- Ensure that the work area around the machine is free of potentially dangerous objects and that there is no oil since this could damage the tyre. Oil on the floor is also a potential danger for the operator.

- UNDER NO CIRCUMSTANCES must the machine be used to spin anything but vehicle wheels. Bad locking can cause rotating parts to come loose, with potential damage to the machine and anything in the vicinity and injury to the operator.

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

- The machine handles and operating grips must be kept clean and free from oil.

- The workshop must be kept clean and dry. Make sure that the working premises are properly lit.
  The machine can be operated by a single operator. Unauthorized personnel must remain outside the working area, as shown in **Fig. 3.**
  Avoid any hazardous situations. Do not use air-operated or electrical equipment when the shop is damp or the floor slippery and do not expose such tools to atmospheric agents.

- When operating and servicing this machine, carefully follow all applicable safety and accident-prevention precautions.
  The machine must not be operated by untrained personnel.

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

5.0 PACKING AND MOBILIZATION FOR TRANSPORT

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

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

Fig. 2
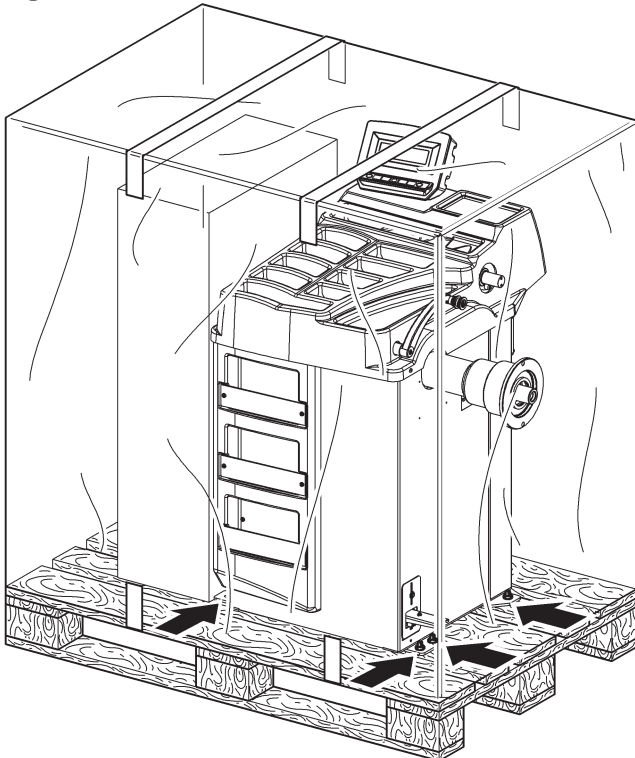
6.0 UNPACKING

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

The cardboard box is supported with plastic strapping. Cut the strapping with suitable scissors. Use a small knife to cut along the lateral axis of the box and open it like a fan.

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

If in doubt **do not use the machine** and refer to professionally qualified personnel (to the seller).

The packing (plastic bags, expanded polystyrene, nails, screws, timber, etc.) should not be left within reach of children since it is potentially dangerous. These materials should be deposited in the relevant collection points if they are pollutants or non biodegradable.

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

7.0   MOBILIZATION

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

NEVER LIFT THE MACHINE BY MEANS OF THE CHUCK.

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

• Protect the exposed corners with suitable material (Pluribol/cardboard).

• Do not use metallic cables for lifting.

• Make sure the power and pneumatic supply (on models with pneumatic chuck) of the machine are not connected.

• Place again the machine onto the original pallet with whom it was delivered.

• Use transpallet or fork-lift for handling.

8.0   WORKING ENVIRONMENT CONDITIONS

The machine must be operated under proper conditions as follows:

• temperature: 0° + 45° C

• relative humidity: 30 - 90% (dew-free)

• atmospheric pressure: 860 - 1060 hPa (mbar).

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

8.1   *Working area*

Fig. 3

600

600

600
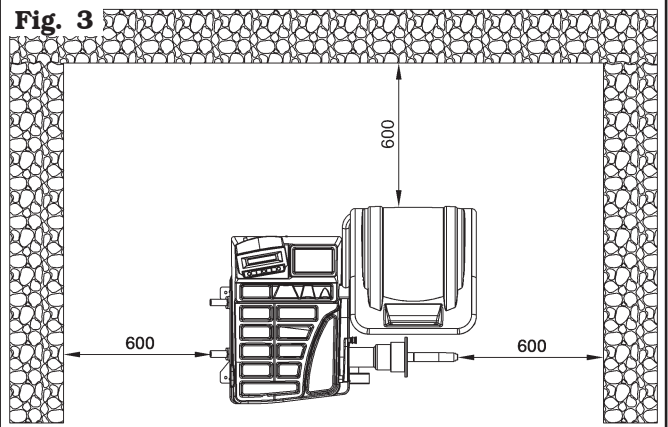
USE THE MACHINE IN A DRY AND ADEQUATELY LIT PLACE, POSSIBLY INDOORS OR ANYWAY IN A ROOFED AREA, THIS PLACE MUST BE IN COMPLIANCE WITH APPLICABLE SAFETY REGULATIONS.

The location of the machine requires a usable space as indicated in **Fig. 3**. The positioning of the machine must be according to the distances shown. From the control position the operator is able to observe all the machine and surrounding area. He must prevent unauthorized personnel or objects that could be dangerous from entering the area.

The machine must be fixed on a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.

The base floor must be able to support the loads transmitted during operation.

This surface must have a capacity load of at least 500 kg/m^2.

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

8.2   *Lighting*

The machine does not require its own lighting for normal working operations. However, it must be used in an adequately lit environment.

In case of poor lighting use lamps having total power of 800/1200 Watt.

IF IT IS INSTALLED, EACH TIME THE ROD OF THE GAUGE IS EXTRACTED FROM ITS HOUSING, THE LED LIGHT (FIG. 1 REF. 11) TURNS ON MAKING THE INSIDE OF THE WHEEL WHERE THE OPERATOR MUST WORK BRIGHTER.

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9.0   MACHINE ASSEMBLY

⚠ **EACH MECHANICAL INTERVEN-TION MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.**

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

9.1   Anchoring system

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

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

a = 386
b = 580
c = 54
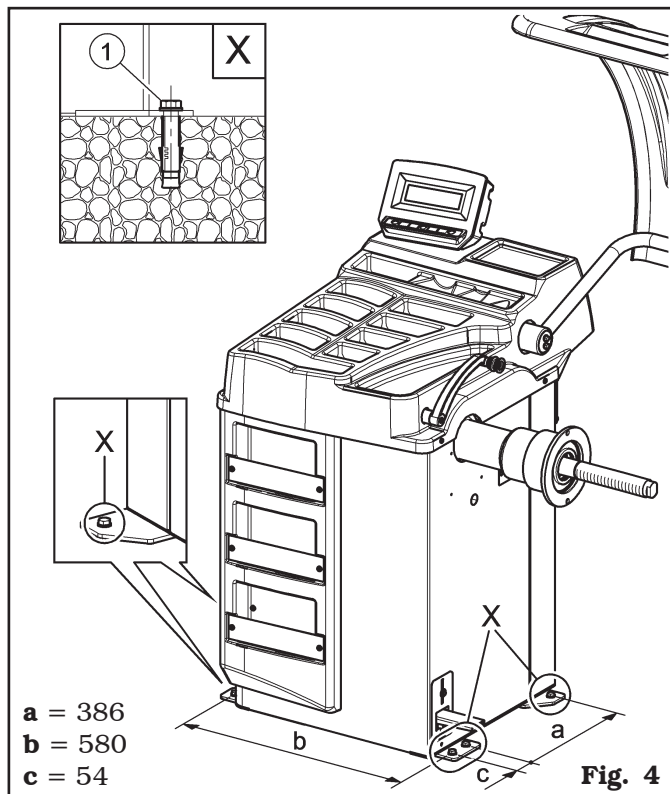
Fig. 4

• Execute 4 holes with 10 mm diameter on the floor by the holes on the bottom floor;

• insert the small blocks (excluded from supply) into the holes;

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

9.2   Fixtures contained in the packing

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

Fig. 5
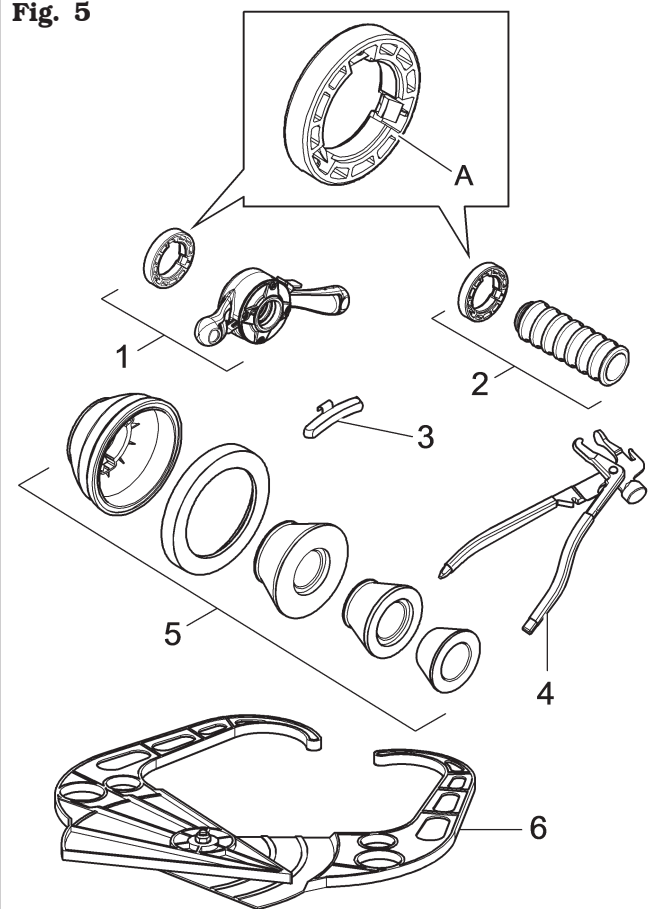
KEY
1 – Car ring nut + pressure ring (on models with threaded chuck)
2 – Pneumatic locking sleeve + pressure ring (on models with pneumatic chuck)
3 – Carriages counterweight
4 – Grippers for weights
5 – Cones + protection cup
6 – Manual caliper

❗ **THE PRESSURE RING (FIG. 5 REF. A) MUST BE FITTED WITH THE TEETH OR DISCHARGE SIDE FACING THE RING-NUT OR THE LOCKING SLEEVE (SEE FIG. 5).**

9.3 Assembly procedures

9.3.1 Fitting the chuck on the flange

For models with threaded chuck

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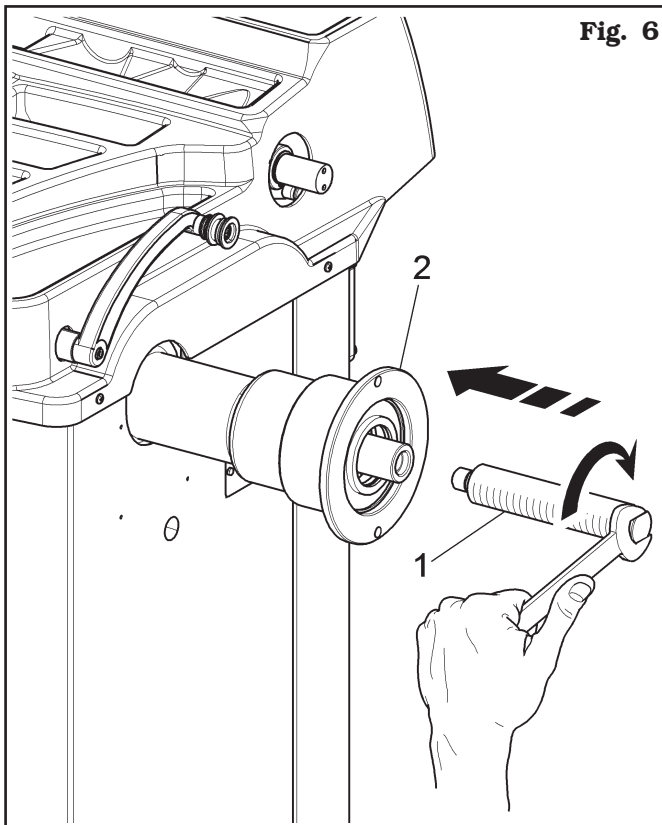
Fig. 6

9.3.2 Fitting and removal of the pneumatic chuck on the flange

On models with pneumatic chuck

FITTING

1. After making power and air connections switch on the machine (the pneumatic chuck always opens when the machine is switched on).

2. Switch the machine off by using the main switch (**Fig. 17 ref. 1**). Couple tyre inner rod (**Fig. 7 ref. 1**) with flange inner rod (**Fig. 7 ref. 2**) (see **Fig. 7**).
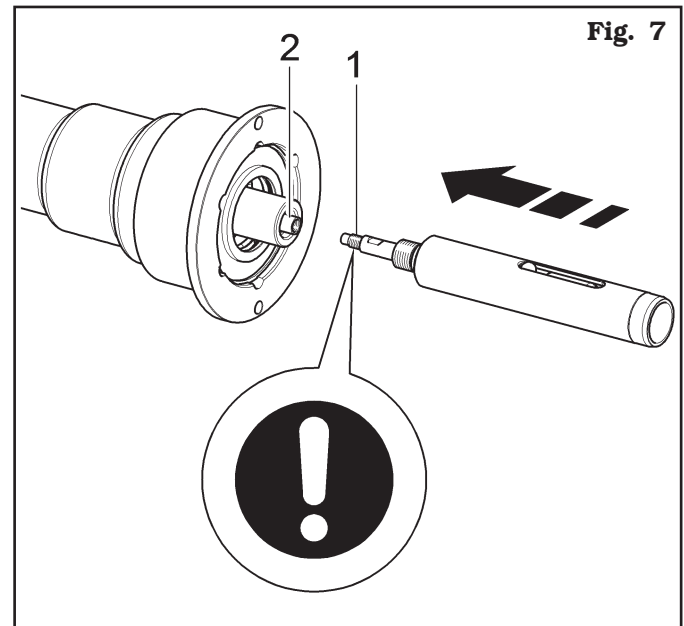
Fig. 7

FOR PNEUMATIC SHAFT KIT FITTING (FIG. 7 REF. 1) USE MEDIUM RESISTANCE LOCTITE 242 THREADLOCKERS OR EQUIVALENT ONLY ON M10 THREAD AND TIGHTEN TO 30NM.

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3. Tighten tyre inner rod (**Fig. 8 ref. 1**) with flange inner rod (**Fig. 8 ref. 2**) by using the wrench provided (**Fig. 8 ref. 3**) and a 12 mm wrench (**Fig. 8 ref. 4**). Use also a torque spanner (**Fig. 8 ref. 5**) (not supplied) on one of the 2 holes on the provided spanner (**Fig. 8 ref. 3**).

Fig. 8
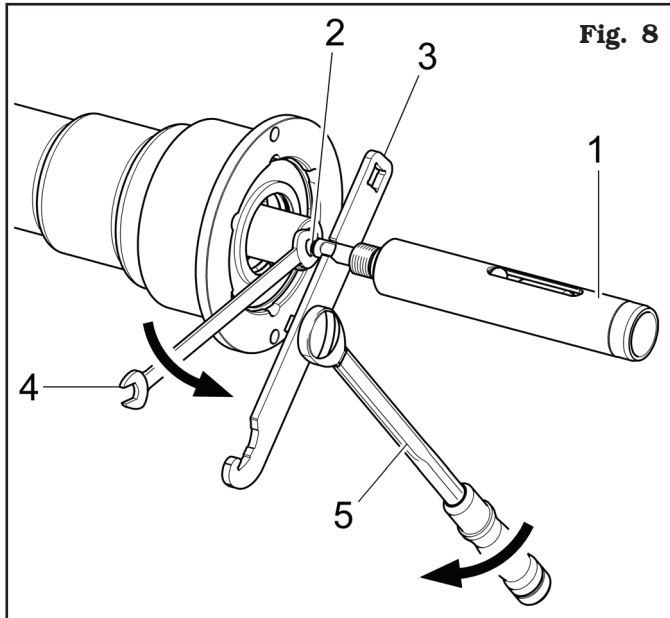
4. Lock the chuck by pressing the brake and turn the pneumatic shaft screw (**Fig. 9 ref. 1**) onto the flange (**Fig. 9 ref. 2**) until it stops.
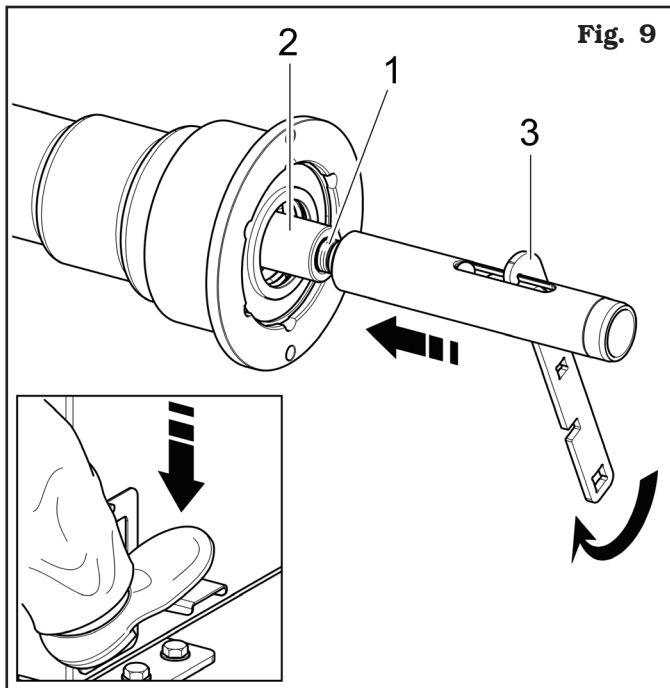
Fig. 9

5. Tighten with the wrench provided (**Fig. 9 ref. 3**).

REMOVAL

1. Open the pneumatic chuck by means of the pedal provided and make sure the outer ball (**Fig. 10 ref. 1**) is in the position indicated in **Fig. 10**.

Fig. 10
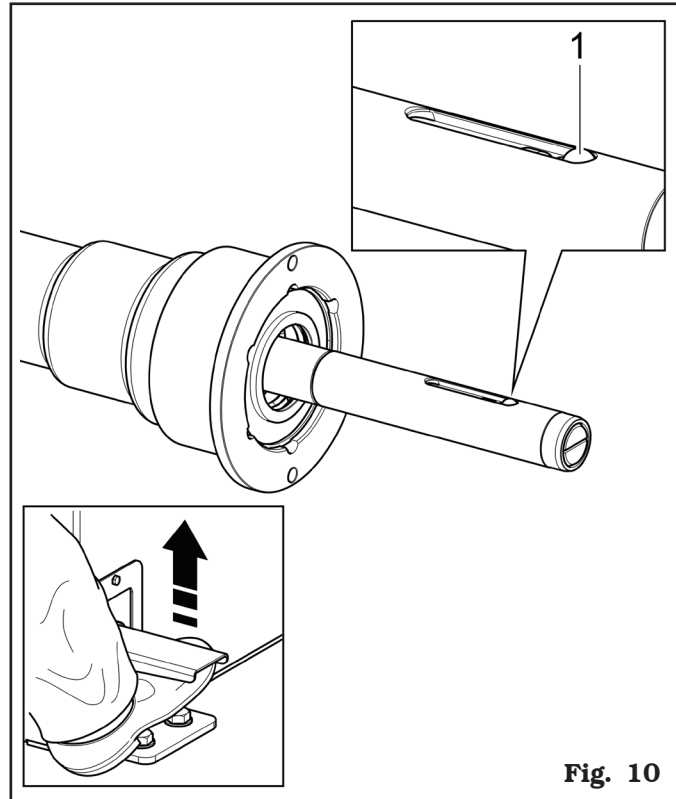
2. Lock the chuck by pressing the brake and unlock the pneumatic shaft (**Fig. 11 ref. 1**) using the wrench provided (**Fig. 11 ref. 2**).

Fig. 11

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

Fig. 12

FIT THE TORQUE SPANNER INTO THE PROVIDED HOLES (REF. 1) OF THE SUPPLIED SPANNER AND TIGHTEN TO 30 NM.

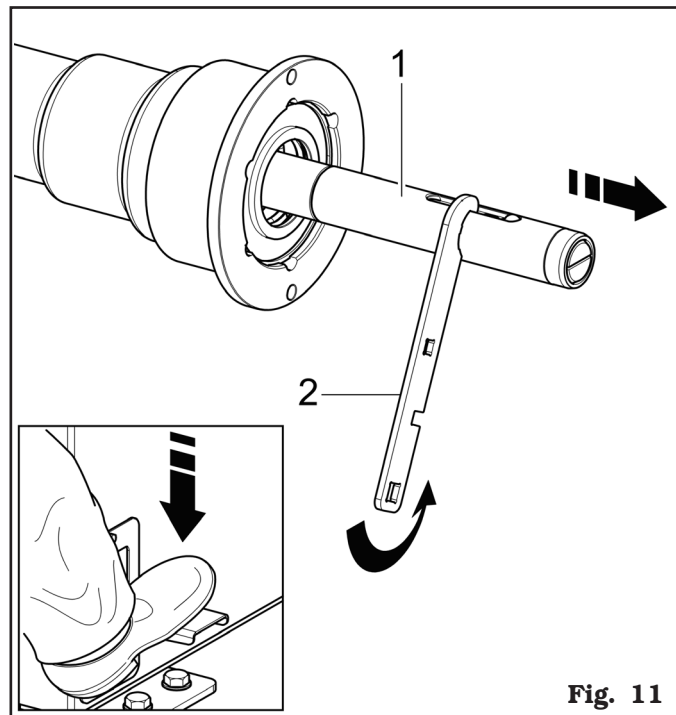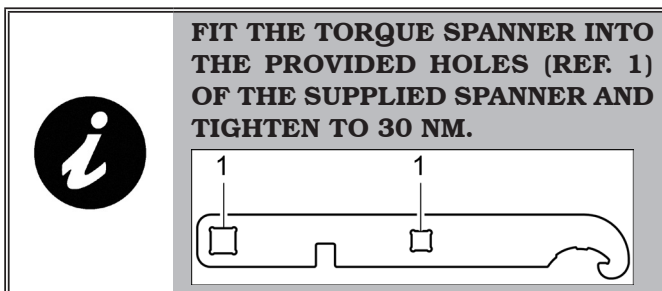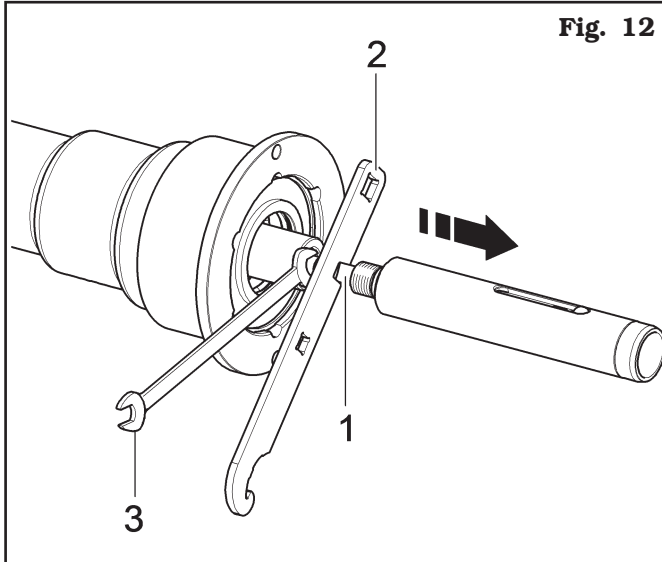### 9.3.3 Fitting the protection guard

1. Mount the protection guard (**Fig. 13 ref. 1**) to the support (**Fig. 13 ref. 2**) using the screws (**Fig. 13 ref. 3**), interposing the Belleville washers (**Fig. 13 ref. 4**) and the tab washers (**Fig. 13 ref. 5 - 6**).

2. Tighten the screws (**Fig. 13 ref. 3**) in order to make the guard (**Fig. 13 ref. 1**) lift or lower without bumping against the limit switch. Carry out the adjustment so that it's possible to manually guide the guard both during closing and opening.

DURING GUARD ASSEMBLY, PAY ATTENTION TO THE MICRO PLACED INSIDE THE MACHINE.

Standard on some models

3. Connect the ultrasound sensor cable (**Fig. 13 ref. 7**) of the automatic width measuring device (**Fig. 13 ref. 9**) to the pre-arranged connector (**Fig. 13 ref. 8**).

4. At the end of the connection, introduce the connectors in wheel cover slot (**Fig. 13 ref. 10**), as illustrated in **Fig. 13**. Eventually, fasten connector's cable (**Fig. 13 ref. 8**) with a clamp (**Fig. 13 ref. 11**).

Fig. 13
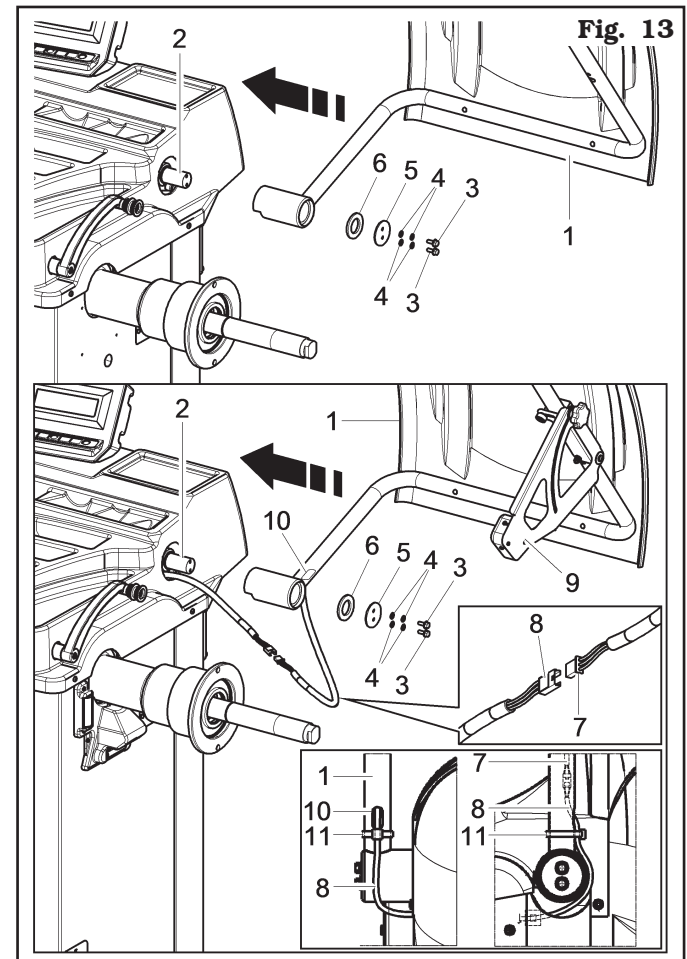
9.3.4 Fitting of external data gauge (optional)

1. Unscrew the fastening screws of the equalizer support (**Fig. 14 ref. 1**), being very careful about holding the same support.

2. Screw the 3 screws (**Fig. 14 ref. 2**) to the gauge bracket (**Fig. 14 ref. 3**) and in the special inserts placed on the rear side of the frame.
   Lock the gauge arm (**Fig. 14 ref. 4**) by screwing the 2 screws provided (**Fig. 14 ref. 5**). Lock these screws with the nuts (**Fig. 14 ref. 6**) so that the gauge arm are levelled out as the chuck (see **Fig. 15**).

Fig. 14
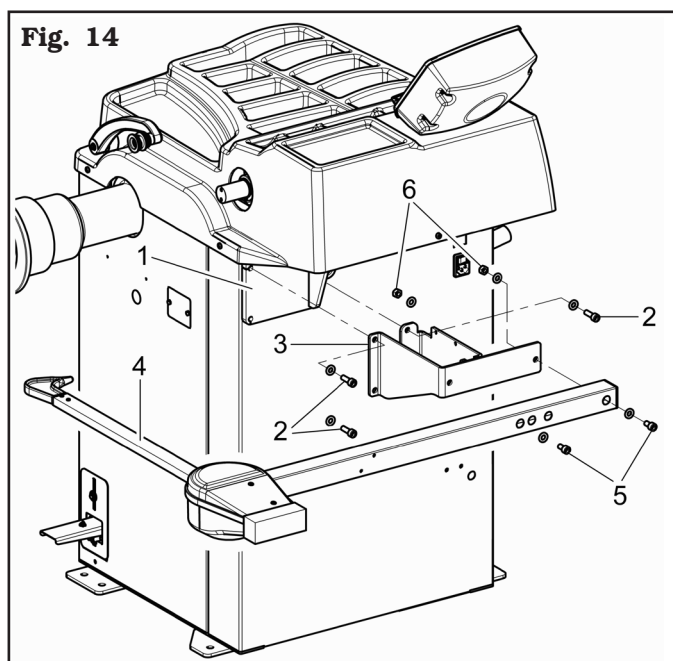
3. Also make sure the gauge tip (**Fig. 15 ref. 1**) is positioned at the centre of the chuck.

Fig. 15
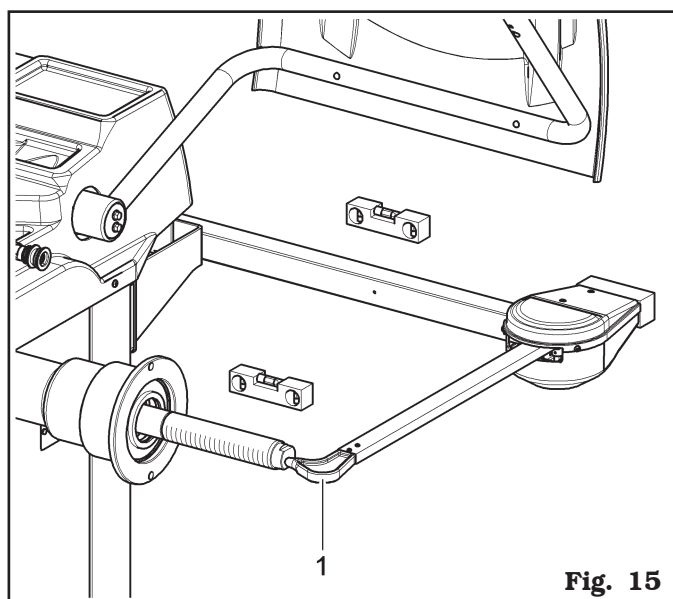
4. Connect connector (**Fig. 16 ref. 1**) of the cable coming from inside the machine to connector (**Fig. 16 ref. 2**) of the cable coming from the gauge arm. Fit the section of the cable with the connectors inside the arm (**Fig. 16 ref. 3**).

5. Fasten the cable with clamps.

6. Enable the external data gauge and carry out the device calibration.

Fig. 16
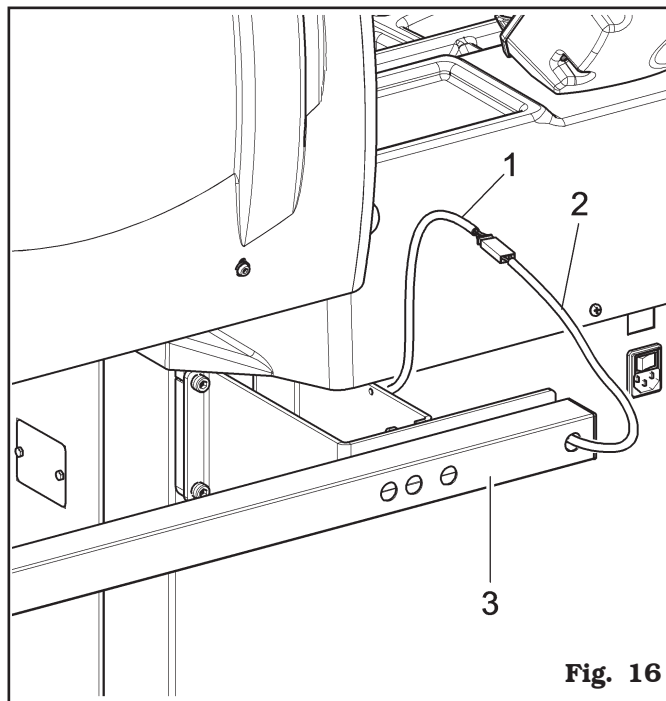
10.0 ELECTRICAL CONNECTIONS

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

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

Connect the machine up to the mains by means of the 3-pole plug provided (230 V 1-phase).
If the plug provided is not suitable for the wall socket, fit a plug that complies with local and applicable regulations. This operation must be performed by expert and professional personnel.

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

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

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

10.1 Electrical checks

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

⚠ CARRY OUT A DAILY CHECK OF THE MAINTAINED ACTION CONTROLS CORRECT FUNCTIONING, BEFORE STARTING MACHINE OPERATION.

Once the plug/socket connection has been made, turn on the machine using the main switch (**Fig. 17 ref. 1**).
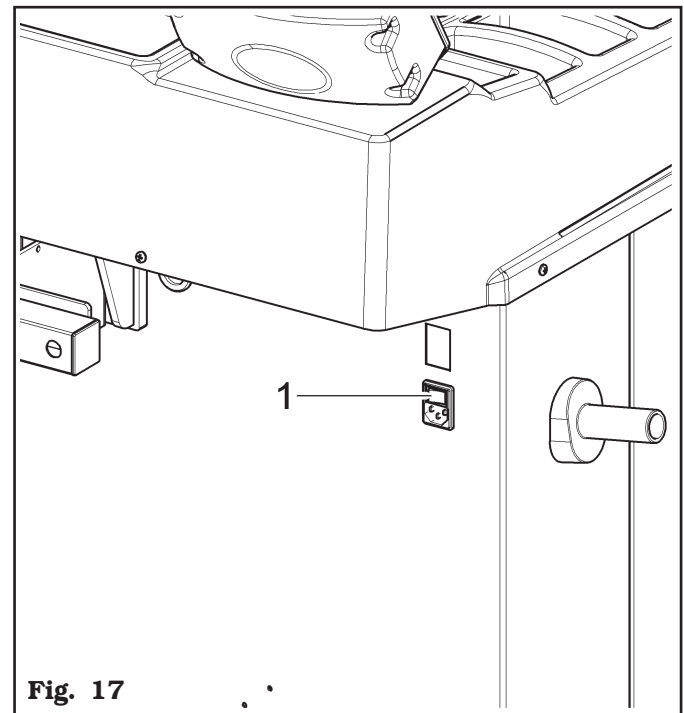

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Fig. 17

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11.0 AIR CONNECTION

On models with pneumatic chuck

⚠️ **ANY PNEUMATIC INTERVENTION MUST BE CARRIED OUT BY PROFESSIONALLY 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. 18**).

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

Fig. 18
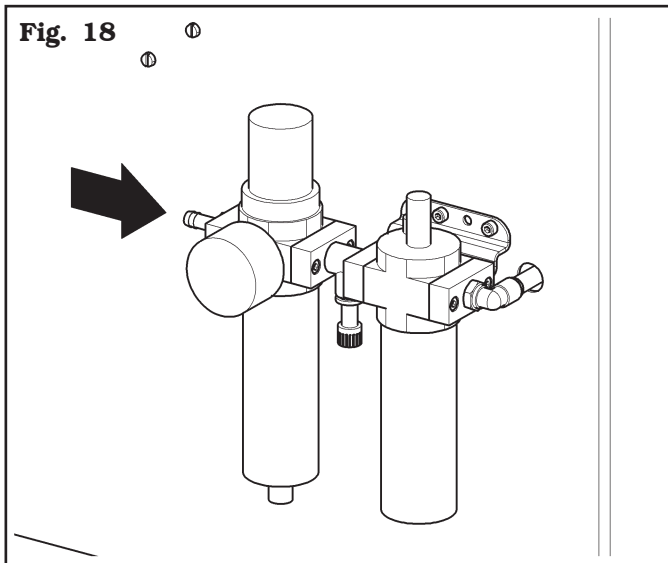
12.0 FITTING THE WHEEL ON THE CHUCK

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 Fitting the wheel on threaded chuck

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.

Fig. 19
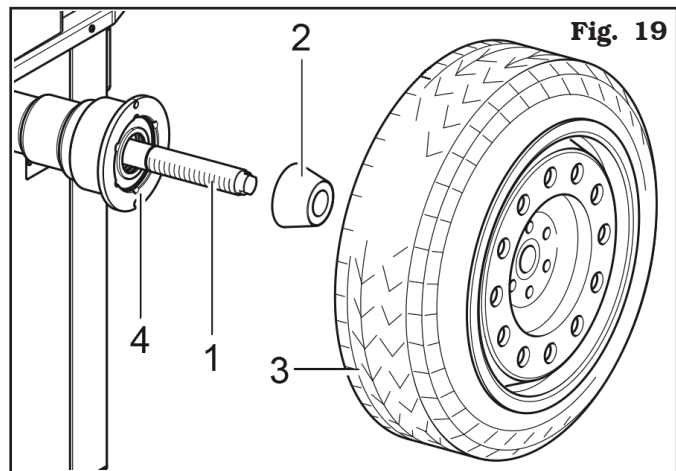
4. Fit the protection cap (**Fig. 20 ref. 1**) in the locknut (**Fig. 20 ref. 2**) and fasten against the wheel.
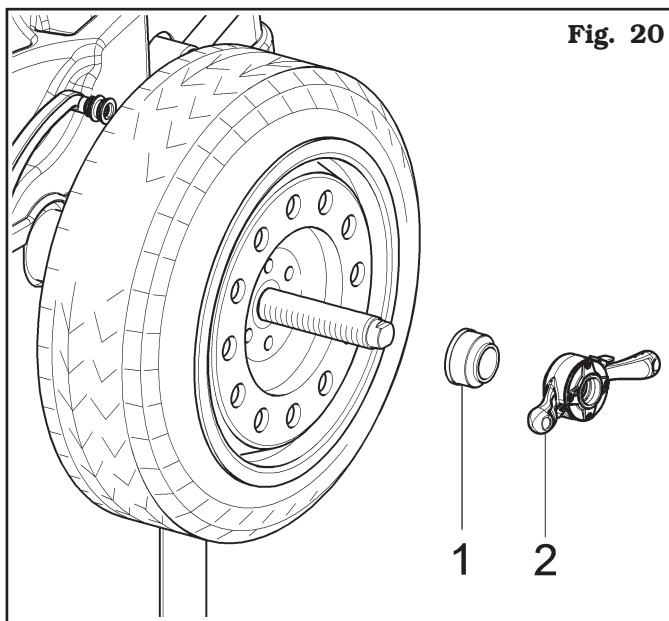
Fig. 20

1   2

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

5. Clean the chuck (**Fig. 21 ref. 1**) before fitting the wheel.

6. 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**).

3

2   1

Fig. 21
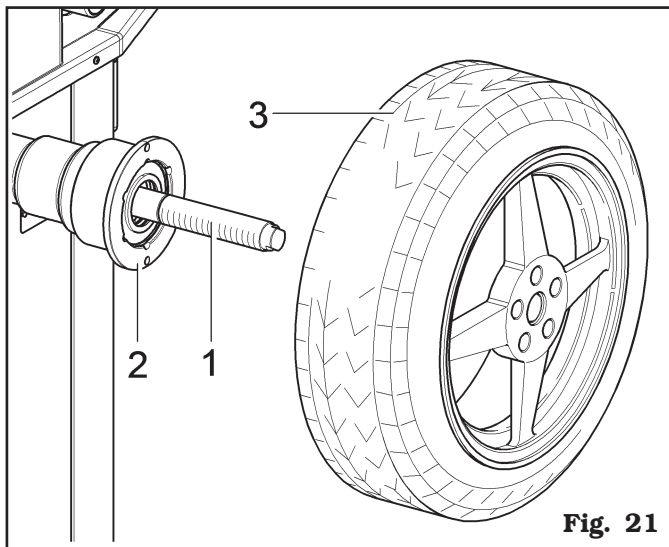
7. Fit the cone (**Fig. 22 ref. 3**) with the narrowest part turned towards the wheel.

8. Fit the pressure ring (**Fig. 22 ref. 1**) in the nut (**Fig. 22 ref. 2**) and fasten the cone (**Fig. 22 ref. 3**).

3   1   2
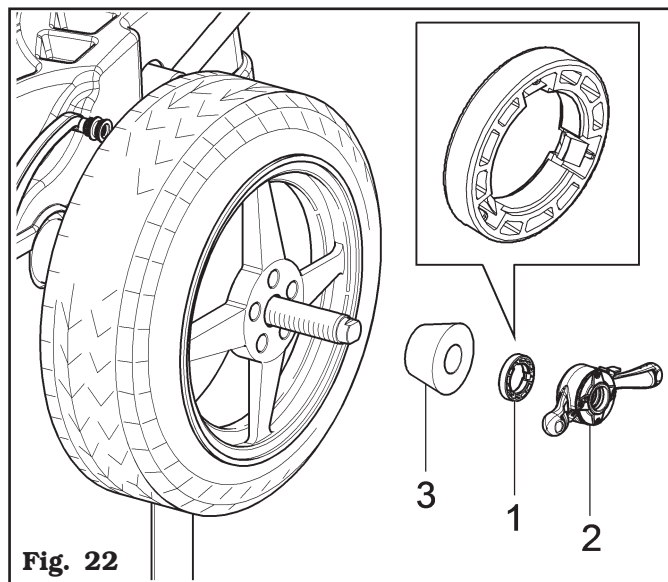
Fig. 22

> **THE PRESSURE RING (FIG. 22 REF. 1) MUST BE MOUNTED WITH THE TEETH OR DISCHARGE SIDE TOWARDS THE RING-NUT (FIG. 22 REF. 2).**

12.2 Fitting the wheel on pneumatic chuck

Open the pneumatic chuck by pressing "F4 key"

 from the configuration screen play (**Fig. 103**), or else open by means of the special pedal, see **Fig. 23**.

Fig. 23

Open/close the pneumatic chuck
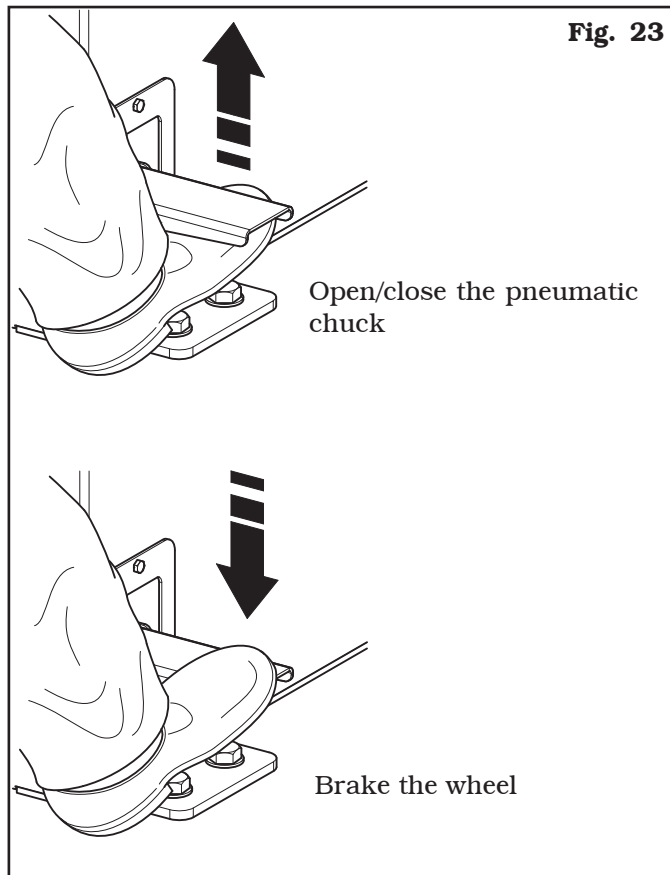
Brake the wheel

1. Remove any type of foreign body from the wheel (**Fig. 24 ref. 3**): pre-existing weights, stones and mud, and make sure the chuck (**Fig. 24 ref. 1**) and the rim centring area are clean before fitting the wheel on the chuck.

2. Carefully choose the cone (**Fig. 24 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. 24 ref. 3**), fitting the cone (**Fig. 24 ref. 2**) on the chuck (**Fig. 24 ref. 1**): be careful (otherwise this could seize) until this rests against the support flange (**Fig. 24 ref. 4**).

3. Fit the wheel with the inner side of the rim towards the wheel balancer and against the cone.


Fig. 24

4. Fit the protection cap (**Fig. 25 ref. 1**) in the bush (**Fig. 25 ref. 2**) and bring everything against the wheel.

Fig. 25

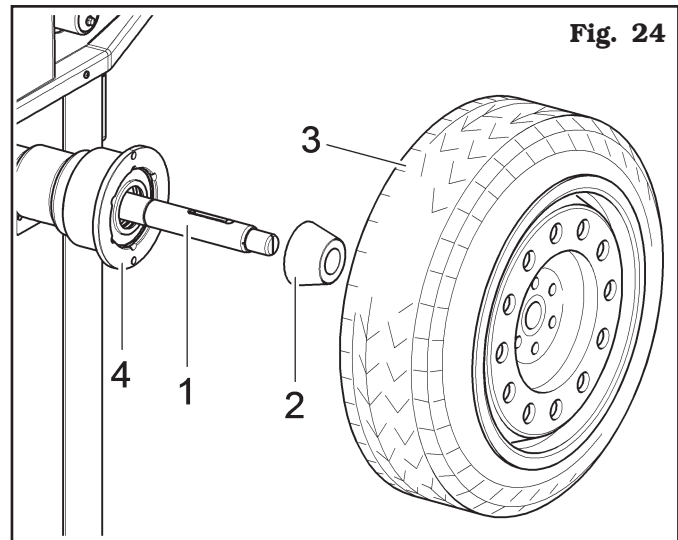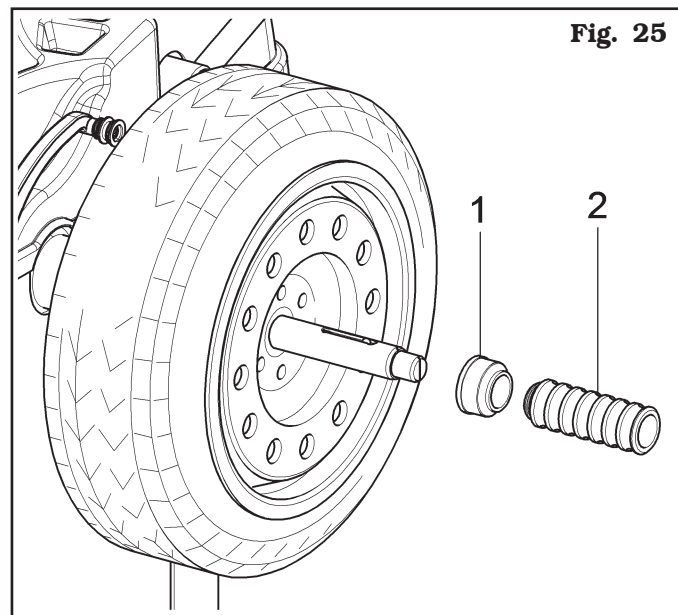Lift the control pedal to close the chuck and then clamp the wheel.

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

5. Clean the chuck (**Fig. 26 ref. 1**) before fitting the wheel.

6. Fit the wheel (**Fig. 26 ref. 3**) with the inside of the rim towards the wheel balancer, until the wheel is up against the support flange (**Fig. 26 ref. 2**).
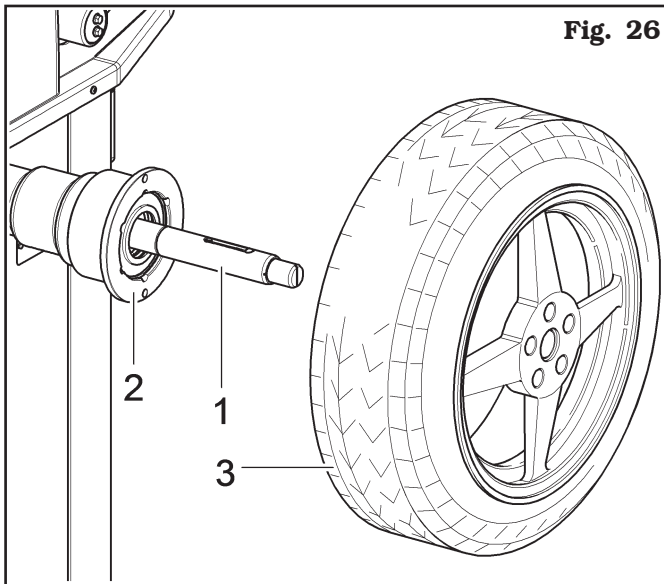
Fig. 26

7. Fit the cone (**Fig. 27 ref. 3**) with the narrowest part turned towards the wheel.

8. Fit the pressure ring (**Fig. 27 ref. 1**) in the bush (**Fig. 27 ref. 2**) and bring everything against the wheel.
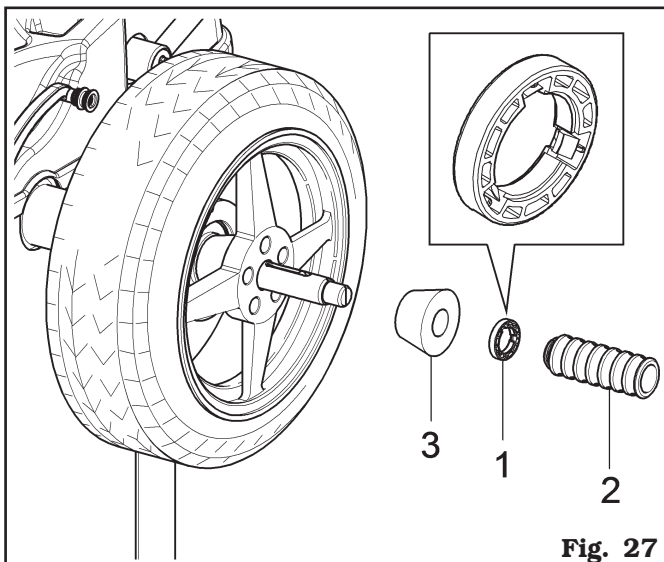
Fig. 27

THE PRESSURE RING (FIG. 27 REF. 1) MUST BE FITTED WITH THE TEETH OR DISCHARGE SIDE FACING THE LOCKING SLEEVE (FIG. 27 REF. 2).

Close the pneumatic chuck by pressing "F4 key" from the configuration screen play (**Fig. 103**), or else close by means of the special pedal.

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

12.3 Adjustment of ultrasound sensor support (standard on some models)

Ultrasound sensor support (**Fig. 28** and **Fig. 29 rrf. 1**) must be used in the "fully-lowered" position, as shown in **Fig. 28**.
However with wheels with great diameter, you can set it higher so that the wheel can be mounted easily onto the chuck (see **Fig. 29**).
In order to carry out the adjustment, just loosen the handwheel (**Fig. 29 ref. 2**) and place the support in the wished position.
At the end tighten the handwheel (**Fig. 29 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:

- slacken the handwheels (**Fig. 30 ref. 1**) fixed to the protection guard's tubular and open sensor support (**Fig. 30 ref. 2**) by making it slide in the slot (**Fig. 30 ref. 3**).

- slacken handwheel (**Fig. 30 ref. 4**)and raise sensor support (**Fig. 30 ref. 5**) then move it to the position required, as indicated in **Fig. 31 ref. 1**.
At the end tighten the handwheel (**Fig. 31 ref. 2**).
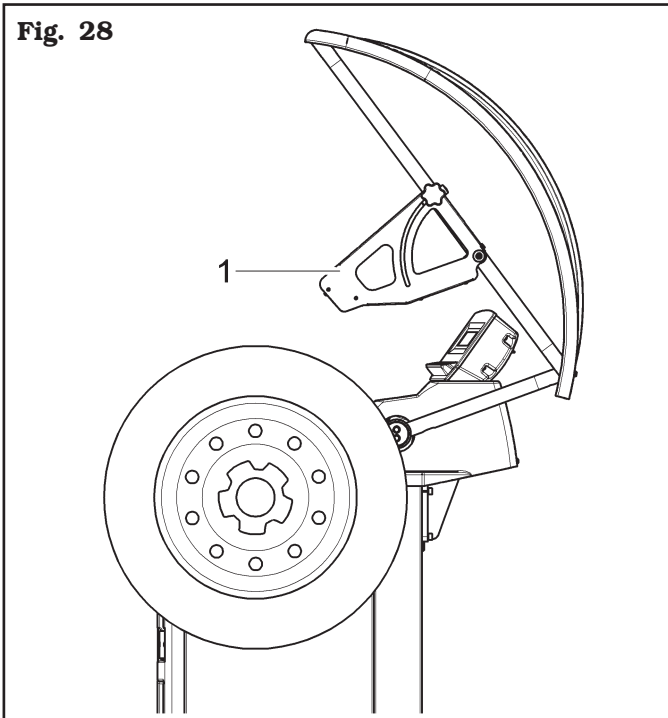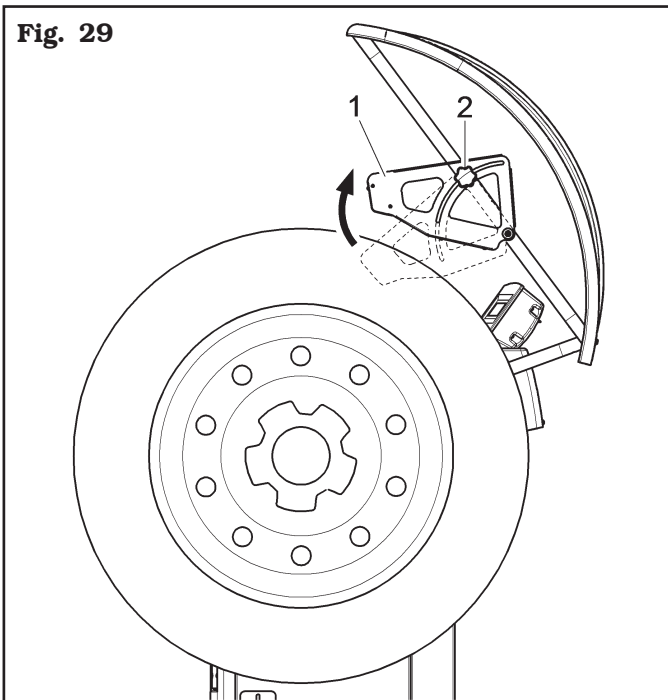

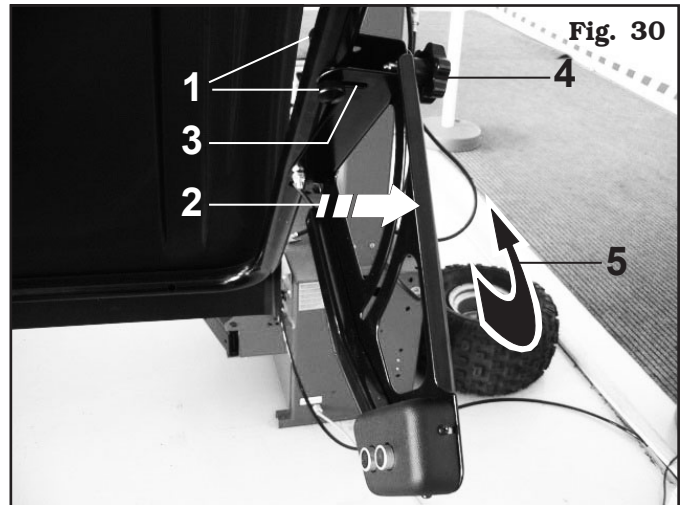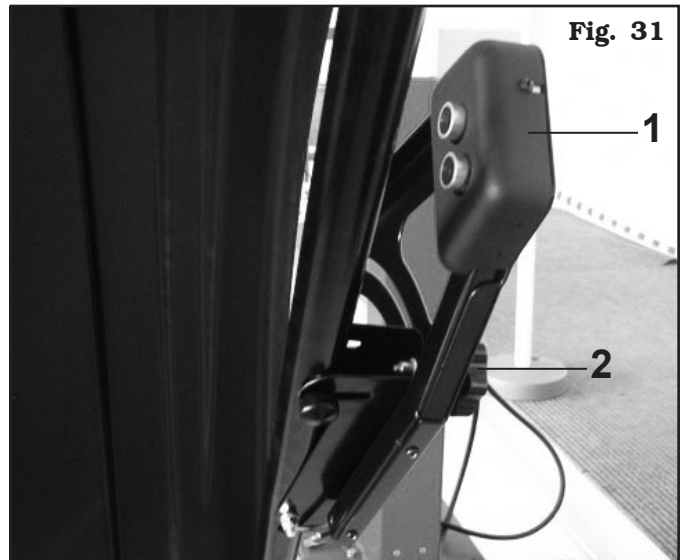Fig. 28

Fig. 29

Fig. 30

Fig. 31

13.0 DISPLAY WITH KEYBOARD

The wheel balancers are equipped with a multifunction LCD display, equipped with a keyboard to interact/operate the controls present in graphical form on the same display.

On such display are displayed all the instructions for the correct wheel balancing, for example indicating where the operator shall fit adhesive or clip weights and the balancing mode and/or option used, as well as correct wheel rotation for inner/outer weights positioning.
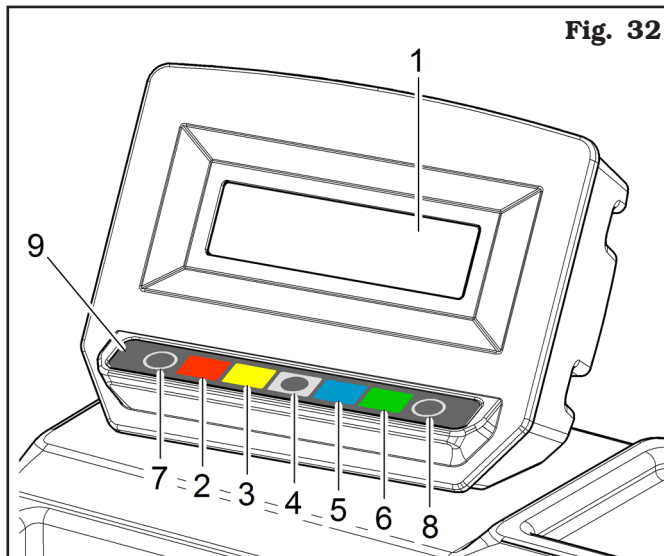
Fig. 32

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

13.1 Brightness and contrast adjustment

From the first page of the program, by keeping the push button (**B**) (**Fig. 33 ref. 3**) pressed, push push button (**F4**) (**Fig. 33 ref. 2**) repeatedly in order to raise brightness/contrast or push push button (**CENTR**) (**Fig. 33 ref. 1**) repeatedly in order to lower brightness/contrast.

Try to find the best settings, going across the all steps, because the settings can pass through clear, dark and again clear.

> **ⓘ** **THE ADJUSTMENT REMAINS ALSO AFTER MACHINE SHUTDOWN.**

Fig. 33

14.0 SWITCHING THE MACHINE ON AND OFF

The ON/OFF main switch is located on the rear of the machine.

To start the machine and access the program, switch on the system by turning the main switch.

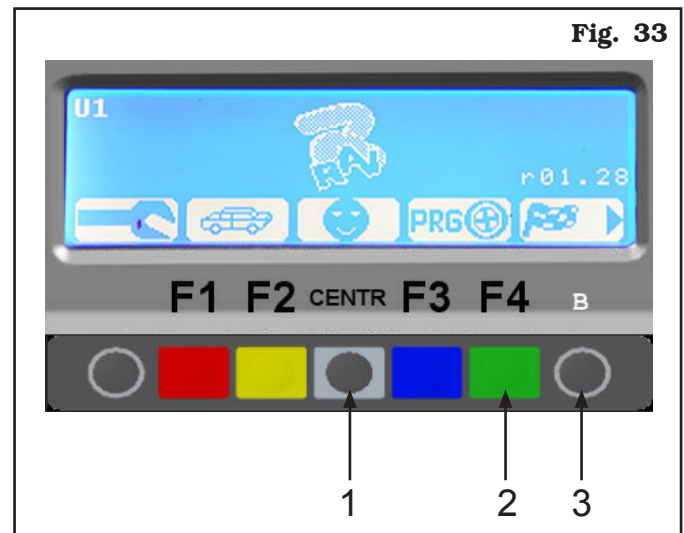⚠️ IN THE CASE OF PNEUMATIC MODELS, ON STARTING UP, THE PNEUMATIC CHUCK IS ALWAYS OPENED. ALWAYS KEEP YOUR HANDS AND OTHER PARTS OF THE BODY AWAY FROM THE MOVING CHUCK. ALSO TAKE CARE IF A WHEEL IS ALREADY FITTED ON THE CHUCK, AS THIS COULD BE FORCED OFF THE SHAFT DURING CHUCK OPENING.

Wait a few seconds for the operating program to load and for the first program page to appear on the display screen (see **Fig. 34**).

The monitor shows various types of information and presents the user with numerous operation options.

Fig. 34
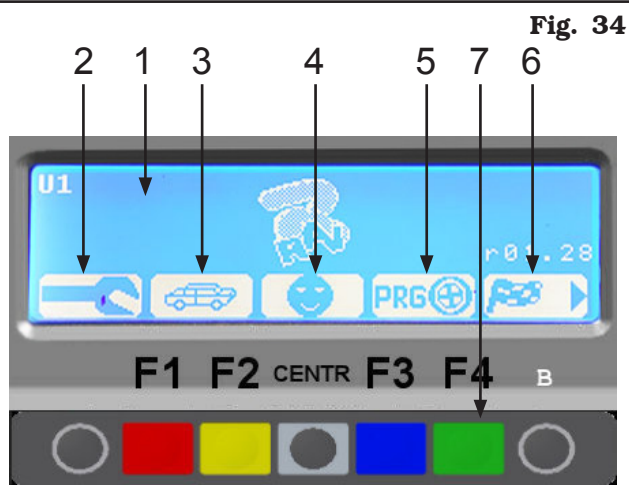
KEY

1 – Start page

2 – Display of program configuration screen play (RED) (F1)

3 – Display of car or motorcycle mode (YELLOW) (F2)

4 – Display of the tests of the different users (4 different users are managed) (Par. 14.2) (CENTRAL)

5 – Display of auxiliary programs modes (Par. 14.4) (BLUE) (F3)

6 – Performs wheel spin with protection guard closed (GREEN) (F4)

7 – Program operation key

By means of the 6 keys of the operating keyboard (F1-F2-CENTR-F3-F4-B) all the machine functions can be used.

During program running, the various display pages show the different keys by means of which the corresponding function can be immediately selected.

Many display pages contain several rows of keys. In this case, the next row of keys can be displayed by means of the key corresponding to the icon ⬚.
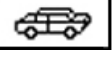
To go back and display the previous row of keys, press the key corresponding to the icon ⬚ or in some cases ⬚.

By pressing the "F2" key, the measurement mode can be changed from car to motorcycle and vice versa.

The symbol "⬚" which appears on the screen on the first page indicates that the machine is in CAR mode and the symbol ⬚ indicates MOTORCYCLE mode.

By using "CAR" mode ⬚ and "MOTORCYCLE" mode ⬚ wheels can be balanced with a max. static or dynamic unbalance of 300g.

The indicated resolution is 5 g, however by pressing "Centr" key ⬚ the unbalance can be displayed with a maximum resolution of 1 g.

In "CAR" mode ⬚ and "MOTORCYCLE" mode ⬚ "MATCHING" procedure (Rim-tyre optimization; see Chapt. 19), SPLIT (see Chap. 17) and WEIGHTS HIDDEN BEHIND SPOKES (see Chapt. 18) procedures can be performed.

ALL AUXILIARY functions (see Par. 15.4) can also be selected in "CAR" mode ⬚ only.

ℹ️ IN ORDER TO FIT SPECIAL WHEELS ON THE BALANCER SHAFT, THE SPECIFIC CONES, FLANGES AND RING NUT WILL BE REQUIRED SUPPLIED SEPARATELY AS ACCESSORIES.

15.0 WHEEL BALANCING

Symbols on display

Outer side of the rim (wheel balancer side)

Inner side of the rim

Outer side of the rim
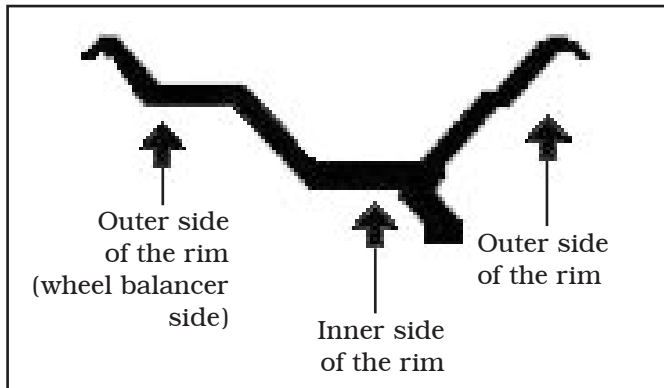
15.1 Setting of balancing programs and wheel size measuring

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

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

- bring into contact the weights fitting gripper with the inner part of the rim (1 contact only) to select the program "STATIC" (see **Fig. 35**).

Fig. 35

REPEATEDLY BRINGING THE GAUGE ARM (FIG. 36 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 36 REF. 2), THE PROGRAM WILL CYCLE FROM "STATIC" TO "STATIC 1" TO "STATIC 2" THEN RETURNING TO THE BEGINNING.

Fig. 36

1

2
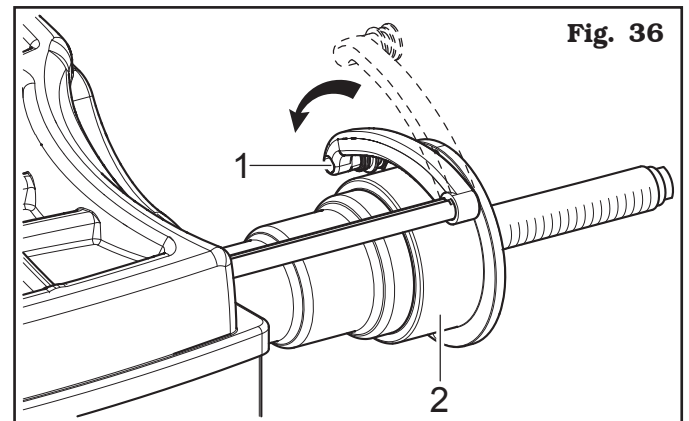
- bring into contact the weights fitting gripper with the inner part of the rim (2 contact points) (see Fig. **Fig. 35**) to select "ALU-S" program.

> ℹ️ **REPEATEDLY BRINGING THE GAUGE ARM (FIG. 36 REF. 1) IN CONTACT WITH THE CHUCK (FIG. 36 REF. 2), THE PROGRAM WILL CYCLE FROM "ALU-S" TO "ALU-S1" TO "ALU-S2" THEN RETURNING TO THE BEGINNING.**

> ℹ️ **WHENEVER THE EXTERNAL DATA GAUGE (SEE FIG. 37) (IF ANY) IS KEPT IN POSITION FOR A FEW SECONDS AGAINST THE RIM (UNTIL THE MACHINE MAKES AN APPROPRIATE SOUND NOTIFICATION), THE POSITION IS STORED AND THE VALUES MEASURED IN THE PRE-ARRANGED FIELDS IN THE SELECTED WHEEL BALANCING PROGRAM ARE LOADED.**


Fig. 37

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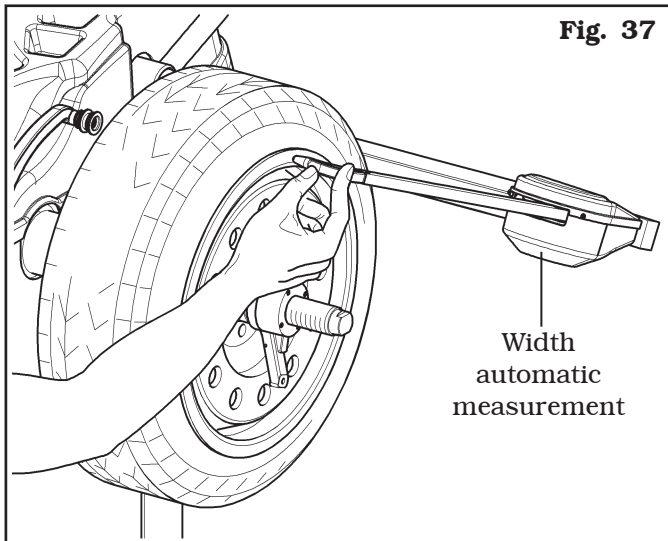
- After entering all the required measures, you can spin the wheel by pressing the button [   ] and closing the protective guard.

Standard on some models

> ℹ️ **EACH TIME THAT THE WHEEL PROTECTION GUARD (FIG. 38 REF. 1) IS CLOSED, THE AUTOMATIC WIDTH MEASURING DEVICE (FIG. 38 REF. 2) (IF PRESENT) 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.**

Fig. 38

2 1
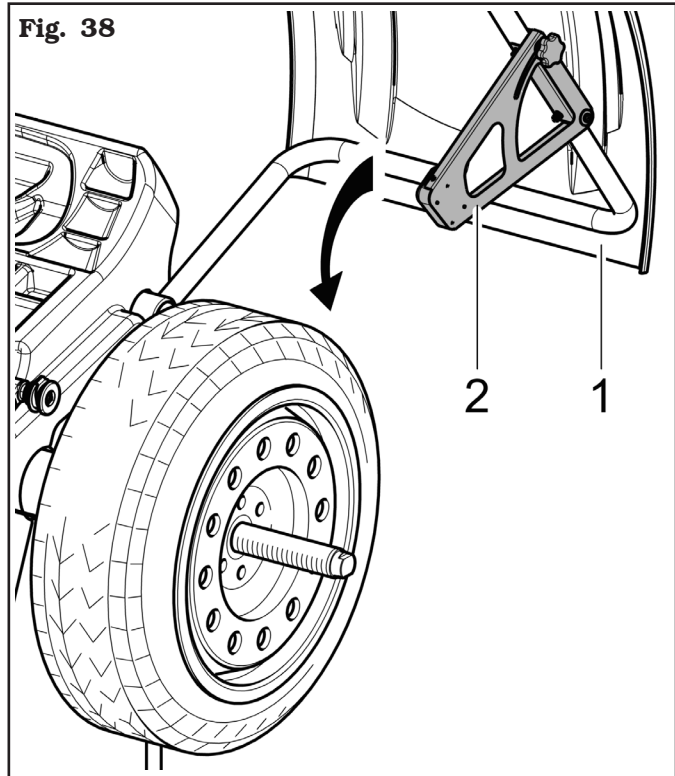
15.1.2 Automatic wheel dimension setting (distance and diameter)

The wheel balancing machines are featured with an automatic rod; a simple and precise method that permits automatically acquiring the distance from the machine and the wheel diameter at the weight fitting point. The rod itself permits correctly positioning the weights inside the wheel.

The value of rim distance from the machine is always set with a "mm" measurement unit.
The width and diameter values on the other hand can be set in "inches" or "mm"; in the examples in this manual "inches" are used.
The automatic rod, for storing the diameter and distance values, is started when it is removed from its initial position.

- **To make a measurement in DYNAMIC mode:**

  Take out the automatic rod, the program goes directly from the start screen page to the screen page illustrated below (**Fig. 40**).
  Move the automatic rod against the rim inner edge (**Fig. 39**) in measurement position, and maintain that position for a few seconds; measurement will be acquired when the detected value is displayed (static mode) (see **Fig. 40**).

Fig. 39

Mode   Width insertion   Fig. 40

Acquired measure
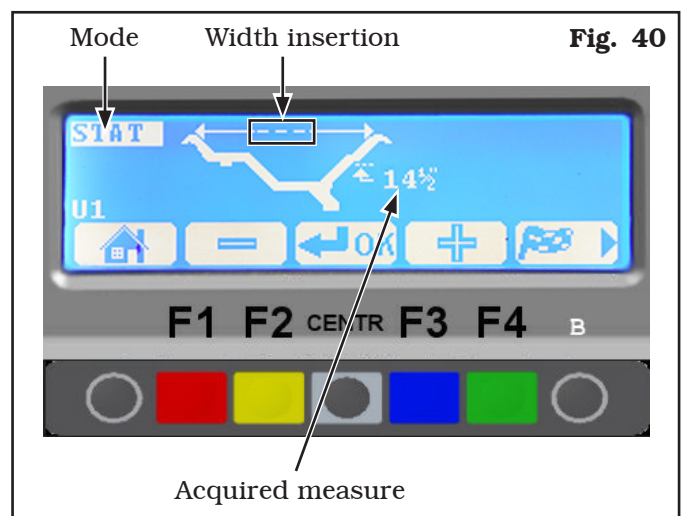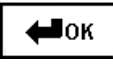
Enter the wheel width.
If the automatic external data gauge is not available, the operator first will have to highlight the width area by pressing "OK" ⬅OK ; afterwards he must press "LESS" ▬ or "MORE" ✚ keys until the desired width value is reached (see **Fig. 44**). Input the nominal width shown on the rim, or manually check by using the graduated caliper, positioning it on the outer and inner side of the wheel as shown in **Fig. 41**. In this case, the measure must be set to be reduced to ¼ inch.

G2.124NR - G2.124RBMW - GP2.124NR - G2.124NWSPLUS

MANUAL CALIPER Width manual detection
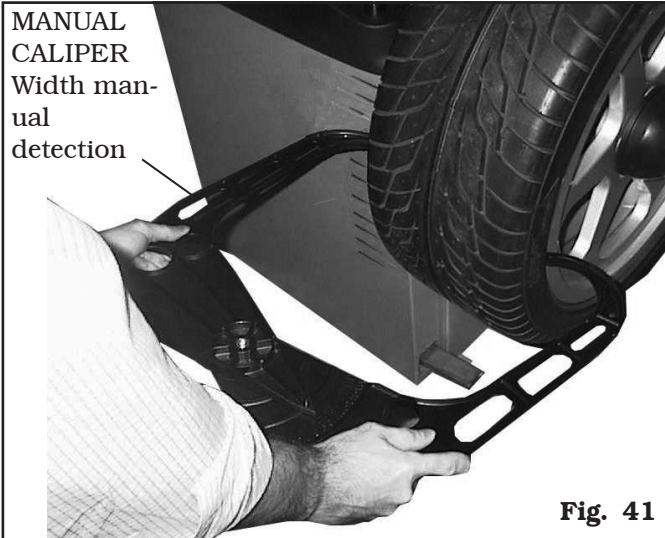
Fig. 41

If on the other hand, the external data gauge is available (optional), position the pointer of the measuring device against the outer edge of the rim (see **Fig. 42**). The measurement will have been acquired when the detected value is displayed (see **Fig. 44**).

Fig. 42

Width automatic measurement

Standard on some models

In case of automatic width measuring device (**Fig. 43 ref. 2**), it is not necessary to enter the size of the wheel before spinning.

EACH TIME THAT THE WHEEL PROTECTION GUARD (FIG. 43 REF. 1) IS CLOSED, THE AUTOMATIC WIDTH MEASURING DEVICE (FIG. 43 REF. 2) (IF PRESENT) MEASURES THE WIDTH OF THE WHEEL FITTED ON THE CHUCK AND PERFORMS THE SPIN. THE RELEVANT VALUE IS STORED AUTOMATICALLY IN THE PRE-ARRANGED FIELD OF THE CHOSEN BALANCING PROGRAM.

Fig. 43

2   1

Once wheel width has been acquired and entered, the program prepares for dynamic mode measuring (see **Fig. 44**).

Dynamic mode

Fig. 44

DYN   115→   6"   15"   U1

F1 F2 CENTR F3 F4   B

Width measurement acquired

• **To measure in ALU-S and STATIC modes:**

Pull out the automatic rod and reach the position to be stored (see **Fig. 69**), maintain this for a few seconds. The indication of the acquired measurement for the first point is given by the display of the diameter where the weight should be fitted (static mode, **Fig. 45**). Without moving the gauge back to initial position, further remove the automatic rod and reach the position to be stored for the second point. Remain still for a few seconds. The indication of the acqu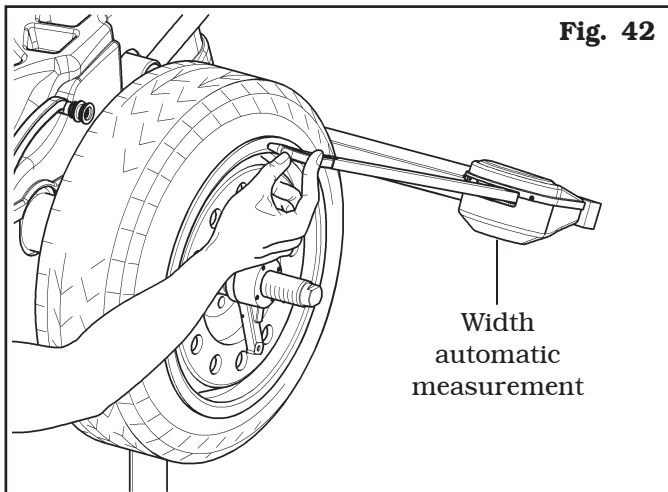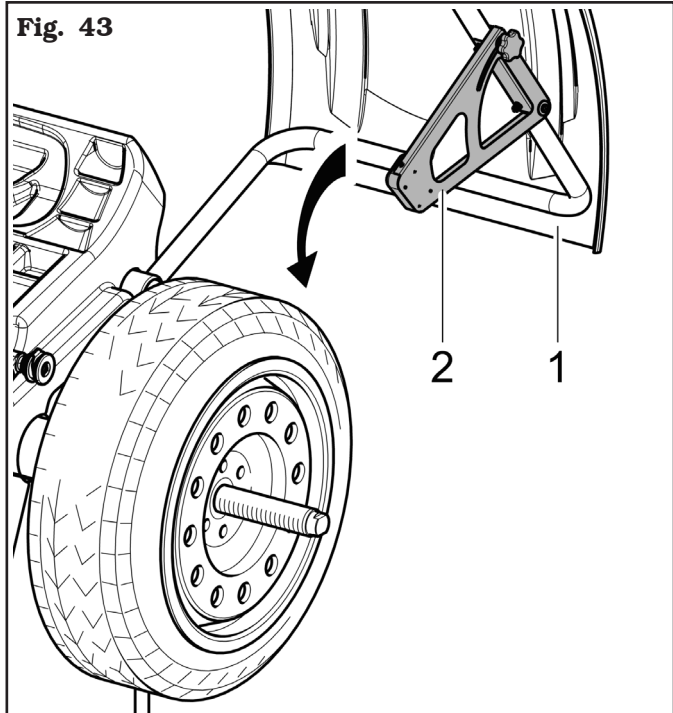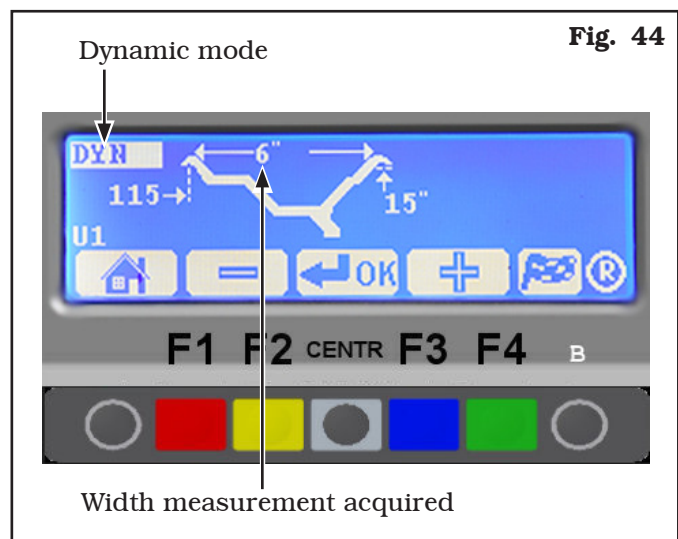ired measurement for the second point is given by the display of the detected values for both weights fitting (**Fig. 46**).

In this case, the width (the distance at which the weights are positioned) is stored automatically. This measurement can be changed manually (see Par. 15.1.2).

STATIC mode

Fig. 45

Acquired measure (display of rim diameter where the weight should be fitted)

ALUS mode

Fig. 46

Acquired measures for both weights fitting
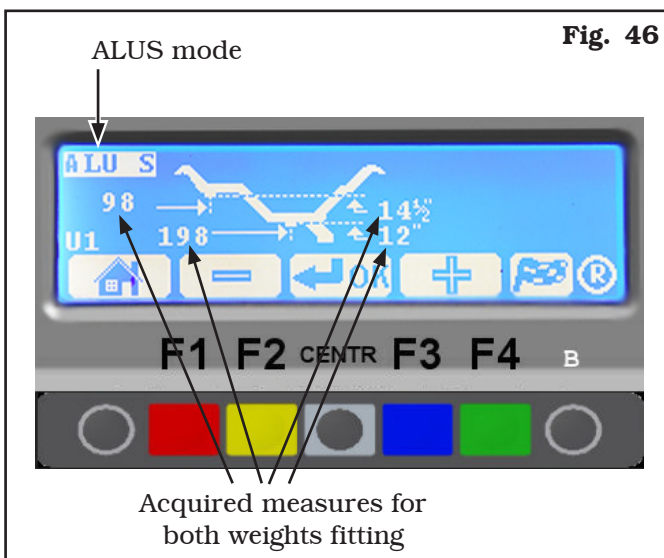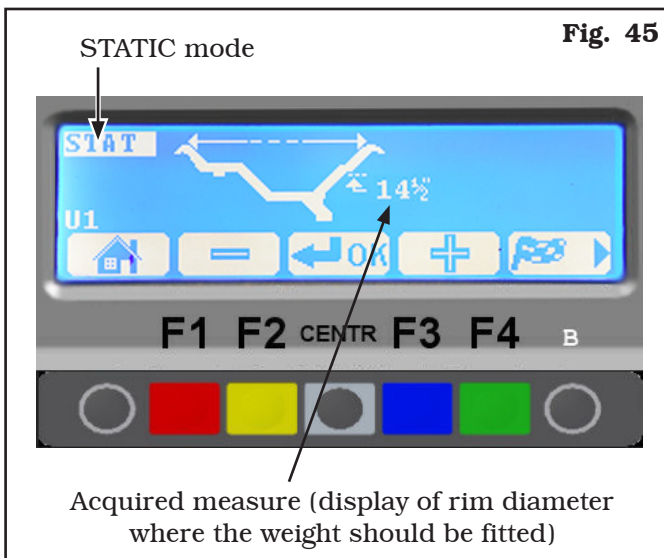
• **To take a measurement in STAT 1 and STAT 2 modes:**

Press "F3 key" **PRG⊕** from the start screen page, choose the mode to be executed by pressing "F3 key" ✚ or "F2" ▬ (e.g. STAT 1; **Fig. 47**). Pull out the automatic rod and reach the position to be stored inside the rim or on the edge and maintain it for a few seconds. The indication of the acquired measurement is given by the display of the detected rim diameter, where the weight should be fitted.

Selected balancing mode

Fig. 47

Acquired measure (display of rim diameter where the weight should be fitted)
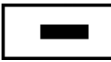
• **To measure in ALU S1 and ALU S2 modes:**
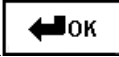
Press "F3 key" **PRG⊕** from the start screen page, choose the mode to be executed by pressing "F3 key" ✚ or "F2" ▬. Pull out the automatic rod and reach the position to be stored inside the rim or on the edge and maintain it for a few seconds. Without moving the gauge back to initial position, further remove the automatic rod and reach the position to be stored for the second point. Remain still for a few seconds. The indication of the acquired measurement for the second point is given by the display of the detected values for both weights fitting (see figure below).

ALU S1 mode

Acquired measures
for both weights fitting
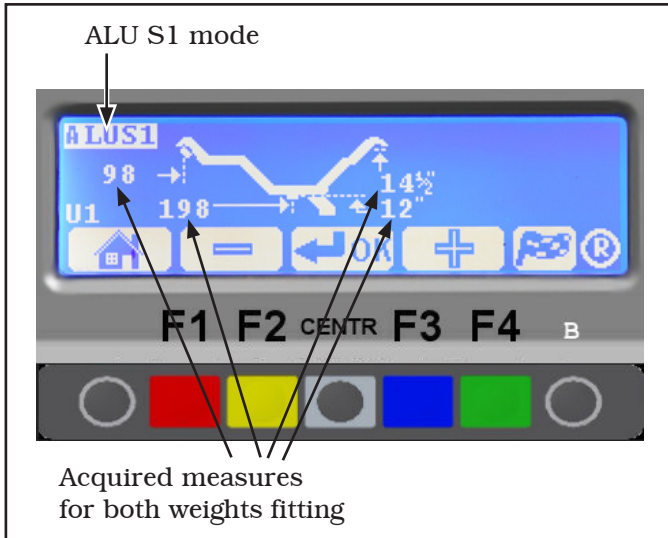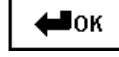
• **To take a measurement in ALU1, ALU2, ALU3 and ALU4 modes:**

Press "F3 key" PRG⊕ from the start screen page, choose the mode to be executed by pressing "F3 key" ➕ or "F2" ➖ (e.g. ALU 3; **Fig. 48**). Rem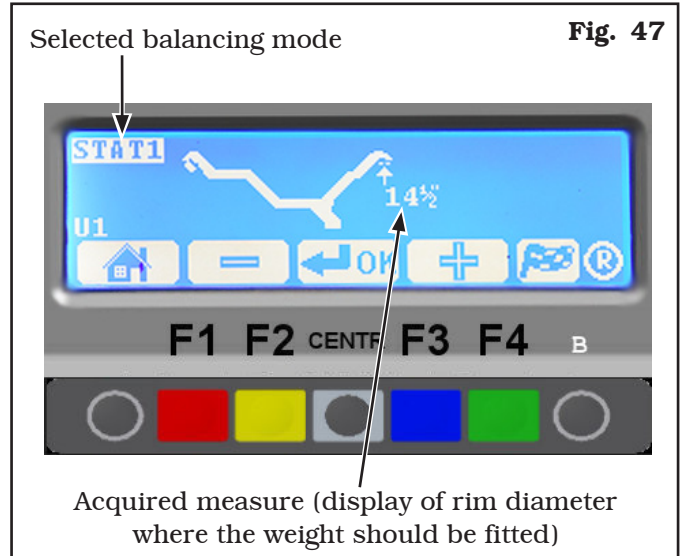ove the automatic rod and reach the position to be stored. Maintain this position for a few seconds. The indication of the acquired measurement for the first point is given by the display of weight fitting measurements. The second weight positioning point is calculated by the machine (inside the rim).

Fig. 48

Acquired measures
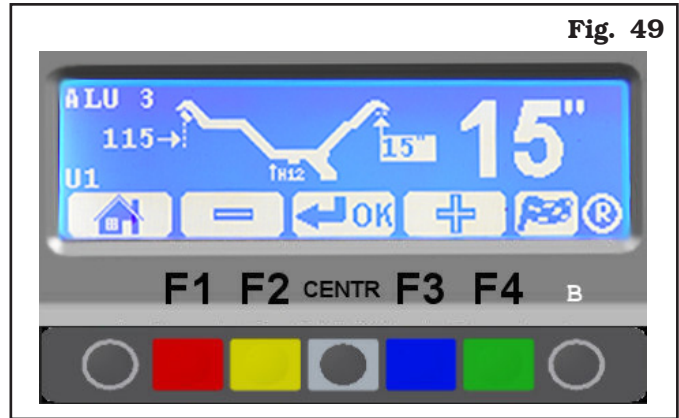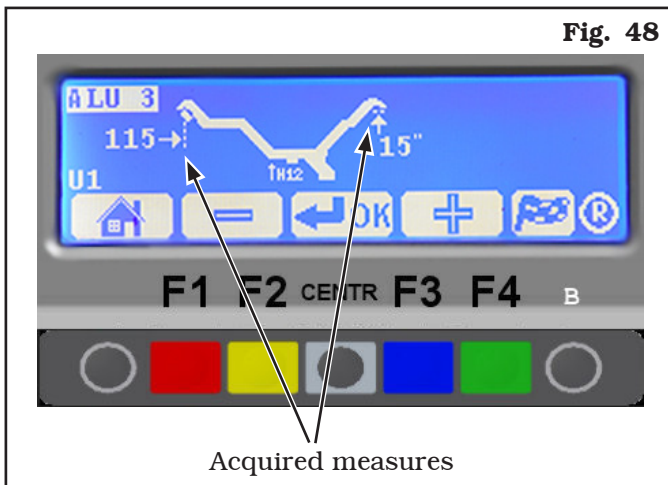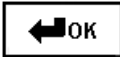
Fig. 49

To change manually the entered values, the operator must press "CENTR key" from ↵OK **Fig. 48**. Rim diameter value will be highlighted (see **Fig. 49**).

The operator must press the "LESS" ➖ or "MORE" ➕ keys until the desired width value is reached.

Press again "CENTR key" ↵OK to highlight distance value.

The operator must press the "LESS" ➖ or "MORE" ➕ keys until the desired width value is reached.
To confirm all the entered measurements, press "CENTR key" again ↵OK. The program will show the screen page in **Fig. 50**.

Fig. 50

Dimensions entered
and confirmed
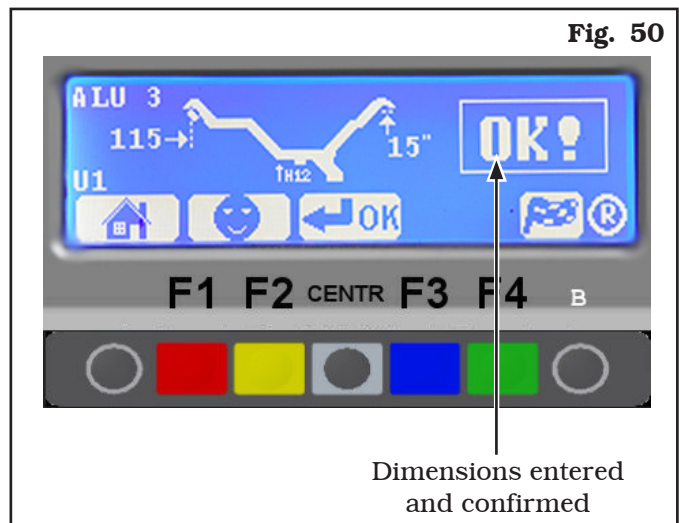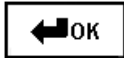
15.1.3 Manual setting of wheel dimensions
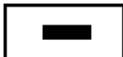
Apply to car/motorcycle

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

- from the screen page of the dimensions automatically detected (for instance **Fig. 40** and **Fig. 44**) press "centr key" [←OK] to select the value to be modified or to be set;

- the display will show the selected value on a white background and, on the right, the same value in large types (**Fig. 51** and **Fig. 52**);

- enter the desired dimension by pressing "LESS" [—] or "MORE" [+] keys until the desired value is reached.

Press "centr key" [←OK] to confirm and to move to the next value.

Example of DYNAMIC mode:
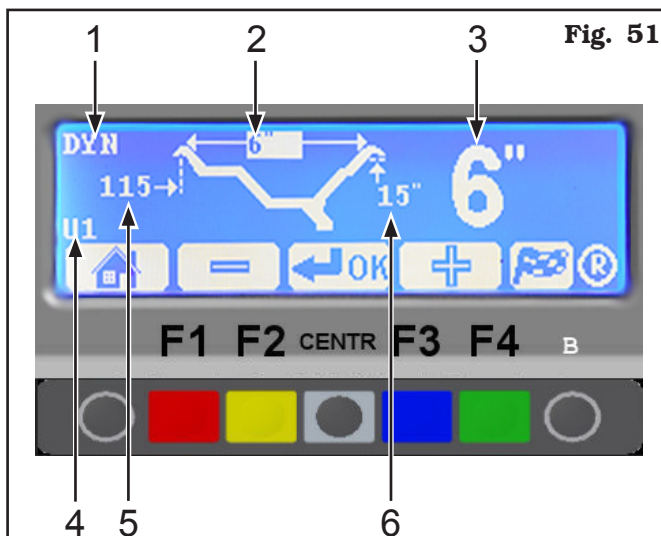
Fig. 51

KEY
1 – Selection mode
2 – Rim width (selected dimension)
3 – Selected dimension displayed in large types
4 – N° of current user
5 – Weight fitting distance value
6 – Weight fitting diameter

Example of ALU-S mode:
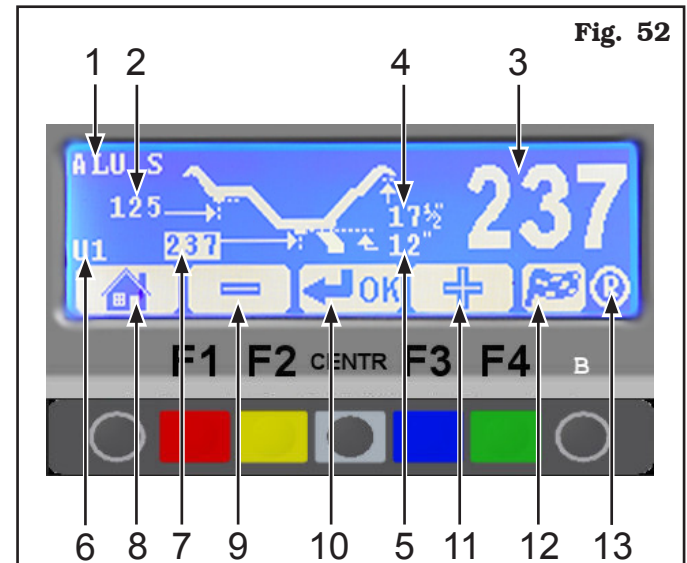
Fig. 52

KEY
1 – Selection mode
2 – Distance value for 1st weight fitting
3 – Selected dimension displayed in large types
4 – 1st weight fitting diameter
5 – 2nd weight fitting diameter
6 – N° of current user
7 – Distance value for 2nd weight fitting
8 – Return to previous screen page (RED) (F1)
9 – Decrease of selected dimension value (YELLOW) (F2)
10 – Select the entered values and confirm (CENTR)
11 – Increase the selected dimension values (BLUE) (F3)
12 – Performs wheel spin with protection guard closed (GREEN) (F4)
13 – Function key used for recalculation program (B) (Par. 15.5)

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15.2 User control function

To select user management, select the following key on the presentation page.

Wheel balancers can be used by 4 different users at the same time, by selecting the above indicated key several times, until the desired user is reached.
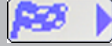
When the user key is pressed, the current user number appears on the display screen (U1, U2, U3 and U4 in car mode or M1, M2, M3 and M4 in motorcycle mode). The system stores the data relating to the last performed spin according to the different operators. The desired user can be called every time the program displays the specific key. The measurements stored for each user are lost when the machine is switched off. User management is valid for any wheel balancer function.

> ⚠️ **TO ENABLE OR DISABLE "USER CONTROL" FUNCTION, SEE CHAP. 20. ONCE THIS FUNCTION HAS BEEN DISENGAGED, BY PRESSING "USER KEY F3" ON THE PRESENTATION PAGE, THE ONLY CURRENT USER APPEARS ON THE TOP LEFT OF THE MONITOR, "U" INDICATES CAR MODE, WHILE "M" INDICATES MOTORCYCLE MODE.**

15.3 Unbalance measurement

> ℹ️ **AT THE END OF THE WHEEL SPIN, IF ICON 🏁▶ WILL BE REPLACED WITH ICON ⬇️, BY PRESSING THE LAST ONE, IT IS POSSIBLE TO CYCLICALLY PLACE THE WHEEL IN THE INNER/ OUTER WEIGHTS FITTING POINT AND VICE VERSA.**

15.3.1 Dynamic balancing

DYNAMIC balancing is a procedure that offsets the wheel vibrations using 2 weights on different planes.
To perform a DYNAMIC measurement spin:
- make sure there are no stones and/or mud on the wheel;
- remove any counterweights;
- fit the wheel and make sure it is properly fastened (see Chap. 12).

Enter the wheel measurements (Par. 15.1) and close the protection guard to perform the automatic wheel spin. If the protection guard is already closed, press ▶🏁 key to perform wheel spin manually.

In just a few seconds, the wheel runs at normal speed and the wheel balancer display shows wheel rotation (see **Fig. 53**).

After the spin, the wheel stops automatically, also taking into account the measured unbalance so that the fitting position of the outer weight is **exactly at "12 o' clock"**. Open the protection guard.

Fig. 53

Press in case of emergency

The display unit indicates the direction in which to move the wheel to fit the weights and how much weight is needed to correct the unbalance (see **Fig. 54**).

Weight can be determined in "grams" or "ounces"; in this manual examples are shown in grams. To change the unit of measurement from "grams" to "ounces", see Chap. 20.

Once the unbalance of the inside and outside of the wheel is known, it is possible to proceed with positioning for correction of unbalance (Par. 15.3.2).

Fig. 54

KEY

1 – Total inner weight

2 – Arrows to help positioning in correction weight fitting point

3 – Total outer weight

4 – Return to initial program phase (RED) (F1)

5 – Selected **once**: display next row of keys (MATCHING function) (Chapt. 19) Selected **2 twice**: display next row of keys (static unbalance, see **Fig. 55**) (YELLOW) (F2)

6 – Displays exact unbalance (resolution 1 g instead of 5 g) (CENTRAL)

7 – Display of auxiliary programs modes (Par. 14.4) (BLUE) (F3)

8 – Performs wheel spin with protection guard closed (GREEN) (F4)

Fig. 55

KEY

1 – Return to initial program phase (RED) (F1)

2 – Display next row of keys (YELLOW) (F2)

3 – Displays the static unbalance (see Par. 15.3.4)

15.3.2 *Positioning the correction weights on the wheel*

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

When the wheel balancer display screen shows 🔺 or

🔺 this means you are **very far** from the point where the counterweight is to be positioned.
Wheel position is over 30° from the exact fitting point.
When the wheel balancer display screen shows 🔺 or
🔻 this means you are **not far** from the point where the counterweight is to be positioned.
Wheel position is within 30° from the exact fitting point.
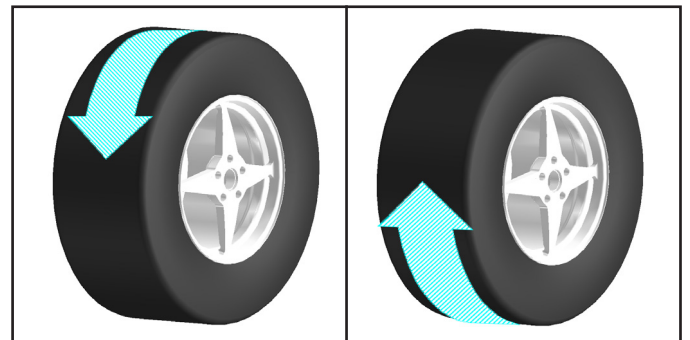
When the wheel balancer display screen shows ▶

and ◀ the **exact position** has been reached for one side and for the other. The fitting point has been found. Now the unbalance can be corrected by fitting the necessary weight.
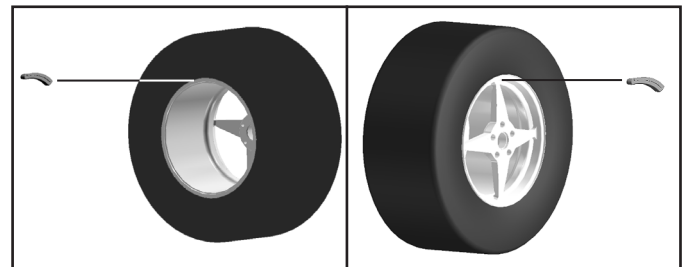
Once the wheel has been correctly positioned, fit the weight indicated by the machine on both sides of the wheel. The program automatically indicates the best weights to be fitted and rounds these off according to their position.

Should wheel dynamic unbalance be quite high and the weight to be fitted not available, the SPLIT procedure can be used so as to correct the dynamic unbalance dividing the weight amount into two smaller weights (Chapt. 17).

After fitting the weights, check the wheel balancing conditions and make a trial spin.

The STANDARD unbalance calculation procedure is now completed.

15.3.3   Balancing mode

The machine has the ability to perform the wheel balancing (weights fitting):

- using the distance-diameter caliper arm with weights fitting grippers;
- using the laser at "6 o'clock"
- weights fitting at "6 o'clock" (without the use of lasers)
- weights fitting at "12 o'clock" (with the use of lasers) (optional)

• **Weights fitting with distance-diameter caliper arm.**

1. Place the adhesive weight on the arm grippers.

2. Pull out the gauge until the arrows ▶ ◀ indicate the exact point where the weight should be fitted.

3. Rotate the gauge arm until the weight touches the rim.

4. Bring the distance-diameter caliper arm into resting position.

5. Change weight fitting side, by rotating the rim manually or through the repositioning button [icon] if prearranged.

6. Proceed in the same way as described in points 1-2-3.

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

• **Weights fitting with laser (at "6 hours").**

❗ TO USE THIS MODE, IT IS NECESSARY THAT THE CORRESPONDING FUNCTION ON THE USER MENU IS ENABLED (CHAPT. 20)
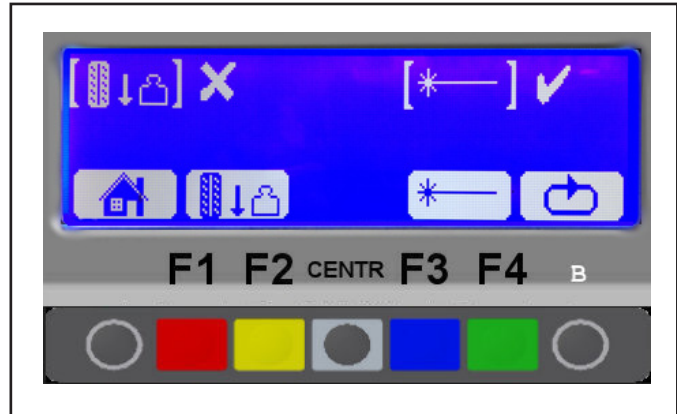
❗ TO USE THIS WEIGHTS FITTING MODE, THE OPERATOR MUST REMEMBER THE PRECISE POINT WHERE THE MEASUREMENT WAS TAKEN WITH THE DISTANCE-DIAMETER CALIPER ARM.

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

❗ MAKE SURE TO FIT THE WEIGHT (INNER OR OUTER) ACCORDING TO WHAT THE CORRESPONDING ARROW INDICATES [icon] ([icon]).
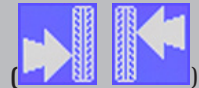
❗ USING THIS MODE, THE MACHINE ALLOWS YOU TO APPLY ANY ADHESIVE WEIGHTS THAT WOULD BE APPLIED TO "12 HOURS" TO "6 O'CLOCK". IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE ICON H12 (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO "12 HOURS".

• **Weights fitting at "6 o'clock" (without the use of lasers).**

i — TO USE THIS MODE, IT IS NECESSARY THAT THE CORRESPONDING FUNCTION ON THE USER MENU IS ENABLED (CHAPT. 20)

! — TO USE THIS WEIGHTS FITTING 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 TO "12 HOURS" TO "6 O'CLOCK". IF, AFTER YOU ENABLE THIS MODE, ON BALANCING PROGRAM APPEARED AGAIN THE ICON H12 (ONLY IN THIS CASE) THE ADHESIVE WEIGHT WILL BE APPLIED TO "12 HOURS".

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

! — MAKE SURE TO FIT THE WEIGHT (INNER OR OUTER) ACCORDING TO WHAT THE CORRESPONDING ARROW INDICATES (   ).

• **Weights fitting at "12 o'clock" (with the use of laser) (optional).**

i — TO USE THIS MODE, IT IS NECESSARY THAT THE CORRESPONDING FUNCTION ON THE USER MENU IS ENABLED (CHAPT. 20)
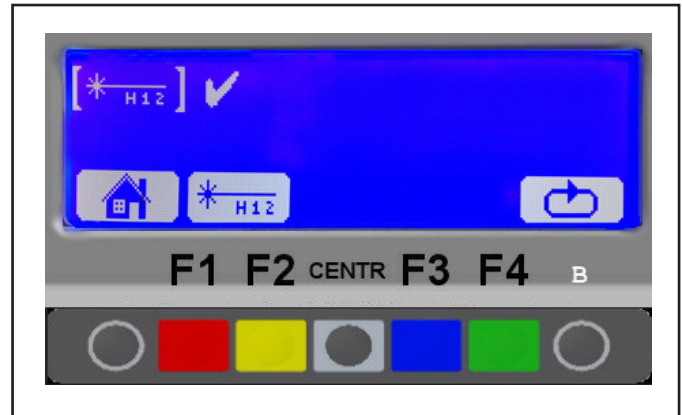
This function indicates, through the 2 laser pointers placed on the machine (frame and wheel cover), the centre line position (at "12 o'clock") of the counter-weight in the programs that require the clip weights (ex: dynamic) for the wheel balancing.

Therefore, at the end of the measuring cycle, when the wheel stops in position to fit the clip weight (arrows in position), the laser corresponding to the side to balance turns on, projecting a line onto the rim edge.

15.3.4 Wheel balancing with ALU-S program

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 Par. 12).

Determine the wheel dimensions using the specific automatic rod (see Par. 15.1.1).

After data entry, close the protection guard to automatically start wheel spin (see **Fig. 56**).

After the spin, the wheel stops automatically, taking into account the measured unbalance so that the fitting position of the outer weight is around at "12 o' clock". Open the protection guard.
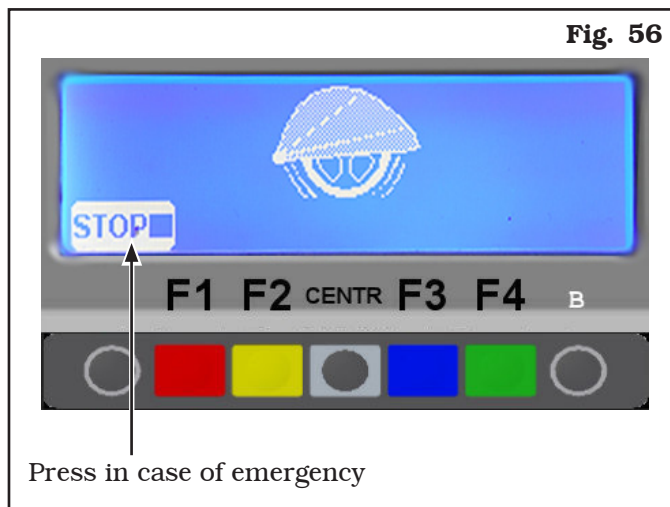
Fig. 56

Press in case of emergency

The display unit indicates the direction in which to move the wheel to fit the weights and how much weight is needed to correct the unbalance (see **Fig. 57**).

Once the unbalance value of the inner and outer wheel side is known, the wheel can be positioned by turning it in the direction indicated by the arrows until the correct position is reached (see Par. 15.3.2).

Once correct position has been reached press the pedal brake to stop the wheel.

Fig. 57

KEY

1 – Total inner weight
2 – Arrows to help positioning in correction weight fitting point
3 – Total outer weight
4 – Return to initial program phase (RED) (F1)
5 – Selected **once**: display next row of keys (MATCHING function) (Chapt. 19)
   Selected **2 twice**: display next row of keys, (see **Fig. 58** (YELLOW) (F2)
6 – Displays exact unbalance (resolution 1 g instead of 5 g) (CENTRAL)
7 – Display of auxiliary programs modes (Par. 14.4) (BLUE) (F3)
8 – Performs wheel spin with protection guard closed (GREEN) (F4)

Fig. 58

KEY

1 – Return to initial program phase (RED) (F1)
2 – Display next row of keys (YELLOW) (F2)
3 ECO-WEIGHT key (B)

Remove the automatic rod and fit the adhesive weight inside pliers as shown in **Fig. 59**.

Fit the adhesive weight in the pliers of the automatic rod — Fig. 59

The nearing of the weight to correction position is indicated by an arrow that appears on the side of the wheel on which work is being done. When two fixed arrows and the sound notification are reached (see **Fig. 60**) fit the weight in the position where the weight pliers touch the wheel (see **Fig. 61**).

On reaching the 2 fixed arrows, fit the adhesive weight — Fig. 60

The fact that the weight fitting position is no longer at 12 o'clock "(see **Fig. 61**) is automatically offset.
If the adhesive weight has to be hidden behind spokes, refer to "weights hidden behind spokes mode" in Chapt. 18.

Fit weight on the position where pliers touches the wheel — Fig. 61

Repeat the wheel and weight positioning procedure for the inner side of the wheel as well. At the end of the procedure, the wheel balancing conditions can be checked by performing a trial spin.
The ALU-S procedure is completed.

15.3.5   STATIC balancing

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).
Determine the wheel dimensions using the specific automatic rod (see Par. 15.1.1).
After data entry, close the protection guard to automatically start wheel spin.
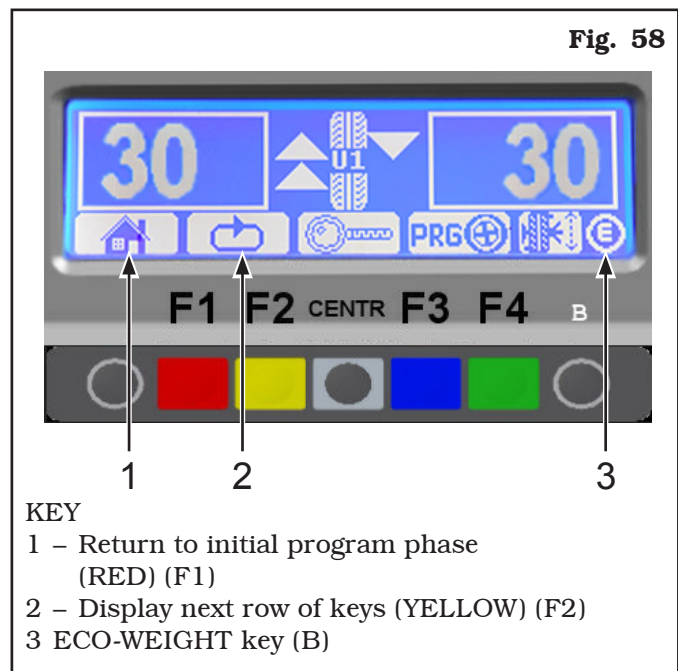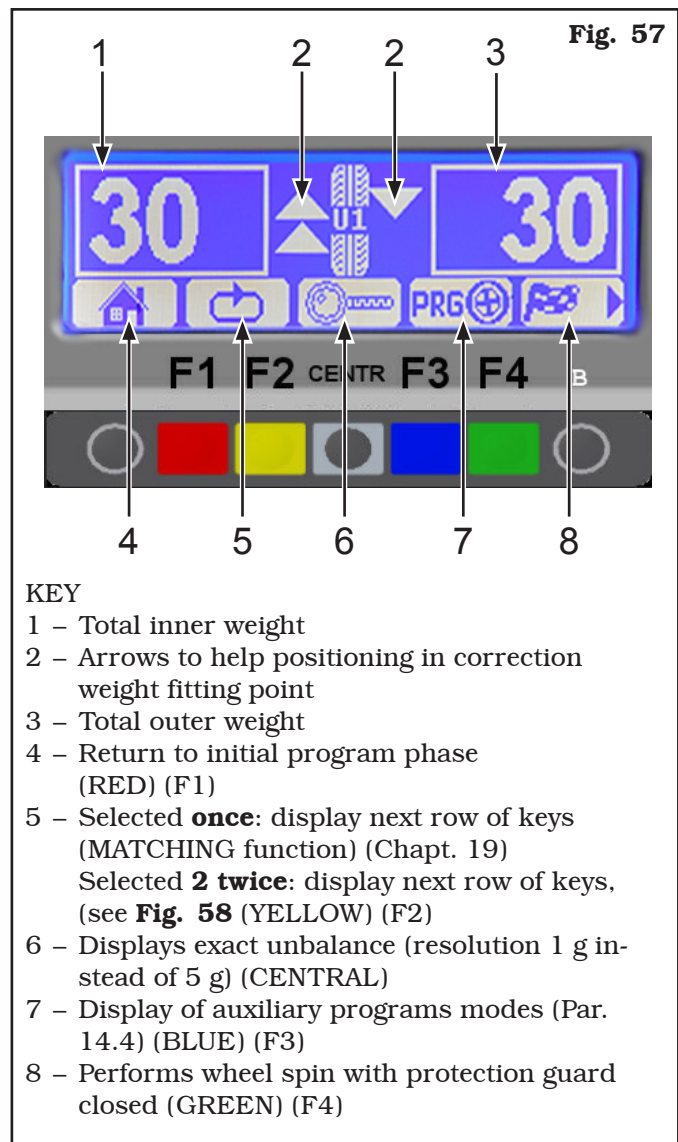In just a few seconds, the wheel runs at normal speed and the wheel balancer display shows wheel rotation (see **Fig. 62**). Do not touch the wheel while taking measurements. At the end of the spin, the wheel will stop automatically, taking into account the measured unbalance so the weight fitting position is at approx. "12 o'clock". Open the protection guard.

Fig. 62

Press in case of emergency

The display unit indicates the direction in which to move the wheel to fit the weight and how much weight is needed to correct the unbalance (see **Fig. 63**).
Turn the wheel at the point indicated by the arrows, until the right position for unbalance correction has been reached ( ).
Once correct position has been reached, press the pedal brake to stop the wheel.
Pull out the gauge rod and fit the weight where indicated ( ).
In case of clip weight, use the provided gripper for weights.
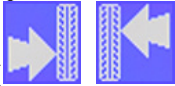
Fig. 63
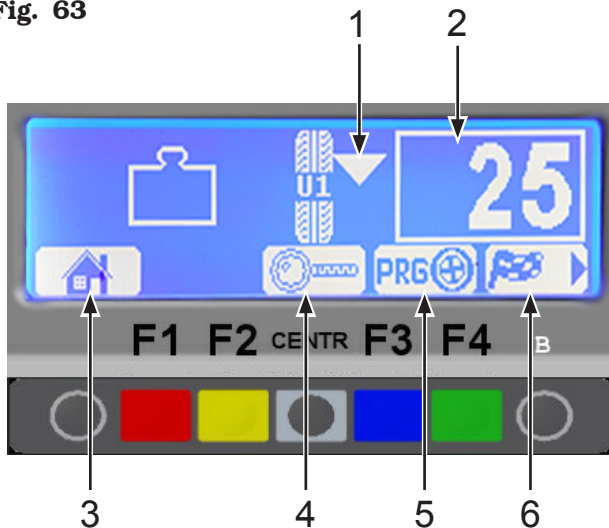
KEY
1 – Turn the wheel in the direction shown by the arrows until correct position of the wheel itself is reached for the weight fitting
2 – Total outer weight to be fitted
3 – Return to initial program phase (RED) (F1)
4 – Displays exact unbalance (resolution 1 g instead of 5 g) (CENTRAL)
5 – Display of auxiliary programs modes (Par. 14.4) (BLUE) (F3)
6 – Performs wheel spin with protection guard closed (GREEN) (F4)

Remove the automatic gauge and fit the adhesive weight in the pliers as shown in **Fig. 64**, using a weight of pre-determined value (the example in **Fig. 63** shows 25 g).

Fit the adhesive weight in the pliers of the automatic rod

Fig. 64

The fact that the weight fitting position is no longer at 12 o'clock "(see **Fig. 65**) is automatically offset.
If the adhesive weight has to be hidden behind spokes, refer to "weights hidden behind spokes mode" in Chapt. 18.

Fit weight on the position where pliers touches the wheel

Fig. 65

Check wheel balancing conditions by making a trial spin. The display screen will show an unbalance reset. The STATIC procedure is completed.

15.4 Measuring the unbalance with auxiliary programs

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

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

From the program start page, press "F3 key" **PRG⊕**.
On the top left of the monitor, the selected mode is displayed. Select the desired mode by means of the "F3 key" **✚** or "F2" **▬** and enter the measurements required by the selected program.

15.4.1 ALU-S

Apply to car/motorcycle

The ALU-S function enables the user to enter 2 different positions for fitting the adhesive weights on the outer and inner side of the rim, so as to select the position of the weights according to specific need. The position of the outer weight is not visible but hidden inside.
Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and proceed as described in par. 15.4.12.

15.4.2 STATIC

Apply to car/motorcycle

STATIC balancing is a procedure that offsets wheel vibrations using a single adhesive weight on a single plane.
Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and proceed as described in par. 15.3.4.

15.4.3 ALU-S1

Apply to car

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

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15.4.4   ALU-S2

Apply to car

ALU-S2 function allows the balancing of wheels with light alloy rims by fitting two adhesive weights on the outer and inner sides of the rim (the outer weight is at "12 o' clock"). Enter the measurements (par. 15.1) and proceed as described in par. 15.4.12 (the inner weight is adhesive and at "12 o'clock").
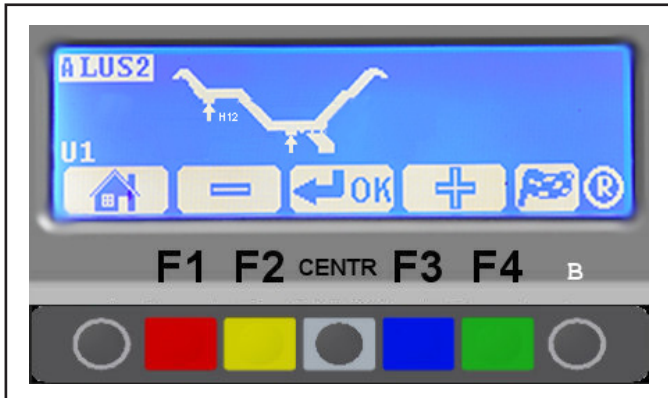
15.4.5   STATIC 1

Apply to car/motorcycle

The 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 (par. 15.1) and proceed as described in par. 15.3.4 (only for wheel inner side).

15.4.6   STATIC 2

Apply to car

The 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 (par. 15.1) and proceed as described in par. 15.3.4 (only for wheel inner side).

15.4.7   ALU 1

Apply to car

ALU 1 function permits balancing wheels with light alloy rims by fitting adhesive weights on the outer sides of the rim at 12 o' clock.
Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and proceed as described in par. 15.4.13.
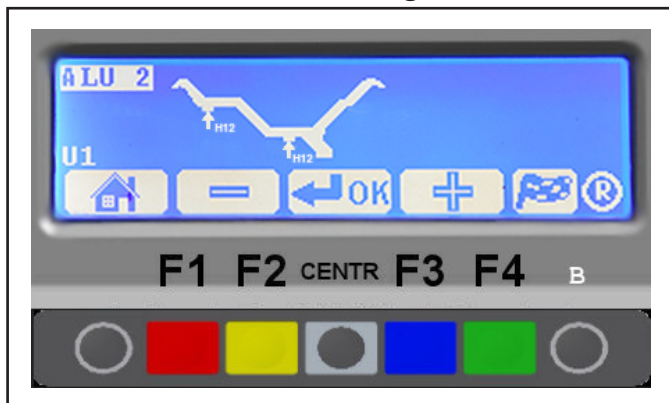
15.4.8   ALU 2

Apply to car

ALU 2 function balances wheels with light alloy rims by fitting adhesive weights on the outside and inside of the rim at 12 o' clock. The position of the inner weight is not visible but hidden inside. Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and execute the spin by pressing "F4" key.

15.4.9   ALU 3

Apply to car

The ALU 3 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on outer side of wheel, adhesive weight at 12 o'clock on inner side, not visible because inside the rim.
Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and proceed as for DYNAMIC unbalance.
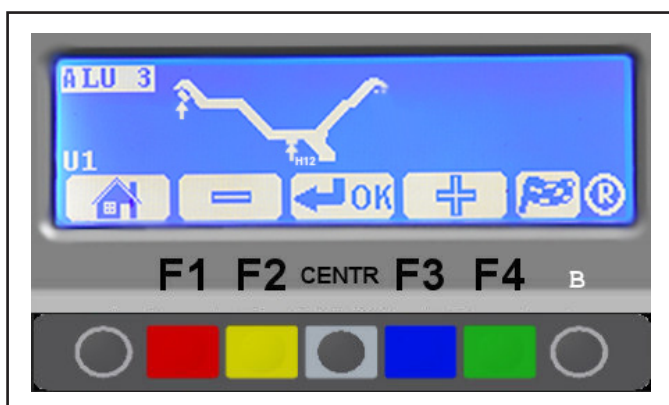
15.4.10 ALU 4

Apply to car

The ALU 4 function is a procedure that uses mixed weights to offset wheel unbalance: weight with clip on outer side of wheel, adhesive weight at 12 o'clock on inner side. Press the "CENTRE key" to confirm. Enter the measurements (par. 15.1) and proceed as for DYNAMIC unbalance.

15.4.11 PAX

Apply to car

PAX function is a procedure that permits balancing PAX wheels using adhesive weights at pre-set distances to offset wheel unbalance. Press the "CENTRE key" to confirm. Select the wheel type model and proceed as described in par. 15.4.14.

For ALU-S, STATIC and PAX functions, see relevant paragraphs. For all the other previously-indicated functions, wheel balancing will be done as indicated for dynamic balancing par. 15.3.1.
The wheel balancer will automatically correct the measurements entered by the operator according to the selected function.

15.4.12 Wheel balancing with ALU-S program (disabled distance/diameter caliper)

Apply to car/motorcycle

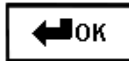Make sure there are no stones and/or mud on the wheel. Remove any counterweights.
Fit the wheel and make sure it is fastened properly.
From the initial display page press the "F3 key"

PRG⊕ to select the type of desired correction.

Using the **—** and **+** key, display the ALU-S function and confirm with the "CENTRE key"

←OK.

Enter the measurements as indicated in para. 15.1. After entering the measurements, close the guard, if fitted, or press "F4" **▶ 🐟** to perform the wheel spin; in just a few seconds, the wheel runs at normal speed and the wheel balancer display shows wheel rotation (**Fig. 66**). Do not touch the wheel while taking measurements. At the end of the spin, the wheel will stop automatically, taking into account the measured unbalance so the outer weight fitting position is at approx. "12 o'clock".

Press in case of emergency   **Fig. 66**
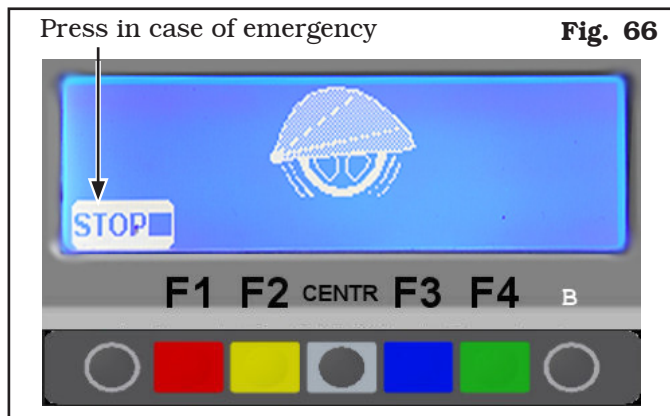
The display unit indicates the direction in which to move the wheel to fit the weights and how much weight and distance are needed to correct the unbalance (**Fig. 67**).
Once the unbalance value of the inner and outer wheel side is known, the wheel can be positioned properly. Turn the wheel in the direction indicated by the arrows (on the outer side, approximately at "12 o'clock") until the correct position is reached (par. 15.3.2).

Fig. 67
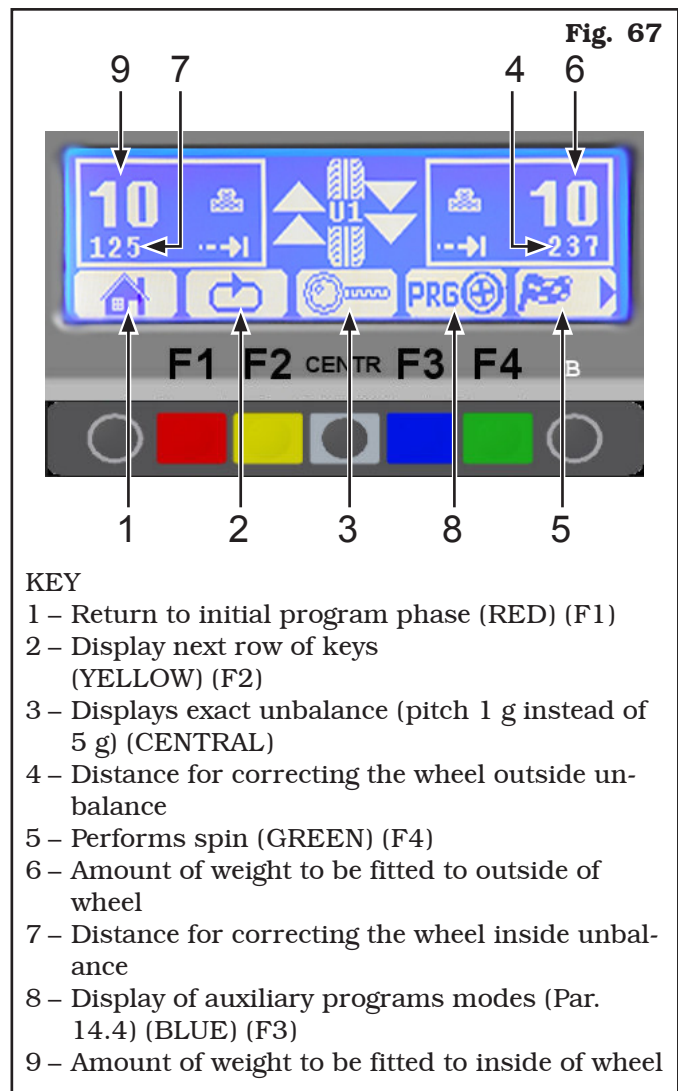
KEY
1 – Return to initial program phase (RED) (F1)
2 – Display next row of keys (YELLOW) (F2)
3 – Displays exact unbalance (pitch 1 g instead of 5 g) (CENTRAL)
4 – Distance for correcting the wheel outside unbalance
5 – Performs spin (GREEN) (F4)
6 – Amount of weight to be fitted to outside of wheel
7 – Distance for correcting the wheel inside unbalance
8 – Display of auxiliary programs modes (Par. 14.4) (BLUE) (F3)
9 – Amount of weight to be fitted to inside of wheel

Fit the adhesive weight in the manual distance caliper as shown in **Fig. 68**.
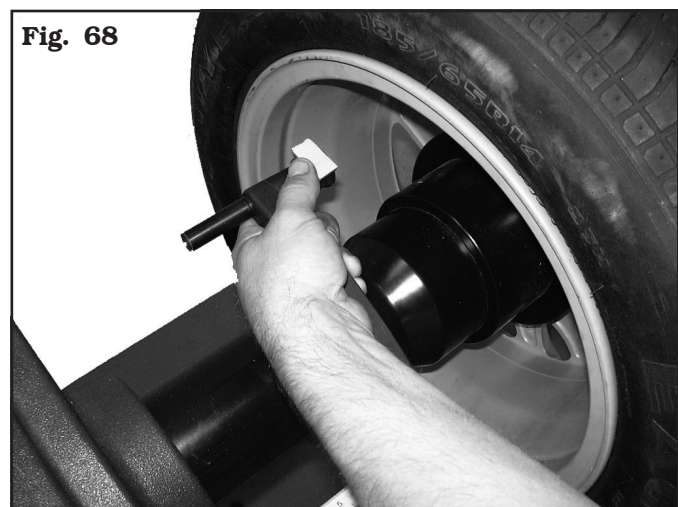
Fig. 68

Read the outer distance measurement on the distance/diameter caliper. Fit the adhesive weight on the outside of the wheel (**Fig. 68**) at the indicated distance (in the example at 237 mm) using a known weight (the example 10 g). The position of the outer weight is not visible but hidden inside. Turn the wheel until the correct point is reached (par. 15.3.2).

Fig. 69

Read the inner distance measurement on the distance/diameter caliper. Fit the adhesive weight on the inside of the wheel (**Fig. 69**) at the indicated distance (in the example at 125 mm) using a known weight (the example 10 g). Turn the wheel until the correct point is reached (par. 15.3.2). Check wheel balancing conditions by making a trial spin. The display screen will show an unbalance reset.

If the adhesive weight has to be hidden behind spokes, refer to "weights hidden behind spokes mode" in Chapt. 18.

The wheel balancing with ALU-S program (disabled distance/diameter caliper) is finished.

15.4.13 Wheel balancing with ALU 1 program

Apply to car

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).

From the first display page press the "F3 key" **PRG⊕** to select the type of desired correction; by means of the "F3 key" **＋** or "F2 key" **—** display the ALU 1 function and determine the dimensions of the wheel using the automatic gauge provided (see Par.15.1).

After data entry, close the protection guard to automatically start wheel spin.

In just a few seconds, the wheel runs at normal speed and the wheel balancer display shows wheel rotation (see **Fig. 70**). Do not touch the wheel while taking measurements. At the end of the spin the wheel will stop automatically, also taking into account the measured unbalance so the external weight fitting point is exactly at "12 o' clock". Open the protection guard.

Fig. 70

Press in case of emergency

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The display unit indicates the direction in which to move the wheel to fit the weight and how much weight is needed to correct the unbalance (see **Fig. 71**).

Turn the wheel at the point indicated by the arrows, until the right position for unbalance correction has been reached (see Par. 15.3.2).

Once correct position has been reached, press the pedal brake to stop the wheel.

Fig. 71

KEY

1 – Total inner weight
2 – Arrows to help positioning manually the wheel (see Par. 15.3.2) in correction weight fitting point
3 – N° of current user
4 – Total outer weight
5 – Return to initial program phase (RED) (F1)
6 – Display next row of keys (MATCHING PROCEDURE and HIDDEN WEIGHTS) (YELLOW) (F2)
7 – Displays exact unbalance (resolution 1 g instead of 5 g) (CENTRAL)
8 – Display of auxiliary programs modes (see Par. 14.4) (BLUE) (F3)
9 – Performs wheel spin with protection guard closed (GREEN) (F4)

The adhesive weight on the inner side of the wheel. The inner side weight must be positioned **by hand on the vertical** (**Fig. 72**).

Fig. 72

To fit the adhesive weight on the outer part of the wheel, turn the wheel in the direction of the arrows until the correct position is reached (the arrow must be horizontal).

Fit the adhesive weight on wheel outer side. The outer side weight must be positioned **by hand high up on the vertical at "12 o'clock"** (**Fig. 72**), using a weight of pre-determined value (the example in **Fig. 71** shows 32 g).

Check the wheel balancing conditions and make a trial spin.

The wheel balancing with ALU 1 program is completed.

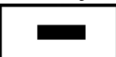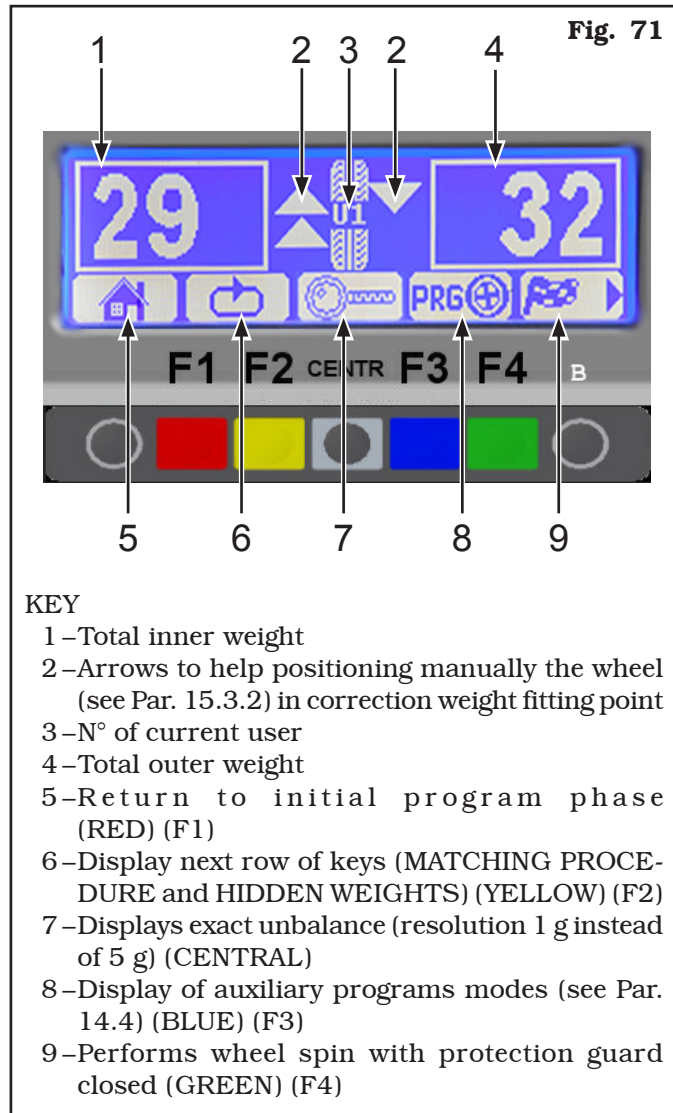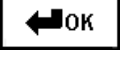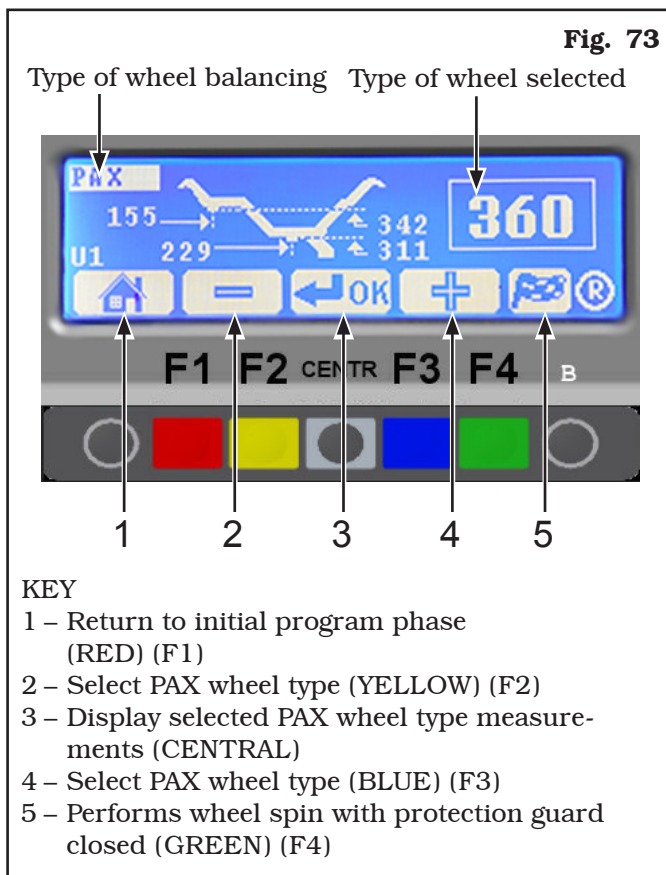### 15.4.14 Wheel balancing with PAX program

Apply to car

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 (Chap. 12).
From the initial display page press the "F3 key"

PRG⊕ to select the type of desired correction. Using the "F3 key" ➕ or "F2" ➖ display

PAX function and select the "CENTRE key" **◀OK**

Fig. 73

Type of wheel balancing   Type of wheel selected

KEY
1 – Return to initial program phase
   (RED) (F1)
2 – Select PAX wheel type (YELLOW) (F2)
3 – Display selected PAX wheel type measurements (CENTRAL)
4 – Select PAX wheel type (BLUE) (F3)
5 – Performs wheel spin with protection guard
   closed (GREEN) (F4)

Select the type of wheel using the "F3" or "F2 key" and close the protection guard to automatically start wheel spin.
In just a few seconds, the wheel runs at normal speed and the wheel balancer display shows wheel rotation (see **Fig. 74**). Do not touch the wheel while taking measurements. At the end of the spin, the wheel will stop automatically, taking into account the measured unbalance so the outer weight fitting position is at approx. "12 o'clock". Open the protection guard and proceed to fit the weight as shown for the ALU-S mode (see Par. 15.3.3).

Fig. 74

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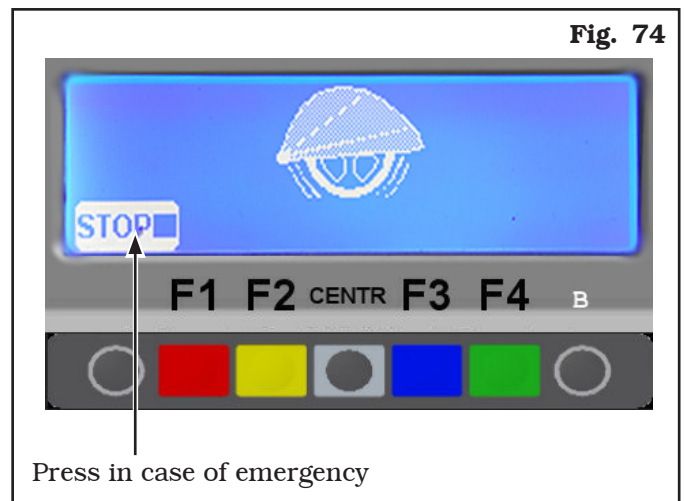
15.5   Recalculation Function
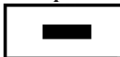
After making a spin, the wheel automatically stops, and the required weight/s and its/their position is/are always indicated.
If a test is performed in DYNAMIC, ALU-S, or STATIC mode, the data of the other modes can be obtained without making another spin by simply setting other

dimensions and pressing "Recalculation key **®**".
If, for example, from the page where ALU1 results are

shown (see **Fig. 71**) key **PRG⊕**, is pressed, the program displays the list of auxiliary programs (see Par. 15.4).
At this point, select the required program by means

of the key ➕ or ➖ , if necessary set the

new dimensions and press key R "**®**" to obtain the weight and position values in the new mode, taking into account the new dimensions.

15.6 ECO-WEIGHT procedure

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 (see **Fig. 58**). It is possible to fit a single weight at a predetermined distance from the machine, so as to optimize the weight consumption and reduce both the DYNAMIC and any remaining STATIC unbalance as much as possible.

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

From the ALU-S unbalance results page (see **Fig. 58**),

press the Eco-Weight " (E) " key
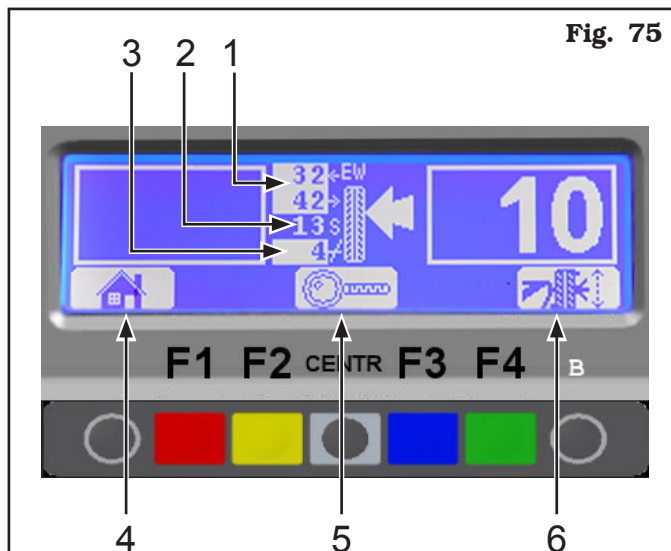The page shown in **Fig. 75** will be displayed.

Fig. 75

KEY
1 – Equivalent dynamic unbalance of the inner and outer side of the wheel
2 – Equivalent static unbalance
3 – Remaining static weight after performing the ECO-WEIGHT program
4 – Return to initial phase (display of ALU-S values) (RED) (F1)
5 – Displays the exact unbalance (not approximate at >2 / >5 g) (CENTR)
6 – Perform wheel positioning to fit the weight on the other side (GREEN) (F4)

Remove the automatic gauge and fit the adhesive weight in the pliers as shown in **Fig. 76**, using a weight of predetermined value (the example in **Fig. 75** shows 10 g).

Fit the adhesive weight in the pliers of the automatic rod

Fig. 76

The nearing of the weight to correction position is indicated by an arrow that appears on the side of the wheel on which work is being done. When two fixed arrows and the sound notification are reached (see **Fig. 77**) fit the weight in the position where the weight pliers touch the wheel (see **Fig. 78**).

On reaching the 2 fixed arrows, fit the adhesive weight

Fig. 77
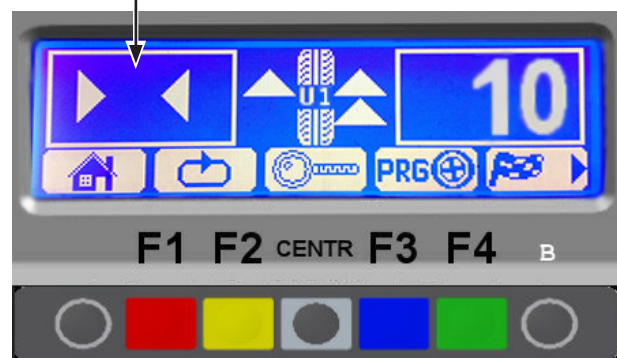
Fit weight on the position where pliers touches the wheel

Fig. 78

Check the wheel balancing conditions and make a trial spin.
The ECO-WEIGHT procedure is completed.

16.0 WHEEL BALANCING IN MOTORCYCLE MODE (WITH DISTANCE CALIPER EXTENSION KIT)

By enabling the "Motorcycle wheel balancing" function (see **Fig. 104**) the wheel balancers can also balance motorcycle wheels.

From the opening page, press the "F2 key" to select car (**Fig. 79**) or motorcycle (**Fig. 80**) balancing mode.

Fig. 79

Fig. 80

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. 15.3.1) STATIC balancing and/or ALU-S (Par. 15.3.4 and/or 15.3.3) can also be performed.

17.0 SPLIT PROCEDURE

Apply to car/motorcycle

The Split procedure proves useful when the dynamic unbalance (see Par. 15.3.1) of a wheel is fairly high and the weight to be fitted is not available, for instance a 100 g weight. It's possible then to correct the unbalance dividing the amount of weight into two weights of smaller size.

The Split procedure eliminates errors caused by manually fitting two 50 g weights close to one another, which could leave considerable outstanding unbalance.

For example:

100 g WEIGHT
TO BE FITTED TO CORRECT
UNBALANCE

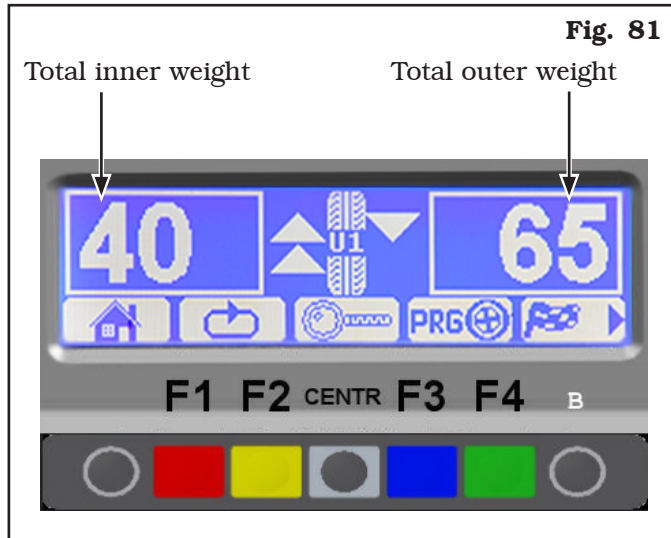TWO SMALLER WEIGHTS (50g)
FITTED MANUALLY

TWO SMALLER WEIGHTS (55g)
USING SPLIT PROCEDURE

Proceed to dynamic unbalance measurement displaying by performing a standard wheel spin (see Par. 15.3.1).
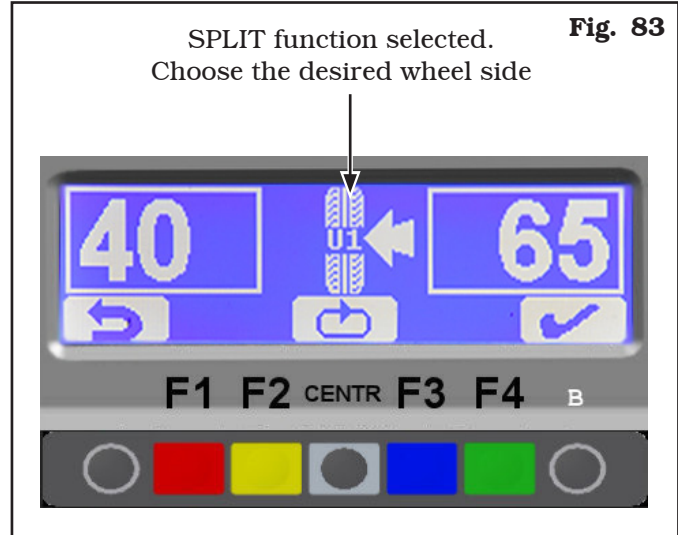Once the unbalance values have been detected (see **Fig. 81**):

Fig. 81

Total inner weight   Total outer weight

Press "key F2" corresponding to icon.
The display screen will show another row of keys (see **Fig. 82**).

Next row of keys   **Fig. 82**
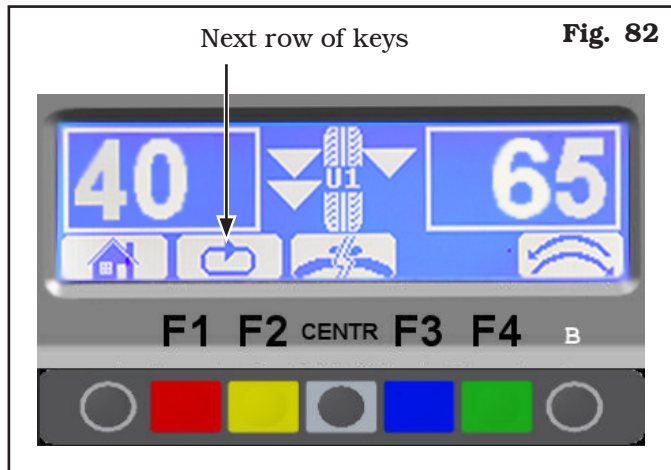
Press the key relating to the SPLIT function, the system will display the page in **Fig. 83**.

SPLIT function selected.
Choose the desired wheel side   **Fig. 83**

Press "CENTR key" corresponding to icon to select the desired wheel side (outer or inner). Depending on the selected side, the monitor will show the position of the direction arrows.

Press "key F4" to confirm.

Fig. 84

1

2   3   4
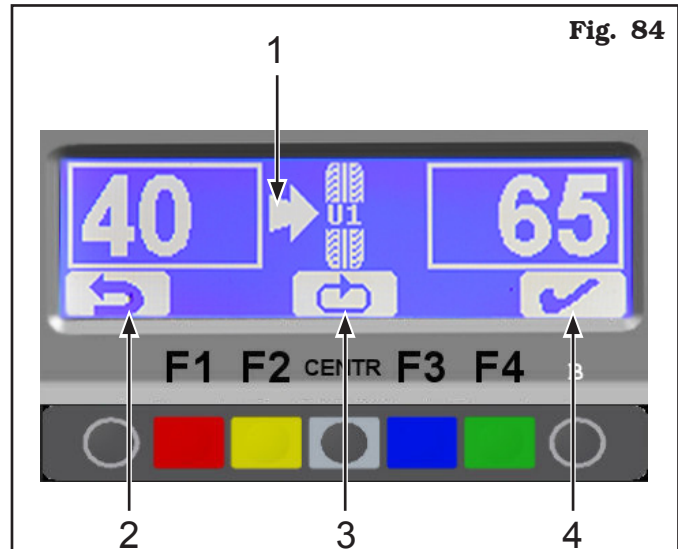
KEY
1 – Confirm the wheel side. In the example, the selected side is the inner, where the total weight is lower.
2 – Display of program previous page (RED) (F1)
3 – Select the wheel side (CENTR)
4 – Confirms selection and continues (GREEN)(F4)

At this point, the system will display the quantity of the two weights to be fitted on the wheel (see **Fig. 85**).

Using the keys corresponding to icons [▲] and [▼], the operator can increase or decrease the quantity of the weights in the awareness that, the bigger the weights, the bigger the distance will automatically be between them.
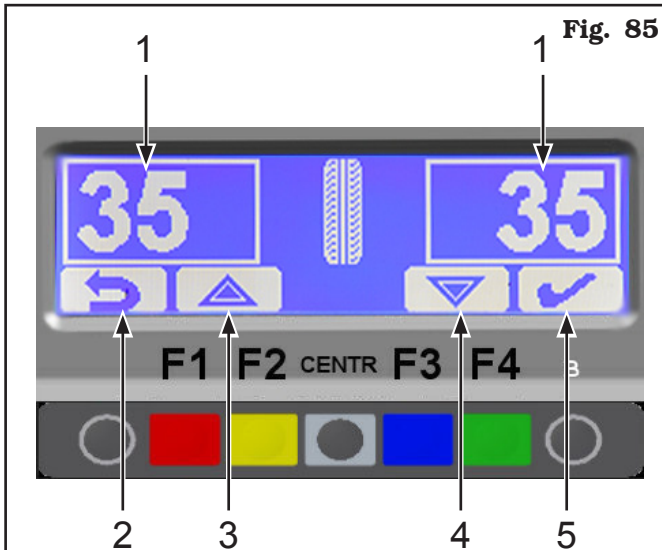
Fig. 85

KEY
1 – Display the weights to be fitted and confirm
2 – Display of program previous page (RED) (F1)
3 – The weight to be fitted increases (YELLOW)(F2)
4 – The weight to be fitted decreases (BLUE)(F2)
5 – Confirms selection and continues (GREEN)(F4)

Choose the value of the weights to be fitted and press "key F4" [✔] to confirm.

Turn the wheel at the point indicated by the arrows, until the right position for unbalance correction has been reached (see Par. 15.3.2).
When the correct position is reached, press the pedal brake to stop the wheel and fit the FIRST weight.

Fig. 86

Arrows to help positioning in correction weight fitting point
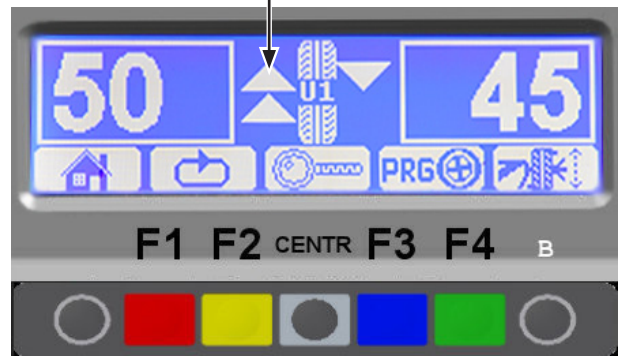
The monitor again displays **Fig. 86**. Turn wheel at the point indicated by the direction arrows, press the pedal brake to stop the wheel, and fit the SECOND weight. The inner side operation is complete, press "CENTR" key to quit.

Press the SPLIT function key [⟋] again (to perform the same operation for the outer side of the wheel) or fit the outer weight on the top part of the wheel, at 12 o'clock.

18.0 WEIGHTS HIDDEN BEHIND SPOKES MODE

Apply to car/motorcycle

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 display the ALU-S unbalance measurements by performing a spin (see **Fig. 87**).

Total inner weight   Total outer weight

Fig. 87

ALU-S Unbalance

Once the unbalance values have been determined,

press the "F2 key" corresponding to the icon [⟳] ; at this point, the next row of keys is displayed on the monitor (see **Fig. 88**).

Fig. 88

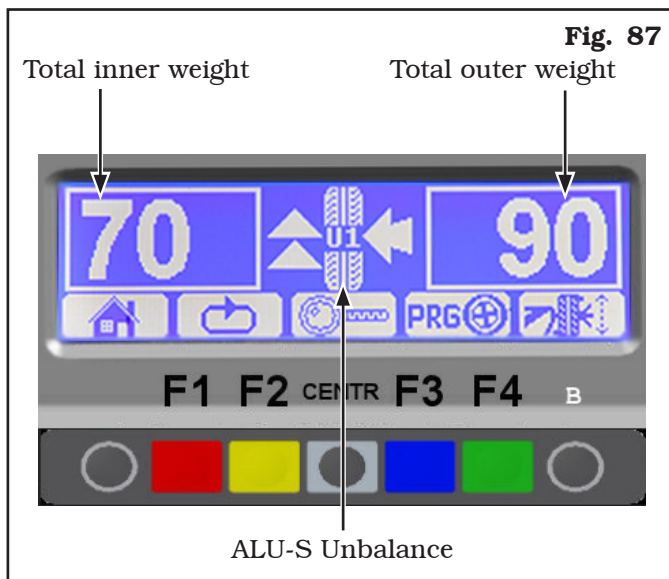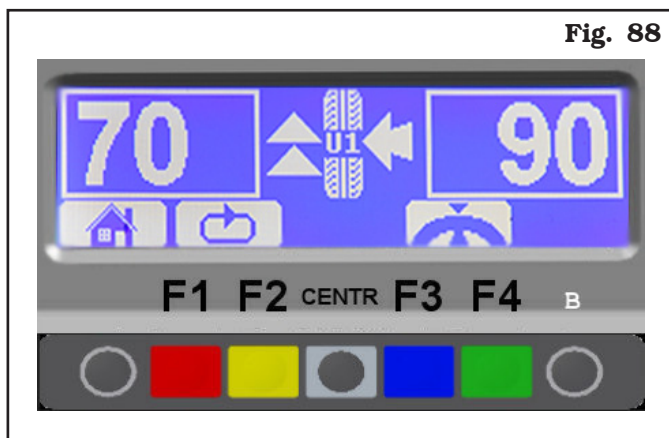Press the "F3 key" relating to the weights hidden behind

spokes mode [⌓]. The program will display the screen page in **Fig. 89**.

Move any spoke up to "12 o' clock" (in many cases, the position could already be behind or near one of the spokes) and press the "F4 key" to confirm and continue.

Fig. 89

KEY
1 – Return to previous screen page (RED) (F1)
2 – Confirm spoke positioning at "12 o' clock" (GREEN) (F4)
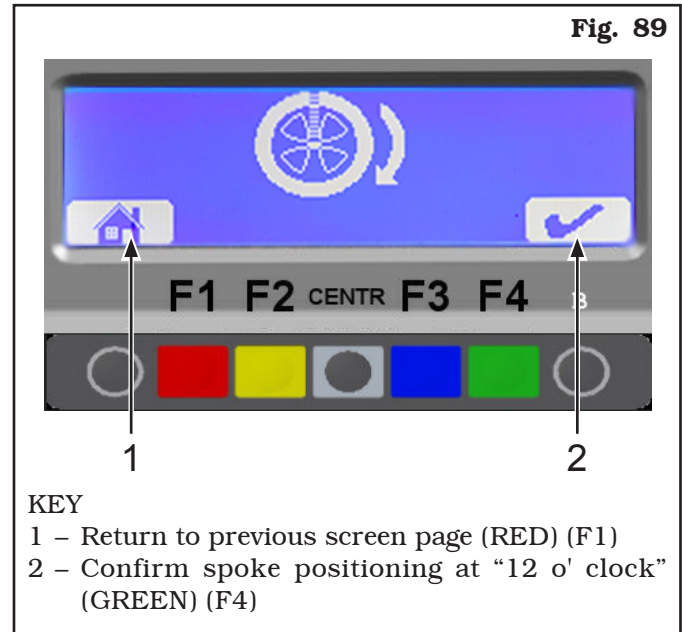
Enter the number of spokes existing on the wheel, using keys F2 and F3 (see **Fig. 90**).
A minimum of 3 spokes and a maximum of 12 can be entered.
Press the "F4 key" to confirm and continue.

Fig. 90

KEY
1 – Return to previous screen page (RED) (F1)
2 – The number of spokes increases (YELLOW) (F2)
3 – The number of spokes decreases (BLUE) (F3)
4 – Confirm number of spokes (GREEN) (F4)
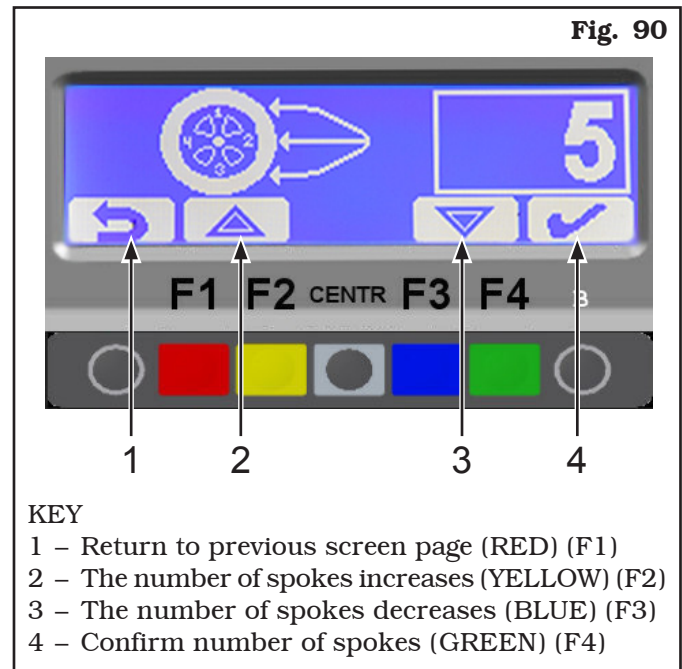
The machine automatically calculates weight position in two positions hidden behind the spokes.

Fig. 91

3 6 4 1 2 5
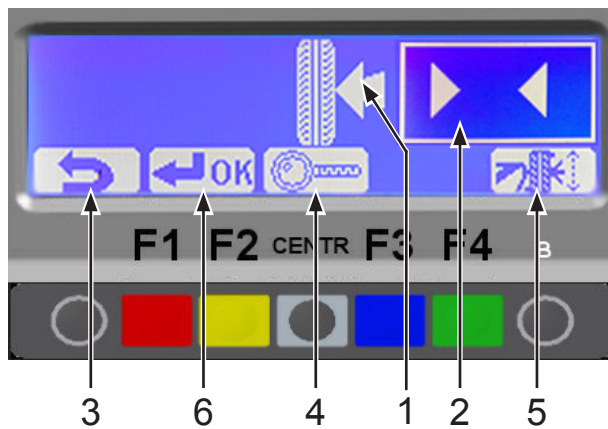
KEY
1 – Arrows to help positioning in correction weight fitting point
2 – Total weight
3 – Return to previous screen page (RED) (F1)
4 – Displays exact unbalance (resolution 1 g instead of 5 g) (CENTRAL)
5 – Confirm and continue the repositioning of the wheel for second weight fitting (GREEN) (F4)
6 – Return to initial unbalance screen page (YELLOW) (F2)

Correctly position the wheel (see Par. 15.3.2) and stop the wheel by means of the pedal brake.
Fit the adhesive weight (in the example this is 45 g) in the automatic gauge as shown in **Fig. 92**.

Fig. 92

Fit the adhesive weight inside the spoke at the point indicated on the display screen in **Fig. 93**.

Fig. 93

Exact position of wheel for fitting weight
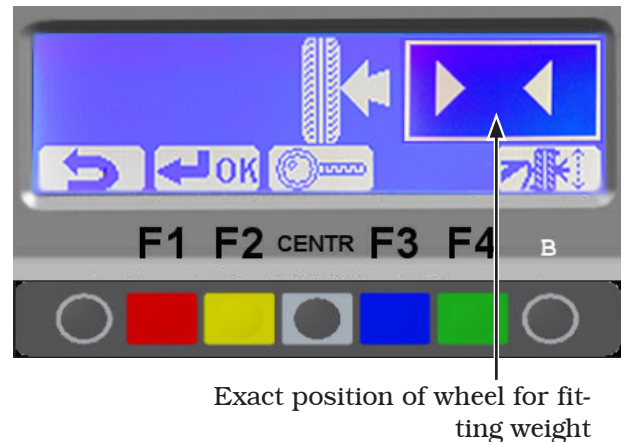
Press the "F4 key" to confirm weight positioning behind the spoke and continue.
The display screen will show the page in **Fig. 91** for fitting the second weight.
Correctly position the wheel (see Par. 15.3.2) and stop this by means of the pedal brake.
Fit the second adhesive weight in the automatic gauge as shown in **Fig. 92**.
Fit the adhesive weight inside the spoke at the point indicated on the display screen in **Fig. 93**.
Press the "F4 key" to confirm positioning of second weight behind the spoke.
The system displays the initial unbalance situation before performing the SPOKES procedure.
Perform another test spin.
The SPOKES procedure is completed.

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19.0 MATCHING PROCEDURE (Rim - Tyre Optimization)

Apply to car/motorcycle

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.

After displaying any unbalance measurement (see example in **Fig. 94**).

Fig. 94

Total inner weight   Total outer weight
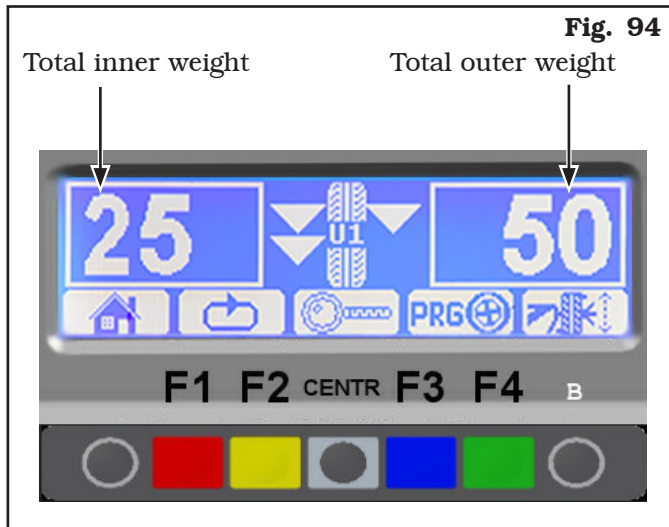
Once detected the unbalance measurements, press the F2 key corresponding to the icon ⟲ , The monitor will show a new key sequence (see **Fig. 95**).
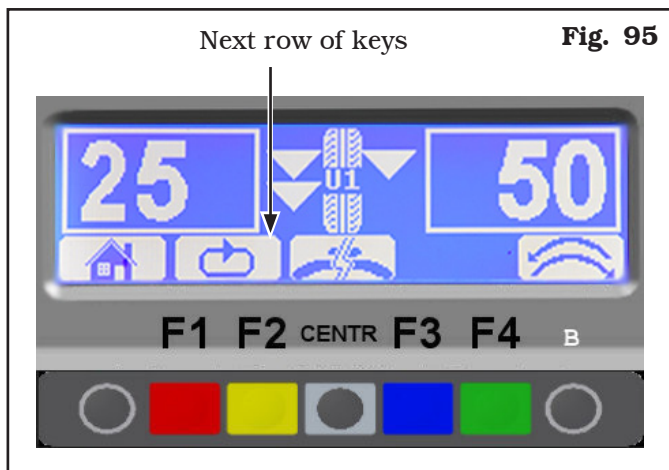
Next row of keys   **Fig. 95**

Press the key relating to the MATCHING function ⌒ (*), the system will display the page in **Fig. 96**.

(*): the MATCHING operation can only be performed if the static unbalance is > of 30 g. If it is less than this, , the key relating to this operation is not displayed.

Make a reference mark, using chalk for instance, of the position of the rim and tyre, remaining in line with the arrow on the flange, so as to be able to fit the rim back on in the same position on the machine.

Make a reference mark on the rim and tyre, in line with the arrow on the flange
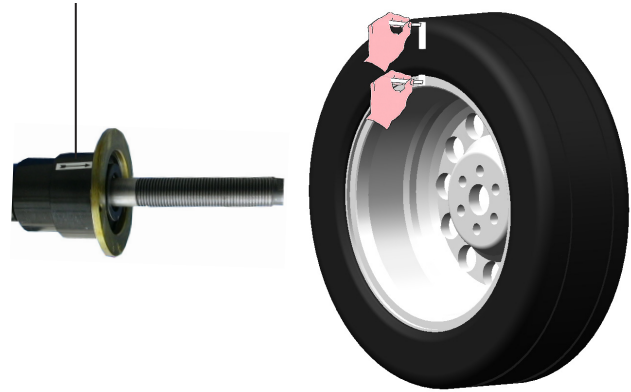
Fig. 96

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

Fig. 97

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

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

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

Fig. 98
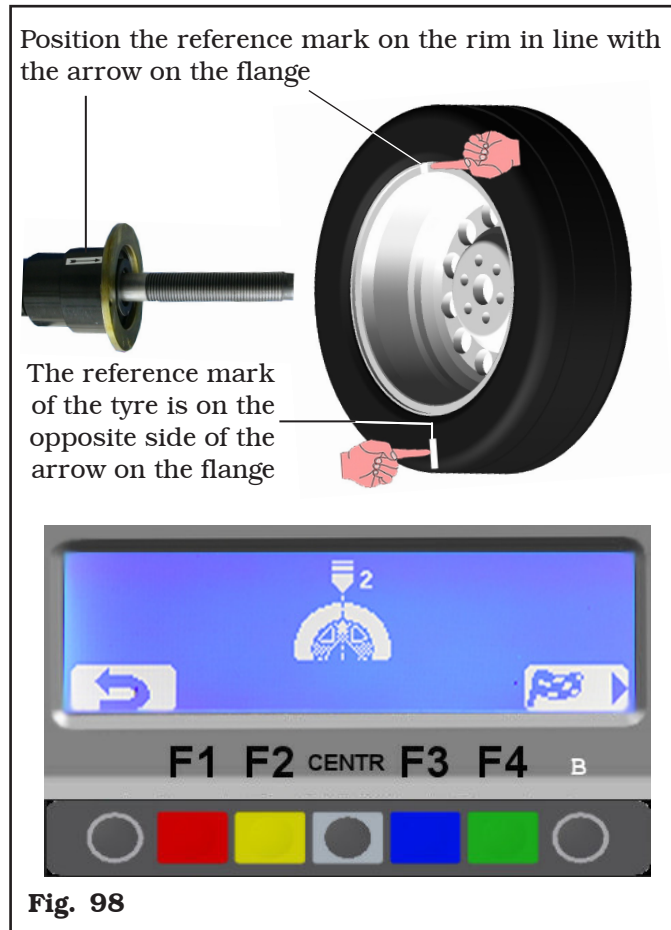
Close the protection guard. Make the second spin by pressing the "F4 key". At the end of the spin the monitor will display the following screen:

Fig. 99

KEY

1 – % value of the possible unbalance reduction compared to wheel current situation. It can be reduced with a further wheel and rim rotation.
2 – Indication for marking the tyre.
3 – Tyre placed correctly to be marked.
4 – Wheel repositioning for mark on tyre carried out (see **Fig. 100**).
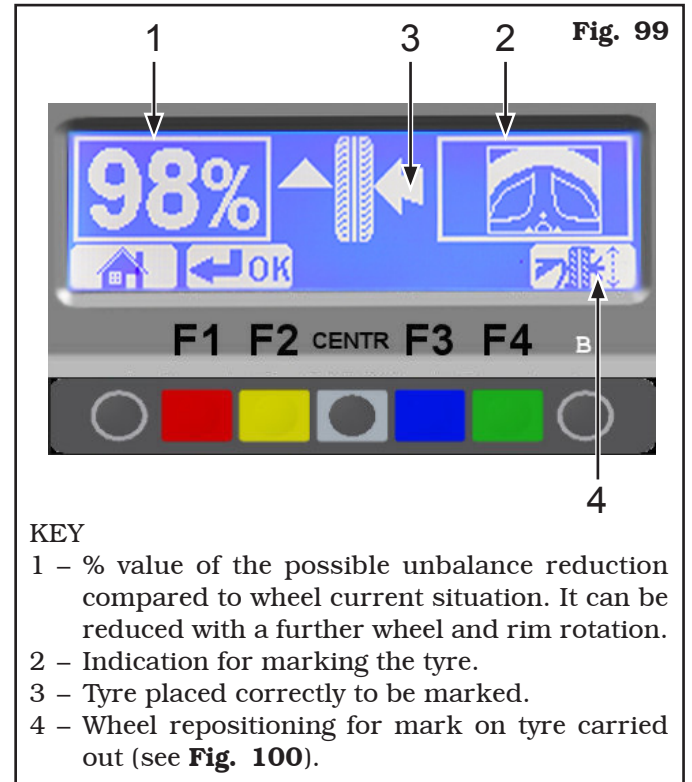
You can choose to return back by pressing "F2" key, or continue following further instructions.
Cancel the previously made reference marks.
Position the wheel following the arrows on the display screen. Look at the arrows on the right. When these are in a horizontal position (see Par. 15.3.2) make the FIRST reference mark on the tyre (see **Fig. 99**).

Press the repositioning key "F4" (see **Fig. 99**).
Look at the arrows on the left. When these are placed horizontally make the SECOND reference mark on the rim.

Fig. 100

FIRST REFERENCE MARK ON THE TYRE (arrows on the right of the display screen)

SECOND REFERENCE MARK ON THE RIM (arrows on the left of the display screen)
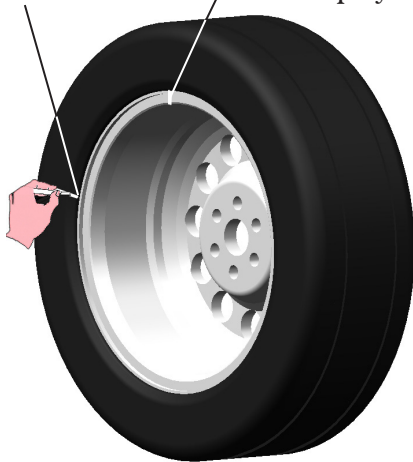
Remove the wheel from the wheel balancer. Remove the wheel and turn the tyre on the rim so that the two points coincide. Fit the wheel on the balancer (see **Fig. 101**) so that the two reference marks next to the arrow on the chuck flange.

Fig. 101

Press the green key corresponding to icon on the keyboard. The system will again display the page with previous unbalance values.

Perform another spin and correct any residual unbalance using the weights at disposal.

20.0 SETUP OF MEASUREMENT, RESOLUTION, WIDTH MEASUREMENT OPTIONS AND SETTING CAR/MOTORCYCLE MODE

20.1 Unit for measuring the weight and width/diameter of the rim

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

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

To change the unit of measurement, press the "F1 key" from the opening presentation page (see **Fig. 34**):

Fig. 102

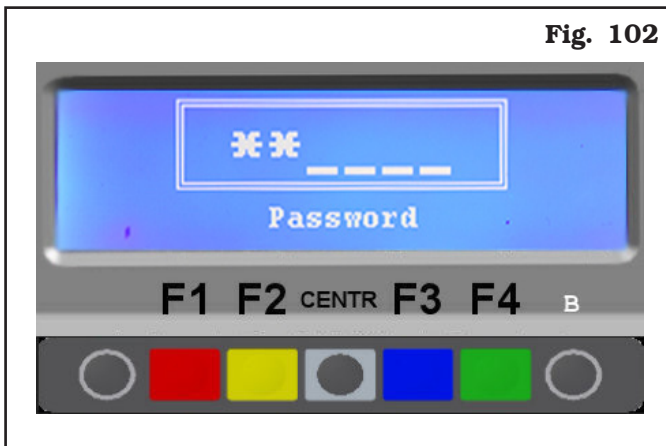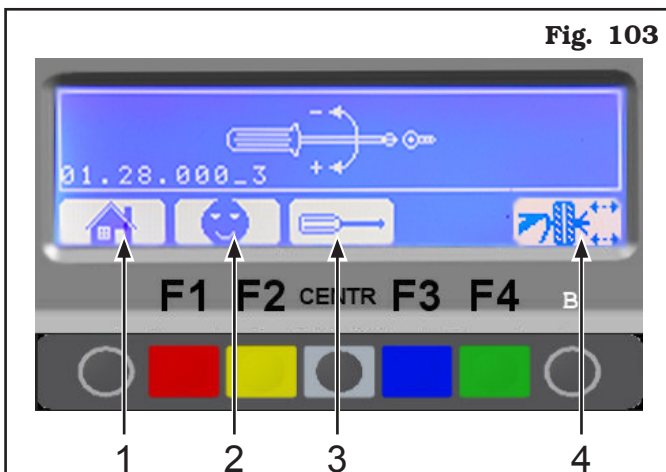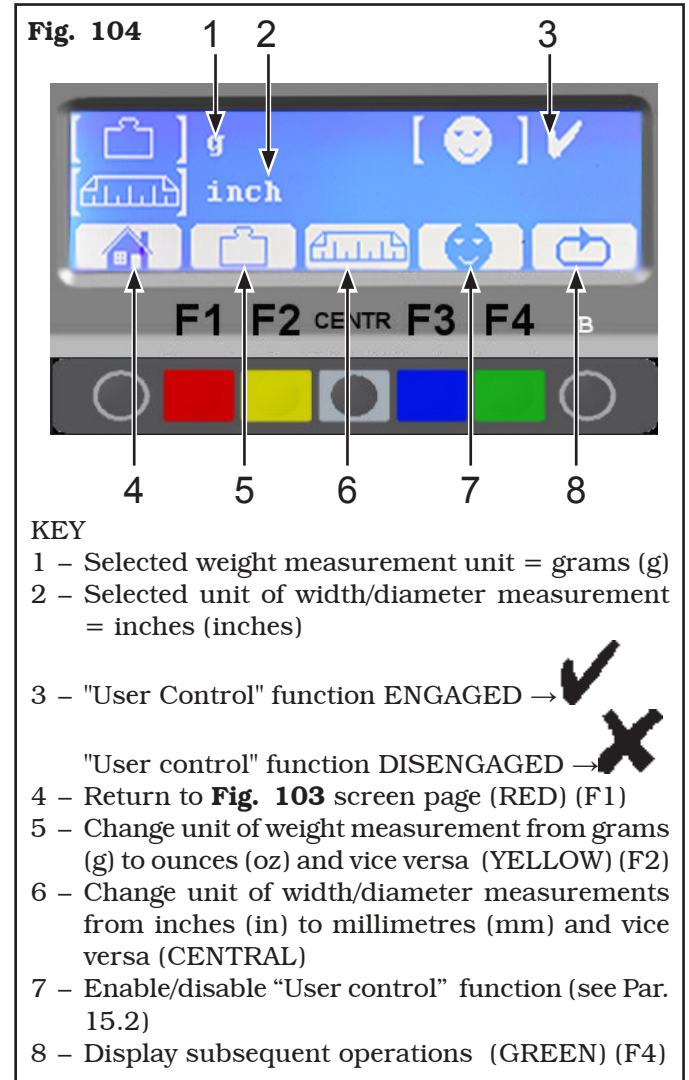Type in the password **F1-F2-CENTR-F3**, the program will show the screen page in **Fig. 103**:

Fig. 103
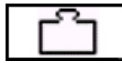
KEY
1 – Return to initial program page (RED) (F1)
2 – Configuration (YELLOW) (F2)
3 – Calibrations (CENTRAL)
4 – Open/close pneumatic chuck (for the model with pneumatic chuck)

Press key "F2" [icon] and the program will display the following figure:
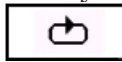
Fig. 104

KEY
1 – Selected weight measurement unit = grams (g)
2 – Selected unit of width/diameter measurement = inches (inches)

3 – "User Control" function ENGAGED → ✔

"User control" function DISENGAGED → ✘
4 – Return to **Fig. 103** screen page (RED) (F1)
5 – Change unit of weight measurement from grams (g) to ounces (oz) and vice versa (YELLOW) (F2)
6 – Change unit of width/diameter measurements from inches (in) to millimetres (mm) and vice versa (CENTRAL)
7 – Enable/disable "User control" function (see Par. 15.2)
8 – Display subsequent operations (GREEN) (F4)

Press the "F2 key" [icon] to change weight unit of measurement from grams to ounces and vice versa. The symbol "g" or "oz" appears on the monitor (see Chap. 22).

Press the "F3 key" [icon] to change the width and diameter unit of measurements from inches to millimetres and vice versa. The symbol "in" or "mm" appears on the monitor.
After setting the required measurement unit, to engage or disengage the motorcycle wheel balancing mode,

press the "F4 key" [icon].

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The program will show the following display page:

Fig. 105

KEY

1 – Motorcycle wheel balancing mode ENGAGED

→ ✔

Motorcycle wheel balancing mode DISEN-

GAGED → ✘

2 – "ECO-WEIGHT" function ENGAGED → ✔

"ECO-WEIGHT" function DISENGAGED → ✘

3 – Return to **Fig. 103** screen page (RED) (F1)

4 – Engage/Disengage motorcycle wheel balancing mode (see Chapt. 16) (CENTRAL)

5 – Engage/disengage "ECO -WEIGHT" function (see Par. 15.6) (BLUE) (F3)

6 – Display subsequent operations (GREEN) (F4)

7 – Enable/disable the function for wheel automatic repositioning (YELLOW) (F2)

8 – Wheel automatic repositioning function EN-

GAGED → ✔

Wheel automatic repositioning function DISEN-

GAGED → ✘

Press the "CENTR key" to engage or disengage motorcycle wheel balancing mode (see Chapt. 16).

Press the "F3 key" to engage or disengage "ECO -WEIGHT" function (see Par. 15.6).

All the settings of the measurement unit are stored even after the machine is switched off.

20.2 *Setting preview result of static and eco-weight*

During the ECO-WEIGHT procedure (see Par. 15.6), it is possible to enable or disable the preview of some results:

- equivalent static Unbalance of the wheel preview,
- Eco-weight preview.

To unable or disable these result previews, press the

"F1" key. The program will show the screen page in **Fig. 102**.

Press the "F2 key". Enter password **F1-F2-CENTR-F3** to access the "customer configuration" screen page (see **Fig. 104**).

From the "client configuration" page (see **Fig. 103**),

press **3 times in succession** "key F4". The screen page will be displayed as in **Fig. 106**.

Fig. 106

KEY

1 – Equivalent STATIC UNBALANCE of the wheel preview (DISENGAGED)

2 – ECO-WEIGHT of the wheel result preview (DISABLED)

3 – Return to **Fig. 103** screen page (RED) (F1)

4 – Enable/disable static unbalance preview (F2)

5 – Enable/disable eco-weight preview (CENTR)

6 – Return to client configuration screen page (GREEN) (F4)

To enable/disable required result preview, press the

key or.

When the preview is enabled, this is shown by a mark

✔ .

At the end press key "F1" to exit.

20.3 Width measurement options setting

To enable the "automatic rim width measurement", optional devices, from the opening presentation page (see **Fig. 34**), press the "F1 key" [icon]; the program will display the page in **Fig. 102**.
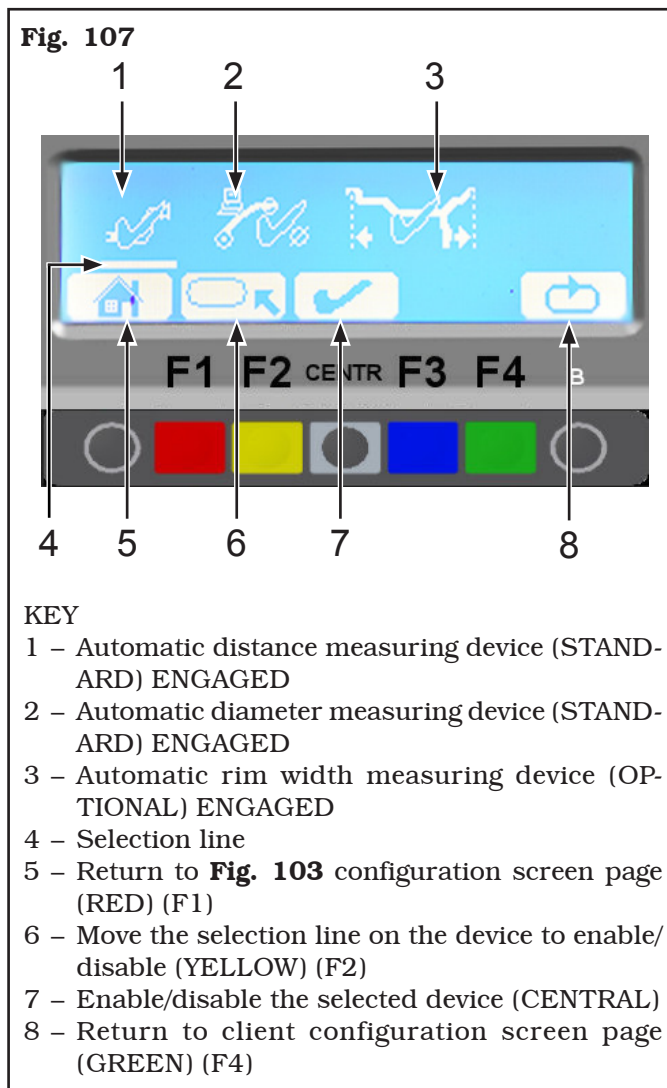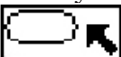
Press the "F2 key" [icon]. Enter password **F1-F2-CENTR-F3** to access the "customer configuration" screen page (see **Fig. 104**).

From the "client configuration" page (see **Fig. 103**, press **4 times in succession** "key F4" [icon]. The screen page will be displayed as in **Fig. 107**.

Fig. 107

F1   F2   CENTR   F3   F4

KEY

1 – Automatic distance measuring device (STANDARD) ENGAGED
2 – Automatic diameter measuring device (STANDARD) ENGAGED
3 – Automatic rim width measuring device (OPTIONAL) ENGAGED
4 – Selection line
5 – Return to **Fig. 103** configuration screen page (RED) (F1)
6 – Move the selection line on the device to enable/disable (YELLOW) (F2)
7 – Enable/disable the selected device (CENTRAL)
8 – Return to client configuration screen page (GREEN) (F4)

To enable the required device, move the selection line under the symbol that represents it by means of the "F2 key" [icon] and activate by means of the "CENTR key" [icon].

When the device is enabled, this is shown by a "mark off", see example below:

Rim width automatic measuring device ENGAGED →

Rim width automatic measuring device DISENGAGED →

⚠ **THE AUTOMATIC DISTANCE AND DIAMETER MEASURING DEVICE IS OPTIONAL. IT MUST BE ENABLED ONLY IF FITTED.**

At the end press key "F1" [icon] to exit.

20.4 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.

At the end of the spin however, by pressing the key [icon] (see example **Fig. 54**), the weight can be displayed with max. resolution of 1g, not considering the set lower limit.

To change the resolution and lower limit, from the opening presentation page (see **Fig. 34**), press the "F1 key" [icon]; the program will display the page in **Fig. 102**.

Press the "F2 key" [icon]. Enter password **F1-F2-CENTR-F3** to access the "customer configuration" screen page (see **Fig. 104**).

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From the "client configuration" page, press **5 successive times** the "F4 key" [⟳], the program will show the following screen page:

Fig. 108
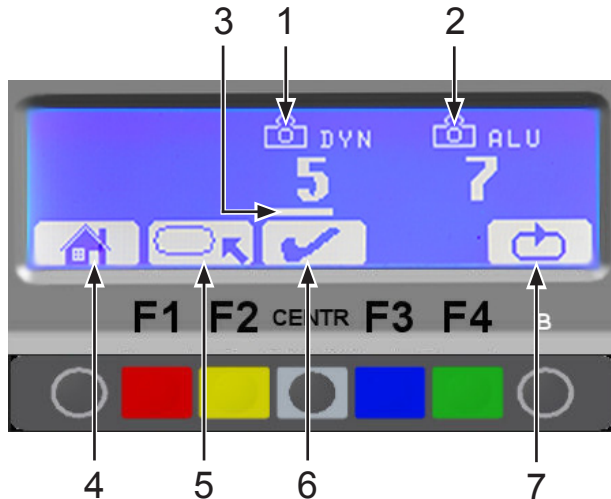
KEY
1 – Lower weight limit setting (5 g) for dynamic wheel balancing mode
2 – Lower weight limit setting (7 g) for ALU (all types) PAX and STATIC modes (all types)
3 – Selection line
4 – Return to **Fig. 103** screen page (RED) (F1)
5 – Move the selection line under the resolution or lower limit value (YELLOW) (F2)
6 – Change the selected values with the selection line (CENTRAL)
7 – Return to client configuration screen page (GREEN) (F4)

Move the selection line under the option to be changed by means of the "F2 key" [⬛↖], and set the lower limit by means of the "centr key" [✔].
After terminating the operation, press the "F1 key" [🏠] to exit.

[ⓘ] IN THE PLANT, BOTH THE RESOLUTION AND THE LOWER LIMIT FOR THE DYNAMIC WHEEL BALANCING MODE ARE SET TO 5 G. THE LOWER LIMIT FOR ALL THE OTHER MODES IS SET TO 7 G.

20.5 Setting adhesive weight dimensions and static threshold percentage

To ensure the balancing machine precisely calculates the dimensions and total adhesive weights, set the thickness and length of the adhesive weights at disposal.
It is also necessary to set the static threshold percentage used in the ECO-WEIGHT procedure

To set the above values, from the opening presentation page (see **Fig. 34**), press the "F1 key" [🔧]; the program will display the page in **Fig. 102**.

Press the "F2 key" [☺]. Enter password **F1-F2-CENTR-F3** to access the "customer configuration" screen page (see **Fig. 104**).

From the "client configuration" page, press **6 successive times** the "F4 key" [⟳], the program will show the following screen page:
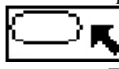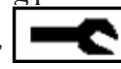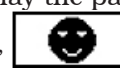
Fig. 109
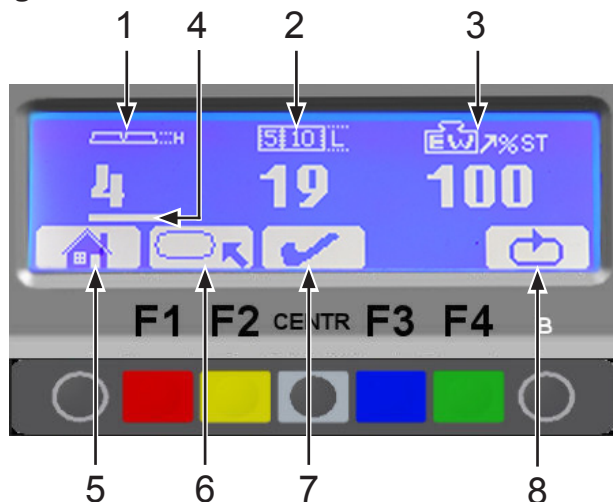
KEY
1 – Setting the adhesive weight thickness (4mm)
2 – Setting the adhesive weight length (19 mm)
3 – Static threshold percentage used in the ECO-WEIGHT procedure. Can be set between 0 and 200%
4 – Selection line
5 – Return to **Fig. 103** screen page (RED) (F1)
6 – Move the selection line under adhesive weights setting or under the static threshold percentage (YELLOW) (F2)
7 – Change the selected values with the selection line (CENTRAL)
8 – Return to client configuration screen page (GREEN) (F4)

Move the selection line under the option to be changed using "key F2" [icon]. Set the adhesive weight dimensions and the static threshold percentage by means of the "centr key" [icon].

After terminating the operation, press the "F1 key" [icon] to exit.

21.0 CALIBRATION

From program presentation screen page (see **Fig. 34**) press "F1 key"; the program will display the following screen page:

Fig. 110

KEY
1 – Return to initial program page (RED) (F1)
2 – Configuration. Enter password: **F1-F2-CENTR-F3** (YELLOW) (F2)
3 – For technical assistance only (CENTRAL)
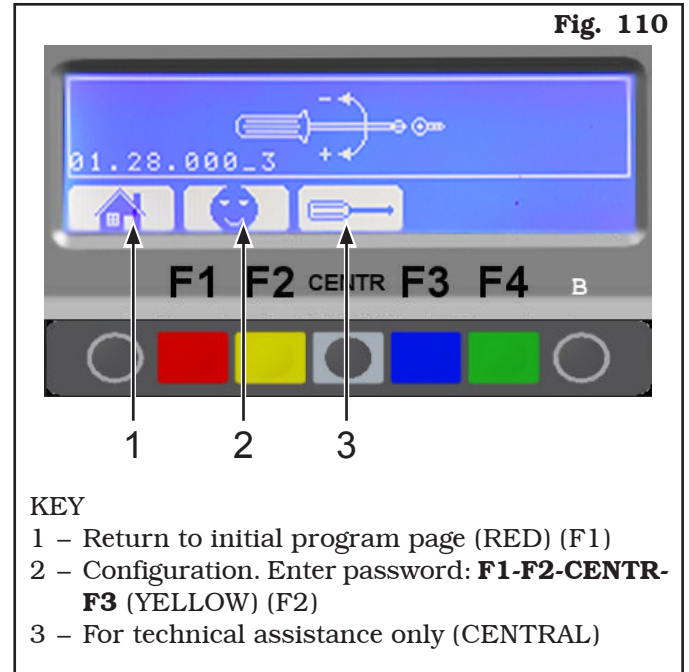
Press the "CENTR key" [icon], enter the password **F1-F2-CENTR-F3**, the program displays the following page:

Fig. 111

KEY
1 – Return to previous screen page (RED) (F1)
2 – Performs distance and diameter caliper calibration (YELLOW) (F2)
3 – "Zero chuck" setting without anything. This operation must necessarily be performed after setting the weight sensor machine calibration (CENTRAL)
4 – Perform weight sensor machine calibration (BLUE) (F3)

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21.1 Weight measurement sensors calibration

Fit a wheel of medium size, possibly balanced (Ø = 13÷14", L = 4÷5").

From the calibration page menu (see **Fig. 111**) press the weight sensor calibration "F3 key"; the program will display the following page:

Fig. 112

KEY
1 – Return to previous screen page (RED) (F1)
2 – Decrease wheel dimension values (YELLOW) (F2)
3 – Select and confirm the values to be set (CENTRAL)
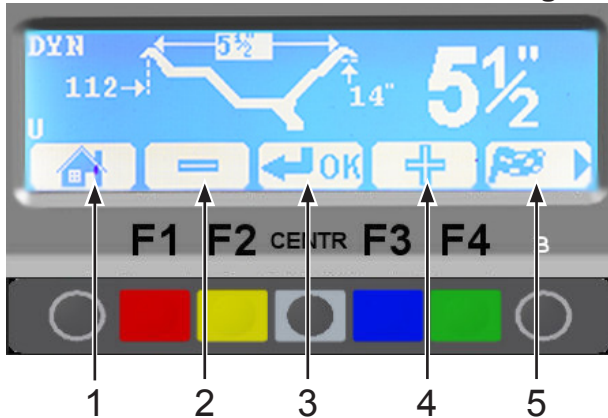4 – Increase wheel dimension values (BLUE) (F3)
5 – Display next screen page (GREEN) (F4)

Carefully enter distance, diameter and wheel width measurements, pressing the "CENTRE key" to select each measurement and confirm. Select " ▬ F2" or " ✚ F3" keys to enter the desired values.
Press the "F4 key" to continue. The program will show the following display page:

Fig. 113
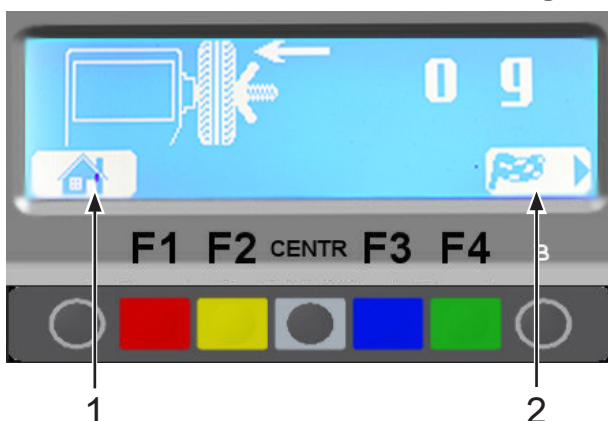
KEY
1 – Return to previous screen page (RED) (F1)
2 – Performs wheel spin with protection guard closed (GREEN) (F4)

As shown in **Fig. 113**, press the "F4 key" to perform a wheel spin without adding weights.
After making the spin, the program will show **Fig. 114**:

Fig. 114
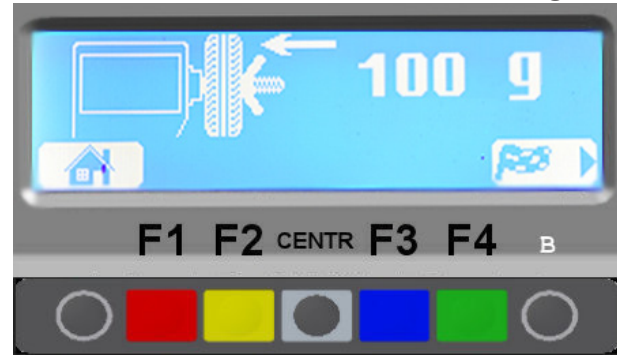
Fit 100 g on the outside of the wheel, positioning the weight at "12 o' clock".
Press "F4 key" to perform the spin.
After the spin, remove the 100 g weight from the outside and fit it inside the wheel, as shown in **Fig. 115**.

> ⚠ **FIT 100 G ON THE INSIDE OF THE WHEEL IN THE SAME POSITION OF THE WEIGHT OUTSIDE, POSITIONING IT HIGH UP ON THE VERTICAL.**

Fig. 115

After the spin, remove the 100 g weight from the inside of the wheel and confirm by means of the "CENTRE key".

Fig. 116

The calibration operation is now over. The program will show **Fig. 111**.
Press the "F1 key" to return to the initial program page.

21.2 *"Zero chuck" setting without anything*

From the setting menu page (see **Fig. 111**) press the "CENTRE" key relating to the "zero chuck" setting.
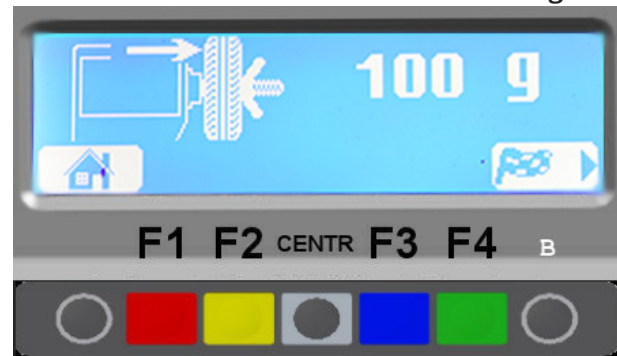Press key "F4" to perform the chuck reset spin without having fitted anything. Chuck resetting is complete. Press key "F1" to exit.

> **WHEN CHUCK RESET IS CARRIED OUT ON TYRE MODELS, THE SAME SHALL BE CLOSED.**

21.3 *Distance and diameter caliper calibration*

From the calibration page menu (see **Fig. 111**) press the weight sensor calibration "F2 key" distance and diameter caliper calibration; the program will display the following page:
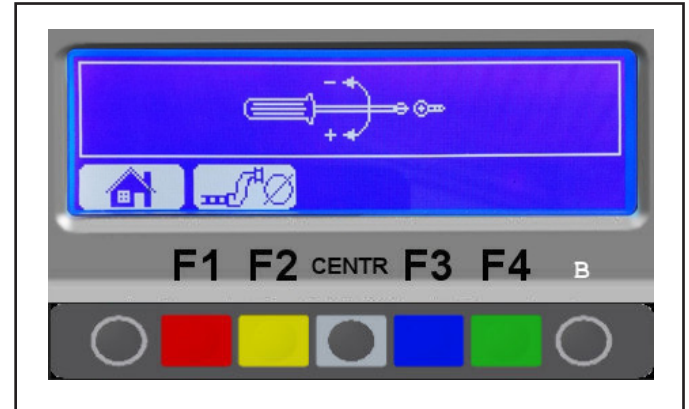
Press "F2 key" to display **Fig. 117**.

Fig. 117
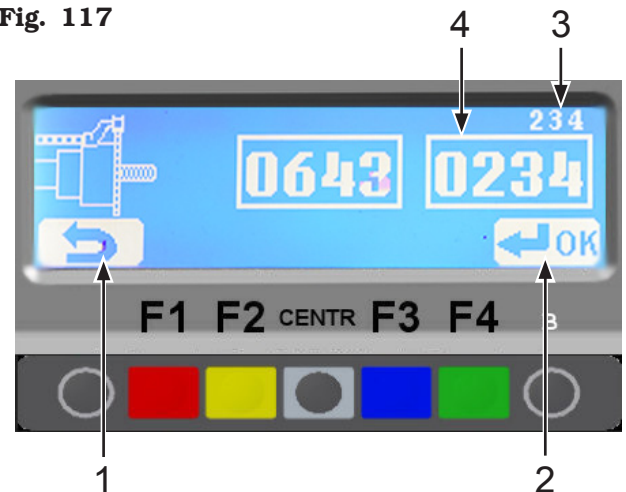
KEY
1 – Exit from the gauge calibration procedure and return to calibration menu page (RED) (F1)
2 – Perform storing of gauge position on "upper edge" (GREEN) (F4)
3 – Reference measurement
4 – The value must be + or - 1 mm the reference measurement

Move the gauge ferrule (**Fig. 118 ref. 1**) by the upper edge of the flange (**Fig. 118 ref. 2**) and press the "F4 key", the program will show the following display page:

Fig. 118

KEY

3 – Exit from the gauge calibration procedure and return to calibration menu page (RED) (F1)

4 – Perform storing of gauge position on "upper edge" (CENTRAL)

Press "CENTRE" to confirm the measurement, the program will show the screen page in **Fig. 119**.

⚠ IF THE MEASUREMENT GAUGE IS NOT EXACTLY POSITIONED ALONG THE UPPER EDGE OF THE FLANGE AND CONSEQUENTLY IF THE DISTANCE MEASUREMENT IS NOT 234 ± 1 MM (FOR THREADED CHUCK) OR 254 ± 1 MM (FO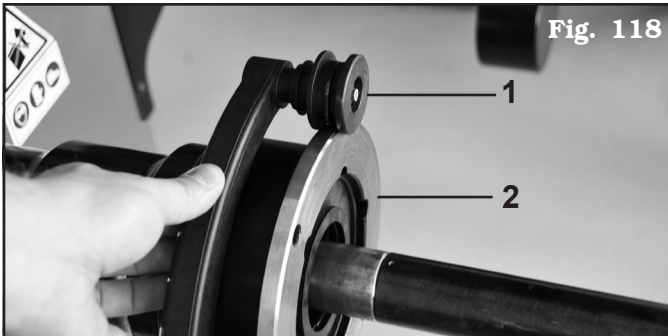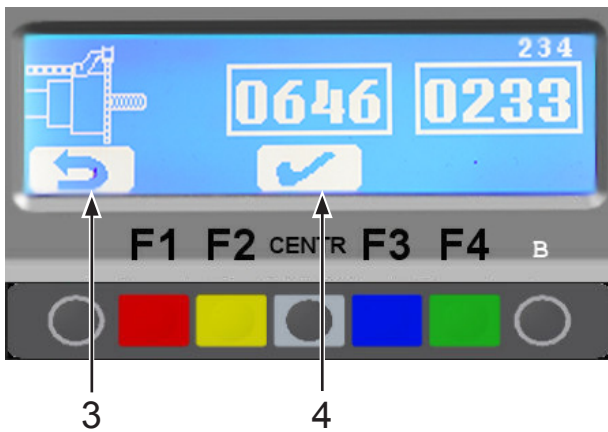R PNEUMATIC CHUCK), WHEN THE MEASUREMENT IS CONFIRMED, THE PROGRAM WILL NOT PASS ON TO THE NEXT STAGE. TRY REPOSITIONING THE GAUGE FERRULE NEXT TO THE UPPER EDGE OF THE FLANGE AND, IF THE MEASUREMENT CONTINUES NOT TO BE BETWEEN 234 ± 1 MM (FOR THREADED CHUCK) OR 254 ± 1 MM (FOR PNEUMATIC CHUCK) AND THE PROGRAM DOES NOT PASS ON TO THE NEXT CALIBRATION STAGE, CONTACT THE AFTER-SALES SERVICE.

Fig. 119

KEY

1 – Exit from the gauge calibration procedure and return to calibration menu page (RED) (F1)

2 – Perform storing of gauge position on "lower bell" (GREEN) (F4)

Rest the gauge (**Fig. 120 ref. 1**) down below on the largest cylindrical part of the bell (**Fig. 120 ref. 2**) and press the "F4 key", the program will show the following display page:
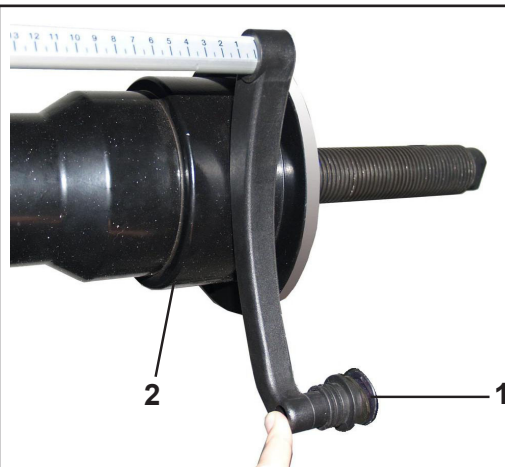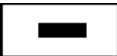
Fig. 120
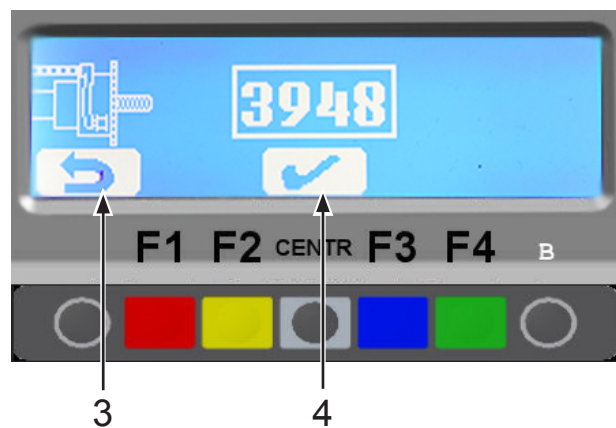
KEY

3 – Return to previous screen page (RED) (F1)

4 – Perform storing of gauge position (CENTRAL)

Press "CENTRE" to confirm the measurement

Fit a wheel with ø 15" and set the correct internal diameter in mm by selecting from **Fig. 121** the " ▬ F2" or " ✚ F3" keys until the desired value is achieved, then press "F4" to confirm.

Fig. 121

Turn the gauge ferrule (**Fig. 122 ref. 1**) on the inner edge of the wheel UPWARDS and press "F4".
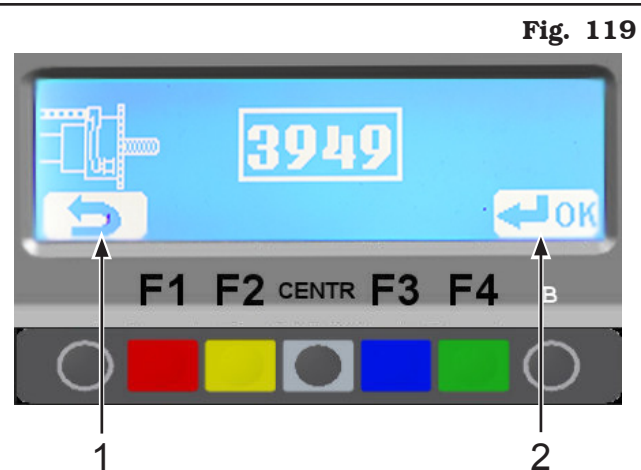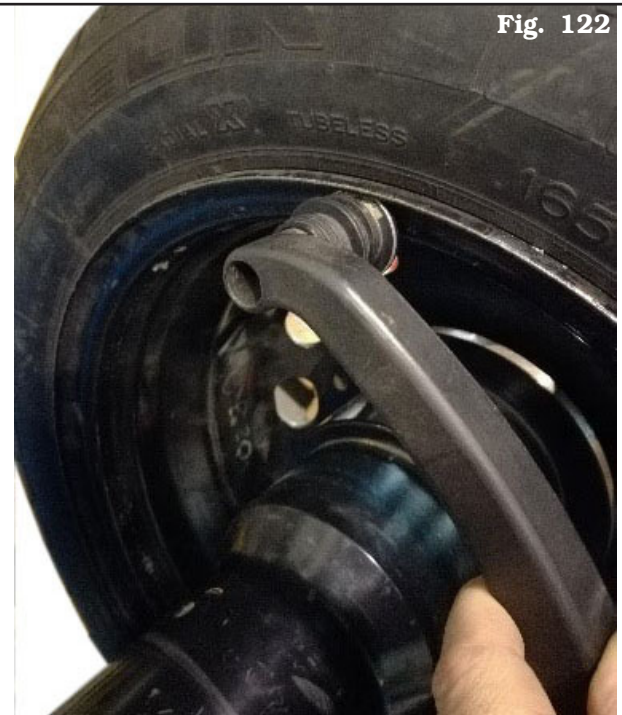

Fig. 122

KEY
2 – Exit from the gauge calibration procedure and return to calibration menu page (RED) (F1)
3 – Perform storing of gauge position on "inner edge of the wheel UPWARDS" (GREEN) (F4)

Press "CENTRE" to confirm. Calibration of the distance and diameter calipers is terminated, The program will display again the calibration menu page in **Fig. 109**.

Fig. 123
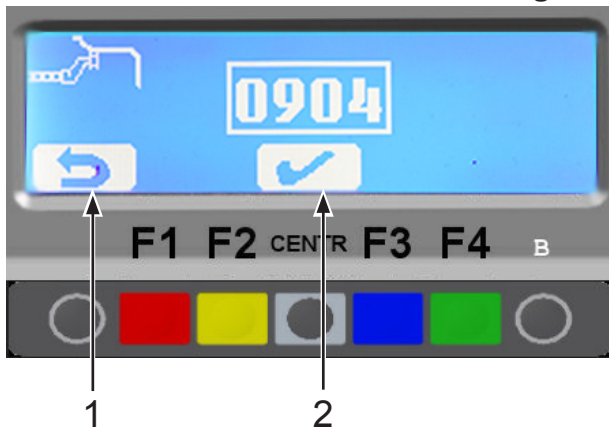
KEY
1 – Return to previous screen page (RED) (F1)
2 – Perform storing of gauge position (CENTRAL)

IF THE AUTOMATIC RIM WIDTH MEASURING DEVICE IS ENABLED, THE CALIBRATION PAGE WILL APPEAR FOR THIS DEVICE (SEE PARA. 21.4).

21.4 Calibration of external data gauge (optional)

After performing distance and diameter caliper calibration (see para. 21.3) if the external data gauge is enabled, the following page will be displayed:
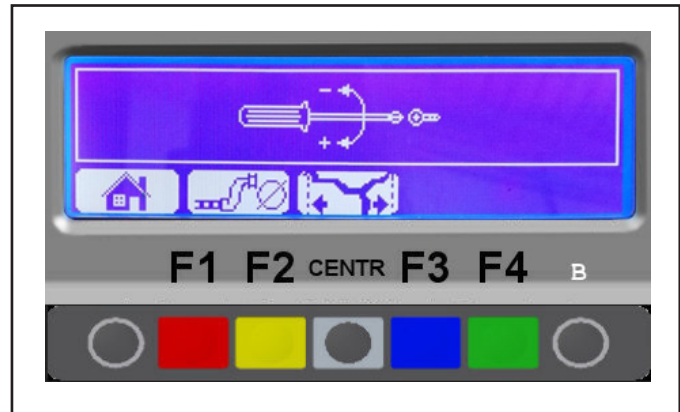
Press "CENTR" [icon] key to enter the following screen page (**Fig. 124**).

Fig. 124

KEY
1 – Exit from the width measurement calibration procedure and return to calibration menu page (RED) (F1)
2 – Perform storing of width measuring device position on "end of shaft" (GREEN) (F4)

Move the tip of the width measuring device (**Fig. 125A ref. 1**) by the chuck end (**Fig. 125A ref. 2**) (in case of PNEUMATIC chuck, move it next to the upper edge of the closed chuck) and press "F4". The program will show the screen page in **Fig. 125B**.

THREADED CHUCK   Fig. 125A

PNEUMATIC CHUCK

Fig. 125B

KEY
1 – Exit from the width measurement calibration procedure and return to calibration menu page (RED) (F1)
2 – Confirm storing of width measuring device position on "end of shaft" (CENTRAL)
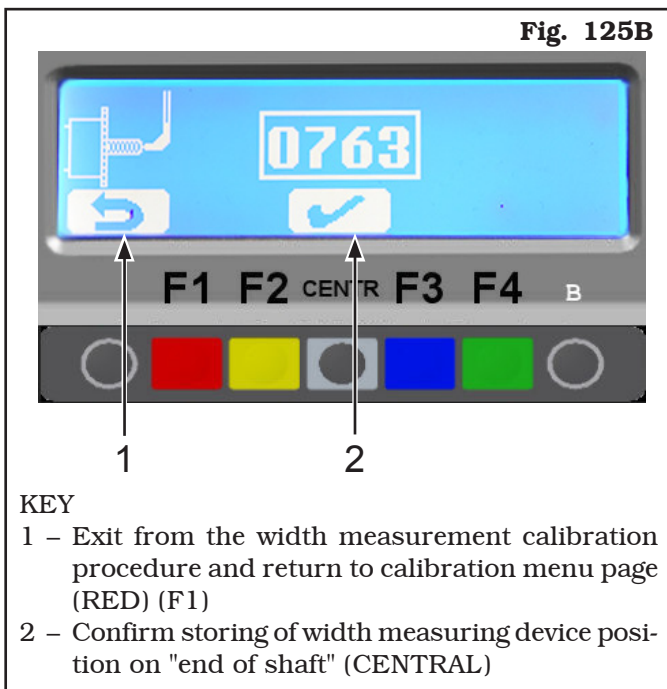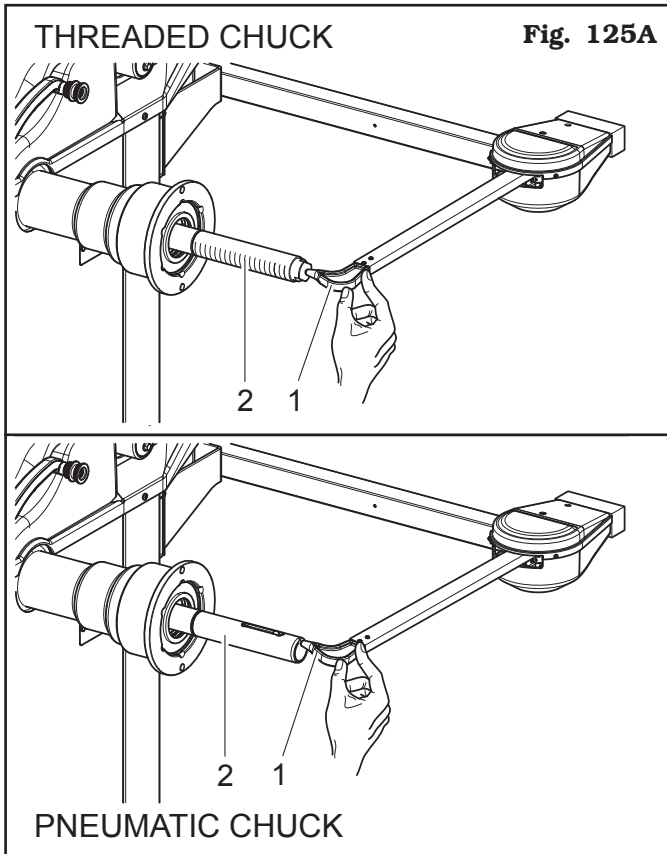
Press "CENTR" to confirm the measurement, the program will show the following screen:

Fig. 126

KEY
1 – Exit from the width measurement calibration procedure and return to calibration menu page (RED) (F1)
2 – Stores width measuring device position on "external flange surface" (GREEN) (F4)
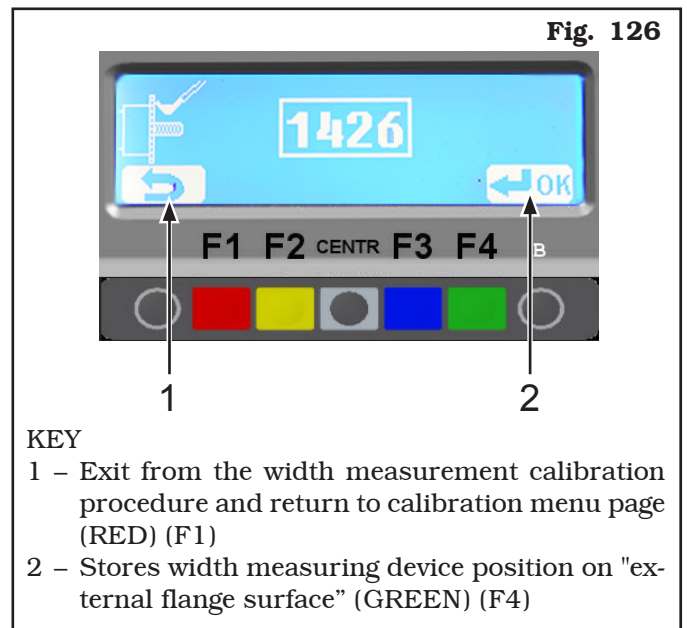
Move the tip of the width measuring device (**Fig. 127A ref. 1**) in line with the outer surface of the flange (**Fig. 127A ref. 2**) and press "F4". The program will show the screen page in **Fig. 127B**.

Fig. 127A

Fig. 127B

KEY
1 – Return to previous screen page (RED) (F1)
2 – Confirms width measuring device on "external flange surface" (CENTRAL)
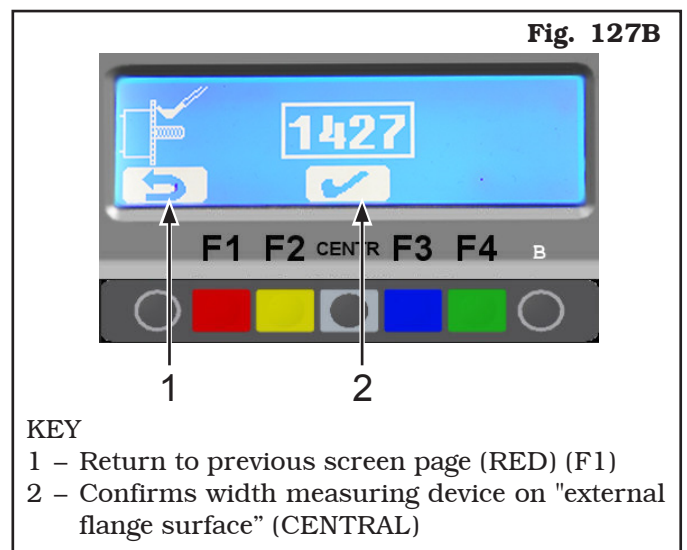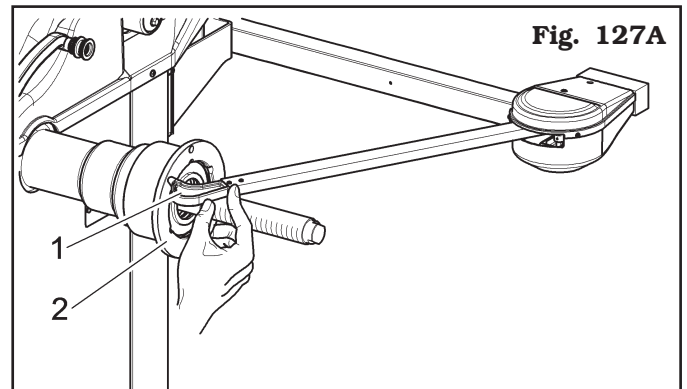
Press "CENTRE" to confirm the measurement. Rim width measuring device calibration is terminated. The program again displays the calibration menu page in **Fig. 111**.

21.5 Calibration of automatic width measuring device unit (standard on some models)

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

If the automatic width measuring device unit is enabled, the following screen page will be displayed:
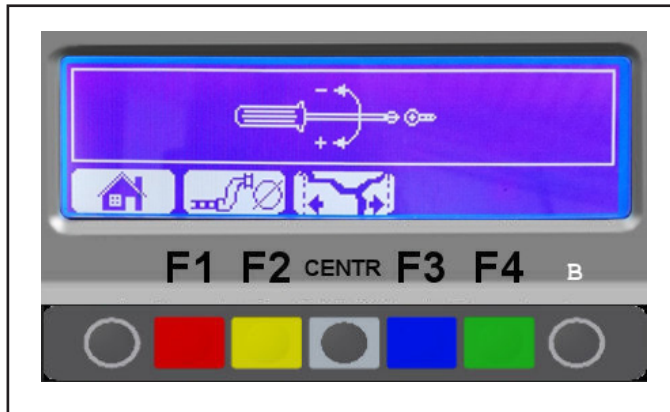
Press "CENTR" key to enter the following screen page (**Fig. 128**).
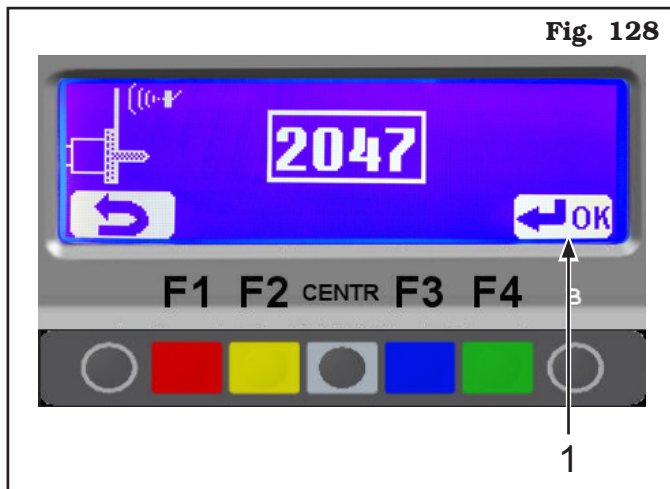
Fig. 128

Close the wheel cover until bringing the automatic width sensor next to the sizing body previously installed.
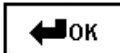
Remain in position and press key "F4" ◄◀OK (**Fig. 128 ref. 1**); the following screen page will be displayed.

Fig. 129
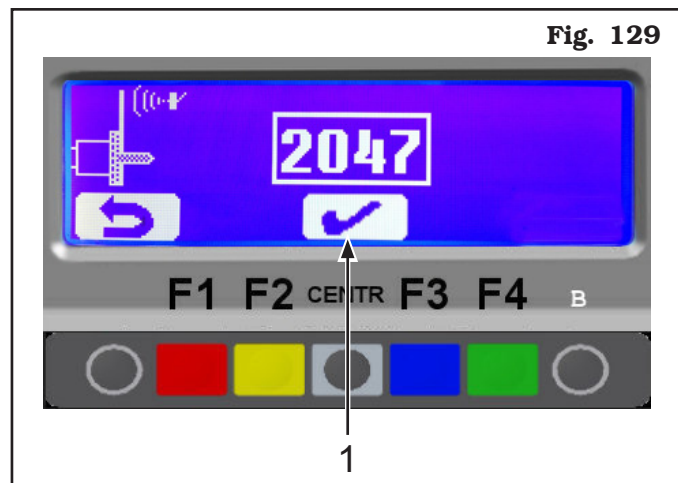
Press "CENTR" key (**Fig. 129 ref. 1**) to confirm the measuring; the calibration of the automatic rim width measuring device is over.

The program will display again calibrations menu screen page **Fig. 111**.

22.0 DISPLAY MODE OF WEIGHTS MEASUREMENT UNIT

The machine is supplied with "grams" (g) option enabled (see Chap. 20.1), therefore weights will be displayed only in grams.

In order to modify the measurement unit carry out the following procedure: if "ounce" option (Oz) is activated from "Configuration" menu (see Par. 20.1), "ounce" weight displaying mode is set.

"Ounces" option enabling allows to switch during the use of the machine from ounce weight display to grams weight display, and vice versa.

22.1 Display of the weights in grams

Select the display of unit of measurement expressed in grams (g) (see Chap. 20.1 - Configuration Menu).
On the following screen page:
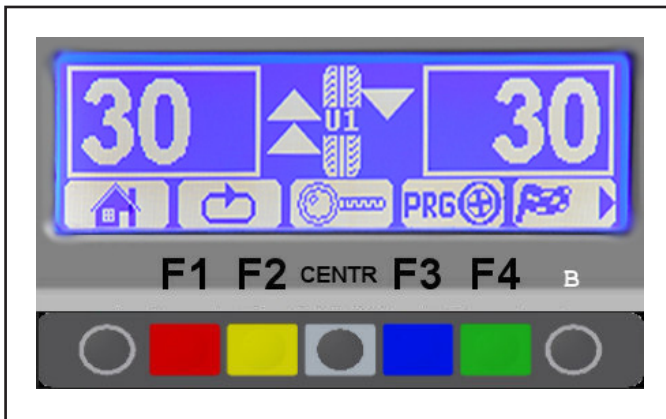
Press the button "CENTR" to display the weight with maximum resolution (1g) to be fitted on the wheel, expressed in grams.
On the monitor the next screen page will be displayed:
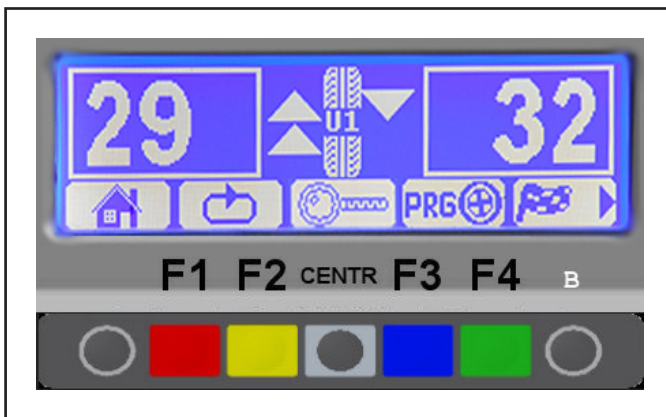
Press again the button "CENTR" to display the approximated weight to be fitted to the wheel, expressed in grams.
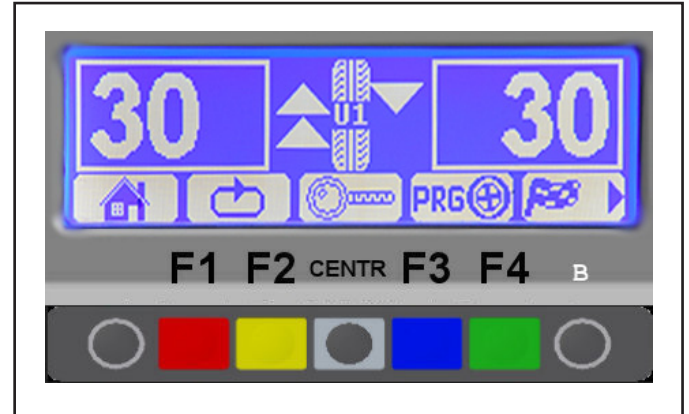
22.2 Display of the weights in Ounces / grams

Select the display of unit of measurement expressed in Ounces (oz) (see Chap. 20.1 - Configuration Menu).
On the following screen page:
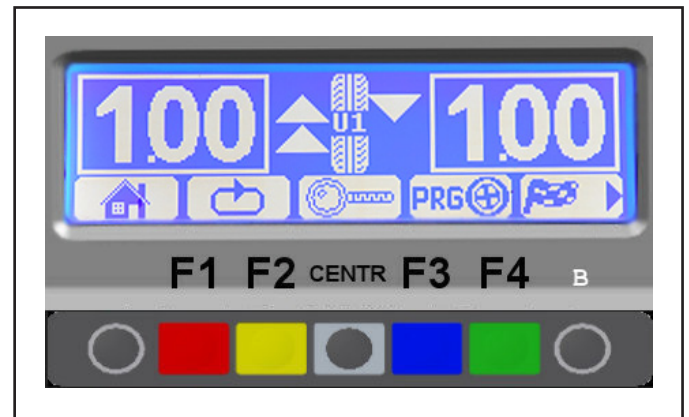
Press the button "CENTR" to display the weight with maximum resolution (0.05 oz) to be fitted on the wheel, expressed in Ounces.
On the monitor the next screen page will be displayed:
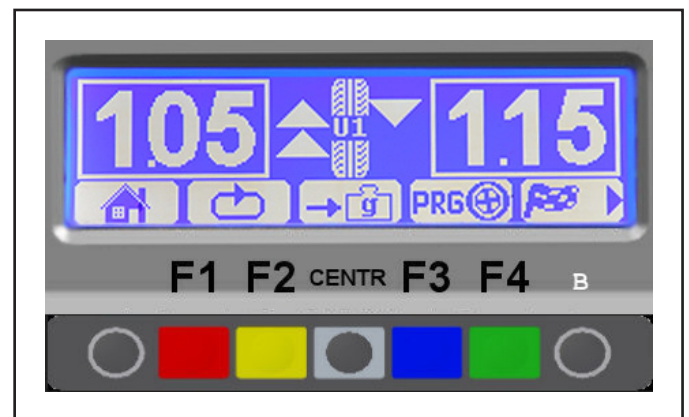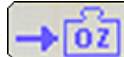
Press the button "CENTR" →[g] to set the display of the weights to be fitted on the wheel in grams.
On the monitor the next screen page will be displayed:
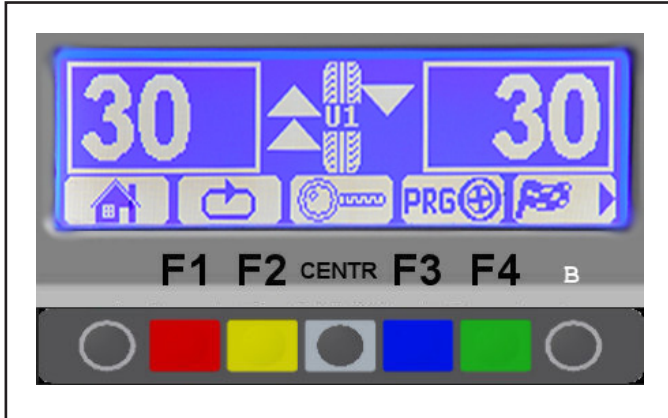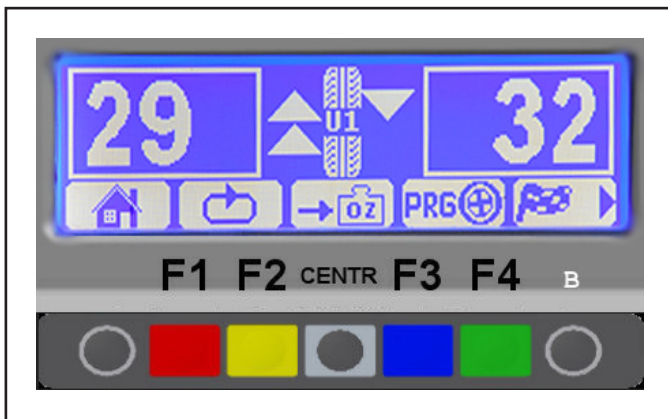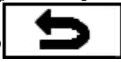
Press the button "CENTR" →[oz] to set the display of the weights to be fitted on the wheel in Ounces.
On the monitor the next screen page will be displayed:

Press the button "CENTR" [key icon] to display the weight with maximum resolution (1 g) to be fitted on the wheel, expressed in grams.
On the monitor the next screen page will be displayed:
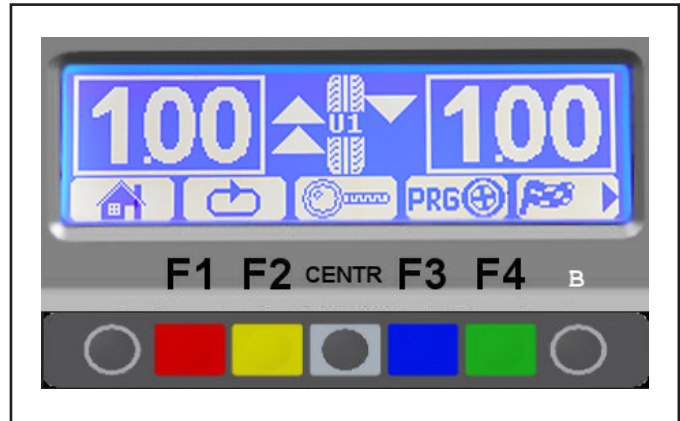
23.0 ERROR SIGNALS

During wheel balancer operation, if wrong commands are given by the operator or device faults occur, an error code or symbol may appear on the display screen. Press key F1/ [⬑] to return to the previous program phase after remedying the fault. Below is a troubleshooting chart.

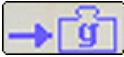| Error code	Cause
E. 1 → GUARD Error	During the balancing procedure, the protection guard appears open. If the guard is correctly closed, the detection micro or acquisition board may be faulty. ⚠ **THE CYCLE CAN IN ANY CASE BE PERFORMED, CUTTING OUT THE OPEN GUARD CONTROL, BY PRESSING THE F4+CENTR. KEYS SIMULTANEOUSLY. THIS OPERATION MUST BE PERFORMED IN MAX. SAFETY CONDITIONS, WITHOUT MOVING ANYTHING CLOSE UP TO THE ROTATING PARTS.**
E. 2 → No rotation signal	May be due to faulty position transducer or transducer not fitted correctly. Or else the motor is faulty or has not started because something is preventing its rotation.
E. 3 → Excessive weight value in wheel balancer calibration	During the calibration procedure, the machine detects excessive weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
E. 8 → Insufficient weight value in wheel balancer calibration	During the calibration procedure, the machine detects insufficient weight. The weight may not have been fitted properly; the data acquisition or measurement sensor may be faulty.
E. 9 → Calibration spin not completed	During the calibration procedure, the spin is not completed because the key has been pressed (STOP).
E. 10 → Pneumatic chuck error	During the balancing procedure, the pneumatic chuck is open. Close the chuck before starting the spin. If necessary, switch the machine off and on. If the error continues, the micro on the pedal or the acquisition board could be faulty.
E. 11 → Diameter sensor calibration/ width value out of range	During the diameter potentiometer calibration/width procedure, the machine detects an out-of-range value. The gauge may not have been positioned properly; the sensor data acquisition board may be faulty.
E. 12 → Diameter/Distance Error	During the balancing operation, the gauge is not in idle position. Turn the machine off and on with the gauge in correct idle position. If the error persists, the distance or diameter sensor or else the data acquisition board could be faulty.

24.0 ROUTINE MAINTENANCE

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

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

⚠ **PNEUMATICALLY UNPLUG THE MACHINE (ON MODELS WITH PNEUMATIC CHUCK)**

To guarantee the efficiency and correct functioning of the machine, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below.

Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below.

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

DO NOT BLOW IT WITH COMPRESSED AIR.

• Do not use solvents to clean the pressure regulator.

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

25.0 TECHNICAL DATA

25.1 Technical electrical data

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

25.2 Technical mechanical data

	G2.124NR G2.124RBMW	GP2.124NR	G2.124NWSPLUS
Balancing precision (g)	± 1		
Rim width (inches)	1.5 ÷ 22		
Rim diameter (inches)	10 ÷ 26		
Max. wheel diameter (inches)	40		
Cycle time (sec)	6		
Sound emission level (dBA)	< 70		
Max. wheel weight (kg)	70		
Recommended air pressure (bar)	-	8 - 10	-

	G2.124NR G2.124RBMW	GP2.124NR	G2.124NWSPLUS
Weight (Kg)	125	130	127

G2.124NR - G2.124RBMW - GP2.124NR - G2.124NWSPLUS

25.3 Dimensions

Fig. 130
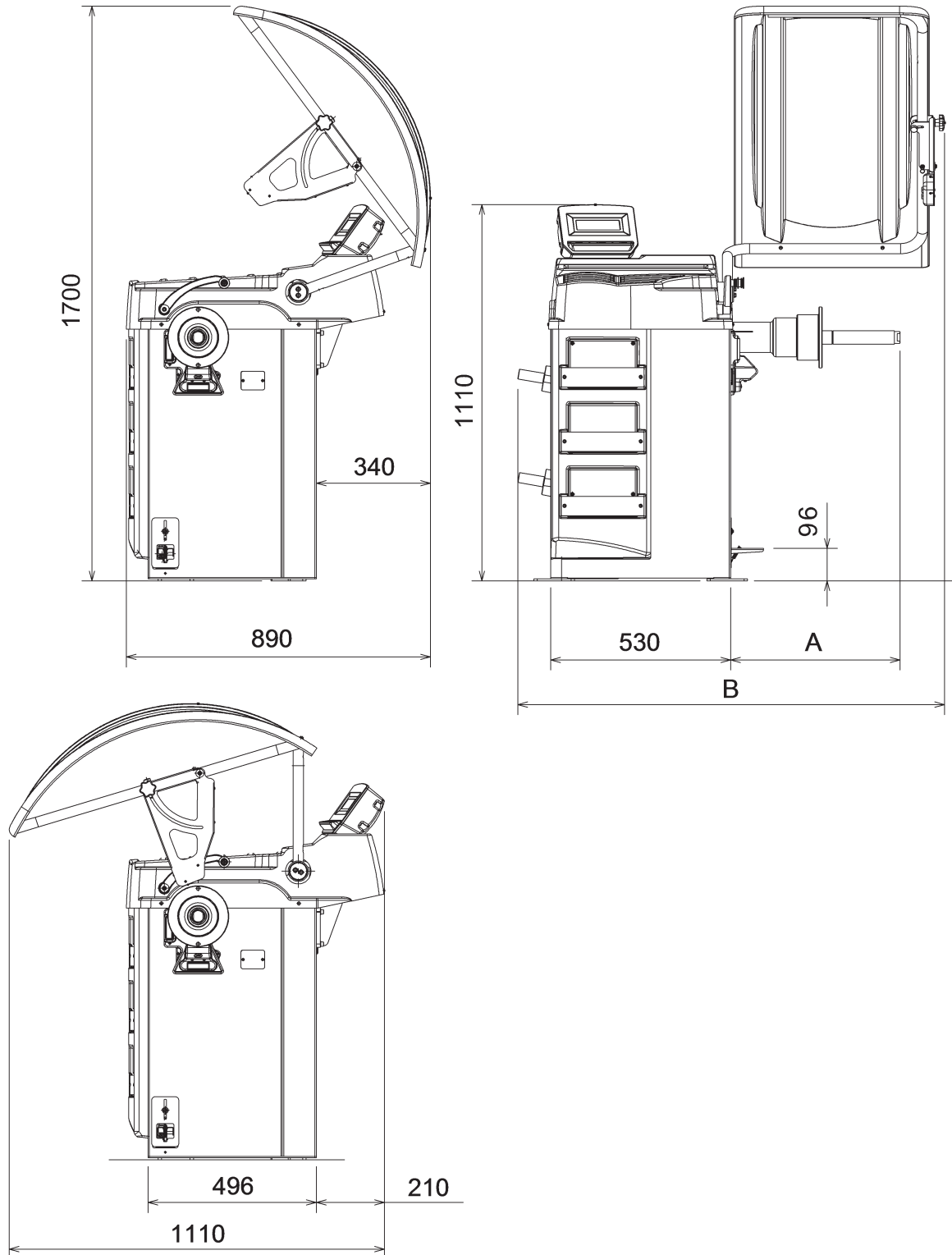
	A	**B**
G2.124NR - G2.124RBMW	500	1212
GP2.124NR	533	1212
G2.124NWSPLUS	500	1258

26.0 STORING

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

27.0 SCRAPPING

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

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

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

Fig. 131
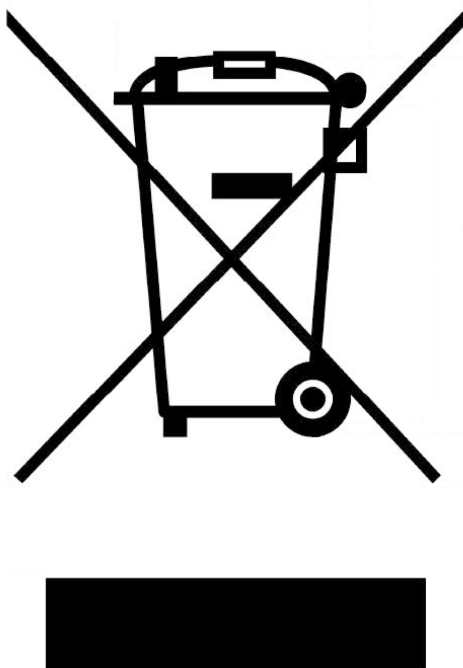
28.0 REGISTRATION PLATE DATA

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

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

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

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

29.0 FUNCTIONAL DIAGRAMS

Here follows a list of the machine functional diagrams.

BLACK
RED
- +
LED LIGHT
GND
EV-O
EV-C
GND
JP27
JP7

CAN-H BLUE
CAN-L BROWN
CAN-H GREEN
CAN-L YELLOW
32
31
JP6
JP17B
GND
MICRO PEDAL
TYRE COVER MICRO
GND
JP17A

220V / 50Hz
24V
220V
3
4
2
5
1

17 18 MICRO PEDAL
For GP2.124NR
15 16 TYRE COVER
MICRO
21

20

GAR306
NOTE A

CALIPER
WIDTH 28 27

DISTANCE CALIPER 14
DIAMETER CALIPER 13

ENCODER DISC 12 11
FRONT PIEZO 9
REAR PIEZO 10

5V
JP20
10A
6
USB
JP4
JP5
JP8
JP11
JP17
JP25
JP6
JP18
JP19
JP31
JP22
JP21
JP27
JP7
JP28
24V
JP16
JP15A
JP15
JP23

7
19
M
90W
8

LASER 6 O'CLOCK 25
LED LIGHT 26

22 EV-C
23 EV-O
24 SELF-CENTRING
CHUCK
PNEUMATIC
For GP2.124NR

AUTOMATIC WIDTH
31
30
JP7
JP4
JP2
29

GAR358 For G2.124NR
G2.124RBMW
GAR311 For GP2.124NR

GAR332

LASER
OUTSIDE
JP3
JP2
LASER
INSIDE
32

GAR368 For G2.124NR
G2.124RBMW
GAR334 For GP2.124NR

LASER 12 O'CLOCK
electric diagram

BROWN -
WHITE +
JP7

CAN-H
YELLOW
CAN-L
GREEN
JP4

NOTE A
If LASER AT 12 O'CLOCK and AUTOMATIC WIDTH devices should be simultaneously present, CAN-BUS
cable (pos. 31) of AUTOMATIC WIDTH must be connected to JP3 connector of 12 O'CLOCK LASER card
(pos. 32), stripping the sheath cable (pos. 31) of 200 mm.

G2.124NR - G2.124RBMW - GP2.124NR - G2.124NWSPLUS		
WIRING CONNECTION DIAGRAM	1296-M021-01	
RAVAGLIOLI S.p.A.	Drawing N°A - Rev. 0	129605580

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KEY

1 – Power supply cable L=2000
2 – Wired switch with plug
3 – Cable from switch to transformer
4 – Fuse
5 – Transformer
6 – Display kit
7 – DC motor
8 – Motor support ground cable
9 – Piezo with front cable
10 – Piezo with cable
11 – Wheel position sensor cable
12 – Encoder card
13 – Potentiometer with cable
14 – Optical line card
15 – Cable for wheel micro protection
16 – Limit switch
17 – Cable for pedal micro (on models with pneumatic chuck)
18 – Limit switch
19 – Motor cable extension
20 – Transformer cable extension
21 – Terminal for connector
22 – Cable for solenoid valve SV-C
23 – Cable for solenoid valve SV-O
24 – Mounting SV5
25 – Line laser (with cable)
26 – Led-light (on GAR311 or GAR358)
27 – Width potentiometer extension cable (on GAR306)
28 – Potentiometer with shielded cable (on GAR306)
29 – Ultrasounds sensor board (on GAR332)
30 – Width card cable assembly (on GAR332)
31 – Extension cable assembly (on GAR332)
32 – Wiring diagram (GAR334 - GAR335 - GAR367 - GAR368)
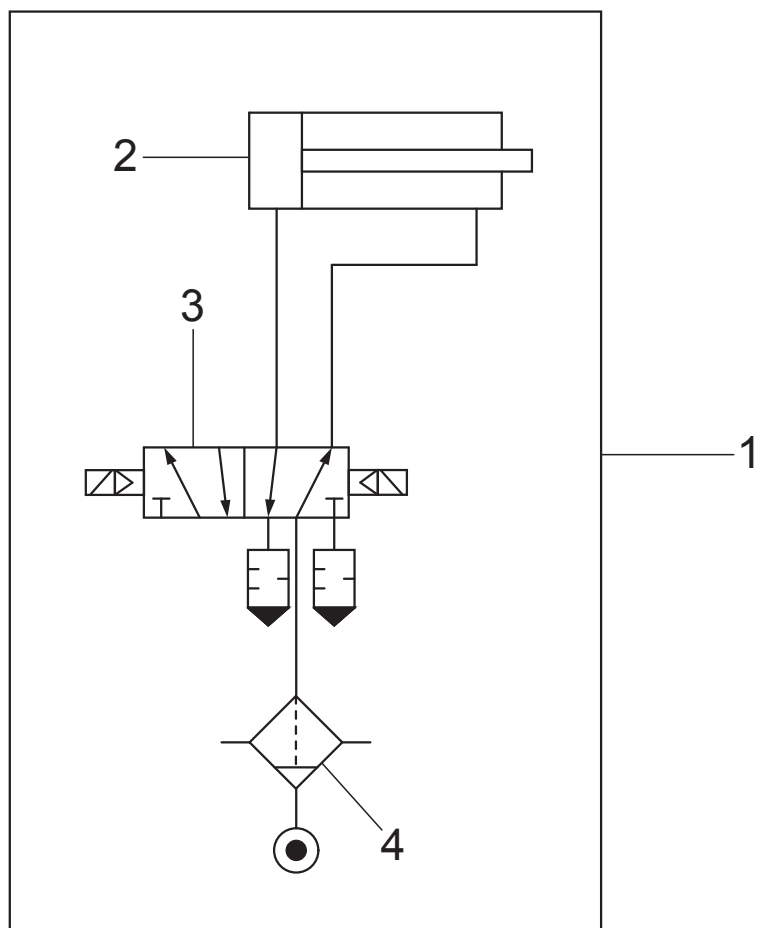
KEY
1 – Pneumatic tightening diagram
2 – Tightening drive cylinder
3 – 5/2 NC solenoid valves
4 – Separating filter

Dichiarazione di Conformità
Declaration of Conformity
Konformitätserklärung
Déclaration de Conformité
Declaración de Conformidad

CE

Noi
We / Wir / Nous / Nosotros

RAVAGLIOLI S.p.A.
via 1° Maggio , 3
40037 Pontecchio Marconi (Bologna) – 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 Erklaerung bezieht, 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 60204-1:2006/AC:2010   Sicurezza del macchinario – Equipaggiamento elettrico delle macchine –
Parte 1: Regole generali

La persona preposta a costituire il fascicolo tecnico è RAVAGLIOLI S.p.A.
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Il modello della presente dichiarazione è conforme alla norma   **UNI CEI EN ISO/IEC 17050-1**
The version of this declaration conforms to the regulation
Das Modell der vorliegenden Erklärung entspricht der Norm
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