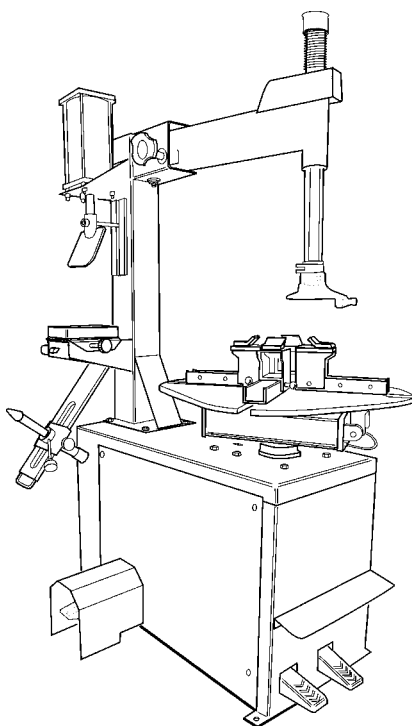


BEAR[®]

INSTRUCTION MANUAL

SEMI-AUTOMATIC TYRE CHANGER 70-200-20



GB

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INTRODUCTION

The purpose of this manual is to furnish the owner and operator of this Bear machine with a set of practical and safe instructions for the use and maintenance of the 70-200-20 tyre changer.

Follow all the instructions carefully and your balancer will assist you in your work and give lasting and efficient service in keeping with our traditions.

The following paragraphs 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 death.

WARNING

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

ATTENTION

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

Read these instructions carefully before powering up the machine. Conserve 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 operator.

The technical documentation supplied is considered an integral part of the machine; in the event of sale all relative documentation must remain with the jack.

The manual is only valid for the machine model and serial number indicated on the nameplate applied to the machine itself.



WARNING

Adhere to the contents of this manual: the manufacturer declines all liability in the case of actions not specifically described and authorised in this manual.

NOTE

Some of the illustrations in this manual have been taken from photographs of prototypes; the standard production model may differ slightly in certain respects.

These instructions are for the attention of persons with basic mechanical skills. We have therefore condensed the descriptions of each operation by omitting detailed instructions regarding, for example, 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, please contact our nearest authorised Service Centre for assistance.

TRANSPORT, STORAGE AND HANDLING

Packaged machines should be stored in dry and preferably well-ventilated places. Ensure that there is sufficient space between the packages to allow the instructions printed on their sides to be read easily.



WARNING

To avoid damage do not place other articles on top of the packages.

- Size of packages :

- Depth 760 mm
- Width 880 mm
- Height 870 mm

- Weight

- 70-200-20 with package - 175 kg
- 70-200-20 - 155 kg

- Machine storage temperature: -25°C to +55°C.

Handling



WARNING

Carry out the described assembly and moving operations with great care. Failure to follow these recommendations may result in damage to the machine and put the operator's safety at risk.



WARNING

Before moving the machine, make sure that the capacity of the lift truck chosen is appropriate for the centre of gravity and weight of the machine.

To move the packaged machine insert the forks of a fork lift truck into the special entry points in the base of the pallet . If you are moving the machine by means of a crane or hoist (fig.2), it is advisable to use special lifting belts or cables of the approved type.



WARNING

It is absolutely forbidden to use protruding parts of the machine as points of attachment.

INSTALLATION



WARNING

Carry out the described assembly and installation operations with great care. Failure to follow these recommendations may result in damage to the machine and put the operator's safety at risk.



WARNING

Keep the original packaging for future transport.

UNPACKING/ASSEMBLY



WARNING

Take the utmost care when unpacking, assembling and setting up the machine as described in this section.

Failure to observe these instructions can lead to damage to the machine and injury to the operator or other persons.

- remove the upper part of the packing and make sure that the machine has not suffered damage in transit; identify the points at which the machine is anchored to the pallet .

- The machine comprises two main sections :

A cabinet

B tower

- Once you have removed the tower (B)it is advisable to set it in a horizontal position to avoid the risk of it falling and getting damaged.

Assembling the arm (Fig 1)

- Line up the holes at the bottom of the tower with the holes in the top part of the cabinet, making sure that the two rilsan tubes inside the cabinet are inserted first.
- Fix the tower using the screws and washers supplied (A fig 1)
- Open the side of the machine and complete pneumatic connections to the pedal as shown in Fig 1.
- Replace the pedal in its position between the sliding plates and close the side of the machine, placing the pedal in its slot.

Assembling the wheel support (Fig 1)

- Place the support in line with the holes under the wheel support.
- Insert the screw (**B** fig1) and tighten the nut until the support is slightly clamped.

PLACE OF INSTALLATION



WARNING

The place where the machine is to be installed must conform to applicable safety at work regulations.

The machine must be installed on a stable and rigid floor in order to prevent it from undergoing any structural deformation.

Position the machine so that it is accessible from all four sides. In particular check the minimum working spaces.

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



ATTENTION

The machine must not be operated in potentially explosive atmosphere.

Working environment conditions

- Relative humidity: 30-95% without condensation
- Temperature: 0° ÷ +55°

ELECTRICAL AND PNEUMATIC HOOK-UPS



WARNING

All operation required for the electrical hook-up of the machine must be carried out exclusively by a qualified electrician.

- The electrical supply must be suitably sized in relation to:
 - absorbed power specification indicated on the machine dataplate.
 - the distance between the machine and the power supply hook-up point, so that voltage drops under full load do not exceed 4% (10% in the case of start-up) below the rated voltage specified on the dataplate.
- The user must equip the machine with the following:
 - a dedicated power plug in compliance with the relevant electrical safety standards.
 - a suitable circuit-breaker (residual current set to 30 mA) on the mains connection.
 - power line fuses in accordance with specifications in the main wiring diagram of this manual.
 - a suitable earthing system installed on the workshop mains lane.
- To prevent unauthorised use of the machine, always disconnect the mains plug when the machine is not used (switched off) for extended periods time.
- If the machine is connected directly to the power supply by means of the main electrical panel and without the use of a plug, install a key-operated switch or suitable lock-out device to restrict machine use exclusively to qualified personnel.



WARNING

For correct and safe operation of the machine it must be connected to an efficient grounding circuit.

NEVER connect the ground wire to a gas pipe, water pipe, telephone line or other makeshift system.



WARNING

ONLY FOR THREE-PHASE VERSION

Check the motor rotation .

If the motor rotates in the direction shown by the arrow attached.

If not, it is necessary to have two phase cables on the three-phase plug inverted from each other, by specialised personnel.

For correct operation of the machine the compressed air supply line must provide a pressure range from a minimum of 8 bar to a maximum of 16 bar.

- Hook-up the compressed air using the coupling provided in the machine kit
- Before the control box access, mount an airconditioning group with condensate separator, lubricator and a pressure reducer valve that will filter, dry and lubricate and reduce the pressure to the working pressure required as indicated in the TECHNICAL DETAILS paragraph.

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 observe these instructions and the relative danger warnings can cause serious injury to the operator and others. Do not power up the machine before you have read and understood all the danger/warning/attention notices in this manual.

This machine must be used only by qualified and authorised 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 are expressly forbidden from using the machine under the influence of alcohol or drugs capable of affecting physical and mental capacity.

The following conditions are essential:

- The operator must be able to read and understand all the information in this manual.
- Make sure you have a thorough knowledge of the capabilities and characteristics of this machine.
- Keep unauthorised persons well clear of the area of operations.
- Make sure that the machine has been installed in compliance with established legislation and standards.
- Make sure that all machine operators are suitable trained, that they are capable of using the machine correctly and that they are adequately supervised during their work.
- Never leave nuts, bolts, tools or other equipment on the machine to avoid the risk that they could become entrapped between moving parts during work.
- Do not touch power lines or the inside of electric motors or other electrical equipment until the power has been disconnected and locked out.
- Read this manual carefully and learn how to use the machine correctly and safely.
- Always keep this user manual in a place where it can be readily consulted when working with the machine and consult it whenever you are in need of confirmation or explanations.



WARNING

Do not remove or deface the safety Danger, Warning or Instruction decals. Replace any missing or illegible Danger, Warning or Instruction decals. Missing or damaged decals can be obtained at your nearest dealer.

- When using and carrying out maintenance on the machine observe the unified industrial accident prevention regulations for high voltage industrial equipment.
- Any unauthorised alterations made to the machine automatically release the manufacturer from any liability in the case of damage or accidents attributable to

such alterations. Specifically, tampering with or removing the machine's safety devices is a breach of the regulations for industrial accident prevention.



WARNING

When operating or servicing our equipment do not wear ties, loose fitting clothes, necklaces or wristwatches and any other articles that could become entrapped by moving parts. Tie back long hair or cover with a scarf or a cap.



WARNING

Keep unauthorised persons well clear of the area of operations.

DESCRIPTION OF 70-200-20 TYRE CHANGER

70-200-20 is an electro-pneumatic tyre changer.

The machine is designed to mount and demount tyres on all types of integral wheels with drop centre and weights and dimensions as described in the section TECHNICAL BRIEF.

Of solid construction, the machine works with the wheels in a horizontal position for both bead

breaking and mounting/demounting. The components are operated by the operator by means of a pedal unit.

TECHNICAL BRIEF

- Turntable clamping (on outside of rim only)	from 5" to 23"
• Position 1	from 5" to 13"
• Position 2	from 10" to 18"
• Position 3	from 15" to 23"
- Maximum rim width	7 "
- Maximum tyre width	220 mm
- Turntable rotation torque	1000 Nm
- Bead breaking opening	220 mm
- Bead breaking force on shoe	785 Kg
- Electricity supply	
• Single-phase	115/230V +- 10% - 0.75Kw
• Three-phase	230/400V +- 10% - 0.55Kw
- Operating pressure	8-10 bar
- Dimensions	
• Maximum width	1150 mm
• Maximum length	940 mm
• Maximum height	1800 mm
• Weight	155 Kg
- Noise level when running	70 dB(A)

ACCESSORIES SUPPLIED WITH THE MACHINE

- Tyre arm	Code 044900800
- Brush	Code 040000100
- Plastic adaptors for go-kart wheels	Code 007204500

OPTIONAL ACCESSORIES

- Wheel holder arm	Code 060004300
- Tray	Code 120502960
- Small diameter wheel mounting roller	Code 063975700
- CE Inflator gun	Code 3-00447
- Vase of grease 1 Kg	Code 020003600

SPECIFIED CONDITIONS OF USE

70-200-20 tyre changer is designed exclusively for mounting and demounting tyres using the tools with which the machine is equipped and in accordance with the instructions in this manual.



WARNING

Any other use other than the one described herein will be considered improper and unreasonable.

The machine is equipped with an inflation system that is independent from the systems described above. Extreme caution must be exercised during use of the machine inflation system (read INFLATION heading).



WARNING

When working with the machine it is strongly recommended to avoid using equipment or tools not manufactured by us.

Figure 6 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

To stop the machine in an emergency:

- unplug from the electrical supply;
- isolate the air supply network by disconnecting the shut-off valve (quick fitting).

MAIN OPERATING PARTS OF THE MACHINE



WARNING

Get to know your machine: the best way to prevent accidents and obtain top performance from the machine is to ensure that all operators know how the machine works.

Learn the function and location of all commands.

Carefully check that all the commands on the machine are working properly.

To avoid accidents and injury, the machine must be installed properly, operated correctly and serviced regularly.

Fig. 5

- A** HORIZONTAL SWING ARM – moves the mount/demount device and the table top vertical slide away for the removal and replacement of tyres or rims.
- B** VERTICAL SLIDE ARM – for the positioning of the mount/demount device.
- C** MOUNT/DEMOUNT DEVICE – for mounting-demounting the tyre on the rim.
- E** TABLE TOP – rotating device for clamping the wheels.
- F** TABLE TOP PEDAL – three-position pedal that controls the rotation of the table top in both directions.
- G** CLAMP CONTROL PEDAL - three-position pedal for opening, closing and moving rim clamps.
- H** BEAD BREAKER PEDAL – two-position pedal for operation of bead breaker
- L** BEAD BREAKER SHOE – mobile shoe for detaching bead from rim.
- M** LEVER – for locking the vertical slide arm after finding the exact position of the C-device.
- N** KNOB – for setting the horizontal swing arm and keeping the C-device/rim distance
- O** TRAY
- P** INFLATOR GUN
- Q** WHEEL SUPPORT – on which the wheel is rested during the bead breaking phase.
- R** MOUNTING ROLLER – for mounting wheels with diameter smaller than 8".

Identifying warning signals



DANGER OF HAND CRUSHING BETWEEN CLAMP AND RIM

000103100



DANGER OF HAND CRUSHING BETWEEN MOUNTING HEAD AND WHEEL

000103600



CAUTION: ELECTRIC CURRENT

000102900



CAUTION: LATERAL MOVING OF THE HORIZONTAL ARM

000102900



CAUTION: AIR BLAST

000102800



MAX AIR SUPPLY LINE PRESSURE 16 BAR

000102700

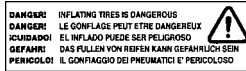


INFLATING GUN CONNECTION. DO NOT DIRECTLY CONNECT THE COMPRESSOR

000103000



000103000



000103700

BEAD BREAKING



ATTENTION

During this stage of operation, noise levels may be up to 85 dB(A). We recommend that operators wear hearing protectors.

Deciding from which side of the wheels the tyre must be demounted

Clamp the rim on the turntable keeping the side of the rim on which the **brake disk or drum** is fitted facing downward.

Special instructions

Alloy wheels

Some alloy wheels on the market have minimal rim channels or are even completely without rim channels (these wheels are not DOT approved).



When working on these wheels, it is possible to damage the tyre, the rim or both, with the risk of the tyre exploding under pressure causing serious injury or death. When mounting tyres on this type of wheel, use the utmost caution.

Bead breaking

- Fully deflate the tyre
- Place the wheel in the bead breaking position on the wheel support **Q** (Fig 5). Line up the vertical slide arm **B** fig 4 with the central hole of the rim, place the wheel in a perfectly horizontal position and tighten the knob **F** fig 4.
- Pressing slightly on the bead breaker pedal **K** fig 5, position the bead breaker on the bead of the tyre (Fig .6) The bead breaker pedal can be removed to work more easily on larger diameter wheels
- Adjust the wheel position so that the bead breaker is as near as possible to the edge of the rim and then tighten the knob **F** fig 4 and **D** fig 4.
- Press down the pedal completely to release the bead from the rim.
- Repeat this operation in various points around the tyre until the bead is freed from the rim. Repeat the operation on the opposite side of the tyre. If the wheel only has one kingpin with the hub to one side, use the horizontal swing arm extension **A** fig.4 so that the wheel is perfectly horizontal.
- Remove counterweights.
- Using pedal **G**, adjust the opening of the four self-centering clamps.
- Adjust the position of the sliding clamps (position 1,2 or 3) according to the diameter of the wheel.(Fig 7).
- If the wheel that needs to be blocked has a diameter equal to 5" (go-kart), the special plastic adaptors that are supplied with the machine must be mounted.
- Lubricate the tyre all around the edge of the bottom and top bead to aid demounting and to avoid damage to the bead.
- Place the wheel on the clamps, press the rim downwards slightly and by pressing on the pedal **G**, block the rim with the clamps.

TYRE DEMOUNTING

- Set the swing arm and vertical slide with the lever **M** (Fig. 5) so that the lower part touches the edge of the rim.
- Close lever **M** to lock the vertical slide **C**. Close lever **M** and the vertical slide will automatically move away from the rim by approx. 2 mm.
To adjust the horizontal slide position, use the hand-wheel **N**.
- Insert and position the bead lifting tool **I** between the mounting slide and the tyre bead (Fig. 8)

When working with alloy wheels or wheels with delicate paintwork, you are advised to remove the bead lifting tool before proceeding with the demounting.



Grip the bead lifting tool firmly during use.

- Raise the upper bead above the rear part of the demounting vertical slide and force part of the upper bead into the rim groove by pushing down on the tyre on the opposite side to the vertical slide (Fig. 9).
- Start the demounting procedure by pressing lightly and repeatedly on pedal **F**.
- Rotate the wheel through one complete turn, pressing down with the hands on the side of the tyre opposite to the vertical slide, so that the bead is positioned in the central rim groove.
- Move the horizontal swing arm outwards to remove the inner tube from the tyre.
- To take out the second bead, repeat the above procedure
- Once demounting is complete, move the arm outwards to release the tyre.

TYRE MOUNTING



WARNING

Always check that the size of the tyre is compatible with the size of the wheel before proceeding with mounting.

- Before starting the mounting procedure, lubricate the beads.
Lubricated beads are easier to handle and are protected against possible damage. Make sure that the tyre is in good condition without any signs of damage.
- Position the tyre over the wheel and move the swing arm to the work position. Position the lower bead under the front part of the vertical slide. Press the pedal to turn the table top clockwise and mount the bead. Make use of the rim groove by pressing on the right-hand wall of the tyre to reduce the torsional stress on the bead during rotation (Fig. 10).
- After mounting the lower bead, repeat the same procedure for the upper bead.
- Turn the swing arm outward, free the wheel and inflate the tyre.

Special Tools

For wheels smaller than 8" a special mounting roller is available on request (see accessories available on request).

Wheels from 5" to 8"

To mount wheels with a diameter up to 8", use the roller (**R** Fig 5) (optional). Place the central pivot of the roller on the edge of the rim and block it with the handle **M** fig 5. Press the pedal **F** Fig.5 to start clockwise turning and mounting. Use the rim groove by pressing on the tyre wall to reduce the torsional strength on the bead during rotation.

INFLATION



WARNING

Tyre inflation is a dangerous operation. Always inflate tyres in the strictest observance of the following instructions.

 **ATTENTION**

During this stage of operation, noise levels of 85 dB(A) may be present. We recommend that the operator wears hearing protectors.

 **WARNING**

During the bead insertion and inflation procedure, safety goggles and ear protection must be worn.

 **DANGER**

The machine, even if it limits pressure, does not provide sufficient protection against exploding tyres during inflation. Failure to observe the following instructions will make tyre inflation extremely dangerous.

 **DANGER**

NEVER exceed the maximum pressure stipulated by the tyre manufacturer. If inflated beyond this limit, tyres are liable to explode.
KEEP THE HANDS AND BODY WELL CLEAR OF THE TYRE DURING INFLATION. Make sure you are well concentrated during this stage of operation and make frequent checks on the tyre pressure to avoid the risk of excess inflation. Exploding tyres can cause serious injury or death.

Inflation

- Release the wheel from the table top jaws.
- Connect the Doyfe inflator check on the air hose to the valve stem.
- Inflate the tyre with small blasts of air. Never exceed the maximum pressure specified by the tyre manufacturer.

TROUBLESHOOTING

When you press the table top rotation pedal, the table top will not rotate.

Power cord conductor shorting to ground.

- Check the wiring.

Motor shorted.

- Replace the motor.

Inverter short-circuit.

- Replace inverter.

Fuses blown.

- Check and replace fuses.

Rotation control pedal fails to return to the central position.

Control spring broken.

- Replace the spring

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

Control spring broken.

- Replace the spring.

No oil in lubricator

- Top up lubricator with SAE20 non-detergent oil.

Internal air leak (Take off the left cover and locate the leak).

Air leak from bead breaker cock.

- Replace the cock.
- Replace bead breaker cylinder.

Air leak from the table top cock.

- Replace table top cylinder.
- Replace swivel connector.

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

Silencer plugged.

- Replace silencer.

Cylinder seals worn.

- Replace seals.
- Replace bead breaker cylinder.

Bead breaker cylinder leaks air around the rod

Air seal worn.

- Replace seals.
- Replace bead breaker cylinder.

Table top will not rotate in one direction or the other

Inverter faulty.

- Replace inverter.

Table top will not rotate in either direction

Inverter faulty.

- Replace inverter.

belt broken.

- Replace belt.

Gear unit broken.

- Replace gear unit.

Table top doesn't turn. Motor whines

Motor runs two-phase.

- Replace inverter.
- Check that there are no detached wires on the plug, electrical socket, motor terminal board or inverter.
- Replace motor.

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

Gear unit seizing.

- Replace gear unit.

Table top fails to clamp wheels.

Table top cylinders defective.

- Replace table top cylinders.

Table top mounts or demounts tyres with difficulty

Insufficient belt tension.

- Adjust belt tension or replace it.

Vertical clamping inoperative.

Clamping plate not adjusted.

- Adjust clamping plate.

Clamping plate defective.

- Replace clamping plate.

Tyre pressure gauge needle fails to return to 0.

Pressure gauge faulty or damaged.

- Replace pressure gauge.



WARNING

The “spare parts” handbook does not authorise the user to carry out work on the machine with the exception of those operations explicitly described in the user’s manual, but enables the user to provide the technical assistance service with precise information, in order to reduce delay.

MAINTENANCE



WARNING

We declines all liability for claims deriving from the use of non-original spares and accessories.



WARNING

It is expressly forbidden to attempt to alter operating pressure of the relief valves or the pressure regulator.

The manufacturer declines all liability for damage resulting from tampering with these components.



Before making any adjustments or carrying out maintenance, disconnect the electrical supply from the machine and make sure that all moving parts are suitably immobilised.



Do not remove or modify any parts of this machine (except in case of service interventions).

- The filter-pressure regulator-lubricator unit is equipped with a semi-automatic condensate drain device. The device operates automatically whenever the compressed air supply is disconnected from the machine. Drain condensate manually when the level rises above maximum mark.

- Clean the table top weekly: remove any residues of dirt. Use only with environment-friendly detergents.

- Monthly checks:

- Clean and lubricate (with environment-friendly detergents only) the swing arm and vertical slide on the relative ways.

- Check the oil level in the lubricator and, if necessary, top up with SAE20 non-detergent oil as far as the maximum level.

- Clean with a dry cloth. Avoid contact with solvents.

- Check the flow rate of oil through the transparent cup (correct flow rate: 1 drop of oil for every 2 bead breaking cycles). Adjust if necessary by turning the upper adjustment screw.



Keep the work area clean.

Do not clean the machine with compressed air or jets of water.

When cleaning the area avoid raising dust as far as possible.

DEMOLITION

If the machine is to be scrapped, remove all electrical, electronic, plastic and metal parts and dispose of them separately in accordance with current provisions as prescribed by law.

OIL - WARNINGS AND RECOMMENDATIONS

Disposal of used oil

Do not dispose of used oil into sewage mains, storm drains, rivers or streams. Contact a specialised firm for disposal.

Oil spills and leaks

When the oil has been removed, degrease the area with suitable solvents taking care to disperse solvent fumes. Dispose of all residual cleaning material in accordance with procedures as prescribed by law.

Precautions when using oil

- Avoid contact with the skin.
- Avoid the formation and diffusion of oil mist
- Apply the following hygiene measures:
 - protect personnel and equipment from oil splashes (wear suitable clothing, install screens on the machine)
 - wash frequently with soap and water; do not use cleaning products or solvents that irritate the 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 event at the end of each work shift
 - do not smoke or eat when your hands are greasy
- Apply the following preventive and protective measures:
 - wear lined industrial gloves designed to resist mineral oils
 - use safety goggles to protect the eyes
 - use aprons resistant to mineral oil
 - use protective screens to protect from oil splashes

Mineral oil: First Aid procedures

- Ingestion: seek medical attention immediately and provide all characteristics of the oil type ingested.
- Inhalation: for exposure to high concentrations of fumes or oil mist, move the affected person to the open air and seek medical attention immediately.
- Eyes: bathe with plenty of running water and seek medical attention immediately.
- Skin: wash with soap and water.

GENERAL ELECTRIC LAYOUT

Fig. 12

QS1	Direction reverse
XS1	Power supply socket
M1	Motor
C1	Condenser
R1	Resistance

COMPRESSED AIR LAYOUT

Fig. 13

OZ1	Quick coupling
OZ2	Regulator/lubricator filter unit
OV1	Inflating regulator unit
OV2	Inflation gun
1V1	Bead breaker valve
1V2	Quick discharge valve
1A1	Bead breaker cylinder
2V1	Table top valve
2Z1	Rotating valve
2A1 - 2A2	Table top cylinder