



7505-M007-00

**TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156**

INSTRUCTION MANUAL
Applicable to the following models

ROT.N4111.201799
ROT.N4113.201805 - ROT.N4113.200556
RAV.G9156.206275
RAV.G9156.206268 - RAV.G9156.200471
SPA.G0156.205933
SPA.G0156.205926

EN

TRANSLATION OF THE
ORIGINAL INSTRUCTIONS

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

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

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

7505-M007-00 - Rev. n. 00 (04/2024)

SUMMARY

GENERAL DESCRIPTION (ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933) _____	5	11.0 CONTROLS _____	21
GENERAL DESCRIPTION (ROT.N4113.201805 - ROT.N4113.200556 - RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926) _____	6	11.1 Control device (applies to model with air control unit) _____	21
SYMBOLS USED IN THE MANUAL _____	7	11.2 Control device (applies to model with control box assembly) _____	22
PLATE LOCATION DRAWING (ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933) _____	8	12.0 USE OF THE EQUIPMENT _____	22
PLATE LOCATION DRAWING (ROT.N4113.201805 - ROT.N4113.200556 - RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926) _____	10	12.1 Precaution measures during tyre removal and fitting _____	22
1.0 GENERAL INTRODUCTION _____	12	12.2 Preliminary operations _____	24
1.1 Introduction _____	12	12.3 Preparing the wheel _____	24
2.0 INTENDED USE _____	12	12.4 Wheel clamping _____	24
2.1 Training of personnel _____	12	12.5 Functioning of tool holder arm _____	26
3.0 SAFETY DEVICES _____	13	12.5.1 Tools rotation _____	27
3.1 Residual risks _____	14	12.6 Tubeless tyres _____	29
4.0 IMPORTANT SAFETY INSTRUCTIONS _____	14	12.6.1 Bead breaking _____	29
4.1 General safety rules _____	15	12.6.2 Demounting _____	30
5.0 PACKING AND MOBILIZATION FOR TRANSPORT _____	16	12.6.3 Mounting _____	32
6.0 UNPACKING _____	16	12.7 Tyres with inner tube _____	34
7.0 MOBILIZATION _____	17	12.7.1 Bead breaking _____	34
8.0 WORKING ENVIRONMENT CONDITIONS _____	17	12.7.2 Demounting _____	35
8.1 Work position _____	17	12.7.3 Mounting _____	36
8.2 Installation space _____	17	12.8 Wheels with bead wire _____	39
8.3 Lighting _____	18	12.8.1 Beading and demounting _____	39
9.0 ASSEMBLY AND PREPARATION FOR USE _____	18	12.8.2 Mounting _____	41
9.1 Anchoring system _____	18	13.0 ROUTINE MAINTENANCE _____	42
10.0 ELECTRICAL CONNECTIONS _____	19	14.0 TROUBLESHOOTING TABLE _____	45
10.1 Oil check on oil-pressure power unit _____	20	15.0 TECHNICAL DATA _____	47
10.2 Check of motor rotation direction _____	20	15.1 Technical electrical data _____	47
10.3 Electrical checks _____	20	15.2 Technical mechanical data _____	47
		15.3 Dimensions _____	48
		16.0 STORING _____	50
		17.0 SCRAPPING _____	50
		18.0 REGISTRATION PLATE DATA _____	50
		19.0 FUNCTIONAL DIAGRAMS _____	50
		Drawing A - Wiring diagram (applies to models ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933) _____	51
		Drawing B - Wiring diagram (applies to models ROT.N4113.201805 - ROT.N4113.200556 - RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926) _____	53

Drawing C - Hydraulic diagram (applies to models ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933) _____ 57

Drawing D - Hydraulic diagram (applies to models ROT.N4113.201805 - ROT.N4113.200556 - RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926) _____ 60

CONTENT OF THE EC DECLARATION OF CONFORMITY _____ 62

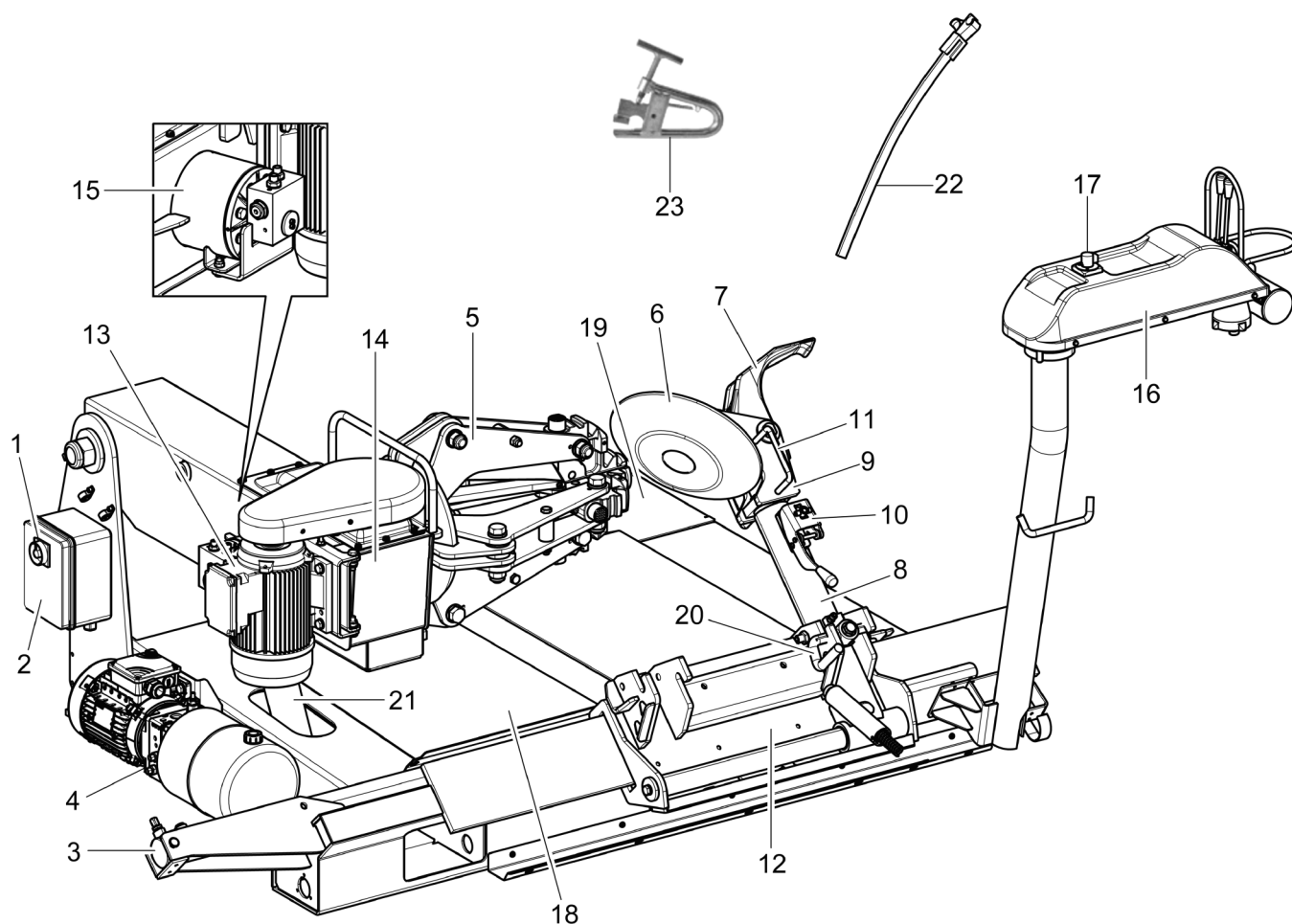
CONTENT OF THE UK DECLARATION OF CONFORMITY _____ 63

Feature / Versions	Model							
	ROT.N4111.201799	ROT.N4113.201805	ROT.N4113.200556	RAV.G9156.206275	RAV.G9156.206268	RAV.G9156.200471	SPA.G0156.205933	SPA.G0156.205926
Air control unit	•			•			•	
Control box assembly		•	•		•	•		•
400 V - 3 Ph - 50 Hz power supply	•	•		•	•		•	•
220 V - 3 Ph - 60 Hz power supply			•			•		
Coupling lever	•			•			•	
Jack		•	•		•	•		•
Tool holder arm release pedal		•	•		•	•		•

• = standard

**GENERAL DESCRIPTION (ROT.N4111.201799 - RAV.G9156.206275 -
SPA.G0156.205933)**

Fig. 1

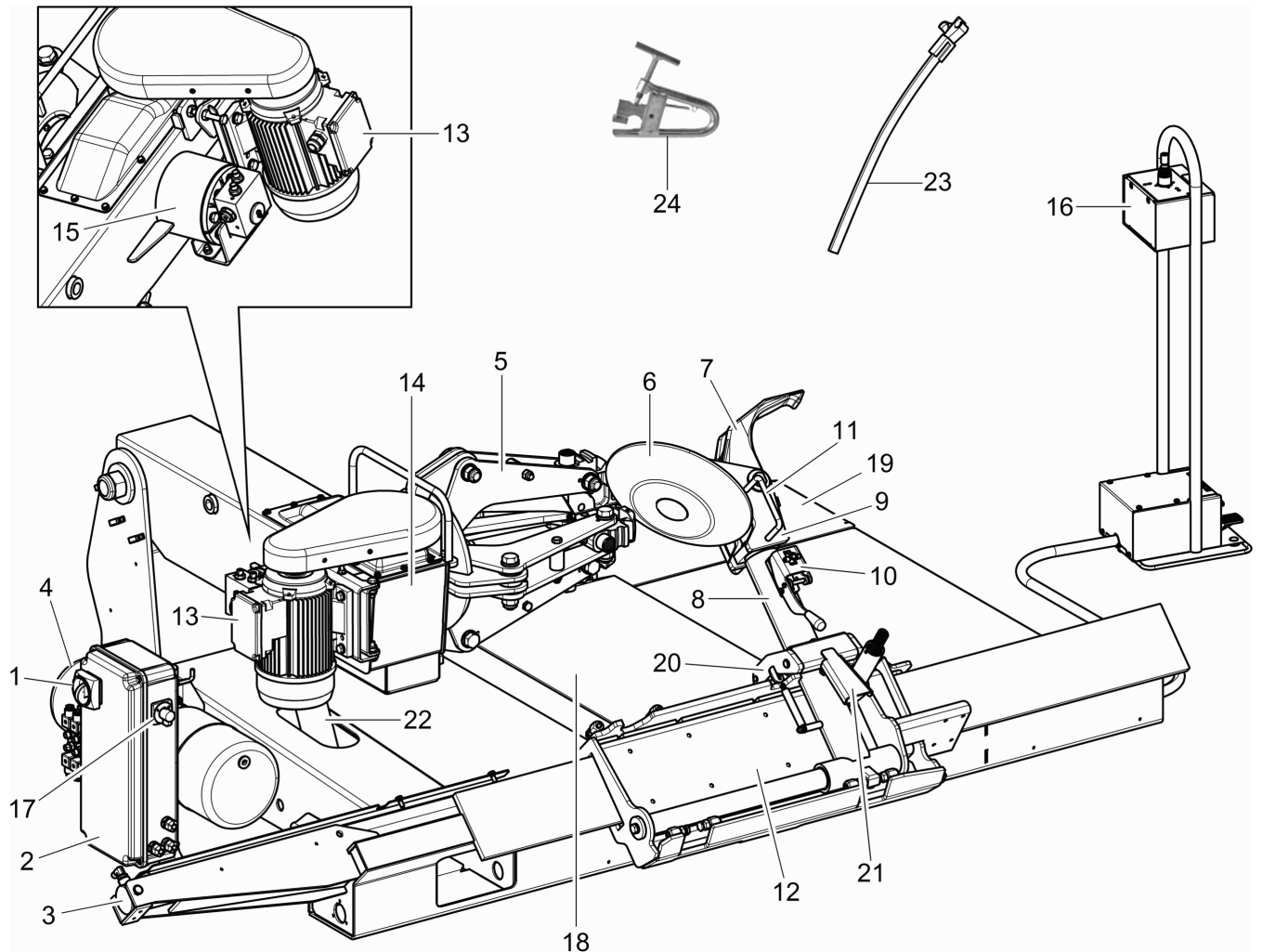


KEY

- | | |
|--------------------------------------|---|
| 1 - Main switch | 13 - Chuck rotation motor |
| 2 - Electric cabinet | 14 - Self-centring chuck arm |
| 3 - Tools carriage movement cylinder | 15 - Self-centring chuck opening/closing cylinder |
| 4 - Hydraulic power unit | 16 - Air control unit |
| 5 - Self-centring chuck | 17 - Selector 1-0-2 self-centring chuck speed control |
| 6 - Bead breaker roller | 18 - Movable footboard |
| 7 - Hook tool | 19 - Wheel loading platform |
| 8 - Tool holder arm | 20 - Coupling lever |
| 9 - Tools assembly | 21 - Self-centring chuck arm cylinder |
| 10 - Quick-fit tool | 22 - Bead lever |
| 11 - Tools assembly lifting handle | 23 - Bead locking clamp for alloy rims (optional) |
| 12 - Tools carriage | |

**GENERAL DESCRIPTION (ROT.N4113.201805 - ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)**








Fig. 2









KEY)

- | | |
|--------------------------------------|---|
| 1 - Main switch | 14 - Self-centring chuck arm |
| 2 - Electric cabinet | 15 - Self-centring chuck opening/closing cylinder |
| 3 - Tools carriage movement cylinder | 16 - Control box assembly |
| 4 - Hydraulic power unit | 17 - Selector 1-0-2 self-centring chuck speed control |
| 5 - Self-centring chuck | 18 - Movable footboard |
| 6 - Bead breaker roller | 19 - Wheel loading platform |
| 7 - Hook tool | 20 - Jack |
| 8 - Tool holder arm | 21 - Tool holder arm release pedal |
| 9 - Tools assembly | 22 - Self-centring chuck arm cylinder |
| 10 - Quick-fit tool | 23 - Bead lever |
| 11 - Tools assembly lifting handle | 24 - Bead locking clamp for alloy rims (optional) |
| 12 - Tools carriage | |
| 13 - Chuck rotation motor | |

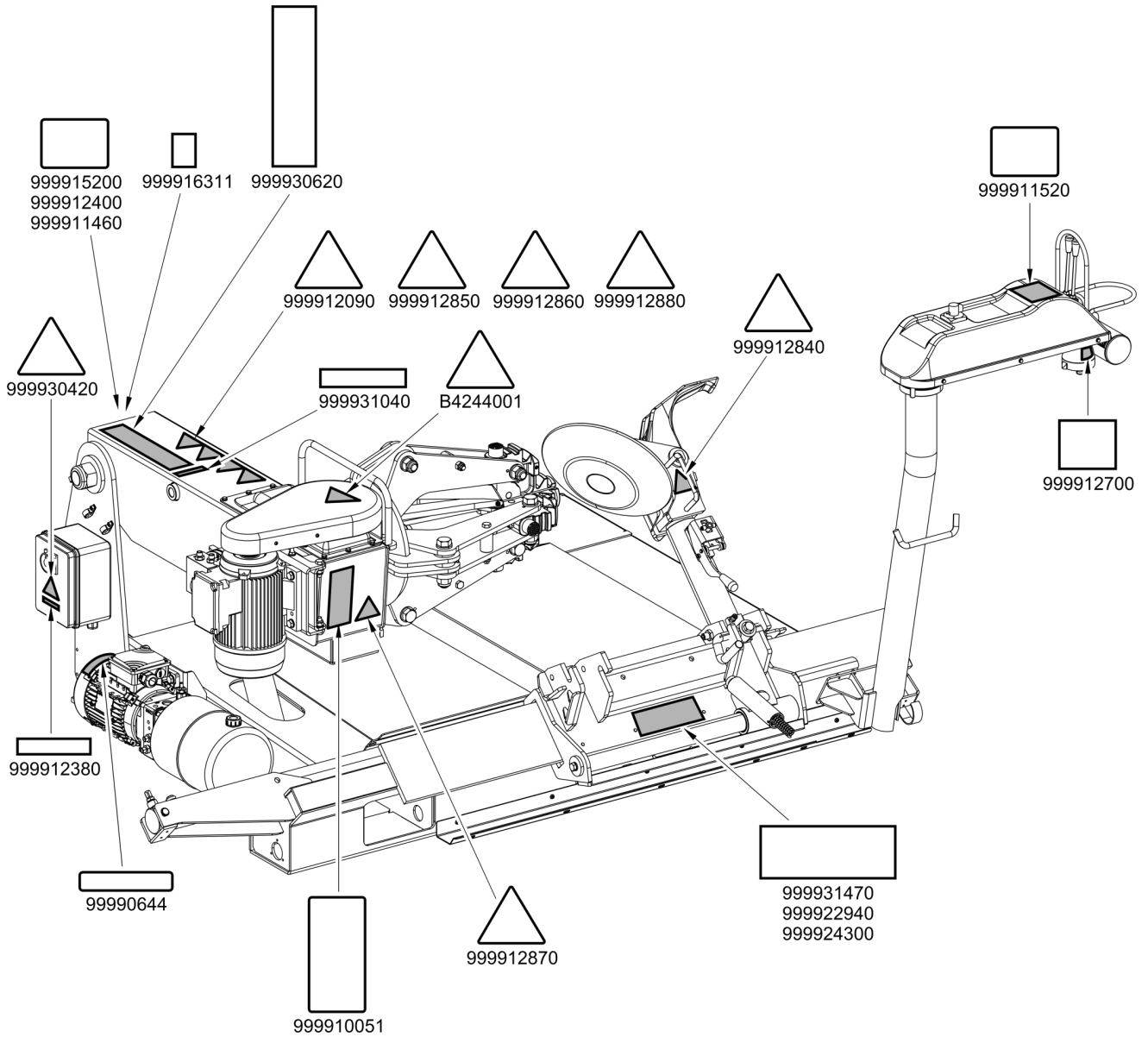
SYMBOLS USED IN THE MANUAL

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.

**PLATE LOCATION DRAWING
(ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933)**

Fig. 3



Code numbers of nameplates

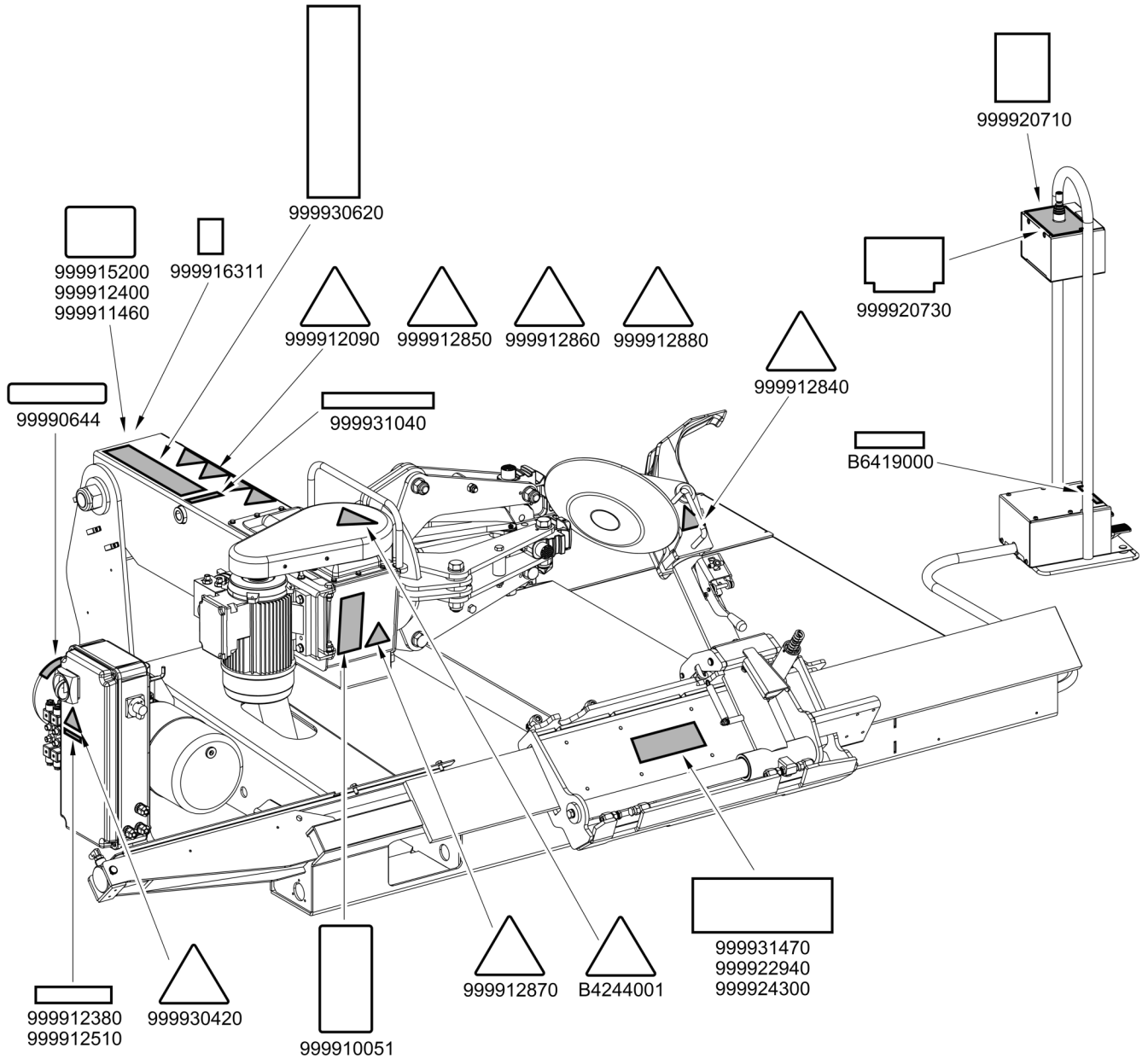
B4244001	<i>Rotating parts danger nameplate</i>
99990644	<i>Rotation index nameplate</i>
999910051	<i>Protection device use nameplate</i>
999911460	<i>Serial number nameplate (applies to SPA.G0156.205933 model)</i>
999911520	<i>2 levers distributor nameplate</i>
999912090	<i>Danger nameplate 6</i>
999912380	<i>400 V - 3 Ph - 50 Hz voltage nameplate</i>
999912400	<i>Serial number nameplate (applies to RAV.G9156.206275 model)</i>
999912700	<i>1 lever distributor nameplate</i>
999912840	<i>Danger nameplate 1</i>
999912850	<i>Danger nameplate 2</i>
999912860	<i>Danger nameplate 3</i>
999912870	<i>Danger nameplate 4</i>
999912880	<i>Danger nameplate 5</i>
999915200	<i>Serial number nameplate (applies to ROT.N4111.201799 model)</i>
999916311	<i>Rubbish skip nameplate</i>
999922940	<i>Ravaglioli horizontal nameplate (applies to RAV.G9156.206275 model)</i>
999924300	<i>Space logo nameplate (SPA.G0156.205933 model only)</i>
999930420	<i>Electric shock danger nameplate</i>
999930620	<i>Rotary logo nameplate (applies to ROT.N4111.201799 model)</i>
999931040	<i>"Engineered by Butler" nameplate (applies to ROT.N4111.201799 model)</i>
999931470	<i>Serial number nameplate (applies to ROT.N4111.201799 model)</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.

**PLATE LOCATION DRAWING
(ROT.N4113.201805 - ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)**

Fig. 4



Code numbers of nameplates

B4244001	<i>Rotating parts danger nameplate</i>
B6419000	<i>Chuck rotation nameplate</i>
99990644	<i>Rotation index nameplate</i>
999910051	<i>Protection device use nameplate</i>
999911460	<i>Serial number nameplate (applies to SPA.G0156.205926 model)</i>
999912090	<i>Danger nameplate 6</i>
999912400	<i>Serial number nameplate (applies to RAV.G9156.206268 - RAV.G9156.200471 models)</i>
999912380	<i>400 V - 3 Ph - 50 Hz voltage nameplate (applies to ROT.N4113.201805 - RAV.G9156.206268 - SPA.G0156.205926 models)</i>
999912510	<i>220 V - 3 Ph - 60 Hz voltage nameplate (applies to ROT.N4113.200556 - RAV.G9156.200471 models)</i>
999912840	<i>Danger nameplate 1</i>
999912850	<i>Danger nameplate 2</i>
999912860	<i>Danger nameplate 3</i>
999912870	<i>Danger nameplate 4</i>
999912880	<i>Danger nameplate 5</i>
999915200	<i>Serial number nameplate (applies to ROT.N4113.201805 - ROT.N4113.200556 models)</i>
999916311	<i>Rubbish skip nameplate</i>
999920710	<i>Chuck open/close nameplate</i>
999920730	<i>Control nameplate</i>
999922940	<i>Ravaglioli horizontal nameplate (applies to RAV.G9156.206268 - RAV.G9156.200471 models)</i>
999924300	<i>Space logo nameplate (SPA.G0156.205926 model only)</i>
999930420	<i>Electric shock danger nameplate</i>
999930620	<i>Rotary logo nameplate (applies to ROT.N4113.201805 - ROT.N4113.200556 models)</i>
999931040	<i>"Engineered by Butler" nameplate (applies to ROT.N4113.201805 - ROT.N4113.200556 models)</i>
999931470	<i>Serial number nameplate (applies to ROT.N4113.201805 - ROT.N4113.200556 models)</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 intended 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 product is equipped with:

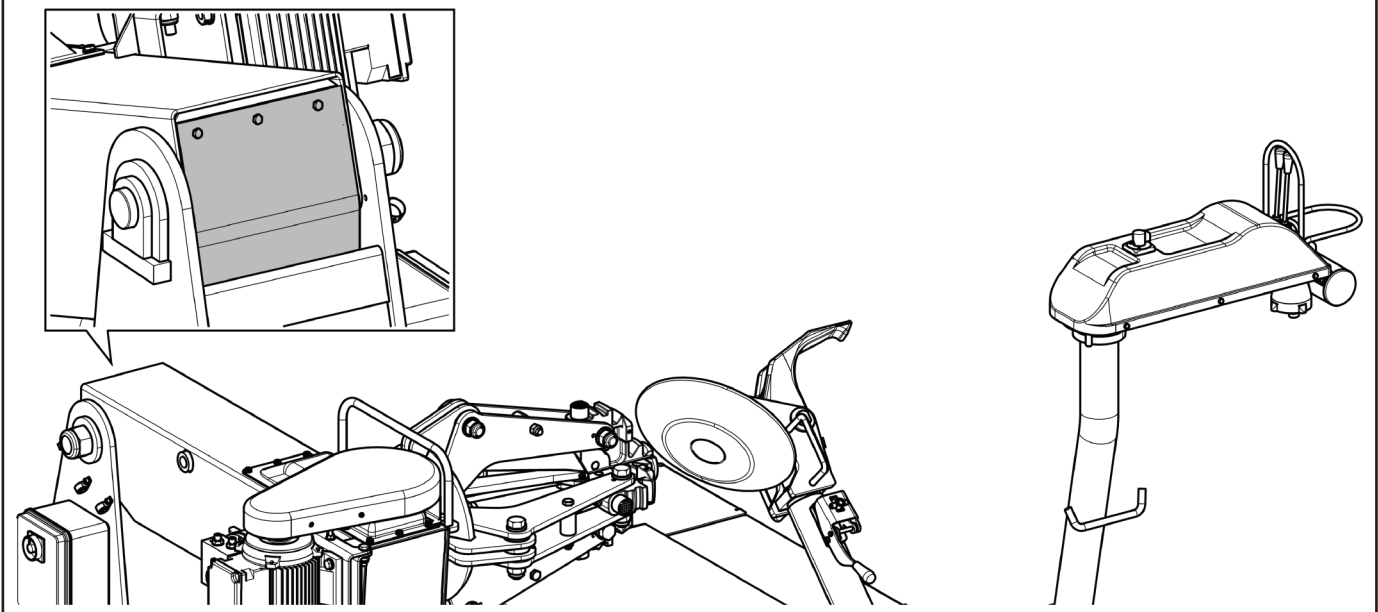
- **hold-to-run-controls** (immediate stop of operation when the control is released);
- **controls logic disposition:**
to prevent the operator from making dangerous mistakes;
- **thermal magnetic** switch on the supply line of the oil-pressure power unit motor: avoids the motor overheating in case of intensive use;
- **controlled check valves** on:
 - opening of self-centring chuck jaws.
Such valves are installed to avoid that accidental oil leakages provoke unwelcome jaws movements (and as a consequence the fall of the wheel);



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 electric supply line of self-centring chuck motor;
- **automatic power supply disconnection** with the opening of the electric cabinet.
- **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. 5**.

Fig. 5



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. 3 e Fig. 4**).

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.**

	<p>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.</p>
	
	

- 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. 8**. 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.

	<p>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.</p>
---	--

	<p>ALWAYS KEEP THE HYDRAULIC CONTROLS IN THE NEUTRAL POSITION.</p>
---	---

5.0 PACKING AND MOBILIZATION FOR TRANSPORT



HAVE THE EQUIPMENT HANDLED BY SKILLED PERSONNEL ONLY.

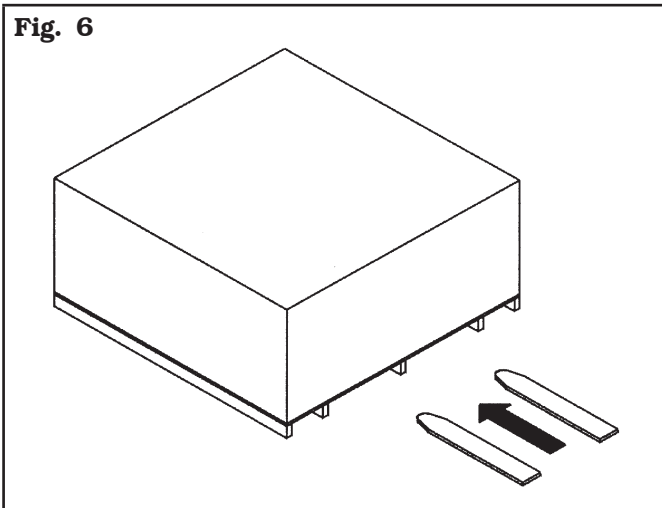
THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED EQUIPMENT (SEE PARAGRAPH "TECHNICAL SPECIFICATIONS").

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. 6** (forks introduced in the middle to ensure a correct loads distribution).

Fig. 6



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

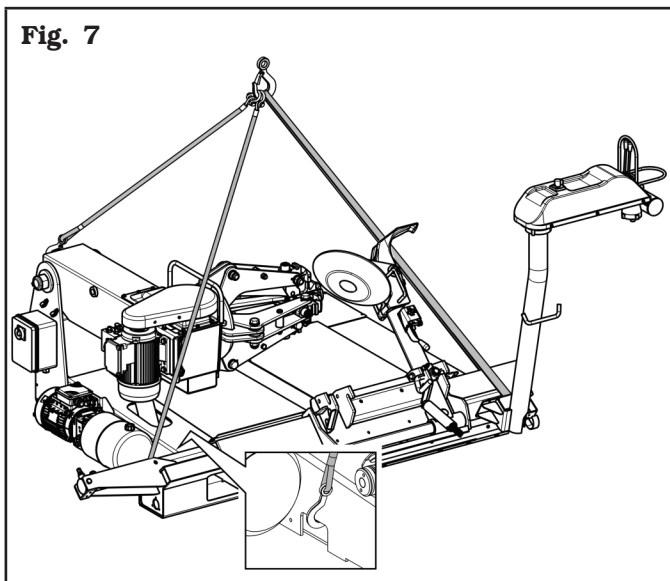
If the equipment has to be moved.



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.
- Move the self-centring chuck to completely lowered position and in the centre of the equipment in order to ensure a correct load balancing.
- Move the tool holder 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. 7**).
- 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.

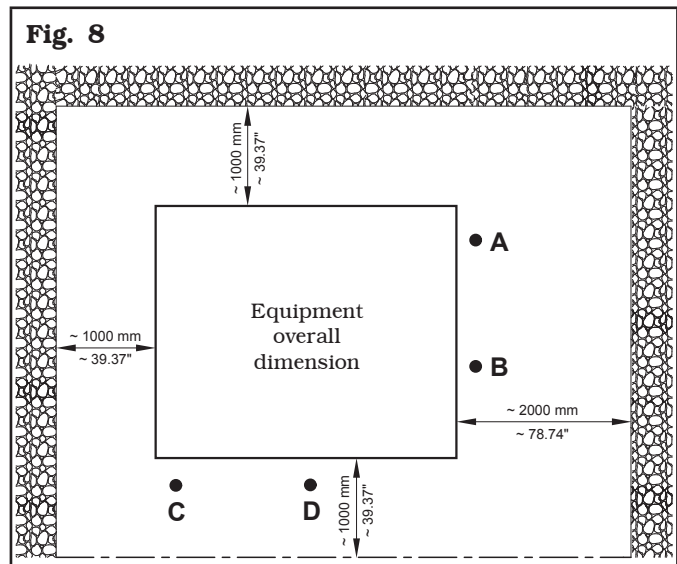
8.1 Work position

In **Fig. 8** 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




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

The location of the equipment requires a usable space as indicated in **Fig. 8**. The positioning of the equipment must be executed according to the distances shown. From the control position the operator is able to observe all the equipment and surrounding area. Operator must prevent unauthorized personnel or objects that could be dangerous from entering the area. The equipment must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces.

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

8.3 Lighting

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

9.0 ASSEMBLY AND PREPARATION FOR USE

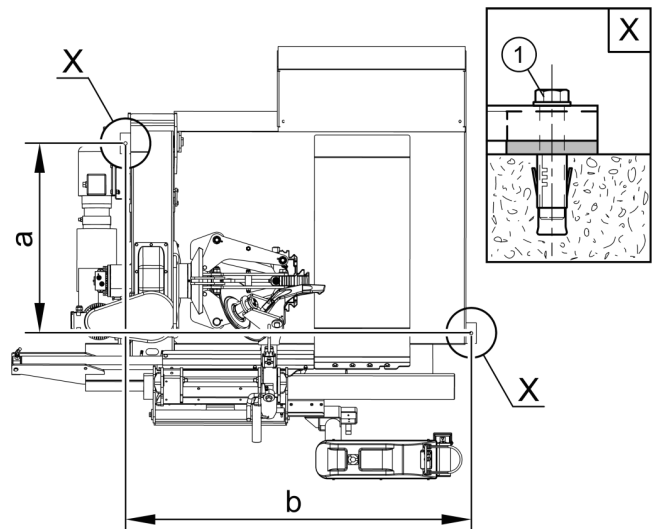


ALL EQUIPMENT ASSEMBLY OR ADJUSTMENTS MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.

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. 9**.

Fig. 9




ROT.N4111.201799	ROT.N4113.201805
RAV.G9156.206275	ROT.N4113.200556
SPA.G0156.205933	RAV.G9156.206268
	RAV.G9156.200471
	SPA.G0156.205926
a = 912 mm / 35.91"	a = 967 mm / 38.07"
b = 1665 mm / 65.55"	b = 1975 mm / 77.76"

- To secure the equipment to the floor, use anchoring bolts/studs (**Fig. 9 ref. 1**) with a threaded shank M12 (UNC 1/2-13) 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.


10.0 ELECTRICAL CONNECTIONS


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


 **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.

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

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

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

Motor power supply	Conformity standard	Voltage	Amperage	Poles	Minimum IP rating
3 Ph power supply, 2-speed motor	IEC 309	220 - 400 V	25 - 16 A	3 Poles + Ground	IP 54 - IP 44

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 (0.8 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 °C (+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 power unit rotates in the direction indicated by the arrow (**Fig. 10 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. 10 ref. A**).

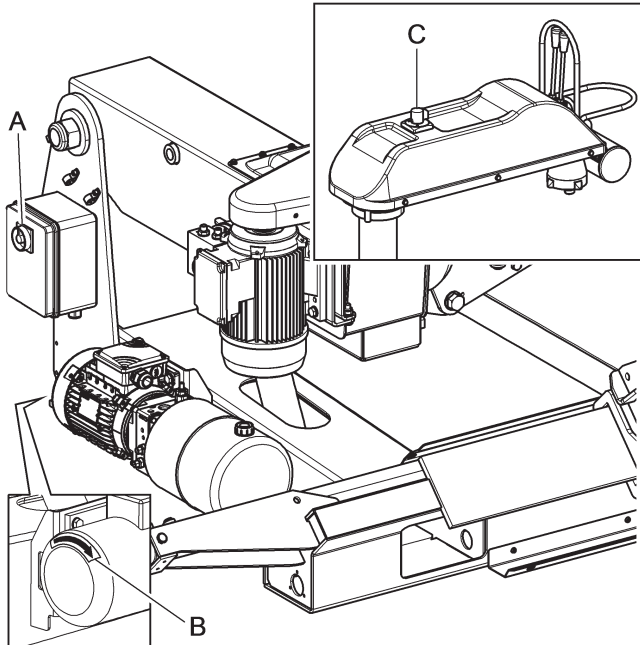
The product is equipped with a device for the interruption of the communication between the control and the electrical cabinet, when more than 6 hours have passed after the last executed control. In this case, just repeat the turning on operations described in the "Electrical checks" chapter.



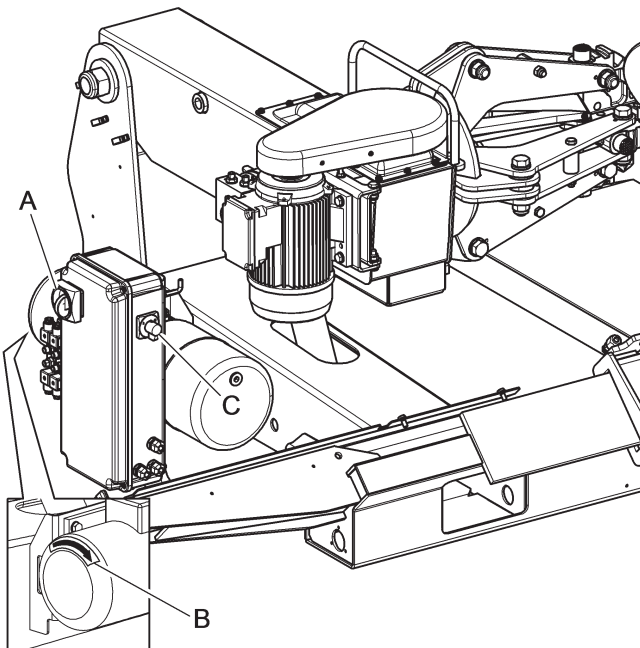
ONCE THE ASSEMBLY OPERATIONS HAVE BEEN COMPLETED, CHECK ALL EQUIPMENT FUNCTIONS.

Fig. 10

Applies to ROT.N4111.201799 -
RAV.G9156.206275 -
SPA.G0156.205933 models



Applies to
ROT.N4113.201805 - ROT.N4113.200556
RAV.G9156.206268 - RAV.G9156.200471
SPA.G0156.205926 models



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 Control device (applies to model with air control unit)

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

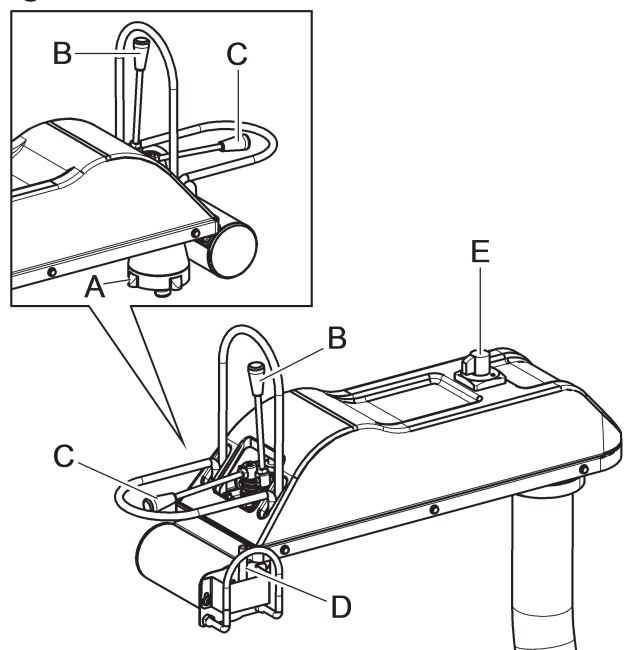


MAKE SURE THERE ARE NO PERSONS OR OBJECTS HIDDEN TO THE OPERATOR VISUAL FIELD BY THE WHEEL SIDE (ESPECIALLY IN CASE OF WHEELS WITH LARGE DIMENSIONS).

The control (Fig. 11) consists of:

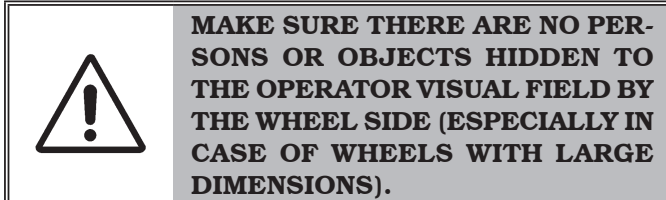
- **"A" lower selector** (with guard) for wheel holder self-centring chuck open/close control with three positions: one central position "stable" to stop self-centring chuck open/close movement and two positions "with maintained control" to open/close self-centring chuck jaws;
- **"B" lever** three-positions control for tools holder carriage movement: a central "firm" position for movement stop and two "hold activation" positions for carriage supporting movement towards the chuck and return;
- **"C" lever** three-positions control for vertical movement of self-centring chuck arm: central "firm" position for movement stop and two "hold activation" positions for arm up and down movement;
- **"D" lever** control self-centring chuck anticlockwise/clockwise rotation;
- **"E" selector**, three-positions, for chuck rotation speed: position "0" for movement stop, position "1" for low speed and position "2" for high speed.

Fig. 11



11.2 Control device (applies to model with control box assembly)

The ground control unit (**Fig. 12**) 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.



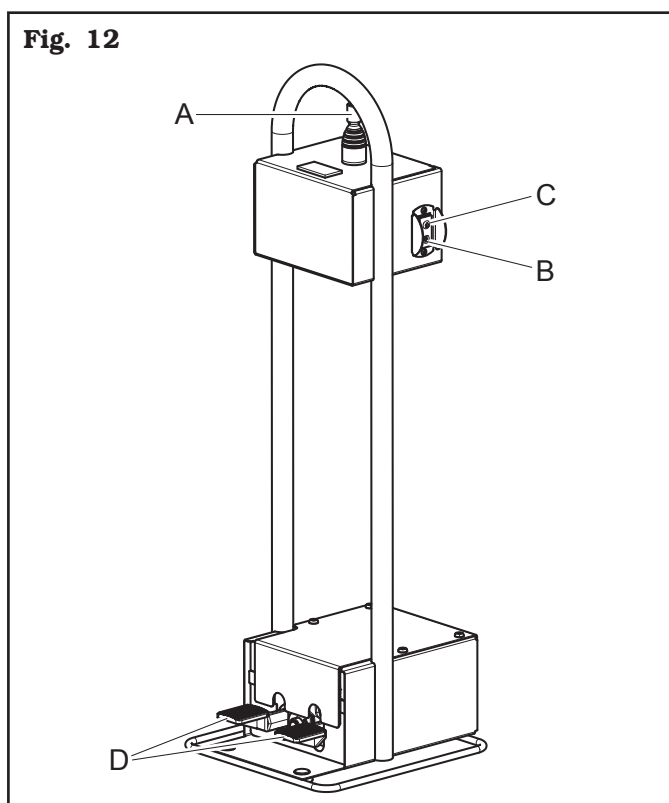
“Lever **A**” has four hold-to-run control operative positions:

- lever towards the right or left, operates respectively the tool holder carriage shifting towards the right or left;
- lever upwards or downwards: it operates respectively the rising and the lowering of the self-centring chuck arm.

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

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

The “pedals **D**” operate the cw and ccw chuck rotation.



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.



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.



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.



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 wheels with large diameter (up to 2300 mm - 90.55") and heavy wheels (up to 1700 kg - 3748 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. 10 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.

12.3 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.

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.



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

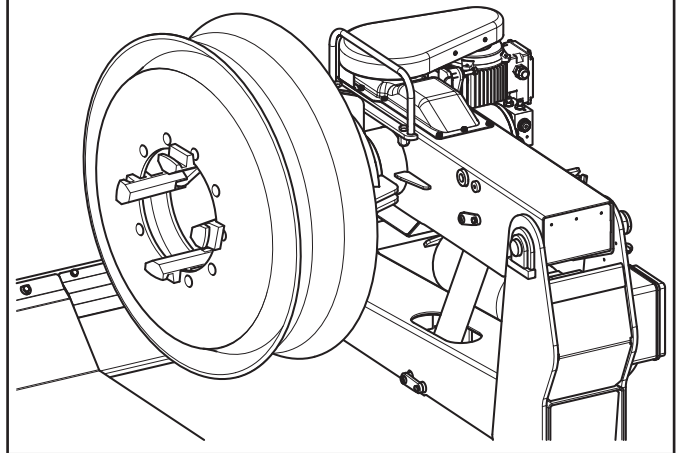


MAKE SURE THAT RIM CLAMPING IS DONE PROPERLY AND THAT THE GRIP IS SECURE, TO PREVENT THE WHEEL FROM FALLING DURING MOUNTING OR REMOVAL OPERATIONS.



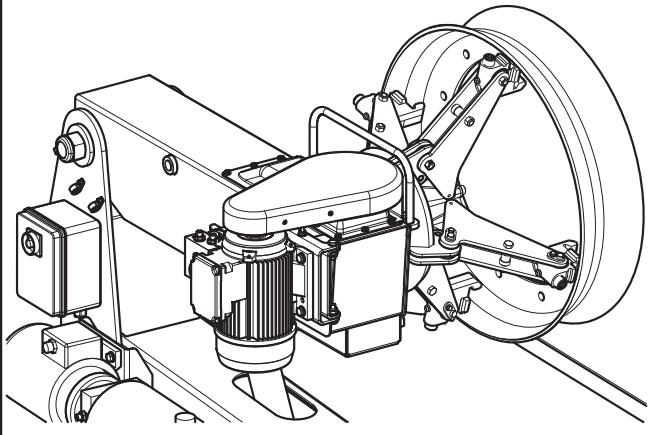
DO NOT CHANGE THE SET OPERATING PRESSURE VALUE USING THE MAXIMUM PRESSURE VALVES. THE MANUFACTURER SHALL NOT BE RESPONSIBLE FOR INJURY OR DAMAGE ARISING FROM UNAUTHORISED CHANGES.

Fig. 13



Clamping on the central hole

Fig. 14



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 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:

1. move the hook tool holder arm to “out of work” position (**Fig. 17 ref. 1**) manually;
2. move the movable footboard (**Fig. 1 e Fig. 2 ref. 18**) outside. Make the wheel rotate on the same footboard;
3. place the self-centring chuck (**Fig. 1 and Fig. 2 ref. 5**) approximately in the centre of the wheel; move the footboard towards the self-centring chuck and centre the wheel on it, in the most suitable position using the corresponding control levers;
4. adjust the opening of the self-centring chuck through the corresponding control (**Fig. 11 ref. A and Fig. 12 ref. B**) according to the type of rim to be locked;
5. lock the rim with the self-centring chuck (**Fig. 1 and Fig. 2 ref. 5**);
6. 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.



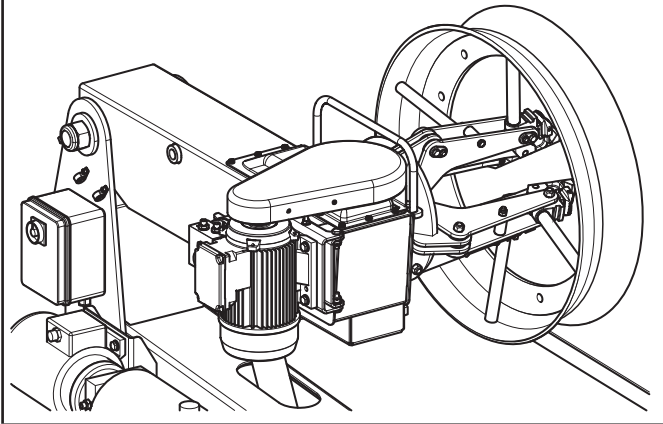
KEEP ON OPERATING RIM CLAMPING CONTROL, UNTIL REACHING THE MAX. OPERATING PRESSURE (170 bar - 2466 psi), WHICH CAN BE CHECKED USING THE PRESSURE GAUGE.



THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 10 REF. C). LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT.

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

Fig. 15



Locking with extensions

Whenever the rim exceeds the 43" in the locking point, use the appropriate extensions (optional). To avoid damages or scratches on light alloy rims, the special jaws supplied with the tyre chamer as an optional should be used.



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. 10 REF. C). LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT. THE CAREFUL LUBRICATION OF THE TYRE BEADS IS RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.

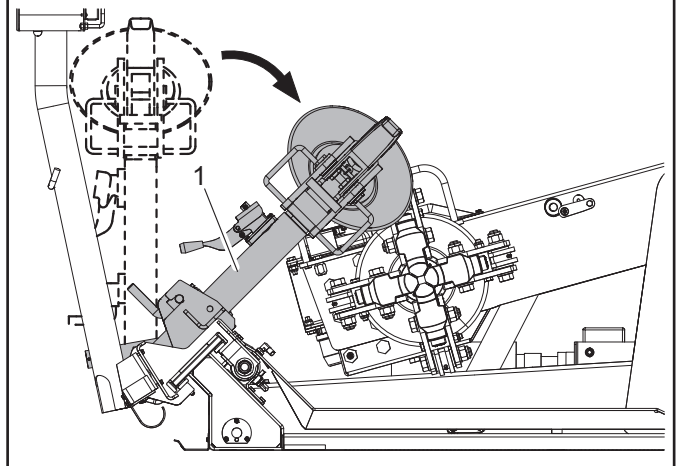
12.5 Functioning of tool holder arm

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

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

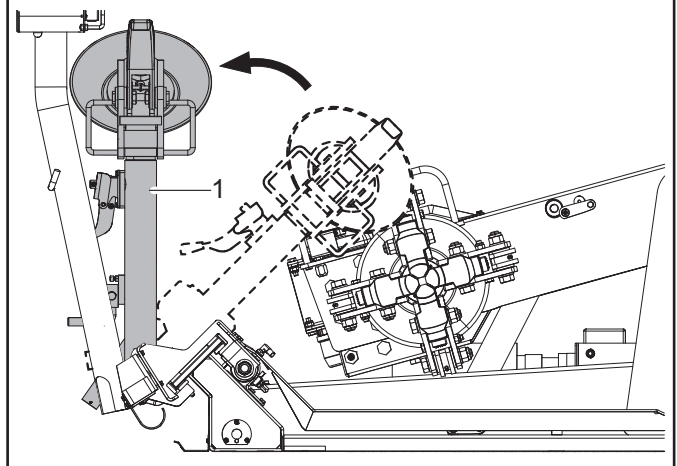
In "working" position (**Fig. 16 ref. 1**) the tool holder arm is lowered towards the self-centring chuck and from this position it must carry out the various tyre bead breaking, demounting and mounting operations.

Fig. 16



In "out of work" position (**Fig. 17 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.

Fig. 17




The tool holder arm, shifts from "out of work" position to "working" position and vice versa manually.



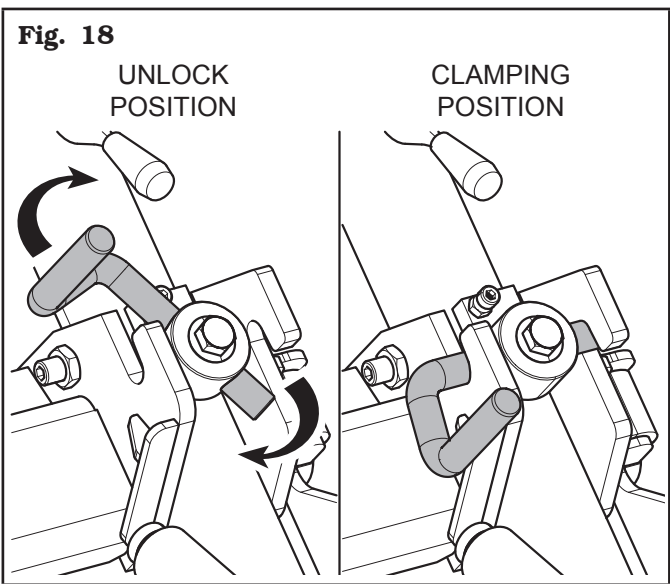
IN WORK POSITION, THE SAFETY JACKS (FIG. 2 REF. 20) (STANDARD ON SOME MODELS) MUST BE HOOKED TO THE TOOL CARRIAGE (FIG. 2 REF. 12).

On models with coupling lever




IN WORK POSITION, THE COUPLING LEVER (FIG. 1 REF. 20) MUST BE CORRECTLY HOOKED TO THE TOOL CARRIAGE CLAMPING PROFILES (SEE FIG. 18).

When the tool holder arm is to “out of work” position, it can be laterally shifted in manual mode in one of the two pre-set positions on the carriage, so that it can better positioned (according to the operations to be performed afterwards) before it reaches “working” position again.



On models with jack



IN WORK POSITION, THE SAFETY JACKS (FIG. 2 REF. 20) MUST BE HOOKED TO THE TOOL CARRIAGE (FIG. 2 REF. 12).

To shift from “working” position to “out of work” position and vice versa, the tools holder arm moves by pushing the pedal provided (Fig. 2 ref. 21). When the tool holder arm is to “out of work” position, it can be laterally shifted in manual mode in one of the two pre-set positions on the carriage, so that it can better positioned (according to the operations to be performed afterwards) before it reaches “working” position again.

12.5.1 Tools rotation

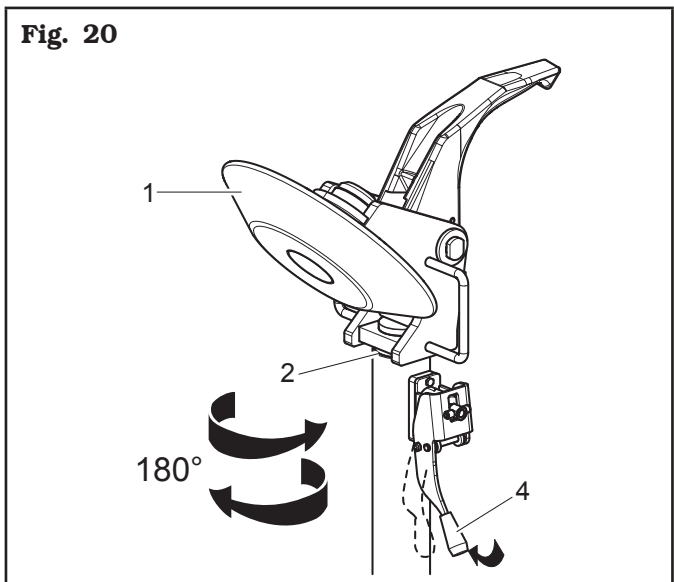
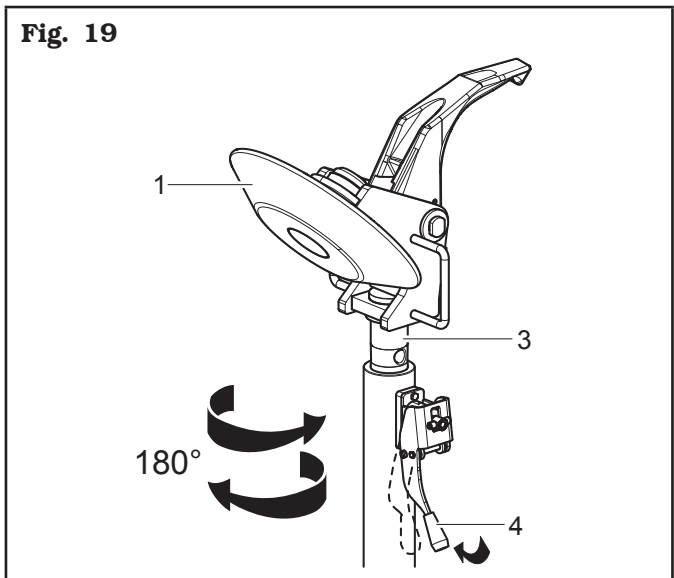


THE FOLLOWING OPERATIONS MUST BE CARRIED OUT WITH THE TOOLS HEAD IN “OUT OF WORK” POSITION.

The equipment, equipped with a quick-fit tool, remarkably facilitates the tools assembly extraction/rotation operations. Here follows the description of these operations:

HOOK TOOL ROTATION

To rotate the hook tool head (Fig. 19 and Fig. 20 ref. 1) (both in lower position (Fig. 20 ref. 2) and in upper position (Fig. 19 ref. 3)) just push the unlocking lever (Fig. 19 and Fig. 20 ref. 4) towards the hook tool arm. When the new work position of the head is reached (Fig. 19 and Fig. 20 ref. 1) the lever (Fig. 19 and Fig. 20 ref. 4) automatically inserts locking its rotation.



HOOK TOOL EXTRACTION



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

1. Push the lever (**Fig. 21 ref. 1**) towards the hook tool arm and place the head (**Fig. 21 ref. 2**) at 90° compared to the work position;
- 2) lift the head manually until the pin fits automatically;
- 3) now the head (**Fig. 22 ref. 1**) stays up, allowing easily the rotation operations described before.

Fig. 21

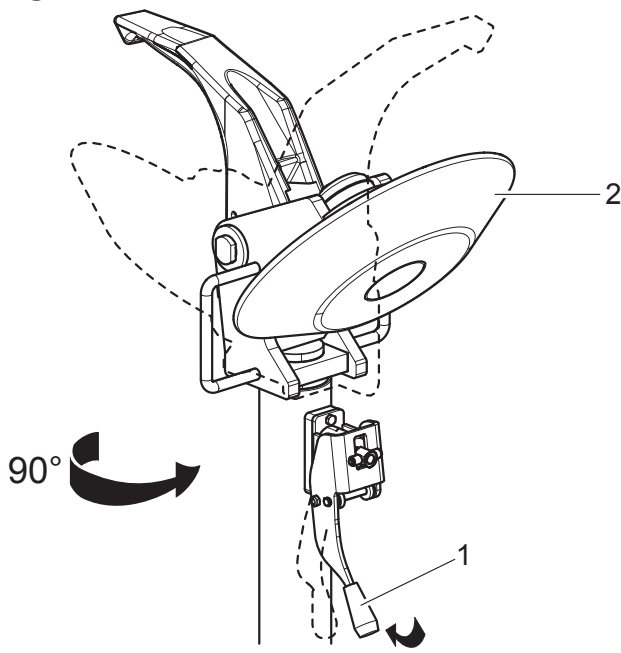
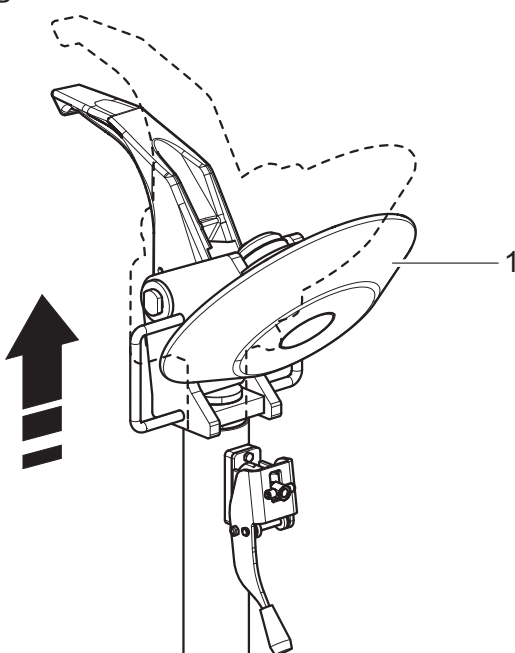


Fig. 22



HOOK TOOL INTRODUCTION

1. Push the lever (**Fig. 23 ref. 1**) towards the hook tool arm and place the head (**Fig. 23 ref. 2**) at 90° compared to the work position;
- 2) lower the head (**Fig. 24 ref. 1**) manually, until the locking pin fits automatically;



**DURING THIS OPERATION, WITH
THE HAND LEFT FREE, MOVE THE
HEAD (FIG. 24 REF. 1) DOWN-
WARDS.**

3. at this point, it is possible to rotate the head (**Fig. 24 ref. 1**) as described before.



**PAY ATTENTION NOT TO SQUASH
THE HANDS BETWEEN THE HOOK
TOOL SUPPORT AND THE ARM!**

Fig. 23

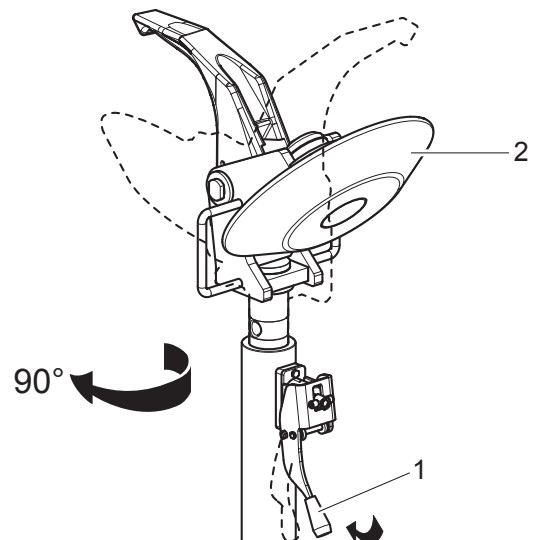
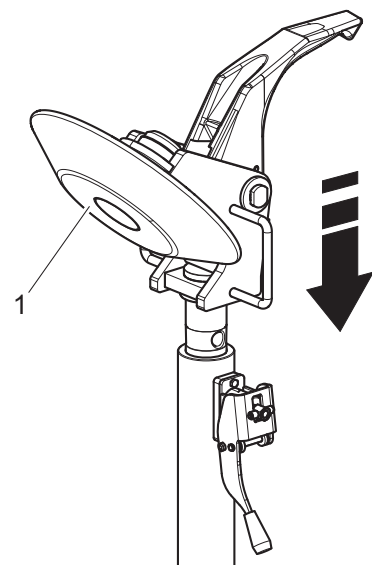



Fig. 24




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 (170 BAR - 2466 psi).

1. Lock the wheel on the self-centring chuck as described in the previous paragraph;
2. remove all balancing weights from the rim. Extract the valve and let air out of tyre;
3. move to work position **C** (**Fig. 8**);
4. tool holder arm to work position (hooked safety jack) (standard on some models) or lever in clamping position (on models with coupling lever) (**Fig. 16**);



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

5. place as shown in **Fig. 25** the bead breaker roller (**Fig. 25 ref. 1**) using the relevant handle control; the outer profile of the rim (**Fig. 25 ref. 2**) must almost touch the bead breaker roller;

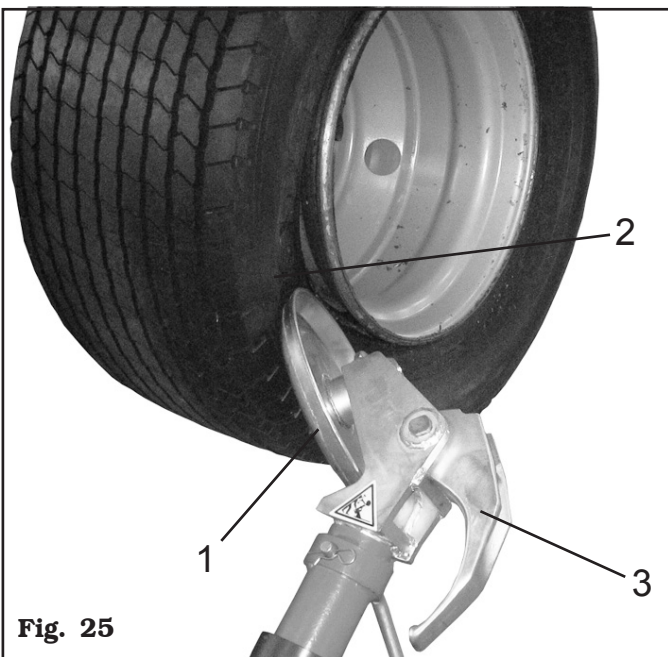




Fig. 25

6. turn the chuck counterclockwise and, at the same time, gradually move the tool carriage inwards to bead the tyre. Carry on with self-centring chuck rotation, while generously lubricating 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 tyre adheres to the rim; the slower should the beading roller advance.



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

7. once external beading has been carried out, unhook and lift the hook tool holder arm setting it to "out of work" position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (standard on some models) or lever in clamping position (on models with coupling lever);



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

8. carry out the tools holder head 180° rotation according to the descriptions of the relevant paragraph, so that the beading roller (**Fig. 26 ref. 1**) is placed against the rim edge (**Fig. 26 ref. 2**);
9. move to work position **D** (**Fig. 8**) and repeat the operations described in points 5, 6 until the tyre has been completely beaded.

Throughout beading operations it is advisable to bend the hook tool (**Fig. 25** and **Fig. 26 ref. 3**) back to itself to avoid obstacles during the operating phases.

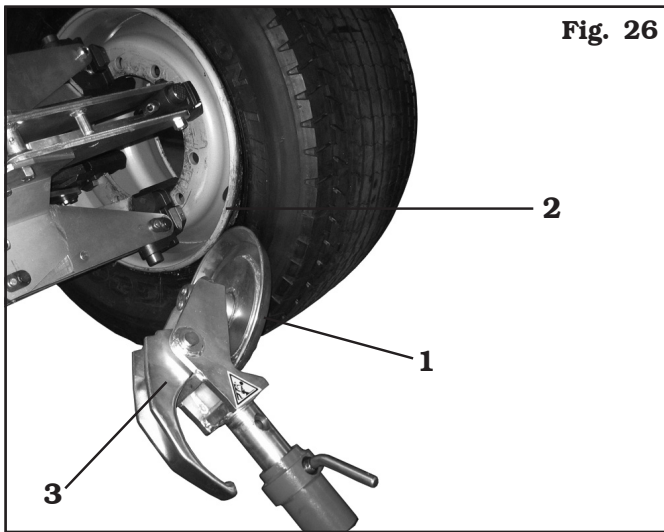


Fig. 26

12.6.2 Demounting



THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (170 bar - 2466 psi).

Tubeless tyres can be removed in two ways:

1. 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 roller, presses against the outer one till it has been completely removed (see **Fig. 27**).

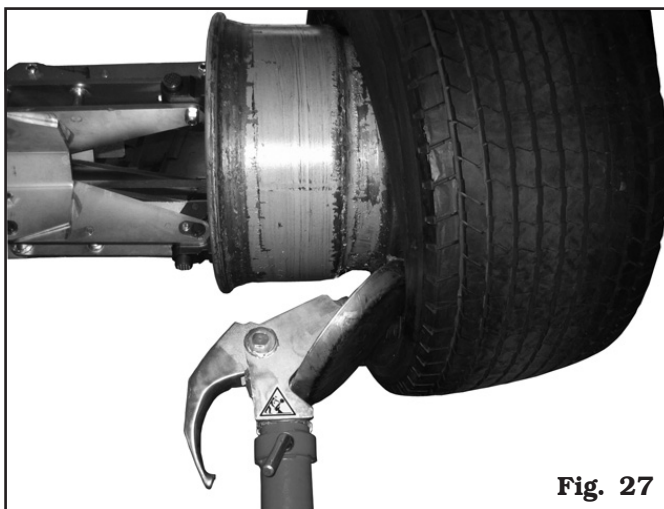


Fig. 27

2. If the wheel is especially hard, it is not possible to carry out the procedure described in point 1. A different procedure will be necessary: use the hook tool and follow this sequence of operations:

- move to work position **C** (**Fig. 8**);
- 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. 28**).

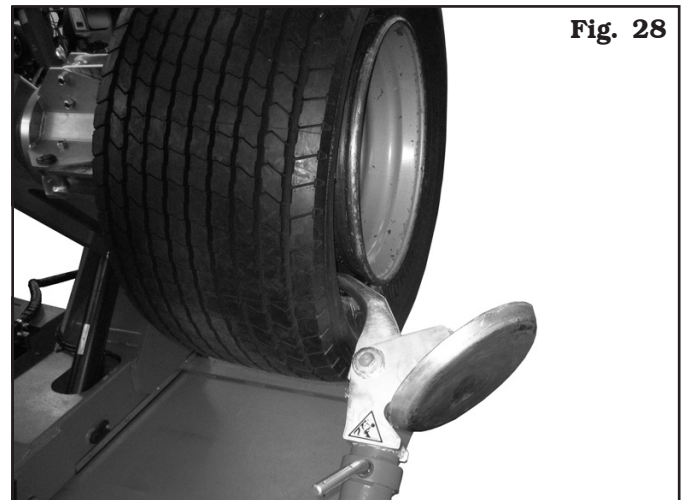


Fig. 28

- 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. 8**);
- translate the hook tool outwards (**Fig. 29 ref. 2**) to allow easy insertion of lever (**Fig. 29 ref. 1**) between the rim and the bead; insert lever (**Fig. 29 ref. 1**) between the rim and the bead on the right-hand side of the hook tool (**Fig. 29 ref. 2**);

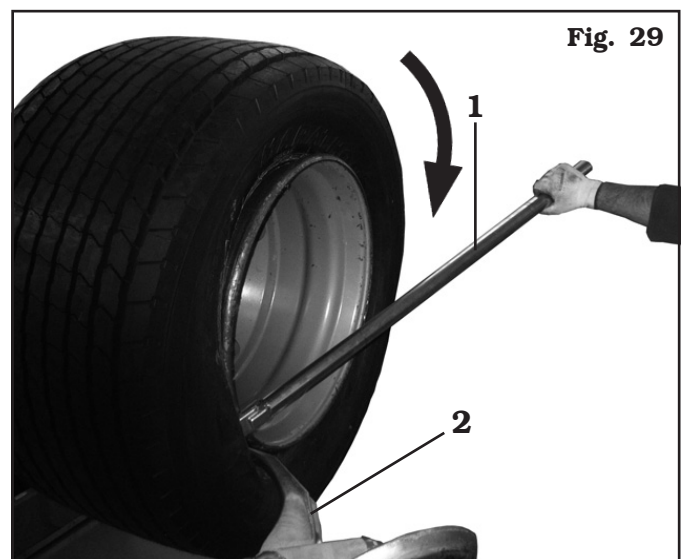


Fig. 29

- 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. 29 ref. 1**) until the bead has gone completely out;
- once the external bead has been removed, move tool holder arm away from the wheel, unhook it and lift it setting it to "out of work" position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);

- 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 **B (Fig. 8)**;
- 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 self-centring 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 IN THE WORK AREA.



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



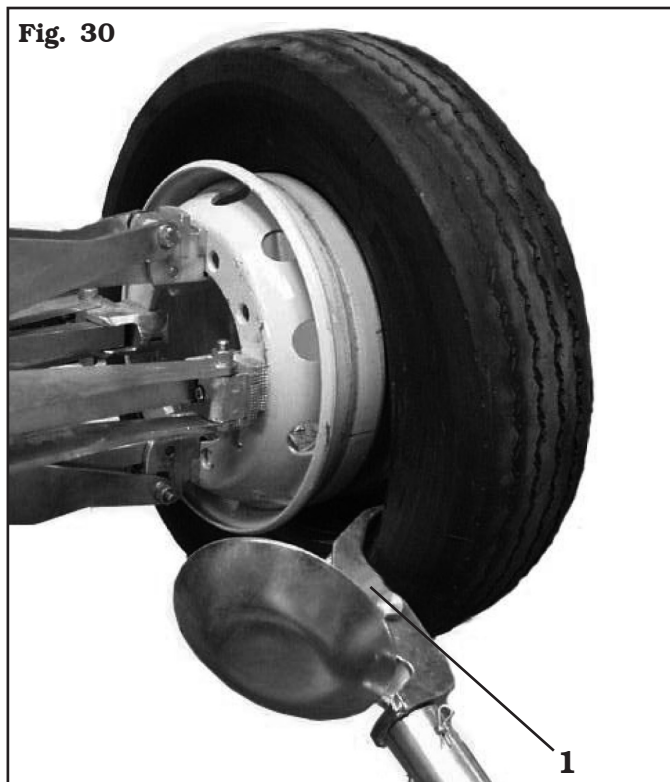
WHEN DEMOUNTING VERY HEAVY TYRES LOOK AT THE PROCESS AND AREA AROUND THE CHANGER CLOSELY BEFORE COMPLETING THE OPERATION.



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

- move to work position **D (Fig. 8)**;
- carry out tool holder head 180° rotation in order to insert the hook tool (**Fig. 30 ref. 1**) between the rim edge and the tyre bead;

Fig. 30



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 (170 bar - 2466 psi).

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

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 brush (optional);



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

3. mount bead locking clamp (optional) (**Fig. 31 ref. 1**) on the external edge of the rim at the highest point as shown in **Fig. 31**;

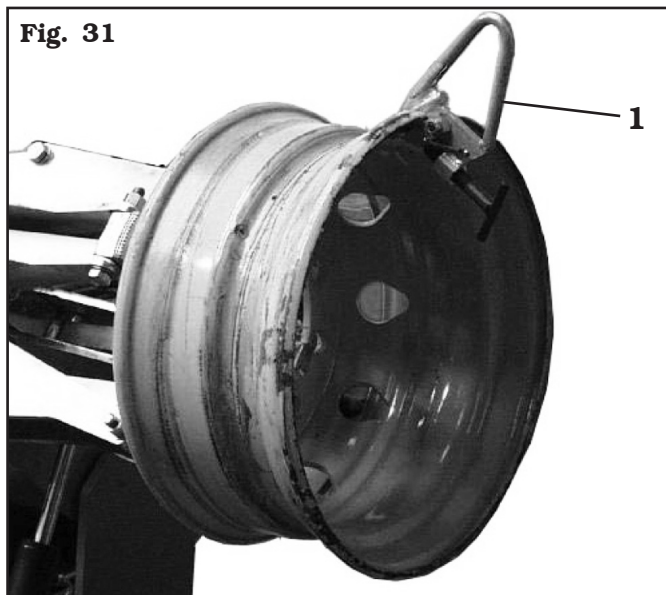


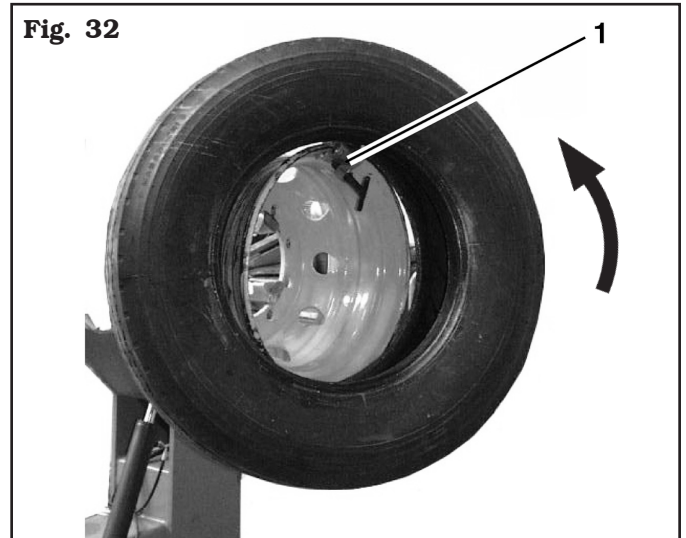
Fig. 31



THE BEAD LOCKING CLAMP (OPTIONAL) MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.

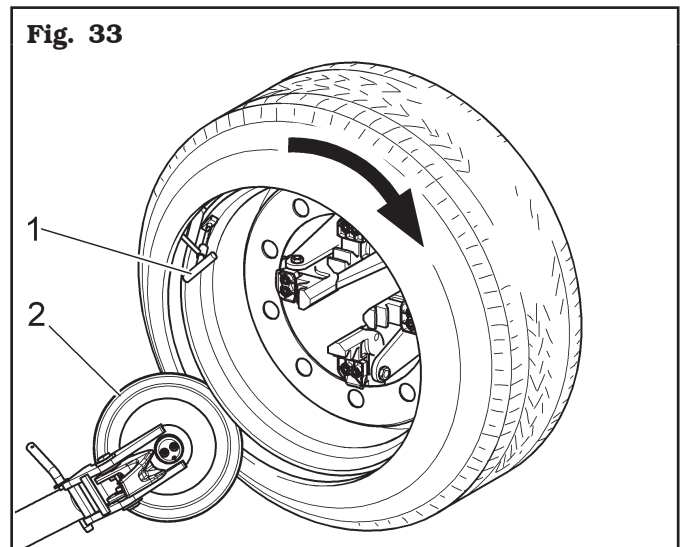
4. move to work position **B** (**Fig. 8**);
5. completely lower the chuck arm. Roll the tyre on the platform and hook it to bead locking clamp (optional) (**Fig. 31 ref. 1**);
6. lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm 15-20 cm (5.91"-7.87"); the tyre will position itself sideways in relation to the rim (see **Fig. 32**);

Fig. 32



7. move to work position **C** (**Fig. 8**);
8. position the bead breaker roller (**Fig. 33 ref. 2**) so that it is at approximately 1.5 cm (0.59") from the edge of the rim. Fitting bead locking clamp (optional) (**Fig. 33 ref. 1**) is at 11 o'clock. Rotate the chuck until the bead locking clamp (optional) is at its lowest point ("6 o'clock");

Fig. 33



9. move the bead breaker roller away from the wheel;
10. remove the bead locking clamp (optional) and fit it in the same position (6 o'clock) outside the second bead;
11. rotate the chuck clockwise by 90° until the bead locking clamp (optional) is at "9 o'clock";
12. move the 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 hook tool away from the wheel, turn it over into "out of work" position and remove the bead locking clamp (optional);
14. lower the self-centring chuck up to the wheel rests on the footboard;
15. move to work position **A (Fig. 8)**;
16. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping;

3. mount bead locking clamp (optional) (**Fig. 31 ref. 1**) on the external edge of the rim at the highest point;

! THE BEAD LOCKING CLAMP (OPTIONAL) MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.

4. move to work position **B (Fig. 8)**;
5. completely lower the chuck arm. Roll the tyre on the platform and hook it to bead locking clamp (optional) (**Fig. 32 ref. 1**);
6. 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. 32**);
7. place the tool holder arm to "out of work" position (**Fig. 17 ref. 1**); translate it to the inner side of the tyre and hook it again into "working" position (**Fig. 16 ref. 1**);
8. carry out the tool head 180° rotation until the hook tool is moved onto the tyre side (see **Fig. 34**);

! 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.

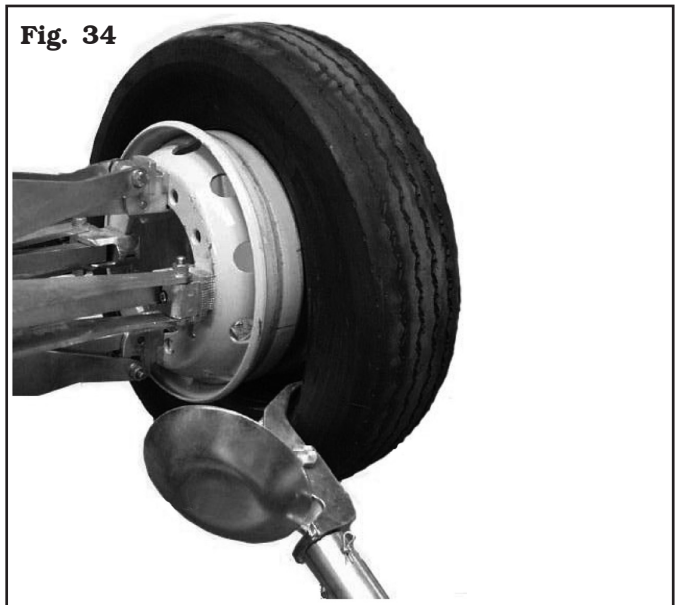
17. translate the movable footboard to release the wheel from the same self-centring chuck. With especially soft tyres, simultaneously insert both beads on the jaw so that bead insertion in the tyre is done only once; this single operation is ideal for saving time.

With hook tool

Proceed as follows:

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 brush (optional);

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



9. move to work position **D (Fig. 8)**;
10. move the hook tool forward until the reference notch matches the external edge of the rim coincide at about 5 mm (0.2") from the rim itself;
11. move to work position **C (Fig. 8)**;
12. 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 bead locking clamp (optional) reaches the lowest point (6 o'clock). The first bead should now be inserted in the rim;

13. remove the bead locking clamp (optional);
14. move to work position **D (Fig. 8)**;
15. remove the hook tool from the tyre;
16. place the tool holder arm to "out of work" position (**Fig. 17 ref. 1**); translate it to the outer side of the tyre and hook it again into "working" position (**Fig. 16 ref. 1**);
17. carry out the tool head 180° rotation until the hook tool is moved onto the tyre side (see **Fig. 28**);
18. mount bead locking clamp (optional) in the lowest point (6 o'clock) outside the second bead;
19. move to work position **C (Fig. 8)**;
20. rotate the chuck clockwise by 90° until the bead locking clamp (optional) is at "9 o'clock";
21. move the hook 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 (**Fig. 28**). Begin clockwise rotation making sure that, after a 90° turn, the second bead begins to slide in the rim drop centre. Rotate until the bead locking clamp (optional) is at its lowest point ("6 o'clock"). The second bead should now be inserted in the rim;
22. move the hook tool away from the wheel, turn it over into "out of work" position and remove the bead locking clamp (optional);
23. lower the self-centring chuck up to the wheel rests on the footboard;
24. move to work position **A (Fig. 8)**;
25. 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.

26. translate the movable footboard to release the wheel from the same self-centring chuck.

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 SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (170 bar - 2466 psi).

1. Tilt up tool holder arm, unhook it and lift it setting it to "out of work" position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);



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

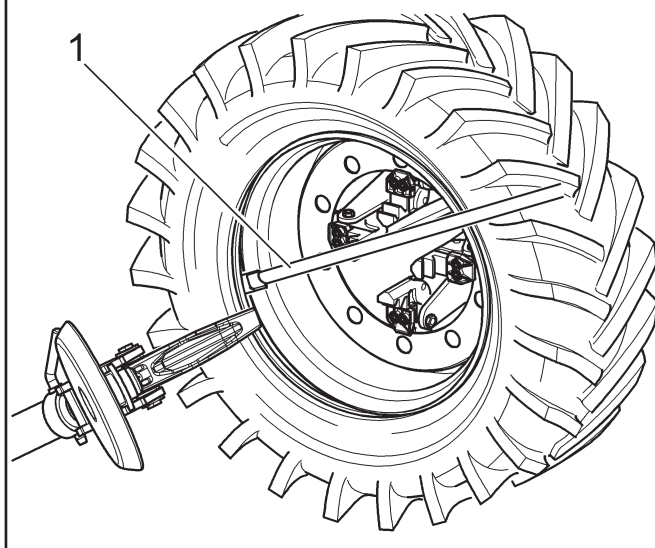


ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.

2. 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;
3. 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;
4. translate the hook tool outwards until the reference notch matches the external edge of the rim;
5. move to work position **A** (**Fig. 8**);

6. insert lever (**Fig. 35 ref. 1**) between the rim and the bead on the right-hand side of the hook tool;

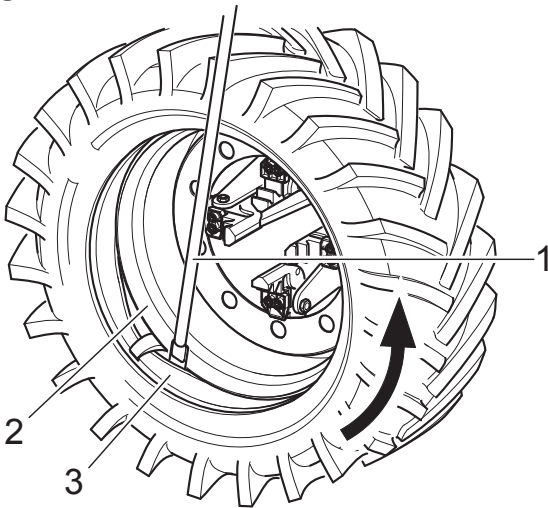
Fig. 35



7. keeping the lever pressed lower the wheel until the edge of the rim is 5 mm (0.2") distant from the hook tool;
8. turn the wheel clockwise by keeping lever pressed until the bead has gone completely out;
9. move the tool holder arm away to "out of work" position (**Fig. 17 ref. 1**); lower the chuck until the tyre rests on the movable footboard; exert a certain pressure on it so that when the movable footboard is moved outwards slightly, this will create the space required to extract the inner tube;
10. extract the inner tube and lift the wheel again;
11. move to work position **D** (**Fig. 8**);
12. tilt up tool holder arm, unhook it and lift it setting it to "out of work" position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);
13. 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;

14. 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;
15. move to work position **A** (**Fig. 8**);
16. translate the hook tool outwards until the reference notch is 3 cm (1.18") inside the rim;
17. insert the lever (**Fig. 36 ref. 1**) between rim (**Fig. 36 ref. 2**) and bead (**Fig. 36 ref. 3**) on the hook tool right;

Fig. 36



18. 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 self-centring chuck counterclockwise keeping the lever (**Fig. 36 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 (170 bar - 2466 psi).

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 brush (optional);



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

3. mount bead locking clamp (optional) (**Fig. 31 ref. 1**) on the external edge of the rim at the highest point as shown in **Fig. 31**;



THE BEAD LOCKING CLAMP (OPTIONAL) MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.

4. move to work position **B** (**Fig. 8**);
5. place the tyre on the footboard and lower the self-centring chuck (make sure the bead locking clamp (optional) is at the highest point) to hook the first tyre bead (internal bead);
6. 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;
7. tilt up tool holder arm, unhook it and lift it setting it to "out of work" position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);



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



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

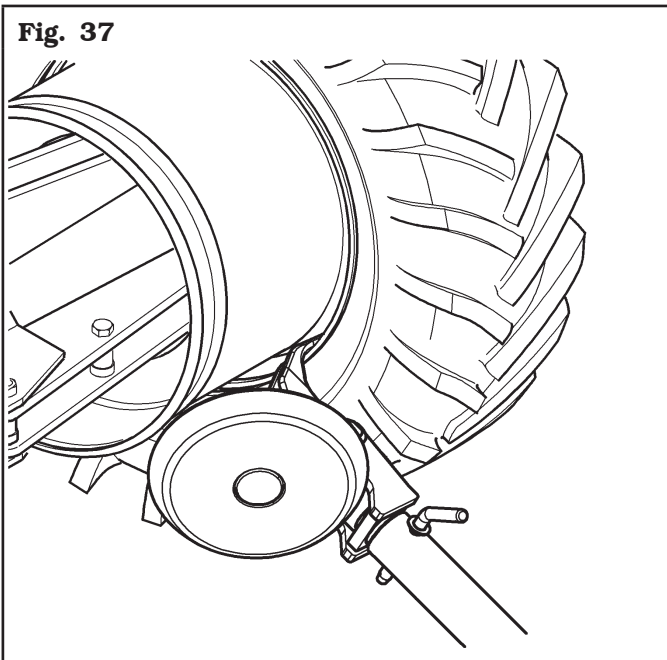
8. carry out the tool holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation;
9. move to work position **D (Fig. 8)**;
10. move the hook tool forward 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. 37**);

16. carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph;
17. move to work position **B (Fig. 8)**;
18. turn self-centring chuck until the hole for valve introduction is downwards ("6 o'clock");
19. position movable footboard (**Fig. 1 ref. 18** or **Fig. 2 ref. 18**) directly above the wheel and lower the self-centring chuck until the wheel rests on the platform. Translate the movable footboard outwards to create enough space between the tyre edge and the rim to insert the inner tube;



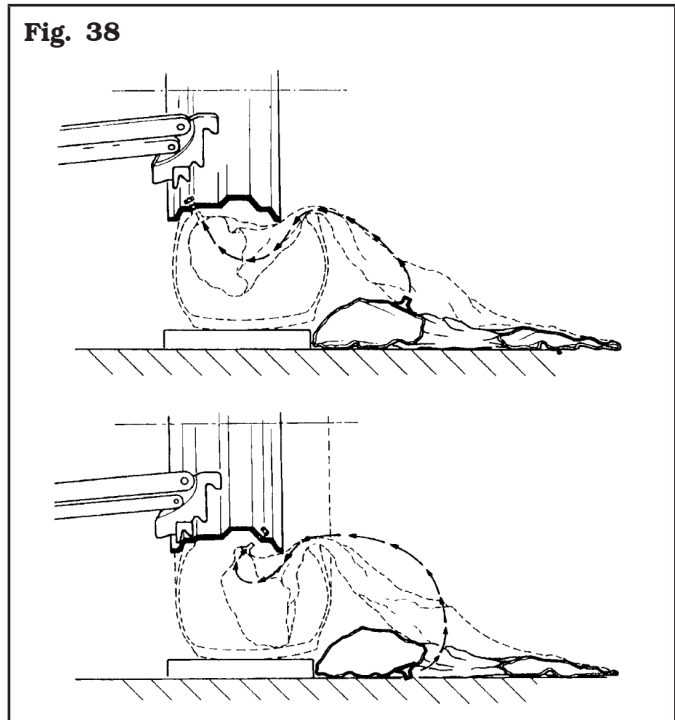
THE VALVE HOLE COULD BE IN AN ASYMMETRIC POSITION WITH RESPECT TO THE CENTRE OF THE RIM. IN THIS CASE IT IS NECESSARY TO POSITION AND INTRODUCE THE INNER TUBE AS SHOWN IN FIG. 38.

Fig. 37



11. move to work position **C (Fig. 8)**;
12. 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 bead locking clamp (optional) reaches the lowest point (6 o'clock). The first bead should now be inserted in the rim, then remove bead locking clamp (optional);
13. move to work position **D (Fig. 8)**;
14. extract the tool hook from the tyre;
15. place the tool holder arm to "out of work" position (**Fig. 17 ref. 1**) and translate it to the outer side of the tyre;

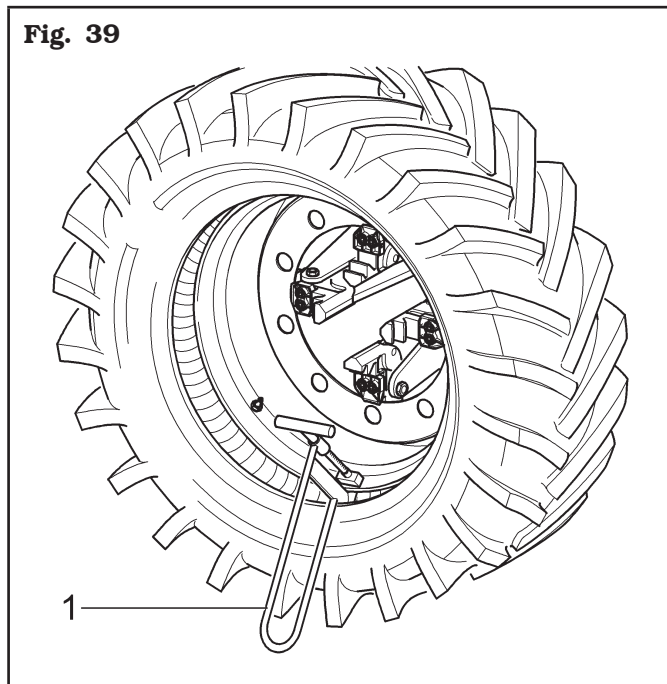
Fig. 38



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);

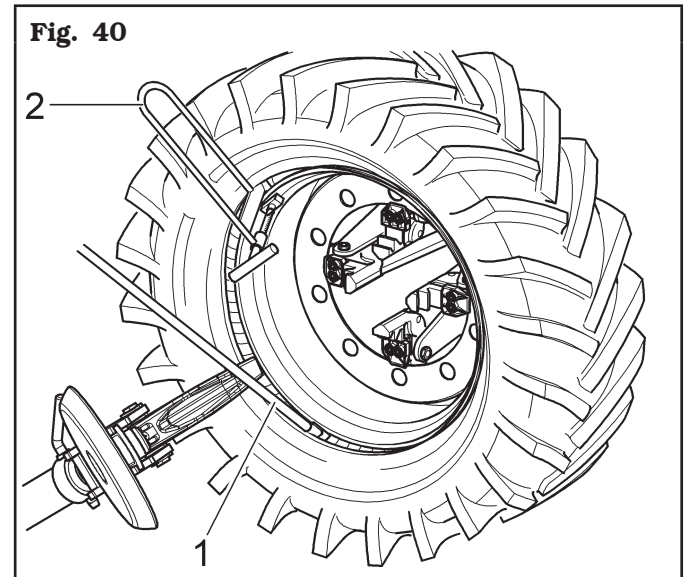
20. turn self-centring chuck and position the valve downwards ("6 o'clock");
21. to avoid damaging the inner tube, slightly inflate it when inserting the second bead;

22. to avoid damaging the valve when securing the second bead, remove the fixing ring nut and mount an extension on the same valve;
23. move to work position **C** (**Fig. 8**);
24. lift the self-centring chuck and mount the bead locking clamp (optional) (**Fig. 39 ref. 1**) on the rim outside the second bead at about 20 cm (7.87") from the inflating valve on the right;
25. turn the self-centring chuck clockwise until bead locking clamp (optional) (**Fig. 39 ref. 1**) is positioned at 9 o'clock;



26. Set the tool holder arm to "work position" (**Fig. 16 ref. 1**) on the outer side of the tyre;
27. 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");

28. turn self-centring chuck clockwise until lever (**Fig. 40 ref. 1**) is introduced in the housing obtained on the hook tool;
29. turn the self-centring chuck with lever (**Fig. 40 ref. 1**) hooked up to the complete insertion of the tyre outer bead;
30. remove lever (**Fig. 40 ref. 1**), bead locking clamp (optional) (**Fig. 40 ref. 2**) and extract the hook tool by turning the self-centring chuck counter clockwise and translating it outwards;



31. tilt up tool holder arm placing it to "out of work" position (**Fig. 17 ref. 1**) after it has been unhooked;
32. position movable footboard (**Fig. 1 ref. 18** or **Fig. 2 ref. 18**) directly under the wheel and lower the self-centring chuck until the wheel rests on the platform;
33. move to work position **B** (**Fig. 8**);
34. 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.
35. close self-centring chuck jaws completely, making sure the wheel is held up to avoid dropping;

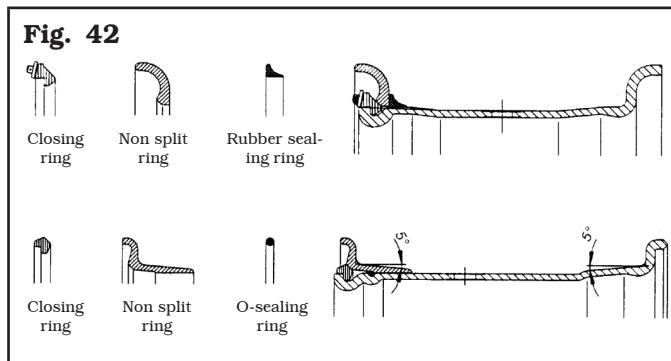
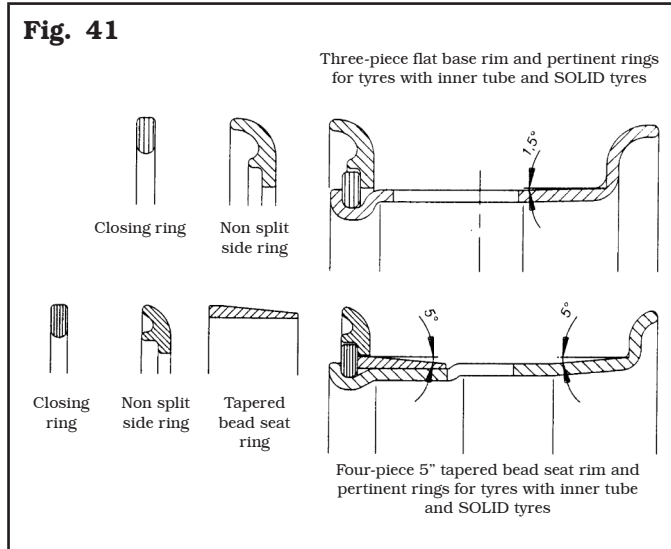


MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.

36. translate the movable footboard to release the wheel from the same self-centring chuck.

12.8 Wheels with bead wire

As an example **Fig. 41** and **Fig. 42** illustrate sections and compositions of types of wheels with bead wire currently being sold.

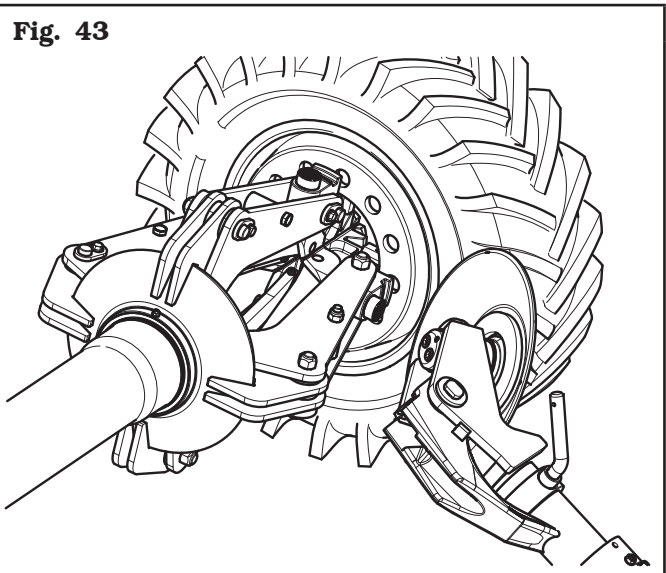


12.8.1 Beading and demounting

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 (170 bar - 2466 psi).

3. set the tool holder arm to “work position” (**Fig. 16 ref. 1**) in the tyre inner side, and make sure it is locked by the provided safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);
4. position the bead breaker roller on rim edge (see **Fig. 43**);

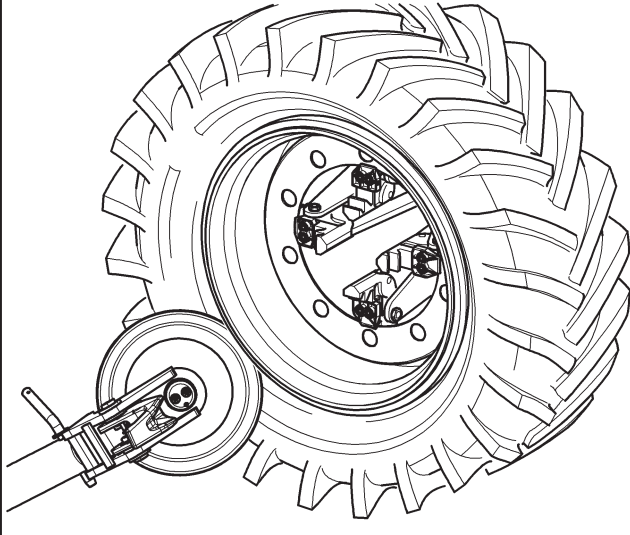


5. turn self-centring chuck and smear the entire bead seat of the rim with lubricant; while doing this, jerk the bead breaker roller forward until the bead is removed (as these wheels feature inner pipes, carry out the operation carefully, paying special attention to when the bead dislodges, trying to stop roller advance immediately to avoid compromising the integrity of the inner tube and valve);
6. set the tool holder arm to “out of work” position (**Fig. 17 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. 16 ref. 1**) and secure it with the special safety jack (**Fig. 2 ref. 20**) (standard on some models) or lever in clamping position (**Fig. 1 ref. 20**) (on models with coupling lever);

1. Mount the wheel on the self-centring chuck as described in “WHEEL CLAMPING” paragraph and make sure it is deflated;
2. move to work position **D** (**Fig. 8**);

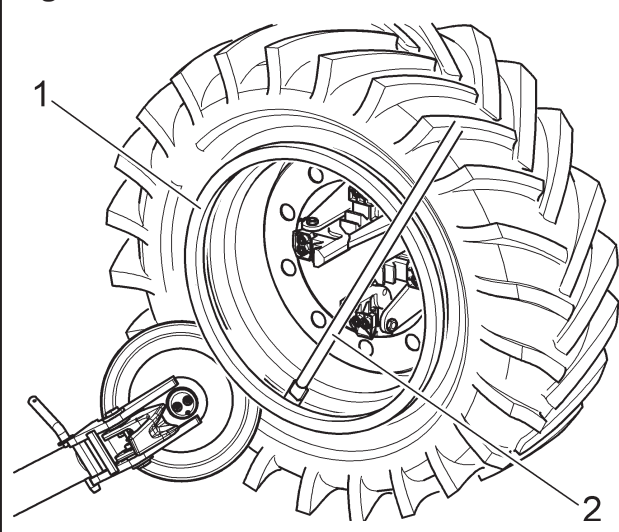
7. carry out tools holder head 180° rotation according to the description of the relevant paragraph, in order to let the bead breaker roller come into contact with the tyre outer side (see **Fig. 44**);

Fig. 44



8. turn self-centring chuck and smear the entire bead seat of the rim with lubricant;
9. doing this, jerk the bead breaker roller forward until bead is removed;
10. repeat the operation, making the bead breaker roller move forward against the bead wire (see **Fig. 45**) until the stop ring is released (**Fig. 45 ref. 1**). It will be then extracted through lever (**Fig. 45 ref. 2**);

Fig. 45



11. remove the bead wire;
12. remove the O-Ring, when featured;
13. tilt up tool holder arm placing it to "out of work" position (**Fig. 17 ref. 1**) after it has been unhooked;

14. lower the self-centring chuck up to the wheel rests on the movable footboard;
15. move to work position **B** (**Fig. 8**);
16. translate the movable footboard outwards 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

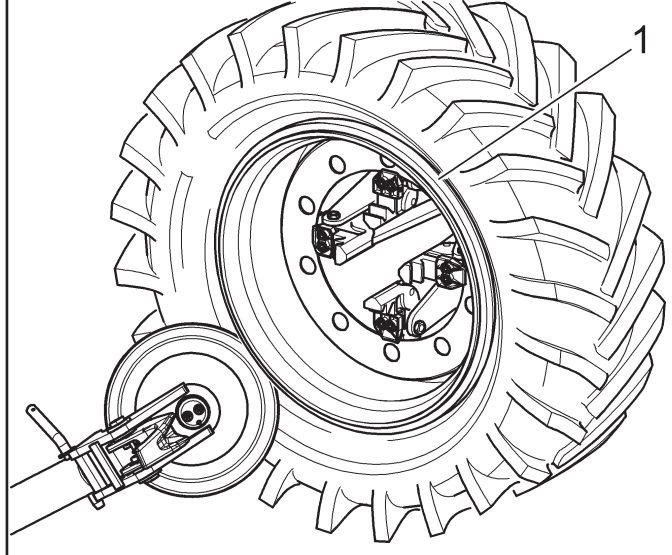


THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (170 bar - 2466 psi).

1. Place the tool “holder arm in “out of work” position (**Fig. 17 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”);
2. lubricate the entire bead seat of the rim and the tyre beads;
3. move to work position **B** (**Fig. 8**);
4. position movable footboard (**Fig. 1 ref. 18** or **Fig. 2 ref. 18**) so as to allow the upward motion of the tyre (if the wheel features an inner tube, position the rim with the valve slot downwards at 6 o'clock);
5. place self-centring chuck in order to centre the rim on the tyre;
6. operate the movable footboard forward movement in order to insert the rim in the tyre (in case of tyres with inner tube, make the valve re-enter not to damage it). Move forward until the rim is completely inserted in the tyre;
7. 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);
8. move to work position **C** (**Fig. 8**);
9. set the tool holder arm on the external side then lower it into “work position” (**Fig. 16 ref. 1**) with the bead breaker roller 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 roller. Move the bead breaker roller forward and then turn self-centring chuck until the housing of the O-Ring (if featured) is found;
10. lubricated the O-Ring and place it in its housing;
11. move to work position **B** (**Fig. 8**);

12. position the bead wire (**Fig. 46 ref. 1**) on the rim, fit the stop ring with the help of the bead breaker roller as shown in Fig. 46;

Fig. 46



13. tilt up tool holder arm placing it to “out of work” position (**Fig. 17 ref. 1**) after it has been unhooked;
14. position movable footboard (**Fig. 1 ref. 18** or **Fig. 2 ref. 18**) directly under the wheel and lower the self-centring chuck until the wheel rests on the platform;
15. close the self-centring chuck jaws completely and translate the footboard outwards until the rim has been completely removed, making sure the wheel is held up to avoid dropping.



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 OR ADJUSTMENT PROCEDURE, DISCONNECT THE EQUIPMENT FROM THE ELECTRICITY SUPPLY USING THE SOCKET/PLUG COMBINATION AND CHECK THAT ALL MOBILE PARTS ARE AT A STANDSTILL.



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



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.



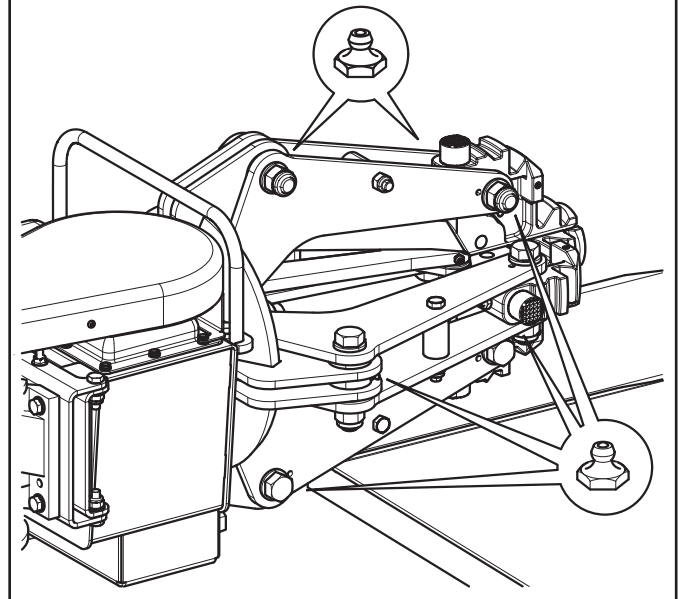
BEFORE CARRYING OUT ANY MAINTENANCE WORK ON THE HYDRAULIC CIRCUIT, SET THE EQUIPMENT IN THE REST CONDITION.

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 pneumatic power supplies before carrying out any cleaning operations;
- remove deposits of tyre powder and other waste materials with a vacuum,
- **NEVER BLOW 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 carriage sliding guides;
- periodically (preferably once a month), grease all moving parts of the equipment (see **Fig. 47**);

Fig. 47



- 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;

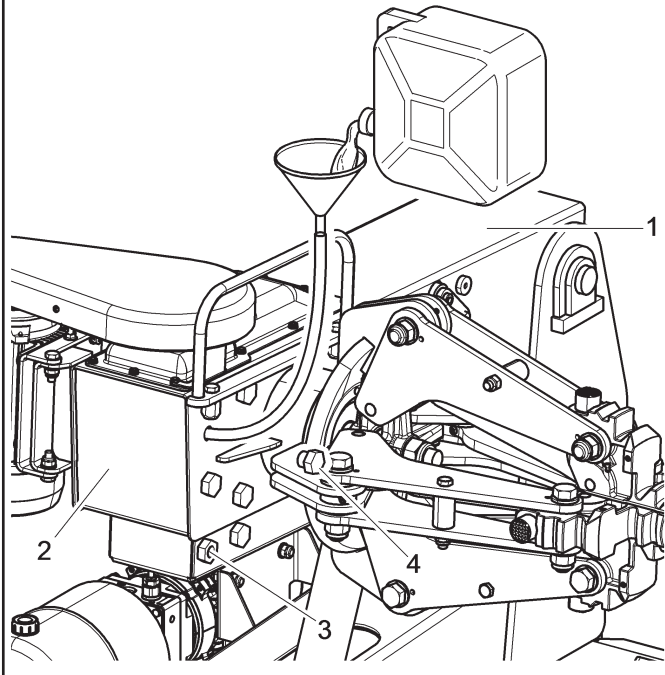


CARRY OUT THIS CONTROL WITH THE EQUIPMENT COMPLETELY CLOSED (WITH HYDRAULIC PISTONS IN).

- 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.
- periodically (every 50 working hours approximately), clean the (inner and outer) guides of the tool carriage.

A. Place the whole support (**Fig. 48 ref. 1**) in horizontal position, then check the reduction gear oil level (**Fig. 48 ref. 2**); the level indicator window (**Fig. 48 ref. 3**) must be covered with lubricant, otherwise, remove a closing plug (**Fig. 48 ref. 4**) and top up, using appropriate lubricants until the level is reset.

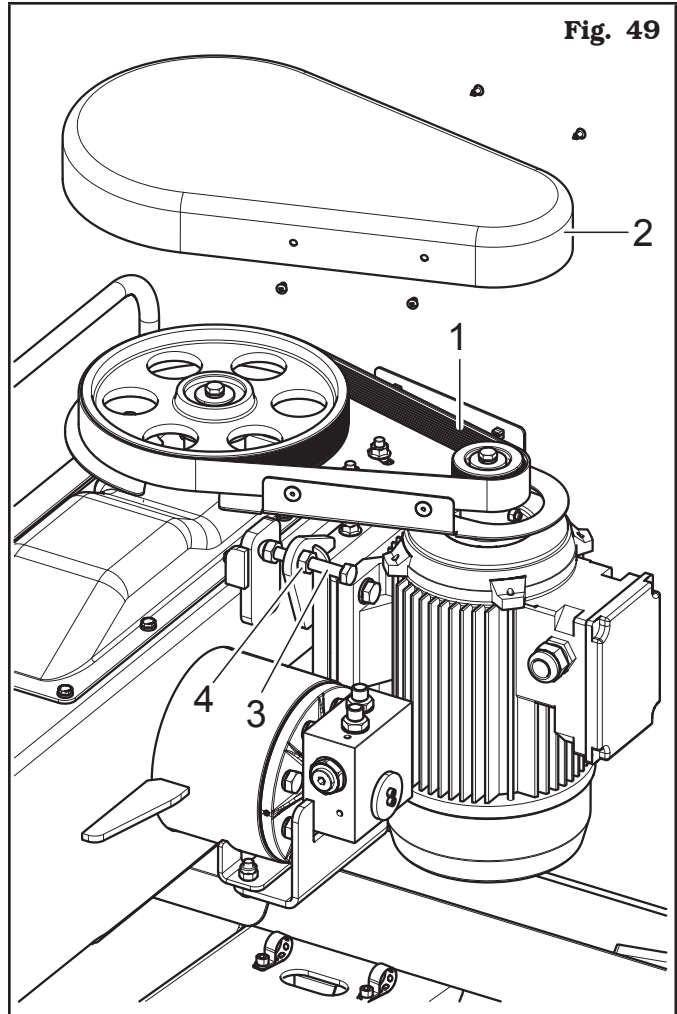
Fig. 48



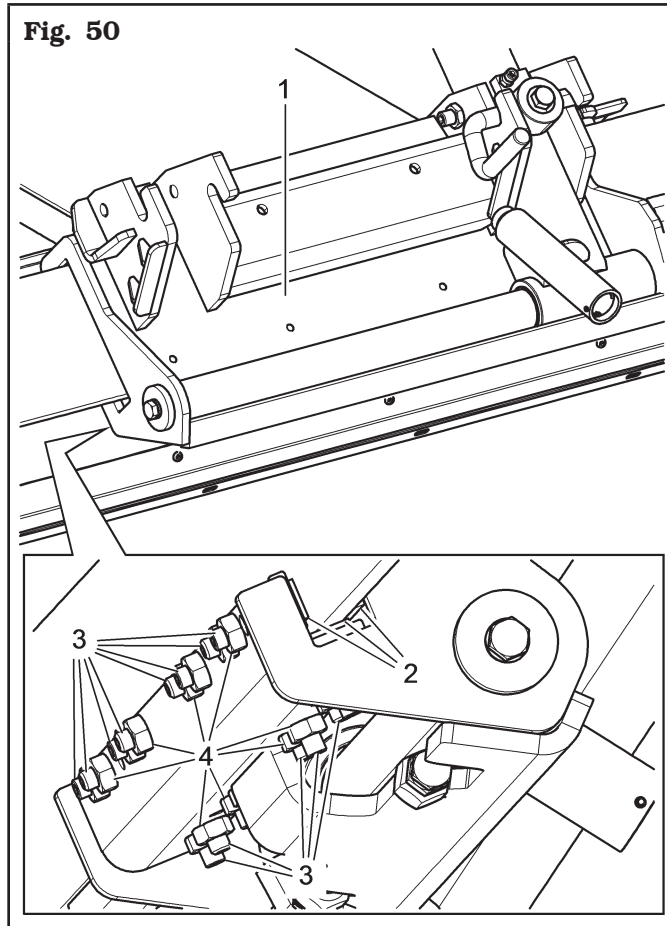
B. Check belt tensioning (**Fig. 49 ref. 1**):

- remove upper guard (**Fig. 49 ref. 2**) by removing the provided fixing bolts;
- stretch the belt (**Fig. 49 ref. 1**) using the bolt (**Fig. 49 ref. 3**) after the nut (**Fig. 49 ref. 4**); have been slackened;
- tighten the fixing nut (**Fig. 49 ref. 4**) after the adjustment operations, then assemble the protection guard (**Fig. 49 ref. 2**) again.

Fig. 49



C. Adjust the play of slide (**Fig. 50 ref. 1**) using the adjustment bolts (**Fig. 50 ref. 3**) of the sliding blocks (**Fig. 50 ref. 2**), after slackening the nuts (**Fig. 50 ref. 4**).



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-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

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

Problem	Possible cause	Remedy
When a control device is operated the equipment does not move at all.	<ul style="list-style-type: none"> a) Solenoid valve not receiving power. b) Solenoid valve jammed. c) Transformer fuse blown. d) Control box assembly is badly adjusted. 	<ul style="list-style-type: none"> a) Call the after-sales service. b) Call the after-sales service. c) Change the fuse. d) Call the after-sales service. 
No pressure in hydraulic circuit.	<ul style="list-style-type: none"> a) Power unit motor turning in wrong direction. b) Power unit pump has failed. c) No oil in power unit tank. 	<ul style="list-style-type: none"> a) Restore correct rotation direction by changing socket connection. b) Call the after-sales service. c) Fill power unit tank with oil 
The equipment operates in jerks.	<ul style="list-style-type: none"> a) Not enough fluid in power unit tank. b) Control box assembly switch is broken. 	<ul style="list-style-type: none"> a) Top up with oil. b) Call the after-sales service. 

15.0 TECHNICAL DATA

15.1 Technical electrical data

		ROT.N4111.201799 ROT.N4113.201805 RAV.G9156.206275 RAV.G9156.206268 SPA.G0156.205933 SPA.G0156.205926	ROT.N4113.200556 RAV.G9156.200471
Self-centring chuck motor power (kW)		1 - 1.3 (1.3 - 1.7 Hp)	1 - 1.4 (1.3 - 1.8 Hp)
Power supply	Voltage (V)	400	220
	Number of phases	3	
	Frequency (Hz)	50	60
Hydraulic drive unit motor (kW)		1.5 (2 Hp)	2.2 (2.9 Hp)
Power supply	Voltage (V)	400	230 - 400
	Phases	3	
	Frequency (Hz)	50	60
Typical current draw (A)		7.1	18
Self-centring chuck rotation speed (rev/min)		8	

15.2 Technical mechanical data

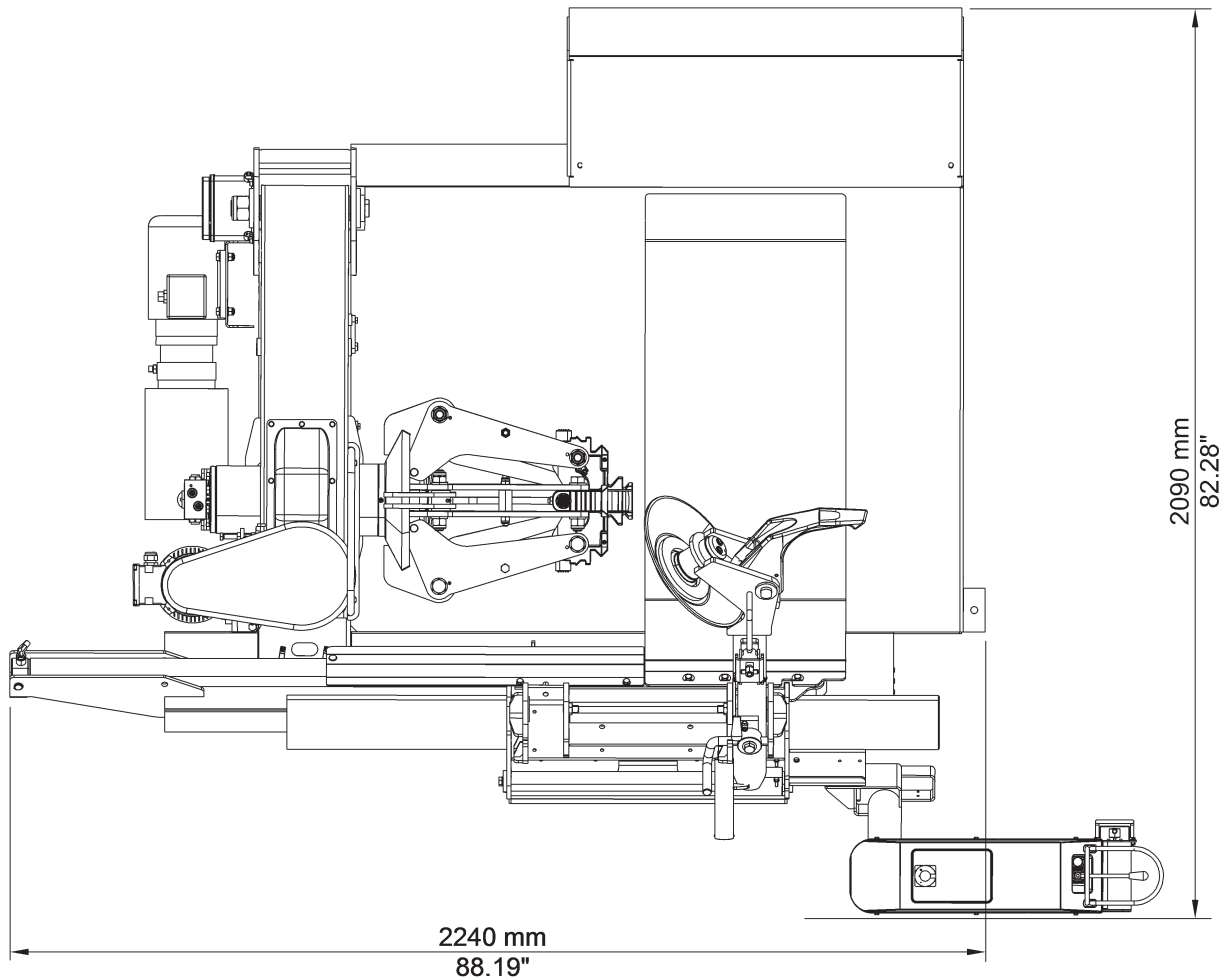
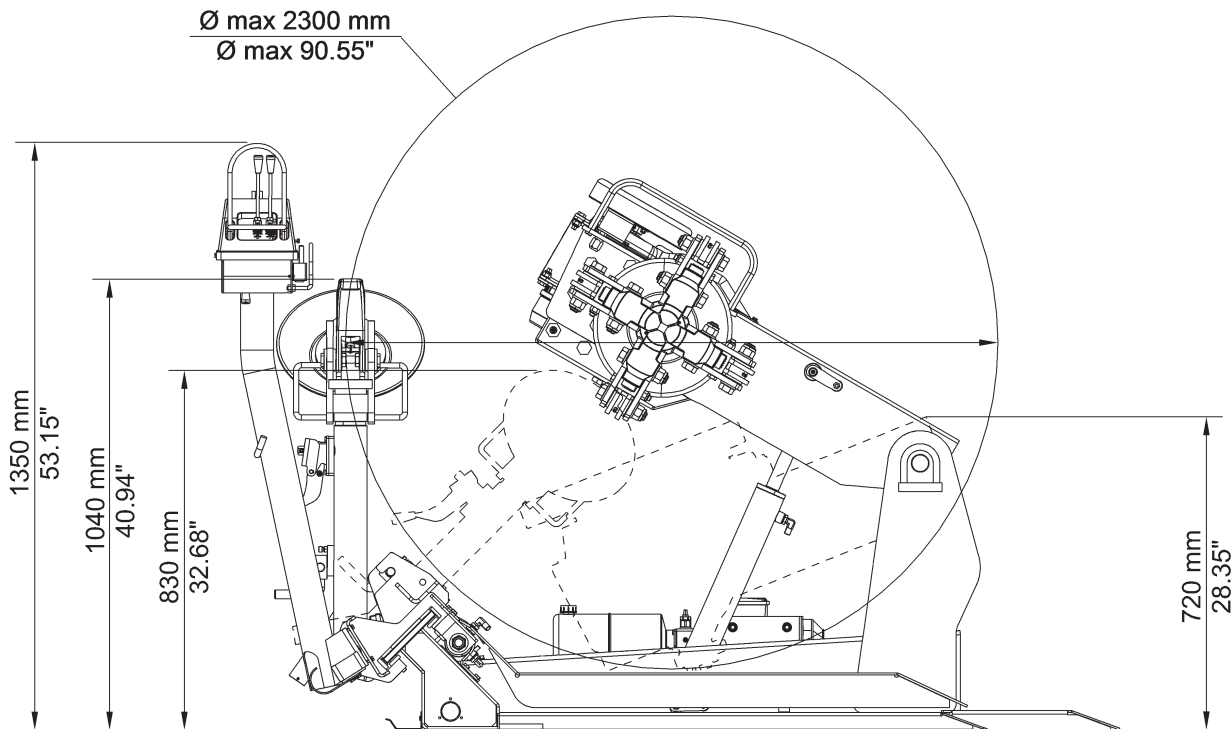
		ROT.N4111.201799 RAV.G9156.206275 SPA.G0156.205933	ROT.N4113.201805 ROT.N4113.200556 RAV.G9156.206268 RAV.G9156.200471 SPA.G0156.205926
Tyre maximum diameter (mm)		2300 (90")	
Wheel max. width (mm)		1100 (43")	1300 (51")
Max. rotation torque (Nm)		4000 (2950 ft.-lbs)	
Wheel max. weight (kg)		1700 (3748 lbs)	
Self-centring lock (inches)		11 - 43 (11 - 56 with extensions)	
Minimum locking hole (mm)		90 (3.54")	
Self-centring chuck minimum height from the ground (mm)		300 (12")	
Bead-breaking force (N)		26000 (5845 lbf)	
Gear noise (dB) (A)		< 80	
Operating pressure (bar)		170 (2466 psi)	

		ROT.N4111.201799 RAV.G9156.206275 SPA.G0156.205933	ROT.N4113.201805 ROT.N4113.200556 RAV.G9156.206268 RAV.G9156.200471 SPA.G0156.205926
Weight (kg)		610 (1345 lbs)	822 (1812 lbs)

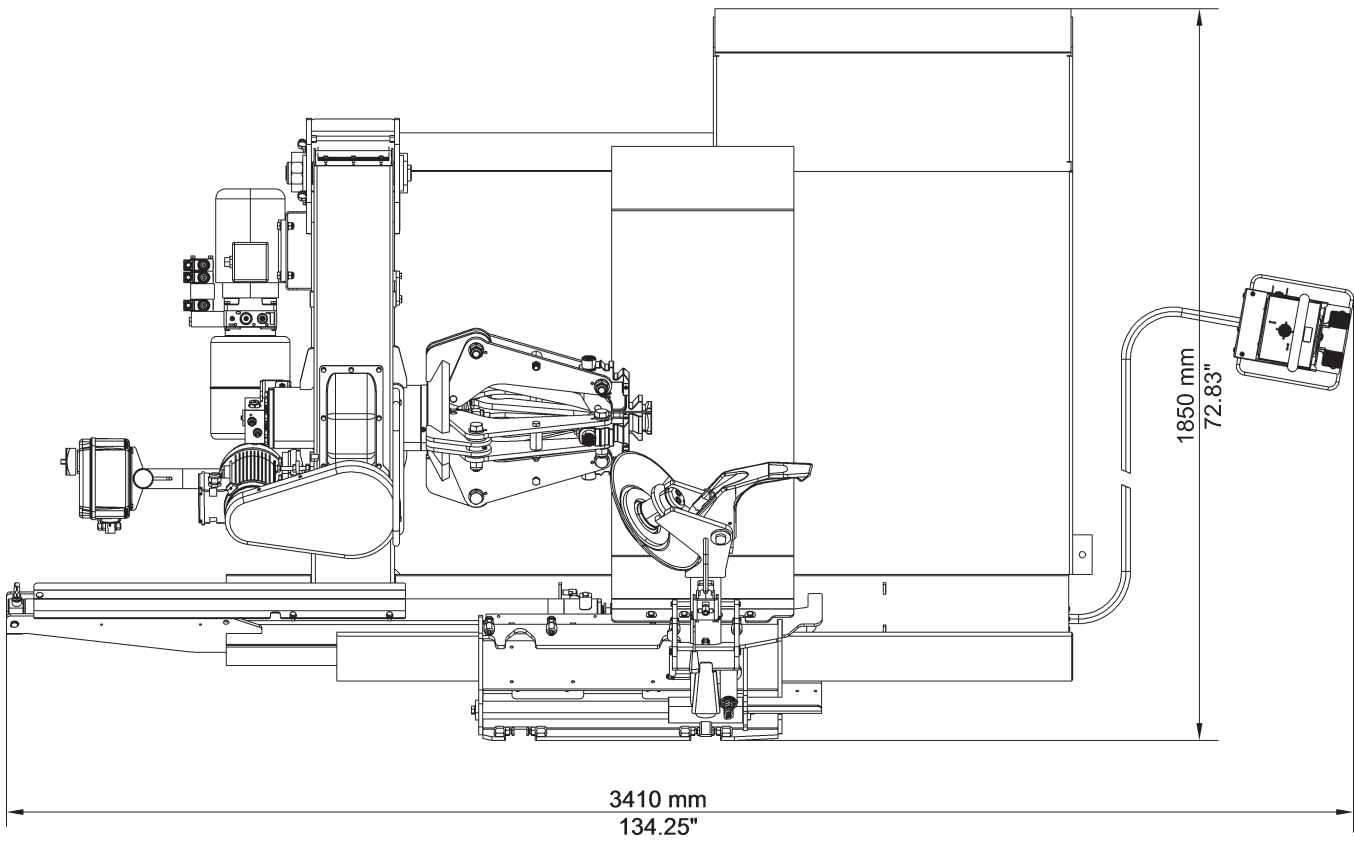
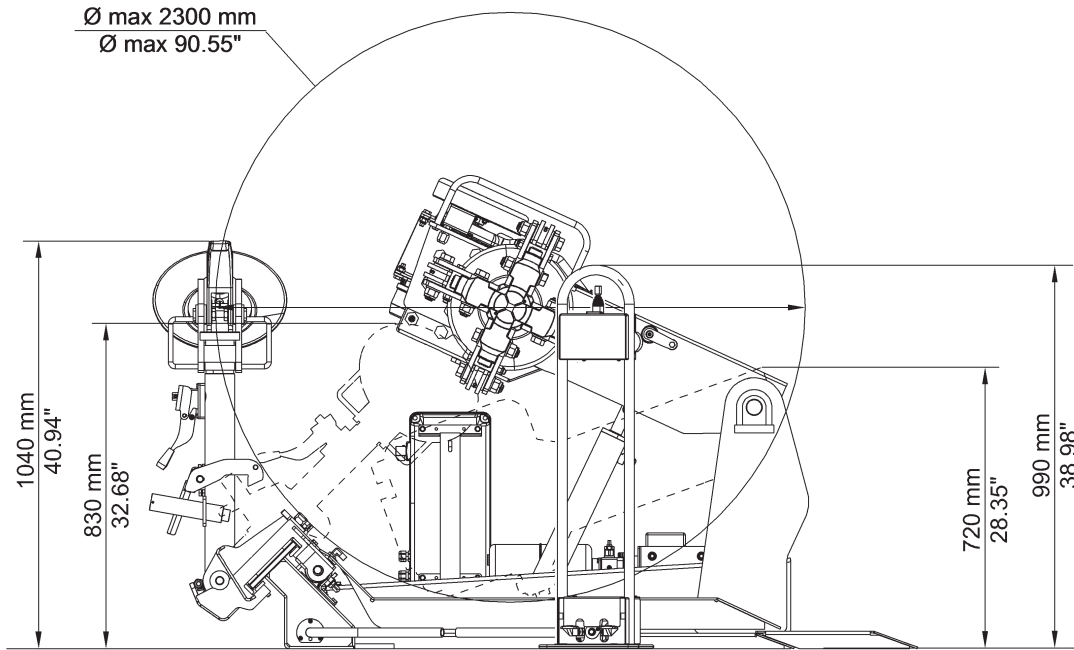
15.3 Dimensions

ROT.N4111.201799 - RAV.G9156.206275 - SPA.G0156.205933

Fig. 51



ROT.N4113.201805 - ROT.N4113.200556 - RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926 **Fig. 52**



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 hook tool. Also provide for a check on the perfect functioning of the equipment.

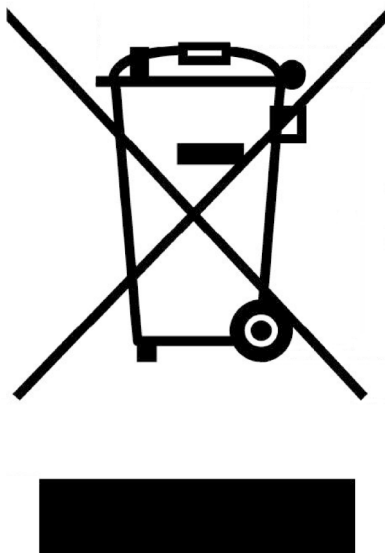
17.0 SCRAPPING

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

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

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

Fig. 53



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.

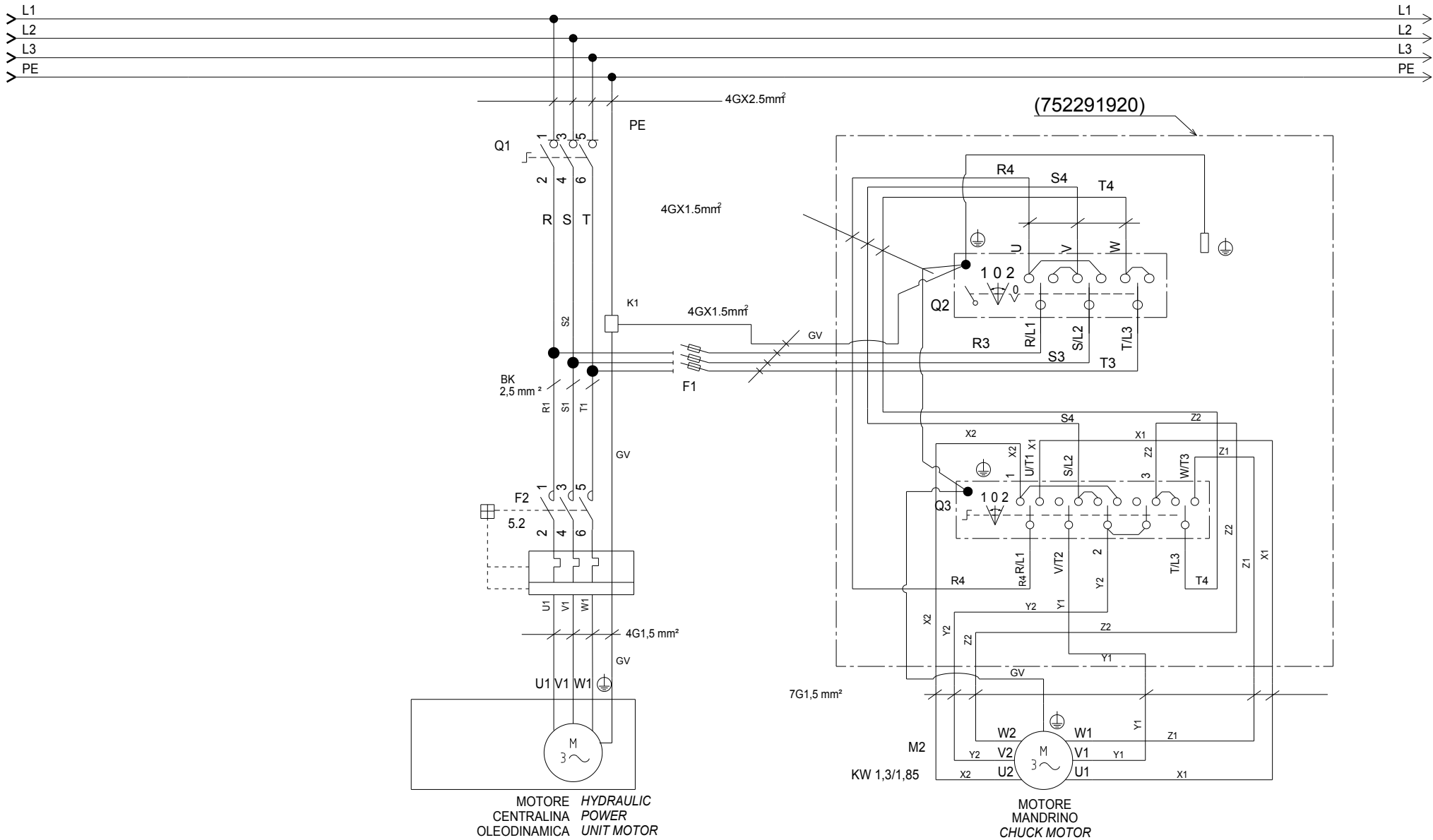


ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING EQUIPMENT IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

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.



LIST OF COMPONENTS	
Drawing N°A - Rev. 0	750505520

WIRING DIAGRAM 1/2
 (APPLIES TO MODELS
 ROT.N4111.201799 -
 RAV.G9156.206275 - SPA.G0156.205933)

LISTA COMPONENTI

RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
F1	PORTAFUSIBILE	3 POLI P10-3 5450334 WIMEX	1
	FUSIBILE	FUS.RITARDATO 6A 500V 10,3X38	3
I1	INTERRUTTORE GENERALE		1
F2	INTERRUTTORE SALVAMOTORE	4-6.3A ART.GV2 ME10 SCHNEIDER	1
K1	MORSETTO G/V 4mmq	MORSETTO G/V 4mmq art.UT 4-PE PHOENIX COD.3044128 (vite)	1
Q3	COMMUTATORE DI POLI DAHLANDER	25A 500V	1
Q2	COMMUTATORE	1th 25A Ui 690V-50Hz Uimp 4KW	1
M1	MOTORE CENTRALINA	M.E.KW1.5 T400 M.DX B3-B14 50	1
M2	MOTORE MANDRINO	ME KW1/1.3 T400/50HZ 90B3S4/2 PER MANDRINO NAV41N	1

COMPONENTS LIST

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
F1	FUSE HOLDER	3 POLES P10-3 5450334 WIMEX	1
	FUSE	DELAYED FUSE 6A 500V 10,3X38	3
I1	GENERAL SWITCH	4-6.3A ART.GV2 ME10 SCHNEIDER	1
F2	OVERLOAD CUTOOUT SWITCH		1
K1	G/V 4mmq Y/G CLAMP	G/V 4mmq Y/G CLAMP art.UT 4-PE PHOENIX COD.3044128 (bolt)	1
Q3	DAHLANDER POLE CHANGE SWITCH	25A 500V	1
Q2	COMMUTATOR	1th 25A Ui 690V-50Hz Uimp 4KW	1
M1	HYDRAULIC POWER UNIT MOTOR	E. M. KW1.5 T400 M.DX B3-B14 50	1
M2	CHUCK MOTOR	E. M. KW1/1.3 T400/50HZ 90B3S4/2 FOR CHUCK NAV41N	1



LIST OF COMPONENTS

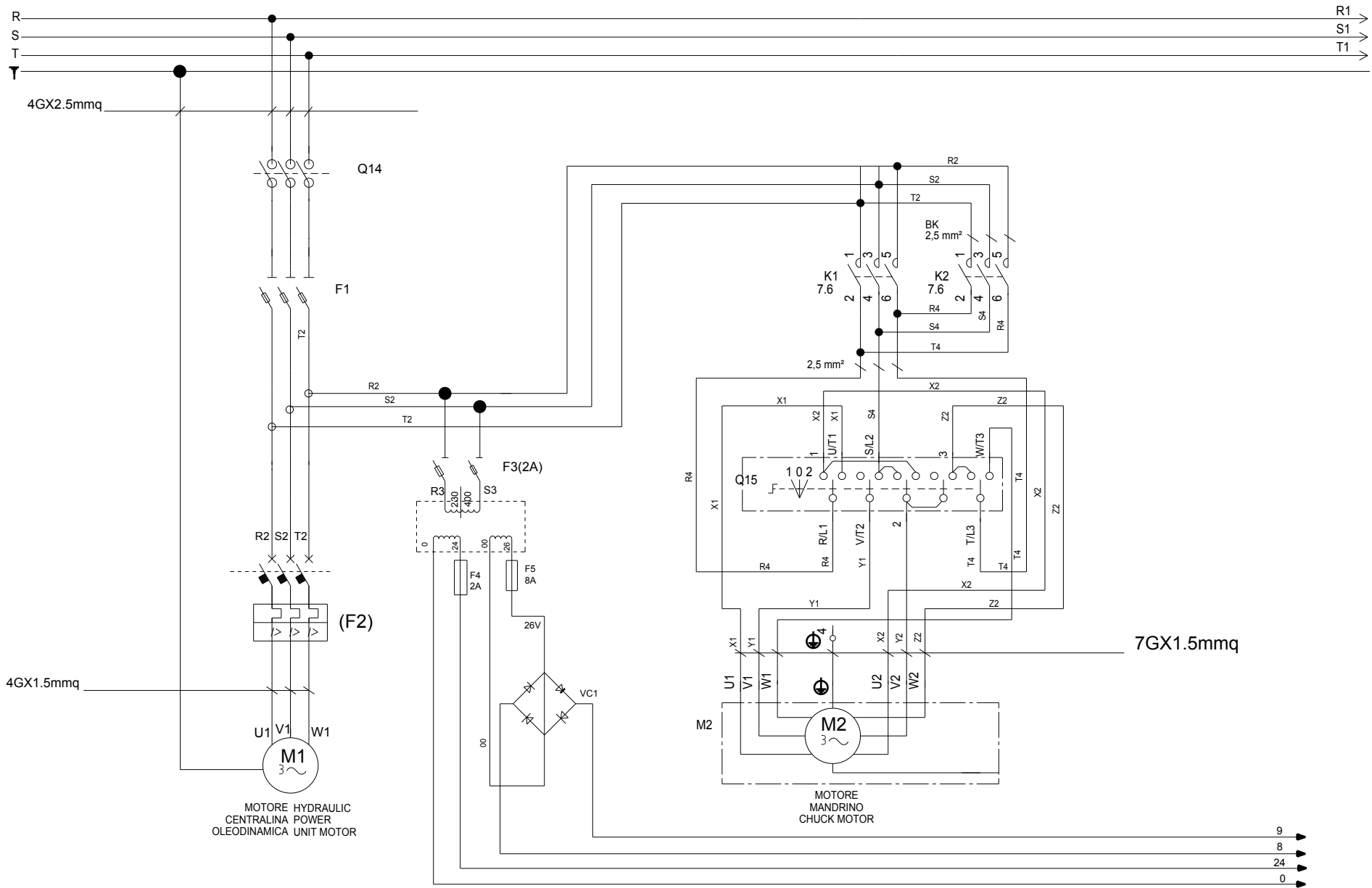
Drawing N°A - Rev. 0

750505520

WIRING DIAGRAM 2/2
(APPLIES TO MODELS
ROT.N4111.201799 -
RAVG9156.206275 - SPA.G0156.205933)

Page 52 of 63

TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156



MOTORE HYDRAULIC
CENTRALINA POWER
OLEODINAMICA UNIT MOTOR

MOTORE
MANDRINO
CHUCK MOTOR



LIST OF COMPONENTS

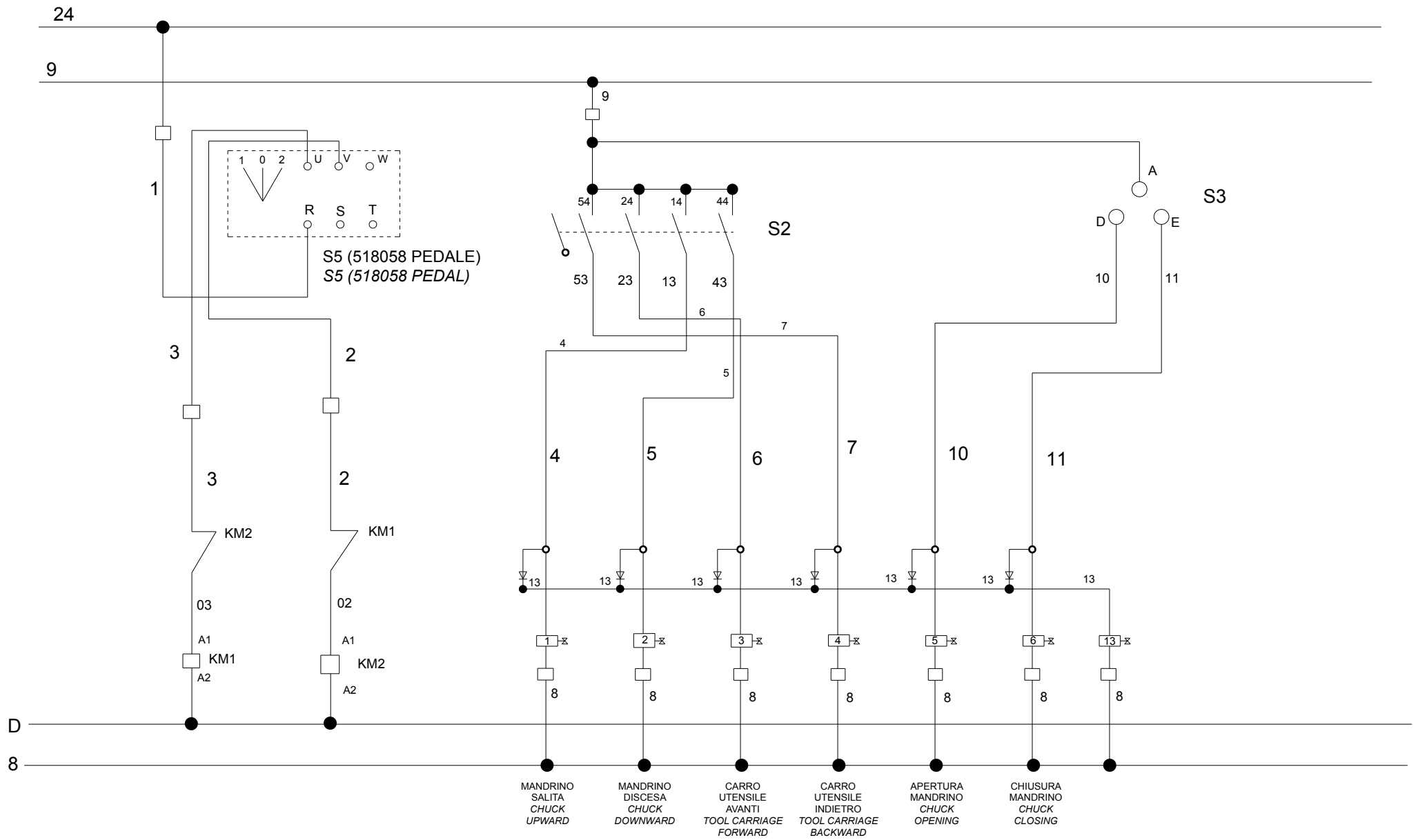
Drawing N°B - Rev. 0

750505532

WIRING DIAGRAM 1/4
(APPLIES TO MODELS ROT.N4113.201805 -
ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)

Page 53 of 63

TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156



RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA	VERSIONI
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1	
	FUSIBILE	10,3x38 16A 500V aM RITARDATO	3	
F2	INTERRUTTORE AUTOM. TRIPOLARE	4-6.3A ART.GV2 ME10 SCHNEIDER	1	VERS. 400/3/50
		9-14A ART.GV2 ME16 SCHNEIDER	1	VERS. 220/3/60
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1	
	FUSIBILE	10,3X38 2A 500V RAPIDO	2	
F5	PORTA FUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1	
	FUSIBILE+FUSIBILE	FUSIBILE GL 10,3X38 2A 500V + FUSIB.10,3X38 8A 500V	1 1	
Q1,Q2,Q3,Q4, Q5,Q6,Q13	ELETTROVALVOLE		7	
K1M	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1	
K2M	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1	
K3	MORSETTO 2.5mmq C/DIODO	MORS.2,5 C/DIOD.1N5408 PHOENIX ST2,5-QUATTRO DIO 1N 5408K/R-L	6	
K4	MORSETTO A MOLLA 2 PIAN.2.5mmq	MORSETTO 2,5mmq ST 2,5-QUATTRO PHOENIX cod.3031306 (molla) 4C	7	
K5	MORSETTO G/V 4mmq ART.TEO.4 CABUR T0430	MORSETTO G/V 4mmq art.UT 4-PE PHOENIX COD.3044128 (vite)	2	
VC1	PONTE RADDRIZZATORE VC1	-	1	
	CONDENSATORE C1-C2		1	
	INS.CAVO ALIMENTAZIONE QUADRO		1	
	INS.CAVO MOTORE MANDRINO		1	
	INS.CAVO MOTORE CENTRALINA	-	1	
	INS.CAVO MANIPOLATORE		1	
	INS.CAVO ELETTROVALV. Q1		1	
	Q2		1	
	Q3		1	
	Q4		1	
	Q5		1	
	Q6		1	
	Q13		1	
S2	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	1	
S3	PULSANTE BASCULANTE	-	1	
S5	INVERTITORE TRIPOLARE		1	
T1	TRASFORMATORE	100 VA 50/60 Hz PRI: 0/400V SEC: 0/24V 0/26V	1	
M1	MOTORE CENTRALINA	1,5KW 400V 50HZ 4/6,9A 1400rpm	1	VERS. 400/3/50
		90L4 B3DX B14 KW2,2 230/400V	1	VERS. 220/3/60
M2	MOTORE MANDRINO	ME KW1/1.3 T400/50HZ 90B3S4/2	1	VERS. 400/3/50
		ME KW1/1.4 T220/60HZ H90S42/B3	1	VERS. 220/3/60



LIST OF COMPONENTS

Drawing N°B - Rev. 0

750505532

WIRING DIAGRAM 3/4
(APPLIES TO MODELS ROT.N4113.201805 -
ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)

Page 55 of 63

TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY	VERSION
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1	
	FUSE	10,3x38 16A 500V aM DELAYED	3	
F2	TRIPOLAR AUTOMATIC SWITCH	4-6.3A ART.GV2 ME10 SCHNEIDER	1	VERS. 400/3/50
		9-14A ART.GV2 ME16 SCHNEIDER	1	VERS. 220/3/60
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1	
	FUSE	10,3X38 2A 500V RAPID	2	
F5	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1	
	FUSE + FUSE	GL 10,3X38 2A 500V + FUSE 10,3X38 8A 500V FUSE	1 1	
Q1,Q2,Q3,Q4, Q5,Q6,Q13	SOLENOID VALVES		7	
K1M	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1	
K2M	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1	
K3	CLAMP 2.5mmq C/DIODO	CLAMP.2,5 C/DIOD.1N5408 PHOENIX ST2,5-QUATTRO DIO 1N 5408K/R-L	6	
K4	SPRING CLAMP 2 PIAN.2.5mmq	CLAMP 2,5mmq ST 2,5-QUATTRO PHOENIX cod.3031306 (molla) 4C	7	
K5	CLAMP G/V 4mmq ART.TEO.4 CABUR T0430	CLAMP G/V 4mmq art.UT 4-PE PHOENIX COD.3044128 (vite)	2	
VC1	RECTIFIER BRIDGE VC1	-	1	
	CONDENSER C1-C2		1	
	SQUARE FEEDING CABLE ASSEMBLY		1	
	CHUCK UNIT MOTOR CABLE ASSEMBLY		1	
	HYDR.POWER UNIT MOTOR CABLE ASSEMBLY	-	1	
	HANDLE CABLE ASSEMBLY		1	
	Q1-Q2-Q3-Q4-Q5-Q6-Q13 SOLENOID VALVE CABLE ASSEMBLY		1	
			1	
			1	
			1	
			1	
			1	
S2	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	1	
S3	PUSHBUTTON	-	1	
S5			1	
T1	TRANSFORMER	100 VA 50/60 Hz PRI: 0/400V SEC: 0/24V 0/26V	1	
M1	HYDRAULIC POWER UNIT MOTOR	1,5KW 400V 50HZ 4/6,9A 1400rpm	1	VERS. 400/3/50
		90L4 B3DX B14 KW2,2 230/400V	1	VERS. 220/3/60
M2	CHUCK MOTOR	ME KW1/1.3 T400/50HZ 90B3S4/2	1	VERS. 400/3/50
		ME KW1/1.4 T220/60HZ H90S42/B3	1	VERS. 220/3/60



LIST OF COMPONENTS

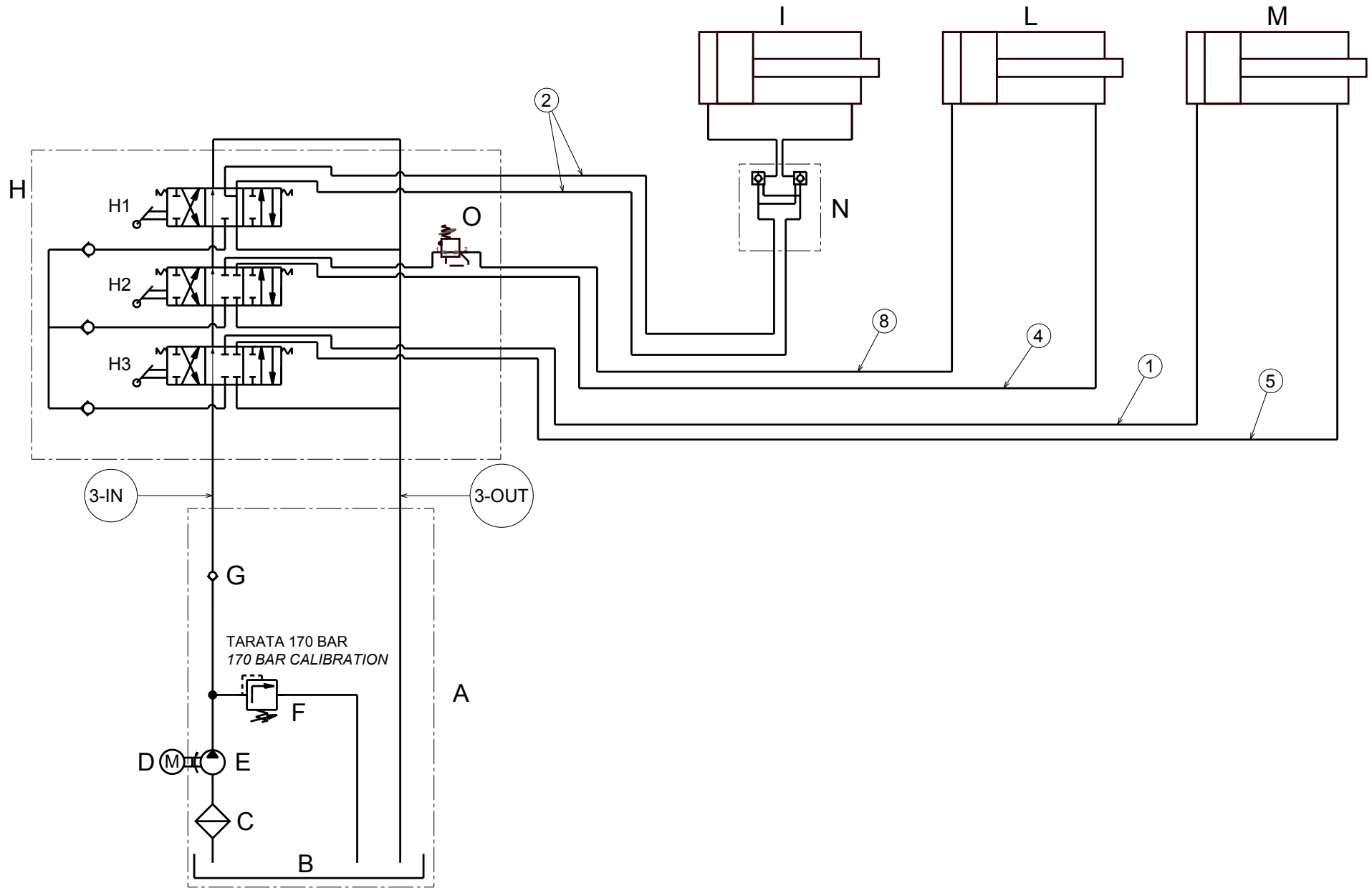
Drawing N°B - Rev. 0

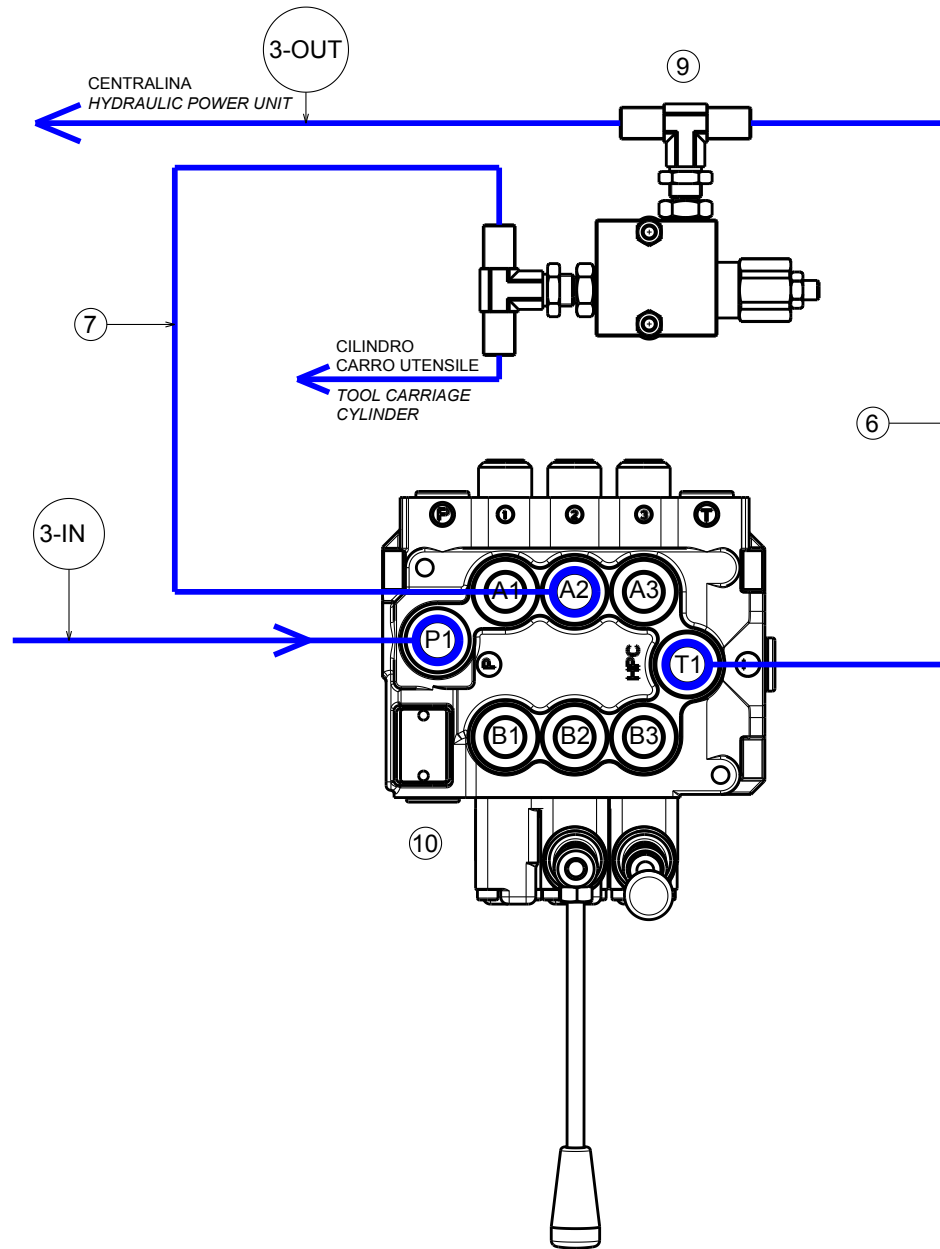
750505532

WIRING DIAGRAM 4/4
(APPLIES TO MODELS ROT.N4113.201805 -
ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)

Page 56 of 63

**TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156**

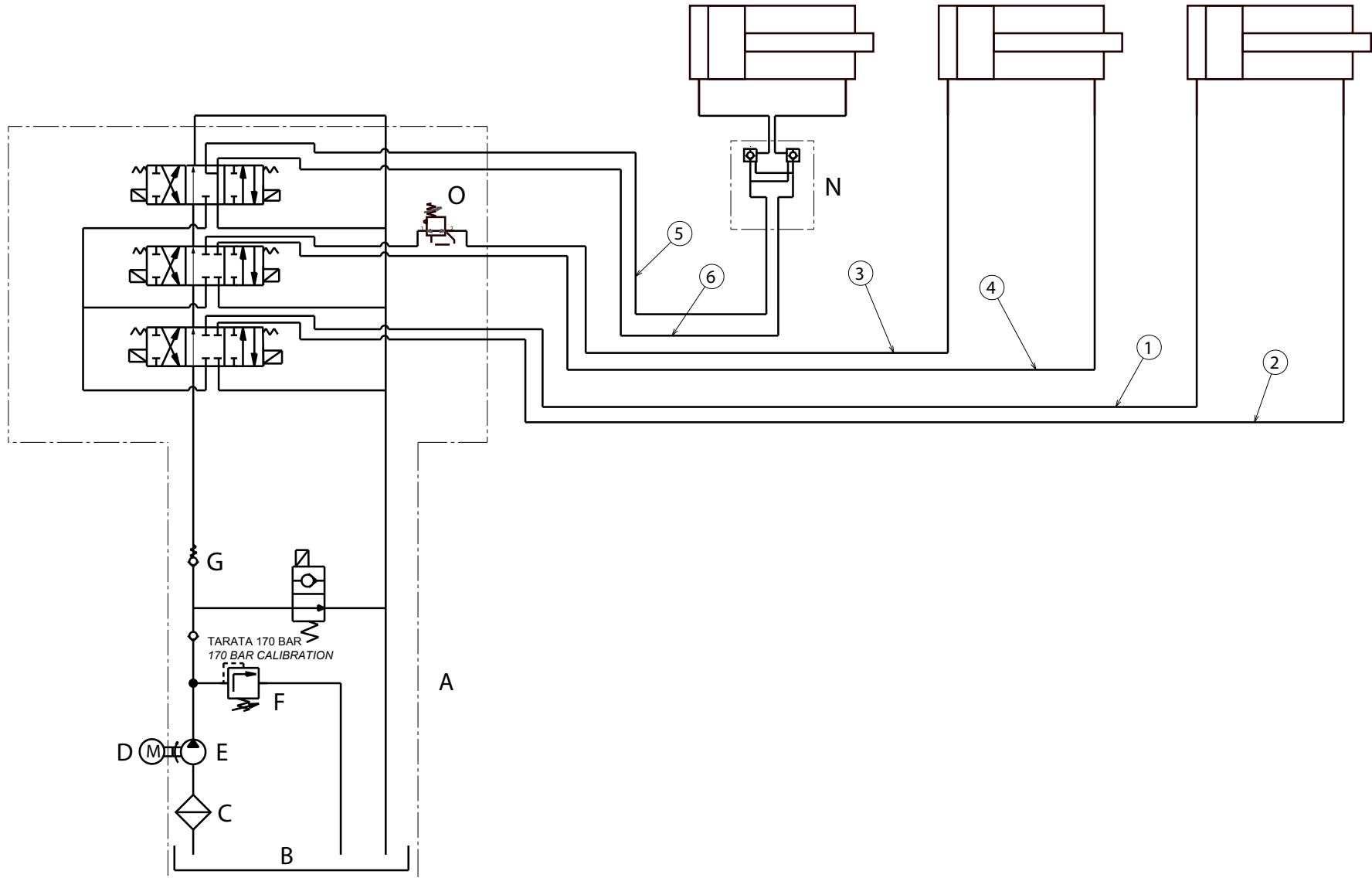




I=CILINDRO MANDRINO
I=CHUCKING TABLE
CYLINDER

L=CIL.TRASLAZIONE
L=SHIFTING
CYLINDER

M=CIL.ALZO BRACCIO
M=ARM UP
CYLINDER



LIST OF COMPONENTS

Drawing N°D - Rev. 0

750505041

HYDRAULIC DIAGRAM
(APPLIES TO MODELS
ROT.N4113.201805 - ROT.N4113.200556 -
RAV.G9156.206268 - RAV.G9156.200471 - SPA.G0156.205926)

Page 60 of 63

**TYRE-CHANGER SERIES
NAV41 - G9156 - GG30156**

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

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

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

2006/42/CE	Machinery Directive
2014/30/EU	Electromagnetic Compatibility Directive
5. where appropriate, the name, address and identification number of the notified body which carried out the EC type-examination referred to in annex IX and the number of the EC type-examination certificate;
N/A
6. where appropriate, the name, address and identification number of the notified body which approved the full quality assurance system referred to in annex X;
N/A
7. where appropriate, reference to the harmonised standards referred to in article 7, paragraph 2, which have been applied;

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

UNI EN 17347:2001	Road vehicles – Machines for mounting and demounting vehicle tyres – Safety requirements
--------------------------	---
9. place and date of declaration;
Ostellato, / /
10. identification and signature of the person authorised to draw up the declaration on behalf of the manufacturer or its authorised representative.
SIMONE FERRARI VP VSG Europe Managing Director

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

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

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

BS EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction;
BS EN 60204-1:2018	Safety of machinery - Electrical equipment of machines. General requirements.
BS EN 61000-6-3:2007 +A1:2011 +AC:2012	Electromagnetic compatibility (EMC) - Part 6-3. Generic standards - Emission standard for residential, commercial and light-industrial environments.
BS EN 61000-6-2:2005 +AC:2005	Electromagnetic compatibility (EMC) - Part 6-2. Generic standards - Immunity for industrial environments.
8. where appropriate, reference to other standards and technical specifications applied;
N/A
9. place and date of declaration;
Ostellato, / /
10. identification and signature of the person authorised to draw up the declaration on behalf of the manufacturer or its authorised representative.
SIMONE FERRARI VP VSG Europe Managing Director