



7522-M004-02

G10156.15

INSTRUCTION MANUAL

EN

TRANSLATION FROM THE
ORIGINAL INSTRUCTIONS

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

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

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Feature/ Versions	G10156.15	G10156.15 + version with Bluetooth con- trols	G10156.15 + version with inverter	G10156.15 + version with air control	G10156.15 + version with self-braking chuck motor	G10156.15 + version with emergency push-button	G10156.15 + 220 V - 3 Ph - 60 Hz version
Control box assembly	•		•		•	•	•
Air handle control				•			
Bluetooth control box assembly		•					
Control box assembly with emergency push-button						•	
Self-braking chuck motor					•		
Inverter assembly			•				
400 V - 3 Ph - 50 Hz power supply	•	•	•	•	•	•	
220 V - 3 Ph - 60 Hz power supply							•
Tool rotation plate				•			
Air handle control double speed plate				•			
Air control plate				•			
Control plate		•					
Double speed nameplate		•					
Self-centring chuck plate		•					
400 V - 3 Ph - 50 Hz voltage plate	•	•	•	•	•	•	
220 V - 3 Ph - 60 Hz voltage plate							•
Mushroom head push button plate						•	

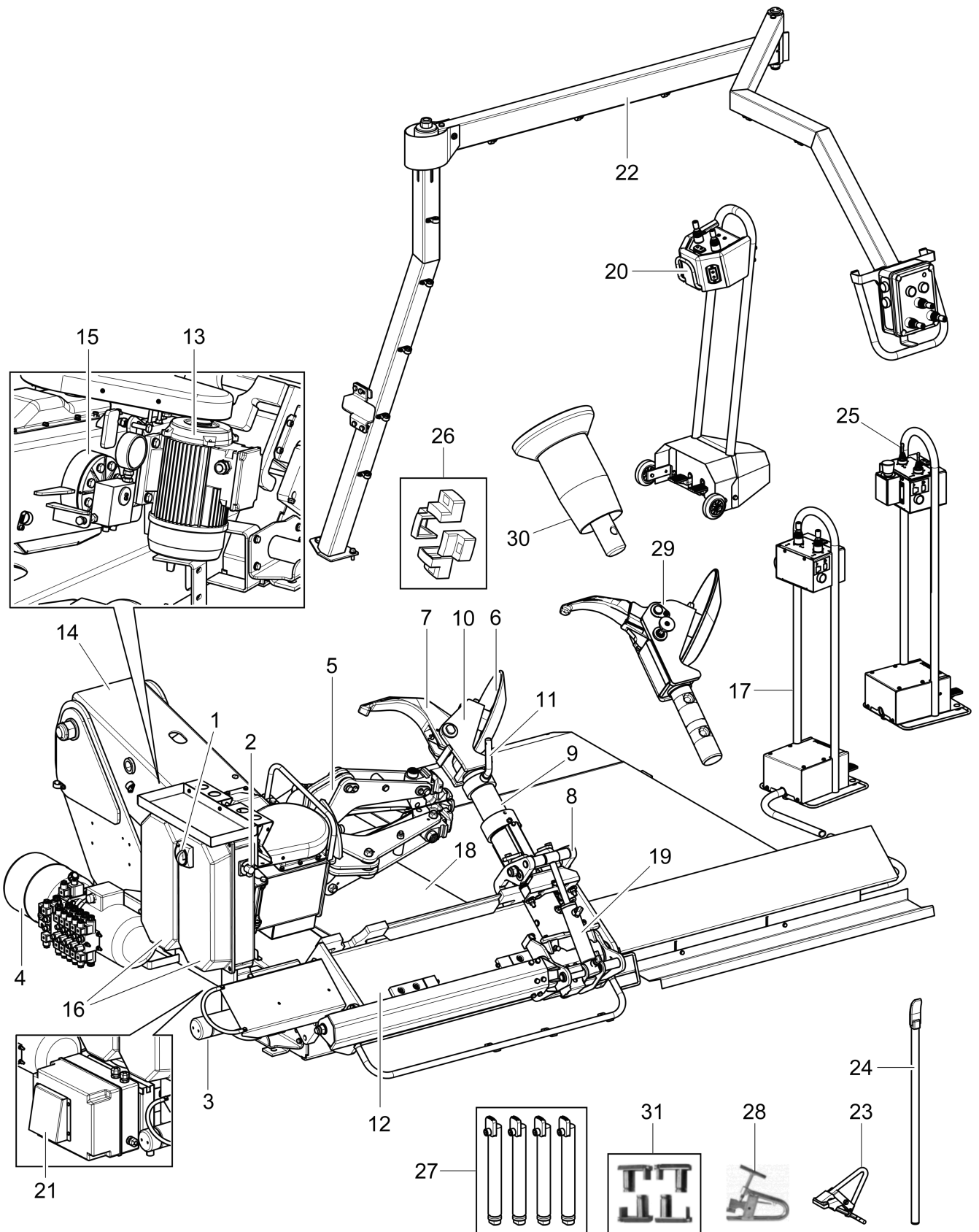
• = standard

OPT = optional



GENERAL DESCRIPTION

Fig. 1


















KEY (Fig. 1)

- | | |
|---|--|
| <ul style="list-style-type: none"> 1 – Main switch 2 – Selector 1-0-2 self-centring chuck speed control 3 – Tools carriage movement cylinder 4 – Hydraulic power unit 5 – Self-centring chuck 6 – Bead breaker disc 7 – Tool 8 – Jack 9 – Tool holder arm 10 – Tools assembly 11 – Tools assembly positioning lever 12 – Tools carriage 13 – Chuck rotation motor 14 – Chuck arm 15 – Chuck opening/closing cylinder 16 – Electric cabinet 17 – Control box assembly | <ul style="list-style-type: none"> 18 – Movable footboard 19 – Tool holder arm release cylinder 20 – Bluetooth control box assembly (standard on some models) 21 – Inverter (standard on some models) 22 – Air handle control (standard on some models) 23 – Bead locking clamp 24 – Long lever 25 – Control box assembly with emergency push-button (standard on some models) 26 – Standard clamp protections for alloy rims (optional) 27 – Chuck grip extensions (optional) 28 – Bead locking clamp (optional) 29 – Tool assembly without lever (optional) 30 – Roller for tubeless (optional) 31 – Adapters with increased grip (optional) |
|---|--|

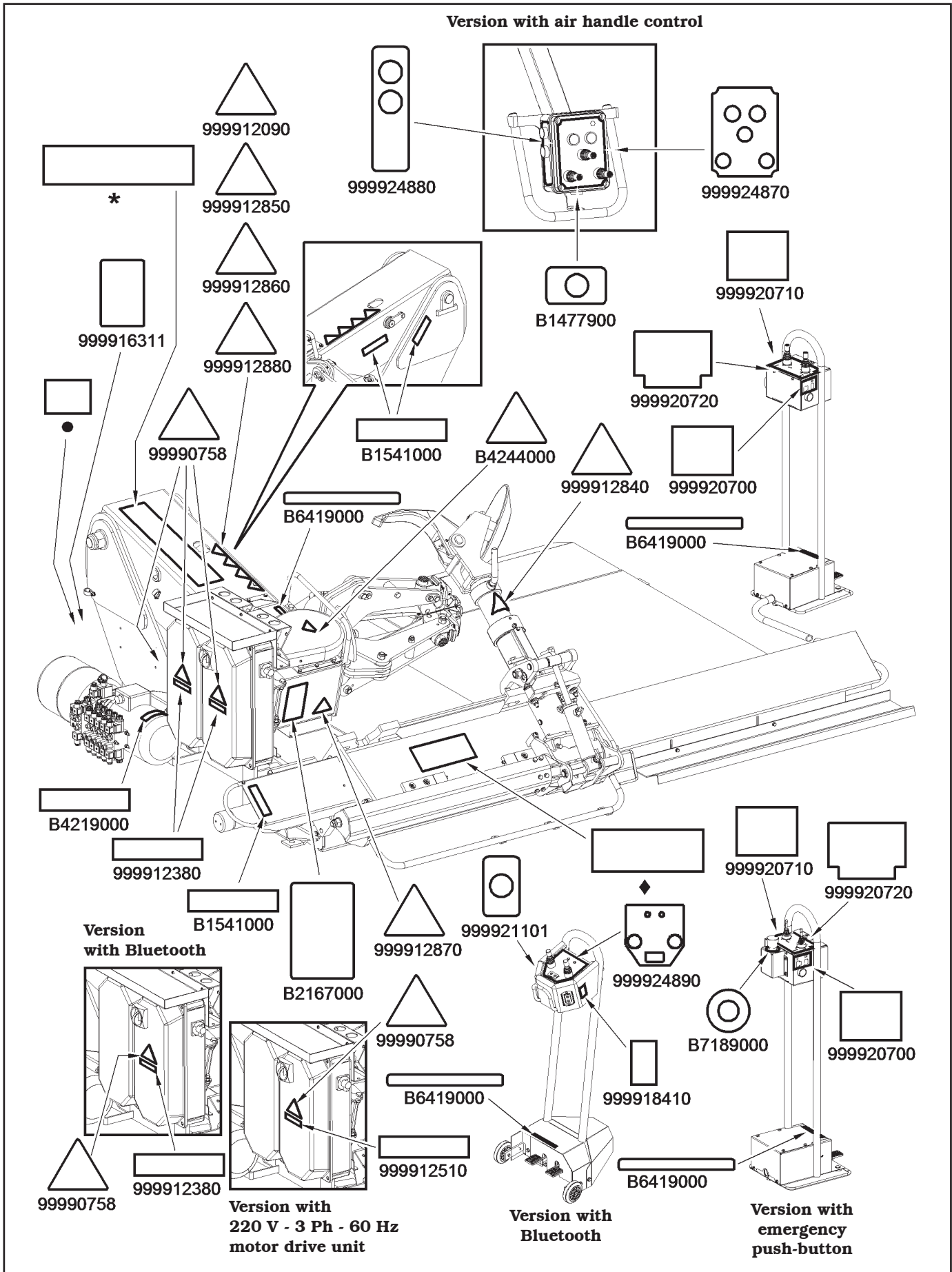
SYMBOLS USED IN THE MANUAL

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



PLATES LOCATION DRAWING



**Code numbers of plates**

B1477900	<i>Air handle control double speed plate (standard on some models)</i>
B1541000	<i>Danger plate</i>
B2167000	<i>Protective clothing plate</i>
B4219000	<i>Rotation indicating plate</i>
B4244000	<i>Rotating parts danger plate</i>
B6419000	<i>Rotation plate</i>
B7189000	<i>Mushroom head push button plate (standard on some models)</i>
99990758	<i>Electric shock danger plate</i>
999912090	<i>Tyre fall danger plate</i>
999912380	<i>400 V - 3 Ph - 50 Hz voltage plate (standard on some models)</i>
999912510	<i>220 V - 3 Ph - 60 Hz voltage plate (standard on some models)</i>
999912840	<i>Danger plate 1</i>
999912850	<i>Danger plate 2</i>
999912860	<i>Danger plate 3</i>
999912870	<i>Danger plate 4</i>
999912880	<i>Danger plate 5</i>
999916311	<i>Rubbish skip plate</i>
999918410	<i>Self-centring chuck plate (standard on some models)</i>
999920700	<i>Double speed nameplate</i>
999920710	<i>Chuck open/close plate</i>
999920720	<i>Control plate</i>
999921101	<i>Double speed plate (standard on some models)</i>
999924870	<i>Air control plate (standard on some models)</i>
999924880	<i>Tool rotation plate (standard on some models)</i>
999924890	<i>Control plate (standard on some models)</i>
*	<i>Machine nameplate</i>
•	<i>Serial number plate</i>
◆	<i>Manufacturer plate</i>



IF ONE OR MORE PLATES DISAPPEAR FROM THE MACHINE OR BECOMES DIFFICULT TO READ, IT MUST BE REPLACED. QUOTE THE CODE NUMBER WHEN REORDERING.



SOME OF THE PICTURES PRESENT IN THIS MANUAL HAVE BEEN OBTAINED FROM PICTURES OF PROTOTYPES, THEREFORE THE STANDARD PRODUCTION MACHINES AND ACCESSORIES CAN BE DIFFERENT IN SOME COMPONENTS.

1.0 GENERAL INTRODUCTION

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

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



KEEP THE MANUAL IN A KNOWN, EASILY ACCESSIBLE PLACE FOR ALL ACCESSORY OPERATORS TO CONSULT IT WHENEVER IN DOUBT.



THE MANUFACTURER DISCLAIMS ALL RESPONSIBILITY FOR ANY DAMAGES OCCURRED WHEN THE INDICATIONS GIVEN IN THIS MANUAL ARE NOT RESPECTED: AS A MATTER OF FACT, THE NON-COMPLIANCE WITH SUCH INDICATIONS MIGHT LEAD TO EVEN SERIOUS DANGERS.

1.1 Introduction

Thank you for purchasing this electro-hydraulic tyre changer. We feel sure you will not regret your decision. This machine has been designed for use in professional workshops and in particular it stands out for its reliability and easy, safe and rapid operation: with just a small degree of maintenance and care, this tyre changer will give you many years of trouble-free service and lots of satisfaction.

2.0 INTENDED USE

The machines described in this manual and their different versions are tyre changers with electro-hydraulic working, to be used only for the mounting and demounting of any type of wheel with whole rim (drop centre and with bead wire) , with dimension and weight values described in "Technical specifications" chapter. The machine is NOT to be used for tyre inflation.



DANGER: EMPLOYING THESE MACHINES OUTSIDE THE USE DESTINATION THEY HAVE BEEN DESIGNED FOR (AS INDICATED IN THIS MANUAL) IS INAPPROPRIATE AND DANGEROUS.



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 machine and to 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



PERIODICALLY, AT LEAST MONTHLY, CHECK THE INTEGRITY AND THE FUNCTIONALITY OF THE SAFETY AND PROTECTION DEVICES ON THE MACHINE.

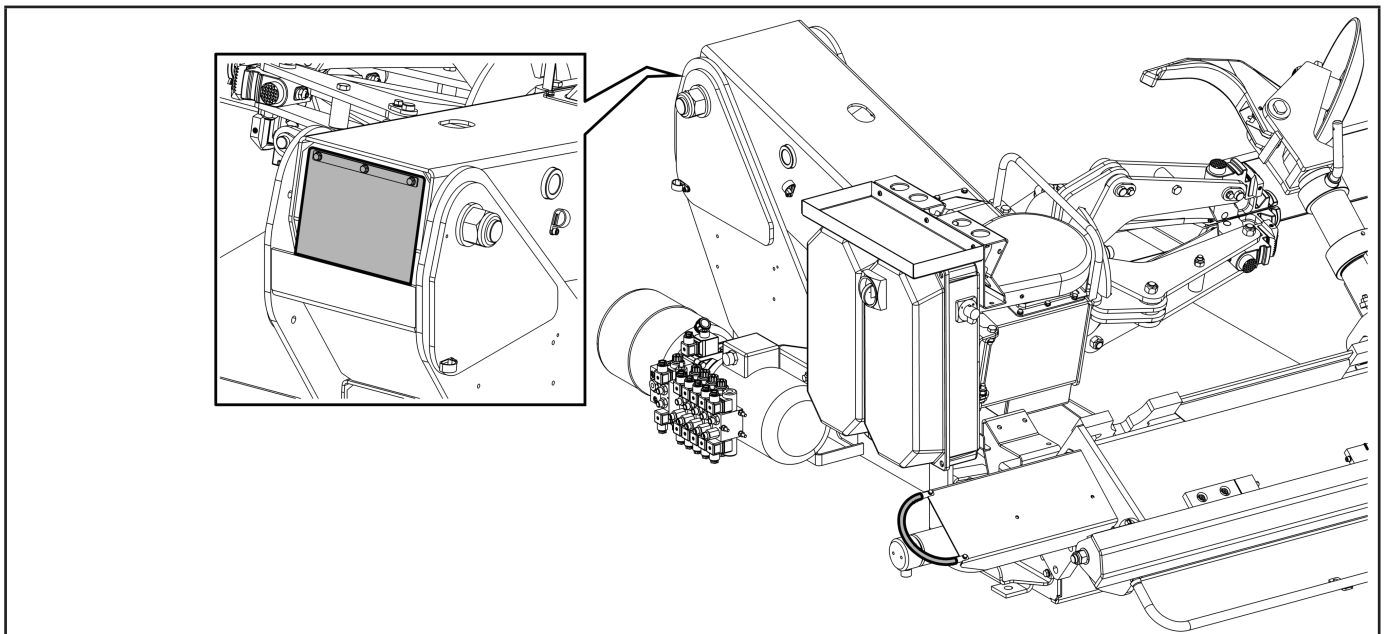
All the machines are equipped with:

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



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

- **fuses** on the power supply line of the chuck motor;
- **automatic power supply disconnection** with the opening of the electric cabinet.
- **chuck self-braking motor** (standard on some models);
- **motor protection devices** (standard on some models).
The new "Invemotor" assembly is equipped with electronic protection devices. They stop the motor if working defected conditions appear to avoid that the motor itself can be damaged and that the operator safety can be compromised (overvoltage, undervoltage, overload, overtemperature).
For more details, see Chapt. 14 "Troubleshooting table".
- **Fixed protections and guards.**
The machine is fitted with a number of fixed guards intended to prevent potential crushing, cutting and compression risks.
These protections have been realized after risks evaluation and after all machine operative situations have been considered.
These protections can be located in the figure below.



3.1 Residual risks


The machine 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 product functionality.

This manual stresses possible residual risks, also highlighted in pictograms on the present manual and adhesive warning signals placed on the machine: their location is represented on "PLATES LOCATION DRAWING" on page 7.

4.0 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 machine leads to serious dangers and represents a transgression of European safety standards.
- Use of the machine is only permitted in places free from **explosion** or **fire** hazard and in **dry places under cover**.
- The use of only original accessories and spare parts is advised. Our machine is designed to function only with original accessories.



THE MANUFACTURER DENIES ANY RESPONSIBILITY IN CASE OF DAMAGES CAUSED BY UNAUTHORIZED MODIFICATIONS OR BY THE USE OF NON ORIGINAL COMPONENTS OR EQUIPMENT.


- The installation must be performed by qualified and authorized personnel in full compliance with the instructions given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it malfunctions and contact the customer service of an authorized dealer.
- In emergency situations and before carrying out any maintenance or repairs, isolate the equipment from energy sources by disconnecting the power supply using the main switch.
- The machine power supply system must be equipped with an appropriate earthing, to which the yellow-green machine protection wire must be connected.

- Ensure that the work area around the machine is free of potentially dangerous objects and that there is no oil since this could damage the tyre. Oil on the floor is also a potential danger for the operator.




OPERATORS MUST WEAR SUITABLE WORK CLOTHES, PROTECTIVE GLASSES AND GLOVES, AGAINST THE DANGER FROM THE SPRAYING OF DANGEROUS DUST, AND POSSIBLY LOWER BACK SUPPORTS FOR THE LIFTING OF HEAVY PARTS. DANGLING OBJECTS LIKE BRACELETS MUST NOT BE WORN, AND LONG HAIR MUST BE TIED UP. FOOTWEAR SHOULD BE ADEQUATE FOR THE TYPE OF OPERATIONS TO BE CARRIED OUT.

- The machine handles and operating grips must be kept clean and free from oil.
- The workshop must be kept clean, dry and not exposed to atmospheric agents. Make sure that the working premises are properly lit. The machine can be operated by a single operator. Unauthorized personnel must remain outside the working area, as shown in **Fig. 4**. Avoid any hazardous situations. Do not use air-operated or electrical equipment when the shop is damp or the floor slippery and do not expose such tools to atmospheric agents.
- When operating and servicing this machine, carefully follow all applicable safety and accident-prevention precautions. The machine must not be operated by untrained personnel.



THE MACHINE OPERATES WITH PRESSURIZED HYDRAULIC FLUID. MAKE SURE EVERY COMPONENT OF THE HYDRAULIC CIRCUIT IS ALWAYS PROPERLY LOCKED, ANY PRESSURIZED LEAKS MAY CAUSE SERIOUS INJURIES OR WOUNDS.



IN CASE OF A CHANCE SUPPLY FAILURE (WHETHER ELECTRICITY OR OIL-PRESSURE), MOVE THE CONTROLS TO THE NEUTRAL POSITION.



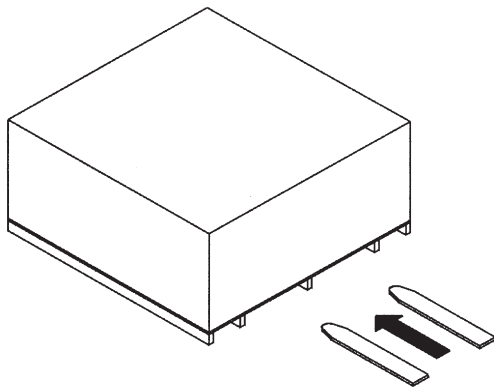
5.0 PACKING AND MOBILIZATION FOR TRANSPORT



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

The machine 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. 2 (forks introduced in the middle to ensure a correct loads distribution).

Fig. 2



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 machine packed fully assembled, check that the machine is complete and that there is no visible damage. If in doubt **do not use the machine** 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 machine handling.



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

7.0 MOBILIZATION

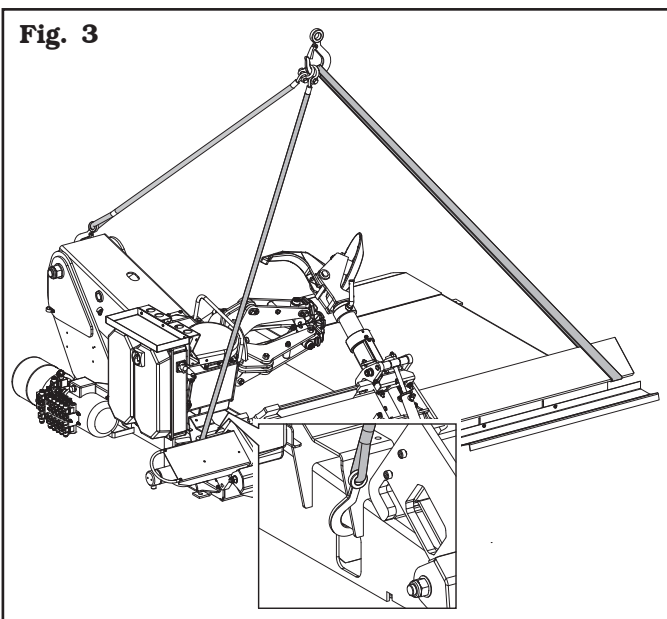
If the machine has to be moved.



THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE MACHINE (SEE PARAGRAPH TECHNICAL SPECIFICATIONS). DO NOT ALLOW THE LIFTED MACHINE TO SWING.

If the machine has to be moved from its normal work post, the movement must be conducted following the instructions listed below.

- Protect the exposed corners with suitable material (Pluribol/cardboard).
- Do not use metallic cables for lifting.
- Move the chuck to completely lowered position and in the centre of the machine in order to ensure a correct load balancing.
- Move the tool carriage to limit switch towards the chuck.
- Disconnect all machine power supply sources.
- Sling with three sufficiently long belts (300 cm at least) and with capacity load at least equal to machine weight (see **Fig. 3**).
- Lift and transport with suitable device with adequate dimensions.



8.0 WORKING ENVIRONMENT CONDITIONS

The machine must be operated under proper conditions as follows:

- temperature: 0° - + 55° C
- relative humidity: 30 - 95% (dew-free)
- atmospheric pressure: 860 - 1060 hPa (mbar).

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

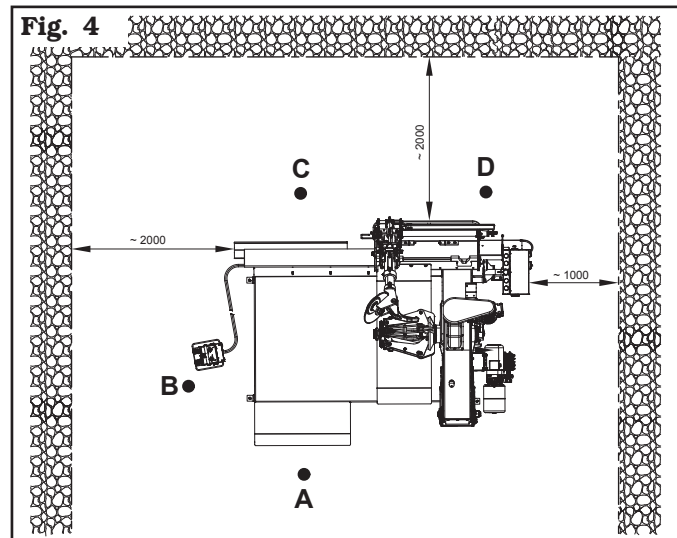

8.1 Working position

In **Fig. 4** it's possible to define working positions **A**, **B**, **C**, **D**, which will be referred to in the description of machine 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

INSTALL THE MACHINE INDOORS OR IN A ROOFED AREA. PLACE OF INSTALLATION MUST BE DRY, ADEQUATELY LIT AND IN COMPLIANCE WITH APPLICABLE SAFETY REGULATIONS.



The location of the machine requires a usable space as indicated in **Fig. 4**. The positioning of the machine must be according to the distances shown. From the control position the operator is able to observe all the machine and surrounding area.

He must prevent unauthorized personnel or objects that could be dangerous from entering the area. The machine must be secured to a flat floor surface, preferably of cement or tiled. Avoid yielding or irregular surfaces. The 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.

The depth of the solid floor must be sufficient to guarantee that the anchors hold (excluded from supply).

8.3 Lighting

The machine does not require its own lighting for normal working operations. However, it must be placed in an adequately lit environment.

For correct lighting, use lamps having total power 800/1200 Watt as envisaged by UNI 10380.

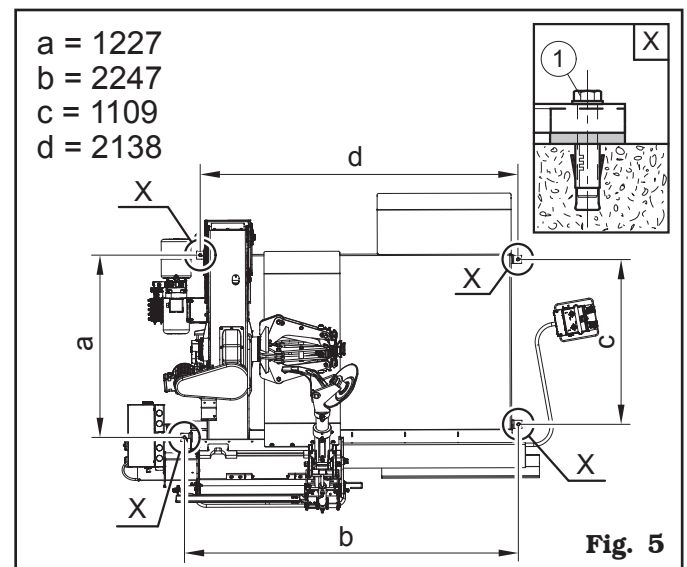
9.0 MACHINE ASSEMBLY



**ANY MECHANICAL ATTACHMENTS
MUST BE CARRIED OUT BY QUALI-
FIED STAFF**

9.1 Anchoring system

The packed machine is fixed to the support pallet through the holes prearranged on the chassis. Such holes can be used also to secure the machine to the ground, through floor anchors (excluded from supply). Before carrying out the definitive fixing, check that all the anchor points are laid down flat and correctly in contact with the fixing surface itself. If not so, insert shimming profiles between the machine and the fixing lower surface, as indicated in **Fig. 5**.



- Execute 4 holes with 12 mm diameter on the floor by the holes on the bottom floor;
- insert the anchors (excluded from supply) into the holes;
- secure the machine to the ground with 4 M12x120 mm bolts (excluded from supply) (**Fig. 5 ref. 1**) (or with 4 12x80 mm stud bolts (excluded from supply)). Tighten the bolts with an approximate tightening torque of 70 Nm.


9.2 Accessories contained in the packing

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

Description	Qty
Clamp	1
Long lever	1

10.0 ELECTRICAL CONNECTIONS

 **ANY ELECTRICAL ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF**


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


- POWER LINE SPECIFICATIONS CORRESPOND TO MACHINE REQUIREMENTS AS SHOWN ON THE MACHINE PLATE;
- 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 CUTOUT WITH DIFFERENTIAL PROTECTION SET AT 30 MA.


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

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

For any other type of power supply, ask the manufacturer at the time of purchase: a machine functioning under the required voltage conditions will be prepared.

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

 **MAKE SURE THAT THE ELECTRICAL SYSTEM IS COMPATIBLE WITH THE RATED POWER ABSORPTION 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).**

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

Models	Conformity standard	Voltage	Amperage	Poles	Minimum IP rating
3-Ph double speed	IEC 309	230/400 V	16A	3P + Ground	IP 44
Bluetooth					
Inverter		400 V	32A	3P + N + Ground	
Self-braking motor version					
Air handle control version					
Emergency push-button version		220 V	16A	3P + Ground	
220 V - 3 Ph - 60Hz version					

10.1 Oil check on oil-pressure power unit



ANY OIL-PRESSURE ATTACHMENTS MUST BE CARRIED OUT BY QUALIFIED STAFF



THE OIL-PRESSURE POWER UNIT IS DELIVERED WITHOUT HYDRAULIC OIL, THEREFORE MAKE SURE THE TANK PROVIDED IS FILLED WITH AN APPROXIMATE AMOUNT OF OIL OF 5 LITRES, 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 (FOR COUNTRIES WITH ROOM TEMPERATURE FROM 0 to 30 DEGREES);**
- **VISCOSITY 46 (FOR COUNTRIES WITH ROOM TEMPERATURE ABOVE 30 DEGREES).**

10.2 Check of motor rotation direction

Once the last electrical connection has been terminated, power the machine with the main switch. Make sure the motor of the hydraulic power unit rotates in the direction indicated by the arrow (**Fig. 6 ref. B**) visible on the electric motor cap. If rotation should occur in the opposite direction, the machine 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 CORRECT FUNCTIONING, BEFORE STARTING MACHINE OPERATION.

Once the plug/socket connection has been made, turn on the machine using the main switch (**Fig. 6 ref. A**).

Applies to units with Bluetooth controls

Then horizontally or vertically move the lever (**Fig. 9 ref. H**): the red LED (**Fig. 9 ref. B**) will turn on.

Wait a few seconds for the green LED turning on (**Fig. 9 ref. A**) and then release the lever (**Fig. 9 ref. H**).

In the end, the green LED (**Fig. 9 ref. A**) flashes to indicate that the machine is ready for operation.



WHEN A CONTROL IS OPERATED, THE GREEN LED (FIG. 9 REF. A) LIGHT IS FIXED: IT FLASHES AGAIN WHEN IT IS RELEASED.

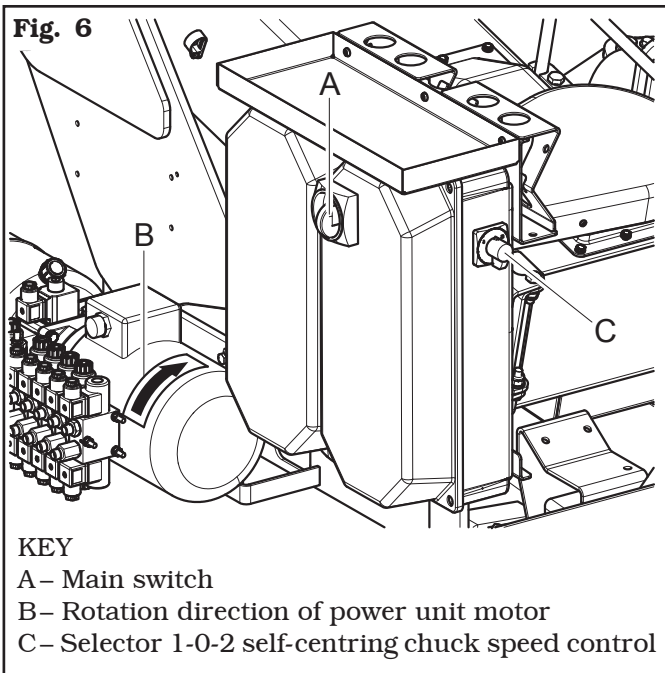
If during the operations the red LED (**Fig. 9 ref. B**) turns on and the green led turns off, charge the control batteries with the provided socket for battery charger, located under the control (**Fig. 9 ref. M**).

For all models

The machine 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 ENDED, CHECK ALL MACHINE FUNCTIONS.



11.0 CONTROLS

11.1 Control box assembly

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

The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.



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

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

- Lever towards the right or left: it operates respectively tool towards the right or towards the left repositioning on the carriage.
- Lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

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

- Lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holder arm.
- Lever towards the right or left: it moves the chuck holder carriage towards the right or towards the left.

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

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

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

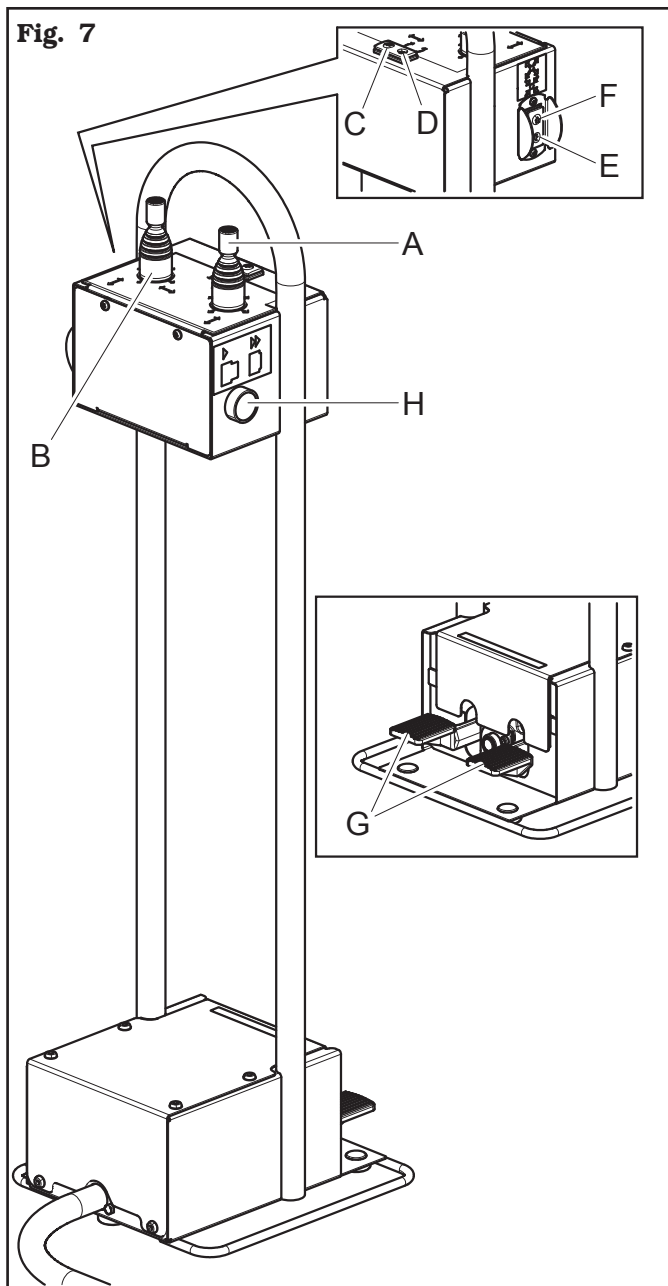
“Push button **F**” has one hold-to-run control operative position, and when pressed it operates the self-centring chuck closing.

“Pedal **G**” controls chuck clockwise and counterclockwise rotation.

“Push button **H**” pressed together with the lever “**A**” horizontally, doubles the movement speed of the tool carriage.



THE HANDLE MUST NOT BE PLACED WHERE WATER STAGNATES.



11.2 Air handle control (standard on some models)

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

When the lever (**Fig. 8 ref. 3**) is moved to **A** position, with a hold-to-run control, lifts the tools holder arm.

When the lever (**Fig. 8 ref. 1**) is moved to **B** position, with a hold-to-run control, it operates the self-centring carriage arm rising.

When the lever (**Fig. 8 ref. 1**) is moved to **C** position, with a hold-to-run control, it operates the self-centring carriage arm descent.

When the lever (**Fig. 8 ref. 1**) is moved to **D** position, with a hold-to-run control, it operates the self-centring carriage right shifting.

When the lever (**Fig. 8 ref. 3**) is moved to **E** position, with a hold-to-run control, it operates the tools holder carriage right shifting.

When the lever (**Fig. 8 ref. 1**) is moved to **F** position, with a hold-to-run control, it operates the self-centring carriage left shifting.

When the lever (**Fig. 8 ref. 3**) is moved to **G** position, with a hold-to-run control, it operates the tools holder carriage left shifting.

When the lever (**Fig. 8 ref. 3**) is moved to **H** position, with a hold-to-run control, lowers the tools holder arm.

“**Push button P**” has a hold-to-run control position, and when pushed in combination with the horizontal movement of levers **3** and/or **1**, it doubles tool-holder or self-centring carriage shifting speed. Pressing push button “**P**” in combination with the vertical movement of lever “**1**” it doubles the rise or descent speed of the self-centring carriage.

“**Lever 2**” has two hold-to-run control positions: turned to right (**Ref. O**) or to left (**Ref. Q**), it respectively controls the clockwise and counterclockwise rotation of the self-centring chuck.

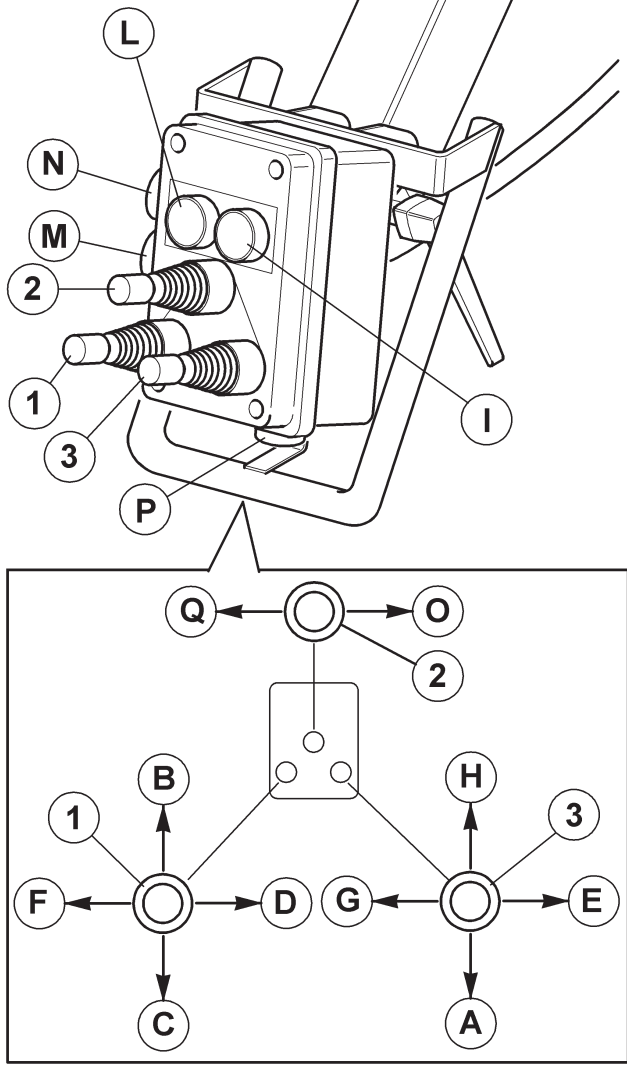
“**Push button I**” has a hold-to-run control position, and when pressed it opens the self-centring chuck.

“**Push button L**” has a hold-to-run control position, and when pressed it closes the self-centring chuck.

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

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

Fig. 8



11.3 Bluetooth control box assembly (standard on some models)

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

The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.



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

The flashing green LED "A", indicates the machine stand-by position. When any control is operated, the machine is started and it is ready for operation. During functioning, the LED "A" is turned on with a fixed light. The red turned on LED "B" and the green turned off LED "A" indicate that the manipulator batteries are exhausted: in order to carry on the functioning, the batteries must be charged.



IN ORDER TO ACTIVATE THE COMMUNICATION BETWEEN HANDLE CONTROL AND MACHINE, ON MACHINE SWITCHING AND AFTER EACH POSITIONING IN STAND-BY MODE, IT'S NECESSARY TO OPERATE ANY JOYSTICK (LEVER "H" OR LEVER "I") FOR 5 SECONDS AT LEAST.

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

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

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

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

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

"Lever H" has four hold-to-run control operative positions:

- Lever towards the right or left, operates respectively the tool holder carriage shifting towards the right or left.
- Lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

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

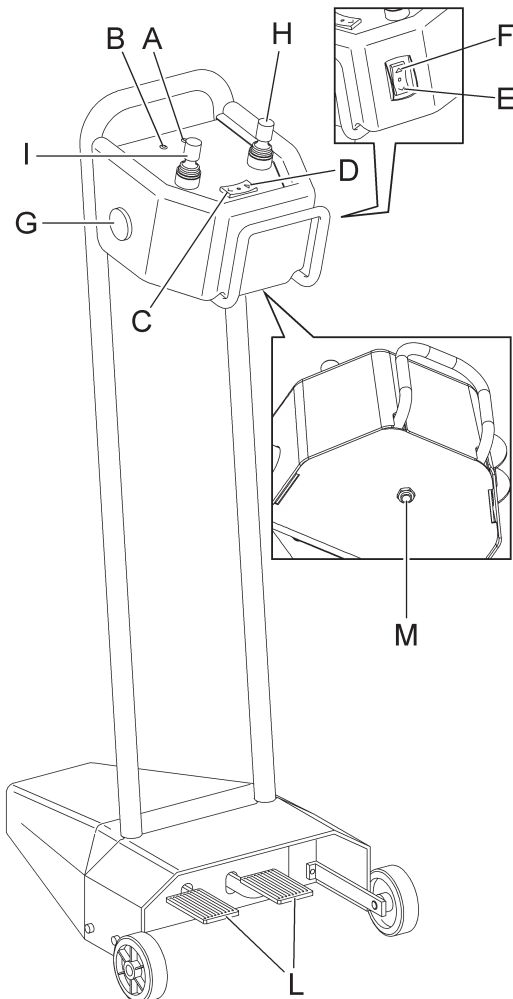
- Lever towards the right or left, operates respectively the chuck holder carriage shifting towards the right or the left.
 - Lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holder arm.
- “Pedal **L**” starts clockwise and anti-clockwise rotation of the chuck.

When any control is operated, the machine is started again, ready for operation: LED “**A**” flashes.



THE HANDLE MUST NOT BE PLACED WHERE WATER STAGNATES.

Fig. 9



11.4 Control box assembly with emergency push-button (standard on some models)

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

The operator should place the control in a zone free from obstacles in order to see clearly and completely the operative zone.



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

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

- Lever towards the right or left: it operates respectively tool towards the right or towards the left repositioning on the carriage.
- Lever upwards or downwards: it respectively lowers or lifts the tool holder arm.

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

- Lever upwards or downwards: it operates respectively the rising and the lowering of the chuck holder arm.
- Lever towards the right or left: it moves the chuck holder carriage towards the right or towards the left.

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

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

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

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

“Pedal **G**” controls chuck clockwise and counterclockwise rotation.

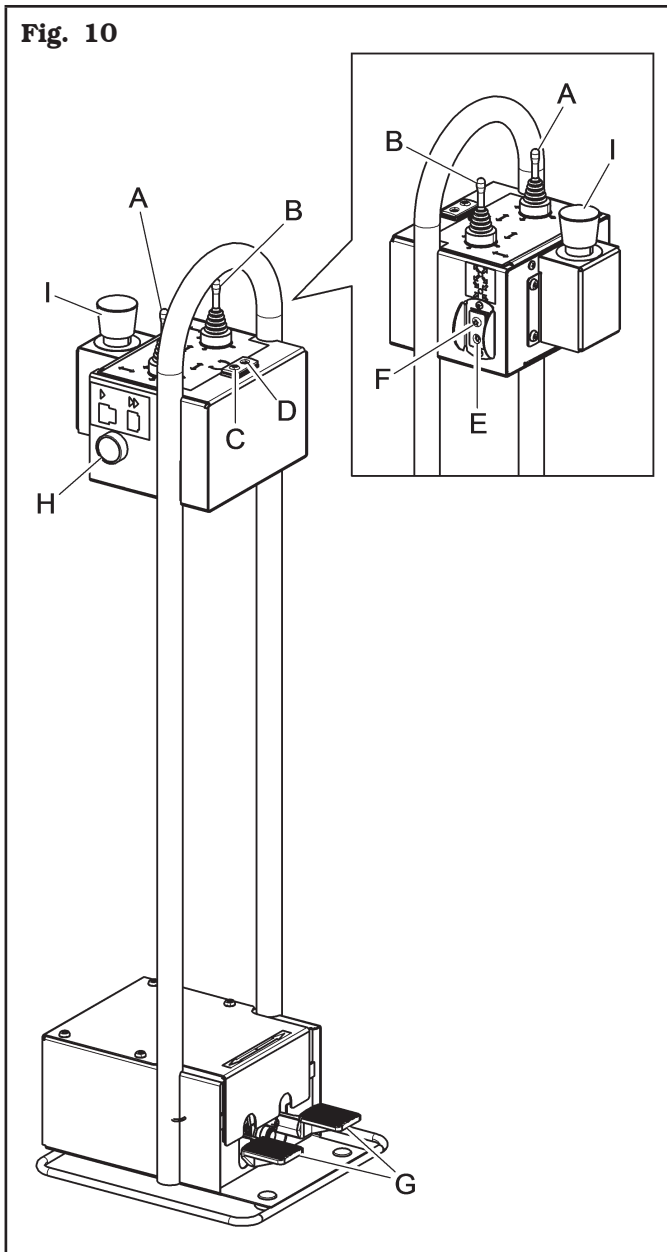
“Push button **H**” pressed together with the lever “**A**” horizontally, doubles the movement speed of the tool carriage.

“Mushroom head push button **I**”, if pushed, immediately stops any operation the tyre changer is performing.



THE HANDLE MUST NOT BE PLACED WHERE WATER STAGNATES.

Fig. 10



12.0 USING THE MACHINE

12.1 Precaution measures during tyre removal and fitting



Before fitting a tyre, observe the following safety rules:

- always use clean, dry and in good condition rims and tyres; in particular, if necessary, clean the rims after all the old balancing weights (as well as the adhesive weights on the inner side) have been removed, and make sure that:
 - neither the bead nor the tread of the tyre are damaged;
 - the rim does not produce dents and/or deformation (especially for alloy rims, dents can cause internal micro-fractures, that pass unobserved at visual inspection, and can compromise the solidity of the rim and constitute danger even during inflation);
- adequately lubricate the contact surface of rim and the tyre beads, using specific tyre lubricants only;
- replace the inner pipe 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; on the contrary, 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 machine.

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 2550 mm) and with remarkable weight (up to 2300 kg).

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. 6 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



FOR WHAT CONCERNS THE DIMENSIONS AND WEIGHT OF THE WHEEL TO BE LOCKED, MAKE USE OF A SECOND OPERATOR WHO MUST 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 SAFE, TO PREVENT THE WHEEL FROM FALLING DURING MOUNTING OR REMOVAL OPERATIONS.



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

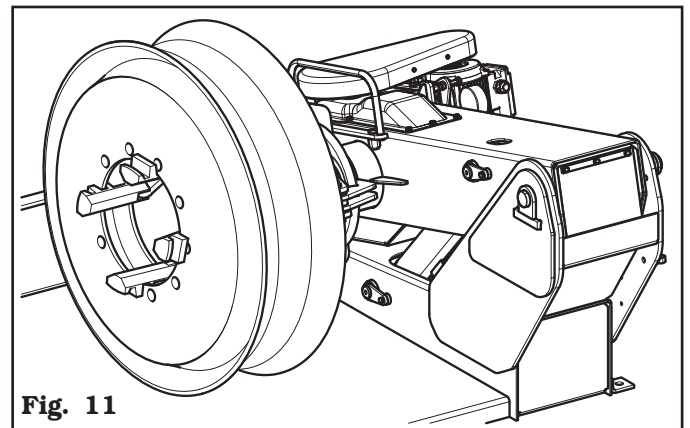
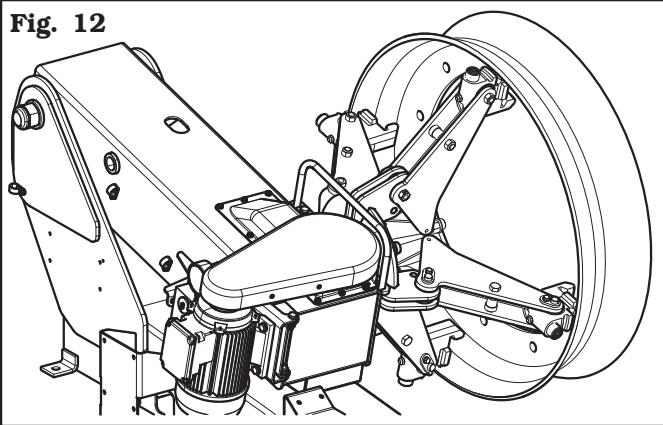


Fig. 11

Clamping on the central hole

Fig. 12



Clamping on bead seat



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

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



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

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



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

To clamp the wheel proceed as follows:

- Move the tool holder arm (**Fig. 15 ref. 1**) to "off-work" position, manually or with the help of the provided controls, according to the model of tyre changer which is being used;
- Move the movable footboard (**Fig. 1 ref. 18**) outside. Make the wheel rotate on the same footboard;

- Place the lock chuck (**Fig. 1 ref. 5**) approximately in the centre of the wheel; move the footboard towards the chuck and centre the wheel on it, in the most suitable position using the corresponding control levers;
- Adjust the opening of the self-centring chuck through the corresponding control (**Fig. 7 ref. E, Fig. 8 ref. I and Fig. 9 ref. E**) according to the type of rim to be locked;
- Lock the rim with the lock chuck (**Fig. 1 ref. 5**);
- Make sure the rim is always correctly locked and centred, and the wheel is lifted from the machine platform, in order to prevent the rim from slipping in the following operations.

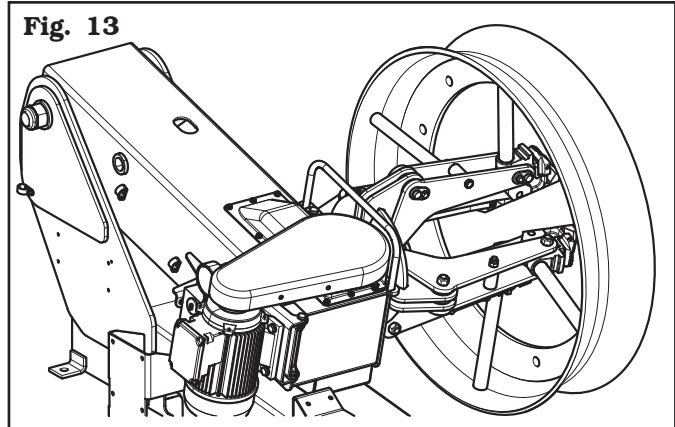


KEEP ON OPERATING RIM CLAMPING CONTROL, UNTIL REACHING THE MAX. OPERATING PRESSURE (180 BAR), WHICH CAN BE CHECKED THROUGH THE PREARRANGED PRESSURE GAUGE.



THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (**FIG. 6 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.

Fig. 13



Locking with extensions

Whenever the rim exceeds the 42", in the locking point, use the appropriate extensions (optional). To avoid damages or scratches on light alloy rims, the special jaws should be used (optional).



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



THROUGHOUT TYRE MOUNTING AND DEMOUNTING OPERATIONS, THE SELF-CENTRING CHUCK ROTATION SPEED CAN BE DOUBLED BY ROTATING THE SELECTOR (FIG. 6 REF. C). LOW SPEED IS RECOMMENDED FOR WHEELS WITH GREAT DIAMETER AND WEIGHT. THE CAREFUL LUBRICATION OF THE TYRE BEADS IS ALSO RECOMMENDED, IN ORDER TO PROTECT THEM FROM POSSIBLE DAMAGES AND TO FACILITATE MOUNTING AND DEMOUNTING OPERATIONS.

12.5 Functioning of tool holder arm

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

- 1) "Working" position;
- 2) "off-work" position.

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

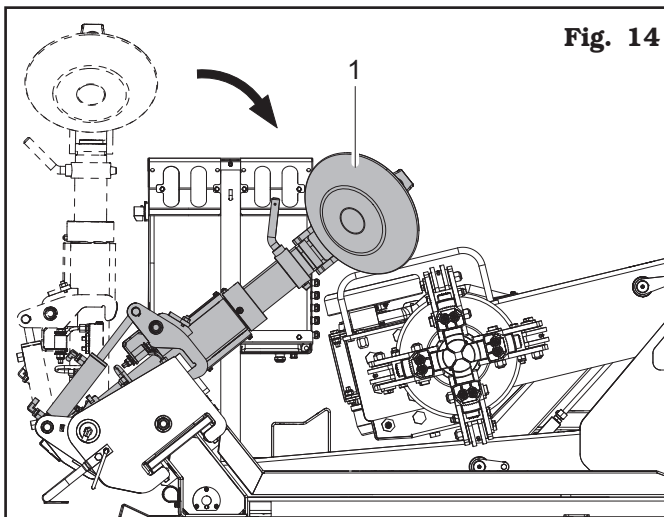


Fig. 14

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

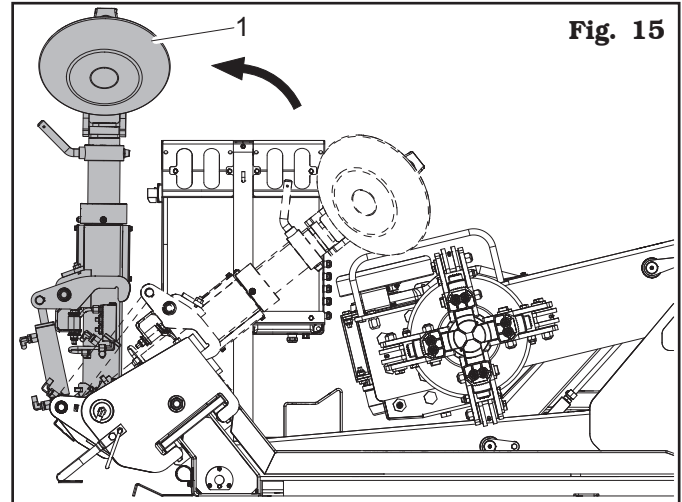


Fig. 15

The tool holder arm moves from "off-work" position to "working position" through hydraulic cylinder.



IN WORK POSITION, THE SAFETY JACKS (FIG. 1 REF. 8) MUST BE HOOKED TO THE TOOL CARRIAGE (FIG. 1 REF. 12).

To shift from "working" position to "off-work" position, the tool holder arm moves by the handle control that activates the cylinder (**Fig. 1 ref. 19**).

When the tool holder arm is to "off-work" position, it can be laterally shifted in automatic 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

Tools holder head 180° rotation is automatic, and it takes place through handle control operation (Fig. 7 ref. C and D).

12.5.2 Tools assembly extraction/insertion

The tools holder head has two working positions.



THE FOLLOWING OPERATIONS MUST BE CARRIED OUT WITH THE TOOLS HEAD IN "OFF-WORK" POSITION.

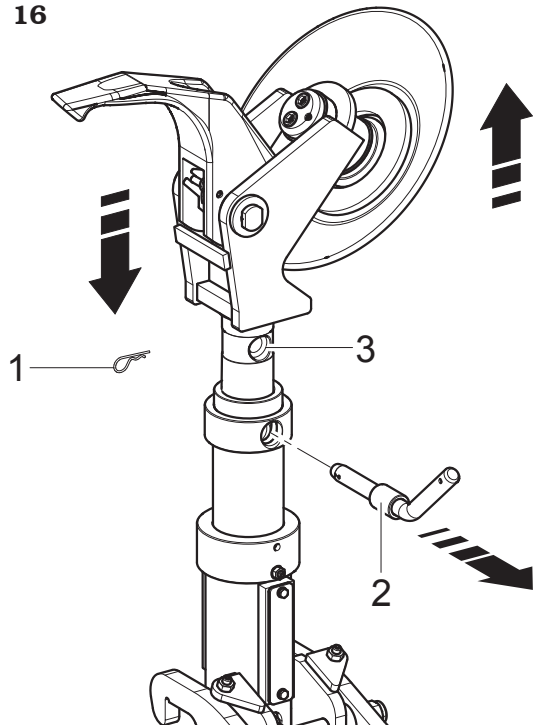
Remove the safety split pin (Fig. 16 ref. 1) and manually extract the lever (Fig. 16 ref. 2) to change from one position to another. Manually lift or lower the tools holder head until the locking holes match (Fig. 16 ref. 3).



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

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

Fig. 16



12.6 Tubeless tyres

12.6.1 Bead breaking



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



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

- Lock the wheel on the chuck as described in the previous paragraph.
- Remove all balancing weights from the rim. Extract the valve and let air out of tyre.
- Move to work position C (Fig. 4).
- Lower tool holder arm into work position (hooked safety jack) (Fig. 14).



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

- Place as shown in Fig. 17 the bead breaker disc (Fig. 17 ref. 1) by means of the relevant handle control; the outer profile of the rim (Fig. 17 ref. 2) must almost touch the bead breaker disc.

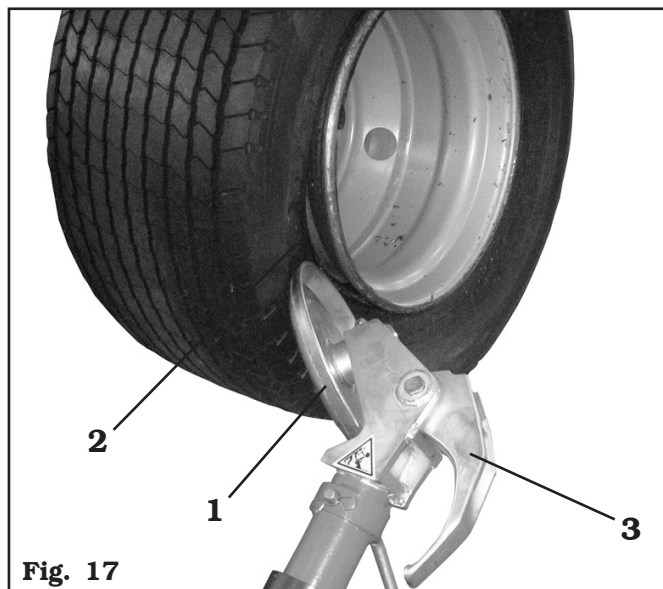


Fig. 17



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

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



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

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



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

- H.** Carry out the tools holder head 180° rotation according to the descriptions of the relevant paragraph, so that the beading disc (**Fig. 18 ref. 1**) is placed against the rim edge (**Fig. 18 ref. 2**).
- I.** Move to work position **D** (**Fig. 4**) and repeat the operations described in points **E**, **F** until the tyre has been completely beaded.

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

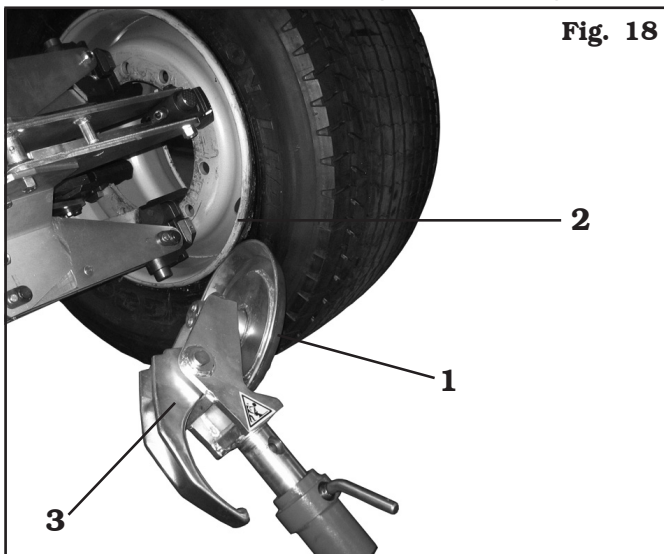


Fig. 18

12.6.2 Demounting



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

Tubeless tyres can be removed in two ways:

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

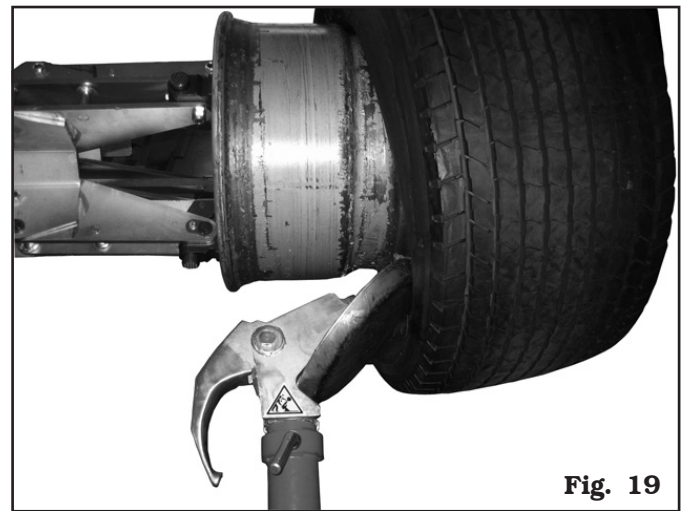


Fig. 19

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

- Move to work position **C** (**Fig. 4**).
- Position the tool holder arm on the outer side of the wheel and bring forward the hook tool, inserting it between rim and bead up to it is secured to the bead itself (see **Fig. 20**).

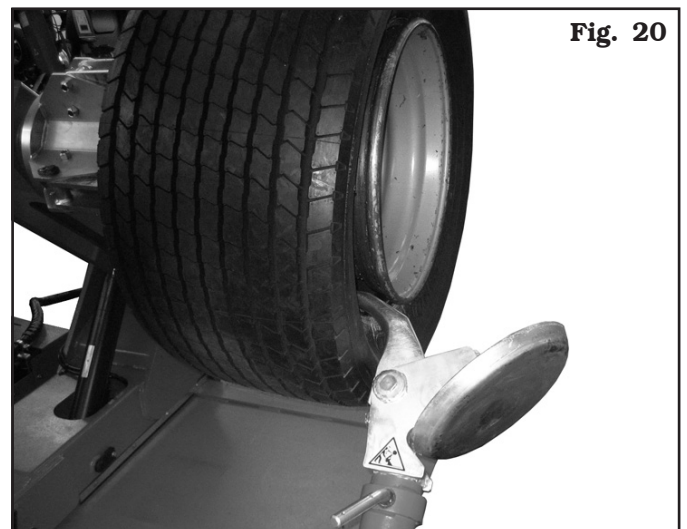


Fig. 20

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

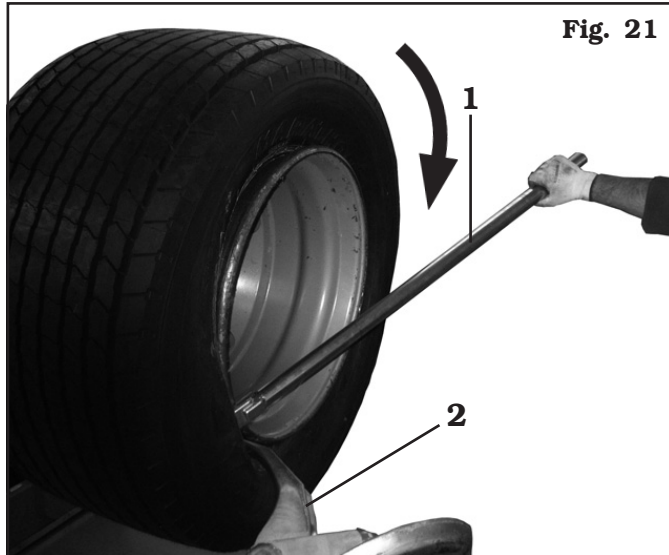


Fig. 21

- Keeping the lever pressed, lower the wheel until the edge of the rim is 5 mm distant from the hook tool.
- Turn the wheel clockwise keeping lever pressed (Fig. 21 ref.1) until the bead has gone completely out.

Optional



BEFORE STARTING DEMOUNTING THE 1ST BEAD, TOOL'S SPRING LOCKING DEVICE MUST BE EXTRACTED OUTWARDS (FIG. 22 REF. 1).

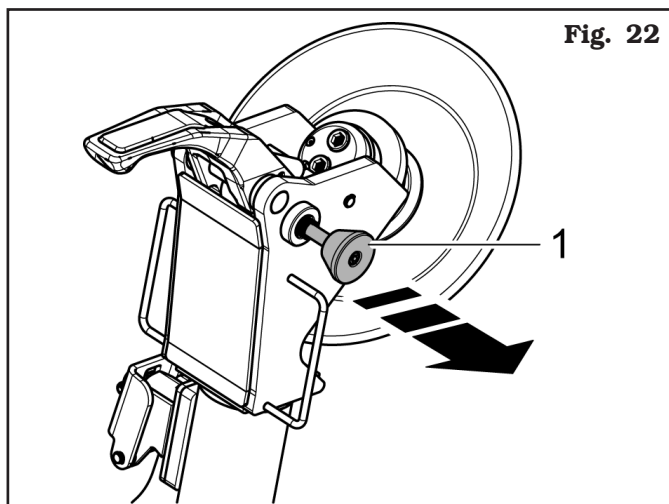


Fig. 22

- Position the tool holder arm on the outer side of the wheel and bring forward the hook tool, inserting it between rim and bead until it is secured to the bead itself (see Fig. 23 ref. A).

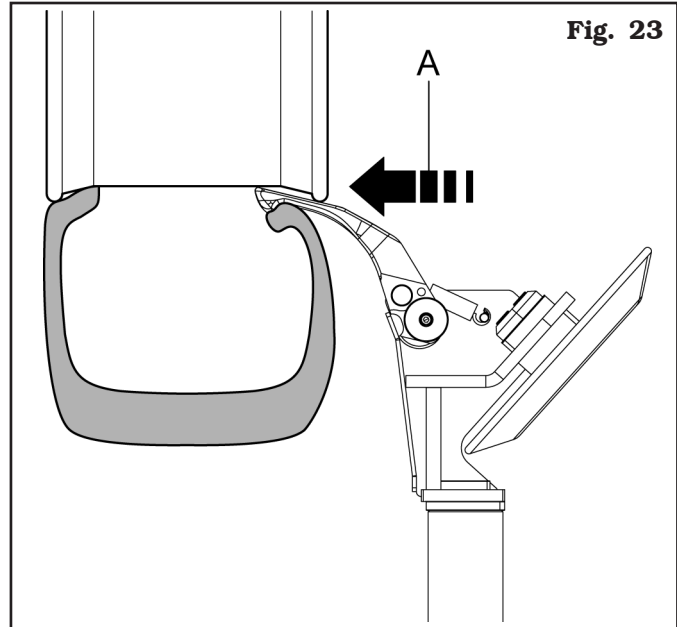


Fig. 23

- Translate the tool outwards (Fig. 24 ref. B) until the first bead is brought outside the rim.

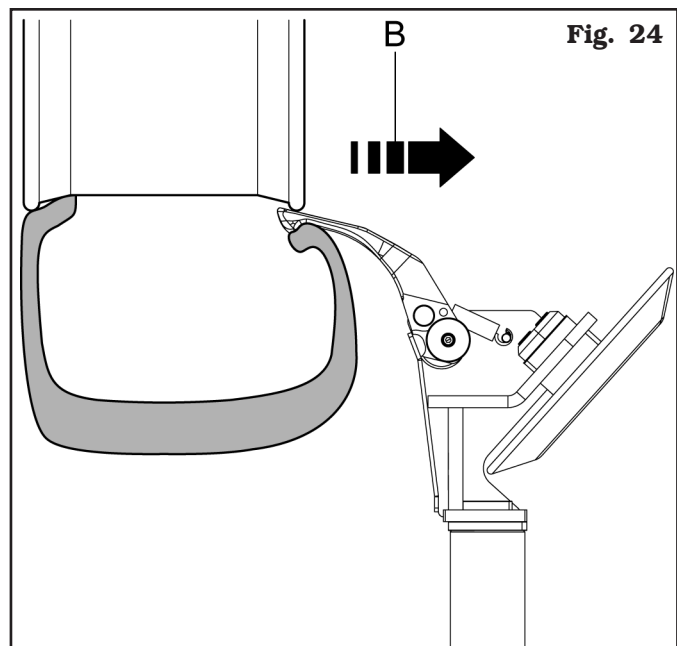
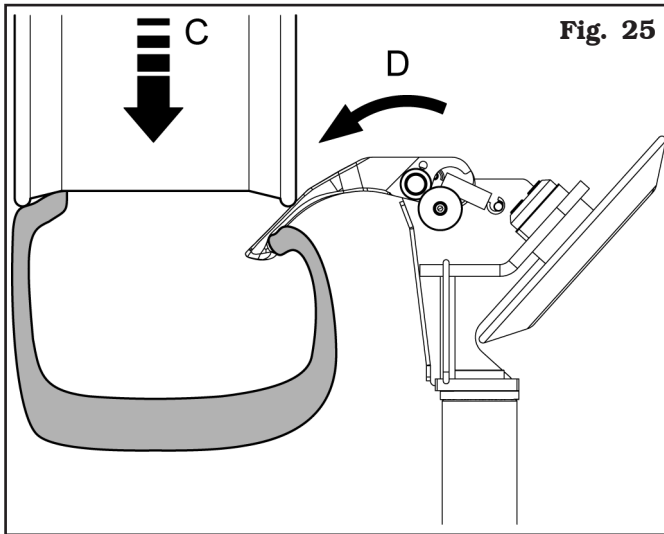
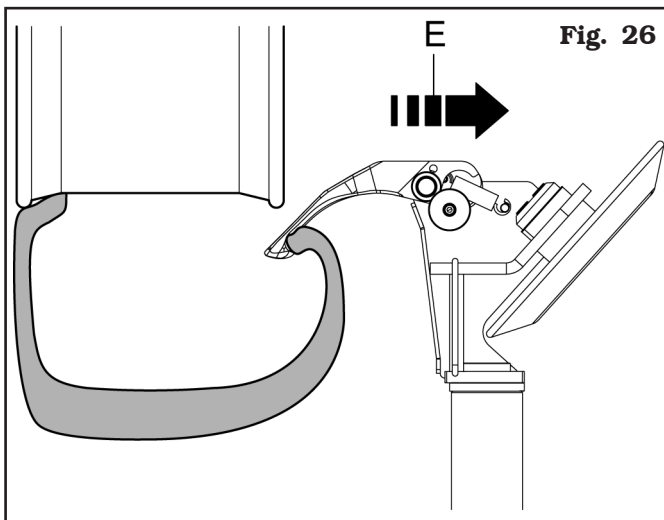


Fig. 24

- Lower the chuck (Fig. 25 ref. C) up to locking the tool in the extraction position (Fig. 25 ref. D).



- Translate the tool outwards (Fig. 26 ref. E) until the bead is brought to mounting position.



- Then rotate the wheel clockwise until the first bead has completely gone out.

For all models

- Once the external bead has been removed, move tool holder arm away from the wheel, unhook it and lift it bringing it to "off-work" position (Fig. 15 ref. 1); use the handle control to position the tool holder arm on the inner side of the wheel then place it to "working" position again (Fig. 14 ref. 1) and secure with the safety hook provided.



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



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

- Move to work position D (Fig. 4).
- Carry out the tool holder head 180° rotation in order to insert the hook tool (Fig. 27 ref. 1) between the rim edge and the tyre bead.




- Move the rim away from the tool by about 4-5 cm to avoid possible unhooking of the bead from the same tool.
- Move to work position B (Fig. 4).
- 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 distant from the hook tool then turn the chuck counterclockwise until the tyre has been completely removed.




THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.

12.6.3 Mounting



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




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

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

With bead breaker disc

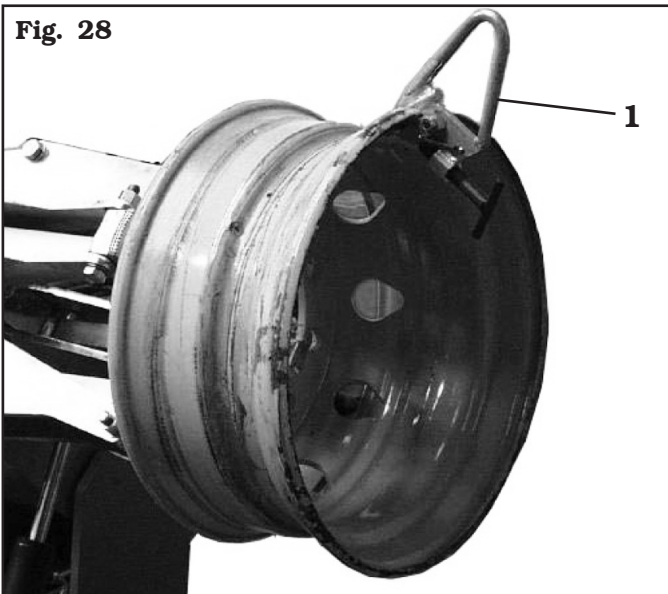

Proceed as follows:

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



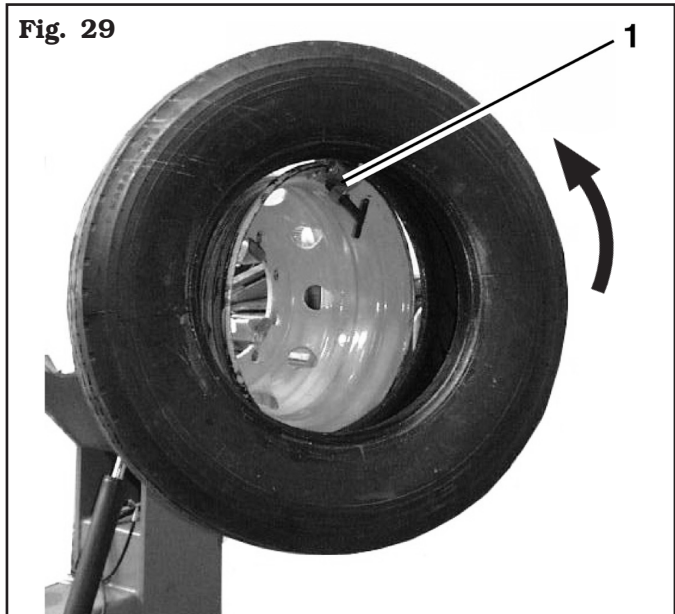
USE ONLY TYRE LUBRICANTS. SUITABLE LUBRICANTS CONTAIN NO WATER, HYDROCARBONS, OR SILICON.

- Mount clamp (**Fig. 28 ref.1**) on the external edge of the rim in the highest point as shown in **Fig. 28**.

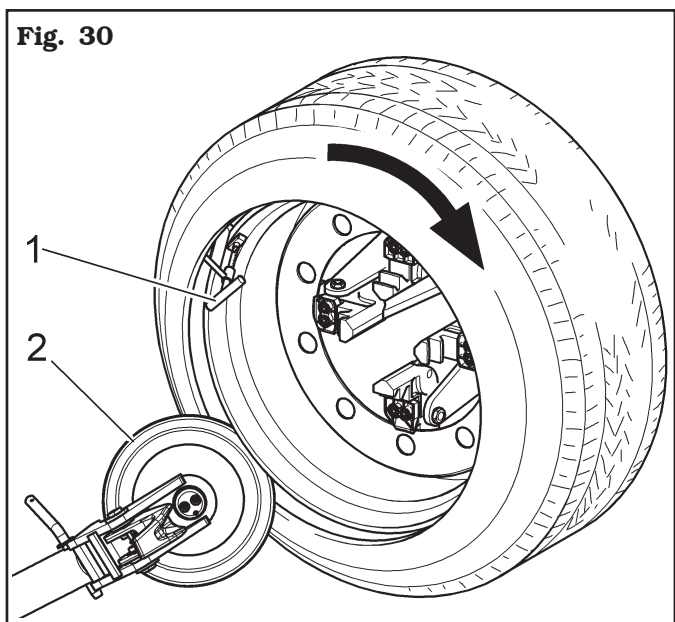



THE CLAMP MUST BE TIGHTLY SECURED TO THE EDGE OF THE RIM.

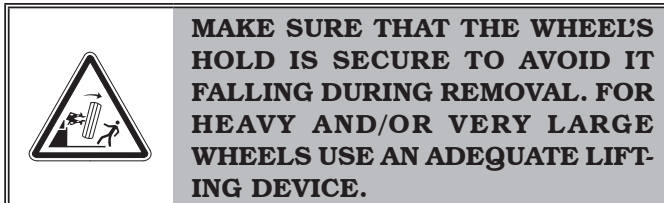
- Move to work position **B** (**Fig. 4**).
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 28 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm; the tyre will position itself sideways in relation to the rim (see **Fig. 29**).



- Move to work position **C** (**Fig. 4**).
- Position bead breaker disc (**Fig. 30 ref. 2**) so that it is at approximately 1.5 cm from the edge of the rim. Fitting clamp (**Fig. 30 ref. 1**) is at 11 o'clock. Turn the chuck until the clamp reaches the lowest point ("6 o'clock").



- Move the bead breaker disc away from the wheel.
- Remove the clamp and fit it in the same position (“6 o’clock”) outside the second bead.
- Turn the chuck 90° clockwise up to the clamp is at “9 o’clock”.
- Move the bead breaker disc forward up to it is inside the edge of the rim by about 1-2 cm, making sure it is approximately 5 mm from the profile. Start clockwise rotation making sure that, after a 90° turn, the second bead begins sliding in the rim drop centre.
- Once insertion is completed, move the tool away from the wheel, turn it over into “off-work” position and remove the clamp.
- Lower the chuck up to the wheel rests on the foot-board.
- Move to work position **A (Fig. 4)**.
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.

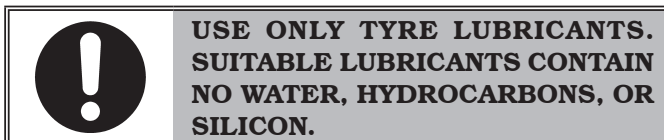


- Translate the movable footboard to release the wheel from the same chuck. With especially soft tyres, simultaneously insert both beads on the jaw so that bead insertion in the tyre is done only once; this single operation is ideal for saving time.

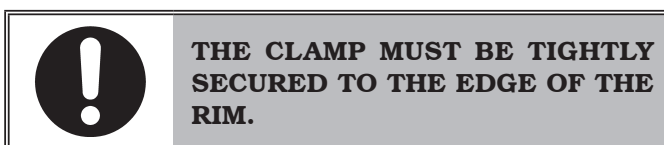
With hook tool

Proceed as follows:

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



- Mount the clamp (**Fig. 28 ref. 1**) on the external edge of the rim in the highest point.




- Move to work position **B (Fig. 4)**.
- Lower the chuck arm completely. Roll the tyre on the platform and hook it to clamp (**Fig. 29 ref. 1**).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm; the tyre will position itself sideways in relation to the rim (see **Fig. 29**).
- Place the tool holder arm to “off-work” position (**Fig. 15 ref. 1**); translate it to the inner side of the tyre and hook it again into “working” position (**Fig. 14 ref. 1**).
- Carry out the tools head 180° rotation up to the hook tool is moved onto the tyre side (see **Fig. 31**).



- Move to work position **D (Fig. 4)**.
- Move the tool forward until the reference notch matches the external edge of the rim coincide at about 5 mm from the rim itself.
- Move to work position **C (Fig. 4)**.
- From the external side of the wheel, check the exact position of the tool and, if necessary, correct it. Then, turn the chuck clockwise up to the clamp reaches the lowest point (“6 o’clock”). The first bead should now be inserted in the rim.
- Remove clamp.
- Move to work position **D (Fig. 4)**.
- Extract the tool from the tyre.
- Place the tool holder arm to “off-work” position (**Fig. 15 ref. 1**); translate it to the outer side of the tyre and hook it again into “working” position (**Fig. 14 ref. 1**).
- Carry out the tools head 180° rotation up to the hook tool is moved onto the tyre side (see **Fig. 20**).
- Mount clamp in the lowest point (“6 o’clock”) outside the second bead.

- Move to work position **C** (**Fig. 4**).
- Turn the chuck about 90° clockwise up to clamp is at “9 o'clock”.
- Move the tool forward until the axis of the reference notch matches that of the external edge of the rim at about 5 mm from the rim itself (**Fig. 20**). Begin clockwise rotation making sure that, after a 90° turn, the second bead begins to slide in the rim drop centre. Turn the chuck until the clamp reaches the lowest point (“6 o'clock”). The second bead should now be inserted in the rim.
- Move the tool away from the wheel, turn it over into “off-work” position and remove the clamp.
- Lower the chuck up to the wheel rests on the footboard.
- Move to work position **A** (**Fig. 4**).
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.




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

- Translate the movable footboard to release the wheel from the same chuck.


12.7 Tyres with inner pipe

12.7.1 Bead breaking




REMOVE THE RING NUT OF THE INNER PIPE 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 PIPES, INTERRUPT THE FORWARD MOVEMENT OF THE BEAD BREAKER DISC AS SOON AS THE BEADS HAVE BEEN DISLODGED TO AVOID DAMAGE TO THE INNER PIPE OR TO THE VALVE.

12.7.2 Demounting




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

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

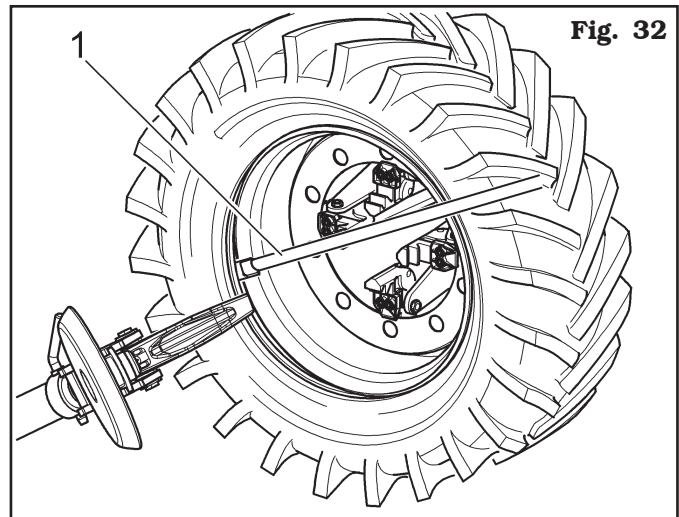


PAY ATTENTION WHEN REPOSITIONING THE TOOL HOLDER ARM TO AVOID CRUSHING HANDS.

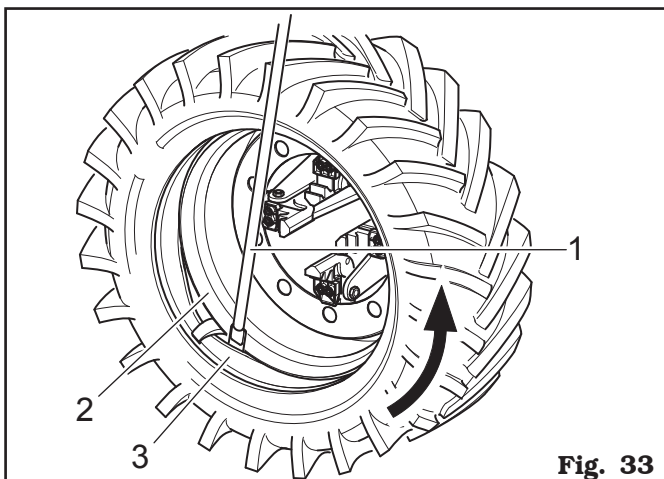


ALWAYS MAKE SURE THAT THE ARM IS CORRECTLY HOOKED TO CARRIAGE.

- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the tool by about 4-5 cm to avoid possible unhooking of the bead from the same tool.
- Translate the hook tool outwards until the reference notch matches the external edge of the rim.
- Move to work position **A** (**Fig. 4**).
- Insert lever (**Fig. 32 ref. 1**) between the rim and the bead on the right-hand side of the tool.



- Keeping the lever pressed, lower the wheel until the edge of the rim is approximately 5 mm distant from the hook tool.
- Turn the wheel clockwise by keeping lever pressed until the bead has gone completely out.
- Move the tool holder arm away to “off-work” position (**Fig. 15 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 pipe.
- Extract the inner pipe and lift the wheel again.
- Move to work position **D** (**Fig. 4**).
- Tilt up tool holder arm, unhook it and lift it placing it to “off-work” position (**Fig. 15 ref. 1**); use the handle control to position the tool holder arm on the inner side of the wheel then place it to work position (**Fig. 14 ref. 1**) and secure with the safety hook provided (**Fig. 1 ref. 8**).
- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move the rim away from the tool by about 4-5 cm to avoid possible unhooking of the bead from the same tool.
- Move to work position **A** (**Fig. 4**).
- Translate the hook tool outwards until the reference notch is 3 cm inside the rim.
- Insert the lever (**Fig. 33 ref. 1**) between rim (**Fig. 33 ref. 2**) and bead (**Fig. 33 ref. 3**) on the tool right.


Fig. 33

- Keeping the lever pressed, lower the wheel until the edge of the rim is approximately 5 mm distant from the hook tool then turn the chuck counterclockwise keeping the lever (**Fig. 33 ref. 1**) pressed until the tyre has been completely dislodged from the rim.



THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO 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.

12.7.3 Mounting



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

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



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

- Mount clamp (**Fig. 28 ref. 1**) on the external edge of the rim in the highest point as shown in **Fig. 28**.



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

- Move to work position **B** (**Fig. 4**).
- Position the tyre on the footboard and lower the chuck (make sure the clamp is in the highest point) to hook the first tyre bead (internal bead).
- Lift the chuck arm with the tyre hooked and turn it counterclockwise about 15-20 cm; the tyre will position itself sideways with respect to the rim.

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



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



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

- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph, in order to insert the hook between the rim edge and the tyre bead; the operation must be carried out during chuck rotation.
- Move to work position **D** (**Fig. 4**).
- Move the tool forward until the axis of the reference notch matches that of the external edge of the rim at about 5 mm from the rim itself (see **Fig. 34**).

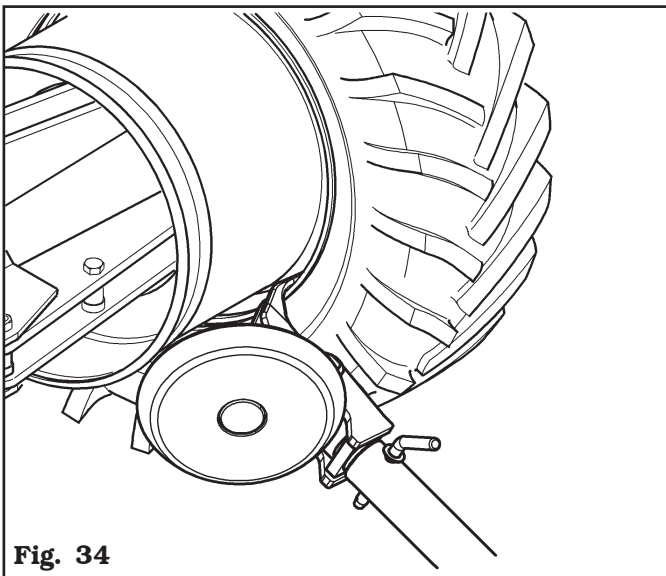


Fig. 34

- Move to work position **C** (**Fig. 4**).
- From the external side of the wheel, check the exact position of the tool and, if necessary, correct it, then, turn the chuck clockwise until the clamp reaches the lowest point (“6 o’clock”). The first bead should now be inserted in the rim, then remove clamp.
- Move to work position **D** (**Fig. 4**).
- Extract the tool hook from the tyre.
- Place the tool holder arm to “off-work” position (**Fig. 15 ref. 1**) and translate it to the outer side of the tyre.

- Carry out the tools holder head 180° rotation, according to the descriptions in the relevant paragraph.
- Move to work position **B** (**Fig. 4**).
- Turn the chuck to position the hole to insert the valve downward (“6 o’clock”).
- Position movable footboard (**Fig. 1 ref. 18**) directly above the wheel and lower the 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 pipe.



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 PIPE AS SHOWN IN FIG. 35.

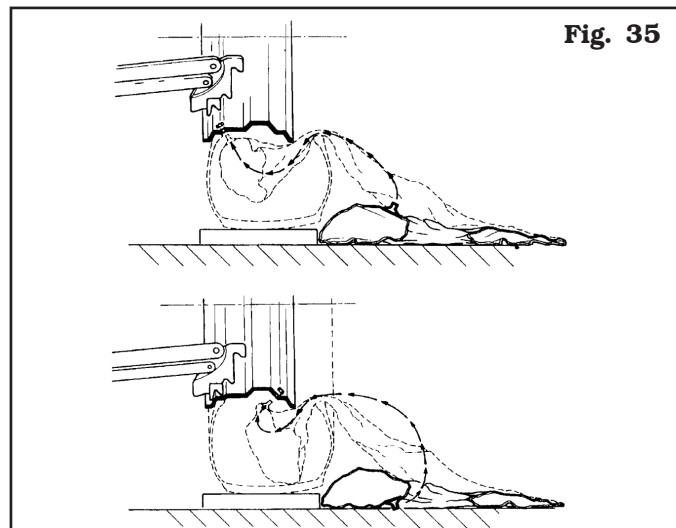
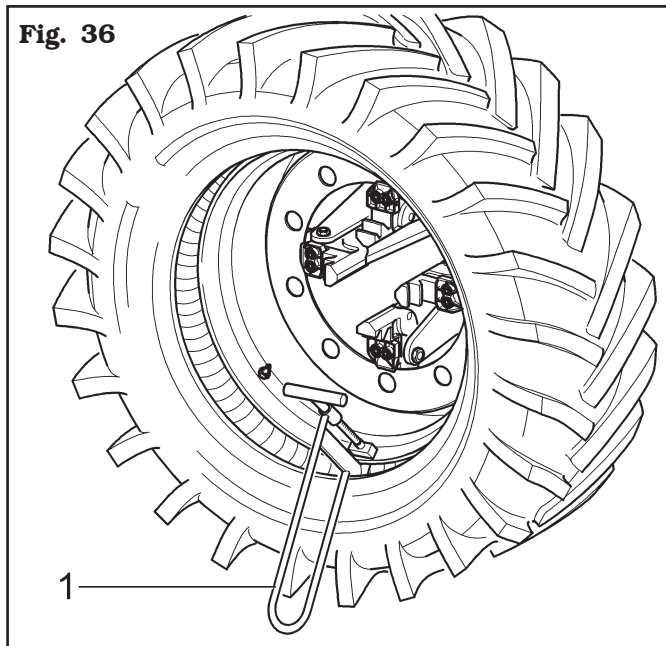


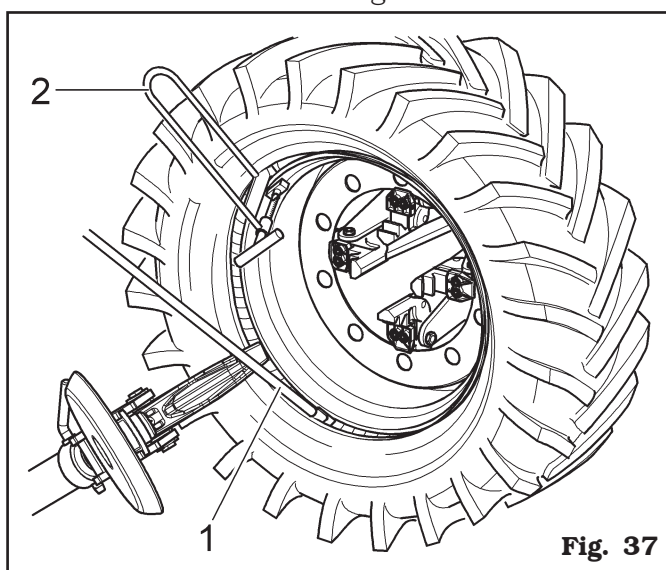
Fig. 35

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

- Turn the chuck and position the valve downwards (“6 o’clock”).
- To avoid damaging the inner pipe, slightly inflate it when inserting the second bead.
- To avoid damaging the valve when securing the second bead, remove the fixing ring nut and mount an extension on the same valve.
- Move to work position **C** (**Fig. 4**).
- Lift the chuck and mount the clamp (**Fig. 36 ref. 1**) on the rim outside the second bead at about 20 cm from the inflating valve on the right.
- Turn the chuck clockwise until clamp (**Fig. 36 ref. 1**) is positioned at “9 o’clock”.



- Place the tool holder arm to “working” position (**Fig. 14 ref. 1**) on the outer side of the tyre.
- Place 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.
- Turn the chuck clockwise until lever (**Fig. 37 ref. 1**) is introduced in the housing obtained on the hook tool.
- Turn the chuck with lever (**Fig. 37 ref. 1**) hooked up to the complete insertion of the tyre outer bead.
- Remove lever (**Fig. 37 ref. 1**), clamp (**Fig. 37 ref. 2**) and extract the hook tool by turning the chuck counterclockwise and translating it outwards.



- Tilt up tool holder arm placing it to “off-work” position (**Fig. 15 ref. 1**) after it has been unhooked.

- Position movable footboard (**Fig. 1 ref. 18**) directly under the wheel and lower the chuck until the wheel is resting on the platform.
- Move to work position **B** (**Fig. 4**).
- Check the condition of the tyre valve and centre it in the rim hole if necessary, by slightly turning the chuck; secure the valve with the supplied ring nut after removing the protective extension.
- Close the chuck jaws completely, making sure the wheel is held up to avoid dropping.

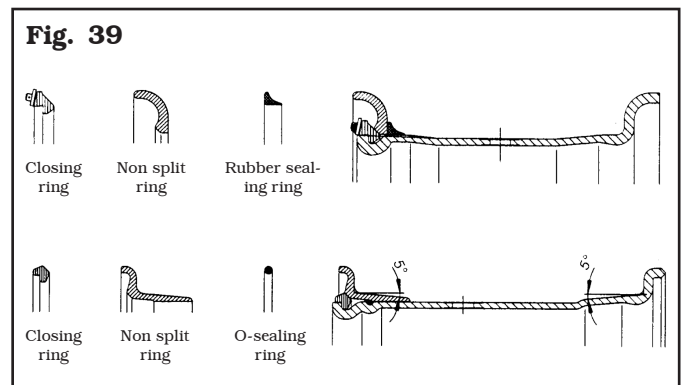
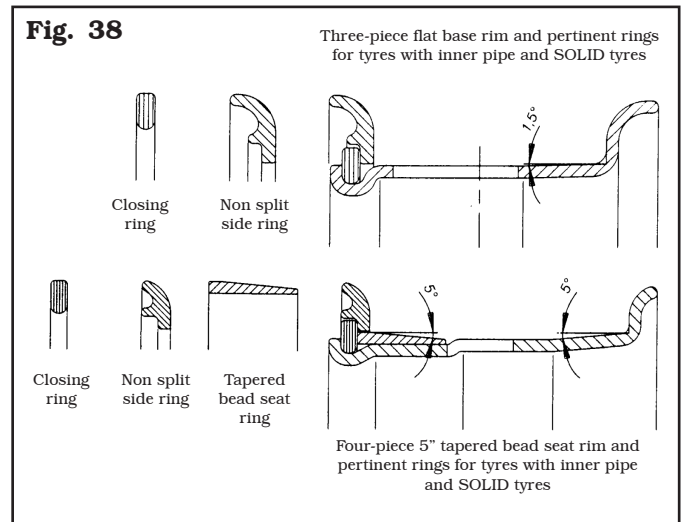


MAKE SURE THAT THE WHEEL'S HOLD IS SECURE TO AVOID IT FALLING DURING REMOVAL. FOR HEAVY AND/OR VERY LARGE WHEELS USE AN ADEQUATE LIFTING DEVICE.

- Translate the movable footboard to release the wheel from the same chuck.

12.8 Wheels with bead wire

As an example **Fig. 38** and **Fig. 39** illustrate sections and compositions of types of wheels with bead wire currently being sold.



12.8.1 Beading and demounting



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



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

- Mount the wheel on the chuck as described in “WHEEL CLAMPING” and make sure it is deflated.
- Move to work position **D** (Fig. 4).
- Place the tool arm to “work position” (Fig. 14 ref. 1) in the tyre inner side, and make sure it is locked by the provided safety stop (Fig. 1 ref. 8).
- Position the bead breaker disc on rim edge (see Fig. 40).

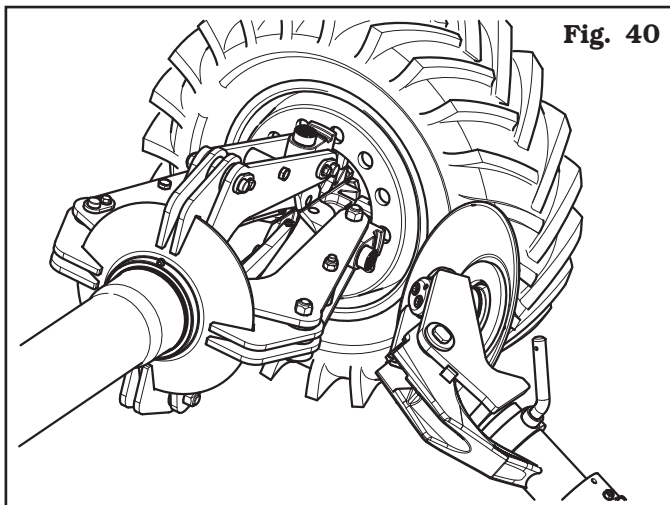
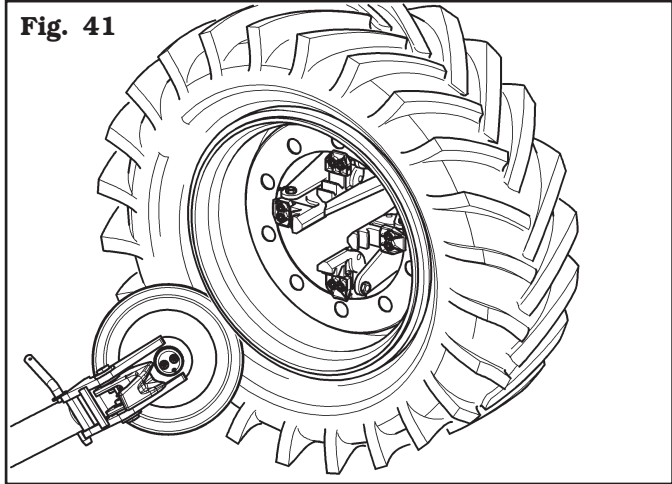


Fig. 40

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

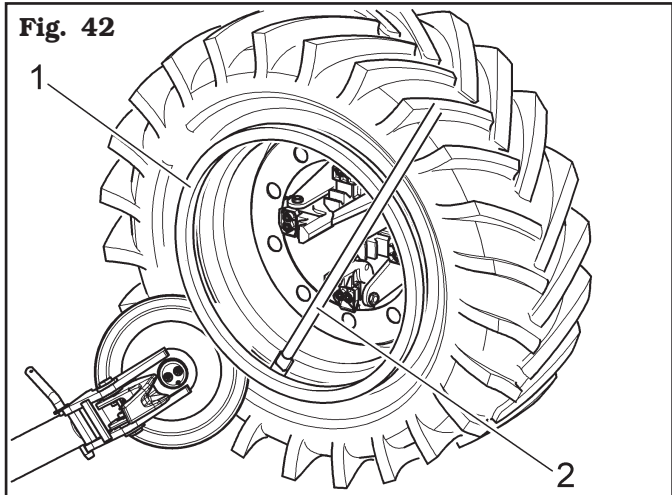
- Carry out tools holder head 180° rotation according to the description of the relevant paragraph, in order to let the bead breaker disc come into contact with the tyre outer side (see Fig. 41).

Fig. 41



- Turn the chuck and smear the entire bead seat of the rim with lubricant.
- While doing this, jerk the bead breaker disc forward until bead is removed.
- Repeat the operation, making the bead breaker disc move forward against the bead wire (see Fig. 42) up to the stop ring is released (Fig. 42 ref. 1). It will be then extracted through lever (Fig. 42 ref. 2).

Fig. 42



- Remove the bead wire.
- Remove the O-Ring, when featured.
- Tilt up tool holder arm placing it to “off-work” position (Fig. 15 ref. 1) after it has been unhooked.
- Lower the chuck until the wheel rests on the foot-board.
- Move to work position **B** (Fig. 4).
- Translate the movable footboard outwards until the tyre is completely dislodged from the rim (in case of tyres with inner pipe, make sure that the valve hasn't been damaged during removal).



THE REMOVAL OF THE BEADS FROM THE RIM CAUSES THE TYRE TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.



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



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



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

12.8.2 Mounting

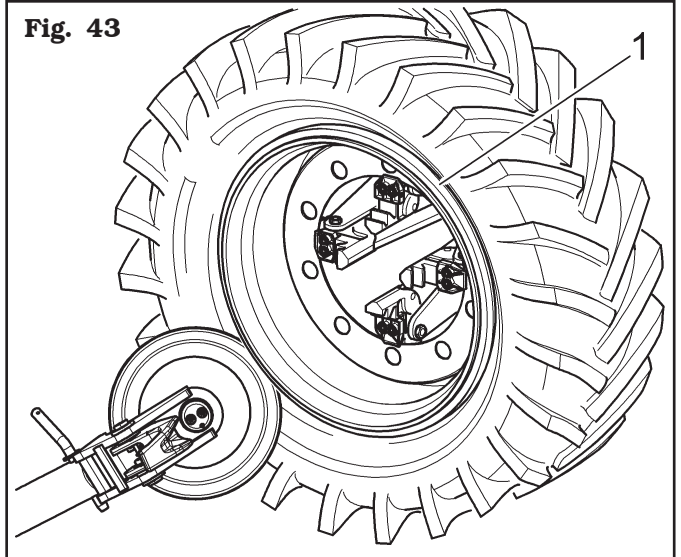


THROUGHOUT TYRE MOUNTING/DEMOUNTING OPERATIONS, CHECK THAT THE SELF-CENTRING CHUCK CLAMPING PRESSURE IS CLOSE TO THE MAX. OPERATING VALUE (180 BAR).

- Place the tool “holder arm in “off-work” position (**Fig. 15 ref. 1**); if it has been removed, secure the rim to the chuck as described in “WHEEL CLAMPING” paragraph. If the wheel features an inner pipe, position the rim with the valve slot facing downwards (at “6 o’clock”).
- Lubricate the entire bead seat of the rim and the tyre beads.
- Move to work position **B** (**Fig. 4**).
- Position the movable footboard (**Fig. 1 ref. 18**) so as to allow the upward motion of the tyre (if the wheel features an inner pipe, position the rim with the valve slot facing downwards at 6 o’clock).
- Place the chuck in order to centre the rim on the tyre.
- Operate the movable footboard forward movement in order to insert the rim in the tyre (in case of tyres with inner pipe, make the valve re-enter not to damage it). Move forward until the rim is completely inserted in the tyre.

- Insert the bead wire on the rim with the stop ring fitted (if the rim and bead wire feature fixing slits, they must be in phase with each other).
- Move to work position **C** (**Fig. 4**).
- Place the tool holder arm on the external side then lower it into “working” position (**Fig. 14 ref. 1**) with the bead breaker disc facing the wheel. If the outer edge ring is not sufficiently fitted on the rim, position the chuck until the bead wire is near the bead breaker disc. Move the bead breaker disc forward and then turn the chuck until the housing of the O-Ring (if featured) is found.
- Lubricated the O-Ring and place it in its housing.
- Move to work position **B** (**Fig. 4**).
- Position the bead wire (**Fig. 43 ref. 1**) on the rim, fit the stop ring with the help of the bead breaker disc as shown in **Fig. 43**.

Fig. 43





- Tilt up tool holder arm placing it to “off-work” position (**Fig. 15 ref. 1**) after it has been unhooked.
- Position movable footboard (**Fig. 1 ref. 18**) directly under the wheel and lower the chuck until the wheel is resting on the platform.
- Close the 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 THE CHUCK CAUSES THE WHEEL TO FALL. ALWAYS MAKE SURE THAT NO ONE IS STANDING BY ACCIDENT IN THE WORK AREA.

13.0 ROUTINE MAINTENANCE

 **BEFORE CARRYING OUT ANY ROUTINE MAINTENANCE OR ADJUSTMENT PROCEDURE, DISCONNECT THE EQUIPMENT FROM THE ELECTRICITY SUPPLY USING THE SOCKET/PLUG COMBINATION AND CHECK THAT ALL MOBILE PARTS ARE AT A STANDSTILL.**

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

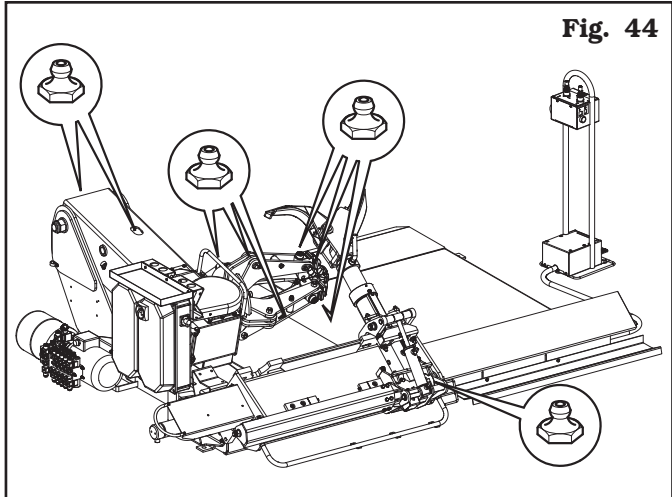
 **BEFORE REMOVING HYDRAULIC CIRCUIT FITTING OR HOSES, MAKE SURE THAT THERE ARE NO PRESSURISED FLUIDS PRESENT. PRESSURISED OIL SPILLS MAY CAUSE SERIOUS WOUNDS OR INJURIES.**

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

To guarantee the efficiency and correct functioning of the machine, 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 cleaner.
- **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 machine (see **Fig. 44**).



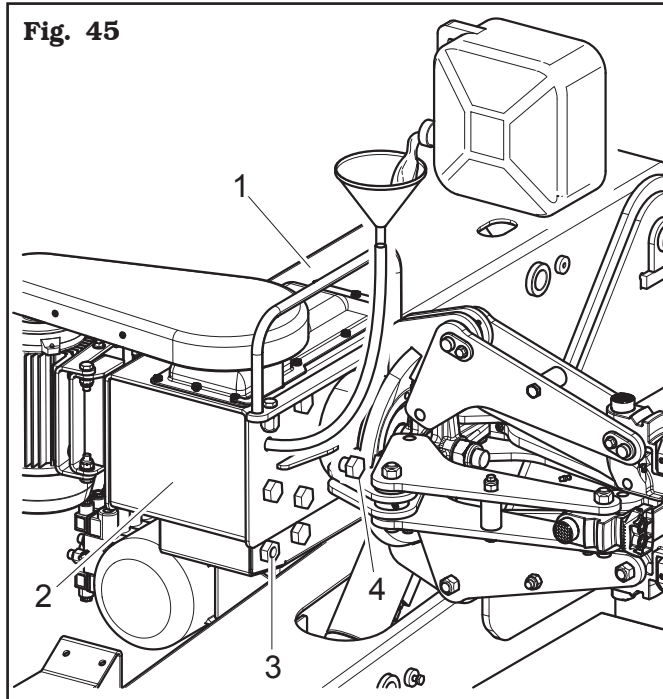
- Check periodically the oil level of the oil-pressure unit and, in case, carry out the filling up with hydraulic oil having a viscosity degree suitable for the average temperatures of the country where the machine is installed and in particular:
 - viscosity 32 (for countries with room temperature from 0 to 30 degrees);
 - viscosity 46 (for countries with room temperature above 30 degrees).

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

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

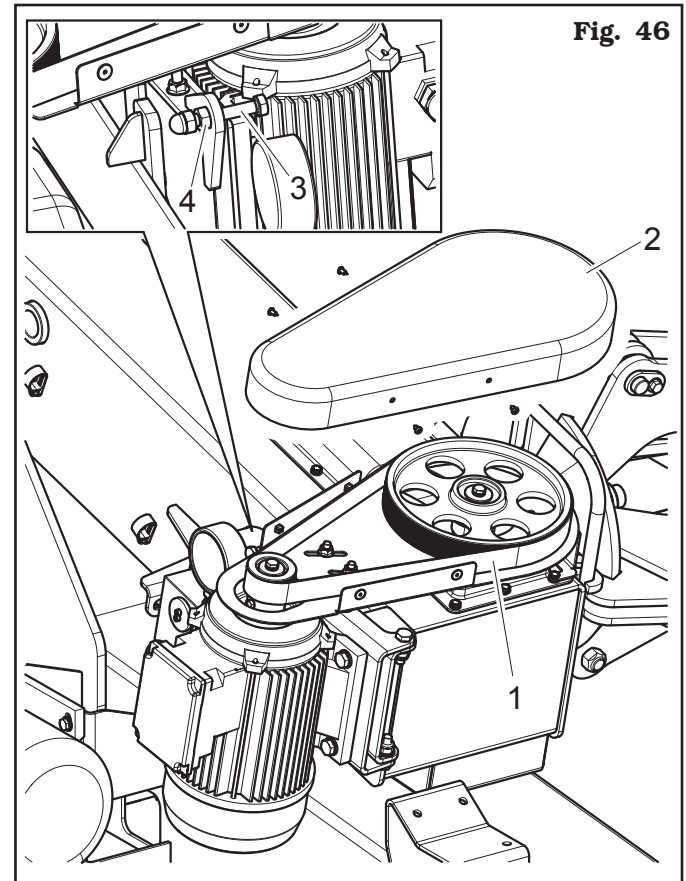
- Periodically (about every 100 hours), check the oil level of the reduction gear and eventually reset the level.
- Check operation of the safety devices every week.
- Periodically (every 50 working hours approximately), clean the (inner and outer) guides of the tool carriage.

A. Place the whole support (**Fig. 45 ref. 1**) in horizontal position, then check the reduction gear oil level (**Fig. 45 ref. 2**); the level indicator window (**Fig. 45 ref. 3**) must be covered with lubricant, otherwise, remove a closing plug (**Fig. 45 ref. 4**) and top up, using appropriate lubricants until the level is reset.



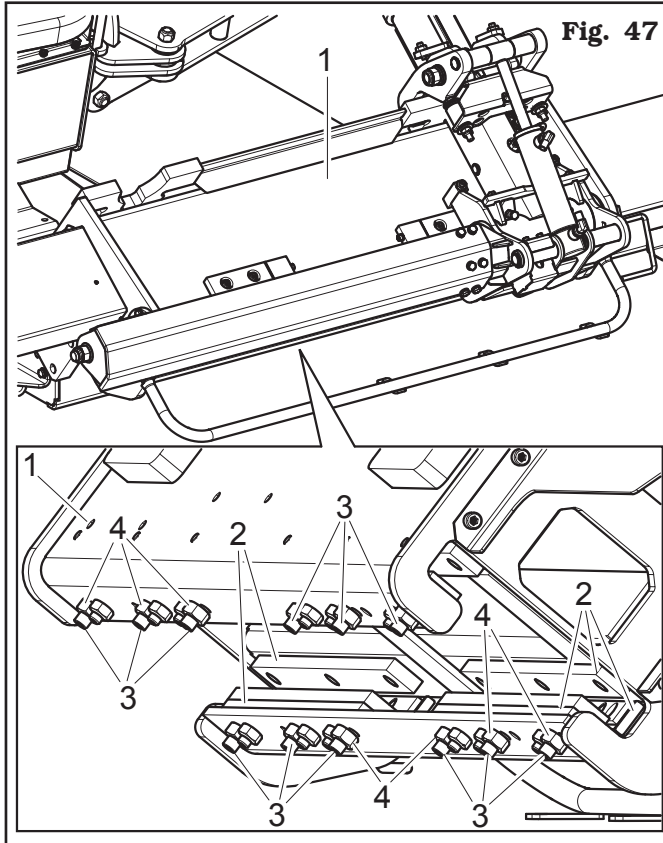
B. Check belt tensioning (**Fig. 46 ref. 1**):

- Remove upper guard (**Fig. 46 ref. 2**) by removing the provided fixing bolts;
- stretch the belt (**Fig. 46 ref. 1**) using the bolt (**Fig. 46 ref. 3**) after the nut (**Fig. 46 ref. 4**) has been slackened.
- tighten the fixing nut (**Fig. 46 ref. 4**) after the adjustment operations, then assemble the protection guard (**Fig. 46 ref. 2**) again.





C. Adjust the play of slide (**Fig. 47 ref. 1**) by means of the adjustment bolts (**Fig. 47 ref. 3**) of the sliding blocks (**Fig. 47 ref. 2**), after slackening the nuts (**Fig. 47 ref. 4**).



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.



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








14.0 TROUBLESHOOTING TABLE





Possible troubles which might occur to the tyre-changer are listed below. The manufacturer disclaims all responsibility for damages to people, animals or objects due to improper operation by non-unauthorised personnel. In case of trouble, call Technical Service Department for instructions on how to service and/or adjust the machine in full safety to avoid any risk of damage to people, animals or objects.

In an emergency and before maintenance on tyre-changer, set the main switch to "0" and lock it in this position.



**CONTACT AUTHORIZED TECHNICAL SERVICE
do not try and service alone**

Problem	Possible cause	Remedy
Pump motor does not work but wheel holder chuck motor works perfectly.	a) Hydraulic control unit damaged.	a) Call Technical Service Dept. 
When main switch is turned on, wheel holder chuck does not turn whereas the pump motor works.	a) Gearmotor change-over switch damaged.	a) Call Technical Service Dept. 
Power drop during wheel holder 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 chuck opening pressure does not go down.	a) Pressure limiting valve jammed	a) Download chuck (remove wheel), completely undo adjusting handle. Perform many opening and closing cycles up to jam release. 
The machine 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 machine 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 
Machine 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. 
Version with inverter		
The chuck doesn't rotate	<ul style="list-style-type: none"> a) The first current threshold has been exceeded. b) The second current threshold has been exceeded. c) Lack of supply. d) Insufficient net voltage. e) Net voltage too high. f) Sudden and short drop of net voltage. g) The second temperature threshold has been exceeded. 	<ul style="list-style-type: none"> a) Wait for the automatic reset releasing the control. b) Disconnect the machine from the net for 30 seconds at least, then reconnect. If the problem persists, check the harness. c) Connect the power supply. d) Shorten the length of possible extension cable to the machine or raise the leads section (disconnect and reconnect). e) Disconnect the machine from the net for 30 seconds at least, then reconnect. f) Disconnect the machine from the net for 30 seconds at least, then reconnect. g) The machine does not start until the temperature does not lower under the safety limit.
The chuck does not reach the maximum speed	<ul style="list-style-type: none"> a) The first temperature threshold has been exceeded. b) Raised mechanical resistance. 	<ul style="list-style-type: none"> a) Let the motor body cool. b) Make the chuck rotate loadless for some minutes. If it does not accelerate, call the after-sales service. 

**15.0 TECHNICAL DATA****15.1 Technical electrical data**

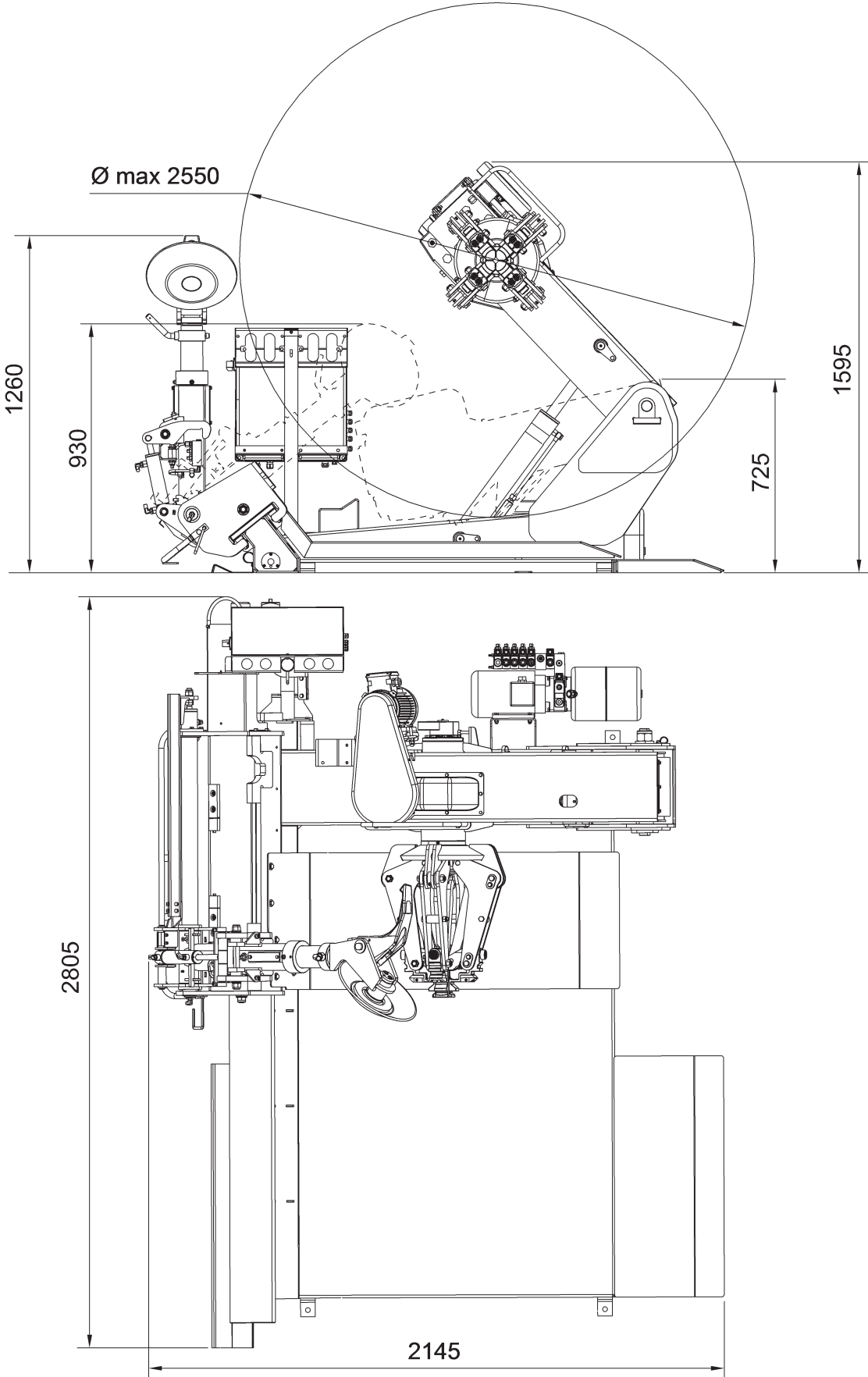
		400 V - 3 Ph - 50 Hz version	Version with inverter	220 V - 3 Ph - 60 Hz version
Motor power (kW)		1.35 - 1.85	2.2	1.35 - 1.85
Power supply	Voltage (V)	400		220
	Phases	3		
	Frequency (Hz)	50		60
Hydraulic drive unit motor (kW)		1.8 - 2.5		
Power supply	Voltage (V)	400		220
	Phases	3		
	Frequency (Hz)	50		60
Typical current draw (A)		13	23	24
Self-centring chuck rotation speed (rev/min)		4 - 8	1 - 5 - 10	4 - 8

15.2 Technical mechanical data

Tyre maximum diameter (mm)	2550 (100")
Wheel max. width (mm)	1500 (59")
Max. rotation torque (Nm)	5300
Wheel max. weight (kg)	2300
Self-centring lock (inches)	11- 56 (with extensions)
Minimum locking hole (mm)	90
Chuck minimum height from the ground (mm)	300
Bead-breaking force (N)	34000
Gear noise (dB) (A)	< 80
Operating pressure (bar)	180
Weight (Kg)	1020

15.3 Dimensions

Fig. 48





16.0 STORING

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

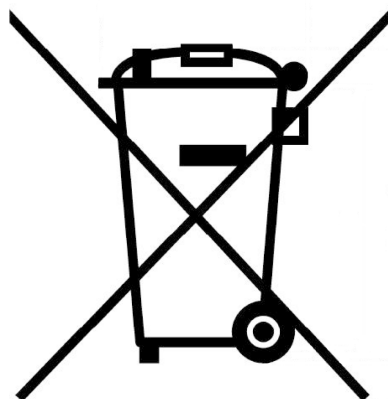
17.0 SCRAPPING

When the decision is taken not to make further use of the machine, it is advisable to make it inoperative by removing the connection pressure hoses. The machine 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 product (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. 49



18.0 REGISTRATION PLATE DATA

	Ravaglioli s.p.a. 40037 - PONTECCHIO MARCONI/ITALIA TEL. 051-6781511 - TELEX 510697 RAV I P.O.B. 1690 - 40100 BOLOGNA/ITALIA FAX + 39 (051) 846349		
MODEL			
SERIAL N°	YEAR		

The validity of the Conformity Declaration enclosed to this manual is also extended to products and/or devices the machine model object of the Conformity Declaration can be equipped with.

Said plate must always be kept clean from grease residues or filth generally.

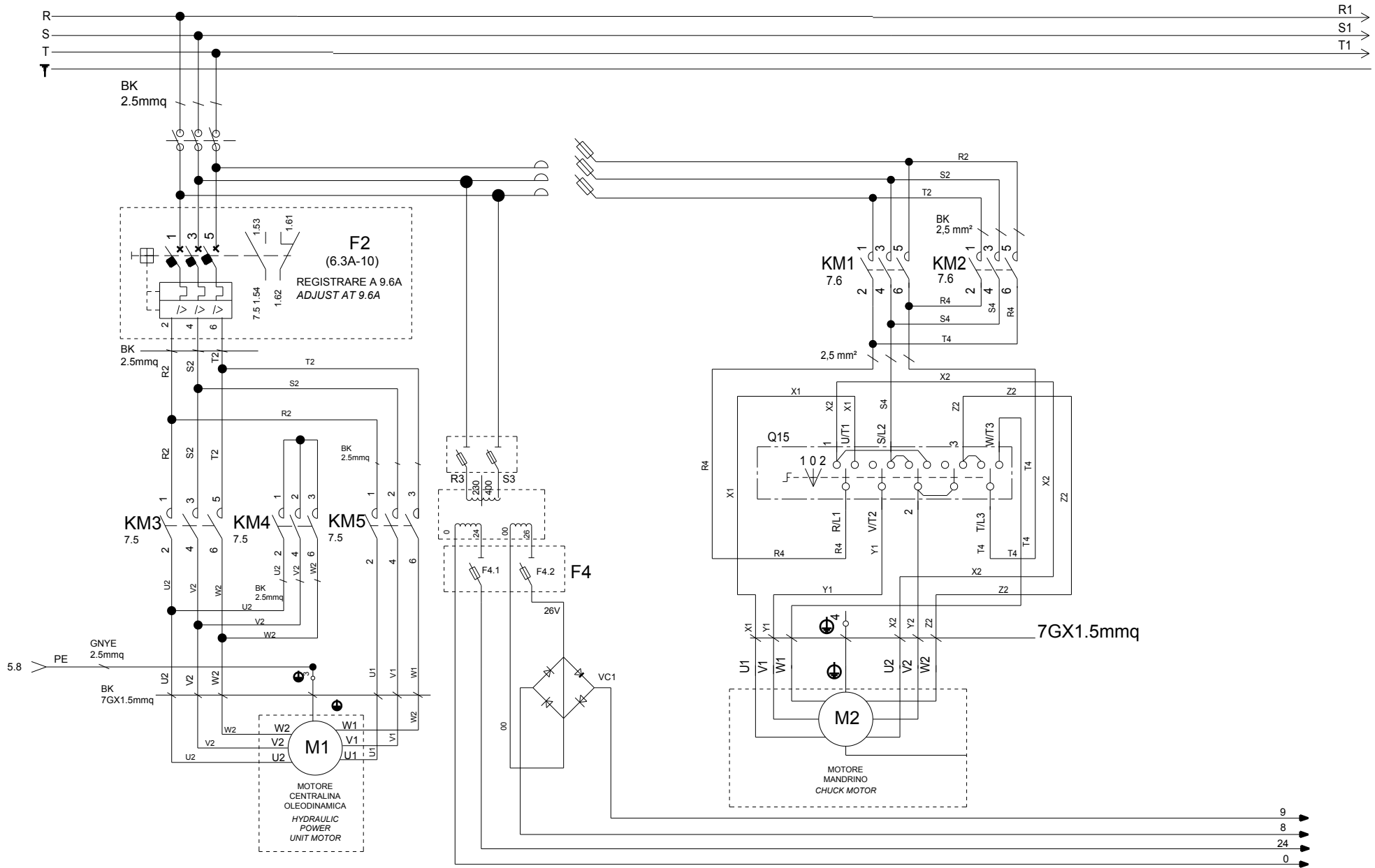


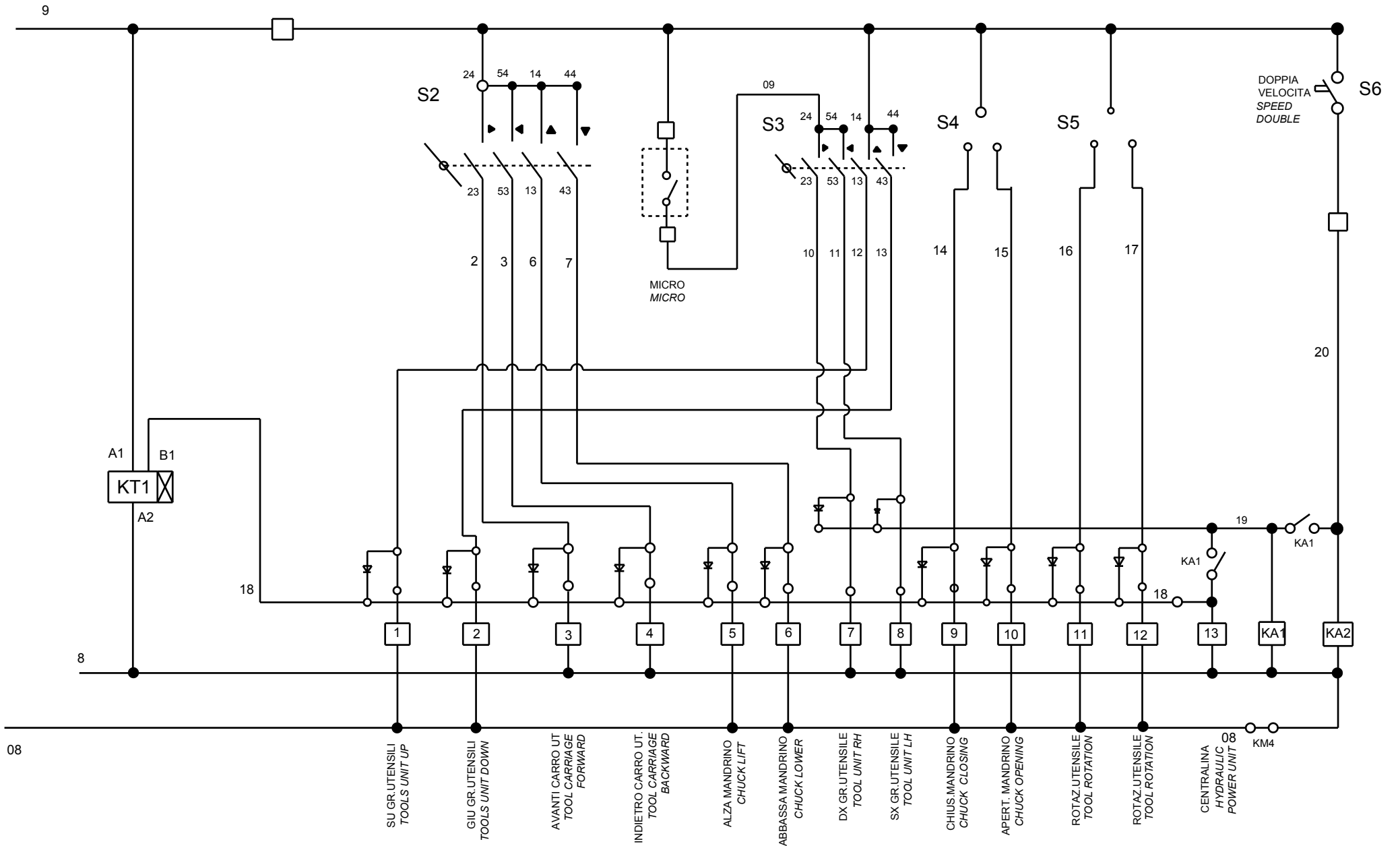
ATTENTION: TAMPERING WITH, CARVING, CHANGING ANYHOW OR EVEN REMOVING MACHINE IDENTIFICATION PLATE IS ABSOLUTELY FORBIDDEN; DO NOT COVER IT WITH TEMPORARY PANELS, ETC., SINCE IT MUST ALWAYS BE VISIBLE.

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

19.0 FUNCTIONAL DIAGRAMS

Here follows a list of the machine functional diagrams.





RAVAGLIOLI S.p.A.

**LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE
LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS**

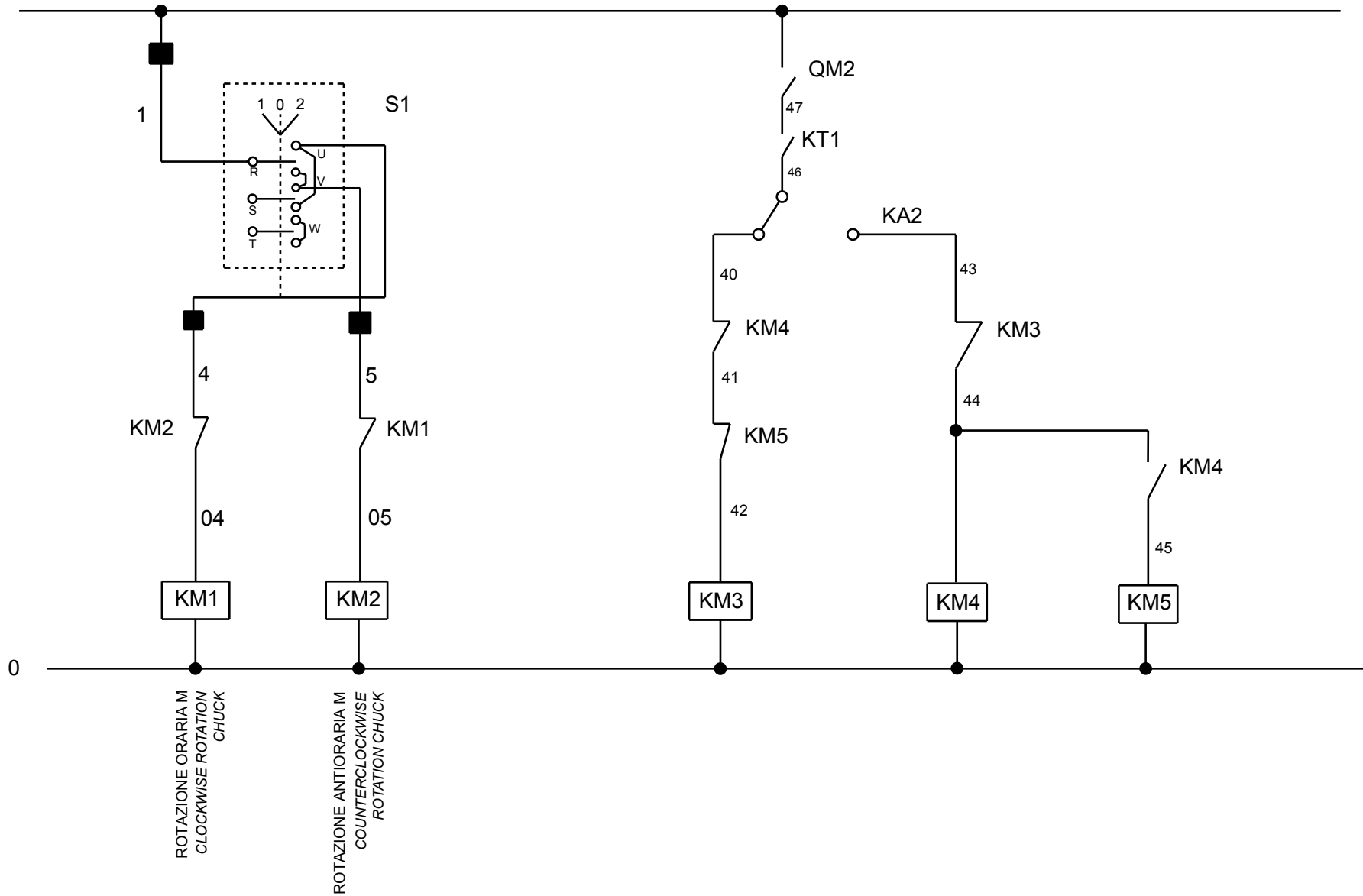
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SCHEMA ELETTRICO 2/5
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SCHEMA ELECTRIQUE 2/5
ESQUEMA ELECTRICO 2/5

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RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
Q14	SEZIONATORE 16A 3 POLI	ART.SE163003B 16A 3P BL/POR	1
	MANOPOLA GIALLO/ROSSA GIOVENZ	a.012/0001-1 LUCCHETTO	1
KT1	TIMER RIT.DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	COMMUTATORE 20A	20A C0013.09.11	1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 6A 500V aM RITARDATO	3
F2	INTERRUTT.6-10A SLVAMOTORE	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aM RITARDATO	2
F4	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aR RAPIDO	1
	FUSIBILE	10,3X38 8A 500V aR RAPIDO	1
KM4	INSIEME CONTATTORE KM4	CONTATTORE BF09 01 A024 LOVATO + CONTATTI AUSILIARI BFX10 11	1
KM1-KM2-KM3- -KM5	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	CONTATTI AUSILIARI BFX 10 11 1N0 1NC		1
K3	MORS.2,5 C/DIOD.1N5408	MORS.2,5 C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	MORSETTO 2,5mmq ST 2,5-	MORSETTO 2,5mmq ST 2,5- PHOENIX cod.3031306 (molla) 4C	13
K5	MORSETTO G/V 4mmq art.UT 4-PE +PIASTRA TERMIN.art.D-UT 2,5/10	MORSETTO G/V PHOENIX COD.3044128 (vite)+PIASTRA TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q2- Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11- Q12-Q13		1
			1
			1
			1
			1
			1
			1
KA1-KA2 + ZOCOLO	RELE'A 2 CONTATTI + ZOCOLO A 2 CONTATTI	8A 24VAC	2 +
			2
S2/S3	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	2
S4/S5	PULSANTE BASCULANTE	-	2
S6	PULSANTE DOPPIA VELOCITA'		
S1	INVERTITORE TRIPOLARE		1
T1	TRASFORMATORE	160 VA	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



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REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
Q14	16A 3 POLES CUT-OUT SWITCH	ART.SE163003B 16A 3P BL/POR	1
	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	1
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	20A COMMUTATOR	20A C0013.09.11	1
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1
	FUSE	10,3x38 6A 500V aM DELAYED	3
F2	6-10A OVERLOAD CUOUT SWITCH	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aM DELAYED	2
F4	FUSE HOLDER	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSE	10,3X38 2A 500V aR RAPID	1
	FUSE	10,3X38 8A 500V aR RAPID	1
KM4	KM4 CONTACTOR ASSEMBLY	BF09 01 A024 LOVATO CONTACTOR + BFX10 11 AUXILIARY CONTACTS	1
KM1-KM2-KM3-KM5	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	BFX 10 11 1N0 1NC AUXILIARY CONTACTS		1
K3	1N5408 2.5 C/DIODO CLAMP	2,5 CLAMP C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	2,5mmq ST 2,5- CLAMP	2,5mmq CLAMP ST 2,5- PHOENIX cod.3031306 (spring) 4C	13
K5	CLAMP Y/G 4mmq art.UT 4-PE +TOOL PLATE art.D-UT 2,5/10	CLAMP Y/G PHOENIX COD.3044128 (screw) + TOOL PLATE TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q8-Q9-Q10-Q11- Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY		1
			1
			1
			1
			1
			1
			1
KA1-KA2 + ZOCOLO	RELAY 2 CONTACTS + 2 CONTACTS SOCKET	8A 24VAC	2 +
S2/S3	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	2
S4/S5	PUSHBUTTON	-	2
S6	DOUBLE SPEED PUSHBUTTON		
S1	THREE-POLE INVERTER		1
T1	TRANSFORMER		1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	CHUCK MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



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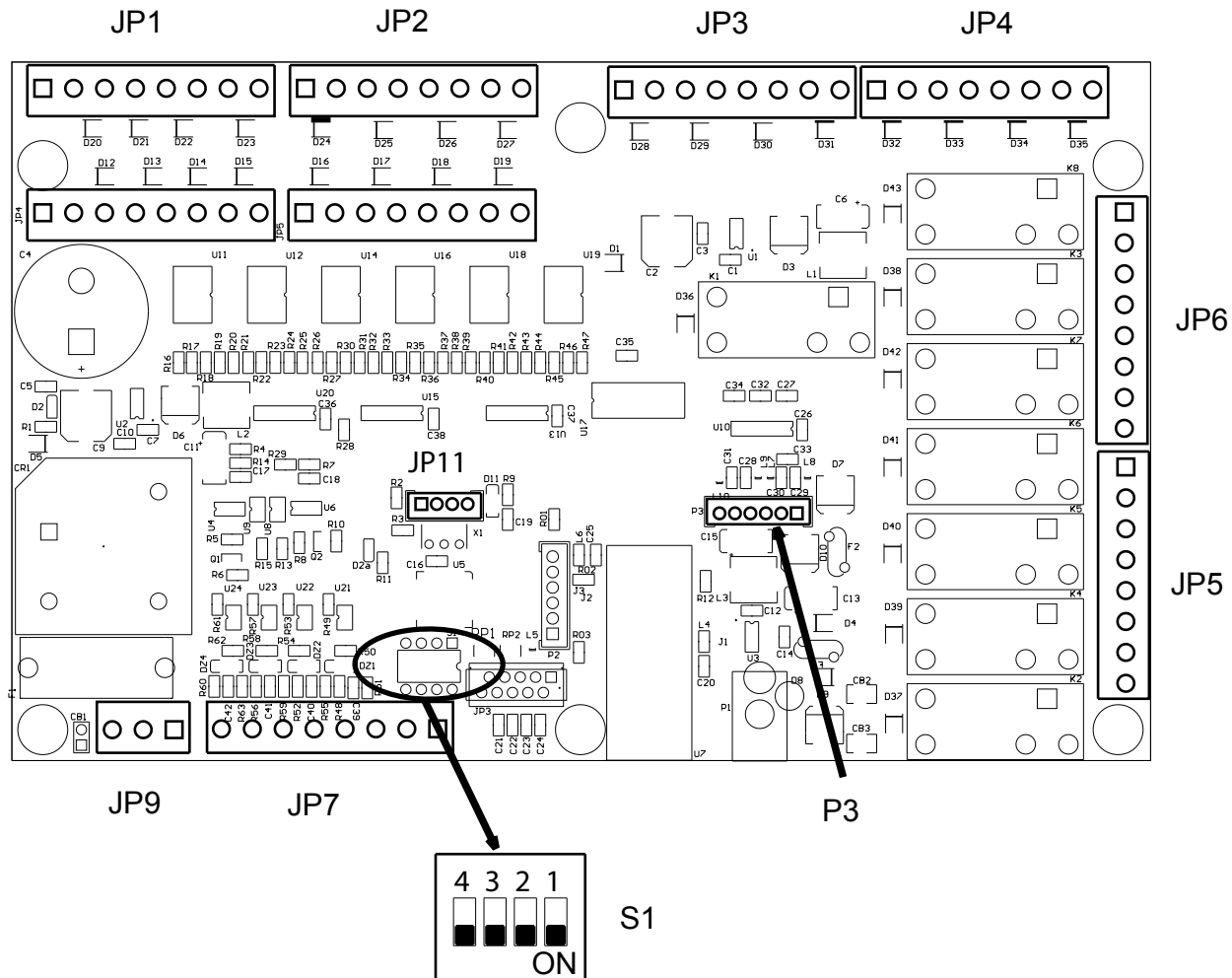
SCHEMA ELETTRICO 5/5
ELECTRICAL SCHEME 5/5
SCHALTPLAN 5/5
SCHEMA ELECTRIQUE 5/5
ESQUEMA ELECTRICO 5/5

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TOPOGRAFICO SCHEDA RICEVENTE 18962

18962 RECEIVING CARD TOPOGRAPHIC VIEW



IN/OUT SCHEDA RICEVENTE 18962

PIN JP1	NUMERO	FUNZIONE
1	JP1-1	Q1 INDIETRO CARRO UTENSILE
2	JP1-2	0V per Q1
3	JP1-3	Q2 AVANTI CARRO UTENSILE
4	JP1-4	0V per Q2
5	JP1-5	Q3 AVANTI CARRO MANDRINO
6	JP1-6	0V per Q3
7	JP1-7	Q4 INDIETRO CARRO MANDRINO
8	JP1-8	0V per Q4

PIN JP2	NUMERO	FUNZIONE
1	JP2-1	Q5 CHIUSURA MANDRINO
2	JP2-2	0V per Q5
3	JP2-3	Q6 APERTURA MANDRINO
4	JP2-4	0V per Q6
5	JP2-5	Q7 DISCESA BRACCIO MANDRINO Q14 LENTO DISCESA MANDRINO
6	JP2-6	0V per Q7 0V per Q14
7	JP2-7	Q8 SALITA BRACCIO MANDRINO
8	JP2-8	0V per Q8

PIN JP3	NUMERO	FUNZIONE
1	JP3-1	Q9 ROTAZ.ANTIORARIA UTENSILE
2	JP3-2	0V per Q9
3	JP3-3	Q10 ROTAZ.ORARIA UTENSILE
4	JP3-4	0V per Q10
5	JP3-5	Q11 DISCESA BRACCIO UTENSILE
6	JP3-6	0V per Q11
7	JP3-7	Q12 SALITA BRACCIO UTENSILE
8	JP3-8	0V pe Q12

PIN JP4	NUMERO	FUNZIONE
1	JP4-1	Q13 RICIRCOLO OLIO
2	JP4-2	0V per Q13
3	JP4-3	N.U.
4	JP4-4	N.U.
5	JP4-5	N.U.
6	JP4-6	N.U.
7	JP4-7	N.U.
8	JP4-8	N.U.

PIN JP5	NUMERO	FUNZIONE
1	JP5-1	N.U.
2	JP5-2	N.U.
3	JP5-3	0 Vac
4	JP5-4	KM5 COMANDO ROTAZ. 2V CENTRALINA OLEOD
5	JP5-5	KM4 COMANDO MOTORE CENTRALINA A STELLA 2V
6	JP5-6	KM3 COMANDO ROTAZ. 1V CENTRALINA OLEOD
7	JP5-7	KM2 COMANDO ROTAZ. ORARIA MANDRINO
8	JP5-8	KM1 COMANDO ROTAZ. ANTIORARIA MANDRINO

PIN JP7	NUMERO	FUNZIONE
1	JP7-1	COLLEGATO A JP7-2
2	JP7-2	COLLEGATO A JP7-1
3	JP7-3	N.U.
4	JP7-4	N.U.
5	JP7-5	N.U.
6	JP7-6	N.U.
7	JP7-7	N.U.
8	JP7-8	N.U.

PIN JP9	NUMERO	FUNZIONE
1	JP9-1	0 Vac
2	JP9-2	N.U.
3	JP9-3	19 Vac

 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE CON BLUETOOTH) 2/17 ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 2/17 SCHALTPLAN (VERSION MIT BLUETOOTH) 2/17 SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 2/17 ESQUEMA ELECTRICO (VERSION CON BLUETOOTH) 2/17	Pag. 51 di 96
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18962 RECEIVING CARD IN/OUT

PIN JP1	NUMBER	FUNCTION
1	JP1-1	Q1 TOOL ON CARRIAGE BACKWARD
2	JP1-2	0V per Q1
3	JP1-3	Q2 TOOL ON CARRIAGE FORWARD
4	JP1-4	0V per Q2
5	JP1-5	Q3 TOOL CARRIAGE FORWARD
6	JP1-6	0V per Q3
7	JP1-7	Q4 TOOL CARRIAGE BACKWARD
8	JP1-8	0V per Q4

PIN JP2	NUMBER	FUNCTION
1	JP2-1	Q5 MANDREL CLOSING
2	JP2-2	0V per Q5
3	JP2-3	Q6 MANDREL OPENING
4	JP2-4	0V per Q6
5	JP2-5	Q7 MANDREL ARM DESCENT Q14 MANDREL DESCENT SLOW
6	JP2-6	0V for Q7 0V for Q14
7	JP2-7	Q8 MANDREL ARM RISE
8	JP2-8	0V per Q8

PIN JP3	NUMBER	FUNCTION
1	JP3-1	Q9 TOOL COUNTERCLOCKWISE ROT.
2	JP3-2	0V per Q9
3	JP3-3	Q10 TOOL CLOCKWISE ROTATION
4	JP3-4	0V per Q10
5	JP3-5	Q11 TOOL ARM DESCENT
6	JP3-6	0V per Q11
7	JP3-7	Q12 TOOL ARM RISE
8	JP3-8	0V pe Q12

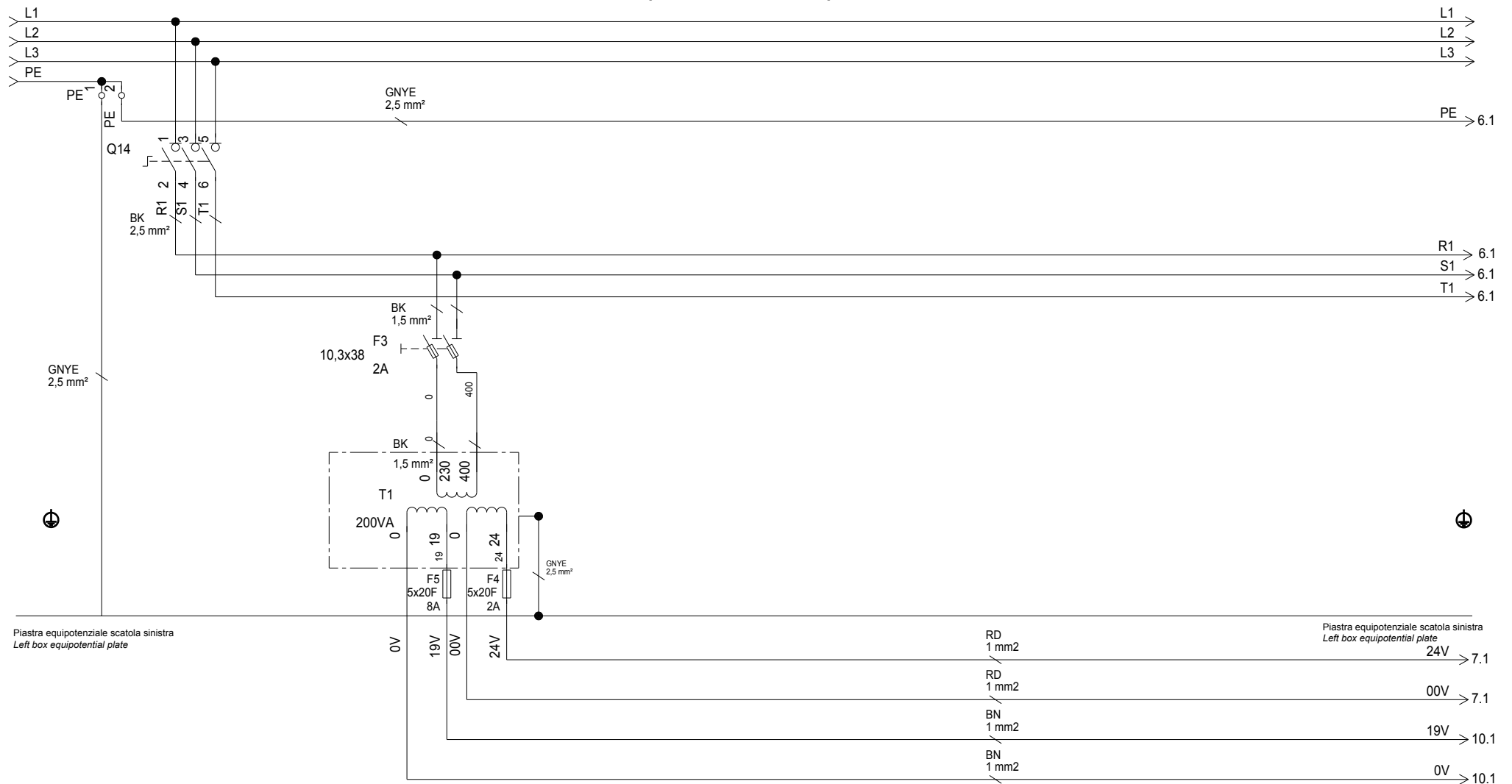
PIN JP4	NUMBER	FUNCTION
1	JP4-1	Q13 OIL RECIRCULATION
2	JP4-2	0V per Q13
3	JP4-3	N.U.
4	JP4-4	N.U.
5	JP4-5	N.U.
6	JP4-6	N.U.
7	JP4-7	N.U.
8	JP4-8	N.U.

PIN JP5	NUMBER	FUNCTION
1	JP5-1	N.U.
2	JP5-2	N.U.
3	JP5-3	0 Vac
4	JP5-4	KM5 HYDRAULIC POWER UNIT 2V ROT. CONTROL
5	JP5-5	KM4 2V STAR HYDRAULIC POWER UNIT MOTOR CONTROL
6	JP5-6	KM3 HYDRAULIC POWER UNIT 1V ROT. CONTROL
7	JP5-7	KM2 MANDREL CLOCKWISE ROTATION CONTROL
8	JP5-8	KM1 MANDREL COUNTERCLOCKWISE ROT. CONTROL

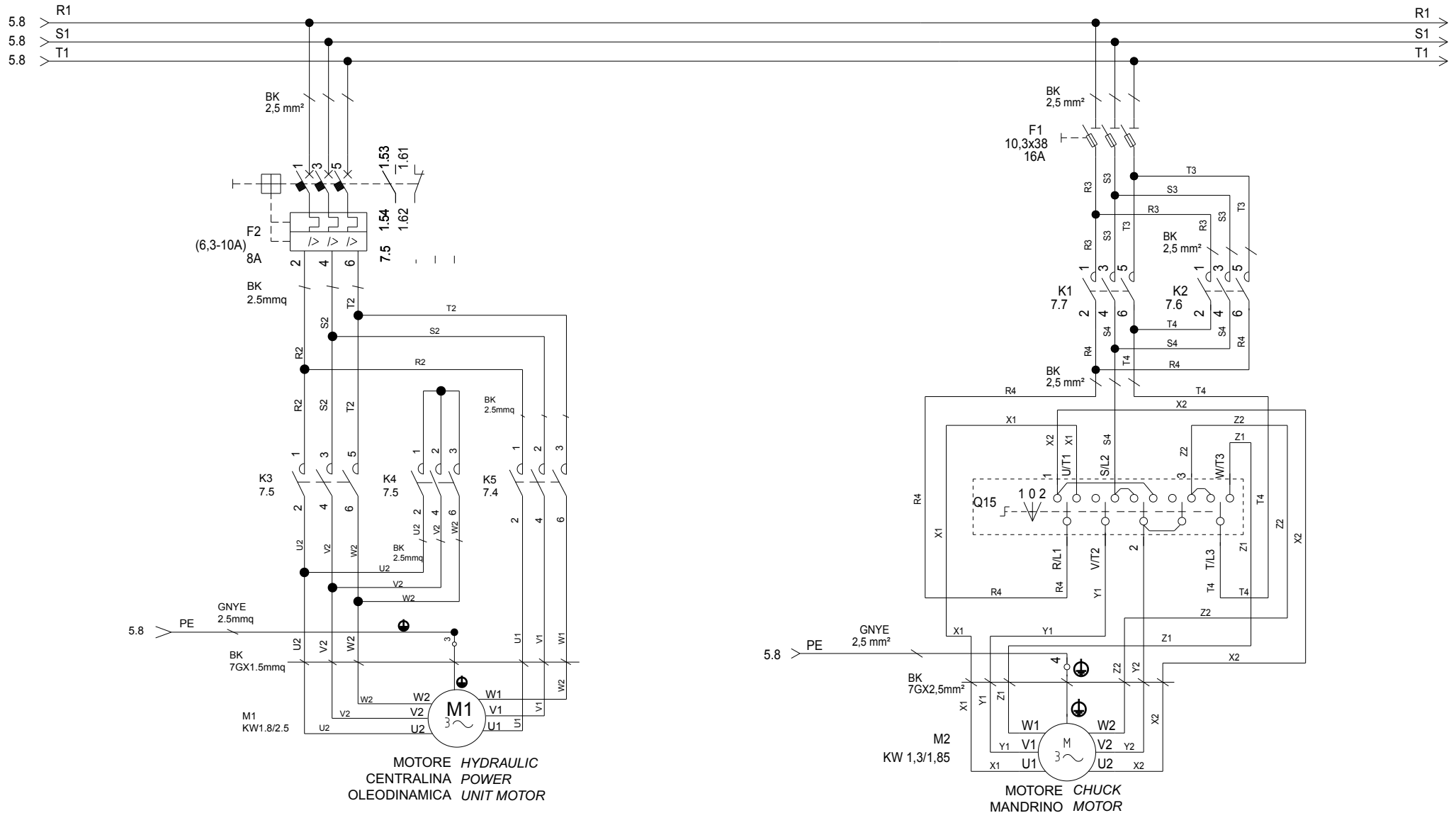
PIN JP7	NUMBER	FUNCTION
1	JP7-1	CONNECTED TO JP7-2
2	JP7-2	CONNECTED TO JP7-1
3	JP7-3	N.U.
4	JP7-4	N.U.
5	JP7-5	N.U.
6	JP7-6	N.U.
7	JP7-7	N.U.
8	JP7-8	N.U.

PIN JP9	NUMBER	FUNCTION
1	JP9-1	0 Vac
2	JP9-2	N.U.
3	JP9-3	19 Vac

SCHEMA CIRCUITI QUADRO ELETTRICO (RICEVITORE) ELECTRICAL PANEL (RECEIVER) CIRCUITS DIAGRAM



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**LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE
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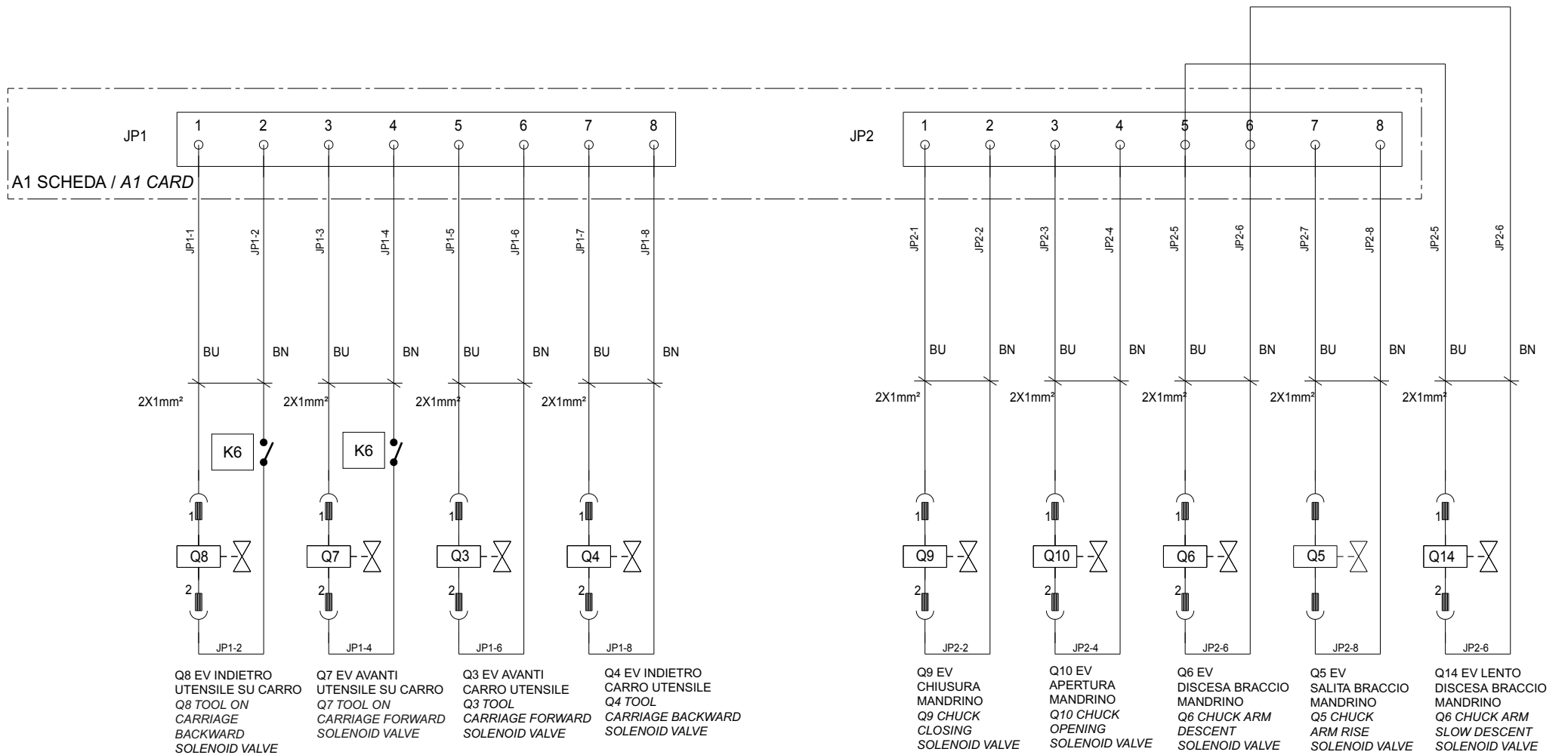
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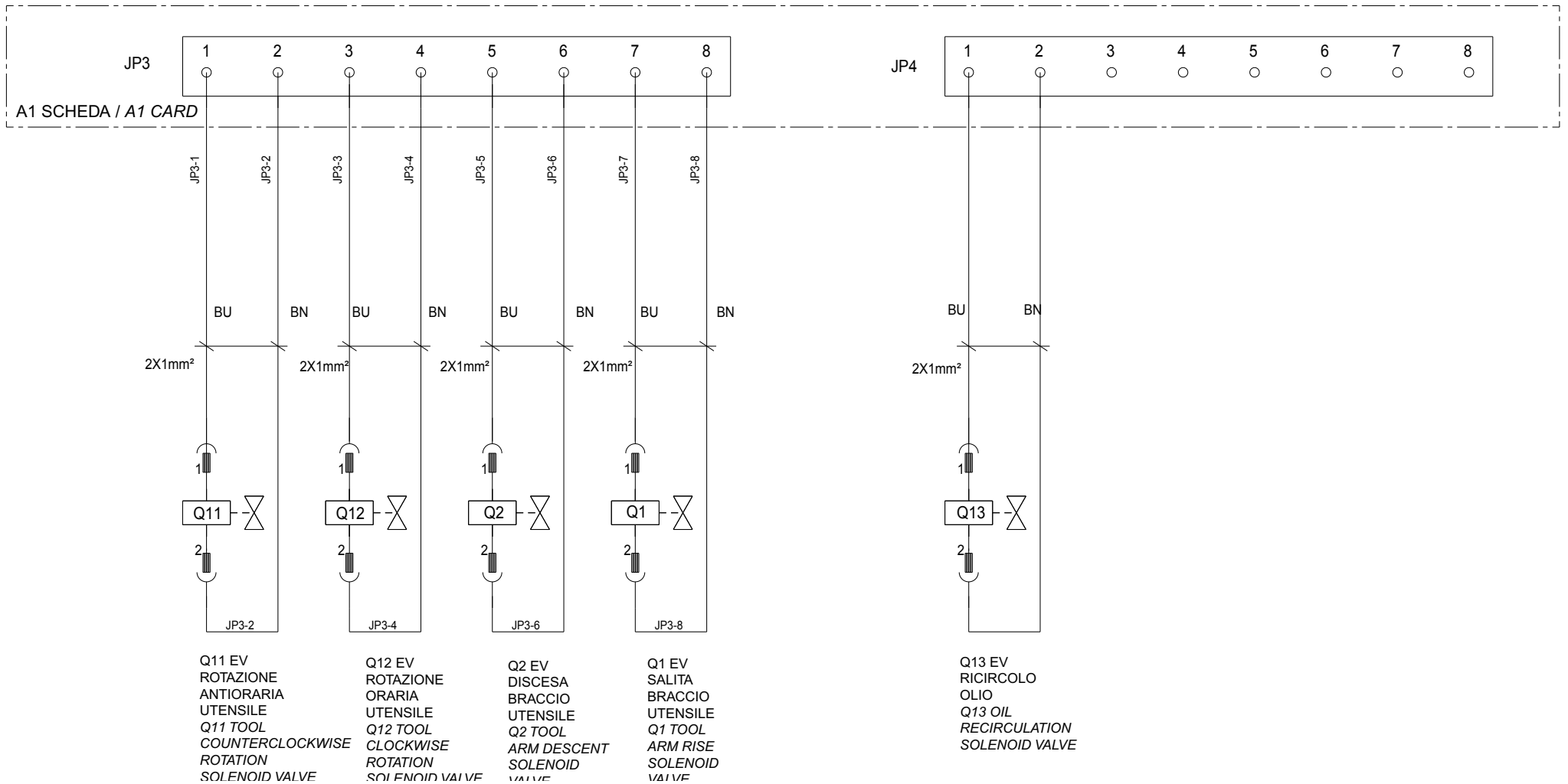
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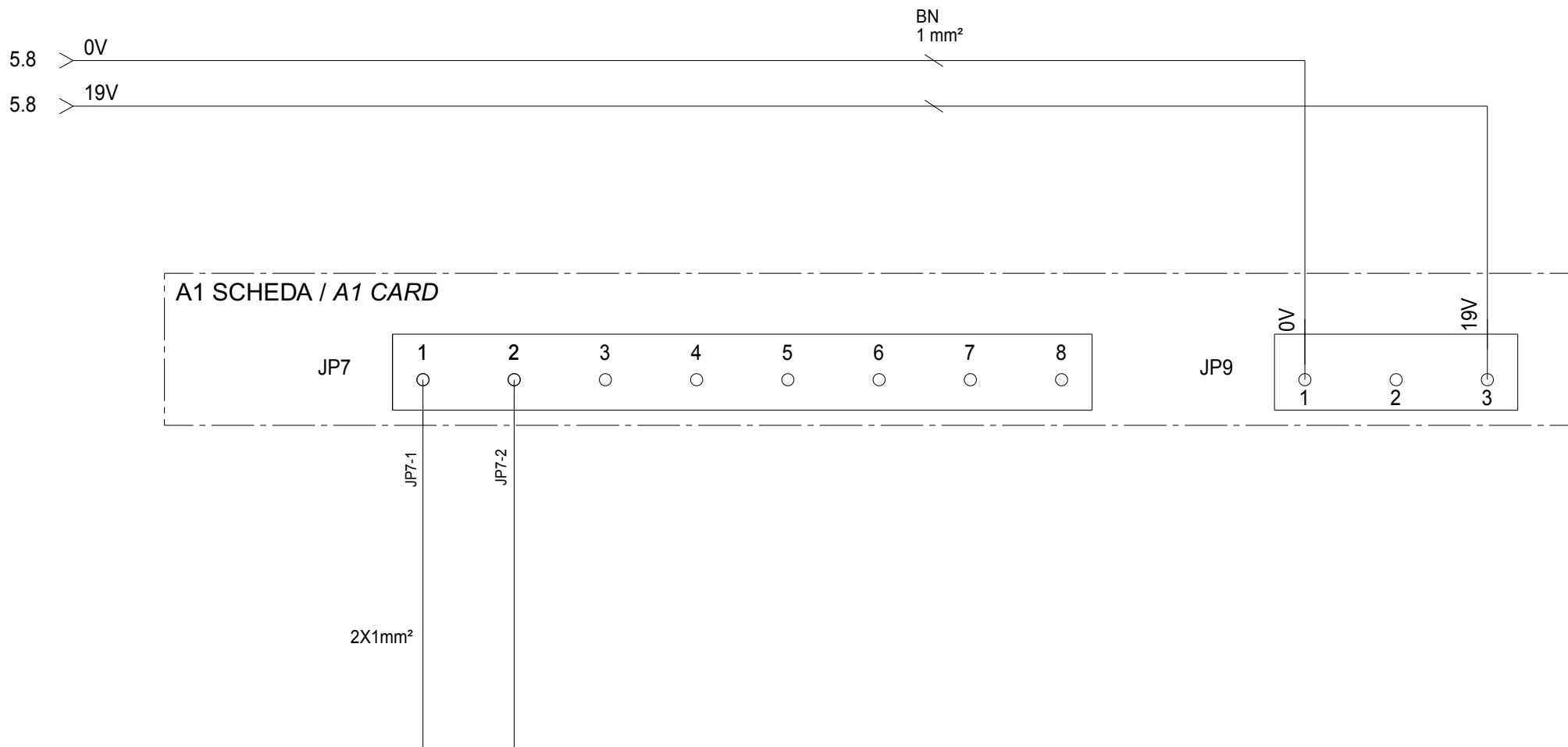
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ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 5/17
SCHALTPLAN (VERSION MIT BLUETOOTH) 5/17
SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 5/17
ESQUEMA ELECTRICO (VERSION CON BLUETOOTH) 5/17

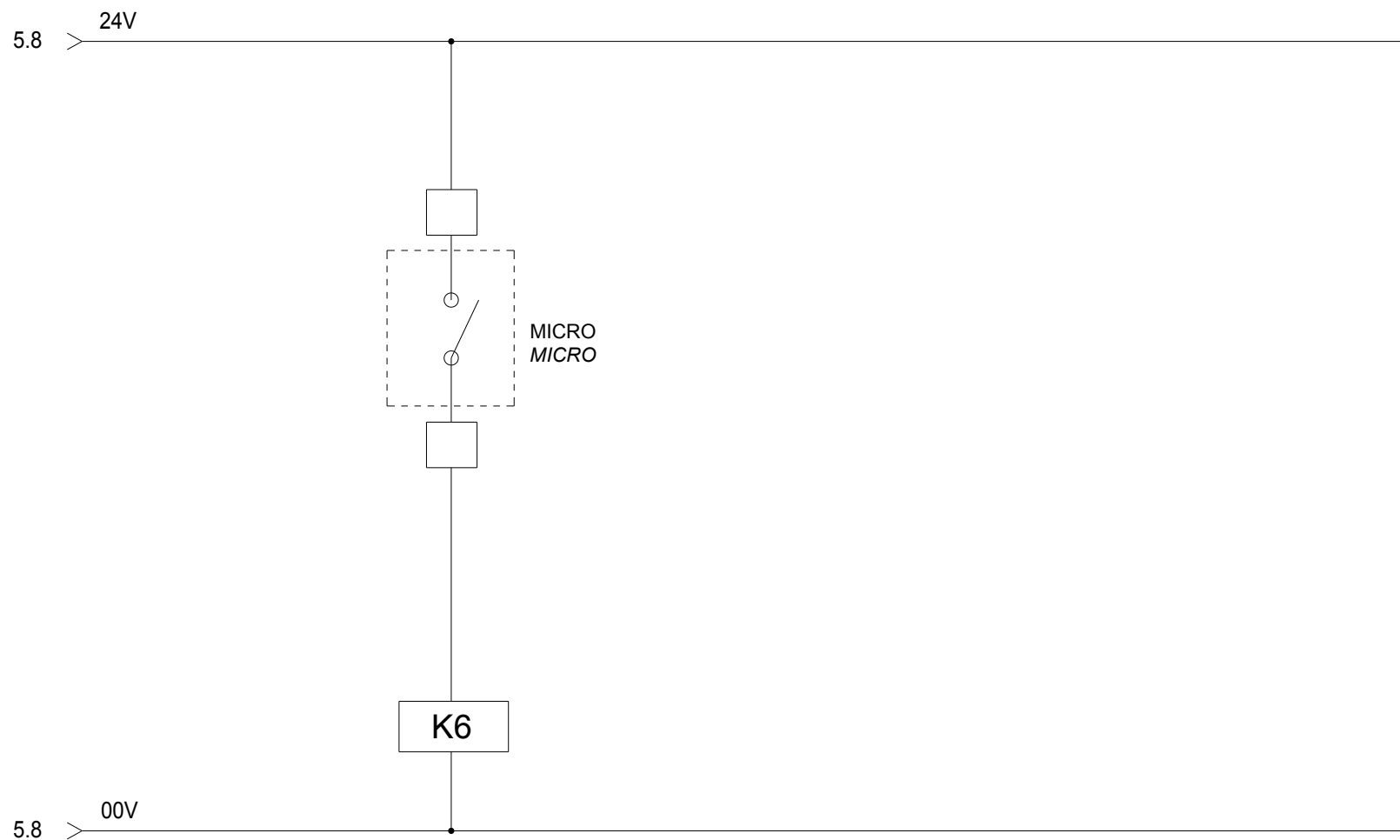
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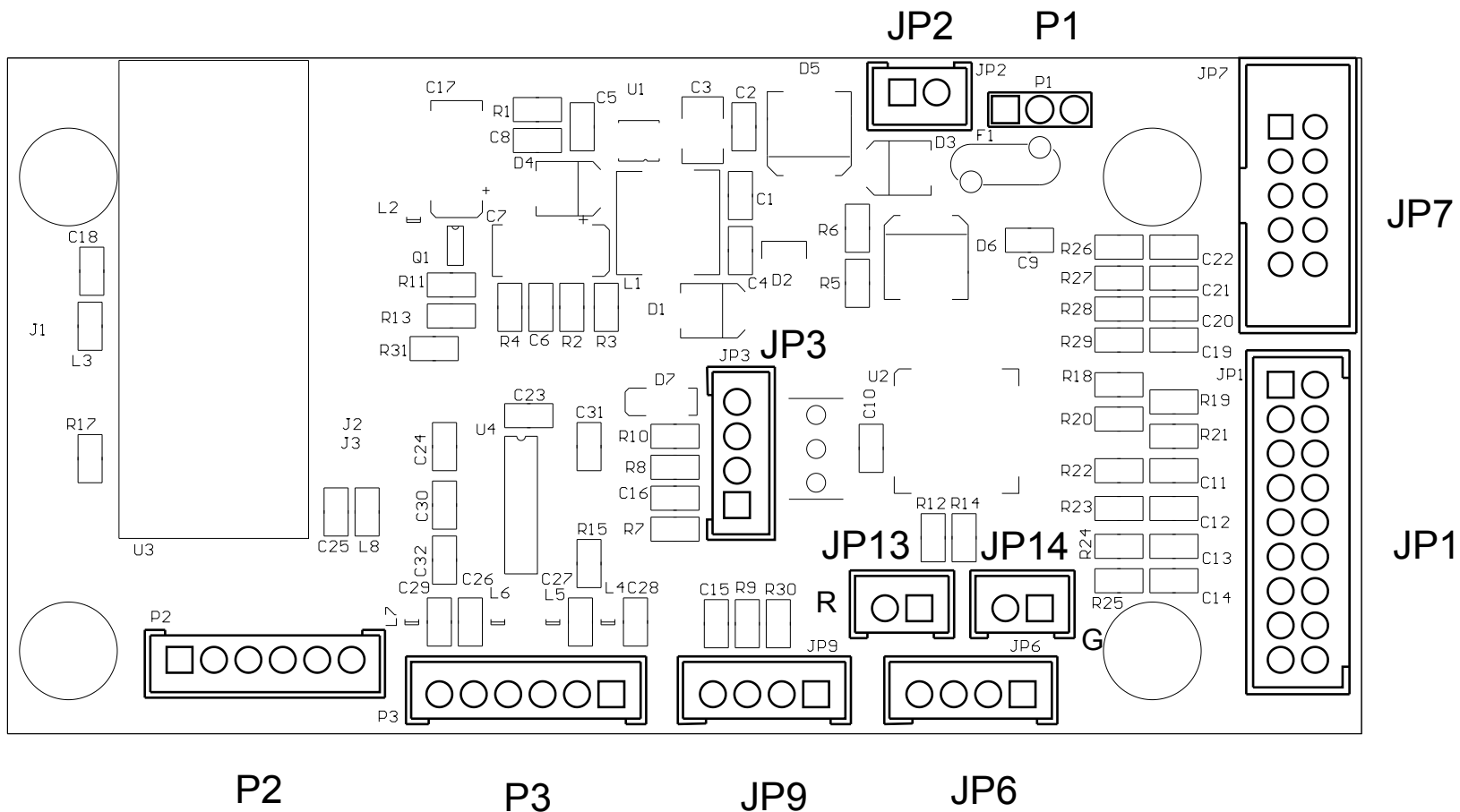




 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE CON BLUETOOTH) 10/17 ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 10/17 SCHALTPLAN (VERSION MIT BLUETOOTH) 10/17 SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 10/17 ESQUEMA ELECTRICO (VERSION CON BLUETOOTH) 10/17	Pag. 59 di 96
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TOPOGRAFICO SCHEDA TRASMITTENTE 18961

18961 TRANSMITTING CARD TOPOGRAPHIC VIEW



 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE CON BLUETOOTH) 11/17 ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 11/17 SCHALTPLAN (VERSION MIT BLUETOOTH) 11/17 SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 11/17 ESQUEMA ELECTRICO (VERSIÓN CON BLUETOOTH) 11/17	Pag. 60 di 96
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IN/OUT SCHEDA TRASMITTENTE 18961

PIN JP1	NUMERO	FUNZIONE
1	JP1-1	S1 INDIETRO CARRO UTENSILE
2	JP1-2	S2 INDIETRO UTENSILE SU CARRO
3	JP1-3	S1 AVANTI CARRO UTENSILE
4	JP1-4	S2 AVANTI UTENSILE SU CARRO
5	JP1-5	S1 SALITA BRACCIO MANDRINO
6	JP1-6	S2 DISCESA BRACCIO UTENSILE
7	JP1-7	S1 DISCESA BRACCIO MANDRINO
8	JP1-8	S2 SALITA BRACCIO UTENSILE
9	JP1-9	S1 (COMUNE)
10	JP1-10	S2 (COMUNE)
11	JP1-11	S4 (COMUNE)
12	JP1-12	N.U.
13	JP1-13	S4 PULSANTE CHIUSURA MANDRINO
14	JP1-14	N.U.
15	JP1-15	S4 PULSANTE APERTURA MANDRINO
16	JP1-16	N.U.
17	JP1-17	S3 PULS. ROTAZ. ANTIOR. UTENSILE
18	JP1-18	N.U.

PIN JP6	NUMERO	FUNZIONE
1	JP6-1	S5 SELETT.ROTAZ.ANTIOR. MANDRINO
2	JP6-2	S5 SELETT. ROTAZ.ORARIA MANDRINO
3	JP6-3	S3 PULS. ROTAZ. ORARIA. UTENSILE
4	JP6-4	S5 COMUNE

PIN JP2	NUMERO	FUNZIONE
1	JP2-1	G2 BATTERIA -
2	JP2-2	G2 BATTERIA +

P1	NUMERO	FUNZIONE
X1		0-12Vdc

PIN JP9	NUMERO	FUNZIONE
1	JP9-1	N.U.
2	JP9-2	N.U.
3	JP9-3	S3 (COMUNE)
4	JP9-4	N.U.

PIN JP13	NUMERO	FUNZIONE
1	JP13-1	P2 LED ROSSO +
2	JP13-2	P2 LED ROSSO -

PIN JP14	NUMERO	FUNZIONE
1	JP14-1	P3 LED VERDE +
2	JP14-2	P3 LED VERDE -

18961 TRANSMITTING CARD IN/OUT

PIN JP1	NUMBER	FUNCTION
1	JP1 - 1	S1 TOOL CARRIAGE BACKWARD
2	JP1 - 2	S2 TOOL ON CARRIAGE BACKWARD
3	JP1 - 3	S1 TOOL CARRIAGE FORWARD
4	JP1 - 4	S2 TOOL ON CARRIAGE FORWARD
5	JP1 - 5	S1 CHUCK ARM RISE
6	JP1 - 6	S2 TOOL ARM DESCENT
7	JP1 - 7	S1 CHUCK ARM DESCENT
8	JP1 - 8	S2 TOOL ARM RISE
9	JP1 - 9	S1 (COMMON)
10	JP1 - 10	S2 (COMMON)
11	JP1 - 11	S4 (COMMON)
12	JP1 - 12	N.U.
13	JP1 - 13	S4 CHUCK CLOSING PUSHBUTTON
14	JP1 - 14	N.U.
15	JP1 - 15	S4 CHUCK OPENING PUSHBUTTON
16	JP1 - 16	N.U.
17	JP1 - 17	S3 TOOL COUNTERCLOCKWISE ROT. PUSHBUTTON
18	JP1 - 18	N.U.

PIN JP6	NUMBER	FUNCTION
1	JP6 - 1	S5 CHUCK COUNTERCLOCKWISE ROT. SELECTOR
2	JP6 - 2	S5 CHUCK CLOCKWISE ROT. SELECTOR
3	JP6 - 3	S3 TOOL CLOCKWISE ROT. PUSHBUTTON
4	JP6 - 4	S5 COMMON

PIN JP2	NUMBER	FUNCTION
1	JP2 - 1	G2 BATTERY -
2	JP2 - 2	G2 BATTERY +

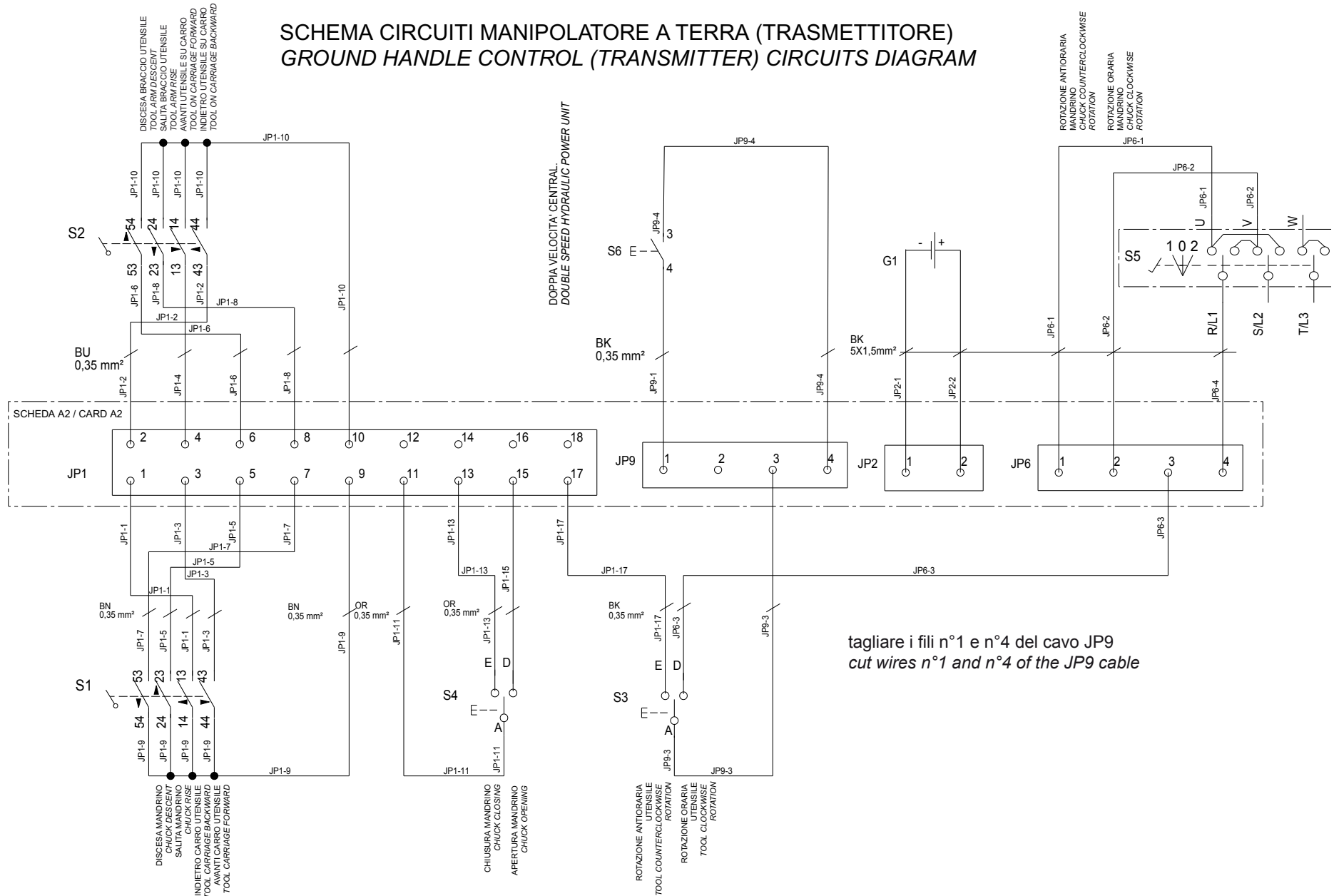
P1	NUMBER	FUNCTION
X1		0 - 12Vdc

PIN JP9	NUMBER	FUNCTION
1	JP9 - 1	N.U.
2	JP9 - 2	N.U.
3	JP9 - 3	S3 (COMMON)
4	JP9 - 4	N.U.

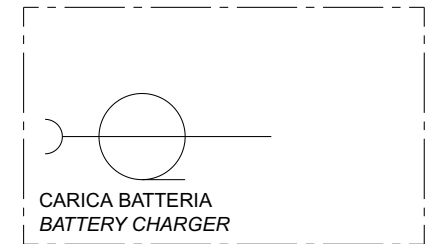
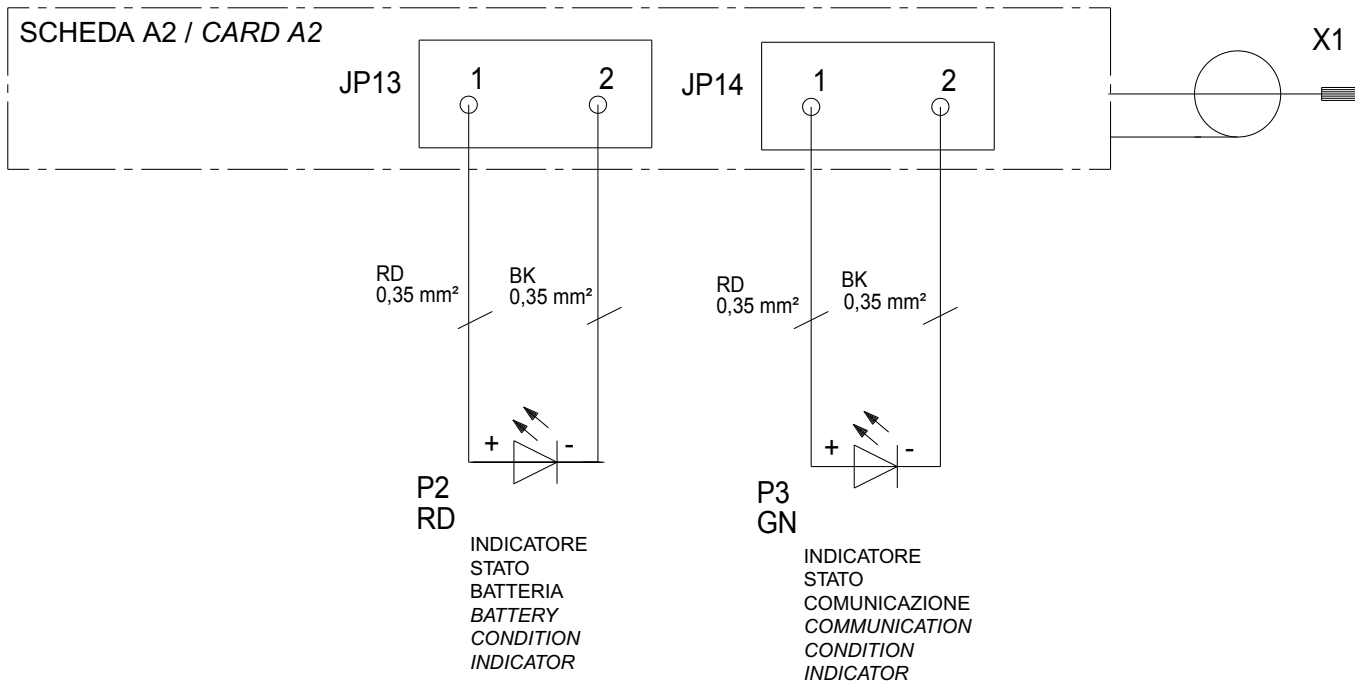
PIN JP13	NUMBER	FUNCTION
1	JP13 - 1	P2 RED LED +
2	JP13 - 2	P2 RED LED -

PIN JP14	NUMBER	FUNCTION
1	JP14 - 1	P3 GREEN LED +
2	JP14 - 2	P3 GREEN LED -

SCHEMA CIRCUITI MANIPOLATORE A TERRA (TRASMETTITORE) GROUND HANDLE CONTROL (TRANSMITTER) CIRCUITS DIAGRAM



tagliare i fili n°1 e n°4 del cavo JP9
cut wires n°1 and n°4 of the JP9 cable



T3

 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE CON BLUETOOTH) 15/17 ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 15/17 SCHALTPLAN (VERSION MIT BLUETOOTH) 15/17 SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 15/17 ESQUEMA ELECTRICO (VERSIÓN CON BLUETOOTH) 15/17	Pag. 64 di 96
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LISTA COMPONENTI

RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
A1	SCHEDA ELETT. RICEVENTE	-	1
A2	SCHEDA ELETT.TRASMITTENTE		1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 16A 500V aM RITARDATO	3
F2	INTERRUTTORE AUTOM. TRIPOLARE	6,3-10A AC3 400V 2,2KW	1
	CONTATTI AUSILIARI	1NO+1NC ATTACCO FRONTALE	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V RAPIDO	2
F4	FUSIBILE	5x20F 250V 2A RAPIDO	1
F5	FUSIBILE	5x20F 250V 8A RAPIDO	1
F6	FUSIBILE	5X20 T 8A 250V	1
G1	BATTERIA	6V 3,3AH/20HR Lead	1
K1	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K2	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K3	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
KM4	CONTATTORE BF09 01 A024	4KW AC3 400V 1NC 24V 50/60Hz	1
	CONTATTI AUSILIARI BFX10	BFX10 11 LOVATO 1NO+1NC	
K5	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K6	RELE'	RELE' 2 CONTATTI 8A 24VAC	1
P2	INDICATORE LUMINOSO (LED)	ROSSO	1
P3	INDICATORE LUMINOSO (LED)	VERDE	1
Q1...Q14	ELETTROVALVOLE	-	14
Q16	SEZIONATORE TRIPOLARE	1th 32A Ui 690V-50Hz Uimp 4KW	1
Q15	COMMUTATORE DI POLI DAHLANDER	25A 500V	1
S1	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	1
S2	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	1
S3	PULSANTE BASCULANTE	-	1
S4	PULSANTE BASCULANTE	-	1
S5	COMMUTATORE	1th 25A Ui 690V-50Hz Uimp 4KW	1
S6	INS.PULSANTE ESCLUSIONE	-	1
T1	TRASFORMATORE	200 VA 50/60 Hz PRI: 0/230/400V SEC: 0/19V 8,95A 0/24V 1,25A	1
-	-	-	-
T3	CARICABATTERIA	21.6W 7.2V 3A Lithium ion	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



RAVAGLIOLI S.p.A.

**LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE
LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS**

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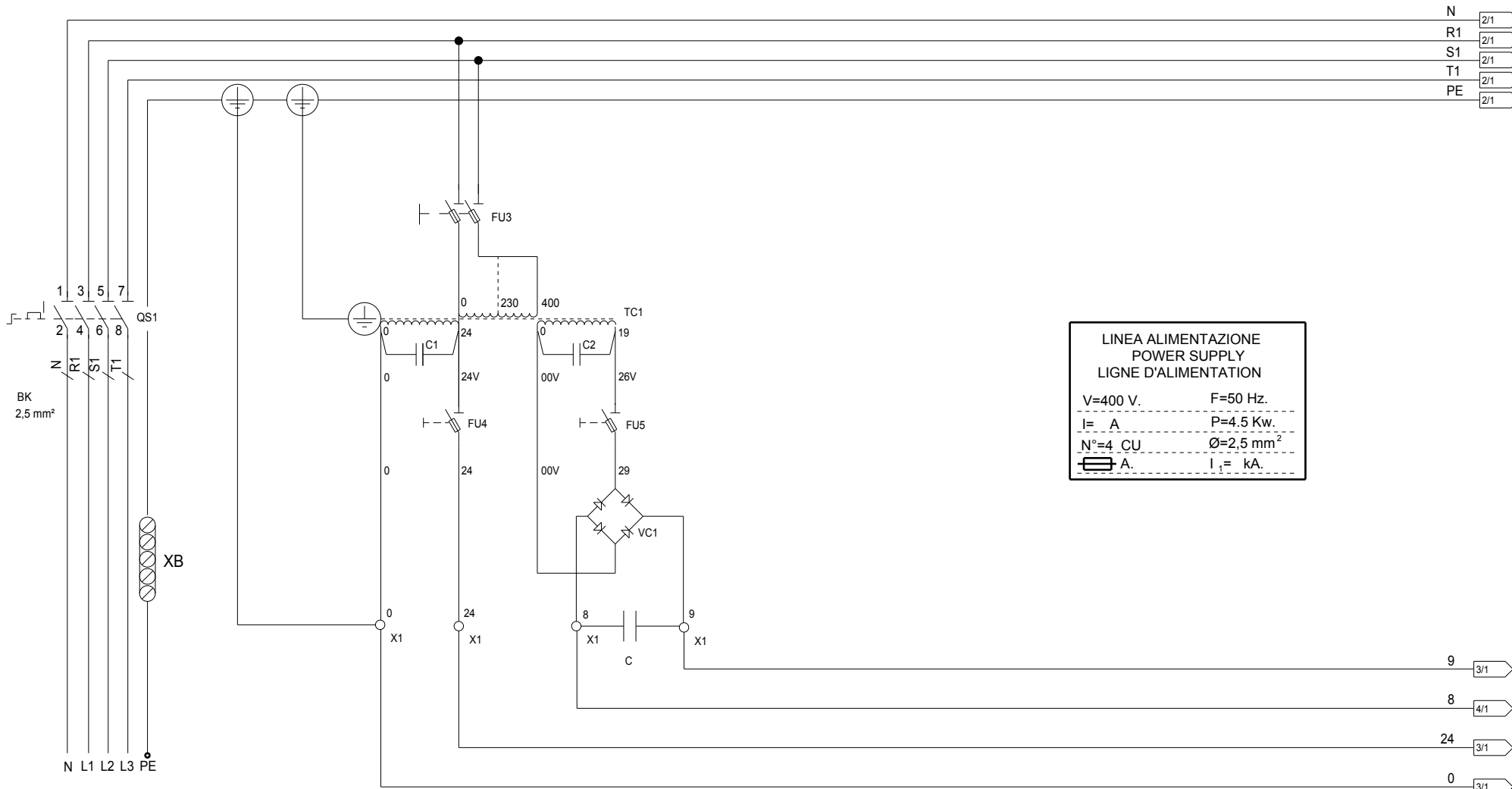
SCHEMA ELETTRICO (VARIANTE CON BLUETOOTH) 16/17
ELECTRICAL SCHEME (VERSION WITH BLUETOOTH) 16/17
SCHALTPLAN (VERSION MIT BLUETOOTH) 16/17
SCHEMA ELECTRIQUE (VERSION AVEC BLUETOOTH) 16/17
ESQUEMA ELECTRICO (VERSIÓN CON BLUETOOTH) 16/17

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COMPONENTS LIST

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
A1	RECEIVING ELECTRICAL CARD	-	1
A2	TRANSMITTING ELECTRICAL CARD	-	1
F1	FUSE HOLDER	10,3x38 32A 690V SECTIONABLE 3 POLES	1
	FUSE	10,3x38 16A 500V aM DELAYED-ACTION	3
F2	TRIPOLAR AUTOMATIC SWITCH	6,3 - 10A AC3 400V 2,2KW	1
	AUXILIARY CONTACTS	1NO+1NC FRONT COUPLING	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3x38 2A 500V RAPID	2
F4	FUSE	5x20F 250V 2A RAPID	1
F5	FUSE	5x20F 250V 8A RAPID	1
F6	FUSE	5x20 T 8A 250V	1
G1	BATTERY	6V 3,3AH/20HR Lead	1
K1	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K2	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K3	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
KM4	BF09 01 A024 CONTACTOR	4KW AC3 400V 1NC 24V 50/60Hz	1
	BFX10 AUXILIARY CONTACTS	BFX10 11 LOVATO 1NO+1NC	
K5	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	1
K6	RELE'	RELE' 2 CONTACT 8A 24VAC	1
P2	BACKLIGHTED INDICATOR (LED)	RED	1
P3	BACKLIGHTED INDICATOR (LED)	GREEN	1
Q1...Q14	SOLENOID VALVES	-	14
Q16	TRIPOLAR KNIFE SWITCH	1th 32A Ui 690V-50Hz Uimp 4KW	1
Q15	DAHLANDER POLES COMMUTATOR	25A 500V	1
S1	HANDLE CONTROL	4 POS.+ CENTRAL POS. TEMPORARY Ø22	1
S2	HANDLE CONTROL	4 POS.+ CENTRAL POS. TEMPORARY Ø 22	1
S3	BALANCING PUSHBUTTON	-	1
S4	BALANCING PUSHBUTTON	-	1
S5	COMMUTATOR	1th 25A Ui 690V-50Hz Uimp 4KW	1
S6	EXCLUDING PUSH BUTTON	-	1
T1	TRANSFORMER	200 VA 50/60 Hz PRI: 0/230/400V SEC: 0/19V 8,95A 0/24V 1,25A	1
-	-	-	-
T3	BATTERY CHARGER	21.6W 7.2V 3A Lithium ion	1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MANDREL MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



ALIMENTAZIONE AUSILIARI 24VAC
24VAC AUXILIARIES SUPPLY

ALIMENTAZIONE AUSILIARI 27VDC
27VDC AUXILIARIES SUPPLY



RAVAGLIOLI S.p.A.

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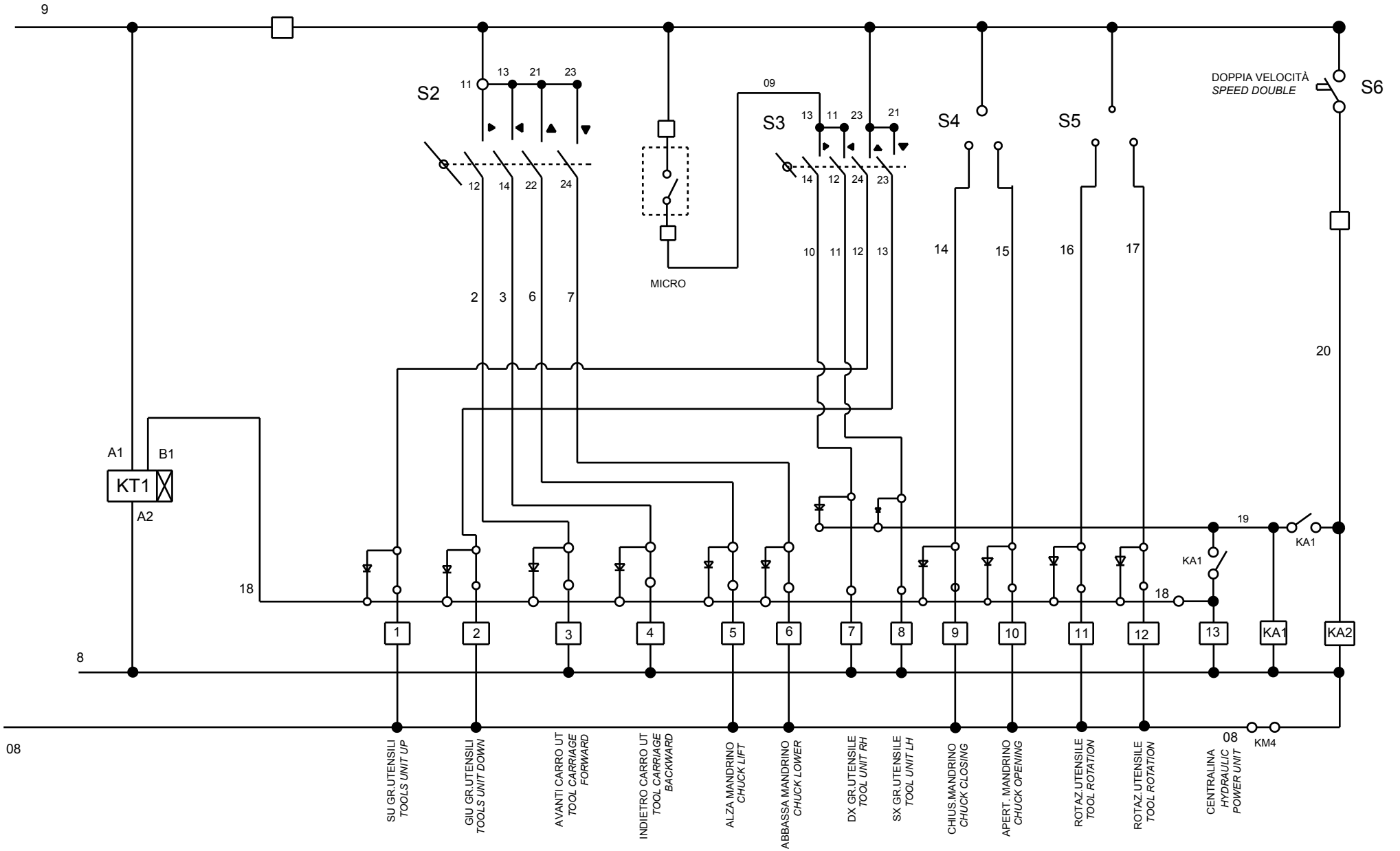
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SCHEMA ELETTRICO (VARIANTE CON INVERTER) 1/7
ELECTRICAL SCHEME (VERSION WITH INVERTER) 1/7
SCHALTPLAN (VERSION MIT INVERTER) 1/7
SCHEMA ELECTRIQUE (VERSION AVEC INVERSEUR) 1/7
ESQUEMA ELECTRICO (VERSION CON INVERSOR) 1/7

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LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS**

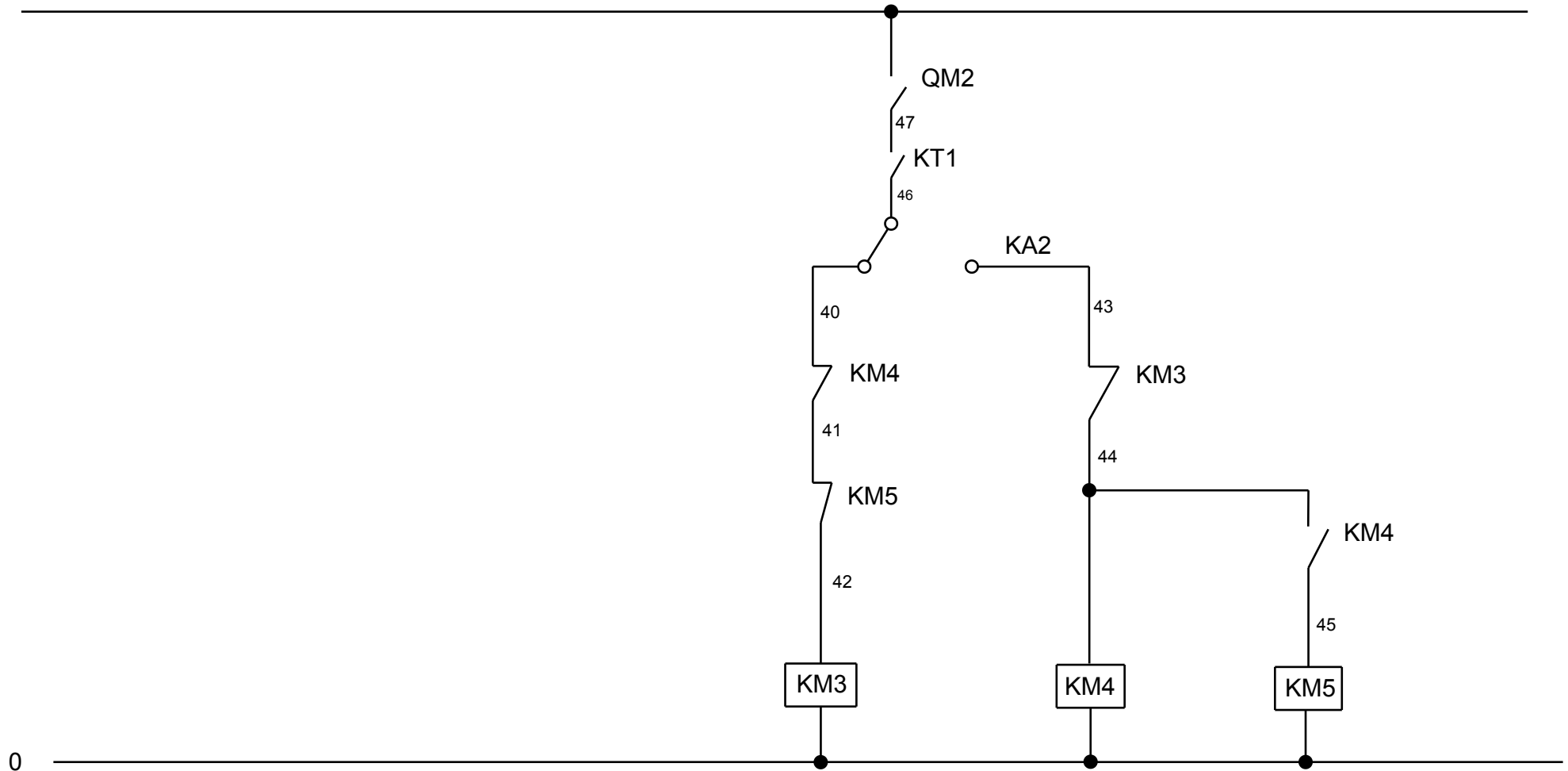
Tavola N°C - Rev. 2

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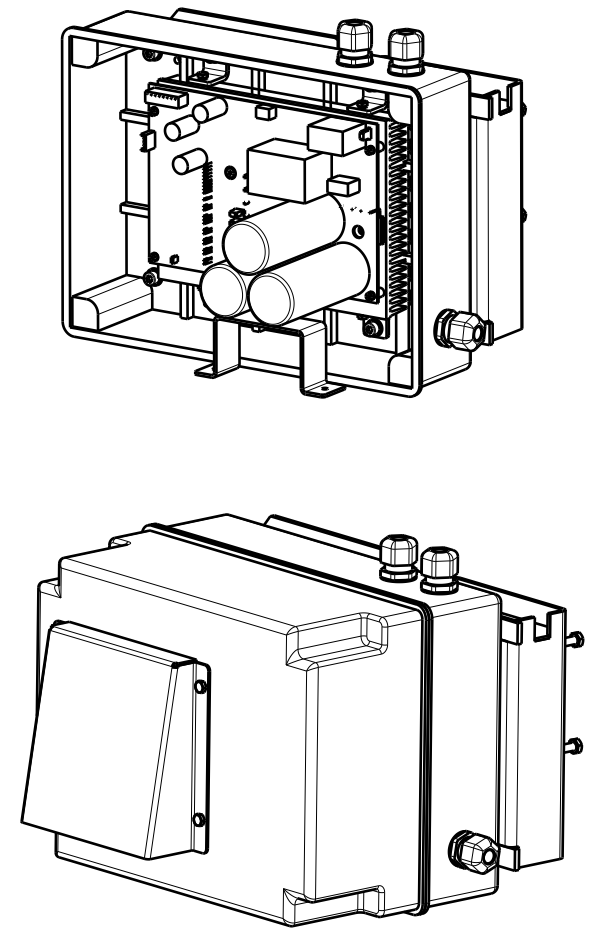
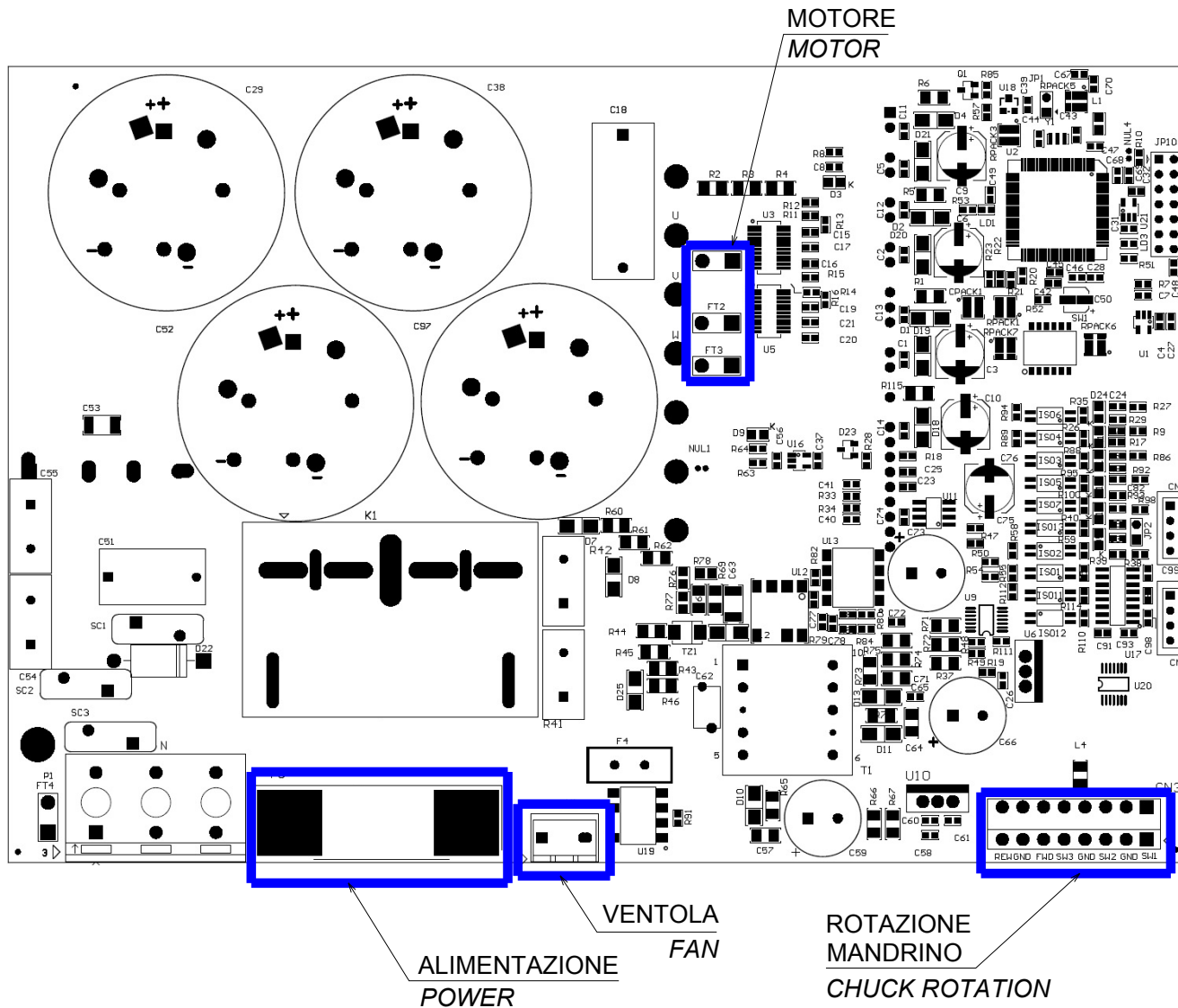
SCHEMA ELETTRICO (VARIANTE CON INVERTER) 3/7
ELECTRICAL SCHEME (VERSION WITH INVERTER) 3/7
SCHALTPLAN (VERSION MIT INVERTER) 3/7
SCHEMA ELECTRIQUE (VERSION AVEC INVERSEUR) 3/7
ESQUEMA ELECTRICO (VERSION CON INVERSOR) 3/7

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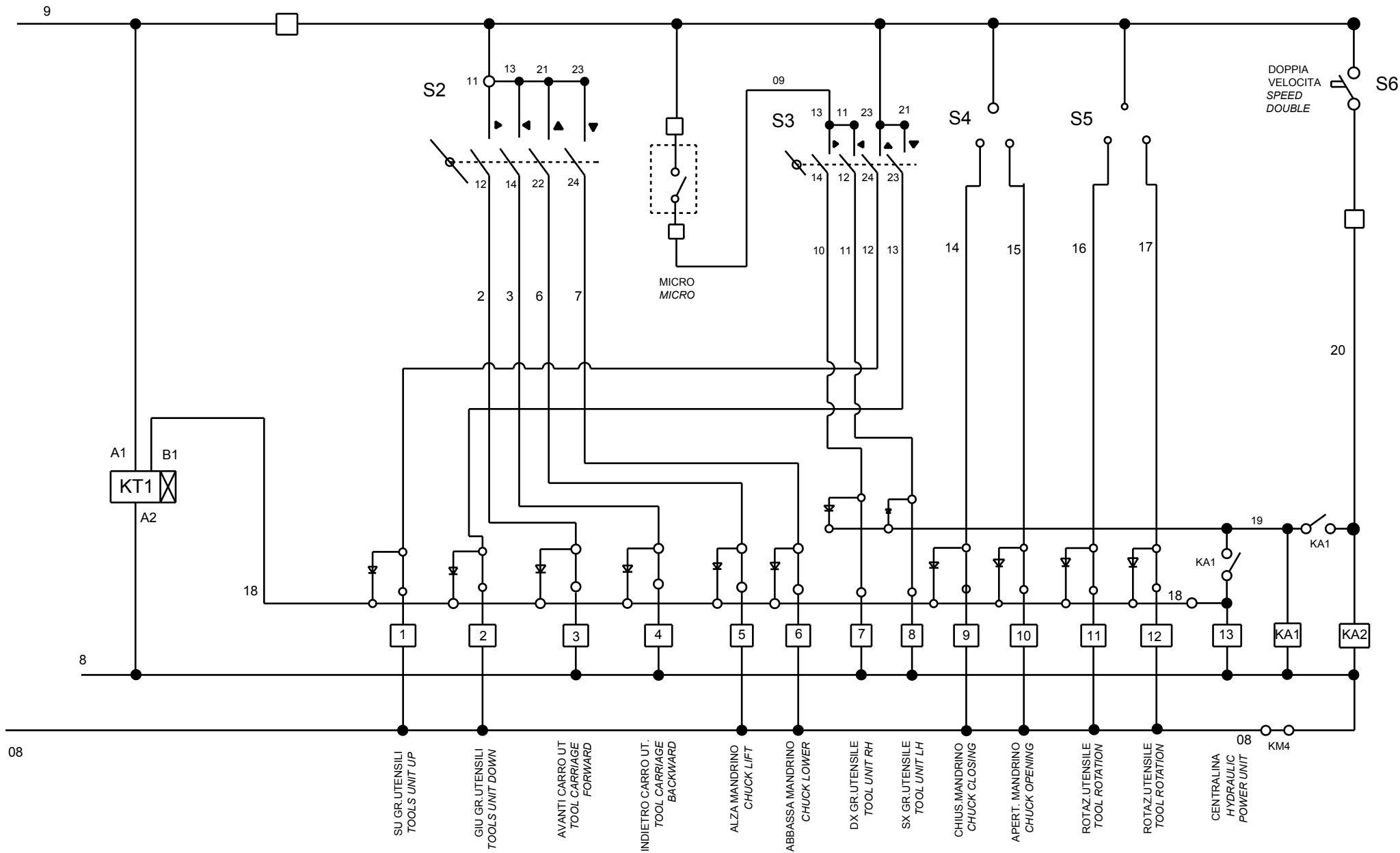


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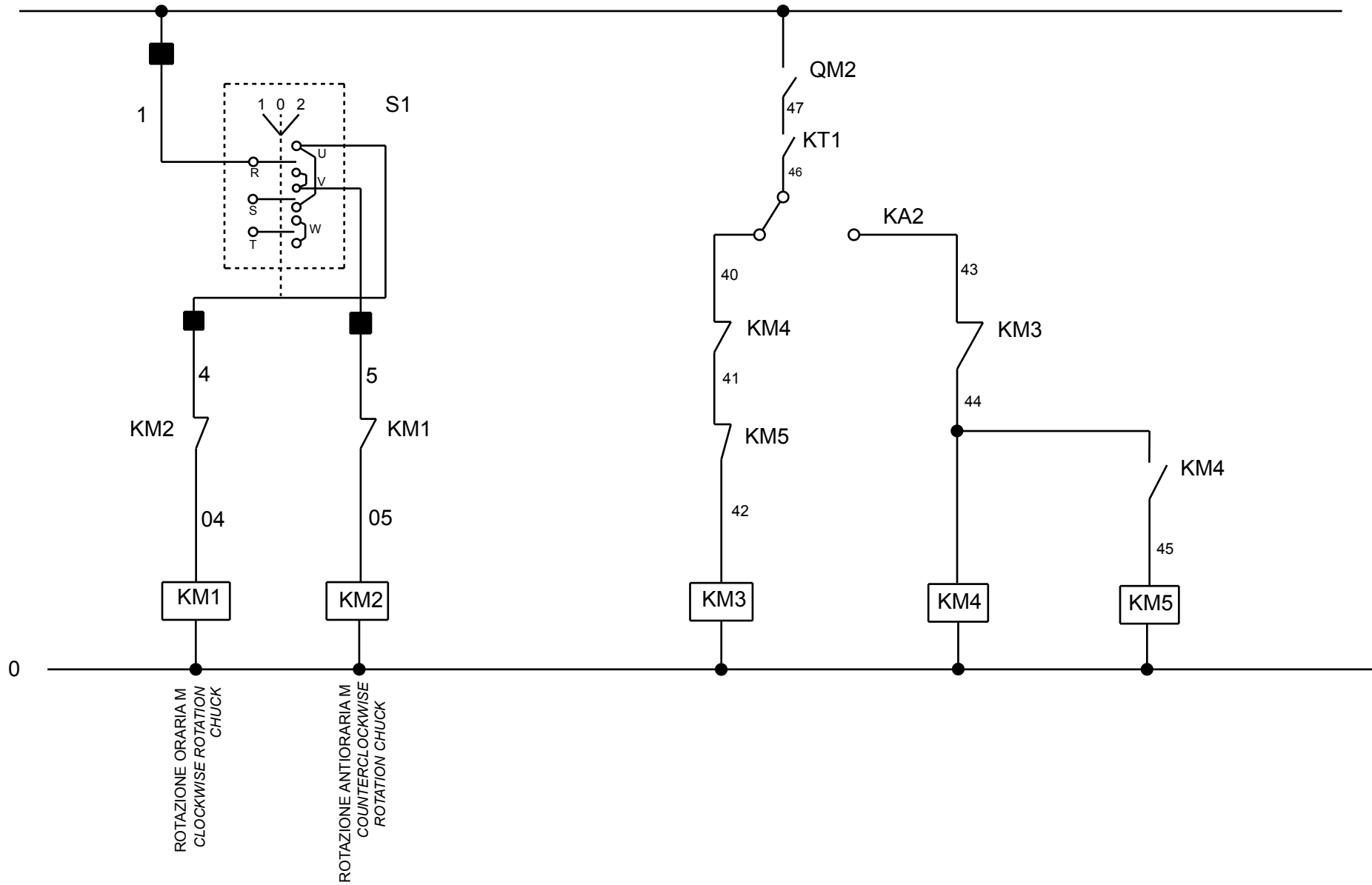
RIFERIMENTO	DESCRIZIONE	DATI TECNICI	CODICE	QUANTITA	RIFERIMENTO DOCUMENTO
	INTERRUTTORE	INTERRUTTORE 32A 4 POLI BL/POR GIOVENZANA art.SE323004B	518250	1	
	MANOPOLA GIALLO/ROSSA GIOVENZANA	a.012/0001-1 LUCCHETTO	518226	1	
KT1	TIMER RIT. DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	521104	1	
Q15	COMMUTATORE	COMM. 3POS. 25A	518270	1	
	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V		2	
F3	FUSIBILE	FUSIBILE GL 10,3X38 2A 500V	507019	2	
F4	FUSIBILE	FUSIBILE GL 10,3X38 2A 500V	507019	1	
F5	FUSIBILE	FUSIBILE 10,3X38 8A 500V AM	507100	1	
Q1,Q2,Q3,Q4,Q5, Q6,Q13				7	
K3M-K4M-K5M	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	522137	3	
	CONTATTI AUSILIARI BFX 10 11 1N0 1NC		522147	1	
	MORSETTO 2.5mmq C/DIODO 1N4007		510218	12	
	MORSETTO A MOLLA 2 PIAN.1.5mmq		510217	13	
	MORSETTO G/V 4mmq ART.TEO.4 CABUR T0430 +PIASTR.TERM.TEO.4		510150 + 510209	3	
VC1	PONTE RADDRIZZATORE VC1	-	B1296200	1	
	CONDENSATORE C1-C2		B1296300	1	
	INS.CAVO ALIMENTAZIONE QUADRO		752265720	1	
	INS.CAVO MOTORE MANDRINO		752265970	1	
	INS.CAVO MOTORE CENTRALINA	-	752265770	1	
	INS.CAVO MANIPOLATORE		752265780	1	
	INS.CAVO ALIMENTAZIONE INVERTER		752265980	1	
	INS.CAVO SEGNALI INVERTER		752265740	1	
	INS. CAVO ELETTROVALVOLA Q1-Q2-Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11-Q12-Q13			1 1 1 1 1 1 1 1	
KA1	RELE'A 2 CONTATTI	RELE' 2 CONTATTI 10A 24VDC	557021	1	
KA2	RELE'A 2 CONTATTI	RELE' 2 CONTATTI 8A 24VAC	557017	1	
ZOCCOLO	ZOCCOLO A 2 CONTATTI		557018	2	
S2/S3	MANIPOLATORE	MANIPOLATORE JOYSTICH 4 POS. GE CEMA art.P9MMN4T	517285	2	5.7
S4/S5	PULSANTE BASCULANTE	-	517300	2	5.7
S6	PULSANTE DOPPIA VELOCITA'	PULSANTE IP 65 - SIEMENS	B4511000	1	
S1	INVERTITORE TRIPOLARE	INVERTORE 3 P.art.P020533S	518272	1	5.7
T1	TRASFORMATORE	TRASFORMATORE 160VA	B1296100	1	2.7
M1	MOTORE CENTRALINA	1,8/2,5KW 400V 50Hz 1400/2800rpm	900003880	1	3.7
M2	MOTORE MANDRINO	2,2KW 160/277V 50Hz 7.8/13.5A cosØ=0,78 1400rpm.	900004320	1	3.7

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	CODE	QUANTITY	DOCUMENT REFERENCE
	SWITCH	32A 4 POLES BL/POR SWITCH GIOVENZANA art.SE323004B	518250	1	
	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	518226	1	
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	521104	1	
Q15	COMMUTATOR	COMM. 3POS. 25A	518270	1	
	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE		2	
F3	FUSE	GL 10,3X38 2A 500V FUSE	507019	2	
F4	FUSE	GL 10,3X38 2A 500V FUSE	507019	1	
F5	FUSE	10,3X38 8A 500V AM FUSE	507100	1	
Q1,Q2,Q3,Q4,Q5, Q6,Q13				7	
K3M-K4M-K5M	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	522137	3	
	BFX 10 11 1N0 1NC AUXILIARY CONTACTS		522147	1	
	CLAMP 2.5mmq C/DIODO 1N4007		510218	12	
	2 PIAN.1.5mmq SPRING CLAMP 2		510217	13	
	CLAMP G/V 4mmq ART.TEO.4 CABUR T0430 + TOOL PLATE TEO.4		510150 + 510209	3	
VC1	RECTIFIER BRIDGE VC1	-	B1296200	1	
	CONDENSER C1-C2		B1296300	1	
	SQUARE FEEDING CABLE ASSEMBLY		752265720	1	
	CHUCK UNIT MOTOR CABLE ASSEMBLY		752265970	1	
	HYDR.POWER UNIT MOTOR CABLE ASSEMBLY	-	752265770	1	
	HANDLE CABLE ASSEMBLY		752265780	1	
	INVERTER FEEDING CABLE ASSEMBLY		752265980	1	
	INVERTER SIGNAL CABLE ASSEMBLY		752265740	1	
	Q1-Q2-Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11-Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY			1 1 1 1 1 1 1 1	
KA1	RELAY 2 CONTACTS	10A 24VDC RELAY 2 CONTACTS	557021	1	
KA2	RELAY 2 CONTACTS	8A 24VAC RELAY 2 CONTACTS	557017	1	
SOCKET	2 CONTACTS SOCKET		557018	2	
S2/S3	HANDLE	JOYSTICH HANDLE 4 POS. GE CEMA art.P9MMN4T	517285	2	5.7
S4/S5	PUSHBUTTON	-	517300	2	5.7
S6	DOUBLE SPEED PUSHBUTTON	PUSHBUTTON IP 65 - SIEMENS	B4511000	1	
S1	THREE-POLE INVERTER	art. P020533S THREE-POLE INVERTER	518272	1	5.7
T1	TRANSFORMER	160VA TRANSFORMER	B1296100	1	2.7
M1	HYDRAULIC POWER UNIT MOTOR	1,8/2,5KW 400V 50Hz 1400/2800rpm	900003880	1	3.7
M2	CHUCK MOTOR	2,2KW 160/277V 50Hz 7.8/13.5A cosØ=0,78 1400rpm.	900004320	1	3.7

 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE CON INVERTER) 7/7 ELECTRICAL SCHEME (VERSION WITH INVERTER) 7/7 SCHALTPLAN (VERSION MIT INVERTER) 7/7 SCHEMA ELECTRIQUE (VERSION AVEC INVERSEUR) 7/7 ESQUEMA ELECTRICO (VERSIÓN CON INVERSOR) 7/7	Pag. 73 di 96
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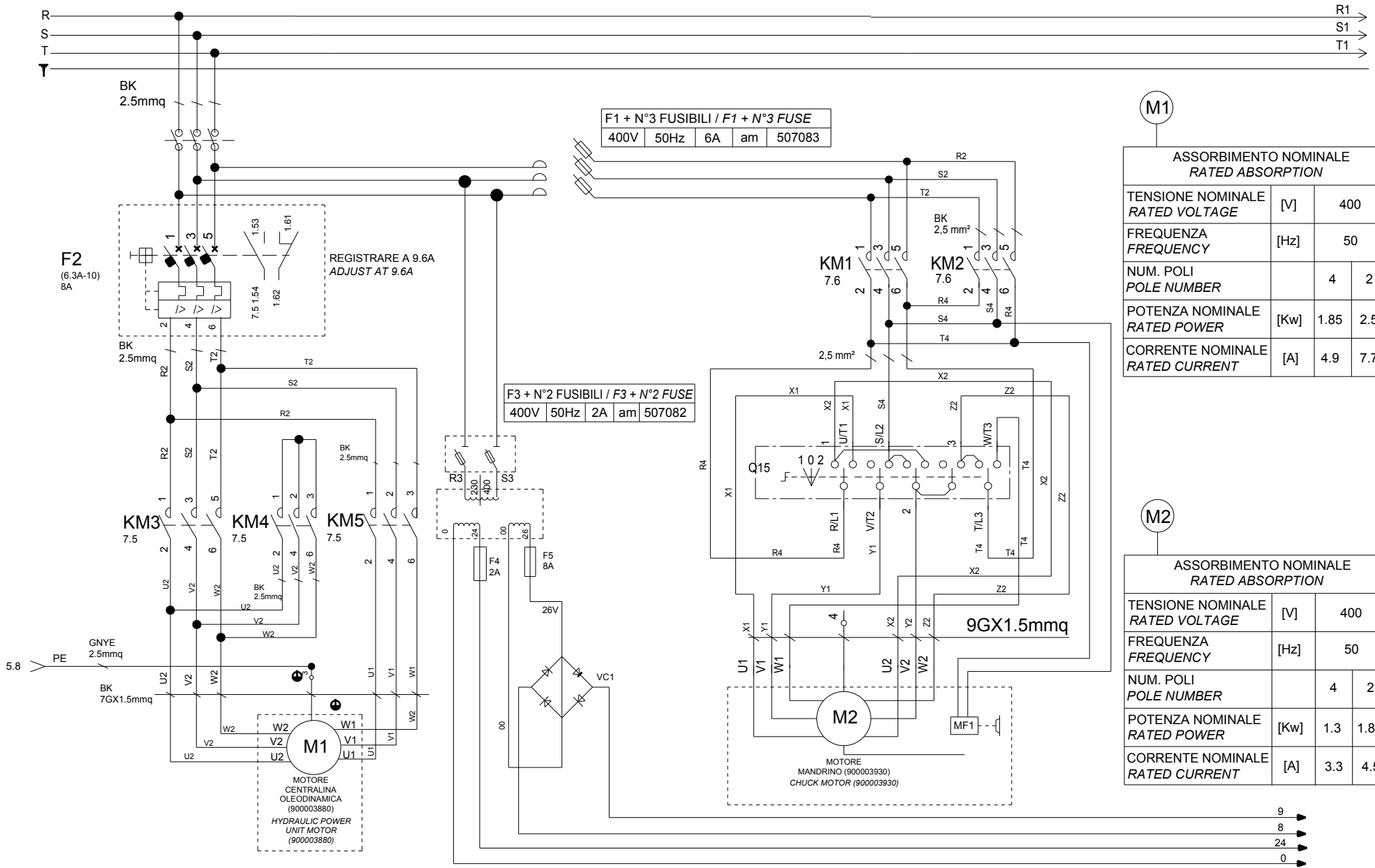


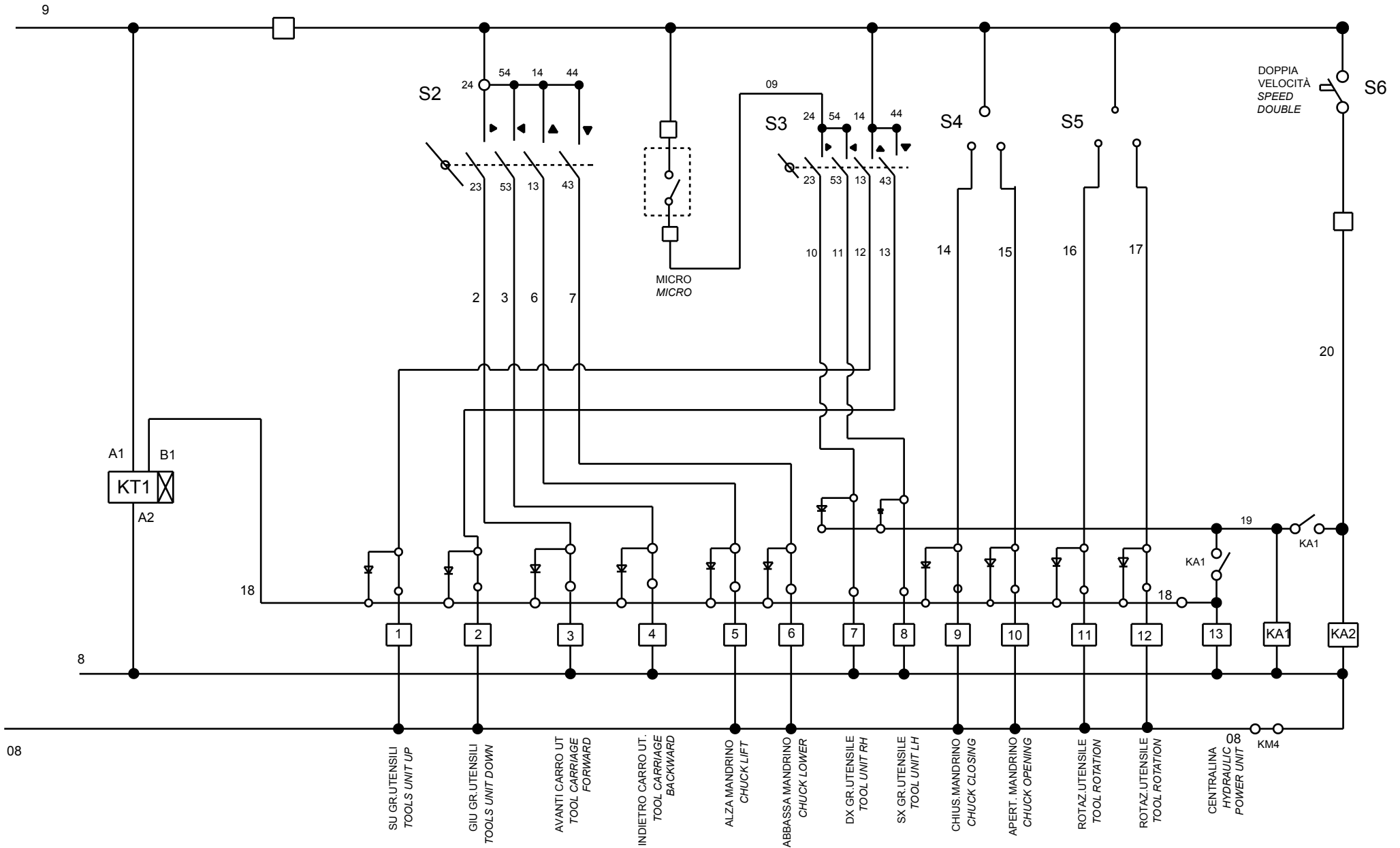
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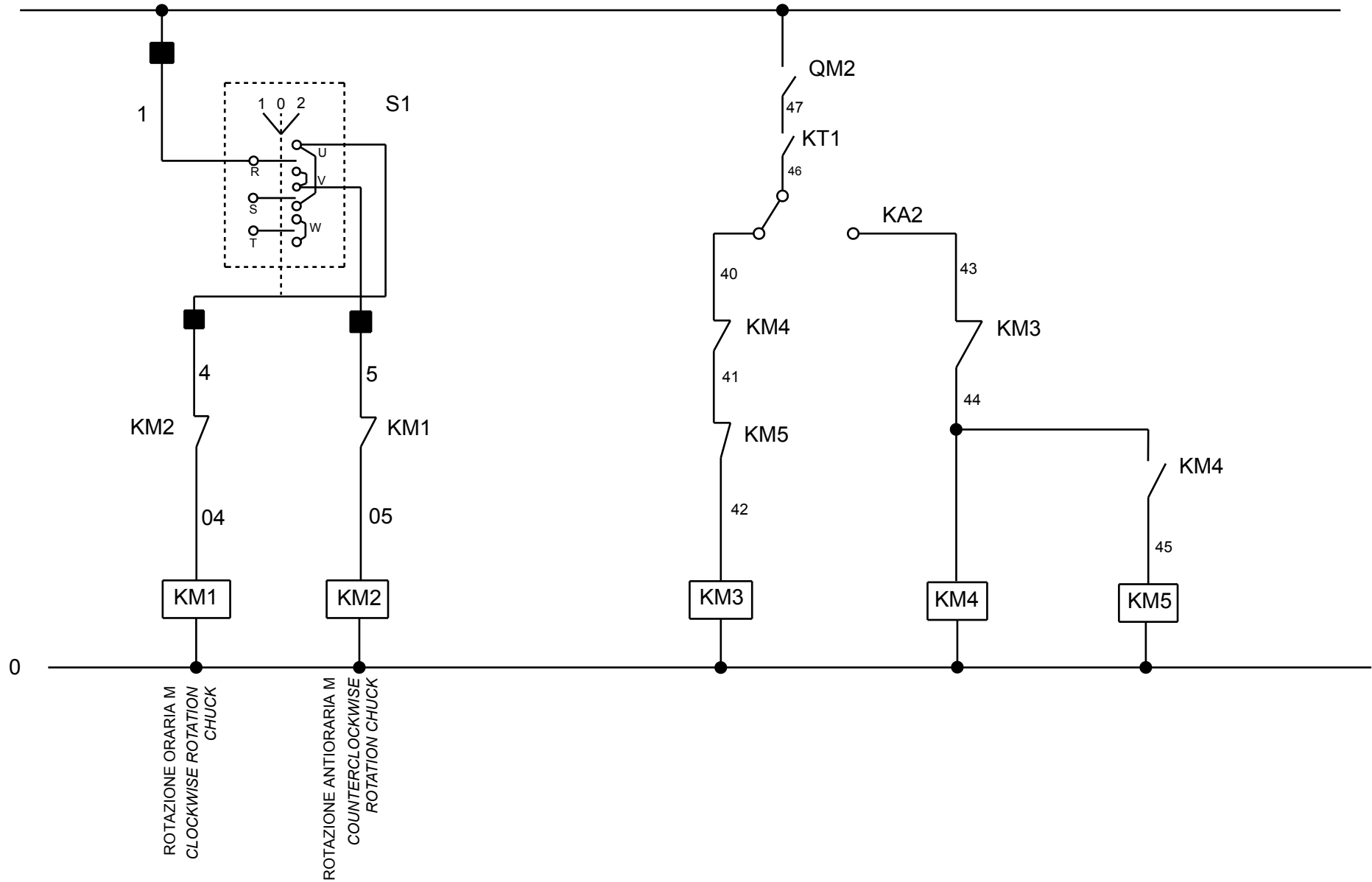


RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
Q14	SEZIONATORE 16A 3 POLI	ART.SE163003B 16A 3P BL/POR	1
	MANOPOLA GIALLO/ROSSA GIOVENZ	a.012/0001-1 LUCCHETTO	1
KT1	TIMER RIT.DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	COMMUTATORE 20A	20A C0013.09.11	1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 6A 500V aM RITARDATO	3
F2	INTERRUTT.6-10A SLVAMOTORE	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aM RITARDATO	2
F4	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aR RAPIDO	1
	FUSIBILE	10,3X38 8A 500V aR RAPIDO	1
KM4	INSIEME CONTATTORE KM4	CONTATTORE BF09 01 A024 LOVATO + CONTATTI AUSILIARI BFX10 11	1
KM1-KM2-KM3- -KM5	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	CONTATTI AUSILIARI BFX 10 11 1NO 1NC		1
K3	MORS.2,5 C/DIOD.1N5408	MORS.2,5 C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	MORSETTO 2,5mmq ST 2,5-	MORSETTO 2,5mmq ST 2,5- PHOENIX cod.3031306 (molla) 4C	13
K5	MORSETTO G/V 4mmq art.UT 4-PE +PIASTRA TERMIN.art.D-UT 2,5/10	MORSETTO G/V PHOENIX COD.3044128 (vite)+PIASTRA TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q2- Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11- Q12-Q13		1
		1	
		1	
		1	
		1	
		1	
		1	
KA1-KA2 + ZOC COLO	RELE'A 2 CONTATTI +	8A 24VAC	2
	ZOC COLO A 2 CONTATTI		2
S2/S3	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	2
S4/S5	PULSANTE BASCULANTE	-	2
S6	PULSANTE DOPPIA VELOCITA'		
S1	INVERTITORE TRIPOLARE		1
T1	TRASFORMATORE	160 VA	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
Q14	16A 3 POLES CUT-OUT SWITCH	ART.SE163003B 16A 3P BL/POR	1
	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	1
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	20A COMMUTATOR	20A C0013.09.11	1
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1
	FUSE	10,3x38 6A 500V aM DELAYED	3
F2	6-10A OVERLOAD CUOUT SWITCH	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aM DELAYED	2
F4	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aR RAPID	1
	FUSE	10,3X38 8A 500V aR RAPID	1
KM4	KM4 CONTACTOR ASSEMBLY	BF09 01 A024 LOVATO CONTACTOR + BFX10 11 AUXILIARY CONTACTS	1
KM1-KM2-KM3-KM5	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	BFX 10 11 1N0 1NC AUXILIARY CONTACTS		1
K3	1N5408 2.5mmq C/DIODO CLAMP	2,5 CLAMP C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	2,5mmq ST 2,5- CLAMP	2,5mmq CLAMP ST 2,5- PHOENIX cod.3031306 (spring) 4C	13
K5	CLAMP Y/G 4mmq art.UT 4-PE +TOOL PLATE art.D-UT 2,5/10	CLAMP Y/G PHOENIX COD.3044128 (screw) + TOOL PLATE TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q8-Q9-Q10-Q11- Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY		1
		1	
		1	
		1	
		1	
		1	
		1	
KA1-KA2 + SOCKET	RELAY 2 CONTACTS + 2 CONTACTS SOCKET	8A 24VAC	2 + 2
S2/S3	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	2
S4/S5	PUSHBUTTON	-	2
S6	DOUBLE SPEED PUSHBUTTON		
S1	THREE-POLE INVERTER		1
T1	TRANSFORMER	160 VA	1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	CHUCK MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1







RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
Q14	SEZIONATORE 16A 3 POLI	ART.SE163003B 16A 3P BL/POR	1
	MANOPOLA GIALLO/ROSSA GIOVENZ	a.012/0001-1 LUCCHETTO	1
KT1	TIMER RIT.DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	COMMUTATORE 20A	20A C0013.09.11	1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 6A 500V aM RITARDATO	3
F2	INTERRUTT.6-10A SLVAMOTORE	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aM RITARDATO	2
F4	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aR RAPIDO	1
	FUSIBILE	10,3X38 8A 500V aR RAPIDO	1
KM1-KM2-KM3-KM5	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	4
KM4	INS.CONTATTORE KM4	CONTATTORE BF09 01 A024	1
		CONTATTI AUSILIARI BFX10 11	
K3	MORSETTO CON DIODO 2.5mmq	MORS.2,5 C/DIOD.1N5408 PHOENIX ST2,5-QUATTRO DIO 1N 5408K/R-L	12
K4	MORSETTO 2,5mmq QUATTRO	MORSETTO 2,5mmq ST 2,5-QUATTRO PHOENIX cod.3031306 (molla) 4C	13
k5	MORSETTO G/V 4mmq	MORSETTO G/V 4mmq art.UT 4-PE PHOENIX COD.3044128 (vite)	4
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-Q2- Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11- Q12-Q13		1
			1
			1
			1
			1
			1
			1
KA1-KA2 + ZOCOLO	RELE'A 2 CONTATTI + ZOCOLO A 2 CONTATTI	8A 24VAC	2 +
			2
S2/S3	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	2
S4/S5	PULSANTE BASCULANTE	-	2
S6	PULSANTE DOPPIA VELOCITA'		
S1	INVERTITORE TRIPOLARE		1
T1	TRASFORMATORE	100 VA	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



RAVAGLIOLI S.p.A.

**LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE
LISTE DES PIÈCES DETACHÉES - LISTA DE PIEZAS**

Tavola N°E - Rev. 0

752205881

SCHEMA ELETTRICO (VARIANTE CON MOTORE AUTOFRENANTE) 4/5
ELECTRICAL SCHEME (VERSION WITH SELF-BRAKING MOTOR) 4/5
SCHALTPLAN (VERSION MIT BREMSMOTOR) 4/5
SCHEMA ELECTRIQUE (VERSION AVEC MOTEUR AUTOFREINANT) 4/5
ESQUEMA ELECTRICO (VERSION CON MOTOR AUTOFRENANTE) 4/5

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REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
Q14	16A 3 POLES CUT-OUT SWITCH	ART.SE163003B 16A 3P BL/POR	1
	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	1
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	20A COMMUTATOR	20A C0013.09.11	1
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1
	FUSE	10,3x38 6A 500V aM DELAYED	3
F2	6-10A OVERLOAD CUOUT SWITCH	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aM DELAYD	2
F4	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aR RAPID	1
	FUSE	10,3X38 8A 500V aR RAPID	1
KM1-KM2-KM3-KM5	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	4
KM4	KM4 CONTACTOR ASSEMBLY	BF09 01 A024 CONTACTOR	1
		BFX10 11 AUXILIARY CONTACTS	
K3	2.5mmq C/DIODO CLAMP	CLAMP 2,5 C/DIOD.1N5408 PHOENIX ST2,5-FOUR DIO 1N 5408K/R-L	12
K4	2,5mmq FOUR CLAMP	CLAMP 2,5mmq ST 2,5-FOUR PHOENIX cod.3031306 (spring) 4C	13
k5	4mmq CLAMP Y/G	CLAMP Y/G 4mmq art.UT 4-PE PHOENIX COD.3044128 (screw)	4
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-Q8-Q9-Q10-Q11-Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY		1
		1	
		1	
		1	
		1	
		1	
		1	
KA1-KA2 + SOCKET	RELAY 2 CONTACTS + 2 CONTACTS SOCKET	8A 24VAC	2 + 2
S2/S3	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	2
S4/S5	PUSHBUTTON	-	2
S6	DOUBLE SPEED PUSHBUTTON		
S1	THREE-POLE INVERTER		1
T1	TRANSFORMER	100 VA	1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	CHUCK MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1



RAVAGLIOLI S.p.A.

**LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE
LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS**

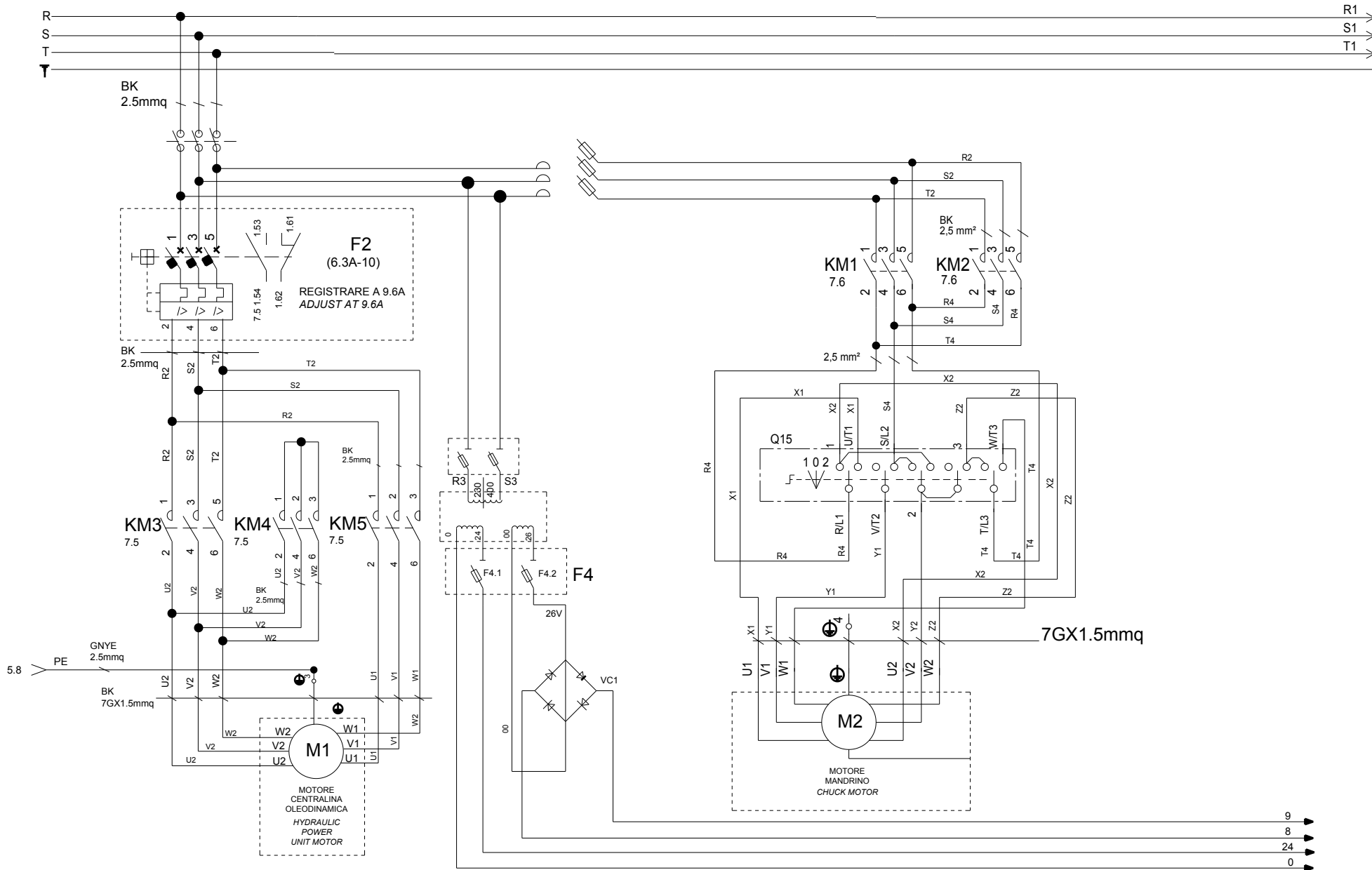
Tavola N°E - Rev. 0

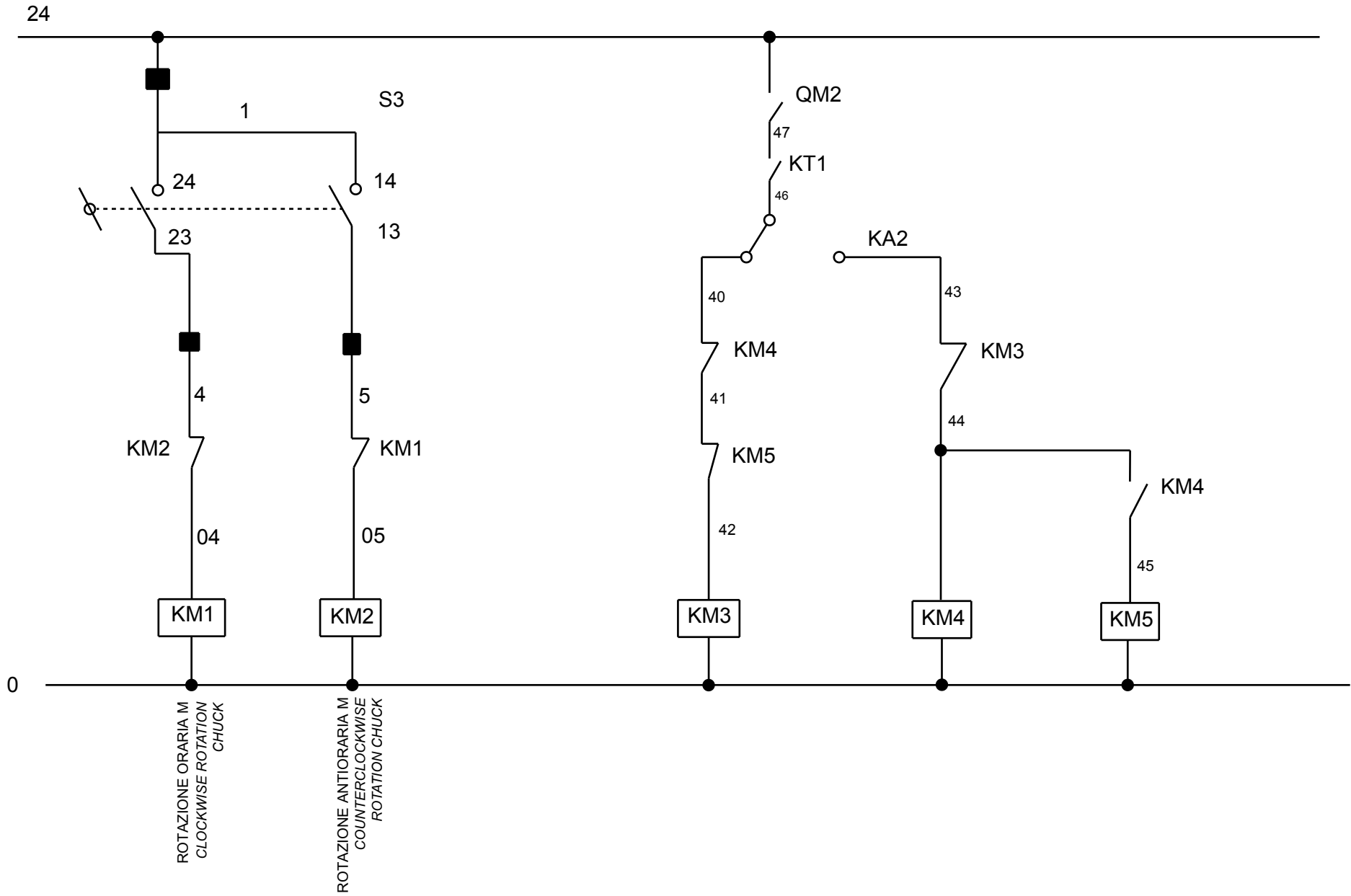
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SCHEMA ELETTRICO (VARIANTE CON MOTORE AUTOFREINANTE) 55
ELECTRICAL SCHEME (VERSION WITH SELF-BRAKING MOTOR) 55
SCHALTPLAN (VERSION MIT BREMSMOTOR) 55
SCHEMA ELECTRIQUE (VERSION AVEC MOTEUR AUTOFREINANT) 55
ESQUEMA ELECTRICO (VERSION CON MOTOR AUTOFREINANTE) 55

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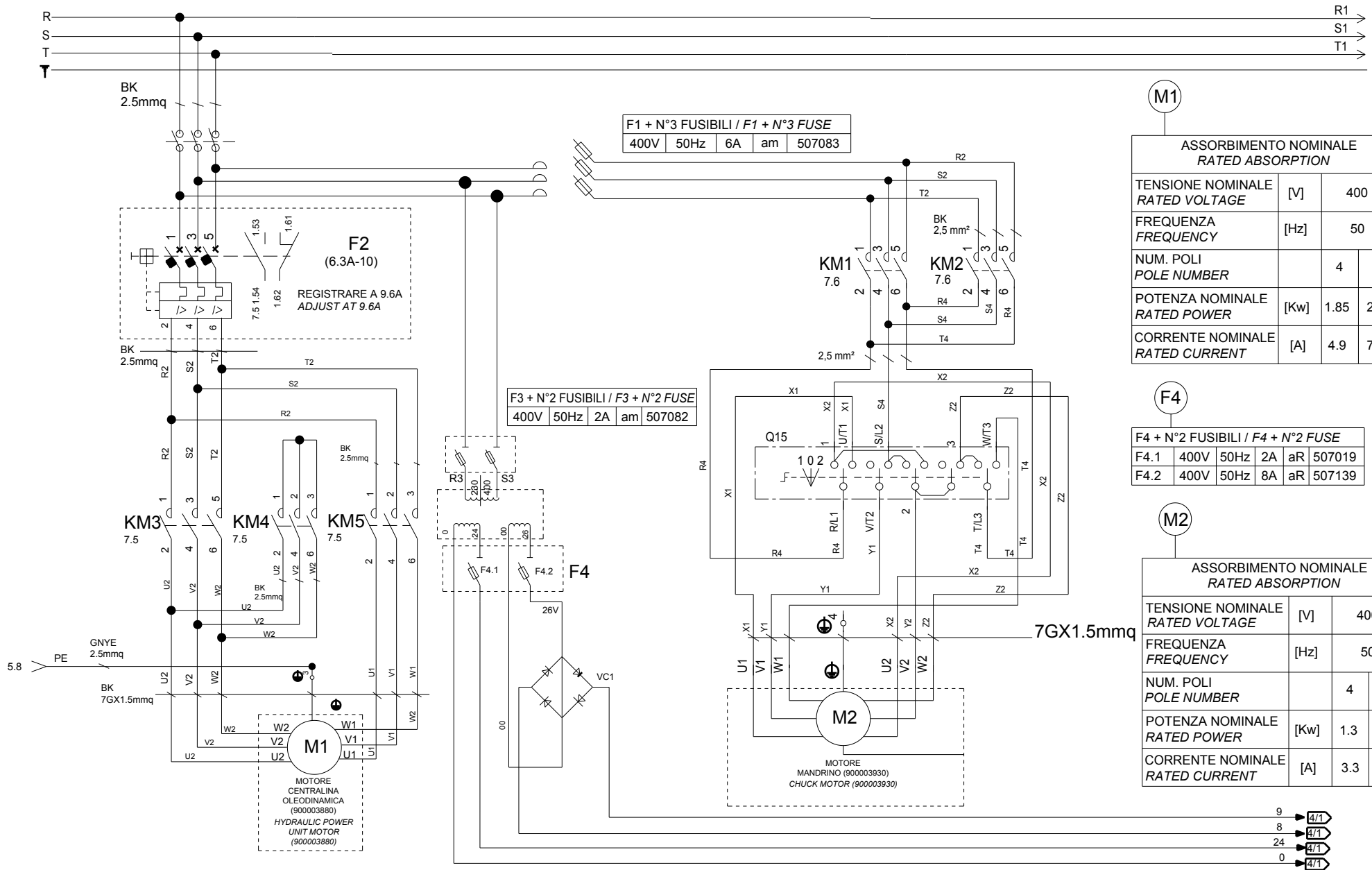
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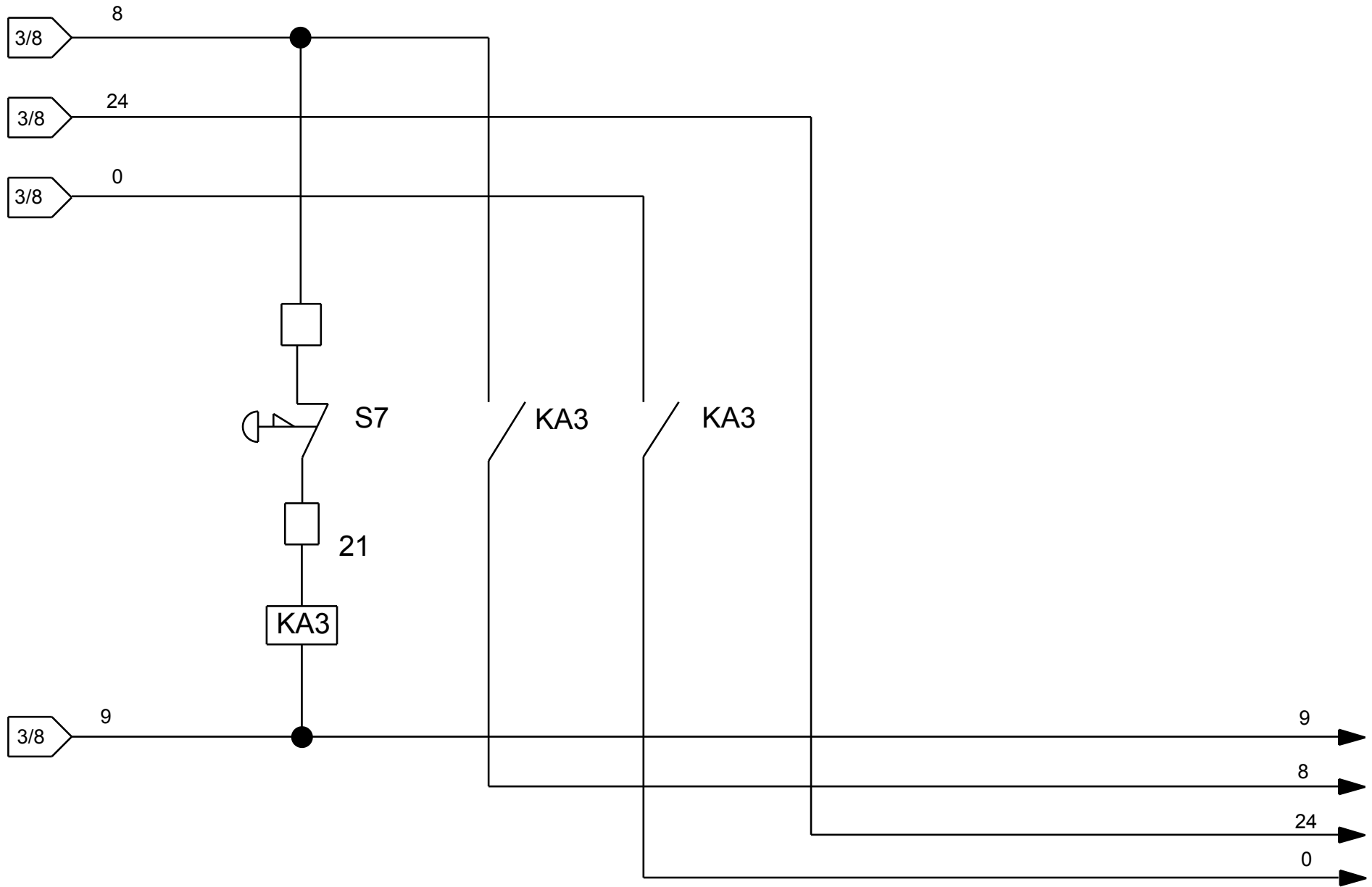


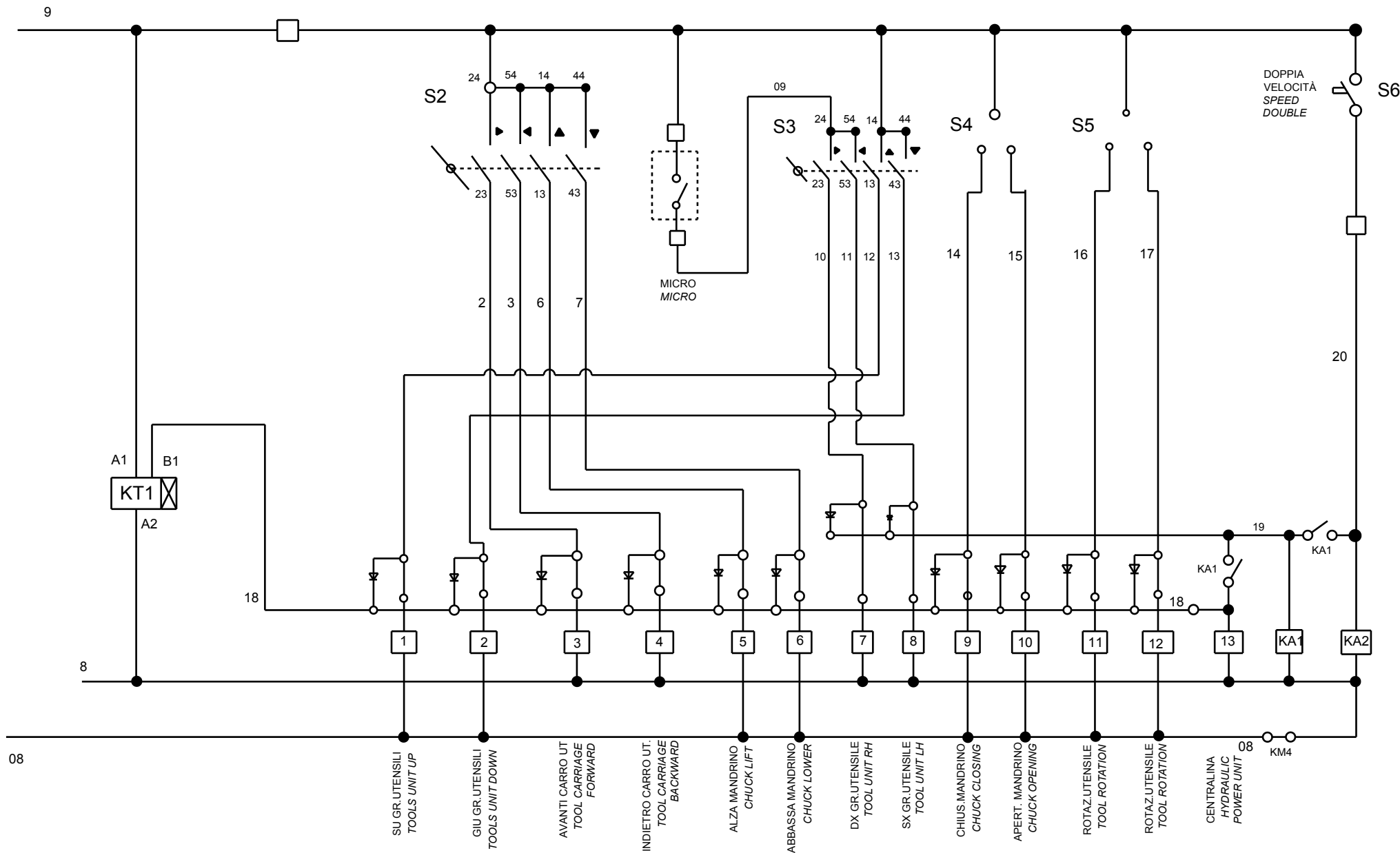


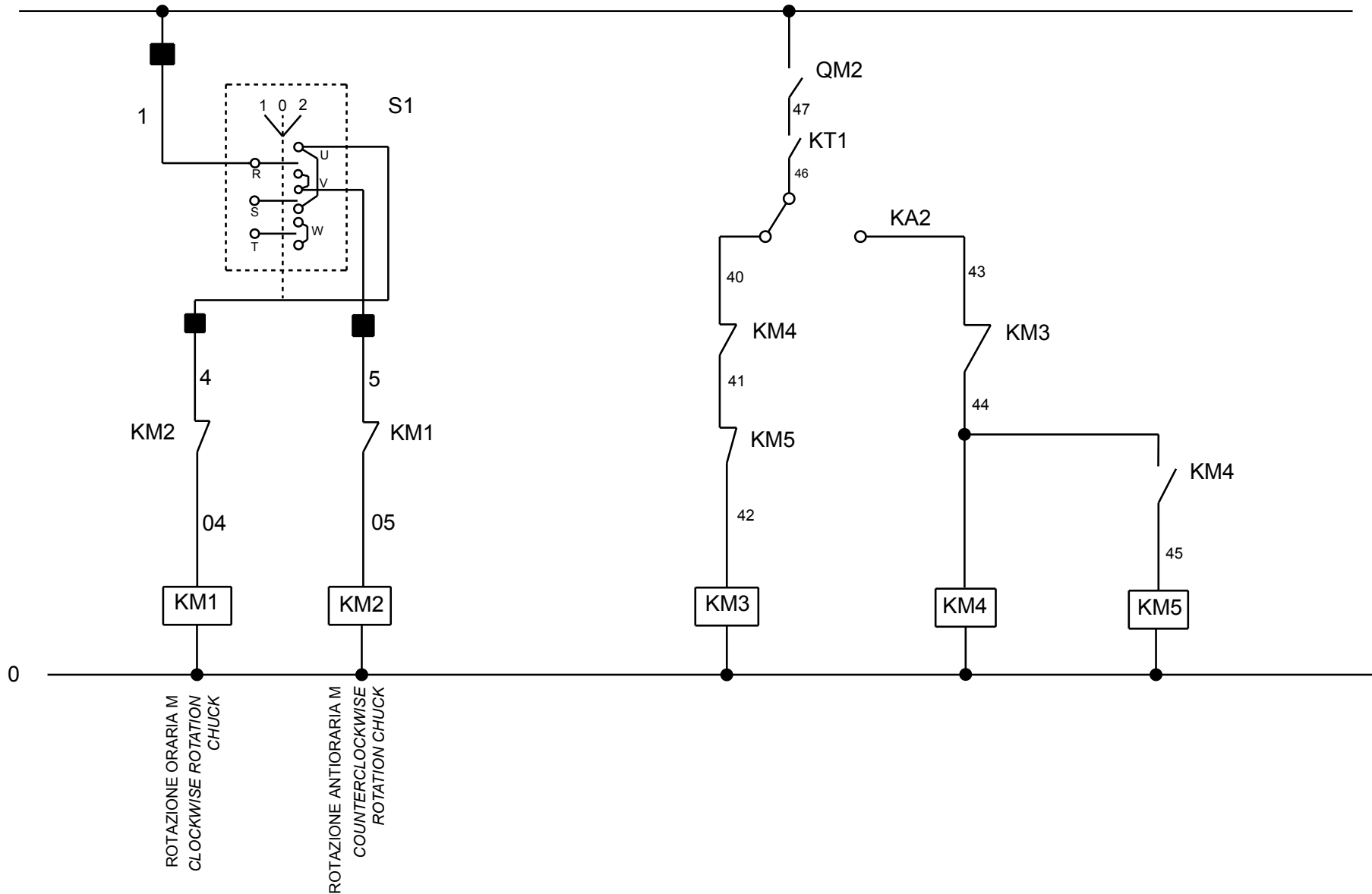
RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
Q14	SEZIONATORE 16A 3 POLI	ART.SE163003B 16A 3P BL/POR	1
	MANOPOLA GIALLO/ROSSA GIOVENZ	a.012/0001-1 LUCCHETTO	1
KT1	TIMER RIT.DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	COMMUTATORE 20A	20A C0013.09.11	1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 6A 500V aM RITARDATO	3
F2	INTERRUTT.6-10A SLVAMOTORE	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aM RITARDATO	2
F4	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aR RAPIDO	1
	FUSIBILE	10,3X38 8A 500V aR RAPIDO	1
KM4	INSIEME CONTATTORE KM4	CONTATTORE BF09 01 A024 LOVATO + CONTATTI AUSILIARI BFX10 11	1
KM1-KM2-KM3- -KM5	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	CONTATTI AUSILIARI BFX 10 11 1N0 1NC		1
K3	MORS.2,5 C/DIOD.1N5408	MORS.2,5 C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	MORSETTO 2,5mmq ST 2,5-	MORSETTO 2,5mmq ST 2,5- PHOENIX cod.3031306 (molla) 4C	13
K5	MORSETTO G/V 4mmq art.UT 4-PE +PIASTRA TERMIN.art.D-UT 2,5/10	MORSETTO G/V PHOENIX COD.3044128 (vite)+PIASTRA TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q2- Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11- Q12-Q13		1 1 1 1 1 1 1
KA1-KA2 + ZOCOLO	RELE'A 2 CONTATTI + ZOCOLO A 2 CONTATTI	8A 24VAC	2 +
			2
S2/S3	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	2
S4/S5	PULSANTE BASCULANTE	-	2
S6	PULSANTE DOPPIA VELOCITA'		
S1	INVERTITORE TRIPOLARE		1
T1	TRASFORMATORE	160 VA	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
Q14	16A 3 POLES CUT-OUT SWITCH	ART.SE163003B 16A 3P BL/POR	1
	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	1
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	20A COMMUTATOR	20A C0013.09.11	1
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1
	FUSE	10,3x38 6A 500V aM DELAYED	3
F2	6-10A OVERLOAD CUOUT SWITCH	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aM DELAYED	2
F4	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aR RAPID	1
	FUSE	10,3X38 8A 500V aR RAPID	1
KM4	KM4 CONTACTOR ASSEMBLY	BF09 01 A024 LOVATO CONTACTOR + BFX10 11 AUXILIARY CONTACTS	1
KM1-KM2-KM3-KM5	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	BFX 10 11 1N0 1NC AUXILIARY CONTACTS		1
K3	1N5408 2.5mmq C/DIODO CLAMP	2,5 CLAMP C/DIOD.1N5408 PHOENIX ST2,5-4 DIO 1N 5408K/R-L	12
K4	2,5mmq ST 2,5- CLAMP	2,5mmq CLAMP ST 2,5- PHOENIX cod.3031306 (spring) 4C	13
K5	CLAMP Y/G 4mmq art.UT 4-PE +TOOL PLATE art.D-UT 2,5/10	CLAMP Y/G PHOENIX COD.3044128 (screw) + TOOL PLATE TERMIN.art.D-UT 2,5/10 PHOENIX cod.3047028 (2,5 /10)	4
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-Q8-Q9-Q10-Q11- Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY		1
		1	
		1	
		1	
		1	
		1	
KA1-KA2 + SOCKET	RELAY 2 CONTACTS + 2 CONTACTS SOCKET	8A 24VAC	2 +
			2
S2/S3	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	2
S4/S5	PUSHBUTTON	-	2
S6	DOUBLE SPEED PUSHBUTTON		
S1	THREE-POLE INVERTER		1
T1	TRANSFORMER	160 VA	1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	CHUCK MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1





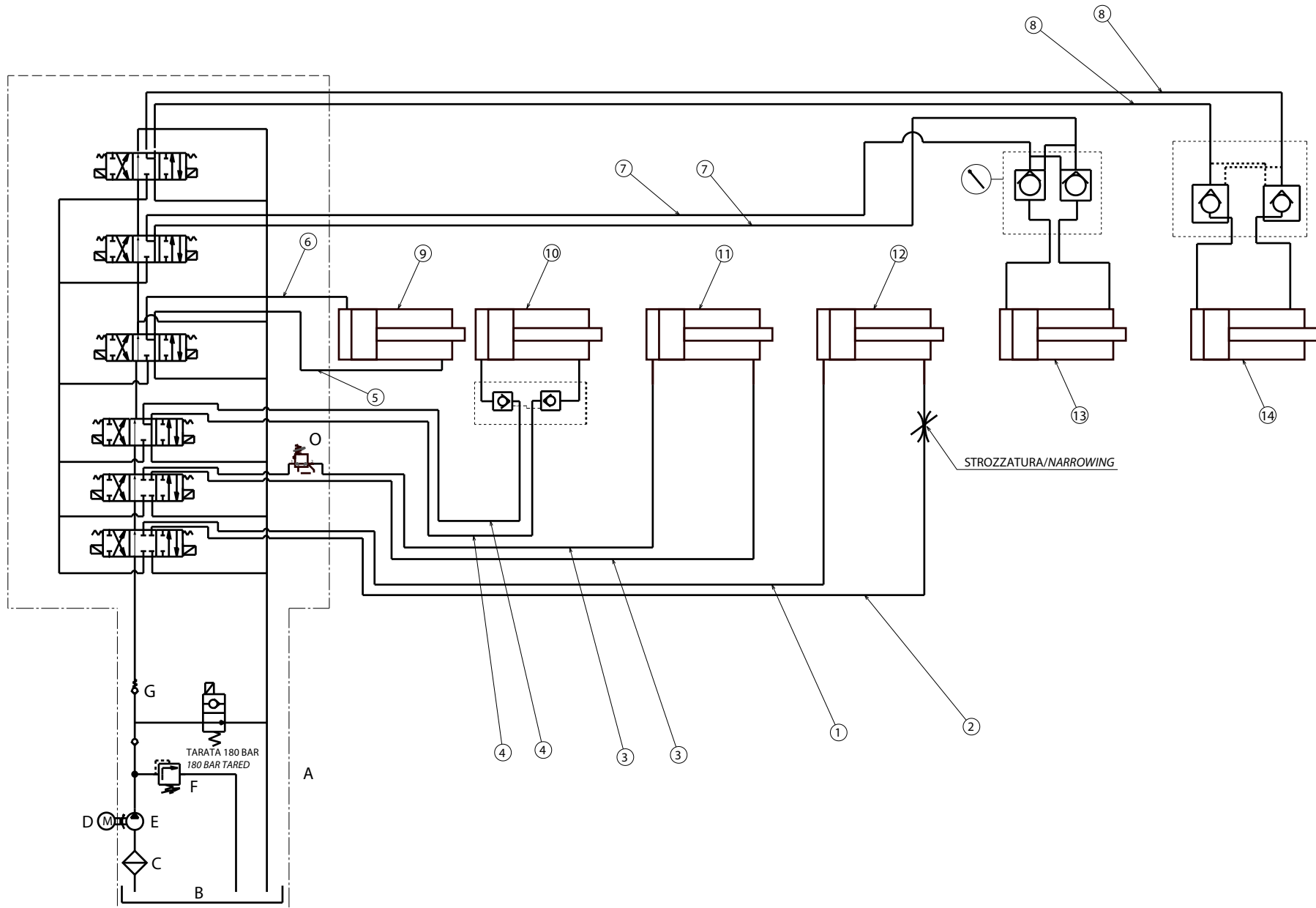




RIFERIMENTO	DESCRIZIONE	DATI TECNICI	QUANTITA
	SEZIONATORE 16A 3 POLI	ART.SE163003B 16A 3P BL/POR	1
Q1	MANOPOLA GIALLO/ROSSA GIOVENZ	a.012/0001-1 LUCCHETTO	1
KT1	TIMER RIT.DISECCIT.	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	COMMUTATORE 20A	20A C0013.09.11	1
F1	PORTAFUSIBILE	3 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3x38 6A 500V aM RITARDATO	3
F2	INTERRUTT.6-10A SLVAMOTORE	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aM RITARDATO	2
F4	PORTAFUSIBILE	2 POLI SEZIONABILE 10,3x38 32A 690V	1
	FUSIBILE	10,3X38 2A 500V aR RAPIDO	1
	FUSIBILE	10,3X38 8A 500V aR RAPIDO	1
K1M-K2M-K3M-K4M-K5M	CONTATTORE TRIPOLARE	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	CONTATTI AUSILIARI BFX 10 11 1N0 1NC		1
	MORSETTO 2.5mmq C/DIODO 1N4007		12
	MORSETTO A MOLLA 2 PIAN.1.5mmq		15
	MORSETTO G/V 4mmq ART.TEO.4 CABUR T0430 +PIASTR.TERM.TEO.4		3
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-Q2- Q3-Q4-Q5-Q6-Q8-Q9-Q10-Q11- Q12-Q13		1
KA1-KA2 + ZOCOLO	RELE'A 2 CONTATTI	8A 24VAC	3
	ZOCOLO A 2 CONTATTI		3
S2/S3	MANIPOLATORE	4 POS.+CENTR.TEMPORANEE Ø22	2
S4/S5	PULSANTE BASCULANTE	-	2
S6	PULSANTE DOPPIA VELOCITA'		
S1	INVERTITORE TRIPOLARE		1
T1	TRASFORMATORE	100 VA	1
M1	MOTORE CENTRALINA	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	MOTORE MANDRINO	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1
S7	PULSANTE EMERGENZA	PUNSANTE CON FUNGO ROSSO	1

REFERENCE	DESCRIPTION	TECHNICAL SPECIFICATIONS	QUANTITY
	16A 3 POLES CUT-OUT SWITCH	ART.SE163003B 16A 3P BL/POR	1
Q1	GIOVENZ YELLOW/RED KNOB	a.012/0001-1 PADLOCK	1
KT1	TIMER	TIMER RIT.DISECCIT. 12 240 AC DC	1
Q15	20A COMMUTATOR	20A C0013.09.11	1
F1	FUSE HOLDER	10,3x38 32A 690V 3 POLES SECTIONABLE	1
	FUSE	10,3x38 6A 500V aM DELAYED	3
F2	6-10A OVERLOAD CUOUT SWITCH	4-6.3A ART.GV2 ME14SCHNEIDER	1
F3	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aM DELAYD	2
F4	FUSE HOLDER	10,3x38 32A 690V 2 POLES SECTIONABLE	1
	FUSE	10,3X38 2A 500V aR RAPID	1
	FUSE	10,3X38 8A 500V aR RAPID	1
K1M-K2M-K3M-K4M-K5M	TRIPOLAR CONTACTOR	9A AC3 400V 4,2KW 1NC 24Vac 50/60Hz	5
	BFX 10 11 1N0 1NC AUXILIARY CONTACTS		1
	1N4007 2.5mmq C/DIODO CLAMP		12
	2 PIAN.1.5mmq SPRING CLAMP		15
	CLAMP Y/G 4mmq ART.TEO.4 CABUR T0430 +TOOL PLATE TEO.4		3
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-Q8-Q9-Q10-Q11- Q12-Q13 SOLENOID VALVE CABLE ASSEMBLY		1
KA1-KA2 + ZOCOLO	RELAY 2 CONTACTS	8A 24VAC	3
	2 CONTACTS SOCKET		3
S2/S3	HANDLE	4 POS.+CENTRAL TEMPORARY Ø22	2
S4/S5	PUSHBUTTON	-	2
S6	DOUBLE SPEED PUSHBUTTON		
S1	THREE-POLE INVERTER		1
T1	TRANSFORMER	100 VA	1
M1	HYDRAULIC POWER UNIT MOTOR	M.E.1.8-2.5T400 SX B3-B14 50HZ	1
M2	CHUCK MOTOR	MEKW1.35/1.85T400/50B3G90L 450 2800/1400 RPM	1
S7	EMERGENCY PUSH-BUTTONN	BUTTON WITH RED MUSHROOM HEAD	1

 RAVAGLIOLI S.p.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (VARIANTE PULSANTE EMERGENZA) 66 ELECTRICAL SCHEME (VERSION WITH EMERGENCY PUSH BUTTON) 66 SCHALTPLAN (VERSION MIT NOTFALLKNOPF) 66 SCHEMA ELECTRICO (VERSION ACEV/POUSSOIR D'URGENCE) 66 ESQUEMA ELECTRICO (VERSION CON PULSADOR DE EMERGENCIA) 66	Pag. 94 di 96
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Dichiarazione di Conformità

Declaration of Conformity
Konformitätserklärung
Déclaration de Conformité
Declaración de Conformidad



Noi
We / Wir / Nous / Nosotros

RAVAGLIOLI S.p.A.
via 1° Maggio , 3
40037 Pontecchio Marconi (Bologna) – ITALIA

dichiariamo sotto la nostra esclusiva responsabilità che il prodotto

declare, undertaking sole responsibility, that the product
erklären unter unserer alleinigen Verantwortung, dass das Produkt
déclarons, sous notre entière responsabilité, que le produit
declaramos bajo nuestra exclusiva responsabilidad, que el producto

Smontagomme Tyre changer Reifenmontiermaschine Démonte-Pneus Desmontadora	
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al quale questa dichiarazione si riferisce, risponde alle seguenti Direttive applicabili:

to which this declaration applies is in compliance with the following applicable Directives:
auf das sich diese Erklärung bezieht, den nachstehenden anwendbaren Normen entspricht:
objet de cette déclaration est conforme aux Directives applicables suivantes:
al que se refiere esta declaración cumple con las siguientes Normas aplicables:

- 2006/42/CE** Direttiva Macchine
- 2014/30/UE** Direttiva Compatibilità Elettromagnetica

Per la conformità alle suddette direttive sono state seguite le seguenti Norme armonizzate:

To comply with the above mentioned Directives, we have followed the following harmonized directives.
In Übereinstimmung mit o.g. Richtlinien wurden folgende harmonisierte Normen befolgt:
Pour la conformité aux normes ci-dessus, nous avons suivi les normes harmonisées suivantes:
Para la conformidad a las Normas arriba mencionadas, hemos seguido las siguientes normas armonizadas:

- UNI EN ISO 12100:2010** Sicurezza del macchinario – Principi generali di progettazione – Valutazione del rischio e riduzione del rischio
- CEI EN 60204-1:2018** Sicurezza del macchinario – Equipaggiamento elettrico delle macchine – Parte 1: Regole generali

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Pontecchio Marconi,

Il modello della presente dichiarazione è conforme alla norma

UNI CEI EN ISO/IEC 17050-1

The version of this declaration conforms to the regulation
Das Modell der vorliegenden Erklärung entspricht der Norm
Le modèle de la présente déclaration est conforme à la norme
El modelo de la presente declaración cumple la norma