



USER'S MANUAL
MOBILE TYRE CHANGER
INVENTO TC 823M

PRINTING CHARACTERS AND SYMBOLS

Throughout this manual, the following symbols and printing characters are used to facilitate reading:

	Indicates the operations which need proper care
	Indicates prohibition
	Indicates a possibility of danger for the operators
BOLD TYPE	Important information

	WARNING: before operating the machine, read the manual carefully for all proper operations and better functioning.
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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION

Thank you for purchasing a product from the line of truck tire changers. The machine has been manufactured in accordance with the very best quality principles. Follow the simple instructions provided in this manual to ensure the correct operation and long life of the machine. Read the entire manual thoroughly and make sure you understand it.

1.2 MACHINE IDENTIFICATION DATA

A complete description of the “Tire Changer Model” and the “Serial number” will make it easier for our technical assistance to provide service and will facilitate delivery of any required spare parts. For clarity and convenience, we have inserted the data of your machine in the box below. If there is any discrepancy between the data provided in this manual and that shown on the name plate fixed to the wheel balancer, the latter should be taken as correct.

LOGO		
Type:		
Volt	Amp	Kw
Ph	Hz	
Year of manufacturing:		

1.3 MANUAL KEEPING

For a proper use of this manual, the following is recommended:

- Keep the manual near the lift, in an easily accessible place.
- Keep the manual in an area protected from the damp.
- Use this manual properly without damaging it.
- Any use of the machine made by operators who are not familiar with the instructions and procedures contained herein shall be forbidden.

This manual is an integral part of the manual: it shall be given to the new owner if and when the machine is resold.



The illustrations have been made out of prototypes pictures. It is therefore possible that some parts or components of standard production differ from those represented in the pictures.

TO THE READER

Every effort has been made to ensure that the information contained in this manual is correct, complete and up-to date. The manufacturer is not liable for any mistakes made when drawing up this manual and reserves the right to make any changes due the development of the product, at any time

CHAPTER 2 – GENERAL INFORMATION

2.1 INTENDED USE

- This tire changer has been designed and manufactured exclusively to be put on a car for removing and mounting truck, bus and commercial van tires from/onto rims from 13" to 26" and a tire at maximum diameter of 1300mm.
- In particular **THE MANUFACTURER** cannot be held responsible for any damage caused through the use of this tire changer for purposes other than those specified in this manual, and therefore inappropriate, incorrect and unreasonable.

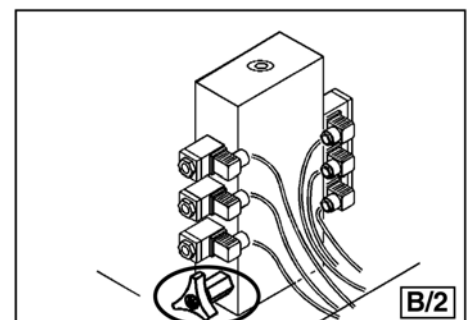
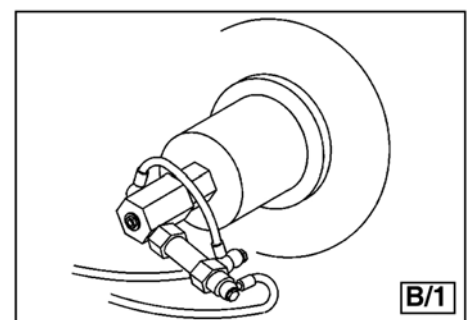
2.2 GENERAL SAFETY PRECAUTIONS

- The machine should only be used by duly authorized and trained personnel.
- The machine should not be used for purposes other than those described in the instruction manual.
- Under no way should the machine be modified except for those modifications made explicitly by **THE MANUFACTURER**.
- Never remove the safety devices. Any work on the machine should only be carried out by specialist personnel.
- Any tampering or modification to the equipment carried out without the manufacturer's prior authorization will free him from all responsibility for damage caused directly or indirectly by the above actions.
- Removing or tampering with safety devices immediately invalidates the guarantee.
- The tire changer comes complete with instruction and warning transfers which are designed to be long-lasting. If they should for any reason be damaged or destroyed, please ask immediately for replacements from the manufacturer.
- The machine operator should avoid wearing clothes with flapping edges. Make sure that unauthorized personnel do not approach the machine during the work cycle.

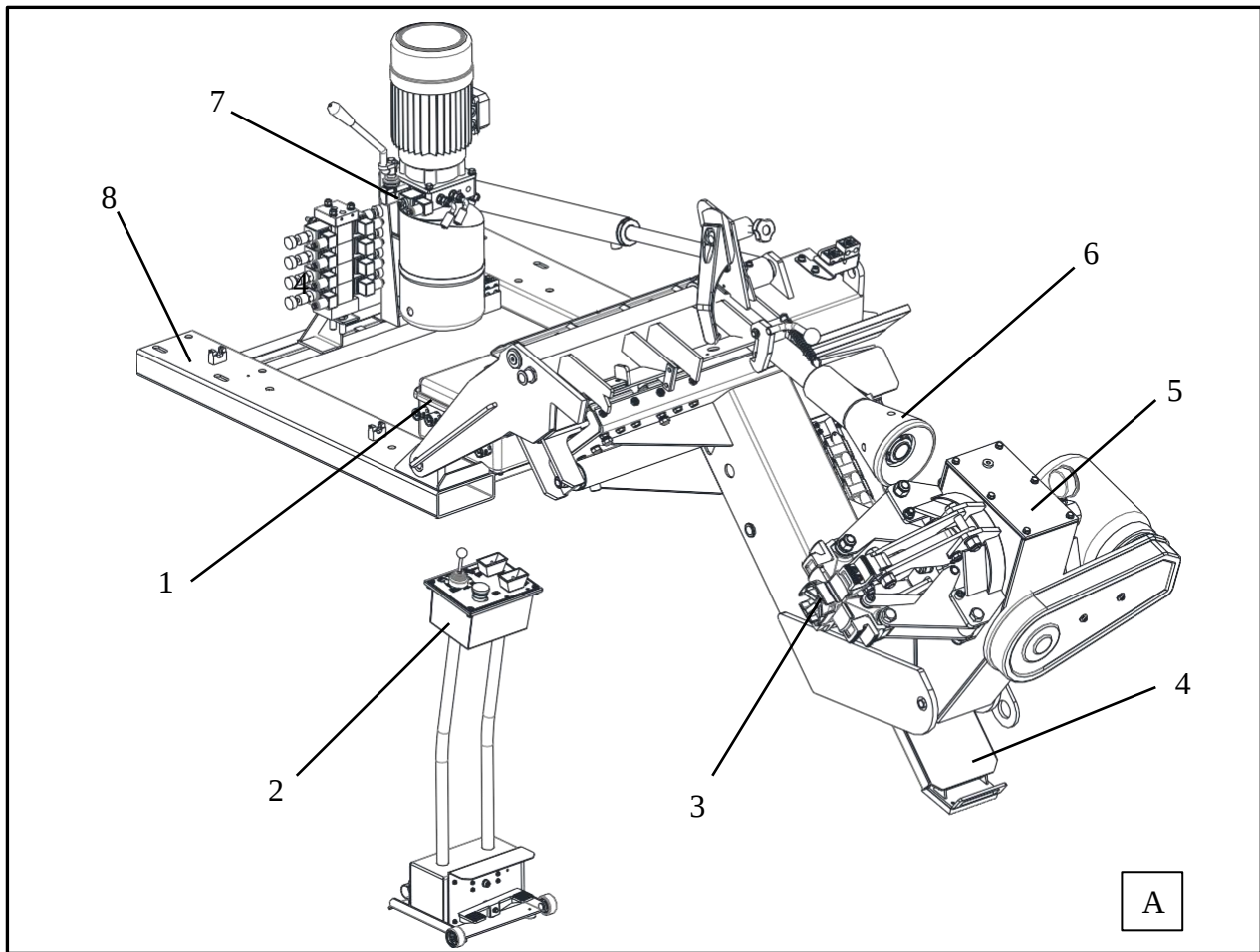
2.3 SAFETY DEVICES

The tire changer has a number of safety devices designed to guarantee the upmost safety:

- **Check valve on the spindle opening hydraulic line** (inside the swivel connector, see fig. B/1). This prevents the wheel from falling from the spindle if the hydraulic line is accidentally broken.
- **Pressure relief valve set at 130 bar $\pm$ 10%** (see fig. B/2). This limits the pressure in the hydraulic line and ensures correct operation of the plant.
- **Pump motor overload cut-off** (inside the electric enclosure). This cut prevents the motor from burning out if it overheats.
- **Check valve on the chuck arm lifting hydraulic line.** It prevents the chuck arm from descending when any accidental break occurs in the hydraulic line. .



2.4 PRODUCT DESCRIPTION

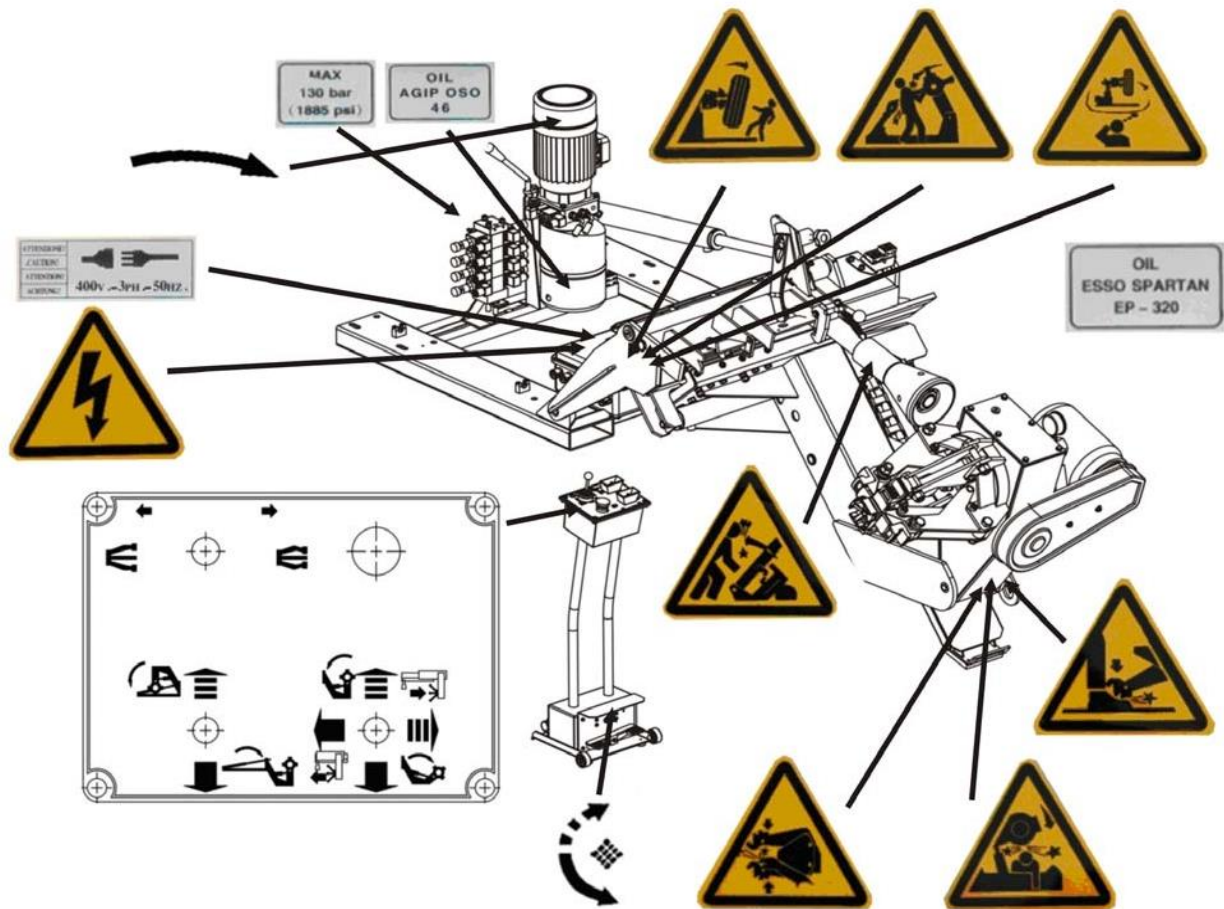


- | | |
|--------------------|-------------------------|
| 1. Electric system | 5. Chuck arm tool |
| 2. Control unit | 6. Tool roller |
| 3. Jaw | 7. Hydraulic power unit |
| 4. Support | 8. Base frame |

2.5 TECHNICAL SPECIFICATION

Pump motor	380V-400V/3PH 1.1kw
	220V-230V/1PH 1.5kw
Gear-box motor	380V-400V/3PH 1.5kw
	220V-230V/1PH 1.5kw
Handles rim from	13" – 26"
Max. tire diameter	1300mm
Max. tire width	600mm
Max. wheel weight	750 kg
Net weight with no generator and compressor	450 kg
Noise level in working condition	< 70 dB (A)

2.6 IDENTIFYING WARNING SIGNS

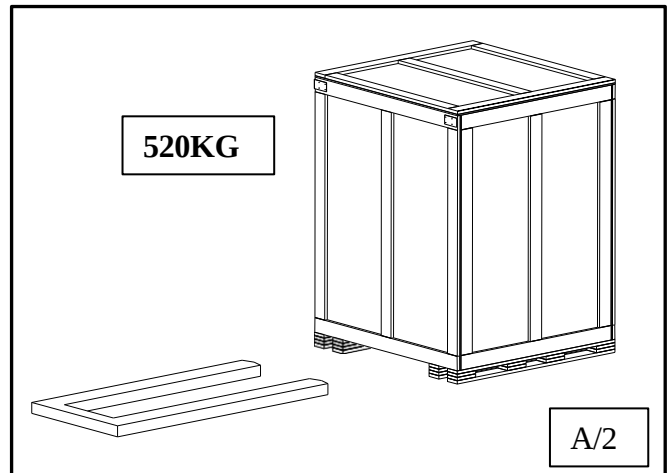


Unreadable and missing warning labels must be replaced immediately. Do not use and add any object that could prevent the operator from seeing the labels.

CHAPTER 3 – TRANSPORTATION AND UNPACKING

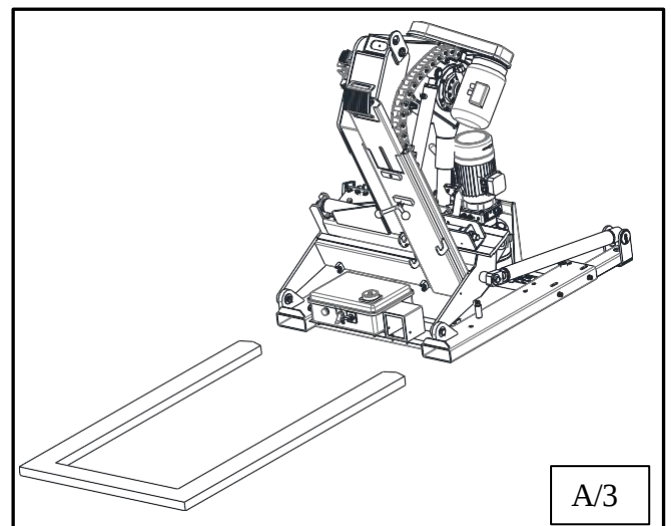
3.1 TRANSPORTATION

- The machine must be transported in its original packaging and kept in the position shown on the package itself.
- The packaged machine may be moved by means of a fork lift truck of suitable capacity. Insert the forks at the points shown in fig. A/2.



3.2 UNPACKING

- Remove the packing materials.
- After removing the packaging from the machine, make sure to check it without any damage, then install the tyre changer in the van.
- To move the machine without packing, use only a fork-lift truck, fitting the forks into the channels provided in the base (ref. fig. A/3).



If in doubt do not use the machine and contact your retailer.

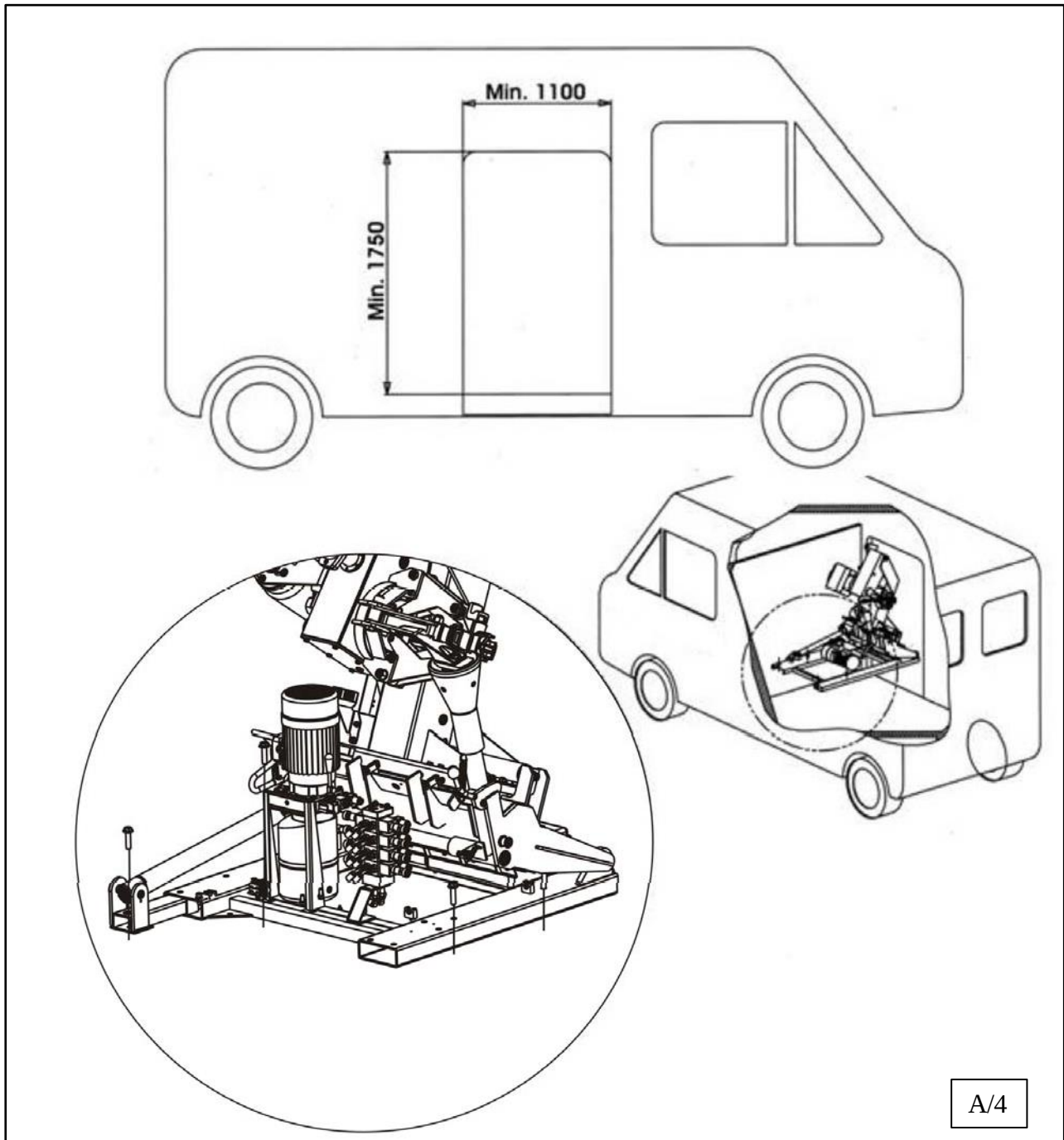
CHAPTER 4 – INSTALLATION

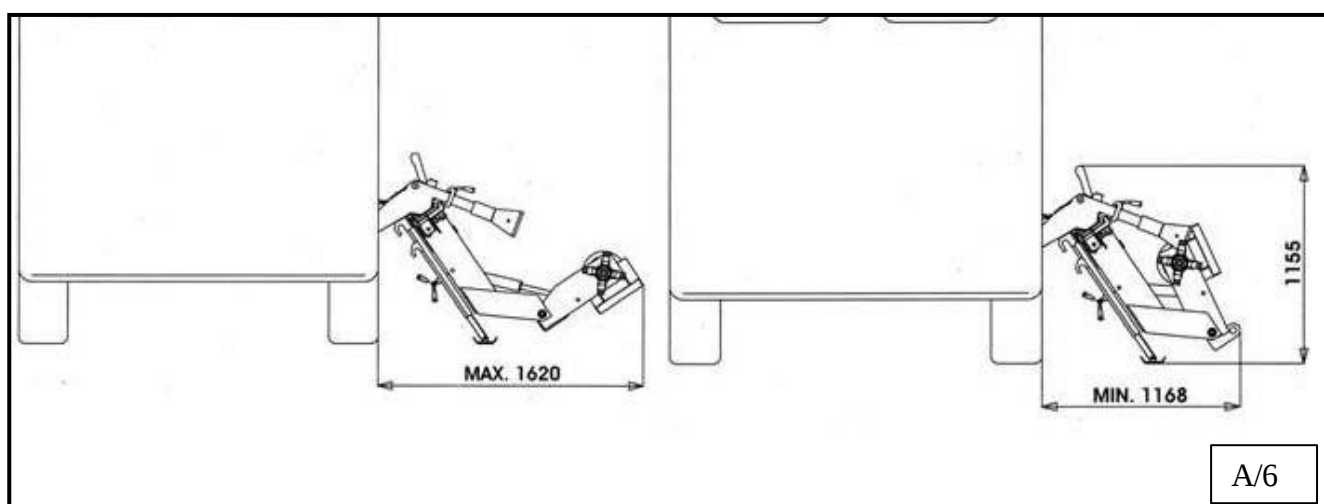
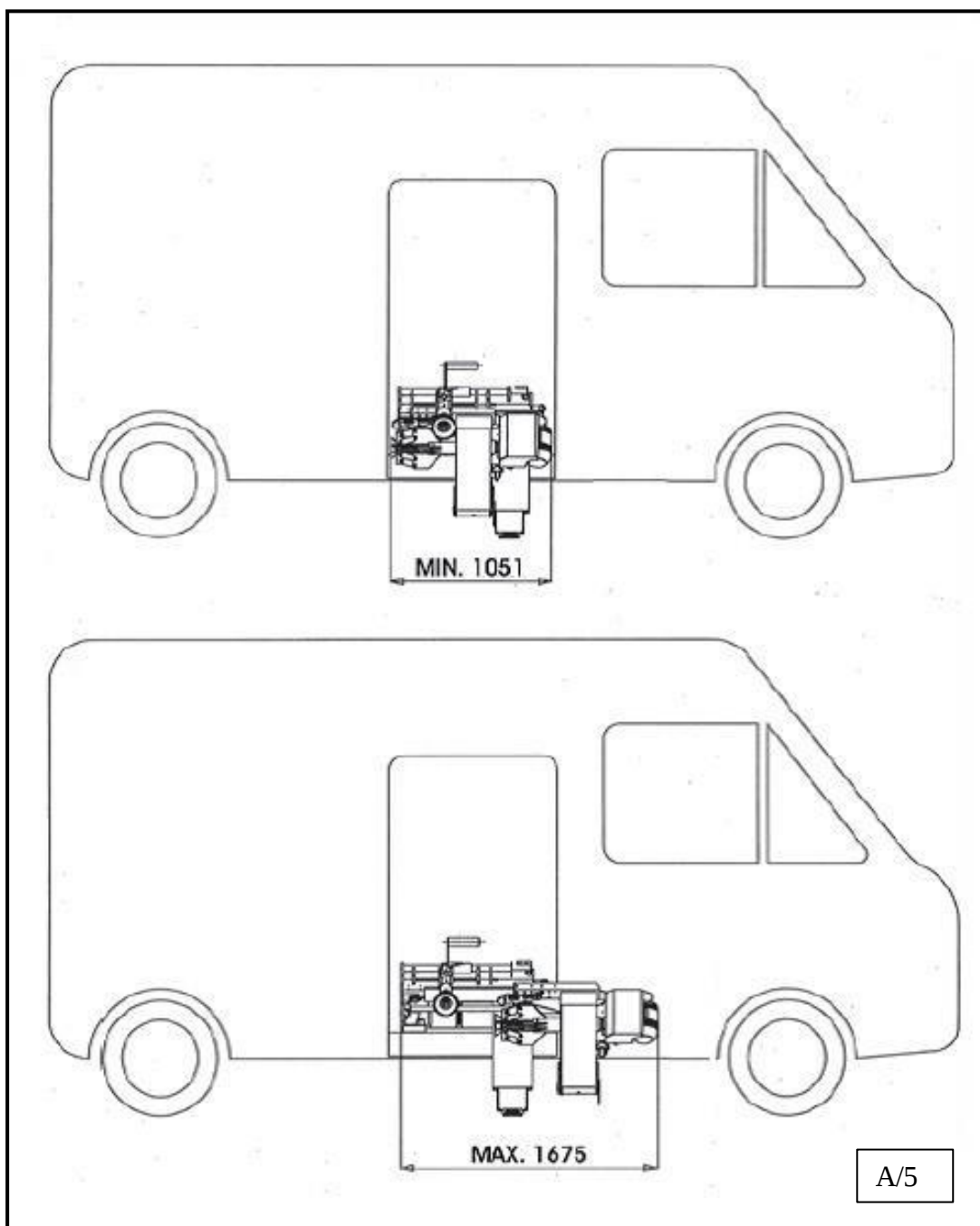
4.1 INSTALLATION SPACE REQUIRED

This tyre changer is designed to be installed on vans with side or rear opening of at least 1100 x H1750mm as shown in the figure A/4.

Maximum height off the ground of the installation surface is 770mm.

The dimensions of tyre changer are shown in the figures A/5 and A6.







Installation must be carried out by the authorized personnel according to the local safety regulations.

Manufacturer is not responsible for any problem or damage that may arise if the machine is not secured correctly to the van floor.

When you drill the holes on the van floor, make sure not to damage the van, make sure the holes must be drilled in the correct positions so as to use the machine not dangerous.

The installation consists of the following procedures:

- Position the machine inside the van.
- Drill the holes on the floor of the van carefully.
- Secure the machine on the van.
- Position the machine in the van.



On vans with sliding door on the left hand side, during installation, ensure that the dimensions of tire changer when in use do not interfere with the open door.

- Secure the machine to the van floor in at least 4 points.
- The mobile control unit has not fixed position, but it must be positioned in a way that the user can observe the machine when working.

4.2 ELECTRIC HOOK UP



Any electric connection job must be carried out by professionally qualified personnel.

- Check to make sure the characteristics of your systems correspond to those required by the machine. The supply voltage (and main frequency) is given on the machine nameplate. It cannot be changed.
- Connect the machine to the generator unit. If the machine does not include the electric plug, the user must set one, which must conforms to the voltage of the machine, in compliance with the regulations in force.
- The machine should not be started up without proper grounding.

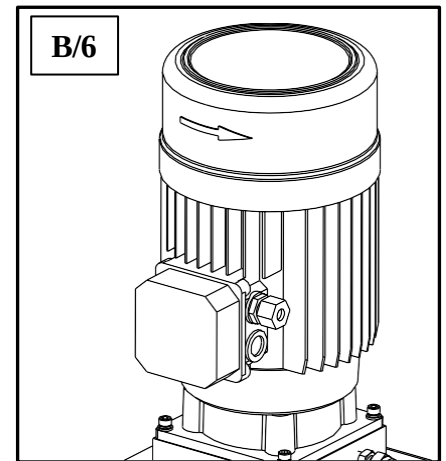
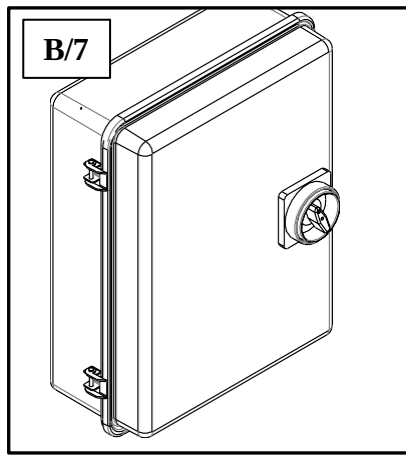
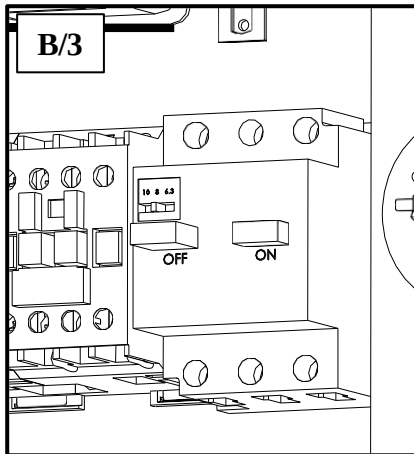


It is absolutely essential that:

The current intake is adequately protected against over currents with fuses or automatic magneto-thermic switch with rated value as shown in the table.

Power supply	Rated current	
	Fuse	Switch
220V/230V – 3ph – 50/60Hz	25A AM	25A
380V/440V – 3ph – 50/60Hz	16A AM	16A

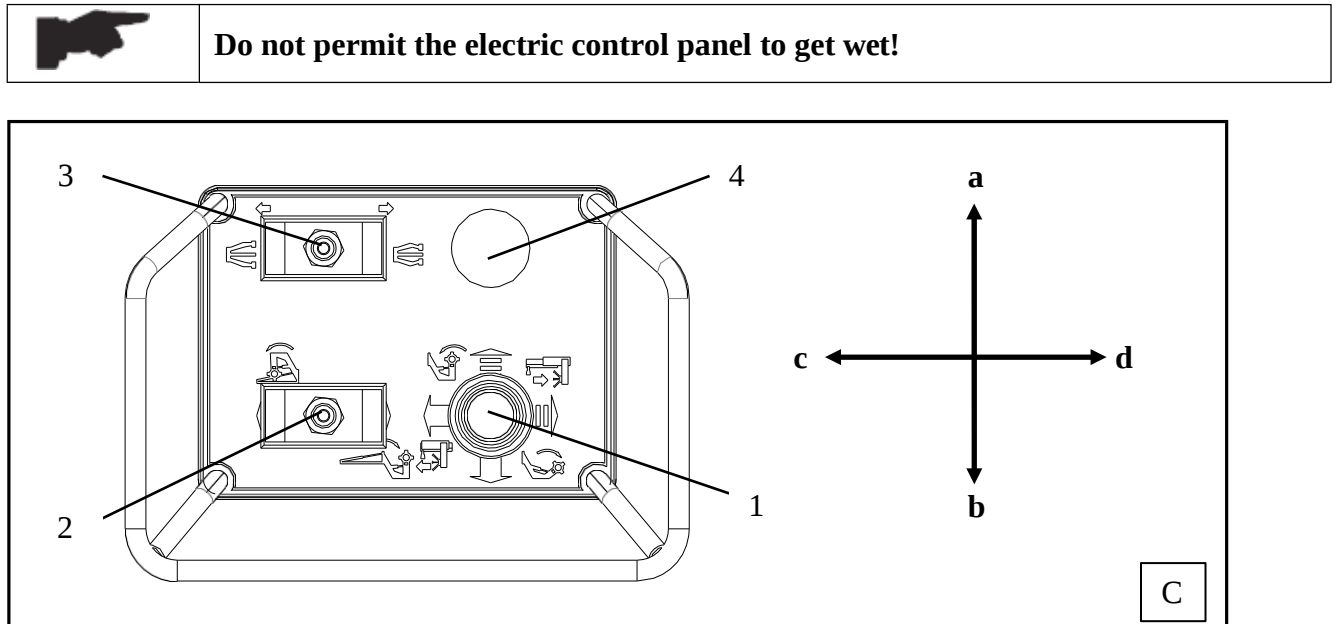
- Open the control panel;
- Switch the breaker on (fig. B/3)
- Switch on the electric panel (fig. B/7) and check that the gearbox motor rotation corresponds to the indicating arrow (fig. B/6).
- If not, switch two wires in the plug.



CHAPTER 5 – OPERATION

5.1 CONTROLS

The mobile control unit (fig. C) enables the operator to work at any position around the machine. On this mobile control the following controls are located:



➤ **Joystick (1/fig. C):**

- Move it to position [a] to raise the chuck arm.
- Move it to position [b] to lower the chuck arm.
- Move it to position [c] to moves the chuck arm towards the tool.
- Move it to position [d] moves the chuck arm away from the tool.

➤ **Tilting switch (2/fig. C):**

- Move it to position [c] to tilt the machine inside the van.
- Move it to position [d] to tilt the machine outside the van.

➤ **Chuck switch (3/fig. C):**

- Move it to position [c] to open the self-centering chuck.
- Move it to position [d] to close the self-centering chuck.

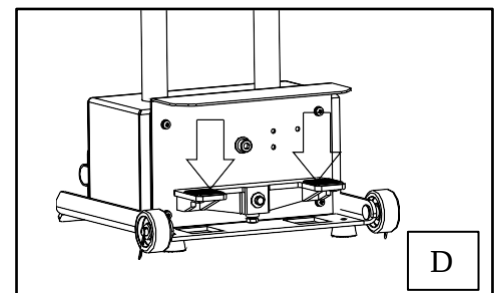
➤ **Emergency button (4/fig. C):**

- For emergencies, press it to cut out the generator unit and thus the tire changer power supply.

The tire changer also has:

➤ **The pedal (fig. D):**

- When pressed on the left or right side rotates the self-centering chuck in the same direction as shown by the arrows placed on the foot pedal.



Before use the tire changer, a number of checks should be made to ensure it works correctly. Operate the joystick and the switches described in the chapter 5.1 and be sure that every control works correctly.

Check to be certain the hydraulic circuit is working correctly:

- Move the switch (3/fig. C) towards the top until the chuck is fully extended.
- Hold the switch lever in this position (top) and check if the pressure shown on the gauge on the swivel fitting is 130bar $\pm$ 10%. DO NOT USE THE MACHINES IF THE PRESSURE SHOWN IS NOT AS INDICATED HERE AND THEN CALL FOR THE SERVICE.

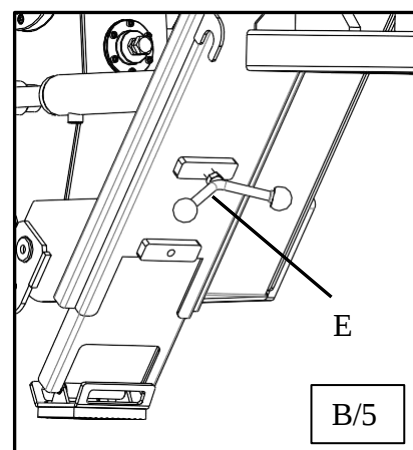
5.2 PRELIMINARY OPERATIONS



Before using the tire changer, make sure that it is positioned correctly on the van.

To bring the machine to the working position, proceed as follows:

- Open the van door and position the mobile control unit at a side and away from the machine.
- Switch on the generator/compressor unit referring to the respective manual.
- Switch the breaker on (fig. B/3).
- Switch on the tire changer (fig. B/7).
- Release the locking handle (E/fig. B/5) so that the stabilizer feet can be extended.
- Operate the tilting switch (2/fig. C) until the stabilizer feet touches the ground completely.
- Lock the stabilizer feet using the locking handle (E/fig. B/5) in position.

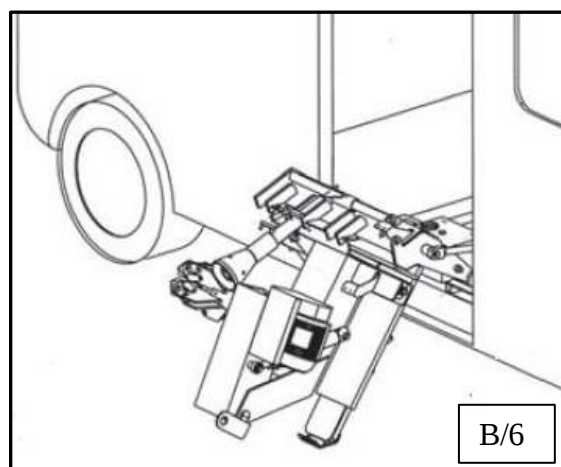


Once the tire is changed, proceed as follows:



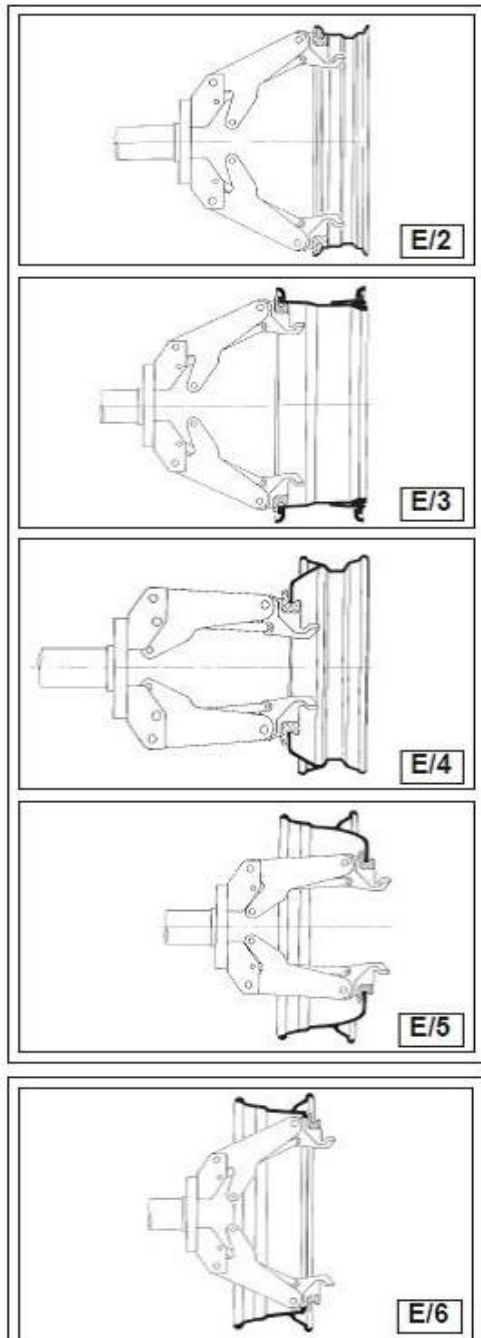
Follow these procedures carefully to avoid dangerous movements or damages to parts of the machine.

- Operate the chuck switch to close the chuck jaws.
- Operate the joystick to bring the chuck arm to the original position.
- Place the tool arm in the central position as shown in the figure B/6.
- Operate the tilting switch to tilt the machine inside the van.
- Release the locking handle and put the stabilizer feet into the original position, and lock the handle.
- Put the mobile control unit in the van.



5.3 LOCKING THE WHEEL

	When the chuck arm is lowered, there is always a potential for crushing anything in its movement range. Always work from position given in the instructions keep well out of working range of the various moving parts.
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	In locking the wheel, make sure that clamps are properly positioned on the rim, so as to prevent the tire from falling.
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- Pull the tool-holder arm (10/fig. A) out of the working position.

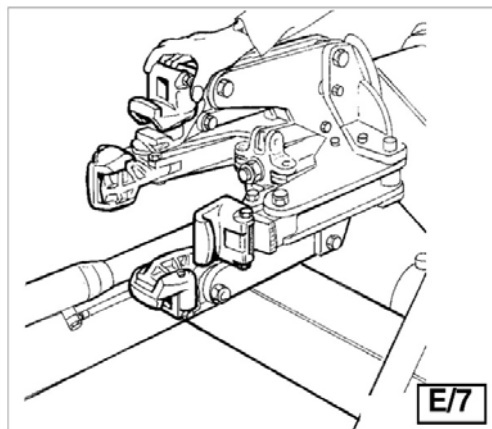
	This operation can be extremely dangerous. Do it manually only if you are certain you can keep the wheel balanced. For large and heavy tires an adequate lifting device must be used.
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- Operate the joystick (1/fig. C) to raise or lower the chuck arm until the chuck is centered with the rim.
- With the jaws (2/fig. A) are closed, bring the wheel up to the chuck.
- Operate the chuck switch (3/fig. C) to open the chuck and lock the rim internally in the best position based on the type of the rim according to figs E/1-E/2-E/3-E/4- E/5 and E/6.

	Always remember that the safest locking is on the central FLANGE.
	For rims with channel, clamp the wheel so that the channel is near the outside of the rim (fig. E/1).

	Do not leave the work area with a wheel clamped on the tire changer and lifted up from the floor.
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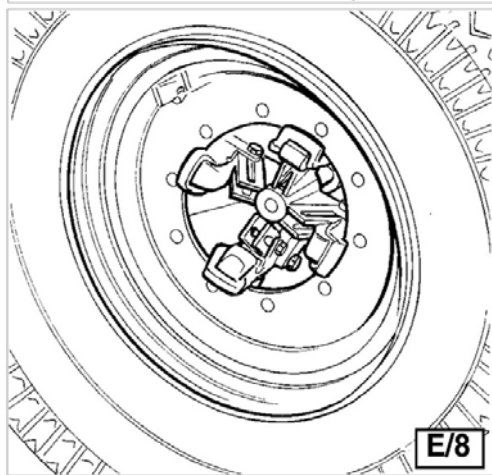
5.4 LIGHT-ALLOY RIM LOCKING



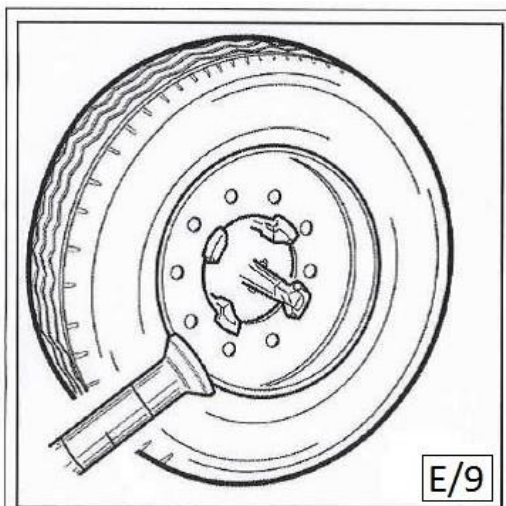
The jaw protection kit CC-F100100 can be available upon request, are specially designed for operating on light alloy rims without damaging them.

The protections are to be inserted (bayonet-like mounting) into the clamp support of the self-centering chuck (see fig. E/7).

Lock the rim as illustrated in fig. E/8. The specially-made pliers YC8-F200000 should be attached to the outside edge of the alloy rim at the highest point.



5.5 DEMOUNTING TUBELESS TIRES



- Before removing the tire, lubricate the beads carefully to protect them from being possible damages to facilitate the removing operations.
- Lock the wheel on the self-centering chuck, as previously described, and ensure that the tire is deflated.

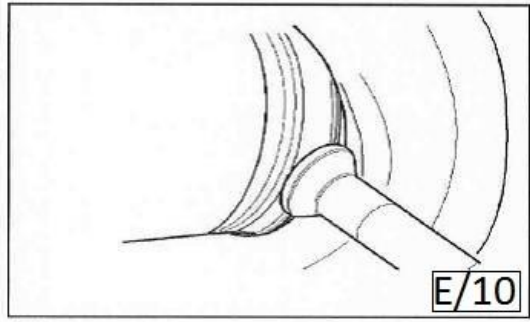


Always check to be certain that the arm is corrected hooked to the carriage.



A mechanical lifting device must be used when handling wheels weighing more than 110kg.

- Lower the tool-holder arm (10/fig. A) into its working position and lock it.
- Operate the joystick to move the wheel until the roller just touches the edge of the rim as shown in the figure E/9.
- Rotate the wheel and at the same time advance the roller with small movements forward according to the profile of the rim (ref. fig. E/10).



- Continue until the first bead is fully detached. To facilitate this operation, lubricate the bead and the edge of the rim with tire lubricant whilst the wheel is rotated.



To avoid all risks, rotate the wheel clockwise when operating on the outside plane and anticlockwise when operating on the inside plane.

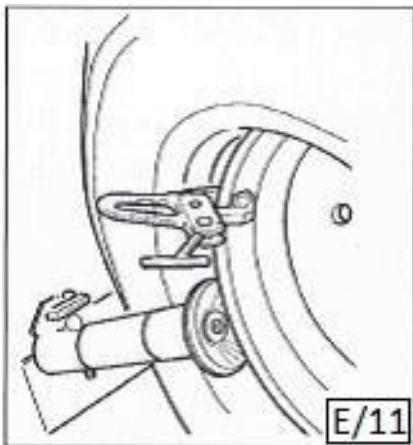
- Bring the tool-holder arm (10/fig. A) away from the rim. Release the hook and raise the arm to its non-working position, shift it and re-hook it in its second work position.



Do not keep your hands on the tool when setting it in working position so as to avoid any possible crushing between the tire and the tool.

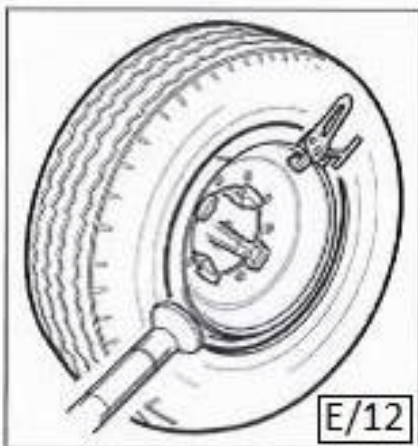
- Repeat the operation previously described until the second bead is completely detached.
- Go on pushing the tire until the rim comes completely out.

5.6 MOUNTING TUBELESS TIRES



- Make sure that the rim is locked on the self-centering chuck.
- Lubricate the beads and rim carefully to facilitate the mounting operations.
- Fix the pliers at the outer rim edges at its highest point. Make sure the clip is firmly attached to the rim.
- Put the tire on the floor and lower the chuck to allow locking the first bead with the pliers (make sure it at the high point).
- Lift the rim with the tire fixed and turn it anticlockwise about 15-20 cm. The tire will be positioned tilted across the rim.
- Lower the tool-holder arm into its working position and lock it.
- Operate the joystick to position the roller against the second tire

bead and turn the tire until the pliers is at the lowest position. The first bead should be set on the rim at this time.



- Position the roller at a distance of 4-5mm from the rim and press on the second tire bead in order to fit the pliers (E/11).
- Turn clockwise and lubricate the beads and the rim with the proper grease. At the same time, advance the roller with small movements towards to the rim center until the tire is completely set on the rim as shown in the figure E/12.
- Remove the pliers out of the rim and bring the tool-holder arm out of the working position.
- Lower the chuck, and then close the chuck jaw to set the wheel on the floor vertically.



A mechanical lifting device must be used when handling wheels weighing more than 110kg.

Tire inflation must be done by placing the tire inside the safety cage.

CHAPTER 6 - ORDINARY MAINTENANCE



Each maintenance operation must be effected only after the disconnection of the plug from electric network.

Refer to the user and maintenance manuals for details on the routing maintenance of the generator and the compressor.

To ensure that this tire changer works perfectly over the years, carry out the routine maintenance schedule described below:

1) Lubricate the following parts from time to time, after a thorough cleaning with naphtha:

- the various swivels on the spindle
- the tool bracket slide runner
- the carriage guide plate.

2) Grease the chuck arm cylinder from time to time and also its swivel using ordinary lubricating grease.

3) From time to time check the oil level in the hydraulic power pack. Use the dipstick under the reservoir cap.

If necessary top up with Esso Nuto H46 or similar hydraulic oil (eg, Agip Oso 46, Shell Tellus Oil 46, Mobil DTE 25, Castrol Hyspin AWS 46, Chevron RPM EP Hydraulic Oil 46, BP Energol HLP).

4) From time to time check the oil level in the gear unit which, when the tool carrier bracket is completely lowered at end travel, should not show the sight glass on the gear casing as completely empty. If necessary top up with Esso Spartan EP 320 or similar oil (eg, Agip F1 REP 237, BP GRX P 320, Chevron Gear Compound 320, Mobil Gear 632, Shell Omala Oil 320, Castrol Alpha SP 320).



If the oil in the gear unit or the hydraulic power pack has to be changed, note that the gear unit casing and the power pack reservoir have specific drain plug.



Dispose of the used oil following the present legislation on the matter.

CHAPTER 7 - TROUBLE SHOOTING

TROUBLE:	POSSIBLE CAUSE:	SOLUTION:
After having switched on the power switch, the pilot lamp does not light on and no control can function.	The power plug is not inserted.	Insert the plug correctly in its socket.
	No power from the mains electric supply.	Reset the mains electric supply.
After having switched on the power switch, the pilot lamp light on but the motor on the hydraulic power pack does not function.	The circuit breaker is not switched on.	Switch on the circuit breaker.



If, despite of the above mentioned indications the tire changer does not work properly, do not use it and call for technical assistance.

CHAPTER 8 – MOVING, STORING AND SCRAPPING

8.1 MOVING THE MACHINE

To move the machines, follow these instructions:

- 1) Completely fold down the tire changer.
- 2) Close completely the jaws of the chuck.
- 3) Unscrew the screws that secure the tire changer on the van.
- 4) Use a forklift truck of suitable loading capacity, take the tire changer off the van and put it away in a sheltered and covered place.

8.2 STORING

If the machine as to be stored for a long time (3-4 months) you have to:

- 1) Grease all the parts that could be damaged if they dry out:
 - the self-centering chuck
 - the slot of the tool holding arm
 - the slides of the carriage
 - the tool
- 2) Empty oil/hydraulic fluid reservoirs and wrap the machine in a sheet of protective plastic to prevent dust from reaching the internal working parts.

If the machine as to working again after a long storing period, it is necessary to:

- fill the oil into the reservoirs again.

8.3 SCRAPPING A MACHINE

When your machine's working life is over and it can no longer be used, it must be made inoperative by removing any connection to power sources.

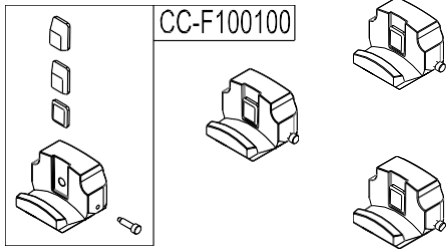
These units are considered as special waste material, and should be broken down into uniform parts and disposed of in compliance with current laws and regulations. If the packing are not polluting or non-biodegradable, deliver them to appropriate handling station.



If this machine catches fire, use dust or CO2.

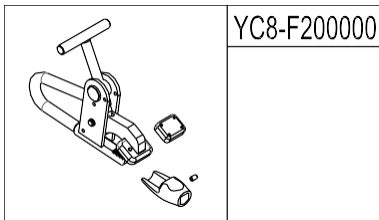
CHAPTER 9 – OPTIONAL ACCESSORIES

The following optional accessories are available for the tire changer:



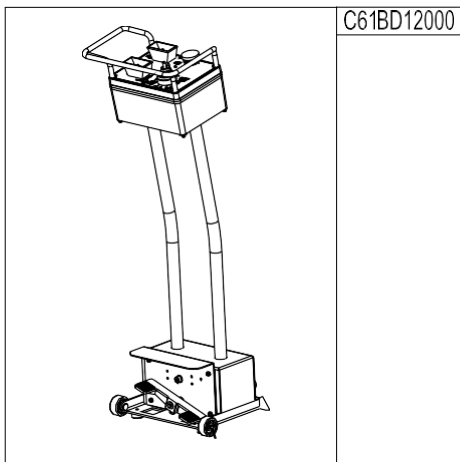
CC-F100100 Set of 4 jaws for alloy rims

Mounted on the jaws of the chuck, they are used to operate on alloy rims without damaging them.



YC8-F200000 Pliers for alloy rims

It is used to work with alloy rims without damaging them.

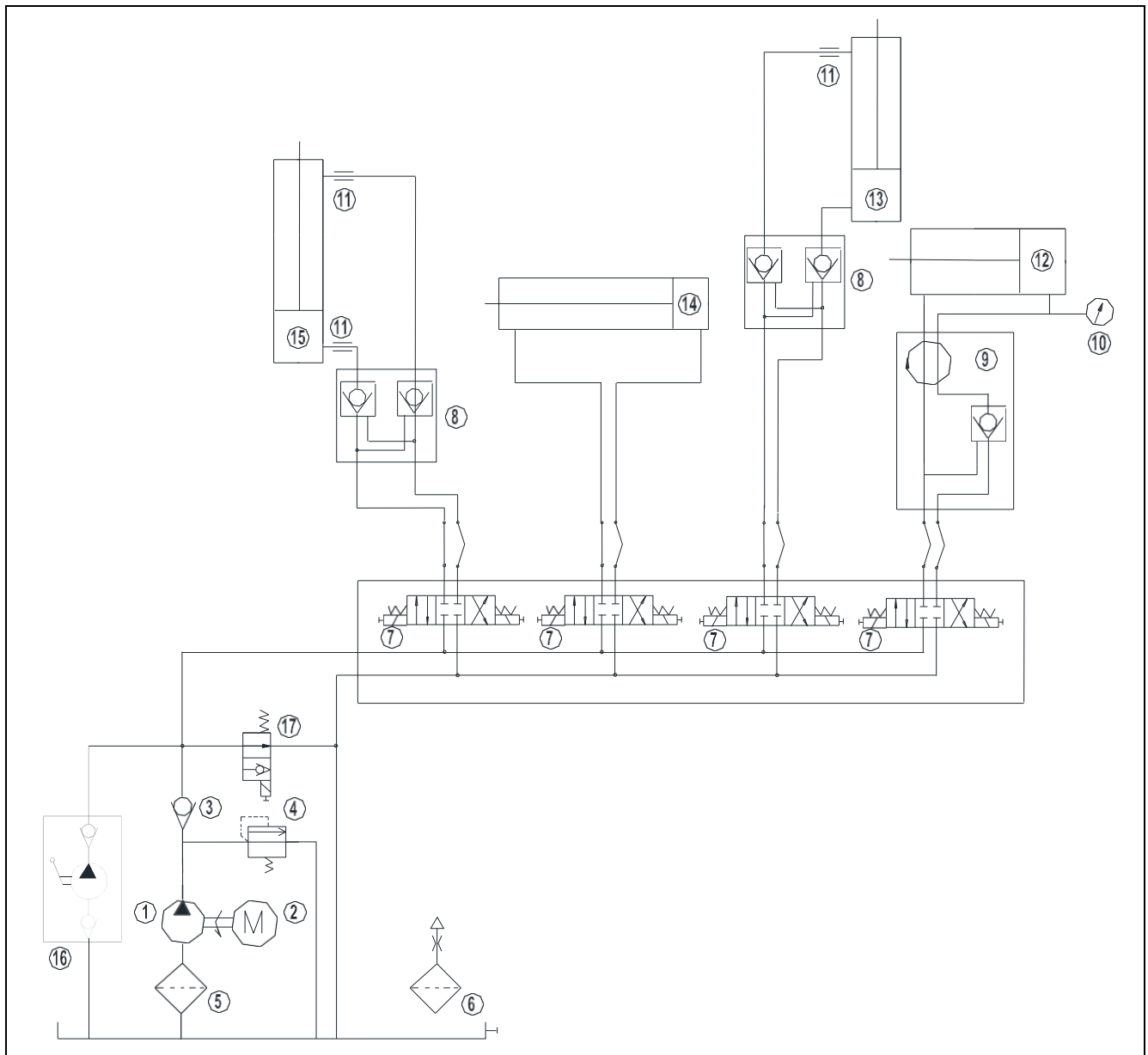


C61BD12000 Wireless control unit

It is used to operate the tire changer wireless.

CHAPTER 10 - HYDRAULIC SCHEME AND ELECTRIC DIAGRAM

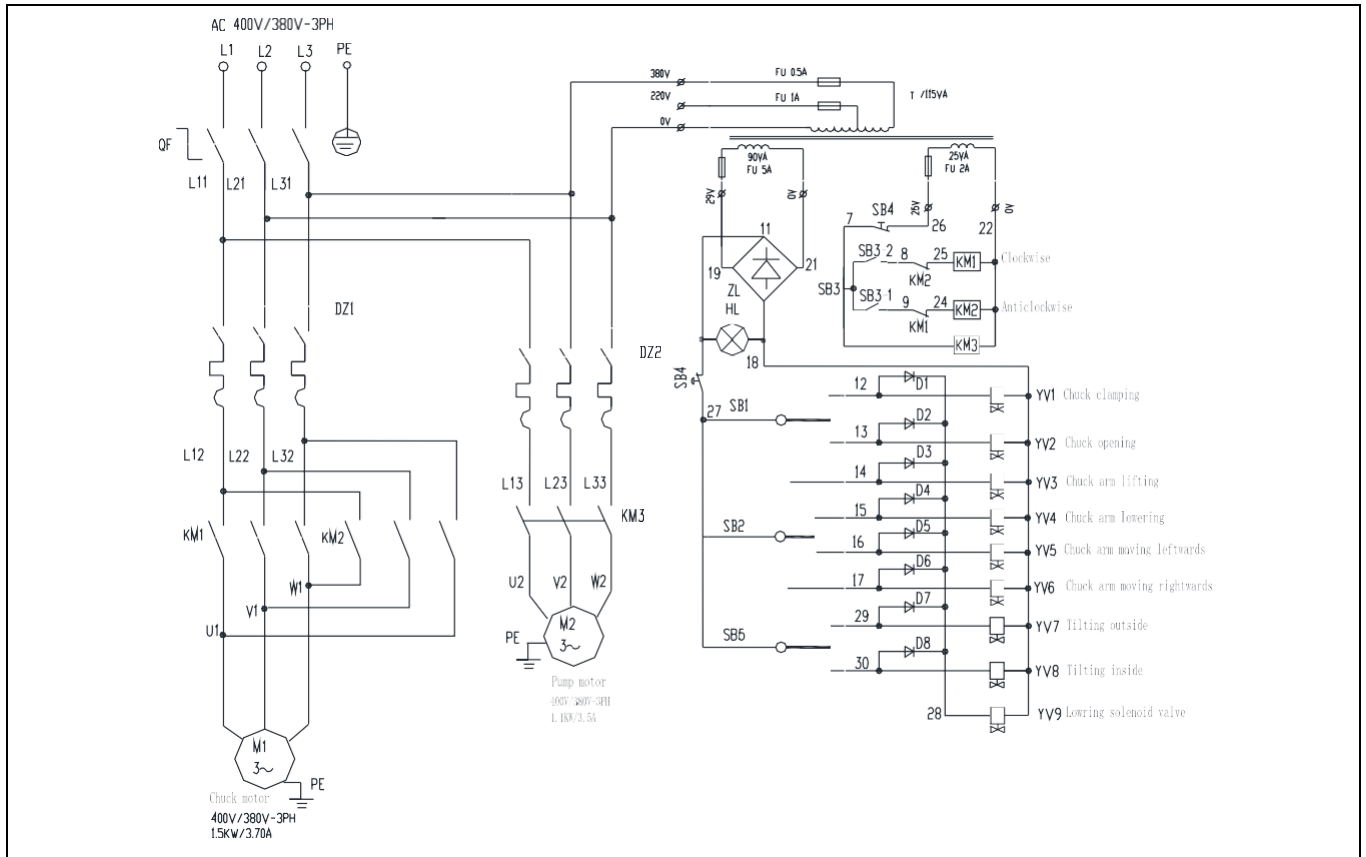
HYDRAULIC SCHEME



1	Gear pump	10	Pressure gauge
2	Pump motor	11	Flow restrictor
3	Check valve	12	Chuck opening/closing cylinder
4	Pressure overload valve	13	Chuck arm cylinder
5	Oil filter	14	Carriage cylinder
6	Oil level plug	15	Tilting cylinder
7	Modular directional solenoid valve	16	Emergency hand pump
8	Stop valve	17	Solenoid valve
9	Stop valve		

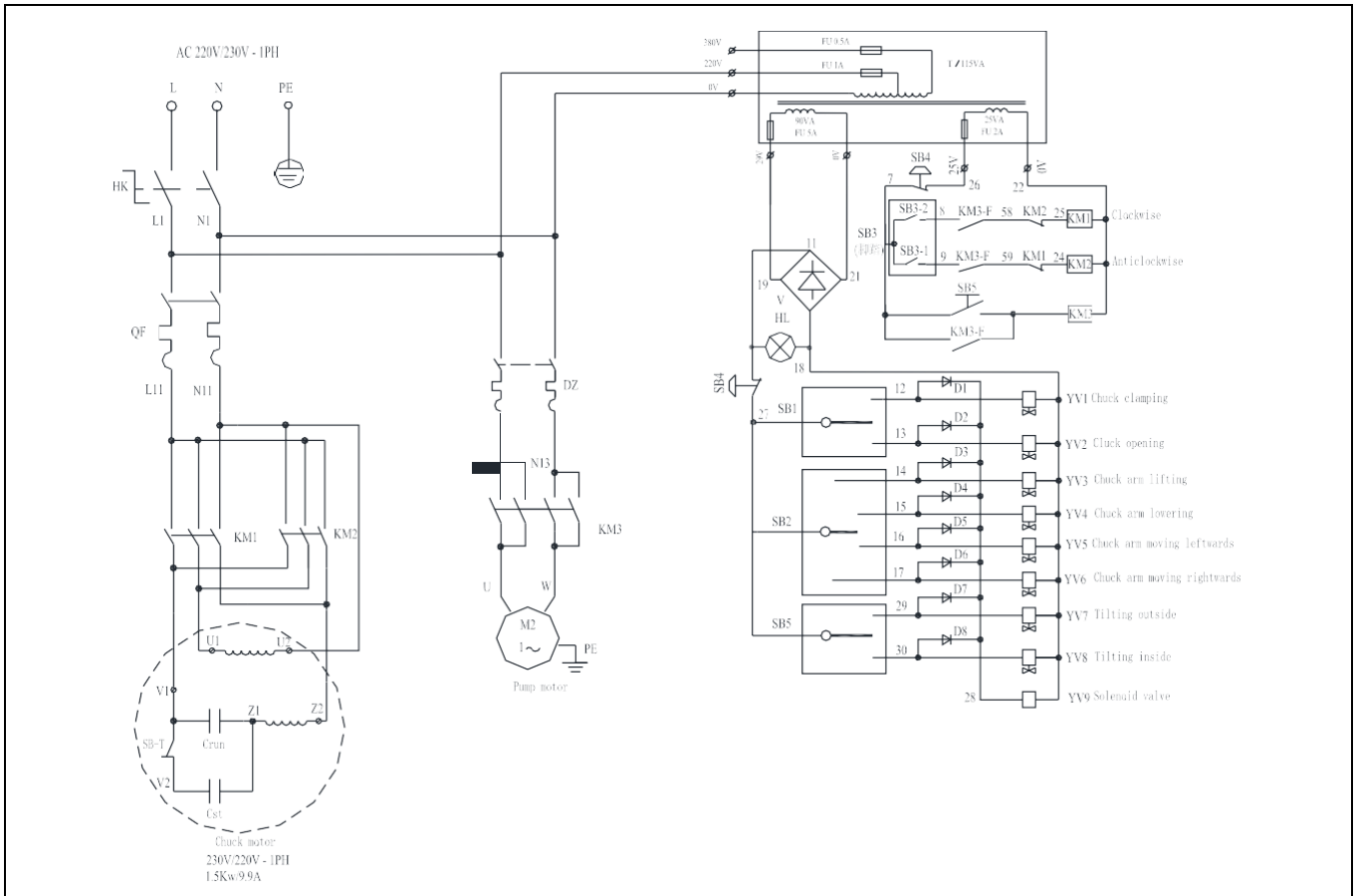
ELECTRIC DIAGRAM

380V/400V – 3PH



QF	Power switch
DZ1	Breaker
DZ2	Breaker
M1	Chuck motor
M2	Pump motor
KM1	Contactor AC – chuck clockwise rotation
KM2	Contactor AC – chuck anticlockwise rotation
KM3	Contactor AC – hydraulic motor protection
SB1	Chuck clamping/opening control switch
SB2	Chuck arm movement manipulator
SB3	Pedal control
SB4	Emergency stop switch
SB5	Tilting control switch
YV1	Solenoid valve 24VDC – chuck clamping
YV2	Solenoid valve 24VDC – chuck opening
YV3	Solenoid valve 24VDC – chuck arm lifting
YV4	Solenoid valve 24VDC – chuck arm lowering
YV5	Solenoid valve 24VDC – chuck arm moving leftwards
YV6	Solenoid valve 24VDC – chuck arm moving rightwards
YV7	Solenoid valve 24VDC – tilting outside
YV8	Solenoid valve 24VDC – tilting inside
YV9	Lowering solenoid valve
HL	Pilot lamp

ELECTRIC DIAGRAM 220V/230V – 1PH



QF	Power switch
DZ1	Breaker
DZ2	Breaker
M1	Chuck motor
M2	Pump motor
KM1	Contactor AC – chuck clockwise rotation
KM2	Contactor AC – chuck anticlockwise rotation
KM3	Contactor AC – hydraulic motor protection
SB1	Chuck clamping/opening control switch
SB2	Chuck arm movement manipulator
SB3	Pedal control
SB4	Emergency stop switch
SB5	Tilting control switch
YV1	Solenoid valve 24VDC – chuck clamping
YV2	Solenoid valve 24VDC – chuck opening
YV3	Solenoid valve 24VDC – chuck arm lifting
YV4	Solenoid valve 24VDC – chuck arm lowering
YV5	Solenoid valve 24VDC – chuck arm moving leftwards
YV6	Solenoid valve 24VDC – chuck arm moving rightwards
YV7	Solenoid valve 24VDC – tilting outside
YV8	Solenoid valve 24VDC – tilting inside
YV9	Lowering solenoid valve
HL	Pilot lamp