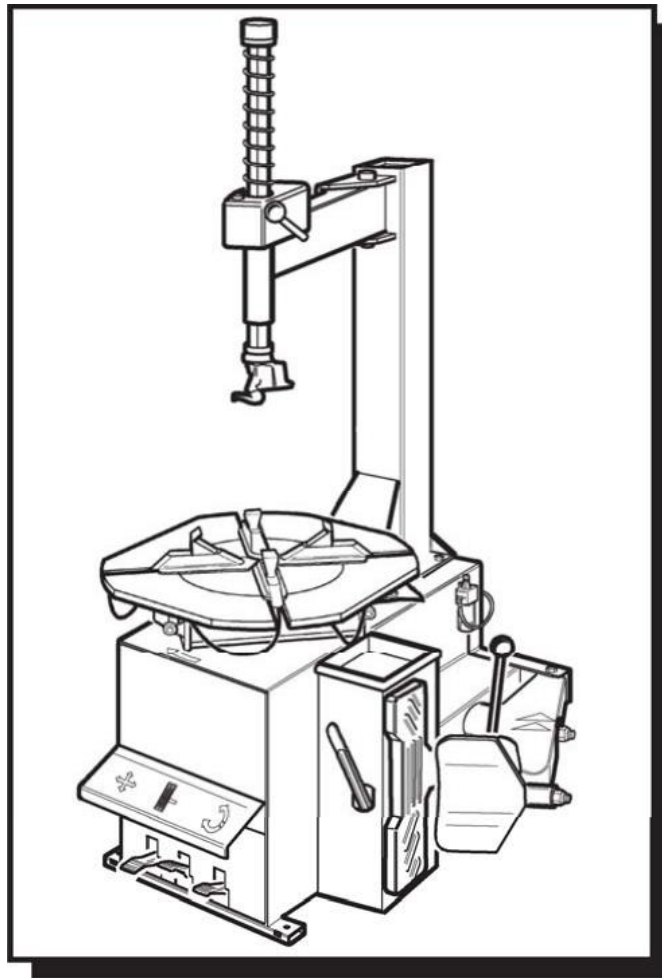




BEAR[®]



70-030




Semi-Automatic Tire Changer


USER AND MAINTENANCE MANUAL

THE CARTEK GROUP – 6950 EAST N AVENUE – KALAMAZOO, MI. 49048

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 unit and carrying out any adjustment, carefully read chapter 7 “Maintenance” where all proper operations for a better functioning of the machine are shown.
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CHAPTER 1 – INTRODUCTION

1.1 INTRODUCTION

Thank you for purchasing a product from the line of 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 TIRE CHANGER 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 tire changer in the box below. If there is any discrepancy between the data provided in this manual and that shown on the plate fixed to the tire changer, the latter should be taken as correct.


BEAR		
Type:		
Volt	Amp	Kw
Ph	Hz	
Year of manufacturing:		
Air supply: 8-10 bar (115 – 145 PSI)		

1.3 MANUAL KEEPING


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

- Keep the manual near the machine, in an easily accessible place.
- Keep the manual in an area protected from humidity.
- 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 machine: it shall be given to the new owner if and when the machine is resold.

	The illustrations have been made out to show general procedures. It is therefore possible that some parts or components of standard production differ from those represented in the pictures.
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1.4 GENERAL SAFETY PRECAUTIONS

	The tire changer may only be used by specially trained and authorized personnel.
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- Any tampering or modification to the equipment carried out without the manufacturer's prior authorization will free BEAR from all responsibility for damage caused directly or indirectly by the above actions.
- Removing or tampering with safety devices immediately invalidates the warranty.

TO THE READER

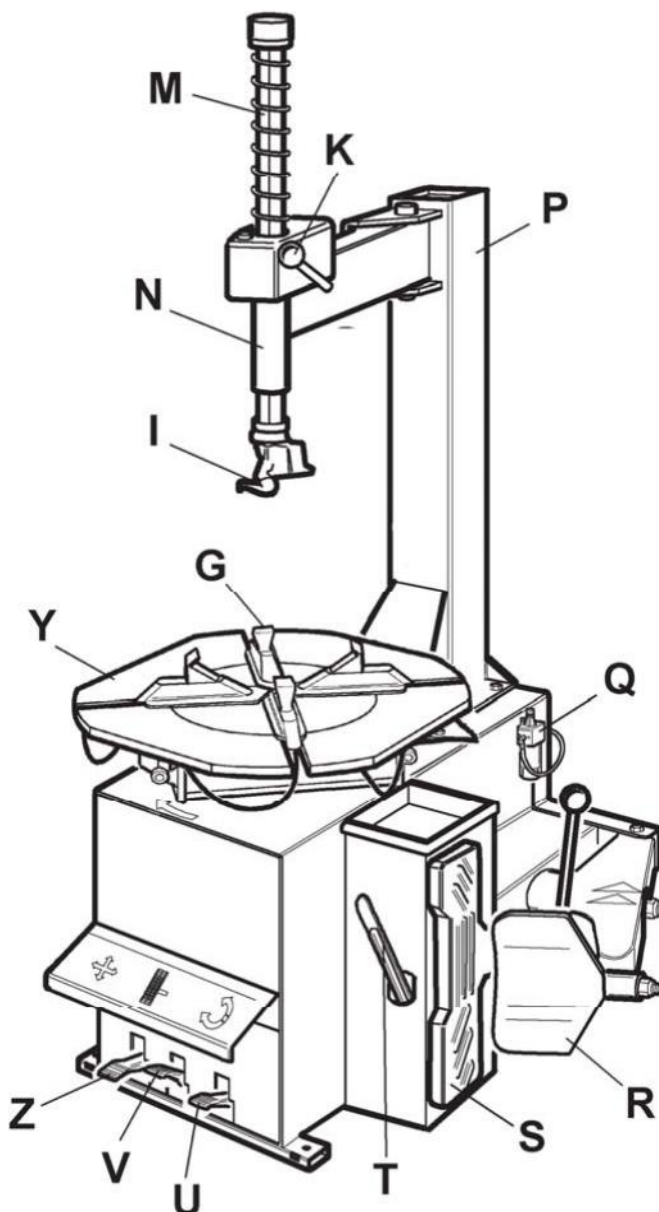
Every effort has been made to ensure that the information contained in this manual is correct, complete and up-to date. The manufacturer is not liable for any mistakes made when drawing up this manual and reserves the right to make any changes due the development of the product, at any time.

CHAPTER 2 – GENERAL INFORMATION

2.1 INTENDED USE

- This Semi-automatic tire changer has been designed and manufactured exclusively for removing and mounting tires from/onto rims from 12" to 26" and a maximum diameter of 1200 mm.
- 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 DESCRIPTION



- G) Clamps
- I) Mounting head
- M) Mounting bar
- N) Horizontal arm
- P) Vertical arm
- Q) Air supply
- R) Bead breaker
- S) Wheel support
- T) Bead lifting lever
- U) Bead breaker control pedal
- V) Clamp control pedal
- Z) Reverse control pedal
- Y) Turntable
- K) Locking lever

Fig . 1

2.3 DANGER WARNING SIGNS

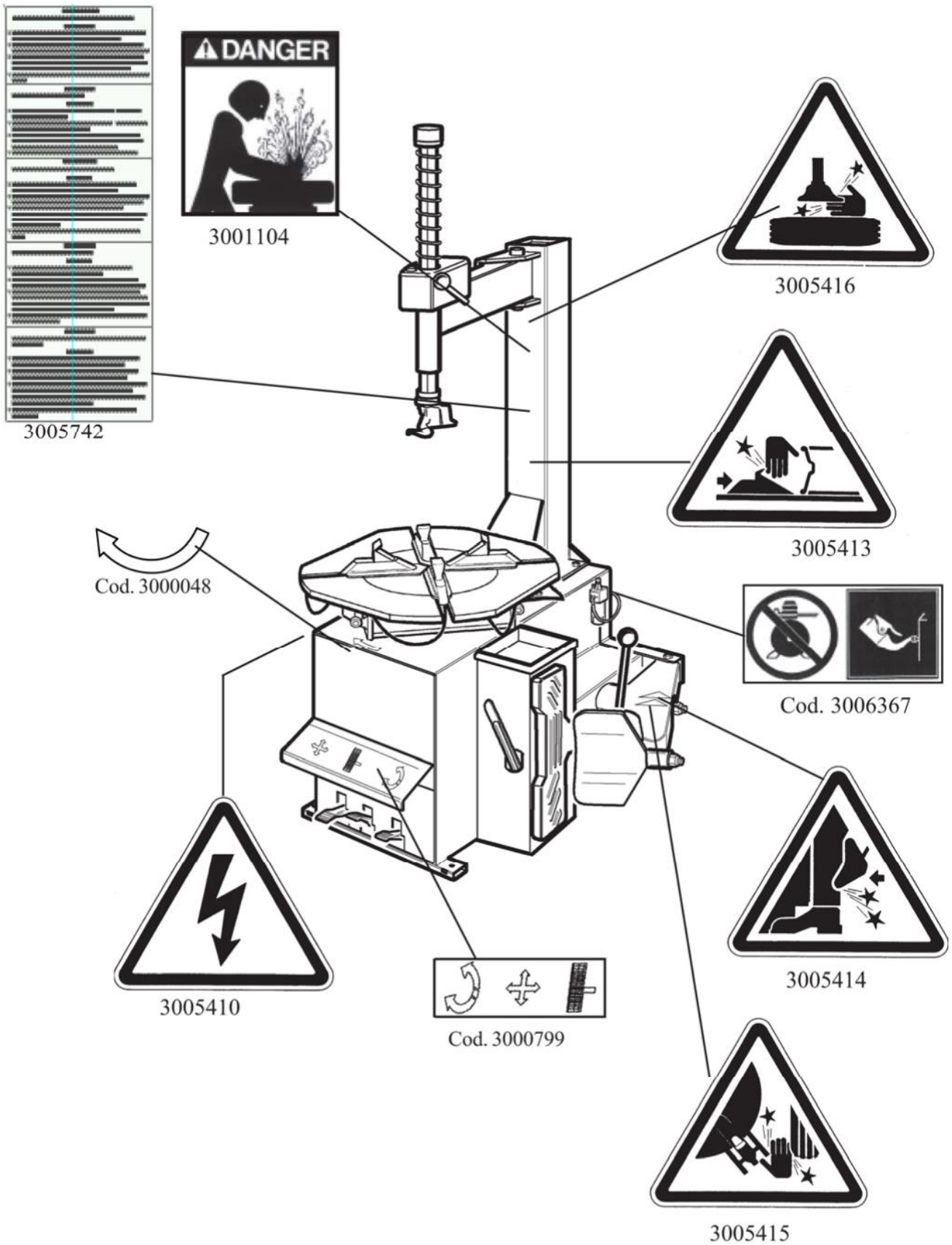


Fig. 2

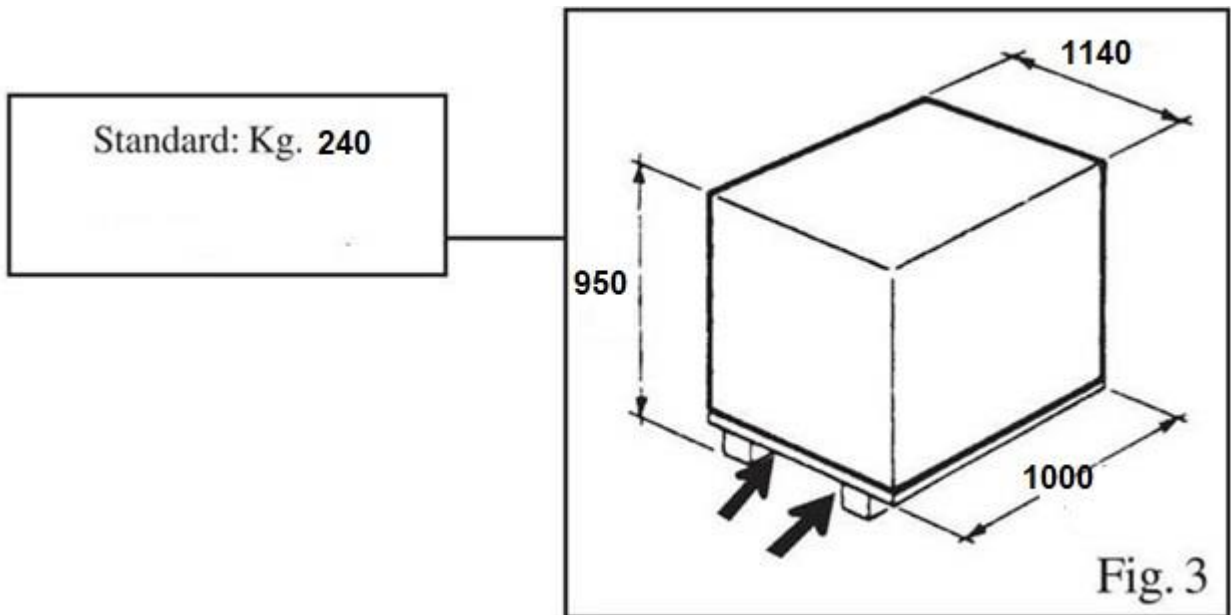
2.4 TECHNICAL SPECIFICATION

External locking rim dimension	12" – 26"
	13" – 27"
	14" – 28"
Internal locking rim dimension	14"- 28"
	15" – 29"
	16" – 30"
Max. tire diameter	1200mm (47.5")
Max tire width	470mm(18.5")
Force on bead breaker blade (10 bar)	2500 kg
Working pressure	8 bar (116 psi)
Inflating pressure device max.	3.5 bar (50 psi)
Power supply voltage	230V-1Ph
	110V-1Ph
Motor power	0.75KW (230V -1Ph single speed) 1.1KW (110V -1Ph single speed)
Rotating speed	7 – 14
Max spindle torque	1200 NM
Dimension	1140 x 1100 x 950
Net weight	240 kg STND
Noise level in working condition	< 70 dB (A)

CHAPTER 3 – TRANSPORTATION, UNPACKING AND STORAGE

3.1 TRANSPORTATION

- The tire changer 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 forklift truck of suitable capacity. Insert the forks at the points shown in figure 3.



3.2 UNPACKING

- Remove the protective cardboard and the nylon bag.
- Check that the equipment is in perfect condition, making sure that no parts are damaged or missing. Use fig. 1 for reference.



3.3 STORAGE

In the event of storage for long periods of time, be sure to disconnect all sources of power and grease the clamp sliding guides on the turntable to prevent them from oxidizing.

CHAPTER 4 – INSTALLATION

4.1 SPACE REQUIRED

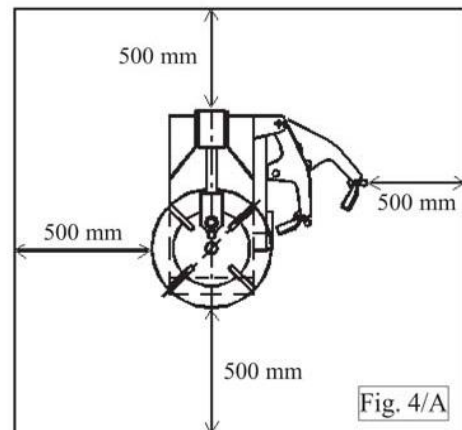
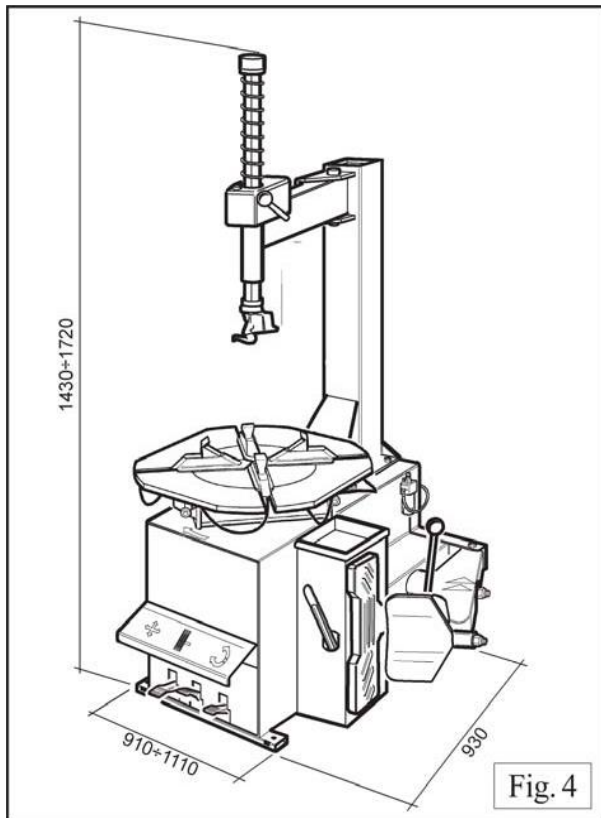


When choosing the place of installation be sure that it complies with current safety at work regulations.

- The tire changer must be connected to the main electric power supply and the compressed air system. It is therefore advisable to install the machine near the corresponding sources.
- The place of installation must also provide at least the space shown in pictures 4 - 4/A, to allow all parts of the machine to operate correctly and without any restriction.



This tire changer with electric motor cannot be used near explosive materials.



4.2 POSITIONING AND PARTS ASSEMBLY

4.2.1 Arm assembly and peripherals

- Remove the pallet fixing screws and set the tire changer on the floor.
- Unscrew the 4 screws from the body, set the vertical arm into the proper seat and fasten the 4 screws firmly with a wrench (Fig. 5/a).
- This operation must be performed by two operators. A crane or similar equipment may be required to safely lift the vertical arm.

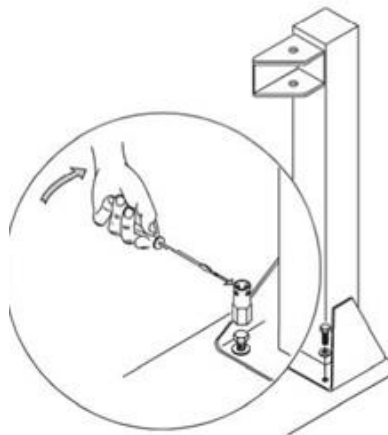
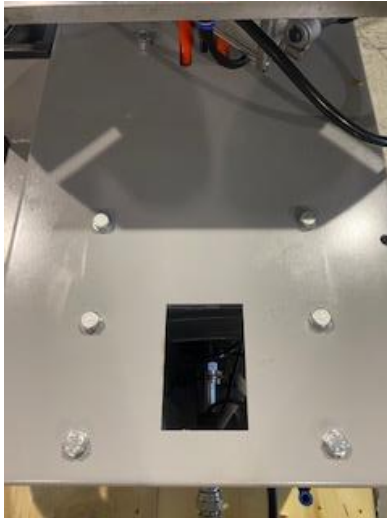
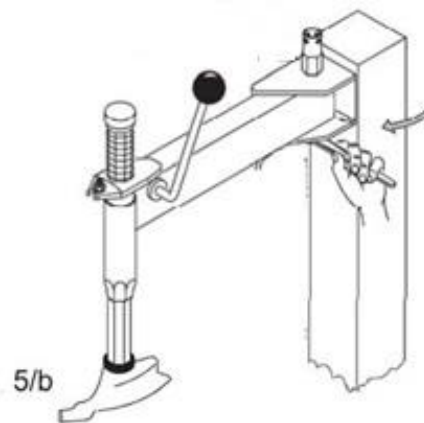


Fig. 5/a - Abb. 5/a



- Proceed to screw in the knob that serves as a ‘Stopper’ into the base of the horizontal arm. Swing the horizontal arm from left to right back and forth, adjust if necessary, the nut as shown in Fig. 5/b.



Before connecting all the power sources ALWAYS check your installations. They must exactly correspond to those requested by the machine.

- Connect the pneumatic quick connect male plug corresponding to the shop's air supply (hose) onto the filter assembly. Use a sealant such as Teflon tape to avoid air leaks. Connect the shop's air supply to the Quick connect adapter, as shown below (Fig. 5/d). Keep the air flow off until the machine is ready for operation.



Fig. 5/c - Abb. 5/c

- Connect the hose coming out from the back of the machine into the fitting located at the bottom of the vertical column. Slide the hose onto the fitting and then fasten the clamp.



- Insert the knob/pin assembly into the desired position of the bead breaker



- Insert the ring provided in the accessory box into the left side of the tire changer's body. Place the container provided for lubricant inside the ring.



4.2.2 Mounting and connecting the manometer

- Remove the top screw and loosen the bottom screw from the plate that holds the manometer assembly. Mount the manometer assembly and fasten with both screws. Connect the pneumatic line into the union on the back of the machine.



4.2.3 Installing the spring in mount/demount arm

- Lift by hand the mount/demount arm and place a wedge (wood, etc.) to hold in place. Remove the screw the holds the plastic cap and remove the cap completely.



- Insert the spring provided in the accessory box. Place the plastic cap and fasten with a hex wrench.

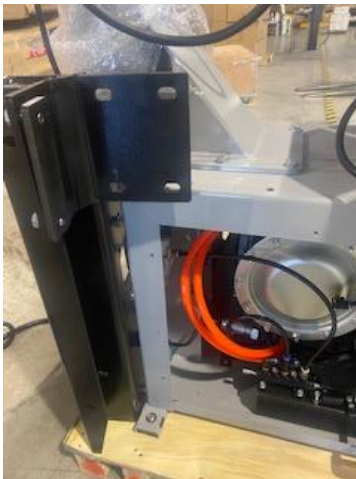


4.2.4 Assist arm assembly (Optional)

- Remove the screws around the perimeter of the side cover on the right side of the machine. Place cover aside to gain access to the inside of the machine.



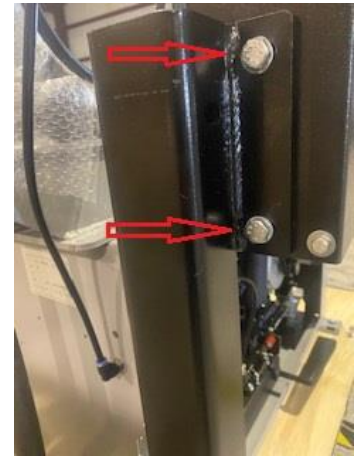
- Mount the side support of the assist arm onto the chassis of the tire changer (right rear corner). Fasten the 3 screws with a wrench.



- Mount the side bracket of the assist arm on top of the tire changer chassis. Fasten the screws (2) against the chassis with a wrench



- Install the Assist arm's body. Fasten the assist arm body onto the side bracket using 2 long screws and 2 short screws. Insert metal bracket into the assist arm from the bottom and fasten with 2 screws using a wrench.



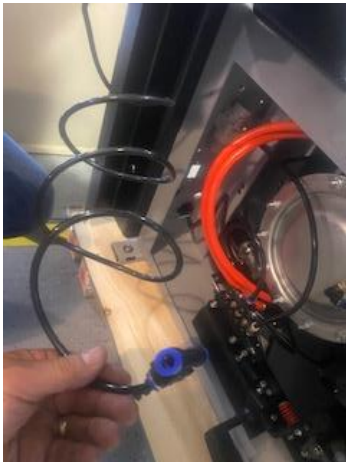
- Install the Assist arm. Fasten the bolt on the assist arm support through the assist arm itself.



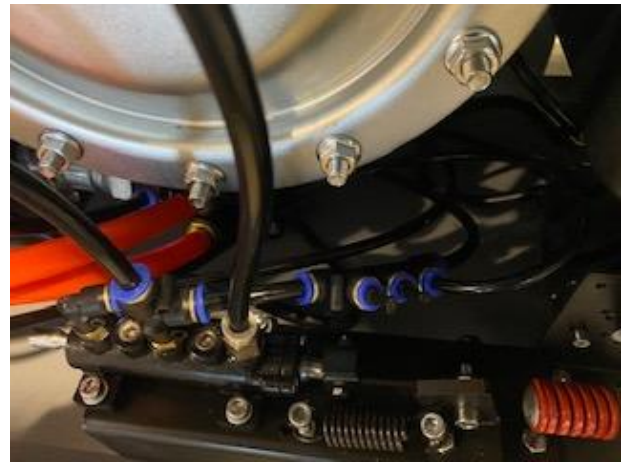
- The hard-plastic foot comes in mounted in reverse. Remove the screw that acts as a stopper for the "foot", slide out the "foot" from the arm, rotate 180 degrees and re-insert. Fasten the screw again.



- Pull out the pneumatic hose and valve that are rolled inside the assist arm's body. Disconnect the valve and route the hose through the hole in the back of the machine, as shown below. Reconnect the valve inside the machine.



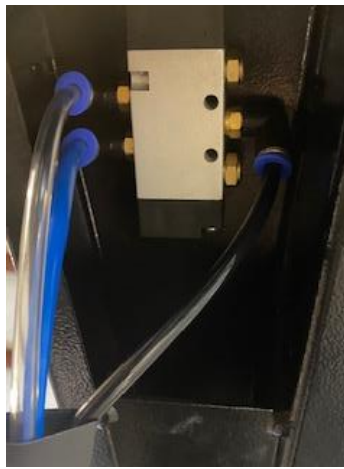
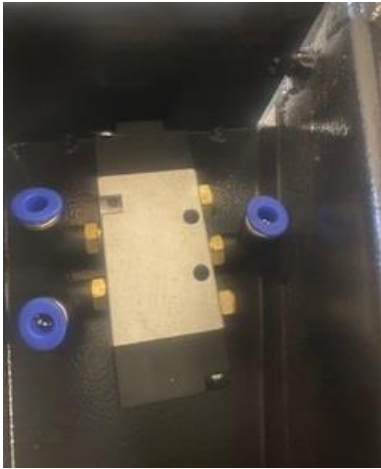
- Splice the pneumatic hose coming out from the main valve assembly located inside the machine. Splice the hose approximately 3"-4" away from the valve, as marked with a red arrow below. Connect the pneumatic valve that came from the assist arm in-between the two hoses that were spliced, as shown below.



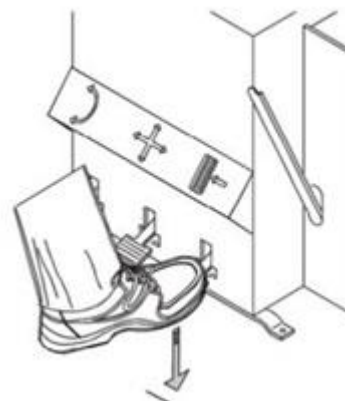
- Identify the pack of pneumatic hoses (clear, black & blue) coming from the assist arm.




- The pack of pneumatic hoses must be connected into the control valve located under up/down lever of the assist arm. Proceed to connect the blue, clear and black hoses as shown in the pictures below



- Mount the side door back onto the machine and proceed to test the machine as described in the following steps.



4.3 COMMISSIONING

	<p>Any electric connection job must be carried out by professional and qualified personnel.</p> <p>Make sure that the power supply is correct.</p> <p>Make sure the connection of the phases is right. Improper electrical hook-up can damage the motor and will not be covered under warranty.</p>
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- Check to make sure that the characteristics of your system corresponds to those required by the machine. If you have to change the machine's operating voltage, make the necessary adjustments to the terminal board referring to the electric diagram in chapter 9.
- Connect the machine to the compressed air system.



Connect the machine to the electric network, which must be equipped with line fuses, the proper ground plate in compliance with OSHA regulations and it must be connected to an automatic circuit breaker (differential) set at 30 mA.

Should the user need to provide a different electric plug, please ensure that it is rated at least for 16 Amps.

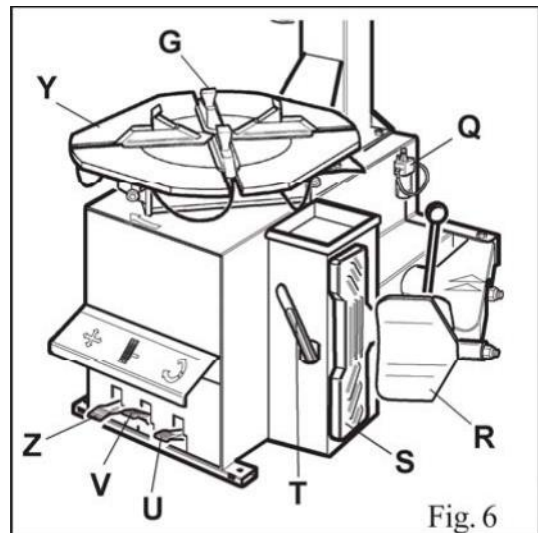
4.4 OPERATING TESTS

- When pedal (Z) is pressed down the turntable (Y) should turn in a clockwise direction. When pedal is pulled up the turntable should turn in an anticlockwise direction.




If the turntable turns in the opposite direction to that shown, reverse two of the wires in the three-phase plug.

- Pressing the pedal (U) activates the bead breaker (R); when the pedal is released the bead breaker returns to its original position.
- Pressing the pedal (V) opens the four clamps (G); when the pedal is pressed again, they close.
- Pressing the trigger on the airline gauge, will cause air to be released from the head.



4.4.1 GT VERSION

	<p>Do NOT LEAN on the turntable during this operation. Dust on turntable could reach the operator's eyes. For that reason, be careful as not to accidentally push the inflating pedal while working.</p>
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- When the pedal located on the left side of the machine body is pushed down to its intermediate position (B), air is released from the airline gauge.
- When the pedal (C) is pushed down completely, air is released from the airline gauge with a powerful jet from the nozzles located in the turntable clamps.

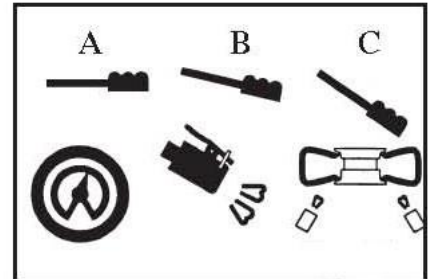


Fig. 13

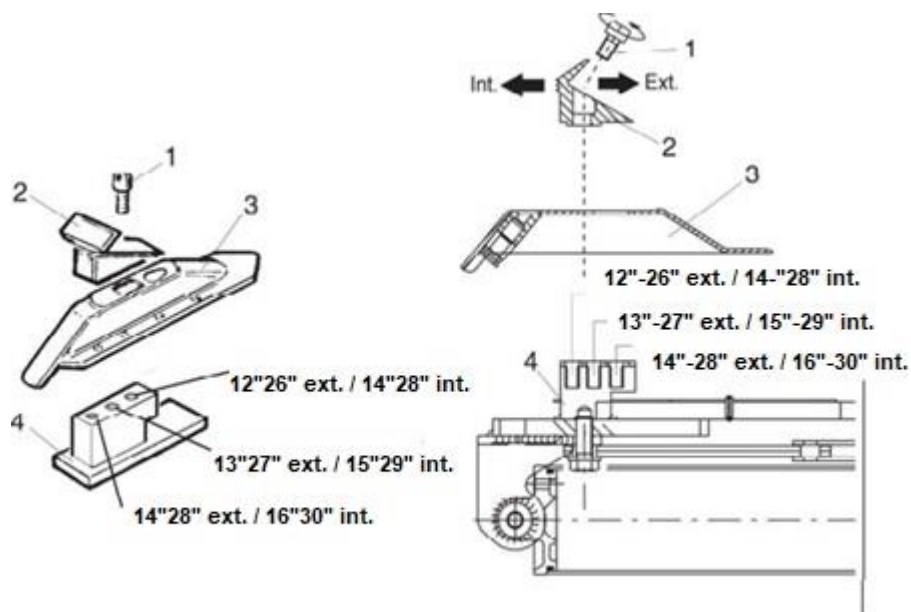
4.5 TURNTABLE LOCKING VALUE ADJUSTING

The tire changer turntable is preset by the manufacturer on a middle range measure from 12" to 28" **ext.** (considering the rim outer side and) from 14" – 30" **int.** (if you lock the rim from inner side). It is however possible to change this dimension range in case of need when working on larger or small rims; it is enough to change the position of the 4 clamps are shown in the figures below. The obtainable value starts from a minimum of 12"-26" ext. and 14"-28" int. until a maximum of 14"-28" ext. and 16"-30" int.

To change the position, proceed as follows:

- Unscrew screw (1) using an Allen wrench.
- Remove the locking clamp (2) and the slide piece (3).
- Align the slide hole with one of the guide holes (4) according to the locking dimensions you want to set. Use the measurements below for reference.

	<p>It is important to perform the above-mentioned operation for all 4 clamps to avoid any unbalance in the locking process.</p>
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CHAPTER 5 – OPERATION



Do not use the machine until you have read and understood the entire manual and the warning provided.

Before carrying out any operation, deflate the tire and take off all the wheel balancing weights.

The operation of the tire changer is divided into three parts:

a) BREAKING THE BEAD

b) REMOVING THE TIRE

c) MOUNTING THE TIRE



It is advised to maintain pressure level at the pressure regulator in compliance with OSHA or the pertinent regulatory entity.

5.1 BREAKING THE BEAD



Bead breaking must be done with the utmost care and attention. When the bead breaker pedal is operated, the bead breaker arm moves quickly and powerfully. Anything within its range of action can be pressed or crushed.

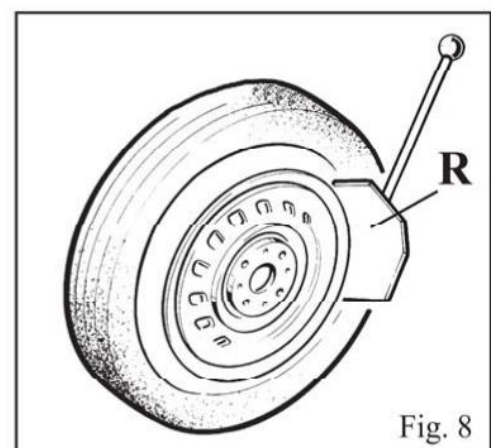
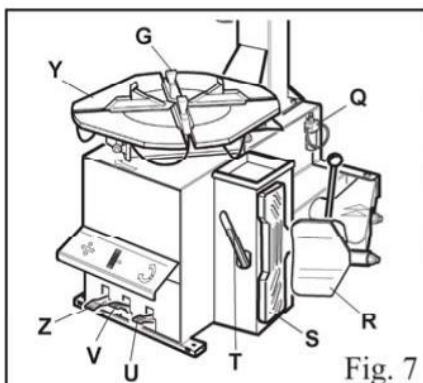
- Check that the tire is deflated. If not, deflate it.
- Close the turntable clamps completely.



Bead breaking with the clamps in open position can be extremely dangerous for the operator's hands.

NEVER touch the side of the tire during bead breaking operation

- Position the wheel against the rubber stops on the right side of the tire changer (S).
- Position the bead breaker (R) against the tire bead at a distance of about 1 cm from the rim (fig. 8). Pay attention to the blade, which must operate correctly onto the tire and not onto the rim.
- Press down the pedal (U) to activate the bead breaker and release it when the blade has reached the end of its travel or in any case when the bead is broken.
- Rotate the tire slightly and repeat the operation around the entire circumference if the rim and from both sides until the bead is completely detached from the rim.



5.2 REMOVING THE TIRE



Before any operation make sure to remove the old wheel balancing weights and check that the tire is deflated.



During arm tilting make sure that nobody is behind the tire changer.

- Apply and spread lubricant onto the tire bead.



Failure to use lubricant could cause serious damage to the tire bead.



NEVER place your hands under the tire during rim locking. For a correct locking operation set the tire exactly in the middle of the turntable.

OUTER LOCKING

- Position the clamps (G) according to the reference mark on the turntable (Y) by pressing pedal (V) down to its intermediate position.
- Place the tire on the clamps and keeping the rim pressed down, press the pedal (V) as far as it will go.

INNER LOCKING

- Position the clamps (G) so that they are completely closed.
- Place the tire on the clamps and press the pedal (V) to open the clamps and thereby lock the rim.



Make sure that the rim is rigidly fixed on the clamps.



Operator should never place hands in-between wheel assembly and tire changer's mounting / demounting head.

- Lower the mounting bar (M) so that the mounting head (I) rests against the edge of the rim and lock it using the lever (K). This will lock the arm in both vertical and horizontal direction and move the mounting head (I) of about 2 mm from the rim.
- With the lever (T) inserted between the bead and the front section of the mounting head (I), move the tire bead over the mounting head.

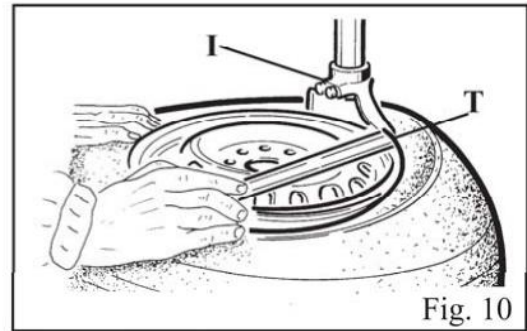
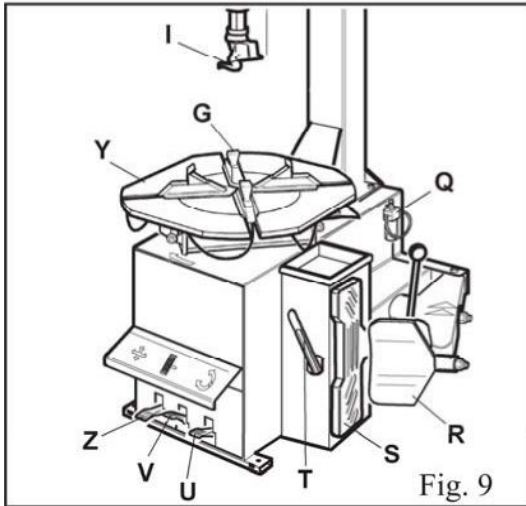


In order to avoid damaging the inner tube if there is one, it is advisable to carry out this operation with the valve about 10 cm right of the mounting head.

- With the lever held in this position, rotate the turntable (Y) in a clockwise direction by pressing pedal (Z) down until the tire is completely separated from the wheel rim.
- Remove the inner tube if there is one and repeat the operation for the other bead.



Chains, bracelets, loose clothing, or foreign objects in the vicinity of the moving parts can represent a danger for the operator.



5.3 MOUNTING THE TIRE



It is important to inspect the tire and rim to prevent tire explosion during the inflating operation. Before beginning the mounting operation, make sure that:

The tire is not damaged. If you find defects DO NOT mount the tire.

The rim is without dents and is not warped. Pay attention to alloy rims, internal micro-cracks may not be visible to human eye. This can compromise the rim and can also be a source of danger especially during inflation.

The diameter of the rim and tire are exactly the same. NEVER try to mount a tire on a rim if you cannot identify the diameter of both.

- Lubricate the tire beads with the correct grease in order to avoid damaging them and to facilitate the mounting operation.



NEVER keep your hands under the tire during rim locking. For a correct locking operation set the tire exactly in the middle of turntable.



When working with rims of the same size it is not necessary always to lock and unlock the mounting bar.



Always be alert to abnormal noises during rotation o the turntable .

- Move the tire so that the bead passes below the front section of the mounting head and is brought up against the edge of the rear section of the mounting head itself.
- Keeping the tire bead pressed down into the wheel rim channel with your hands, press down on the pedal (Z) to rotate the turntable clockwise. Continue until you have covered the entire circumference of the wheel rim (Fig. 12).

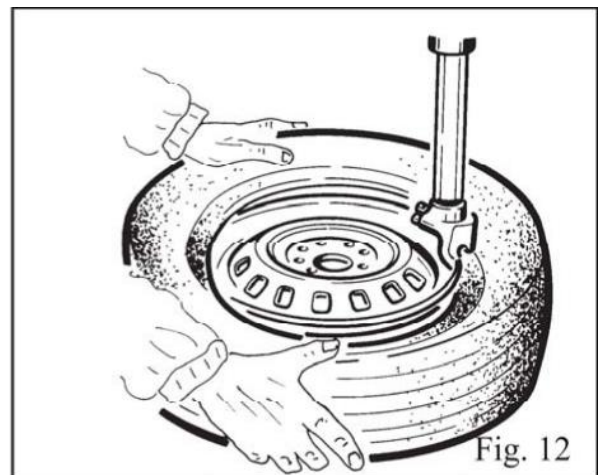
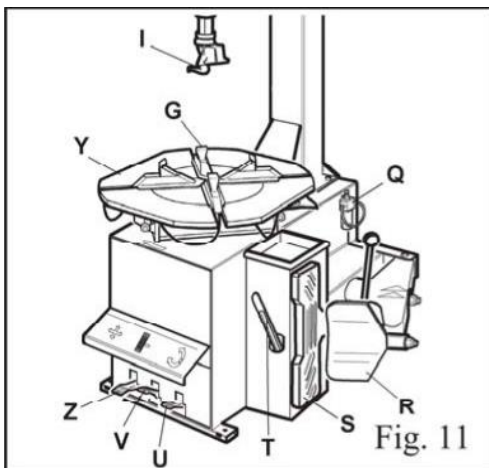


To prevent accidents, keep hands and other parts of the body as far as possible from the tool arm when the tabletop is turning.

- Insert the inner tube if there is one and repeat the same operations to mount the upper side of the tire.



Demounting and mounting are always done with the turntable rotating clockwise. Counter-clockwise rotation is used only to correct operator's errors or if the turntable stalls.



CHAPTER 6 – INFLATING



Pay close attention when inflating tires. Follow strictly the instructions contained in this manual.

▲ DANGER



An exploding tire can cause serious injury or even death to the operator. Check carefully that the rim and the tire are of the same size.

Check the wear condition of the tire and that it has no defects before beginning the inflation.

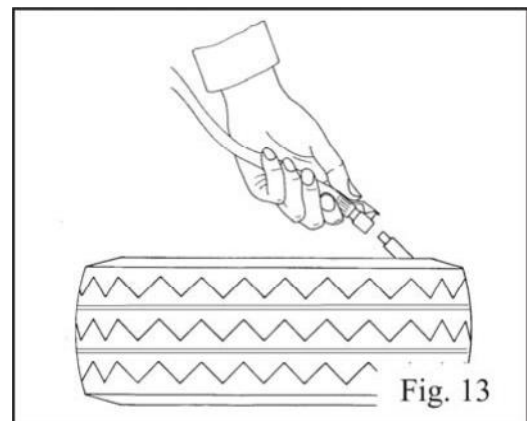
Inflate the tire with brief inputs of air, checking the pressure after every input. All our tire changers are automatically limited to a maximum inflating pressure of 3.5 bar (51 psi). **In any case, NEVER EXCEED THE PRESSURE RECOMMENDED BY THE MANUFACTURER.**

Keep your hands and body as far away as possible from the tire during the inflation process.

6.1 INFLATING TIRE USING AIRLINE GAUGE

This tire changer is supplied with an airline gauge. To inflate a tire, proceed as follows:

- Connect the airline gauge to the tire valve.
- Check to be certain that rim and beads are sufficiently lubricated. If necessary, lubricate some more.
- Seat the beads with short inputs of air. Between air inputs, check the air pressure on the inflator gauge.
- Continue to inflate the tire with short inputs of air and constantly checking the pressure until the required pressure has been reached.



▲ DANGER



EXPLOSION HAZARD!

Never exceed 3.5 bar (51 psi) when seating beads or inflating tires.

If a higher inflating pressure is required remove the wheel from turntable and continue the inflating procedure inside a special protection cage (commercially available).

ONLY trained personnel are allowed to perform these operations. Do not allow other persons to operate or to remain near the tire changer.

6.2 INFLATING TIRES WITH GT SYSTEM

The GT inflating system facilitates inflation of tubeless tires to a powerful jet of air from the nozzle positioned on the clamps.



During this phase of work, the level of noise can reach 85db (A). It is advisable to use hearing plugs or similar protection.

- Lock the wheel on the turntable and connect the inflating head to the tire valve.
- Make a last check to be certain that tire and rim diameter correspond.
- Check to be certain that rim and beads are sufficiently lubricated. If necessary, lubricate some more.
- Press the pedal down to intermediate position (B – Fig. 21)
- If the bead of tire is not well seated, due to a strong bead, lift tire manually until the upper bead seats against the rim, then press pedal all the way down (C-Fig. 21). A strong air-jet will be released through the nozzles in the slides and this will help the bead seal.
- Release the tires; set the pedal in the intermediate position (B – Fig. 21) and continue to inflate the tire with short inputs of air and constantly checking the pressure between air inputs until the required pressure has been reached.

▲ DANGER



EXPLOSION HAZARD!

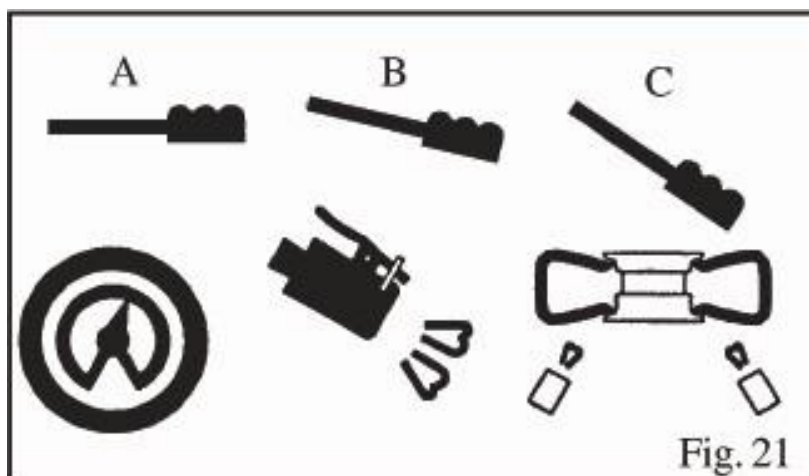
Never exceed 3.5 bar (51 psi) when seating beads or inflating tires.

If a higher inflating pressure is required remove the wheel from turntable and continue the inflating procedure inside a special protection cage (commercially available).

Never exceed the max. inflating pressure given by the tire manufacturer.

ALWAYS keep hands and body back from the tire being inflated.

ONLY trained personnel are allowed to perform these operations. Do not allow other persons to operate or to stay near the tire changer.



CHAPTER 7 – MAINTENANCE

7.1 GENERAL WARNINGS



Unauthorized personnel may not carry out maintenance work.

- Regular maintenance as described in the manual is essential for correct operation and long lifetime of the tire changer.
- If maintenance is not carried out regularly, the operation and reliability of the machine may be compromised, thus placing the operator and anyone else in the vicinity at risk.



Disconnect the electric and pneumatic supplies before carrying out any maintenance work. It is necessary to operate the bead breaker without load 3-4 times in order to release the air pressure from the circuit.

- Defective parts must be replaced exclusively by authorized personnel using the manufacturer's original parts.
- Removing or tampering with safety devices (pressure limiting and regulating valves) is forbidden.



In particular the Manufacturer shall not be held responsible for complaints deriving from the use of spare parts made by other manufacturers or for damage caused by tampering or removal of safety systems.

7.2 MAINTENANCE OPERATIONS

- Clean the turntable once a week with diesel fuel so as to prevent the formation of dirt, and lubricate the clamp sliding guides.
- Carry out the following operations at least every 30 days:
 - Check the oil level in the lubricator tank. If necessary, fill up by unscrewing the reservoir F. Only use ISO VG viscosity ISOHG class oil for compressed air circuit. (Fig. 14)
 - Check that a drop of oil is injected into the reservoir F very 3-4 times the pedal U is pressed down. If not, regulate using the screw D (fig. 14)
- After the first 20 days of work, retighten the clamp tightening screws on the turntable slides
 - (Fig. 15).
- In the event of a loss of power, check that the drive belt is tight as follows.



Before any operation disconnect the electric power supply.

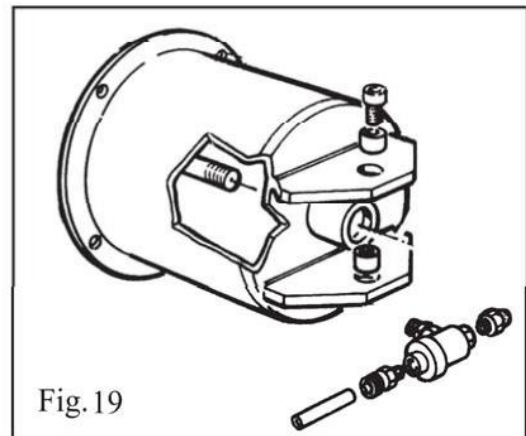
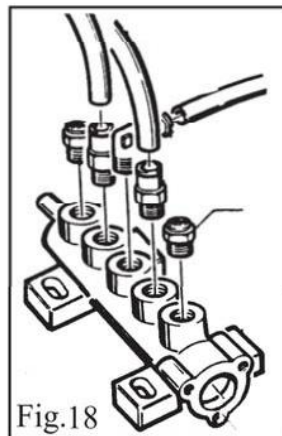
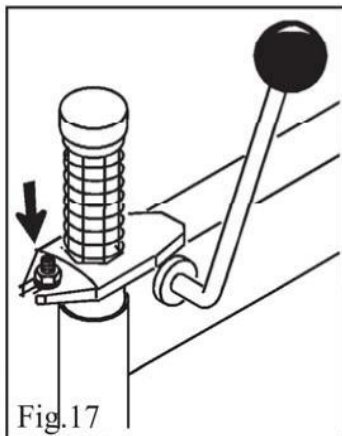
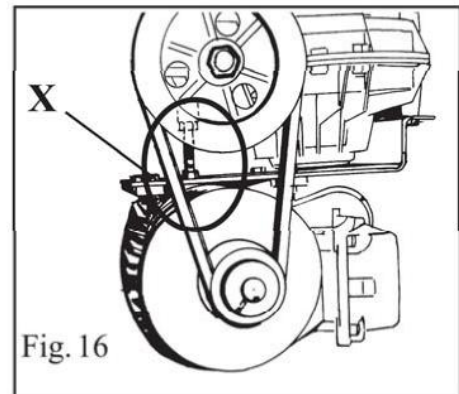
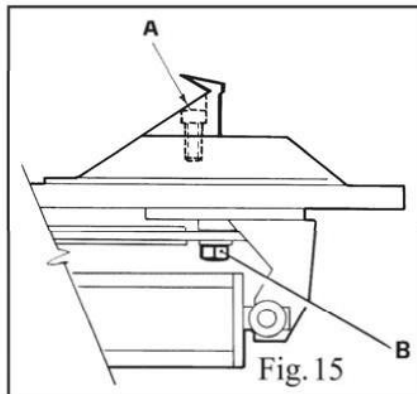
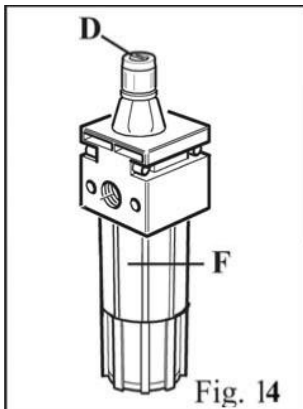
- Remove the left side body panel of the tire changer by unscrewing the four fixing screws.
- Remove the drive belt by means of the special adjusting screw X on the motor support (Fig. 16).

- It may be necessary to adjust the vertical arm locking plate because the tool does not lock or it does not rise from the rim (2mm space necessary), adjust nuts as shown in Fig. 17.

To clean or replace the silencer for opening/closing clamps, see Fig 18 and proceed as follows:

1. Remove the left side panel of the machine body by unscrewing the four fixing screws.
2. Unscrew the silencer installed on the pedal system, (behind the clamp opening/closing pedal).
3. Clean with compressed air or, if damaged, replace by referring to the spare parts catalogue.

For cleaning or replacing the silencer of bead breaker, see Fig. 19 and proceed as shown on previous point 1 and 3.



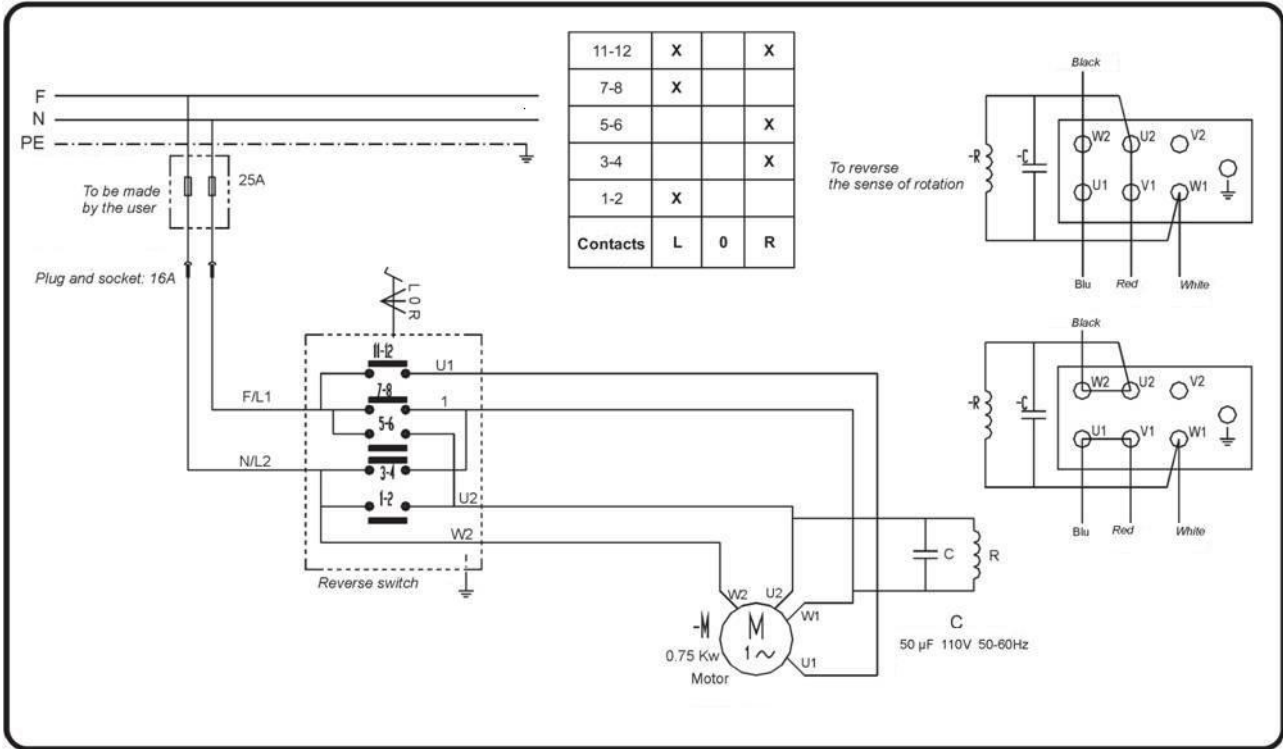
CHAPTER 8 – TROUBLE-SHOOTING

TROUBLE:	POSSIBLE CAUSE:	SOLUTION:
Turntable rotates only in one direction.	Reverse switch broken	Replace reverse switch
Turntable does not rotate.	Belt broken	Replace
	Reverse switch not operating	Replace reverse switch
	Problem with motor	Check for loose wires in the motor, plug or socket. Replace motor
Turntable locks	Belt loose	Adjust the belt tension (chap. 7 Fig. 24)
Clamp slow to open or close	Silencer clogged	Clean or replace silencer
Turntable does not lock the wheel rim correctly	Clamps worn	Replace clamps
	Turntable cylinder(s) defective	Replace cylinder gasket
The tool touches the rim during the tire removing or mounting operations	Locking plate incorrectly adjusted or defective	Adjust or replace locking plate (chap 7 – Fig 25)
	Turntable locking screw loose	Tighten screw
Pedal locks out of working position	Return spring is broken	Replace spring
Bead breaking operation difficult	Silencer clogged	Clean or replace silencer (chap 7 – Fig. 27)
	Bead breaker cylinder gasket broken	Replace gasket

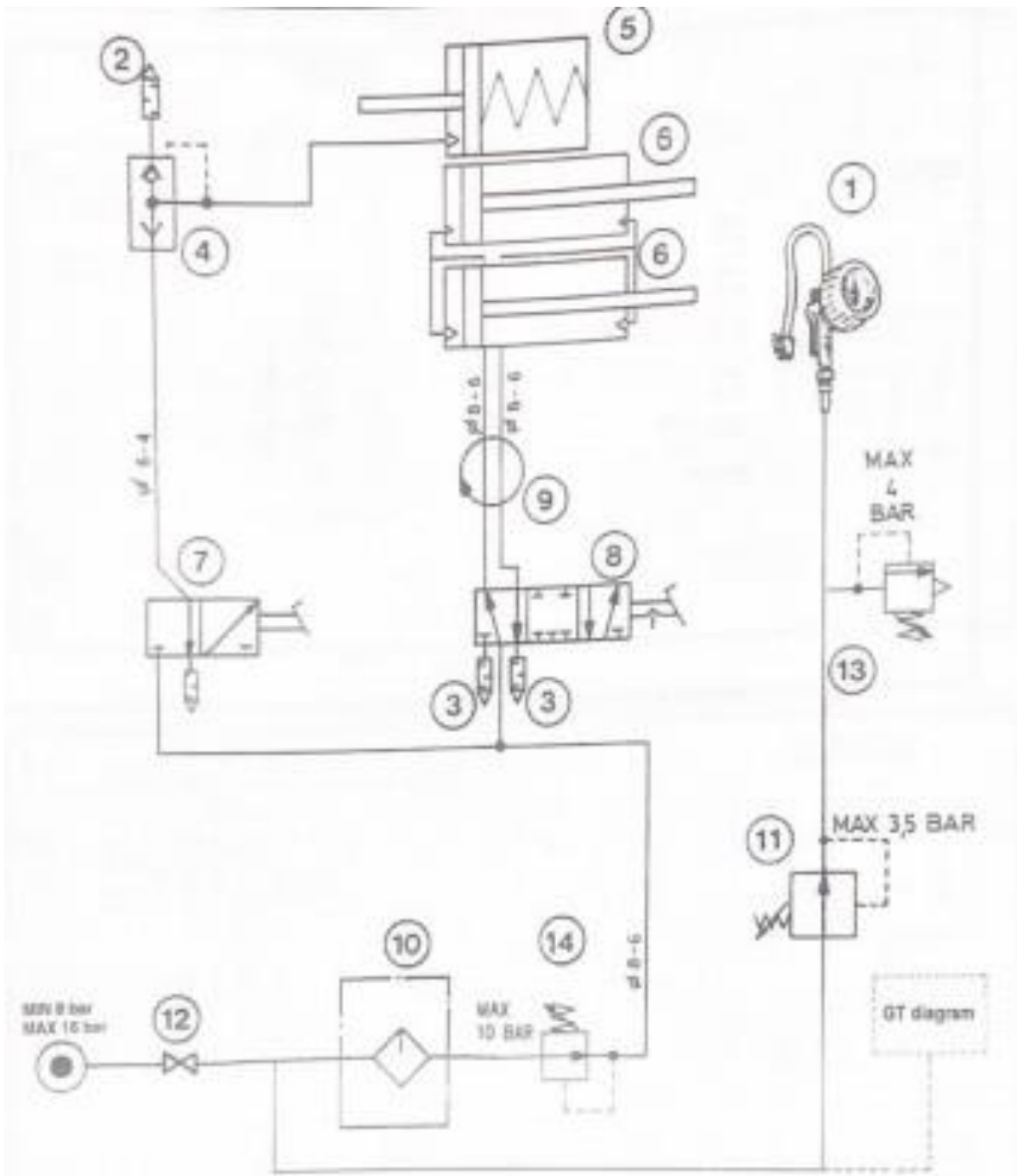
CHAPTER 9 – ELECTRIC AND PNEUMATIC DIAGRAM

STANDARD ELECTRIC DIAGRAM

110V - 1PH

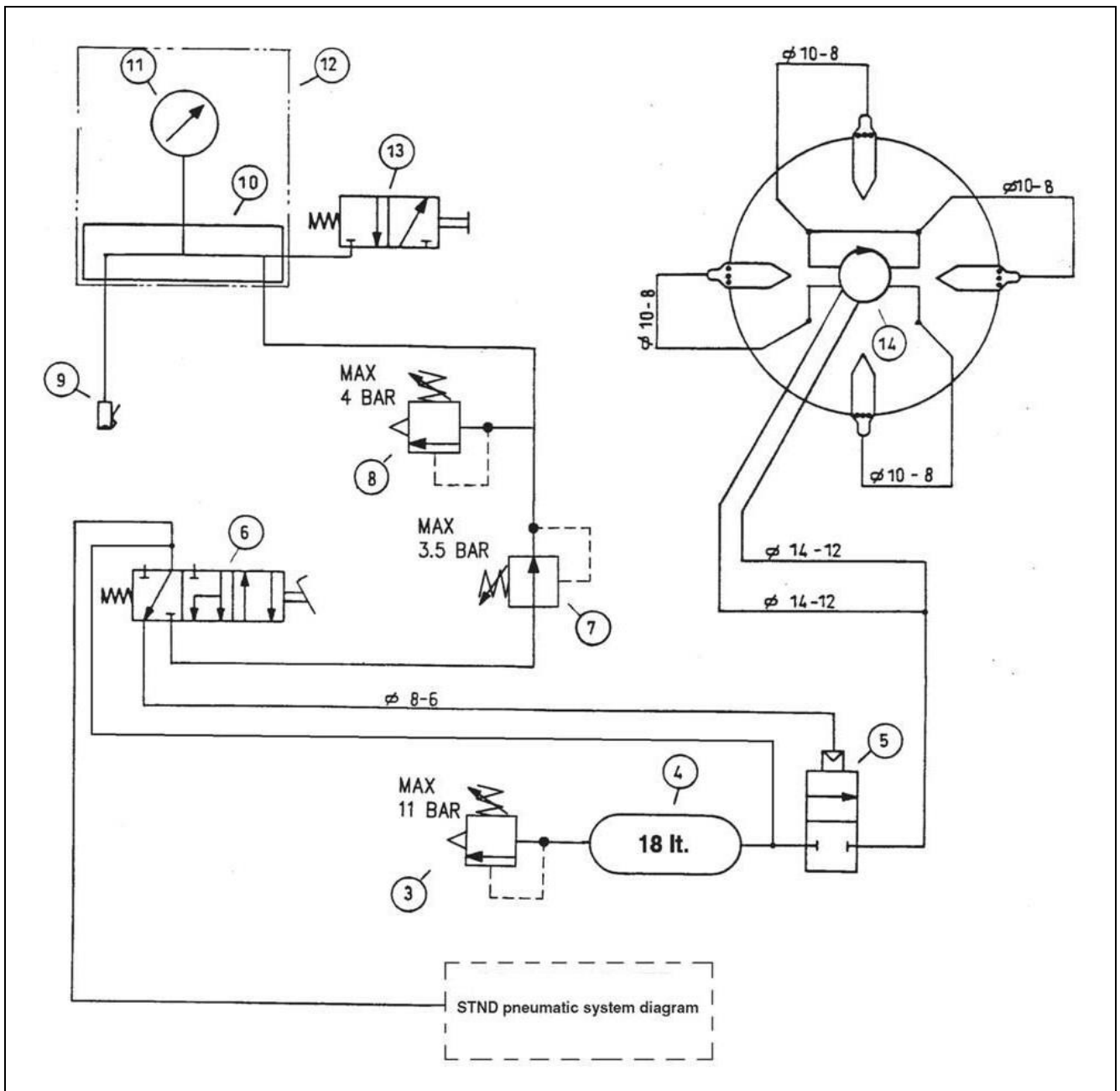


STANDARD PNEUMATIC SYSTEM DIAGRAM



1	Inflating gauge	8	Turntable valve
2	Silencer 1/4"	9	Rotation union
3	Silencer 1/8"	10	Lubricator
4	Quick relief valve	11	Pressure regulator
5	Bead breaker cylinder	12	Air intake cock
6	Turntable cylinder	13	Safety valve
7	Bead breaking valve	14	Pressure regulator

GT PNEUMATIC SYSTEM DIAGRAM



3	Safety Valve	10	Divider
4	Tank	11	Pressure gauge
5	Setting solenoid valve	12	Inflating unit
6	GT pedal valve	13	Deflating valve
8	Safety Valve	14	Rotation union
9	Inflating head		