OPERATOR'S MANUAL

Metal Working

Book 1 of 2

SEMI-AUTOMATIC HORIZONTAL BAND SAW

MODEL: BS-330SA

Baileigh Industrial Holdings LLC
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THANK YOU & WARRANTY

Thank you for your purchase of a machine from Baileigh Industrial Holdings LLC. 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 an 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 10 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 Majeure. 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 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 attorney 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 Holdings LLC 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 Holdings LLC 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 Holdings LLC 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
- Setup 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 Holdings LLC 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. **NOTICE**, which is not related to personal injury, is used without a symbol.

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

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

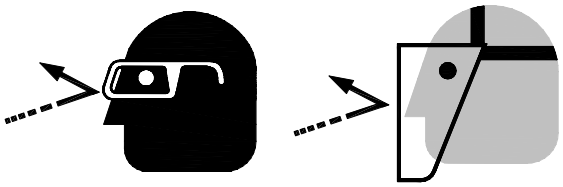
CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE: Indicates a situation which, if not avoided, could result in property damage.

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

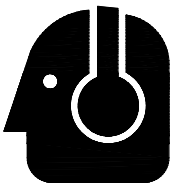
PROTECT EYES

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



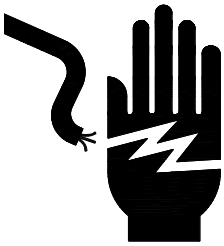
PROTECT AGAINST NOISE

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.



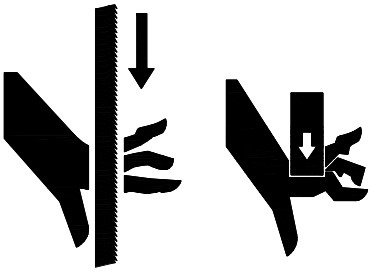
HIGH VOLTAGE

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



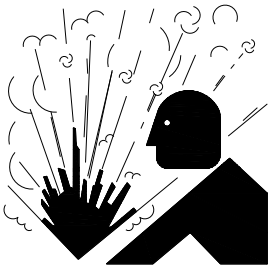
BEWARE OF CUT AND PINCH POINTS

Moving saw blade may result in loss of fingers or limb. **DO NOT** operate with guard removed. **Follow lockout/tagout procedures before servicing.**

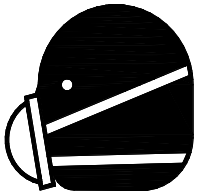


HYDRAULIC HOSE FAILURE

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



DUST HAZARD



Wear appropriate dust mask. Dust created while using machinery can cause cancer, birth defects, and long-term respiratory damage. Be aware of the dust hazards associated with all types of materials.

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 will not 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. **DO NOT** touch live electrical components or parts.
21. **Turn off power** before checking, cleaning, or replacing any parts.
22. **Be sure all equipment** is properly installed and grounded according to national, state, and local codes.
23. **Keep all cords** dry, free from grease and oil, and protected from sparks and hot metal.
24. Inspect power and control cables periodically. Replace if damaged or bare wires are exposed. **Bare wiring can kill!**
25. **DO NOT** bypass or defeat any safety interlock systems.
26. Keep visitors a safe distance from the work area.

TECHNICAL SPECIFICATIONS

Capacity Rectangular 90° - 45°	13” x 18.9” / 11” x 10” (330 x 480 / 279 x 254mm)
Capacity Round 90° - 45°	13” x 8.86” (330 x 225mm)
Capacity Square 90° - 45°	13” x 8.86” (330 x 225mm)
Return	Hydraulic
Table Height	30.5” (775mm)
Miter Angle	0 - 45°
Miter Adjustment	Swivel Head and Vise
Blade Size (H x T x L)	1.34” x .043” x 162” (34 x 1.1 x 4100mm)
Blade Speed	82 – 270fpm (25 – 82mpm) Variable
Blade Guide	Carbide, Roller
Descent Control	Pressure Assist Hydraulic
Drive	Belt and Pulley
Hydraulic Tank Capacity	9.5gal. (36L)
Coolant Tank Capacity	10.5gal. (40L)
Power	220V, 3ph, 60hz
Blade Motor	3hp (2.25kw), 220/440, 3ph, 60hz, 4P, 9A
Hydraulic Motor	.5hp (.37kw), 220, 3ph, 60hz, 4P, 4.5A
Coolant Pump	1/6hp, 220/440, 3ph, 50/60hz, 2P, 0.8A, L180
Shipping Weight	3650lbs. (1656kg)
Shipping Dimensions	90" x 37" x 61" (2286 x 940 x 1550mm)

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.*

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.

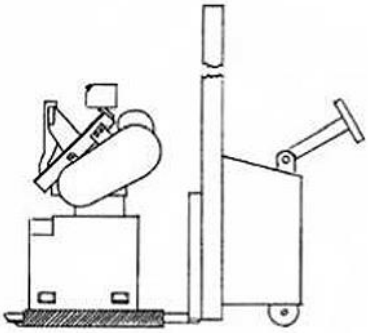
Important: *This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.*

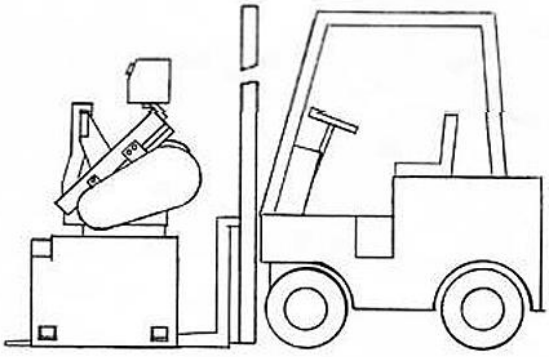
TRANSPORTING AND LIFTING

NOTICE: *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:

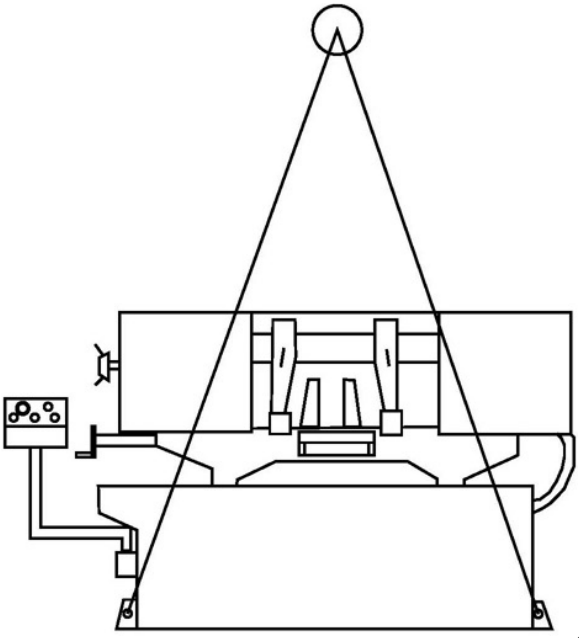
- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a forklift with sufficient lifting capacity and forks that 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, then 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 surface. The accuracy of any machine depends on the precise placement of it to the mounting surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
    - When leveling left to right level, adjust left side to be approximately 5mm higher than the level of the right side.
    - When leveling front to back level, adjust rear side to be approximately 5mm higher than the level of the front side. This will provide proper return of the cutting fluid.

After proper leveling of the machine, use anchor bolts to secure to the foundation.
IMPORTANT: All leveling bolts should support the weight the machine evenly.

- **FLOOR:** This machine 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.

Tank Filling

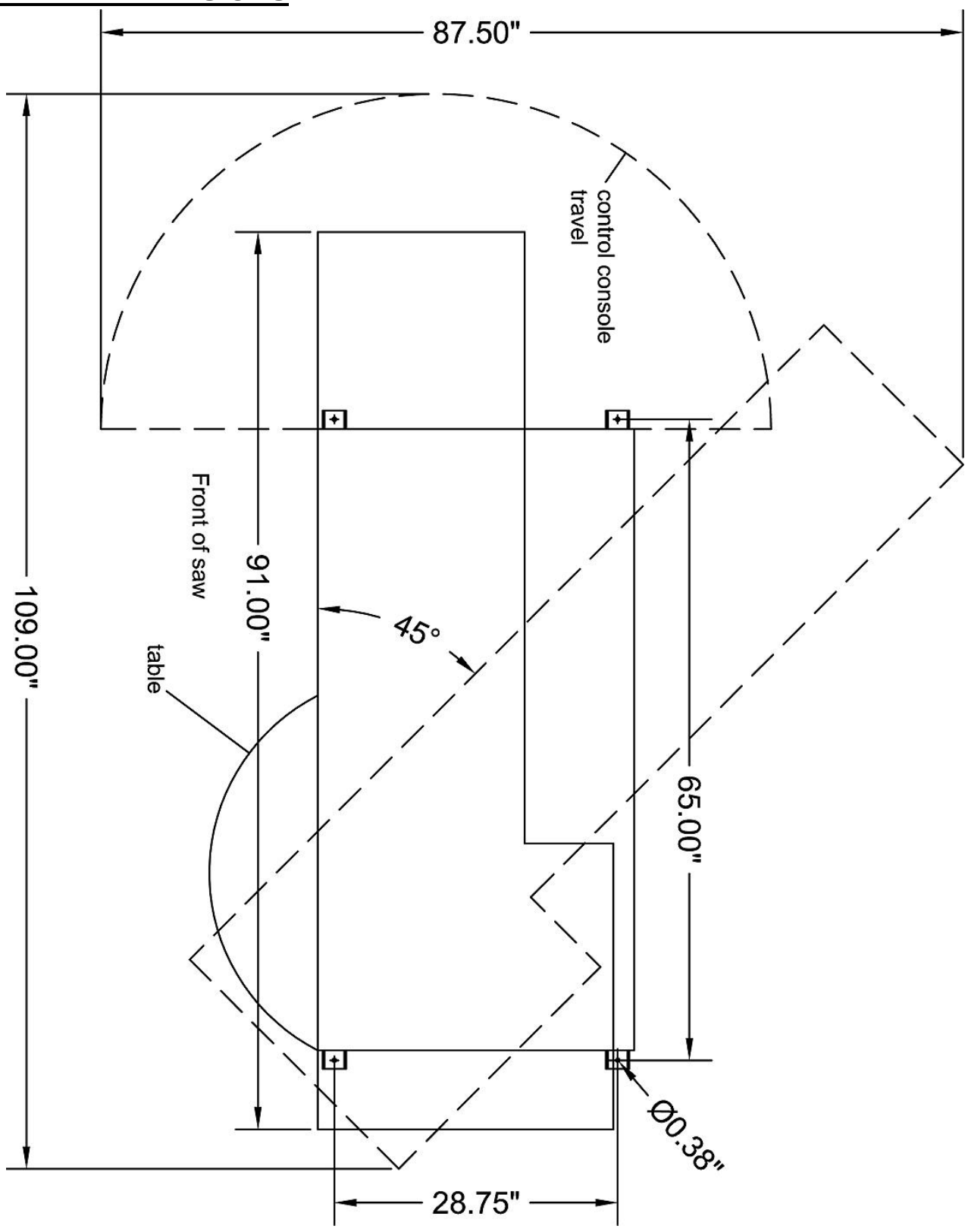
The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the pump.

After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. Refer to any labels or marking affixed to the outside of the machine, If none exist, use SHELL BRAND #46 or #68 hydraulic oil or an equivalent with similar specifications. (Based upon location temperature and availability.)

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.

OVERALL DIMENSIONS

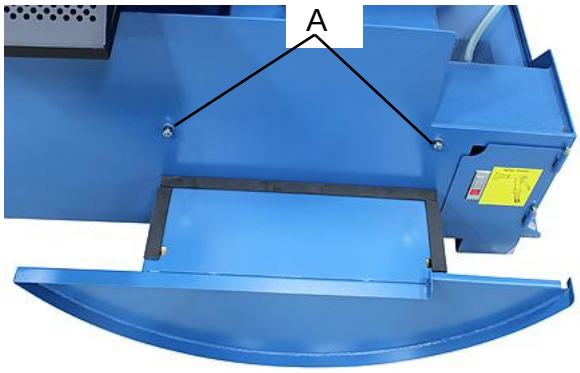


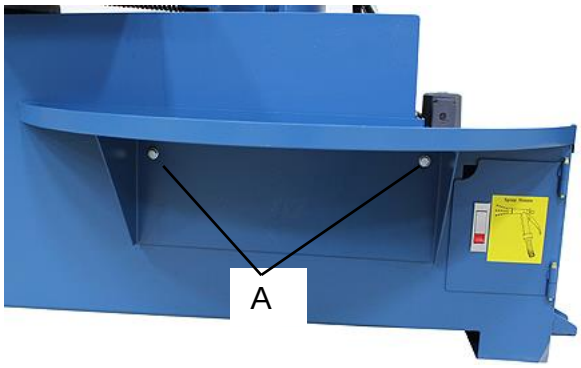
ASSEMBLY AND SET UP

WARNING: For your own safety, DO NOT connect the machine to the power source until the machine is completely assembled and you read and understand the entire instruction manual.

Drip Tray

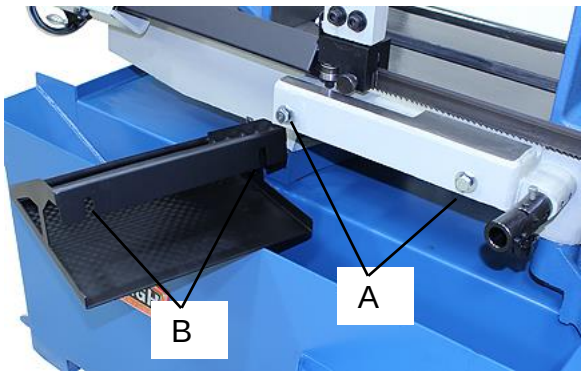
1. Unwrap the drip tray and position at the front of the saw.
2. Using the bolts (A) installed in the front of the base, mount the drip tray onto the saw.
3. Using the slotted holes on the tray mount, lift the left end of the tray to tilt the tray so that the coolant will drain back to the coolant reservoir.
4. Tighten both bolts (A).



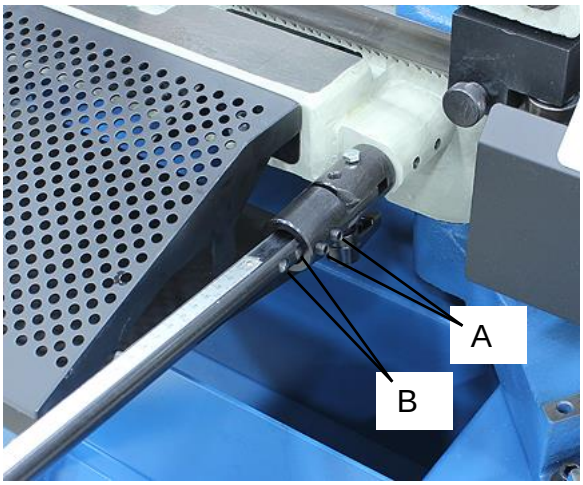


Chip Tray

1. Unwrap the chip tray and position at the front of the saw vise.
2. Loosen the two bolts (A) installed in the front of the vise.
3. Slide the chip tray slots (B) over the mounting bolts.
4. Position the top of the chip tray so that it is level with or slightly below the surface of the vise.
5. Tighten both bolts (A).



Material Stop



1. Unwrap the material stop parts.
2. Loosen the two set screws (A) on the hinge assembly.
3. Insert the stop rod into the hinge assembly so that the flat surface with the scale is up and the two detents (B) align with the set screws.
4. When the set screws are aligned with the detents, tighten both set screws (A).
5. Install the stop bracket onto the rod and tighten the hand lever to hold in position.

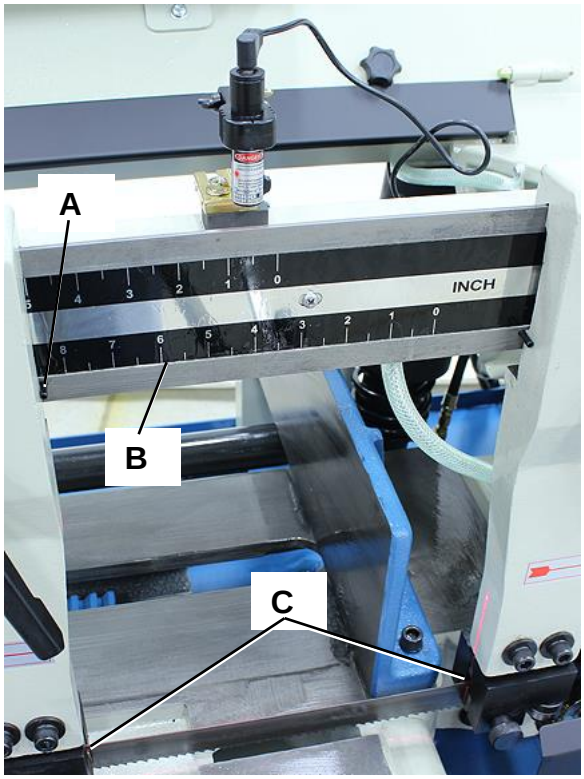
The stop bracket may be pivoted into and out of the cutting area as needed to be used for a stop or out of the way when not in use.

Laser Guide Mounting

1. Unwrap the laser assembly and disassembly the wing nut and bolt to allow the extension arm to be removed from the mounting bracket.
2. Locate the tapped mounting hole on the top of the blade guide rail.
3. Position the spacer block over the hole with the bracket on the top of the block with the slot opening toward the back (inside) of the guide rail.
4. Keeping the spacer block as far forward as the mounting hole will allow and the front edge of the bracket even with the front edge of the spacer block, install and tighten the mounting bolt.
5. Mount the thumb bolt so that the thumb head is toward the front of the saw and the nut is on the back of the bracket arm. Screw the thumb bolt completely into the bracket. The thumb head will be used to push against the laser body to assist in adjusting and the nut will lock the position later in the setup.
6. Mount the extension arm onto the bracket so that it extends forward with the laser pointing downward and resting against the thumb bolt head.
7. Lightly tighten the wing nut and bolt.
8. Plug the power cord into the top of the laser.

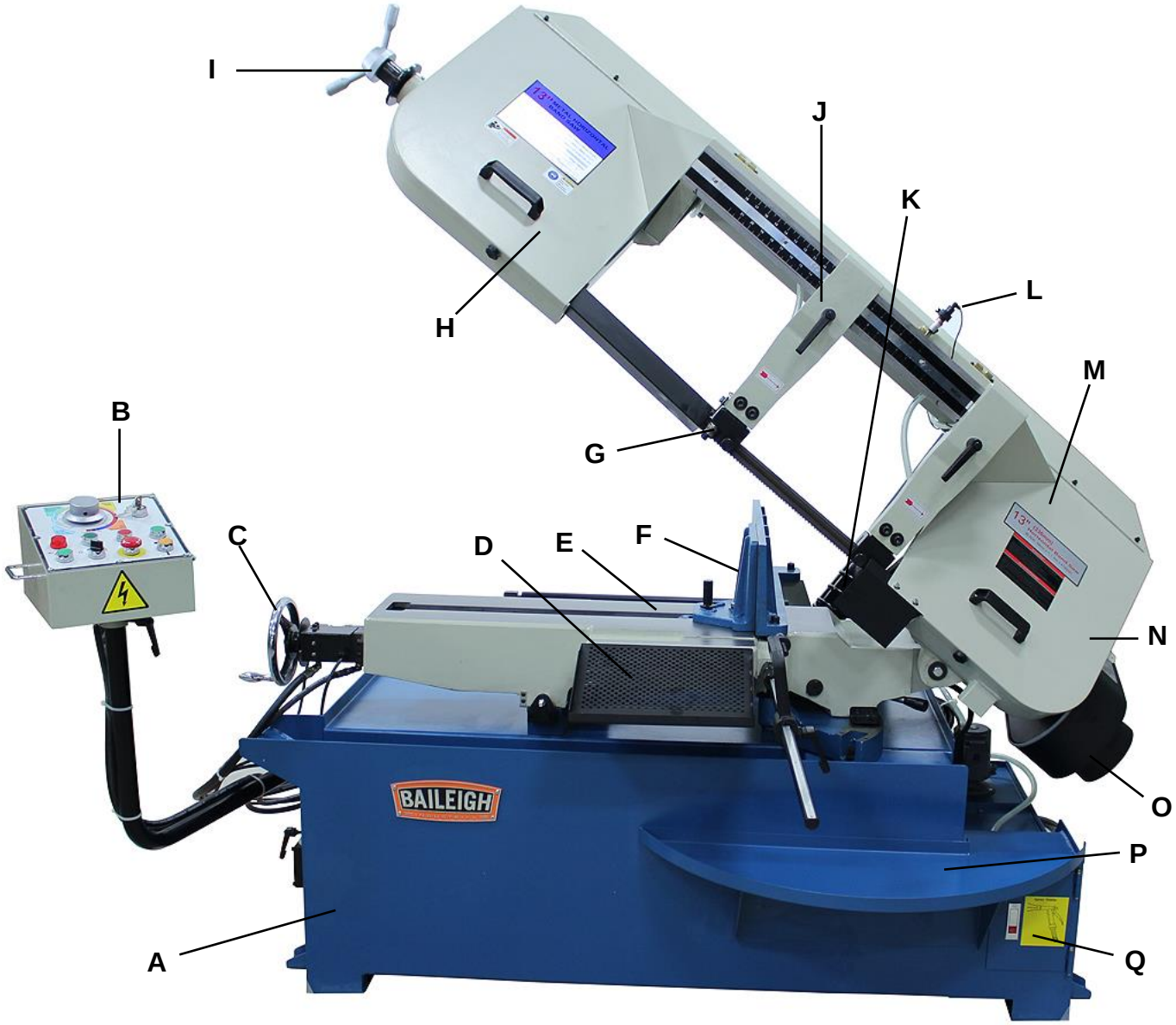
Laser Guide Aiming

The laser will project a long thin line down to the cut point of the blade to assist in positioning of the material for the cut. This line is typically positioned (aimed) to indicate the front edge of the blade. Aiming is done by rotating the laser within the extension arm so that the line matches the line of the blade, and by tilting so that the line is visible at the very front edge of the blade.



1. Position the left blade guide arm inward against the stop pin (A).
2. Using the blade guide rail as a starting point, align the laser line with the edge (B) of the guide rail. Use the thumb bolt to push the laser outward to align this edge.
3. Rotate the laser as needed until the light line matches the edge of the guide rail. If needed, tighten the wing nut and bolt enough to prevent the laser from rotating but still allow the arm to pivot.
4. Using the thumb bolt, tilt the laser until the light is visible across the spine of the blade. Verify that the line extends exactly across the blade spine from blade guide to blade guide.
5. Turn the thumb bolt slightly more so that the light is just in front of the blade. This will be visible on the blade guides (C).
6. Hold this position and tighten the wing nut and bolt to secure in place.
7. When the saw is fully operation, load a sample piece of material to make a test cut and verify that the laser light is directed to a point on the material which works for your operation. Follow the steps above to fine tune the setting.

DESCRIPTION OF MACHINE PARTS



Item	Description	Function
A	Saw Base	Supports the saw and houses the electrical enclosure and coolant tank
B	Operation Control Panel	Houses the operational controls for the saw.
C	Vise Hand Wheel	Opens and closes the vise jaws
D	Chip Tray	Screens chips and diverts coolant flow back to tank.
E	Vise Ratchet	Allows for quick adjustment of the vise jaws
F	Vise Jaws	Clamp material to be cut
G	Blade Guide Rollers	2 sets, Leading and trailing, guide the blade through the cut to hold the blade straight
H	Idler Wheel Housing	Houses the idler wheel and blade tension and tracking adjustments
I	Blade Tension Adjuster	Loosens and tightens the saw blade for removal and operation
J	Blade Guide Brackets	Supports the blade guide rollers for blade support
K	Bow Decent Cylinder	Hydraulic cylinder used to control the decent speed of the saw bow.
L	Laser Light	Projects a light beam to the cut path.
M	Drive Wheel Housing	Houses the drive wheel and blade debris brush
N	Motor (hidden)	Drives the saw blade through a pulley and gearbox system.
O	Belt Guard and Belt	Drive belt and pullies used to transmit power from the motor to the gearbox and drive wheel. Changing speed adjuster will change blade speed.
P	Coolant Return Tray	Drains coolant back to coolant tank through the filter screens. Remove the tray to access the coolant pump and coolant tank for cleaning.
Q	Coolant Spray Hose Storage	Stores the coolant spray hose.

Control Panel

A. Key Switch – Turns power ON to the operation controls.

B. Power Indicator Light – Lit whenever the machine is running.

C. Operation Start Switch – Starts the cutting operation cycle.

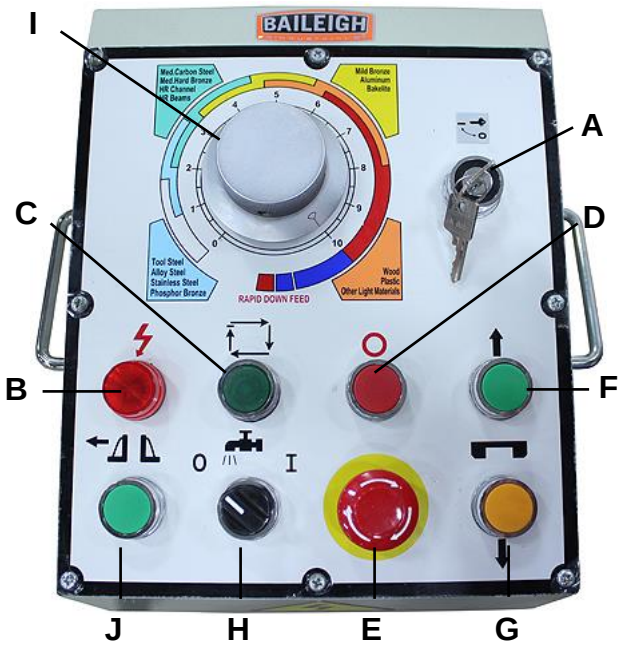
D. Operation Stop Switch – Stops the cutting operation cycle.

E. Emergency Stop Button – Press to stop all machine functions.

F. Bow Up Switch – Raises the saw bow.

G. Bow Down Switch – Lowers the saw bow.

H. Coolant Switch – Controls the coolant pump. Turn to right side – starts coolant flow. Turn to left side – stops coolant flow.

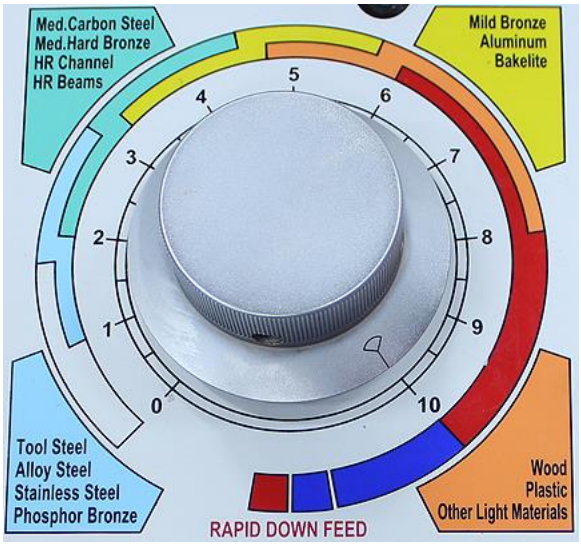


I. Cutting Pressure Control - Turn clockwise to decrease cutting pressure. Turn counter-clockwise to increase cutting pressure.

J. Rapid Reverse Button – Quickly opens the vise jaws.

Materials and Speed Dial

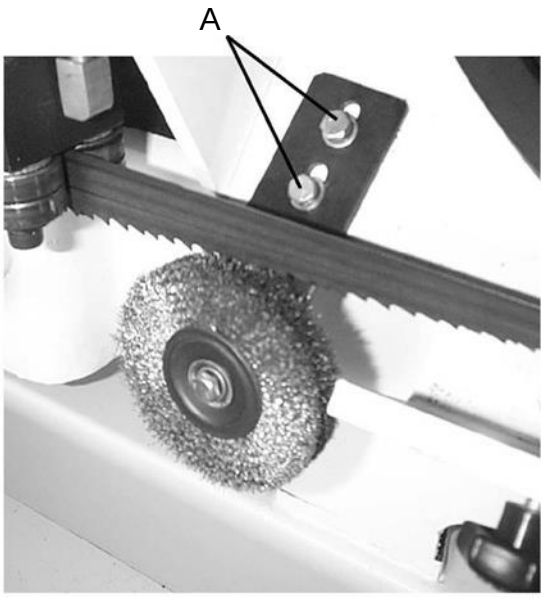
A. (Light blue) - Hard Metals: Tool Steel, Alloy Steel, Stainless Steel, and Phosphor Bronze.
B. (Green) - Medium Hard Metals: Medium Carbon Steel, Medium Hard Bronze, HR Channel, and HR Beams.
C. (Yellow) - Soft Metals: Mild Bronze, Aluminum, and Bakelite.
D. (Peach) - Soft Materials: Wood, Plastics, and other similar materials.



Chip Brush

The chip brush may need periodic adjustment due to normal every day wear.

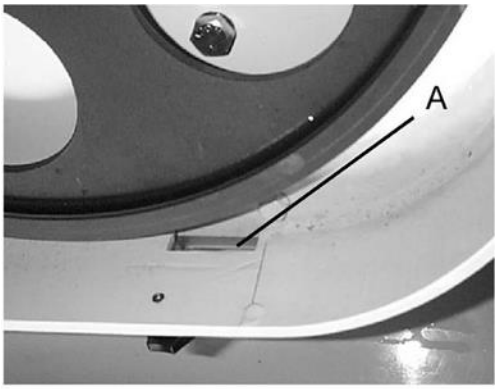
1. Disconnect machine from the power source
2. Open the right side wheel cover.
3. Loosen bolts (A).
4. Raise the chip brush so that it touches the blade.
5. Tighten bolts (A).
6. Close wheel cover.
7. Connect machine to power source.



***Note**: When the brush becomes too small to reach the blade, it is time for a replacement brush.*

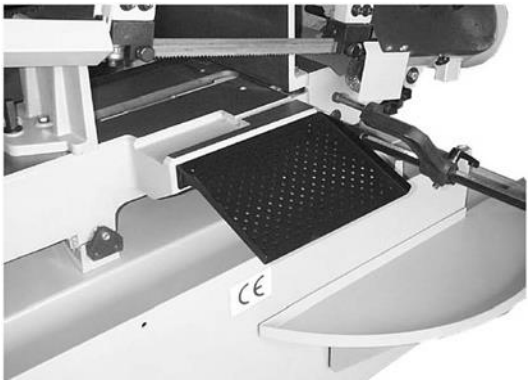
Chip Hole

The chip hole allows chips to flow out of the wheel box. This may require periodic cleaning if the hole is clogged with debris.



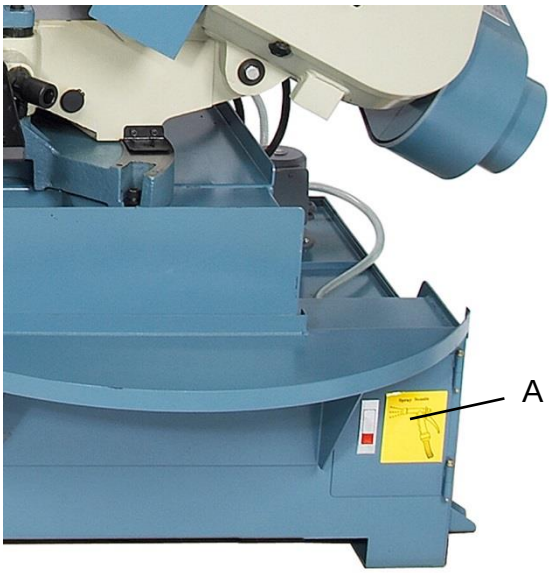
Chip Grate

The chip grate helps to control the flow of chips and coolant from spraying everywhere. It may require periodic cleaning of debris.



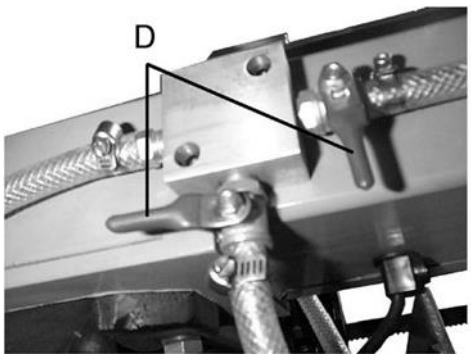
Water Gun Operation

Water gun is designed for washing off the chips and debris in or on the work table, as well as, being used during machine operation.



1. Open the access door and remove the spray hose.
2. Press the operation start button to start machine.
3. Turn off the hydraulic flow control switch by turning the cutting pressure control valve clockwise to the end.
4. Start the coolant pump by turning the switch to "I" (on) position.

5. Close the two coolant ball valves (D) on the saw arm. This will direct the coolant flow and pressure to the spray hose.



6. Use the hose as needed to spray chips off of the blade, guides, vise and table back to the coolant strainer for removal.
7. Immediately clean up any splatter, or overspray from the floor.

ELECTRICAL

WARNING: Baileigh Industrial Holdings LLC 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 Holdings LLC 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 machine is wired for 220 volts, 60hz alternating current. Before connecting the machine to the power source, make sure the power source is OFF.
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 an amperage rating slightly higher than the full load current of machine.
- A separate electrical circuit should be used for your machines. 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 machine.
- 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 machine 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.

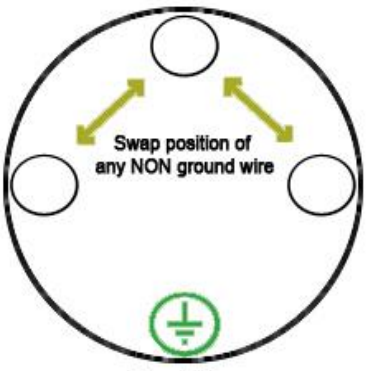
- Improper connection of the equipment-grounding conductor can result in risk of electric shock. The conductor with insulation having an outer surface that is green with or without yellow stripes is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary,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

Power cord connection:

1. Press the emergency stop button 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. Install a plug (customer supplied) or connect the power cord to the power supply and check that the power cord has not been damaged during installation.
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.

Plug Connection

1. Once hooked up, turn on the power supply and start the machine.
2. Check that the motor is running in the correct direction. Correct blade travel.
3. If not, cut the power to the machine. Swap the position of any two of the three power wires; but DO NOT change the position of the green grounding wire!



BEFORE EACH USE

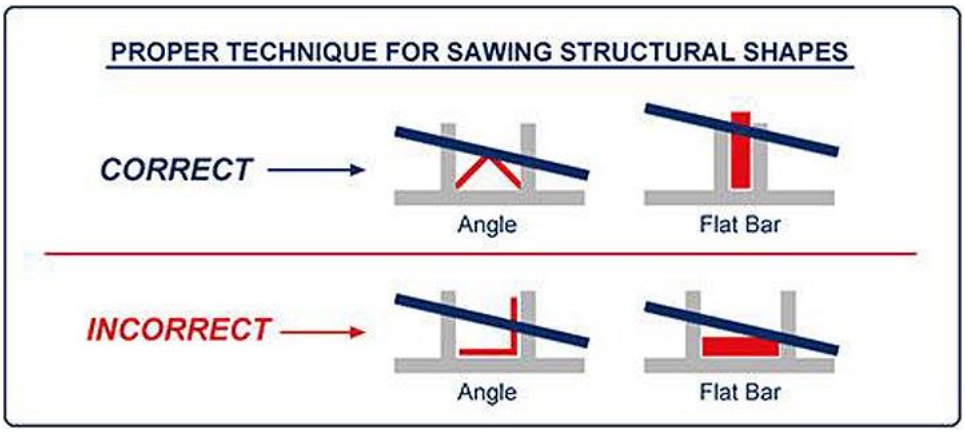
- For dusty operations, wear a face shield along with safety goggles.
- It is important to choose the right blade for the material and the type of cutting you plan to do. This saw is equipped with a bi-metallic blade which can be used to cut stainless steel, steel, iron, brass, aluminum, wood, plastic.
- Make sure the direction of rotation arrow on the blade matches the direction arrow on the saw. The blade teeth should always point downward at the front of the saw.
- Make sure the blade is sharp, undamaged and properly aligned. With the saw unplugged, push the power-head all the way down. Rotate the blade by hand checking for clearance. If the blade hits anything, make the adjustments shown in the Maintaining Maximum Cutting Capacity section.
- Never cut freehand.
- Make sure the cut-off piece can move sideways after it is cut off. Otherwise, it could get wedged against the blade and thrown violently.
- Never turn the saw "ON" before clearing everything except the work piece beneath the blade.
- Never put lubricants on the blade while it is spinning.

Whenever Saw is Running

- Never confine the piece being cut out.
- Never hold it, clamp it, touch it, or use length stops against it. It must be free to move sideways. If confined, it could get wedged against the blade and thrown violently.
- Avoid awkward hand positions where a sudden slip could cause a hand to move into the blade.
- Let the blade reach full speed before cutting.
- Feed the saw into the work piece only fast enough to let the blade cut without bogging down or binding.
- Before freeing jammed material, turn the switch off and unplug the saw. Wait for all moving parts to stop.
- After finishing a cut, keep holding the saw bow down, release the switch, and wait for all moving parts to stop before moving your hands.

Breaking in a Band Saw Blade

Sharp cutting edges with extremely small edge radii are required for high cutting capacity. To achieve the optimal tool life we recommend breaking-in the blade accordingly. The correct cutting speed is determined by the material being cut and its dimensions. It is very important that the new blade is first used with only 50% of the determined feed rate. This will avoid micro-breakages of the blade because of too large chip thicknesses. New band saw blades may tend toward vibrations and vibration sounds. In this case a slight reduction of the cutting speed is helpful. With small workpiece dimensions approximately 300cm² of the material should be cut for breaking-in. If large work piece dimensions are to be cut we recommend a breaking-in period of about 15 minutes. After breaking-in you may slowly increase the feed rate up to the determined value.



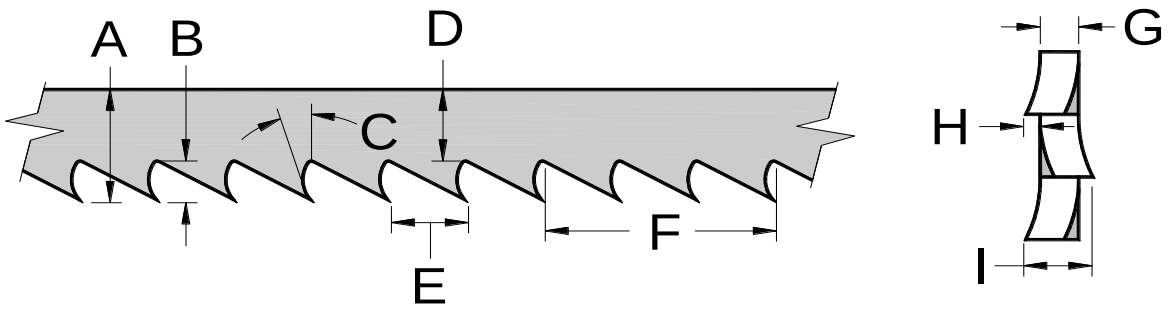
Metal Chip Indicators

Chips are the best indicator of correct material feed force. Monitor chip information and adjust feed accordingly.

- Thin or Powdered Chips – increase feed rate or reduce saw speed
- Burned Chips – reduce feed rate and / or saw speed
- Curly Silvery and Warm Chips – optimum feed rate and saw speed

Baileigh Industrial offers a wide selection of tooth styles for various cutting applications. Please phone Baileigh Industrial at (920.684.4990) or fax to (920.684.3944) to have one of our technicians assist you in selecting the proper band saw blade for your cutting applications.

Blade Terminology



A	BLADE WIDTH	The widest part of the blade measured from the back edge of the blade to the tip of the tooth.
B	GULLET DEPTH	The distance from the tooth tip to the bottom of the curved area.
C	TOOTH RAKE	The angle of the tooth face from a line perpendicular to the length of the blade.
D	BLADE BACK	The distance between the back edge of the blade and the bottom of the gullet.
E	TOOTH PITCH	The distance between tooth tips.
F	TPI	The number of teeth per inch when measured from gullet to gullet.
G	GAUGE	The thickness of the blade.
H	TOOTH SET	The distance a tooth is bent from the blade.
I	KERF	The width of material that is removed by the blade when cutting.

Width of Blade

The blade width determines the largest and the smallest curve that can be cut. Usually the wider a blade is, the more accurate and straighter it will cut.

Length of Blade

The length of the band saw blade can be measured with a tape measure at it's circumference or by the formula below:

Blade Length = (2 x A) + (3.14 x B)

A = the distance in inches between the band saw pulley centers (when the upper pulley is midway in its adjustment range).

B = the band saw pulley diameter.

Blade structure

Bi-metal blades are the most commonly used. They consist of a silicon-steel blade backing by a laser welded high speed steel (HHS) cutting edge. The type of stocks are classified in M2, M42, M51 and differ from each other because of their major hardness due to the increasing percentage of Cobalt (Cc) and molybdenum (Mo) contained in the metal alloy.

Blade type

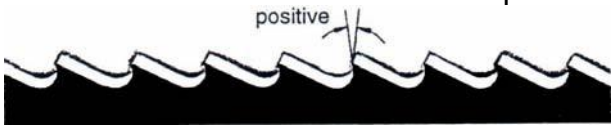
They differ essentially in their constructive characteristics, such as:

- Shape and cutting angle of tooth
- Pitch
- Set

Shape and angle of tooth
REGULAR TOOTH: O° rake and constant pitch.

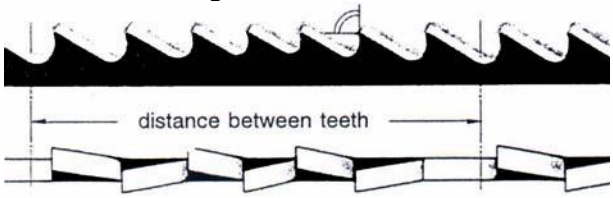
Most common form for transversal or inclined cutting of solid small and average cross-sections or pipes, in laminated mild steel and gray iron or general metal.

POSITIVE RAKE TOOTH: 9° - 10° positive rake and constant pitch.



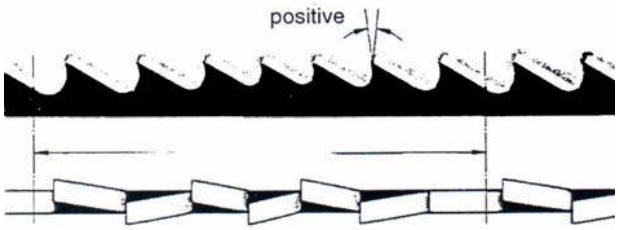
Particular use for crosswise or inclined cuts in solid sections or large pipes, but above all harder materials (highly alloyed and stainless steels, special bronze and forge pig iron).

COMBO TOOTH: pitch varies between teeth and consequently varying teeth size and varying gullet depths. Pitch varies between teeth, which ensures a smoother, quieter cut and longer blade life owing to the lack of vibration.



Another advantage offered in the use of this type of blade in the fact that with an only blade it is possible to cut a wide range of different materials in size and type.

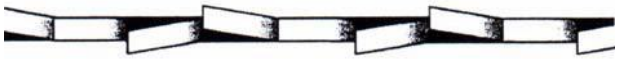
COMBO TOOTH: 9° - 10° positive rake.



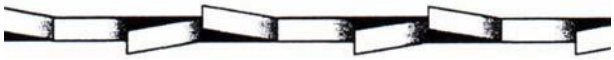
This type of blade is the most suitable for the cutting of section bars and large and thick pipes as well as for the cutting of solid bars at maximum machine capacity. Available pitches: 3-4/4-6.

SETS

Saw teeth bent out of the plane of the saw body, resulting in a wide cut in the workpiece.



REGULAR OR RAKER SET: Cutting teeth right and left, alternated by a straight tooth.



Of general use for materials with dimensions superior to 5 mm. Used for the cutting of steel, castings and hard nonferrous materials.

WAVY SET: Set in smooth waves.

This set is associated with very fine teeth and it is mainly used for the cutting of pipes and thin section bars (from 1 to 3 mm).

ALTERNATE SET (IN GROUPS): Groups of cutting teeth right and left, alternated by a straight tooth.

This set is associated with very fine teeth and it is used for extremely thin materials (less than 1mm).

ALTERNATE SET (INDIVIDUAL TEETH): Cutting teeth right and left.

This set is used for the cutting of nonferrous soft materials, plastics and wood.

BLADE CARE

The bandsaw blade is subjected to a tremendous amount of strain. Make sure to always use the appropriate feed rate for the type material you are cutting.

Be sure to select a blade of the proper width, style, and pitch that will produce the best cut in your material. Choosing the wrong blade can produce excess heat that can adversely affect the life of the blade.

A clean blade performs much better than one that is dirty. Blades that are gummed up and dirty offer more resistance when cutting through the material. This in turn creates unnecessary heat in the blade.

CHOOSING A SAW BLADE

A general purpose blade is furnished with this band saw.

To achieve a quality, economical, and efficient saw cut, the following points must be taken into consideration:

- Type of material being cut (ferrous or non ferrous)
- Material hardness and physical dimensions
- Blade descent rate
- Longitudinal speed of blade
- Blade tooth profile

Choose a tooth pitch that is suitable for the workpiece. Thin walled profiles, including tubes and pipes require close toothing. At least 3-6 teeth should be in contact with the material while cutting. Large solid or transverse sections require widely spaced toothing to allow for greater volume of chips and better tooth penetration. Soft materials such as plastics, light alloys, mild bronze, Teflon, etc. require widely spaced toothing to avoid clogging.

S	Outer Diameter of the Tube (inch) /Tooth pitch																
Inches	0.787	1.574	2.362	3.15	4	4.724	6	7.873	11.811	15.75	19.685	23.621	27.5	31.5	35.5	39.5	59
0.079	14	14	14	14	14	14	10-14tpi	10-14tpi	8-12tpi	8-12tpi	6-10tpi	6-10tpi	5-8tpi	5-8tpi	5-8tpi	5-8tpi	5-8tpi
0.118	14	14	10-14tpi	10-14tpi	10-14tpi	10-14tpi	8-12tpi	8-12tpi	6-10tpi	6-10tpi	5-8tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi
0.157	14	14	10-14tpi	10-14tpi	8-12tpi	8-12tpi	8-12tpi	8-12tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi
0.197	14	10-14tpi	10-14tpi	10-14tpi	8-12tpi	8-12tpi	8-12tpi	6-10tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi
0.236	14	10-14tpi	10-14tpi	8-12tpi	8-12tpi	8-12tpi	8-12tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	3-4tpi	3-4tpi
0.315	14	10-14tpi	8-12tpi	8-12tpi	8-12tpi	6-10tpi	6-10tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi
0.394		8-12tpi	6-10tpi	6-10tpi	6-10tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi
0.472		8-12tpi	6-10tpi	6-10tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi
0.591		8-12tpi	6-10tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi
0.787			6-10tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi
1.181				4-6tpi	4-6tpi	4-6tpi	3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	1.4-2tpi
2						3-4tpi	3-4tpi	3-4tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi
3								2-3tpi	2-3tpi	2-3tpi	2-3tpi	2-3tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi
4									2-3tpi	2-3tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi
6										2-3tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1.4-2tpi	1-1.4tpi	1-1.4tpi	1-1.4tpi
7.873											1.4-2tpi	1.4-2tpi	1-1.4tpi	1-1.4tpi	1-1.4tpi	1-1.4tpi	.75-1.25tpi
9.842												1.4-2tpi	1-1.4tpi	1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi
11.81													1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi	.75-1.25tpi
13.778														1-1.4tpi	.75-1.25tpi	.75-1.25tpi	.7-1.0tpi
15.747															.75-1.25tpi	.75-1.25tpi	.7-1.0tpi
17.716																.7-1.0tpi	.7-1.0tpi
19.685																	.7-1.0tpi

S= Wall Thickness
If you have to cut two or more tubes lying side by side please use this table in consideration of the double wall thinckness (s).

BLADE BREAKAGE

In some cases blade breakage is unavoidable due to the stresses that are imparted on the blade. Avoidable breakage is often the result of poor care, or poor operator judgment when it comes to adjusting or mounting the blade or blade guides.

Listed below are some of the more common reasons for blade breakage.

- Top blade guide assembly is set too high above the piece part.
- The blade is tensioned incorrectly.
- Piece part is fed into the blade too quickly.
- Blade teeth are dull or broken.
- Blade is not properly aligned with the guides.
- Forcing a large width blade to cut a small radius.
- Using a blade with an improperly finished weld joint.
- Allowing the blade to run when not in use. (**NEVER** leave an unattended blade running.)

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.

OPERATION

⚠ CAUTION: 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.
NEVER operate saw without blade guards in place.

General Operating Instructions

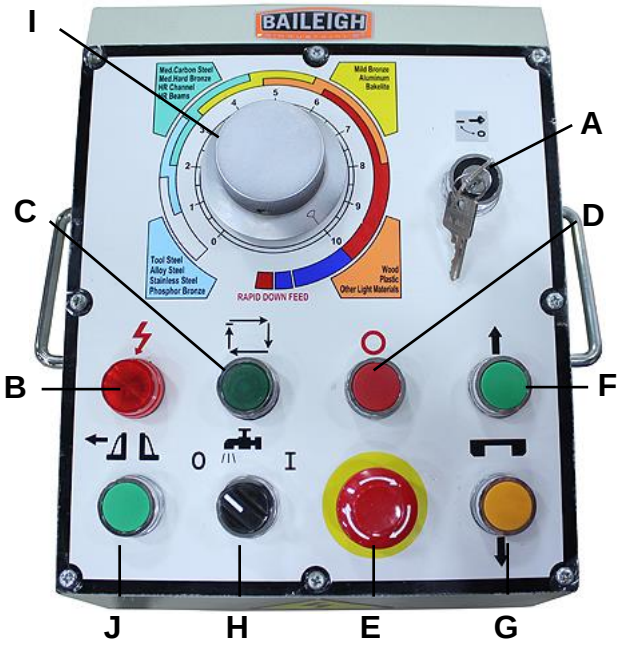
1. Check Coolant: Low coolant level causes foaming and high blade temperatures. Dirty or weak coolant can clog pump, causes crooked cuts, low cutting rate and permanent blade failure. Dirty coolant causes the growth of bacteria with ensuing skin irritation.
2. Keep vise slides clean and oiled.
3. Clean chips from blade wheels and wheels housing.
4. Saw Guide: Keep saw guides properly adjusted. Loose guides will affect cutting accuracy.
5. Saw Blade: Make sure the saw blade is sharp.
6. Blade Speed: Make sure the blade speed sets correctly for workpiece material and shaped.
7. Check Blade Tension: Particularly after initial cuts with a new blade.

Operation

1. Turn on the main connect switch on the door of electrical box.
2. Start the hydraulic system.
3. Set the saw bow's height.
4. Raise the saw bow. Press the bow up switch until the saw bow has risen to the set height.
5. Open the vise.
6. Load the workpiece.
7. Clamp the workpiece.
8. Select the bow stop position upper or lower.
9. Set the blade speed. Choose appropriate for the material.
10. Start the operation. Press the start switch.
11. Turn on the coolant switch.
12. The bow will stop at desired position after cutting finish.

Starting and Stopping the Machine

1. With power connected to the saw, turn the key switch (A) to the ON position. The power indicator lamp (B) will be illuminated when the bow is raised.
2. The machine is started by pushing the start button (C) and will continue to run until the saw bow is in the down position at the end of the cut, or when the stop button (D) is pushed. Pushing the stop button will stop the motor at any time.



Force Stop and Emergency Stopping

The machine will normally stop after the operation cycle. There are two ways to force a stop in an event of an emergency or improper operation.

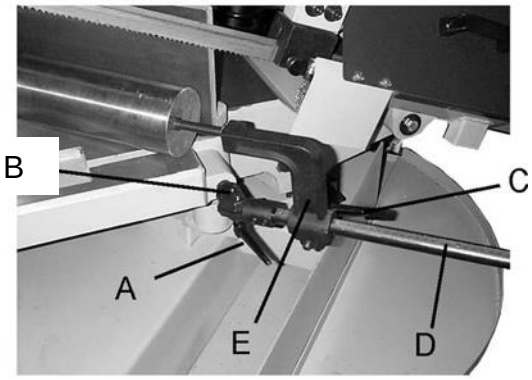
1. To stop the machine during normal operation, use the stop switch (D). This will not reset the controls and your operation setting. The blade and drive motor will stop. Then the saw bow will rise to the start position. Adjustments can be made.
2. Use the cycle start switch (C) to continue the cutting cycle.
3. For unsafe and emergency conditions, use the emergency stop button (E). Using emergency stop button will stop the machine in position it is currently at. The motor and hydraulic will stop and control setting will be reset.
4. To restart the machine after pressing the emergency stop button, lift the emergency stop button to release it. The operation cycle must be reset.

SET UP AND ADJUSTMENTS

Work Stop-Bar Adjustment

The stop bar can be adjusted during angle cutting, and the procedure is as follows:

1. Unfasten the handle (A) and use a hex wrench (allen wrench) to loosen the hex socket set screw (B).
2. Push the bar gradually to the right side to get the desired angle and then tighten the set screw (B) and handle (A).

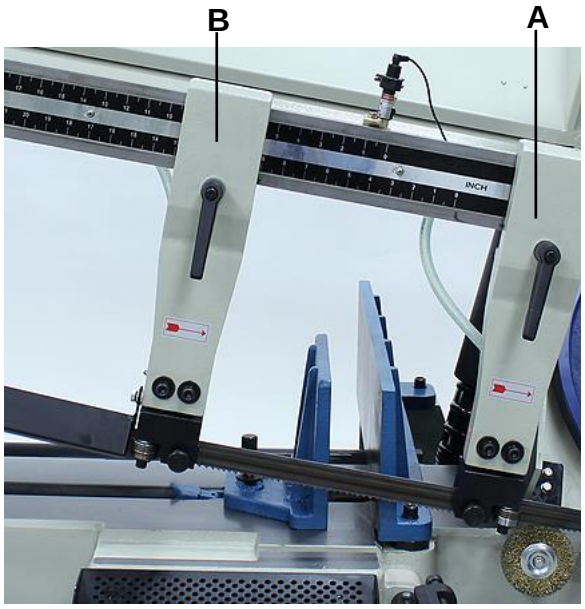


Note: There are four presets. They are at 0°, 15°, 30°, and 45° angles.

3. Loosen the handle (C), and according to the scale (D) adjust the length by moving the stop bracket (E).
4. Retighten the handle (C).

Guide Post Positioning

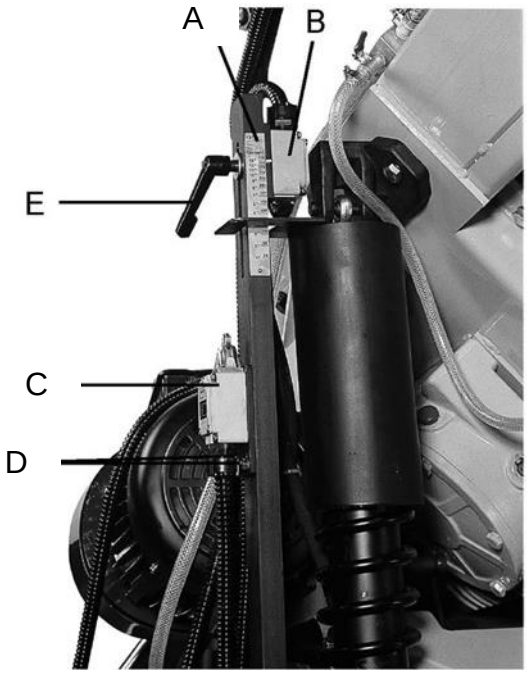
The blade guides should be set as close to the vise jaws as possible. The right blade guide bracket (A) has limited adjustment to clear the right hand vise jaw. The left blade guide bracket (B) can be moved to the left or right depending on the size of the workpiece.



1. To move the left blade guide bracket (B), loosen the hand knob, position blade guide bracket as close to the work piece without interfering with the material, blade, or vise.
2. Tighten the hand knob.

Cutting Limit Switch Adjustment

When making multiple cuts of the same size stock, the band saw can be made to cut more efficiently by setting the saw arm's return height based upon the material to be cut. For Example, cutting 4" (102mm) thick material, the saw arm can be preset to be raised to only 5" (127mm) in height before making the next cut.



1. Place the saw arm to the horizontal position.
2. Release the limit switch (B) by loosening the handle (E).
3. Use the scale (A) to set the desired measurement of the saw arm raising position.
4. Tighten the handle (E). Do not overtighten the handle.
5. If the saw does not stop automatically after a complete cut, the micro switch (C) needs to be adjusted.
6. To release the set position, the procedure is the same but move the limit switch to maximum level.

Automatic Shut-Off

The blade will stop after the material has been cut and the bow reaches its lowest position. The bow will then automatically rise to its preset height.

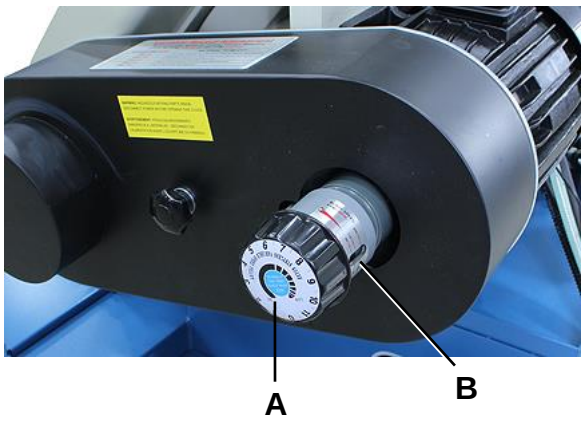
Note: *If the bow or blade fails to stop, the limit switch (C) must be raised.*

1. Loosen 2 screws (D).
2. Lift limit switch to desire height.
3. Tighten 2 screws (D).

Adjusting Blade Speed

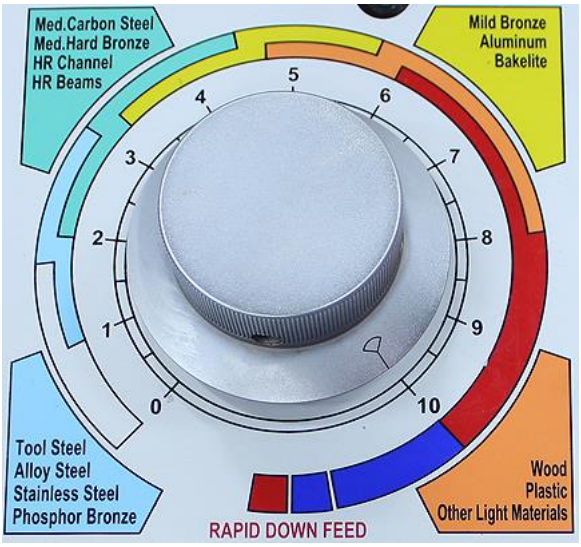
This machine equipped with mechanic variable speed control device allow for variable blade speed.

Adjust the blade speed while the machine is running. The dial sticking out of the motor cover (right side) controls the variable speeds between 66-264FPM (20-80MPM).
Rotate the governor (A) by following the level (B) in the scale to get desired speed for cutting the work piece



Adjusting Feed Rate

Rate of feed is adjusted by turning the cutting pressure control knob on the control panel. Rate of feed is important to band saw performance; excessive pressure may break the blade or stall the saw. Insufficient pressure rapidly dulls the blade. Material chips or shavings are the best indicator of proper seed and pressure. The ideal ship is thin, tightly curled, and warm to the touch. Chips that range from golden brown to black indicated excessive force. Blue chips indicate extreme heat from too high a blade speed, which will shorten blade life. Thin or powdered chips indicate insufficient feed pressure.



Down-Bow Dampener

The dampener functions to produce a finer cut by reducing the rate of bow descent as the blade nears the table. The width of measurements of the blades between inch size and mm size are slightly different. This saw is equipped with inch size blade at the factory. If the user did not get the inch type but instead got a mm size blade, it is necessary to adjust the dampener by turning the cap screw clockwise about 1/4 revolution, and also adjust the shut-off limit switch. Otherwise, the saw bow will not automatically rise up after completing the cut.

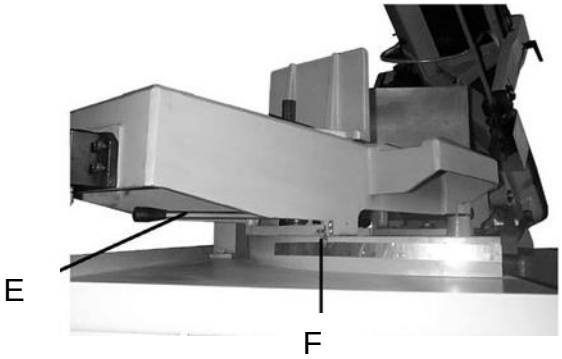
Adjusting Vise Square to the Blade

1. Disconnect the machine from the power source.
2. Place a machinist's square on the table against the blade and the vise (fixed). The Square should lie along the entire length of the vise and blade without any gaps.
3. If adjustment is necessary, loosen bolts holding the vise and adjust vise so that the square lines up properly. Tighten bolts.
4. Connect machine to the power source.

Vise and Angle Cutting Adjustment

To position the saw arm to cut at 45° angle.

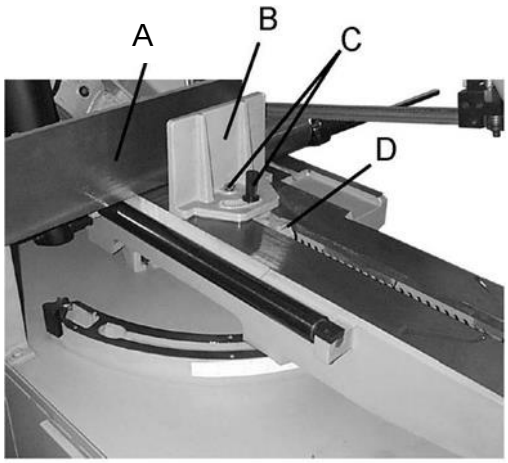
1. Disconnect the machine from the power source.
2. Push the handle (E) towards the hand wheel and push the short handle (not shown) beneath the gearbox, towards the motor end of the saw to release the upper assembly.



3. Rotate the upper assembly using both hands as shown to the desired angle by following the index on the scale (F).
4. Pull the handle (E) towards the motor end of the saw and the short handle towards the hand wheel to lock the upper assembly.
5. Properly load the work piece and start operation.

To adjust the angle of the vise jaw:

1. Loosen bolts (C)
2. Adjust the smaller movable vise jaw by rotating it.
3. Slide vise jaw (B) flush to fixed vise (A) to match parallels.
4. Once parallel tighten bolts (C), then set position.

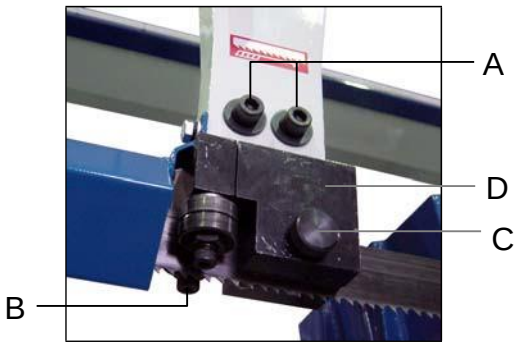


Setting the position of the vise jaw

1. Pull up on the rack block (D).
2. Move vise to desired location by sliding along table.

Thrust Roller Adjustment

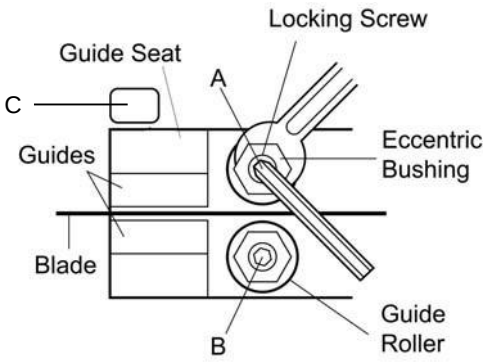
1. Disconnect machine from the power source.
2. Loosen two hex socket cap screws (A).
3. Move guide seat (D) up or down until a clearance of .003" to .005" (.08 - .13mm) between back of blade and thrust roller is obtained.
4. Tighten two hex socket cap screws (A).
5. Repeat for other blade guide assembly.
6. Connect machine to the power source.



Guide Roller Adjustment

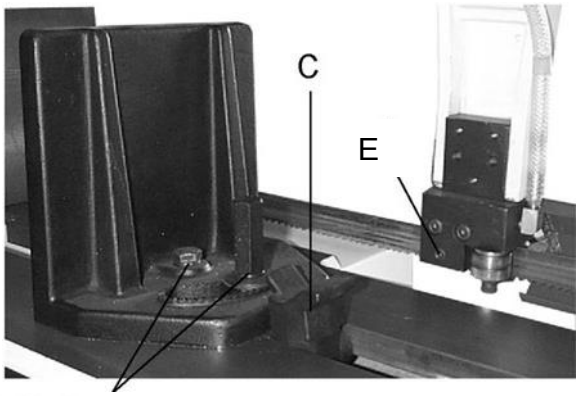
Note: *Only bearing (A) is adjustable. Bearing (B) is fixed.*

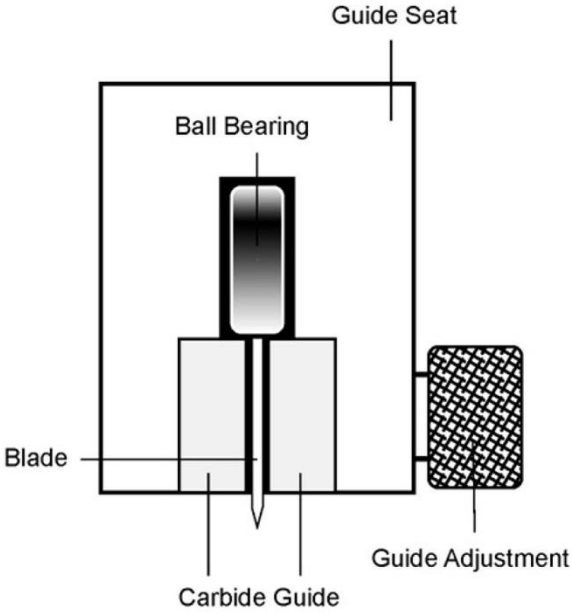
1. Disconnect machine from the power source.
2. Loosen blade guides by loosening guide adjustment screw (C).
3. Loosen locking screws (A) by using a hex wrench.
4. Adjust the eccentric bushings with a combination wrench until the ball bearings are snug to the blade (A).



Note: *The blade should travel freely up and down between the ball bearings. Do not pinch the blade.*

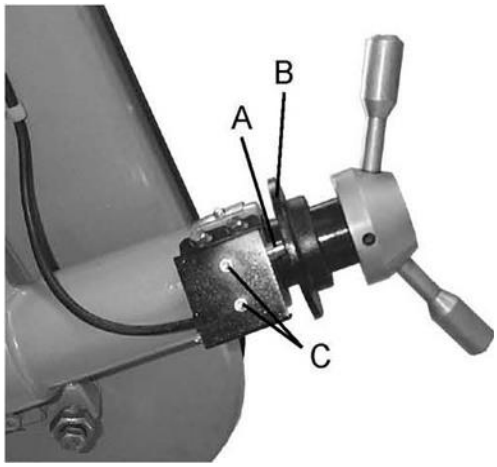
5. Tighten locking screws (A).
6. Adjust the blade guides back into contact with blade and tighten thumb screw and hex socket cap screw (E).
7. Connect machine to the power source.





Broken-blade Shut-off Switch

This machine is equipped with automatic power shut-off safety device to prevent any further damage when a blade has broken.
After replacing a new blade, the safety device may need to be readjusted. If the power indicator light is not on when power is turned on, the shut-off switch has not been properly set.



To adjust, follow these steps:

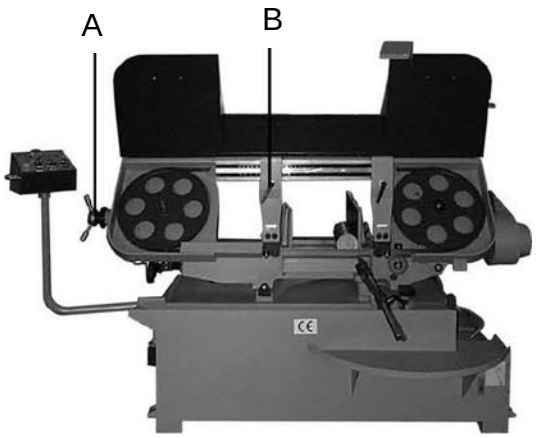
1. Disconnect the machine from the power source.
2. Loosen the two set screws (C) to release the limit switch.
3. Move the limit switch toward the block plate (B) and make sure the trigger button (A) of the limit switch is near the block plate.
4. Press the start button to see whether the power indicator light turns on. If not, readjust again.

Changing Blades

⚠ WARNING: Disconnect the machine from the power source before making any adjustments or repairs! Failure to comply may result in serious injury!

1. Raise the saw arm approximately 6” (150mm). Press the emergency stop to hold the arm in place.
2. Disconnect machine from power source.
3. Open the blade cover, locking it securely on the blade cover latch.
4. Clean chips out of both wheel housings.
5. Loosen lock knobs and remove upper and lower blade guard.
6. Remove wire brush assembly.

7. Release blade tension by turning blade tensioning hand wheel (A) counterclockwise until blade is free.
8. Loosen lock knob and slide left blade guide arm (B) to the right as far as possible.
9. Remove old blade from both wheels and out of each blade guide.



⚠ CAUTION: Even dull blades are sharp to the skin! Use extra caution handling band saw blades!

10. Install new blade making sure teeth are pointed downward in the proper cutting direction. If necessary, turn blade inside out.
11. Position blade on band wheels and tighten just enough to hold blade on wheels. Make sure back of blade rests lightly against the wheel flange of both wheels. Twist blade slightly to allow it to slip into guides.
12. Tension blade to approximately 25000lbs (2000kgs). Blade tension is indicated on the tension wheel shaft housing (left side).
13. Attach wire brush to the wire brush post with screw and washer.
14. Adjust wire brush post so that brush just comes into contact with blade teeth.
15. Close the cover and guards then fastened securely. Connect machine to power and run unloaded for approximately two minutes.
16. Turn power off and recheck blade tension and wire brush adjustment.
17. If further adjustment is necessary, disconnect saw from power source, make adjustments, and reconnect to power.

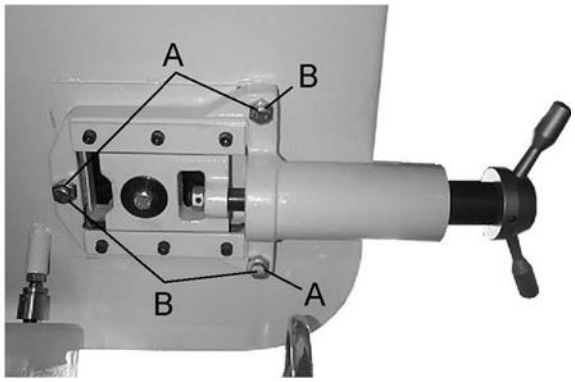
Blade Tracking Adjustment

⚠ WARNING: Tracking adjustment is done with the wheel cover open to observe the blade. Use extreme caution so as not to come into contact with the blade! This adjustment must be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it. Failure to comply may result in serious injury!

Blade tracking has been set at the factory and should require no adjustment. If a tracking problem occurs, adjust the machine as follows:

Since tracking can only be adjusted while machine is running, it is suggested that this adjustment be accomplished by qualified personnel that are familiar with this type of adjustment and the dangers associated with it.

1. Start the saw hydraulics.
2. Raise saw arm to its highest position.
3. Open the blade covers to observe the blade tracking on the wheels.
4. Locate tracking adjustment plate on the back side of the idle wheel.
5. Loosen the three bolts (A) located on the top of the tacking nuts.
6. Tracking adjustment is accomplished by either loosening or tightening three adjusting nuts (B).



7. Tracking is set properly when the back of the blade lightly touches the wheel flange.

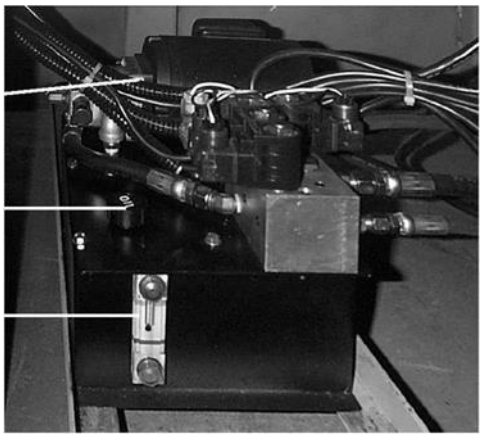
Note: *Over-tracking (allowing blade back to rub hard against wheel flange) will damage the blade wheels and blade.*

8. Tighten locking bolts (A) once proper tracking is completed.
9. Close the blade covers.

Hydraulic System

The hydraulic system controls saw arm descending. If the magnetic valve (A) contains sediment, the saw arm may not go down regularly. To solve this problem, keep the net filter clean.

1. To clean, remove the magnetic valve and take the net filter out.
2. Clean the filter and carefully remove any sediment that may be in the valve or the valve block.
3. Re-install the filter and valve.
4. To refill oil, open oil fill cap (C) and fill oil (Mobile 1405 or equivalent) until level reaches the middle of the oil gauge (B).
5. Replace oil fill cap.



Hydraulic Vice System

For safety reasons this vise system is linked with the saw arm descending control switch. If the vise is unloaded or the work piece is not properly clamped, the saw arm will not go down.
To start operations, proceed as follows:

1. Connect the machine to the power source.
2. Depress the bow up button on the control console to raise the saw arm up.

Note: *If this is the first-time startup or if the machine has been rewired and the saw arm fails to rise, the three phase wiring may be misconnected. Open the motor junction box cover and interchange any two leads inside.*

3. Use one hand to lift up the rack block and slide back the movable vise jaw.
4. Load the work piece. Having it rest slightly against the fixed vise jaw.
5. Slide the movable vise jaw snug against the work piece.
6. Depress the start button to begin cutting.

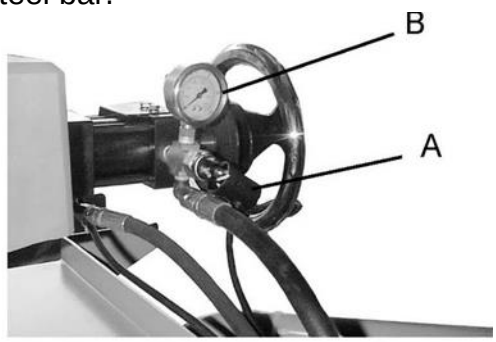
If the saw arm fails to descend, the work piece is not properly clamped.
Proceed as follows:

7. Push the movable vise jaw forward.
8. Press the vise's rapid reverse button to open rack.

9. Depress the start button to descend the saw arm to start cutting.
10. If the saw arm fails go down. Repeat the steps 7 and 8.

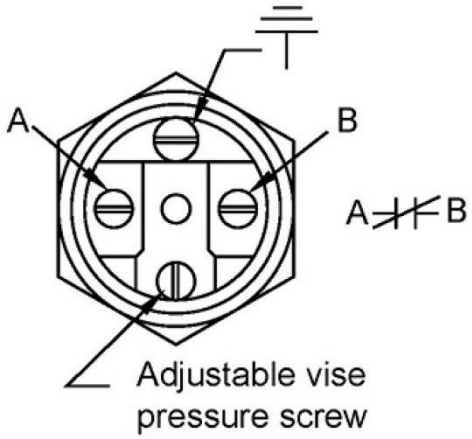
Hydraulic Vise Clamping Pressure Adjustment

The pressure is preset to 25kgs in the factory for cutting solid steel bar.



If cutting a pipe with a thin wall, the pressure should be adjusted to 15kgs (even though the pressure gauge (B) reads from 0 to 100kgs, the general usable range is from 15-30kgs.)
The adjustment proceeds as follows:

1. Disconnect the machine from the power source.
2. Open the cover (A) of the electronic pressure control by using a screwdriver.
3. Reduce the pressure by using a screwdriver to turn the pressure screw counterclockwise a little bit (1/8 to 1/4 turn).
4. Connect machine to the power source.
5. Load a solid steel bar between the vise jaws and use one hand to push the movable vise toward the work piece against the fixed jaw.
6. Press the start button and check that the gauge reads the desired clamping pressure.
7. If not, readjust the pressure by following the step 3 to 5 again till the proper pressure is obtained.



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.

The maintenance jobs are listed below, divided into daily, weekly, and monthly intervals. If the following operations are neglected, the result will be premature wear of the machine and poor performance.

Daily

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- Give general cleaning to the machine to remove accumulated shavings.
- Clean the lubricating coolant drain hole to avoid excess fluid.
- Top off the level of lubricating coolant.
- Check blade for wear.
- Raise the saw frame to the top position and partial slacken the blade to avoid useless yield stress.
- Check functionality of the shields and emergency stops.

Weekly

- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Thoroughly clean the machine to remove shavings, especially from the coolant tank.
- Removal of pump from its housing, cleaning of the suction filter and suction zone.
- Clean the filter of the pump suction head and the suction area.
- Use compressed air to clean the blade guides (guide bearings and drain hole of the lubricating and cooling tank).
- Clean flywheel housings and the race of the flywheels.

Monthly

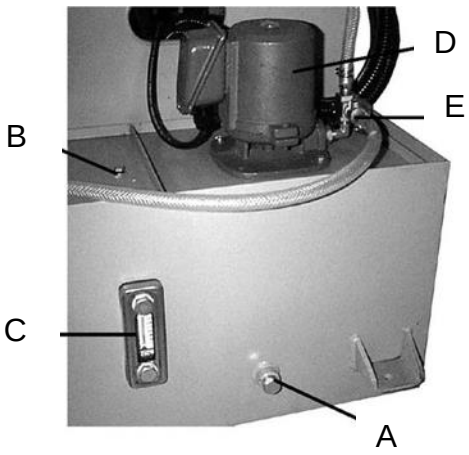
- Check the tightness of the drive wheel screws.
- Check that the blade guide bearings on the heads are in perfect running condition.
- Check the tightness of the screws for the motor, pump, and accident protection guards.

Lubrication

AII ball bearings are permanently lubricated and sealed. They require no further lubrication.

Replacing the Coolant

1. Disconnect the machine from the power source.
2. Remove the drain plug (A) with a hex wrench and allow coolant to drain completely.
3. Remove the hex cap bolt (B) and move the pump unit (D) away.
4. Clean the drain screens on the machine base and the drains on the ends of the table.
    a. Drain and wash out the dirt and debris from the reservoir.
    b. Vacuum out the chips and debris from the tank.
5. Replace the drain plug (A).
6. Add coolant to the highest level of the coolant sight gauge (C).
7. Replace the pump unit (D) and fasten the bolt (B).



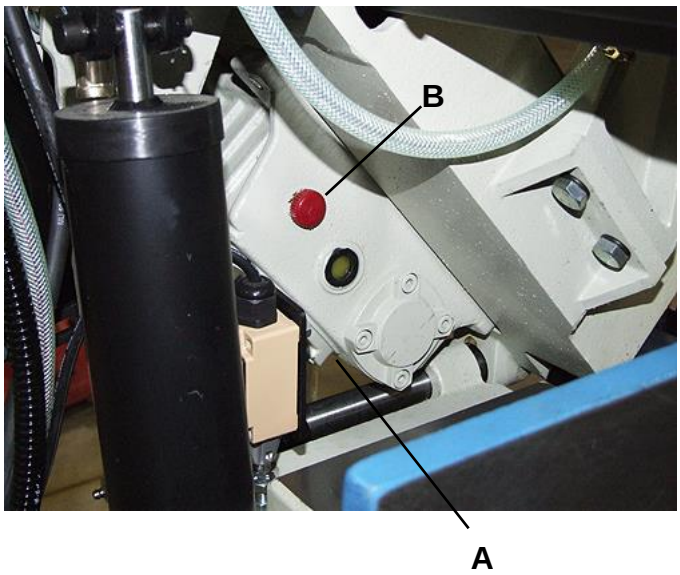
Oils for Lubricating Coolant

Any 10:1 (water to coolant) solution will work, however we recommend Baileigh B-Cool 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons of coolant.

Gear Case

The gear box lubricant should be changed after the first 3 months of operation then changed every year.

1. Disconnect machine from the power source.
2. Remove drain plug (A) and drain all of the oil out of the gear box.
3. Replace the drain plug.
4. Remove oil filler plug (B) located underneath the right blade wheel and fill the gear box with 1-1/2 pints (.7L) of MOBIL CYLINDER OIL # 60W or equivalent.
5. Verify that the oil level reaches dot in middle of sight glass.
6. Replace filler cap.
7. Connect machine to the power source.
8. Use a light machine oil to lubricate all other moving parts as needed.



Hydraulic Oil

The hydraulic oil is the primary medium for transmitting pressure and also must lubricate the running parts of the pump.
After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. **A shortage of hydraulic oil can cause hydraulic system breakdown and damage to major mechanical parts due to overheating.**

1. Use SHELL BRAND #46 or #68 hydraulic oil or an equivalent with similar specifications. (Based upon location temperature and availability.)
2. Keep hydraulic reservoir filled to 90% of capacity.
3. **DO NOT** rely totally on the oil gauge as they can sometimes indicate an incorrect level reading. Do a visual inspection with the oil fill cap removed as well.
4. A shortage of hydraulic oil will cause hydraulic system breakdown to major mechanical components due to overheating.
5. Change the hydraulic oil every 12 months along with the oil filter.

Oil Change and Disposal

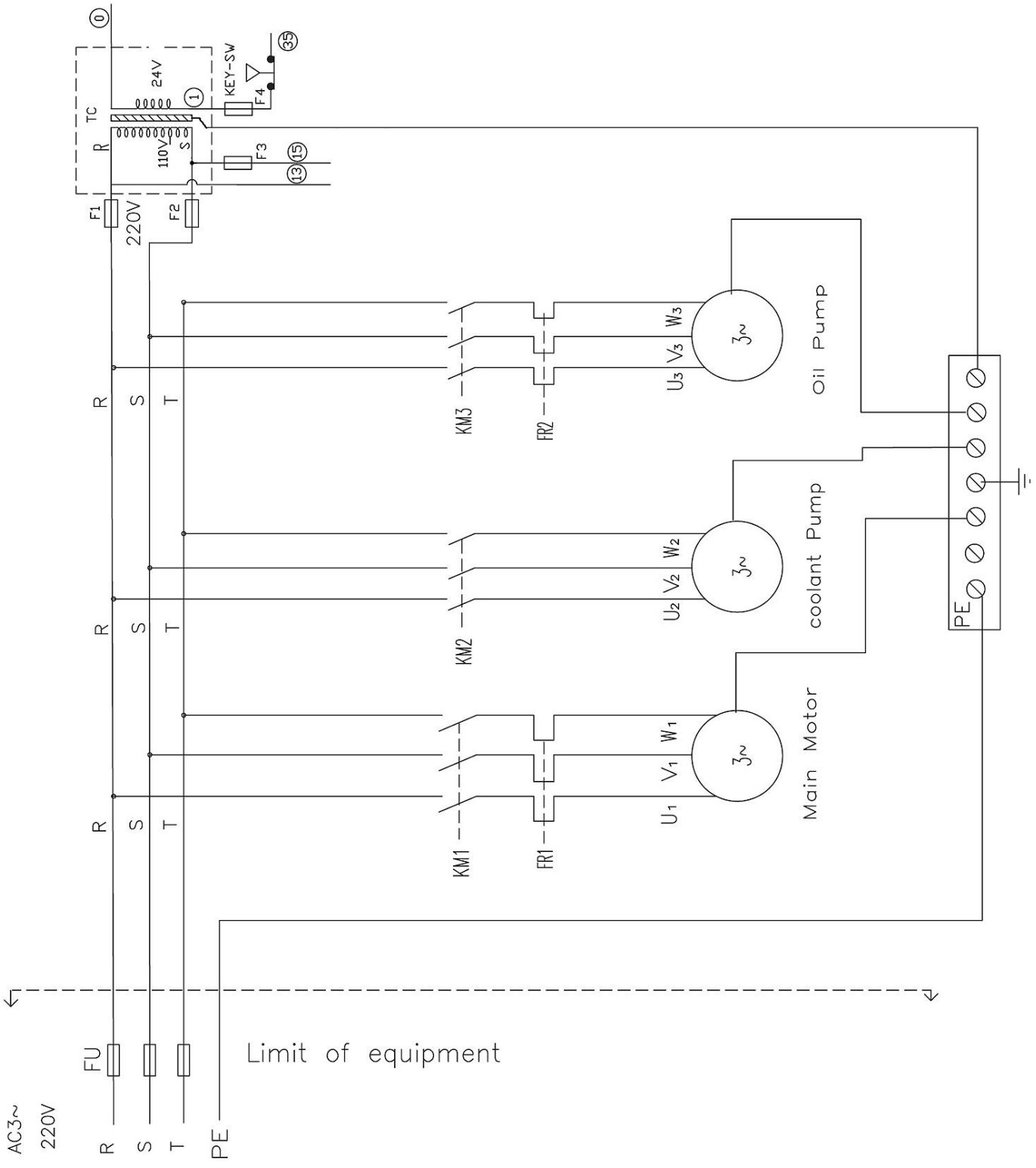
Change the oil in the hydraulic tank after the first 6 months, and every 12 months after that. Clean the filter basket located under the fill cap before refilling the tank. Used oil products must be disposed of in a proper manner following your local regulations.

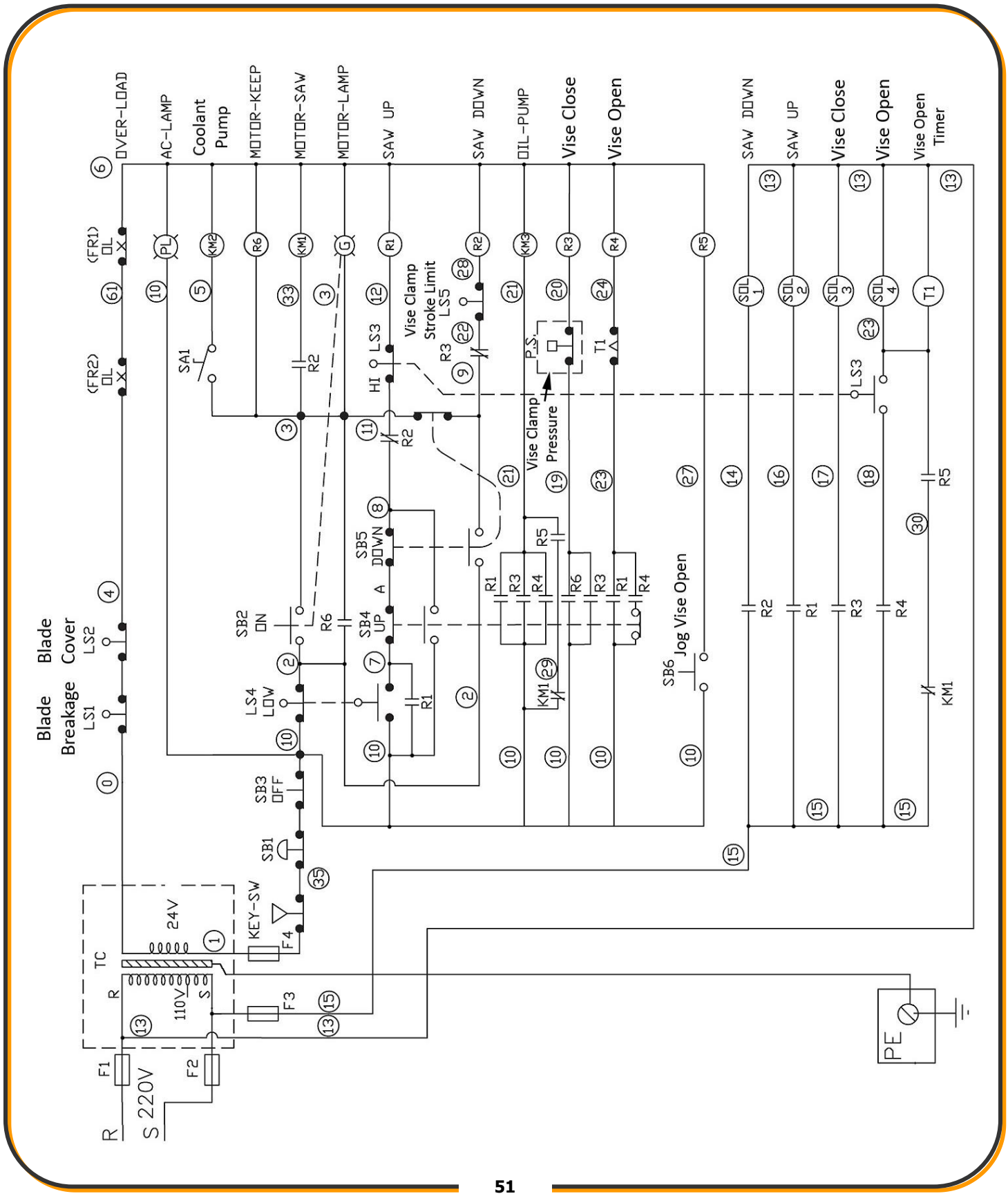
Storing Machine for Extended Period of Time

If this machine is to be inactive for a long period of time, prepare the machine as follows:

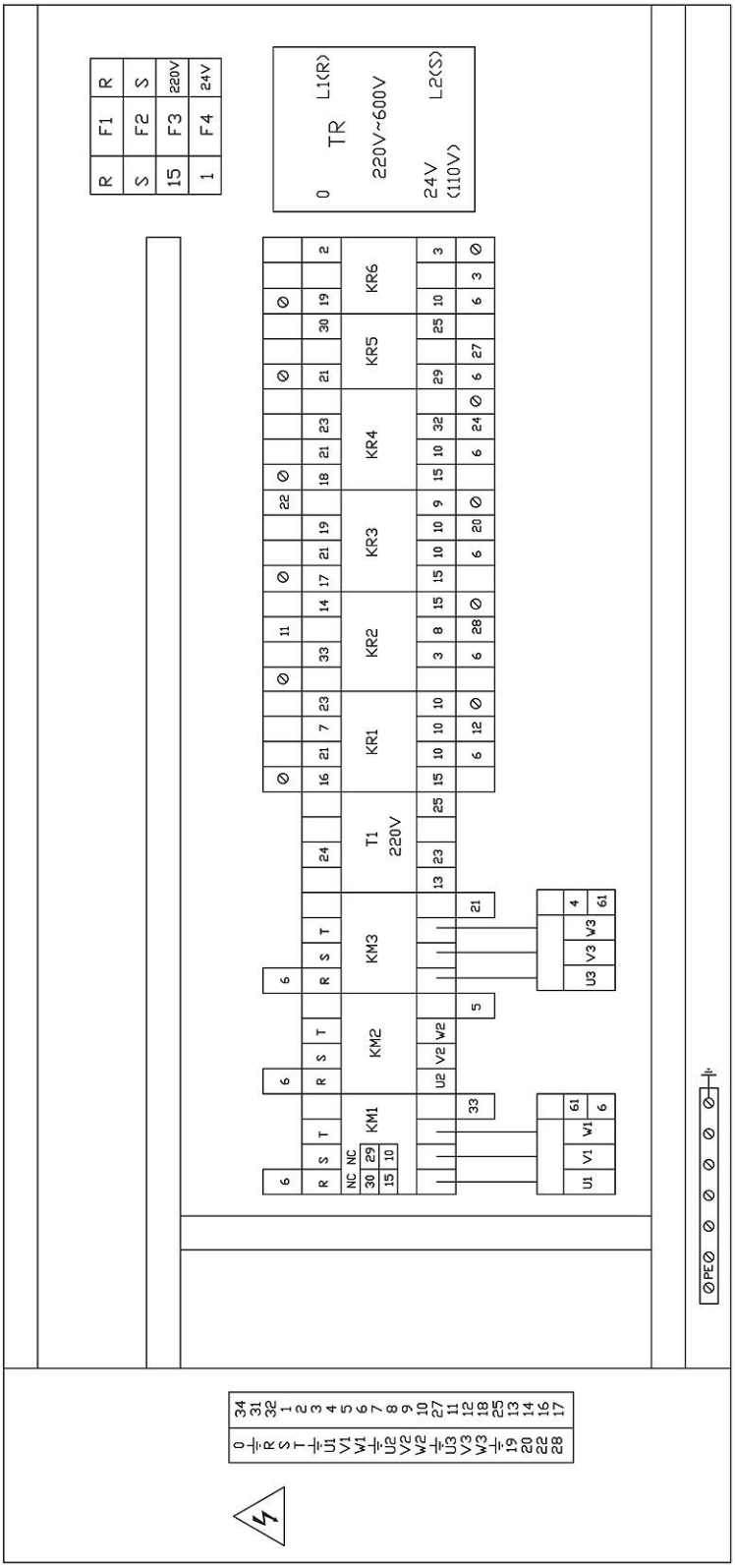
- Disconnect the electrical supply from the power panel.
- Empty and clean the coolant reservoir.
- Clean and grease the machine.
- Cover the machine.

ELECTRICAL SCHEMATIC

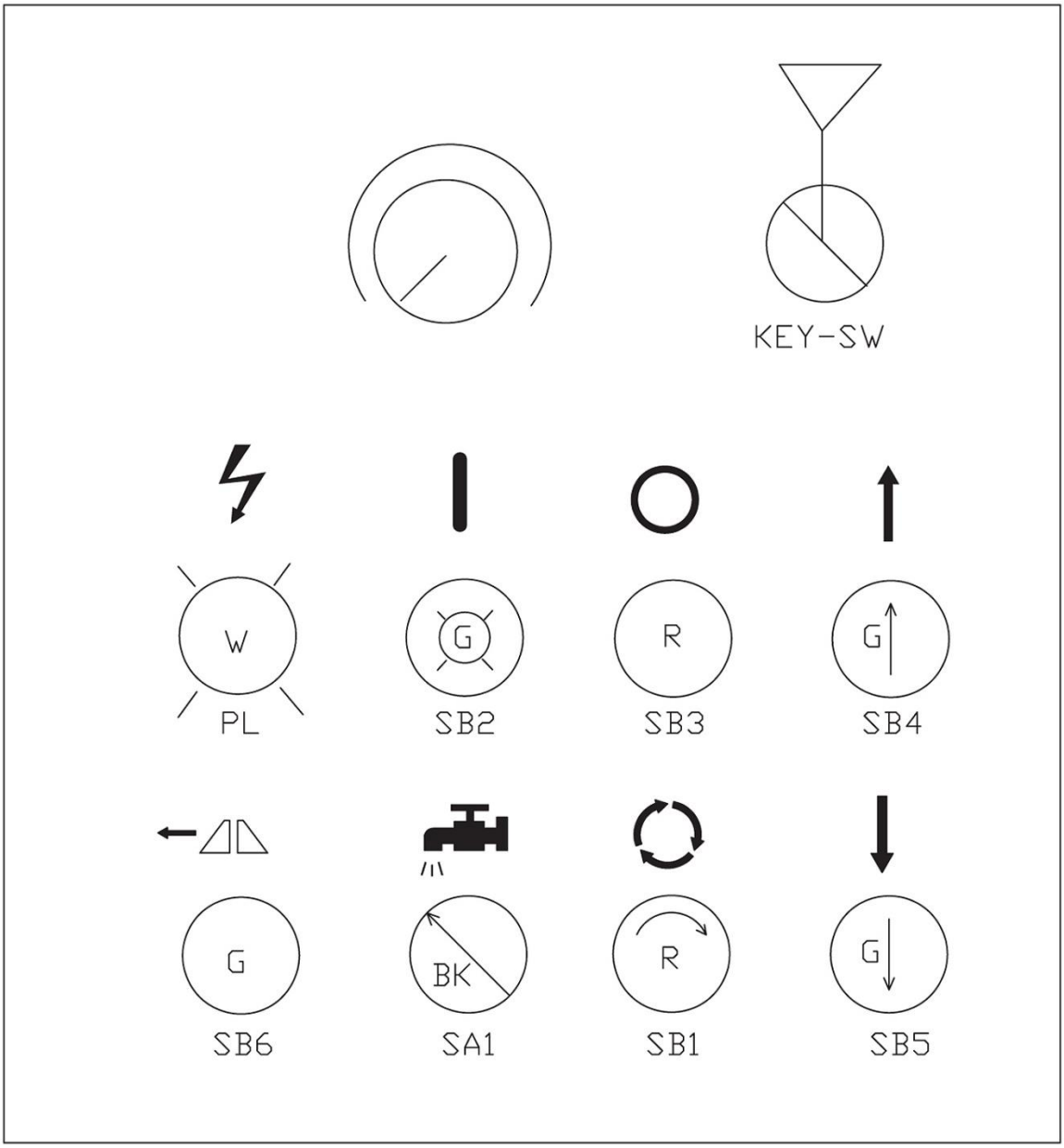



OVER-LOAD
AC-LAMP
Coolant Pump
MOTOR-KEEP
MOTOR-SAW
MOTOR-LAMP
SAW UP
SAW DOWN
OIL-PUMP
Vise Close
Vise Open
SAW DOWN
SAW UP
Vise Close
Vise Open
Vise Open Timer
(FR1) OL
(FR2) OL
SA1
LS3
HI
Vise Clamp Stroke Limit LS5
R3
R2
P.S.
T1
Vise Clamp Pressure
SB5 DOWN
SB4 UP
SB2 DN
LS4 LOW
SB3 OFF
SB1
KEY-SW
F4
F3
F1
F2
TC
24V
110V
R
S
220V
Blade Breakage LS1
Blade Cover LS2
SB6 Jog Vise Open
KM1
R1
R2
R3
R4
R5
R6
SOL 1
SOL 2
SOL 3
SOL 4
T1
PE

Terminal Strip Connections



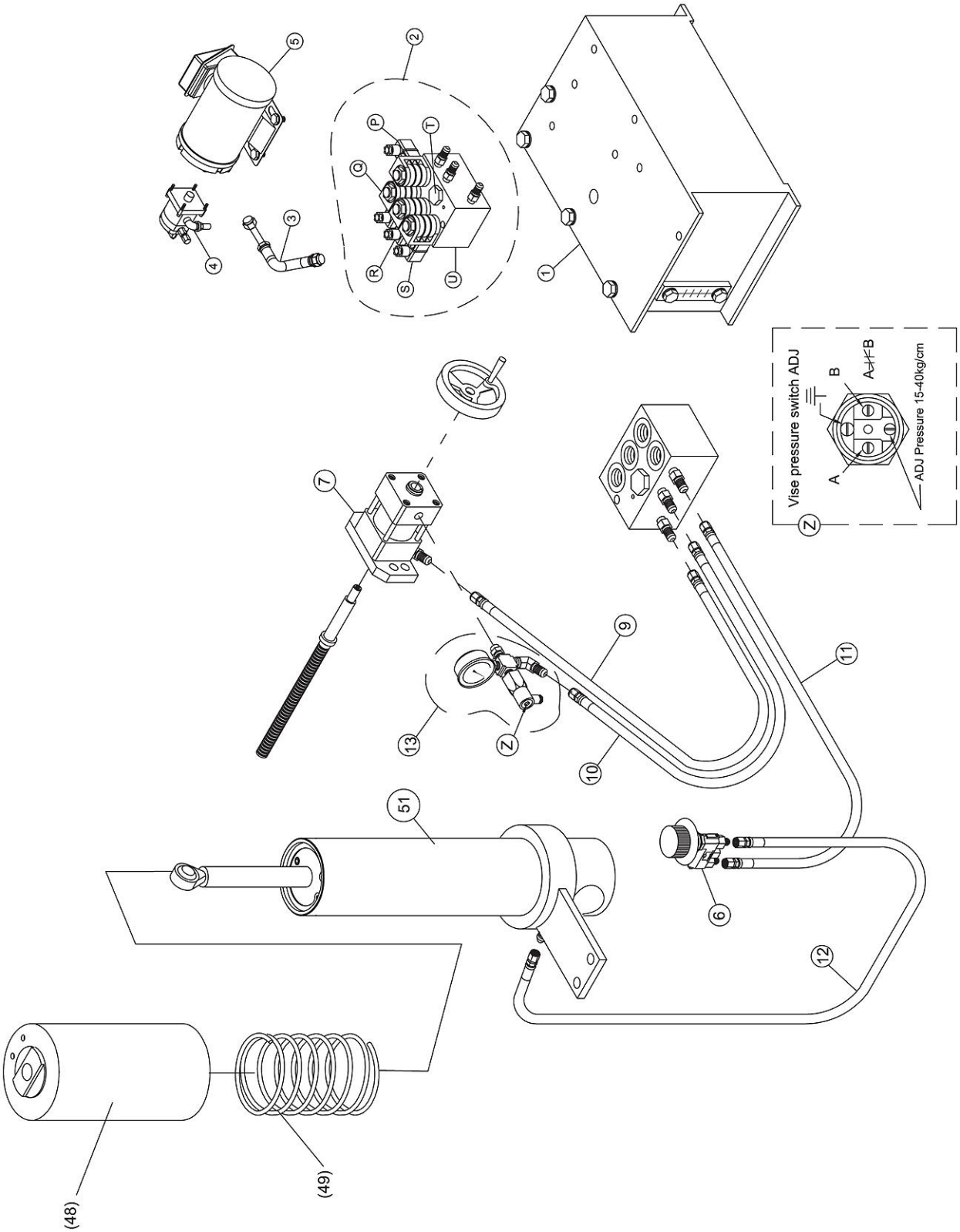
Switch Designation



Electrical Components

Item	Description and Function	Specification	Qty.
FU1, FU2	AC Fuse To Transformer	AC 600V 30mm 2A	1 ea.
FU3	AC Low Voltage To Transformer	AC 600V 30 mm 3A	1
FU4	AC-Solenoid	AC 600V 30 mm 3A	1
KM1, KM2, KM3	Contactors	SPLA, Ri-660V, RT-25A AC 3 220V 2.2KW 380V 4.0KW	1 ea.
FR1	Overload Relay	5~8, 6.5A, Ui-600V Ith-10A	1
FR2	Overload Relay	.35~.50, 0.5A, Ui-600V Ith-8A	1
TC	Transformer	AC 0-220-440 V 24V 72VA	1
LS1	Blade Broken Limit Switch	AC 500V 5A	1
LS2	Blade Cover Limit Switch	AC 500V 5A	1
LS3	Saw Bow Up Travel Limit Switch	AC 600V 10A 125, 250V 0.1A 600VDC	1
LS4	Down/Cut-Limit Switch		1
LS5	Vise Clamping Travel Limit Switch		1
SB1	Emergency Stop	AC 600V 10A	1
SB2	Saw – On	AC 250V 10A 380V 7.5A 1 NO+1 NC	1
SB3	Saw – Stop	AC 250V 10A 380V 7.5A 1 NO+1 NC	1
SB4	Saw – Up	AC 250V 10A 380V 7.5A 1 NO+1 NC	1
SB5	Saw – Down	AC 250V 10A 380V 7.5A 1 NO+1 NC	1
SB6	Vise Open	16φ 1 NO+1 NC	1
TB	Casset ~ Double Terminal Block	TD-015 AC 600V 15A	22
PL1	Power Lamp	22 AC 24V 1.2W	1
SA1	Coolant Pump-Switch	INO, AC250V 10A 380V 7.5A	1
TIMER	Vise Open Timer (normal 1 – 1.5s)	AC 220V	1
KR1 – KR4	Control Relay MY4N-J	COIL AC24V 240V 5A DC30V 5A	1 ea.
KR5, KR6	Control-Relay MY2N-J	COIL AC24V 240V 5A DC30V 5A	1 ea.
SW	Key Switch		1
PS	Pressure Switch (Vise Clamping)		1

HYDRAULIC LAYOUT



Hydraulic Components

General Layout

Item	Description	Qty.
1	Oil Tank	1
2	Manifold and Solenoid Valve Set	1
3	Hose	1
4	Pump	1
5	Motor	1
6	Flow Control	1
7	Vise Hydraulic Cylinder	1
51	Bow Lift Cylinder	1
9	Hose, 2.5m, 1/4H	1
10	Hose, 2.2m, 1/4H	1
11	Hose, 3.2m, 1/4H	1
12	Hose, 3.4m, 1/4H	1
13	Pressure Switch	1

Manifold Assembly

Item	Description	Qty.
P	Solenoid Valve (Bow Up)	1
Q	Solenoid Valve (Bow Down)	1
R	Solenoid Valve (Vise Clamping)	1
S	Solenoid Valve (Vise Unclamping)	1
T	Pilot Check Valve	1
U	Manifold Body	1

NOTES

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