HAFCO METALMASTER

Edition : 1.0
Date: (07/25)

Instruction Manual

MANUAL PANBRAKE
PB-1220H

Order Code: (S251)

Pre-Use Warning - Clamping Head is Locked for Transport

IMPORTANT:

The panbrake's clamping leaf has been securely locked for transport and must be loosened before use.

To unlock:

Use 22mm & 19mm spanners to release the clamping leaf lock nuts on both sides. refer (Fig. 1).

Refer to Page 9-10 for detailed setup instructions, including how to adjust the clamping setback & pressure for your material thickness.

Failure to unlock the clamping head before operation may result in damage to the machine or improper bending performance.

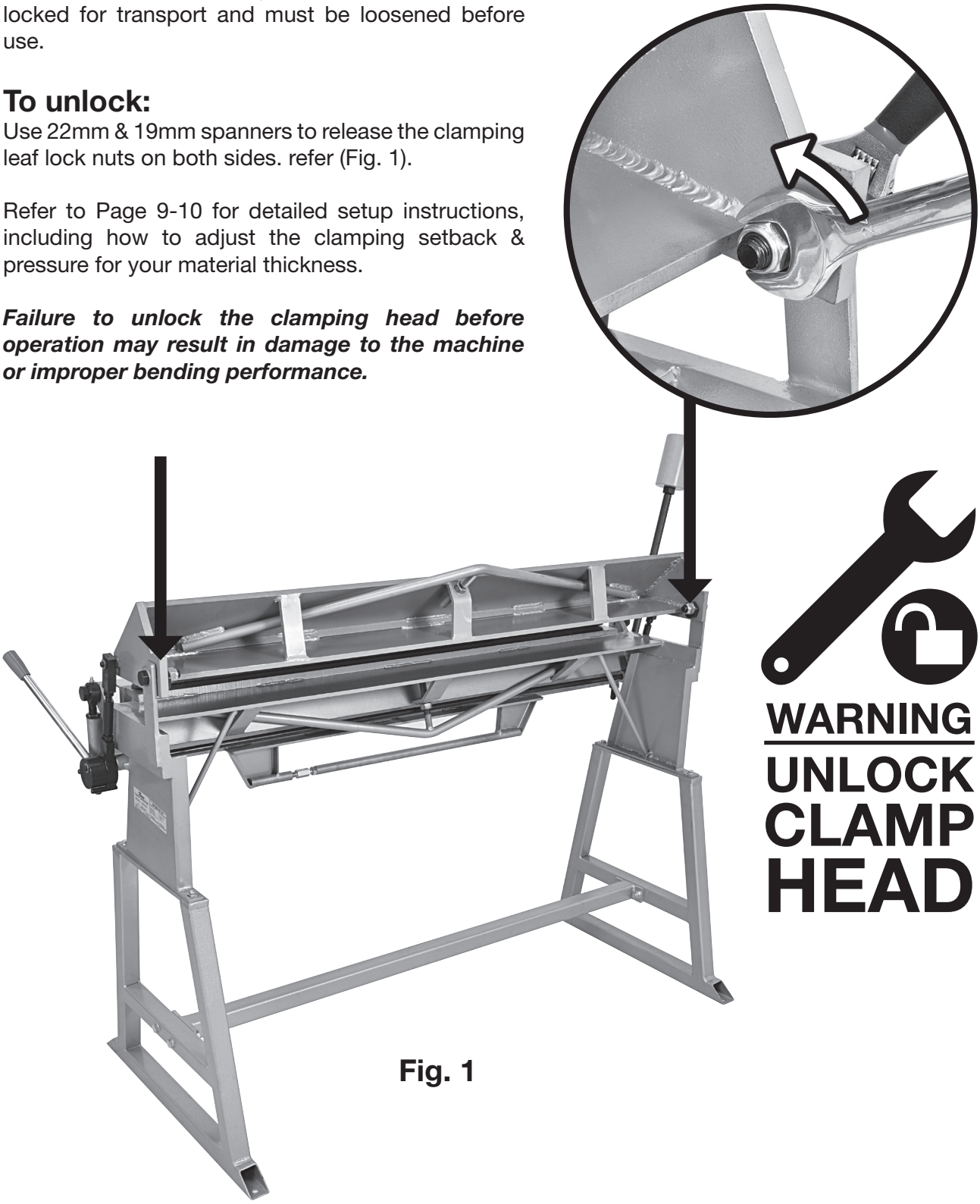


Fig. 1

MACHINE DETAILS

MACHINE.	MANUAL PANBRAKE
MODEL NO.	PB-1220H
SERIAL NO.	
DATE OF MANF.	

Imported by

Australia

HARE&FORBES MACHINERYHOUSE

www.machineryhouse.com.au

New Zealand

MACHINERYHOUSE

www.machineryhouse.co.nz

NOTE:
This manual is only for your reference. At the time of the compiling of this manual every effort to be exact with the instructions, specifications, drawings, and photographs of the machine was taken. Owing to the continuous improvement of the HAFCO METALMASTER machine, changes may be made at any time without obligation or notice. Please ensure the local voltage is the same as listed on the specification plate before operating any electric machine.

SAFETY SYMBOLS:
The purpose of safety symbols is to attract your attention to possible hazardous conditions

⚠ WARNING ***Indicates a potentially hazardous situation causing injury or death.***

⚠ CAUTION ***Indicates an alert against unsafe practices.***

Note: Used to alert the user to useful information

NOTE:
In order to see the type and model of the machine, please see the specification plate. Usually found on the back of the machine. See example (Fig.1)

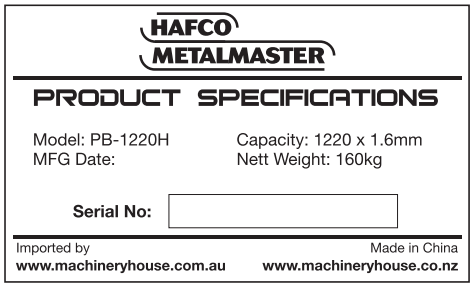


FIG.1

CONTENTS:

1.1 SPECIFICATIONS

Order Code	S251
Model	**PB-1220H**
Bending Capacity - Mild Steel (mm)	1.2
Material Length Capacity (mm)	1220
Maximum Side for Pan or Box (mm)	60
Includes Stand (Yes / No)	Yes
Dimensions Width x Depth x Height (cm)	65 x 48 x 70
Weight (kg)	159

WARNING!

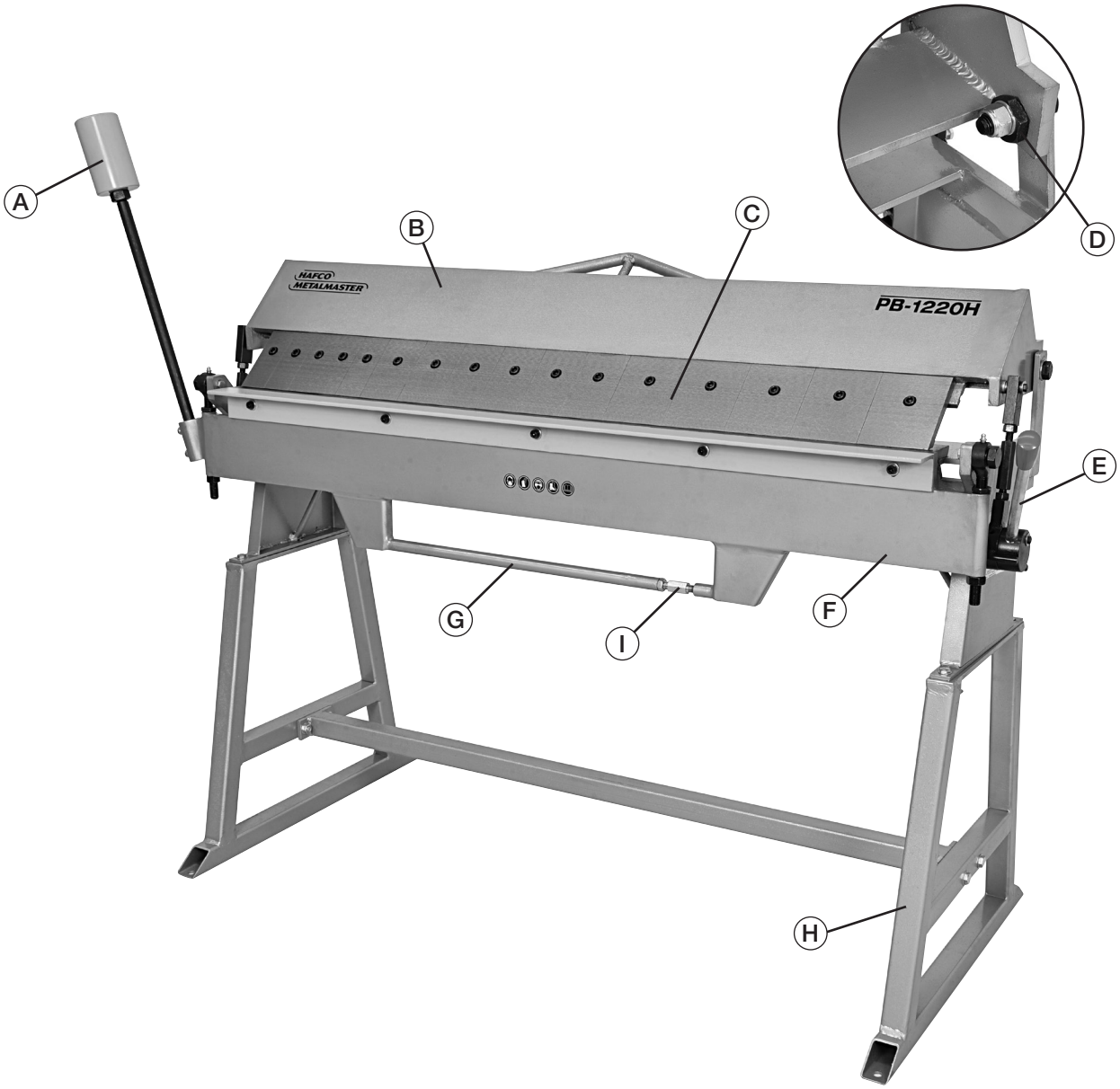
Always check the capacity of the machine. Exceeding the capacity of the machine may result in sudden breakage that ejects dangerous metal debris at the operator or bystanders.

1.2 FEATURES AND ACCESSORIES

Segmented Fingers - 5pcs of 102mm, 6pcs of 77mm & 5pcs of 50mm
Pan brake head adjustment via a cam bolt on each side
20mm solid bar on head & bed tensioner arms
Height adjustable apron
Apron crowning via adjustable bending handle
Self Aligning bearing on the pivot points for the apron
50 x 50mm steel angle support on apron
Counter weight

1.3 IDENTIFICATION

Become familiar with the names and locations of the controls and features shown below to better understand the instructions when mentioned later in this manual.



A	Counter Weight	**E**	Clamping Handle
B	Clamping Leaf	**F**	Bending Leaf
C	Clamping Fingers	**G**	Bending Handle
D	Set Back Adjustment	**H**	Stand
		I	Crowning Adjustment Rod

2.1 SAFETY SPECIFIC TO PANBRAKES

DO NOT use this machine unless you have been instructed
in its safe use and operation or have read and understood this manual.

PERSONAL PROTECTIVE EQUIPMENT


Safety glasses must be worn at all times in work areas


Long and loose hair must be contained.


Gloves not be worn when using this machine.


Sturdy footwear must be worn at all times in work areas


Close fitting/protective clothing must be worn


Rings and jewelery must not be worn.

PRE-OPERATIONAL SAFETY CHECKS

- ✓ Locate and ensure you are familiar with all machine operations and controls.
- ✓ Ensure all guards are fitted, secure and functional. Do not operate if guards are missing or faulty.
- ✓ Ensure working parts are well lubricated and the jaws and fingers free of rust and dirt.
- ✓ Check workspaces and walkways to ensure no slip/trip hazards are present
- ✓ Be aware of other people in the area. Ensure the area is clear before using equipment.

OPERATIONAL SAFETY CHECKS

- ✓ Remove the Panbrake fingers that are in the way. Use only the Panbrake fingers required to make the bend.
- ✓ Ensure the Panbrake fingers that are not removed for an operation are securely seated and firmly tightened before the machine is used.
- ✓ Ensure your fingers and limbs are clear before operating the Panbrake.
- ✓ Lower finger clamps to work. Do not drop. (Keep hands and fingers clear from clamp area)
- ✓ Check workpiece is secure.
- ✓ Keep clear of moving counterweight (where fitted).

ENDING OPERATIONS AND CLEANING UP

- ✓ Lower finger clamps to a safe position.
- ✓ Return all accessories to storage racks.
- ✓ Leave the work area in a safe, clean and tidy state.

DON'T

- × Do not use faulty equipment. Immediately report suspect machinery.
- × Do not use a Panbrake for bending metal that is beyond its capacity for thickness, shape or type.
- × Do not attempt to bend rod, wire, strap or spring steel sheets.

POTENTIAL HAZARDS AND INJURIES

- ✓ Sharp edges and burrs.
- ✓ Squash/crush and pinch points.
- ✓ Impact from counterweight.

3 SET-UP

3.1 UNPACKING

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. If items are damaged, please contact your distributor.

NOTE: Save all the packaging materials until you are completely satisfied with the machine and have resolved any issues with the distributor, or the shipping agent.

When unpacking, check the packing list to make sure that all parts shown are included. If any parts are missing or broken, please contact your distributor.

3.2 CLEAN - UP

The unpainted surfaces of the machine have been coated with a waxy oil to protect them from corrosion during shipment. Remove the protective coating with a solvent cleaner or a citrus based degreaser.

Optimum performance from your machine will be achieved when you clean all moving parts or sliding contact surfaces that are coated with rust preventive products.

It is advised to avoid chlorine based solvents, such as acetone or brake parts cleaner, as they will damage painted surfaces and strip metal should they come in contact. Always follow the manufacturer's instructions when using any type of cleaning product.

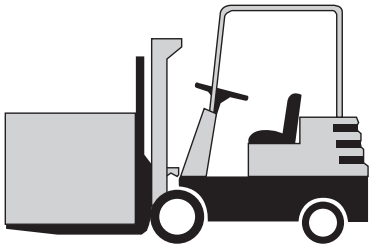
3.3 SITE PREPARATION

When selecting the site for the machine, consider the largest size of workpiece that will be processed through the machine and provide enough space around the machine for operating the machine safely. Consideration should be given to the installation of auxiliary equipment. Leave enough space around the machine to open or remove doors/covers as required for the maintenance and service as described in this manual.

It is recommended that the machine is anchored to the floor to prevent tipping or shifting. It also reduces vibration that may occur during operation.

3.4 LIFTING INSTRUCTIONS

⚠WARNING ***This machine is extremely heavy. Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance and power equipment when moving the shipping crate and removing the machine from the crate.***



On the day that the machine arrives, make sure that a forklift or lifting device, with sufficient capacity is available to unload the machine from the vehicle. Ensure access to the chosen site is clear and that doors and ceilings are sufficiently high and wide enough to receive the machine.

3.5 ANCHORING TO THE FLOOR

OPTIONS FOR MOUNTING

The machine is best mounted on a concrete slab.
Masonry anchors with bolts are the best way to anchor machinery, because the anchors sit flush with the floor surface, making it easy to unbolt and move the machine later if needed. (Fig. 3.1)

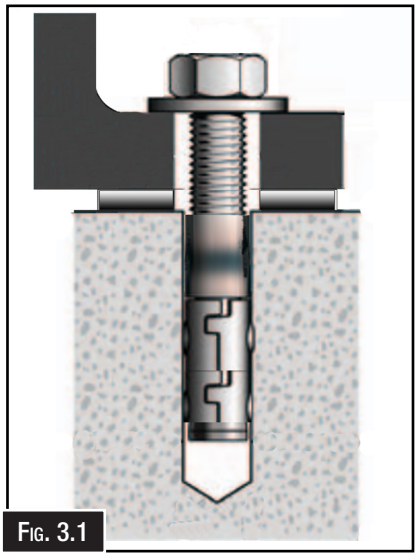


Fig. 3.1

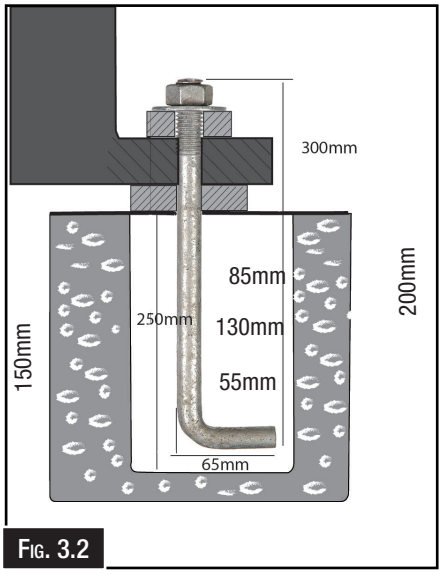


Fig. 3.2

In some case a suitable foundation may not be available and a new one may need to be prepared.

The foundation should be concrete approximately 200mm thick with pockets left clear for the hold down bolts. The hold down bolts can be “L” shape as per the example in Fig. 3.2

3.6 ASSEMBLY

The machine must be fully assembled before it can be operated. First clean any parts that are coated in rust preventative to ensure the assembly process can proceed smoothly.

Assembling The Stand:

1. Remove the box cover and carefully lift the main frame with webbed slings off the pallet.
2. Attach the cross support to the two side support legs with bolts and nuts supplied (Fig. 3.3)
3. Using the webbed slings, lift the main body up and while holding it up with the slings attach the stand to the machine.

Fig. 3.3

CAUTION!

Do not install the machine in areas that are wet, cluttered, or have poor lighting.

Counter Weight:

1. With the help of another person lift the counter weight up and insert it into the location hole.(Fig. 3.4)
2. Clamp the counter weight with the two bolts provided in the the location hole.

Fig. 3.4

3.7 MACHINE ADJUSTMENTS

To prevent movement of the parts of the machine during transport, certain parts of the machine have been locked. Before operating certain operations need to take place.

Lock and Cam Nut
The lock nut has been tightened to stop the larger Cam nut moving during transport. (Fig. 3.5)

The lock nut needs to be released and the set back set before operation. **(See 4.4 ADJUSTING THE SETBACK Page 14)**

Clamping Pressure
The 2 x Side clamping pressure adjusting bolt also need to be set before operating.
(See **4.5 ADJUSTING CLAMP PRESSURE Page 14)**

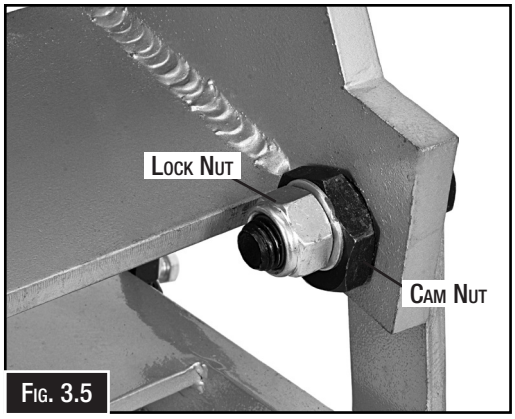


Fig. 3.5

4. OPERATION

4.1 OPERATION OVERVIEW

The purpose of a operation overview is to provide a novice machine operator with a basic understanding of how to operate the machine and the process, so if the machine controls and its components are discussed later in this manual, they will be understood. This overview, is not intended to be an instructional guide. If specific instructions in the operation is required, then read this entire manual, seek additional training from an experienced operator, and do additional research by looking at websites or reading “how-to” books.

To complete a typical operation:

1. Put on safety glasses, leather boots, and leather gloves.
2. Examine the workpiece to make sure it is suitable for bending.
3. If required for the operation, adjust the clamping finger spacing.
4. Adjust the clamping pressure for the workpiece thickness.
5. Adjust the setback.
6. Properly position the workpiece underneath clamping fingers and lower the clamping leaf to secure workpiece.
7. With body square to brake and using both hands, raise the bending leaf to form the correct bend angle.

WARNING

Injuries can result from using this machine. Always wear safety glasses, leather work boots, and heavy duty leather work gloves when operating this machine or whenever handling sheet metal.

4.2 ADJUSTING THE CLAMPING FINGER SETBACK

Before beginning the bending operation, first consideration must be given to the thickness of the material and whether sharp or rounded bends are required.

To achieve this, the setback needs to be set. Setback is the distance from the forward edge of the fingers to the edge of the bending leaf. The setback distance is determined by the thickness of the workpiece material and the desired radius of the bend.

Setback is normally set at 1½ times the thickness of the workpieces under 0.9mm, and two times the thickness of workpieces when thicker than 0.9mm.

TO ADJUST SETBACK:

1. Calculate the setback required for the bend.
2. Raise the clamping leaf about 10mm off the clamping surface.
3. Loosen the hex head nuts that are securing the setback cams on both ends of the machine. (Fig. 4.2).
4. Using a spanner, loosen lock nut, then use a large spanner to adjust the cam on each end of the machine until the desired set back is achieved.

Note: Setback cams are eccentric. Turning them will adjust the clamping leaf back or forward from its original position.

5. Lower the clamping fingers onto the clamping surface and check set back distance.
6. If necessary, repeat Steps 2–4 until desired setback is achieved.
7. Check the finger alignment (refer to Aligning Fingers on Page 10).

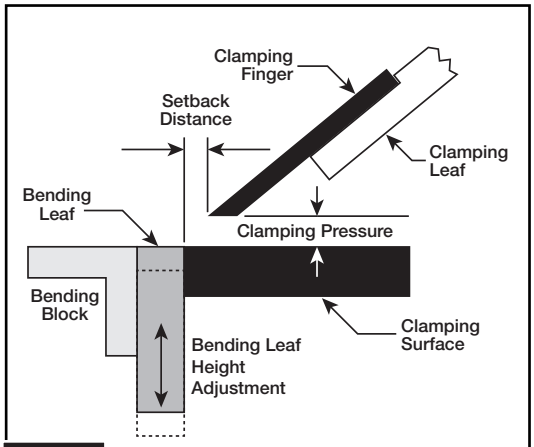


Fig. 4.1

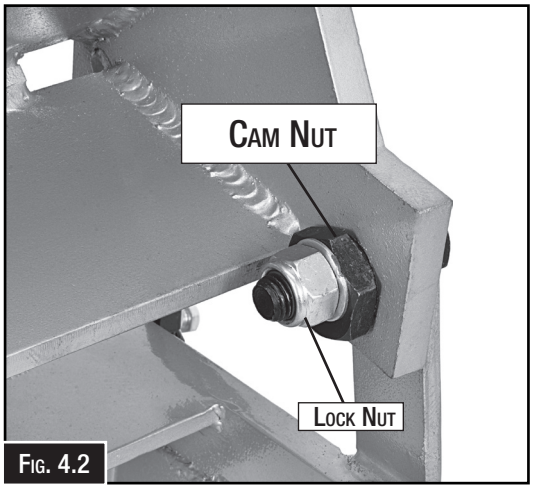


Fig. 4.2

4.3 SETTING THE BENDING LEAF HEIGHT

Adjust the bending leaf height using the top and bottom lock nuts on both sides of the machine. Be sure to adjust both sides evenly to maintain correct alignment across the full width.

Once the desired height is set, securely tighten both lock nuts to lock the position.

Tip: Lowering the bending leaf increases the bending radius of the material while reducing the force required to complete the bend.

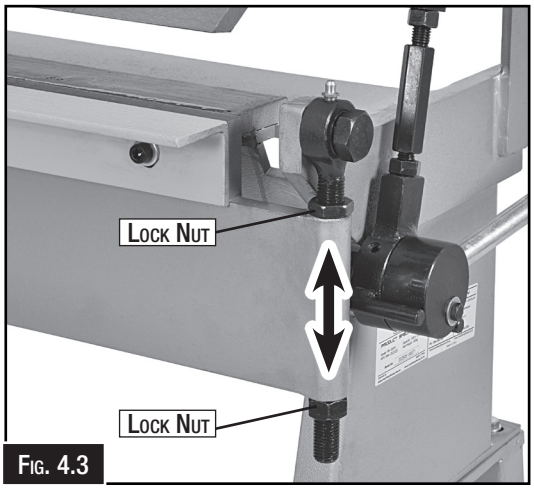


Fig. 4.3

4.4 ALIGNING FINGERS

The bend needs to be even along its entire length, so the clamping fingers must be parallel with the clamping surface and the bending leaf.

To align the clamping fingers:

1. Lower the clamping leaf until the fingers just touch clamping surface.
2. View the bottom edge of each finger to determine if any are out of alignment.
3. If a finger is misaligned, then loosen the cap screw just enough to move it up or down. (Fig. 4.4)
4. Align finger parallel with clamping surface and bending block, and then tighten cap screw.

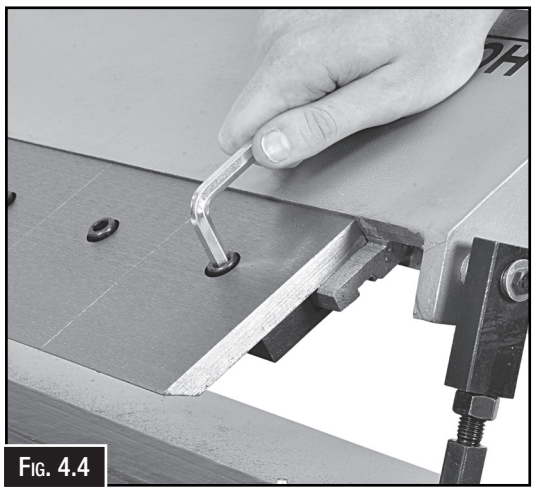


Fig. 4.4

4.5 SPACING FINGERS

For folding box sections, the clamping fingers can be spaced apart for clearance. This requires removing one or more of the fingers, so the others can be spaced to match the inside width of the workpiece.

To space the clamping fingers:

1. On the fingers that need to be removed, loosen the cap screw. (Fig. 4.5)
2. Remove the fingers from the clamping leaf.

Note: A mix and match of the finger widths may be required to appropriately match the inside width of the workpiece

3. Align remaining fingers and tighten cap screws

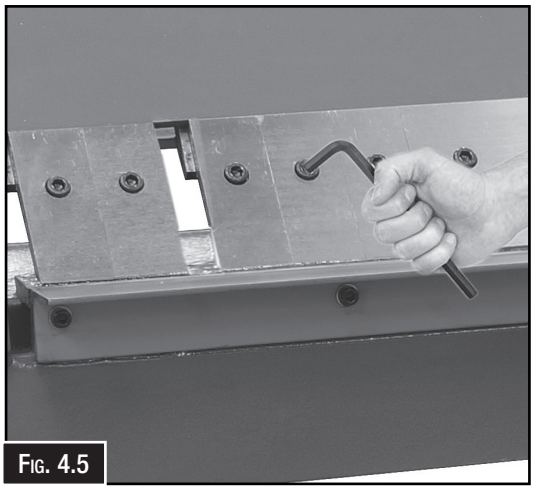


Fig. 4.5

4.6 ADJUSTING CLAMP PRESSURE

Clamping pressure needs to be adjusted for different workpiece thicknesses. The ideal pressure will have a medium resistance at the clamping handles.

To adjust the pressure:
Lower the clamping leaf so the fingers just touch the clamping surface, and lightly clamp the sheet metal in place. If the lever is hard to lock in position, unlock the lock nuts on both sides and adjust both turnbuckles (Fig. 4.6) to accept the workpiece thickness then tighten all lock nuts once done.

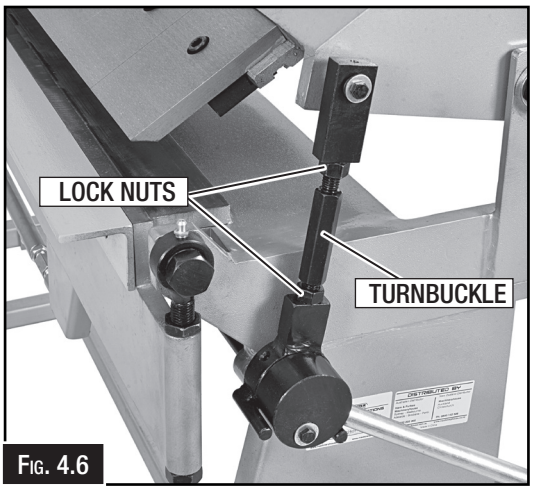


Fig. 4.6

4.7 BENDING SPRING BACK

Spring back occurs when the material angle tries to return to its original shape after being bent. When working on the Panbrake, the operator will over-bend to the bending angle, which is an angle past the required bent angle, compensating for the spring back. Over bending to the bending angle allows the desired bent angle to be achieved when the workpiece is released from the pressure applied.

Variables in spring back are normal. The stronger (higher tensile) a material is, the greater the spring back will be. The sharper the radius is, the less spring back there will be (up to a point).
And the greater the bend radius is in relationship to the material thickness, the greater the spring back.

The following ranges for the spring back are approximate, if there is a 1-to-1 relationship between the material thickness and inside radius:

304 stainless steel: 2 to 3 degrees
Mild aluminium: 1.5 to 2 degrees
Cold-rolled steel: 0.75 to 1.0 degrees
Hot-rolled steel: 0.5 to 1.0 degrees
Copper and brass: 0.00 to 0.5 degrees

4.8 BENDING BASICS

Bending operations require the clamping fingers to be parallel with the edge of the clamping surface and bending leaf, and the setback and clamping pressure must be correctly adjusted for the thickness of the workpiece.

1. Calculate the required setback for the bend and make the adjustment to the machine if needed (refer to Adjusting Setback on Page 9).

2. Lift the clamping leaf.

3. Place the workpiece between the clamping fingers and clamping surface.

4. Line up the bending marks on the workpiece with the fingers, then clamp it in place using clamping handles.

Note: Ensure the clamping handle locks down. If not the clamping pressure may need to be adjusted (refer to Adjusting Clamping Pressure on Page 10).

5. With the operators body square to the machine and using both hands, lift the bending leaf until the workpiece reaches desired bend angle.

6. Raise clamping leaf and remove workpiece.

WARNING!

Take care when operating this machine. Crush Points can occur between the apron and the workpiece or between the workpiece and the table.

4.8 UPPER & LOWER BENDING LEAF CROWNING ADJUSTMENT

To maintain consistent bending accuracy across the full width of the machine, a crown correction may be necessary. This adjustment should only be performed if you're experiencing uneven bend angles or visible crowning (bowing) in the center of the material.

Crowning Adjustment (Apron Center Compensation):

If a crown or upward bow appears in the center of the material during bending, it may be caused by excessive upward pressure at the center of the apron. The following adjustments can help correct this issue:

Lower Bending Leaf Crowning Adjustments

1. (R) Crown Adjustment Rod – Located on Apron Lifting Handle (H)

- Loosen the lock nut to allow adjustment.
- **Tighten** the nuts to **increase crowning** (more upward force in the center).
- **Loosen** the nuts to **reduce crowning** (less upward force).

This rod is factory pre-set and should only be adjusted when necessary. Over adjustment may result in inaccurate bends and reduced machine performance.

2. (L) Lower Crowning Adjustment Nut – Located at Rear of Machine

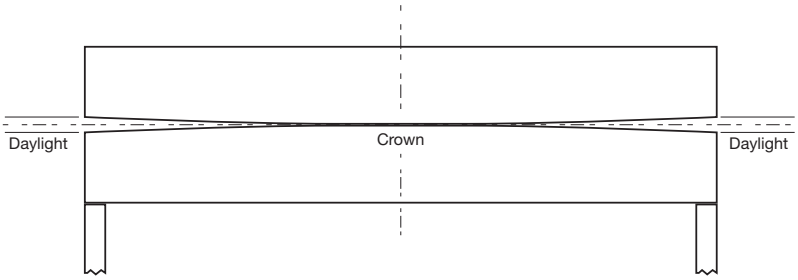
- **Tighten** to increase crown (more upward force).
- **Loosen** to reduce crown (less upward force).

Upper Bending Leaf Crowning Adjustment

(U) Upper Crowning Adjustment Nut – Located at Rear of Machine

- **Tighten** to increase crown (more upward force).
- **Loosen** to reduce crown (less upward force).

Always make adjustments gradually and test bend on scrap material before proceeding with production. Proper crowning adjustment ensures uniform bend results and helps maintain long-term machine accuracy.



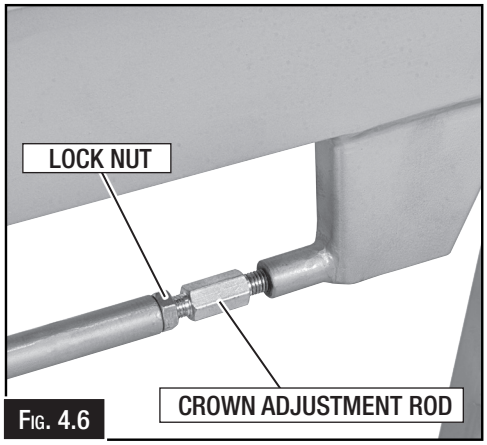


FIG. 4.6

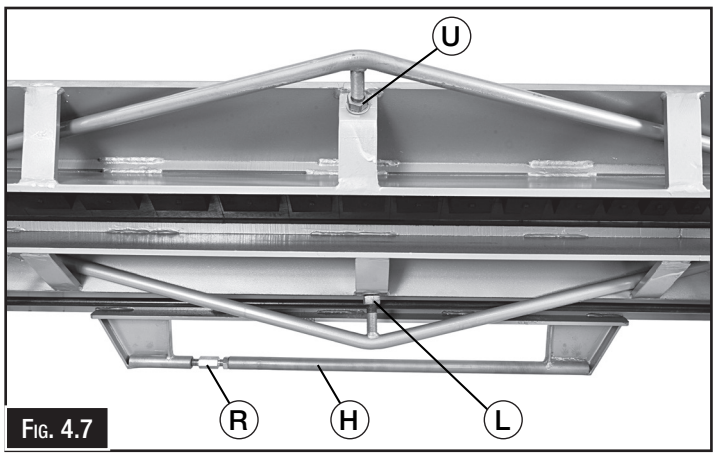


FIG. 4.7

5. MAINTENANCE

It is very important that regular maintenance of the equipment is carried out. The operators needs to follow the daily maintenance procedures.

For optimum performance from this machine, the maintenance schedule listed below and in this section must be followed.

5.1 SCHEDULE

Daily Check

- ❑ Loose mounting bolts or fasteners.
- ❑ Cracked or damaged casting, and fingers.
- ❑ Any other condition that could hamper the safe operation of this machine

Weekly Check

- ❑ Clean machine and use rust preventative
- ❑ Lubricate clamping leaf
- ❑ Grease bending leaf

5.2 LUBRICATION

Clamping Leaf:
Use an oil can to lubricate the oil holes as shown in (Fig. 5.1 & 5.2) making sure to lubricate both sides of the clamping leaf then raise and lower the clamping leaf several times to distribute the lubricant.

Bending Leaf:
Use a grease gun to lubricate the grease nipples as shown in (Fig. 5.1 & 5.2) making sure to do both sides of the bending leaf. Raise and lower the bending leaf several times to distribute the grease.

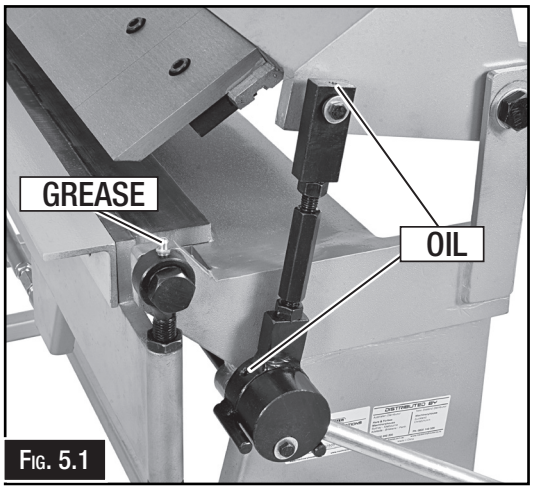


FIG. 5.1

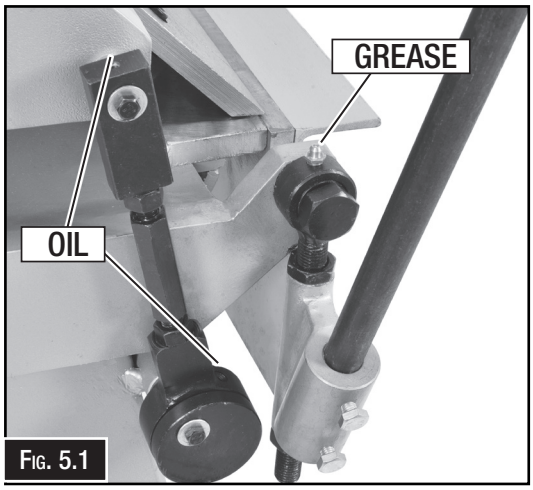
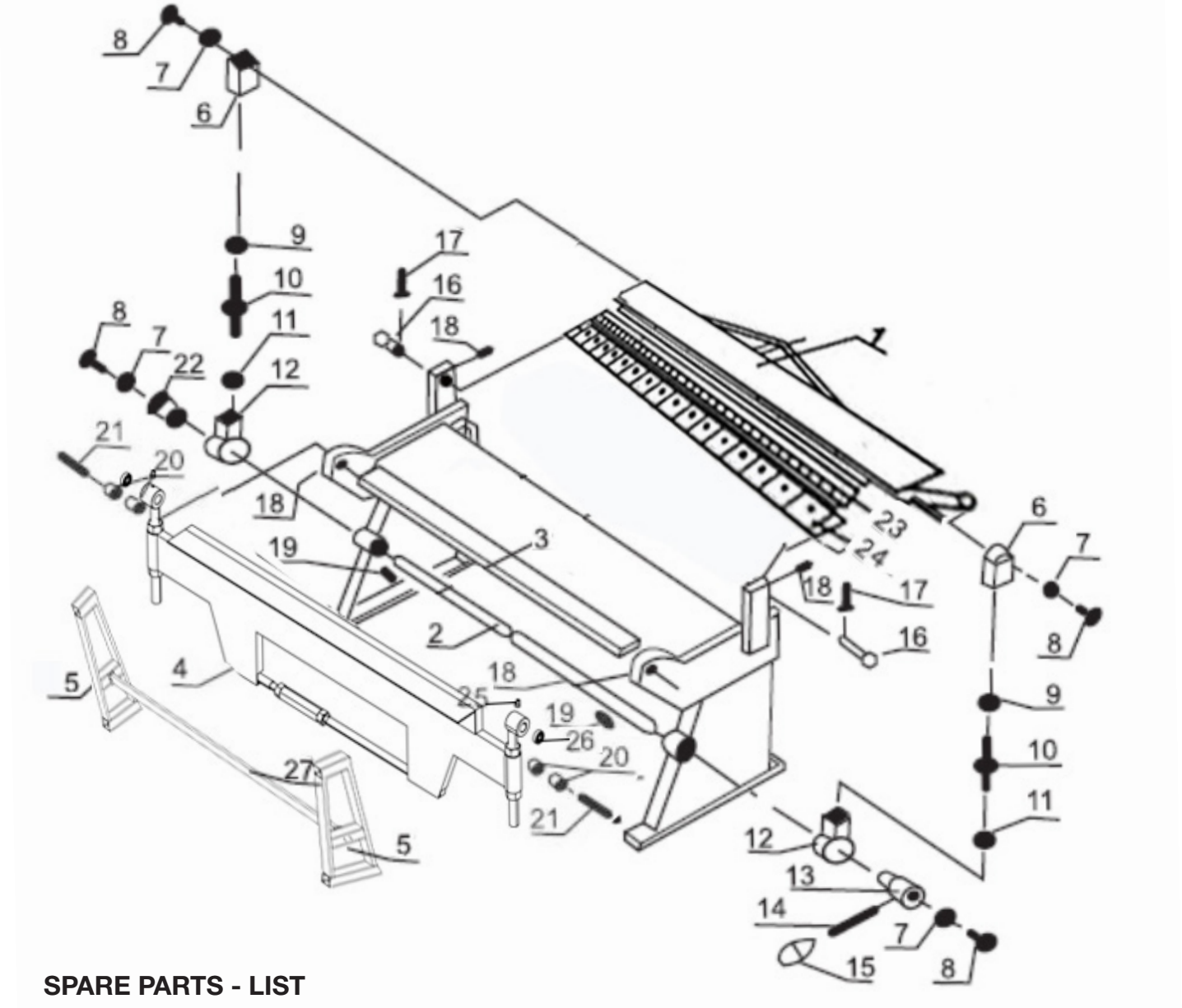


FIG. 5.1

WARNING!

The machine is the sole responsibility of the owner for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training, proper inspection and maintenance, manual availability and comprehension. The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

SPARE PARTS - DIAGRAM



SPARE PARTS - LIST

ITEM	DESCRIPTION	QTY	ITEM	DESCRIPTION	QTY.
1	UPPER DIE FRAMEWORK	1	16	PIN SHAFT	2
2	SHAFT	1	17	SPLIT PIN	2
3	BODY	1	18	SCREW	4
4	BENDING ASSEMBLY	1	19	FLAT KEY	2
5	BRACKET	2	20	BUSHING	4
6	CONNECTING BLOCK	2	21	SMALL SHAFT	2
7	WASHER	2	22	LEFT ECCENTRIC SHAFT	1
8	SCREW	2	23	T BLOCK	16
9	NUT	2	24*	BENDING DIE	1
10	BOLT	2	25	OIL NOZZLE	2
11	NUT	2	26	BEARING	2
12	BUSHING	2	27	CONNECTING ROD	1
13	RIGHT ECCENTRIC SHAFT	1	*24A	2” DIE	5
14	SCREW ROD	1	*24B	3”DIE	6
15	HANDLE JACKET	1	*24C	4” DIE	5

NOTE: SOME INDIVIDUAL PARTS MAY ONLY BE AVAILABLE AS AN ASSEMBLY

NOTES:

ENVIRONMENT PROTECTION

Recycle unwanted materials instead of disposing of them as waste. All tools, accessories and packaging should be sorted, taken to a recycling centre and disposed of in a manner which is compatible with the environment. When the product becomes completely unserviceable and requires disposal, drain any fluids (if applicable) into approved containers and dispose of the product and fluids according to local regulations.

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