

**! WARNING**

PLEASE READ THE ENTIRE CONTENTS OF THIS MANUAL PRIOR TO INSTALLATION AND OPERATION. BY PROCEEDING YOU AGREE THAT YOU FULLY UNDERSTAND AND COMPREHEND THE FULL CONTENTS OF THIS MANUAL. FORWARD THIS MANUAL TO ALL OPERATORS. FAILURE TO OPERATE THIS EQUIPMENT AS DIRECTED MAY CAUSE INJURY OR DEATH.

REV 02-29-08

**INSTALLATION AND OPERATION MANUAL**

**TIRE CHANGER  
Model R23 / R23ST**

FOR SERVICING  
AUTOMOBILE  
AND LIGHT TRUCK  
SINGLE PIECE  
TIRES / WHEELS



Keep this operation manual near the machine at all times. Make sure that ALL USERS read this manual .

**SHIPPING DAMAGE CLAIMS**

When this equipment is shipped, title passes to the purchaser upon receipt from the carrier. Consequently, claims for the material damaged in shipment must be made by the purchaser against the transportation company at the time shipment is received.

**BE SAFE**

Your new Ranger tire changer was designed and built with safety in mind. However, your overall safety can be increased by proper training and thoughtful operation on the part of the operator. DO NOT operate or repair this equipment without reading this manual and the important safety instructions shown inside.



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Failure to follow danger, warning, and caution instructions may lead to serious personal injury or death to operator or bystander or damage to property.

Do not operate this machine until you read and understand all the dangers, warnings and cautions in this manual.

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## OPERATOR PROTECTIVE EQUIPMENT

Personal protective equipment helps make tire changing safer. However, equipment does not take the place of safe operating practices. Always wear durable work clothing during tire service activity. Shop aprons or shop coats may also be worn, however loose fitting clothing should be avoided. Tight fitting leather gloves are recommended to protect operators hands when handling worn tires and wheels. Sturdy leather work shoes with steel toes and oil resistant soles should be used by tire service personnel to help prevent injury in typical shop activities. Eye protection is essential during tire service activity. Safety glasses with side shields, goggles, or face shields are acceptable. Back belts provide support during lifting activities and are also helpful in providing operator protection. Consideration should also be given to the use of hearing protection if tire service activity is performed in an enclosed area, or if noise levels are high.



**THIS SYMBOL POINTS OUT IMPORTANT SAFETY INSTRUCTIONS WHICH IF NOT FOLLOWED COULD ENDANGER THE PERSONAL SAFETY AND/OR PROPERTY OF YOURSELF AND OTHERS AND CAN CAUSE PERSONAL INJURY OR DEATH. READ AND FOLLOW ALL INSTRUCTIONS IN THIS MANUAL BEFORE ATTEMPTING TO OPERATE THIS MACHINE.**

## DEFINITIONS OF HAZARD LEVELS

Identify the hazard levels used in this manual with the following definitions and signal words:



### DANGER

Watch for this symbol: It Means: Immediate hazards which will result in severe personal injury or death.



### WARNING

Watch for this symbol: It Means: Hazards or unsafe practices which could result in severe personal injury or death.



### CAUTION

Watch for this symbol: It Means: Hazards or unsafe practices which may result in minor personal injury or product or property damage.



Watch for this symbol! It means BE ALERT! Your safety, or the safety of others, is involved!

## OWNER'S RESPONSIBILITY

To maintain machine and user safety, the responsibility of the owner is to read and follow these instructions:

- ◆ Follow all installation instructions.
- ◆ Make sure installation conforms to all applicable Local, State, and Federal Codes, Rules, and Regulations; such as State and Federal OSHA Regulations and Electrical Codes.
- ◆ Carefully check the unit for correct initial function.
- ◆ Read and follow the safety instructions. Keep them readily available for machine operators.
- ◆ Make certain all operators are properly trained, know how to safely and correctly operate the unit, and are properly supervised.
- ◆ Allow unit operation only with all parts in place and operating safely.
- ◆ Carefully inspect the unit on a regular basis and perform all maintenance as required.
- ◆ Service and maintain the unit only with authorized or approved replacement parts.
- ◆ Keep all instructions permanently with the unit and all decal's on the unit clean and visible.



Do not attempt to operate this equipment if you have never been trained on basic tire service and mounting / dismounting procedures.



## INTRODUCTION

1. Carefully remove the crating and packing materials. **CAUTION!** Be careful when cutting steel banding material as items may become loose and fall causing personal harm or injury.
2. Check the voltage, phase and proper amperage requirements for the motor shown on the motor plate. Wiring should be performed by a certified electrician only.
3. YOUR MACHINE HAS A DUAL VOLTAGE MOTOR and can be run on either 110 or 220 volts. **STANDARD WIRING IS 110 VOLTS.** Confirm voltage selector switch is positioned correctly before connecting power to your machine or serious damage to the motor/electronics will result. (See Fig. 1).

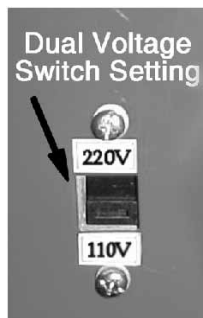


Fig. 1



## IMPORTANT SAFETY INSTRUCTIONS

*Read these safety instructions entirely!*

1. **READ AND UNDERSTAND** all safety warning procedures before operating lift.
2. **KEEP HANDS AND FEET CLEAR.** Remove hands and feet from any moving parts.
3. **KEEP WORK AREA CLEAN.** Cluttered work areas invite injuries.
4. Consider work area environment. Do not expose equipment to rain. **DO NOT** use in damp or wet locations. Keep area well lighted.
5. **ONLY TRAINED OPERATORS** should operate this equipment. All non-trained personnel should be kept away from work area. Never let non-trained personnel come in contact with, or operate machine.

6. **USE MACHINE CORRECTLY.** Use machine in the proper manner. Never use adapters other than what is approved by the manufacturer.

7. **DO NOT** override or disable safety valves and/or devices.

8. **ALWAYS INSURE** that the safeties are engaged before any attempt is made to work on or near vehicle.

9. **DRESS PROPERLY.** Non-skid steel-toe footwear is recommended when operating machine.

10. **GUARD AGAINST ELECTRIC SHOCK.** This equipment must be grounded while in use to protect the operator from electric shock. Never connect the green power cord wire to a live terminal. This is for ground only.

11. **DANGER!** The motor on this machine contains high voltage. Disconnect power at the receptacle before performing any electrical repairs. Secure plug so that it cannot be accidentally plugged in during service.

12. **WARNING! RISK OF EXPLOSION.** This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. This machine should not be located in a recessed area or below floor level.

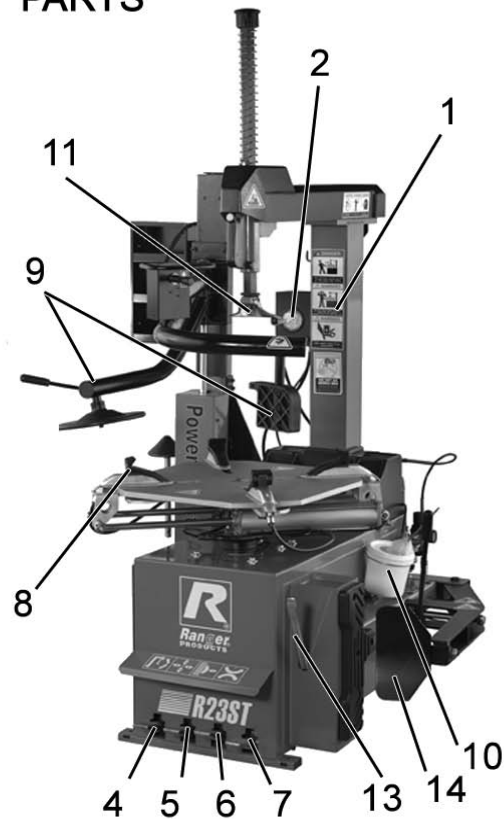
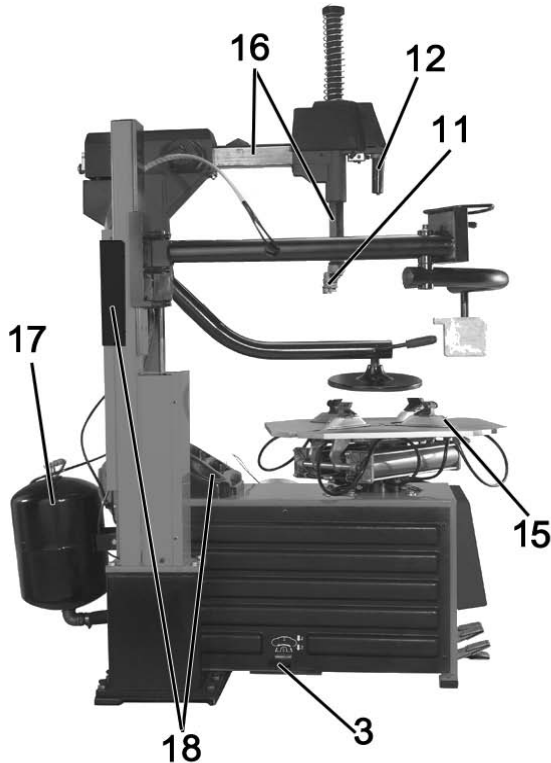
13. **MAINTAIN WITH CARE.** Keep unit clean for better and safe performance. Follow manual for proper lubrication and maintenance instructions. Keep control pedals and/or buttons dry, clean and free from grease and oil.

14. **STAY ALERT.** Watch what you are doing. Use common sense. Be aware.

15. **CHECK FOR DAMAGED PARTS.** Check for condition of all moving parts, breakage of parts or any condition that may affect the machines operation. Do not use if any component is broken or damaged.

16. **NEVER** remove safety related components or device from the machine. Do not use if safety related components are damaged or missing.

## DESCRIPTION OF PARTS



(1) **Tower** — Support for horizontal and vertical slides.

(2) **Air Inflation Gauge** — Registers tire pressure when clip-on chuck is attached to valve stem and inflation pedal is released.

(3) **Inflation Pedal** — Three position pedal that allows inflation of tires through air hose and clip-on chuck.

(4) **Tower Tilt Pedal** — Three position pedal that moves tower forward and back.

(5) **Clamp Control Pedal** — Three position pedal that opens and closes rim clamps.

(6) **Bead Breaker Pedal** — Controls operation of bead breaker shoe.

(7) **Table Top Pedal** — Three position pedal that controls rotation of table top.

(8) **Clamps** — Secures wheel to table top for tire changing. Adjust outward to allow outside clamping of wheels up to 26 inches.

(9) **Left Helpers & Support** — Includes mount/demount helpers, slides, cylinder & valve for operation.

(10) **Lube Bucket Dispenser** — For rubber lubricant.

(11) **Combination Mount/Demount Head** — Mounts and demounts tire from wheel.

(12) **Slide Adjustment Handle** — Adjusts horizontal and vertical slide assembly for proper horizontal and vertical positioning of mount/demount head. Locks and unlocks horizontal and vertical slides and sets correct position to maintain head/wheel clearance.

(13) **Bead Lifting Tool** — Used to lift and position tire bead correctly on mount/demount head.

(14) **Bead Breaker Shoe** — Pivoting shoe for loosening tire beads.

(15) **Bead Sealing “Jet-Blast” Nozzles** — Expands tire sidewall to bead seat area of rim to seal and allow inflation.

(16) **Horizontal & Vertical Slides** — Allows correct positioning of mount/demount head.

(17) **Air Tank** — Air storage tank for inflation and “Jet-Blast” bead sealing operation.

(18) **Tool-Storage Trays** — A convenient place to store wheel protectors or other tools and accessories.

Note: The parts and procedures shown in this manual include optional equipment that may not be included on the model of Tire Changer you are using.

## OPERATING INSTRUCTION

The unit must be properly operated and maintained to help avoid accidents that could damage the unit and injure the operator or bystanders. This section of the Operating Instructions manual review basic operations and use of controls. These instructions should be reviewed with all employees before they are allowed to work with the machine. Keep these instructions near the machine for easy reference.

### BEAD LOOSENING AND DEMOUNTING



This machine may operate differently from machines you have previously operated. Practice with a regular steel wheel and tire combination to familiarize yourself with the machine's operation and function.

- ◆ Remember to remove all weights from both sides of the wheel. Weights left on the back side of the wheel may cause the wheel to be clamped unlevel. This may result in the combination mount/demount head contacting the rim causing scratches. On alloy wheels, always rotate the wheel one turn after setting the head to insure proper wheel chucking.
- ◆ Always review nicks and scratches with owners of expensive wheel and tire combinations prior to servicing.
- ◆ Review the performance wheel section of this manual prior to servicing performance tire/wheel combinations.

1. Deflate tire completely by removing the valve core from the valve stem. (See Fig. 1).



2. The clamps on the table top may extend beyond the table top itself. To avoid damaging the clamps and/or wheel, move the clamps to their full inward position before positioning a tire for bead loosening.

3. Always loosen the bead on the narrow side of the wheels drop center first. ( See Fig. 4 for better description of the drop center.)

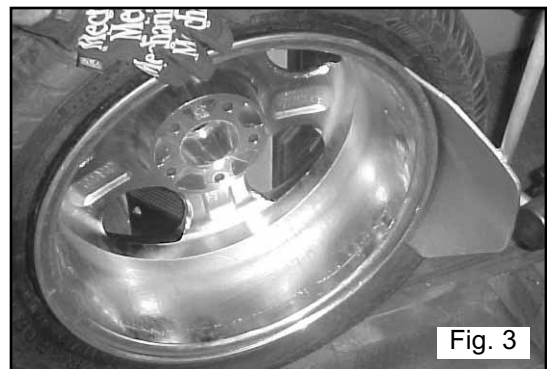
4. Use extra care in positioning the bead breaker shoe on larger wheels/tires, and on alloy wheels. Make sure the shoe rests next to but not on the rim, and not on the tire sidewall.

5. Pull the bead breaker shoe away from the machine and roll the wheel into position. The valve stem should be in the 2 o'clock position.

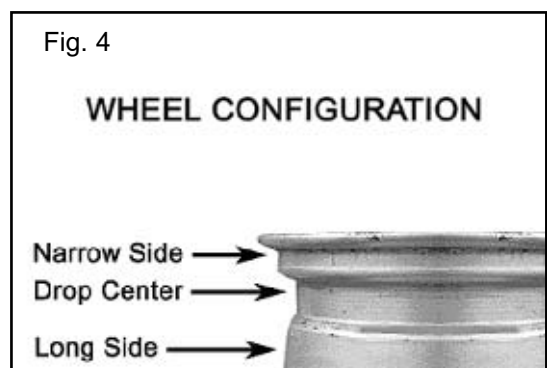
6. Position the bead breaker shoe against the tire next to, but not on, the rim. Press the breaker pedal to actuate the shoe and loosen the bead. It may be necessary to loosen the bead in multiple locations around the tire. (See Fig. 2).



7. Turn wheel around and repeat procedure on the other side of the wheel. This should be the long side of the drop center. It will be easier to clamp the wheel to the table top if the lower bead is loosened last. (See Fig. 3).



8. Determine the mounting side of the wheel. The mounting side is the narrow side of the drop center. The tire is removed for clarity. (See Fig. 4).

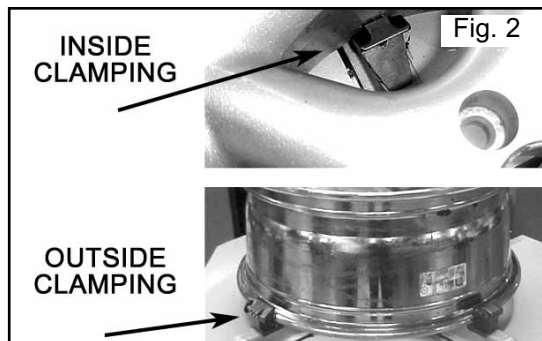


9. Place tire/wheel assembly on table top with mounting side up (See Fig. 1)



10. Use the clamp control pedal to move the clamps inward (pedal down) or outward (pedal up). (See Fig. 2.)

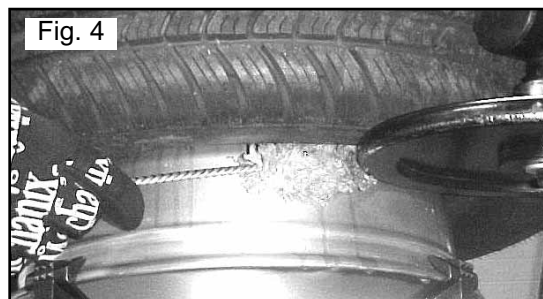
**NOTE**  
Clamp steel wheels from the inside (clamps push outward against wheel). Clamp mag and custom wheels from the outside (Clamps push inward against the outside rim edge). Refer to the Performance Tires and Wheels section.



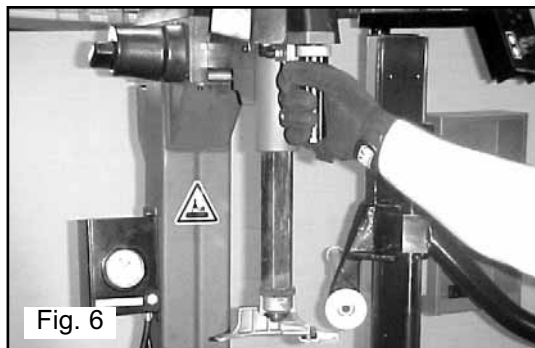
11. Apply tire manufacturer's approved rubber lubricant liberally to entire circumference of both beads after loosening bead and placing on table top. Using the mount/demount roller to hold down the top bead while rotating the turntable will make lubrication easier. (See Fig. 3)



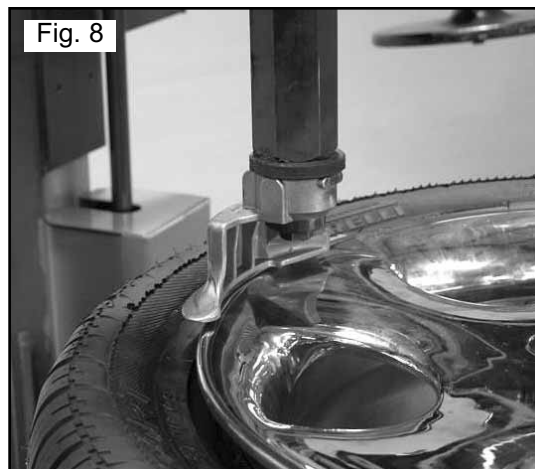
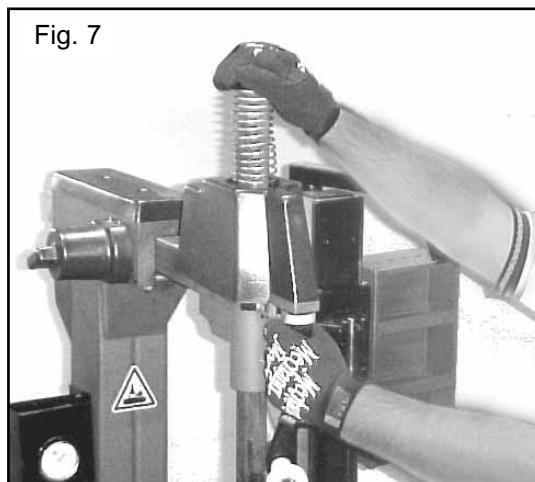
12. Use the lower bead helpers to assist in the bottom bead lubrication. (See Fig. 4)



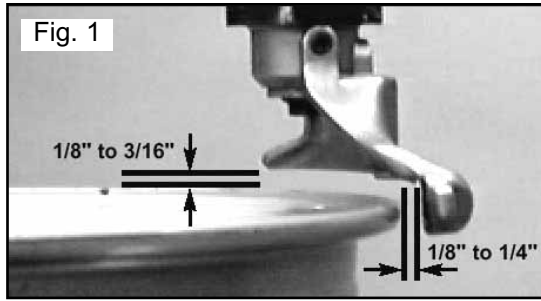
13. Move the tower forward by depressing the Tower Tilt Pedal then press the control button to unlock the horizontal slide. Pull the mount/demount Head forward. (See Fig. 5-6)



14. Push the vertical slide down and position the demount head into contact with the rim edge. (See Fig. 7-8)

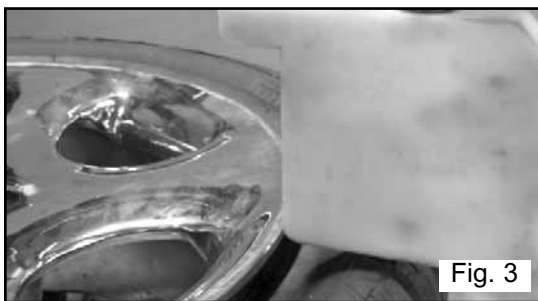


15. Push the locking valve button to lock the slides into place. As the slides are locked, the mount/demount head will move upward approximately 1/8 inch and backward 1/8 inch from the rim edge. The mount/demount head roller should not be in contact with the rim edge. (See Fig. 1)

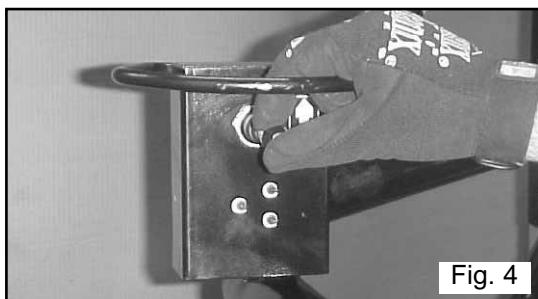


**NOTE**  
 This clearance will be maintained as long as the slide locking valve remains locked. The operator may tilt the tower back out of the way and back into place again without needing to reposition the head when changing a like set of wheels. The tool clearance may change with machine use and should be inspected often. Failure to maintain proper clearance may result in damage to the wheel rim or tire.

16. Move the left hand top helper into position opposite the mount/demount head positioning the edge of the helper just outside the rim edge. (See Fig. 2-3)



17. Press down on the left hand control valve. (See Fig. 4)



18. Power the left top helper down to force the tire bead into the drop the center of the wheel. (See Fig. 5-6)



19. Insert the smooth curved end of tool bar over the right end knob of the mount/demount head and below the top bead of the tire. (See Fig. 7 & 8)



20. Push the tool bar down toward the wheel to lift the tire bead up and over the right -side knob portion of the demount head. Hold the tool bar in this position.(See Fig. 9-10)







Fig. 10

21. Depress the table top pedal to rotate the wheel clockwise. Leave the left hand helper in position opposite the demount head and allow it to follow the wheel rotation to assist the bead into drop center while demounting. Hold the tool bar down until demounting nears completion. (See Fig. 1-3)



Fig. 1



Fig. 2

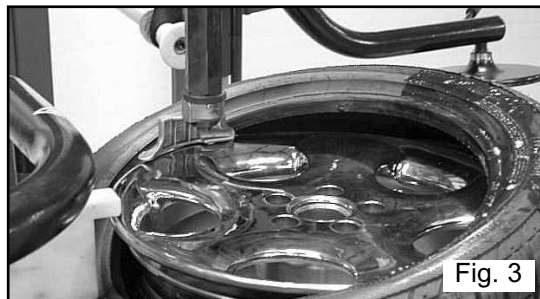


Fig. 3

**! DANGER**

The tool bar and demount head may encounter resistance or come under load at times during the mount and demount procedures. Keep one hand firmly on the tool to avoid possible tool kick back. Use the reversing feature ( lift table top pedal upwards ) to back out of jam ups.

22. Lift and hold the tire so it is positioned with the lower bead in the drop-center portion of the wheel. If the tire is large/wide or has become stuck on the lower part of the rim, the lower bead helper disk may be used to unstick and raise the tire. (See Fig. 4)



Fig. 4

23. Insert the smooth curved end of the tool bar over the right end of demount head and below the lower bead of the tire. Push the tool bar down toward the wheel to lift the tire bead up and over the right-side knob portion of the demount head. Hold the tool bar in this position. (See Fig. 5-6)

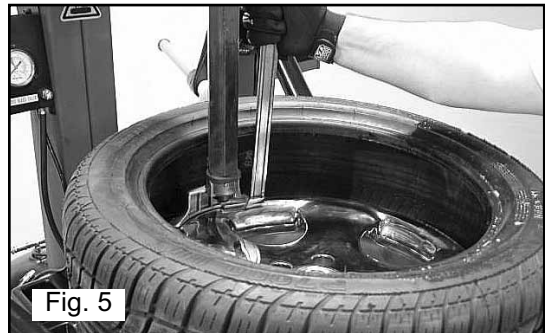


Fig. 5



Fig. 6

24. Depress the table top pedal to rotate the wheel. The demount head will guide the bead up and over the edge of the wheel. Continue rotation until the lower bead is de-mounted. The helper disks should be removed during rotation. Swing them out of the way to complete de-mounting. (See Fig. 7)



Fig. 7

25. After the tire has been removed from the wheel, depress the tower tilt pedal to move the tower away from the wheel. (See Fig. 8)



Fig. 8

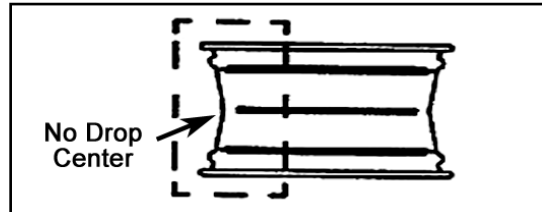
## CUSTOM AND SPECIAL WHEELS

If a custom wheel is damaged in dismounting, STOP, and avoid damaging the other wheels. Continue only when the cause is identified and corrected.



### Alloy Wheels

Some manufacturers offer wheels with little or no drop center. These are not DOT approved. The tire or wheel - or both - can be damaged and the tire could explode under pressure, resulting in serious injury or death. If you attempt to mount/demount this type of wheel, use extreme caution.

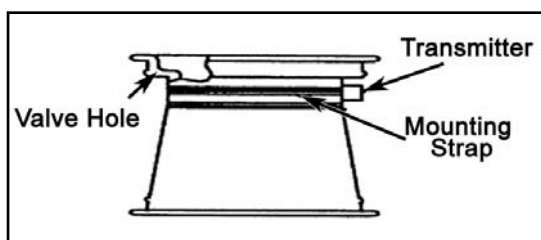


### European Performance Wheels (Asymmetrical Hump)

Some European wheels have very large humps except near the valve hole. On these wheels, the beads should be loosened at the valve hole on both the upper and lower sides first.

### Wheels with Low Pressure Warning Sensors

Performance wheels on some vehicles (including Corvette, BMW, Lamborghini Diablo) have a pressure sensor strapped to the rim opposite the valve hole. On these wheels, the beads should be loosened at the valve hole on both upper and lower sides first.



## DEMOUNTING TUBE TYPE TIRES

1. After both tire beads are loosened, lubricate the beads and rim liberally.
2. Position the demount head and bead lifting tool as described earlier paying careful attention not to pinch the tube. Depress the table top pedal and rotate only a short distance at a time. This allows you to stop the process should you suspect the tube is getting pinched.
3. After upper bead is demounted, remove tube and demount lower bead.

### NOTE

Table top rotation can be stopped at any time by removing your foot from the rotation pedal. Normal table top rotation for demounting is clockwise. Depress the table top pedal to rotate this direction. To rotate the table top counter-clockwise, lift the pedal up with your toe.

### FOR TUBE-TYPE TIRES

With tube-type tires, demount the upper bead and remove the tube before de-mounting the lower bead.

## MOUNTING

This information must be read and followed carefully to prevent accidents and injuries during mounting.



Check tire and wheel carefully before mounting. Make sure the tire bead diameter and wheel diameter match exactly. Consult the Rubber Manufacturer's Association for approved rim widths for tire sizes.



Attempts to force a bead seat on mis-matched tires and wheels can cause the tire to violently explode, causing serious personal injury or death to operator and/or bystanders.



Never mount a tire and wheel handed to you by anyone without checking both tire and wheel for damage and compatibility. Be extra cautious of persons without knowledge of tire service. Keep bystanders out of service area.

**⚠ WARNING**

Never mount a damaged tire. Never mount a tire on a rusty or damaged wheel. Damaged tires and/or wheels may explode.

**⚠ WARNING**

If you damage the tire bead during mounting, STOP!, remove the tire and mark it as damaged. Do not mount a damaged tire.

1. Inspect the wheel closely for damage. Clean the wheel and remove any light corrosion or rubber residue. Do not attempt to service heavily corroded wheels. ( See Fig. 1)



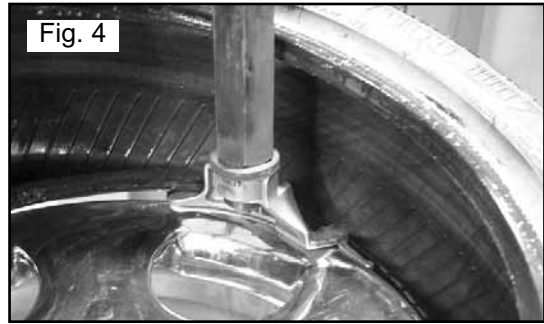
2. Inspect tire for damage, paying close attention to the beads. Verify size match between tire and wheel. ( See Fig. 2)



3. Lubricate both tire beads liberally with tire manufacturer approved lubricant. ( See Fig. 3)



4. Place tire over wheel and move tower and mount/demount head into position as described earlier. Position tire so that the lower bead is above the left "duckbill" side of the mount/demount head and below the right front knob. ( See Fig. 4)



5. Manually force the tire down into the drop center of the wheel directly across from the mount head to reduce the tensional force on the bead. Depress the table top pedal and rotate the wheel to mount the lower bead. Rotate the table top until the lower bead is fully mounted. ( See Fig. 5-6)



6. For the top bead, rotate the table top until the valve stem is directly across from the mount head. Lift the upper bead above the left "duckbill" side of the mount/demount head and below the right front knob. ( See Fig. 7-8)



8. With the left side helper, press down on the tire near the right side assist roller to hold the tire in the drop center. ( See Fig. 1)



9. Depress the table top pedal and rotate the tire until the bead is mounted. The left side helper shoe will follow the tire during rotation. ( See Fig. 2-5)



## MOUNTING TUBE TYPE TIRES

1. Lubricate the beads and rim liberally.
2. Position the demount head and bead lifting tool as described earlier. Mount the bottom bead first.
3. Round out the tube with a small amount of air. Avoid pinching or forcing the tube. Apply rubber lubricant to the tube.
4. Insert the tube into the tire paying careful attention not to pinch the tube.
5. Depress the table top pedal and rotate only a short distance at a time. This allows you to stop the process should you suspect the tube is getting pinched.
6. Mount the top bead.



**Do not force the tire onto the rim. Bead damage could result making the tire unsafe and/or creating the risk of injury.**

## INFLATION INSTRUCTIONS

Tire inflation is performed in four steps: Restraint, Bead Seal, Bead Seat, and Inflation. Read the explanation of each step and understand them thoroughly before proceeding.



**Check inflation gauge for proper operation . Accurate pressure readings are important to safe tire inflation. Refer to the Operating Maintenance section of this manual for instructions. If the rim has been clamped from the outside for tire mounting, release the clamps once bead seal is obtained, lift the tire, and move the clamps to the center of the table top.**



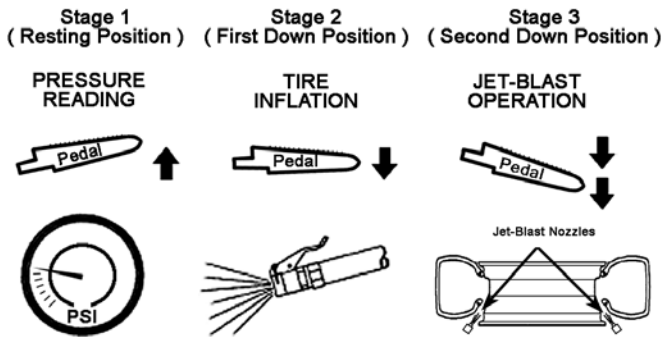
**Tire failure under pressure is hazardous. This tire changer is not intended to be a safety device to contain exploding tires, tubes, wheels, or bead sealing equipment. Inspect tire and wheel carefully for match, wear, or defects before mounting. Always use approved tire bead lubricant during mounting and inflation. The inflation pedal, located at the center of the left side of the machine, controls the flow of air through the inflation hose.**

# ⚠ DANGER

The clip-on air chuck on the end of the inflation hose and all inflation related components should be checked weekly for proper operation. DO NOT USE this machine for tire inflation if any parts are damaged or appear not in proper working order.

## INFLATION PEDAL OPERATION

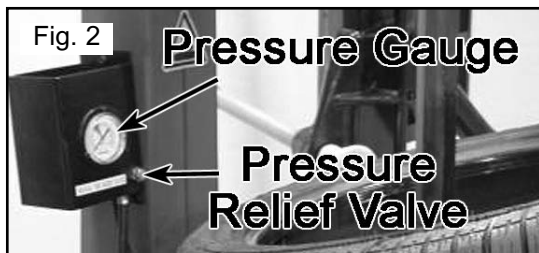
The three-position inflation pedal located at the center of the left side of the machine serves three different functions. It checks air pressure in the tire; controls the flow of air through the inflation hose; and operates the “Jet-Blast” bead sealing nozzles . ( See Fig. 1 )



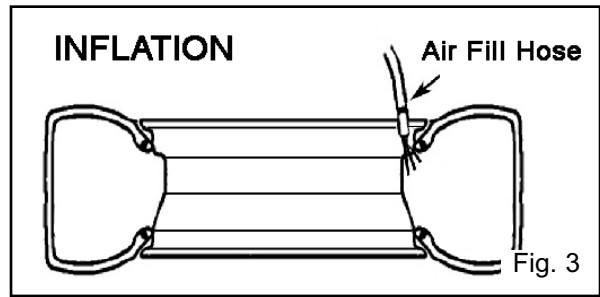
**Inflation Pedal Positions**



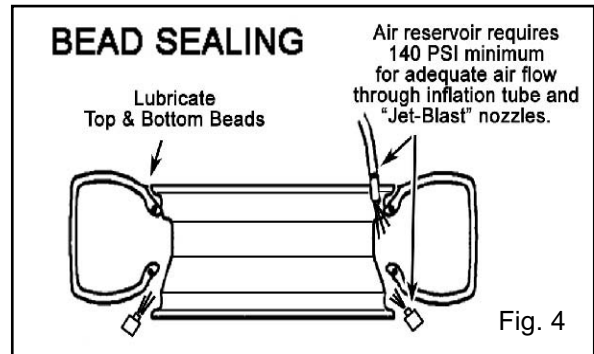
**Position One - Tire Pressure** – With the inflation hose attached to the tire valve and the pedal in this position, the air gauge will register the air pressure in the tire. Whenever your foot is removed from the pedal, it will return to this position. ( See Fig. 2 )



**Position Two - Tire Inflation** – This is the first activated position. With the inflation hose attached to the tire valve and the pedal in this position, line pressure is allowed to flow through the valve and into the tire for inflation. Tire pressure is not indicated on the gauge in this position. ( See Fig. 3 )



**Position Three - Bead Sealing** – This is the second ( pressed all the way down ) activated position. With the inflation hose attached to the tire valve and the pedal in this position, line pressure is allowed to flow through the valve and to the “Jet-Blast” nozzles on the table top for bead sealing. ( See Fig. 4 )

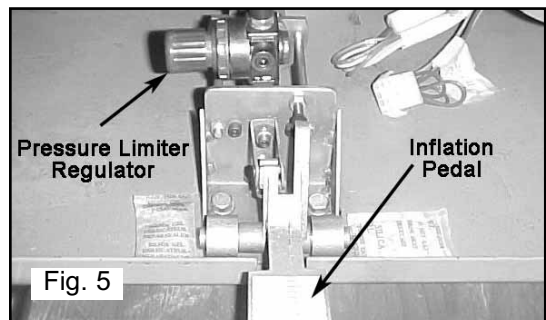


# ⚠ CAUTION

Do not use the “Jet-Blast” bead sealing nozzles without a tire and wheel positioned on the table top. Dirt and debris could be blown into the air with enough force to injure the operator or bystanders. Do not use this position to inflate a tire.

## TIRE INFLATION

The unit is equipped with a pressure limiter/regulator to assist the operator with proper tire inflation. The pressure limiter will keep most car and light truck tires from inflating beyond 60 PSI (smaller tires may reach higher pressures). It is the operators responsibility to follow all instructions and to control inflation pressure as specified in these instructions. (See Fig. 5)



## **WARNING**

Check the function of the pressure limiter regularly and maintain it according to the instructions provided in this manual for safe and proper operation. Do not tamper with or attempt to adjust the pressure limiter. Tires requiring inflation beyond 60 PSI should only be inflated in a safety cage.

### STAGES OF INFLATION

Review the following descriptions and diagrams carefully. Refer to them as necessary during wheel restraint, bead sealing, and inflation to verify that you are proceeding properly and safely.

#### STAGE ONE / WHEEL RESTRAINT

As an added safety precaution, a wheel restraint device has been added to protect operators during tire inflation.

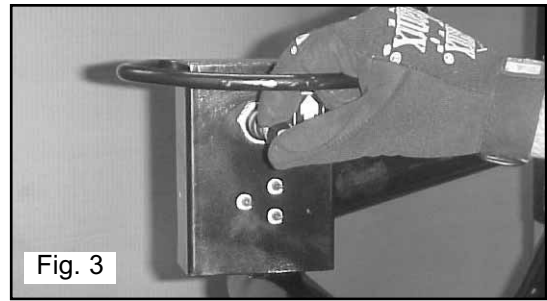
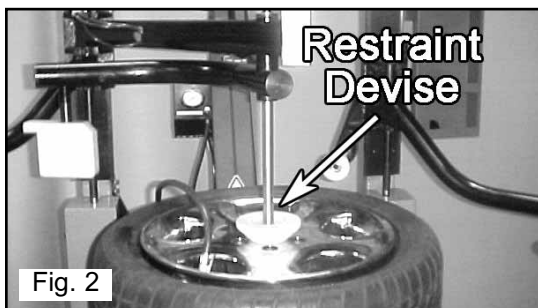
## **WARNING**

This device is a restraint device only. It will not protect operators in the event of catastrophic tire/wheel rupture or failure. Always use extreme caution during the inflation procedure. As an added safety precaution, safety cages that conform to OSHA standard 1910.177 are recommended.

1. Raise the left helper and support assembly and insert the restraint device as shown. (See Fig. 1)



2. Make sure the restraint tool is centered in the center hub of the wheel then press down on the left hand control valve. (See Fig. 2-3)



## **CAUTION**

Hold the restraint tool firmly in place when installing and/or removing from the left helper assembly. The unit can drop suddenly to the floor. Be sure to keep feet clear at all times.

#### STAGE TWO / BEAD SEALING

1. Position valve stem in front of operator and connect the inflation hose. (See Fig. 4)



2. Hold tire up against upper edge of the wheel. Be sure tires top bead is over the bottom of the valve stem. (See Fig. 5)



3. Depress inflation pedal to position two and hold about one second to begin air flow through tire valve, then depress pedal to position three and hold briefly – less than 1 full second. The blast of air from the jets will expand tire and seal the beads. (See Fig. 6-7)





## BEAD SEALING

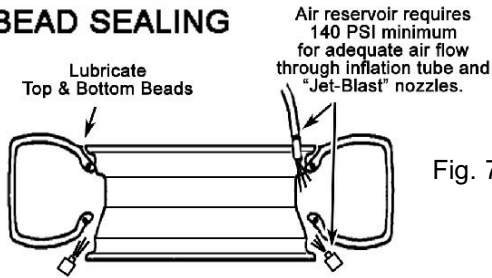


Fig. 7



Release the inflation pedal and allow it to return to position one. Verify that both beads are completely sealed to the wheel. Repeat these steps if beads have not sealed. It may be necessary to wait a few seconds for the air storage tank to recover before attempting again. If tire and wheel are properly lubricated and operator cannot achieve bead seal after a few attempts, the valve core may be removed from the valve stem to allow more air flow into the tire to assist with bead seal. After bead seal is achieved, remove the chuck and reinstall the valve core.

### STAGE THREE / BEAD SEATING

Bead seating usually occurs on the long tapered side of the wheel first and the shorter side last. Bead seating will usually require at least 7 PSI in the tire. 40 PSI is the maximum safe pressure at this stage regardless of tire operating pressure. Most European import cars and many aftermarket alloy wheels are very tight and can be difficult to bead seat. Also note that asymmetrical hump and run-flat tires are extremely difficult to bead seat. Follow tire manufacturer's recommended procedure for bead seating.



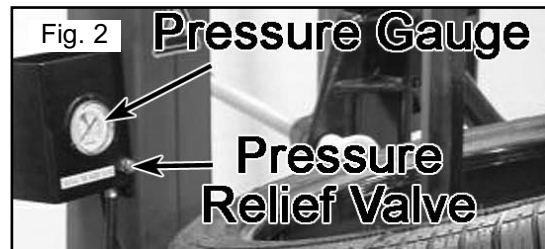
**Operator should keep hands, arms, and entire body away from the tire during the remaining bead seat and inflation procedures. Do not stand over tire, as personal injury could result from inflating tire. Avoid distraction during inflation. Check tire pressure frequently to avoid over inflation. Excessive pressure can cause tires to explode, causing serious injury or death to operator or bystander.**

1. Once tire pressure is indicated on the air gauge (inflation pedal in position one; foot removed from pedal), continue to inject air into the tire in short intervals. Check the pressure frequently. Stand back during bead seat. Keep hands, arms, and entire body away from tire during this procedure. Tire beads should move outward and "pop" into their bead seat position as pressure inside the tire increases. If this does not happen, a problem exists. Investigate carefully. (See Fig. 1)



**KEEP HANDS AND FINGERS CLEAR.  
Keep entire body away from the tire**

2. Release air pressure from the tire by pressing the manual release valve button. NOTE: The inflation hose must be attached to the valve stem during this procedure. (See Fig. 2)



**Check tire pressure frequently. Never exceed 40 PSI while seating beads. Once seated, never exceed tire manufacturer's recommended air pressure. Tires can explode, especially if they are inflated beyond their limits. At all pressure levels when inflating through the valve stem, keep hands, arms, and entire body away from inflating tire. An exploding tire, wheel, or bead sealing equipment may propel upward and outward with sufficient force to cause serious injury or death to operator or bystander.**

**MIS-MATCHED TIRES AND WHEELS**  
Never attempt to mount and inflate mis-matched tires and wheels. Mis-matched tire and wheel combinations can explode, causing personal injury or death to operator and bystanders. For safety, do not attempt to mount and inflate mis-matched tires and wheels.



**NEVER increase air pressure to exceed 40 PSI when attempting Bead Seat. If operator is unable to obtain Bead Seat, something is wrong. Deflate tire completely, inspect tire and wheel, correct any problems found, relubricate both tire beads, and reattempt Bead Seal and Seat procedures. Follow all safety instructions in this manual and on machine.**

## STAGE FOUR / TIRE INFLATION

1. Make sure both beads are seated. When both beads are seated, the tire is ready for inflation.
2. Replace the valve core if it was removed.
3. Depress the inflation pedal to position two to inflate the tire. **DO NOT STAND OVER TIRE DURING INFLATION.**
4. Do not inflate the tire above the manufacturer's recommended pressure as stamped on the tire sidewall. The typical inflation pressure for automobile tires is between 24 and 45 PSI. Light truck inflation pressure typically covers a wider range. Release air pressure from the tire by pressing the manual release valve button.



**THE INFLATION PRESSURE LIMITER IS PRE-SET AT THE FACTORY AND SHOULD NEED NO ADJUSTMENT. ADJUST ONLY IF PRESSURE EXCEEDS 60 PSI.** Operating a tire changer with a defective, improperly adjusted, or by-passed pressure limiter could result in a tire explosion with severe injury or death to the operator or bystanders. Always be sure that the pressure limiter is operating properly on the machine at all times. Pressure limiter is set at 60 PSI. Any required inflation above 60 PSI should be performed in an inflation chamber/safety cage. A tire explosion may cause personal injury or death to operator or bystanders.



### IMPORTANT

When inflating tires that require more than 60 PSI, always use a safety cage and air hose with a clip-on air chuck and in-line valve. The hose must have enough length between the chuck and the operation/in-line valve to allow the operator to stand outside the trajectory.



## MAINTENANCE INSTRUCTIONS

Read and follow all the maintenance instructions provided in this manual to keep the machine in good operating condition. Regular inspections and proper maintenance are essential to preventing accidents and injuries. These instructions will help you service the unit. Instructions are for a person with some mechanical ability and training. No attempt has been made to describe all basic steps like how to loosen or tighten fasteners. Basic procedures such as cycling systems and checking operation of the equipment are not fully described since they are described in this manual. Do not attempt to perform work beyond your ability or at which you have no experience. If you need assistance, call an authorized service center or contact the factory.



- ◆ Before making any inspection, adjustment, or repair, disconnect the power source and block out all moving parts to prevent injury.
- ◆ Keep the machine and the immediate work area clean. Do not use compressed air to remove dirt and debris from the machine. Foreign material may be propelled into the air and into operator or bystander causing personal injury.
- ◆ Wear protective clothing and use eye protection when making any adjustments or repairs to the machine.

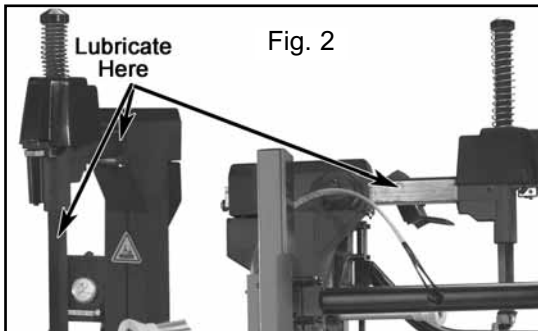
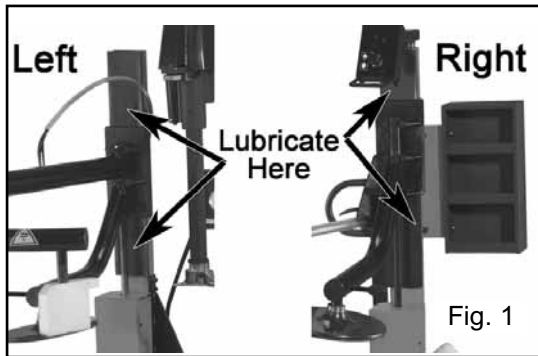
### DAILY

- ◆ Check the tire pressure gauge function daily, and check the accuracy monthly. Use a pressurized tire and a high quality stick-type pressure gauge. If necessary, adjust the dial of the machine gauge. If the gauge is defective, replace it immediately.
- ◆ Make sure all fasteners are securely tightened and all guards and covers are in place.
- ◆ Check for worn, damaged or missing parts including grips and protective covers. Replace them before allowing the unit to be used.



## MONTHLY

◆ The vertical and horizontal slides and the helper slides should be cleaned with a vaporizing solvent and then lubricated with chassis grease once a month. (See Fig. 1-2)



◆ Check adjustment of the mount/demount head monthly.

◆ Check function of the inflation hose pressure limiter/regulator monthly. Always secure/stow the cover if adjustments are made. **The pressure regulator should never be adjusted to exceed 60 PSI.**

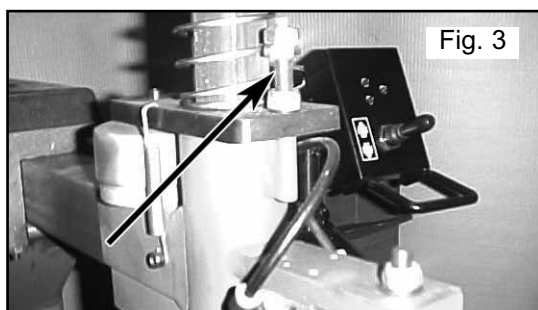
◆ The table top, clamps, steel mount/demount head, and other working surfaces should be cleaned with a vaporizing solvent every month.

◆ On a daily basis, inspect the unit and check to be certain that all systems are operating normally. Follow detailed inspection and testing procedures as specified for various components at regular intervals.

◆ Replace any damaged or missing safety decal's. They are available from the factory.

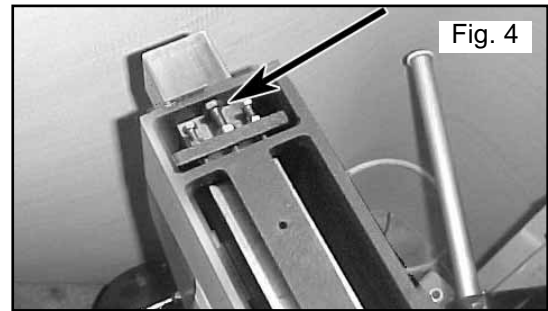
### Mount/Demount Tool Head Adjustment

To adjust tool head lift, adjust locking nut up or down until lift clearance is 1/8" to 3/16". Recheck clearance before replacing cover. (See Fig. 3)



### To Adjust Tool Head Setback

Remove top cover, loosen jam nut and adjust screw until setback clearance is 1/16" to 3/16". Tighten jam nut and check. (See Fig. 4)



### Mount/Demount Head Cleaning

Clean dirt and debris from the mount/demount tool roller with small screw driver or pick. (See Fig. 5)



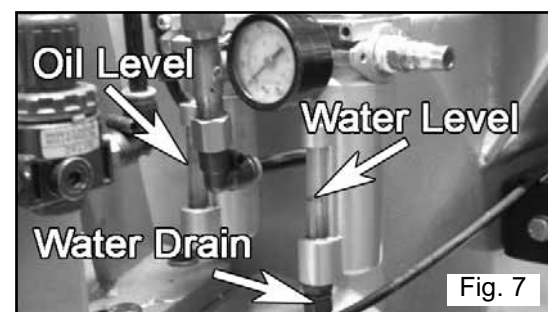
### Water Separator/Lubricator Maintenance

Check oil and water levels regularly, and perform these maintenance items weekly:

◆ Disconnect air supply to machine. (See Fig. 6)



◆ Observe the sight glass on the water separator/filter unit. If water is observed, drain by pressing upwards on the drain plug at the bottom of the reservoir. (See Fig. 7)



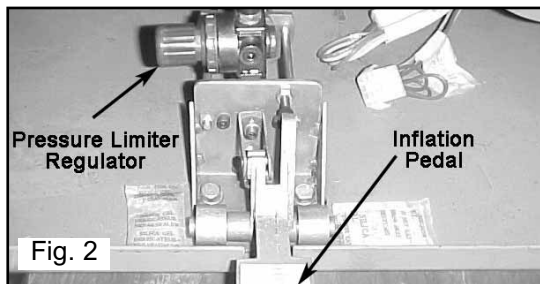
◆ Add oil to the lubricator if the fluid level is below the middle of the sight glass. Remove the reservoir by turning counter-clockwise and pulling down. Add SAE 10W non-detergent oil or an air tool oil if necessary. (See Fig. 1)



◆ Reconnect the air when service/adjustments are complete.

### Inflation Pedal Pressure Limiter Maintenance

The inflation pedal pressure limiter helps prevent inflation of standard size or larger tires or tubes beyond 60 PSI to minimize risk of explosion. This device is for the safety of the operator and bystanders. Proper operation of the pressure limiter is essential to safe operation of the machine. (See Fig. 2)

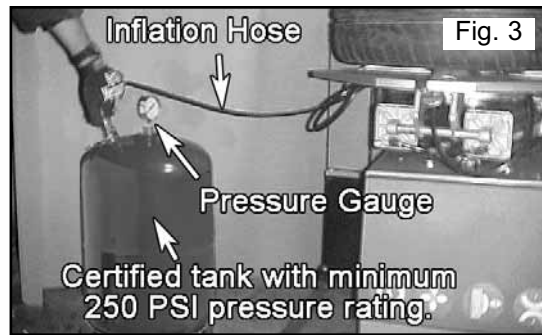


**THE PRESSURE LIMITER IS PRE-SET AT THE FACTORY AND SHOULD NEED NO ADJUSTMENT. ADJUST ONLY IF PRESSURE EXCEEDS 60 PSI.**

**Operating a tire changer with a defective, improperly adjusted, or by-passed pressure limiter could result in a tire explosion with severe injury or death to the operator or bystanders. Always be sure that the pressure limiter is operating properly on the machine at all times. Pressure limiter is set at 60 PSI. Any required inflation above 60 PSI should be performed in an inflation chamber/safety cage. A tire explosion may cause personal injury or death to operator or bystanders.**

Check operation of the pressure limiter as follows at least once a month:

1. Remove tires and/or wheels from the machine.
2. Connect the inflation hose to an empty service tank with a pressure gauge (gauge should read 0). Use a certified tank with at least 250 PSI pressure rating. (See Fig. 3)



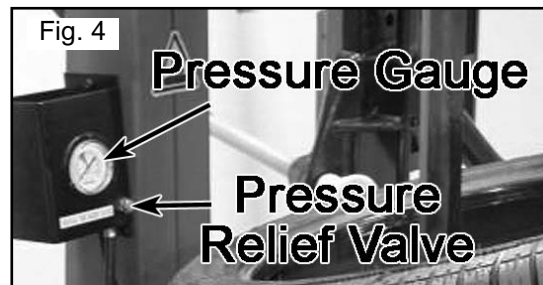
3. Depress inflation pedal to position one to start air flow through the hose and into the tank. Maintain a steady pressure for constant flow.

4. Watch the rising pressure on the tank gauge and the gauge on the machine. Machine gauge should cycle between check and inflation pressures while tank gauge climbs steadily. As tank pressure reaches 60 PSI, the pressure limiter should stop the air flow automatically. Both gauges should read 60 PSI ± 5 PSI.

5. If the pressure exceeds 60 PSI, adjust the knob on the regulator by lifting the locking cover and turning COUNTERCLOCKWISE. After adjustment is made, secure cover in the locked position.

6. Repeat steps 1-6. Re-adjust if necessary.

7. After pressure limit has been set, check the manual release valve function by pressing the button and releasing pressure from the tank until it reaches 50 PSI. Disconnect inflation hose, and release air inside tank. (See Fig. 4)



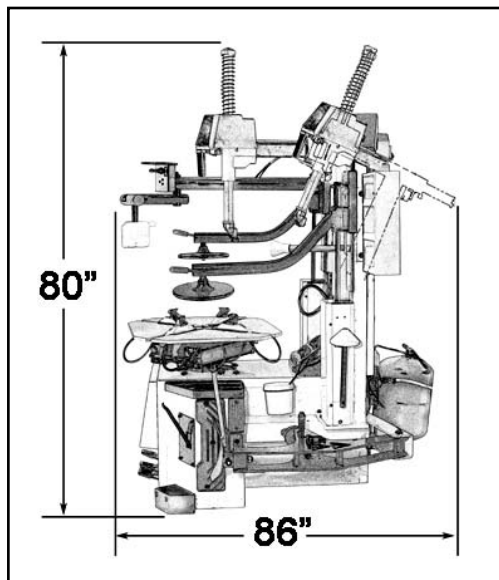
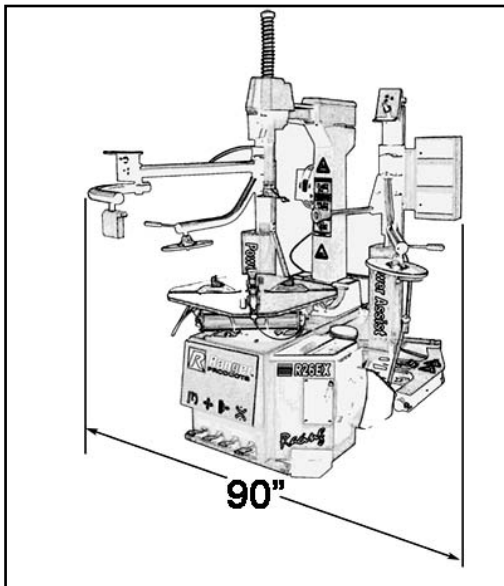
## INSTALLATION INSTRUCTIONS

### Location

Select a location using the drawings below. The area should provide the operator with enough space to use the equipment in a safe manner. The area selected should be well lit, easy to clean and should be away from oil, grease, brake lathe chips, etc. Avoid areas where bystanders and customers may be present.



**Proper unit installation is necessary for safe use and efficient operation. Proper installation also helps protect the unit from damage and makes service easier. Always keep this manual unit.**



**Air Source**

This model requires a 14 to 15 CFM air source at 150 PSI minimum pressure. The safe operating pressure range for this model is between 110 PSI and 175 PSI at the machine. The unit is furnished with a 1/4" pipe thread male fitting for easy connection. This connection is located on the right side of the rear of the machine. A 1/4" ID hose (or pipe) for connection to the machine is satisfactory. Sufficient air pressure assures good performance. (See Fig. 2)



Fig. 2

**Electrical Source**

This unit requires power from a 15 amp electrical circuit. Refer to the serial tag of the machine for specific electrical requirements. Have a licensed electrical technician perform any necessary changes to the power source before plugging in the unit. The electrical source must have a solid connection between ground and building ground.



**GUARD AGAINST ELECTRIC SHOCK.** This equipment must be grounded while in use to protect the operator from electric shock. Never connect the green power cord wire to a live terminal. This is for ground only.




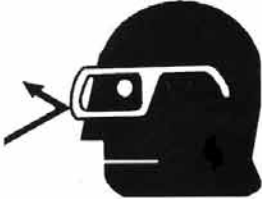
**DANGER!** The motor on this machine contains high voltage. Disconnect power at the receptacle before performing any electrical repairs. Secure plug so that it cannot be accidentally plugged in during service.



**WARNING! RISK OF EXPLOSION.** This equipment has internal arcing or sparking parts which should not be exposed to flammable vapors. This machine should not be located in a recessed area or below floor level.

For additional copies  
or further information, contact:  
Bend-Pak Inc. / Ranger Products  
1645 Lemonwood Dr.,  
Santa Paula, CA. 93060  
1-805-933-9970  
www.bendpak.com

# IMPORTANT SAFETY WARNINGS

 <b>CAUTION</b>	 <b>WARNING</b>	 <b>CAUTION</b>
		
<p><b>KEEP HANDS CLEAR OF BEAD AREA WHEN INFLATING.</b></p>	<p><b>BE SURE TO READ ALL WARNING LABELS AND INSTRUCTION MANUAL PRIOR TO OPERATION OF THIS MACHINE</b></p>	<p><b>ALWAYS WEAR SAFETY GLASSES WHEN OPERATING THIS MACHINE.</b></p>

 **DANGER**



**STAND CLEAR WHILE INFLATING TIRE. TIRE OR WHEEL FAILURE UNDER PRESSURE MAY CAUSE SERIOUS INJURY OR DEATH.**

 **WARNING**



**DO NOT WEAR LOOSE CLOTHING, LONG HAIR OR JEWELRY. MOVING PARTS CAN SNAG AND PULL**

 **WARNING**



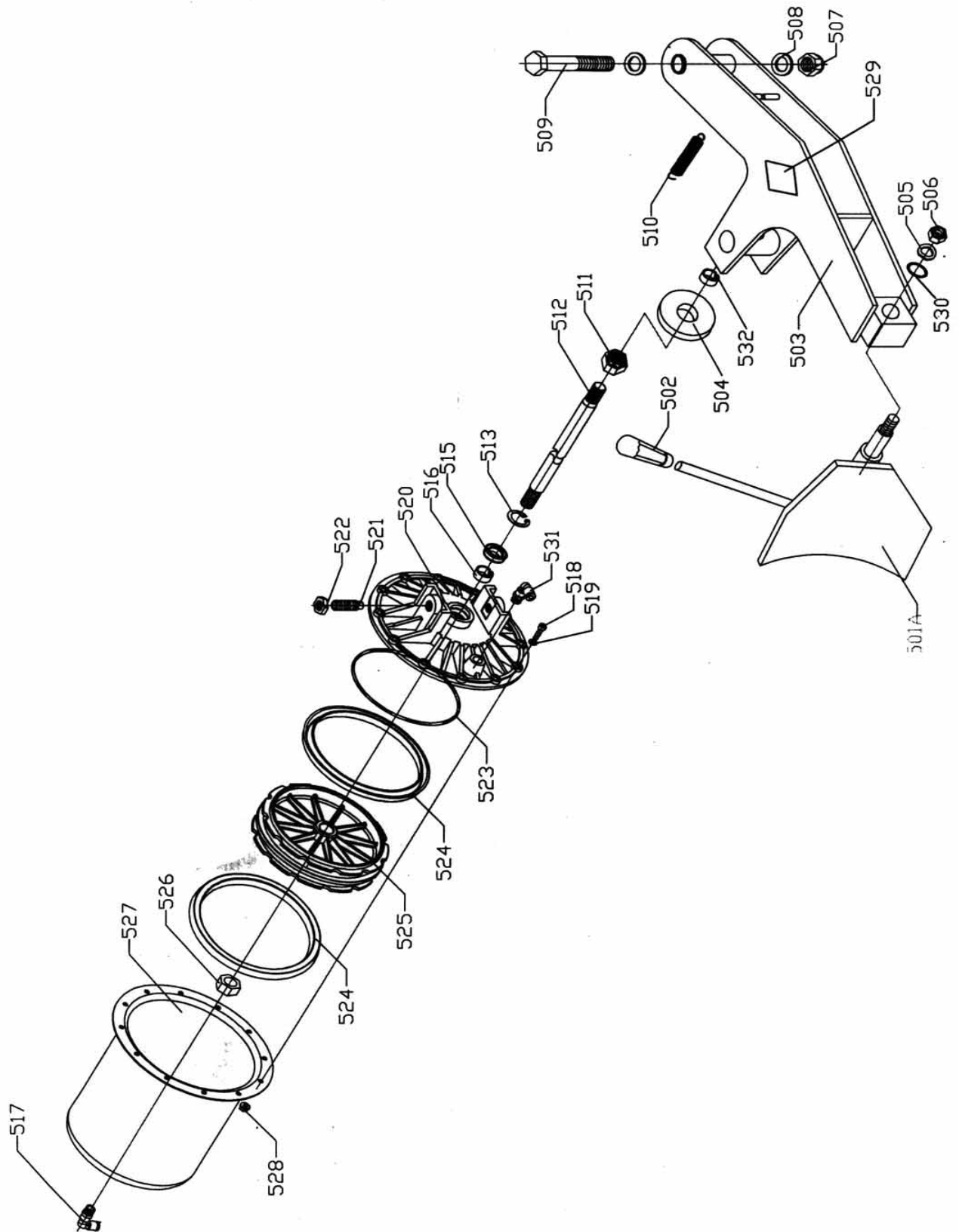
**KEEP HANDS CLEAR OF ALL PINCH POINTS**

 **CAUTION**  
*READ FIRST*

- ✓ Be sure to **READ ALL WARNING LABELS** and instruction manual prior to operation of this machine. Failure to comply with proper safety instructions may lead to serious harm or even death of operator and/or bystanders.
- ✓ Improper operation of this machine may cause damage to machine or cause personal harm or injury.
- ✓ **ALWAYS** wear safety goggles when operating this machine.
- ✓ **KEEP HANDS CLEAR** of all pinch points.
- ✓ Check machine for damaged parts prior to operation. **DO NOT USE MACHINE** if any component is broken or damaged.
- ✓ **NEVER EXCEED** the factory recommended air pressure of tire. Over inflating the tire beyond the manufacturer's recommendation can cause tire burst or explosion.
- ✓ Operators should inspect all tires and rims for possible defects prior to mounting.
- ✓ **ALWAYS INSPECT TIRES BEFORE MOUNTING.** Defective or damaged tires may burst or explode when inflating and may lead to serious harm or injury.
- ✓ **ALWAYS MAKE SURE TIRE SIZE MATCHES RIM SIZE** prior to mounting. Mounting tires on defective or improper rims can cause tire burst or explosion and may lead to serious harm or injury.
- ✓ This machine is not intended to be a restraining device for exploding tires, tubes, or rims. All operators should take proper precaution to implement safety and to avoid personal injury or harm.
- ✓ **DO NOT** lean over the tire while inflating. **KEEP HANDS AND BODY CLEAR** at all times and as far back as possible during inflation. An exploding tire, rim, or component thereof can cause injury or death to operator and/or bystanders. **REMAIN CLEAR AT ALL TIMES.**
- ✓ To inflate tires, use short bursts while carefully monitoring the pressure, tire, rim, and bead.
- ✓ While seating beads **NEVER EXCEED 40 p.s.i.** If bead does not seat at 40 p.s.i., immediately relieve pressure and check for mismatch of tire, damaged bead and/or other cause.
- ✓ **ALWAYS USE** good quality tire lubricant when servicing tires.

**Always Think Safety!**

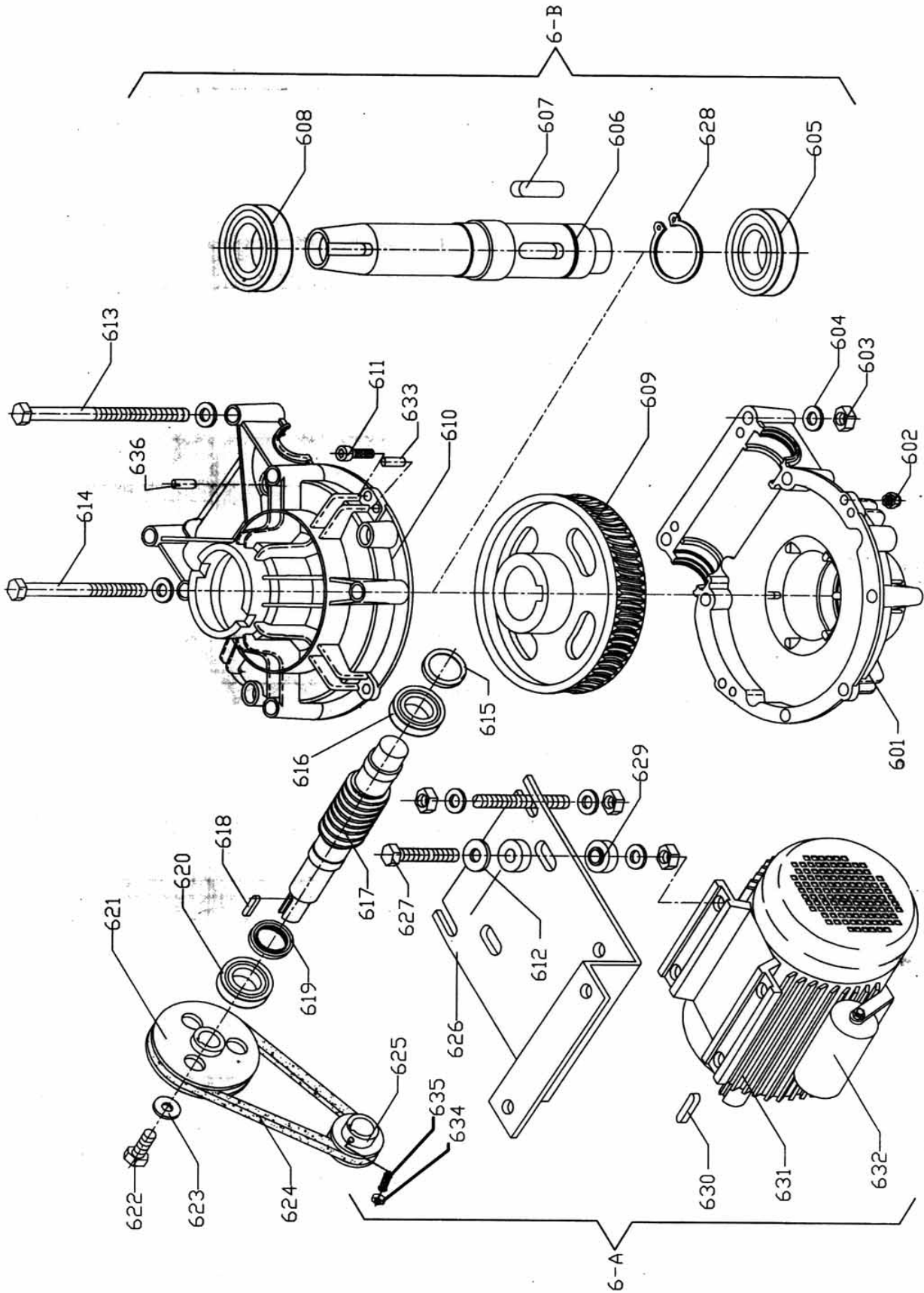
# R23ST SERVICE PARTS - CYLINDERS



## R23ST SERVICE PARTS - CYLINDERS

Ref.	Code	Description	Specification	Q' TY	Note
501A	T-C. 02. 00A	Bead breaker shoe		1	
502	GT890. 03. 14	Handle cover		1	
503	T-B. 02. 00	Bead breaker		1	
504		Washer	ø 80X20X10	1	
505		Washer	14	1	
506		Locknut	M14	1	
507		Nut	M16	1	
508		Flat washer	16	2	
509		Screw	M16X100	1	
510	T-B. 02. 07A	Spring	ø13 (INSIDE) Xø2. 5X105	1	
511		Locknut	M18X1. 5	1	
512	T-LS. 02. 01A	Cylinder shaft	445mm	1	
513		Seeger ring	30#	1	
514					
515		Y-ring	ø 30Xø 20X5	1	
516		Wearable spacer	50 (LENGTH) X10X2. 1	1	
517		Union	G1/8" -ø 8	1	
518		Screw	6	12	
519		Flat washer	6	12	
520	T-LS. 01. 01B	Cylinder housing		1	
521		Pin	M14X42	2	
522		Nut	M14-S19	2	
523		O-ring	ø 154X3. 55	1	
524		Bowl	ø 186X12X9	2	
525	T-LS. 01. 02A	Piston		1	
526		Nut	M18X1. 5	1	
527	T-LS. 01. 03B	Cylinder body	M6	1	
528		Nut	M6	12	
529		Bead breaker label		1	
530		Washer	14. 5	1	
531		Union	G1/4" -ø 8	1	
532	T-B. 02. 08	Spacer		1	
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# R23ST SERVICE PARTS - GEARBOX



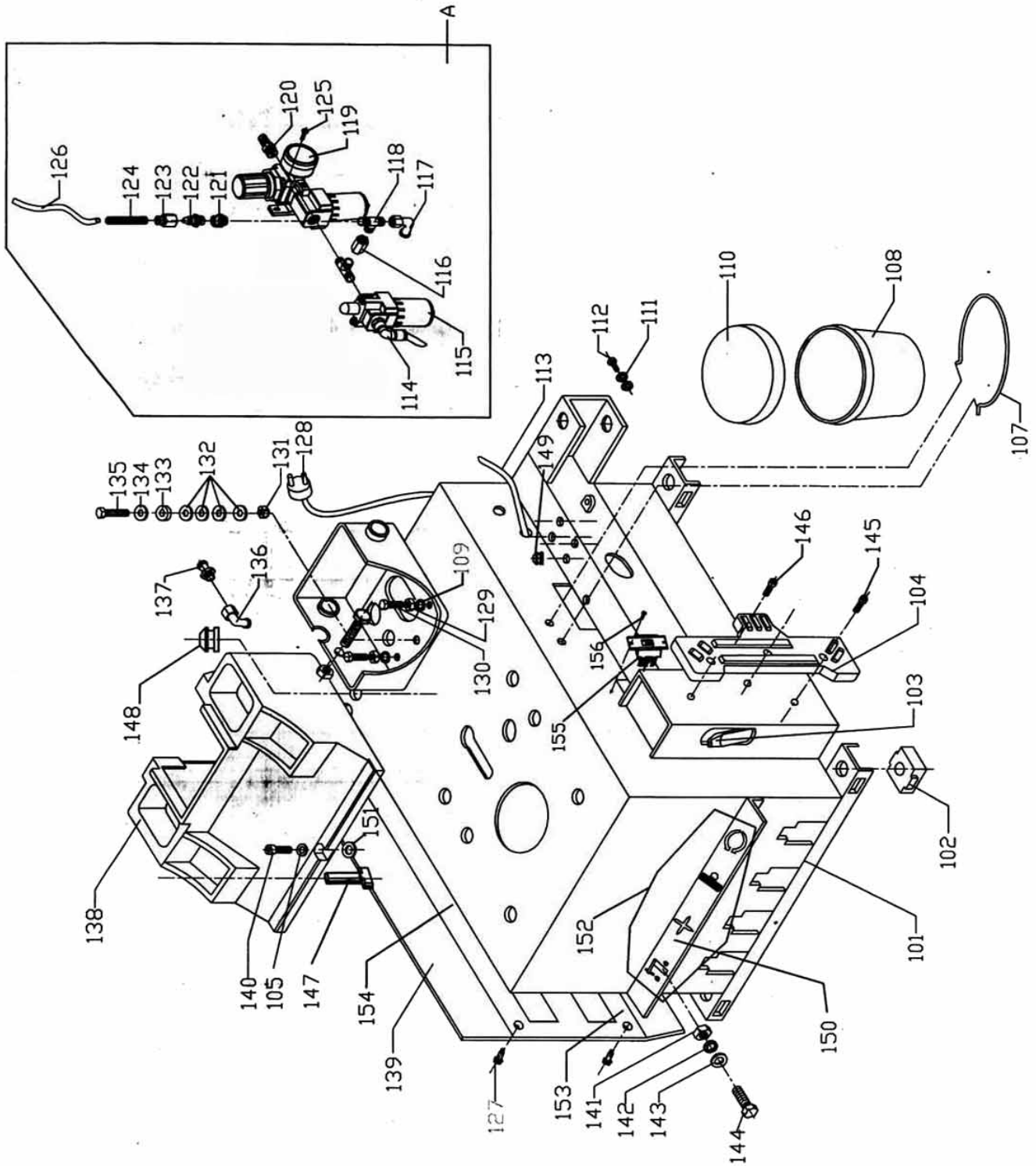


## R23ST SERVICE PARTS - GEARBOX

Ref.	Code	Description	Specification	Q'TY	Note
601	T-J.00.04A	Lower gearbox housing		1	
602		Nut	M8	5	
603		Nut	M10	18	
604		Flat washer	Ø10	18	
605		Bearing	6208		
606	T-J.K.00.01A	Spindle	355mm	1	
66A					
607		Disk key	14X55	1	
608		Bearing	6010	1	
609	T-J.00.05A	Gear wheel with support		1	
610	T-J.00.04	Upper gearbox housing		1	
611		Screw	M8X30	5	
612		Flat washer	10	10	
613		Screw	M10X200	4	
614		Screw	M10X160	2	
615		Cap	40X25X8	1	
616		Bearing	30205	1	
617	T-J.00.09	Worm screw		1	
618		Disk key	6X20	1	
619		O-ring	40X25X8	1	
620		Bearing	30205	1	
621	T-J.00.10A	Belt pulley		1	
622		Screw	M8X12	1	
623		Flat washer	8	1	
624		Belt	A26	1	
625	T-J.00.08B	Motor pulley		1	
626		Motor support		1	
627					
628		Seeger ring	50#	1	
629		Washer		8	
630		Disk key		1	
631		Motor	110/200V-50/60HZ	1	
632		Capacitor		1	
6-A		Gearbox assembly		1	
6-B		Motor assembly		1	
633		Pin	8X20	2	
634		Pin	M5X16	1	
635		Nut	M5	1	
636		Pin	M16X15X1.5	1	



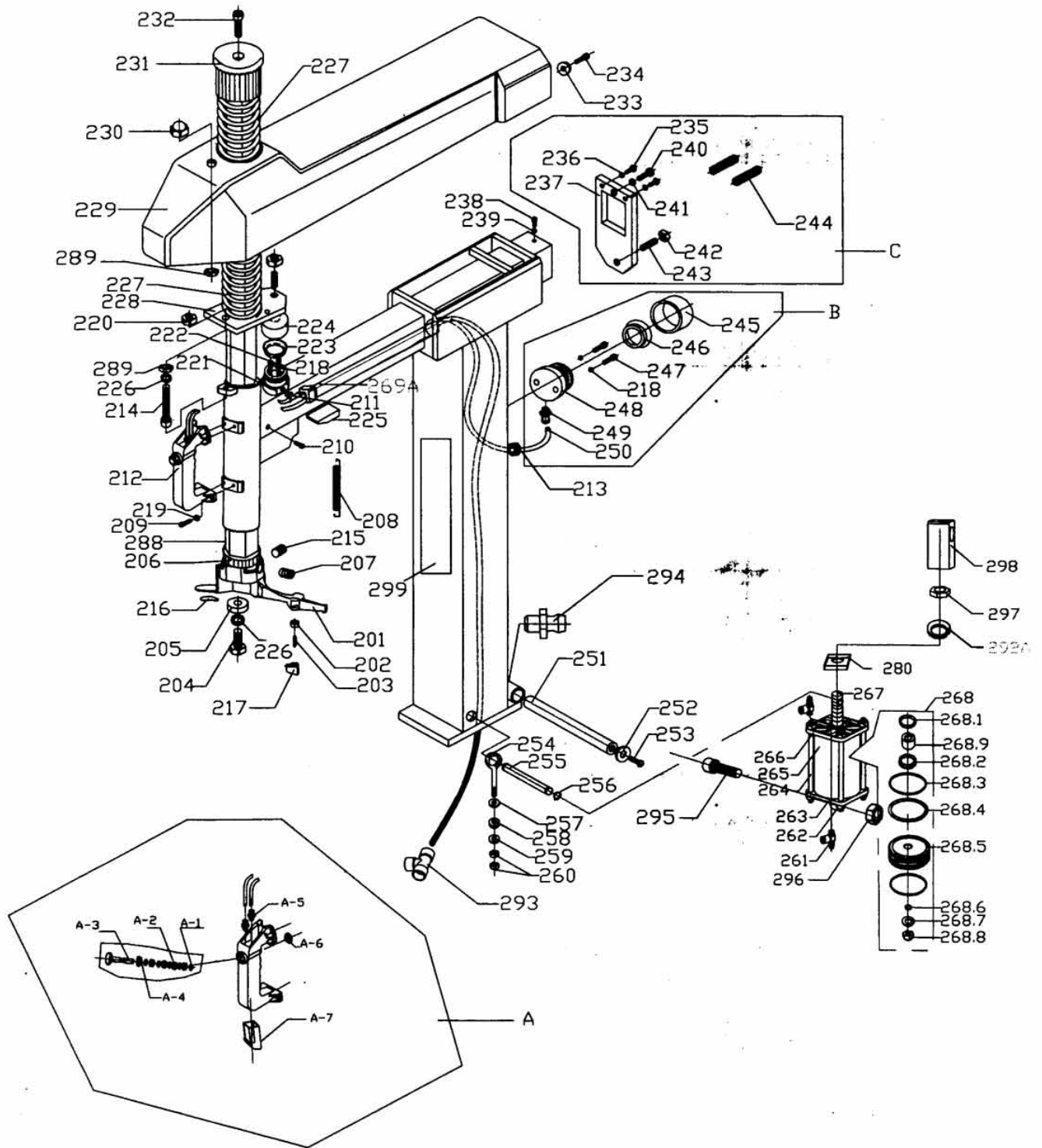
# R23ST SERVICE PARTS - BODY



## R23ST SERVICE PARTS - BODY

Ref.	Code	Description	Specification	Q' TY	Note
101	GT885.01.00A	Body		1	
102		Rubber washer	52X42X20	4	
103		Lever	20"	1	
104		Rim support	395X125X23	1	
105		Flat washer	6	3	
106					
107		Grease container bracket		1	
108		Grease container		1	
109		Elastic washer	ø8	2	
110		Grease container cover		1	
111		Flat washer	5	2	
112		Screw	M5X16	1	
113		PU hose	ø8X5	SOME	
114		Union	G1/4"-ø8	1	
115		Air regulator	0.1-1.0Mpa	1	
116		Nut	2-G1/4"	1	
117		Union	G1/4"-ø8	1	
118		Union	3-G1/4"	2	
119		Pressure gauge	0.1-1.0Mpa G1/8"	1	
120		Union for air supply	G1/4"	1	
121		Nut	G1/4"	1	
122	T-K.04.06	Union		1	
123	T-K.04.05	Cap		1	
124	T-K.04.04	Spring		1	
125		Screw	M5X12	2	
126		PU hose	ø8X5	SOME	
127		Screw	M5.5X25	4	
128		Power cable		1	
129		Nut	M8	2	
130		Screw	M8X45	2	
131		Locknut	M10	1	
132		Washer	□11	4	
133		Washer	ø30X15X10	1	
134		Washer	10	1	
135		Screw	M10X50	1	
136		Union	G1/4"-ø8	1	
137		Union	G1/4"-ø8	1	
138		Tool box		1	
139	GT885.00.01	Side panel		1	
140		Screw	M6X16	3	
141		Nut	M8	3	
142		Elastic washer	8	3	
143		Flat washer	8	6	
144		Screw	M8X20	3	
A		Air regulator assy		1	
145		Screw	M8X20	3	
146		Screw	M8X25	1	
147		Stop-up		1	
148		Stop-up	ø13X10	2	
149		Stop-up	ø12X4	4	
150		Protection cover		1	
151		Washer	ø20X3X6	3	
152		Protection cover label		1	
153		Voltage label	A	1	
154		Label for pedal		1	
155		Transfer switch	110V/220V	1	
156		Screw	M3X10	2	

# R23ST SERVICE PARTS - VERTICAL ARM



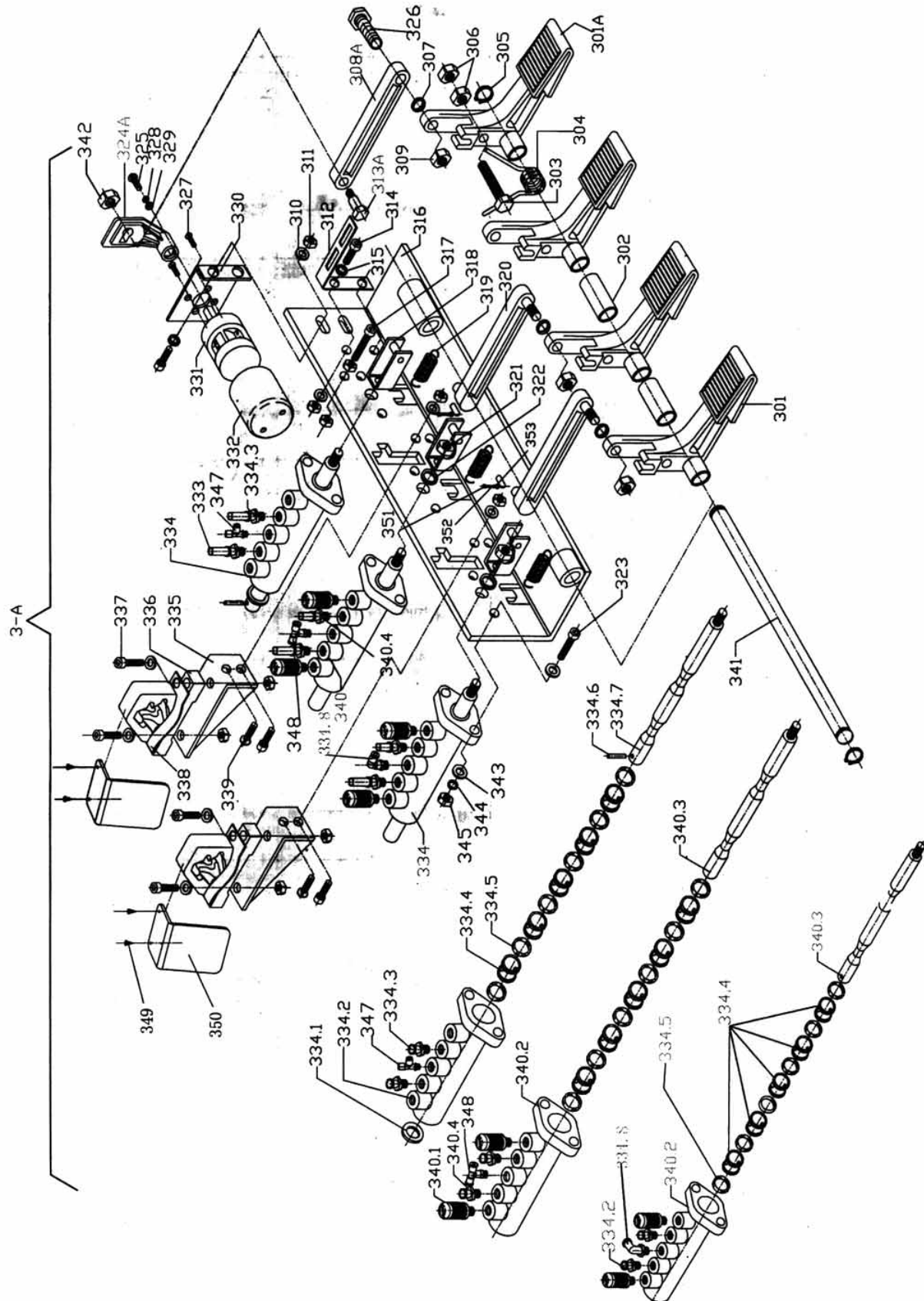
## R23ST SERVICE PARTS - VERTICAL ARM

Ref.	Code	Description	Specification	Q' TY	Note
201		Mounting head	1#	1	
202	GT890.03.12	Roller	13X13	1	
203	GT890.03.13	Pin	6X24	1	
204		Screw	M10X25 8.8 CLASS	1	
205	GT890.03.11	Pressing washer	Ø34XØ11X8	1	
206		Shock absorber	S36	1	
207		Pin	M12X12	2	
208	GT885.03.08	Spring	2.0X9X95	2	
209		Screw	M4X16	4	
210		Screw	M6X10	2	
211		Union	G1/8"-Ø6	1	
212		Handle		1	
213		Stop-up	M20	1	
214		Screw	M10X85	1	
215		Pin	M12X16	2	
216		Plastic protection cover		1	
217		Plastic protection cover		1	
218		O-ring	Ø10X2	4	
219		Flat washer	4	4	
220		Locknut	M10	1	
221	GT885.03.11	Cylinder body		1	
222		Screw	M6X35	2	
223		Y-ring	65X8	1	
224	GT885.03.10	Cylinder housing		1	
225		Positioning blade		1	
226		Elastic washer	10	2	
227	GT890.03.04	Spring	□640X3.0X50	1	
228	GT885.03.07	Locking plate		1	
229		Protection cover		1	
230		Nut	M10	1	
231	GT890.03.03	Knob	M10	1	
232		Screw	M10X30	1	
233		Flat washer	6	1	
234		Screw	M6X16	1	
235		Screw	M6X30	2	
236		Nut	M6	2	
237	GT885.03.12.00	Locking plate		1	
238		Screw	M6X10	1	
239		Elastic washer	6	1	
240		Screw	M8X35	1	
241		Nut	M8	1	
242		Nut	M10X1	2	
243		Pin	M10X1X25	2	
244	GT885.03.13	Spring	2.0X14.5X13	2	
245	GT885.03.10	Cylinder housing		1	
246		Y-ring		1	
247		Screw	M6X35	2	
248	GT885.03.11	Cylinder body		1	
249		Union	G1/8"-Ø6	1	
250		PU hose	Ø6X1	3.8M	
251	GT885.03.15	Rotating spindle		1	
252	GT885.03.14	Washer		2	
253		Screw	M16X25 8.8 CLASS	2	
254	GT885.03.17	Connecting rod		1	
255	GT885.03.16	Spindle	Ø16	1	
256		Seeger ring	16#	2	
257		Washer	10	1	
258		Washer	30X15X10	1	
259		Washer	10	1	
260		Nut	M10	2	
261		Valve	G1/8"-Ø8	2	
262		Locknut	M8	8	
263	T-24X.00.05	Cylinder rear housing		1	
264	T-XD.00.03	Union		4	
265	T-XD.00.1	Cylinder body		1	
266	T-24X.00.1	Cylinder front housing		1	

## R23ST SERVICE PARTS - VERTICAL ARM

Ref.	Code	Description	Specification	QTY	Note
267	T-XD.00.2	Shaft for cylinder		1	
268	T-XD.00.00	Cylinder assy		1	
268.1		O-ring	Ø25X3.1	1	
268.2		Y-ring	Ø30X18.6X5	1	
268.3		O-ring	Ø80X3.1	2	
268.4		O-ring	Ø80X5.7	2	
268.5	T-24X.00.04	Piston		1	
268.6		O-ring	Ø14.5X2	1	
268.7		Flat washer	10	1	
268.8		Locknut	M10	1	
268.9	T-24X.00.07	Guide		1	
269		Slide		1	
270					
271					
272					
273					
274					
275					
276					
277					
278					
279					
280		Dust washer		1	
281					
282					
283					
284					
285					
286					
287					
288	GT885.03.06A	Hexangular shaft		1	
A		Handle-control valve assy		1	
B		Cylinder assy		1	
C		Locking plate		1	
289		Nut	M10	2	
290					
291					
292		Elastic washer	Ø12	1	
293		Union	Ø6-8	1	
294		Oil container	M6	1	
295		Screw	M12X60	1	
296		Locknut	M12	1	
297		Nut	M12	1	
298		Union		1	
299		Vertical arm label		1	
A-1		O-ring	Ø8X2.65	5	
A-2		Spacer	Ø12X8X7	4	
A-3		Valve pin		1	
A-4		Spacer		1	
A-5		Union	G1/8"-Ø6	2	
A-6		Cover		1	
A-7		Silencer		1	

# R23ST SERVICE PARTS - FRONT PEDALS

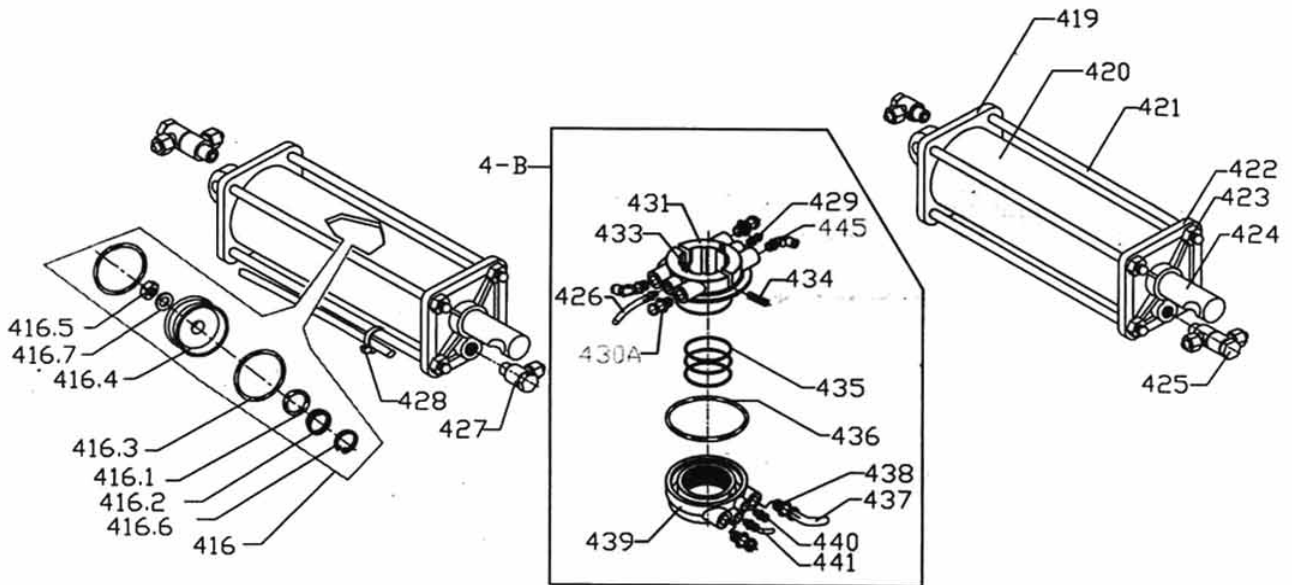
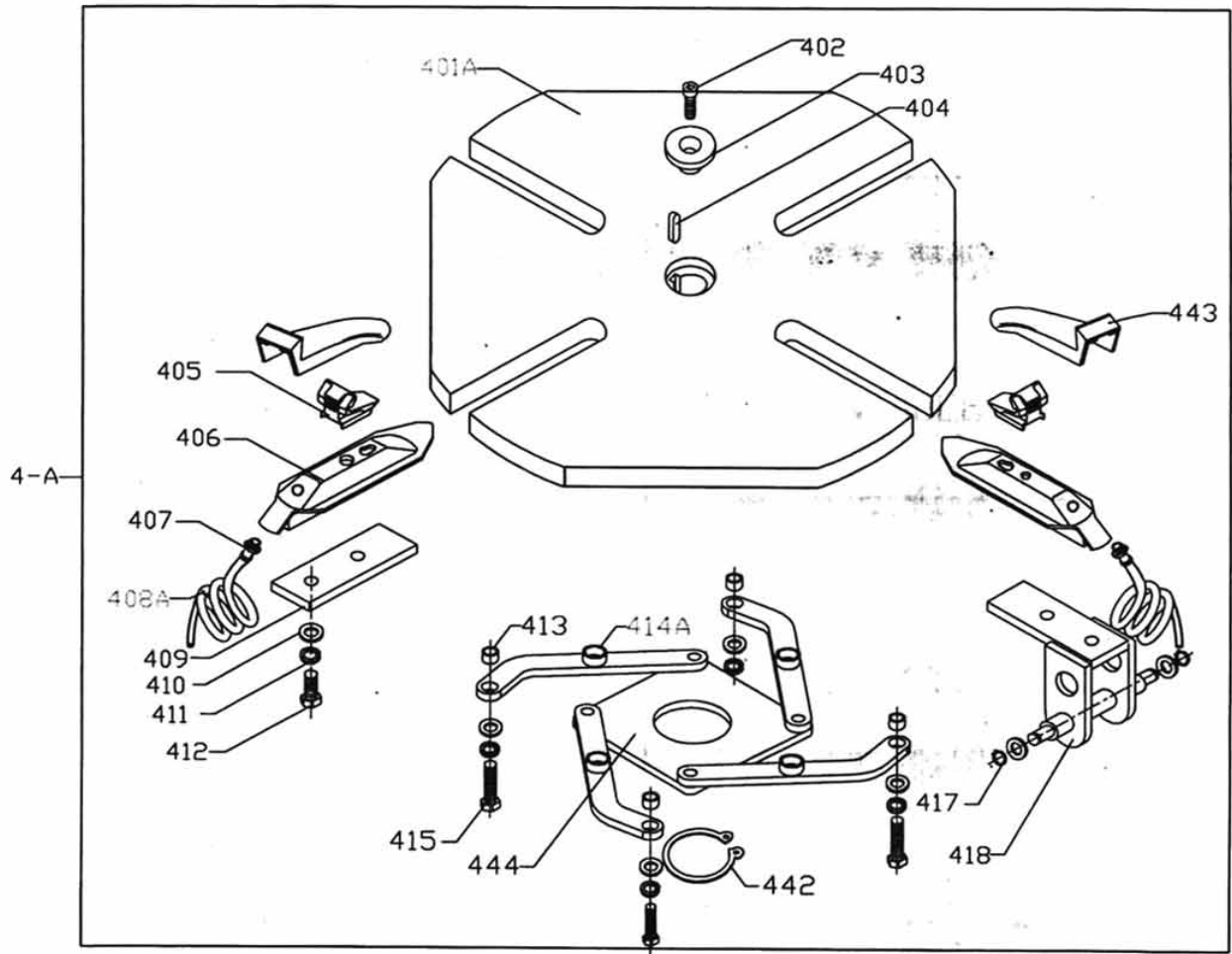




## R23ST SERVICE PARTS - FRONT PEDALS

Ref.	Code	Description	Specification	Q' TY	Note
301	T-D. 02. 12	Pedal		3	
301A	T-D. 02. 12A	Pedal		1	
302	T-D. 02. 01	Spacer pedal		2	
303		Screw	M8X55 (HALF)	1	
304	T-D. 02. 02	Spring		1	
305		Seeger ring	14#	2	
306		Nut	M8	2	
307	T-D. 02. 25	Spacer		3	
308A	T-D. 02. 22	Switch connecting rod		1	
309		Locknut	M8	3	
310		Flat washer	6	8	
311		Nut	M6	14	
312	T-D. 02. 21	Spring bracket		1	
313A	T-D. 02. 26	Spindle		1	
314		Screw	M6X16	6	
315		Elastic washer	6	11	
316	T-D. 04. 02. 00	Pedal bracket		1	
317		Screw	M6X30	1	
318	T-D. 02. 15	Bracket		3	
319	T-D. 02. 04	Spring		3	
320	T-D. 01. 09	Connecting rod		2	
321		Locknut	M8	3	
322	T-D. 02. 10	Spacer		2	
323		Screw	M5X25	6	
324A	T-D. 01. 11	Reverse lever	□ 8 (BIG)	1	
325		Pin	4X10	1	
326		Screw	M8X40	1	
327		Screw	M5X16	4	
328		Elastic washer	4	1	
329		Flat washer	4	1	
330	T-D. 02. 17	Switch bracket		1	
331		Reverse switch	40A	1	
332		Reverse switch guide		1	
333		PU hose	∅8X5	SOME	
334		Valve assemble		1	
334. 1		Flat washer	10	1	
334. 2	T-D. 02. 14	Valve body		1	
334. 3		Union	G1/8"-∅8	4	
334. 4	T-D. 01. 16	Spacer		15	
334. 5		O-ring	∅17X4	18	
334. 6		Spring pin	∅4X20	1	
334. 7	T-D. 02. 07	Shaft for cylinder		1	
334. 8		Union	∅8 1/8	1	
335	T-D. 02. 05	Cam bracket		2	
336	T-D. 01. 10	Cam		2	
337		Screw	M6X25	4	
338		Fork plate spring		2	
339		Screw	M6X16	2	
340		Valve assemble		2	
340. 1		Silencer	G1/8"	6	
340. 2	T-D. 02. 14	Valve body		2	
340. 3	T-D. 02. 07	Valve pin		2	
340. 4		Union	G1/8"-∅6	2	
341	T-D. 04. 01	Spindle		1	
3-A	T-D. 04. 00	Pedal assy		1	
342		Locknut	M8	1	
343		Flat washer	∅5	12	
344		Elastic washer	∅5	6	
345		Nut	M5	6	
346					
347		Union	∅8 1/8	1	
348		Union	∅8 1/8	1	
349		Pin	M3X10	4	
350		Cam plate		2	
351		Screw	M10X25	2	
352		Elastic washer	∅10	2	
353		Flat washer	∅10	2	

# R23ST SERVICE PARTS - TURNTABLE

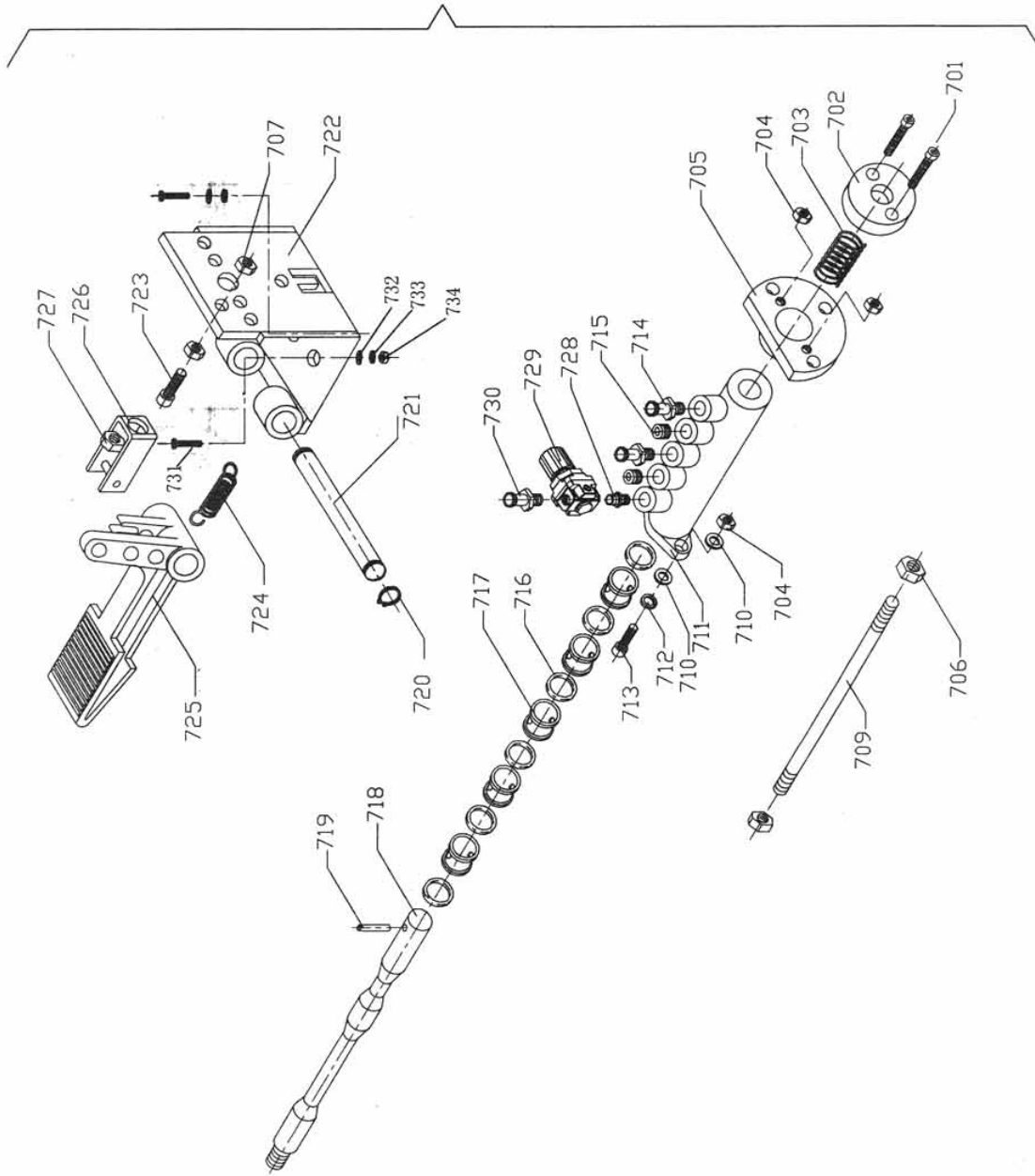




## R23ST SERVICE PARTS - TURNTABLE

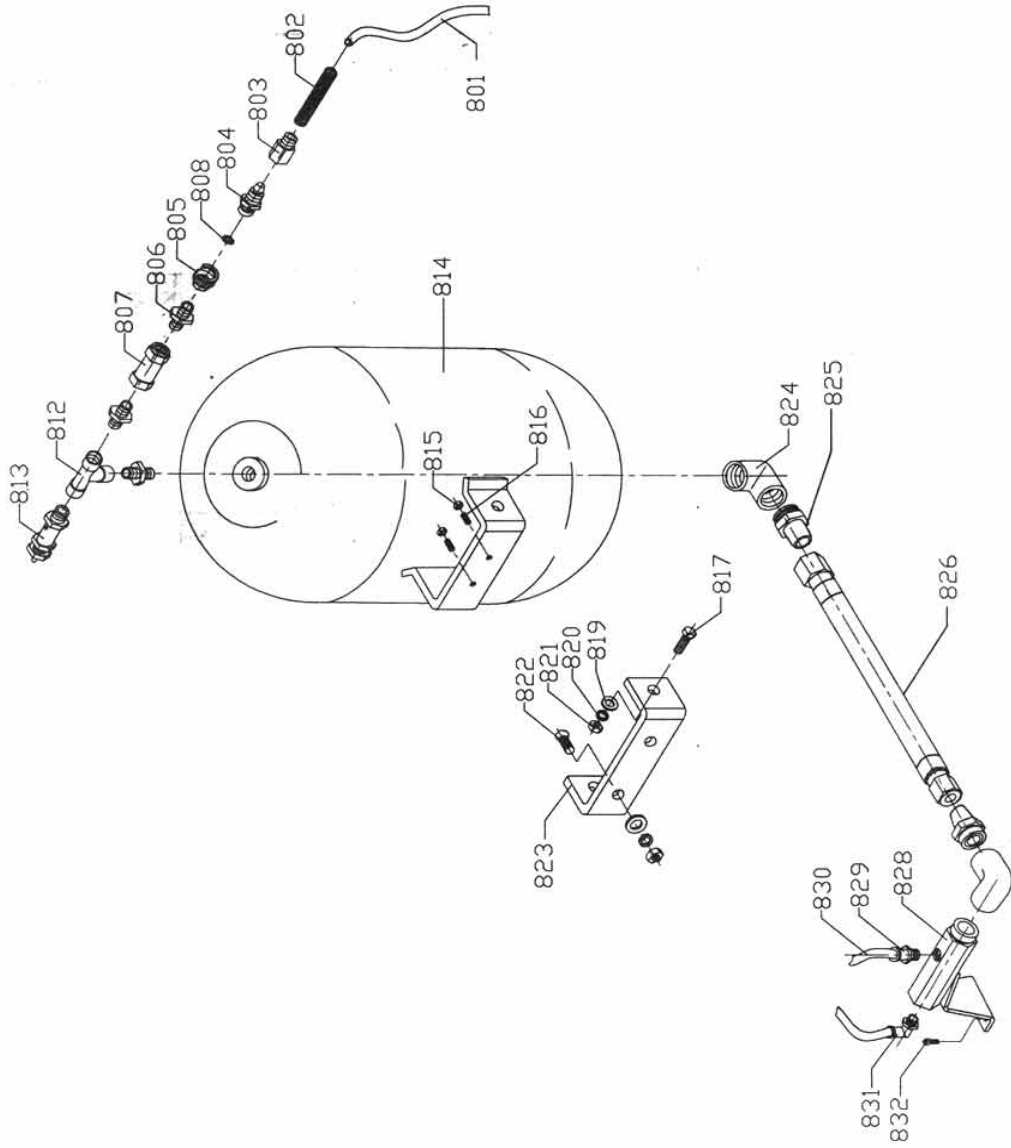
Ref.	Code	Description	Specification	QTY	Note
401	T-20YK.00.01CAYE	Turntable		1	
402		Screw	M12X30	1	
403	T-18Y.00.02	Turntable cap		1	
404		Disk key	10X45	1	
405	T-18Y.00.03	Clamp		4	
406	T-18YK.00.02.00	Slide		4	
407		Union	G1/8" $\phi$ 10	4	
		Hose	$\phi$ 10	SOME	
409	T-20YK.00.04	Slide plate		2	
410		Flat washer	12	12	
411		Elastic washer	12	8	
412		Screw	M12X30	4	
413	T-18Y.00.08	Washer		4	
	T-20YK.00.03.00A	Connecting plate		4	
415		Screw	M12X83	4	
416	T-20X.00.00B	Cylinder assy	$\phi$ 70X327	2	
		O-ring	$\phi$ 25X3.1	2	
416.2		Y-ring	$\phi$ 30X20X7	2	
416.3		O-ring	$\phi$ 70X2.65	4	
416.4		Piston	$\phi$ 70X22X11.7	2	
416.5		Locknut	M12	2	
416.6		Seeger ring	30#	2	
416.7		Flat washer	12	2	
417		Seeger ring	12#	4	
418	T-20YK.00.02.00	Cylinder bracket		2	
419	T-18X.00.05	Rear housing for cylinder		2	
420	T-20X.00.02	Cylinder body		2	
421	T-20X.00.03A	Union	M8	8	
422	T-18X.00.02C	Front housing for cylinder		2	
423		Locknut	M8	8	
424	T-20X.00.01A	Shaft for cylinder		2	
425		Union	G1/8" $\phi$ 6	2	
426		PU hose	$\phi$ 6X4	SOME	
427		Union	G1/8" $\phi$ 6	2	
428		Nylon rope	4X150	6	
429		Union	G1/8" $\phi$ 6	2	
		Union	G1/4" $\phi$ 10	2	
431	T-J.00.02A	Rotate union (inside)		1	
433		Screw	M3X8	4	
434		Screw	M6X25	2	
435		O-ring	$\phi$ 60X2.65	3	
436		O-ring	$\phi$ 90X2.65	1	
437		PU hose	$\phi$ 12	SOME	
438		Union	G3/8" $\phi$ 12	2	
439	T-J.00.03A	Rotate union (outside)		1	
440		Union	G1/8" $\phi$ 6	2	
441		PU hose	$\phi$ 6X4	SOME	
442		Seeger ring	65#	1	
443		Clamp plastic cover		4	
4-A				1	
4-B		快充导气体总成		1	
		Turntable assy			
444	T-18Y.00.07.00	Turntable		1	
445		Union	G1/4" $\phi$ 10	2	

# R23ST SERVICE PARTS - PEDAL UNIT





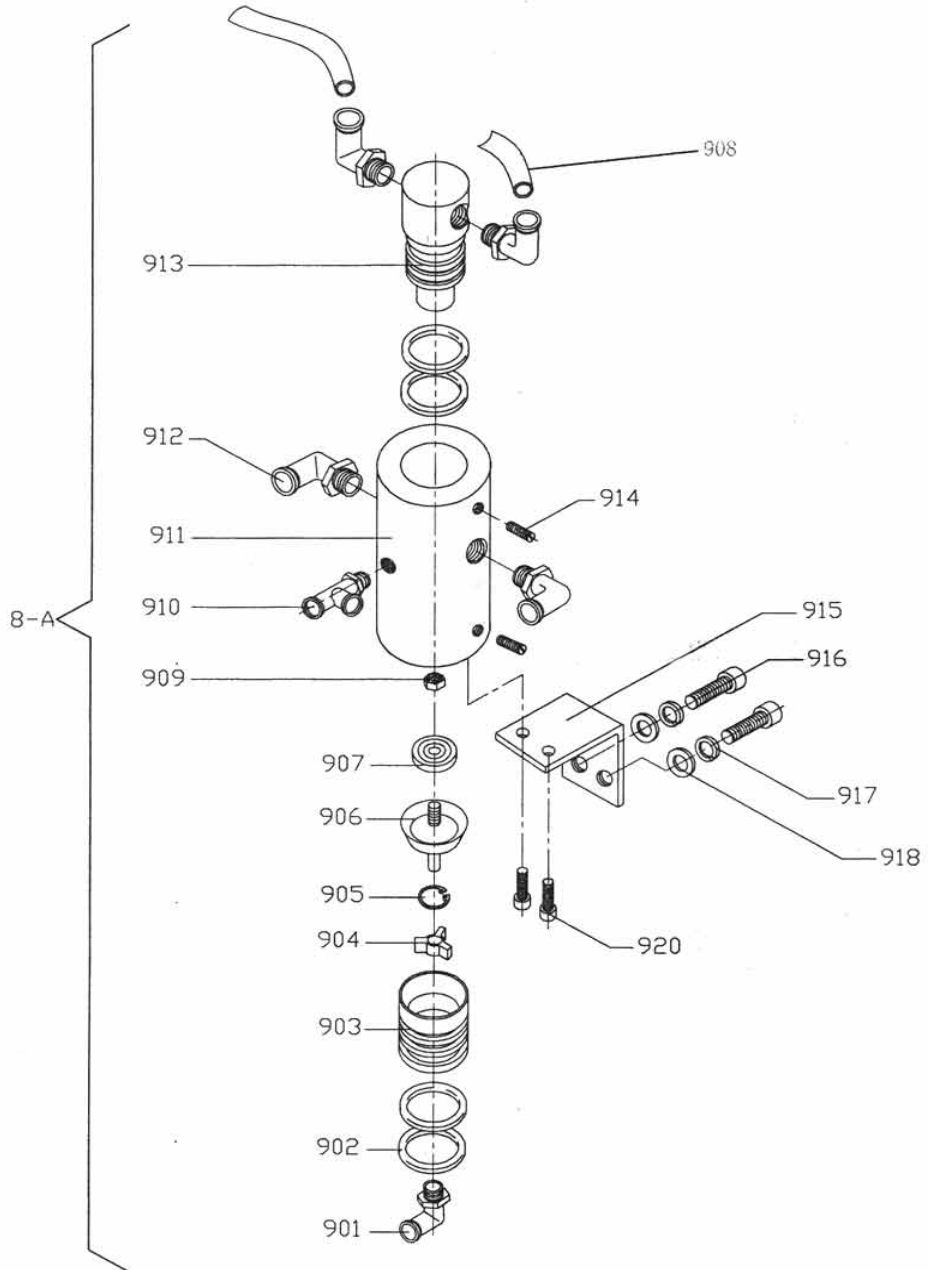
# R23ST SERVICE PARTS - AIR TANK



## R23ST SERVICE PARTS - AIR TANK

Ref.	Code	Description	Specification	Q' TY	Note
801		PU hose	Ø 8X5	SOME	
802	T-K. 04. 04	Spring	1X12. 5X85	1	
803	T-K. 04. 05	Lock cap		1	
804	T-K. 04. 06	Union		1	
805		Nut		1	
806		Union	2-G1/4"	3	
807		Single direction valve	0. 1-1. 5Mpa	1	
808		Ring	13X7X4	1	
809					
810					
811					
812		Union	3-G1/4"	1	
813		Safe valve	0. 1-1. 5Mpa	1	
814	T-K. 04. 01. 00	Air tank		1	
815		Nut	M6	2	
816		Screw	M6X16	2	
817		Screw	M8X25	2	
818					
819		Flat washer	8	4	
820		Elastic washer	8	4	
821		Nut	M8	4	
822		Screw	M8X20	2	
823	T-K. 04. 02	Fixing bracket		1	
824		Union	G1"	2	
825	T-K. 04. 08A	Union		2	
826	T-K. 04. 09. 00	Union		1	
827					
828	T-K. 04. 03. 00	Valve body	1"	1	
829		Union	G3/8"-Ø 12	1	
830		PU hose	Ø 12	SOME	
831		Union	G3/8"-Ø 12	1	
832		Screw	M6X10	2	
833					
834					
835					
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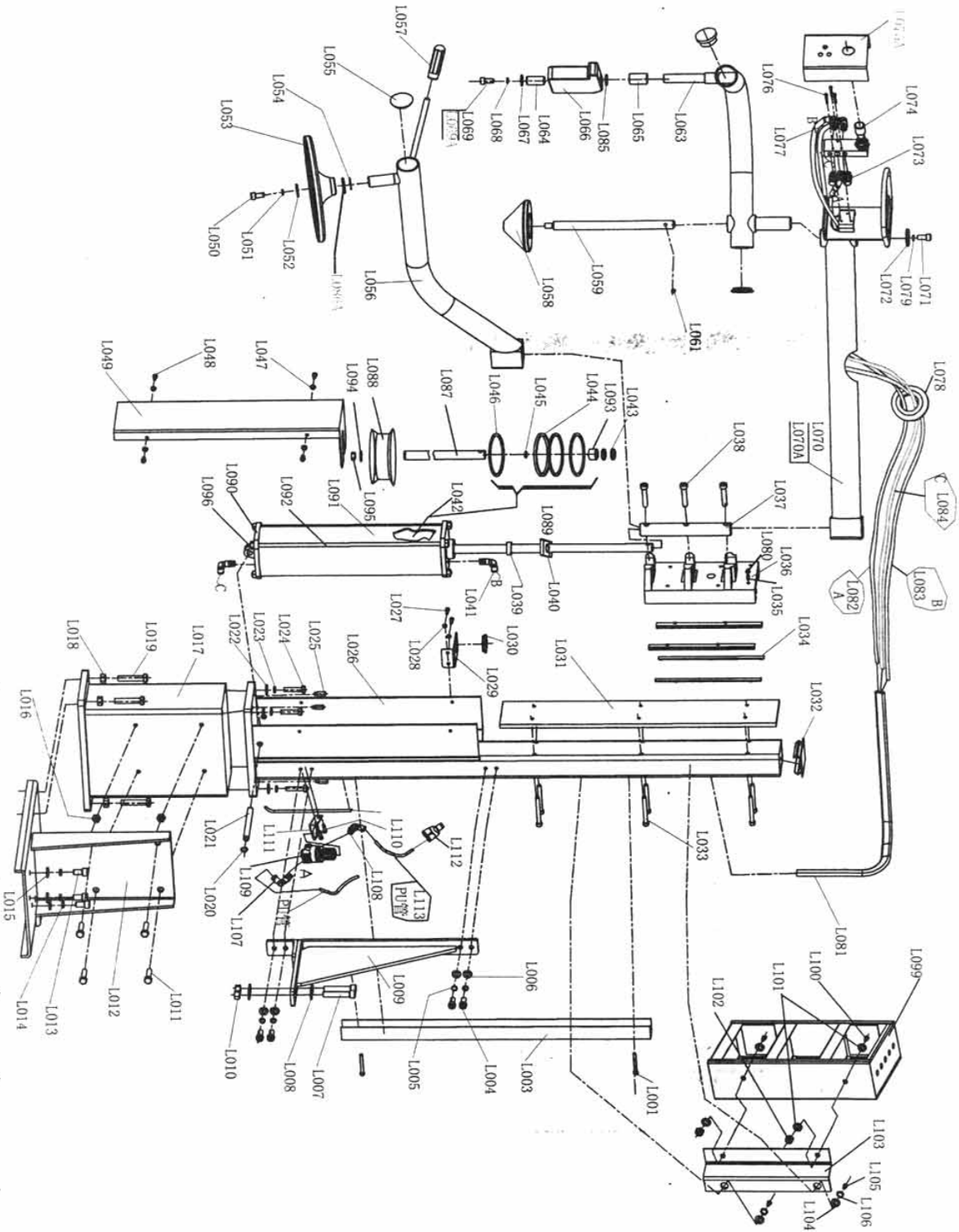
# R23ST - SERVICE PARTS - AIR DUMP VALVE



## R23ST - SERVICE PARTS - AIR DUMP VALVE

Ref.	Code	Description	Specification	Q'TY	Note
901		Union	G1/4"-ø8	1	
902		O-ring	ø 10X2,65	4	
903	T-K. 02. 03	Valve support		1	
904	T-K. 02. 05	Positioning support		1	
905		Seeger ring	28 #	1	
906	T-K. 02. 06A	Sealing ring		1	
907	T-K. 02. 07	Pressing washer		1	
		PU hose	ø12x2	SOME	
909		locknut	M6	1	
910		Union	G1/4"-ø8	1	
911	T-K. 02. 02	Valve body		1	
912		Union	G3/8"-ø12	4	
913	T-K. 02. 01	Block-up		1	
914		Screw	M5X16	4	
915	T-K. 02. 04	Support		1	
916		Screw	M10X16	2	
917		Elastic washer	10	2	
918		Flat washer	10	2	
919					
920		Screw	M6X10	2	

# R23ST SERVICE PARTS - ASSIST TOWER





## R23ST SERVICE PARTS - ASSIST TOWER

Ref.	Description	Specification	Q' TY	Note		
L001	Screw	M6X50	2	GB70-85		
L002			1			
L003	Bracket	PL330.00.16	1			
L004	Screw	M8X25	4	GB70-85		
L005	Elastic washer	8	4	GB93-87		
L006	Flat washer	8	4	GB95-85		
L007	Screw	M12X60	2	GB70-85		
L008	Flat washer	12	4	GB95-85		
L009	Support	PL330.06.00	1			
L010	Locknut	M12	2			
L011	Screw	M10X40	4	GB5781-86、		
L012	Bracket	PL330.07.00	1			
L013	Screw	M12X25	3	GB70-85		
L014	Flat washer	12	3	GB95-85		
L015	Elastic washer	12	3	GB93-87		
L016	Nut	M10	4	GB41-86		
L017	Fixing bracket	PL330.08.00	1			
L018	Nut	M12	4	GB41-86		
L019	Screw	M12X60	4	GB5781-86、		
L020	Seeger ring	12#	2	GB894.1-86		
L021A	Cylinder spindle	PL330.00.24	1			
L022	Flat washer	12	4	GB95-85		
L023	Elastic washer	12	4	GB93-87		
L024	Screw	M12X40	4	GB5781-86		
L025	Screw	M10X20	4	GB79-85		
L026	Main bracket	PL330.04.00	1			
L027	Screw	M5X10	2	GB70-85		
L028	Flat washer	5	2	GB95-85		
L029	Support	PL330.00.17.00	1			
L030	Ring	Φ 43X Φ 30.5X7.5	1			
L031	Slide rail	PL330.00.05	1			
L032	Cover	PL330.00.04.00	1	Nylon 66		
L033	Screw	M8X70	6	GB70-85		
L034	Wearable plate	PL330.00.21A	4	Nylon 66		
L035	Screw	M10X20	9	GB79-85		
L036	Moving bracket	PL330.00.01B	1			
L037	Connecting spindle	PL330.00.02	1			
L038	Screw	M10X50	3	GB70-85		
L039	Ring	Φ 27X Φ 20X6	1			
L040	Felt	Φ 30X Φ 20X10	1			
L041	"L"-union	G1/8"、Φ 6	2			
L042	Clamp control cylinder assy	PL330.05.00	1	Φ 100X Φ 20X365		
L043	O-ring	25X3.1	2			
L044	O-ring	100X5.7	2			
L045	O-ring	14.5X2	1			

## R23ST SERVICE PARTS - ASSIST TOWER

Ref.	Description	Specification	Q'TY	Note		
L046	O-ring	100X3.1	2			
L047	Flat washer	5	4	GB95-85		
L048	<b>Screw</b>	M5X10	4	GB70-85		
L049	Covering plate	PL330.00.15	1			
L050	<b>Screw</b>	M10X20	1	GB70-85		
L051	<b>Elastic washer</b>	10	1	GB93-87		
L052	<b>Washer</b>	φ 30X φ 11X3	1			
L053	Bead break disk	PL330.00.14	1			
L054	Seeger ring	25#	1	GB894.1-86		
L055	Cover	PL330.00.10	3	Nylon 66		
L056	Bend arm	PL330.03.00	1			
L057	Handle cover	φ 11.6	1			
L058	Roller	PL330.00.12	1	Nylon 66		
L059	Connecting rod	PL330.00.11	1			
L061	Screw	PL330.00.13.00	1			
L062						
L063	Rotate arm	PL330.02.00	1			
L064	Length spacer	PL330.02.04	1			
L065	Length spacer	PL330.02.05	1			
L066	Pressing blade	PL330.00.08	1			
L067	Pressing blade washer	PL330.00.09	1			
L068	Elastic washer	10	1	GB93-87		
L069	Screw	M10X20	1			
L069A	Screw	M10X70	1			
L070	Support arm	PL330.01.00	1	PL330.01.02A		
L070A	Support arm	PL330.01.00	1	PL330.01.02B		
L071	Screw	M10X20	1	GB70-85		
L072	Washer	PL330.00.06	1			
L073	Silencer	G1/8"	2			
L074	Valve	G1/8"	1			
L075A	Valve cover	PL330.00.07C	1			
L076	Screw	M4X30	3	GB70-85		
L077	"L"-union	G1/8"、φ6	3			
L078	Cable protect ring	30X26X8	1			
L079	Elastic washer	10	1			
L080	Nut	M10	9			
L081	Hose	□14X1	0.85m			
L082	PU hose-A	□6X4	3.4m			
L083	PU hose-B	□6X4	2.2m			
L084	PU hose-C	□6X4	2.4m			
L085	Adjusting washer	PL330.00.22	1			
L086A	Washer	PL330.00.23A	1			
L087	Cylinder shaft	PL330.05.03	1			
L088	Piston	PL330.05.04	1			
L089	Front housing for cylinder	PL330.05.01	1			
L090	Rear housing for cylinder	PL330.05.05	1			

## R23ST SERVICE PARTS - ASSIST TOWER

Ref.	Description	Specification	Q' TY	Note		
L091	Cylinder body	PL330.05.02	1			
L092	Union	PL330.05.06	4			
L093	Guide spacer	PL330.05.07	1			
L094	Flat washer	□10	1			
L095	Locknut	M10	1			
L096	Locknut	M8	8			
L097						
L098						
L099	Tool box	PL330.09.00	1			
L100	Screw	M10X25	2	GB70-85		
L101	Flat washer	10	4	GB95-85		
L102	Locknut	M10	2			
L103	Fixing plate	PL330.00.18	1			
L104	Flat washer	10	2	GB95-85		
L105	Screw	M10X20	2	GB70-85		
L106	Elastic washer	10	2			
L107	"L" union	G1/4"、φ6	1			
L108	"L" union	G1/4"、φ8	1			
L109	Pressure reduce valve	Max.10bar	1			
L110	Screw	M5X12	2	GB70-85		
L111	Valve bracket		1			
L112	Y-ring	□8	1			
L113	PU hose	□8X5	1.4m			
L114						
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