



# 20 Ton and 40 Ton Shop Press Manual

Serial # \_\_\_\_\_

**800-446-4402**

[www.clevelandsteeltool.com](http://www.clevelandsteeltool.com)

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## ***Company Profile***

The Cleveland Steel Tool Company offers a full line of high quality, low maintenance hydraulic ironworking machines, associated tooling and accessories that are used in the steel fabrication industry. With proper operation, care, and maintenance, your Cleveland Steel Tool Shop Press will provide years of safe, trouble-free service. Please take time to study this manual carefully to fully understand Shop Press safety procedures, set-up, operation, care, maintenance, troubleshooting and warranty coverage prior to putting the machine into production. Any questions not answered within this manual can be directed to The Cleveland Steel Tool Company.



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## ***Machine Identification***

Your Cleveland Steel Tool Shop Press has been serialized for quality control, product traceability and warranty enforcement. Please refer to the aluminum identification tag with the engraved serial number and electrical and power specifications when ordering parts or filing a warranty claim.

## ***Warranty***

*The Cleveland Steel Tool Company* will, within one (1) year of date of purchase, replace F.O.B. the factory, any goods, excluding punches, dies, and/or blades, which are defective in materials and workmanship provided that the buyer returns the defective goods, freight prepaid, to the seller, which shall be the buyer's sole and exclusive remedy for the defective goods. Hydraulic and electrical components are subject to their respective manufacturer's warranties.

*The Cleveland Steel Tool Company* will, within thirty (30) days of date of purchase, replace F.O.B. the factory any punches, dies, and/or blades that prove to be defective in material and workmanship.

(Proof of purchase date required)

This warranty does not apply to machines and/or components which have been altered, changed or modified in any way, or subjected to abusive and abnormal use, inadequate maintenance and lubrication, or subjected to use beyond seller recommended capacities and specifications. THIS WARRANTY IS VOID IF YOU ATTEMPT REPAIRS YOURSELF. In no event shall seller be liable for labor costs expended on such goods or consequential damages. Seller shall not be liable to the purchaser or any other person for loss, downtime, or damage directly or indirectly arising from the use of the goods or from any other cause. No officer, employee, or agent of seller is authorized to make any oral representations or warranty of fitness or to waive any of the foregoing terms of sale and none shall be binding on seller.

## Operator and Supervisor Information

This manual includes information on:

- Installation
- Safety
- Operation
- Maintenance

*READ ALL INSTRUCTIONS BEFORE OPERATING MACHINERY.* Operating machinery before reading and understanding the contents of this manual greatly increases the risk of injury.

This manual describes 'best practices' in handling, installing, operating and maintaining your machine. The contents are subject to change without notice due to improvements in the machinery or changes in National or International standards.

All rights reserved. Reproduction of this manual in any form, in whole or in part, is not permitted without the written consent of Cleveland Steel Tool.

Keep this manual close to the machine to allow for easy reference when necessary.

Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

Do not allow for operation of the machine by unqualified personnel. Cleveland Steel Tool is not liable for accidents arising from unskilled, untrained operation.

Do not modify or change the machine without written authorization from Cleveland Steel Tool. Unauthorized modification to a machine may result in serious operator injury, machine damage and will void your machine warranty.

Never leave a powered machine unattended. Turn machinery OFF before walking away.

This machine is manufactured for use by able bodied and able minded operators only. Never operate machinery when tired or under the influence of drugs or alcohol.

Do not resell, relocate or export to a destination other than to the original point of sale. Cleveland Steel Tool has designed this machine to meet the standards of the original receiving country and is not liable for meeting any governing body or performance standards beyond those of the original receiving country.

## Signal Word Definition

 **DANGER**

Indicates a hazardous situation that, if not avoided, will result in death or serious injury.

 **WARNING**

Indicates a hazardous situation that, if not avoided, could result in death or serious injury.

 **CAUTION**

Indicates a hazardous situation that, if not avoided, could result in mild or moderate injury.

 **NOTICE**

Indicates information considered important, but not hazard related.

## Signal Word Panel on Machine

 **DANGER**

Critical machine safety information is identified on signal word labels. Labels are attached adjacent to the potentially hazardous locations of the machine. Reference safety instructions for additional information regarding the potentially hazardous condition identified on the label.

Review ALL labels on the machinery, reference the operational precautions and safe operations sections within this manual before any operation activity is initiated.

Failure to read and understand the signal word labels affixed to the machinery may result in operator death or injury.

## Shop Press Installation

This manual provides installation requirements for the Cleveland Steel Tool 20 Ton Shop Press and 40 Ton Shop Press.

All Cleveland Steel Tool hydraulic accessory tools are powered by a Cleveland Steel Tool Ironworker or a Cleveland Steel Tool Porta Power, portable hydraulic power unit.

Refer to the manual for the Cleveland Steel Tool Porta Power to operate your Cleveland Steel Tool hydraulic accessory tool. Provide operators with sufficient training and education in the basic functions of the machine prior to machine operation.

### Environmental Requirements at Work Station

#### NOTICE

The work station environment for your Cleveland Steel Tool Shop Press must meet the following minimum requirements:

- **Ambient temperature:** 45°F - 110°F
- **Relative humidity:** No greater than 90% relative humidity.
- **Floor area:** Assure that the machinery work area provides for a stable, adequately sized and load rated floor area for material movement to and from the machinery work stations.
- **Shelter:** Protect your Ironworking machinery from water, salts and corrosive elements.
- **Lighting:** 60 Watts (500LUX or 50 footcandles) minimum.

## Receiving the Shop Press

#### WARNING

Cleveland Steel Tool Hydraulic Accessory Tools are fully assembled and are shipped either by palletized custom wooden crate or by shrink-wrapped wooden pallet for ease of transport and receiving. Inspect the packaging for damage and follow shipping/receiving instructions as listed on the packaging prior to receiving the tool into your facility. When receiving your Hydraulic Accessory Tool, be prepared to safely move your machinery with a forklift rated for the following equipment weights:

### Minimum Machinery Weights

20 Ton Shop Press	400 lbs/181.43 kg
40 Ton Shop Press	1350 lbs/612.34 kg

## Unpacking/Moving Shop Press

### Forklift

This machine is equipped with rated forklift movement points. Do not attempt to lift the machinery by any other means. Inappropriate movement of the machinery may result in serious operator injury, machine damage and will void machine warranty. Provide rated forklift and certified forklift operator to move machinery to appropriate location.



Handle material as close to the drive surface as possible with the widest spread and deepest penetration of forks effective to service the pallet. Forks should be adjusted and locked into the safety detent closest to the maximum available fork spread.

Your Cleveland Steel Tool 20 Ton Shop Press or 40 Ton Shop Press includes surface and remotely mounted electrical cabling and hydraulic lines. Exercise caution when removing the factory supplied packaging. Do not cut electrical wires or hydraulic hoses.

1. Carefully remove packaging.
2. Carefully remove the 3/4" lagbolts and washers attaching the Press to the shipping pallet.
3. Locate the fork-lift areas directly adjacent to the cylinder.
4. Carefully insert forks under the press head assembly. Do not allow forks to hit cylinder or cylinder ram. Confirm that forks are in contact with both front and rear press head frames. Install clamps (not included) to forks so that the press is stable while moving and lift the press from the pallet.
5. Locate your Press directly adjacent to the Cleveland Steel Tool Ironworker or Porta Power. Ensure that power controls of the Ironworker or Porta Power are within arms-reach of the Press tool.

## Installing the 20 Ton Shop Press

### **WARNING**

1. The 20 Ton Shop Press is designed to sit on a dedicated, weight rated table or bench top. **DO NOT MOUNT ON CASTERS.** The table/bench rating should be a minimum multiplier of 2.5 times the weight of the Press plus the weight of any tooling being used within the Press, plus the material being pressed.

**(Press weight (400 lb) + Tooling weight + Material weight ) x 2.5 = Dedicated, weight rated table/bench**

2. Locate leveling and attachment brackets. With a level placed within the work cavity, check the machinery for level. Adjust for level by installing four(4) ½" bolts in the tapped holes provided in the brackets. When level, drill for four(4) ¾" through bolts to secure press to table. Tighten nuts, washers and bolts to complete bench installation.

### **CAUTION**



**Hardened Pins for Height Adjustment**  
Exercise caution when adjusting the height of the Shop Press.

## Installing the 40 Ton Shop Press

### **WARNING**

1. The 40 Ton Shop Press is designed to mount on a dedicated, weight rated **FLOORING SYSTEM.** **DO NOT MOUNT ON CASTERS.** The floor rating should be a minimum multiplier of 2.5 times the weight of the Press plus the weight of any tooling being used within the Press, plus the material being pressed.

**(Press weight (1,350 lb) + Tooling weight + Material weight ) x 2.5 = Dedicated, weight rated table/bench**

2. Locate leveling and attachment brackets. With a level placed within the work cavity, check the machinery for level. Adjust for level by installing four (4) ½" bolts in the tapped holes provided in the brackets. When level, drill for four (4) ¾" wedge anchor bolts to secure press to floor. Install wedge anchor bolts, install washers, and tighten nuts to complete floor installation.

### **CAUTION**



**Hardened Pins for Height Adjustment**  
Exercise caution when adjusting the height of the Shop Press.

## Danger Panel

### **DANGER**

#### Electrical Hazard

High voltages present inside the enclosure of this product. **ONLY** qualified, authorized, maintenance, service or Certified Electricians should gain access to electrical panel. Do not operate this equipment from any power source that does not match the voltage rating stamped on the equipment. Refer to the Manufacturer's Identification Label for operational requirements.



#### Lockout Power

Danger circuits are live. Lockout/Tagout the upstream power source. Lockout/Tagout machinery according to Employer procedures.



## Warning Panel

### **WARNING**

#### Shear/Crush Hazard

Moving parts can cut and crush. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service.



#### Wear Personal Protective Equipment

To avoid physical hazard, always wear personal protective equipment. Wear protective eye-wear, clothing, gloves, footwear, head-gear and hearing protection while operating or servicing this machinery.



#### Fluid Injection Hazard

Hydraulic hoses and cylinders are under pressure. Pressurized fluid can pierce skin and cause severe injury. To avoid physical hazard, always wear personal protective equipment. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service.



#### Do Not Operate With Guard Removed

Physical barriers and guards have been designed and installed to protect the operator from moving parts that can pinch, cut and crush. Keep hands clear while operating. Lockout power before servicing. Immediately replace guards after adjustment, repair or service to moving parts.



## Notice Panel

### NOTICE

#### Shop Press Operation

Cleveland Steel Tool Hydraulic 20 and 40 Ton Shop Press machinery are 'do-all' tools capable of many functions. This manual outlines the basic functions associated with typical press operations and is neither intended to create a comprehensive list of, nor describe every operation possible with a press tool. Press operations are dangerous and require extreme care and caution in the safe installation, operation and maintenance of the machinery. Cleveland Steel Tool Company strongly suggests reading and understanding all manuals associated with the machinery as well as obtaining certified, technical, industrial machinery operations and maintenance training to reduce the risk of injury. Regardless of the contents of the machinery manual Cleveland Steel Tool Company will not be held liable for accidents caused by lack of training.



#### Safety, Installation, Operations and Maintenance

This manual contains critical instructions regarding proper procedures for your machinery. Understand the contents of all parts thoroughly. Failure to follow proper procedures may result in serious operator injury, machine damage and will void your machine warranty. Keep the manual close to the machine for easy reference.



## Maintenance

### CAUTION

Your CST Shop Press will benefit from reasonable care and periodic maintenance. Reasonable care includes daily visual observation, as well as general maintenance procedures at daily intervals by operator/maintenance personnel. Perform inspections and maintenance of the electrical, hydraulic, and mechanical systems of the Cleveland Steel Tool hydraulic accessory connected to the Ironworker or Porta Power as follows:

## Daily/Shift Change Visual Observation

#### Electrical System

Visually inspect controls and power cording to the Ironworker or Porta Power for signs of damage. Cut, abraded or crushed electrical cords may present an electrical hazard to the Operator and/or damage the machinery.

#### Hydraulic System

Visually inspect exposed or surface mounted hydraulic hoses and fittings for signs of damage. Cut, abraded or crushed hydraulic hoses or leaking fittings may present a hydraulic fluid hazard to the Operator and/or damage the machinery.

## Daily/Shift Change Visual Observation

#### Mechanical System

Visually moving parts. Guards and material hold-downs must remain on the machine for safe operation. Clear any material obstructions at the work station prior to visually inspecting moving parts of the machine. Cycle the machine. Machine should operate smoothly in hydraulic extend and retract mode. Failure of any element of the daily/shift change visual observation will require maintenance of the affected accessory componentry. Please follow the following maintenance procedures.

## Daily Maintenance

### WARNING

#### Disconnect unit from power source.

Check wiring harness for loose connections or damaged control wiring.

Replace damaged control wiring as necessary. Order replacement control wiring assembly from your Cleveland Steel Tool distributor or through Cleveland Steel Tool.

Check hydraulic fittings and hoses for wear or damage. Replace damaged or worn hydraulic hoses and fittings as necessary. Order replacement hydraulic components from your Cleveland Steel Tool distributor or through Cleveland Steel Tool.

Check bolted connections and secure as necessary.

Check welded connections.

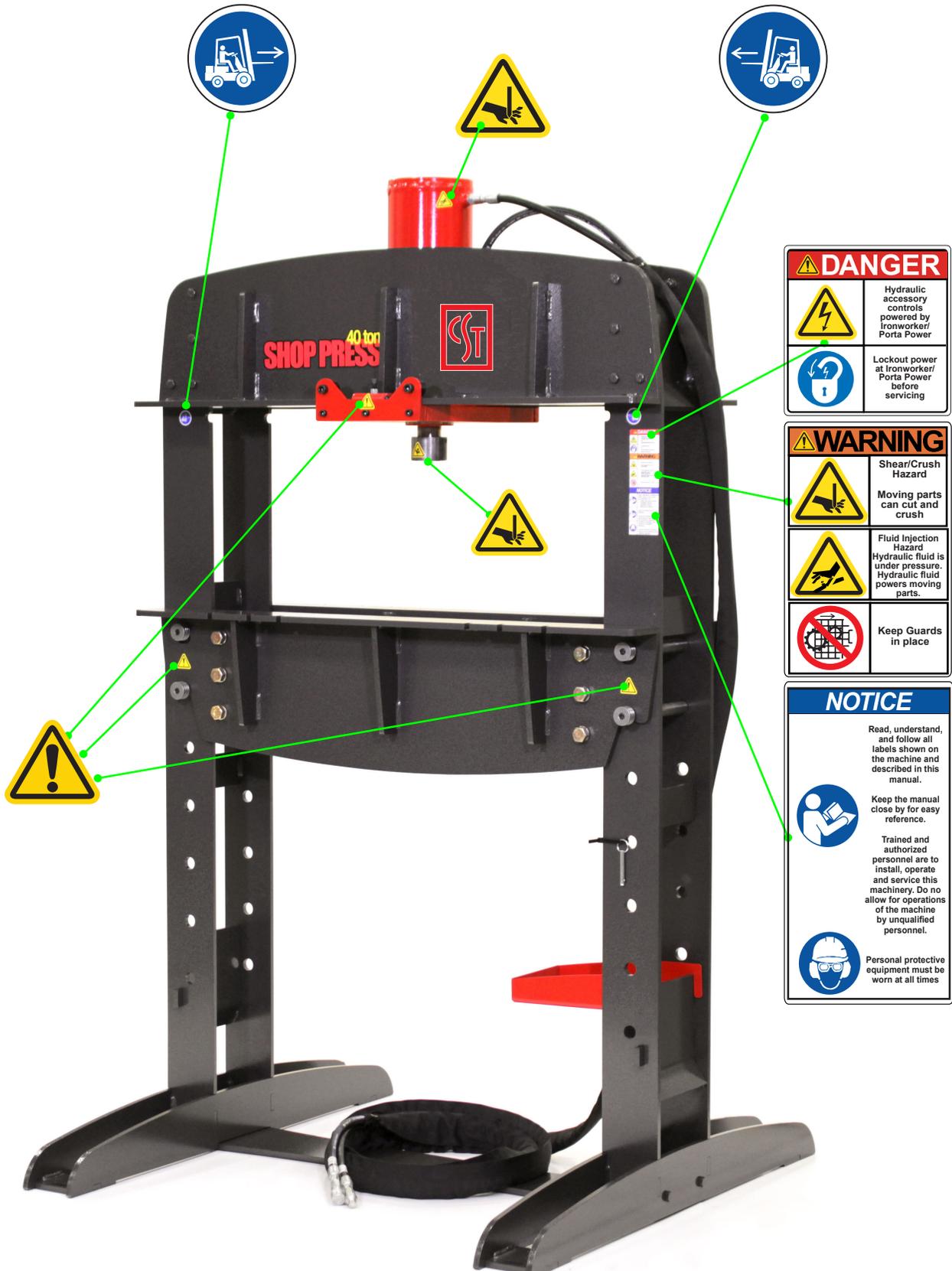
Check bearing surface quality.

Visually inspect press ram and wiper assemblies for chips or galling in the bearing surface.

Verify tooling is secure. Cleveland Steel Tool tooling is manufactured from billet steel for enhanced strength and durability. These are wearing parts that will fail over time and will require replacement. Order additional tooling through your Cleveland Steel Tool distributor or through Cleveland Steel Tool. Install replacement parts according to this manual.

Clean your Press daily. Disconnect the unit from its power source first. Do not use liquid cleaners, aerosols, abrasive pads, scouring powders or solvents such as benzene or alcohol. Clean your machine with a compressed air nozzle and soft cloth lightly moistened with a mild, water-based detergent solution. Remove filings, dirt, dust and grime from working surfaces. Ensure the surfaces are fully dry before reconnecting power.

# Shop Press • Signal Word Panel



<b>DANGER</b>	
	Hydraulic accessory controls powered by Ironworker/ Porta Power
	Lockout power at Ironworker/ Porta Power before servicing

<b>WARNING</b>	
	Shear/Crush Hazard Moving parts can cut and crush
	Fluid Injection Hazard Hydraulic fluid is under pressure. Hydraulic fluid powers moving parts.
	Keep Guards in place

<b>NOTICE</b>	
Read, understand, and follow all labels shown on the machine and described in this manual.	
	Keep the manual close by for easy reference.
Trained and authorized personnel are to install, operate and service this machinery. Do not allow for operations of the machine by unqualified personnel.	
	Personal protective equipment must be worn at all times

# Hydraulic Power Sources



Hydraulic Accessory Tool Power/Controls



Your Cleveland Steel Tool 20 Ton or 40 Ton Shop Press is factory assembled and tested for optimum performance when powered by a Cleveland Steel Tool rated hydraulic power supply.

The Shop Press is powered by either a Cleveland Steel Tool Ironworker factory installed Hydraulic Accessory Control Package or a Cleveland Steel Tool Porta Power, 5hp, 3000psi, portable power unit.

***Alternate power sources are not recommended and may compromise machine operation, machine hydraulic warranty and operator safety.***

Follow electrical connection installation instructions for power supply as set forth within this manual.

## Powering with a Cleveland Steel Tool Ironworker

Power selection controls are located adjacent to the starter box on the feed side of the machine. Hydraulic quick connections and accessory controls are located on the drop-off side or end cap of the machine.

With the Ironworker power off, install Shop Press hoses, power and control:

- Install the Shop Press male and female accessory hydraulic hoses to the ironworker male and female quick connect hydraulic fittings. Both fittings have a detent ball setting that must be aligned to couple and uncouple hoses.
- Attach the Shop Press control OUT/IN, male M12 control cable to the female M12 accessory control port.



## Factory Installed Ironworker Hydraulic Accessory Pack

***With all Ironworker and Press stations clear of hands, tools, tooling, material or debris, power up the Ironworker by depressing the green button on the starter box.***

With the power on, your Ironworker machine will return to a neutral position.

Turn the 3-position switch on the front of the machine case to the **Accessory** position. This operation disables the Ironworker and switches control to the accessory hand control.

With all Shop Press work stations clear of hands, tools, tooling, material or debris, test the Shop Press operation by depressing the OUT control button. Once depressed, the hydraulic cylinder of the Shop Press will extend to operate the accessory. Releasing pressure on the OUT control button will stop the machine mid-operation. Return the tool to its starting position by depressing the IN button.



## Porta Power

**Power up the Porta Power by depressing the green button on the starter box.**

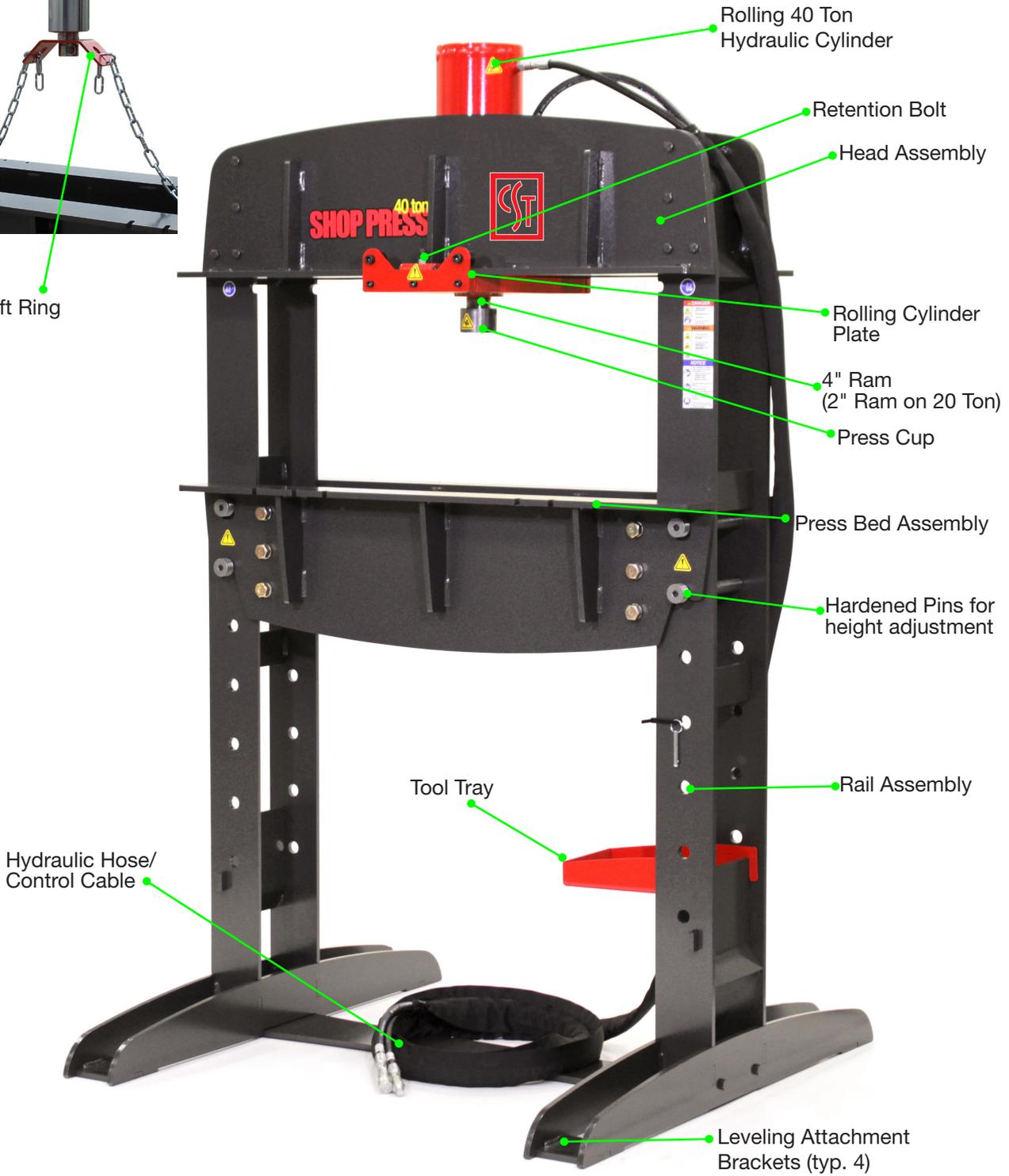
With all Shop Press stations clear of hands, tools, tooling, material or debris, test the accessory operation by depressing the OUT control button. Once depressed, the hydraulic cylinder of the Shop Press will extend to operate the accessory. Releasing pressure on the OUT control button will stop the machine mid-operation. Return the Shop Press to its starting position by depressing the IN button.

If the machine fails to cycle, power down the Porta Power by depressing the red button on the starterbox, and consult the trouble shooting section.

# Operations Diagram



Lift Ring



# Operations

## ⚠️ WARNING

### Adjusting the Table

- The press bed height adjusts in relation to the stationary elevation of the cylinder ram. **Do not attempt to manually lift or lower the press bed.**
- Utilize lift ring and lift chains to incrementally lift or lower the press bed to the appropriate working height for the material being pressed.
- Install the lift ring by removing the press cup at the ram end. Install the lift ring on the ram, lift beyond the 3/8" bore through the ram and secure with 3/8" grade 8 lynchpin through ram.
- Identify the horizontal keyholes at both ends of the press bed assembly.

### Raising the table

- Extend the ram and lift ring completely.
- Link the chains provided over the lift ring and drape chains through the keyholes in the press bed assembly. Make sure the chain links are equally distributed either side of the ram to the press bed keyholes.
- Engage chain into keyholes. Once secure, carefully raise the ram so that any slack is drawn out of the chains.
- Once tension is put on the chains, carefully remove the lynch pins and hardened pins securing the press bed to the rail assembly.
- With the pins removed, carefully retract the cylinder to raise the press bed to the desired position.
- Insert hardened pins, re-install lynchpins and remove lift chains and lift ring hardware to complete the press bed change.



- Center ram
- Extend ram
- Attach lift ring
- Insert pin into ram to hold lift ring in place.
- Attach lift chains to lift ring.
- Attach lift chains to press bed

### Lowering the table

- Retract the ram and lift ring to within 1/2" of complete retraction.
- Link the chains provided over the lift hooks and drape chains through the keyholes in the press bed assembly. Make sure the chain links are equally distributed either side of the ram to the press bed keyholes.
- Once secure, carefully raise the ram so that any slack is drawn out of the chains.
- Once tension is put on the chains, carefully remove the lynchpins and hardened pins securing the press bed to the rail assembly.
- With the pins removed, carefully extend the cylinder to lower the press bed to the desired position.
- Insert hardened pins, re-install lynch pins, and remove lift chains and lift ring hardware to complete the press bed change



- Retract ram to tighten lift chains
- Remove hardened pins.
- Retract ram to lift press head

### Loading / Supporting / Securing Material

- Examine the material to be worked. Understand irregularly shaped materials and be prepared to adequately and safely support them through the pressing cycle.
- Utilizing best practices, carefully load the material into the working cavity of the press and support the material on the press bed with pressing aids such as arbor plates (not included).
- Utilize clamps or other security devices to hold the workpiece when practical. Consider the security and stability of the workpiece in the press cycle. A secure workpiece allows for both hands to operate the machine.

### Adjusting the Hydraulic Ram

- The hydraulic ram is mounted to a rolling plate. The rolling feature allows for precision alignment for off-center pressing applications.
- Once aligned over the press site, carefully extend the ram to the press surface and fine-tune the ram alignment.
- Before starting the pressing operation, tighten the retention bolt at the rolling cylinder plate to secure the cylinder during the press operation.

# Operations



**DANGER**

## Safe Operation

Observe the following guidelines when performing Press operations.

- **Operator Safety / Safe Work Zone**

Applying pressure to parts or assemblies can fail the part being worked, fail a part adjacent to the work or fail the pressing tool. Failed parts can become airborne projectiles with deadly force. Protect yourself with appropriate personal protective equipment when operating the press. Protect others by defining a safe work zone for press use and limiting access to the press operator.

- **Press Inspection**

Press operations may generate concussive failure to mechanical parts. Although CST press machinery is fabricated with both bolted and welded construction, concussive failure is a possibility over time or with extreme use. Prior to any press operation, visually check all bolted and welded connections for failure. All bolts must be tight and welds intact. Failure to verify the structural integrity of the machinery may result in work-piece shift, part ejection, operator injury or machinery damage.

- **Workpiece Inspection**

Workpiece failure is the most common source of injury during press operations. Take time to thoroughly understand the workpiece. Never apply pressure to unstable objects, round shapes, balls, springs or any item with elastic, spring-back tendencies. Confirm the material properties of the workpiece will withstand the pressure to be exerted by the press. Confirm that workpiece items are stripped down to their simplest form. Many components contain unseen items that could fail during the press operation. Remove all sub components known to the workpiece prior to a pressing operation. Workpiece must be clean and free of substances at the pressing surface that would allow the pressing surfaces to slip under load.

- **Workpiece Support**

Workpiece failure may be a result of improper or inadequate workpiece support. Adequate support for the workpiece must be present through the entirety of the press operation. Understand your workpiece and confirm that the workpiece support system you employ will withstand the pressure being exerted through the press operation.

- **Safe Use of Tooling**

Cleveland Steel Tool provides optional press tooling designed to provide for basic press applications. These tools are not designed to provide for all press applications. Care must be taken when selecting press tooling. Select tooling that is designed and rated for the specific application. Press with the shortest, most compact, tool length available. Confirm that press tooling and workpiece are aligned and follows a direct press path. Confirm that the correct press sleeve and arbor plate are used. Misaligned loads may fail the press tooling or workpiece and cause operator injury or damage to the machinery.

- **Special Fits**

Not all parts were designed or engineered to be removed or applied with a press. When inspecting your workpiece, confirm any press tolerances, environmental, heating, cooling or fixative requirements that require special care prior to initiating the press operation. Do not proceed with a press operation without acknowledgment that the workpiece is pressable.

- **Do Not Force Press**

Consider the rating of the press and the work at hand. Gradually build pressure being applied to the workpiece. Carefully observe the workpiece to avoid tooling misalignment or workpiece failure. Observe the press as it reacts under load. Do not overload the press. Under heavy press operation built up force is released when the pressed part breaks free of its mount. This release of pressure is sudden and can appear to shake the machinery. Take care to avoid parts falling from the workpiece.

## Press Operation

1. For Operator safety, wear personal protective equipment, clear the work zone of any tooling or debris prior to powering the machinery on.
2. Perform press inspection.
3. Perform workpiece inspection.
4. Turn power source on.
5. Retract ram, install press tooling.
6. Adjust press bed as necessary to achieve the shortest distance between the press pin and workpiece. Confirm hardened pins are fully engaged with linchpins secured.
7. Tighten retention bolts.
8. Safely load, position and support workpiece in press cavity.
9. Align and secure cylinder and ram over workpiece press site.
10. Confirm minimum table height to workpiece, alignment of ram and tooling to workpiece.
11. Carefully, slowly, extend ram and tooling to meet press site. Preload the workpiece and observe workpiece support and tooling alignment. Observe the preloaded condition from multiple angles to assure that the press tooling is in alignment with the ram and workpiece. If unstable, reverse ram, reset workpiece and re-align press tooling.
12. Gradually build pressure to complete the press operation. Do not overload the press.
13. Retract the ram to relieve hydraulic pressure following the press operation.

## Optional Tooling - Press Brake



### **WARNING**

Press Brake tooling is available in a 12" assembly for the 20 Ton Shop Press, and Press Brake tooling ranging in size from 12" to 32" is available for the 40 Ton Shop Press. Brake tooling will allow for the graduated bending of 10 ga. x 32", 1/4" x 24", 3/8" x 6" flat stock up to 90 degrees.

Press brake tooling consists of a moving brake 'punch' and a stationary brake 'die'. The punch is held within a push block that is mounted upon two guide pin and spring assemblies fixed to the mounting plate. The die is held within two retaining brackets that are bolted to the mounting plate. Hydraulic force is applied to the push block assembly to activate the punch into the die assembly. Punches and dies are wearing parts and may need to be replaced over time. Contact CST for replacement parts.

### Setup

1. Turn off power to press by depressing the red stop / off button on the CST Ironworker or CST Porta-Power or lockout upstream power at the main electrical panel.

If press-brake tooling was ordered with your press, the tooling is already installed and ready for operation. If ordered as an option, your press-brake tooling ships on a pallet. This tooling is heavy and is supplied with fork-lift installation hardware for safe and easy setup.

2. Install the brake tooling by unbolting the brake tooling from the shipping pallet and inserting fork-lift forks through the 4 brackets bolted to the brake mounting plate. Once the forks are stable in the brackets, apply clamps (not supplied) to the forks beyond the brake to prevent the brake from slipping off forks during installation.

3. Prepare the Press cavity to accept the brake tooling. Clean the press bed of any tooling or debris. Confirm that the press bed is secure, the hardened pins are properly seated and secured with their retaining clips.

4. Carefully lift the brake tooling with forklift and guide into the press cavity. Lower the brake tooling to the press bed and align through bolt holes in the press brake base table with the bolt slots in the press bed flanges. When aligned, carefully remove the safety clamps from the forks and remove the forks from the lifting brackets.

5. Secure the brake table to the press bed with 4pcs - 3/8" x 2" cap-screw, washer and nut assemblies (not supplied). Remove the 4 mounting brackets. Re-install the mounting bolts.

The 4-way bottom die is marked for 1/16", 3/16", 1/8" and 1/4" flat stock. Select the correct bottom die surface according to the material being used. Observe brake and material tolerances as listed in the tooling specifications and at the tooling station.

6. Apply standard press cup to ram end, center ram over press-brake tooling and power machine on.

Jog ram down to press brake push block and center within the cup centering guide. Once aligned, secure rolling cylinder to head frame by tightening retention bolt.

### Safe Operation

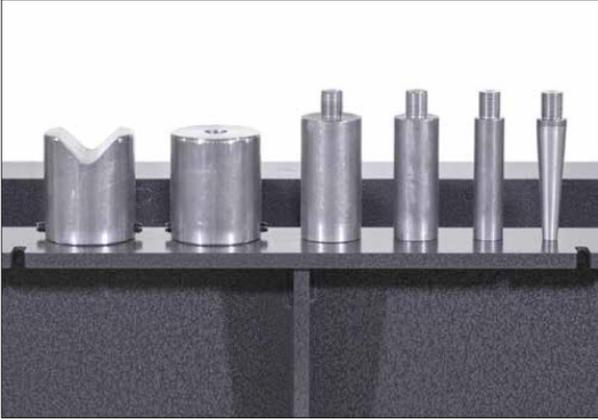
Observe the following guidelines when operating Press Brake Tooling.

- Never exceed the capacities of the machine or tooling as described in the Ironworker specifications or listed at the tooling station.
- Keep the Brake tooling clean.
- Check Brake clearance and alignment at every tooling change, maintenance cycle or extended brake operation. Failure to maintain proper clearance may damage punch, die and support brackets or adjacent tooling.
- Brake material towards the center of the brake length.
- Do not stack material in the Brake station.
- Use Brake aids when working with small items at the Brake station.
- When not in use, remove the Brake die from the holder.

### Brake Operation

1. Clear the Press Brake tooling station of any tools or debris prior to powering the machine on.
2. Turn your power source on and place the material to be "bent" on top of the bottom 4-way die.
3. Center your material within the length of the bottom die. Bending material 'off-center' to the ram may load the die unequally and produce poor quality parts, jam the push block on the guide pins and void the warranty on the tooling.
4. Position your material on the Brake die for the desired bend. Jog the 'punch' down to meet the material, clear your hands from the working area and depress the extend button on the hand control. Extend the ram to achieve your desired bend. When the operation is complete, retract the ram by pressing the retract button. Remove your material from the Press Brake tooling when the ram has fully retracted from the tooling and the tooling has returned to its neutral position.

## Optional Tooling - Press Brake Tooling Set



### **WARNING**

Cleveland Steel Tool provides optional press tooling designed to provide for basic press applications.

The Press Brake Tooling Set includes:

- 1 ea. 3" dia. x 3 1/2" V-Cup
- 1 ea. 3" dia. x 3 1/2" Threaded Cup
- 1 ea. 2" dia. x 4" Threaded Shaft
- 1 ea. 1-1/2" dia. x 4" Threaded Shaft
- 1 ea. 1" dia. x 4" Threaded Shaft
- 1 ea. 1" dia. x 4" Tapered Shaft

These tools are not designed to provide for all press applications. Choose your tooling according to the Operations section of this manual.

Press operations are dangerous and require extreme care and caution in the preparation of the material being worked, the press set-up and the pressing operation. Please refer to the following setup, safe operation and press operation sections for an understanding of potential hazards present in any pressing operation.

### Setup

1. Turn off power to Press by depressing the red stop/off button on the CST Ironworker or CST Porta Power or lockout upstream power at the main electrical panel. Your Shop Press was shipped with a standard press cup. A press cup protects the ram end of the cylinder during pressing operations.

**Never press directly with cylinder ram end. Pressing with exposed ram end may damage the machined surface, scratch the ram and damage the cylinder and void the manufacturer's warranty.**

2. Remove the standard press cup by relieving the ball-detent screws in the cup face. If utilizing the V-Cup press end, install by slipping the cup end over the ram end of the cylinder. Tighten the ball-detent screws in the V-Cup so that the cup fully engages the machined groove in the cylinder ram.

3. If utilizing the threaded or tapered shaft press tooling, note that this tooling threads into the 3" dia. x 3-1/2" Threaded Cup. Install threaded shaft ends into threaded cup and tighten so that the tooling is secure during the press operation.

4. Once the threaded cup and threaded shaft are secure, install by slipping the cup end over the ram end of the cylinder. Tighten the ball-detent screws in the threaded-cup so that the cup fully engages the machined groove in the ram end of the cylinder.

## Optional Tooling - Rod Shear/Multi-Shear



### **WARNING**

Rod Shear or Multi Shear Tooling will provide distortion and burr free cuts to mild steel rod, square, bar and small angle.

#### Setup

CST Rod Shear/Multi Shear consists of an adapter plate, a housing which holds a stationary blade, a moving blade, return springs, and a push block. The moving ram of the Shop Press “bumps” the top moving blade to shear the material. If ordered as a factory installed option, your Rod Shear/Multi Shear assembly is setup for immediate operation. If ordered as an option, the cavity of the machine must be cleared of any existing tooling, material or debris prior to tooling installation. To setup your Rod Shear or Multi Shear Tooling please observe the following steps.

Turn off power to press by depressing the red stop/off button on the CST Ironworker or CST Porta Power or lockout upstream power at the main electrical panel. Install the Rod Shear/Multi Shear assembly:

1. Remove all tooling and debris from the press table.
2. Place the 3/8" adapter plate on the press bed. Align bolt holes on plate with slotted holes in press bed.
3. Place the assembly on the press bed with the push block in line with the moving ram.
4. Secure the tooling to the press bed with four 1/2" bolts and washers (provided).
5. Check for push block and moving center alignment by powering on the machine and slowly inching down the center to meet the push block with the foot pedal. Power the machine off.
6. In the event that the push block and top die are not aligned, simply loosen the bolts under the table allowing the bump-die to be moved to center the push block with the moving center. When aligned, tighten the table bolts to secure the table.
7. Power the machine on and jog the center down. The moving blade will close or bypass the fixed blade. The push block should not come in contact with the die housing.

#### Safe Operation

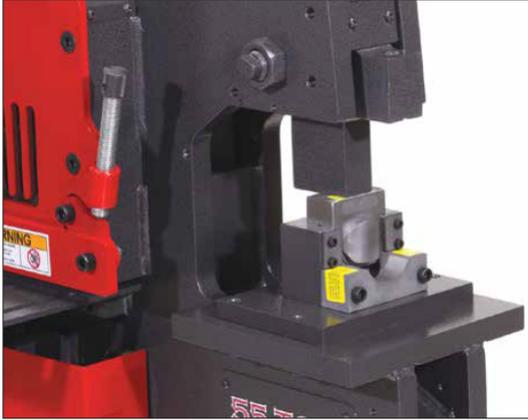
Observe the following guidelines when operating any Rod Shear or Multi-Shear tooling.

- Never exceed the capacities of the machine or tooling as described or listed at the tooling station.
- Keep the tooling clean.
- Check blade clearance and alignment at every tooling change, maintenance cycle or extended tooling operation. Maintain .010 clearance between blades at all times. Failure to maintain clearance will damage blades and support pockets.
- Do not stack cut material.
- Perform complete shearing operations only – partial cuts may jam the tooling and could result in breakage and operator injury.
- Use shearing aids when working with small items at the Rod Shear or Multi-Shear Tooling station

#### Rod Shear/Multi-Shear Operation

1. Clear the work area of any tools or debris prior to powering the machine on.
2. Turn the Ironworker or Porta Power on and insert material through the tooling guard and into the blade area. Position your material for the desired cut.
3. Clear your hands from the working area and depress the extend button of the hand control to activate the tooling station.
4. When the cut is complete, press the retreat button of the hand control to automatically return the tooling to the neutral position.

## Optional Tooling - Pipe Notcher



### **WARNING**

Pipe-Notcher tooling will provide a distortion and burr free, notch cut to mild steel pipe and tube stock. Common use of this tooling is in the fabrication of saddle connections for motorcycle and race car tube frames, tube fences etc. Please review the capacity labels at the Pipe-Notching Station.

#### Setup

Pipe Notcher tooling installs, with an adapter plate, within the working cavity of the Shop Press. Pipe Notcher tooling for a Shop Press includes one top notcher die, one bottom notcher die and a die table. The top die is mounted within a spring loaded guide housing mounted to the die table. The bottom die attaches to the face of the guide housing and is machined with a saddle to aid in centering and guiding pipe sections into the die housing. The moving ram of the press cylinder pushes on the top blade to initiate the pipe notcher. If ordered as a factory installed option, the pipe notcher assembly is set up for immediate operation. If ordered as an option, the open cavity of the press must be cleared of any existing tooling, material or debris prior to tooling installation. To set up your Pipe Notcher in the CST Shop Press, please observe the following steps.

**Turn off power to Press by depressing the red stop/off button on the CST Ironworker or CST Porta-Power or lockout upstream power at the main electrical panel.**

#### Install the assembly:

1. Remove all tooling and debris from the press bed.
2. Place the 3/8" adapter plate on the press bed. Align bolt holes in the adapter plate with the slotted holes in the press bed. Secure plate to press bed with 2pcs - 3/8" x 2" capscrew, washer and nut assemblies (not supplied).
3. Place the tooling on the adapter plate and align base plate holes with adapter plate holes. Secure plate to press bed with 4pcs - 3/8" x 2" capscrew, washer and nut assemblies (not supplied).
4. Align rolling cylinder over center of tooling push block. Secure press cup to ram end, power machine on and jog ram down to tool. Confirm press cup alignment with tooling push block. Once aligned, secure rolling cylinder to head frame by tightening retention bolt.

5. Power the machine on and jog the ram down. The pipe dies will close or bypass each other. The ram should not come in contact with the die housing.

#### Install the Pipe Notcher Assembly:

1. Place the Pipe-Notcher assembly on the Shop Press support table with the bottom die pointing away from the machine.
2. Loosely secure the table from the underside of the base with four 1/2" bolts and washers (provided).
3. Check for push block and top die alignment by powering on the machine and slowly inching down the ram to meet the top die with the foot pedal. Power the machine off.
4. In the event that the ram and top die are not aligned, simply loosen the bolts under the table allowing the table to be moved to center the push block centerline to the top blade. When aligned, tighten the table bolts to secure the table.

5. Power the machine on and jog the ram down. The pipe dies will close or bypass each other. The ram should not come in contact with the die housing.

#### Safe Operation

Observe the following guidelines when operating the Pipe Notcher tooling:

- Never exceed the capacities of the machine or tooling as described in the Shop Press specifications or listed at the tooling station.
- Keep the Pipe Notcher tooling clean. When dirt or metal chips accumulate, remove 5/16-18 x 1/2" limit screw located in the center at the rear of punch. Lift out punch holder and two springs. Clean holder with solvent or kerosene.
- Check Pipe Notcher blade clearance and alignment at every tooling change, maintenance cycle or extended notcher operation. Maintain .010 clearance between notcher blades at all times. Failure to maintain clearance will damage blades and support pockets.
- Do not stack material to cut in the Pipe Notcher station.
- Perform complete notch operations only – partial notch cuts may jam the drop off side of the tooling and could result in breakage and operator injury.
- Use notching aids when working with small items at the notcher station.

#### Pipe Notcher Operation

1. Clear the feed table of the Pipe Notcher station of any tools or debris prior to powering the machine on.
2. Turn machine on. The top notcher die will be in the neutral position. Push the material into the blade area. Position your material to the desired cut.
3. Clear your hands from the working area and depress the extend button on the hand control to activate the Pipe Notcher. When the operation is complete, return the top cutting die to its neutral position by pressing the retract button.

# Troubleshooting

## **WARNING**

Quality parts are dependent upon conscientious setup, operation and maintenance of your Shop Press. Physically review your Shop Press prior to any operation. Confirm all static components are tight in the assembly. Confirm all moving components are free of obstruction. Confirm all tooling and assemblies are properly seated within the assembly.

### ***Problem***

### ***Solution***

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**Press Inoperable**

Check accessory control switch

Check shop press male 4-pin power cable is connected to female limit switch port.

**Note:** Auto Cut port will NOT power the Shop Press accessory.

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**Rough cylinder operation**

Check fluid level of machine.

Check hoses for correct installation.

Check fuse at transformer box.