OPERATOR'S MANUAL

Metal Working

Book 1 of 2

4 STATION HYDRAULIC IRONWORKER

MODEL: SW-44

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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial. We hope that you find it productive and useful to you for a long time to come.

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any goods to Seller. Goods returned without a RGA will be refused. Seller will not be responsible for any freight costs, damages to goods, or any other costs or liabilities pertaining to goods returned without a RGA. Seller shall have the right to substitute a conforming tender. Buyer will be responsible for all freight costs to and from Buyer and repackaging costs, if any, if Buyer refuses to accept shipment. If Goods are returned in unsalable condition, Buyer shall be responsible for full value of the Goods. Buyer may not return any special-order Goods. Any Goods returned hereunder shall be subject to a restocking fee equal to 30% of the invoice price.

Specifications. Seller may, at its option, make changes in the designs, specifications or components of the Goods to improve the safety of such Goods, or if in Seller's judgment, such changes will be beneficial to their operation or use. Buyer may not make any changes in the specifications for the Goods unless Seller approves of such changes in writing, in which event Seller may impose additional charges to implement such changes.

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 30 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

EXCLUSION OF OTHER WARRANTIES. THE FOREGOING LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. ANY AND ALL OTHER EXPRESS, STATUTORY OR IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE ARE EXPRESSLY DISCLAIMED. NO WARRANTY IS MADE WHICH EXTENDS BEYOND THAT WHICH IS EXPRESSLY CONTAINED HEREIN.

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY INCIDENTIAL, CONSEQUENTIAL OR SPECIAL DAMAGES (INCLUDING, WITHOUT LIMITATION, LOST PROFITS OR DOWN TIME) ARISING FROM OR IN MANNER CONNECTED WITH THE GOODS, ANY BREACH BY SELLER OR ITS AGENTS OF THIS AGREEMENT, OR ANY OTHER CAUSE WHATSOEVER, WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY OF LIABILITY. BUYER'S REMEDY WITH RESPECT TO ANY CLAIM ARISING UNDER THIS AGREEMENT IS STRICTLY LIMITED TO NO MORE THAN THE AMOUNT PAID BY THE BUYER FOR THE GOODS.

Force Majuere. Seller shall not be responsible for any delay in the delivery of, or failure to deliver, Goods due to causes beyond Seller's reasonable control including, without limitation, acts of God, acts of war or terrorism, enemy actions, hostilities, strikes, labor difficulties, embargoes, non-delivery or late delivery of materials, parts and equipment or transportation delays not caused by the fault of Seller, delays caused by civil authorities, governmental regulations or orders, fire, lightening, natural disasters or any other cause beyond Seller's reasonable control. In the event of any such delay, performance will be postponed by such length of time as may be reasonably necessary to compensate for the delay.

Installation. If Buyer purchases any Goods that require installation, Buyer shall, at its expense, make all arrangements and connections necessary to install and operate the Goods. Buyer shall install the Goods in accordance with any Seller instructions and shall indemnify Seller against any and all damages, demands, suits, causes of action, claims and expenses (including actual attorneys' fees and costs) arising directly or indirectly out of Buyer's failure to properly install the Goods.

Work By Others; Safety Devices. Unless agreed to in writing by Seller, Seller has no responsibility for labor or work performed by Buyer or others, of any nature, relating to design, manufacture, fabrication, use, installation or provision of Goods. Buyer is solely responsible for furnishing, and requiring its employees and customers to use all safety devices, guards and safe operating procedures required by law and/or as set forth in manuals and instruction sheets furnished by Seller. Buyer is responsible for consulting all operator's manuals, ANSI or comparable safety standards, OSHA regulations and other sources of safety standards and regulations applicable to the use and operation of the Goods.

Remedies. Each of the rights and remedies of Seller under this Agreement is cumulative and in addition to any other or further remedies provided under this Agreement or at law or equity.

Attorney's Fees. In the event legal action is necessary to recover monies due from Buyer or to enforce any provision of this Agreement, Buyer shall be liable to Seller for all costs and expenses associated therewith, including Seller's actual attorneys' fees and costs.

Governing Law/Venue. This Agreement shall be construed and governed under the laws of the State of Wisconsin, without application of conflict of law principles. Each party agrees that all actions or proceedings arising out of or in connection with this Agreement shall be commenced, tried, and litigated only in the state courts sitting in Manitowoc County, Wisconsin or the U.S. Federal Court for the Eastern District of Wisconsin. Each party waives any right it may have to assert the doctrine of "forum non conveniens" or to object to venue to the extent that any proceeding is brought in accordance with this section. Each party consents to and waives any objection to the exercise of personal jurisdiction over it by courts described in this section. Each party waives to the fullest extent permitted by applicable law the right to a trial by jury.

Summary of Return Policy.

- 10 Day acceptance period from date of delivery. Damage claims and order discrepancies will not be accepted after this time.
- You must obtain a Baileigh issued RGA number PRIOR to returning any materials.
- Returned materials must be received at Baileigh in new condition and in original packaging.
- Altered items are not eligible for return.
- Buyer is responsible for all shipping charges.
- A 30% re-stocking fee applies to all returns.

Baileigh Industrial makes every effort to ensure that our posted specifications, images, pricing and product availability are as correct and timely as possible. We apologize for any discrepancies that may occur. Baileigh Industrial reserves the right to make any and all changes deemed necessary in the course of business including but not limited to pricing, product specifications, quantities, and product availability.

For Customer Service & Technical Support:
Please contact one of our knowledgeable Sales and Service team members at:
(920) 684-4990 or e-mail us at sales@baileigh.com

INTRODUCTION

The quality and reliability of the components assembled on a Baileigh Industrial machine guarantee near perfect functioning, free from problems, even under the most demanding working conditions. However if a situation arises, refer to the manual first. If a solution cannot be found, contact the distributor where you purchased our product. Make sure you have the serial number and production year of the machine (stamped on the nameplate). For replacement parts refer to the assembly numbers on the parts list drawings.

Our technical staff will do their best to help you get your machine back in working order.

In this manual you will find: (when applicable)

- Safety procedures
- Correct installation guidelines
- Description of the functional parts of the machine
- Capacity charts
- Set-up and start-up instructions
- Machine operation
- Scheduled maintenance
- Parts lists

GENERAL NOTES

After receiving your equipment remove the protective container. Do a complete visual inspection, and if damage is noted, **photograph it for insurance claims** and contact your carrier at once, requesting inspection. Also contact Baileigh Industrial and inform them of the unexpected occurrence. Temporarily suspend installation.

Take necessary precautions while loading / unloading or moving the machine to avoid any injuries.

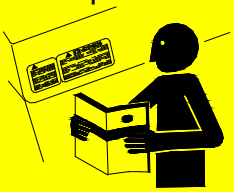
Your machine is designed and manufactured to work smoothly and efficiently. Following proper maintenance instructions will help ensure this. Try and use original spare parts, whenever possible, and most importantly; **DO NOT** overload the machine or make any modifications.

Note: *This symbol refers to useful information throughout the manual.*

IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

It contains important safety information, instructions, and necessary operating procedures. The continual observance of these procedures will help increase your production and extend the life of the equipment.



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

This is the safety alert symbol. When you see this symbol on your machine or in this manual, **BE ALERT TO THE POTENTIAL FOR PERSONAL INJURY!**

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** is used with the safety alert symbol. **DANGER** identifies a hazard or unsafe practice that will result in severe **Injury or Death**.

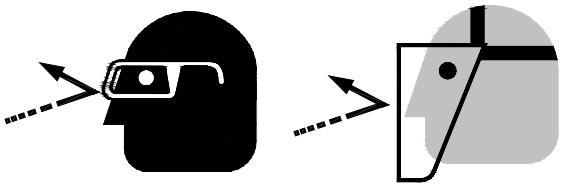
Safety signs with signal word **DANGER** or **WARNING** are typically near specific hazards.

General precautions are listed on **CAUTION** safety signs. **CAUTION** also calls attention to safety messages in this manual.

SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.

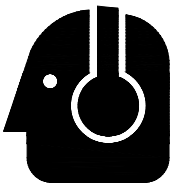
PROTECT EYES

Wear safety glasses or suitable eye protection when working on or around machinery.



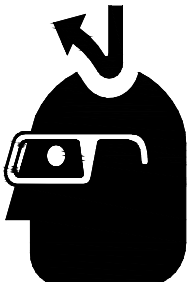
PROTECT AGAINST NOISE

Prolonged exposure to loud noise can cause impairment or loss of hearing. Wear suitable hearing protective devices such as ear muffs or earplugs to protect against objectionable or uncomfortable loud noises.



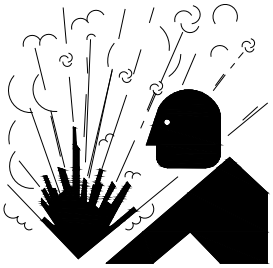
KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the material. It can be heavy and can swing back suddenly causing serious body or head injuries.



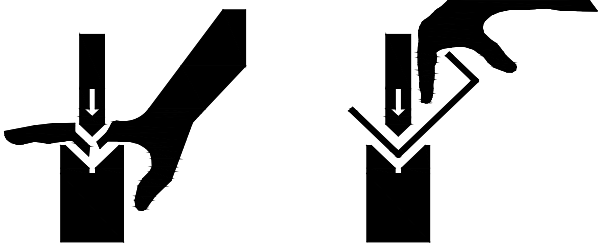
HYDRAULIC HOSE FAILURE

Exercise **CAUTION** around hydraulic hoses in case of a hose or fitting failure.



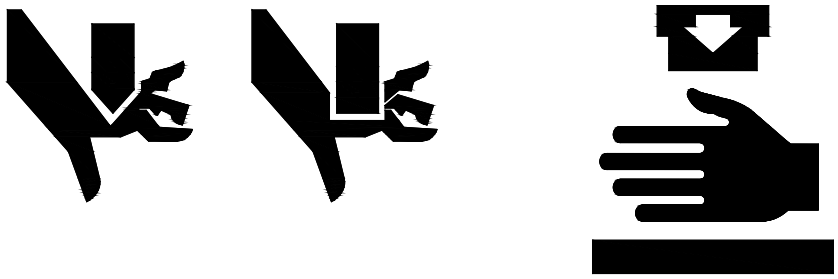
BEWARE OF CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this machine.



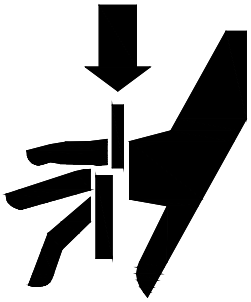
BEWARE OF SHEAR, PINCH, AND CRUSH HAZARD

NEVER place your hands, fingers, or any part of your body in the die area of this machine. Keep hands and fingers away from the shear blade and the punching and notching dies when the machine is in operation.



BEWARE OF SHEAR HAZARD

Keep hands and fingers clear from under the blade.
NEVER place your hand or any part of your body in this machine.



HIGH VOLTAGE

USE CAUTION IN HIGH VOLTAGE AREAS. DO NOT assume the power to be off.
FOLLOW PROPER LOCKOUT PROCEDURES.

EMERGENCY STOP BUTTON

In the event of incorrect operation or dangerous conditions, the machine can be stopped immediately by pressing the **E-STOP** button. Twist the emergency stop button clockwise (cw) to reset. Note: Resetting the E-Stop will not start the machine.

SAFETY PRECAUTIONS

Metal working can be dangerous if safe and proper operating procedures are not followed. As with all machinery, there are certain hazards involved with the operation of the product. Using the machine with respect and caution will considerably lessen the possibility of personal injury. However, if normal safety precautions are overlooked or ignored, personal injury to the operator may result.
Safety equipment such as guards, hold-downs, safety glasses, dust masks and hearing protection can reduce your potential for injury. But even the best guard won't make up for poor judgment, carelessness or inattention. **Always use common sense** and exercise **caution** in the workshop. If a procedure feels dangerous, don't try it.
REMEMBER: Your personal safety is your responsibility.

WARNING: FAILURE TO FOLLOW THESE RULES MAY RESULT IN SERIOUS PERSONAL INJURY

Dear Valued Customer:

- All Baileigh machines should be used only for their intended use.
- Baileigh does not recommend or endorse making any modifications or alterations to a Baileigh machine. Modifications or alterations to a machine may pose a substantial risk of injury to the operator or others and may do substantial damage to the machine.
- Any modifications or alterations to a Baileigh machine will invalidate the machine's warranty.

PLEASE ENJOY YOUR BAILEIGH MACHINE! ....PLEASE ENJOY IT SAFELY!

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.

7. **Dressing material edges.** Always chamfer and deburr all sharp edges.
8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machines rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriate. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye and ear protection**. Always wear ISO approved impact safety goggles. Wear a full-face shield if you are producing metal filings.
12. **Do not overreach**. Maintain proper footing and balance at all times. **DO NOT** reach over or across a running machine.
13. **Stay alert**. Watch what you are doing and use common sense. **DO NOT** operate any tool or machine when you are tired.
14. **Check for damaged parts**. Before using any tool or machine, carefully check any part that appears damaged. Check for alignment and binding of moving parts that may affect proper machine operation.
15. **Observe work area conditions**. **DO NOT** use machines or power tools in damp or wet locations. Do not expose to rain. Keep work area well lighted. **DO NOT** use electrically powered tools in the presence of flammable gases or liquids.
16. **Blade adjustments and maintenance**. Always keep blades sharp and properly adjusted for optimum performance.
17. **Keep children away**. Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
18. **Store idle equipment**. When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep them out of reach of children.
19. **DO NOT operate machine if under the influence of alcohol or drugs**. Read warning labels on prescriptions. If there is any doubt, **DO NOT** operate the machine.
20. **Turn off** power before checking, cleaning, or replacing any parts.
21. Be sure **all** equipment is properly installed and grounded according to national, state, and local codes.
22. Keep **all** cords dry, free from grease and oil, and protected from sparks and hot metal.
23. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill! DO NOT** touch live electrical components or parts.
24. **DO NOT** bypass or defeat any safety interlock systems.

25. Learn the function and controls. Know the location of the **ON - OFF** switch and the **“E”-STOP** button.
26. Keep visitors a safe distance from the work area.
27. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
28. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
29. **HYDRAULIC INJECTION INJURIES.** Be familiar with the hydraulic system of this machine and with the hydraulic safety section in this manual. Until you have a clear understanding about hydraulic injection injuries, how they occur, and how to avoid them. DO NOT use this machine.
30. **SINGLE OPERATOR.** When in operation, multiple stations are active at the same time but there is only one set of controls. This machine was designed for use by only one operator at a time.
31. **DISCONNECT POWER.** Unexpected activation of the machine while hands are near any processing station could cause serious personal injury. Disconnect the machine from power before making adjustments to tooling or performing setup, maintenance, or service to this machine.
32. **IRONWORKER TOOLS.** The tremendous force this machine bears on each workpiece can break or shatter tooling if not properly setup. Make sure that all tooling. even in stations that are not currently in use, is properly mounted and secured before beginning operations.
33. **SECURE WORK MATERIAL.** Work material that is not properly supported and secured can rapidly move toward the operator when force is applied. Always firmly secure the work material with the devices provided. Make sure work materials are firmly supported on both sides of the punch/cut. For long stock, use additional support at both ends.
34. **HYDRAULIC INJECTION INJURY.** Leaking hydraulic fluid may have enough pressure to penetrate the skin. Hydraulic fluid that is injected into the body represents a medical emergency that could cause infection, disability, amputation, or death.
35. **SEEK MEDICAL ATTENTION.** A hydraulic injection injury may be a small wound that has barely broken the skin. **DO NOT** be fooled by this type of injury. **GET PROFESSIONAL MEDICAL ATTENTION IMMEDIATELY!** Minimizing the time between the injury and when the injected material is removed is critical to reducing the seriousness of the injury.
36. **SUSPECTED HYDRAULIC LEAKS.** Leaking hydraulic fluid may be under extreme pressure and hot. Use a piece of clean cardboard NOT hands to check for suspected hydraulic leaks.
37. **DEPRESSURIZE THE SYSTEM.** Working on a pressurized hydraulic system can cause a pressure explosion, resulting in serious personal injury. To reduce the risk of this hazard, stop the motor, disconnect the machine from power, and fully depressurize the hydraulic system before attempting to fix or service the system.

38. **CLEAN ENVIRONMENT.** To reduce the risk of hydraulic fluid contamination or damage to internal components, remove debris, grime, or water from the hydraulic hoses, connections, and openings before maintenance. Always use lint free rags when wiping components.
39. **HOSES AND FITTINGS.** The hydraulic system is under extreme pressure, typically 3000 PSI. Always use high-pressure hydraulic hose and steel hydraulic fittings when replacing system components. Never use brass or aluminum.
40. **REGULAR INSPECTION.** A well-maintained hydraulic system will have much fewer problems and hazards than a neglected system. Regularly inspect the hydraulic system for contamination or leaks, and keep the reservoir filters clean.

TECHNICAL SUPPORT

Our technical support department can be reached at 920.684.4990, and asking for the support desk for purchased machines. Tech Support handles questions on machine setup, schematics, warranty issues, and individual parts needs: (other than die sets and blades).

For specific application needs or future machine purchases contact the Sales Department at: sales@baileigh.com, Phone: 920.684.4990, or Fax: 920.684.3944.

***Note**: The photos and illustrations used in this manual are representative only and may not depict the actual color, labeling or accessories and may be intended to illustrate technique only.*

***Note:** The specifications and dimensions presented here are subject to change without prior notice due to improvements of our products.*

TECHNICAL SPECIFICATIONS

Punching	
Punch Pressure	44 Tons (40 Tons)
Punch Capacity (diameter x thickness)	.75” x .625” (20 x 15mm) 1.5” x .375” (38 x 8mm)
Throat Depth	6.88” (175mm)
Stroke Length – Maximum	1.125” (32mm)
Cycles / Minute	23
Working Height Up to Die	42.32” (1075mm)
Flat Sheet	
Flat Bar Shearing (width x thickness)	7.87” x .5” (200 x 13mm) 13.77” x .25” (350 x 6mm)
Blade Length	13.87” (352.5mm)
Angle Flange Trim	3.14” x .393” (80 x 10mm)
Working Height	42.32” (1075mm)
Angle Cutting	
At 90° Shearing	3.125” x 3.125” x .31” (80 x 80 x 8mm)
At 45° Shearing	2” x 2” x .25” (50 x 50 x 6mm)
Working Height	47.5” (1210mm)
Bar Shearing	
Round Bar	1.125” (30mm)
Square Bar	1” x 1” (25 x 25mm)
Working Height	44.88” (1140mm)
General	
Motor	5hp (3.72kw)
Power Supply	220V 1ph or 3ph Verify the Nameplate
Weight (approx.)	1420 lbs (640kg)
Dimensions (L x W x H)	44” x 22” x 59” (1120 x 560 x 1500mm)
Based on a material tensile strength of *64000 PSI – mild steel **100000 PSI – stainless steel	

***Note**: Material thickness should not exceed the punch diameter being used.*

UNPACKING AND CHECKING CONTENTS

Your Baileigh machine is shipped complete. Separate all parts from the packing material and check each item carefully. Make certain all items are accounted for before discarding any packing material.

WARNING: SUFFOCATION HAZARD! Immediately discard any plastic bags and packing materials to eliminate choking and suffocation hazards to children and animals.
If any parts are missing, DO NOT place the machine into service until the missing parts are obtained and installed correctly.

Cleaning

WARNING: DO NOT USE gasoline or other petroleum products to clean the machine. They have low flash points and can explode or cause fire.

CAUTION: When using cleaning solvents work in a well-ventilated area. Many cleaning solvents are toxic if inhaled.

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.
Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.

Important: *This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.*

Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

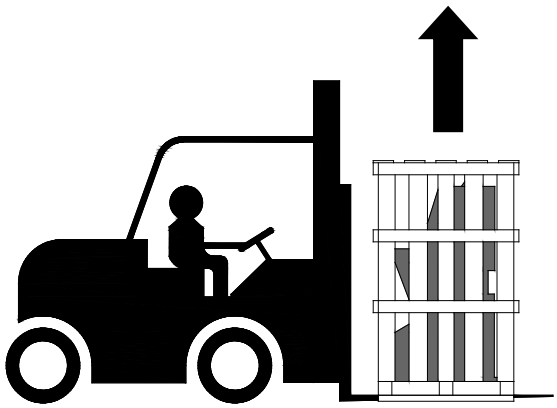
A	9001 Punch & 9023 Die	1
B	9035 Punch Adaptor for 9001	1
C	9036 Punch Adaptor for 9004	1
D	81031 Punch Adaptor for 9000	1
E	81029 Die Adaptor for 9020	1
F	L805/2700 Punch Location Key	2
G	L220/2005 'C' Spanner Wrench	1
H	Grease Gun	1
I	Hex Wrench 14mm	1
J	Hex Wrench Set 2.5-10mm	1
K	11-13mm open-ended spanner	1
L	17-19mm open-ended spanner	1
M	22-24mm open-ended spanner	1
N	K715/6510 Pressure Gauge	1
O	Operating instruction manual	1

Note: If you can not find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally items are pre-installed for shipping purposes.

TRANSPORTING AND LIFTING

IMPORTANT: *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

Follow these guidelines when lifting with truck or trolley:



- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.
- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.

Follow these guidelines when lifting crane or hoist:

- Always lift and carry the machine with the lifting holes provided at the top of the machine.
- Use lift equipment such as straps, chains, capable of lifting 1.5 to 2 times the weight of the machine.
- Take proper precautions for handling and lifting.
- Check if the load is properly balanced by lifting it an inch or two.
- Lift the machine, avoiding sudden accelerations or quick changes of direction.
- Locate the machine where it is to be installed, and lower slowly until it touches the floor.

INSTALLATION

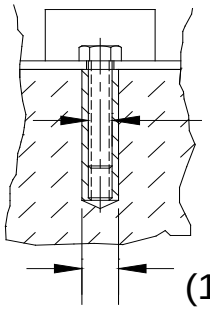
IMPORTANT:

Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.
- **POWER SUPPLY PLACEMENT:** The power supply should be located close enough to the machine so that the power cord is not in an area where it would cause a tripping hazard. Be sure to observe all electrical codes if installing new circuits and/or outlets.

Anchoring the Machine

- Once positioned, anchor the machine to the floor, as shown in the diagram. Use bolts and expansion plugs or sunken tie rods that connect through and are sized for the holes in the base of the stand.
- This machine requires a solid floor such as concrete at a minimum of 4” (102mm) thick. 6” (153mm) minimum is preferred.



Using Machine Mounts

Using machine mounts, gives the advantage of fast leveling and vibration reduction. The large size of the foot pads distributes the weight of the machine to reduce strain on the floor.

Note: It is strongly recommend securing your machine to the floor if it is hardwired to the power source. Consult with your electrician to ensure compliance with local codes.

Tank Filling

The hydraulic oil is the primary medium for transmitting pressure and lubricating the running parts of the pump.

After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. Verify that any cylinder rams are is in the retracted position to prevent overfilling of the tank. Recheck the oil level after the first few hours of operation and again after the first full week of operation.

A shortage of hydraulic oil can cause hydraulic system breakdown and damage to major mechanical parts due to overheating.

ELECTRICAL

⚠ WARNING: Baileigh Industrial is not responsible for any damage caused by wiring up to an alternative 3-phase power source other than direct 3-phase. If you are using an alternate power source, consult a certified electrician or contact Baileigh Industrial prior to energizing the machine.

⚠ CAUTION: HAVE ELECTRICAL UTILITIES CONNECTED TO MACHINE BY A CERTIFIED ELECTRICIAN!
Check if the available power supply is the same as listed on the machine nameplate.

⚠ WARNING: Make sure the grounding wire (green) is properly connected to avoid electric shock. DO NOT switch the position of the green grounding wire if any electrical plug wires are switched during hookup.

Power Specifications

Your tool is wired for 220 volts, 60Hz alternating current. Before connecting the tool to the power source, make sure the machine is cut off from power source.
Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is ±5%, and for the frequency is ±1%.

Considerations

- Observe local electrical codes when connecting the machine.
- The circuit should be protected with a time delay fuse or circuit breaker with a amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your tools. Before connecting the motor to the power line, make sure the switch is in the “OFF” position and be sure that the electric current is of the same characteristics as indicated on the tool.
- All line connections should make good contact. Running on low voltage will damage the motor.
- In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

⚠ WARNING: In all cases, make certain the receptacle in question is properly grounded. If you are not sure, have a qualified electrician check the receptacle.

- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.
- Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded.
- Repair or replace damaged or worn cord immediately.

⚠ ***IMPORTANT:*** *Verify the exact phase of your machine before making the electrical connections. Connecting the machine to the wrong phase is not covered by warranty and will void remaining warranty.*

Power cord connection:

1. Turn the main disconnect switch on the control panel to the OFF position.
2. Unwrap the power cord and route the cord away from the machine toward the power supply.
    a. Route the power cord so that it will NOT become entangled in the machine in any way.
    b. Route the cord to the power supply in a way that does NOT create a trip hazard.
3. Connect the power cord to the power supply and check that the power cord has not been damaged during installation.
    a. 1 phase; Connect the three power wires terminals **R & S**. Connect the ground wire (typically green) to the **PE** terminal.
    b. 3 phase; Connect the three power wires terminals **R, S, & T**. Connect the ground wire (typically green) to the **PE** terminal.
4. When the machine is clear of any obstruction. The main power switch may be turn ON to test the operation. Turn the switch OFF when the machine is not in operation.
5. When familiar with the Operating controls, test the machine operation to verify the correct motor rotation for 3 phase machines.
    a. 3 phase; If not, disconnect power to the machine, and switch the S and T wires. DO NOT move the ground wire.

OPERATING CONTROLS

Refer to below and description below to become familiar with the basic controls of your ironworker.

A. Main Power Switch: Allow power to flow to the machine; "I" is ON, "0" is OFF.

B. Power Lamp: Lights when power flows to the machine.

C. Emergency Stop Button: Turns power OFF to the machine, but does not disconnect the machine from power. There are two emergency stop buttons, one is on the main control panel and the other is on the left side of the machine.

D. Electrical Cabinet Door Latch: Allows entry to the electrical cabinet when the main power switch is in the OFF position.

E. Motor Start: Push to turn the motor ON when there is power to the machine.

F. Motor Stop Button: Push to turn the motor OFF.

G. Operation Switch: In “Normal” position, the beam moves to the end of arc in the direction selection, then returns to the opposite end of the arc. In “Inch” position, the beam stops where it is when the foot switch is released or it has reached the end of the arc. Use this to "job" the beam.

H. Punch/Notch Switch: Selects which station the beam moves on when the foot pedal is actuated.

I. Foot Actuator: Initiates the beam movement.

TESTING OPERATION

Test run your machine to make sure it runs properly and is ready for regular operation. The test run consists of verifying the follow:

A) The motor powers up and runs correctly.
B) The motor turns the correct direction (machine is not wired out of phase).
C) The emergency stop button safety feature works correctly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review Troubleshooting.

⚠ WARNING: Before starting this machine, make sure you have read through the rest of the manual and are familiar with the various functions and safety features on this machine. Failure to follow this warning could result in serious personal injury or even death!

When the steps below are successful, the ironworker is ready for operation.

1. Make sure you understand the safety instruction at the beginning of the manual and that the machine is setup properly.
2. Make sure all tools and objects used during setup are cleared away from the machine.
3. Check the hydraulic fluid level in the reservoir and fill it if necessary (refer To Hydraulic System for detailed instructions).
4. Understand the operating controls and how to use them. (See Operating Controls for detailed instructions)
5. Connect the machine to the power source.
6. There are two emergency stop buttons. One on the front control panel and the other below the punching station on the left of the machine. One at a time, push the buttons in, and then twist them clockwise so they pop out. When both buttons are out, the switches are reset and ready for operation.
7. Turn the main power switch to the ON or "I" position; the power lamp should light.
8. Set the operation switch to Normal and press the motor start button to turn the machine ON.

9. Verify that the machine is operating correctly by pressing the foot pedal actuator (**H**).
    a. When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.
    b. If the motor is running but the beam does not move, the power may be connected out of phase, and the motor will emit a loud, high-pitched whine. Stop the machine IMMEDIATELY, shut off the power source, and then swap any two of the three power wires that connect to the motor Steps 5-9.
    c. Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always stop the machine and disconnect it from power before investigating or correcting potential problems.
10. One at a time, perform the following steps for each of the emergency stop buttons.
    a. Press the emergency stop button in to tum the machine OFF.
    b. WITHOUT resetting the button, press the motor star button; the motor should not start.
        i. If the motor does not start, the emergency stop button safety feature is working correctly.
        ii. If the motor does start (with the emergency stop button pushed in), immediately disconnect power to the machine. The emergency stop button safety feature is not work correctly. This safety feature must work properly before proceeding with regular operations, Call Tech Support for help.
11. Reset both emergency stop buttons and press the motor start button to turn the motor ON.
12. Set the controls to Punch and Normal, and then press the foot actuator; the beam should come down on the punching station.
13. Set the controls to Notch and press the pedal actuator; the beam should come down on the notching station.
14. Set the controls to Inch and repeat Step 11 and 12. Lift your foot from the actuator as the beam moves. It should stop and stay in that position.

OPERATION SWITCH

The Operation Switch (**G**) has two positions NORMAL and INCH. With the switch set to INCH all workstations are in the slow speed Inching Mode.

Inching Position

In Inching position the arm will travel down slowly when footswitch is fully depressed. The Arm will remain in any position when foot is removed. Turn switch to NORMAL to return arm to top of stroke. All tools setting and adjusting and setting of stroke limit switches should be done in the Inching position.

Normal Position

With Selector Switch to NORMAL the arm will travel down at operating speed when footswitch is fully depressed and will return to top of stroke when foot is completely removed.

The footswitch does however have three "positions" giving the very useful facility that after bringing the arm down by full depression of switch, the arm may be held any position of the stroke by raising the foot to the mid-position. Remove foot and arm will return to top position.

Operation Tips

- To produce quality cuts and avoid damage to your machine, stay within the operational capacities of your machine.
- Adjust the table guides, strippers, or hold-downs to keep the workpiece from unexpectedly moving up during the operation without restricting movement of the workpiece when required for the next cut.
- Use liberal lubrication on the dies and workpiece to reduce friction and wear on tooling.
- The quality of the cut edges are an immediate indicator of the die condition. Keep the dies clean of debris and mill scale. Sharp tooling cuts cleaner and with less wear on the machine.
- To avoid damage to the machine or tooling, cut completely through the workpiece unless you are using machine designed for partial cutting.
- Dies are shape! Always wear heavy leather gloves with handing the dies to protect your hands.

BASIC MACHINE FUNCTIONS

⚠ WARNING: Damage to your eyes, lungs, and ears could result from using this machine without proper protective gear.
Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.
When handling large heavy materials make sure they are properly supported.

PUNCHING

The large punch bed area is designed to give a very wide range of punching applications; with the available optional tooling - Large holes of any shape up to the diameter / square shown in the capacity chart can be punched.

The large punch bed area is designed to give a very wide range of punching applications, including overhang work in small channel sections. The punch table is particularly useful when the side and backstops are set for small repetitive work. This coupled with a finely adjusted stroke length gives a very productive machine. The table is assembled in two pads of which the front is removable for flange punching.

The punch is retained by means of locking ring part 2557. Depending on its size, the punch may require the use of the two adaptors supplied. The die is retained in the bolster by a setscrew. Verify that the screw locates correctly on the machined flat on the die when shaped punches and dies are being aligned.

The punch stripper plate must be adjusted properly to allow sufficient clearance for placing and removal of material, but must NOT restrict the punch stroke, verify that the bottom stroke limit switch is adjusted properly. Punch holes with enough material around the hole so that contact will be made on both sides of the stripper plate. Stripping forces can be severe and unbalanced due to contact on one side. This may cause Punch breakages. When using stripper fingers for oversize holes or irregular shapes, position and adjust fingers equally so as to avoid unbalanced stripping loads.

Additional tooling in this versatile workstation can provide bending (max. length 3.125” [80mm]), corner notching, tube notching and general die-set work.

Always reference machine Model and Serial number when ordering replacement punches and dies.

PUNCH TOOLING

The Punch and Die should be checked for alignment, prior to punching any material, standard size fitted 22mm, unless specifically ordered otherwise.

WARNING: Tooling and or workpiece could break apart under pressure, sending metal debris toward the operator at a high rate of speed.
To reduce the risk of hazard:
Material shall be adequately supported and held in place.
Always keep all safety guards and access panels and tooling in the correct position and secured when operating this machine.
Never exceed the machine capacity.

Punch Tooling General Guides

1. The punch stripper plate must be adjusted correctly with sufficient clearance to allow positioning and removal of the material being punched.
2. Punch holes with enough material around the hole so that contact will be made on both sides of the stripper plate. Stripping forces can be severe and unbalanced due to contact on one side. This may cause Punch breakages. When using stripper fingers for oversize holes or irregular shapes, position and adjust fingers equally so as to avoid unbalanced stripping loads.
3. Liberal oiling of the punch will significantly lengthen the life of the punch and die and also help reduce the stripping forces.
4. The quality of the hole (or blank) is a direct indicator of the condition of the punch and die.
5. Do not punch material thicker than the punch diameter, this overloads the punch and can result in breakage.
6. Punch full and complete holes do not punch partial holes unless tooling is specifically designed to do so.
7. Small items (i.e. small pieces of plate, bar etc.) MUST be placed and removed with suitable handling aids, extra guarding may be required to ensure operator safety.
8. Never exceed the rated capacity of the machine.

Tooling Changes

Punch: To change punch, unscrew locking ring using 'C' Spanner from tool kit, replace punch tighten locking ring. Adaptors are supplied to suit various punch head sizes.

Die: To change die, loosen setscrew in side of bolster, remove die and replace with new die, tighten setscrew.

After replacing punches and dies, it is important that they are correctly aligned. See Punch and Die Alignment. Extra care must be taken when fitting square or shaped punches so that the shapes are correctly aligned before operating machine.

Punch and Die Alignment

Alignment should be checked before using the machine, and MUST be checked after punch die changes have been made.

To check alignment switch operation to INCH, then inch the punch down by fully depressing the footswitch. Care must be taken as the punch approaches the die, if misalignment is apparent remove foot from switch.

To align punch and die release bolster fixing screws, operate the foot switch with care, aligning the bolster containing the die to the punch, the punch will stay in the down position. Center the die clearance around the punch, clamp the bolster in position, Tighten die retaining screw, check die maintains in the center position, after clamping, return punch to top position by switching back to NORMAL operation.

⚠ CAUTION: To reduce the risk of tooling breakage, the recommended side clearance between the punch and die is approximately 10% of the material thickness.

Die clearance: It is normal practice to aim for a clearance of 10% material thickness. Because of radial action of the punching stroke, the dies must never have less the 0.157” (0.4mm) clearance.

Whether clearance is added to the size of the die or deducted from the size of the punch, depends on the nature of the work. When holes of a given size are required the punch is made to size and the die is made larger. Conversely, when blanks of a given size are required the die is made to size and the punch smaller.
Special clearance dies for thin sheet and plate punching, or size dies and special clearance punches can be supplied to order.

Punching Capacity

If you want to calculate the maximum material thickness or maximum hole sizes, use one of the following formulas:

Constant ÷ Material Thickness = maximum Diameter
or
Constant ÷ Diameter = maximum Material Thickness

The machine constant is: 300

IMPORTANT: *To calculate the capacities properly all dimensions must be measured in or converted to millimeters.*

1. Example:

The material thickness is 0.5” (12.7mm).
The maximum hole size is then calculated by:
300 ÷ 12.7 = 23.62 (mm) The maximum hole size is 23.62mm

2. Example:

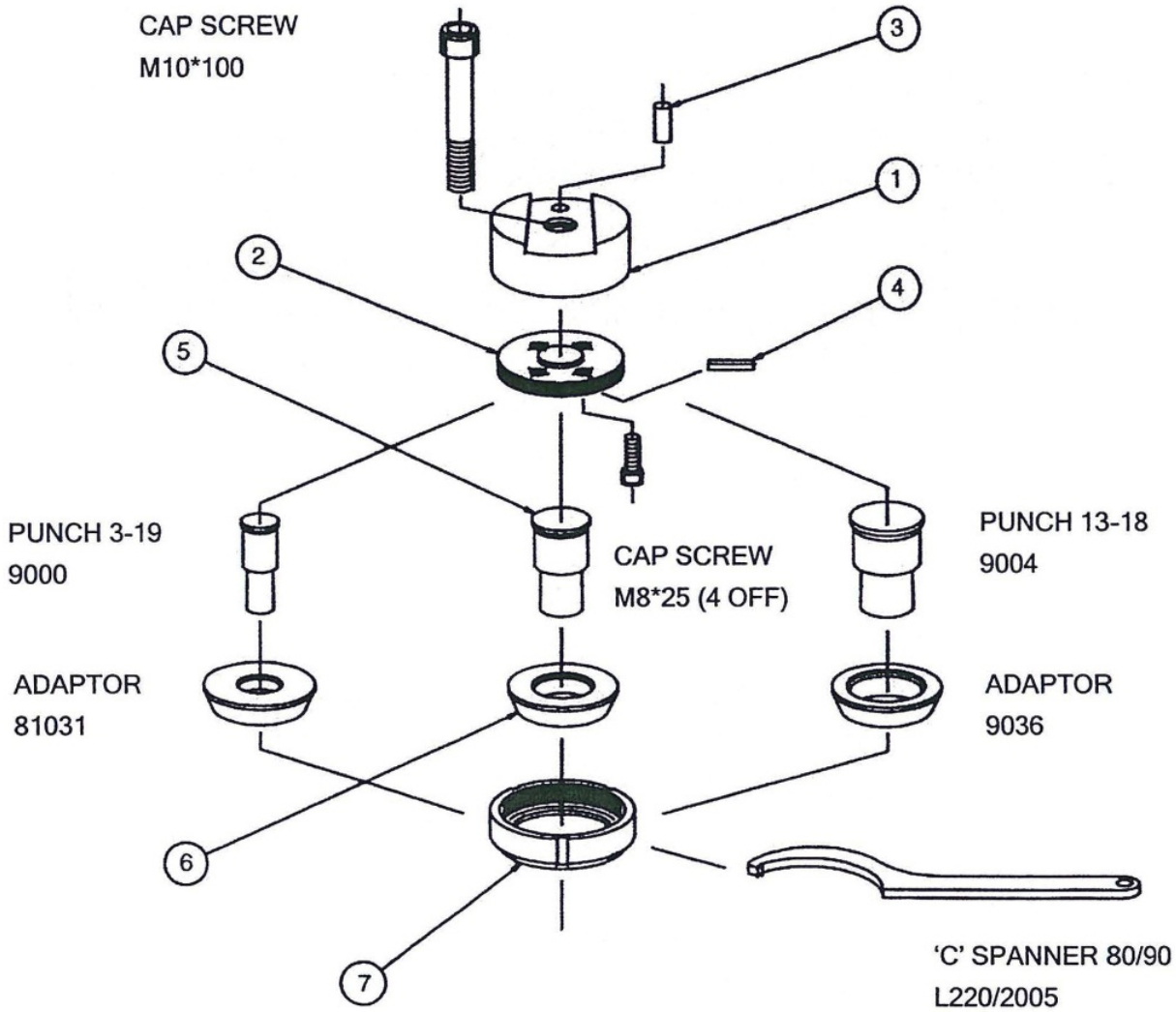
The punch / die diameter is 1” (25.4mm).
The maximum material thickness is then calculated by:
300 ÷ 25.4 = 11.81 (mm) The maximum material thickness is 11.81mm

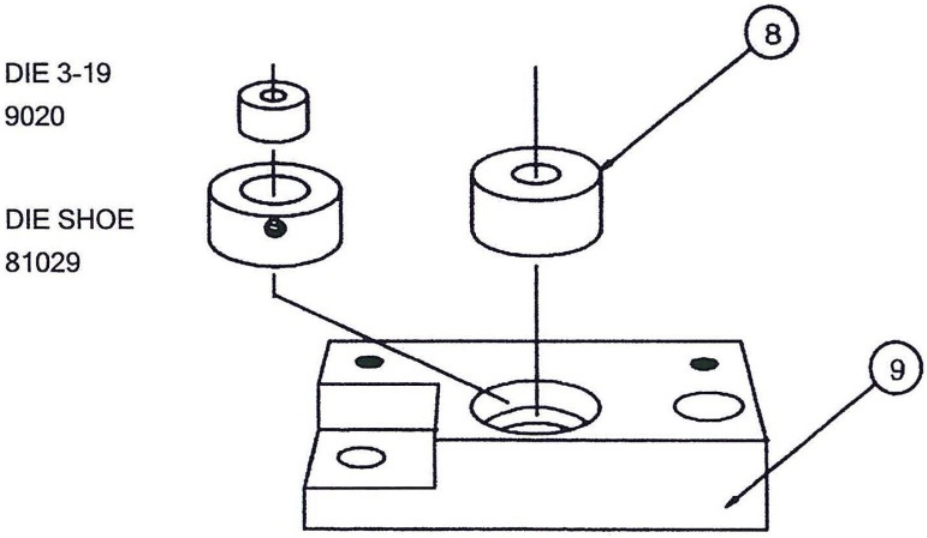
WARNING: To avoid tooling or workpiece breakage and the risk of injury to the operator, never work with material that is not adequately supported and held in place.
Always keep all safety guards and access panels and tooling in the correct position and secured when operating this machine.
Never exceed the machine capacity.

Learning the machine capacity constant will allow for quick calculations to prevent overloading of the machine.

Note: *All capacities are based on materials to be punched having a tensile strength of 45 kg/mm^2. Never exceed the rated capacity of the machine and never attempt to punch a hole smaller in diameter than the thickness of material being punched.*

Standard Punch Tooling





This table is a list of the standard punch tooling of model SW-44. The standard punch tooling includes one punch (9001) and one die (9023) which is includes with the machine.
Other punches and dies are available on request.

No.	Part no.	Description	Qty.
1	3905	Punch block	1
2	2093	Pressure plate	1
3	3944	Dowel	1
4	L805/2700	Punch location key	1
5	9001	Punch	1
6	9035	Adaptor	1
7	2557	Retaining ring	1
8	9023	Die	1
9	83050	Bolster	1

Large Hole Punching

Extra equipment available for punching up to 57mm dia.
This unit comprises:
- Special ram pressure plate
- Adaptors
- Retaining Ring
- Bolster with die holder plates
- Large hole stripper head

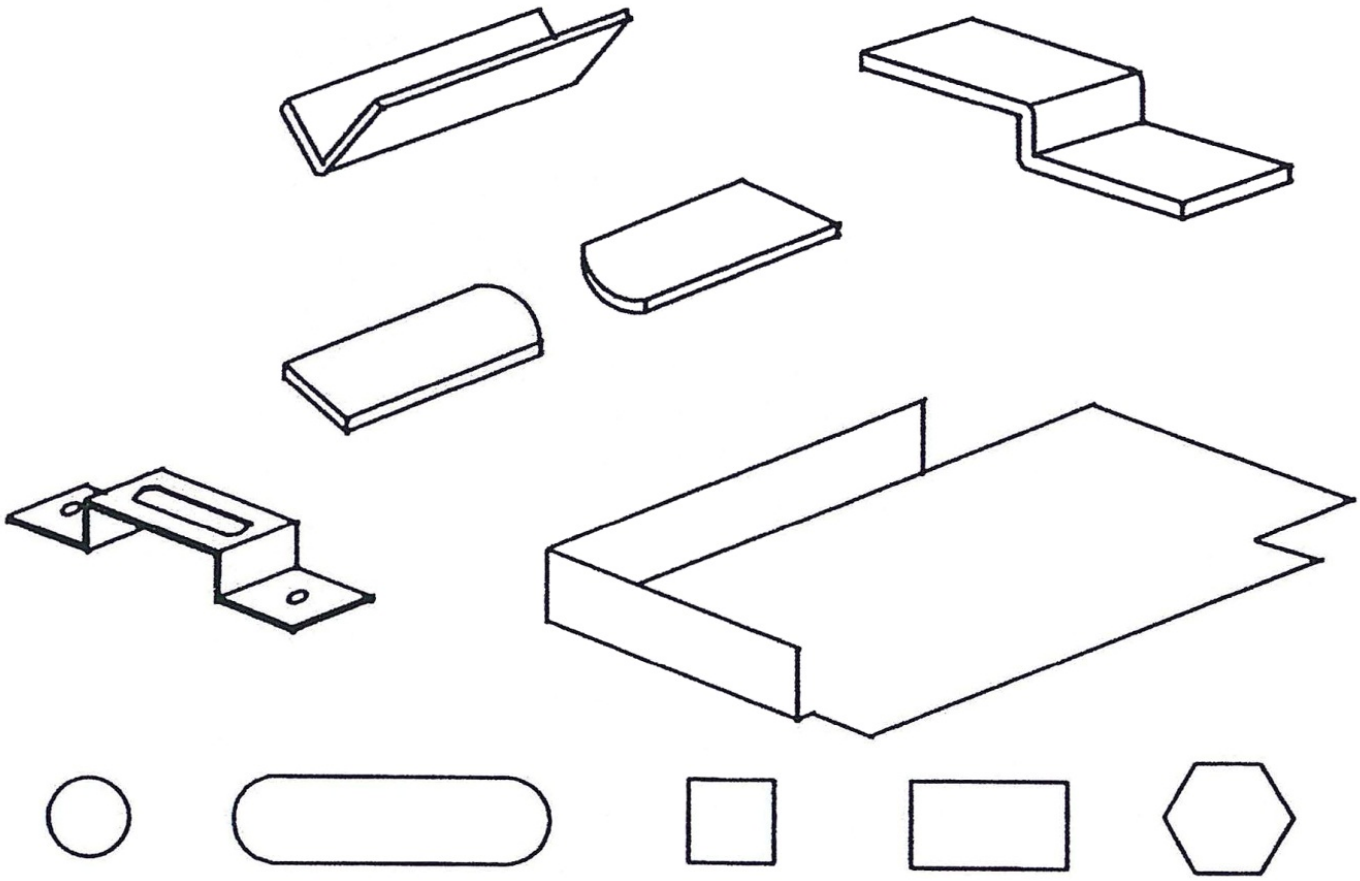
Punch and Die Lubrication

It is recommended that one of the following oils be applied by brush to the punch and die or both sides of the material being punched.

Brand	Type
B.P.	Servora 68
Castrol	llobroach 219
Duckhams	Adfornal EP7
Shell	Garia 927

Typical Applications

(Achieved with special tooling at punch station)



SHEARING

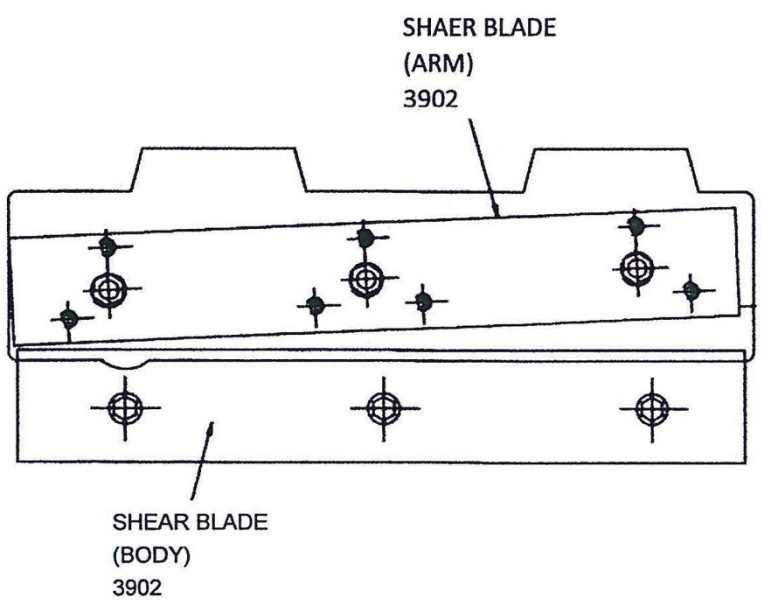
The shearing unit is fitted with a simple robust hold-down, which is adjustable to any thickness of material within the cutting capacity of the machine. A shear feed table with adjustable guides is fitted to allow the accurate feeding of materials. The guide can be adjusted to allow miter cutting up to 45 degrees for flat bars or to trim the flanges of angle sections previously cut at the angle cutting station.

The standard shear blades allow the bottom blade to be turned four times giving new cutting edges. DO NOT reshape this blade, after turning four times replace with new blades. The top blade may be ground to sharpen the cutting edge. These blades give minimum distortion from full capacity down to as light as 0.078” (2mm) thickness.

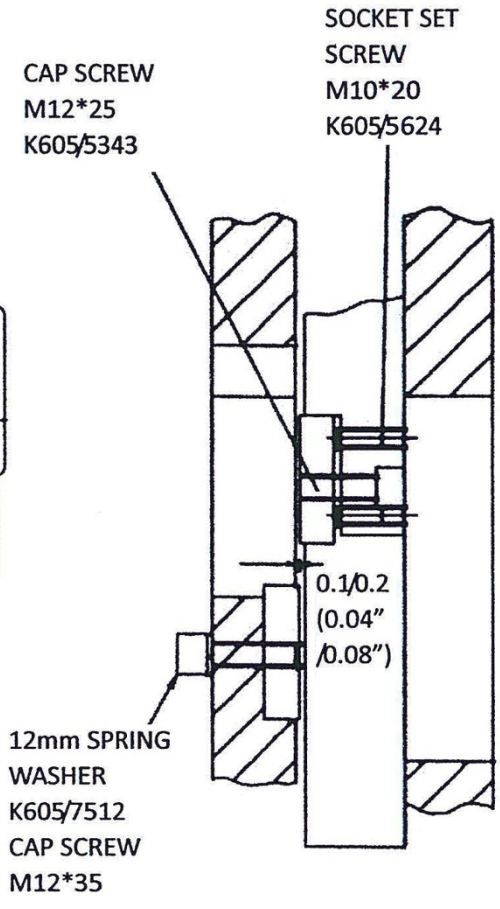
When the shear blades require sharpening, grind only on the cutting faces. Maximum regrinding 0.031” (0.80mm), after grinding the blades must be adjusted to a clearance of 0.039“ (0.10mm). Adjusting screws have been provided to reset the shear blades. The adjusting screws are positioned around blade fixing screws, accessible when shear table has been removed. Even clearance between top and bottom blades is important along the entire blade length and care should be taken to ensure that the bottom blade is in a vertical plane, parallel to top blade.

Always reference machine Model and Serial number when ordering replacement blades.

Shear Blades



BLADE CLEARANCE
0.12 ~ 0.15mm



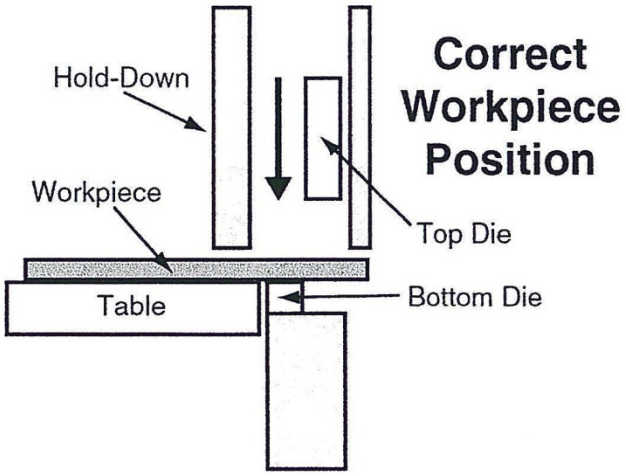
Shear Tooling General Guides

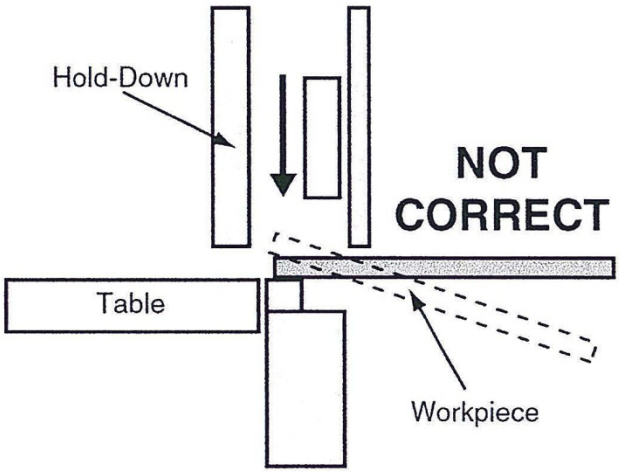
WARNING: Tooling and or workpiece could break apart under pressure, sending metal debris toward the operator at a high rate of speed.
To reduce the risk of hazard:
Material shall be adequately supported and held in place.
Always keep all safety guards and access panels and tooling in the correct position and secured when operating this machine.
Never exceed the machine capacity.

1. The quality of the cut is a direct indicator of the condition of the blades.
2. Verify hold-down is always set for the material thickness being sheared.

   DO NOT allow ends of bars to be fed beyond the hold down, the bar will tend to twist between blades and cause body distortion.
3. Always feed material between blades from the hold down side.
4. Keep the blade area clean. Do not allow "build up" of mill scale.
5. Keep the blade tight. Blade mounting bolts will loosen during usage. Tighten daily.
6. Never exceed the rated capacity of the machine.

IMPORTANT: To make accurate and safe flat stock cuts, be sure the table and bottom shearing die are level and even with each other. Make sure the cut piece falls through the rear exit panel and away from dies so that it does not interfere with next operation.





ANGLE CUTTING

WARNING: Tooling and or workpiece could break apart under pressure, sending metal debris toward the operator at a high rate of speed.
To reduce the risk of hazard:
Material shall be adequately supported and held in place.
Always keep all safety guards and access panels and tooling in the correct position and secured when operating this machine.
Never exceed the machine capacity.

This station provides large capacity angle cutting at 90 degrees and lighter angle cutting at 45 degrees. Angles between 45 and 90 degrees can be achieved by first cutting at 90 degrees and then flange trimming to the required angle in the shearing station. The hold-down supports the material ensuring a true cut.

To cut angle section, place the material though the hold down into the cutting area, adjust the support screw to the material but leave sufficient clearance to enable the section to be fed on for progressive cutting.

To miter cut at 45 degrees:

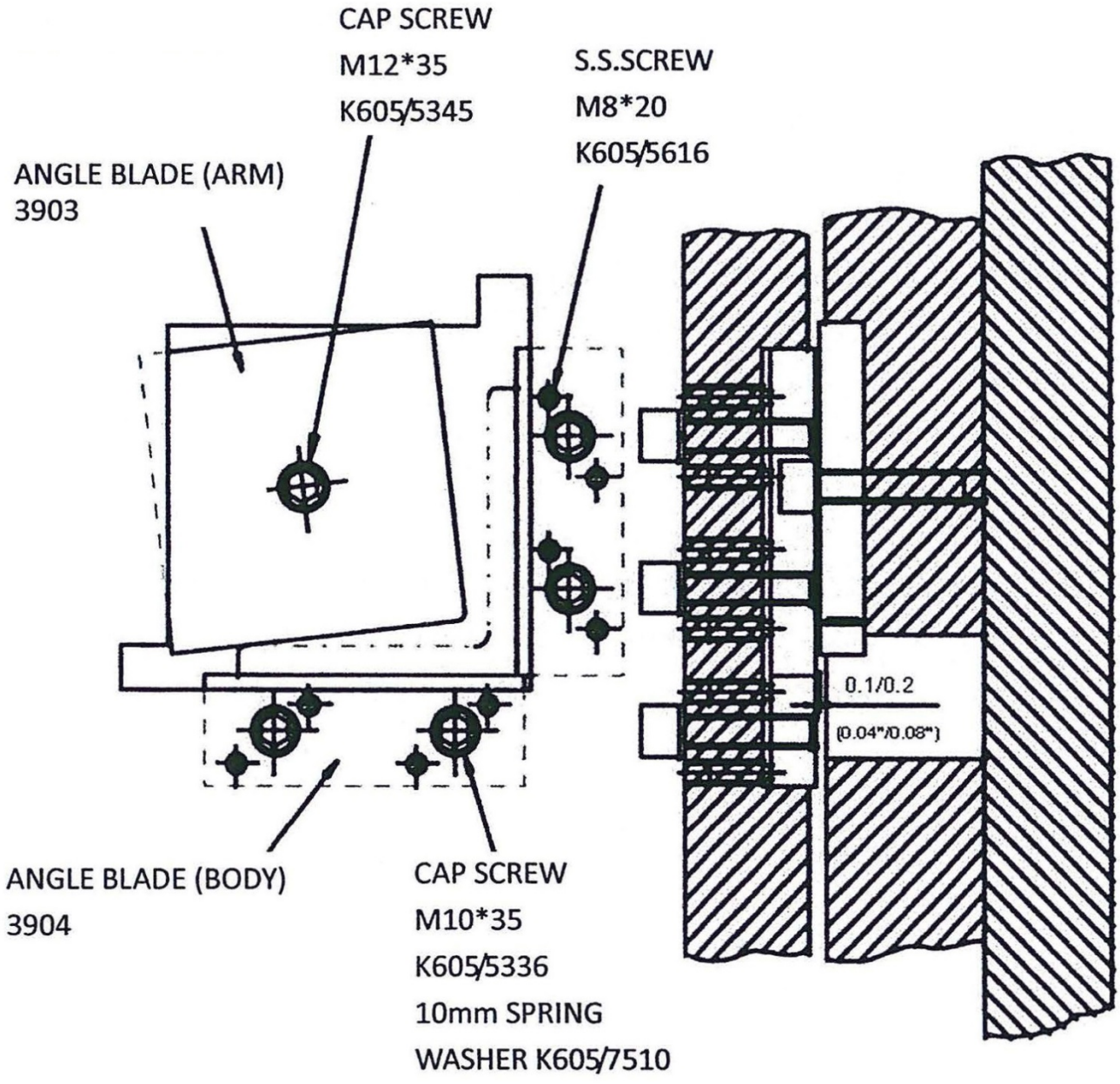
1. Cut the angles to length allowing approximately 0.5” (12.7mm) oversize for end trimming.
2. Place the first end into the blade using the higher support position trim approximately 0.25” (6mm) off the end of the section while maintaining 45 degrees to vertical position.
3. Place the other end into the blade using the left-hand support position, trim section to length while maintaining 45 degrees to face of machine position.
4. To achieve other angles of cut between 45 degrees and 90 degrees, first cut the angle section length and then trim the flange to required angle in the shear station.
5. The slot in the shear hold down allows angle sections to be positioned for left hand or right hand trimming, verify that the hold down is set for relevant thickness.

Each cutting blade has four cutting edges and is retained by simple fixing screws. DO NOT reshape these blades, after turning four times replace with new blades.

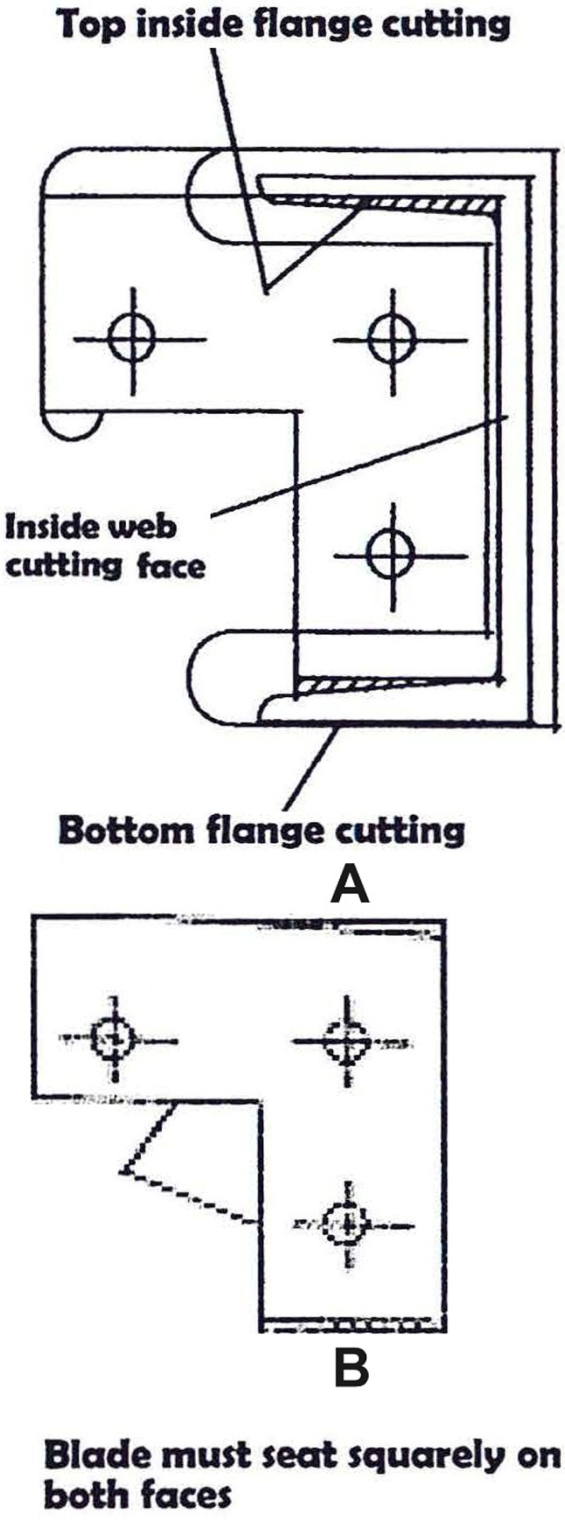
Always reference machine Model and Serial number when ordering replacement blades.

Angle Tooling General Guides

1. The quality of the cut is a direct indicator of the condition of the blades. Keep sharp, clean cutting edges.
2. Verify support screw is set for the material thickness being cut.
3. Always feed material between blades from hold down side.
4. Keep cutting aperture clean, small slivers, shod cuts and any other pieces should be removed from the blade area. DO NOT allow mill scale to "build up" in the blade area.
5. Never exceed the rated capacity of the machine.



Grinding Of Channel Insert Blades



Body Blade

1. Fit blade to carrier.
2. Retain position with three screws.
3. Ensure blade is seating on both faces, see sketch.
4. Insert a sample of channel with a cleanly cut end on to the blade with the bottom flange in line with bottom cutting face and the inside of the web square and in line with the inside web cutting face, as shown in sketch.
5. Holding the channel against the blade, scribe round inside of channel flanges.
6. Remove blade from carrier.

   Following the mark for A continue inner flange line as shown.

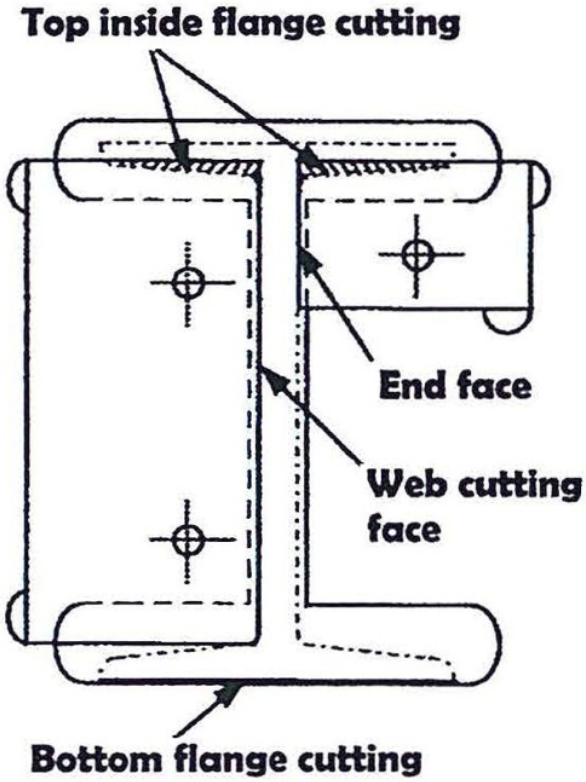
   Following the mark for B continue line from radius square to cutting face.
7. Allow a small clearance when grinding to permit easy passage of channel.

Grinding

Grind insert blades to lines scribed, shown shaded in sketch.

When hand grinding, if using face of grinding wheel, ensure angle between faces of insert and cutting face does not exceed 90 degrees.

Grinding of Joist Insert Blades

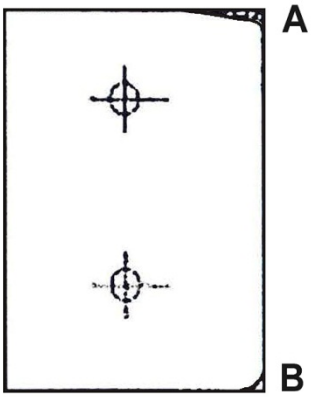


Body Blade

1. Fit blade to carrier.
2. Retain position with three screws.
3. Ensure blade is seating on both faces, see sketch.
4. Insert a sample of joist with a cleanly cut end on to the blade with the bottom flange in line with bottom cutting face and the inside of the web square and in line with the web cutting face, as shown in sketch.
5. Holding the joist against the blade, scribe round inside of joist flanges.
6. Remove blade from carrier.

   Following the mark for A continue inner flange line as shown.

   Mark the radius for corner B to match the radius of the sample joist.
7. Allow a small clearance when grinding to permit easy passage of joist.



IMPORTANT-

Keep blades cool when grinding to maintain correct hardness

Grinding

Grind insert blades to lines scribed, shown shaded in sketch.

When hand grinding, if using face of grinding wheel, ensure angle between faces of insert and cutting face does not exceed 90 degrees.

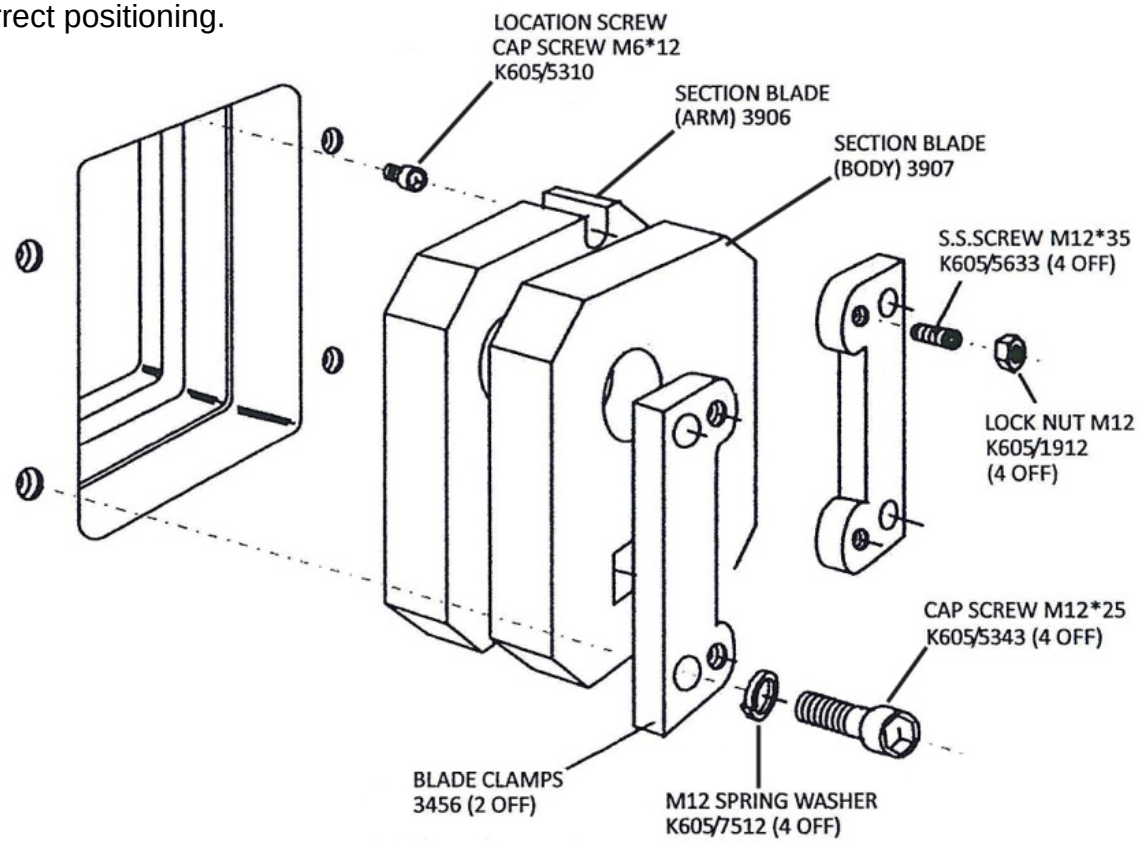
SECTION CUTTING

⚠ WARNING: Tooling and or workpiece could break apart under pressure, sending metal debris toward the operator at a high rate of speed.
To reduce the risk of hazard:
Material shall be adequately supported and held in place.
Always keep all safety guards and access panels and tooling in the correct position and secured when operating this machine. Never exceed the machine capacity.

The machines are fitted as standard with blades for cutting round and square bars and have apertures of varying sizes. The smallest aperture should be chosen, which will accept the material, thus ensuring a complete and well-supported cut. The blades are retained by simple clamps, allowing easy changes without the need for elaborate setting.

1. To change the blades, the material support must be removed.
2. Release the four screws securing the blade clamps, remove blade clamps then remove the blades.

The arm blade is smaller than the body blade to prevent incorrect assembly when inserted carrier blades are used. Also notice the safety peg, there is a safety slot in the arm blade to prevent incorrect positioning.



To set blade clearance:

1. Ensure arm blade is properly seated in shear arm.
2. Position body blade in frame firmly pushed against arm blade.
3. Secure blade clamp to frame.
4. Tighten the four SS screws, and then release each screw 0.25 of a turn.
5. Tighten locknut while holding the SS screw with Allen wrench.

IMPORTANT:

- Never remove screw installed as safety peg in the arm blade milled recess.
- In the case of worn solid blades, new blades must be installed. DO NOT attempt to regrind faces; this makes blades undersize for secure installation.
- In the case of worn insert blades, new inserts can be supplied for grinding to worn sample.
- When installing new blades reverse the removal procedure.
- The blade clamps are marked (RH) right hand and (LH) left hand, ensure they are replaced correctly.
- To cut sections place the material through the hold down into the cutting area, adjust the hold down screw (if installed) to achieve square cut.

Always reference machine Model and Serial number when ordering replacement blades.

Section Tooling General Guides

1. The quality of the cut is a direct indicator of the condition of the blades. Keep sharp, clean cutting edges.
2. Verify support screw is set for the material thickness being cut.
3. Always feed material between blades from hold down side.
4. Keep cutting aperture clean, small slivers, shod cuts and any other pieces should be removed from the blade area. DO NOT allow mill scale to "build up" in the blade area.
5. Never exceed the rated capacity of the machine.
6. Make sure the cut piece falls through the rear exit panel and away from dies so that it does not interfere with next operation.

STROKE ADJUSTMENT

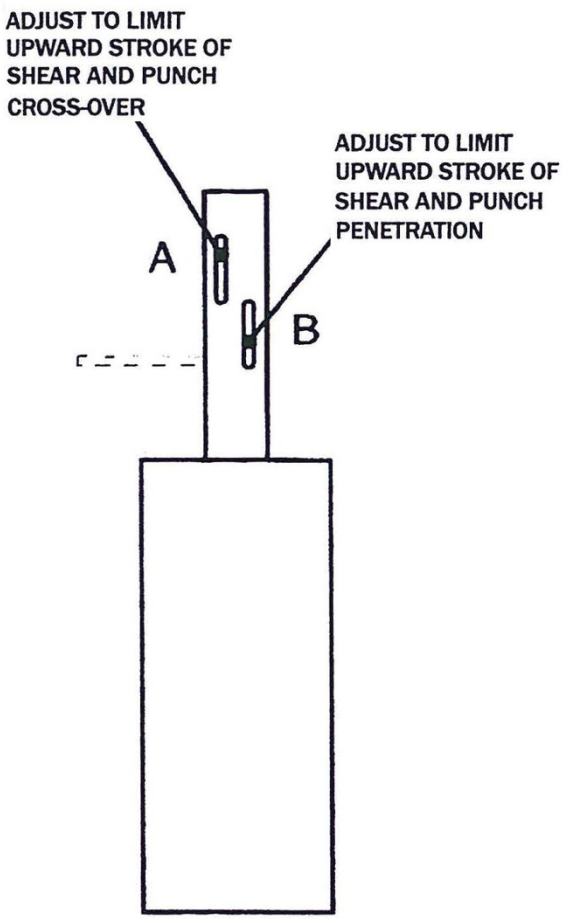
Stroke adjustment “A” and “B” can be adjusted by loosening the relevant actuator and sliding the actuator to the desired position.

To reduce punch clearance stroke:
- set actuator “B”.

To reduce shear clearance stroke:
- set actuator “A”.

To adjust for air beading penetration:
- set actuator “A”.

A correctly set machine will considerably reduce operating times when stroke lengths are kept to a minimum.



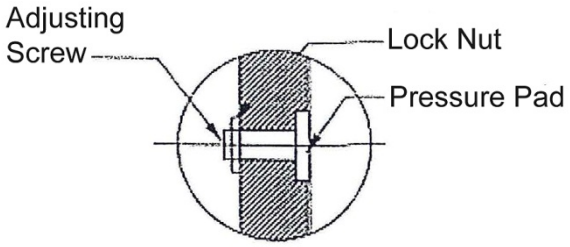
MACHINE ARM ADJUSTMENT

The Shear Arm is adjusted by four 24mm Socket Set Screws which apply pressure to the internal Bronze Pressure Pads. These are located on the Feed (Hold Down) Side of the machine as shown in the figure below.

Note: *The arm should be adjusted prior to any adjustment of the shear blade.*

Adjusting Arm

1. Lock out power at the machine main disconnect before making any adjustments.
2. Loosen locking nuts at the four pad positions only (M24 lock nuts).
3. Turn adjusting screws clockwise until slight resistance is felt.
4. Tighten lock nuts and test movement of arm.



BENDING ALLOWANCE

In order to bend sheet metal accurately, you will need to consider the total length of each bend. This is referred to as bend allowance. Subtract the bend allowance from the sum of the outside dimensions of the piece part to obtain the actual overall length or width of the piece. Because of differences in sheet metal hardness, and whether the bend is made with the grain or against it, exact allowances must sometimes be made by trial and error. However bend allowances for general use can be obtained from metal working books or from the Internet.

UNDERSTANDING SPRINGBACK

Springback, also known as elastic recovery, is the result of the metal wanting to return to its original shape after undergoing compression and stretch. After the bending leaf is removed from the metal and the load is released, the piece part relaxes, forcing the bent portion of the metal to return slightly to its original shape. The key to obtaining the correct bend angle is to over bend the metal a little and allow it to spring back to the desired angle. All metals exhibit a certain amount of spring back.

MATERIAL SELECTION

⚠ CAUTION: It must be determined by the customer that materials being processed through the machine are NOT potentially hazardous to operator or personnel working nearby.

When selecting materials keep these instructions in mind:

- Material must be clean and dry. (without oil)
- Material should have a smooth surface so it processes easily.
- Dimensional properties of material must be consistent and not exceed the machine capacity values.
- Chemical structure of material must be consistent.
- Buy certificated steel from the same vendor when possible.

LUBRICATION AND MAINTENANCE

WARNING: Make sure the electrical disconnect is OFF before working on the machine.
Maintenance should be performed on a regular basis by qualified personnel.
Always follow proper safety precautions when working on or around any machinery.

Daily - Before starting machine

Check daily for any unsafe conditions and fix immediately.
Check that all nuts and bolts are properly tightened.
Check fluid level in tank. Top off as necessary.
Check condition of all blades, punch and die.
Check surrounding work area is tidy, remove any drop off, slugs from floor area.
Clean off any mill scale, which may have collected around the cutting apertures.

Weekly - But depending on work load.

Examine power cable and foot pedal cable for damage or chafing.
Check movement of machine is smooth when running under no load condition.
On a weekly basis clean the machine and the area around it.
Lubricate threaded components and sliding devices.
Apply rust inhibitive lubricant to all non-painted surfaces.

Monthly — Check arm adjustment for any slackness

Yearly — Change hydraulic fluid, inspect oil suction strainer.

CLEANING

Under normal operation, all visible working pads should be regularly cleaned of foreign matter, thus preventing excessive wear and possible failure.

Periodic Lubrication

The machine is fitted with 6 grease nipple point. These points should be lubricated periodically (6-8 hours) using the grease gun from tool kit.
Grease Total SRC 2 or equivalent is recommended.

***Note**: Proper maintenance can increase the life expectancy of your machine.*

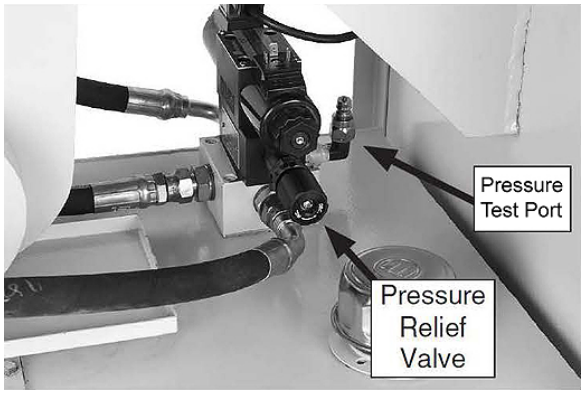
HYDRAULIC SYSTEM INFORMATION

A 5hp (3.72kW) motor drives a hydraulic pump, which through control valves feed the power cylinder of the machine. The cylinder is connected to a pivoted arm.

⚠ WARNING: HYDRAULIC INJECTION HAZARD.

Hydraulic oil leaks can be under sufficient pressure to penetrate your skin and enter your bloodstream. If oil is injected into any part of your body, it is a medical emergency and may, if not treated immediately, result in severe infection, permanent disability, or even death.

System Pressure



To check any operational loadings, a pressure gauge can be installed at the manifold position. The maximum system pressure has been set at the factory to 3000 psi (210 bar).
If the hydraulic fluid reaches beyond 3000 psi (210 bar), the pressure relief valve protects the hydraulic system by redirecting the fluid from the cylinder back into the reservoir. Generally, the only time this should occur is when attempting a cutting operation that is beyond the capacity of your machine.
The pressure relief valve is calibrated at the factory and should not require change. However, if necessary, contact hydraulic service technician to load test the hydraulic system and re-calibrate the pressure relief valve.

Use the sight glass mounted on the rear of the hydraulic reservoir to check the fluid lever and temperature. Maintain the fluid level above the red line on the sight glass.

The operating temperature of the hydraulic fluid should not exceed 160°F (70°C) with an optimum operating temperature widow of 50° - 95°F (10° – 35°C) if the fluid temperature rises above 160°F. stop the machine immediately and allow the fluid to cool down.

If a high temperature condition continues during operation, stop using the machine immediately, then review Troubleshooting. If you still cannot remedy the problem, contact a qualified hydraulic service technician.

HYDRAULIC FLUID

Fill to top level of inspection glass. Use only mineral oil as recommended or equivalent

Brand	Type
B.P.	Energol HLP 32
Castrol	Hyspin AWS 82-6018
Esso	Nuto H32
Mobil	DTE24
Shell	Tellus 32
Total	Azolla ZS 32

Hydraulic Fluid Capacity

Hydraulic Reservoir Approx. 12.25 gal. (49 L)

The hydraulic system must be maintained on a regular basis and kept in good operating condition so that the ironworker can perform safety and at the rated capacity.

If you have never maintained a hydraulic system before, IT IS STRONGY RECOMMEND that you get formal training or seek the help of a qualified hydraulic service technician.

***Note**: Failure to perform regular and proper hydraulic system maintenance and to keep the hydraulic system in good operating condition will lead to premature wear of the moving parts, hoses, and valves, and will void the warranty.*

Hydraulic Oil - refer to the recommended oils label - The oil filer/breather is positioned on the tank accessible by removing the louvered cover at base of the machine.

Suctions Strainer - inspect oil strainer every twelve months. The strainer is accessible, having released the screws in tank cover, if necessary wash in paraffin (Replacement L820 /5020).

Sludge Tray - while lower cover is removed, check tray located under mainframe once every twelve months.

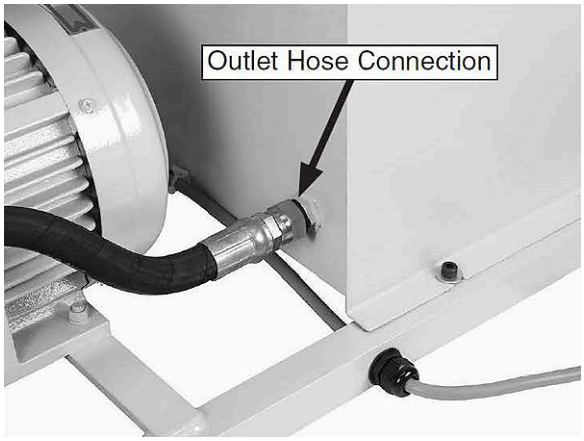
DRAINING and FILLING HYDRAULIC RESERVOIR

WARNING: BIOLOGICAL AND POISON HAZARD!

Use proper personal protection equipment when handling hydraulic fluid, and follow federal, state, and fluid manufacturer requirements to properly dispose of hydraulic fluid.

To drain:

1. Lock out power at the machine main disconnect before performing any work on the hydraulic system!
2. Remove the rear access panel.
3. Unscrew the filler cap, and take out the filler from the filler neck.
4. Removed the drip pan and reservoir access plate from the top of the reservoir.
5. Position and oil catch pan under the outlet connection of the reservoir, and carefully remove the outlet hose to drain the contents of the reservoir.
6. Reach through the opening in the top of the reservoir left by the access plate and remove the outlet filter from the reservoir.
7. Thoroughly clean the filler cap, both filters, and the inside of the reservoir with solvent or mineral spirits. Make sure to wipe and dry all fluid residues from the parts, inside the reservoir, and the surrounding area.



***Note**: If fluid contamination is severe or there has been a component failure, have a qualified hydraulic technician thoroughly flush the system. Failure to fully clean the hydraulic system could lead to premature wear of the hydraulic system.*

To fill:

1. When all parts are clean and dry, assemble them and fill the reservoir with one of the recommended hydraulic fluids or an equivalent.
2. With the front and rear access panels removed from the machine, connect the machine to power and turn it ON.

WARNING: HYDRAULIC INJECTION HAZARD.

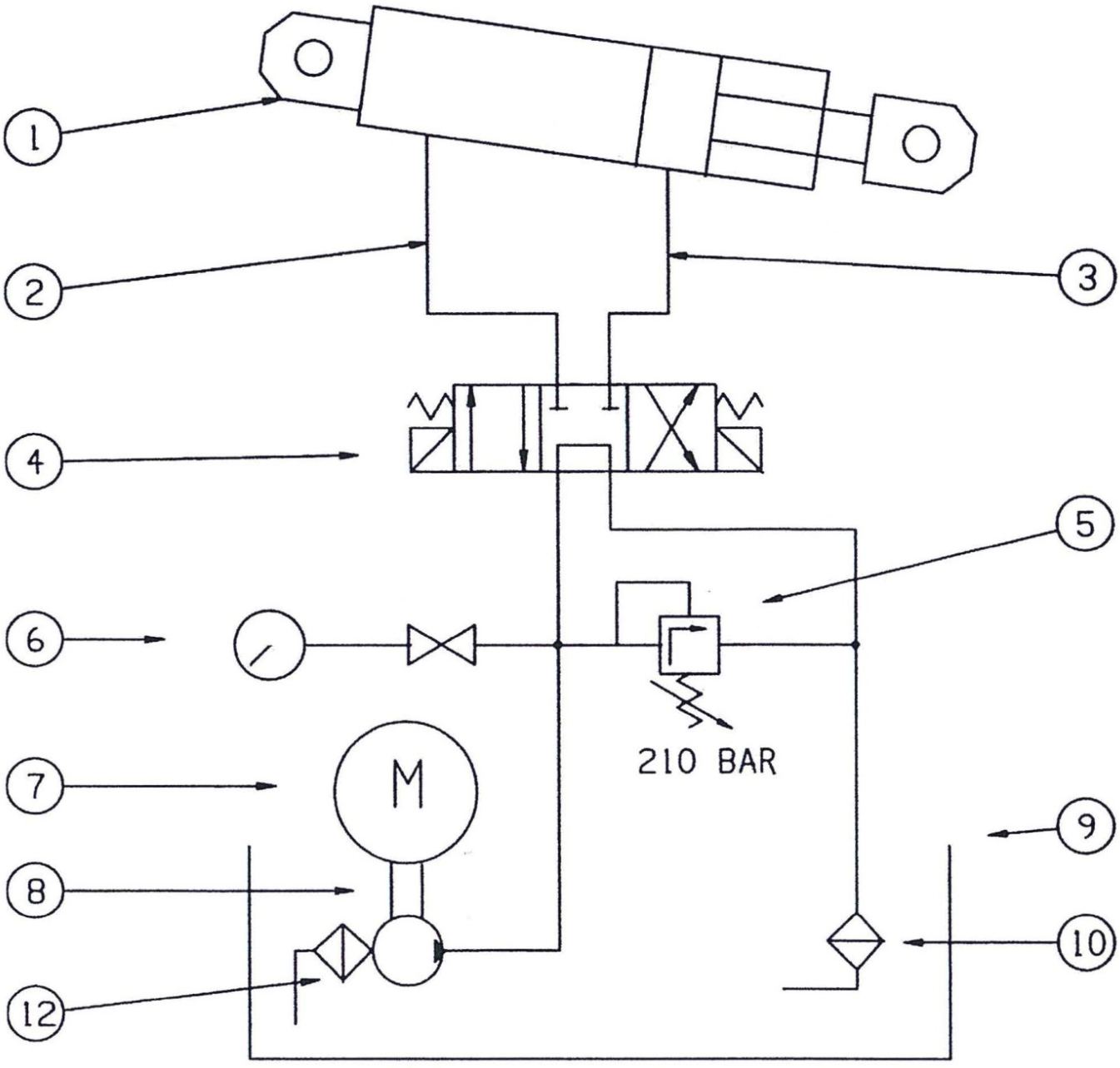
Hydraulic oil leaks can be under sufficient pressure to penetrate your skin and enter your bloodstream. If oil is injected into any part of your body, it is a medical emergency and may, if not treated immediately, result in severe infection, permanent disability, or even death.

3. Using a clean piece of cardboard **NOT** your hands, carefully check all hoses and connections for leaks, then stand clear of the machine and move the beam back and forth to verify proper operation of the hydraulic system.
4. Turn the machine OFF, then install the front and rear access panels.

HYDRAULIC PART LIST

Item	Description	Qty.
1	Hydraulic Cylinder	1
2	Flex Pipe A	1
3	Flex Pipe B	1
4	Direction Control Valve	1
5	Relief Valve	1
6	Pressure Gauge	1
7	Motor 5hp (3.72kw)	1
8	Drive Coupling	1
9	Tank (401)	1
10	Diffuser	1
11	Hydraulic Pump	1
12	Section Strainer	1

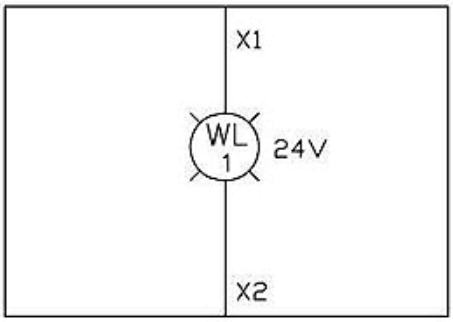
HYDRAULIC SCHEMATIC



CONTROL PANEL COMPONENT ELECTRICAL DIAGRAM

POWER LAMP

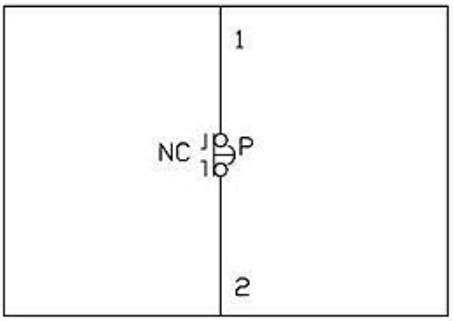
5



6

E.STOP

1



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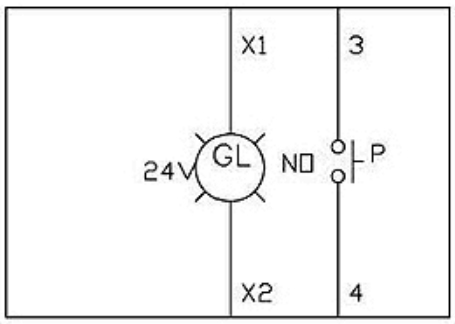
START

5 10



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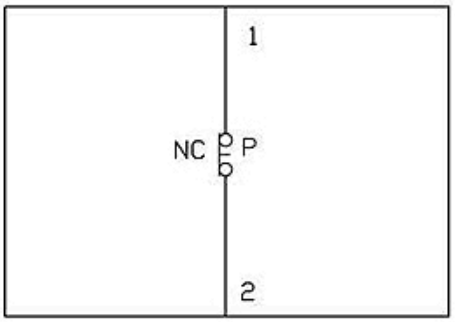
STOP

10



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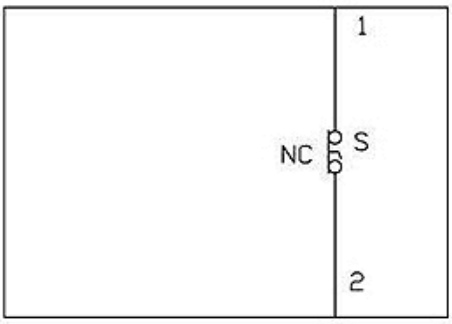
NORMAL INCH

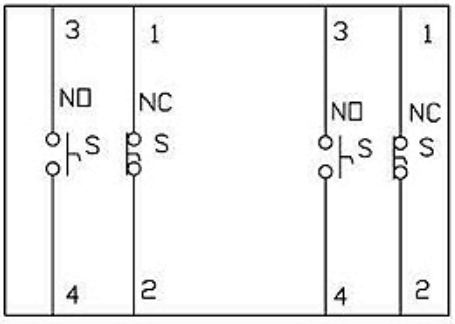
19



21

PUNCH NOTCH

16 18 18 16



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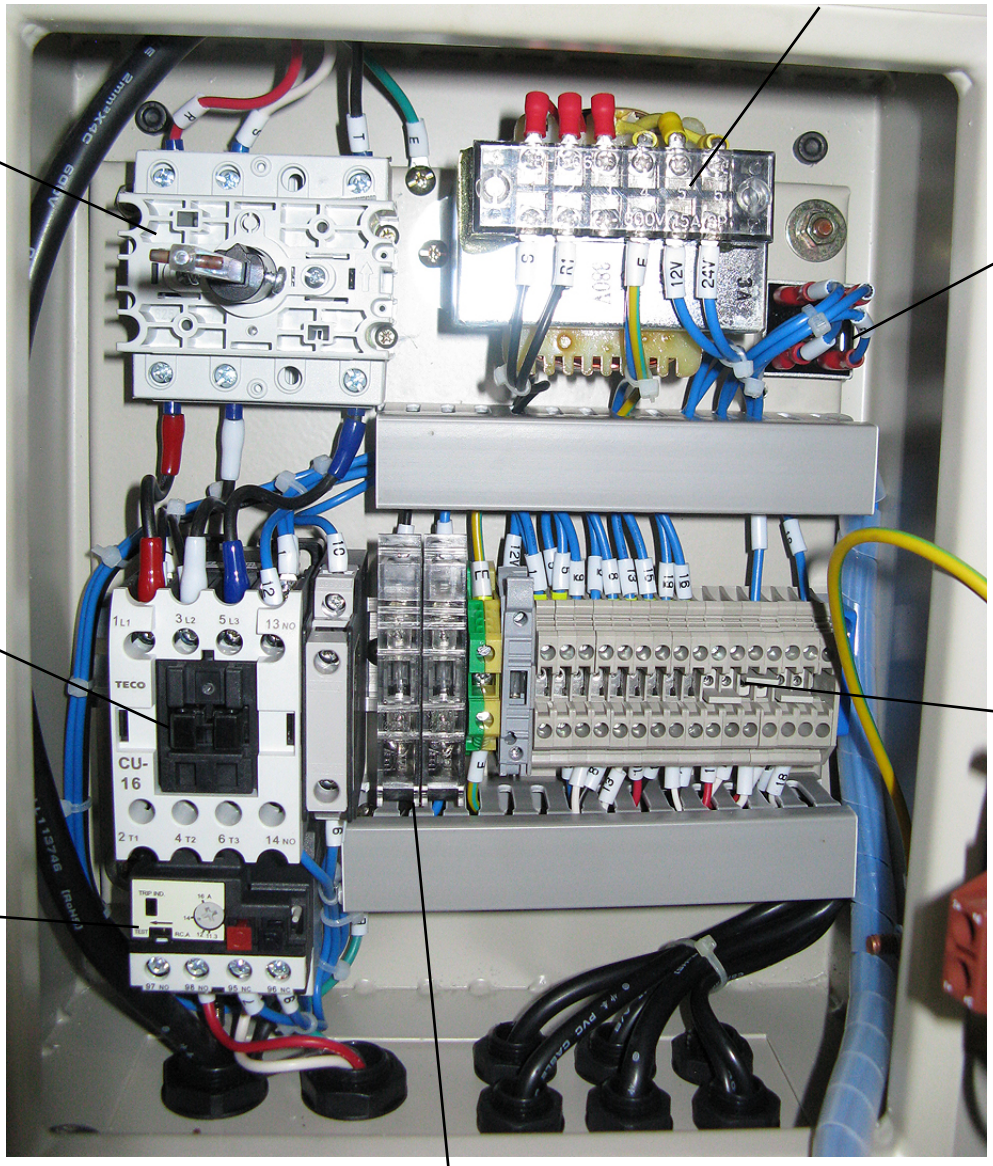
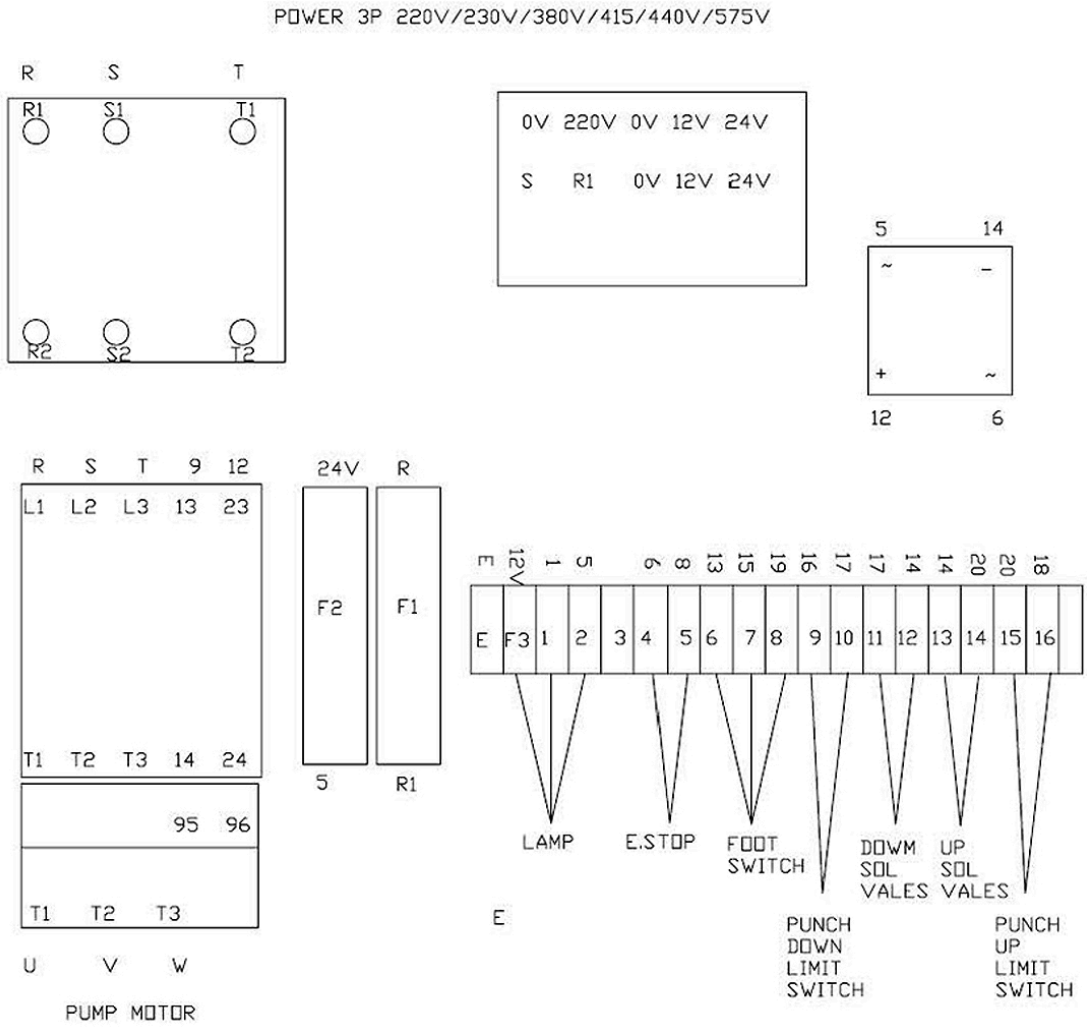
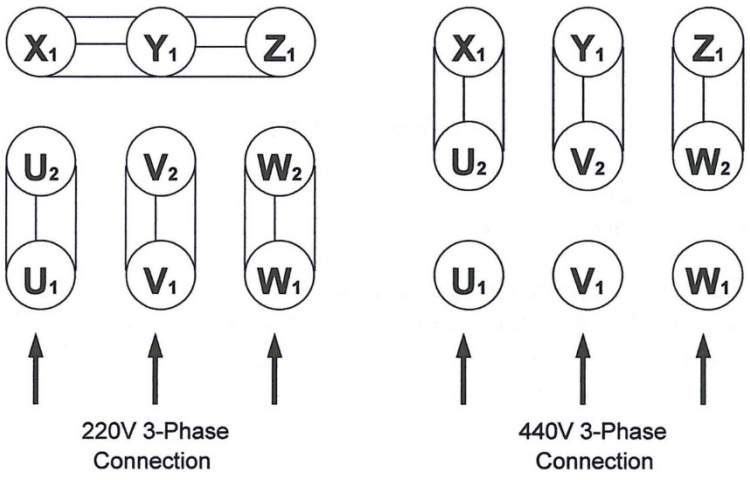
ELECTRICAL ENCLOSURE COMPONENTS



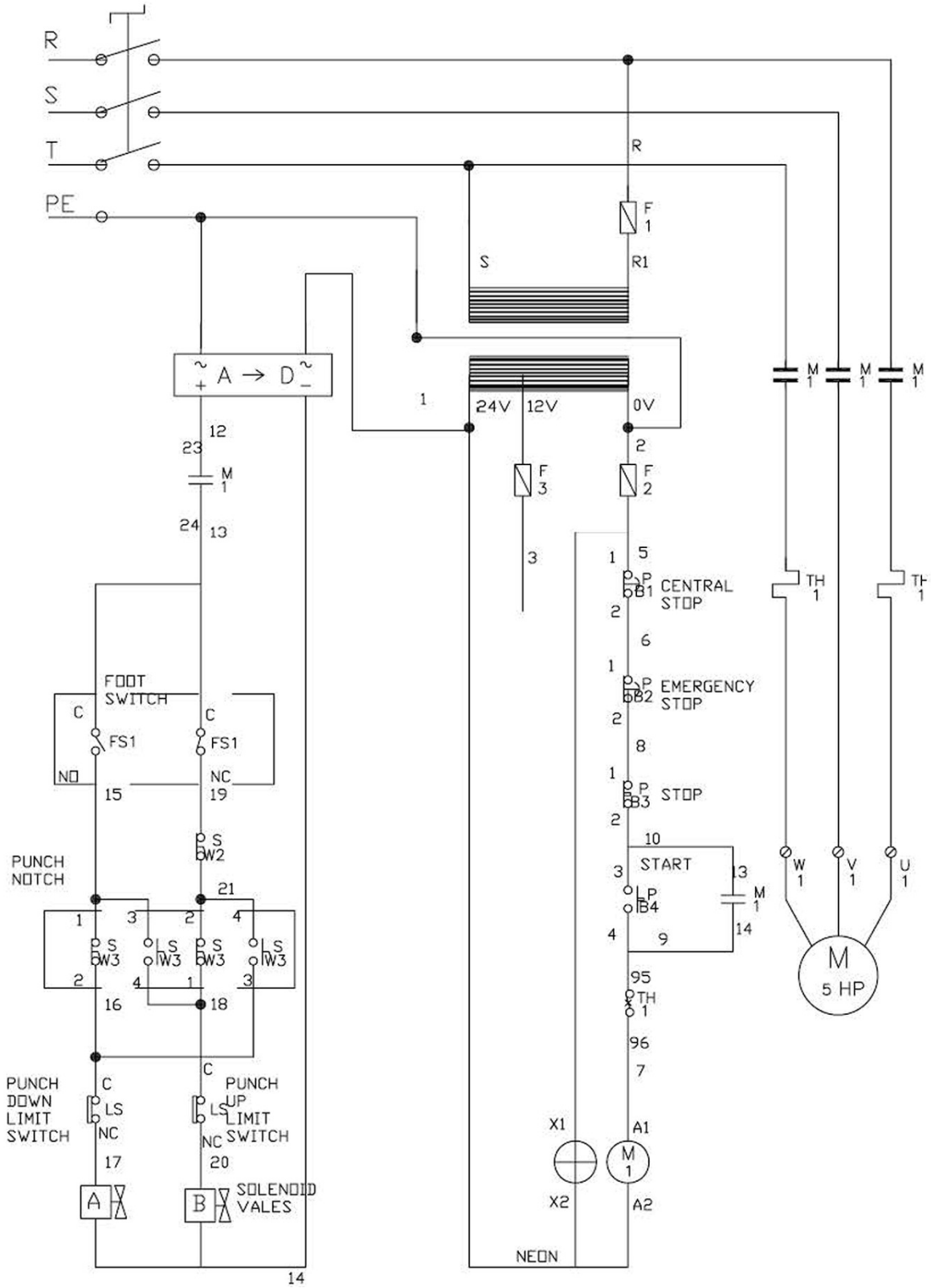
ELECTRICAL ENCLOSURE COMPONENTS ELECTRICAL DIAGRAM



MOTOR WIRING DIAGRAM



ELECTRICAL DIAGRAM



TROUBLESHOOTING

⚠ WARNING: Make sure the electrical disconnect is OFF before working on the machine.

Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	Main Power switch turned off.	Rotate Main Power switch to ON.
	Emergency Stop push-button is engaged/faulty.	Rotate clockwise slightly until it pops out/replace it.
	Plug/receptacle is at fault or wired incorrectly.	Test for good contacts; correct the wiring.
	Motor connection wired incorrectly.	Correct motor wiring connections.
	Wall fuse/circuit breaker is blown/tripped.	Ensure circuit size is suitable for this machine; replace weak breaker.
	Thermal overload relay has tripped.	Turn cut-out dial to increase working amps and push the reset pin. Replace if tripped multiple times (weak relay).
	Contactor not getting energized/has burnt contacts.	Test for power on all legs and contactor operation. Replace unit if faulty.
	Power supply switched OFF or is at fault.	Ensure power supply is switched on; ensure power supply has the correct voltage.
	Wiring is open/has high resistance.	Check for broken wires or disconnected/corroded connections. and repair/replace as necessary.
	Motor Start button or Main Power switch is at fault.	Replace faulty Start button or Main Power switch.
	Motor is at fault.	Test/repair/replace.

Machine stalls or is overloaded.	Wrong workpiece material.	Use only metal with a hardness of 45 kg/mm^2 or less and is within capacities of machine.
	Motor connection is wired incorrectly.	Correct motor wiring connections.
	Plug/receptacle is at fault.	Test for good contacts; correct the wiring.
	Motor bearings are at fault.	Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
	Machine is undersized for the task.	Use sharp tooling; keep workpiece within the capacities of machine; use cutting lubricant.
	Motor has overheated.	Clean off motor, let cool, and reduce workload.
	Contactor not getting energized or has poor contacts.	Test for power on all legs and contactor operation. Replace if faulty.
	Motor is at fault.	Test/repair/replace.
	Hydraulic fluid low in reservoir.	Fill hydraulic reservoir.
	Hydraulic fluid pressure too low; hydraulic pump at fault.	Test/adjust for correct hydraulic fluid pressure, replace pump if necessary.
	Hydraulic system has leaks or valves at fault.	Check/repair/replace hydraulic hoses, connections, and valves.
Machine has vibration or noisy operation.	Motor wired out of phase.	Swap any two input power wires at the motor.
	Motor mount loose/broken.	Tighten/replace.
	Motor or component is loose.	Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid.
	Machine is incorrectly mounted or sits unevenly.	Tighten/replace anchor studs in floor: Relocate/shim machine.
	Motor fan is rubbing on fan cover.	Tighten/Repair/Replace fan cover.
	Motor bearings are at fault.	Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

Operations

Symptom	Possible Cause	Possible Solution
Cuts are excessively ragged or not accurate.	Tooling damaged or dull.	Check/sharpen/replace tooling.
	Not using proper station.	Use the appropriate ironworker station for your operation
	Tooling not installed properly.	Check/repair tooling installation and clearances.
	Cutting stroke not continuous through the workpiece.	Keep the Normal/Inch switch in Normal position and pressure on pedal actuator until workpiece is cut completely through.
	Workpiece moves away from tooling during operation.	Use hold-downs, table guides, and other devices to ensure workpiece is secure before cutting.
Tooling not cutting completely through workpiece.	Workpiece dimensions not within capacity of machine.	Make sure workpiece dimensions are within machine/station capacity; use cutting lubricant.
	Tooling is damaged or dull.	Check/sharpen/replace tooling.
	Hydraulic pump at fault.	Test/adjust correct hydraulic fluid pressure; replace pump if necessary.
	Hydraulic system has leaks or valves at fault.	Check/repair/replace hydraulic hoses, connections, and valves.
Loud unusual noise when beam reverses direction.	Limit stops not properly set.	Set limit rings and stops to factory settings.
Hydraulic fluid temperature at/over 160°F (70°C).	Machine cutting at/beyond capacity.	Tum machine OFF and allow hydraulic fluid to cool; make cuts only with the capacity of your machine.
	Hydraulic fluid pressure set to high.	Reduce hydraulic fluid relief pressure to 3400 PSI.
	Incorrect hydraulic fluid type.	Use only one of recommended hydraulic fluids.
	Hydraulic system at fault.	Have a qualified hydraulic service technician service/repair the hydraulic system.

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PART'S MANUAL

Metal Working

Book 2 of 2

4 STATION HYDRAULIC IRONWORKER

MODEL: SW-44

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sales@baileigh.com

Rev. 12/2016

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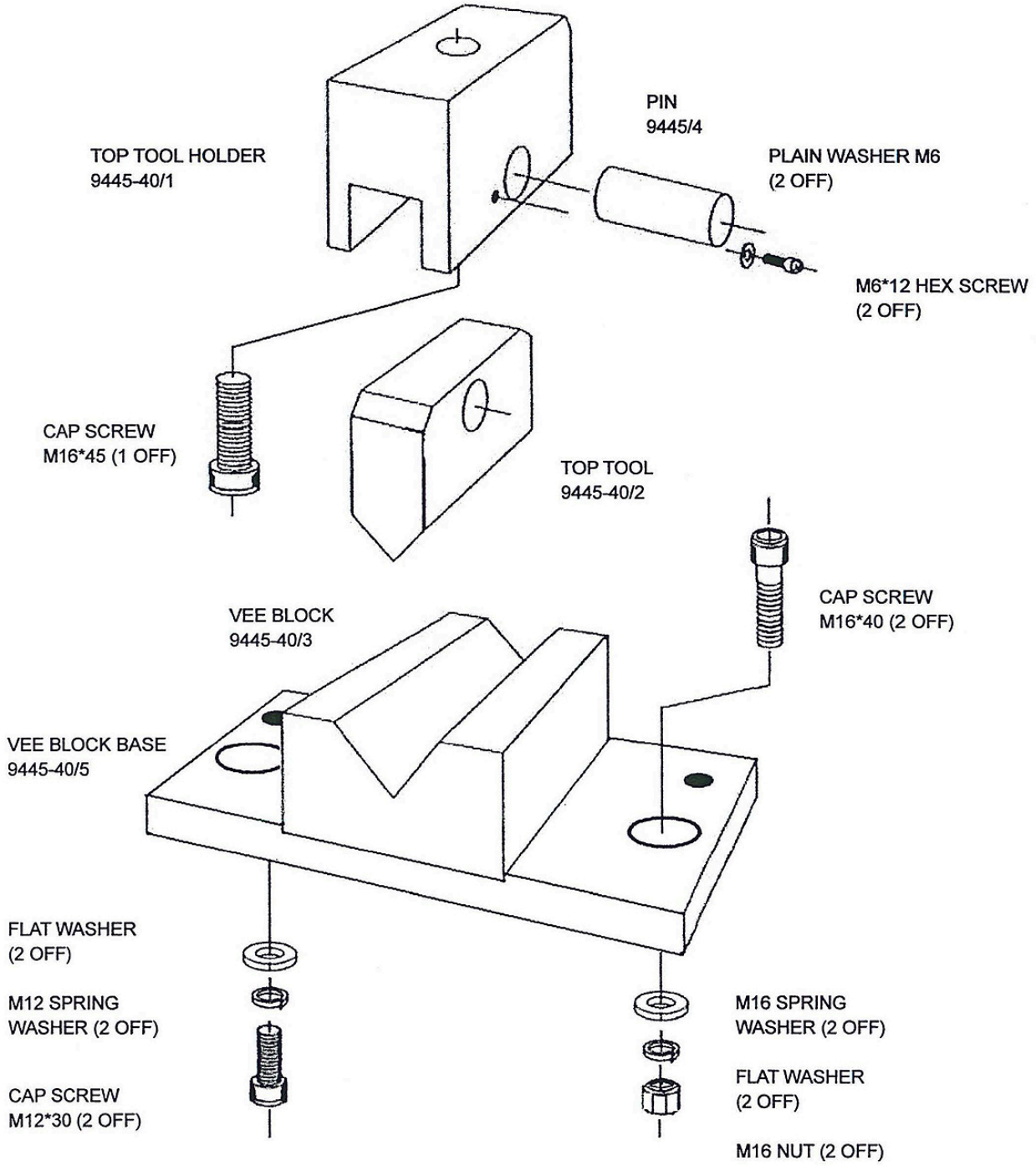
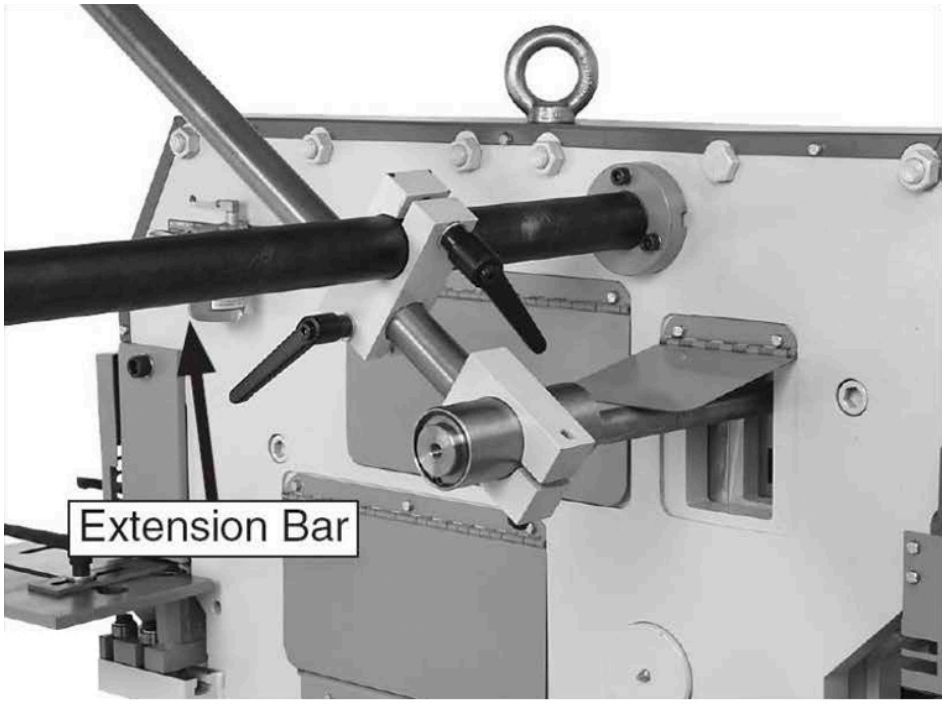
SPECIAL TOOLING – BENDING BAR UNIT

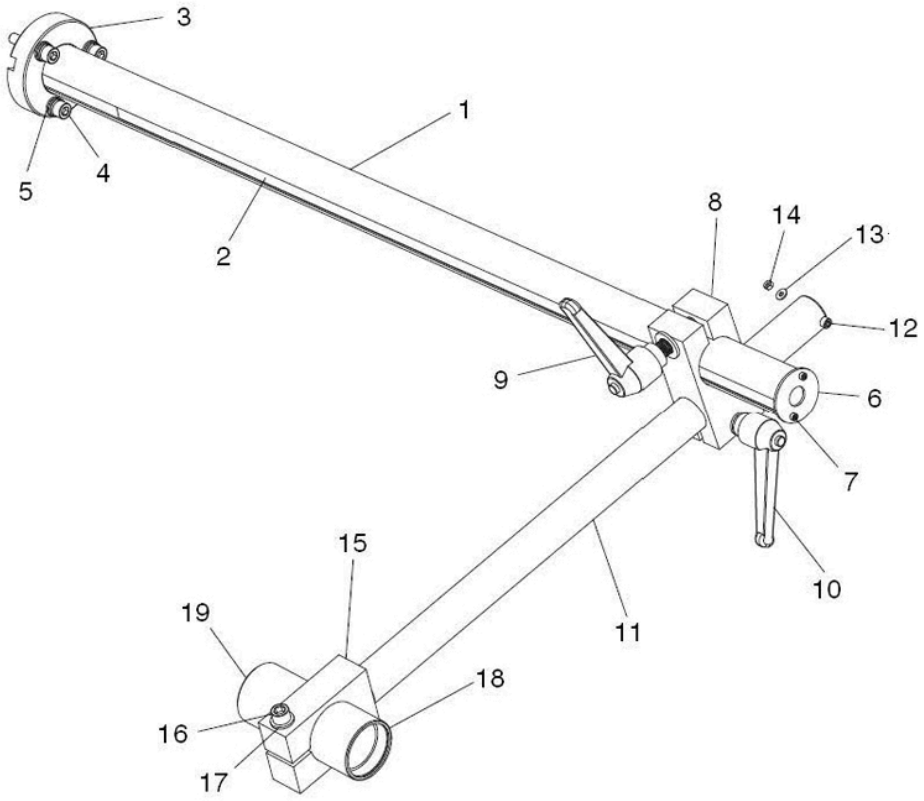


When bending always ensure work-piece is positioned central on VEE Block to avoid side loading ram. Air bending only. Adjust down limit switch to avoid unnecessary pressuring of machine.

Capacity :80 * 10 (mm^2)

ONE METER RULED LENGTH STOP



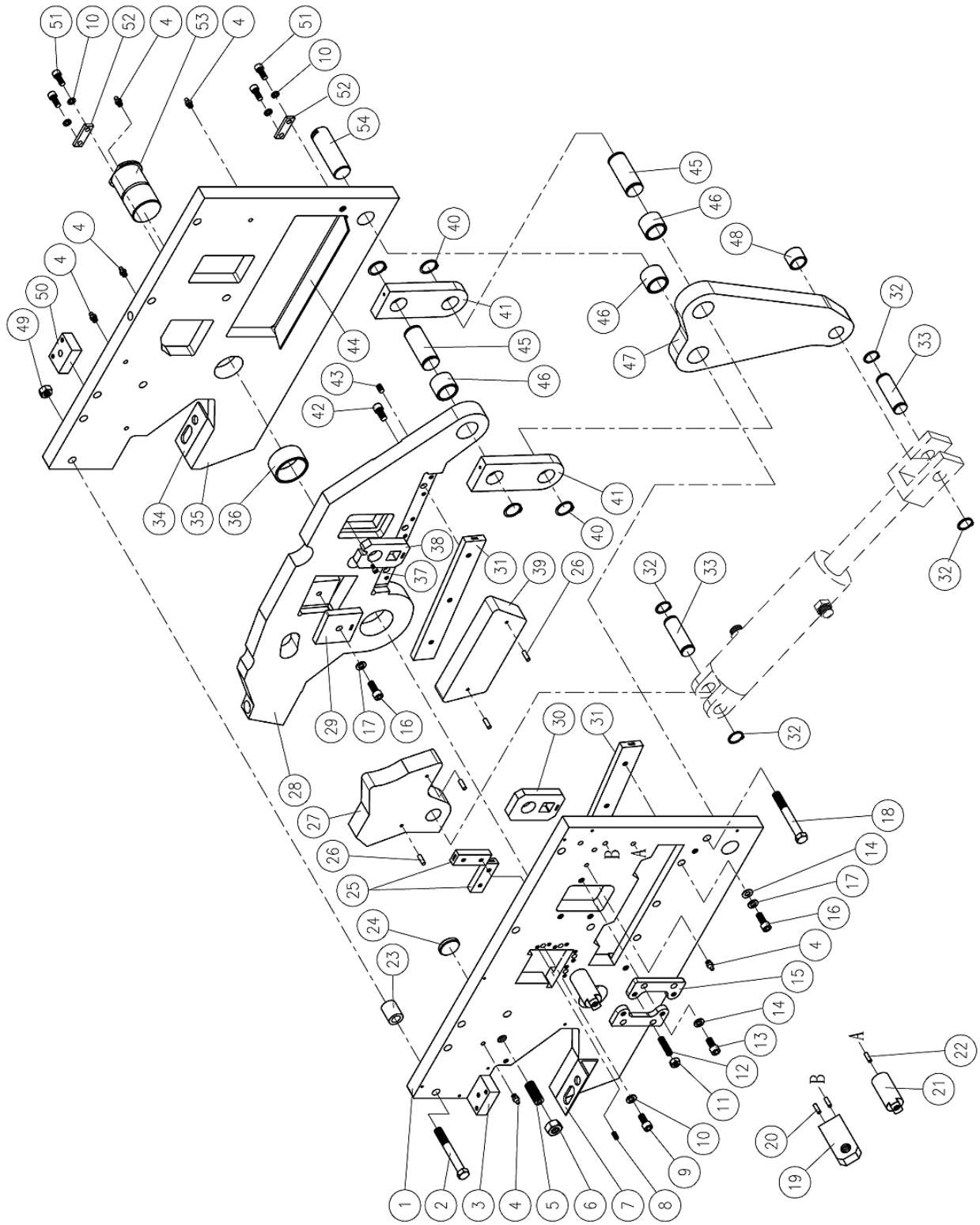


PARTS OF ONE METER RULED LENGTH STOP

Item	Part No.	Description	Qty.
1	TC 0001	Guide Bar	1
2	TC 0002	Scale 1M	1
3	TC 0003	Mounting Bracket	1
4	TC 0004	M10 - 1.5 x 45 Cap Screw	3
5	TC 0005	10mm, Lock Washer	3
6	TC 0006	End Cap	1
7	TC 0007	M4 - 0.7 x 10 Cap Screw	2
8	TC 0008	Pivot Clamp	1
9	TC 0009	M12 - 1.75 x 40 Lock Lever	1
10	TC 0010	M16 – 2 x 45 Lock Lever	1
11	TC 0011	Extension Bar	1
12	TC 0012	M6 – 1 x 55 Cap Screw	1
13	TC 0013	6mm Flat Washer	1
14	TC 0014	M6 - 1 Hex Nut	1
15	TC 0015	Clamp	1
16	TC 0016	M12 - 1.75 x 75 Cap Screw	1
17	TC 0017	12mm Flat Washer	1
18	TC 0018	Support Shaft	1

CUTTING HEAD PARTS DIAGRAM

Always reference machine Model and Serial number when ordering replacement blades.

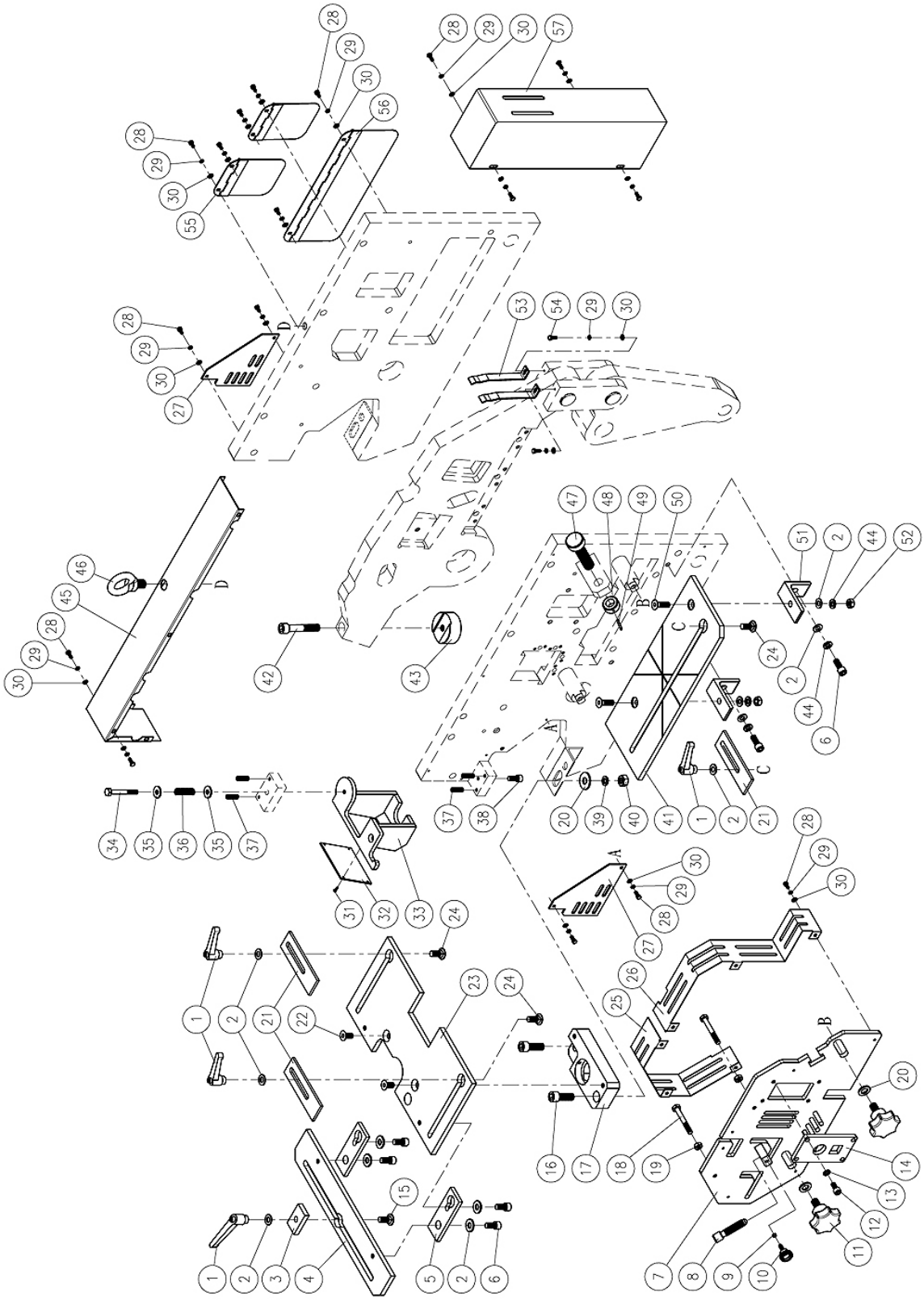


Cutting Head Parts List

Item	Description	Specification	Qty.
1	Right cover		1
2	Hex screw	M16*2.0P*120L*38L	7
3	Right plate		1
4	grease fitting	PT1/8"	6
5	Set screw	M20*2.5P*40L	2
6	Hex nut	M20*2.5P	2
7	Punch bolster support R		1
8	Set screw	M8*1.25P*20L	8
9	Cap screw	M10*1.5P*35L	4
10	Spring washer	M10	4
11	Hex nut	M12*1.75P	4
12	Set screw	M12*1.75P*40L	4
13	Cap screw	M12*1.75P*30L	4
14	Washer	13*23*2t	7
15	Section blade retainer		2
16	Cap screw	M12*1.75P*35L	4
17	Spring washer	M12	3
18	Hex screw	M16*2.0P*100L*38L	1
19	over setting block		1
20	Spring pin	6*25L	2
21	Slide		2
22	Spring pin	12*24L	2
23	Bushing		6
24	Copper compact block		2
25	Angle blade body		2
26	Spring washer	6*20L	4
27	Left clamping plate		1
28	Main arm		1
29	Angle blade arm		1
30	STD section blade body		1
31	Shear blade		2
32	C-ring	STW-30	4
33	Rotating shaft		2

Item	Description	Specification	Qty.
34	Punch bolster support L		1
35	Left cover		1
36	Main pivot bush		1
37	Cap screw	M6*1.0P*12L	1
38	STD section blade arm		1
39	Middle clamping plate		1
40	C-ring	STW-38	4
41	Link block		2
42	Cap screw	M12*1.75P*20L	3
43	Set screw	M10*1.5P*20L	9
44	Striper plate		1
45	Y Link pivot		2
46	Y Link bush		3
47	Y Link		1
48	Bearing	DU3040	1
49	Hex nut	M16*2.0P	7
50	Left plate		1
51	Cap Screw	M10*1.5P*20L	4
52	Support bracket		2
53	Main pivot		1
54	External Link pivot		1

GUARDS AND TABLES PARTS DIAGRAM

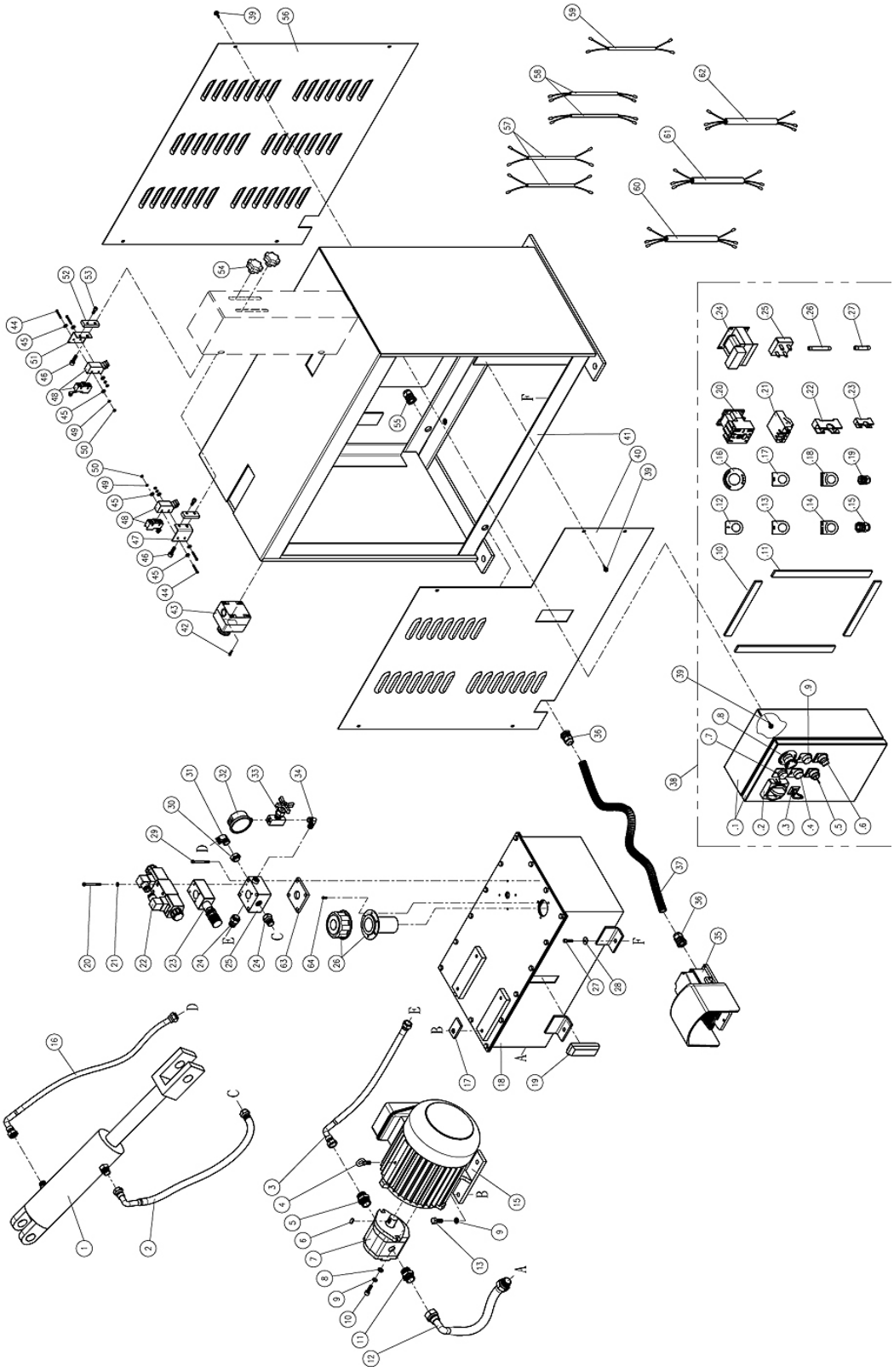


Guards and Tables Parts List

Item	Description	Specification	Qty.
1	Locking Handle	1/2"-12 *20L	4
2	Washer	13*23*2t	12
3	Punch guide		1
4	Punch table extension		1
5	Punch table support bar		2
6	Cap screw	M12*1.75P*25L	6
7	Hold down plate		1
8	Angle hold down screw		1
9	Angle hold locking PU block	ø6-5L	1
10	Angle hold locking knob	M8*1.25P*20L	1
11	Hold down locking knob	M16*2.0P*30L	2
12	Cap screw	M10*1.5P*20L	4
13	Spring washer	M10	4
14	Round /square section hold down		1
15	Carriage Bolt	1/2"*12*1-1/2"L	1
16	Cap screw	M16*2.0P*45L	2
17	Punch bolster		
18	Hex screw	M10*1.5P*80L	1
19	Hex nut	M10*1.5P	1
20	Washer	17*37*2.5t	4
21	Punch / Notch / shear guide		3
22	Flat head screw	M12*1.75P*25L	2
23	Punch table		1
24	Carriage Bolt	1/2"*12*1-1/4"L	3
25	Hold down cover (Left)		1
26	Hold down cover (Right)		1
27	Cover		2
28	Hex screw	M6*1.0P*12L	28
29	Spring washer	M6	30
30	Washer	6.5*13*1t	30
31	Round head screw	M4*0.7P*10L	4
32	Punch front cover		1
33	Punch stripper bracket		1

Item	Description	Specification	Qty.
34	Hex screw	M10*1.5P*100L	1
35	Washer	10.2*26*2t	2
36	Spring		1
37	Set screw	M10*1.5P*30L	4
38	Cap screw	M10*1.5P*25L	1
39	Spring washer	M16	2
40	Hex nut	M16*2.0P	2
41	Shear table		1
42	Cap screw	M16*2.0P*90L	1
43	Punch block		1
44	Spring washer	M12	4
45	Top cover		1
46	Clevis		1
47	Hold down adjustment screw		1
48	Hold down adjustment nut		1
49	Spring pin	4*30L	1
50	Flat head screw	M12*1.75P*35L	2
51	Shear table support		2
52	Hex nut	M12*1.75P	2
53	Stroke bracket		2
54	Hex screw	M6*1.0P*16L	2
55	Angle / section cover		2
56	Shear cover		1
57	End cover		1

CABINET COMPONENTS PARTS DIAGRAM



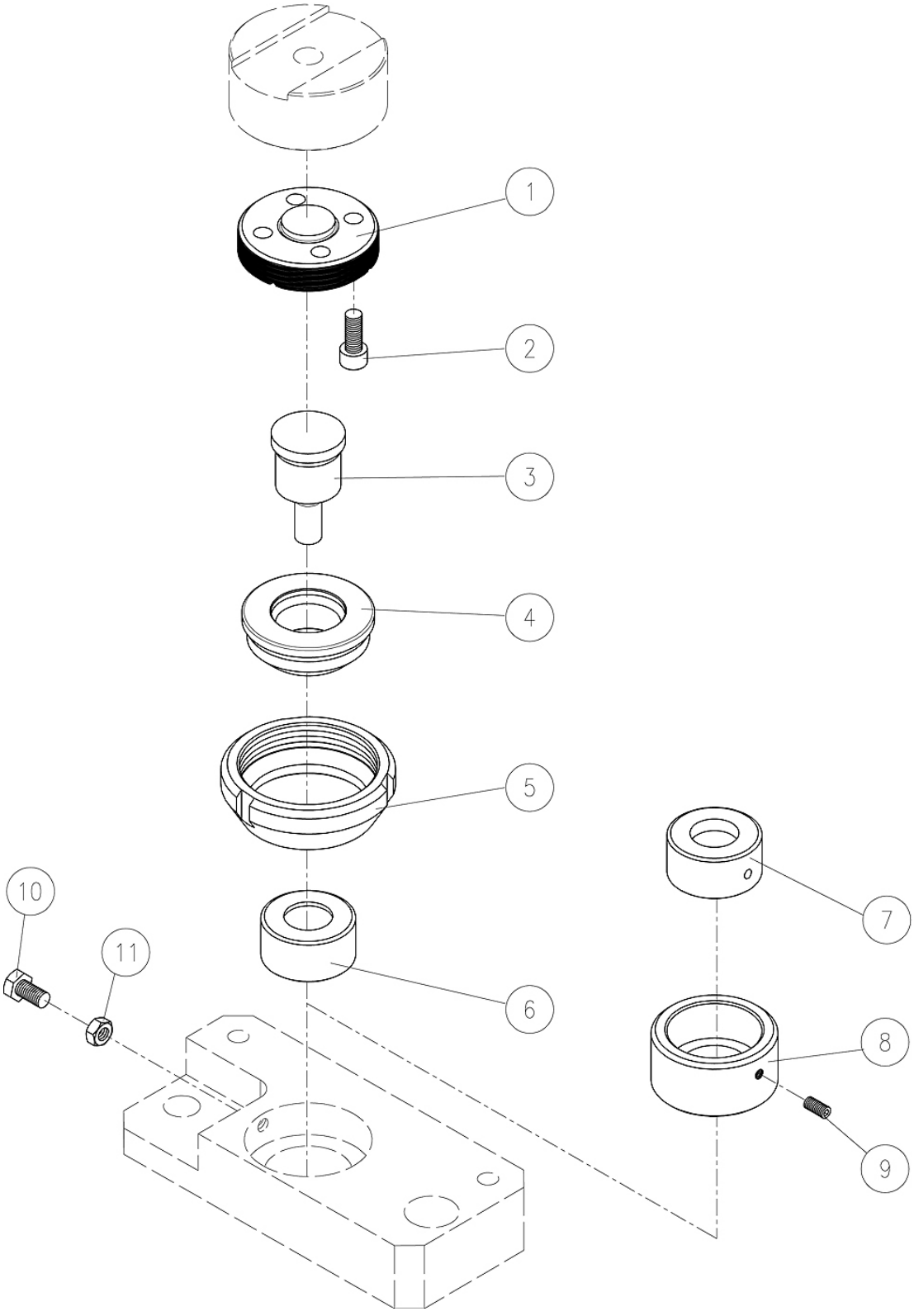
Cabinet Components Parts List

Item	Description	Specification	Qty.
1	Hydraulic cylinder		1
2	Flex Pipe B (Manifold - Cylinder)		1
3	Flex Pipe (Pump - Manifold)		1
4	Eye bolts	M8*1.25P*15L	1
5	Adapter		1
6	Key	4*4*15L	1
7	Hydraulic pump		1
8	Washer	10*20*2.0t	2
9	Spring washer	M10	6
10	Cap screw	M10*1.5P*30L	2
11	Adapter		1
12	Flex Pipe (Tank - Pump)		1
13	Hex screw	M10*1.5P*30L	4
15	Motor		1
16	Flex Pipe A (Manifold - Cylinder)		1
17	Rubber Pad		4
18	Tank		1
19	Oil sight glass / Manometer		1
20	Cap screw	M5*0.8P*85L	4
21	Spring washer	M5	4
22	Direction control valve		1
23	Relief valve		1
24	Adapter		2
25	Manifold block		1
26	Diffuser		1
27	Cap screw	M8*1.25P*20L	4
28	Washer	8.2*23*2t	4
29	Cap screw	M5*0.8P*45L	4
30	Bushing		1
31	Elbow connection		1
32	Pressure gauge		1
33	Stop Valve		1
34	Elbow connection		1

Item	Description	Specification	Qty.
35	Foot switch		1
36	Strain Relief		2
37	Tube		1
38.1	Control cabinet		1
38.2	Main power switch		1
38.3	Electrical Cabinet Door Latch		1
38.4	Start button		1
38.5	Normal / inch switch		1
38.6	Punch / Shear switch		1
38.7	Power lamp		1
38.8	Emergency stop button		1
38.9	Stop button		1
38.10	Sponge Strip	25*6-230L	2
38.11	Sponge Strip	25*6-320L	2
38.12	Power label		1
38.13	Start label		1
38.14	Normal inch label		1
38.15	Strain Relief		2
38.16	Emergency stop label		1
38.17	Stop label		1
38.18	Punch shear label		1
38.19	Strain Relief		6
38.20	Power contactor		1
38.21	Relay		1
38.22	Fuse Holder		2
38.23	Fuse Holder		1
38.24	Transformer		1
38.25	Rectifier		1
38.26	Fuse		2
38.27	Fuse		1
39	Hex screw	3/4"	13
40	Front base cover		1
41	Base		1
42	Cap screw	M4*0.7P*12L	2
43	Punch side emergency stop button		1

Item	Description	Specification	Qty.
44	Round head screw	M4*0.7P*30L	4
45	Washer	4.5*12*1t	8
46	Cap screw	M8*1.25P*25L	2
47	Micro switch holder-lower		1
48	Micro switch		2
49	Spring washer	M4	4
50	Hex nut	M4*0.7P	4
51	Micro switch holder-upper		1
52	Holder plate		2
53	Cap screw	M6*1.0P*12L	2
54	Micro switch locking knob	M8*1.25P	2
55	Strain Relief		1
56	Rear base cover		1
57	Micro switch cord		2
58	Switch Cord		2
59	Emergency stop cord		1
60	Power cord		1
61	Motor cord		1
62	Foot switch cord		1
63	Rubber Pad		1
64	Round head screw	M5*0.8P*12L	3

DIE MOUNTING PARTS DIAGRAM



Die Mounting Parts List

Item	Description	Specification	Qty.
1	RAM pressure plate		1
2	Cap screw	M8*1.25P*20L	4
3	Round punch		1
4	Punch adaptor for round punch		1
5	Punch retaining ring		1
6	Round die		1
7	Round die		
8	Die shoe for round die		1
9	Hex screw	M8*1.25P*20L (13)	1
10	Hex nut	M8*1.25P (12)	1
11	Set screw	M6*1.0P*6L	1

NOTES

NOTES

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