

7300-M025-2_B

**HP641S.XX - HP641S.XXFI
HP641SQ.XX - HP641SQ.XXFI
HP641SD.XX - HP641SD.XXFI**

INSTRUCTION MANUAL

GB

TRANSLATION FROM THE
ORIGINAL INSTRUCTIONS

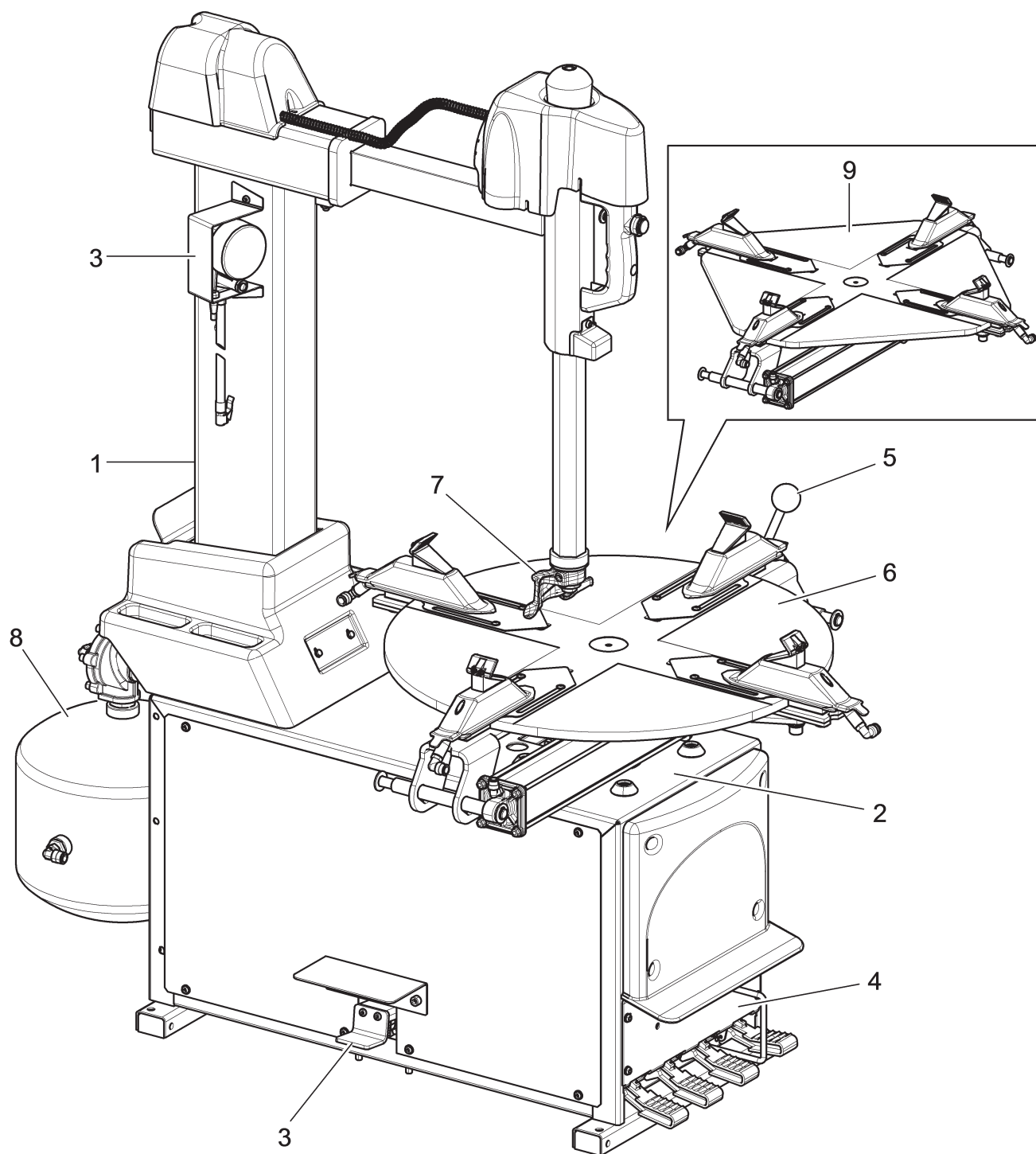
For spare parts drawings refer to the section "LIST OF COMPONENTS" enclosed to this manual.

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

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SUMMARY









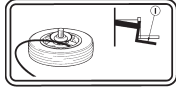


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Fig. 1**KEY**

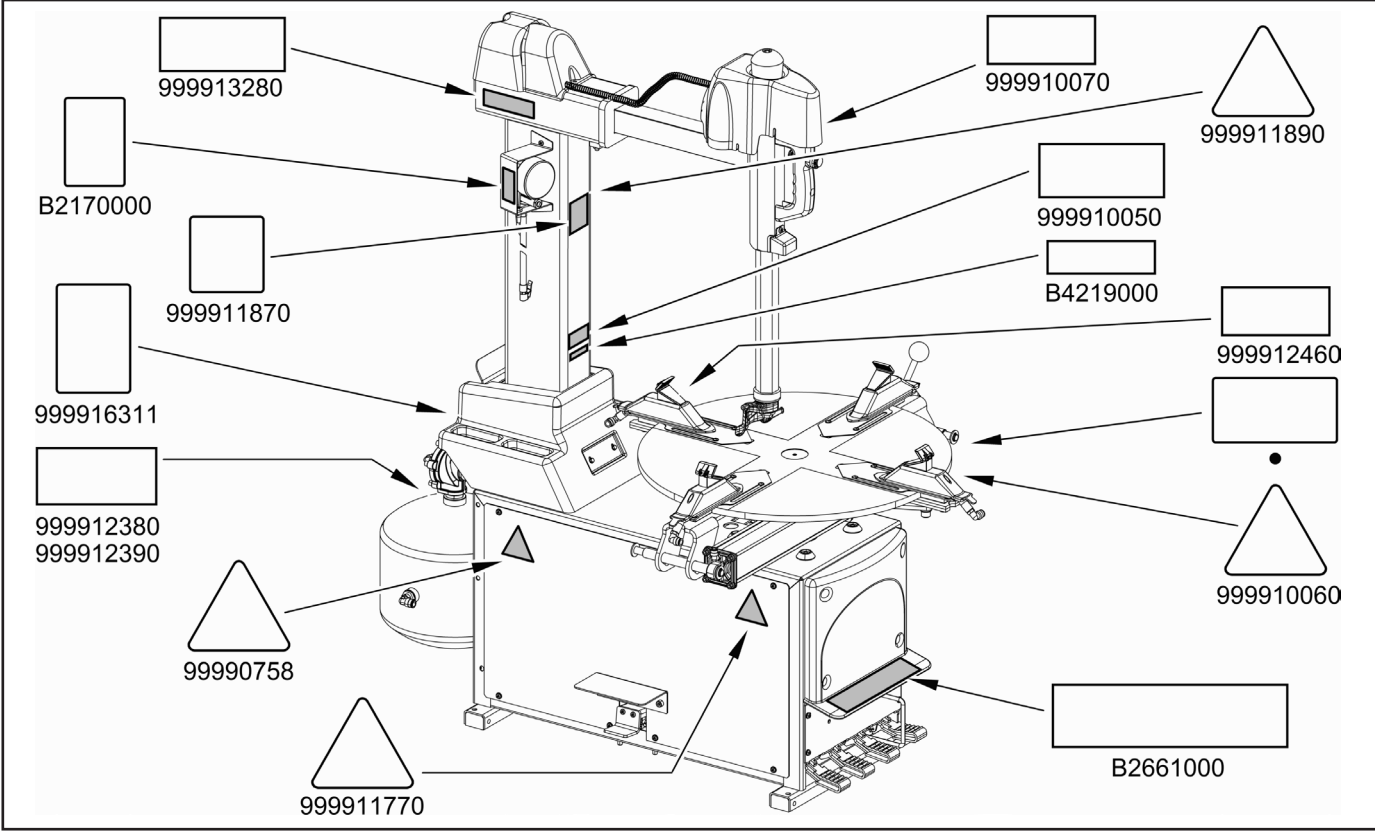
- 1 – Rod
- 2 – Machine body
- 3 – Inflation unit (only for versions with tubeless inflation)
- 4 – Pedal control unit
- 5 – Bead breaker unit
- 6 – 10" - 22" complete self-centring chuck
- 7 – Tool
- 8 – Tank (only for versions with tubeless inflation)
- 9 – 10" - 24" complete self-centring chuck

SYMBOLS USED IN THE MANUAL AND ON THE MACHINE

Symbols	Description
	Read instruction manual.
	FORBIDDEN!
	Wear work gloves.
	Wear work shoes.
	Wear safety goggles.
	Wear safety earcaps.
 99990758	Shock hazard.
 999911770	Danger! Moving mechanical parts.
	Caution: hanging loads.
	Mandatory. Operations or jobs to be performed compulsorily.
	Warning. Be particularly careful (possible material damages).

Symbols	Description
	Danger! Be particularly careful.
	Move with fork lift truck or pallet truck.
	Lift from above.
	Tyre burst danger.
	Spindle rotation direction.
	Hands crushing danger.
	General danger.
 PRESS. MAX. 60 psi 4,2 bar	Max inflation pressure rating.
	Inflation pedal.
	Technical assistance necessary. Do not perform any intervention.
	Note. Indication and/or useful information.

INFORMATION PLATE LOCATION TABLE



Code numbers of plates

B2170000	<i>Max inflation pressure rating plate (only for versions with tubeless inflation)</i>
B2661000	<i>4 pedal symbol plate</i>
B4219000	<i>Rotation indicating plate</i>
99990758	<i>Electricity danger plate</i>
999910050	<i>Protection device use plate</i>
999910060	<i>Bead breaker danger plate</i>
999910070	<i>Head danger indicating plate</i>
999911770	<i>Unit move indicating plate</i>
999911890	<i>Bursting tyre hazard plate</i>
999912380	<i>Voltage plate 400V 50Hz 3Ph</i>
999912390	<i>230V 50 Hz 3 Ph plate</i>
999912460	<i>Supply pressure indicating plate</i>
999913280	<i>Column tilting plate</i>
999916311	<i>Rubbish skip label</i>
999911870	<i>Headphones plate (only for versions with tubeless inflation)</i>
•	<i>Serial number plate</i>
■	<i>Manufacturer name plate</i>

! IF ONE OR MORE PLATES DISAPPEAR FROM THE MACHINE OR BECOMES DIFFICULT TO READ. REPLACE IT AND QUOTE ITS/THEIR CODE NUMBER/S 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 DAMAGE 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 preferring electro-hydraulic tyre-changer. We feel sure you will not regret your decision. The machine has been designed for use in professional workshops and in particular it stands out for its reliability, safe and rapid operation: with just a small degree of maintenance and care, this will give you many years of trouble-free service and lots of satisfaction. This manual contains all operating instructions and details on how to service and use the machine correctly.

2.0 INTENDED USE

The machines described in this manual and their different versions, are tyre-changers for car tires projected to be used exclusively for the mounting, demounting, and inflation of wheels with dimensions of max. diameter of 43" and max. width of 15".



THIS ACCESSORY MUST ONLY BE USED FOR THE PURPOSE FOR WHICH IT IS SPECIFICALLY DESIGNED. ANY OTHER USE IS CONSIDERED IMPROPER AND THEREFORE UNACCEPTABLE.



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



AN INTENSIVE USE OF THE EQUIPMENT IN INDUSTRIAL ENVIRONMENT IS NOT RECOMMENDED.

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.



A CAREFUL READING OF THIS INSTRUCTION MANUAL FOR USE AND MAINTENANCE AND A SHORT PERIOD OF TRAINING WITH SKILLED PERSONNEL CAN BE AN ENOUGH PREVENTIVE PREPARATION.

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:

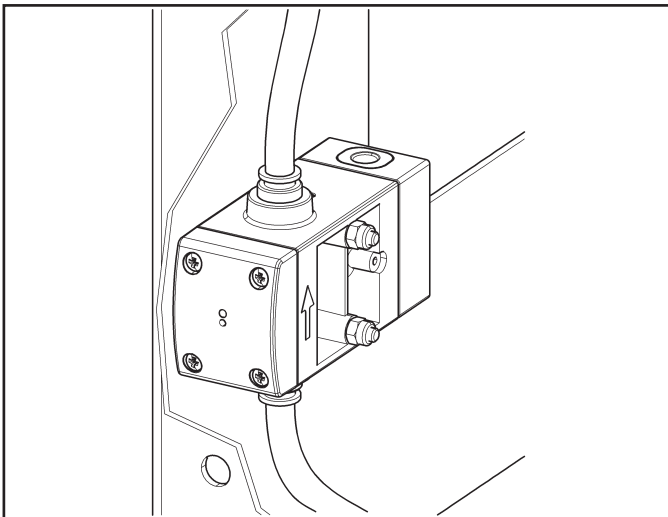
- **Fixed guards.**

The machine is fitted with a number of fixed guards intended to prevent potential crushing, cutting and compression risks.

- **“Operator attending”** controls (immediate stop by releasing control) for: mandrel rotation, bead breaker vane motion, inflating; other drives such as rim clamping on spindle, head clamping cannot be of the operator-attending type, seen their function. In these cases safety is guaranteed by compliance with indications or precautions on machine residual risks (warning plates) also mentioned in the user’s guide.

All machines can also be used for inflating tires (“FI” versions), and are equipped with the following:

- pressure gauge for tyre pressure reading, EC-certified and in compliance with 86/217/EEC Standard;
- Max. pressure valve fitted on compressed air reservoir (preset – see pneumatic diagram) in compliance with 87/404/EEC Standard;
- **Non-adjustable (balancing valve) pressure limiter.** This allows inflation of tyres in reasonable safety. Inflation of tyres to over $4,2 \pm 0,2$ bar (60 PSI) is not allowed.



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 in “PLATE LOCATION ON MACHINE” INFORMATION TABLE” on page 5.

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 rules.
- The machine may be used only in areas free from the danger of explosion or fire.
- The use of only original accessories and spare parts is advised. Our machine is designed to function only with original accessories.
- Installation must be conducted only by qualified personnel exactly according to the instructions that are given below.
- Ensure that there are no dangerous situations during the machine operating manoeuvres. Immediately stop the machine if it miss-functions and contact the assistance service of an authorized dealer.
- In emergency situations and before carrying out any maintenance or repairs, disconnect all supplies to the machine by using the main switch.
- 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.



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



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



- The 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. Unauthorised personnel must remain outside the working area, as shown in **Figure 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.
- During inflation do not lean on the tyre or remain above it. When beading in the tyre, keep hands away from tyre and the rim edge.
- During inflation always stay to the side of the machine and never in front of it.
- When operating and servicing this machine, carefully follow all applicable safety and accident-prevention precautions. The machine must not be operated by professionally unskilled persons.



IN CASE OF A CHANCE SUPPLY FAILURE (WHETHER ELECTRICITY OR COMPRESSED AIR), MOVE THE PEDALS TO THE NEUTRAL POSITION.

5.0 PACKING AND MOBILIZATION FOR TRANSPORT



HAVE THE MACHINE HANDLED BY SKILLED PERSONNEL ONLY.

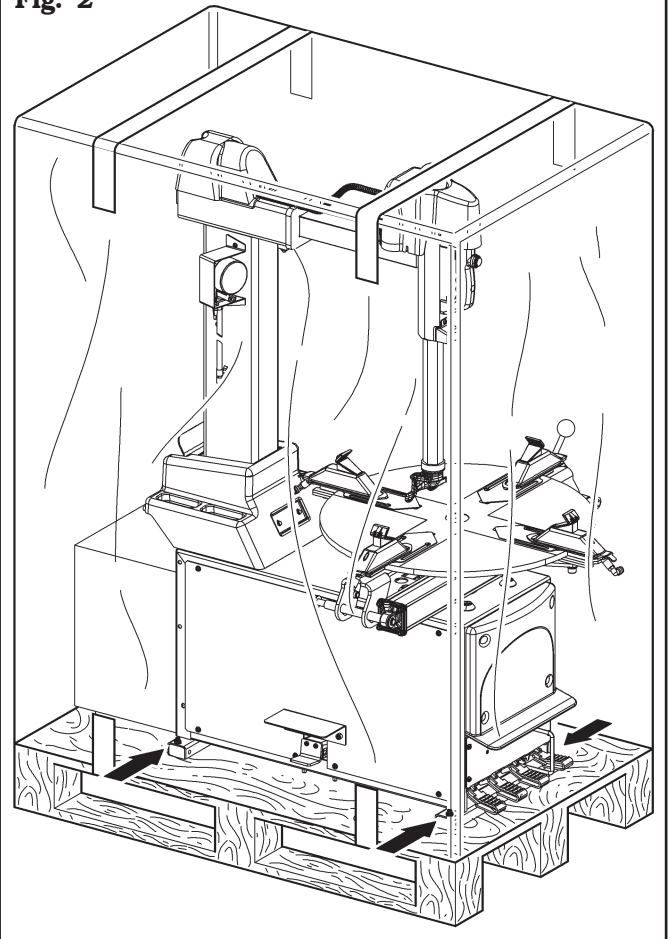
THE LIFTING EQUIPMENT MUST WITHSTAND A MINIMUM RATED LOAD EQUAL TO THE WEIGHT OF THE PACKED MACHINE (see paragraph "TECHNICAL SPECIFICATIONS").

The machine is packed in a carton box which size is mm 1070x950x1620.

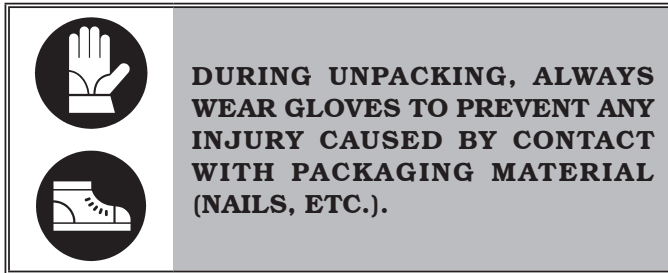
Movement must be by pallet-lift or fork-lift trolley.

The fork lifting points are indicated on the packing.

Fig. 2



6.0 UNPACKING

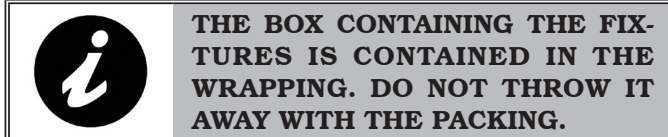


The cardboard box is supported with plastic strapping. Cut the strapping with suitable scissors. Use a small knife to cut along the lateral axis of the box and open it like a fan.

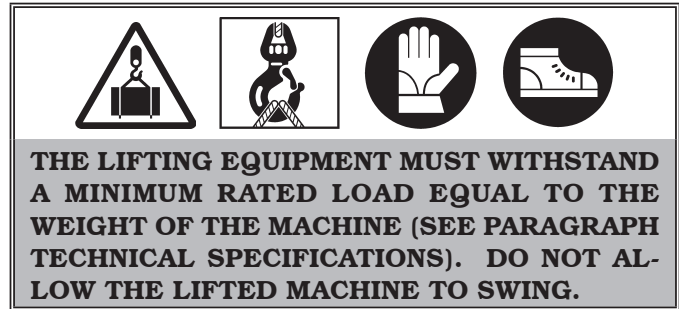
It is also possible to unnailed the cardboard box from the pallet it is fixed to. After removing the packing, and in the case of the machine packed fully assembled, check that the machine is complete and that there is no visible damage.

If in doubt **do not use the machine** and refer to professionally qualified personnel (to the seller).

The packing (plastic bags, expanded polystyrene, nails, screws, timber, etc.) should not be left within reach of children since it is potentially dangerous. These materials should be deposited in the relevant collection points if they are pollutants or non biodegradable.



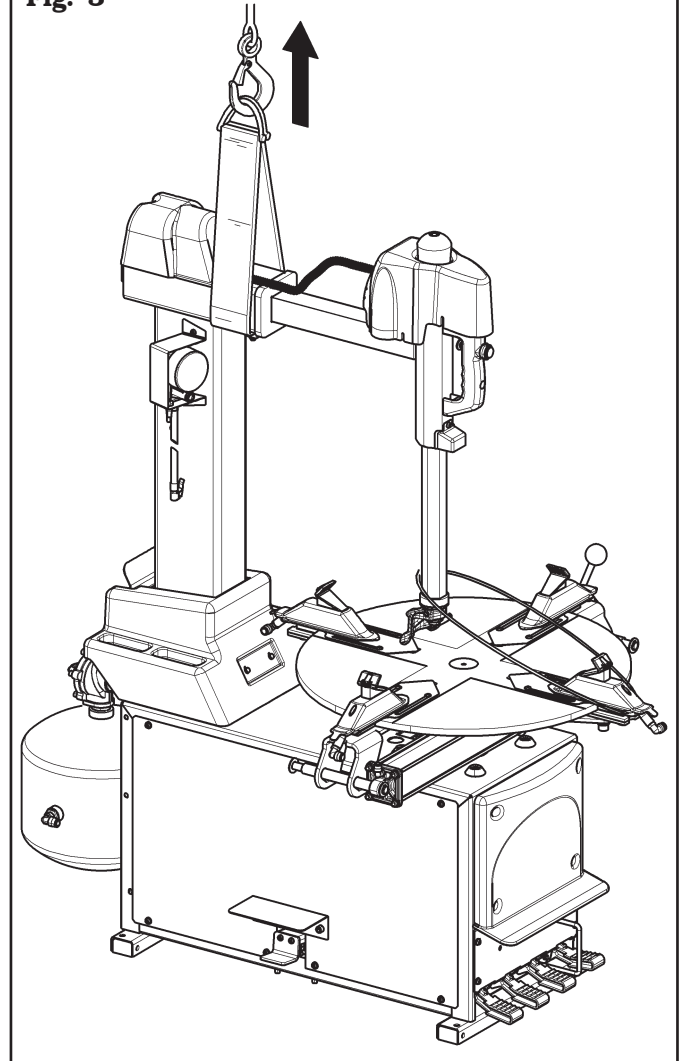
7.0 MOBILIZATION



During the machine handling from the unpacking position to the installation one, follow the instructions listed below.

- Protect the exposed corners with suitable material (Pluribol/cardboard).
- Do not use metallic cables for lifting.
- Make sure that the electricity supply is not connected.
- Sling with belts long at least 100 cm and with a capacity load greater than 1000 kg (see **Fig. 3**).

Fig. 3



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.

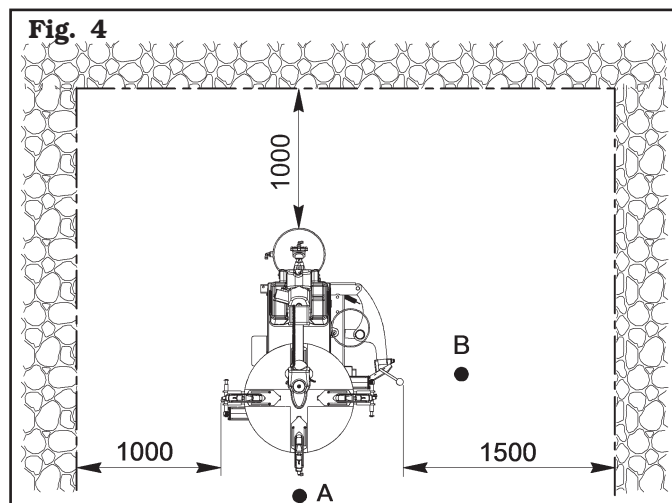
8.1 Working position

In **Figure 4** it is possible to identify working positions **A** and **B**.

Position **A** is the main position for wheel fitting and removal with the mandrel, while position **B** is ideal to follow wheel bead breaking operations.

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

8.2 Installation space



The location of the machine requires a usable space as indicated in **Figure 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 fixed on 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 anchoring bolts hold.

8.3 Lighting

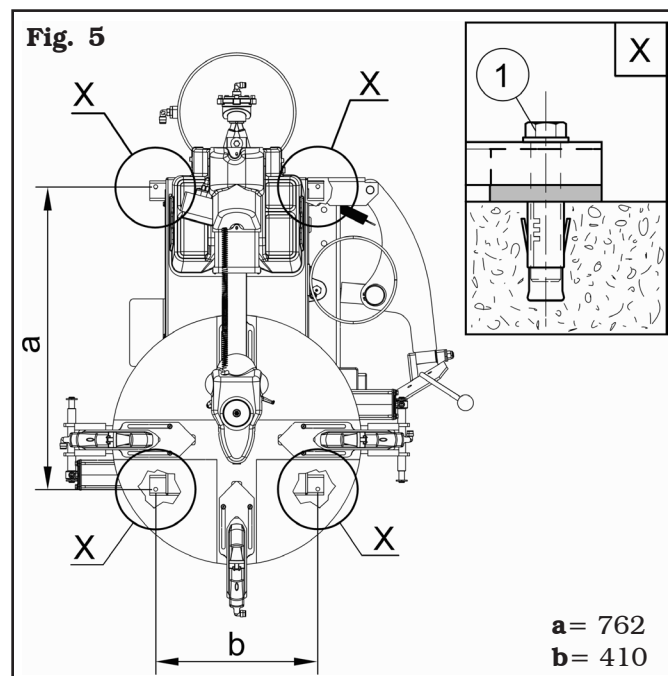
The machine does not require its own lighting for normal working operations.

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 ANCHORING SYSTEM

The packed machine is fixed to the support pallet through the holes prearranged on the frame. Such holes can be used also to fix the machine to the ground, through floor anchor small blocks (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 10 mm diameter on the floor by the holes on the bottom floor;
- insert the small blocks (excluded from supply) into the holes;
- fix the machine to the ground with 4 M8x80 mm screws (excluded from supply) (**Fig. 5 ref. 1**) (or with 4 8x80 mm stud bolts (excluded from supply)). Tighten the screws with an approximate tightening torque of 70 Nm.

10.0 ASSEMBLY AND PREPARATION FOR USE

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

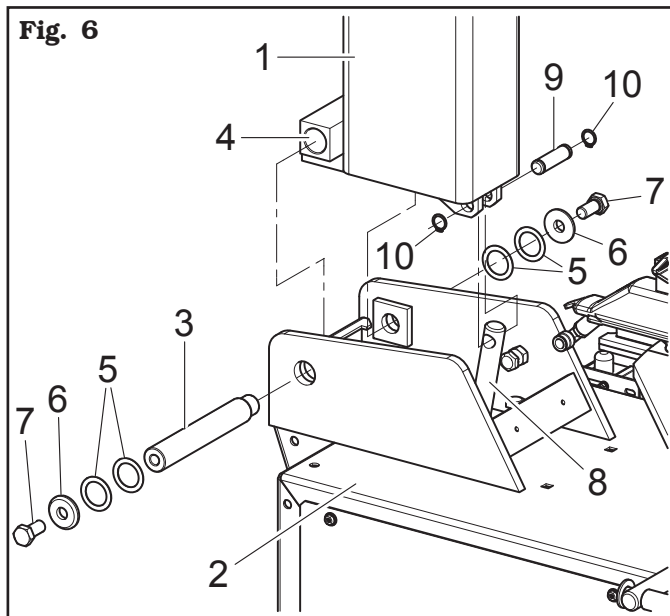
10.1 Assembly procedures

Remove the packaging and free the machine from the wrapping. Lift the machine and position it on the floor.

10.2 Post assembly

In case the post is supplied demounted, proceed following the instructions below.

1. Remove the fixing elements needed to fix the machine to the pallet.
2. Unpack the vertical post (**Fig. 6 ref. 1**) and put it vertically onto the base.
3. Put the post (**Fig. 6 ref. 1**) onto the base (**Fig. 6 ref. 2**) and fit the pin (**Fig. 6 ref. 3**) into the special hole (**Fig. 6 ref. 4**) and block it through the washers (**Fig. 6 ref. 5**), the spacers (**Fig. 6 ref. 6**) and the screws (**Fig. 6 ref. 7**). Fix the rod of post turnover control (**Fig. 6 ref. 8**) cylinder using the pin (**Fig. 6 ref. 9**) and the seegers (**Fig. 6 ref. 10**).



4. At the end mount the rod covering by means of the supplied screws and washers.

10.3 Bead breaker arm mounting

Secure the beading arm vane (**Fig. 7 ref. 1**) using the washers (**Fig. 7 ref. 2**) and the nut (**Fig. 7 ref. 3**), on issue (nut and washers are clamped on the bead breaker vane).

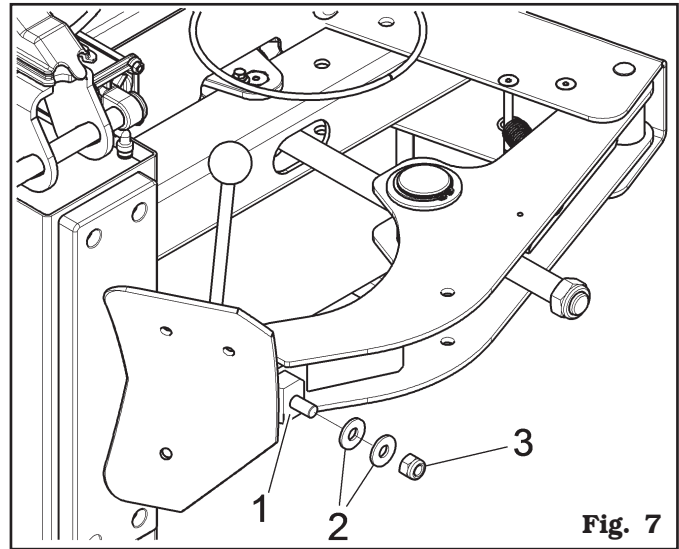
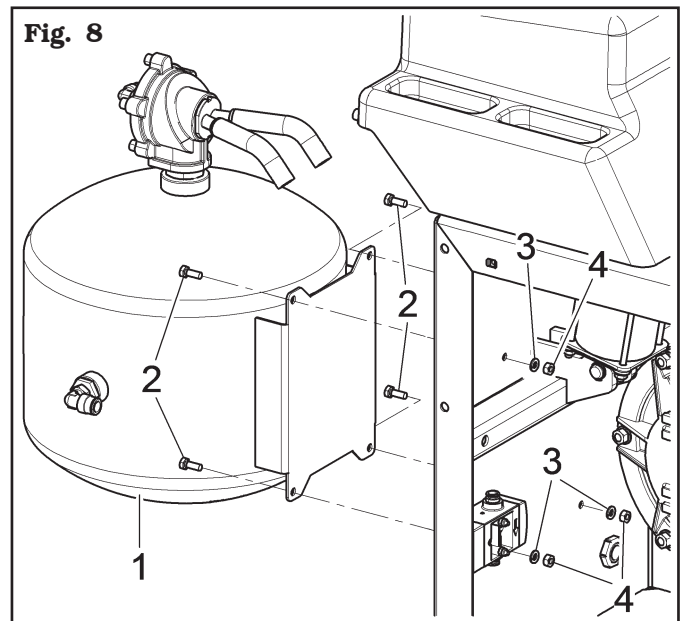


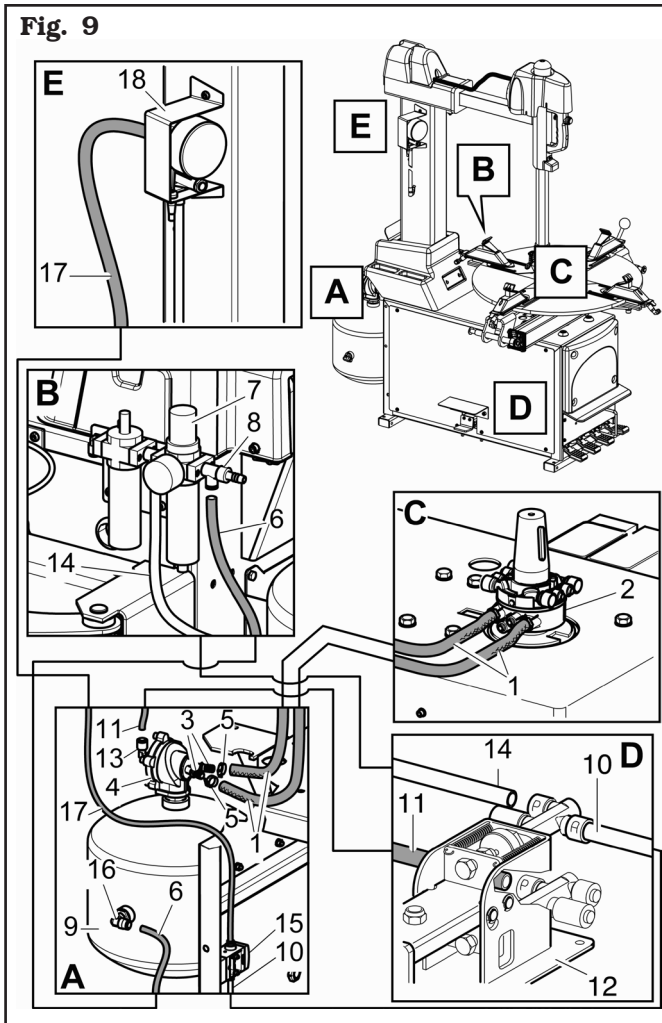
Fig. 7

10.4 Tubeless inflation mounting (only for versions with tubeless inflation)

1. Mount the tank (**Fig. 8 ref. 1**) on the base rear part, as shown in **Fig. 8**, using the screws (**Fig. 8 ref. 2**) (tightening torque approx. 8 N·m), the washers (**Fig. 8 ref. 3**) and the nuts (**Fig. 8 ref. 4**).



2. Connect the flexible pipes (**Fig. 9 ref. 1**) preassembled on the mandrel rotary distributor (**Fig. 9 ref. 2**) on the valve (**Fig. 9 ref. 3**) hosesnipple (**Fig. 9 ref. 4**). Fasten the pipes (**Fig. 9 ref. 1**) with the prepared clamps (**Fig. 9 ref. 5**).
3. Connect pipe (**Fig. 9 ref. 14**) from the greaser reduction gear filter (**Fig. 9 ref. 7**) (air not lubricated) to the pedalboard (**Fig. 9 ref. 12**).
4. Connect the pipe (**Fig. 9 ref. 11**) from the pedalboard lower valve (**Fig. 9 ref. 12**) to the blow valve (**Fig. 9 ref. 13**) union (**Fig. 9 ref. 4**).
5. Connect the pipe (**Fig. 9 ref. 6**) to the T coupling (**Fig. 9 ref. 8**) and the coupling (**Fig. 9 ref. 16**) placed on the tank (**Fig. 9 ref. 9**).
6. Connect the pipe (**Fig. 9 ref. 10**) from the valve (**Fig. 9 ref. 15**) to the pedalboard (**Fig. 9 ref. 12**).
7. Connect the pipe (**Fig. 9 ref. 17**) from the valve (**Fig. 9 ref. 15**) to the inflation unit (**Fig. 9 ref. 18**).

Fig. 9**10.5 Electrical connections**

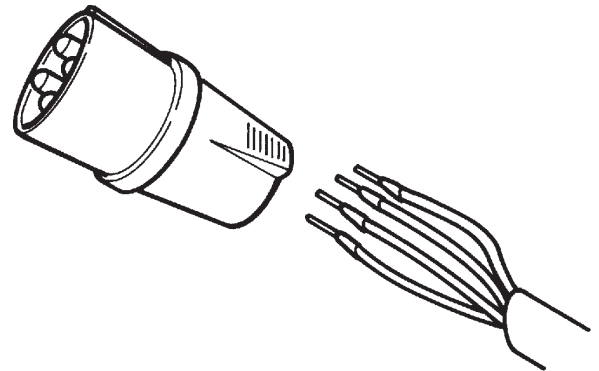
EVEN THE TINIEST PROCEDURE OF AN ELECTRICAL NATURE MUST BE CARRIED OUT BY PROFESSIONALLY QUALIFIED STAFF.



BEFORE CONNECTING THE MACHINE MAKE SURE THAT:

- **THE MAIN POWER RATING CORRESPONDS TO THE MACHINE RATING 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 free cable of mt. 3. A plug corresponding to the following requirements must be connected to the cable:

- **Conformity to Norm IEC 309**
- **230/400 Volt – 16A**
- **3P + Ground**
- **IP 44**



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

On delivery, the machines are preset to operate at a three-phase voltage of 230/400V - 50-60 Hz (for HP641S versions) or at a three-phase voltage of 230/400V - 50 Hz (for HP641SQ versions) and with a monophasic voltage of 200/265V - 50-60 Hz (for versions with inverter HP641SD).

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).

10.6 Check of motor rotation direction

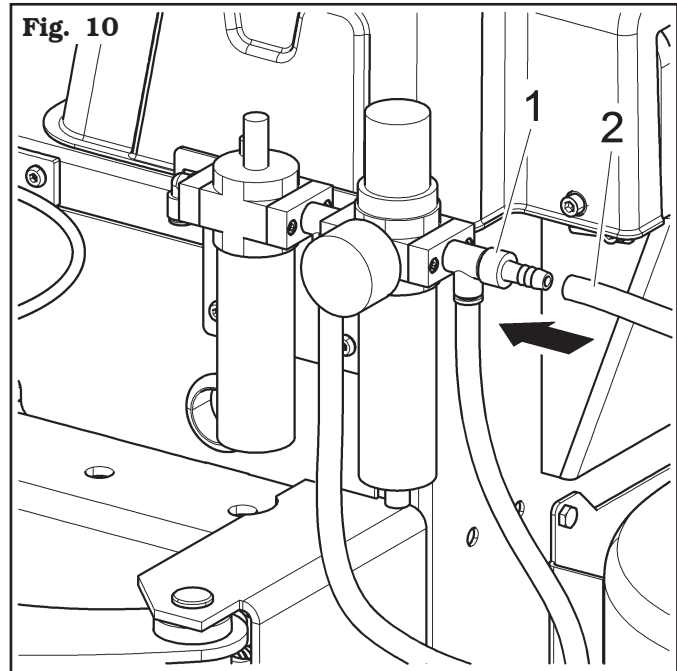
Once all power connections have been made, make sure that the mandrel is rotating in the right direction (pedal lowered, clockwise rotation). If the direction of rotation is wrong, swap two phase wires in the plug.



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

10.7 Air connection

Connect the tyre changer to the workshop compressed air system by means of plug (**Fig. 10 ref. 1**).



The pressurized pipe coming from the mains must have a section of 1/4x10 (**Fig. 10 ref. 2**).

The filter unit is already mounted on the machine.

10.8 Controls



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 MAINTAINED-TYPE CONTROLS CORRECT FUNCTIONING, BEFORE STARTING MACHINE OPERATION.

11.0 CONTROLS

The pedal control unit comprises 4 (four) pedals.

11.1 4 pedals control unit

“Pedal 1” on this type of pedal control unit activates the automatic post and has two fixed operative functions:

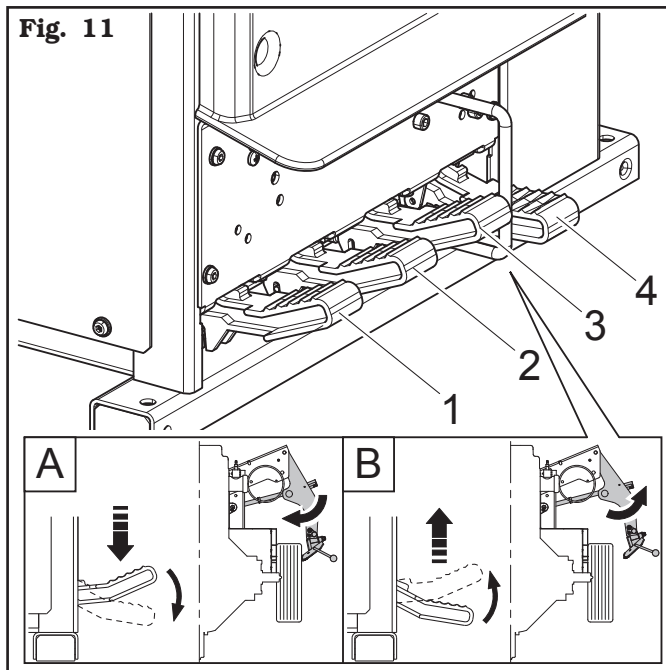
the first one (with pedal up) overturns the post from the operator's opposite side; the second one (with pedal down) brings back the post to working position.

“Pedal 2” opens and closes the locking jaws of the self-centering device. It has three stable positions: open – close – approach jaws.

“Pedal 3” has 2 operative positions: when it is pressed downwards, the cylinder for bead breaking with lateral arm (A) is operated; when such pedal is released, the bead breaking arm is moved back to the initial position (open bead breaker) (B).

“Pedal 4” controls turntable rotation and has 3 stable positions:

1. 0 position, turntable stopped;
2. Pressed down, the turntable is rotated clockwise;
3. Raised, the turntable is rotated anti-clockwise.



ONLY FOR VERSIONS WITH THREE-PHASE 230/400 V - 50 HZ 2 SPEED

“Pedal 4” controls turntable rotation and has 4 stable positions:

1. 0 position, turntable stopped;
2. Position 1 downwards - clockwise rotation of turntable;
3. Position 2 downwards from position 1 - clockwise rotation of turntable at double speed;
4. Position 1 upwards - counterclockwise rotation of turntable;

11.2 Inflation pedal (on demand)

The pressure on the inflation pedal and the keeping it pressed, delivers air at controlled pressure (max 4,2 ± 0,2 bar).



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.

11.3 Additional pedal for devices with tubeless inflation

The inflating pedal (Fig. 12 ref. 1) has three positions:

- lowered (unstable) to cause air (contained in the reservoir) to be jetted out through air lances;
- middle stroke (unstable): it let air out from inflating head;
- released (stable): it closes all air outlets.



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.

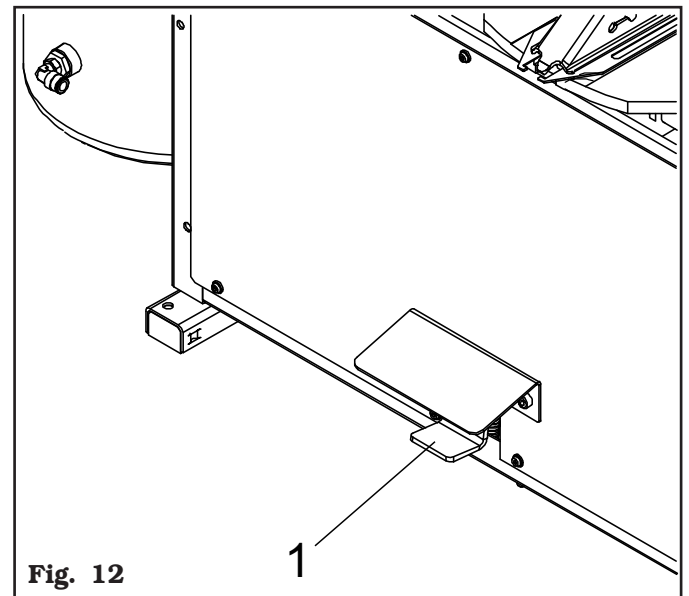


Fig. 12

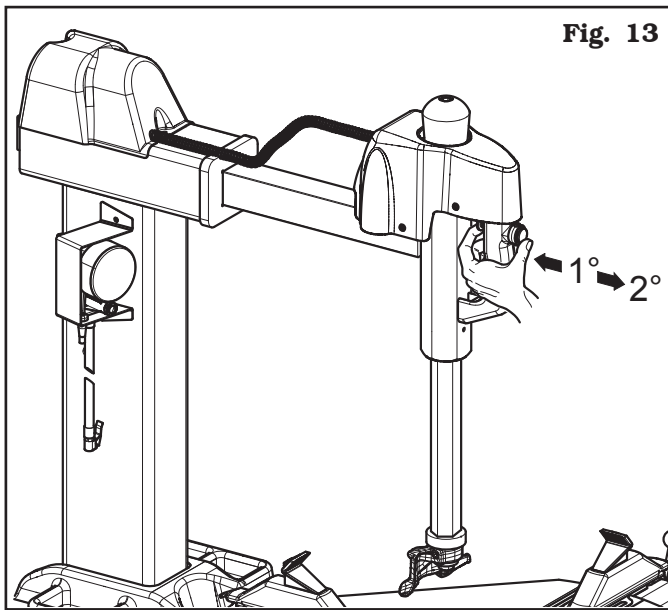
11.4 Post handle manual adjustment

On the post is placed a pneumatically controlled handle that allows the locking and unlocking of the vertical and horizontal arm.

Pushing the push-button located on this handle (Fig. 13) the following operations can be carried out:

1st tripping: locking of the vertical and horizontal arm in working position;

2nd tripping: unlocking of vertical and horizontal arm and manual rise of vertical arm in rest position (all upward).



12.0 USING THE MACHINE

12.1 Precaution measures during tyre removal and fitting



Before fitting a tyre, observe the following safety rules:

- rim and tyre must be clean, dry and in good condition; if necessary, remove the balancing weights and clean the rim. Check 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 tyre bead, using specific tyre lubricants only;
- replace the inner tube valve with a new valve, if the tyre tube has a metal valve, replace the grommet;
- make sure that the tyre is the right size for the rim; on the contrary, never fit a tyre unless you are sure it is the right size (the rated size of the rim and tyre is usually printed directly on each of them);
- do not use compressed air or water jets to clean the wheels on the machine.

12.2 Preliminary operations - 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 groove.
- Find the rim locking type.
- Try to establish the special types of wheels, such as "TD" and "AH", in order to improve locking, bead breaking, assembly and disassembly performances.

12.3 Bead breaking



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

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

1. Position the wheel as indicated in **Fig. 14** and move the bead breaker tool toward the edge of the rim.



PLACE THE VANE SO THAT IT CAN OPERATE ON TYRE SIDE AND NOT ON THE RIM.

2. Operate the bead breaker vane by pressing the relative pedal until the bead has detached. If the bead does not detach the first time, repeat the operation, on different points of the wheel, until it has come away completely.
3. Reverse the position of the wheel and repeat the operation on the other side.
4. Lubricate the tyre carefully along the entire circumference of the bead on both sides. Failure to lubricate might cause friction between the mounting tool and the tyre, and would cause damage to the tyre and/or the bead.

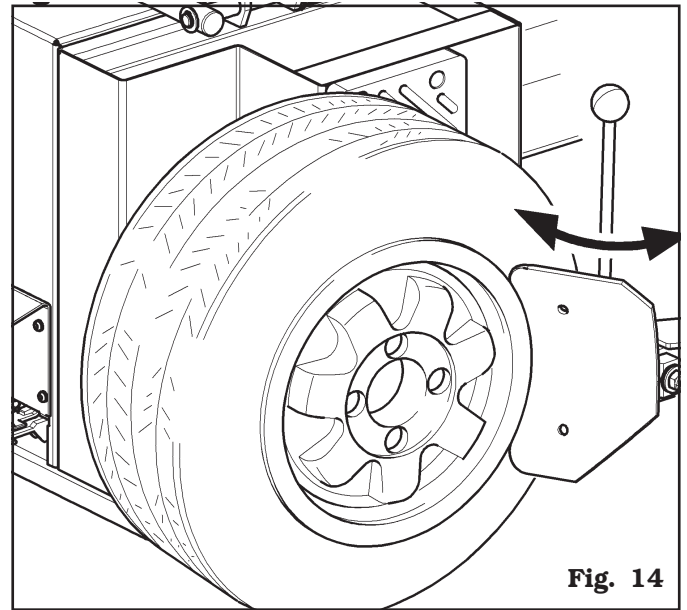


Fig. 14



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

12.4 Wheel clamping on the mandrel

To block the wheel from inside:

1. Grease tyre edges with the grease contained in the appropriate cup (see operating figure **Fig. 15**).
2. Release the hexagon shaft (**Fig. 15 ref. 2**) through the relevant push-button on handle (**Fig. 15 ref. 1**) and take it up, fully home. Control horizontal arm (**Fig. 15 ref. 3**) tilting through the pedal.
3. The wheel can be secured to the mandrel by placing jaws either inside or outside the rim (see Chapter 15 "Technical specifications" for required rim size).



WHEN SECURING THE WHEEL DO NOT KEEP HANDS UNDER THE TYRE.

Make sure that the wheel is placed at the centre of the self-centring table (**Fig. 15 ref. 6**). Make sure the wheel is clamped by jaws (**Fig. 15 ref. 7**) symmetrically.

A) WHEEL SECURING OUTSIDE THE RIM (for allowed rim size, see Chapter 15 Technical specifications)

In order to carry out the clamping of the wheel from the outside:

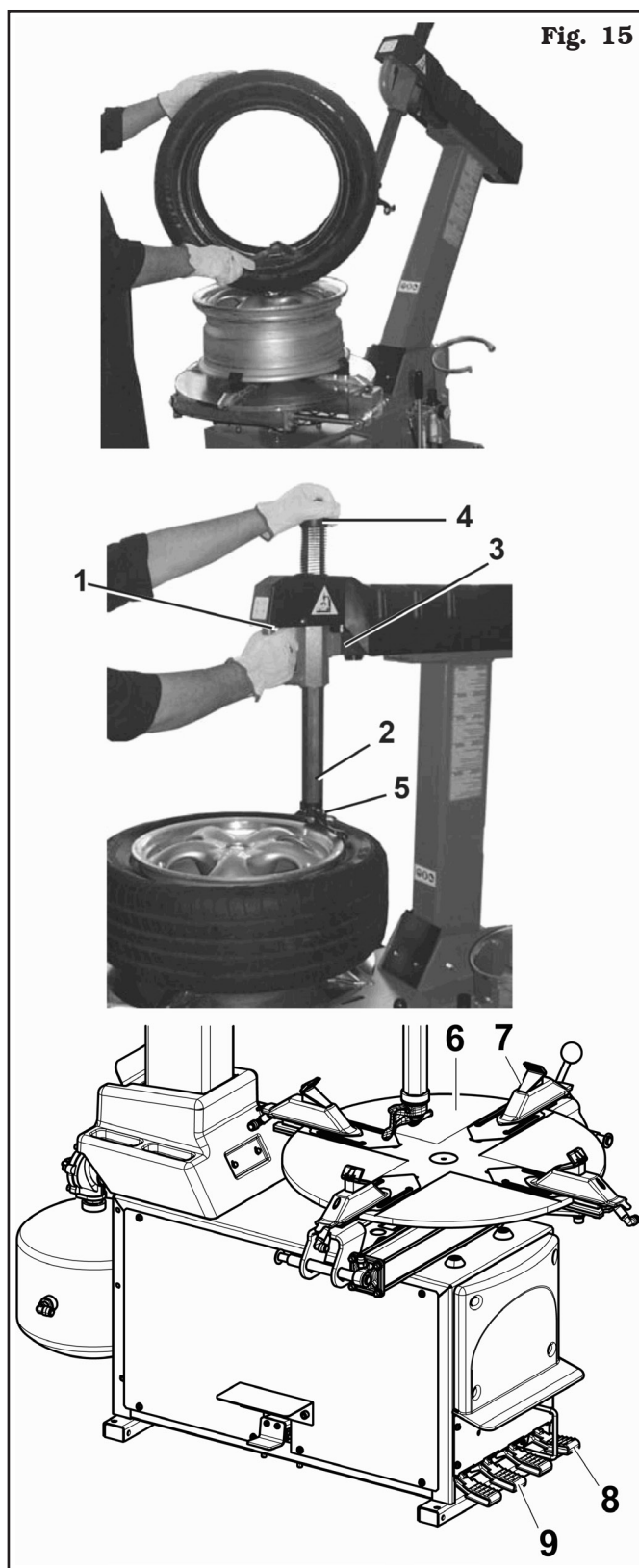
1. pressing pedal (**Fig. 15 ref. 9**) in intermediate position, place the 4 fixing jaws (**Fig. 15 ref. 7**) at about the same level of tyre's diameter.
2. Place the wheel on the mandrel, press the rim downward and completely lower pedal (**Fig. 15 ref. 9**) to secure the wheel.

B) WHEEL SECURING (INSIDE THE RIM) (for allowed rim size, see Chapter 15. "Technical specifications")

To block the wheel from inside:

1. close preventively fixing jaws (**Fig. 15 ref. 7**), by means of pedal (**Fig. 15 ref. 9**). Place the wheel on the mandrel. Push down the rim while completing lowering the pedal and releasing it. The jaws release, thus securing the rim.

Fig. 15



12.5 Demounting



KEEP YOUR HANDS AND BODY AWAY FROM MOUNTING TOOL DURING DISASSEMBLY/ASSEMBLY OPERATIONS TO AVOID SQUASHING DANGER.

After clamping the wheel, the tyre is demounted following the instructions given below, with reference to **Fig. 16**.

1. Press the rotation pedal to rotate the wheel clockwise until the valve stem reaches "hour 1" position.
2. Place work arm (**Fig. 15 ref. 3**) in working position.

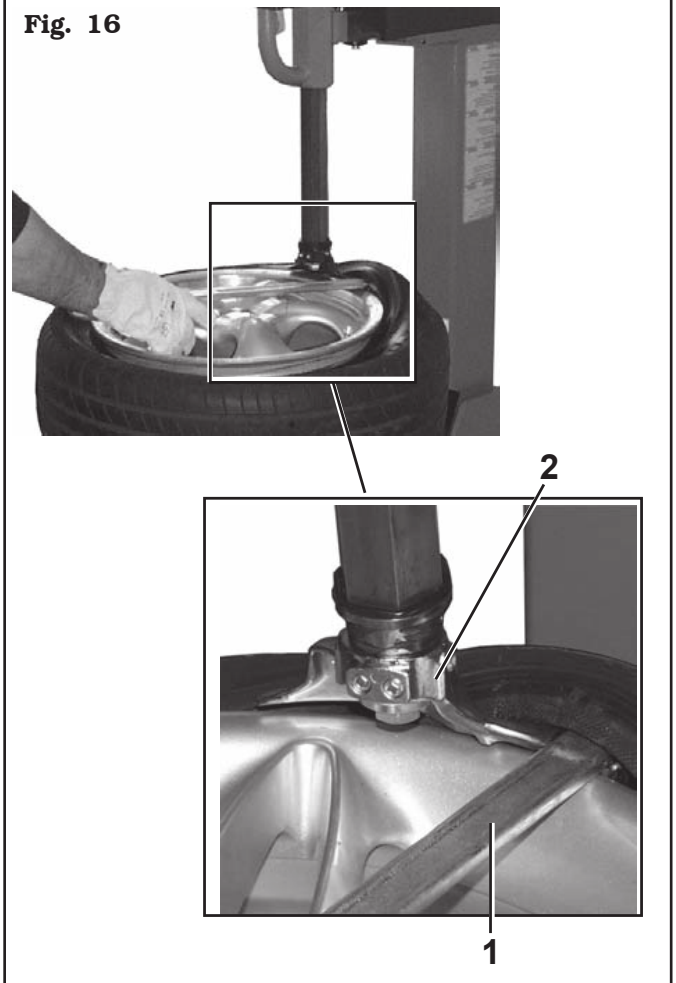


WHEN PLACING ARM IN WORKING POSITION, DO NOT LEAN HANDS ON THE RIM: DANGER OF SQUEEZING BETWEEN HEAD AND RIM.

3. Release the hexagon shaft (**Fig. 15 ref. 2**) and set tool (**Fig. 15 ref. 5**) radially and vertically on rim and lock it in place using the push-button on handle (**Fig. 15 ref. 1**);
4. operate lever (**Fig. 16 ref. 1**) to place tyre bead on the head nail (**Fig. 16 ref. 2**).
5. While keeping the lever in this position, turn the mandrel clockwise by means of pedal (**Fig. 15 ref. 8**), until the bead is out of the rim. Operate the pedal by quickly pressing and releasing it.



WHEN OPERATING ON VERY "HARD" RIMS, THE TYRE BEAD TENDS TO SLIP DOWN THE HEAD. BEFORE TURNING THE MANDREL CLOCKWISE, TURN IT ANTICLOCKWISE BY A FEW CENTIMETERS WHILE KEEPING LEVER (Fig. 16 ref. 1**) IN THE SAME POSITION.**

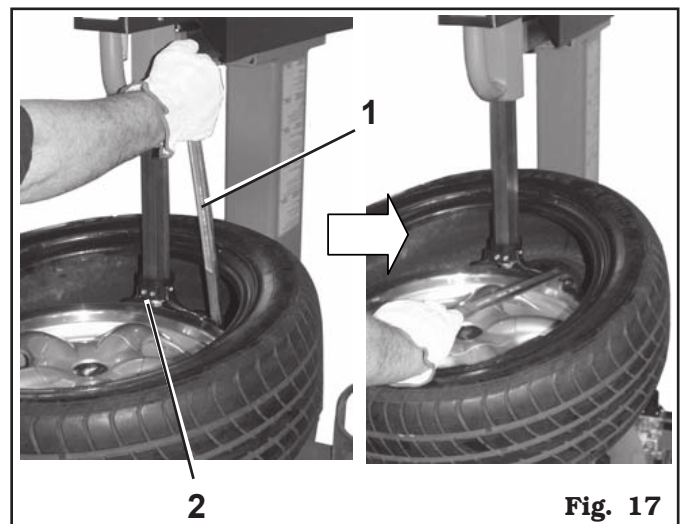
Fig. 16

6 remove the inner tube (if fitted);

7 place the head as indicated at point 3; then by means of lever (**Fig. 17 ref. 1**) place the other tyre bead on the head nail (**Fig. 17 ref. 2**);

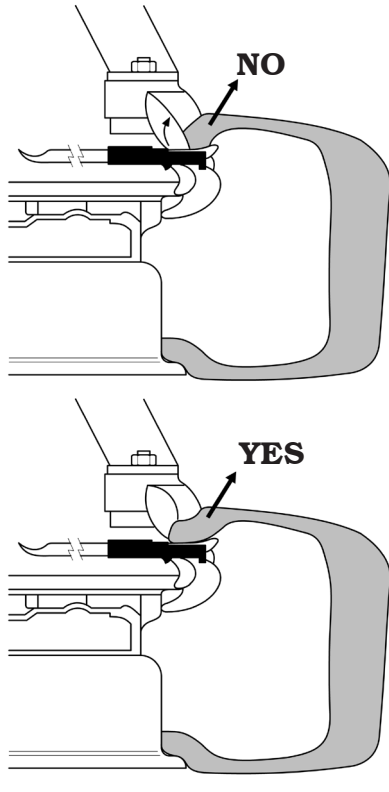
8. while keeping the lever (**Fig. 17 ref. 1**) in this position, turn the mandrel clockwise until the bead is out of the rim.

9. place the arm in idle position and remove the tyre from the rim.

**Fig. 17**

10. When demounting hard tyres, it may happen that the bead comes onto the mounting tool with the lip turned. This causes the bead to slide from the lever when clockwise rotation begins. To avoid this problem rotate the wheel slightly anti-clockwise until the bead flattens. Now the clockwise demounting cycle can begin (See **Fig. 18**).

Fig. 18



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

- check that the bead has been lubricated;
- check that the bead has been pushed into the groove;
- check that the right side of the rim has been chosen for demounting or mounting the tyre;
- check that the rim groove is not off-centre.

12.6 Setting the tool for tyre fitting and removal

The tool is locked in position to an hexagon stand through 4 upper horizontal-axis dowels and a lower vertical-axis screw. The adjusting clamps lock the tool in its working position. Adjusting clamps also set head distance from the wheel rim. Head top is concave for smoother positioning. For tool setting a **14" rim with good concentricity degree and standard profile, better if with flat upper edge and proper right angle to its spin axis, is required.**

12.6.1 Setting the clamps travel



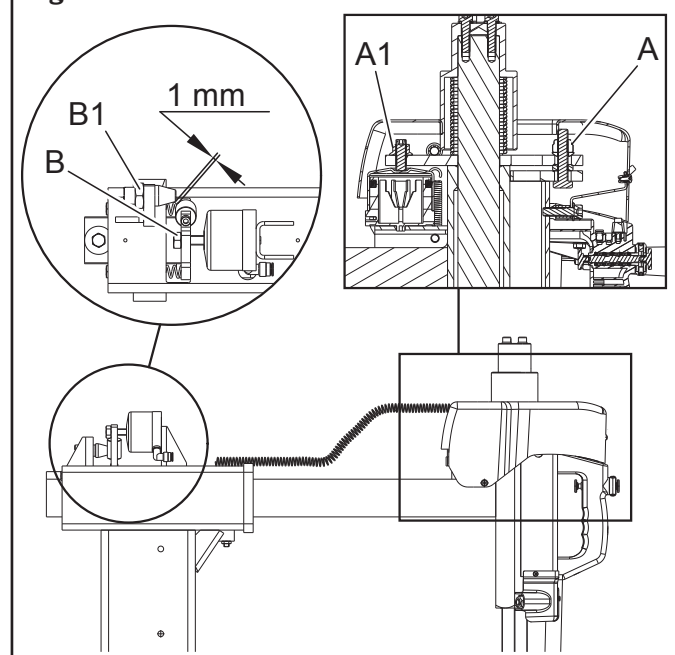
SET THE CLAMPS BEFORE POSITIONING THE HEAD. AT THIS STAGE THE HEAD HAS NOT BEEN SET TO ITS FINAL POSITION YET BUT IT IS CLOSE TO ITS FINAL POSITION BEING LOCKED THROUGH THE UPPER DOWELS.

• **Setting the travel (Fig. 19)**

Tyre changers equipped with collapsible stand and telescopic arm, tyre changers, have both horizontal and vertical adjusting clamps for horizontal and vertical distance of the head from the rim, respectively. Depressurize the air-operated cylinder (remove upper guard and **tighten the nut A1 first so to keep the adjusting clamp horizontally, that is it should be perpendicular to the hex. shaft**) and then turn the nut **A** to adjust:

- turn the nut **A** clockwise for shorter travel of the head;
 - turn the nut **A** anti-clockwise for longer travel of the head.
- Adjust the vertical clamp by turning nut **B**, with the pneumatic cylinder depressurized (after the upper guard has been removed and **after nut B1 has been tightened**), in order to lock the cone in fixed position compared to the roller – see **Fig. 19**.
- turn the nut **B** clockwise for shorter travel of the head;
 - turn the nut **B** anti-clockwise for longer travel of the head.

Fig. 19



12.6.2 Setting the tool for tyre fitting and removal

When finished with clamp adjustment, set head position along its three orthogonal axes using the 14" diameter sample rim. Tighten the dowels and the lower screw firmly to lock the head in position. When finished, **correct head working position** (equipped with roller or insert) **when locked** should be as shown in **Fig. 20A-20B**. Tighten bolts and nuts to the following torque values:

- lower screw: 70 Nm.
- adjusting clamp bolts: 40 Nm.

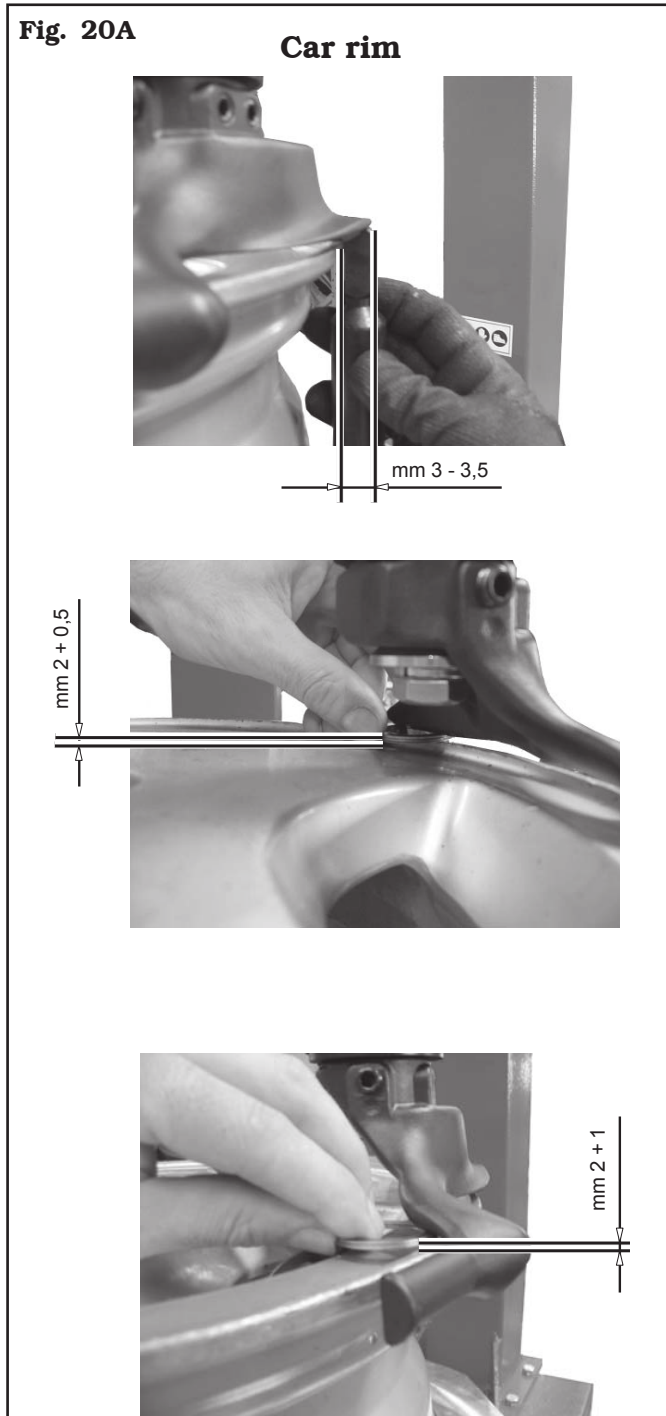
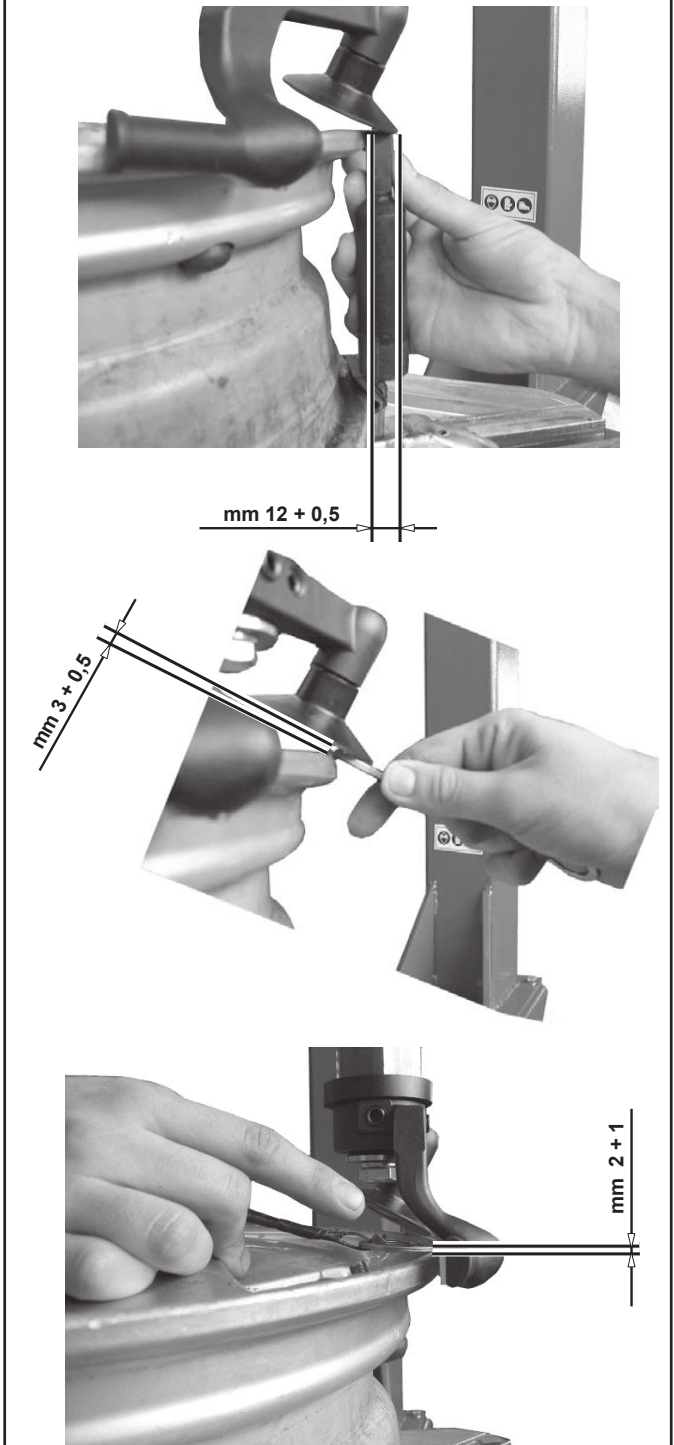


Fig. 20B

Rims with projecting spokes



12.7 Adjusting descent of the hexagonal shaft (on demand)

On models with pneumatic movement of the hexagonal arm, in order to adjust the descent speed, please follow the instructions listed below (see **Fig. 21**):

1. Regulators **A** and **D** are pre-calibrated at the warehouse.
2. To modify the descent speed of the tool shaft, please follow the instructions listed below:
 - Unscrew nut **C**
 - Press and release the push-button placed on the handle repeatedly in order to move the hexagonal shaft downward and upward and set the speed through nut **D** so that the descent of the hexagon is slower than the rising or equal. To slow the descent, rotate nut **D** counterclockwise. To speed the descent, rotate nut **D** clockwise.
3. When regulation is done, lock the arm in an intermediate position acting the button, then unlock the arm to the rest position. Start the arm descent pressing the button and check if the speed descent is the same as previously scheduled.
4. Screw nut **C**.
5. To vary the tool arm rising speed, please follow the instructions listed below:
 - Unscrew nut **B**
 - Press and release the push-button placed on the handle repeatedly in order to move the hexagonal shaft downward and upward and set the speed through nut **A**.
To slow the rising, rotate nut **A** counterclockwise.
To speed the rising, rotate nut **A** clockwise.
6. Check if the speed descent is the same as previously set. If not, please repeat operations b) c) d).
7. Screw nut **B**.

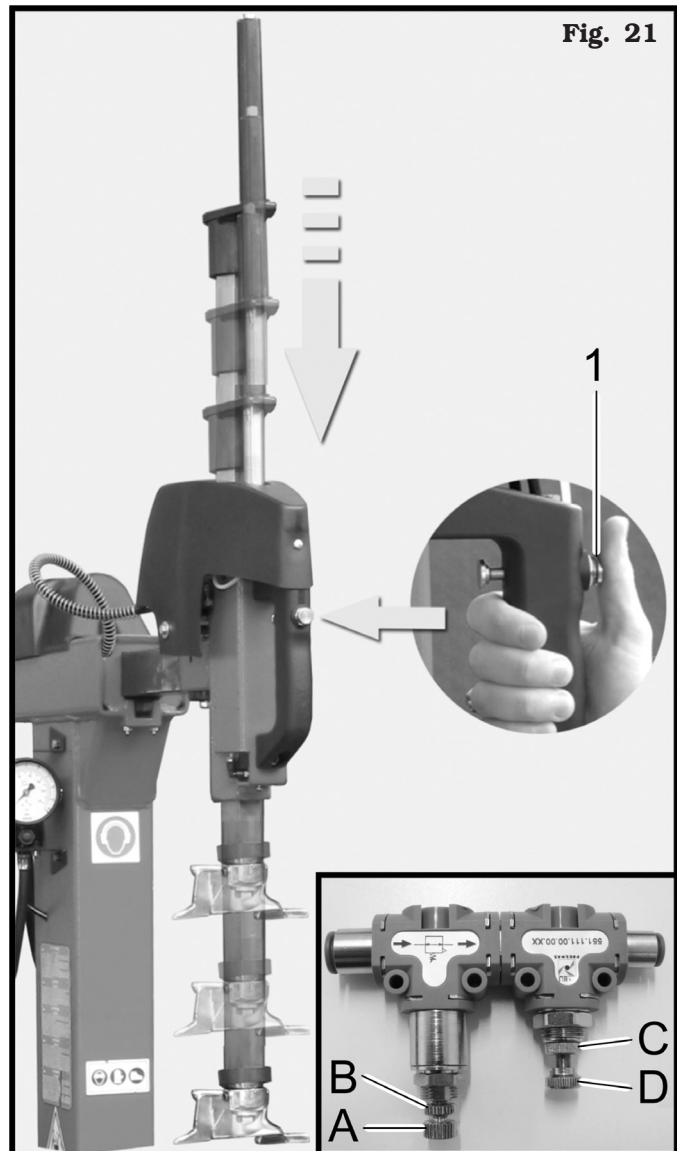


Fig. 21

12.8 Mounting the tyre



KEEP YOUR HANDS AND BODY AWAY FROM MOUNTING TOOL DURING DISASSEMBLY/ASSEMBLY OPERATIONS TO AVOID SQUASHING DANGER.

To mount the tyre, proceed as follows:

1. Position the work arm in working position depressing pedal (Fig. 22 ref. A).

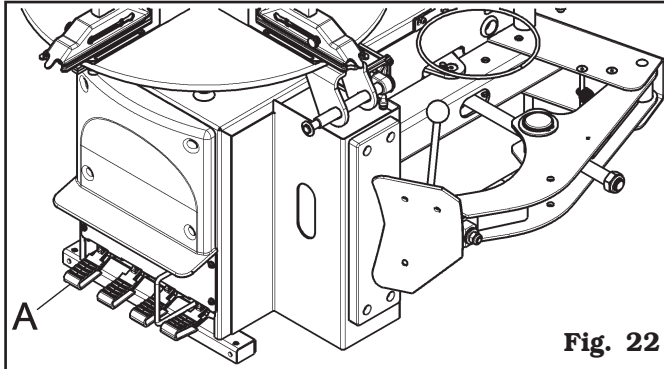


Fig. 22



WHEN PLACING ARM IN WORKING POSITION, DO NOT LEAN HANDS ON THE RIM: DANGER OF SQUEEZING BETWEEN HEAD AND RIM.

2. Place head (Fig. 23 ref. 1) against the rim edge and lock arm (Fig. 23 ref. 2).



IF TYRE IS FITTED ON THE WHEEL PREVIOUSLY REMOVED OR WHEEL SIZE CORRESPONDS TO RIM SIZE, IT IS NOT NECESSARY TO OPERATE HANDLE (Fig. 23 ref. 3) TO SECURE AND RELEASE THE HEAD, ONLY ARM NEEDS TO BE REPOSITIONED (Fig. 23 ref. 2).

3. Place the tyre so that the bead passes under head nail (Fig. 23 ref. 1) and outside head support (see Fig. 23 for lower bead).



WHEN TYRE IS TUBELESS TYPE, START ASSEMBLY PROCEDURES WITH VALVE SET AT 180° WITH RESPECT TO THE HEAD ("5/6 O' CLOCK").

4. Turn mandrel (Fig. 23 ref. 4) clockwise. Keep the corresponding lowered and the tyre bead pressed with one's hands in the inner rim groove.

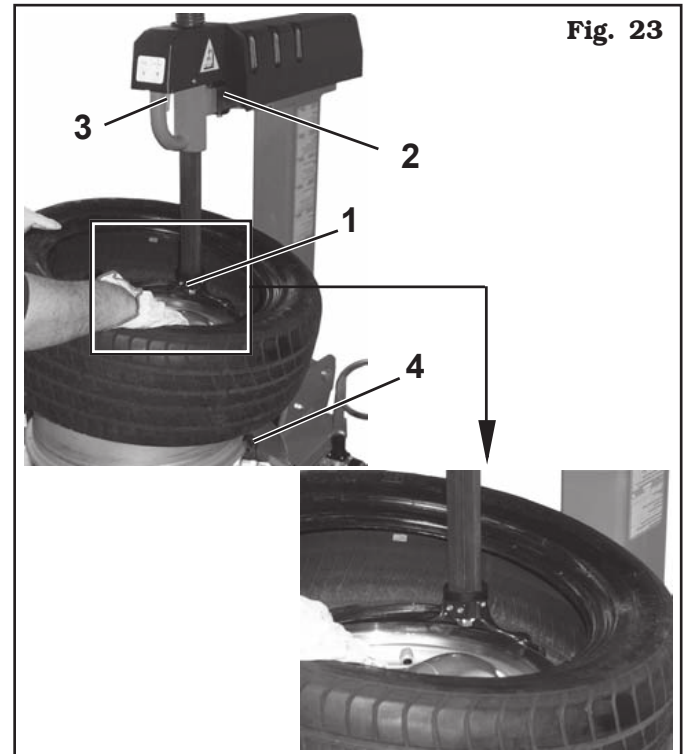


Fig. 23



BE VERY CAREFUL, KEEP HANDS AND OTHER BODY PARTS FAR OFF THE HEAD WHEN THE MANDREL IS TURNING: DANGER OF SQUEEZING.

5. If an inner tube tyre must be fitted, insert the inner tube after the first bead is completely inside the rim;
6. repeat the same operations for the upper tyre bead, as shown in Fig. 24;
7. once assembly is completed, remove arm and take it to rest position by depressing pedal (Fig. 22 ref. A);
8. push the pedal to release the wheel from the mandrel.

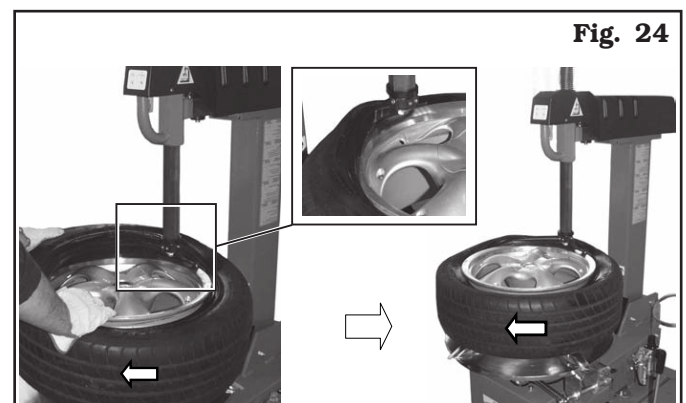


Fig. 24



BOTH TYRE FITTING AND REMOVAL MUST BE CARRIED OUT WITH THE MANDREL TURNING CLOCKWISE. TURN THE CHUCKING TABLE ANTICLOCKWISE ONLY IF ADJUSTMENTS ARE REQUIRED.

12.9 Tyre inflation



TYRE INFLATING OPERATIONS ARE HAZARDOUS FOR THE OPERATOR. IF NOT PROPERLY EXECUTED THEY CAN CAUSE DAMAGE FOR USERS OF VEHICLES WHERE TYRES ARE FITTED.



STANDARD OR OPTIONAL INFLATING UNITS FITTED ON TYRE CHANGERS ARE EQUIPPED WITH A PRESSURE LIMITING DEVICE WHICH ALMOST ELIMINATES ANY RISK OF TYRE EXPLOSION DURING TYRE INFLATING. AN OUTSTANDING RISK OF EXPLOSION STILL EXISTS. THEN THE FOLLOWING PRECAUTIONS MUST BE RESPECTED:

- **OPERATORS SHOULD WEAR SUITABLE PROTECTIVE CLOTHING LIKE: GLOVES, SAFETY EYEWEAR AND EARCAPS.**
- **BEFORE FITTING A TYRE, CHECK TYRE AND RIM CONDITIONS AS WELL AS PROPER COUPLING.**
- **MAKE SURE THAT TYRE IS PROPERLY POSITIONED ON THE MACHINE: THE WHEEL OUTER PART MUST NOT BE SECURED ON THE JAWS.**
- **CORRECT WORKING POSITION: DURING TYRE BEADING AND INFLATING THE OPERATOR MUST KEEP BODY AS FAR AS POSSIBLE FROM THE TYRE.**
- **COMPLIANCE WITH TYRE MANUFACTURER'S SPECIFICATIONS FOR TYRE INFLATION PRESSURE.**



IF MEASURED PRESSURE EXCEEDS 4,2 BAR, IT MEANS THAT THE PRESSURE LIMITING VALVE AND/OR PRESSURE GAUGE IS NOT WORKING PROPERLY. IN THIS CASE, DEFLATE THE TIRE ON THE SPOT AND CONTACT AN AUTHORIZED SERVICE CENTRE TO VERIFY EQUIPMENT OPERATION. MAKE SURE OF PROPER OPERATION BEFORE USING ANY INFLATING EQUIPMENT.

12.9.1 Tyre inflation with pressure gauge (on demand)

Connect the inflation device to the tyre valve and inflate the tyre using the left pedal.

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



A LIMITATION DEVICE IS PRESENT IN THE AIR SUPPLY LINE FOR THE TYRE INFLATION (4,2 ± 0,2 BAR/60 PSI).

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

12.9.2 Tubeless tyre inflation device

Some types of tyres can be difficultly inflated if the beads are not in contact with the rim.

The tubeless inflating device, assembled only on some models, supplies air at high pressure to the self-centering chuck nozzles (**Fig. 25 Pos.1**) and therefore facilitates the positioning of the beads against the rim starting the normal inflation of the tyre.

In order to carry out the inflation of the tyre on these models follow these indications:

- Connect the inflation terminal to the valve of the tyre.
- Lift the lower bead while the pedal, placed on the left side of the machine, is pushed at its second stage, supplying that way the required air jet.
- Go on inflating the tyre until the required pressure is reached with the lateral pedal pushed on its first stage.



IN ORDER TO ALLOW THE AIR JET TO BREAK BOTH BEADS, DO NOT KEEP THE BEAD LIFTED FORCING IT.

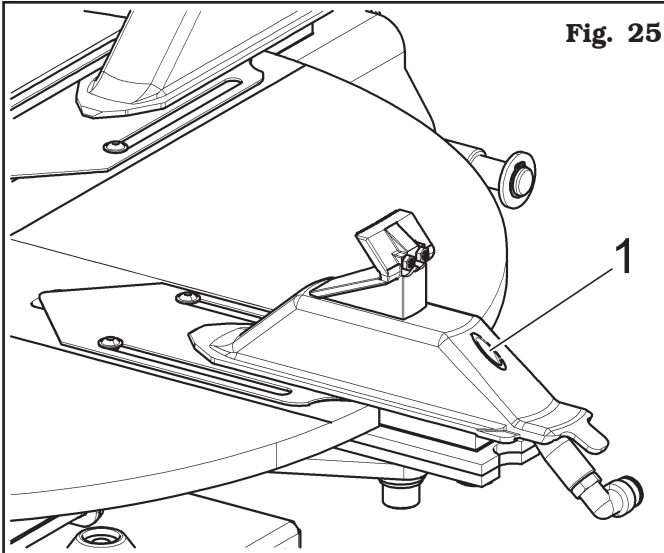


Fig. 25

13.0 ROUTINE MAINTENANCE



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

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.

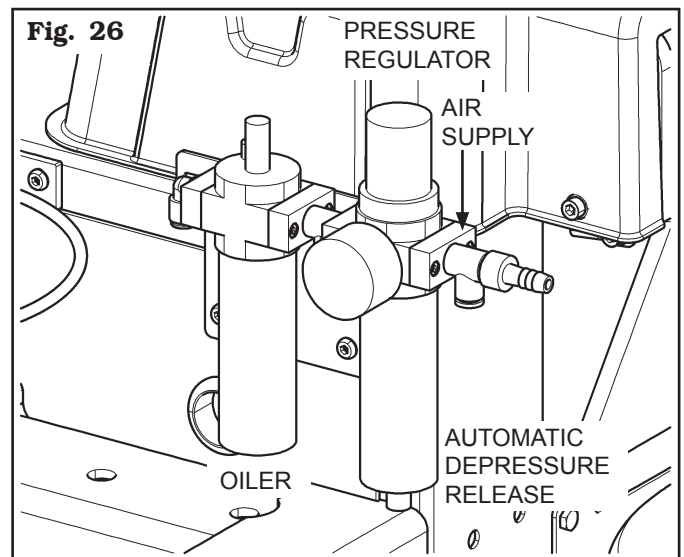
- Disconnect the mains power supply before starting any cleaning or routine maintenance operations.
- Periodically check the calibration of the lubricator of the pressure regulator/oiler unit: 1 oil drop every four complete strokes of self-centering chuck jaws.
- Remove deposits of tyre powder and other waste materials with a vacuum cleaner.



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

DO NOT BLOW IT WITH COMPRESSED AIR.

- Do not use solvents to clean the pressure regulator.
- The conditioning unit is equipped with an automatic vacuum-operated drain therefore it requires no manual intervention by the operator (see Fig. 26).





IN ORDER TO ALLOW A LONGER LIFE OF THE FILTER AND OF ALL MOVING PNEUMATIC DEVICES, YOU HAVE TO MAKE SURE THAT THE SUPPLIED AIR IS:

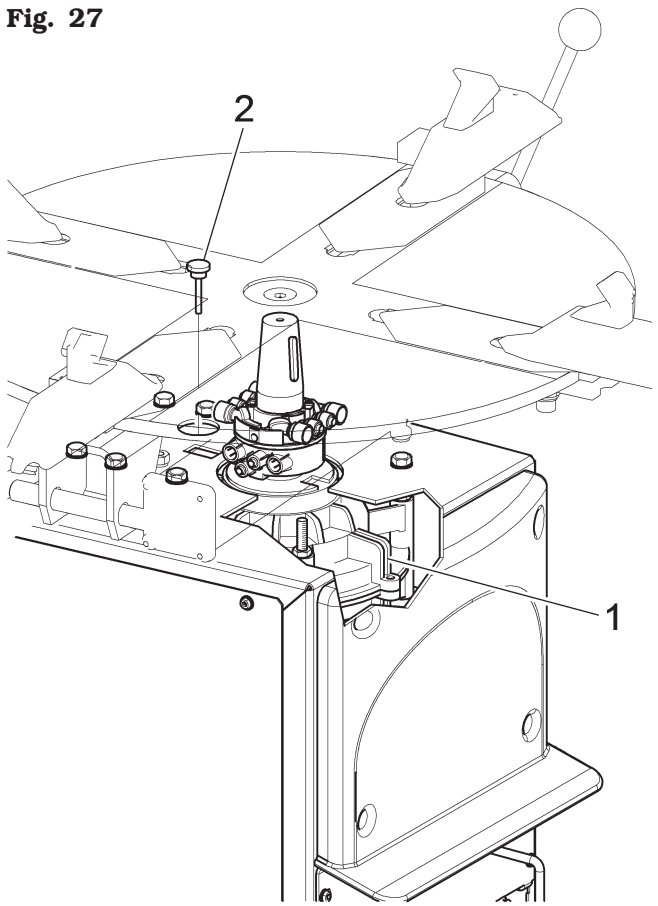
- **EXEMPT FROM THE LUBRICATING OIL OF THE COMPRESSOR;**
- **EXEMPT FROM HUMIDITY;**
- **EXEMPT FROM IMPURITY.**

- Every **week** and/or when necessary, top up the oil tank using the filler hole provided closed by a cap or screw on the lubricator filter.

NOTE: This operation should not be carried out by unscrewing the cup of the lubricator filter.

- The use of synthetic oil might damage the pressure regulator filter.
- Replace worn pieces (tool supports, rubber pads, lever guard, mounting tool) immediately.
- Periodically (preferably once a month) make a complete check on the controls, ensuring that they provide the specified actions.
- **Every week** check operation of the safety device.
- **Periodically** (at least each 100 working hours) check the lubricant level into the reduction unit (**Fig. 27 ref. 1**) removing the plug (**Fig. 27 ref. 2**) through the spy hole prearranged on the frame.

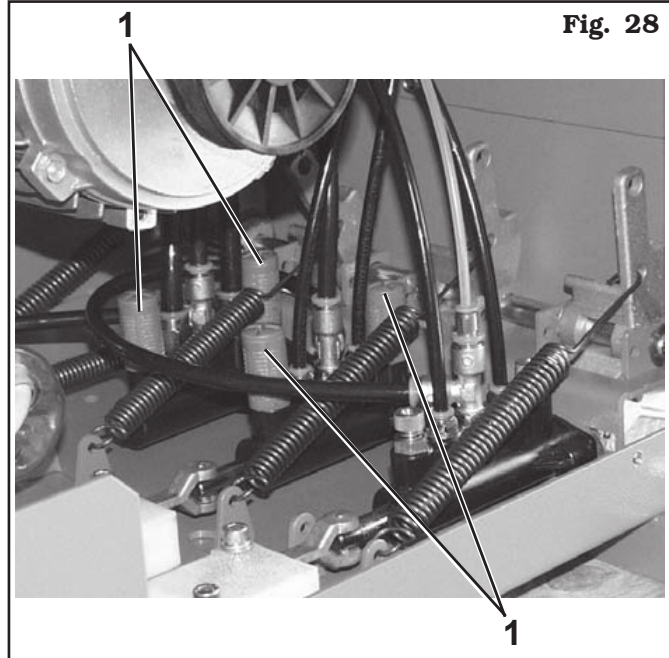
Fig. 27



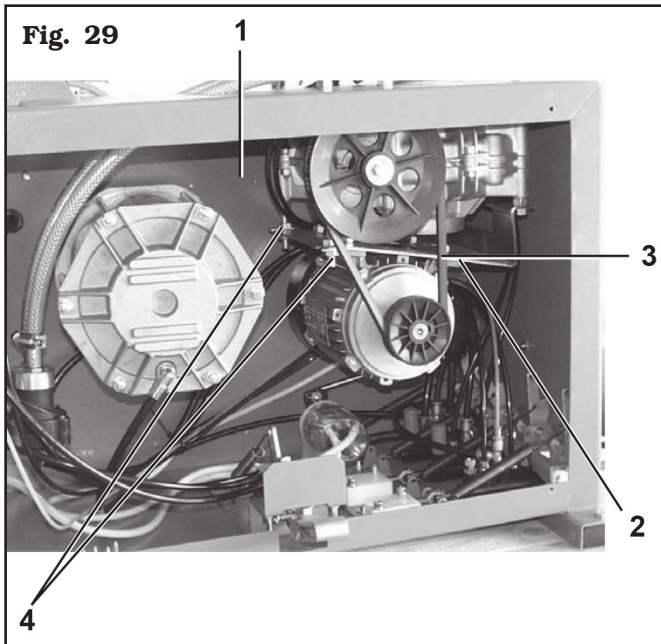
Interventions every 1000 working hours

- Clean and/or replace silencers (**Fig. 28 ref. 1**):
 1. Undo the four retaining screws and remove the left side of the tyre changer or undo the fastening screws to remove the whole pedal support unit from machine front;
 2. Undo the silencers (**Fig. 28 ref. 1**) onto the pedal distributor controlling mandrel and bead breaker;
 3. Blow compressed air to clean or replace in case of damages referring to spare parts catalogue;
 4. Fit the filters onto their distributors;
 5. Fit the tyre changer pedal support or side and secure with the screws.

Fig. 28



- Check the transmission belt (**Fig. 29 ref. 3**) for wear or proper tensioning:
 1. Undo the four retaining screws and remove tyre changer side panel (**Fig. 29 ref. 1**);
 2. Tension up the belt (**Fig. 29 ref. 3**) turning the screws provided (**Fig. 29 ref. 4**) holding the support (**Fig. 29 ref. 2**) of the motor;
 3. Replace the belt (**Fig. 29 ref. 3**) if worn out using genuine parts;
 4. Fit the tyre changer side panel before continuing with assembly and disassembly procedure;



13.1 Lubricants

Special lubricant for mandrel movement control gearbox use **ESSO GEAR OIL GX140** (for HP641S and HP641SQ version) and **ESSO GEAR OIL GX90 GX90** (for HP641SD version).

Lubricate slides and screws/nut screws or racks and pinion with a soft brush using lubricant of **ESSO GP**.



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 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!!


14.0 TROUBLESHOOTING TABLE

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



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



CONTACT AUTHORIZED TECHNICAL SERVICE
do not try and service alone

Problem	Possible cause	Remedy
The mandrel does not work if pedal is pressed.	1. No voltage available. 2. Motor faulty. 3. Safety fuses for machine system blown.	1. Check that the plug is properly connected and power supply is working. 2. Check for correspondence of electric data of the machine with the mains. 3. Check for proper working conditions. Check connections and parts (motors and switches).
The self-centring device stops during tire assembly/disassembly.	Transmission belt slow or worn out.	Check for proper working conditions of the transmission belt. Tension up and/or replace, if necessary.
The mandrel does not clamp the rim properly.	1. Clamps worn out. 2. One or more pneumatic cylinders faulty.	1. Replace clamps. 2. Replace pneumatic cylinder gaskets.
The head gets in contact with the rim during assembly/disassembly.	1. Clamping plate not adjusted or faulty. 2. Mandrel retaining screw loose.	1. Adjust or replace the clamping plate. 2. Tighten the screw.
One or more pedals do not return to their original position.	1. Return spring released. 2. Return spring broken.	1. Fasten the spring. 2. Replace the spring.
Pneumatic controls do not work (mandrel locking, bead breaker, post tilting and tool clamping).	1. Machine pneumatic system not connected. 2. Air lines clogged.	1. Check pneumatic connections and supply. 2. Ensure that the air filter is clean and undamaged, if fitted. If no air filter is fitted, remove all dirt into the pneumatic system and then fit a suitable filter. Clean and/or replace the silencers.
Some single pneumatic devices do not work (beader, clamps or post tilting device).	Ensure that device and/or distributor seals are not damaged.	Call for technical assistance. 

Only for HP641SD.XX - HP641SD.XXFI models

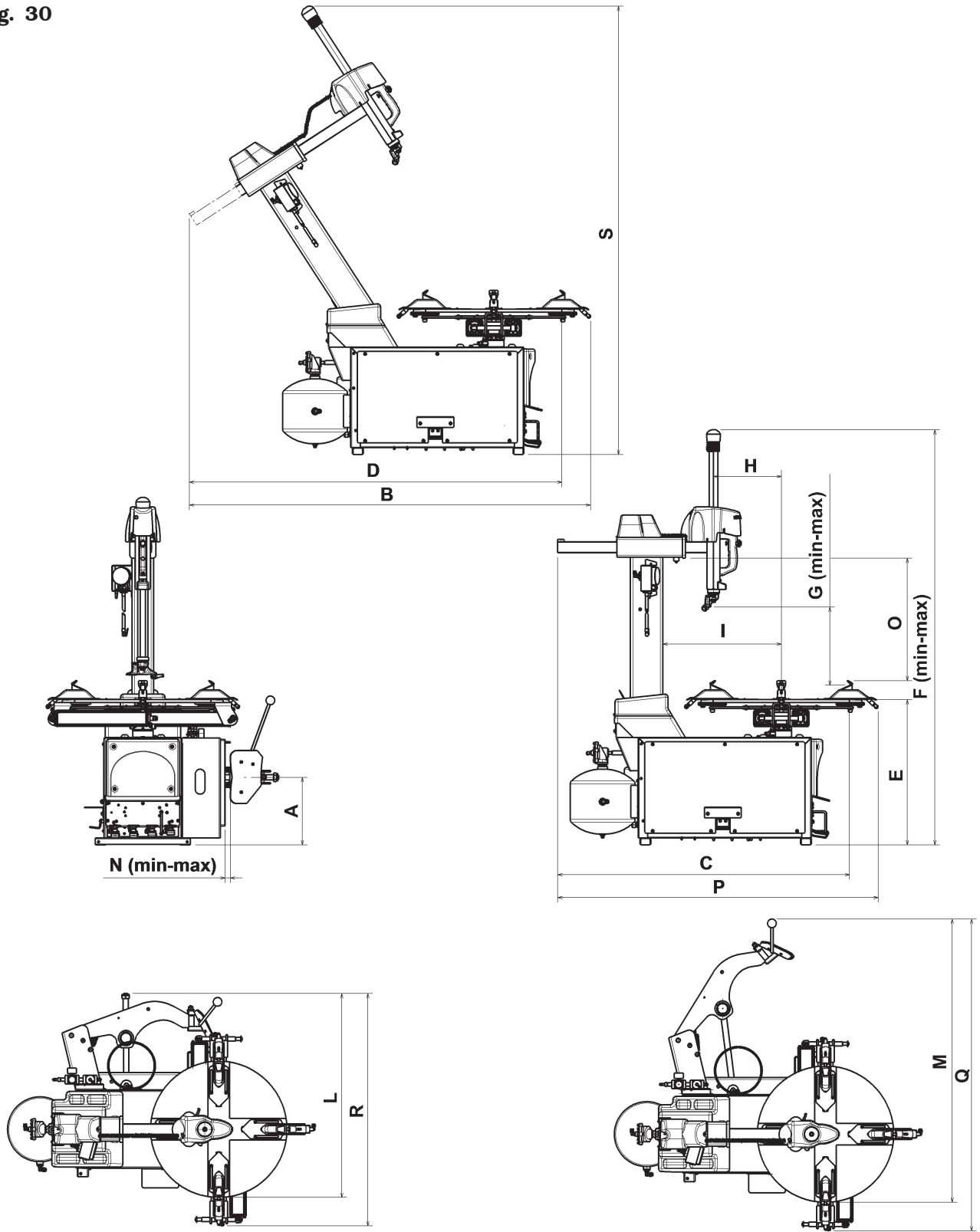
Problem	Possible cause	Remedy
The mandrel doesn't rotate.	Inverter overload alarm Or Inverter undervoltage alarm Or Inverter overvoltage alarm Overtemperature alarm	Shorten the length of a possible machine extension cable or increase the conductors section (disconnect and connect again). Lift the motor pedal and wait for the automatic reset. Wait until the motor system cools (the machine does not restart if the temperature level does not go below the set safety threshold).
The mandrel does not rotate in counter-clockwise direction.	Pedalboard microswitch breakage.	Replace microswitch.
The mandrel rotates slowly but it does not operate on the motor pedal.	Pedalboard reversible de-calibration.	1. Keep the pedal in rest position. 2. Keep the machine connected to the net. 3. Wait for 30 seconds that the pedalboard recalibration automatic attempt ends.
The mandrel doesn't rotate, but it attempts rotation when the machine is switched on again.	Pedalboard irreversible de-calibration.	Call for technical assistance. 
The mandrel does not reach the maximum rotation speed.	The mechanical resistance of the gearmotor system has increased.	Turn the mandrel without wheel for a few minutes so that the system heats, thus reducing frictions.  If in the end the mandrel does not accelerate again, call for technical assistance.

15.0 TECHNICAL DATA

	HP641S.22 HP641S.22FI	HP641S.24 HP641S.24FI	HP641SQ.22 HP641SQ.22FI	HP641SQ.24 HP641SQ.24FI	HP641SD.22 HP641SD.22FI	HP641SD.24 HP641SD.24FI
Motor	0,75 kW - 230/400V 50-60Hz 3ph (S version) 0,8-1,1 kW - 230/400V 50Hz 3ph (SQ version) 0,75 kW - 180/260V 50-60Hz 1ph (SD version)					
Mandrel rotating speed (revolutions/min)	7,3 rpm (S version) 6,5/13 rpm (SQ version) 0-16 rpm (SD version)					
Mandrel max torque (Nm)	1200					
Self-centering table locking from outside	10"-22"	10"-24"	10"-22"	10"-24"	10"-22"	10"-24"
Self-centering table locking from inside	12"-24,5"	12"-26,5"	12"-24,5"	12"-26,5"	12"-24,5"	12"-26,5"
Tool working area	8"-24"					
Maximum tyre diameter (mm)	1092 (43")					
Max rim width	381 mm (15")					
Bead-breaker cylinder force 10 bar	3600 kg (8000 lbs)					
Operating pressure	8-10 bar					
Basic version weight (kg)	220 kg (484 lbs) 240 kg (528 lbs) (gonfiatubeless version)					

15.1 Dimensions

Fig. 30



Model	A (mm)	B (mm)	C (mm)	D (mm)	E (mm)	F (mm)		G (mm)		H (mm)	GB (mm)	L (mm)	M (mm)	N (mm)		O (mm)	P (mm)	Q (mm)	R (mm)	S (mm)
						Min.	Max.	Min.	Max.					Min.	Max.					
HP641S.XX HP641S.XXF1 HP641SQ.XX HP641SQ.XXF1 HP641SD.XX HP641SD.XXF1	312	1854	1348	1722	671	1606	1919	47	360	313.5	547.5	943	1391	25	428	566	1481	1442	1075	2072

16.0 STORING

If storing for long periods 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 machine back into operation replace the rubber pads and the mounting tool.

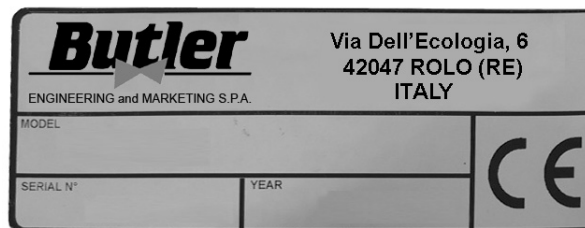
17.0 SCRAPPING

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.

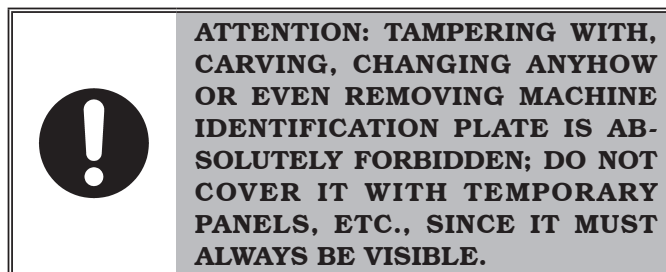
In order to inform the users on the correct way to dispose the product (as required by the article 26, paragraph 1 of the Italian legislative decree 49/14 and subsequent amendments), we communicate what follows: the meaning of the crossed dustbin symbol reported on the equipment indicates that the product 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.

18.0 REGISTRATION PLATE DATA



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.

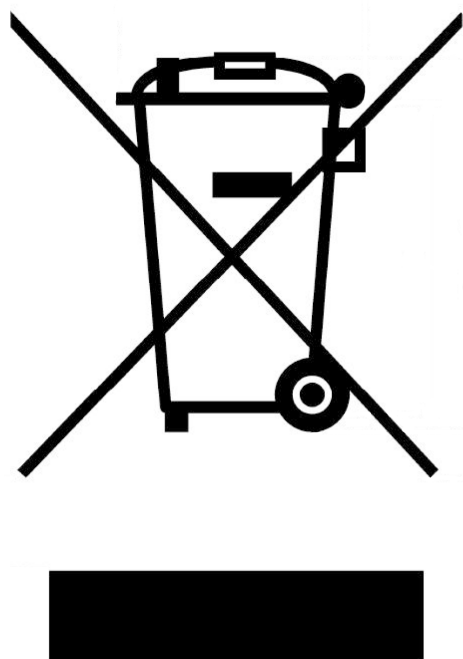


WARNING: Should the plate be accidentally damaged (removed from the machine, damaged or even partially illegible) inform immediately the manufacturer.

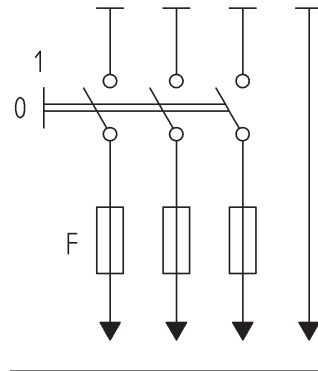
19.0 FUNCTIONAL DIAGRAMS

Here follows a list of the machine functional diagrams.

Fig. 31

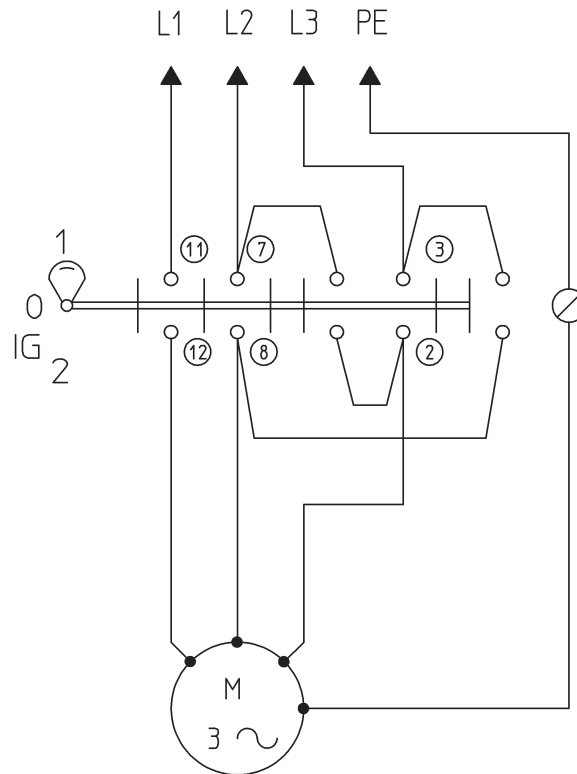


Installazione a carico del cliente
 Installation to be made by the user
 L'installation doit etre faite per le client
 Die Installation geht zu Lasten des Kunden
 La instalación corre a cargo del cliente



	V	
HZ	230	400
F	50	6A dM 4A dM
	60	6A dM 4A dM

Cavo d'alimentazione 3P + GND x 1,5 mm²
 Supply cable 3P + GND x 1,5 mm²
 Cable d'alimentation 3P + GND x 1,5 mm²
 Versorgungskabel 3P + GND x 1,5 mm²
 Cable de alimentación 3P + GND x 1,5 mm²



Morsetti IG
 IG clamps
 IG Klemmen
 Bornes IG
 Abrazaderas IG

11 = T/L3
 7 = S/L2
 3 = R/L1
 12 = W
 8 = V
 2 = U

Butler

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

Tavola N°A - Rev. 0

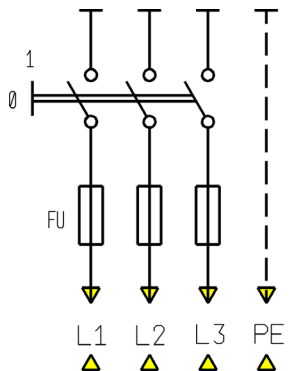
140905520

SCHEMA ELETTRICO SINGOLA VELOCITÀ 3Ph
 3 PHASE SINGLE SPEED MOTOR WIRING DIAGRAM
 ELEKTRISCHE SCHEMA EINZELGESCHWINDIGKEIT 3Ph
 SCHEMA ÉLECTRIQUE SEULE VITESSE 3Ph
 ESQUEMA ELÉCTRICO UNA VELOCIDAD 3Ph
 (HP641S.22 - HP641S.22FI - HP641S.24 - HP641S.24FI)

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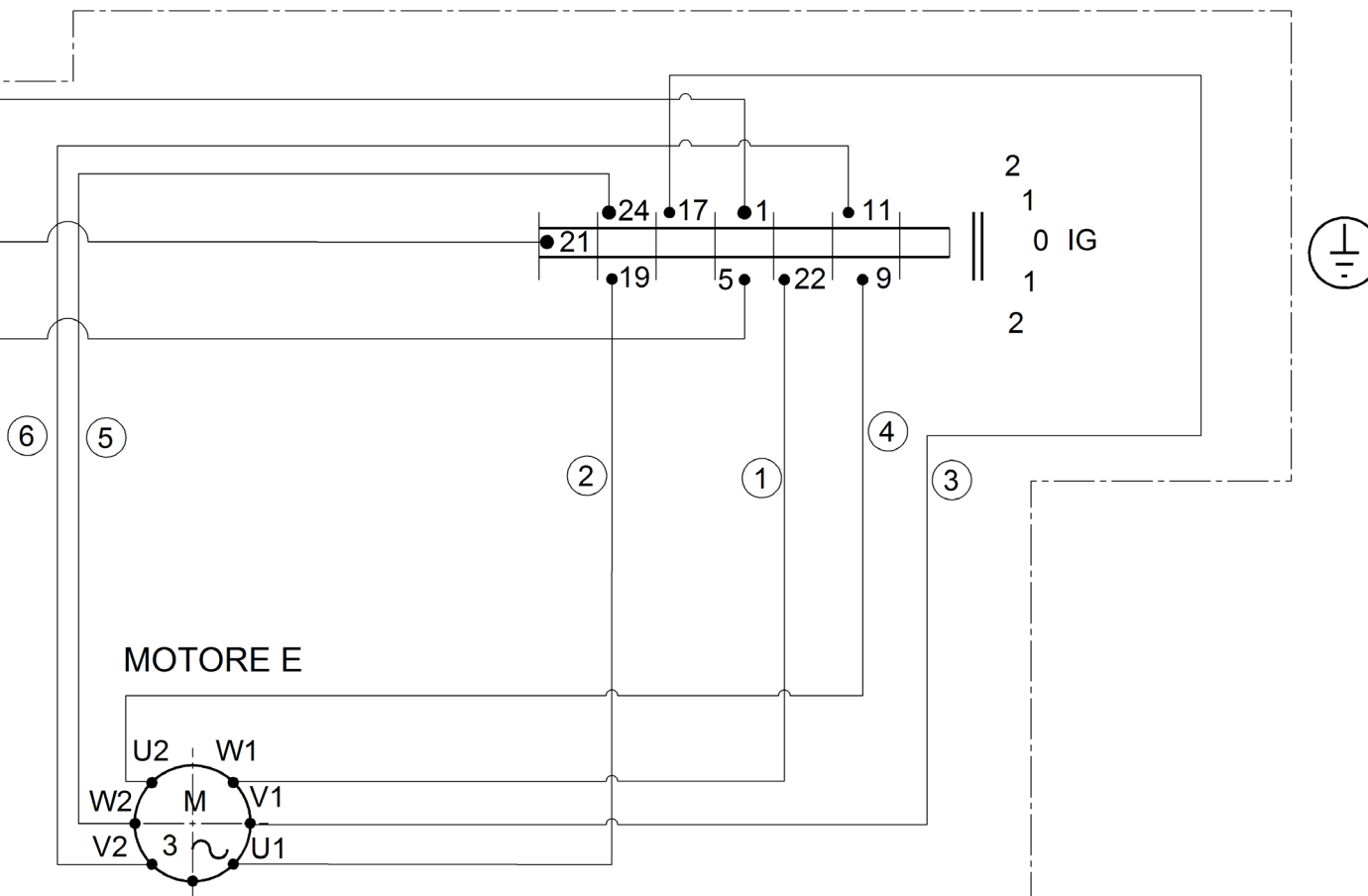
HP641S.XX - HP641S.XXFI
 HP641SQ.XX - HP641SQ.XXFI
 HP641SD.XX - HP641SD.XXFI

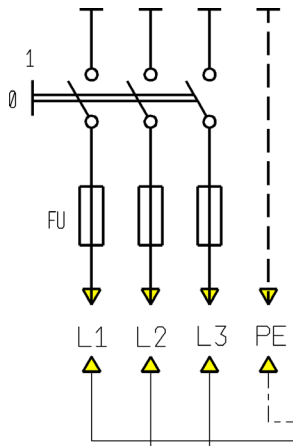
7300-M025-1_B



FU	V	
	230	400
50	6A	4A
60	6A	4A

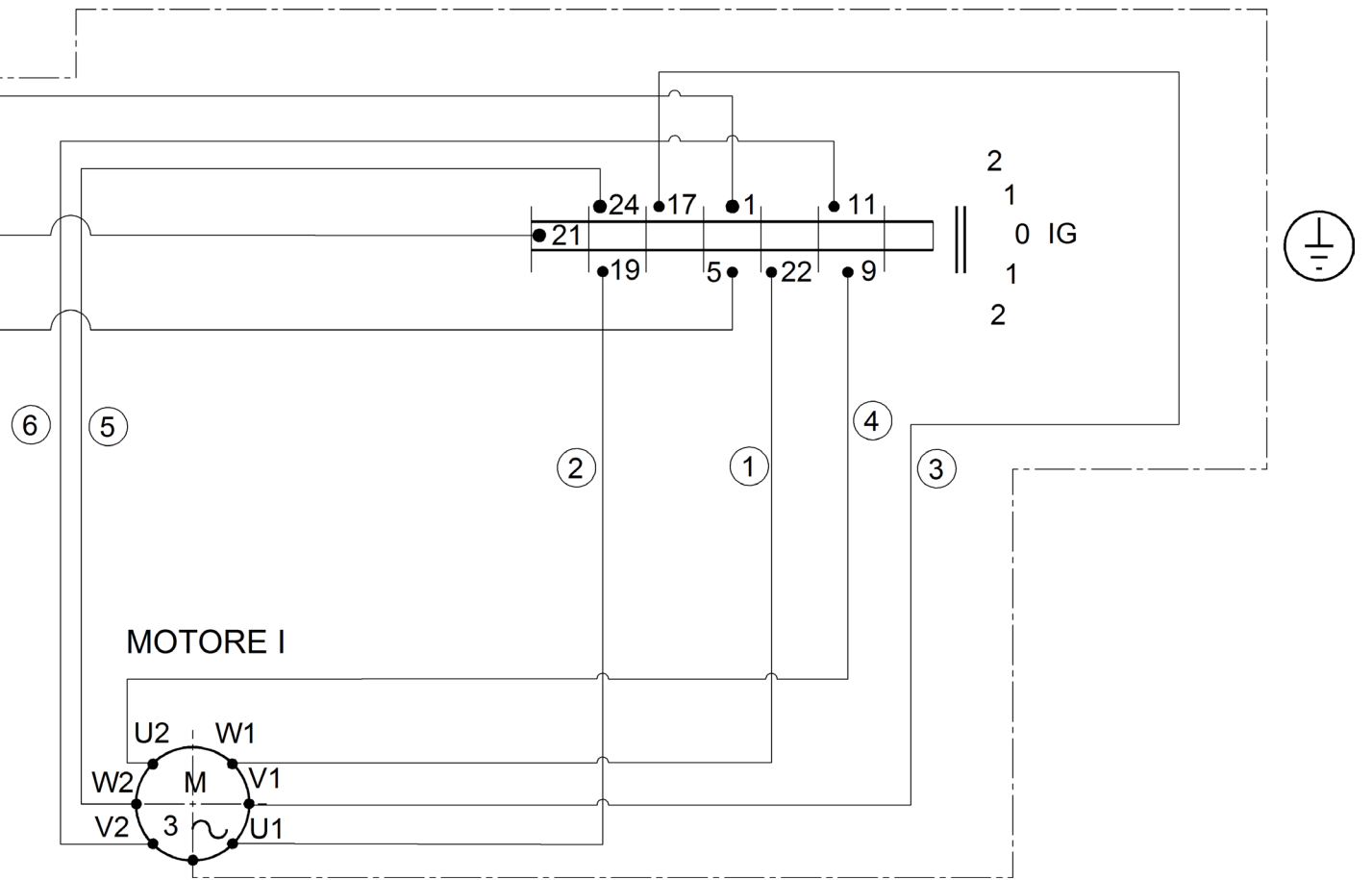
CAVO DI ALIMENTAZIONE (L1): colore nero
 POWER CABLE (L1): black color
 (L2): colore marrone
 (L2): brown color
 (L3): colore bianco
 (L3): white color
 (massa): colore giallo/verde
 (ground): yellow/green color
 CAVO D'ALIMENTAZIONE: 3p + GNDx1.55 mm²
 POWER CABLE (L1): 3p + GNDx1.55 mm²



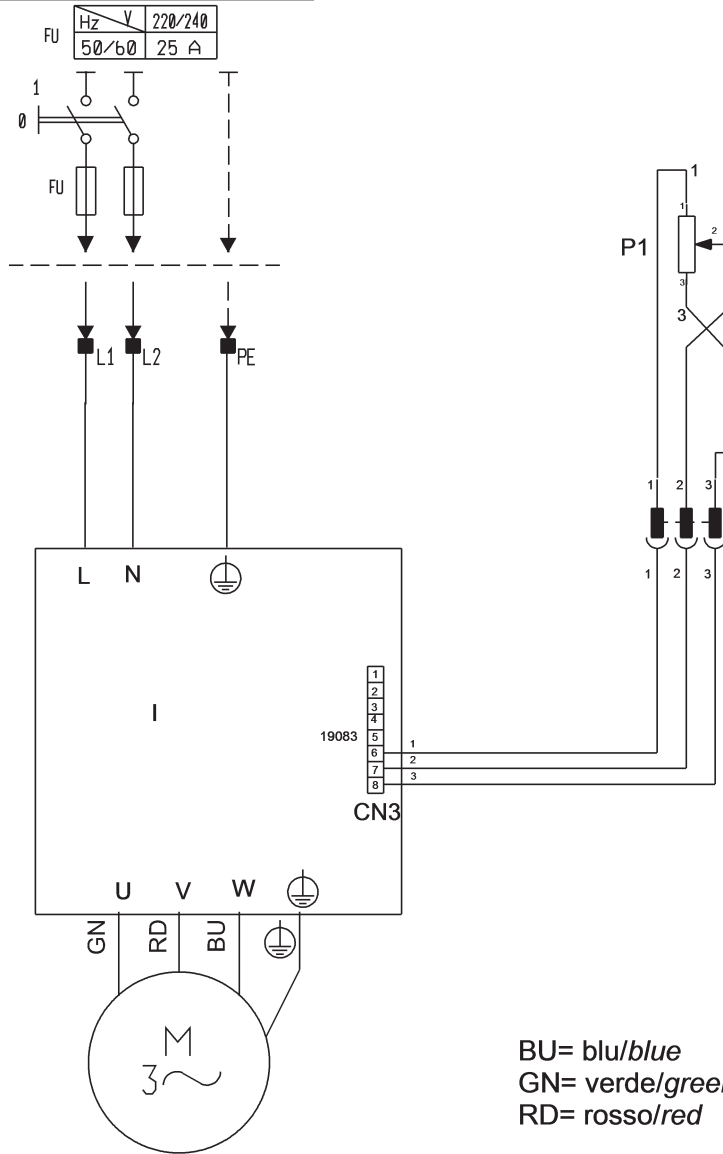


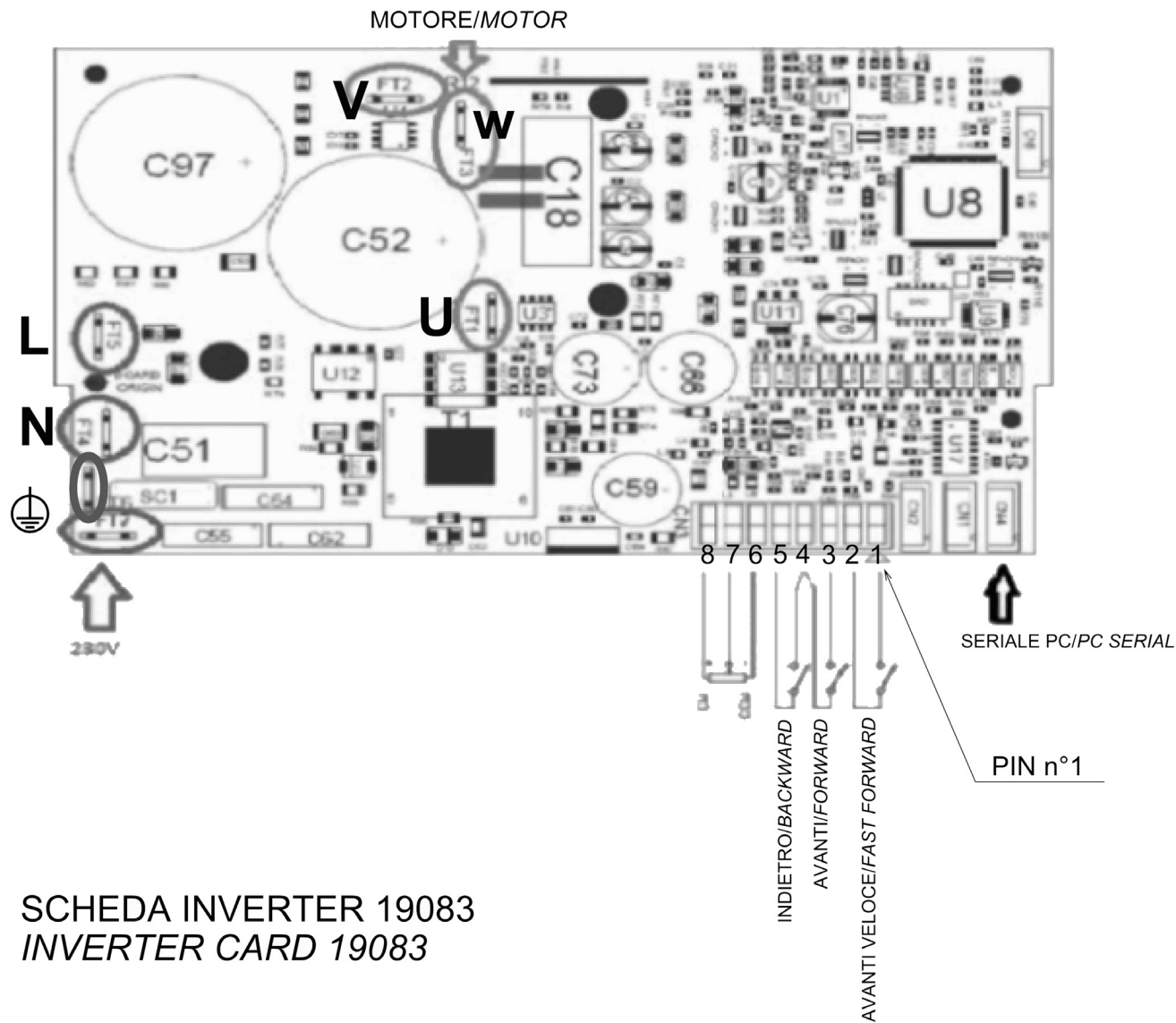
FU	V	
	230	400
50	6A	4A
60	6A	4A

CAVO DI ALIMENTAZIONE (L1): colore nero
 POWER CABLE (L1): black color
 (L2): colore marrone
 (L2): brown color
 (L3): colore bianco
 (L3): white color
 (massa): colore giallo/verde
 (ground): yellow/green color
 CAVO D'ALIMENTAZIONE: 3p + GNDx1.55 mm²
 POWER CABLE (L1): 3p + GNDx1.55 mm²



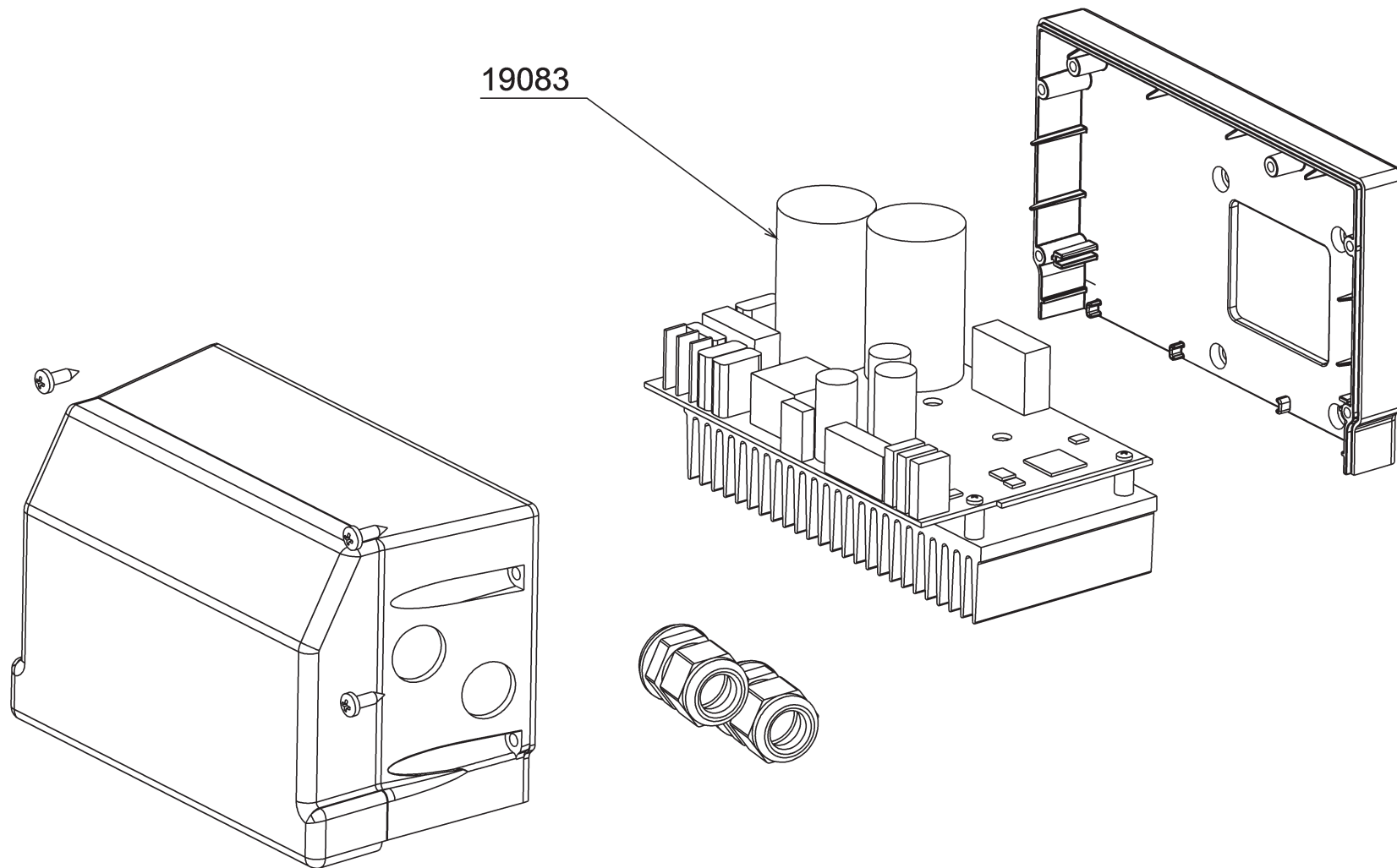
MONOFASE CAVO ALIMENTAZIONE 2P+TERRA x bmmq
 SUPPLY CABLE MONOPHASE 2P+GROUND x bmmq
 EINPHASEN KABEL SPEISUNG 2P+ERDE x bmmq
 UNIPHASE CABLE ALIMENTATION 2P+TERRE x bmmq
 MONOFÁSICO CABLE ALIMENTACIÓN 2P+TIERRA x bmmq





SCHEDA INVERTER 19083
INVERTER CARD 19083

 ENGINEERING and MARKETING S.P.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (2/3) ELECTRICAL SCHEME (2/3) SCHALTPLAN (2/3) SCHEMA ELECTRIQUE (2/3) ESQUEMA ELECTRICO (2/3) (HP641SD.22 - HP641SD.22FT - HP641SD.24 - HP641SD.24FT)	Pag. 37 di 38
	Tavola N°C - Rev. 0	730005563	HP641S.XX - HP641S.XXFI HP641SQ.XX - HP641SQ.XXFI HP641SD.XX - HP641SD.XXFI	





ENGINEERING and MARKETING S.P.A.

7300-R025-2_B

HP641S.XX - HP641S.XXFI
HP641SQ.XX - HP641SQ.XXFI
HP641SD.XX - HP641SD.XXFI

- I** 20.0 LISTA DEI COMPONENTI
- GB** 20.0 LIST OF COMPONENTS
- D** 20.0 TEILELISTE
- F** 20.0 LISTE DES PIÈCES DETACHÉES
- E** 20.0 LISTA DE PIEZAS



GLI ESPLOSI SERVONO SOLO PER L'IDENTIFICAZIONE DELLE PARTI DA SOSTITUIRE. LA SOSTITUZIONE DEVE ESSERE EFFETTUATA DA PERSONALE PROFESSIONALMENTE QUALIFICATO.



THE DIAGRAMS SERVE ONLY FOR THE IDENTIFICATION OF PARTS TO BE REPLACED. THE REPLACEMENT MUST BE CARRIED OUT PROFESSIONALLY QUALIFIED PERSONNEL.



DIE ZEICHNUNGEN DIENEN NUR ZUR IDENTIFIZIERUNG DER ERSATZTEILE. DIE ERSETZUNG MUSS DURCH QUALIFIZIERTES PERSONAL ERFOLGEN.



LES DESSINS NE SERVENT QU'À L'IDENTIFICATION DES PIÈCES À REMPLACER. LE REMPLACEMENT DOIT ÊTRE EFFECTUÉ PAR UN PERSONNE PROFESSIONNELLEMENT QUALIFIÉ.



LOS DIBUJOS EN DESPIECE SIRVEN ÚNICAMENTE PARA IDENTIFICAR LAS PIEZAS QUE DEBEN SUSTITUIRSE. LA SUSTITUCIÓN DE PIEZAS DEBE EFECTUARLA EXCLUSIVAMENTE PERSONAL PROFESIONALMENTE CUALIFICADO.

- Per eventuali chiarimenti interpellare il più vicino rivenditore oppure rivolgersi direttamente a:
- For any further information please contact your local dealer or call:
- Im Zweifelsfall oder bei Rückfragen wenden Sie sich bitte an den nächsten Wiederverkäufer oder direkt an:
- Pour tout renseignement complémentaire s'adresser au revendeur le Plus proche ou directement à:
- En caso de dudas, para eventuales aclaraciones, póngase en contacto con el distribuidor más próximo ó diríjase directamente a:

BUTLER ENGINEERING & MARKETING S.p.A. a s. u.

Via dell'Ecologia, 6 - 42047 Rolo - (RE) Italy

Phone (+39) 0522 647911 - Fax (+39) 0522 649760 - e-mail: Info@butler.it

7300-R025-2_B - Rev. n. 2 (03/2018)

SOMMARIO - SUMMARY - INHALT SOMMAIRE - SUMARIO

Tavola N°1 - Rev. 1 _____ 4 ASSIEME GENERALE MAIN ASSEMBLY GENERALSATZ ASSEMBLAGE GENERAL JUNTO GENERAL	Tavola N°8A - Rev. 0 __ 140991500 17 GRUPPO PEDALIERA PEDALBOARD UNIT PEDALLEISTESATZ GROUPE PÉDALES DE DIRECTION GRUPO PEDALERA
Tavola N°2 - Rev. 1 __ 730095450 7 GRUPPO TELAIO FRAME UNIT RAHMENSATZ GROUPE CHÂSSIS GRUPO ESTRUCTURA	Tavola N°8B - Rev. 0 __ 730094191 18 GRUPPO PEDALIERA 4 PEDALI 2 VELOCITÀ 4-PEDAL 2-SPEED PEDALBOARD UNIT PEDALLEISTE 4 PEDALEN 2 GESCHWINDIGKEIT SATZ GROUPE PÉDALES DE DIRECTION 4 PÉDALES 2 VITESSE GRUPO PEDALERA 4 PEDALES 2 VELOCIDAD
Tavola N°3 - Rev. 0 __ 730091401 8 GRUPPO PALO AUTOMATICO AUTOMATIC ROD GROUP AUTOMATISCHE PFAHLSATZ GROUPE MÂT AUTOMATIQUE GRUPO PALO AUTOMÁTICO	Tavola N°8C - Rev. 0 __ 730095840 19 GRUPPO PEDALIERA 4 PEDALI INVERTER INVERTER 4-PEDALS PEDALBOARD UNIT SATZ PEDALLEISTE-FREQUENZUMFORMER 4 PEDALEN GROUPE PÉDALES DE DIRECTION 4 PÉDALES VARIATEUR GRUPO PEDALERA 4 PEDALES INVERSOR
Tavola N°4A - Rev. 0 __ 730094220 9 GRUPPO COFANO LATERALE LATERAL CASING UNIT LATERAL CASING UNIT GROUPE COFFRE LATÉRAL GRUPO CAPOT LATERAL	Tavola N°9 - Rev. 0 __ 140990391 20 INSIEME PEDALE STALLONATORE BEAD BREAKING PEDAL UNIT ABDRÜCKPEDALSATZ ASSEMBLAGE PÉDAL DÉCOLLE TALON CONJUNTO PEDAL DESTALONADOR
Tavola N°4B - Rev. 0 __ 730094171 10 GRUPPO COFANO LATERALE LATERAL CASING UNIT LATERAL CASING UNIT GROUPE COFFRE LATÉRAL GRUPO CAPOT LATERAL	Tavola N°10 - Rev. 0 __ 140990401 21 INSIEME PEDALE MANDRINO CHUCK PEDAL ASSEMBLY SPINDELPEDALSSATZ ASSEMBLAGE PÉDALE MANDRIN ENSAMBLADO PEDAL MANDRIL
Tavola N°5 - Rev. 1 __ 730095850 11 GRUPPO BRACCIO STALLONATORE BEAD BREAKER ARM UNIT ABDRÜCKARMSATZ GROUPE BRAS DÉCOLLE TALONS GRUPO BRAZO DESTALONADOR	Tavola N°11A - Rev. 0 __ 140990411 22 MONTAGGIO PEDALE INVERTITORE INVERTER PEDAL ASSEMBLY MONTAGE DES FREQUENZUMFORMERPEDAL MONTAGE PÉDALE VARIATEUR MONTAJE PEDAL INVERSOR
Tavola N°6A - Rev. 0 __ 140390221 12 INSIEME DISTRIBUTORE ROTANTE ROTARY DISTRIBUTOR ASSEMBLY ROTATIONSVERTEILERSATZ ASSEMBLAGE DISTRIBUTEUR ROTATIF CONJUNTO DISTRIBUIDOR ROTANTE	Tavola N°11B - Rev. 0 __ 730095720 23 MTG PEDALE 2 VELOCITÀ MAGGIORATO 2 SPEEDS OVERSIZE PEDAL ASSEMBLY MONTAGE 2 GESCHWINDIGKEITEN ERHÖHTES PEDAL MONTAGE PÉDALE MAJORÉE 2 VITESSES MONTAJE PEDAL 2 VELOCIDADES INCREMENTADO
Tavola N°6B - Rev. 0 __ 140302093 13 INSIEME DISTRIBUTORE ROTANTE ROTARY DISTRIBUTOR ASSEMBLY ROTATIONSVERTEILERSATZ ASSEMBLAGE DISTRIBUTEUR ROTATIF CONJUNTO DISTRIBUIDOR ROTANTE	Tavola N°12 - Rev. 0 __ 140990431 24 GRUPPO PEDALE PEDAL UNIT PEDALSATZ GROUPE PÉDAL GRUPO PEDAL
Tavola N°7A - Rev. 0 __ 730094690 14 INSIEME MOTORIDUTTORE 230-400-50 0,75 KW 230-400-50 0,75 KW GEARMOTOR ASSEMBLY UNTERSETZERSATZ 230-400-50 0,75 KW ASSEMBLAGE MOTOREDUCTEUR 230-400-50 0,75 KW ENSAMBLADO MOTORREDUCTOR 230-400-50 0,75 KW	Tavola N°13A - Rev. 2 __ 730094560 25 MTG MANDRINO TONDO 10-22 10-22 MTG ROUND MANDREL MTG RUNDSPINDEL 10-22 MTG MANDRIN ROND 10-22 MTG MANDRIL REDONDO 10-22
Tavola N°7B - Rev. 0 __ 730094110 15 INSIEME MOTORIDUTTORE 230-400-20-2 VELOCITÀ 230-400-50 2 SPEED GEARMOTOR INSERT UNTERSETZERMOTORSATZ 230-400-50 2 GESCHWINDIGKEIT RENFORT MOTOREDUCTEUR 230-400-50 2 VITESSE INSERCIÓN MOTORREDUCTOR 230-400-50 2 VELOCIDAD	Tavola N°13B - Rev. 2 __ 730094610 26 MTG MANDRINO TONDO 10-22 GT 10-22 GT MTG ROUND MANDREL MTG RUNDSPINDEL 10-22 GT MTG MANDRIN ROND 10-22 GT MTG MANDRIL REDONDO 10-22 GT
Tavola N°7C - Rev. 0 __ 730095780 16 GRUPPO MOTORIDUTTORE CON INVERTER GEARMOTOR UNIT WITH INVERTER UNTERSETZERSATZ MIT UMRICHTER GROUPE MOTOREDUCTEUR AVEC INVERSEUR GRUPO MOTERREDUCTOR CON INVERSOR	Tavola N°13C - Rev. 1 __ 730095500 27 MTG MANDRINO 10"-24" MTG 10"-24" MANDREL MTG 10"-24" SPINDEL MTG MANDRIN 10"-24" MTG MANDRIL 10"-24"

Tavola N°13D - Rev. 1 _ 730095490.....28

MTG MANDRINO 10"-24" GT
MTG 10"-24" GT MANDREL
MTG 10"-24" GT SPINDEL
MTG MANDRIN 10"-24" GT
MTG MANDRIL 10"-24" GT

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GRUPPO TRATTAMENTO ARIA
AIR TREATMENT UNIT
AUFBEREITUNGLUFTSATZ
GROUPE TRAITEMENT AIR
GRUPO TRATAMIENTO AIRE

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GRUPPO TRATTAMENTO ARIA
AIR TREATMENT UNIT
AUFBEREITUNGLUFTSATZ
GROUPE TRAITEMENT AIR
GRUPO TRATAMIENTO AIRE

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GRUPPO PEDALIERA GONFIATUBELESS
TUBELESS INFLATION PEDALBOARD UNIT
PEDALLEISTE AUFPUMPEN TUBELESS SATZ
GROUPE PÉDALES DE DIRECTION GONFLAGE TUBELESS
GRUPO PEDALERA INFLADO TUBELESS

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GRUPPO GONFIAGGIO
INFLATION UNIT
AUFPUMPSATZ
GROUPE GONFLAGE
GRUPO INFLADO

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INSIEME SERBATOIO ARIA
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LUFTTANKSSATZ
ASSEMBLAGE RÉSERVOIR AIR
ENSAMBLADO TANQUE AIRE

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GRUPPO CARTER RIBALTAMENTO PALO
ROD TILTING CARTER UNIT
PFAHLKIPPUNG GEHÄUSESATZ
GROUPE CARTER BASCULAGE MÂT
GRUPO CARTER VUELCO PALO

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GRUPPO CARTER SUPERIORE
SUPERIOR GUARD UNIT
OBERE GEHÄUSESATZ
GROUPE CARTER SUPÉRIEUR
GRUPO CARTER SUPERIOR

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GRUPPO CILINDRO RIBALTAMENTO
TILTING CYLINDER UNIT
ZYLINDERSKIPPUNGSATZ
GROUPE CYLINDRE BASCULAGE
GRUPO CILINDRO VUELCO

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GRUPPO FULCRO RIBALTAMENTO PALO
ROD TILTING FULCRUM UNIT
PFAHLKIPPUNG FULCRUMSATZ
GROUPE POINT D'APPUI BASCULAGE MÂT
GRUPO FULCRO VUELCO PALO

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GRUPPO PLASTRA CON INVERTER
PLATE UNIT WITH INVERTER
PLATTESATZ MIT FREQUENZUMFORMER
GROUPE PLAQUE AVEC VARIATEUR
GRUPO PLACA CON INVERSOR

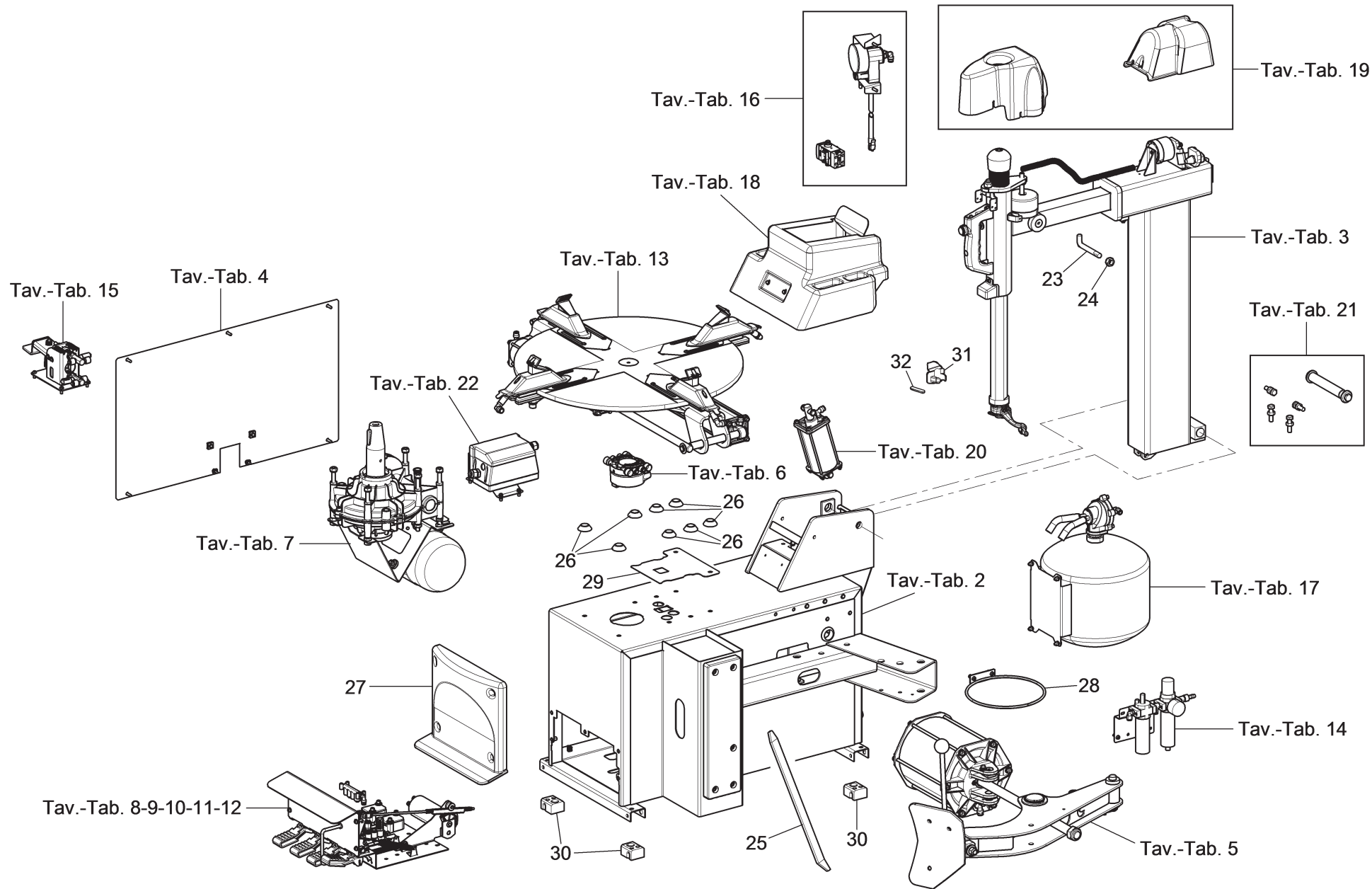
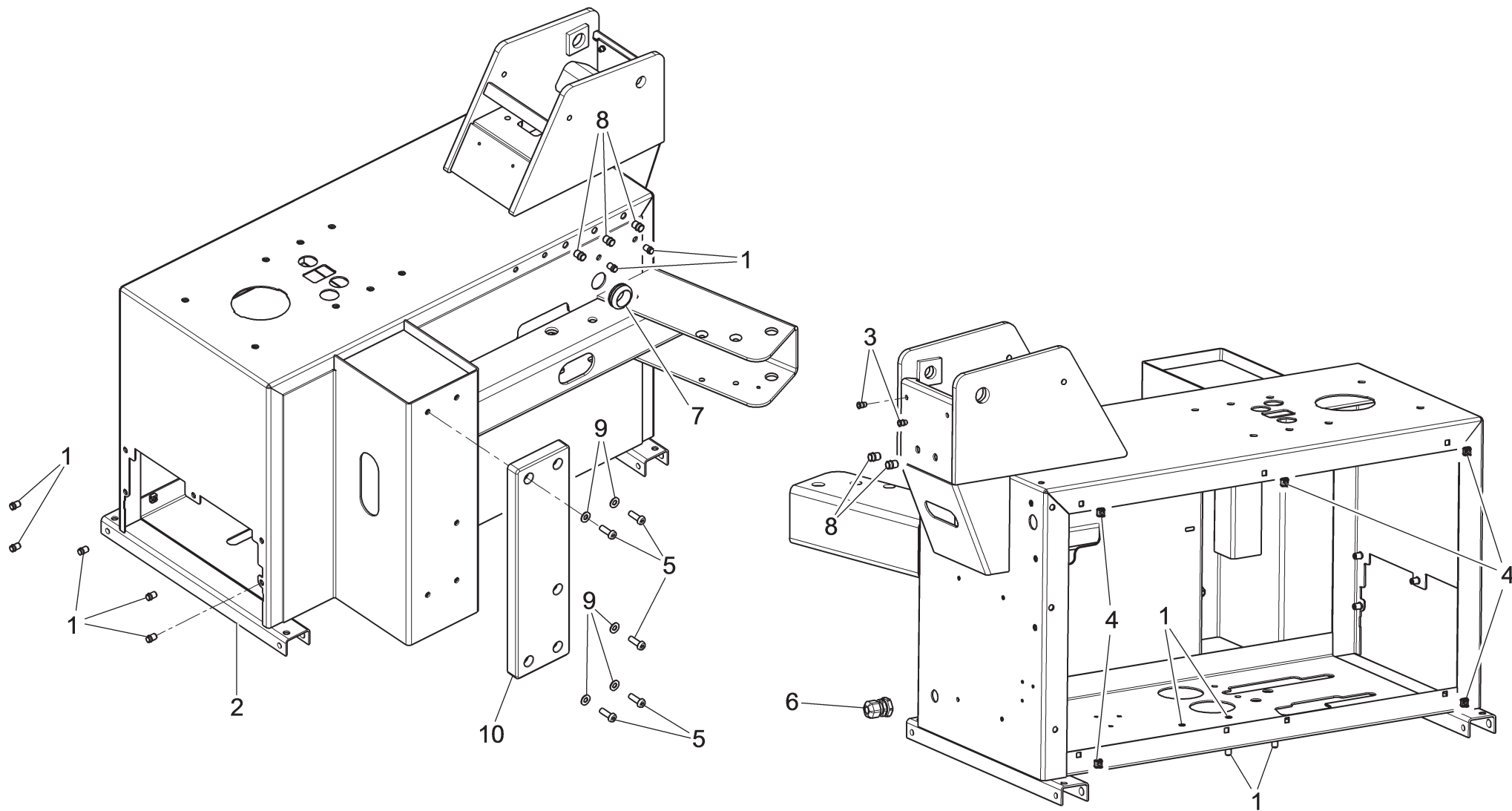


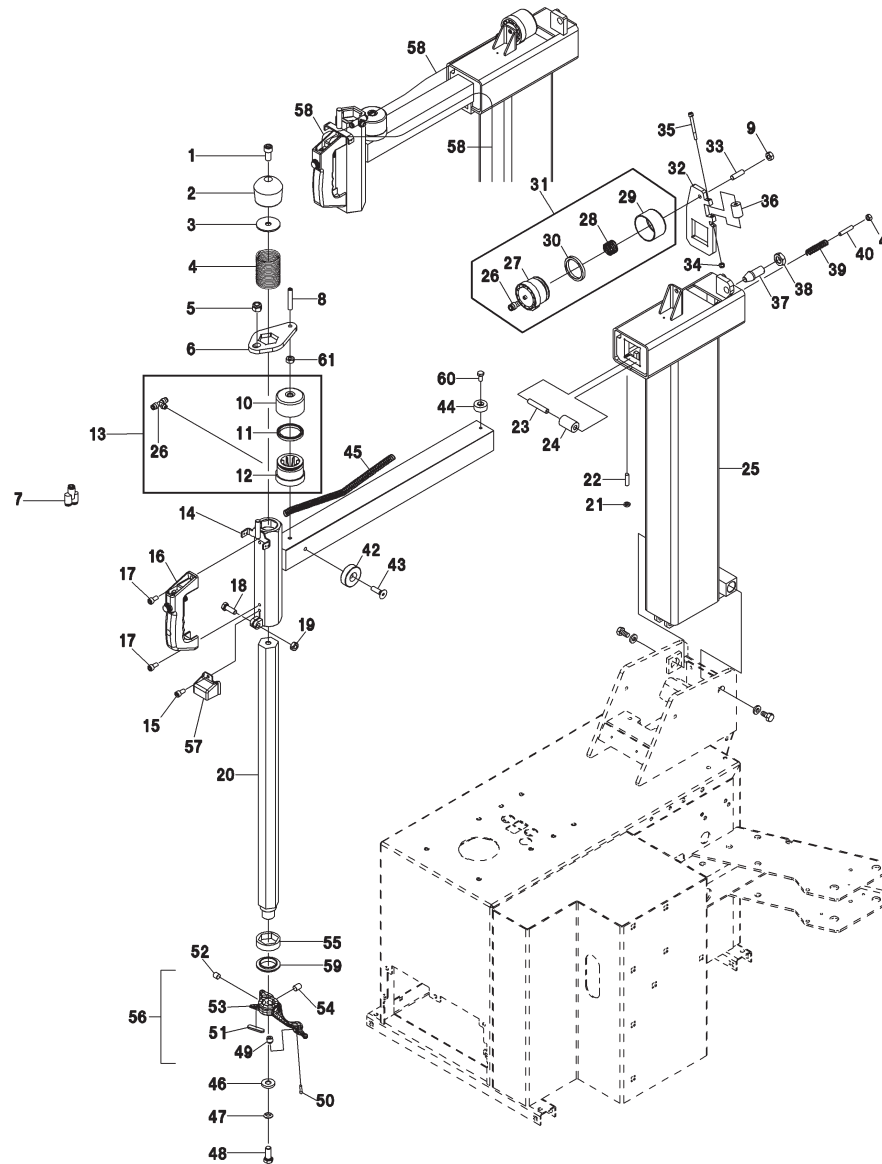
Tavola N°1 - Rev. 1

Tav.	Codice	Pos.	HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI
2	730095450		•	•	•	•	•	•	•	•	•	•	•	•
3	730091401		•	•	•	•	•	•	•	•	•	•	•	•
4A	730094220		•		•		•		•		•		•	
4B	730094171			•		•		•		•		•		•
5	730095850		•	•	•	•	•	•	•	•	•	•	•	•
6A	140390221		•		•		•		•		•		•	
6B	140302093			•		•		•		•		•		•
7A	730094690		•	•	•	•								
7B	730094110						•	•	•	•				
7C	730095780										•	•	•	•
8A	140991500		•	•	•	•								
8B	730094191						•	•	•	•				
8C	730095840										•	•	•	•
9	140990391		•	•	•	•	•	•	•	•	•	•	•	•
10	140990401		•	•			•	•			•	•		
11A	140990411		•	•	•	•								
11B	730095720						•	•	•	•				
12	140990431		•	•	•	•	•	•	•	•	•	•	•	•
13A	730094560		•				•				•			
13B	730094610			•				•				•		
13C	730095500				•				•				•	
13D	730095490					•				•				•
14A	730095700		•		•		•		•		•		•	
14B	730095760			•		•		•		•		•		•
15	140990371			•		•		•		•		•		•

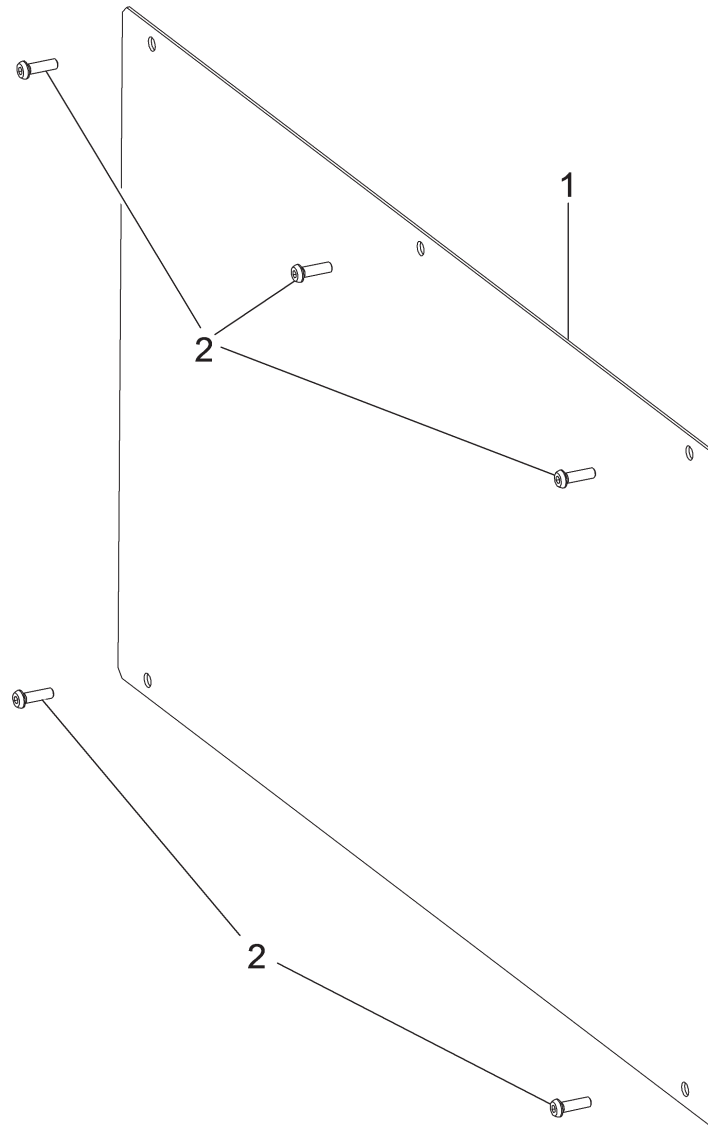
Tav.	Codice	Pos.	HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI
16	140790205			•		•		•		•		•		•
17	730091910			•		•		•		•		•		•
18	730091430		•	•	•	•	•	•	•	•	•	•	•	•
19	140390761		•	•	•	•	•	•	•	•	•	•	•	•
20	730092590		•	•	•	•	•	•	•	•	•	•	•	•
21	140390530		•	•	•	•	•	•	•	•	•	•	•	•
22	730094660										•	•	•	•
	140330740	23	•		•		•		•		•		•	
	224007	24	•		•		•		•		•		•	
	299111	25	•	•	•	•	•	•	•	•	•	•	•	•
	730015400	26	•	•	•	•	•	•	•	•	•	•	•	•
	730017041	27	•	•	•	•	•	•	•	•	•	•	•	•
	730095750	28	•	•	•	•	•	•	•	•	•	•	•	•
	730026450	29	•		•		•		•		•		•	
	140315440	30	•	•	•	•	•	•	•	•	•	•	•	•
	770012480	31	•	•	•	•	•	•	•	•	•	•	•	•
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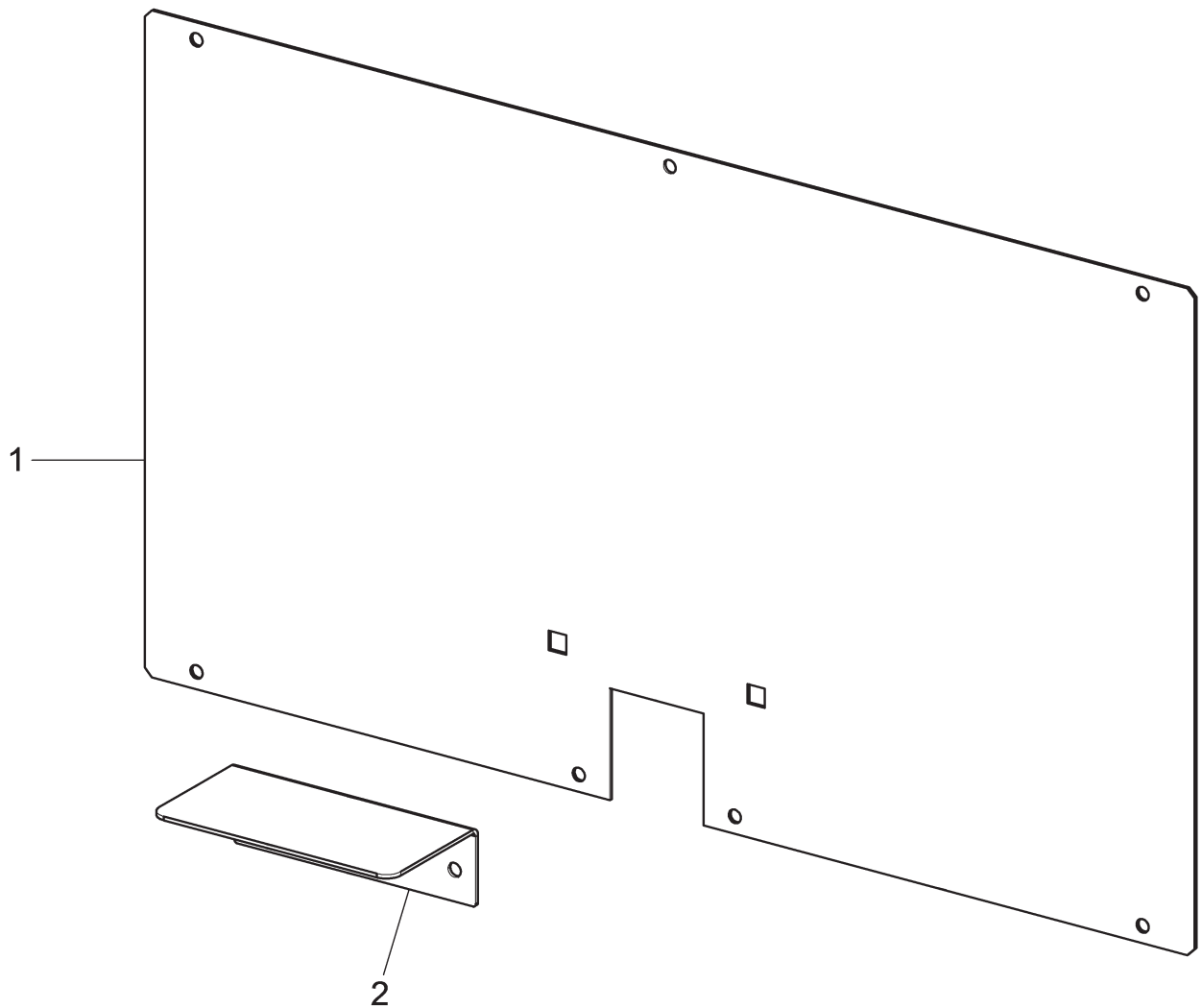
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO TELAIO FRAME UNIT RAHMENSATZ GROUPE CHÂSSIS GRUPO ESTRUCTURA			Pag. 7 di 38	
		Tavola N°2 - Rev. 1		730095450							




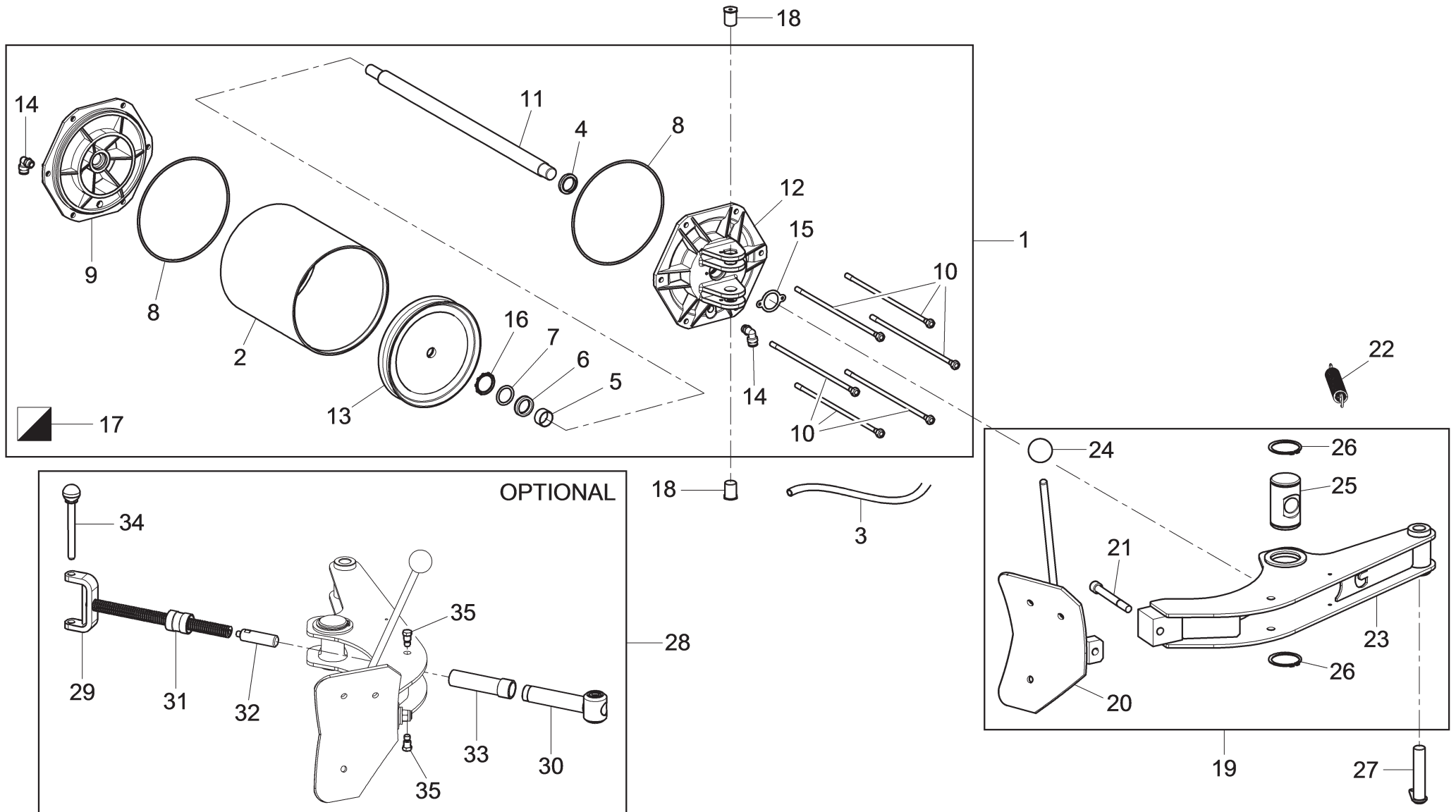
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PALO AUTOMATICO AUTOMATIC ROD GROUP AUTOMATISCHE PFAHLSATZ GROUPE MÂT AUTOMATIQUE GRUPO PALO AUTOMÁTICO					Pag. 8 di 38
		Tavola N°3 - Rev. 0		730091401								



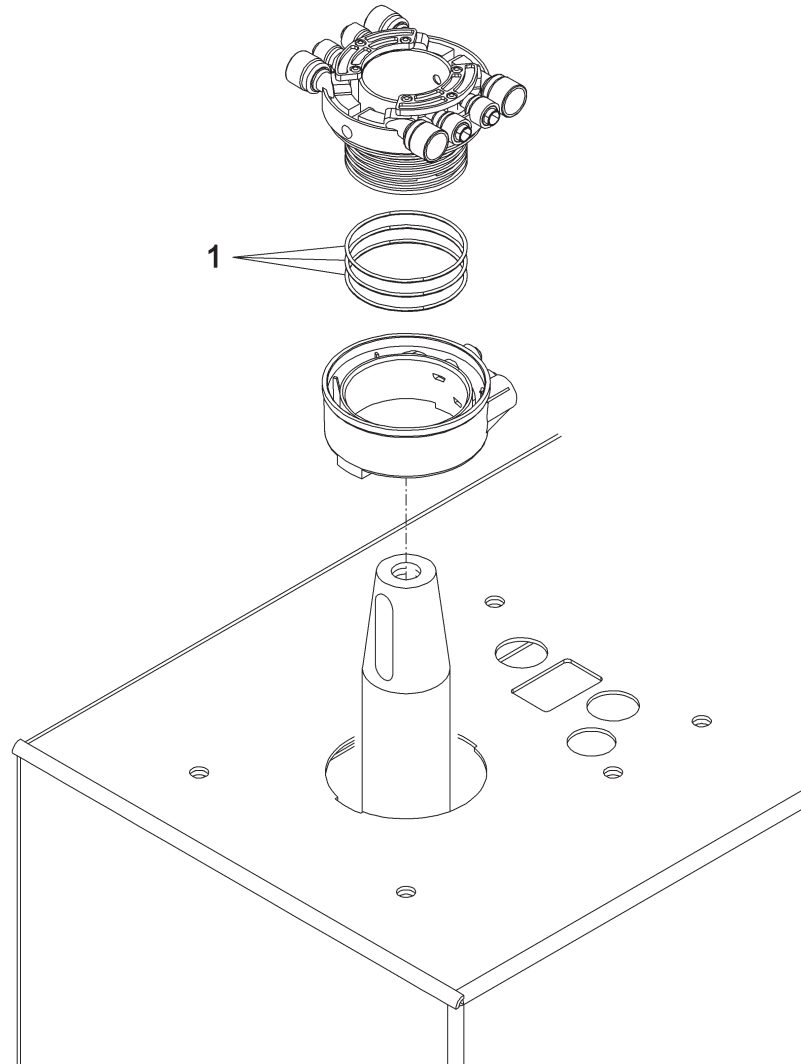
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIECES DETACHEES - LISTA DE PIEZAS					GRUPPO COFANO LATERALE LATERAL CASING UNIT LATERAL CASING UNIT GROUPE COFFRE LATÉRAL GRUPO CAPOT LATERAL			Pag. 9 di 38	
		Tavola N°4A - Rev. 0		730094220							



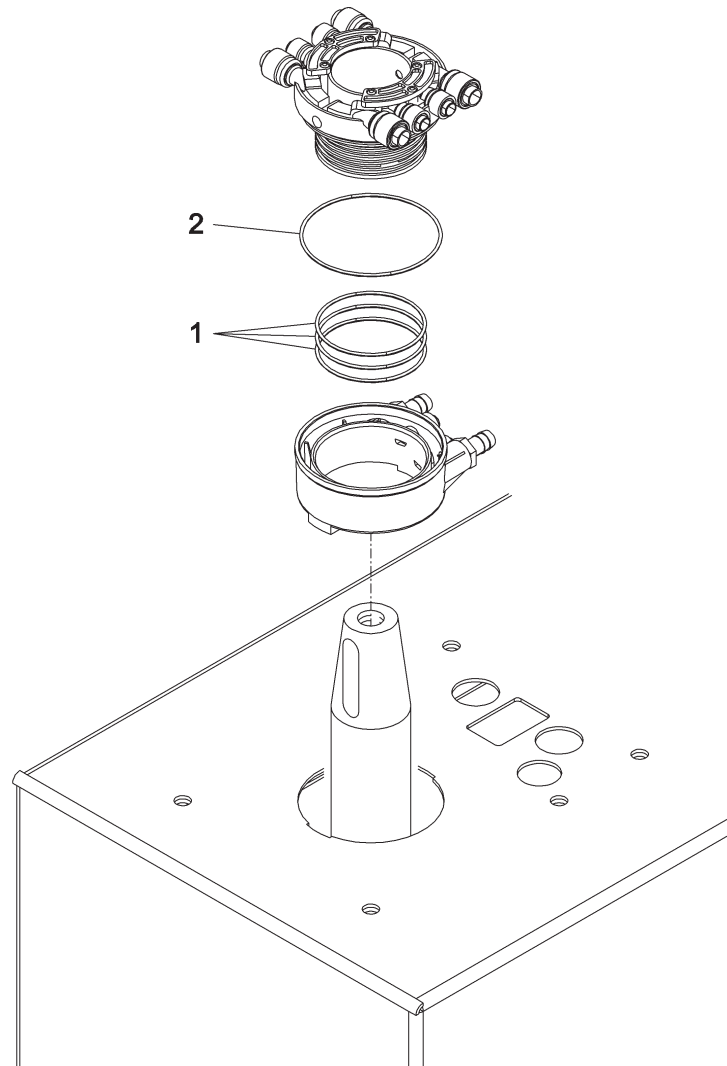
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO COFANO LATERALE LATERAL CASING UNIT LATERAL CASING UNIT GROUPE COFFRE LATÉRAL GRUPO CAPOT LATERAL			Pag. 10 di 38	
		Tavola N°4B - Rev. 0		730094171							



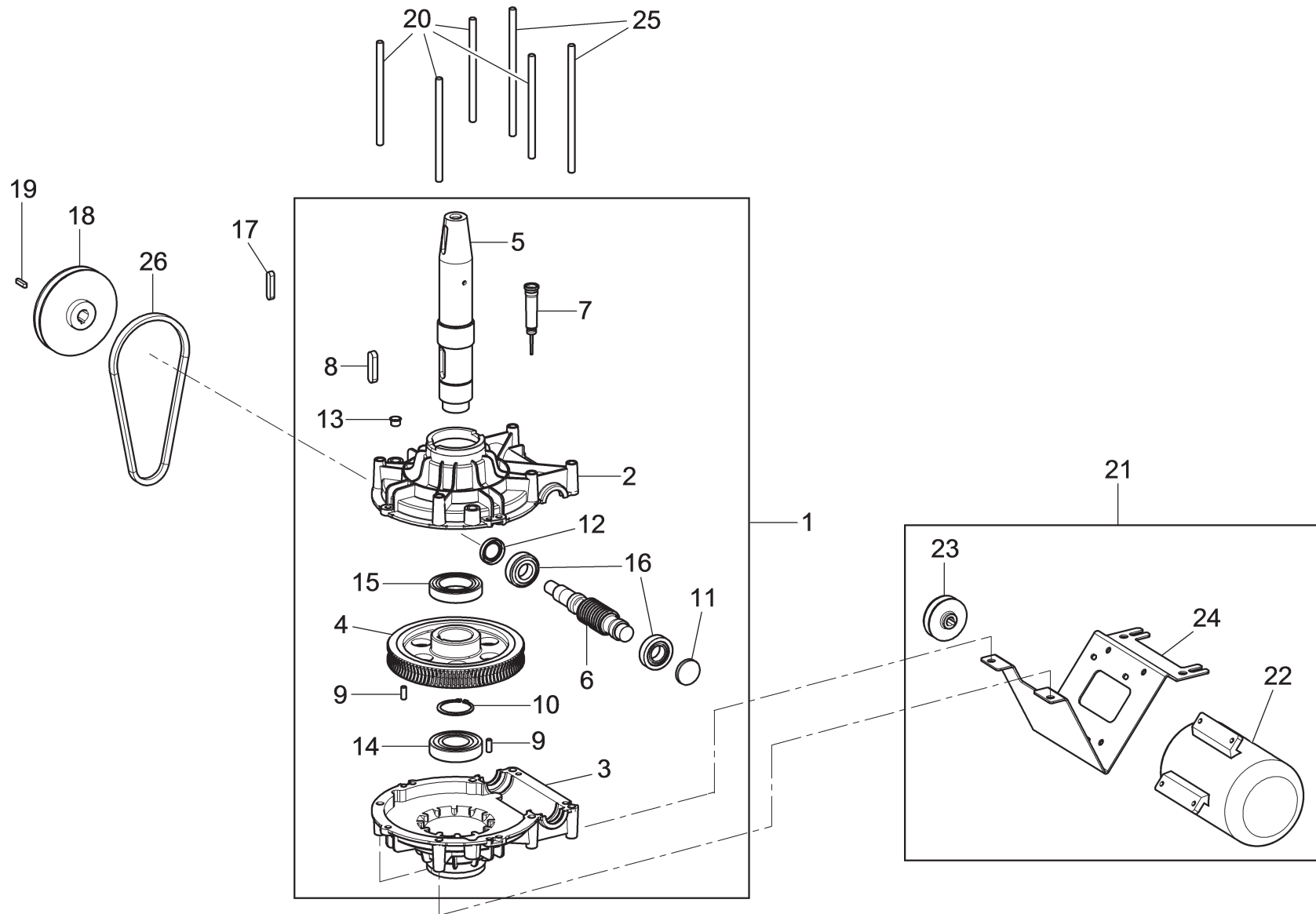
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO BRACCIO STALLONATORE BEAD BREAKER ARM UNIT ABDRÜCKARMSATZ GROUPE BRAS DECOLLE TALONS GRUPO BRAZO DESTALONADOR			Pag. 11 di 38	
		Tavola N°5 - Rev. 1		730095850							



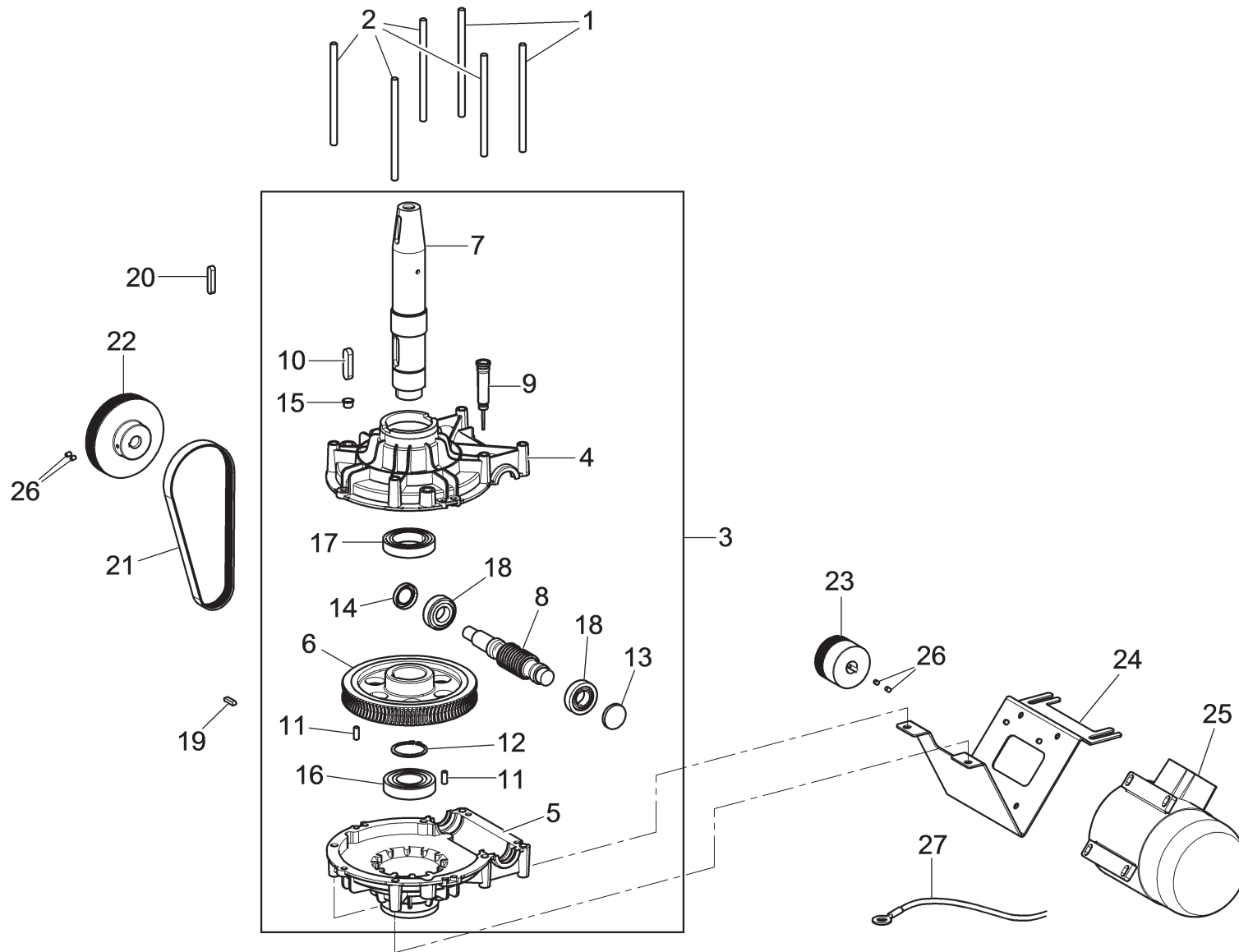
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME DISTRIBUTORE ROTANTE ROTARY DISTRIBUTOR ASSEMBLY ROTATIONSVERTEILERSATZ ASSEMBLAGE DISTRIBUTEUR ROTATIF CONJUNTO DISTRIBUIDOR ROTANTE					Pag. 12 di 38
		Tavola N°6A - Rev. 0			140390221							



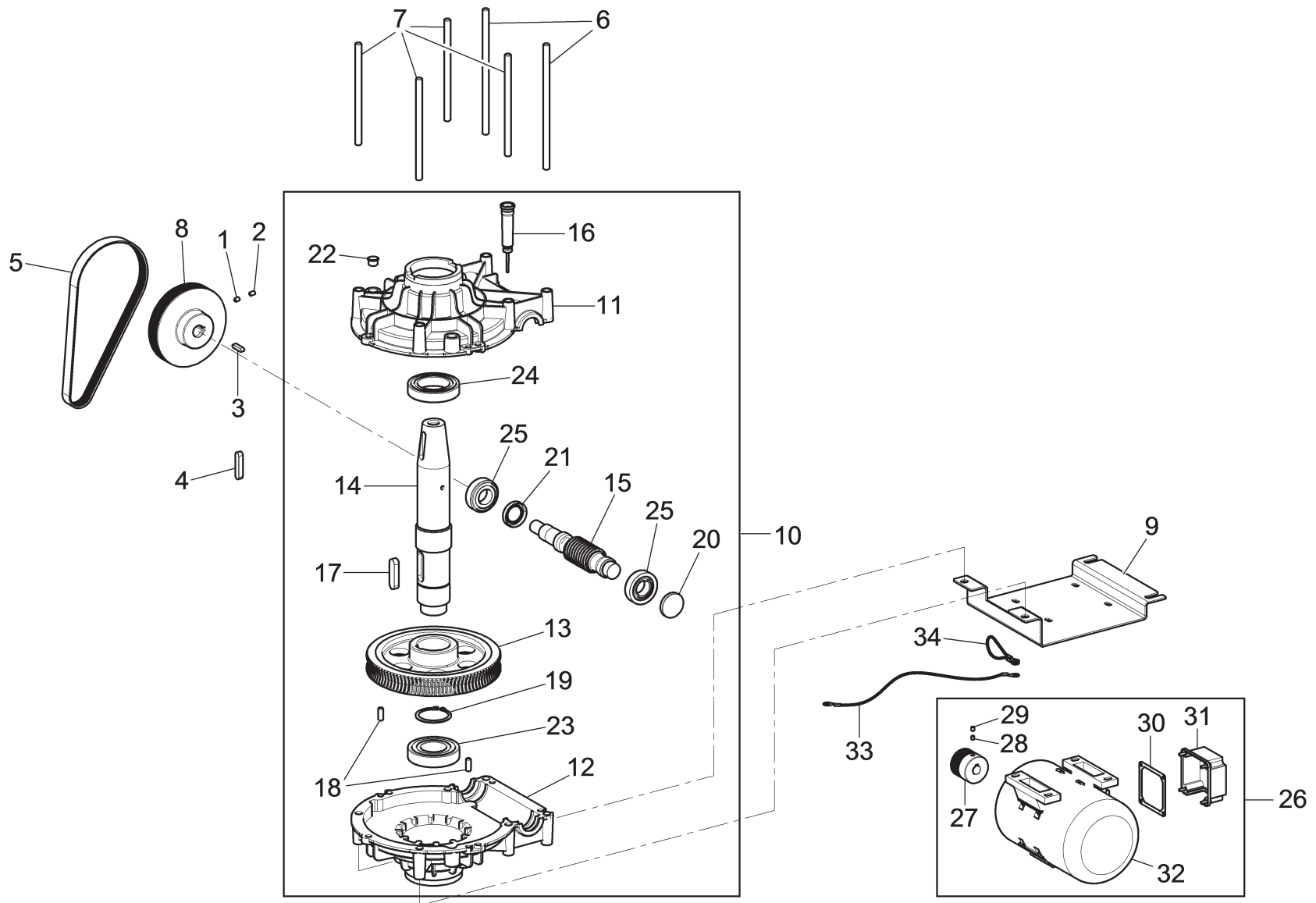
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ENGINEERING and MARKETING S.P.A.		Tavola N°6B - Rev. 0			140302093							



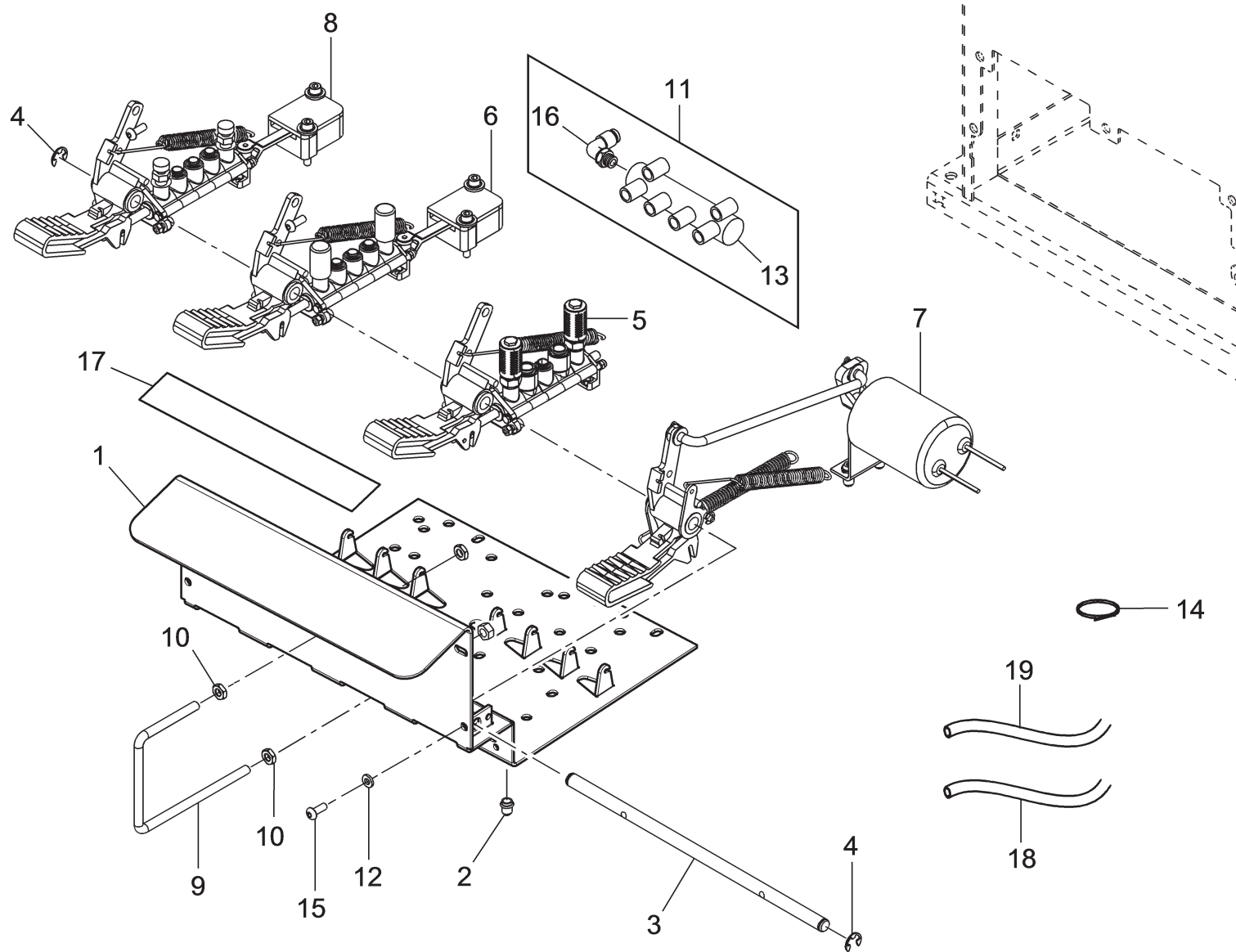
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME MOTORIDUTTORE 230-400-50 0,75 KW 230-400-50 0,75 KW GEARMOTOR ASSEMBLY UNTERSETZERSATZ 230-400-50 0,75 KW ASSEMBLAGE MOTOREDUCTEUR 230-400-50 0,75 KW ENSAMBLADO MOTORREDUCTOR 230-400-50 0,75 KW			Pag. 14 di 38	
		Tavola N°7A - Rev. 0		730094690							



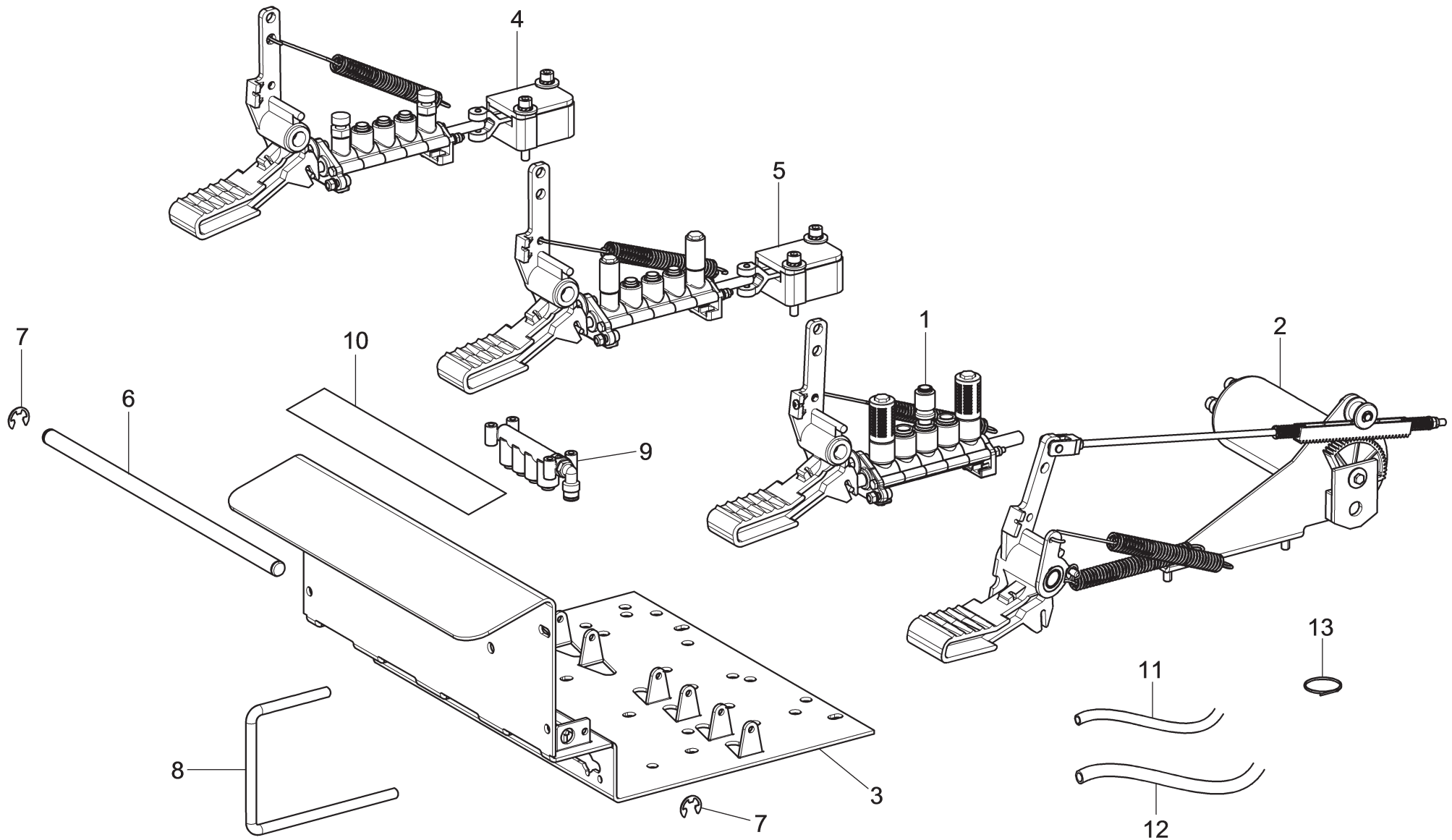
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME MOTORIDUTTORE 230-400-20-2 VELOCITÀ 230-400-50 2 SPEED GEARMOTOR INSERT UNTERSETZERMOTORSATZ 230-400-50 2 GESCHWINDIGKEIT RENFORT MOTOREDUCTEUR 230-400-50 2 VITESSE INSERCIÓN MOTORREDUCTOR 230-400-50 2 VELOCIDAD					Pag. 15 di 38	
		Tavola N°7B - Rev. 0			730094110								



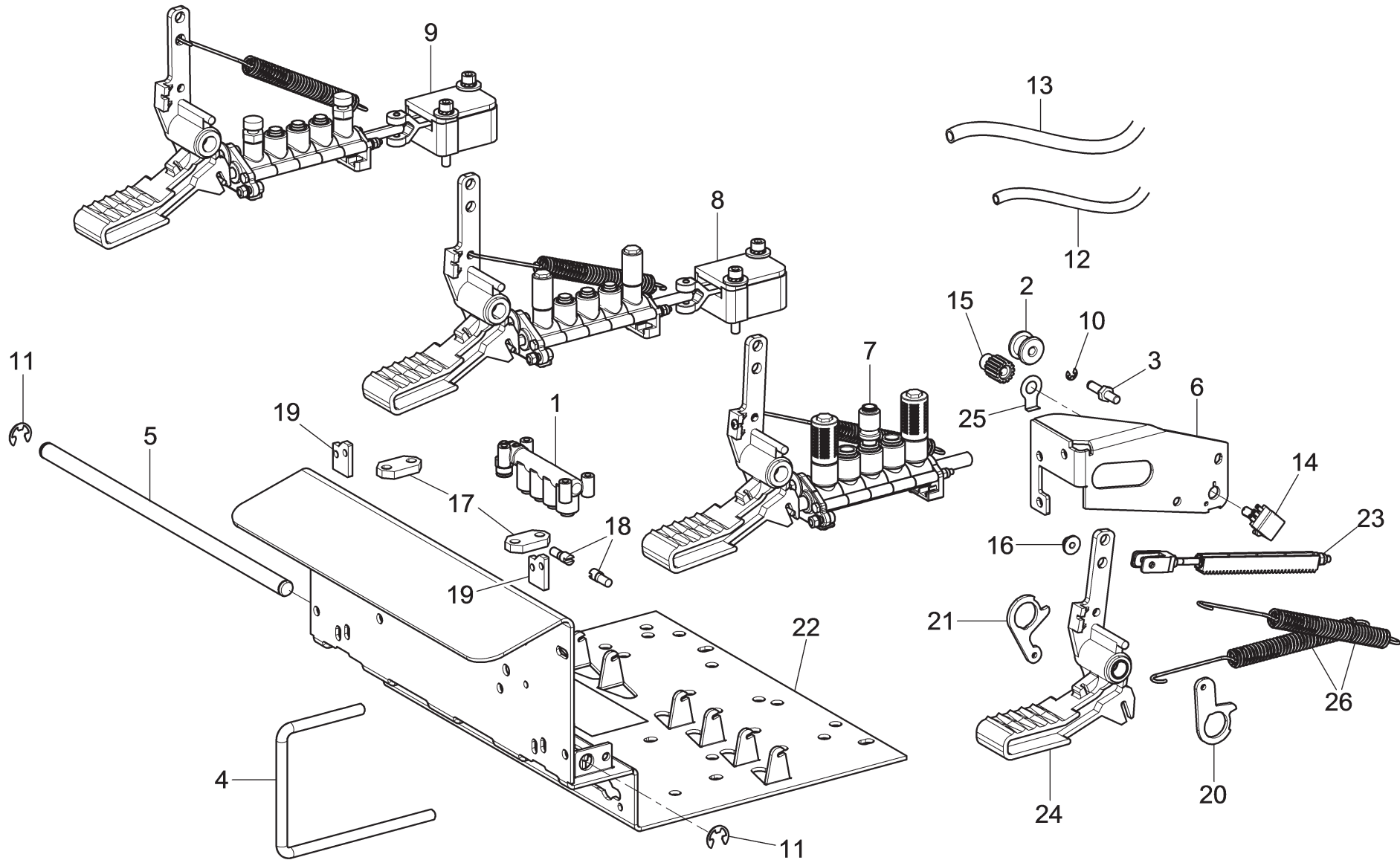
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO MOTORIDUTTORE CON INVERTER GEARMOTOR UNIT WITH INVERTER UNTERSETZERSATZ MIT UMRICHTER GROUPE MOTORÉDUCTEUR AVEC INVERSEUR GRUPO MOTERREDUCTOR CON INVERSOR			Pag. 16 di 38		
Tavola N°7C - Rev. 0				730095780								



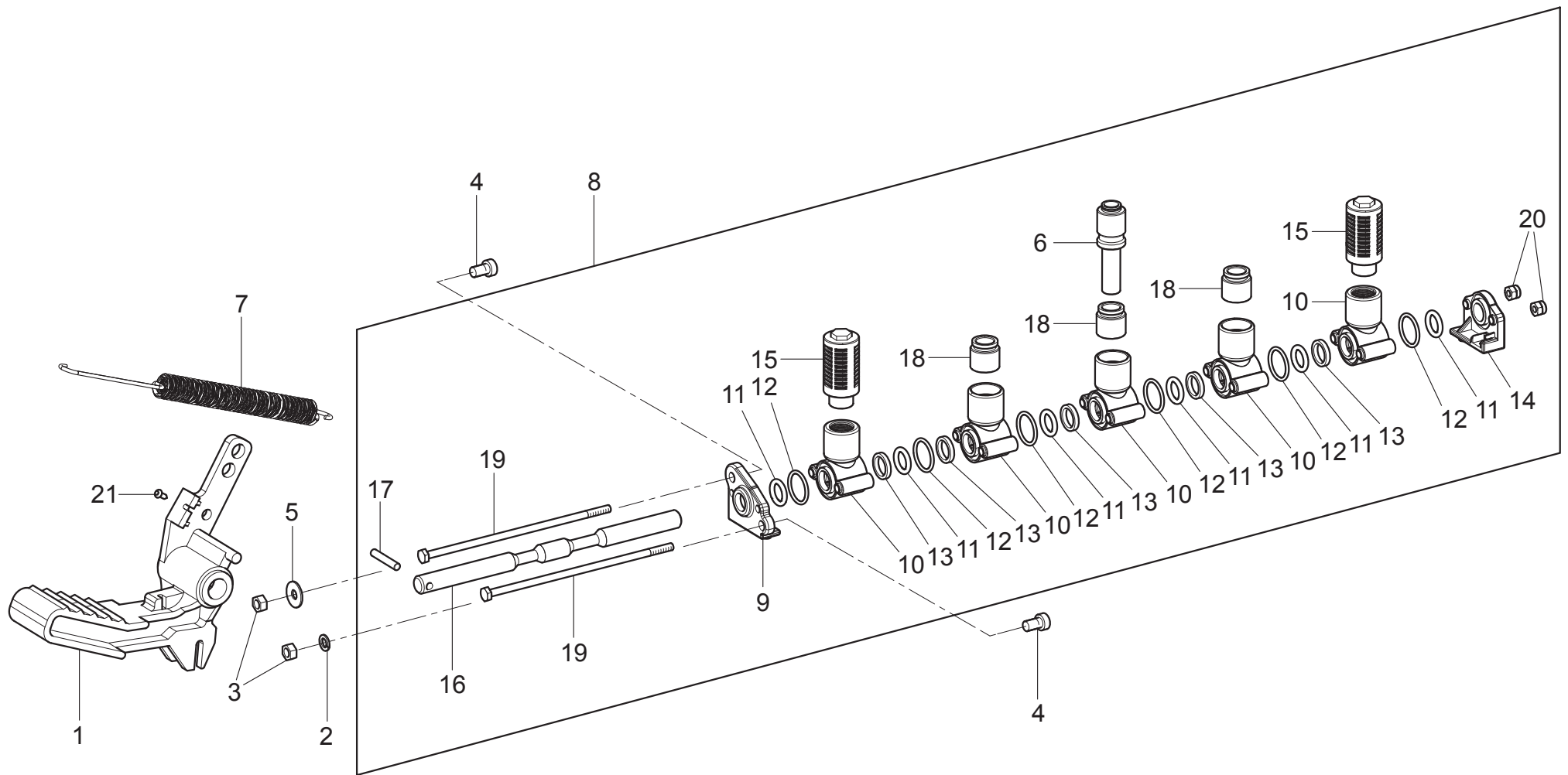
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PEDALIERA PEDALBOARD UNIT PEDALLEISTESATZ GROUPE PÉDALES DE DIRECTION GRUPO PEDALERA					Pag. 17 di 38
		Tavola N°8A - Rev. 0		140991500								



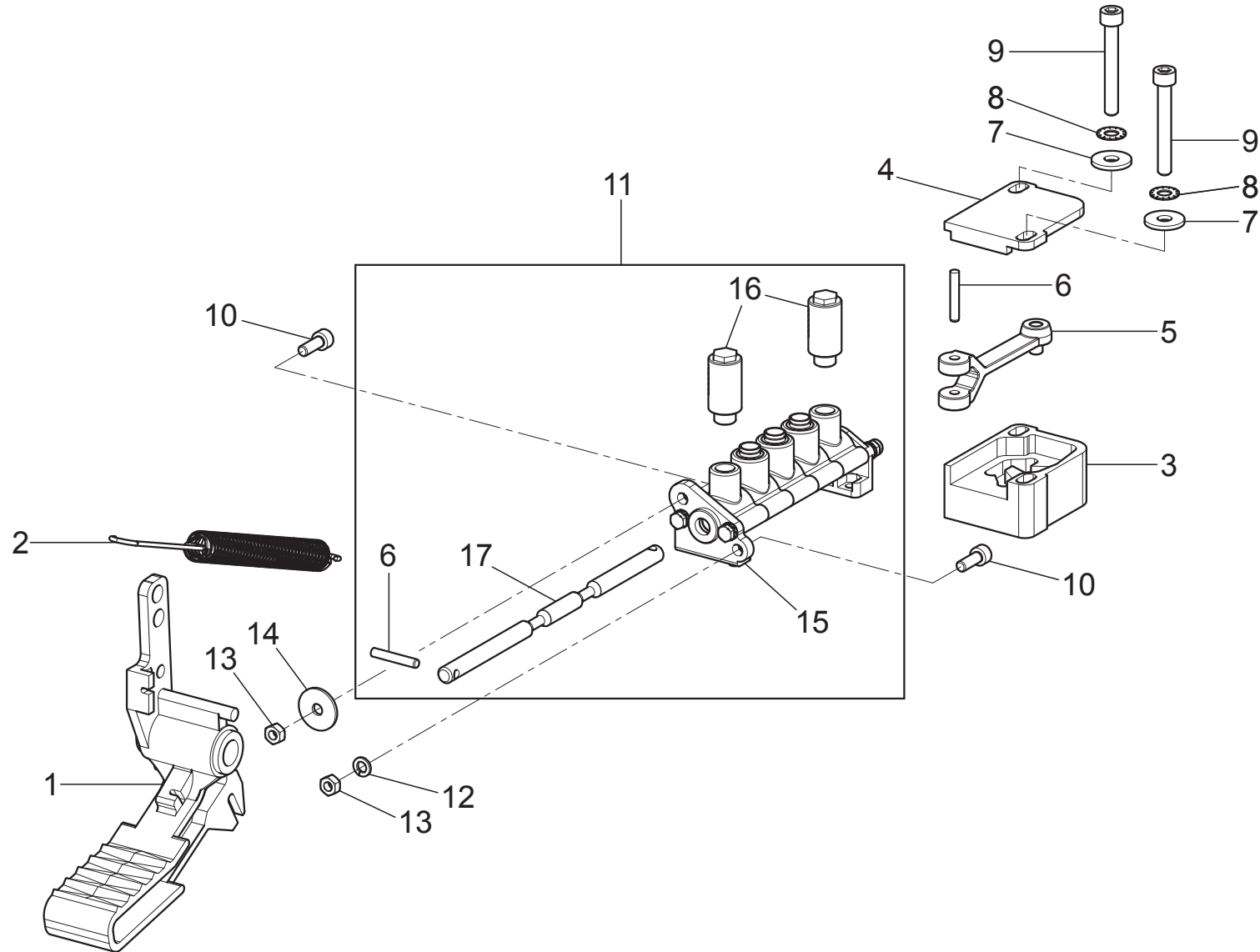
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PEDALIERA 4 PEDALI 2 VELOCITÀ 4-PEDAL 2-SPEED PEDALBOARD UNIT PEDALLEISTE 4 PEDALEN 2 GESCHWINDIGKEIT SATZ GROUPE PÉDALES DE DIRECTION 4 PÉDALES 2 VITESSE GRUPO PEDALERA 4 PEDALES 2 VELOCIDAD					Pag. 18 di 38	
		Tavola N°8B - Rev. 0			730094191								



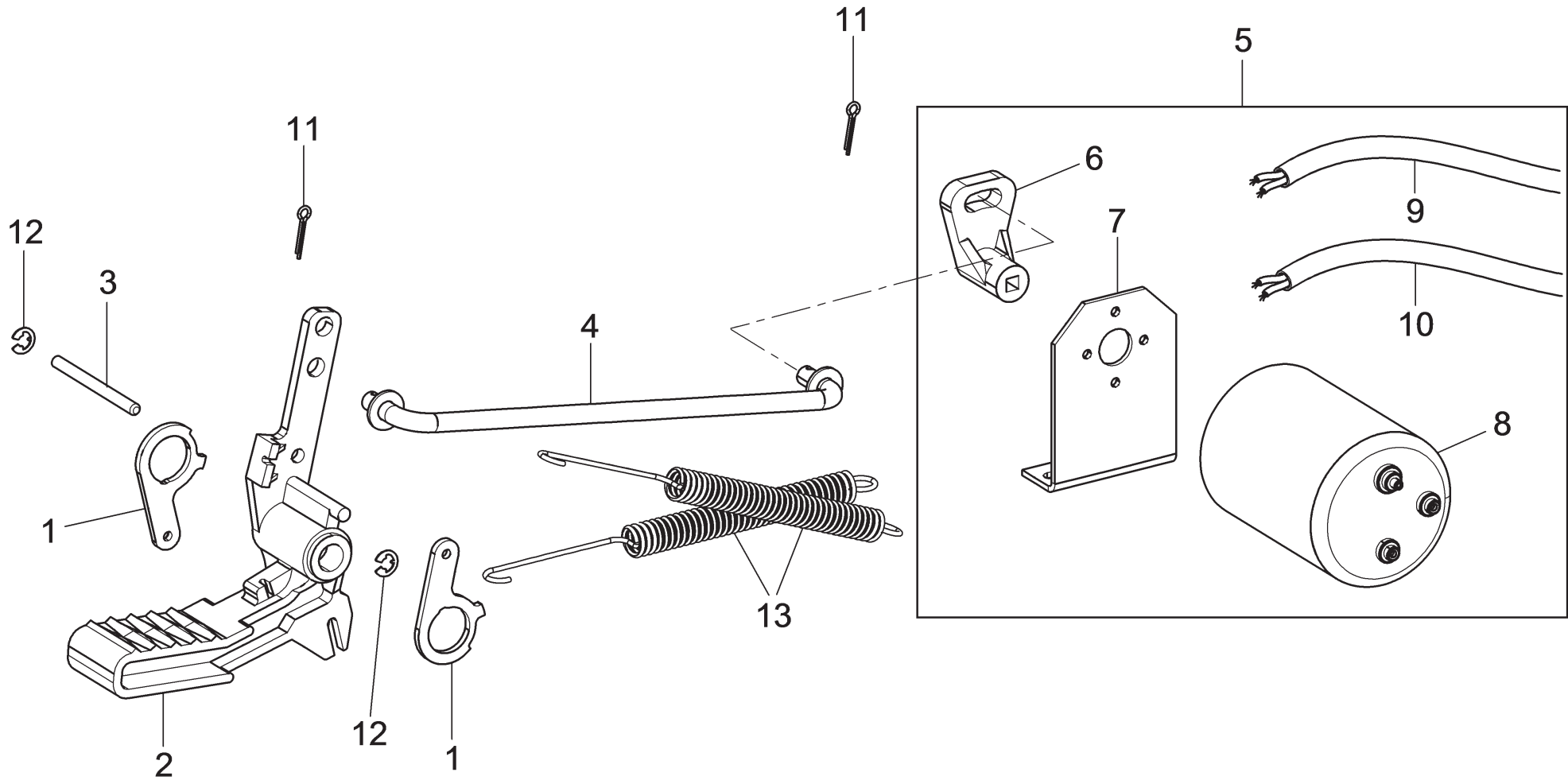
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PEDALIERA 4 PEDALI INVERTER INVERTER 4-PEDALS PEDALBOARD UNIT SATZ PEDALLEISTE-FREQUENZUMFORMER 4 PEDALEN GROUPE PÉDALES DE DIRECTION 4 PÉDALES VARIATEUR GRUPO PEDALERA 4 PEDALES INVERTOR			Pag. 19 di 38		
Tavola N°8C - Rev. 0				730095840								



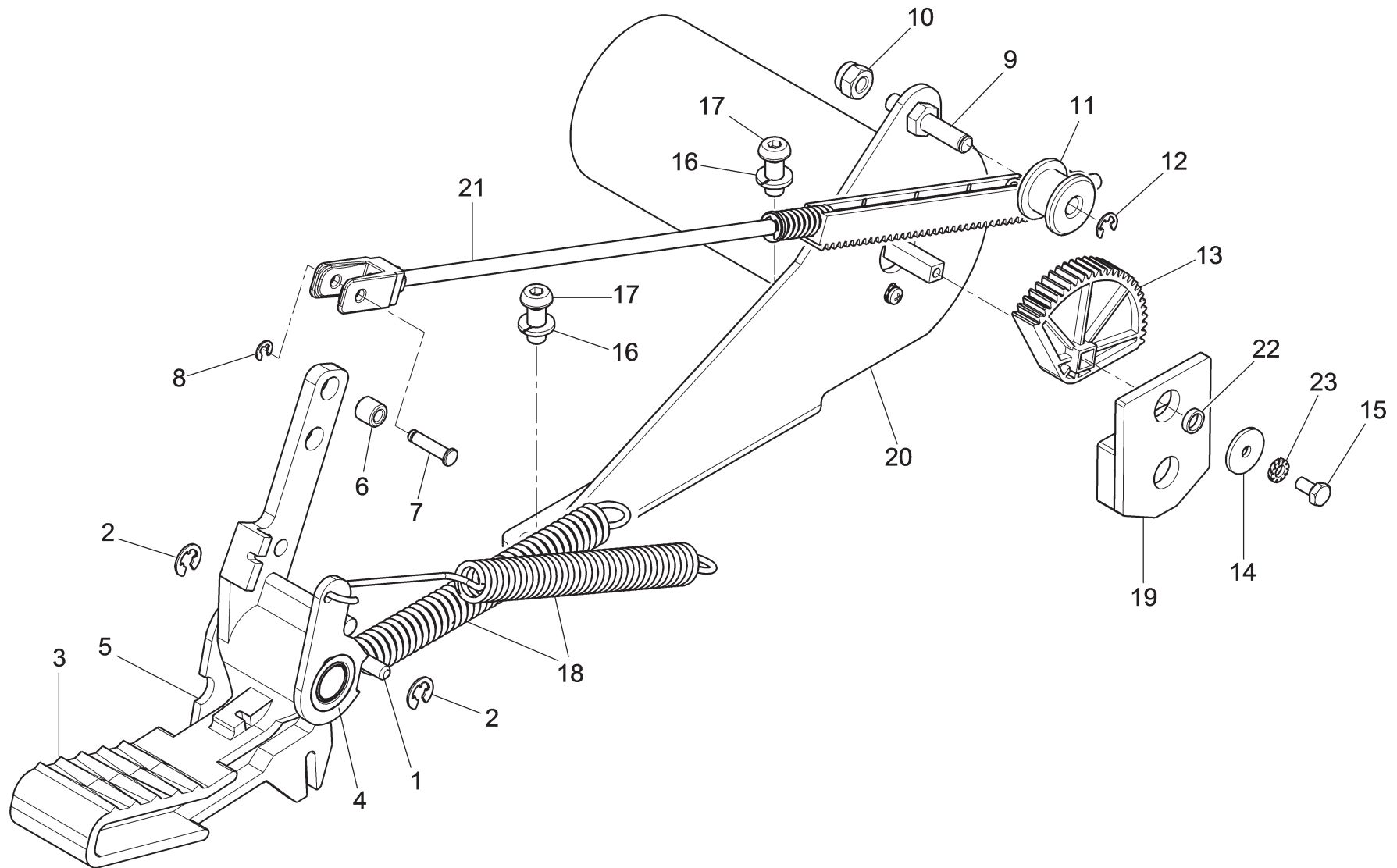
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		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME PEDALE STALLONATORE BEAD BREAKING PEDAL UNIT ABDRÜCKPEDALSATZ ASSEMBLAGE PÉDAL DÉCOLLE TALON CONJUNTO PEDAL DESTALONADOR			Pag. 20 di 38	
ENGINEERING and MARKETING S.P.A.				Tavola N°9 - Rev. 0		140990391					



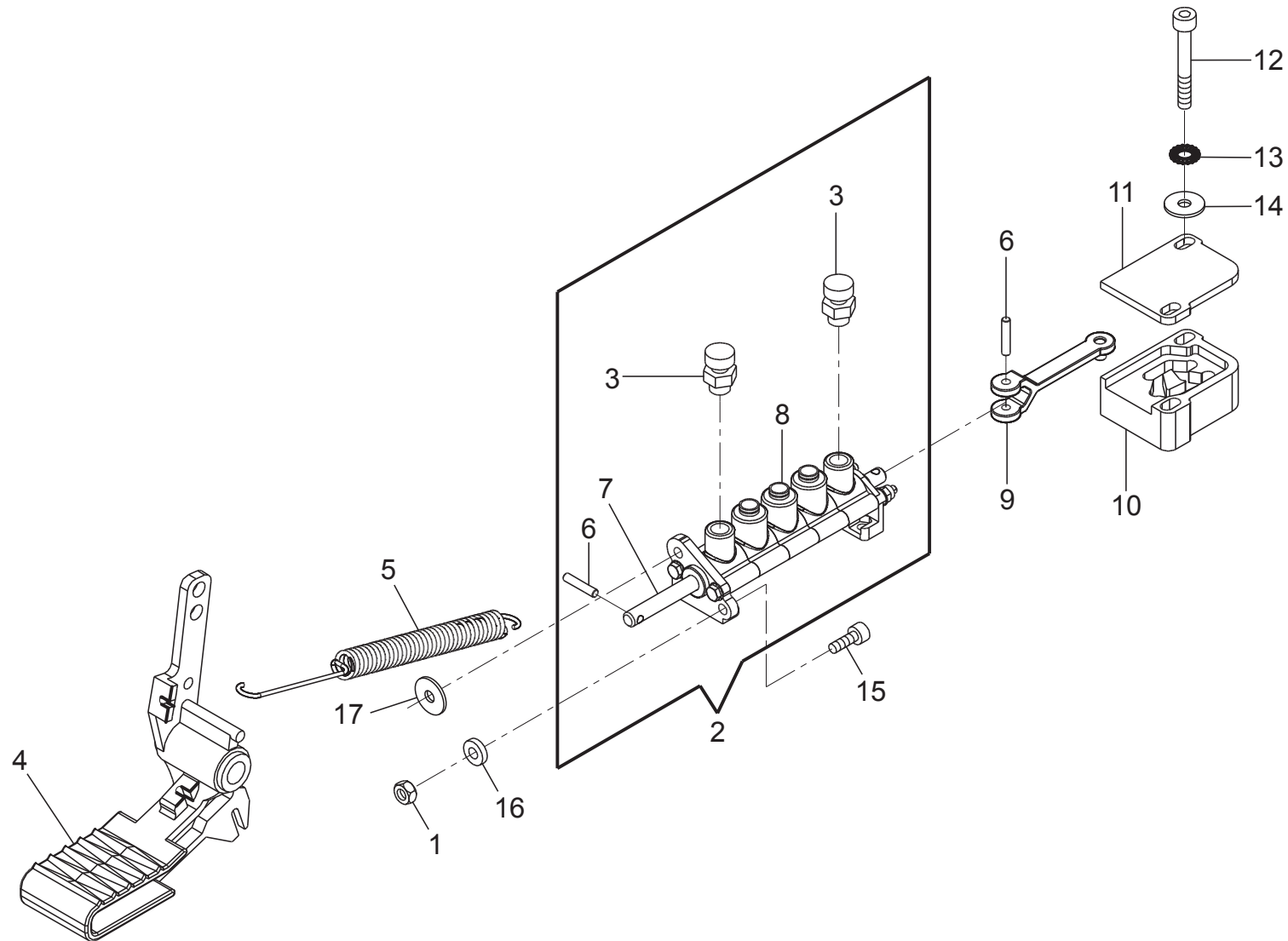
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME PEDALE MANDRINO CHUCK PEDAL ASSEMBLY SPINDEL PEDALSSATZ ASSEMBLAGE PÉDALE MANDRIN ENSAMBLADO PEDAL MANDRIL					Pag. 21 di 38
		Tavola N°10 - Rev. 0		140990401								



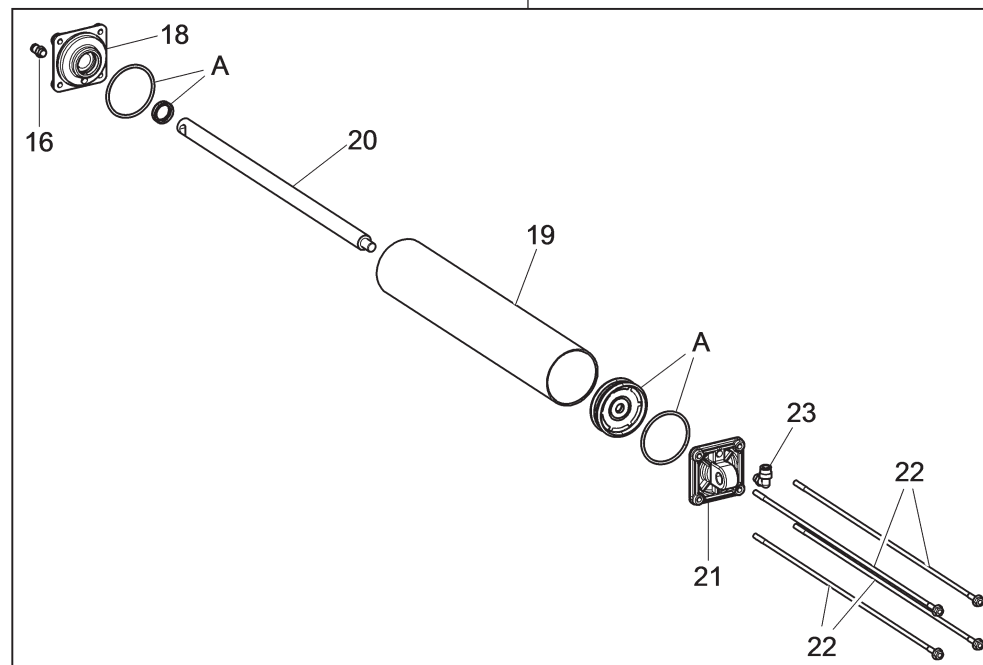
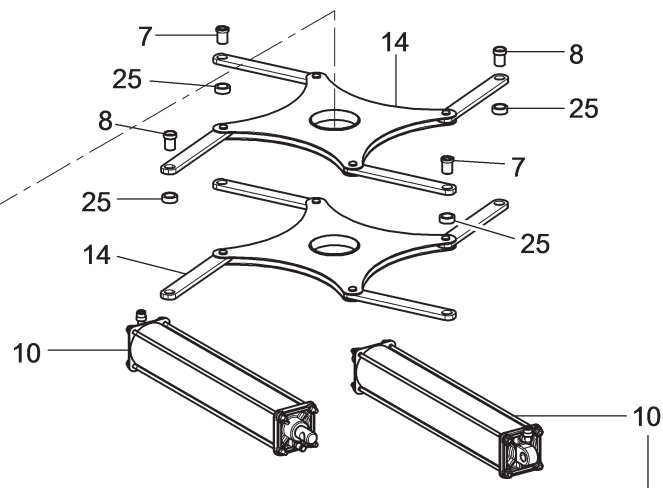
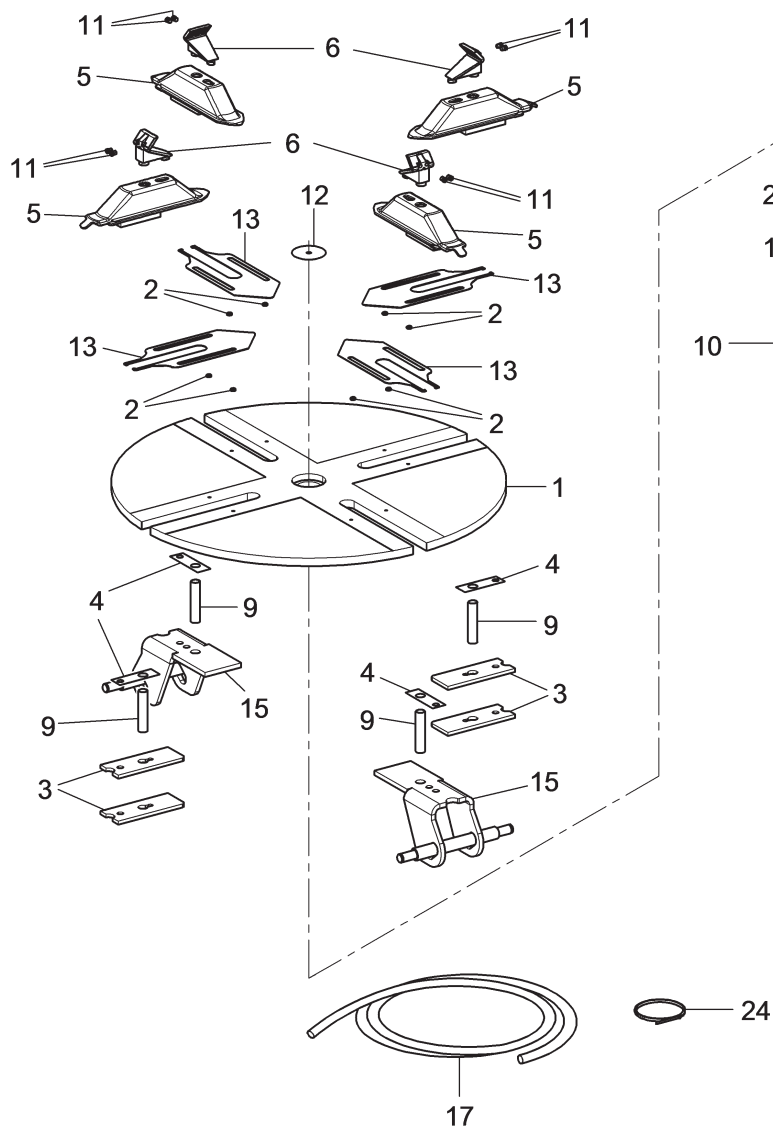
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MONTAGGIO PEDALE INVERTITORE INVERTER PEDAL ASSEMBLY MONTAGE DES FREQUENZUMFORMERPEDAL MONTAGE PÉDALE VARIATEUR MONTAJE PEDAL INVERSOR			Pag. 22 di 38	
		Tavola N°11A - Rev. 0		140990411							



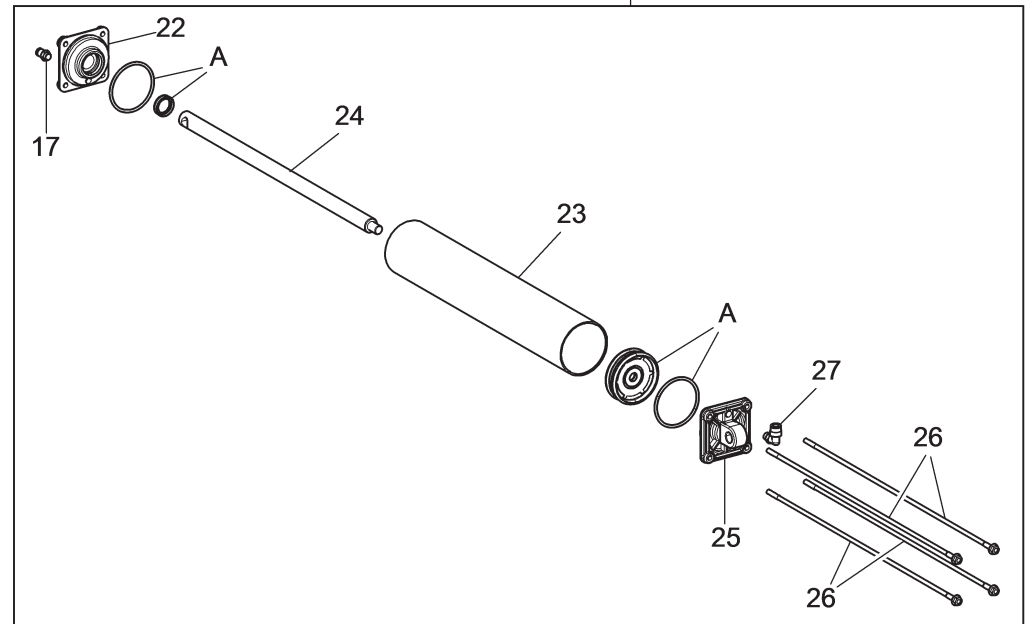
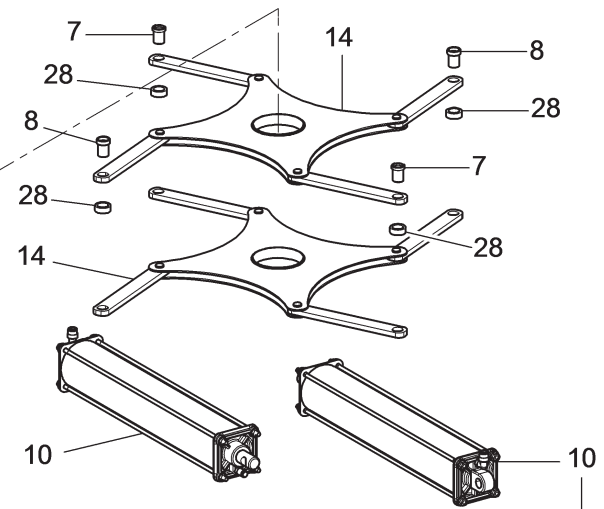
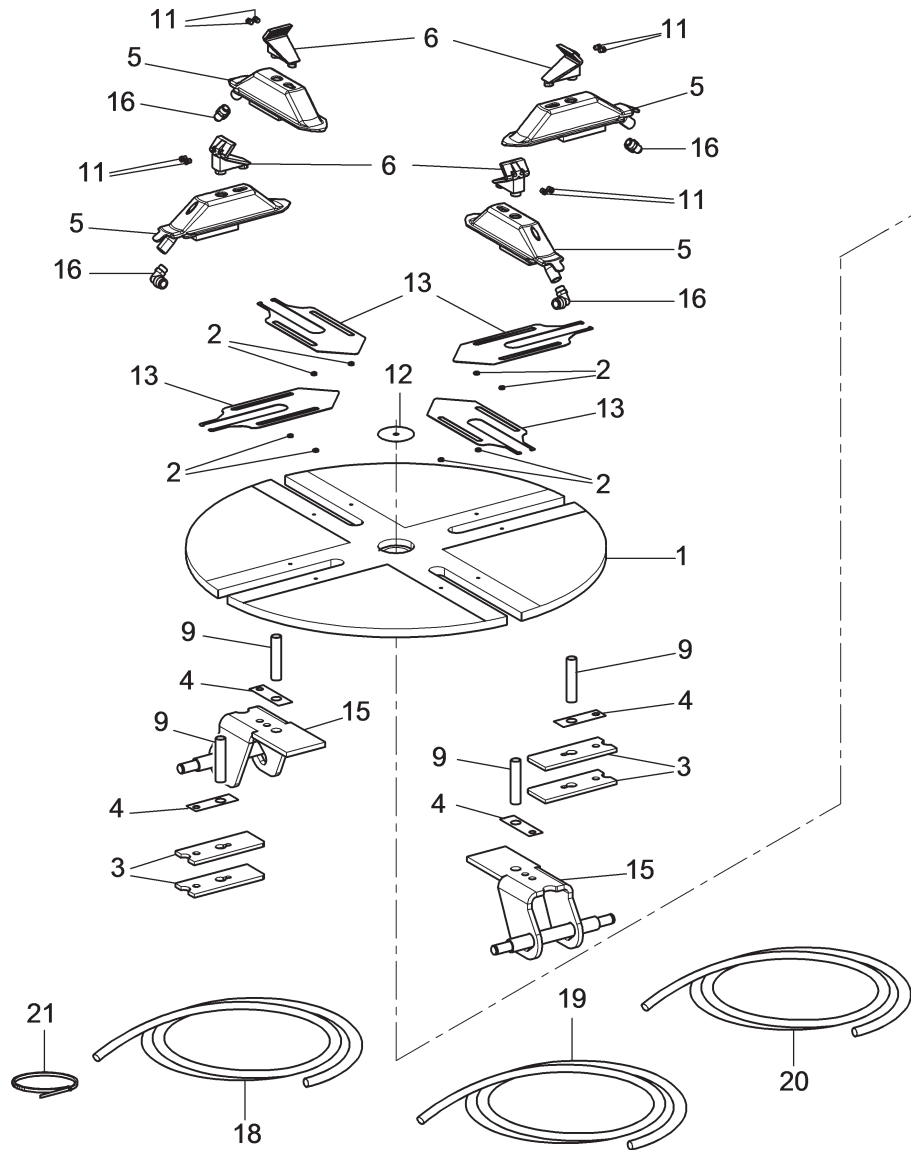
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MTG PEDALE 2 VELOCITÀ MAGGIORATO 2 SPEEDS OVERSIZE PEDAL ASSEMBLY MONTAGE 2 GESCHWINDIGKEITEN ERHÖHTES PEDAL MONTAGE PÉDALE MAJORÉE 2 VITESSES MONTAJE PEDAL 2 VELOCIDADES INCREMENTADO					Pag. 23 di 38
		Tavola N°11B - Rev. 0		730095720								



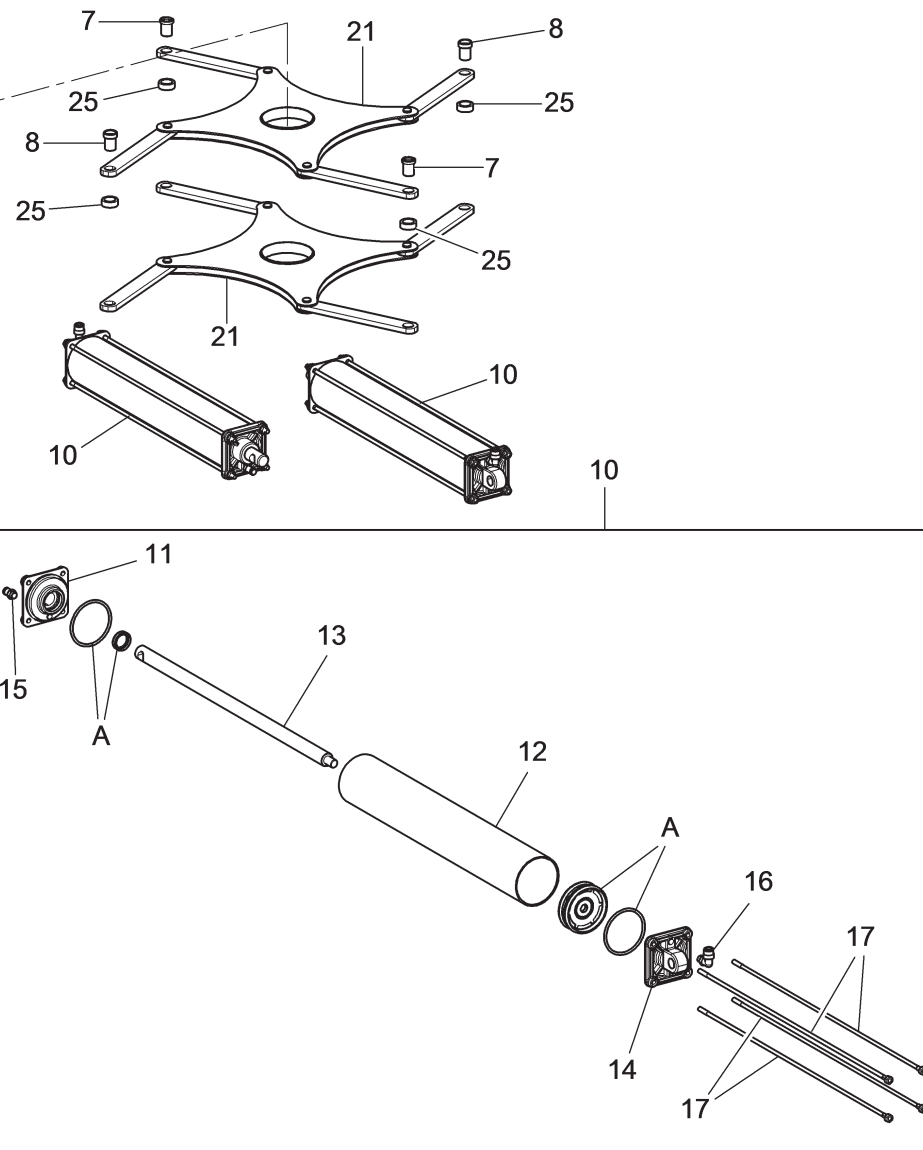
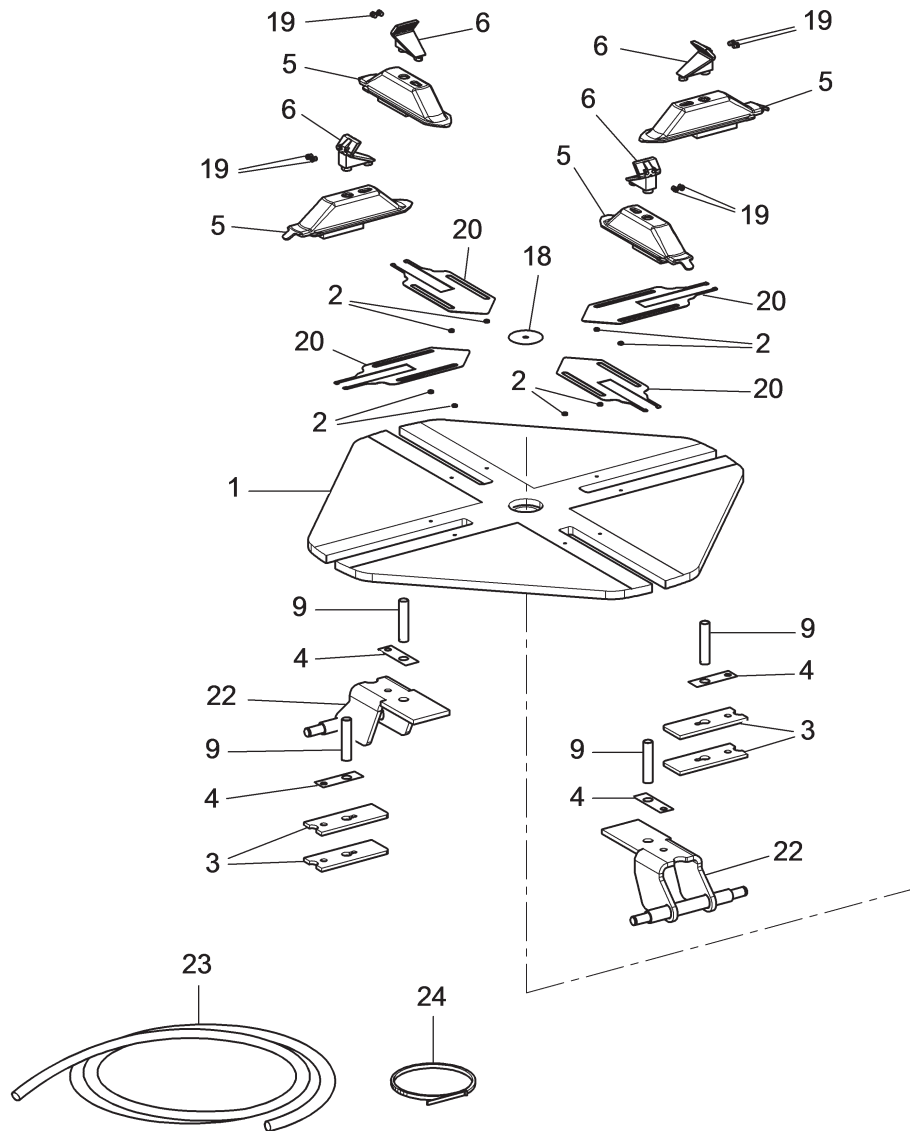
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PEDALE PEDAL UNIT PEDALSATZ GROUPE PÉDAL GRUPO PEDAL			Pag. 24 di 38	
		Tavola N°12 - Rev. 0		140990431							



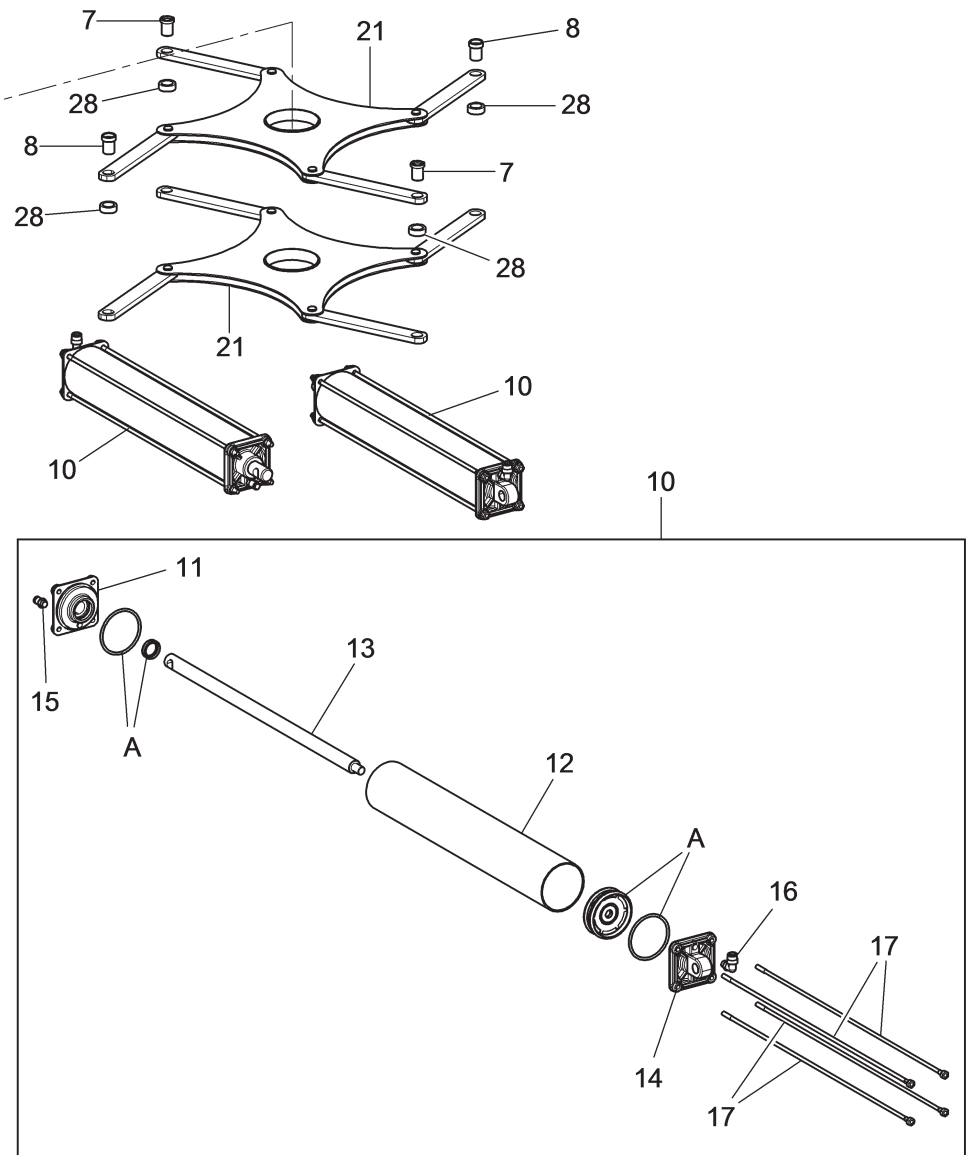
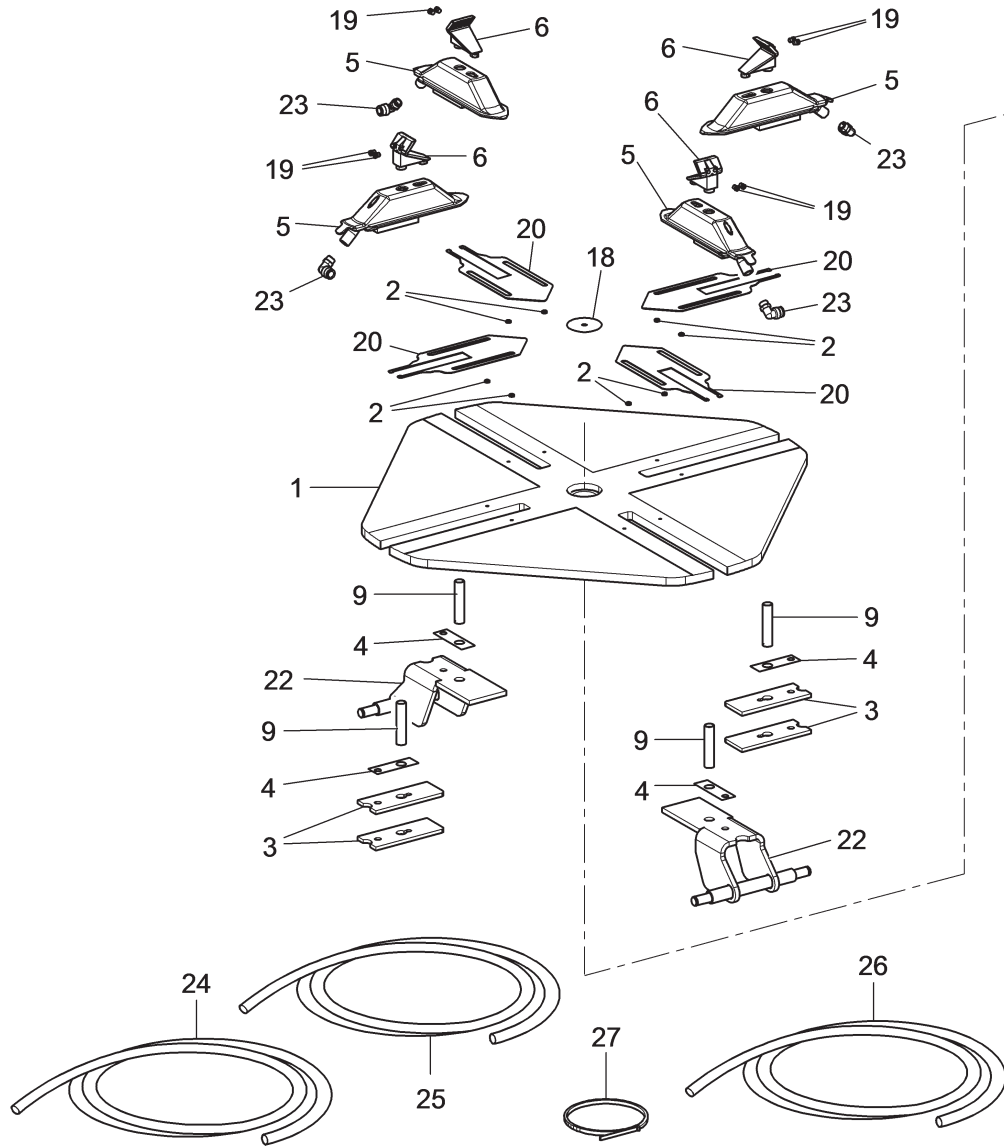
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MTG MANDRINO TONDO 10-22 10-22 MTG ROUND MANDREL MTG RUNDSPINDEL 10-22 MTG MANDRIN ROND 10-22 MTG MANDRIL REDONDO 10-22			Pag. 25 di 38	
		Tavola N°13A - Rev. 2		730094560							



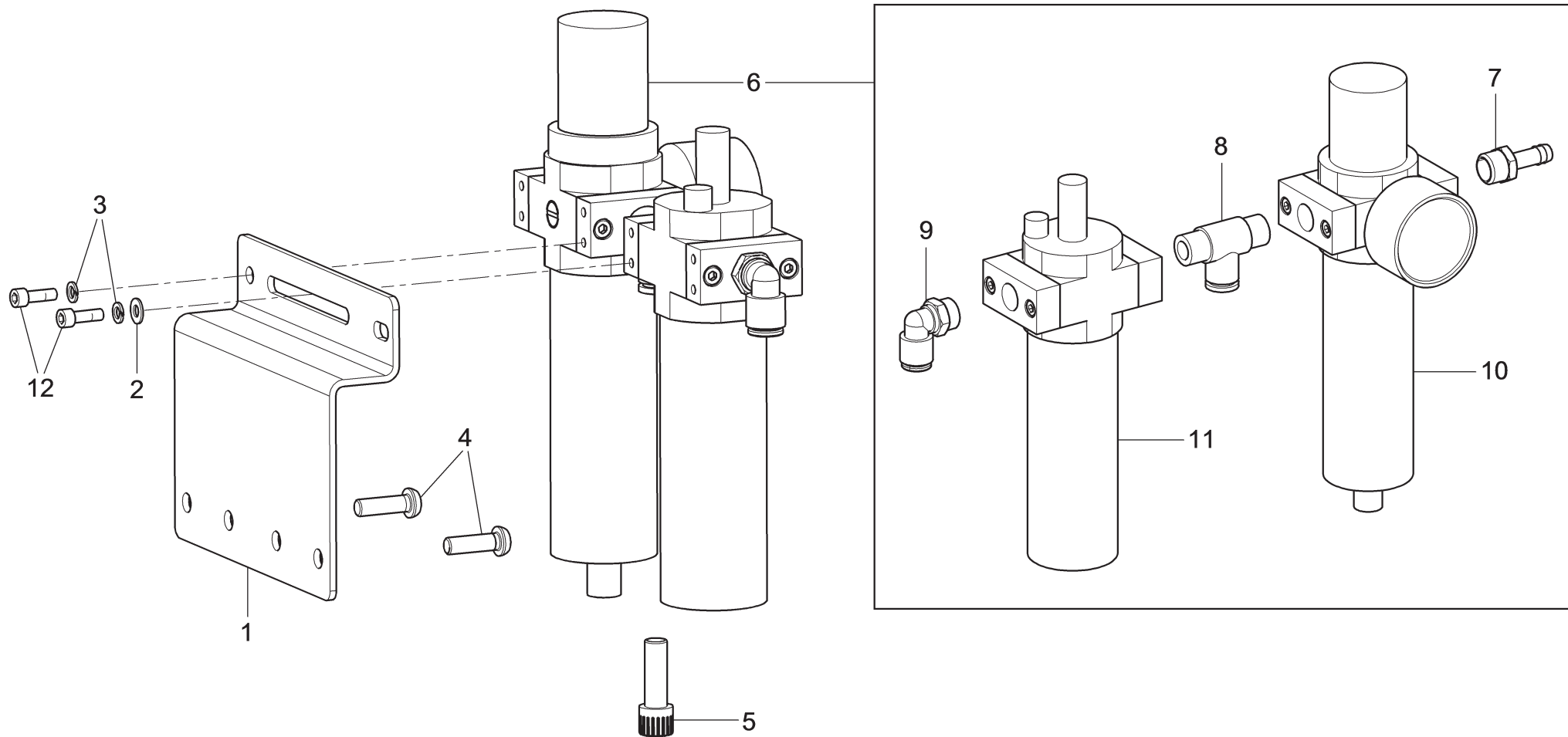
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MTG MANDRINO TONDO 10-22 GT 10-22 GT MTG ROUND MANDREL MTG RUNDSPINDEL 10-22 GT MTG MANDRIN ROND 10-22 GT MTG MANDRIL REDONDO 10-22 GT			Pag. 26 di 38		
Tavola N°13B - Rev. 2				730094610								



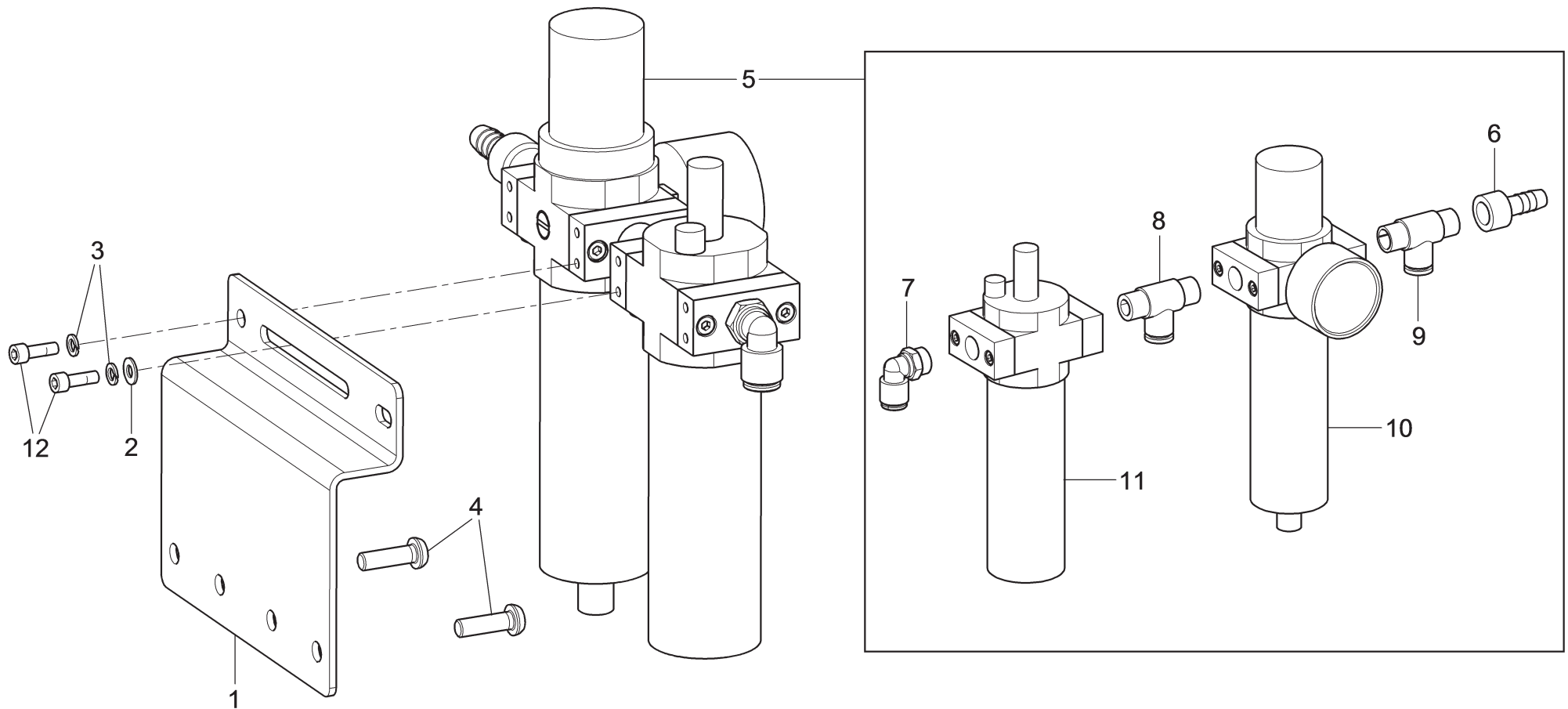
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MTG MANDRINO 10"-24" MTG 10"-24" MANDREL MTG 10"-24" SPINDEL MTG MANDRIN 10"-24" MTG MANDRIL 10"-24"			Pag. 27 di 38		
Tavola N°13C - Rev. 1				730095500								



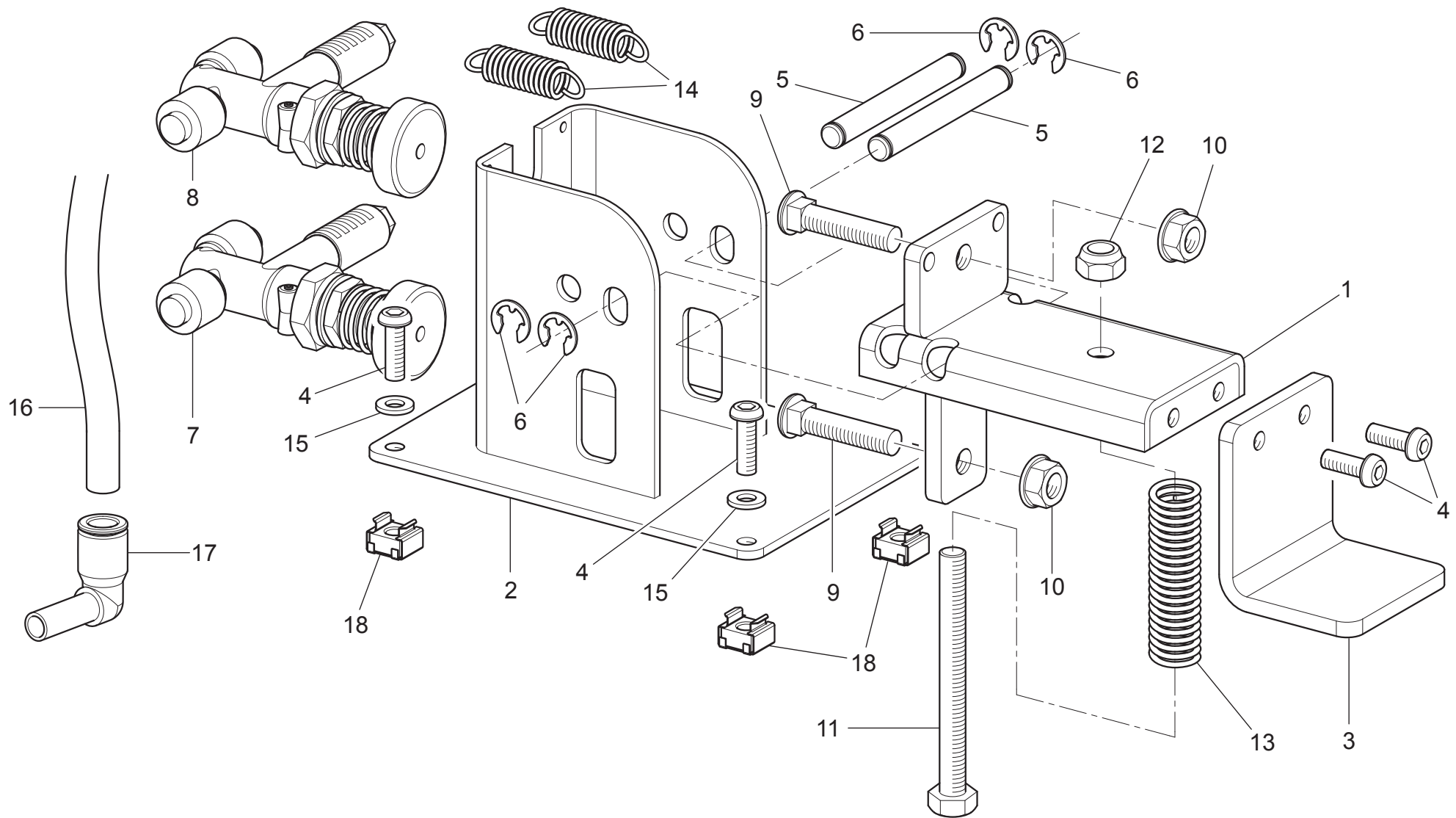
HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI	
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					MTG MANDRINO 10"-24" GT MTG 10"-24" GT MANDREL MTG 10"-24" GT SPINDEL MTG MANDRIN 10"-24" GT MTG MANDRIL 10"-24" GT			Pag. 28 di 38		
Tavola N°13D - Rev. 1				730095490								




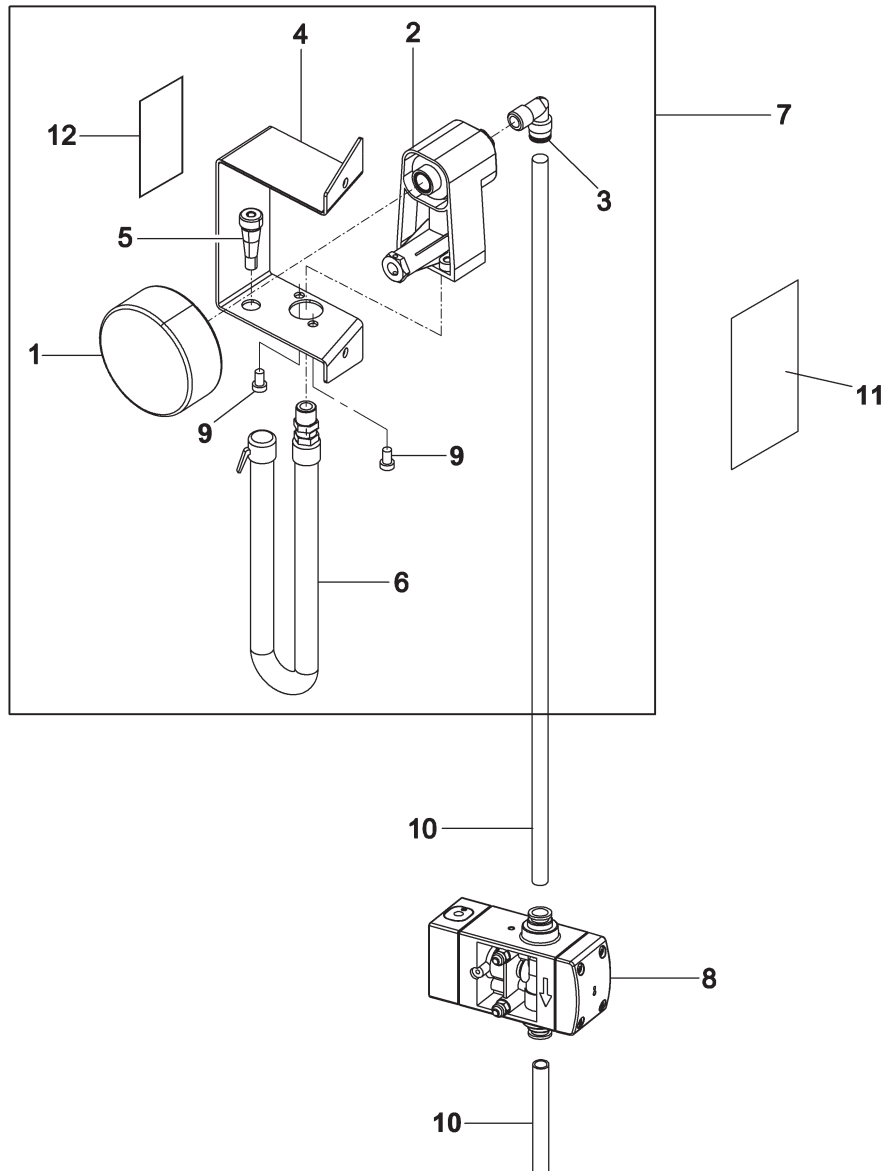
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO TRATTAMENTO ARIA AIR TREATMENT UNIT AUFBEREITUNGLUFTSATZ GROUPE TRAITEMENT AIR GRUPO TRATAMIENTO AIRE			Pag. 29 di 38	
		Tavola N°14A - Rev. 0		730095700							




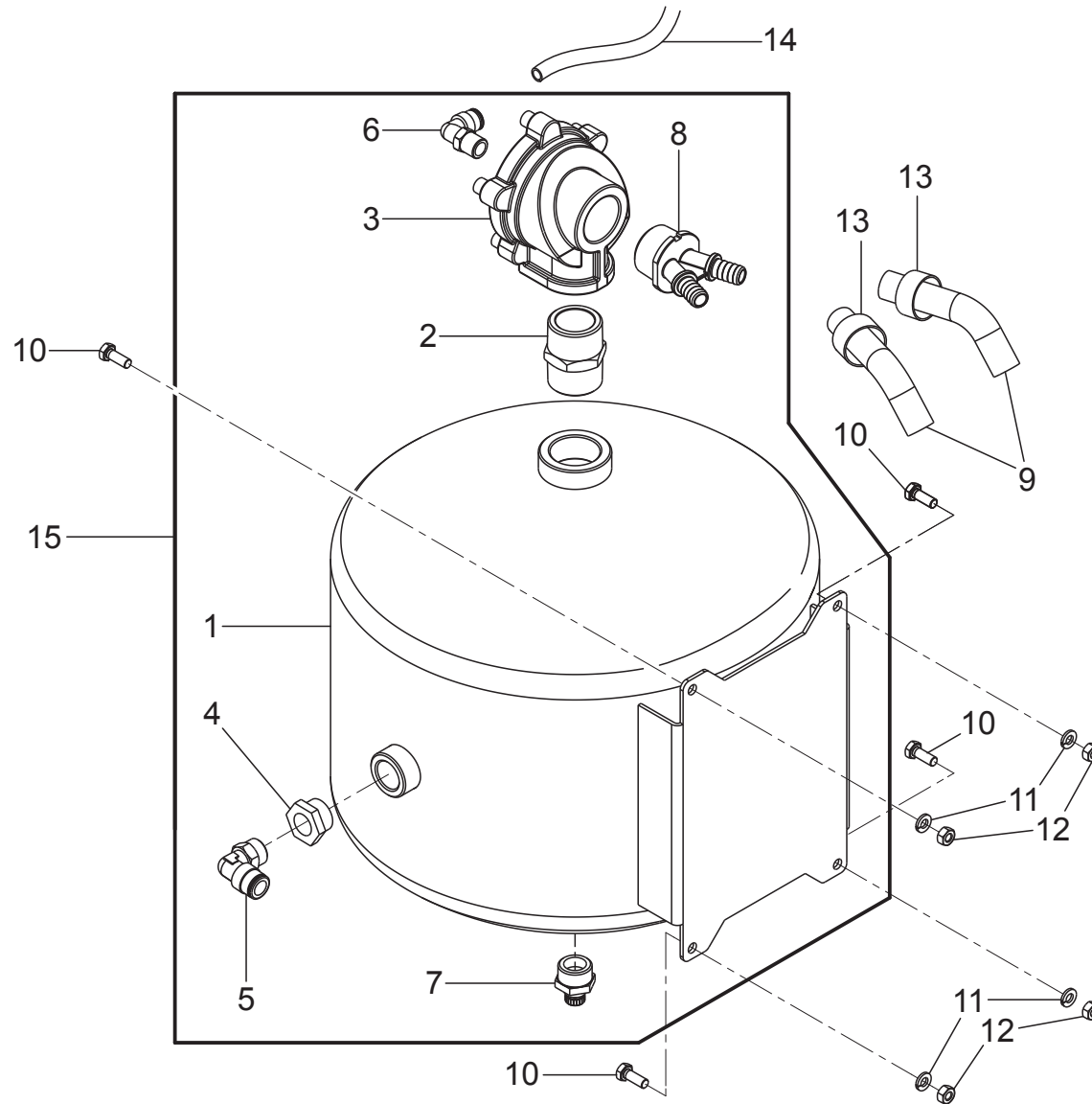
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 Butler ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO TRATTAMENTO ARIA AIR TREATMENT UNIT AUFBEREITUNGLUFTSATZ GROUPE TRAITEMENT AIR GRUPO TRATAMIENTO AIRE			Pag. 30 di 38	
		Tavola N°14B - Rev. 0		730095760							



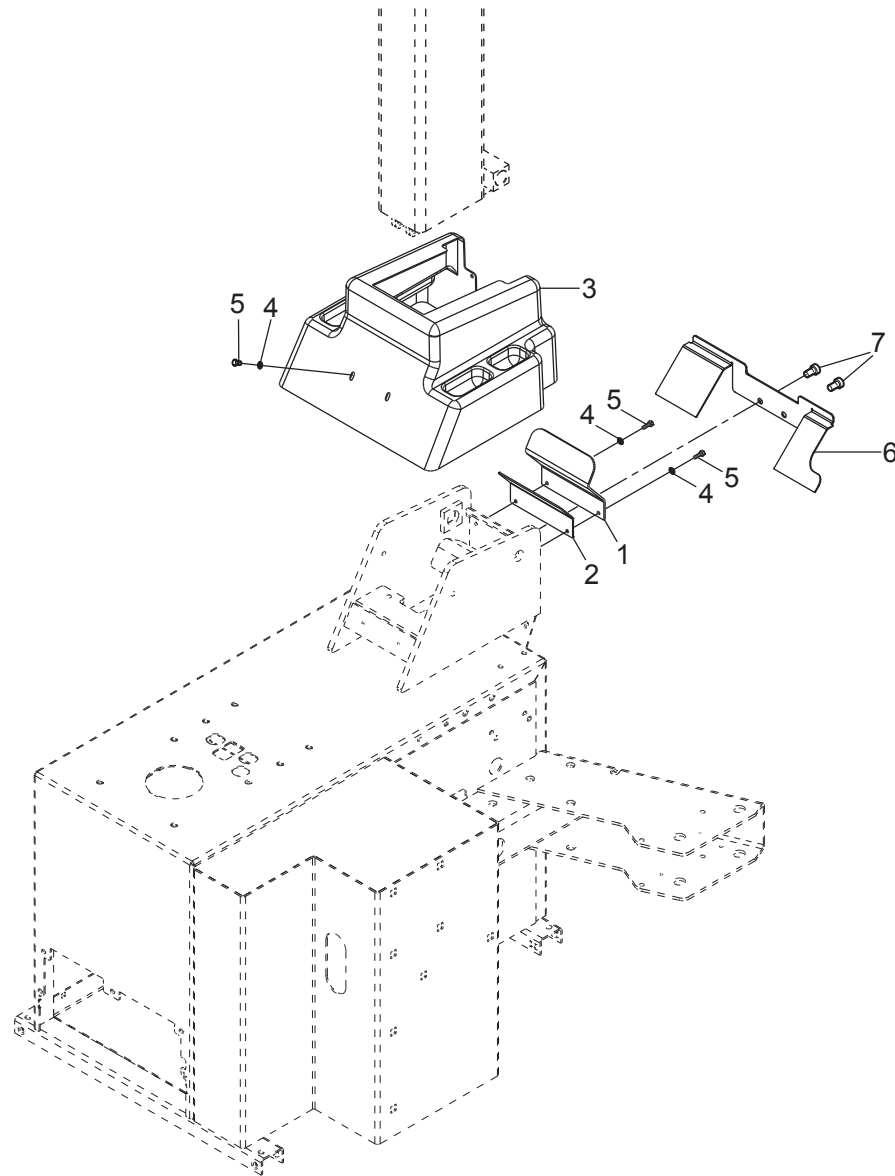
HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI	
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PEDALIERA GONFIATUBELESS TUBELESS INFLATION PEDALBOARD UNIT PEDALLEISTE AUFPUMPEN TUBELESS SATZ GROUPE PÉDALES DE DIRECTION GONFLAGE TUBELESS GRUPO PEDALERA INFLADO TUBELESS			Pag. 31 di 38		
Tavola N°15 - Rev. 0				140990371								




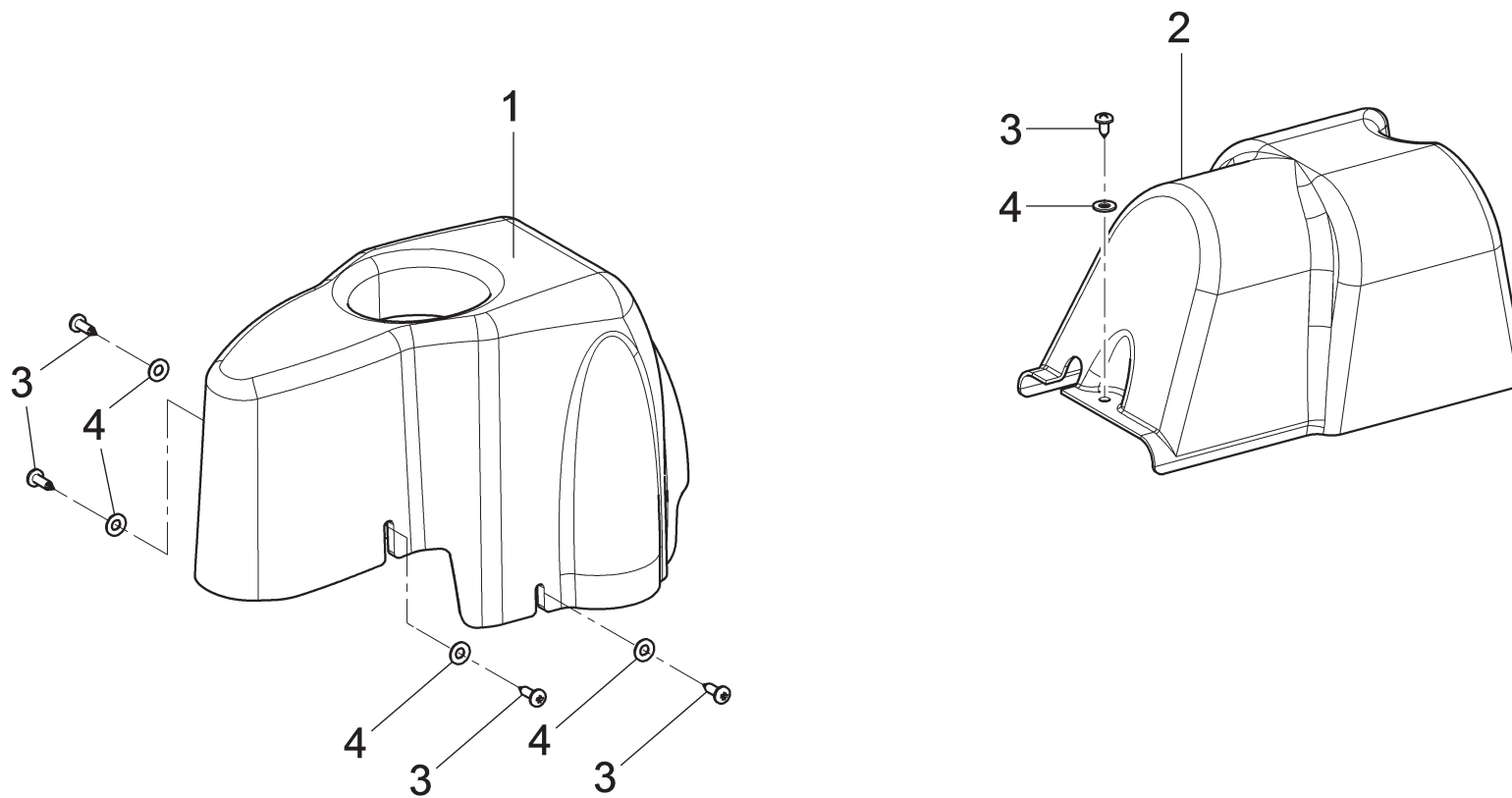
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO GONFIAGGIO INFLATION UNIT AUFPUMPSATZ GROUPE GONFLAGE GRUPO INFLADO			Pag. 32 di 38	
		Tavola N°16 - Rev. 0		140790205							



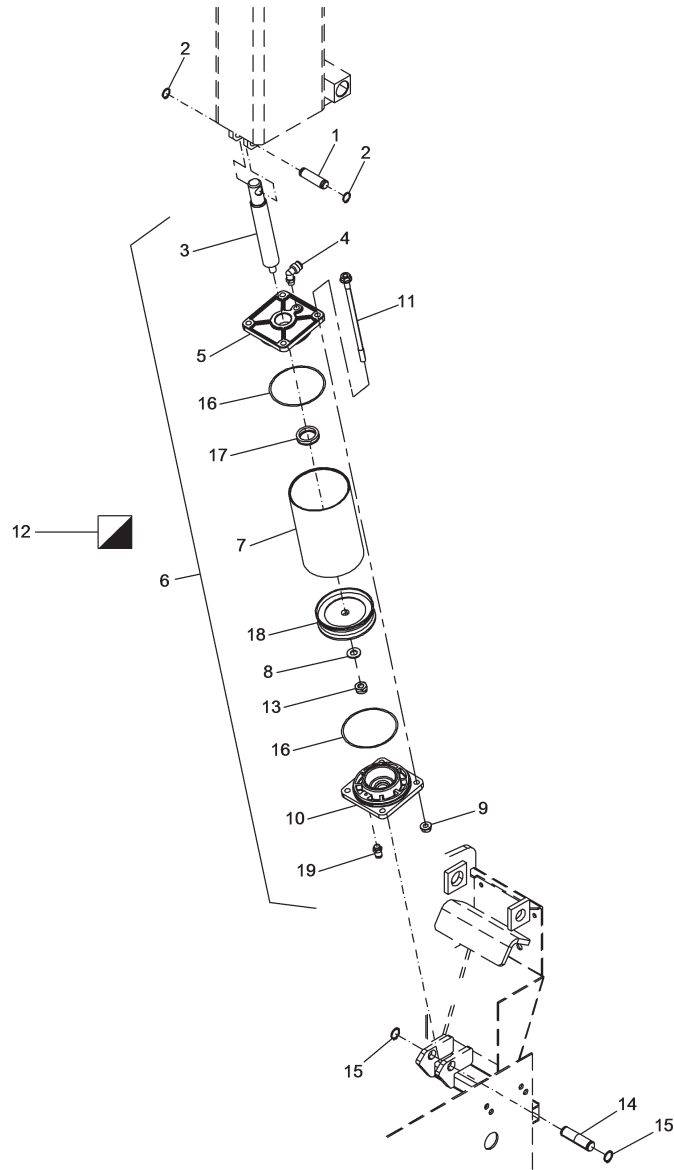
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					INSIEME SERBATOIO ARIA AIR RESERVOIR ASSEMBLY LUFTTANKSSATZ ASSEMBLAGE RÉSERVOIR AIR ENSAMBLADO TANQUE AIRE			Pag. 33 di 38		
Tavola N°17 - Rev. 0				730091910								



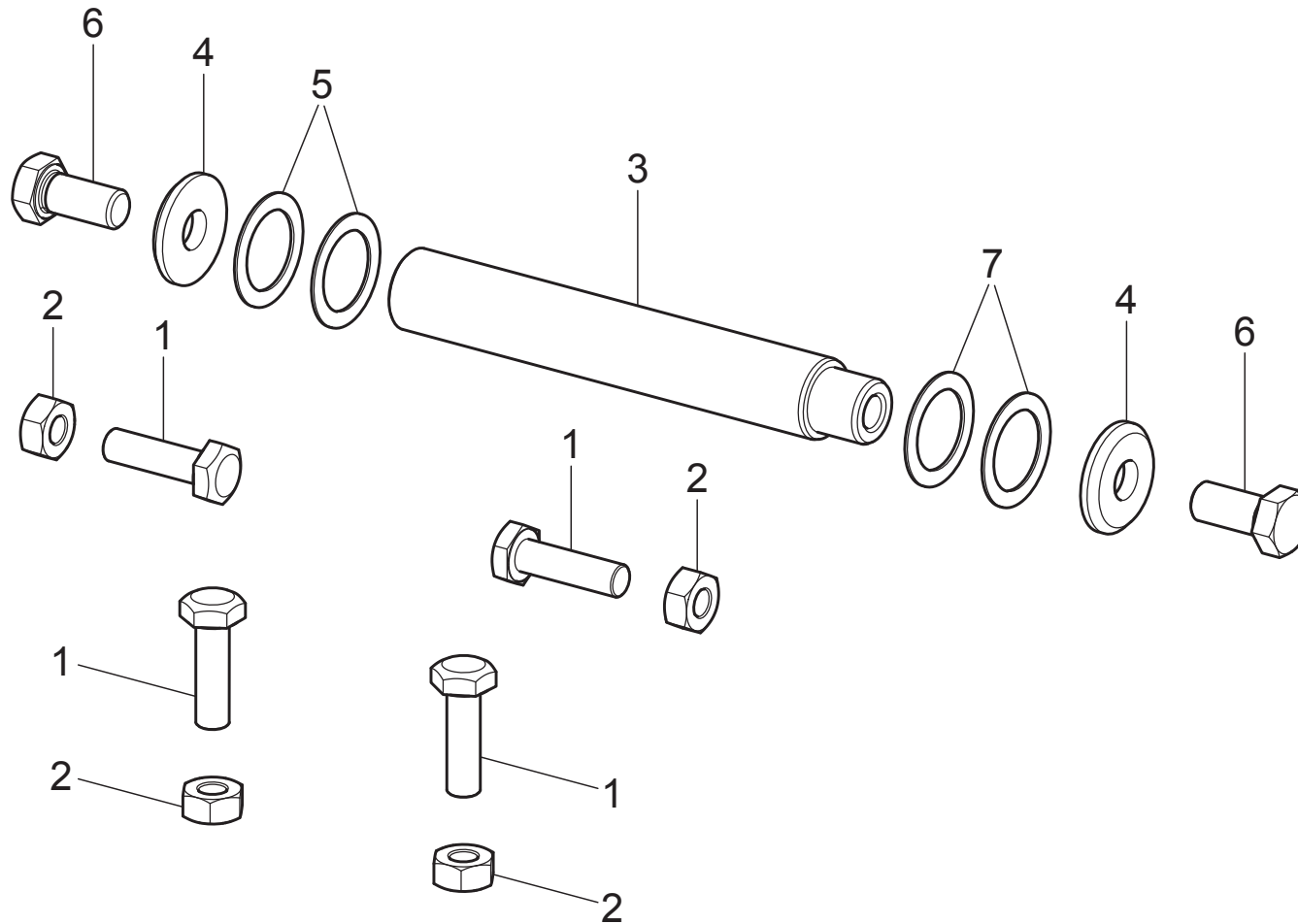
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO CARTER RIBALTAMENTO PALO ROD TILTING CARTER UNIT PFAHLKIPPUNG GEHÄUSESATZ GROUPE CARTER BASCULAGE MÂT GRUPO CARTER VUELCO PALO			Pag. 34 di 38	
		Tavola N°18 - Rev. 0		730091430							



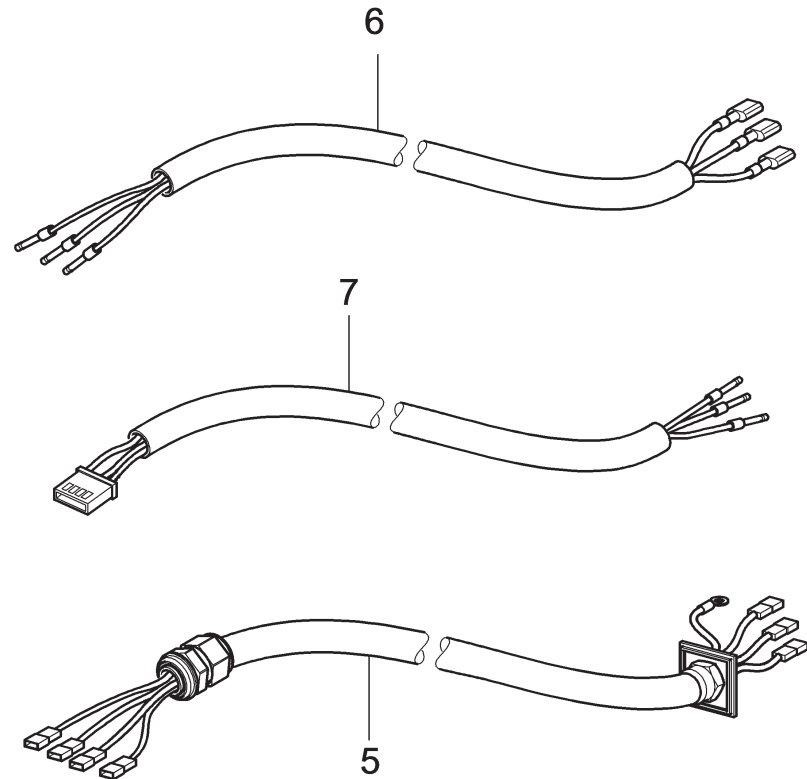
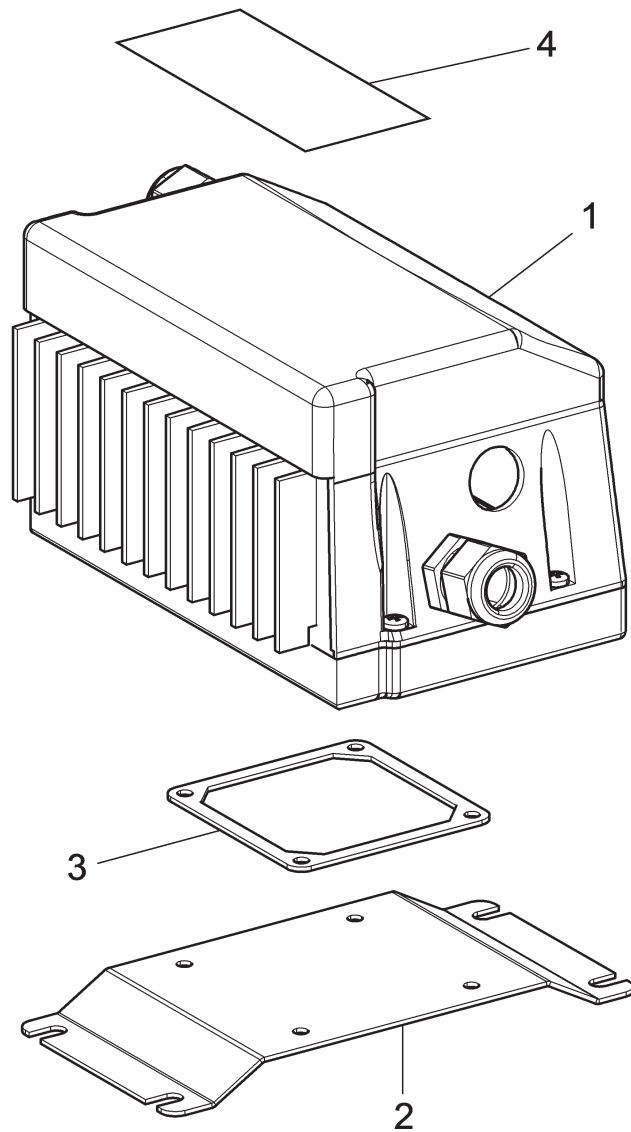
HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO CARTER SUPERIORE SUPERIOR GUARD UNIT OBEREGEHÄUSESATZ GROUPE CARTER SUPÉRIEUR GRUPO CÁRTER SUPERIOR			Pag. 35 di 38	
		Tavola N°19 - Rev. 0		140390761							



HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO CILINDRO RIBALTAMENTO TILTING CYLINDER UNIT ZYLINDERSKIPPUNGSATZ GROUPE CYLINDRE BASCULAGE GRUPO CILINDRO VUELCO			Pag. 36 di 38	
		Tavola N°20 - Rev. 0		730092590							

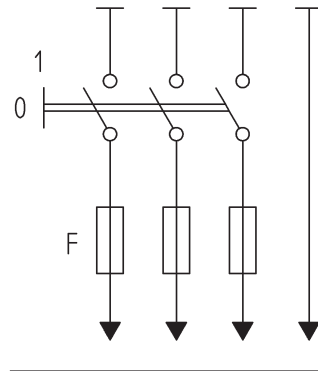


HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641Sq.22	HP641Sq.22FI	HP641Sq.24	HP641Sq.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO FULCRO RIBALTAMENTO PALO ROD TILTING FULCRUM UNIT PFAHLKIPPUNG FULCRUMSATZ GROUPE POINT D'APPUI BASCULAGE MÂT GRUPO FULCRO VUELCO PALO			Pag. 37 di 38	
		Tavola N°21 - Rev. 0		140390530							



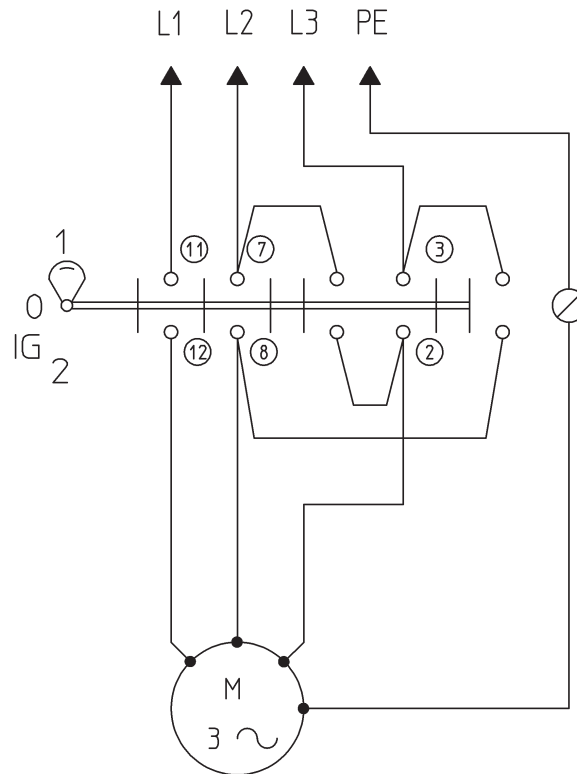
HP641S.22	HP641S.22FI	HP641S.24	HP641S.24FI	HP641SQ.22	HP641SQ.22FI	HP641SQ.24	HP641SQ.24FI	HP641SD.22	HP641SD.22FI	HP641SD.24	HP641SD.24FI	
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 ENGINEERING and MARKETING S.P.A.		LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS					GRUPPO PIASTRA CON INVERTER PLATE UNIT WITH INVERTER PLATTESATZ MIT FREQUENZUMFORMER GROUPE PLAQUE AVEC VARIATEUR GRUPO PLACA CON INVERSOR				Pag. 38 di 38	
		Tavola N°22 - Rev. 0		730094660								

Installazione a carico del cliente
 Installation to be made by the user
 L'installation doit etre faite per le client
 Die Installation geht zu Lasten des Kunden
 La instalación corre a cargo del cliente



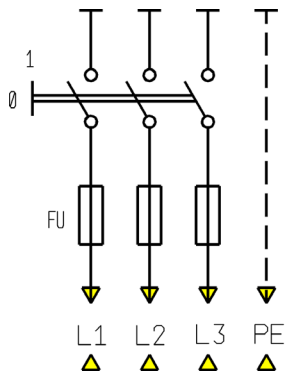
	V	
HZ	230	400
F	50	6A dM 4A dM
	60	6A dM 4A dM

Cavo d'alimentazione 3P + GND x 1,5 mm²
 Supply cable 3P + GND x 1,5 mm²
 Cable d'alimentation 3P + GND x 1,5 mm²
 Versorgungskabel 3P + GND x 1,5 mm²
 Cable de alimentación 3P + GND x 1,5 mm²



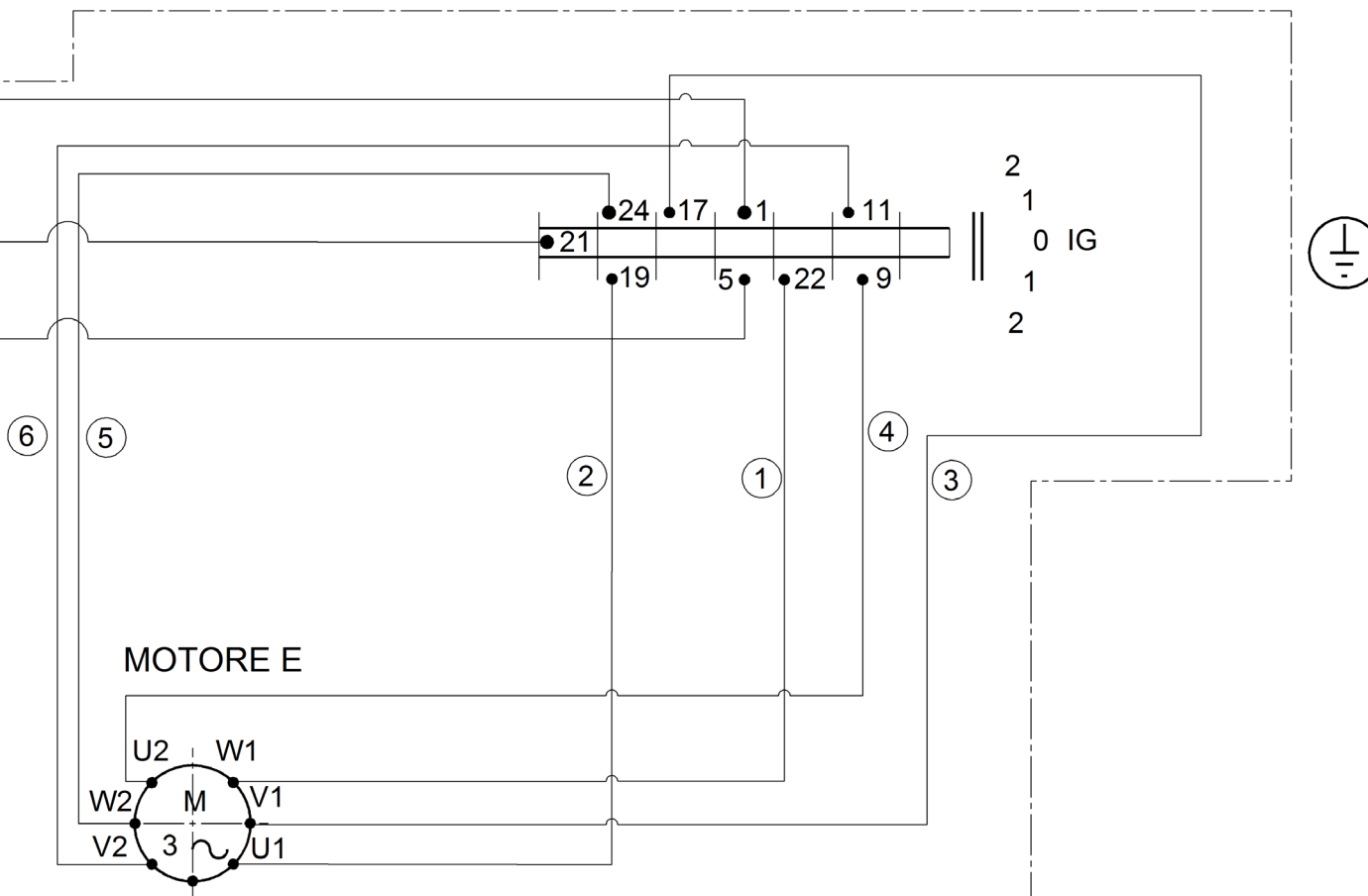
Morsetti IG
 IG clamps
 IG Klemmen
 Bornes IG
 Abrazaderas IG

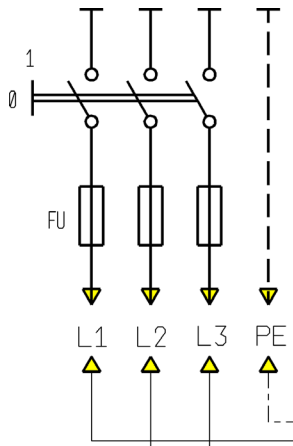
- 11 = T/L3
- 7 = S/L2
- 3 = R/L1
- 12 = W
- 8 = V
- 2 = U



FU	V	230	400	
		50	6A	4A
		60	6A	4A

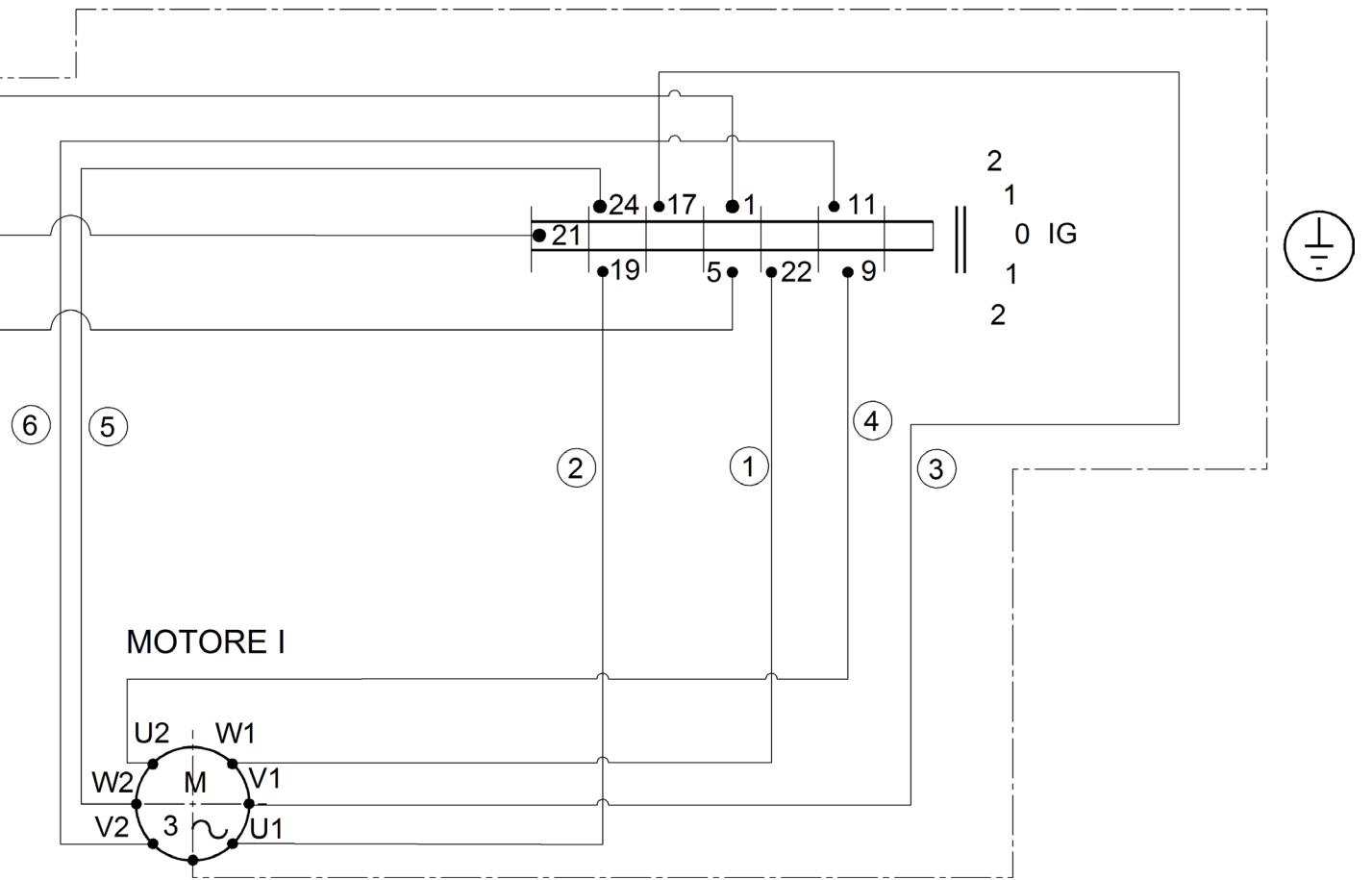
CAVO DI ALIMENTAZIONE (L1): colore nero
 POWER CABLE (L1): black color
 (L2): colore marrone
 (L2): brown color
 (L3): colore bianco
 (L3): white color
 (massa): colore giallo/verde
 (ground): yellow/green color
 CAVO D'ALIMENTAZIONE: 3p + GNDx1.55 mm²
 POWER CABLE (L1): 3p + GNDx1.55 mm²



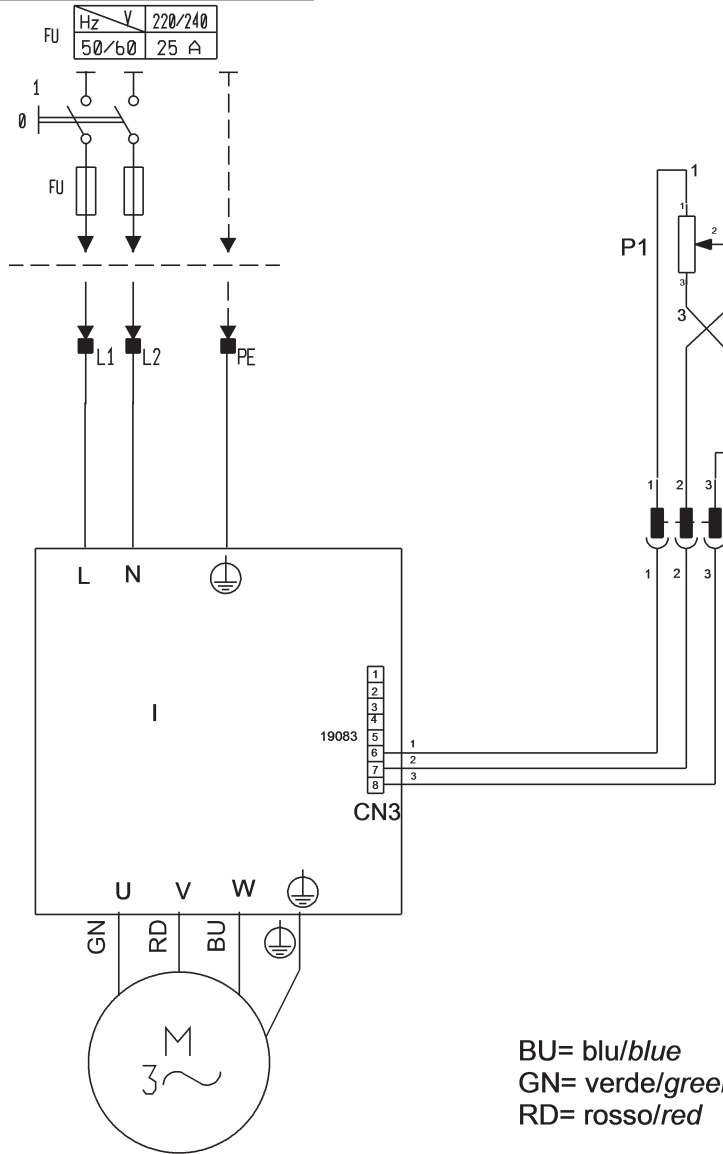


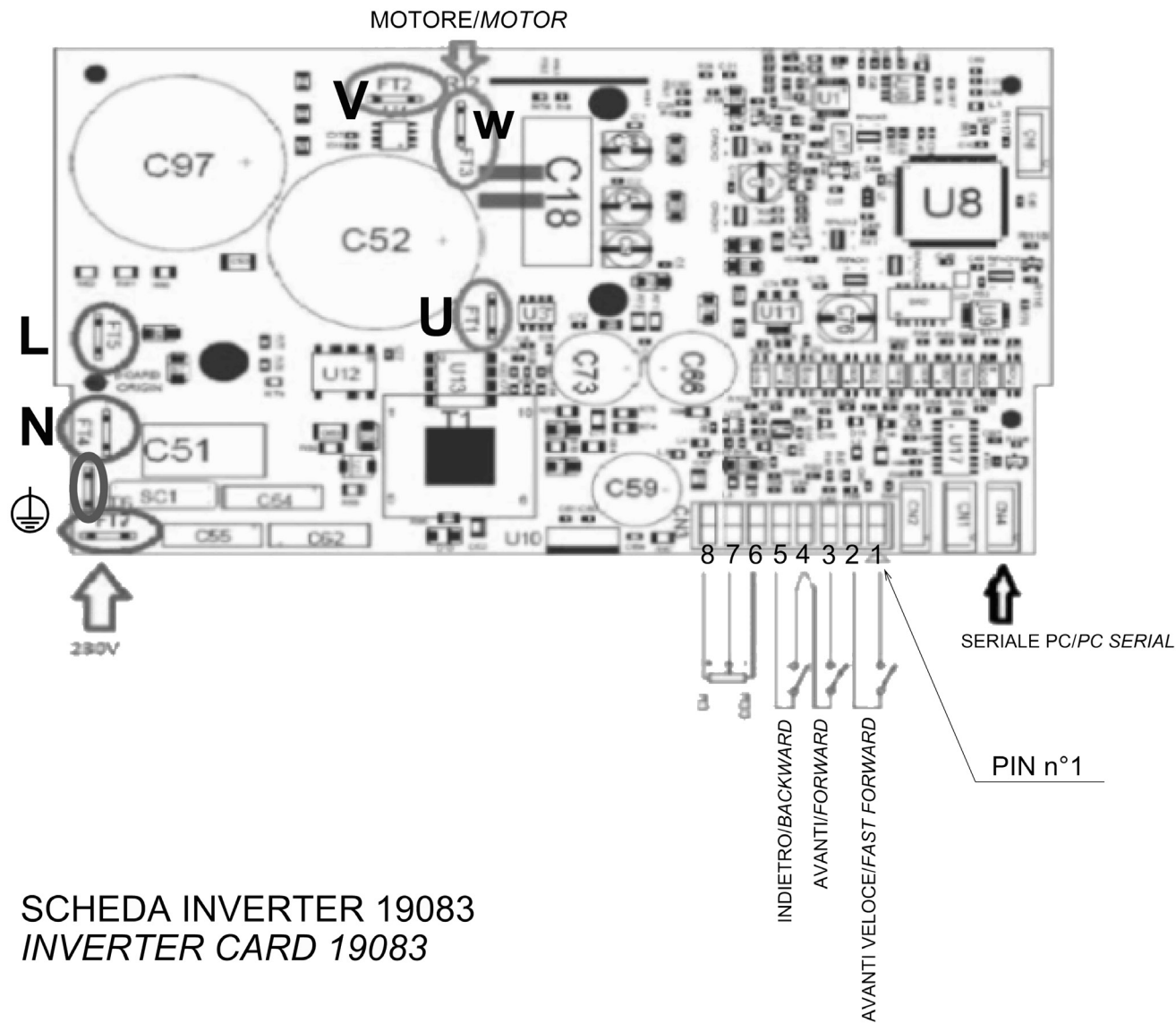
FU	V	230	400
	HZ	50	60
		6A	4A
		6A	4A

CAVO DI ALIMENTAZIONE (L1): colore nero
 POWER CABLE (L1): black color
 (L2): colore marrone
 (L2): brown color
 (L3): colore bianco
 (L3): white color
 (massa): colore giallo/verde
 (ground): yellow/green color
 CAVO D'ALIMENTAZIONE: 3p + GNDx1.55 mm²
 POWER CABLE (L1): 3p + GNDx1.55 mm²



MONOFASE CAVO ALIMENTAZIONE 2P+TERRA x bmmq
 SUPPLY CABLE MONOPHASE 2P+GROUND x bmmq
 EINPHASEN KABEL SPEISUNG 2P+ERDE x bmmq
 UNIPHASE CABLE ALIMENTATION 2P+TERRE x bmmq
 MONOFÁSICO CABLE ALIMENTACIÓN 2P+TIERRA x bmmq





SCHEDA INVERTER 19083
INVERTER CARD 19083

 ENGINEERING and MARKETING S.P.A.	LISTA DEI COMPONENTI - LIST OF COMPONENTS - TEILELISTE LISTE DES PIÈCES DÉTACHÉES - LISTA DE PIEZAS		SCHEMA ELETTRICO (2/3) ELECTRICAL SCHEME (2/3) SCHALTPLAN (2/3) SCHEMA ELECTRIQUE (2/3) ESQUEMA ELECTRICO (2/3) (HP641SD.22 - HP641SD.22FT - HP641SD.24 - HP641SD.24FT)	Pag. 37 di 38
	Tavola N°C - Rev. 0	730005563	HP641S.XX - HP641S.XXFI HP641SQ.XX - HP641SQ.XXFI HP641SD.XX - HP641SD.XXFI	

