7108-M014-01

TYRE-CHANGER SERIES
KARACTER.TLX

INSTRUCTION MANUAL
Applicable to the following models
ROT.KARTL.201683
ROT.KARTL.201690

EN TRANSLATION OF THE ORIGINAL INSTRUCTIONS

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

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

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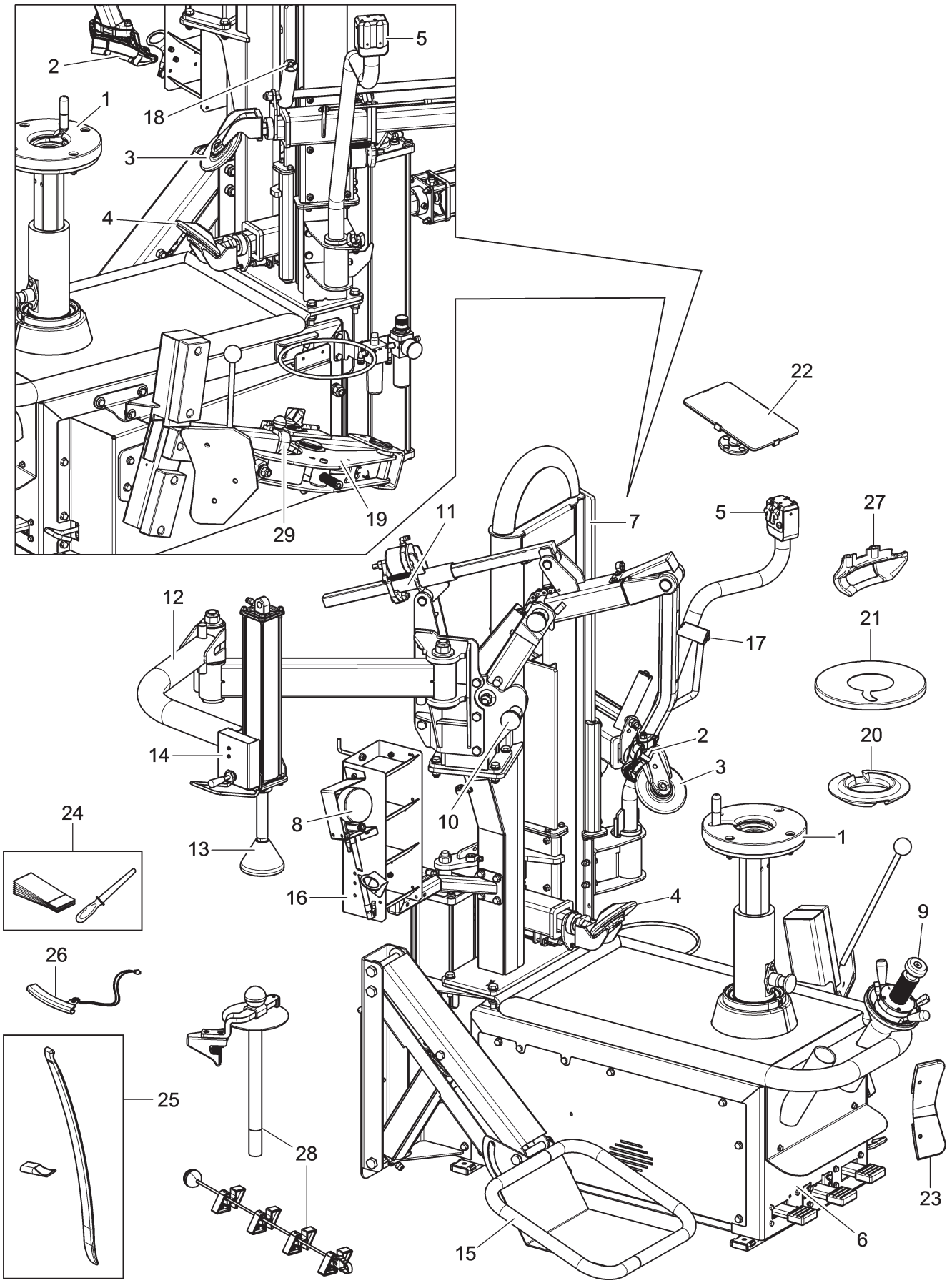
Features / Accessories / Model	ROT.KARTL.201683	ROT.KARTL.201690
Pneumatic beadpusher assembly	●	
Lateral lifting device	●	

● = standard

GENERAL DESCRIPTION

Fig. 1



KEY (**Fig. 1**)

1 - Self-centring chuck
2 - Toolhead
3 - Upper bead breaker roller
4 - Lower bead breaker roller
5 - Control unit
6 - Pedalboard
7 - Column
8 - Inflation pressure gauge
9 - Locking shaft assembly
10 - Arm-lock side control
11 - Tool arm locking device
12 - Bead press device (applies to model with pneumatic beadpusher)
13 - Bead press tool (applies to model with pneumatic beadpusher)
14 - Bead press device control unit (applies to model with pneumatic beadpusher)
15 - Lateral lifting device (standard on one model)
16 - Tool box
17 - Tool arm release push button
18 - Release push button for bead breaker roller horizontal movement
19 - Lateral bead breaker
20 - Two-faced cone
21 - Reverse wheels protection
22 - Mirror with magnetic support
23 - Bead breaker shovel guard
24 - Bead protection kit + 50 bead sliding foils
25 - Bead lifting lever
26 - Bead protector
27 - Rimsled, mobile insert
28 - Beadpusher with puller
29 - Stroke limiter assembly

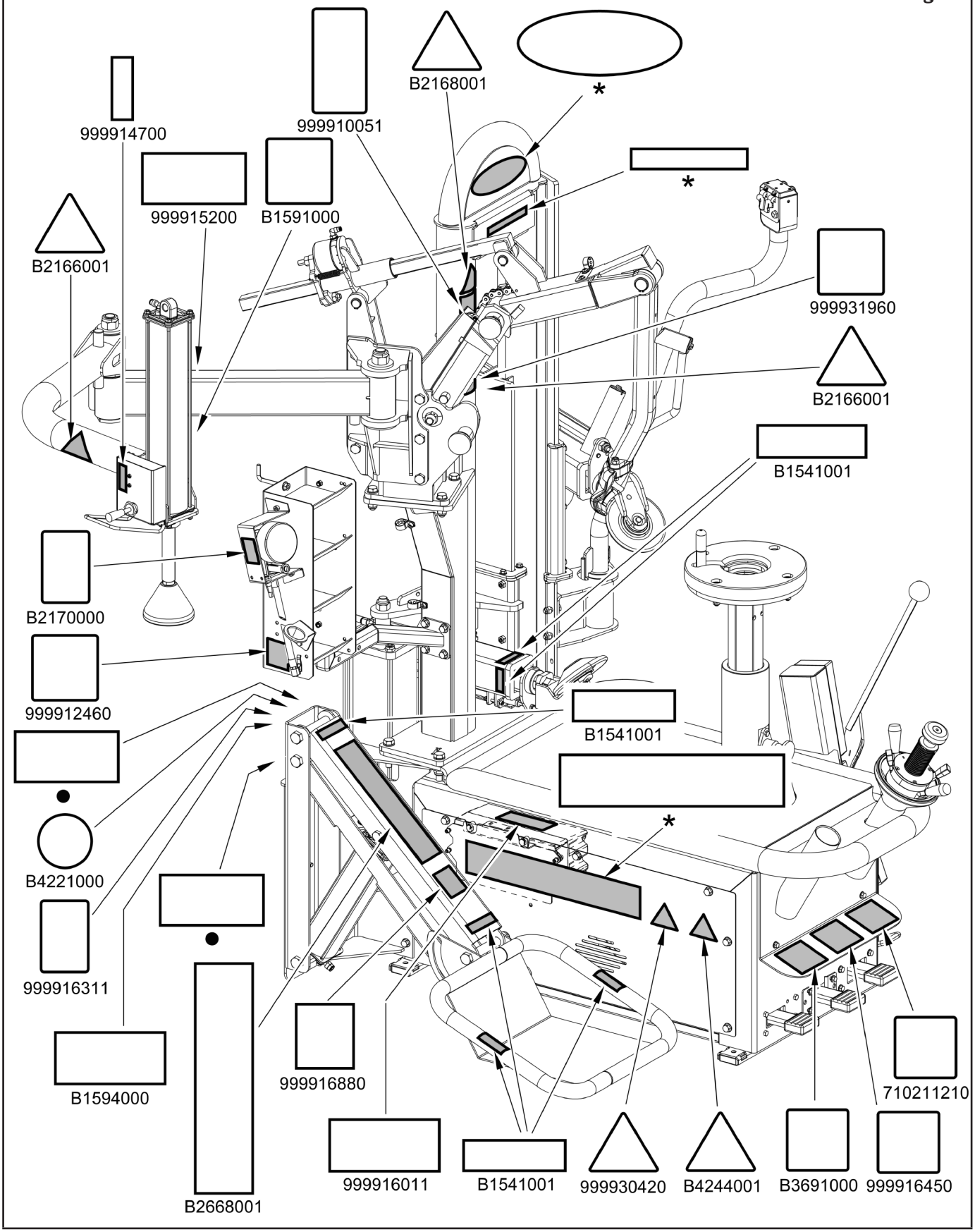
SYMBOLS USED IN THE MANUAL

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	*Danger nameplate*
B1591000	*Red hose indicating nameplate*
B1594000	*Date indicating nameplate*
B2166001	*Bead breaker danger nameplate*
B2168001	*Tyre burst danger indicating nameplate*
B2170000	*Max. inflation pressure rating nameplate*
B2668001	*Wheel lifting device danger nameplate (on model with lateral lifting device only)*
B3691000	*Inflation pedal nameplate*
B4182000	*Electric motor specifications nameplate*
B4221000	*Grounding nameplate*
B4244001	*Rotating parts danger nameplate*
710211210	*Rotation direction nameplate*
999910051	*Protection device use nameplate*
999912460	*Supply pressure indicating nameplate*
999914700	*Bead press device control nameplate (applies to model with pneumatic beadpusher)*
999916011	*Motoinverter nameplate*
999916311	*Rubbish skip nameplate*
999916450	*Lifting device pedal nameplate (on model with lateral lifting device only)*
999916880	*Max. capacity load 80 kg (176 lbs) nameplate (on model with lateral lifting device only)*
999930420	*Electric shock danger nameplate*
999931960	*WDK nameplate*
●	*Serial number nameplate*
✻	*Manufacturer or machine name nameplate*

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

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

1.0 GENERAL INTRODUCTION

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

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

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

1.1 Introduction

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

2.0 INTENDED USE

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

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

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

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

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

2.1 Training of personnel

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

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

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

3.0 SAFETY DEVICES

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

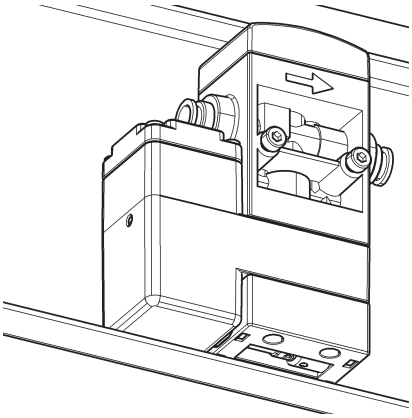
The product is equipped with:

- **anti-tilt protection for the arm.**
  This device prevents the arm from hitting the operator.
- **Hold-to-run-controls** (immediate stop of operation when the control is released) for all drives:
  - self-centring chuck rotation;
  - toolhead movement;
  - bead breaking 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.

- **Motor protection devices.**
  The motor with inverter is equipped with electronic protection devices. They stop the motor to avoid damaging the motor and compromising the operator safety (overvoltage, overload, overtemperature). For other details, see the chapt. 14 “Fault-Finding”.
- **Non-adjustable (balancing valve) pressure relief device.**
  This allows inflation of tyres in reasonable safety. In fact, this limiter does not allow inflation of tyres to over 4.2 ± 0.2 bar (60 ± 3 psi) (see **Fig. 3**).

Fig. 3



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:
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. 6.**
  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.

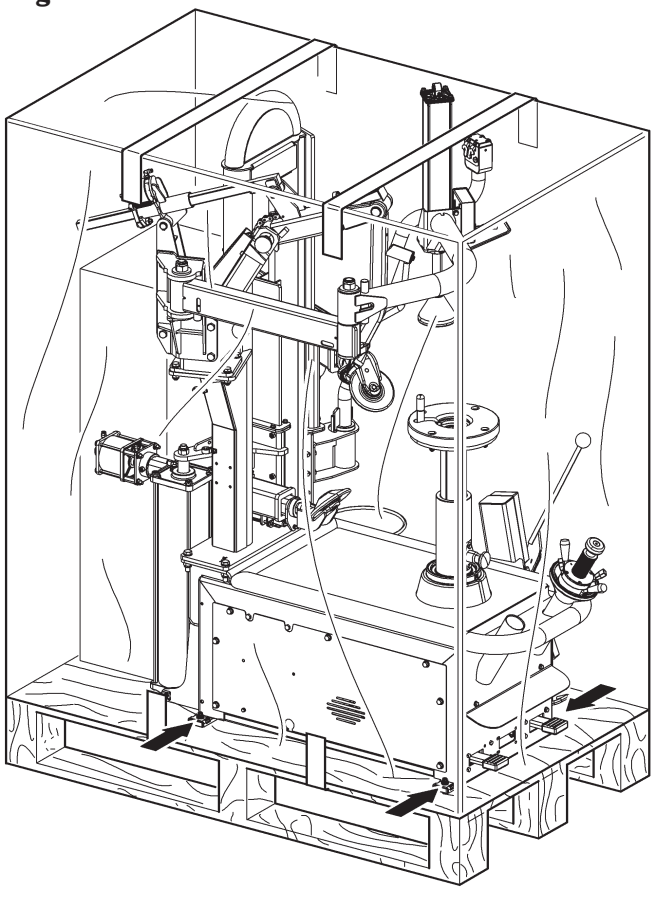
ALWAYS KEEP THE CONTROLS IN THE NEUTRAL POSITION.

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 THE 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, **Fig. 4**.

Fig. 4



6.0 UNPACKING

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

The cardboard box is supported with plastic strapping. Cut the strapping with suitable scissors. Use a small knife to cut along the lateral axis of the box and open it like a fan.
It is also possible to unnail the cardboard box from the pallet it is fixed to. After removing the packing, and in the case of the equipment packed fully assembled, check that the machine is complete and that there is no visible damage.
If in doubt **do not use the equipment** and refer to professionally qualified personnel (to the seller).
The packing (plastic bags, expanded polystyrene, nails, bolts, timber, etc.) should not be left within reach of children since it is potentially dangerous. These materials should be deposited in the relevant collection points if they are pollutants or non biodegradable.

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

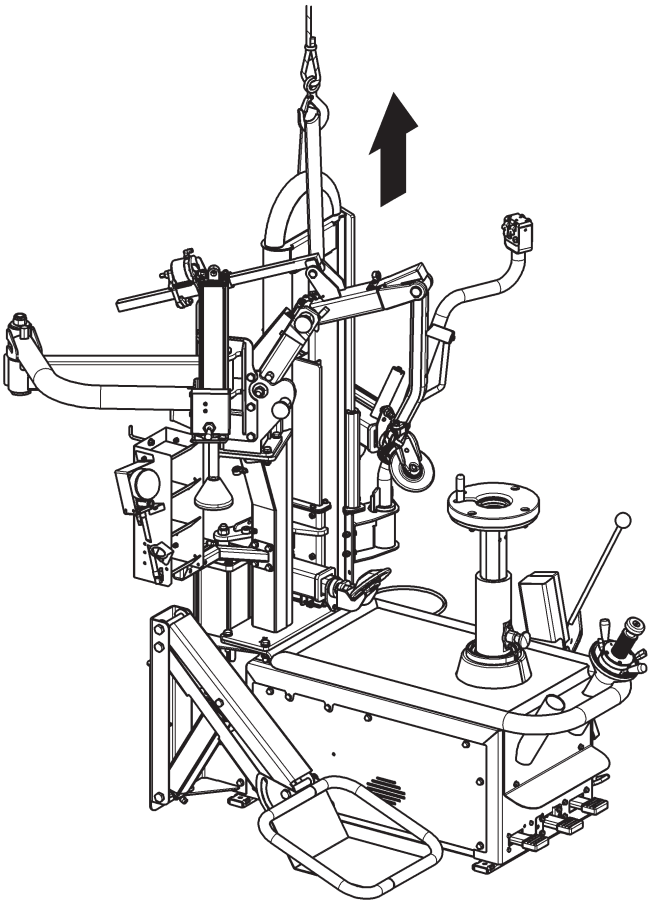
7.0 MOBILIZATION

THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE EQUIPMENT (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). NON FAR ALLOW THE LIFTED EQUIPMENT TO SWING.

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.
- Sling with belts long at least 450 cm (117") and with a capacity load greater than 2500 kg (5512 lbs).

Fig. 5



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).

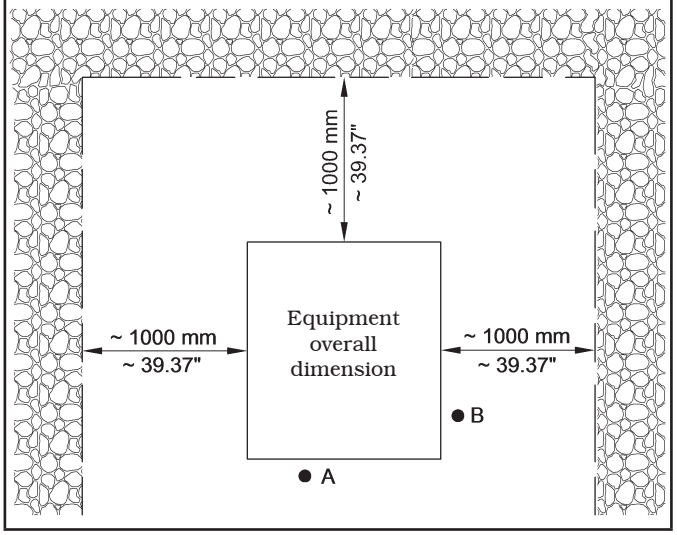
The use of the equipment in ambient conditions other than those specified above is only allowed after prior agreement with and approval of the manufacturer.

8.1 Work position

In **Fig. 6** it is possible to identify work positions **A** and **B**.
Position **A** is the main position for wheel fitting and removal with the self-centring 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

Fig. 6



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

The location of the equipment requires a usable space as indicated in **Fig. 6**. 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.

9.0 ASSEMBLY AND PREPARATION FOR USE

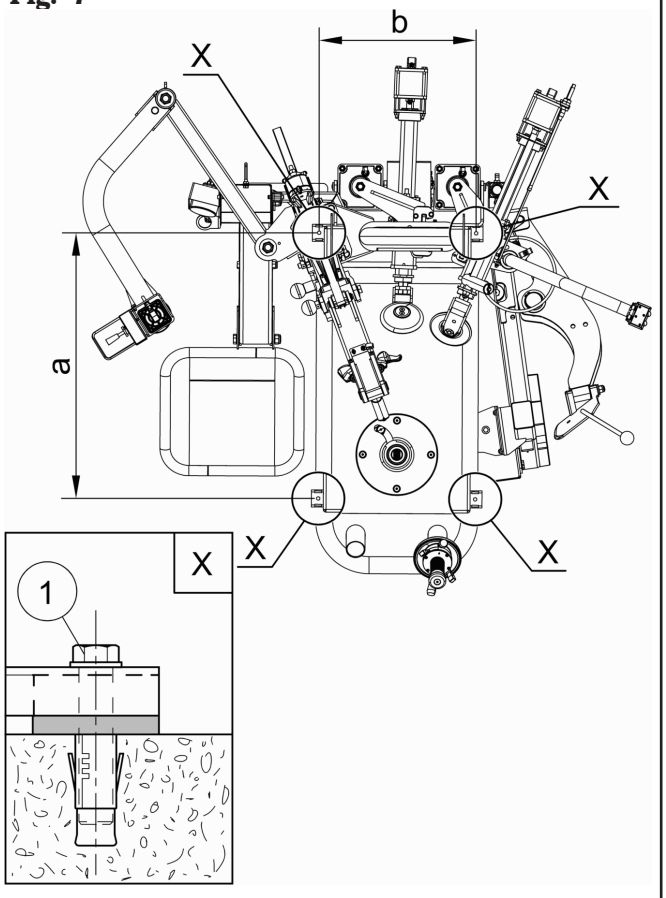
ALL EQUIPMENT ASSEMBLY OR ADJUSTMENTS MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

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. 7**.

Fig. 7



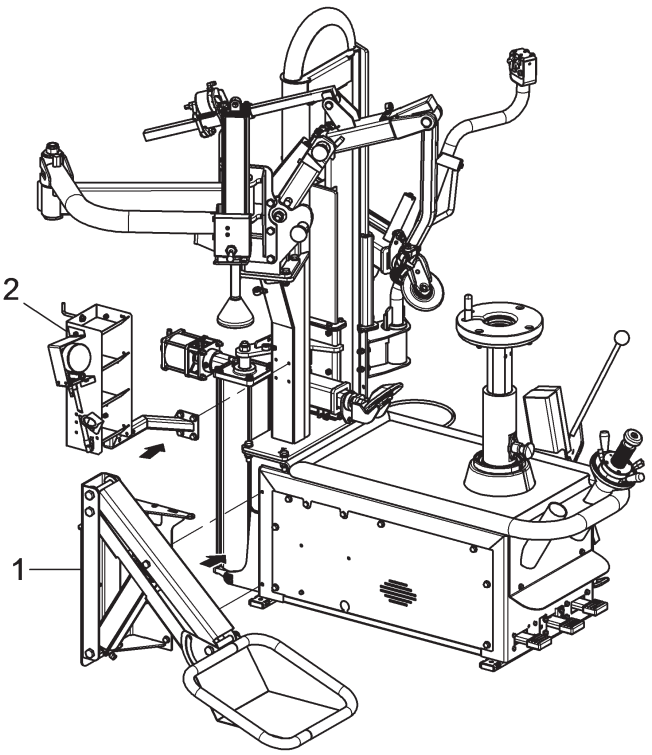
a=780 mm / 30.71”
b=460 mm / 18.11”

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

9.2 Assembly procedures

Assemble the machine with the help of the following illustration.

Fig. 8



KEY
1 – Lateral lifting device (standard on one model)
2 – Tool box

On model with lateral lifting device

1. After placing the tyre-changer in the working place and after making sure it is insulated from its power supply sources, proceed with the fastening of the lifting device;
2. extract the lateral guard (**Fig. 9 ref. 1**) by removing the corresponding bolts (**Fig. 9 ref. 2**);

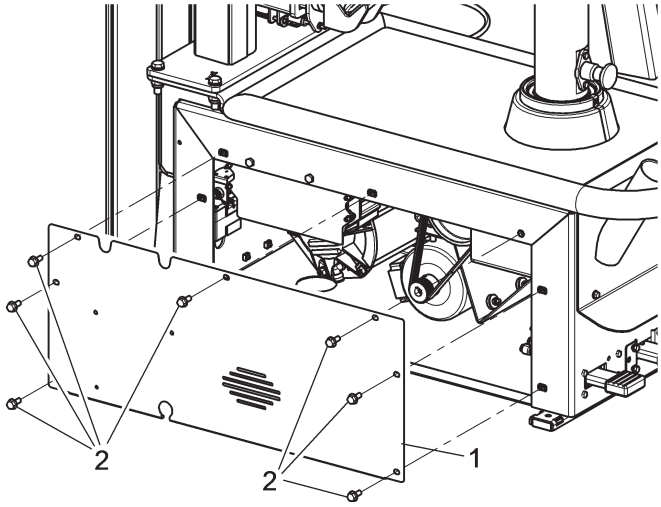
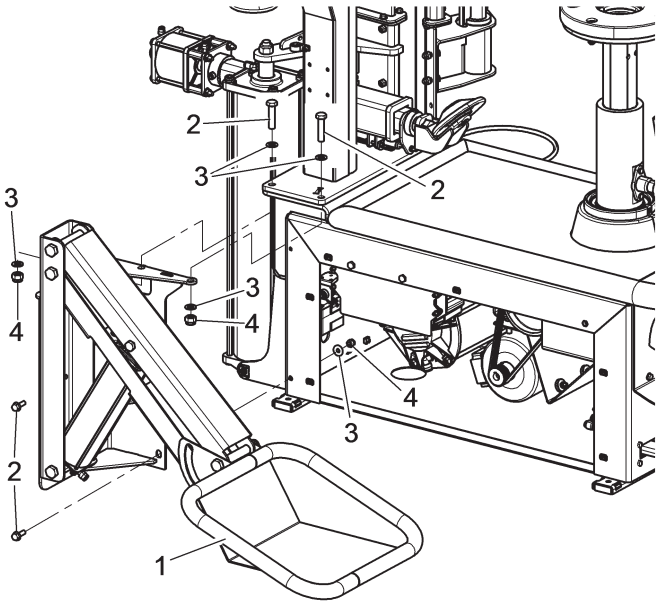


Fig. 9

3. place the lifting device that is assembled next to the equipment on which it will be installed;
4. prepare and arrange near the bolts and the accessories, which are necessary for securing the lifting device to the tyre-changer;
5. secure the lifting device (**Fig. 10 ref. 1**) to the tyre-changer using the bolts (**Fig. 10 ref. 2**), the nuts (**Fig. 10 ref. 3**) and the washers (**Fig. 10 ref. 4**) supplied;

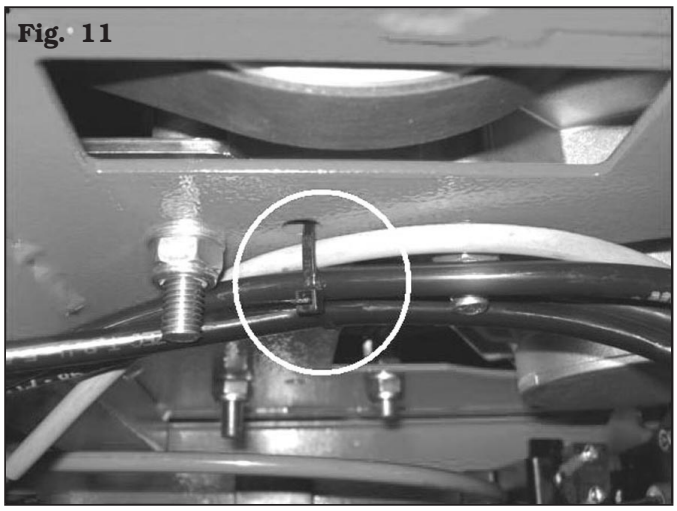
Fig. 10



FASTEN THE HOSES AS SHOWN IN FIG. 11 IN ORDER TO AVOID THAT THEY INTERFERE WITH THE BELT.

6. reassemble the lateral guard (**Fig. 9 ref. 1**) previously removed;

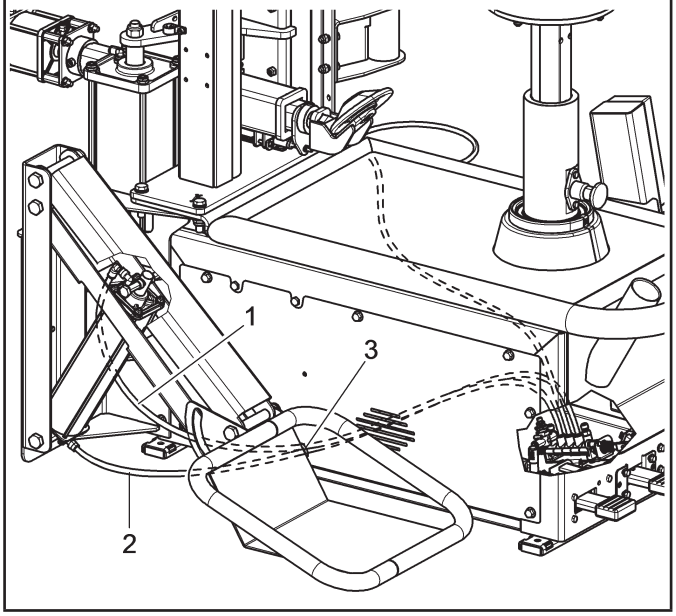
Fig. 11



7. connect the pneumatic hoses (**Fig. 12 ref. 1-2**) coming from the lifting device pedalboard to the lifting cylinder, as shown in **Fig. 12**.

BEFORE CONNECTING THE HOSES (FIG. 12 REF. 1-2) MAKE SURE THEY PASS THROUGH THE HOLE (FIG. 12 REF. 3) PLACED ON THE LATERAL GUARD OF THE TYRE CHANGER.

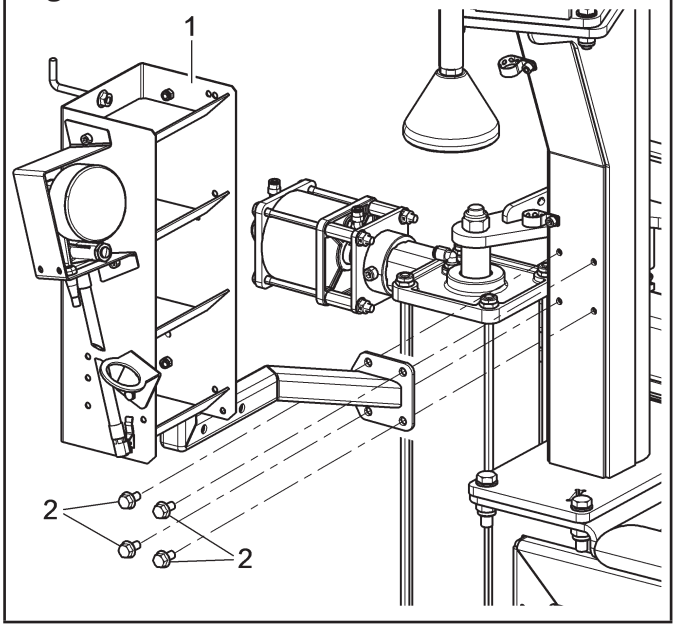
Fig. 12



For all models

8. Fit the tool box (**Fig. 13 ref. 1**) to equipment column, using the 4 special bolts provided (**Fig. 13 ref. 2**).

Fig. 13

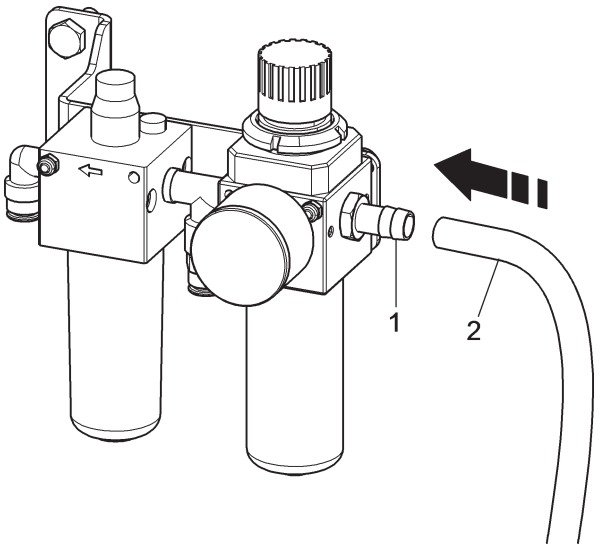


9.3 Connection to the compressed air supply

ANY PNEUMATIC ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF.

Connect the mains pneumatic supply through the fitting (**Fig. 14 ref. 1**) placed on equipment filter assembly. The pressurized hose (**Fig. 14 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. 14**) to have sufficient flow (see **Fig. 14**).

Fig. 14



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.**

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

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

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

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

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

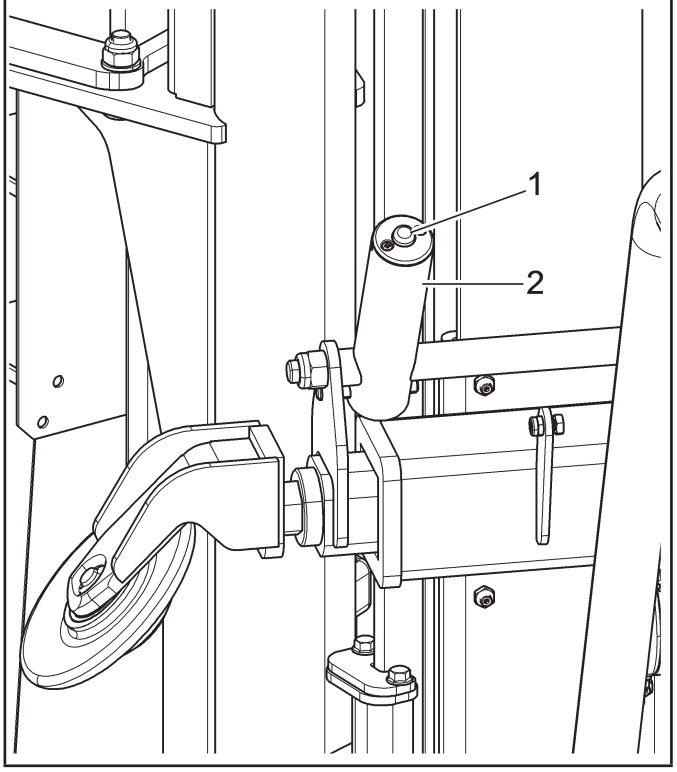
Motor power supply	Conformity standard	Voltage	Amperage	Poles	Minimum IP rating
Power supply 1 Ph, inverter motor	IEC 309	220/240V	16A	2 Poles + Ground	IP 44

11.0 CONTROLS

11.1 Control for bead breaking roller release

This is done completely manually. Press the release push button (**Fig. 15 ref. 1**) then operate the handle (**Fig. 15 ref. 2**), for the manual positioning of the bead breaker rollers on the correct diameter of the wheel fixed onto the self-centring chuck, through a concurrent lever's thrust and return movement. Releasing the push button, the rollers lock into their current position.

Fig. 15



11.2 Bead-breaking control unit

It consists of two levers (**Fig. 16 ref. A**) and of two push buttons (**Fig. 16 ref. B**) with different functions, fit onto a single control block.
The unit can be gripped for moving the bead-breakers and positioning them for operation.
The bead-breaker control unit therefore governs all the movements necessary for a complete bead-breaking operation:

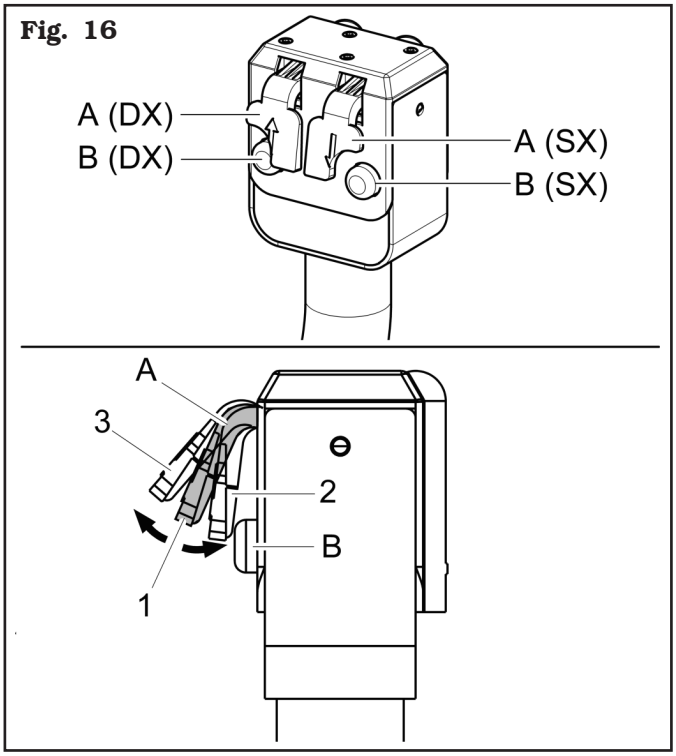
- bead breaker manual vertical shift movement.
- introduction of the bead breaker rollers inside the rim.

The lever and the right push button (RH) control the upper bead breaker roller, vice versa the lever and the left push button (LH) control the lower bead breaker roller.
Each lever has three positions:

- the first one (**Fig. 16 ref. 1**) is rest position, that keeps the bead breaker rollers into their current position.
- the second one (**Fig. 16 ref. 2**) (pressed lever, hold-to-run control) operates upper bead breaker roller descent (RH lever) and/or lower bead breaker roller rise (SH lever).
- the third one (**Fig. 16 ref. 3**) (lever's lifting) operates upper bead breaker roller rise (RH lever) and/or lower bead breaker roller's descent (LH lever) up to the limit switch.

When RH or LH push button (**Fig. 16 ref. B**) is pressed with hold-to-run control, the corresponding cam introduces the bead breaker roller in the rim.

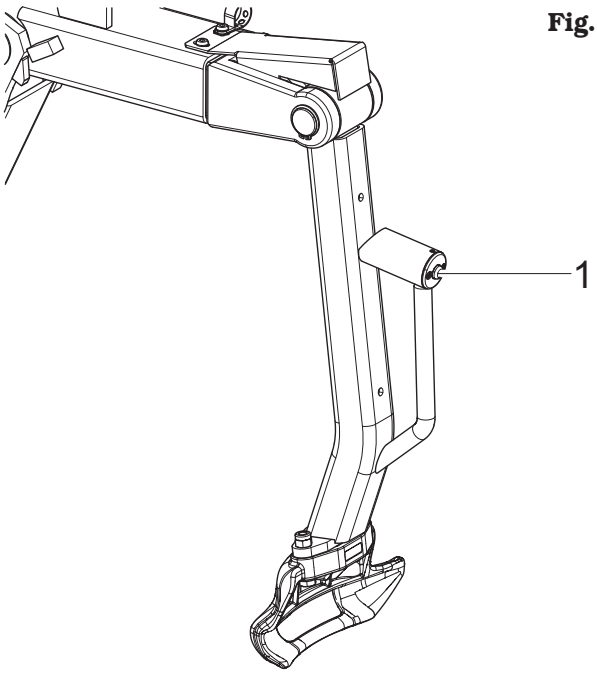
Fig. 16



11.3 Vertical arm control

This is done completely manually. The toolhead is positioned for work.
In order to manually position the tool arm, it's necessary to keep the unlocking push button (**Fig. 17 ref. 1**) pressed, until the operation is completed.

Fig. 17



11.4 Pedalboard

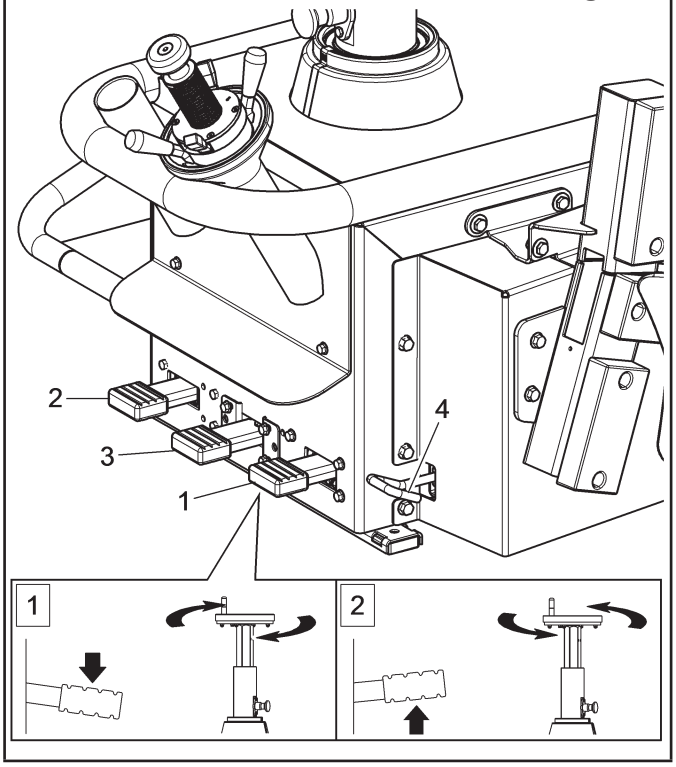
"Pedal 1" has two hold-to-run control operative positions. Pressed down, it controls the self-centring chuck motor clockwise rotary movement. When the pedal is lifted upwards it operates the opposite movement.

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

The inflation **"pedal 2"** 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.

Fig. 18



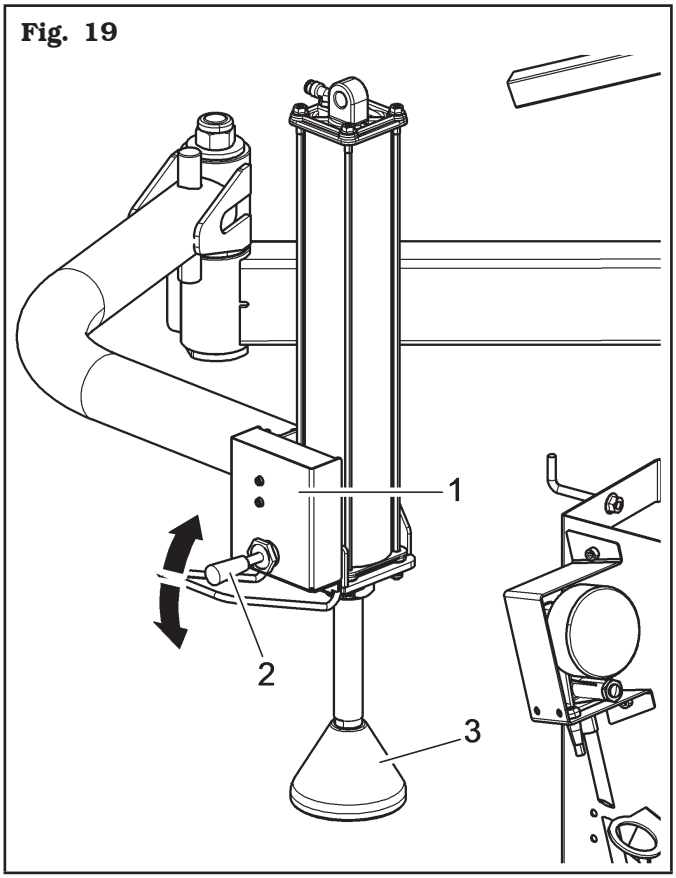
"Pedal 3" (applies to model with lateral lifting device only) has a hold-to-run control position and operates the handling of the wheel lifting device.
Pulling the pedal downwards the lifting device starts its rise while, on the contrary, pulling the pedal upwards the lifting device starts descending.
By releasing the pedal at any time, the lifting device stops.

"Pedal 4" has one hold-to-run control operative position. When pressed down, it operates the bead breaker arm closing. Releasing the pedal, the arm returns to rest position.

11.5 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 bead press tool (**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.

Fig. 19



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

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

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.

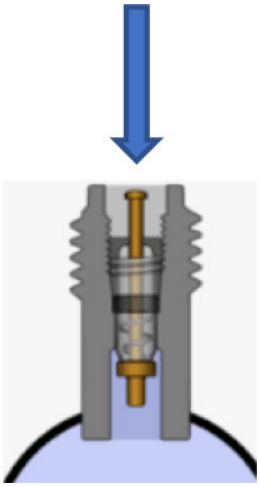
AN INCORRECT POSITIONING OF THE VALVE AT THE BEGINNING OF THE DISASSEMBLY AND/OR ASSEMBLY OPERATIONS OF EACH TYRE BEAD CAN CAUSE THE VALVE TO BE, DURING THESE OPERATIONS, IN OR NEAR AN AREA WHERE THE BEAD HAS FITTED INTO THE RIM DROP CENTRE.
THE BEAD COULD PRESS ON THE PRESSURE SENSOR, LOCATED UNDER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

12.2 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. 22) AND ALLOW THE TYRE TO COMPLETELY DEFLATE.

Fig. 20



- Establish from which side the tyre should be demounted, checking the position of the drop centre.
- Find the rim locking type.
- Identify the type of rim (standard or special) (eg "EH2" or "EH2 +") (see **Fig. 21**), the type of tyre (standard or special) to be removed (eg Run Flat, UHP) and the type of valve fitted (standard or special) (eg. TPMS) (see **Fig. 22**) to improve locking, bead breaking, assembly and disassembly operations.

Fig. 21

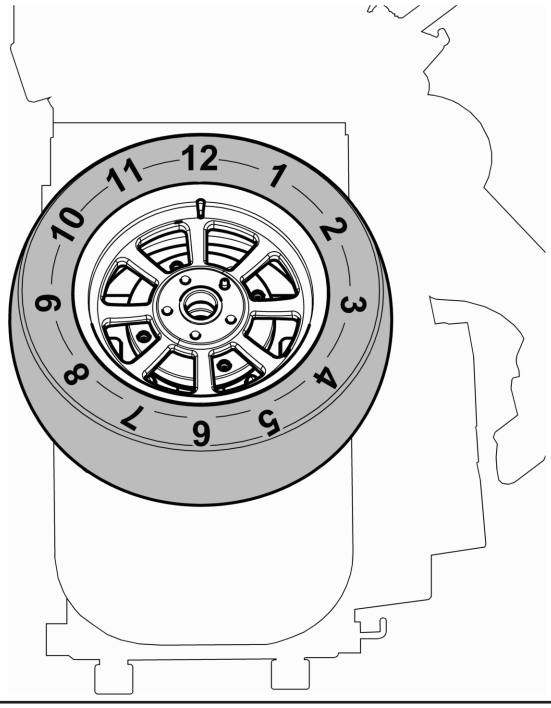
Fig. 22

THE TYRE TEMPERATURE CAN'T BE LOWER THAN 15°C.

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

TO BETTER EXPLAIN THE OPERATIONS, THE POSITIONING OF THE VARIOUS TOOLS ON THE TYRE IS INDICATED BY THE TIME PHASES, WHERE 12 O'CLOCK IS REPRESENTED IN CORRESPONDENCE WITH THE COLUMN OF THE TYRE CHANGER (FIG. 23).

Fig. 23



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

12.3 Use of the lateral 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. 24**), press the lifting device drive pedal (**Fig. 25 ref. 1**) downwards and bring the wheel to a level where it can be shifted to the self-centring chuck by hand (see **Fig. 25**);

Fig. 24

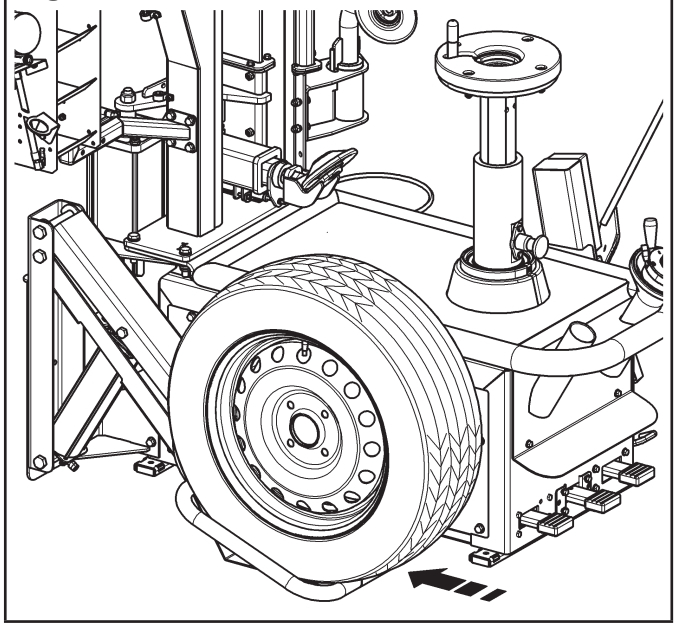
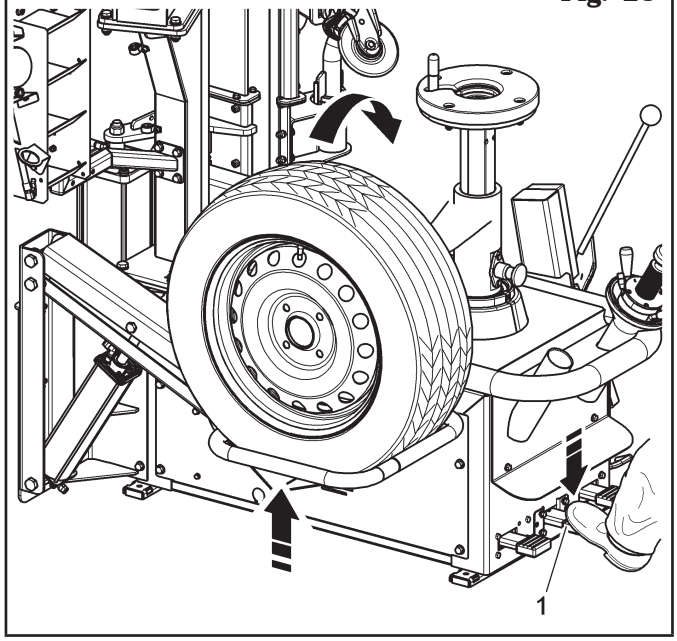
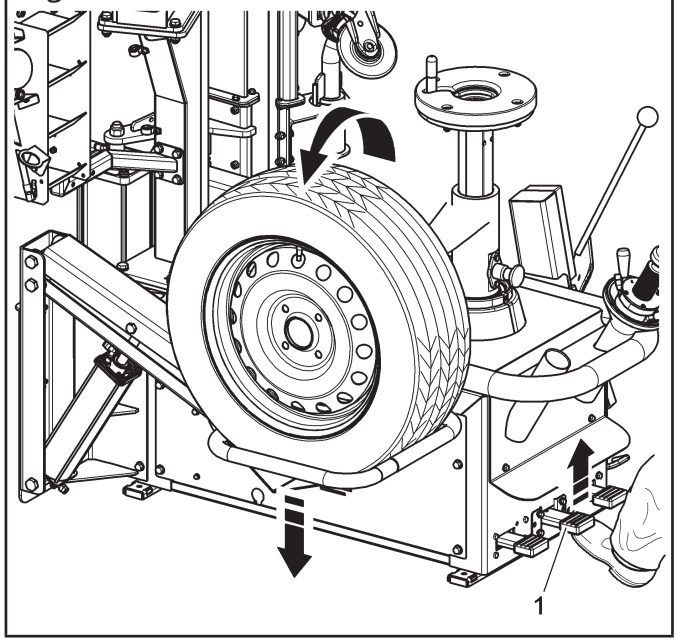


Fig. 25



2. place the wheel on the self-centring chuck and lock it with the locking device;
3. lift the pedal (**Fig. 26 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. 25 ref. 1**).
6. place the wheel on the lifting plate (see **Fig. 26**);
7. move the pedal again (**Fig. 26 ref. 1**) upwards to make the plate lower and bring back the wheel to the ground keeping a hand on it (see **Fig. 26**).

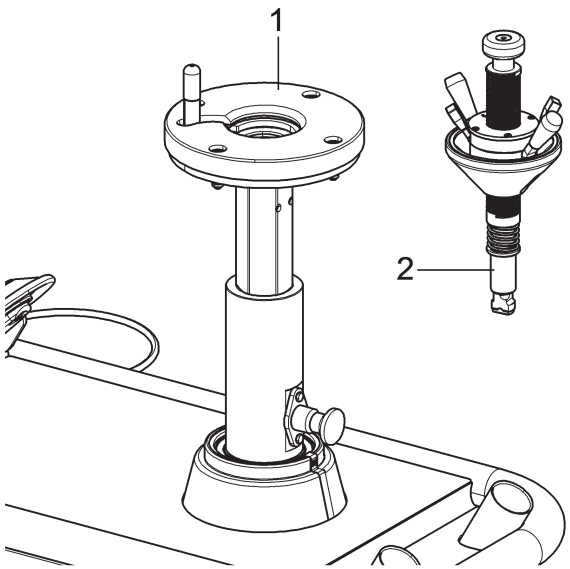
Fig. 26



12.4 Wheel clamping

All wheels must be locked on the rubber plate (**Fig. 27 ref. 1**) through the central hole using the proper locking device (**Fig. 27 ref. 2**).

Fig. 27

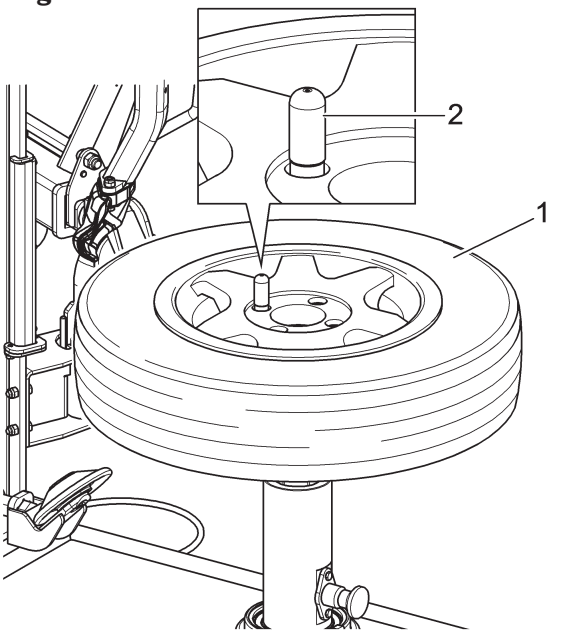


IN CASE OF USE OF RIMS WITHOUT CENTRAL HOLE, IT'S NECESSARY TO USE THE PROPER ACCESSORY (AVAILABLE ON DEMAND).

To lock a rim proceed as follows:

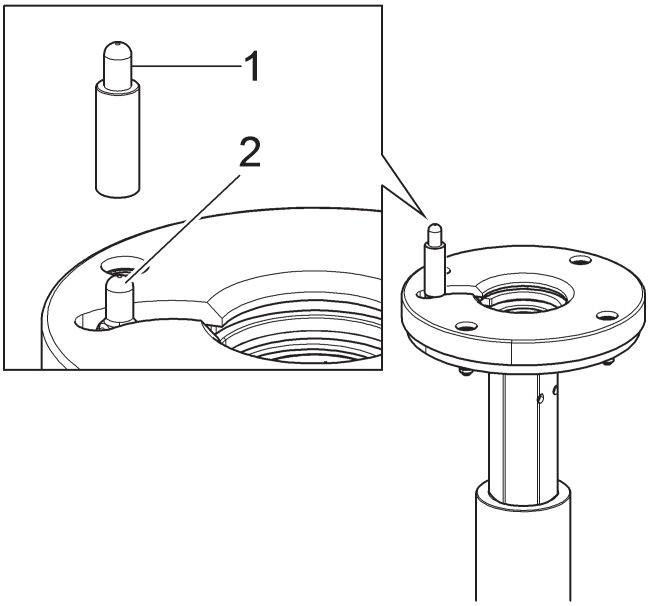
1. load the wheel (**Fig. 28 ref. 1**) with the front lifting device on the rubber plate of the self-centring chuck, making sure that the puller pin (**Fig. 28 ref. 2**) engages in one of the holes on the rim;

Fig. 28



2. if the wheel hub is higher than the puller (**Fig. 29 ref. 2**), use the extension (**Fig. 29 ref. 1**) supplied;

Fig. 29



3. insert the locking shaft (**Fig. 30 ref. 1**) on the rim (**Fig. 30 ref. 2**);

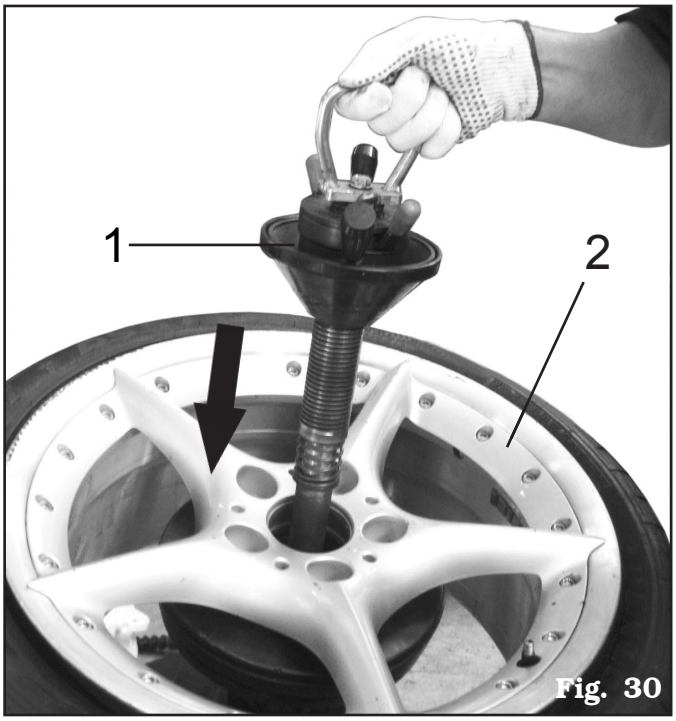


Fig. 30

4. using the handle shown (**Fig. 31 ref. 1**), push downwards (**Fig. 31 ref. 2**), turn it through 90° (**Fig. 31 ref. 3**);

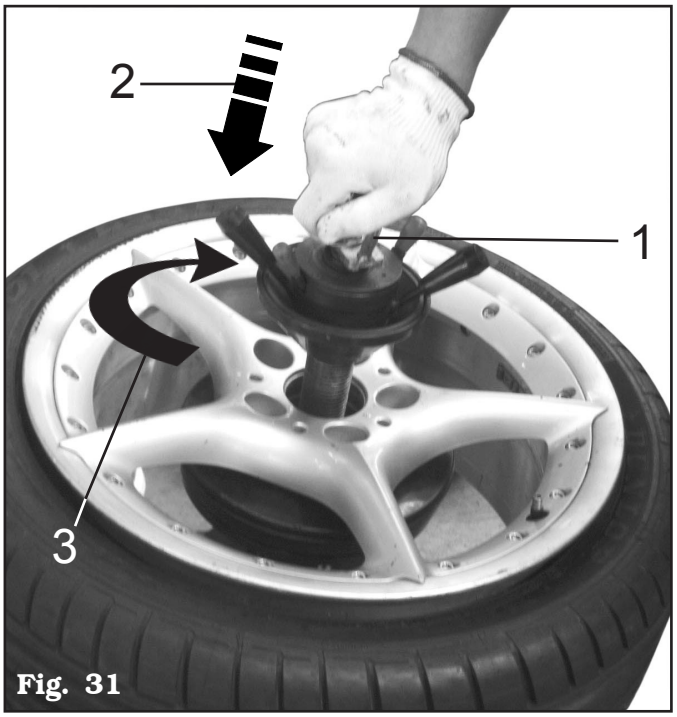


Fig. 31

5. using the small inside levers (**Fig. 32 ref. 1**), loose the ring nut and push ring nut (**Fig. 32 ref. 3**) and cone (**Fig. 32 ref. 4**) to the rim (**Fig. 32 ref. 2**);

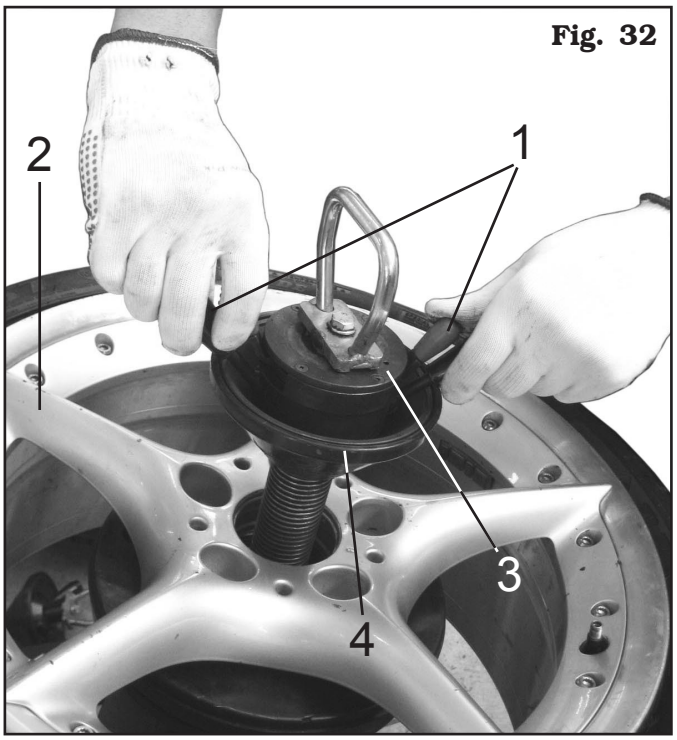


Fig. 32

6. then, turn the ring nut (**Fig. 33 ref. 1**) using the outside levers (**Fig. 33 ref. 2**) until the cone completely clamps (**Fig. 33 ref. 3**) the wheel (**Fig. 33 ref. 4**);

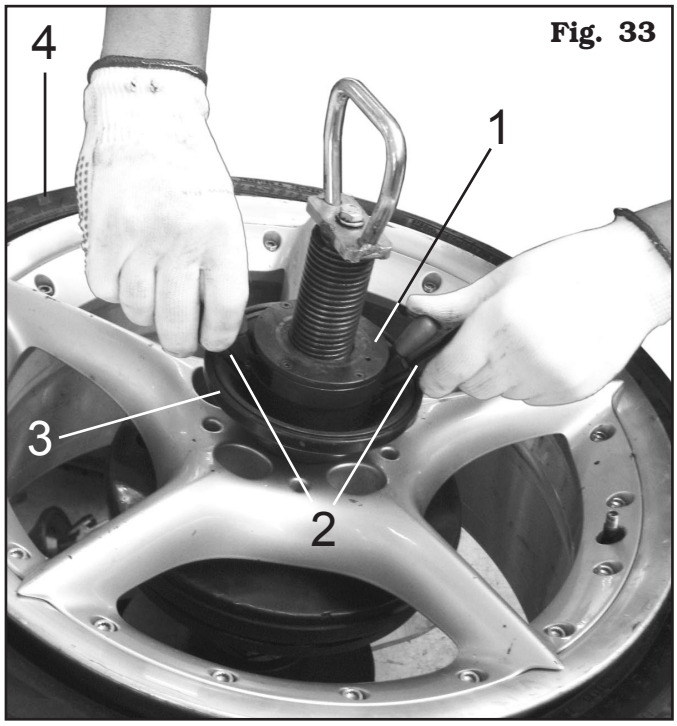


Fig. 33

7. for wheels with alloy rims, use the proper plastic guard (**Fig. 34 ref. 1**);

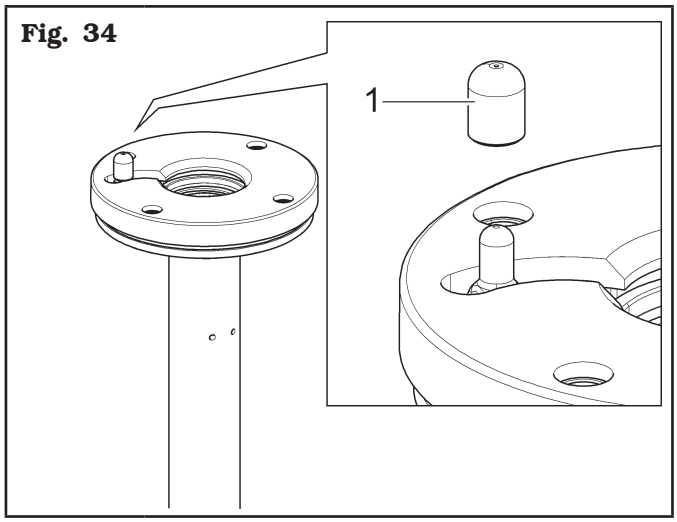


Fig. 34

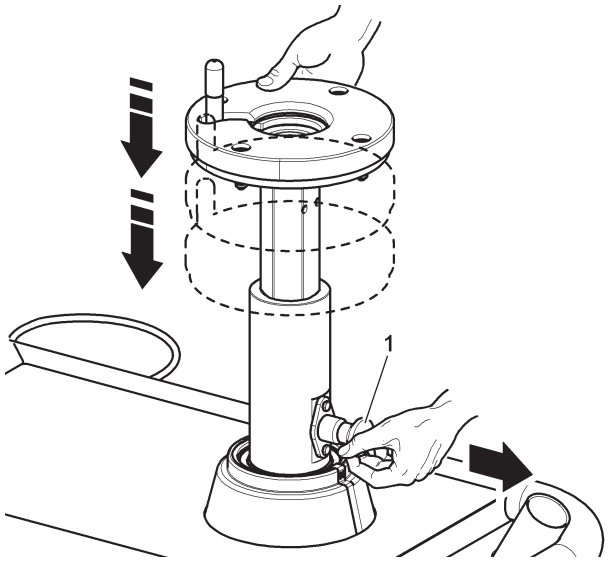
8. at the end of the operations, loosen the locking shaft releasing first the cone using the outside levers and then moving the ring nut and the cone away from the rim with the small levers;
9. lower the locking shaft to release it from its seat, turn it 90° counter-clockwise and extract it from the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

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

12.4.1 Self-centring chuck height adjustment

The self-centring chuck with central locking has 3 different height modes, so that it is possible to operate with a wider range of wheels. A "quick release" system allows to remove the self-centring chuck mobile part and to dowel the support plate at the desired height.
In order to adjust the central support's height, pull the knob outwards (**Fig. 35 ref. 1**) and lift or lower the central support's plate up to the required height.
Now it's possible to place the tyre in the right way with the working tools.
When employing wheels with oversize off-set, use the highest position.
With the standard wheels, the average height is normally used
Finally, the lowest height is indicated for reverse "drop-center" wheels.

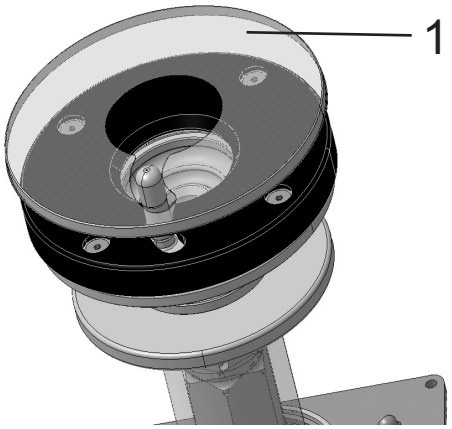
Fig. 35



12.4.2 Reverse wheel pan protection

In case reversed wheels are used, in order to protect the rim, apply on the rubber platform a protection (**Fig. 36 ref. 1**), supplied. We suggest replacing it if there are visible damages (see **Fig. 36**).

Fig. 36



12.5 Bead breaking

TYRE BEADING MUST BE CARRIED OUT AFTER THE TYRE HAS BEEN COMPLETELY DEFLATED AND OBSERVING ALL SAFETY RULES: BEADING PEDAL START-UP CAUSE SUDDEN, STRONG ARM CLAMPING, THUS REPRESENTING POTENTIAL CRUSHING DANGER FOR ANYTHING WITHIN THE OPERATING AREA. DURING TYRE BEADING DO NOT LEAN YOUR HANDS ON TYRE SIDES. DURING TYRE BEADING SUDDEN NOISE LEVEL PEAKS CAN OCCUR: THEREFORE THE USE OF SAFETY EARPLUGS IS RECOMMENDED.

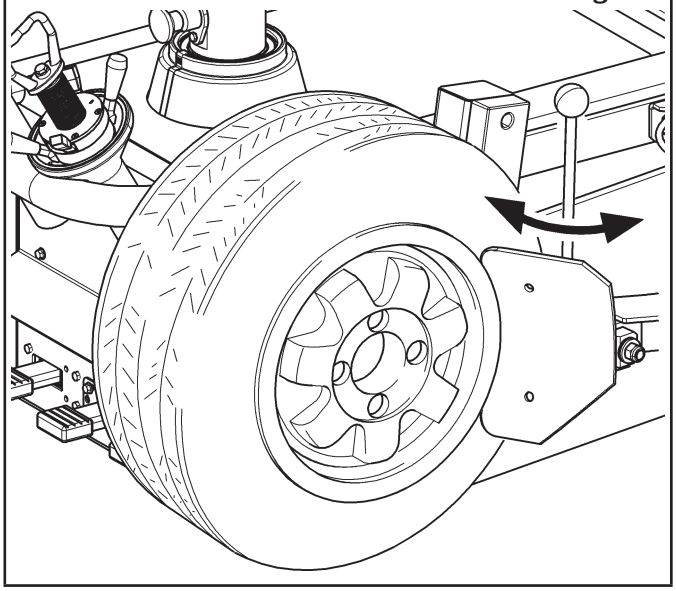
After preparing the wheel as described in the previous point, follow the instructions given below to carry out the bead breaking procedure:

1. position the wheel as indicated in **Fig. 37** and move the bead breaker tool toward the edge of the rim;

PLACE THE SHOVEL CORRECTLY, SO THAT IT CAN OPERATE ON TYRE SIDE AND NOT ON THE RIM.

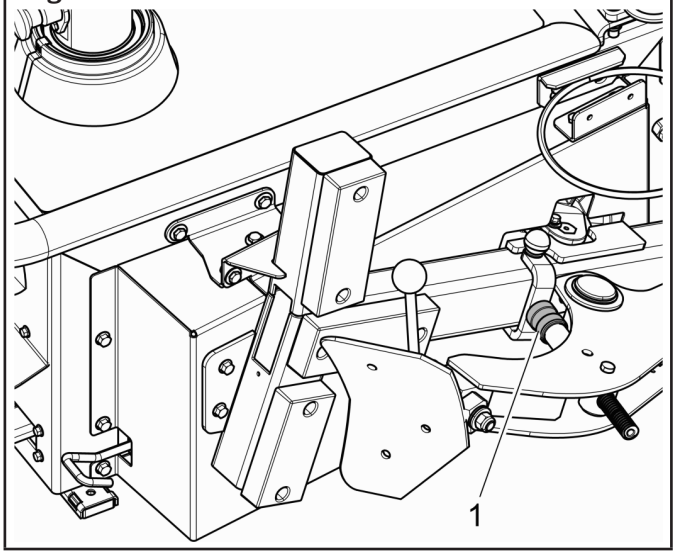
NEVER INSERT ANY PART OF YOUR BODY BETWEEN THE BEAD BREAKER TOOL AND THE TYRE, OR BETWEEN THE TYRE AND THE WHEEL SUPPORT.

Fig. 37



2. adjust the travel of the bead breaker stroke limiter by acting on its adjustment ring nut (**Fig. 38 ref. 1**), so that the shovel can penetrate beyond the edge of the rim for a height equal to the height of a wedge of the bead press extension;

Fig. 38



3. operate the bead breaker shovel by pressing the proper pedal until the bead has detached. If the bead does not detach the first time, repeat the operation, on different points of the wheel, until it has come away completely;
4. reverse the position of the wheel and repeat the operation on the other side;
5. lubricate the tyre carefully along the entire circumference of the bead on both sides. Failure to lubricate might cause friction between the toolhead and the tyre, and would cause damage to the tyre and/or the bead.

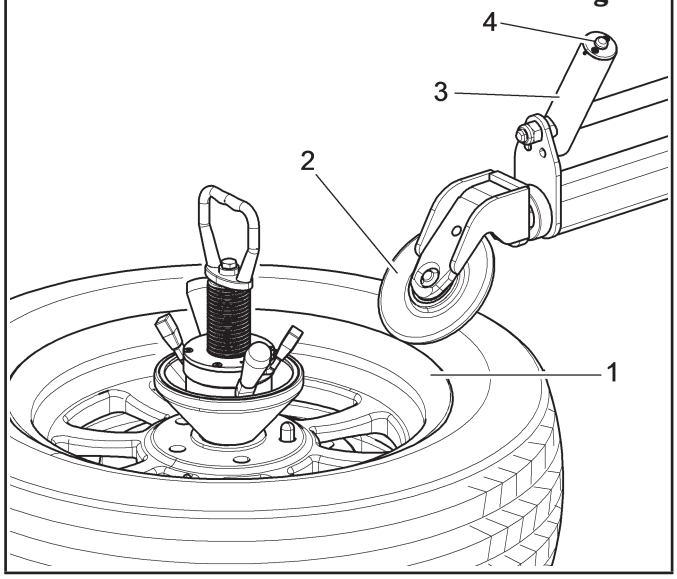
12.6 Bead breaking through vertical rollers

1. After the wheel has been locked, move the upper bead breaker roller (**Fig. 39 ref. 2**) near rim edge; press the push button (**Fig. 39 ref. 1**);

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

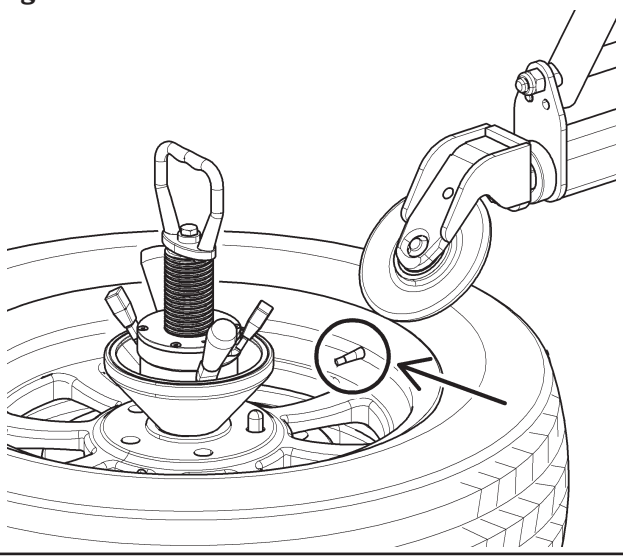
2. correctly position the bead breaker rollers on rim diameter through the handle (**Fig. 39 ref. 3**) after the arms have been unlocked with push button (**Fig. 39 ref. 4**) positioned on the same handle;

Fig. 39



3. continue the vertical approach of the upper bead breaker roller until it is positioned in the immediate vicinity of the rim;
4. activate the rotation of the wheel until the valve is positioned in correspondence with the upper bead breaker roller (**Fig. 40**);

Fig. 40

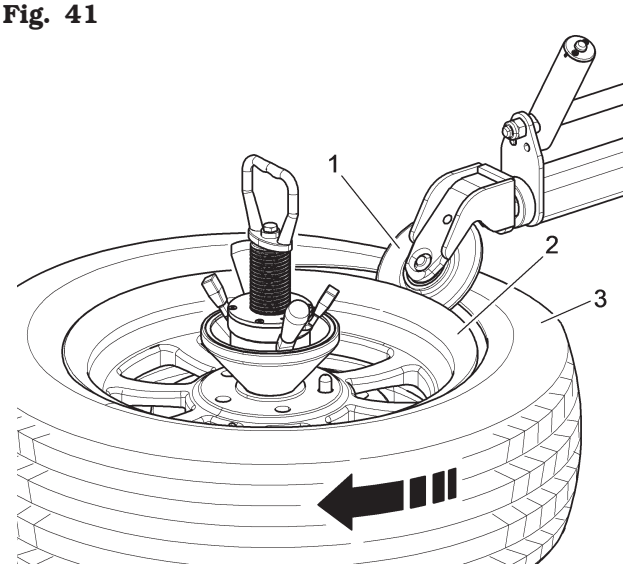


5. start the rotation of the wheel clockwise;
6. when the valve is at “3 o'clock”, press the upper bead breaker roller downwards until sufficient space has been created to activate the cam.
   Then introduce the roller (**Fig. 41 ref. 1**) between the rim (**Fig. 41 ref. 2**) and the tyre (**Fig. 41 ref. 3**);

THE BEAD BREAKER ROLLER 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.

Fig. 41



THE BEAD BREAKER ROLLER 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.

DURING THE ROTATION OF THE TYRE, ABUNDANTLY GREASE THE INSIDE OF THE BEAD (FIG. 42) AND THE ENTIRE SHOULDER OF THE TYRE, UP TO THE TREAD (FIG. 43).

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

Fig. 42

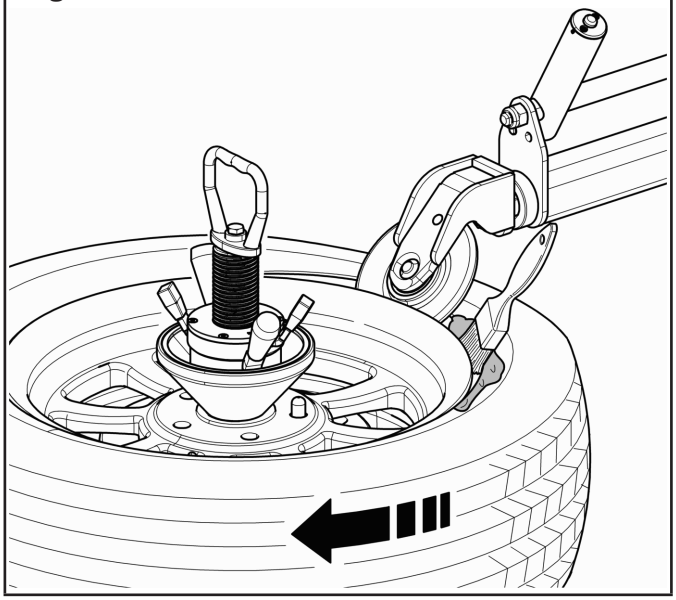
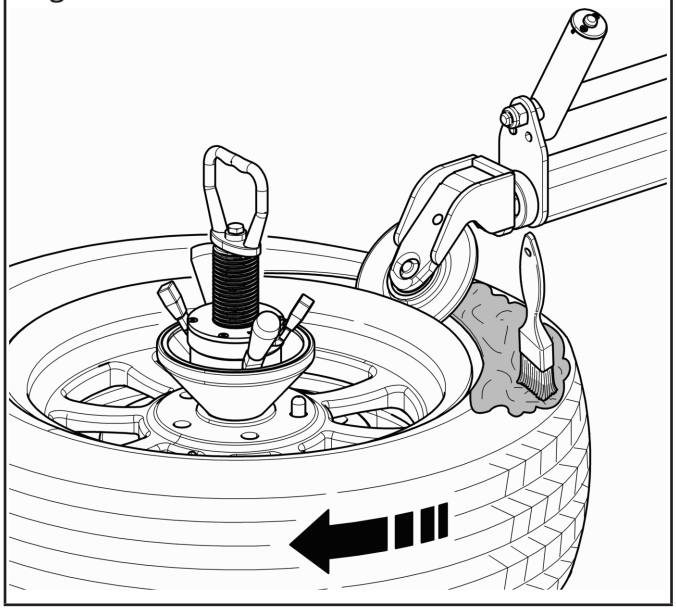


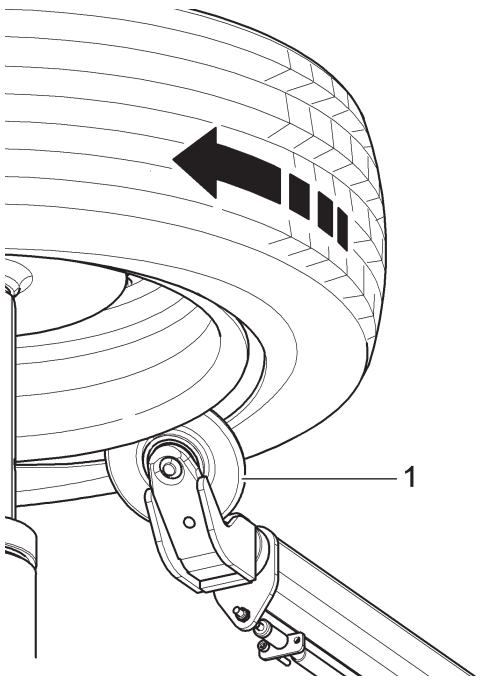
Fig. 43



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

7. once bead breaking has been completed in the upper part, move upper roller to rest position again, by lifting the lever (**Fig. 16 ref. 3 (RH)**);
8. move the lower roller close (**Fig. 46 ref. 1**) by pressing the lever (**Fig. 16 ref. 2 (LH)**);

Fig. 44



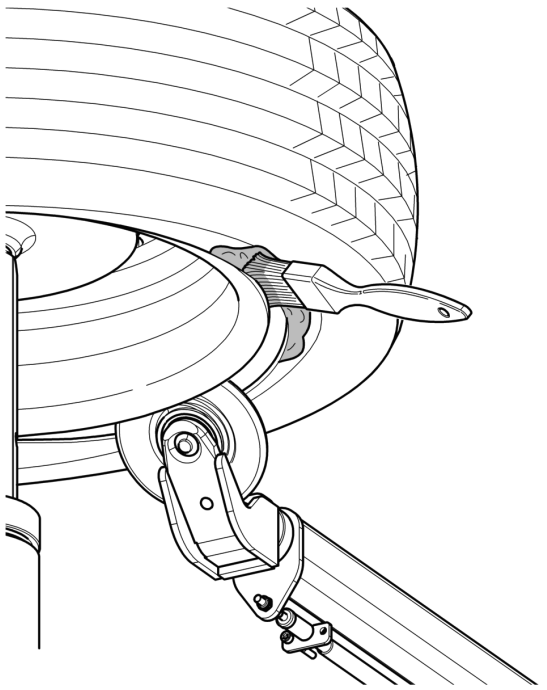
9. only now turn the wheel clockwise by pressing the pedal (**Fig. 18 ref. 1**) and, at the same time, by operating the lever (**Fig. 16 ref. 2**) **(LH)**, keeping it pressed until there's room enough for cam operation. Then introduce the lower bead breaker roller between rim and tyre by pressing the push button (**Fig. 16 ref. B (LH)**) and keep on with the bead breaking until the operation is completed;

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

DURING THE ROTATION OF THE TYRE, ABUNDANTLY GREASE THE INSIDE OF THE BEAD (FIG. 45).

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

Fig. 45



10. once bead breaking has been completed in the lower part, move lower roller to rest position again, by lifting the lever (**Fig. 16 ref. 3 (LH)**);
11. rotate the rim until the valve is positioned on the immediate right of the roller.

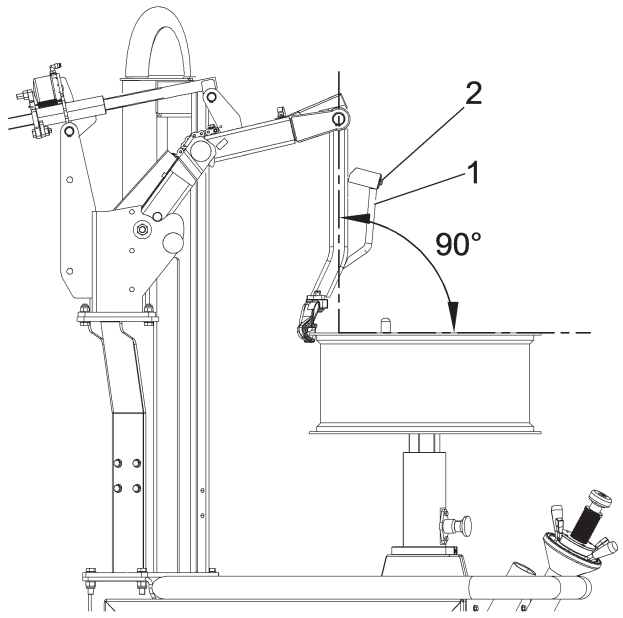
12.7 Demounting the standard tyre without TPMS valve

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

1. follow all the operations previously described for the correct preparation and lubrication of the tyre;
2. press the pedal (**Fig. 18 ref. 1**) to rotate the wheel clockwise until the valve stem reaches “1 o'clock” position;
3. define toolhead vertical position on the rim edge by pressing the push button (**Fig. 46 ref. 2**) placed on the same handle (**Fig. 46 ref. 1**).

It is important to position the mounting arm correctly (2 different positions are possible). The two positions are set using the knob on the post and, keeping the push button on the handle pressed, manually moving the arm until it is locked in the required position. The correct position is achieved when the angle between the tool holder arm and the rim plate is 90° (see **Fig. 46**).

Fig. 46



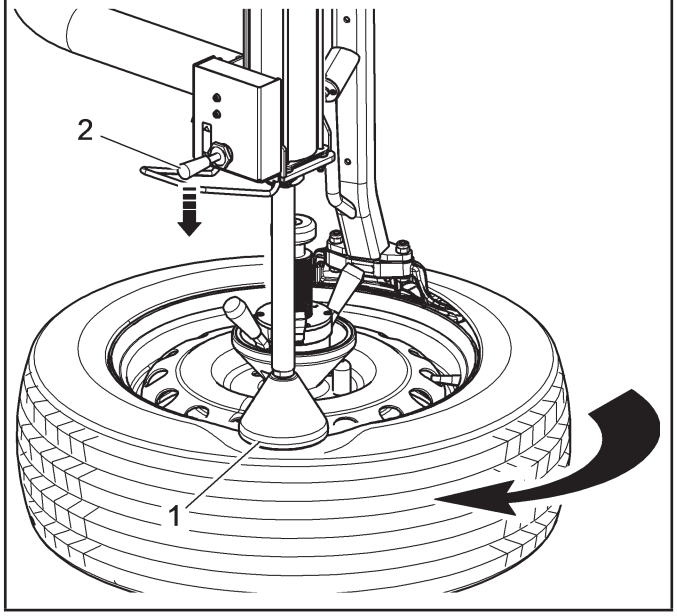
This position is important because:

- it reduces the tension during mounting/demounting;
- it spreads the force applied to the toolhead over the largest area possible;
- it significantly reduces the wear on the tool.

WITH ROUNDED OR FLAT EDGE RIMS, THE ARM SHOULD HAVE AN ANGLE OF 100°/110°.

4. place the bead press tool (standard on one model) (**Fig. 47 ref. 3**) to "4 o'clock" position as shown in **Fig. 47** and press on the tyre operating the lever of the control unit (**Fig. 47 ref. 2**) downwards, until the tyre bead is placed next to the rim drop centre;

Fig. 47



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.

Wheels with rim protector

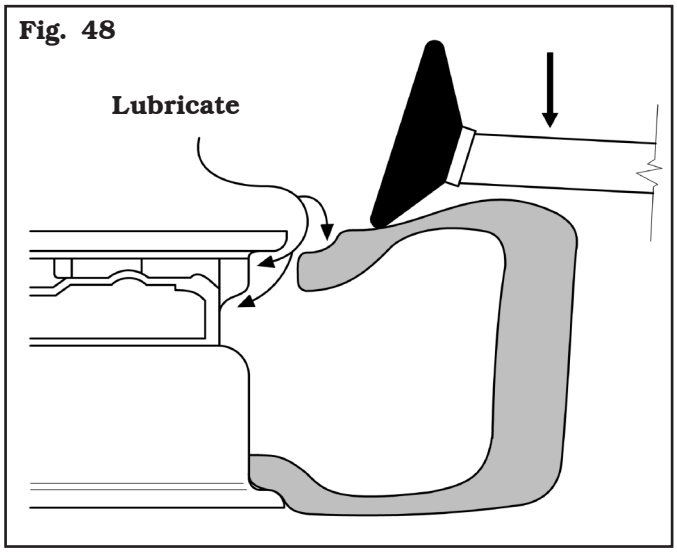
With this type of tyre, there could be cases where the rim protector doesn't allow the toolhead to insert between rim and tyre.
In these cases, turn the wheel clockwise, with a slight pressure with the toolhead. In case of rim protectors with particular shapes, let the wheel turn counter-clockwise.

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

5. move the lever protector to the pointed end of the bead lifting lever. Use the same lever to lift the bead onto the right end of the toolhead and position it parallel with the rim plate at the same time pressing on the side of the tyre at "6 o'clock" position;
6. press the pedal to turn the wheel clockwise until the whole bead has been lifted from the rim. During the rotation of the wheel, the bead lifting tool slides away from the toolhead moving onto the rim edge. The plastic protector prevents the lever from scratching the rim;
7. lift the tyre and repeat the operation on the other bead;
8. lift the bead press tool (applies to model with pneumatic beadpusher) and close again the bead press device into rest position.

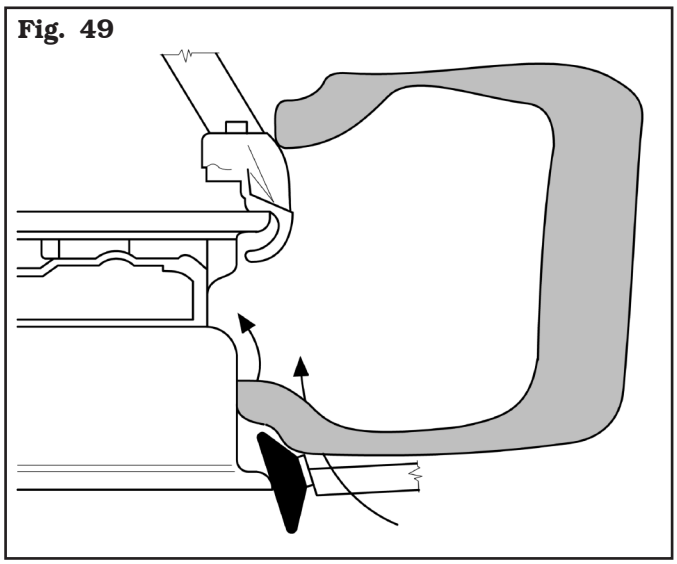
On heavy low-profile tyres, for an easier and safer demounting, once the upper bead has been broken, it is advisable to keep pressing until obtaining enough space to lubricate the drop centre, the bead seating, and the bead itself. (see **Fig. 48**). Failure to lubricate might cause friction between the toolhead and the tyre, and would cause damage to the tyre and/or the bead.

Fig. 48



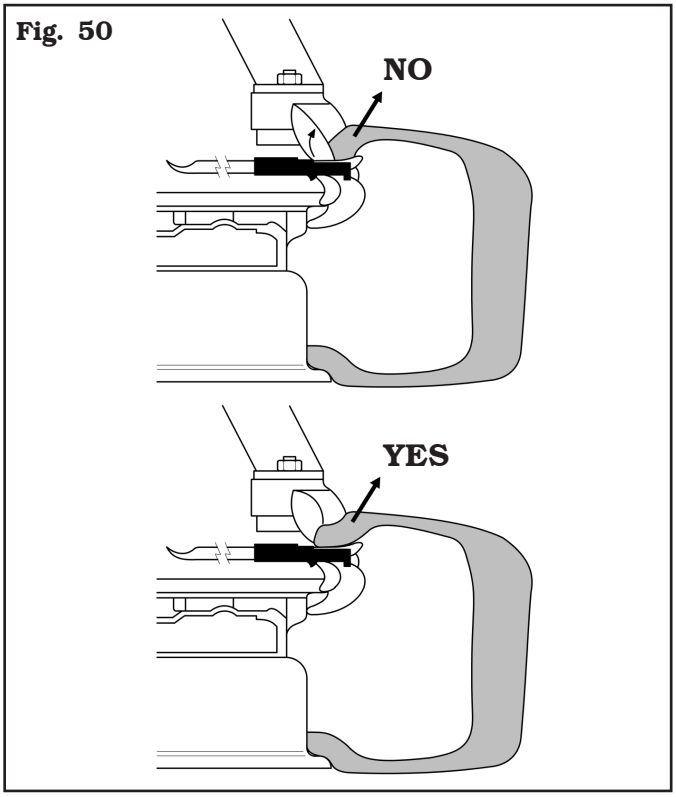
When the upper bead is being demounted, it might happen that the lower bead re-sets in the rim. In this case use bead breaker lower roller to bead-break again, and if the tyre should be very wide, push it up to the toolhead (see **Fig. 49**).

Fig. 49



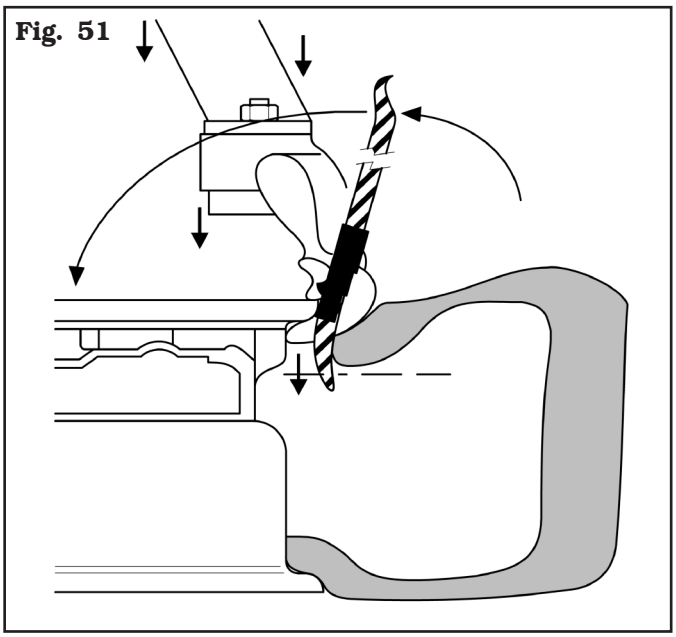
When demounting hard tyres, the bead may come onto the toolhead with the lip turned. This causes the bead to slide from the lever when clockwise rotation begins. To avoid this problem rotate the wheel slightly anti-clockwise until the bead flattens. Now the clockwise demounting cycle can begin (see **Fig. 50**).

Fig. 50



When demounting hard low-profile tyres, it might happen that the bead pushes the toolhead up. It may be found useful to use the upper bead breaker roller to push the bead down to create enough space to position the lever and at the same time pushing up the tool holder arm down (**Fig. 51**).

Fig. 51



If the motor slows down or stops during tyre demounting and mounting, make the following checks:

- check that the bead has been lubricated;
- check that the bead has been pushed into the drop centre;
- check that the right side of the rim has been chosen for demounting or mounting the tyre;
- check that the supply pressure is not below 8 bar (116 psi);
- check that the rim drop centre is not off-centre.

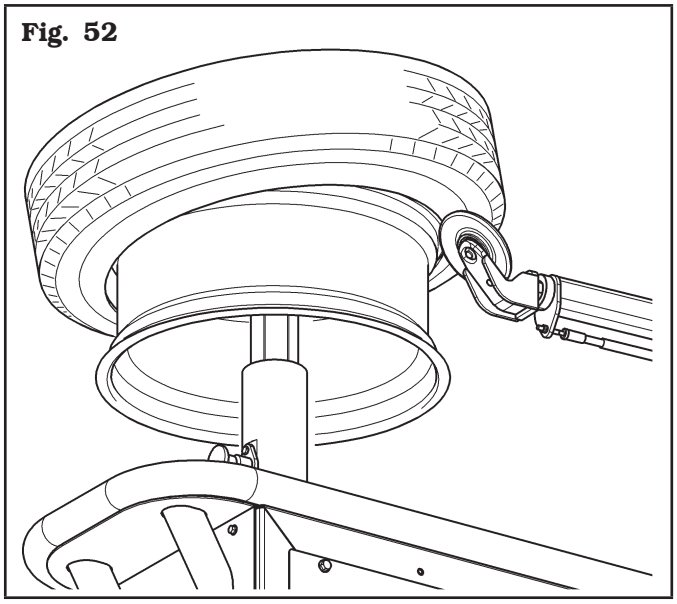
There are rims on the market for which it is difficult to check the position of the drop centre with the tyre mounted. A useful method for checking is to use the bead-breaker rollers, pressing on the tyre sufficiently to see the inside of the rim.

Dismounting the lower bead with the bead breaker roller

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

1. Lift the bead breaker roller and the tyre just next to the rim edge (see **Fig. 52**);

Fig. 52

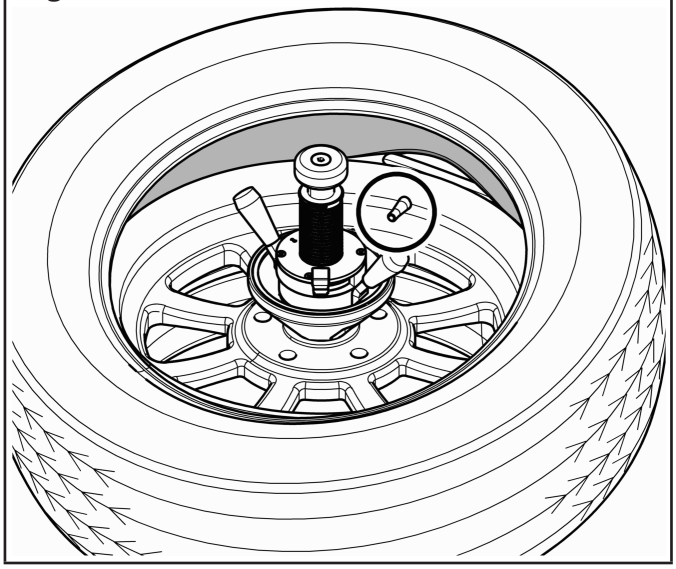


2. then, press the push button (**Fig. 16 ref. B (LH)**) so that the bead breaker roller is inserted between rim edge and lower bead (see **Fig. 53**);

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

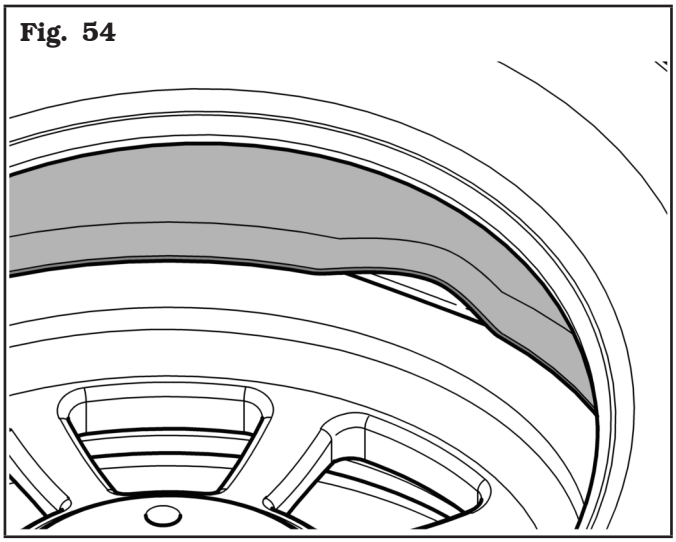
VERY CAREFULLY USE THE BEAD BREAKING ROLLERS IN ORDER TO AVOID POSSIBLE HAND CRUSHING INJURY.

Fig. 53



3. then, rotate and complete bead disassembly (see **Fig. 54**).

Fig. 54

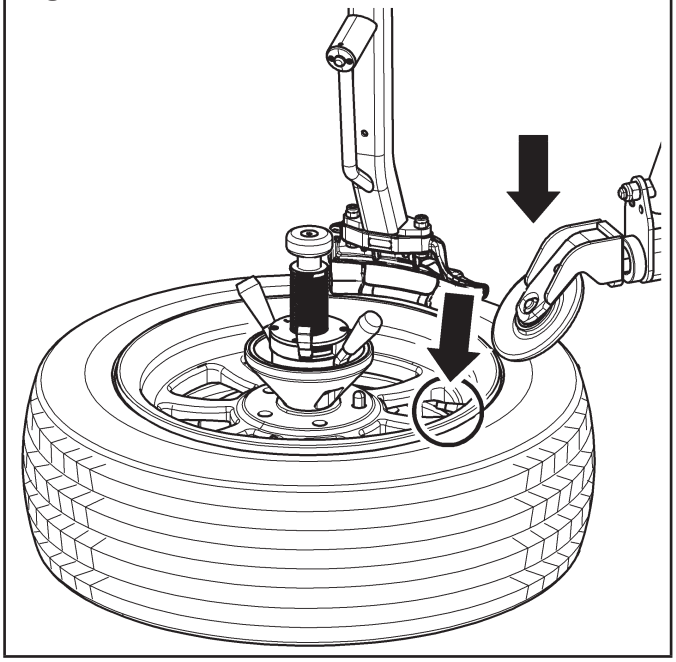


WHEN THE BEADS COME OUT OF THE RIM THE TYRE MAY FALL. CARRY OUT THESE OPERATIONS VERY CAREFULLY.

12.8 Demounting the Run Flat or UHP tyre with TPMS valve using bead press device (applies to model with pneumatic beadpusher)

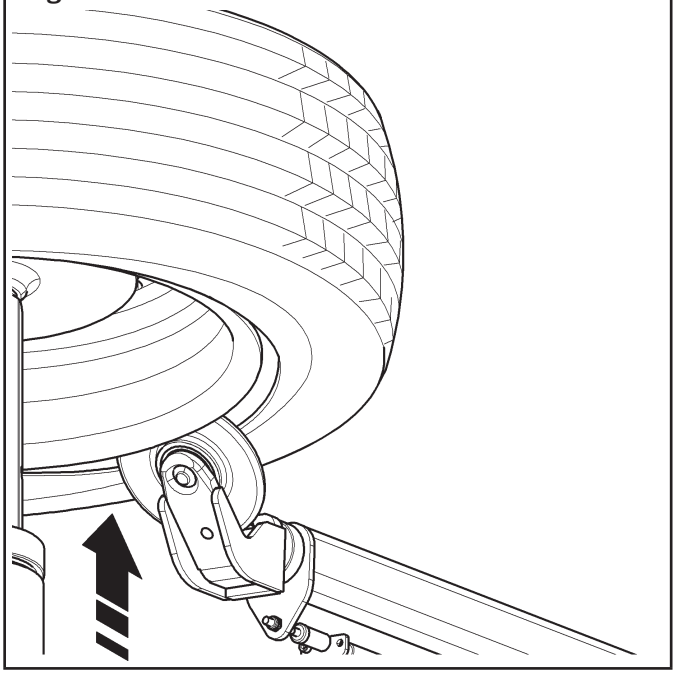
1. Follow all the operations previously described for the correct preparation and lubrication of the tyre;
2. manually position the toolhead on the tyre. At the same time rotate the wheel until the valve is positioned at approximately 3 o'clock;
3. lower the upper bead breaker roller onto the tyre in such a way as to create space for the insertion of the toolhead (see **Fig. 55**);

Fig. 55



4. move the lever protector to the pointed end of the bead lifting lever. Use the same lever to lift the bead onto the right end of the toolhead and position it parallel with the rim plate at the same time pressing on the side of the tyre;
5. press the pedal to turn the wheel clockwise until the whole bead has been lifted from the rim. During the rotation of the wheel, the bead lifting tool slides away from the toolhead moving onto the rim edge. The plastic protector prevents the lever from scratching the rim.
6. at the same time, press the up button of the lower bead breaker roller (**Fig. 16 ref. 2**) **(LH)** until the bead breaker roller rests on the tyre (**Fig. 56**). Push lightly to reduce the tension on the opposite bead of the tyre and hold it in place;

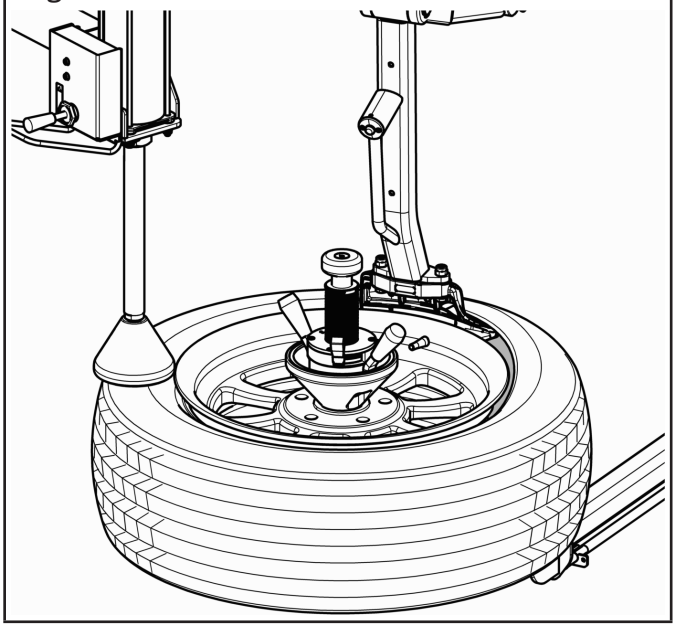
Fig. 56



7. position the bead press device approximately at "6 o'clock" on the tyre (**Fig. 57**);

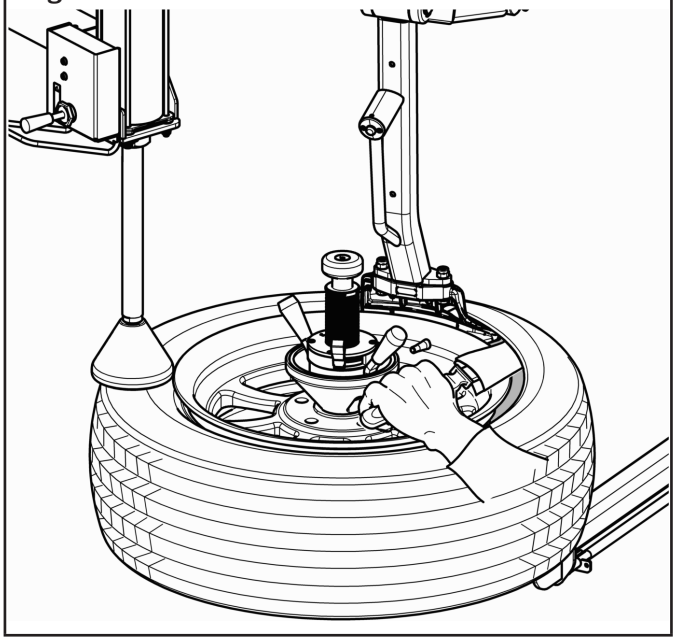
IF NECESSARY, USE THE ROTATING BEAD PRESS DEVICE (STANDARD ON ONE MODEL) TO PUSH THE TYRE BEAD INTO THE RIM DROP CENTRE.

Fig. 57



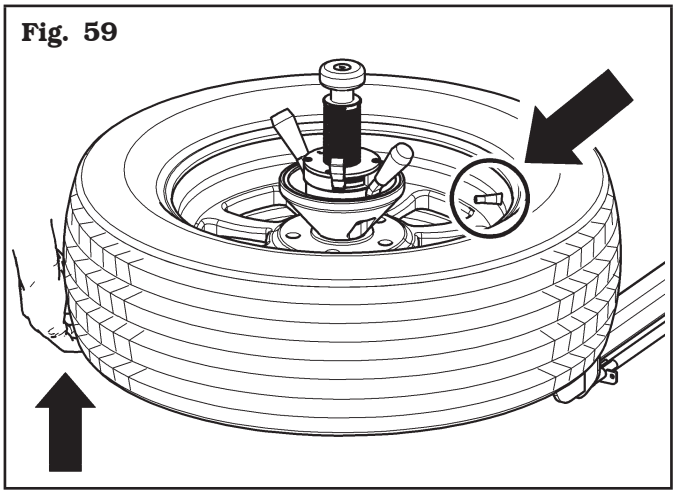
8. insert the bead protection tool together with the plastic sheets between the tyre bead and the rim and lock the protection tool with your hand. Press the rotation pedal and remove the first bead of the tyre (**Fig. 58**);

Fig. 58



9. lift the toolhead and remove it from the tyre;
10. place the valve next to the lower bead breaker roller, manually push the tyre on the bead breaker roller (**Fig. 59**), and using the appropriate button (**Fig. 16 ref. 2**) **(LH)**, lift the lower bead breaker roller;

Fig. 59

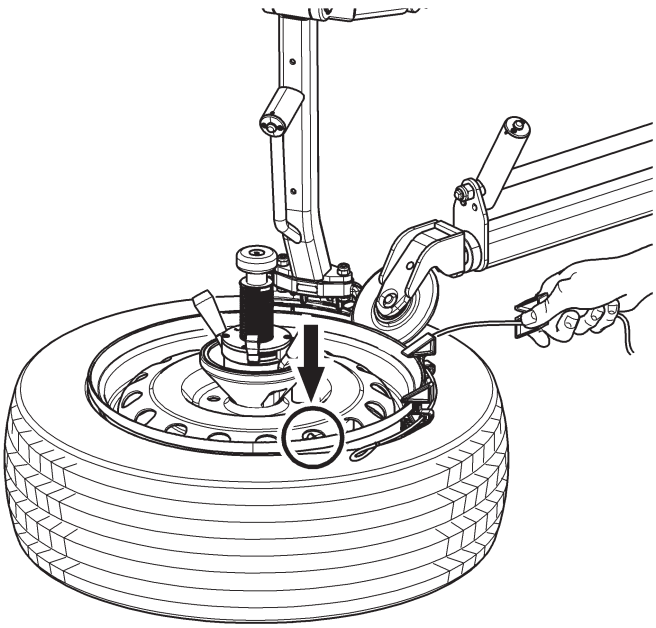


11. when the bead breaker roller has passed the edge of the rim , press the advance button of the lower bead breaker roller cam (**Fig. 16 ref. B**) **(LH)**;
12. press the rotation pedal, and rotate the wheel until the tyre is completely extracted.

12.9 Demounting the tyre using the bead press extension

1. Follow all the operations previously described for the correct preparation and lubrication of the tyre;
2. manually position the toolhead on the tyre. At the same time rotate the wheel until the valve is positioned at approximately 3 o'clock;
3. lower the upper bead breaker roller onto the tyre in such a way as to create space for the insertion of the toolhead;
4. with the bead lifting lever, lift the bead above the right end of the toolhead;
5. by turning counterclockwise, position the valve at approximately 4 o'clock (**Fig. 60**);

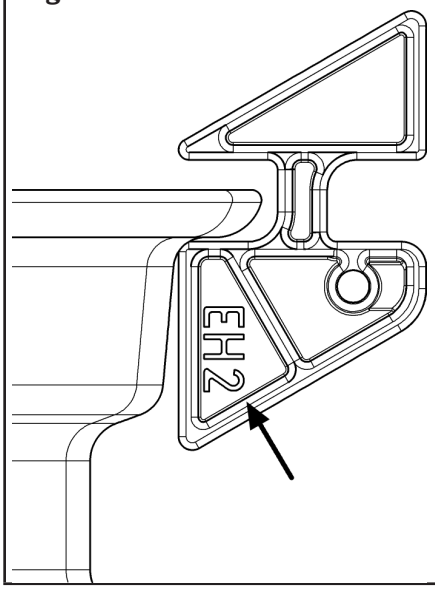
Fig. 60



THE BEAD PRESS EXTENSION IS MADE UP OF TWO-WEDGES-INSERTS OF DIFFERENT SIZES (EH, EH2) (FIG. 61). 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 BLOCKS ON THE SIDE HIGHLIGHTED BY THE PRINTED SIGN "EH2" (THE DEEPER ONES) (SEE FIG. 61).

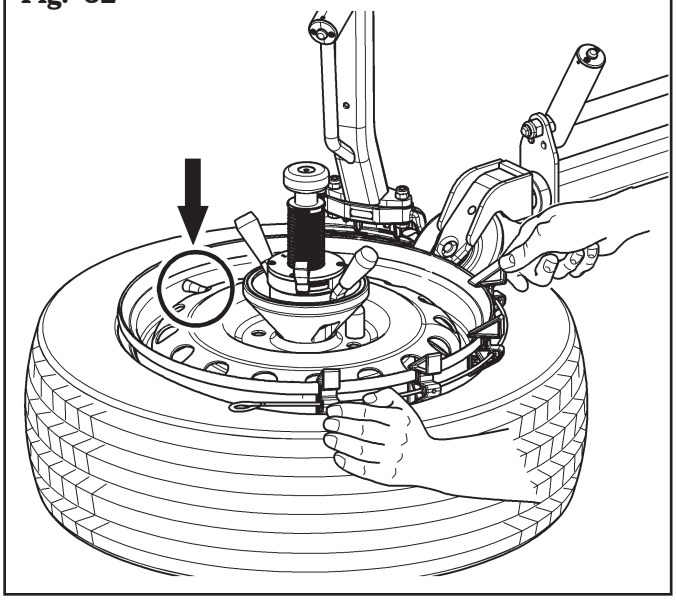
Fig. 61



6. press the rotation pedal and insert all the wedges one at a time (**Fig. 60**);

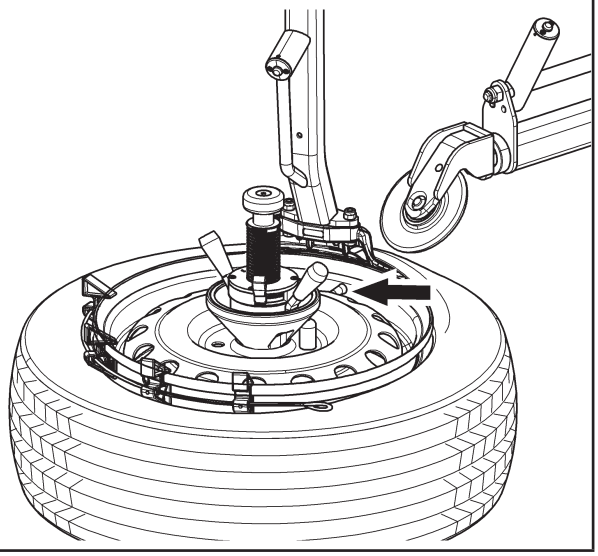
THE VALVE MUST BE PLACED AT APPROXIMATELY 9 O'CLOCK AND IN ANY CASE EXACTLY ON THE OPPOSITE SIDE OF THE WEDGES (FIG. 62).

Fig. 62



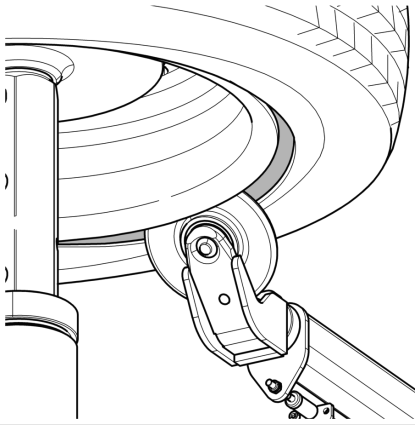
7. using the appropriate push button (**Fig. 16 ref. 3**) **(RH)** lift the upper bead breaker roller. By pressing the rotation pedal, place the valve exactly in front of the toolhead (**Fig. 63**);

Fig. 63



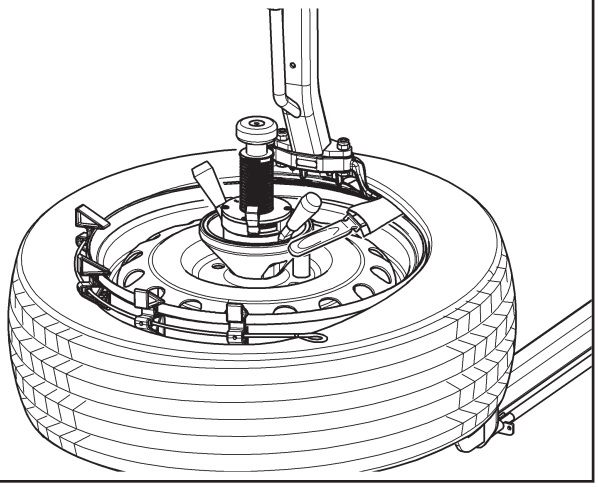
8. press the up button of the lower bead breaker roller (**Fig. 16 ref. 2**) **(LH)** until the bead breaker roller rests on the tyre. Push slightly to reduce the tension on the opposite bead of the tyre and hold it in place (**Fig. 64**);

Fig. 64



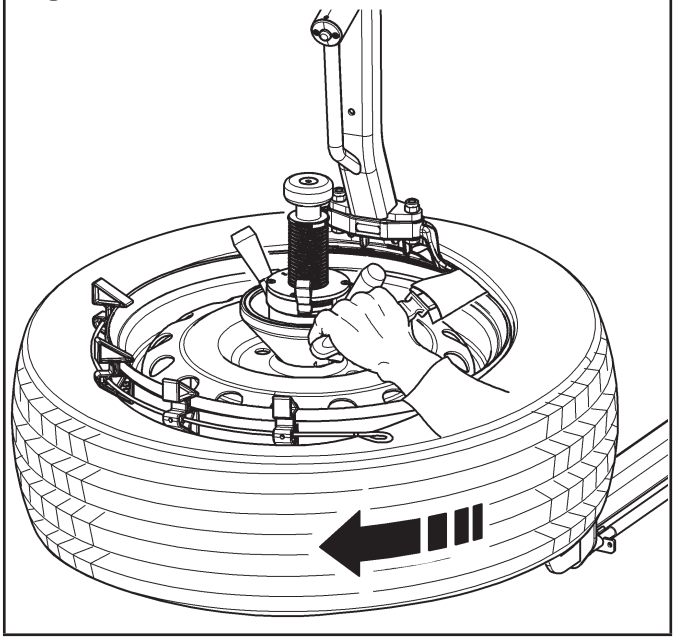
9. insert the bead protection tool together with the plastic sheets between the tyre bead and the rim (**Fig. 65**);

Fig. 65



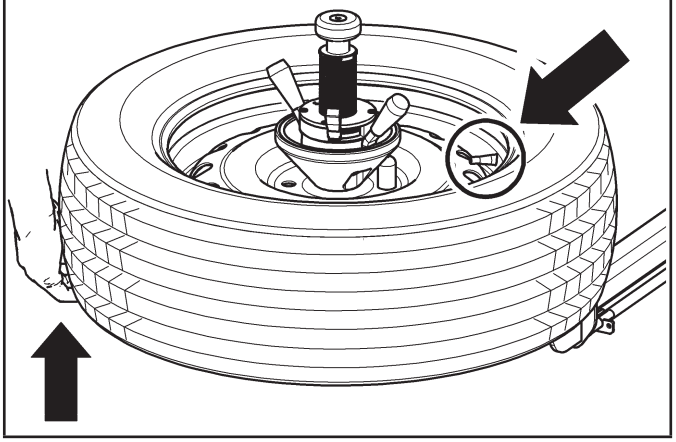
10. lock the protection tool with your hand (**Fig. 66**). Press the rotation pedal remove the first bead of the tyre;

Fig. 66



11. by pressing the rotation pedal, place the valve next to the lower bead breaker roller. Manually push the tyre on the bead breaker roller (**Fig. 67**), and using the appropriate button (**Fig. 16 ref. 2**) **(LH)**, lift the lower bead breaker roller;

Fig. 67



12. press the rotation pedal, rotate the wheel until the tyre is completely extracted.

12.10 Mounting the standard tyre without TPMS valve

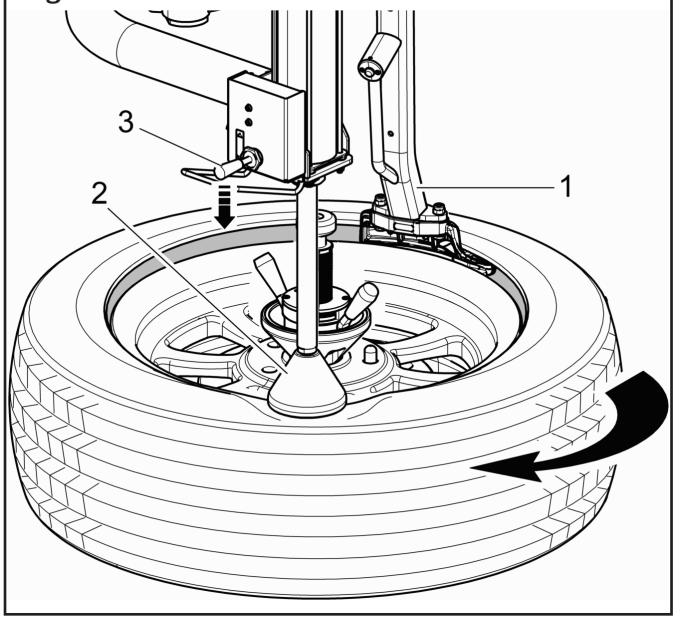
To mount the tyre, proceed as follows:

1. lubricate tyre beads;

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

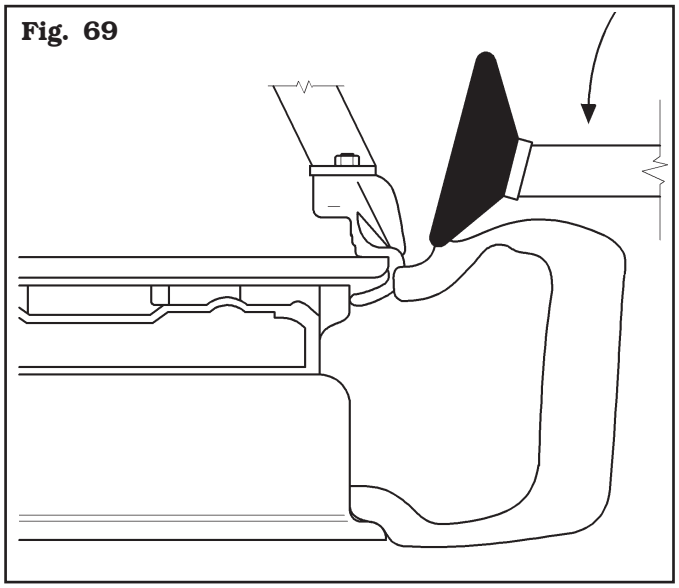
2. position the toolhead (**Fig. 68 ref. 1**) onto the rim edge;
3. hook the lower bead onto the left side of the toolhead then rotate clockwise until the complete assembly;
4. then, position the upper bead on the toolhead assembly area (**Fig. 68 ref. 1**);
5. place the bead press tool (standard on one model) (**Fig. 68 ref. 2**) in “4 o'clock” position as shown in **Fig. 68** and press on the tyre operating the lever of the control unit (**Fig. 68 ref. 3**) downwards;
6. rotate the self-centring chuck clockwise, pressing the pedal (**Fig. 18 ref. 1**), until the tyre is completely assembled;
7. when these operations are over move the toolhead and the bead press tool into rest position (standard on one model).

Fig. 68



Using the upper bead breaker roller to push the bead into the drop centre may help when mounting hard low-profile tyres (see **Fig. 69**).

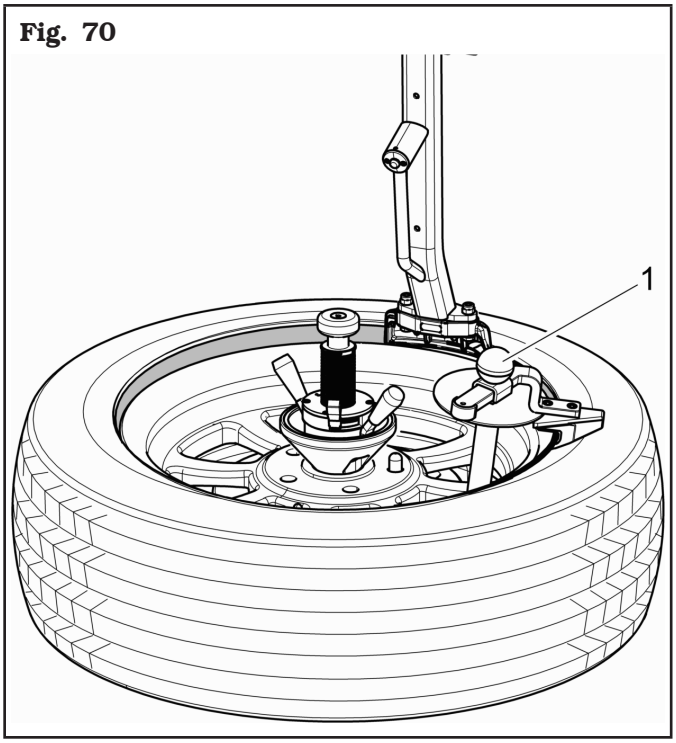
Fig. 69



12.10.1 Fitting the tyre upper bead using beadpusher with puller

1. Assemble the beadpusher with puller (**Fig. 70 ref. 1**) next to the rim edge (see **Fig. 70**);

Fig. 70

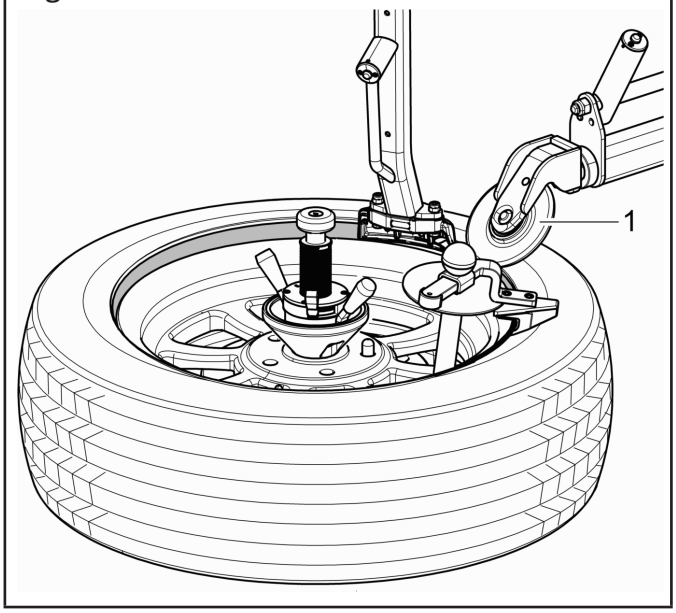


2. place the upper bead breaker roller (**Fig. 71 ref. 1**) so that the tyre bead is kept at the same height of the rim drop centre (see **Fig. 71**);

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

VERY CAREFULLY USE THE BEAD BREAKING ROLLERS IN ORDER TO AVOID POSSIBLE HAND CRUSHING INJURY.

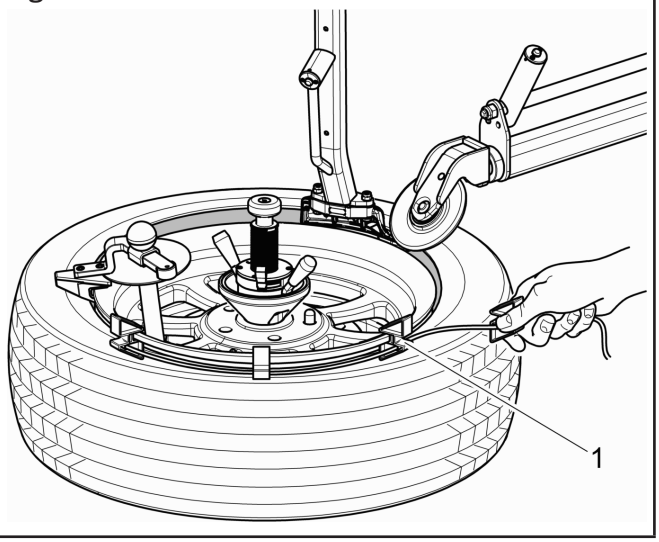
Fig. 71



3. rotate clockwise up to tyre complete assembly (see **Fig. 72**);

FOR PARTICULARLY DIFFICULT WHEELS TO ASSEMBLE, USE THE BEAD PRESS EXTENSION OF THE BEADPUSHER WITH PULLER (FIG. 72 REF. 1).

Fig. 72

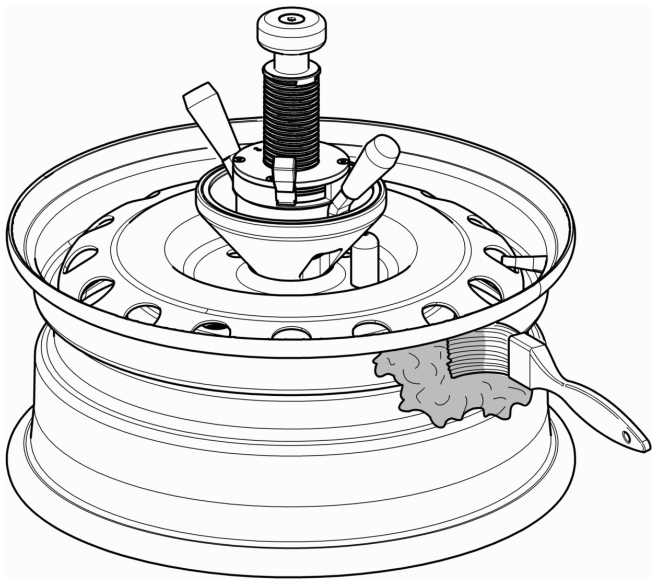


4. when these operations are over move the toolhead and the upper bead breaker roller into rest position.

12.11 Mounting the Run Flat or UHP tyre with TPMS valve using bead press device (standard on one model)

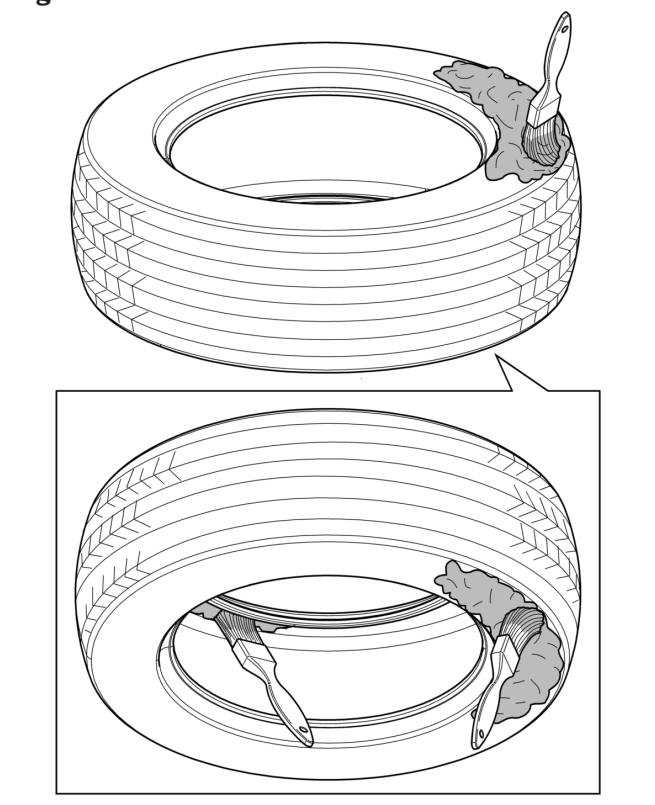
1. Generously grease the rim, taking care to keep the valve clean and not greased (**Fig. 73**);

Fig. 73



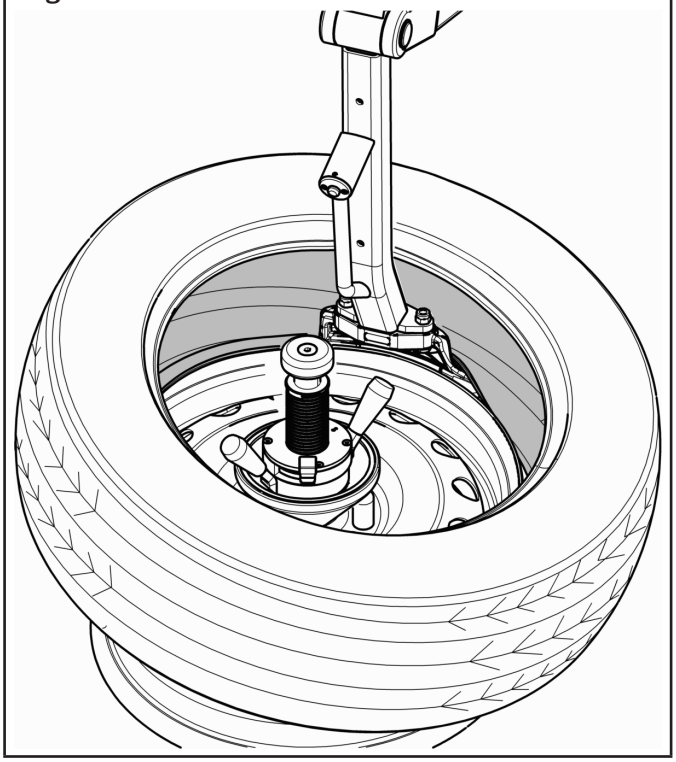
2. generously grease the tyre, both the lower part of the bead and the external part of the same, up to the tyre tread, and at least 3 cm (1.18") per side inside the tyre (**Fig. 74**);

Fig. 74



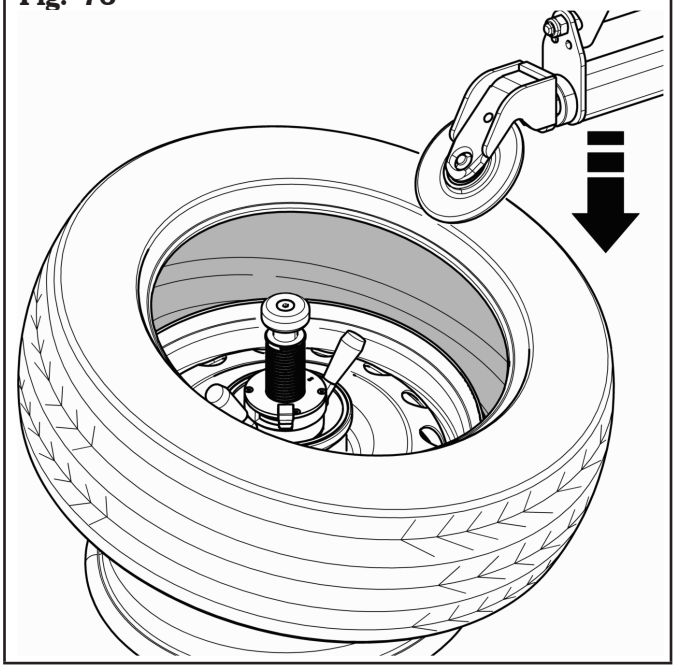
3. position the valve at about 7 o'clock, lay the tyre on the rim, manually position the toolhead on the rim (**Fig. 75**), insert the tyre in the mounting position on the toolhead and press the rotation pedal until the first bead is inserted;

Fig. 75



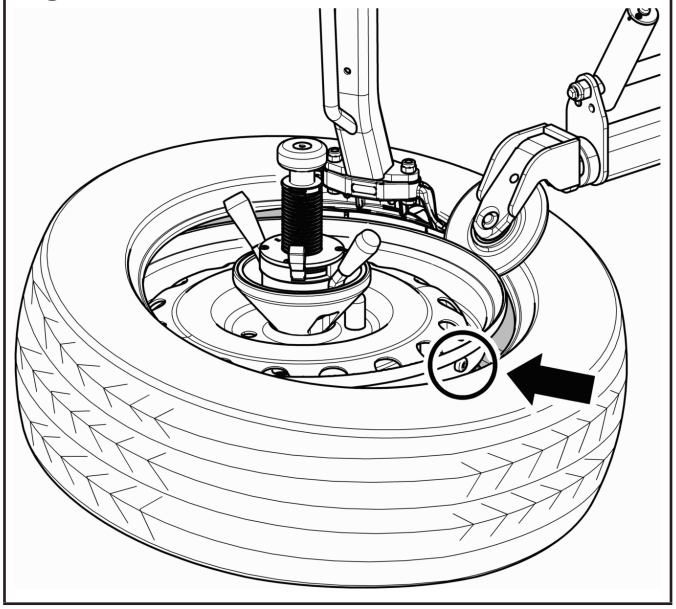
RUN FLAT OR UHP TYRES HAVE A PARTICULARLY RIGID PROFILE AND THE UPPER BEAD BREAKER ROLLER CAN ALSO BE USED TO INSERT THE FIRST BEAD (FIG. 76). IN THIS CASE, ALWAYS POSITION THE VALVE AT 7 O'CLOCK, FIT THE TYRE ON THE RIM (SEE FIG. 76) AND USING THE APPROPRIATE BUTTON (FIG. 16 REF. 2) (RH) LOWER THE UPPER BEAD BREAKER ROLLER 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.

Fig. 76



4. pressing the rotation pedal, place the valve at approximately 3 o'clock (**Fig. 77**). Position the toolhead onto the rim edge;
5. acting on the appropriate button (**Fig. 16 ref. 2**) **(RH)**, use the upper bead breaker roller to push the tyre bead under the rim edge (**Fig. 77**);

Fig. 77



6. insert the bead pusher with puller exactly in correspondence with the valve (**Fig. 78**). Fit the plastic protection on the edge of the rim next to the beadpusher with puller as shown in **Fig. 79**;

Fig. 78

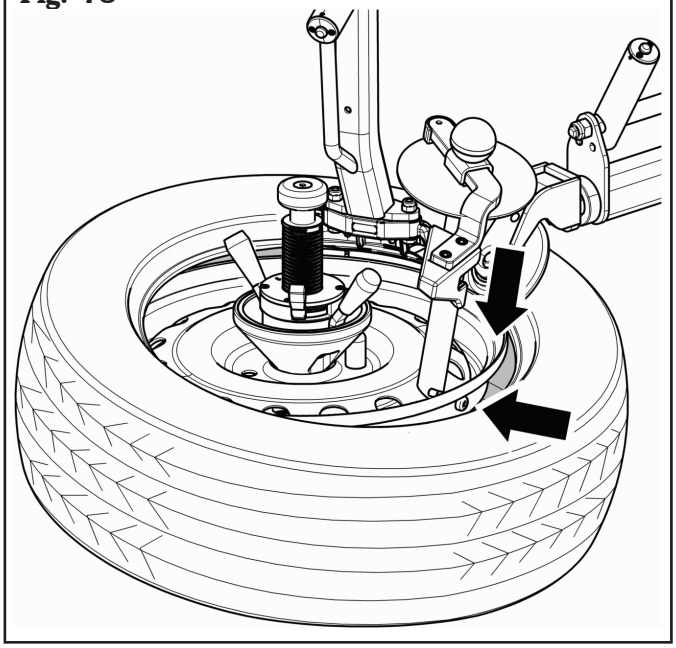
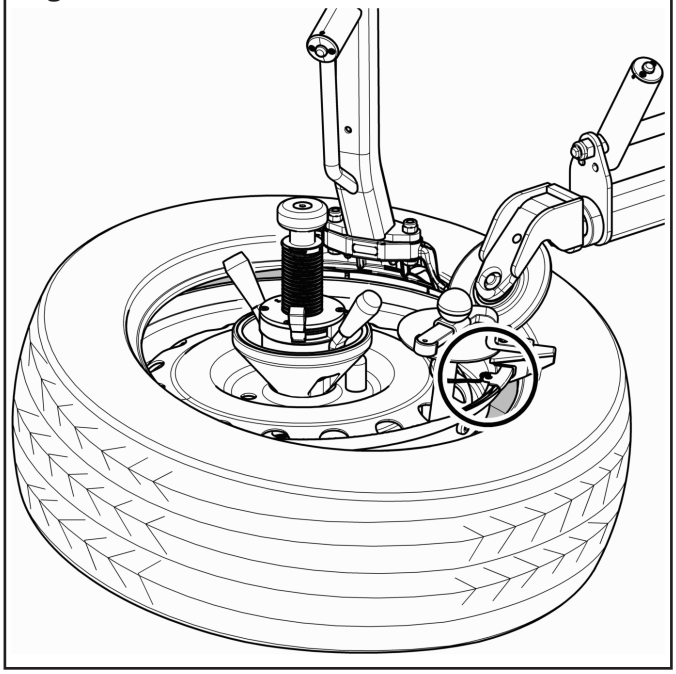


Fig. 79



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 BEADPUSHER WITH PULLER NEXT TO THE VALVE.

7. While pressing the rotation pedal, slowly bring the beadpusher with puller and the plastic protection to 6 o'clock position (**Fig. 80**). Place the the bead press tool at 3 o'clock (standard on one model) (**Fig. 81**), and slowly finish the tyre mounting operation (**Fig. 82**);

Fig. 80

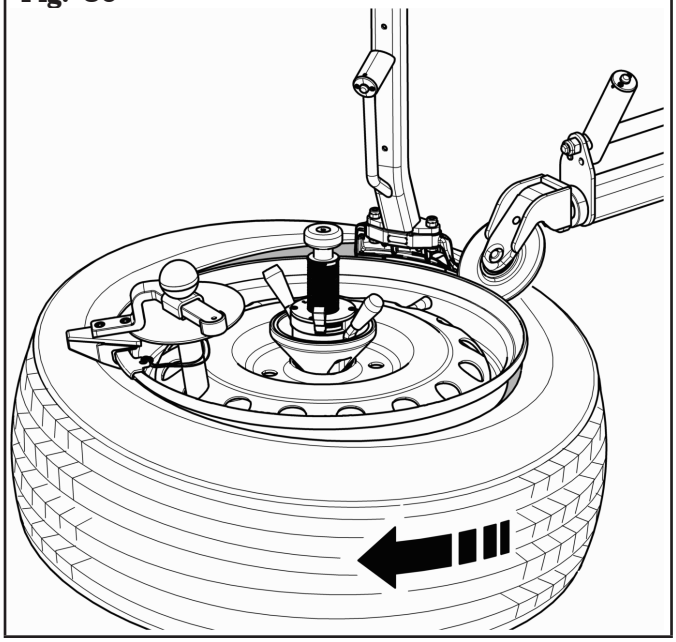


Fig. 81

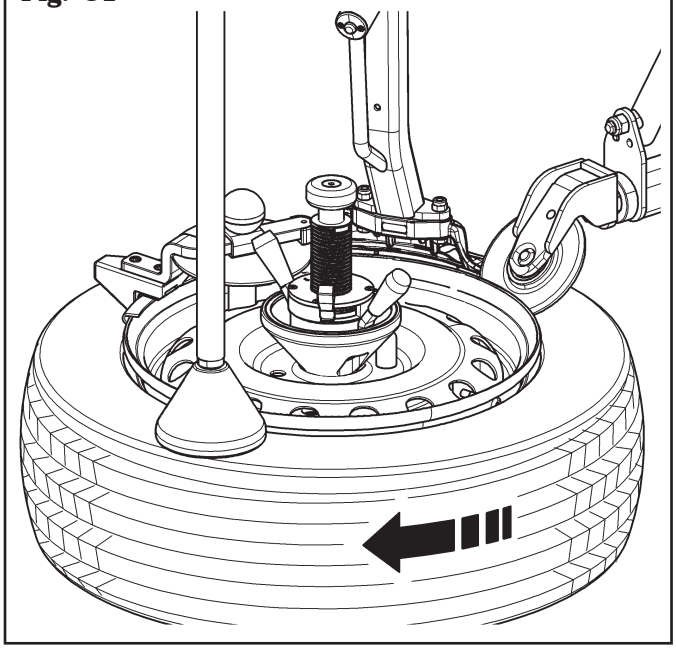
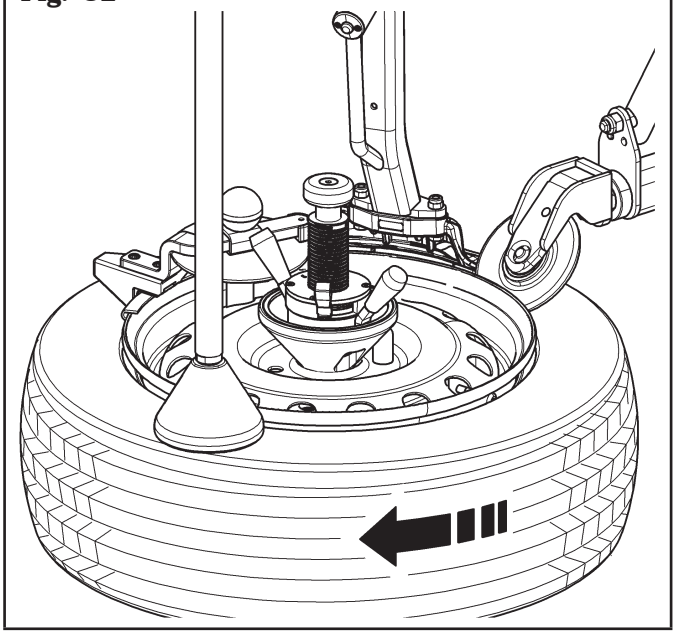
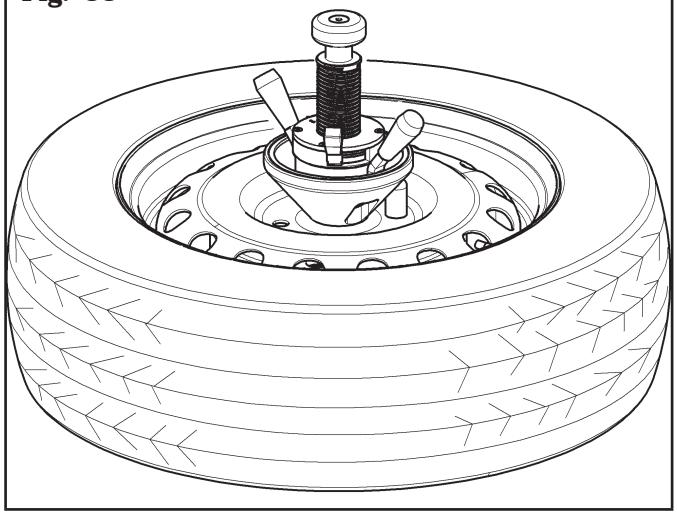


Fig. 82



8. at the end of the operation remove all the tools used (**Fig. 83**).

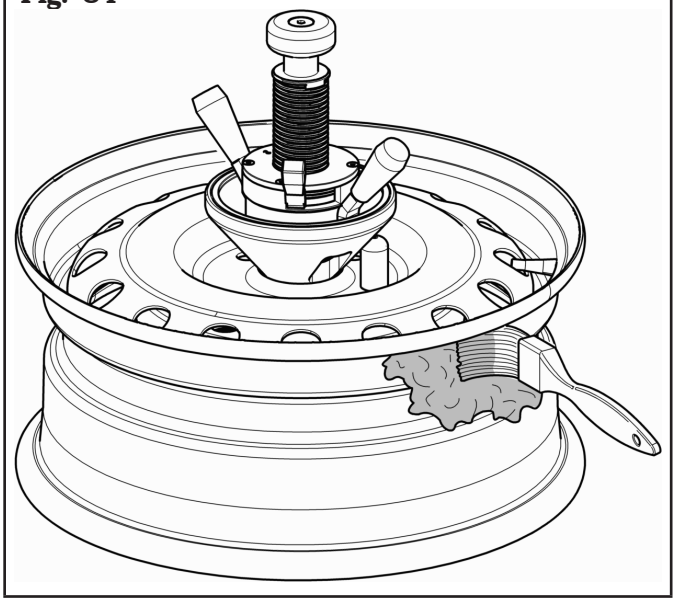
Fig. 83



12.12 Fitting of the first bead using the bead pressing extension

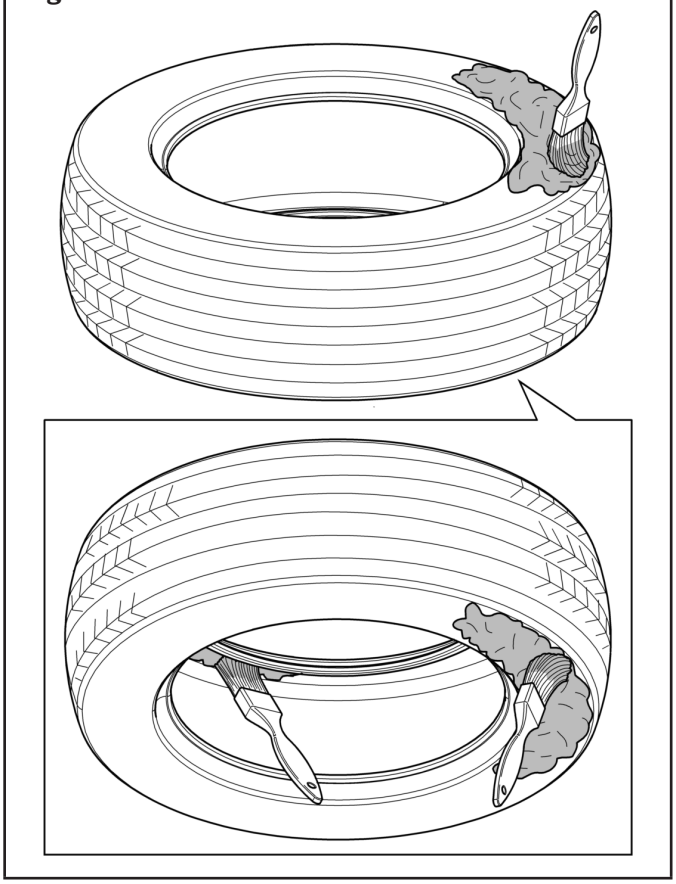
1. Generously grease the rim, taking care to keep the valve clean and not greased (**Fig. 84**);

Fig. 84



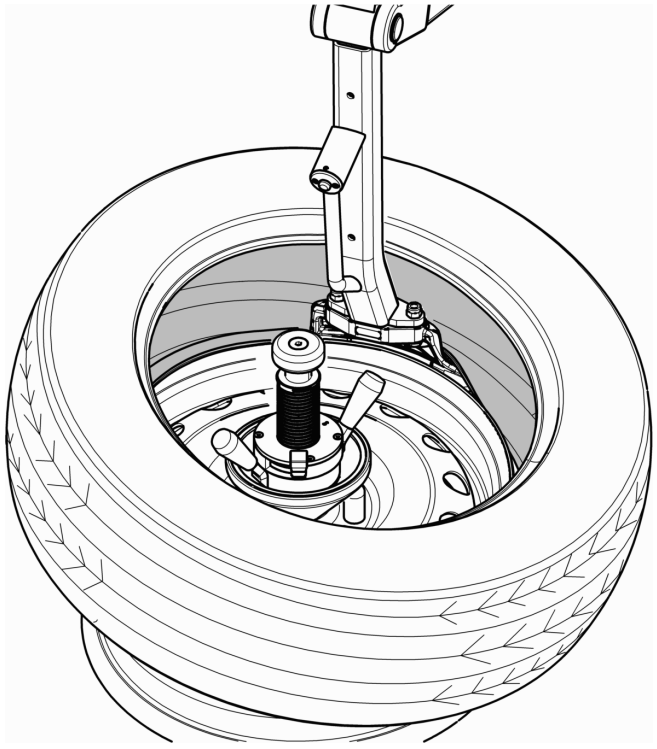
2. generously grease the tyre, both the lower part of the bead and the external part of the same, up to the tyre tread, and at least 3 cm (1.18") per side inside the tyre (**Fig. 85**);

Fig. 85



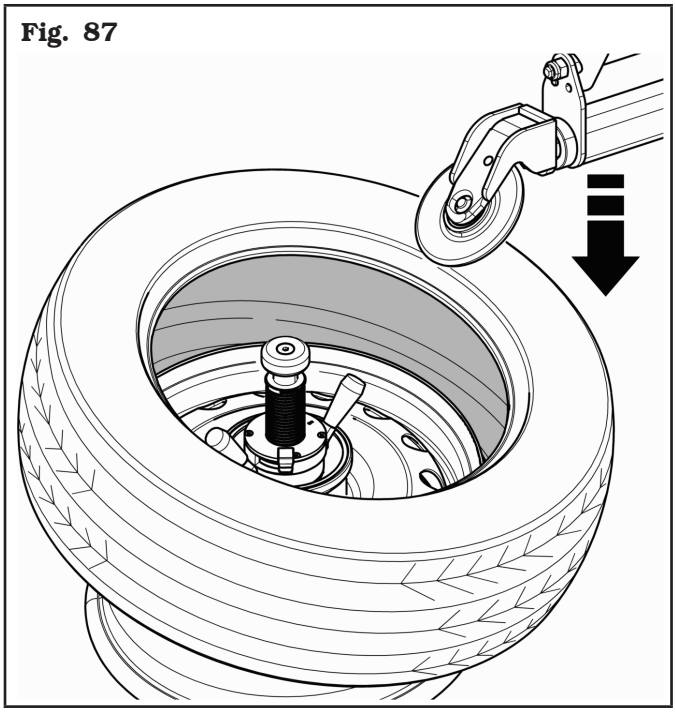
3. position the valve at about 7 o'clock, lay the tyre on the rim, manually position the toolhead on the rim (**Fig. 86**), insert the tyre in the mounting position on the toolhead and press the rotation pedal until the first bead is inserted;

Fig. 86



RUN FLAT OR UHP TYRES HAVE A PARTICULARLY RIGID PROFILE AND THE UPPER BEAD BREAKER ROLLER CAN ALSO BE USED TO INSERT THE FIRST BEAD (FIG. 87). IN THIS CASE, ALWAYS POSITION THE VALVE AT 7 O'CLOCK, FIT THE TYRE ON THE RIM (SEE FIG. 87) AND USING THE APPROPRIATE BUTTON (FIG. 16 REF. 2) (RH) LOWER THE UPPER BEAD BREAKER ROLLER 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.

Fig. 87

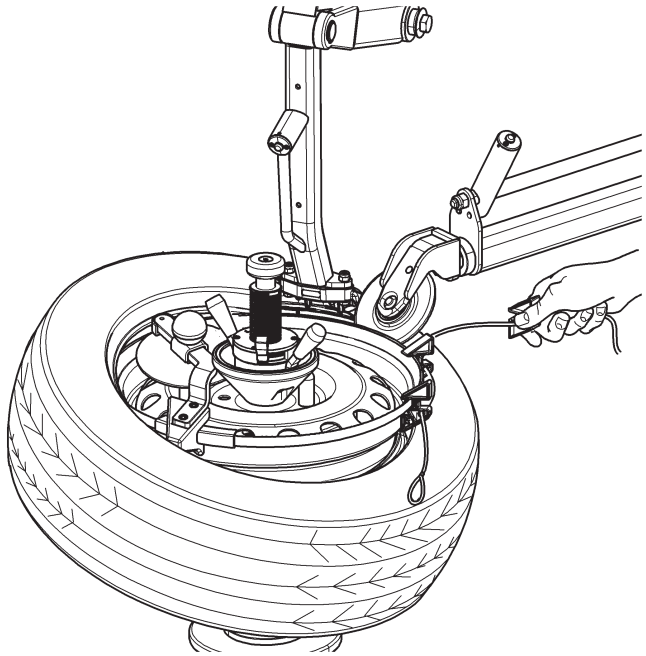


4. pressing the rotation pedal, place the valve at approximately 3 o'clock. Position the toolhead onto the rim edge;
5. acting on the appropriate button (**Fig. 16 ref. 2**) **(RH)**, use the upper bead breaker roller to push the tyre bead under the rim edge;
6. insert the bead pusher with puller exactly in correspondence with the valve. Fit the plastic protection on the edge of the rim next to the beadpusher with puller as shown in **Fig. 87**;

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 BEADPUSHER WITH PULLER NEXT TO THE VALVE.

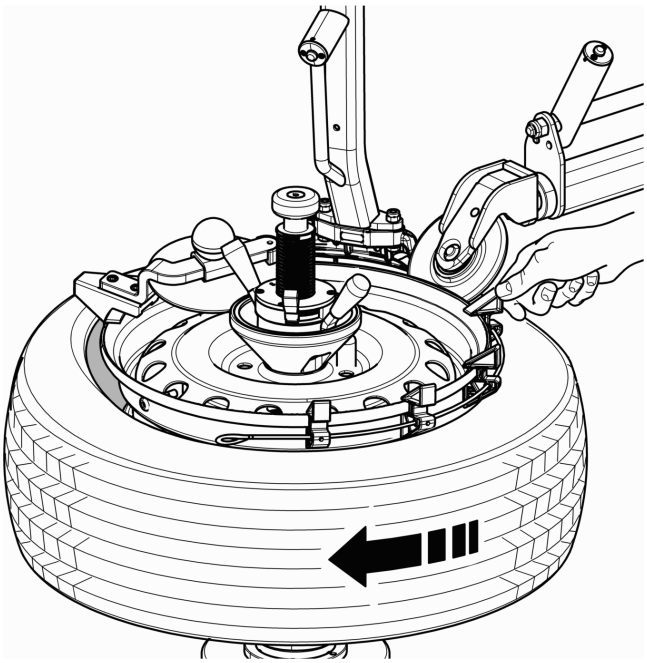
7. While pressing the rotation pedal, slowly bring the beadpusher with puller and the plastic protection to 5 o'clock position. Using the appropriate button (**Fig. 16 ref. 2**) **(RH)**, lower the upper bead breaker roller on the tyre sidewall to create the correct space for inserting the wedges of the "bead pressing extension" accessory (**Fig. 88**);

Fig. 88



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. 89**);

Fig. 89



9. the end of the operation, remove the bead pressing extension and all the tools used.

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

12.13 For rims with spoke end raised compared to the rim-edge

(Disassembly)

1. Clamp the wheel using the clamping device (preventively deflate the tyre completely and remove the balancing counterweights on both sides of the wheel);
2. carry out tyre bead breaking with the standard procedure;
3. use the upper bead breaker roller to lubricate with an approved lubricant the tyre bead, the lip, the bead seat and the EDGE of the RIM;
4. position the mounting/demounting arm (after it has been released with the relevant push button) and use the bead lifting lever to pull tyre bead upon the toolhead;
5. raise the lower bead breaker roller to reduce the tension of the tyre on the toolhead;
6. rotate the wheel in clockwise direction pushing the pedal provided;
7. with the lever lift the lower bead onto the toolhead and rotate in clockwise direction in order to complete demounting.

(Assembly)

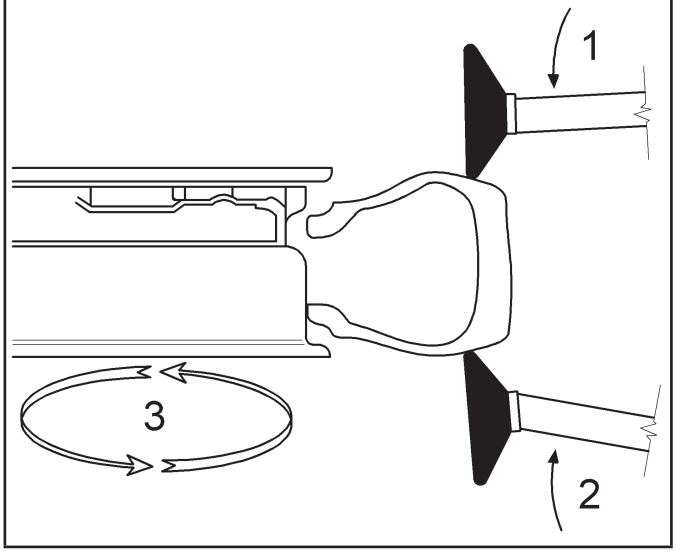
1. Lubricate both tyre-beads with an approved lubricant;
2. lubricate the inner part of the toolhead and also the rim edge;
3. complete mounting procedure following the standard procedure.

12.14 Special use of the bead-breaker

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

1. clamp the tyre between the bead breaker rollers;
2. turn the motor clockwise until the reference point on the tyre coincides with the reference point on the rim (usually the valve) (see **Fig. 90**).

Fig. 90



12.15 Tyre inflation

TYRE INFLATING OPERATIONS ARE HAZARDOUS FOR THE OPERATOR; MOREOVER, IF NOT PROPERLY EXECUTED, THEY CAN CAUSE DAMAGE TO THE USERS 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.**
- **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.

12.15.1 Tyre inflation with pressure gauge

Connect the inflation device to the tyre valve and inflate the same tyre using the pedal provided (**Fig. 18 ref. 2**).

A SAFETY DEVICE IS PRESENT FOR THE ADJUSTMENT OF THE MAXIMUM PRESSURE OF THE SUPPLIED AIR (4.2 ± 0.2 bar / 60 ± 3 psi).

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

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

12.15.2 Tubeless inflation of Run Flat or UHP tyre with TPMS valve

The inflation of a wheel must always take place without the inner core of the valve (**Fig. 20**). 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 bar ± 0.2 / 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 OR ADJUSTMENT PROCEDURE, DISCONNECT THE EQUIPMENT FROM THE ELECTRICITY SUPPLY USING THE SOCKET/PLUG COMBINATION AND CHECK THAT ALL MOBILE PARTS ARE AT A STANDSTILL.

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

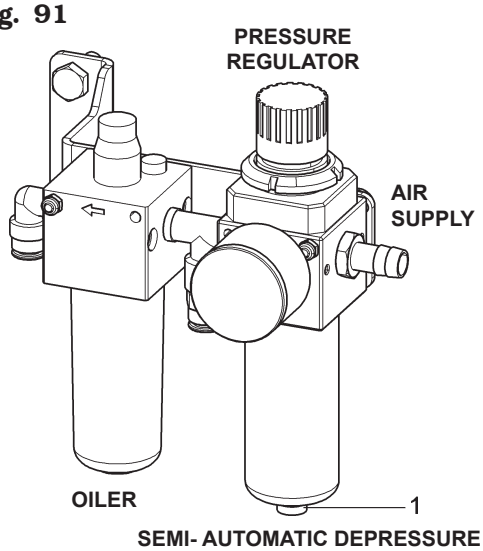
To guarantee the efficiency and correct functioning of the equipment, it is essential to carry out daily or weekly cleaning and weekly routine maintenance, as described below.
Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below.

- 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. 91**).
- Periodically check the calibration of lubricator of pressure/oiler gauge assembly:

Fig. 91



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. 91 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.

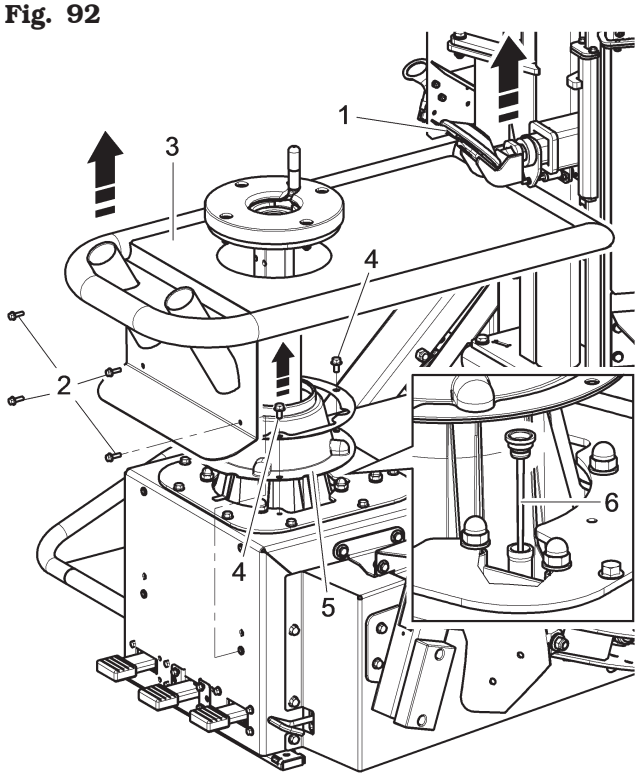
THIS OPERATION SHOULD NOT BE CARRIED OUT BY REMOVING THE CUP OF THE LUBRICATOR FILTER.

- 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.
- At regular intervals, at least every two months, verify the guard conditions, in relation to paragraph 3.0 Safety devices. If necessary replace damaged parts requesting for them to the supplier.

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!!

- At regular intervals, (at least every 100 working hours) check reduction gear lubricating oil level. Execute this operation following the procedure described below:
  1. raise the lower bead breaker roller (**Fig. 92 ref. 1**);
  2. remove the 4 clamping bolts of the accessory holder (**Fig. 92 ref. 2**);
  3. lift the accessory holder with hose as much as possible (**Fig. 92 ref. 3**);
  4. keeping the same lifted, remove the 3 clamping bolts (**Fig. 92 ref. 4**) of the rubber guard (**Fig. 92 ref. 5**);
  5. remove the rubber guard (**Fig. 92 ref. 5**). Now it is possible to remove the plug (**Fig. 92 ref. 6**) to check lubricant level in the reduction gear.

Fig. 92



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 Lubricants

To grease the self-centring chuck movement control reduction gear, use **ESSO GEAR OIL GX140**.
Lubricate slides and bolts/nut bolts or racks and pinion with a soft brush using lubricant of **ESSO GP**.

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

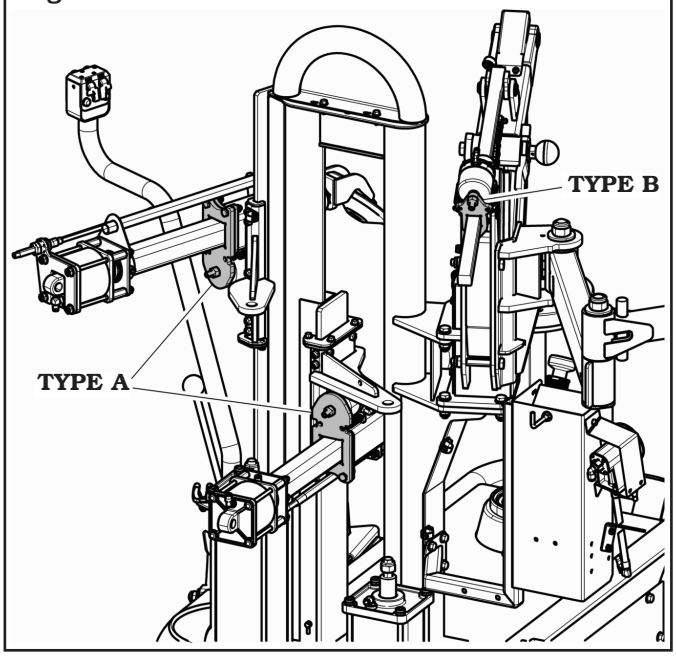
13.2 Neck adjustment

The procedure to be adopted depends on the type of neck.

Type A: having the fulcrum bolt (or pair of bolts) that keep in direct contact the neck with the adjustment plate.

Type B: adjusted with the neck beating against the bead breaker arms guide and not against the adjustment plate.

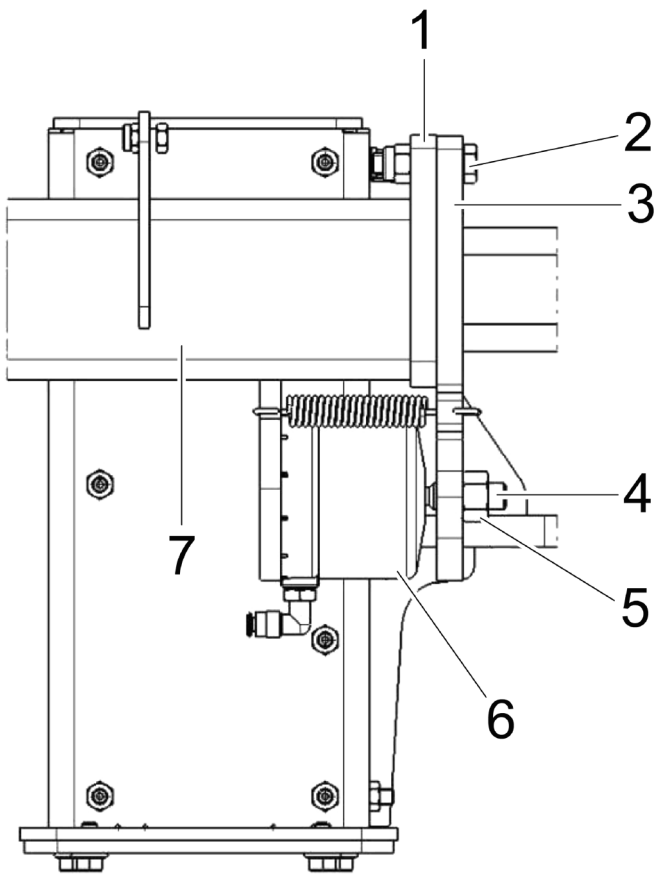
Fig. 93



TYPE A neck adjustment

In case of fulcrum-type bolts (**Fig. 94 ref. 2**) with neck (**Fig. 94 ref. 3**) fully beating against the adjustment plate (**Fig. 94 ref. 1**), carry out neck adjustment procedure as described below.

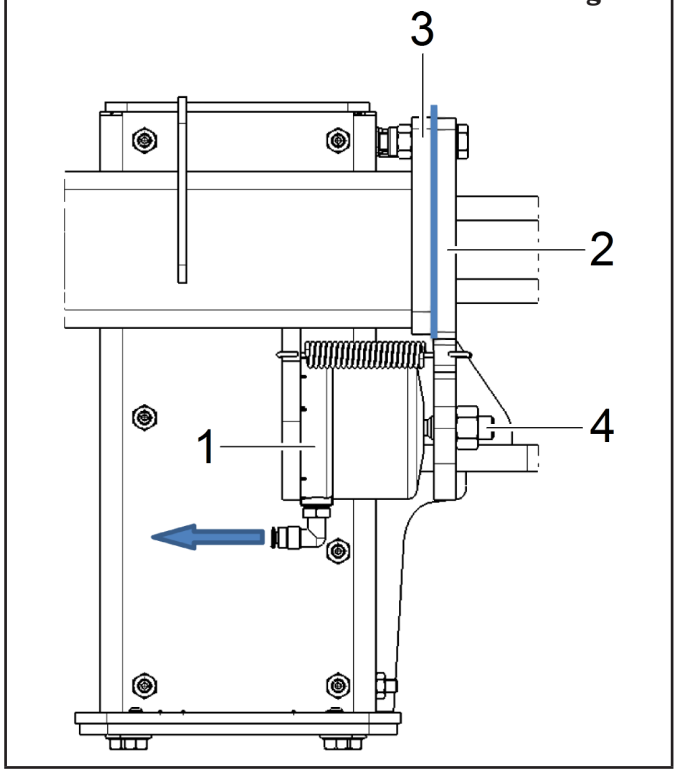
Fig. 94



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

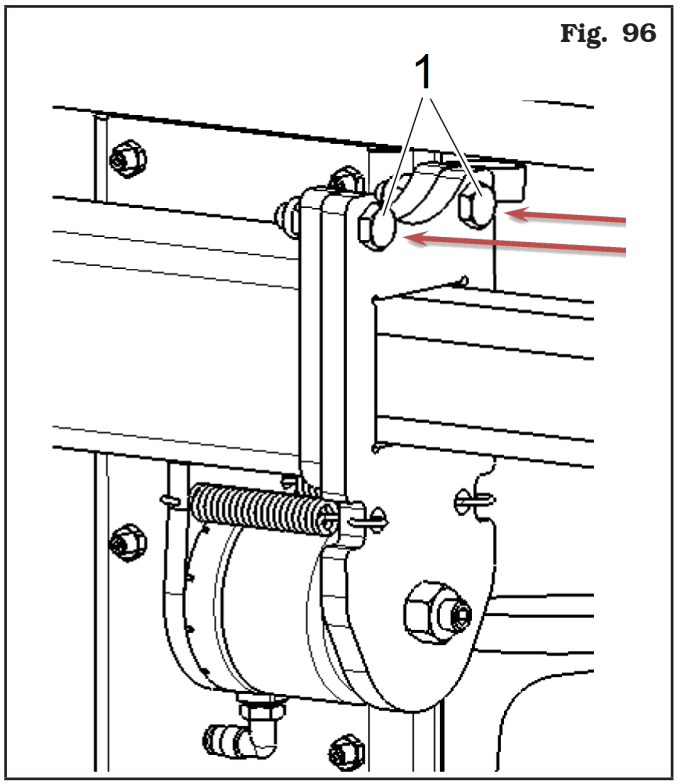
a. Blow off the compressed air from the cylinder (**Fig. 95 ref. 1**) of the neck (**Fig. 95 ref. 2**). Make neck (**Fig. 95 ref. 2**) reach beat position again on the adjustment plate (**Fig. 95 ref. 3**), by turning the adjusting grub screw (**Fig. 95 ref. 4**);

Fig. 95



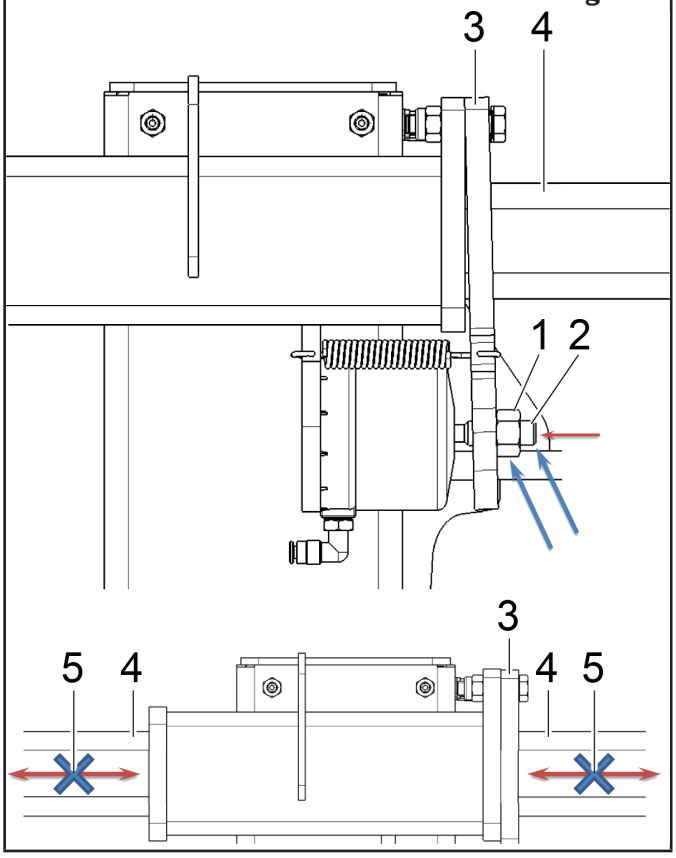
b. completely screw fulcrum-type bolt (or bolts) (**Fig. 96 ref. 1**) but without locking them, just making them approach. From this position, remove the bolts by one turn (**Fig. 96 ref. 1**);

Fig. 96



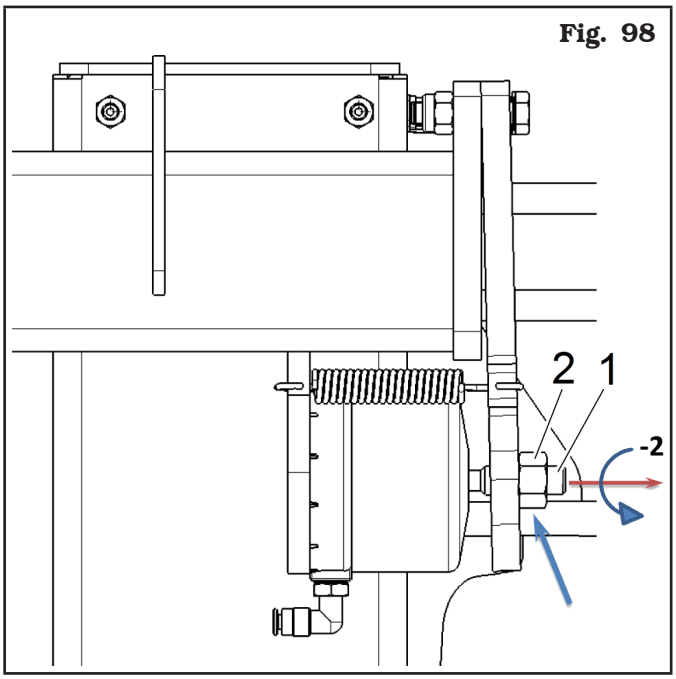
c. slacken lock nut (**Fig. 97 ref. 1**) of adjusting grub screw (**Fig. 97 ref. 2**). Then, screw the grub screw (**Fig. 97 ref. 2**) until neck (**Fig. 97 ref. 3**) strikes onto arm (**Fig. 97 ref. 4**), that as a consequence results clamped (**Fig. 97 ref. 5**);

Fig. 97



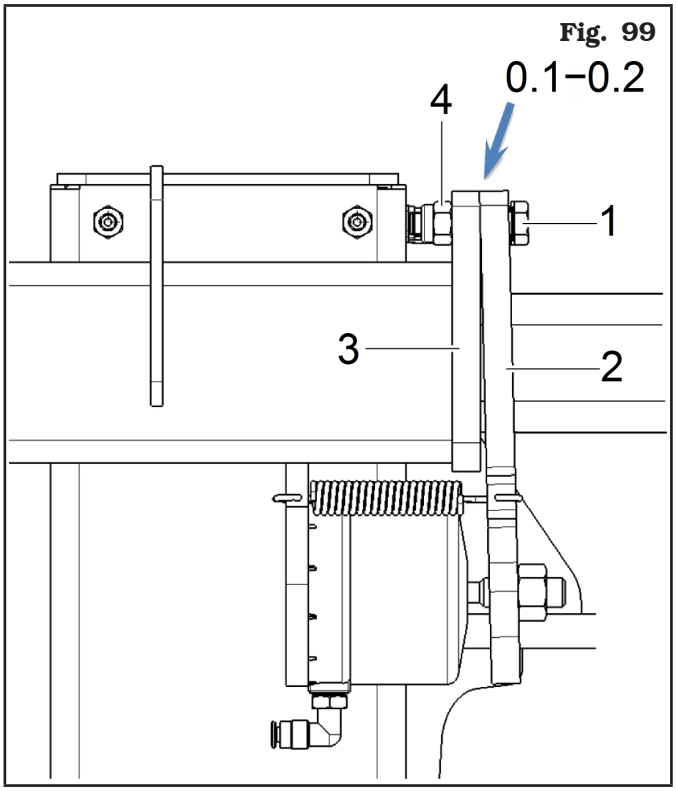
d. the position reached at point (c), remove neck adjusting grub screw counter-clockwise by 2 complete turns (**Fig. 98 ref. 1**) and lock the relevant counter nut (**Fig. 98 ref. 2**);

Fig. 98



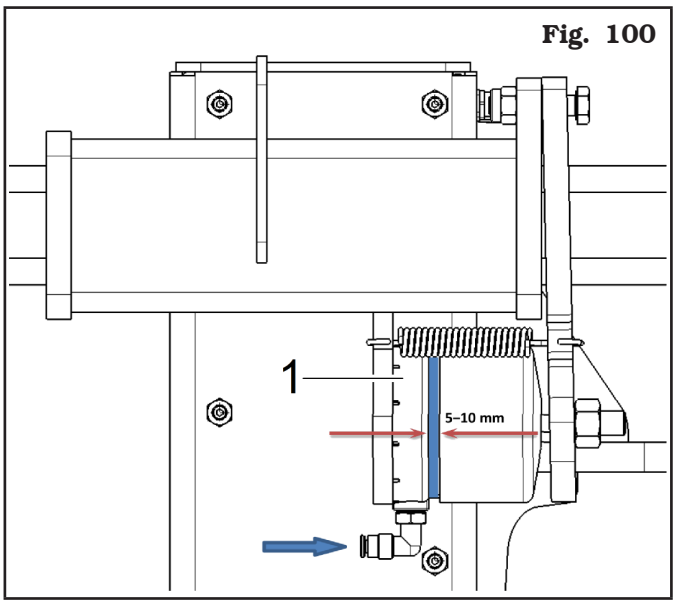
e. completely screw fulcrum-type bolt (or bolts) (**Fig. 99 ref. 1**) but without locking them, just making them approach, setting a 0.1 - 0.2 mm (0.005" - 0.01") play between neck (**Fig. 99 ref. 2**) and adjusting plate (**Fig. 99 ref. 3**), positioning nut (**Fig. 99 ref. 4**) and letting it rest completely adjusting plate (**Fig. 99 ref. 3**);

Fig. 99



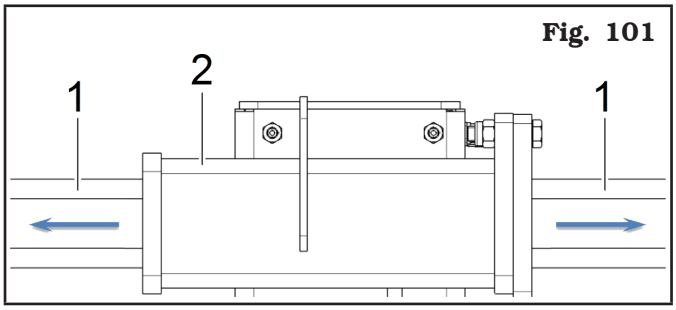
f. operate cylinder (**Fig. 100 ref. 1**), supplying it with compressed air, and make sure its stroke is included between 5 - 10 mm (0.2" - 0.4");

Fig. 100



g. blow off cylinder and make sure the arm (**Fig. 101 ref. 1**) can slide freely in its guide (**Fig. 101 ref. 2**);

Fig. 101

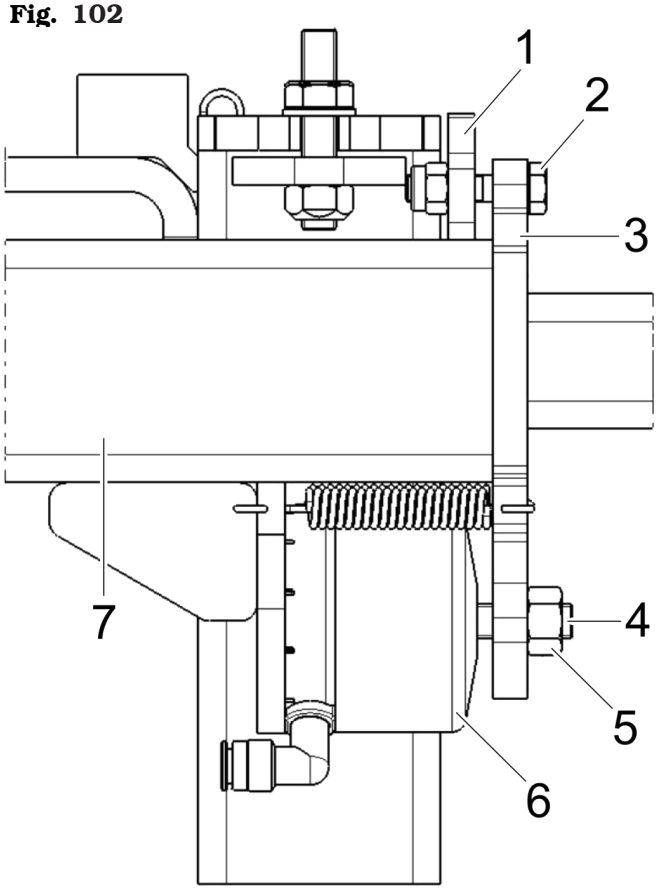


h. repeat points (f) and (g) 3 times at least.

TYPE B neck adjustment

In case of fulcrum-type bolts (**Fig. 102 ref. 2**) with neck (**Fig. 102 ref. 3**) fully beating onto bead breaker arm's guide (**Fig. 102 ref. 7**) (not on the adjusting plate (**Fig. 102 ref. 1**)), carry out neck adjustment procedure as described below.

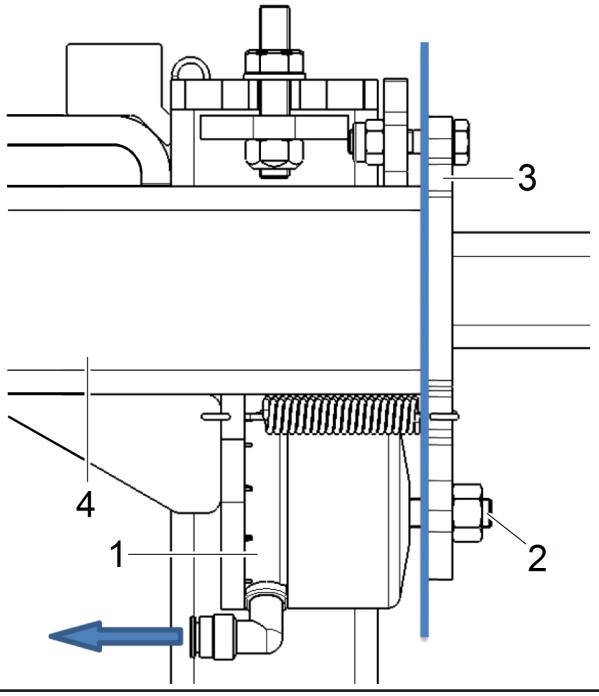
Fig. 102



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

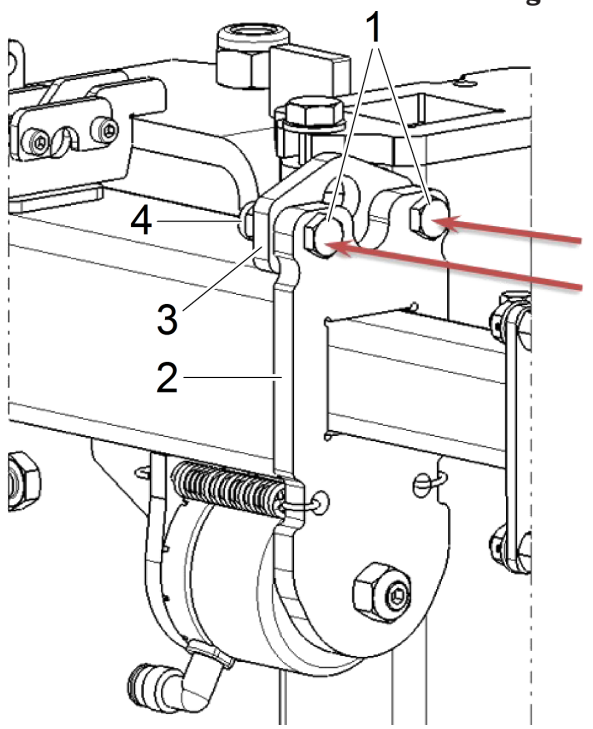
a. Blow off the compressed air from neck cylinder (**Fig. 103 ref. 1**). Make neck (**Fig. 103 ref. 3**) reach beat position again on the guide support surface (**Fig. 103 ref. 4**), by turning the adjusting grub screw (**Fig. 103 ref. 2**);

Fig. 103



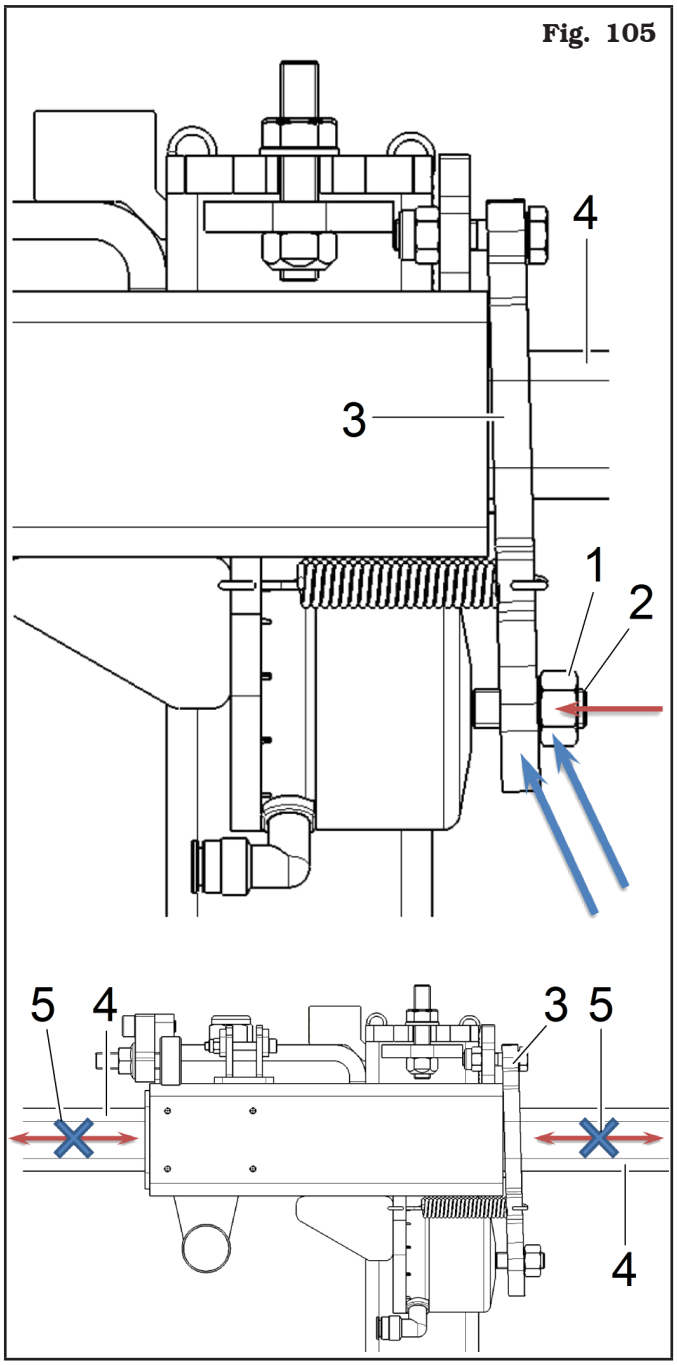
b. completely screw fulcrum-type bolt (or bolts) (**Fig. 104 ref. 1**) but without locking them, just making them approach, setting a 0.1 - 0.2 mm play (0,005" - 0.01") between neck (**Fig. 104 ref. 2**) and adjusting plate (**Fig. 104 ref. 3**), positioning nut (**Fig. 104 ref. 4**) and letting it rest completely onto adjusting plate;

Fig. 104



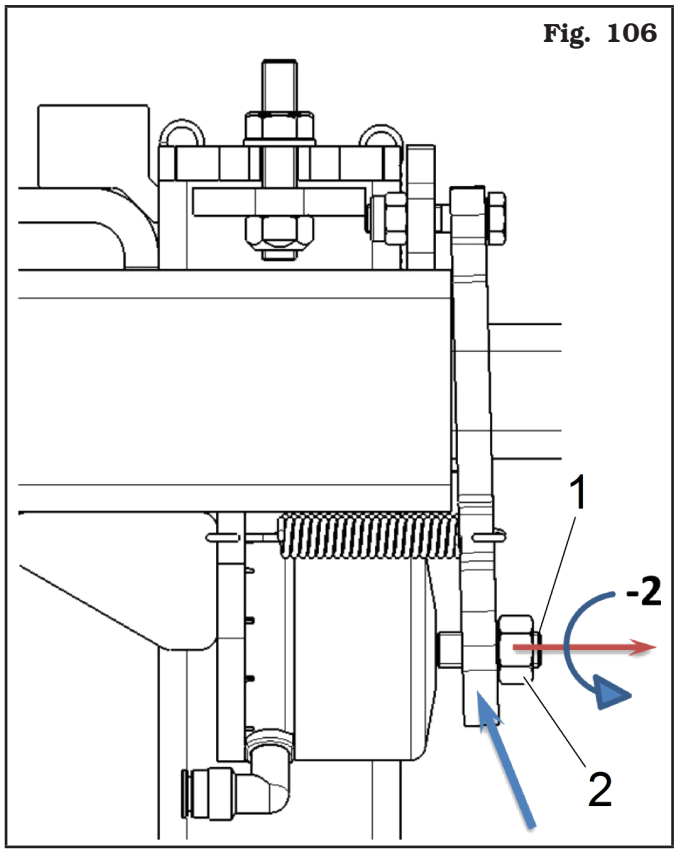
c. slacken lock nut (**Fig. 105 ref. 1**) of adjusting grub screw (**Fig. 105 ref. 2**). Then, screw the grub screw (**Fig. 105 ref. 2**) until neck (**Fig. 105 ref. 3**) strikes onto arm (**Fig. 105 ref. 4**), that as a consequence results clamped (**Fig. 105 ref. 5**);

Fig. 105



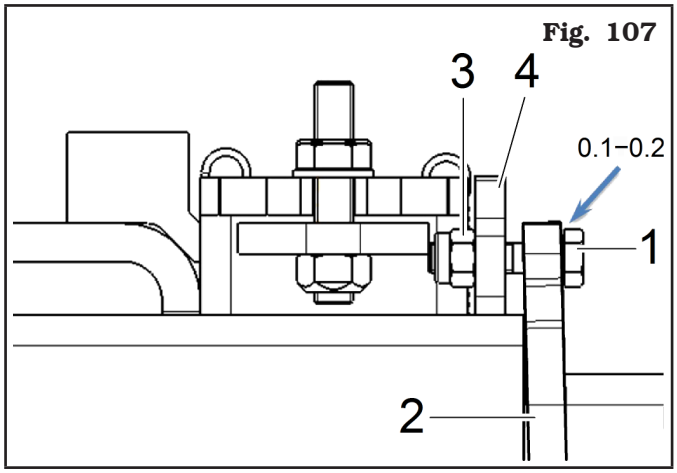
d. the position reached at point (c), remove neck adjusting grub screw counter-clockwise by 2 complete turns (**Fig. 106 ref. 1**) and lock the relevant counter nut (**Fig. 106 ref. 2**);

Fig. 106



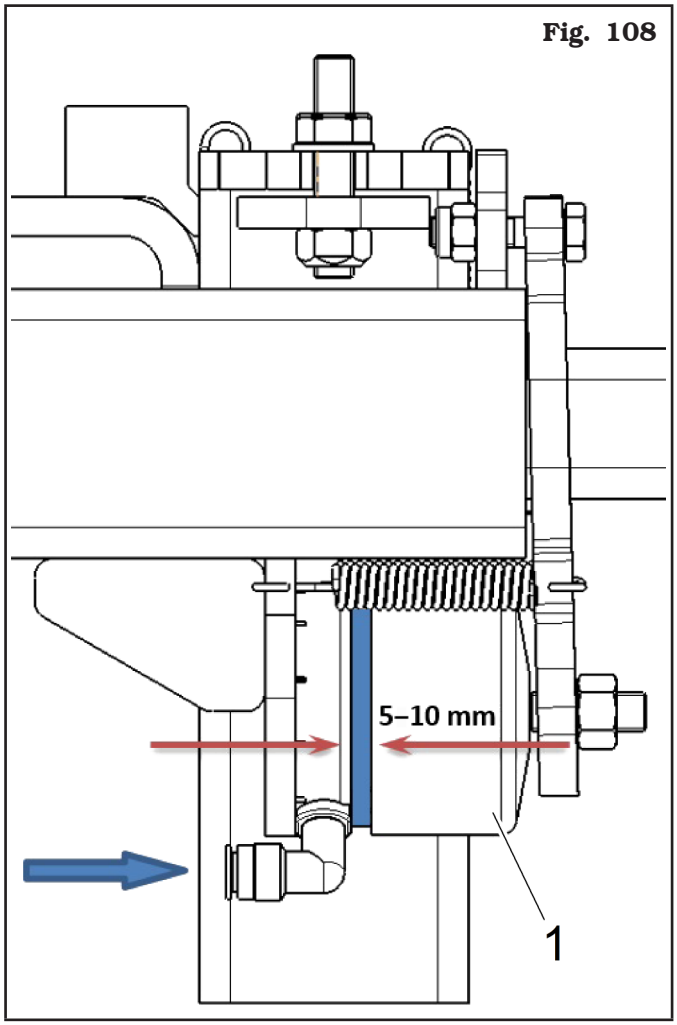
e. turn fulcrum-type bolt (or bolts) (**Fig. 107 ref. 1**) in order to reset 0.1 - 0.2 mm play (0.005" - 0.01") between neck (**Fig. 107 ref. 2**) and fulcrum-type screw head (**Fig. 107 ref. 1**), letting nut (**Fig. 107 ref. 3**) rest completely onto adjusting plate (**Fig. 107 ref. 4**).

Fig. 107



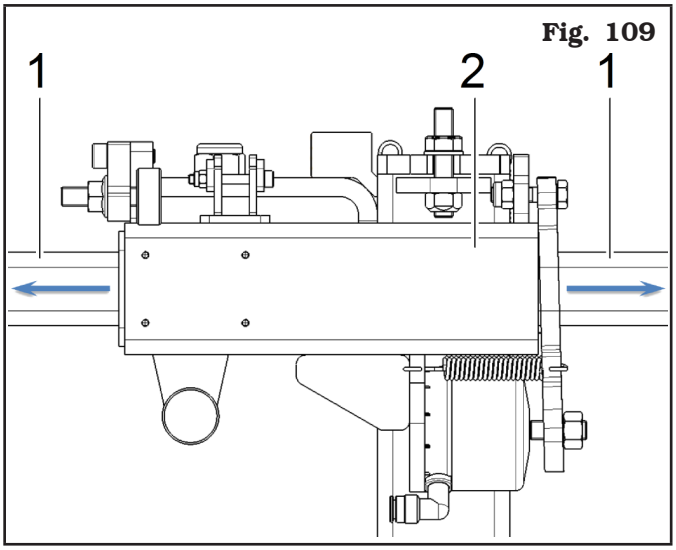
f. operate cylinder (**Fig. 108 ref. 1**), supplying it with compressed air, and make sure its stroke is included between 5 - 10 mm (0.2" - 0.4");

Fig. 108



g. blow off cylinder and make sure the arm (**Fig. 109 ref. 1**) can slide freely in its guide (**Fig. 109 ref. 2**);

Fig. 109



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

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 bead breaker roller is not immediately activated.	1. Power supply missed. 2. The control push button is broken.	1. Connect the power supply. 2. Call for technical assistance. 
The upper bead-breaker arm remains down.	Compressed air supply pressure below 6 bar.	Check supply pressure. Call for technical assistance. 
Nozzle does not deliver air when the inflation pedal is pressed.	The inflation pedal is badly adjusted.	Call for technical assistance. 
The self-centring chuck does not rotate.	Inverter overload alarm *Or* Inverter undervoltage alarm *Or* 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 self-centring chuck does not reach the maximum rotation speed.	The mechanical resistance of the gearmotor system has increased.	Turn the self-centring chuck without wheel for a few minutes so that the system heats, thus reducing frictions. If in the end the self-centring chuck does not accelerate again, call for technical assistance. 
The self-centring chuck does not rotate counter-clockwise.	Pedalboard microswitch breakage.	Replace microswitch.
The self-centring chuck doesn't rotate, but it attempts rotation when the equipment is switched on again.	Pedalboard irreversible de-calibration.	Call for technical assistance. 
The self-centring chuck rotates slowly but it does not operate on the motor pedal.	Pedalboard reversible de-calibration.	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
The toolhead holder carriage moves vertically during machining operations.	1. The locking cylinder is leaking air.	1. Call for technical assistance.
PNEUMATIC BEADPUSHER (standard on one model)		
No movement is generated when the control lever is operated.	1. Power supply missed. 2. The supply hoses have not been correctly assembled. 3. The control valve is not working.	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.	1. Supply missing or insufficient. 2. The supply hoses have not been correctly assembled. 3. The control valve is not working.	1. Check power supply. 2. Check hoses fitting. 3. Call for technical assistance.
When the equipment is aired, the front lifting device tends to move with no consent by the operator.	Possible valve de-calibration.	Call for technical assistance.

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)	200-240
	Phases	1
	Frequency (Hz)	50/60
Typical current draw (A)		5
Self-centring chuck rotation speed (rev/min)		0 - 14

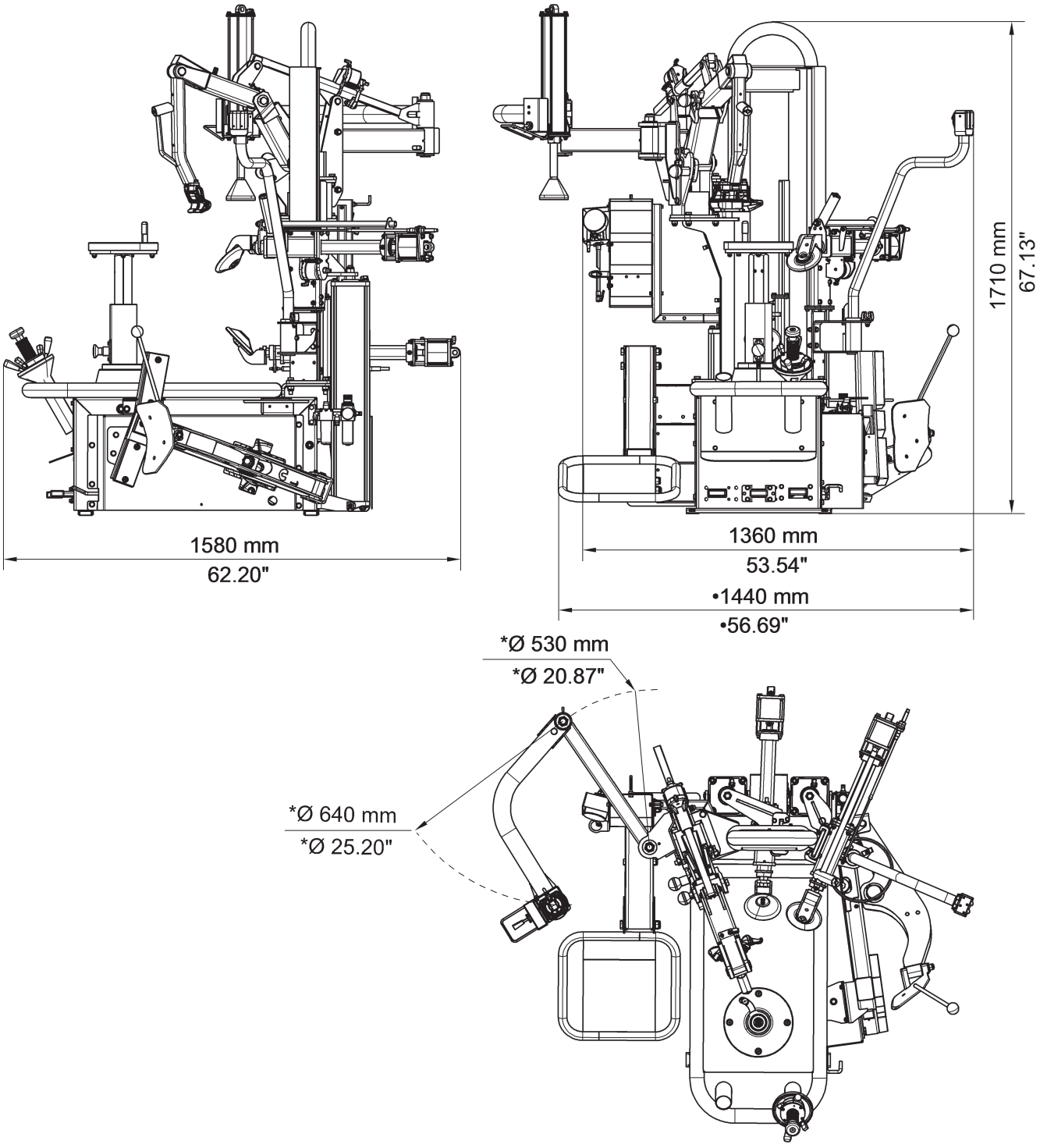
15.2 Technical mechanical data

Tyre max. diameter (inches)	46”
Rim locking diameter (inches)	10 - 34
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)

	ROT.KARTL.201683	ROT.KARTL.201690
Weight (kg)	393 (867 lbs)	340 (750 lbs)

15.3 Dimensions

Fig. 110



* applies to model with pneumatic beadpusher
• on model with lateral lifting device

16.0 STORING

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

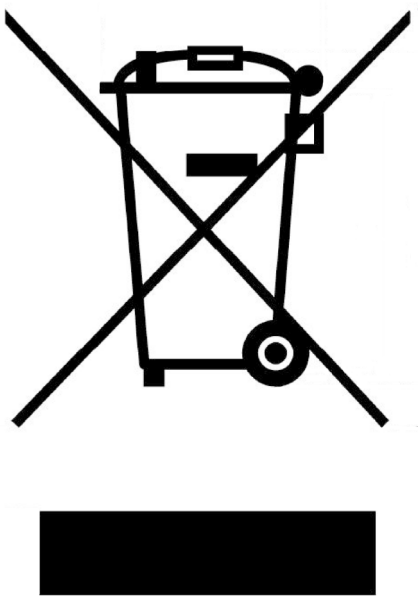
17.0 SCRAPPING

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. 111



18.0 REGISTRATION PLATE DATA

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

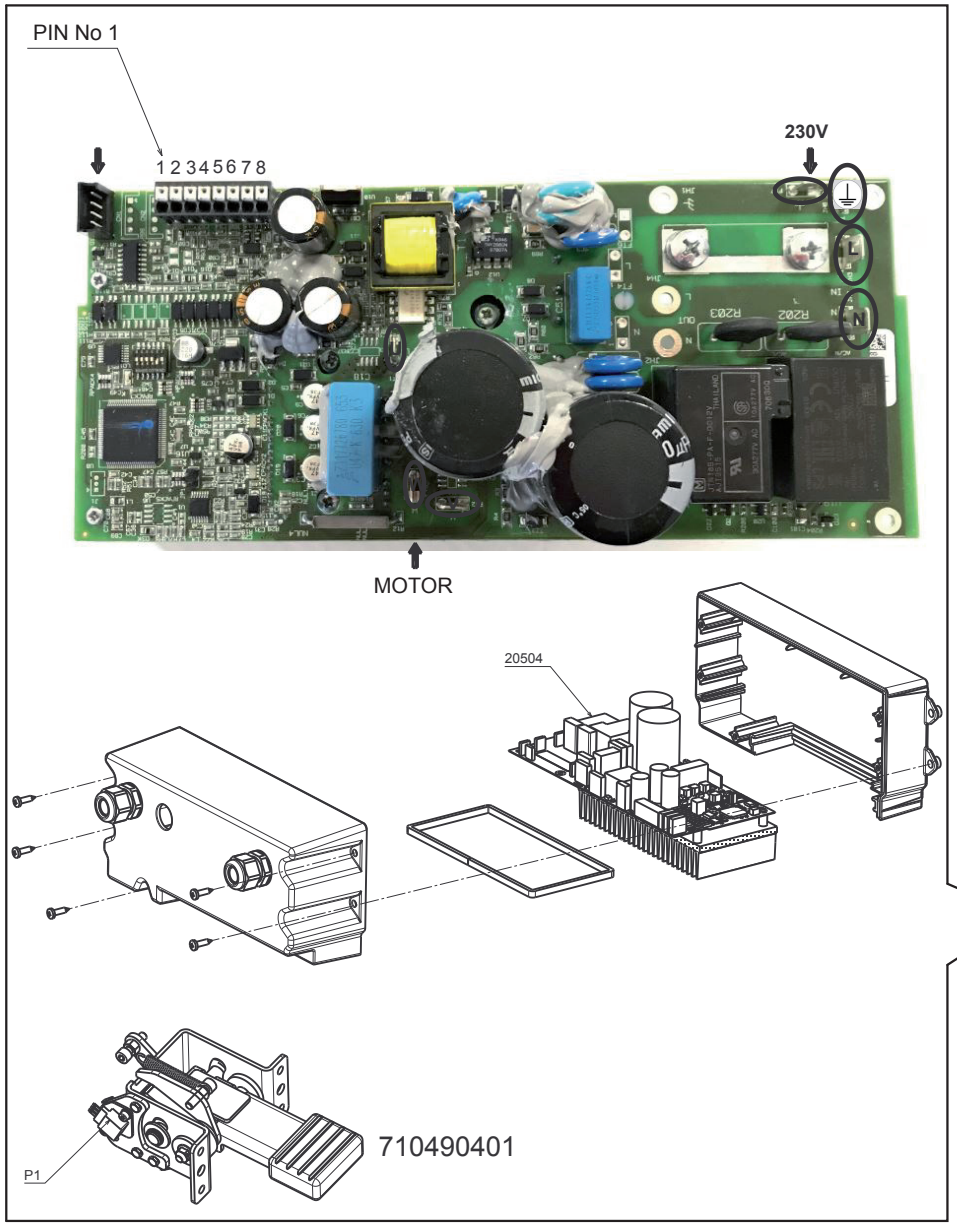
The validity of the Conformity Declaration enclosed to this manual is also extended to products and/or devices the equipment model object of the Conformity Declaration can be equipped with.
Said plate must always be kept clean from grease residues or filth generally.

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.

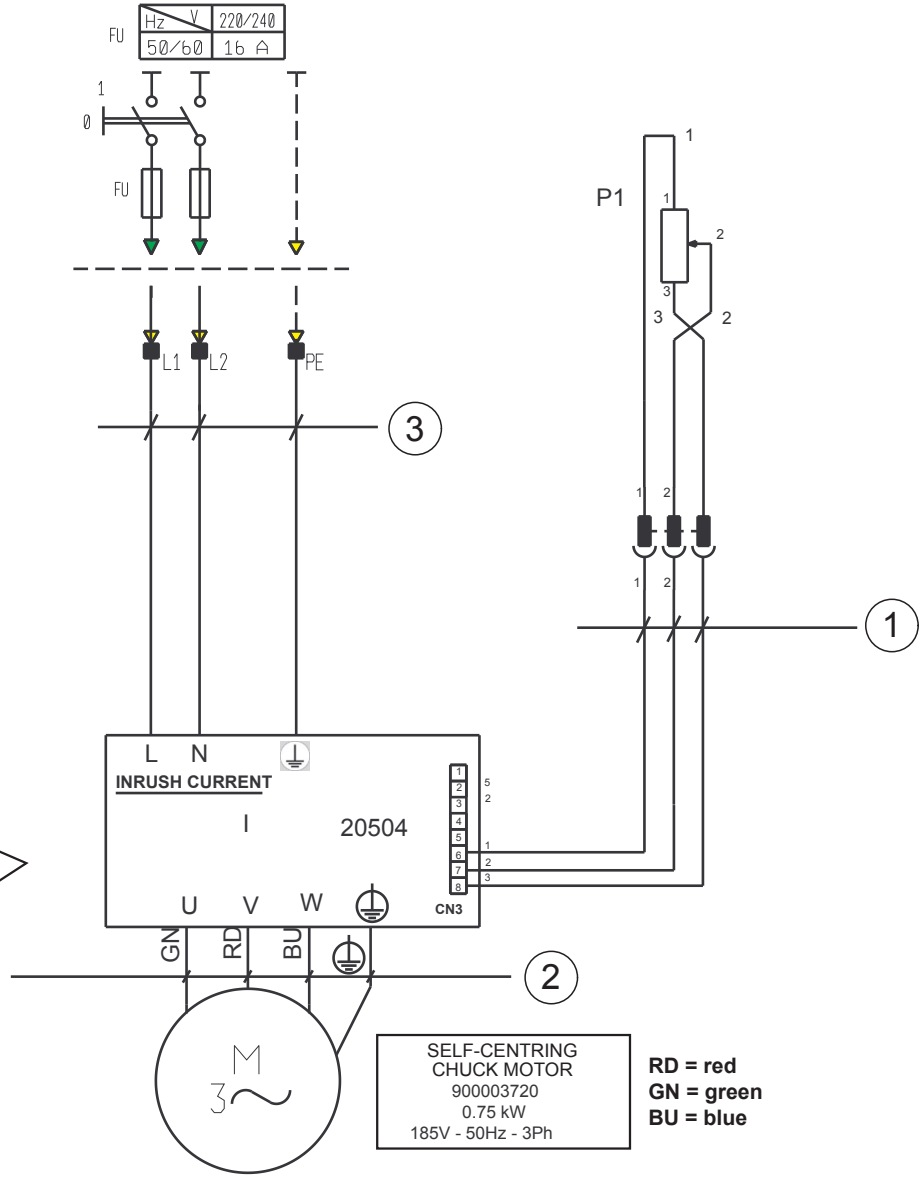
WARNING: Should the plate be accidentally damaged (removed from the equipment, damaged or even partially illegible) inform immediately the manufacturer.

19.0 FUNCTIONAL DIAGRAMS

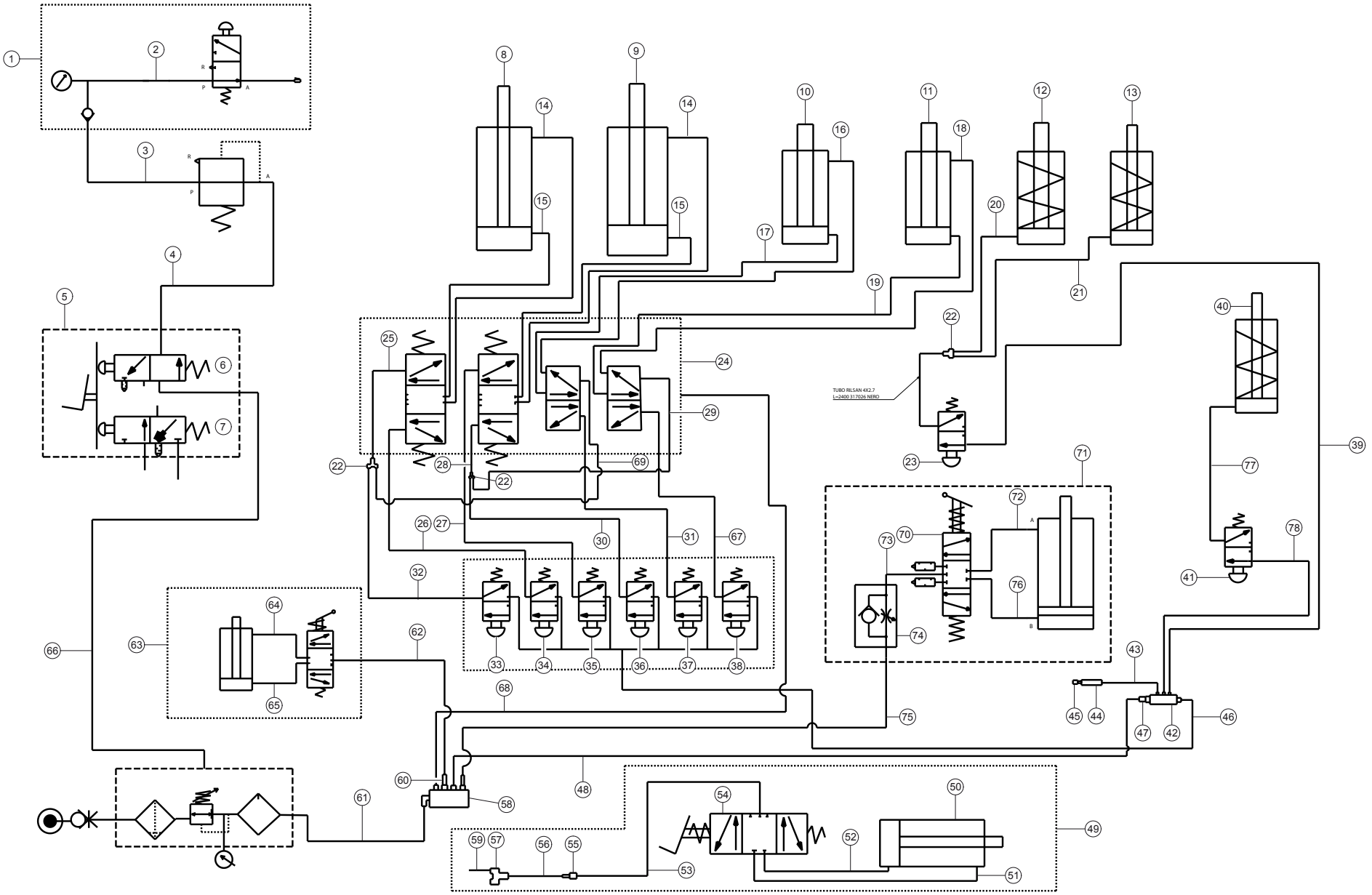
Here follows a list of the equipment functional diagrams.



SINGLE PHASE POWER CABLE 2P + GROUND x bmmq



No.	Cod.	Description
	■	*Clamp*
	M	*3 Ph asynchronous motor*
	I	*Motor control inverter*
	P1	*Motor rotation control potentiometer control*
	CN3	*Micro pedalboard inverter connector*
1	710565021	*Inverter signal cable*
2	710265061	*Inverter cable*
3	710265031	*Power supply cable*



VSG VEHICLE SERVICE GROUP a DOVER company	**LIST OF COMPONENTS**	*PNEUMATIC DIAGRAM*	***Page 66 of 70***
	Drawing N°B - Rev. 0 / **710805021**		**TYRE-CHANGER SERIES KARACTER.TLX**

No.	Cod.	Description
1		*Inflation assembly with pressure gauge*
2	317008	*8x6 red rilsan hose L=2400*
3	317008	*8x6 red rilsan hose L=2000*
4	317009	*8x6 blue rilsan hose L=1300*
5		*Inflation pedal valve*
6		*N.O. black*
7		*N.C. white*
8		*Lower bead breaker roller cylinder D.120*
9		*Upper bead breaker roller cylinder D.120*
10		*Upper cam cylinder*
11		*Lower cam cylinder*
12		*Upper neck cylinder*
13		*Lower neck cylinder*
14	317007	*8x6 black rilsan hose L=900*
15	317007	*8x6 black rilsan hose L=250*
16	317006	*6x4 black rilsan hose L=1750*
17	317006	*6x4 black rilsan hose L=1650*
18	317006	*6x4 black rilsan hose L=1550*
19	317006	*6x4 black rilsan hose L=1400*
20	317026	*4x2.7 black rilsan hose L=2400*
21	317026	*4x2.7 black rilsan hose L=1900*
22	B5815000	*V D.4 fitting*
23		*Bead breaker diameter adjustment*
24	710814220	*Base with valves*
25	BMP70000	*4x2.7 white rilsan hose L=100*
26	317028	*4x2.7 green rilsan hose L=1750*
27	317027	*4x2.7 red rilsan hose L=1750*
28	BMP90000	*4x2.7 yellow rilsan hose L=100*
29	BMP90000	*4x2.7 yellow rilsan hose L=50*
30	BMP90000	*4x2.7 yellow rilsan hose L=1750*
31	317039	*4x2.7 blue rilsan hose L=1750*
32	BMP70000	*4x2.7 white rilsan hose L=1750*
33		*Upper bead breaker rise*
34		*Upper bead breaker descent*
35		*Lower bead breaker rise*
36		*Lower bead breaker descent*
37		*Upper cam*
38		*Lower cam*
39	317026	*4x2.7 black rilsan hose L=2500*
40		*Tool positioning neck cylinder*
41		*Tool diameter adjustment*
42	B7351000	*1/8' 5-way fitting*
43	317026	*4x2.7 black rilsan hose L=100*
44	B9451000	*D.4 straight intermediate fitting*

No.	Cod.	Description
45	325154	*Plug fitting*
46	317006	*6x4 black rilsan hose L=1950*
47	325194	*8-1/8 straight fixed fitting*
48	317007	*8x6 black rilsan hose L=550*
49	710890180	*Lateral bead breaker assembly*
50		*Lateral bead breaker cylinder*
51	317036	*10x6.5 black Elastolan hose L=1500*
52	317036	*10x6.5 black Elastolan hose L=1700*
53	317036	*10x6.5 black Elastolan hose L=200*
54		*Valve for lateral bead breaker control*
55	325218	*10x8 reduction*
56	317007	*8x6 black rilsan hose L=1300*
57	325181	*Y8-fitting*
58	B3666001	*5-way shunt*
59	317007	*8x6 black rilsan hose L=100*
60	325054	*8-6 reduction*
61	317007	*8x6 black rilsan hose L=650*
62	317006	*6x4 black rilsan hose L=4100*
63		*Plus cylinder*
64	317006	*6x4 black rilsan hose L=250*
65	317006	*6x4 black rilsan hose L=450*
66	317009	*8x6 blue rilsan hose L=1250*
67	317040	*4x2.7 dark blue rilsan hose L=1750*
68	317007	*8x6 black rilsan hose L=900*
69	BMP70000	*4x2.7 white rilsan hose L=50*
70		*Bead breaker control valve*
71		*Lifting device*
72	317022	*Black Elastollan hose 8x6 L=1300*
73	317022	*Black Elastollan hose 8x6 L=70*
74	399284	*Flow regulator*
75	317022	*Black Elastollan hose 8x6 L=750*
76	317022	*Black Elastollan hose 8x6 L=1000*
77	317026	*4x2.7 black rilsan hose L=1600*
78	317026	*4x2.7 black rilsan hose L=2400*

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

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

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

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

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

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

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

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

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

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

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

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

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

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