

## Dual-Assist Tower, Tilt-Back Tire Changer Installation and Operation Manual

Manual P/N 5900087 — Manual Revision B — January 2020

Model:

- R80EX



Designed and engineered in Southern California, USA. Made in China.

 **DANGER**

**Read the *entire contents* of this manual *before* using this product.** Failure to follow the instructions and safety precautions in this manual can result in serious injury or death. Make sure all other operators also read this manual. Keep the manual near the product for future reference. By proceeding with installation and operation, you agree that you fully understand the contents of this manual.

**Manual.** R80EX Dual-Assist Tower, Tilt-Back Tire Changer, *Installation and Operation Manual*, Manual Part Number 5900087, Manual Revision B, released January 2020.

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**Limitations.** Every effort has been made to have complete and accurate instructions in this manual. However, product updates, revisions, and/or changes may have occurred since this manual was published. BendPak Ranger reserves the right to change any information in this manual without incurring any obligation for equipment previously or subsequently sold. BendPak Ranger is not responsible for typographical errors in this manual. You can always find the latest version of the [manual for your product on the Ranger website](#).

**Warranty.** The BendPak Ranger warranty is more than a commitment to you: it is also a commitment to the value of your new product. For full warranty details, contact your nearest BendPak Ranger dealer or visit [bendpak.com/support/warranty](http://bendpak.com/support/warranty). Go to [bendpak.com/support/register-your-product/](http://bendpak.com/support/register-your-product/) and fill out the online form to register your product (be sure to click **Submit**).

**Safety.** Your product was designed and manufactured with safety in mind. Your safety also depends on proper training and careful operation. Do not set up, operate, maintain, or repair the unit without reading and understanding this manual and the labels on it; **do not use this product unless you can do so safely!**

**Owner Responsibility.** In order to maintain your product properly and to ensure operator safety, it is the responsibility of the product owner **to read and follow these instructions**.

- Follow all installation, operation, and maintenance instructions.
  - Make sure product installation and operation conforms to all applicable local, state, and federal codes, rules, and regulations, such as state and federal OSHA regulations and electrical codes.
  - Read and follow all safety instructions. Keep them readily available for operators.
  - Make sure all operators are properly trained, know how to safely operate the unit, and are properly supervised.
  - Do not operate the product until you are certain all parts are in place and operating correctly.
  - Carefully inspect the product on a regular basis and perform all maintenance as required.
  - Service and maintain the unit with approved replacement parts only.
  - Keep the manual with the product and make sure all labels are clean and visible.
- **Only use this product if it can be used safely!**


**Unit Information.** Enter the Model Number, Serial Number, and the Date of Manufacture from the label on your unit. This information is required for part or warranty issues.


Model: \_\_\_\_\_

Serial: \_\_\_\_\_

Date of Manufacture: \_\_\_\_\_

MODEL NO.	R80EX
SERIAL NO.	12345-678-910
REVISION	REV. B / 3 HP
DATE OF MFG.	09/19
VOLTAGE	220V, 50Hz/60Hz, 1 Ph.



 **DANGER!**  
Disconnect Power Before Servicing.

**Ranger Products™**  
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[www.rangerproducts.com](http://www.rangerproducts.com)  
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## Introduction

This manual describes the R80EX Dual-Assist Tower, Tilt-Back Tire Changer, featuring multiple assist tools on two assist towers (which help reduce effort and operator fatigue in busy shops).

More information about BendPak Ranger products is available at [rangerproducts.com](http://rangerproducts.com).

***This manual is mandatory reading for all users*** of the R80EX Tire Changer, including anyone who sets up, operates, maintains, or repairs it.

You can always find the latest version of the [manual for your product on the Ranger website](#).

** DANGER** Be very careful when setting up, operating, maintaining, or repairing this equipment; failure to do so could result in property damage, product damage, injury, or (in very rare cases) death. Make sure only authorized personnel operate this equipment. All repairs must be performed by an authorized technician. Do not make modifications to the unit; this voids the warranty and increases the chances of injury or property damage. Make sure to read and follow the instructions on the labels on the unit.

Keep this manual on or near the equipment so that anyone who uses or services it can read it.

Technical support and service for your Tire Changer is available from your distributor or by calling **BendPak Ranger at (805) 933-9970**. You may also call regarding parts replacement (please have the serial number and model number of your unit available).

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# Shipping Information

Your equipment was carefully checked before shipping. Nevertheless, you should thoroughly inspect the shipment **before** you sign to acknowledge that you received it.


When you sign the bill of lading, it tells the carrier that the items on the invoice were received in good condition. **Do not sign the bill of lading until after you have inspected the shipment.** If any of the items listed on the bill of lading are missing or damaged, do not accept the shipment until the carrier makes a notation on the bill of lading that lists the missing or damaged goods.

If you discover missing or damaged goods **after** you receive the shipment and have signed the bill of lading, notify the carrier at once and request the carrier to make an inspection. If the carrier will not make an inspection, prepare a signed statement to the effect that you have notified the carrier (on a specific date) and that the carrier has failed to comply with your request.

It is difficult to collect for loss or damage after you have given the carrier a signed bill of lading. If this happens to you, file a claim with the carrier promptly. Support your claim with copies of the bill of lading, freight bill, invoice, and photographs, if available. Our willingness to assist in helping you process your claim does not make us responsible for collection of claims or replacement of lost or damaged materials.

## Safety Considerations

**Read this manual carefully before using your new product.** Do not set up or operate the product until you are familiar with all operating instructions and warnings. Do not allow anyone else to operate the product until they are also familiar with all operating instructions and warnings.

 **WARNING** There are many moving parts on a Tire Changer; keep clear of these moving parts and the Tire being changed. In particular, when inflating a Tire, never lean over the Tire; if it were to explode (which does happen), the force could injure or kill the Operator or bystanders. During inflation, the Operator should be as far away from the Tire as possible and all bystanders must be at least 30 feet away.

### Safety Information

Please note the following:

- The product is a Tire Changer. **Use it only for its intended purpose.**
- The product **must** only be operated by authorized, trained, properly supervised personnel. Keep children and untrained personnel at least 30 feet away from the product when it is in use.
- Always follow all applicable local, state, and federal codes, rules, and regulations.
- You **must** wear OSHA-approved (publication 3151) Personal Protective Equipment at all times when installing, using, maintaining, or repairing the Tire Changer. Leather gloves, steel-toed work boots, eye protection, back belts, and hearing protection **are mandatory.**
- Do not use the product while tired or under the influence of drugs, alcohol, or medication.
- Do not use the product in the presence of cigarette smoke, dust, or flammable liquids or gases. Use the product indoors in a well-ventilated area.
- Do not make any modifications to the product; this voids the warranty and increases the chances of injury or property damage. **Do not disable or ignore safety features.**

- 
- Make sure all Operators study and understand this *Installation and Operation Manual* **before** they begin using the Tire Changer. Keep the Manual near the device at all times.
  - Important safety and usage information is available in OSHA standard 29 CFR 1910.177 (Servicing Multi-Piece and Single Piece Rim Wheels). **All Operators must study this document before servicing any Tires.**
  - Make a visual inspection of the product every day. Do not use the product if you find any missing or damaged parts. Instead, take the unit out of service, then contact an authorized repair facility, your distributor, or **BendPak Ranger at (805) 933-9970**.
  - BendPak Ranger recommends making a **thorough** inspection of the product once a month. Replace any damaged or severely worn parts, decals, or warning labels.

## Symbols

Following are the symbols that may be used in this manual:



**DANGER**

Calls attention to a hazard that **will** result in death or injury.



**WARNING**

Calls attention to a hazard or unsafe practice that **could** result in death or injury.



**CAUTION**

Calls attention to a hazard or unsafe practice that could result in personal injury, product damage, or property damage.

**NOTICE**

Calls attention to a situation that, if not avoided, could result in product or property damage.



**Tip**

Calls attention to information that can help you use your product better.

## Liability Information

BendPak Ranger assumes **no** liability for damages resulting from:

- Use of the equipment for purposes other than those described in this manual.
- Modifications to the equipment without prior, written permission from BendPak Ranger.
- Injury or death caused by modifying, disabling, or removing safety features.
- Damage to the equipment from external influences.
- Incorrect operation of the equipment.

# Components

The following graphic identifies the main components of the R80EX Tire Changer.



Front and right-side views. Components on left side and rear not visible, including the Turbo-Blast™ System and the Regulator/Filter/Lubricator.

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Tire Changer components include:

- **Turntable.** Holds the Wheel.
- **RimGuard™ Wheel Clamps.** Hold the Wheel in place on the Turntable. Feature multiple clamp positions and polyurethane inserts that will not scratch or mar Rims when clamping externally.
- **Tilt-Back Tower.** Holds the Mount/Demount Head; tilts back so you can move it out of the way.
- **Mount/Demount Head.** Mounts and demounts Tires. The Tire Changer comes with two Mount/Demount Heads, one alloy-steel and one plastic polymer.
- **Adjustment Handle.** Controls the Tilt-Back Tower.
- **Bead Breaker.** Breaks the Beads of Tires before you demount them. Includes a Handle, Blade, and adjustable Mechanism to fit Tires of different sizes. Needs partial installation.
- **Bead Lifting Tool.** A Tire Iron you use to pull the Bead edge of a Tire over the Mount/Demount Head so the Tire can be demounted from the Wheel.
- **Pressure Gauge.** Shows the amount of air pressure in a Tire to which the Air Chuck is attached. Includes an Air Chuck with self-gripping clip.
- **Turbo-Blast™ Bead Sealer.** Uses a burst of air pressure to help seal a difficult Bead.
- **Inflation Foot Pedal.** Controls putting air into a Tire. On left side of unit, not the front.
- **Tilt Back Foot Pedal.** Press and release to move the Main Tower to the opposite position: if up, moves it back; if back, moves it up.
- **Clamps Foot Pedal.** Moves the Clamps to the opposite position. If Clamps are in, moves them out; if Clamps are out, moves them in.
- **Bead Breaker Foot Pedal.** Moves the Bead Breaker Blade in; release to retract.
- **Turntable Foot Pedal.** Rotates the Turntable. Press down and hold to rotate the Turntable clockwise, press up and hold to rotate the Turntable counter-clockwise.
- **Regulator/Filter and Lubricator.** Control and route the incoming air.
- **Left Assist Tower.** Holds several tools to aid in mounting and demounting Tires.
- **Right Assist Tower.** Holds other tools to aid in mounting and demounting Tires.
- **Assist Tower Controls.** Raise and lower the Assist Tower Arms. One per Assist Tower.
- **Restraint Cone.** Holds a Wheel in place during inflation or presses down on a Wheel to assist with external clamping.
- **Bead Roller.** Holds down Tire Sidewall during mounting; stays in one spot.
- **Assist Tool.** Holds down Tire Sidewall during mounting; moves with the Tire.
- **Helper Discs.** Hold up Tires during demount.
- **Dual Roller Rods.** Hold up Tires for demounting, hold down Beads for mounting.
- **Storage Cabinet.** For storing things you want to have nearby. Comes uninstalled.

Tire Changer accessories include:

- **Lube Bucket.** Holds Tire Lubricant.
- **Lube Brush.** Spreads the Lubricant.
- **Extra Air Line Parts.** Provided in case they are needed in the future.
- **Extra Foot Pedal Parts.** Provided in case they are needed in the future. Come in a bag in the Storage Compartment under the Tray.
- **Extra Yellow Plastic Pieces.** For the alloy steel Mount/Demount Head. Provided in case they are needed in the future. Come in a bag in the Lube Bucket.

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# Frequently Asked Questions

**Question:** What does a Tire Changer do?

**Answer:** A Tire Changer takes Tires off of Wheels (called demounting), puts Tires onto Wheels (called mounting), and inflates Tires.

**Q:** What is the difference between a Tire, Wheel, and Rim?

**A:** The Wheel is the round **metal** piece. The Tire is the round **rubber** piece that surrounds the Wheel. The outer edge of the Wheel, where the Tire attaches to the Wheel, is called the Rim. Some people use Wheel and Rim to mean the same thing.

**Q:** The Tire Changer is described as “tilt back”, what does that mean?

**A:** It means the Tilt-Back Tower (*not* the Assist Towers) literally leans backwards, moving the Mount/Demount Head out of the way. How is this a good thing? It allows you to set up the Mount/Demount Head in the right place for the Tire you are demounting/mounting, then move it out of the way, then bring it right back to the same place for the next Tire (Tires are generally demounted/mounted in sets of four) without having to adjust the Mount/Demount Head again.

**Q:** What are the steps in the process of demounting a Tire and then mounting a new Tire?

**A:** The steps are: deflate the Tire, break the Bead, secure the Wheel on the Turntable, demount the old Tire, mount the new Tire, inflate the new Tire, then remove the Wheel from the Turntable.

**Q:** What does “break the Bead” mean?

**A:** A Tire is held on the Rim by the Tire Bead sitting between the Rim Lip and the Bead Retainer on the Rim. The air pressure in the Tire holds it in place once the Bead is seated (during mounting). When you “break the Bead”, you move the Tire Bead out of the location where it was seated; breaking the Bead is **required** before you can take the Tire off the Wheel.

**Q:** Can I break the Bead without fully deflating the Tire first?

**A:** No, **do not do this**. Always **fully deflate** a Tire before attempting to break its Bead. The air pressure energy in a Tire, even if not fully inflated, can be considerable. If you were to attempt to break the Bead of a Tire that is not fully deflated, that energy would be released all at once, possibly injuring or, in rare cases, killing the Operator or bystanders.

**Q:** What thing should I always do when working with the Tire Changer?

**A:** You must exactly match Rim Width with the Tire you are mounting. The result of a mismatch is that the Tire could literally explode off the Wheel when you inflate it or while the Vehicle is being driven. In both cases, people could be injured or killed.

**Q:** Where should I put my Tire Changer?

**A:** What you want is a flat Concrete floor with room around it that is also near where you work on Tires. Ideally, you want it a little off the beaten path, as you must – for safety – keep everyone away from the Tire Changer while it is in use. No one other than the Operator should be within 30 feet of the Tire Changer while it is in use.

**Q:** Why isn't there a Plug on the end of the Power Cord?

**A:** 220 VAC plugs vary by region, so if you are going to use a Power Cord with Plug, you need to use a Plug that is appropriate for the power outlet you will be using. The other option is to wire the Tire Changer directly into the facility's power system. You **must** have a licensed Electrician perform all electrical work in accordance with all applicable electrical codes.



# Specifications

<b>Model</b>	<b>R80EX</b>
Motor	3 HP, 208-240 VAC, 50/60 HZ, 1 Ph.
Power Cord Length	~84 in (7 feet) / 2,133 mm
Drive System Type	Electric / Air
Air Requirement	140 – 165 PSI / 9.6 – 11.4 BAR
Wheel Clamping	4 Clamps / internal and external clamping
Table Clamping	Dual pneumatic cylinders
Bead Breaking	Pneumatic power / adjustable blade
Tower Design	Tilt back
Assist Towers	Two, left and right
Bead Sealing	Turbo-Blast™ system
Internal Rim Clamping	13 – 34 in / 305 – 864 mm
External Rim Clamping	10 – 30 in / 254 – 762 mm
Bead Breaker Tire Width Capacity (Demounting)	1.5 – 18 in / 38 – 457 mm
Maximum Rim Width	15 in / 381 mm
Maximum Tire Diameter	47 in / 1,194 mm
Sound	<70 dB
Dimensions	~91 in wide* by 66 in deep** by 79 in high ~2,311 mm wide* by 1,677 mm deep** by 2,007 mm high

\* With Assist Arms on both Assist Towers at full extended width.

\*\* With Tilt-Back Tower tilted back and Slide all the way back.

***Specifications subject to change without notice.***

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# Installation Checklist

Following are the steps needed to install the Tire Changer. Perform them in the order shown.

- 1. Review the installation Safety Rules.
- 2. Make sure you have the necessary Tools.
- 3. Find an appropriate Location.
- 4. Make sure there is adequate Clearance around and above.
- 5. Unpack the Tire Changer.
- 6. Install the Storage Cabinet.
- 7. Install the Bead Breaker Mechanism.
- 8. Anchor the Tire Changer.
- 9. Connect to Power. ***Requires a licensed Electrician.***
- 10. Connect to pressurized Air.
- 11. Prepare the Lube Bucket.
- 12. Grease the Assist Tower Posts.
- 13. Test the Tire Changer.
- 14. Review the Final Checklist.

---

# Installation

This section describes how to install your Tire Changer. Perform the tasks in the order presented.

**⚠ DANGER** When you even hear the words “Tire Changer,” you need to remember that installing one is a serious endeavor with potentially life-threatening risks. Only allow appropriately trained, authorized, supervised personnel install the Tire Changer. ***Do not assume that nothing bad is going to happen during this installation because nothing bad happened last installation.***

## Installation Safety Rules

***Pay attention at all times during installation.*** Use appropriate tools and equipment. Stay clear of moving parts. Keep hands and fingers away from pinch points. ***Safety is your top priority.***

**⚠ WARNING** You ***must*** wear OSHA-approved (publication 3151) personal protective equipment at all times when installing the Tire Changer: leather gloves, steel-toed work boots, eye protection, back belts, and hearing protection.

Use caution when unpacking the Tire Changer from its shipping container and setting it up. The Tire Changer is heavy and the weight is not evenly distributed; dropping or knocking over the unit may cause equipment damage and personal injury.

Only experienced, trained personnel may install the Tire Changer. In particular, **all electrical work *must*** be done by a licensed, certified Electrician.

**⚠ CAUTION** Certain parts of installing the Tire Changer are difficult for just one person. BendPak Ranger **strongly** recommends having at least two or more people work together to install the Tire Changer.

## Tools

You may need some or all of the following tools:

- Forklift, Pallet Jack, or Shop Crane
- Tin or sheet metal snips
- Hammer, mallet, crow bar, or pry bar
- Utility knife
- Hex key and wrench set, metric and SAE
- Screwdriver set, slot and Phillips

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## Finding a Location


Keep the following in mind when deciding on a location for the Tire Changer:

- **Power source.** The Tire Changer needs to be near an appropriate power source. Refer to **Connecting to Power** for more information.
- **Floor.** The Tire Changer is best used on a flat, Concrete floor.
- **Clearance.** The Tire Changer requires space around it. Refer to **Clearance** for more information.
- **Accessibility.** You need some space to move the Wheels whose Tires you are changing to and from the Tire Changer.
- **No contaminants.** The Tire Changer includes many precision parts. You need to keep it away from sources of contaminants such as oil, grease, water, dirt, brake lathe chips, and so on. Contaminants degrade the performance of the Tire Changer and may cause components to wear out more quickly.
- **Danger.** When a Tire is on the Tire Changer, especially during inflation, you need to keep everyone far away from it. Only the Operator should be within 30 feet of the Tire Changer when it is in use.

***Do not set up the Tire Changer in a well-travelled area.***

- **No water.** The Tire Changer has electronic components. If the Tire Changer gets wet while turned on, those electronic components will likely short circuit and have to be replaced.

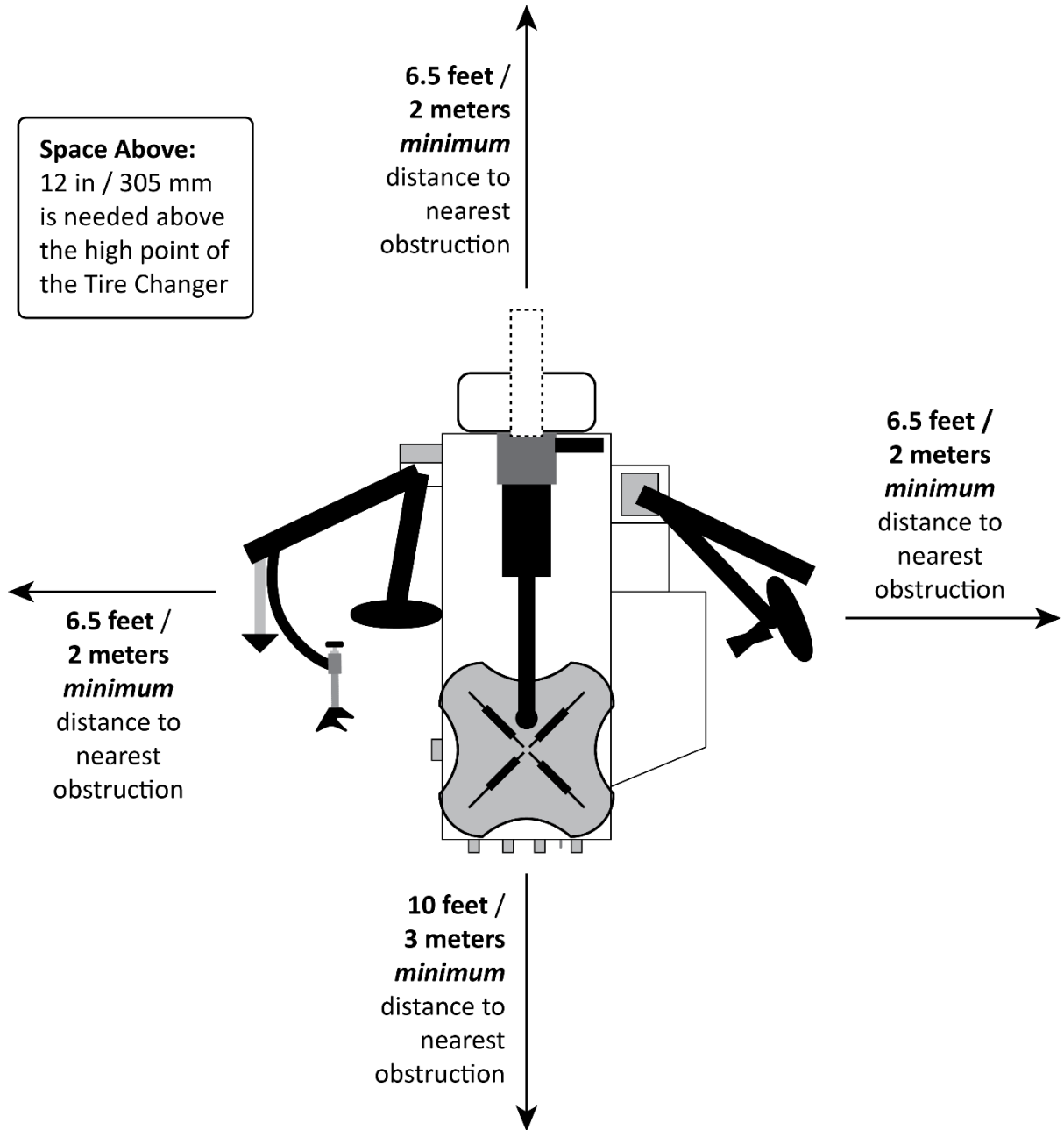
***Set up the Tire Changer in a location where it will stay dry.***

 **WARNING** Do not use the Tire Changer if it is sitting in water. You will short circuit the electronic components in the Tire Changer and you could electrocute yourself or bystanders.

## Clearance

A certain amount of space around the Tire Changer is required for the Operator to work.

**⚠ WARNING** The Clearance values shown below allow enough space to operate the Tire Changer. **For safety purposes, only the Operator should be within 30 feet of the Tire Changer while it is in use.**



Top view. Not necessarily to scale. Not all components shown. The additional space at the front of the Tire Changer is needed to move Tires to and from the Tire Changer.

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## Unpacking

Once you have found an appropriate location for the Tire Changer, you can take off the Cover, take it off the shipping Pallet, move it to the desired location, and then get it ready for operation.

**Use caution when taking the Tire Changer out of its shipping container.** You do not want to damage the unit, misplace any of the components that come with it, or hurt anyone.

**⚠ WARNING** Make sure to use an appropriate lifting device, such as a Forklift or Pallet Jack, to move the Tire Changer while it is on its shipping Pallet. Make sure **only** personnel who are trained in and experienced with material handling procedures are allowed to move the Tire Changer. The Tire Changer is heavy and the weight is not evenly distributed; dropping or knocking over the unit may cause equipment damage or personal injury. BendPak Ranger recommends having at least two people work together to move the Tire Changer.

We recommend unpacking the Tire Changer as close as possible to the desired final location.

### To unpack the Tire Changer:

1. At the bottom of the Cover, push all of the metal tabs all the way down, on all four sides.  
You may have to apply some force to get the metal tabs facing all the way down.
2. Lift the Cover off.

**⚠ CAUTION** Ranger recommends having at least two people lift the Cover off; it is heavy and awkward. If it is dropped or falls, it could cause injury or equipment damage.

3. Remove the Accessory Box.
4. Move the uninstalled Storage Cabinet and Bead Breaker Mechanism out of the way.
5. Remove the bolts that hold the Tire Changer to the Pallet.
6. Move the Tire Changer off the Pallet, then move it to the desired location.

The Tire Changer can be moved off the Pallet using a Forklift under either of the sides or by lifting it using an appropriate lifting device (such as a Shop Crane) with a strap secured around the top of the Tilt-Back Tower (but **not** around either of the Assist Towers).

**⚠ WARNING** Use extra care when moving the Tire Changer off the shipping Pallet. The Tire Changer is heavy and the weight is not evenly distributed. Dropping or knocking over the unit may cause equipment damage or personal injury.

7. Remove the plastic wrap around the Tire Changer and other components.

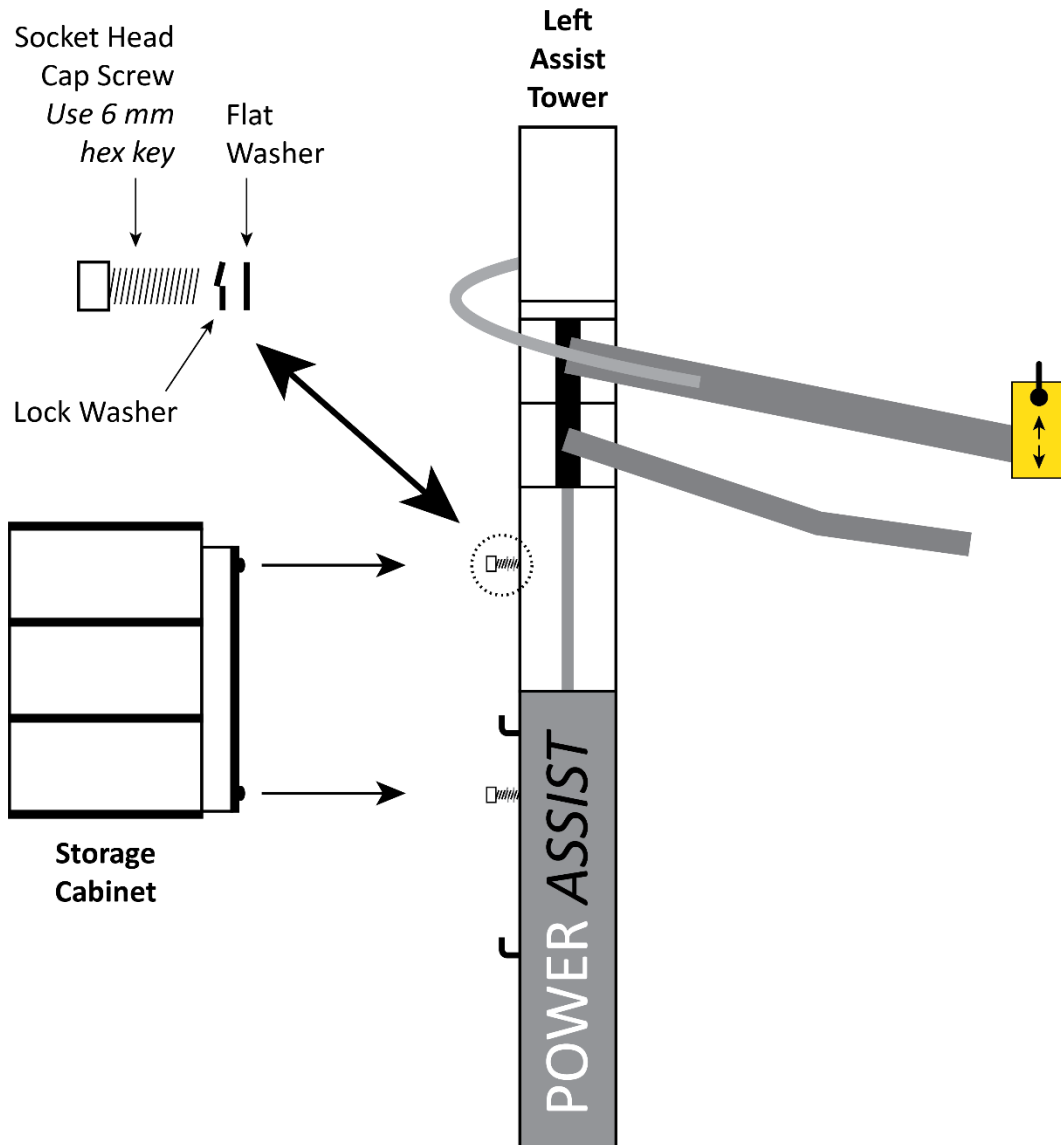
**Note:** Many of the Tire Changer components have been greased for shipping. BendPak Ranger recommends having some rags nearby when unpacking, as you will almost certainly touch something that is greased.

8. Untie the components that are tied together and remove the wood stabilizing pieces.
9. Clean the shipping grease off of the components that will be touched during normal operation of the Tire Changer, as letting them stay greased would hinder normal operation.

You can leave the Shaft greased.

## Installing the Storage Cabinet

The Storage Cabinet comes uninstalled. This section describes how to install it.



### To install the Storage Cabinet:

1. Remove the two Socket Head Cap Screws, Lock Washers, and Flat Washers.  
They come installed *in place* on the left side of the Left Assist Tower. Make sure to take off both washers.
2. Move the Storage Cabinet into place on the left side of the Left Assist Tower, with the holes in the side of the Storage Cabinet lined up with the holes in the side of the Left Assist Tower.
3. Insert the two Socket Head Cap Screws, Lock Washers, and Flat Washers that you just removed through the holes in the side of the Storage Cabinet and into the holes in the Left Assist Tower.
4. Firmly tighten the two Socket Head Cap Screws using a 6 mm hex key.

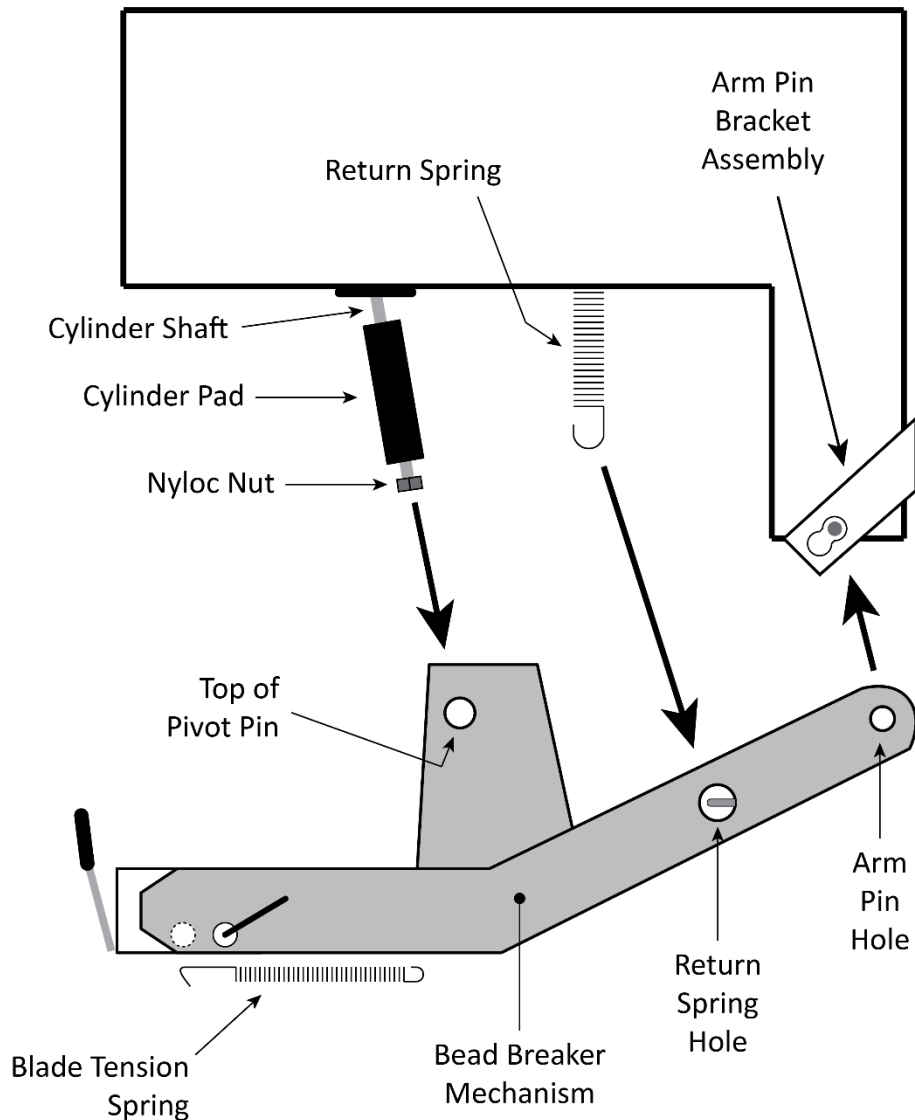
## Installing the Bead Breaker Mechanism

The Bead Breaker Mechanism comes assembled but not installed. This section describes how to install it.

The Bead Breaker Mechanism attaches to the Tire Changer at multiple places:

- The Arm Pin (part of the Arm Pin Bracket Assembly) goes through the Arm Pin Hole.
- The Return Spring gets stretched out and hooks to the Return Spring Hole.
- The Cylinder Shaft gets extended and goes through the Pivot Pin.

Once the Bead Breaker Mechanism is installed, you need to attach the Blade Tension Spring between the bottom of the Bead Breaker Mechanism and the small hole at the bottom of the Bead Breaker Blade.



*Not necessarily to scale. Not all components shown.*



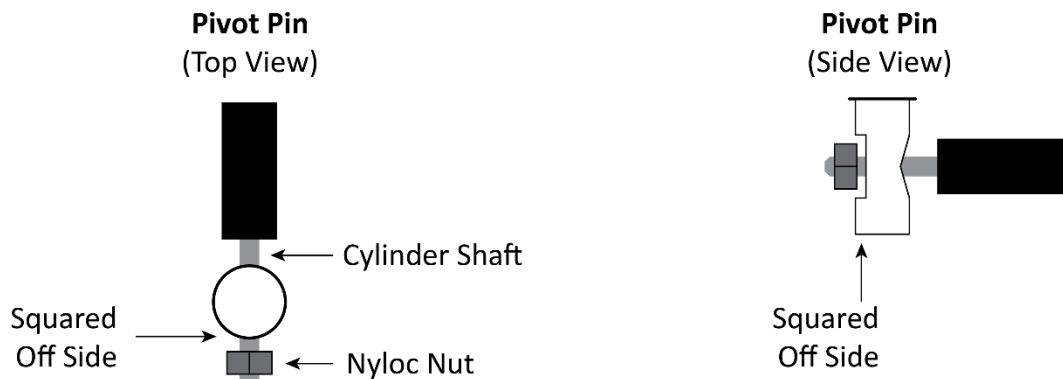
## To install the Bead Breaker Mechanism:

1. Take the protective wrapping off the Bead Breaker Mechanism.  
Make sure to locate the Blade Tension Spring; it is small and easy to lose.
2. On the Tire Changer, take off all of the components of the Arm Pin Bracket Assembly and the Nyloc Nut on the end of the Cylinder Shaft.  
Keep everything nearby; you will be putting them back into place soon.
3. Pick up the Bead Breaker Mechanism, move the Arm Pin Hole into where you removed the Arm Pin Bracket Assembly, then put the Arm Pin into place through the Arm Pin Hole when the holes are aligned.

**⚠ CAUTION** Ranger recommends having at least two people install the Bead Breaker Mechanism; one person to hold it in position, the other to align the holes and put the Arm Pin into position.

4. Put the Arm Pin Bracket Assembly back into place, then securely tighten the Socket Head Cap Screw and washers on the side of the Assembly using a 6 mm hex key.
5. Switching to the Cylinder Shaft and the Pivot Pin, adjust the Pivot Pin in the Bead Breaker Mechanism so that the squared-off side is facing **away** from the Tire Changer.

This is required.



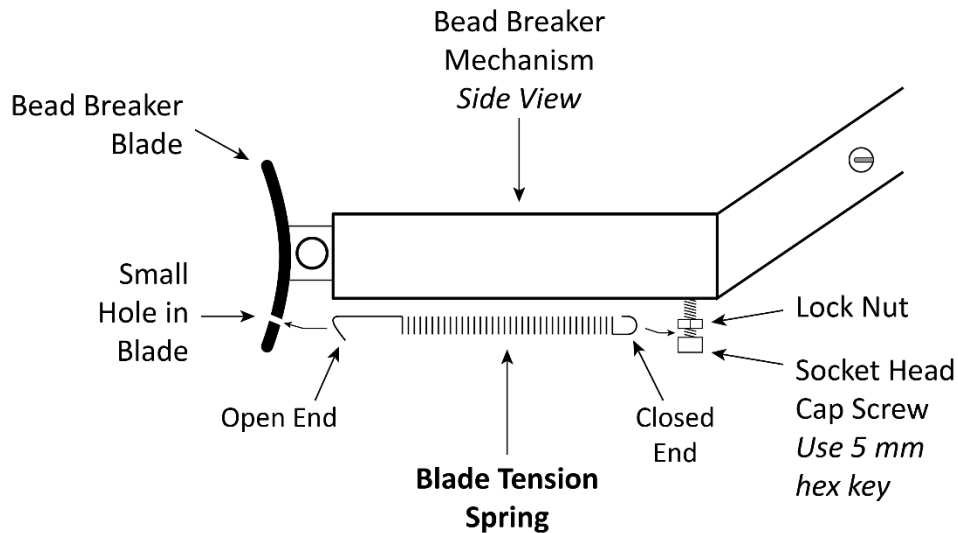
*Includes top and side views. Not necessarily to scale. Not all components shown.*

- Important:** The Pivot Pin **must** be oriented so the Squared Off side is at the end of the Cylinder Shaft. This ensures that the Nyloc Nut is installed next to the Squared Off side. If the Pivot Pin is installed backwards, the Tire Changer will **not** work correctly.
6. Pull out the Cylinder Shaft so you have enough shaft to work with, slide the Cylinder Shaft through the Pivot Pin by moving the Bead Breaker Mechanism, replace the Nyloc Nut on the end of the Cylinder Shaft, and then securely tighten it.
  7. Switching to the Return Spring, pull out the Return Spring and clip it into the Return Spring Hole.

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### To install the Blade Tension Spring:

1. Locate the Blade Tension Spring.
2. Slide the mostly closed end of the Spring around the threads of the Socket Head Cap Screw between the Lock Nut and the head of the Socket Head Cap Screw.



*Side view. Blade Tension Spring goes on the underside of the Bead Breaker Mechanism. Not necessarily to scale. Not all components shown.*

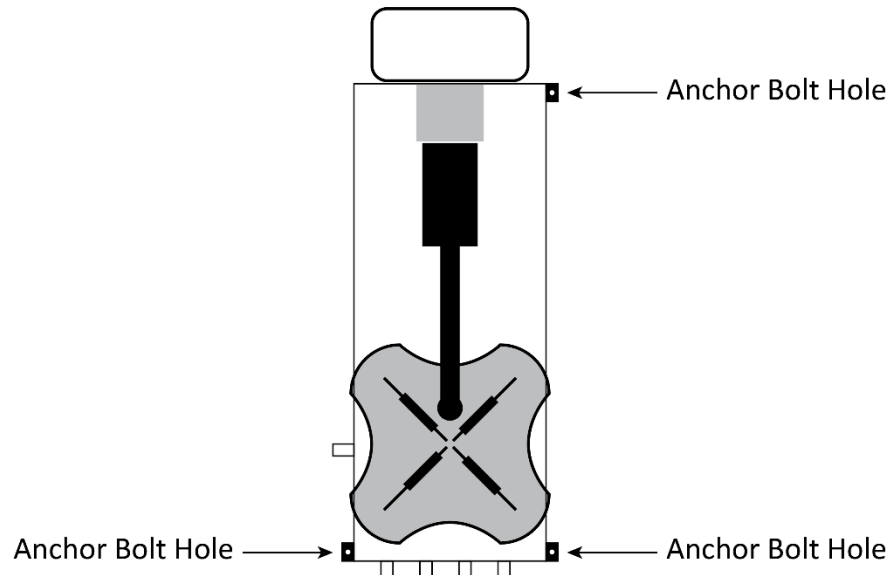
3. Tighten the Lock Nut down towards the Socket Head Cap Screw so that the closed end of the Spring is secure between them.
4. Tighten the Socket Head Cap Screw into the Bead Breaker Mechanism (use a 5 mm hex key).
5. Extend the Blade Tension Spring and put the open end through the Small Hole in the Bead Breaker Blade.

## Anchoring the Tire Changer

The Tire Changer has holes in the base for anchoring it into place; *anchoring is optional*.

**Note:** You are not required to anchor your Tire Changer. BendPak Ranger recommends doing so, as the Tire Changer uses force at various times during the changing of a Tire. Anchoring the Tire Changer ensures that it will not move during operation.

The .5 in / 12.7 mm holes for anchoring are located in three of the four corners of the Tire Changer base.



*Top view. Not necessarily to scale. Not all components shown.*

The Anchor Bolts (sometimes called Wedge Anchors) mentioned in the following procedure are **not** supplied with the Tire Changer. You could, for example, use 3/8 in diameter by 3 in long Anchor Bolts to secure the Tire Changer, drilling the hole approximately 2.5 in / 63.5 mm into the Concrete.

If you use different Anchor Bolts, follow the manufacturer's instructions for installing them.

### To anchor the Tire Changer:

1. Make sure the Tire Changer is in the desired location.
2. Using the holes in the base as guides, drill a 2.5 in / 63.5 mm deep hole for each Anchor Bolt.



Use a drill bit that is the same diameter as the Anchor Bolt. So if you are using an 3/8 in diameter Anchor Bolt, for example, use a 3/8 in diameter drill bit.

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Go in straight; do not let the drill wobble. Use a carbide-tipped drill bit (conforming to ANSI B212.15).

3. Thoroughly clean each hole.

BendPak Ranger recommends using a wire brush and a vacuum to get the hole very clean.

Do **not** ream the hole. Do **not** make the hole any wider than the drill bit made it.

4. Make sure the Washer and Nut are in place, then insert the Anchor Bolt into the hole.

The Expansion Sleeve of the Anchor Bolt may prevent the Anchor Bolt from passing through the hole in the base of the Tire Changer; this is normal. Use a hammer or mallet to get the Expansion Sleeve through the base and down into the hole.



Even using a hammer or mallet, the Anchor Bolt should only go into the hole part of the way; this is normal. If the Anchor Bolt goes all the way in with little or no resistance, the hole is too wide.

Once past the hole in the base, the Anchor Bolt eventually stops going down into the hole as the Expansion Sleeve contacts the sides of the hole; this is normal.

5. Hammer or mallet the Anchor Bolt the rest of the way down into the hole.

Stop when the Washer is snug against the base of the Tire Changer.

6. Use a torque wrench to tighten each Nut **clockwise** to the torque recommended by the manufacturer of the Anchor Bolt.

If no torque is specified, BendPak Ranger recommends ~55 lbf-ft / 74 N-m for a 3/8 in diameter Anchor Bolt.

**Important:** Do **not** use an *impact* wrench to torque the Anchor Bolts.

Wrenching the Nut forces the Wedge up, forcing out the Expansion Sleeve and pressing it tightly against the Concrete.

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## Connecting to Power

The Tire Changer must be connected to a 208-240 VAC power source.

A Power Cord with **no Plug** on the end is provided with the unit. You need to have a licensed, certified Electrician either:

- Wire the open end of the Power Cord to an appropriate 208-240 VAC NEMA Plug, which is then plugged in to an appropriate 208-240 VAC outlet and a 20 Amp breaker.

**or**

- Wire the open end of the Power Cord directly into a 20 Amp breaker that is part of the facility's electrical system.

**Important:** The Tire Changer uses pneumatic and electrical energy; if your organization has Lockout/Tagout policies, make sure to implement them once the unit is connected to a power source.

Refer to **Wiring Information** for additional wiring information.

**⚠ DANGER** *All electrical work **must** be done by a licensed, certified Electrician. If you do not use a licensed, certified Electrician, you void your warranty and put everyone who uses the Tire Changer in danger of injury or, in rare cases, death.*

Additional electrical information:

- Make sure wiring is done in accordance with National Electric Code (NEC) and local codes and standards covering electrical apparatus and wiring.
- Operation with no Ground can damage electronics and could create a shock hazard. **You must ground the unit.**
- Damage caused by improper electrical installation (not grounding the unit, for example) is **not covered** by the warranty.
- Make sure adequate wire sizes are used, service is of adequate amp rating, and that no other equipment is operated from the same line.
- Electrical codes in your area may require “hard-wiring” if the machine is anchored to the floor. Consult your Electrician regarding the applicable codes for your location.

**⚠ WARNING** ***Disconnect power before performing troubleshooting or maintenance.** Make sure the unit cannot be reenergized until you are done. This equipment has internal arcing or sparking parts that should not be exposed to flammable vapors. The unit must **not** be located in a recessed area or below floor level.*

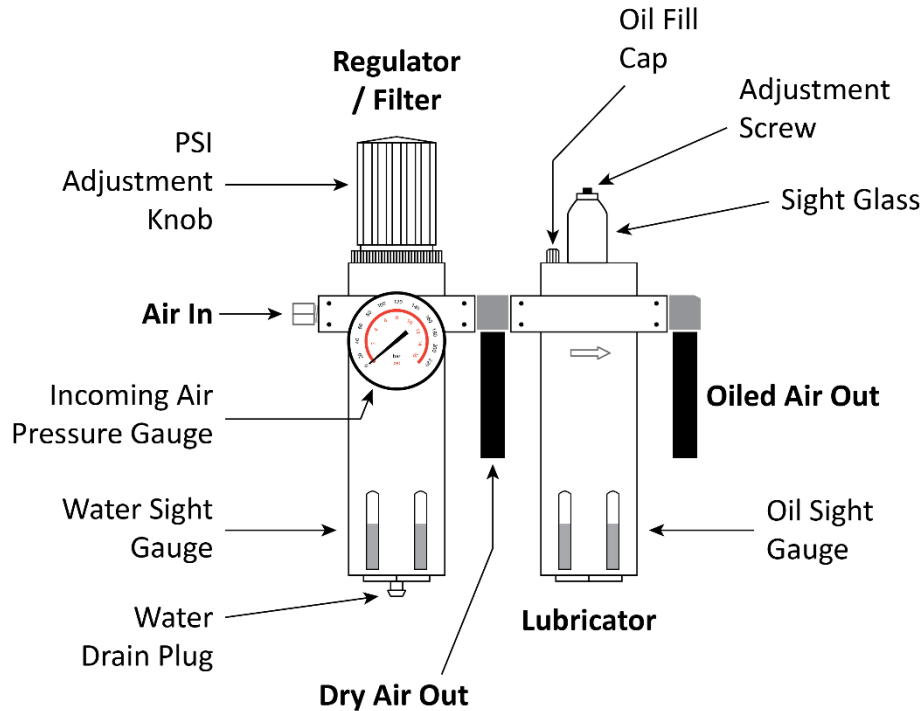
## Connecting to Pressurized Air

The Tire Changer requires a 15 to 25 CFM Air Source with an operating air pressure of 140 to 165 PSI / 9.6 to 11.4 BAR.

**Important:** The Tire Changer uses pneumatic and electrical energy; if your organization has Lockout/Tagout policies, implement them once the unit is connected to the air source.

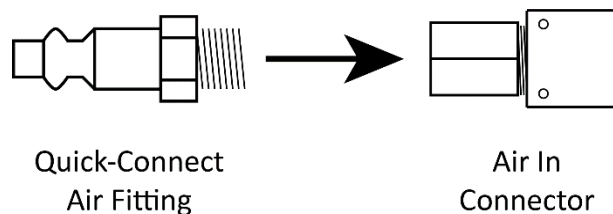
The air lines going out of the Regulator/Filter and Lubricator come connected and ready for use; **no installation or adjustment is required when you receive the Tire Changer.**

The incoming air source connects to the Tire Changer via the Air In connector on the Regulator/Filter. You need to provide a fitting for the Air In connector; it is not supplied.



*Drawing not necessarily to scale. Not all components shown.*

The following drawing shows a quick-connect air fitting that connects to the Air In connector. The quick-connect air fitting is **not** supplied with the Tire Changer.



The **Regulator / Filter** controls the air pressure coming into the Tire Changer and removes contaminants from the incoming air. It includes a gauge that shows the air pressure of the incoming air. If you see water in the Water Sight Gauge, you can drain it using the Water Drain Plug. Refer to **Maintenance** for more information.

The **Lubricator** puts pneumatic oil, for lubrication, into the incoming air that reaches it. This lubricated air is routed to pneumatic components of the Tire Changer.

## Prepare the Lube Bucket

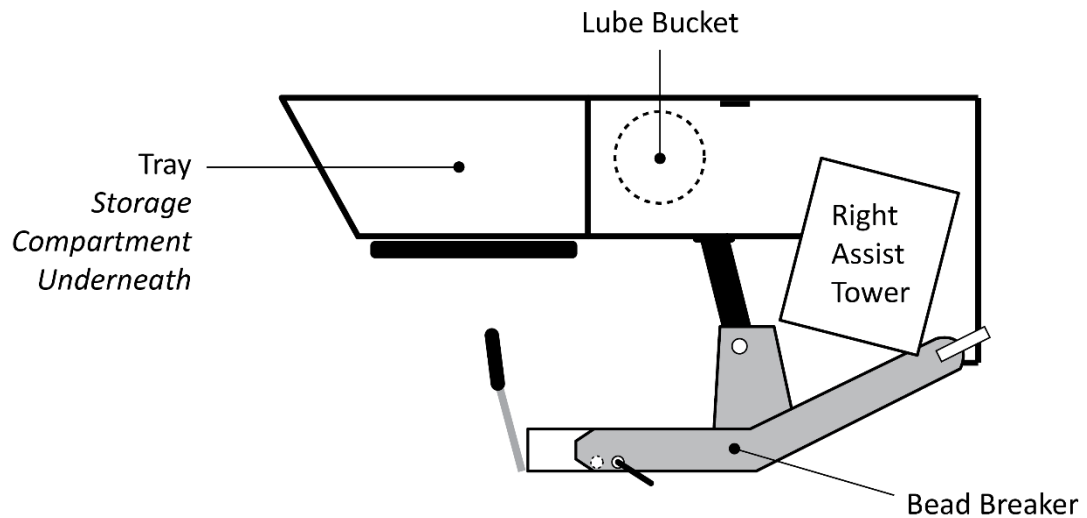
The Tire Changer comes with a Lube Bucket (to hold Tire Lubricant) and a Lube Brush (to apply Tire Lubricant).

BendPak Ranger does not include any Tire Lubricant with the Tire Changer, as there are many options available.

**⚠ CAUTION** Only use Tire Lubricant that is approved by the Tire manufacturer for the Tire you are changing. Using non-approved Tire Lubricant could corrode the Wheel or cause Tire/Wheel slippage and vibration issues.

Be sure to use enough Tire Lubricant without using too much. The point of Tire Lubricant is to **temporarily** reduce the friction between the Tire Bead area and the Rim. What you are looking for is a Tire Lubricant that is slippery when wet but not slippery once dried. If you notice excessive amounts of Tire Lubricant, on the Tire or Rim, remove the excess.

There is a location on the Tire Changer specifically for the Lube Bucket.



*Top view. Not necessarily to scale. Not all components shown.*

## Grease the Assist Tower Posts

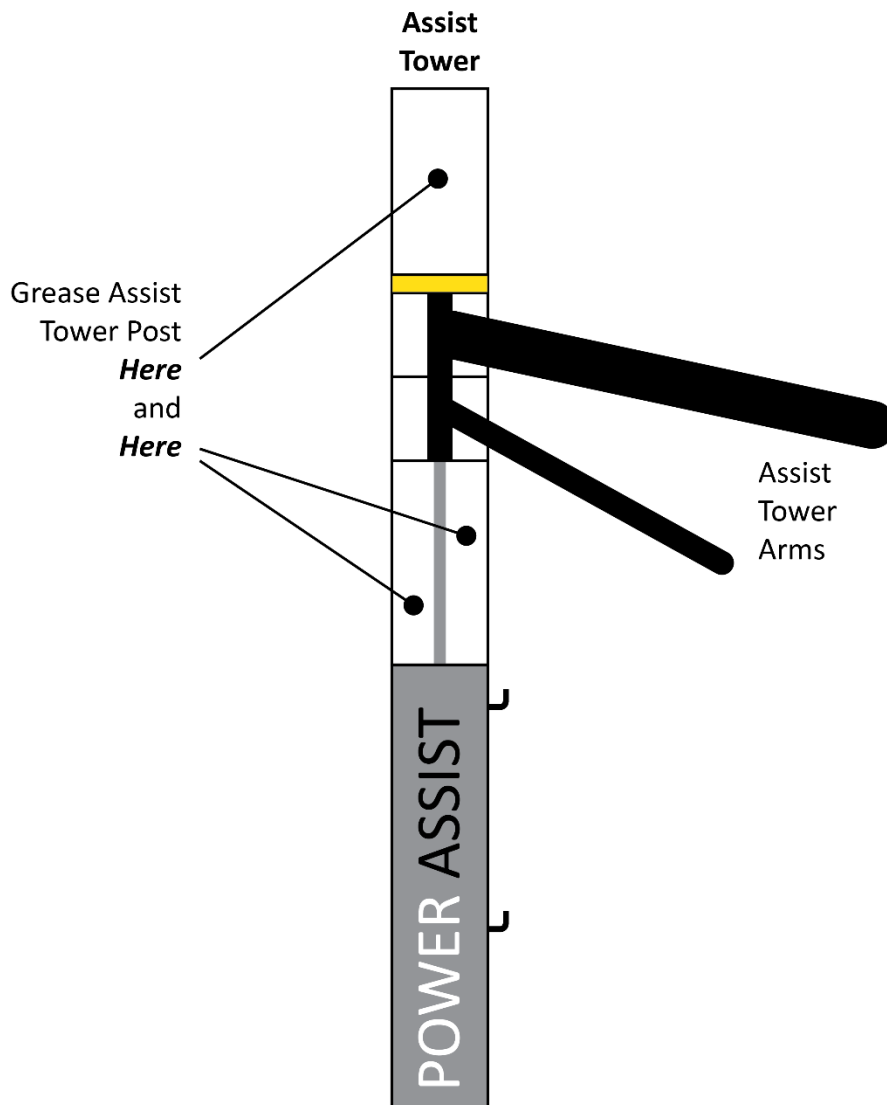
The two Assist Tower Posts on the R80EX need to be greased above and below where the Assist Tower Arms attach (so the Assist Tower Arms can easily slide up and down).

The Tire Changer comes from the factory with both Assist Tower Posts already greased, but eventually they are going to need to be re-greased.

BendPak Ranger recommends a lithium-based grease that includes molybdenum and graphite. For example, Extreme Pressure Moly-Graph® Multi-Purpose Grease from CRC/Sat-Lube®.

**⚠ CAUTION** The lithium-based grease for greasing Assist Tower Posts is **not** a Tire Lubricant. Do not use it to lube Tires. Once the Assist Tower Posts are greased up, try not to lean on or touch them; this uses up the grease faster.

The following drawing shows the grease locations for one of the two Assist Towers on the R80EX. The location is the same for the other Assist Tower: above and below where the Assist Tower Arms attach to the Assist Tower.



*Not necessarily to scale. Not all components shown.*



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## Test the Tire Changer

Make sure the following items have been done **before** putting the Tire Changer into normal operation:

- **Check for pneumatic (air) pressure.** The Tire Changer requires pneumatic energy to perform certain functions.  
To see if the Tire Changer has air pressure, take the Air Chuck and lightly step on and hold down the Inflation Foot Pedal. If air comes out, the Air Source is connected and working.
- **Test the power source.** Other Tire Changer functions require electric power. Step on and hold down the Turntable Foot Pedal to check for electric power. If the Turntable turns, you have power.
- **Make sure there is Tire Lubricant available.** Your shop probably has a brand of Lube that it prefers. Make sure some is in the Lube Bucket on the Tire Changer; be sure to cover it to keep it from getting contaminated and/or drying up quickly. **Always use Lube**; it makes changing Tires easier and helps prevent damage to the Tire and the Wheel. BendPak Ranger recommends using Lube that is recommended by the manufacturer of the Tire you are changing.
- **Test the Tool Arms on the Assist Towers.** Manually move each Tool Arm separately from side to side. Use the Assist Tower Controls to raise and lower the Tool Arms (they move up and down together). If the Tool Arms can do these things, they are working correctly.
- **Change some non-customer Tires.** To get used to the Tire Changer, BendPak Ranger **strongly recommends** that all potential Operators change **multiple** non-customer Tires of different types **before** they start changing customer tires.

## Final Checklist Before Operation

Do the following things **before** putting your Tire Changer into normal operation:

- Review the **Installation Checklist** to make sure all steps have been performed.
- Make sure the Tire Changer is getting electric and pneumatic power.
- Check to see that all Anchor Bolts are in position and tightened, if you anchored the Tire Changer.
- Make sure all Operators have used the Tire Changer to change multiple non-customer Tires.
- Leave the Manual with the owner/operator; make sure they keep it near the Tire Changer.

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# Operation

This section describes how to use your Tire Changer.

It shows and describes the main Tire Changer components involved in demounting and mounting Tires, followed by the necessary procedures.

**⚠ DANGER** Being in close proximity to a Tire Changer is a serious endeavor with potentially life-threatening risks. Only trained, authorized, supervised Operators may be within 30 feet of the Tire Changer while it is in use. ***Do not assume you are going to be safe using the Tire Changer this time just because nothing happened last time.***

## Safety Precautions

Keep the following in mind when using the Tire Changer:

- Make sure all Operators receive specific training in Tire demounting and mounting **before** they use the Tire Changer, that their training is verified through a testing program, and that all training is documented. **All untrained** personnel — including children, customers, and untrained shop personnel — **must** be kept at least 30 feet away from the Tire Changer while it is in use.
- Make sure new Operators are trained and supervised in the performance of their duties.
- Never perform any service on an *inflated* Tire; **always** fully deflate the Tire by removing the Valve Core and letting all air escape **before** beginning work.
- Never mount or change damaged, corroded, rusted, or dirty Tires or Wheels.
- When mounting Tires, identify the maximum allowed inflation pressure; it should be on the sidewall of the Tire; if it is not there, contact the manufacturer. **Never exceed the maximum allowed inflation pressure of a Tire.** Instead, inflate Tires to their *recommended* Tire pressure, which can usually be found in the door jamb of the Vehicle or in the Owner's Manual.
- Make sure the Tire is restrained for inflation: either internally clamped, held down by the Restraint Cone, or in a Tire Inflation Cage (such as the **RIC-4716 4-Bar Tire Inflation Cage from BendPak Ranger**). Do not inflate a Tire if it is *externally* clamped; this interferes with inflation.
- When using the Tire Changer, be careful of your hands; there are multiple pinch point dangers on the unit. **Do not rest your hands on any part of the Tire Changer or the Tire while you are changing a Tire.**

**⚠ WARNING** The Air Chuck has a self-gripping clip so you can clip it on when inflating a Tire, which means you do not have to hold it in place during inflation. **Do not hold the Air Chuck with your hand while you are inflating a Tire.** This leaves you very close to the Tire, which could result in injury if there were a problem during inflation. Instead, clip the Air Chuck into position, move back from the Tire, then press down and hold down the Inflation Foot Pedal.


- You **must** wear OSHA-approved (publication 3151) Personal Protective Equipment at all times when using, maintaining, or repairing the Tire Changer. Leather gloves, steel-toed work boots, eye protection, back belts, and hearing protection are **mandatory**.
- When using the Tire Changer, the Operator must wear **ANSI-approved** eye protection at all times: safety glasses, a face shield, or protective goggles.

**⚠ WARNING** Always wear ANSI-approved eye protection. An accident could cause significant injuries to your eyes.

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- The Tire Changer may work differently than other Tire Changers you have used. BendPak Ranger requires that all potential Operators practice changing non-customer Tires to get familiar with how the product works **before** starting work on customer Tires.
  - Keep the work area clean and well lit. Dirty, cluttered, and dark work areas increase the chances of an accident happening.
  - Do not access the inside of the Tire Changer unless instructed to do so by BendPak Ranger Support.
  - Do not use the Tire Changer in a wet environment or expose it to rain or excess moisture.
  - If you need to use an extension cord to get power to the unit, use one with a current rating equal to or greater than that of the Tire Changer. Cords rated for less current than the Tire Changer could overheat. If used, arrange the extension cord so that it will not be tripped over or pulled out.
  - Do not use anything flammable on the Beads or Rims as lubrication; instead, use non-flammable vegetable or soap-based lubricant.
  - Do not use the Tire Changer in the vicinity of open containers of flammable liquids.
  - Clean the unit according to the instructions in **Maintenance**.
  - Read the entire *Installation and Operation Manual* **before** using the Tire Changer.
  - Make a visual inspection of the Tire Changer **before each use**. Do not operate the Tire Changer if you find any issues. Instead, take it out of service, then contact your dealer, visit [bendpak.com/support](http://bendpak.com/support), or call Bendpak Ranger at **(805) 933-9970**.
  - Always identify and correctly match the Tire and Rim diameters of the Tires you are mounting; **they must match exactly**. If they do not match exactly, this is called a tire mismatch. The result of a mismatch is that the Tire could literally explode off the Wheel when you inflate it or while the Vehicle is being driven. In both cases, people could be injured or killed.

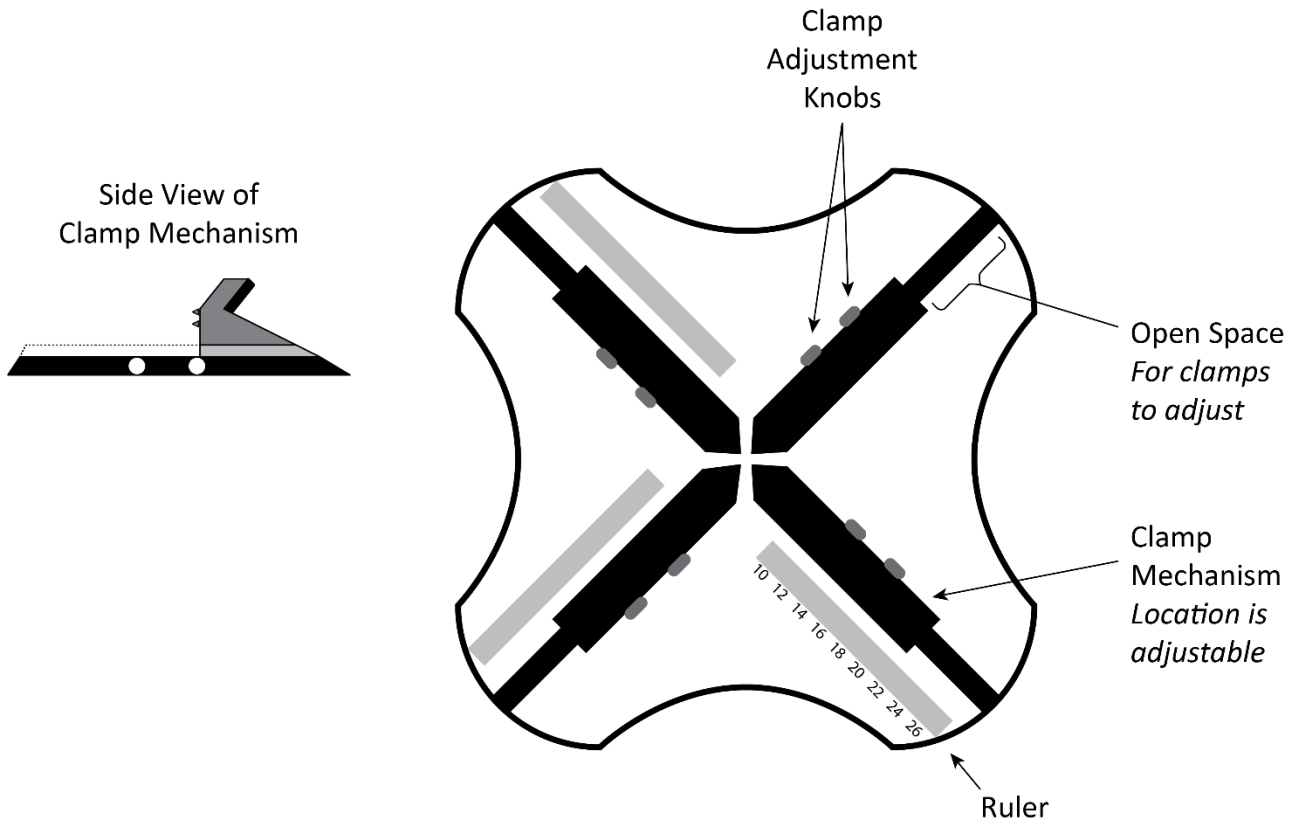
Some people use the phrase “tire mismatch” to mean Tires on a single vehicle with different tread patterns or from different manufacturers. This is not what we are talking about here.

More information is available in OSHA standard 29 CFR 1910.177 (Servicing Multi-Piece and Single Piece Rim Wheels). **All Operators should study this document prior to servicing any Tires.**

-  **WARNING** Be especially careful when inflating Tires. This is a dangerous time when using a Tire Changer. If the Tire and Wheel are mismatched or there is a defect in the Tire, it could explode, injuring or killing the Operator or bystanders. **Never lean over the Tire when inflating a Tire.** Operators should keep their bodies as far away as possible from Tires during inflation.

## Turntable

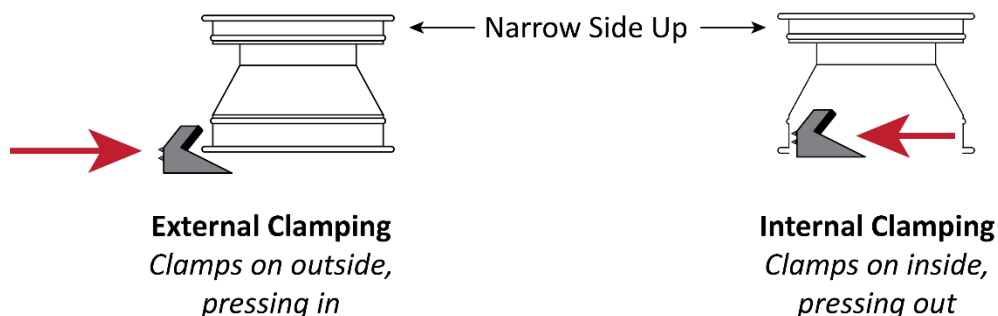
The Turntable is where you put the Wheel whose Tire you are demounting or mounting.



Side and top views. Not necessarily to scale. Not all components shown.

There are several major components of a Turntable:

- **Flat, steel piece.** This is the actual Turntable. It holds the other components. It can rotate either clockwise or counter-clockwise.
  - To rotate the Turntable clockwise: Press **down** and hold down the Turntable Foot Pedal.
  - To rotate the Turntable counter-clockwise: Press **up** and hold up the Turntable Foot Pedal.
- **Clamp Mechanism.** Each Clamp Mechanism includes a Clamp and two Clamp Adjustment Knobs. The Clamp Mechanism moves in and out to clamp Wheels either externally or internally. “External” and “Internal” clamping refer to the location of the Clamp in relation to the Wheel.



Side view. Some components exaggerated for clarity. Large arrows show direction Clamps are pressing. Only one of the four Clamps shown. Not necessarily to scale. Not all components shown.

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As a general rule, you clamp steel Wheels internally (Clamps push out against Wheel) and custom and mag Wheels externally (Clamps push in against outside Rim edge).

Clamps include polyurethane inserts on the inside of each Clamp that will not scratch or mar Rims when clamping externally.

Check with your Supervisor if you are unclear about which method to use for a particular set of Wheels.

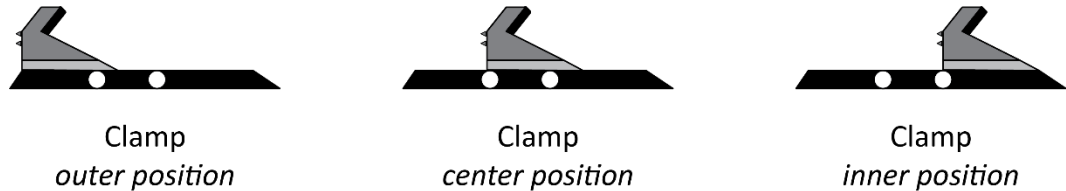
**To clamp externally.** Use the Clamps Foot Pedal to move the Clamps all the way out (they may be all the way out already), put the Wheel between the Clamps, then press down on the Clamps Foot Pedal to move the Clamps in until the Wheel is being firmly held in place.

**To clamp internally.** Use the Clamps Foot Pedal to move the Clamps all the way in (they may be all the way in already), position the Wheel over the Clamps, then press down on the Clamps Foot Pedal to move the Clamps out until the Wheel is being firmly held in place.

**Note:** The Clamps Foot Pedal works as follows: If the Clamps are in the center of the Turntable (all the way in), pressing down and then releasing the Clamps Foot Pedal moves them all the way out. If the Clamps are all the way out, pressing down and then releasing the Clamps Foot Pedal moves them all the way in.

- **Clamp Adjustment Knobs.** Move the Clamp between three different positions within the Clamp Mechanism to accommodate Wheels of different sizes.

All four Clamps **must** be set the same.



**To move a Clamp.** Pull out and hold out the Clamp Adjustment Knob closest to the direction you want to move the Clamp, slide the Clamp in the desired direction, release the Clamp Adjustment Knob.

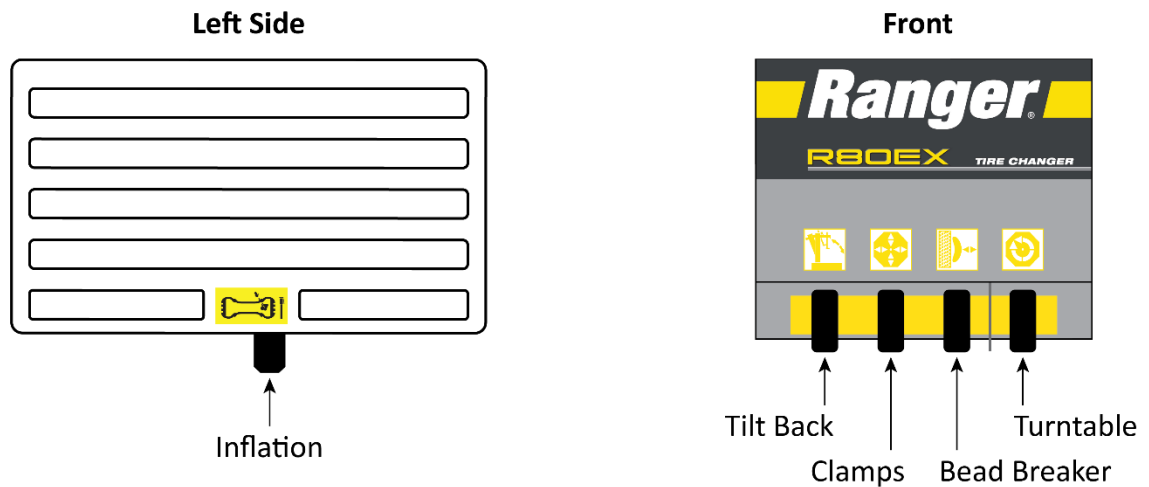
If you want to move the Clamp again in the same direction, repeat the same procedure with the other Clamp Adjustment Knob.

If the Clamp is in the center position, you can only move the Clamp one spot in either direction.

## Pedals

The Tire Changer has multiple Foot Pedals:

- **Inflation Foot Pedal.** Supplies air through the Air Pressure Gauge Cord. All by itself on the left side of the Tire Changer. Press down and hold to inflate a Tire.
- **Tilt Back Foot Pedal.** Controls the Main Tower: moves it forwards or backwards. Press down and release to move the Main Tower back (if it is forward) or forward (if it is back).
- **Clamps Foot Pedal.** Moves the Clamps in or out. Press down and release to move the Clamps to the *opposite* location of where they currently are.
- **Bead Breaker Foot Pedal.** Moves the Bead Breaker Blade in. Press down and hold down to move the Bead Breaker Blade in to break the Bead. Moves out automatically when you release.
- **Turntable Foot Pedal.** Rotates the Turntable. Press down and hold to go clockwise, press *up* and hold to go counter-clockwise.



*Side and front views. Not necessarily to scale. Not all components shown.*

## Pressure Gauge

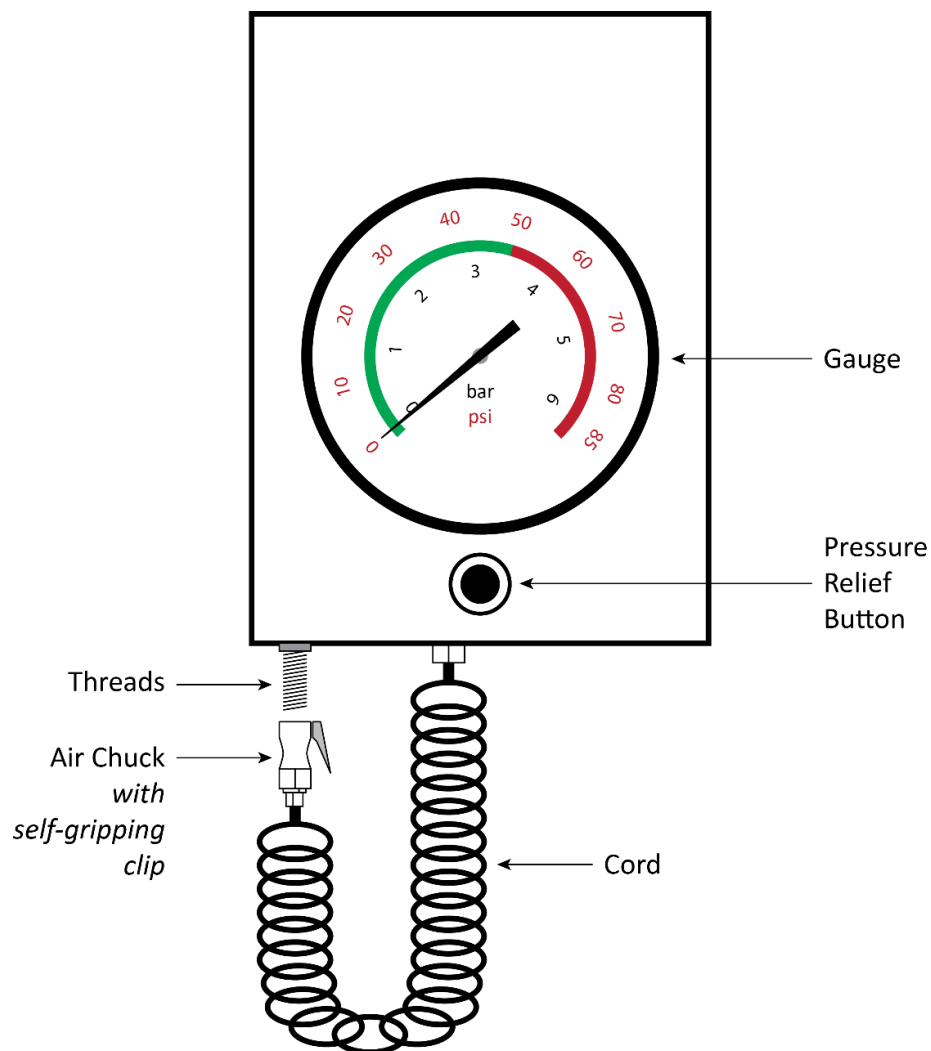
Shows the air pressure in Tires to which the Air Chuck is attached.

The components of the Pressure Gauge are:

- **Gauge.** Displays air pressure in the Tire to which the Air Chuck is attached.
- **Pressure Relief Button.** Removes air from the Tire. Air Chuck must be attached.
- **Cord.** Extends and retracts so you can get the Air Chuck to the Tire.
- **Air Chuck.** Attaches to the threads on the Valve Stem of a Tire. Includes a self-gripping clip so you do **not** have to hold the Air Chuck in place during inflation.

**⚠ WARNING** **Never hold the Air Chuck while you are inflating a Tire.** This leaves you close to the Tire, which could result in injury if there is a problem during inflation.

- **Threads.** Store the Air Chuck here using the self-gripping clip.



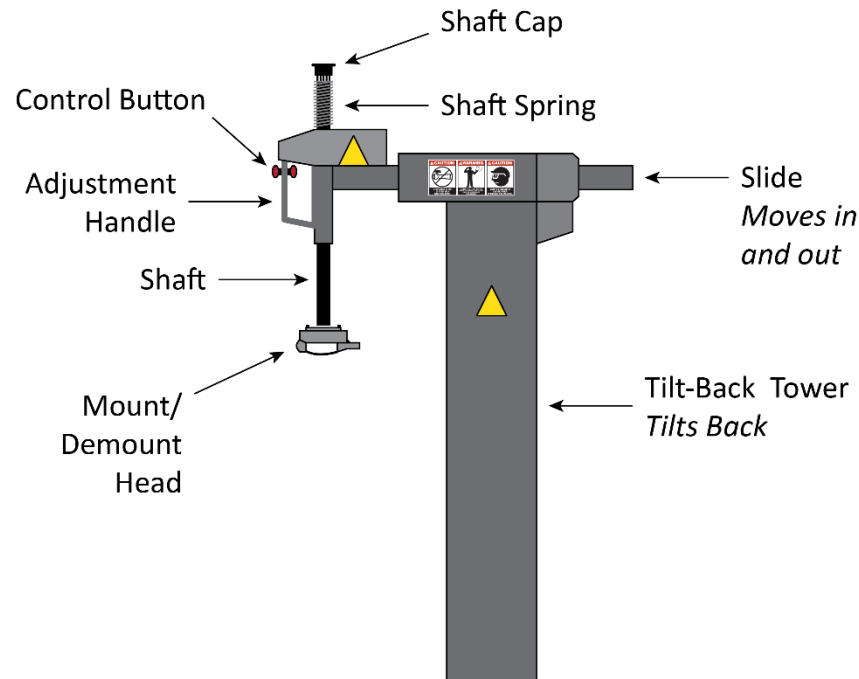
*Front view. Not necessarily to scale. Not all components shown.*

**To see the pressure in a Tire:** Attach the Air Chuck to the Tire Valve Stem; the Air Gauge shows the air pressure currently in the Tire. You do **not** need to press the Inflation Foot Pedal.

**To see pressure during Tire inflation:** Attach the Air Chuck, move back, then press down and hold down the Inflation Foot Pedal. The Gauge shows the air pressure in the Tire as it inflates.

## Tilt-Back Tower

The Tilt-Back Tower holds the main Tire Changer tool, the Mount/Demount Head. It tilts back out of the way when you do not need it.



*Side view. Not necessarily to scale. Not all components shown.*

The main parts of the Tilt-Back Tower are:

- **Mount/Demount Head.** Attaches at the Bottom of the Shaft. The entire purpose of the Tilt-Back Tower is to get the Mount/Demount Head to where you need it and get it out of the way when you do not need it.
- **Shaft.** Moves the Mount/Demount Head up and down.
- **Slide.** Moves the Mount/Demount Head, the Shaft, and the Adjustment Handle in and out.
- **Control Button.** When pressed on the outside, locks the Shaft and Slide at their current positions. When pressed on the inside, unlocks the Shaft and Slide.
- **Adjustment Handle.** Moves the Slide in and out.
- **Shaft Cap.** Moves the Mount/Demount Head down.

Do not grab the Shaft Spring or the part of the Shaft just above the Mount/Demount Head; they are not good options for controlling the Shaft height.

- **Shaft Spring.** Automatically moves the Shaft back up when you unlock the Shaft using the Control Button.
- **Tilt-Back Tower.** Tilts backwards and forwards. Controlled by the Tilt-Back Foot Pedal.

Press down and release the Tilt-Back Foot Pedal to move the Tilt-Back Tower back (if it is forward) or forward (if it is back). Using the Tilt-Back Foot Pedal always moves the Tilt-Back Tower to the opposite position.

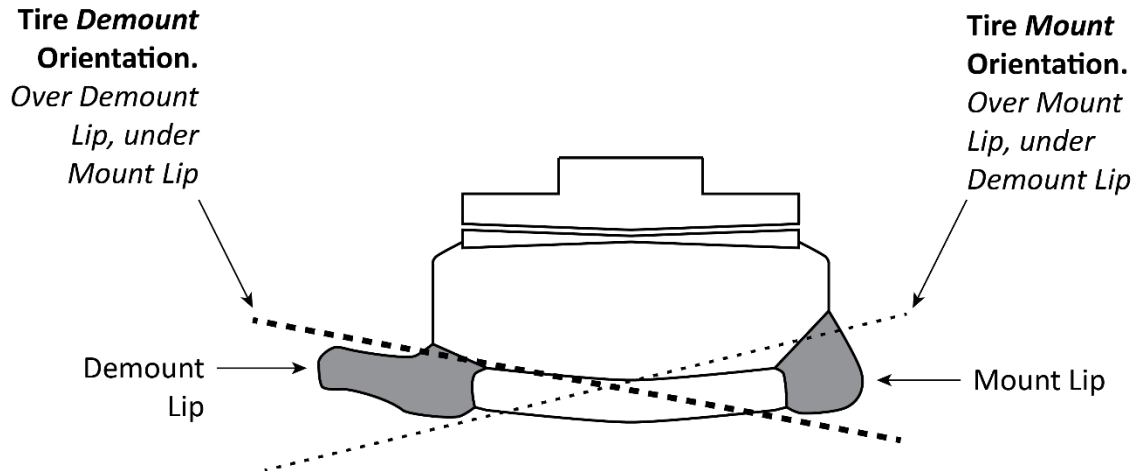


## Mount/Demount Heads

The Mount/Demount Head is the main tool on the Tire Changer for demounting and mounting Tires. The Tire Changer comes with two Mount/Demount Heads:

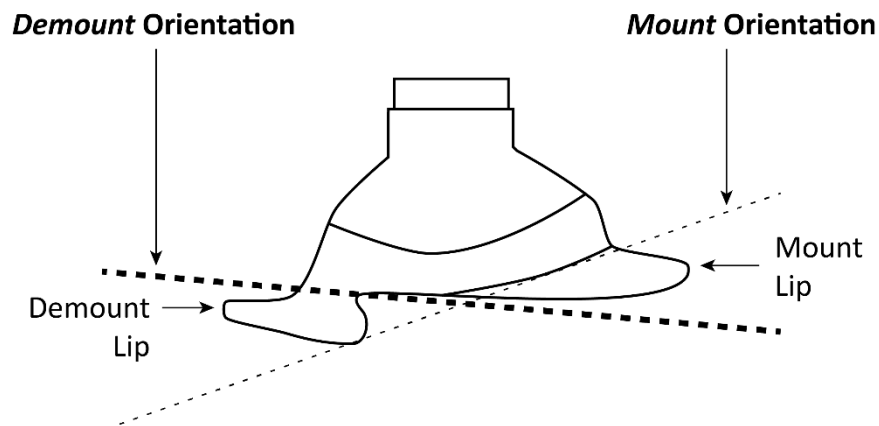
- **Plastic Polymer.** Dark gray color. Non-marring surface will not scratch or otherwise damage paint or powder coating on Wheels.

The following drawing shows the location of the Demount and Mount Lips. It also shows where the Tire Bead goes during demounting and mounting.



*Side view. Set Screws on other side. Not necessarily to scale. Not all components shown.*

- **Alloy Steel.** Silver in color. Includes plastic inserts on the inside to avoid damaging Rims. The following drawing shows the location of the Demount and Mount Lips and demount/mount locations for Tire Beads.



*Side view. Set Screws on other side. Not necessarily to scale. Not all components shown.*

The Demount Lip and Mount Lip work as follows:

- **During demounting.** The Tire Bead goes **over the Demount Lip** and *under the Mount Lip*.
- **During mounting.** The Tire Bead goes **over the Mount Lip** and *under the Demount Lip*.

You can easily switch between the two Mount/Demount Heads using the two Set Screws and a 6 mm hex wrench. Loosen the Set Screws, slide the Head down and off, replace it with the other one, and then tighten the Set Screws.

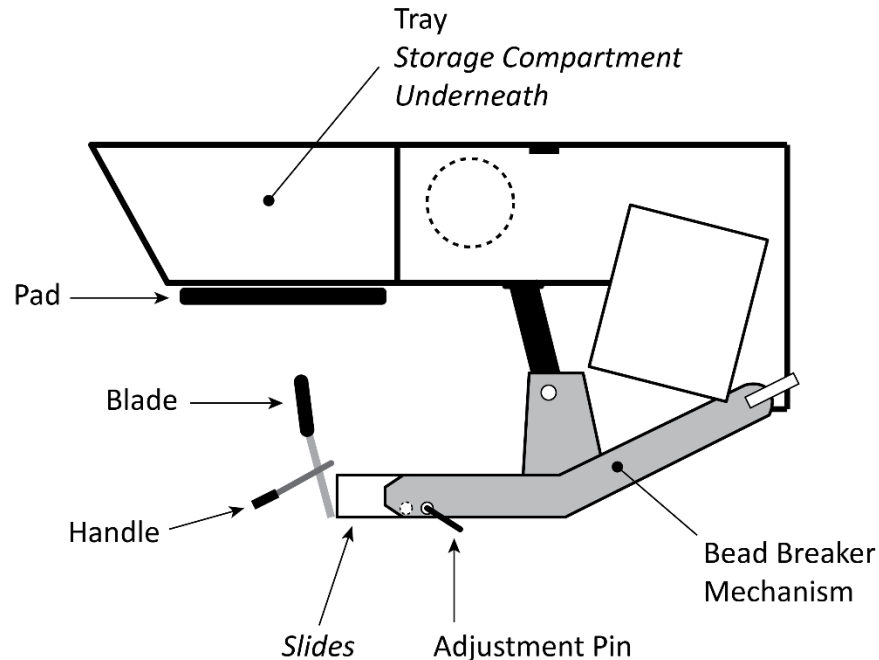
The Alloy Steel Mount/Demount Head includes an *additional* installation bolt that gets put into place from underneath.

## Bead Breaker

Use the Bead Breaker to break the Beads of a Tire you want to demount.

Remember that the Beads of a Tire must be broken on **both sides** of the Tire.

**⚠ WARNING** **Do not break the Beads of a Tire until you are certain the Tire is fully deflated.** Breaking the Bead of a Tire with air still in it could injure you or others nearby. The best way to be sure the Tire is fully deflated is to remove the Valve Core and wait for all of the air to come out.



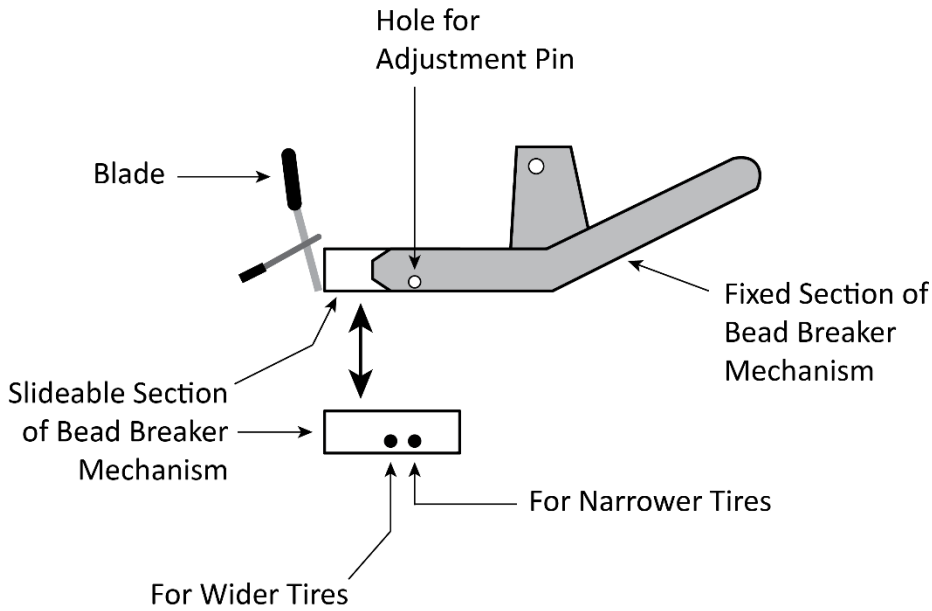
Top view. Not necessarily to scale. Not all components shown.

**⚠ WARNING** **There is a risk of crushing with the Bead Breaker.** Do not hold onto the Blade Handle when the Bead Breaker is moving. After positioning the Bead Breaker Blade, move away from the Bead Breaker, and make sure the area is completely clear **before** pressing the Bead Breaker Foot Pedal.

The main parts of the Bead Breaker are:

- **Bead Breaker Mechanism.** Moves in and out under the control of the Bead Breaker Foot Pedal. Moves with great force; make sure you are completely clear of the Blade and the Bead Breaker Mechanism **before** pressing the Bead Breaker Foot Pedal.
- **Blade.** The part of the Bead Breaker that contacts the Tire and actually breaks the Bead.
- **Blade Handle.** Controls the Blade, moving it side to side and in and out.
- **Pad.** The side of the Tire whose Bead is **not** being broken goes up against the Pad.
- **Adjustment Pin.** Allows you to accommodate Tires of different sizes by controlling the length of the Bead Breaker Mechanism.

The following graphic shows the two locations for the Adjustment Pin.



*Not necessarily to scale. Not all components shown.*

**To use the Adjustment Pin:** remove it from its current location, slide the Blade end of the Bead Breaker Mechanism over until you can see the other hole, then put the Adjustment Pin into the other hole.

## Bead Lifting Tool

Use the Bead Lifting Tool to pull the Tire's Bead up and over the Mount/Demount Tool to help demount the Tire.

You can also use the Bead Lifting Tool to push down the Tire's Bead — to the left of the Mount/Demount Head — during the mounting of a Tire.

The Bead Lifting Tool has an angled and a hooked end. You can use either end.



## Turbo-Blast™ Bead Sealing System

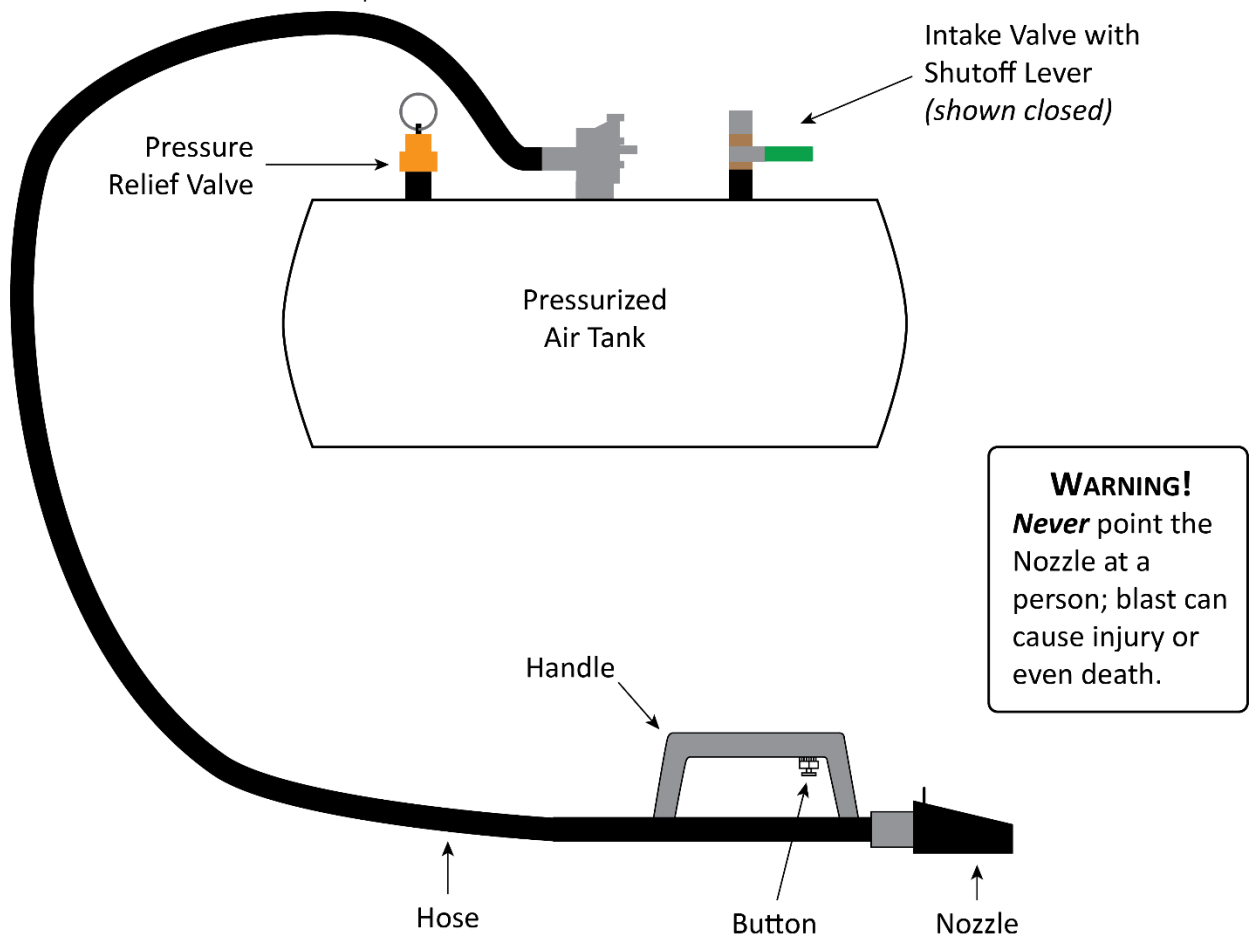
The Turbo-Blast Bead Sealing System, located on the back of the Tire Changer, provides a very strong blast of pressurized air that is useful for sealing a stubborn bead.

The system includes:

- **Pressurized Air Tank.** Holds the pressurized air, enough for multiple blasts of pressurized air.
- **Intake Valve with Shutoff Lever.** When the Lever is open, air from the incoming air source goes into the Pressurized Air Tank. When closed, no air can get into the tank.
- **Pressure Relief Valve.** Releases air pressure from the tank if the pressure gets too high.
- **Hose.** Moves the pressurized air from the tank to the Nozzle.
- **Nozzle.** Where the pressurized air comes out.

**⚠ DANGER** Use extreme care with the Turbo-Blast Bead Sealing System. You could cause product damage, personal injury, or death. **Never** point the Nozzle at a person or thing. **Only use the Turbo-Blast System to seal a Bead; no exceptions!**

- **Handle.** Gives you an easy way to position the Nozzle. **Use both hands.**
- **Button.** Press to release a powerful blast of air.



*Side view. Not necessarily to scale. Not all components shown.*

## Left Assist Tower

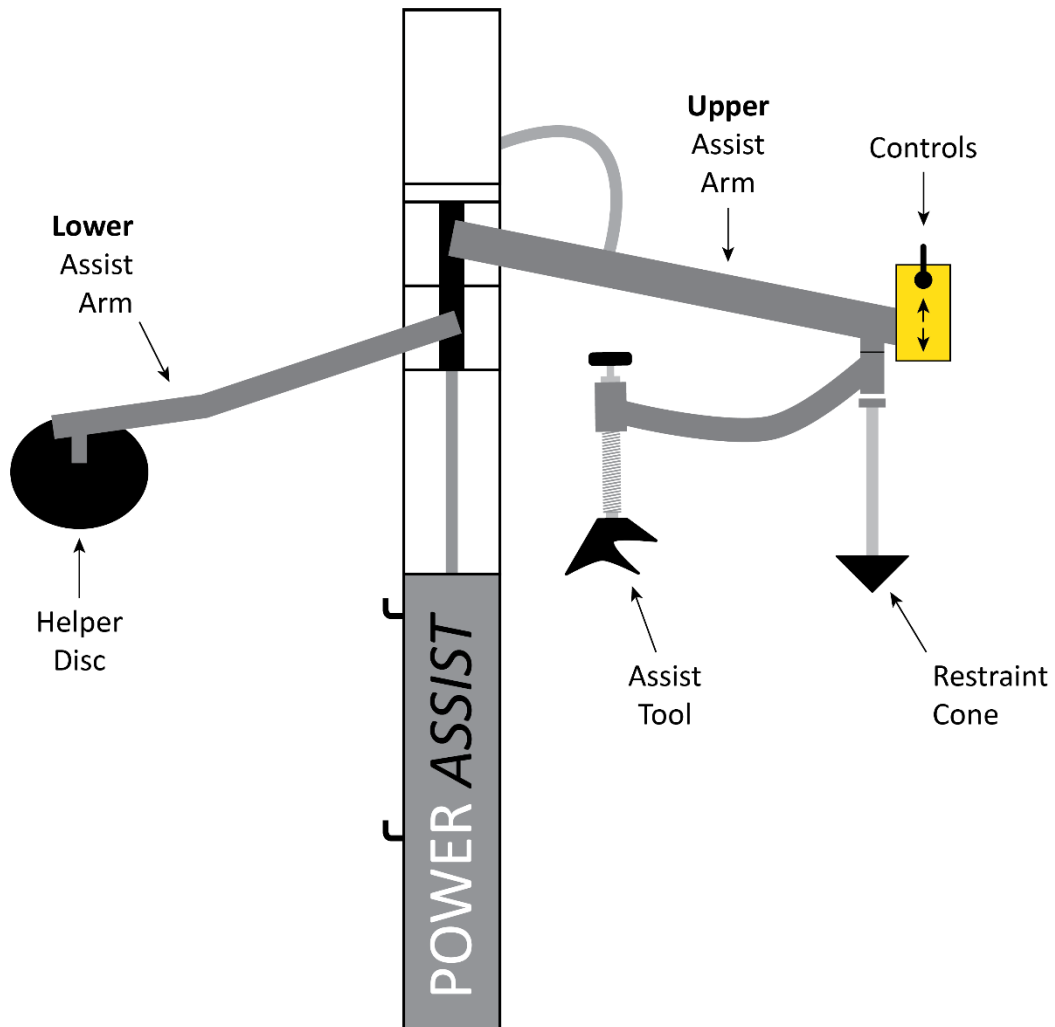
The Left Assist Tower holds Tools that make it easier and safer to dismount, mount, and inflate Tires. The two Assist Tower Arms move up and down as *one*, but move side to side **independently**.

The components of the Left Assist Tower are:

- **Controls.** Moves the two Assist Tower Arms up and down together.
- **Bead Roller.** Holds down the top Bead during mounting.
- **Upper Assist Arm.** Holds two Tools and the Controls.

The two Tools are:

- *Restraint Cone.* Used in two ways. First, when mounting a Tire, use the Restraint Cone to push the Tire down (helpful when clamping a Wheel externally). Second, when inflating a Tire, use to hold the Wheel in position on the Turntable.
  - *Assist Tool.* Used to hold down the top Bead during mounting. Travels with the Tire. Independent, manual adjustment.
- **Lower Assist Arm.** Holds a single Tool:
    - *Helper Disc.* Used to hold up the bottom Bead during demounting.



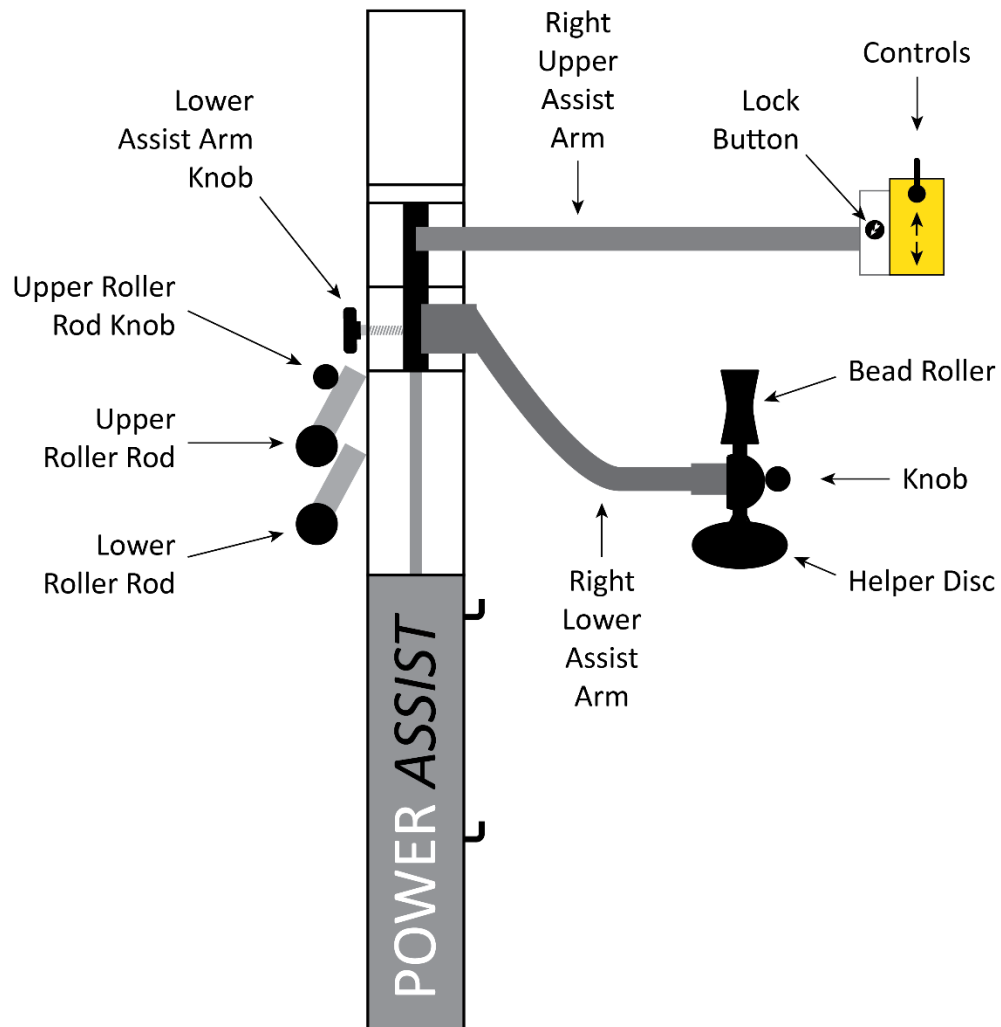
*Front view. Not necessarily to scale. Not all components shown.*

## Right Assist Tower

The Right Assist Tower holds Tools that make it easier and safer to dismount, mount, and inflate Tires. The two Assist Tower Arms move up and down as *one*, but move side to side **independently**.

The components of the Right Assist Tower are:

- **Controls.** Moves the two Assist Tower Arms up and down together.
- **Lock Button.** Locks the Lower Roller Rod.
- **Bead Roller / Helper Disc.** The Knob lets you switch between the two Tools. The Bead Roller holds down the top Bead during mounting. The Helper Disc holds up the bottom Bead during demounting.  
The Lower Assist Arm Knob lets you control how far back the Lower Assist Arm can swing back.
- **Upper and Lower Roller Rods.** Hold down the top Bead during demounting or mounting. Lower Roller Rod can be locked in position.



## Before You Change a Tire

**⚠ DANGER** Do not use the Tire Changer unless you have been properly trained and have read the entire *Installation and Operation Manual*. Tire changing must only be done by trained, authorized, supervised personnel. **Failure to understand and follow proper procedures will result in injury or death.**

Before you change a Tire, you should:

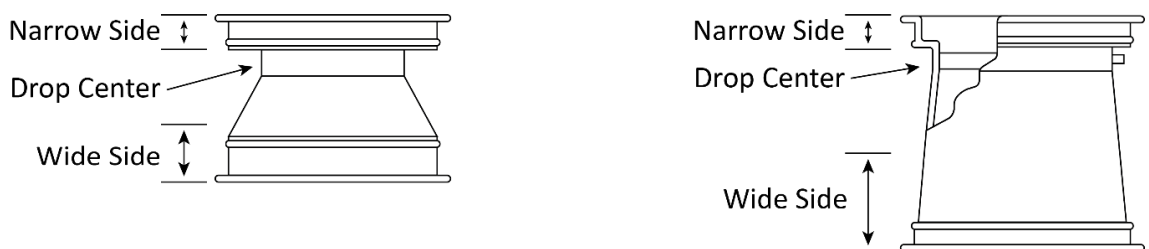
- **Remove weights.** Check the Wheel to make sure that all clip-on and adhesive weights (from having the Tire balanced) have been removed.
- **Deflate the Tire.** This is required. **You must fully deflate Tires before demounting them.**

To make sure a Tire is *fully deflated*, remove the Valve Core from the Valve Stem and then wait for all of the air to come out. You should use a Valve Core Tool for this, but if you do not have one, you may be able to use needle-nose pliers.
- **Have Tire Lubricant ready.** Tire Lubricant makes the process of demounting and mounting Tires much easier. If you do not use Tire Lubricant, you significantly increase the chances of damaging the Wheel and the Tire. Tire Lubricant is not provided with the Tire Changer.
- **Check for damage.** Especially with expensive Wheels, make sure to check them for any damage **before** changing the Tire. Depending on the circumstances, if you find damage you might want to discuss that damage with the owner of the Vehicle and/or photograph the damage. If you work in a shop, talk to your Supervisor regarding policies in this area.

Damaged Wheels and Tires are dangerous to work with. If you are not sure whether a Wheel or Tire is too damaged to work with, talk to your Supervisor.

- **Understand Performance Wheels.** Before servicing performance Wheels, read the Performance Wheels section of this manual and review your shop's policies for them.
- **Identify the Narrow Side/Drop Center of the Wheel.** The rule is: the Narrow Side/Drop Center side of the Wheel gets its Bead broken first and gets put onto the Tire Changer facing **up**. For most Wheels, this means the side of the Wheel facing the *outside* of the Vehicle goes on top, because that's where the Narrow Side/Drop Center side is on most (but not all) Wheels.

The following drawing shows two Wheels and identifies the Narrow Side, Drop Center, and Wide Side of each.



Some aftermarket and OEM performance Wheels are **reverse** drop-center Wheels, meaning the Narrow Side/Drop Center side of the Wheel is the side closer to the *inside* of the Vehicle. The rule still holds for these Vehicles: the Narrow Side/Drop Center side of the Wheel gets put onto the Tire Changer facing up.

- **Ask your Supervisor.** If you have concerns about a Tire you have been asked to demount or mount, or about how to use the Tire Changer, consult with your Supervisor **before** starting work.

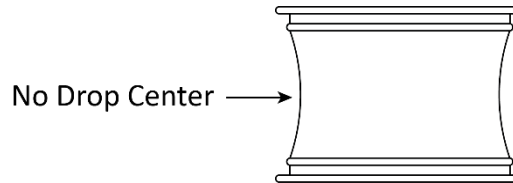
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## Working with Custom and Special Wheels

This section covers working with Alloy Wheels with no drop center, European performance Wheels, and Wheels with tire pressure monitoring systems.

### ***Alloy Wheels***

Some manufacturers offer Wheels with little or no drop center. These types of Wheels are almost never Department of Transportation approved.



**⚠ DANGER** The Tire, Wheel, or both can be damaged and the Tire could explode under pressure, resulting in serious injury or death. ***BendPak Ranger recommends you not try to demount or mount this type of Wheel.*** If you do attempt to demount or mount this type of Wheel, **proceed with extreme caution.**

### ***European Performance Wheels***

Some European performance Wheels have very large humps except near the Valve Hole.

On these Wheels, the Beads should be broken at the Valve Hole on both the upper and lower sides first.

### ***Wheels with Tire Pressure Monitoring Systems (TPMS)***

Some Wheels have a pressure sensor located behind the Valve Stem. On these Wheels, the Beads should be loosened opposite the Valve Stem on both upper and lower sides first, before breaking the Beads on the rest of the Tire.

Performance Wheels on some Vehicles (including Corvette, BMW, and Lamborghini Diablo) have a pressure sensor strapped to the Wheel *opposite* the Valve Stem. On these Wheels, the Beads should be loosened at the Valve Stem on both sides first, before breaking the Beads on the rest of the Tire.

Be mindful of the TPMS sensor when breaking a Tire's Bead, demounting a Tire, and mounting a new Tire. If your shop does not have specific recommendations for handling these situations, BendPak Ranger recommends:

- **When breaking a Tire's Bead.** Keep the TPMS sensor away from where the Bead is being broken. Put the sensor at 12 o'clock high (relative to the ground) when breaking the Bead.
- **When demounting a Tire.** Put the TPMS sensor just to the right of the Mount/Demount Head.
- **When mounting a Tire.** Put the TPMS sensor just to the left of the Mount/Demount Head.

These are general guidelines; be sure to use common sense and take into consideration the specifics of each situation. If you still have concerns, speak to your Supervisor.

**Important:** When you are finished mounting a Tire with a TPMS sensor, make sure it is working. It is against the law to ***knowingly not*** re-install a working TPMS if the Vehicle arrived at the facility with a functioning TPMS. If a Vehicle came in with a functioning TPMS, it needs to leave with a functioning TPMS.

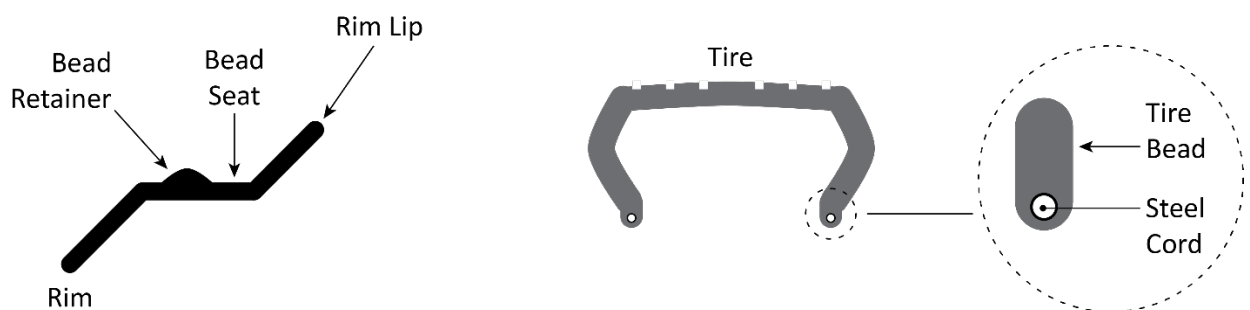


## The Steps in Changing a Tire

Before you start working on a Tire, review the requirements in [Before You Change a Tire](#).

Changing a Tire consists of multiple steps:

1. **Deflate the Tire.** There is pneumatic energy stored in a Tire when it is inflated. You **must fully** deflate the Tire before you can demount it. If you do not, that energy will be released when you try to demount it, which could result in the Tire exploding, causing injury and even death to the Operator or bystanders. **Never work on a Tire unless you have personally confirmed that it is fully deflated.** The best way to do this is to make sure the Valve Core has been removed from the Valve Stem, which lets the air out.
2. **Break the Bead.** Tires stay in position because the Tire Bead is seated between the Bead Retainer and the Rim Lip of the Wheel (called the Bead Seat). To demount a Tire, you must get the Bead out of the Bead Seat all the way around the Tire and on both sides of the Tire. This is called Breaking the Bead. Use care when Breaking the Bead of Wheels with a TPMS.



3. **Secure the Wheel on the Turntable.** It is important for the Wheel to stay in place on the Turntable. The Tire Changer supports both Internal and External Clamping. Make sure to put the Narrow side of the Tire facing up.
4. **Demount the Tire.** Once the Bead is broken, you still have to slide both Beads over the top Rim of the Wheel to get it fully off. Once the Tire is demounted from the Wheel, you can move it out of the way and then mount the new Tire.
5. **Mount the new Tire.** Mounting a Tire is basically the opposite of demounting. You first need to get the Beads under the Rim (the opposite of demounting the Tire), get the Beads into position **in** the Bead Seats (the opposite of Breaking the Bead), and then inflate the Tire (the opposite of deflating the Tire).
6. **Inflate the Tire.** Three separate stages: Bead Seal, Bead Seat, Inflate. **Bead Sealing** is putting in a small amount of air pressure to push the Tire up against the Rim so that no more air leaks out. **Bead Seating** is putting in more air pressure to “pop” the Beads into position in the Bead Seats. **Inflation** is adding air pressure to the Tire manufacturer’s recommended pressure after the Beads have been seated.

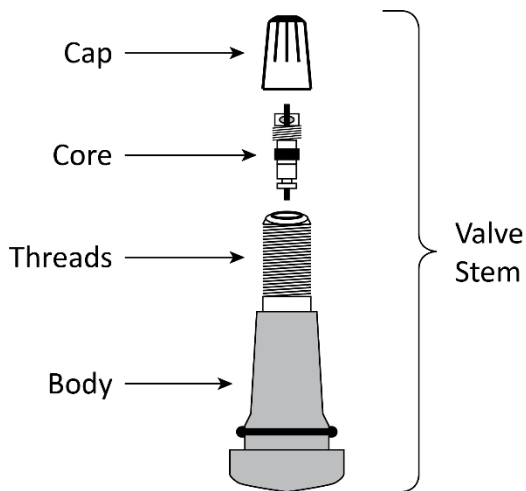
Depending on how much air pressure was needed to seat the Bead, you may have to release some air **out** of the Tire to get to the recommended pressure for the Tire.

7. **Remove the Wheel from the Turntable.** Disengage the Clamps, then move the Wheel and Tire off the Turntable and back onto the ground.

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## About Valve Stems

The following drawing shows a Valve Stem and its components.



This manual talks about Valve Cores and Valve Stems at multiple points:

- **When demounting a Tire.** Taking out the Valve Core lets the air out of the Tire, which **must** be done before you can demount a Tire.

**It is very dangerous to do any service on a Tire if there is air in it.**

There is a tool called a Valve Core Tool that makes it easy to remove a Valve Core.

- **When replacing the entire Valve Stem.** Valve Stems are normally replaced when you mount a **new** Tire on a Wheel.

When mounting a new Tire, BendPak Ranger recommends installing a new Valve Stem, but it is not required. The process for replacing a Valve Stem is to cut out or pull out the old Valve Stem, then install the new Valve Stem. This should be done after the old Tire has been demounted but before the new Tire is mounted.

There is a tool called a Valve Stem Installer/Remover Tool (sometimes Valve Stem Puller/Remover Tool) that can be used to both remove an old Valve Stem and install a new Valve Stem.

This tool is **not** the same tool as the Valve Core Tool.

- **When inflating a Tire.** Before starting the first stage of inflating a Tire (sealing the Beads), remove the Valve Core. **Make sure to keep it.** Removing the Valve Core allows air to move more easily into the Tire.

Once the *second* stage of inflating a Tire (seating the Beads) is complete, put the Valve Core back in. Sealing and seating the Beads do not put too much air pressure into the Tires. Inflating the Tire, the third stage, does. So you want the Valve Core in for the inflation stage, as that will keep the air from coming back out of the Tire.

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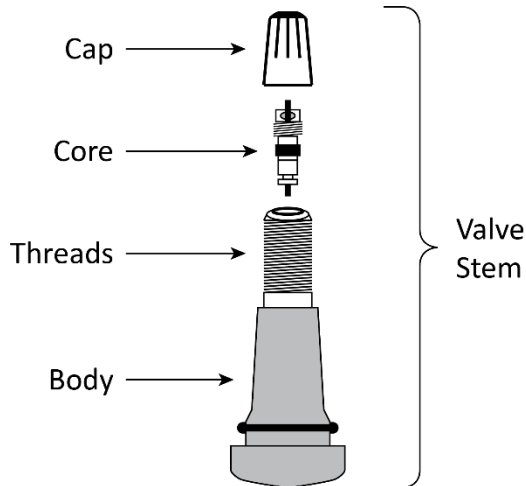
## Deflate the Tire

You must **fully deflate** a Tire before you can demount it.

**⚠ DANGER** Never attempt to demount or mount an **inflated** Tire. They must be deflated. Attempting to demount or mount an inflated Tire could cause it to explode, which could result in injury or even death.

### To deflate a Tire:

1. If the Valve Stem has a Cap on it, remove it.
2. Pull the Valve Core out of the Valve Body.



Use a Valve Core Tool to remove the Valve Core. If a Tool is not available, you may be able to use needle-nose pliers.

If you are going to use the same Valve Stem with the new Tire you are going to mount, keep the Valve Core you just took out.

BendPak Ranger recommends installing a new Valve Stem when you mount a new Tire.

3. Make sure all of the air comes out of the Tire.

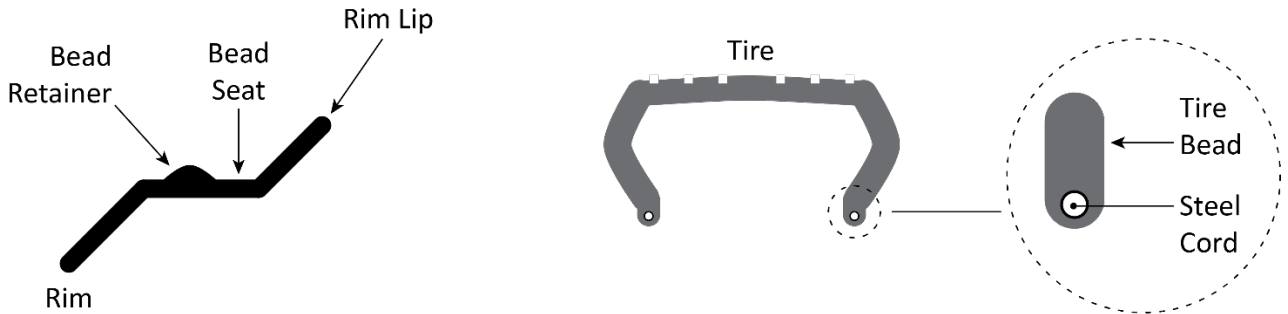
**⚠ WARNING** Do not proceed with any other Tire-changing activity until you are **certain** the Tire is **fully** deflated. Do not demount a Tire until you yourself have made sure the Tire is fully deflated. In other words, do not take someone's word for it. If you are demounting a Tire, **you** must make sure it is **fully** deflated.

## Break the Beads

The Beads must be broken – on both sides of a Tire – before the Tire can be demounted.

**⚠ WARNING** Do not Break the Bead of a Tire until **you** have made sure the Tire is fully deflated. A Tire with air still in it could explode, injuring the Operator or bystanders.

The Bead is broken when the Tire Beads come out from between the Rim Lip and the Bead Retainer (the Bead Seat) all the way around the Tire, on both sides of the Tire.



### To break a Tire's Beads:

1. Make sure you are wearing OSHA-approved (publication 3151) personal protective equipment: leather gloves, steel-toed work boots, back belts, hearing protection, and ANSI-approved eye protection (safety glasses, face shield, or goggles).
2. Check the Tire again to make sure it is **fully** deflated.
3. Check both sides of the Tire to make sure all Wheel weights (from balancing) have been removed. If they have not, remove them.

**⚠ CAUTION** Breaking the Beads of a Tire with Wheel weights could damage the Tire Changer and/or the Wheel.

4. Identify the Narrow side of the Tire whose Beads you are breaking; break this side first.
5. Move the Tire into position between the Pad and the Bead Breaker Blade, with the Narrow side of the Tire on the Blade side.
6. Depending on the size of the Tire whose Bead you are breaking, you may need to adjust the position of the Blade using the Adjustment Pin.

Refer to **Bead Breaker** for more information.

8. If you are Breaking the Beads of a Tire with a TPMS, put the sensor at 12 o'clock high or 6 o'clock low (relative to the ground), to reduce the chances of damaging it.



9. Move the Blade so that it is on the side of the Tire, very close to, **but not touching**, the Rim.

**⚠ CAUTION** Make sure the Blade is **not** touching the Rim. The Bead Breaker Mechanism uses a great deal of force; you will damage the Rim if the Blade pushes on it instead of on the side of the Tire.

10. Step on and hold down the Bead Breaker Foot Pedal.

The Blade moves in, moving the Bead out of the Bead Seat and in towards the Tire's Drop Center. When the Bead breaks, it frequently (but not always) makes an audible popping sound.

11. Release the Bead Breaker Foot Pedal when the Blade goes all the way in or the Bead is broken.

12. If the Blade does not fully move the Bead out of the Bead Seat, adjust the Blade a little bit one way or the other and then repeat Steps 10 and 11.

It may take several attempts to break the Bead.

13. When the Bead is broken at the first spot, rotate the Tire 180° and break the Bead at that location.

Every Tire is different. With some Tires, the entire Bead on one side could be broken with the first use of the Bead Breaker Blade. Other Tires could take multiple attempts until the Bead is broken all of the way around the Tire.

14. When the Bead is completely broken all the way around on one side of the Tire, move the Tire out, turn it around, and then break the Bead on the other side of the Tire.

Again, avoid breaking the Bead at the TPMS; you could damage the sensor.

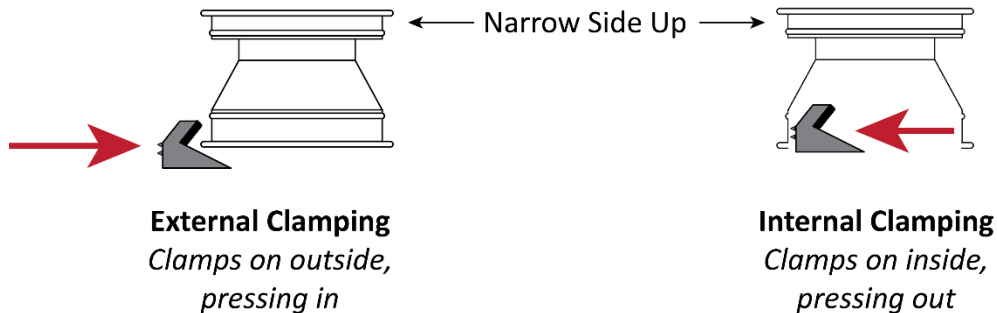
**Important:** It may take you two or three times to break the Bead at any one spot. Nevertheless, keep going until you break the Bead all the way around the Tire and on both sides of the Tire. ***Do not proceed to demounting the Tire until the Bead is broken all the way around and on both sides of the Tire.***

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## Secure the Wheel on the Turntable

Before you can demount a Tire, you must secure the Wheel on the Turntable. The Tire Changer supports two ways of securing the Wheel to the Turntable:

- **External clamping.** The Clamps are on the outside, pressing inwards.
- **Internal clamping.** The Clamps are on the inside, pressing outwards.



As a general rule, steel Wheels clamp internally (Clamps push out against Wheel) and custom and mag Wheels clamp externally (Clamps push in against outside Rim edge). Check with your Supervisor if you are unclear about which method to use.

### To secure a Wheel on the Turntable:

1. Make sure you are wearing OSHA-approved (publication 3151) personal protective equipment: leather gloves, steel-toed work boots, back belts, hearing protection, and ANSI-approved eye protection (safety glasses, face shield, or goggles).
2. Identify the Narrow side of the Tire; this side goes up.
3. Determine which clamping method you are going to use and move the Clamps to the starting position for that clamping method:
  - If you are clamping **externally**, move the Clamps all the way **out**.
  - If you are clamping **internally**, move the Clamps all the way **in**.
4. Put the Wheel onto the Turntable, either between the Clamps that are all the way out for external clamping or over the Clamps that are all the way in for internal clamping.
5. Secure the Wheel by pressing down and then releasing the Clamps Foot Pedal.



### Tip

Clamping externally can be difficult on some Tires. If you are having problems getting the Clamps to clamp externally, use the Restraint Cone to push the Wheel down from above. Pushing down from above moves the Rim away from the Tire a little, making it easier for the Clamps to grab the Rim.

## Demount the Tire

Demounting a Tire is the process of taking a Tire off a Wheel. Specifically, you need to pull the top Bead over the **top** of the Rim, then pull the bottom Bead also over the **top** of the Rim.

**⚠ CAUTION** You **must** use Tire Lubricant; this makes the Tire demount more easily and helps to prevent damage to the Wheel and/or the Tire.

During demounting, the Bead goes over the Demount Lip of the Mount/Demount Head but stays under the Mount Lip. See **Mount/Demount Heads** for additional information.

**⚠ WARNING** The following procedure **requires** that the Tire's Beads are broken on **both** sides. **Do not** try to demount a Tire whose Beads are not broken on both sides; you could damage the Wheel, the Tire, or even injure yourself or bystanders.

### To demount a Tire:

1. Make sure you are wearing OSHA-approved (publication 3151) personal protective equipment: leather gloves, steel-toed work boots, back belts, hearing protection, and ANSI-approved eye protection (safety glasses, face shield, or goggles).
2. Verify that the Tire's Beads are broken all the way around and on **both sides** of the Tire.
3. Apply Tire Lubricant to both the top and bottom Tire Beads and the top Rim.

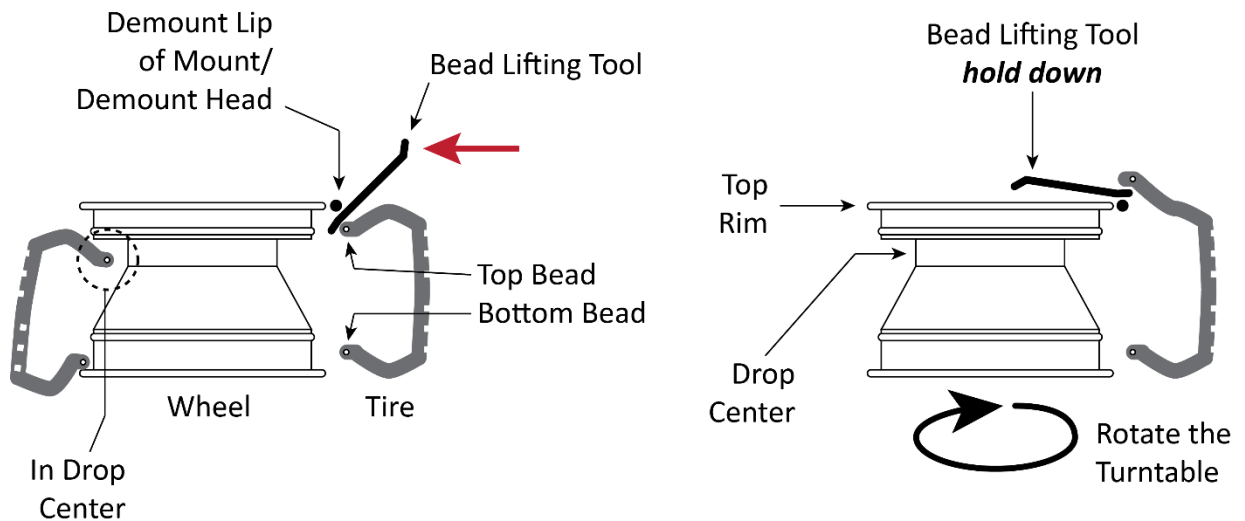
This helps slide the Beads over the Rims more easily.

4. Move the Mount/Demount Head into position, very close to the Rim **but not touching it**, and lock it in position using the Control Button on the Adjustment Handle.

At this point, the top Bead is under both the Mount Lip and the Demount Lip; it needs to be brought up over the top of the Demount Lip.

5. Push the top Bead on the side of the Tire *opposite* the Mount/Demount Head into the Drop Center of the Wheel.

This gives you some extra room to help pull the top Bead over the Demount Lip.



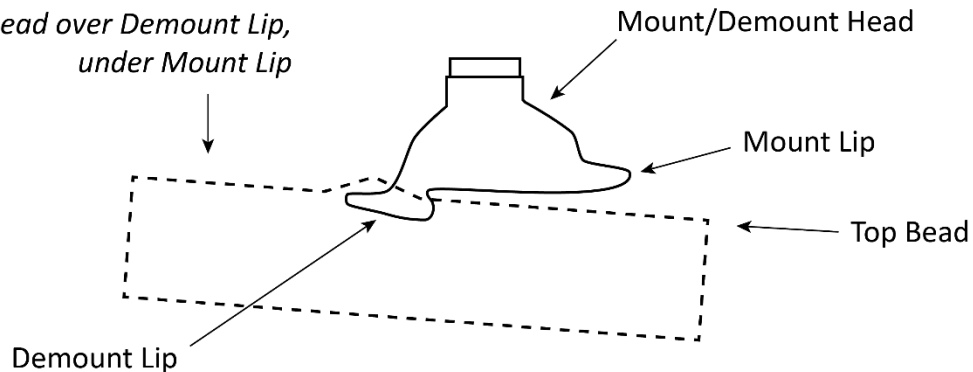
*Side view. Not necessarily to scale.*

6. Take the Bead Lifting Tool, position one end on the outside of the Demount Lip of the Mount/Demount Head, then slide it down between the Demount Lip and the top Tire Bead until it is just past (and a little under) the Bead.

- Carefully push the Bead Lifting Tool in towards the middle of the Wheel in an arc.  
This pulls the top Bead over the Demount Lip of the Mount/Demount Head, which is what you want.

**Top Bead Demount Orientation.**

*Top Bead over Demount Lip,  
under Mount Lip*



**⚠ CAUTION** **Hold on to the Bead Lifting Tool.** Depending on the Tire, it may take a good deal of force to move the Bead up and over the Demount Lip. If you were to release the Bead Lifting Tool at this point, it could easily injure the Operator or damage the Wheel, Tire, or the Tire Changer.

Check to make sure the Bead Lifting Tool is lifting the Tire Bead up and over the Demount Lip of the Mount/Demount Head. If the Tire Bead is **not** coming up and over the Demount Lip, pull the Bead Lifting Tool out and start again. *On some Tires, it may take multiple attempts.*

- When the Bead Lifting Tool has moved all the way over to the middle of the Wheel, check the top Bead to make sure it is above the Demount Lip.

The top Bead **must** be above the top of the Demount Lip to proceed.

*Continue holding the Bead Lifting Tool.*

- Press down and hold down the Turntable Foot Pedal; the Turntable begins turning clockwise.

**Note:** If you have difficulty getting the Turntable to move clockwise, release the Turntable Foot Pedal, keep hold of the Bead Lifting Tool, and then press up on the Turntable Foot Pedal for few seconds to move the Turntable counterclockwise, then press down again to move clockwise. Repeat as necessary to clear up the difficulty.

Watch the top Bead to make sure it is being pushed over the Rim, all the way around the Tire, as the Turntable moves.

- Keep turning the Turntable until the entire top Bead pops over the top of the Rim.
- When the top Tire Bead pops over the Rim, release the Turntable Foot Pedal and remove the Bead Lifting Tool.

The top Bead is demounted.

The next step is to demount the bottom Bead.

- Make sure there is still lubricant on the bottom Bead and the top Rim.

If there is not, put some more on.

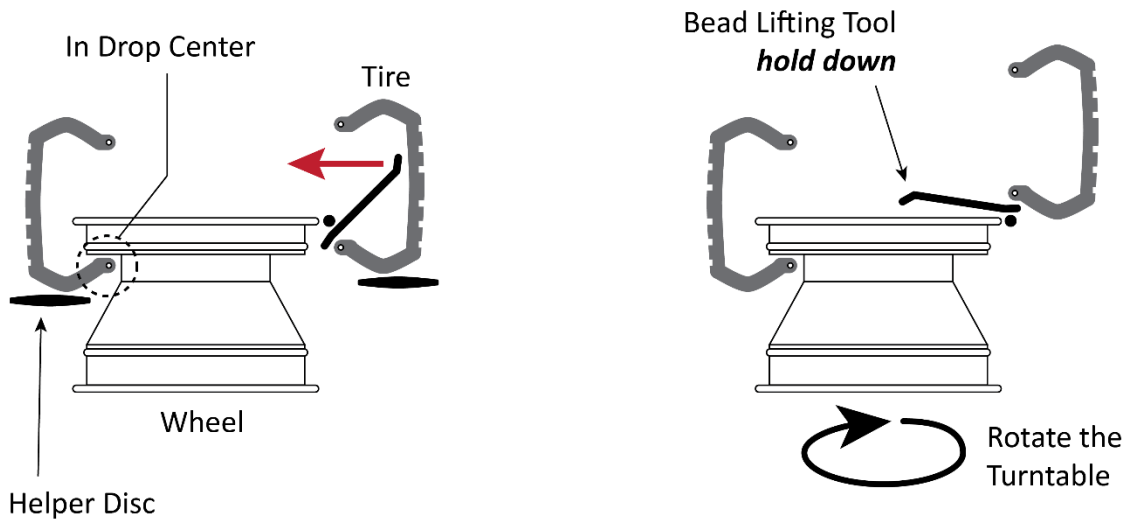
- Push the bottom Bead up as much as possible all the way around the Wheel, then push the side of the Tire opposite the Mount/Demount Head into the Drop Center of the Wheel.

You can use the Helper Discs on the two Assist Towers to help hold up the Tire.



14. Take the Bead Lifting Tool, put it on the outside of the Demount Lip, then slide it down past and under the bottom Bead.

Getting the Bead Lifting Tool into position may be trickier this time, as the rest of the Tire could be in the way as you are trying to get access to the bottom Bead.

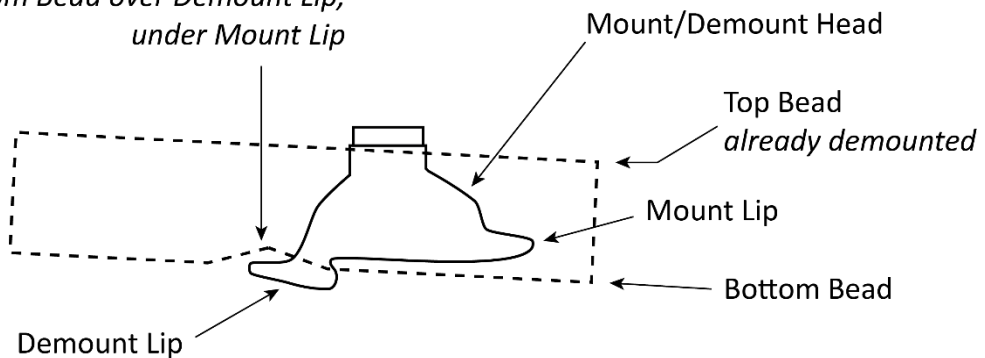


*Side view. Not necessarily to scale. Helper Disc location is adjustable.*

15. Push the Bead Lifting Tool towards the middle of the Wheel in an arc, pulling the bottom Bead over the Demount Lip of the Mount/Demount Head.

**Bottom Bead Demount Orientation.**

*Bottom Bead over Demount Lip,  
under Mount Lip*



16. While continuing to hold the Bead Lifting Tool, press down and hold down the Turntable Foot Pedal to move the Turntable clockwise.

Watch the bottom Bead to make sure it is being pushed over the top of the Rim as the Turntable moves.

17. Keep turning the Turntable until the entire bottom Bead moves over the top Rim.

The Tire is now dismounted and can be removed.

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## Wheel / Tire Mismatches

A Wheel / Tire mismatch is mounting a Tire where the Tire's Bead diameter does not exactly match the Diameter of the Wheel.

**⚠ DANGER** ***A Wheel / Tire mismatch is extremely dangerous.*** A mismatched Tire and Wheel may separate or explode, resulting in injury or even death.

The differences can be subtle, so you must take care to get an ***exact match***.

For example, a 16 inch Tire goes on a 16 inch Wheel, not a 15.5 or a 16.5 inch Wheel. It may be possible to slide the 16 inch Tire over the Rim Lip of a 16.5 inch Wheel, but during inflation it will ***not*** seat properly.

**⚠ WARNING** **Do not** mount a Tire on a Wheel until you, ***yourself***, have positively identified and correctly matched the Tire and Rim diameters. If you try to seat a Tire Bead on a mismatched Wheel and Tire by inflating it, the Tire Bead may break with explosive force, which could result in serious injury or death.

More information is available in OSHA standard 29 CFR 1910.177 (Servicing Multi-Piece and Single Piece Rim Wheels). *All Operators should study this document prior to servicing any Tires.*

**Note:** If you look for additional information about Tire mismatches, you will notice that some resources use the phrase “tire mismatch” to mean Tires on a single vehicle with different tread patterns or from different manufacturers. This is a very different type of mismatch, a much less dangerous one, and is ***not*** what we are talking about here.

## Mount a New Tire

Mounting a Tire is the process of putting a Tire onto a Wheel.

**⚠ WARNING** Mounting a new Tire can be hazardous if not done correctly. Do not mount a Tire unless you have been trained to do so. Failure to understand and follow proper procedures can result in injury or death.

During mounting, the Tire Bead goes over the Mount Lip of the Mount/Demount Head, but stays under the Demount Lip. See **Mount/Demount Heads** for additional information.

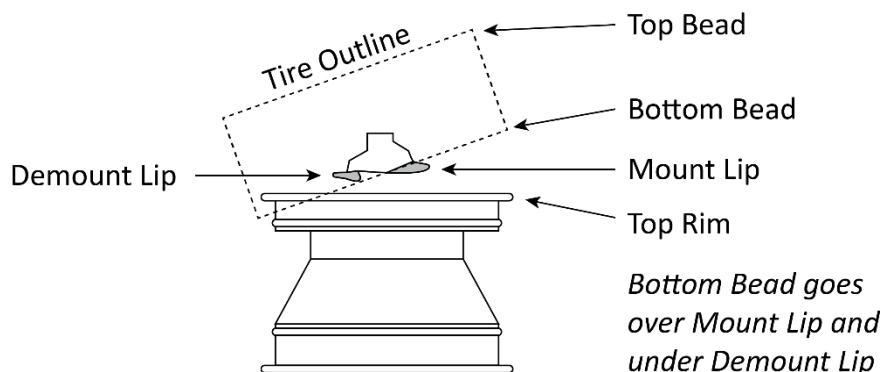
Review the following points before mounting a Tire:

- Check the Tire and Wheel to make sure they are an **exact** match.
- If desired, put in a new Valve Stem before mounting the Tire.
- Make sure the Wheel is free of balancing weights; remove any weights you find.
- Clean the Wheel. Do not mount Tires on Wheels with corrosion, rust, or dirt buildup.
- Check the Tire for damage; **do not mount a damaged Tire**.
- Check the location of the TPMS and adjust the Tire if necessary. Do not damage the sensor.
- Check for yellow and red dots. If found, line them up with the appropriate locations on the Tire.
- Make sure the Tire is **fully** deflated.

When mounting a Tire, mount the bottom Bead first (over the top of the Rim), then the top Bead (also over the top of the Rim).

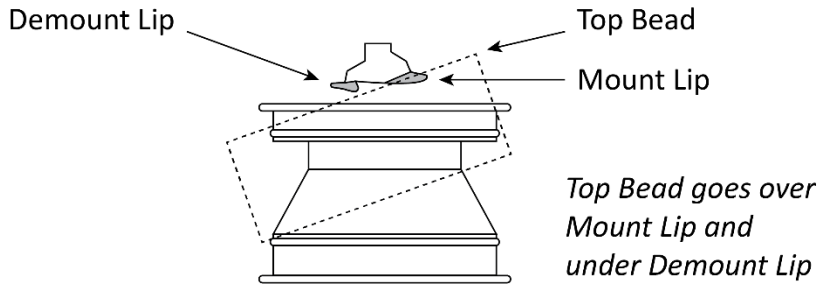
### To mount a Tire:

1. Make sure you are wearing OSHA-approved (publication 3151) personal protective equipment: leather gloves, steel-toed work boots, back belts, hearing protection, and ANSI-approved eye protection (safety glasses, face shield, or goggles).
2. If the Wheel is not already secured on the Turntable with the Narrow Side facing up, move the Wheel onto the Turntable and secure it internally or externally.
3. Apply Tire Lubricant to the top and bottom Beads and the top Rim.
4. Put the Tire over the Wheel, with the side that will be next to the Mount/Demount Head low and the other side high (above the top of the Wheel).
5. Move the Mount/Demount Head into position.
6. Bring up the low side of the Tire and put the **bottom** Tire Bead over the Mount Lip and under the Demount Lip.



Side view. Not necessarily to scale.

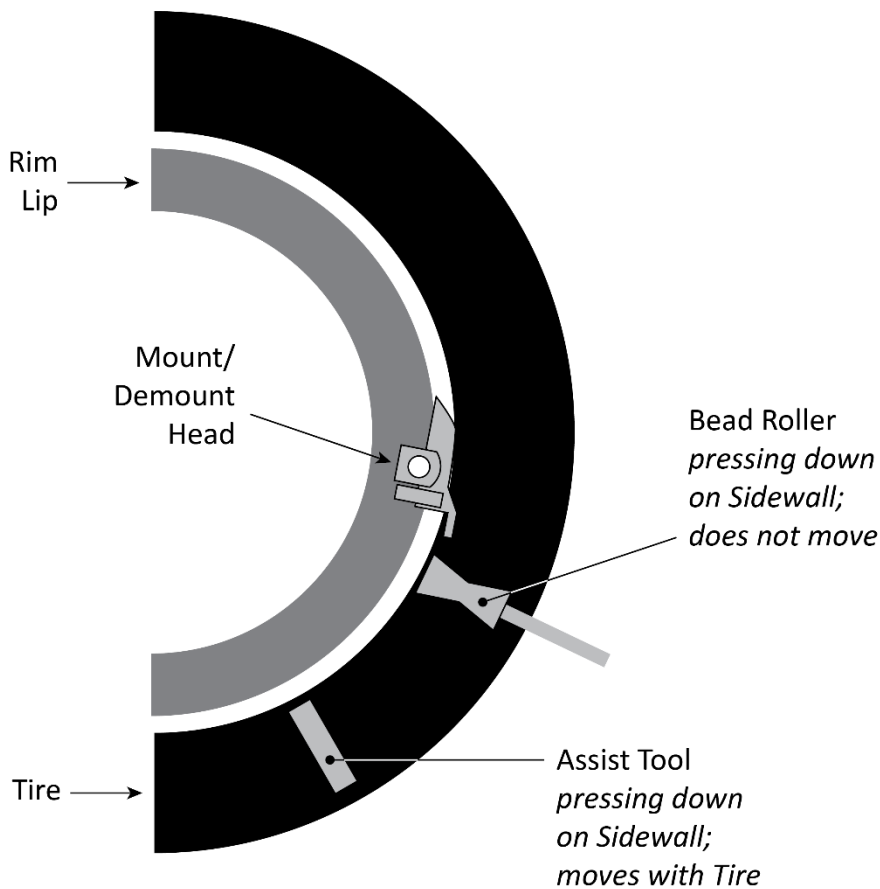
7. Push the side of the Tire furthest away from the Mount/Demount Head down over that side of the Rim and Wheel as far as it will go.
8. Press down on and hold down the Turntable Foot Pedal.  
The Turntable will turn clockwise and the bottom Tire Bead will drop over the top of the Rim.
9. Put the **top** Tire Bead over the Mount Lip and under the Demount Lip.



*Side view. Not necessarily to scale.*

10. Position the Assist Tool, if desired, to the left of the Mount/Demount Head (about 20% of the total distance around the Tire), with it pushing down on the Sidewall of the Tire.

Then position the Bead Roller, if desired, to the left of the Mount/Demount Head, with it also pushing down on the Sidewall of the Tire.



*Top view. Not necessarily to scale.*

When you start rotating the Tire, the Assist Tool, if used, moves with the Tire. The Bead Roller, if used, stays in the same spot.


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11. Press down and hold down the Turntable Foot Pedal to move the Turntable clockwise.

If using the Bead Lifting Tool or Assist Tool to hold down the Sidewall, move them around with the Tire as it rotates.

12. If you run into any difficulty as the Tire rotates, take your foot off the Turntable Foot Pedal to stop the Turntable, then press up on the Turntable Foot Pedal to move the Turntable counterclockwise. Make any necessary adjustments and then proceed.

Eventually the top Bead slips under the Rim. How long this takes can vary, based on the Tire you are mounting. Some Tires are more difficult than others.

 **CAUTION** ***Do not use excessive force.*** If the Turntable slows and then stops while you are holding down the Turntable Foot Pedal, do not try to force it to continue. Using excessive force can damage the Tire, Wheel, or the Tire Changer and voids the Warranty.

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## Inflate the Tire

Tire inflation has three stages:

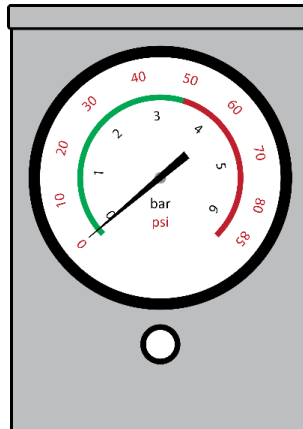
- **Bead sealing** is putting in a small amount of air pressure to push the Tire up against the Rim so the rest of the air you put in does not leak out. *Remove the Valve Core before beginning the Bead sealing*, as that allows more air to go in through the Valve Stem. Remember to put the Valve Core back in once both Beads are seated (before inflation). If you have difficulty sealing the Beads (you hear air escaping from between the Tire and the Rim), you can use the Turbo-Blast™ nozzle. Note that using the Turbo-Blast may seat the Bead as well as seal it.
- **Bead seating** is putting more air pressure into the Tire until you hear a “pop”, which indicates the Beads (on both sides of the Tire) have slipped over the Bead Retainer into their Bead Seats. *Put the Valve Core back in once the Beads are seated.*
- **Inflation** is adding more air pressure to the Tire to get the pressure up to the manufacturer’s recommended pressure for the Tire. **Do not stand over the Tire when inflating it.**

Each of these stages is covered separately below.

**CAUTION** The inflation process can produce noise. Wear ear protection when inflating a Tire.

**WARNING** Do not exceed the maximum air pressure specified by the Tire manufacturer. This increases the chances that the Tire could explode, causing injury or even death to the Operator and bystanders.

Use the Pressure Gauge on the Tire Changer to monitor the air pressure in the Tire you are inflating.



**DANGER** If you are inflating a Tire that requires more than 60 psi, you **must** use a **Tire Inflation Cage such as the RIC-4716** for safety purposes. If a Tire fails at high pressure, it can explode and cause serious injury or death to anyone near it. Using a Tire Inflation Cage helps reduce the danger.

Important inflation notes:

- Identify the **recommended** inflation pressure of the Tire (usually located on a sticker on the driver-side doorjamb) and the **maximum** inflation pressure of the Tire (usually located on the sidewall). When inflating, your goal is the recommended inflation pressure; do not exceed the maximum inflation pressure when inflating the Tire.
- Make sure the Tire is restrained for inflation: either *internally* clamped, held down by the Restraint Cone, or in a Tire Inflation Cage. Do not inflate a Tire if it is **externally** clamped; external clamping interferes with inflation.

## ***Bead Sealing***

To seal a Tire's Beads, you put a small amount of air pressure into the Tire, which pushes the Tire up against the Rim so that additional air you put in does not leak out.

### **To Seal the Beads:**

1. Make sure you are wearing OSHA-approved (publication 3151) personal protective equipment: leather gloves, steel-toed work boots, back belts, hearing protection, and ANSI-approved eye protection (safety glasses, face shield, or goggles).
2. Make sure the Valve Core has been removed.
3. Clip the Air Chuck to the Valve Stem.

The Air Chuck includes a self-gripping clip so you do **not** have to hold it in place during inflation.

**⚠ WARNING** ***Do not hold the Air Chuck while you are inflating a Tire.*** This leaves you close to the Tire, which could result in injury if there is a problem during inflation.

4. Press and hold down the Inflation Foot Pedal for a second or two, then release.

Air goes into the Tire and seals the Bead.

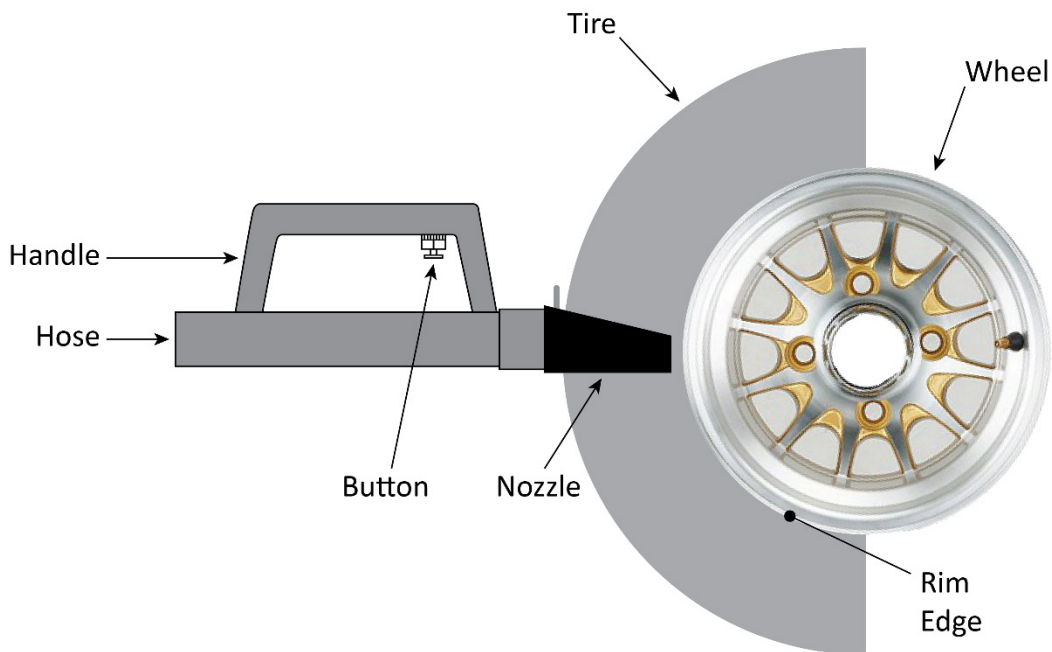
Bead Sealing takes very little air pressure, anywhere from 0 to 3 psi, which you can monitor on the Pressure Gauge.

You know the Bead is sealed when you no longer hear the sound of air coming out from between the Wheel Rim and the Tire Beads.

5. Check to make sure the upper and lower Beads are sealed against the Rim.

If the Beads are **not** sealed, try again, this time putting it slightly more air.

6. If the Bead is still not sealed, position the Turbo-Blast™ nozzle about an inch from where the Wheel meets the Rim Edge and press the Button. You want the air blast to go under the Rim and into the Tire, sealing the Bead.



*Side view shown; nozzle must be held flat to use. Not to scale. Not all components shown.*

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## ***Bead Seating***

To seat a Tire's Beads, you put in additional air pressure until you hear a "pop", which indicates the Tire Beads have slipped over the Bead Retainers into their Bead Seats.

Remember that a Tire has Beads on *both sides* of the Tire. The Beads have to be seated on both sides. Bead Seating is not complete until the Beads are seated on both sides of the Tire.

**⚠ WARNING**    ***Do not exceed 40 psi to seat a Bead.***

The following procedure assumes the Tire's Beads have already been sealed. Do not try to seat the Beads until the Beads have been successfully sealed.

### **To Seat the Beads:**

1. Make sure the Air Chuck is clipped to the Valve Stem of the Tire.
2. Step back from the Tire.
3. Press and hold down the Inflation Foot Pedal.

Air begins flowing into the Tire.

Bead Seating usually requires 7 psi or above.

***Some Beads are hard to seat, but never exceed 40 psi to seat the Bead.***

After a few seconds, you should hear a "pop" as the Beads are seated.

4. Release the Inflation Foot Pedal.
5. When the Beads on both sides of the Tire are seated, remove the Air Chuck from the Valve Stem and **reinstall the Valve Core**.
6. If the amount of air pressure it takes to seat the Beads exceeds the manufacturer's recommended psi for the Tire, use the Pressure Relief Button to remove air pressure from the Tire, bringing it back down to the recommended psi for the Tire.

If air pressure in the Tire gets to 40 psi but the Beads are **not** seated, use the Pressure Relief Button to remove air down to about 5 psi and then try again to seat the Beads. If you lower the psi too far, you may lose the Bead seal and have to do that again.

If the Beads do not seat on a second attempt:

- get a different Tire
- ask your Supervisor for instructions
- let all of the air out of the Tire and start again (seal the Beads and then attempt to seat the Beads again)



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## ***Inflating the Tire***

To inflate a Tire after sealing and then seating the Beads, add air pressure to the Tire to get the pressure to the manufacturer's recommended pressure.

Use the Pressure Gauge to monitor air pressure; do not 'guesstimate' the psi.

**⚠ DANGER** If you are inflating a Tire that requires more than 60 psi, you **must** use a **Tire Inflation Cage such as the RIC-4716** for safety purposes. If a Tire fails at high pressure, it can explode and cause serious injury or death to anyone near it. Using a Tire Inflation Cage helps reduce the danger.

The typical inflation pressure for automobile Tires is from approximately 25 to 45 psi. Light truck Tire inflation pressures typically cover a wider range.

**Do not exceed** the Tire manufacturer's **maximum** air pressure for a Tire. Your goal is to get to the Tire's **recommended** pressure.

The Tire Changer has an air pressure limiter that is set at the factory so that it does **not** exceed 60 psi. **Do not override the pressure limiter.**

**⚠ DANGER** Inflating a Tire with a bypassed pressure limiter could result in the Tire exploding, which could injure or kill bystanders or the Tire Changer Operator.

### **To inflate a Tire:**

1. Verify that both the Beads on both sides of the Tire are sealed and seated.
2. Verify that the Valve Core has been put back in.
3. Make sure the Tire is restrained: either **internally** clamped, held down by the Restraint Cone, or in a Tire Inflation Cage.

Do not inflate a Tire if it is *externally* clamped; external clamping interferes with inflation.

4. Make sure the Air Chuck is clipped to the Valve Stem of the Tire using the self-gripping clip.
5. Step back from the Tire.


**⚠ DANGER** Do **not** stand over the Tire when inflating it. If the Tire explodes during inflation (which does not happen often, but does happen), you could be injured or killed if you are standing over the Tire when it explodes.

6. Press and hold down the Inflation Foot Pedal.  
Air begins flowing into the Tire.
7. Inflate the Tire to the manufacturer's **recommended** psi by monitoring the Pressure Gauge.  
If you go over the recommended psi, use the Pressure Relief Button to remove air pressure from the Tire to bring it back down to the recommended psi.
8. When the Tire is inflated, release the Inflation Foot Pedal.
9. Remove the Air Chuck from the Valve Stem.
10. Take the Wheel off the Tire Changer.

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# Maintenance


Make sure your Tire Changer is maintained on a regular basis.

 **WARNING** Disconnect the Tire Changer from power and incoming air **before performing any Maintenance**. Take whatever steps are necessary to make sure the unit cannot be re-energized until Maintenance is over (such as Lockout/Tagout). Because the unit uses electrical and pneumatic energy, you could be electrocuted or even killed if the unit is powered back on during Maintenance.

The Tire Changer uses pneumatic and electrical energy; if your organization has **Lockout/Tagout policies**, make sure to implement them before performing maintenance on the Tire Changer.

## Regular Maintenance

- **Daily:** Make sure the unit is clean and dry.
- **Weekly:** Check all labels to make sure they are in place and legible. Contact BendPak Ranger if replacement labels are needed.
- **Weekly:** Check the water level of the Regulator/Filter. If the reservoir is one quarter (25%) or more filled with water, drain it. Refer to **Check the Water Level** for instructions.
- **Weekly:** Check the oil feed rate of the Lubricator. It should be 1 to 2 drops per use of a pneumatic component. If it is above or below this level, you need to adjust it. Refer to **Check the Oil Feed Rate and Adding Oil** for instructions.
- **Weekly:** Check the amount of pneumatic oil in the Lubricator reservoir. If it is under one half (50%) full, add oil. Refer to **Check the Oil Feed Rate and Adding Oil** for instructions.
- **Monthly:** Check the accuracy of the Inflation Gauge using a pressurized Tire and a high-quality pressure gauge. Fix immediately if not working correctly.
- **Monthly:** Make sure all Anchor Bolts are tightened and secure, if used.
- **Monthly:** Make sure all components are in good operating condition. If you find a component that is **not** working correctly, take the Tire Changer out of service and refer to **Troubleshooting** for more information.
- **Twice a Year:** Have a licensed Electrician check the electronic components.
- **Yearly:** Take the Tire Changer out of service, disconnect it from power, and then thoroughly check and clean all components.

 **WARNING:** Do not operate your Tire Changer if you find issues; instead, take the unit out of service, then contact your dealer, visit [rangerproducts.com/support/](https://rangerproducts.com/support/), or call **(805) 933-9970**.

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## Check the Water Level

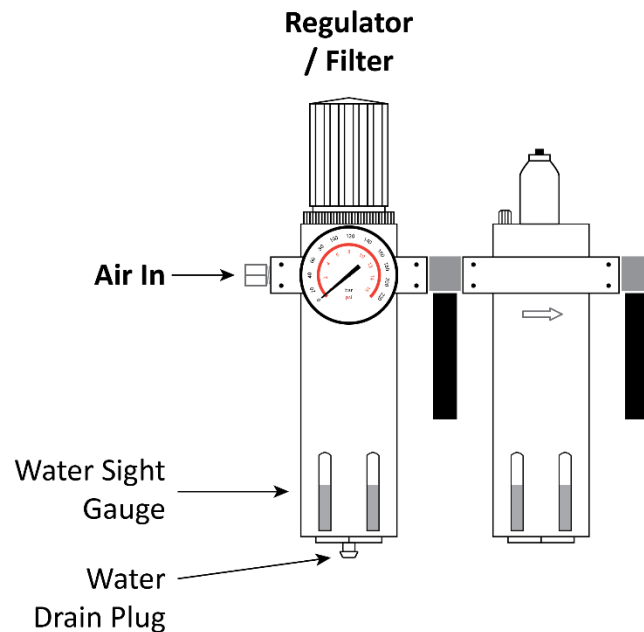
Water coming in via the incoming air is removed by the Regulator/Filter and dropped into the reservoir at the bottom.

This water needs to be drained periodically.

### To drain water from the Regulator/Filter reservoir:

1. Check the Water Sight Gauge to see how much water is currently in the reservoir.  
If the reservoir is one quarter (25%) or more filled with water, you need to drain it.
2. Disconnect the incoming air at the Air In connector.

**⚠ WARNING** Make sure to disconnect the incoming air and make sure it cannot be reconnected until you are done draining the water from the Regulator/Filter. If the incoming air is reconnected during the procedure, it could damage the Regulator/Filter, the Tire Changer, and possibly injure bystanders.



3. Press upwards on the Water Drain Plug at the bottom of the reservoir.  
The water drains out.
4. Release the Water Drain Plug.
5. Re-connect the incoming air.

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## Check the Oil Feed Rate and Adding Oil

The built-in Lubricator adds pneumatic oil to the incoming air. This ensures that all pneumatic components of the Tire Changer receive the necessary lubrication, which maintains operating performance, reduces wear, and extends service life.

It is very important to make sure the oil feed rate is correct, 1 or 2 drops of oil per use of pneumatic component (such as the Clamps Foot Pedal), and that there is enough pneumatic oil in the Oil Reservoir of the Lubricator.

### To check the oil feed rate on the Lubricator:

1. With the Air Source connected, press down on the Clamps Foot Pedal for several seconds.  
You do not need a Tire, you just need to use a pneumatic tool.
2. Watch the Sight Glass to see how much pneumatic oil comes out each time you press down on the Clamps Foot Pedal.  
Your goal is for 1 or 2 drops to come out each time.
3. If you are getting **fewer** than 1 or 2 drops, turn the Adjustment Screw counter-clockwise (using a small flat-head screwdriver), then press the Clamps Foot Pedal again to check the output.
4. If you are getting **more** than 1 or 2 drops, turn the Adjustment Screw clockwise, then press the Clamps Foot Pedal again to check the output.
5. When you are getting 1 or 2 drops, stop turning the Adjustment Screw.

### To add pneumatic oil to the Lubricator:

1. Check the Oil Sight Gauge to see how much pneumatic oil is currently in the reservoir.  
If the reservoir is less than one half (50%) filled with pneumatic oil, you need to add oil to it.
2. Disconnect the incoming air at the Air In connector.
3. Turn the Oil Fill Cap on the top of the Oil Reservoir counter-clockwise and pull it off.
4. Add SAE 10W Air Tool Oil or generic pneumatic oil to the reservoir.
5. Put the Oil Fill Cap back in place, turning it clockwise until tight.
6. Re-connect the incoming air.

# Troubleshooting

**⚠ WARNING:** Disconnect the Tire Changer from power and incoming **before performing any maintenance**. Take whatever steps are necessary to make sure the unit cannot be re-energized while maintenance is being performed on it (such as Lockout/Tagout). The unit uses pneumatic and electrical energy; if your organization has Lockout/Tagout policies, make sure to implement them before troubleshooting the Tire Changer.

Issue	Action to Take
The Turntable does not move when you step on the Turntable Foot Pedal.	Make sure the unit is getting power.
The unit is not getting power.	Have a licensed, certified Electrician check the electrical path from the supplied cord to the power source. If any issues are found, have them fixed. Refer to <b>Wiring Information</b> for additional information.
No air comes out of the Air Hose when you step on the Inflate Foot Pedal.	Make sure the unit is correctly connected to a working incoming air source.
It is difficult to secure Tires when clamping externally.	Use the Restraint Cone to press the Tire down so the Clamps correctly grab the Rim of the Wheel.
The Pressure Gauge is not working correctly.	Check the accuracy of the Pressure Gauge with a professional gauge. Fix immediately if the Pressure Gauge is not working correctly.
The Bead Breaker does not work correctly or works but makes strange noises.	Review the Installation to make sure the Bead Breaker Mechanism was installed correctly.
The Assist Arms move up and down slowly or make odd noises when moving.	Grease both Assist Tower Posts. Refer to <b>Grease the Assist Tower Posts</b> for more information.

If you continue to have problems with your Tire Changer, visit [www.bendpak.com/support/](http://www.bendpak.com/support/) or call **BendPak Ranger at (805) 933-9970**.

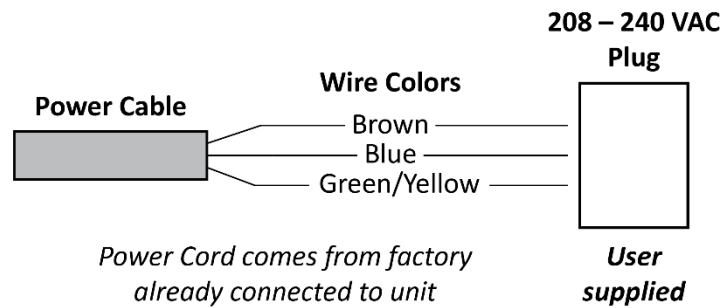
# Wiring Information

The Tire Changer comes with a Power Cord with three exposed wires. The three exposed wires need to be hard-wired to the facility's power system **or** connected to a 208-240 VAC Plug (which is then connected to a power outlet).

**⚠ WARNING:** All electrical work, such as hard-wiring the unit to the facility's power system or attaching a Plug to a Power Cord, **must be done by a licensed, certified Electrician** in accordance with all applicable local electrical codes. Damage to the unit caused by improper electrical installation voids your warranty.

The Tire Changer does **not** come with a 208-240 VAC **Plug**; you must supply one.

The colors of the three exposed wires are Brown, Blue, and Green/Yellow, the European color code. The Green/Yellow wire can sometimes appear almost all Green, with very little yellow. This is fine.



**Important:** To connect the three exposed wires to an appropriate Plug or to hard wire them, have your Electrician follow the electrical codes for the country in which you are using the unit and any local electrical codes.

If you are using the unit in the United States, for example, the color codes on the wiring that comes with the Tire Changer correspond to:

- **Brown:** Live
- **Blue:** Live
- **Green/Yellow:** Ground

If you were using the unit in a European country, for example, the color codes on the wiring that comes with the Tire Changer correspond to:

- **Brown:** Live
- **Blue:** Neutral
- **Green/Yellow:** Ground

Information about color code conventions in other regions and countries is available online. Make sure your Electrician installs the Plug or hard wires the Tire Changer in accordance with all applicable local electrical codes.

# Labels

**A**

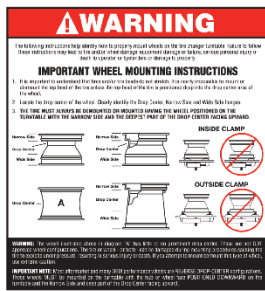


R76ATR version. R76LT says "R76LT".

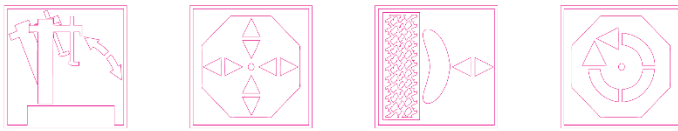
**B**



**C**



**D**



**E**



**F**



**G**



**H**



**I**



**J**



**K**



**L**



**M****N****O****P**

**POWER ASSIST**

**Q**

## ! IMPORTANT

### FILTER / REGULATOR LUBRICATOR INSTRUCTIONS

#### WARNING!

Failure to regularly drain water and maintain proper oil level and oil feed rate will damage internal pneumatic components and void product warranty.

The inline lubricator helps ensure that all pneumatic components inside this machine receive the required lubrication to maintain operating performance, reduce wear and prolong service life. It is designed to automatically provide the correct amount of oil feed rate required within the pneumatic system delivering a constant ratio of oil to CFM.

The filter/regulator is designed to remove airborne solid and liquid contaminants which may plug small orifices and hinder performance or cause excessive wear and premature equipment failure. The regulator provides controlled and consistent air pressure as required. NOTE: This model requires 15-25 CFM air source with a safe operating air pressure of 140-165 PSI for optimum machine performance.

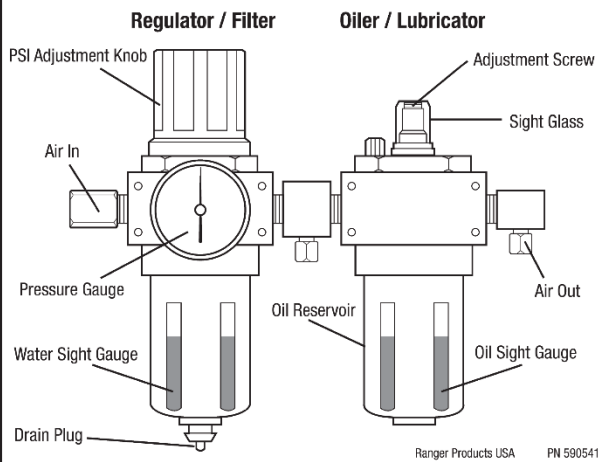
#### Water Separator / Lubricator Maintenance

- Check oil and water levels regularly and perform these maintenance items weekly.
- Observe the water sight gauge on the water separator/filter unit. If water is observed, drain by pressing upwards on the drain plug at the bottom of the reservoir.
- Observe the sight glass and adjust the oil feed rate by turning the small adjustment screw on the top of the glass bowl so that 2-3 drops of oil drip through the sight glass for each operation of the bead loosener pedal.

#### Adding Oil to Oiler / Lubricator

If oil level is low, add oil as follows:

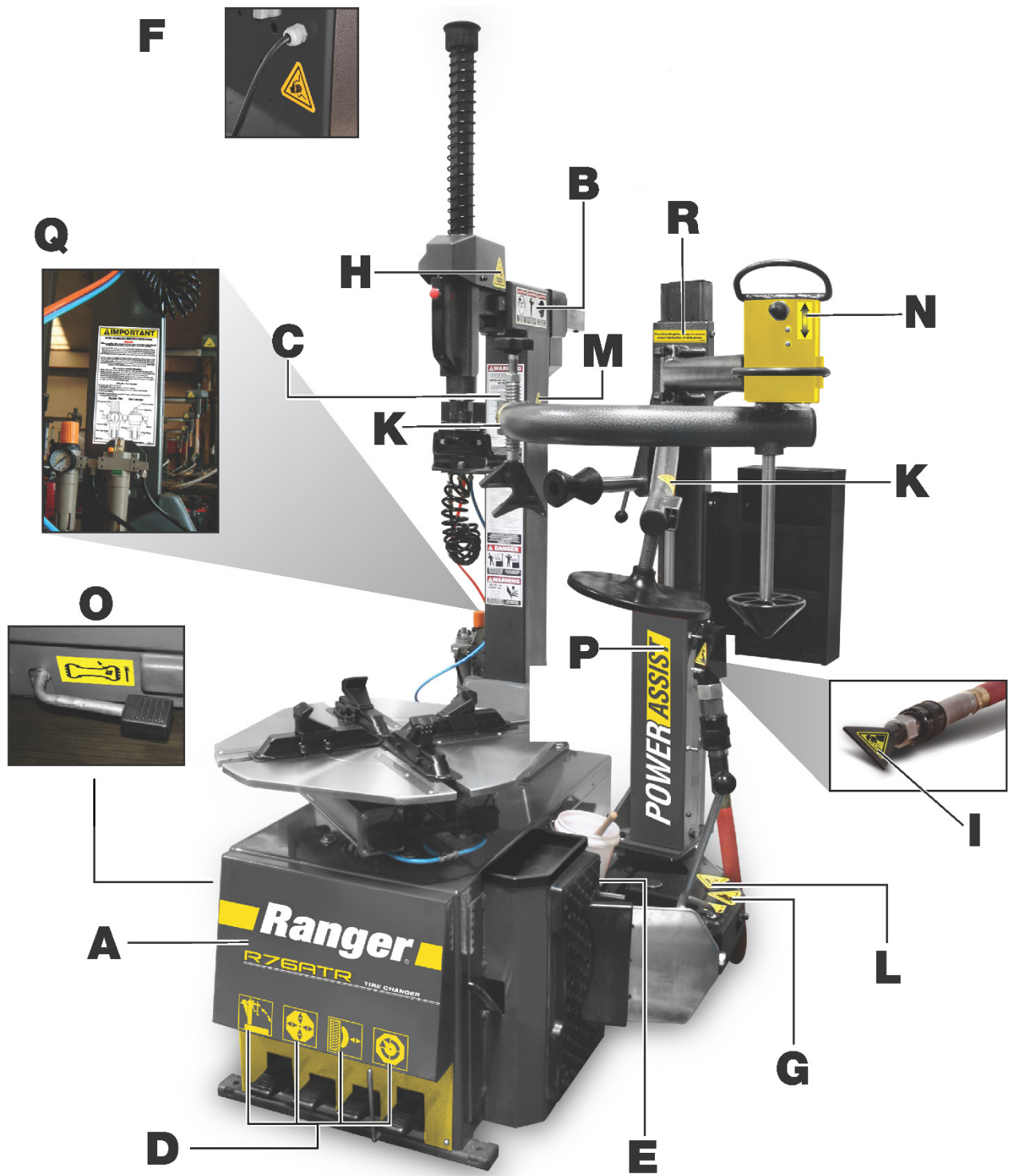
1. IMPORTANT - First disconnect air source from machine.
2. Remove oil reservoir by unthreading reservoir from head of oiler/lubricator.
3. Add oil as necessary.
4. Replace reservoir making sure rubber O-ring is seated properly and reservoir is firmly tightened hand-tight.

**R**

Use Moly-Graphite Grease to ensure proper lubrication of slide plates.

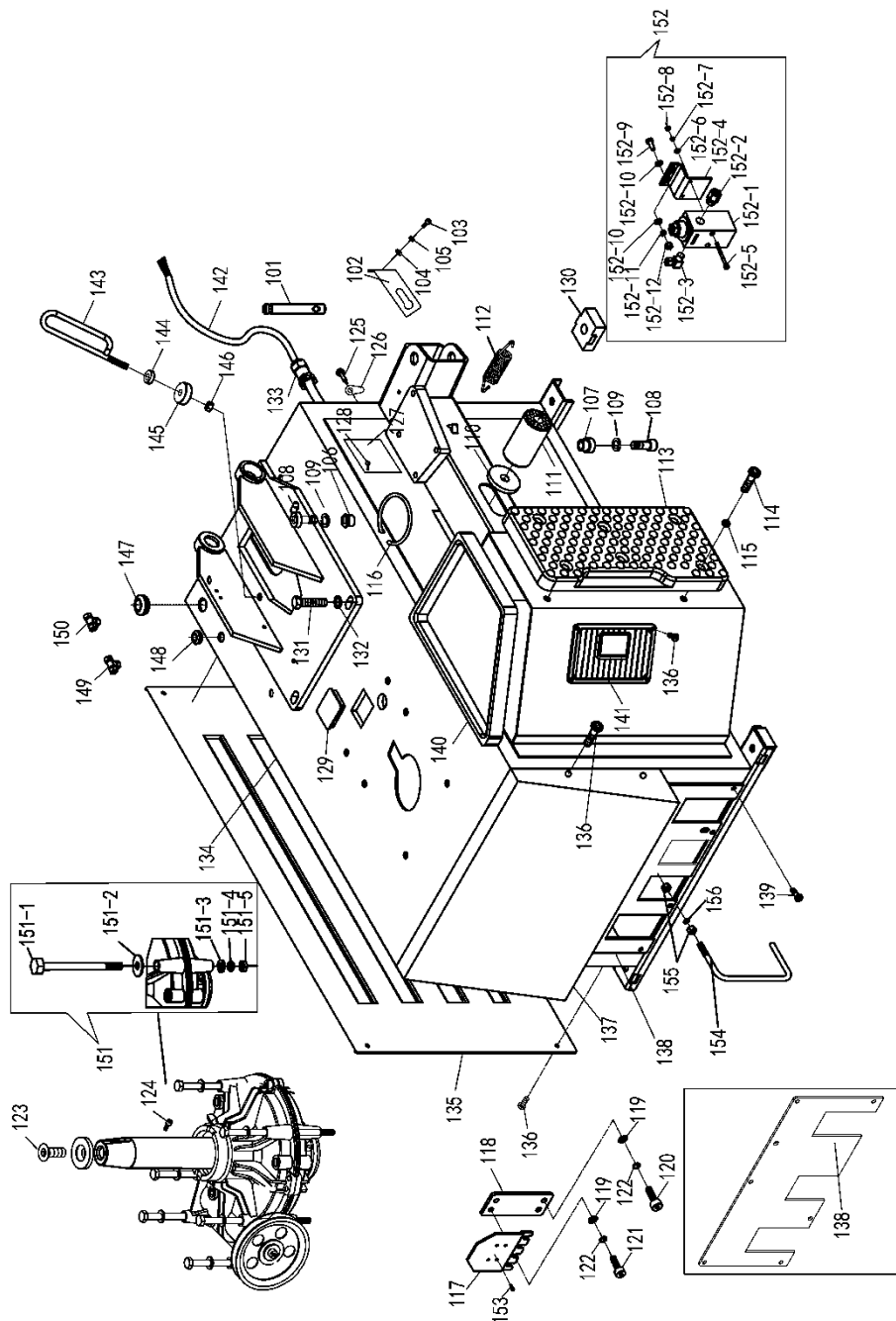
PN 5905386





# Parts

## Cabinet

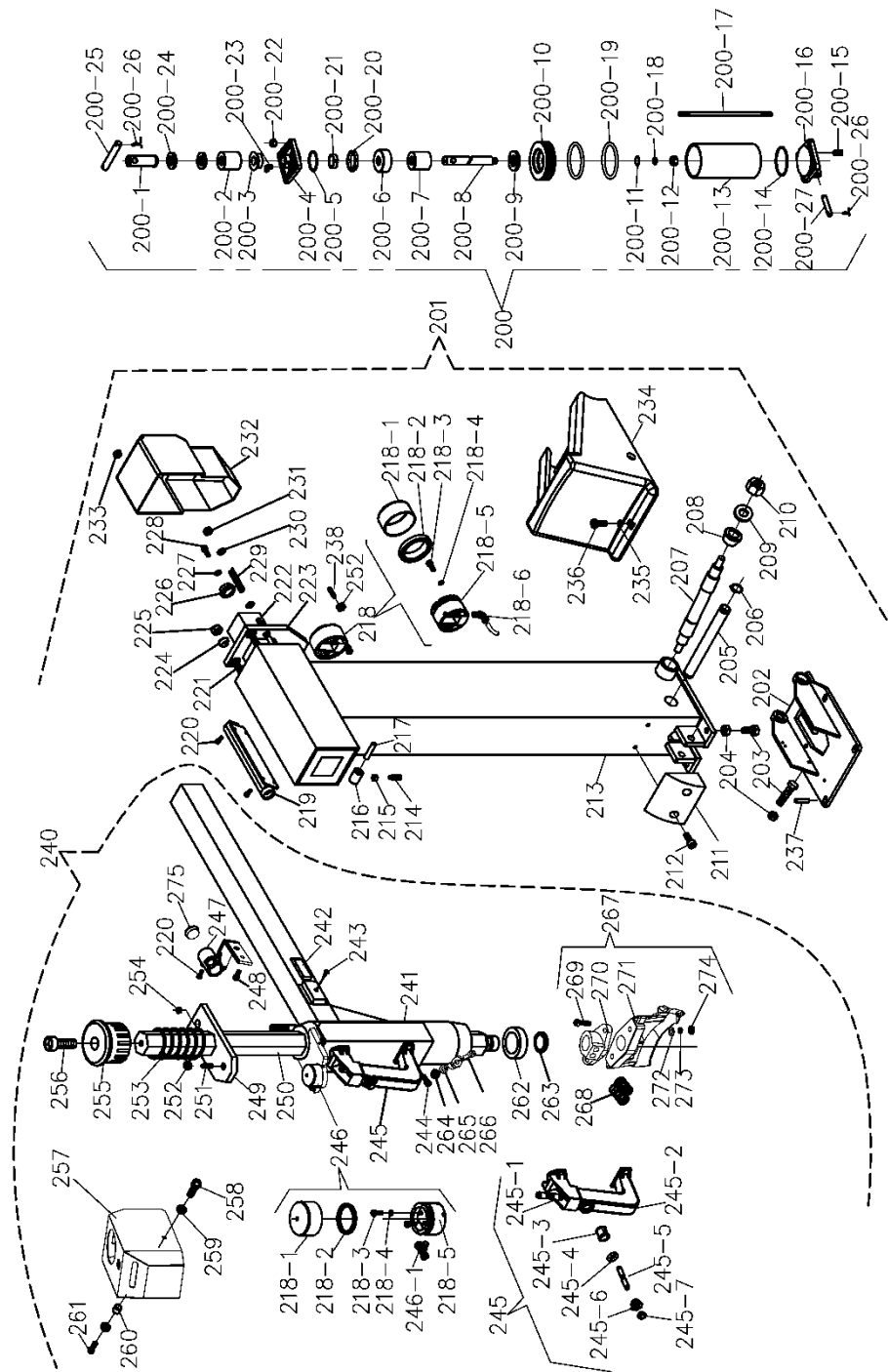


#	Part Number	Description
101		Breaker arm pin shaft
102		Breaker arm pin baffle
103		SHCS, M6 x 16
104		Washer, $\Phi 6$ flat
105		Washer, $\phi 6$ splick lock

106		Two plate of eccentric sleeve
107		Metal bushing
108		SHCS, M12 x 35
109		Washer, $\phi$ 12 splick lock
110		Shovel cushion
111	5327426	BB arm shock
112		Bead breaker return spring
113	5327101	Wheel support pad
114		Cross recessed pan head screw
115		Washer, $\Phi$ 6
116		Soap bucket retaining ring
117		Upper air/oil reg brkt
118		Lower air/oil reg brkt
119		Washer, $\Phi$ 8 flat
120		SHCS, M8 x 20
121		SHCS, M8 x 16
122		Washer, $\phi$ 8 splick lock
123		Hexagon socket head screw, M16 x 40
124		SHCS, M6 x 10
125		STS, ST5.5 x 25
126		Earth wire logo
127		Scutcheon
128		Cup head rivet
129	5327308	Side wall
130	5327307	Plastic foot pad
131		Hexagon headed bolt
132		Washer
133		Waterproof via coil nut, M20
134		Chassis weldment
135	5327593	Side cover
136		Cross slotted large flat head screw, M6 x 16
137		Foot pedal hood
138		Chassis front board
138		Chassis front board
139		Socket head cap screw, M6 x 12
140	5327425	Tool tray
141		Crowbar mat
142		Power cord without plug
143		Post limit lever
144		Washer, $\phi$ 8
145		Tilt tower bushing
146		Nut, M8
147		Cable holder, $\phi$ 16
148		Cable holder, $\phi$ 12

149		Fitting, tee $\phi 8 - \phi 8 - \phi 6$
150		Fitting, tee $\phi 8 - \phi 8 - \phi 8$
151		Worm housing bolts
151-1		Hexagon headed bolt, M10 x 160
151-2		Large side pads, $\phi 10$
151-3		Washer, $\phi 10$
151-4		Washer, $\phi 10$ splick Lock
151-5		Nut, M10
152		Pneumatic valve department
152-1		Full flow inflation regulator
152-2		Fitting, $\Phi 8 - G1/4''$
152-3		Fitting, $\Phi 8 - G1/4''$
152-4		Air pressure limiting valve bracket
152-5		SHCS, M4 x 50
152-6		Washer, $\phi 4$
152-7		Washer, $\phi 4$ splick lock
152-8		Nut, M4
152-9		HHB, M6 x 20
152-10		Washer, $\phi 6$
152-11		Washer, $\phi 6$ splick lock
152-12		Nut, M6
153		SHCS, M4 x 8
154		Pedal block
155		Nut, M8
156		Washer, $\phi 8$ splick lock

## Tower



#	Part Number	Description
200		Tilt back cylinder
200-1		Tilt cylinder connector
200-2		Tilt tower rubber space
200-3		Rubber shock bushing
200-4		Tilt tower cylinder front plate
200-5		O-ring, 25 x 3.1

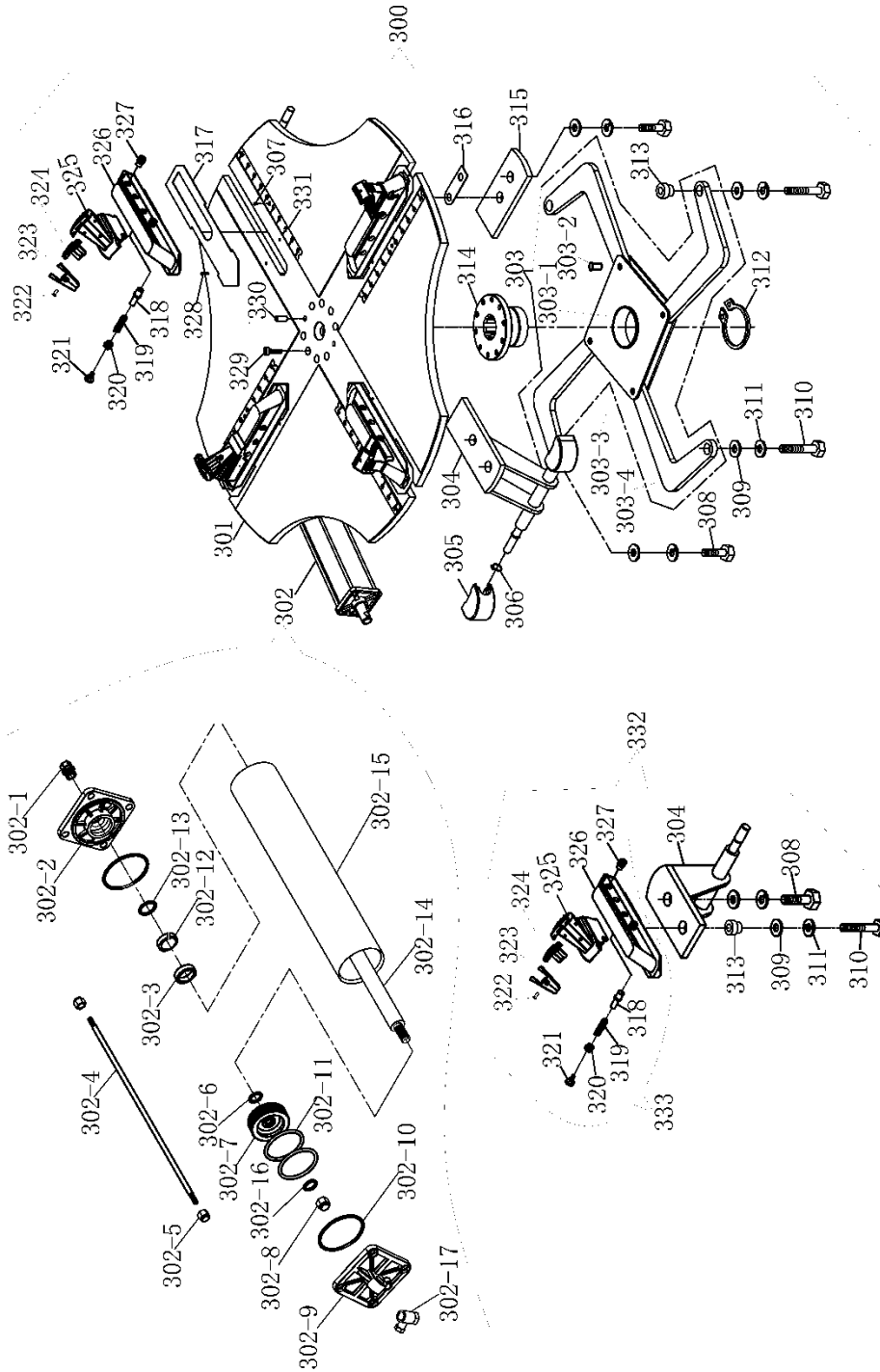
200-6		Tilt tower rubber spacer cover
200-7		Tilt tower rubber spacer II
200-8		Piston rod
200-9		Washer
200-10		Small cylinder piston
200-11		O-ring, 16 x 2.4
200-12		Nut, M12
200-13		Tilt tower cylinder
200-14		O-ring, 75 x 2.65
200-15		Fitting, 8 mm 1/8"
200-16		Tilt tower cylinder rear plate
200-17		Tilt back cylinder bolt
200-18		Washer, $\phi$ 12 splick lock
200-19		O-ring, 75 x 5.7
200-20	5327494	Y-ring, $\phi$ 32 x 20 x 6
200-21		Jaw clamp cylinder wear strip, $\phi$ 20 x 4 x 2
200-22		Hex thin nuts, M8
200-23		Fitting, G1/8" $\phi$ 8 90°
200-24		Washer
200-25		Tilt tower cylinder upper pin
200-26		Pin, $\phi$ 4 x 28
200-27		Tilt tower cylinder lower pin
201		Tilt-back tower weldment
202		Vertical arm base
203		Hex thin nuts, M10
204		HHB, M10 x 30
205		Vertical limit shaft
206	5327525	Snap ring, $\phi$ 20
207		Tilt tower pivot pin
208		Tapered metal bushing
209		Adjustable pad
210		Lock nut M14
211		Inner tilt tower cover
212		SHCS, M6 x 20
213		Tilt-back tower weldment
214		Hexagonal cylindrical side screw set, M8 x 25
215		Nut, M8
216		Horizontal arm roller
217		Horizontal arm roller pin, $\phi$ 8 x 40
218		Horizontal arm lock cylinder
218-1		Arm lock cylinder piston
218-2		Y-ring, $\phi$ 60 x 47 x 7
218-3		SHCS, M6 x 35
218-4		O-ring, $\phi$ 9 x 2.4

218-5		Pneumatic control valve base
218-6		Fitting, G1/8" $\phi$ 6 90°
219		Hosting support
220		SHCS, M4 x 6
221		Threaded rod
222		Threaded rod
223		Horizontal shaft locking plate
224		Horizontal slide stop
225		Nut, M10
226		Rear lock plate bushing
227		Washer, $\phi$ 6 splick lock
228		SHCS, M6 x 16
229		Rear lock plate spring
230		Washer, $\Phi$ 8 flat
231		Nut, M8
232	5327128	Real lock cylinder cover
233		Nut, M8
234		Inner tilt tower cover
235		Washer, $\phi$ 6
236		Cross recessed pan head screws, M6 x 20
237		Pin, 6 x 40
238		Inner hexagon set screw, M12 x 25
240		Horizontal slides
241		Horizontal arm weldment
242		Tilt tower rubber shock
243		Cross recessed head tapping screw, M4.2 x 12
244		SHCS, M5 x 12
245		Locking valve handle assy
245-1	5400929	Fitting, 6 mm 1/8 straight
245-2		Locking valve handle
245-3	5327485	Locking valve o-ring spacer
245-4		O-Ring, 8 x 2.65
245-5		Locking valve shaft
245-6		Locking valve metal spacer
245-7	5327516	Locking valve button
246		Vertical arm lock cylinder assy
246-1		Fitting, Tee $\phi$ 6
247		Fixation frame
248		SHCS, M6 x 16
249		Vert shaft locking plate
250		Hex shaft
251		Inner hexagon set screw, M12 x 20
252		Nut, M12
253		Hex shaft spring

254		Nut, M10
255		Hex shaft cap
256		SHCS, M10 x 30
257		Weld assembly with lock cover
258		SHCS, M6 x 12
259		Washer, $\Phi$ 6 flat
260	5327329	Hex shaft lock cover bushing
261		SHCS, M6 x 20
262		Mount / demount head bushing
263		Duckhead retaining washer
264		Luck nut, M8
265		Washer, $\phi$ 8
266		SHCS, M8 x 35
267		Plastic bird head assembly
268		Inner hexagon set screw M12 x 16
269		SHCS, M8 x 40
270		Plastic duckhead flange
271		Plastic duckhead A
272		Washer, $\phi$ 8 flat
273		Washer, $\phi$ 8 spring
274		Nut, M8
275		Frame block



# Turntable

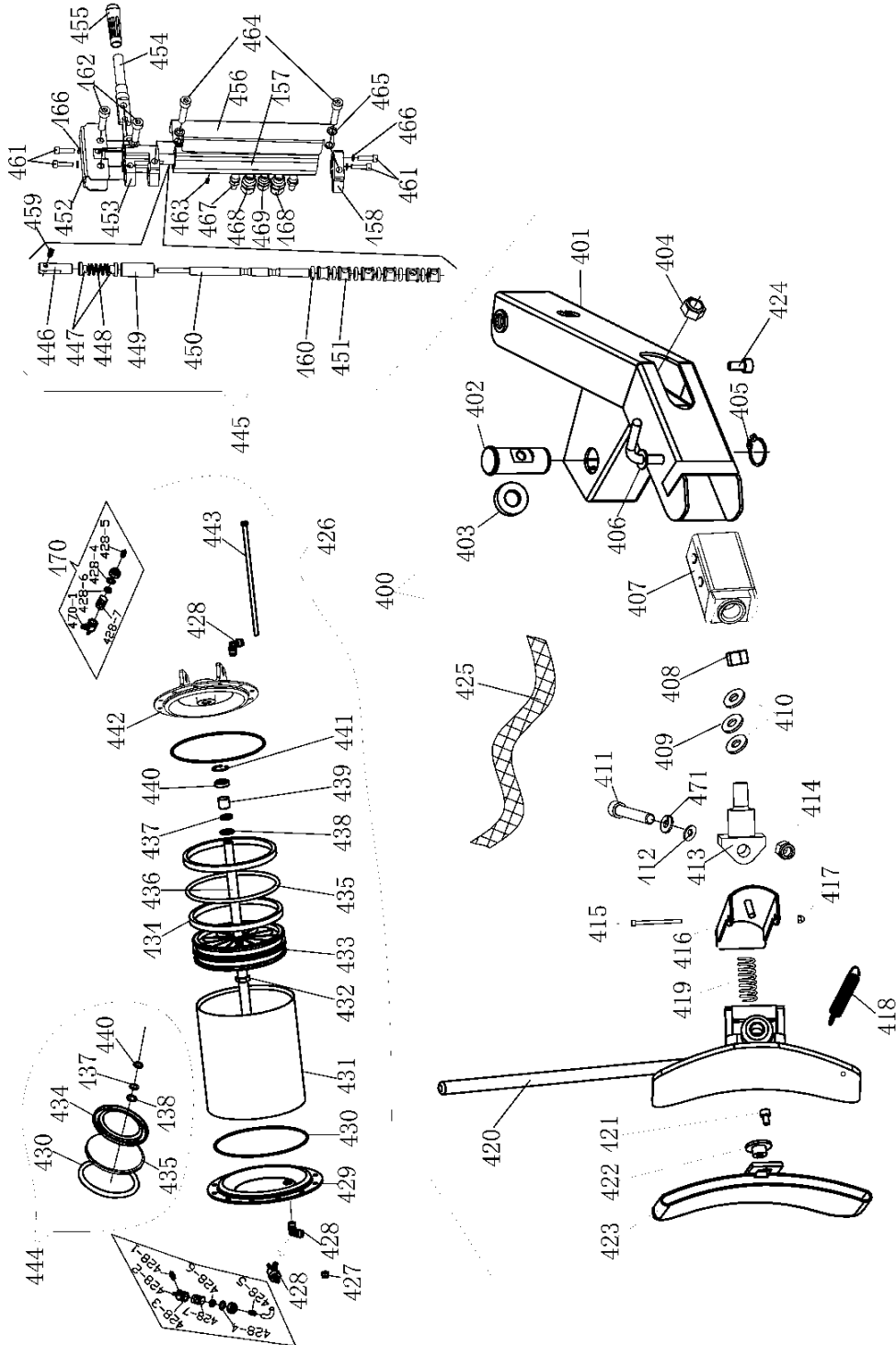


#	Part Number	Description
300		Turntable assembly
301		Spend working plate
302		Jaw clamp cylinder
302-1		Fitting, 1/8 8 mm straight
302-2		Small front cylinder cover
302-3		Y-ring, $\phi 32 \times 20 \times 6$

302-4		Double-headed bolt
302-5		Nut, M8
302-6		O-ring, $\phi 16 \times 2.4$
302-7		Cylinder piston
302-8		Locking nut, M12
302-9		Small rear cylinder cover
302-10	5327488	O-ring, $\phi 75 \times 2.65$
302-11	5327489	O-ring, $\phi 75 \times 5.7$
302-12		Jaw clamp cylinder wear strip, $\phi 20 \times 4 \times 2$
302-13	5327487	O-ring, $\phi 25 \times 3.1$
302-14		Jaw clamp cylinder rod
302-15		Jaw clamp cylinder body
302-16		Washer, $\phi 12$
302-17		Banjo bolt, G1/8" $\phi 8$ single
303		Square turntable assembly
303-1		Square turntable spacer
303-2		Square turntable press pim
303-3		Square turntable
303-4		Square turntable link
304		Jaw clamp cylinder bracket
305	5327305	Small cylinder cover
306		Snap ring, $\phi 12$
307		Turntable ruler screw, R30XLT M4 x 6
308		HHB, M12 x 30
309		Washer, $\phi 12$
310		HHB, M12 x 50
311		Washer, $\phi 12$ splick lock
312		Seeger ring, $\phi 65$
313		Spacer
314		Covers of key
315		Slide guard board
316		Slide shim adjustment
317		Jaw clamp slide
318		Jaw clamp inner adjustment pin
319		Jaw clamp pin spring
320		Jaw clamp inner adjustment knob
321		Jaw clamp locking pin
322		Stainless steel HHB, M4 x 10
323		Plastic mattress for jaw clamp
324		Rubber blanket for jaw clamp
325		Jaw clamp
326		Jaw clamp support
327		Jaw clamp fixed pin
328		Pin, $\phi 4 \times 16$

329		SHCS, M8 x 16
330		Pin, $\phi 8 \times 20$
331		Turntable ruler
332		Slide block assembly
333		Turntable on the assembly

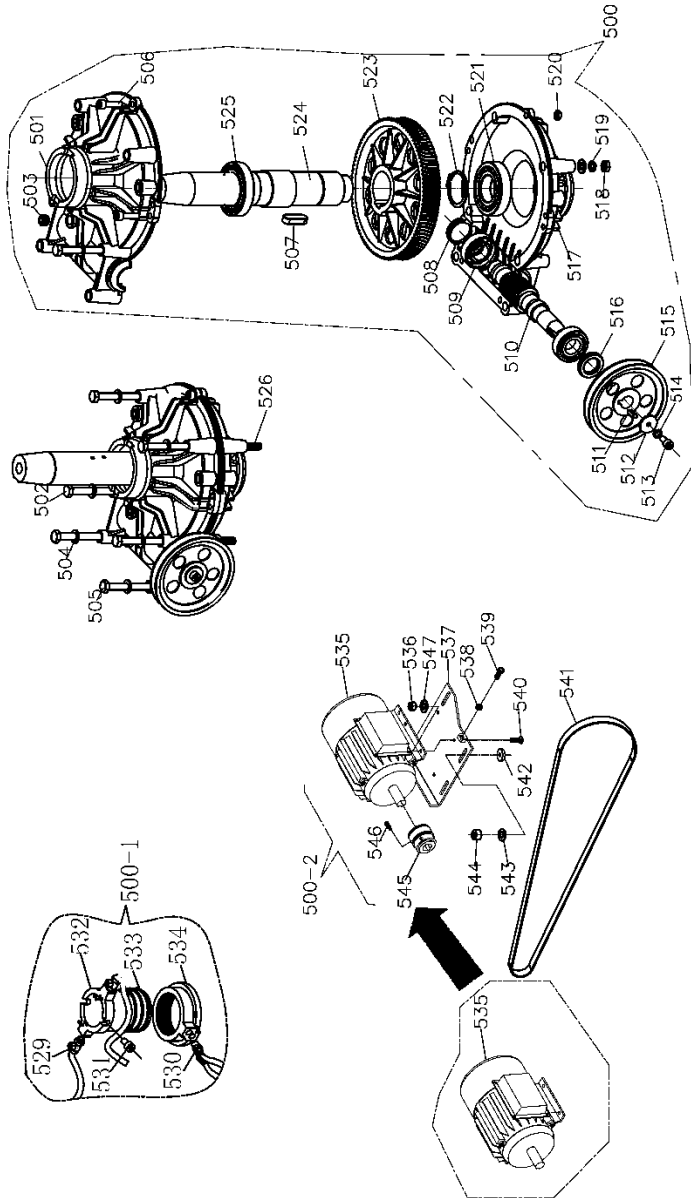
**Bead Breaker**



#	Part Number	Description
400		Shovel frame part
401		Bead breaker arm
402		Bead breaker arm pivot pin
402		Bead breaker arm pivot pin
403		Locating pad
404		Locking nut, M16
405		Seeger ring, $\phi 35$
406		Bead breaker retaining pin
407		Bead breaker arm slide cover Weld assembly
408		Locking nut, M16
409		Curved spring washers, $\phi 16$
410		Washer, $\phi 16$
411		SHCS, M14 x 95
412		Curved spring washers, $\phi 16$
413		Bead breaker knuckle
414		Locking nut, M14
415		SHCS, M8 x 85
416		Reseat, installed and welded
417		Nut, M8
418		Shovel plate tension spring
419		Spring
420		Bead breaker blade
421		SHCS, M6 x 10
422		Contains busing
423		Board the seat
424		SHCS, M6 x 16
425		PET
426		Bead breaker cylinder
427		Locking nut, M8
428		Fitting, G1/4" $\Phi 10$ 90°
428		Metal quick release valve assembly
429		Rear end cover
430		O-ring, $\phi 193$ x 5.7
431		Aluminum cylinder block
432		Nut, M18 - thin threaded (A) & (B)
433		BB cylinder piston
434		Y-ring 200 x 12 x 6 mm
435		Guide ring, 189 x 200 x 4
436		Bead breaker cylinder rod
436		Bead breaker cylinder rod
437		Y-ring, 25 x 20 x 4
438		O-ring, 25 x 3.1
439		Oil less bearing, $\phi 23$ x 20 x 20

440		Seal ring, $\Phi 30 \times 20 \times 7$
441		Type I hole with elastic ring, $\phi 32$
442		Before the end cover compound
443		HHB
444		Aluminum cylinder seal hair accessories
445		Bead breaker blade valve assembly
446		Pull rod
447		Spring spacer
448		Spring
449		Spacer bush
450		Valve rod
451		Air valve o-ring spacer
452		Upper cover for handle bead break
453		Upper cover for valve body
454		Spanner
455		Clamp handle cover
456		Lower cover for handle bead break
457		Valve body
458		Lower cover for valve body
459		Inner hexangular set screw, M6 x 12
460		O-ring, $\phi 17 \times 4$
461		SHCS, M5 x 20
462		SHCS, M8 x 25
463		Six pyramid end screw set, M5 x 6
464		SHCS, M8 x 35
465		Washer, $\phi 8$ splick lock
466		Washer, $\phi 5$ splick lock
467		Silencer, G1/4"
468		Fitting, $\Phi 10 - G1/4"$
469		Fitting, $\Phi 8 - G1/4"$
428-1		Screwed nipple, G1/4" - G1/4"
428-2		Copper silencer, G1/4"
428-3		Metal quick exhaust valve
428-4		Metal quick exhaust valve leather cushion
428-5		Fitting, G1/8" $\phi 10$ straight
428-6		Quick exhaust valve metal cup
428-7		Metal quick exhaust valve spring
470		BB flow control valve
470-1		Fitting, G1/8" $\phi 10$ straight
471		Spring washer, $\phi 14$

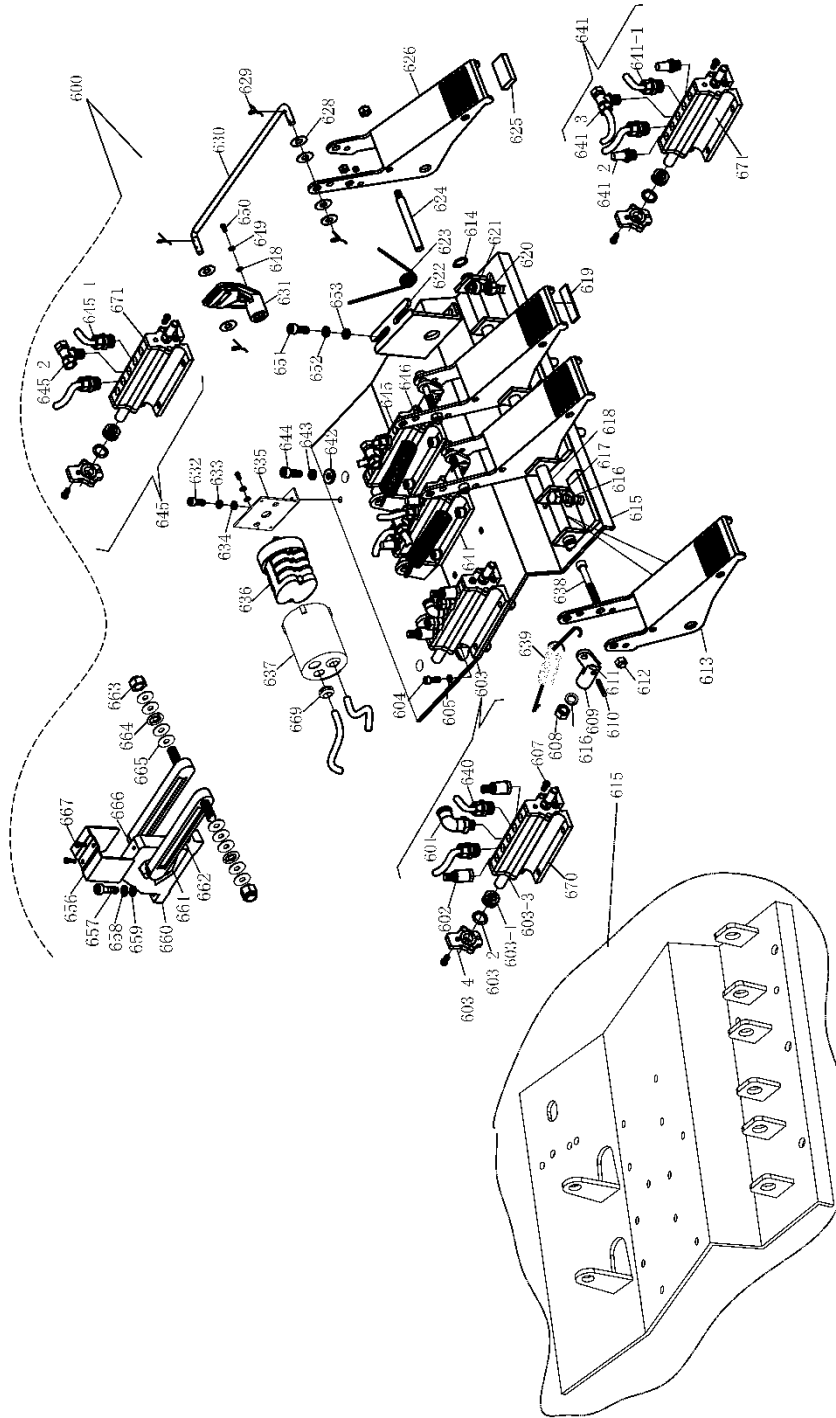
## Gearing



#	Part Number	Description
500		Transmission assembly
500-1		Rotary joint block
500-2		Variable frequency motor/hanger assembly
501		Gearbox front flange
502		HHB, M10 x 200
503		Oil plug
504		Washer, $\Phi 10$
505		HHB, M10 x 180
506		SHCS, M8 x 30
507		Transmission key, 14 x 9 x 40
508		Oil block

509		Cone roller bearing
510		Gear stud
511		Tab, 6 x 6 x 20
512		Gear stud pad
513		SHCSs M8 x 16
514		Washer, $\phi$ 8 splick lock
515		Big size belt pulley
516		Oil seal, $\Phi$ 45 x 25 x 10
517		Transmission back flange
518		Nut, M10
519		Washer, $\phi$ 10 splick lock
520		Nut, M8
521		Bering
522		Seeger ring, $\phi$ 50
523		Helical gear
524		Spline shaft
525		Bearing 6010
526		HHB, M10 x 170
529		Fitting, $\phi$ 8 - $\phi$ 8 - G1/8"
530		Fitting, G1/8" $\phi$ 8 straight
531		Inner hexangular set screw, M6 x 20
532		Rotary joint block inner piece
533		O-ring, $\phi$ 60 x 2.75
534		Rotary joint block outer piece
535	5328429	Electric motor
535	5328429	Electric motor
536		Locknut
537		Motor base unit weldment
538		Nut, M8
539		HHB, M8 x 40
540		Hexagon socket head screw, M8 x 30
541		V belt 1168
543		Washer, $\Phi$ 10 flat
544		Locking nut, M10
545		Motor pulley
546		Inner hexangular set screw, M8 x 16
547		Washer, $\Phi$ 8 flat

## Foot Pedals



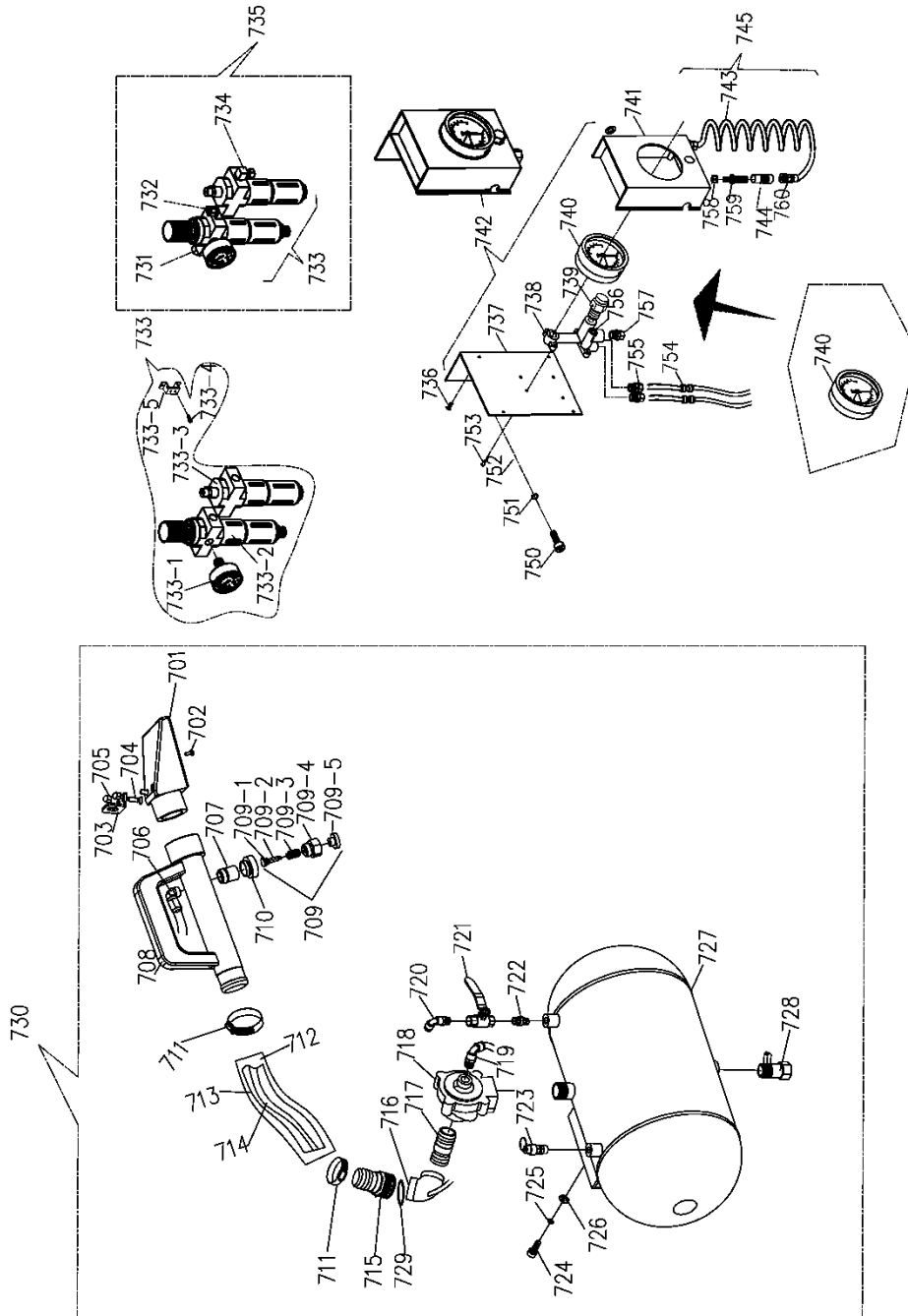
#	Part Number	Description
600		Three foot-pedals assembly
600		Four foot-pedals assembly
601		Lock nut elbow, 1/8" φ8
602	5327545	Adjustable silencer
603		Small valve assembly
603-1		Air valve skeleton



603-2		O-ring
603-3		Cylinder valve stem
603-4		Small valve end cover
604		Hexagon socket head cap screws, M6 x 12
605		Spacer, $\Phi 6$
607		Cross recessed pan head screw, M4 x 10
608		Hexagon nut, M8
609		Small air valve sub
610		Cylindrical pin
611		Small valve pull plate
612		Locking nut, M6
613		Foot pedal (right)
614		Snap ring $\phi 12$
615		Base board
615		Base board
616		Washer, $\phi 8$ splick lock $\Phi 8$
617		HHB, M8 x 16
618		Foot pedal shaft
619		Control system adjusting pad
620		Hexagon nut, M8
621		Hexagon socket head cap screws, M8 x 50
622		Torsion splick lock bracket
623		Torsional spring
624		Switch block stick
625		Rubber
626		Foot pedal (left)
628		Washer, $\Phi 6$
629		Cotter pin, 3.2 x 25
630		Switch lever
631		Switch fork
632		Hexagon socket head cap screws
633		Spring washer
634		Flat washer
635		Reverse switch bracket
636		Reverse switch (220V/40A)
637		Big switch cover
638		Hexagon socket cap screws
639		Control plate spring
640		Lock nut elbow, G1/8" $\phi 8$
641		Working disc small air valve assembly
641-1		Lock nut, G1/4" $\phi 8$
641-2		Copper silencer, G1/4"
641-3		Equal tee, G1/4" $\phi 8$
642		Big washer, $\Phi 8$

643		Spring washer, $\Phi 8$
644		Hexagon socket cap screws, M8 x 20
645		Assembly of large cylinder small air valve
645-1		Lock nut, G1/4" $\phi 10$
645-2		Equal tee, $\phi 8$
646		Cylinder locating sleeve
648		Plain washer, $\Phi 5$
649		Spring washer, $\Phi 5$
650		Cross recess pan head screw, M5 x 16
651		Hexagon socket cap screws, M6 x 16
652		Spring washer, $\Phi 6$
653		Plain washer, $\Phi 6$
656		Convex wheel cover
657		Hexagon socket cap screws, M6 x 20
658		Spring washer, $\Phi 6$
659		Plain washer, $\Phi 6$
660		Foot pedal cam
661		Foot pedal cam leaf spring (left)
662		Foot pedal cam leaf spring (right)
663		Hexagon lock nut, M8
664		Curved spring washers, $\phi 8$
665		Washer, $\Phi 8$ Flat
666		Foot pedal cam link
667		Cross recessed pan head screw, M3 x 10
669		Coil
670		Small gas valve
671		Small gas valve

# Turbo-Blast™

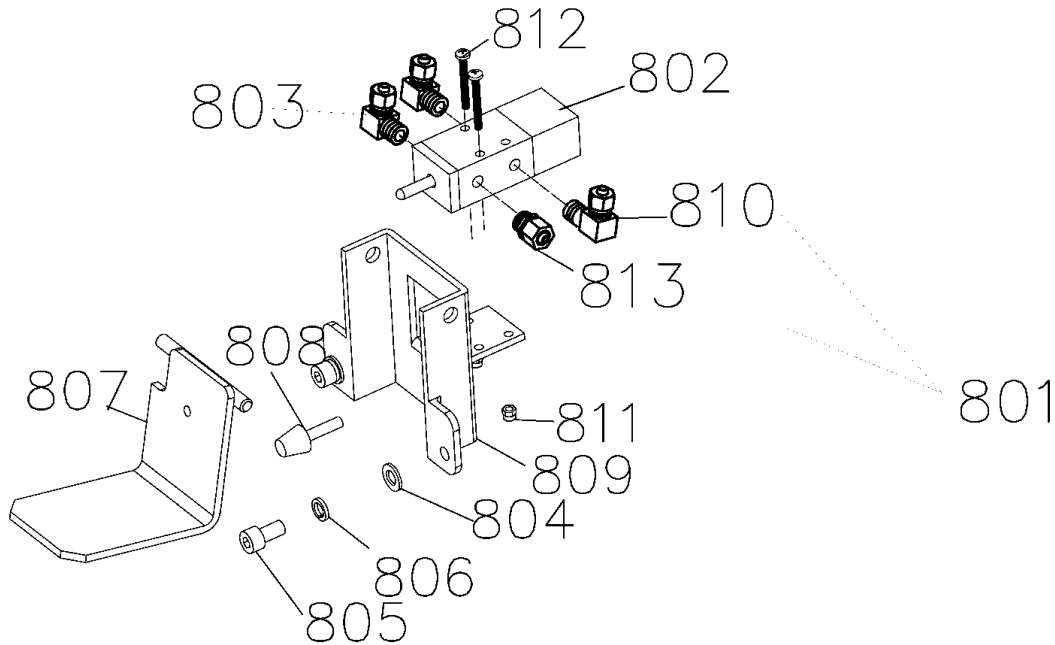


#	Part Number	Description
701	5328445	Blasting nozzle upper cover
702		Cross recessed pan head tapping screws
703		Hook
704		Cross recessed pan head screw
705		Acorn nut
706	5328443	Lock nut
707		Butt joint (G1/4" - G1/8")

708		BB Blade handle cover
709		Vent valve
710		Lock nut
709-1		O-ring
709-2		Piston
709-3		Spring
709-4		Valve body
709-5		Button
711	5328444	Stainless steel tube button
712		Nylon fabric jacket
713		PVC steel wire tube
714		PU straight pipe
715	5328442	Blasting valve joint
729		O ring
716		Elbow
717		Butt joint, 1"
718	5328446	Blasting valve
719		Elbow, G1/4" $\Phi$ 6 single
720		Lock nut fitting, G1/4" $\Phi$ 8 90°
721		Ball valve
722		Screwed nipple, G1/4" - G1/4"
723	5327449	Pressure release valve
724		SHCS, M8 x 25
725		Pad, $\Phi$ 8
726		Flat pad, $\Phi$ 8
727		Air tank
728		Mother baby valve
730		Blasting part
731	5327559	Extension pieces equal
732		1/4" x $\Phi$ 8 tee
733		Oil and water separator FRL
733-1		Barometer
733-2		Air filter cup
733-3		Oiler cup
733-4		Hexagon socket head cap screws
733-5		Oil mist holder
734		Lock nut fitting, G1/4" $\Phi$ 8 90°
735		Pneumatic FRL
736		Hexagon socket head cap screws, M3 x 10
737		Inflatable table mountain
738	5327054	Separate air head skeleton
739	5327055	Vent valve
740	5327769	Pressure gauge with bottom connection
741	5327051	Inflatable table cover

742		522W gas meter assembly
743	5327484	Spiral coil
744		Always open the air pressure head
745	5327130	Spiral tube assembly
749		Air fitting spacer
750		SHCS, M6 x 20
751		Spring washer
752		Flat washer
753		Hexagon socket head cap screws, M3 x 10
754		Quick plug straight
755		Straight bore
756		Plug
757		Straight bore
758		Hexagon nut
759		Air tube hook
760		Lock nut fitting, $\phi 8$

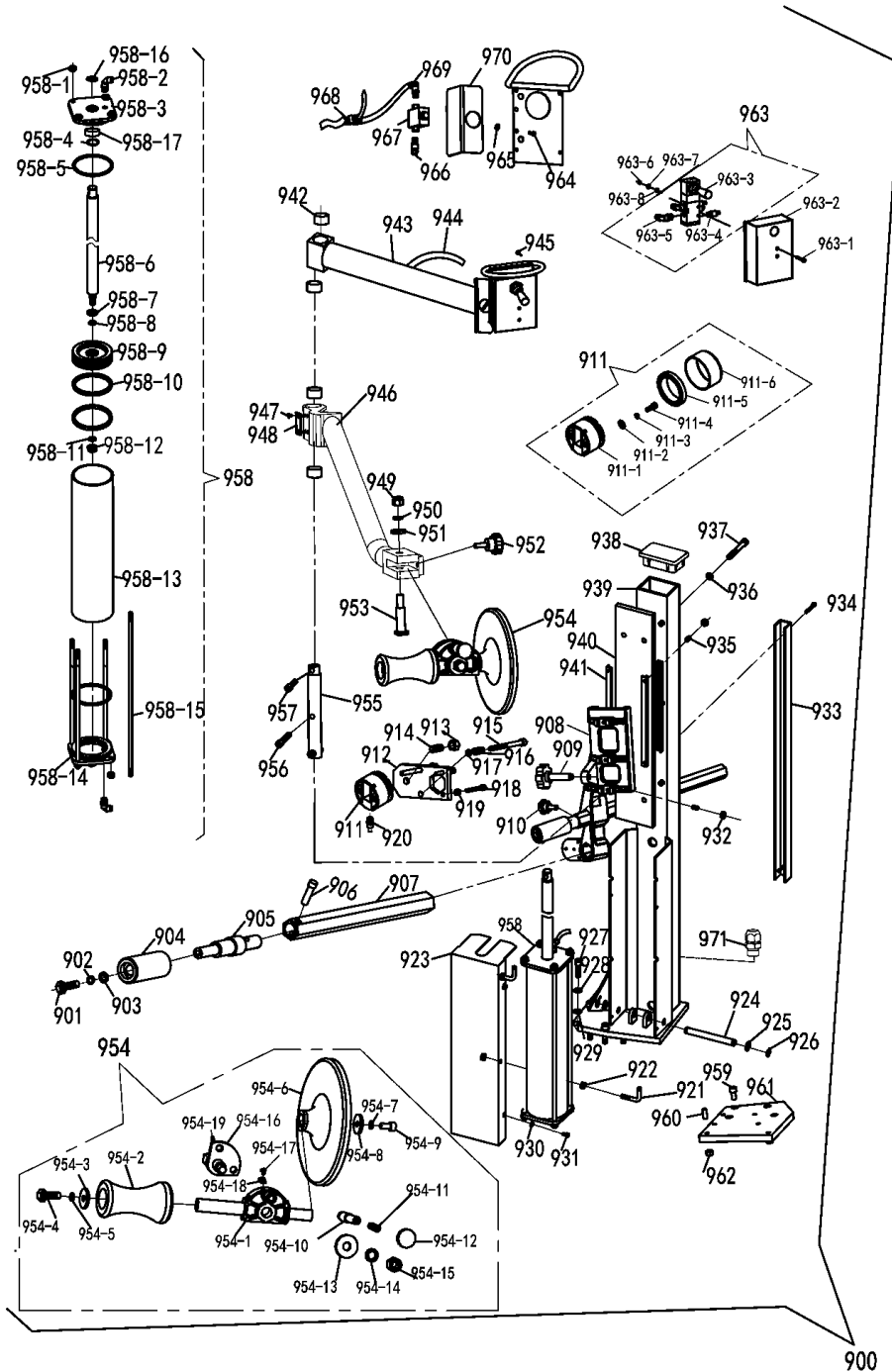
### **Side Foot Pedal**



#	Part Number	Description
801		Lateral pedal assembly (inflation/pulse)
802		Two-position four-way valve
803		Fitting, G1/4" $\phi 8$ 90°
804		Washer, $\phi 8$ flat
805		SHCS, M8 x 16
806		Washer, $\phi 8$ splick lock

807		Inflation foot pedal weldment
808		Inflation foot pedal limit block
809		Inflation foot pedal support
810		Lock nut fitting, G1/4" φ8 90°
811		Non-metal insert hexagonal lock nut, G1/4" φ8
812		Cross recessed pan head screw, M4 x 35
813		Lock nut, fitting G1/4" φ8 180°

### Right Assist Tower



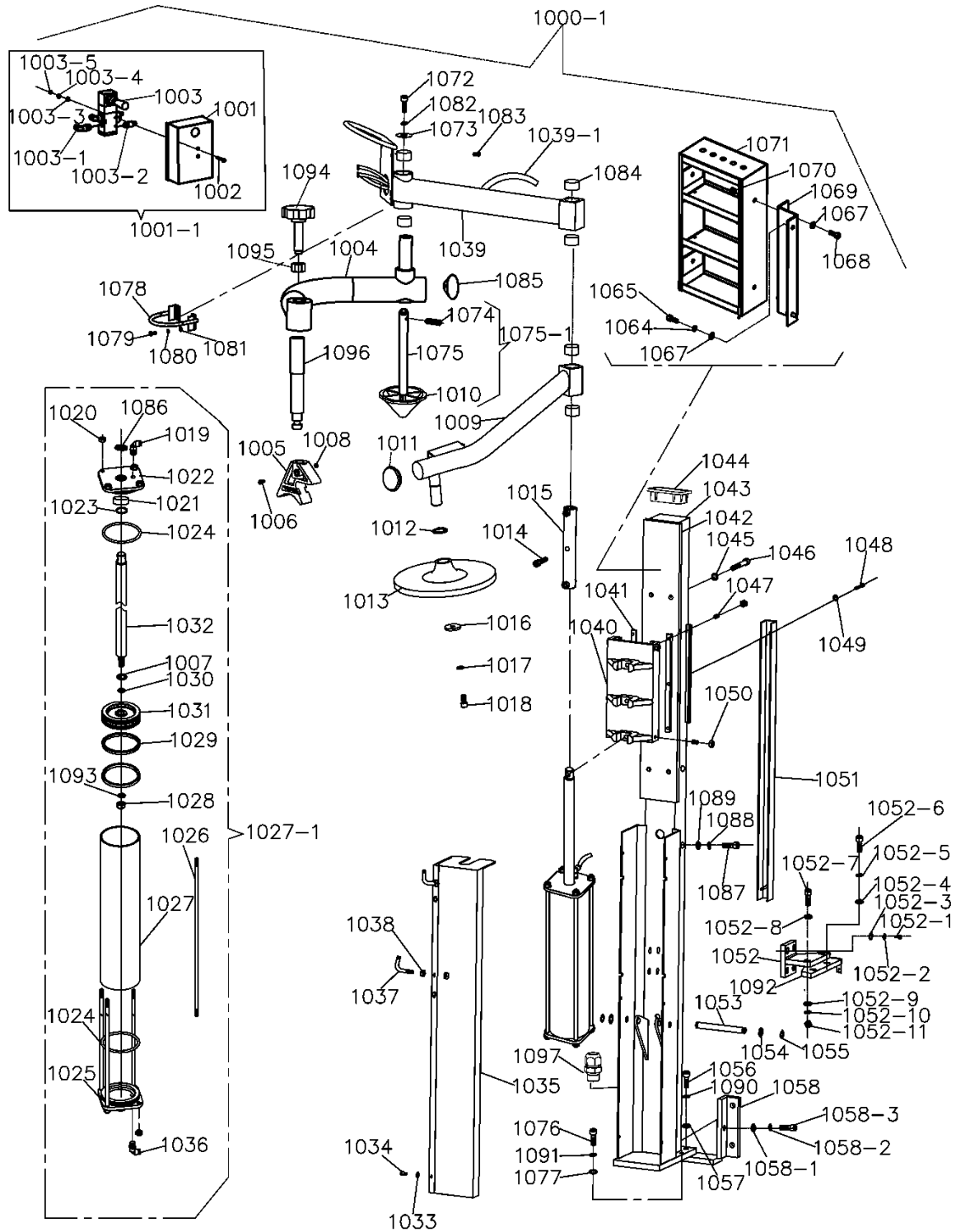
#	Part Number	Description
900		Power hand part right
901		HHB, M10 x 20
902		Washer, $\phi$ 10 splick lock
903		Tire pressure bar mat
904	5328250	Tire pressure roller
905		Tire pressure support
906		Master pin
907		Tie down block
908		Sliding body compound piece
909	5328361	Large knob
910	5328364	Medium knob
911		Lock cylinder assembly
912	5328365	Locking plate
913		Nut M12
914	5328362	Inner hexangular set screw, M12 x 30
915		SHCS, M8 x 100
916	5328363	Pressure spring
917		Washer, $\Phi$ 8 Flat
918		SHCS, M6 x 50
919		Locking Nut, M6
920		Fitting, G1/4" $\phi$ 8
921		Turbo blast hook
922		Nut M8
923		Left Assist Tower Cyl Cover, R23/26 (I)
924		Assist tower lower pin, R23/26 (I)
925		Washer, $\Phi$ 12 flat
926		Snap ring, $\phi$ 12
927		SHCS, M10 x 30
928		Washer, $\phi$ 10 splick lock
929		Washer, $\Phi$ 10 flat
930		Washer, $\Phi$ 6 flat
931		SHCS, M6 x 12
932		Nut M8
933		Gas hood
934		SHCS, M6 x 40
935		Inner hexangular set screw, M8 x 16
936		Washer, $\phi$ 10 splick lock
937		SHCS, M10 x 75
938		Assist tower top plug
939		Left assist tower weldment
940		Slide guide
941	5327483	Assist tower plastic slide
942		Bearing B3025

943		Left assist arm, plastic disk
944		Metal braided hose cover
945		Cross recessed head tapping screw, 4.2 x 16
946		Left assist arm, plastic disk
947		Cross recessed countersunk head screw, M4 x 6
948		Top silk gasket
949		Locking nut M12
950		Washer, M12 flat
951		Pin pad
952		Plum blossom handle, M10
953		Locating pin
954		Inversion plate assembly
955		Assist arm connecting link
956		Inner hexangular set screw, M10 x 50
957		Inner hexangular set screw, M10 x 45
958		Booster cylinder assembly
959		Inner hexangular set screw, M10 x 20
960		Hexagonal cylindrical side screw set, 10 x 20
961		Power adapter plate
962		Nut M10
963	5327109	Assist arm valve control assembly
964		SHCS, M5 x 12
965		Nut, M5
966		Fitting, G1/8" $\Phi$ 4 90°
967	5328251	Roller lock air valve
968		Fitting, tee $\phi$ 6 - $\phi$ 6 - $\phi$ 6
969		Fitting, G1/8" $\phi$ 6 90°
970		Locking valve plate
971		Union, $\phi$ 8- $\phi$ 6
911-1		Gas valve seat
911-2		Flat gasket, $\Phi$ 6
911-3		O-ring, $\phi$ 7 x 1.9
911-4		Socket head cap screw, M6 x 40
911-5		Arm lock cylinder seal, $\phi$ 60 x 47 x 7
911-6		Arm lock cylinder piston
954-1		Transfer plate
954-2		Pressure roller
954-3		Roller pad
954-4		HHB, M10 x 20
954-5		Washer, $\phi$ 10 splick lock
954-6		Plastic disk
954-7		Washer, $\phi$ 10 splick lock
954-8		Plastic roller insert
954-9		SHCS, M10 x 20



954-10		Locating pin
954-11		Pressure spring
954-12		Plum blossom handle
954-13		Washer
954-14		Washer, $\phi$ 16 splick lock
954-15		Locking nut, M16
954-16		Positioning plate
954-17		SHCS, M5 x 8
954-18		Catch
954-19		Inner hexangular set screw, M5 x 10
958-1		Nut, M8
958-2		Fitting, G1/8" $\phi$ 6 90°
958-3		Assist tower front cylinder plate
958-4		O-ring, $\phi$ 25 x 2.65
958-5		O-ring, $\phi$ 90 x 2.65
958-6		Left assist tower cylinder rod
958-7		Assist tower cylinder piston
958-8		Seal ring, $\Phi$ 33 x 25 x 6
958-9		Assist tower cylinder piston
958-10		O-ring, $\phi$ 14 x 2.4
958-11		Washer, $\Phi$ 12 flat
958-12		Locking nut, M12
958-13		Left assist tower cylinder body
958-14		Assist tower rear cylinder plate
958-15		Cylinder connecting thread shaft
958-16		Seal ring, $\Phi$ 35 x 25 x 8
958-17		Bearing B2510
963-1		SHCS, M4 x 30
963-2		L/R assist arm valve cover
963-3		Assist arm control valve
963-4		Adjustment silencer, G1/8"
963-5		Banjo bolt, G1/8" $\Phi$ 6 single
963-6		Nut, M4
963-7		Washer, $\phi$ 4 flat
963-8		Washer, $\phi$ 4 splick lock

# Left Assist Tower



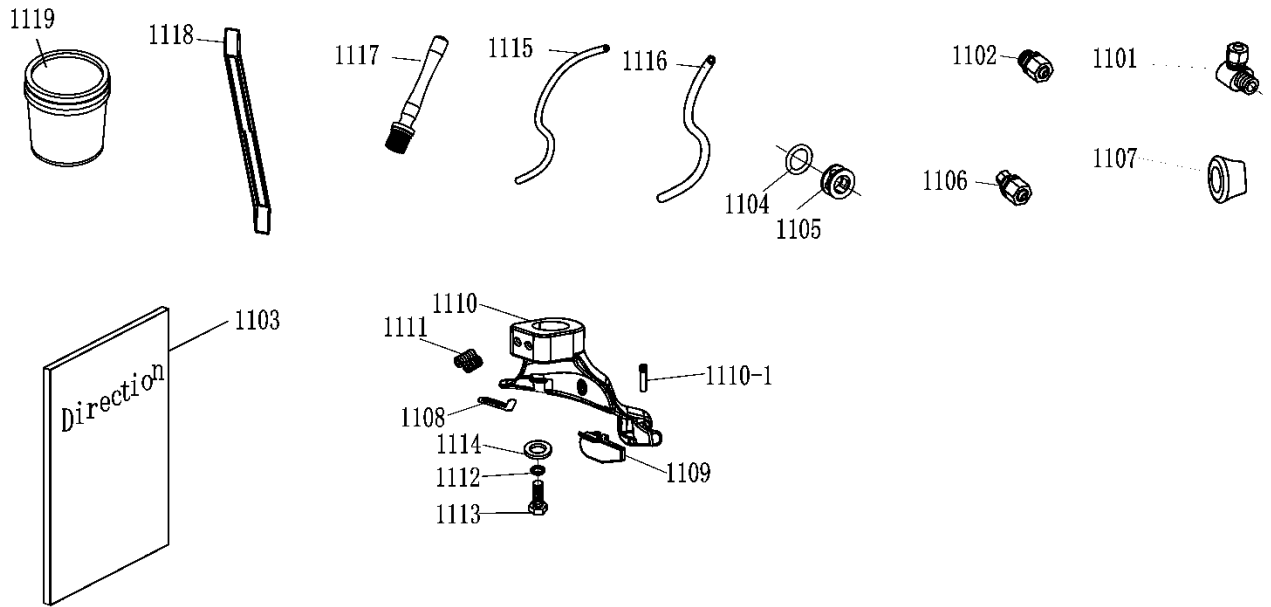
#	Part Number	Description
1000-1		Upgrade tower
1001-1		Assist arm valve control assy
1001		L/R assist arm valve cover

1002		SHCS, M4 x 3
1003		Assist arm control valve
1003-1		Banjo bolt, G1/8" $\Phi$ 6 single
1003-2		Adjustment silencer G1/4"
1003-3		Washer, $\Phi$ 4 flat
1003-4		Washer, $\phi$ 4 splick lock
1003-5		Nut, M4
1004	5327589	Assist tower bent arm
1005	5327075	Assist arm block
1006		SHCS, M6 x 30
1007		
1008		Nut, M6
1009	5327607	Left assist arm, plastic disk, 23/26 (I)
1010		Assist arm cone
1011	5327433	Assist arm end plug, R23/26 (I)
1012		Snap ring, $\phi$ 25
1013	5400885	Plastic disk
1014		SHCS, M10 x 50
1015		Assist arm connecting link, R23/26 (I)
1016		Snap ring
1017		Washer, $\phi$ 10 splick lock
1018		SHCS, M10 x 20
1019		Fitting, $\phi$ 6 x 1/8" 90°
1020		Nut, M8
1021		Washer, $\Phi$ 8 flat
1022		Assist tower front cylinder plate, R23/26 (I)
1023		O-ring, $\phi$ 25 x 2.65
1024		O-ring, $\phi$ 90 x 2.65
1025		Assist tower rear cylinder plate, R23/26 (I)
1026		Cylinder connecting thread shaft
1027		Left assist tower cylinder body, R23/26 (I)
1028		Locking nut, M12
1029		O-ring, $\phi$ 82.5 x 5.3
1030		O-ring, $\phi$ 14 x 2.4
1027-1		Assist tower cylinder assy, R23/26 (I)
1031		Assist tower cylinder piston, R23/26 (I)
1032		Left assist tower cylinder rod, R23/26 (I)
1033		Washer, M6 flat
1034		SHCS, M6 x 12
1035		Left assist tower cylinder cover, R23/26 (I)
1036		Fitting, $\phi$ 6 x 1/8" 90°
1037		Turbo blast hook
1038		Nut, M8
1039		Presser arm weldment

1039-1		Metal braided hose cover, R23/26 (I)
1040		Slide unit
1041		Assist tower plastic slide
1042		Slide guide
1043		Left assist tower weldment
1044		Assist tower top plug, R23/26 (I)
1045		Washer, $\phi$ 10 splick lock
1046		SHCS, M10 x 75
1047		Inner hexangular set screw, M8 x 16
1048		SHCS, M6 x 40 BOC
1049		Washer, M6 x 12 mm flat
1050		Nut, M8
1051		Assist tower air hose cover, R23/26 (I)
1052		Tower bracket weldment
1052-1		SHCS, M8 x 30
1052-2		Washer, $\Phi$ 8 flat
1052-3		Snap ring, $\phi$ 8
1052-4		Washer, $\Phi$ 10 flat
1052-5		Washer, $\phi$ 10 splick lock
1052-6		SHCS, M10 x 30
1052-7		SHCS, M10 x 45
1052-8		Washer, $\Phi$ 10 flat
1052-9		Nut, M8
1052-10		Washer, $\phi$ 8 splick lock
1052-11		Washer, $\Phi$ 8 flat
1053	5327432	Assist tower lower pin, R23/26 (I)
1054		Washer, $\Phi$ 12 flat
1055		Snap ring, $\phi$ 12
1056		SHCS, M10 x 30
1057		Washer $\Phi$ 10 flat
1058		Lower supporter unit
1058-1		Washer, $\Phi$ 10 flat
1058-2		Washer, $\phi$ 10 splick lock
1058-3		SHCS, M10 x 30
1064		Washer, $\phi$ 8 splick lock
1065		SHCS, M8 x 20
1067		Washer, $\Phi$ 8 flat
1068		SHCS, M8 x 25
1069	5327876	Tool box bracket
1070		Nut M8
1071	5327173	Tool box
1072		SHCS, M12 x 25
1073		Washer
1074		Roller latch, M8 x 18

1075	5400891	Cone shaft
1075-1		Assist arm cone assembly
1076		SHCS, M8 x 30
1077		Washer, Ø8 flat
1078		Assist arm handle weldment
1079		Cross recessed pan head screw, M5 x 12
1080		Washer, Ø5 flat
1081		Washer, φ5 splick lock
1082		Washer, φ12 splick lock
1083		Cross recessed pan head screw, M4 x 12
1084		Bearing B3025
1085		Assist tower bent arm plug
1086		Seal ring, Ø33 x 25 x 6
1087		SHCS, M8 x 30
1088		Washer, φ8 splick lock
1089		Washer, Ø8 flat
1090		Washer, φ10 splick lock
1091		Washer, φ8 splick lock
1092		Chassis bracket weldment
1093		Washer, Ø12 flat
1094		To the top
1095		Nut, M18
1096	5328279	Screw
1097		Union, 8 mm to 6 mm

## Accessories



#	Part Number	Description
1101		Elbow, 1/8" φ8
1102		Lock nut, G1/8" φ8
1103		Manual
1104		O ring
1105		Air valve skeleton
1106		Lock nut reducer, G1/8" φ8-φ6
1107		Pulley
1108	5328119	Duck head pressure pad
1109	5327636	Duck head spacer
1110		Duck head
1110-1		Ingot screws
1111	5327468	Hexagon socket set screw, M12 x 16-12.9
1112		Spring washer, Φ10
1113		Hexagon bolt, M10 x 20
1114	5327436	Duck head spacer
1115		PU Tube φ6 x 1000 mm
1116		PU Tube φ8 x 1000 mm
1117	5400121	Brush
1118	5400110	Bead lifting tool, 20"
1119	5400120	Lubricant bucket





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