



**7504-M005-00**

**TYRE-CHANGER SERIES  
NAV101 - GTB16EVO - GG516EVO**

**INSTRUCTION MANUAL**  
Applicable to the following models

**ROT.NV101.201850**

**RAV.GTB16.206305**

**SPA.GTB16.205902**

**EN**

ORIGINAL INSTRUCTIONS

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

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

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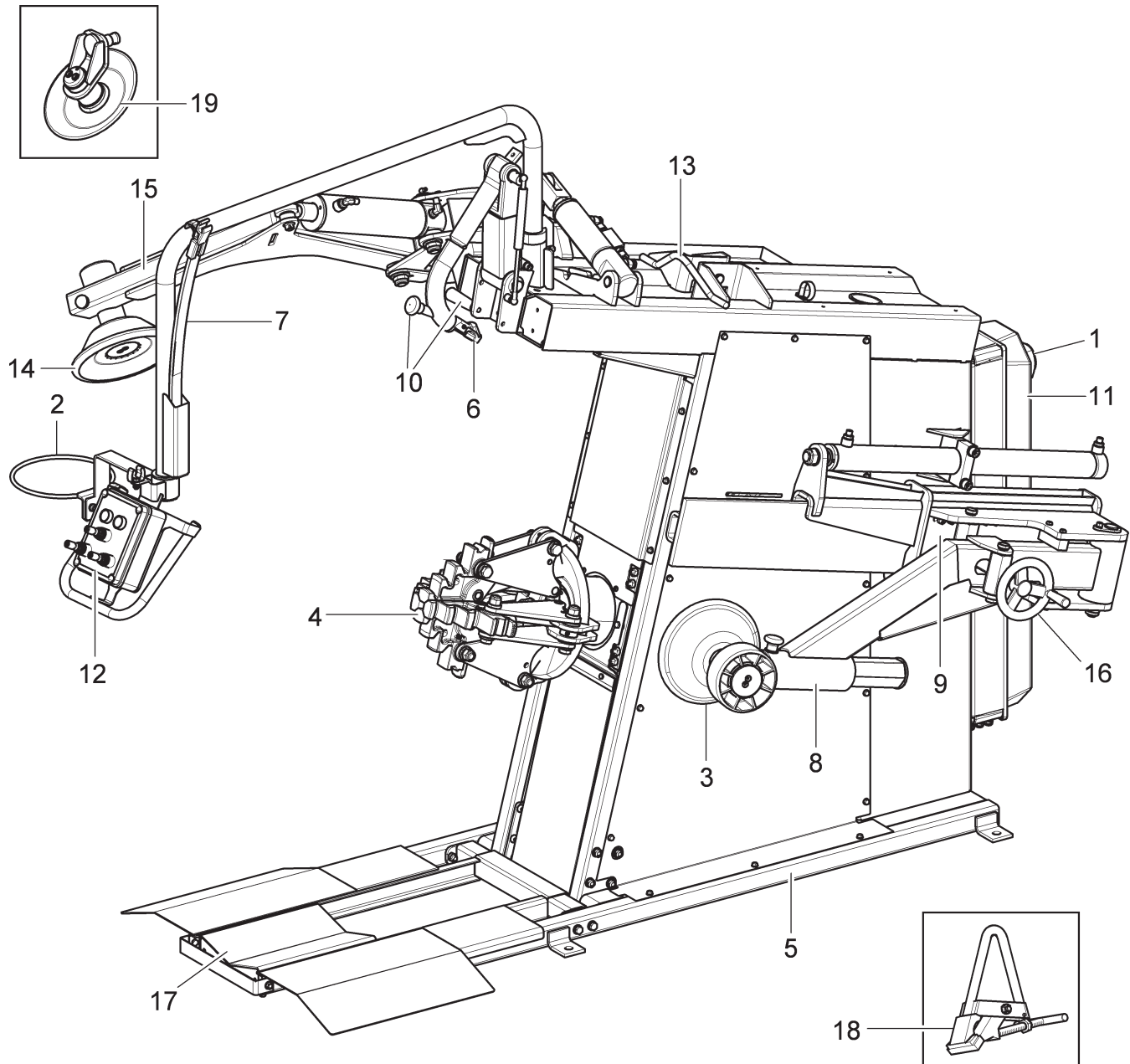
**7504-M005-00 - Rev. n. 00 (11/2023)**

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## GENERAL DESCRIPTION








Fig. 1









## KEY

- |  |   |
|--|---|
| 1 - Main switch                                | 11 - Electric cabinet   |
| 2 - Grease-holder ring                         | 12 - Control unit   |
| 3 - Rear bead breaker roller                   | 13 - Lifting hook   |
| 4 - Self-centring chuck                        | 14 - Front bead breaker roller  |
| 5 - Frame                                      | 15 - Front bead breaker roller holder arm                               |
| 6 - Toolhead                                   | 16 - Handwheel for adjustment of rear bead breaker roller work position |
| 7 - Bead lever                                 | 17 - Tyre loading platform  |
| 8 - Rear bead breaker roller holder arm        | 18 - Clamp for alloy rims (optional)                                    |
| 9 - Rear bead breaker roller movement carriage | 19 - Disc for agricultural wheels or with stop ring (optional)          |
| 10 - Tool head positioning handgrip            |   |

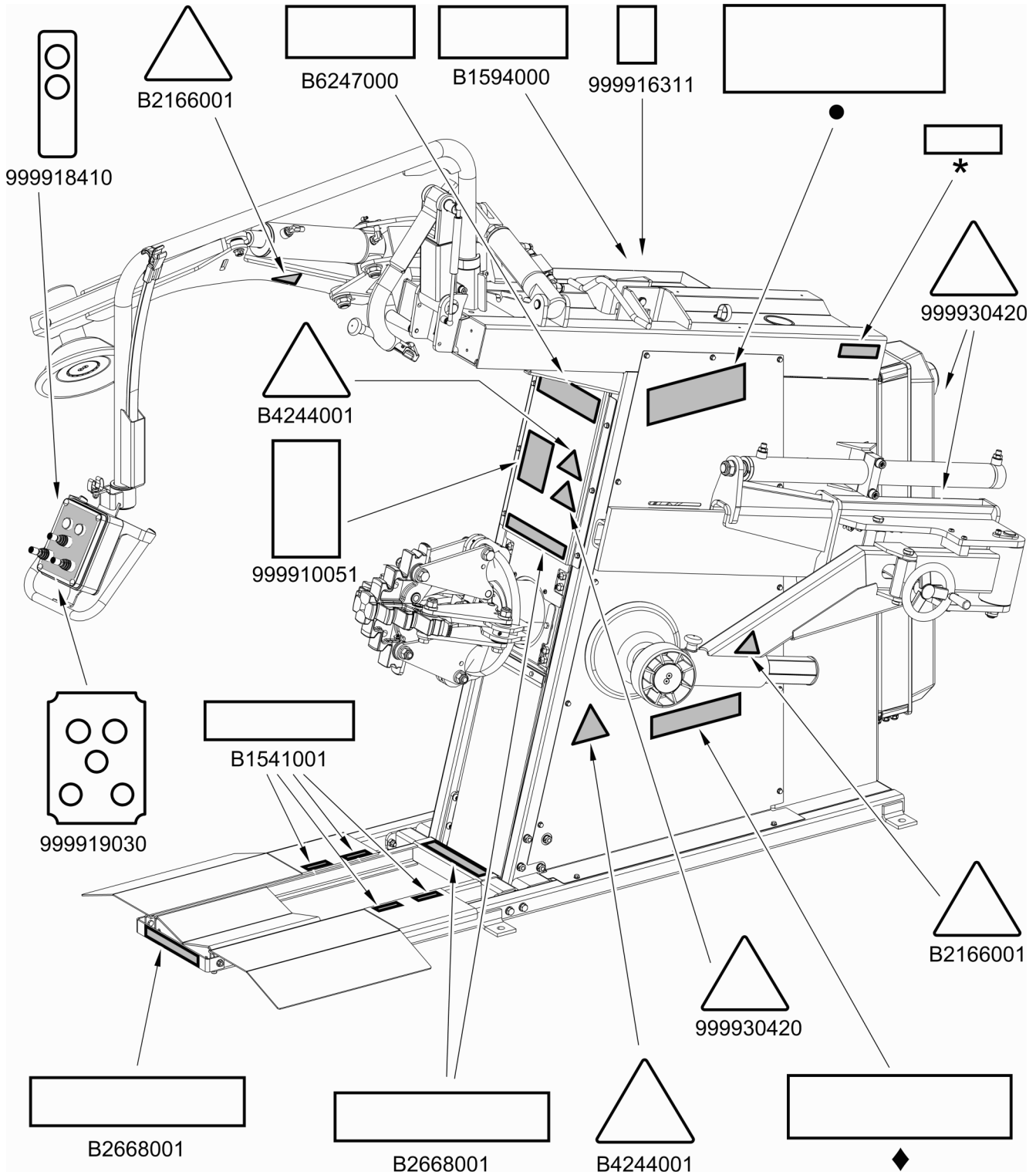
**SYMBOLS USED IN THE MANUAL**

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.
	Caution: hanging loads.
	Danger: tyre could fall.

**PLATES LOCATION DRAWING**

**Fig. 2**



<b>Code numbers of nameplates</b>	
<b>B1541001</b>	<i>Danger nameplate</i>
<b>B1594000</b>	<i>Date indicating nameplate</i>
<b>B2166001</b>	<i>Bead breaker danger nameplate</i>
<b>B2668001</b>	<i>Wheel lifting device danger nameplate</i>
<b>B4244001</b>	<i>Rotating parts danger nameplate</i>
<b>B6247000</b>	<i>"Deflate tyre..." nameplate</i>
<b>999910051</b>	<i>Protection device use nameplate</i>
<b>999916311</b>	<i>Rubbish skip nameplate</i>
<b>999918410</b>	<i>Self-centring chuck nameplate</i>
<b>999919030</b>	<i>Joysticks nameplate</i>
<b>999930420</b>	<i>Electric shock danger nameplate</i>
*	<i>Serial number nameplate</i>
•	<i>Manufacturer logo nameplate</i>
◆	<i>Equipment 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).
- **Control 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.



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

- **Controlled check valves** on:
  - opening of self-centring chuck jaws,
  - lifting of self-centring chuck.These valves will stop unintended movement of the jaws and of wheel clamping self-centring unit.
- **Fuses** on the electric supply line of self-centring chuck motor:
- **Automatic power supply** disconnect with the opening of the electric cabinet.
- **Fixed protections and guards.**

### 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. 5**.

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 EVERY COMPONENT OF THE HYDRAULIC CIRCUIT IS ALWAYS PROPERLY LOCKED, ANY PRESSURIZED LEAKS MAY CAUSE SERIOUS INJURIES OR WOUNDS.**



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

## 5.0 PACKING AND MOBILIZATION FOR TRANSPORT



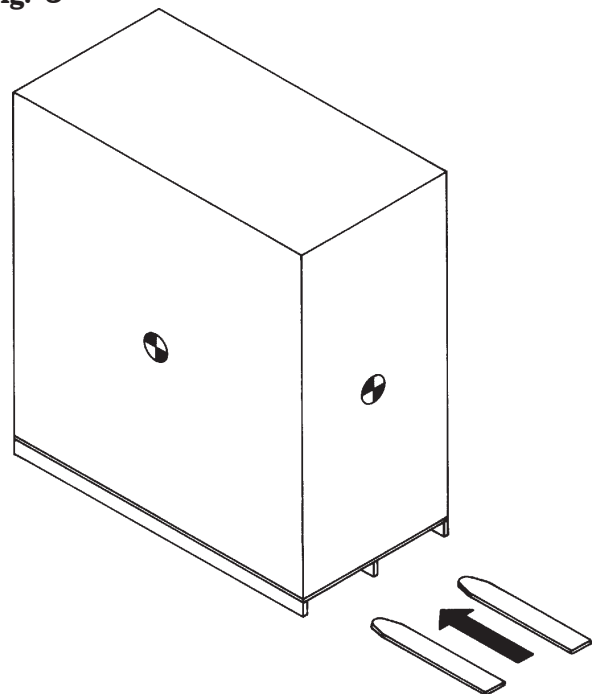
**HAVE THE EQUIPMENT HANDLED BY SKILLED PERSONNEL ONLY. THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED EQUIPMENT (SEE PARAGRAPH "TECHNICAL SPECIFICATIONS").**

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



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

The fork lifting points are indicated on the packing, (see **Fig. 3**).

**Fig. 3**



## 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 unmail 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

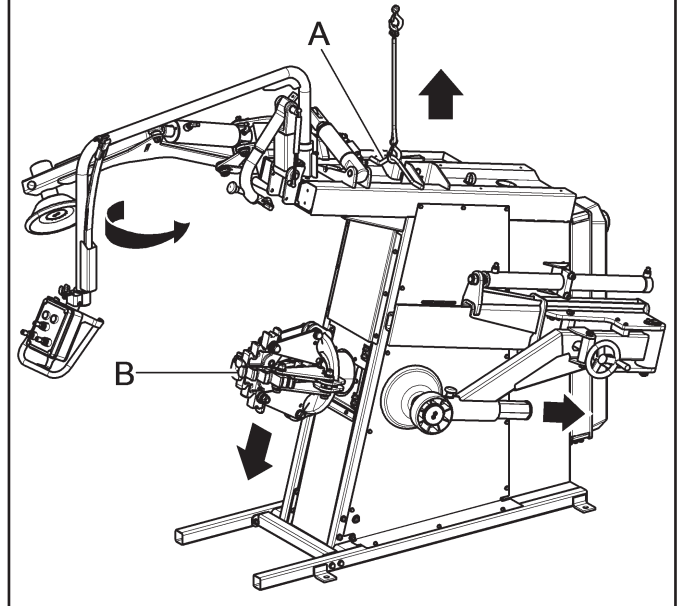





**THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE EQUIPMENT (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). NON FAR ALLOW THE LIFTED EQUIPMENT TO SWING.**

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

- protect the exposed corners with suitable material (bubble wrap/cardboard);
- do not use metallic cables for lifting;
- make sure that the equipment power supply is not connected;
- to perform lifting, use the bracket "A", pictured in **Fig. 4**. place the bead breaking arms as close as possible to the machine, and the self-centring chuck (**Fig. 4 ref. B**) as low as possible to ensure a correct load balancing.

**Fig. 4**



## 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.

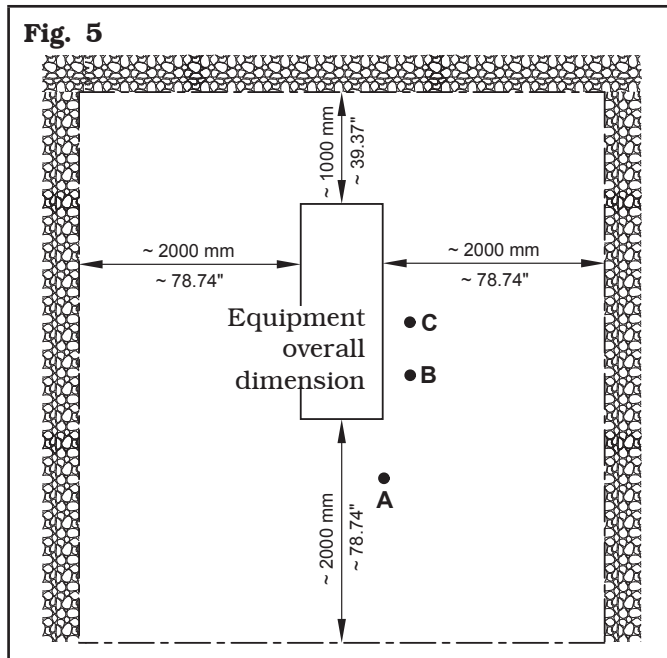
### 8.1 Work position

In **Fig. 5** it's possible to define work positions **A**, **B**, **C** which will be referred to in the description of equipment operative phases.

Positions **A** and **B** must be considered as the main positions for tyre mounting and demounting and for wheel clamping on self-centring chuck, while positions **A** and **C** 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 Working area



The location of the equipment requires a usable space as indicated in **Fig. 5**. 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.

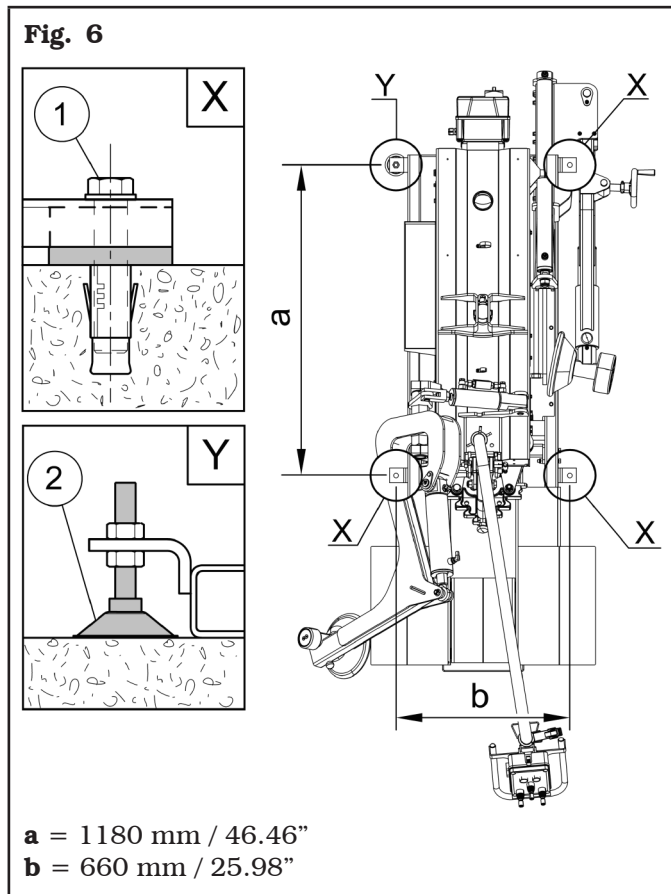
## 9.0 ASSEMBLY AND PREPARATION FOR USE



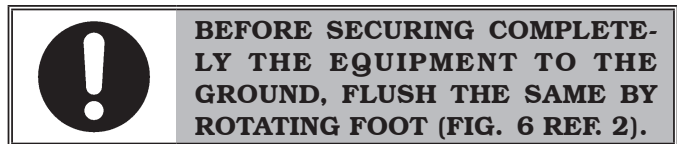
After having freed the components from the packing check that they are complete, and that there are no anomalies, then comply with the following instructions for the assembly of the components making use of the attached series of illustrations.

### 9.1 Anchoring system

The packed 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. 6**.



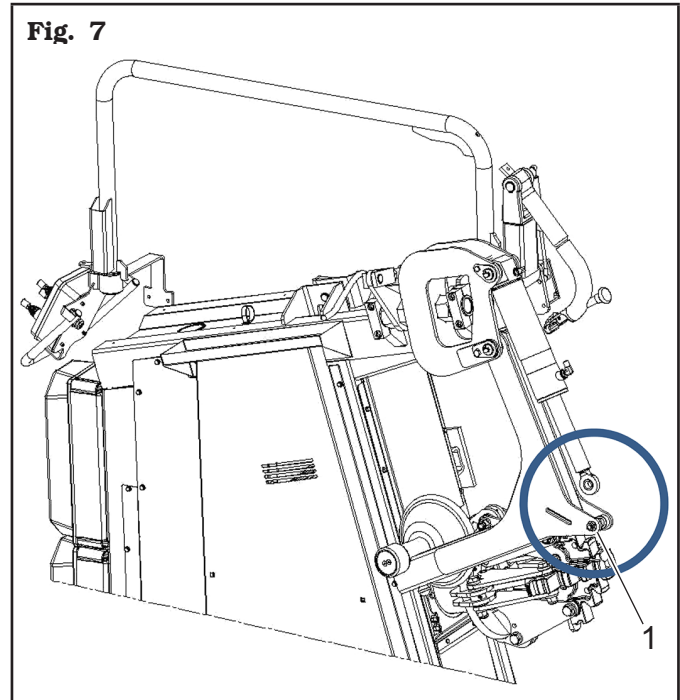
- To secure the equipment to the floor, use anchoring bolts/studs (**Fig. 6 ref. 1**) with a threaded shank M8 (UNC 5/16) suitable for the floor on which the tyre changer will be secured and in a number equal to the number of mounting holes on the bottom frame;
- drill holes in the floor, suitable for 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.



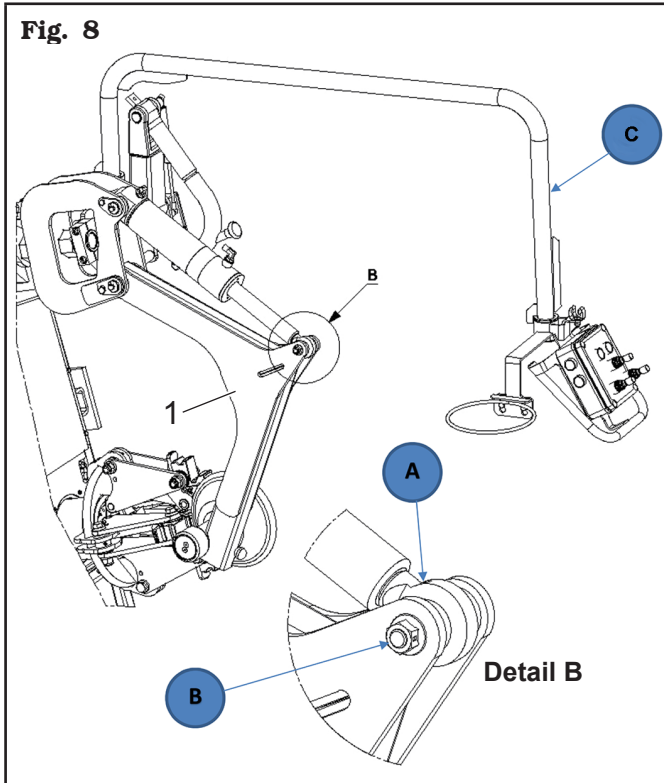
### 9.2 Assembly procedures

Assemble the machine with the help of the illustrations represented and described hereafter.

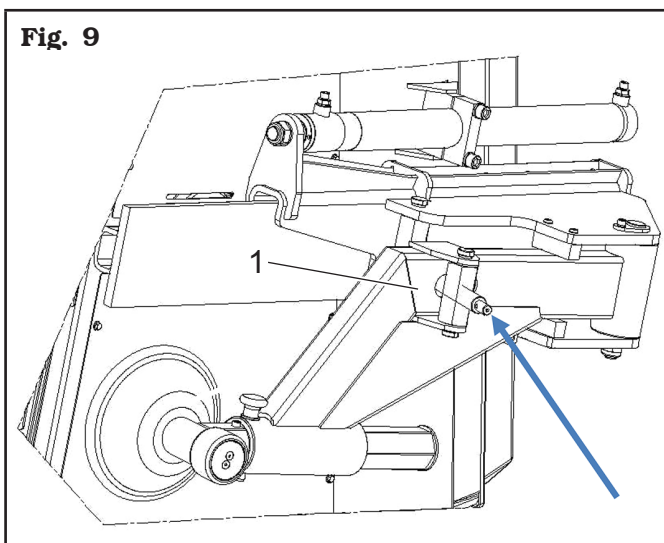
1. Remove the packaging and free the equipment from the wrapping, lift it and place it on the floor. The articulated end (**Fig. 7 ref. 1**) appears as illustrated in **Fig. 7**.



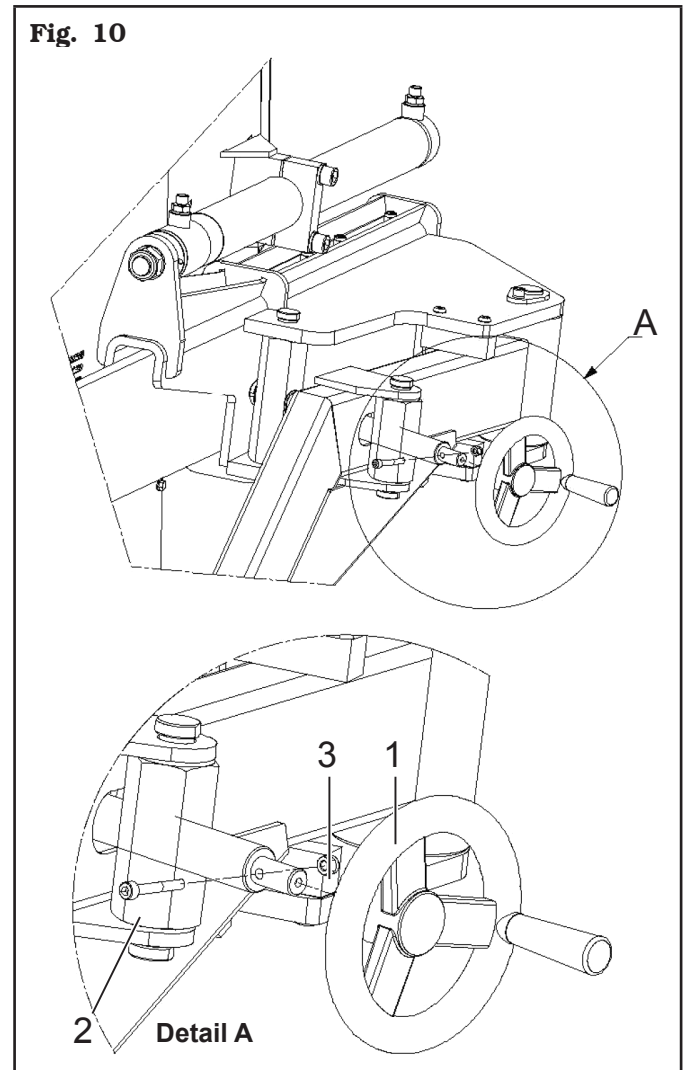
- Hook the articulated end (**Fig. 8 ref. 1**) onto the cylinder **A** to pin **B**, as shown by **detail B**. Turn the control unit **C**, as shown by **Fig. 8**. In order to perform such operation, lift the control unit along axis "A" at approximately 50 mm (1.97") up to position "2", rotate through 90° towards equipment front side and lower it always along axis "A" up to work position "3" (see **Fig. 11**).



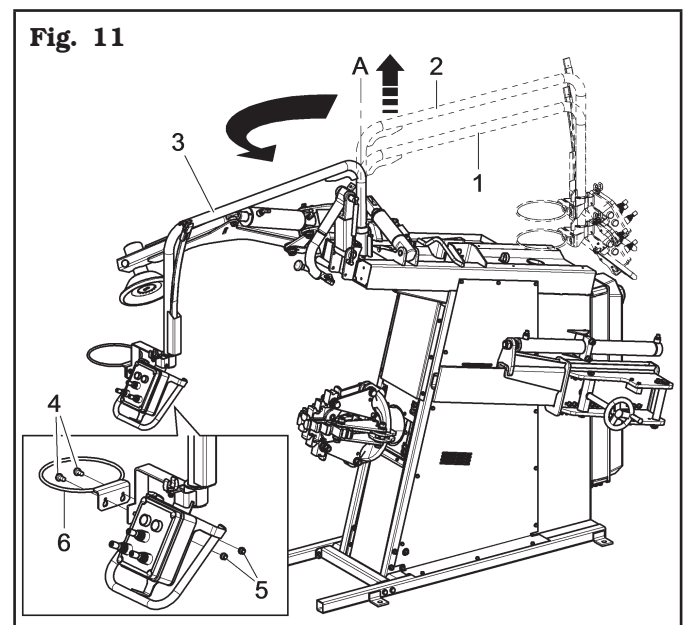
- During the installation, the lower bead breaker arm (**Fig. 9 ref. 1**) appears without handwheel.



- Mount the handwheel (**Fig. 10 ref. 1**) using the supplied bolt (**Fig. 10 ref. 2**) and nut (**Fig. 10 ref. 3**), (see **detail A**).



- Mount the grease-holder ring (**Fig. 11 ref. 6**) on the control unit, through bolts (**Fig. 11 ref. 4**) and nuts (**Fig. 11 ref. 5**), as shown in **Fig. 11**.



## 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.NV101.201850	IEC 309	400V	16A	3P + Ground	IP 54
RAV.GTB16.206305					
SPA.GTB16.205902					

### **10.1 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 3 LITRES (0.79 GALLONS), 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 °C degrees (+86 °F)).**

### **10.2 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 unit rotates in the direction indicated by the arrow (**Fig. 12 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.**

### **10.3 Electrical checks**



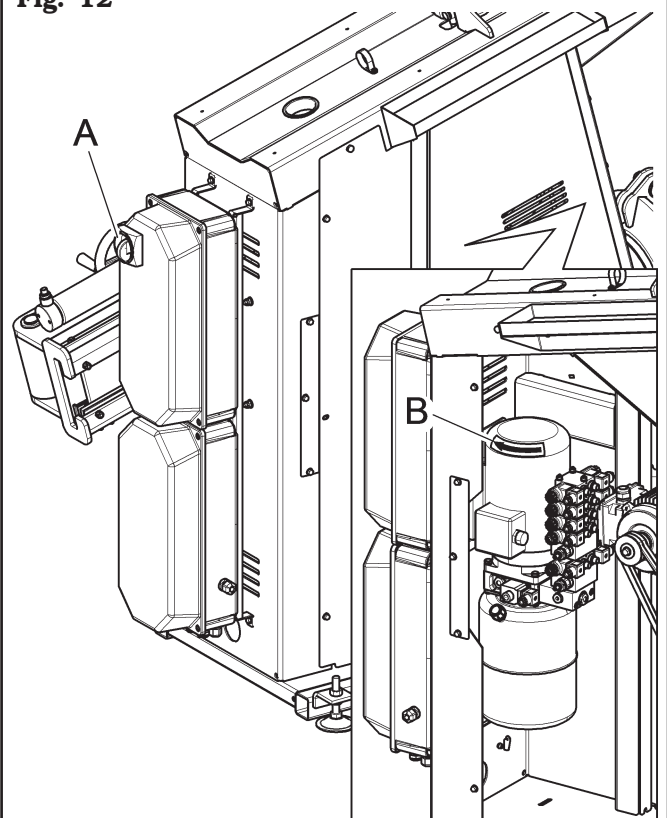
**BEFORE STARTING UP THE TYRE-CHANGER, BE SURE TO BECOME FAMILIAR WITH THE LOCATION AND OPERATION OF ALL CONTROLS AND CHECK THEIR PROPER OPERATION (SEE PAR. "CONTROLS").**



**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. 12 ref. A**).

**Fig. 12**



**KEY**

**A - Main switch**

**B - Direction rotation of oil-pressure power unit motor**



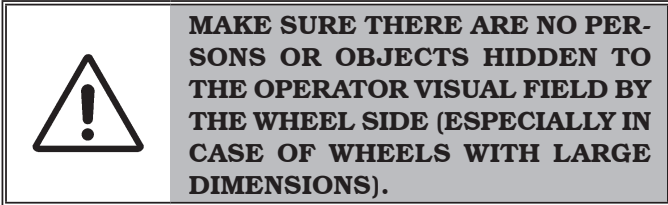
**ONCE THE ASSEMBLY OPERATIONS HAVE BEEN COMPLETED, CHECK ALL EQUIPMENT FUNCTIONS.**



## 11.0 CONTROLS

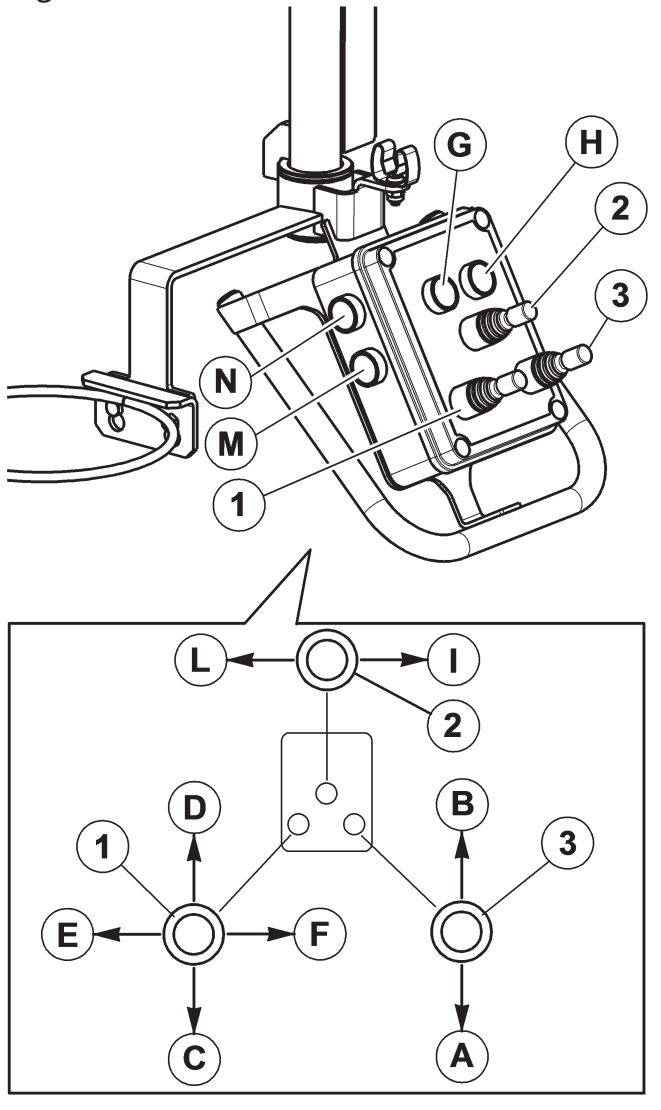
### 11.1 Control device

The control (handle control) can be moved according to the positioning necessities of the operator.



- When the lever (**Fig. 13 ref. 3**) is moved to **A** position, with hold-to-run control, the bead breaking of rear bead breaker roller is activated.
- When the lever (**Fig. 13 ref. 3**) is moved to **B** position, with hold-to-run control, the return action of rear bead breaker roller is activated.
- When the lever (**Fig. 13 ref. 1**) is moved to **C** position, with hold-to-run control, the return action of front bead breaker roller is activated.
- When the lever (**Fig. 13 ref. 1**) is moved to **D** position, with hold-to-run control, the bead breaking of front bead breaker roller is activated.
- When the lever (**Fig. 13 ref. 1**) is moved to **F** position, with hold-to-run control, the front bead breaker arm is moved to work position.
- When the lever (**Fig. 13 ref. 1**) is moved to **E** position, with hold-to-run control, the front bead breaker arm is opened.
- Push button "**G**" has a hold-to-run control position, and when pressed, it operates self-centring chuck rising.
- Push button "**H**" has a hold-to-run control position, and when pressed, it operates self-centring chuck lowering.
- When the lever (**Fig. 13 ref. 2**) is moved to **L** position, with hold-to-run control, the self-centring chuck is turned clockwise.
- When the lever (**Fig. 13 ref. 2**) is moved to **I** position, with hold-to-run control, the self-centring chuck is turned counterclockwise.
- Push button "**M**" has a hold-to-run control position, and when pressed, it opens the self-centring chuck.
- Push button "**N**" has a hold-to-run control position, and when pressed, it closes the self-centring chuck.

**Fig. 13**



## 12.0 USE OF THE EQUIPMENT

### 12.1 Precaution measures during tyre removal and fitting



Before fitting a tyre, observe the following safety rules:

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



**FITTING A TYRE WITH A DAMAGED BEAD, TREAD AND/OR SIDEWALL ON A WHEEL RIM REDUCES THE SAFETY OF A VEHICLE AND CAN LEAD TO TRAFFIC ACCIDENTS, SERIOUS INJURY OR EVEN DEATH.**

**IF A TYRE BEAD, TREAD OR SIDEWALL IS DAMAGED DURING REMOVAL, NEVER REFIT THE TYRE ONTO A WHEEL.**

**IF YOU SUSPECT THAT A BEAD, TREAD OR SIDEWALL OF A TYRE MAY HAVE BEEN DAMAGED DURING FITTING, REMOVE THE TYRE AND INSPECT IT CAREFULLY. NEVER REFIT IT TO A WHEEL IF A BEAD, TREAD OR SIDEWALL IS DAMAGED.**



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



**THE USE OF AN INADEQUATE, WORN OR OTHERWISE DAMAGED LEVER TO REMOVE TYRE BEADS MAY LEAD TO DAMAGE TO A BEAD AND/OR A TYRE SIDEWALL, REDUCING THE SAFETY OF A VEHICLE EQUIPPED WITH THE TYRE ITSELF.**

**ONLY USE THE LEVER SUPPLIED WITH THE EQUIPMENT AND CHECK ITS CONDITION BEFORE EACH DISASSEMBLY.**

**IF IT IS WORN OR OTHERWISE DAMAGED, DO NOT USE IT TO REMOVE THE TYRE, BUT REPLACE IT WITH A LEVER SUPPLIED BY THE EQUIPMENT MANUFACTURER OR ONE OF ITS AUTHORIZED DISTRIBUTORS.**



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

**THE BEAD COULD PRESS ON THE PRESSURE SENSOR, LOCATED UNDER THE VALVE INSIDE THE DROP CENTRE, CAUSING IT TO BREAK.**

**ALWAYS RESPECT THE POSITIONING OF THE VALVE AT THE BEGINNING OF EACH BEAD DISASSEMBLY AND/OR ASSEMBLY OPERATION INDICATED IN THIS MANUAL.**



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

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

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

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

## **12.2 Preliminary operations**

In view of the tyre changer structure and of its intended use, the operator must work with large diameter and heavy tyres/wheels.

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



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

## **12.3 Preparing the wheel**

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



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

- establish from which side the tyre should be demounted, checking the position of the drop centre;
- find the rim locking type.



**WHEN HANDLING WHEELS WEIGHING MORE THAN 500 kg (1102.5 lbs) A FORK-LIFT TRUCK OR A CRANE SHOULD BE USED.**

## **12.4 Wheel clamping**



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

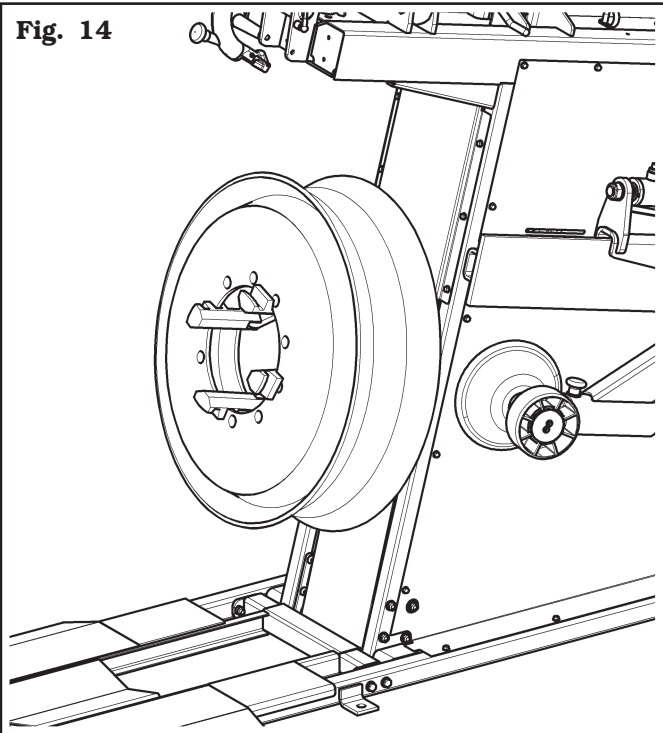


**MAKE SURE THAT RIM CLAMPING IS DONE PROPERLY AND THAT THE GRIP IS SECURE, TO PREVENT THE WHEEL FROM FALLING DURING MOUNTING OR REMOVAL OPERATIONS.**



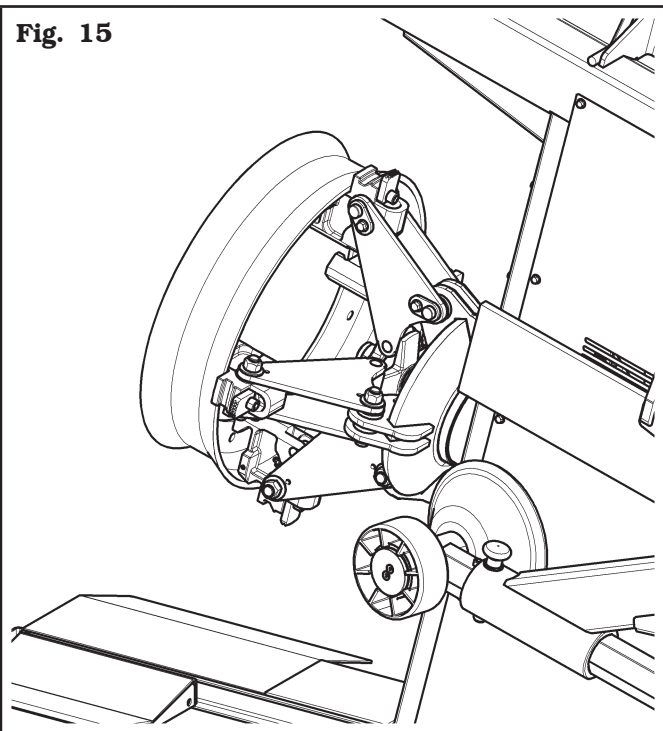
**DO NOT CHANGE THE SET OPERATING PRESSURE VALUE USING THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.**

Fig. 14



Clamping on the central hole

Fig. 15



Clamping on bead seat

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 SELF-CENTRING 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 SELF-CENTRING CHUCK NORMAL JAWS USING A BAYONET CONNECTION.**

To clamp the wheel proceed as follows:

- make sure the front bead breaker arm is in open position (**Fig. 16 ref. 2**);
- place the wheel in vertical position onto the platform;
- move the wheel close, by keeping it in vertical position, until grazing self-centring chuck jaws;
- use the corresponding control (**Fig. 13 ref. G-H**) to position the coaxial self-centring chuck with the wheel centre, in order to make jaws edges skim wheel edge;
- adjust the opening of the self-centring chuck through the corresponding control (**Fig. 13 ref. M-N**) according to the type of rim to be locked;
- tilt the wheel at approximately 15° towards the self-centring chuck;
- operate the control (**Fig. 13 ref. M**) until the wheel is completely clamped;
- check both that the rim is clamped and centred correctly, and that the wheel has been raised above from the floor (**Fig. 13 ref. G**), so that it does not slip during the following operations.



**THE OPENING/CLOSING MOVEMENT OF THE SELF CENTERING CHUCK GENERATES A GREAT DEAL OF COMPRESSIVE FORCE DURING THE WHEEL LOCKING/UNLOCKING PHASE. KEEP HANDS/FINGERS OR ANY PART OF THE BODY AWAY FROM MOVING CLAMPS AT ALL TIMES.**



**KEEP ON OPERATING RIM CLAMPING CONTROL, UNTIL REACHING THE MAX. OPERATING PRESSURE (130 bar - 1885 psi).**



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



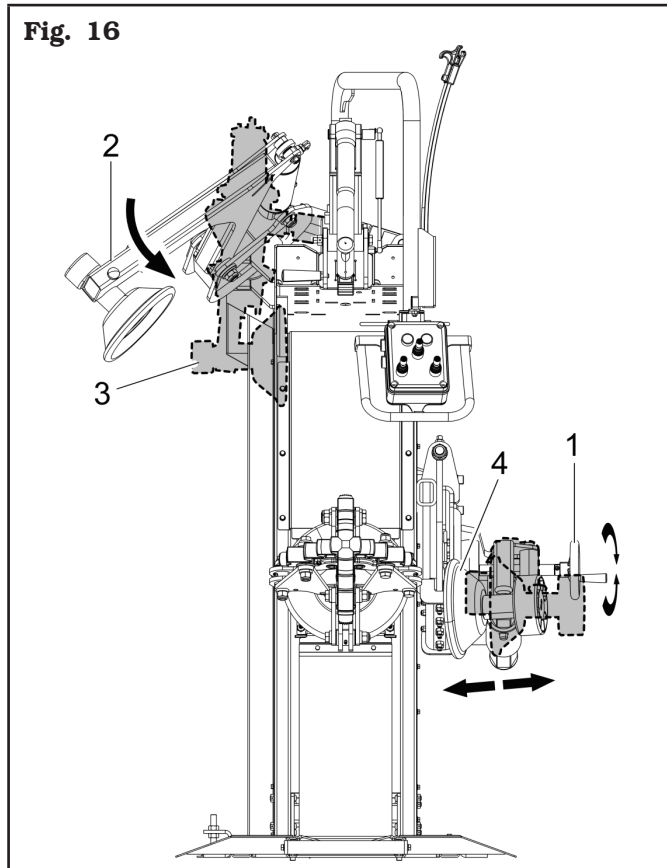
**AFTER COMPLETION OF TYRE MOUNT/DEMOUNT OPERATIONS DO NOT LEAVE THE WHEEL CLAMPED ON THE SELF-CENTRING CHUCK AND NEVER LEAVE IT UNATTENDED.**

### **12.5 Bead breaker arms' functioning**

During the working phases, the the front bead breaker arm (**Fig. 16 ref. 2**) can maintain two firm positions, that is:

1. "working" position (wheel front side) (**Fig. 16 ref. 3**);
2. "out of work" position (**Fig. 16 ref. 2**).

In "working" position (**Fig. 16 ref. 3**) the front bead breaker arm is in front of the tyre, just next to the rim. From this position it can perform the different tyre bead breaking, demounting and mounting operations. The adjustment of the correct "working" position of the rear bead breaker arm (**Fig. 16 ref. 4**) is performed through handle's rotation (**Fig. 16 ref. 1**).



### **12.6 Tubeless tyres**

#### **12.6.1 Bead breaking**

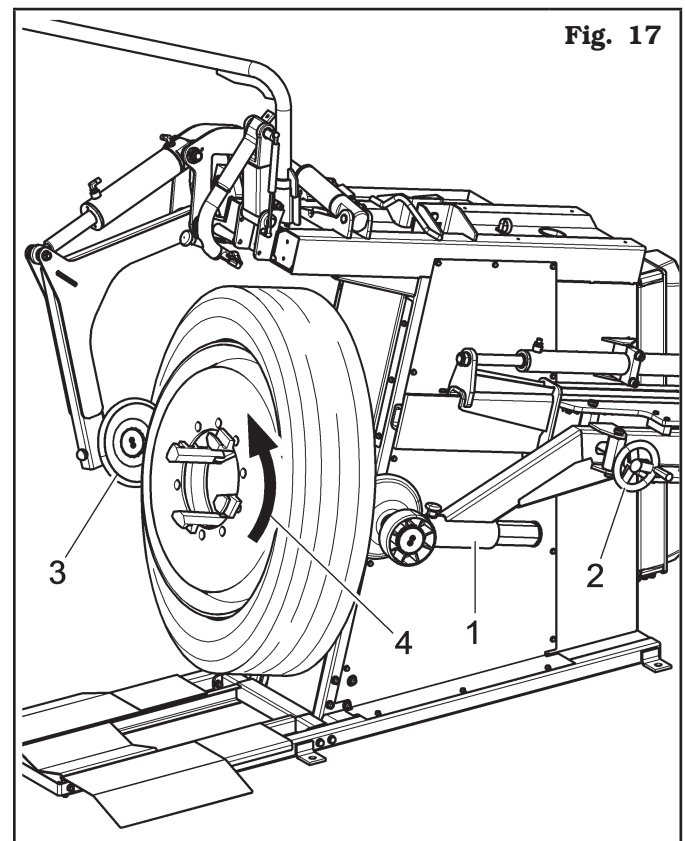


**NEVER PLACE ANY PART OF YOUR BODY BETWEEN THE BEAD BREAKER ROLLER AND THE TYRE.**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

1. Clamp the wheel on the self-centring chuck as described in "WHEEL CLAMPING" paragraph;
2. move the self-centring chuck to work position (rise fully home) (**Fig. 13 ref. G**);
3. move to work position **A** (**Fig. 5**);
4. move rear bead breaker arm (**Fig. 17 ref. 1**) to work position with the roller at approximately 5 mm from rim's edge, using the lateral handwheel (**Fig. 17 ref. 2**);
5. move front bead breaker arm (**Fig. 17 ref. 3**) to work position, using lever (**Fig. 13 ref. 1-F**);
6. carry out bead breaking of front bead first, then bead-break rear bead, by turning self-centring chuck counter-clockwise (**Fig. 17 ref. 4**);



- carry on with self-centring chuck rotation, while generously lubricating tyre rim and bead with a suitable lubricant. The more the tyre adheres to the rim, the slower should bead breaking rollers advance.

**i** **THE BEAD BREAKING ROLLERS MUST NOT EXERT PRESSURE ON THE RIM BUT ON TYRE BEAD.**

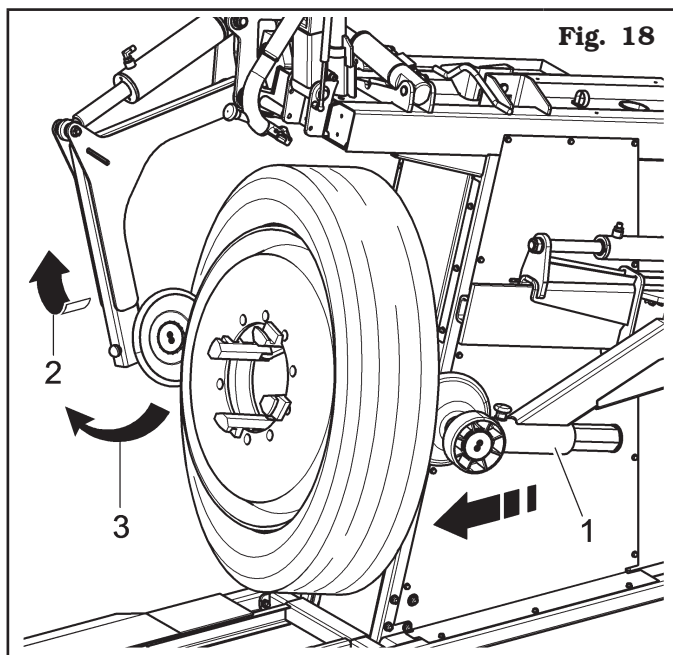
**i** **USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICON.**

**12.6.2 Demounting**

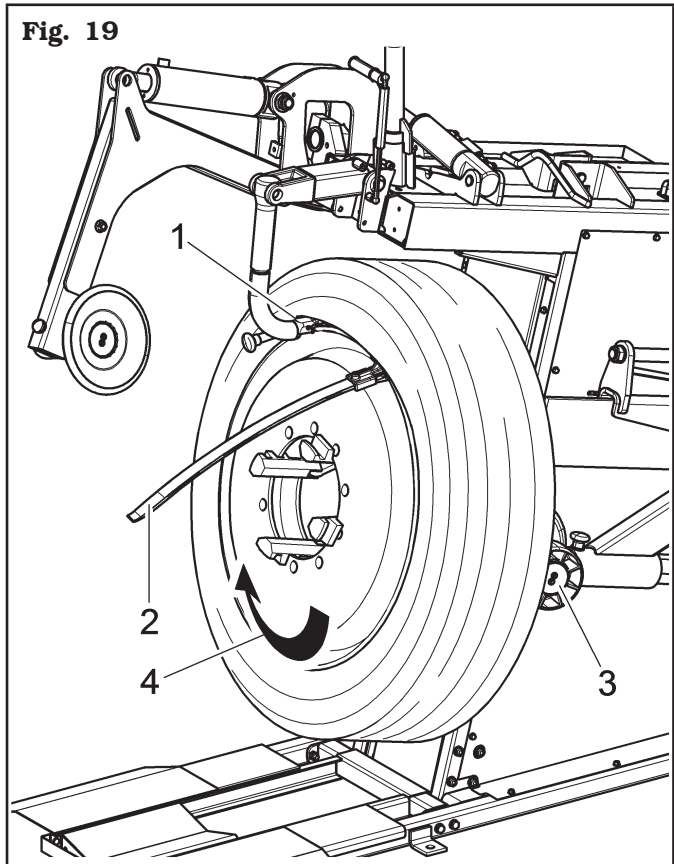
**i** **THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

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

- lubricate both rim and tyre;
- move the lower bead into rim drop centre and start pushing with the rear bead breaker arm (Fig. 18 ref. 1), when the tyre is tilted activate front bead breaking arm return movement (Fig. 18 ref. 3) and its shift to rest position (Fig. 18 ref. 2). Move the rear one forward (Fig. 18 ref. 1) until the tyre comes out;
- move rear bead breaker arm (Fig. 18 ref. 1) to rest position.



When working with very hard and low-profile (supersingle) or with very wide tyres, after the bead breaking of the two beads and after rim and tyre lubrication, the first bead can be removed by using the toolhead (Fig. 19 ref. 1). After the bead has been loaded onto the toolhead (Fig. 19 ref. 1) through lever (Fig. 19 ref. 2), turn the self-centring chuck CLOCKWISE (Fig. 19 ref. 4); the second bead is removed by using rear bead breaker arm (Fig. 19 ref. 3).



**⚠** **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 ADVISABLE TO PAY CAREFUL ATTENTION BEFORE COMPLETING THE OPERATION.**

### 12.6.3 Mounting



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

Tubeless tyre fitting is normally done with front bead breaker roller; if the wheel is especially hard to fit, use the toolhead.

#### **With bead breaker roller**

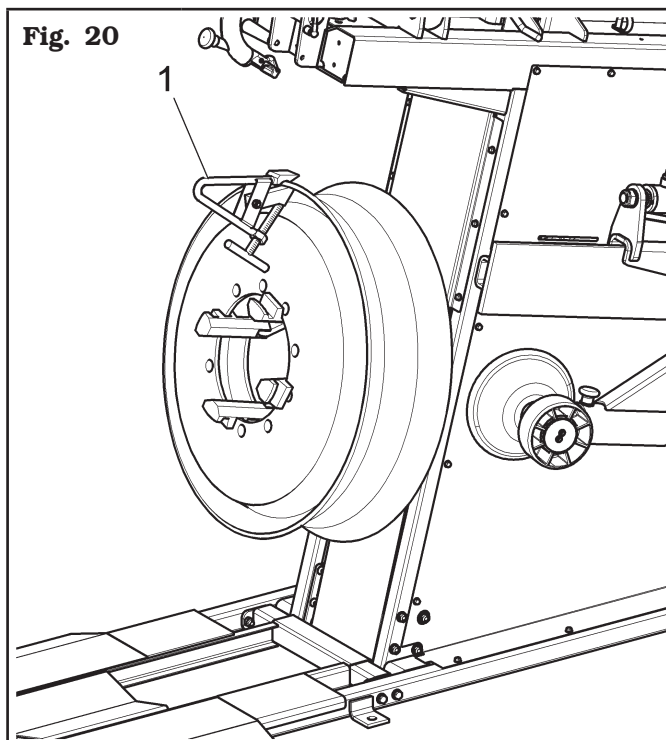
Proceed as follows:

1. secure the rim to the self-centring chuck according to the procedure described in "WHEEL CLAMPING" paragraph;
2. 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.**

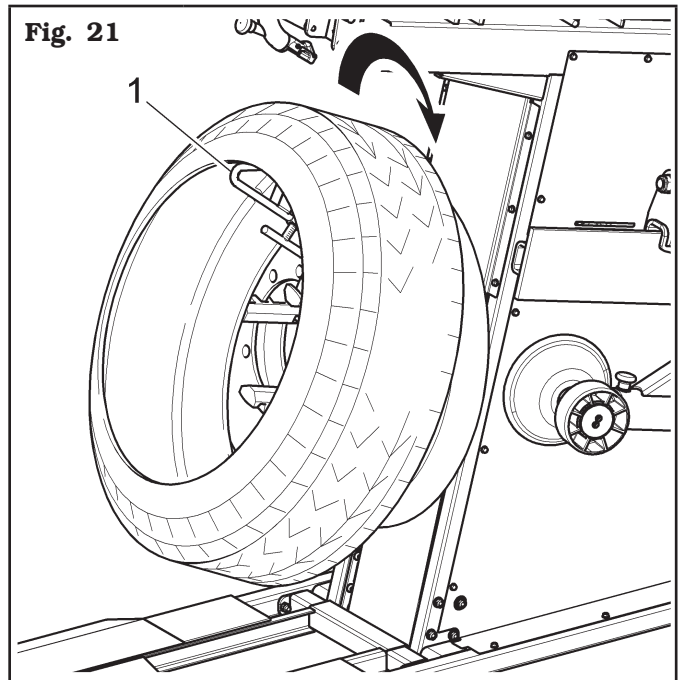
3. mount clamp for alloy rims (**Fig. 20 ref. 1**) (optional) on the external edge of the rim at the highest point, as shown in **Fig. 20**.



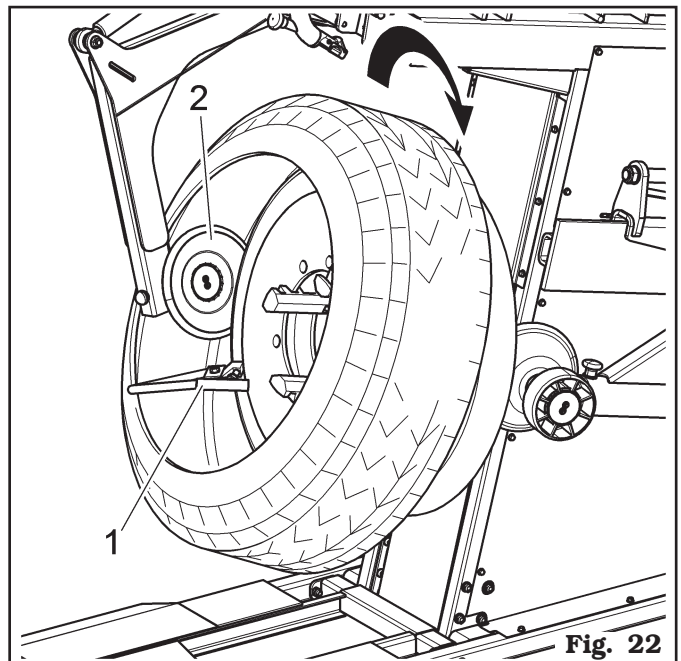
**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**

4. move to work position **B** (**Fig. 5**);
5. completely lower self-centring chuck. Roll the tyre on the platform and hook it to clamp (**Fig. 21 ref. 1**) (optional);
6. lift the self-centring chuck with the tyre hooked and turn it clockwise 15-20 cm (5.91"-7.87"); the tyre will position itself sideways in relation to the rim (see **Fig. 21**);

**Fig. 21**



7. move front bead breaker roller to work position (**Fig. 16 ref. 3**);
8. the front bead breaker roller (**Fig. 22 ref. 2**) so that it is at approximately 1.5 cm (0.59") from the edge of the rim. The assembly clamp (optional) is in "12 o'clock" position. Turn self-centring chuck clockwise until bringing the clamp to the closest point to the front bead breaker roller ("8 o'clock") (**Fig. 22 ref. 1**);




**Fig. 22**



9. move bead breaker roller away from the wheel;
10. remove the clamp (optional) and fit it in position (3 o'clock) outside the second bead;
11. turn self-centring chuck counterclockwise until clamp (optional) is at "12 o'clock".
12. the front bead breaker roller 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;
13. once insertion is completed, move the roller away from the wheel, move it to "out of work" position and remove clamp (optional);
14. lower self-centring chuck until the wheel rests on the floor;
15. move to work position **A** (Fig. 5);
16. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping;

4. move to work position **B** (Fig. 5);
5. completely lower self-centring chuck. Roll the tyre just next to self-centring chuck and hook it to clamp (Fig. 21 ref. 1) (optional);
6. lift the self-centring chuck with the tyre hooked and turn it clockwise 15-20 cm (5.91"- 7.87"); the tyre will position itself sideways in relation to the rim (see Fig. 21);
7. close the front arm into work position (Fig. 16 ref. 3) and move the roller until it almost touches rim edge (Fig. 13 ref. 1-D); after the entry of the first bead with roller (Fig. 23 ref. 1) and assembly lever or clamp for alloy rims (Fig. 23 ref. 2) there's space enough to lay the toolhead (Fig. 23 ref. 3) onto the rim by turning the self-centring chuck **CLOCKWISE** (Fig. 23 ref. 4).
8. Place the toolhead (Fig. 23 ref. 3) onto the rim edge;
9. move the front roller (Fig. 24 ref. 1) at the same height of the drop centre (Fig. 13 ref. 1-D), place the assembly lever or clamp (Fig. 24 ref. 2) under the same roller and turn self-centring chuck counter-clockwise until the second bead is applied;
10. move the front arm to rest position (Fig. 16 ref. 2);




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

17. remove the wheel from the equipment by making it roll. By using particularly soft tyres, it is possible to put on the rim both beads at the same time, in order to operate only one time on the tyre.

**With tool head**


Proceed as follows:

1. secure the rim to the self-centring chuck according to the procedure described in "WHEEL CLAMPING" paragraph;
2. adequately lubricate tyre beads and rim bead seats with a suitable lubricant using the supplied brush;

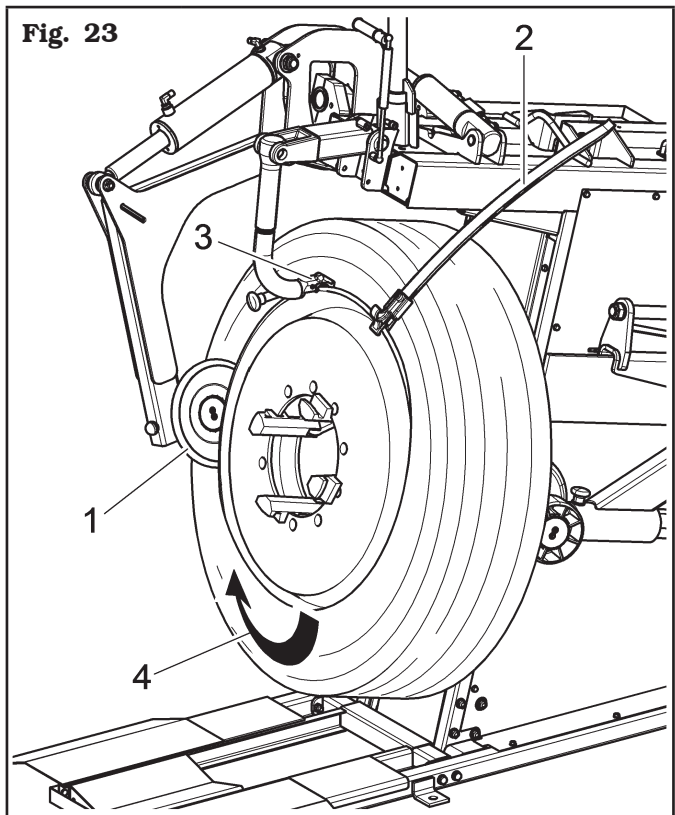


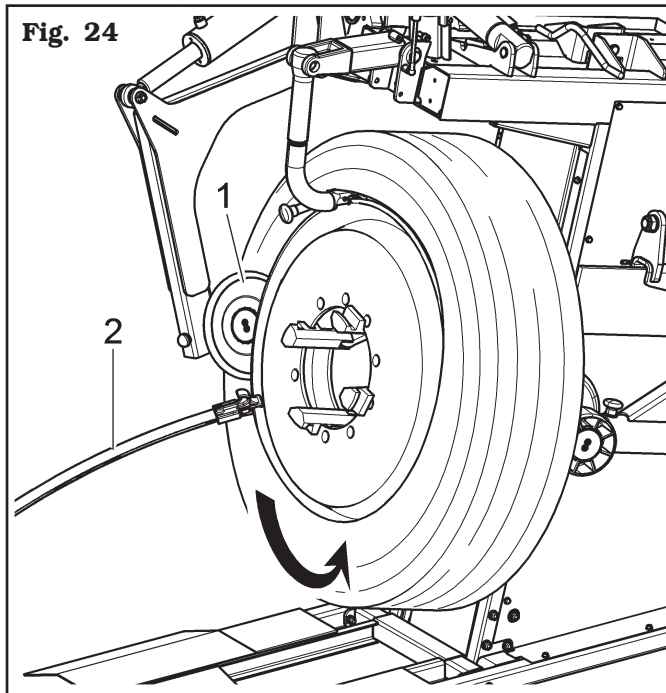
**USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICON.**

3. mount the clamp (Fig. 20 ref. 1) (optional) on the external edge of the rim at the highest point;

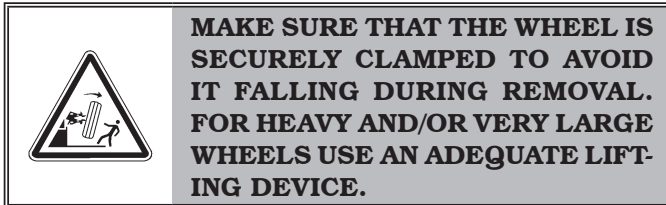


**THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.**





11. lower self-centring chuck until the wheel rests on the floor;
12. move to work position **A** (**Fig. 5**);
13. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping;



14. remove the wheel from the equipment by making it roll.

## **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.



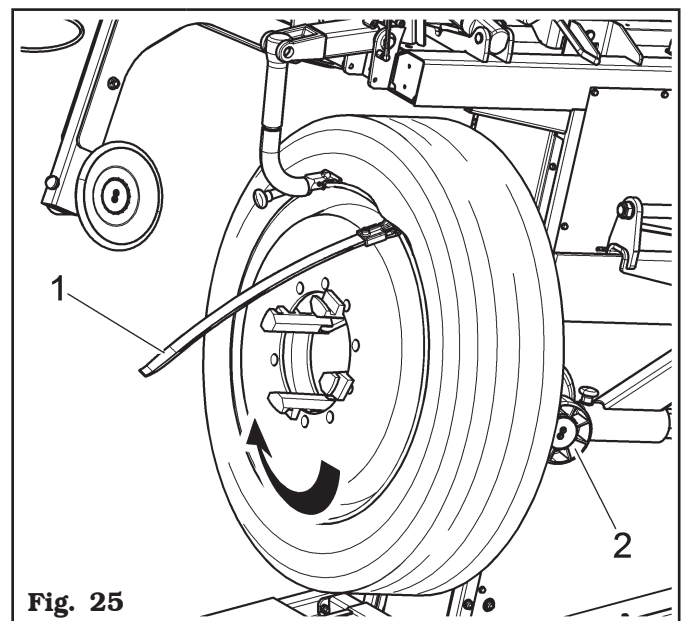
**WHEN BEADING WHEELS WITH INNER TUBES, INTERRUPT THE FORWARD MOVEMENT OF THE BEAD BREAKER ROLLER AS SOON AS THE BEADS HAVE BEEN DISLODGED TO AVOID DAMAGE TO THE INNER PIPE OR TO THE VALVE.**

### **12.7.2 Demounting**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

1. Introduce the toolhead between rim edge and tyre bead;
2. move to work position **A** (**Fig. 5**);
3. insert lever (**Fig. 25 ref. 1**) between the rim and the bead on the right-hand side of the toolhead;



4. turn the wheel clockwise by keeping lever pressed until the bead has gone completely out;
5. lower self-centring chuck until the tyre rests on the floor; exert a certain pressure on it; this will create enough space to extract the inner tube;
6. extract the inner tube and lift the wheel again;
7. the second bead is removed by using rear bead breaker arm (**Fig. 25 ref. 2**).

5. position the tyre near the equipment and lower the self-centring chuck (make sure the clamp is at the highest point) to hook the first tyre bead (internal bead).
6. lift the self-centring chuck with the tyre hooked and turn it clockwise about 15-20 cm (5.91" - 7.87"); the tyre will position itself sideways in relation to the rim;
7. move front bead breaker roller to work position (**Fig. 16 ref. 3**);
8. the front bead breaker roller (**Fig. 22 ref. 2**) so that it is at approximately 1.5 cm (0.59") from the edge of the rim. The assembly clamp is at "12 o'clock" position. Turn self-centring chuck clockwise until bringing the clamp (optional) to the closest point to the bead breaker roller ("8 o'clock") (**Fig. 22 ref. 1**);
9. move bead breaker roller away from the wheel;
10. remove clamp (optional) from the rim;
11. turn self-centring chuck until the hole for valve introduction is downwards ("6 o'clock");
12. lower self-centring chuck until the wheel is laid down to the ground in order to create the space needed between tyre edge and rim for the inner tube introduction;

**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 ADVISABLE TO PAY CAREFUL ATTENTION BEFORE COMPLETING THE OPERATION.**

**12.7.3 Mounting**

**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

1. Secure the rim to the self-centring chuck according to the procedure described in "WHEEL CLAMPING" paragraph;
2. 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.**

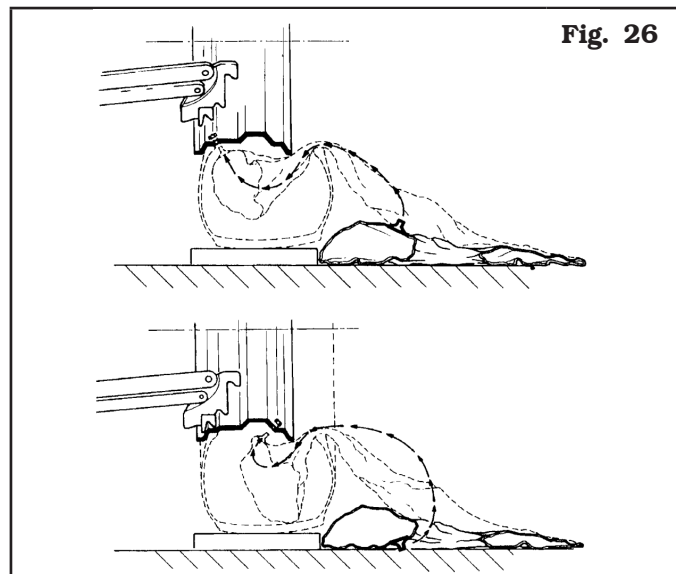
3. mount clamp (**Fig. 20 ref. 1**) (optional) on the external edge of the rim at the highest point as shown in **Fig. 20**;

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

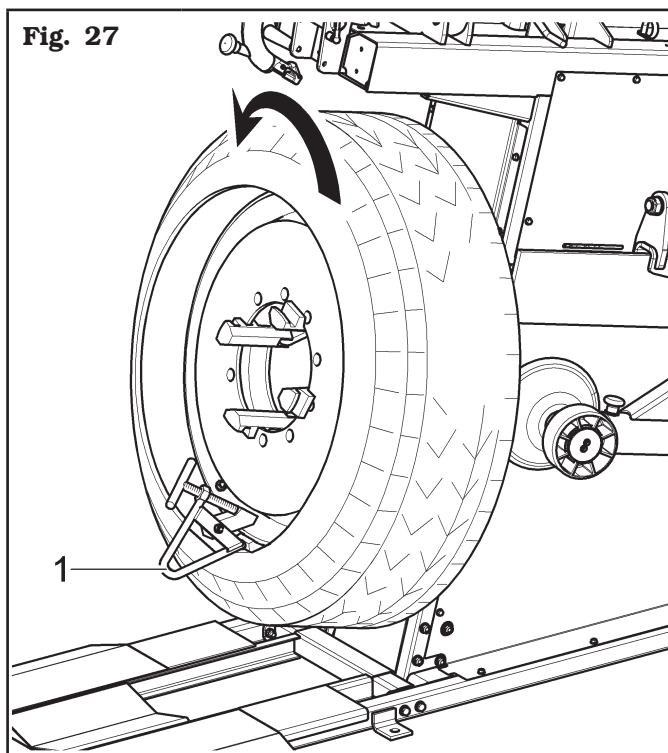
4. move to work position **B** (**Fig. 5**);

**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 THE INNER TUBE AS SHOWN IN FIG. 26.**

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 self-centring chuck clockwise);

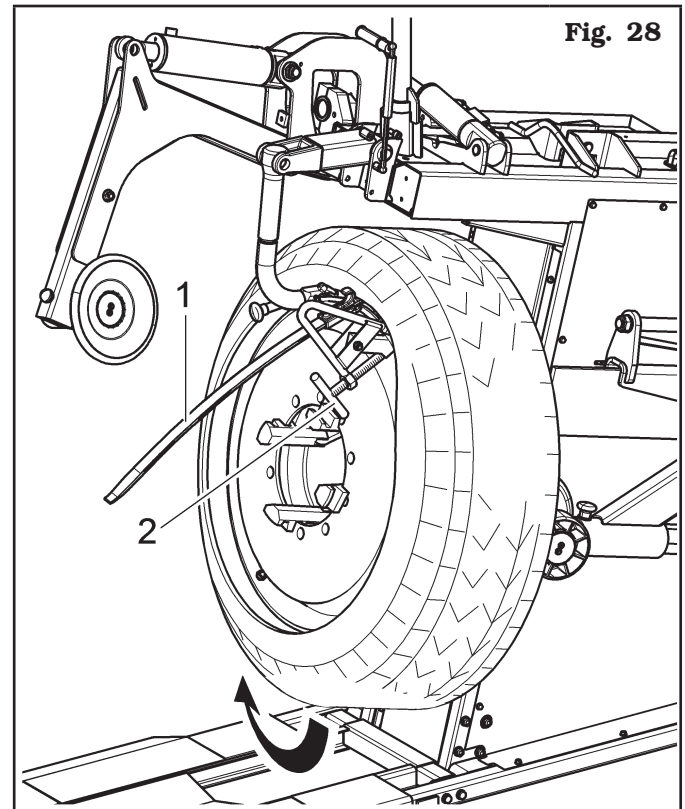


13. turn self-centring chuck and position the valve downwards ("6 o'clock");
14. to avoid damaging the inner tube, slightly inflate it when inserting the second bead;
15. to avoid damaging the valve when securing the second bead, remove the fixing ring nut and mount an extension on the same valve;
16. move to work position **B** (**Fig. 5**);
17. lift the self-centring chuck and mount the clamp (**Fig. 27 ref. 1**) (optional) on the rim outside the second bead at about 20 cm (7.87") from the inflating valve on the right;
18. turn self-centring chuck counterclockwise until clamp is at "12 o'clock".



19. arrange toolhead to work position;

20. turn self-centring chuck clockwise until lever (**Fig. 28 ref. 1**) is introduced in the housing obtained on the toolhead;
21. turn the self-centring chuck clockwise with lever (**Fig. 28 ref. 1**) hooked up to the complete insertion of the tyre outer bead.
22. remove lever (**Fig. 28 ref. 1**), clamp (optional) (**Fig. 28 ref. 2**) and extract the toolhead by turning the self-centring chuck counterclockwise.



23. lower self-centring chuck until the wheel rests on the floor;
24. move to work position **A** (**Fig. 5**);
25. check the state of the tyre valve and centre it, if necessary, in the rim hole by slightly turning self-centring chuck; secure the valve with the supplied ring nut after having removed the protective extension.
26. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping;



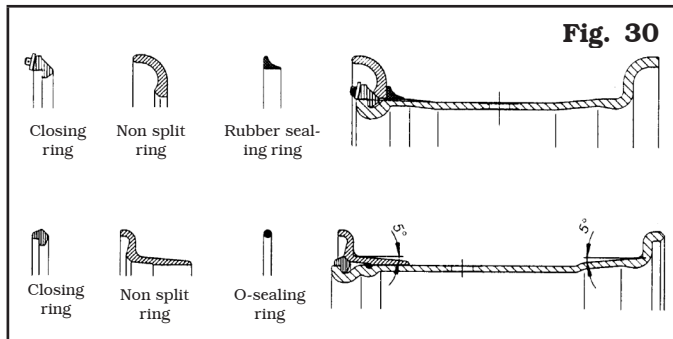
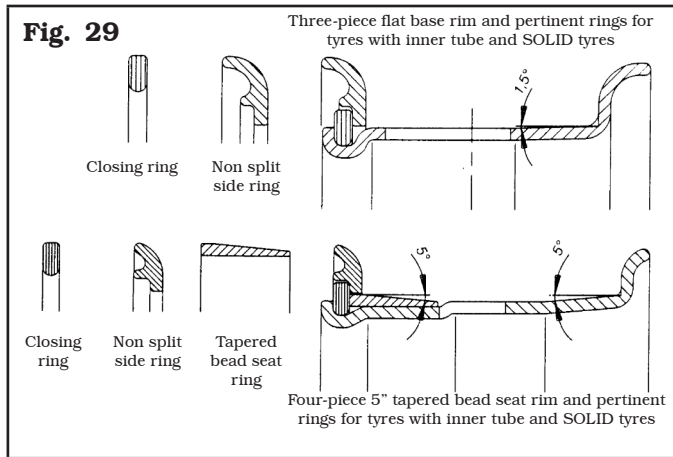
**MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.**

27. remove the wheel from the equipment.

**12.8 Wheels with bead wire**

**i** FOR WHAT CONCERNS THE BEAD BREAKING, DEMOUNTING AND MOUNTING OF WHEELS WITH BEAD WIRE, USE “DISC FOR AGRICULTURAL WHEELS OR WITH STOP RING” ACCESSORY (OPTIONAL).

As an example **Fig. 29** and **Fig. 30** illustrate sections and compositions of types of wheels with bead wire currently being sold.



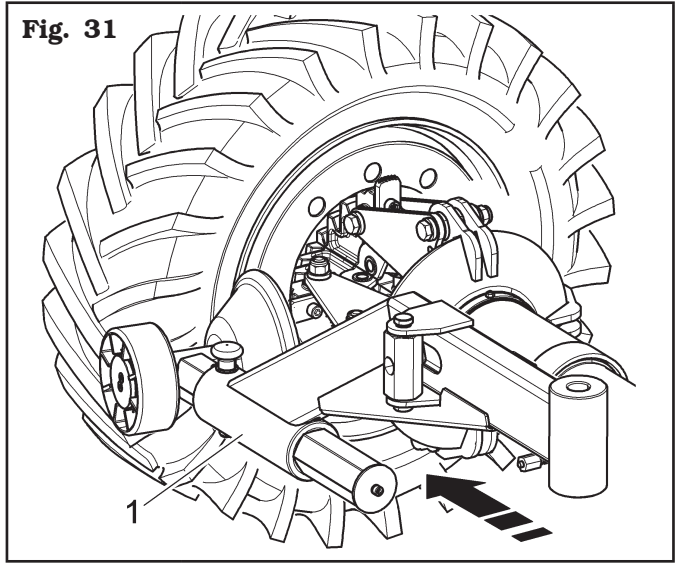
**12.8.1 Beading and demounting**

**!** 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.

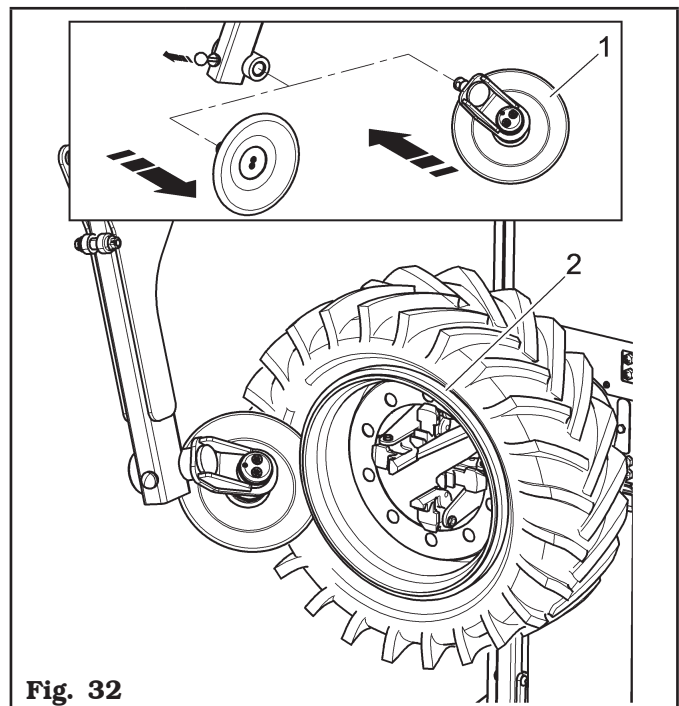
**i** THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.

1. Mount the wheel on the self-centring chuck as described in “WHEEL CLAMPING” paragraph and make sure it is deflated;

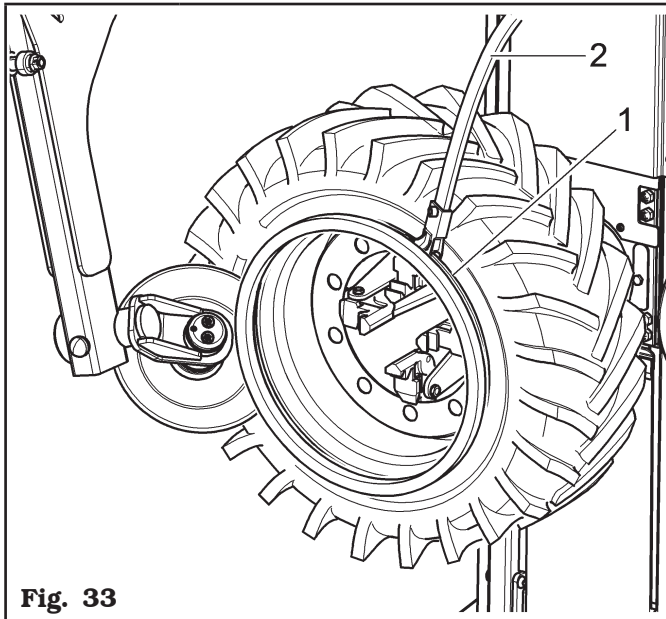
2. the rear bead breaker disc on rim edge (**Fig. 31 ref. 1**);



3. turn self-centring chuck and smear the entire bead seat of the rim with lubricant; while doing this, jerk the bead breaker disc forward until the bead is removed (as these wheels feature inner pipes, 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 tube and valve);
4. move to work position **A** (**Fig. 5**) with “Disc for agricultural wheels or with stop ring” accessory (optional) (**Fig. 31 ref. 1**) and mount it;
5. move roller holder arm to “work position” (**Fig. 16 ref. 3**);
6. Bring the disc for agricultural wheels into contact with the tyre outer side (see **Fig. 32**);



7. turn self-centring chuck and smear the entire bead seat of the rim with lubricant;
8. doing this, jerk front bead breaker disc forward until bead is removed;
9. repeat the operation, making the front bead breaker disc move forward against the bead wire (see **Fig. 33**) until the stop ring is released (**Fig. 33 ref. 1**). It will be then extracted through lever (**Fig. 33 ref. 2**);



**Fig. 33**

10. remove the bead wire;
11. remove the O-Ring, when featured;
12. front roller holder arm to "out of work" position;
13. move to work position **A** (**Fig. 5**);
14. rear bead breaker disc forward until the tyre is completely dislodged from the rim (in case of tyres with inner tube, make sure 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 IN THE WORK AREA.**



**WHEN DEMOUNTING VERY HEAVY TYRES IT IS ADVISABLE TO PAY CAREFUL ATTENTION BEFORE COMPLETING THE OPERATION.**

### **12.8.2 Mounting**



**THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE WHEEL IS FIRMLY CLAMPED BY THE EQUIPMENT CHUCK.**

1. If it has been removed, secure the rim to self-centring 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");
2. lubricate the entire bead seat of the rim and the tyre beads;
3. move to work position **A** (**Fig. 5**);
4. place self-centring chuck in order to centre the rim on the tyre;
5. put the tyre into the rim manually (in case of tyres with inner tube, make the valve re-enter, in order not to damage it) up to the tyre has been completely introduced in the rim;
6. 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);
7. move to work position **B** (**Fig. 5**);
8. move front bead breaker roller holder arm to "work position" (**Fig. 16 ref. 3**). Mount the "disc for agricultural wheels or with stop ring" accessory. (**Fig. 34 ref. 1**) (optional) with the bead breaker disc facing the wheel. If the outer edge ring is not sufficiently fitted on the rim, position self-centring chuck until the bead wire is near the bead breaker disc. Move the front bead breaker disc forward and then turn self-centring chuck until the housing of the O-Ring (if featured) is found;
9. lubricated the O-Ring and place it in its housing;
10. move to work position **A** (**Fig. 5**);
11. position the bead wire (**Fig. 34 ref. 2**) on the rim, fit the stop ring with the help of the disc for agricultural wheels (**Fig. 34 ref. 1**) (optional) as shown in **Fig. 34**;

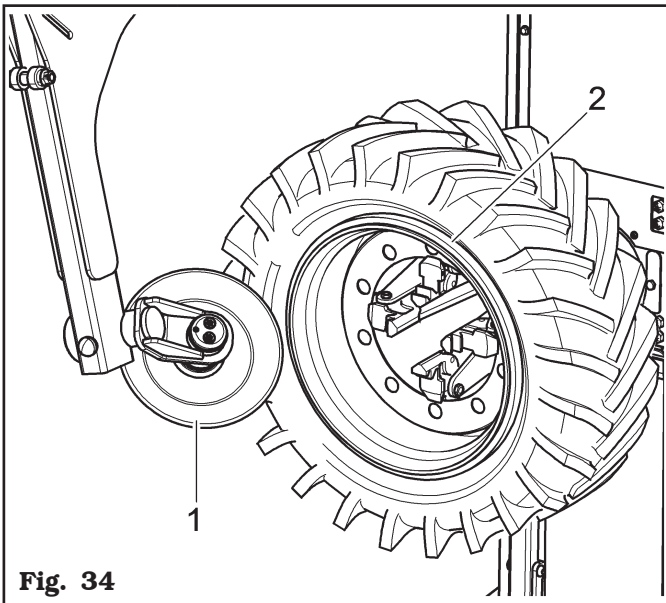


Fig. 34

12. move front roller holder arm to “out of work” position (Fig. 16 ref. 2);
13. lower self-centring chuck until the wheel rests on the floor;
14. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping. Remove the wheel from the equipment by making it roll.



**CLOSING SELF-CENTRING CHUCK CAUSES WHEEL'S FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING IN THE WORK AREA.**

### 13.0 ROUTINE MAINTENANCE



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



**BEFORE CARRYING OUT ANY MAINTENANCE OPERATIONS, MAKE SURE THERE ARE NO WHEELS CLAMPED ON THE CHUCK AND THAT ALL SUPPLIES TO THE EQUIPMENT HAVE BEEN DISCONNECTED.**



**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.

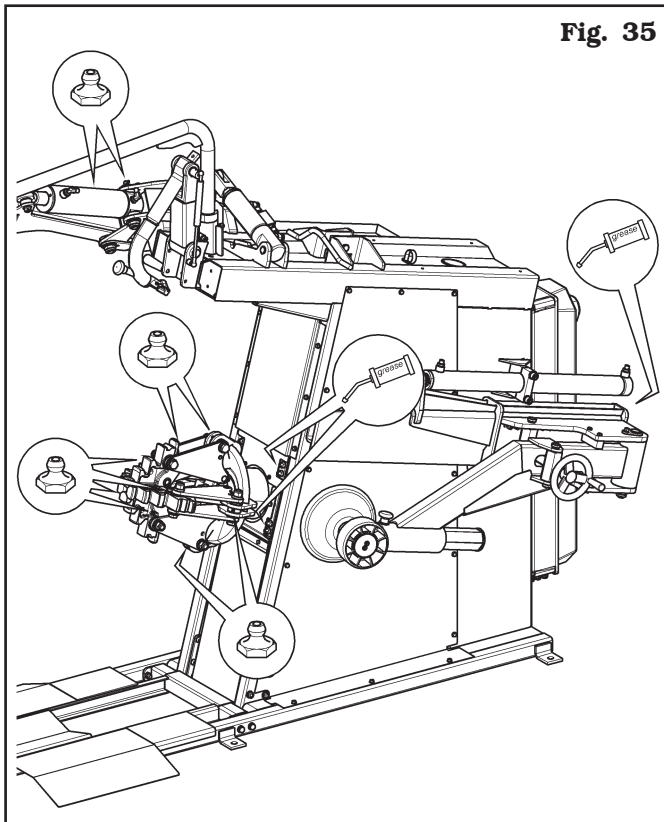
Cleaning and routine maintenance must be conducted by authorized personnel and according to the instructions given below.

- Disconnect the equipment from the electrical and hydraulic power supplies before carrying out any cleaning or 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 sliding guides (self-centring chuck and toolhead holder arm).

- Periodically (preferably once a month), grease all moving parts of the equipment (see **Fig. 35**).



**Fig. 35**

- 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:

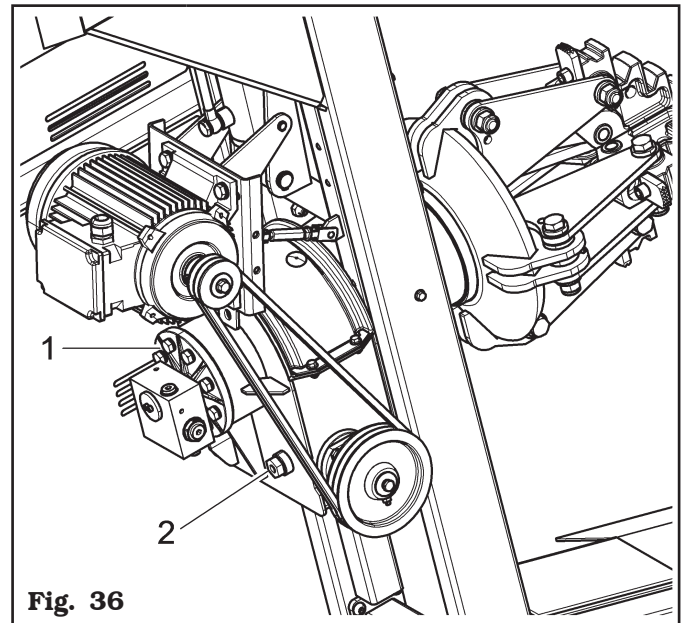
- viscosity 32 (or countries with room temperature from 0 °C - +30 °C (+32 °F - +86 °F);
- viscosity 46 (for countries with room temperature above +30 °C (+86 °F).

At least once a year it is advisable to replace the hydraulic oil of the unit.



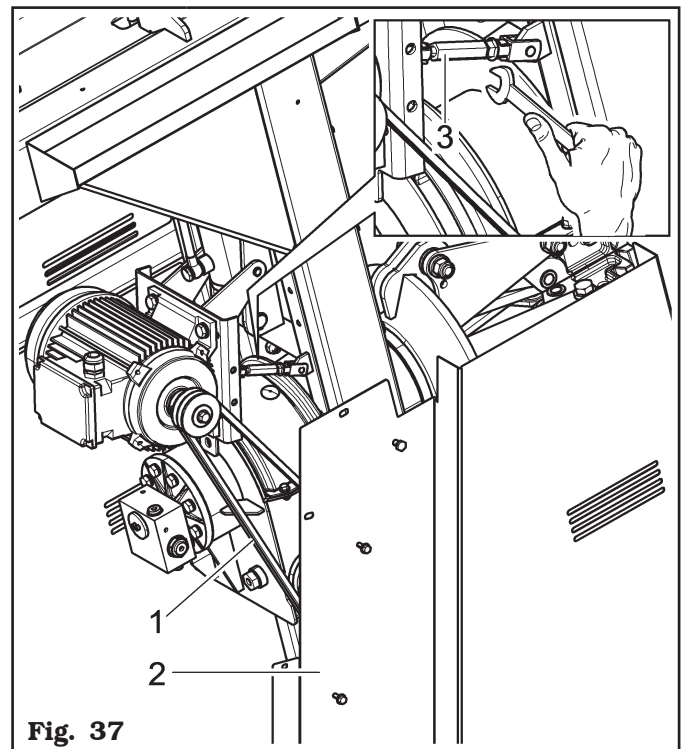
**CARRY OUT THIS PROCEDURE WITH THE HYDRAULIC CYLINDERS COMPLETELY RETRACTED.**

- Periodically (approximately every 100 hours), check the oil level of the reduction gear (**Fig. 36 ref. 1**); the level indicator window (**Fig. 36 ref. 2**) must be covered with lubricant, otherwise, remove the plug provided and top up using appropriate lubricants until the level is reset.
- Check operation of the safety devices every week.



**Fig. 36**

- Check belt tensioning (**Fig. 37 ref. 1**):
  - Remove protection guard (**Fig. 37 ref. 2**) removing the corresponding bolts.
  - Tension up the belt (**Fig. 37 ref. 1**) turning the screw coupler (**Fig. 37 ref. 3**).
  - At the end, mount protection guard (**Fig. 37 ref. 2**) again.



**Fig. 37**



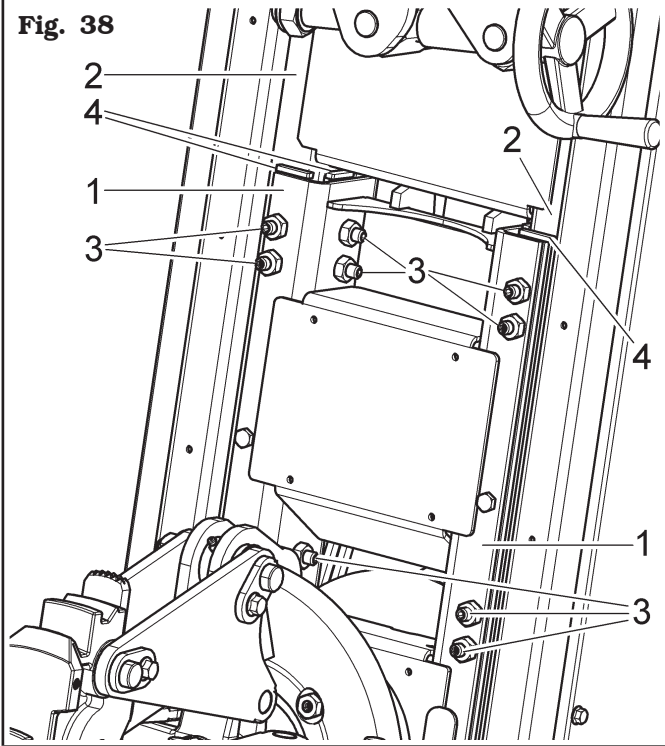
**OPERATION TO BE CARRIED OUT ONLY IN CASE THE TOOLHEAD HOLDER ARM AND SELF-CENTRING CARRIAGE ARE MOVING IN A NON-LINEAR WAY (STICK-SLIP MOTION).**



- Check periodically and, if necessary, adjust the play of slide (**Fig. 38 ref. 1**) on guide plates (**Fig. 38 ref. 2**) by means of the adjustment bolts (**Fig. 38 ref. 3**) of sliding blocks (**Fig. 38 ref. 4**).

- Periodically, every 50 working hours approximately, clean the (inner and outer) guides of self-centring chuck and of toolhead support arm.

Fig. 38



**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-authorized 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 self-centring chuck motor works perfectly.	Hydraulic control unit damaged.	Call Technical Service Dept. 
When the switch is turned on, wheel holder self-centring chuck does not turn whereas pump motor works.	Gearmotor change-over switch damaged.	Call Technical Service Dept. 
Power drop during wheel holder self-centring chuck rotation.	Timing belt too loose.	Tension up the belt.
No pressure in the hydraulic system.	Pump damaged.	Replace pump. 
The equipment does not start.	<ul style="list-style-type: none"> <li>a) No power supply.</li> <li>b) Overload cutouts not set.</li> <li>c) Transformer fuse blown.</li> </ul>	<ul style="list-style-type: none"> <li>a) Connect the power supply.</li> <li>b) Set the overload cutouts.</li> <li>c) Change the fuse.</li> </ul>
Fluid leaks from fitting or pipeline.	<ul style="list-style-type: none"> <li>a) Fitting not tightened correctly.</li> <li>b) Pipeline cracked.</li> </ul>	<ul style="list-style-type: none"> <li>a) Tighten the fitting.</li> <li>b) Call the after-sales service.</li> </ul> 
A control device is remaining on.	<ul style="list-style-type: none"> <li>a) The switch has broken.</li> <li>b) A solenoid valve has jammed.</li> </ul>	<ul style="list-style-type: none"> <li>a) Call the after-sales service.</li> <li>b) Call the after-sales service.</li> </ul> 
The self-centring chuck cylinder is losing pressure.	<ul style="list-style-type: none"> <li>a) The directional control valve is leaking.</li> <li>b) The gaskets are worn.</li> </ul>	<ul style="list-style-type: none"> <li>a) Call the after-sales service.</li> <li>b) Call the after-sales service.</li> </ul> 
The motor stops during operation.	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.	<ul style="list-style-type: none"> <li>a) Solenoid valve not receiving power.</li> <li>b) Solenoid valve jammed.</li> <li>c) Transformer fuse blown.</li> <li>d) Control unit not set correctly.</li> </ul>	<ul style="list-style-type: none"> <li>a) Call the after-sales service.</li> <li>b) Call the after-sales service.</li> <li>c) Change the fuse.</li> <li>d) Call the after-sales service.</li> </ul> 

Problem	Possible cause	Remedy
No pressure in hydraulic circuit.	<ul style="list-style-type: none"> <li><b>a)</b> Oil-pressure power unit motor turning in wrong direction.</li> <li><b>b)</b> Oil-pressure power unit pump is broken.</li> <li><b>c)</b> No oil in oil-pressure power unit tank</li> </ul>	<ul style="list-style-type: none"> <li><b>a)</b> Restore correct rotation direction by changing socket connection.</li> <li><b>b)</b> Call the after-sales service.</li> <li><b>c)</b> Fill oil-pressure power unit tank with oil.</li> </ul> 
The equipment operates in jerks.	<ul style="list-style-type: none"> <li><b>a)</b> Not enough fluid in oil-pressure power unit tank.</li> <li><b>b)</b> Control unit switch has failed.</li> </ul>	<ul style="list-style-type: none"> <li><b>a)</b> Top up with oil.</li> <li><b>b)</b> Call the after-sales service.</li> </ul> 

## 15.0 TECHNICAL DATA

### 15.1 Technical electrical data

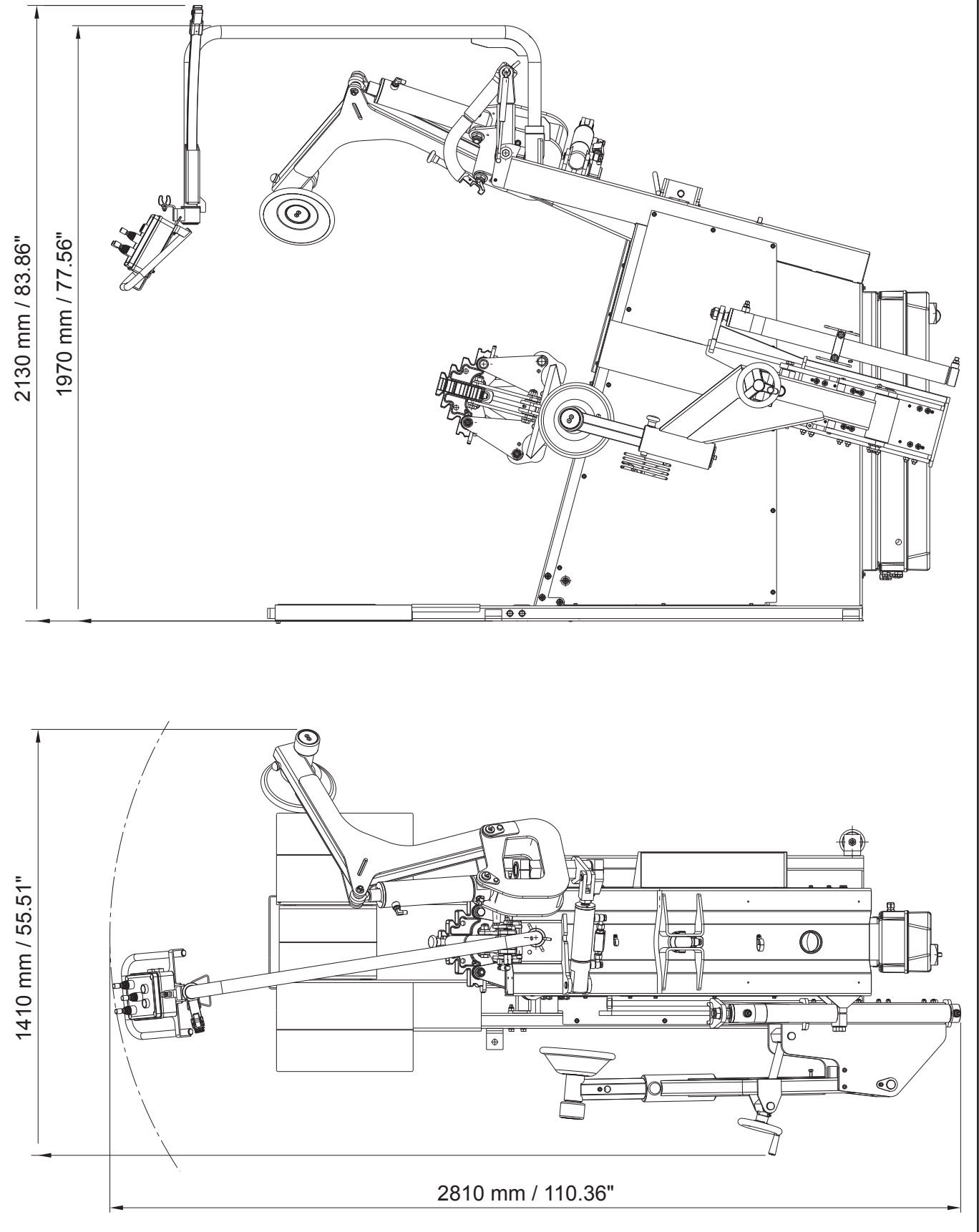
Motor power (kW)		2 (2.6 Hp)
Power supply	Voltage (V)	400
	Number of phases	3
	Frequency (Hz)	50
Hydraulic drive unit motor (kW)		1.5 (2 Hp)
Power supply	Voltage (V)	400
	Phases	3
	Frequency (Hz)	50
Typical current draw (A)		10
Self-centring chuck rotation speed (rev/min)		8

### 15.2 Technical mechanical data

Tyre maximum diameter (mm)	1320 (52")
Wheel max. width (mm)	540 (21.2")
Max. rotation torque (Nm)	2600 (1917 ft·lbs)
Wheel max. weight (kg)	1200 (2646 lbs)
Self-centring lock (inches)	11 - 27
Minimum locking hole (mm)	90 (3.54")
Chuck minimum height from the ground (mm)	340 (13.39")
Bead-breaking force (N)	12500 (2810 lbf)
Gear noise (dB) (A)	< 80
Operating pressure (bar)	130 (1885 psi)
Weight (kg)	680 (1499 lbs)

**15.3 Dimensions**

**Fig. 39**



## 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.

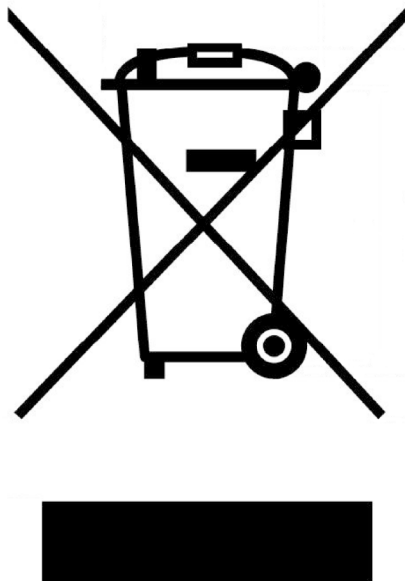
## 17.0 SCRAPPING

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. 40



## 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.**

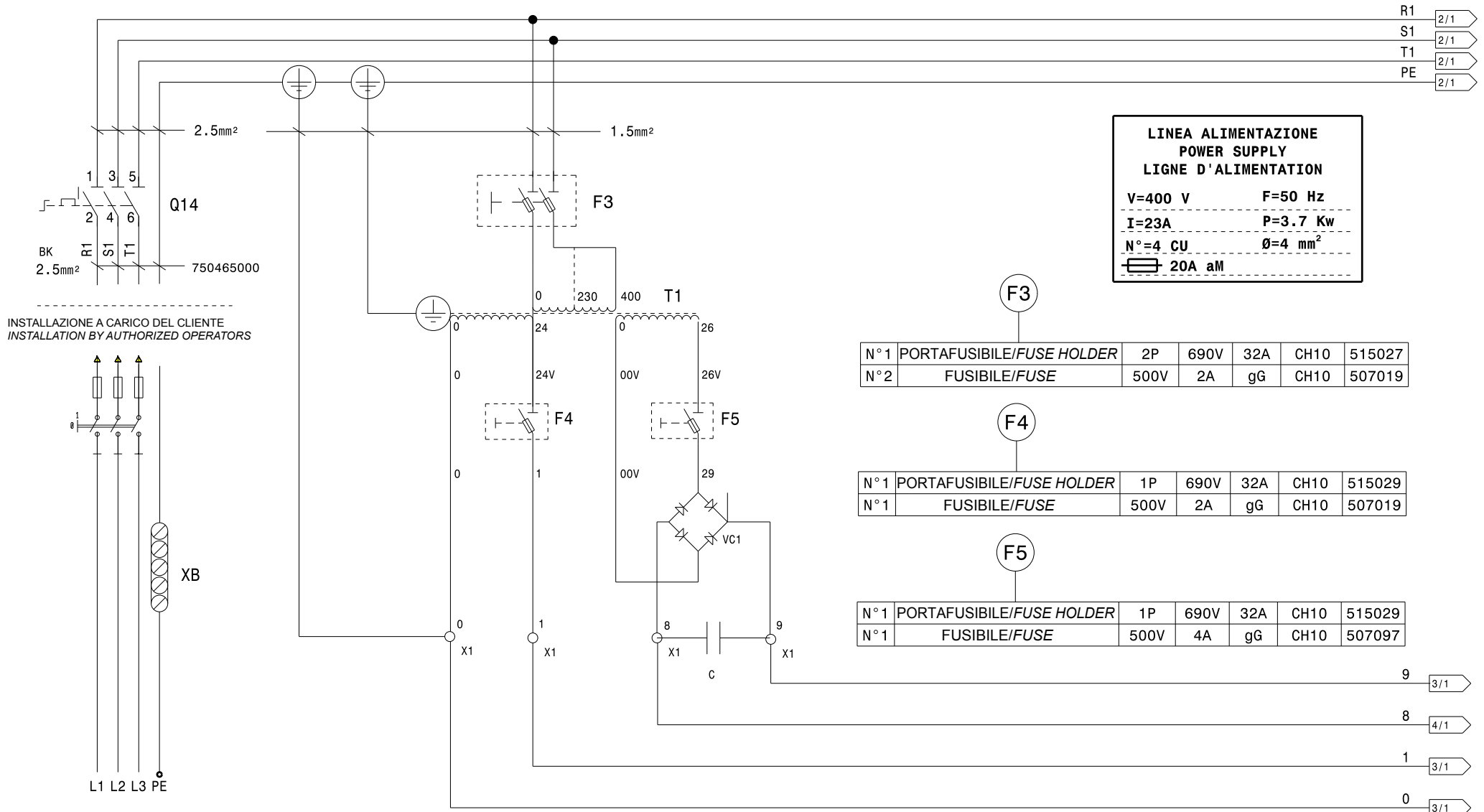


**ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.**

**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.



**LINEA ALIMENTAZIONE  
POWER SUPPLY  
LIGNE D'ALIMENTATION**

V=400 V      F=50 Hz  
I=23A      P=3.7 Kw  
N°=4 CU      Ø=4 mm<sup>2</sup>  
20A aM

N° 1	PORTAFUSIBILE/FUSE HOLDER	2P	690V	32A	CH10	515027
N° 2	FUSIBILE/FUSE	500V	2A	gG	CH10	507019

N° 1	PORTAFUSIBILE/FUSE HOLDER	1P	690V	32A	CH10	515029
N° 1	FUSIBILE/FUSE	500V	2A	gG	CH10	507019

N° 1	PORTAFUSIBILE/FUSE HOLDER	1P	690V	32A	CH10	515029
N° 1	FUSIBILE/FUSE	500V	4A	gG	CH10	507097

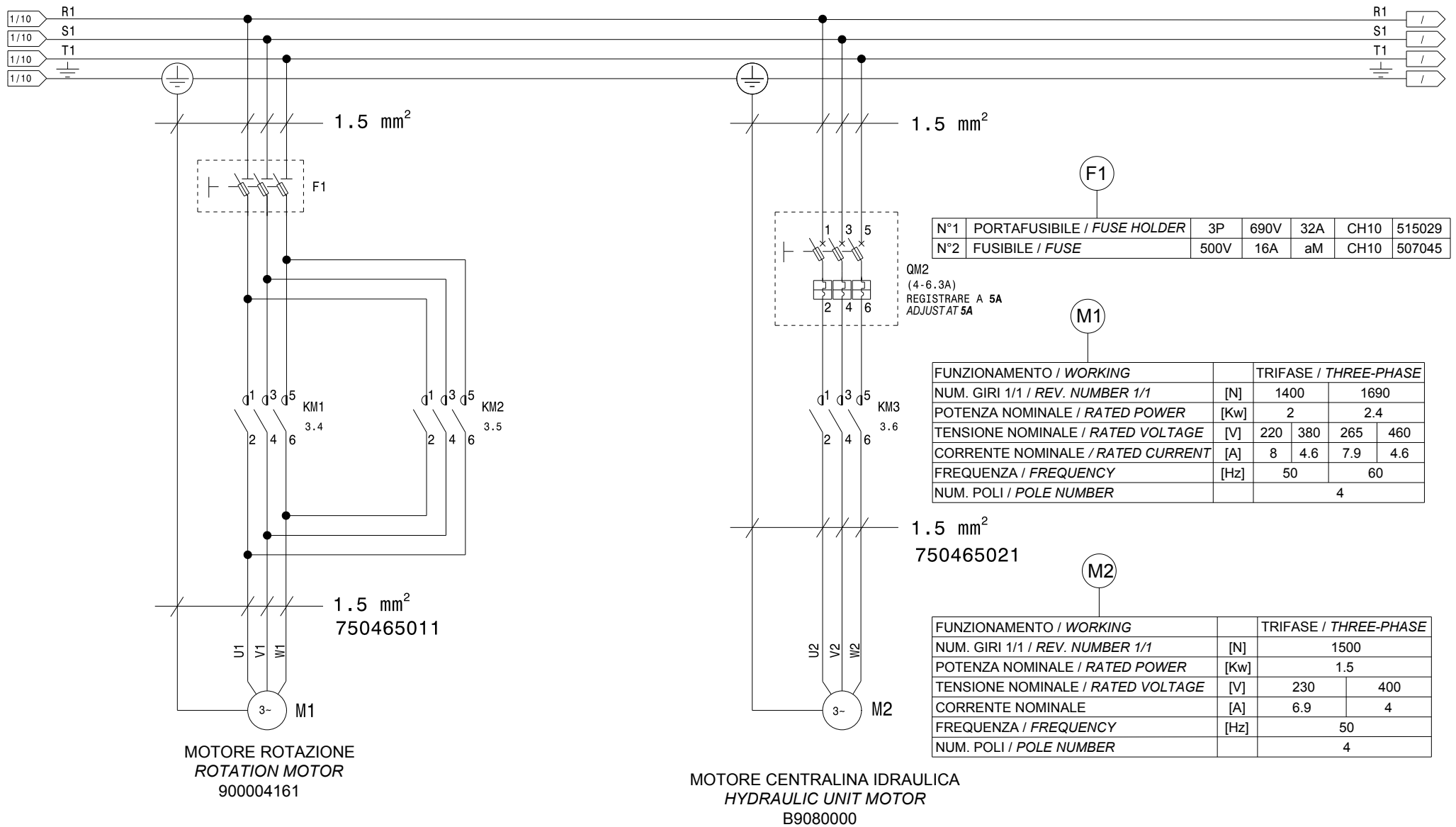
ALIMENTAZIONE AUSILIARI 24VAC  
POWER SUPPLY 24VAC AUXILIARY

ALIMENTAZIONE AUSILIARI 27VDC  
POWER SUPPLY 27VDC AUXILIARY

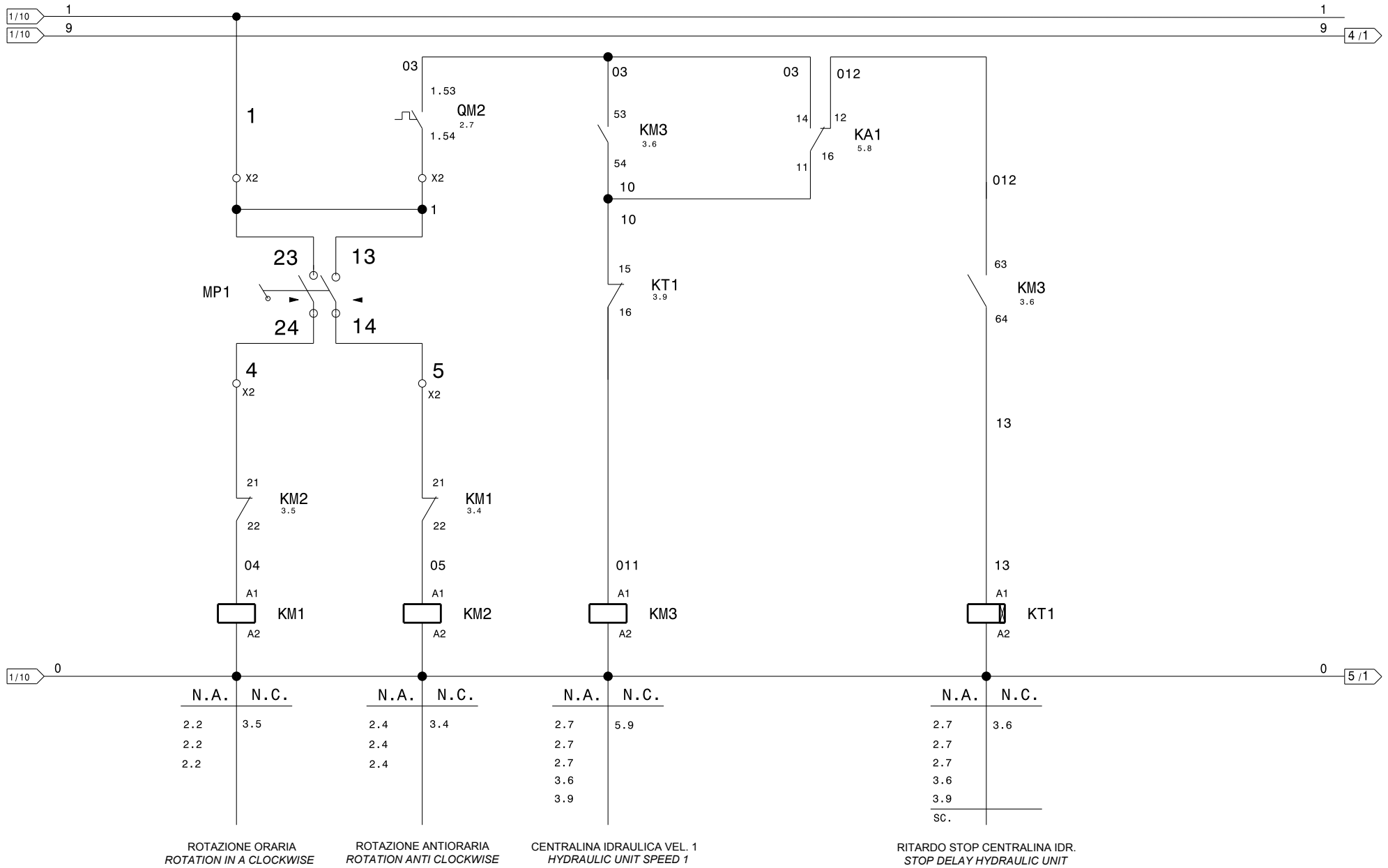


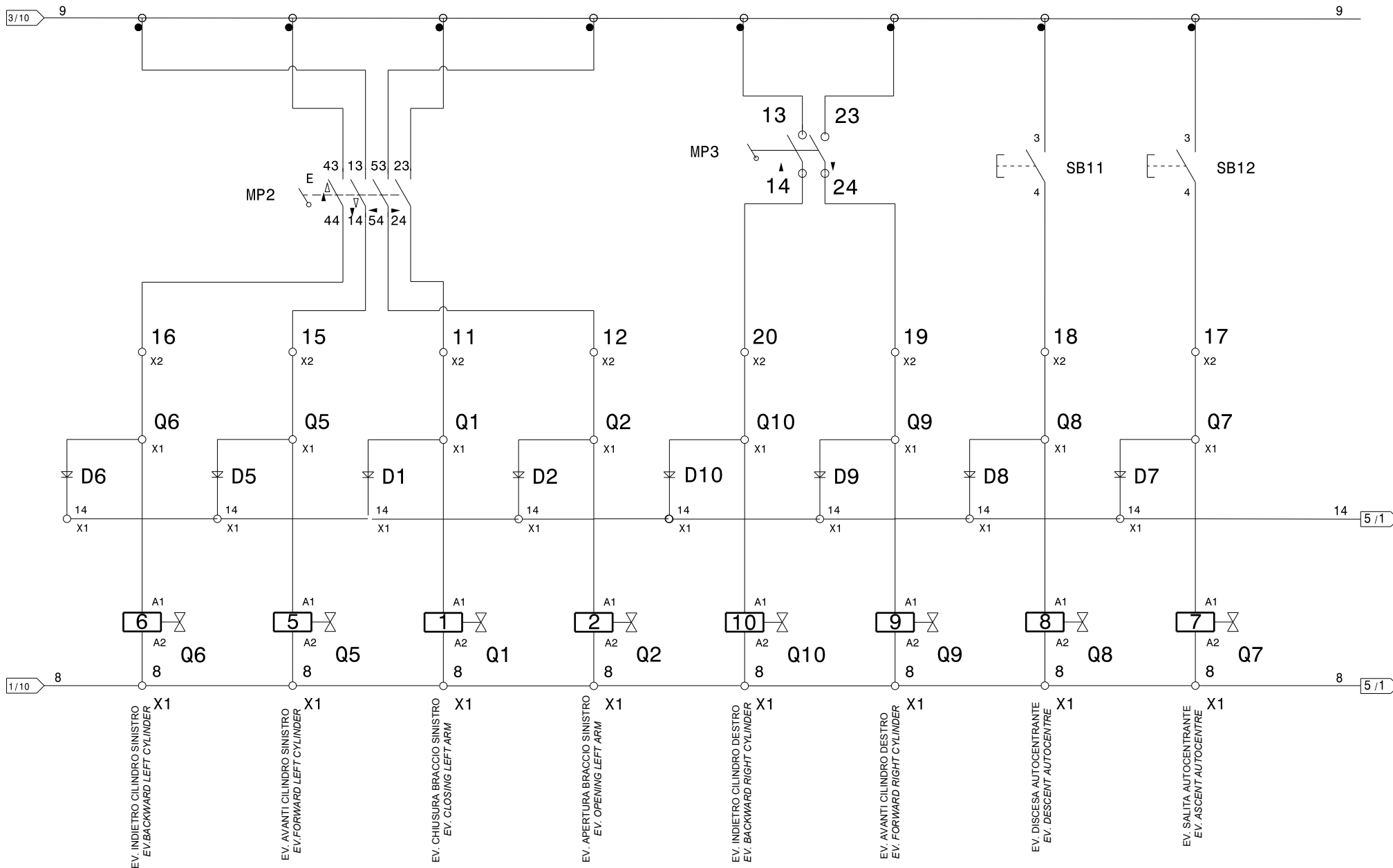
LIST OF COMPONENTS	
Drawing N°A - Rev. 0	750405502

WIRING DIAGRAM 1/5



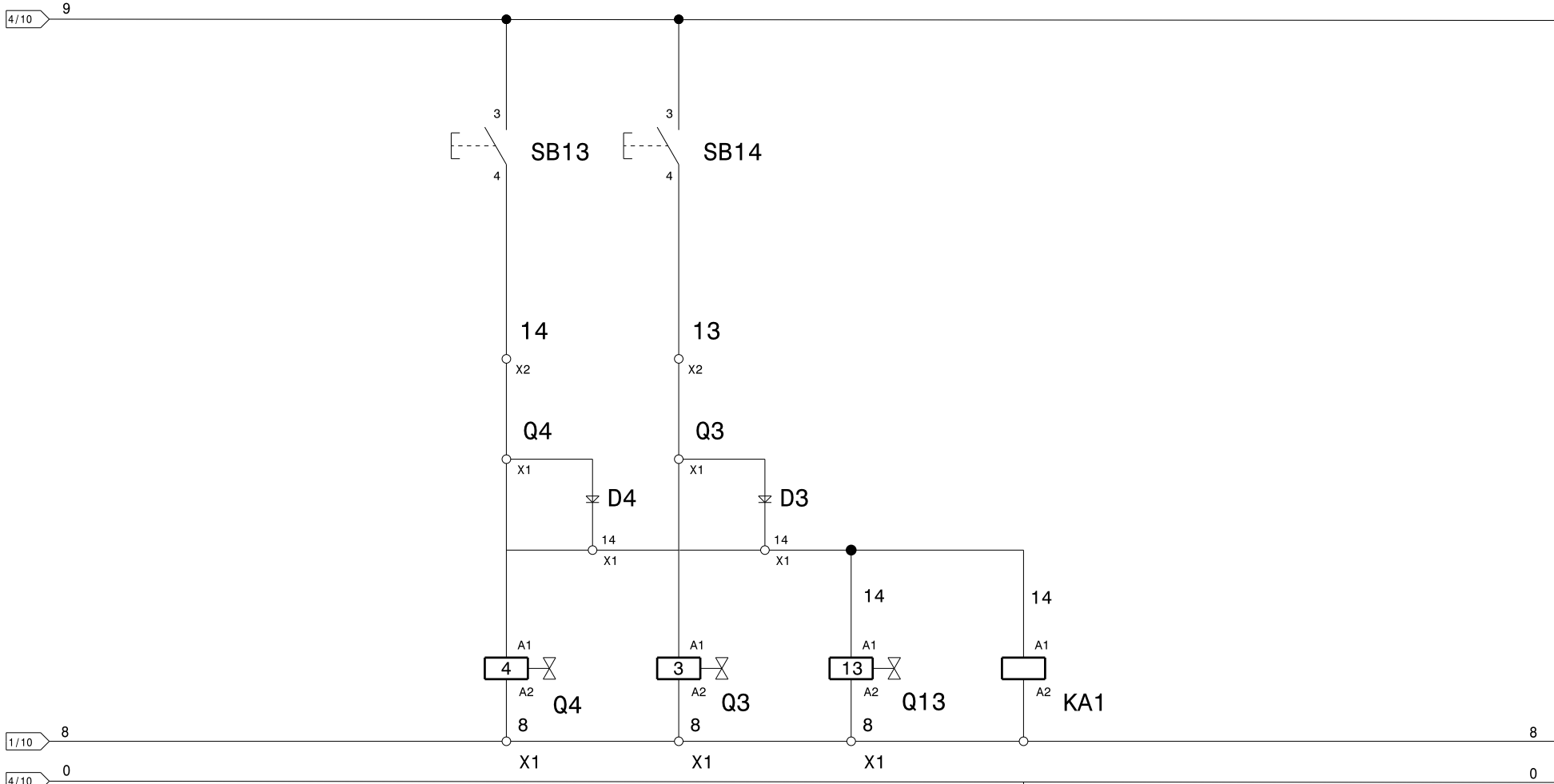






LIST OF COMPONENTS	
Drawing N°A - Rev. 0	750405502

WIRING DIAGRAM 4/5



1/10 8  
4/10 0

EV. APERTURA AUTOCENTRANTE  
EV. OPENING AUTOCENTRE

EV. CHIUSURA AUTOCENTRANTE  
EV. CLOSING AUTOCENTRE

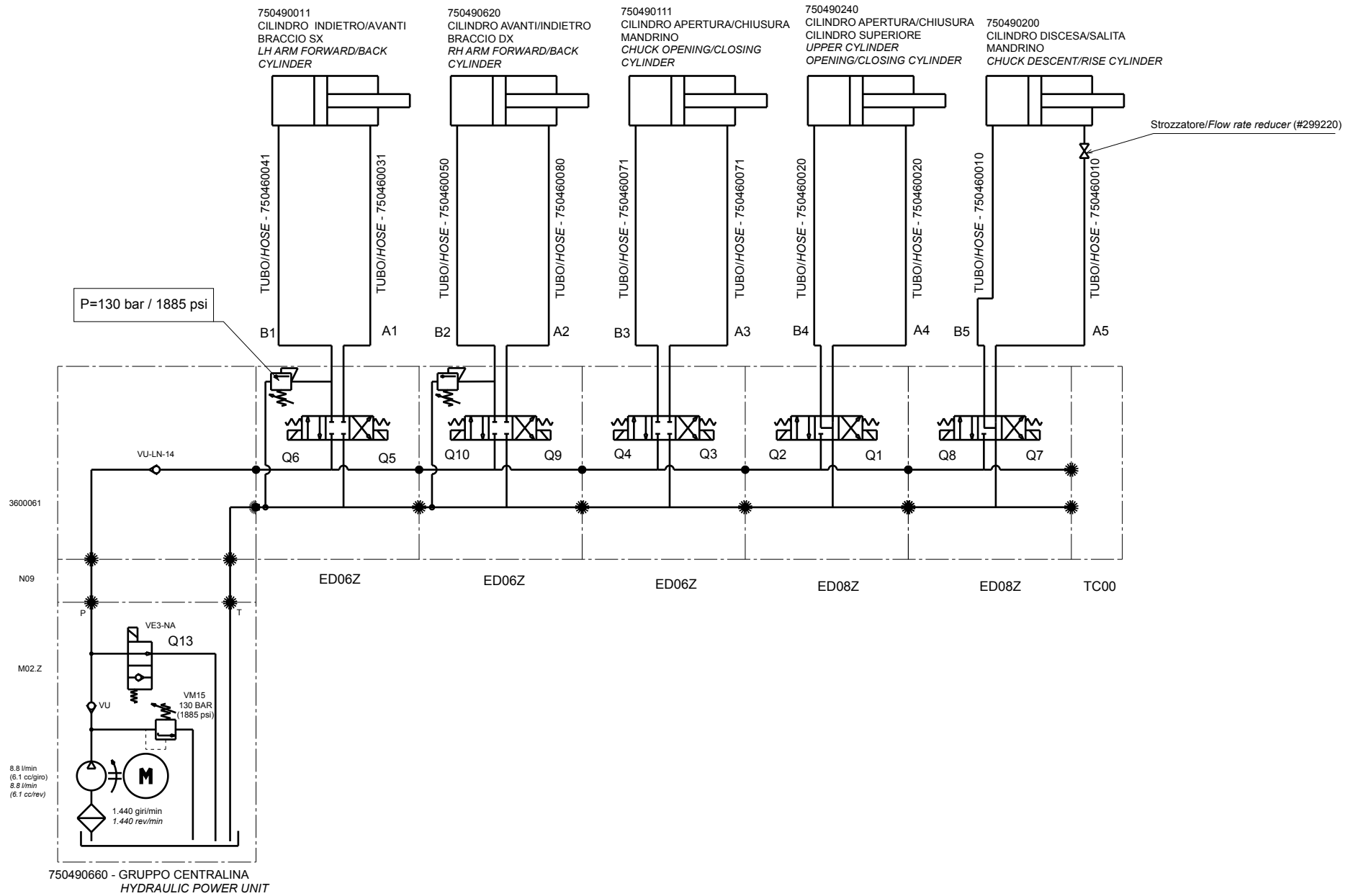
EV. PRESSIONE  
EV. PRESSURE

N. A.	N. C.
SC.	3.8
COMANDO CENTRALINA IDR. CONTROL UNIT HYDRAULIC	



LIST OF COMPONENTS	
Drawing N°A - Rev. 0	750405502

WIRING DIAGRAM 5/5



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

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

1. the business name and full address of the manufacturer and, where applicable, its authorised representative;  
**See the first page of the manual**
2. name and address of the person authorised to compile the technical file, who must be established in the Community;  
**It coincides with the manufacturer, see the first page of the manual**
3. description and identification of the machine, including generic name, function, model, type, serial number, trade name;  
**See the first page of the manual**
4. a statement explicitly declaring that the machinery is in conformity with all the relevant provisions of this directive and, where appropriate, a similar statement declaring conformity with other community directives and/or relevant provisions with which the machinery complies. These references must be those of the texts published in the Official Journal of the European Union;  
**The machinery must comply with the following applicable Directives:**  
**2006/42/CE Machinery Directive**  
**2014/30/EU Electromagnetic Compatibility Directive**
5. where appropriate, the name, address and identification number of the notified body which carried out the EC type-examination referred to in annex IX and the number of the EC type-examination certificate;  
**N/A**
6. where appropriate, the name, address and identification number of the notified body which approved the full quality assurance system referred to in annex X;  
**N/A**
7. where appropriate, reference to the harmonised standards referred to in article 7, paragraph 2, which have been applied;  
**UNI EN ISO 12100:2010 Safety of machinery - General principles for design - Risk assessment and risk reduction;**  
**CEI EN 60204-1:2018 Safety of machinery - Electrical equipment of machines - Part 1: General requirements**
8. where appropriate, reference to other standards and technical specifications applied;  
**UNI EN 17347:2001 Road vehicles – Machines for mounting and demounting vehicle tyres – Safety requirements**
9. place and date of declaration;  
**Ostellato, / /**
10. identification and signature of the person authorised to draw up the declaration on behalf of the manufacturer or its authorised representative.  
**SIMONE FERRARI VP VSG Europe Managing Director**

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

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

1. the business name and full address of the manufacturer and, where applicable, its authorised representative;  
**Manufacturer: see the first page of the manual.**  
Authorised representative:  
**VEHICLE SERVICE GROUP UK LTD**  
**3 Fourth Avenue - Bluebridge Industrial Estate - Halstead**  
**Essex CO9 2SY - United Kingdom**
2. name and address of the person authorised to compile the technical file;  
**It coincides with the authorized representative, see point 1**
3. description and identification of the machine, including generic name, function, model, type, serial number, trade name;  
**See the first page of the manual**
4. a sentence expressly declaring that the machinery fulfils all the relevant provisions of these Regulations and where appropriate, a similar sentence declaring the conformity with other enactments or relevant provisions with which the machinery complies;  
**The machinery complies with the following applicable UK Statutory Instruments:**  
**The Supply of Machinery (Safety) Regulations 2008**  
**The Electrical Equipment (Safety) Regulations 2016**  
**The Electromagnetic Compatibility Regulations 2016**
5. where appropriate, the name, address and identification number of the approved body which approved the full quality assurance system referred to in Annex X (Part 10 of this Schedule);  
**N/A**
6. where appropriate, the name, address and identification number of the approved body which approved the full quality assurance system referred to in Annex X (Part 10 of this Schedule);  
**N/A**
7. where appropriate, a reference to the designated standards used;  

<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**