



**7522-M009-00**

**TYRE-CHANGER SERIES  
NAV73.17 and G10760.17**

**INSTRUCTION MANUAL**  
Applicable to the following models  
**ROT.N7317.201843**  
**RAV.G0760.206220**

**EN**

ORIGINAL INSTRUCTIONS

---

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

---

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

**VEHICLE SERVICE GROUP ITALY S.r.l**

Via Filippo Brunelleschi, 9 - 44020 Ostellato - Ferrara - Italy

Phone (+39) 051 6781511 - Fax (+39) 051 846349 - e-mail: [aftersales.emea@vsgdover.com](mailto:aftersales.emea@vsgdover.com)

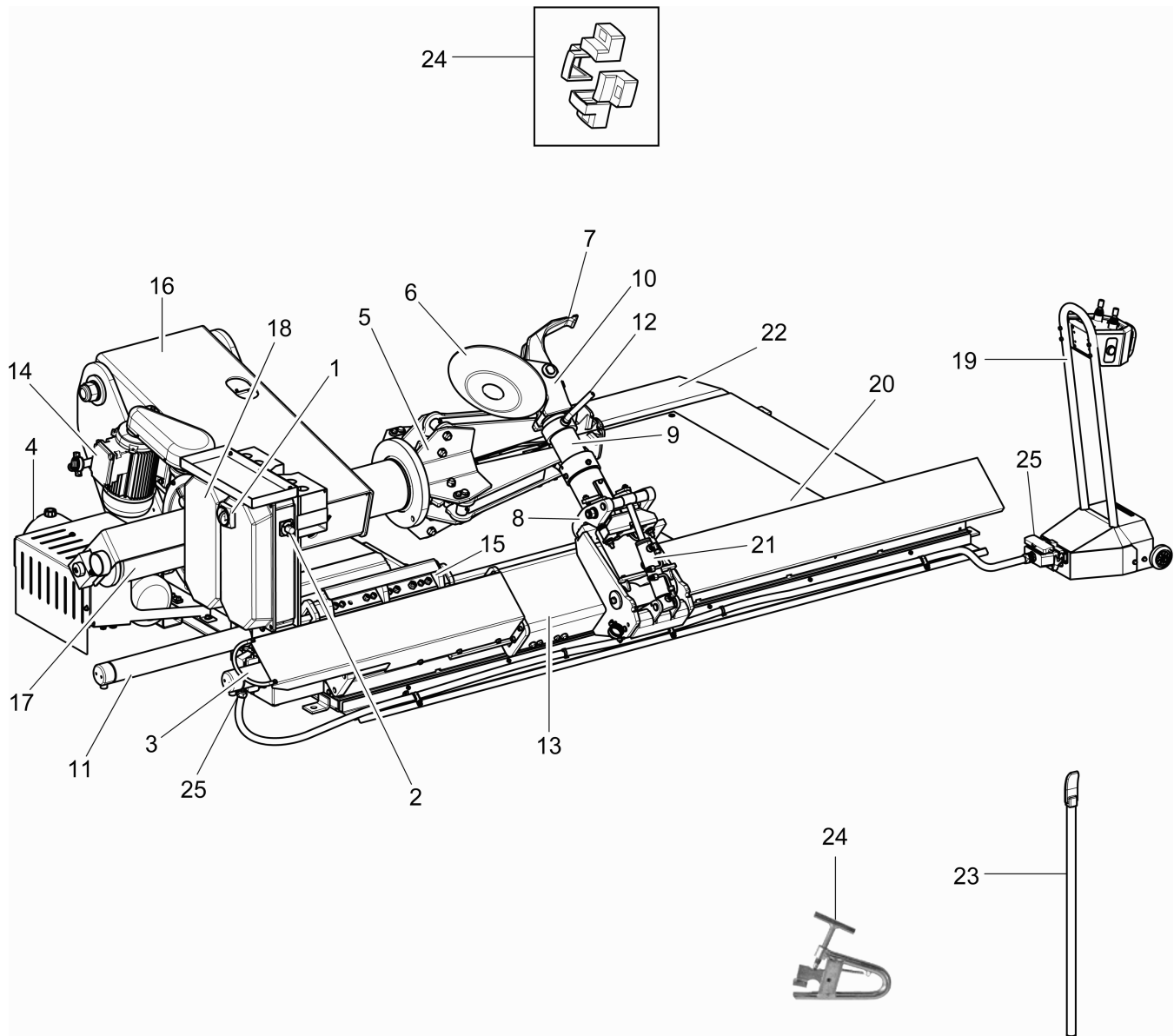
**7522-M009-00 - Rev. n. 00 (09/2023)**

**SUMMARY**

<b>GENERAL DESCRIPTION</b> _____	<b>3</b>	<b>12.0 USE OF THE EQUIPMENT</b> _____	<b>18</b>
<b>SYMBOLS USED IN THE MANUAL</b> _____	<b>4</b>	12.1 <i>Precaution measures during tyre removal and fitting</i> _____	<b>18</b>
<b>PLATES LOCATION DRAWING</b> _____	<b>5</b>	12.2 <i>Preliminary operations</i> _____	<b>19</b>
<b>1.0 GENERAL INTRODUCTION</b> _____	<b>7</b>	12.3 <i>Preparing the wheel</i> _____	<b>19</b>
1.1 <i>Introduction</i> _____	<b>7</b>	12.4 <i>Wheel clamping</i> _____	<b>20</b>
<b>2.0 INTENDED USE</b> _____	<b>7</b>	12.5 <i>Functioning of tool holder arm</i> _____	<b>22</b>
2.1 <i>Training of personnel</i> _____	<b>7</b>	12.5.1 <i>Tools rotation</i> _____	<b>23</b>
<b>3.0 SAFETY DEVICES</b> _____	<b>8</b>	12.5.2 <i>Tools assembly extraction/insertion</i> _____	<b>23</b>
3.1 <i>Residual risks</i> _____	<b>9</b>	12.6 <i>Tubeless tyres</i> _____	<b>23</b>
<b>4.0 IMPORTANT SAFETY INSTRUCTIONS</b> _____	<b>9</b>	12.6.1 <i>Bead breaking</i> _____	<b>23</b>
4.1 <i>General safety rules</i> _____	<b>10</b>	12.6.2 <i>Demounting</i> _____	<b>24</b>
<b>5.0 PACKING AND MOBILIZATION FOR TRANSPORT</b> _____	<b>11</b>	12.6.3 <i>Mounting</i> _____	<b>26</b>
<b>6.0 UNPACKING</b> _____	<b>11</b>	12.7 <i>Tyres with inner tube</i> _____	<b>28</b>
<b>7.0 MOBILIZATION</b> _____	<b>12</b>	12.7.1 <i>Bead breaking</i> _____	<b>28</b>
<b>8.0 WORKING ENVIRONMENT CONDITIONS</b> _____	<b>12</b>	12.7.2 <i>Demounting</i> _____	<b>28</b>
8.1 <i>Work position</i> _____	<b>12</b>	12.7.3 <i>Mounting</i> _____	<b>29</b>
8.2 <i>Installation space</i> _____	<b>12</b>	12.8 <i>Wheels with bead wire</i> _____	<b>31</b>
8.3 <i>Lighting</i> _____	<b>13</b>	12.8.1 <i>Beading and demounting</i> _____	<b>32</b>
<b>9.0 EQUIPMENT ASSEMBLY</b> _____	<b>13</b>	12.8.2 <i>Mounting</i> _____	<b>33</b>
9.1 <i>Anchoring system</i> _____	<b>13</b>	<b>13.0 ROUTINE MAINTENANCE</b> _____	<b>34</b>
9.2 <i>Accessories contained in the packing</i> _____	<b>13</b>	13.1 <i>Control box cable replacement</i> _____	<b>36</b>
<b>10.0 ELECTRICAL CONNECTIONS</b> _____	<b>14</b>	<b>14.0 TROUBLESHOOTING TABLE</b> _____	<b>37</b>
10.1 <i>Control box cable connection</i> _____	<b>15</b>	<b>15.0 TECHNICAL DATA</b> _____	<b>39</b>
10.2 <i>Oil check on oil-pressure power unit</i> _____	<b>15</b>	15.1 <i>Dimensions</i> _____	<b>40</b>
10.3 <i>Check of motor rotation direction</i> _____	<b>15</b>	<b>16.0 STORING</b> _____	<b>41</b>
10.4 <i>Electrical checks</i> _____	<b>16</b>	<b>17.0 SCRAPPING</b> _____	<b>41</b>
<b>11.0 CONTROLS</b> _____	<b>17</b>	<b>18.0 REGISTRATION PLATE DATA</b> _____	<b>41</b>
11.1 <i>Cable control device</i> _____	<b>17</b>	<b>19.0 FUNCTIONAL DIAGRAMS</b> _____	<b>41</b>
		Table A - <i>Wiring diagram</i> _____	<b>42</b>
		Table B - <i>Hydraulic diagram</i> _____	<b>47</b>
		<b>CONTENT OF THE EC DECLARATION OF CONFORMITY</b> _____	<b>48</b>
		<b>CONTENT OF THE UK DECLARATION OF CONFORMITY</b> _____	<b>49</b>

## GENERAL DESCRIPTION








Fig. 1









## KEY (Fig. 1)

- |  |                                       |
|--|---------------------------------------|
| 1 - Main switch                                      | 14 - Chuck rotation motor             |
| 2 - Selector 1-0-2 self-centring chuck speed control | 15 - Chuck carriage                   |
| 3 - Tools carriage movement cylinder                 | 16 - Chuck arm                        |
| 4 - Hydraulic power unit                             | 17 - Chuck opening/closing cylinder   |
| 5 - Self-centring chuck                              | 18 - Electric cabinet                 |
| 6 - Bead breaker disc                                | 19 - Control box assembly             |
| 7 - Hook tool  | 20 - Movable footboard                |
| 8 - Jack   | 21 - Tool holder arm release cylinder |
| 9 - Tool holder arm                                  | 22 - Ramp                             |
| 10 - Tools assembly                                  | 23 - Long lever                       |
| 11 - Chuck carriage movement cylinder                | 24 - Bead locking clamp               |
| 12 - Tools assembly positioning lever                | 25 - Control box connectors           |
| 13 - Tools carriage                                  |                                       |

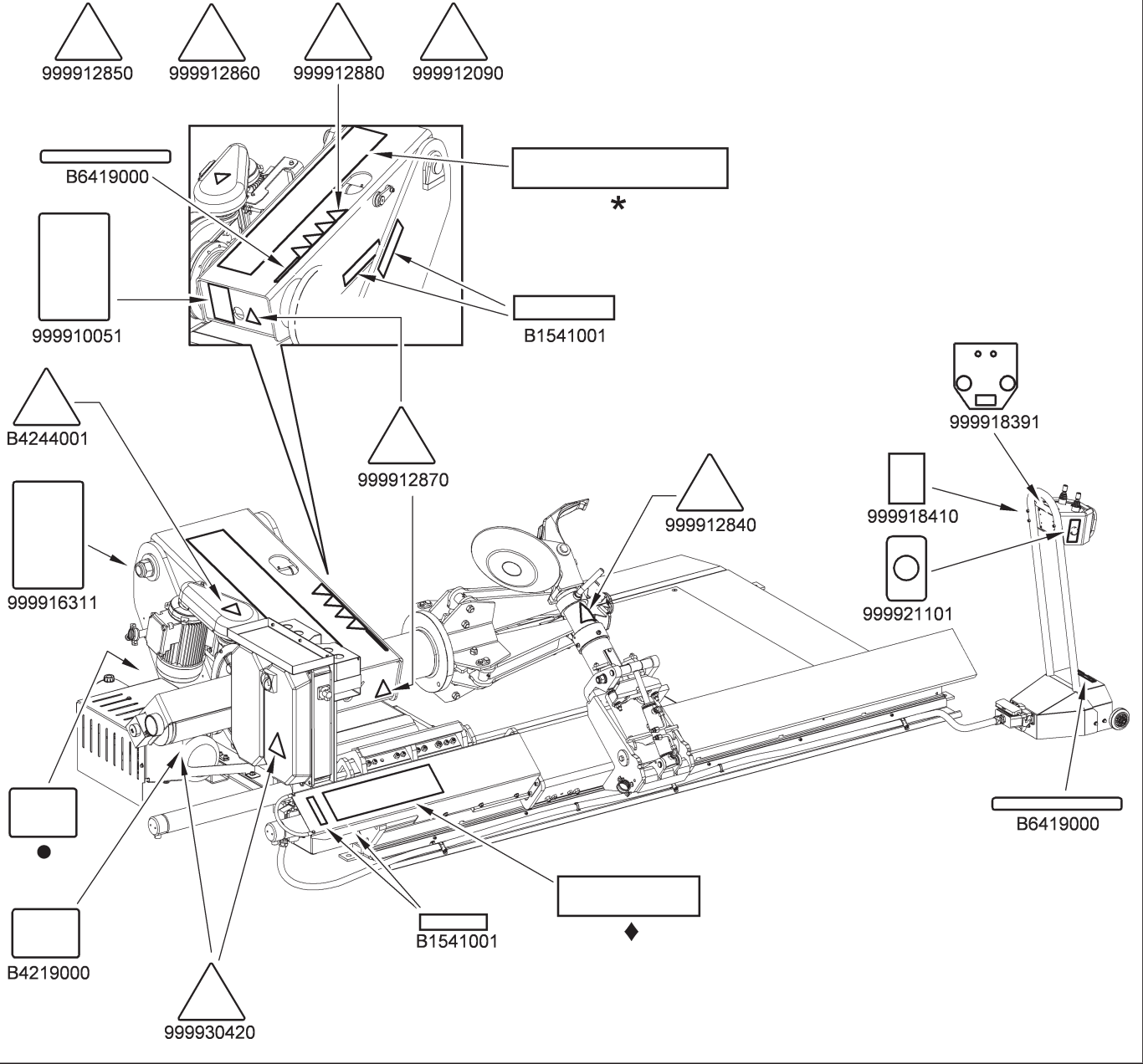
**SYMBOLS USED IN THE MANUAL**

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).
	Danger! Be particularly careful.

Symbols	Description
	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.
	Risk of crushing and collisions (tools holder shaft).
	Danger: tyre could fall.

**PLATES LOCATION DRAWING**

**Fig. 2**



**Code numbers of nameplates**

<b>B1541001</b>	<i>Danger nameplate</i>
<b>B4219000</b>	<i>Rotation indicating nameplate</i>
<b>B4244001</b>	<i>Rotating parts danger nameplate</i>
<b>B6419000</b>	<i>Rotation nameplate</i>
<b>999910051</b>	<i>Protection device use nameplate</i>
<b>999912090</b>	<i>Tyre fall danger nameplate</i>
<b>999912840</b>	<i>Danger nameplate 1</i>
<b>999912850</b>	<i>Danger nameplate 2</i>
<b>999912860</b>	<i>Danger nameplate 3</i>
<b>999912870</b>	<i>Danger nameplate 4</i>
<b>999912880</b>	<i>Danger nameplate 5</i>
<b>999916311</b>	<i>Rubbish skip nameplate</i>
<b>999918391</b>	<i>Handle control nameplate</i>
<b>999918410</b>	<i>Self-centring chuck nameplate</i>
<b>999921101</b>	<i>Double speed nameplate</i>
<b>999930420</b>	<i>Electric shock danger nameplate</i>
•	<i>Serial number nameplate</i>
*	<i>Equipment nameplate</i>
♦	<i>Manufacturer nameplate</i>



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



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

## 1.0 GENERAL INTRODUCTION

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

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



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



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

### 1.1 Introduction

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

## 2.0 INTENDED USE

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

- an electric motor coupled to a gearbox to handle the tyre rotation, and
- a hydraulic pump system to manage the locking and movement of the hydraulic cylinders with multiple assembly/disassembly tools.

The equipment is to be used only for the mounting and demounting of any type of wheel with the whole rim (drop centre and with bead) with diameters and width values mentioned in "Technical specifications" chapter. The equipment is NOT to be used for tyre inflation.



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



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

### 2.1 Training of personnel

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

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



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

### 3.0 SAFETY DEVICES



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

The equipment is equipped with:

- **hold-to-run-controls** (immediate stop of operation when the control is released);
- **controls logic disposition;**  
to prevent the operator from making dangerous mistakes;
- **Thermal magnetic** switch on the supply line of the oil-pressure power unit motor: avoids the motor overheating in case of intensive use;
- **controlled check valves** on:
  - opening of chuck jaws;
  - chuck arm lifting;
  - tool holder arm tilting.
 These valves have been fit in order to avoid unexpected movements of the jaws, hook tool or chuck arm (and, as a consequence, the wheel fall) caused by accidental oil drippings;



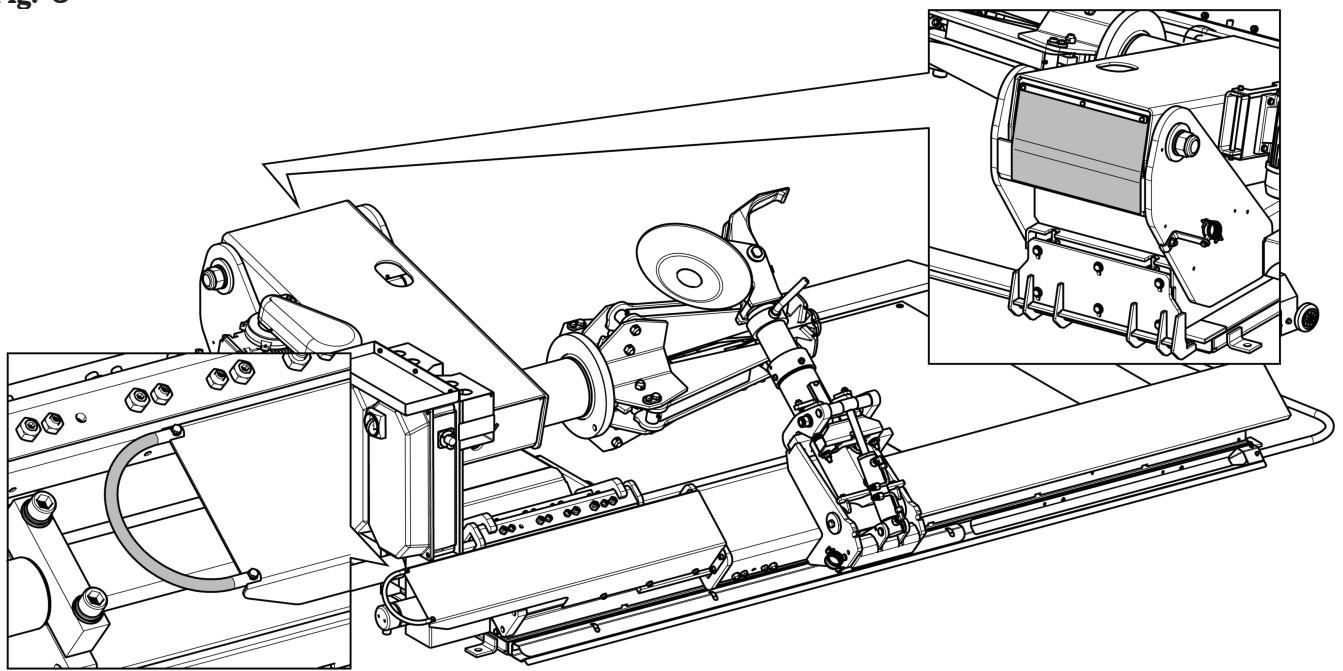
**NO MODIFICATION OR CALIBRATION OF THE OPERATING PRESSURE OF THE MAXIMUM PRESSURE VALVE OR OF THE HYDRAULIC CIRCUIT PRESSURE LIMITER IS PERMITTED.**

- **fuses** on the power supply line of the chuck motor;
- **automatic power supply disconnection** with the opening of the electric cabinet;
- **chuck self-braking motor;**
- **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.

These protections can be identified in **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:

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.
- 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.



**THE EQUIPMENT OPERATES WITH PRESSURIZED HYDRAULIC FLUID. MAKE SURE ALL FITTINGS AND HOSES ARE LEAK FREE AND IN GOOD CONDITION. ANY PRESSURIZED LEAKS MAY CAUSE SERIOUS INJURIES.**



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

## 5.0 PACKING AND MOBILIZATION FOR TRANSPORT



**HAVE THE EQUIPMENT HANDLED BY SKILLED PERSONNEL ONLY.**

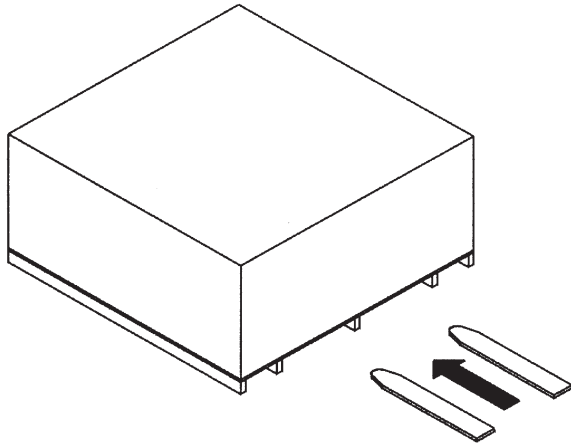
**THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED EQUIPMENT (SEE PARAGRAPH "TECHNICAL SPECIFICATIONS").**

The equipment is supplied completely assembled, packed in a cardboard box.

Movement must be by pallet-lift or fork-lift trolley.

Lift the packaging as indicated in **Fig. 4** (forks introduced in the middle to ensure a correct loads distribution).

**Fig. 4**



## 6.0 UNPACKING



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



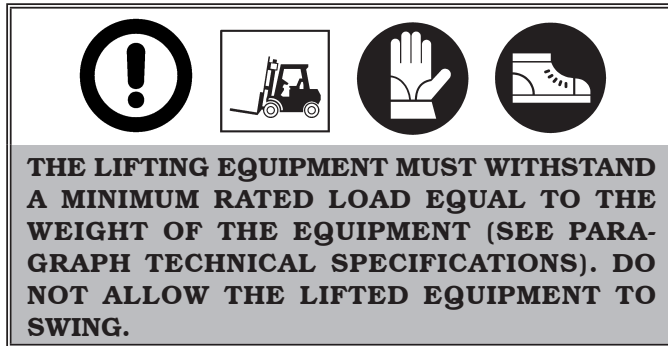
After removing the packing, and in the case of the equipment packed fully assembled, check that the machine is complete and that there is no visible damage. If in doubt **do not use the equipment** and refer to professionally qualified personnel (to the seller). The packaging elements (plastic bags, polystyrene foam, nails, bolts, wood, etc.) must be collected up and disposed of through according to the in force laws, except for the pallet, which could be used again for subsequent equipment handling.



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

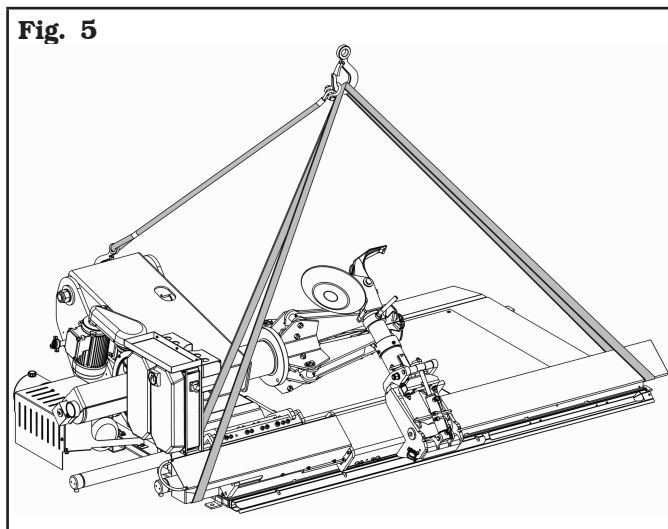
## 7.0 MOBILIZATION

If the equipment has to be moved.



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

- protect the exposed corners with suitable material (bubble wrap/cardboard);
- do not use metallic cables for lifting;
- move the chuck to completely lowered position and in the centre of the equipment in order to ensure a correct load balancing;
- move the tool carriage to limit switch towards the chuck;
- disconnect all equipment power supply sources;
- sling with three sufficiently long belts (300 cm - 118.11" at least) and with capacity load at least equal to equipment weight (see **Fig. 5**);
- lift and transport with suitable device with adequate dimensions.



## 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.

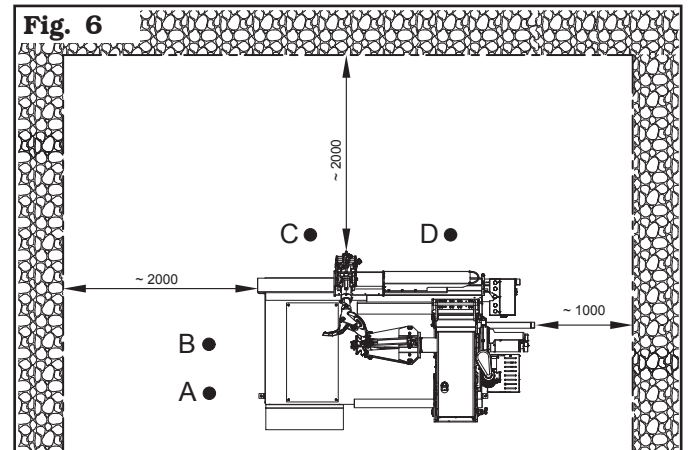
### 8.1 Work position

In **Fig. 6** it's possible to define work positions **A**, **B**, **C**, **D**, which will be referred to in the description of equipment operative phases.

Positions **A** and **B** must be considered as main positions for tyre mounting and demounting and for wheel clamping on the chuck, while positions **C** and **D** are the best positions to follow tyre bead breaking and demounting operations.

Working in these positions allows better precision and speed during operating phases as well as greater safety for the operator.

### 8.2 Installation space



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/m<sup>2</sup> (100 lb/ft<sup>2</sup>). The depth of the solid floor must guarantee the tightness of the anchor plugs.

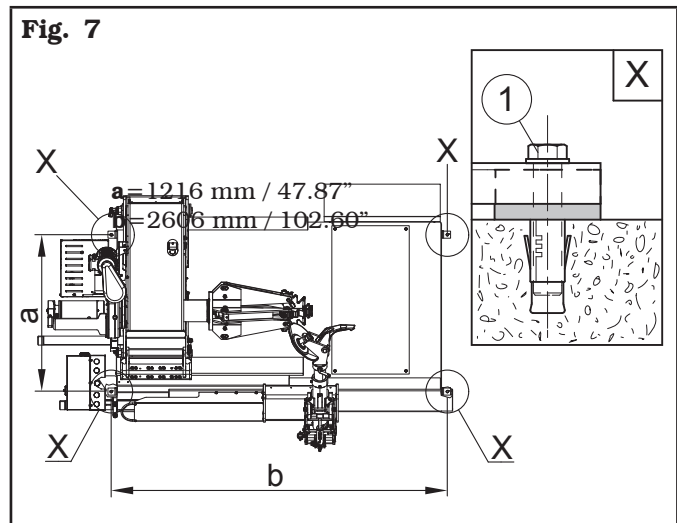
**8.3 Lighting**

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

**9.0 EQUIPMENT ASSEMBLY**

**9.1 Anchoring system**

The packed equipment is secured to the support pallet through the holes on the frame. These holes can be used to secure the machine to the ground, through floor anchors (excluded from supply). Before carrying out the definitive fastening, check that all the anchor points are laid down flat and correctly in contact with the fixing surface itself. If not so, insert shimming profiles between the equipment and the fixing lower surface, as indicated in **Fig. 7**.



- Execute 4 holes with 12 mm diameter on the floor by the holes on the bottom floor;
- insert the anchors (excluded from supply) into the holes;
- secure the equipment to the ground with 4 M12x120 mm bolts (excluded from supply) (**Fig. 7 ref. 1**) (or with 4 12x80 mm stud bolts (excluded from supply)). Tighten the bolts with an approximate tightening torque of 70 Nm.

**9.2 Accessories contained in the packing**

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

Code	Description	N.
<b>G108A25</b>	Bead locking clamp for earth-moving wheels	<b>1</b>
<b>B5119000</b>	Long lever "C"	<b>1</b>

## 10.0 ELECTRICAL CONNECTIONS



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



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

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

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



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



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

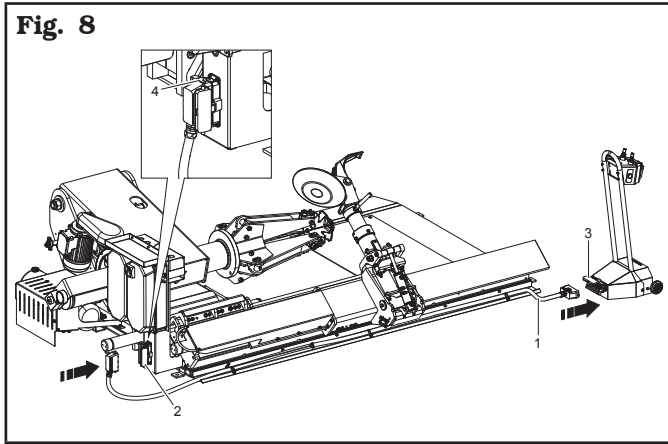


**FAILURE TO OBSERVE THE ABOVE INSTRUCTIONS WILL IMMEDIATELY INVALIDATE THE WARRANTY AND MAY DAMAGE THE EQUIPMENT.**

Model	Conformity standard	Voltage	Amperage	Poles	Minimum IP rating
ROT.N7317.201843	IEC 309	400V	16A	3 Poles + Ground	IP 44
RAV.G0760.206220	IEC 309	400V	16A	3 Poles + Ground	IP 44

### 10.1 Control box cable connection

Connect the cable through connectors (**Fig. 8 ref. 1**) to the equipment socket (**Fig. 8 ref. 2**) and to that of the control box (**Fig. 8 ref. 3**), as shown in the drawing.



### 10.3 Check of motor rotation direction

Once the last electrical connection has been completed, power the equipment with the main switch. Make sure the motor of the hydraulic power unit rotates in the direction indicated by the arrow (**Fig. 9 ref. B**) visible on the electric motor cap. If rotation should occur in the opposite direction, the equipment must be immediately stopped and phase inversion must be executed inside the plug connection in order to reset the correct rotation direction.



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



**AFTER CONNECTING THE CABLE, TO PREVENT IT FROM BEING INADVERTENTLY DISCONNECTED DURING OPERATION OF THE EQUIPMENT, MAKE SURE TO LOCK IT USING THE PROVIDED DEVICE (FIG. 8 REF. 4).**

### 10.2 Oil check on oil-pressure power unit



**THE OIL-PRESSURE POWER UNIT IS DELIVERED WITHOUT HYDRAULIC OIL, THEREFORE MAKE SURE THE TANK PROVIDED IS FILLED WITH AN APPROXIMATE AMOUNT OF OIL OF 5 LITRES (1.3 GALLONS), ALWAYS BEING CAREFUL NOT TO SPILL IT OUTSIDE THE TANK.**

**USE HYDRAULIC OIL WITH A VISCOSITY DEGREE APPROPRIATE TO THE AVERAGE TEMPERATURES IN THE INSTALLATION COUNTRY AND IN PARTICULAR:**

- **VISCOSITY 32 (OR COUNTRIES WITH ROOM TEMPERATURE FROM 0 °C - +30 °C (+32 °F - +86 °F));**
- **VISCOSITY 46 (FOR COUNTRIES WITH ROOM TEMPERATURE ABOVE 30 DEGREES +30 °C (+86 °F)).**

**10.4 Electrical checks**



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



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

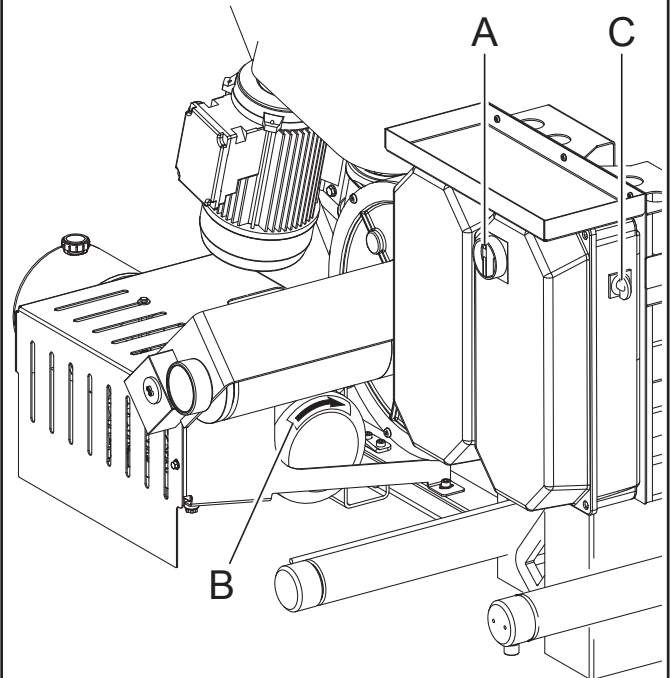
Once the plug/socket connection has been made, turn on the equipment using the main switch (**Fig. 9 ref. A**).

The product is equipped with a device for the interruption of the communication between the control and the electrical cabinet, when more than 6 hours have passed after the last executed control. In this case, just repeat the turning on operations described in the "Electrical checks" chapter.



**ONCE THE ASSEMBLY OPERATIONS HAVE BEEN COMPLETED, CHECK ALL EQUIPMENT FUNCTIONS.**

**Fig. 9**



**KEY**

A – Main switch

B – Rotation direction of power unit motor

C – Selector 1-0-2 self-centring chuck speed control



## 11.0 CONTROLS

### 11.1 Cable control device

The control (handle control) can be moved according to the positioning necessities of the operator. The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.



**MAKE SURE THERE ARE NO PERSONS OR OBJECTS HIDDEN TO THE OPERATOR VISUAL FIELD BY THE WHEEL SIDE (ESPECIALLY IN CASE OF WHEELS WITH LARGE DIMENSIONS).**

“Lever **A**” has four hold-to-run control operative positions:

- lever towards the right or left, operates respectively the chuck holder carriage shifting towards the right or the left.

- lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holder arm.

“Pedal **B**” controls chuck clockwise and counter-clockwise rotation.

“Push button **C**” has one hold-to-run control operative position, and when pressed it rotates the tools holder head counterclockwise (from behind the tool).

“Push button **D**” has one hold-to-run control operative position, and when pressed it rotates the tools holder head clockwise (from behind the tool).

“Push button **E**” has one hold-to-run control operative position and when pressed, it operates the self-centring chuck opening.

“Push button **F**” has one hold-to-run control operative position, and when pressed it operates the self-centring chuck closing.

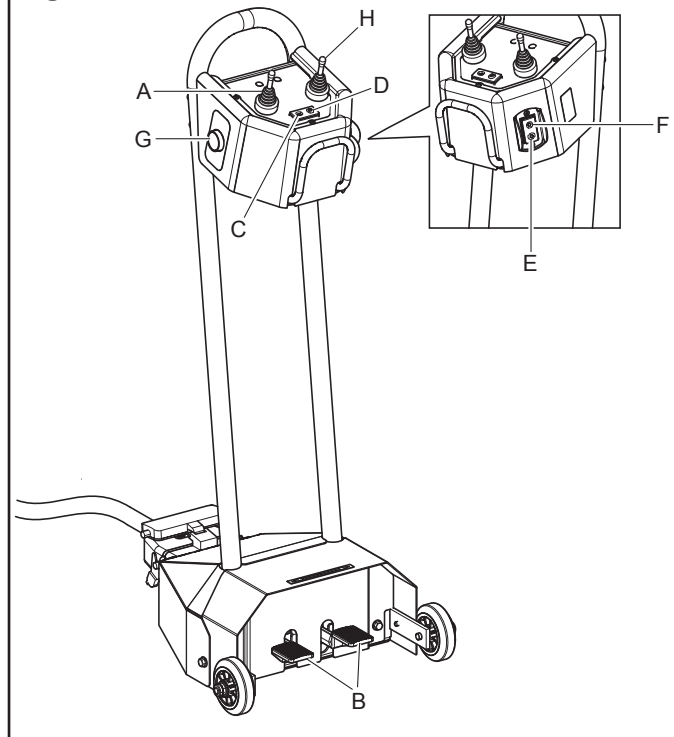
“Push button **G**” has a hold-to-run control position: when it is pressed and lever “**A**” or “**H**” is laterally shifted at the same time, it doubles the movement speed of the self-centring carriage and of the tool holder carriage respectively.

“Lever **H**” has four hold-to-run control operative positions:

- lever towards the right or left, operates respectively the tool holder carriage shifting towards the right or left;

- lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

**Fig. 10**



**THE HANDLE MUST NOT BE PLACED WHERE WATER STANDS.**

## 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;
- adequately lubricate the contact surface of rim and the tyre beads, using specific tyre lubricants only;
- replace the inner tube or 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 HOOK TOOL 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.**

## **12.2 Preliminary operations**

In view of the tyre changer structure and of its intended use, the operator must work with wheels with large diameter (up to 2700 mm - 106.30") and heavy wheels (up to 3000 kg - 6615 lbs).

The utmost care while moving the wheels is recommended: make use of other operators, properly trained and with suitable clothes.



**THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 9 REF. C).**

**LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT.**

**THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**



**FAILURE TO INSERT A SUITABLE SECTION OF A BEAD INSIDE THE RIM DROP CENTRE, AS INDICATED IN THIS MANUAL DURING THE FITTING OR REMOVAL OF THE BEAD, RESULTS IN AN ABNORMAL TENSION ON THE BEAD.**

**THIS CAN CAUSE DAMAGE TO THE BEAD AND/OR THE SIDEWALL OF THE TYRE TO WHICH THE BEAD IS CONNECTED, REDUCING THE SAFETY OF A VEHICLE EQUIPPED WITH THE TYRE.**

**ALWAYS FOLLOW THE DIRECTIONS IN THE MANUAL REGARDING ALIGNMENT OF A SECTION OF A BEAD TO THE RIM DROP CENTRE.**

**DO NOT PROCEED WITH THE REMOVAL OR INSTALLATION OF A BEAD IF YOU ARE NOT ABLE TO ALIGN A SECTION OF A BEAD WITH THE RIM DROP CENTRE AS INDICATED IN THIS MANUAL.**

## **12.3 Preparing the wheel**



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

- Remove the wheel balancing weights from both sides of the wheel.
- Establish from which side the tyre should be demounted, checking the position of the drop centre.
- Find the rim locking type.

**12.4 Wheel clamping**



**DUE TO THE DIMENSIONS AND WEIGHT OF THE WHEEL TO BE LOCKED, MAKE USE OF A SECOND OPERATOR TO HOLD THE WHEEL INTO VERTICAL POSITION, IN ORDER TO ENSURE SAFE OPERATIVE CONDITIONS.**



**WHEN HANDLING WHEELS WEIGHING MORE THAN 500 kg (1102 lbs) A FORK-LIFT TRUCK OR A CRANE SHOULD BE USED.**

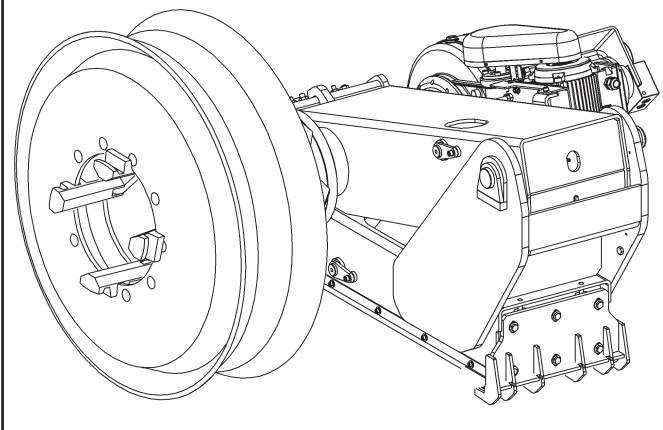


**MAKE SURE THAT RIM CLAMPING IS DONE PROPERLY AND THAT THE GRIP IS SECURE, TO PREVENT THE WHEEL FROM FALLING DURING MOUNTING OR REMOVAL OPERATIONS.**



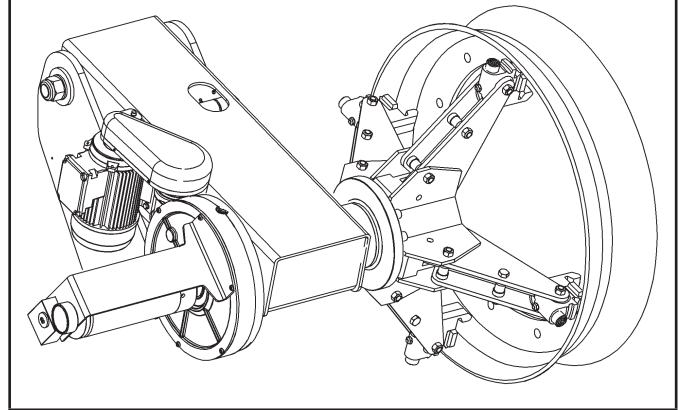
**DO NOT CHANGE THE SET OPERATING PRESSURE VALUE USING THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.**

**Fig. 11**



Clamping on the central hole

**Fig. 12**



Clamping on bead seat



**OPENING/CLOSING MOVEMENT OF THE SELF-CENTRING CHUCK CAN GENERATE DANGER OF SQUASHING, CUTTING, COMPRESSING. DURING WHEEL LOCKING/UNLOCKING PHASE, AVOID THAT PARTS OF HUMAN BODY COME INTO CONTACT WITH MOVING PARTS OF THE MACHINE.**

All wheels must be clamped from the inside.  
**Clamping on the central flange is always safest.**



**FOR WHEELS WITH DROP CENTRE RIMS SECURE THE WHEEL SO THAT THE DROP CENTRE IS FACING OUTWARDS COMPARED TO THE CHUCK.**

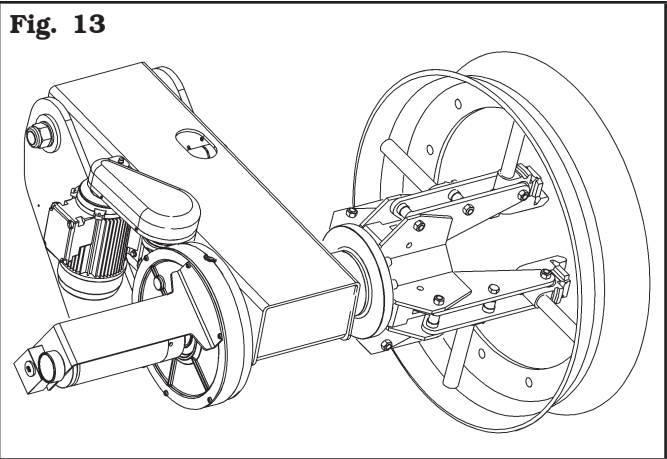
If it is not possible to clamp the rim in the hole of the disc, clamp on the bead seat close to the disc.



**TO SECURE WHEELS WITH ALLOY RIMS ADDITIONAL PROTECTIVE JAWS ARE AVAILABLE. THEY ALLOW YOU TO WORK ON THE RIMS WITHOUT DAMAGING THEM. THE PROTECTIVE JAWS ARE FITTED ONTO THE CHUCK'S NORMAL JAWS USING A BAYONET CONNECTION.**


To clamp the wheel proceed as follows:


- move the hook tool holder arm to “out of work” position (**Fig. 15 ref. 1**) with the help of the provided controls (**Fig. 10 ref. H**);
- place the wheel vertical on the equipment table;
- translate the chuck carriage towards the tyre until the self-centring arms are inserted inside the rim;
- adjust the opening of the self-centring chuck through the “opening/closing” control (**Fig. 10 ref. E/F**) according to the type of rim to be locked;
- use the lever (**Fig. 10 ref. I**) to position the coaxial chuck with the wheel centre, in order to make the jaws edges skim the wheel edge;
- operate the control (**Fig. 10 ref. E**) until the wheel is completely clamped;
- make sure the rim is always correctly locked and centred, and the wheel is lifted from the equipment platform, in order to prevent the rim from slipping in the following operations.





**Fig. 13**

Locking with extensions

 **KEEP ON OPERATING RIM CLAMPING CONTROL, UNTIL REACHING THE MAX. OPERATING PRESSURE (180 bar - 2610 psi), WHICH CAN BE CHECKED USING THE PRESSURE GAUGE.**

 **AFTER COMPLETION OF TYRE MOUNT/DEMOUNT OPERATIONS DO NOT LEAVE THE WHEEL CLAMPED ON THE SELF-CENTRING CHUCK AND NEVER LEAVE IT UNATTENDED.**

 **THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 9 REF. C). LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT. THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**

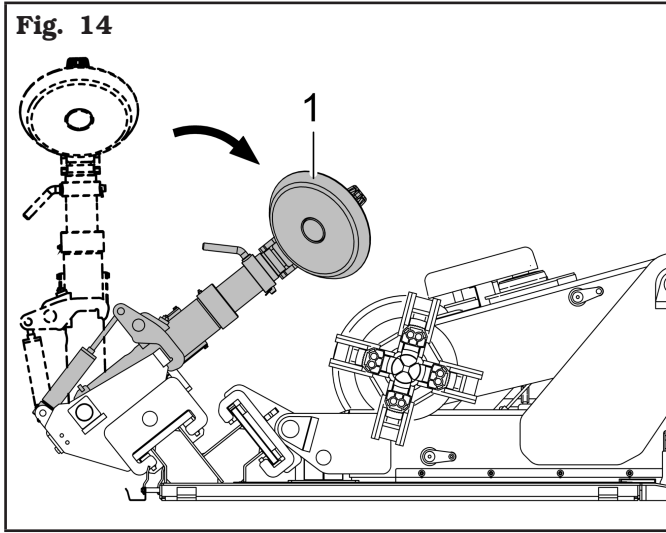
 **THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 9 REF. C). LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT. THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.**

### **12.5 Functioning of tool holder arm**

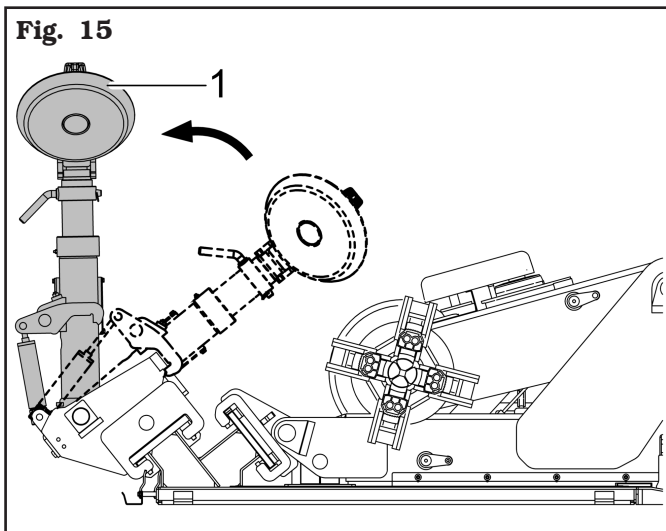
During the working phases, the tool holder arm can maintain two positions, that is:

- 1) "working" position;
- 2) "out of work" position.

In "working" position (**Fig. 14 ref. 1**) the tool holder arm is lowered towards the chuck and from this position it executes the various tyre bead breaking, demounting and mounting operations.



In "out of work" position (**Fig. 15 ref. 1**): the tool holder arm is in vertical position and has to be brought in this position every time it is not in use and in order to be shifted from one tyre side to another, during the different working phases.



The tool holder arm moves from "out of work" position to "work position" through hydraulic cylinder.



**IN WORK POSITION, THE SAFETY JACKS (FIG. 1 REF. 8) MUST BE HOOKED TO THE TOOL CARRIAGE (FIG. 1 REF. 13).**

To shift from "working" position to "out of work" position, the tool holder arm moves by the handle control that activates the cylinder (**Fig. 1 ref. 21**).

**12.5.1 Tools rotation**


Tools holder head 180° rotation is automatic, and it takes place through handle control operation (Fig. 10 ref. C and D).

**12.5.2 Tools assembly extraction/insertion**

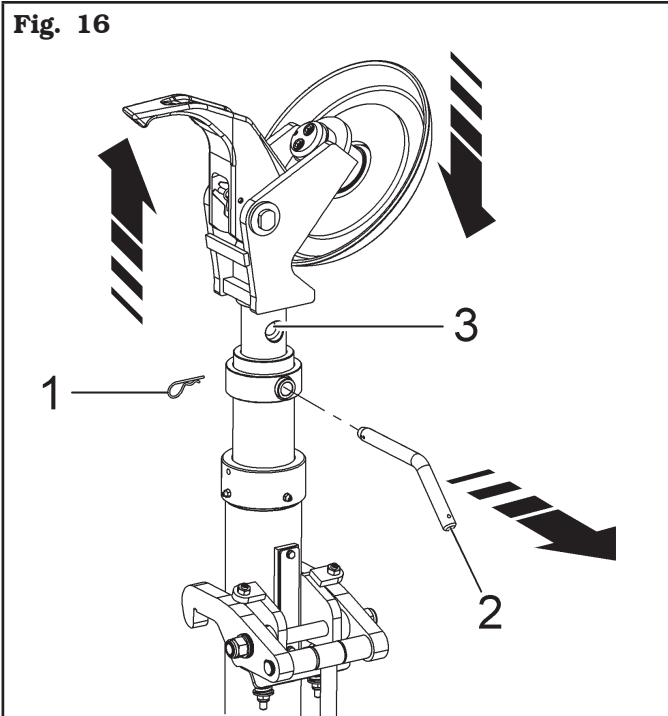
The tools holder head has two work positions.

 **THE FOLLOWING OPERATIONS MUST BE CARRIED OUT WITH THE TOOLS HEAD IN "OUT OF WORK" POSITION.**

Remove the safety split pin (Fig. 16 ref. 1) and manually extract the lever (Fig. 16 ref. 2) to change from one position to another. Manually lift or lower the tools holder head until the locking holes match (Fig. 16 ref. 3).


 **WHEN THE TOOLS HOLDER HEAD IS LOWERED, MOVE THE HEAD ITSELF DOWNWARDS WITH THE FREE HAND.**


When the new position has been reached, insert the lever again (Fig. 16 ref. 2) in the provided hole and assemble the safety split pin (Fig. 16 ref. 1) again.




**12.6 Tubeless tyres**

**12.6.1 Bead breaking**

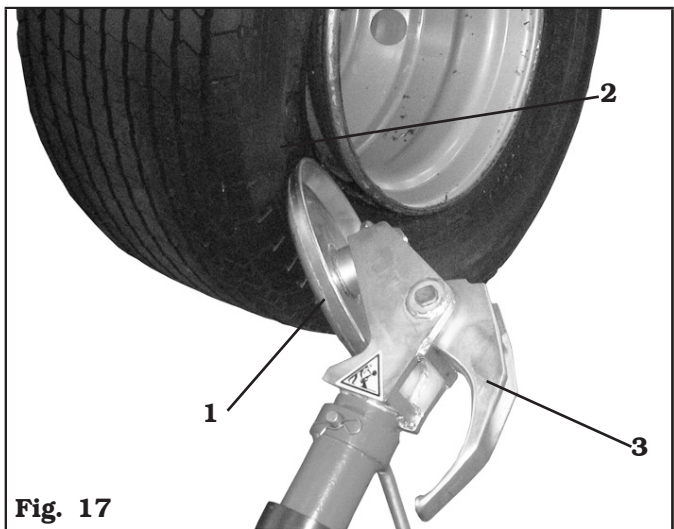
 **NEVER PLACE ANY PART OF YOUR BODY BETWEEN THE TOOLS ASSEMBLY AND THE TYRE.**


 **THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

- A. Lock the wheel on the chuck as described in the previous paragraph.
- B. Remove all balancing weights from the rim. Extract the valve and let air out of tyre.
- C. Move to work position C (Fig. 6).
- D. Lower tool holder arm to work position (hooked safety jack) (Fig. 14).

 **ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- E. Place as shown in Fig. 17 the bead breaker disc (Fig. 17 ref. 1) using the control lever (Fig. 10 ref. A); the outer profile of the rim (Fig. 17 ref. 2) must almost touch the bead breaker disc.



 **THE BEAD BREAKER DISC MUST NOT EXERT PRESSURE ON THE RIM BUT ON THE TYRE BEAD.**

- F.** Turn the chuck counterclockwise and, at the same time, gradually move the tool carrier inwards to bead the tyre. Keep turning the chuck while generously lubricating the tyre rim and bead with a suitable lubricant. To avoid risks, lubricate the beads by turning clockwise if you are working on the outer side or counterclockwise if you are working on the inner side. The more the wheel adheres to the rim, the slower should the beading disc advance.



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

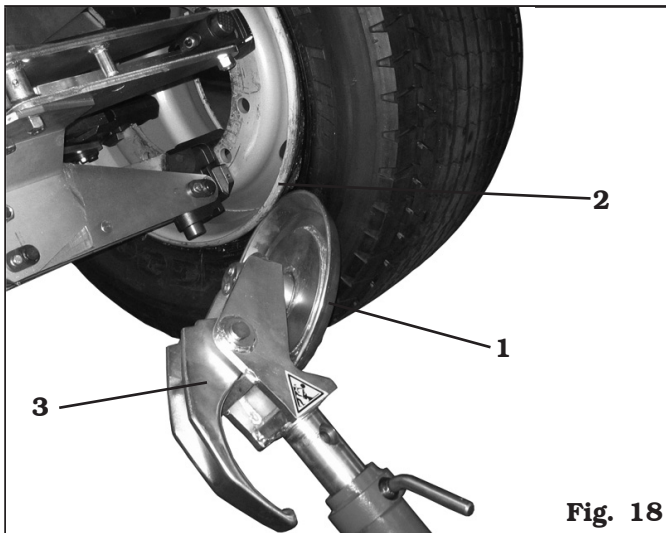
- G.** Once external beading has been carried out, unhook and lift the hook tool holder arm setting it to “out of work” position (**Fig. 15 ref. 1**); use the handle control to position the hook tool holder arm on the inner side of the wheel, then set it to “work position” (**Fig. 14 ref. 1**) and secure it with the special safety jack.



**PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.**

- H.** Carry out the tools holder head 180° rotation according to the descriptions of the relevant paragraph, so that the beading disc (**Fig. 18 ref. 1**) is placed against the rim edge (**Fig. 18 ref. 2**).
- I.** Move to work position **D** (**Fig. 6**) and repeat the operations described in points **E**, **F** until the tyre has been completely beaded.

Throughout beading operations it is advisable to bend the hook tool (**Fig. 17, 18 ref. 3**) to avoid obstacles during the operating phases.



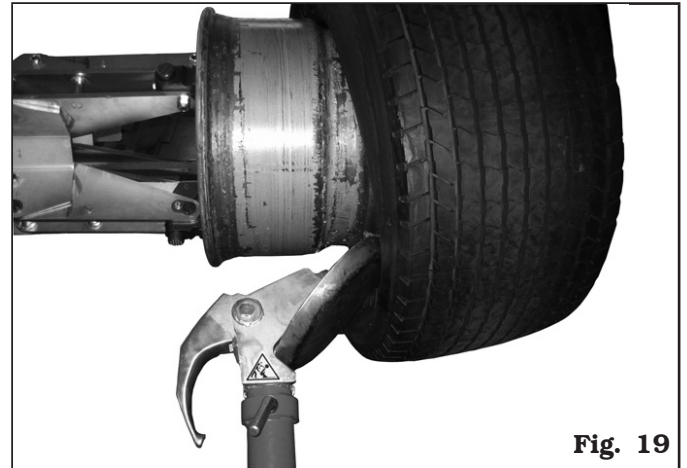
### 12.6.2 Demounting



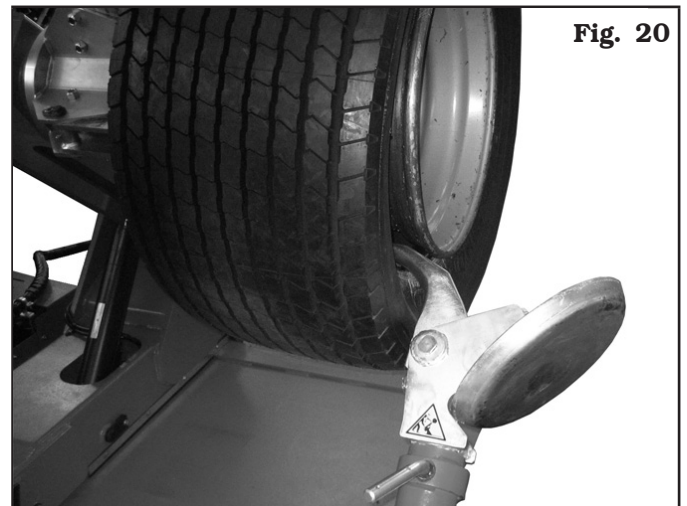
**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

**Tubeless tyres can be removed in two ways:**

- A.** If the wheel does not present particular problems, continuing beading operation will completely dislodge the beads from the rim. The inner bead, pushed by the disc, presses against the outer one till it has been completely removed (see **Figure 19**).



- B.** If the wheel is especially hard, it is not possible to carry out the procedure described in point **A**. A different procedure will be necessary: use the hook tool and follow this sequence of operations:
- move to work position **C** (**Fig. 6**);
  - position the tool holder arm on the outer side of the wheel and bring forward the hook tool, inserting it between rim and bead up to it is secured to the bead itself (see **Fig. 20**);





- move the rim away from the hook tool by about 4-5 cm (1.57" -1.97") to avoid possible unhooking of the bead from the same tool;
- move to work position **A** (**Fig. 6**);
- translate the hook tool outwards (**Fig. 21 ref. 2**) to allow easy insertion of lever (**Fig. 21 ref. 1**) between the rim and the bead; insert lever (**Fig. 21 ref. 1**) between the rim and the bead on the right-hand side of the tool (**Fig. 21 ref. 2**);

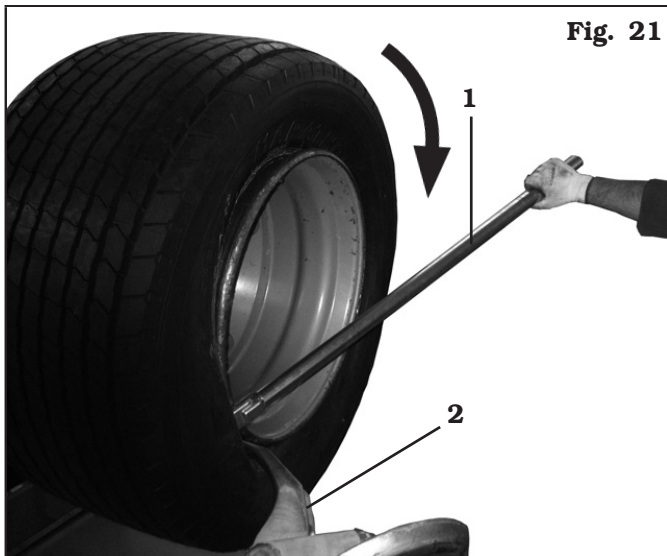


Fig. 21

- keeping the lever pressed, lower the wheel until the edge of the rim is 5 mm distant (0.2") from the hook tool;
- turn the wheel clockwise keeping lever pressed (**Fig. 21 ref. 1**) until the bead has gone completely out;
- once the external bead has been removed, move hook tool holder arm away from the wheel, unhook it and lift it setting it to "out of work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then set it to work position again (**Fig. 14 ref. 1**) and secure with the safety hook provided.



**PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.**



**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- Set to work position **D** (**Fig. 6**);
- carry out tool holder head 180° rotation in order to insert the hook tool (**Fig. 22 ref. 1**) between the rim edge and the tyre bead;

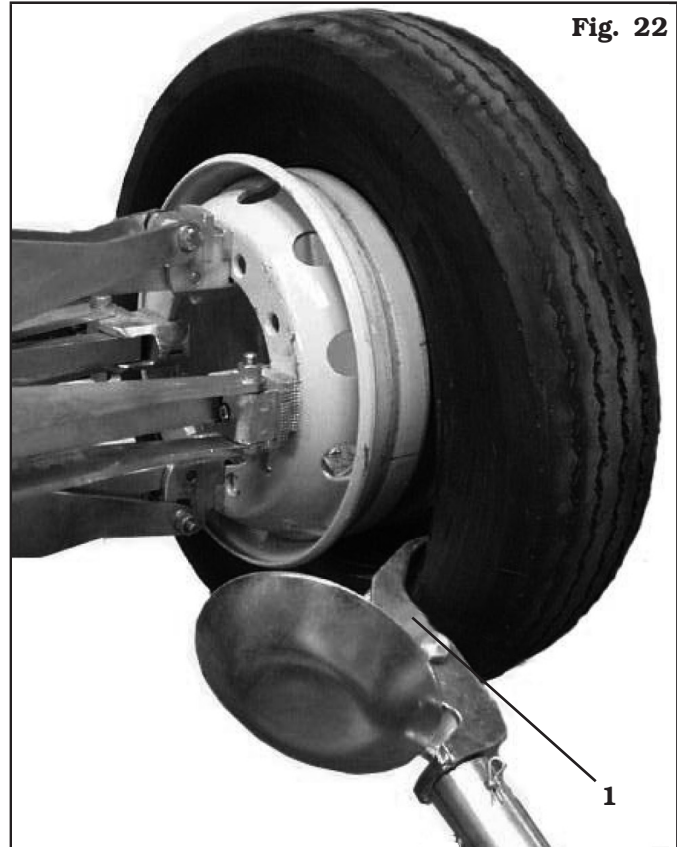


Fig. 22

- move the rim away from the tool by about 4-5 cm (1.57" -1.97") to avoid possible unhooking of the bead from the same tool;
- move to work position **B** (**Fig. 6**);
- translate the hook tool outwards to allow easy insertion of the lever between the rim and the bead on the tool left. Keeping the lever pressed, lower the wheel until the edge of the rim is 5 mm (0.2") distant from the hook tool then turn the chuck counterclockwise until the tyre has been completely removed.



**WHEN THE BEADS COME OUT OF THE RIM THE TYRE MAY FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**



**WHEN DEMOUNTING VERY HEAVY TYRES LOOK AT THE PROCESS AND AREA AROUND THE CHANGER CLOSELY BEFORE COMPLETING THE OPERATION.**

### 12.6.3 Mounting



**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

Tubeless tyre fitting is normally done with the disc tool; if the wheel is especially hard to fit, use the hook tool.

#### **With bead breaker disc**

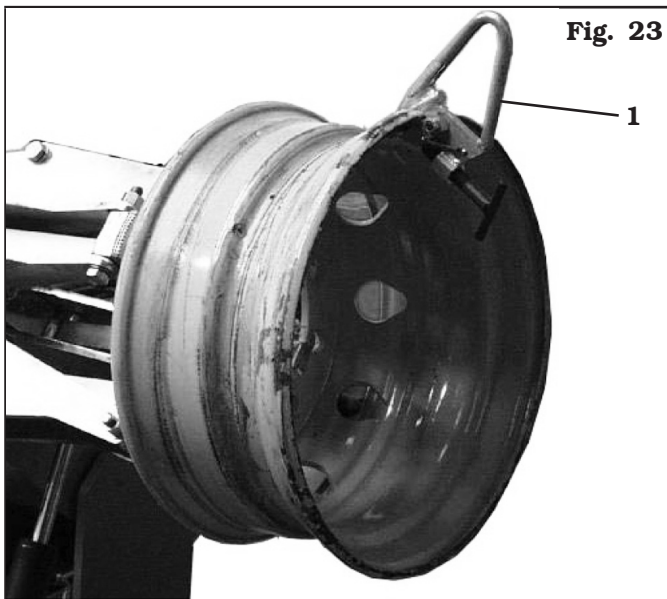
Proceed as follows:

- Secure the rim to the chuck according to the procedure described in paragraph "WHEEL CLAMPING".
- Adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush.



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

- Mount clamp (**Fig. 23 ref. 1**) on the external edge of the rim at the highest point as shown in **Fig. 23**.

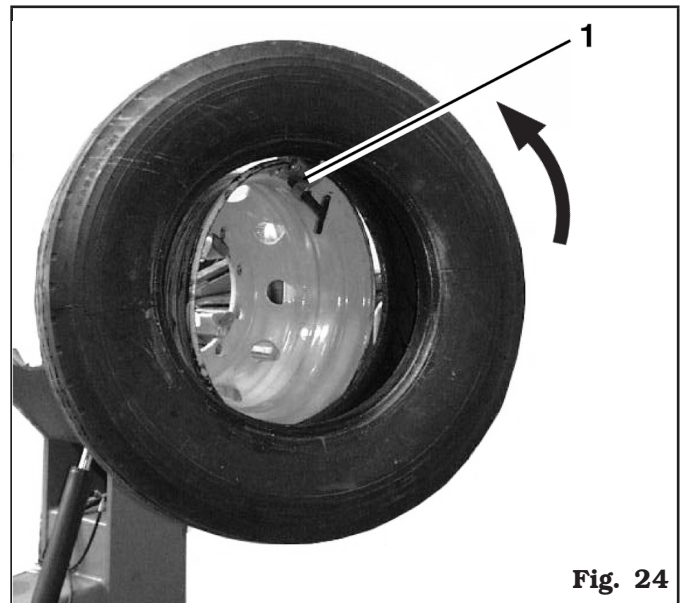


**Fig. 23**



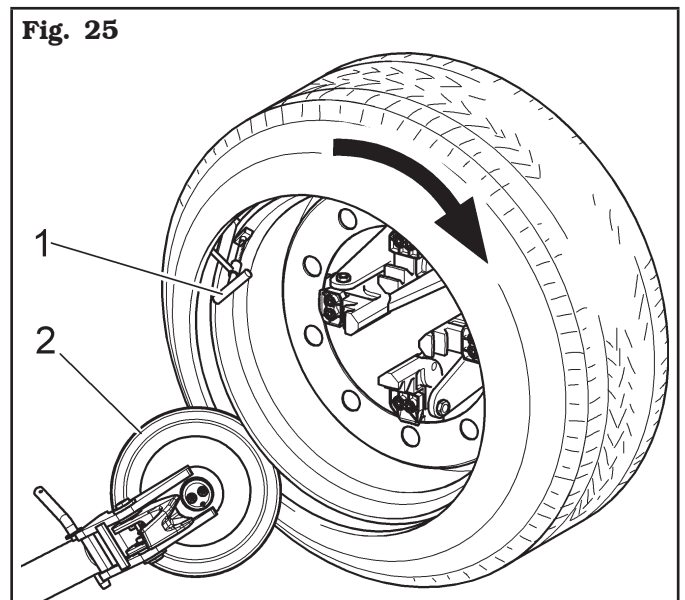
**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

- Move to work position **B** (**Fig. 6**).
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 24 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.91"-7.87"); the tyre will position itself sideways in relation to the rim (see **Fig. 24**).



**Fig. 24**

- Move to work position **C** (**Fig. 6**).
- Position bead breaker disc (**Fig. 25 ref. 2**) so that it is at approximately 1.5 cm (0.59") from the edge of the rim. The fitting clamp (**Fig. 25 ref. 1**) is at 11 o'clock. Turn the chuck until the clamp reaches the lowest point ("6 o'clock").



**Fig. 25**

- Move the bead breaker disc away from the wheel.
- Remove the clamp and fit it in the same position (“6 o’clock”) outside the second bead.
- Turn the chuck 90° clockwise up to the clamp is at “9 o’clock”.
- Move the bead breaker disc forward until it is inside the edge of the rim by about 1-2 cm (0.39”-0.79”), making sure it is approximately 5 mm (0.2”) from rim edge. Start clockwise rotation making sure that, after a 90° turn, the second bead begins sliding in the rim drop centre.
- Once insertion is completed, move the hook tool away from the wheel, turn it over into “out of work” position and remove the clamp.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **A** (**Fig. 6**).
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.



**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

- Translate the platform to release the wheel from the chuck. With especially soft tyres, simultaneously insert both beads on the jaw so that bead insertion in the tyre is done only once; this single operation is ideal for saving time.

#### **With hook tool**

Proceed as follows:

- Secure the rim to the chuck according to the procedure described in paragraph “WHEEL CLAMPING”.
- Adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush.



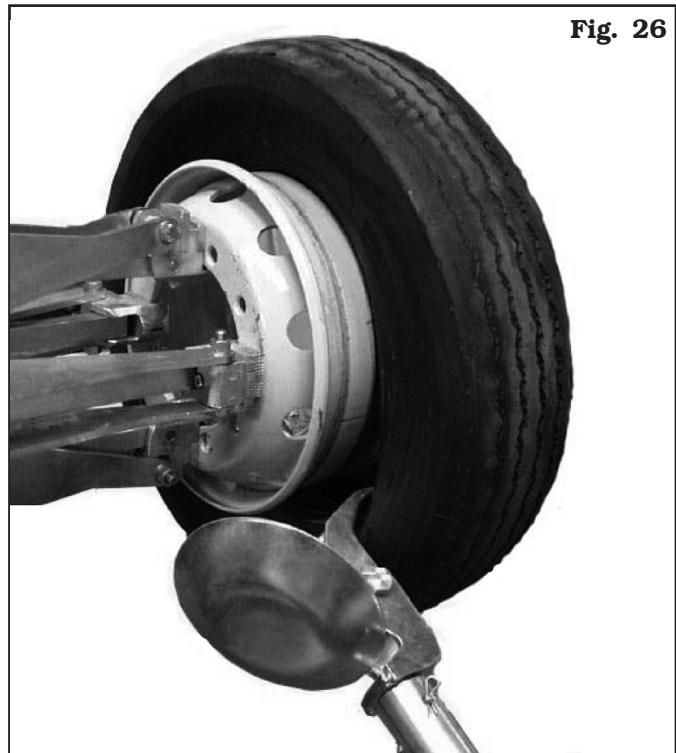
**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICON.**

- Mount the clamp (**Fig. 23 ref. 1**) on the external edge of the rim at the highest point.



**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

- Move to work position **B** (**Fig. 6**).
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 24 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.91”-7.87”); the tyre will position itself sideways in relation to the rim (see **Fig. 24**).
- Place the tool holder arm to “out of work” position (**Fig. 15 ref. 1**); translate it to the inner side of the tyre and hook it again into “working” position (**Fig. 14 ref. 1**).
- Carry out the tools head 180° rotation up to the hook tool is moved onto the tyre side (see **Fig. 26**).



**Fig. 26**

- Move to work position **D** (**Fig. 6**).
- Move the tool forward until the reference notch matches the external edge of the rim coincide at about 5 mm (0.2”) from the rim itself.
- Move to work position **C** (**Fig. 6**).
- From the external side of the wheel, check the exact position of the tool and, if necessary, correct it. Then, turn the chuck clockwise up to the clamp reaches the lowest point (“6 o’clock”). The first bead should now be inserted in the rim.
- Remove clamp.
- Move to work position **D** (**Fig. 6**).
- Remove the hook tool from the tyre.
- Place the tool holder arm to “out of work” position (**Fig. 15 ref. 1**); translate it to the outer side of the tyre and hook it again into “working” position (**Fig. 14 ref. 1**).
- Carry out tools head 180° rotation until the hook tool is moved onto the tyre side.

- Mount clamp in the lowest point (“6 o’clock”) outside the second bead.
- Move to work position **C** (Fig. 6).
- Turn the chuck about 90° clockwise up to clamp is at “9 o’clock”.
- Move the hook tool forward until the axis of the reference notch matches the external edge of the rim coincide at about 5 mm from the rim itself. Begin clockwise rotation making sure that, after a 90° turn, the second bead begins to slide in the rim drop centre. Turn the chuck until the clamp reaches the lowest point (“6 o’clock”). The second bead should now be inserted in the rim.
- Move the tool away from the wheel, turn it over into “out of work” position and remove the clamp.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **A** (Fig. 6).
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.



**MAKE SURE THAT THE WHEELS HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

## **12.7 Tyres with inner tube**

### **12.7.1 Bead breaking**



**REMOVE THE RING NUT OF THE INNER TUBE VALVE TO ALLOW ITS EXTRACTION DURING TYRE REMOVAL PHASES; REMOVE THE NUT WHEN DEFLATING THE TYRE.**

The beading procedure is the same one described for tubeless tyres.



**WHEN BEADING WHEELS WITH INNER TUBES, INTERRUPT THE FORWARD MOVEMENT OF THE BEAD BREAKER DISC AS SOON AS THE BEADS HAVE BEEN DISLODGED TO AVOID DAMAGE TO THE INNER PIPE OR TO THE VALVE.**

### **12.7.2 Demounting**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

- Tilt up tool holder arm, unhook it and lift it setting it to “out of work” position (Fig. 15 ref. 1); use the handle control to position the tool holder arm on the outer side of the wheel then set it to work position (Fig. 14 ref. 1) and secure with the safety hook provided (Fig. 1 ref. 8).

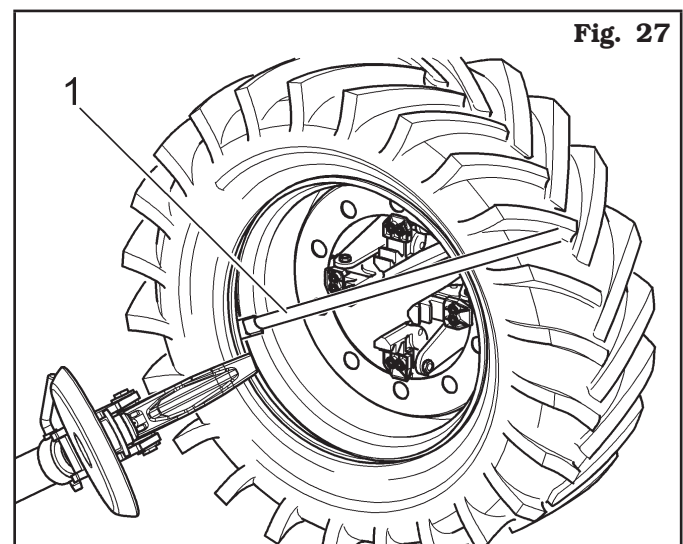


**PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.**

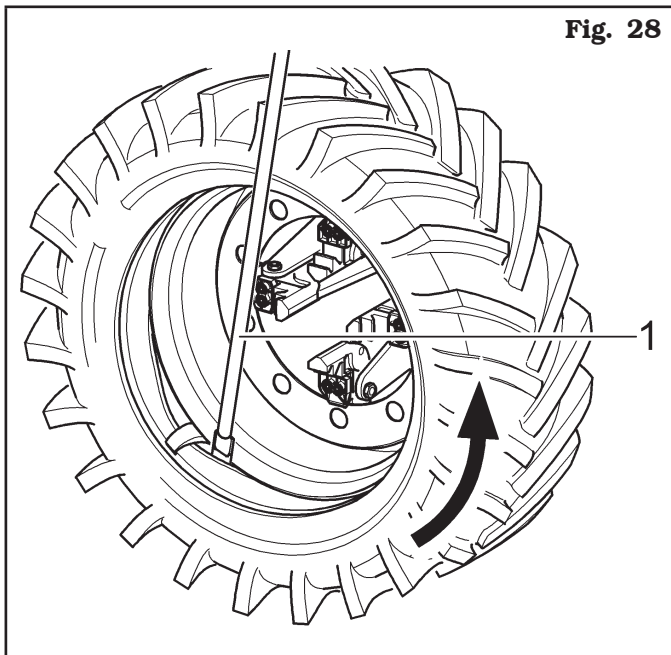


**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**


- Carry out the tool holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the hook tool by about 4-5 cm (1.57” -1.97”) to avoid possible unhooking of the bead from the same tool.
- Translate the hook tool outwards until the reference notch matches the external edge of the rim.
- Move to work position **A** (Fig. 6).
- Insert lever (Fig. 27 ref. 1) between the rim and the bead on the right-hand side of the tool.




- Keeping the lever pressed lower the wheel until the edge of the rim is 5 mm (0.2") distant from the hook tool.
- Turn the wheel clockwise keeping lever pressed until the bead has gone completely out.
- Move the hook tool holder arm away to "out of work" position (**Fig. 15 ref. 1**); lower the chuck until the tyre rests on the footboard ; exert a certain pressure on it so that when the chuck is moved slightly backwards, this will create the space required to extract the inner tube.
- Extract the inner tube and lift the wheel again.
- Move to work position **D** (**Fig. 6**).
- Tilt up tool holder arm, unhook it and lift it setting it to "out of work" position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then set it to work position (**Fig. 14 ref. 1**) and secure with the safety hook provided (**Fig. 1 ref. 8**).
- Carry out the tool holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the tool by about 4-5 cm (1.57"- 1.97") to avoid possible unhooking of the bead from the same tool;
- Move to work position **A** (**Fig. 6**).
- Translate the hook tool outwards until the reference notch is 3 cm (1.18") inside the rim.
- Insert the lever (**Fig. 28 ref. 1**) between rim (**Fig. 28 ref. 2**) and bead (**Fig. 28 ref. 3**) on the tool right.



- Keeping the lever pressed, lower the wheel until the edge of the rim is approximately 5 mm (0.2") distant from the hook tool then turn the chuck counterclockwise keeping the lever (**Fig. 28 ref. 1**) pressed until the tyre has been completely dislodged from the rim.




**WHEN THE BEADS COME OUT OF THE RIM THE TYRE MAY FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING IN THE WORK AREA.**




**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**

### 12.7.3 Mounting




**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

- Secure the rim to the chuck according to the procedure described in paragraph "WHEEL CLAMPING".
- Adequately lubricate the tyre beads and the rim bead seat with a suitable lubricant using the provided brush.



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

- Mount clamp (**Fig. 23 ref. 1**) on the external edge of the rim at the highest point as shown in **Fig. 23**.



**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

- Move to work position **B** (**Fig. 6**).
- Position the tyre on the footboard and lower the chuck (make sure the clamp is at the highest point) to hook the first tyre bead (internal bead).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm (5.91" -7.87"); the tyre will position itself sideways with respect to the rim.

- Tilt up hook tool holder arm, unhook it and lift it setting it to “out of work” position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then set it to work position (**Fig. 14 ref. 1**) and secure with the safety hook provided.

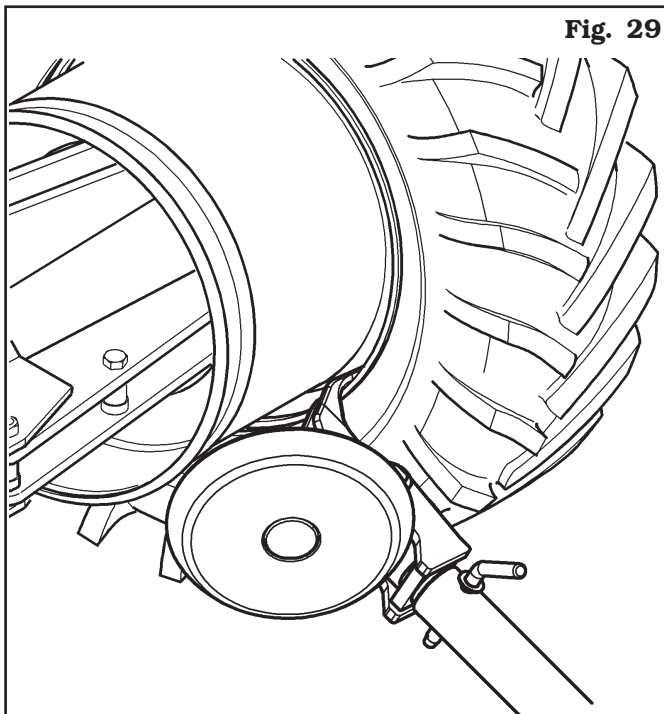


**PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.**



**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

- Carry out the tool holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move to work position **D** (**Fig. 6**).
- Move the tool forward until the axis of the reference notch matches that of the external edge of the rim at about 5 mm (0.2”) from the rim itself (see **Fig. 29**).

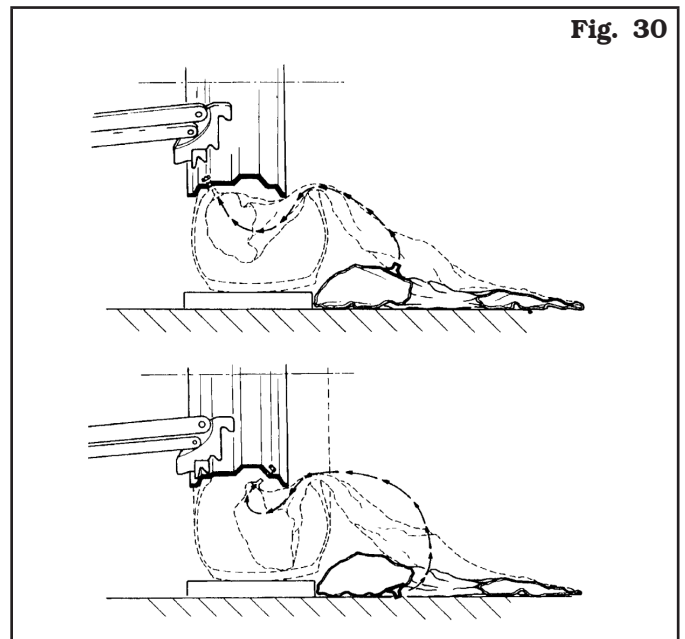


- Move to work position **C** (**Fig. 6**).
- From the external side of the wheel, check the exact position of the hook tool and, if necessary, correct it, then, turn the chuck clockwise until the clamp reaches the lowest point (6 o'clock). The first bead should now be inserted in the rim, then remove clamp.

- Move to work position **D** (**Fig. 6**).
- Extract the tool hook from the tyre.
- Place the tool holder arm to “out of work” position (**Fig. 15 ref. 1**) and translate it to the outer side of the tyre.
- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph.
- Move to work position **B** (**Fig. 6**).
- Turn the chuck to position the hole to insert the valve downward (“6 o'clock”).
- Lower the chuck until the wheel rests on the foot-board. Move the chuck backward to create the necessary space between tyre edge and rim for the introduction of the inner tube.



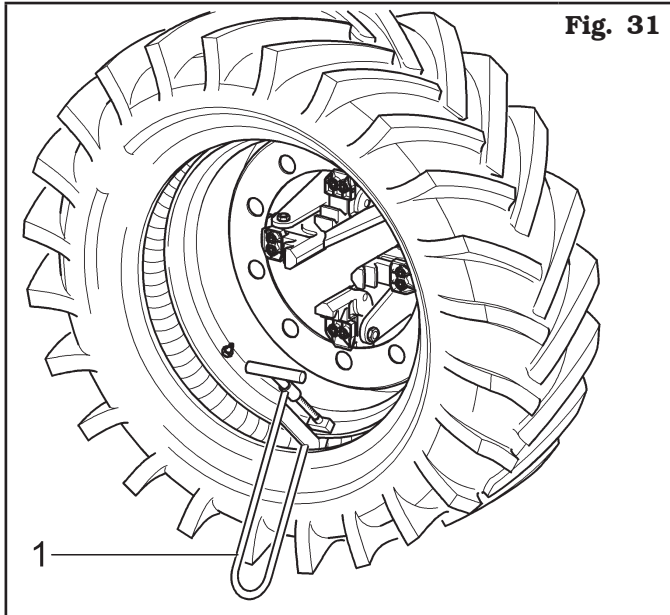
**THE VALVE HOLE COULD BE IN AN ASYMMETRIC POSITION WITH RESPECT TO THE CENTRE OF THE RIM. IN THIS CASE IT IS NECESSARY TO POSITION AND INTRODUCE THE INNER TUBE AS SHOWN IN FIGURE 34.**



Introduce the valve in the hole and secure it with the provided ring nut. Introduce the inner tube in the drop centre of the rim (to make this operation easier, it is advisable to simultaneously turn the chuck clockwise).

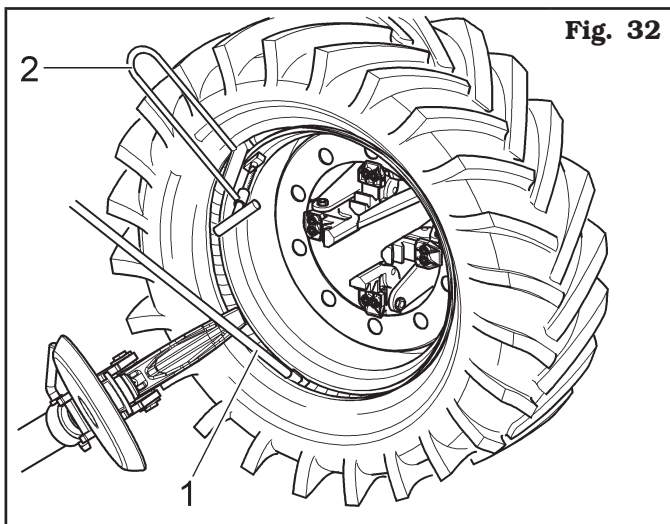
- Turn the chuck and position the valve downwards (“6 o'clock”).
- To avoid damaging the inner tube, slightly inflate it when inserting the second bead.
- To avoid damaging the valve when fitting the second bead, remove the fixing ring nut and mount an extension on the same valve.
- Move to work position **C** (**Fig. 6**).

- Lift the chuck and mount the clamp (**Fig. 31 ref. 1**) on the rim outside the second bead at about 20 cm (7.87") from the inflating valve on the right;
- Turn the chuck clockwise until clamp (**Fig. 31 ref. 1**) is positioned at "9 o'clock".




**Fig. 31**

- Set the hook tool holder arm to "work position" (**Fig. 14 ref. 1**) on the outer side of the tyre.
- Set the hook tool to work position and bring the tool holder arm forward until the axis of the reference notch matches that of the outer edge of the rim at a distance of 5 mm (0.2").
- Turn the chuck clockwise until lever (**Fig. 32 ref. 1**) is introduced in the housing obtained on the hook tool.
- Turn the chuck with lever (**Fig. 32 ref. 1**) hooked up to the complete insertion of the tyre outer bead.
- Remove lever (**Fig. 32 ref. 1**), clamp (**Fig. 32 ref. 2**) and extract the hook tool by turning the chuck counterclockwise and translating it outwards.



**Fig. 32**

- Tilt up hook tool holder arm placing it to "out of work" position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **B** (**Fig. 6**).
- Check the state of the tyre valve and centre it, if necessary, in the rim hole by slightly turning the chuck; secure the valve with the supplied ring nut after having removed the protective extension.
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.

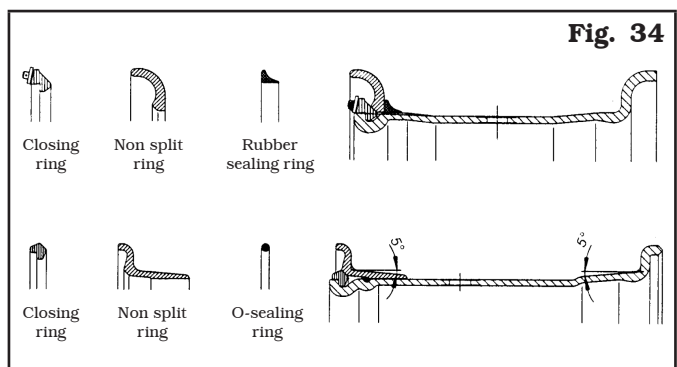
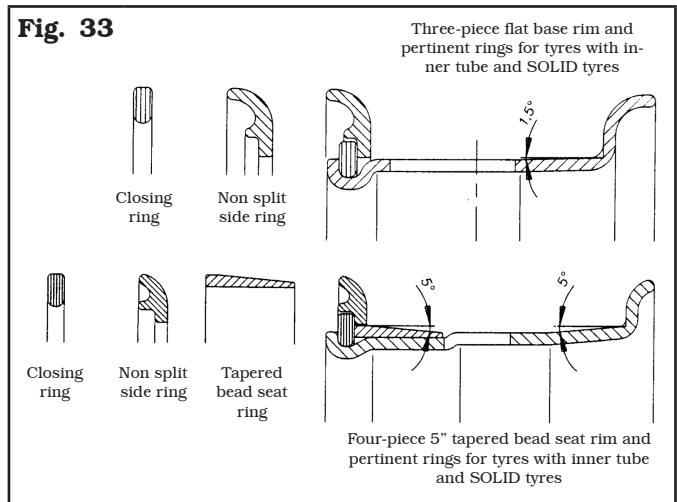


**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

- Translate the platform to release the wheel from the chuck.

**12.8 Wheels with bead wire**

As an example **Fig. 33** and **34** illustrate sections and compositions of types of wheels with bead wire currently being sold.



### 12.8.1 Beading and demounting

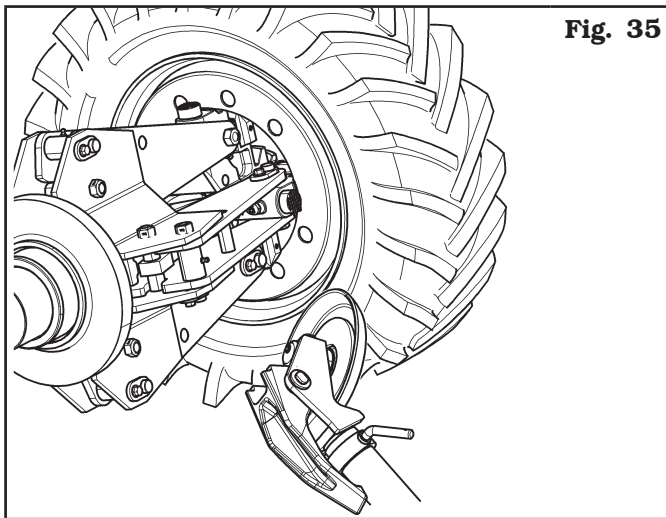


**NEVER STAND IN FRONT OF THE WHEEL WHILE THE INFLATION RING IS BEING EXTRACTED FROM THE BEAD WIRE, SINCE IT MAY BE EJECTED VIOLENTLY, CAUSING SERIOUS INJURIES OR WOUNDS.**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**

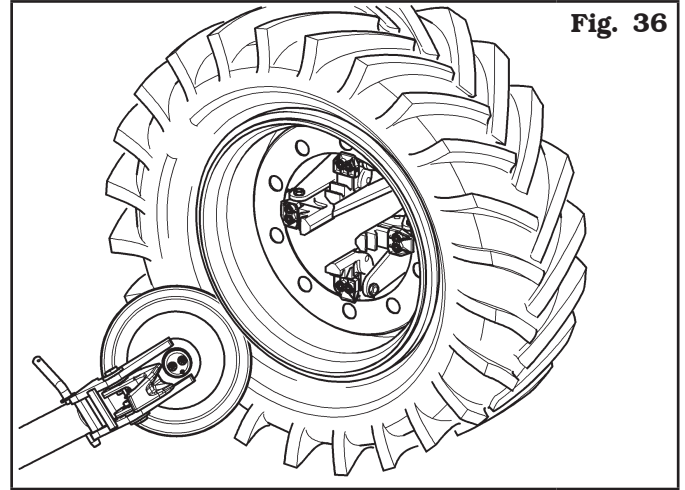
- Mount the wheel on the chuck as described in “WHEEL CLAMPING” and make sure it is deflated.
- Move to work position **D** (**Fig. 6**).
- Set the hook tool arm to “work position” (**Fig. 14 ref. 1**) in the tyre inner side, and make sure it is locked by the provided safety stop (**Fig. 1 ref. 8**).
- Position the bead breaker disc on rim edge (see **Fig. 35**).



**Fig. 35**

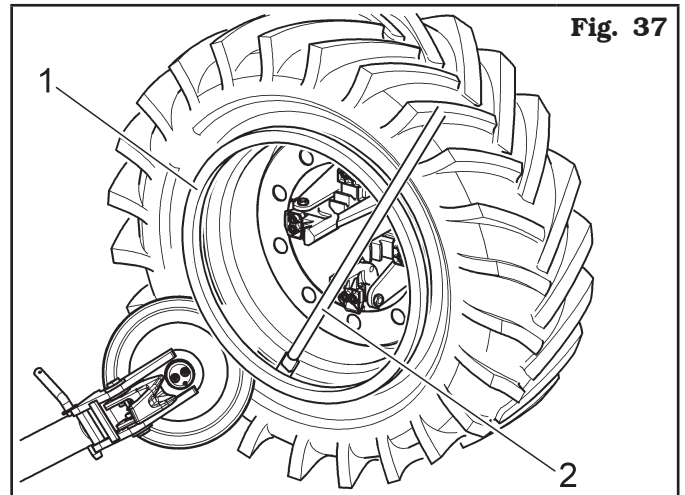
- Turn the chuck and smear the entire bead seat of the rim with lubricant. While doing this, jerk the bead breaker disc forward until the first bead is removed (as these wheels feature inner tubes, carry out the operation carefully, paying special attention to when the bead dislodges, trying to stop disc advance immediately to avoid compromising the integrity of the inner pipe and valve).
- Set the tool holder arm to “out of work” position (**Fig. 15 ref. 1**), operate the handle control in order to position the tools holder arm on the wheel outer side, then set it in “work position” (**Fig. 14 ref. 1**) again and lock it with the safety hook provided.

- Carry out the tools holder head 180° rotation according to the description of the relevant paragraph, in order to let the bead breaker disc come into contact with the tyre outer side (see **Fig. 36**).



**Fig. 36**


- Turn the chuck and smear the entire bead seat of the rim with lubricant.
- While doing this, jerk the bead breaker disc forward until bead is removed;
- Repeat the operation, making the bead breaker disc move forward against the bead wire (see **Fig. 37**) until the stop ring is released (**Fig. 37 ref. 1**). It will be then extracted through lever (**Fig. 37 ref. 2**).




**Fig. 37**

- Remove the bead wire.
- Remove the O-Ring, when featured.
- Tilt up tool holder arm placing it to “out of work” position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **B** (**Fig. 6**).
- Move the chuck backward until the tyre is completely dislodged from the rim (in case of tyres with inner tube, make sure that the valve hasn't been damaged during removal).







**WHEN THE BEADS COME OUT OF THE RIM THE TYRE MAY FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.**



**WHEN DEMOUNTING VERY HEAVY TYRES, IT IS IMPORTANT TO MOVE THE WHEEL AS CLOSE AS POSSIBLE TO THE BASE BEFORE COMPLETING THE OPERATION.**




**PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.**



**ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.**

**12.8.2 Mounting**

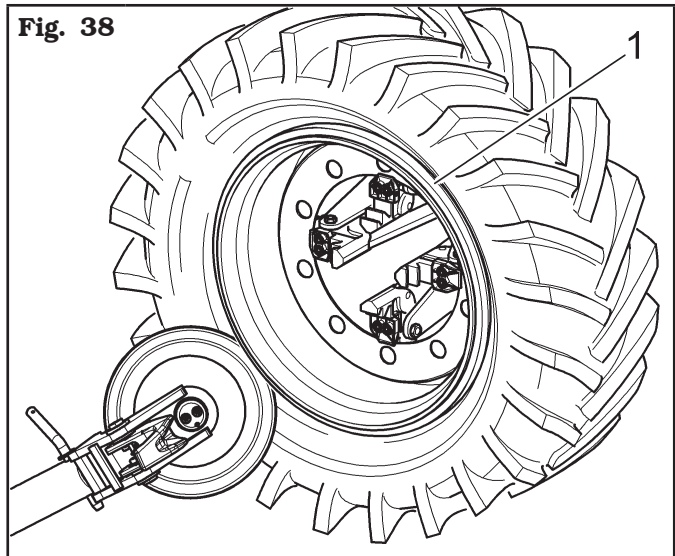


**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR - 2610 psi).**


- Place the hook tool holder arm in “out of work” position (**Fig. 15 ref. 1**); if it has been removed, secure the rim to the chuck as described in “WHEEL CLAMPING” paragraph. If the wheel features an inner tube, position the rim with the valve slot facing downwards (at “6 o’clock”).
- Lubricate the entire bead seat of the rim and the tyre beads.
- Move to work position **B (Fig. 6)**.
- Place the chuck in order to centre the rim on the tyre.
- Operate chuck forward movement in order to insert the rim in the tyre (in case of tyres with inner tube, make the valve re-enter in order not to damage it). Move forward until the rim is completely inserted in the tyre.
- Insert the bead wire on the rim with the stop ring fitted (if the rim and bead wire feature fixing slits, they must be in phase with each other).
- Move to work position **C (Fig. 6)**.
- Set the tool holder arm on the external side then lower it into “work position” (**Fig. 14 ref. 1**) with the bead breaker disc facing the wheel. If the outer edge ring is not sufficiently fitted on the rim, position the chuck until the bead wire is near the bead breaker

disc. Move the bead breaker disc forward and then turn the chuck until the housing of the O-Ring (if featured) is found.

- Lubricated the O-Ring and place it in its housing.
- Move to work position **B (Fig. 6)**.
- Position the bead wire (**Fig. 38 ref. 1**) on the rim, fit the stop ring with the help of the bead breaker disc as shown in **Fig. 38**.



- Tilt up hook tool holder arm placing it to “out of work” position (**Fig. 15 ref. 1**) after it has been unhooked.
- Lower the chuck until the wheel rests on the foot-board.
- Close the chuck jaws completely and translate the platform outwards until the rim has been completely removed, making sure the wheel is held up to avoid dropping.



**CLOSING THE CHUCK CAUSES THE WHEEL TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING IN THE WORK AREA.**

### 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 CHUCK.**



**BEFORE REMOVING HYDRAULIC CIRCUIT FITTING OR HOSES, MAKE SURE THAT THERE ARE NO PRESSURISED FLUIDS PRESENT. PRESSURISED OIL SPILLS MAY CAUSE SERIOUS WOUNDS OR INJURIES.**

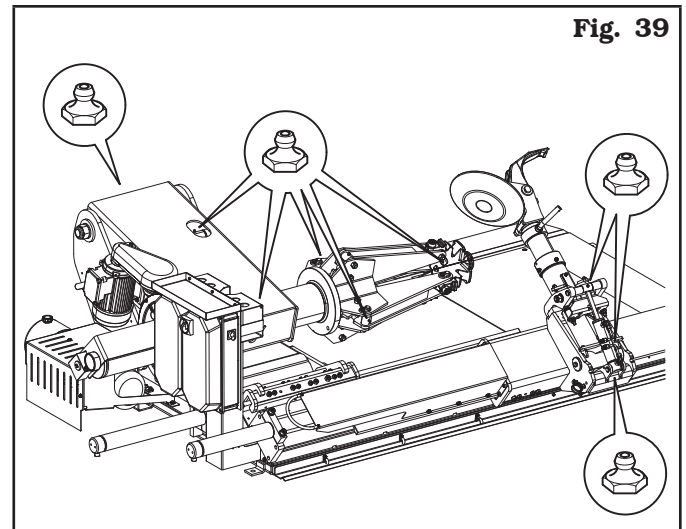


**BEFORE CARRYING OUT ANY MAINTENANCE WORK ON THE HYDRAULIC CIRCUIT, SET THE EQUIPMENT IN THE REST CONDITION.**

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 mains power supply before starting any cleaning or routine maintenance operations.
- Remove deposits of tyre powder and other waste materials with a vacuum.
- **DO NOT BLOW IT WITH COMPRESSED AIR.**
- Periodically (preferably once a month) make a complete check on the controls, ensuring that they provide the specified actions.
- Every 100 working hours lubricate the (tool and chuck) carriage sliding guides.
- Periodically (preferably once a month), grease all moving parts of the equipment (see **Fig. 39**).



**Fig. 39**

- Check periodically the oil level of the oil-pressure unit and, in case, carry out the filling up with hydraulic oil having a viscosity degree suitable for the average temperatures of the country where the machine is installed and in particular:

- viscosity 32 (or countries with room temperature from 0 °C - +30 °C (+32 °F - +86 °F));
- viscosity 46 (for countries with room temperature above 30 °C (+86 °F)).

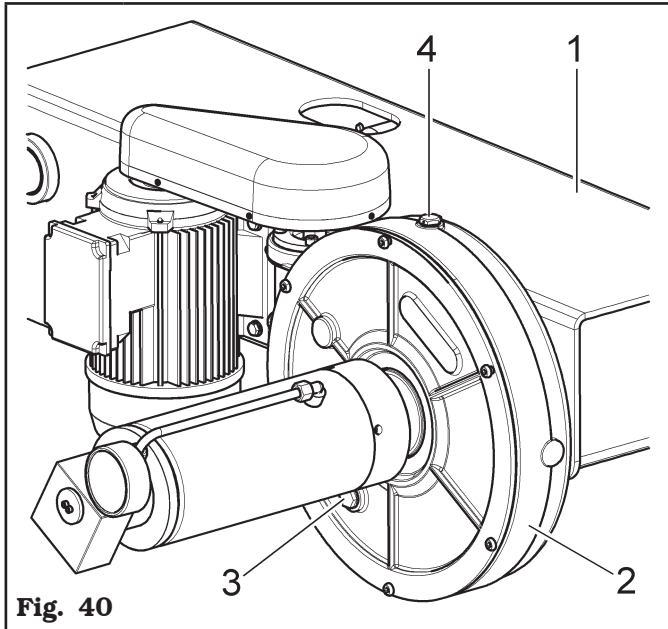
At least once a year it is advisable to proceed anyway to the complete replacement of the hydraulic oil of the same oil-pressure unit.



**PERFORM THIS OPERATION ONLY WITH THE EQUIPMENT COMPLETELY CLOSED (HYDRAULIC PISTONS EXTENDED).**

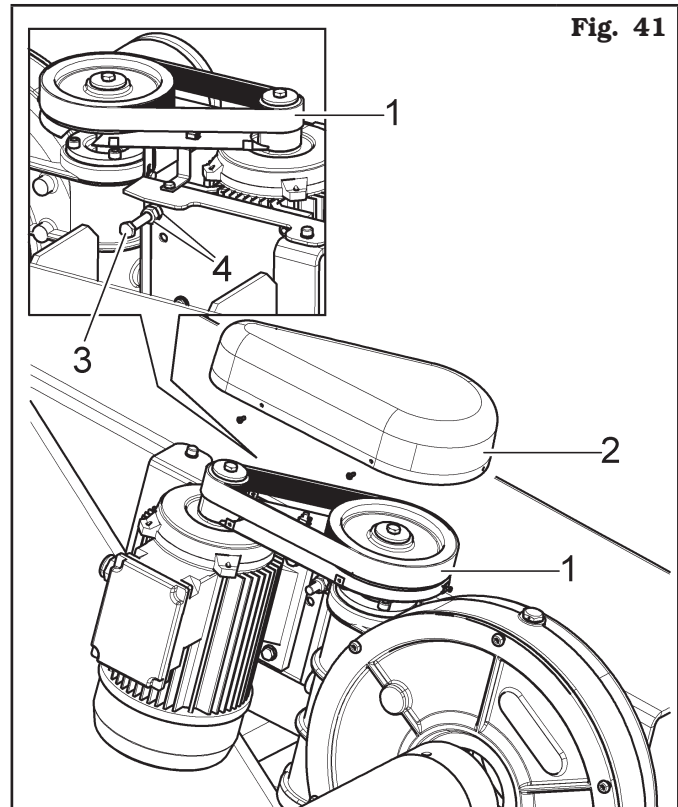
- Periodically (about every 100 hours), check the oil level of the reduction gear and eventually reset the level.
- Check operation of the safety devices every week.

A. Place the whole support (**Fig. 40 ref. 1**) in horizontal position, then check the reduction gear oil level (**Fig. 40 ref. 2**); the level indicator window (**Fig. 40 ref. 3**) must be covered with lubricant, otherwise, remove the plug (**Fig. 40 ref. 4**) and top up using appropriate lubricants until the level is reset.

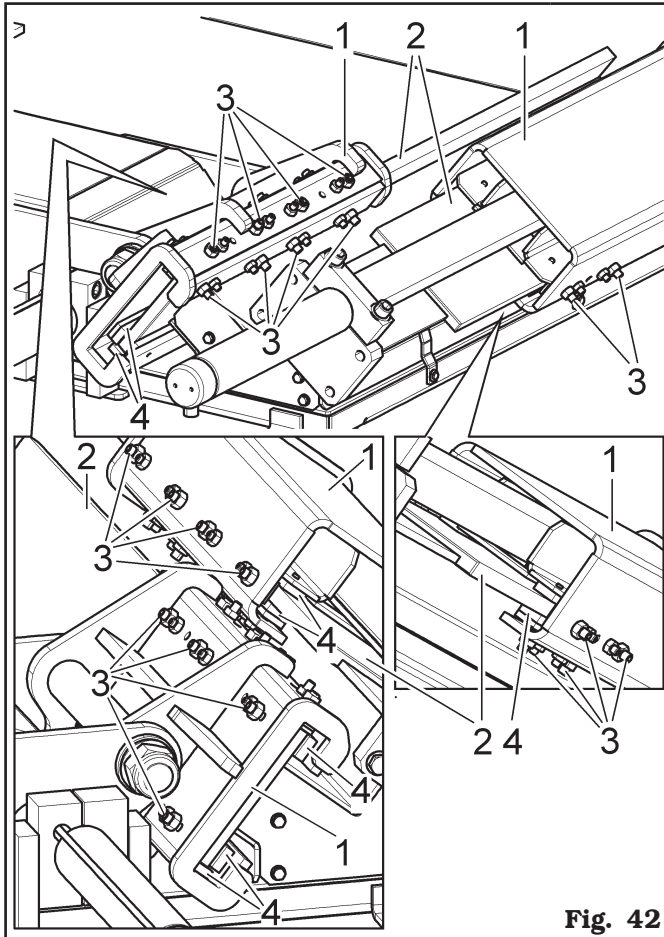


B. Check belt tensioning (**Fig. 41 ref. 1**):

- Remove the upper guard (**Fig. 41 ref. 2**) with a screwdriver.
- Stretch the belt (**Fig. 41 ref. 1**) using the bolt (**Fig. 41 ref. 3**) after the nuts (**Fig. 41 ref. 4**); have been slackened.
- Tighten the fixing nuts (**Fig. 41 ref. 4**) after the adjustment operations, then assemble the protection guard (**Fig. 41 ref. 2**) again.



- Periodically (every 50 working hours approximately), carry out the (inner and outer) guides of the tool and chuck carriages.
- C. Check periodically and, if necessary, adjust the play of slide (**Fig. 42 ref. 1**) on guide plates (**Fig. 42 ref. 2**) using the adjustment bolts (**Fig. 42 ref. 3**) of sliding blocks (**Fig. 42 ref. 4**).

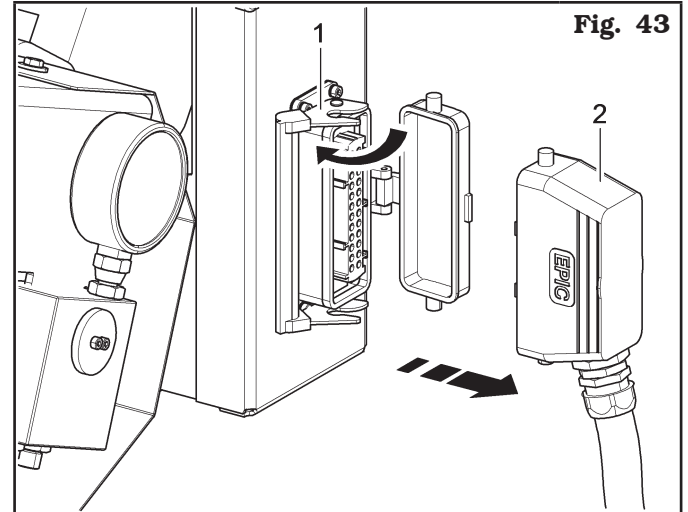


**Fig. 42**

### **13.1 Control box cable replacement**

If you need to quickly replace the manipulator cable as it is damaged, proceed as follows:

- open the locking device (**Fig. 43 ref. 1**);
- replace the damaged cable (**Fig. 43 ref. 2**);
- secure the locking device.



**Fig. 43**



**OPERATION TO BE CARRIED OUT ONLY IN CASE THE CARRIAGE MOVES IN A NON-LINEAR WAY (TRIGGER ACTION).**



**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!!**



**ANY EXTRAORDINARY MAINTENANCE OPERATION MUST BE CARRIED OUT EXCLUSIVELY BY PROFESSIONALLY QUALIFIED PERSONNEL.**








**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**

<b>Problem</b>	<b>Possible cause</b>	<b>Remedy</b>
Pump motor does not work but wheel holder chuck motor works perfectly.	<b>a)</b> Hydraulic control unit damaged.	<b>a)</b> Call Technical Service Dept. 
When main switch is turned on, wheel holder chuck does not turn whereas the pump motor works.	<b>a)</b> Gearmotor change-over switch damaged.	<b>a)</b> Call Technical Service Dept. 
Power drop during wheel holder chuck rotation.	<b>a)</b> Timing belt too loose.	<b>a)</b> Tension up the belt.
No pressure in the hydraulic system.	<b>a)</b> Pump damaged.	<b>a)</b> Replace pump. 
The chuck opening pressure does not go down.	<b>a)</b> Pressure limiting valve jammed	<b>a)</b> Download chuck (remove wheel), completely undo adjusting handle. Perform many opening and closing cycles up to jam release. 
The equipment does not start.	<b>a)</b> No power supply. <b>b)</b> Overload cutouts not set. <b>c)</b> Transformer fuse blown.	<b>a)</b> Connect the power supply. <b>b)</b> Set the overload cutouts. <b>c)</b> Change the fuse.
Fluid leaks from fitting or pipeline.	<b>a)</b> Fitting not tightened correctly. <b>b)</b> Pipeline cracked.	<b>a)</b> Tighten the fitting. <b>b)</b> Call the after-sales service. 
A control device is remaining on.	<b>a)</b> The switch has broken. <b>b)</b> A solenoid valve has jammed.	<b>a)</b> Call the after-sales service. <b>b)</b> Call the after-sales service. 
The self-centring chuck cylinder is losing pressure.	<b>a)</b> The directional control valve is leaking. <b>b)</b> The gaskets are worn.	<b>a)</b> Call the after-sales service. <b>b)</b> Call the after-sales service. 

<b>Problem</b>	<b>Possible cause</b>	<b>Remedy</b>
The motor stops during operation.	<b>a)</b> Overload cutout tripped.	Open the electrical cabinet and reset the overload cutout tripped.
When a control device is operated the equipment does not move at all.	<b>a)</b> Solenoid valve not receiving power. <b>b)</b> Solenoid valve jammed. <b>c)</b> Transformer fuse blown. <b>d)</b> Control unit not set correctly.	<b>a)</b> Call the after-sales service. <b>b)</b> Call the after-sales service. <b>c)</b> Change the fuse. <b>d)</b> Call the after-sales service.
No pressure in hydraulic circuit.	<b>a)</b> Power unit motor turning in wrong direction. <b>b)</b> Power unit pump has failed. <b>c)</b> No oil in power unit tank.	<b>a)</b> Restore correct rotation direction by changing socket connection. <b>b)</b> Call the after-sales service. <b>c)</b> Fill power unit tank with oil
The equipment operates in jerks.	<b>a)</b> Not enough fluid in power unit tank. <b>b)</b> Control unit switch has failed.	<b>a)</b> Top up with oil. <b>b)</b> Call the after-sales service.



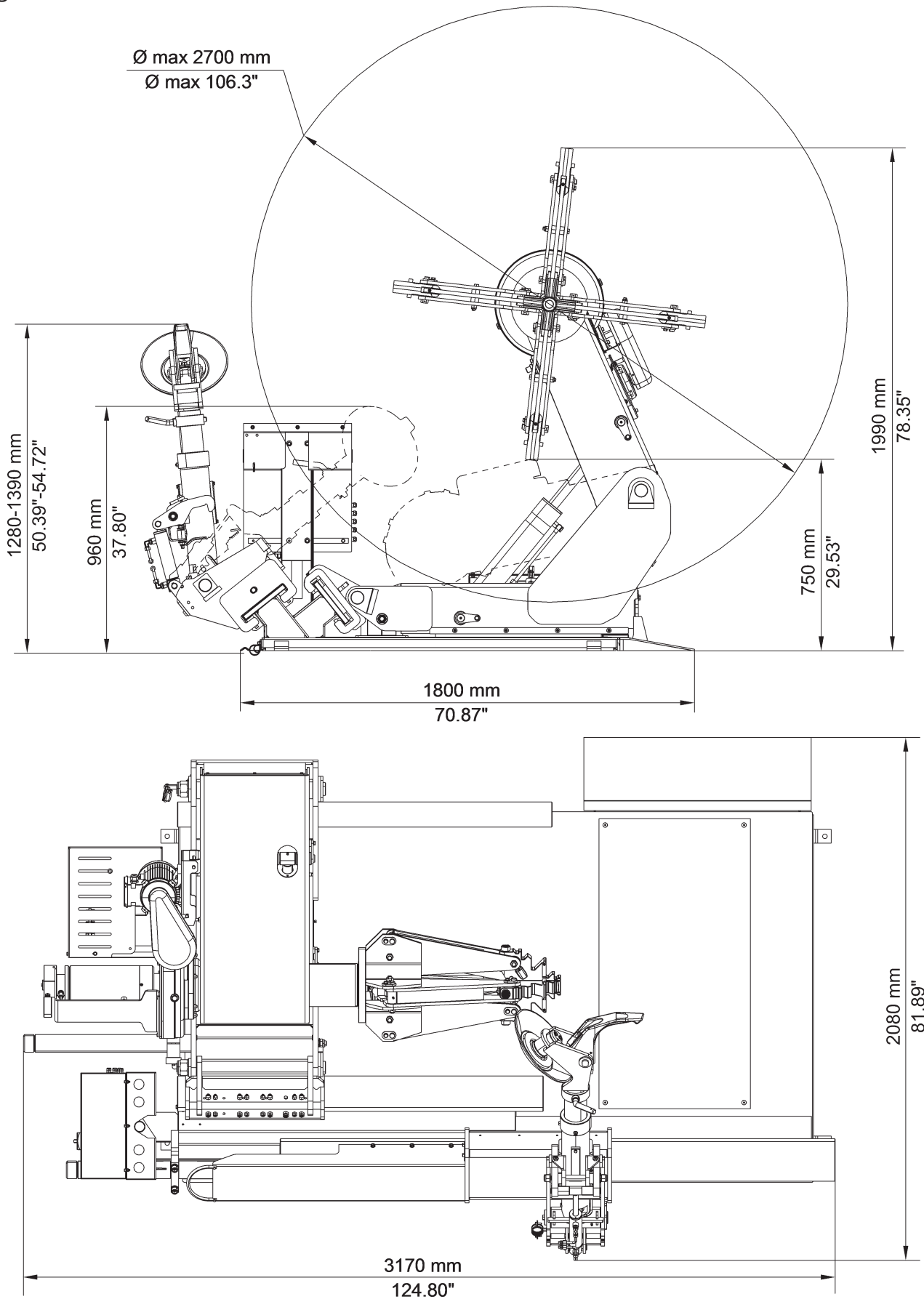


**15.0 TECHNICAL DATA**

Chuck motor (NAV73.17 - NAV73T.17):	Power <b>1.2-2.2 kW (1.6 - 2.9 Hp)</b> 3 Ph power supply <b>400 V (50 Hz)</b>
Max. chuck rotation speed: .....	<b>4-8 rpm</b>
Max. rotation torque: .....	<b>6000 Nm (4425 ft·lbs)</b>
Wheel max. diameter:.....	<b>2700 mm/106"</b>
Wheel max. width:.....	<b>1750 mm/69"</b>
Wheel max. weight:.....	<b>3000 kg (6615 lbs)</b>
Self-centring lock: .....	<b>11"- 50"</b> (11"-60"with extensions)
Chuck minimum height from the ground: .....	<b>330 mm/13"</b>
Bead-breaking force: .....	<b>42000 N (9442 lbf)</b>
Minimum locking hole:.....	<b>90 mm (3.54")</b>
Power unit motor: .....	power <b>1.85-2.5 kW (2.5 - 3.3 Hp)</b> 3 Ph power supply <b>400 V (50 Hz)</b>
Operating pressure: .....	<b>180 bar (2610 psi)</b>
Weight: .....	<b>1700 kg (3748 lbs)</b>
Gear noise:.....	<b>&lt; 80 dB (A)</b>

**15.1 Dimensions**

**Fig. 44**





**16.0 STORING**

If storing for long periods (6 months or longer) disconnect the main power supply and take measures to protect the equipment from dust build-up. Lubricate parts that could be damaged from drying out. When putting the equipment back into operation replace the rubber pads and the toolhead. Also provide for a check on the perfect functioning of the equipment.

**17.0 SCRAPPING**

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

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

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

**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.**

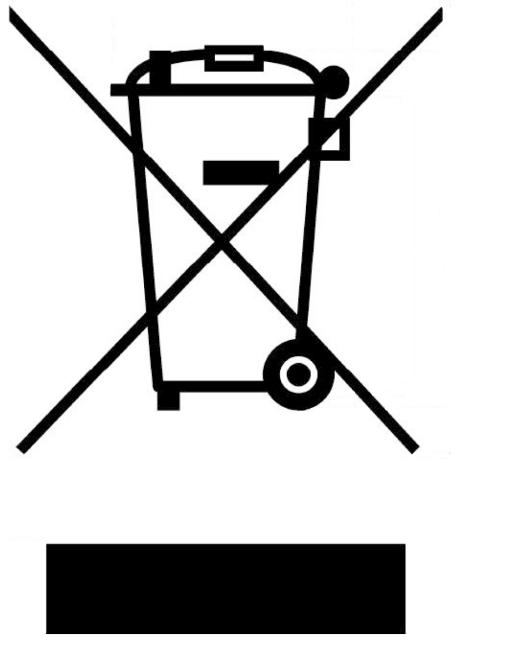
	<p><b>ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.</b></p>
--	--

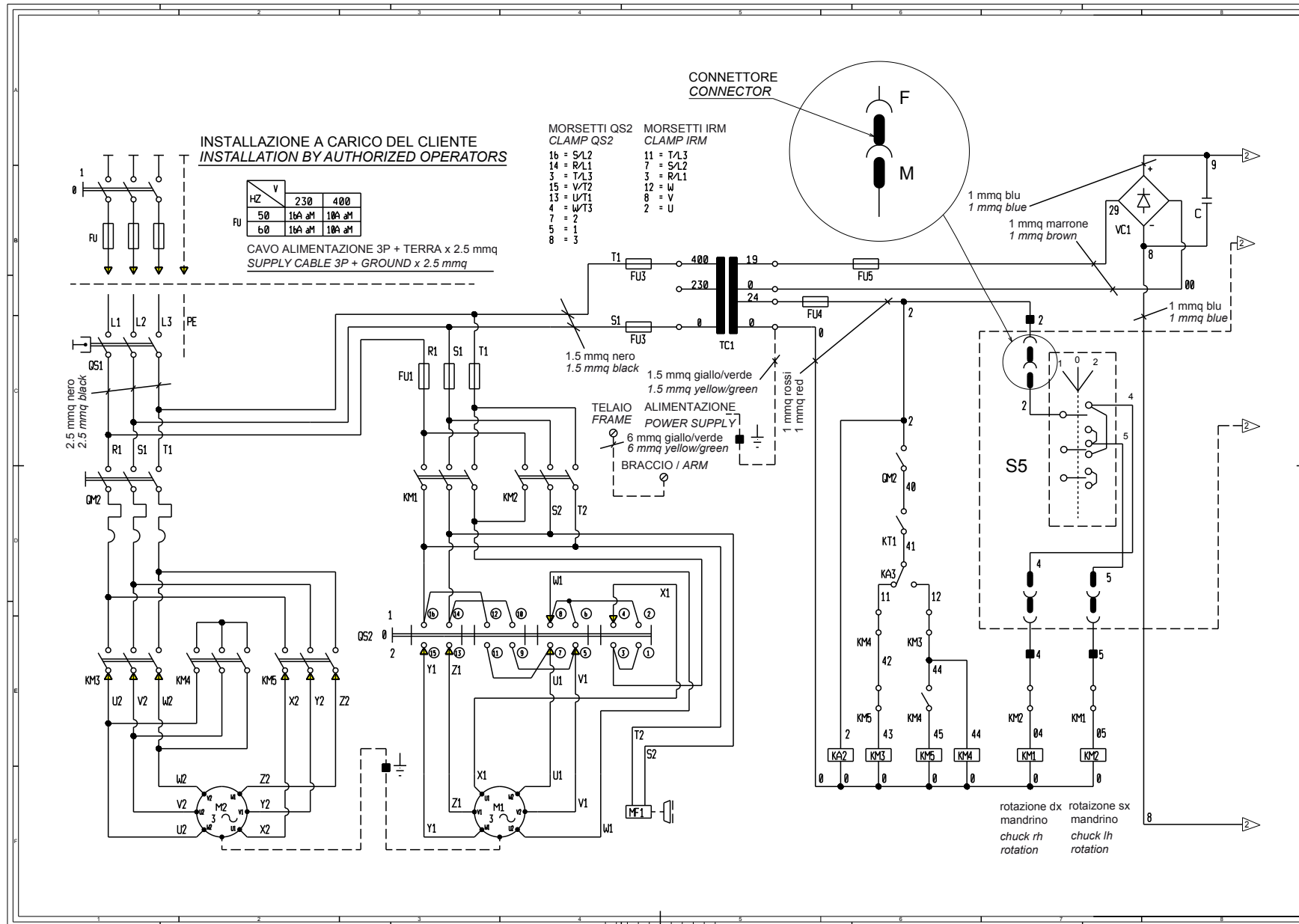
*WARNING: Should the plate be accidentally damaged (removed from the equipment, damaged or even partially illegible) inform immediately the manufacturer.*

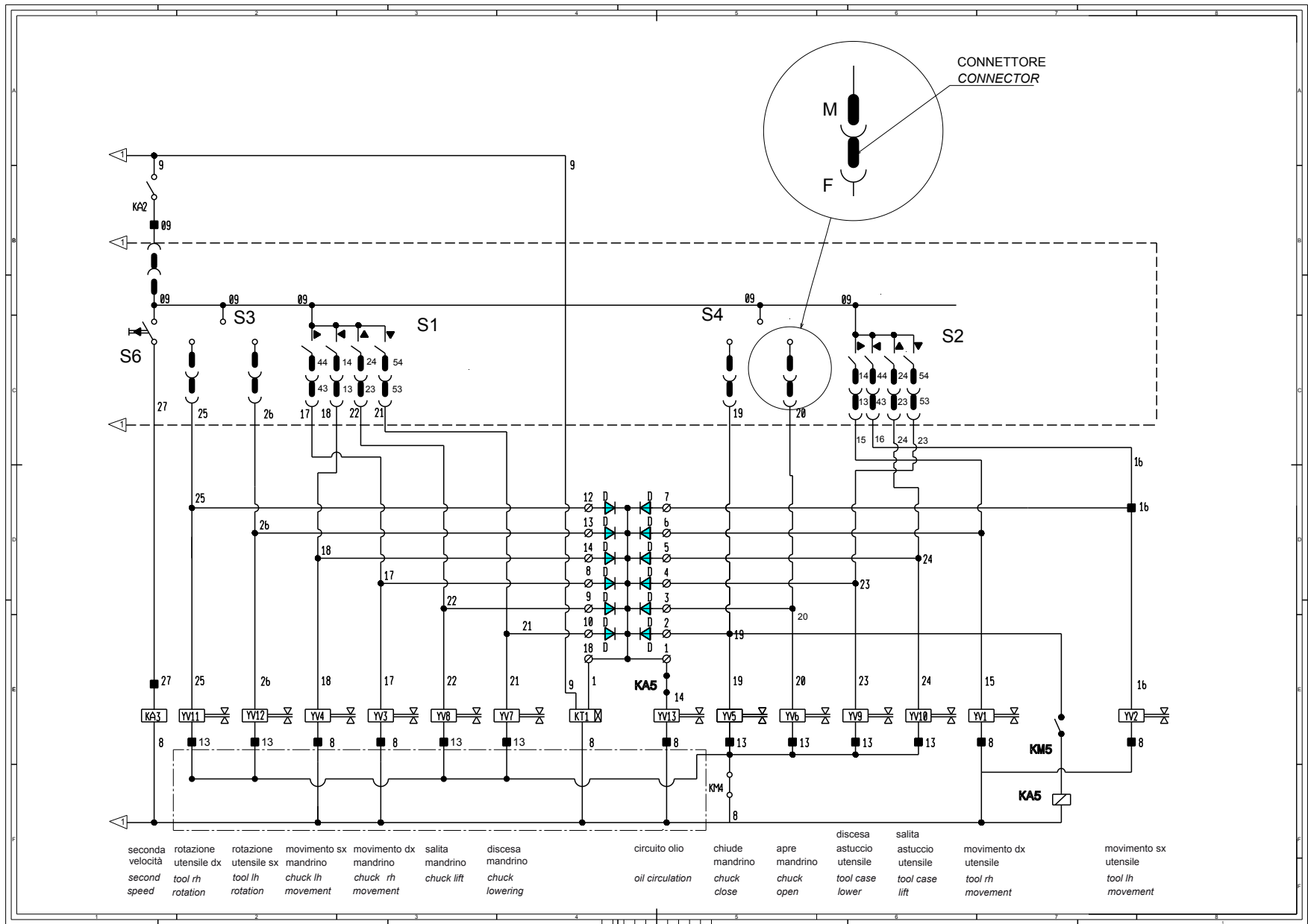
**19.0 FUNCTIONAL DIAGRAMS**

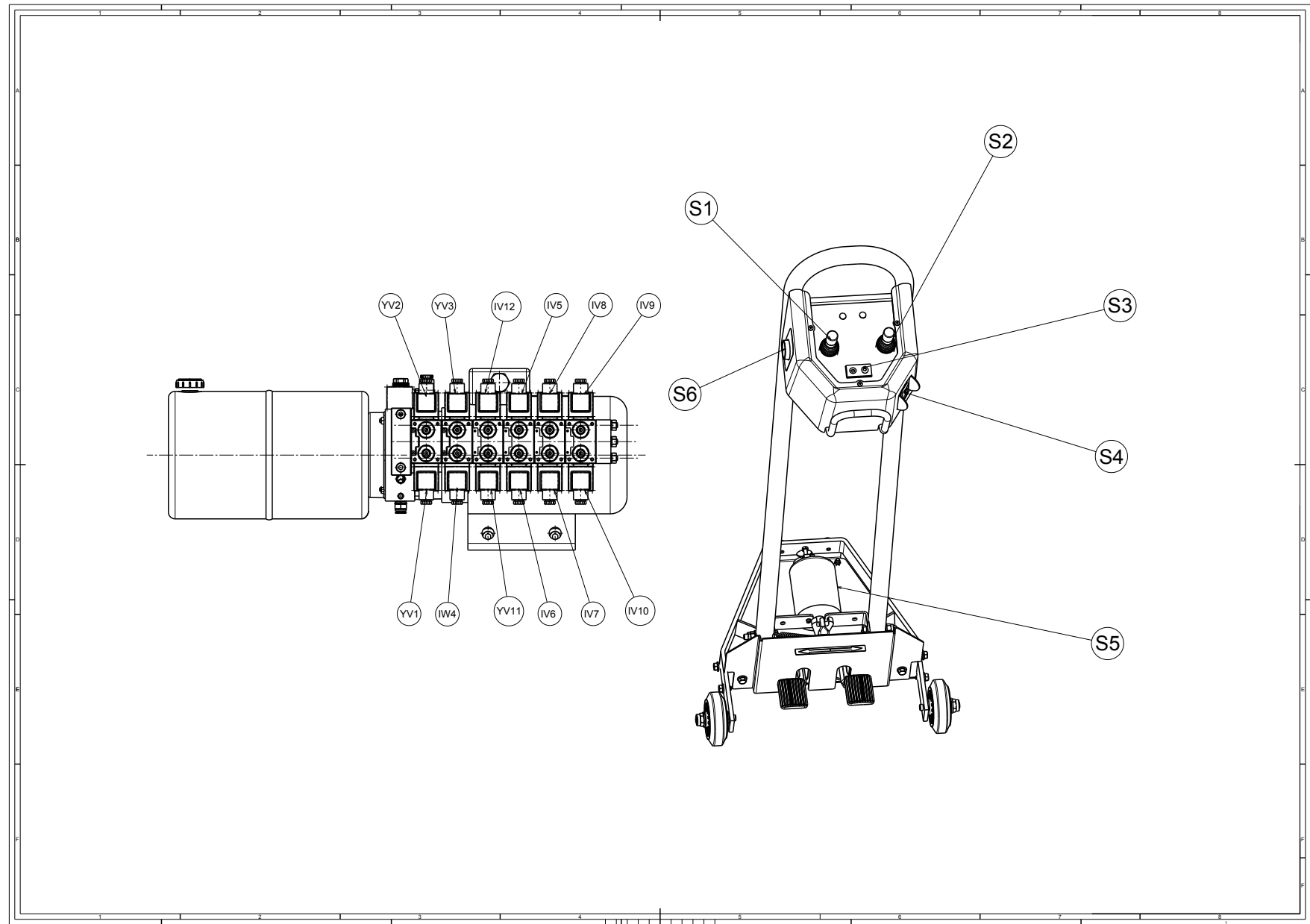
Here follows a list of the equipment functional diagrams.

**Fig. 45**











LIST OF COMPONENTS

WIRING DIAGRAM 4/5

Drawing N°A - Rev. 0

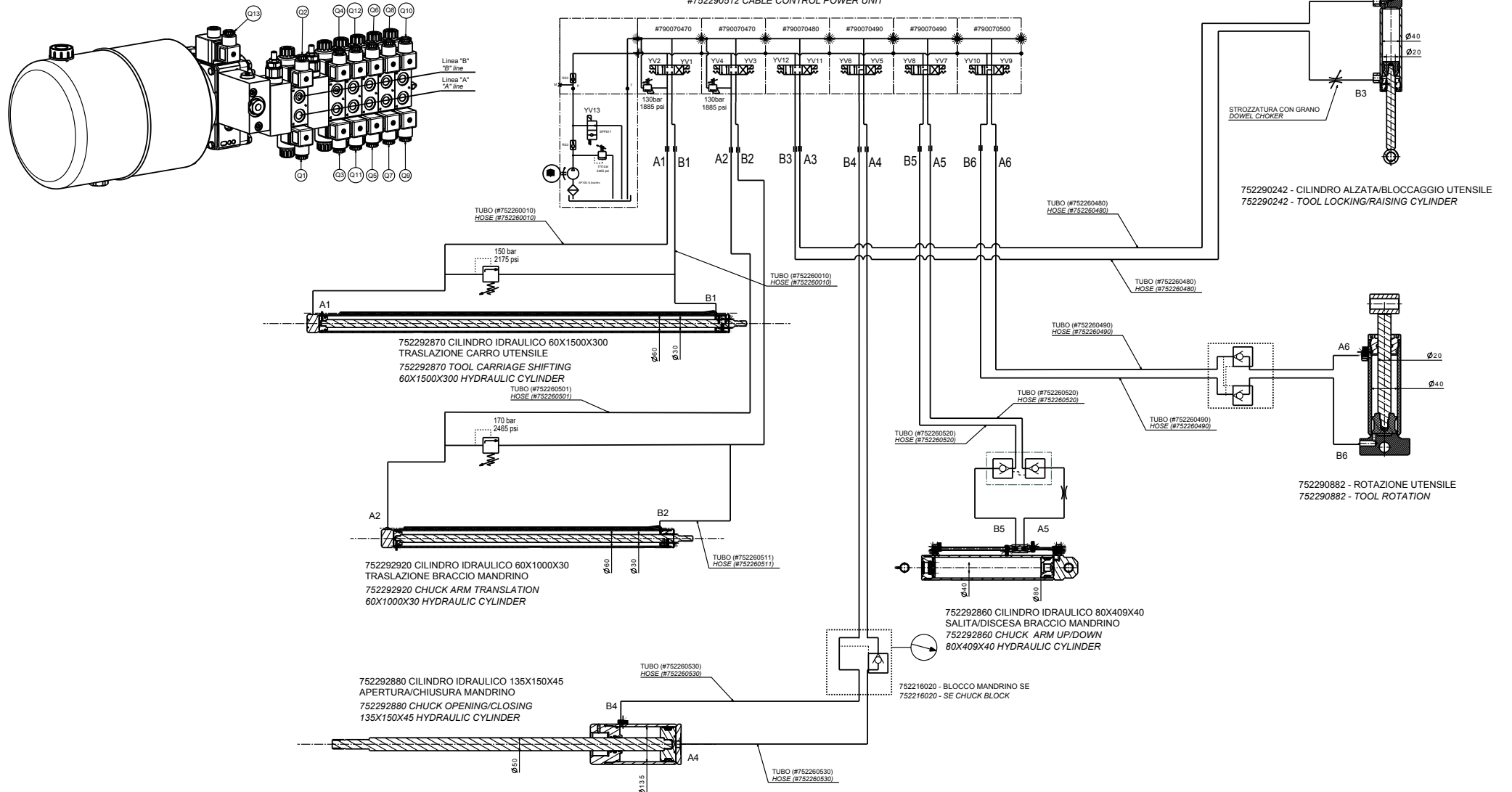
752205782

TYRE-CHANGER SERIES  
NAV73.17 and G10760.17

No.	Cod.	Description
	C	Electrolytic capacitor
	D	Diode 1N4007
	FU1	Line protection fuse
	FU3	Primary protection fuse
	FU4	Secondary protection fuse
	FU5	Secondary protection fuse
	KA2	Control block relay
	KA3	Control unit second speed control relay
	KA5	Second speed solenoid valve inhibitor relay
	KM1	Chuck clockwise rotation contactor
	KM2	Chuck counterclockwise rotation contactor
	KM3	First speed control contactor
	KM4/KM5	Second speed control contactor
	KT1	Power unit motor control timer
	MF1	Chuck motor brake
	S5	Chuck rotation control switch
	S2	Forward/backward and up/down tool carriage control handle
	S1	Chuck up/down and rh and lh movement control handle
	M1	Chuck motor
	M2	Power unit motor
	QM2	Thermal magnetic switch
	QS1	Main switch
	QS2	Pole circuit breaker
	S4	Push button for chuck open/close
	S3	Right/left tool rotation control button
	S6	Power unit second speed button
	TC1	Control transformer
	VC1	Rectifier bridge
	YV1	Tool Rh movement solenoid valve
	YV2	Tool Lh movement solenoid valve
	YV3	Chuck Rh movement solenoid valve
	YV4	Chuck Lh movement solenoid valve
	YV5	Chuck close solenoid valve
	YV6	Chuck open solenoid valve
	YV7	Chuck descent solenoid valve
	YV8	Chuck rise solenoid valve
	YV9	Tool-in solenoid valve
	YV10	Tool-out solenoid valve
	YV11	Synodx rotation solenoid valve
	YV12	Synosx rotation solenoid valve



CENTRALINA #752290512 COMANDO VIA CAVO  
#752290512 CABLE CONTROL POWER UNIT



LIST OF COMPONENTS

Drawing N°B - Rev. 0

752205121

HYDRAULIC DIAGRAM

Page 47 of 49

TYRE-CHANGER SERIES  
NAV73.17 and G10760.17

7522-M009-00

**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:**  

<b>2006/42/CE</b>	<b>Machinery Directive</b>
<b>2014/30/EU</b>	<b>Electromagnetic Compatibility Directive</b>
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;  

<b>UNI EN ISO 12100:2010</b>	<b>Safety of machinery - General principles for design - Risk assessment and risk reduction;</b>
<b>CEI EN 60204-1:2018</b>	<b>Safety of machinery - Electrical equipment of machines - Part 1: General requirements</b>
8. where appropriate, reference to other standards and technical specifications applied;  

<b>UNI EN 17347:2001</b>	<b>Road vehicles – Machines for mounting and demounting vehicle tyres – Safety requirements</b>
--------------------------	---
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 SEERVICE 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;
 

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