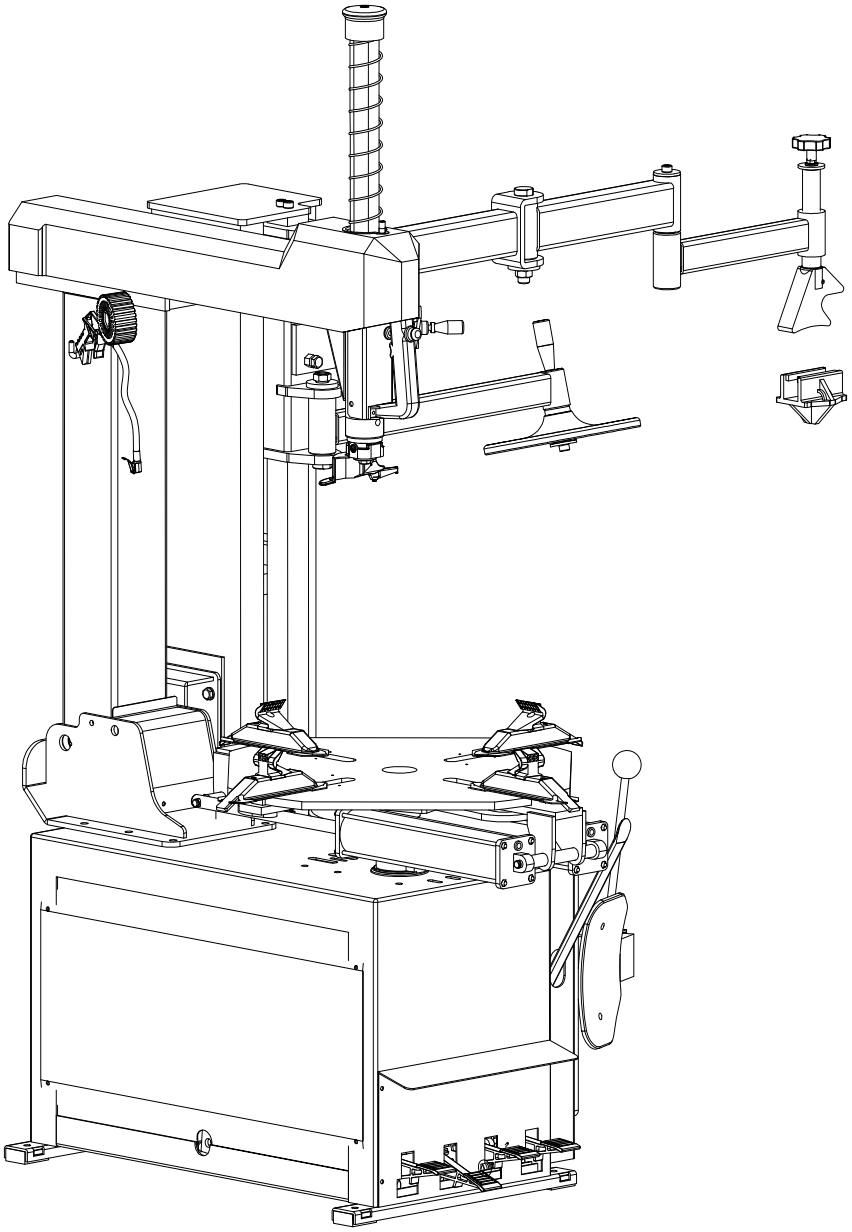
AUTOMATIC CAR TYRE CHANGER

Installation/Operation & Maintenance Manual



CE

MODEL: GM - U221H

Please read through this manual before operation. You must read and understand the precautions for safety to protect your safety and any damage to your property.

Version: 01312.1.0

NOTE TO THE USER

Thank you for purchasing our products.
Please read this instruction carefully for safe and proper use of the tyre changer, and keep it handy for future reference.

■ This Manual is for model : GM - U221H
■ As for the assurance of safety in design and construction of tyre changer, read this Manual first.
■ Please make sure that this manual is delivered to end users for their implementation of safety.
■ Don't use the tyre changer in a potentially explosive atmosphere.

TABLE OF CONTENTS

1. INTRODUCTION

1.1 SCOPE OF APPLICATION

The tyre changer is designed and made specially for changing the tyres of cars, vans, light trucks and motorcycle with the principle of best quality and highest working efficiency.

Note: This machine can only be used for the purpose designed by the manufacturer. Do not use it for any other purpose.

Any damage caused by incorrect using or beyond the scope of application will not be covered under warranty.

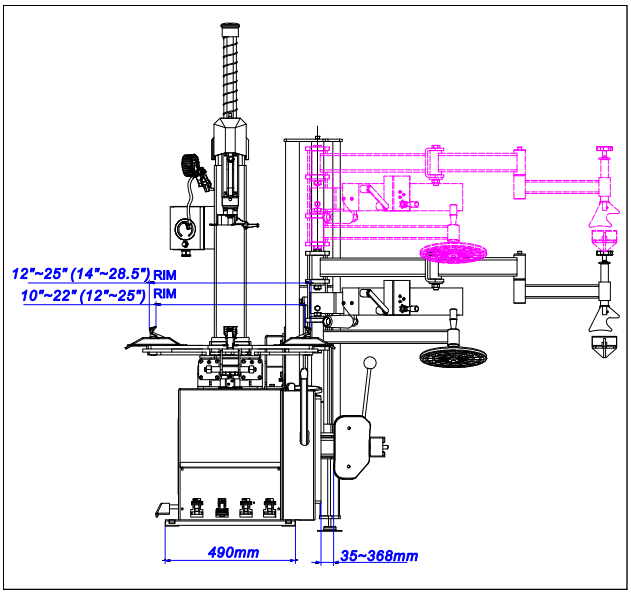


Fig. 2

1.2 DIMENSION OF THE MACHINE

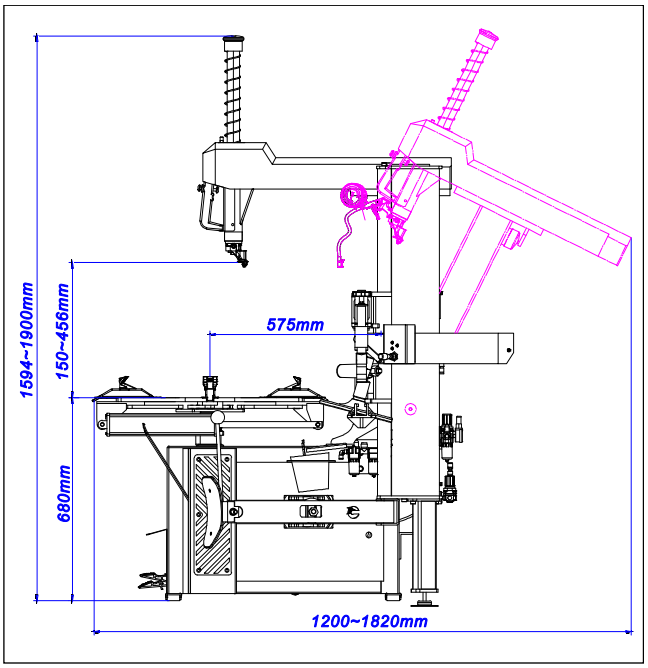


Fig. 1

1.3 TECHNICAL SPECIFICATIONS

Model	GM - U221H	GM - U221H XL
Max. Wheel Width	14”	
Max. Wheel Diameter	1150mm	
Outside Locking (RIM)	12”-25”	14”-28.5”
Inside Locking (RIM)	10”-22”	12”-26.5”
Motor Power Supply	380V/50Hz 0.75kw 3Ph 220V/50Hz 1.1kw 1Ph 110V/220V-50Hz/60Hz 1.1kw 1Ph 380V/50Hz 1.1kW 3Ph (Dual Speed)	
Net Weight	247kg	
Working Temperature	0-45℃	
Operating Pressure	8-10bar	

Table 1

1.4 STRUCTURE AND PARTS

1. 4.1 STRUCURE AND PARTS OF MAIN MACHINE

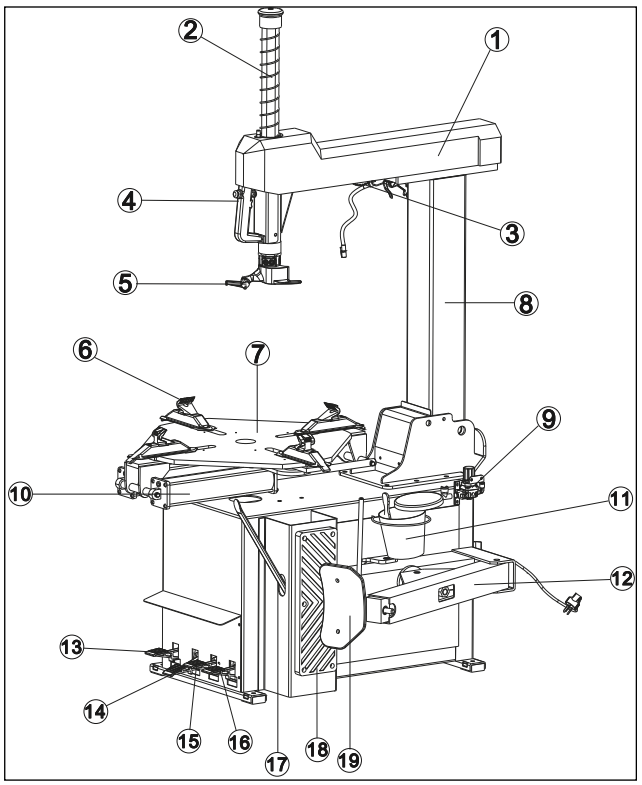


Fig. 3

① Horizontal arm

② Vertical slide

③ Inflating gun

④ Locking button for vertical slide

⑤ Mounting/demounting head

⑥ Wheel clamps

⑦ Turntable

⑧ Vertical post

⑨ Oil separator

⑩ Cylinder

⑪ Grease cup

⑫ Bead breaker arm

⑬ Vertical post tilting pedal

⑭ Wheel clamp opening/closing pedal

⑮ Turntable turning pedal

⑯ Bead breaker pedal

⑰ Tyre lever

⑱ Bead breaker pad

⑲ Bead breaker shoe

1.4.2 STRUCTURE AND PARTS OF ASSIST ARM

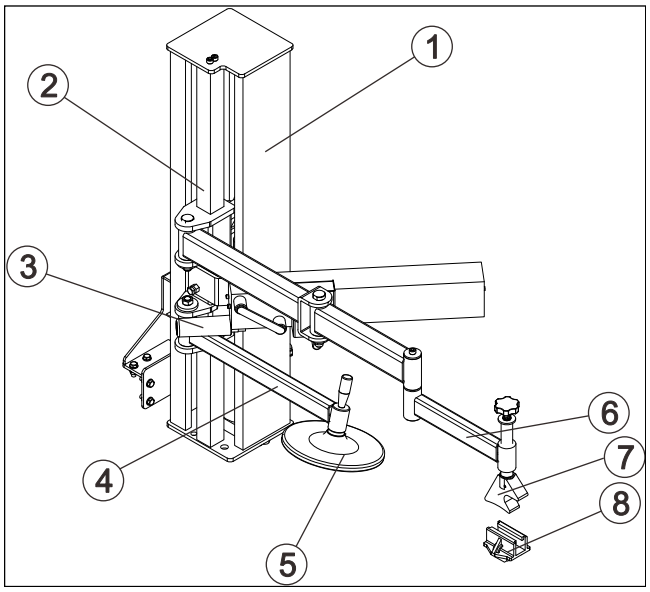


Fig. 4

① Column

② Sliding rail

③ Tyre pressing roller

④ Swing arm of tyre lifting disk

⑤ Tyre lifting disk

⑥ Bead pressing swing arm

⑦ Bead pressing block

⑧ Bead pressing cone

1.5 WARNING STICKERS AND INSTRUCTIONS ON THE MACHINE

Risk of crushing. Stand clear of bead breaker arm during operation.

Never place hand on the tyre when the demounting head is on the working position, so as to avoid the injury of the operator.

Never place your hand between the tyre and the wheel clamping device when operate the rim, so as to avoid the injury of the operator.

The wheel clamps should be in closed position when do the bead breaking, so as to avoid the injury of the operator.

Never place hand between bead breaker and the machine body when the bead breaker is on the working position, so as to avoid the injury of the operator.

Risk of eye injury. High pressure air will come out when unplug the hose of air compressor which may cause injury to the eyes of operator.

Risk of injury. Never stand behind the machine during operation. Vertical arm tilting may cause injury to personnel.

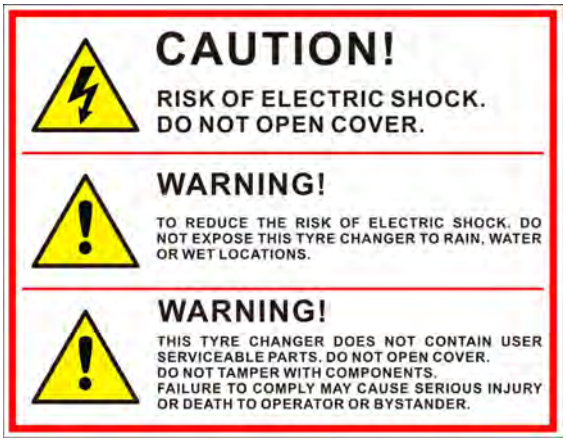
Risk of electrical shock. High voltages are present within the base unit.

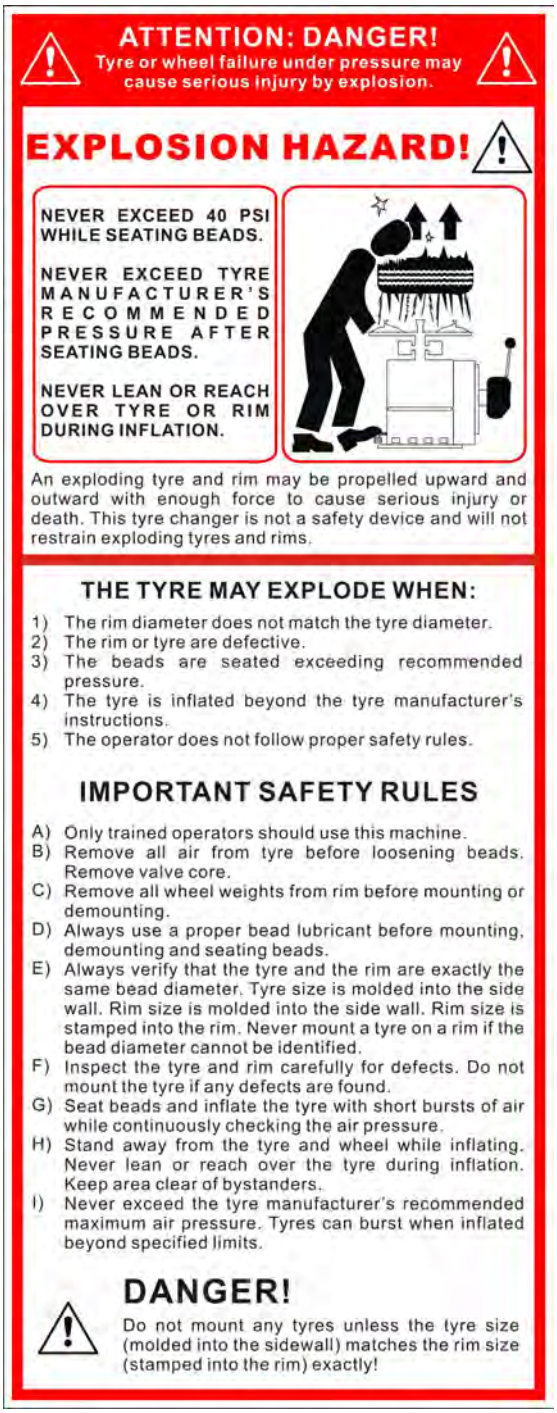
Risk of eye injury. Flying debris, dirt, and fluids may be discharged during bead seating and inflation process.

Wear gloves during operation.

Wear working clothes during operation.

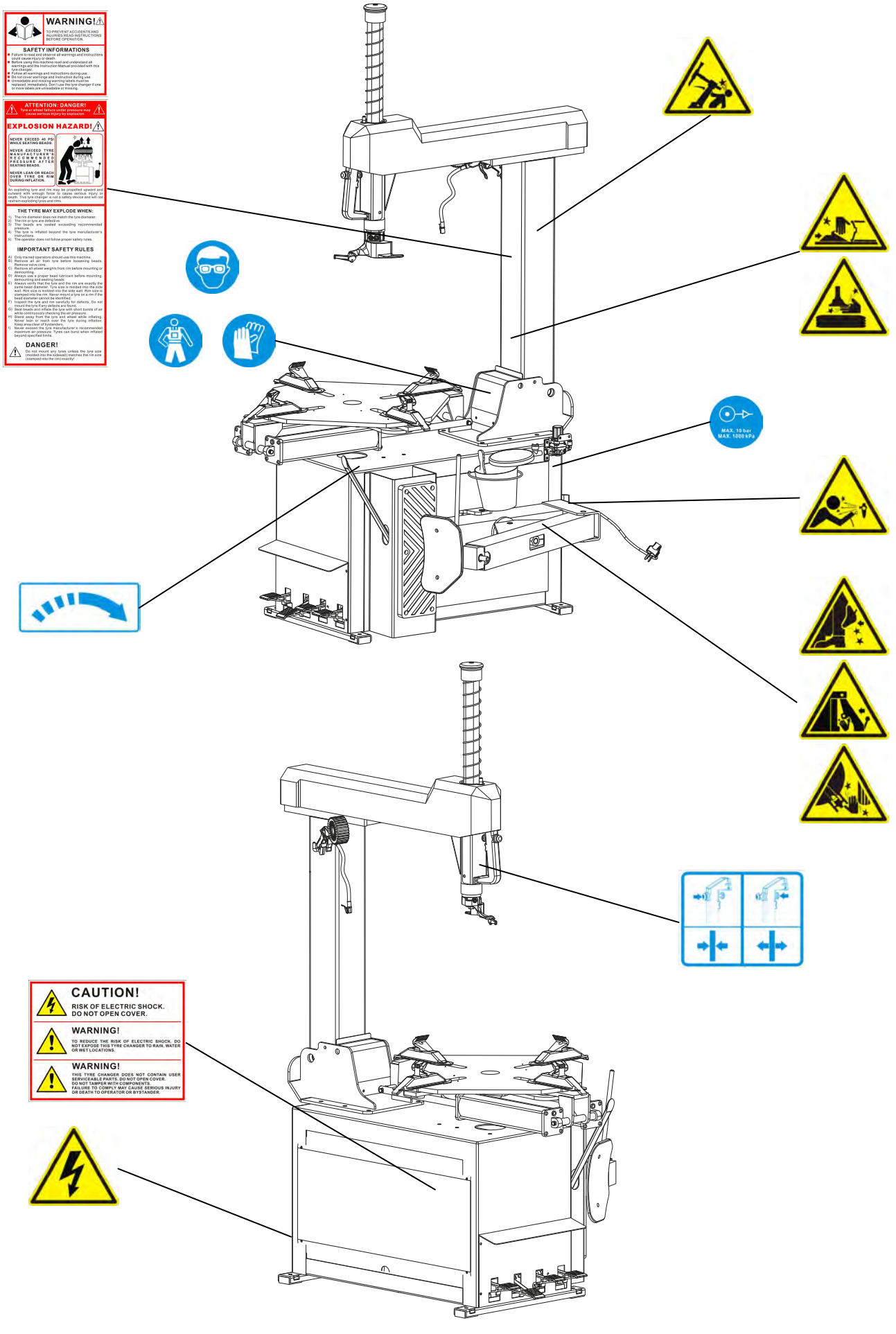
Max. operating pressure: 10 bar.





1.6 LOCATION OF WARNING STICKERS AND INSTRUCTIONS ON THE MACHINE

See the following page.


WARNING!
SAFETY INFORMATIONS
ATTENTION: DANGER!
EXPLOSION HAZARD!
THE TYRE MAY EXPLODE WHEN:
IMPORTANT SAFETY RULES
DANGER!
MAX. 10 bar
MAX. 1000 kPa
CAUTION!
RISK OF ELECTRIC SHOCK.
DO NOT OPEN COVER.
WARNING!
TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT EXPOSE THIS TYRE CHANGER TO RAIN, WATER OR WET LOCATIONS.
WARNING!
THIS TYRE CHANGER DOES NOT CONTAIN USER SERVICEABLE PARTS. DO NOT OPEN COVER.
DO NOT TAMPER WITH COMPONENTS.
FAILURE TO COMPLY MAY CAUSE SERIOUS INJURY OR DEATH TO OPERATOR OR BYSTANDER.

2. INSTALLATION

2.1 TRANSPORTATION

Make sure transport the machine with its original package, and place it according to the marks on the package. The packed machine should be moved by means of a fork lift truck of suitable capacity, insert the forks at the points shown in (Fig. 5).

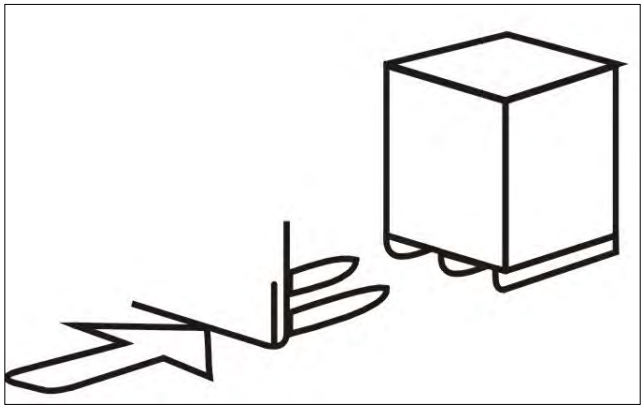


Fig. 5

The temperature for the transportation should be -25 to +55, some measure should be use to prevent the humidity, shake and concussion.

2.2 INSTALLATION

2.2.1 INSTALLATION PLACE

When choose the place for installation be sure that it complies with current safety regulations.

The semi-automatic tire changer must be connected to the main electric power supply and air compressed system. It is therefore advisable to install the machine near these power sources.

The place of installation must provide at least the space shown in ***Fig. 6***, so as to allow all parts of the machine to be operated correctly and without any restriction.

If the machine is installed outside, it must be protected by a lean-to.

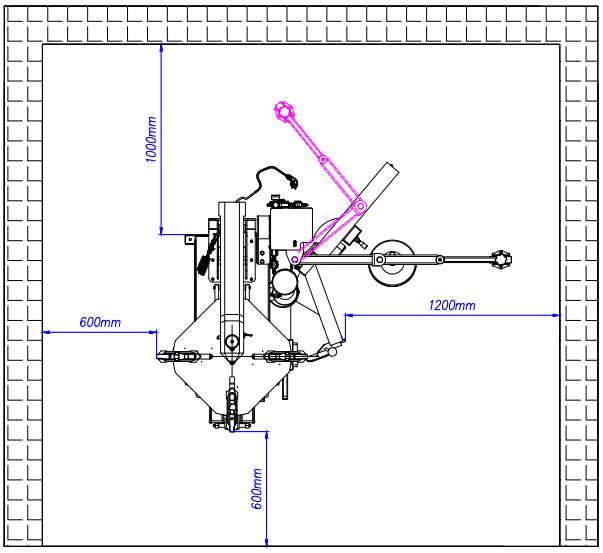


Fig. 6

2.2.2 UNPACKING

After unpacking the package, check the eyeable damage on the machine and the component due to the shipment, if there is some problems please contact with the dealer. The packing material such as plastic, nail, screw, wood and carton should be put into the waste box or be handled according to the local regulations.

Note: The operator should wear gloves, so as to avoid the injury when unpack the machine.

2.2.3 INSTALLATION PROCEDURE

The automatic tyre changer is disassemble packed before delivery, the vertical arm are disassembled before packed, the customer should assemble it according to the manual.

2.2.3.1 VERTICAL POST INSTALLATION

- Unpack the package carton, take out accessory boxes, bead breaking arm and column assembly.
- Position the machine body according to the Fig. 6. Remove the bolt, elastic washer and plate washer on the body. Take down the front protection cover ***(Fig. 7)*** and the spindle from the vertical post bracket ***(Fig. 8)***.

Fig. 7

Fig. 8

- Place the vertical post into the bracket. ***(Fig. 9)*** The direction of the warning label is forwards. Make the holes on the post align to holes on the bracket. Once again insert the removed spindle. ***(Fig. 10)*** Use torsion wrench to tight. ***(Fig. 11)*** And lock the spindle as ***Fig. 12*** shows to prevent spindle rotation during working.

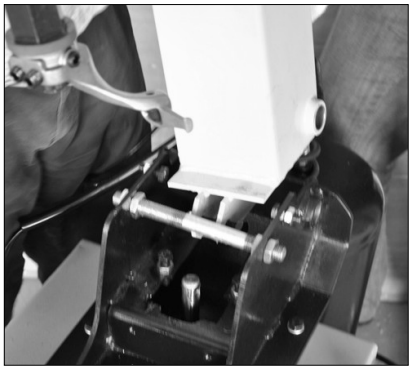


Fig. 9

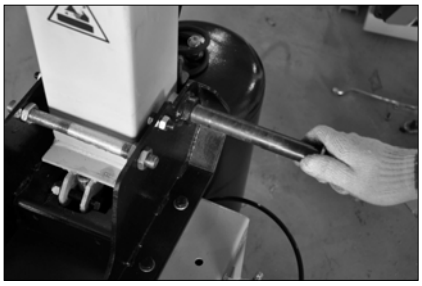


Fig. 10

Fig. 11

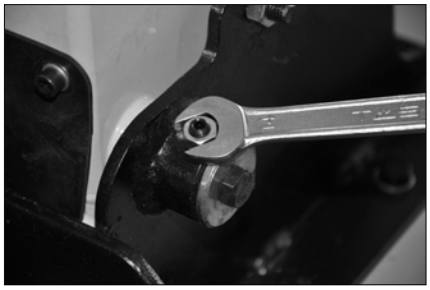


Fig. 12

- Remove the bolts and nuts from the connecting plate of the vertical post. ***(Fig. 13)*** And then make the hole of the connecting plate align to the hole of the cylinder shaft. Install the removed the bolt and nut. ***(Fig. 14)***

Note: do not tighten the bolt and nut. Screw the nut until it is on the same plane with the bolt or 2mm deeper than the bolt plane.

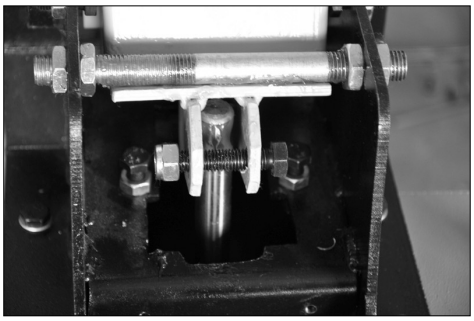


Fig. 13

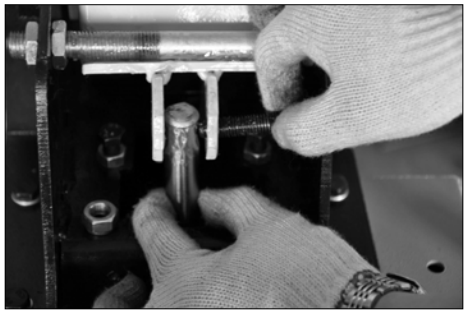


Fig. 14

- Fix the removed protection cover. ***(Fig. 15)*** And move the bottom of the rubber protection cover to the outside of the bracket. ***(Fig. 16)***

Fig. 15

Fig. 16

- Insert the air hose on the vertical host to the connector on the backside of the machine body. ***(Fig. 17)***

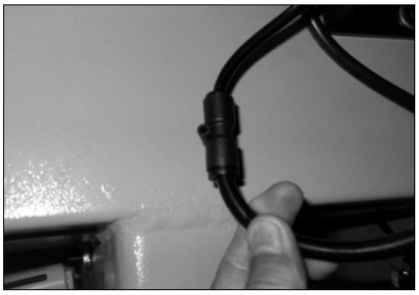


Fig. 17

- Mount the cover of horizontal arm. ***(Fig. 18)***

Fig. 18

- Use a wrench to remove the screw ***(Fig. 19-2)*** of vertical slide ***(Fig. 19-3)*** and take off the vertical slide cap ***(Fig. 19-1)***. When remove the screw on the vertical slide cap, you need use the locking handle to lock the vertical slide to avoid sliding off to damage the machine or injure personnel!

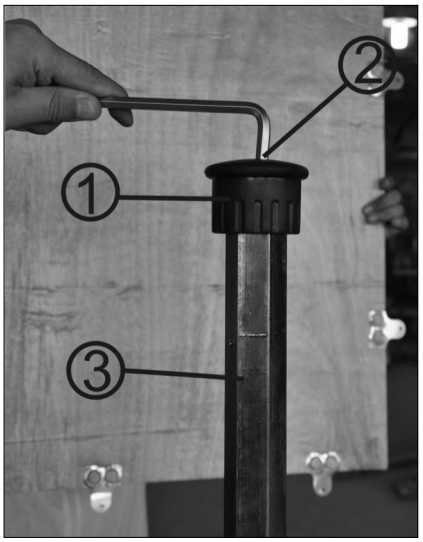


Fig. 19

- Install the vertical slide spring ***(Fig. 20)*** on the vertical slide. Mount the vertical slide cap and the removed screw.

Fig. 20

2.2.3.2 BEAD BREAKER INSTALLATION

- Remove the lock nut at the front end of the bead breaking cylinder piston rod ***(Fig. 21)*** and use wrench to remove the nut on the bead breaking arm bolt. Remove the bolt and hang the spring.

Fig. 21

- Position the bead breaking arm shaft bushing into the bead breaking support plate on the body to align the hole and install the bead breaking bolt and assemble the nut to lock. ***(Fig. 22)***

Fig. 22

- Insert the piston rod through the hole of the bead breaking slide bushing. ***(Fig. 23)*** The surface of the slide bushing should be outwards. Assemble the removed nut into the front end of the piston rod. ***(Fig. 24)*** The nut will be assembled. The distance from the edge of the bead breaking blade to the bead breaking rubber is 30~40mm.

Fig. 23

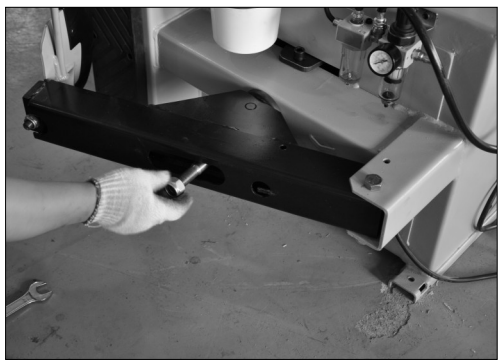


Fig. 24

- Hang the spring. ***(Fig. 25)***

Fig. 25

- Loose the locking nut of the bead beaker shoe. ***(Fig. 26)*** Adjust the bead breaker shoe to its proper position and tighten the nut. ***(Fig. 27)***

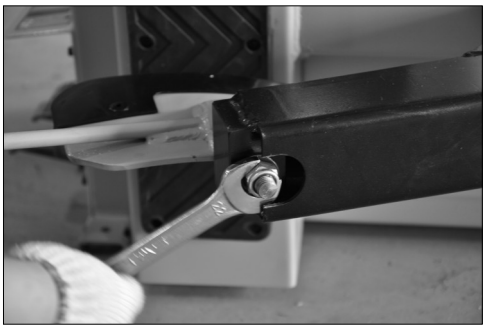


Fig. 26

Fig. 27

2.2.3.3 INSTALLATION OF ASSIST ARM

- Take off the four bolts ***(Fig. 28)*** from the installation base of assist arm and the bolt from the bottom of the assist arm ***(Fig. 29)***.

Fig. 28

Fig. 29

- Put the assist arm on the installation base. Align the holes and screw on the bolts.

Fig. 30

- Install the swing arm for tyre pressing block.

Fig. 31

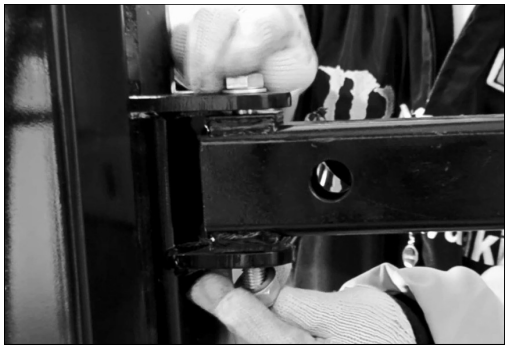


Fig. 32

Fig. 33

- Install the bead lifting disk arm.

Fig. 34

- Install the bead pressing roller.

Fig. 35

- Tighten all the bolts with impact socket or wrenches.

2.2.3.4 OIL SEPARATOR INSTALLATION

When the machine out of the factory, the air source fitting has been detached and placed in the accessory box and the fitting will be installed when it is in the site of the customers again.

The air installation must be done only by qualified personnel.

Excessive air pressure can seriously injure personnel and damage the machine.

- **Preparation**

Prepare one crosshead screwdriver, take out the oil separator and two screws M4 from the accessory box, check the oil separator, clean the surface.

- **Fix oil separator**

Fix the oil separator with screws M4 on the back of the machine, adjust the oil separator in one level, then tighten the two screws M4. ***(Fig. 36)***

Fig. 36

- **Connect air hose**

Connect the hoses according to ***Fig. 37.***

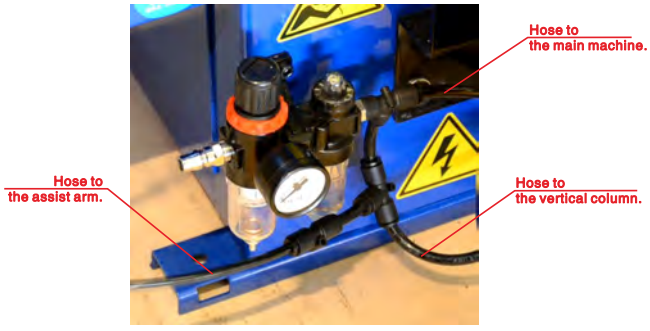


Fig. 37

2.2.3.5 GREASE CUP INSTALLATION

Insert the grease cup clamps into the two holes on right side of the machine. ***(Fig. 38)*** And put the grease cup into the clamp. ***(Fig. 39)***

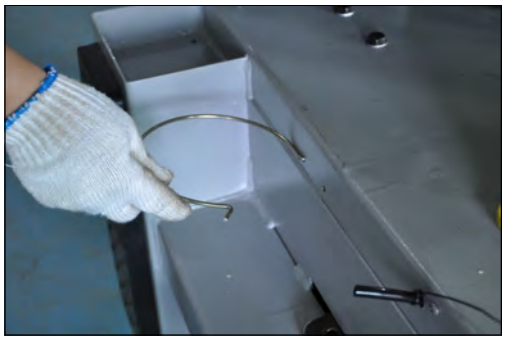


Fig. 38

Fig. 39

2.2.3.6 CHECK

Before connecting the machine to the air supply, be sure all personnel are clear of the machine and no items are left on the turntable.

Connect the air supply after the connecting of the hose, to check if there are leak or not, if there is no, the customer can use the machine ***(Fig. 40)***.

Fig. 40

Note: the go-out of the oil and the pressure have been adjusted before the delivery, so it is not necessary to adjust themselves.

3. COMMISSIONING

Before connecting the machine to the air supply, be sure all personnel are clear of the machine and no items are left on the turntable.

- Connect the air supply after the connecting of the hose, to check if there are leak or not, if there is no, the customer can use the machine ***(Fig. 41)***.

Fig. 41

Note: the go-out of the oil and the pressure have been adjusted before the delivery, so it is not necessary to adjust themselves.

- Check the four pedals are in their original position; connect the air source, the operation can begin when the pressure up to 8-10bar.

Note: After the connection with the air source, the clamp on the turntable should automatic open, which is set before delivery.

- When the pedal (13) is pressed down, the vertical post should tilt back. When the pedal is pressed again, the post will return to its original position.
- When the pedal (14) is pressed down, the clamps on the turntable close. (when lightly step the pedal the machine can show the step moving function.) when the pedal is pressed again, the clamps open.
- When the pedal (15) is pressed down, the turntable should turn in a clockwise direction. When the pedal is pulled up, the turntable should turn in an anti-clockwise direction.
- When the pedal (16) is pressed down, the bead breaker blade will begin to move. When the pedal is released the bead breaker blade returns to its original position.
- Pressing the pneumatic locking button (4), the horizontal arm and the vertical slide will be locked.
- In the meantime, please check towards the body to see if the oil separator works well. Normally, it will drop one drop of oil after the pedal is pressed for 5-6 times. If it drops too quick or too slow, please adjust the index on the air regulator by a screwdriver.
- Check if the swing arms and sliding arms move smoothly.
- When the control handle is pushing upwards, the sliding track goes up smoothly. When the control handle is pushing downwards, the sliding track goes down smoothly.

Fig. 42

Notes: The machine must be fixed well to avoid the shake during the operation.

The machine must place on the ground completely.

Cut off the air and electric power sources before any maintenance.

Check the screws on every parts of the machine is tight.

Keep the human body and hands away from the moving parts of the machine during the operation. The necklace, bracelet, loose clothes and long hair is dangerous for the operators. The operator should wear safe clothes such as gloves and glasses.

Keep the working area tidy and clean, or it may cause sudden accident

The working area should be well lighted.

4. OPERATION

Never use the machine before read this instruction and warning carefully.

Before mounting a tyre on a rim, pay attention to the following:

The rim must be clean and in good condition: if necessary, clean it after removing all wheel weights including tape weights inside the rim.

The tyre must be clean and dry, without any damage to the bead.

Replace the rubber valve system with a new one or replace the O-ring if the valve system is made of metal.

If the tyre requires a tube, make sure the tube is dry and in good condition.

Lubrication is necessary to mount the tyre correctly and get a proper centering. Be sure you are using approved lubricant only.

Make sure the tyre is the correct size for the rim.

4.1 DEMOUNTING TYRES

- Place the tyre between the bead breaker blade and rubber pad, and place the blade on the bead 2 cm from the rim, step on the pedal (16) to separate the bead from the rim. ***(Fig. 43)*** The wenthole on the tyre should not near to the bead breaker blade during the operation.

Fig. 43

- Repeat above steps on the other parts of the tire to get the tire separated thoroughly from the rim.

- Set the vertical slide in the working position, so that the mounting/demounting head is near the rim. The roller in the mounting/demounting head should be 2 mm from the rim to prevent scratching the rim. ***(Fig. 44)*** Pull the locking handle to lock the vertical slide.

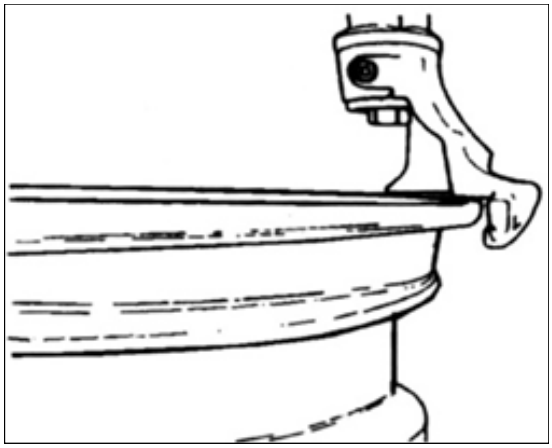


Fig. 44

- Lift the bead onto the mounting/demounting head with tyre lever, and step on the turntable turning pedal (15) to turn the turntable clockwise till the bead is completely separated ***(Fig. 45)***. It is suggested to place the mounting/demounting head about 10 mm to the right side of the air valve if the wheel has a tube, so as not to damage the tube.

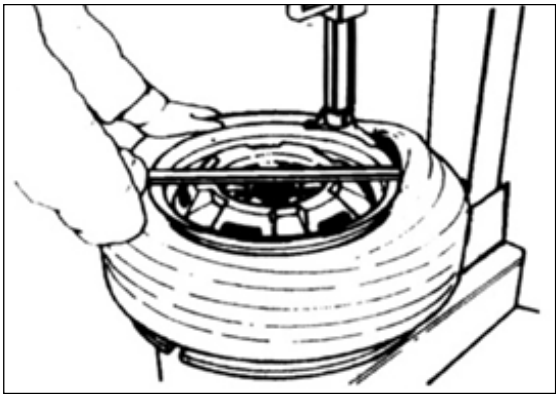


Fig. 45

- Take out the tube if there is. Turn over the wheel to let the other side toward the mounting/demounting head, and repeat the above steps to demount the other side of the bead. ***(Fig. 46)***

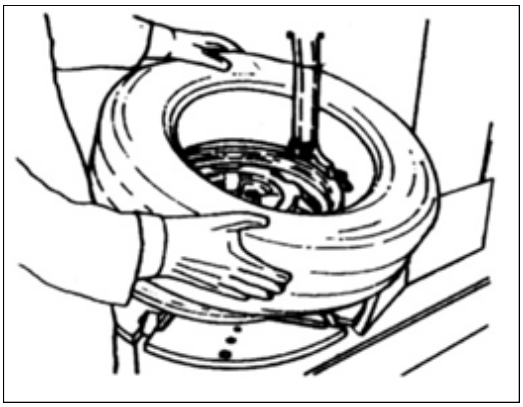


Fig. 46

4.2 MOUNTING TYRES

Note: Make sure that the size of the rim and the tire is the same before mounting.

- Clamp the rim on the turntable.
- Lubricate the bead with soap solution.
- Place one side of the tyre on the upside of the tail of the mounting/demounting head, then press the other side of the tyre under the mounting/demounting head, to make the tyre enter the groove of the rim. ***(Fig. 47)*** Pressing the pedal (15) to turn the turntable clockwise, and complete mount the bottom part of the tyre on the rim.

Fig. 47

- Cover the tube onto the rim if there is. Repeat the above steps to mount the upper bead.

Do not put your hand between the tyre and clamps. (Never adjust the pressure control valve inside the machine, otherwise the locking valve might be damaged.)

4.3 INFLATING

Keep your hand and body away from the tyre during the operation, and do the inflation carefully, so as to avoid the injury.

Inflate the tyre strictly following instruction below, please note there is no protection device for the safety of the operator (or third person) on the machine if the tyre explode suddenly.

Make sure the rim has the same size as the tyre, and the tire is not damaged before the inflation.

- Loose the tyre from the turntable.
- Connect the inflator with the air valve on the tire. ***(Fig. 48)***

Fig. 48

- Press the inflating gun slowly for several times. Make sure the reading on the gauge does not exceed the manufacturer's limit.

5. MAINTENANCE

Note: Only the trained operator can do the maintenance.

It is necessary to do the maintenance in accordance with this manual periodically, to correctly use the machine and prolong the working life of the machine. Otherwise, the operation and the reliability maybe affected, and it may injury the operator or the third person near the machine.

Note: Shut off the power and air source before any maintenance, and release all the compressed air from the machine.

- Keep the machine and the working area clean to avoid the dust entering the moving parts.
- Check the oil level in the air-compressed cup periodically. If it needs to be filled, you must shut off air source, and then fill the SAE30 oil.
- Clean and lubricate all the moving parts of the turntable. ***(Fig. 49)***

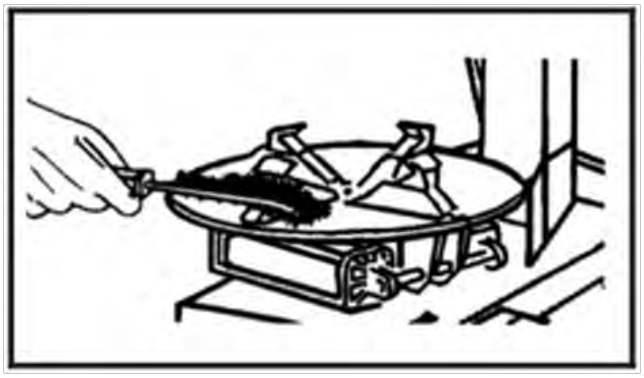


Fig. 49

- Check all connecting parts and bolts periodically and tighten them if necessary.
- Keep the horizontal arm clean and lubricate it periodically to make it move smoothly. ***(Fig. 50)***

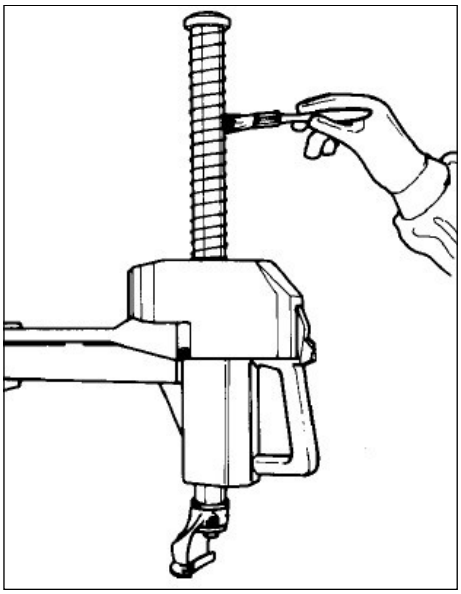


Fig. 50

- Lubricate all the connecting surface that may bring the displacement and attrition with oil weekly.
- Prepare a water segregator near the air-compressor, to reduce the amount of the water in the air that go through the machine.

Note: Shut off the power and air sources before the operation.

- Check and adjust the tension of the driving belt, to make sure that the turntable can running well. Loose the screw on the left panel of the machine to demount the panel, and then adjust the nut on the motor to loose and tighten the belt. ***(Fig. 51)***

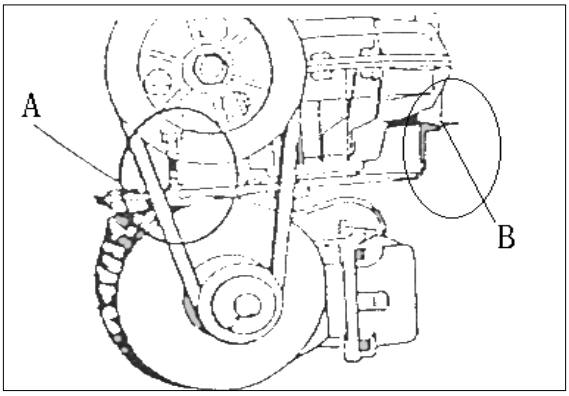


Fig. 51

- Do the adjustment as follow steps, if the vertical shaft does not lock well.

◇ Shut off the pneumatic supply.

◇ Demount the vertical arm cover.

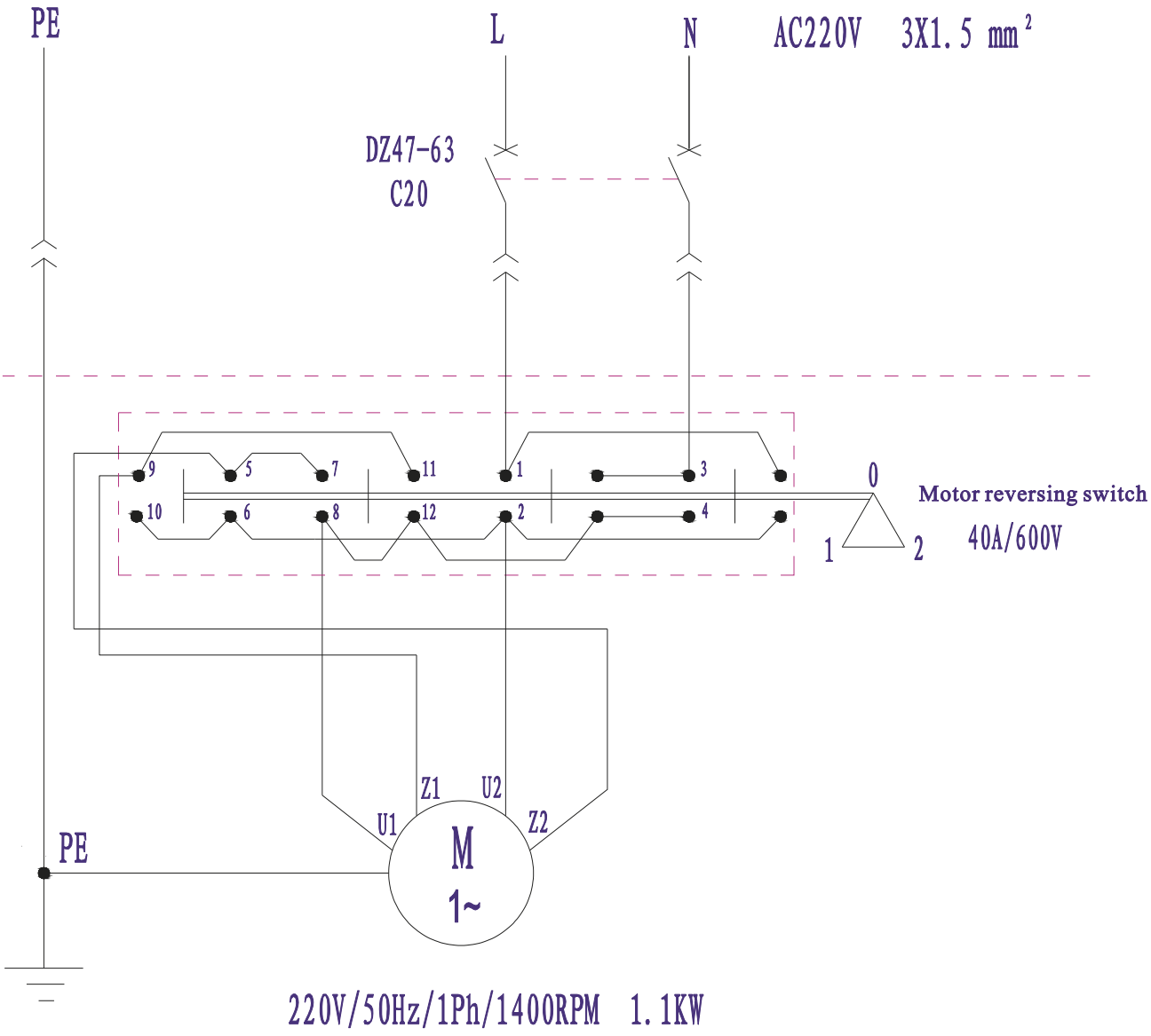
◇ Adjust the nut near the thread rod by spanner, or lock the screw at back of the locking plate.

◇ Connect the pneumatic supply and observe the locked position, the vertical arm rise up for 3-4mm.

APPENDIX

ELECTRICAL SCHEMATIC DIAGRAM

A. 220V-50hz/60hz 1P 1.1KW



ELECTRICAL SCHEMATIC DIAGRAM

B. 380V-50hz/60hz 3P 0.75KW