**7104-M040-00**

TYRE-CHANGER SERIES
**G1500.3**

INSTRUCTION MANUAL
Applicable to the following models
**RAV.G1500.200754**

EN TRANSLATION FROM THE ORIGINAL INSTRUCTIONS

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

• For any further information please contact your local dealer or call:

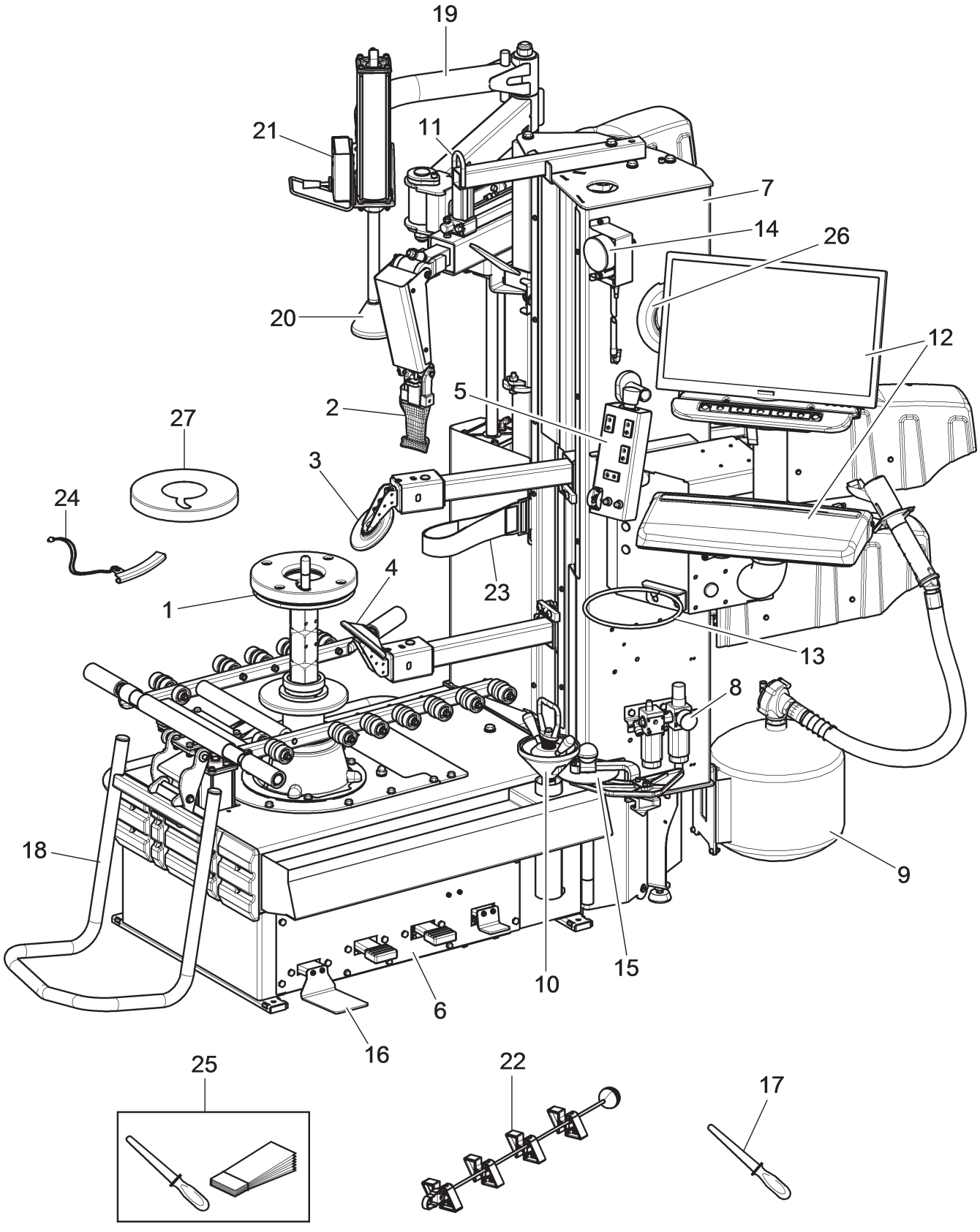
**VEHICLE SERVICE GROUP ITALY S.r.l**
Via Filippo Brunelleschi, 9 - 44020 Ostellato - Ferrara - Italy
Phone (+39) 051 6781511 - Fax (+39) 051 846349 - e-mail: aftersales.emea@vsgdover.com

**7104-M040-00 - Rev. n. 00 (10/2023)**

## SUMMARY

## GENERAL DESCRIPTION

Fig. 1



KEY (**Fig. 1**)

1 –Chuck
2 –Toolhead
3 –Upper bead breaker roller
4 –Lower bead breaker roller
5 –Multifunctional console
6 –Pedalboard
7 –Column assembly
8 –Air treatment assembly
9 –Tubeless inflation system vessel
10 –Locking device
11 –Lifting device
12 –Console
13 –Ring for mounting grease support
14 –Inflation pressure gauge assembly
15 – Beadpusher assembly with guard
16 –Pedal for operations assent
17 –WDK bead removing shovel
18 –Frontal lifting device
19 –Bead press device
20 –Pusher roller
21 –Bead press device control unit
22 –22-28 bead press extension
23 –Mounting strap with stopper
24 –Bead protector
25 –Bead protection kit + 50 bead sliding foils
26 –Two-faced cone
27 –Reverse wheels protection

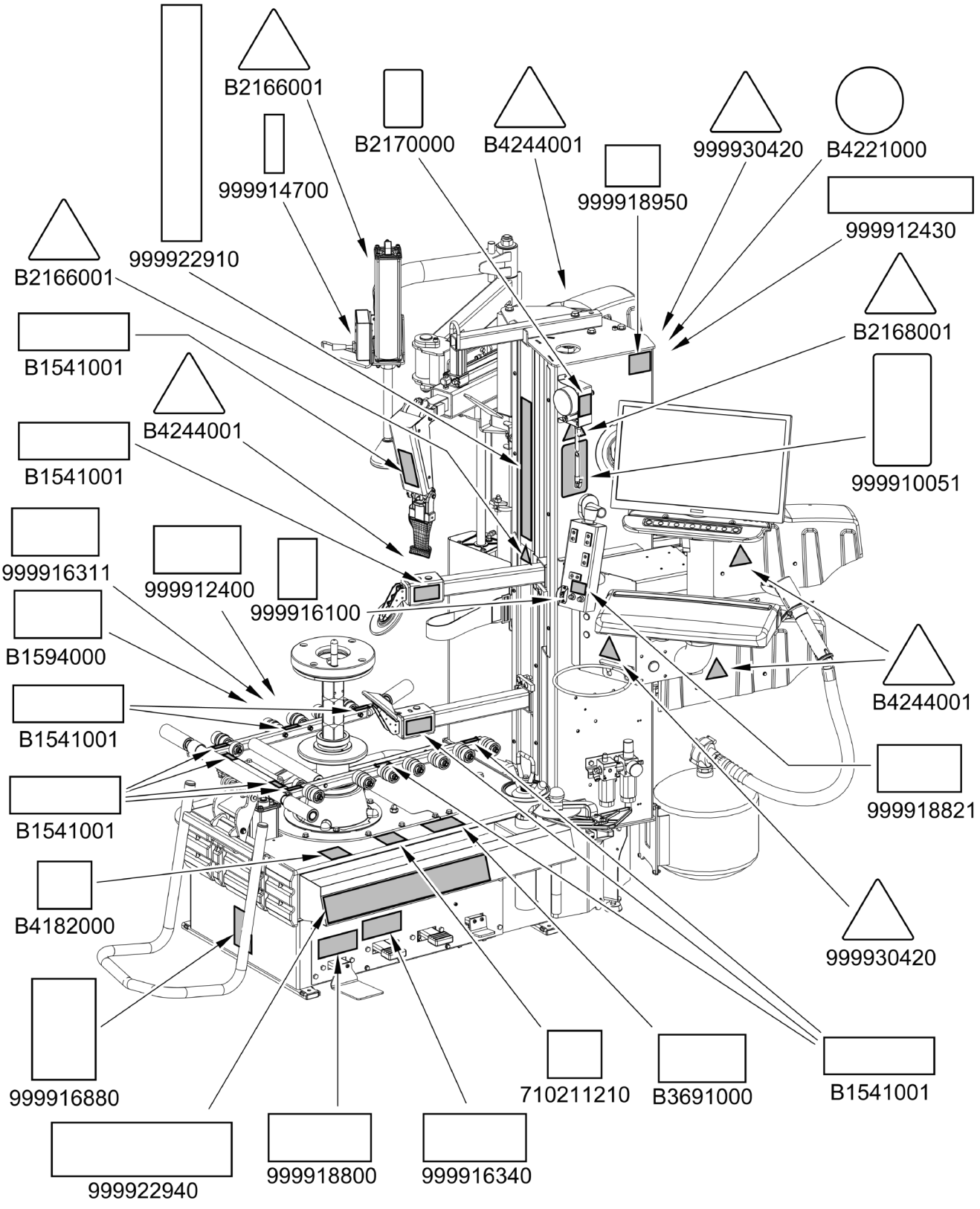
## SYMBOLS USED IN THE MANUAL

| Symbols | Description |
|---|---|
|  | Read instruction manual. |
|  | Wear work gloves. |
|  | Wear work shoes. |
|  | Wear safety goggles. |
|  | Mandatory.<br>Operations or jobs to be performed compulsorily. |
|  | Note. Indication and/or useful information. |

| Symbols | Description |
|---|---|
|  | Warning.<br>Be particularly careful (possible material damages). |
|  | Danger!<br>Be particularly careful. |
|  | Move with fork lift truck or pallet truck. |
|  | Lift from above. |
|  | Caution: hanging loads. |
|  | Technical assistance necessary.<br>Do not perform any maintenance. |

## PLATES LOCATION DRAWING

**Fig. 2**



| Code numbers of nameplates | |
|---|---|
| **B1541001** | *Danger nameplate* |
| **B1594000** | *Date indicating nameplate* |
| **B2166001** | *Bead breaker danger nameplate* |
| **B2168001** | *Tyre burst danger indicating nameplate* |
| **B2170000** | *Max. inflation pressure rating nameplate* |
| **B3691000** | *Inflation pedal nameplate* |
| **B4182000** | *Electric motor specifications nameplate* |
| **B4221000** | *Grounding nameplate* |
| **B4244001** | *Rotating parts danger nameplate* |
| **710211210** | *Rotation direction nameplate* |
| **710415780** | *Coloured keyboard nameplate* |
| **999910051** | *Protection device use nameplate* |
| **999912400** | *Serial number nameplate* |
| **999912430** | *230 V - 1 Ph - 50 Hz voltage nameplate* |
| **999914700** | *Bead press device control nameplate* |
| **999916100** | *Auto/Man nameplate* |
| **999916311** | *Rubbish skip nameplate* |
| **999916340** | *Lifting device pedal nameplate* |
| **999916880** | *Max. capacity load 80 kg (176 lbs) nameplate* |
| **999918800** | *Assent pedal nameplate* |
| **999918821** | *Control nameplate* |
| **999918950** | *WDK nameplate* |
| **999922910** | *Ravaglioli vertical nameplate* |
| **999922940** | *Ravaglioli horizontal nameplate* |
| **999930420** | *Electric shock danger nameplate* |

**IF ONE OR MORE NAMEPLATES ARE MISSING FROM THE EQUIPMENT OR BECOMES DIFFICULT TO READ, REPLACE IT AND QUOTE ITS/THEIR PART NUMBER/S WHEN REORDERING.**

**SOME OF THE PICTURES IN THIS MANUAL HAVE BEEN OBTAINED FROM PICTURES OF PROTOTYPES, THEREFORE THE STANDARD PRODUCTION EQUIPMENT AND ACCESSORIES CAN BE DIFFERENT THAN PICTURED.**

## 1.0 GENERAL INTRODUCTION

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

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

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

### *1.1 Introduction*

Thanks for purchasing this tyre changer! The tyre changer is designed and built for professional garages. The tyre changer is easy to use with safety in mind. Following the care and maintenance outlined in this tyre changer manual your tyre changer will provide years of service.

## 2.0 INTENDED USE

The equipment described in this manual is a tyre changer that uses two systems:

- an electric motor coupled to a reduction gearbox to handle the tyre rotation, and
- a compressed air system to manage the movement of the pneumatic cylinders with several assembly/disassembly tools.

The equipment is to be used only for the mounting and demounting of any type of wheel with the whole rim (drop centre and with bead) with diameters and width values mentioned in “Technical specifications” chapter.

**THIS EQUIPMENT MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT IS SPECIFICALLY DESIGNED. ANY OTHER USES ARE TO BE CONSIDERED IMPROPER AND THEREFORE UNACCEPTABLE.**

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

### *2.1 Training of personnel*

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

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

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

## 3.0 SAFETY DEVICES

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

The product is equipped with:

- **logic layout of commands.**

  Its function is to prevent the operator from dangerous mistakes;

- **motor protection devices (on models with power supply with inverter).**

  The motor with inverter is equipped with electronic protection devices. They stop the motor to avoid damaging the motor and compromising the operator safety (overvoltage, overload, overtemperature). For other details, see the chapter 15 “Fault-Finding”.

- **emergency push-button**.

  The “Emergency push button” (**Fig. 17 ref. I**) has two fixed operative functions:

  - pressed push button: all control unit functions are interrupted and the supply to the equipment electric cabinet is interrupted, except for the control PC;
  - lifted push button: reset of equipment functions;

- **emergency start.**

  The product is equipped with a control mechanism requiring some operations and/or checks in case of anomalous switch-off (in case of power lack, for instance). After confirmation through push-button panel, the functions are reset and the equipment emergency condition is cancelled;

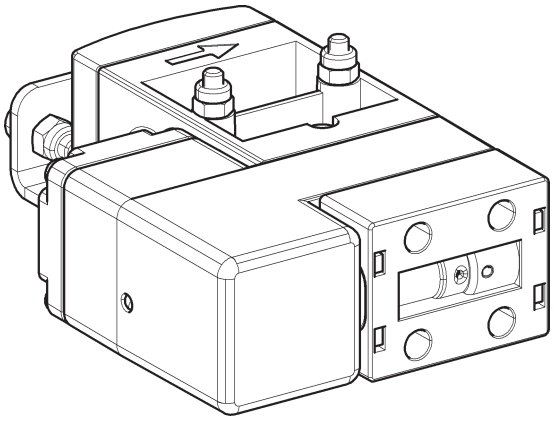
- **assent pedal.**

  In automatic functioning (from PC) this pedal enables equipment automatic functioning. When the pedal released, the equipment automatically stop. When lowered, the equipment resumes operations;

- **non-adjustable (balancing valve) pressure relief device.**

  This allows inflation of tyres in reasonable safety. Inflation of tyres to over 4.2 ± 0.2 bar (60 ± 3 psi) is not allowed (see **Fig. 3**);

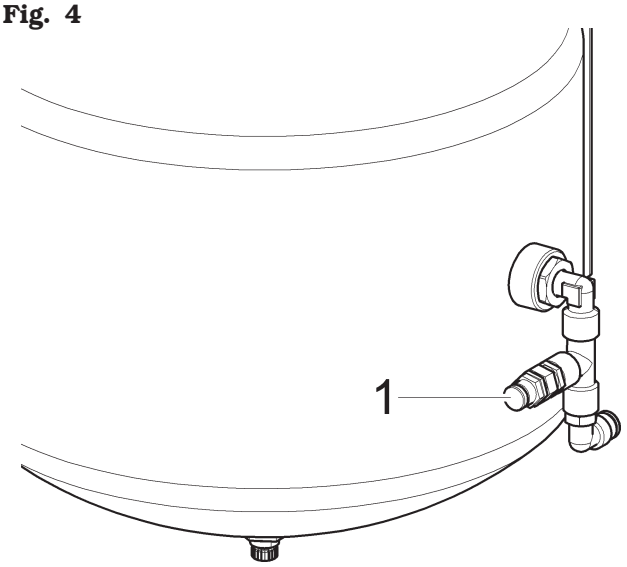
**Fig. 3**



- **12 bar safety valve on tank (on model with tubeless inflation system).**

  The safety valve (**Fig. 4 ref. 1**) avoids that the tubeless inflation system vessel is under a pressure above 12 bar (174 psi).

**Fig. 4**




### *3.1 Residual risks*

The equipment was subjected to a complete analysis of risks according to reference standard EN ISO 12100. Risks are as reduced as possible in relation with technology and equipment functionality.
Possible residual risks have been emphasized through pictorial representations and warnings which placing is indicated in “PLATE LOCATION DRAWING” (see **Fig. 2**).

## 4.0 IMPORTANT SAFETY INSTRUCTIONS

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

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

**SAVE THESE INSTRUCTIONS**

### *4.1 General safety rules*

- Any tampering with or modification to the machine not previously authorized by the manufacturer exempts the latter from all responsibility for damage caused by or derived from said actions.
- Removing of or tampering with the safety devices or with the warning signals placed on the equipment leads to serious dangers and represents a transgression of European safety standards.
- The equipment may be used only in areas free from the danger of explosion or fire.
- The use of only original accessories and spare parts is advised. Our equipment is designed to function only with original accessories.
- The installation must be performed by qualified personnel in full compliance with the instructions given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the equipment if it malfunctions and contact the customer service of the authorized dealer.
- In emergency situations and before carrying out any maintenance or repairs, isolate the equipment from energy sources by disconnecting the electrical and/or pneumatic power supply using the main switch.
- The equipment power supply system must be supplied with an appropriate earth wire, to which the yellow-green equipment protection wire must be connected.
- Ensure that the area around the equipment is free of potentially dangerous objects and that the area is oil free since this could damage the tyre. Oil on the floor is also a slipping hazard for the operator.

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



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

- The equipment handles and operating grips must be kept clean and free from oil.
- The workshop must be kept clean and dry and not in an out doors location. Make sure that the working premises are properly lit.
  The equipment can be operated by a single operator at a time. Unauthorized personnel must remain outside the working area, as shown in **Fig. 14.**
  Avoid any hazardous situations. Do not use this equipment when the shop is damp or the floor slippery and do not use this equipment out doors.
- During inflation do not lean on the tyre or stand on it; when beading in the tyre, keep hands away from tyre and rim edge.
- During inflation always stay to the side of the equipment and never in front of it.
- When operating and servicing this equipment, carefully follow all in force safety and accident-prevention precautions.
  The equipment must not be operated by untrained personnel.
- Never activate the inflation device if the tyre has not been correctly locked.

**ALWAYS KEEP THE CONTROLS IN THE NEUTRAL POSITION.**

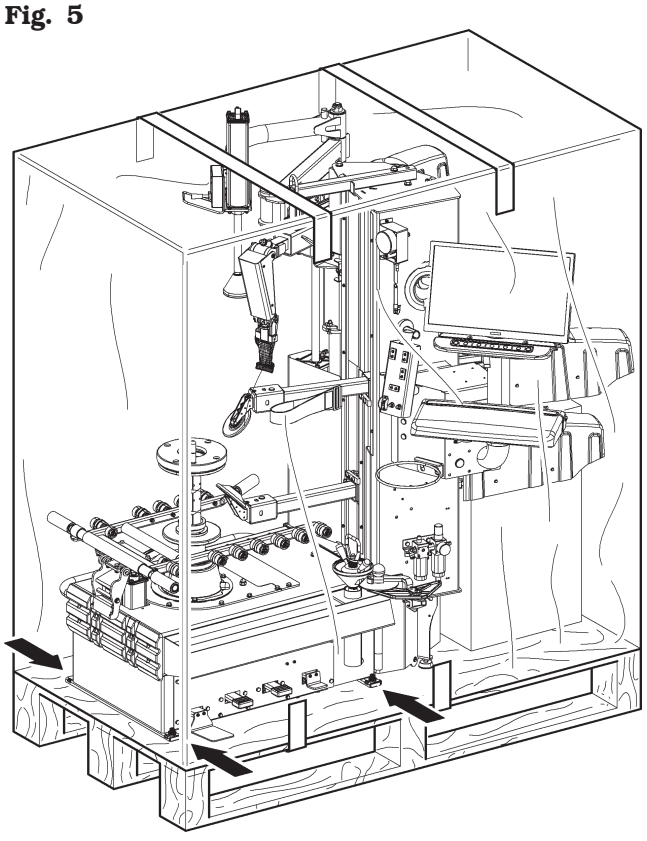
## 5.0 PACKING AND MOBILIZATION FOR TRANSPORT




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

The equipment is packed partially assembled.
Movement must be by pallet-lift or fork-lift trolley.
The fork lifting points are indicated on the packing, (see **Fig. 5**).

**Fig. 5**



## 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 equipment packed fully assembled, check that the machine is complete and that there is no visible damage.
If in doubt **do not use the equipment** and refer to professionally qualified personnel (to the seller).
The packing (plastic bags, expanded polystyrene, nails, bolts, timber, etc.) should not be left within reach of children since it is potentially dangerous. These materials should be deposited in the relevant collection points if they are pollutants or non biodegradable.

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

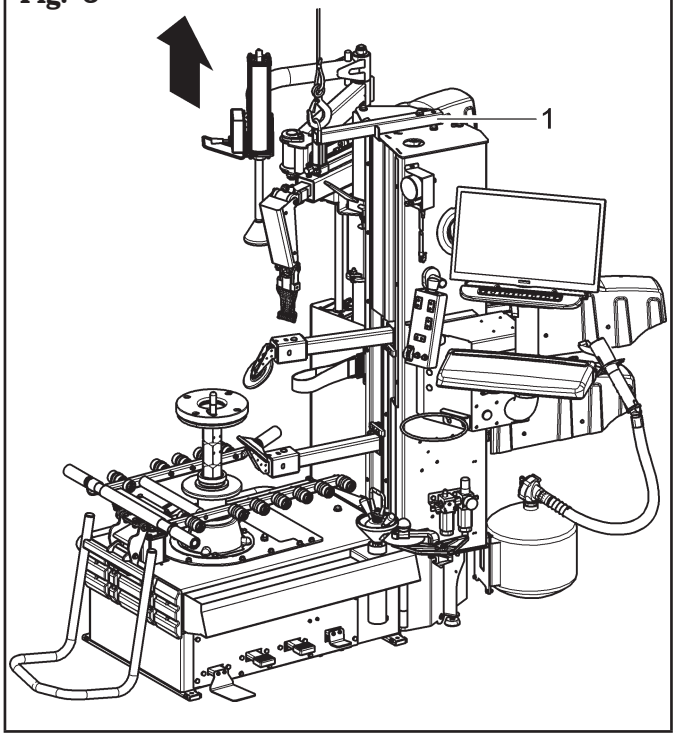
## 7.0 MOBILIZATION

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

If the equipment has to be moved from its normal work post the transport must be conducted by following the instructions listed below.

- Protect the exposed corners with suitable material (bubble wrap/cardboard).
- Do not use metallic cables for lifting.
- Make sure that the equipment power supply is not connected.
- Sling with belts long at least 450 cm (177.17") and with a capacity load greater than 2500 kg (5512 lbs). Then carry out the lifting using the bracket (**Fig. 6 ref. 1**).

**Fig. 6**



## 8.0 ASSEMBLY AND PREPARATION FOR USE

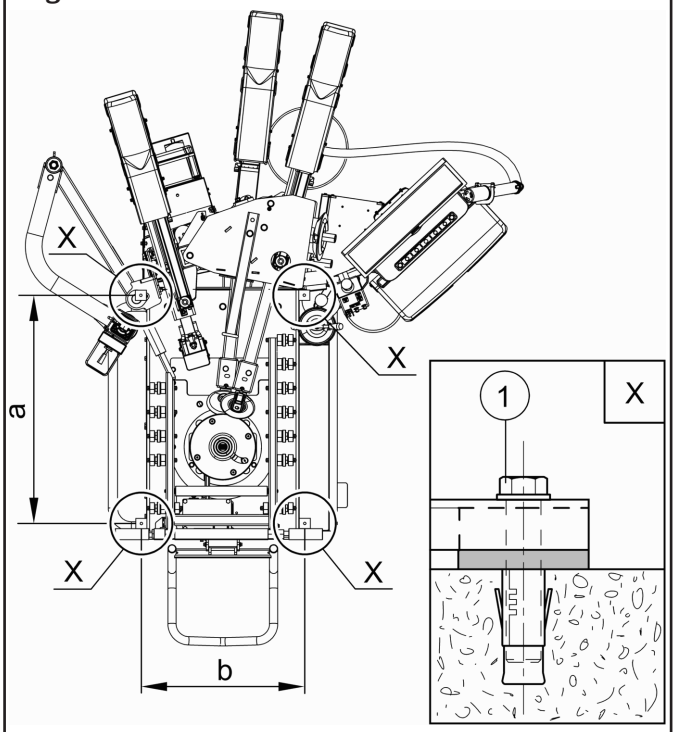
**ALL EQUIPMENT ASSEMBLY OR ADJUSTMENTS MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.**

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

### *8.1 Anchoring system*

The packed equipment is secured to the support pallet through the holes on the frame and indicated in the figure below. These holes can be used to secure the equipment to the floor, using suitable concrete anchors (not included). Before concrete anchoring to floor, check that all the anchor points are flat, or level in contact with the floor. If not, shim between the equipment and the floor, as indicated in **Fig. 7**.

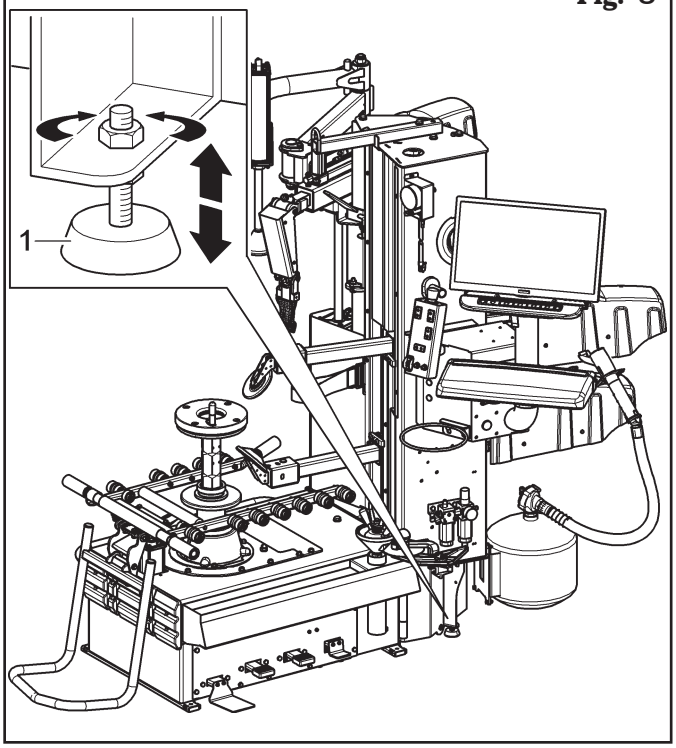
**Fig. 7**




**a**=830 mm / 32.68”
**b**=590 mm / 23.23”

- To secure the equipment to the floor, use anchoring bolts/studs (**Fig. 7 ref. 1**) with a threaded shank M8 (UNC 5/16) suitable for the floor on which the tyre changer will be secured and in a number equal to the number of mounting holes on the bottom frame;
- drill holes in the floor, suitable for inserting the chosen anchors, in correspondence with the holes on the bottom frame;
- insert the anchors into the holes drilled in the floor through the holes on the bottom frame and tighten the anchors;
- tighten the anchors on the base frame and torque as indicated by the manufacturer of the anchors;
- before securing completely the equipment to the ground, flush its rear part rotating its feet (**Fig. 8 ref. 1**).

**Fig. 8**



## 8.2 Accessories contained in the packing

The packing case contains also the accessories box. Check that all the parts listed are there.

| Code | Description | N. |
|---|---|---|
| B1157000 | *Two-faced cone* | 1 |
| 710013421 | *Reverse wheels protection* | 1 |
| 710190830 | *Beadpusher assembly with guard* | 1 |
| G1000A138 | *Locking device with short shaft* | 1 |

Each equipment is supplied with an activation kit (**WARNING: DO NOT THROW AWAY!**) in a separated box near the monitor; the kit consists of:
- SMART CARD (**ref. 1**) with serial number (**WARNING: DO NOT THROW AWAY!**);
- USB (**ref. 2**) marked with the same serial number and containing the equipment PC installation files. The card can be used for backup procedure (save) and for PC data restore.


**CAREFULLY KEEP THIS MATERIAL AS IT WON'T BE SUPPLIED AGAIN AS A SPARE PART.**

**THE MANUFACTURER DENIES LIABILITY FOR THE LOSS OF THE SMART CARD AND/OR USB KEY.**

## 8.3 Assembly procedures

1. Assemble "Tubeless inflation" assembly to the equipment keeping to the following instructions:
   - secure the tank (**Fig. 9 ref. 6**) to the support flange (**Fig. 9 ref. 7**) using the bolts (**Fig. 9 ref. 4**) and nuts (**Fig. 9 ref. 5**) supplied;
   - secure the flange (**Fig. 9 ref. 7**) to the equipment (**Fig. 9 ref. 3**) using the bolts (**Fig. 9 ref. 1**) and nuts (**Fig. 9 ref. 2**) supplied with the equipment;

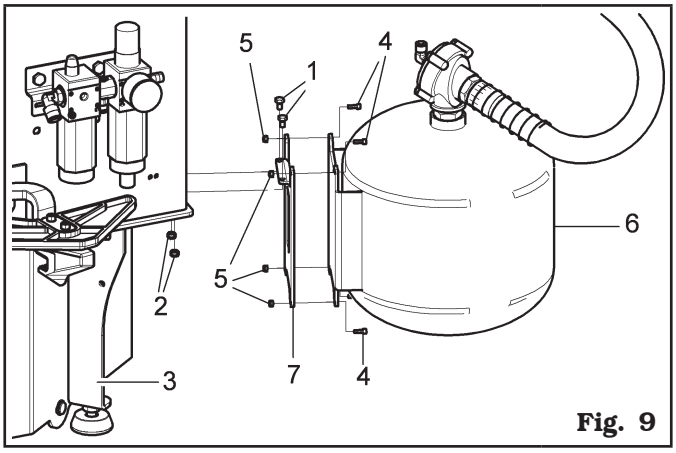
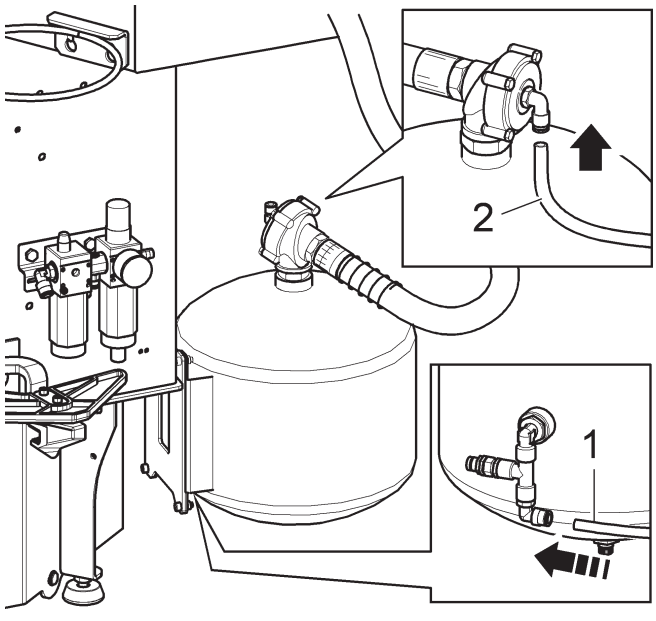


**Fig. 9**

2. connect the black hose (**Fig. 10 ref. 1**) and the blue hose (**Fig. 10 ref. 2**) on the provided quick couplings as shown in figure **Fig. 10**;

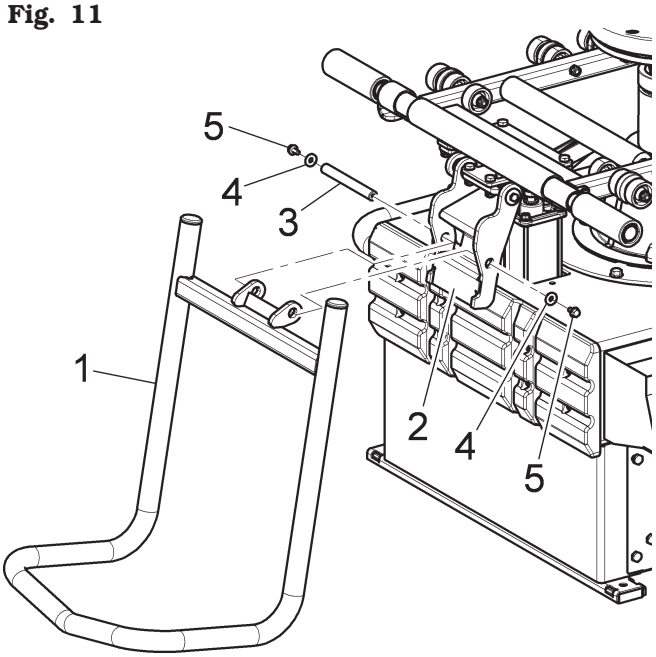
**Fig. 10**




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

3. secure the wheel lift cradle support hose (**Fig. 11 ref. 1**) to the bracket of the base support (**Fig. 11 ref. 2**) using the pin (**Fig. 11 ref. 3**), the washers (**Fig. 11 ref. 4**) and the bolts (**Fig. 11 ref. 5**) supplied;

**Fig. 11**

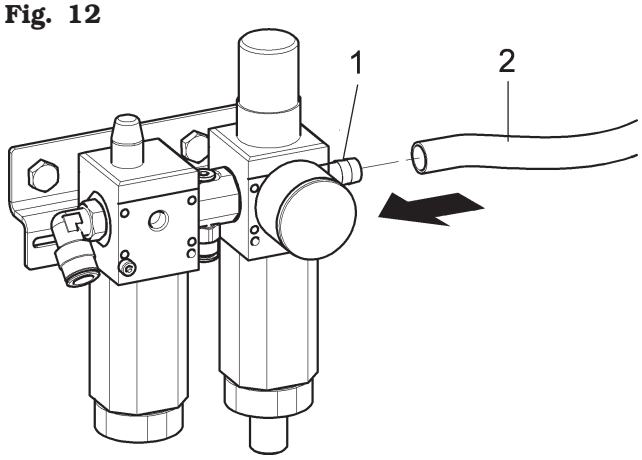



## *8.4 Connection to the compressed air supply*

**ANY PNEUMATIC ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF.**

Connect the mains pneumatic supply through the fitting (**Fig. 12 ref. 1**) placed on equipment filter assembly. The pressurized hose (**Fig. 12 ref. 2**) coming from the mains must have a minimum inner diameter of 10 mm (3/8") and a minimum outer diameter of 19 mm (3/4") (see **Fig. 12**) to have sufficient flow (see **Fig. 12**).

**Fig. 12**




**THE MINIMUM OPERATING PRESSURE OF THE SUPPLY HOSE AND INSTALLED FITTINGS MUST BE AT LEAST 300 psi. THE MAXIMUM BURST PRESSURE OF THE SAME MUST BE AT LEAST 900 psi.**

**USE A SUITABLE PNEUMATIC THREADED CONNECTION SEALING TAPE FOR ALL PNEUMATIC CONNECTIONS.**

**IF OTHER PNEUMATIC CONNECTIONS SHOULD BE EXECUTED, REFER TO THE PNEUMATIC DIAGRAMS ILLUSTRATED IN CHAPTER 20.**

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

## 9.0 ELECTRICAL CONNECTIONS

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

**BEFORE CONNECTING THE EQUIPMENT MAKE SURE THAT:**

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

The equipment is supplied with a cable. A plug corresponding to the following requirements must be connected to the cable:

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

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

**FAILURE TO OBSERVE THE ABOVE INSTRUCTIONS WILL IMMEDIATELY INVALIDATE THE WARRANTY AND MAY DAMAGE THE EQUIPMENT.**

| Motor power supply | Conformity standard | Voltage | Amperage | Poles | Minimum IP rating |
|---|---|---|---|---|---|
| Power supply 1 Ph, inverter motor | IEC 309 | 200/240V | 16A | 2 Poles + Ground | IP 44 |

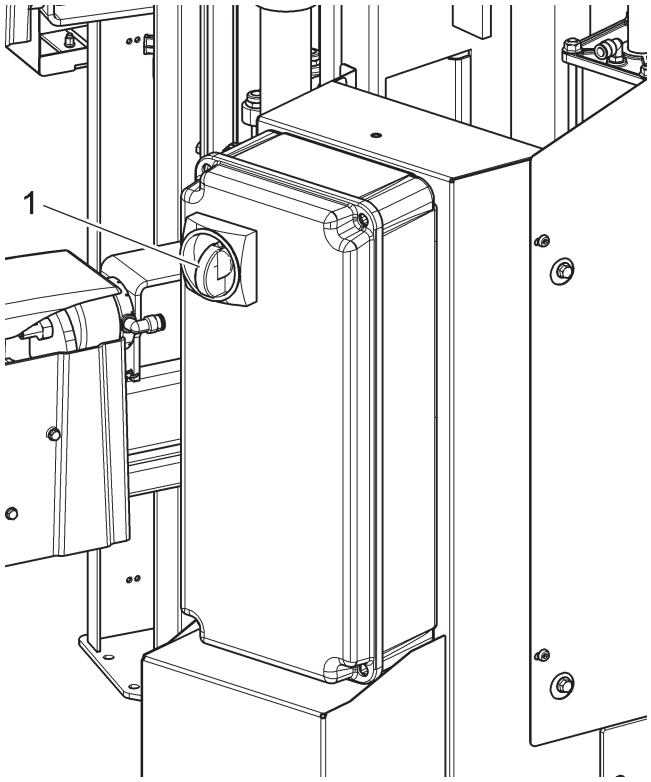
## 9.1 Electrical checks

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

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

Once the plug/socket connection has been made, turn on the equipment using the main switch (**Fig. 13 ref. 1**).

**Fig. 13**




# 10.0 WORKING ENVIRONMENT CONDITIONS

The equipment must be operated under proper conditions as follows:

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

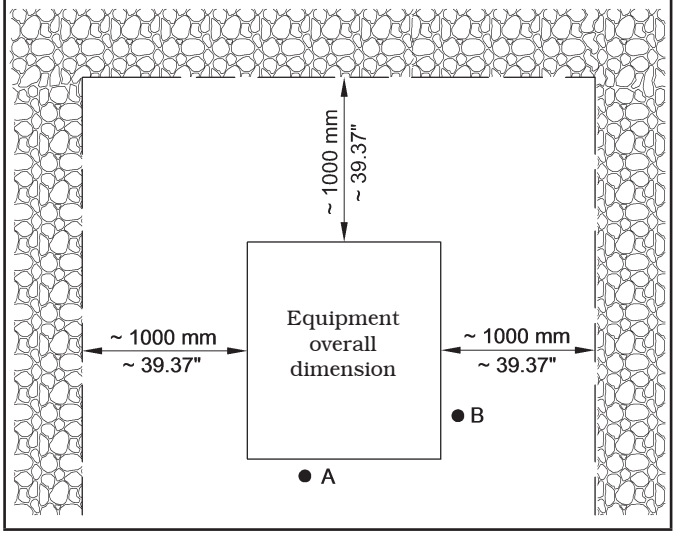
The use of the equipment in ambient conditions other than those specified above is only allowed after prior agreement with and approval of the manufacturer.

## 10.1 Work position

In **Fig. 14** it is possible to identify work positions **A** and **B**.
Position **A** is the main position for wheel fitting and removal with the chuck, while position **B** is ideal to follow wheel bead breaking operations.
Working in these positions allows better precision and speed during operating phases as well as greater safety for the operator.

## 10.2 Installation space

**Fig. 14**




**USE THE EQUIPMENT IN A DRY AND SUFFICIENTLY ILLUMINATED PLACE, CLOSED, PROTECTED FROM ALL WEATHER CONDITIONS AND COMPLYING WITH THE REGULATIONS IN FORCE REGARDING WORK SAFETY.**

The location of the equipment requires a usable space as indicated in **Fig. 14**. The positioning of the equipment must be executed according to the distances shown. From the control position the operator is able to observe all the equipment and surrounding area. Operator must prevent unauthorized personnel or objects that could be dangerous from entering the area. The equipment must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.
The equipment base floor must be able to support the loads transmitted during operation. This surface must have a capacity load of at least 500 kg\m² (100 lb/ft²). The depth of the solid floor must guarantee the tightness of the anchor plugs.

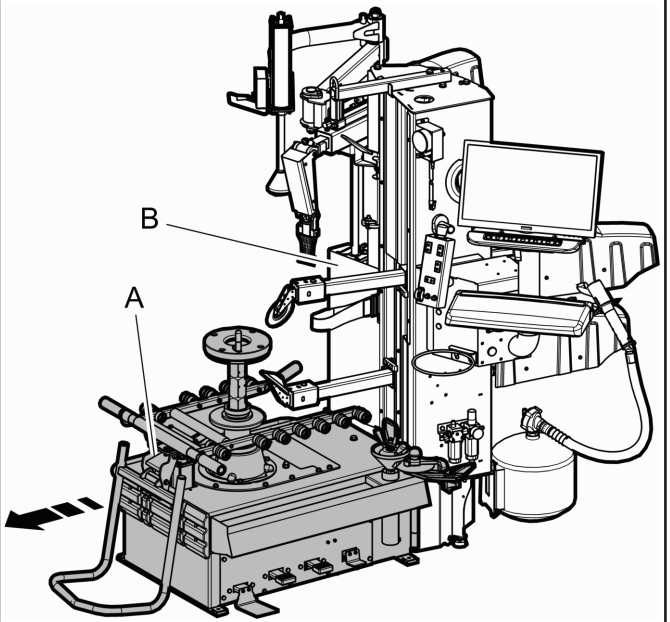
## *10.3 Lighting*

The equipment must be placed in a sufficiently lit environment in compliance with current regulations.

## *10.4 Working area modification*

After the delivery, the equipment is pre-set to operate on wheel of 50" max. diameter and a rim diameter (10" - 30"). It's also possible to move the tools column to enlarge the working area from 52" (with rim diameter of 12" - 32") and up to 54" (with rim diameter of 14" - 34") (see **Fig. 15**).

**Fig. 15**




The column is moved by unloosing the base fixing bolts (**Fig. 15 ref. A**) to the column (**Fig. 15 ref. B**) and by sliding the base (**Fig. 15 ref. A**) itself into the proper slots up to the desired measure.

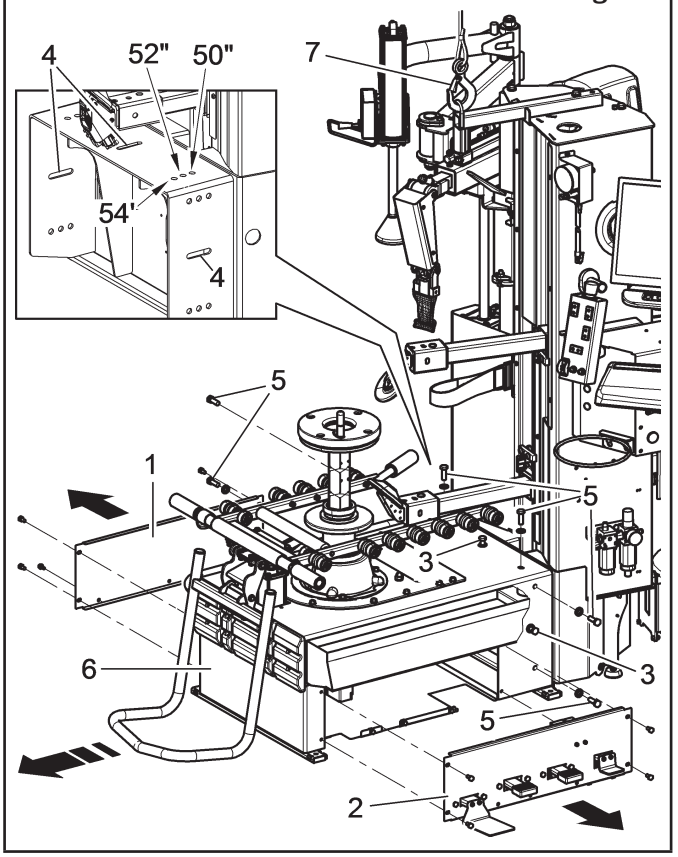
**MAKE SURE THAT THE TYRE-CHANGER COLUMN IS STABLE: USE A CABLE HELD BY A HOIST AND HOOK IT TO THE APPROPRIATE LIFTING TRAVERSE (FIG. 16 REF. 7).**

1. Remove the lateral guards (**Fig. 16 ref. 1-2**) of the equipment.
2. Remove the bolts (**Fig. 16 ref. 3**) and the nuts near the central slots (**Fig. 16 ref. 4**) paying attention not to remove the nuts from the proper bolts.
3. Remove the six remaining bolts (**Fig. 16 ref. 5**).

4. Move the base (**Fig. 16 ref. 6**) into the required position (to 52" or 54") and if necessary, use a lifting device (**Fig. 16 ref. 7**).
5. Lock the base three bolts (**Fig. 16 ref. 3**) with a torque of 80 Nm.
6. Place six bolts (**Fig. 16 ref. 5**) previously removed and lock them on the bases side with a torque of 80 Nm.
7. Assemble again the lateral guards (**Fig. 16 ref. 1-2**) of the equipment;

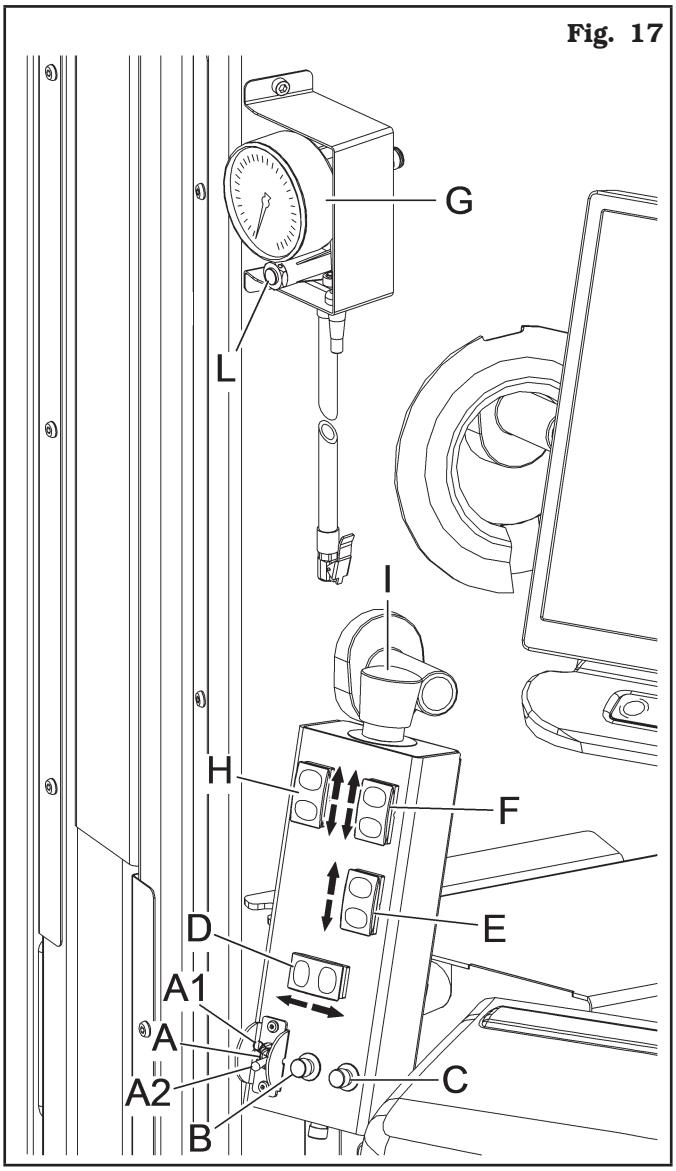
**AFTER THE ASSEMBLY, CHECK THE CORRECT POSITION OF THE TOOLS. LOCK THE RIM ON THE CHUCK CENTRE. WITH THE LOWER BEAD BREAKER ARM, CHECK THAT THE DISTANCE BETWEEN THE ROLLER AND THE RIM EDGES (UPPER AND LOWER) IS ALMOST THE SAME. REPEAT ALL THE PROCEDURES STARTING FROM POINT 1 IF THE DISTANCE IS NOT THE SAME.**

**Fig. 16**




## 11.0 CONTROLS

**Fig. 17**




### *11.1 Multifunctional console*

The multifunctional console consists of a panel with keys and push buttons integrated.

- Selector "**A**" allows equipment functioning selection: automatic (from PC) or manual.
  - "**A1**": Automatic (AUTO): enables equipment functioning from PC (if user interface function is activated).
  - "**A2**": Manual (MAN): allows to carry out all operations with the "manual" controls.
- Push button "**B**" has a hold-to-run control position and once pushed it controls the operation of the upper bead breaker roller cam for its insertion into the rim in "MAN" mode. In the "AUTO" model the push button is disabled.
- Push button "**C**" has a hold-to-run control position and once pushed it controls the operation of the lower bead breaker roller cam for its insertion into the rim in "MAN" mode. In the "AUTO" model the push button is disabled.

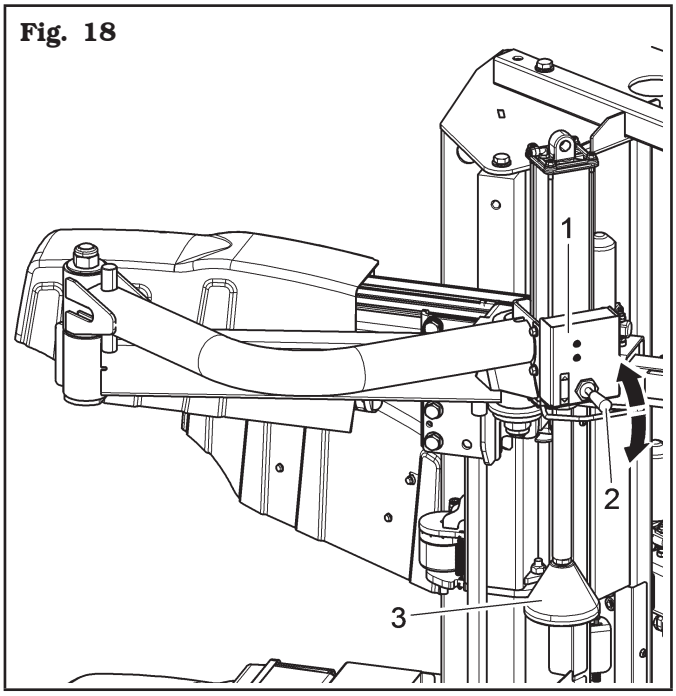
- Arms automatic return from work position (equipment zero).
  In AUTO mode, pushing at the same time the "**B**" and "**C**" keys, the tools arms automatically return into the limit switch position. To stop the automatism, push one of the keys to control the arms vertical movement (**Fig. 17 ref. E or F**).
- Push button "**D**" has a hold-to-run control position and once pushed (⬅) it controls the ahead movement of the tools. If pushed (➡) it controls the backwards movement of the tools.
  **"MAN" mode:**
  - the four arms keep the synchronization: if a positioning error concerning the four arms is detected, only the arms to be synchronized with the other ones will be moved. The arms can be moved one by one using the push-button panel with seven keys, only in "MAN" position.

  **"AUTO" mode:**
  - the four arms keep the synchronization: if a positioning error concerning the four arms is detected, only the arms to be synchronized with the other ones will be moved. In this mode the arms can not be moved one by one.
- Push button "**E**" has a hold-to-run control position and once pushed it controls the vertical shifting of the lower bead breaker roller. If pushed on its lower part (⬇), it will control the downwards movement. If pushed on its upper part (⬆), it controls upward movement. Keeping it pushed for more than one second, movement carries on automatically until the arm reaches the stroke limit. To stop automatism, push "**E**" push button again.
- Push button "**F**" has a hold-to-run control position and once pushed it controls the vertical shifting of the upper bead breaker roller. If pushed on its lower part (⬇), it will control the downwards movement. If pushed on its upper part (⬆), it controls upward movement. Keeping it pushed for more than one second, movement carries on automatically until the arm reaches the stroke limit. To stop automatism, push again push button "**F**".
- The inflation pressure gauge "**G**" displays the pressure into the tyre.
- Push button "**H**" has a hold-to-run control position and it controls the toolhead vertical movement. If pushed on its lower part (⬇), it will control the downwards movement. If pushed on its upper part (⬆), it controls upward movement. Keeping it pushed for more than one second, movement carries on automatically until the arm reaches the stroke limit. To stop automatism, push again push button "**H**".
- Emergency push button "**I**". has two fixed operative functions:
  - pressed push button: all control unit functions are interrupted and the supply to the equipment electric cabinet is interrupted, except for the control PC.
  - lifted push button: reset of equipment functions.
- The inflation push button "**L**", if pushed allows to deflate the tyre at the desired pressure.

## *11.2 Bead press device control unit*

It is made up of an handle control (**Fig. 18 ref. 1**), positioned on the device. This handle control allows to operate the vertical movement of the pusher roller (**Fig. 18 ref. 3**). Lift the lever (**Fig. 18 ref. 2**) to operate the upwards movement, and lower the lever (**Fig. 18 ref. 2**) to perform the downwards movement. The device arm positioning next to the tyre is a completely manual operation.

**Fig. 18**

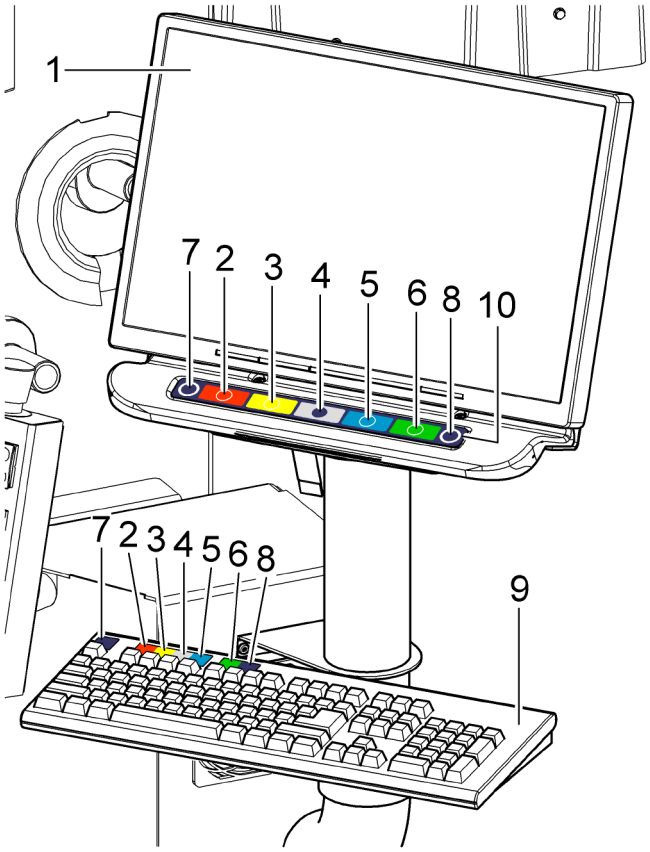


## 11.3 Computer

The equipment is equipped with a computer checking and controlling the automatic cycle operations of tyre mounting and demounting from the rim.

### 11.3.1 Control panel description

**Fig. 19**

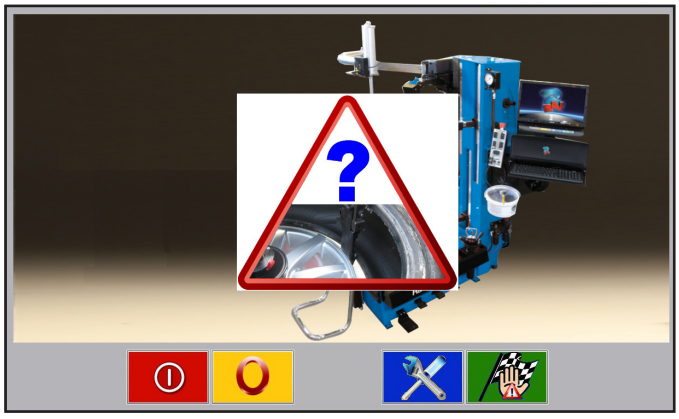



KEY
1 – Monitor
2 – Function push button (red) (F1)
3 – Function push button (yellow) (F2)
4 – Function push button (grey) (F3)
5 – Function push button (blue) (F4)
6 – Function push button (green) (F5)
7 – "Esc" push button (Esc)
8 – "More" push button (F6)
9 – Keyboard for data entry
10 – Rapid functions keyboard (7-keys keyboard)

When tyre-changer is started up, the main screen page of the equipment (Home) is displayed:

Coloured boxes with icons representing precise functions are displayed in the bottom part of the main screen page and of each page afterwards described. When the corresponding coloured push button on the "rapid functions push-button panel" (**Fig. 19 ref. 10**) or on the "data entry keyboard" (**Fig. 19 ref. 9**) is pressed, these functions are enabled.

**IN CASE OF TYRE-CHANGER ANOMALOUS SHUTDOWN (NOT THROUGH "PC SHUTDOWN" KEY), THE "EMERGENCY" STARTUP PICTURE IS DISPLAYED, AS SHOWN BELOW.**



The main screen page displays a blinking triangle, and push button  is disabled. Push buttons (**Fig. 17 ref. B and C**) are also disabled.
Only the vertical movement movements of the four arms (**Fig. 17 ref. E, F, and H**) and chuck rotation (**Fig. 23 ref. A**) will be enabled.

**CARRY OUT THE FOLLOWING PROCEDURE TO QUIT THE EMERGENCY CONDITION:**

**PRESS BUTTON  . THE TRIANGLE IN THE MAIN SCREEN PAGE WON'T BLINK ANY MORE, AND PUSH BUTTON  WILL BE ENABLED AGAIN (ITS BACKGROUND BECOMES YELLOW AGAIN). PUSH BUTTONS (FIG. 17 REF. B AND C) ARE ENABLED AGAIN.**

Now the equipment can be reset with push button  .

**Functions list:**

 PC shutdown.

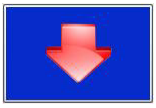
 Enabling of tyre mounting/demounting procedures.

 Submenu for customer service only.

 Display of no info for activation of automatic procedure.

 Return to "Home" screen page.

 Selection up scroll.

 Selection down scroll.

 Selection confirmation.

 Access to memory bank.

Exit from screen page.

Access to the following screen page.

 Cyclic scroll of data to be personalized.

 Values save in memory bank.

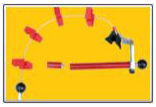
 Activation of automatic procedure /enabling of displayed operation.

 Selection of upper toolhead device.

 Selection cancellation/esc from device selection menu.

 Selection of upper bead breaker device.

 Selection of lower bead breaker device.

 Selection of puller device.

 Selection of Bead press arm.

 Store of stored data by type of wheel.

Store of stored data by number plate.

 Store of stored data by owner name.

 Notes field.

## 11.3.2 Assistance menu

When the equipment is switched on, press  key and enter the user password to display the following page for the selection submenus listed in the left side:

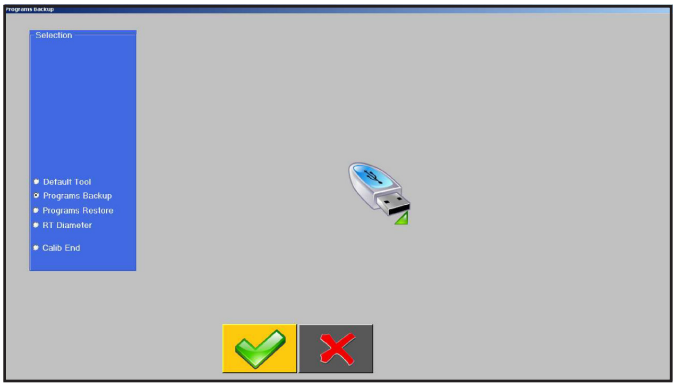

**Backup / Restore:** in order not to lose the memory bank concerning the vehicles and customers, we advise to frequently create a backup copy (saving). For this purpose use a "flash disk" USB key.
The lost or cancelled data can be recovered through restore procedure (if backup has been previously executed).

Use the arrows  to select the desired sub-menu.

Press  key to confirm the selected choice.


Select "Programs backup" to save on the PC stored data (eg: memory bank) on the USB key.

Press  key to display the following screen page.

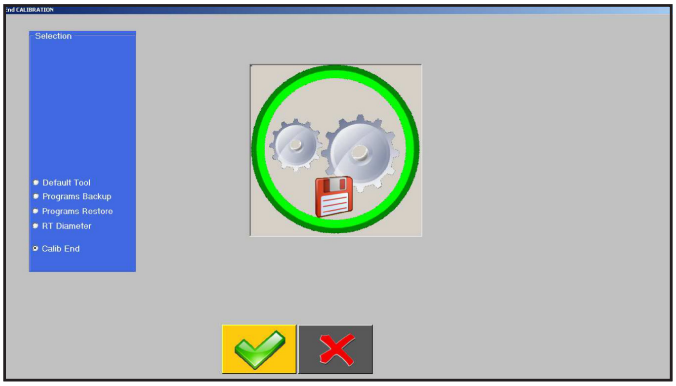



Once the presence of the USB key in the provided "port" has been verified, press  key to display the following screen page.

Press  key to cancel the operation.


Press  to give the go-ahead for the saving on the USB key.

To close the assistance menu, use the arrows   , to position on "Calib end", then press  key to confirm and display the following page.

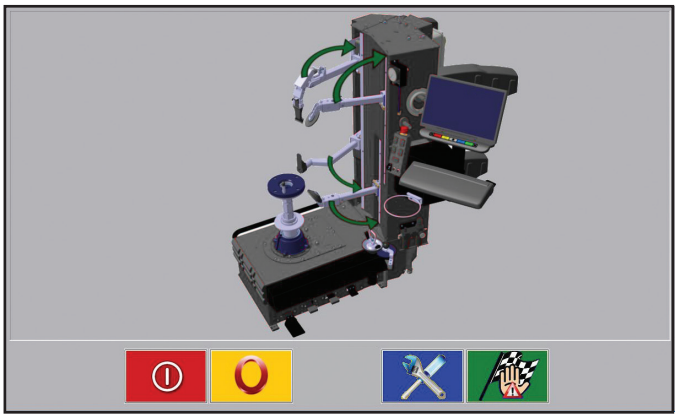



Now, if the previously executed changes must be kept (DEFAULT TOOL or RT DIAMETER), press  key, otherwise, press  to get out without saving the previously executed changes.

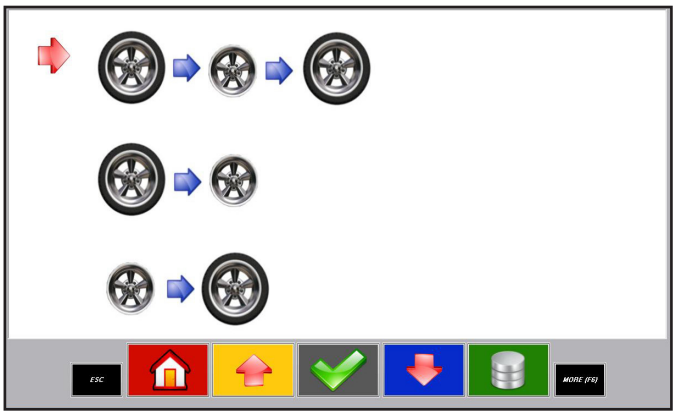
### 11.3.3 Read in of rim/tyre combination in memory bank

The computer is equipped with a memory bank where rim/tyre combinations can be stored.
In order to enter a new rim/tyre combination carry out the following operations from the main screen page (Home):

1. Press  key in order to reset the equipment.



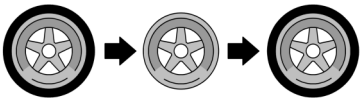
At the end of reset operation the screen page below is displayed.



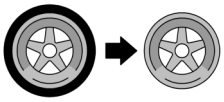

2. Use the arrows   to select the type of cycle to be executed.

> **IN THIS SCREEN PAGE, PRESS** ESC **TO SET THE EQUIPMENT TO "AUTO" WITHOUT THE CYCLE MANAGEMENT FROM THE PC (SEE CHAPT. 11.4 *"EQUIPMENT USE IN "AUTO" MODE WITHOUT PC MANAGEMENT"*).**

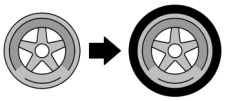
A. Tyre mounting/demounting (ordinary activity).



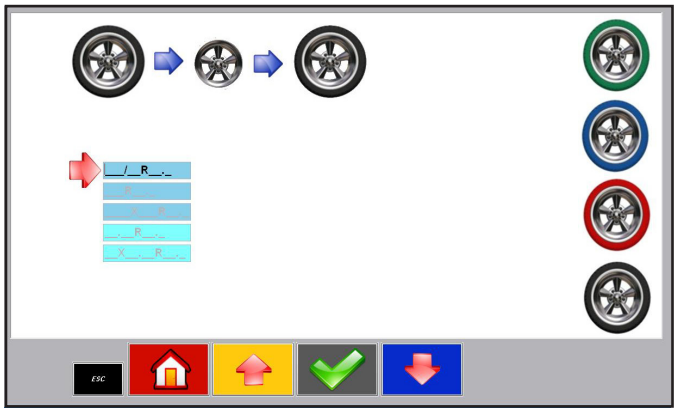
B. Repeated demounting (at the end of an operation, the equipment is automatically set for the following demounting operation).



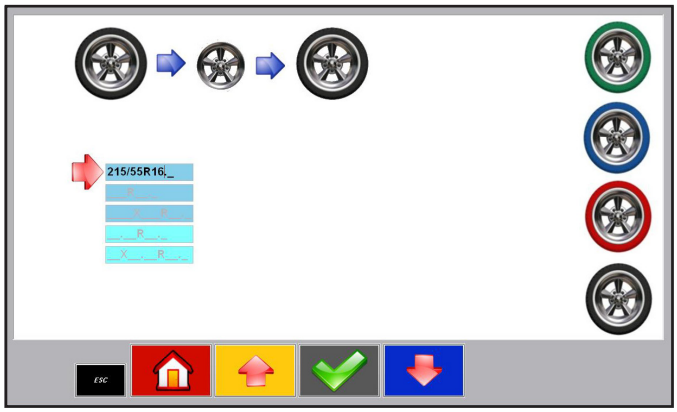
C. Repeated mounting (at the end of an operation, the equipment is automatically set for the following mounting operation).



3. Confirm the selection with  key.



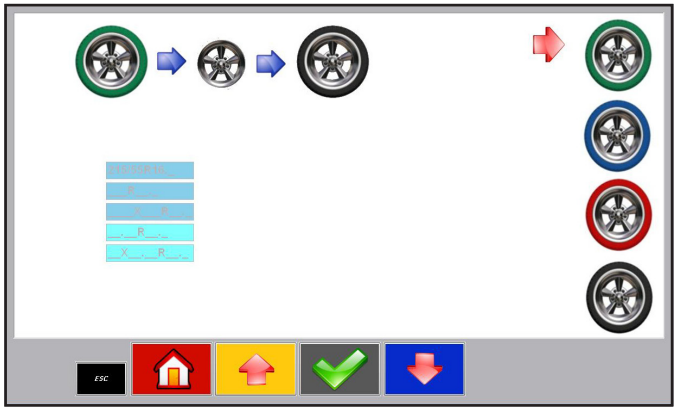

4. Keystroke the tyre sizes by the keyboard. Such information will subsequently allow to recover the match tyre/rim from the memory bank (eg: 215/55R16.0).




5. Confirm the entered values pressing  .

The more suitable demounting program for the inserted sizes will be automatically selected after the analysis of such data:

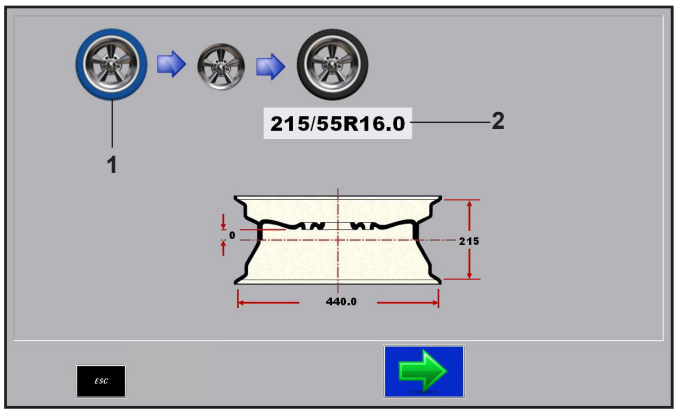
- Green coloured tyre (soft program);
- Blue coloured tyre (standard program);
- Red coloured tyre (Run-Fflat or UHP - Ultra High Performance program).



The operator can anyway decide to use a different program from that suggested from the equipment: select using  arrows.

**THE SOFTWARE DOES NOT ALLOW THE USE OF NOT SUITABLE PROGRAMS FOR THE TYPE OF SELECTED TYRE.**

6. Confirm the selection with  key.



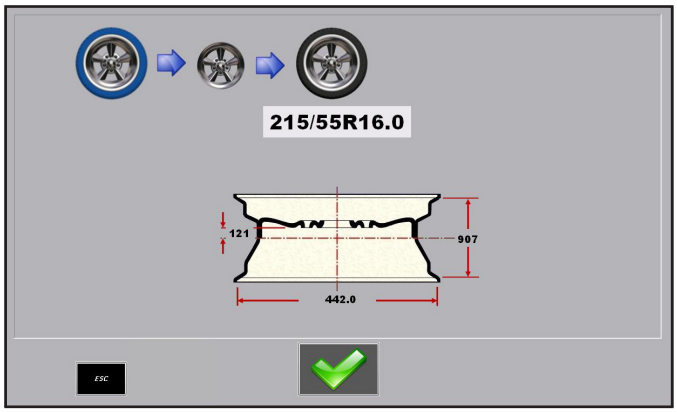

The colour of the tyre (screen page above, position 1) in the screen page corresponds to the selected program; the inserted data are highlighted (screen page above, position 2).

7. Press  to carry on.

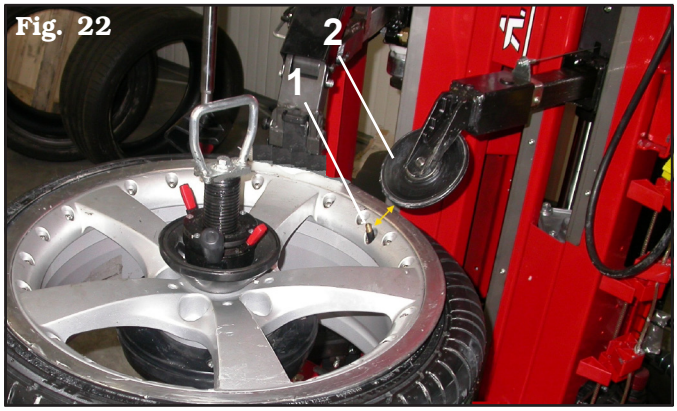
The upper and lower bead breaking rollers near the rim will be automatically pre-set.

8. Use the manual push buttons (**Fig. 17 ref. E** or **F**) to let the bead breaking rollers come into contact with the tyre bead, as indicated in **Figures 20** and **21** below.


If the bead breaking rollers should not correctly come into contact with the tyre rim, use the push button (**Fig. 17 ref. D**) in order to diametrically translate them in the correct position.




9. Position valve (**Fig. 22 ref. 1**) next to the roller (**Fig. 22 ref. 2**) and press  key.

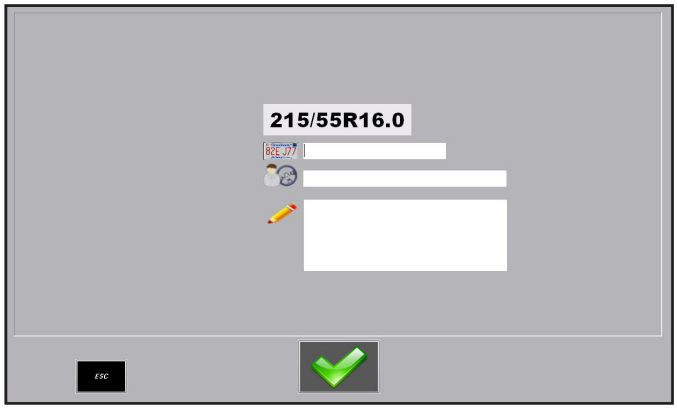


**THE EQUIPMENT READS IN VALVE POSITION THROUGHOUT TYRE DEMOUNTING/MOUNTING CYCLE. THE EQUIPMENT WILL THEREFORE MAKE THE VALVE REACH THE CORRECT POSITION BEFORE EACH TYRE DEMOUNTING/MOUNTING OPERATION.**


**IN CASE OF WRONG DATA ENTRY, THE OPERATOR WILL BE WARNED BY AN APPROPRIATE MESSAGE.**

### *11.3.4 Data save*

1. Press  key to save values in the memory bank.
2. Further information can be entered in the screen page below, in order to facilitate a future research:





Vehicle number plate.

Vehicle owner name.

Notes.

**TO SWITCH FROM ONE FIELD TO ANOTHER, PRESS THE "TAB" BUTTON FROM THE KEYBOARD.**

3. Confirm the correct inserted data using  key.

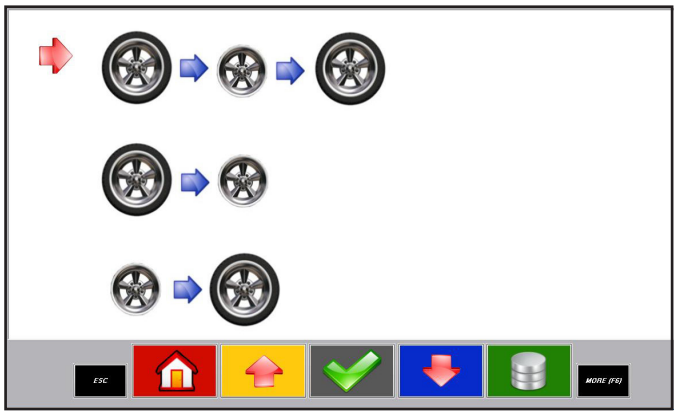
### 11.3.5 Tyre demounting in "AUTO" mode (from PC)

There are two ways to operate the automatic functioning managed by the PC:

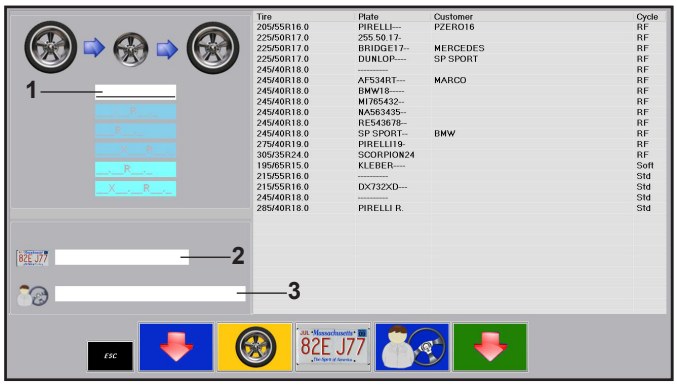
A. Manual data entry and activation of the automatic operations.
In this case repeat the operations from point 1 to 9 described in paragraph ***"11.3.3 Read in of rim/tyre combination in data bank"*** then press the assent pedal (**Fig. 23 ref. C**) and keep it pressed in order to activate the automatic functions. The equipment automatically performs all tyre demounting operations.

B. Loading of memory bank data and following activation of automatic operations.
When the rim/tyre combination is already present in the memory bank, a few operations are required to activate the equipment automatic functioning, in particular:

1. Press  key from "Home" page.




2. Press  key to enter the memory bank.




All rim/tyre combinations are displayed.

3. Select the rim/tyre combination present in the memory bank.

**THE WHEEL, PLATE NUMBER OR OWNER SEARCH FIELDS (POSITION 1, 2 AND 3 IN THE SCREEN PAGE ABOVE) CAN BE USED IN ORDER TO REDUCE TO A MINIMUM EXTENT THE SELECTION LISTS: INSERT THE VALUES IN THE PROVIDED FORESEEN FIELDS.**

**THE MEMORY BANK CAN ALSO BE ARRANGED USING THE COLOURED KEYS IN THE BOTTOM PART OF THE SCREEN PAGE: BY WHEEL (YELLOW KEY), NUMBER PLATE (GREY KEY) OR BY OWNER NAME (BLUE KEY) RESPECTIVELY.**

4. At the end, confirm the selection with  key. The screen page showing valve position is displayed.


Therefore press  key and then the assent pedal (**Fig. 23 ref. C**): the equipment automatic cycle starts.

**THE SAME CYCLE CAN BE ACTIVATED QUICKLY PRESSING THE ASSENT PEDAL TWICE (FIG. 23 REF. C) (DOUBLE CLICK).**

5. Press the assent pedal (**Fig. 23 ref. C**) and keep it pressed: the equipment automatically performs all tyre demounting operations. Explanatory pictures concerning the operation being executed will be displayed during demounting, in particular:

• Upper bead breaker roller.

• Lower bead breaker roller.

• Toolhead

At the end of tyre demounting operation, the key will be displayed, to indicate the end of automatic operations.
The tools and the bead breaking rollers keep their position.

### 11.3.6 Tyre mounting in "AUTO" mode (from PC)

At the end of tyre automatic demounting, the equipment will position as showed in the screen page below:

Quickly press the assent pedal twice (**Fig. 23 ref. C**): the equipment is pre-set for the automatic mounting (this type of functioning is activated if "tyre demounting/mounting" activity is selected).
The equipment positions the toolhead and the upper bead breaker roller in the upper bead mounting position.
The valve is positioned before the insertion point of the puller.

Accessories selection. The type of accessories to be used to complete assembly can be used during this mounting phase.

A provided screen page allows the selection of the more suitable accessory to be used for the following operations before the mounting of the lower bead.

Key must not be pressed to use Bead press arm: just press the assent pedal (**Fig. 23 ref. C**) twice to activate the upper bead mounting operations.

**ON THE OTHER HAND, PRESS KEY AND THEN THE ASSENT PEDAL (FIG. 16 REF. C) IN ORDER TO START THE UPPER BEAD MOUNTING OPERATIONS. THE EQUIPMENT STARTS THE UPPER BEAD MOUNTING OPERATIONS. TAKE THE FOOT AWAY FROM THE ASSENT PEDAL (FIG. 23 REF. C) DURING THE INSERTION OF THE BEADPUSHER BLOCKS.**

**AT THE END OF MOUNTING OPERATION, THE EQUIPMENT ROTATES THE CHUCK IN THE OPPOSITE DIRECTION OF THE SAME MOUNTING, SO THAT THE PREVIOUSLY INSERTED BLOCKS CAN BE EASILY REMOVED.**

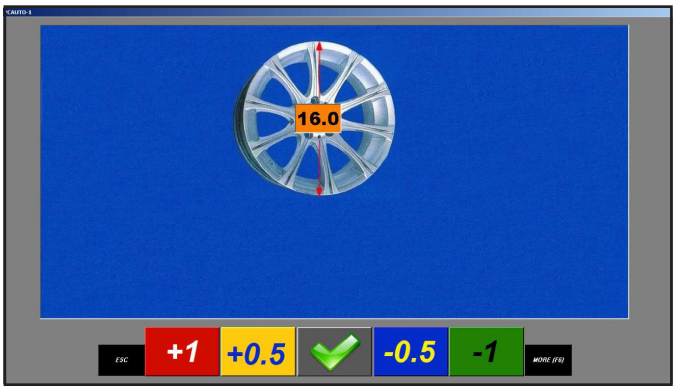
At the end of the upper bead mounting the equipment stops.
Quickly press the assent pedal (**Fig. 23 ref. C**) twice: the toolhead and the bead breaking rollers reach completely open position.
The screen page below is displayed.

At this point the equipment is ready to perform a new cycle with the same rim and tyre.

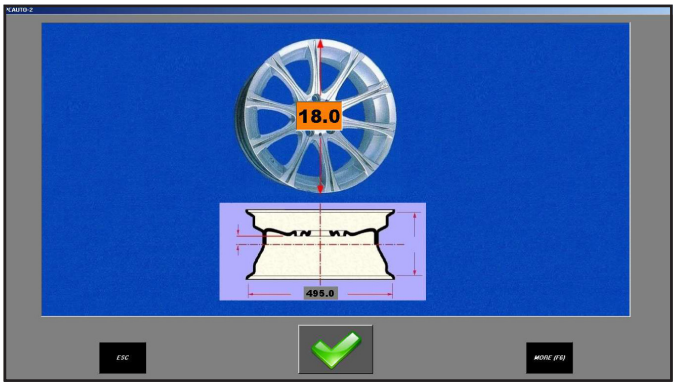
Remove the assembled wheel from the chuck and position the new wheel to be disassembled on it. Lock the wheel and bring the valve next to the upper bead breaker roller.
Press the assent pedal (**Fig. 23 ref. C**) twice to start a new tyre demounting/mounting operation.

## 11.4 "Equipment use in "AUTO" mode without PC management"

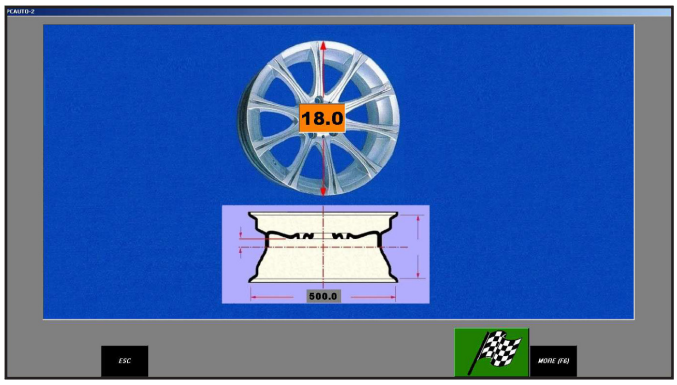
Press ESC key from the screen page with the selection of the type of program to be used (see ***Chap. 11.3.3: "Read in of rim/tyre combination in data bank"***), the equipment is set to "AUTO" mode without cycle management from the PC. This mode allows the setting of the diameter of the rim at issue: press +1, +0.5, -0.5 and -1 keys.




Press key to display the following screen page.




Press to confirm the diameter to be used: the following equipment screen page is displayed.




Press : the tools diametrically position themselves onto the base of the inserted rim: therefore the operations can be started using the keys on the control panel.

## *11.5 Pedalboard*

**"Pedal A"** has two hold-to-run control operative positions. When it is pushed downwards it controls chuck motor clockwise rotary movement. When the pedal is lifted upwards it operates the opposite movement.

**THE CHUCK ASSEMBLY SPEED CAN BE CONTINUOUSLY ADJUSTED UP TO THE MAXIMUM SPEED THROUGH A PROGRESSIVE PRESSURE ON THE PEDAL, ONLY IN CLOCKWISE DIRECTION.**

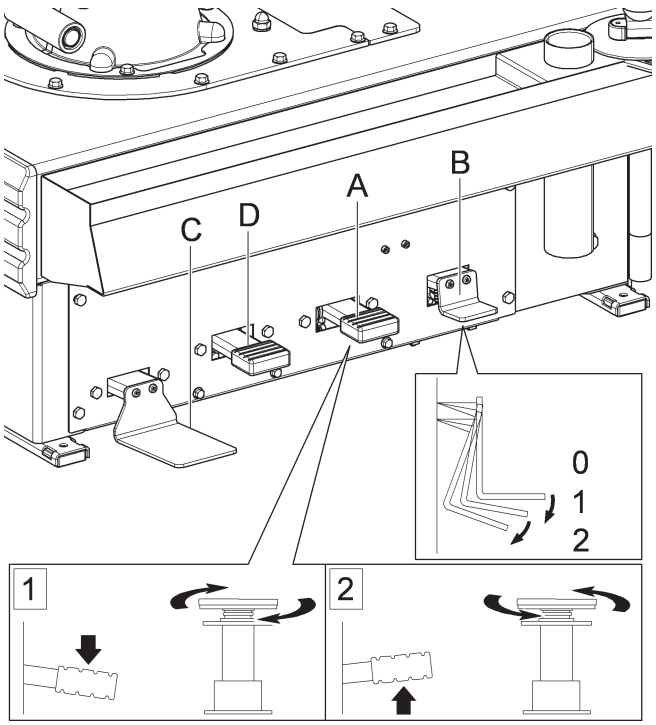
The inflation **pedal "B"** has two functions: the delivering of air at max. controlled pressure (max 4.2 ± 0.2 bar / 60 ± 3 psi) with a hold-to-run control, and a second function of a jet of air from the inflation nozzle to assist the beading in of the tyre.

**"Assent pedal" (C)**
In automatic functioning "AUTO" (from PC) this pedal enables equipment automatic functioning. When released, the equipment stops immediately.
The equipment can be stopped in case of programmed functions as well: release and quickly press the assent pedal again, which is equivalent to the "Start" from the console.

**THIS PEDAL IS NOT ACTIVATED IN "MAN" AND "AUTO" MODE, AS IT IS USED ONLY IN "PC MANAGED AUTO MODE".**

**"Pedal D"** has two hold-to-run control operative positions. A downward pressure raises the wheel support of the lifting device. When the pedal is lifted upwards it operates the opposite movement.

**Fig. 23**




KEY (pedal **ref. B**)
Ref. 1 - Tyre inflation with pressure gauge
Ref. 2 - Tyre inflation with pressure gauge + inflation nozzle

## 12.0 EQUIPMENT SWITCHING ON AND OFF

**BEFORE TURNING ON THE EQUIPMENT, MAKE SURE THE SMART CARD (FIG. 24 REF. 3) FOR PROGRAM AND DATABASE ENABLING IS INSERTED IN THE PROVIDED READER ON THE BACK OF THE PC (SEE FIG. 24).**

### *12.1 Smart card for program protection and memory bank*

All products are equipped with a PC (**Fig. 24 ref. 1**) with SMART CARD reader (**Fig. 24 ref. 2**).
This SMART CARD (**Fig. 24 ref. 3**), inserted in the reader allows the functioning of the program itself and enables access to vehicles DATABASE.

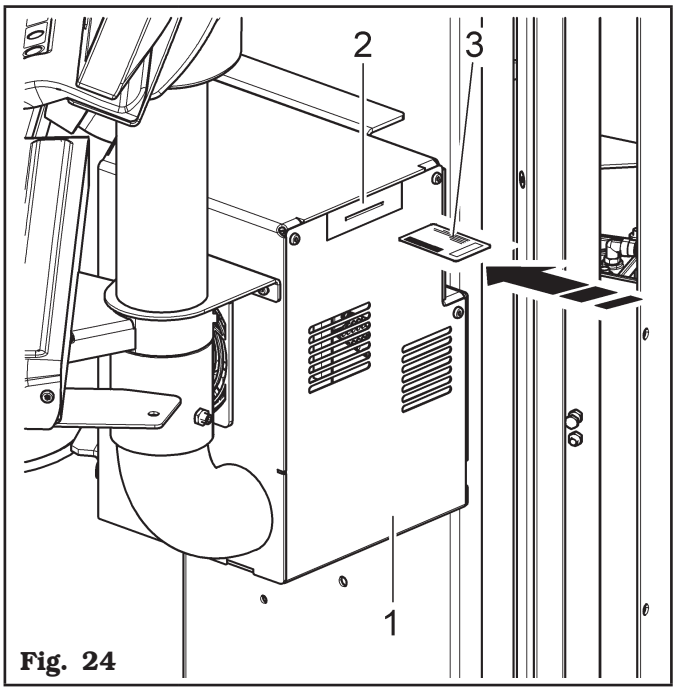


**Fig. 24**

Each equipment is equipped with its own single SMART CARD, , which can not absolutely be replaced by a smart card of another equipment.
When such SMART CARD, is removed or replaced, the program displays an error message and does not allow to carry on.

**IN CASE OF SMART CARD MALFUNCTION DURING PC SWITCHING ON PHASE, CONTACT THE MANUFACTURER, WHICH WILL AUTHORIZE THE RETURN OF THE FAULTY SMART CARD. IT WILL BE REPLACED WITH A WORKING ONE WITH THE SAME USB SERIAL NUMBER.**

## 13.0 USE OF THE EQUIPMENT

### 13.1 Precaution measures during tyre removal and fitting

Before fitting a tyre, observe the following safety rules:

- rim and tyre must always be clean, dry and in good condition; if necessary, clean the rims and check that:
  - neither the beads, the sidewalls nor the tread of the tyre are damaged;
  - the rim does not have any dents and/or deformations (especially for alloy rims, dents can cause internal micro-fractures, that pass unobserved at visual inspection, and can compromise the solidity of the rim and constitute danger even during inflation);
- adequately lubricate the contact surface of rim and the tyre beads, using specific tyre lubricants only;
- replace the rim valve with a new valve. if the tyre pipe has a metal valve, replace the grommet.
- always make sure that tyre and rim sizes are correct for their coupling; never fit a tyre unless you are sure it is of the right size (the rated size of rim and tyre is usually printed directly on them);
- do not use compressed air or water jets to clean the wheels on the equipment.

**FITTING A TYRE WITH A DAMAGED BEAD, TREAD AND/OR SIDEWALL ON A WHEEL RIM REDUCES THE SAFETY OF A VEHICLE AND CAN LEAD TO TRAFFIC ACCIDENTS, SERIOUS INJURY OR EVEN DEATH.**
**IF A TYRE BEAD, TREAD OR SIDEWALL IS DAMAGED DURING REMOVAL, NEVER REFIT THE TYRE ONTO A WHEEL.**
**IF YOU SUSPECT THAT A BEAD, TREAD OR SIDEWALL OF A TYRE MAY HAVE BEEN DAMAGED DURING FITTING, REMOVE THE TYRE AND INSPECT IT CAREFULLY.**
**NEVER REFIT IT TO A WHEEL IF A BEAD, TREAD OR SIDEWALL IS DAMAGED.**

**INADEQUATE LUBRICATION OF THE TYRE, THE RIM, THE TOOLHEAD AND/OR THE LEVER CAN CAUSE AN ABNORMAL FRICTION BETWEEN THE TYRE AND THESE ELEMENTS DURING THE DISASSEMBLY AND/OR ASSEMBLY OF THE TYRE AND CAUSE DAMAGE TO THE TYRE ITSELF, REDUCING THE SAFETY OF A VEHICLE EQUIPPED WITH THE TYRE.**
**ALWAYS LUBRICATE THESE ELEMENTS THOROUGHLY USING A SPECIFIC LUBRICANT FOR TYRES, FOLLOWING THE INDICATIONS CONTAINED IN THIS MANUAL.**

THE USE OF AN INADEQUATE, WORN OR OTHERWISE DAMAGED LEVER TO REMOVE TYRE BEADS MAY LEAD TO DAMAGE TO A BEAD AND/OR A TYRE SIDEWALL, REDUCING THE SAFETY OF A VEHICLE EQUIPPED WITH THE TYRE ITSELF.
ONLY USE THE LEVER SUPPLIED WITH THE EQUIPMENT AND CHECK ITS CONDITION BEFORE EACH DISASSEMBLY.
IF IT IS WORN OR OTHERWISE DAMAGED, DO NOT USE IT TO REMOVE THE TYRE, BUT REPLACE IT WITH A LEVER SUPPLIED BY THE EQUIPMENT MANUFACTURER OR ONE OF ITS AUTHORIZED DISTRIBUTORS.

AN INCORRECT POSITIONING OF THE VALVE AT THE BEGINNING OF THE DISASSEMBLY AND/OR ASSEMBLY OPERATIONS OF EACH TYRE BEAD CAN CAUSE THE VALVE TO BE, DURING THESE OPERATIONS, IN OR NEAR AN AREA WHERE THE BEAD HAS FITTED INTO THE RIM DROP CENTRE.
THE BEAD COULD PRESS ON THE PRESSURE SENSOR, LOCATED UNDER THE VALVE INSIDE THE DROP CENTRE, CAUSING IT TO BREAK.
ALWAYS RESPECT THE POSITIONING OF THE VALVE AT THE BEGINNING OF EACH BEAD DISASSEMBLY AND/OR ASSEMBLY OPERATION INDICATED IN THIS MANUAL.

FAILURE TO INSERT A SUITABLE SECTION OF A BEAD INSIDE THE RIM DROP CENTRE, AS INDICATED IN THIS MANUAL DURING THE FITTING OR REMOVAL OF THE BEAD, RESULTS IN AN ABNORMAL TENSION ON THE BEAD.
THIS CAN CAUSE DAMAGE TO THE BEAD AND/OR THE SIDEWALL OF THE TYRE TO WHICH THE BEAD IS CONNECTED, REDUCING THE SAFETY OF A VEHICLE EQUIPPED WITH THE TYRE.
ALWAYS FOLLOW THE DIRECTIONS IN THE MANUAL REGARDING ALIGNMENT OF A SECTION OF A BEAD TO THE RIM DROP CENTRE.
DO NOT PROCEED WITH THE REMOVAL OR INSTALLATION OF A BEAD IF YOU ARE NOT ABLE TO ALIGN A SECTION OF A BEAD WITH THE RIM DROP CENTRE AS INDICATED IN THIS MANUAL.

## 13.2 Preliminary operations - Preparing the wheel

- Remove the wheel balancing weights from both sides of the wheel.

**REMOVE THE VALVE STEM AND ALLOW THE TYRE TO COMPLETELY DEFLATE.**

- Establish from which side the tyre should be demounted, checking the position of the drop centre.
- Find the rim locking type.
- Try to establish the special types of wheels, such as "EH2" and "EH2+", in order to improve locking, bead breaking, assembly and disassembly performances.

**WHEN HANDLING WHEELS WEIGHING MORE THAN 10 kg (22 lbs) AND/OR WITH A FREQUENCY OF MORE THAN 20/30 WHEELS PER HOUR, THE LIFTING DEVICE SHOULD BE USED.**

## 13.3 - Use of mounting strap with stopper (standard on some models)

The use of the strap during assembly operations facilitates the insertion of the tyre bead into the drop centre.

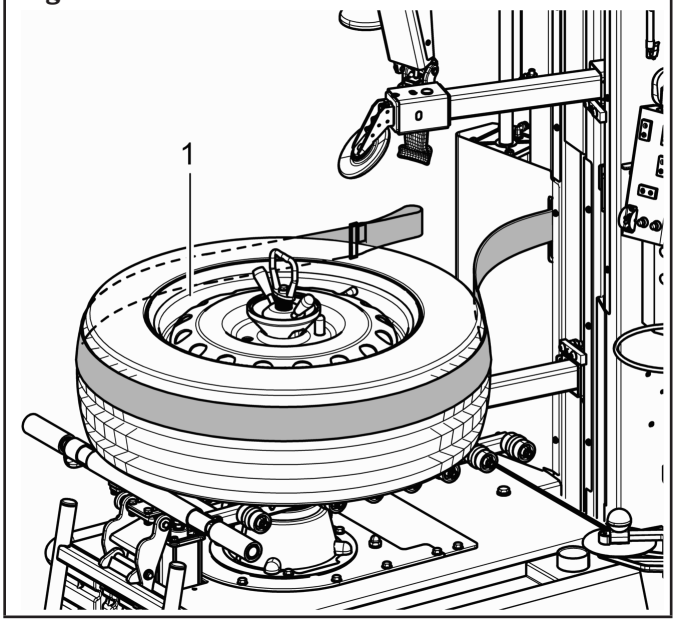
1. During assembly, extend the strap around the perimeter of the tyre until it reaches approximately "11 o'clock" position;
2. lock it in position by pulling it slightly;

**PLACE THE STRAP ON THE TYRE TREAD NEAR THE UPPER SIDEWALL (SEE FIG. 25).**

3. keep the strap tensioned on the tyre gradually and progressively, avoiding sudden blows;
4. as soon as the resistance of the bead during assembly has been overcome, immediately release the strap in order to avoid unnecessary stress on the winder;
5. when mounting avoid completely unrolling the strap (up to stroke limit).

**ANY DAMAGE RESULTING FROM FAILURE TO FOLLOW THE INSTRUCTIONS MENTIONED ABOVE WILL RELEASE THE MANUFACTURER FROM ANY LIABILITY AND MIGHT CAUSE THE LOSS OF THE WARRANTY CONDITIONS!**

**Fig. 25**



## *13.4 Use of the lifting device*

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

1. After placing the wheel on the lifting tubular (see **Fig. 26**), press the lifting device drive pedal (**Fig. 27 ref. 1**) downwards and bring the wheel to a level where it can be shifted to the chuck by hand (see **Fig. 27**).

**Fig. 26**

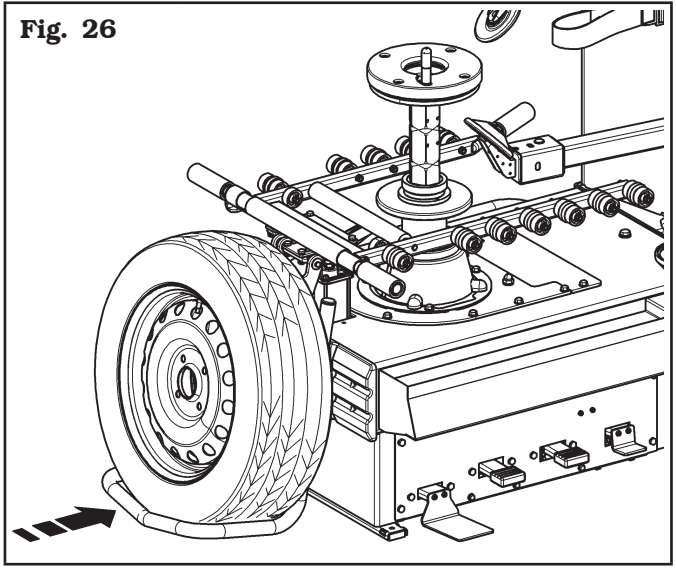
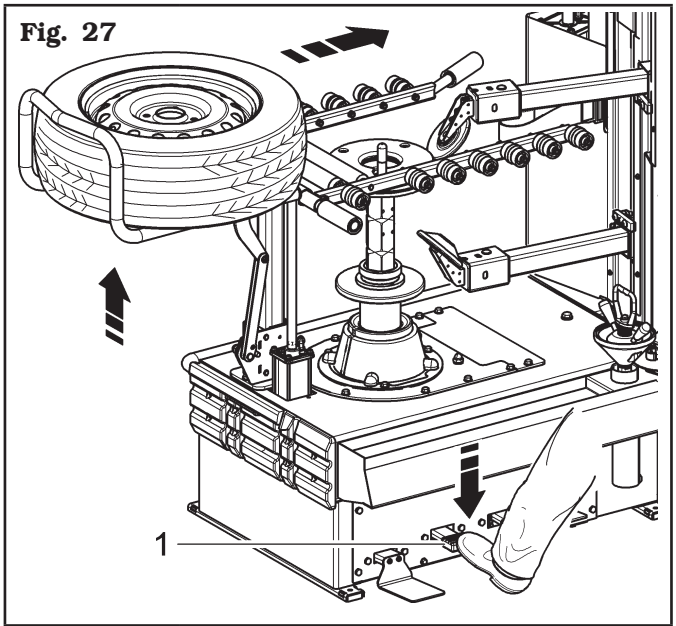
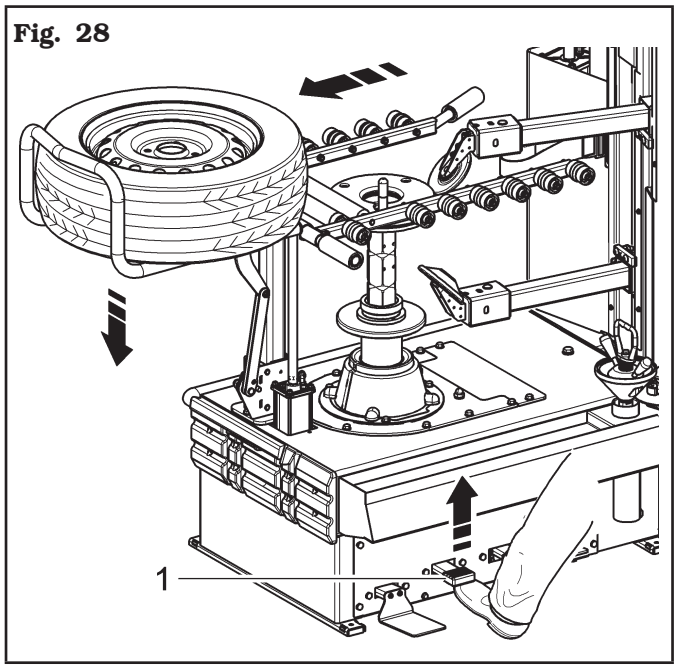


**Fig. 27**




2. Place the wheel on the chuck and lock it with the locking ring nut.
3. Lift the pedal (**Fig. 28 ref. 1**) upwards in order to lower the lifting tubular.
4. After all tyre demounting and mounting operations have been performed, unlock the wheel by removing the locking ring nut.
5. Lift the lifting tubular by pressing again the pedal downwards (**Fig. 27 ref. 1**).
6. Place the wheel on the lifting plate (see **Fig. 28**).
7. Move the pedal again (**Fig. 28 ref. 1**) upwards to make the tubular lower and bring back the wheel to the ground keeping a hand on it (see **Fig. 28**).

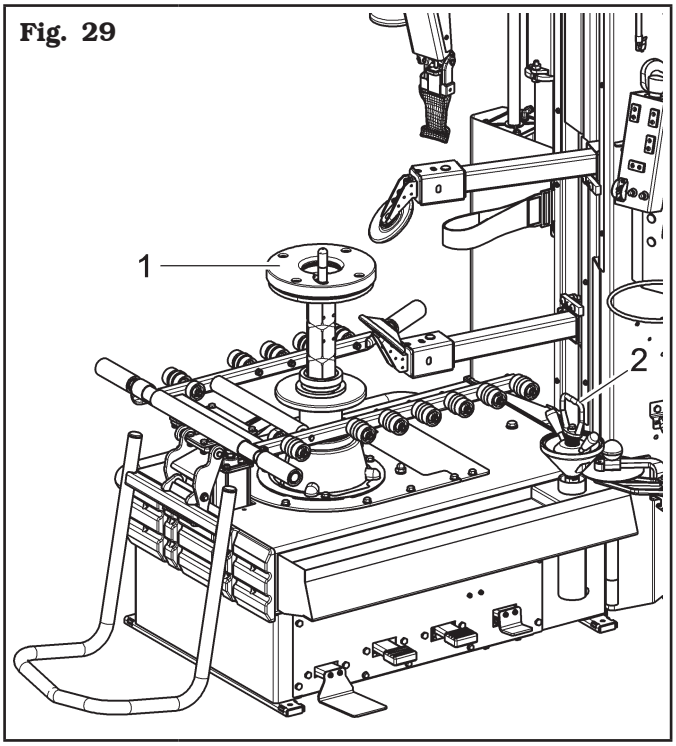
**Fig. 28**



## 13.5 Wheel clamping

All wheels must be locked on the rubber plate (**Fig. 29 ref. 1**) through the central hole using the proper locking device (**Fig. 29 ref. 2**).

**Fig. 29**

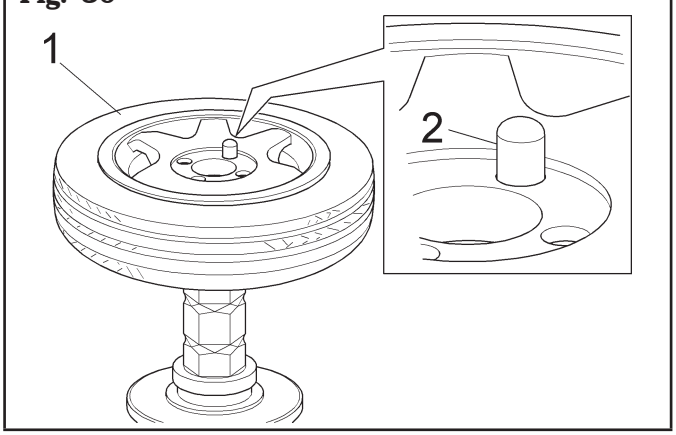



**IN CASE OF USE OF RIMS WITHOUT CENTRAL HOLE, IT'S NECESSARY TO USE THE PROPER ACCESSORY (AVAILABLE ON DEMAND).**

To lock a rim proceed as follows:

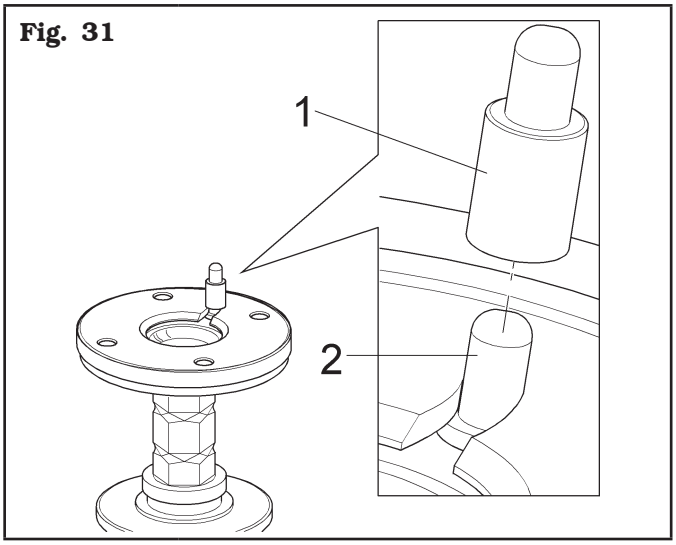
1. dowel the wheel (**Fig. 30 ref. 1**) on the locking platform and check that the puller pin (**Fig. 30 ref. 2**) enters a hole on the rim hub;

**Fig. 30**




2. if the wheel hub is higher than the puller (**Fig. 31 ref. 2**), use the extension (**Fig. 31 ref. 1**) supplied;

**Fig. 31**




3. insert the locking shaft (**Fig. 32 ref. 1**) on the rim (**Fig. 32 ref. 2**);

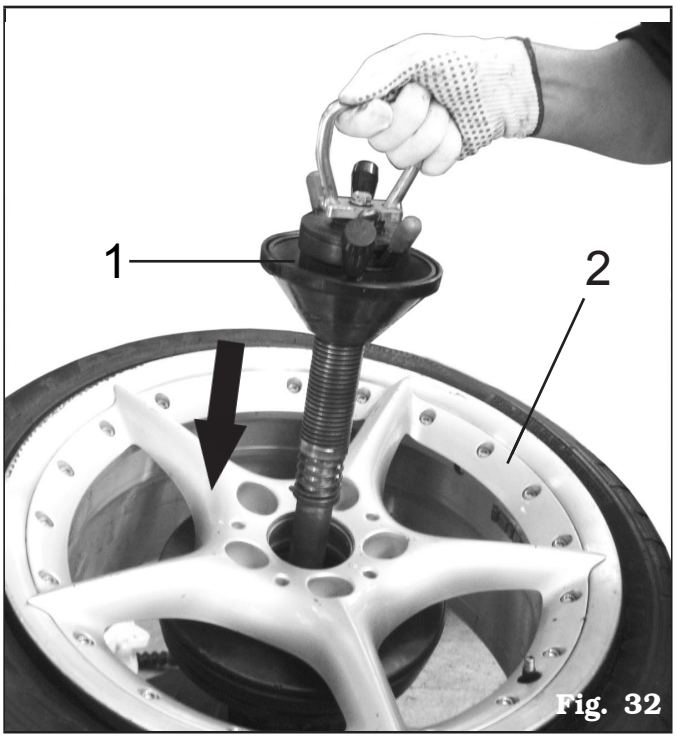



**Fig. 32**

4. using the handle shown (**Fig. 33 ref. 1**), push downwards (**Fig. 33 ref. 2**), turn it through 90° (**Fig. 33 ref. 3**);

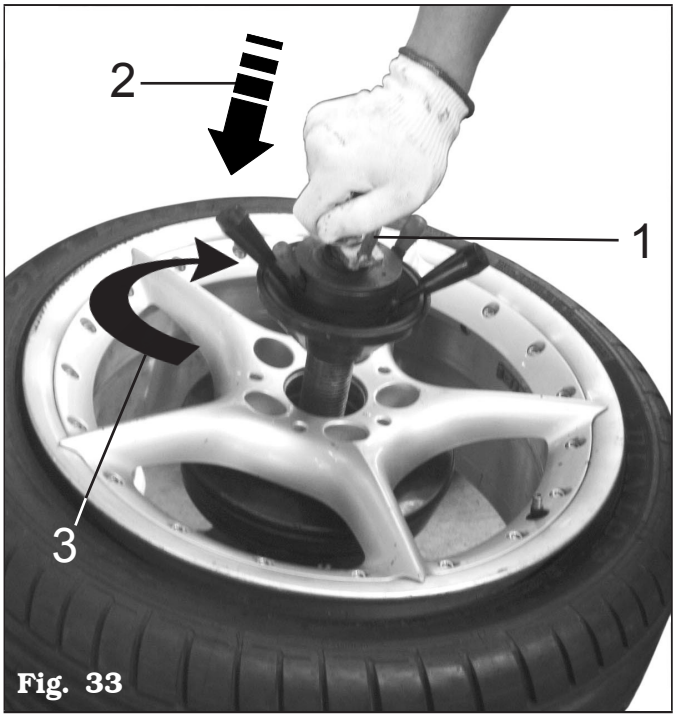


**Fig. 33**

5. using the small inside levers (**Fig. 34 ref. 1**), loose the ring nut and push ring nut (**Fig. 34 ref. 3**) and cone (**Fig. 34 ref. 4**) to the rim (**Fig. 34 ref. 2**);

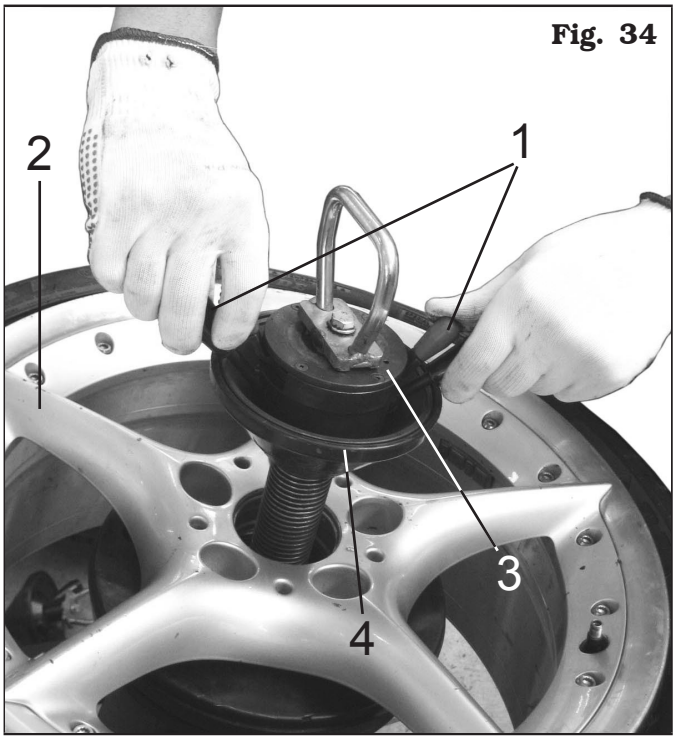


**Fig. 34**

6. then, turn the ring nut (**Fig. 35 ref. 1**) using the outside levers (**Fig. 35 ref. 2**) until the cone completely clamps (**Fig. 35 ref. 3**) the wheel (**Fig. 35 ref. 4**);

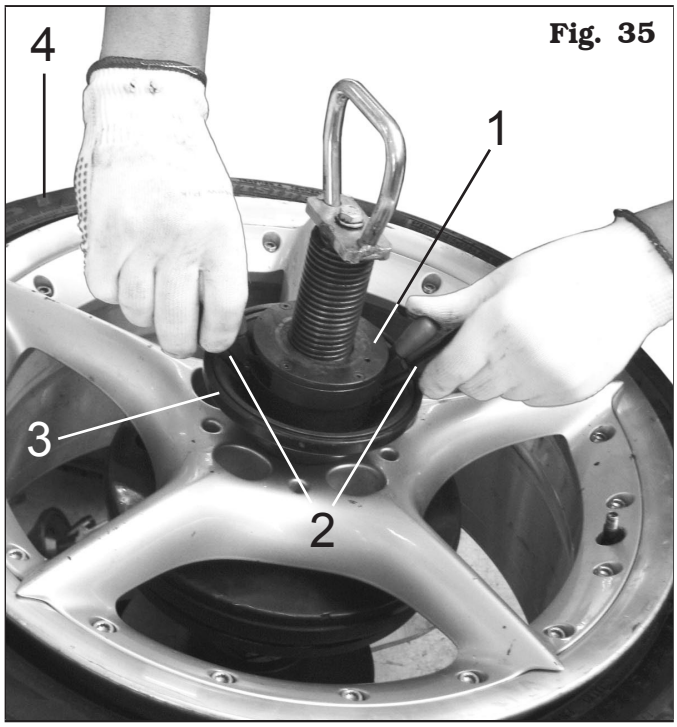


**Fig. 35**

7. for wheels with alloy rims, use the proper plastic guard (**Fig. 36 ref. 1**).

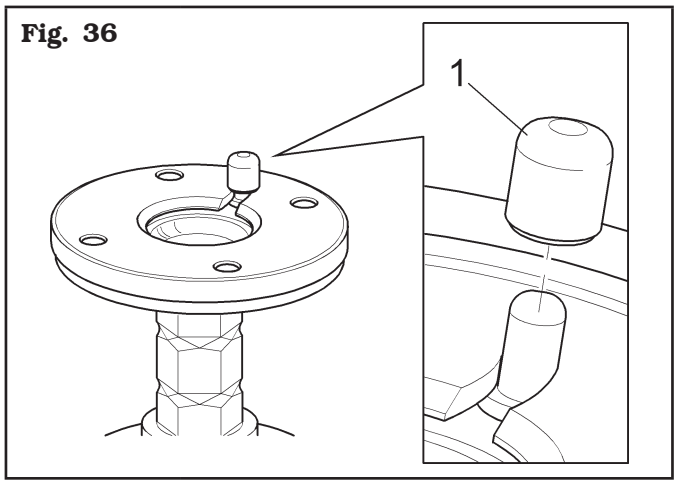


**Fig. 36**

8. At the end of the operations, loosen the device releasing first the cone using the outside levers and then moving the ring nut and the cone away from the rim with the small levers.
9. Lower the shaft to release it from its seat, turn it 90° counter-clockwise and extract it from the hole using the handle.

**NEVER LEAVE THE WHEEL FITTED ON THE EQUIPMENT FOR A PERIOD LONGER THAN NECESSARY FOR DOING THE WORK AND NEVER LEAVE IT UNATTENDED.**

### 13.5.1 Chuck height adjustment

The chuck with central locking has 3 different height mode. A “quick release” system allows to remove the chuck mobile part and to dowel the support plate at the desired height.
The adjustment through the sliding shaft is possible following three phases as indicated on the enclosed photo.

**TO CARRY OUT THE OPERATIONS LISTED BELOW, NO WHEEL MUST BE POSITIONED AND SECURED ON THE CHUCK.**

1. lift the flange to release the wheel support as indicated by the arrows (**Fig. 37 ref. 1**);
2. at the same time lift the wheel support as indicated by the arrows (**Fig. 37 ref. 2**);
3. check that the flange returns to its position.

Now it’s possible to place the tyre in the right way with the working tools.

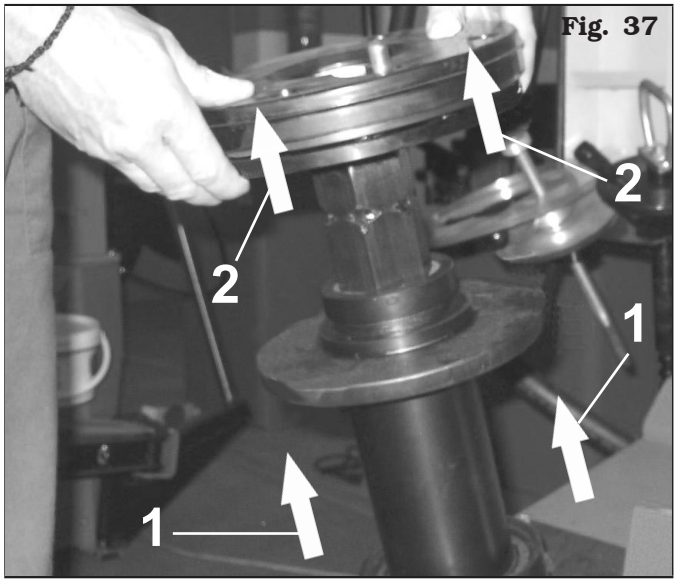
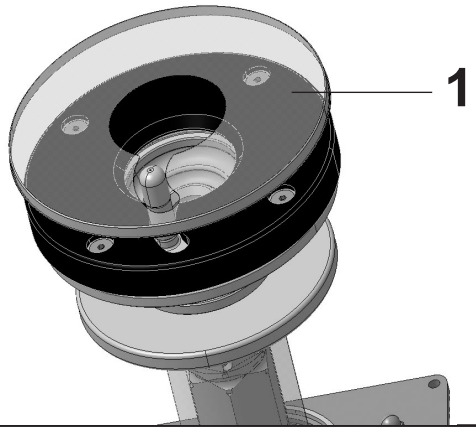


**Fig. 37**

### 13.5.2 Reverse wheel pan protection

In case reversed wheels are used, in order to protect the rim, apply on the rubber platform a protection (**Fig. 38 ref. 1**), supplied. We suggest replacing it if there are visible damages (see **Fig. 38**).

**Fig. 38**



## 13.6 Tyre bead breaking and demounting

There are two different functioning modes, in particular:

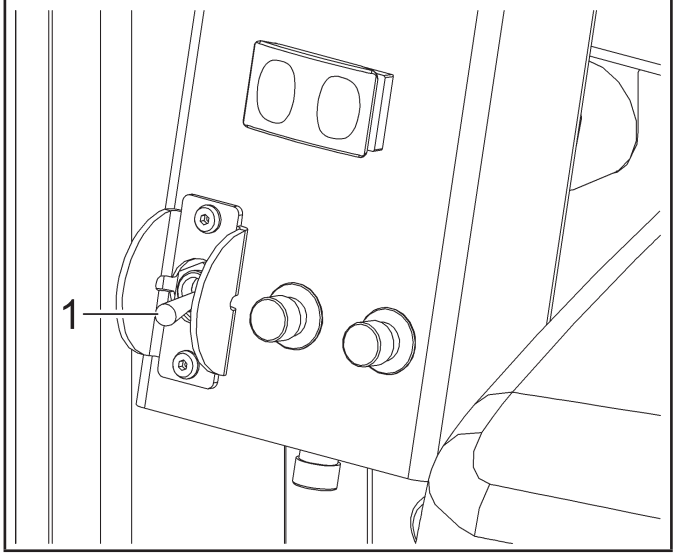
1. Automatic (from PC).
2. Standard (with manual controls).

### 13.6.1 Tyre bead breaking and automatic demounting in "AUTO" mode (from PC)

Carry out the following operations after the wheel has been locked onto the chuck:

1. Position the selector (**Fig. 39 ref. 1**) on "AUTO".

**Fig. 39**




2. Enter the tyre data in the PC (**Fig. 1 ref. 12**) or load them from the data bank (if rim/tyre combination is not present in the PC data bank, it can be created following the operations described in paragraph ***"11.3.3 Read in of rim/tyre combination in memory bank"***).
3. Follow the operations described in paragraph ***"11.3.5 Tyre demounting in "AUTO" mode (from PC)"***.

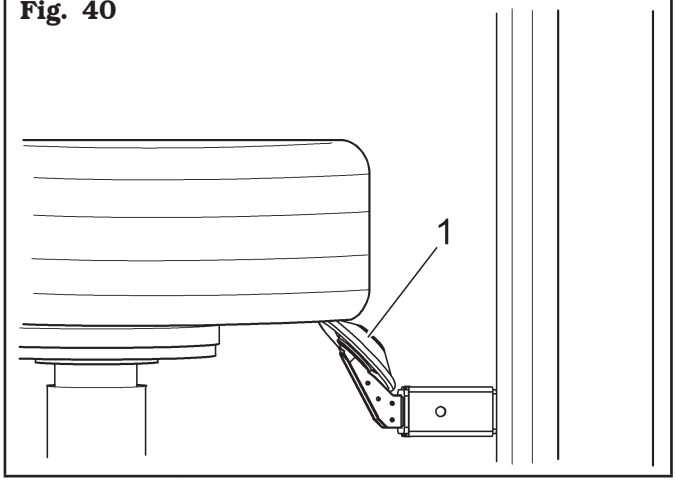
**THE OPERATOR CAN INTERVENE IN THE CYCLE AT ANY MOMENT LOCKING THE AUTOMATIC FUNCTIONING AND THEN START AGAIN FROM THE INTERRUPTION POINT WITH NO NEED TO BEGIN FROM CYCLE START.**

### 13.6.2 Tyre bead breaking with manual controls (in "MAN" mode)

Carry out the following operations after the wheel has been locked onto the chuck:

1. Position the selector (**Fig. 39 ref. 1**) on "MAN".
2. Use the manual controls to position the upper bead breaking roller (**Fig. 1 ref. 3**) on the wheel rim.
3. Activate the wheel clockwise rotation.
4. Move the lower roller (**Fig. 40 ref. 1**) near with the push button (**Fig. 17 ref. E**).

**Fig. 40**




5. Press the corresponding pedal (**Fig. 23 ref. A**) to rotate the wheel in clockwise direction and at the same time operate the push button (**Fig. 17 ref. E**) until creating a space large enough for the roller to progress with the manual cam. Activate the lower cam pushing the push button (**Fig. 17 ref. C**) and keep on bead breaking until the operation is complete.
6. Once bead breaking has been completed in the lower part, move lower roller in the rest position activating the push button (**Fig. 17 ref. E**). The roller re-enters automatically nullifying the cam approaching movement. This automatism can be applied on both arms.
7. Rotate the rim until the valve is positioned on the immediate right of the roller.
8. For the upper edge bead breaking the instructions described above must be followed, but using the push buttons related to the upper roller (**Fig. 17 ref. B** and **F**).

**UNTIL BOTH UPPER AND LOWER ROLLERS DO NOT RE-ENTER, IS NOT POSSIBLE TO CARRY OUT A NEW DIAMETER ADJUSTMENT.**

### 13.6.3 Tyre demounting (in "MAN" mode)

When both beads are broken, the tyre can be demounted.

1. Press the pedal (**Fig. 43 ref. 1**) to rotate the wheel clockwise until the valve stem reaches "1 o'clock" position.
2. Bring the toolhead vertically (**Fig. 43 ref. 2**) just next to the rim edge using the provided control (**Fig. 17 ref. H**) (upper toolhead descent) (see **Fig. 44**).
   While this phase is being carried out, stay just next to a zone in the tyre where bead breaking has been performed.

#### Wheels with rim protector

With this type of tyre, there could be cases where the rim protector prevents the upper toolhead from inserting between the rim and the tyre (as represented in **Fig. 41**).

Fig. 41

In these cases, turn the wheel clockwise, with a slight pressure with the toolhead as described in **Fig. 42**. In case of rim protectors with particular shapes, let the wheel turn counter-clockwise.

Fig. 42

3. Place the bead press tool (**Fig. 43 ref. 3**) to "4 o'clock" position as shown in **Fig. 43** and press on the tyre operating the lever of the control unit (**Fig. 43 ref. 4**) downwards, until the tyre bead is placed next to the rim drop centre.

**VERY CAREFULLY MOVE THE TOOLHEAD ARM TO WORK POSITION, IN ORDER TO AVOID POSSIBLE HAND CRUSHING INJURY.**

Fig. 43

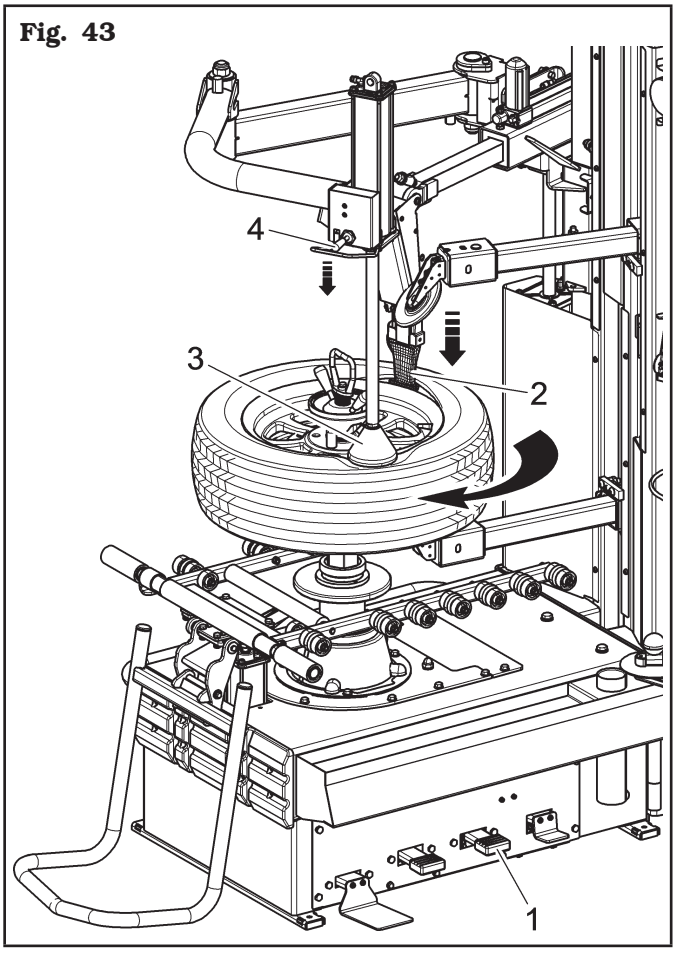
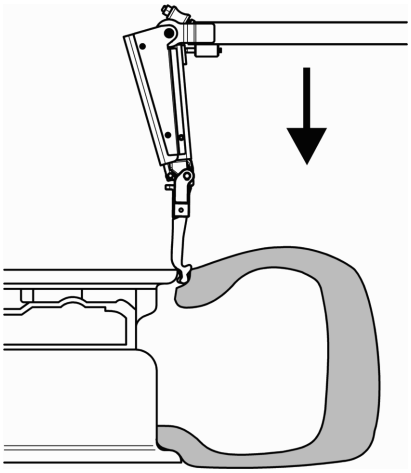


Fig. 44



**WHILE THIS OPERATION IS BEING CARRIED OUT PAY ATTENTION NOT TO DEFORM THE TYRE SIDEWALL.**

**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICON.**

4. Move the toolhead forward so that it penetrates between rim and tyre (see **Fig. 45**). While this operation is being performed, the toolhead rotates around the rim edge until it hooks the tyre bead (see **Fig. 46**).

Fig. 45

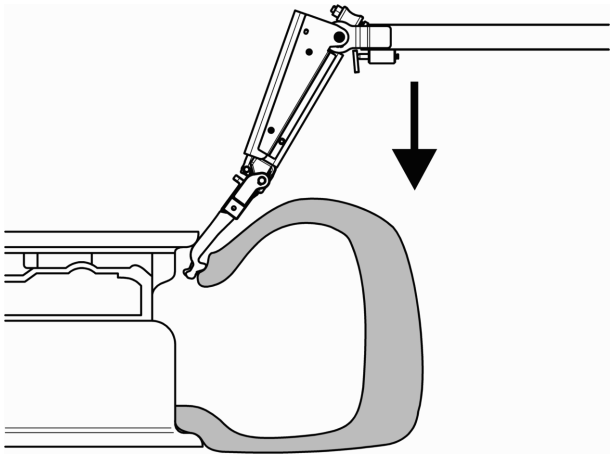
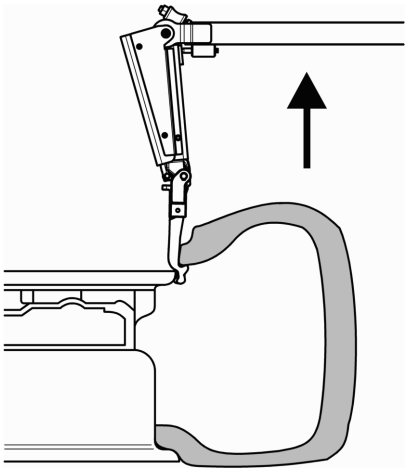


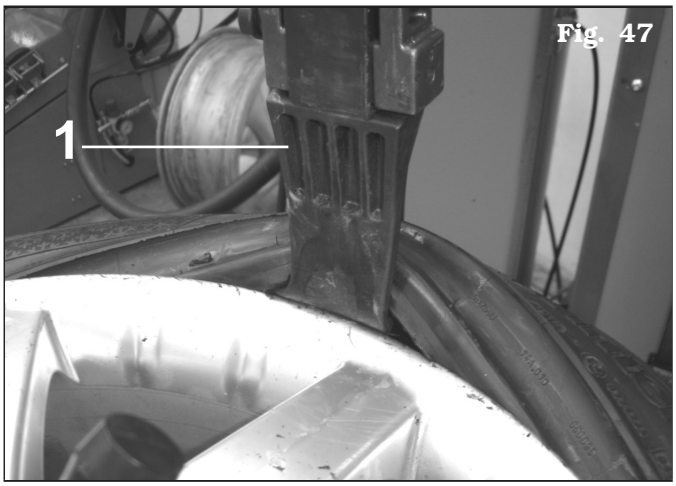
Fig. 46



5. Lift the toolhead pressing the control provided (**Fig. 17 ref. H**). When the toolhead reaches a vertical position with respect to the rim (**Fig. 47 ref. 1**), rotate the chuck so that the tyre enters the rim drop centre. Keep on raising the toolhead until the bead is on the rim edge (see **Fig. 46**).

**MAKE SURE THAT THE TOOLHEAD IS IN THE DISASSEMBLY POSITION (FIG. 46) BEFORE STARTING CHUCK ROTATION.**

Fig. 47



6. Rotate clockwise until the upper bead is completely disassembled (see **Fig. 48**).


Fig. 48

7. Lift the toolhead (see **Fig. 49 ref. 1**) keeping it coupled to the upper bead of the tyre with the lower bead breaker roller.

Fig. 49

8. Position the toolhead (see **Fig. 50 ref. 1**) just next to the rim edge. Using the lower bead breaker roller, load the lower bead on the toolhead in demounting position.

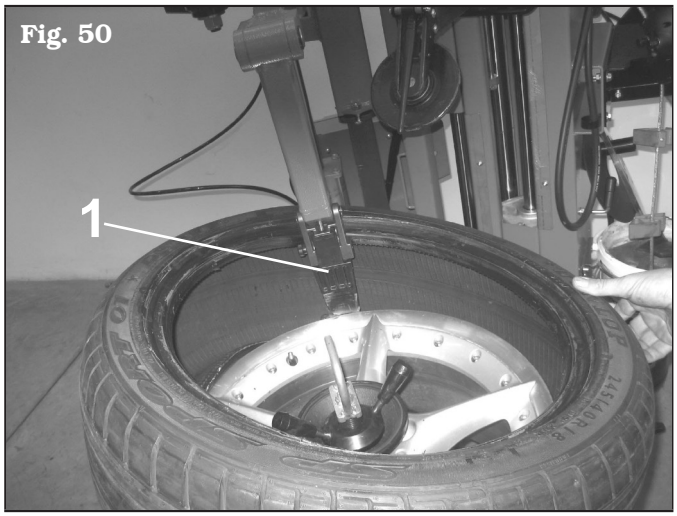


Fig. 50

9. Rotate the chuck clockwise until the tyre is completely disassembled.
10. Lift the bead press tool and close again the bead press Device into rest position.

**Demounting the lower bead**

For disassembly of the lower bead only the lower bead breaker roller can be used as an alternative. Lift the toolhead and go away from the working area.

11. Lift the roller and the tyre just next to the rim edge (see **Fig. 51**) using the push button (**Fig. 17 ref. E**).


Fig. 51

12. Therefore, move forward the roller through the provided control (**Fig. 17 ref. E**) so that it is inserted between the rim edge and the lower bead (see **Fig. 52**).

**THE BEAD BREAKER ROLLER MUST EXERT PRESSURE ON THE TYRE BEAD BUT NEVER ON THE RIM.**

**VERY CAREFULLY USE THE BEAD BREAKER ROLLER IN ORDER TO AVOID POSSIBLE HAND CRUSHING INJURY.**

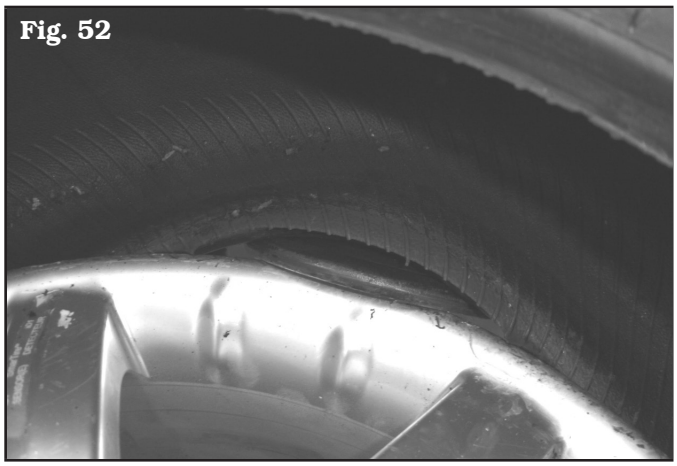


Fig. 52

13. Then, rotate and complete bead disassembly (see **Fig. 53**).

Fig. 53

**WHEN THE BEADS COME OUT OF THE RIM THE TYRE MAY FALL. CARRY OUT THESE OPERATIONS VERY CAREFULLY.**

## 13.7 Mounting the tyre

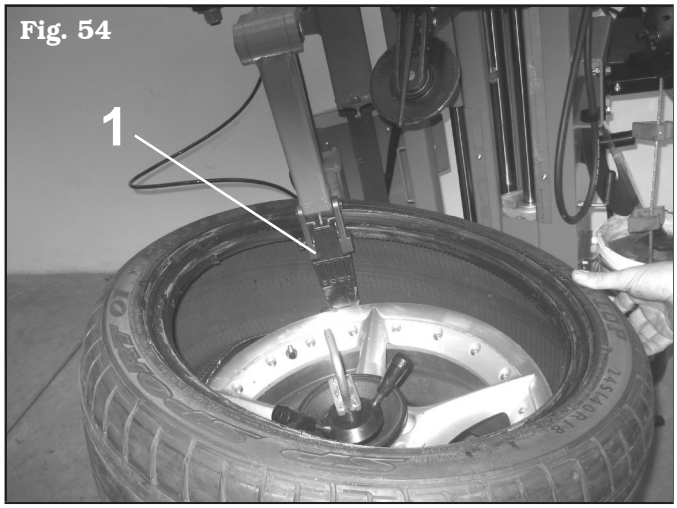
### 13.7.1 Automatic mounting of the tyre

At the end of demounting carry out tyre automatic mounting according to the procedure described in paragraph ***"11.3.6. Tyre mounting in "AUTO" mode (from PC)***.

### 13.7.2 Manual mounting of the tyre

1. Lubricate tyre beads.
2. Position the toolhead (**Fig. 54 ref. 1**) just next to the rim edge.

Fig. 54




3. Hook the lower bead on the toolhead then rotate clockwise until the complete assembly.
4. Then, position the upper bead on the toolhead assembly area (**Fig. 55 ref. 1**).

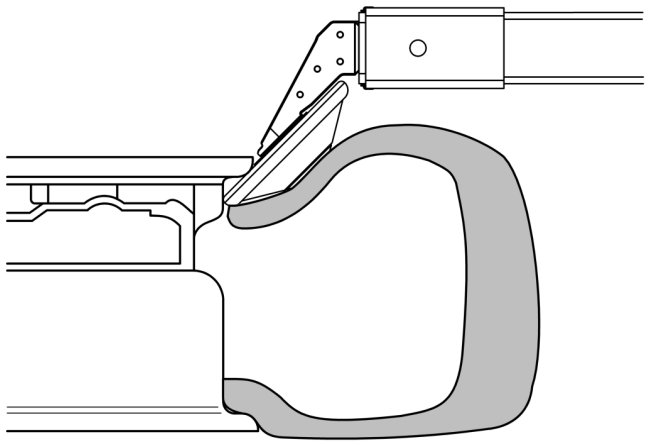
Fig. 55

5. Assemble the beadpusher with guard next to the rim edge (see **Fig. 56**).


Fig. 56

6. Lower the upper bead breaker roller so that the tyre bead is kept at the same height of the rim drop centre (see **Fig. 57**).

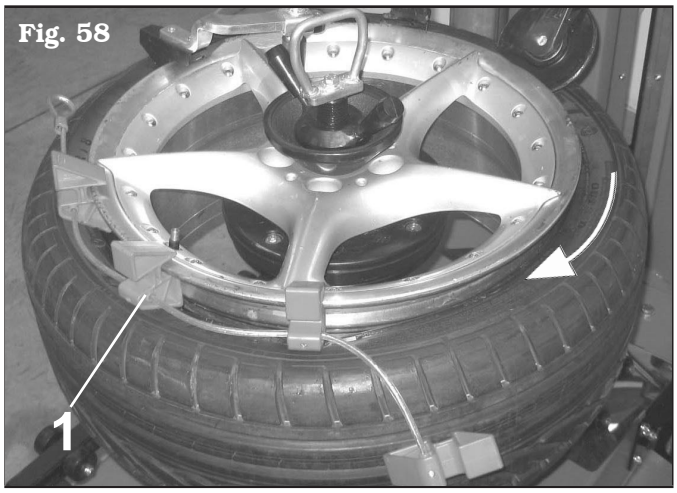
Fig. 57



7. Rotate clockwise up to tyre complete assembly (see **Fig. 58**).

**FOR WHEELS THAT ARE PARTICULARLY DIFFICULT TO FIT, USE THE BEAD PRESS EXTENSION (FIG. 58 REF. 1).**

Fig. 58




8. When the operations have been completed move all the tools to rest position.

## 13.8 "Special use of bead breaker in "AUTO mode without PC management"

Follow the operations described in paragraph ***"11.4 Equipment use in "AUTO" mode without PC management"*** to diametrically position the toolhead/bead breaking rollers onto the rim base.
In addition to its use during mounting and demounting, the bead-breaker roller can also be used for matching the tyre to the rim. To conduct this operation carry out the following instructions.

- Clamp the tyre between the bead breaker roller.
- Turn the motor clockwise until the reference point on the tyre coincides with the reference point on the rim (usually the valve) (see **Fig. 59**).

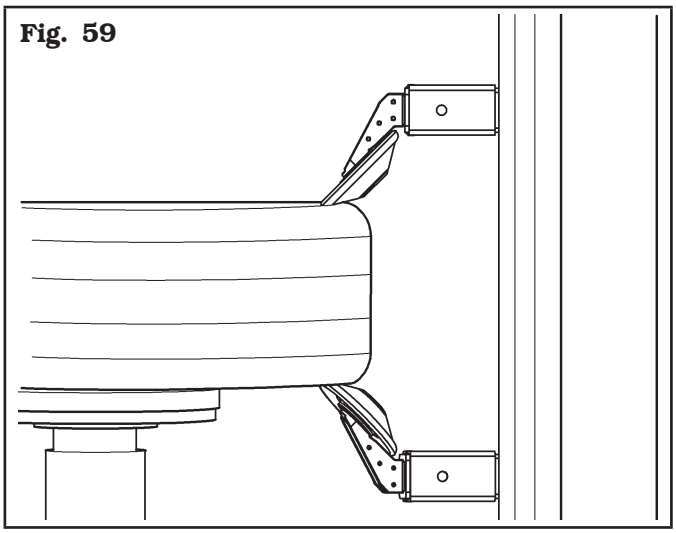
At the end of the operations, the equipment has stored the sizes (width and rim diameter) of the lastly used wheel.
When this mode is left (press "ESC" key), the sizes of the used wheel are not stored in the memory bank, therefore, they can not be used for the following operations.

## 13.9 Special use of the bead-breaker (only in "MAN" mode)

In addition to its use during mounting and demounting, the bead-breaker roller can also be used for matching the tyre to the rim. To conduct this operation carry out the following instructions.

- Clamp the tyre between the bead breaker roller.
- Turn the motor clockwise until the reference point on the tyre coincides with the reference point on the rim (usually the valve) (see **Fig. 59**).

**Fig. 59**



## 13.10 Tyre inflation

**TYRE INFLATING OPERATIONS ARE HAZARDOUS FOR THE OPERATOR; MOREOVER, IF NOT PROPERLY EXECUTED, THEY CAN CAUSE DAMAGE TO THE OPERATORS OF THE VEHICLE WHERE THE TYRES ARE FITTED.**

**STANDARD OR OPTIONAL INFLATING UNITS FITTED ON TYRE CHANGERS ARE ALWAYS EQUIPPED WITH A PRESSURE LIMITING DEVICE WHICH ELIMINATES ANY RISK OF TYRE EXPLOSION DURING TYRE INFLATION. HOWEVER, A RESIDUAL RISK OF EXPLOSION STILL EXISTS. THE FOLLOWING PRECAUTIONS MUST BE TAKEN:**

- **OPERATORS SHOULD WEAR SUITABLE PROTECTIVE CLOTHING LIKE: GLOVES, SAFETY EYEWEAR AND EARPLUGS.**
- **BEFORE FITTING A TYRE, CHECK TYRE AND RIM CONDITIONS AS WELL AS THEIR PROPER COUPLING.**
- **MAKE SURE THAT THE TYRE IS PROPERLY POSITIONED ON THE EQUIPMENT: THE WHEEL OUTER PART MUST NOT BE SECURED ON THE JAWS.**
- **CORRECT WORK POSITION: DURING TYRE BEADING AND INFLATING THE OPERATOR MUST KEEP HIS BODY AS FAR AS POSSIBLE FROM THE TYRE.**
- **COMPLIANCE WITH TYRE MANUFACTURER'S SPECIFICATIONS FOR TYRE INFLATION PRESSURE.**

**IF MEASURED PRESSURE EXCEEDS 4.2 bar (60 psi), IT MEANS THAT THE PRESSURE LIMITING VALVE AND/OR PRESSURE GAUGE IS NOT WORKING PROPERLY. IN THIS CASE, DEFLATE THE TYRE ON THE SPOT AND CONTACT AN AUTHORIZED SERVICE CENTRE TO VERIFY EQUIPMENT OPERATION. MAKE SURE OF PROPER OPERATION BEFORE USING ANY INFLATING EQUIPMENT.**

### 13.10.1 Tyre inflation on equipment without using tubeless inflation assembly

Connect the inflation device to the tyre valve and inflate the same tyre using the pedal provided (**Fig. 23 ref. B**).

**A LIMITATION DEVICE IS PRESENT IN THE AIR SUPPLY LINE FOR THE TYRE INFLATION (4.2 bar ± 0.2 / 60 ± 3 psi).**

Well lubricated beads and rims make the beading in and inflation much safer and easier.

**In case the beads are not seated at 4.2 ± 0.2 bar (60 ± 3 psi)), release all the air from the wheel, remove it from the tyre changer and put it in a safety cage to complete the inflation procedure.**

### 13.10.2 Tyre inflation with equipment with tubeless inflation (on models with tubeless inflation system)

Some types of tyre can be difficultly inflated if the beads are not in contact with the rim. The tubeless inflation device supplies a jet of high-pressure air from the nozzle, which encourages the correct positioning of the bead against the rim, and therefore normal inflation. In order to carry out the inflation of the tyre follow these indications:

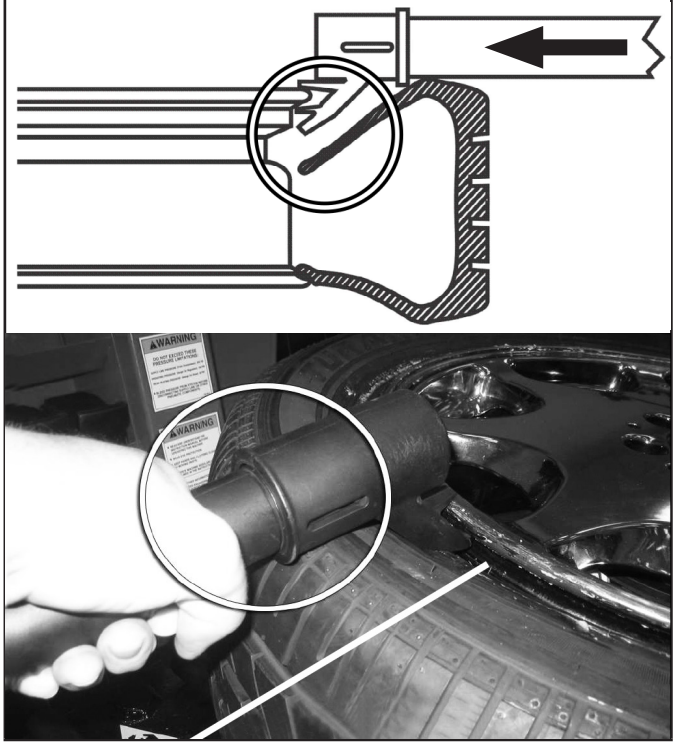
- Remove the valve stem core.
  Removing the valve stem core will allow the tyre to inflate faster and the bead to seat easier.
- Connect the inflation terminal to the valve of the tyre.

**TO IMPROVE THE TUBELESS INFLATION SYSTEM, ALWAYS LUBRICATE THE TYRE BEADS.**

- Press the bead blaster hose on the wheel rim as shown in **Fig. 60**. Ensure the hose head is pressed in to activate the additional air jet.

**THE NOZZLE SHOULD BE HORIZONTAL FOR OPTIMAL PERFORMANCE (FIG. 60).**

**Fig. 60**




**IN ORDER TO ALLOW THE AIR JET TO BREAK BOTH BEADS, DO NOT KEEP THE BEAD LIFTED FORCING IT.**

- Press completely downwards the inflating pedal, in order to release a high pressure air jet through the tubeless inflation nozzle.
- Keep the inflating pedal partially pressed downwards to inflate the tyre and place the beads in their seats.

**DO NOT EXCEED THE PRE-SET PRESSURE VALUES WHILE INSERTING BEAD INTO THE TYRE.**

- After the beads take place in their own seat, disconnect the inflating terminal and install again the valve gear, that was removed previously.
  Then connect the inflating terminal and inflate the tyre with the required pressure.

**IF THE TYRE GETS INFLATED TOO MUCH, IT IS POSSIBLE TO GET THE AIR OUT OF THE TYRE, BY PUSHING THE MANUAL DEFLATING PUSH BUTTON LOCATED UNDER THE PRESSURE GAUGE.**

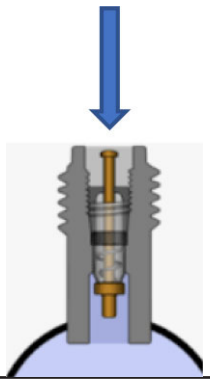
- Disconnect the inflation terminal from the valve.

## 13.11 Instructions for replacing RF (Run-Flat) and UHP (Ultra High-Performance) tyres

### 13.11.1 Preparing the wheel

- Remove the wheel balancing weights from both sides of the wheel.
- Remove the inner core of the valve (see **Fig. 61**) and allow the tyre to completely deflate.

**Fig. 61**



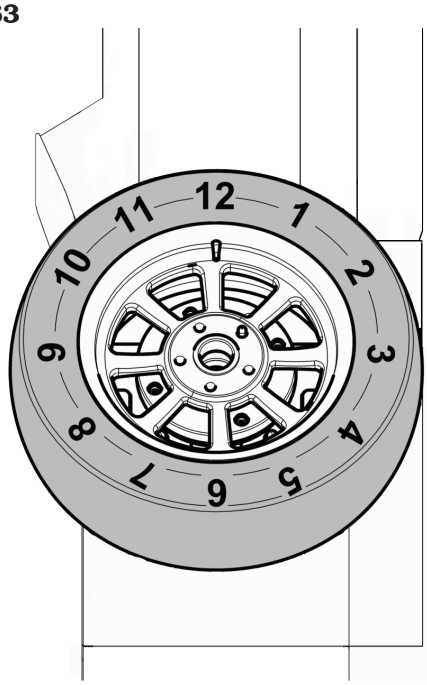
- Check which side the tyre is to be removed from.
- Find the rim locking type.
- Check the type of tyre to be removed (Run Flat, UHP), identify the rim data (see **Fig. 62**). The tyre temperature can't be lower than 15°C.

**Fig. 62**


**IN CASE OF USE OF RIMS WITHOUT CENTRAL HOLE, IT'S NECESSARY TO USE THE PROPER ACCESSORY (AVAILABLE ON DEMAND).**

**TO BETTER EXPLAIN THE OPERATIONS, THE POSITIONING OF THE VARIOUS TOOLS ON THE TYRE IS INDICATED BY THE TIME PHASES, WHERE 12 O'CLOCK IS REPRESENTED IN CORRESPONDENCE WITH THE COLUMN OF THE TYRE CHANGER (FIG. 63).**

**Fig. 63**



### *13.11.2 Wheel clamping*

Load the wheel with the lifting device on the rubber plate of the chuck, making sure that the puller pin (**Fig. 64 ref. 1**) engages in one of the holes on the rim. If the thickness of the wheel rim is too high compared to the driving pin, use the extension (**Fig. 65 ref. 1**) supplied, and lock the wheel with the special quick locking device (**Fig. 66**).

**Fig. 64**

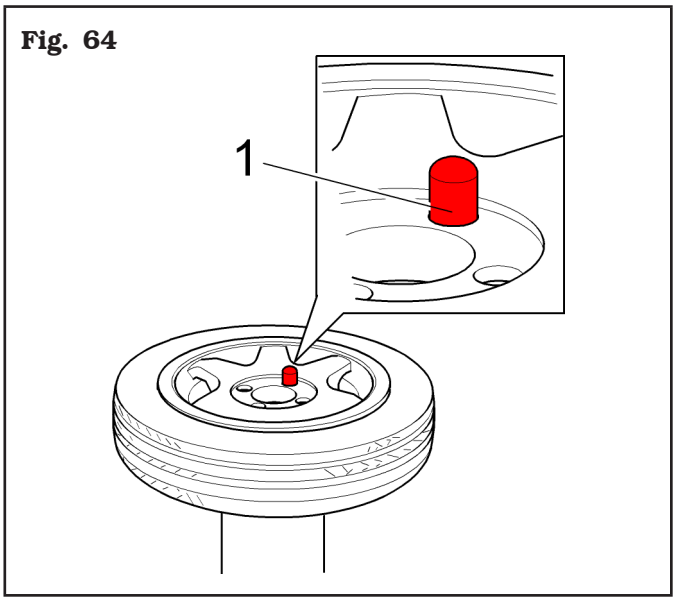



**Fig. 65**

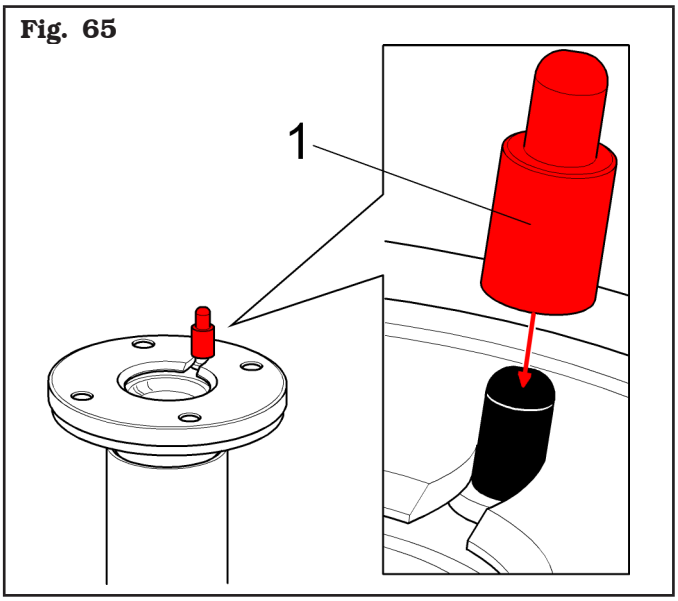
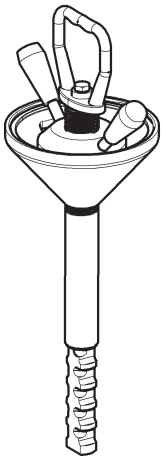



**Fig. 66**



### *13.11.3 Bead breaking through vertical rollers*

**BEAD BREAKING CAN BE PERFORMED COMPLETELY AUTOMATICALLY.**

1. Bring the upper and lower bead breaker rollers together to determine the width of the rim.


Fig. 67


Fig. 68

2. Place the tyre valve at "1 o'clock" (**Fig. 69**) and start the bead breaking procedure.


Fig. 69

3. Accurately lubricate the bead and the rim (**Fig. 70**).

**IF THE AUTOMATIC PROCEDURE DOES NOT ALLOW GOOD LUBRICATION, YOU CAN CONTINUE IN "MANUAL" AND LUBRICATE AS DESIRED.**

Fig. 70

Fig. 71

**DURING LUBRICATION, DO NOT PUSH TOO DEEP ON THE TYRE SIDEWALL.**

**DURING THE ROTATION OF THE TYRE, ABUNDANTLY GREASE THE INSIDE OF THE BEAD AND THE ENTIRE SHOULDER OF THE TYRE, UP TO THE TREAD (FIG. 70; FIG. 71).**

## 13.11.4 Disassembly of the tyre

1. When both beads are broken, the tyre can be demounted. Position the valve clockwise in correspondence with the upper bead breaker roller.
2. When the toolhead fits into the tyre bead (**Fig. 72**), further disassembly is performed in "manual" mode using the automatic pedal (press and release).

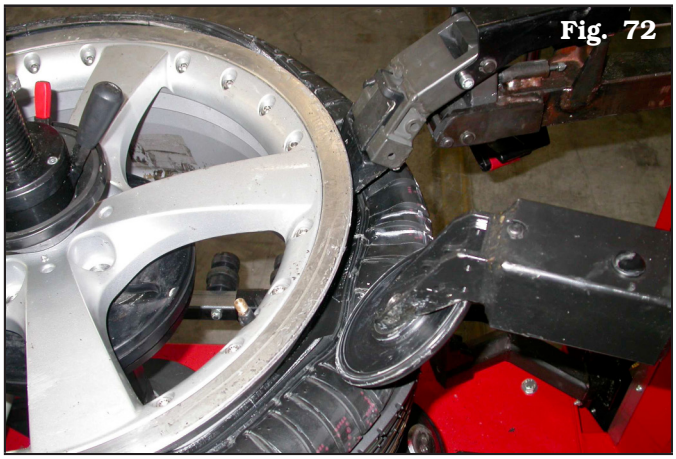


Fig. 72

3. Join three bead sliding foils and fold them in a double layer as shown in **Fig. 73**. Insert the foils (**Fig. 73**) using the bead removing shovel (**Fig. 74**).


Fig. 73

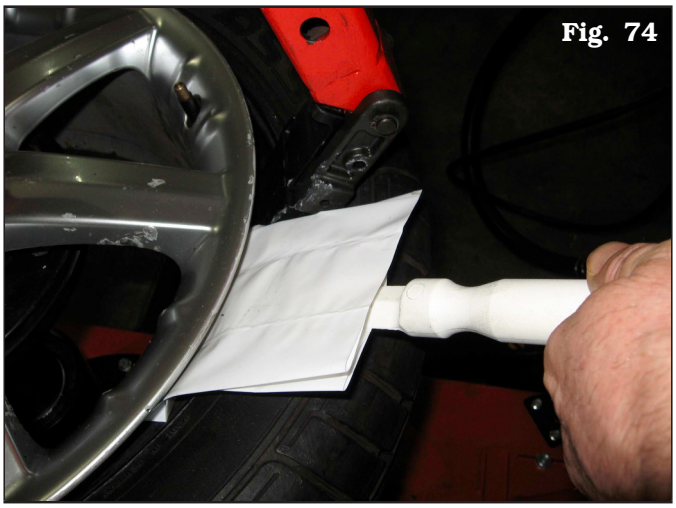


Fig. 74

4. Lift the toolhead until it is positioned on the rim edge (**Fig. 75**).

**WARNING: DO NOT ROTATE THE WHEEL WHEN LIFTING THE TOOLHEAD! INSERT THE BEAD REMOVING SHOVEL BETWEEN THE BEAD AND THE EDGE OF THE RIM TO FIX THE TRACTION POINT.**


Fig. 75


Fig. 76

5. Press the automatic assent pedal until the upper bead is completely disassembled.


Fig. 77

### 13.11.5 Dismounting the lower bead using the lower bead breaker roller

1. Manually lift the lower bead of the tyre (**Fig. 78**).


Fig. 78

2. Raise the lower bead of the tyre with the bead breaker roller until the roller clears the edge of the upper rim. The valve position is automatically adjusted.


Fig. 79


Fig. 80

3. Keep the automatic assent pedal pressed until the tyre is completely removed.

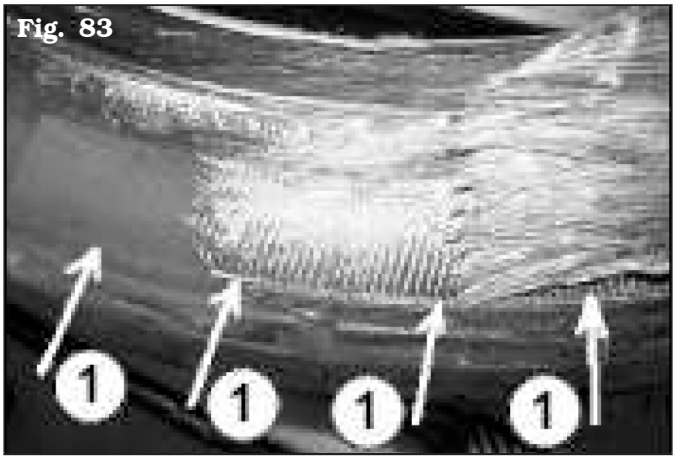

Fig. 81

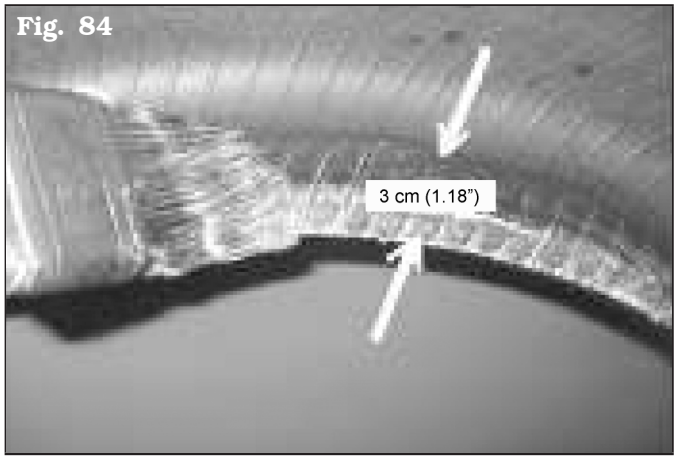

Fig. 82

### *13.11.6 Mounting of the tyre*

1. Lubricate both beads and the rim drop centre. Lubricate the upper side of the tyre up to the tread (**Fig. 83 ref. 1**).

**DO NOT LUBRICATE THE TYRE PRESSURE SENSOR.**




2. Place the tyre on the rim (**Fig. 85**) and press the consent pedal until the lower bead is fitted (= automatic mode) (**Fig. 86**). The valve is automatically positioned by the tyre changer in the “9 o'clock” position.



3. Place the upper bead on the toolhead. The equipment automatically positions the valve in the correct position (10-15 cm (3.94"-5.91") in front of the "4 o'clock" traction point.

4. Position the bead pusher with guard (**Fig. 89**) behind the valve by inserting the three double-layer folded protection foils (**Fig. 90 and Fig. 91**) under the bead pusher to avoid damage to the bead itself.

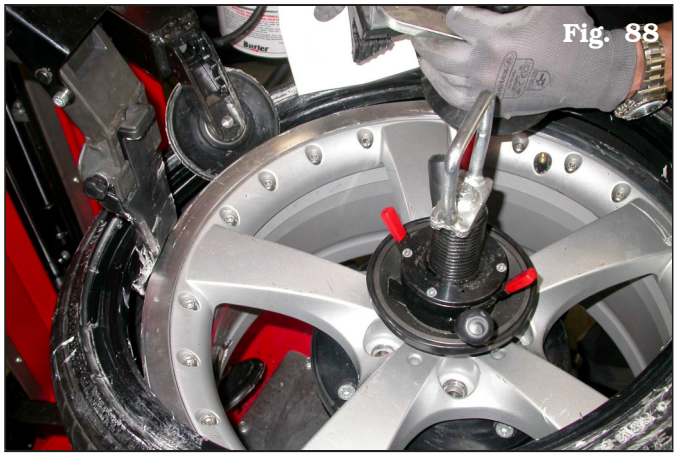


Fig. 88


Fig. 89

**THE VALVE MUST ALWAYS BE PLACED BEFORE (MAX. 15 cm (5.91")) THE TRACTION POINT.**

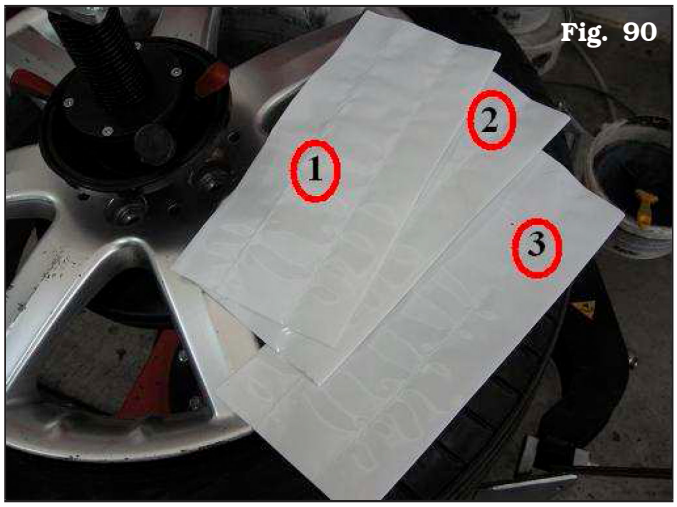


Fig. 90

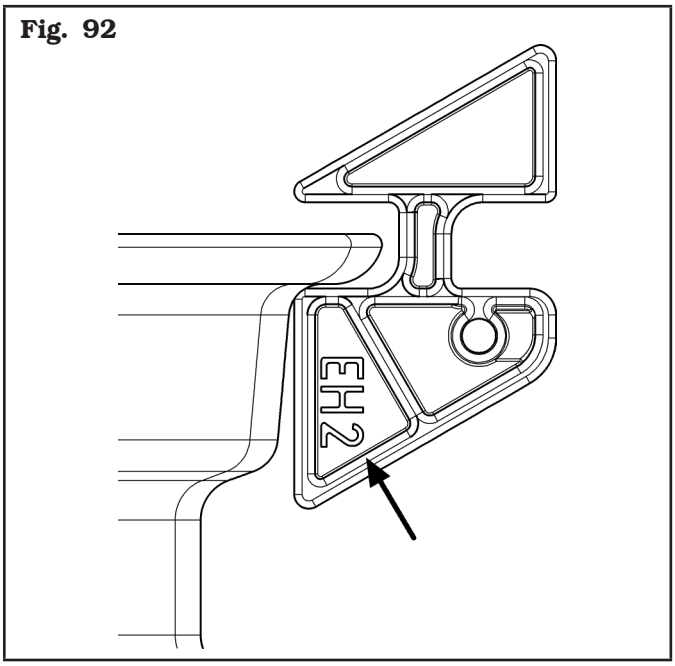

Fig. 91

5. Rotate the wheel further until the valve is at "6 o'clock" and, using the upper bead breaker roller, insert the wedges of the bead press extension.

**THE BEAD PRESS EXTENSION IS MADE UP OF TWO-WEDGES-INSERTS OF DIFFERENT SIZES (EH, EH2) (FIG. 92). THESE WEDGES, SUITABLY MOUNTED, INSERT THE TYRE BEAD AT TWO DIFFERENT RIM DEPTHS AND IN ANY CASE INSIDE THE DROP CENTRE.**
**CHOOSING THE CORRECT WEDGE TO BE USED DEPENDS ON THE TYPE OF RIM YOU INTEND TO WORK ON.**

**IN THE CASE OF AN EH2 OR EH2+ RIM IT IS NECESSARY TO USE THE WEDGES ON THE SIDE HIGHLIGHTED BY THE PRINTED SIGN "EH2" (THE DEEPER ONES) (SEE FIG. 92).**

**Fig. 92**




6. Use the upper bead breaker roller to insert all the wedges. The sidewall of the tyre must be well lubricated.

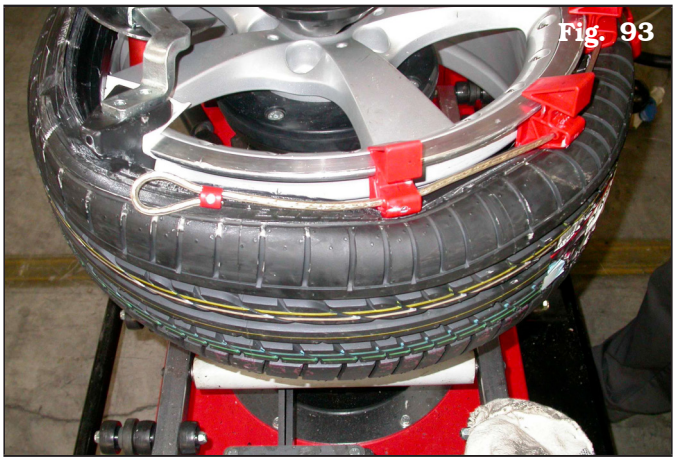


Fig. 93


Fig. 94

7. Fit the bead at intervals (releasing the assent pedal) to allow the tyre to adapt.


Fig. 95

8. If you use the bead press device, follow the same operations as for the bead pusher with guard.


Fig. 96


Fig. 97

### *13.11.7 Tyre inflation*

1. The inflation of a wheel must always take place without the inner core of the valve.
2. Connect the inflation terminal to the valve and press the pedal on the right side of the equipment to inflate the tyre.

**INFLATE AT INTERVALS.**
**ON THE TYRE CHANGER THERE IS A SAFETY SYSTEM FOR THE ADJUSTMENT OF THE MAXIMUM PRESSURE OF THE SUPPLIED AIR (4 ± 0.2 bar / 60 ± 3 psi).**

**IF THE TYRE BEADS AND RIMS ARE WELL LUBRICATED THEY MAKE TYRE INFLATION MUCH SAFER AND EASIER. IN THE EVENT THAT THE TYRE BEAD DOES NOT OCCUR AT 4 ± 0.2 bar / 60 ± 3 psi, IT IS NECESSARY TO DEFLATE THE WHEEL, BEAD AND ABUNDANTLY LUBRICATE THE TYRE AND RIM, AND REPEAT THE INFLATION OPERATION.**

## 14.0 ROUTINE MAINTENANCE

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

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

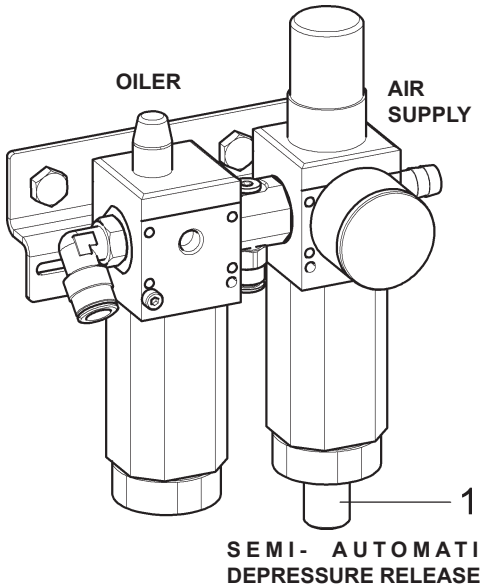
To guarantee the efficiency and correct functioning of the equipment, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below.
Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below.

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

**DO NOT BLOW IT WITH COMPRESSED AIR.**

- Do not use solvents to clean the pressure regulator.
- The conditioning assembly is equipped with an automatic vacuum-operated drain therefore it requires no manual intervention by the operator (see **Fig. 98**).

**Fig. 98**




**IN ORDER TO ENSURE A GOOD FUNCTIONING AND TO AVOID THE PRESENCE OF CONDENSATION IN THE AIR TREATMENT ASSEMBLIES WITH SEMI-AUTOMATIC DRAIN, IT'S NECESSARY TO MAKE SURE ABOUT THE CORRECT POSITION OF THE VALVE (FIG. 98 REF. 1), PLACED UNDER THE CAP. TO ACTIVATE A CORRECT DRAIN FUNCTION, THE CAP MUST BE ROTATED IN THE RIGHT WAY.**

**IN ORDER TO ALLOW A LONGER LIFE OF THE FILTER AND OF ALL MOVING PNEUMATIC DEVICES, YOU HAVE TO MAKE SURE THAT THE SUPPLIED AIR IS:**
- **EXEMPT FROM THE LUBRICATING OIL OF THE COMPRESSOR;**
- **EXEMPT FROM HUMIDITY;**
- **EXEMPT FROM IMPURITY.**

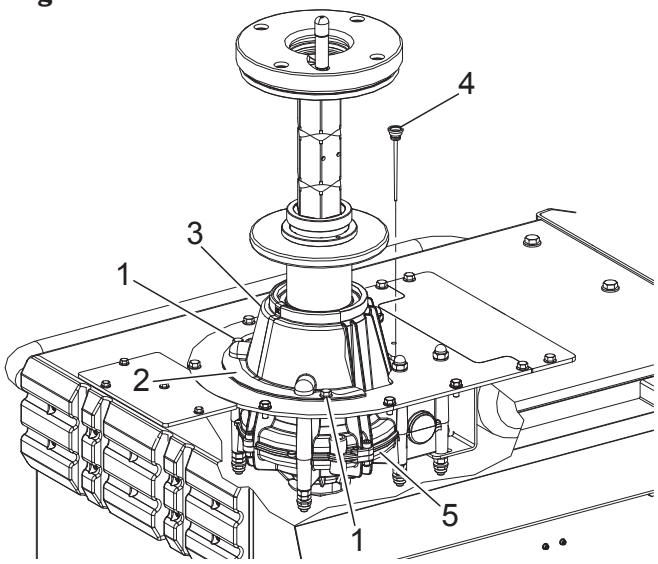
- Periodically, with a frequency of at least once a month, lubricate the arms of the bead breaking roller and of the tools.
- Immediately replace worn parts, bead breaking rollers, assembly tools.
- Every **week** and/or when necessary, top up the oil tank using the filler hole provided, closed by a cap or bolt, on the lubricator filter.

**THIS OPERATION SHOULD NOT BE CARRIED OUT BY UNSCREWING THE CUP OF THE LUBRICATOR FILTER.**

- The use of synthetic oil might damage the pressure regulator filter.

- At least every 100 working hours, check reduction gear lubricating oil level (**Fig. 99 ref. 5**). Such operation must be performed by removing the bolts (**Fig. 99 ref. 1**), removing the flange (**Fig. 99 ref. 2**), the guard (**Fig. 99 ref. 3**) and the plug (**Fig. 99 ref. 4**) on the reduction gear.

**Fig. 99**

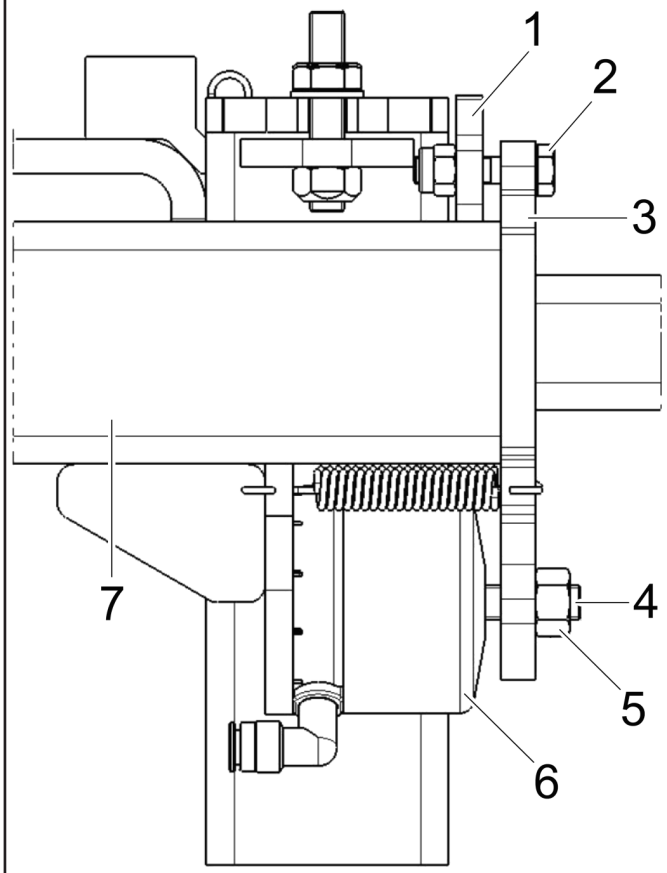



**ANY DAMAGE TO THE MACHINE DEVICES RESULTING FROM THE USE OF LUBRICANTS OTHER THAN THOSE RECOMMENDED IN THIS MANUAL WILL RELEASE THE MANUFACTURER FROM ANY LIABILITY!!**

## *14.1 Neck adjustment*

In case of fulcrum-type bolts (**Fig. 100 ref. 2**) with neck (**Fig. 100 ref. 3**) fully beating onto bead breaker arm's guide (**Fig. 100 ref. 7**) (not on the adjusting plate (**Fig. 100 ref. 1**)), carry out neck adjustment procedure as described below.

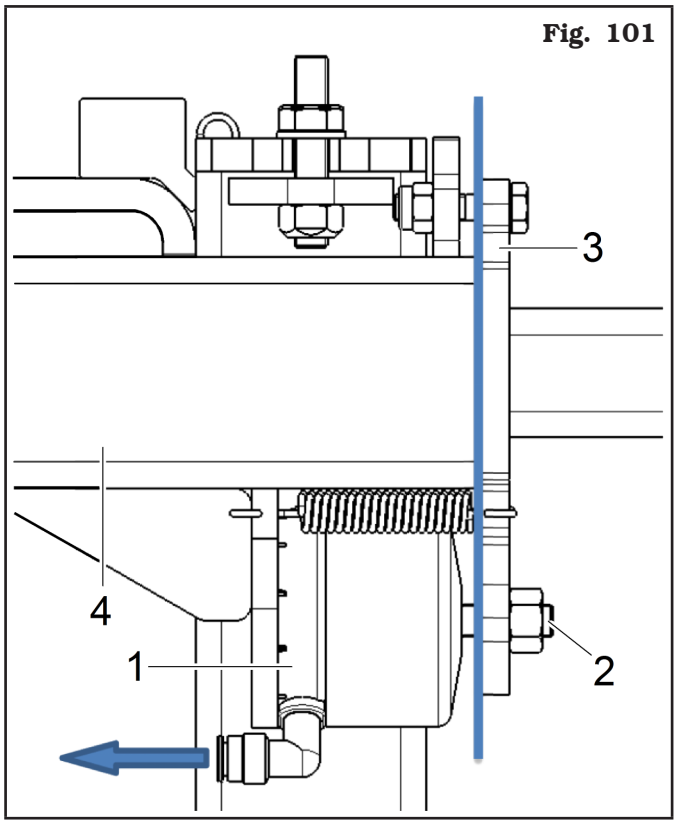
**Fig. 100**




KEY
1 – Adjusting plate
2 – Fulcrum bolts
3 – Neck
4 – Adjusting grub screw
5 – Locking nut
6 – Neck operating cylinder
7 – Bead breaking arm guide

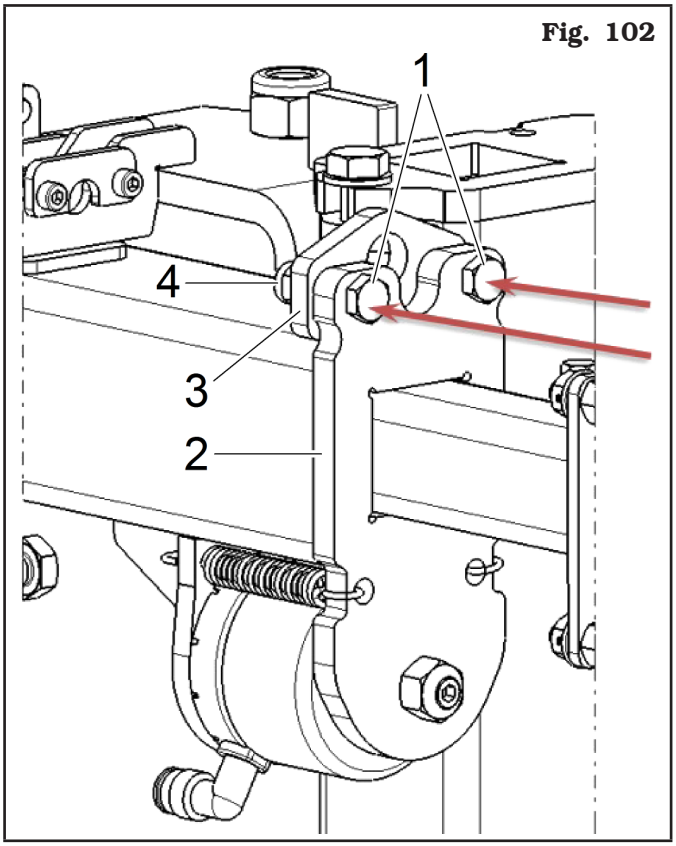
a. Blow off the compressed air from neck cylinder (**Fig. 101 ref. 1**). Make neck (**Fig. 101 ref. 3**) reach beat position again on the guide support surface (**Fig. 101 ref. 4**), by turning the adjusting grub screw (**Fig. 101 ref. 2**).

**Fig. 101**



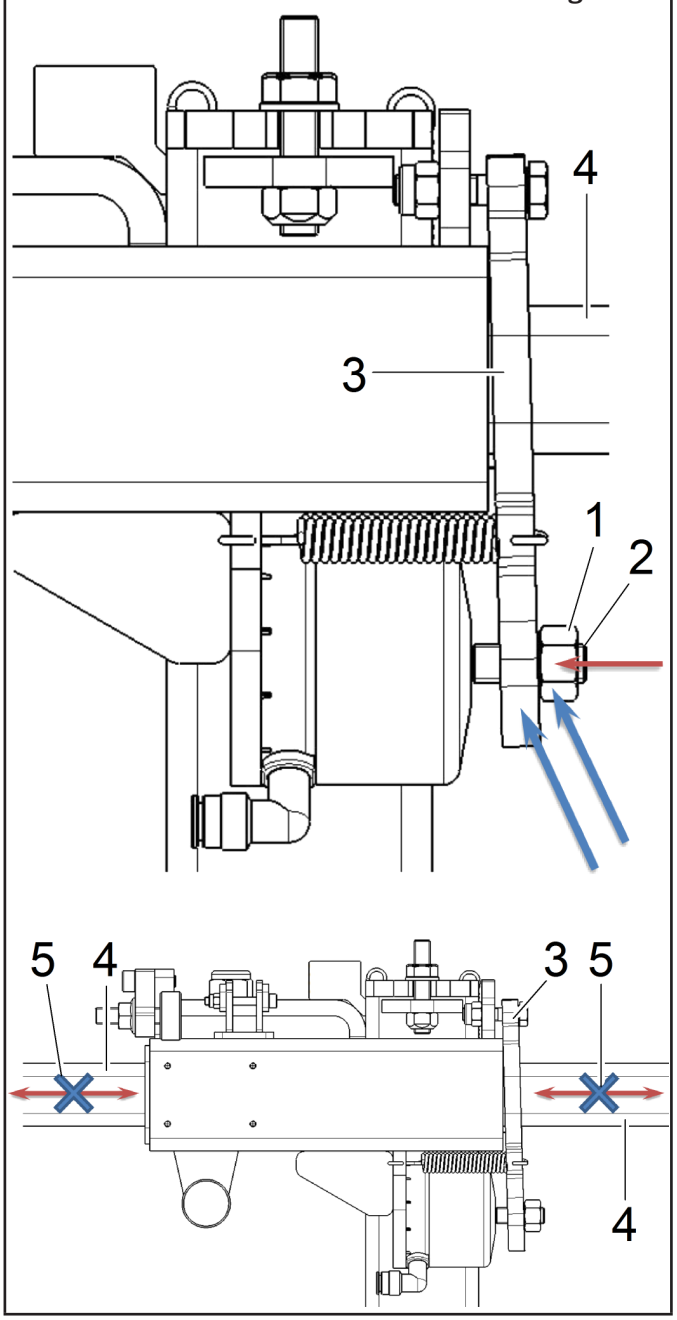

b. Completely screw fulcrum-type bolt (or bolts) (**Fig. 102 ref. 1**) but without locking them, just making them approach, setting a 0.1 - 0.2 mm play (0,005" - 0.01") between neck (**Fig. 102 ref. 2**) and adjusting plate (**Fig. 102 ref. 3**), positioning nut (**Fig. 102 ref. 4**) and letting it rest completely onto adjusting plate.

**Fig. 102**



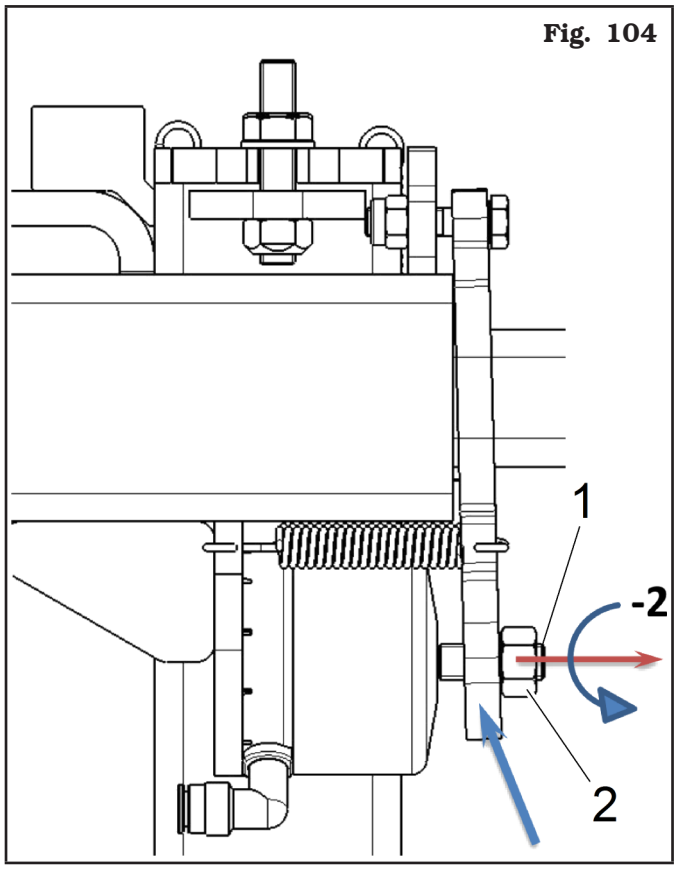
c. Slacken lock nut (**Fig. 103 ref. 1**) of adjusting grub screw (**Fig. 103 ref. 2**). Then, screw the grub screw (**Fig. 103 ref. 2**) until neck (**Fig. 103 ref. 3**) strikes onto arm (**Fig. 103 ref. 4**), that as a consequence results clamped (**Fig. 103 ref. 5**).

**Fig. 103**



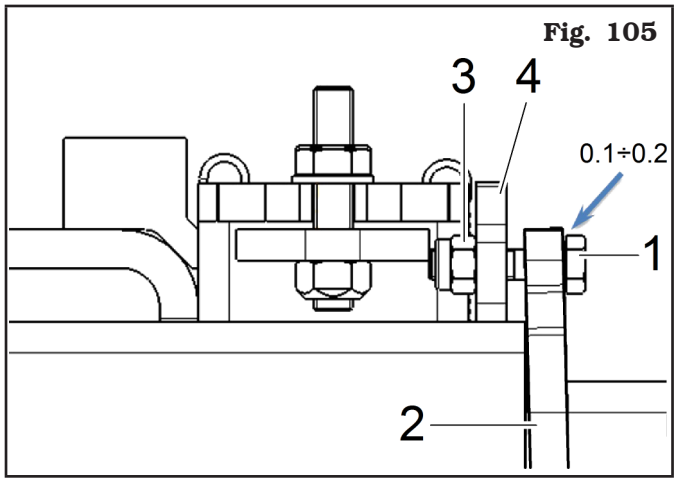

d. Starting from the position reached at point (c), remove neck adjusting grub screw counter-clockwise by 2 complete turns (**Fig. 104 ref. 1**) and lock the relevant counter nut (**Fig. 104 ref. 2**).

**Fig. 104**



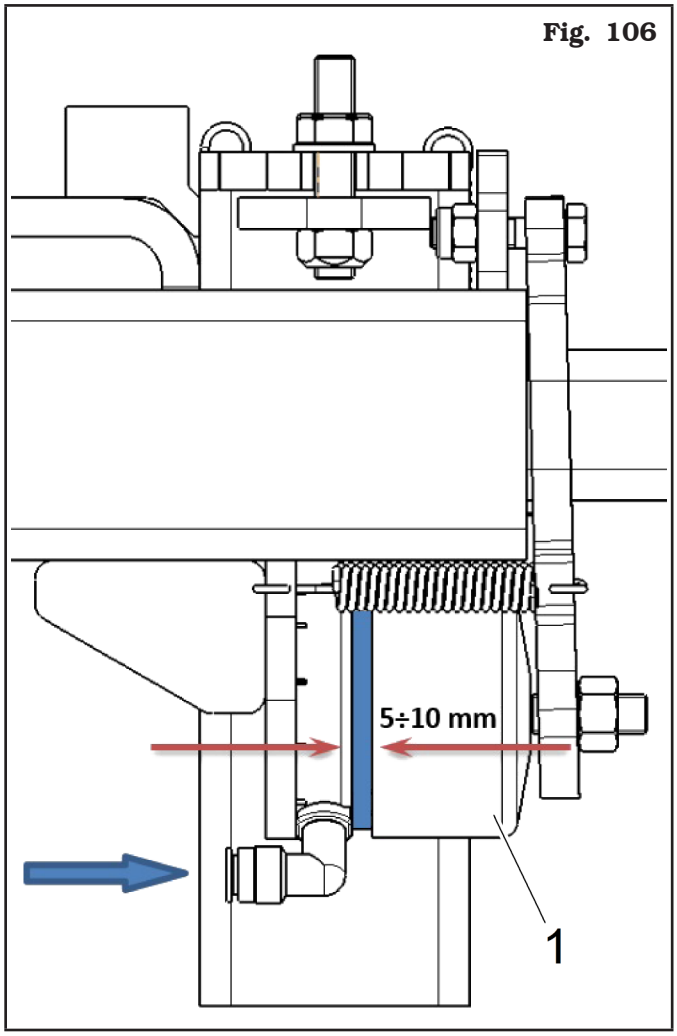

e. Turn fulcrum-type bolt (or bolts) (**Fig. 105 ref. 1**) in order to reset 0.1 - 0.2 mm play (0.005" - 0.01") between neck (**Fig. 105 ref. 2**) and fulcrum-type screw head (**Fig. 105 ref. 1**), letting nut (**Fig. 105 ref. 3**) rest completely onto adjusting plate (**Fig. 105 ref. 4**).

**Fig. 105**



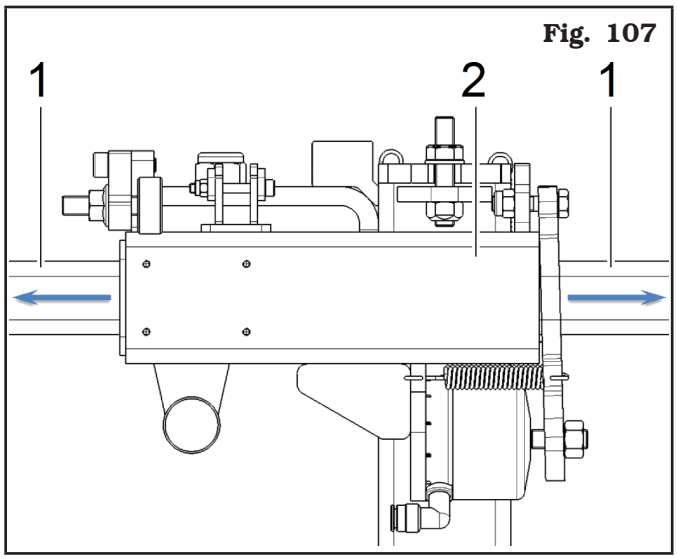
f. Operate cylinder (**Fig. 106 ref. 1**), supplying it with compressed air, and make sure its stroke is included between 5 - 10 mm (0.2" - 0.4").

**Fig. 106**




g. Blow off cylinder and make sure the arm (**Fig. 107 ref. 1**) can slide freely in its guide (**Fig. 107 ref. 2**).

**Fig. 107**




h. Repeat points (f) and (g) 3 times at least.

## *14.2 Rim arm calibration*

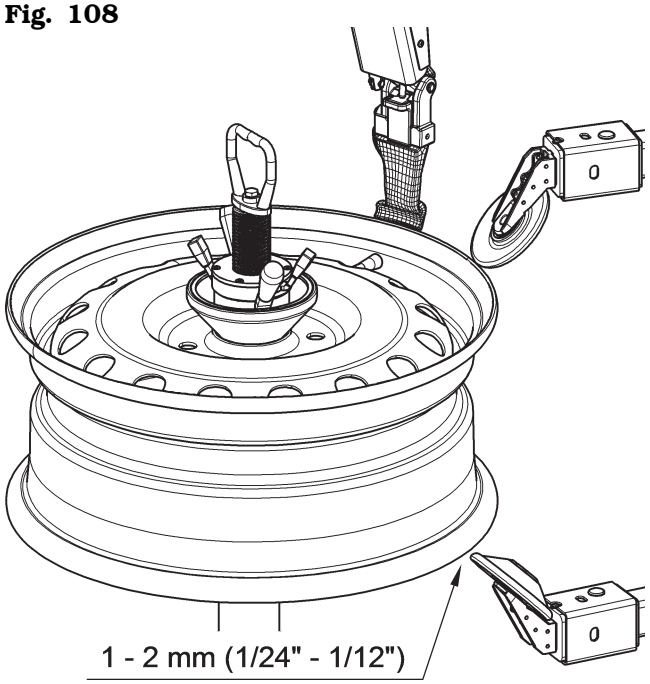
Make sure that the bead rollers and the toolhead take place correctly in comparison to the rim, as described hereafter:

1. mount a rim in good conditions (not ovalized and not bent) without tyre on the equipment;
2. lock the rim with the locking shaft assembly.

With equipment in manual mode

1. Move the arms horizontally until the upper bead breaker roller and the toolhead come into contact with the rim, as shown in **Fig. 108**;
2. check that the lower bead breaker roller is positioned approximately 1-2 mm (1/24"-1/12") from the edge of the rim, as indicated in **Fig. 108**.

**Fig. 108**



## 15.0 TROUBLESHOOTING TABLE

Possible troubles which might occur to the tyre-changer are listed below. The manufacturer disclaims all responsibility for damages to people, animals or objects due to improper operation by non-unauthorised personnel. In case of trouble, call Technical Service Department for instructions on how to service and/or adjust the machine in full safety to avoid any risk of damage to people, animals or objects.

In an emergency and before maintenance on tyre-changer, set the main switch to "0" and lock it in this position.

**CONTACT AUTHORIZED TECHNICAL SERVICE**

**do not try and service alone**

| Problem | Possible cause | Remedy |
|---|---|---|
| The arm advance cam is not immediately activated. | 1. Power supply missed.<br>2. The control push button is broken. | 1. Connect the power supply.<br>2. Call for technical assistance.  |
| The nozzle doesn't supply air when the inflation pedal is pressed (on models with pressure vessel) | The inflation pedal is badly adjusted. | Call for technical assistance.  |
| The chuck doesn't rotate. | Inverter overload alarm<br>*Or*<br>Inverter undervoltage alarm<br>*Or*<br>Inverter overvoltage alarm | Shorten the length of a possible equipment extension cable or increase the conductors section (disconnect and connect again). Lift the motor pedal and wait for the automatic reset. |
| | Overtemperature alarm. | Wait until the motor system cools (the equipment does not restart if the temperature level does not go below the set safety threshold). |
| The chuck does not reach the maximum rotation speed. | The mechanical resistance of the gearmotor system has increased. | Turn the chuck without wheel for a few minutes so that the system heats, thus reducing frictions. If in the end the chuck does not accelerate again, call for technical assistance.  |
| The chuck doesn't rotate, but it attempts rotation when the equipment is switched on again. | Pedalboard irreversible de-calibration. | Call for technical assistance.  |
| The chuck rotates slowly but it does not operate on the motor pedal. | Pedalboard reversible de-calibration. | 1. Keep the pedal to rest position.<br>2. Keep the equipment connected to the net.<br>3. Wait for 30 seconds that the pedalboard recalibration automatic attempt ends. |
| **BEAD PRESS DEVICE** | | |
| No movement is generated when the control lever is operated. | 1. Power supply missed.<br>2. The supply hoses have not been correctly assembled.<br>3. The control valve is not working. | 1. Check power supply.<br>2. Check hoses fitting.<br>3. Call for technical assistance.  |

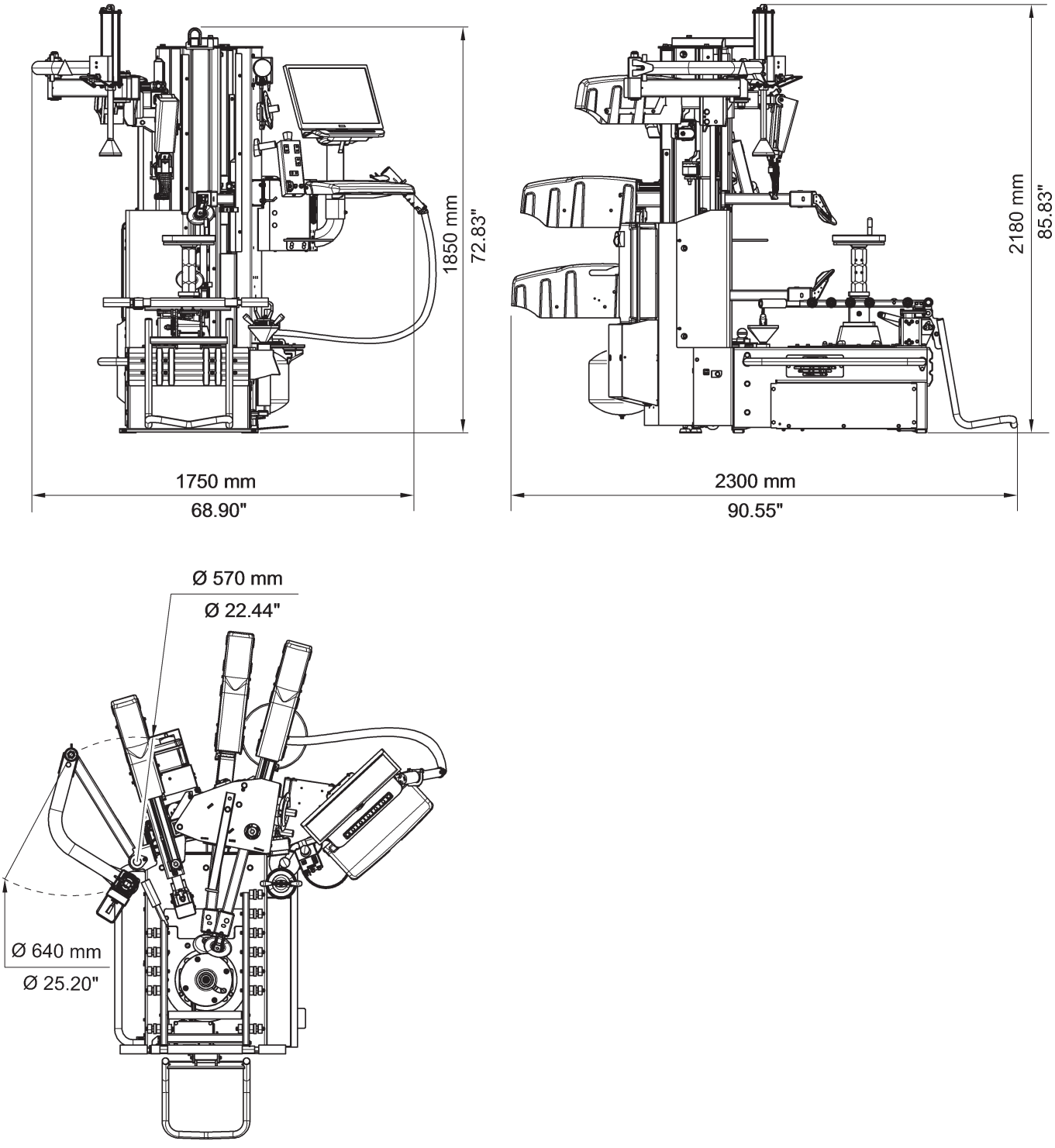
| Problem | Possible cause | Remedy |
|---|---|---|
| When the control lever is operated movement arises in one direction only. | The control valve is not working. | Call for technical assistance.  |
| **FRONT LIFTING DEVICE** | | |
| No movement is produced when the control pedal is operated. | 1. Supply missing or insufficient.<br>2. The supply hoses have not been correctly assembled.<br>3. The control valve is not working. | 1. Check power supply.<br>2. Check hoses fitting.<br>3. Call for technical assistance.  |
| When the equipment is aired, the front lifting device tends to move with no consent by the operator. | Possible valve de-calibration. | Call for technical assistance.  |

## 16.0 TECHNICAL DATA

Recommended air supply: ..... **8 - 10 bar (116 - 145 psi)**
Invemotor Speed: ..... **18 rpm**
Invemotor Power: ..... **1.5 kW (2 Hp)**
Recommended power supply: ..... **1 Ph 200-240V - 50/60 Hz**
Wheel max. diameter: ..... **50”/52”/54”**
Wheel max. width: ..... **15”**
Rim locking diameter: ..... **10”-30”/12”-32”/14”-34”**
Bead-breaking power per roller 10 bar (145 psi) (N): ..... **1200 kg (2646 lbs)**
Maximum vertical bead breaker opening: ..... **900 mm (35.43”)**
Gear noise: ..... **dBA 76**
Weight ..... **510 kg (1125 lbs)**

## 16.1 Dimensions

**Fig. 109**



## 17.0 STORING

If storing for long periods disconnect the main power supply and take measures to protect the equipment from dust build-up. Lubricate parts that could be damaged from drying out. When putting the equipment back into operation replace the rubber pads and the toolhead.

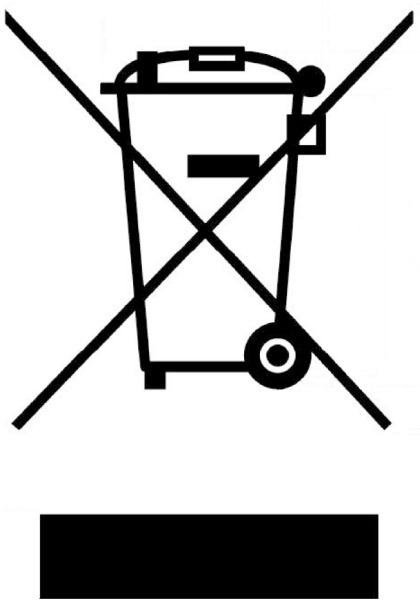
## 18.0 SCRAPPING

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

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

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

**Fig. 110**



## 19.0 REGISTRATION PLATE DATA

| | | |
|---|---|---|
| | | |
| TYRE CHANGER MODEL | SERIAL N° | MONTH-YEAR |
| AMPERAGE | BAR | POWER SUPPLY |

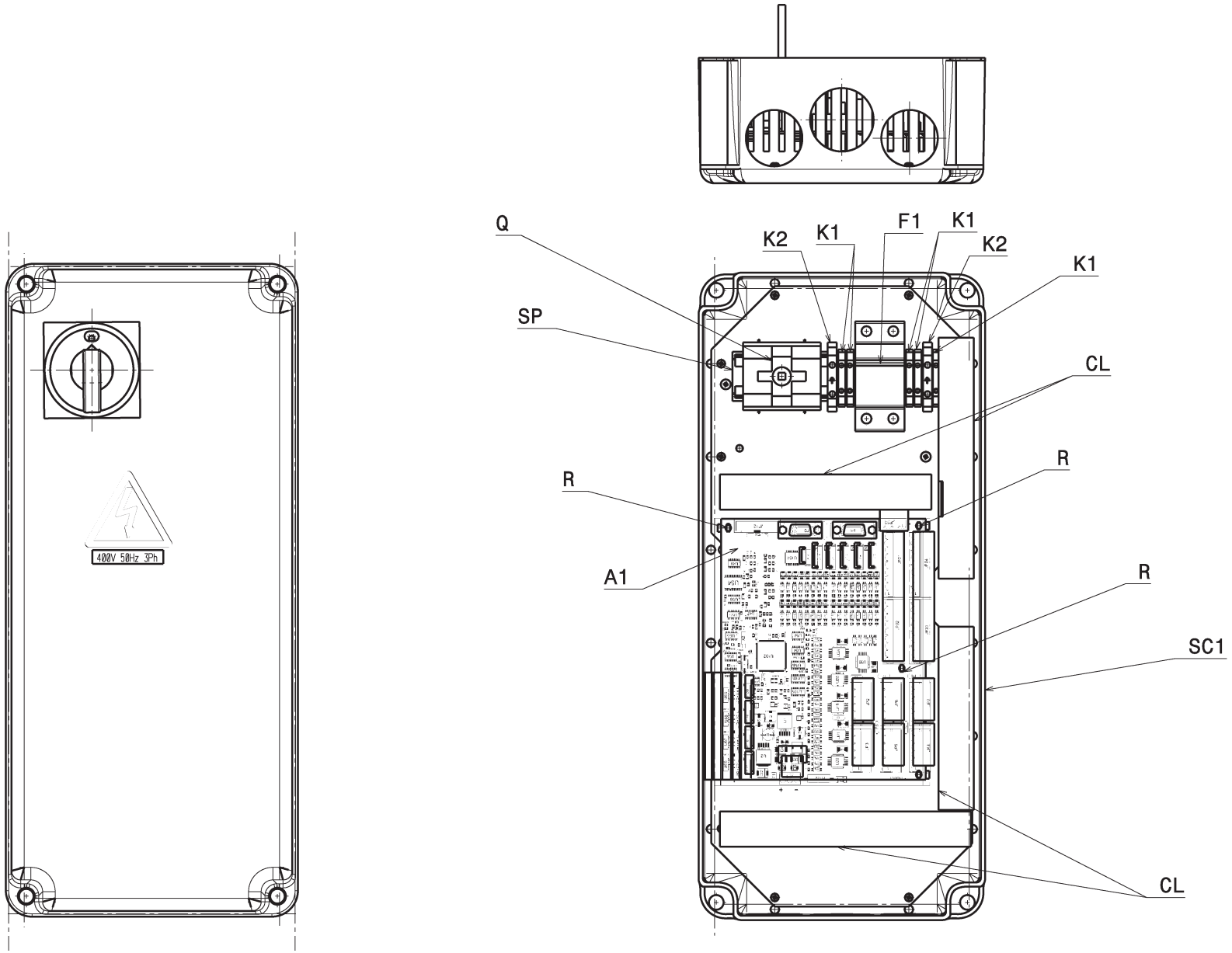
**The validity of the Conformity Declaration enclosed to this manual is also extended to products and/or devices the equipment model object of the Conformity Declaration can be equipped with.**
**Said plate must always be kept clean from grease residues or filth generally.**

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

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

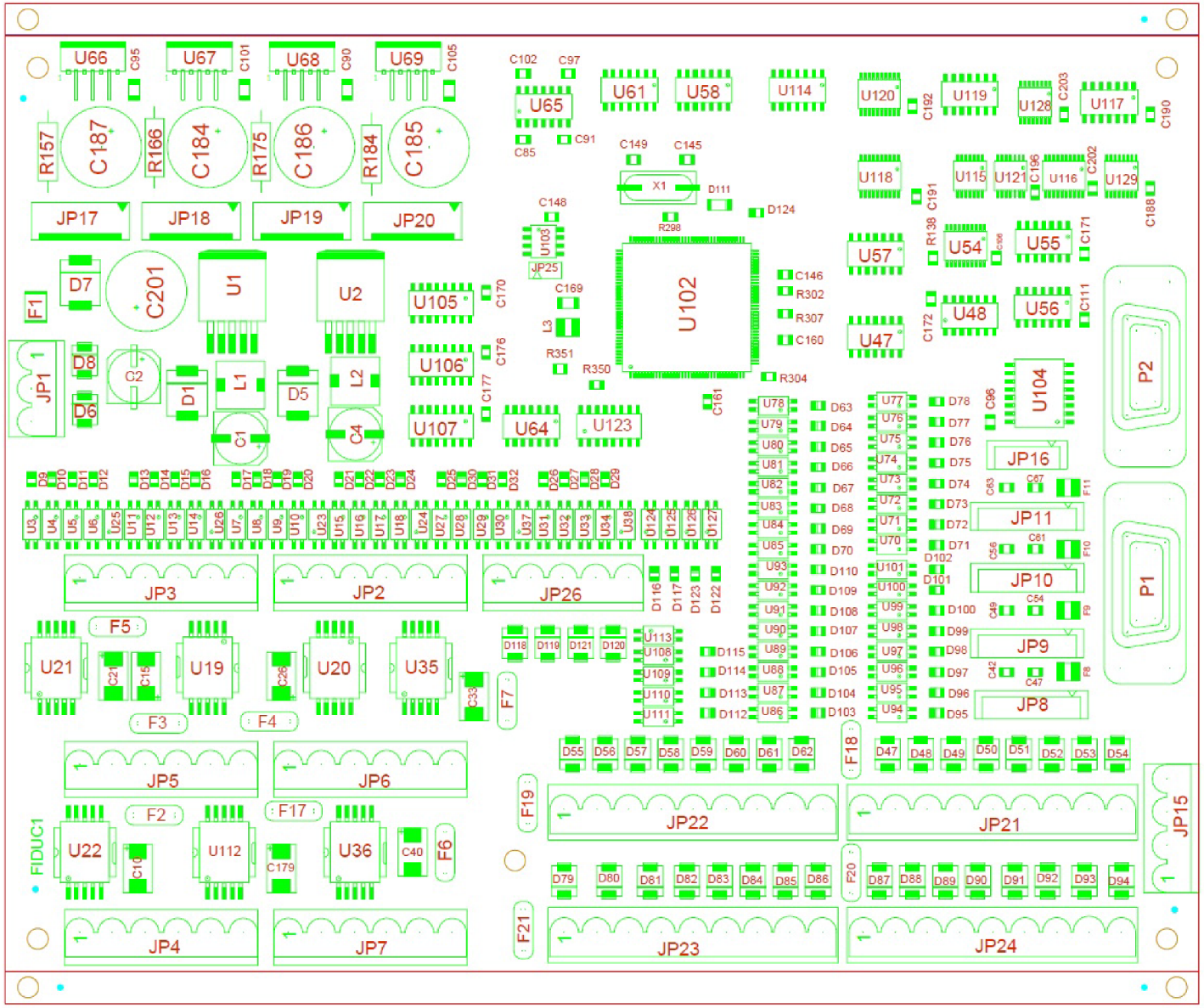
## 20.0 FUNCTIONAL DIAGRAMS

Here follows a list of the equipment functional diagrams.

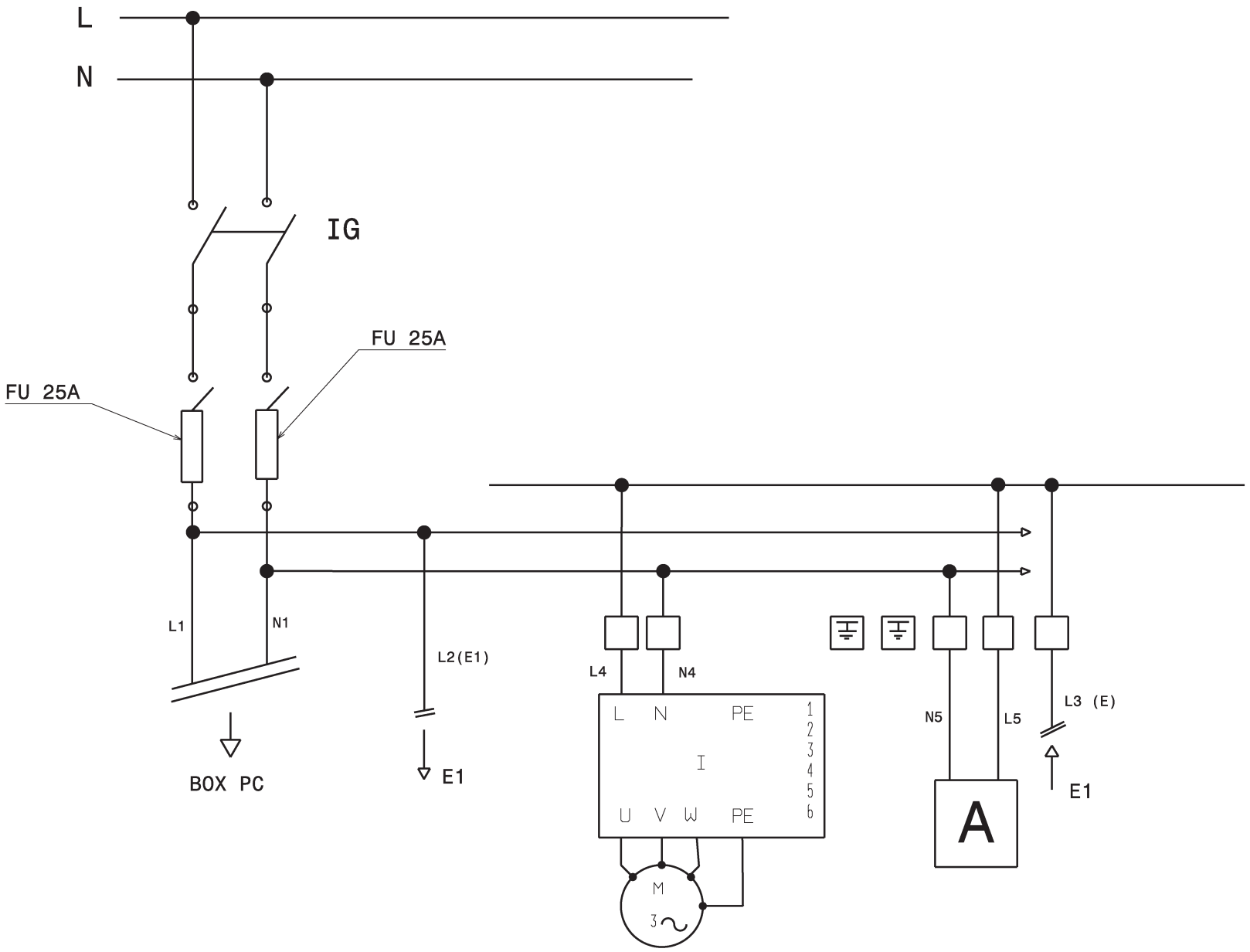


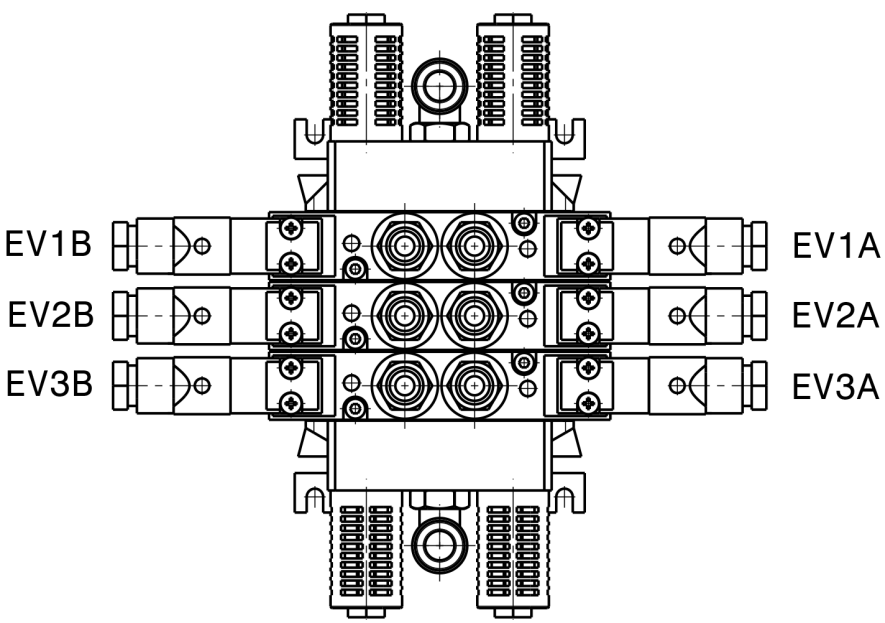

| | | | | |
|---|---|---|---|---|
| VSG VEHICLE SERVICE GROUP a DOVER company | LIST OF COMPONENTS | | WIRING DIAGRAM 1/19 | *Page 72 of 99* |
| | Drawing N°A - Rev. 0 | 710105070 | | TYRE-CHANGER SERIES G1500.3 |

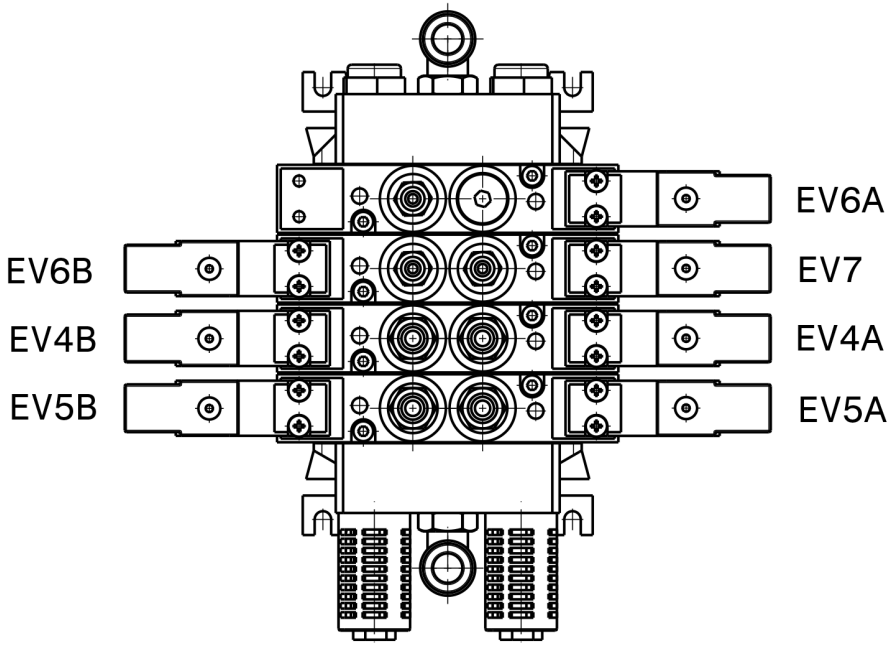
# TOPOGRAPHIC BOARD18295

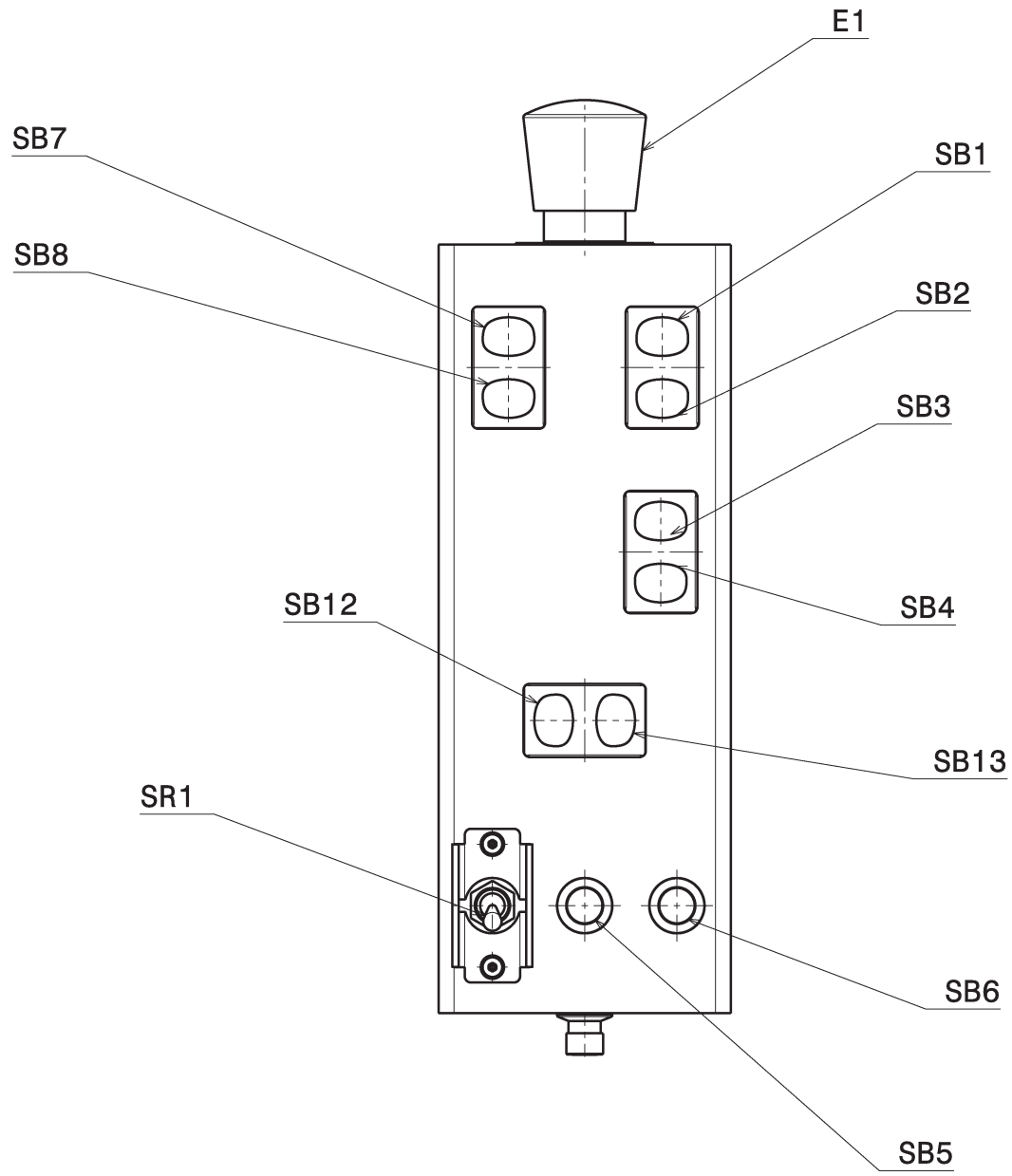


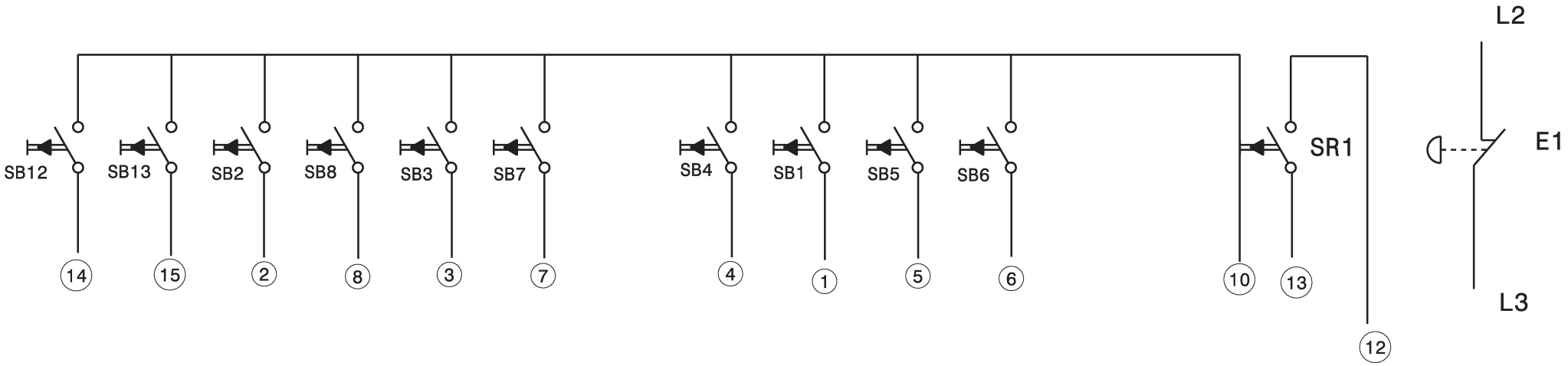

| | | | | |
|---|---|---|---|---|
| VSG VEHICLE SERVICE GROUP a DOVER company | LIST OF COMPONENTS | | WIRING DIAGRAM 2/19 | *Page 73 of 99* |
| | Drawing N°A - Rev. 0 | 710105070 | | TYRE-CHANGER SERIES G1500.3 |

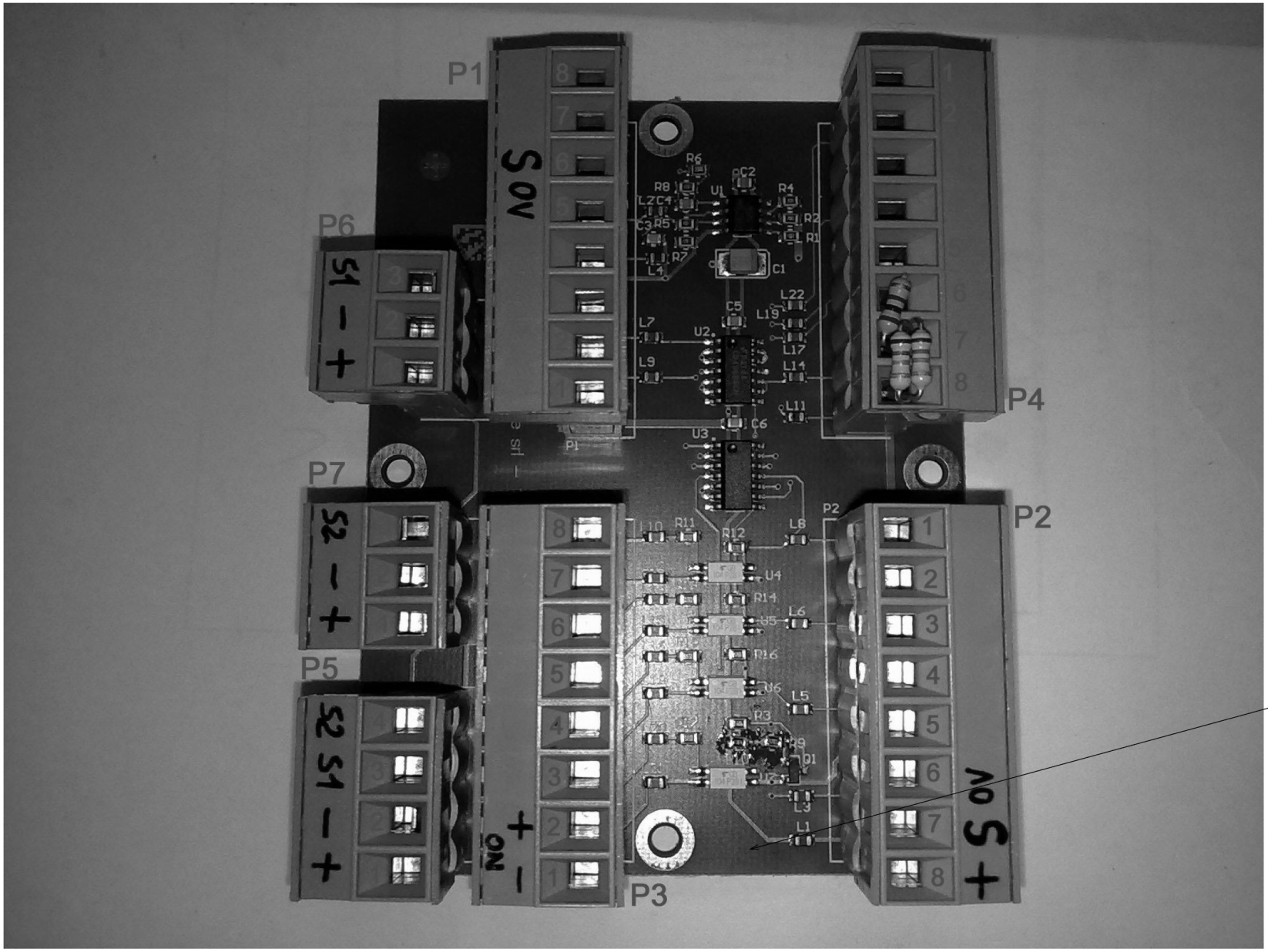

L
N
IG
FU 25A
FU 25A
L1
N1
L2(E1)
BOX PC
E1
L4
N4
L N PE
I
U V W PE
1
2
3
4
5
6
M
3~
N5
L5
L3 (E)
E1
A


EV1B
EV2B
EV3B
EV1A
EV2A
EV3A


EV6B
EV4B
EV5B
EV6A
EV7
EV4A
EV5A


E1
SB7
SB1
SB8
SB2
SB3
SB12
SB4
SB13
SR1
SB6
SB5


L2
SB12
SB13
SB2
SB8
SB3
SB7
SB4
SB1
SB5
SB6
SR1
E1
L3
14
15
2
8
3
7
4
1
5
6
10
13
12


P1
P6
P7
P5
P4
P2
P3
S0V
S1 - +
S2 - +
S2 S1 - +
NO + -
+ S 0V
A2

## P1 INTERFACCIA ANALOGICA VERSO SCHEDA 18295

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | 0V | (MARRONE) | Collegare cavo 18883 |
| 6 | SEGNALE INGRESSO | (BIANCO) | Collegare cavo 18883 |
| 7 | | | |
| 8 | | | |

## P2 CONNETTORE VERSO INVERTER

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | 0V | (VERDE) | Collegare cavo 18884 |
| 7 | SEGNALE USCITA | (BIANCO) | Collegare cavo 18884 |
| 8 | +10V | (GIALLO) | Collegare cavo 18884 |

## P3 SWITCH VELOCITA' E ABILITAZIONE 18295

| | | | |
|---|---|---|---|
| 1 | 0V Abilitazione scheda | (MARRONE) | Collegare cavo 18945 |
| 2 | 24V Abilitazione scheda | (BIANCO) | Collegare cavo 18945 |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

## P4 INTERFACCIA VERSO PEDALIERA

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | Potenziometro negativo | | Resistenza 2K7 |
| 7 | Potenziometro cursore | | Comune resistenze |
| 8 | Potenziometro positivo | | Resistenza 7K32 |

## P5 CAVO PROXIMITY VERSO SCHEDA 18295

| | | | |
|---|---|---|---|
| 1 | +24V | (ROSA) | Collegare cavo 18945 |
| 2 | 0V | (GRIGIO) | Collegare cavo 18945 |
| 3 | Segnale Proximity 1 | (GIALLO) | Collegare cavo 18945 |
| 4 | Segnale Proximity 2 | (VERDE) | Collegare cavo 18945 |

## P6 PROXIMITY 1

| | | | |
|---|---|---|---|
| 1 | +24V | (MARRONE) | |
| 2 | 0V | (BLU) | |
| 3 | Segnale proximity 1 | (NERO) | |

## P7 PROXIMITY 2

| | | | |
|---|---|---|---|
| 1 | +24V | (MARRONE) | |
| 2 | 0V | (BLU) | |
| 3 | Segnale Proximity 2 | (NERO) | |

## P1 ANALOGIC INTERFACE TO CARD 18295

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | 0V | (BROWN) | Connect cable 18883 |
| 6 | INPUT SIGNAL | (WHITE) | Connect cable 18883 |
| 7 | | | |
| 8 | | | |

## P2 CONNECTOR TO INVERTER

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | 0V | (GREEN) | Connect cable 18884 |
| 7 | OUTPUT SIGNAL | (WHITE) | Connect cable 18884 |
| 8 | +10V | (YELLOW) | Connect cable 18884 |

## P3 SPEED SWITCH AND ENABLING 18295

| | | | |
|---|---|---|---|
| 1 | OV Card enabling | (BROWN) | Connect cable 18945 |
| 2 | 24V Card enabling | (WHITE) | Connect cable 18945 |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |

## P4 INTERFACE TO PEDALBOARD

| | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | Negative potentiometer | | Resistance 2K7 |
| 7 | Wiper potentiometer | | Common to resistances |
| 8 | Positive potentiometer | | Resistance 7K32 |

## P5 PROXIMITY CABLE TO CARD 18295

| | | | |
|---|---|---|---|
| 1 | +24V | (PINK) | Connect cable 18945 |
| 2 | 0V | (GRAY) | Connect cable 18945 |
| 3 | 1 signal Proximity | (YELLOW) | Connect cable 18945 |
| 4 | 2 signal Proximity | (GREEN) | Connect cable 18945 |

## P6 PROXIMITY 1

| | | | |
|---|---|---|---|
| 1 | +24V | (BROWN) | |
| 2 | 0V | (BLUE) | |
| 3 | 1 signal Proximity | (BLACK) | |

## P7 PROXIMITY 2

| | | | |
|---|---|---|---|
| 1 | +24V | (BROWN) | |
| 2 | 0V | (BLUE) | |
| 3 | 2 signal Proximity | (BLACK) | |

ASSEGNAZIONE CONNETTORI

| | |
|---|---|
| JP8 | Encoder V1(con cablaggio 18338r01) (*) |
| JP9 | Encoder V2(con cablaggio 18338r01) |
| JP10 | Encoder V3(con cablaggio 18338r01) |
| JP11 | VUOTO |
| JP14 | Vuoto |
| JP16 | Ingresso potenziometro cod.18882(lato con 3 fili per JP15) |
| JP17 | Motore+Encoder 01(con cablaggio 19193) |
| JP18 | Motore+Encoder 02(con cablaggio 19193) |
| JP19 | Motore+Encoder 03(con cablaggio 19193) |
| JP20 | VUOTO |
| P1 | Vuoto |
| P2 | Seriale PC cod.18893 |
| | (*)se l'encoder viene montato inversamente rispetto al senso di avanzamento dell'asse,devono essere scambiati tra loro i fili giallo e verde |

## ALIMENTAZIONE

| | | | |
|---|---|---|---|
| JP1 | | | |
| 1 | | GND | Collegare cavo 710165390 |
| 2 | | | |
| 3 | | +24V 20A | Collegare cavo 710165390 |

## USCITE

| | | | |
|---|---|---|---|
| JP2 | | | |
| 1 | Rit.3B,1B,2B,8B | | |
| 2 | 3B | EV.giu V1 | |
| 3 | 1B | EV.giu V2 | |
| 4 | 2B | EV.giu V3 | |
| 5 | 8B | EV.giu V4 | |
| 6 | | | |

## USCITE

| | | | |
|---|---|---|---|
| JP3 | | | |
| 1 | Rit.3A,1A,2A,8A | Cavallottare filo 8A su JP6-1 | |
| 2 | 3A | EV.su V1 | |
| 3 | 1A | EV.su V2 | |
| 4 | 2A | EV.su V3 | |
| 5 | 8A | EV.su V4 | |
| 6 | | | |

| | | | |
|---|---|---|---|
| JP4 | | | |
| 1 | MARRONE+GRIGIO | Cod.18945 | |
| 2 | GRIGIO | Cod.18881 | TASTIERA |
| 3 | BIANCO/BLU | Cod.18881 | TASTIERA |
| 4 | MARRONE/ROSSO | Cod.18881 | TASTIERA |
| 5 | | | |
| 6 | | | |

| | | | |
|---|---|---|---|
| JP5 | | | |
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

| | | | |
|---|---|---|---|
| JP6 | | | |
| 1 | Rit.6A,6B,7,8A | | |
| 2 | 6A | EV.Blocco bracci02;03 | |
| 3 | 7 | EV.Blocco stelo V1 | |
| 4 | BIANCO Cod.18945 | Abil.scheda interf.Inverter | |
| 5 | 6B | EV.Blocco bracci 01;04 | |
| 6 | | | |

## CONNECTORS ASSIGNMENT

| | |
|---|---|
| JP8 | Encoder V1 (with harness 18338r01) (*) |
| JP9 | Encoder V2 (with harness 18338r01) |
| JP10 | Encoder V3 (with harness 18338r01) |
| JP11 | Empty |
| JP14 | Empty |
| JP16 | Input of potentiometer cod. 18882<br>(side with 3 wires for JP15) |
| JP17 | 01 Motor+Encoder (with r01 19193 connection) |
| JP18 | 02 Motor+Encoder (with r01 19193 connection) |
| JP19 | 03 Motor+Encoder (with r01 19193 connection) |
| JP20 | Empty |
| P1 | Empty |
| P2 | PC serial cod. 18893 |
| | (*) if the encoder is assembled in reverse direction compared to the axis progress, the green and yellow wires must be exchanged |

## INPUT

| JP1 | | | |
|---|---|---|---|
| 1 | | GND | Connect cable 710165390 |
| 2 | | | |
| 3 | | +24V 20A | Connect cable 710165390 |

## OUTPUTS

| JP2 | | | |
|---|---|---|---|
| 1 | Rit.3B,1B,2B,8B | | |
| 2 | 3B | SV. down V1 | |
| 3 | 1B | SV. down V2 | |
| 4 | 2B | SV. down V3 | |
| 5 | 8B | SV. down V4 | |
| 6 | | | |

## OUTPUTS

| JP3 | | | |
|---|---|---|---|
| 1 | Rit.3A,1A,2A,8A | Connect wire 8A on JP6-1 | |
| 2 | 3A | SV. on V1 | |
| 3 | 1A | SV. on V2 | |
| 4 | 2A | SV. on V3 | |
| 5 | 8A | SV. on V4 | |
| 6 | | | |

| JP4 | | | |
|---|---|---|---|
| 1 | BROWN+GREY | Cod. 18945 | |
| 2 | GREY | Cod. 18881 | KEYBOARD |
| 3 | WHITE/BLUE | Cod. 18881 | KEYBOARD |
| 4 | BROWN/RED | Cod. 18881 | KEYBOARD |
| 5 | | | |
| 6 | | | |

| JP5 | | | |
|---|---|---|---|
| 1 | | | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |

| JP6 | | |
|---|---|---|
| 1 | Rit.6A,6B,7,8A | |
| 2 | 6A | SV. for arms lock 02 ; 03 |
| 3 | 7 | SV. for rod lock V1 |
| 4 | WHITE Cod. 18945 | Enabling of Inverter interface card |
| 5 | 6B | SV. for arms lock 01 ; 04 |
| 6 | | |

## USCITE

| JP7 | | | |
|---|---|---|---|
| 1 | Rit.4A,4B,5A,5B | | |
| 2 | 4A | EV.Camma sup.avanti | |
| 3 | 4B | EV.Camma sup.indietro | |
| 4 | 5A | EV.Camma inf.avanti | |
| 5 | 5B | EV.Camma inf.indietro | |
| 6 | 13n | Comune tasto MAN-AUTO | |

## SEGNALE POTENZIOMETRO PER INVERTER

| JP15 | | | |
|---|---|---|---|
| 1 | GIALLO | Cod.18882 | |
| 2 | VERDE | Cod.18882 | |
| 4 | SCHERMO(NERO) | Cod.18882 | |

## INGRESSI

| JP21 | MARRONE | | |
|---|---|---|---|
| 1 | +24V<br>ROSA Cod.18945 | Proximity+Comune Micro<br>(C1-C2) | |
| 2 | | | |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |

| JP26 | | | |
|---|---|---|---|
| 1 | | | |
| 2 | FINE CORSA U1X | 10193 BLU | |
| 3 | FINE CORSA U2X | 10193 BLU | |
| 4 | FINE CORSA U3X | 10193 BLU | |
| 5 | | | |

## INGRESSI

| JP22 | | | |
|---|---|---|---|
| 1 | 10n | Comune tasti | |
| 2 | 7n | Tasto su V1 | SB7-7 |
| 3 | 1n | Tasto su V2 | SB1-1 |
| 4 | 3n | Tasto su V3 | SB3-3 |
| 5 | 9n | Tasto su V4 | SB10-9 |
| 6 | 8n | Tasto giu V1 | SB8-8 |
| 7 | 2n | Tasto giu V2 | SB2-2 |
| 8 | 4n | Tasto giu V3 | SB4-4 |
| 9 | 11n | Tasto giu V4 | SB11-11 |

| JP23 | | | |
|---|---|---|---|
| 1 | | | |
| 2 | GIALLO Cod.18945 | PROXY SX | |
| 3 | VERDE Cod. 18945 | PROXY DX | |
| 4 | 12n | Tasto MAN-AUTO | |
| 5 | NC2 MARRONE Cod.18885 | Sens. L GIALLO | Rit.JP21-1 |
| 6 | NC1 BIANCO Cod.18885 | SENS. H VERDE | Rit.JP21-1 |
| 7 | VERDE | Cod.18881 | TASTIERA |
| 8 | GIALLO | Cod.18881 | TASTIERA |
| 9 | ROSA | Cod.18881 | TASTIERA |

| JP24 | | | |
|---|---|---|---|
| 1 | C3 | +24 PEDALE | |
| 2 | 15n | Selettore:Tutti<br>indietro / Avanti<br>01;04 | |
| 3 | 14n | Tutti Avanti / Avanti<br>01;04 | |
| 4 | 6n | Camma inferiore -SB6- | |
| 5 | 5n | Camma superiore -SB5- | |
| 6 | NC3 | Pedale | Rit.JP24-1 |
| 7 | | | |
| 8 | | | |
| 9 | | | |

## OUTPUTS

| JP7 | | | |
|---|---|---|---|
| 1 | Rit.4A,4B,5A,5B | | |
| 2 | 4° | SV. Upper cam forward | |
| 3 | 4B | SV. Upper cam back | |
| 4 | 5° | SV. Lower cam forward | |
| 5 | 5B | SV. Lower cam back | |
| 6 | 13n | Common to MAN-AUTO key | |

## POTENTIOMETER SIGNAL FOR INVERTER

| JP15 | | | |
|---|---|---|---|
| 1 | YELLOW | Cod.18882 | |
| 2 | GREEN | Cod.18882 | |
| 4 | DISPLAY (BLACK) | Cod.18882 | |

## INPUTS

| JP21 | BROWN | | |
|---|---|---|---|
| 1 | +24V<br>PINK Cod. 18945 | Proximity+Common to Micro (C1 - C2) | |
| 2 | | Feeler 1A input | |
| 3 | | Feeler 1B input | |
| 4 | | Feeler 2 input | |
| 5 | | | |
| 6 | | | |
| 7 | | | |
| 8 | | | |
| 9 | | | |

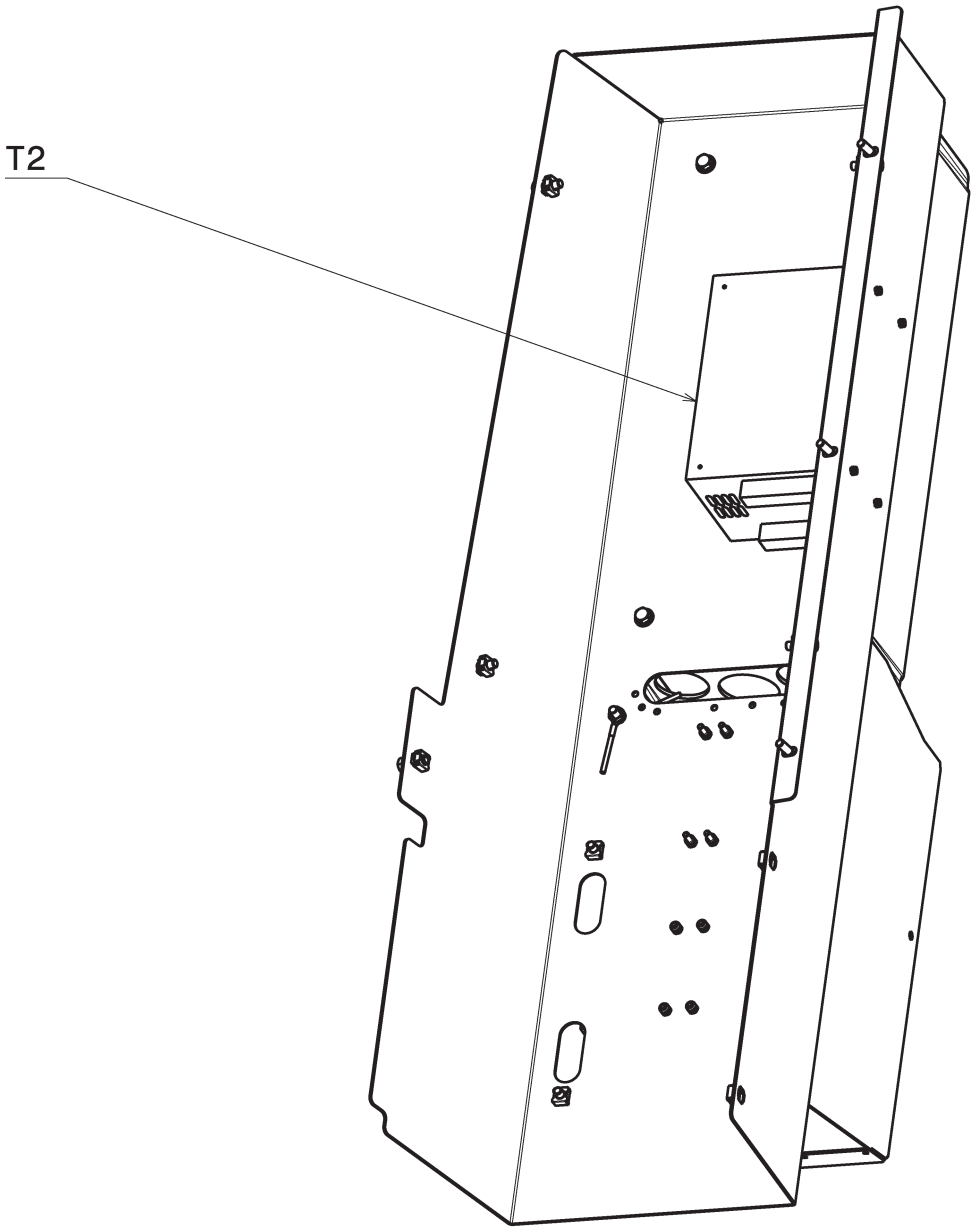
| JP26 | | | |
|---|---|---|---|
| 1 | | | |
| 2 | U1X LIMIT SWITCH | 19193 BLUE | |
| 3 | U2X LIMIT SWITCH | 19193 BLUE | |
| 4 | U3X LIMIT SWITCH | 19193 BLUE | |
| 5 | U4X LIMIT SWITCH | 19193 BLUE | |

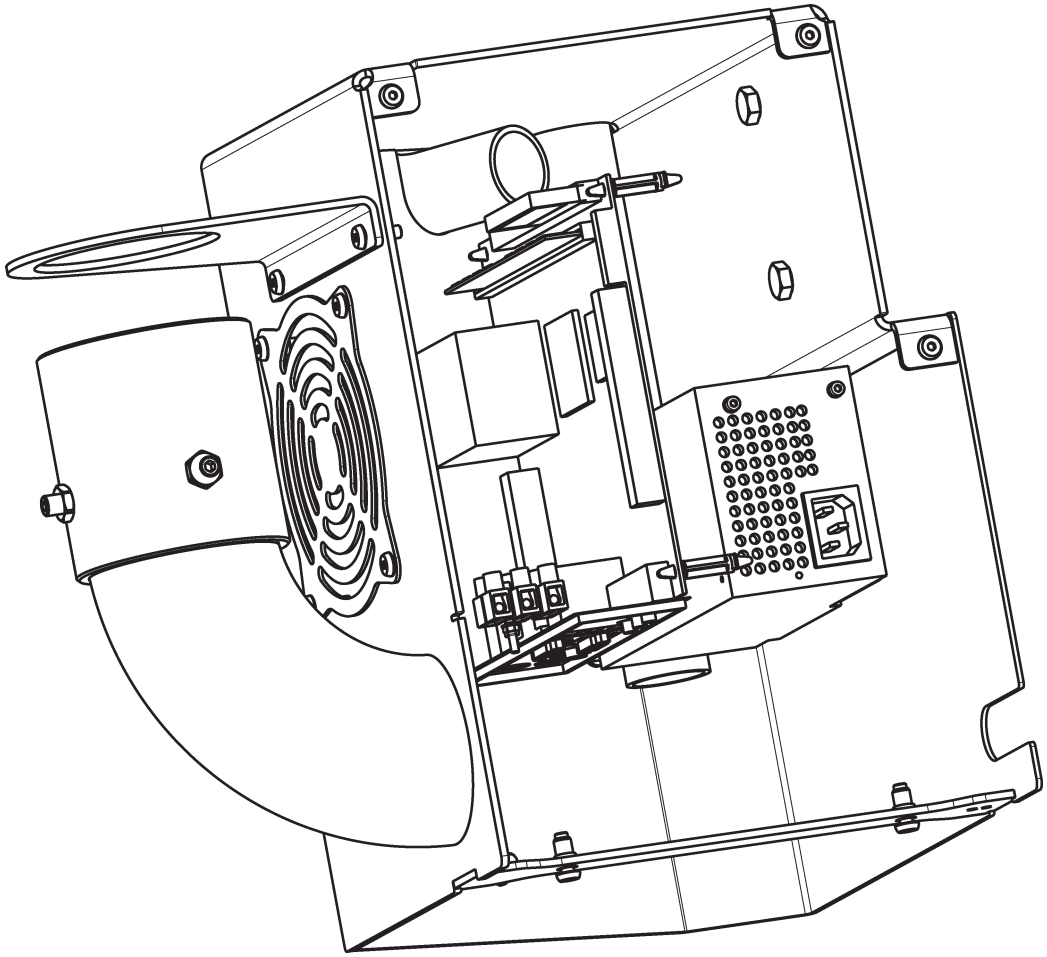
## INPUTS

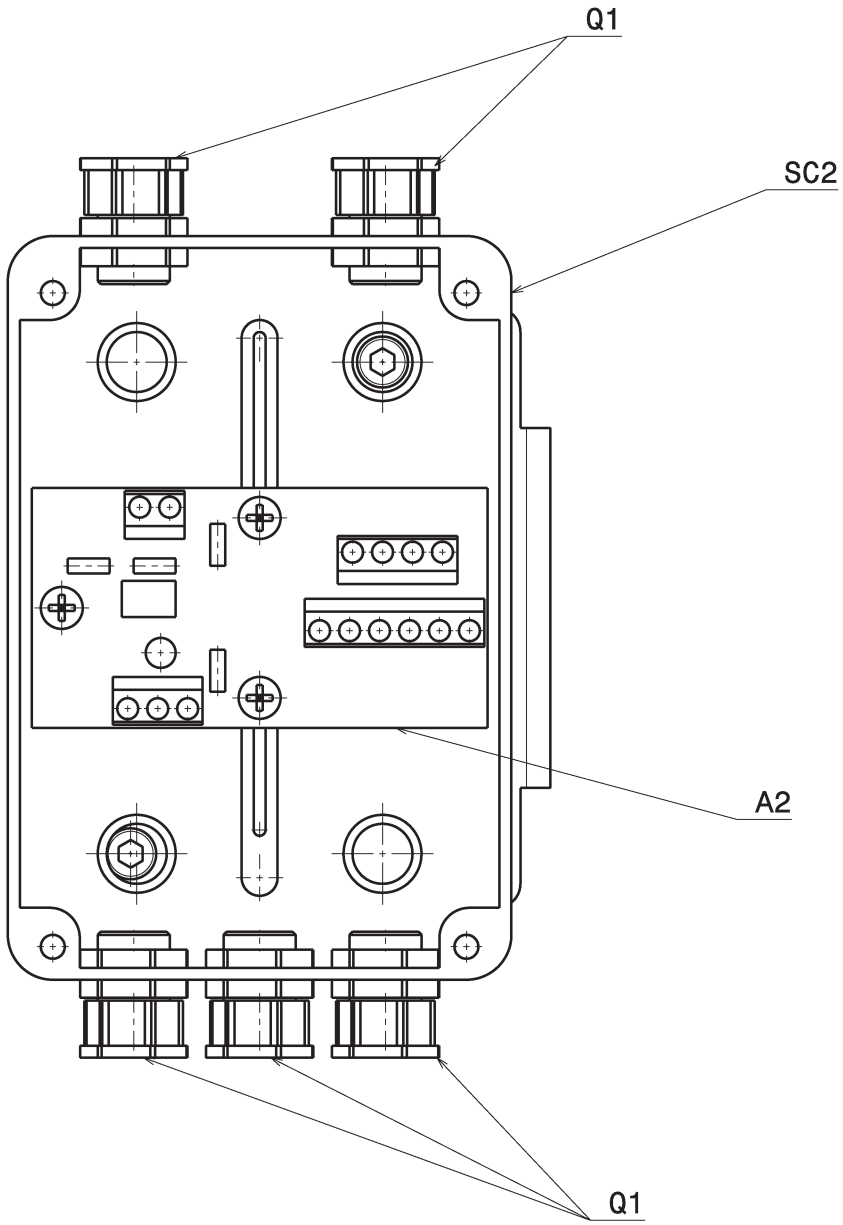
| JP22 | | | |
|---|---|---|---|
| 1 | 10n | Common to buttons | |
| 2 | 7n | Button on V1 | SB7-7 |
| 3 | 1n | Button on V2 | SB1-1 |
| 4 | 3n | Button on V3 | SB3-3 |
| 5 | 9n | Button on V4 | SB10-9 |
| 6 | 8n | Button down V1 | SB8-8 |
| 7 | 2n | Button down V2 | SB2-2 |
| 8 | 4n | Button down V3 | SB4-4 |
| 9 | 11n | Button down V4 | SB11-11 |

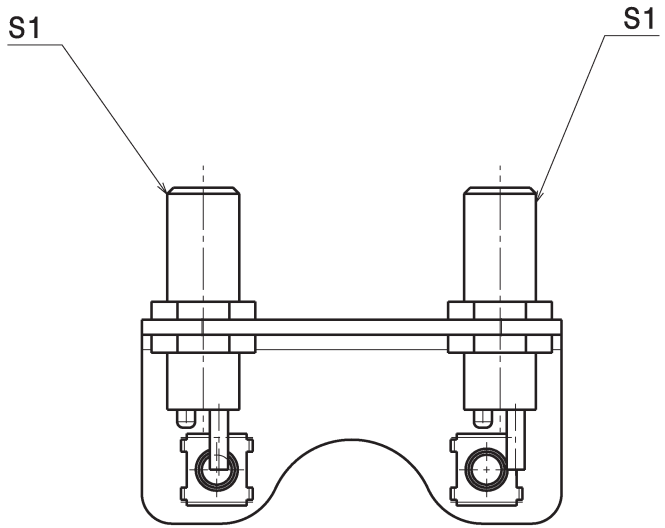
| JP23 | | | |
|---|---|---|---|
| 1 | | | |
| 2 | YELLOW Cod.18945 | PROXY LH | |
| 3 | GREEN Cod.18945 | PROXY RH | |
| 4 | 12n | MAN-AUTO Button | |
| 5 | NC2 BROWN Cod.18885 | YELLOW L Sensor | Rit.JP21-1 |
| 6 | NC1 WHITE Cod.18885 | GREEN H Sensor | Rit.JP21-1 |
| 7 | GREEN | Cod.18881 | KEYBOARD |
| 8 | YELLOW | Cod.18881 | KEYBOARD |
| 9 | PINK | Cod.18881 | KEYBOARD |

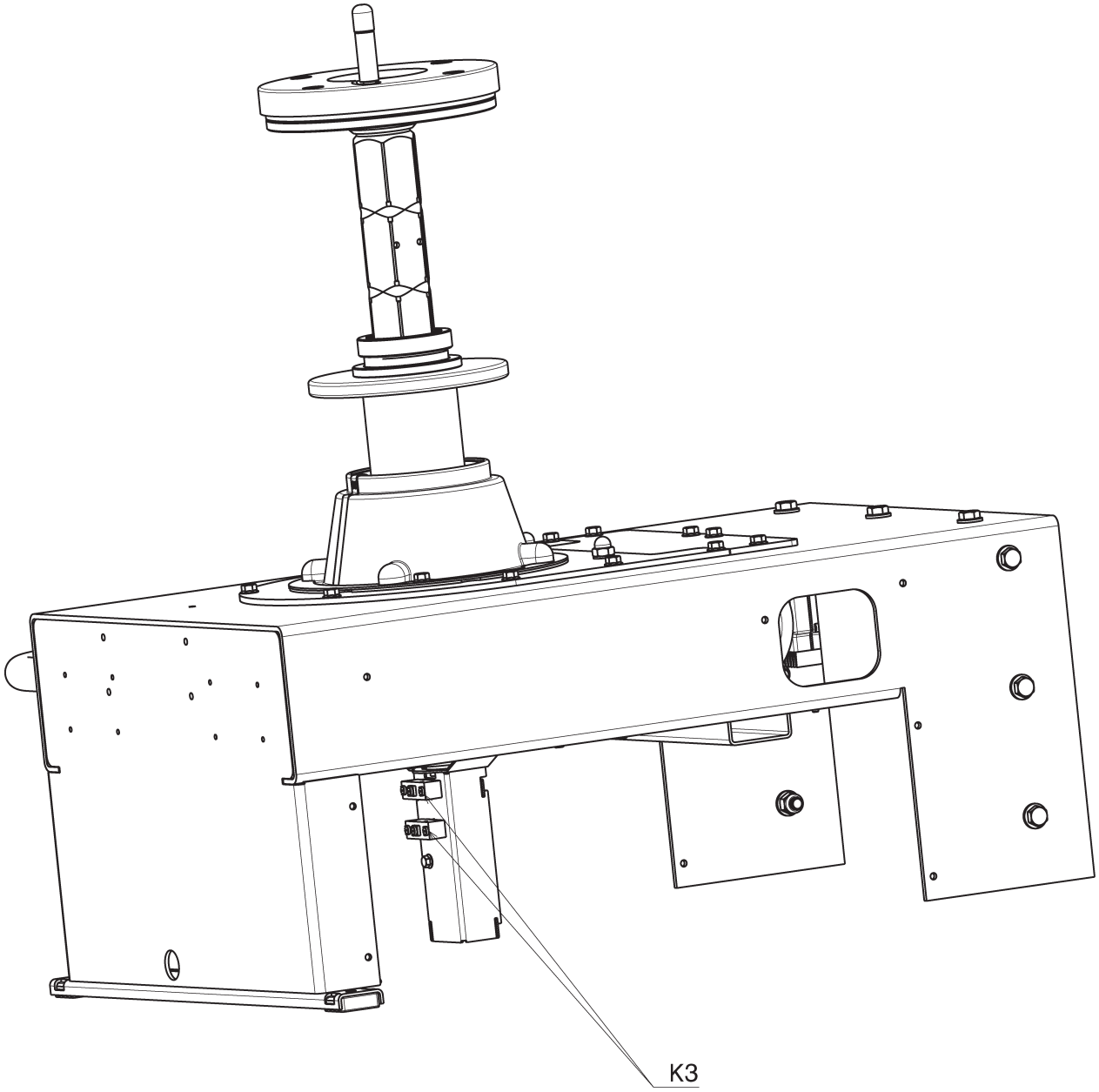
| JP24 | | | |
|---|---|---|---|
| 1 | C3 | +24 PEDAL | |
| 2 | 15 | Selector:<br>all back/forward<br>01;04 | |
| 3 | 14 | All forward/forward<br>01;04 | |
| 4 | 6n | Lower cam -SB6- | |
| 5 | 5n | Upper cam -SB5- | |
| 6 | NC3 | Pedal | Rit.JP24-1 |
| 7 | YELLOW | Back button 02;03 | |
| 8 | GREEN | Forward button 02;03 | |
| 9 | | | |


T2




Q1
SC2
A2
Q1


S1
S1

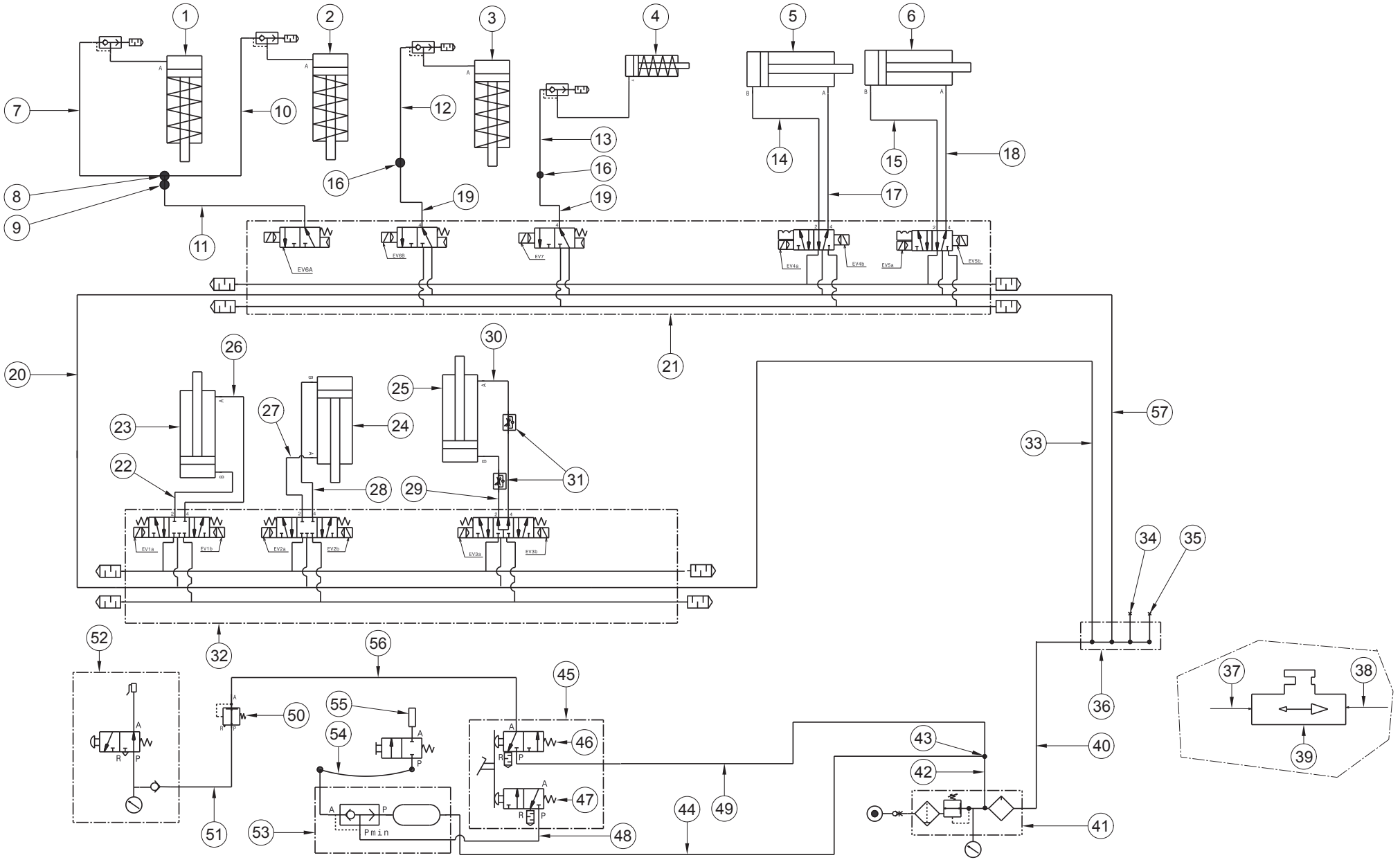

K3

# LISTA COMPONENTI

| RIFERIMENTO | DESCRIZIONE | DATI TECNICI | SIGLA CATALOGO | QUANTITA | RIFERIMENTO DOCUMENTO |
|---|---|---|---|---|---|
| A1 | SCHEDA ELETT. AIKIDO CONCERT | - | 18295 | 1 | |
| A2 | SCHEDA ELETT.AGGIUNTIVA AIKIDO CONCERT | | 18886 | 1 | |
| F1 | PORTAFUSIBILE | 2 POLI SEZIONABILE 10,3x38 32A 690V | 515027 | 1 | |
| | FUSIBILE | 10,3x38 25A 500V aM RITARDATO | 507048 | 2 | |
| Q | INTERRUT.A SELETTTORE | 2 POLI SE32 40A(GIOVENZANA SE3210F28) | 518268 | 1 | |
| | MANOPOLA GIALLO/ROSSA | BL/PORTA LUCCH.(GIOVENZANA A.012/0001-1) | 518226 | 1 | |
| K1 | MORSETTO 2.5 2mmq | MORS.2mmq ART.CBD.2 CABUR CB110 | 510145 | 5 | |
| K2 | MORSETTO 4mmq | MORS.G/V 4mmq ART.TEO.4 CABUR T0430 | 510150 | 2 | |
| R | ELEMENTI FISSAGGIO | ELEMENTI DI FISSAGGIO DLCBM 10-01 | 19117 | 5 | |
| SC1 | SCATOLA QUADRO ELETTR. | | 710414310 | 1 | |
| SC2 | SCATOLA | SCATOLA GEWISS GW 44 205 | 18908 | 1 | |
| CL | CANALINA | CANALINA 26X60 T1-EM | | | |
| SP | SUPPORTO COMPONENETI | | 146565340 | 1 | |
| SBL | PULSANTE BASCULANTE | | 517296 | 4 | |
| SB | PULSANTE | PULSANTE DP820/N(NO) | 517282 | 3 | |
| SR | INTERRUTTORE UNIPOLARE LEVA | INT.UNIPOLARE LEVA S1F-I | 518240 | 1 | |
| E1 | PULSANTE A FUNGO ROSSO | FUNGO.EM.ROSSO C/SBLOCC.ROT.(SIEMENS 3SB32-031HA20) | 517254 | 1 | |
| T2 | ALIMENTATORE | ALIMENTATORE MEANWELL SP-500 | 18741 | 1 | |
| Q1 | PRESSACAVO | PRESSACAVO CON DADO PG7 97200018 S3-6 | 599175 | 5 | |
| S1 | SENSORE | SENSORE NPN NO ALTA SENS.4mm | 18554 | 2 | |
| K3 | CONTATTORI NON STAGNI | | 527066 | 2 | |
| M2 | MOTORE ELETTRICO<br>PIEDINO SMONT.MOT.CASSA 71<br>INVERTER | MOT.EL.0.75Kw 185V 50Hz GS2546/014<br>PIEDINO SMONT.MOT.CASSA 71<br>INVERTER PROGRAMMA VERSIONE FF | 900003720<br>900003730<br>710590963 | 1<br>2<br>1 | |
| | | | | | |

# COMPONENTS LIST

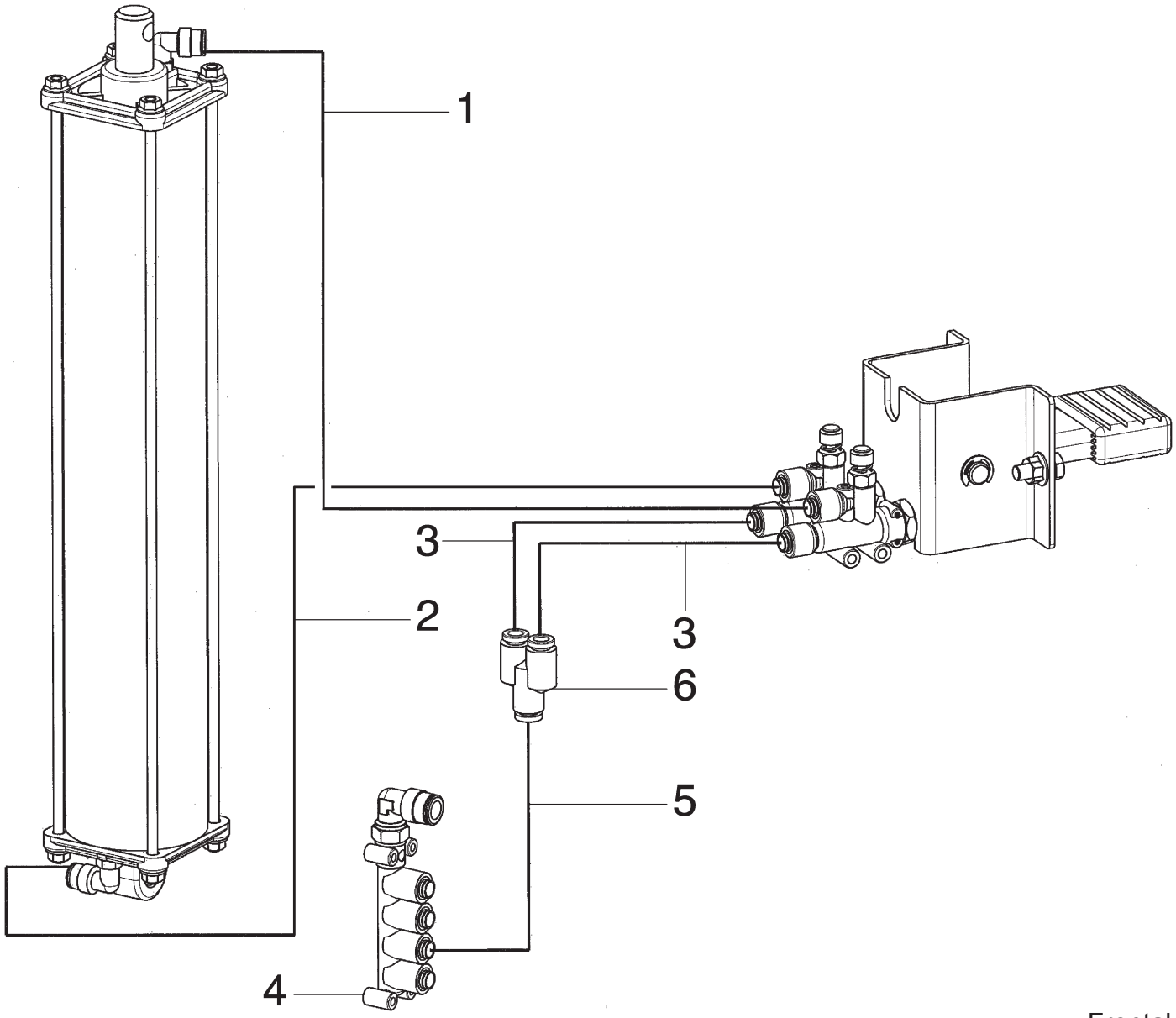
| REFERENCE | DESCRIPTION | TECHNICAL SPECIFICATIONS | ABBREVIATION ON CATALOGUE | QUANTITY | DOCUMENT REFERENCE |
|---|---|---|---|---|---|
| A1 | ELECTR. CARD OF AIKIDO CONCERT | - | 18295 | 1 | |
| A2 | ADDITIONAL ELECTR. CARD OF AIKIDO CONCERT | | 18886 | 1 | |
| F1 | FUSE HOLDER | 10,3x38 32A 690V 2 POLES SECTIONABLE | 515027 | 1 | |
| | FUSE | 10,3x38 25A 500V aM DELAYED-ACTION | 507048 | 2 | |
| Q | SELECTOR SWITCH | SE32 40A (GIOVENZANA SE3210F28) 2 POLES | 518268 | 1 | |
| | YELLOW/RED HANDLE CONTROL | BL/PADL.HOLDER (GIOVENZANA A.012/0001-1) | 518226 | 1 | |
| K1 | TERMINAL 2,5 2 mmq | TERM. 2mmq ART. CBD. 2 CABUR CB110 | 510145 | 5 | |
| K2 | TERMINAL 4 mmq | TERM. G/V 4mmq ART. TEO. 4 CABUR T0430 | 510150 | 2 | |
| R | FIXING ELEMENTS | | 19117 | 5 | |
| SC1 | ELECTR. PANEL BOX | | 710414310 | 1 | |
| SC2 | BOX | GEWISS BOX GW 44 205 | 18908 | 1 | |
| CL | DUCT | DUCT26x60 T1 - EM | | | |
| SP | COMPONENTS SUPPORT | | 146565340 | 1 | |
| SBL | BALANCING PUSHBUTTON | | 517296 | 4 | |
| SB | PUSHBUTTON | DP820/N (NO) PUSHBUTTON | 517282 | 3 | |
| SR | UNIPOLAR LEVER SWITCH | UNIPOLAR LEVER SWITCH S1F - I | 518240 | 1 | |
| E1 | RED MUSHROOM HEAD PUSHBUTTON | RED MUSHR.-HEAD EMERG. W. ROTATION UNLOCK (SIEMENS 3SB32 - 031HA20) | 517254 | 1 | |
| T2 | FEEDER | SP - 500 MEANWELL FEEDER | 18741 | 1 | |
| Q1 | CABLE PRESS | CABLE PRESS WITH NUT PG7 97200018 S3-6 | 599175 | 5 | |
| S1 | SENSOR | NPN SENSOR NO HIGH SENS. 4mm | 18554 | 2 | |
| K3 | NOT WATERPROOF CONTACTORS | | 527066 | 2 | |
| M2 | ELECTRIC MOTOR<br>REMOV. PIN CASE MOT. 71<br>INVERTER | EL.MOT. 0,75 kW 185V 50Hz GS2546/014<br>REMOV. PIN CASE MOT. 71<br>FF VERSION INVERTER PROGRAM | 900003720<br>900003730<br>710590963 | 1<br>2<br>1 | |
| | | | | | |




| | | | |
|---|---|---|---|
| VSG VEHICLE SERVICE GROUP a DOVER company | **LIST OF COMPONENTS** | *PNEUMATIC DIAGRAM* | ***Page 91 of 99*** |
| | **Drawing N°B - Rev. 0** / **710105060** | | **TYRE-CHANGER SERIES G1500.3** |

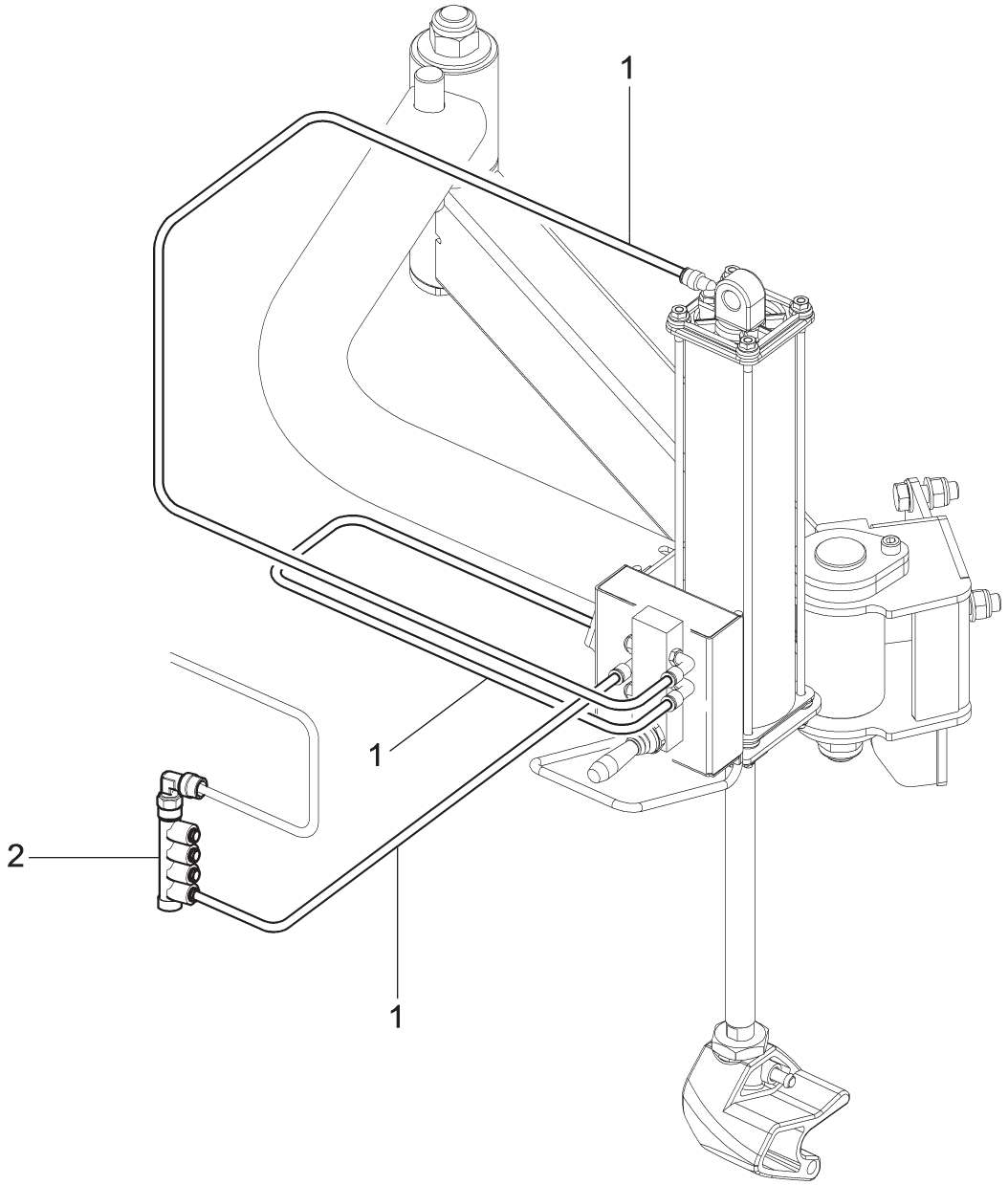
| No. | Cod. | Description |
|---|---|---|
| 1 | | *Lh C upper arm lock cylinder (cyl. Ø60)* |
| 2 | | *Lh C lower arm lock cylinder (cyl. Ø60)* |
| 3 | | *Tool arm lock cylinder (cyl. Ø60)* |
| 4 | | *Vertical lock cylinder for tool (cyl. Ø60)* |
| 5 | | *Lh upper cam cylinder (cyl. Ø90)* |
| 6 | | *Lh lower cam cylinder (cyl. Ø90)* |
| 7 | 317006 | *6x4 black rilsan hose L=2100* |
| 8 | | *Y-fitting 6* |
| 9 | B0171000 | *6-4 reduction fitting* |
| 10 | 317006 | *6x4 black rilsan hose L=1750* |
| 11 | 317026 | *4x2.7 black rilsan hose L=150* |
| 12 | 317006 | *6x4 black rilsan hose L=2300* |
| 13 | 317006 | *6x4 black rilsan hose L=2500* |
| 14 | 317006 | *6x4 black rilsan hose L=2300* |
| 15 | 317006 | *6x4 black rilsan hose L=1900* |
| 16 | 325086 | *Intermediate reduction D.6 - D.4* |
| 17 | 317006 | *6x4 black rilsan hose L=2200* |
| 18 | 317006 | *6x4 black rilsan hose L=1800* |
| 19 | 317026 | *4x2.7 black rilsan hose L=100* |
| 20 | 317007 | *8x6 black rilsan hose L=300* |
| 21 | 710190730 | *Pneumatic hydraulic power unit assembly* |
| 22 | 317007 | *8x6 black rilsan hose L=850* |
| 23 | | *Lh upper bead breaker arm (cyl. Ø125)* |
| 24 | | *Lh lower bead breaker arm (cyl. Ø125)* |
| 25 | | *Tool arm (cyl. Ø100)* |
| 26 | 317007 | *8x6 black rilsan hose L=1600* |
| 27 | 317007 | *8x6 black rilsan hose L=2550* |
| 28 | 317007 | *8x6 black rilsan hose L=1900* |
| 29 | 317007 | *8x6 black rilsan hose L=750* |
| 30 | 317007 | *8x6 black rilsan hose L=1350* |
| 31 | 399284 | *Flow regulator* |
| 32 | 710090661 | *Bead breaker pneumatic power unit* |
| 33 | 317007 | *8x6 black rilsan hose L=700* |
| 34 | | *Lifting device optional* |
| 35 | | *PLUS91 optional* |
| 36 | | *5-ways air distribution frame* |
| 37 | | *Valve* |
| 38 | | *Cylinder* |
| 39 | | *Flow regulators connection diagrams* |
| 40 | 317010 | *10x8 black rilsan hose L=550* |

| No. | Cod. | Description |
|---|---|---|
| 41 | | *Lubricator regulation filter assembly* |
| 42 | 317009 | *8x6 blue rilsan hose L=850* |
| 43 | 325181 | *Y8-fitting* |
| 44 | 317009 | *8x6 blue rilsan hose L=750* |
| 45 | | *Inflation pedal valve* |
| 46 | | *N.O. black* |
| 47 | | *N.C. white* |
| 48 | 317007 | *8x6 black rilsan hose L=1200* |
| 49 | 317009 | *8x6 blue rilsan hose L=350* |
| 50 | | *Balancing valve* |
| 51 | 317008 | *8x6 red rilsan hose L=2500* |
| 52 | | *Inflation assembly with pressure gauge* |
| 53 | | *Tank assembly* |
| 54 | 790090060 | *Caulked pipe* |
| 55 | | *Inflation nozzle.* |
| 56 | 317009 | *8x6 blue rilsan hose L=350* |
| 57 | 317007 | *8x6 black rilsan hose L=600* |




Frontal lifting device assembly

| No. | Cod. | Description |
|---|---|---|
| 1 | 317022 | *Elastolan 8x6 black hose* |
| 2 | 317009 | *8x6 blue rilsan hose* |
| 3 | 317007 | *8x6 black rilsan hose* |
| 4 | 710090770 | *Air distribution frame* |
| 5 | 317007 | *8x6 black rilsan hose* |
| 6 | 325181 | *Y8-fitting* |




Bead press device

| No. | Cod. | Description |
|---|---|---|
| 1 | 317006 | *6x4 black rilsan hose* |
| 2 | 710090770 | *Air distribution frame* |

**Content of the EC declaration of conformity (with reference to point 1.7.4.2, letter c) of directive 2006/42/EC)**

With reference to annex II, part 1, section A of directive 2006/42/EC, the declaration of conformity accompanying the machinery contains:

1. the business name and full address of the manufacturer and, where applicable, its authorised representative;
   **See the first page of the manual**
2. name and address of the person authorised to compile the technical file, who must be established in the Community;
   **It coincides with the manufacturer, see the first page of the manual**
3. description and identification of the machine, including generic name, function, model, type, serial number, trade name;
   **See the first page of the manual**
4. a statement explicitly declaring that the machinery is in conformity with all the relevant provisions of this directive and, where appropriate, a similar statement declaring conformity with other community directives and/or relevant provisions with which the machinery complies. These references must be those of the texts published in the Official Journal of the European Union;
   **The machinery must comply with the following applicable Directives:**

   | | |
   |---|---|
   | **2006/42/CE** | **Machinery Directive** |
   | **2014/30/EU** | **Electromagnetic Compatibility Directive** |

5. where appropriate, the name, address and identification number of the notified body which carried out the EC type-examination referred to in annex IX and the number of the EC type-examination certificate;
   **N/A**
6. where appropriate, the name, address and identification number of the notified body which approved the full quality assurance system referred to in annex X;
   **N/A**
7. where appropriate, reference to the harmonised standards referred to in article 7, paragraph 2, which have been applied;

   | | |
   |---|---|
   | **UNI EN ISO 12100:2010** | **Safety of machinery - General principles for design - Risk assessment and risk reduction;** |
   | **CEI EN 60204-1:2018** | **Safety of machinery - Electrical equipment of machines - Part 1: General requirements** |

8. where appropriate, reference to other standards and technical specifications applied;

   | | |
   |---|---|
   | **UNI EN 17347:2001** | **Road vehicles – Machines for mounting and demounting vehicle tyres – Safety requirements** |

9. place and date of declaration;
   **Ostellato, / /**
10. identification and signature of the person authorised to draw up the declaration on behalf of the manufacturer or its authorised representative.
    **SIMONE FERRARI VP VSG Europe Managing Director**

**Content of the declaration of conformity (with reference to Schedule 2, Part 1, Annex I, point 1.7.4.2, letter c) of UK Statutory Instrument 2008 No. 1597)**

With reference to schedule 2 annex I, part1, section A of UK Statutory Instrument 2008 No. 1597, the declaration of conformity accompanying the machinery contains:

1. the business name and full address of the manufacturer and, where applicable, its authorised representative;
   **Manufacturer: see the first page of the manual.**
   Authorised representative:
   **VEHICLE SERVICE GROUP UK LTD**
   **3 Fourth Avenue - Bluebridge Industrial Estate - Halstead**
   **Essex C09 2SY - United Kingdom**
2. name and address of the person authorised to compile the technical file;
   **It coincides with the authorized representative, see point 1**
3. description and identification of the machine, including generic name, function, model, type, serial number, trade name;
   **See the first page of the manual**
4. a sentence expressly declaring that the machinery fulfils all the relevant provisions of these Regulations and where appropriate, a similar sentence declaring the conformity with other enactments or relevant provisions with which the machinery complies;
   **The machinery complies with the following applicable UK Statutory Instruments:**
   **The Supply of Machinery (Safety) Regulations 2008**
   **The Electrical Equipment (Safety) Regulations 2016**
   **The Electromagnetic Compatibility Regulations 2016**
5. where appropriate, the name, address and identification number of the approved body which approved the full quality assurance system referred to in Annex X (Part 10 of this Schedule);
   **N/A**
6. where appropriate, the name, address and identification number of the approved body which approved the full quality assurance system referred to in Annex X (Part 10 of this Schedule);
   **N/A**
7. where appropriate, a reference to the designated standards used;

| | |
|---|---|
| **BS EN ISO 12100:2010** | **Safety of machinery - General principles for design - Risk assessment and risk reduction;** |
| **BS EN 60204-1:2018** | **Safety of machinery - Electrical equipment of machines. General requirements.** |
| **BS EN 61000-6-3:2007 +A1:2011 +AC:2012** | **Electromagnetic compatibility (EMC) - Part 6-3. Generic standards - Emission standard for residential, commercial and light-industrial environments.** |
| **BS EN 61000-6-2:2005 +AC:2005** | **Electromagnetic compatibility (EMC) - Part 6-2. Generic standards - Immunity for industrial environments.** |

8. where appropriate, reference to other standards and technical specifications applied;
   **N/A**
9. place and date of declaration;
   **Ostellato, / /**
10. identification and signature of the person authorised to draw up the declaration on behalf of the manufacturer or its authorised representative.
    **SIMONE FERRARI VP VSG Europe Managing Director**