OPERATOR'S MANUAL

Metal Working

BOX AND PAN BRAKE

MODEL: BB-4012F

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Table of Contents

THANK YOU & WARRANTY

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

Inspection & Acceptance. Buyer shall inspect all Goods within ten (10) days after receipt thereof. Buyer's payment shall constitute final acceptance of the Goods and shall act as a waiver of the Buyer's rights to inspect or reject the goods unless otherwise agreed. If Buyer rejects any merchandise, Buyer must first obtain a Returned Goods Authorization ("RGA") number before returning any Goods to Seller. Goods returned without 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 an 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 an RGA. The original end-user shall be responsible for all costs and expenses associated with returning the Goods to Seller for warranty service. In the event of a defect, Seller, at its sole option, shall repair or replace the defective Goods or refund to the original end-user the purchase price for such defective Goods. Goods are not eligible for replacement or return after a period of 10 days from date of receipt. The foregoing warranty is Seller's sole obligation, and the original end-user's exclusive remedy, with regard to any defective Goods. This limited warranty does not apply to: (a) die sets, tooling, and saw blades; (b) periodic or routine maintenance and setup, (c) repair or replacement of the Goods due to normal wear and tear, (d) defects or damage to the Goods resulting from misuse, abuse, neglect, or accidents, (f) defects or damage to the Goods resulting from improper or unauthorized alterations, modifications, or changes; and (f) any Goods that has not been installed and/or maintained in accordance with the instruction manual or technical guidelines provided by Seller.

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

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

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

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

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

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

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

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

Summary of Return Policy.

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

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

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

INTRODUCTION

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

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

Register your product using the mail-in card provided or register online:

www.baileigh.com/product-registration

To quickly reach the product registration webpage, scan the QR code below.

In this manual you will find: (when applicable)

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

GENERAL NOTES

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

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

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

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

IMPORTANT

PLEASE READ THIS OPERATORS MANUAL CAREFULLY

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

SAFETY INSTRUCTIONS

LEARN TO RECOGNIZE SAFETY INFORMATION

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

Follow recommended precautions and safe operating practices.

UNDERSTAND SIGNAL WORDS

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

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

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

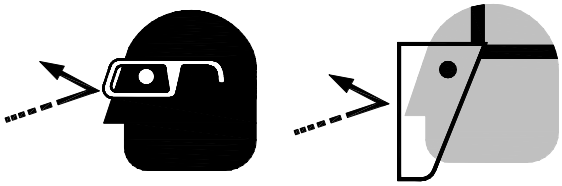
CAUTION: Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

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

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

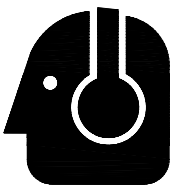
PROTECT EYES

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



PROTECT AGAINST NOISE

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

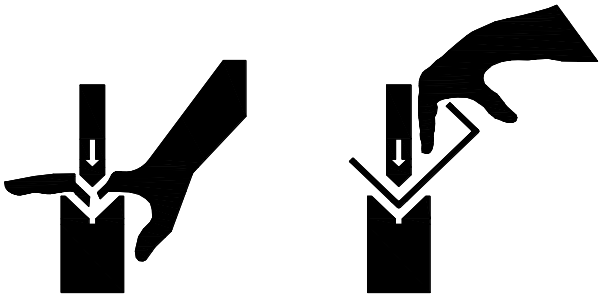


BEWARE OF CRUSH HAZARD

Closing upper beam and brake bed will result in loss of fingers or limbs if placed in machine. **NEVER** place your hand or any part of your body in this machine.

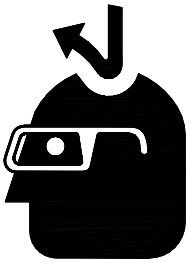
BEWARE OF CRUSH HAZARD

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



KEEP CLEAR OF MOVING OBJECTS

Always be aware of the position of the clamp handle and the counterweight. They are heavy and can swing back suddenly causing serious body or head injuries.



SAFETY PRECAUTIONS

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

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

Dear Valued Customer:

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

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

1. **FOR YOUR OWN SAFETY, READ INSTRUCTION MANUAL BEFORE OPERATING THE MACHINE.** Learn the machine's application and limitations as well as the specific hazards.
2. **Only trained and qualified personnel can operate this machine.**
3. **Make sure guards are in place and in proper working order before operating machinery.**
4. **Remove any adjusting tools.** Before operating the machine, make sure any adjusting tools have been removed.
5. **Keep work area clean.** Cluttered areas invite injuries.
6. **Overloading machine.** By overloading the machine, you may cause injury from flying parts. **DO NOT** exceed the specified machine capacities.
7. **Dressing material edges.** Always chamfer and deburr all sharp edges.
8. **Do not force tool.** Your machine will do a better and safer job if used as intended. **DO NOT** use inappropriate attachments in an attempt to exceed the machine's rated capacity.
9. **Use the right tool for the job. DO NOT** attempt to force a small tool or attachment to do the work of a large industrial tool. **DO NOT** use a tool for a purpose for which it was not intended.
10. **Dress appropriately. DO NOT** wear loose fitting clothing or jewelry as they can be caught in moving machine parts. Protective clothing and steel toe shoes are recommended when using machinery. Wear a restrictive hair covering to contain long hair.
11. **Use eye protection**. Always wear ISO approved protective eye wear when operating machinery. Wear a full-face shield if you are producing metal filings. Eye wear shall be impact resistant, protective safety glasses with side shields which comply with ANSI Z87.1 specification. Use of eye wear which does not comply with ANSI Z87.1 specification could result in severe injury from breakage of eye protection.
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.
16. **Keep children away**. Children must never be allowed in the work area. **DO NOT** let them handle machines, tools, or extension cords.
17. Keep visitors a safe distance from the work area.
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.

TECHNICAL SPECIFICATIONS

Bend Length	40” (1016mm)
Bend Material Thickness	12ga. (2.65mm) mild steel* 16ga. (1.52mm) stainless steel**
Bend Angle	0 – 135 degrees
Maximum Bar Lift (Foot Operated)	1.85” (47mm)
Box Depth	2.5” (63.5mm)
Shipping Dimensions (L x W x H)	58” x 25” x 50” (1473 x 635 x 1270mm)
Shipping Weight	705 lbs. (320 kg)
Based on a material tensile strength of **100000 PSI – stainless steel	*64000 PSI – mild steel

DESCRIPTION

The Baileigh Model BB-4012F Box and Pan Brake is manually operated and capable of bending up to 12ga. (2.65mm) mild steel and 16ga. (1.52mm) stainless x 40” (1016mm) long. The machine has 11 removable fingers and a 2.5” (63.5mm) box depth allowing it to fabricate pans, boxes, channels, angles, and other shapes.

TECHNICAL SUPPORT

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

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

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

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

UNPACKING AND CHECKING CONTENTS

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

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

Cleaning

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

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

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

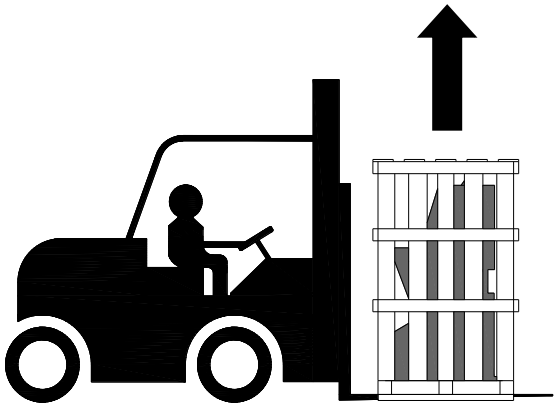
Important: *This waxy coating is **NOT** a lubricant and will cause the machine to stick and lose performance as the coating continues to dry.*

TRANSPORTING AND LIFTING

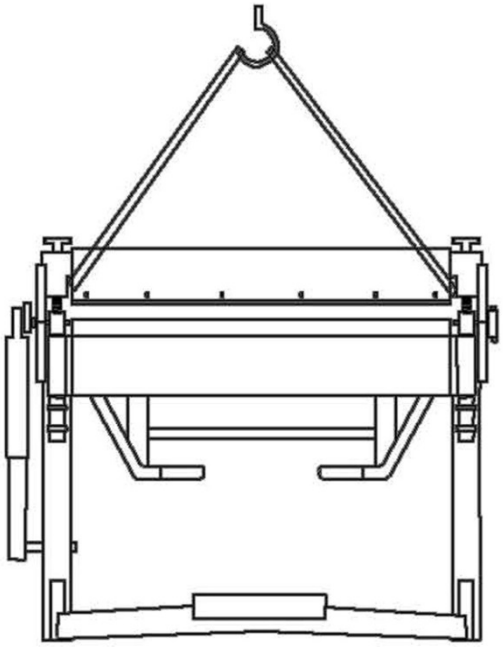
NOTICE: *Lifting and carrying operations should be carried out by skilled workers, such as a truck operator, crane operator, etc. If a crane is used to lift the machine, attach the lifting chain carefully, making sure the machine is well balanced.*

Follow these guidelines when lifting with truck or trolley:

- The lift truck must be able to lift at least 1.5 – 2 times the machines gross weight.
- Make sure the machine is balanced. While transporting, avoid rough or jerky motion, and maintain a safe clearance zone around the transport area.
- Use a fork lift with sufficient lifting capacity and forks that are long enough to reach the complete width of the machine.
- Remove the securing bolts that attach the machine to the pallet.



- Approaching the machine from the side, lift the machine on the frame taking care that there are no cables or pipes in the area of the forks.
- Move the machine to the required position and lower gently to the floor.
- Level the machine so that all the supporting feet are taking the weight of the machine and no rocking is taking place.



Follow these guidelines when lifting crane or hoist:

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

INSTALLATION

IMPORTANT:

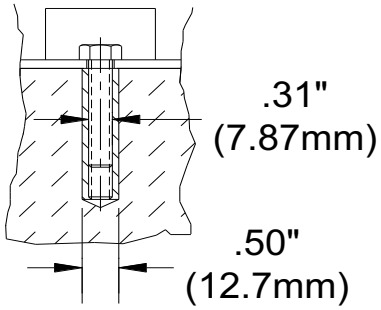
Consider the following when looking for a suitable location to place the machine:

- Overall weight of the machine.
- Weight of material being processed.
- Sizes of material to be processed through the machine.
- Space needed for auxiliary stands, work tables, or other machinery.
- Clearance from walls and other obstacles.
- Maintain an adequate working area around the machine for safety.
- Have the work area well illuminated with proper lighting.
- Keep the floor free of oil and make sure it is not slippery.
- Remove scrap and waste materials regularly, and make sure the work area is free from obstructing objects.
- If long lengths of material are to be fed into the machine, make sure that they will not extend into any aisles.

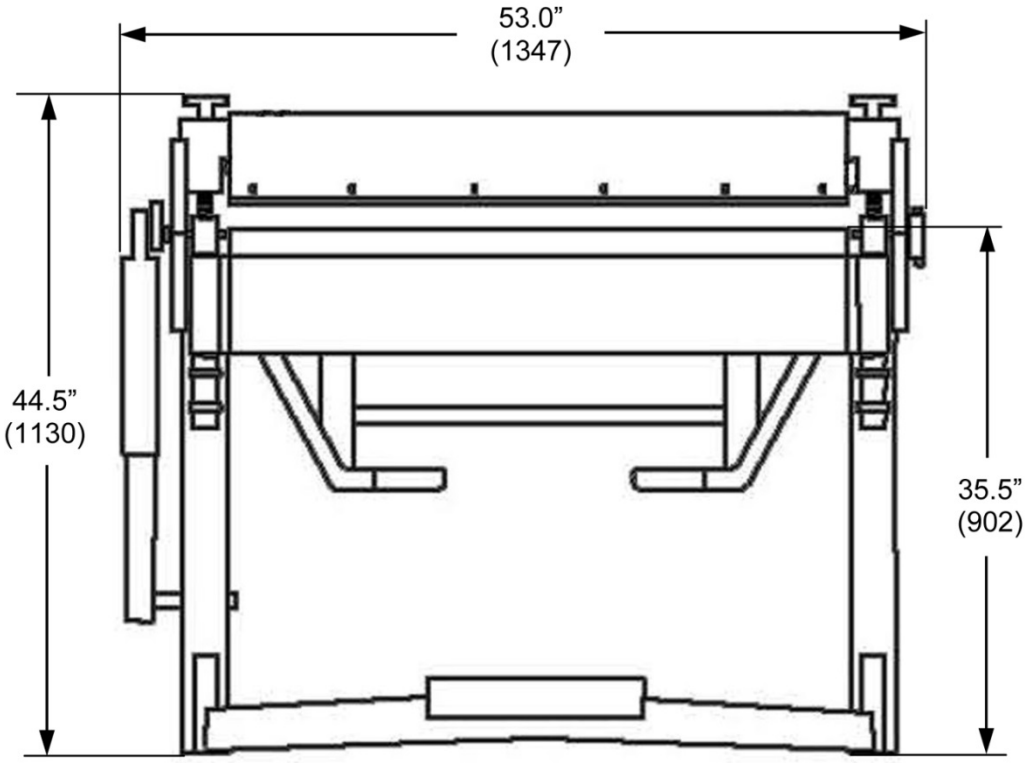
- **LEVELING:** The machine should be sited on a level, concrete floor. Provisions for securing it should be in position prior to placing the machine. The accuracy of any machine depends on the precise placement of it to the mounting surface.
- **FLOOR:** This tool distributes a large amount of weight over a small area. Make certain that the floor is capable of supporting the weight of the machine, work stock, and the operator. The floor should also be a level surface. If the unit wobbles or rocks once in place, be sure to eliminate by using shims.
- **WORKING CLEARANCES:** Take into consideration the size of the material to be processed. Make sure that you allow enough space for you to operate the machine freely.

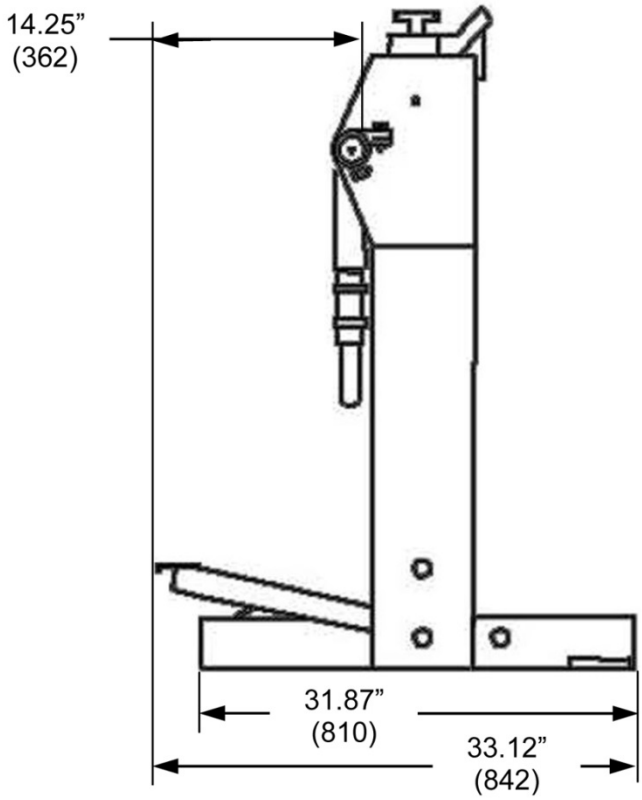
Anchoring the Machine

- 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.

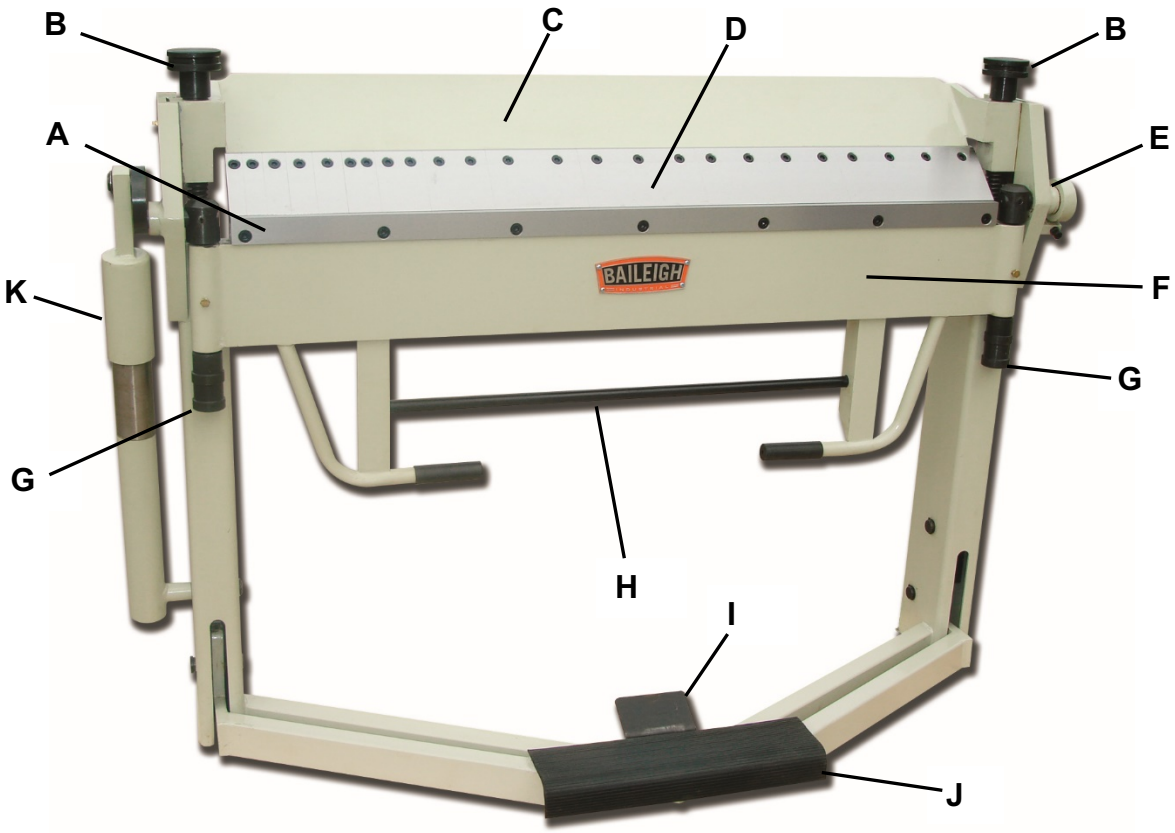


OVERALL DIMENSIONS



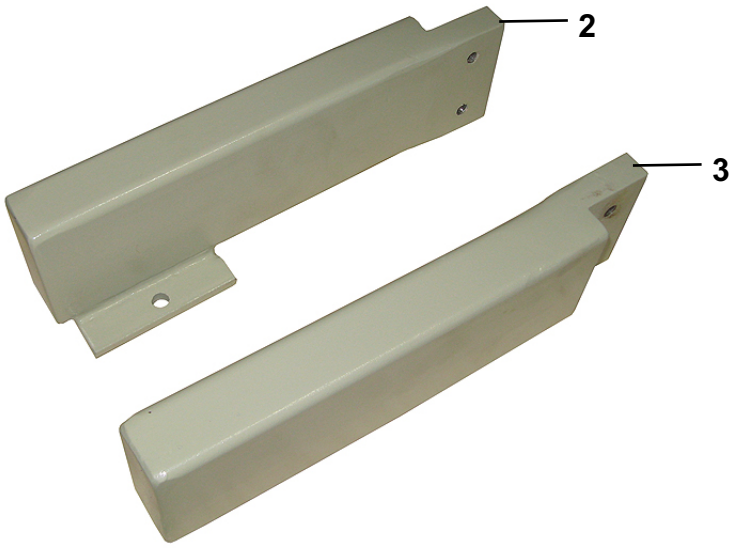


GETTING TO KNOW YOUR MACHINE



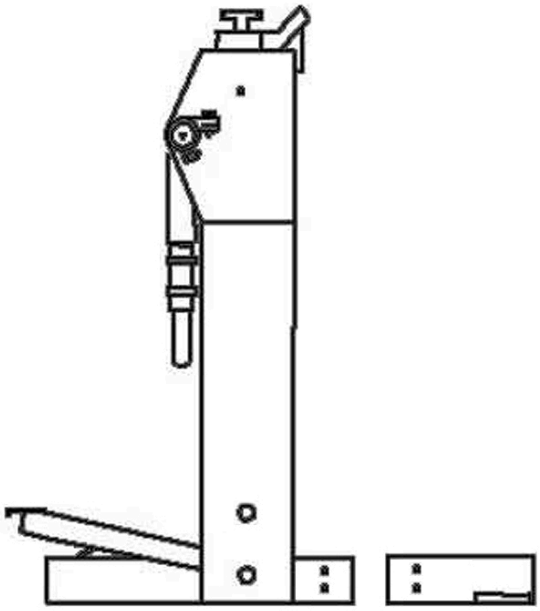
Item	Description	Function
A	Material Bed	Supports the material being bent.
B	Clamping Pressure Knobs	Used to change clamping pressure for thickness variance.
C	Clamping Leaf	Holds the fingers and secures the material in position.
D	Finger Blocks	Movable dies that the material is bent against.
E	Bending Stop	Stops the bending leaf at maximum bend angle
F	Bending Leaf w/Handles	Raised by the operator to make the bend.
G	Set-back Adjustment Knobs	Used to change set-back for thickness variance.
H	Crowning Adjustment	Used to adjust bending leaf to achieve an even full length bend.
I	Pedal Lock/Release	Step on to lock and release the pedal for clamping.
J	Clamping Pedal	Step on to lower and lock, and raise the clamp leaf.
K	Counterbalance Arm	Used to assist the operator lifting the bending leaf.

ASSEMBLY AND SET UP



Item	Description	Qty.
	Brake Main Body	1
2	Support Extension RH	1
3	Support Extension LH	1
4	Allen Wrench	1
5	Socket Head Bolt M10-1.5 x 30mm	1

1. Securely support the machine just high enough to install the Right and Left Support Extensions.
2. Position the support extensions to overlap the base.
3. Install and tighten the M10-1.5 x 30mm socket head bolts. Two per side.



ADJUSTMENTS

Aligning the Fingers

⚠ CAUTION: Always wear proper safety equipment. The fingers are heavy with sharp edges. Wear safety footwear, and leather gloves to protect from burrs and sharp edges.

1. Wipe the fingers and the material bed clean.
2. With no material between the fingers and the material bed, step down on the clamping pedal to the locked position.
3. Loosen the socket cap screws on the fingers. Push the fingers tight against the material bed and tighten the cap screws.

Positioning the Bend Stop

The bend stop is used for repeat bending when you want the bending leaf to stop at the same position each time. (Fig. 4)

4. Loosen the bend stop bolt (**A**) and make your bend, stopping at the top of the bend.
5. Tighten the bend stop bolt. Use the adjustment bolt (**B**) to fine tune the stop point.
6. The bending angle can now be repeated until reset by the operator.

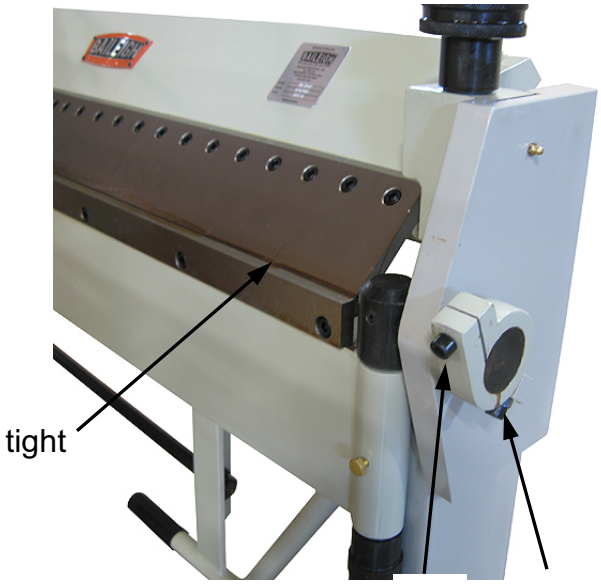


Figure 4

Clamp Alignment (end to end)

Make a 90° test bend about 2” (50.8mm) in from each end of the machine. Stack the bent strips on top of each other and check that they are bent to the same degree.
If a strip is over bent, increase the setback distance on that side. If a strip is under bent, decrease the setback distance on that side. Again, move the setback adjustment past the desired set back point, and then forward to remove the slack.

Adjusting the Setback

Setback is the distance from the front edge of the finger to the front edge of the bending wing block as shown in (Fig. 5). This distance is determined by the gauge (thickness) of the piece part and inside radius of the bend. The setback is typically 1.5 - 2 times the material thickness.

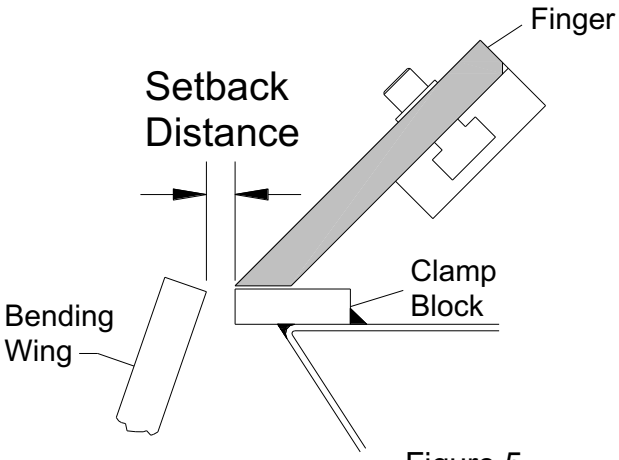


Figure 5

1. To adjust, make sure all the fingers are properly aligned to each other and the hold down assembly is not locked in the down position.
2. Loosen the setscrews (**C**) at the front of the bending leaf (Fig.6).
3. As evenly as possible, turn the adjustment knobs (**D**), which moves the bending leaf away from the fingers.
4. When the bending wing is at the correct setback distance and parallel to the clamp block edge, tighten the setscrews (**C**).

Figure 6

Adjusting the Clamping Pressure

⚠ CAUTION:

- **Excessive clamping pressure can "pre load" and permanently distort the brake.**
- **DO NOT bend material heavier than the rated capacity, even in shorter lengths.**
- **Use material with square-sheared edges. (a rolled edge will cause bowing).**
- **Bending a round object will warp or nick the clamp edge.**
- **Adjust the clamp pressure accordingly for different metal gauges.**
- **Do not use a weight or extension(s) on the clamp pedal to get more leverage.**

The clamping pressure may have to be adjusted as the thickness of the piece part changes. A suitable pressure should have a medium resistance when stepping down on the clamping pedal while holding the piece part securely in position.

1. Place a sample piece of material into the brake and step down on the clamping pedal.
2. If the clamping pressure seems too hard (more the 100 lbs. [45 kg] force) or cannot be clamped:
   a. Release the clamping pedal and turn the adjustment knobs (**E**) evenly counterclockwise (**ccw**) 1 turn at a time. After each turn test the clamping pressure until the part can be clamped without moving.
3. If the clamping pressure seems too light and the sample piece will move under the fingers:
   a. Release the clamping pedal and turn the adjustment knobs (**E**) evenly clockwise (**cw**) 1 turn at a time. After each turn test the clamping pressure until the part can be clamped without moving.

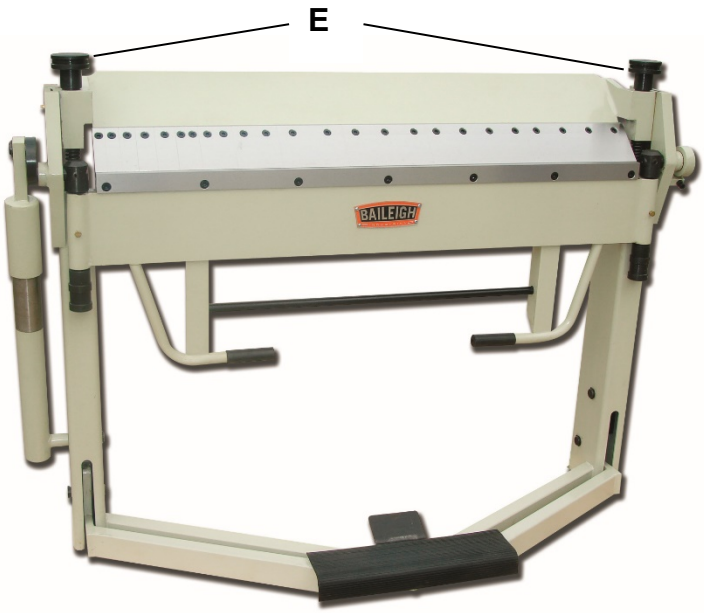


Figure 7

Once the pressure feels right, no further adjustments are necessary for this thickness piece part. (When changing thickness, it may become necessary to adjust again.).

OPERATION

When performing basic bending operations, it is important that the fingers of the brake are parallel with the edge of the clamping block. Also make sure you have the proper setback and clamping pressure set for the thickness material being bent.

CAUTION: Always wear proper eye protection with side shields, safety footwear, and leather gloves to protect from burrs and sharp edges.

CAUTION: Keep hands and fingers clear of the clamping beam. Stand off to the side of the machine to avoid getting hit with the bending apron as it comes up to bend.

CAUTION: When handling large heavy sheets make sure they are properly supported.

Bending Sheet Metal

1. Lift the clamping pedal to raise the clamping assembly.
2. Insert the piece part between the clamp block and the brake fingers.
3. Align the fingers of the hold down assembly to the scribed bend line of the piece part and clamp in place by stepping down on the clamping pedal.

Note: DO NOT force the clamping pedal. The holding pressure only needs to be tight enough to hold the sheet metal from moving when bending.

4. Pull up on the bending leaf handles until the piece part has reached the desired bend angle.
5. Lower the bending leaf, release the clamping pedal, and remove the bent piece part.
6. If you are doing box and pan bending, choose fingers that closely match the dimensions of the finished piece.

BENDING ALLOWANCE

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

UNDERSTANDING SPRINGBACK

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

MATERIAL SELECTION

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

When selecting materials keep these instructions in mind:

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

LUBRICATION AND MAINTENANCE

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

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

- Check daily for any unsafe conditions and fix immediately.
- Check that all nuts and bolts are properly tightened.
- On a weekly basis clean the machine and the area around it.
- Lubricate threaded components and sliding devices.
- Apply rust inhibitive lubricant to all non-painted surfaces.

Lubrication Points

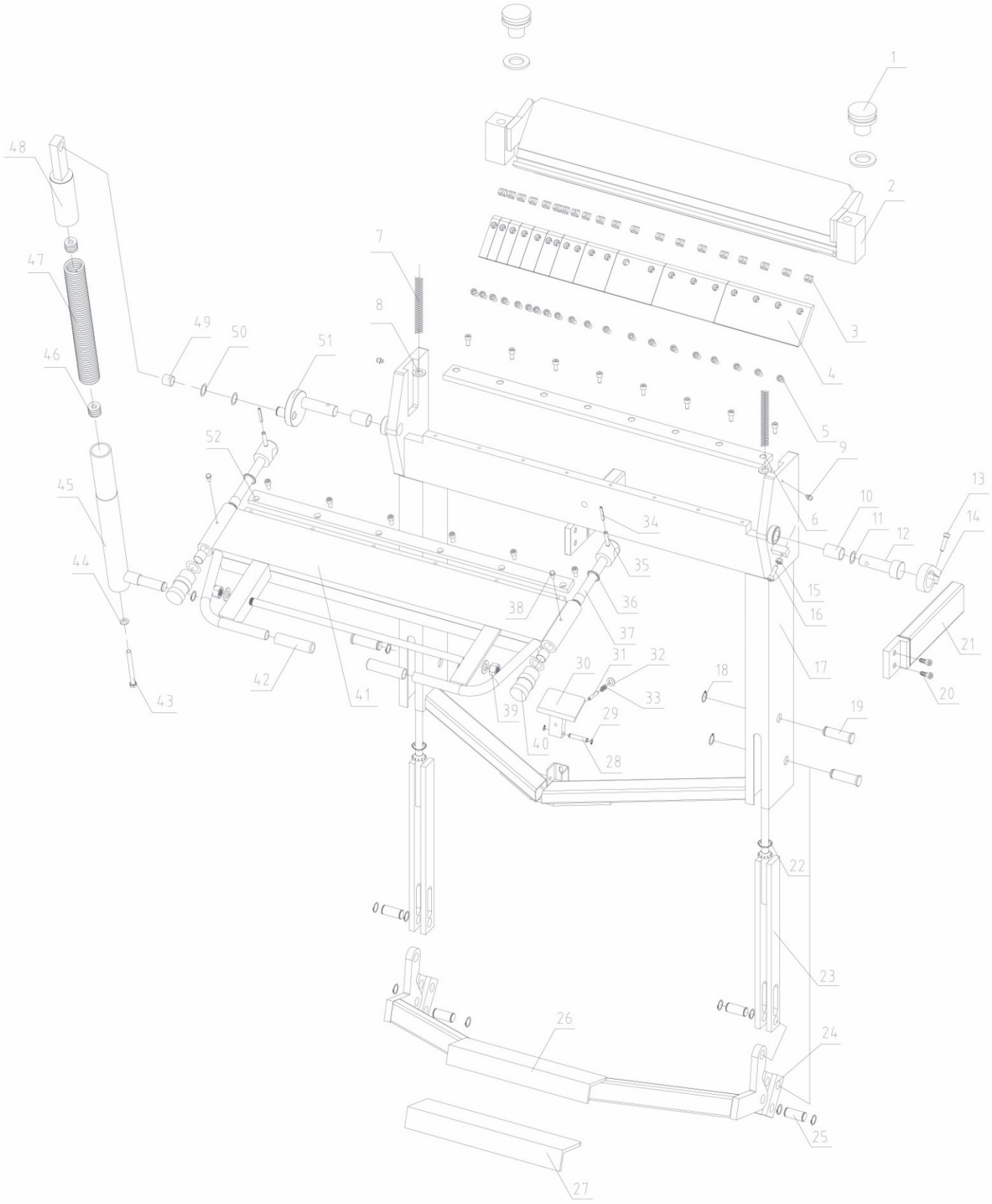
Using an oil can with a good quality #30W oil, apply 5-6 drops to all of the pivot points on both ends of the machine. Repeat weekly or more often depending on usage. Wipe off any excess oil.

Grease the fittings on each end of the machine weekly or more often depending on usage. Wipe off any excess grease.

Figure 8

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

PARTS IDENTIFICATION DRAWING



Parts Identification List

Item	Part No.	Description	Size	Qty.
1	BB4012F-1	Adjusting Nut		2
2	BB4012F-2	Clamping Leaf		1
3	BB4012F-3	T-Nut M10-1.5		20
4	BB4012F-4	Upper Fingers		11
4-1	BB4012F-4-1	1" Finger	1"	1
4-3	BB4012F-1250F	1-1/4" Finger	1-1/4"	1
4-4	BB4012F-1375F	1-3/8" Finger	1-3/8"	1
4-5	BB4012F-1500F	1-1/2" Finger	1-1/2"	1
4-6	BB4012F-1750F	1-3/4" Finger	1-3/4"	1
4-7	BB4012F-2000F	2" Finger	2"	1
4-8	BB4012F-3000F	3" Finger	3"	1
4-9	BB4012F-4000F	4" Finger	4"	1
4-10	BB4012F-5000F	5" Finger	5"	1
4-11	BB4012F-8000F	8" Finger	8"	1
4-12	BB4012F-10000F	10" Finger	10"	1
5	TS-1505021	Socket Head Cap Screw	M10X20	38
6	BB4012F-06	Clamping Block		1
7	BB4012F-7	Adjusting Nut Spring		2
8	F2360204	Flat Washer	M20	6
9	F6520811	Straight Grease Fittings	M8P1.0	2
10	BB4012F-10	Brass Bushing	30 x 34 x 50mm	2
11	BB4012F-11	Flat Washer	30mm	2
12	BB4012F-12	Folding Leaf Pin		1
13	TS-1505051	Socket Head Cap Screw	M10X35	1
14	BB4012F-14	Stop Collar		1
15	TS-2310104	Hex Nut	M10P1.5	1
16	TS-1505061	Socket Head Cap Screw	M10X40	1
17	BB4012F-17	Leg		1
18	F207025	Retaining Rings, EXT	M25	13
19	BB4012F-19	Leg Pin		3
20	TS-1505041	Socket Head Cap Screw	M10X30	4
21	BB4012F-21	Extension Bracket		2
22	BB4012F-22	Disc Spring	40 x 20 x 1 x 2.4mm	4
23	BB4012F-23	Rod		2

Item	Part No.	Description	Size	Qty.
24	BB4012F-24	Foot Pedal Lever		4
25	BB4012F-25	Lever Pin		4
26	BB4012F-26	Foot Pedal		1
27	BB4012F-27	Tread Plate Rubber		1
28	BB4012F-28	Roll Pin		2
29	BB4012F-29	Ext Retaining Ring 10mm		1
30	BB4012F-30	Foot Pedal Lock		1
31	F2098501	Spring Pin	8X50	1
32	TS-2360083	Flat Washer	M8	1
33	BB4012F-33	Pedal Lock Compression Spring		1
34	F2096501	Spring Pin	6X50	2
35	F20910501	Spring Pin	10X50	2
36	BB4012F-36	O-Ring 33 x 25mm	25X3.55	2
37	BB4012F-37	Setback Knob		2
38	TS-2228161	Hex Cap Screw	M8X16	2
39	TS-2310201	Hex Nut	M20P2.5	2
40	BB4012F-40	Setback Knob		2
41	BB4012F-41	Bending Leaf		1
42	BB4012F-42	Operating Handle		2
43	F22121501	Hex Cap Screw	M12X150	1
44	F0730121	External Tooth Lock Washers	M12	2
45	BB4012F-45	Bottom Telescoping Strut		1
46	BB4012F-46	Spiral Block		1
47	BB4012F-47	Spring		1
48	BB4012F-48	Top Telescoping Strut		1
49	BB4012F-49	Brass Bushing 25 x 28 x 25mm		1
50	BB4012F-50	Shim Ring		1
51	BB4012F-51	Crank		2
52	BB4012F-52	Bending Leaf Blade		1
	BB4012F-BGA	Optional Back Gauge Assembly 19.5” (500mm)		1
	BB4012F-6000F	6" Finger		1
	BB4012F-Finger Set	Full Set of Fingers		1

TROUBLESHOOTING

FAULT	PROBABLE CAUSE	REMEDY
INACCURATE BENDS	Fingers are not aligned	Follow proper finger alignment procedure.
	Setback distance is not equal from one side to the other	Accurately measure distance and set accordingly.
	Clamping assembly is not holding piece part securely.	Re-adjust the clamping pressure.
BENDING LEAF HARD TO LIFT AND BEND.	Exceeding the bending limits of the brake.	Do not bend material thicker than the machine was designed for.
	Counterweight is not on leaf.	Attach the counterweight to lessen force needed to lift bending leaf.

NOTES

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