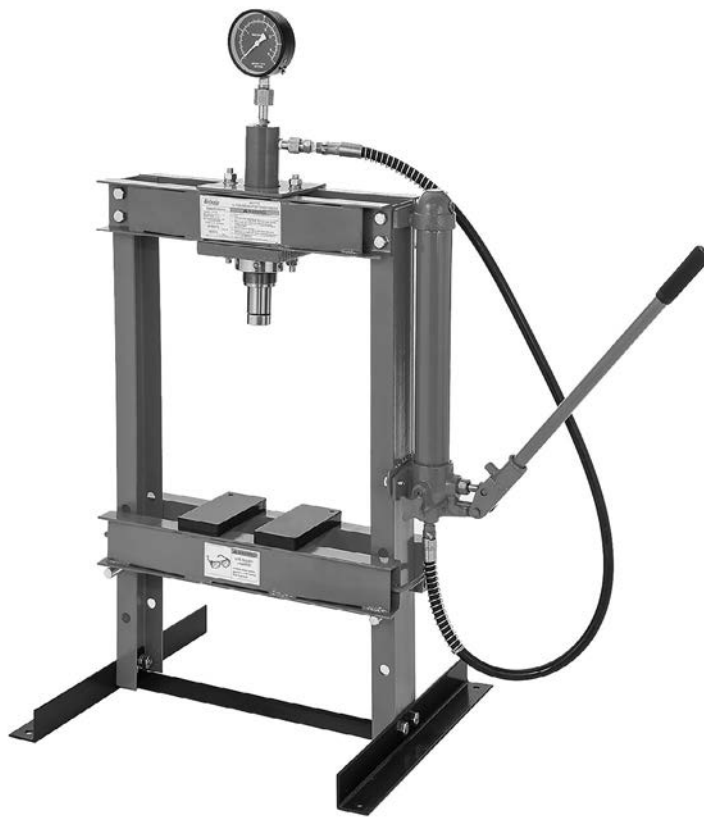




MODEL H6231Z 10-TON BENCHTOP SHOP PRESS OWNER'S MANUAL

(For models manufactured since 01/13)



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
#CR12507 PRINTED IN CHINA

V2.07.16



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

Some dust created by power sanding, sawing, grinding, drilling, and other construction activities contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: Work in a well ventilated area, and work with approved safety equipment, such as those dust masks that are specially designed to filter out microscopic particles.

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INTRODUCTION

Manual Accuracy

We are proud to offer this document with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, immediately call our technical support for updates or clarification.

For your convenience, we post all available documentation on our website at **www.grizzly.com**. Any updates to this document will be reflected on our website as soon as complete.

Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com



MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL H6231Z 10-TON SHOP PRESS

Ram Maximum Applied Force	20,000 lbs (10 tons)
Ram Maximum Stroke	5 ⁵ / ₁₆ "
Pressure Gauge Convention.....	Metric Tons and US Tons
Ram Diameter.....	2"
Working Distance at Lowest Table Position	16 ³ / ₄ "
Working Distance at Highest Table Position	9 ³ / ₄ "
Bed Support Bar Diameter.....	5 ⁵ / ₈ "
Number of Bed Adjustment Holes	3 holes
Bed Adjustment Hole Spacing.....	3 ⁹ / ₁₆ " On-Center
Overall Dimensions.....	23 ¹ / ₂ "W x 19 ³ / ₄ "D x 45"H
Arbor Plate Set Included.....	Yes
Hydraulic Oil Type.....	Standard Hydraulic Jack Oil
Shipping Weight.....	96 lbs.



Identification

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

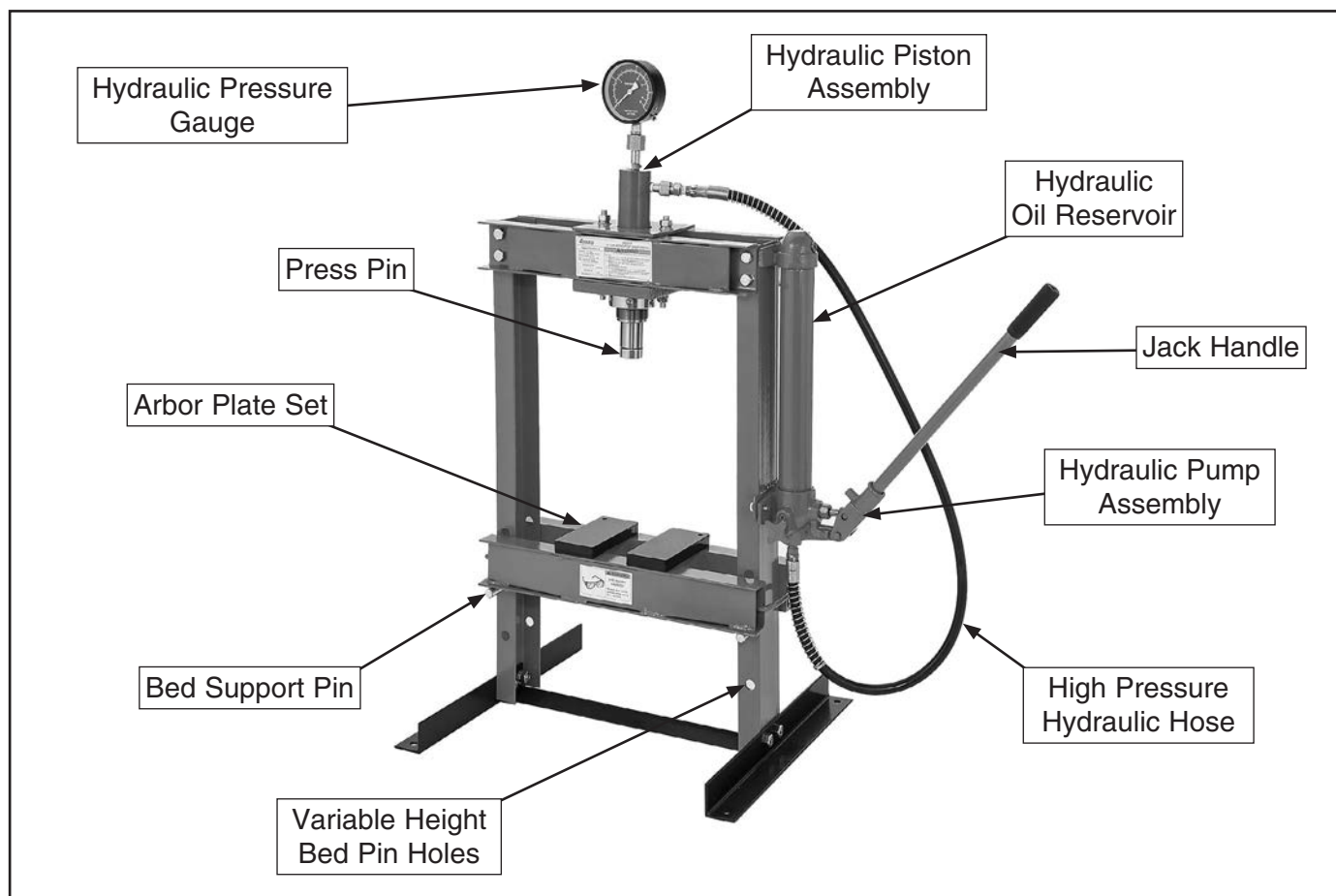


Figure 1. Identification.



SECTION 1: SAFETY

For Your Own Safety, Read Instruction Manual Before Operating This Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures. Always use common sense and good judgment.



Indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the machine.

Safety Instructions for Machinery



OWNER'S MANUAL. Read and understand this owner's manual **BEFORE** using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply **BEFORE** making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are **NOT** approved safety glasses.



WARNING

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

HAZARDOUS DUST. Dust created by machinery operations may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material. Always wear a NIOSH-approved respirator to reduce your risk.

HEARING PROTECTION. Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

CHILDREN & BYSTANDERS. Keep children and bystanders at a safe distance from the work area. Stop using machine if they become a distraction.

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly **BEFORE** operating machine.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine **OFF** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

DAMAGED PARTS. Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace **BEFORE** operating machine. For your own safety, **DO NOT** operate machine with damaged parts!

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact our Technical Support at (570) 546-9663.



Additional Safety for Shop Presses

WARNING

Serious injury or death can occur from getting hit by a workpiece thrown from the press. Workpieces, arbor plates, or tooling can fall and crush feet or legs. To minimize risk of injury, anyone operating this machine MUST completely heed hazards and warnings below.

AVOIDING OVERLOAD. Exceeding rated press capacity can damage the press or shatter a workpiece, causing a severe impact injury. When the press has reached its maximum pressure or the pump lever becomes stiff to operate, the press has reached its limit. Never use a cheater pipe for extra leverage.

OPERATION SAFETY. Applying pressure to parts with this press can cause them to spring out and strike you or bystanders with deadly force. Verify that bystanders are a safe distance away from the press during operations. Make sure that you are wearing gloves and safety glasses with a face shield. Heavy leather boots with extra toe protection are also required. Under some conditions, a hard hat may be needed.

CORRECT INSTALLATION. An unsecured press on wheels can tip when being moved or exhibit severe spring-back during heavy pressing operations, which could cause a crushing or impact injury. Do not place the press on a mobile base or install casters. The press base must be bolted to the workbench.

PRE-USE INSPECTIONS. A loose press frame can cock under a load and cause the workpiece to shift or eject, resulting in an impact injury. Before use, inspect the press for loose or missing bolts and pins. Verify that no cracks exist and that the hydraulic system is in full working order.

WORKPIECE SUPPORT. When a part is pressed free, a workpiece may shift suddenly or fall from the press, causing a crushing injury to your foot or leg. Use a catch basket and support long or awkward workpieces with stands or chains, or have an assistant support the end of a long workpiece during pressing operations.

AVOIDING PROJECTILE INJURIES. Being hit by a launched workpiece or press tooling can cause severe impact injury or death. When using the press, stand out of the way of any possible projectile path. Never press with rods or pins that are long enough to shift off-center and kick out under a load. Never stack rods and spacers to create an extended press pin. If pressing must occur with an extended press pin, the pin must be fastened with a safety chain or the press pin must be enclosed in a safety cage to eliminate a projectile hazard.

CORRECT TOOLING. Without using the correct spring caging tool or jig to hold the spring-loaded workpiece, the workpiece may shift suddenly, launching springs that could cause a severe impact injury. Never use this press to unload spring-loaded assemblies without also using the correct spring caging tool or jig.

CORRECTING MISALIGNED LOADS. If a workpiece becomes misaligned during pressing operations, it may slip out of the press and cause severe impact injury. Never attempt to realign a workpiece while it is under pressure. Relieve hydraulic pressure, and start pressing operations over if a workpiece or press pin has moved or become misaligned. Relieve hydraulic pressure if you suspect the workpiece is in a bind, or structural failure is imminent.

AVOIDING INCORRECT PRESS OPERATIONS. Some workpieces cannot withstand the force of pressing and can explode, causing an impact injury. Other workpieces have hidden retaining rings, shoulders, pins, welds, or are integral and cannot be pressed apart. Before using this press, make sure that you understand how a component is built and pressed apart.



WARNING

SAFE WORKING ZONE. Falling tooling, arbor plates, or a shifting workpiece can cause a crushing injury to your leg or foot. Keep out from under the bed, do not work under the press when it is loaded, and never leave the press loaded and unattended.

AVOIDING SPRING-BACK HAZARDS. Under heavy pressing operations, when some parts finally break free of the host workpiece, sudden hydraulic press unloading can result in spring-back. As a result, a workpiece, press pin, or arbor plate can spring up and fall from the bed, causing a crushing injury to your foot or leg. Before press operations begin, anticipate what the workpiece may do if this sudden unloading occurs, and secure the workpiece so it will not fall.

AVOIDING HYDRAULIC OIL POISONING. Hydraulic oil reaches extremely high pressures and can cause blood poisoning if injected into your blood stream. Never remove any hydraulic line, fitting, or component, or attempt to check for leaks in lines with your hands or fingers while the system is under pressure.

UNAUTHORIZED MODIFICATION. Modifying the press frame, increasing pump relief pressure, installing non-hydraulic hoses or fittings, or outright adding a higher capacity piston or pump can cause structural failure and lead to a severe crushing injury. If the press is insufficient for your pressing task, use a press that is rated for the correct load capacity.

SAFE HYDRAULIC REPAIR. Repair that is performed by an unqualified person can lead to press overload and line burst where hydraulic oil is injected into your blood stream resulting in blood poisoning. Do not attempt to repair the hydraulic system or adjust the pressure relief valve unless you are a qualified hydraulic service professional.

UNSAFE WORKPIECE. Applying pressure to unstable objects can cause the object to eject, causing an impact injury. Never apply pressure to balls, round objects, springs, or elastic items.

WARNING

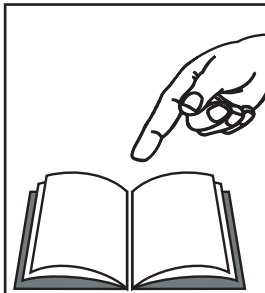
Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.



SECTION 2: SETUP



!WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before using the machine!



!WARNING

Wear safety glasses during the entire setup process!



!WARNING

This machine and its components are very heavy. Get lifting help or use power lifting equipment such as a forklift to move heavy items.

Needed for Setup

The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Safety Glasses	1
• Disposable Shop Rags.....	As Needed
• Open-End Wrench 14mm.....	1
• Open-End Wrench 18mm.....	1
• Open-End Wrench 19mm.....	1
• Open-End Wrench 27mm.....	1
• Pin-Type Spanner Wrench (1/4" Pin) or Hammer and 1/4" Drift Punch	1
• Another Person	1

Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

IMPORTANT: Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. *You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.*



!WARNING

SUFFOCATION HAZARD!

Keep children and pets away from plastic bags or packing materials shipped with this machine. Discard immediately.



Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Description	Qty
A. Lower Support Plate 20mm Thick	1
B. Upper Support Plate 8mm Thick.....	1
C. Bed Support Pins	2
D. Pressure Gauge	1
E. Hydraulic Pump 10-Ton	1
F. Pump Lever	1
G. U-Beam	1
H. U-Beam w/Pump Mount.....	1
I. Hydraulic Ram 10-Ton.....	1
J. Upper U-Beams	2
K. Bed	1
L. Base Rails	2
M. Arbor Plates.....	2
N. Base Cross Support.....	1

Hardware	Qty
O. Hex Bolts M12-1.75 x 110 C8.8 (Upper U-Beams)	4
Hex Nuts M12-1.75 (Upper U-Beams)	4
Flat Washers 12mm (Upper U-Beams)	4
Lock Washers 12mm (Upper U-Beams)	4
P. Hex Bolts M12-1.75 x 30 (Base Rails)	4
Hex Nuts M12-1.75 (Base Rails)	4
Flat Washers 12mm (Base Rails)	4
Lock Washers 12mm (Base Rails)	4
Q. Hex Bolt M8-1.25 x 25 (Pump Mounting) ...	2
Hex Bolt M8-1.25 x 16 (Pump Mounting)....	1
Flat Washers 8mm (Pump Mounting).....	3
Lock Washers 8mm (Pump Mounting)	3
R. Studs M12-1.75 x 150 (Support Plates)	2
Hex Nuts M12-1.75 (Support Plates).....	4
Flat Washers 12mm (Support Plates).....	4
Lock Washers 12mm (Support Plates).....	4

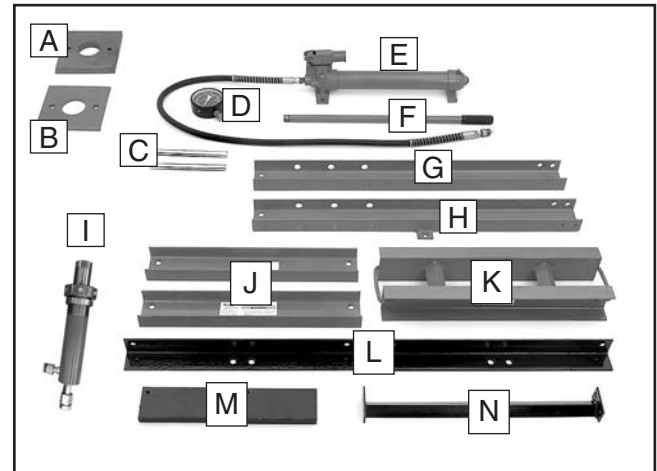


Figure 2. Main inventory.

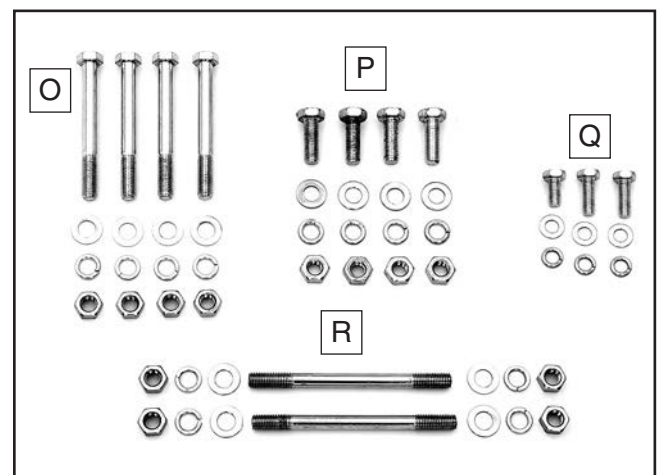


Figure 3. Fastener inventory.

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.



Site Considerations

Physical Environment

The physical environment where the machine is operated is important for safe operation and longevity of components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range is outside 41°–104°F; the relative humidity range is outside 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Space Allocation

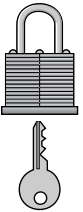
Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

	<p>⚠ CAUTION</p> <p>Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</p>
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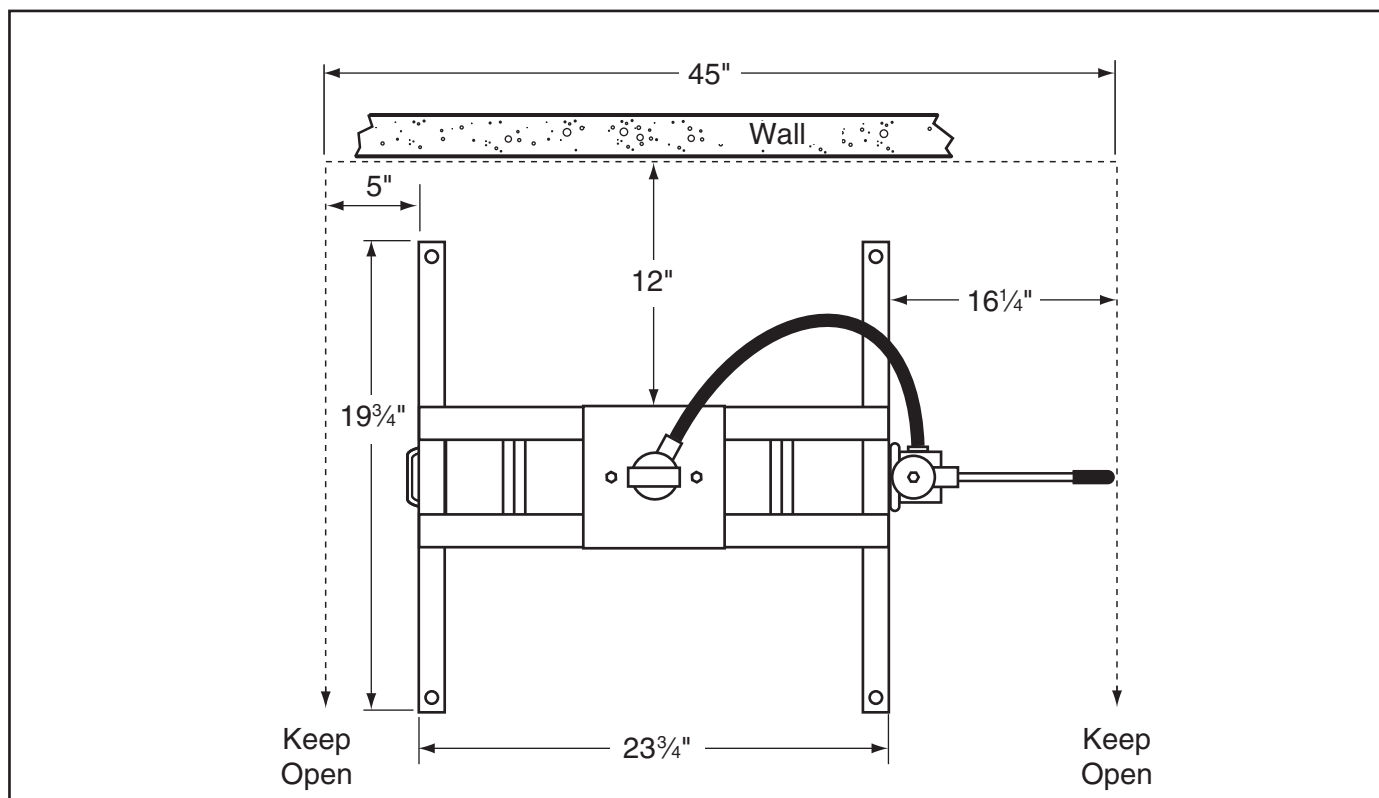


Figure 4. Minimum working clearances.



Assembly

To assemble your press:

1. Put on safety glasses and heavy leather boots.
2. Place both U-beams parallel on the floor so the flanges are facing one another and both beams have their row of pin holes at the same end, as shown in **Figure 5**.
3. Orient the bed so the apex of the cross supports are pointing toward the top end of the U-beams and slide the bed onto the beams.

Make sure that the bed is positioned below the pump mounting bracket on the end of the rails where the rows of pin holes are located, as shown in **Figure 5**.

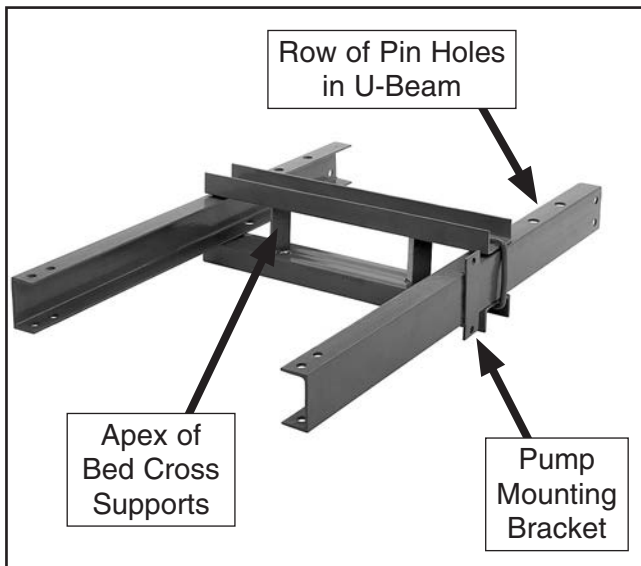


Figure 5. Bed installed.

4. Using a 19mm wrench, attach the base rails and cross support to the U-beams with four M12-1.75 x 30 hex bolts and four 12mm flat washers, lock washers, and hex nuts, as shown in **Figure 6**.

Note: Make sure to position the apex of the base cross support towards the bed as shown in **Figure 6**.

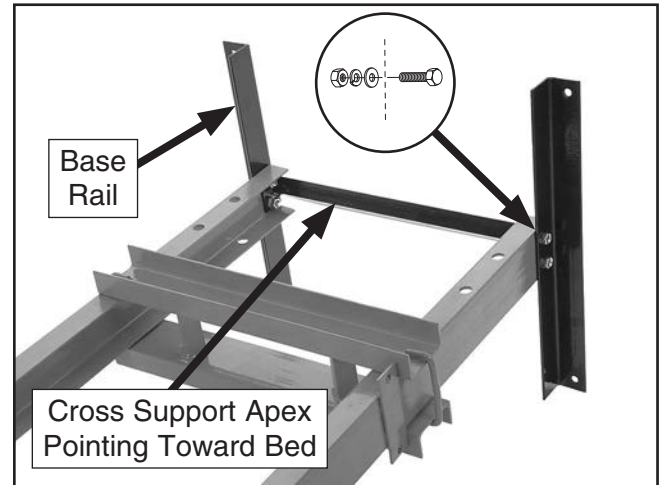


Figure 6. Base cross support installed.

5. Slide the bed against the base rails to prevent it from suddenly sliding to the base, and carefully tilt the press upright on its base.
6. Install the upper U-beams with one M12-1.75 x 110 hex bolt and finger-tighten with a 12mm flat washer, lock washer, and hex nut, as shown in **Figure 7**.

Note: This bolt will allow you to easily hinge the U-beams in place for the rest of the fasteners.

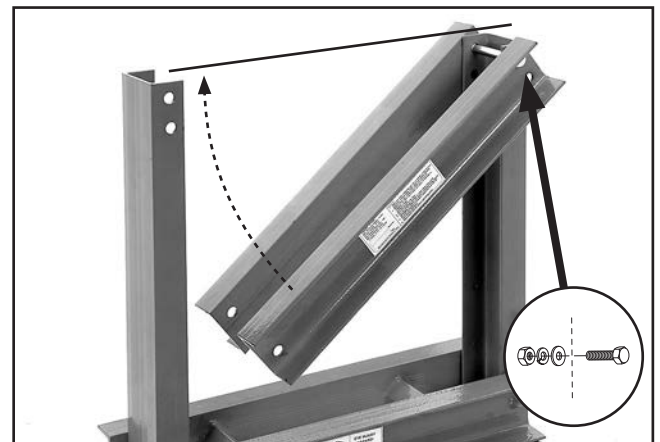


Figure 7. Upper U-beam installation.



7. Swing the U-beams upward into alignment with the mounting holes, and install the remaining three M12-1.75 x 110 hex bolts with 12mm flat washers, lock washers, and hex nuts, as shown in **Figure 8**.

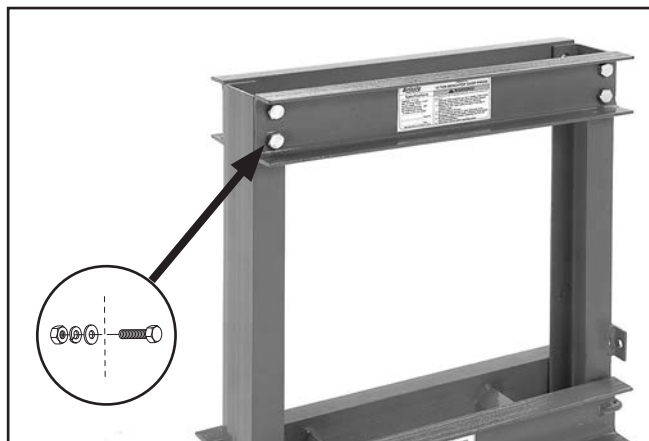


Figure 8. Upper U-beam installed.

8. Using 18mm wrench, tighten all of the upper U-beam fasteners.
9. Install the 8mm and 20mm thick support plates at the center upper U-beams, using a 19mm wrench and the two M12-1.75 studs, four 12mm flat washers, lock washers, and hex nuts as shown in **Figure 9**.

Make sure that equal amount of threads protrude from the upper and lower hex nuts when you are finished.

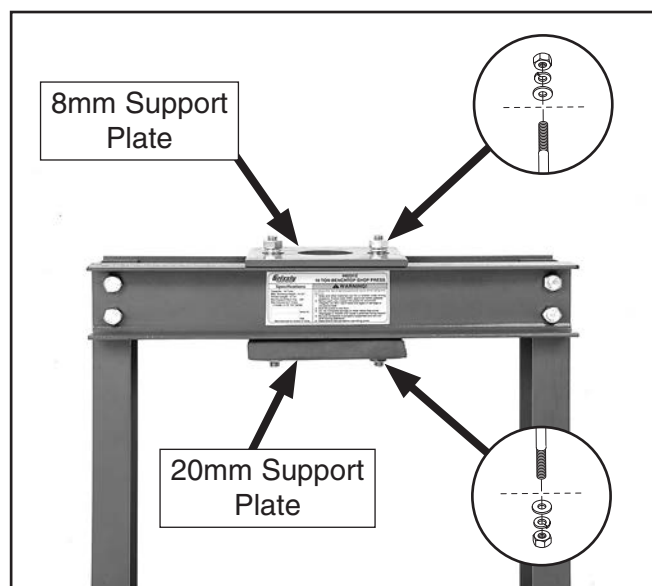


Figure 9. Support plate installed.

10. Remove the threaded spanner rings from the piston and lay them out on the workbench, as shown in **Figure 10**.

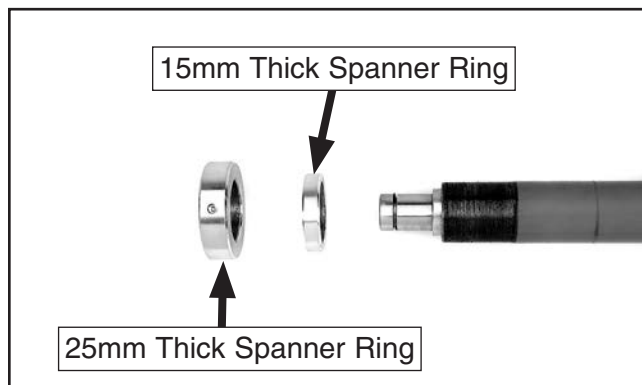


Figure 10. Spanner rings removed.

11. Position the 15mm spanner ring on top of the lower support plate, and install the piston assembly through the top of the support plate holes, as shown in **Figure 11**.
12. Make sure that the thin 15mm spanner ring shown in **Figure 11** is threaded onto the piston housing completely. Otherwise, there will not be enough thread exposed for the thicker load-carrying spanner ring below. The 25mm spanner ring must have full thread engagement as this ring is the only support for the piston during all press operations.

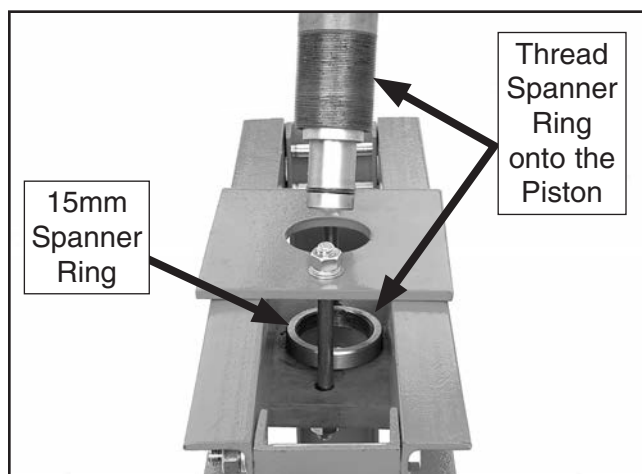


Figure 11. Piston installation.



13. Thread the 25mm spanner ring onto the piston housing as shown in **Figure 12** until it is tight.

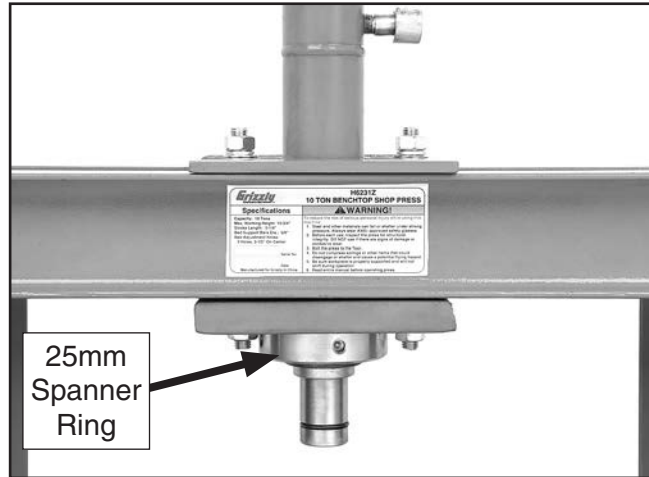


Figure 12. Spanner ring installed.

14. Wearing safety glasses, use a spanner wrench (or a hammer and a 1/4" drift punch) to tighten the 25mm spanner ring an additional 1/8 turn.
15. Attach the hydraulic pump to the lower pump bracket with the two M8-1.25 x 25 hex bolts, two 8mm flat washers and lock washers, as shown in **Figure 13**.

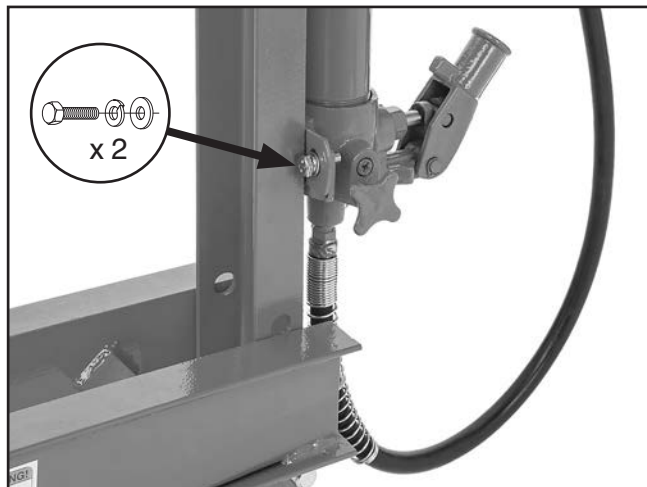


Figure 13. Hydraulic pump installed.

16. Place one 8mm lock washer and flat washer onto the M8-1.25 x 16 hex bolt, and insert it through the U-beam and tighten it into the upper pump mounting bracket.

17. Remove the plastic cap on the pressure gauge and piston housing bolt (see **Figure 14**). Thread the nut onto the gauge and secure with 16mm and 27mm wrenches. Do not use Teflon tape or thread sealant on this type of fitting, as it uses a sealing ring.

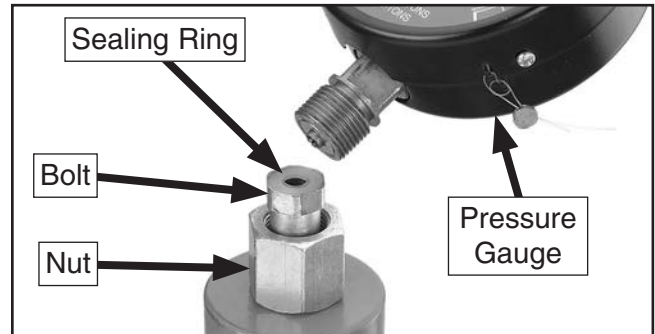


Figure 14. Hydraulic gauge installation.

18. Remove the plastic caps, connect the pressure line to the piston housing, and thread the knurled nut onto the self-sealing hydraulic fitting. Do not use Teflon tape or thread sealant of any kind on this type of fitting, as it employs a self-sealing design (see **Figure 15**).

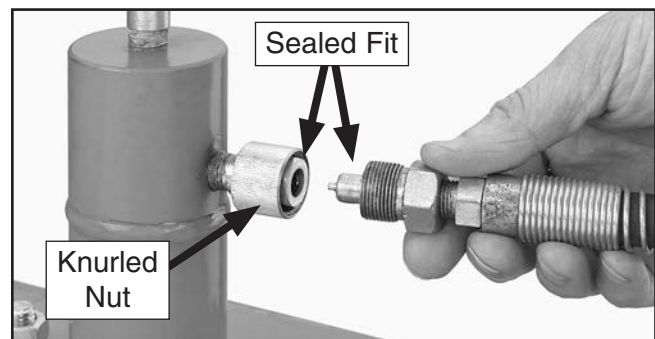


Figure 15. Hydraulic line installation.

19. Thread the jack handle into pump socket, as shown in **Figure 16**.

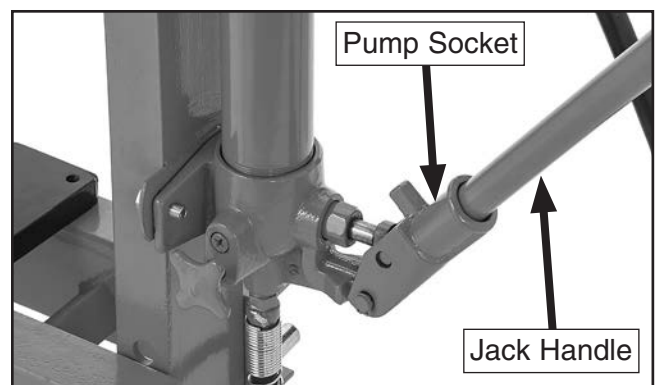


Figure 16. Jack handle threaded into pump.



20. With the help of another person, position the press on the workbench where you want to mount it.
21. Based on your choice of fasteners discussed under **Bench Mounting**, use the pre-drilled holes in the base rails as a guide to drill and mount your press to the workbench.
22. Position the bed on the bed support pins, and place the arbor plates on the bed, as shown in **Figure 17**.

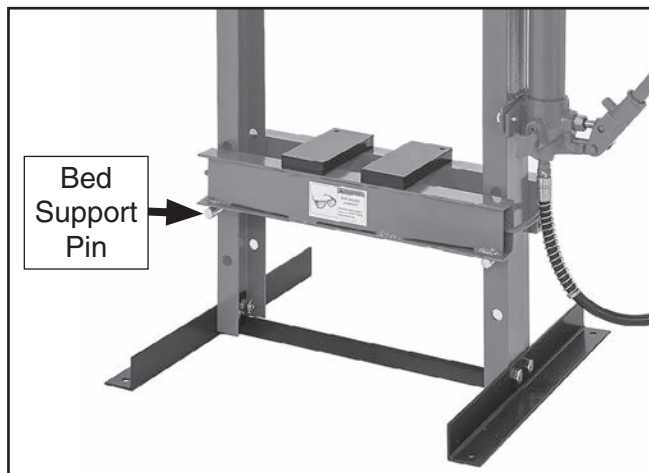


Figure 17. Typical arbor plate positioning.

23. Completely unthread the reservoir fill plug shown in **Figure 18** and leave it open. This valve is closed so the hydraulic oil is not lost during shipping.

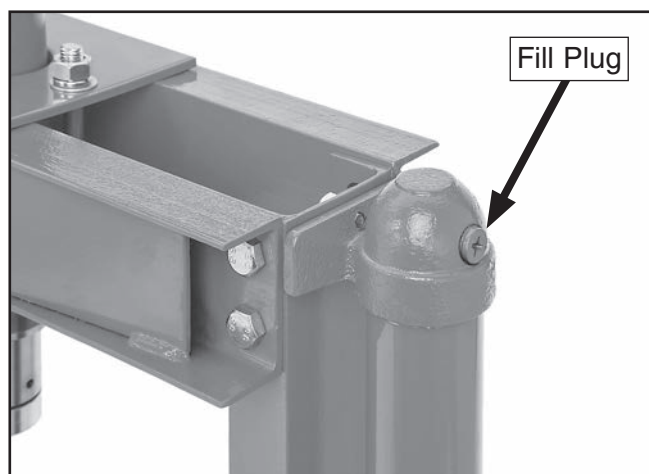


Figure 18. Fill plug location.

24. Go to the **Service** section on **Page 20** and bleed the hydraulic system as outlined.

Bench Mounting

Number of Mounting Holes 4
Dia. of Mounting Hardware Needed 7/16"

The base of this machine has mounting holes that allow it to be fastened to a workbench or other mounting surface to prevent it from moving during operation and causing accidental injury or damage.

The strongest mounting option is a "Through Mount" (see example below) where holes are drilled all the way through the workbench—and hex bolts, washers, and hex nuts are used to secure the machine in place.

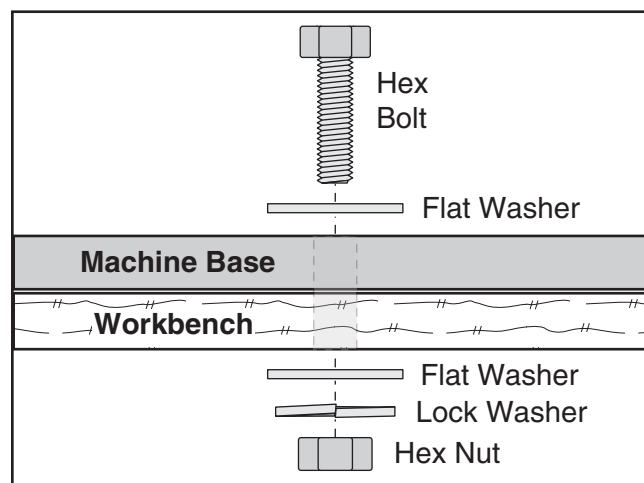


Figure 19. "Through Mount" setup.

Another option is a "Direct Mount" (see example below) where the machine is secured directly to the workbench with lag screws and washers.

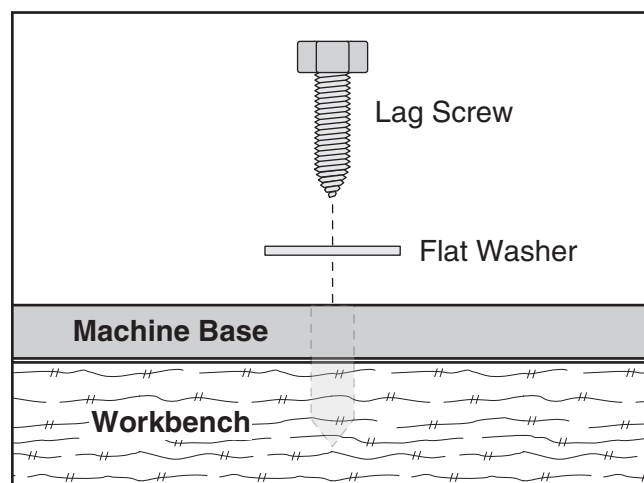


Figure 20. "Direct Mount" setup.

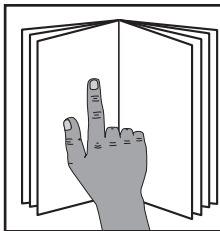


SECTION 3: OPERATIONS

Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is **not** intended to be an instructional guide. To learn more about specific operations, read this entire manual and seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

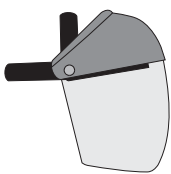


!WARNING

To reduce your risk of serious injury, read this entire manual **BEFORE** using machine.

!WARNING

Bodily injury could result from using this machine. Always wear eye and face protection, leather gloves, and leather boots with extra toe protection.



NOTICE

If you are not experienced with this type of machine, **WE STRONGLY RECOMMEND** that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

To complete a typical operation, the operator does the following:

1. Puts on the required personal safety equipment, and clears away all bystanders.
2. Inspects the workpiece and prepares it for press operations.
3. Retracts the hydraulic ram completely, and positions the bed so there is the shortest distance between the press pin and workpiece.
4. Verifies that both bed support pins are installed correctly and fully supporting the bed.
5. Places a catch basket under the press with the applicable padding to protect the part when it drops.
6. Positions the arbor plates to support the workpiece, and aligns the press pin or tooling on the part to be pressed.
7. Lowers the press ram to slightly preload the workpiece.
8. Examines the setup from different angles, and verifies that the press pin or tooling is maintaining alignment with the workpiece and the press ram.
9. While watching the pressure gauge, the operator completes the press operation.
10. Relieves the hydraulic pressure and allows the ram to return to the retracted position.

!WARNING

Exceeding rated press capacity can damage the press, shatter a workpiece, or launch a press pin causing a severe impact injury. When the press has reached its maximum pressure or the pump lever becomes very stiff to operate, the press has reached its limit. Never use a cheater pipe for extra leverage.



Controls

Figure 21 shows the hydraulic pump controls used for press operations. Review the list below to familiarize yourself with these controls.

- A. Hydraulic Reservoir.** Stores and cools hydraulic oil.
- B. Pressure Gauge.** Indicates the hydraulic system pressure.
- C. Pump Lever.** Allows the operator the necessary leverage to build hydraulic pressure in the piston for pressing operations.
- D. Pressure Relief Valve.** This valve is factory set at a safe relief pressure and should not be re-adjusted.
- E. Control Valve.** When the valve is rotated clockwise to the closed position, the pump and piston are ready for press operations. When the valve is rotated counterclockwise to the open position, the pump and piston are relieved of pressure, and the press retracts to the unloaded position.

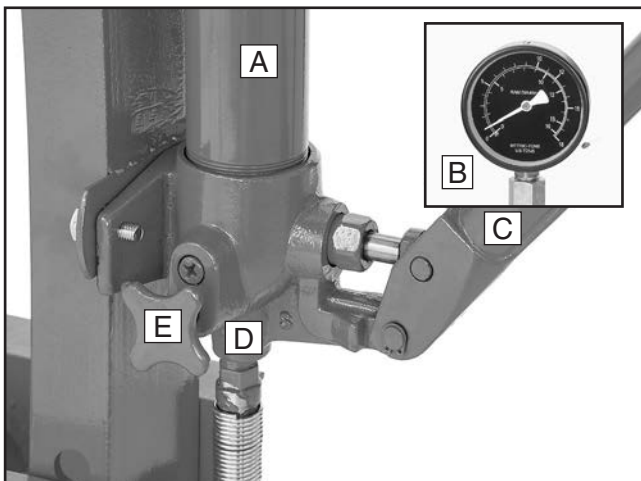


Figure 21. Pump controls.

Workpiece Inspection

Before using this hydraulic press, you must inspect the workpiece. This is not a comprehensive list but rather a list of common issues. It is up to you to address any additional special items required to prepare your workpiece for press operations. Not addressing the items below can lead to galled, seized, or broken housings. In some situations, ignoring just one of the listed items can lead to a workpiece or tooling being ejected from the press, which could cause severe injury or death.

- **Workpiece Strength:** Make sure that the workpiece material is designed to withstand the intended force the press will apply.
- **Workpiece Cleanliness:** Make sure that the workpiece is clean and that all burrs, grit, rust, or damage is removed from the pressing path. Often, light oiling on the components is beneficial to prevent galling or seizing.
- **Pressing Path:** Make sure that the direction of the component to be pressed on or off is correct and that the correct size of sleeve or arbor plate is used for support.
- **Retaining Mechanisms:** Make sure that all retaining rings, pins, or fasteners are removed, and no hidden secondary retainers are present.
- **Hidden Projectiles:** Some components house one or more springs. Make sure that the part to be dismantled with the press has the applicable caging system to catch the springs, should the workpiece slip or open up when the retaining ring is removed and the hydraulic pressure is relieved.
- **Special Fits:** Make sure that interference fits are correct before pressing a part on, and make sure that the applicable parts have been heated or chilled to the correct temperatures to avoid galling and seizing. Recognize that not all parts were designed to be pressed off. If in doubt, refer to the machinery repair manual for the part you are working on.



SECTION 4: ACCESSORIES

⚠ WARNING

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

Grizzly—Cast-Iron Arbor Presses

Available in four powerful size configurations, these handsomely cast arbor presses take the effort out of stamping, seating, removing bearings, and other operations that require simple, well controlled mechanical pressure.

MODEL	CAPACITY	THROAT	WORKING HEIGHT	WEIGHT
T26413	1 Ton	4"	6 $\frac{1}{8}$ "	32 lbs.
T26414	2 Ton	6"	8"	68 lbs.
T26415	3 Ton	6 $\frac{1}{4}$ "	12 $\frac{3}{4}$ "	108 lbs.
T27665	5 Ton	12 $\frac{1}{4}$ "	17 $\frac{5}{16}$ "	238 lbs.

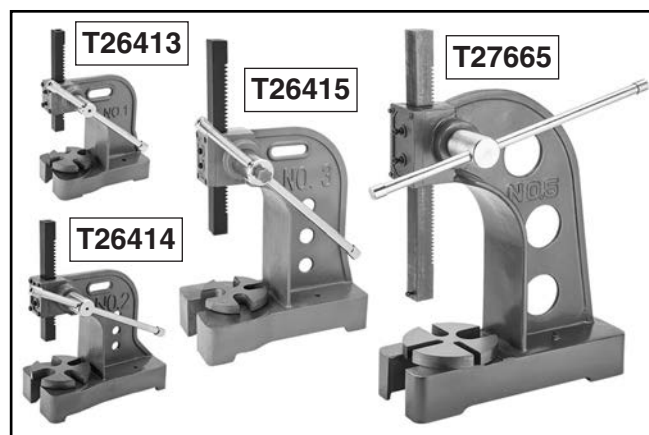


Figure 22. Grizzly arbor presses.

D2272—Tilting Roller Stand

Adjusts from 26" to 44", 0°-45°. 150 lb. capacity.

D2273—Single Roller Stand

Adjusts from 26 $\frac{5}{8}$ " to 45". 250 lb. capacity.

D2274—5-Roller Stand

Adjusts from 26" to 44 $\frac{5}{8}$ ". 250 lb. capacity.

Support long workpieces during pressing operations with adjustable height, super heavy-duty roller stands.



Figure 23. SHOP FOX® Roller Stands.

T20501—Face Shield Crown Protector 4"

T20502—Face Shield Crown Protector 7"

T20503—Face Shield Window

T20451—"Kirova" Clear Safety Glasses

T20452—"Kirova" Anti-Reflective S. Glasses

H7194—Bifocal Safety Glasses 1.5

H7195—Bifocal Safety Glasses 2.0

H7196—Bifocal Safety Glasses 2.5



Figure 24. Assortment of basic eye protection.

order online at www.grizzly.com or call 1-800-523-4777



SECTION 5: MAINTENANCE

⚠️ WARNING

Always relieve hydraulic pressure before performing maintenance. Failure to do this may result in serious personal injury.

Schedule

For optimum performance from your machine, follow this maintenance schedule, and refer to any specific instructions given in this section.

Daily Check:

- Loose mounting bolts.
- Damaged or leaking hydraulic seals.
- Frame cracks.
- Any other unsafe condition.

Weekly Maintenance:

- Workbench mounting bolts.

Every Three Years:

- Replace hydraulic oil.

Cleaning

Cleaning the Model H6231Z is relatively easy. Vacuum excess metal chips or contaminants away from hydraulic seals and pivot pins. Wipe off the remaining dust with a dry or lightly oiled cloth.

Unpainted Cast Iron

Protect the unpainted metal surfaces on the bed and arbor plates by wiping them clean after every use.

Keep tooling and arbor plates rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9.

Lubrication

To lubricate the pump:

1. Using a hand-held oil gun, apply one or two drops of any standard machine oil or motor oil to all clevis pins, as shown in **Figure 25**.

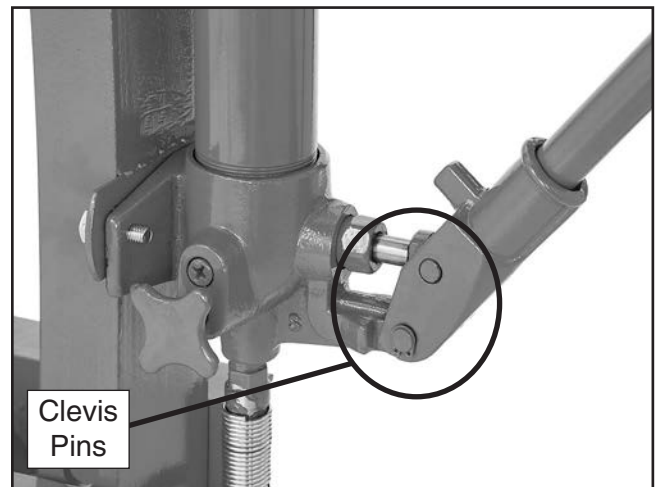


Figure 25. Clevis pins location.

2. With the press completely retracted in the uppermost position, use a #2 Phillips head screwdriver to remove the fill plug shown in **Figure 26**, and fill the pump reservoir with any standard hydraulic oil until it runs from the port. Re-install the fill plug.

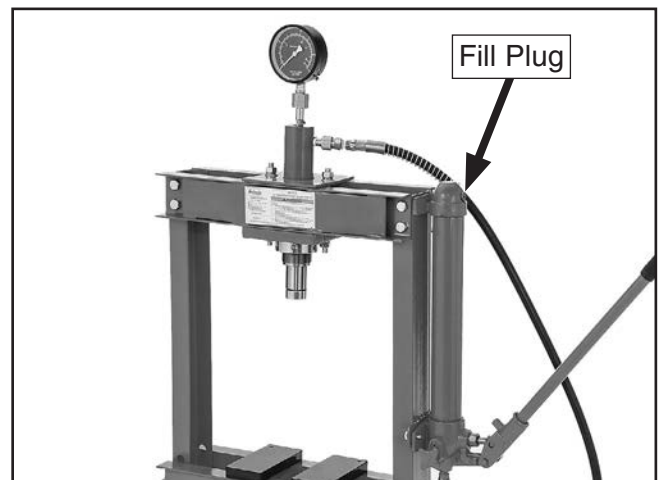


Figure 26. Fill plug location.



SECTION 6: SERVICE

Review the troubleshooting and procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note:** *Please gather the serial number and manufacture date of your machine before calling.*

Troubleshooting

Operation

Symptom	Possible Cause	Possible Solution
Piston is weak or does not reach rated pressing capacity.	1. Pump reservoir is low on oil. 2. System has air bubbles trapped in pump. 3. Control valve is at fault. 4. Pump or piston is at fault.	1. Fill pump reservoir to correct oil level (Page 18). 2. Bleed air out of the pump (Page 20). 3. Verify that the control valve is closed. 4. Have pump or piston rebuilt or replaced.
System loses pressure under a load.	1. Control valve is at fault. 2. Pump or piston is at fault.	1. Verify that the control valve is closed. 2. Have pump or piston rebuilt or replaced.
Pump lever feels spongy during pumping, or lever has lost stroke.	1. Pump reservoir is low on oil. 2. Air bubbles are trapped in pump. 3. Pump or piston is at fault.	1. Fill pump reservoir to correct oil level (Page 18). 2. Bleed air out of pump (Page 20). 3. Have pump or piston rebuilt or replaced.
Pump handle moves upward while press is under a load.	1. Air bubbles are trapped in pump. 2. Pump or piston is at fault.	1. Bleed air out of pump (Page 20). 2. Have pump or piston rebuilt or replaced.
Oil leaking from fill plug, or other seals.	1. Pump reservoir is overfilled. 2. Hydraulic hose or fitting is leaking. 3. Pump or piston is at fault.	1. Remove fill plug and drain off excess oil (Page 18). 2. Replace hydraulic hose or fitting. 3. Have pump or piston rebuilt or replaced.



Changing Hydraulic Oil

To maintain the hydraulic system for trouble-free service, every three years (or less under heavy use), drain and refill the reservoir on the hydraulic pump with any quality oil specified for use in hydraulic jacks.

To change the hydraulic oil:

1. Open the control valve (see **Figure 27**), and allow the press and the piston to fully retract until the pressure gauge reads zero.

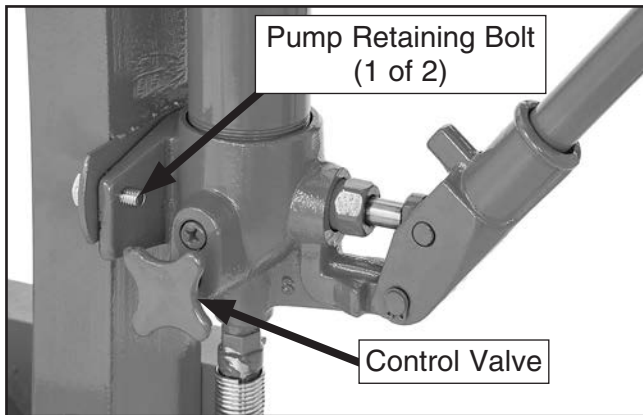


Figure 27. Control valve.

2. Use a 17mm wrench to remove the two pump retaining bolts and the pump.
3. Using a #2 Phillips head screwdriver, remove the fill plug shown in **Figure 28**. Next, invert the pump assembly and drain the hydraulic oil into a waste oil container.

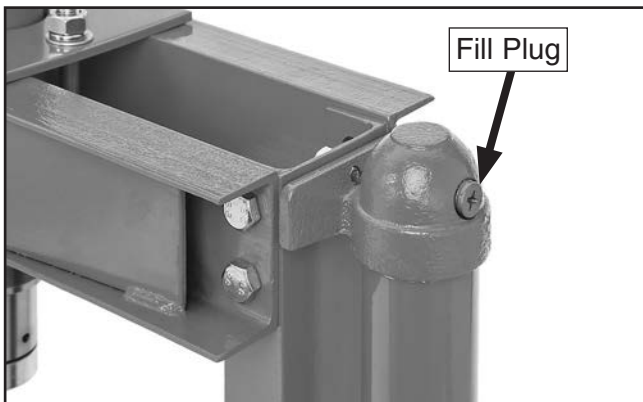


Figure 28. Fill plug location.

4. Re-install the pump and refill the pump reservoir with any quality hydraulic jack oil to the point where oil begins to pour out of the port.
5. Re-install the fill plug.
6. Close the control valve and pump the handle to extend the press piston a few inches.
7. Open the control valve, and allow the press and the piston to fully retract once again until the pressure gauge reads zero.
8. Remove the fill plug and top-off the hydraulic oil level as required to the point where oil begins to pour out of the port.
9. Wipe down all fittings and lines.
10. Re-install the fill plug.

Bleeding Pump

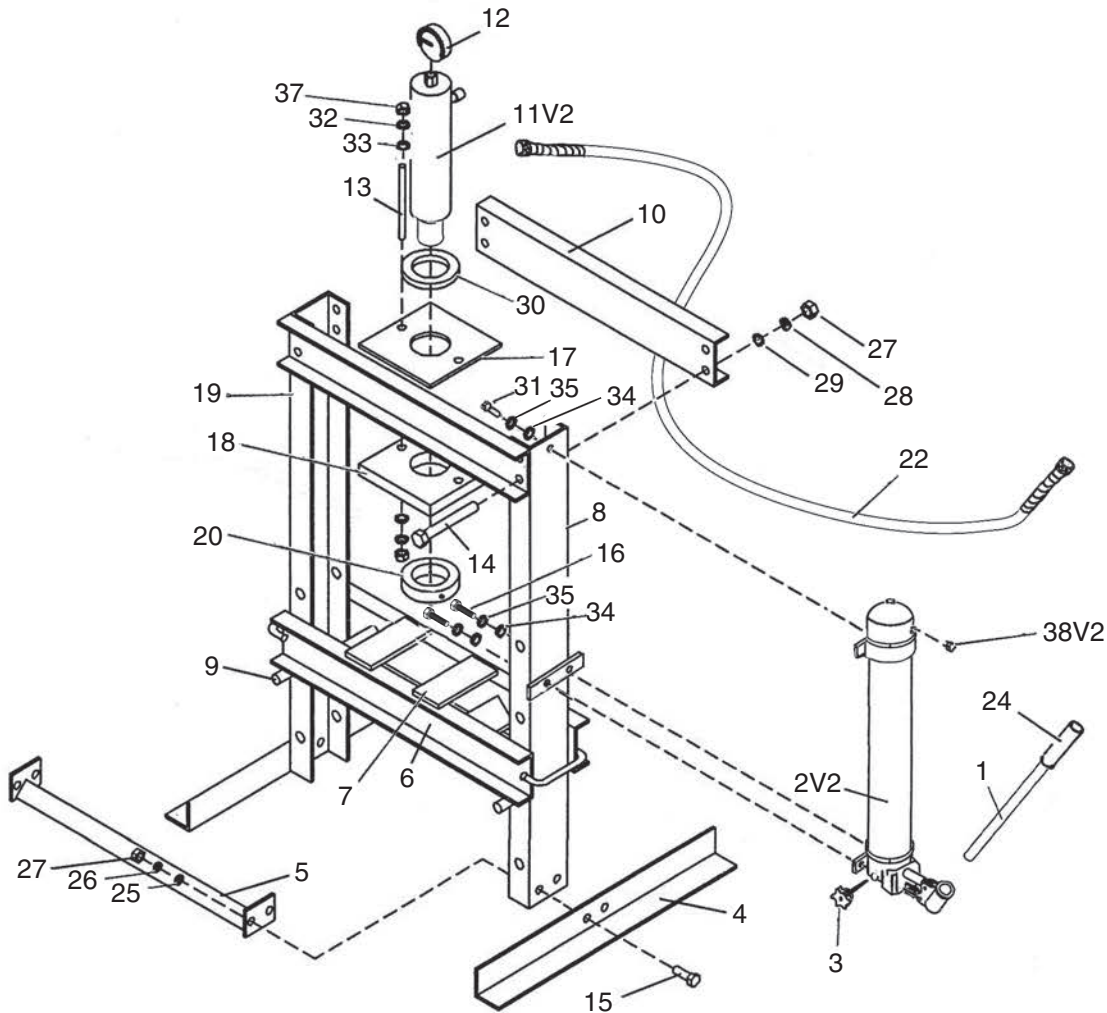
To bleed air from the pump:

1. Open the control valve completely and allow the return piston to fully retract.
2. Remove fill plug shown in **Figure 28**, and top-off the hydraulic oil level as required to the point where oil begins to pour out of the port.
3. With the control valve still open, pump the handle quickly with five to ten strokes.
4. Close the control valve, top off the oil level, and re-install the fill plug.



SECTION 7: PARTS

Main



REF PART # DESCRIPTION

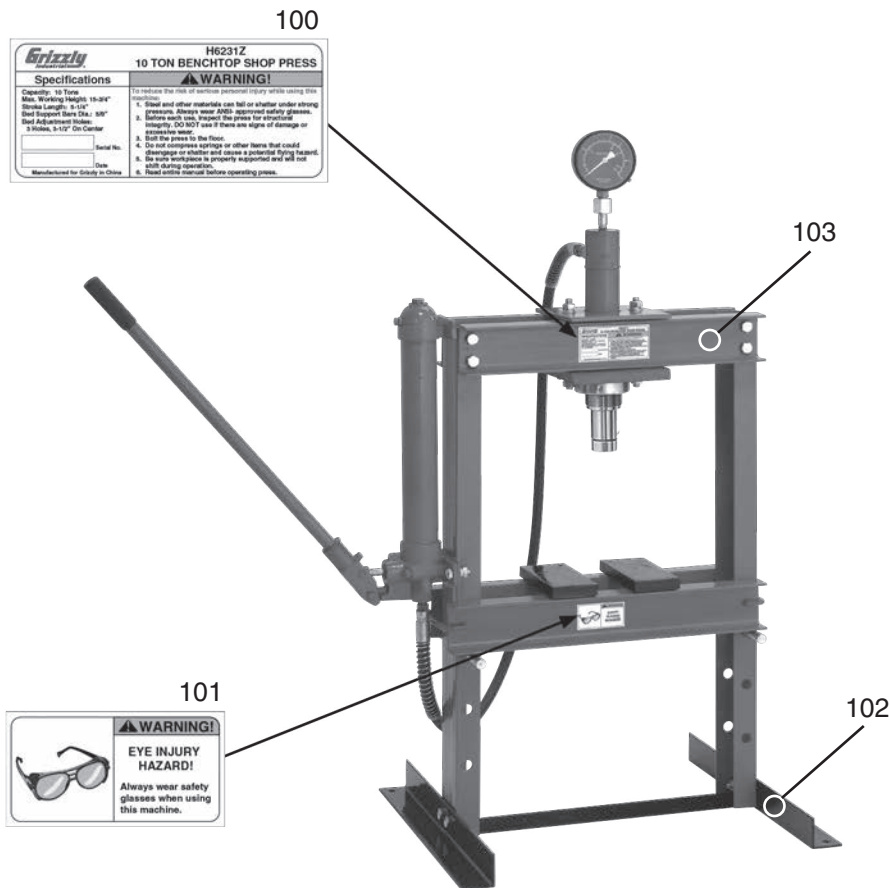
1	PH6231Z001	PUMP LEVER W/GRIP
2V2	PH6231Z002V2	HYDRAULIC PUMP 10-TON V2.01.13
3	PH6231Z003	CONTROL VALVE KNOB BOLT
4	PH6231Z004	BASE LEG
5	PH6231Z005	BASE CROSS SUPPORT
6	PH6231Z006	BED
7	PH6231Z007	ARBOR PLATE
8	PH6231Z008	U-BEAM W/PUMP BRACKET
9	PH6231Z009	BED PIN
10	PH6231Z010	UPPER U-BEAM
11V2	PH6231Z011V2	PISTON ASSEMBLY 10-TON V2.01.13
12	PH6231Z012	HYDRAULIC PRESSURE GAUGE
13	PH6231Z013	STUD-DE M12-1.75 X 150 32RH
14	PH6231Z014	HEX BOLT M12-1.75 x 110 C8.8
15	PH6231Z015	HEX BOLT M12-1.75 x 30
16	PH6231Z016	HEX BOLT M8-1.25 x 25
17	PH6231Z017	SUPPORT PLATE 6MM
18	PH6231Z018	SUPPORT PLATE 20MM

REF PART # DESCRIPTION

19	PH6231Z019	U-BEAM W/O PUMP BRACKET
20	PH6231Z020	SPANNER RING 25MM
22	PH6231Z022	HYDRAULIC HOSE
24	PH6231Z024	RUBBER GRIP
25	PH6231Z025	FLAT WASHER 12MM
26	PH6231Z026	LOCK WASHER 12MM
27	PH6231Z027	HEX NUT M12-1.75
28	PH6231Z028	LOCK WASHER 12MM
29	PH6231Z029	FLAT WASHER 12MM
30	PH6231Z030	SPANNER RING 15MM THICK
31	PH6231Z031	HEX BOLT M8-1.25 x 16
32	PH6231Z032	LOCK WASHER 12MM
33	PH6231Z033	FLAT WASHER 12MM
34	PH6231Z034	FLAT WASHER 8MM
35	PH6231Z035	LOCK WASHER 8MM
37	PH6231Z037	HEX NUT M12-1.75
38V2	PH6231Z038V2	FILL PLUG M10-1 X 4 V2.01.13



Labels & Cosmetics



REF	PART #	DESCRIPTION
100	PH6231Z100	MACHINE ID LABEL
101	PH6231Z101	SAFETY GLASSES LABEL

REF	PART #	DESCRIPTION
102	PH6231Z102	TOUCH-UP PAINT, BLACK
103	PH6231Z103	TOUCH-UP PAINT, RED

WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.





WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____

Model # _____ Order # _____ Serial # _____

*The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. **Of course, all information is strictly confidential.***

1. How did you learn about us?

_____ Advertisement

_____ Friend

_____ Catalog

_____ Card Deck

_____ Website

_____ Other:

2. Which of the following magazines do you subscribe to?

_____ Cabinetmaker & FDM

_____ Popular Science

_____ Wooden Boat

_____ Family Handyman

_____ Popular Woodworking

_____ Woodshop News

_____ Hand Loader

_____ Precision Shooter

_____ Woodsmith

_____ Handy

_____ Projects in Metal

_____ Woodwork

_____ Home Shop Machinist

_____ RC Modeler

_____ Woodworker West

_____ Journal of Light Cont.

_____ Rifle

_____ Woodworker's Journal

_____ Live Steam

_____ Shop Notes

_____ Other:

_____ Model Airplane News

_____ Shotgun News

_____ Old House Journal

_____ Today's Homeowner

_____ Popular Mechanics

_____ Wood

3. What is your annual household income?

_____ \$20,000-\$29,000

_____ \$30,000-\$39,000

_____ \$40,000-\$49,000

_____ \$50,000-\$59,000

_____ \$60,000-\$69,000

_____ \$70,000+

4. What is your age group?

_____ 20-29

_____ 30-39

_____ 40-49

_____ 50-59

_____ 60-69

_____ 70+

5. How long have you been a woodworker/metalworker?

_____ 0-2 Years

_____ 2-8 Years

_____ 8-20 Years

_____ 20+ Years

6. How many of your machines or tools are Grizzly?

_____ 0-2

_____ 3-5

_____ 6-9

_____ 10+

7. Do you think your machine represents a good value?

_____ Yes

_____ No

8. Would you recommend Grizzly Industrial to a friend?

_____ Yes

_____ No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

Note: *We never use names more than 3 times.*

_____ Yes

_____ No

10. Comments: _____

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WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number," which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.



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