



OPERATOR'S MANUAL

Metal Working



DUAL MITER SEMI-AUTOMATIC HORIZONTAL BAND SAW MODEL: BS-350SA

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Rev. 04/2021

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Table of Contents

THANK YOU & WARRANTY	1
INTRODUCTION.....	3
GENERAL NOTES.....	3
SAFETY INSTRUCTIONS	4
SAFETY PRECAUTIONS	7
Dear Valued Customer:.....	7
TECHNICAL SPECIFICATIONS	10
TECHNICAL SUPPORT	10
UNPACKING AND CHECKING CONTENTS.....	11
TRANSPORTING AND LIFTING	12
INSTALLATION.....	13
Anchoring the Machine	14
OVERALL DIMENSIONS.....	15
GETTING TO KNOW YOUR MACHINE	16
Control Panel Functions	18
Indicator LED Functions	19
ASSEMBLY AND SET UP	23
ELECTRICAL.....	26
MACHINE ADJUSTMENTS	28
Replacing the Saw Blade: (Wear gloves when handling the saw blade.)	28
Setting Blade Tension	29
Blade Breakage	29
Adjusting the Blade Tracking.....	29
Adjusting the Blade Guide	30
Blade Guide Bearing Adjustment.....	30
Angle Stops Adjustment	31
Saw Bow Stroke-Limiting Device.....	32
Saw Bow Return Spring Replacement	32
BEFORE EACH USE	33
Whenever Saw is Running	33
Breaking in a Band Saw Blade	34
Metal Chip Indicators.....	34
Blade Terminology.....	35
Width of Blade	35
Length of Blade	35
Blade structure	36
Blade type	36
SETS	37
BLADE CARE	38
CHOOSING A SAW BLADE.....	38
BLADE BREAKAGE.....	40
OPERATION.....	41
LUBRICATION AND MAINTENANCE	43



Grease Fitting Locations.....	44
Hydraulic Oil / System	44
Oil Disposal	44
Accessing and Cleaning the Coolant System.....	45
Coolant System Maintenance.....	45
Oils for Lubricating Coolant	45
Gearbox Maintenance	46
Storing Machine for Extended Period of Time	46
SAW BASE PARTS IDENTIFICATION DRAWING.....	47
SAW BOW PARTS IDENTIFICATION DRAWING.....	48
BLADE GUIDE PARTS IDENTIFICATION DRAWING	49
CONTROL AND VISE PARTS IDENTIFICATION DRAWING	50
HYDRAULIC PARTS IDENTIFICATION DRAWING.....	51
Parts List	52
ELECTRICAL SCHEMATIC	62
HYDRAULIC SCHEMATIC	63
TROUBLESHOOTING	64
Electrical Components Diagnosis	64
Blade and Cut Diagnosis	67



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, (e) 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 INCIDENTAL, 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 Baileigh-Service@jpwindustries.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.



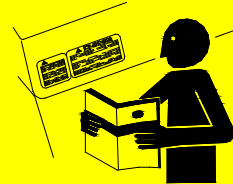
Note: This symbol refers to useful information throughout the manual.



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.

DANGER

WARNING

CAUTION

NOTICE

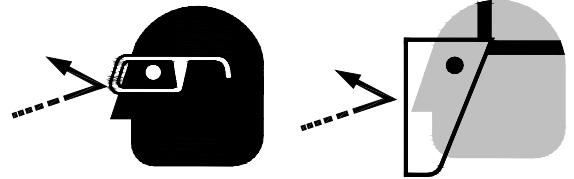


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



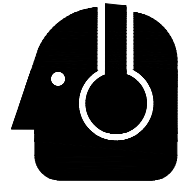
PROTECT EYES

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



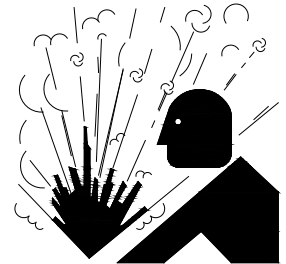
PROTECT AGAINST NOISE

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.



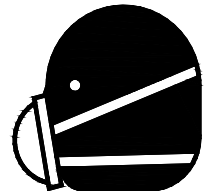
HYDRAULIC HOSE FAILURE

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



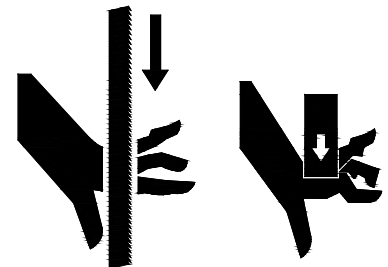
DUST HAZARD

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.



BEWARE OF CUT AND PINCH POINTS

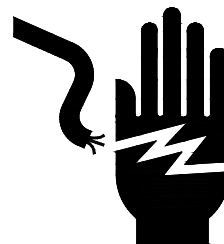
Moving saw blade may result in loss of fingers or limb. **DO NOT** operate with guard removed. **Follow lockout/tagout procedures before servicing.**





HIGH VOLTAGE

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



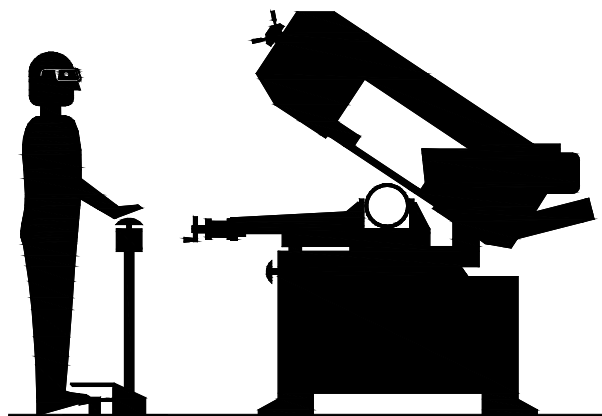
EMERGENCY STOP BUTTON

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.



OPERATOR POSITIONING

The operator should stand in front of the machine while the saw is cutting.



CALIFORNIA PROPOSITION 65

WARNING: Cancer and Reproductive Harm.
www.P65Warnings.ca.gov





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 machine's 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 appropriately.** **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. Keep visitors a safe distance from the work area.
19. **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.
20. **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.
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. 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.



WARNING: This product can expose you to chemicals including titanium dioxide which is known to the State of California to cause cancer, and lead which is known to the State of California to cause cancer and birth defects or other reproductive harm.

For more information go to <http://www.p65warnings.ca.gov>.



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

- lead from lead-based paint.
- crystalline silica from bricks, cement, and other masonry products.
- arsenic and chromium from chemically treated lumber.

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

For more information go to <http://www.p65warnings.ca.gov/> and [http:// www.p65warnings. ca.gov/ wood](http://www.p65warnings.ca.gov/wood).



TECHNICAL SPECIFICATIONS

Capacity Rectangular 90° / 45°R / 45°L	13.5" x 8.5" (350 x 220mm) / 9.5" x 4.92" (240 x 125mm) / 7.08" x 5.51" (180 x 140mm)
Capacity Round 90° / 45° / 60° / 45°L	10.43" (265mm) / 9.5" (240mm) / 5.31" (135mm) / 8" (210mm)
Capacity Square 90° / 45° / 60° / 45°L	10.25" (260mm) / 5.9" (150mm) / 3.54" (90mm) / 6.29" (160mm)
Miter Angle	0 - 60°R, 0 - 45°L
Return (Bow Raising)	Hydraulic
Miter Adjustment	Swivel Head
Blade Size (H x T x L)	1" x .035" x 124.5" (26 x .9 x 3160mm)
Blade Speed (fpm)	66 – 280fpm (20 – 85mpm) Variable
Blade Guide	Carbide x Roller
Table Height	33.85" (860mm)
Drive	Gear
Descent Control	Hydraulic
Power Input	220V, 60Hz, 1-Phase
Blade Motor	2hp (1.5kw), 220V, 60hz, 3Ph, 6.2A, 1720rpm
Hydraulic Pump Motor	.5hp (.37kw), 220V, 60hz, 1Ph, 4.5A, 1720rpm
Coolant Pump	1/16hp (40W), 220V, 60Hz, 1Ph, .42A
Shipping Weight	1080lbs (490kgs)
Shipping Dimensions (L x W x H)	73" x 30" x 67" (1854 x 762 x 1702mm)

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: Baileigh-Service@jpwindustries.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.



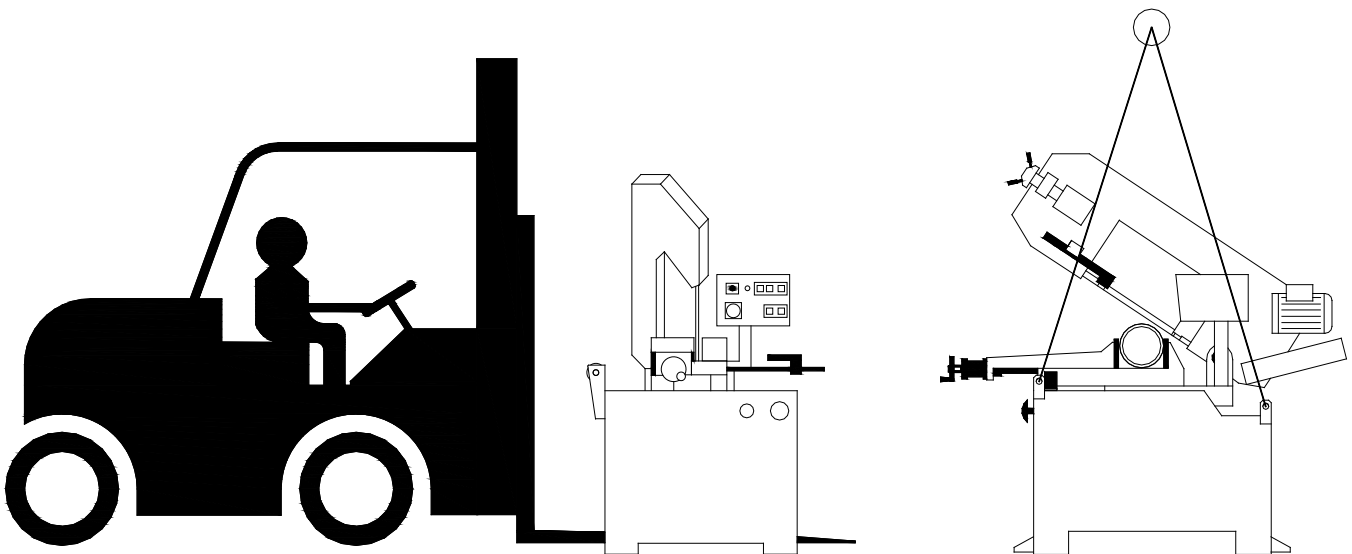


TRANSPORTING AND LIFTING

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:

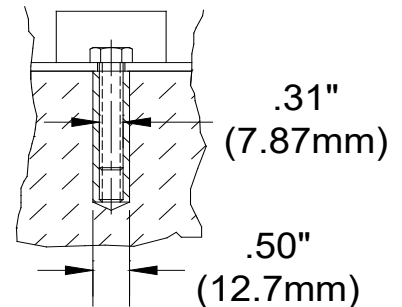
- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, worktables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- 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 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.

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.



Tank Filling

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

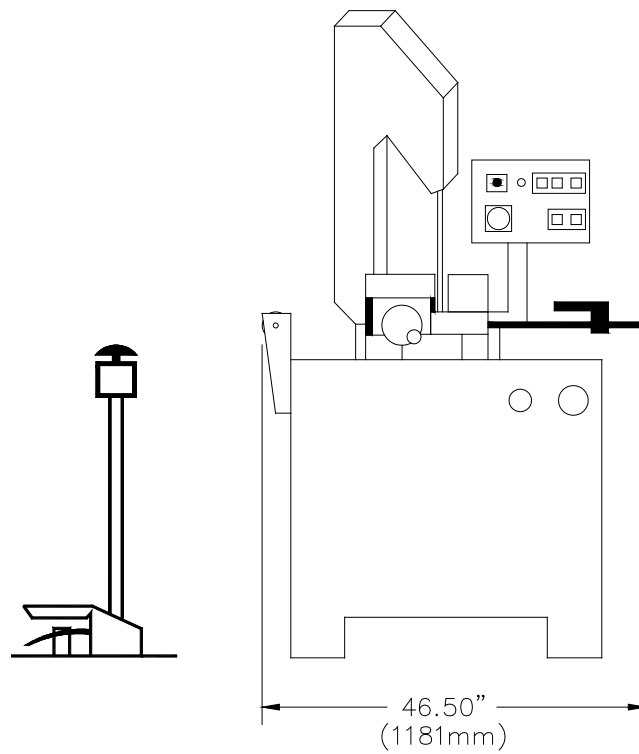
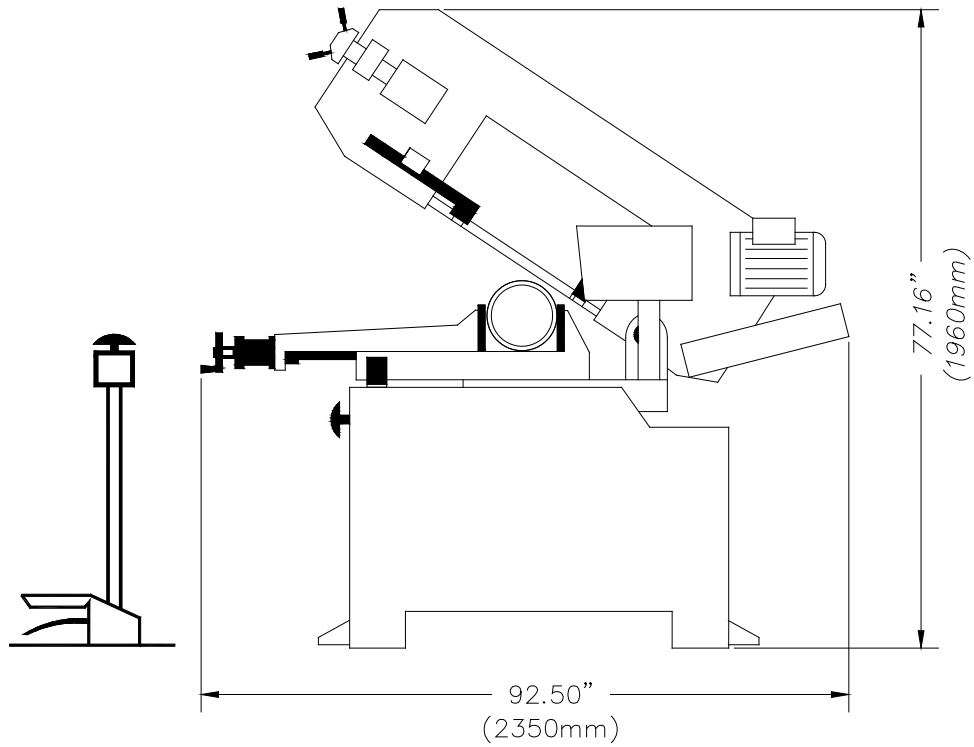
After installation of the machine and before machine startup, bring the oil level up to 90% of capacity. Refer to any labels or marking affixed to the outside of the machine. If none exist, use SHELL BRAND #46 or #68 hydraulic oil or an equivalent with similar specifications. (Based upon location temperature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

Verify that any cylinder rams are 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





GETTING TO KNOW YOUR MACHINE

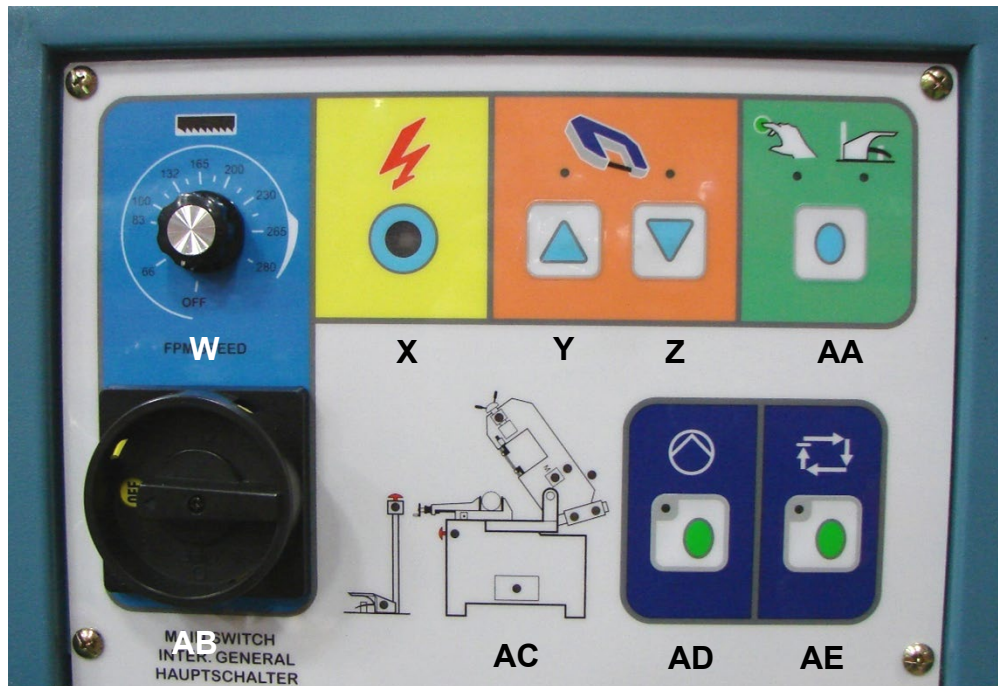




A	Vise Hand Wheel	Turning hand-wheel opens and closes the vise for course adjustment to within .5" to .75" (12.7 – 19mm) of clamping the material.
B	Vise Clamping Cylinder	During normal operation, hydraulic pressure will extend the cylinder to clamp the material for the cut. After the cut, the vise will open automatically,
C	Vise	Holds front and rear jaws for clamping
D	Blade Tension Hand Wheel	For applying and releasing blade tension
E	Blade Tension Gauge	Reads tension in Kgs/cm ² . For this saw the blade tension should be 140Kgs/cm ²
F	Blade Break Microswitch	Shuts down saw if blade breaks or if the tension is too low.
G	Front Blade Guide Assembly	Guides the blade into the material during the cut. This guide is adjustable and should be set as close to the material without interfering with the material.
H	Back Blade Guide Assembly	This guide is a fixed position and is intended to guide the blade as it exits the cut path.
I	Control Box	Houses the operator controls
J	Bow Cylinder	The cylinder is used to provide the down and up force to lower and lift saw bow.
K	Saw Bow Limit Switches.	The limit switches which control the down travel and the up travel of the saw bow. The down limit switch has limited adjustment to stop the down travel when the blade has completed the cut. The up-limit switch has adjustment to allow the bow to raise about 1" (25mm) above the table to the full up position as desired.
L	Motor/Gearbox	Drives the saw blade
M	Coolant Pump	Recirculates blade coolant to the blade cutting area.
N	Hydraulic System	The reservoir, motor, pump, and valve assembly which supplies and controls the hydraulics to operate the clamping and saw bow cylinders.
O	Miter Lock Lever	Tightens and loosens the saw head to allow the head to swivel to the desired angle.
P	Angle Indicator	Shows angular cutting degrees. 0 - 60°R, 0 - 45°L
Q	Saw Stand	Supports the saw assembly.
R	Vise Slide Lock	Locks vise in the table slideway. Used with the Track Lock.
S	Flow Regulator	This flow control will allow control of the speed that the bow descends into and through the cut.
T	E-Stop (Emergency Stop)	Shuts down saw in emergency situation
U	Track Lock	Allows vise to slide in track. Used with the Vise Slide Lock.
V	Foot Pedal Switch	Used to start auto cut cycle



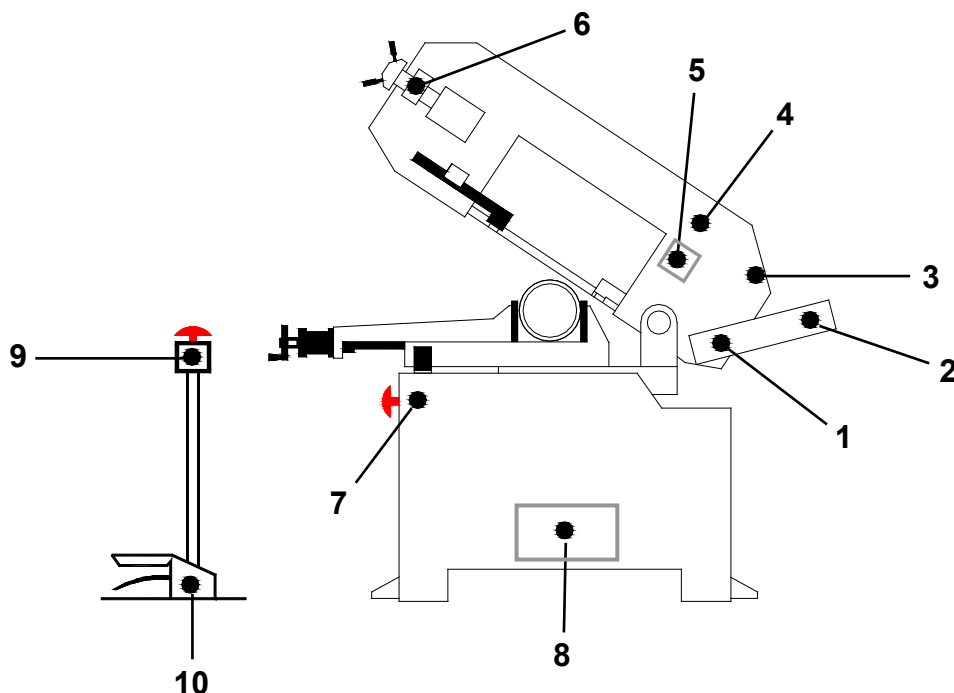
Control Panel Functions



W	Speed Control	Sets blade speed from 66-280 fpm) Has an OFF position to shut off power.
X	Power Indicator Light	Lights “white” when power is on.
Y	Bow Up Switch	Press to raise the saw bow. (<i>hydraulics must be on</i>)
Z	Bow Down Switch	Press to lower the saw bow. (<i>hydraulics must be on</i>)
AA	Operation Select Switch	Choose between hand or foot pedal operation.
AB	Main Disconnect Switch	Turns power ON to the saw. Can be locked out in the OFF position for Safety or Security.
AC	Indicator Lights	Various LED lights illuminate at different times to indicate which function is active, status of the saw, and possible fault warnings.
AD	Hydraulic Motor Start Switch	Starts and run the hydraulic motor which in turn supplies hydraulic fluid to the system.
AE	Cycle Start Switch	Press to begin sawing operation when the hand mode is selected.



Indicator LED Functions



1	Saw Bow Minimum Height, Indicator Light. Down limit switch contacted.
2	Saw Bow Maximum Height, Indicator Light. Up limit switch contacted.
3	Open Blade Cover, Warning Light Indicator. Install the blade cover.
4	Speed Selector Turned Off Warning Light Indicator. The speed selector may not be working correctly.
5	Motor Overload, Warning Light Indicator. The blade motor may be at fault, overloaded, or shorted.
6	Broken Blade, Warning Indicator Light. The saw blade is broken, loose, or off of the drive wheels.
7	Control Panel Emergency Button Indicator Light. Indicates that the control panel E-Stop is press in.
8	Hydraulic Motor Overload, Warning Indicator Light. The hydraulic motor may be at fault, overloaded, or shorted.
9	Pedestal E-Stop Button, Indicator Light. Indicates that the foot switch pedestal E-Stop is press in.
10	Pedestal Foot Switch Indicator Light. Indicates that the foot pedal switch is activated.



Machine Base

The machine base supports the saw bow, the vise, the coolant stop, the swing arm, and the roller for supporting material.



figure 1

Swivel Saw Head

Angles can be cut up to 60° (Right) with the vise left of the blade and 45° (Left) with the vise right of the blade.

Unlock the rotating saw head by pushing the miter lock lever (R) to the left and by retracting stop pin (AF). Rotate the saw head to the desired angle as shown on the angle indicator (Q). Lock the saw head by pushing the lock lever (R) to the right (as shown).



Note: Pin (AF) has stops at 0° & 45° (Right)



figure 2

R

NOTICE: Check that the saw blade clears all parts of the vise assembly before cutting. The blade can strike parts of the assembly (especially during miter cuts) if not properly adjusted. Make sure saw bow is in a down or horizontal position when moving or mitering to avoid tipping over machine.



figure 3

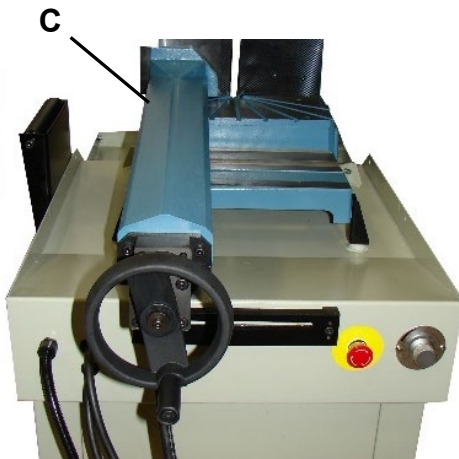
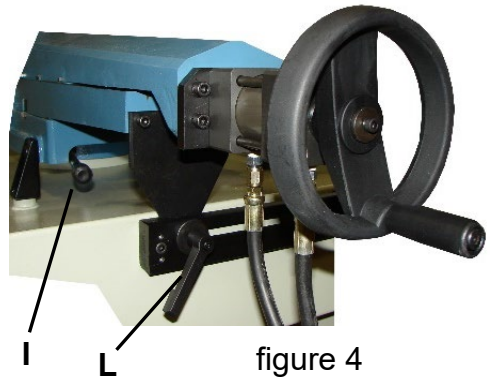
AF



Positioning the Vise

To move the vise in either direction, it must be unlocked at two points.

- Release the track support by turning handle (L) counterclockwise (ccw).
- Release the vise by moving the lock lever (I) to the left.
- The vise (C) may now be moved to the left position (figure 5) or the right position (figure 6) by pushing it with one hand on the vise and the other hand on the track handle (L).
- Once in position, move the lever (I) to the right to lock the vise.
- Lock the track support handle (L) by turning clockwise (cw).



NOTICE: Do not attempt a 90° cut with vise as shown in (fig. 6). You may damage the front jaw.



Quick Clamp Vise

Place the piece part between the vise jaws and have it rest next to the fixed vise jaw.

Rotate the hand wheel (A) clockwise (cw) to close the front jaw onto the piece and tighten.

Rotate the hand wheel counterclockwise (ccw) to release.

For multiple cuts of a same size material, leave a .5" – .75" (13 – 19mm) gap between the piece part and the vise jaw.

Push cycle start switch.

The vise will automatically clamp the piece part while going through the operation cycle.

When the cycle is finished, the vise will open, and the piece part can be adjusted or removed.



Note: The hydraulic unit must be running.

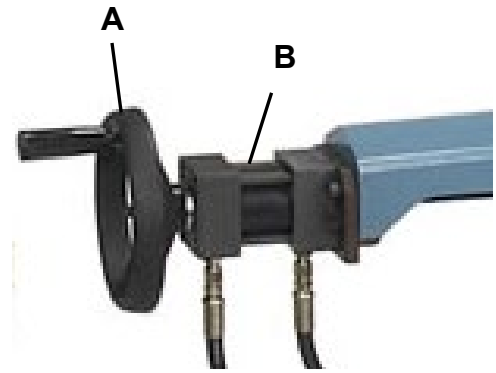


figure 7

Footpad Switch

Using the side of your foot, push aside the plastic clip that blocks the footpad of footswitch (T).

Be careful not to damage the clip by using excessive force or stomping on the footpad.

Now step down on the footpad to start the saw operation.

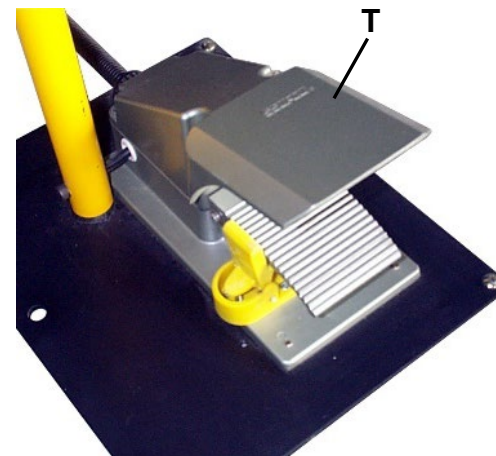


figure 8

Setting Cut Length

Setting the cut length eliminates measuring duplicate pieces.

- Measure and mark the length of material to be cut off.
- Loosen the stop bar clamp handle (AH) and slide so that the tip of the stop bar touches the end of the piece part.
- Tighten the stop bar clamp handle.
- Proceed with the cutting cycle
- After the piece is cut and the vise opens, Slide the piece part forward until it reaches the tip of the stop bar.
- Proceed with the cutting cycle.

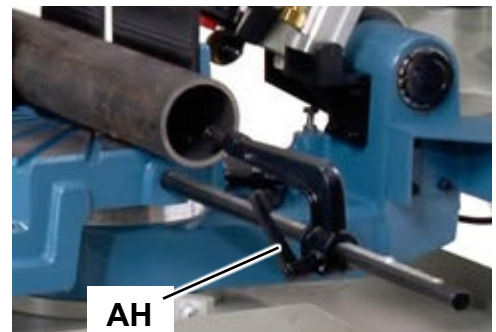


figure 9



Hydraulic Flow Regulator

This regulator controls the speed of descent of the saw bow. Clockwise (cw) rotation slows it down and counterclockwise (ccw) rotation speeds it up. Different materials will require different descent rates.

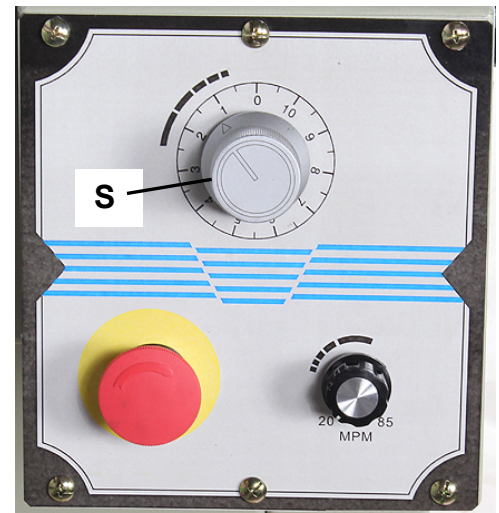


figure 10

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.

The toolbox (supplied with the saw) contains tools necessary for assembly and adjustment of the saw. Also included are two handles, and a test slug of material that was cut on this saw.

First remove the (2) socket capscrews from the control box support post (A).

Set and position the support post onto the pad as shown in the photo. Be careful not to damage any of the wires and cables.

Line up the holes and secure the capscrews.





Screw the larger of the two handles into the miter lock lever handle (R).

Use the locknut to tighten.

Screw the smaller handle onto the vise hand wheel (A) and tighten securely.



Support Roller

A device that supports longer sized material. The roller assists stock moving through the vise.

Attaching the support roller to the left side of the base.

Remove the (2) hex bolts, lock washers, and flat washers from the base.

Place the support roller (U) up to the machine base and align the 2 slots with the screw holes.

Attach with washers and bolts. (DO NOT tighten).

Place a level across the mouth of the vise and the top of the roller.

Raise or lower support roller (U) until level, then hold that position and secure by tightening bolts.





Install the splash tray

The splash tray (V) fits onto the sidewall of the base as shown in the photo at right. (Customer to determine best location as it can change based upon cutting angles.)



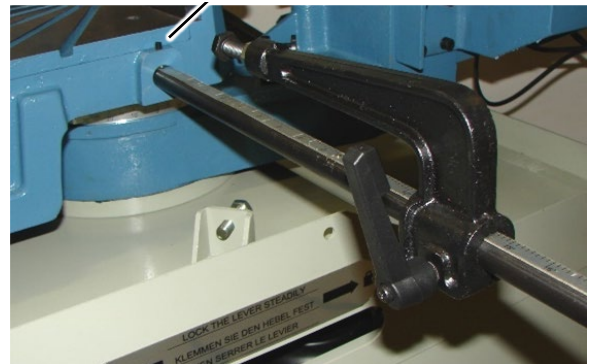
Mounting the stop bar assembly

Locate the mounting hole on the right side of the vise block.

Back out the set screw to allow insertion of the graduated rod. (make sure scale can be easily read by the operator).

Tighten setscrew until rod is tight.

setscrew



Positioning the "E"-Stop / footswitch pedestal

Locate the pedestal at the front of the saw near the base operating controls as shown.

The operator should stand in front of the saw while cutting as a safety precaution, and to have access to the base controls for blade speed and bow descent speed. This also keeps the two E-Stop switches close.

The foot pedestal can be repositioned as needed to be within easy reach of the operator when loading and unloading material as well as when cutting various angles.





ELECTRICAL



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 $\pm 5\%$, and for the frequency is $\pm 1\%$.

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.

Extension Cord Safety

Extension cord should be in good condition and meet the minimum wire gauge requirements listed below:

AMP RATING	LENGTH		
	25ft	50ft	100ft
1-12	16	16	14
13-16	14	12	12
17-20	12	12	10
21-30	10	10	No
WIRE GAUGE			

An undersized cord decreases line voltage, causing loss of power and overheating. All cords should use a ground wire and plug pin. Replace any damaged cords immediately.

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.
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.



MACHINE ADJUSTMENTS



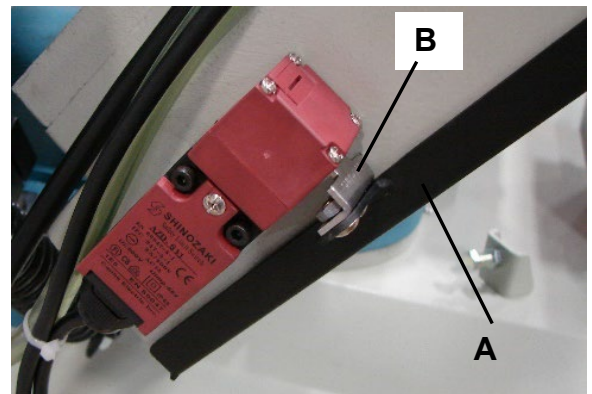
WARNING: Make sure the electrical disconnect is OFF before working on the machine.

Maintenance should be performed on a regular basis by qualified personnel.

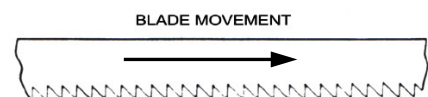
Always follow proper safety precautions when working on or around any machinery.

Replacing the Saw Blade: (Wear gloves when handling the saw blade.)

1. Raise the saw bow.
2. Remove the (4) knobs holding on the blade cover (A) onto the saw bow.
3. Carefully pull the tongue from the safety interlock switch (B).
4. Loosen the saw blade with the tension hand wheel (C) and remove it from the flywheels and the blade guide blocks.
5. Assemble the new blade by placing it first between the guide blocks and then on the face of the flywheels. (NOTE the blade direction.)
6. Tension the blade, making sure it seats properly on the flywheels.
7. Position the blade cover (A) onto the saw bow aligning the mounting holes and making sure the switch tongue engages the switch (B) or the saw will not start.



BLADE DIRECTION OF TRAVEL





Setting Blade Tension

Blade tension is important to the proper operation of the saw. Correct blade tension is 140 kg/cm² as measured on the saws tension gauge.

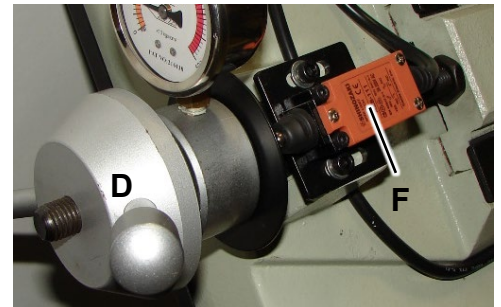
Turning the handwheel clockwise (cw) will increase the tension. Counterclockwise (ccw) will decrease tension of the saw blade.



Blade Breakage

If the saw is running and the blade breaks, the idler wheel and tensioning assembly will lose tension and spring outward which will cause the limit switch (F) to lose contact with the trigger disc and trip the limit switch (switch contacts will open.) which will in turn shut down all machine functions.

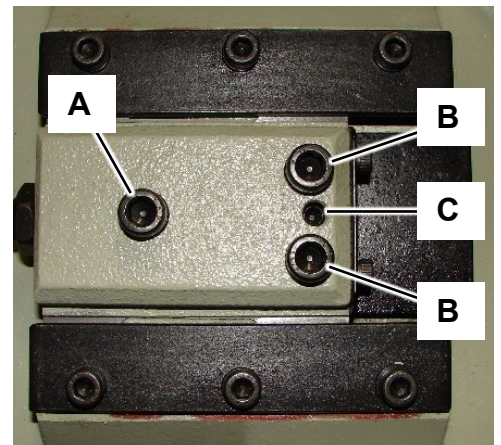
- Replacement blades which duplicate the saws original blade specifications will not require adjustment of the limit switch.
- If properly tensioned but the limit switch does not make contact with the trigger disc, reposition the limit switch closer to the disc.
- Make sure the switch plunger is properly actuated and tighten the switch screws.



Adjusting the Blade Tracking

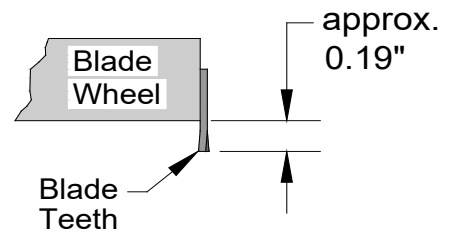
The flywheels alignment may need some adjustment to allow the saw blade to track correctly. Improper flywheel alignment can cause damage to the saw blade or cause it to ride off the blade wheel bearings.

1. Raise the saw bow to a usable work height.
2. Disconnect the saw from the power supply.
3. Loosen the hex socket cap screws (A and B).
4. Use an allen wrench on setscrew (C) to adjust the blade.
5. Turning the setscrew (C) clockwise (cw) will tilt the flywheel so that the blade will ride closer to the flange.



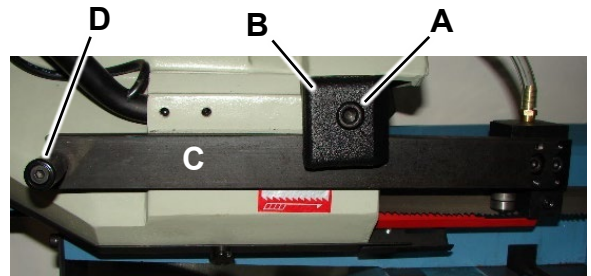


- Turning the setscrew (C) counterclockwise (ccw) will tilt the flywheel so that the blade will ride away from the flange. (If it rides too far away it will come off).
- After the adjustment is finished, tighten the socket cap screws (A) first and then the cap screws (B).



Adjusting the Blade Guide

- Disconnect the saw from the power supply.
- Loosen the socket cap screw (A) which releases the clamping block (B) allowing the extension bar (C) to slide in and out.
- Hold the handle (D) and slide the extension bar in or out to position the blade guide block as close as possible to the piece part without interfering with the cut.
- Tighten socket screw (A) clockwise (cw).



Blade Guide Bearing Adjustment

ATTENTION: This is the most important adjustment on your saw. It is impossible to get satisfactory work from your saw if the blade guides are not properly adjusted.

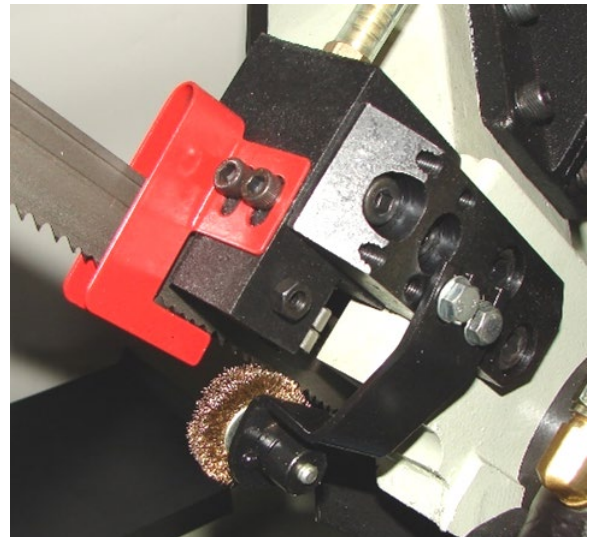
Your Baileigh Band Saw has been adjusted and power tested before leaving the factory to insure proper setting.

If the guides do get out of adjustment, it is extremely important to re-adjust immediately. An improperly adjusted blade will not cut straight, and serious blade damage may result.

It is always best to try a new blade to see if this will correct poor cutting before beginning to adjust the blade guide bearings.

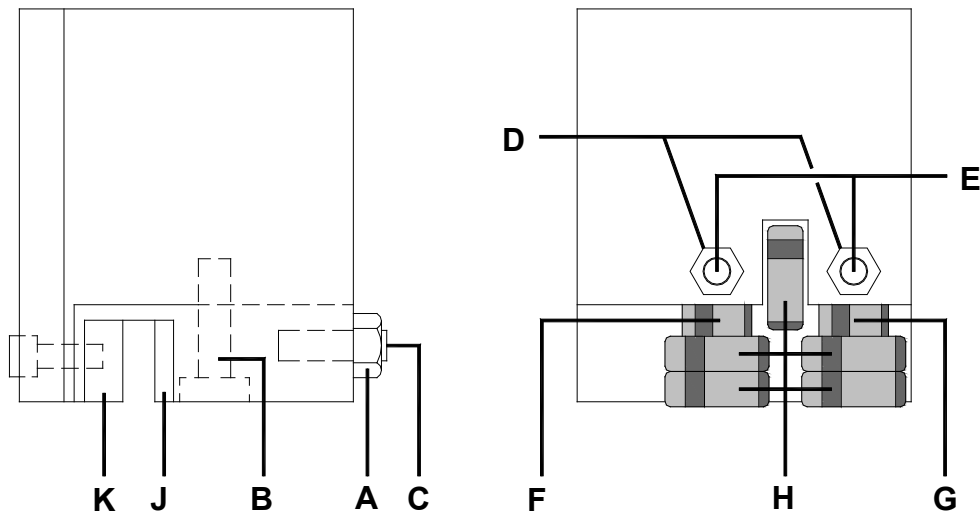
If the blade becomes dull on one side and not the other, for example, it will begin cutting crooked. A blade change will correct this problem; the guide adjustment will not. If a new blade does not correct the problem, check the clearance between the blade and guides.

- Disconnect the saw from the power supply.
- Loosen nut (A), screw (B), and loosen dowel (C) which widens the gap between the pads.





3. Loosen the nuts (D) and the dowels (E) and then rotate the pins (F) and (G) to widen the gap between the bearings (H).
4. To mount the new blade, place the pad (J) on the blade. Adjust the dowel (C) and allow a distance of .001" for the sliding of the blade. Lock the nut and screw (A and B).
5. Rotate the pins (F) and (G) until the bearings rest against the blade and then secure the dowels (E) and nuts (D).
6. Make sure that between the blade and the upper teeth of the pad (K) there is at least .008" - .011" of play. If necessary, loosen the screws that fasten the blocks and adjust accordingly.

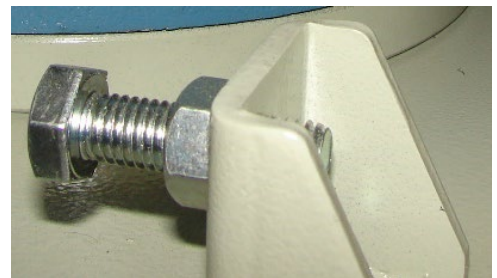


Angle Stops Adjustment

Check the travel limits of the saw head.

Verify that the left limit is set to give a cut of 45° and the right limit is set to give a cut of 60°.

If not, adjust the stop bolt(s) to increase or decrease the travel to create the stop point at the exact angle.





Saw Bow Stroke-Limiting Device

The saw bow travel limiting device consists of a manually positioned stop block (A) which sits on a mounting rod which is parallel to the bow cylinder. The stop block (A) is shown at the bottom of the mounting rod. This position will have the saw bow lifting to the full up or highest position.

Sliding the block upward (as shown in this picture) will limit the bow up travel to the point that the limit switch contacts the stop block. The saw bow must be at or slightly lower than the desired stop height to set the stop block.

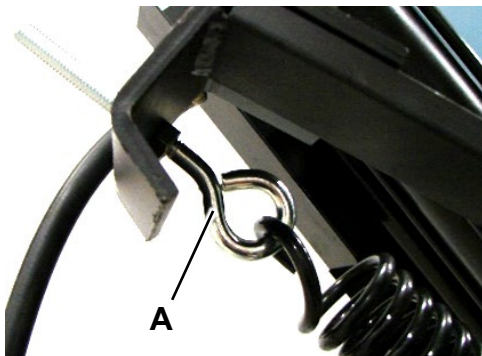
Correct placement of the stop block is generally considered to be a position in which the saw bow will raise the blade about 1" (25mm) above the material to be cut. This normally provides safe clearance to load and position material.



1. Power the saw On and start the hydraulic motor.
2. Place a sample of the material on the cutting table between the vise jaws. Be sure that the material is resting flat on the table as it will during the cut.
3. Using the Down control, lower the saw bow so that it is about .5" – 1" (12 – 25mm) above the material.
4. Loosen the lock handle on the stop block (A) and slide the stop block upward until it makes contact with the limit switch roller and just presses the switch plunger in.
5. Lock the stop block handle.

Saw Bow Return Spring Replacement

When replacing the spring it will be necessary to support the saw bow using the rise cylinder. Replace the spring by backing off the nut on the threaded eye bolt (A) and releasing the spring from the lower tie rod (B).





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.

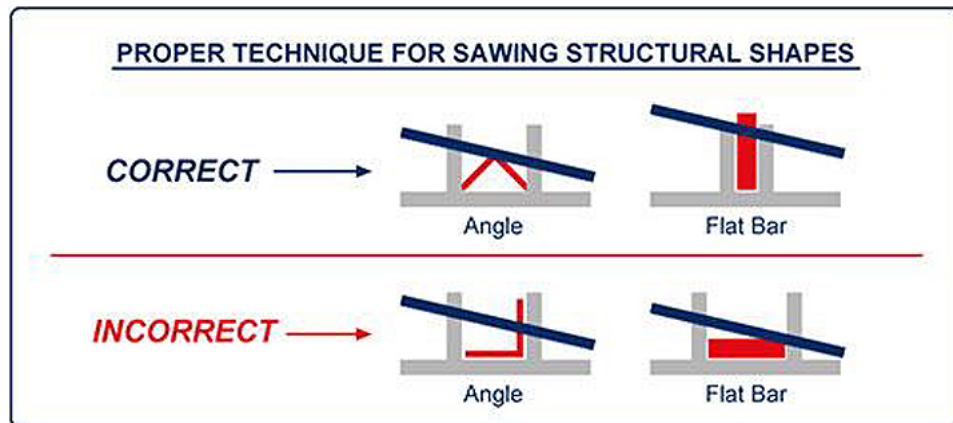
Whenever Saw is Running

- 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

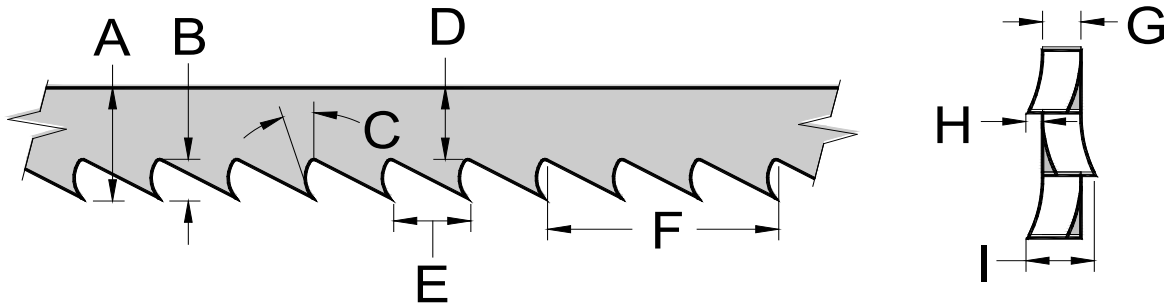
Chips are the best indicator of correct material feed force. Monitor chip information and adjust feed accordingly.

- 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:

$$\text{Blade Length} = (2 \times A) + (3.14 \times B)$$

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 (HSS) 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: 0° rake and constant pitch.



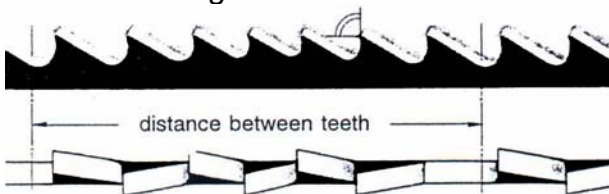
Most common form for transversal or inclined cutting of solid small and average cross-sections or pipes, in laminated mild steel and gray iron or general metal.

POSITIVE RAKE TOOTH: $9^\circ - 10^\circ$ 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).

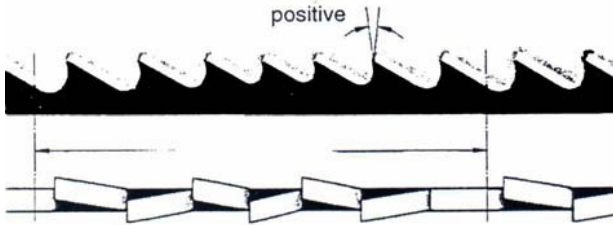
COMBO TOOTH: pitch varies between teeth and consequently varying teeth size and varying gullet depths. Pitch varies between teeth, which ensures a smoother, quieter cut and longer blade life owing to the lack of vibration.



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



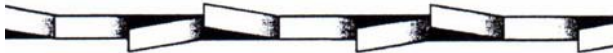
COMBO TOOTH: 9° - 10° positive rake.



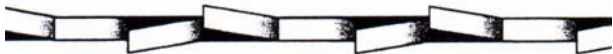
This type of blade is the most suitable for the cutting of section bars and large and thick pipes as well as for the cutting of solid bars at maximum machine capacity. Available pitches: 3-4/4-6.

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	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	8-12tpi	8-12tpi	6-10tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi
0.157	14	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	4-6tpi
	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	8-12tpi	5-8tpi	5-8tpi	4-6tpi	4-6tpi	4-6tpi	4-6tpi	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	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	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	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	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	2-3tpi	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	1-4-2tpi	1-1.4tpi	1-1.4tpi	1-1.4tpi	.75-1.25tpi
9.842													1-4-2tpi	1-4-2tpi	1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi
	11.81												1-4-2tpi	1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi	.75-1.25tpi
13.778														1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi	.7-1.0tpi
	15.747													1-1.4tpi	1-1.4tpi	.75-1.25tpi	.75-1.25tpi	.7-1.0tpi
17.716																.75-1.25tpi	.75-1.25tpi	.7-1.0tpi
	19.685																.7-1.0tpi	.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 thickness (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.)

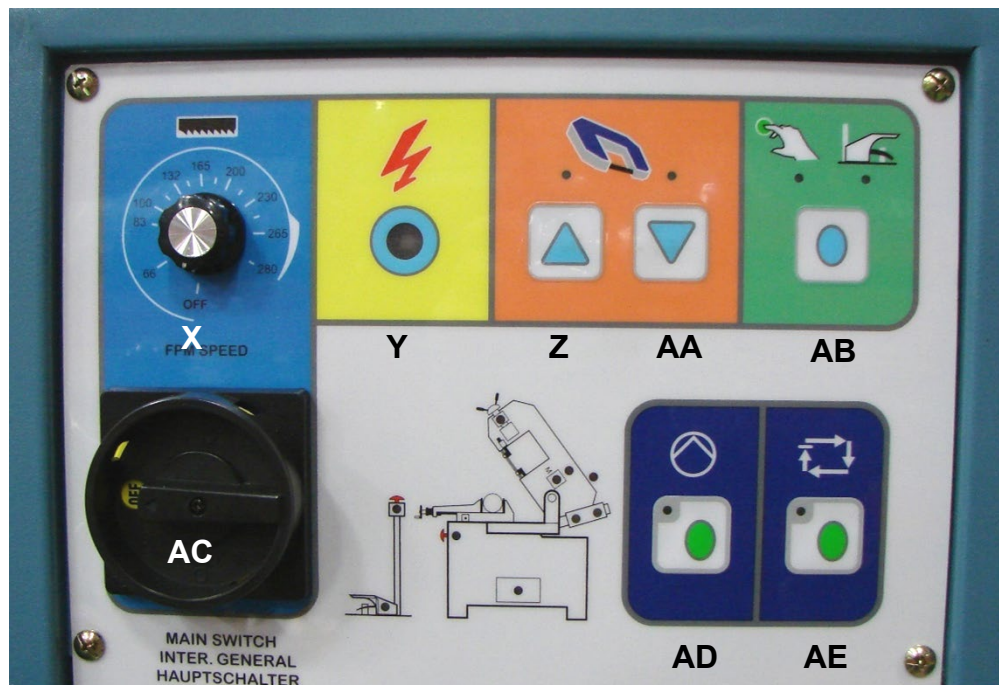


OPERATION



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.

- Turn the main disconnect switch (AC) to “ON”. Power indicator light (Y) will illuminate.
- Select the blade cutting speed with knob (X). (indicator light will blink as selection is made). Note that knob has an on/off feature.
- Press hydraulic pump start switch (AD). If the hydraulic pump does not start, switches (Z), (AA), and (AE) will not work. The indicator light on switch (AD) will blink if any of them are pressed.
- Press switch (Z) or (AA) to adjust the bow height as necessary. The up limit switch must be activated (depressed) to start a cut cycle. Either raise the bow to the switch or adjust the switch to the bow. See Saw Bow Stroke Limiting.
- Place the piece part in the vise and adjust the clamp from tight to not more than 1” (25mm) away from the material.
- Method (1), press switch (AB) to select the hand or foot pedal operation
- For Hand, press switch (AE) cycle start to begin the sawing operation.
- For Foot pedal, step on the footswitch to start the sawing operation.





In general, start cuts by turning the hydraulic flow regulator (O) to a setting of 2 to 3 to control the saw bow descent rate.

Adjust the hydraulic flow regulator until the chips match the description (previous pages) of a quality chip which in turn produces a quality cut.

- Clockwise (cw) will decrease the down feed speed.
- Counterclockwise (ccw) will increase the down feed speed.

NOTICE: A saw bow dropping too quickly can cause the blade to stall in the piece.

If the blade does stall:

Press either emergency STOP button to immediately shut off all functions of the saw. To release the stop button, rotate the mushroom head clockwise (cw) to reset. (Note: Resetting the E-STOP button will not start the machine.)



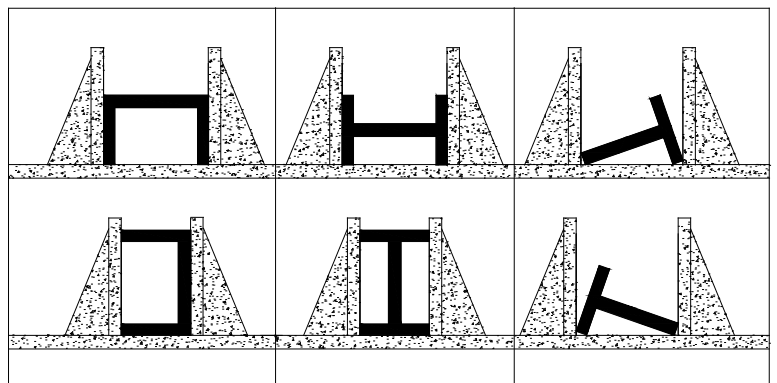
Any variation of material (thickness, hardness, etc.) may require a change to the down feed speed.

The blade speed will also need to be adjusted to match the various materials as well.

This should also be matched to the blade type and tooth count.

- During the operation cycle, the hydraulic vise will automatically close on the piece part from a distance of 0.0" – .75" (0 – 19mm). The vise will then open to a maximum of .75" (19mm) at the end of the cutting cycle after the saw bow has return to its up position.
- If the hand operation is selected and the footpad is used, the hand operation indicator light will blink. If the footpad operation is selected and the hand operation switches are used, the foot operation indicator light will blink. (They indicate improper selection)
- If the saw bow up/down switches are functioning incorrectly, the switch (Z) and switch (AA) indicator lights will blink at the same time.

These examples below show ways to clamp a variety of cross sections. Always keep in mind the cutting capacity of the saw to achieve efficient saw cuts and long blade life. Do not use blades of a size different from that shown in the technical specification chart.





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 Maintenance

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- Do a general cleaning by removing dust and metal chips from the machine.
- Inspect the saw blade for wear.
- Clean the lubricating coolant drain screen.
- Top off the coolant tank.
- Check that the blade guards and emergency stop buttons are in good working order.
- At the end of the day, raise the bow to its up position and release some of the blade tension.

Weekly Maintenance

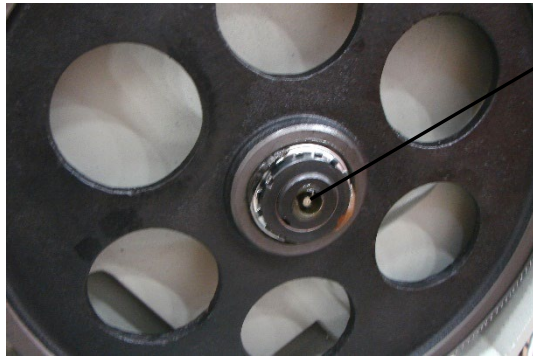
- Clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.
- Wipe and grease the vise screw and sliding surfaces.
- Inspect blade brush wheel and clean if needed.
- Clean coolant pump strainer basket.
- Remove chips from inside the guard housing for the saw blade.
- Use compressed air to clean the blade guides and guide bearings.

Monthly Maintenance

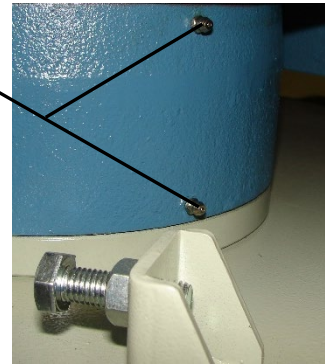
- Check the tightening of the motor flywheel screws.
- Check the blade guide bearings for wear. (replace if necessary)
- Tighten any loose bolts or screws on the gear motor, pump, and safety switches.
- Clean coolant tank
- Grease saw grease points



Grease Fitting Locations



Add grease
(monthly)



Hydraulic Oil / System

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

- Use hydraulic oil #68 SHELL BRAND or an equivalent with similar specifications.
- Keep hydraulic reservoir filled to 90% of capacity.
- 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.
- A shortage of hydraulic oil will cause hydraulic system breakdown to major mechanical components due to overheating.
- Change the hydraulic oil every 12 months or 3000 hours of operation.
- Clean the suction filter at each oil change.
- Keep hydraulic oil temperature between 50°F - 140° F.
- Avoid mixing cutting fluid with the hydraulic oil.
- Tank capacity 3.2 US gal.



Oil Disposal

Used oil products must be disposed of in a proper manner following your local regulations.

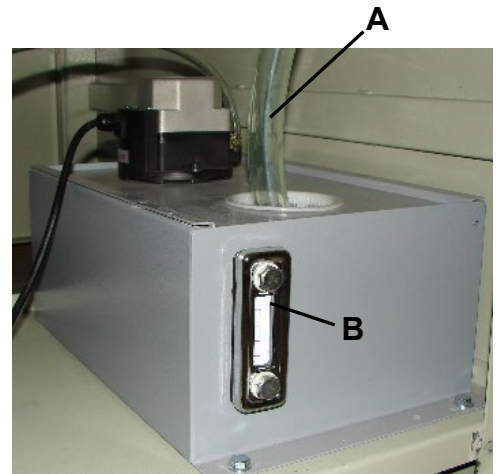


Accessing and Cleaning the Coolant System

- Clean the drain screens on the machine base and the drains on the ends of the table.
- Drain and wash out the dirt and debris from the reservoir.
- Thoroughly clean the pump and pump inlet.
- Fill the tank with coolant solution.

Coolant System Maintenance

1. Disconnect the saw from the power supply.
2. To clean the tank, first remove the vinyl hose (A) from the strainer basket.
3. Remove the strainer basket and lift the cover off of the tank
4. Use a hex wrench to remove the drain plug from the tank to allow the coolant to drain out.
5. Use a hydraulic vacuum to remove any chips and debris.
6. Thoroughly clean the pump and pump inlet.
7. Replace the drain plug.
8. Fill the tank with coolant to the full mark on the sight gauge (B)
9. Replace the cover on the tank
10. Drop in the strainer basket and reinsert the vinyl hose.



Oils for Lubricating Coolant

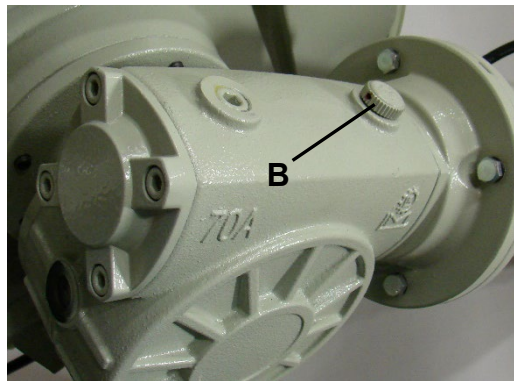
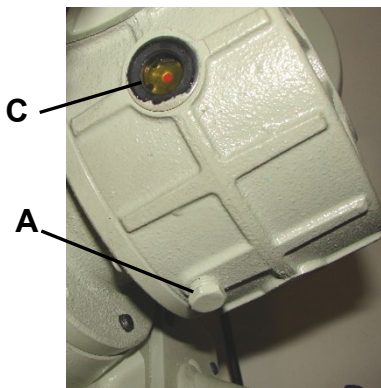
Any 10:1 (water to coolant) solution will work, however we recommend Baileigh Coolant 20:1 (water to coolant) biodegradable metal cutting fluid. It has excellent cooling and heat transfer characteristics, is non-flammable, and extends tool and machine life. Each gallon of concentrate makes 21 gallons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



Gearbox Maintenance

The gearbox requires periodic changing of the oil. Initially after 6 months and then every year thereafter. Follow the procedure below:

1. Raise the saw bow to a vertical position. Note: You may have to adjust the upper travel stop block to allow for full travel.
2. Disconnect the saw from the power supply.
3. Remove the oil drain plug (A) and drain the oil into a catch basin. Loosening oil fill plug (B) will help oil to drain.
4. After draining, replace drain plug (A).
5. Return the saw bow to a horizontal position.
6. Remove the fill plug (B) and add 0.32 quart of gear oil. (For reference use SHELL type gear oil or Mobil gear oil #90).
7. When the bow is in the horizontal position, the oil level should be at the midpoint of the sight glass (C).



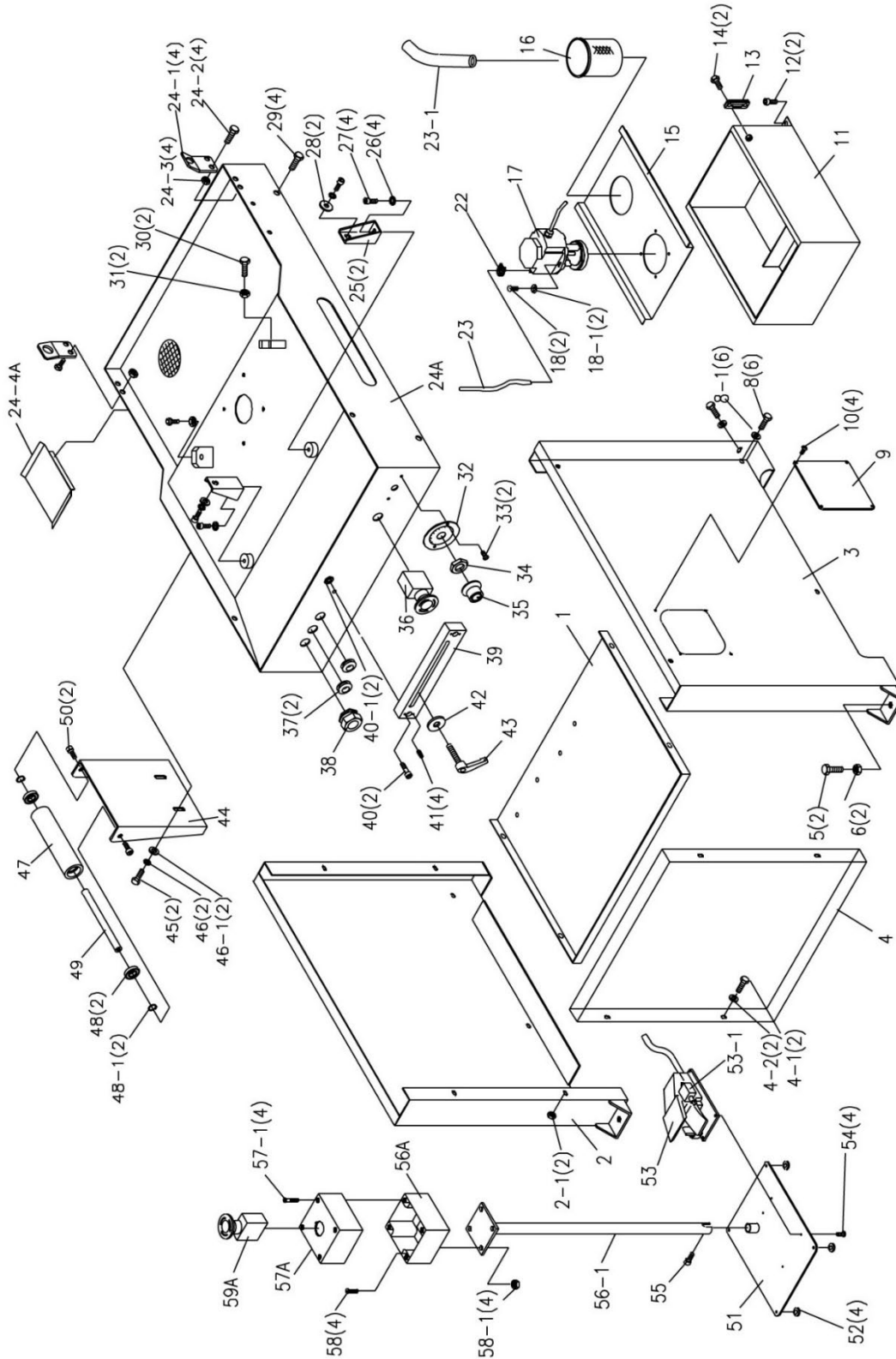
Storing Machine for Extended Period of Time

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.

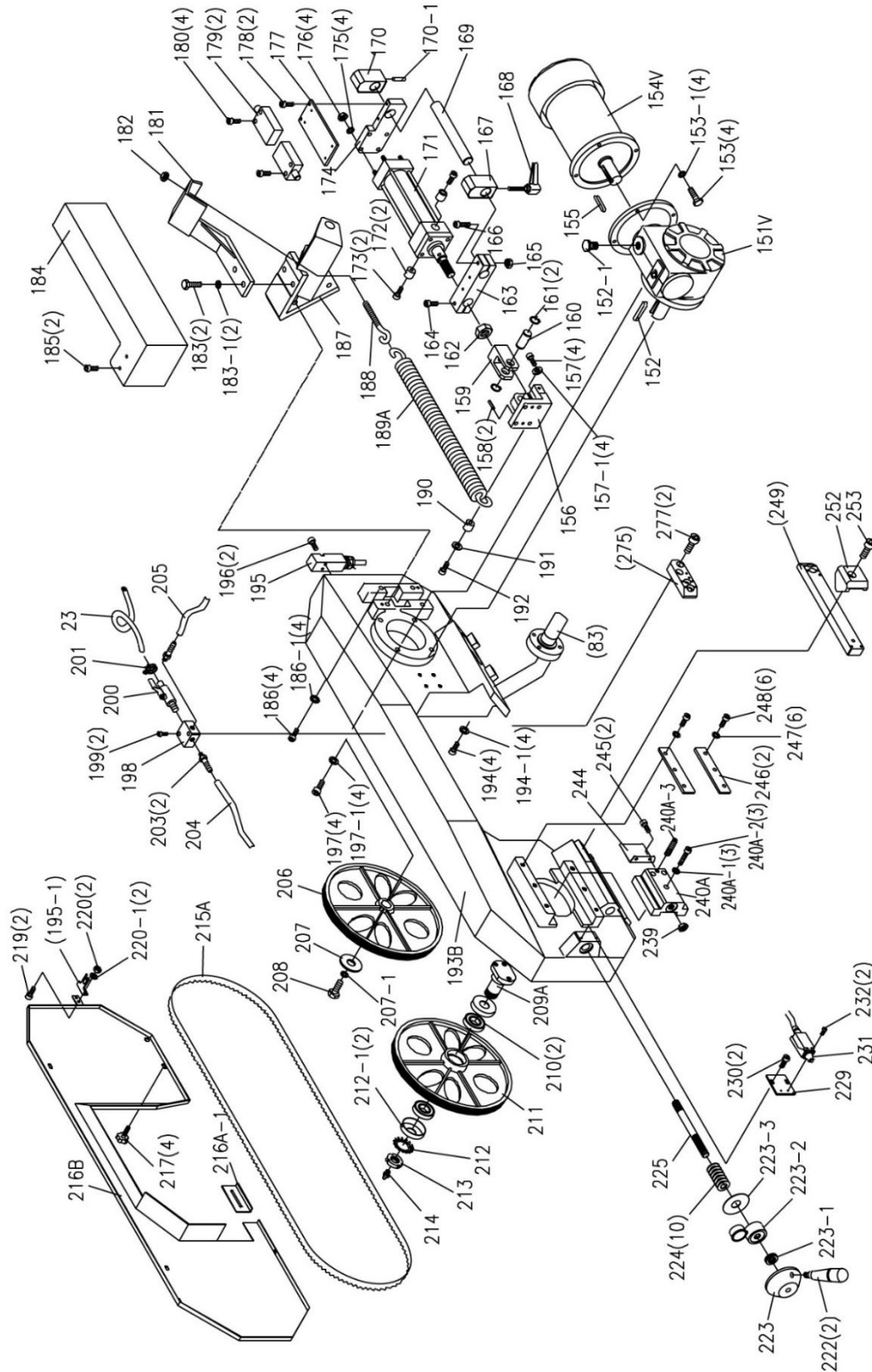


SAW BASE PARTS IDENTIFICATION DRAWING



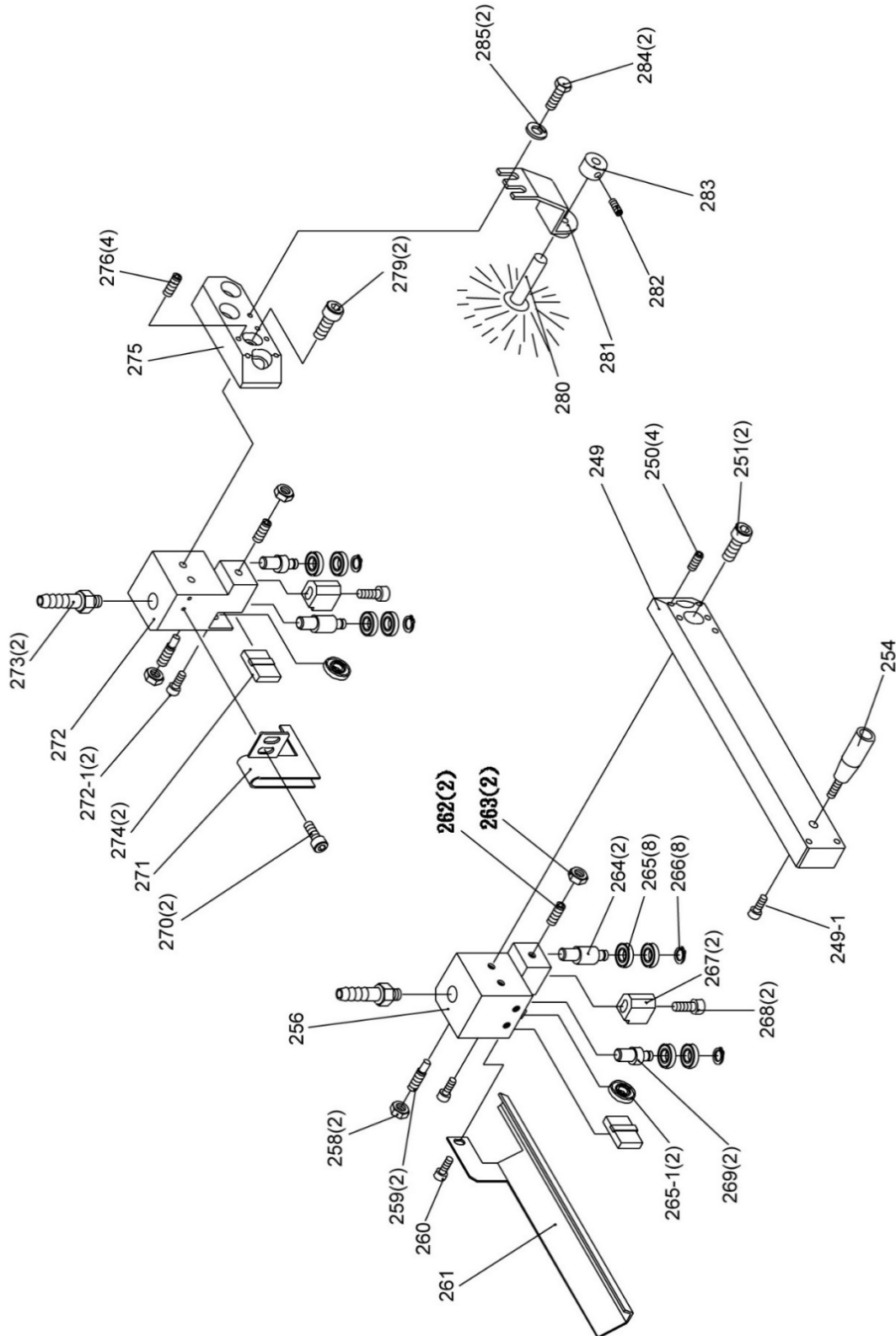


SAW BOW PARTS IDENTIFICATION DRAWING



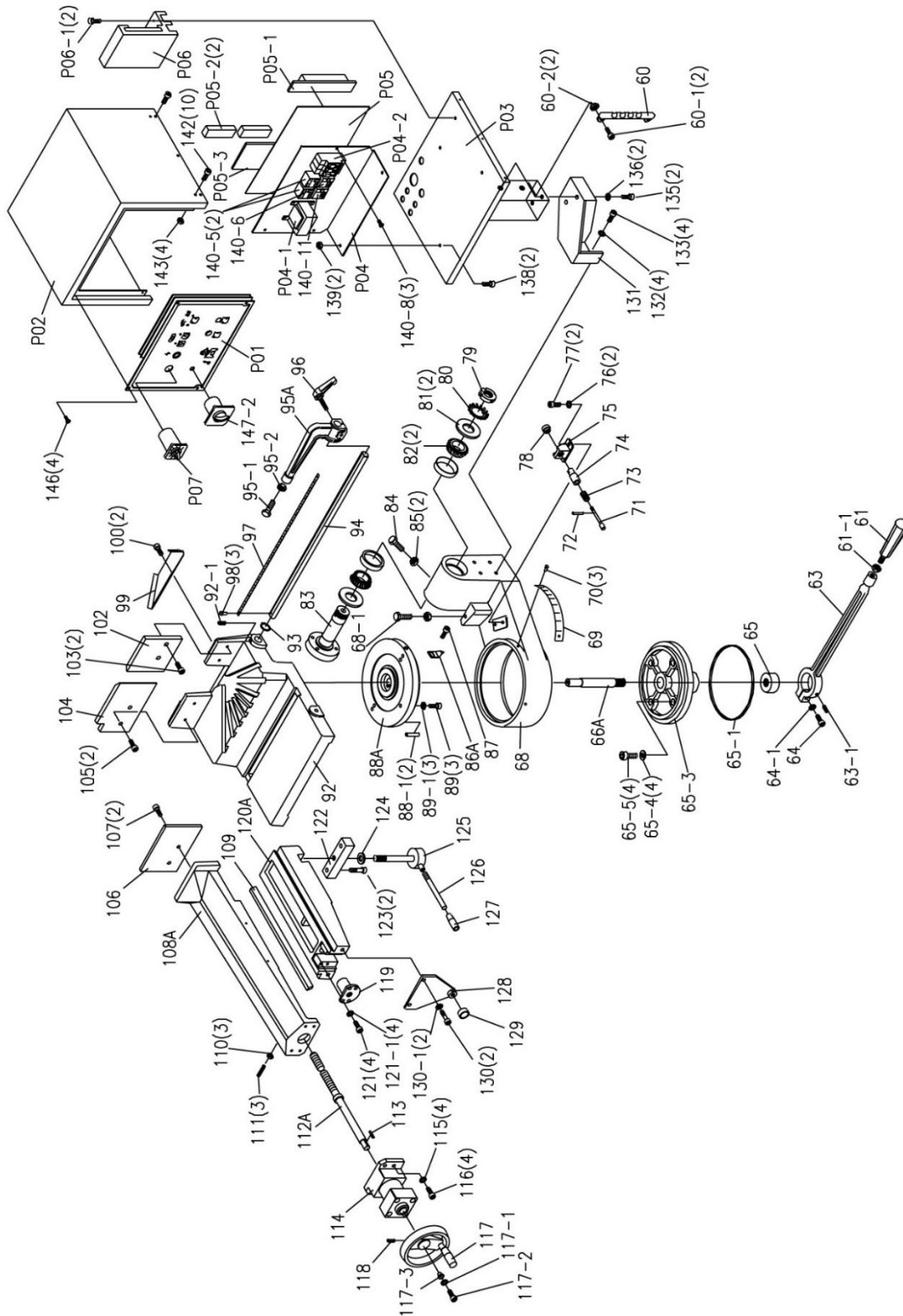


BLADE GUIDE PARTS IDENTIFICATION DRAWING





CONTROL AND VISE PARTS IDENTIFICATION DRAWING







Parts List

Index No	Part No.	Description	Size	Qty.
1	BS350SA-1	Base (Bottom Plate)		1
2	BS350SA-2	Base (Left Part)		1
2-1	BS350SA-2-1	Nut	M8	2
3	BS350SA-3	Base (Right Part)		1
4	BS350SA-4	Base (Front Part)		1
4-1	TS-1490021	Hex. Cap Bolt	M8x16	2
4-2	BS350SA-4-2	Nut	M8	2
5	TS-1492041	Hex. Cap Bolt	M12X40	2
6	BS350SA-6	Nut	M12	2
8	TS-1504031	Hex. Socket Cap Screw	M8X16	6
8-1	BS350SA-8-1	Washer	M8	6
9	BS350SA-9	Plate		1
10	TS-1502011	Hex. Socket Cap Screw	M5X8	4
11	BS350SA-11	Coolant Tank		1
12	TS-1490021	Hex. Cap Bolt	M8X16	2
13	BS350SA-13	Coolant Gauge		1
14	TS-1491041	Hex. Cap Bolt	M10X30	2
15	BS350SA-15	Tank Cover		1
16	BS350SA-16	Filter		1
17	BS350SA-17	Pump		1
18	BS350SA-18	Hex. Socket Cap Screw	M6X15	2
18-1	BS350SA-18-1	Washer	M6	2
22	BS350SA-22	Hose Clamp		1
23	BS350SA-23	Hose	5/16"X92.5"	1
23-1	BS350SA-23-1	Hose	1"X17.7"	1
24A	BS350SA-24A	Coolant and Chip Tray		1
24-1	BS350SA-24-1	Plate		4
24-2	TS-1491021	Hex. Cap Bolt	M10X20	4
24-3	BS350SA-24-3	Nut	M10	4
24-4A	BS350SA-24-4A	Block Plate		1
25	BS350SA-25	Mounting Bracket		2
26	BS350SA-26	Spring Washer	M10	4
27	TS-1505021	Hex. Socket Cap Screw	M10X20	4



Index No	Part No.	Description	Size	Qty.
28	BS350SA-28	Washer	M10	2
29	TS-1491021	Hex. Cap Bolt	M10X20	4
30	TS-1492041	Hex. Cap Bolt	M12X40	2
31	BS350SA-31	Nut	M12	2
32	BS350SA-32	Scale		1
33	BS350SA-33	Round Head Screw	M5X10	2
34	BS350SA-34	Nut		1
35	BS350SA-35	Switch		1
36	BS350SA-36	Emergency Switch	Ø25mm	1
37	BS350SA-37	Grommet		2
38	BS350SA-38	Grommet		1
39	BS350SA-39	Track		1
40	TS-1504071	Hex. Socket Cap Screw	M8X35	2
40-1	BS350SA-40-1	Nut	M8	2
41	TS-1523041	Set Screw	M6X12	4
42	BS350SA-42	Washer		1
43	BS350SA-43	Handle	M8X25	1
44	BS350SA-44	Roller Stand		1
45	TS-1492011	Hex. Cap Bolt	M12X25	2
46	BS350SA-46	Spring Washer	M12	2
46-1	BS350SA-46-1	Washer	M12	2
47	BS350SA-47	Roller		1
48	BB-6004ZZ	Ball Bearing	6004ZZ	2
48-1	BS350SA-48-1	C-Ring	S-20	2
49	BS350SA-49	Roller Shaft		1
50	TS-1505031	Hex. Socket Cap Screw	M10X25	2
51	BS350SA-51	Pedal Plate		1
52	BS350SA-52	Rubber Pad		4
53	BS350SA-53	Pedal Switch		1
53-1	BS350SA-53-1	Micro Switch		1
54	BS350SA-54	Round Head Screw	M4X8	4
55	TS-1503011	Hex. Socket Cap Screw	M6X8	1
56A	BS350SA-56A	Emergency Switch Box		1
56-1	BS350SA-56-1	Pipe		1
57A	BS350SA-57A	Switch Cover		1



Index No	Part No.	Description	Size	Qty.
57-1	BS350SA-57-1	Flat Head Cross Screw		4
58	BS350SA-58	Round Head Screw	M4X8	4
58-1	BS350SA-58-1	Nut	M4	4
59A	BS350SA-59A	Emergency Switch		1
60	BS350SA-60	Handle		1
60-1	TS-1504041	Hex. Socket Cap Screw	M8X20	2
60-2	BS350SA-60-2	Nut	M8	2
61	BS350SA-61	Handle		1
61-1	BS350SA-61-1	Nut	M12	1
63	BS350SA-63	Locking Lever		1
63-1	TS-1525031	Set Screw	M10X16	1
64	TS-1505051	Hex. Socket Cap Screw	M10X35	1
64-1	BS350SA-64-1	Spring Washer	M10	1
65	BS350SA-65	Shaft Nut		1
65-1	BS350SA-65-1	Oil Seal		1
65-3	BS350SA-65-3	Disk		1
65-4	BS350SA-65-4	Spring Washer	M8	4
65-5	TS-1504071	Hex. Socket Cap Screw	M8X35	4
66A	BS350SA-66A	Shaft		1
68	BS350SA-68	Swivel Arm		1
68-1	TS-149105	Hex. Cap Bolt	M10X35	1
69	BS350SA-69	Scale		1
70	BS350SA-70	Rivet	2mm	3
71	BS350SA-71	Pin		1
72	BS350SA-72	Hollow Pin	Ø2.5X16	1
73	BS350SA-73	Spring		1
74	BS350SA-74	Bushing		1
75	BS350SA-75	Bracket		1
76	BS350SA-76	Spring Washer	M8	2
77	TS-1504041	Hex. Socket Cap Screw	M8X20	2
78	BS350SA-78	Nut		1
79	BS350SA-79	Jam Nut	M40	1
80	BS350SA-80	Star Washer	M40	1
81	BS350SA-81	Anti-Dust Cover	M40	2
82	BS350SA-82	Ball Bearing	32008	2



Index No	Part No.	Description	Size	Qty.
83	BS350SA-83	Shaft		1
84	TS-2210451	Hex. Cap Bolt	M10X45	1
85	BS350SA-85	Nut	M10	2
86A	BS350SA-86A	Pointer		1
87	TS-1502011	Hex. Socket Cap Screw	M5X8	1
88A	BS350SA-88A	Cover		1
88-1	BS350SA-88-1	Hollow Pin	Ø6X20	2
88-2	TS-1524021	Set Screw (not shown)	M8X10	1
89	TS-1504071	Hex. Socket Cap Screw	M8X35	3
89-1	BS350SA-89-1	Spring Washer	M8	3
92	BS350SA-92	Table		1
92-1	TS-1523041	Set Screw	M6X12	1
93	BS350SA-93	C-Ring	S-20	1
94	BS350SA-94	Bar-Stop-Rod		1
95A	BS350SA-95A	Bar-Stop		1
95-1	TS-2210451	Hex. Cap Bolt	M10X45	1
95-2	BS350SA-95-2	Nut	M10	1
96	BS350SA-96	Handle	M10X35	1
97	BS350SA-97	Scale		1
98	BS350SA-98	Rivet	2mm	3
99	BS350SA-99	Chip Gutter		1
100	TS-1503011	Hex. Socket Cap Screw	M6X8	2
102	BS350SA-102	No-Burr Jaw		1
103	BS350SA-103	Hex. Socket Cap Screw	M6X15	2
104	BS350SA-104	Counter Vise Jaw		1
105	BS350SA-105	Hex. Socket Cap Screw	M6X15	2
106	BS350SA-106	Vise Jaw		1
107	BS350SA-107	Flat Head Machine Screw	M6X15	2
108A	BS350SA-108A	Vise		1
109	BS350SA-109	Dovetail Plate		1
110	BS350SA-110	Nut	M5	3
111	BS350SA-111	Set Screw	M5X25	3
112A	BS350SA-112A	Vise Screw for Hydraulic Drive		1
113	BS350SA-113	Key	5X5X20	1
114	BS350SA-114	Hydraulic Cylinder (Vise)		1



Index No	Part No.	Description	Size	Qty.
115	BS350SA-115	Spring Washer	M8	4
116	TS-1504051	Hex. Socket Cap Screw	M8X25	4
117	BS350SA-117	Hand Wheel		1
117-1	BS350SA-117-1	Spring Washer	M6	1
117-2	TS-1503061	Hex. Socket Cap Screw	M6X25	1
117-3	BS350SA-117-3	Bushing		1
118	TS-1524021	Set Screw	M8X10	1
119	BS350SA-119	Treaded Nut		1
120A	BS350SA-120A	Vise Seat		1
121	TS-1504041	Hex. Socket Cap Screw	M8X20	4
121-1	BS350SA-121-1	Spring Washer	M8	4
122	BS350SA-122	Vise Setting Plate		1
123	TS-1505051	Hex. Socket Cap Screw	M10X35	2
124	BS350SA-124	Setting Washer		1
125	BS350SA-125	Setting Screw		1
126	BS350SA-126	Setting Bolt		1
127	BS350SA-127	Handle		1
128	BS350SA-128	Setting Plate		1
129	BS350SA-129	Bushing		1
130	TS-1504041	Hex. Socket Cap Screw	M8X20	2
130-1	BS350SA-130-1	Spring Washer	M8	2
131	BS350SA-131	Electric Box Holder		1
132	BS350SA-132	Spring Washer	M8	4
133	TS-1504041	Hex. Socket Cap Screw	M8X20	4
135	TS-1505051	Hex. Socket Cap Screw	M10X35	2
136	BS350SA-136	Spring Washer	M10	2
138	TS-1503061	Hex. Socket Cap Screw	M6X25	2
139	BS350SA-139	Nut	M6	2
140-5	BS350SA-140-5	Magnetic Switch	C09/C12	2
140-6	BS350SA-140-6	Overload Relay		1
140-8	BS350SA-140-8	Hex. Cap Bolt	M6X15	3
140-11	BS350SA-140-11	Overload Relay		1
142	TS-1502011	Hex. Socket Cap Screw	M5X8	10
143	BS350SA-143	Nut	M5	4
146	BS350SA-146	Round Head Screw	M5X10	4



Index No	Part No.	Description	Size	Qty.
147-2	BS350SA-147-2	Main Connect Switch		1
151V	BS350SA-151V	Reduction Unit		1
152	BS350SA-152	Key	8X8X30	1
152-1	BS350SA-152-1	Vent Screw		1
153	TS-1490041	Hex. Cap Bolt	M8X25	4
153-1	BS350SA-153-1	Spring Washer	M8	4
154V	BS350SA-154V	DC Motor		1
155	BS350SA-155	Key	8X7X35	1
156	BS350SA-156	Anchoring Dowel		1
157	TS-1504051	Hex. Socket Cap Screw	M8X25	4
157-1	BS350SA-157-1	Spring Washer	M8	4
158	BS350SA-158	Hollow Pin	Ø6X20	2
159	BS350SA-159	Coupling Fork		1
160	BS350SA-160	Pin on Fork		1
161	BS350SA-161	C-Ring	S-20	2
162	BS350SA-162	Nut		1
163	BS350SA-163	Rod Supporting Block		1
164	TS-1505041	Hex. Socket Cap Screw	M10X30	1
165	BS350SA-165	Nut	M10	1
166	TS-1505061	Hex. Socket Cap Screw	M10X40	1
167	BS350SA-167	Adjustable Stop		1
168	BS350SA-168	Handle	M8X25	1
169	BS350SA-169	Stop Bar		1
170	BS350SA-170	Adjustable Stop		1
170-1	TS-1524021	Set Screw	M8X10	1
171	BS350SA-171	Hydraulic Cylinder (Arm)		1
172	BS350SA-172	Bushing		2
173	TS-1505031	Hex. Socket Cap Screw	M10X25	2
174	BS350SA-174	Upper Plate on Hydraulic Unit		1
175	BS350SA-175	Spring Washer	M8	4
176	BS350SA-176	Nut	M8	4
177	BS350SA-177	Setting Plate		1
178	TS-1503031	Hex. Socket Cap Screw	M6X12	2
179	BS350SA-179	Limit Switch	XCK-M102	2
180	TS-1502021	Hex. Socket Cap Screw	M5X10	4



Index No	Part No.	Description	Size	Qty.
181	BS350SA-181	Spring Holder		1
182	BS350SA-182	Nut	3/8"	1
183	TS-1492021	Hex. Cap Bolt	M12X30	2
183-1	BS350SA-183-1	Spring Washer	M12	2
184	BS350SA-184	Cylinder Guard		1
185	TS-1503131	Hex. Socket Cap Screw	M6X60	2
186	TS-1505051	Hex. Socket Cap Screw	M10X35	4
186-1	BS350SA-186-1	Spring Washer	M10	4
187	BS350SA-187	Cylinder Coupling		1
188	BS350SA-188	Spring Hook	3/8"	1
189A	BS350SA-189A	Spring		1
190	BS350SA-190	Setting Bushing		1
191	BS350SA-191	Washer	M8	1
192	TS-1504071	Hex. Socket Cap Screw	M8X35	1
193B	BS350SA-193B	Saw Arm		1
194	TS-1505051	Hex. Socket Cap Screw	M10X35	4
194-1	BS350SA-194-1	Spring Washer	M10	4
195	BS350SA-195	Limit Switch		1
195-1	BS350SA-195-1	Switch Pin		1
196	TS-1501091	Hex. Socket Cap Screw	M4X35	2
197	TS-1505051	Hex. Socket Cap Screw	M10X35	4
197-1	BS350SA-197-1	Spring Washer	M10	4
198	BS350SA-198	Pipe Fitting Seat		1
199	TS-1502071	Hex. Socket Cap Screw	M5X30	2
200	BS350SA-200	Coolant Switch		1
201	BS350SA-201	Hose Clamp		1
203	BS350SA-203	Pipe Fitting	1/4PX5/16	2
204	BS350SA-204	Hose	5/16"x15.7"	1
205	BS350SA-205	Hose	5/16"x35.4"	1
206	BS350SA-206	Drive Flywheel		1
207	BS350SA-207	Washer		1
207-1	BS350SA-207-1	Spring Washer	M10	1
208	TS-1491031	Hex. Cap Bolt	M10X25	1
209A	BS350SA-209A	Idle Flywheel Shaft		1
210	BB-32007	Roller Bearing	32007	2



Index No	Part No.	Description	Size	Qty.
211	BS350SA-211	Idle Flywheel		1
212	BS350SA-212	Star Washer	Ø35	1
212-1	BS350SA-212-1	Anti-dust Cover	M35	2
213	BS350SA-213	Jam Nut	M35	1
214	BS350SA-214	Oil Inlet	1/16	1
215A	BS350SA-215A	Saw Blade		1
216B	BS350SA-216B	Blade Cover		1
216A-1	BS350SA-216A-1	Extension		1
217	BS350SA-217	Plum Screw	M5X10	4
219	BS350SA-219	Round Head Screw	M4X8	2
220	BS350SA-220	Nut	M4	2
220-1	BS350SA-220-1	Spring Washer	M4	2
222	BS350SA-222	Handle		2
223	BS350SA-223	Handle Wheel		1
223-1	BB-51103	Thrust Bearing	51103	1
223-2	BS350SA-223-2	Blade Tension Gauge		1
223-3	BS350SA-223-3	Plate		1
224	BS350SA-224	Special Spring Washer		10
225	BS350SA-225	Tension Shaft		1
229	BS350SA-229	Plate		1
230	TS-1503031	Hex. Socket Cap Screw	M6X12	2
231	BS350SA-231	Limit Switch		1
232	TS-1501071	Hex. Socket Cap Screw	M4X25	2
239	BS350SA-239	Nut	M16	1
240A	BS350SA-240A	Slide Bracket		1
240A-1	BS350SA-240A-1	Spring Washer	M10	3
240A-2	TS-1505081	Hex. Socket Cap Screw	M10x50	3
240A-3	TS-1525051	Set Screw	M10x25	1
244	BS350SA-244	Cover Plate		1
245	TS-1503011	Hex. Socket Cap Screw	M6X8	2
246	BS350SA-246	Gib		2
247	BS350SA-247	Spring Washer	M8	6
248	TS-1504051	Hex. Socket Cap Screw	M8X25	6
249	BS350SA-249	Blade Guide Movable Rod		1
249-1	TS-1503011	Hex. Socket Cap Screw	M6x8	1



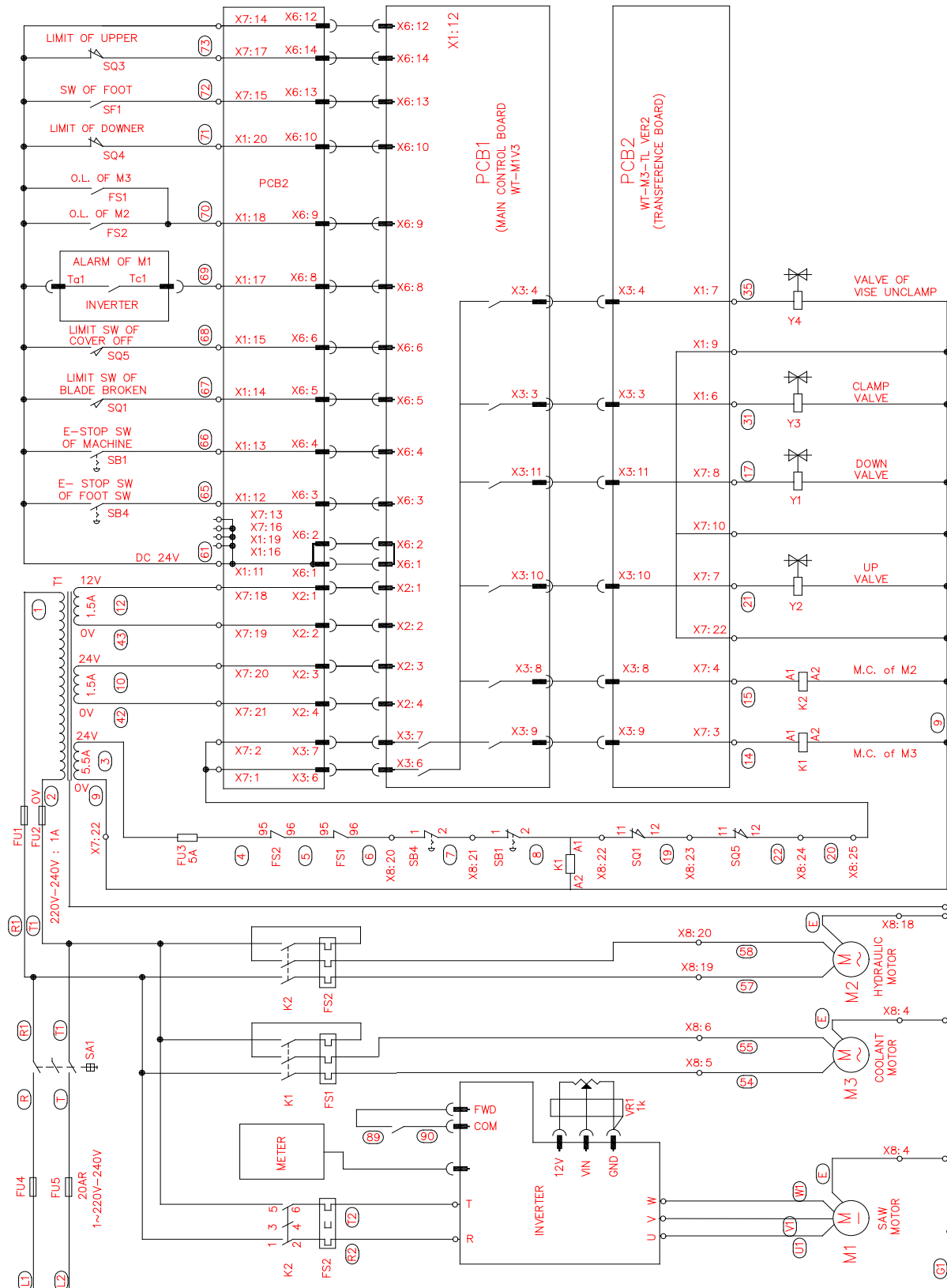
Index No	Part No.	Description	Size	Qty.
250	TS-1523041	Set Screw	M6X12	4
251	TS-1504041	Hex. Socket Cap Screw	M8X20	2
252	BS350SA-252	Setting Bracket		1
253	TS-1506071	Hex. Socket Cap Screw	M12X50	1
254	BS350SA-254	Handle		1
256	BS350SA-256	Guide Bracket		1
258	BS350SA-258	Nut	M10	2
259	TS-1525051	Set Screw	M10X25	2
260	TS-1503011	Hex. Socket Cap Screw	M6X8	1
261	BS350SA-261	Blade Guard		1
262	TS-1523041	Set Screw	M6X12	2
263	BS350SA-263	Nut	M6	2
264	BS350SA-264	Centric Shaft		2
265	BB-608ZZ	Ball Bearing	#608ZZ	8
265-1	BB-608ZZ	Ball Bearing	#608ZZ	2
266	BS350SA-266	E-Ring	Ø7	8
267	BS350SA-267	Blade Guide		2
268	TS-1503061	Hex. Socket Cap Screw	M6X25	2
269	BS350SA-269	Eccentric Shaft		2
270	TS-1503011	Hex. Socket Cap Screw	M6X8	2
271	BS350SA-271	Blade Guard		1
272	BS350SA-272	Guide Bracket		1
272-1	TS-1503031	Hex. Socket Cap Screw	M6X12	2
273	BS350SA-273	Pipe Fitting		1
274	BS350SA-274	Blade Guide		2
275	BS350SA-275	Ball Bearing Bracket		1
276	TS-1523041	Set Screw	M6X12	4
277	TS-1505031	Hex. Socket Cap Screw	M10X25	2
279	TS-1504041	Hex. Socket Cap Screw	M8X20	2
280	BS350SA-280	Brush		1
281	BS350SA-281	Brush Clamp		1
282	BS350SA-282	Set Screw	M5X5	1
283	BS350SA-283	Set Bushing		1
284	TS-1482021	Hex. Cap Bolt	M6X12	2
285	BS350SA-285	Washer	M6	2



Index No	Part No.	Description	Size	Qty.
325A	BS350SA-325A	Y Connector		1
326A	BS350SA-326A	Flow Control		1
327A	BS350SA-327A	Hose	8.2'	1
328A	BS350SA-328A	Hose	6.5'	1
329A	BS350SA-329A	Hose	6.5"	1
330A	BS350SA-330A	Hose	6.5'	1
331A	BS350SA-331A	Hose	4.9'	1
332A	BS350SA-332A	Manifold		1
333A	BS350SA-333A	Motor		1
334A	BS350SA-334A	Pump		1
335A	BS350SA-335A	Oil Gauge		1
336A	BS350SA-336A	Magnetic Solenoid	2D2	1
337A	BS350SA-337A	Magnetic Solenoid	3C4	1
337A-1	BS350SA-337A-1	Pilot Check Valve		1
338A	BS350SA-338A	Reducing Relief Valve	15–30Bar (217–435psi)	1
339A	BS350SA-339A	Oil Fill Port		1
340A	BS350SA-340A	Tank Cover		1
341A	BS350SA-341A	Tank		1
P01	BS350SA-P01	Control Panel		1
P02	BS350SA-P02	Electrical Box Cover		1
P03	BS350SA-P03	Electric Box Platform		1
P04	BS350SA-P04	Electric Parts Plate		1
P04-1	BS350SA-P04-1	Transformer		1
P04-2	BS350SA-P04-2	Fuse Block		1
P05	BS350SA-P05	Electric Parts Plate (Rear)		1
P05-1	BS350SA-P05-1	Contacts		1
P05-2	BS350SA-P05-2	IC Contacts		2
P05-3	BS350SA-P05-3	IC Plate		1
P06	BS350SA-P06	PC Board (DC Motor driver)		1
P06-1	BS350SA-P06-1	Round Head Screw	M4x15	2
P07	BS350SA-P07	Blade Speed Controller		1



ELECTRICAL SCHEMATIC





TROUBLESHOOTING



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

Electrical Components Diagnosis

1. No Power	Blown fuse	If a fuse is blown, check the related components for an over-load or short-circuit.
	A. No operation on single-phase	Check the power supply and fuses No. FU4, FU5 for normal condition.
	B. No DC24V (The white indicator light on the panel does not light)	Check the transformer's inputs FU1 and FU2 (1.6A) for normal condition. Check fuse FU1 (1A) on PCB1 for normal condition.
	C. No DC5V (The rest of indicator lights are failed.)	Check the transformer's inputs FU1 and FU2 (1.6A) for normal condition. Check fuse FU2 (1A) on PCB1 for normal condition.
	D. No AC24V power	Check the transformer's inputs FU1 and FU2 (1.6A) for normal condition. Check fuse FU3 (6A) on the distributor board for normal condition. Check the connection points of the safety limit switches at their locations on the machine for normal condition. -refer to the wire diagram No: WT/M3/C-01, connection wire No. 4, 5, 6, 7, 8, 19, and 20.
2. Hydraulic pump	Failure	Check on hydraulic motor M1 and see if it works. Check the pump for normal condition. Check AC contactor K1 for normal condition or over-load (FS1). Check the distributor board for voltage flow to Coil K1 (Wire No. 9 and 15).
	Pump works, but low pressure	Check the hydraulic flow for normal condition No contamination, lack of fluid, or leaking.
3. Saw bow	No operation	Check the hydraulic pump. Check the hydraulic flow for normal condition. Check the distributor board for voltage flow to Coil K1 (Wire No. 9 and 15). Check the signal of the hydraulic magnetic valve for normal condition (Bow up wire No. 9 and 21; bow down wire No. 9 and 17.)



4. Vise (Front, back)	No operation	Check the hydraulic pump. Check the hydraulic flow for normal condition. Check the control panel for voltage flow to Coil K1 (Wire No. 9 and 15). Check the signal of the hydraulic magnetic valve for normal condition (Vise close wire No. 9 and 31; vise open wire No. 9 and 35.)
5. Saw blade	Doesn't work	Check saw blade motor M2 for normal condition. Check speed control switch VR1 is not at the OFF position. Check the AC contactor K2 for normal condition or over-load (FS2) or DC motor driver PCB. Check on the distributor board for voltage flow to Coil K2 (Wire No. 9 and 14).
	Reversing	Check the blade motor M2 the wiring of motor phases. (M+ , M-)
6. Control panel	No operation	Check DC24V and DC5V (check the related components for an over-load or short-circuit.) Check the switches and see if each one is correctly positioned.
7. Speed control switch (VR1)	Indicator light blinking	Check the speed control switch VR1 position. Check the speed control switch VR1 for working order. Check the DC24V power supply for normal condition.
8. Saw blade	Blade broken indicator light blinking	Check the blade for damage or improper placement on flywheels. Check the limit switches for normal conditions (Check connection for wire No. 61 and 67.)
9. Blade cover	Indicator light blinking	Check the blade covers and see if both are properly located and closed. Check the limit switches for normal condition (Check the connection for wire No. 61 and 68.)
10. Motor M1, M2	Over-load indicator light blinking	Check the motor-loading for normal condition (neither over-loaded nor short-circuited.) Check the wire connections for normal condition (Check the connection points for wire No. 61, and 70 on FS1, No. 61, 69 on DC motor driver PCB.)
11. Saw bow Up & Down	Limit switches indicators blinking at the same time	This means that both limit switches are being pressed at the same time. Check the DC24V power supply for normal

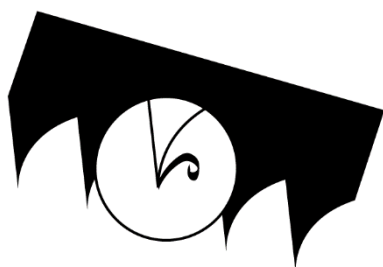
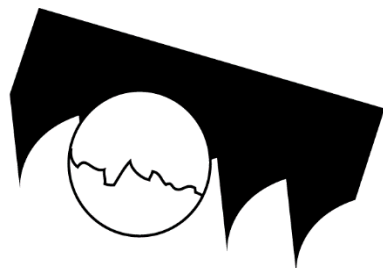


		condition. Check connections for each limit switch and that the wires are correctly connected (Check the Up-limit switch, wires No. 61, 73; Down limit switch, wires No. 61, 71.)
12. Emergency button	Indicator light blinking	See if the emergency switch is stuck. Check the wire connections (Wires No. 61, 66 in the emergency switch on saw body; wires No. 61, 65 for the emergency switch on the foot pad control.)
13. Foot pad	Switch not working	Check that the Hand/foot pad control operation selector (E) is properly switched. Check that foot pad switch is in working order. Check the wire No. 61, 72 for OK signal.
14. Other indicator lights	Warning signal	Refer to descriptions of other function switches.



Blade and Cut Diagnosis

TOOTH BREAKAGE

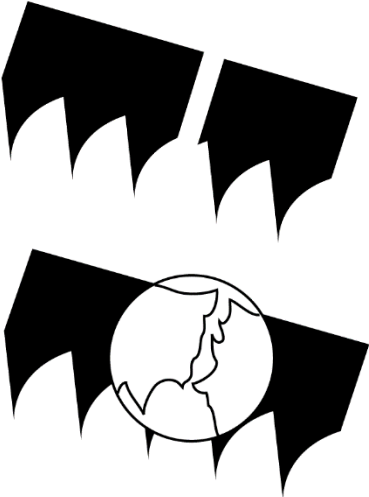
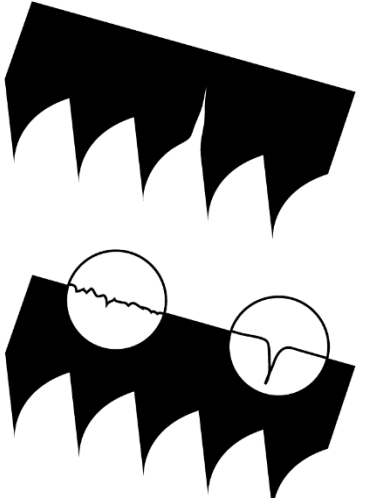


Too fast advance	Decrease advance, exerting less cutting pressure. Adjust the braking device.
Wrong cutting speed	Change speed and/or type of blade. See section on choosing a blade.
Wrong tooth pitch	Choose a suitable blade.
Chips sticking onto teeth and in the gullets or material that gums	Check for clogging of coolant drain holes on the blade-guide blocks and that flow is plentiful in order to facilitate the removal of chips from the blade.
Defects on the material or material too hard	Material surfaces can be oxidized or covered with impurities making them harder than the blade itself. Avoid cutting these materials and remove any such impurities as quickly as possible.
Ineffective gripping of the part in the vise	Check and reposition the piece part.
The blade gets stuck in the material.	Reduce feed and exert less cutting pressure.
Starting cut on sharp or irregular section bars.	Pay more attention when you start cutting.
Poor quality blade	Use a superior quality blade.
Previously broken tooth left in the cut.	Carefully remove all the parts left in.
Cutting resumed on a groove made previously.	Make the cut elsewhere, turning the part.
Vibrations	Check gripping of the part.
Wrong tooth pitch or shape	Replace blade with a more suitable one. Adjust blade guide pads.



	Insufficient or incorrect lubricating coolant. Teeth positioned in the direction opposite the cutting direction.	Check level of liquid in the tank. Increase the flow of lubricating coolant checking that the hole and the liquid outlet pipe are not blocked. Check the emulsion percentage. Turn teeth to correct direction. (The blade needs to be turned inside out.)
PREMATURE BLADE WEAR 	Faulty running-in of blade Teeth positioned in the direction opposite the cutting direction. Poor quality blade Too fast advance Wrong cutting speed Defects on the material or material too hard Insufficient or incorrect lubricating coolant.	Use slow speeds when making first few cuts. Generously spray the cutting area with lubricating coolant. Turn teeth to correct direction. (The Blade needs to be turned inside out.) Use a superior quality blade. Decrease advance, exerting less cutting pressure. Adjust the braking device. Change speed and/or type of blade. Material surfaces can be oxidized or covered with impurities making them harder than the blade itself. Avoid cutting these materials and remove any such impurities as quickly as possible. Check level of liquid in the tank. Increase the flow of lubricating coolant checking that the hole and the liquid outlet pipe are not blocked. Check the emulsion percentage.
BLADE BREAKAGE	Faulty welding of blade	The meeting surfaces must perfectly match and once they are welded, they must have no inclusions or bubbles; the welded blade must be perfectly smooth and even when sliding between the blade guide pads.



	Too fast advance	Decrease advance, exerting less cutting pressure. Adjust the braking device.
	Wrong cutting speed	Change speed and/or type of blade.
	Wrong tooth pitch	Choose a suitable blade.
	Ineffective gripping of the part in the vice. Blade touching material at beginning of cut	Check and reposition the piece part. At the beginning of the cutting process, never lower the saw bow before starting the blade motor.
	Blade guide pads not maintained or dirty because of lack of maintenance	Check distance between pads. Extremely close guiding may cause cracks and breakage of the tooth. Use extreme care when cleaning.
	Blade guide block too far from material to be cut.	Position head as near as possible to material to be cut so that only the blade section employed in the cut is free, this will prevent deflections that would excessively stress the blade.
	Improper position of blade on flywheels Insufficient or incorrect lubricating coolant	The back of blade rubs against the support due to deformed or poorly welded bands causing cracks and swelling of the back contour. Check level of liquid in the tank. Increase the flow of lubricating coolant checking that the hole and the liquid outlet pipe are not blocked.
STREAKED OR ETCHED BANDS	Damaged or chipped blade guide pads	Replace them.
	Tight or slackened blade guide bearings.	Adjust them (see machine adjustments section).
CUTS OFF THE STRAIGHT	Blade not parallel to the vise body.	Check location of the blade guide blocks in relation to the vise and adjust vertically. Adjust the vise head stop screws if the cut angles are off.



	Blade not perpendicular due to the excessive play between the guide pads and maladjustment of the blocks	Check and vertically re-adjust the blade guide blocks; reset proper side guide play.
	Too fast advance	Decrease advance, exerting less cutting pressure. Adjust the braking device.
	Worn out blade.	Replace the blade.
	Wrong tooth pitch	Depending on the material hardness and cross section dimensions of the material, select a different pitch blade.



NOTES



NOTES



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