



OPERATOR'S MANUAL

Metal Working



DUAL MITER BAND SAW MODEL: BS-20M-DM

Baileigh Industrial Holdings LLC
P.O. Box 531
Manitowoc, WI 54221-0531
Phone: 920.684.4990
Fax: 920.684.3944
sales@baileigh.com

REPRODUCTION OF THIS MANUAL IN ANY FORM WITHOUT WRITTEN APPROVAL OF BAILEIGH INDUSTRIAL HOLDINGS LLC IS PROHIBITED. Baileigh Industrial Holdings LLC, Inc. does not assume and hereby disclaims any liability for any damage or loss caused by an omission or error in this Operator's Manual, resulting from accident, negligence, or other occurrence.



Table of Contents

THANK YOU & WARRANTY	1
INTRODUCTION	3
GENERAL NOTES	3
SAFETY INSTRUCTIONS	4
SAVE THESE INSTRUCTIONS.	5
SAFETY PRECAUTIONS	6
Dear Valued Customer:	6
TECHNICAL SPECIFICATIONS	8
TECHNICAL SUPPORT	8
UNPACKING AND CHECKING CONTENTS	9
TRANSPORTING AND LIFTING	10
INSTALLATION	10
IMPORTANT:	10
Anchoring the Machine	11
OVERALL DIMENSIONS	12
GETTING TO KNOW YOUR MACHINE	13
ASSEMBLY	18
ELECTRICAL	21
BEFORE EACH USE	23
BLADE BREAKAGE	31
MATERIAL SELECTION	31
OPERATION	35
LUBRICATION AND MAINTENANCE	36
Blade Removal and Installation	37
Saw Blade Break-In	39
Accessing and Cleaning the Coolant System	40
SECTION A – PARTS BREAKDOWN	42
SECTION A – PARTS LIST	43



SECTION B – PARTS BREAKDOWN	47
SECTION B – PARTS PART LIST	48
SECTION C – PARTS BREAKDOWN	52
SECTION C – PARTS LIST	53
SECTION D – PARTS BREAKDOWN	58
SECTION D – PARTS LIST	59
SECTION E – PARTS BREAKDOWN	60
SECTION E – PARTS PART LIST	61
ELECTRICAL DIAGRAM	62
HYDRAULIC DIAGRAM	63



THANK YOU & WARRANTY

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

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

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

Limited Warranty. Seller warrants to the original end-user that the Goods manufactured or provided by Seller under this Agreement shall be free of defects in material or workmanship for a period of twelve (12) months from the date of purchase, provided that the Goods are installed, used, and maintained in accordance with any instruction manual or technical guidelines provided by the Seller or supplied with the Goods, if applicable. The original end-user must give written notice to Seller of any suspected defect in the Goods prior to the expiration of the warranty period. The original end-user must also obtain a RGA from Seller prior to returning any Goods to Seller for warranty service under this paragraph. Seller will not accept any responsibility for Goods returned without a RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 10 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

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

Limitation of Liability. IN NO EVENT SHALL SELLER BE LIABLE TO BUYER OR ANY OTHER PARTY FOR ANY 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 sales@baileigh.com



INTRODUCTION

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

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

In this manual you will find: (when applicable)

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

GENERAL NOTES

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

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

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



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



IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

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



SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

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



Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

A signal word – **DANGER**, **WARNING**, or **CAUTION** – is used with the safety alert symbol. **NOTICE**, which is not related to personal injury, is used without a symbol.

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

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

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

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

DANGER

WARNING

CAUTION

NOTICE

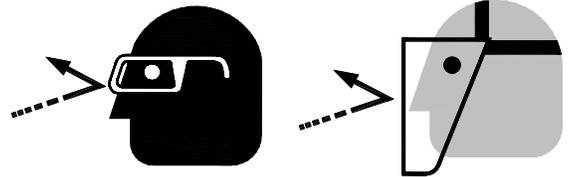


SAVE THESE INSTRUCTIONS.
Refer to them often and use them to instruct others.



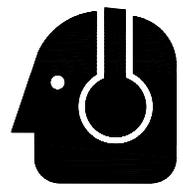
PROTECT EYES

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



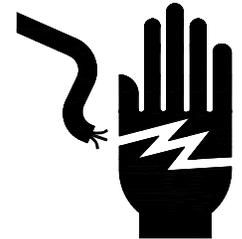
PROTECT AGAINST NOISE

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.



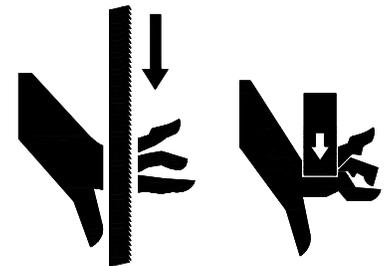
HIGH VOLTAGE

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



BEWARE OF CUT AND PINCH POINTS

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



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.



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



TECHNICAL SPECIFICATIONS

Capacity Rectangular	
90°	13" x 18.1" (330 x 460mm)
45°L	13" x 10.6" (330 x 270mm)
45°R	13" x 10.6" (330 x 270mm)
60°R	12.4" x 7.7" (315 x 195mm)
Capacity Round	
90°	13" (330mm)
45°L	12" (305mm)
45°R	12" (305mm)
60°R	8.5" (215mm)
Return	Manual
Miter Adjustment	Swivel Head
Miter Angle	0 - 45°L, 0 - 60°R
Blade Size (H x T x L)	1.33" x .043" x 162.6" (34 x 1.1 x 4130mm)
Blade Speed	69 – 306fpm (21 – 93mpm) Variable
Drive	Gear
Power	220V, 3ph, 60hz
Motor	3hp (2.2kw) 220V, 3ph, 60hz, 4P, 9A
Coolant Pump (prewired 220V)	1/6hp (.12kw) 220V, 1ph, 60/50hz, 2P, 0.6A
Coolant Tank Capacity	15gal. (56L)
Shipping Weight	2403lbs. (1090kg)
Shipping Dimensions	89.4" x 35.5" x 65.8" (2270 x 900 x 1670mm)

TECHNICAL SUPPORT

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

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



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



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



UNPACKING AND CHECKING CONTENTS

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

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

Cleaning

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

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

Your machine may be shipped with a rustproof waxy coating and/or grease on the exposed unpainted metal surfaces. Fully and completely remove this protective coating using a degreaser or solvent cleaner. Moving items will need to be moved along their travel path to allow for cleaning the entire surface. For a more thorough cleaning, some parts will occasionally have to be removed. **DO NOT USE** acetone or brake cleaner as they may damage painted surfaces.

Follow manufacturer's label instructions when using any type of cleaning product. After cleaning, wipe unpainted metal surfaces with a light coating of quality oil or grease for protection.



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



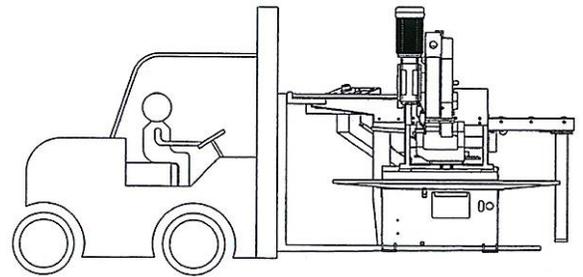


TRANSPORTING AND LIFTING

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

Follow these guidelines when lifting with truck or trolley:

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



INSTALLATION

IMPORTANT:

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

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.

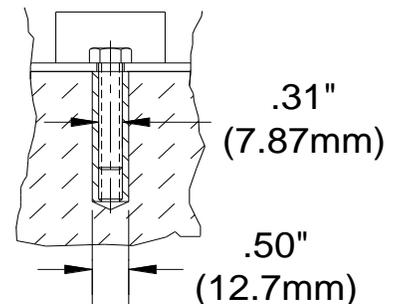


- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This 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

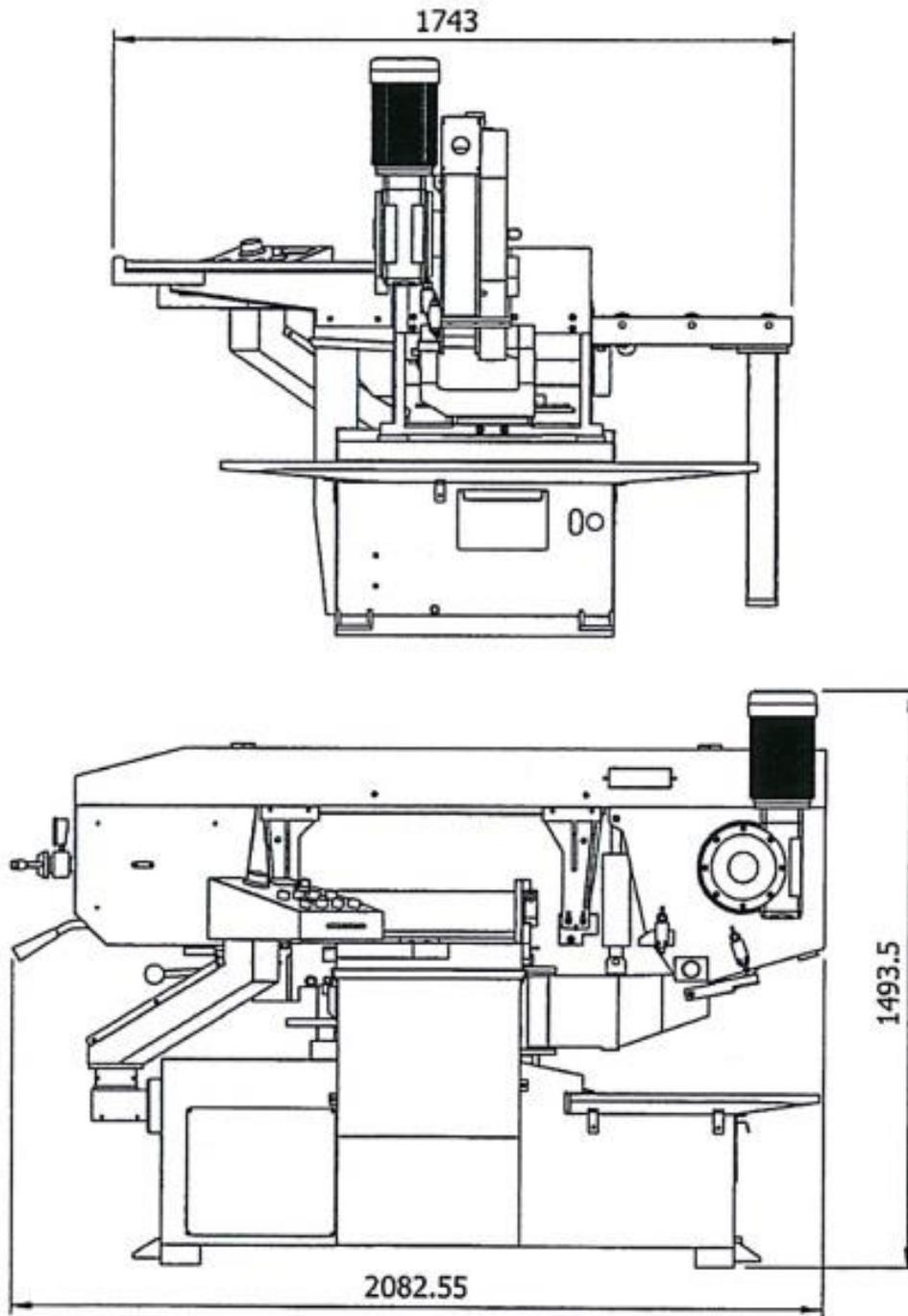
Once positioned, anchor the machine to the floor, as shown in the diagram. Use bolts and expansion plugs or sunken tie rods that connect through and are sized for the holes in the base of the stand.

This machine requires a solid floor such as concrete at a minimum of 4" (102mm) thick. 6" (153mm) minimum is preferred.



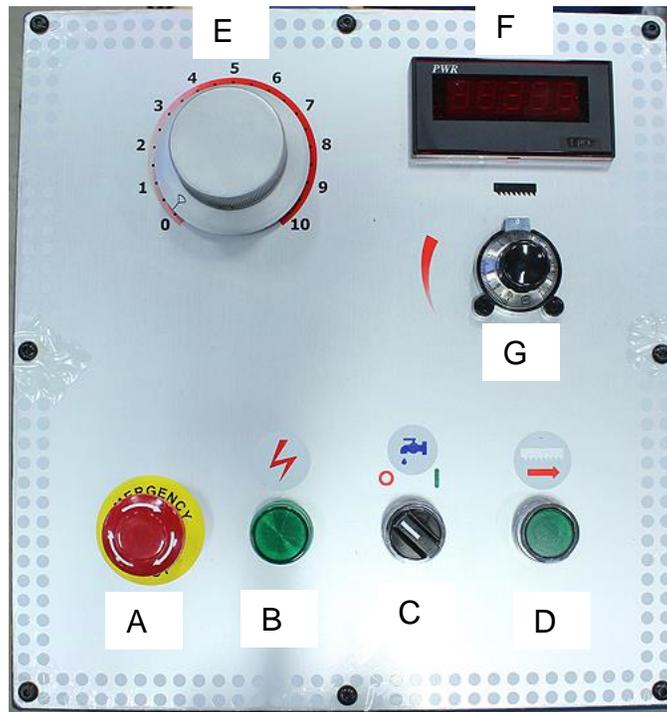


OVERALL DIMENSIONS





GETTING TO KNOW YOUR MACHINE



Item	Description	Function
A	Emergency Stop Button	Press to stop all machine functions, Turn the lock collar clockwise to release the switch and reset the main power.
B	Main power indicator light	Illuminates to indicate that main power is active.
C	Coolant start switch	Turn to start and stop coolant flow.
D	Saw cutting start button	Starts the saw blade.
E	Cutting rate adjusting knob	Adjusts the speed saw bow drop. Always adjust to Zero before raising the saw bow.
F	Blade speed readout	Indicates the speed of blade. This works in conjunction with speed control knob to give you precise control of blade speed.
G	Variable blade speed control knob	Adjust the blade running speed when cutting different material.



Saw Bow

Machine parts are consisting of drive members (gear motor, variable speed motor, and flywheels), Tightening and guide (blade tightening slide, blade guide blocks) of tool.

Base

The base is the structure supporting the saw bow (the bow pivot point and respective blocking system), the vises, and containing chip tray and coolant system.

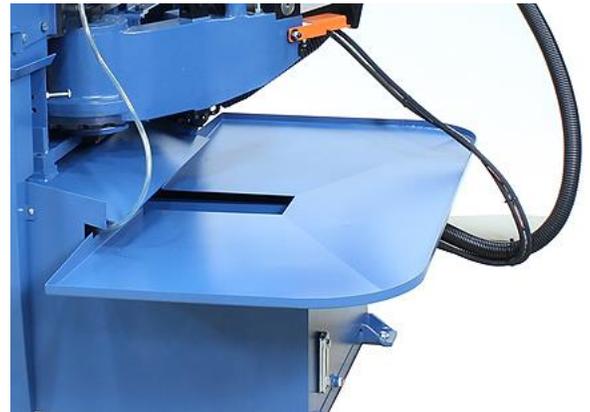


Note: BS-20SA-DM model shown.
BS-20M-DM does not have a clamping cylinder.



Drip Tray

Located above the coolant pump, the drip tray is a catch basin for the saw chips and coolant. It is funneled to allow the chips to be captured in the chip drawer while routing the coolant back to tank.



Chip Drawer

The chip drawer is located under the drip tray and is intended to capture the majority of the saw chips. This assists in chip cleaning and disposal as well as helping to prolong the usable life of the coolant.





Blade Brush

The blade brush is designed to clean chips and debris off of the blade and blade teeth. This is intended to help prolonging the life of the blade.

The blade brush is friction driven off of the edge of the blade idler wheel. The blade brush traction wheel needs clean firm contact to function properly.



Guide Post

The guide posts are the two posts that suspend down from a rail, and straddle the blade with carbide and roller bearings to support and guide the blade through the cut.

The back side (right as shown) guide post is stationary and does not move.

The front side (left as shown) is repositioned to allow for varying material sizes. It is to be set as close to the material as possible without interfering with the blade, vise or material.



Filler Cover

The filler cover is located at the front of the saw table. The filler cover should be removed whenever the saw is cutting at an angle and when the vise is to be moved to the front side of the blade.

Remove the filler cover by pulling on the handle and lifting up and off when the tabs have unlocked from the main table.





Miter Angle Lock Lever

The pivot platform is the structure that holds the saw bow and rotates horizontally for miter cutting up to 60° to the right and 45° to the left. Pull the lever to the right to release and turn bow to the desired angle. Once the bow is at the desired angle, push the level to the left to lock the position.

⚠ IMPORTANT: *When the bow is in the 90° or angled from 1° to 60° to the right, the vise must be positioned to the left side of the saw bow. The vise must be positioned to the right of the saw bow when cutting angles from 1° to 45° to the left. Failure to follow this guideline will damage the vise and possibly other saw components.*



Vise System

The vise is a lever operated cam over system that allows material to be securely and quickly clamped in position. There is a clamping lever on each side of the main vise ram to allow for easy access.

The operator can open the vise quickly with the initial cam over movement of the vise jaw and then advance the material. The cam action also provides the increased force used to secure the material when clamped.

The vise may be shifted from the left (normal) side of the bow to the right side of the bow when cutting left angles.



⚠ IMPORTANT: *When the bow is in the 90° or angled from 1° to 60° to the right, the vise must be positioned to the left side of the saw bow. The vise must be positioned to the right of the saw bow when cutting angles from 1° to 45° to the left. Failure to follow this guideline will damage the vise and possibly other saw components.*



Operational Limit Switches



Blade Breakage Limit Switch (A)

The blade breakage limit switch is located under the cover just inside from the blade tension knob. If the blade breaks, comes off of the drive wheels, or is too loose, the switch will open and prevent the saw from running.

Blade Cover Closed Limit Switch (B)

The blade cover limit switch is located under the cover on the back side of the idler wheel. This switch is engaged when the cover is closed. If the blade cover is open or not closed and secured, the switch will open and prevent the saw from running.

Bow Down Limit Switch (C)

The bow down limit switch is located just forward of the saw bow pivot point. The bow down limit switch stops the descent of the saw bow at the bottom of the cut.

The down limit switch contacts a bolt head and is set at the factory to provide a stop point at the bottom of the cut once the blade has cut through the material.

Once the down limit switch is activated, the blade will stop. The saw bow must be raised up and off of the down limit switch to start the saw blade again.

When the saw blade is stopped, the material may be advanced, and the operator may begin the next cut.



ASSEMBLY

⚠ 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 mounting hardware (bolts and washers) used to assembly the accessories to the saw are installed into the mounting location holes for shipping. Remove and retain the fasteners from the mounting locations and then secure the accessory item to the saw with these fasteners.

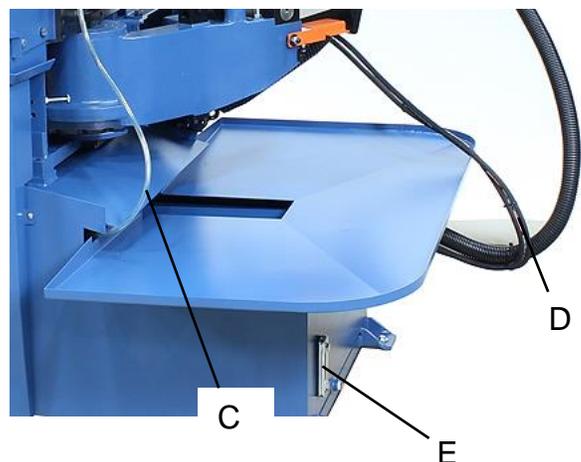
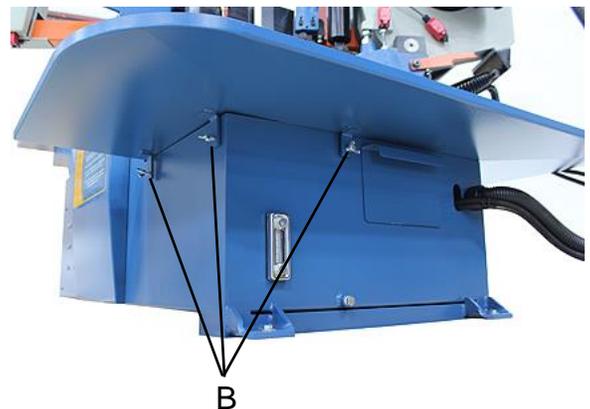
Coolant Drip Tray

1. Verify that all packing materials and or accessories have been removed from the coolant tank.



Note: While installing the tray, be watchful of the hoses and cables to avoid pinching.

2. Loosen the thumb bolts (B) (5, 3 shown) on the underside of the drip tray to allow the brackets to fit over the outside of the coolant tank.
3. Position the drip tray onto the coolant tank with the bracket to the outside of the tank.
4. Check the routing of the coolant hose (C), hydraulic hoses, and power cable (D) to be clear of the drip tray and avoid pinching or chaffing.
5. Evenly tighten the thumb bolts onto the side of the tank to hold the tray in position. Do not over tighten the bolts to the point that they bend the brackets.
6. Ensure that the debris tray and drain plug are properly installed and fill the coolant tank with coolant fit for your application, to the full mark on the sight gauge (E).



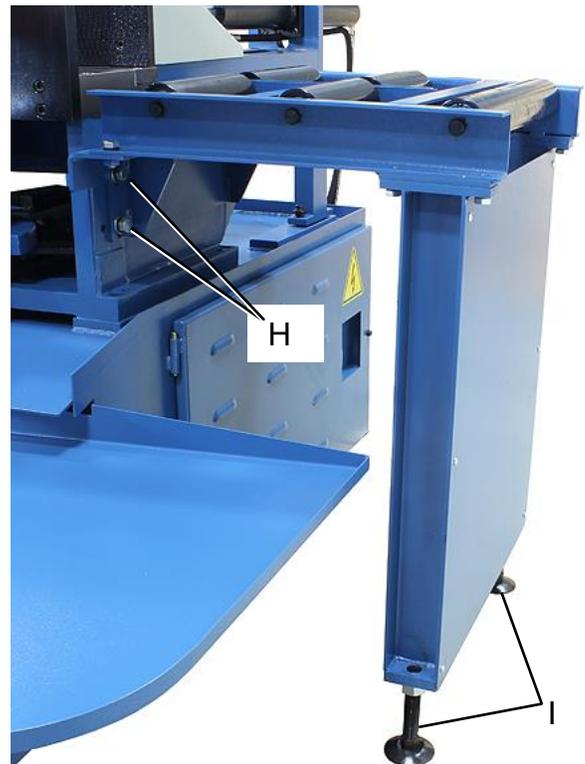
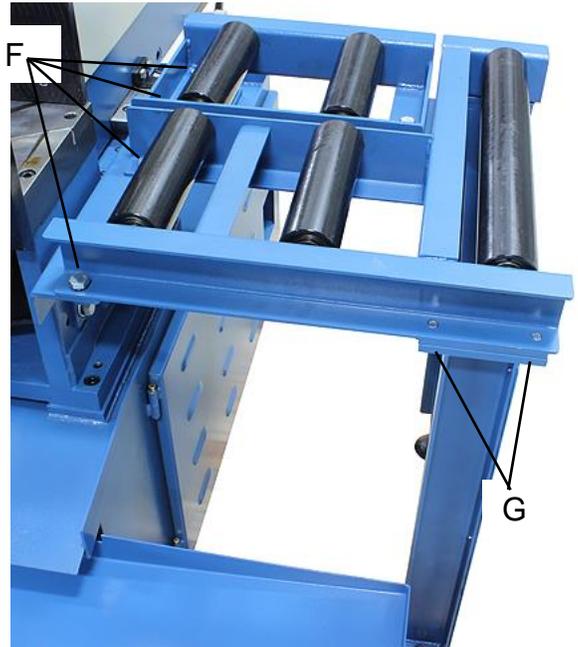


Material Feed



Note: These items are heavy and somewhat awkward for one person to hold in position. Use an assistant.

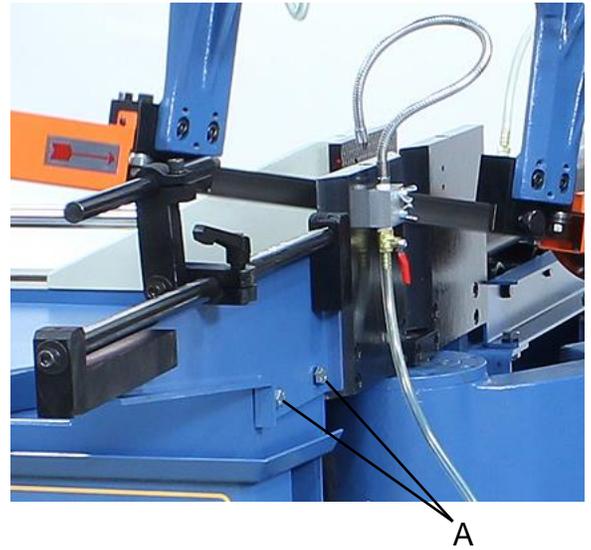
1. Remove the fasteners (F) on the mounting bracket.
2. Position the roller bed onto the support bracket aligning the four mounting holes.
3. Install and snug the four mounting bolts (F).
4. Support the outboard end of the feed rollers and remove the fasteners (G) from the underside of the feed roller bed.
5. Position the leg weldment under the roller table and secure using the four bolts (G) removed previous.
6. Place a straight edge across the vise table and rollers to set the roller table to be level with the vise table.
7. Loosen the four mounting bolts (H) securing the roller mounting bracket to the saw base.
8. Adjust the leveling feet (I) and the mounting bracket up or down as needed to level the roller table to the vise table.
9. When the two tables are aligned and level to each other, fully tighten all 12 mounting bolts (F, G, and H).
10. Tighten the jam nuts on the leveling feet to lock in position.





Material Stop

1. Remove the fasteners on the end of the vise bed.
2. Unwrap the material stop and position against the vise bed and install the fasteners removed earlier.
3. Once secure, move the vise stop rod to the desired position.





ELECTRICAL

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

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

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

Power Specifications

Your machine is wired for 220 volts, 60hz alternating current. Before connecting the machine to the power source, make sure the power source is OFF.

Before switching on the power, you must check the voltage and frequency of the power to see if they meet with the requirement, the allowed range for the voltage is $\pm 5\%$, 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.

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.

Rotation Check

5. Once hooked up, turn on the power supply and start and then stop the coolant pump watching that the shaft rotates as indicated.
6. If not, cut the power to the machine. Swap the position of any two of the three power wires; but DO NOT change the position of the green grounding wire!





BEFORE EACH USE

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

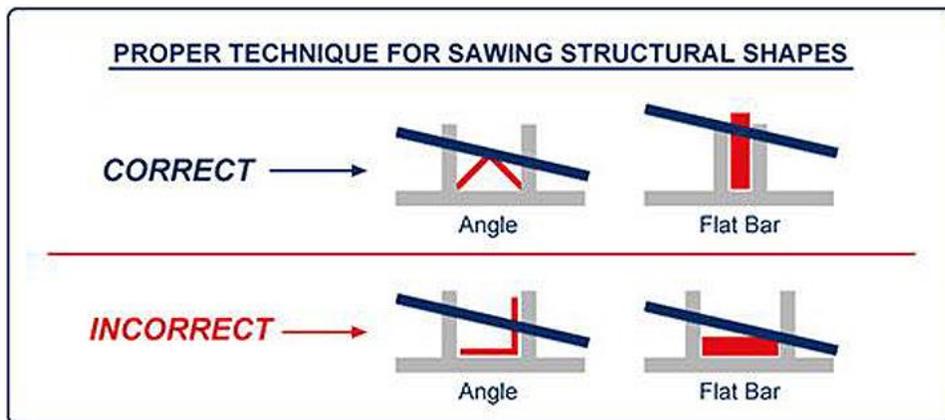
Whenever Saw is Running

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



Breaking in a Band Saw Blade

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



Metal Chip Indicators

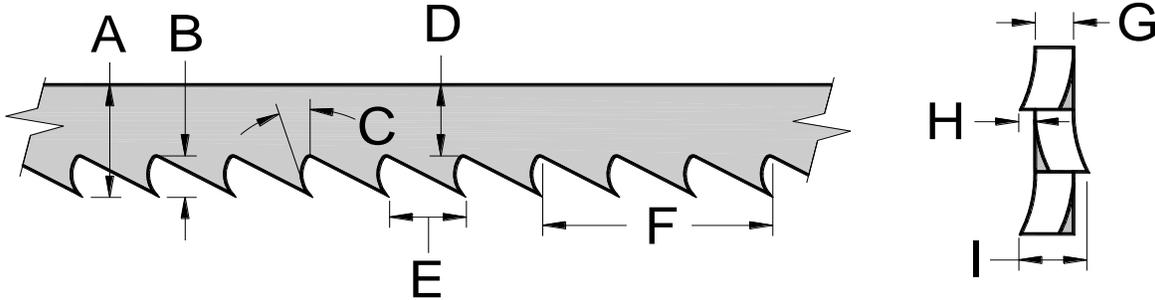
Chips are the best indicator of correct material feed force. Monitor chip information and adjust feed accordingly.

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

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



Blade Terminology



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

Width of Blade

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

Length of Blade

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

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

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 (HHS) cutting edge. The type of stocks are classified in M2, M42, M51 and differ from each other because of their major hardness due to the increasing percentage of Cobalt (Cc) and molybdenum (Mo) contained in the metal alloy.

Blade type

They differ essentially in their constructive characteristics, such as:

- Shape and cutting angle of tooth
- Pitch
- Set

Shape and angle of tooth

REGULAR TOOTH: 0° rake and constant pitch.



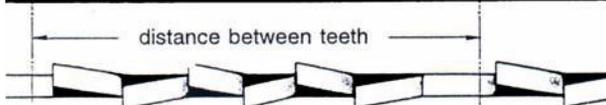
Most common form for transversal or inclined cutting of solid small and average cross-sections or pipes, in laminated mild steel and gray iron or general metal.

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).

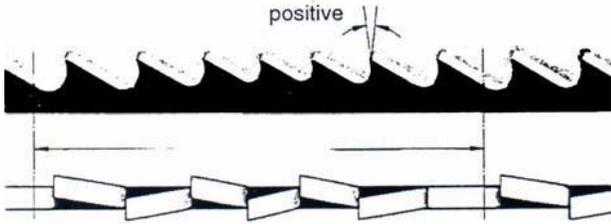
COMBO TOOTH: pitch varies between teeth and consequently varying teeth size and varying gullet depths. Pitch varies between teeth, which ensures a smoother, quieter cut and longer blade life owing to the lack of vibration.



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



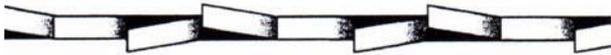
COMBO TOOTH: 9° - 10° positive rake.



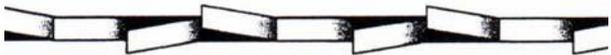
This type of blade is the most suitable for the cutting of section bars and large and thick pipes as well as for the cutting of solid bars at maximum machine capacity. Available pitches: 3-4/4-6.

SETS

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



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



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

WAVY SET: Set in smooth waves.



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

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



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

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



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



BLADE CARE

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

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

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

CHOOSING A SAW BLADE

A general purpose blade is furnished with this band saw.

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

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

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

Blade Selection Reference Table



Cutting Material	Round Tube	Angle and H or I Beam	Solid Round or Square	Solid Round or Rectangle	Solid Round or Rectangle	Solid Round or Rectangle
	<3mm	>5mm	>50mm	>100mm	>150mm	>300mm
Sawblade	<0.12"	>0.2"	>2"	>4"	<6"	<8"
(HSS)14T	▲					
(HSS)6/10T		▲				
(HSS)5/8T			▲			
(HSS)4/6T			▲	▲		
(HSS)3/4T				▲		
(HSS)2/3T					▲	▲
(HSS)1/2T						▲
(HCS)10T	▲					
(HCS)8T		▲				
(HCS)6T			▲			
(HCS)4T				▲		
(HCS)2T					▲	▲

HSS - HIGH SPEED STEEL
HCS = HIGH CARBON STEEL

- Never use a blade finer than required to obtain a satisfactory surface finish or satisfactory flatness. (Too many teeth engaged in the work piece will prevent attainment of a satisfactory sawing rate; frequently cause premature blade wear; frequently produce "dished" cuts or the cuts are neither square nor parallel.)
- The table is not expected to be correct for all cases. It is intended as a general guide to good sawing practices. Your blade supplier or qualified engineers should be your most reliable source for correct information on operational details of saw blades and their use.



Note:

- When cutting a thin walled pipe, angle steel, and I-beam steel, use a blade with 10T/in.
- When cutting pipe with a wall 1/2" or more in thickness, use a blade with 8-12T/in or 6-10T/in.
- When cutting angle steel, I-beam, or solid bar; cut the thinnest cross section of the material first. There must be at least three teeth cutting the material at all times.



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

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.)

MATERIAL SELECTION

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

When selecting materials keep these instructions in mind:

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



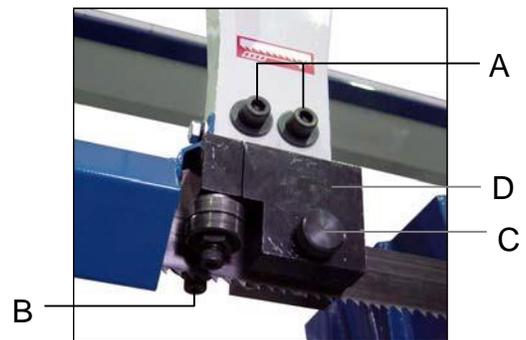
MACHINE SET UP and ADJUSTMENTS



WARNING: Unless specifically needed to complete the procedure, make sure the electrical disconnect is OFF before working on the machine.

Thrust Roller Adjustment

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



Guide Roller Adjustment

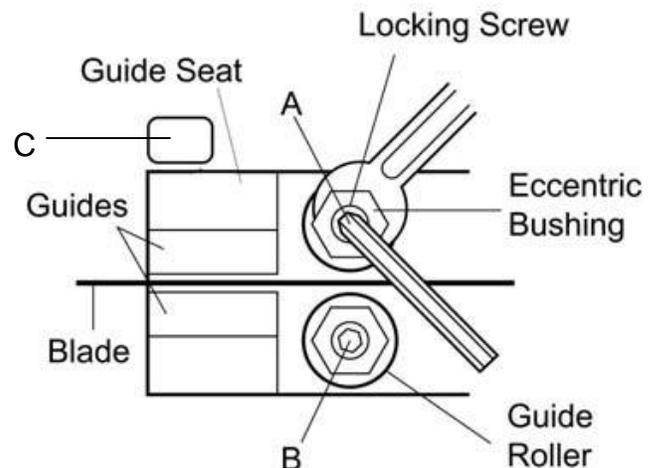


Note: Only bearing (A) is adjustable. Bearing (B) is fixed.

1. Disconnect machine from the power source.
2. Loosen blade guides by loosening guide adjustment screw (C).
3. Loosen locking screws (A) by using a hex wrench.
4. Adjust the eccentric bushings with a combination wrench until the ball bearings are snug to the blade (A). Do not pinch the blade.



Note: The blade should travel freely up and down between the ball bearings.



5. Tighten locking screws (A).
6. Connect machine to the power source.

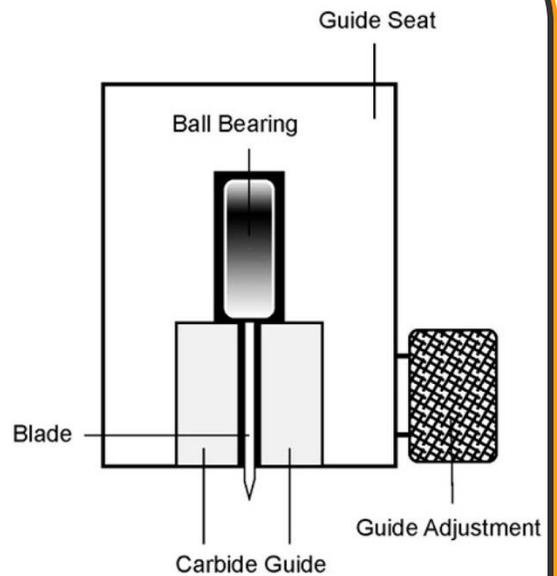


Tungsten Carbide Guides Adjustment

The blade is guided by the upper ball bearings, side ball bearings, and tungsten carbide guides.

When ready to cut the work piece, the carbide guide must be adjusted by adjusting the screws to properly compressed blade. The tungsten carbide blades should touch, but not pinch the blade.

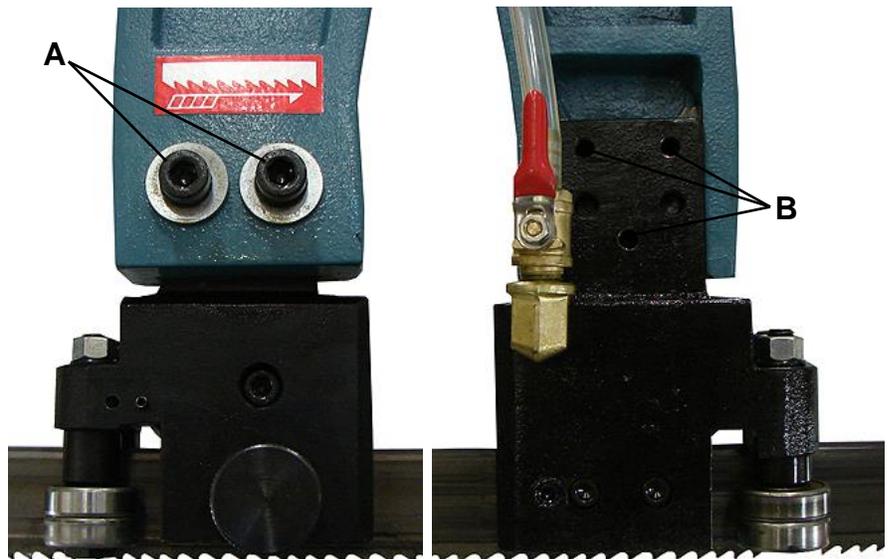
1. For moving the blade guide posts or changing blade, the tungsten carbide guides should be released by using the guide adjusting screw.
2. In case the blade needs to be replaced, make sure to always install the correct thickness blade.
3. To adjust the carbide guides, turn the guide adjustment clockwise until it is tight, then loosen it 1/16-1/8 of a turn. This should allow the blade to be pressed down ward approximate 1/8" (3mm). This movement should be snug, but smooth.



Cutting Precision Adjustment

The cutting precision has been set at the factory. This adjustment should only be accomplished by qualified personnel that are familiar with this type of adjustment.

1. Disconnect the machine from power supply.
2. Loosen the adjusting bolts (A) slightly.
3. On the back side of the guide, adjust the three setscrews (B) to adjust the alignment of the guide blocks so that the blade tracks perfectly straight between the guides.
4. After adjusting, tighten the adjusting bolts (A).





Blade Brush Adjustment

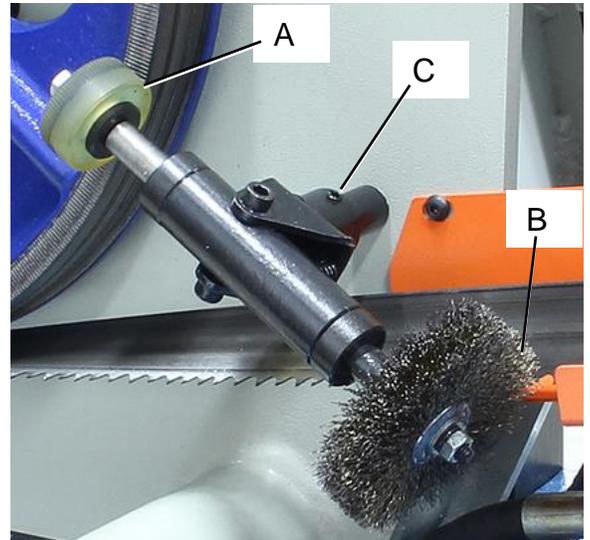
The brush will need to be adjusted as the brush wears away and also as the friction wheel wears.

The blade brush is spring loaded to apply force to the friction wheel against the blade idler wheel (A).

As the brush wears, the brush and holder assembly is slid inward on the mounting shaft to allow the brush to be held against the blade gullets (B) with only enough force to clean the chips.

Loosen the set screws (C) and slide the brush assembly inward or outward as needed to provide the wheel and blade contact.

Check that the assembly pivots freely from its own spring pressure.



Selecting the proper blade speed

Use the following chart for reference

CUTTING SPEEDS FOR VARIOUS MATERIALS		
MATERIALS	BLADE SPEED (FPM)	COOLANT REQUIRED
Free Cutting Steel 1100 & 1200 Series Low & Medium Carbon 1008- 1045	256	YES
1046 – 1095 Alloy Steels	137, 198	YES
Tool Steels	137,198	
Pipe & Structures	92, 137	
Nickel Base Alloys	137, 198	
Cooper Base Alloys	92, 137	
Stainless Steels 430F, 416, 420F, 303	137, 198 137, 198	YES
Cast Iron	137, 198	NO OIL BLADE

- Blade speeds higher than recommended will quickly dull the blade. Blue chips are evidence of excessive blade speed.
- Lower than recommended speeds will not prolong blade life, and will require a reduced feed rate
- Reduced speeds may be helpful in reducing vibration, and will increase blade life in that case.



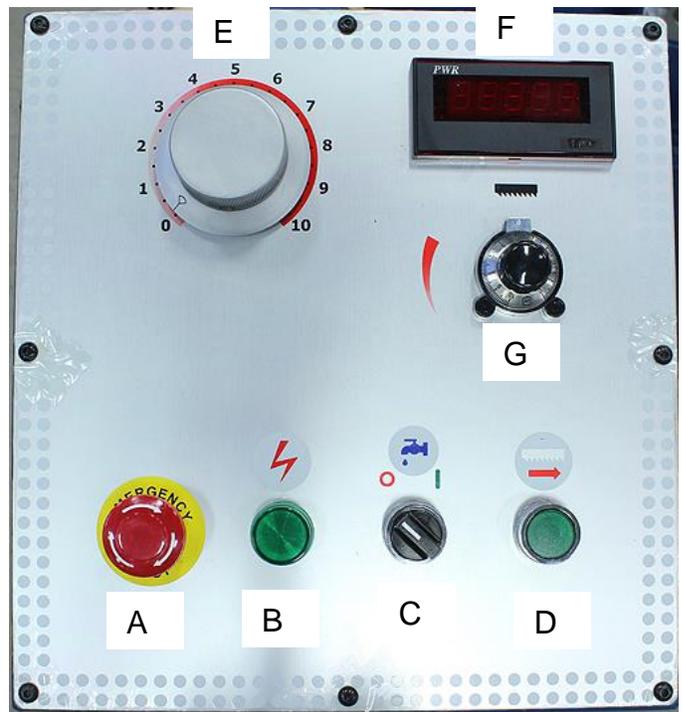
OPERATION

⚠ CAUTION: Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges. When handling large heavy materials make sure they are properly supported. **NEVER** operate saw without blade guards in place.

Starting the Saw

When ready to perform a cutting operation, set up the saw to match the material to be cut.

1. Set the descent control knob (E) to the ZERO position to prevent the bow from lowering into the material until completely ready.
2. Reset the emergency stop button (A) to supply power to the controls. The power lamp (B) will be illuminated.
3. Lift the saw bow as needed to provide the clearance to set the saw angle and load the material.
4. Set the saw to the desired left or right angle. Remove the filler cover if an angle is to be cut.
5. Set the vise to a position which will clamp the material and not interfere with the saw blade and bow travel.
6. Set the guidepost as close to the material as possible without interfering with the cut or the vise.
7. If desired, set the material stop to set a desired cut length.
8. Load and clamp the material at the desired length.
9. Verify that blade is clear of any obstructions and start (D) the saw blade.
10. Set the blade speed (G) as is needed for the material to be cut.
11. Start the coolant flow (C).
12. Adjust the descent control knob (E) to the rated needed for the material being cut.
13. Allow the saw to complete the cut and stop the blade.
14. Always set the descent control knob (E) to ZERO before raising the saw bow.





Stopping the Saw

1. If needed, press the emergency stop button (A) to stop the saw and the cut.
2. Make and corrections of repairs before starting to cut again.

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

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

Weekly

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

Monthly

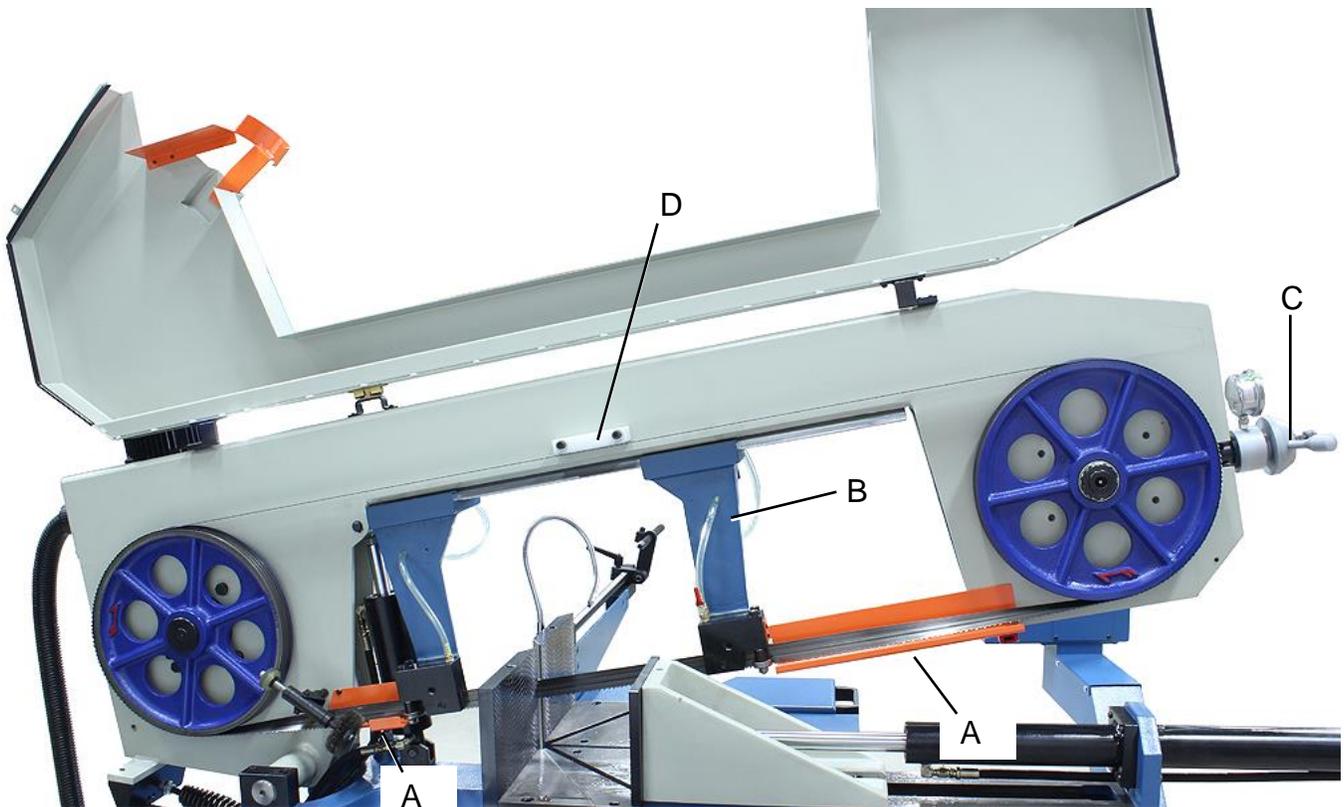
- Check the tightness of the drive wheel screws.
- Check that the blade guide bearings on the heads are in perfect running condition.
- Check the tightness of the screws for the motor, pump, and accident protection guards.



Blade Removal and Installation

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

Blade changes are periodically required when they become worn or to match the properties of varying materials.



1. Raise the saw bow approximately 6" in height.
2. Disconnect the machine from the power source.
3. Remove the hand bolts from each end of the saw blade cover and lift and latch the cover in the open position.
4. Remove the orange blade guards (A) from the base of the guide post and saw bow.
5. Release the tension on the carbide guides by turning the knob counter clockwise 1/4-1/2 turn.

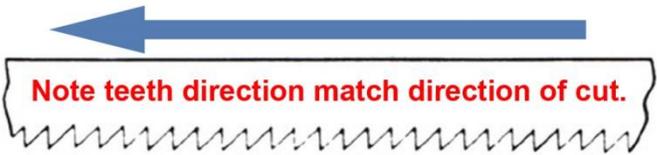


6. Loosen moveable blade guide (B) post lock handles and slides it to the right side (toward the stationary post) as far as possible.
7. Release the blade tension. Turn the blade tension handle (C) to "Loosen" position to free the blade.

⚠ CAUTION: Even dull blades are sharp to the skin! Use extra caution handling band saw blades! Wear gloves for protection from the sharp blade!

8. Remove the old blade from both wheels and out of each blade guide.
9. Using compressed air, blow out metal chips and grit from between the bearings, blade guides, and inside of the blade guards and covers.

10. Place the new blade in the carbide guides, and then slide the blade over the wheels and under the blade guide block (D). The teeth should be pointing towards the drive side as they pass through the carbide guides. The blade teeth should protrude from 4.5mm to 5mm from the face of the blade wheels.



11. With the blade in place, turn the tension handle (C) to the "Tighten" (center of the green range) to tension the blade.
12. Set the carbide guides. Tighten the two carbide adjustment knobs until they are tight on the blade and then loosen 1/16 – 1/8 turn.
13. Turn the blade wheels by hand a few rotations to check that the blade is tracking correctly on the blade wheels.
14. Close all covers and fasten all guards.
15. Connect machine to power and run the blade freely for one minutes.
16. Turn the power OFF.



17. Recheck the blade tension and chip brush contact and tracking.
18. If further adjustment is necessary disconnect the saw from the power source, make adjustments, re- connect the power, and then test again.



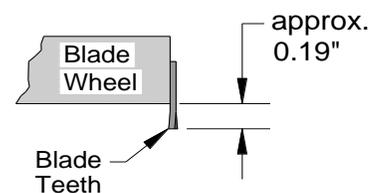
Saw Blade Break-In

When a new blade is used, be sure to first break in the blade before using it for extended operation. Failure to break in the blade will shorten the service life of the blade and result in less than optimum efficiency.

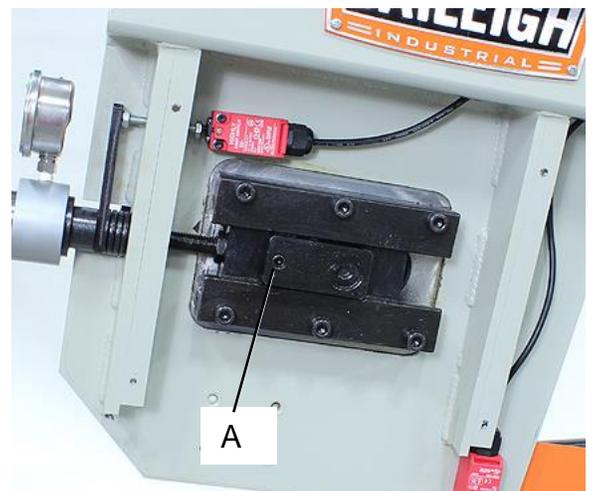
1. Reduce the blade speed setting to one half of its normal setting.
2. Lengthen the feed rate time required for cutting to 2-3 times that of normal.
3. The break-in operation can be considered sufficient if all unusual noises or metallic sounds have been eliminated. For instance, to completely break in the blade, a minimum of five complete cuts of 8" (200mm) diameter work-piece will be required.
4. After the break-in operation has been completed, return the blade speed and feed rate to their normal setting.

Blade Tracking Adjustment

When the blade is installed and tracking correctly, the tips of the blade teeth will be evenly positioned .17"-.19" (4.5-5mm) beyond the edge of the wheels with only light contact on the wheel flange. The blade tracking is factory set and should not require any adjustment. If a tracking problem occurs, adjust the machine as follows:



1. Raise saw arm 4" - 6" (102 - 127mm) above the horizontal position to a usable height.
2. Disconnect the machine from the power source.
3. Remove the front side idler wheel cover.
4. Locate tracking adjustment bolt (A) on the blade tension slide block.
5. Tracking adjustment is accomplished by either raising or lowering adjusting screw A.
6. Tracking is set properly when the tips of the blade teeth will be evenly positioned .17"-.19" (4.5-5mm) beyond the edge of the wheels with only light contact on the wheel flange.



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

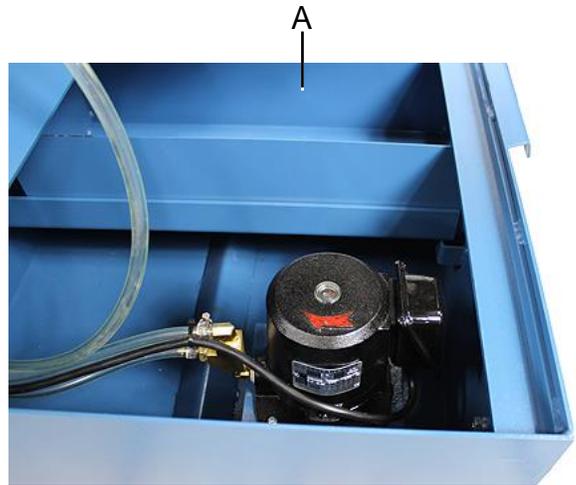
7. Install and secure the front side idler wheel cover.
8. Connect machine to the power source.



9. Run the saw in pulses to observe the blade tracking. Each pulse may be slightly longer until you are confident that the blade is tracking correctly.

Accessing and Cleaning the Coolant System

1. Raise the bow to the maximum height and stop the machine and lock out power.
2. Clean the chips and debris from the saw and vise table.
3. Remove the drip tray. (See Assembly Section)
4. Remove the chip drawer (A) and empty the chips and clean the screens.
5. Using a suitable container, remove the drain plug and drain the coolant tank.
6. Flush and clean the tank, pump, and pump inlet and replace the drain plug.
7. Install the chip drawer.
8. Re-fill tank with coolant solution to the full level on the sight glass.
9. Install the drip tray. (See Assembly Section)



Oils for Lubricating Coolant

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

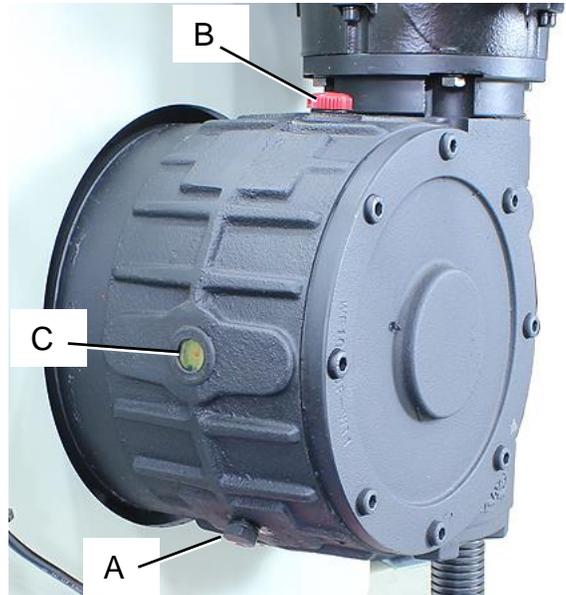


Changing Gear Oil

The gearbox requires periodic changing of oil. The oil must be changed by the first 6 months of a new machine and every year thereafter.

To change the gear box oil:

1. Lower the saw bow to as near to horizontal as the limit switch will allow.
2. Disconnect the machine from the power source.
3. Using a suitable container, remove the drain plug (A) and drain the gear oil into the container.
4. When the oil is drained, replace the drain plug (A).
5. Remove the filler/vent cap (B) and fill the gear box with oil up to center of the oil sight gauge (C). For reference use SHELL type gear oil or Mobil gear oil #90.
6. Replace the fill/vent cap (B).



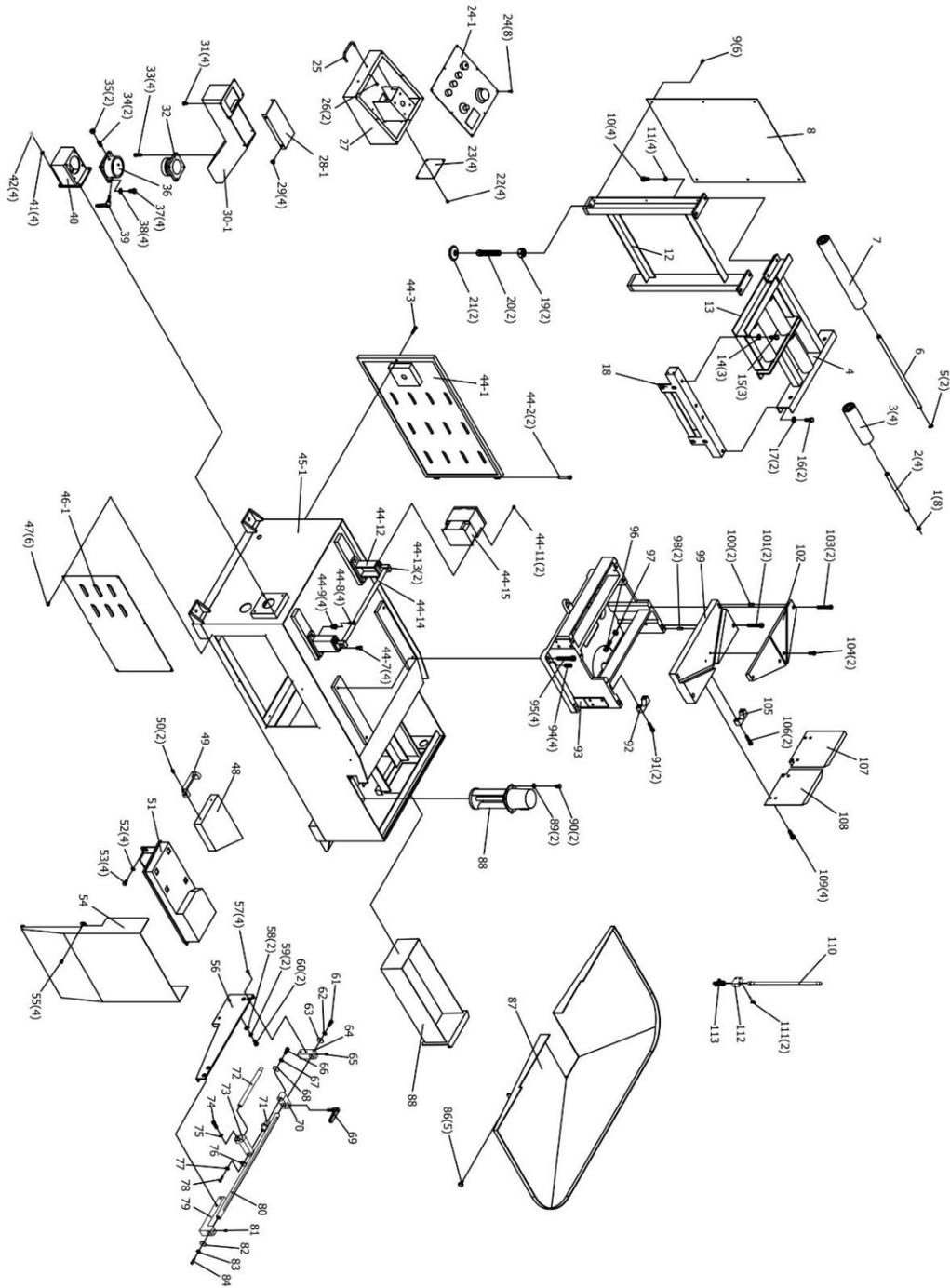
Storing Machine for Extended Period of Time

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.



SECTION A – PARTS BREAKDOWN





SECTION A – PARTS LIST

Index No	Part No.	Description	Size	Q'ty
1	BS20MDM-A1	C Ring	S17	8
2	BS20MDM-A2	Short Roller Shaft	S20A2-04-A	4
3	BS20MDM-A3	Short Roller	S20A2-04	4
4	BS20MDM-A4	Roller Stand	S20A3-17	1
5	BS20MDM-A5	C Ring	S17	2
6	BS20MDM-A6	Long Roller Shaft	S20A2-04-B	1
7	BS20MDM-A7	Roller	S1380207-1	1
8	BS20MDM-A8	Roller Stand Cover	S20A3-17-D	1
9	F009884	Button Head Socket Screw	M5x8L	6
10	TS-1517011	Hex. Cap Screw	M12x25L	4
11	TS-2361121	Lock Washer	M12	4
12	BS20MDM-A12	Stand	S20A3-17-C	1
13	BS20MDM-A13	Roller Adjusting Plate	S20A3-17-B	1
14	TS-2361121	Lock Washer	M12	3
15	TS-1517011	Hex. Cap Screw	M12x25L	3
16	TS-1517011	Hex. Cap Screw	M12x25L	2
17	TS-2361121	Lock Washer	M12	2
18	BS20MDM-A18	Position Bracket	S20A3-17-A	1
19	BS20MDM-A19	Nut	M22	2
20	BS20MDM-A20	Bolt	L25A2-31	2
21	BS20MDM-A21	Cushion		2
22	F009884	Button Head Socket Screw	M5x8L	4
23	BS20MDM-A23	Control Panel Rear Cover	S20A3-06-A	1
24	F009884	Button Head Socket Screw	M5x8L	8
24-1	BS20MDM-A24-1	Control Panel	NPB-015	1
25	BS20MDM-A25	Handle A-42-C	330S0418	1
26	TS-2246082	Button Head Socket Screw	M6x8L	2
27	BS20MDM-A27	Control Box	S20A3-06	1
28-1	BS20MDM-A28-1	Bracket Cover	S20A3-07-C	1
29	TS-2246082	Button Head Socket Screw	M6x8L	4
30-1	BS20MDM-A30-1	Control Box Bracket	S20A3-07-B	1
31	TS-2245081	Hex. Cap Screw	M5x8L	4
32	BS20MDM-A32	Swiveling Bracket	331D1-18	1
33	TS-1514021	Hex. Cap Screw	M6x16L	4
34	TS-1524051	Set Screw	M8x20L	2
35	TS-2311081	Nut	M8	2
36	BS20MDM-A36	Swiveling Base	331D1-18-A	1
37	TS-1515011	Hex. Cap Screw	M8x16L	4



Index No	Part No.	Description	Size	Q'ty
38	TS-2361081	Lock Washer	M8	4
39	BS20MDM-A39	Handle M8x35L	331D4-38	1
40	BS20MDM-A40	Connect Base	331D3-37	1
41	TS-2361081	Lock Washer	M8	4
42	TS-1515011	Hex. Cap Screw	M8x16L	4
44-1	BS20MDM-A44-1	Electrical Box Cover	S20A3-01-D	1
44-2	BS20MDM-A44-2	Door Pin		2
44-3	TS-1504051	Hex. Socket Cap Screw	M8x25L	1
44-7	TS-1514031	Hex. Cap Screw	M6x20L	4
44-8	BS20MDM-A44-8	Hex. Cap Screw	M8x45L	4
44-9	BS20MDM-A44-9	Adjusting Screw M16	530D2-09	4
44-11	BS20MDM-A44-11	Button Head Socket Screw	M4x8L	2
44-12	BS20MDM-A44-12	Shaft Bracket	S20A3-18-A	2
44-13	BS20MDM-A44-13	Support Base SH-25A	S20A4-11	2
44-14	BS20MDM-A44-14	Shaft SCF-25-600L	S20A4-12	1
44-15	BS20MDM-A44-15	Inverter		1
45-1	BS20MDM-A45-1	Machine Base	S20A3-01-C	1
46-1	BS20MDM-A46-1	Hydraulic Unit Cover	S20A3-01-E	1
47	F009884	Button Head Socket Screw	M5x8L	6
48	BS20MDM-A48	Outlet Mobile Case	S20A3-04-B	1
49	BS20MDM-A49	Handle	9160502	1
50	BS20MDM-A50	Big Round Head Screw	M6x12L	2
51	BS20MDM-A51	Outlet Case	S20A3-04	1
52	TS-2361121	Lock Washer	M12	4
53	BS20MDM-A53	Hex. Cap Screw	M12x20L	4
54	BS20MDM-A54	Outlet Cover	S20A3-16	1
55	F009884	Button Head Socket Screw	M5x8L	4
56	BS20MDM-A56	Outlet Side Plate	S20A3-04-A	1
57	TS-0246031	Flat Head Screw	5/16"x3/4"L	4
58	TS-1550071	Washer	M10	2
59	TS-2361101	Lock Washer	M10	2
60	TS-1516021	Hex. Cap Screw	M10x25L	2
61	TS-0209052	Hex. Socket Cap Screw	3/8"x1"L	1
62	TS-0720091	Lock Washer	3/8"	1
63	BS20MDM-A63	Washer	S1380221-3	1
64	BS20MDM-A64	Position Block (Left)	S1380110	1
65	TS-0270021	Set Screw	5/16"x5/16"L	1



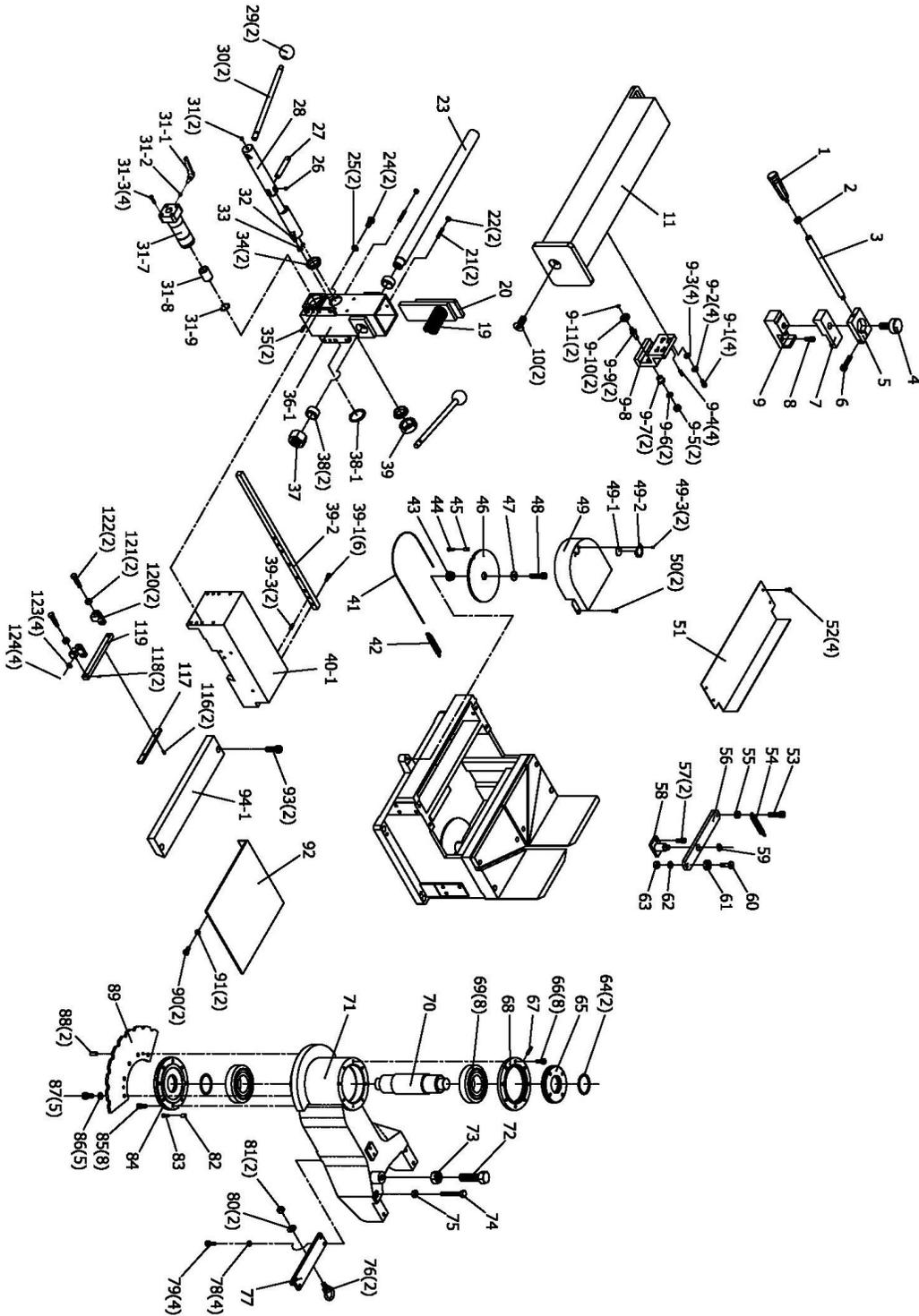
Index No	Part No.	Description	Size	Q'ty
66	TS-0209052	Hex. Socket Cap Screw	3/8"x1"L	1
67	TS-0720091	Lock Washer	3/8"	1
68	BS20MDM-A68	Washer	S1380221-3	1
69	BS20MDM-A69	Handle 3/8x30L	S1380416	1
70	BS20MDM-A70	Adjusting Block	S1380110-B	1
71	BS20MDM-A71	Position Bracket Shaft	S1380221-2	1
72	BS20MDM-A72	Stopper Rod	460D2-64	1
73	BS20MDM-A73	Position Bracket	S1380110-C	1
74	TS-0209052	Hex. Socket Cap Screw	3/8"x1"L	1
75	TS-0720091	Lock Washer	3/8"	1
76	BS20MDM-A76	Washer	S1380221-3	1
77	TS-0720091	Lock Washer	3/8"	1
78	TS-0209052	Hex. Socket Cap Screw	3/8"x1"L	1
79	BS20MDM-A79	Position Block (Right)	S1380110-A	1
80	BS20MDM-A80	Length Scale Rod	S1380221	1
81	TS-0270021	Set Screw	5/16"x5/16"L	1
82	BS20MDM-A82	Washer	S1380221-3	1
83	TS-0720091	Lock Washer	3/8"	1
84	TS-0209052	Hex. Socket Cap Screw	3/8"x1"L	1
85	BS20MDM-A85	Chip Box	S20A3-08	1
86	BS20MDM-A86	Thumb Screw M8x16L	L25A4-17	5
87	BS20MDM-A87	Coolant Plate	S20A3-10	1
88	BS20MDM-A88	Coolant Pump	1/6"x150L	1
89	TS-2361061	Lock Washer	M6	2
90	TS-1514011	Hex. Cap Screw	M6x12L	2
91	TS-1505051	Hex. Socket Cap Screw	M10x35L	2
92	BS20MDM-A92	Seating Block	331D2-04	1
93	BS20MDM-A93	Bed	331D1-01	1
94	TS-1526051	Set Screw	M12x30L	4
95	TS-1506111	Hex. Socket Cap Screw	M12x70L	4
96	TS-1505061	Hex. Socket Cap Screw	M10x40L	1
97	TS-2311101	Nut	M10	1
98	BS20MDM-A98	Spring Pin	8x20L	2
99	BS20MDM-A99	Cutting Bench	331D1-02	1
100	BS20MDM-A100	Spring Pin	8x20L	2
101	TS-1505101	Hex. Socket Cap Screw	M10x60L	2
102	BS20MDM-A102	Angle Cutting table	S20A1-01	1
103	TS-1504111	Hex. Socket Cap Screw	M8x55L	2
104	TS-1504041	Hex. Socket Cap Screw	M8x20L	2



Index No	Part No.	Description	Size	Q'ty
105	BS20MDM-A105	Seating Block	331D2-04	1
106	TS-1505051	Hex. Socket Cap Screw	M10x35L	2
107	BS20MDM-A107	Vise Jaw-Left	331D2-23	1
108	BS20MDM-A108	Vise Jaw-Right	331D2-24	1
109	TS-1505041	Hex. Socket Cap Screw	M10x30L	4
110	BS20MDM-A110	Hose	L25A4-14	1
111	BS20MDM-A111	Wing Screw	M6x25L	2
112	BS20MDM-A112	Hose Set	H46A2-39	1
113	BS20MDM-A113	Coolant Switch		1



SECTION B – PARTS BREAKDOWN





SECTION B – PARTS PART LIST

Index No	Part No.	Description	Size	Q'ty
1	BS20MDM-B1	Handle	9160501	1
2	TS-1540081	Nut	M12	1
3	BS20MDM-B3	Handle Lever	331D2-29	1
4	BS20MDM-B4	Set Bolt	331D2-27	1
5	BS20MDM-B5	Connect Unit	331D2-28	1
6	TS-1505081	Socket Hd Cap Screw	M10x50L	1
7	BS20MDM-B7	Angle Setting	331D2-26	1
8	TS-1504041	Socket Hd Cap Screw	M8x20L	1
9	BS20MDM-B9	Set Block	331D1-11	1
9-1	TS-1504061	Socket Hd Cap Screw	M8x30L	4
9-2	TS-2361081	Spring Washer	M8	4
9-3	TS-1550061	Washer	M8	4
9-4	TS-1524041	Set screw	M8x16L	4
9-5	TS-2311101	Nut	M10	2
9-6	TS-2361101	Spring Washer	M10	2
9-7	BS20MDM-B9-7	Shaft Bearing Bush	S20A2-05-B	2
9-8	BS20MDM-B9-8	Vise Assistant Bracket	S20A1-05	1
9-9	BS20MDM-B9-9	Assistant Bearing Shaft	S20A2-05-A	2
9-10	BB6000	Bearing 6000		2
9-11	BS20MDM-B9-11	C Ring	S10	2
10	BS20MDM-B10	Flat Head Screw	3/4"x1-3/4"L	2
11	BS20MDM-B11	Front Vise	S20A3-11	1
19	BS20MDM-B19	Spring	S1380408	1
20	BS20MDM-B20	Adjustable Block	S1380305-2	1
21	BS20MDM-B21	Set Screw	M8x50L	2
22	TS-2311081	Nut	M8	2
23	BS20MDM-B23	Guide Rod	S20A2-02	1
24	TS-1505031	Socket Hd Cap Screw	M10x25L	6
25	TS-2361101	Spring Washer	M10	6
26	TS-1524011	Set Screw	M8x8L	1
27	BS20MDM-B27	Steel Pin	16x100L	1
28	BS20MDM-B28	Cam Shaft	S138 02-04	1
29	BS20MDM-B29	Bakelite Ball	S1380404	2
30	BS20MDM-B30	Handle	S1380204-3	2
31	TS-1524011	Set Screw	M8x8L	2
31-1	BS20MDM-B31-1	Handle	H46D4-08TRT80 M10x45L	1



Index No	Part No.	Description	Size	Q'ty
31-2	BS20MDM-B31-2	Copper Spacer	H46D2-25	1
31-3	TS-1503071	Socket Hd Cap Screw	M6x30L	4
31-7	BS20MDM-B31-7	Bearing Bush	S20A2-07-A	1
31-8	BS20MDM-B31-8	Linear Bearing LM-25UU	S20A4-10-A	1
31-9	BS20MDM-B31-9	C Ring	R40	1
32	TS-1505011	Socket Hd Cap Screw	M10x16L	1
33	TS-2311101	Nut	M10	1
34	BS20MDM-B34	Plastic Bushing	S1380204-4	2
35	BS20MDM-B35	Spring Pin	8x20L	2
36-1	BS20MDM-B36-1	Guide Post	S20A3-03-C	1
37	TS-0561081	Nut	3/4"	1
38	BS20MDM-B38	Oilless Bearing 3820	BB2057	2
38-1	BS20MDM-B38-1	C Ring	R50	1
39	BS20MDM-B39	Bush Seat	S1380204-5	1
39-1	TS-1504041	Socket Hd Cap Screw	M8x20L	6
39-2	BS20MDM-B39-2	Vise Assistant Block	S20A2-05	1
39-3	BS20MDM-B39-3	Spring Pin	8x20L	2
40-1	BS20MDM-B40-1	Vise Table	S20A1-02-A	1
41	BS20MDM-B41	Steel Wire		1
42	BS20MDM-B42	Extend Spring	331D4-03	1
43	BS20MDM-B43	Bush	331D2-34	1
44	TS-1481041	Hex. Cap Screw	M5x15L	1
45	BS20MDM-B45	Wire Fastener	331D2-35	1
46	BS20MDM-B46	Angle Wheel	331D2-33	1
47	TS-1550071	Washer	M10	1
48	TS-1505061	Socket Hd Cap Screw	M10x40L	1
49	BS20MDM-B49	Cover	331D3-25	1
49-1	BS20MDM-B49-1	Angle Magnifier	331D4-09	1
49-2	BS20MDM-B49-2	Magnifier Holder	331D3-43	1
49-3	TS-1501011	Socket Hd Cap Screw	M4x6L	2
50	TS-2246082	Button Head Socket Screw	M6x8L	2
51	BS20MDM-B51	Plate	331D3-26-A	1
52	F009884	Button Head Socket Screw	M5x8L	4
53	TS-1505061	Socket Hd Cap Screw	M10x40L	1
54	BS20MDM-B54	Cam Spring	331D4-02	1
55	TS-2311101	Nut	M10	1
56	BS20MDM-B56	Joint Plate	331D2-32	1
57	TS-1504051	Socket Hd Cap Screw	M8x25L	2



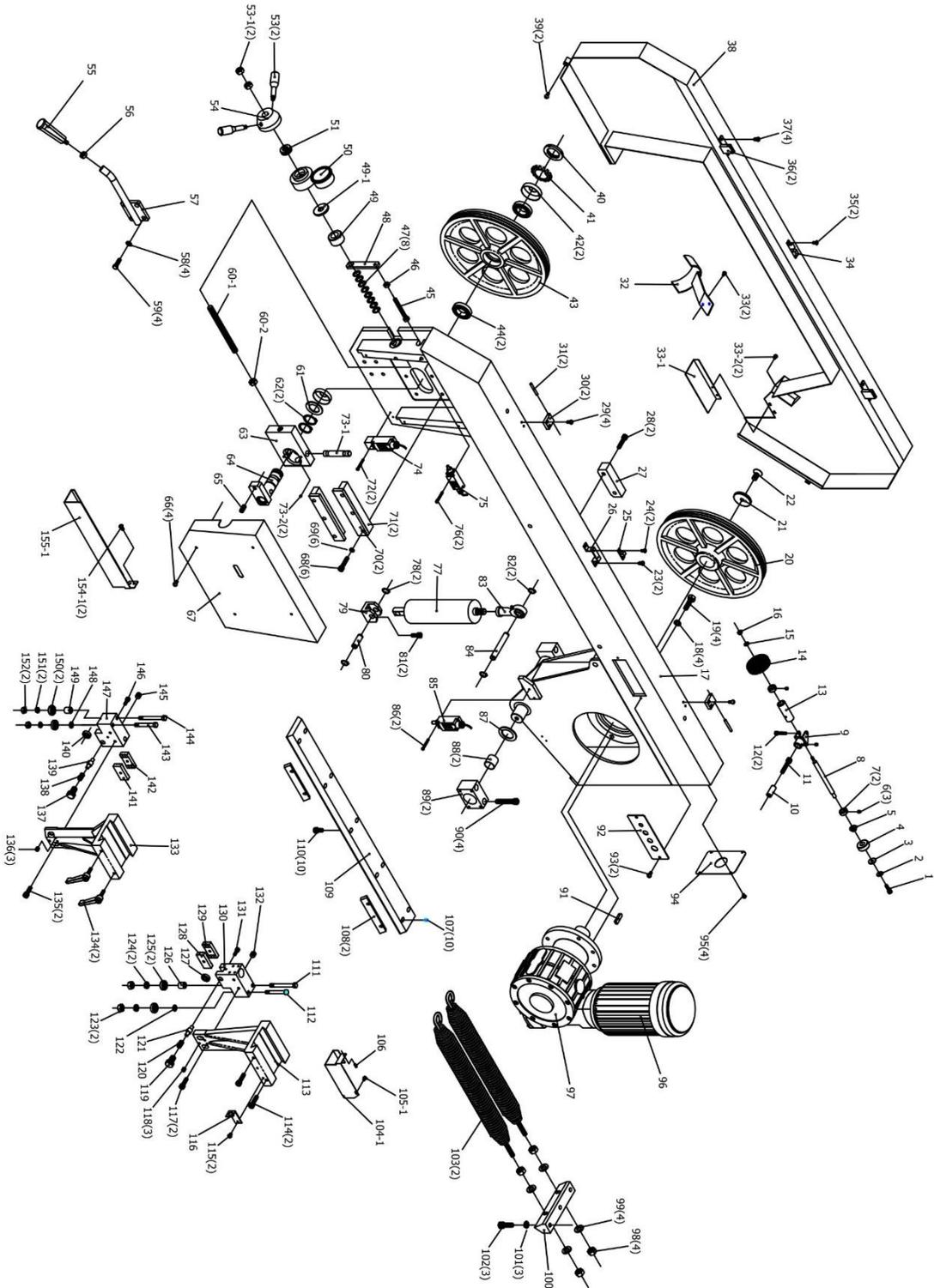
Index No	Part No.	Description	Size	Q'ty
58	BS20MDM-B58	Cam Bracket	331D2-30	1
59	BS20MDM-B59	C Ring	S16	1
60	BS20MDM-B60	Cam Shaft	331D2-31	1
61	BB6000	Bearing 6000		1
62	TS-2361101	Spring Washer	M10	1
63	TS-2311101	Nut	M10	1
64	BS20MDM-B64	O Ring P60	L25A5-47	2
65	BS20MDM-B65	Tighten Plate	331D2-06-A	1
66	TS-1504041	Socket Hd Cap Screw	M8x20L	8
67	TS-1523071	Set Screw	M6x25L	1
68	BS20MDM-B68	Upper Cover	331D2-06	1
69	BB30312	Bearing 30312		2
70	BS20MDM-B70	Swiveling Shaft	331D2-03	1
71	BS20MDM-B71	Swiveling Base	331D1-06	1
72	BS20MDM-B72	Hex. Cap Screw	M20x65L	1
73	TS-2310201	Nut	M20	1
74	TS-1491101	Hex. Cap Screw	M10x60L	1
75	TS-2311101	Nut	M10	1
76	BS20MDM-B76	Ring Screw	1/2"	2
77	BS20MDM-B77	Lower Bracket	331D1-17	1
78	TS-2361081	Spring Washer	M8	4
79	TS-1504051	Socket Hd Cap Screw	M8x25L	4
80	TS-0720111	Spring Washer	1/2"	2
81	TS-0561051	Nut	1/2"	2
82	BS20MDM-B82	Wire Fastener	331D2-35	1
83	TS-1481041	Hex. Cap Screw	M5x15L	1
84	BS20MDM-B84	Lower Cover	331D2-05	1
85	TS-1504041	Socket Hd Cap Screw	M8x20L	8
86	TS-2361101	Spring Washer	M10	5
87	TS-1505031	Socket Hd Cap Screw	M10x25L	5
88	BS20MDM-B88	Spring Pin	8x20L	2
89	BS20MDM-B89	Angle Plate	331D2-25	1
90	TS-2208201	Hex. Cap Screw	M8x20L	2
91	TS-2361081	Spring Washer	M8	2
92	BS20MDM-B92	Plate	S20A3-15	1
93	TS-1506041	Socket Hd Cap Screw	M12x35L	2
94-1	BS20MDM-B94-1	Vise Guide	S20A2-09	1
116	TS-2245081	Flat Head Screw	M5x8L	2
117	BS20MDM-B117	Copper Plate	H46D2-19	1



Index No	Part No.	Description	Size	Q'ty
118	BS20MDM-B118	Socket Hd Cap Screw	M5x6L	2
119	BS20MDM-B119	Vise Position Block	H46D2-19-C	1
120	BS20MDM-B120	Position Bracket	S20A2-10	2
121	TS-1540081	Nut	M12	2
122	BS20MDM-B122	Adjusting Screw	H46D2-19-B	2
123	TS-2361081	Spring Washer	M8	4
124	TS-2228161	Hex. Cap Screw	M8x16L	4



SECTION C – PARTS BREAKDOWN





SECTION C – PARTS LIST

Index No	Part No.	Description	Size	Q'ty
1	TS-1503041	Socket HD Cap Screw	M6x16L	1
2	TS-2361061	Spring Washer	M6	1
3	BS20MDM-C3	Sleeve	331D2-42-A	1
4	BS20MDM-C4	Brush Wheel	331D2-42	1
5	BS20MDM-C5	Sleeve	331D2-42-A	1
6	TS-1523011	Set Screw	M6x6L	3
7	BS20MDM-C7	Set Bush	331D2-41	2
8	BS20MDM-C8	Brush Rod	331D2-40	1
9	BS20MDM-C9	Brush Bracket	331D3-17	1
10	BS20MDM-C10	Shaft	331D2-43	1
11	TS-1504091	Socket HD Cap Screw	M8x45L	1
12	TS-1503011	Socket HD Cap Screw	M6x8L	2
13	BS20MDM-C13	Set Tube	331D2-39	1
14	BS20MDM-C14	Brush 3"x6.35mm	331D4-08	1
15	TS-2361061	Spring Washer	M6	1
16	TS-1540041	Nut	M6	1
17	BS20MDM-C17	Saw Bow	S20A3-02	1
18	TS-2361101	Spring Washer	M10	4
19	TS-1491061	Hex. Cap Bolt	M10x40L	4
20	BS20MDM-C20	Drive Wheel	331D1-13	1
21	BS20MDM-C21	Washer	331D2-49	1
22	TS-1517011	Flat Head Screw	M12x25L	1
23	BS20MDM-C23	Button Head Socket Screw	M6x12L	2
24	TS-1512011	Flat Head Screw	M4x10L	2
25	BS20MDM-C25	Brass Button	330S0419	1
26	BS20MDM-C26	Lock Bracket	331D3-27	1
27	BS20MDM-C27	Blade Guide Block	331D2-55	1
28	TS-1504081	Socket HD Cap Screw	M8x40L	2
29	BS20MDM-C29	Button Head Socket Screw	M6x20L	4
30	BS20MDM-C30	Set Block	331D2-44	2



Index No	Part No.	Description	Size	Q'ty
31	BS20MDM-C31	Pin	14x70L	2
32	BS20MDM-C32	Wire Brush Guard	331D3-14	1
33	BS20MDM-C33	Button Head Socket Screw	M5x8L	2
33-1	BS20MDM-C33-1	Blade Guard (Rear)	331D3-48B	1
33-2	BS20MDM-C33-2	Button Head Socket Screw	M5x8L	2
34	BS20MDM-C34	Brass Button	330S0419	1
35	TS-1512011	Flat Head Screw	M4x10L	2
36	BS20MDM-C36	Free Set	331D2-45	2
37	BS20MDM-C37	Button Head Socket Screw	M6x12L	4
38	BS20MDM-C38	Wheel Cover	S20A3-05	1
39	BS20MDM-C39	Button Head Socket Screw	M5x8L	2
40	BS20MDM-C40	Nut	AN07(M35)	1
41	BS20MDM-C41	Teeth Washer	AW07(M35)	1
42	BS20MDM-C42	Anti-Dust Cover	331D4-51	2
43	BS20MDM-C43	Idle Wheel	331D1-12	1
44	BB32007	Bearing 32007	BB2190	2
45	TS-1490111	Hex. Cap Bolt	M8x60L	1
46	TS-2311081	Nut	M8	1
47	BS20MDM-C47	Disc Washer 361820	331D5-30	8
48	BS20MDM-C48	Plate	331D2-48	1
49	BS20MDM-C49	Bushing	331D2-16-A	1
49-1	BS20MDM-C49-1	Slide block screw rod washer	331D2-16-B	1
50	BS20MDM-C50	Blade Tension Gauge	331D5-00B	1
51	BS20MDM-C51	Thrust Bearing 51203	BB2010	1
53	BS20MDM-C53	Handle	331D2-63	2
53-1	TS-154010	Nut	M16	2
54	BS20MDM-C54	Handle Wheel	331D2-63-A	1
55	BS20MDM-C55	Rubber Handle	9160501	1
56	TS-1540081	Nut	M12	1
57	BS20MDM-C57	Handle Bracket	S20A3-13	1
58	TS-2361101	Spring Washer	M10	4



Index No	Part No.	Description	Size	Q'ty
59	BS20MDM-C59	Steel Hex. Cap Bolt	M10x35L	4
60-1	BS20MDM-C60-1	Tooth strip	M16	1
60-2	TS-154010	Nut	M16	1
61	BS20MDM-C61	Washer	331D2-12-C	1
62	BS20MDM-C62	C Ring	S35	2
63	BS20MDM-C63	Slide	331D2-13	1
64	BS20MDM-C64	Shaft Device	331D2-12	1
65	TS-1526041	Set Screw	M12x25L	1
66	BS20MDM-C66	Button Head Socket Screw	M5x8L	4
67	BS20MDM-C67	Wheel Cover	S20A3-12	1
68	BS20MDM-C68	Socket HD Cap Screw	M10x55L	6
69	TS-2361101	Spring Washer	M10	6
70	BS20MDM-C70	Slide Plate	331D2-15	2
71	BS20MDM-C71	Slide Guide	331D2-14	2
72	TS-1501091	Socket HD Cap Screw	M4x35L	2
73-1	BS20MDM-C73-1	Pin	331D2-11	1
73-2	TS-2276081	Set Screw	M6x8L	2
74	BS20MDM-C74	Limit Switch EK-1-15-R	S138F4-10	1
75	BS20MDM-C75	Limit Switch AZD-1001T	331D5-06	1
76	TS-1501091	Socket HD Cap Screw	M4x35L	2
77	BS20MDM-C77	Saw Bow Cylinder		1
78	BS20MDM-C78	C Ring	S16	2
79	BS20MDM-C79	Cylinder Seat	331D2-36	1
80	BS20MDM-C80	Lower Shaft	331D2-37	1
81	TS-1504041	Socket HD Cap Screw	M8x20L	2
82	BS20MDM-C82	C Ring	S16	2
83	BS20MDM-C83	Eye Bearing		1
84	BS20MDM-C84	Upper Shaft	331D2-38	1
85	BS20MDM-C85	Limit Switch AZD-1001T	331D5-06	1
86	TS-1501091	Socket HD Cap Screw	M4x35L	2
87	BS20MDM-C87	Washer	331D2-01-A	1
88	BS20MDM-C88	Ollies Bearing 4040	BB2062	2

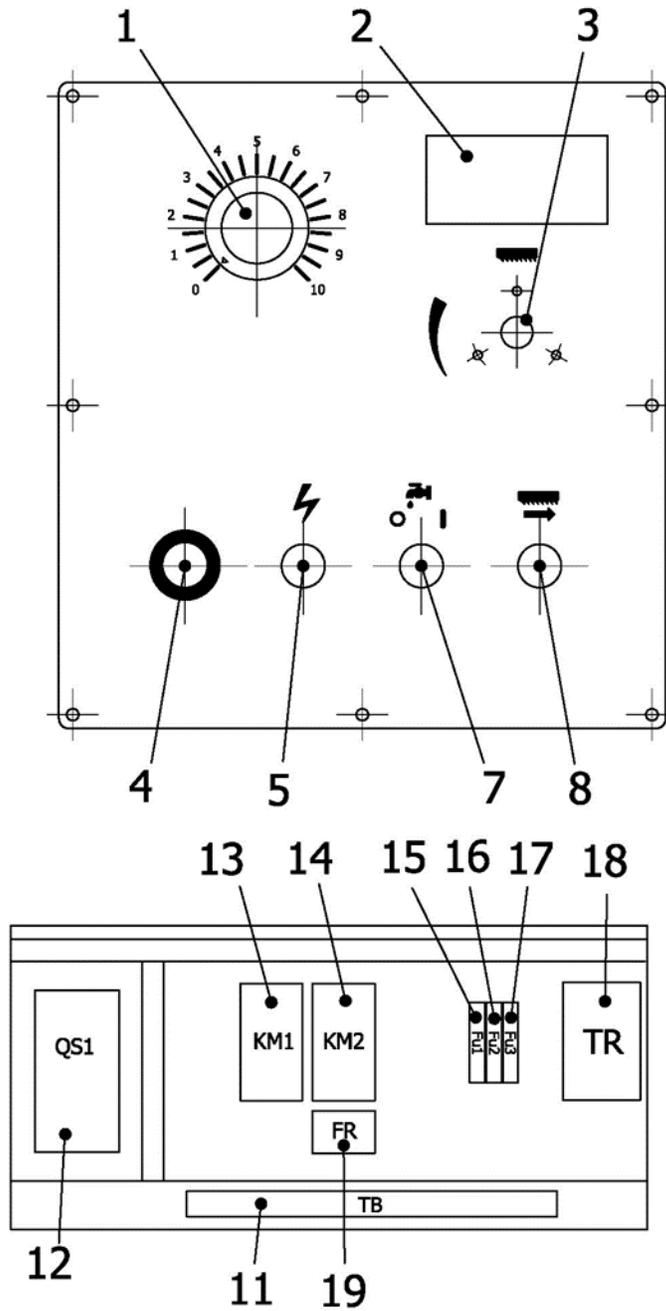


Index No	Part No.	Description	Size	Q'ty
89	BS20MDM-C89	Set Block	331D2-02-A	2
90	BS20MDM-C90	Socket HD Cap Screw	M12x65L	4
91	BS20MDM-C91	Key	14x8x50	1
92	BS20MDM-C92	Wire Plate	S20A3-02-C	1
93	BS20MDM-C93	Button Head Socket Screw	M6x8L	2
94	BS20MDM-C94	Wires Plate	S20A3-02-B	1
95	BS20MDM-C95	Button Head Socket Screw	M5x8L	4
96	BS20MDM-C96	Motor 3HP	MLS20A01	1
97	BS20MDM-C97	Reducer 100#1/40	S20A4-01	1
98	TS-0640111	Nut	1/2"	4
99	TS-0720111	Spring Washer	1/2"	4
100	BS20MDM-C100	Spring Holder	S20A1-03	1
101	TS-2361101	Spring Washer	M10	3
102	TS-1505031	Socket HD Cap Screw	M10x25L	3
103	BS20MDM-C103	Spring	S20A4-06	2
104-1	BS20MDM-C104-1	Blade Guard (Rear)	331D3-48A	1
105-1	BS20MDM-C105-1	Button Head Socket Screw	M5x8L	1
106	BS20MDM-C106	Spring Pin	4x12L	1
107	TS-1525031	Set Screw	M10x16L	10
108	BS20MDM-C108	Lock Block	331D2-07-A	2
109	BS20MDM-C109	Bracket Slide	331D2-07	1
110	TS-1505021	Socket HD Cap Screw	M10x20L	10
111	BS20MDM-C111	Bearing Shaft (Long)	331D2-10	1
112	BS20MDM-C112	Bearing Shaft (Short)	331D2-10-A	1
113	BS20MDM-C113	Guide Post (R)	331D1-08	1
114	TS-1504061	Socket HD Cap Screw	M8x30L	2
115	BS20MDM-C115	Button Head Socket Screw	M6x8L	2
116	BS20MDM-C116	Set Plate	331D3-22	1
117	TS-1504051	Socket HD Cap Screw	M8x25L	2
118	TS-1524041	Set Screw	M8x16L	3
119	BS20MDM-C119	Adjusting Screw	3300209	1
120	BS20MDM-C120	Adjusting Spring	3300405	1
121	BS20MDM-C121	Shaft	331D2-59	1
122	BS20MDM-C122	Washer	331D2-10-C	1
123	TS-2311101	Nut	M10	2



Index No	Part No.	Description	Size	Q'ty
124	TS-2361101	Spring Washer	M10	2
125	BB6200	Bearing 6200	BB2149	2
126	BS20MDM-C126	Shaft Bush	331D2-10-B	1
127	BB6000	Bearing 6000	BB2136	1
128	BS20MDM-C128	Adjusting Guide (No Grooved)	331D2-09-A	1
129	BS20MDM-C129	Fixed Guide (No Grooved)	331D2-08-A	1
130	BS20MDM-C130	Guide Bracket-Right	331D1-10	1
131	TS-1503041	Socket HD Cap Screw	M6x16L	1
132	BS20MDM-C132	Set Screw	M12x10L	1
133	BS20MDM-C133	Guide Post (F)	331D1-07	1
134	BS20MDM-C134	Lock Handle M8x30L	331D4-38	2
135	TS-1504051	Socket HD Cap Screw	M8x25L	2
136	TS-1524041	Set Screw	M8x16L	3
137	BS20MDM-C137	Adjusting Screw	3300209	1
138	BS20MDM-C138	Adjusting Spring	3300405	1
139	BS20MDM-C139	Shaft	331D2-59	1
140	BB6000	Bearing 6000	BB2136	1
141	BS20MDM-C141	Adjusting Guide (Grooved)	331D2-09	1
142	BS20MDM-C142	Fixed Guide (Grooved)	331D2-08	1
143	BS20MDM-C143	Bearing Shaft (Short)	331D2-10-A	1
144	BS20MDM-C144	Bearing Shaft (Long)	331D2-10	1
145	BS20MDM-C145	Set Screw	M12x10L	1
146	TS-1503041	Socket HD Cap Screw	M6x16L	1
147	BS20MDM-C147	Guide Bracket-Left	331D1-09	1
148	BS20MDM-C148	Washer	331D2-10-C	1
149	BS20MDM-C149	Shaft Bush	331D2-10-B	1
150	BB6200	Bearing 6200	BB2149	2
151	TS-2361101	Spring Washer	M10	2
152	TS-2311101	Nut	M10	2
154-1	BS20MDM-C154-1	Button Head Socket Screw	M5x8L	2
155-1	BS20MDM-C155-1	Blade Guard (Front)	331D3-12-A	1

SECTION D – PARTS BREAKDOWN



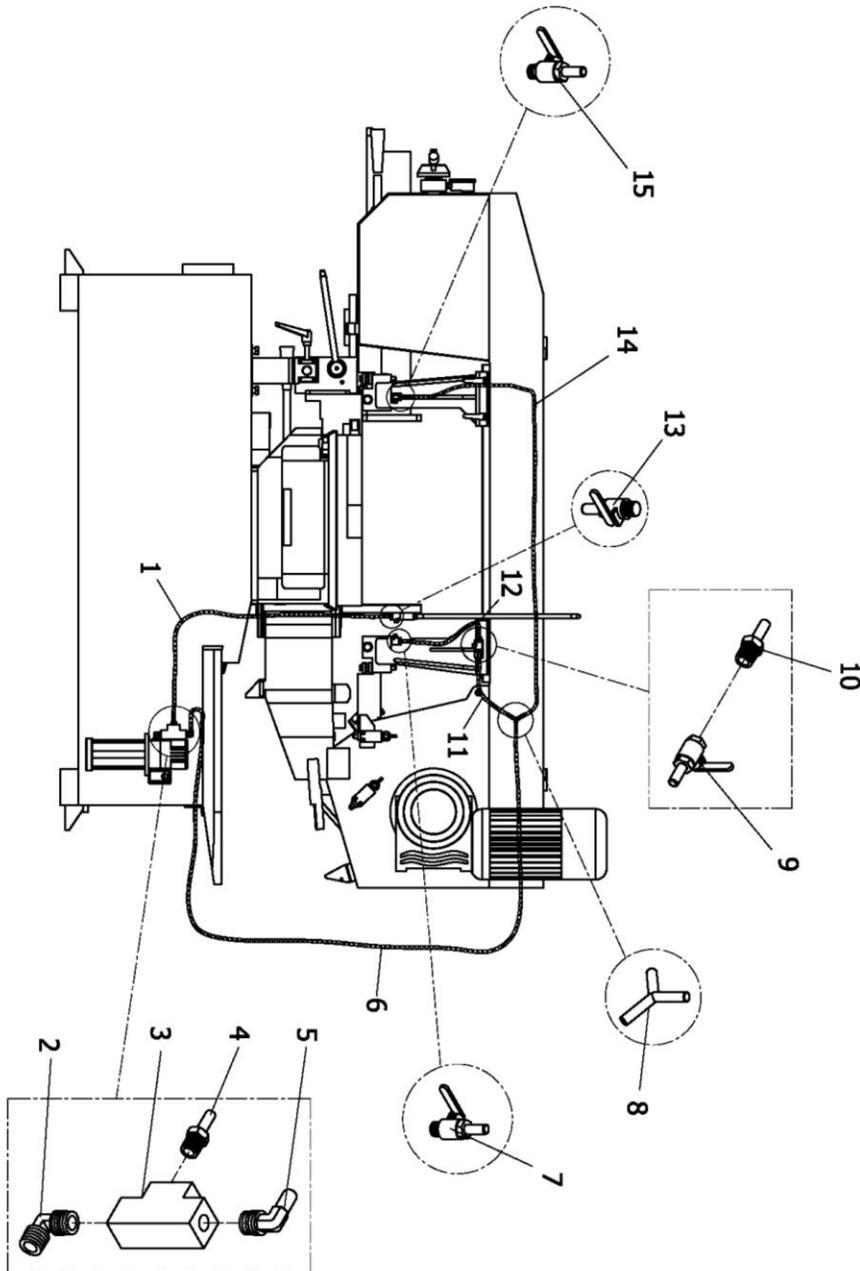


SECTION D – PARTS LIST

Index No	Part No.	Description	Size	Q'ty
1	BS20MDM-D1	Flow Regulator		1
2	BS20MDM-D2	Blade Speed Readout		1
3	BS20MDM-D3	Blade Speed Adjust Knob		1
4	BS20MDM-D4	Emergency Stop Button		1
5	BS20MDM-D5	Power Indicator Light		1
7	BS20MDM-D7	Coolant Start Switch		1
8	BS20MDM-D8	Operation Start Button		1
11	BS20MDM-D11	Terminal Board		1
12	BS20MDM-D12	Inverter	220V/ 3Ph	1
13	BS20MDM-D13	Blade Motor Contactor	KM1	1
14	BS20MDM-D14	Coolant Motor Contactor	KM2	1
15	BS20MDM-D15	Fuse	FU1,(2A)	1
16	BS20MDM-D16	Fuse	FU2,(2A)	1
17	BS20MDM-D17	Fuse	FU3,(4A)	1
18	BS20MDM-D18	Transformer		1
19	BS20MDM-D19	Coolant Motor Overload Relay		1



SECTION E – PARTS BREAKDOWN



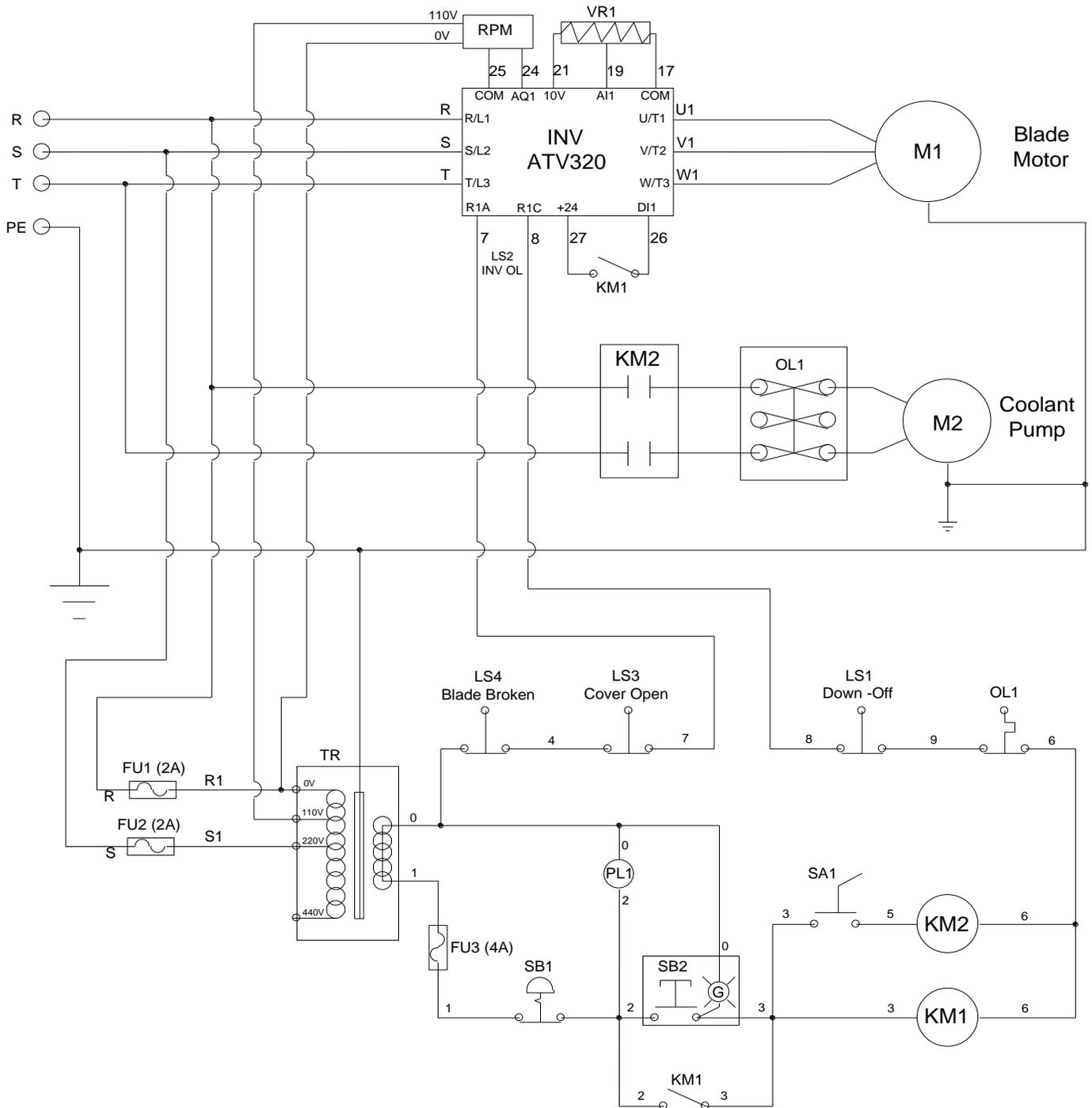


SECTION E – PARTS PART LIST

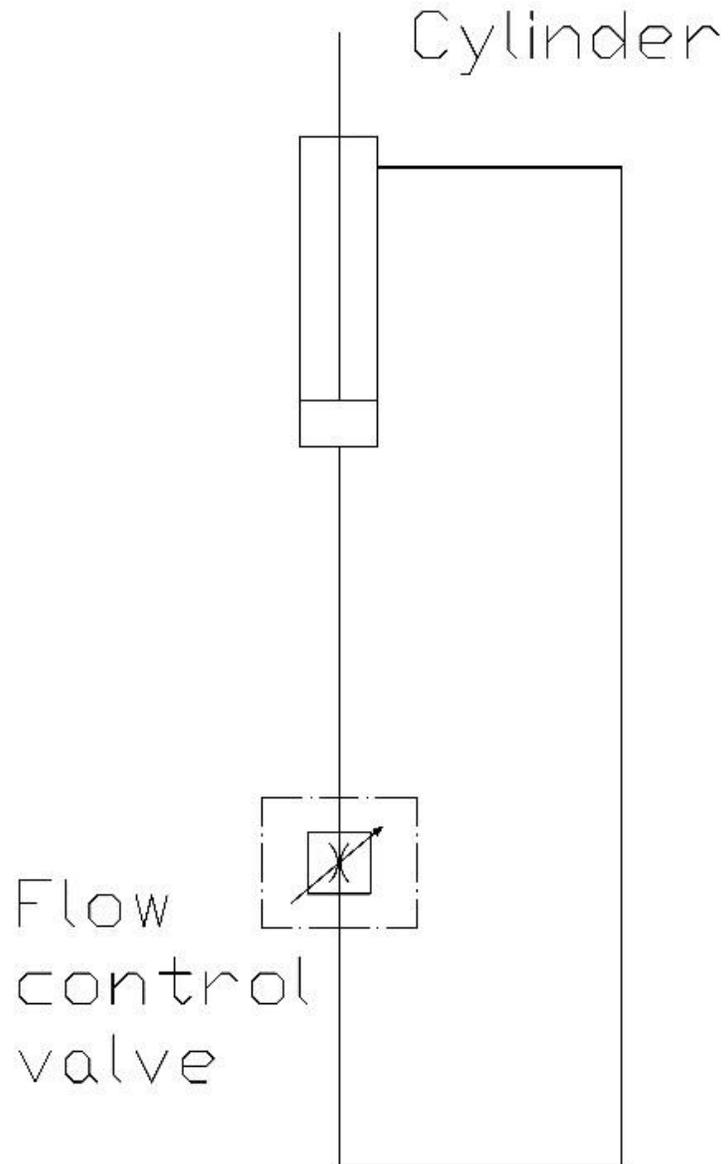
Index No	Part No.	Description	Size	Q'ty
1	BS20MDM-E1	Hose 1/4"	1800mm	1
2	BS20MDM-E2	90° Fitting 1/2*3/8	3300415	1
3	BS20MDM-E3	T joint 3/8PT	L25A4-61	1
4	BS20MDM-E4	Fitting 3/8*1/4	L25A4-35	1
5	BS20MDM-E5	90° Fitting 3/8*1/4	L25A4-21	1
6	BS20MDM-E6	Hose 1/4"	2250mm	1
7	BS20MDM-E7	Cock 1/4PT*1/4	L25A4-49	1
8	BS20MDM-E8	T-Y joint 1/4	L25A4-60	1
9	BS20MDM-E9	Cock 1/4PT*1/4	L25A4-48	1
10	BS20MDM-E10	Fitting 1/4PT*1/4	L25A4-36	1
11	BS20MDM-E11	Hose 1/4"	900mm	1
12	BS20MDM-E12	Hose 1/4"	500mm	1
13	BS20MDM-E13	Cock 1/4PT*1/4	L25A4-49	1
14	BS20MDM-E14	Hose 1/4"	2000mm	1
15	BS20MDM-E15	Cock 1/4PT*1/4	L25A4-49	1

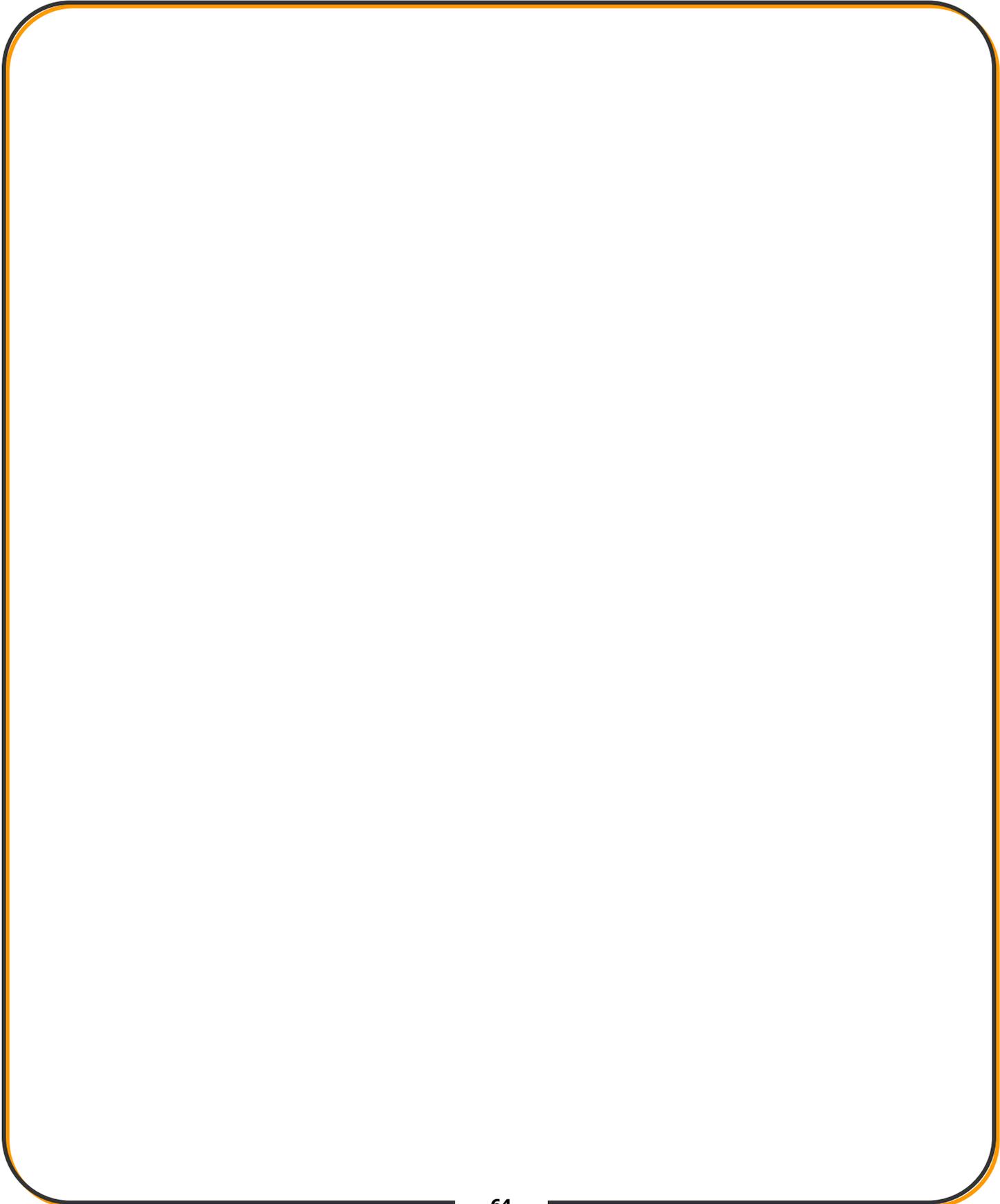


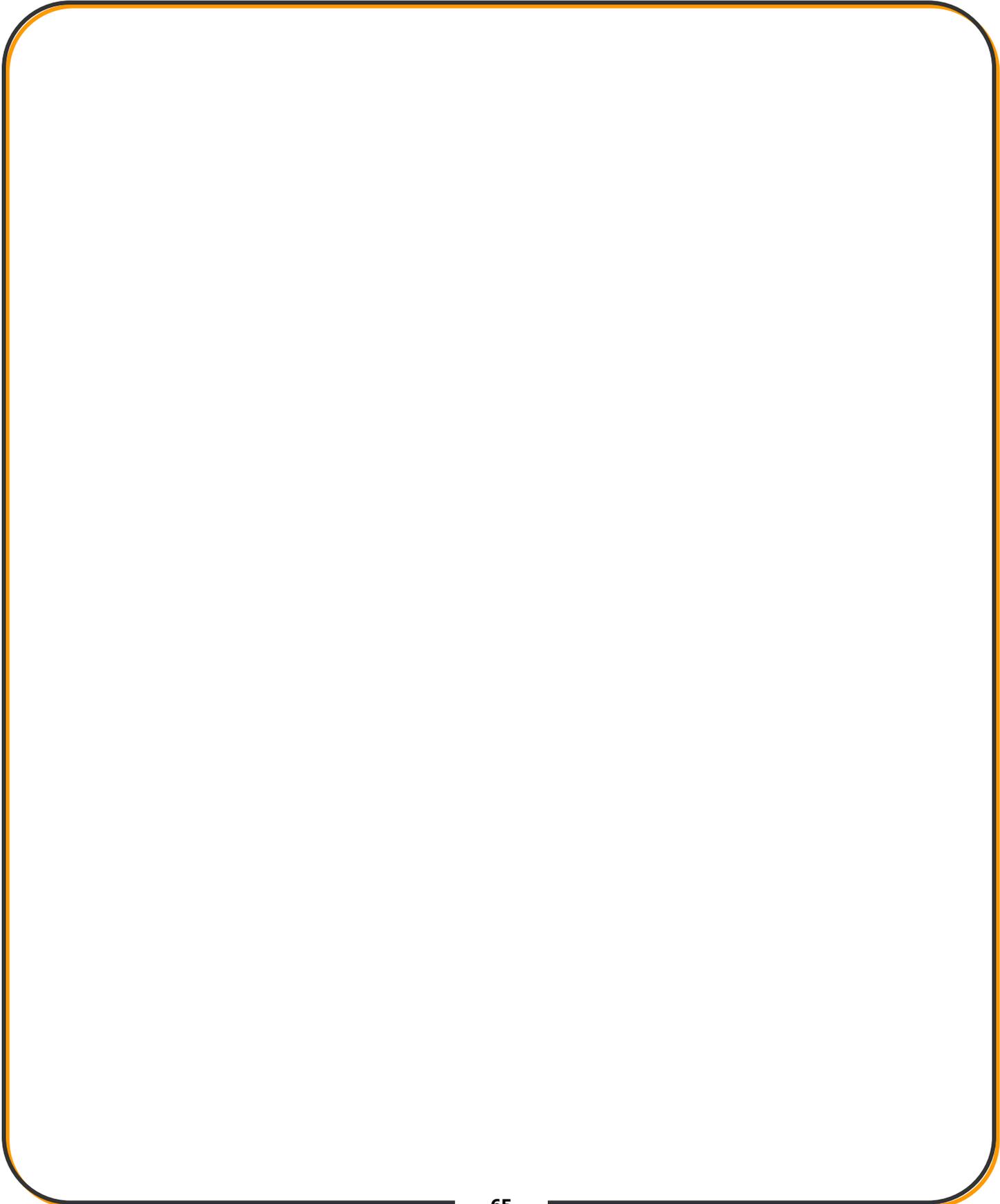
ELECTRICAL DIAGRAM



HYDRAULIC DIAGRAM









BAILEIGH INDUSTRIAL HOLDINGS LLC
1625 DUFEK DRIVE MANITOWOC, WI 54220
PHONE: 920. 684. 4990 FAX: 920. 684. 3944
www.baileigh.com