



Qualcuno di cui ti puoi fidare  
(Someone you can trust)

**TYRE CHANGER**

**RASE.2132**

## **Instruction Manual - ENG**

Version 1.0 - January 2014

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ainsi qu'aux normes suivantes:

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Egzemplarz niniejszej deklaracji jest zgodny z dyrektywą EN ISO/IEC 17050-1



# ORIGINAL INSTRUCTIONS

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# INTRODUCTION

The purpose of this manual is to furnish the owner and operator with a set of practical, safe instructions on the use and maintenance of the tyre changer.

Follow all the instructions carefully and the machine will give you the efficient and long-lasting service that has always characterized products, making your work considerably easier.

The following points define the levels of danger regarding the machine, associated with the warning captions found in this manual:

## **DANGER**

**Refers to immediate danger with the risk of serious injury or even death.**

## **WARNING**

**Dangers or unsafe procedures that can cause serious injury or even death.**

## **CAUTION**

**Dangers or unsafe procedures that can cause minor injuries or damage to property.**

Read these instructions carefully before powering up the machine. Keep this manual and all illustrative material supplied with the machine in a folder near the tyre changer where it is readily accessible for consultation by the machine operators.

The technical documentation supplied is considered an integral part of the machine; and must always accompany the equipment if it is sold or transferred to a new owner.

The manual is only to be considered valid for the model with the serial number indicated on the nameplate applied to it.



## **WARNING**

**Observe the contents of this manual: the producer declines all liability in the case of uses of the machine not specifically described and authorized in this manual.**



## **WARNING**

**This machine must be used only by qualified and authorized personnel. A qualified operator is construed as a person who has read and understood the tyre changer manufacturer's instructions as well as the tyres and wheel rims manufacturers', is suitably trained, and is conversant with safety and adjustment procedures to be adhered to during operations. Use of the machine by unskilled staff may constitute a serious risk for the operator and for the final user of the product processed (the wheel rim and tyre assembly).**

## **NB:**

Some of the illustrations in this manual have been taken from photographs of prototypes: standard production machines may vary in some respects.

These instructions are intended for people with basic mechanical skills. We have therefore omitted detailed descriptions of procedures such as how to loosen or tighten the fixing devices on the machine. Do not attempt to perform operations unless properly qualified and with suitable experience. In case of need, contact an authorized Service Centre for assistance.

# TRANSPORT, STORAGE AND HANDLING

## Conditions for transporting the machine

The tyre changer must be transported in its original packing and stowed in the position shown on the external packing.

- Packing dimensions:

- width ..... 1260 mm
- depth ..... 1330 mm
- height ..... 2120 mm

- Weight of the machine with packing:

- 40 Top ..... 440kg
- 42 Top ..... 445kg

## Ambient conditions for machine transport and storage

Temperature:  $-25^{\circ} \div +55^{\circ}\text{C}$ .



### WARNING

**Do not stack other goods on top of the packing to avoid damaging it.**

## Handling

To move the packing, insert the tines of a fork-lift truck into the slots on the base of the packing itself (pallet) (fig. 1).

### ATTENTION

Carry out the moving operations with great care, paying attention to move the packaged machine only from the side clearly indicated on the packaging.

Failure to follow these recommendations may result in damage to the machine and put the operator's safety at risk.

Before moving the machine, refer to the HOISTING/HANDLING section.

## UNPACKING/ASSEMBLY



### WARNING

Take utmost care when unpacking, assembling, hoisting and installing the machine as described in this heading.

Keep the original packing in good conditions to be used if the equipment has to be shipped in the future and make sure that the machine has not suffered damage in transit.

Failure to comply with these instruction may damage the machine and risk the operator's safety.

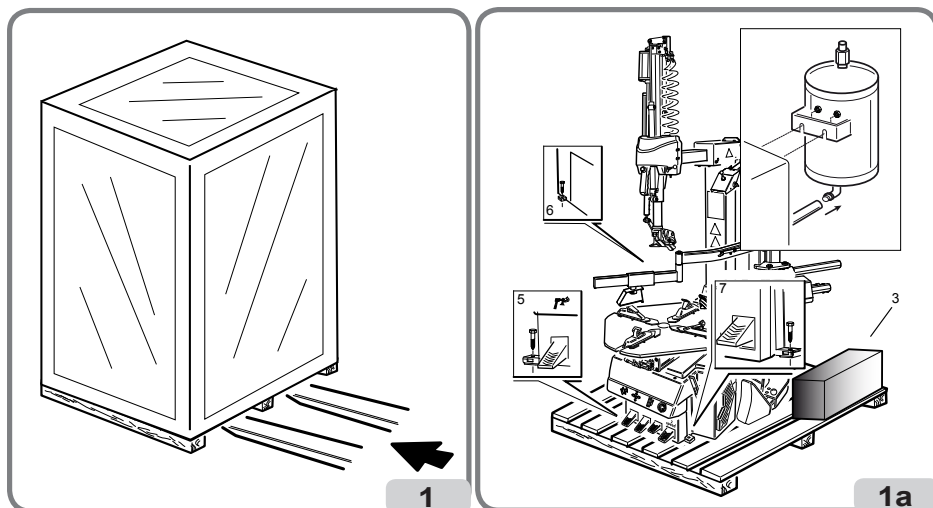
Remove the upper part of the packing.

The machine is fully assembled, comprising 3 main groups: 2- tyre changer, 3- accessories, 4 air tank (only for t.i. version).

Identify the points 5, 6 and 7 at which the machine is anchored to the pallet and proceed to remove fixing devices ( fig. 1a ).

Connect the tank union to the air connection pipeline provided, securing it with a band clamp.

Fix the air tank to the machine (fig.1a).(T.I. version only).



## HOISTING/HANDLING

To remove the machine from the pallet :

Lift the machine sideways enough to insert the forks of the fork-lift truck between the machine and the pallet as showed in fig.2.

At this point is possible to release the working arm removing the cord which binds the arm to the turntable. This hoisting point must be used whenever you need to change the installation position of the machine. Do not attempt to move the machine until it has been disconnected from the electricity and compressed air supply systems.

## INSTALLATION CLEARANCES



### WARNING

**The installation site must be chosen in strict compliance with the relevant regulations regarding Safety in the workplace.**

**IMPORTANT:** for correct, safe use of the equipment, users must ensure a lighting level of at least 300 lux in the place of use.



### CAUTION

**The installation of the machine must be performed in a dry area which must be protected from adverse weather conditions.**

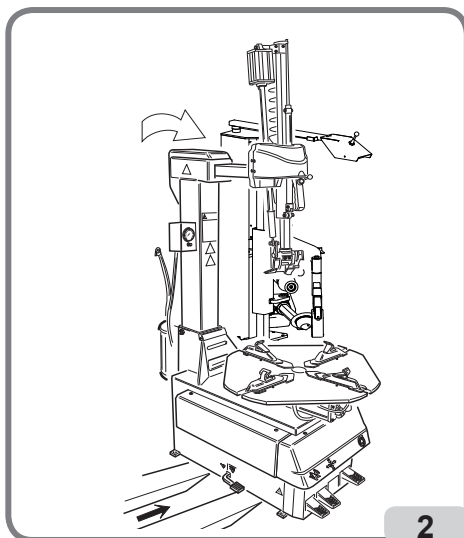
Install the tyre changer in the chosen work position, complying with the minimum clearances shown in fig. 3, adjust the height of the bead breaking support foot so that the machine is correctly positioned on the flooring.

Place the machine so that the plug-socket combination is easily accessible.

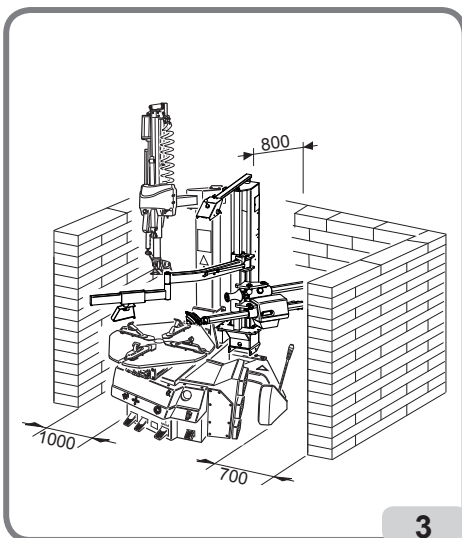
The machine must be placed on a horizontal surface, preferably concrete or tiled floor. Do not install on unstable or damaged surfaces.

The surface on which the machine rests must withstand the loads transmitted during operation. The surface must have a load-carrying capacity of at least 500 kg/m<sup>2</sup>.





2



3

### Ambient working conditions

- Relative humidity 50% (temp. 40°C) ÷ 90% (temp. 20°C) without condensation.
- Temperature 5°C ÷ 40°C.



#### WARNING

Use of the machine in a potentially explosive atmosphere is not permitted.

## ELECTRICAL AND PNEUMATIC CONNECTIONS

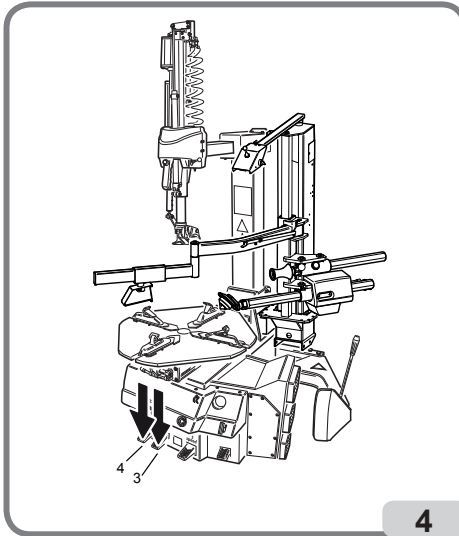


#### WARNING

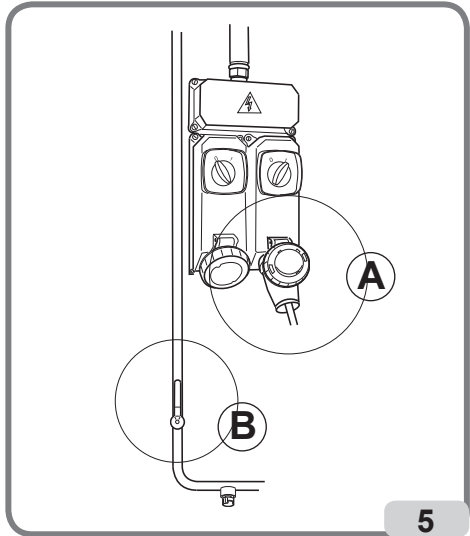
All operations required for the electrical connections of the equipment must be carried out exclusively by a qualified electrician.

Before connecting the air supply system, make sure the machine is set up as in fig. 4: pedal 3 and 4 totally downwards, column forward.

- The electrical supply must be suitably sized in relation to:
  - the machine input power as specified in the corresponding machine data plate;
  - the distance between the machine and the power supply hook-up point, so that voltage drops under full load do not exceed 4% (10% during start-up) compared with the rated voltage specified on the data plate.
- The operator must:
  - fit a power plug on the power supply lead in compliance with the relevant safety standards (A fig 5);
  - Connect the machine to an efficient grounding circuit in compliance with the relevant electric standards, provided with a circuit breaker (residual current set to 30mA);
  - fit fuses to protect the power supply line, rated as indicated on the general wiring diagram in this manual.
- In order to prevent the machine from being used by unauthorized personnel, it is advisable to disconnect the power supply plug when the machine remains idle (switched off) for long periods.



4



5



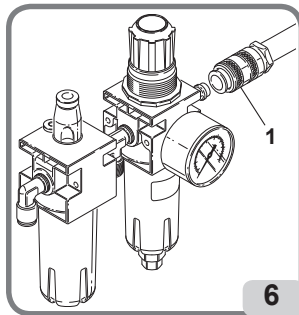
#### WARNING

**A good grounding connection is essential for correct operation of the machine.**

**NEVER** connect the earth wire to a gas or water pipe, telephone line or any other unsuitable objects.

Check that the pressure and flow-rate provided by the compressed air system are compatible with those required for proper operation of the machine - see "Technical Data" section. For correct machine operation the compressed air supply line must provide a pressure range from no less than 8 bar to no more than 16 bar.

Connect the compressed air system by means of a supply pipe connected to the intake of the air treatment unit on the REAR SIDE of the machine base.



6

Check that there is air lubrication oil in the Lubricating unit; refill if there is little or no oil. Use SAE20 oil.

The customer must provide an air cut-off valve upstream of the air treatment and regulating device supplied with the machine.



#### WARNING

**Connection 1 should be considered as an emergency valve to disconnect the machine from the air line (fig.6)**

## SAFETY REGULATIONS

The equipment is intended for professional use only.



### WARNING

**Only one operator may work on the equipment at a time.**



### WARNING

**Failure to comply with the instructions and danger warnings may seriously injure operators and any other person present near the machine. Do not operate the machine until you have read and understood all the danger, warning and caution notices in this manual.**

This machine must be used only by qualified and authorized personnel. A qualified operator is construed as a person who has read and understood the manufacturer's instructions, is suitably trained, and is conversant with safety and adjustment procedures to be adhered to during operations. Operators must not use the machine under the influence of alcohol or drugs which may affect their capacity.

The operator must, in all cases:

- Be able to read and understand all the information in this manual.
- Have a thorough knowledge of the capabilities of this machine.
- Keep unauthorized persons well clear of the area of operation.
- Make sure the machine has been installed in compliance with all relevant regulations and legislation.
- Make sure that all machine operators are suitably trained, that they are capable of using the equipment correctly and that they are adequately supervised.
- Never leave nuts, bolts, tools or any other equipment on the tyre changer as they may become entrapped between moving parts.
- Not touch power lines or the inside of electric motors or any other electrical equipment before making sure the power supply has been disconnected.
- Read this manual carefully and learn how to use the machine correctly and safely.
- Always keep this user and maintenance manual in an easily accessible place and consult it whenever necessary.



### WARNING

**Do not remove or deface the Danger, Warning or Instruction decals. Replace any missing or illegible decals. If one or more decals have been detached or damaged, replacements can be obtained from your nearest dealer.**

- **When using and servicing the machine, observe the standardized industrial accident prevention regulations for high voltages.**
- Any unauthorized alterations or changes made to the machine shall automatically release the manufacturer from any liability for damage or accidents attributable to such modifications. Specifically, tampering with or removing the safety devices is a breach of the regulations for Safety in the workplace.
- User must wear personal protective equipment such as gloves, safety footwear and goggles.



### WARNING

When operating or servicing the equipment, tie back long hair and do not wear loose-fitting clothes, ties, necklaces, rings or wristwatches which could become entrapped by moving parts.

## DESCRIPTION

The machine is a electro-pneumatic tyre changer super-automatic lever-less, to be used with wheels with drop centre featuring weights and dimensions as described in the technical data section. It is designed to work effectively on:

- Conventional wheels;
- Reverse rim wheels or wheels without central hole (use optional kit);
- Run-flat tyres with reinforced sidewalls\*.

\* **WARNING:** There are specifically studied procedures for this type of wheels.

**NB:** *It may be difficult and sometimes impossible to clamp and/or demount wheels of Vintage cars (cars out of production for over 30 years), some types of rally wheels and non-standardized street wheels.*

The machine is solidly constructed. It operates with the wheel in a vertical position for bead breaking and horizontal for mounting and demounting tyres. All machine movements are controlled by the operator by means of the pedals and manual controls on the console (TPH).

## MANUFACTURER'S LABEL

Each machine carries a plate with its identification and some technical data.

As well as the manufacturer's details, it indicates:

**Mod.** - Machine model;

**V** - power supply voltage in Volts;

**A** - Input voltage in Amperes;

**kW** - Absorbed power in kW;


**Hz** - Frequency in Hz;

**Ph** - Number of phases;

**bar** - Operating pressure in bar;

**Serial No.** - Machine serial number;

**EC** - EC marking.

		Mod. <input type="text"/>	
		Ser. N. <input type="text"/>	
		Volt <input type="text"/>	Ph <input type="text"/>
		Year <input type="text"/>	Kw <input type="text"/>
Weight <input type="text"/>		Amp. <input type="text"/>	Bar <input type="text"/>



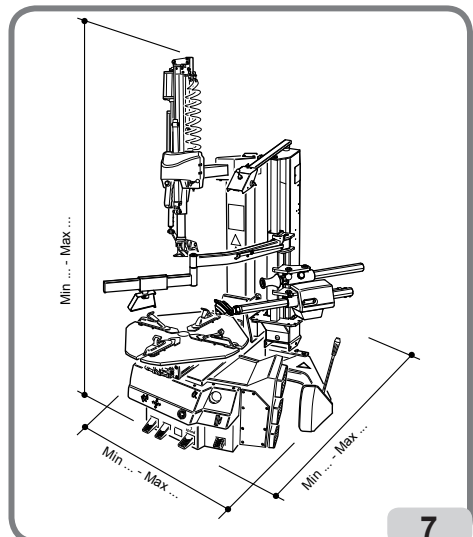
### WARNING

It is forbidden to modify or remove the data in the plate.

## TECHNICAL DATA

- Overall dimensions (see fig. 7):
  - Length ..... 1500 (t.i.) min 1880 max
  - Width ..... 1120 min 1660 max
  - Height ..... 1850 min 2140 max
- Table top clamping capacity:
  - inside clamping ..... 14"-27"
  - outside clamping ..... 11"-25"
  - outside clamping ..... 13"-26"
- Rim width: ..... 405 mm
- Maximum tyre diameter: ..... 1060 mm
- Bead breaking pressure: ..... 2900 Kg
- Air pressure ..... 8-10 Bar
- Motor electrical features:
  - 1ph version - 1 speed 220V - 50Hz ..... 6A - 0,75 kW
  - 3ph version - 1 speed 230V - 50Hz ..... 2,8A - 0,55 kW
  - 3ph version - 1 speed 400V - 50Hz ..... 1,6A - 0,55 kW
  - 3ph version - 2 speed 230V - 50Hz ..... 5,3/6,8A - 0,8/1,1 kW
  - 3ph version - 2 speed 400V - 50Hz ..... 2,8/4,4A - 1,1/1,5 kW
- Weight 40 top ..... 435 kg
- Weight of electrical/ electronic components: ..... 11,5 kg
- Noise level
  - A-weighted sound pressure level (LpA) at the working position ..... < 70 dB (A)±3dB(A)

The noise levels indicated correspond to emission levels and do not necessarily represent safe operating levels. Although there is a relationship between emission levels and exposure levels, this can not be used reliably to establish whether or not further precautions are necessary. The factors which determine the level of exposure to which the operator is subject to include the duration of the exposure, the characteristics of the workplace, other sources of noise, etc. The permitted exposure levels may also vary according to the country. However, this information will enable machine users to make a more accurate assessment of hazard and risks.



## STANDARD ACCESSORIES

5-690355 .....	Plastic protections
9004-105142 .....	Short help level
044900800 .....	Tyre lever
040000100 .....	Brush (BR)
3-01523 .....	Grease 4Kg (TG4)

## ACCESSORIES ON DEMAND

8-11600051 .....	US TPH
(Universal spacer for TPH arm to be used with optional adapter kit UWA24, UMA and CRA)	
100012100 .....	UWA 24
(Adapters to increase the turntable clamping capacity (to be used in combination with US TPH)	
100012000 .....	UMA
Universal motorcycle adapters (to be used in combination with US TPH)	
100001500 .....	CRA
Adapters for convex rims (to be used in combination with US TPH)	
8-11600005 .....	PLS 2
(Pneumatic wheel lift complete with roller rest)	

## SPECIFIED CONDITIONS OF USE

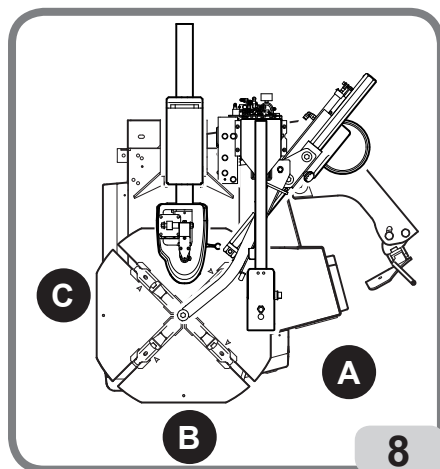
The tyre changers has been designed exclusively for mounting and demounting tyres, using the tools the machines are equipped with, following the instructions in this manual.



### WARNING

**Any other operation carried out on the machine is considered as improper use and shall be construed as negligence.**

These machines are equipped with an inflation system independent from any other function described above. Take great care when using it (read the INFLATION chapter).



### WARNING

**You are strongly advised not to use equipment or tools not originally manufactured by us.**

Figure 8 shows the positions assumed by the operator during the various stages of work with the machine.

A Bead breaker

B Tyre demounting and mounting

C Inflation area.



### WARNING

**Keep hands well away from machine moving parts.**



### WARNING

**To stop the machine in an emergency:**

- disconnect the power supply plug;
- isolate the compressed air supply network by disconnecting the (quick-coupling) shut-off valve (fig. 6).

## MAIN OPERATING PARTS

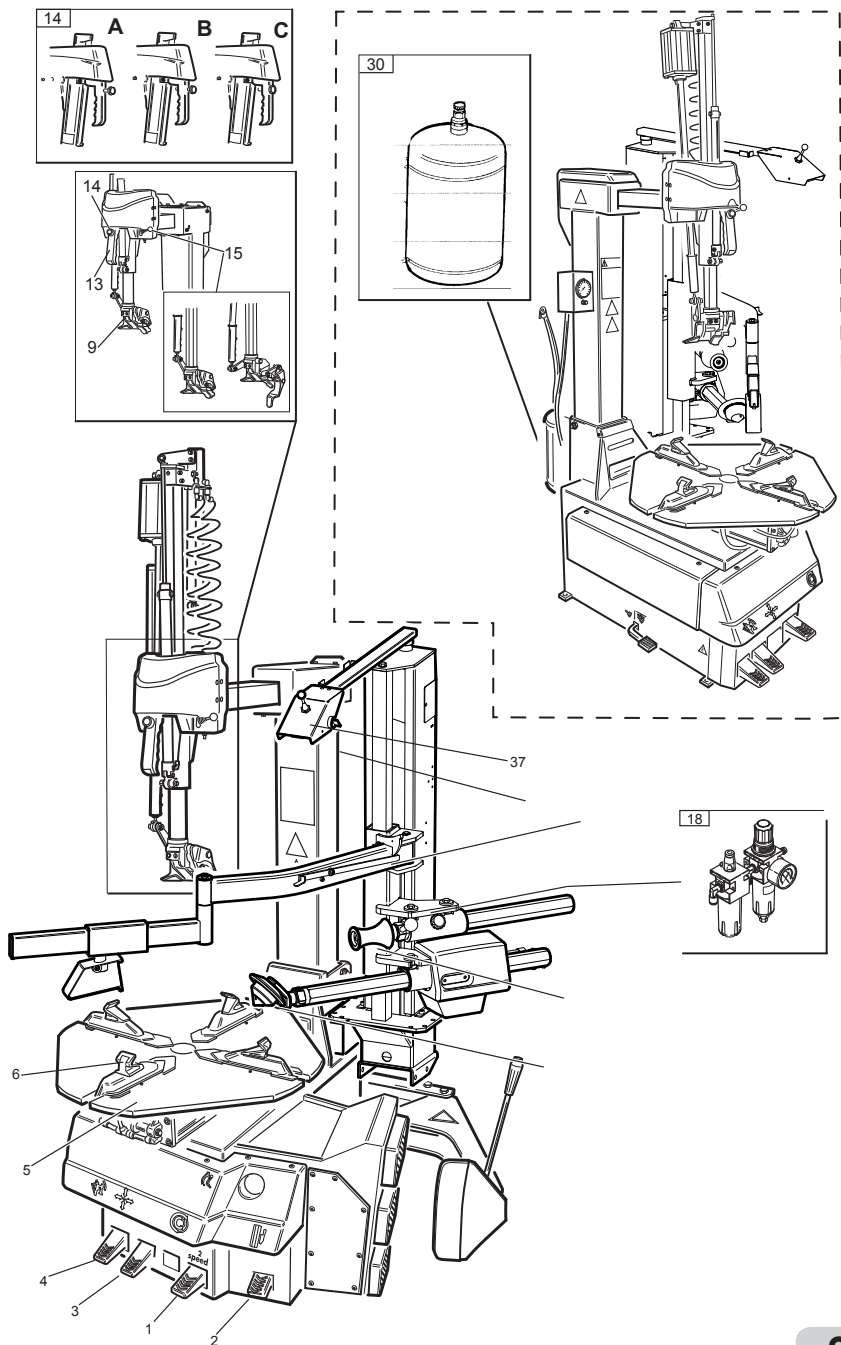


### WARNING

Get to know your machine: the best way to prevent accidents and obtain top performance is to get to know exactly how it works. Learn the function and location of all the controls. Check carefully that each of the controls operates properly. To avoid any risk of accidents and injuries, the machine must be installed and operated correctly and serviced regularly.

The machine main operating parts are shown in fig. 9:

- 1 Turntable rotation, 4 position-pedal:
  - released position = turntable still
  - pedal pressed down = rotation clockwise
  - pedal pressed deep down = rotation clockwise double-speed
  - pedal pulled up = rotation anti-clockwise
- 2 Bead breaker pedal
- 3 Clamp control pedal (to open and close the clamps)
- 4 Vertical post control pedal
- 5 Turntable
- 6 Clamp
- 7 Bead presser tool
- 8 Bead presser arm
- 9 Movable lever-less head for tyre mounting/demounting
- 10 Handle
- 11 Working arm cylinder ( Pneumatic version)
- 12 Demounting tool control cylinder
- 13 Handle
- 14 Locking button:
  - A)** working arm ascent; **B)** working arm descent; **C)** locked
- 15 Head control lever
- 16 TPH upward / downward control valve
- 17 TPH disc advancement control valve
- 18 Jack
- 19 Filter Regulator + Lubricator Unit (regulates pressure, filters, removes humidity of and lubricates the compressed air supplied)
- 20 Bead presser roller
- 21 Bead lifter arm
- 22 Bead breaker arm
- 23 Bead breaker blade
- 24 Wheel support
- 25 Tyre lever
- 26 TPH arm release
- 27 Working arm
- 28 Vertical post
- 29 Tubeless tyre inflation pedal (t.i. version)
- 30 Air tank(t.i. version)
- 31 Safety valve(t.i. version)
- 32 Doyfe union to be fitted on the wheel's valve for inflation(t.i. version)
- 33 Deflation button(t.i. version)
- 34 Pressure gauge(t.i. version)
- 35 Inflating nozzles (t.i. version)





## WARNING SIGNALS

PAY THE UTMOST ATTENTION TO THE WARNING LABELS ATTACHED TO THE MACHINE.  
USING THE MACHINE WITHOUT READING THE WARNING SIGNALS MAY BE  
SERIOUSLY DANGEROUS FOR THE OPERATOR.

**DANGER!** INFLATING TIRES IS DANGEROUS  
**DANGER!** LE GONFLAGE PEUT ETRE DANGEREUX  
**¡CUIDADO!** EL INFLADO PUEDE SER PELIGROSO  
**GEFAHR!** DAS FÜLLEN VON REIFEN KANN GEFÄHRLICH SEIN  
**PERICOLO!** IL GONFIAGGIO DEI PNEUMATICI E' PERICOLOSO

000103700



CAUTION: TOWER TILTING

**EXPLOSION HAZARD!**  
**DANGER D'EXPLOSION!**  
**¡PELIGRO DE EXPLOSION!**  
**EXPLOSIONSGEFAHR!**  
**PERICOLO DI ESPLOSIONE!**

GB Never exceed 3.5 Bar (50 PSI) while inflating. g. beads or inflating. ... and observe the instructions.

F Ne jamais dépasser 3.5 bars (50 PSI) pendant la mise en place du talon et le gonflage. Lire et observer la notice d'instructions.

E No superar jamás los 3.5 Bar (50 PSI) durante el acoplamiento del talón y el inflado. Leer y respetar las indicaciones del manual de instrucciones.

D Beim Reifentillen darf nie ein Druck über 3.5 bar (50 PSI) verwendet werden. Die Betriebsanleitung lesen und beachten.

I Non superare mai 3.5 Bar (50 PSI) durante la tallatura ed il gonfiaggio. Leggere e seguire il manuale istruzioni.

000103000



DANGER OF HAND CRUSHING BETWEEN CLAMP AND RIM.



DANGER OF HAND CRUSHING BETWEEN MOUNTING HEAD AND WHEEL.

000103100



CAUTION: AIR BLAST.



MAX. AIR SUPPLY LINE PRESSURE 16 BAR

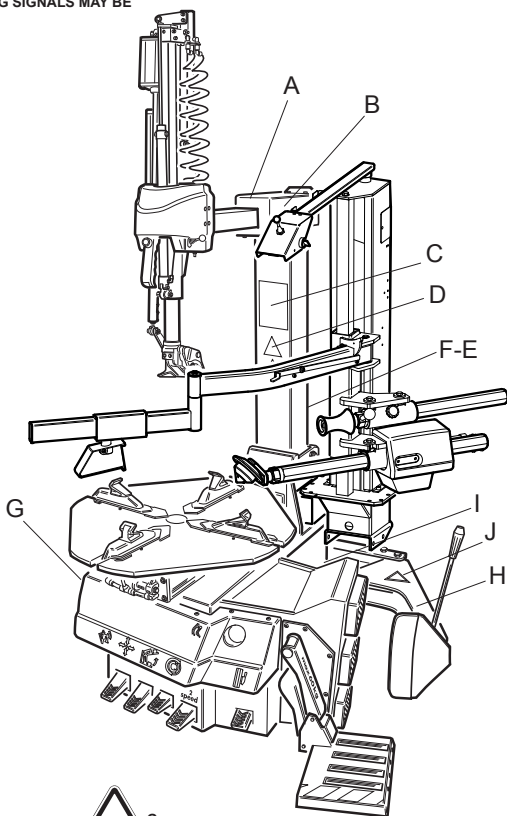
000102800



000102700

INFLATING GUN CONNECTION.  
DO NOT DIRECTLY CONNECT THE COMPRESSOR.  
(only on standard version)

F



CAUTION: ELECTRIC CURRENT

000103600



000103400



000103200



000103300

DANGER OF CRUSHING PARTS OF THE BODY BETWEEN THE BEAD BREAKER ARM AND THE MACHINE.

## Preliminary checks

Check that there is a pressure of at least 8 bar on the pressure gauge of the Filter Regulator + Lubricator unit.

Check that the machine has been adequately connected to the power mains.

## Deciding from which side of the wheel the tyre must be demounted

See fig. 10.

Find the position of the drop centre A on the wheel rim. Find the largest width B and the smallest width C. The tyre must be demounted or mounted with the wheel positioned on the turntable with the side with the smallest width C facing upward.

## Special instructions

Some types of wheels on the market require special procedures and precautions which differ from the standard procedure.

This applies in particular to the following types of wheels:

**Alloy rim wheels:** some wheels have alloy rims where the drop centre A is very small or non-existent - fig. 10-B. These rims are not approved by the DOT (Department of Transportation) standards - these initials certify that tyres comply with the safety standards adopted by the United States and Canada (these wheels cannot be sold in these markets).



### DANGER

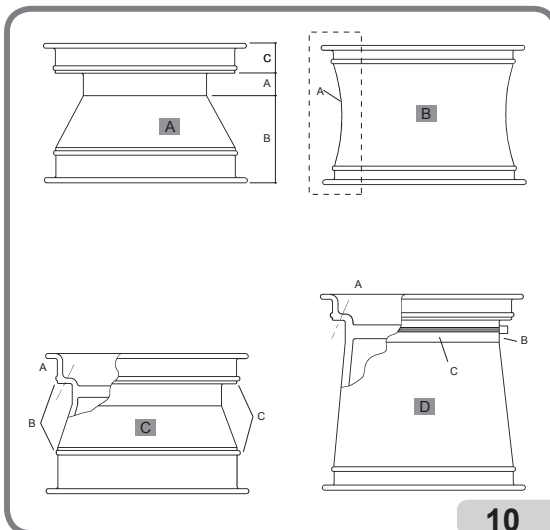
**Take utmost caution when mounting the tyre. The rim and/or the tyre may be damaged accidentally, with the risk of the tyre exploding during the inflation stage.**

**European style high-performance wheels (asymmetric curvature)** - fig.10-C: some European wheels have rims with very pronounced curvature C, except in the area of the valve hole A where the curvature is less pronounced B. On these wheels the bead must first be broken in correspondence with the valve hole, on both the top and bottom sides of the wheel.

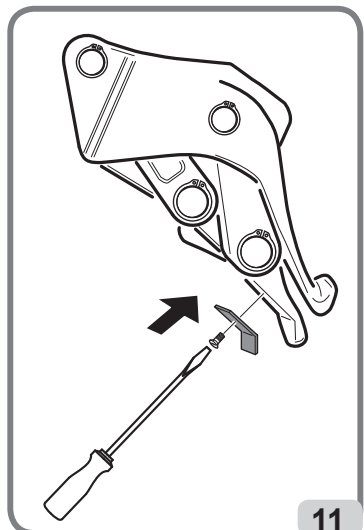
**Wheels with low pressure indicator system** - fig.10-D.

## Advice

To prevent any rim damage, the plastic insert under the head (fig. 11) must be replaced every 2 months or sooner, if excessively worn. A spare insert is supplied with the machine.



10



11

## Information

Any noise heard when the tool head engages with the tyre is normal. The noise is caused by the mechanical return of the tool and not because the tool has hit the rim. Even if the tool does touch the rim as the tyre is engaged, this will not damage the rim in any way. The pressure applied is very low. If you wish to prevent this noise, simply press the bead breaker disc harder against the bead when picking it up.

## USE

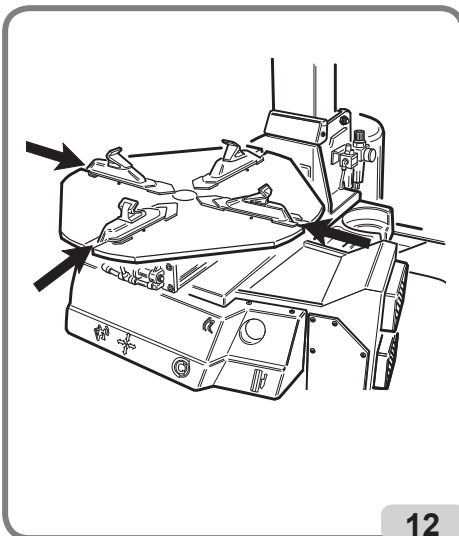
### BEAD BREAKING

The bead breaker arm of the machine is equipped with a patented system which allows to obtain two different working inclinations between the blade and the wheel.

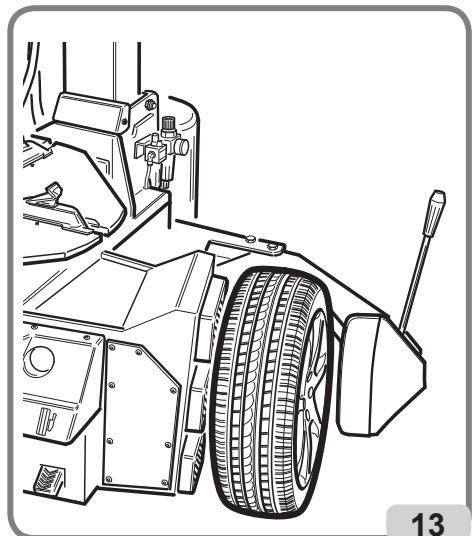
- Fully close the turntable clamps (fig. 12) acting on pedal 3 fig. 9.
  - Remove the weights from the rim.
  - Fully deflate the tyre, removing the valve
  - Adjust the rim rest depending on wheel diameter
  - Adjust the inclination of the blade according to the wheel width by means of the pin in order to obtain a better inclination between the blade and the tyre: in position 1 in fig.12 for low width tyres, in position 2 for high width tyres
  - Place the wheel as shown in fig. 13 and take the blade near the bead, keeping the necessary safety distance between the rim and the bead breaker blade, so that the latter works on the tyre and not on the rim.
  - Press pedal 1 (fig 9) to activate the bead breaker and free the bead from the rim.
- Release the pedal. Pressing the bead breaker pedal (1 fig. 9) the arm moves (13 fig.9) and it may be dangerous (crushing danger); pay the utmost attention during bead breaking. Repeat this operation on the other side of the wheel. It may be necessary to break the bead at several points to free it completely.

### WHEEL CLAMPING

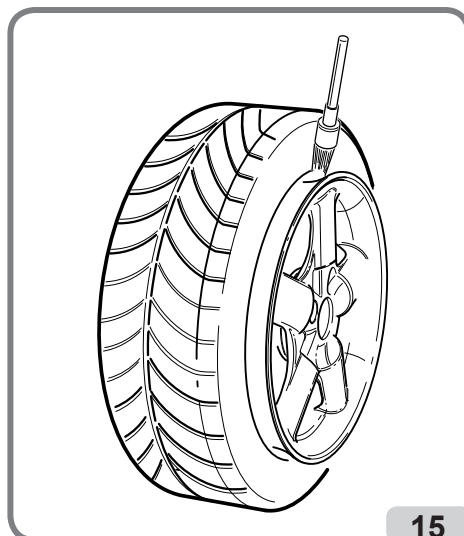
- Check if there are any weights left on the rim; if so, remove them.
- Thoroughly lubricate the sides of the tyre around the entire circumference of the lower and upper bead to facilitate the demounting and avoid damaging the beads (fig.15).



12



13



15

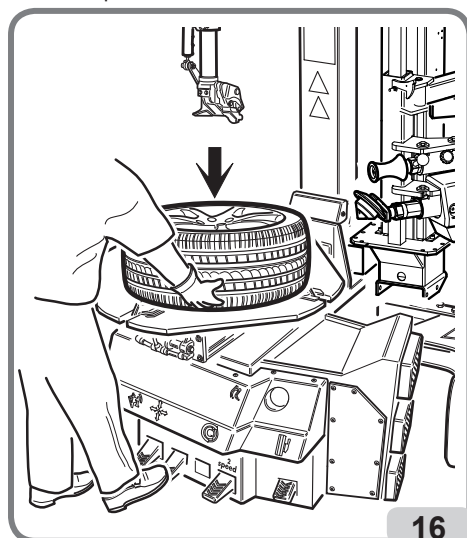
-Make sure that nobody is behind the tyre changer and tilt the tower backwards keeping the locking button in "locked" position.

-Depending on the diameter of the rim, close the four clamps if the rim is to be clamped from inside or open them if the rim is to be clamped from outside. Place the wheel on the turntable, push it lightly down and act on the control pedal to lock the wheel in its proper position (fig. 16). Acting on the turntable pedal (3 fig.9) closes the clamps and may be dangerous (danger of hand crushing). During rim clamping, do not keep the hands under the tyre.

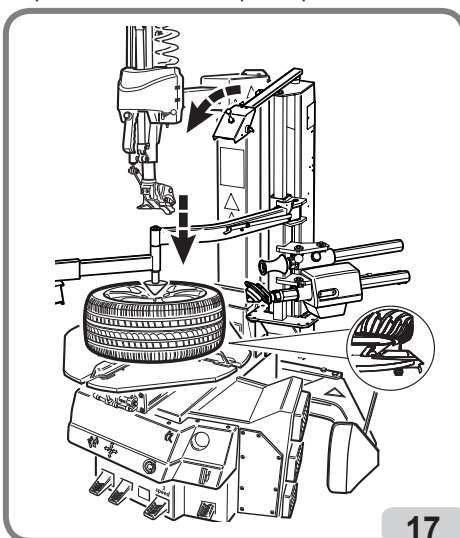
### CENTRING FUNCTION

When clamping the wheel with outside rim hold, proceed as follows:

- Prepare the clamps of the turntable at a slightly higher measurement than that of the wheel, place the wheel on the turntable, position the rim clamp arm in the working position Fig.17, activate valve so as to press the wheel on the turntable, then clamp the wheel with the special pedal.



16



17

N.B. This facilitates the insertion of the sliding clamp between the tyre and the rim Fig.17.

• **Tool positioning (fig.18)**

- Press the pedal 4 to move the column into its working position. Press the locking button into position A to temporarily unlock working arm and horizontal arm. The tool will move upwards in its rest position (Fig.19).

With the locking button in position B, the tool can move freely downwards up to the rim edge or up to the minimum working height (Fig.19). Press the locking button in position C to temporarily lock vertical and horizontal arms (Fig.19). In this case the tool will be automatically positioned at a security distance from the rim edge.

- Make the head go down on the rim (push button 14).
- For correct tool positioning, the insert (G fig. 19a) must be at the end position with the rim edge, where the vertical wall begins.

ATTENTION : Use the handle 10 to achieve the correct tool positioning on the rim.

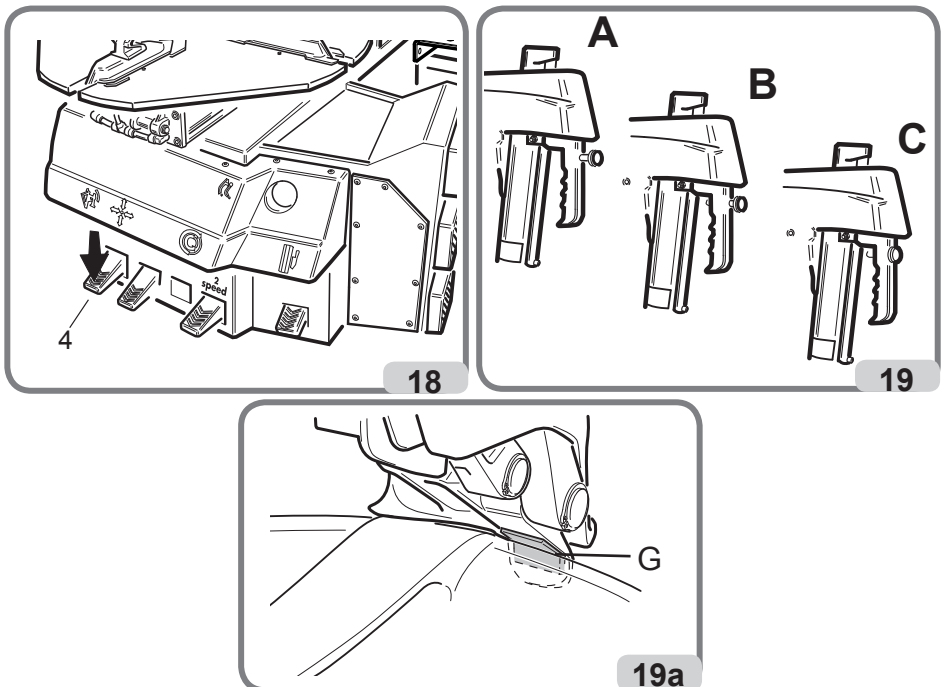
- Press the block 14 to fix the tool position.

The distance between rim and tool head will remain unchanged till the control button is in locking position. The operator can tilt the vertical post (i.e. when handling a set of tyres having same dimensions) without repositioning the tool on the rim.

ATTENTION : Risk of hand crushing between demounting / mounting tool and the wheel.

• **Upper tyre bead coupling (fig.20) A-B**

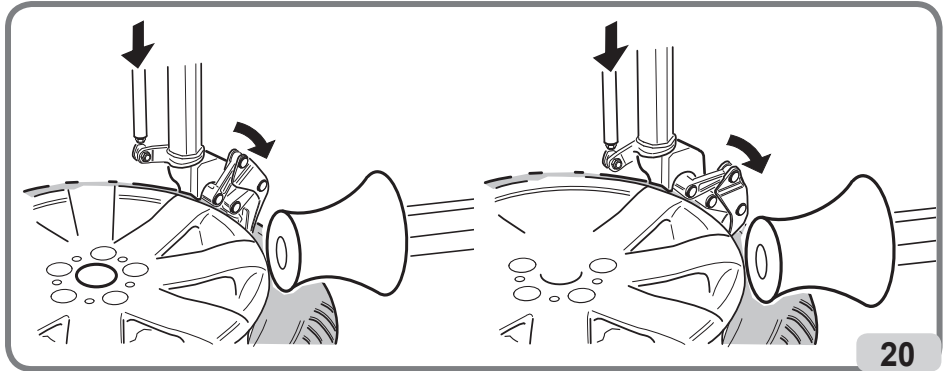
- Position the TPH roller (20 fig.9) on the right side of the mounting tool at a distance of 2/3 mm from the rim edge, create enough space between the rim and the tyre with the roller to allow the demounting tool to tilt.
- Operate control 15 for demount tool (A-B) tilting.
- Disengage the bead pressing roller.
- For easier bead coupling, it could be necessary to slightly rotate the turntable.



## DEMOUNTING

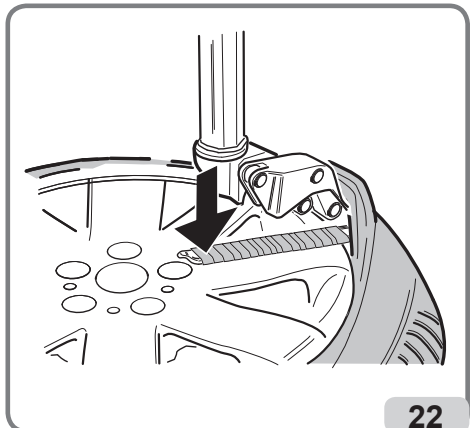
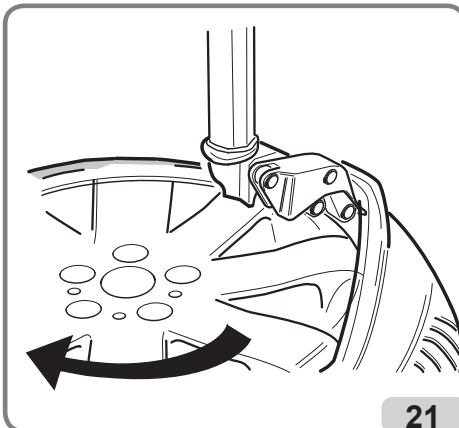
### • Upper bead demounting (fig.21)

- Check that the tool is correctly coupled with the tyre bead.
- Operate the control valve 15 to get the machine ready for the subsequent demounting operation (performed with the wheel at a standstill and not rotating).
- Make sure that the tyre has not beaded in on the operator's side. If necessary, use a bead clamp and/or the bead pressing device.
- Alternatively, to further speed up the activity lifting the bead quickly off the rim, simply insert the small help lever between tyre and rim edge (fig. 22).
- Now operate pedal 1 until the bead is completely demounted.

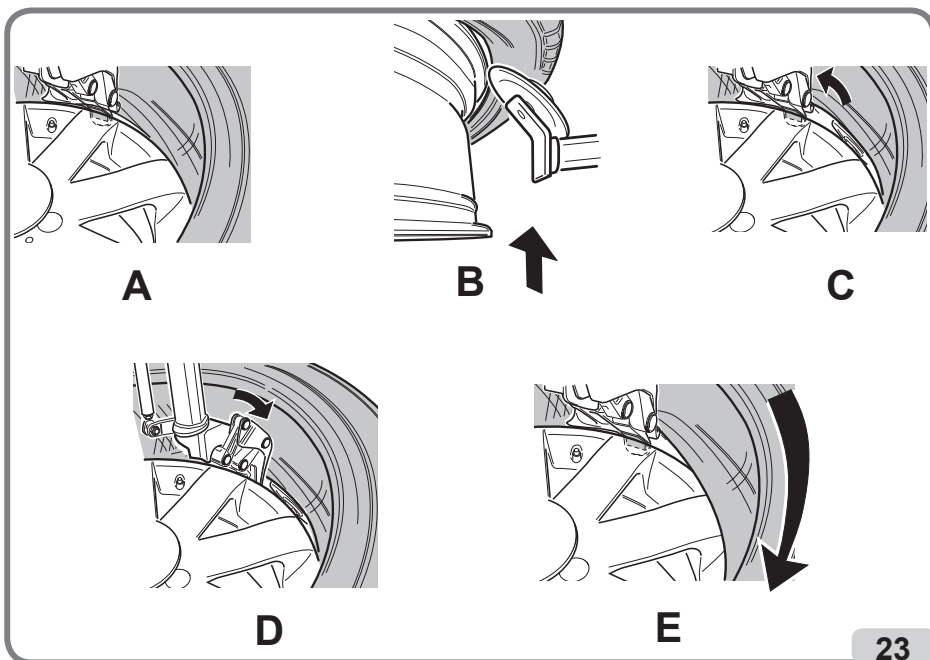


### • Lower bead demounting (fig. 23)(Using tool-carrying head)

- Acting on the pedal, rotate the turntable till a clamp would be exactly in front of the operator and the yellow flag (assembled on the turntable) in correspondence of the TPH disk direction.
- Lower the TPH arm till its stroke end using control 16
- Lift manually the tyre to create space for bead lifter arm.
- Acting on control 17, located on the TPH console, the bead lifter arm will move forward allowing the tool touching the lower rim edge. The bead lifter arm will keep a safety distance of 2/3 mm from the rim edge.
- Acting on the control 16, the bead lifter will push upwards the lower tyre bead.
- Using control 15, operate the hook engaging the bottom bead of the tyre (C).
- Check that the tool is correctly coupled with the tyre bead.



- Using the control valve 16, lift the lower tyre bead till the upper edge height of the rim.
- Operate on the control 15 to get the machine ready for the subsequent demounting operation (performed with the wheel at a standstill and not in rotation - D).
- Operate pedal 1 to rotate the wheel until the tyre is completely demounted from the rim (E).
- **Lower bead demounting without using the lever-less head (fig. 24) (Quick system)**
- Press the pedal 4 to return the vertical post in its rest position (arm laterally tilted).
- Acting on the pedal, rotate the turntable till a clamp would be exactly in front of the operator and the yellow flag (assembled on the turntable) in correspondence of the TPH disk direction.
- Lower the TPH arm till its stroke end using control 16
- Acting on the control 17, located on the TPH console, the bead lifter arm will move forward allowing the tool touching the lower rim edge. The bead lifter arm will keep a safety distance of 2/3 mm from the rim edge.
- Acting on the control 16 the bead lifter will push upwards the lower tyre bead.
- Operate control 16 and raise the bottom bead of the tyre (A) until it is level with the top bead of the rim (B).
- Start wheel rotation (pedal 1) and at the same time raise the disc by tapping on (control 16). Rotate until the tyre is completely demounted.



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#### • Demounting complete

- At the end of the demounting phase, act on the commutator switch placed on the TPH console (17 Fig.9) in order to obtain the withdrawal of the bead lifter tool till its resting position.
- Then tilt back the vertical post and remove the tyre (4 fig.9).

## TYRE MOUNTING



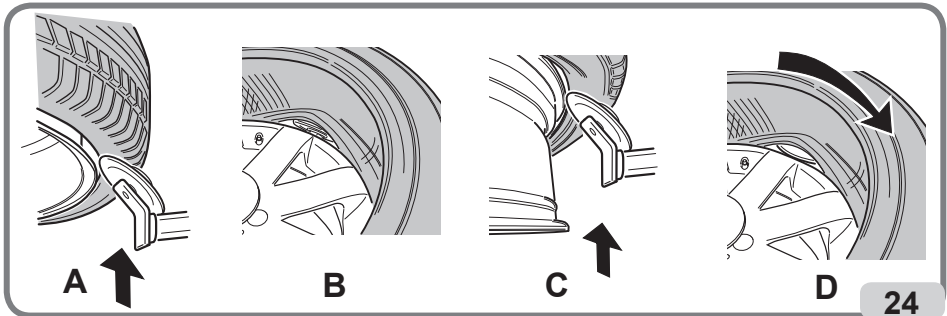
### CAUTION

Always check that the tyre/rim combination is correct in terms of compatibility (tubeless tyre on tubeless rim; tube type tyre on tube type rim) and geometrical size (keying diameter, cross-section

width, Off-Set and shoulder profile) before mounting.

Also check that rims are not deformed, that their fixing holes have not become oval, that they are not scaled or rusty and that they do not have sharp burrs on the valve holes.

Check that the tyre is in good condition with no signs of damage.



### Mounting the tyre

- **Tyre preparation (fig. 25)**

- Grease both the tyre (A) beads.

- Place the tyre on the rim (B)

- **Head positioning (fig. 25a)**

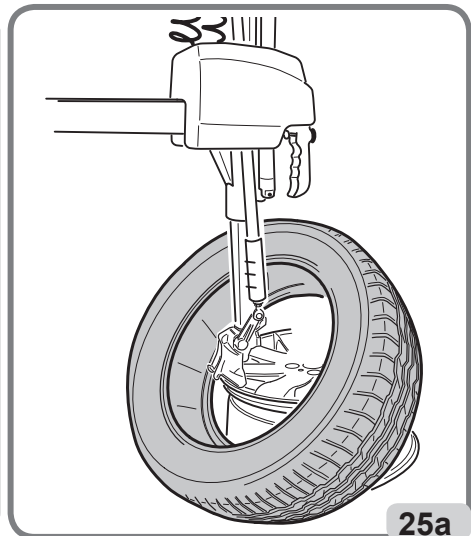
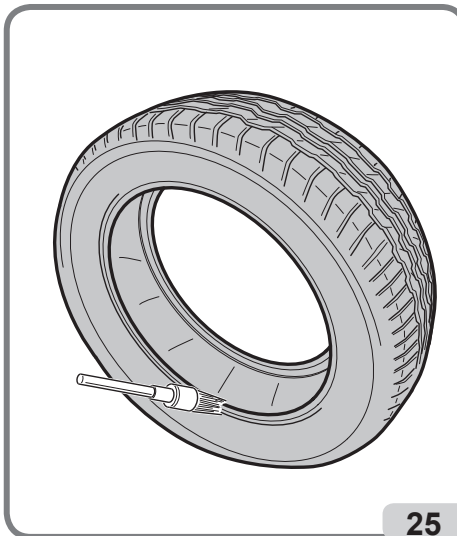
- Operate pedal (4) to move the head into its working position.

**NB:** The tool is already in the correct position for mounting the tyre, unless the type of rim has been changed.

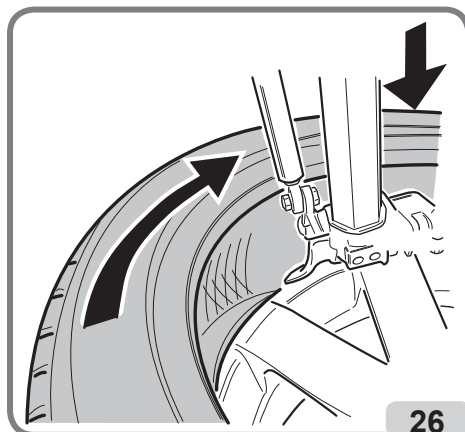
- **Lower bead mounting (fig. 26)**

- Place the bottom bead of the tyre underneath the tool and at the same time apply a little pressure to the tyre by hand while starting to rotate the wheel (pedal 1) for easier bead insertion.

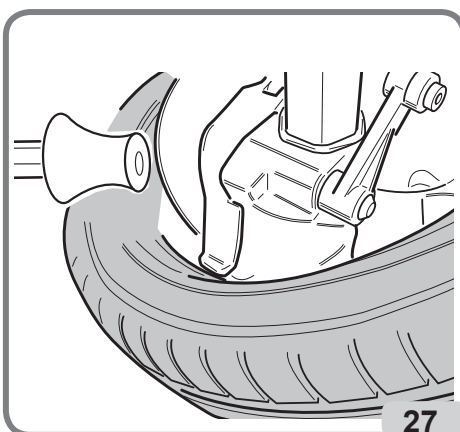
- Rotate until tyre mounting is complete.







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• **Upper bead positioning (fig. 27)**

- Position the upper tyre bead.

**Take care that the tyre does not slip underneath the tool.**

• **Bead presser roller positioning (fig. 28)**

- Lower the bead presser roller (control 16) (A) until it is level with the well of the rim.

• **Upper bead mounting (fig.29)**

- Rotate the wheel using pedal 1 to start mounting the upper bead. Press manually the tyre bead to keep it inserted in the channel until the bead assembly is successfully completed.

NOTE: for oversized (more than 19") or particularly tough wheels, it is recommended the use of the pneumatic bead presser. In this case the following procedure must be applied:

- Position the bead presser tool near the bead breaker roller (approximately 3-4cm).

Lower it until the bead reaches the height of the rim groove.

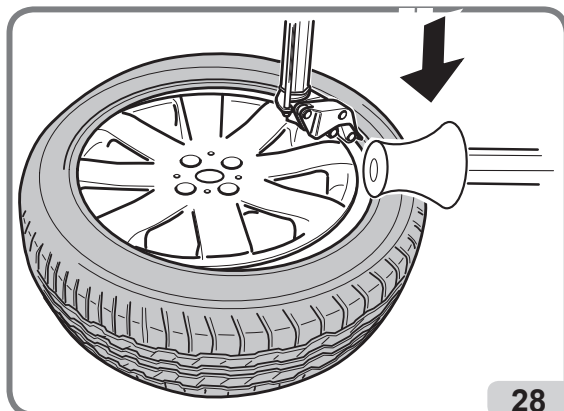
**WARNING**

Risk of crushing. Positioning the bead-pressing tool against the tyre could be dangerous in some respects. Never place any part of the body, particularly hands between tools and wheel.

- As the turntable turns, the bead pressing tool will revolve with the tyre, keeping the bead inserted inside the rim groove and thus avoiding any effort or danger to the operator and for the rim .

**WARNING**

Proceed with care in this stage to avoid applying excessive stress to the tyre. It is recommended to slightly lift up the presser tool at 6 o'clock in order to release a little bit the pressure on the tyre bead.



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- Once the mounting phased is complete, raise the bead presser roller and the bead presser tool (control 16).

- Return the lever-less head into its rest position (control 4).

NOTE: If the sector of the tyre bead placed between bead presser tool and roller is not kept correctly inserted in the rim groove, it is recommended to use a supplementary bead pressing clamp (optional). In this case the following procedure must be applied:

- After having positioned on the tyre the bead presser roller, lock the bead pressing clamp on the rim near (at approximately 3-4cm from the disc – Fig. 29).

- Rotate the wheel until the clamp is at 5 o'clock position and Check that the portion of the tyre bead (between roller and clamp) is inserted in the groove of the rim.

- If not, position the bead pressing tool at 3 o'clock to press the bead into the rim groove.

- Restart the rotation to complete the mounting phase.

- Remove clamp, bead pressing tool, lever-less head and bead presser roller.

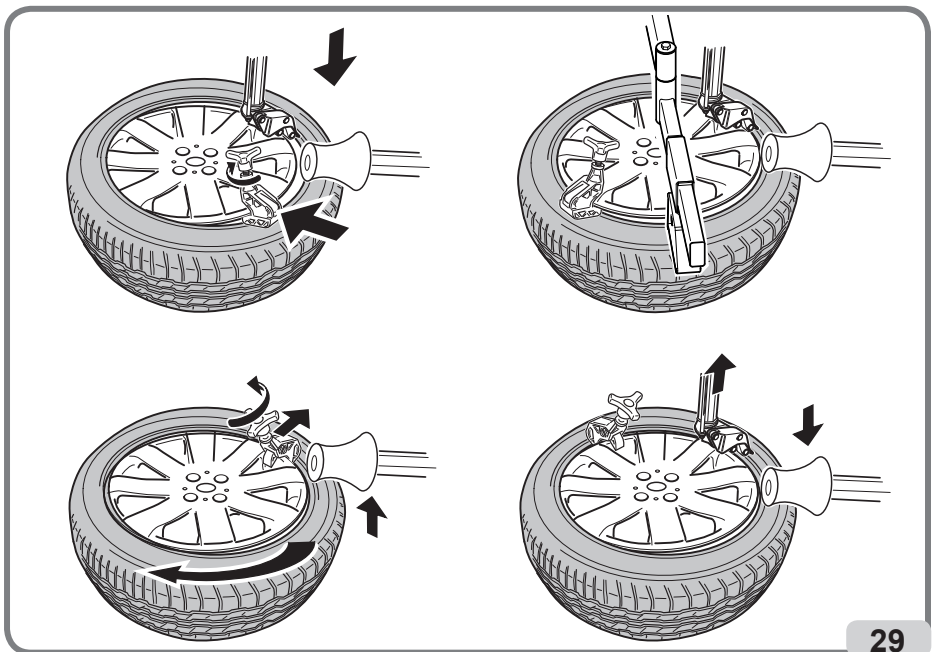
• **Set the bead breaking unit to the rest position**

• **Tyre inflation**

- For inflation, see "INFLATION" section.

• **Tilt the tower backwards in non-work position by pressing the relevant pedal (pedal 4).**

• **Free the wheel from the clamps and remove it from the tyre changer.**



## INFLATION



### WARNING

Inflation is well known to be a dangerous operation. It must be carried out in accordance with the instructions below. Safety goggles with plain lenses and safety footwear must be worn.



### CAUTION

During this operation, noise levels assessed at 85 dB(A) may occur. Operators are advised to wear hearing protection devices.



### DANGER

Although the machine limits the pressure, it does not provide sufficient protection if the tyre bursts during inflation.

Failure to comply with the instructions below will render tyre inflation dangerous.



### DANGER

**NEVER** exceed the pressure recommended by the tyre manufacturer. Tyres may burst if they are inflated beyond these limits or their structures may incur serious damage not visible at the time. **KEEP YOUR HANDS AND THE WHOLE BODY WELL AWAY FROM THE TYRE DURING INFLATION.** Make sure you are concentrated during this operation and check tyre pressure continuously to avoid excess inflation. A bursting tyre can cause serious injuries or even death.

- Release the wheel from the sliding clamps on the table top.
  - Insert the centring cone on the rim presser arm. Carry the arm in working position and act on control 16 till the cone start pressing on the rim (Fig.30).
  - Connect the Doyfe inflation chuck (32) on the air hose to the valve stem.
- Inflate the tyre by pressing the pedal briefly and repeatedly; check the pressure gauge frequently to make sure that the pressure **NEVER** exceeds the maximum pressure specified by the tyre manufacturer.

## Inflating tubeless tyres (T.I. versions only)

### WARNING

**Before carrying out the operations described below, always make sure that there is no dirt, dust or other impurities on the jaws near the air outlet holes.**

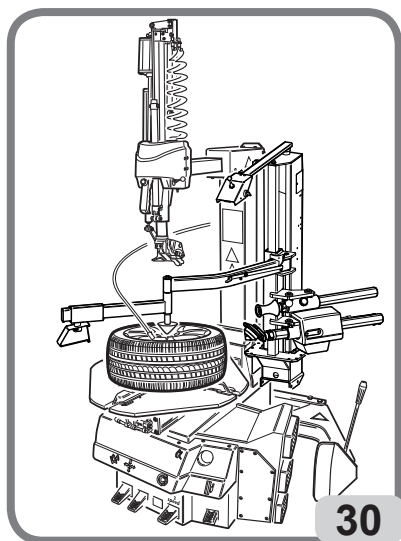
- Make sure that the wheel is secured to the table top with inside clamping.
- Insert the centring cone on the rim presser arm. Carry the arm in working position and act on control 16 till the cone start pressing on the rim (Fig.30).
- Connect the Doyfe inflator chuck (32) on the air hose to the valve stem.
  - Hold the tyre with your hands and lift it until there is a slight gap between the lower bead and bottom edge of the rim in order to close the upper bead and the top of the rim.
  - Press the inflation pedal fully down for a short period to the bead seating position (fig.31a). The tyre will expand and the beads will seat.
  - Continue to press the pedal in the inflation position (fig.31b) until the beads are completely sealed.
- Note: to improve the operation of the tubeless tyre inflation system the compressed air line pressure must be between 8/10 bar.

## MAINTENANCE

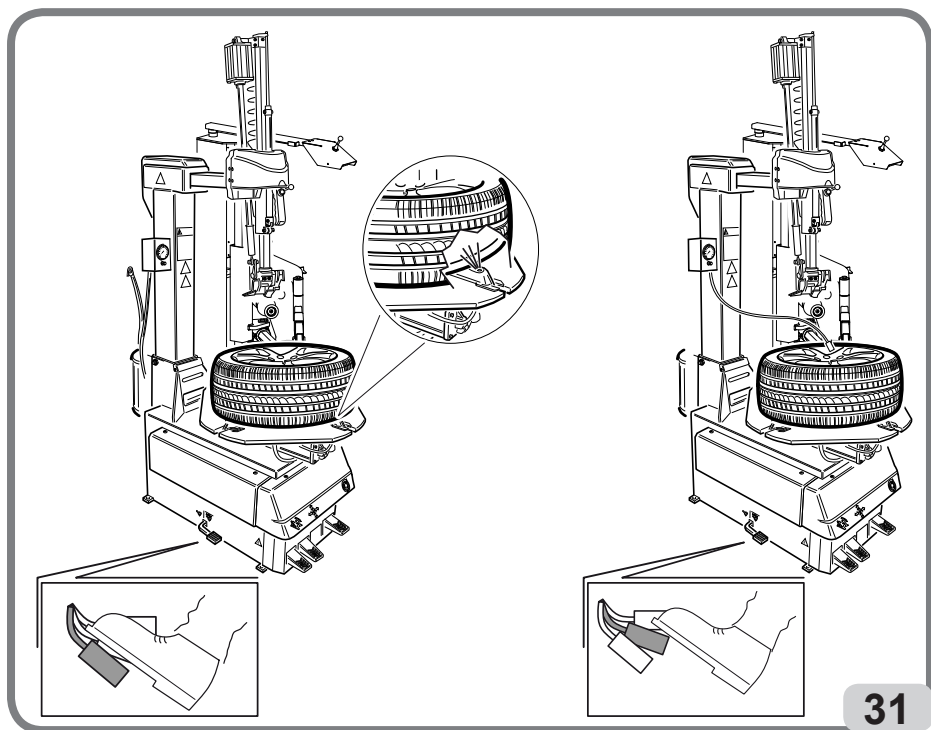


### CAUTION

The "Spare parts" handbook does not authorize users to carry out work on the machine with the exception of those operations expressly described in the user manual. It only enables users to provide the technical assistance service with precise information in order to minimize delays.



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## WARNING

We decline all liability for claims deriving from the use of non-original spare parts or accessories.



## CAUTION

Any operation intended to modify the setting value of the relief valves or pressure limiter is forbidden. The manufacturer declines all liability for damage resulting from tampering with these valves.



## WARNING

Before proceeding with any adjustment or maintenance activity, disconnect the machine from the air supply and electrically insulate the machine by means of an omnipolar disconnection device. Make sure that all the mobile parts are locked.



## CAUTION

In case of replacement of the power supply cable, follow the indications listed in the table below for the most appropriate cable choice:

SUPPLY	CABLE TYPE	NR OF WIRES	WIRE SECTION
400/3/50 400/3/60 230/3/50 230/3/60 200/3/50 200/3/60	FROR 450-750V UNEL 35011	3 - phase 1 - grounding	1mm <sup>2</sup>
240/1/50 230/1/50 220/1/60	FROR 450-750V UNEL 35011	1 - phase 1 – neutral 1 - grounding	1,5mm <sup>2</sup>
115/1/60	UL 1569 300V 105°C	1 - phase 1 – neutral 1 - grounding	AWG 14



## CAUTION

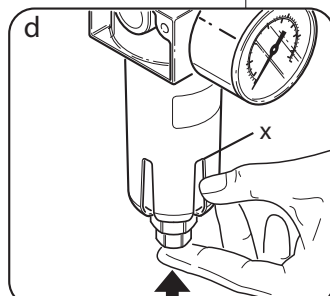
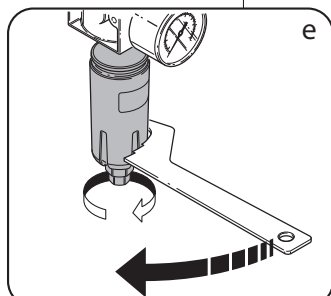
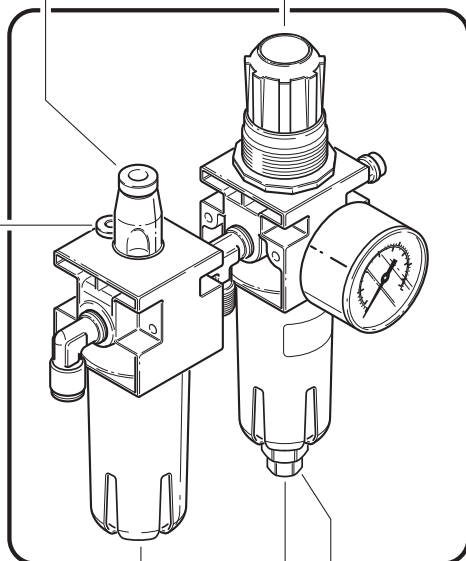
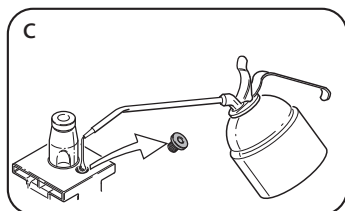
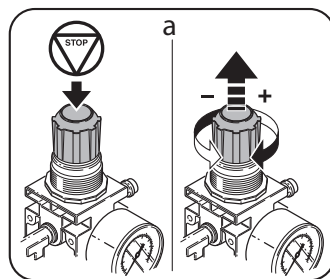
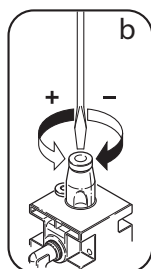
Do not remove or modify any parts of this equipment except in the case of service operations.



## DANGER

When the machine is disconnected from the air supply system, the devices marked with the warning sign shown above may remain pressurised.

- The filter+regulator+lubricator is equipped with a semiautomatic condensation drain device. This device operates automatically whenever the compressed air supply to the machine is cut off. Drain the condensation manually (push-button d, fig.32 ) when the level exceeds the mark X, fig. 32.
- Clean the top plate of the turntable every week: remove any accumulated dirt and clean with environmentally-friendly solvents.
- Monthly checks:



- Clean the arms of the tool-carrying head, the bead breaking unit and the relative travel screws with environmentally-friendly solvents only. Lubricate.
- Check the oil level in the air lubricator (fig. 32) and, if necessary, top up with non-detergent SAE20 oil to the indicated level Z.
- Clean with a dry cloth. Avoid contact with solvents.
- Check the oil flow-rate through the transparent cover K (correct flow-rate: 1 drop of oil every 4 bead breaking cycles). Adjust if necessary by turning the set screw Y fig. 32.



### CAUTION


Keep the working area clean.

Never use compressed air, jets of water or solvent to remove dirt or deposits off the machine.

When cleaning, take care not to create and raise dust as far as possible.

## ENVIRONMENTAL INFORMATION

The following disposal procedure shall be exclusively applied to the machines having the crossed-out

bin symbol  on their data plate.

This product may contain substances that can be hazardous to the environment or to human health if it is not disposed of properly.

We therefore provide you with the following information to prevent releases of these substances and to improve the use of natural resources.

Electrical and electronic equipment should never be disposed of in the usual municipal waste but must be separately collected for their proper treatment.

The crossed-out bin symbol, placed on the product and in this page, remind you of the need to properly dispose of the product at the end of its life.

In this way it is possible to prevent that a not specific treatment of the substances contained in these products, or their improper use, or improper use of their parts may be hazardous to the environment or to human health. Furthermore this helps to recover, recycle and reuse many of the materials used in these products.

For this purpose the electrical and electronic equipment manufacturers and dealers set up proper collection and treatment systems for these products.

At the end of life of your product contact your dealer to have information on the collection arrangements. When buying this new product your dealer will also inform you of the possibility to return free of charge another end of life equipment as long as it is of equivalent type and has fulfilled the same functions as the supplied equipment.

A disposal of the product different from what described above will be liable to the penalties prescribed by the national provisions in the country where the product is disposed of.

We also recommend you to adopt further measures for environment protection: recycle the internal and external packing of the product and properly dispose of dead batteries (if contained in the product). With your help the amount of natural resources used to produce electrical and electronic equipment can be reduced, the use of landfills for the disposal of the products, minimized, and the quality of life improved by preventing that potentially hazardous substances are released into the environment.

## INFORMATION AND WARNINGS ABOUT OIL

### Disposing of old oil

Do not dispose of used oil in sewers, storm drains, rivers or streams; collect it and consign it to an authorized disposal company.

### Oil spills or leaks

Contain the spilt product from spreading using soil, sand or any other absorbent material. Degrease the contaminated area with solvents, taking care to disperse solvent fumes. The residual cleaning material must be disposed of as prescribed by law.

### Precautions for the use of oil

- Avoid contact with the skin.
- Do not allow oil mists to form or spread in the atmosphere.
- Observe the following elementary health precautions:
  - protect against oil splashes (appropriate clothing, protective guards on machines);
  - wash frequently with soap and water; do not use cleaners or solvents that can irritate your skin or remove its natural protective oil;
  - do not dry hands with dirty or greasy rags;
  - change clothing if impregnated with oil, and in any case at the end of every working shift;
  - do not smoke or eat with greasy hands.
- Also adopt the following preventive and protective equipment:
  - gloves resistant to mineral oils, with lining;
  - goggles, in case of splashes;
  - aprons resistant to mineral oils;
  - screens to protect against oil splashes.

### Mineral oil: first aid procedures

- Swallowing: seek medical attention, providing the characteristics of the type of oil swallowed.
- Inhalation: in case of exposure to high concentrations of fumes or mists, take the affected person to the open air and seek medical attention immediately.
- Eyes: rinse with plenty of running water and seek medical attention as soon as possible.
- Skin: wash with soap and water.

## RECOMMENDED FIRE-EXTINGUISHING DEVICES

For guidance on the most suitable type of extinguisher, refer to the table below:

	Dry materials	Flammable liquids	Electrical equipment
Water	YES	NO	NO
Foam	YES	YES	NO
Powder	YES*	YES	YES
CO <sub>2</sub>	YES*	YES	YES

YES\* Use only if more appropriate extinguishers are not at hand or when the fire is small.



### WARNING

This table contains general instructions intended to be used as guidelines for users. Contact the manufacturer for details of the applications of each type of extinguisher.

## GLOSSARY

**Air delivery regulator:** Union allowing regulation of the air flow.

**Beading:** Operation which takes place during inflation and ensures perfect centring between the bead and the rim edge.

**Bead breaking:** Operation in which the bead of the tyre is detached from the edge of the rim.

**Bead pressing gripper:** A tool intended for use when mounting the top bead. It is fitted so that it grips the shoulder of the rim and holds the tyre top bead inside the drop centre. It is generally used for mounting low profile tyres.

**Tubeless Inflator:** An inflation system which simplifies inflating tubeless tyres.

**Bead:** The edge of the tyre that remains in contact with the rim when the tyre is installed.



**Tubeless:** A tyre without an inner tube..

## TROUBLE SHOOTING



### CAUTION

In case of unexpected failure, electrically insulate the machine by means of an omnipolar disconnection device.

### Turntable not turning

**Feeding plug not connected or defective.**

- Check the plug.

**Machine not powered.**

- Restore the electric connections.

**Defective inverter.**

- Replace the inverter (skilled staff needed in this case).

**Motor shorted.**

- Replace the motor (skilled staff needed in this case).

**Belt broken.**

- Replace belt.

### Rotation control pedal fails to return to central position

**Control spring broken.**

- Replace the control spring.

### Bead breaker pedal and table top pedal do not return to home position

**Control spring broken.**

- Renew the spring.

**No oil in lubricator.**

- Top up lubricator with SAE20 non-detergent oil.

### Air leak inside the machine

**Air leak from bead breaker cock.**

- Renew the cock.
- Renew bead breaker cylinder.

**Air leak from the table top cock.**

- Renew table top cylinder.
- Renew swivel connector.

### Bead breaker cylinder lacks force, fails to break beads and leaks air

**Silencer plugged.**

- Renew silencer.

**Cylinder seals worn.**

- Renew seals.
- Renew bead breaker cylinder.

### Bead breaker cylinder leaks air around the rod

**Air gaskets worn.**

- Replace gaskets.
- Replace bead breaker cylinder.

### Table top will not rotate in either direction

**Inverter faulty.**

- Replace inverter.

**Belt broken.**

- Renew belt.

**Gear unit broken.**

- Renew gear unit.

## **Gear unit noisy. The table top makes 1/3 of a spin and then stops**

### **Gear unit seizing.**

- Replace gear unit.

## **Table top fails to clamp wheels**

### **Table top does not clamp rim.**

- Renew table top cylinder.

## **Table top mounts or demounts wheels with difficulty**

### **Insufficient belt tension.**

- Adjust tension or replace belt.

## **Vertical head does not raise or does it too far from rim**

### **Clamping plate not adjusted.**

- Adjust plate.
- Restore setting.

## **Vertical slide ascends under strain**

### **Defective clamping plate.**

- *Renew plate.*

### **Clamping plate not adjusted.**

- Adjust plate.

## **Vertical and horizontal limit stops do not operate**

### **No air passing through clamping handle / valve.**

- Check hose circuit.
- Replace handle / valve.

## **Column does not tilt**

### **Column tilting cylinder faulty.**

- Replace column opening cylinder.

### **No air supply to cylinder.**

- Hoses folded.
- Replace valve.
- Check tightness of arm pivot.

## **Clamping arm cylinders leak air**

### **Faulty piston or gaskets.**

- Replace pistons and gaskets.

## **Column tilts violently or too slowly**

### **Incorrect release valve setting.**

- Adjust air delivery regulators on control valve.

## **Tyre pressure gauge needle fails to return to 0**

### **Pressure gauge faulty or damaged.**

- Replace pressure gauge.



### **WARNING**

The "Spare parts" handbook does not authorize users to carry out work on the machine with the exception of those operations expressly described in the user manual. It only enables users to provide the technical assistance service with precise information in order to minimize delays.

## APPENDIX 1

### IPL - LIFTER WITH ROLLER REST (optional)

#### General information

The IPL wheel lift has been designed as an optional accessory for tyre changer to facilitate wheel positioning from the floor to the turntable and vice-versa.

Beside ensuring the above mentioned performance, it facilitates bead-breaking operation.

Any other use is improper, unreasonable and, therefore, not permissible. In particular, NEVER use the IPL to lift persons. Before any operation on or with this device, the contents of this instructions Manual must be read carefully and thoroughly understood.

Manufacturer declines any and all liability for injury to persons or damage to property caused by improper or unreasonable use of the device.

#### Installation

The IPL must be installed exclusively by professionally expert personnel.

N.B.: Before any installation work, check to make sure that the tyre changer is disconnected from all supply sources. Also check to make sure that the tyre changer has been anchored to the floor with adequate expansion bolts to eliminate the risk of its tipping over.

#### Fitting the ipl

Fix the lifting connecting rod (1 fig.33) to the platform using the fulcrum pin (2 fig.33) and the snap rings (3 fig.33), placing the spacer (4 fig.33) between the two rods.

Fix the stabilizer connecting rod (5 fig.33) to the platform using the fulcrum pin (2 fig.33) and the snap rings (3 fig.33).

#### Ipl fixing and pneumatic connection (fig.34)

Remove the cover unscrewing the hexagonal screws, insert the IPL passing the air hoses in the slot inside the body until you reach the pedal unit. Fix the lift tightening the hexagonal screws.

Take away the plastic cover (1-A) unscrewing the self-tapping screws. Unlock the clip connecting pedal and reverse switch (2-A) to free the pedal unit.

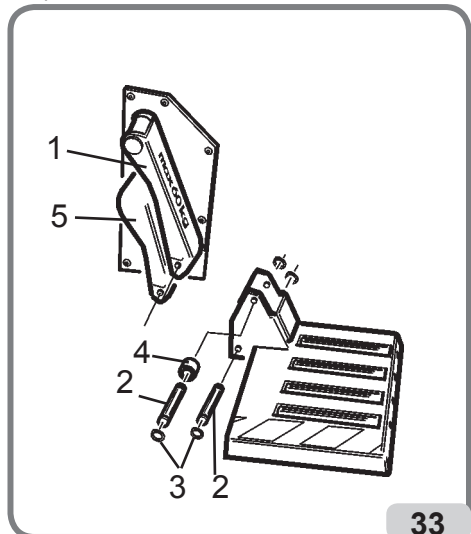
Extract the pedal unit, freeing the bead breaker pedal and then the complete pedal unit (1),

remove the closing cap (2) and insert the IPL control pedal. Fix it with the relevant screws in the 3 points on the pedal unit base (3). Insert the pedal recovery spring (4).

Cut the air supply hose going from the turntable valve to the tilt valve and insert the quick "T" union already connected to the IPL control valve (6). Connect the red hose of the lift to union A and the black hose to union B of the control valve.

Reposition the pedal units in their original position and fix them with their proper screws.

Adjust ascent and descent speed acting on the relevant silencers.



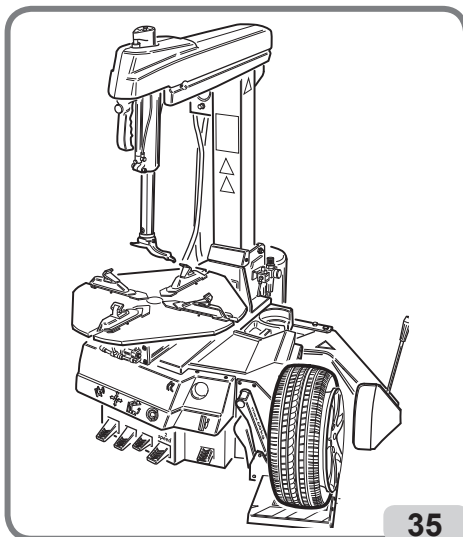
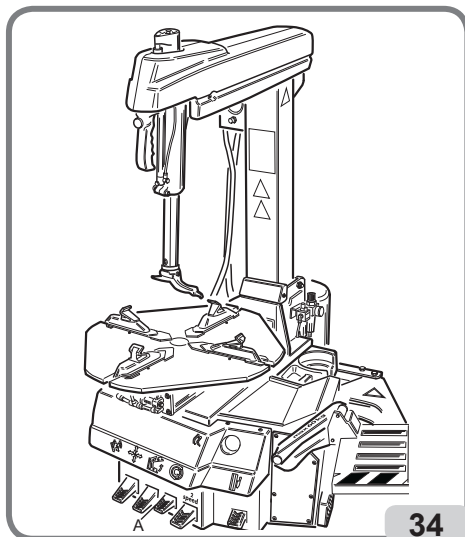
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## Controls

The IPL tyre lift has a single control pedal used both to raise and lower the lift.

When the pedal is pressed and held down (A fig.34) the platform is raised until it reaches its high position.

When the pedal is released, the platform immediately lowers all the way to the floor.



## Operation

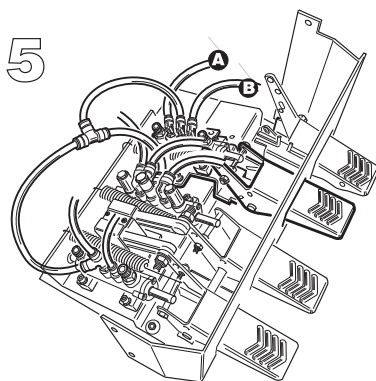
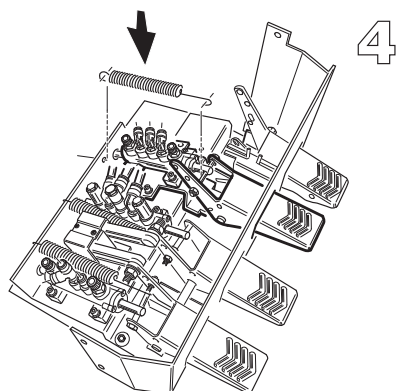
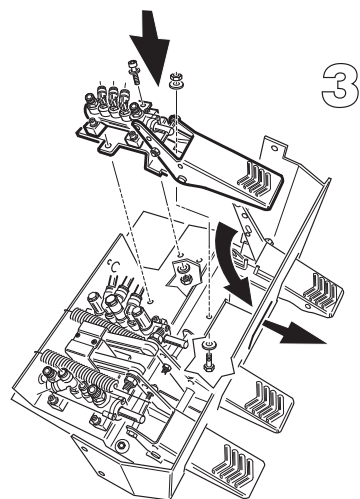
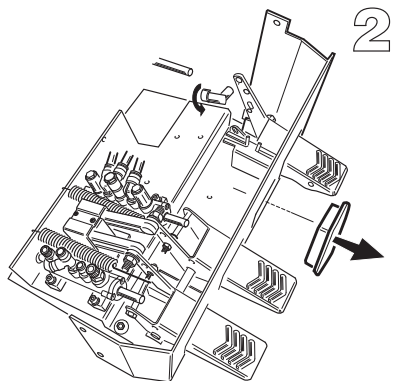
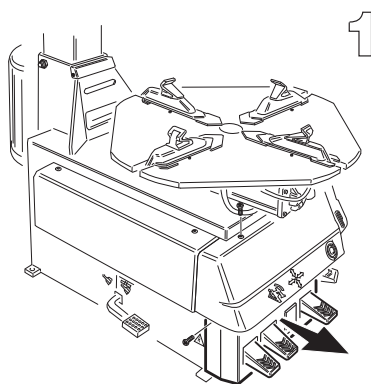
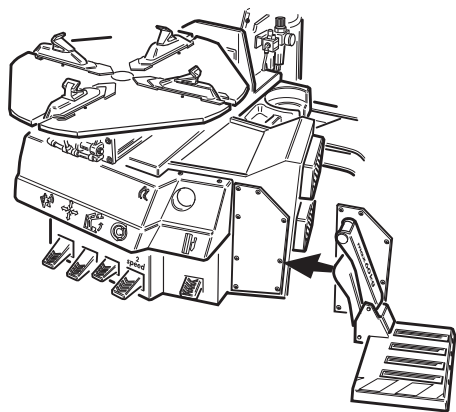
The IPL has been designed to facilitate movement of tyres from the floor to the turntable and vice-versa.

Positioning the wheel:

- 1) Place the wheel vertically on the platform (fig.35).
- 2) Press the pedal (a fig.34) to raise the platform. Hold the wheel with one hand as the platform moves so that the wheel is always balanced.
- 3) Place the wheel on the turntable using the plastic roller to move the wheel from the lift to the turntable
- 4) Release the pedal (a fig.34) to lower the platform.

Removing the wheel:

- 1) Unclamp the wheel from the turntable grippers.
- 2) Press the pedal (a fig.34) to raise the platform and hold the platform down.
- 3) Place the wheel vertically on the platform going over the plastic roller.
- 4) Release the pedal (a fig.34) to lower the wheel to the floor. Hold the wheel with one hand as the platform moves so that the wheel is always balanced.



## WIRING DIAGRAM

AP1	Single / two-speed motor circuit board
M1	Motor
SQ1	Two-speed micro-switch
SQ2	Micro-switch (CLOCKWISE rotation)
SQ3	Micro-switch (ANTICLOCKWISE rotation)
XB1	Connector
Z1	Mains filter

## PNEUMATIC SYSTEM DIAGRAM

### A – FILTER REGULATOR UNIT

1.	Female quick coupling	4.	Lubricator
2.	Filter regulator unit		
3.	Manometer		

### B – TPH CONTROL PANEL

5.	Selector switch
6.	Valve pneumatic control
7.	Tph upward / downward cylinder

### C – TPH CONTROL UNIT

8.	Pressure regulator	12.	Flow regulator
9.	Valve	13.	Quick venting valve
10.	Feeding valve TPH disc	14.	Feed pneumatic cylinder TPH disc
11.	Return valve TPH disc	15.	Locking cylinder

### D – COLUMN TILTING CYLINDER CONTROL

16.	Valve Pneumatic control	17.	Tilting cylinder
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### E – TURNTABLE CYLINDER CONTROL

18.	Valve Pneumatic control	19.	Cylinder
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### F – BEAD BREAKER CYLINDER CONTROL

20.	Valve Pneumatic control	21.	Bead breaker cylinder
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### G – TOOL ARM CLAMPING HANDLE CONTROL

22.	Valve Pneumatic control	23.	Vertical locking cylinder
24.	Horizontal locking cylinder	25.	Tool vertical movement cylinder

### H – TOOL DRIVE CYLINDER CONTROL

26.	Valve Pneumatic control	27.	Tool drive cylinder
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### I – INFLATION UNIT

28.	Pedal board inflation limiter	29.	Pedal
30.	Valve		

### L – INFLATION

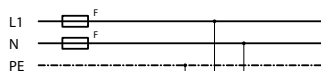
### M – MANUAL DEFLATION

31.	Distribution frame	32.	Manual deflation valve
33.	Manometer		

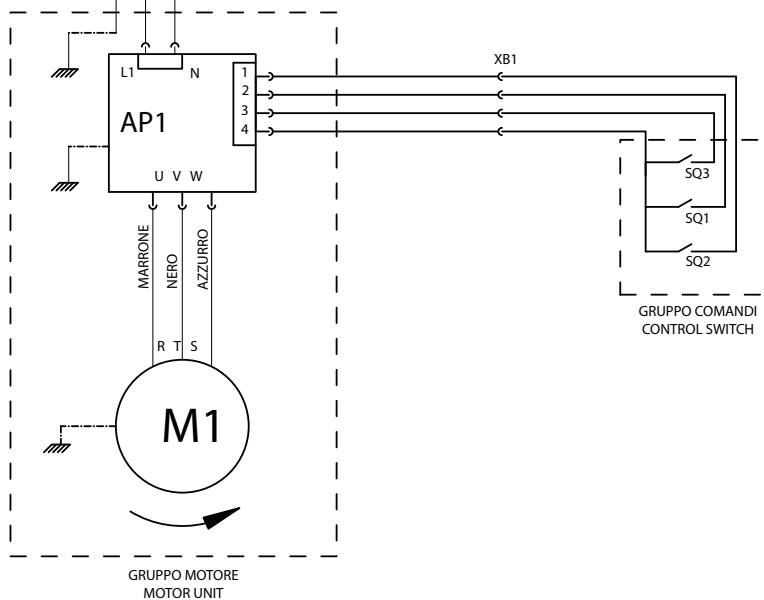
### N – T.I. (t.i. version)

34.	Pressure accumulator	35.	Valve
36.	Nozzle		

## Versione con Motoinverter



Power	F: Fuse	
	Phase	Neutral
200-230V / 1 / 50-60 Hz	250V, 12A	250V, 12A



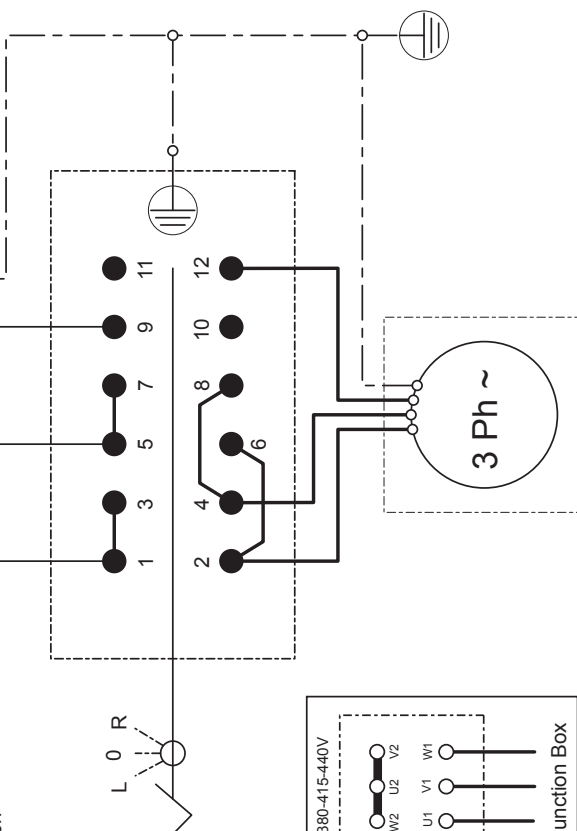






**INVERTITORE COMMUTATORE DI POLARITA'**  
Reverse Polarity Switch

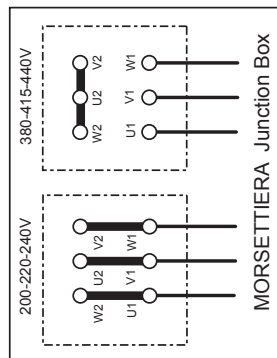
Power	F: Fuse Phase
400V / 3 / 50 Hz - 0.55 kW	500V, 4A
400V / 3 / 50 Hz - 0.75 kW	500V, 6A
230V / 3 / 50 Hz - 0.55 kW	250V, 10A
230V / 3 / 50 Hz - 0.75 kW	250V, 10A
200V / 3 / 50 Hz - 0.75 kW (Japan)	250V, 10A

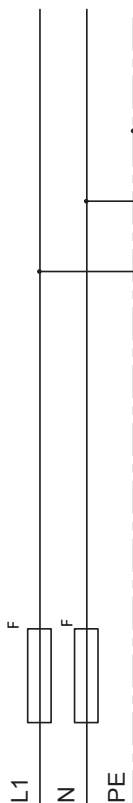


x				3	11-12
			x		9-10
x				2	7-8
			x		5-6
			x	1	3-4
x					1-2
L	0	R			

———— CONTATTI - Contacts

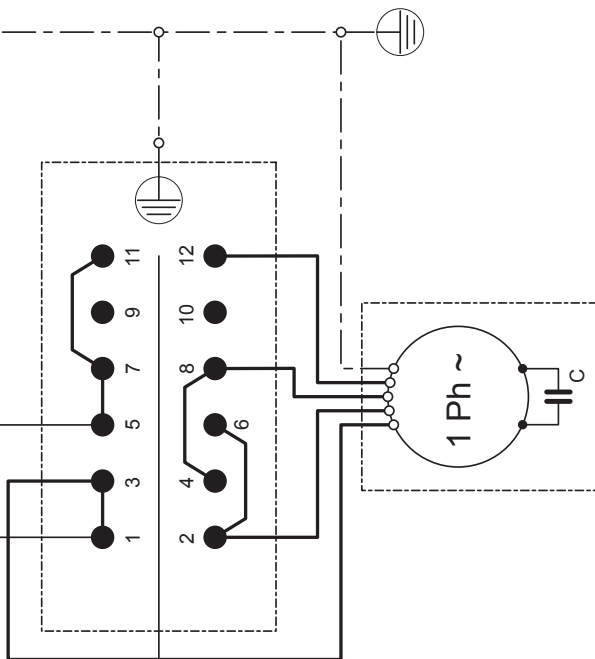
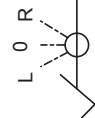
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Power	F: Fuse	
	Phase	Neutral
230V / 1 / 50 Hz	250V, 16A	250V, 16A
240V / 1 / 50 Hz	250V, 16A	250V, 16A
220V / 1 / 60 Hz	250V, 16A	250V, 16A
115V / 1 / 60 Hz	250V, 20A	250V, 20A

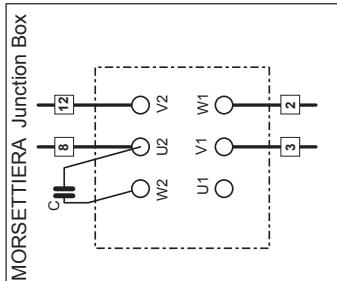
INVERTITORE COMMUTATORE DI POLARITA'  
Reverse Polarity Switch

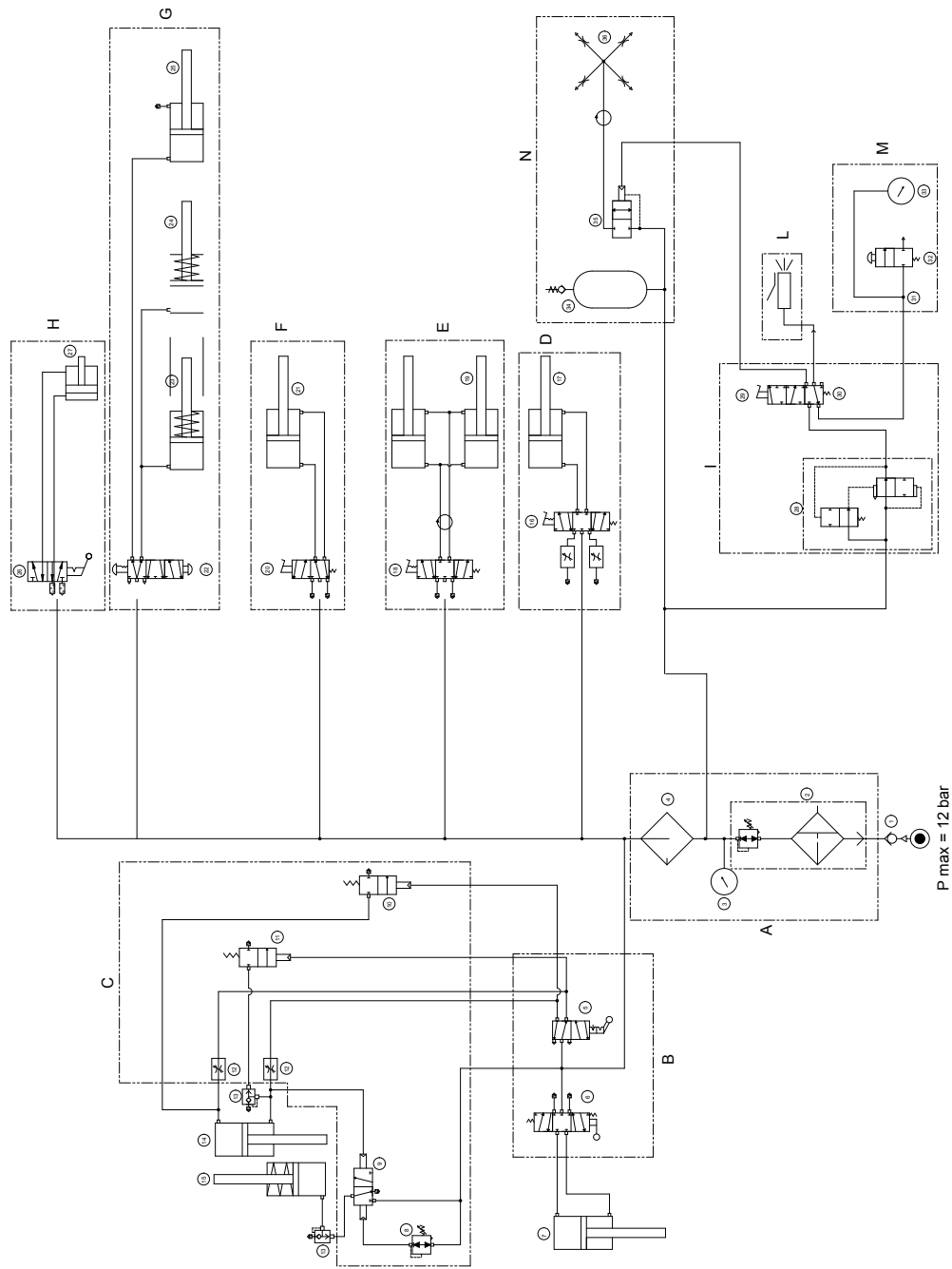


x			3	11-12
		x		9-10
x			2	7-8
		x		5-6
		x	1	3-4
x				1-2
L	0	R		

CONTATTI - Contacts

ELEMENTI - Elements





$P_{max} = 12 \text{ bar}$

