



7105-M020-01

**TYRE-CHANGER SERIES
G1190.30 and GA590.30**

INSTRUCTION MANUAL
Applicable to the following models

RAV.G1190.200853

RAV.G1190.200822

RAV.G1190.200808

RAV.G1190.200587

SPA.GA590.205988

EN

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

7105-M020-01 - Rev. n. 01 (07/2024)

SUMMARY

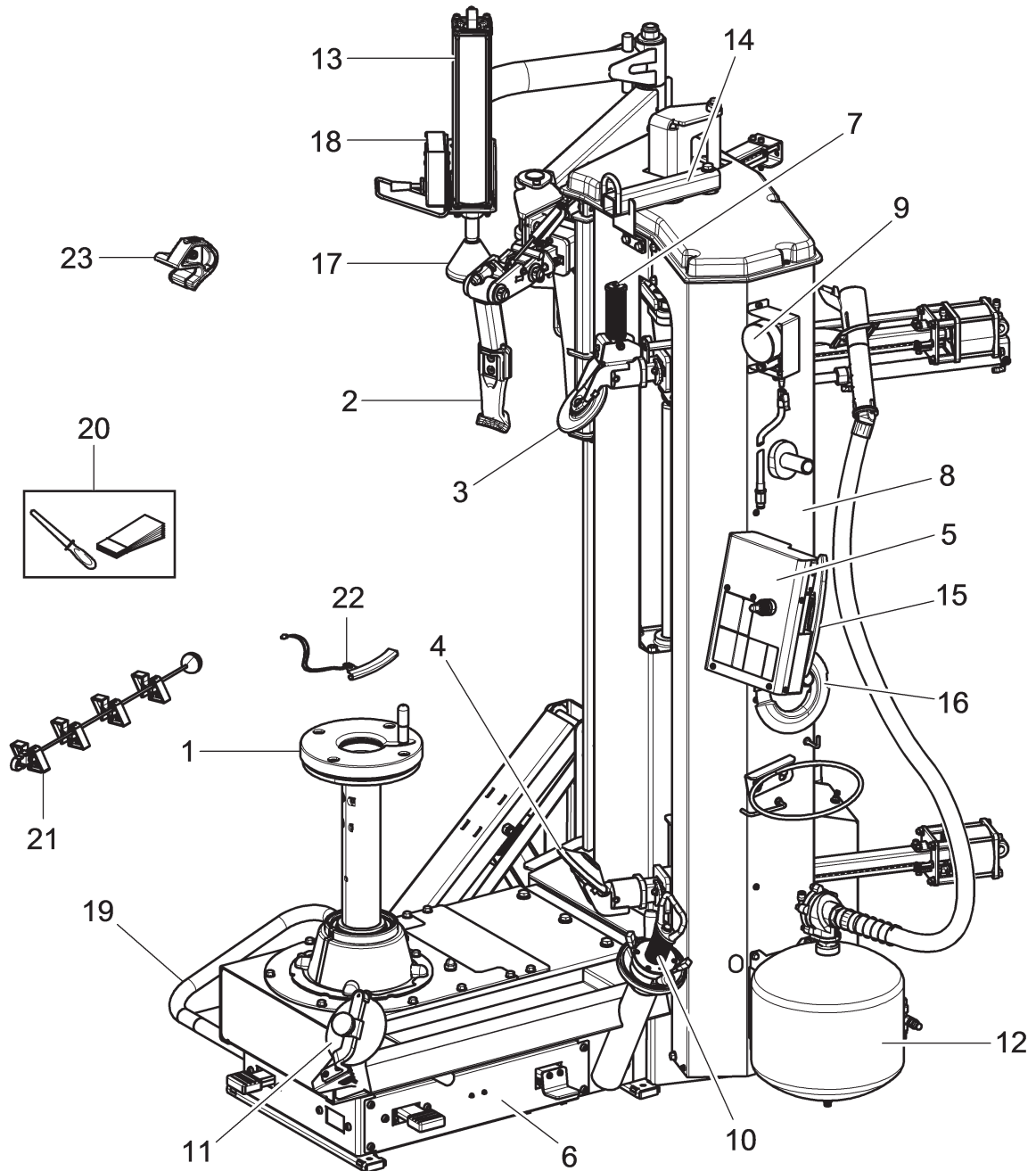
GENERAL DESCRIPTION _____	4	12.4.1 Reverse wheel pan protection _____	27
SYMBOLS USED IN THE MANUAL _____	5	12.5 Bead breaking operations _____	28
PLATES LOCATION DRAWING _____	6	12.6 Demounting the tyre _____	29
1.0 GENERAL INTRODUCTION _____	8	12.7 Mounting the tyre _____	32
1.1 Introduction _____	8	12.7.1 Mounting the upper bead of the tyre with the beadpusher _____	33
2.0 INTENDED USE _____	8	12.8 Tyre inflation _____	34
2.1 Training of personnel _____	8	12.8.1 Tyre inflation on equipment without using tubeless inflation assembly _____	34
3.0 SAFETY DEVICES _____	9	12.8.2 Tyre inflation with equipment with tubeless inflation (on models with tubeless inflation system) _____	35
3.1 Residual risks _____	9	12.9 Special use of the bead-breaker _____	35
4.0 IMPORTANT SAFETY INSTRUCTIONS _____	10	12.10 Instructions for replacing RF (Run-Flat) and UHP (Ultra High-Performance) tyres _____	36
4.1 General safety rules _____	10	12.10.1 Preliminary operations - Preparing the wheel _____	36
5.0 PACKING AND MOBILIZATION FOR TRANSPORT _____	11	12.10.2 Wheel clamping _____	37
6.0 UNPACKING _____	12	12.10.3 Bead breaking through vertical rollers _____	38
7.0 MOBILIZATION _____	12	12.10.4 Disassembly of the tyre _____	41
8.0 WORKING ENVIRONMENT CONDITIONS _____	13	12.10.5 Mounting of the tyre _____	45
8.1 Work position _____	13	12.10.6 Tyre demounting procedure using the bead pressing extension _____	49
8.2 Working area _____	13	12.10.7 Fitting of the first bead using the bead pressing extension _____	53
8.3 Lighting _____	13	12.10.8 Wheel inflation _____	55
9.0 ASSEMBLY AND PREPARATION FOR USE _____	14	13.0 ROUTINE MAINTENANCE _____	56
9.1 Anchoring system _____	14	13.1 Rim arm calibration _____	57
9.2 Assembly procedures _____	15	14.0 TROUBLESHOOTING TABLE _____	58
9.3 Connection to the compressed air supply _____	17	15.0 TECHNICAL DATA _____	60
10.0 ELECTRICAL CONNECTIONS _____	18	15.1 Technical electrical data _____	60
10.1 Electrical checks _____	18	15.2 Technical mechanical data _____	60
11.0 CONTROLS _____	19	15.3 Dimensions _____	61
11.1 Control unit _____	19	16.0 STORING _____	62
11.2 Control for bead breaking roller release _____	20	17.0 SCRAPPING _____	62
11.3 Bead press device control unit _____	20	18.0 REGISTRATION PLATE DATA _____	62
11.4 Pedalboard _____	21	19.0 FUNCTIONAL DIAGRAMS _____	62
12.0 USE OF THE EQUIPMENT _____	22	Table A - Wiring diagram _____	63
12.1 Precaution measures during tyre removal and fitting _____	22	Table B - Pneumatic diagram _____	67
12.2 Preliminary operations - Preparing the wheel _____	24	CONTENT OF THE EC DECLARATION OF CONFORMITY _____	71
12.3 Use of the lifting device (standard on one model) _____	24	CONTENT OF THE UK DECLARATION OF CONFORMITY _____	72
12.4 Wheel clamping _____	25		

Features	Model	RAV.G1190.200853	RAV.G1190.200822	RAV.G1190.200808	RAV.G1190.200587	SPA.GA590.205988
Tubeless inflation unit system			●			●
Bead protection kit + 50 bead sliding foils				●	●	
22-28 bead press extension				●	●	
Bead protector				●	●	
Pusher				●	●	
Lateral lifting device				●	●	
WDK certification				●	●	

● = standard

GENERAL DESCRIPTION







Fig. 1








KEY

- | | |
|--|--|
| 1 - Chuck | 14 - Lifting device |
| 2 - Toolhead | 15 - Reverse wheels protection |
| 3 - Upper bead breaker roller | 16 - Two-faced cone |
| 4 - Lower bead breaker roller | 17 - Pusher roller |
| 5 - Control unit / Storage box | 18 - Bead press device control unit |
| 6 - Pedalboard | 19 - Lateral lifting device (standard on one model) |
| 7 - Release push button for bead breaker roller horizontal and toolhead movement | 20 - Bead protection kit + 50 bead sliding foils (standard on one model) |
| 8 - Column assembly | 21 - 22-28 bead press extension (standard on one model) |
| 9 - Inflation pressure gauge assembly | 22 - Bead protector (standard on one model) |
| 10 - Locking shaft assembly | 23 - Press device (standard on some models) |
| 11 - Beadpusher with puller | |
| 12 - Tubeless inflation system pressure vessel (standard on some models) | |
| 13 - Bead press device | |

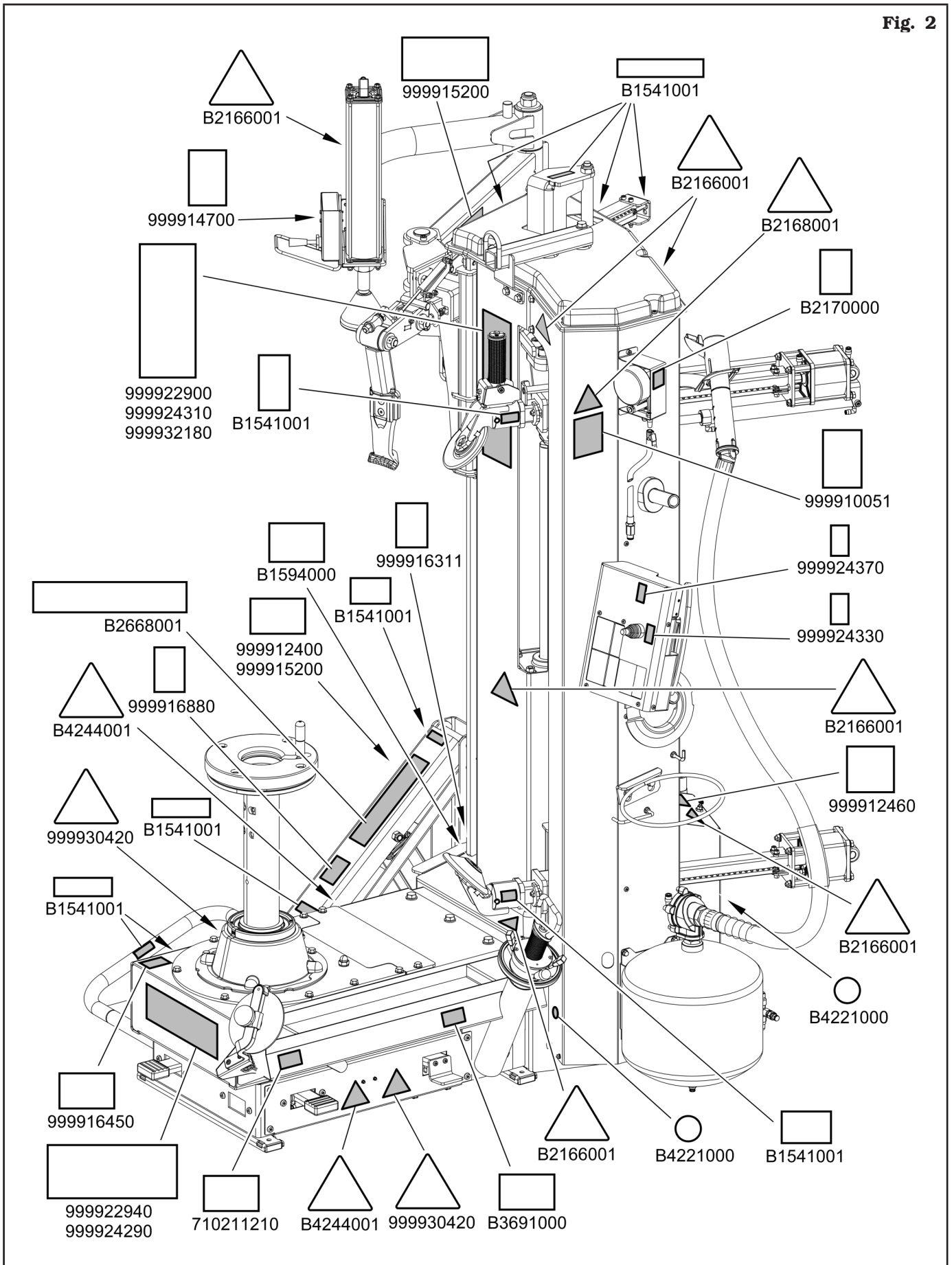
SYMBOLS USED IN THE MANUAL

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

Symbols	Description
	Danger! Be particularly careful.
	Note. Indication and/or useful information.
	Move with fork lift truck or pallet truck.
	Lift from above.
	Technical assistance necessary. Do not perform any maintenance.

PLATES LOCATION DRAWING

Fig. 2



Code numbers of nameplates

B1541001	<i>Danger nameplate</i>
B1594000	<i>Date indicating nameplate</i>
B2166001	<i>Bead breaker danger nameplate</i>
B2168001	<i>Tyre burst nameplate</i>
B2170000	<i>Max. inflation pressure rating nameplate</i>
B2668001	<i>Wheel lifting device danger nameplate (standard on some models)</i>
B3691000	<i>Inflation pedal nameplate</i>
B4182000	<i>Electric motor specifications nameplate</i>
B4221000	<i>Grounding nameplate</i>
B4244001	<i>Rotating parts danger nameplate</i>
710211210	<i>Rotation direction nameplate</i>
999910051	<i>Protection device use nameplate</i>
999912400	<i>Serial number nameplate (GA590.30 model only)</i>
999912460	<i>Supply pressure indicating nameplate</i>
999914700	<i>Bead press device control nameplate</i>
999915200	<i>Serial number nameplate (applies to models G1190.30 - G1190.30IT - G1190.30PLUS)</i>
999916011	<i>Motoinverter nameplate</i>
999916311	<i>Rubbish skip nameplate</i>
999916450	<i>Lifting device pedal nameplate (standard on one model)</i>
999916880	<i>Max. capacity load 80 kg (176 lbs) nameplate (standard on one model)</i>
999922900	<i>RAV 600x125 vertical nameplate (applies to models G1190.30 - G1190.30IT - G1190.30PLUS)</i>
999922940	<i>Ravaglioli horizontal nameplate (applies to models G1190.30 - G1190.30IT - G1190.30PLUS)</i>
999924290	<i>Space logo nameplate (GA590.30 model only)</i>
999924310	<i>Space logo nameplate (GA590.30 model only)</i>
999924330	<i>Up/down tool carriage nameplate</i>
999924370	<i>Up/down bead breaker rollers nameplate</i>
999930420	<i>Electric shock danger nameplate</i>
999932180	<i>Men@work nameplate (RAV.G1190.200587 model only)</i>



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 equipment is equipped with:

- **hold-to-run controls** (immediate stop of operation when the control is released) for all drives;
- chuck rotation;
- toolhead movement;
- bead breaker roller movement.
- **Control logic disposition.**


Its function is to prevent the operator from dangerous mistakes.

- **Fixed protections and guards**

This equipment has permanent guards installed to avoid potential risks of getting crushed, cut or squeezed.

These protections have been realized after risks evaluation and after all equipment operative situations have been considered.

All protections, specially the rubber ones, have to be periodically checked in order to evaluate their wear state.

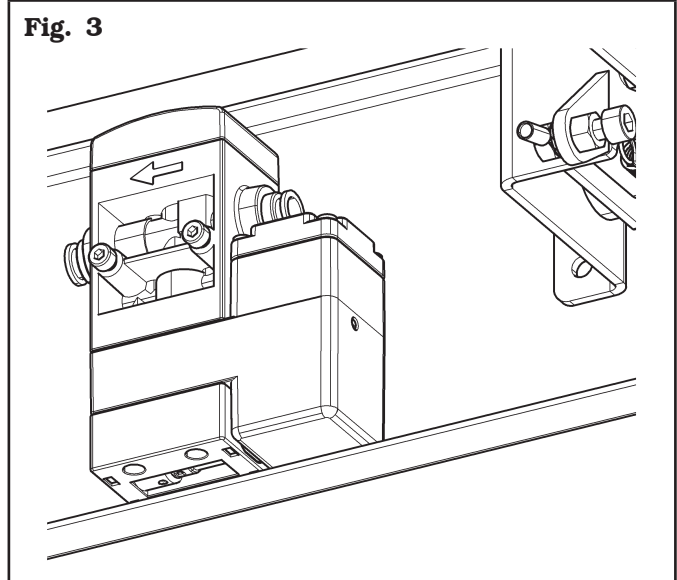


PERIODICALLY CARRY OUT THE MAINTENANCE OF THE PROTECTIONS, SHIELDS AND SAFETY DEVICES IN GENERAL, AS INDICATED IN CHAPTER 13. ROUTINE MAINTENANCE.

- **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**).

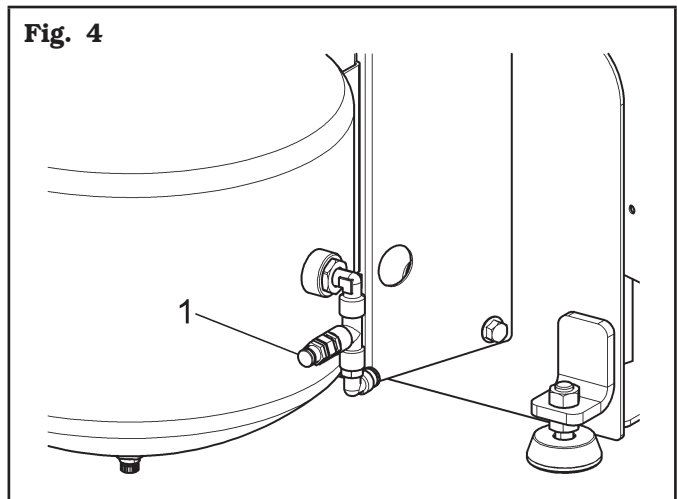
Fig. 3



- **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.

Any residual risks have been highlighted in this manual through pictograms and adhesive warning signals placed on the equipment: their location is represented 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.
- 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. 7**. 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 (on model with tubeless inflation system) if the tyre has not been correctly locked.



ALWAYS KEEP THE CONTROLS IN THE NEUTRAL POSITION.

5.0 PACKING AND MOBILIZATION FOR TRANSPORT

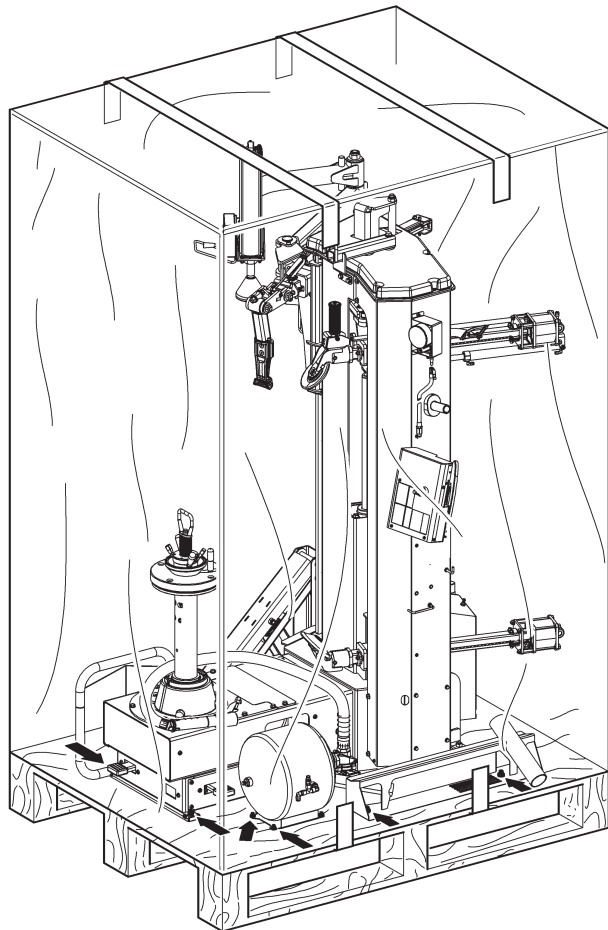


HAVE THE EQUIPMENT HANDLED BY SKILLED PERSONNEL ONLY.

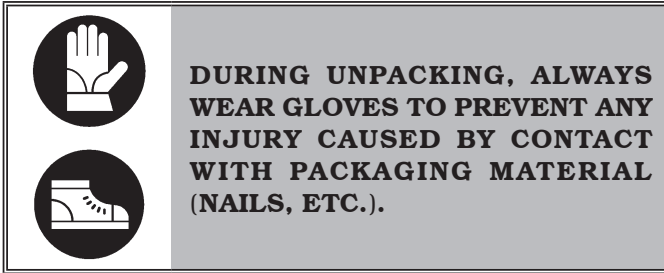
THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF PACKED EQUIPMENT (see paragraph "TECHNICAL SPECIFICATIONS").

The equipment is packed partially assembled. Handling 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

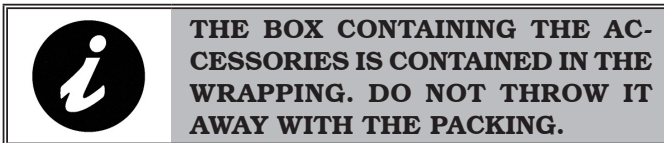


The cardboard box is supported with plastic strapping. Cut the strapping with suitable scissors. Use a small knife to cut along the lateral axis of the box and open it like a fan.

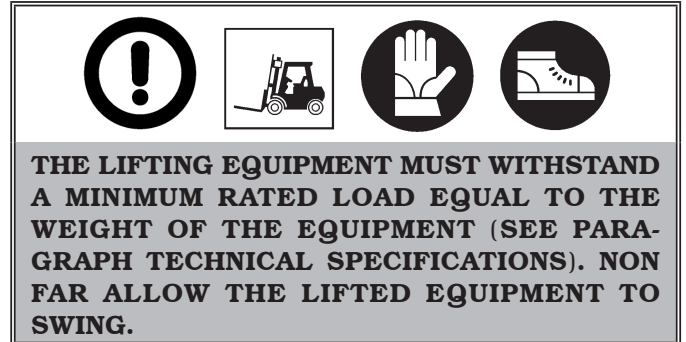
It is also possible to unnailed the cardboard box from the pallet it is fixed to. After removing the packing, and in the case of the equipment packed fully assembled, check that the machine is complete and that there is no visible damage.

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

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

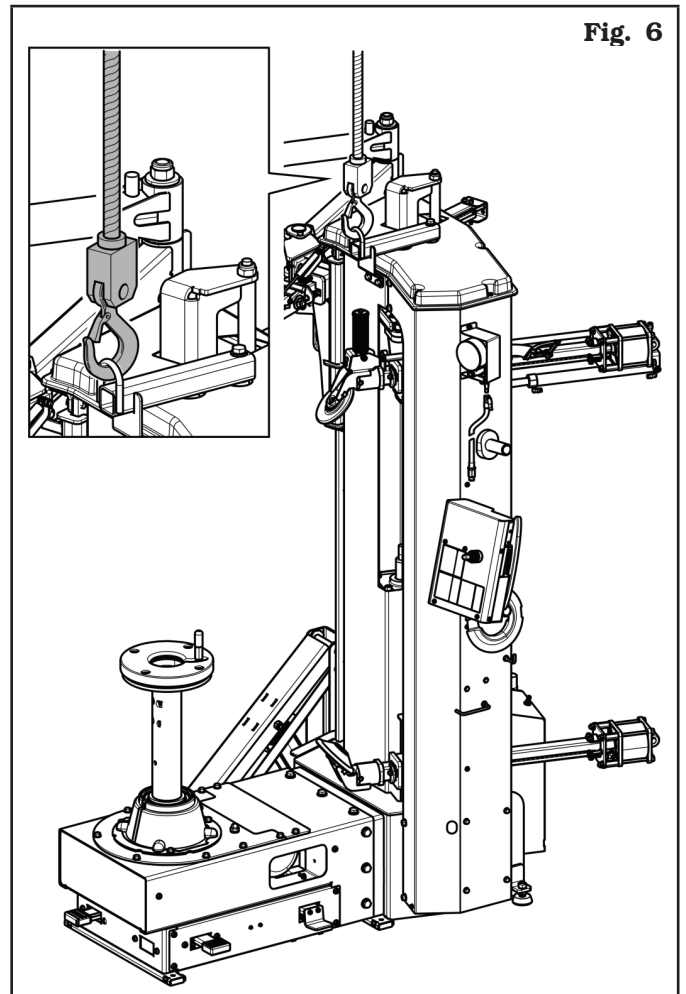


7.0 MOBILIZATION



During the equipment handling from the unpacking position to the installation one, follow 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.
- Lift and transport with suitable device with adequate dimensions as indicated in **Fig. 6**.



8.0 WORKING ENVIRONMENT CONDITIONS

The equipment must be operated under proper conditions as follows:

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

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

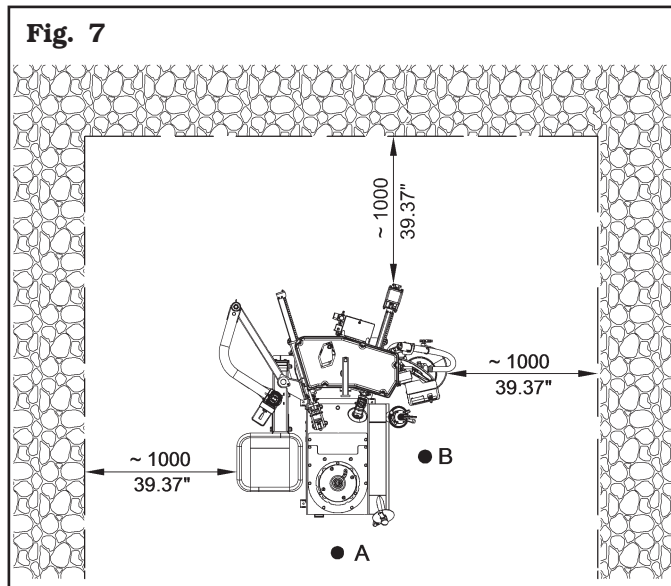
8.1 Work position

In **Fig. 7** 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.

8.2 Working area



The location of the equipment requires a usable space as indicated in **Fig. 7**. The positioning of the equipment must be executed according to the distances shown. From the control position the operator is able to observe all the equipment and surrounding area. Operator must prevent unauthorized personnel or objects that could be dangerous from entering the area. The equipment must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.

The equipment base floor must be able to support the loads transmitted during operation. This surface must have a capacity load of at least 500 kg/m² (100 lb/ft²). The depth of the solid floor must guarantee the tightness of the anchor plugs.

8.3 Lighting

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

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.

9.0 ASSEMBLY AND PREPARATION FOR USE

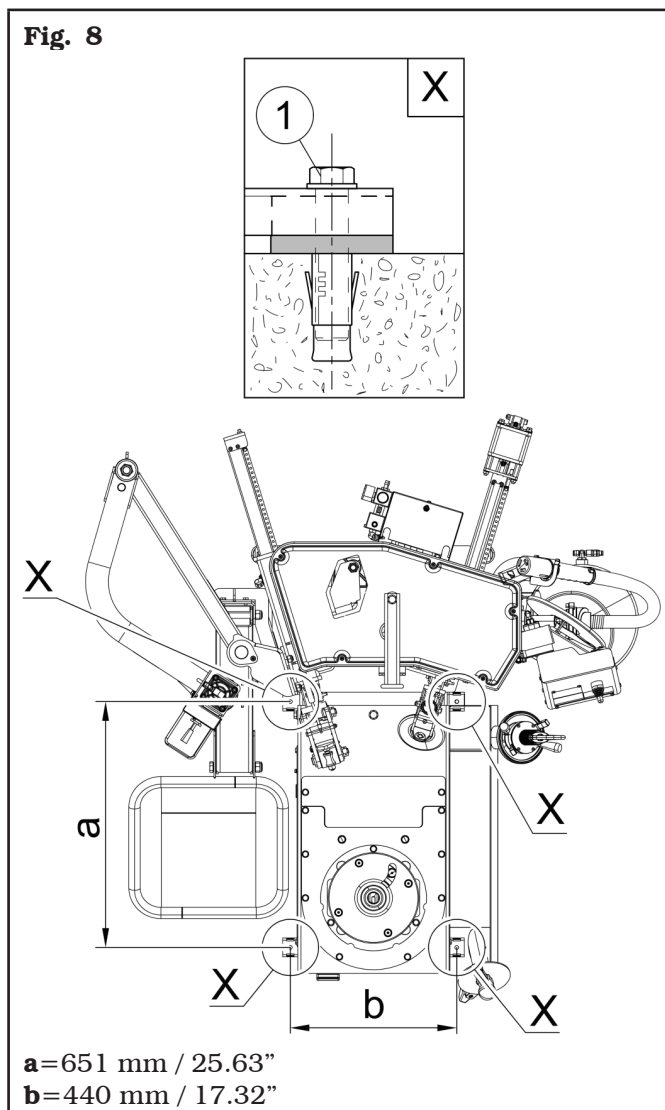


ALL EQUIPMENT ASSEMBLY OR ADJUSTMENTS MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

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.

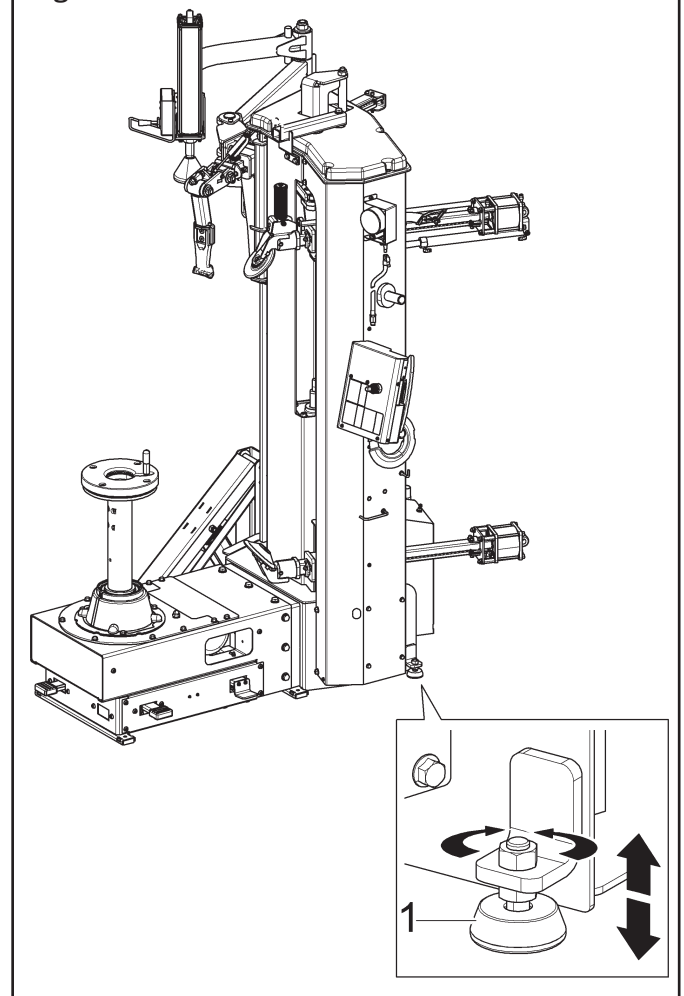
9.1 Anchoring system

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. 8**.



- To secure the equipment to the floor, use anchoring bolts/studs (**Fig. 8 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. 9 ref. 1**).

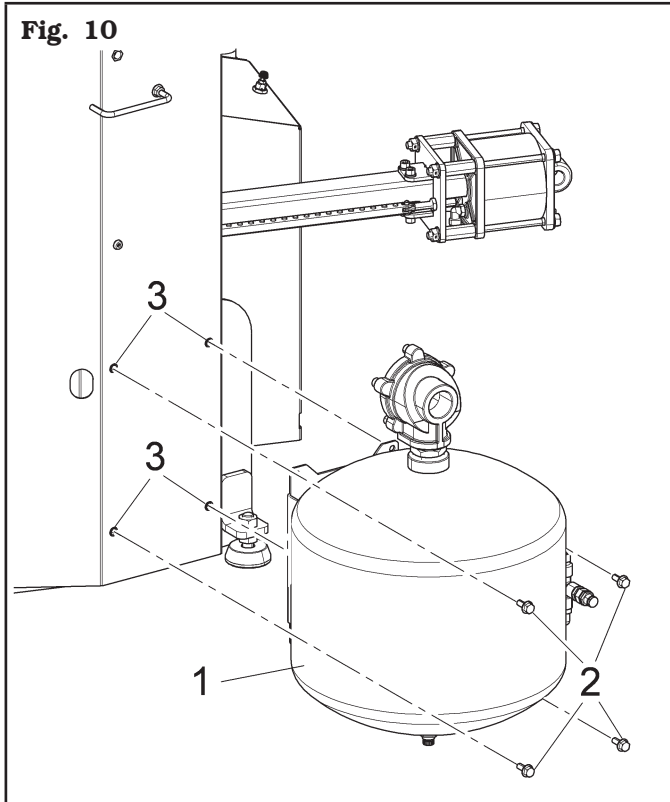
Fig. 9



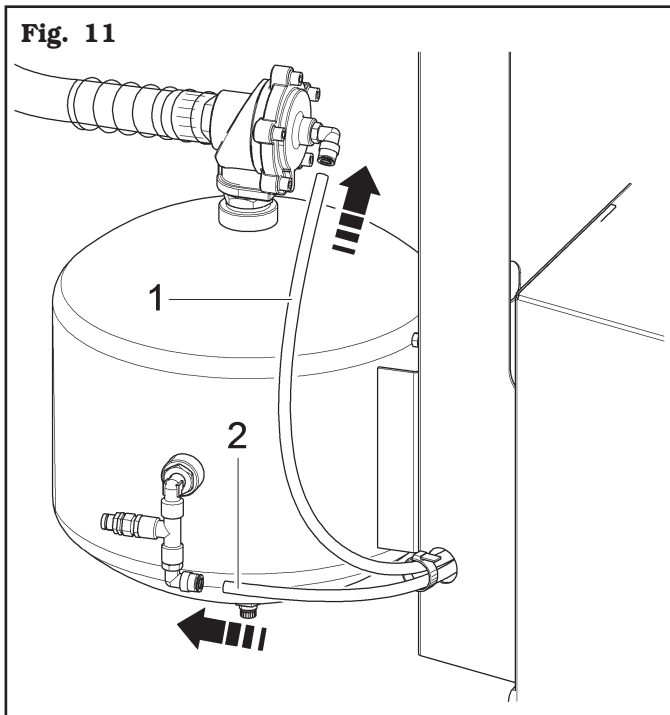
9.2 Assembly procedures

On models with tubeless inflation system

1. Fit the vessel (**Fig. 10 ref. 1**) of the Tubeless inflation system by tightening the supplied bolts (**Fig. 10 ref. 2**) to the threaded inserts on the equipment (**Fig. 10 ref. 3**), as shown in **Fig. 10**.

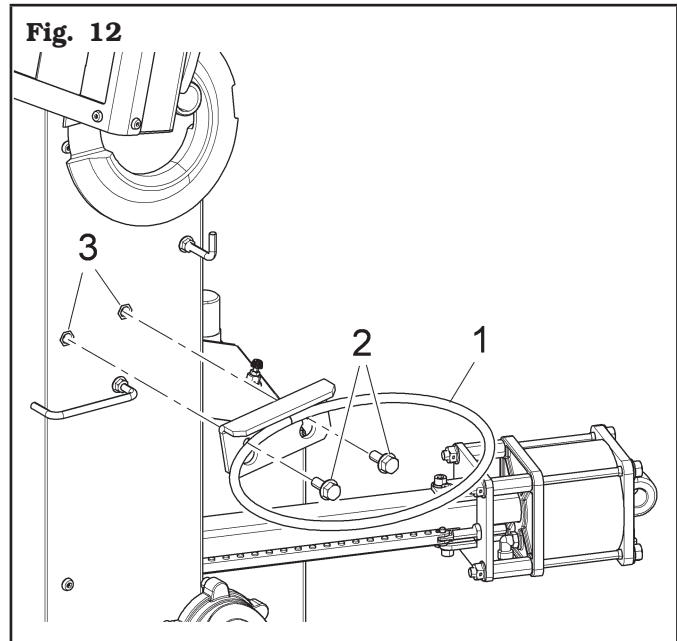


2. Connect the black hose (**Fig. 11 ref. 1**) and the blue hose (**Fig. 11 ref. 2**) on the provided quick couplings as shown in figure **Fig. 11**.

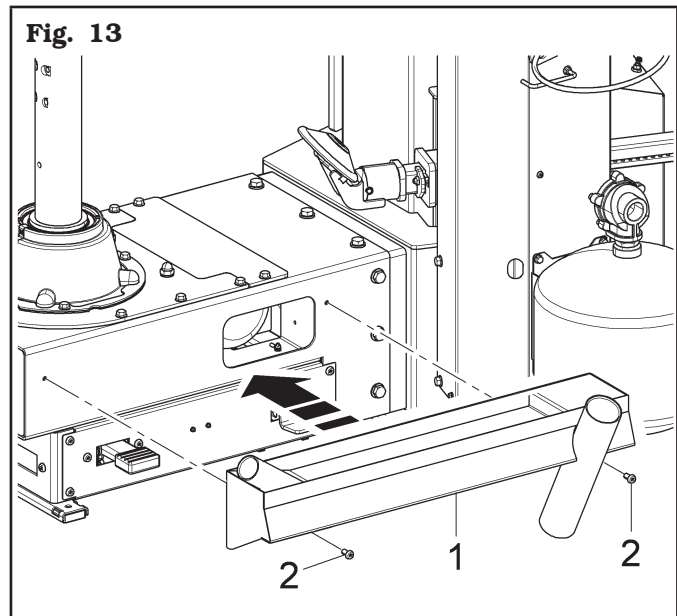


For all models

3. Attach the grease-holder ring (**Fig. 12 ref. 1**) with the 2 supplied bolts (**Fig. 12 ref. 2**), to the threaded inserts provided on the equipment (**Fig. 12 ref. 3**), as shown in **Fig. 12**.



4. Mount the side tray (**Fig. 13 ref. 1**) to the equipment frame using the supplied bolts (**Fig. 13 ref. 2**), as shown in **Fig. 13**.



5. Remove the handle control assembly (**Fig. 14 ref. 1**), complete with support (**Fig. 14 ref. 2**), from the bracket (**Fig. 14 ref. 3**). Remove the bracket (**Fig. 14 ref. 3**) from the equipment frame and remove it upwards. Reassemble the handle control assembly (**Fig. 14 ref. 1**) on the equipment frame by manually accompanying the set of cables/hoes (**Fig. 14 ref. 6**) inside the prepared opening, as indicated in **Fig. 14**.

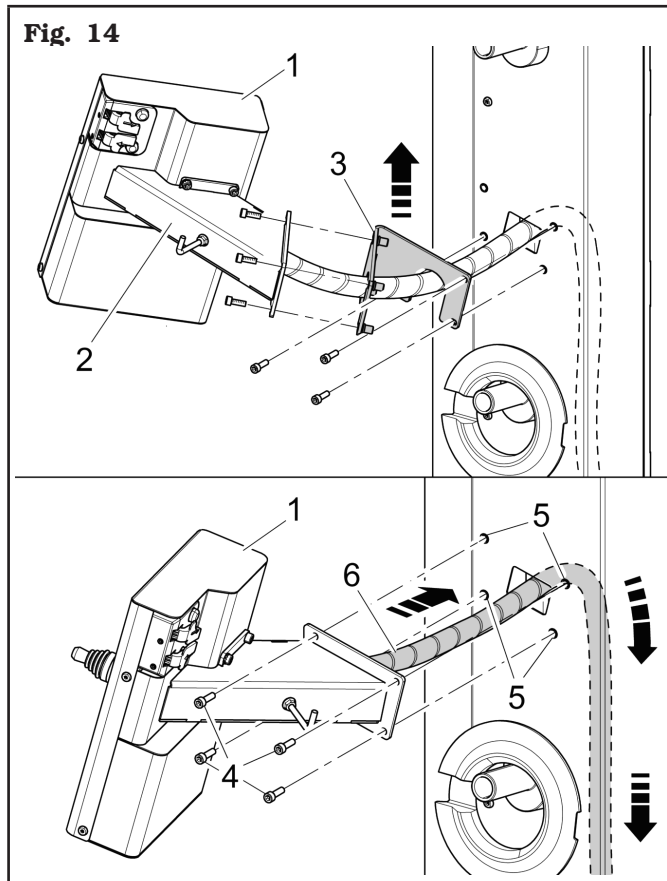


PLACE THE SET OF CABLES/HOSES (Fig. 14 ref. 6) INSIDE THE EQUIPMENT BRINGING THE EXCESS LENGTH DOWN.

Secure the handle control assembly (**Fig. 14 ref. 1**) with the bolts (**Fig. 14 ref. 4**) to the threaded inserts on the equipment (**Fig. 14 ref. 5**).

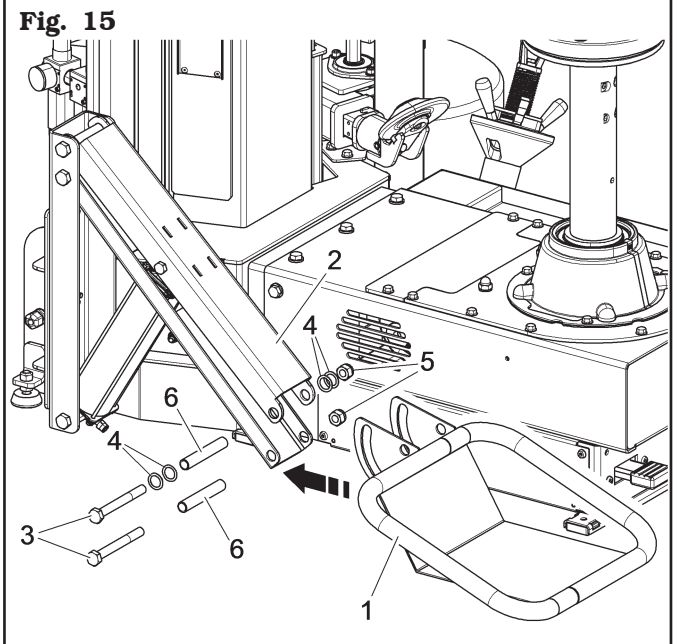


THE CABLES/HOSES (Fig. 14 ref. 6) MUST ABSOLUTELY NOT COME INTO CONTACT WITH THE BEAD BREAKER SUPPORTS. MAKE SURE TO CORRECTLY SECURE THE CABLES/HOSES TO THE FRAME USING THE FIXING DEVICES PROVIDED.




On model with lateral lifting device

6. Fit the wheel support (**Fig. 15 ref. 1**) to the lifting device frame (**Fig. 15 ref. 2**) using the bolts (**Fig. 15 ref. 3**), washers (**Fig. 15 ref. 4**), nuts (**Fig. 15 ref. 5**) placing the spacers between the support and the frame (**Fig. 15 ref. 6**).


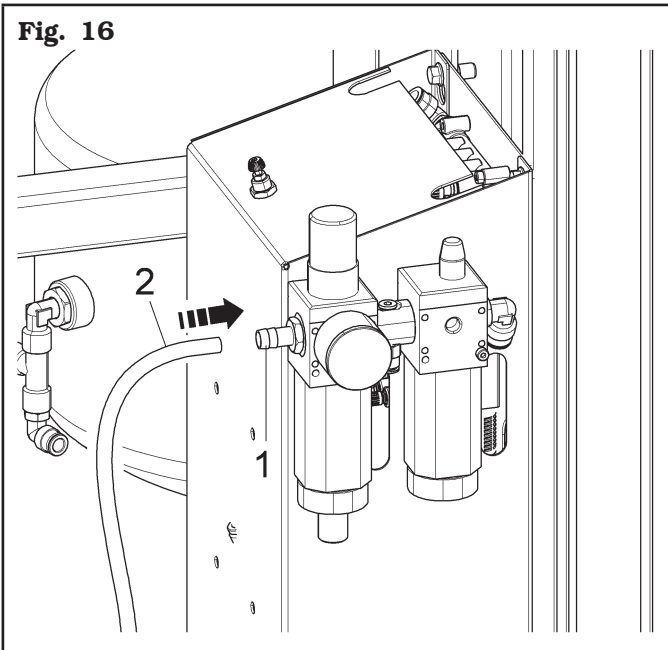


9.3 Connection to the compressed air supply




ANY PNEUMATIC ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF.


Connect the mains pneumatic supply through the fitting (**Fig. 16 ref. 1**) placed on equipment filter assembly. The pressurized hose (**Fig. 16 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. 16**) to have sufficient flow (see **Fig. 16**).




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 19.



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

10.0 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.

As envisaged by the regulations in force, the equipment is not equipped with a master circuit breaker, but simply has a plug-socket connection to the electrical mains.

Motor power supply	Conformity standard	Voltage	Amperage	Poles	Minimum IP rating
Power supply 1 Ph, inverter motor	IEC 309	200/265V	16A	2 Poles + Ground	IP 44

10.1 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.

11.0 CONTROLS

11.1 Control unit

It consists of two levers (**Fig. 17 ref. A**), of two push buttons (**Fig. 17 ref. B**) and a lever (**Fig. 17 ref. C**), with different functions, fit onto a single control block. The control unit is used to move the upper and lower bead breakers and the toolhead, and set them to work position.

The control unit therefore governs all the movements necessary for a complete bead-breaking, assembly and disassembly operation:

- vertical movement movement of the bead breaking rollers,
- introduction of the bead breaker rollers inside the rim,
- toolhead vertical translation movement.

The upper lever and button (**A-B (UPP)**) control the upper bead breaker roller, vice versa the lower lever and button (**A-B (LOW)**) control the lower bead breaker roller.

Each lever has three positions:

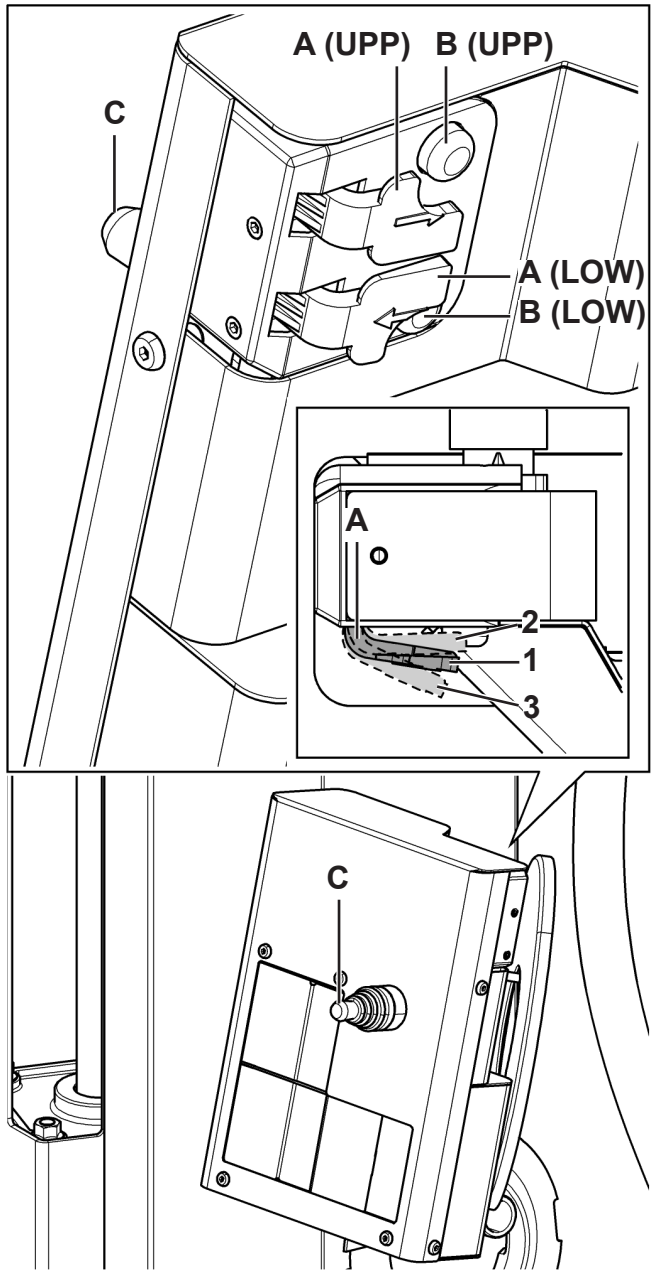
- the first one (**Fig. 17 ref. 1**) is rest position, that keeps the bead breaker rollers into their current position.
- the second one (**Fig. 17 ref. 2**) (pressed lever, hold-to-run control) operates upper bead breaker roller descent (UPP lever) and/or lower bead breaker roller rise (LOW lever).
- the third one (**Fig. 17 ref. 3**) (lever's lifting) operates upper bead breaker roller's rise (UPP lever) and/or lower bead breaker roller's descent (LOW lever).

When the buttons (**Fig. 17 ref. B**), with hold-to-run control, UPP or LOW are pressed, the corresponding cam inserts the bead breaker roller into the rim.

The control unit is also equipped with the lever (**Fig. 17 ref. C**) which controls the ascent and descent of the toolhead:

- by lifting the lever, the toolhead is moved upwards;
- by lowering the lever, the toolhead is moved downwards.

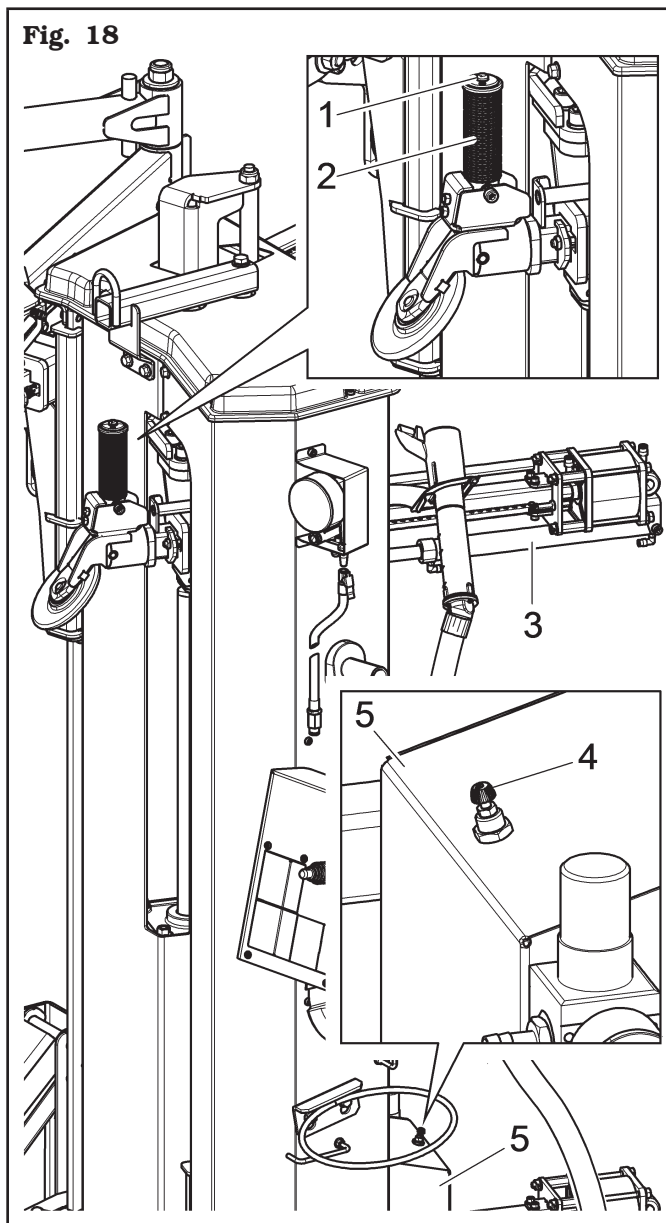
Fig. 17



11.2 Control for bead breaking roller release

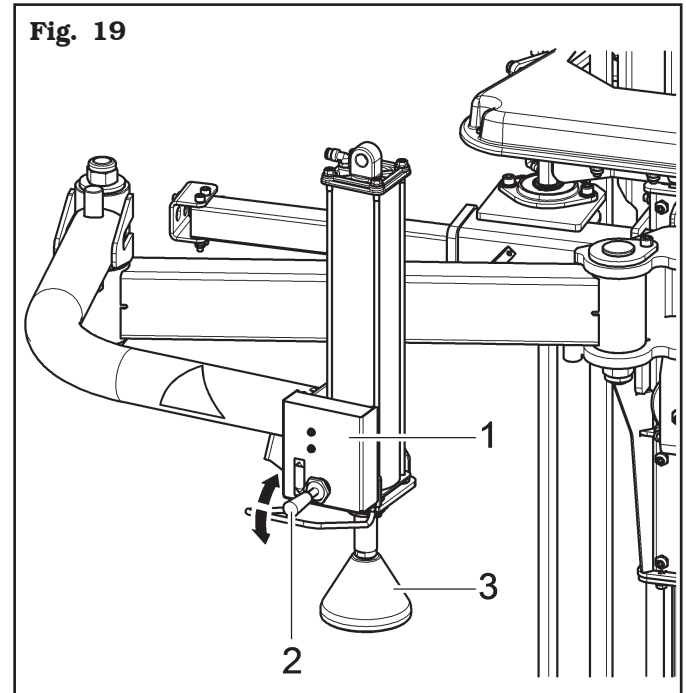
This is done completely manually. Press the release push button (**Fig. 18 ref. 1**), then operate the handle (**Fig. 18 ref. 2**), for the manual positioning of the upper and lower bead breaker rollers and the toolhead on the correct diameter of the wheel secured to the chuck, through a concurrent lever's thrust and return movement. Releasing the push button, the rollers lock into their current position.

The cylinder (**Fig. 18 ref. 3**) makes the entire operation described above easier. The cylinder is activated when, after pressing the button (**Fig. 18 ref. 1**), a slight pulling or pushing movement of the knob is performed (**Fig. 18 ref. 2**). The intervention force of the cylinder can be adjusted (**Fig. 18 ref. 3**) by acting on the regulator (**Fig. 18 ref. 4**), located on the solenoid valve protection guard (**Fig. 18 ref. 5**).




11.3 Bead press device control unit

It is made up of an handle control (**Fig. 19 ref. 1**), positioned on the device. This handle control allows to operate the vertical movement of the pusher roller (**Fig. 19 ref. 3**). Lift the lever (**Fig. 19 ref. 2**) to operate the upwards movement, and lower the lever (**Fig. 19 ref. 2**) to perform the downwards movement. The device arm positioning next to the tyre is a completely manual operation.



11.4 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.

“Pedal B” has a different function according to the version present on the equipment.

Version with inflation with pressure gauge


The inflation pedal in this version has only one function. A continuous pressure supplies air at a controlled pressure (max 4,2 ± 0,2 bar - 60 ± 3 psi).



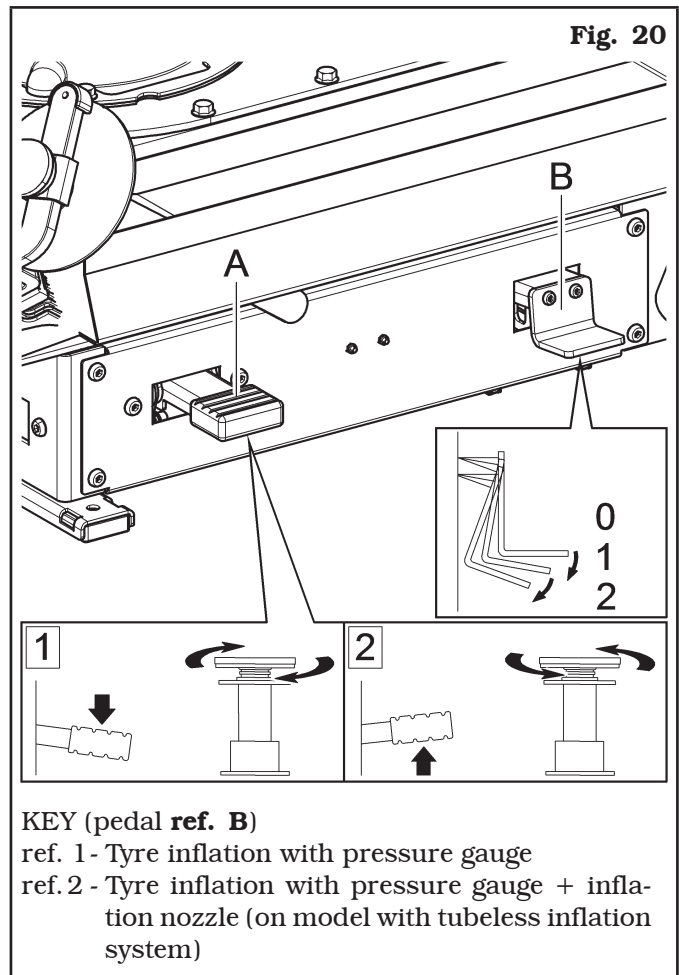
DO NOT CHANGE THE SET OPERATING PRESSURE VALUE BY MEANS OF THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.

Version with Tubeless inflation (on model with tubeless inflation system)

The inflation pedal has two functions. The supply of air at max. controlled pressure as in the previous version, and a second function of a jet of air from the inflation nozzle to assist the beading in of the tyre.



DO NOT CHANGE THE SET OPERATING PRESSURE VALUE BY MEANS OF THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.



12.0 USE OF THE EQUIPMENT

12.1 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 TOOL-HEAD 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.

12.2 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 de-mounted, 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 AND/OR WITH A FREQUENCY OF MORE THAN 20/30 WHEELS PER HOUR, A LIFTING DEVICE SHOULD BE USED.

12.3 Use of the lifting device (standard on one model)



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 plate (see **Fig. 21**), press the lifting device drive pedal (**Fig. 22 ref. 1**) downwards and bring the wheel to a level where it can be shifted to the chuck by hand (see **Fig. 22**).

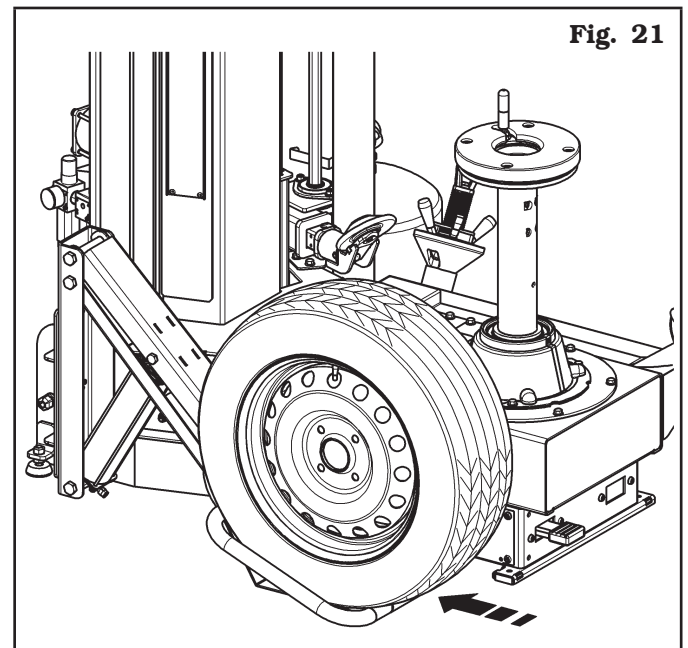


Fig. 21

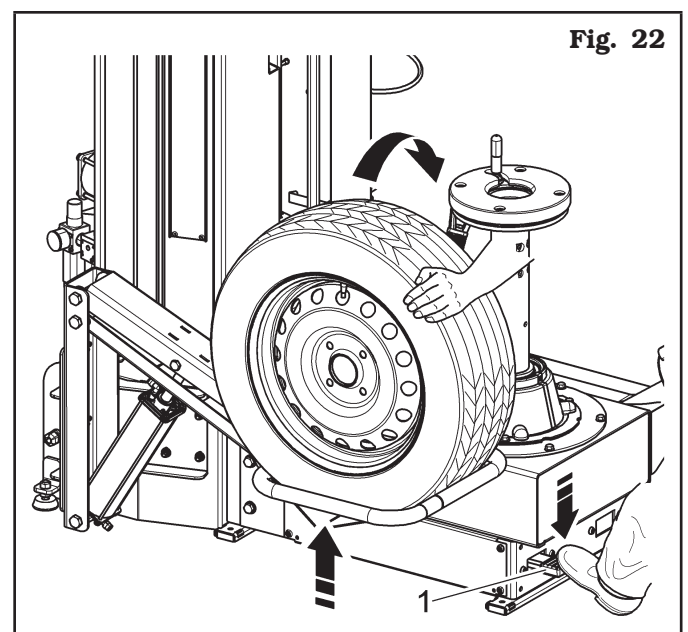
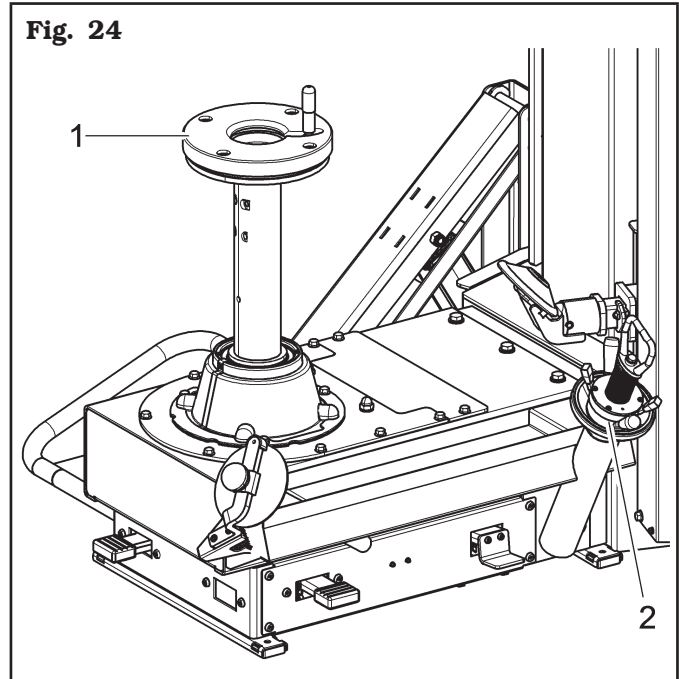
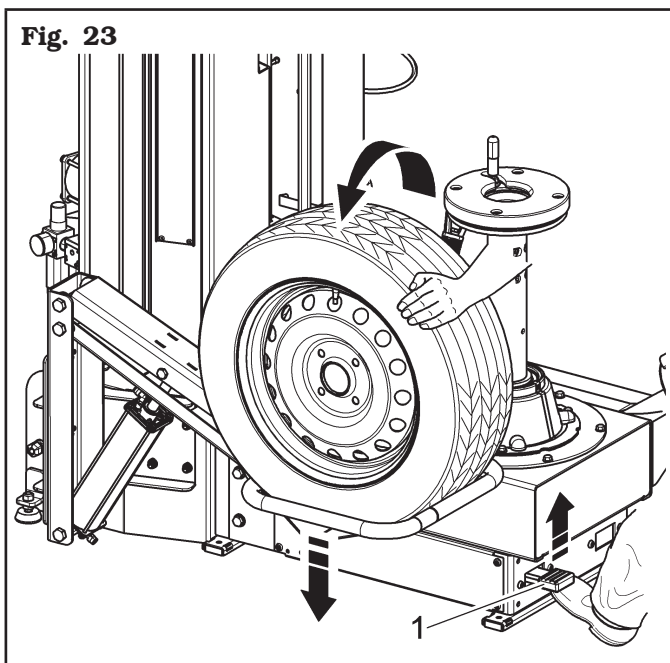


Fig. 22

2. Place the wheel on the chuck and lock it with the locking device.
3. Lift the pedal (**Fig. 22 ref. 1**) upwards in order to lower the lifting plate.
4. After all tyre demounting and mounting operations have been performed, unlock the wheel by removing the locking device.
5. Lift the lifting plate by pressing again the pedal downwards (**Fig. 22 ref. 1**).
6. Place the wheel on the lifting plate (see **Fig. 23**).
7. Move the pedal again (**Fig. 23 ref. 1**) upwards to make the plate lower and bring back the wheel to the ground keeping a hand on it (see **Fig. 23**).

12.4 Wheel clamping

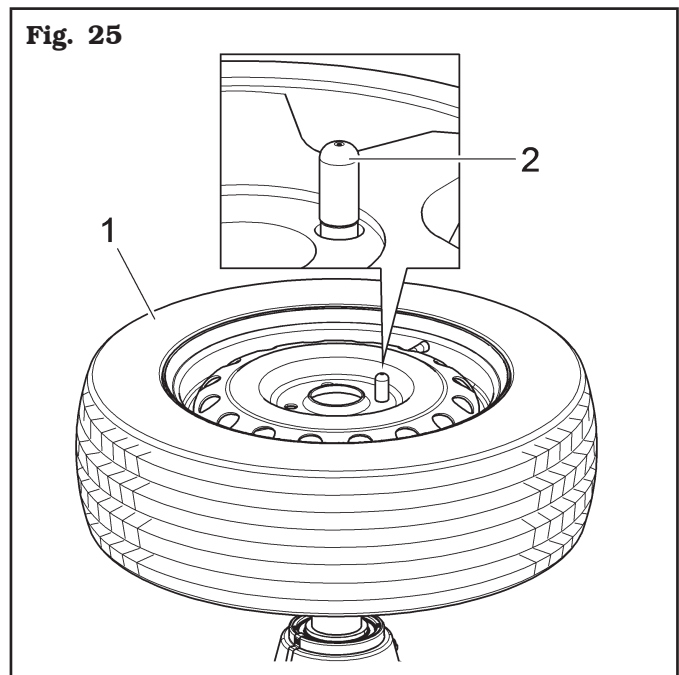
All wheels must be locked on the rubber plate (**Fig. 24 ref. 1**) through the central hole using the proper locking device (**Fig. 24 ref. 2**).



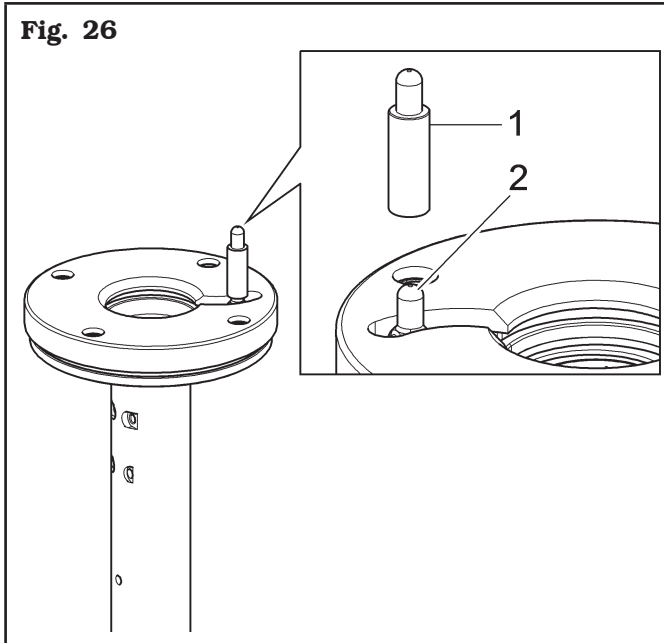
i IN CASE OF USE OF RIMS WITHOUT CENTRAL HOLE, IT'S NECESSARY TO USE THE PROPER ACCESSORY (AVAILABLE ON DEMAND).

To lock a rim proceed as follows:

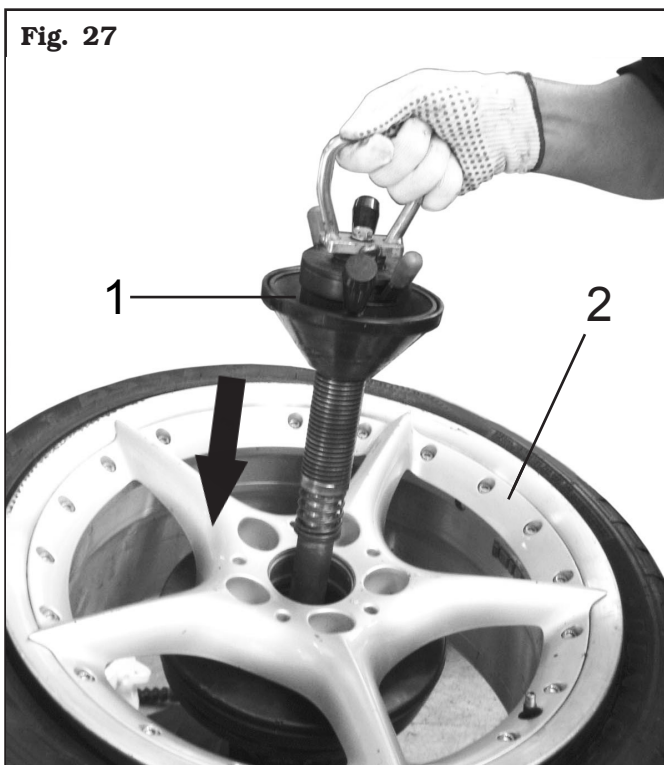
1. Dowel the wheel (**Fig. 25 ref. 1**) on the locking platform and check that the puller pin (**Fig. 25 ref. 2**) enters a hole on the rim hub.



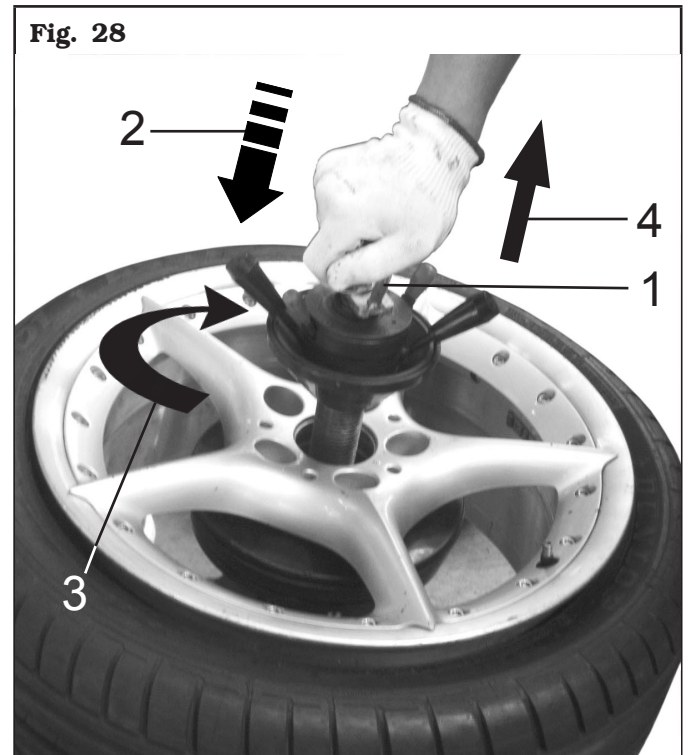
2. If the wheel hub is higher than the puller (**Fig. 26 ref. 2**), use the extension (**Fig. 26 ref. 1**) supplied.



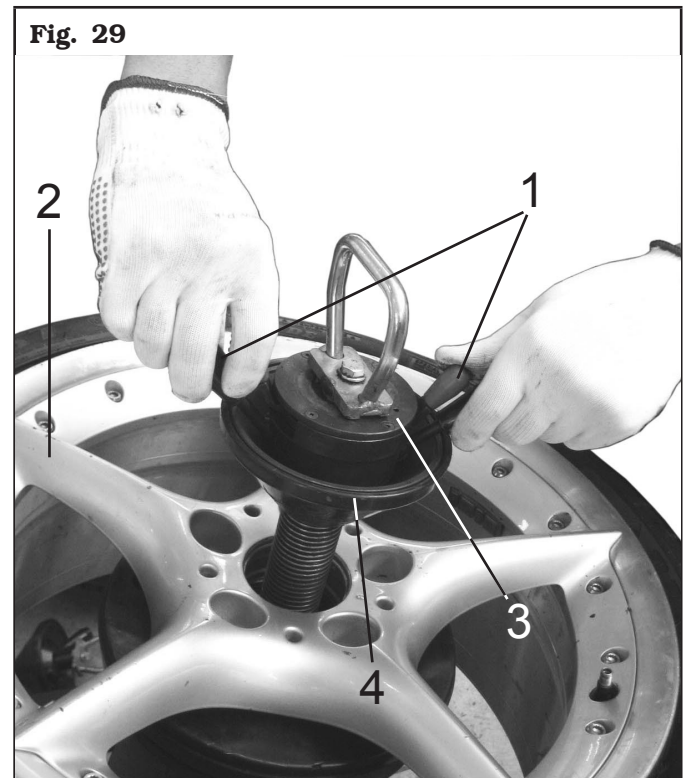
3. Insert the shaft complete with cone (**Fig. 27 ref. 1**) on the rim (**Fig. 27 ref. 2**).



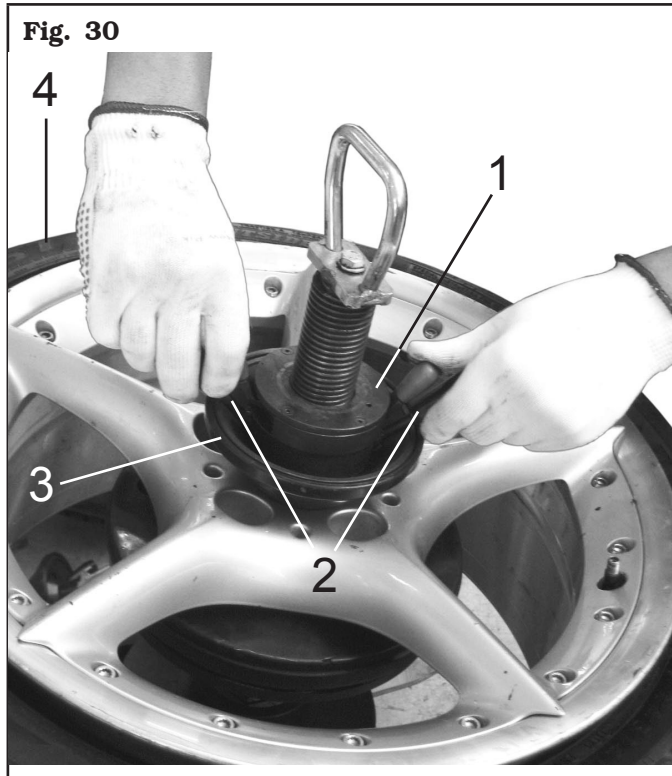
4. Using the handle shown (**Fig. 28 ref. 1**), push downwards (**Fig. 28 ref. 2**), and turn it through 90° (**Fig. 28 ref. 3**).



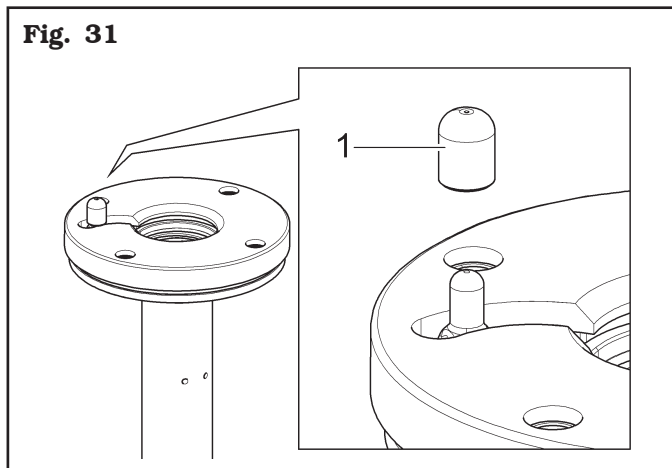
5. Using the small inside levers (**Fig. 29 ref. 1**), loose the ring nut and push ring nut (**Fig. 29 ref. 3**) and cone (**Fig. 29 ref. 4**) to the rim (**Fig. 29 ref. 2**).



6. Then, turn the ring nut (**Fig. 30 ref. 1**) using the larger outside levers (**Fig. 30 ref. 2**) until the cone completely clamps (**Fig. 30 ref. 3**) the wheel (**Fig. 30 ref. 4**).



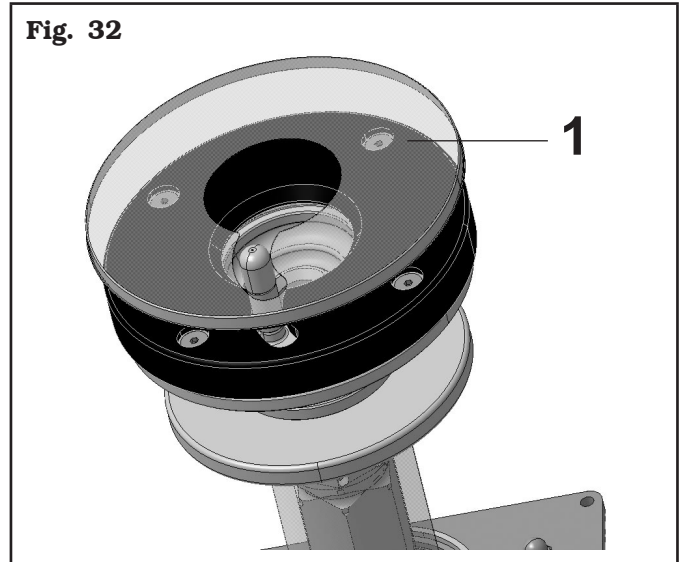
7. For wheels with alloy rims, use the proper plastic guard (**Fig. 31 ref. 1**).




8. At the end of the operations, loosen the device releasing first the cone with the larger 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 shown in **Fig. 28**.

12.4.1 Reverse wheel pan protection

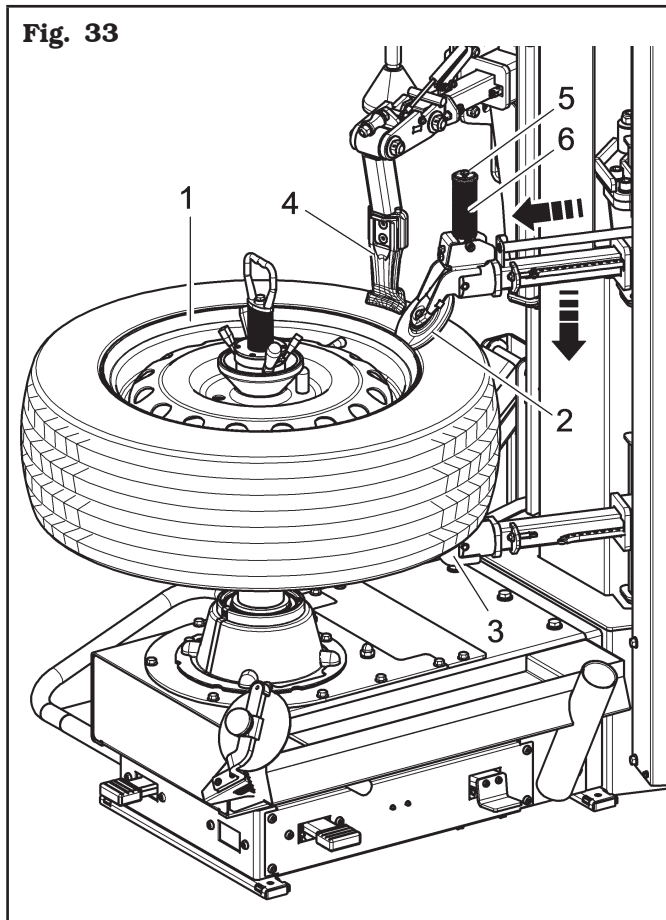
In case reversed wheels are used, in order to protect the rim, apply on the rubber platform a protection (**Fig. 32 ref. 1**), supplied. We suggest replacing it if there are visible damages (see **Fig. 32**).



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

12.5 Bead breaking operations

1. After locking the wheel, bring the bead breaking rollers (upper and lower) (**Fig. 33 ref. 2 and 3**) and the toolhead (**Fig. 33 ref. 4**) near the edge of the rim (**Fig. 33 ref. 1**), pressing the button (**Fig. 33 ref. 5**) and, at the same time, pulling the handle (**Fig. 33 ref. 6**).
2. Lower the upper bead breaker roller (**Fig. 33 ref. 2**) by pressing the lever A (UPP) (**Fig. 17 ref. 2**).



3. Continue the approach, activating the clockwise rotation of the wheel (see **Fig. 34**) by pressing the pedal (**Fig. 34 ref. 1**). Briefly press and release the lever A (UPP) several times (**Fig. 17 ref. 2**), until there is sufficient space between the rim and the bead to make the roller advance with the cam.



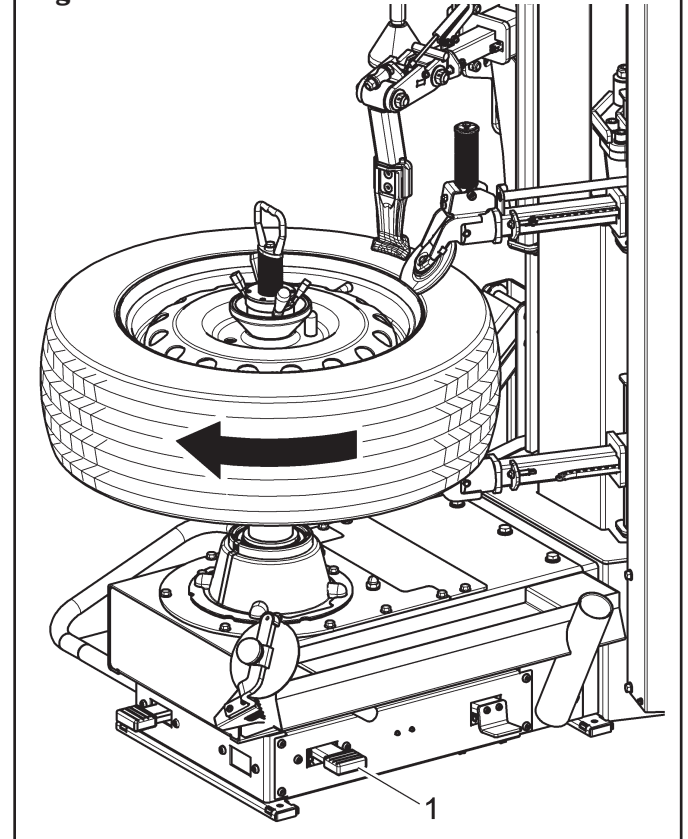
THE BEAD BREAKER DISC MUST EXERT PRESSURE ON THE TYRE BEAD BUT NEVER ON THE RIM.



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

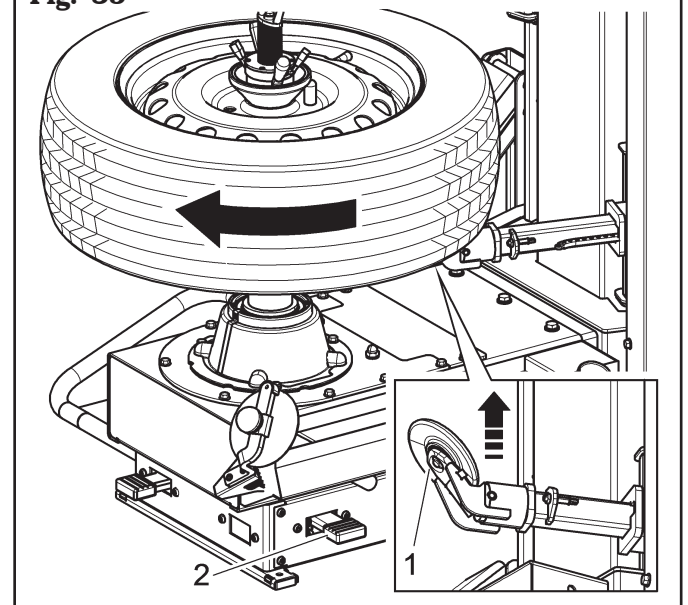
4. Activate the upper cam pushing push button (**Fig. 17 ref. B(UPP)**) and keep on bead breaking until the operation is complete.

Fig. 34





5. Approach the lower bead breaker roller (**Fig. 35 ref. 1**) by briefly pressing and releasing lever A (LOW) several times (**Fig. 17 ref. 2**).

Fig. 35



6. Only now turn the wheel clockwise pressing the pedal (**Fig. 35 ref. 2**) and, at the same time, the push button (**Fig. 17 ref. B(LOW)**), keeping it pressed until there's room enough for the bead breaking.


 **WHILE THIS OPERATION IS BEING CARRIED OUT PAY ATTENTION NOT TO DEFORM THE TYRE SIDEWALL. GREASE THE BEAD BEFORE THE ROLLER RE-ENTERS.**

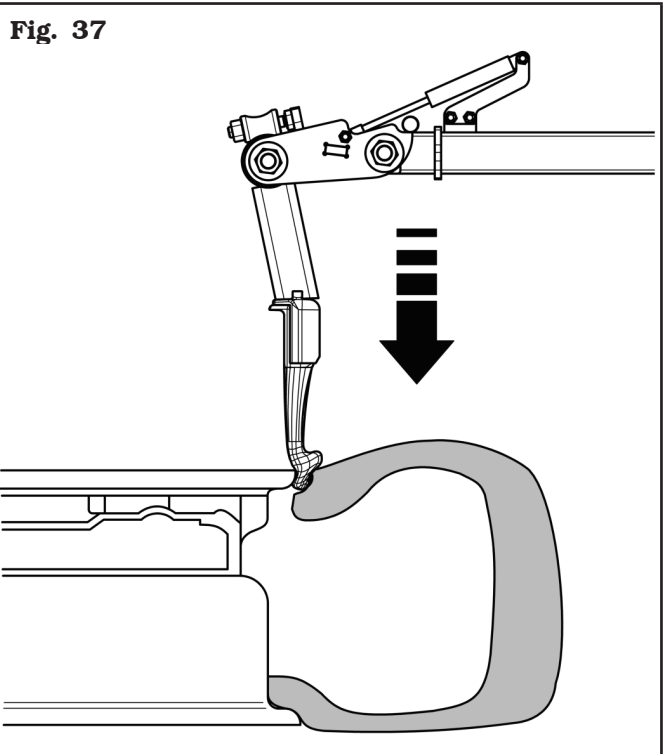
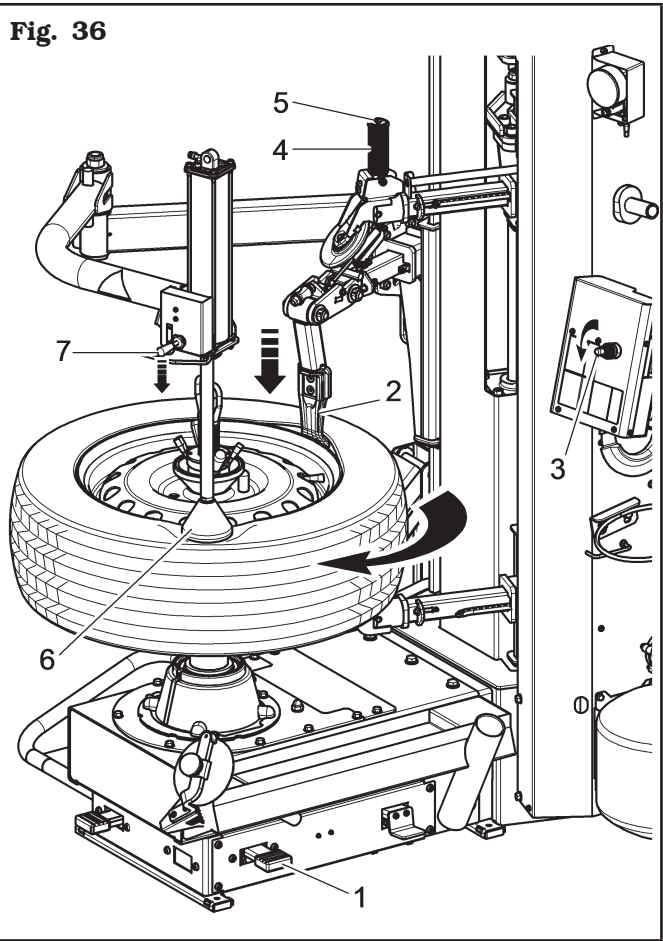
 **UNTIL BOTH UPPER AND LOWER ROLLERS ARE NOT BACK TO REST POSITION IT IS NOT POSSIBLE TO CARRY OUT A NEW DIAMETER ADJUSTMENT, AS DESCRIBED IN PARAGRAPH 12.4 POINT 2.**


12.6 Demounting the tyre

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

1. Press the pedal (Fig. 36 ref. 1) to rotate the wheel clockwise until the valve stem reaches "1 o'clock" position.
2. Bring the toolhead vertically (Fig. 36 ref. 2) to the edge of the rim by lowering the lever (Fig. 36 ref. 3). The position of the toolhead on the diameter of the rim should already be correct as the adjustment occurs simultaneously with the previous adjustment of the bead breaker rollers. If this is not the case, it can be adjusted by pressing the button (Fig. 36 ref. 5) and operating the handle with a push and pull movement (Fig. 36 ref. 4). While this phase is being carried out, stay just next to a zone in the tyre where bead breaking has been performed.
3. Place the pusher cone (Fig. 36 ref. 6) to "4 o'clock" position as shown in Fig. 36 and press on the tyre operating the lever of the control unit (Fig. 36 ref. 7) downwards, until the tyre bead is placed next to the rim drop centre.

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



 **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. Lower the lever (**Fig. 17 ref. C**) so that the toolhead penetrates between rim and tyre (see **Fig. 38**). While this operation is being performed, the toolhead rotates around the rim edge until it hooks the tyre bead (see **Fig. 39**).

Fig. 38

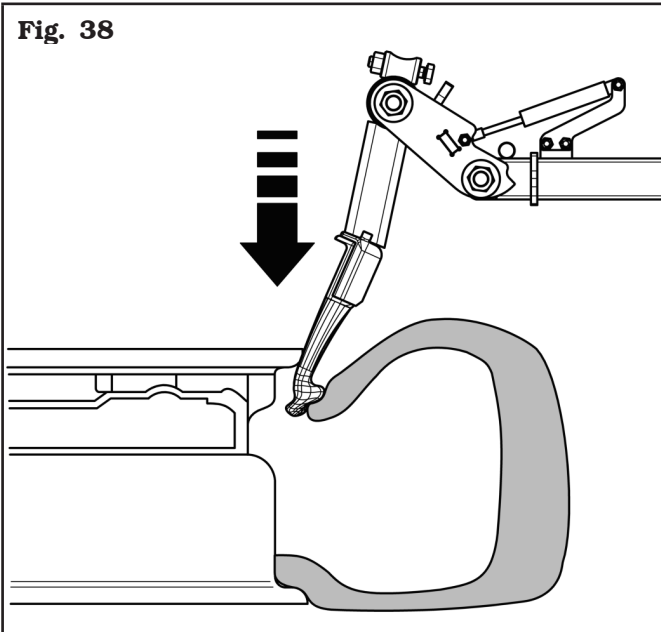
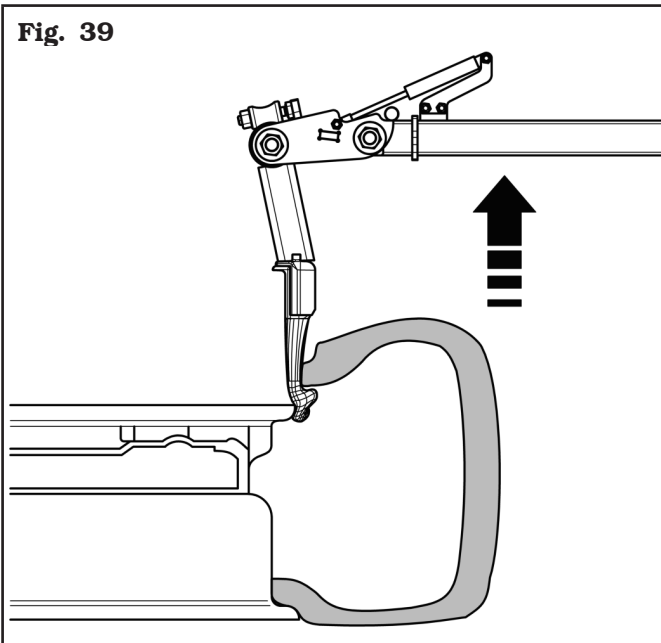


Fig. 39

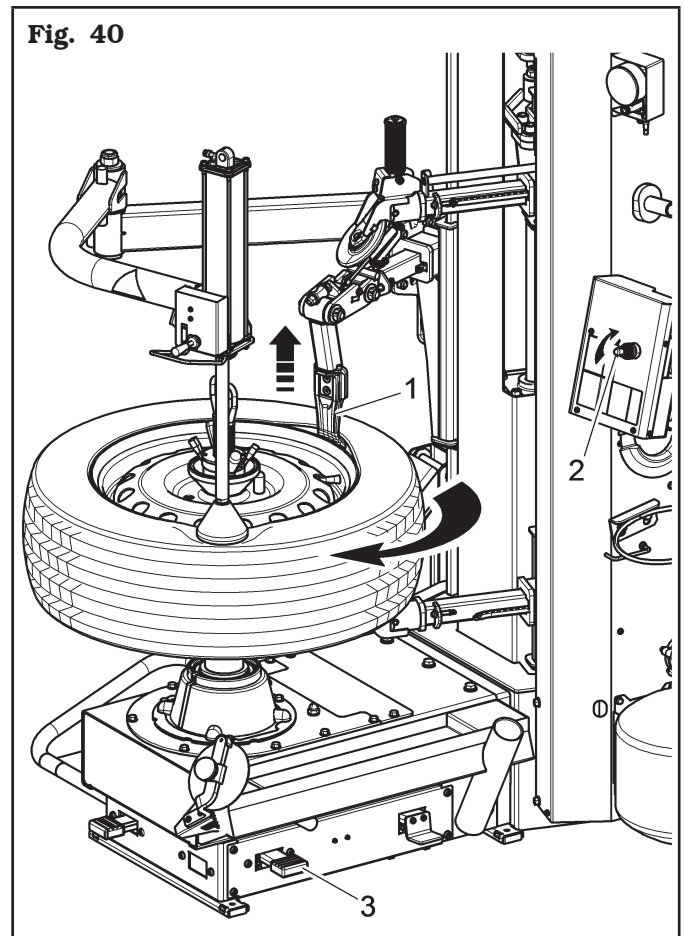


5. Lift the toolhead (**Fig. 40 ref. 1**) through lever (**Fig. 40 ref. 2**). When the toolhead is vertical with respect to the rim (see **Fig. 40**), rotate the chuck, pressing the pedal (**Fig. 40 ref. 3**), so that the tyre fits into the rim drop centre. Keep on raising the toolhead until the bead is on the rim edge (see **Fig. 39**). Rotate clockwise until the upper bead is completely disassembled.

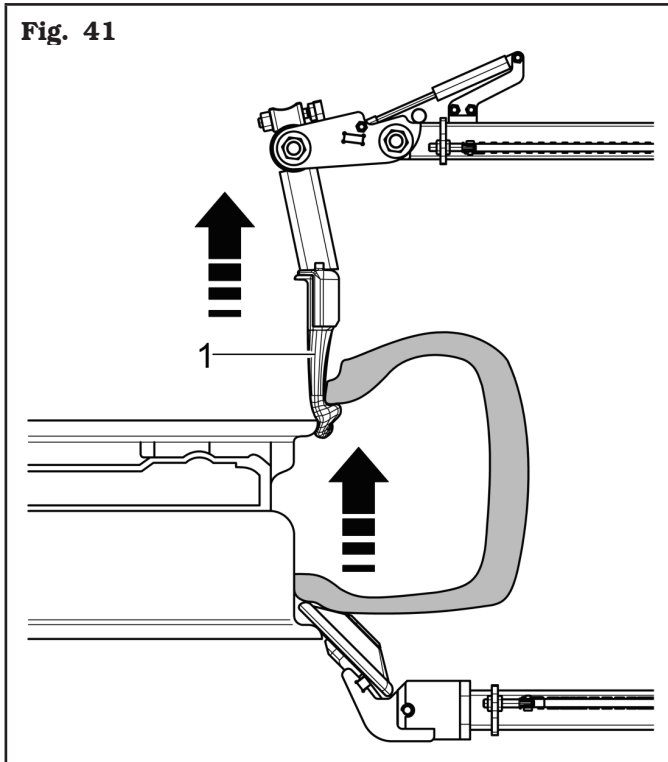


**MAKE SURE THAT THE TOOL-
HEAD IS ON DEMOUNTING POSI-
TION (FIG. 39) BEFORE STARTING
CHUCK ROTATION.**

Fig. 40



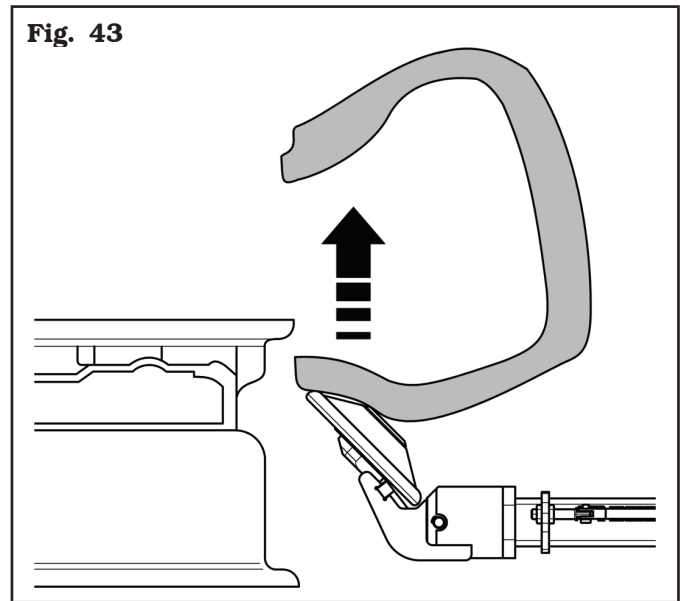
- Lift the toolhead (see **Fig. 41 ref. 1**) keeping it coupled to the upper bead of the tyre with the lower bead breaker roller.



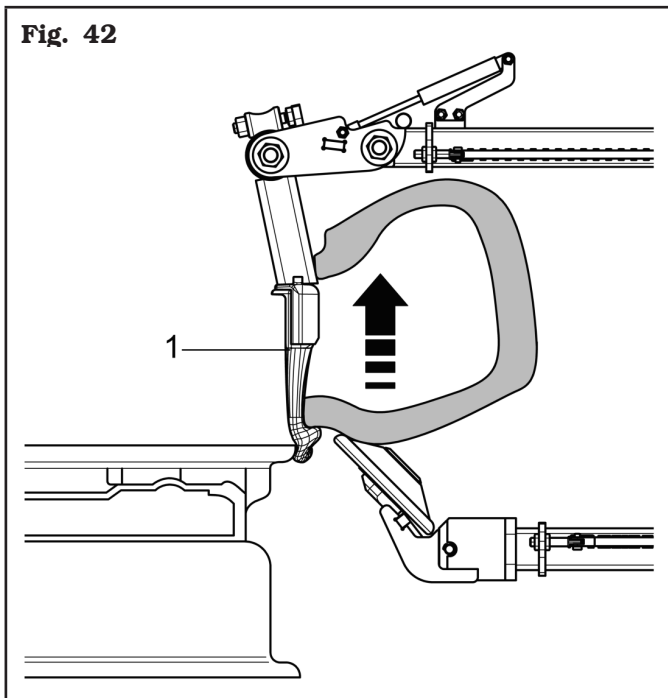
Dismounting the lower bead with the bead breaker roller

For disassembly of the lower bead only the lower bead breaker roller can be used as an alternative. Lift the toolhead away from the work area by lifting the lever (**Fig. 17 ref. C**).


- Lift the roller and the tyre just next to the rim edge (see **Fig. 43**).




- Position the toolhead (see **Fig. 42 ref. 1**) just next to the rim edge. Using the lower bead breaker roller, load the lower bead on the toolhead in dismounting position.



- Then, let the bead breaker roller approach through the provided lever (see **Fig. 17 ref. B(LOW)**) so that it is inserted between the rim edge and the lower bead (see **Fig. 44**).

 **THE BEAD BREAKER DISC 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.**

- Rotate the chuck clockwise until the tyre is completely disassembled.
- Lift the pusher roller and close again the bead press device into rest position.



3. Then, rotate and complete bead disassembly (see **Fig. 45**).

Fig. 45



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

12.7 Mounting the tyre

To mount the tyre, proceed as follows:

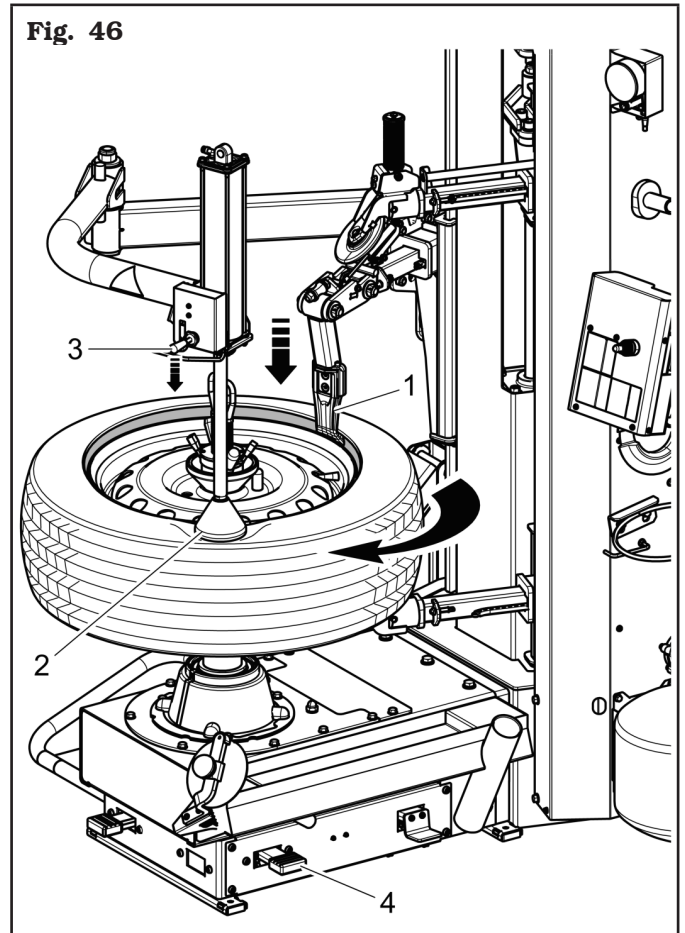
1. Lubricate tyre beads.



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

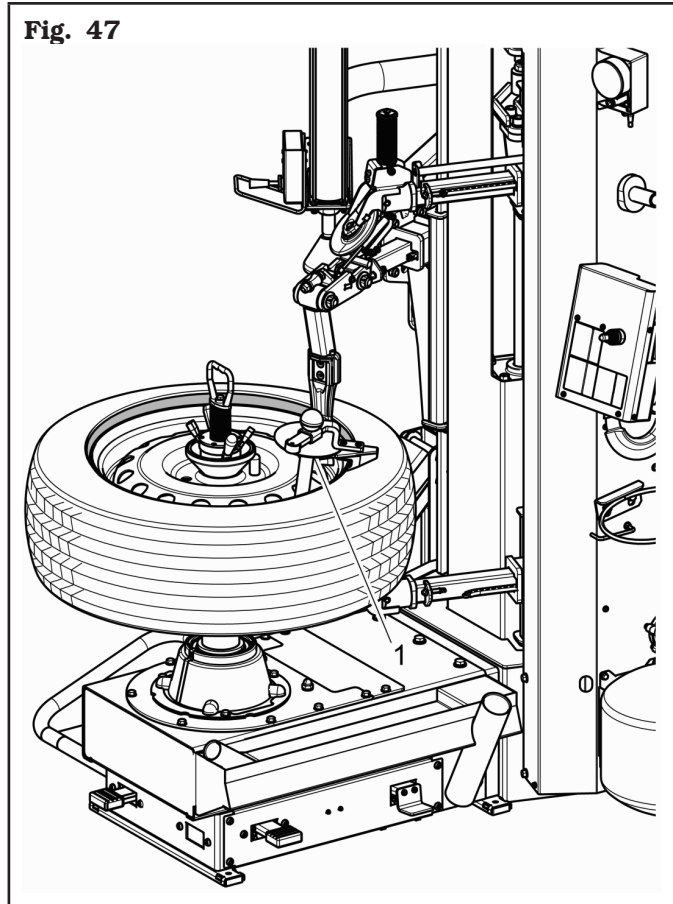
2. Position the toolhead (**Fig. 46 ref. 1**) onto the rim edge.
3. Hook the lower bead on the toolhead then rotate clockwise until the complete assembly.
4. Then, position the upper bead on the toolhead assembly area (**Fig. 46 ref. 1**).
5. Place the pusher cone (**Fig. 46 ref. 2**) in "4 o'clock" position as shown in **Fig. 46** and press on the tire operating the lever of the control unit (**Fig. 46 ref. 3**) downwards.
6. Rotate the chuck clockwise, pressing the pedal (**Fig. 46 ref. 4**), until the tyre is completely assembled.
7. When these operations are over move the toolhead and the pusher roller into rest position.

Fig. 46



12.7.1 Mounting the upper bead of the tyre with the beadpusher

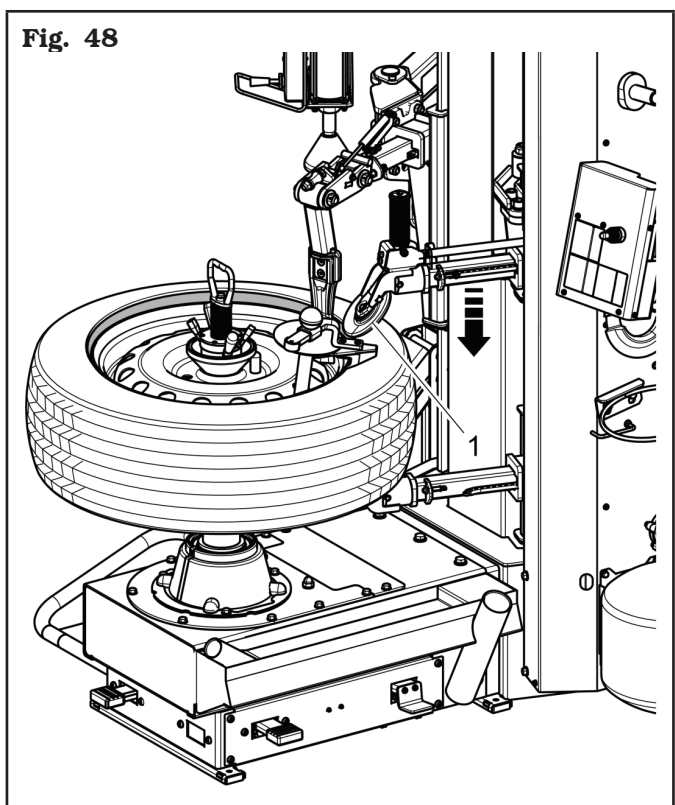
1. Assemble the beadpusher (Fig. 47 ref. 1) with puller next to the rim edge (see Fig. 47).



2. Place the upper bead breaker roller (Fig. 48 ref. 1) so that the tyre bead is kept at the same height of the rim drop centre (see Fig. 48).

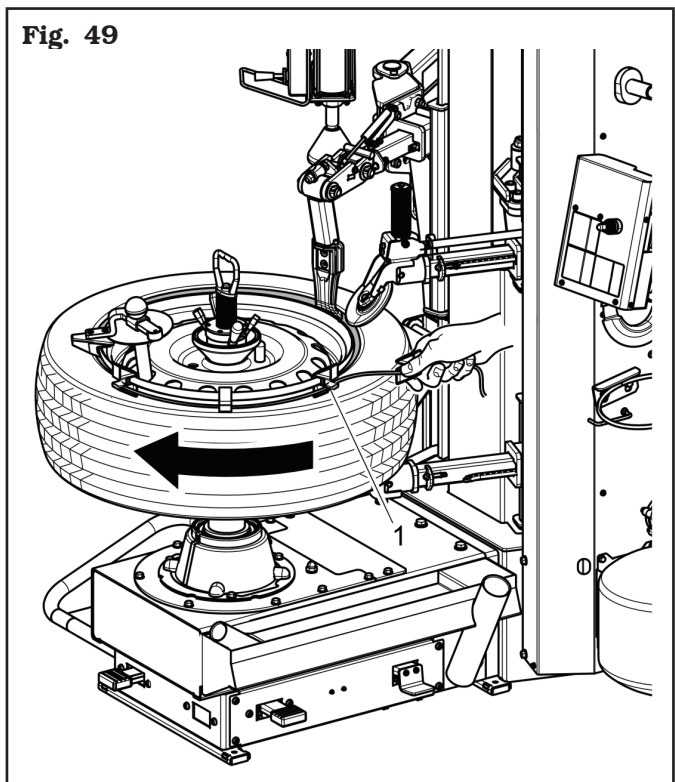
i THE BEAD BREAKER DISC MUST EXERT PRESSURE ON THE TYRE BEAD BUT NEVER ON THE RIM.

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



3. Rotate clockwise up to tyre complete assembly (see Fig. 49).

i FOR THE MOUNTING OF VERY DIFFICULT WHEELS, USE THE EXTENSION OF THE BEADPUSHER (FIG. 49 REF. 1).



4. When these operations are over move the toolhead and the bead breaker roller into rest position.

12.8 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.

12.8.1 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. 17 ref. B).



A LIMITATION DEVICE IS PRESENT IN THE AIR SUPPLY LINE FOR THE TYRE INFLATION (4.2 bar \pm 0.2 / 60 \pm 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 \pm 0.2 bar (60 \pm 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.

12.8.2 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.



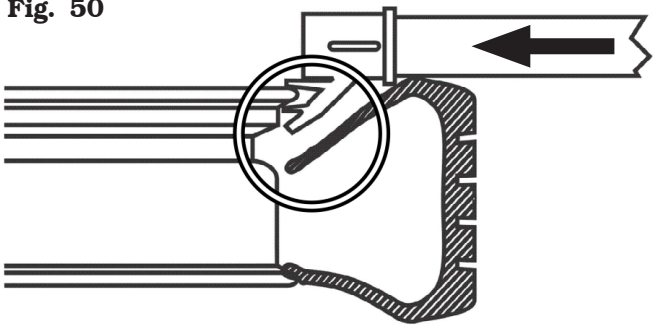
TO IMPROVE THE TUBELESS INFLATION SYSTEM, ALWAYS LUBRICATE THE TYRE BEADS.

- Press the bead blaster hose on the wheel rim as shown in **Fig. 50**. Ensure the hose head is pressed in to activate the additional air jet.



THE NOZZLE SHOULD BE HORIZONTAL FOR OPTIMAL PERFORMANCE (FIG. 50).

Fig. 50



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.

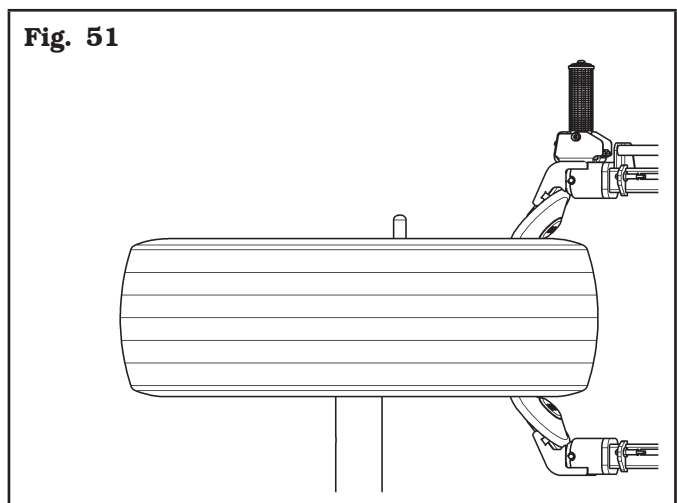
- Disconnect the inflation terminal from the valve.

12.9 Special use of the bead-breaker

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 rollers;
- turn the chuck clockwise until the reference point on the tyre coincides with the reference point on the rim (usually the valve) (see **Fig. 51**).

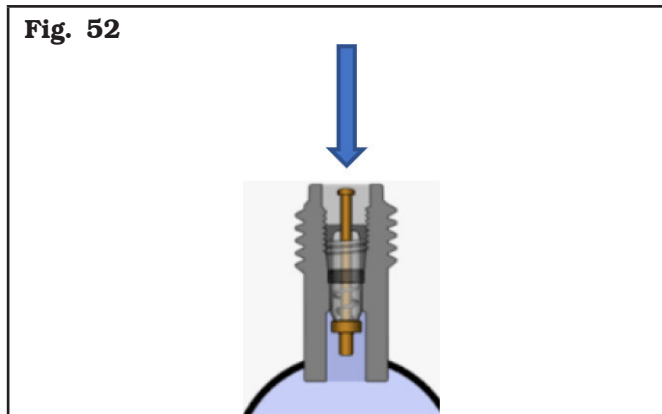
Fig. 51



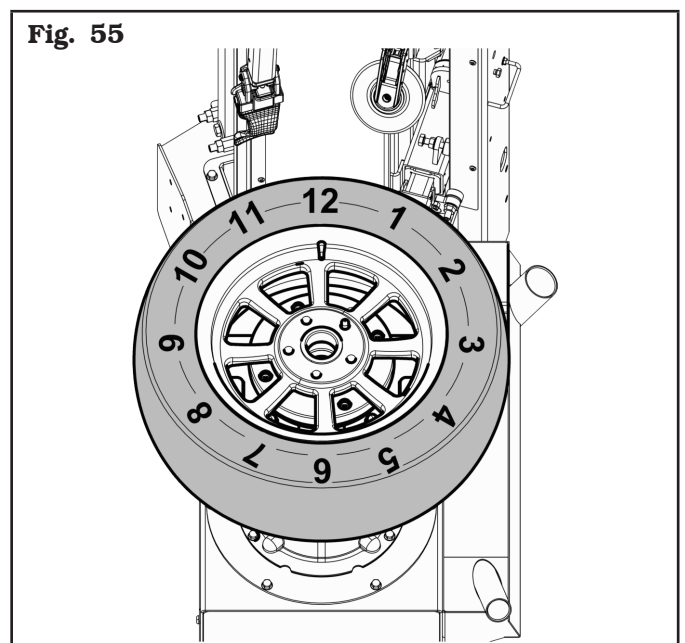
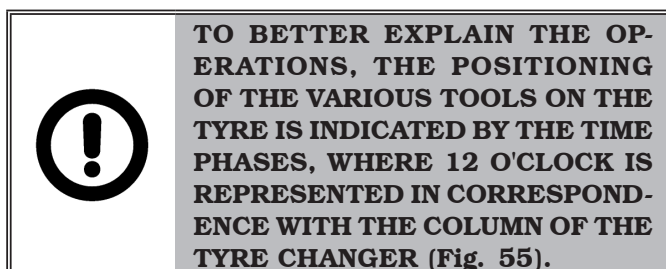
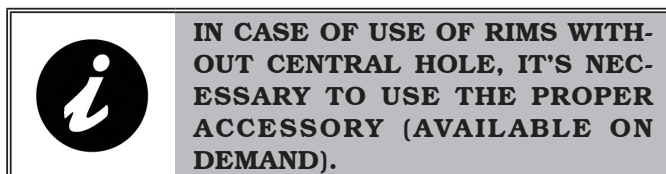
12.10 Instructions for replacing RF (Run-Flat) and UHP (Ultra High-Performance) tyres

12.10.1 Preliminary operations - Preparing the wheel

- Remove the wheel balancing weights from both sides of the wheel.
- Remove the inner core of the valve (see **Fig. 52**) and allow the tyre to completely deflate.



- 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. 53**), check if the TPMS valve (see **Fig. 54**) or the normal valve is present. The tyre temperature can't be lower than 15°C.



12.10.2 Wheel clamping

Load the wheel with the lifting device (if available) on the rubber plate of the chuck, making sure that the puller pin (**Fig. 56 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. 57 ref.1**) supplied, and lock the wheel with the special quick locking device. The three main types of device are shown in **Fig. 58**.



FOR THE DETAILED PROCEDURE OF CONTROL USE, SEE CONTROL CHAPTER CONTAINED INTO THE INSTRUCTION AND MAINTENANCE MANUAL SUPPLIED WITH THE EQUIPMENT.

Fig. 56

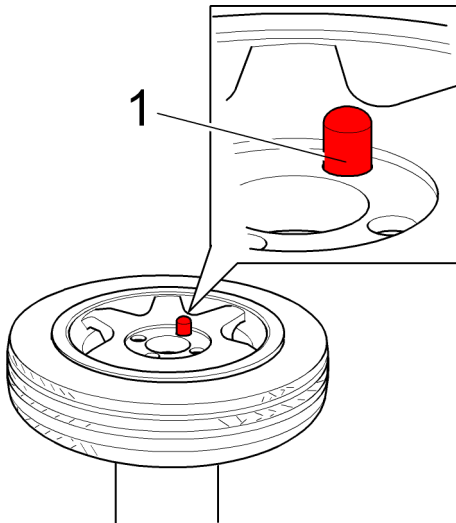


Fig. 57

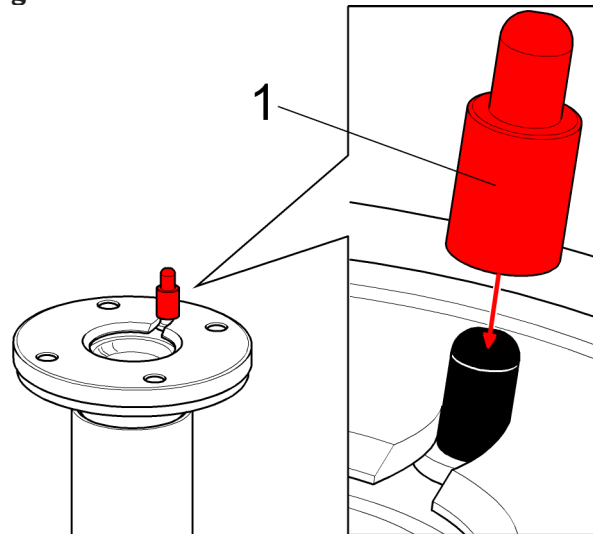
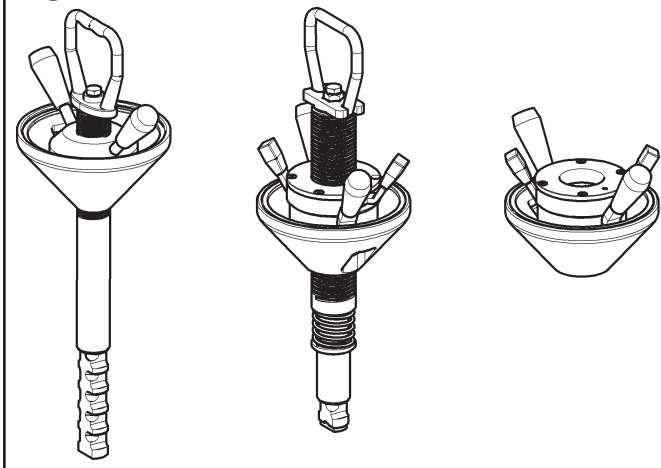


Fig. 58

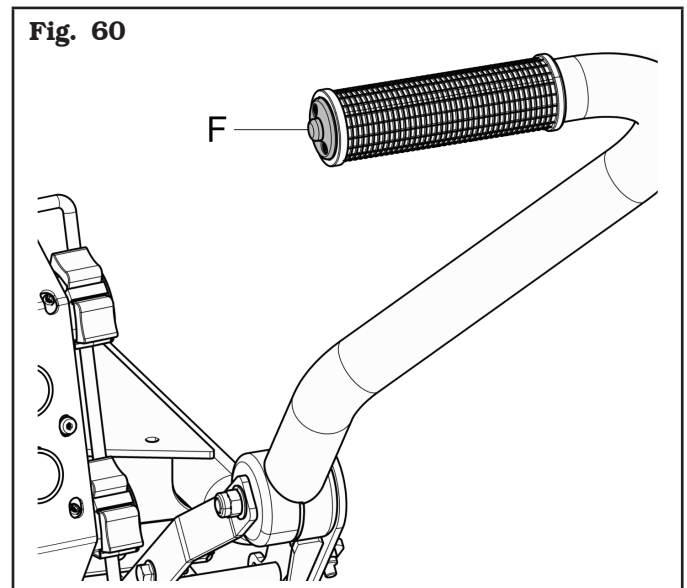
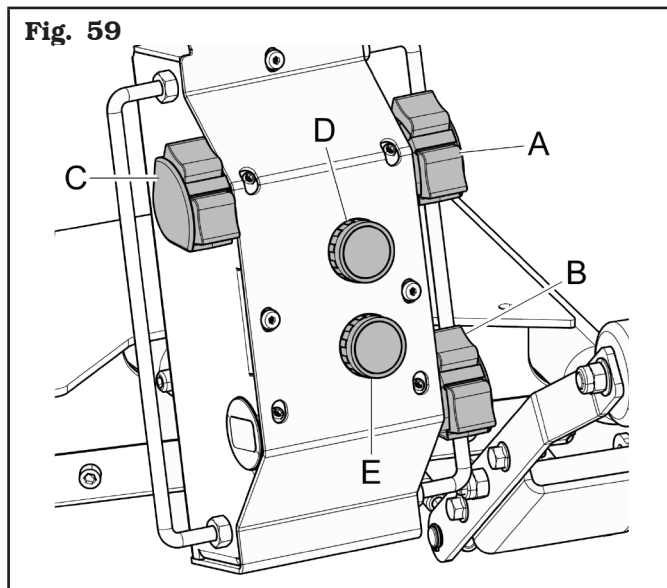


12.10.3 Bead breaking through vertical rollers



THE CONTROL ASSEMBLY MAY VARY ACCORDING TO THE MODEL OF APPLIANCE IN YOUR POSSESSION. BELOW ARE IMAGES AND DESCRIPTIONS OF A CONTROL ASSEMBLY AS AN EXAMPLE. FOR THE CORRECT USE OF YOUR CONTROL ASSEMBLY, REFER TO THE "CONTROLS" CHAPTER OF THE USE AND MAINTENANCE INSTRUCTION BOOKLET SUPPLIED WITH YOUR EQUIPMENT MODEL.

1. Bring the upper bead breaker disc close to the edge of the wheel, by pressing the descent button (**Fig. 59 ref. A**).
2. Adjust the tools according to the diameter of the wheel, by acting on the release button positioned on the control lever (**Fig. 60 ref. F**).



3. Position the valve next to the upper bead breaker disc (**Fig. 61**), start turning the wheel clockwise. Start pressing the bead breaker disc downwards when the valve is at about 3 o'clock, the bead breaker disc will fit between the rim and the wheel and the bead breaking of the tyre will begin, at the end of the operation lift the bead breaker disc.





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. 62; FIG. 63).

Fig. 62



Fig. 63



LIFT THE BEAD BREAKER DISC WHENEVER DURING THE ROTATION OF THE TYRE THE VALVE REACHES THE BEAD BREAKER DISC ITSELF. FAILURE TO COMPLY WITH THIS RULE COULD CAUSE THE TPMS SENSOR TO BREAK.

Applies to manual mode



AS THE BEAD BREAKER DISC REACHES THE RIM EDGE, OPERATE THE PUSH BUTTON FOR CAM MANUAL MOVEMENT (Fig. 59 ref. D). THE BEAD BREAKER DISC WILL FIT BETWEEN THE RIM AND THE WHEEL AND THE BEAD BREAKING OF THE TYRE WILL BEGIN, AT THE END OF THE OPERATION LIFT THE BEAD BREAKER DISC.



LIFT THE BEAD BREAKER DISC WHENEVER DURING THE ROTATION OF THE TYRE, THE VALVE REACHES THE BEAD BREAKER DISC ITSELF. FAILURE TO COMPLY WITH THIS RULE COULD CAUSE THE TPMS SENSOR TO BREAK.

4. Continue clockwise rotation of the wheel and at the same time press the lower bead breaker arm up button (Fig. 59 ref. B). Place the bead breaker disc on the tyre (Fig. 64) and start pushing, greasing the whole bead of the tyre abundantly (Fig. 65), the bead breaker disc will fit between the rim and the wheel and the bead breaking of the tyre will begin. At the end of the operation, lower the bead breaker disc.



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



DURING BEAD-BREAKING OF THE LOWER PART OF THE TYRE, IT IS NOT NECESSARY TO CHECK THE POSITION OF THE VALVE.

Applies to manual mode



AS THE BEAD BREAKER DISC REACHES THE RIM EDGE, OPERATE THE PUSH BUTTON FOR CAM MANUAL MOVEMENT (Fig. 59 ref. E). THE BEAD BREAKER DISC WILL FIT BETWEEN THE RIM AND THE WHEEL AND THE BEAD BREAKING OF THE TYRE WILL BEGIN. AT THE END OF THE OPERATION, LOWER THE BEAD BREAKER DISC.

12.10.4 Disassembly of the tyre

Disassembly operation using the Bead press device.

1. Press the toolhead descent button (**Fig. 59 ref. C**) and place it on the tyre without pushing. At the same time rotate the wheel until the valve is positioned next to the toolhead (**Fig. 66**).



2. Start the rotation of the wheel (without stopping until the toolhead is inserted). When the valve is at about 3 o'clock (**Fig. 67**), press the toolhead descent button (**Fig. 59 ref. C**) and insert it into the tyre (**Fig. 68**).



THE TOOLHEAD MUST BE INSERTED BEFORE THE VALVE PASSES IN FRONT OF THE TOOLHEAD AGAIN.



3. When the valve is at 9 o'clock, slightly lift the tool, straighten it without bringing it to the extraction position, and continue the rotation until the valve is exactly under the toolhead (**Fig. 69**).



Fig. 69

4. Press the up button of the lower bead breaker arm (**Fig. 59 ref. B**) until the bead breaker disc rests on the tyre (**Fig. 70**). Push lightly to reduce the tension on the opposite bead of the tyre and hold it in place.



Fig. 70

5. Finish lifting the toolhead, position the Bead press device at about "6 o'clock" on the tyre (**Fig. 71**).



IF NECESSARY, USE THE BEAD PRESS DEVICE TO PUSH THE TYRE BEAD INTO THE RIM DROP CENTRE.



Fig. 71

6. Insert the bead protection tool together with the foils between the tyre bead and the rim and lock the protection tool with your hand. Press the rotation pedal and remove the first bead of the tyre (**Fig. 72**).



- 7. Press the appropriate push button (**Fig. 59 ref. C**). Lift the toolhead and remove it from the tyre.
- 8. Place the valve next to the bead breaker disc, manually push the tyre on the bead breaker disc (**Fig. 73**), and using the appropriate button (**Fig. 59 ref. B**), lift the lower bead breaker disc.



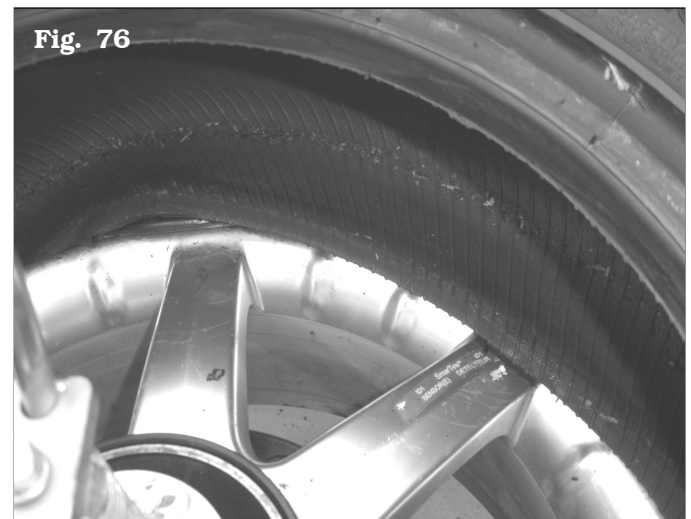
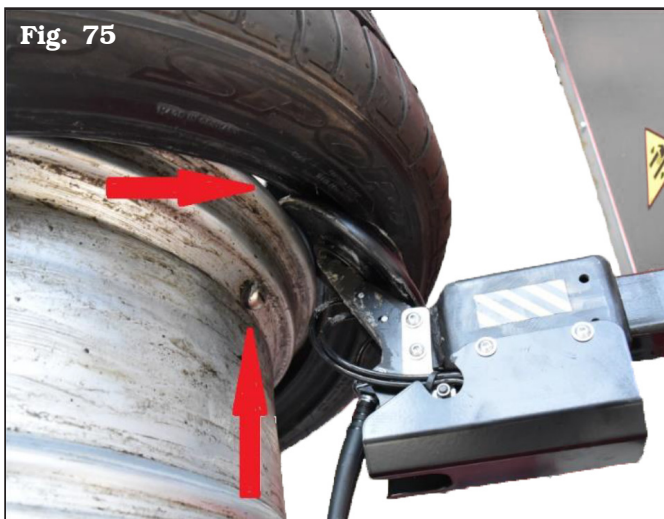
Applies to manual mode

When the bead breaker disc has passed the edge of the rim , press the advance button of the lower bead breaker disc cam (**Fig. 59 ref. E**) (**Fig. 74**).



THE POSITION OF THE VALVE IN CORRESPONDENCE WITH THE BEAD BREAKER DISC IS TO AVOID BREAKAGE OF THE TPMS SENSOR (SEE FIG. 75). USING THE CORRECT PROCEDURE, THE TPMS VALVE FINDS ITSELF OUTSIDE THE TYRE.

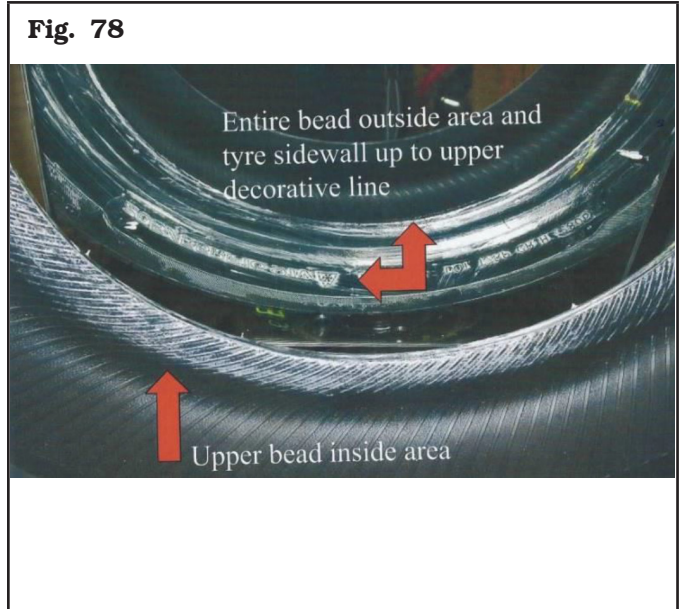
9. Press the rotation pedal, and rotate the wheel until the tyre is completely extracted.



12.10.5 Mounting of the tyre

Assembly operation using the Bead press device.

1. Generously grease the rim, taking care to keep the valve clean and not greased (**Fig. 77**).
2. Generously grease the tyre, both the lower part of the bead and the external part of the same, up to the tyre tread, and at least 3 cm (1.18") per side inside the tyre (**Fig. 78**).



3. Position the valve at about 7 o'clock, lay the tyre on the rim, press the appropriate push button (**Fig. 59 ref. C**) to position the toolhead on the rim (**Fig. 79**), insert the tyre in the mounting position on the toolhead and press the rotation pedal until the first bead is inserted.



RUN FLAT OR UHP TYRES HAVE A PARTICULARLY RIGID PROFILE AND THE BEAD BREAKER DISC CAN ALSO BE USED TO INSERT THE FIRST BEAD (FIG. 80). IN THIS CASE, ALWAYS POSITION THE VALVE AT 7 O'CLOCK, FIT THE TYRE ON THE RIM (SEE FIG. 80) AND USING THE APPROPRIATE BUTTON (FIG. 59 REF. A) LOWER THE BEAD BREAKER DISC UNTIL IT TOUCHES THE TYRE. PUSH SLIGHTLY AND PRESS THE ROTATION PEDAL. THE RIGIDITY OF THE TYRE WILL ALLOW THE INSERTION OF THE FIRST BEAD.





FOR EQUIPMENT EQUIPPED WITH THE FOURTH TOOL, TO INSERT THE FIRST BEAD, FOLLOW THE PROCEDURE DESCRIBED IN POINT 3.

4. Pressing the rotation pedal, place the valve at approximately 3 o'clock. Using the appropriate push button (**Fig. 59 ref. C**), place the toolhead on the edge of the rim.
5. Acting on the appropriate button (**Fig. 59 ref. A**), use the bead breaker disc to push the tyre bead under the rim edge (**Fig. 81**).

Fig. 81



6. Insert the bead press device exactly next to the valve (**Fig. 82**). Fit the plastic protection on the edge of the rim next to the bead press device as shown in **Fig. 83**.

Fig. 82



Fig. 83



IN ORDER NOT TO DAMAGE THE TPMS VALVE, IT IS IMPORTANT THAT THE DISTANCE BETWEEN THE TRACTION POINT (CONTACT POINT OF TYRE BEAD ON THE RIM) AND THE VALVE, IS ALWAYS BETWEEN 10 cm (3.94") AND 15 cm (5.91") BEFORE THE VALVE. TO OBTAIN THIS RESULT, ALWAYS INSERT BEAD PRESS DEVICE NEXT TO THE VALVE.

7. While pressing the rotation pedal, slowly bring the bead press and the plastic guard to 6 o'clock position (Fig. 84). Insert the bead press device at 3 o'clock (Fig. 85), and slowly finish the tyre mounting operation (Fig. 86).



8. At the end of the operation remove all the tools used (**Fig. 87**).



Fig. 87

12.10.6 Tyre demounting procedure using the bead pressing extension

1. Follow all the operations previously described in paragraph 3, for the correct preparation and lubrication of the tyre.
2. Press the toolhead descent button (**Fig. 59 ref. C**) and place it on the tyre without pushing. At the same time rotate the wheel until the valve is positioned next to the toolhead (**Fig. 66**).
3. Start the rotation of the wheel (without stopping until the toolhead is inserted). When the valve is at about 3 o'clock (**Fig. 67**), press the toolhead descent button (**Fig. 59 ref. C**) and insert it into the tyre (**Fig. 68**).



THE TOOLHEAD MUST BE INSERTED BEFORE THE VALVE PASSES IN FRONT OF THE TOOLHEAD AGAIN.

4. By turning counterclockwise, position the valve at approximately 4 o'clock (**Fig. 88**).

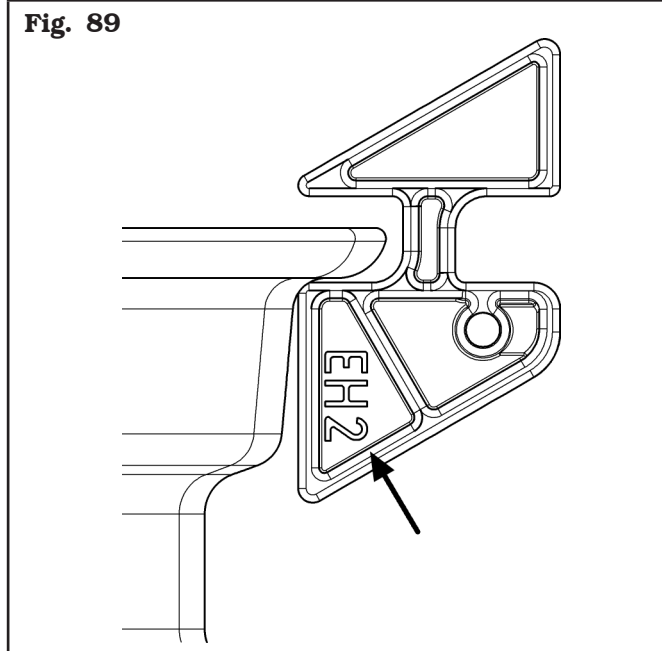


**THE BEAD PRESS EXTENSION IS MADE UP OF TWO WEDGES-INSERTS OF DIFFERENT SIZES (EH, EH2) (FIG. 89). THESE WEDGES, SUITABLY MOUNTED, INSERT THE TYRE BEAD AT TWO DIFFERENT RIM DEPTHS AND IN ANY CASE INSIDE THE DROP CENTRE.
CHOOSING THE CORRECT WEDGE TO BE USED DEPENDS ON THE TYPE OF RIM YOU INTEND TO WORK 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. 89).

Fig. 89



5. Press the rotation pedal and insert all the wedges one at a time.



THE VALVE MUST BE PLACED AT APPROXIMATELY 9 "O'CLOCK " AND IN ANY CASE EXACTLY ON THE OPPOSITE SIDE OF THE WEDGES (FIG. 90).

6. Using the appropriate push button (**Fig. 59 ref. A**) lift the bead breaker disc. Using the appropriate push button (**Fig. 59 ref. C**), slightly lift the toolhead, but without placing it on the edge of the rim. By pressing the rotation pedal, place the valve exactly in front of the toolhead (**Fig. 91**).

Fig. 90



Fig. 91



7. By pressing the up button of the lower bead breaker arm (**Fig. 59 ref. B**) rest the bead breaker disc on the tyre. Push slightly to reduce the tension on the opposite bead of the tyre and hold it in place (**Fig. 92**).
8. Finish lifting the toolhead. Insert the bead protection tool together with the bead sliding foils between the tyre bead and the rim (**Fig. 93**).



9. Lock the protection tool with your hand (**Fig. 94**). Press the rotation pedal remove the first bead of the tyre.



10. By pressing the rotation pedal, place the valve next to the bead breaker disc. Manually push the tyre on the bead breaker disc (**Fig. 95**), and using the appropriate button (**Fig. 59 ref. B**), lift the lower bead breaker disc.



Applies to manual mode

When the bead breaker disc has passed the edge of the rim, press the advance button of the bead breaker disc cam (**Fig. 59 ref. E**).



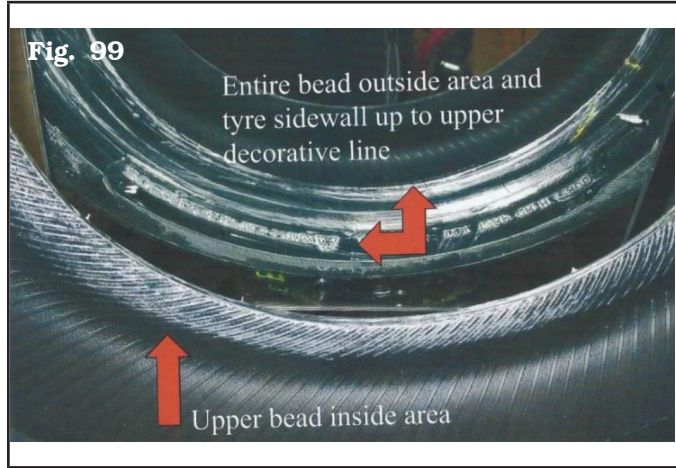
THE POSITION OF THE VALVE NEXT TO THE BEAD BREAKER DISC SERVES TO AVOID BREAKAGE OF THE TPMS, AS SHOWN IN FIG. 96 AND FIG. 97 USING THE CORRECT PROCEDURE, THE TPMS VALVE IS FOUND OUTSIDE THE TYRE.

11. Press the rotation pedal, rotate the wheel until the tyre is completely extracted.



12.10.7 Fitting of the first bead using the bead pressing extension

1. Generously grease the rim, taking care to keep the valve clean and not greased (**Fig. 98**).
2. Generously grease the tyre, both the lower part of the bead and the external part of the same, up to the tyre tread, and at least 3 cm (1.18") per side inside the tyre (**Fig. 99**).



3. Position the valve at 7 o'clock, lay the tyre on the rim, press the appropriate push button (**Fig. 59 ref. C**) to position the toolhead on the rim (**Fig. 100**), insert the tyre in the mounting position on the toolhead and press the rotation pedal until the first bead is inserted.



RUN FLAT OR UHP TYRES HAVE A PARTICULARLY RIGID PROFILE AND THE BEAD BREAKER DISC CAN ALSO BE USED TO INSERT THE FIRST BEAD (FIG. 101). IN THIS CASE, ALWAYS POSITION THE VALVE AT 7 O'CLOCK, FIT THE TYRE ON THE RIM (SEE FIG. 101) AND USING THE APPROPRIATE BUTTON (FIG. 59 REF. A) LOWER THE BEAD BREAKER DISC UNTIL IT TOUCHES THE TYRE. PUSH SLIGHTLY AND PRESS THE ROTATION PEDAL. THE RIGIDITY OF THE TYRE WILL ALLOW THE INSERTION OF THE FIRST BEAD.



4. By pressing the rotation pedal, position the valve at about 3 o'clock, using the appropriate button (**Fig. 59 ref. C**), place the toolhead on the edge of the rim.
5. Acting on the appropriate button (**Fig. 59 ref. A**), use the bead breaker disc to push the tyre bead under the rim edge.
6. Insert the bead press device exactly next to the valve. Fit the plastic protection on the edge of the rim next to the bead press device as shown in **Fig. 83**.

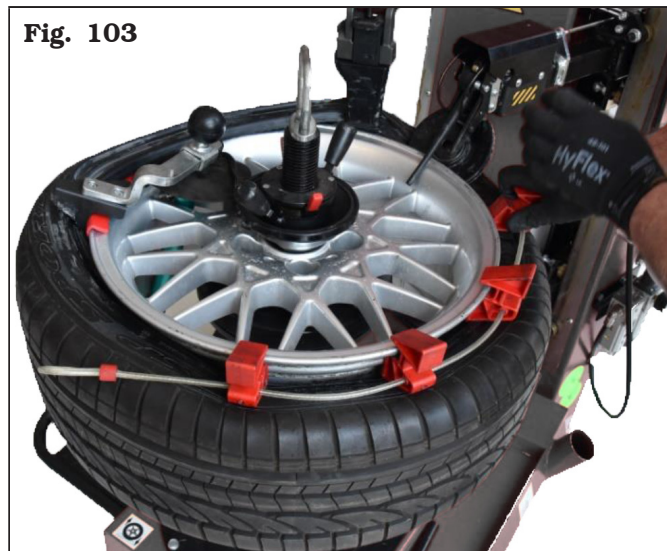


IN ORDER NOT TO DAMAGE THE TPMS VALVE, IT IS IMPORTANT THAT THE DISTANCE BETWEEN THE TRACTION POINT (CONTACT POINT OF TYRE BEAD ON THE RIM) AND THE VALVE, IS ALWAYS BETWEEN 10 cm (3.94") AND 15 cm (5.91") BEFORE THE VALVE, TO OBTAIN THIS RESULT, ALWAYS INSERT BEAD PRESS NEXT TO THE VALVE.

7. While pressing the rotation pedal, slowly bring the bead press and the plastic guard to about 5 o'clock. Using the appropriate button (**Fig. 59 ref. A**), lower the upper bead breaker roller on the tyre sidewall to create the correct space for inserting the wedges of the "bead pressing extension" accessory (**Fig. 102**).



8. Using the correct size according to the type of rim (EH, EH2), insert the first wedge, and slowly pressing the rotation pedal, insert all the others in sequence. Slowly continue the rotation until the tyre is completely assembled (**Fig. 103**)
9. At the end of the operation, remove the bead pressing extension and all the tools used.



TO FACILITATE THE OPERATION, LEAVE THE UPPER BEAD BREAKER DISC IN POSITION ON THE TYRE, AND LIFTING THE ROTATION PEDAL, ROTATE THE WHEEL COUNTERCLOCKWISE. THE WEDGES OF THE BEAD PRESS EXTENSION AND THE BEAD PRESSING DEVICE CAN BE REMOVED EFFORTLESSLY AT THE BEAD BREAKER DISC.

12.10.8 Wheel inflation

The inflation of a wheel must always take place without the inner core of the valve (**Fig. 52**). Inflate the tyre following the safety procedures and inflation instructions given by the tyre manufacturer.



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.

13.0 ROUTINE MAINTENANCE



BEFORE CARRYING OUT ANY ROUTINE MAINTENANCE PROCEDURE, DISCONNECT THE EQUIPMENT FROM ITS POWER SUPPLY SOURCES, TAKING SPECIAL CARE OF THE ELECTRICAL PLUG/SOCKET CONNECTION.

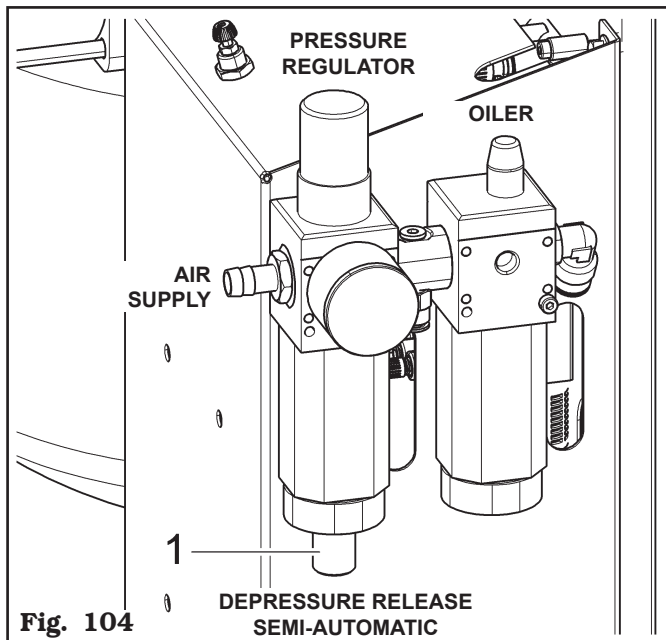
To guarantee the efficiency and correct functioning of the equipment, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below.

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

- Disconnect the equipment from the electrical and pneumatic power supplies before carrying out any cleaning operations.
- 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. 104**).
- Periodically check the calibration of lubricator of pressure/oiler gauge assembly:



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. 104 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.

- 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 REMOVING THE CUP OF THE LUBRICATOR FILTER.

- The use of synthetic oil might damage the pressure regulator filter.
- Periodically, at least monthly, lubricate the horizontal sliding arms of the bead breaker rollers and the toolhead.
- Periodically, at least monthly, lubricate the vertical sliding crosspieces of the arms of the bead breaker rollers and of the toolhead.

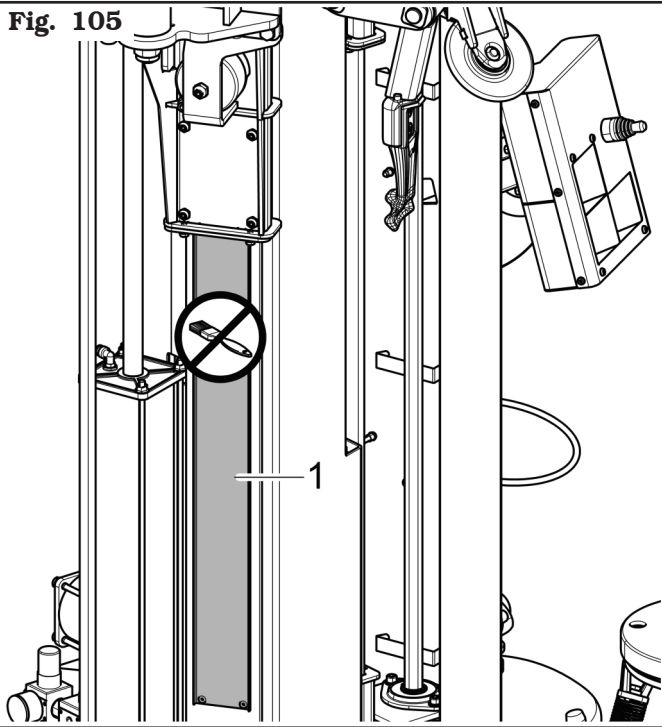


WHEN LUBRICATING THE VERTICAL SLIDING CROSSPIECE OF THE TOOL ARM, BE CAREFUL NOT TO LUBRICATE THE ALUMINIUM PROFILE HIGHLIGHTED IN GREY (Fig. 105 ref. 1).



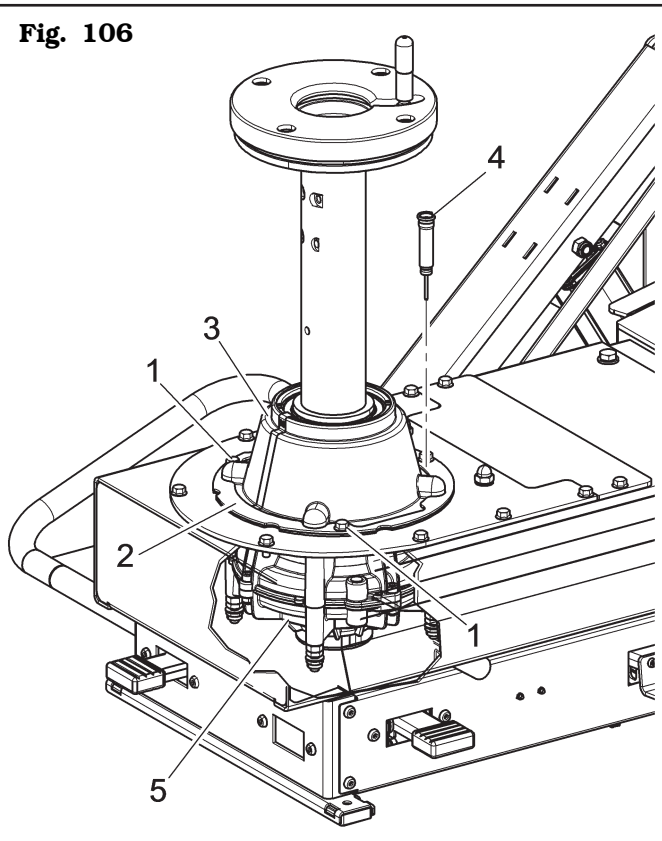
IF, BY MISTAKE, THE ALUMINIUM PROFILE HIGHLIGHTED IN GREY IS LUBRICATED (Fig. 105 ref. 1), CORRECT OPERATION OF THE EQUIPMENT COULD BE COMPROMISED.

Fig. 105



- Periodically, at least monthly, clean the bead breaker rollers and tool arm synchronization chains.
- Periodically (at least every 100 working hours) check the oil level in the reduction gear (**Fig. 106 ref. 5**). Such operation must be performed by removing the bolts (**Fig. 106 ref. 1**), removing the flange (**Fig. 106 ref. 2**), the guard (**Fig. 106 ref. 3**) and the plug (**Fig. 106 ref. 4**) on the reduction gear.

Fig. 106



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!!

13.1 Rim arm calibration

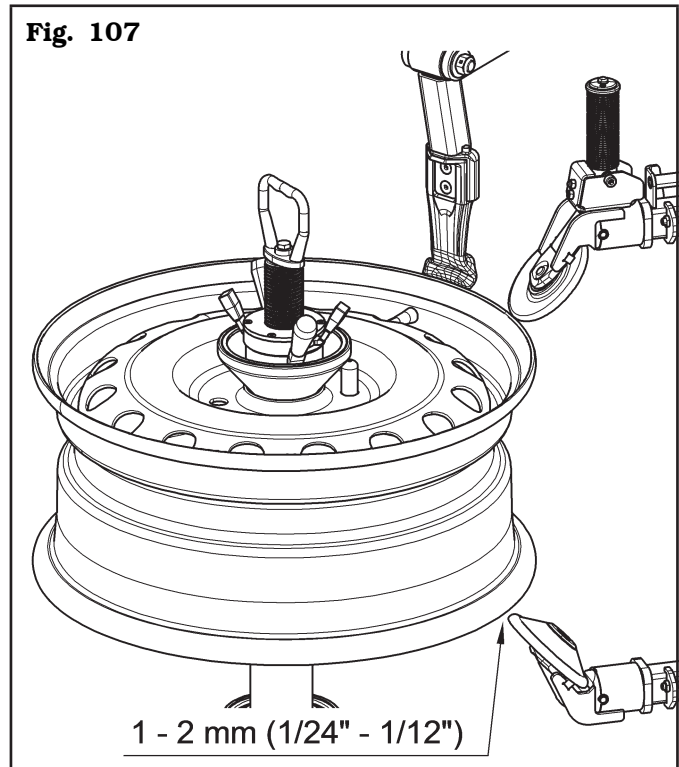
Make sure that the bead rollers and the toolhead take place correctly in comparison to the rim, as described hereafter:

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. 107**;
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. 107**.

Fig. 107



14.0 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	<ol style="list-style-type: none"> 1. Power supply missed. 2. The control push button is broken. 	<ol style="list-style-type: none"> 1. Connect the power supply. 2. Call for technical assistance. 
The nozzle doesn't supply air when the inflation pedal is pressed (version with tubeless only).	The inflation pedal is badly adjusted.	Call for technical assistance. 
The chuck doesn't rotate.	Inverter overload alarm <i>Or</i> Inverter undervoltage alarm <i>Or</i> 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 does not rotate in counter-clockwise direction.	Pedalboard microswitch breakage.	Replace microswitch.
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.	<ol style="list-style-type: none"> 1. Keep the pedal to rest position. 2. Keep the equipment connected to the net. 3. Wait for 30 seconds that the pedalboard recalibration automatic attempt ends.

Problem	Possible cause	Remedy
By pressing the release button, the horizontal arms of the bead breaking rollers and the toolhead do not move or move with difficulty.	<ol style="list-style-type: none"> 1. Horizontal movement guides blocked. 2. Micro handle not working. 3. movement servo control cylinder blocked. 4. The movement servo control cylinder is leaking air. 	<ol style="list-style-type: none"> 1. Clean the guides and lubricate them. 2. Call for technical assistance. 3. Call for technical assistance. 4. Call for technical assistance. 
The tool holder carriage moves vertically during machining operations.	<ol style="list-style-type: none"> 1. The locking cylinder is leaking air. 2. The vertical clamping aluminium plate was inadvertently lubricated. 	<ol style="list-style-type: none"> 1. Call for technical assistance. 2. Clean the aluminium plate from any residual lubricant. 
The horizontal movement arms move horizontally during machining operations.	The locking cylinders are leaking air.	Call for technical assistance. 
BEAD PRESS DEVICE		
No movement is generated when the control lever is operated.	<ol style="list-style-type: none"> 1. Power supply missed. 2. The supply hoses have not been correctly assembled. 3. The control valve is not working. 	<ol style="list-style-type: none"> 1. Check power supply. 2. Check hoses fitting. 3. Call for technical assistance. 
When the control lever is operated movement arises in one direction only.	The control valve is not working.	Call for technical assistance. 
LATERAL LIFTING DEVICE (standard on one model)		
No movement is produced when the control pedal is operated.	<ol style="list-style-type: none"> 1. Supply missing or insufficient. 2. The supply hoses have not been correctly assembled. 3. The control valve is not working. 	<ol style="list-style-type: none"> 1. Check power supply. 2. Check hoses fitting. 3. Call for technical assistance. 
When the equipment is aired, the lifting device tends to move, with no consent by the operator.	When the lifting device is fixed to the equipment, the spool that connects the pedal to the valve has lost its settings.	Re-calibrate the control valve rod slackening the nut between the rod and the fork and turn the rod in cw or ccw direction until restoring the correct functioning.

15.0 TECHNICAL DATA

15.1 Technical electrical data

Motor power (kW)	0.75 (1 Hp)	
Inverter motor power (kW)	1.5 (2 Hp)	
Power supply	Voltage (V)	200/265
	Number of phases	1
	Frequency (Hz)	50/60
Typical current draw (A)	10	
Chuck rotation speed (rev/min)	0 - 15	

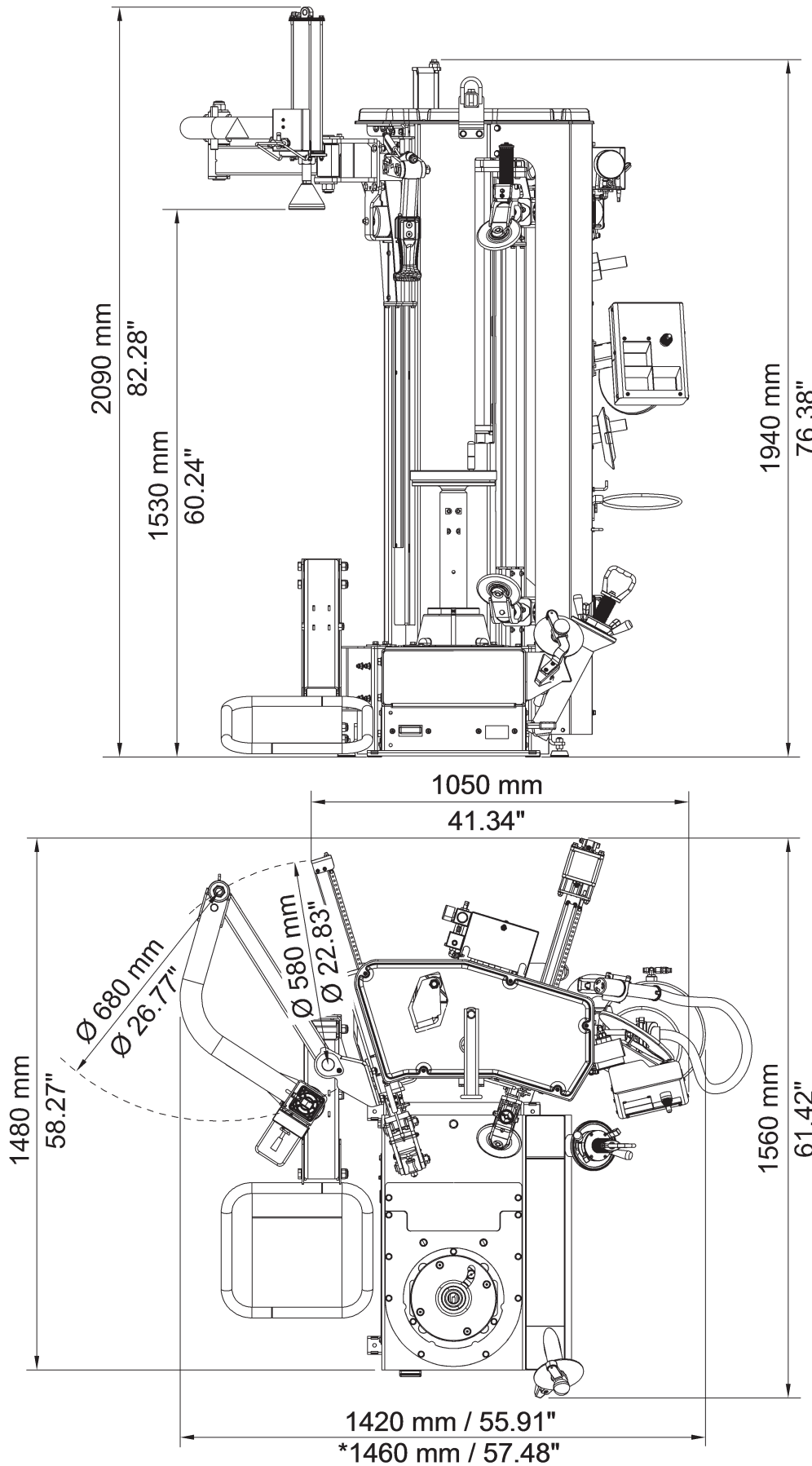
15.2 Technical mechanical data

Tyre max. diameter (mm)	1194 (47")
Rim diameter (inches)	10 - 30
Wheel max. width (inches)	15
Bead-breaking force at 10 bar (145 psi) (N)	12000 (2700 lbs)
Operating pressure (bar)	8 - 10 (116 - 145 psi)

	RAV. G1190.200853	RAV. G1190.200822	RAV. G1190.200808 RAV. G1190.200587	SPA. GA590.205988
Weight (kg)	402 (886 lbs)	411 (906 lbs)	440 (970 lbs)	411 (906 lbs)

15.3 Dimensions

Fig. 108



* for version with tubeless inflation only

16.0 STORING

If storing for long periods (6 months or longer) 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. Also provide for a check on the perfect functioning of the equipment.

17.0 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. 109



18.0 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.



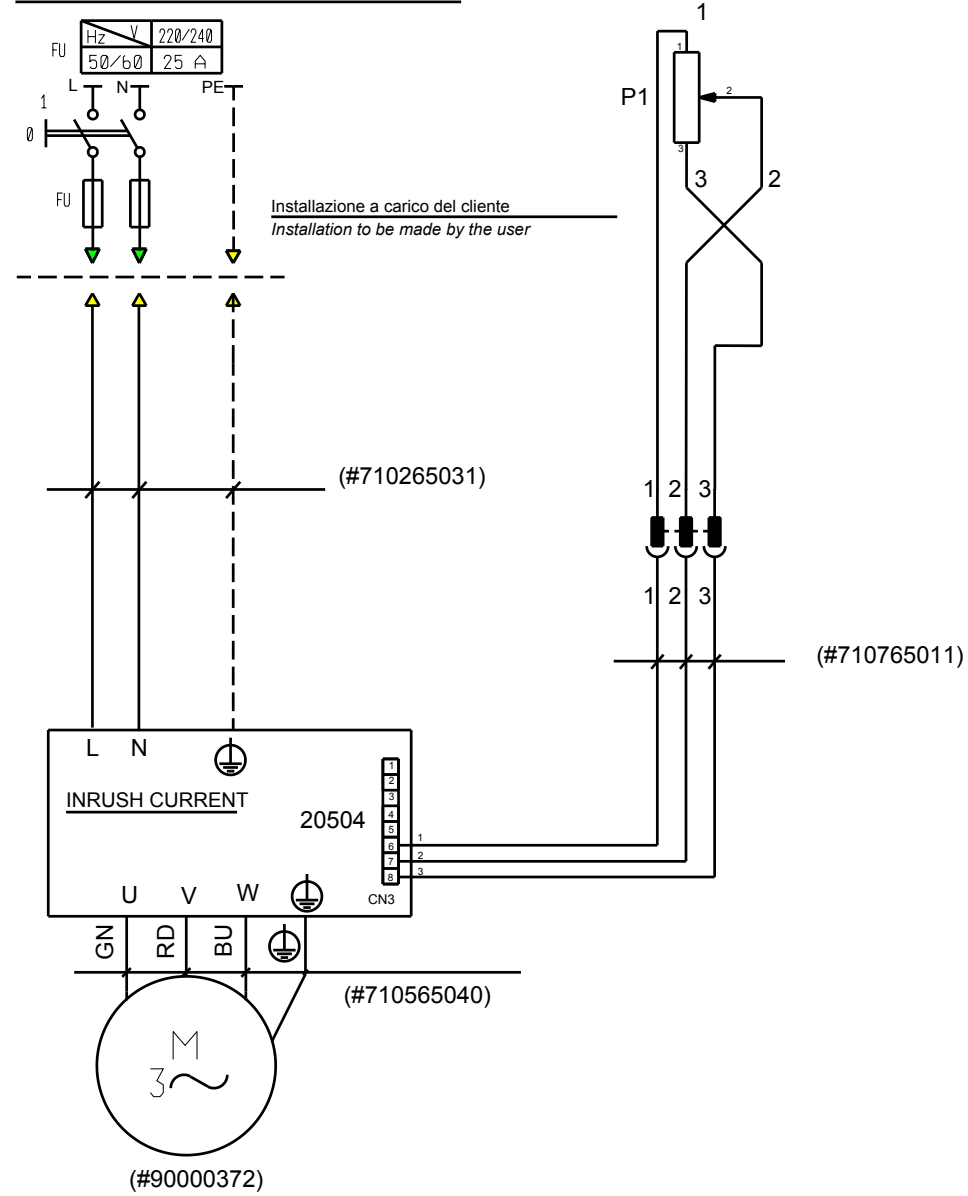
ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

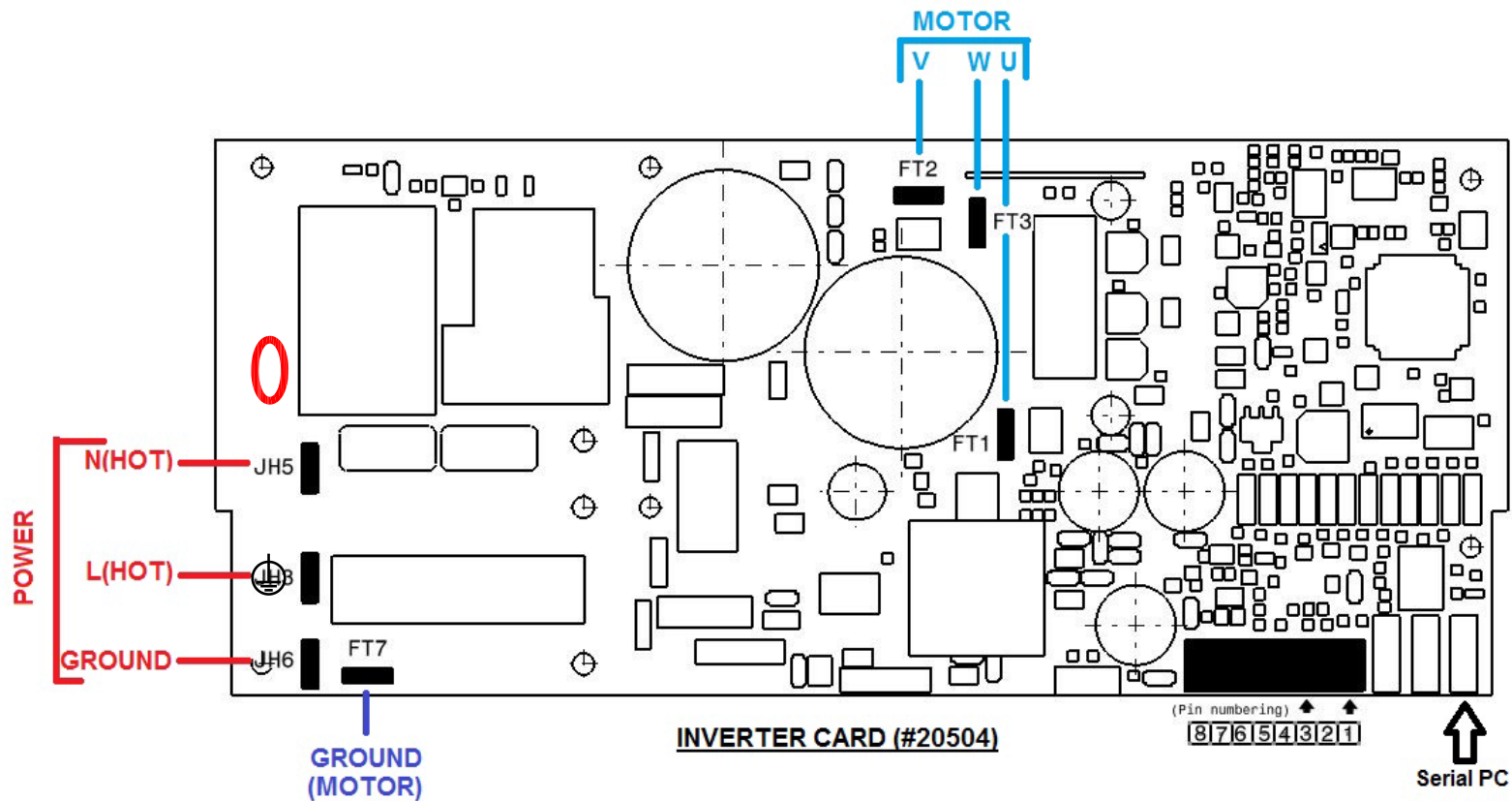
WARNING: Should the plate be accidentally damaged (removed from the equipment, damaged or even partially illegible) inform immediately the manufacturer.

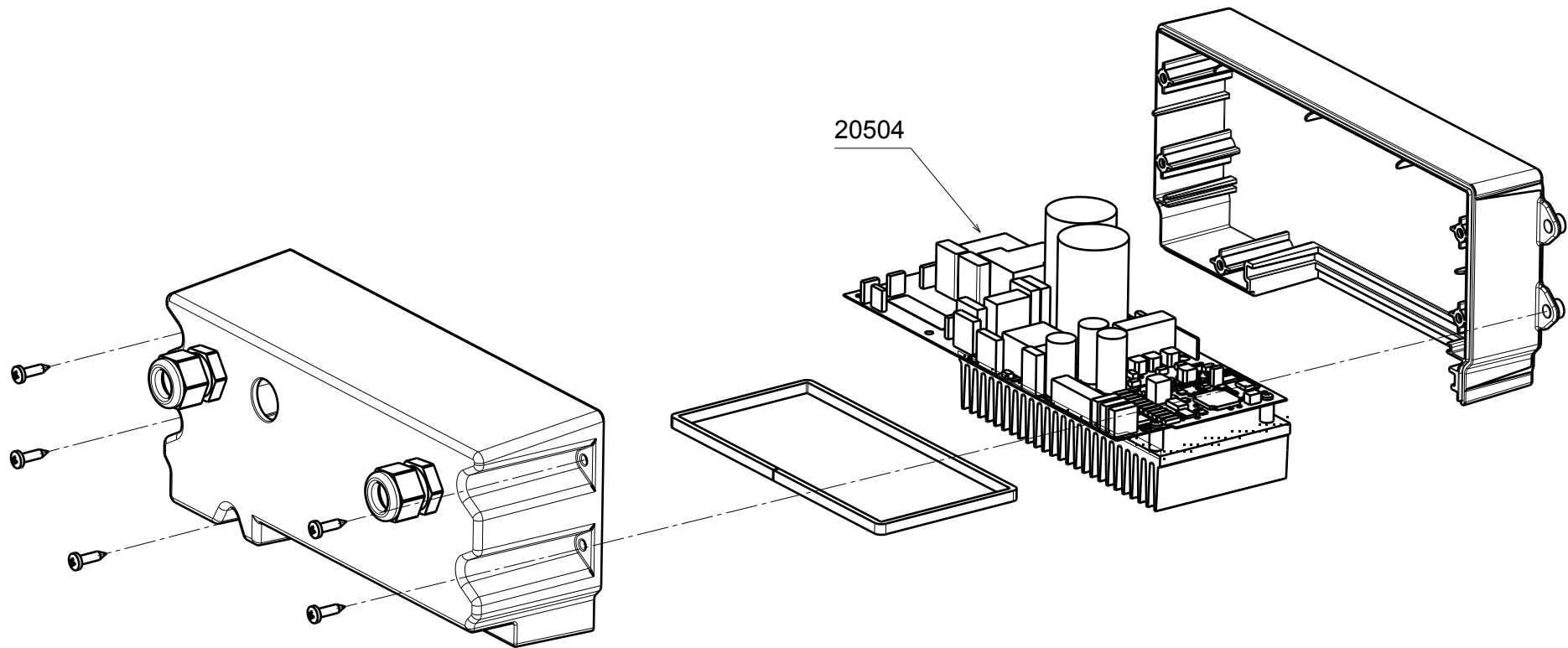
19.0 FUNCTIONAL DIAGRAMS

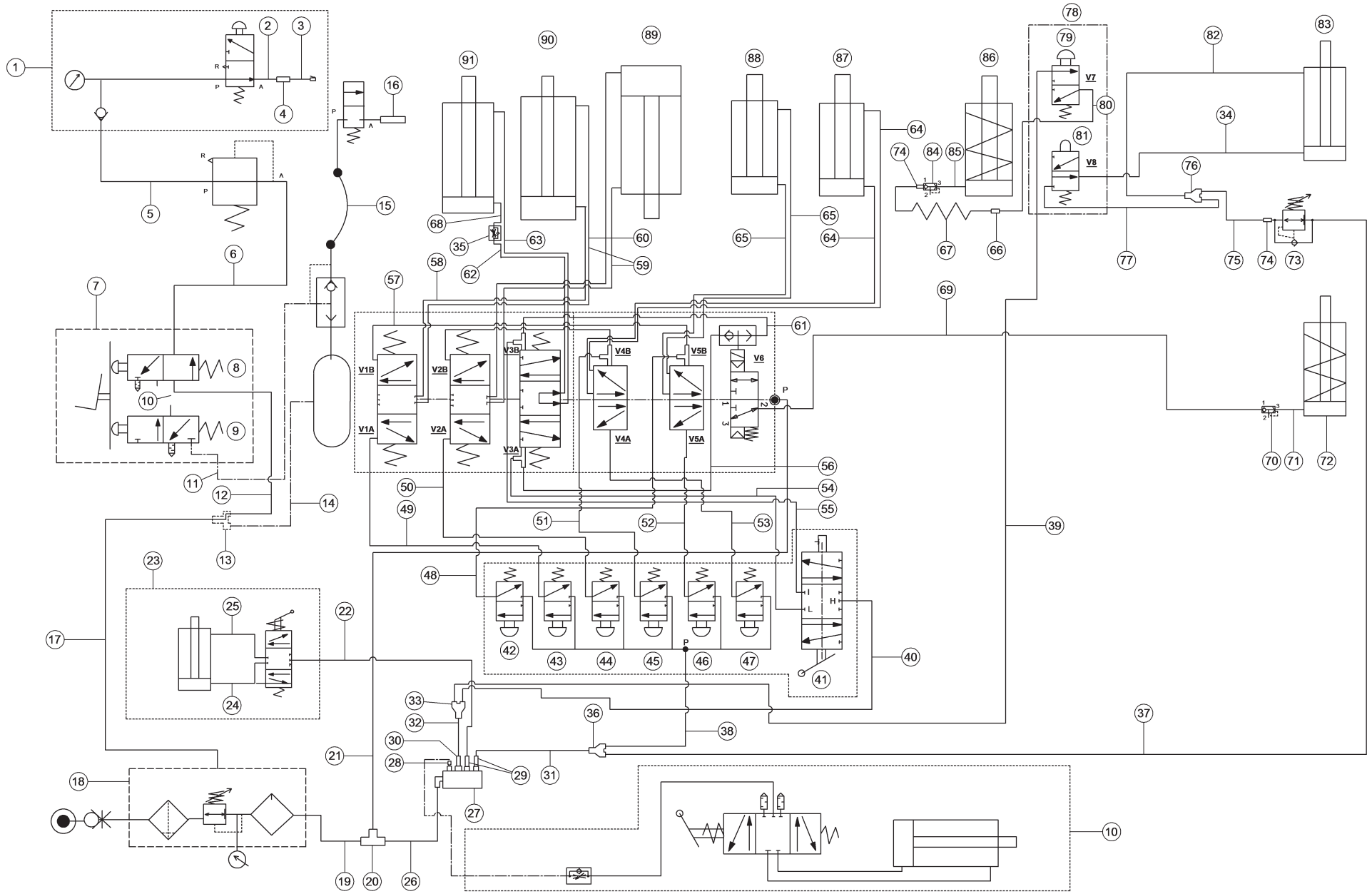
Here follows a list of the equipment functional diagrams.

MONOFASE CAVO ALIMENTAZIONE 2P+TERRA x bmmq
 SUPPLY CABLE MONOPHASE 2P+GROUND x bmmq











LIST OF COMPONENTS

PNEUMATIC DIAGRAM

Drawing N°B - Rev. 0

710505151

TYRE-CHANGER SERIES
G1190.30 and GA590.30

No.	Cod.	Description
1		Inflation assembly with pressure gauge
2	317008	8x6 red rilsan hose L=1250
3	B1600000	Inflation device
4	325204	Straight fixed fitting 1/4"
5	317008	8x6 red rilsan hose L=2350
6	317009	8x6 blue rilsan hose L=450
7		Inflation pedal valve
8		N.O. black
9		N.C. white
10	G1000A99NP	Lateral lifting device (standard on one model)
11	317007	8x6 black rilsan hose L=1200
12	317009	8x6 blue rilsan hose L=250
13	325181	Y8-fitting
14	317009	8x6 blue rilsan hose L=690
15	790090810	Caulked pipe
16		Inflation nozzle.
17	317009	8x6 blue rilsan hose L=1200
18		Pressure reducer filter assembly
19	317010	10x8 black rilsan hose L=670
20	325226	Intermediate fitting T D.10
21	317010	10x8 black rilsan hose L=310
22	317006	6x4 black rilsan hose L=4700
23		Plus cylinder
24	317006	6x4 black rilsan hose L=350
25	317006	6x4 black rilsan hose L=200
26	317010	10x8 black rilsan hose L=175
27	710090770	Air distribution frame
28	325151	Plug
29	325054	8-6 reduction
30	325193	Adapt. fitting 4/8
31	317006	6x4 black rilsan hose L=160
32	317026	4x2.7 black rilsan hose L=60
33	B5815000	V D.4 fitting
34	317041	4x2.7 silver rilsan hose L=1080
35	399284	Flow regulator
36	325191	Pneumatic fitting Y-6
37	317006	6x4 black rilsan hose L=500
38	317006	6x4 black rilsan hose L=2000
39	317026	4x2.7 black rilsan hose L=2920
40	317026	4x2.7 black rilsan hose L=2050



LIST OF COMPONENTS

PNEUMATIC DIAGRAM

Drawing N°B - Rev. 0

710505151

TYRE-CHANGER SERIES
G1190.30 and GA590.30

No.	Cod.	Description
41		Tool joystick
42		Upper bead breaker rise
43		Upper bead breaker descent
44		Lower bead breaker rise
45		Lower bead breaker descent
46		Upper cam
47		Lower cam
48	BMP90000	4x2.7 yellow rilsan hose L=2100
49	317027	4x2.7 red rilsan hose L=1830
50	317028	4x2.7 green rilsan hose L=1850
51	317029	4x2.7 white rilsan hose L=2050
52	317040	4x2.7 dark blue rilsan hose L=2100
53	317039	4x2.7 blue rilsan hose L=2050
54	317041	4x2.7 silver rilsan hose L=2000
55	317042	4x2.7 orange rilsan hose L=2000
56	317042	4x2.7 orange rilsan hose L=270
57	BMP90000	4x2.7 yellow rilsan hose L=310
58	317007	6x4 black rilsan hose L=500
59	317007	8x6 black rilsan hose L=1180
60	317007	8x6 black rilsan hose L=2150
61	317041	4x2.7 silver rilsan hose L=270
62	317007	8x6 black rilsan hose L=340
63	317007	8x6 black rilsan hose L=1350
64	317006	6x4 black rilsan hose L=2020
65	317006	6x4 black rilsan hose L=2150
66	B9451000	D.4 straight intermediate fitting
67	710520530	Spiral 4x2 L=50
68	317007	8x6 black rilsan hose L=60
69	317006	6x4 black rilsan hose L=2420
70	B4077600	Quick exhaust valve
71	317006	6x4 black rilsan hose L=90
72		Tool carriage brake cylinder
73		Pressure regulator
74	325214	Straight intermediate fitting
75	317029	4x2.7 white rilsan hose L=2300
76	B5815000	V D.4 fitting
77	317029	4x2.7 white rilsan hose L=1030
78		Arms translation handle
79		Translation brake release button
80	317026	4x2.7 black rilsan hose L=775

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 CO9 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