MODEL T23035
60" HAND BRAKE
OWNER'S MANUAL

#TS13106 PRINTED IN CHINA

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.

⚠ WARNING!

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

- **Lead from lead-based paints.**
- **Crystalline silica from bricks, cement and other masonry products.**
- **Arsenic and chromium from chemically-treated lumber.**

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

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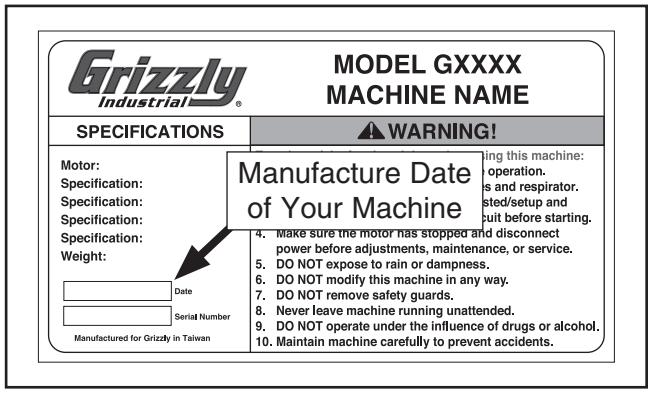
INTRODUCTION

Manual Accuracy

We are proud to offer this manual with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes we still make an occasional mistake.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, check our website for the latest manual update or call technical support for help.

Before calling, find the manufacture date of your machine by looking at the date stamped into the machine ID label (see below). This will help us determine if the manual version you received matches the manufacture date of your machine.



For your convenience, we post all available manuals and manual updates for free on our website at **www.grizzly.com**. Any updates to your model of machine will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
E-Mail: techsupport@grizzly.com

We want your feedback on this manual. If you can take the time, please email or write to us at the address below and tell us how we did:

Grizzly Industrial, Inc.
C/O Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Machine Description

A brake is a tool that is used to bend metal. A crease can be formed in a sheet metal workpiece by clamping the workpiece securely between two flat plates and using a third, hinged, movable plate to bend the workpiece along a straight edge.

The Model T23035 60" Hand Brake is a floor-mounted brake that allows the user to create bends in sheet metal up to 18 gauge and 60" wide.

Identification

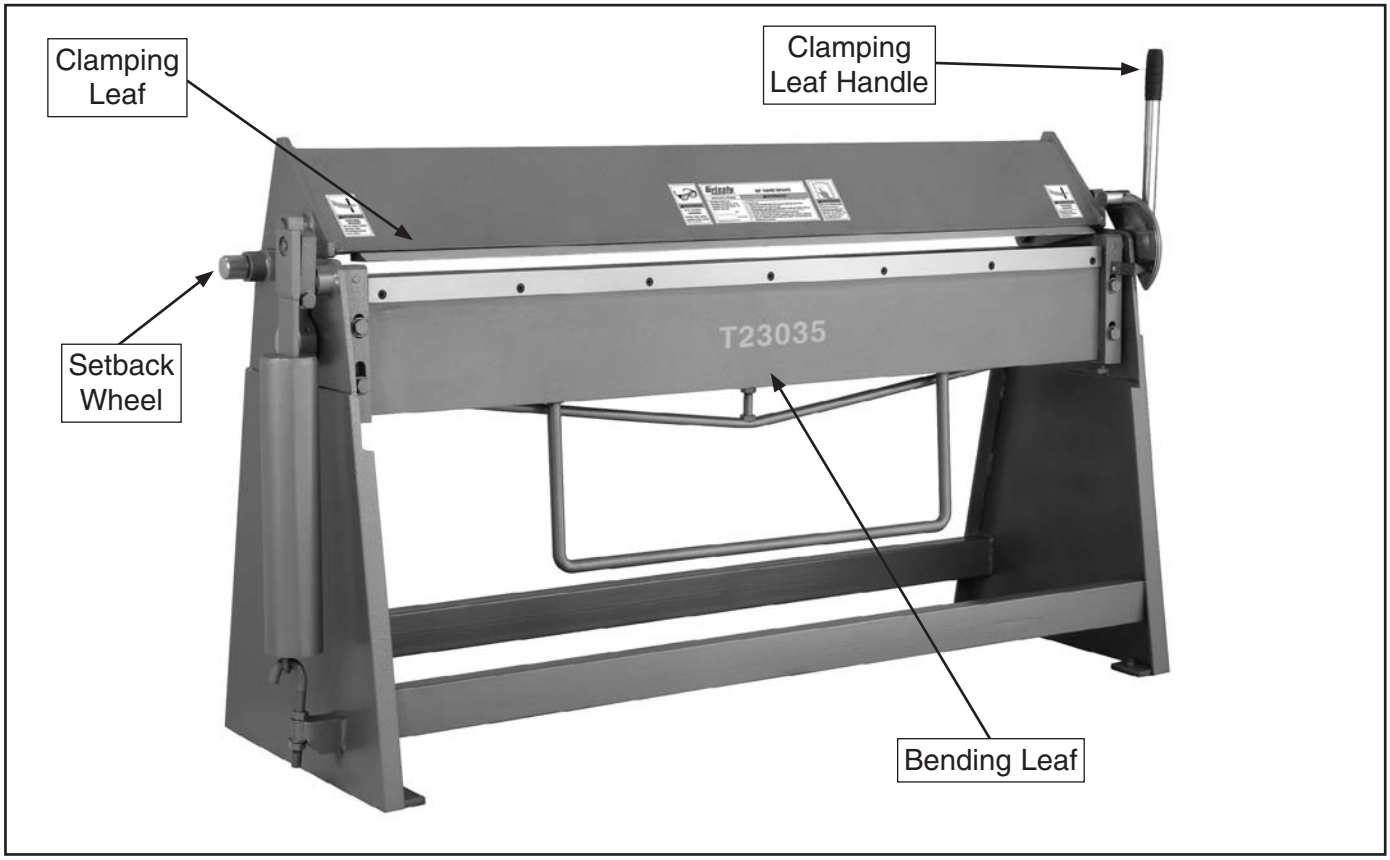


Figure 1. Identification.

Illustration Legend (Figure 2)

Throughout this manual, diagrams are used to illustrate how the components of the machine are used during the various steps of operation.

Familiarize yourself with the illustration to the right, its relationship to the machine, and the symbols used in it before proceeding through this manual.

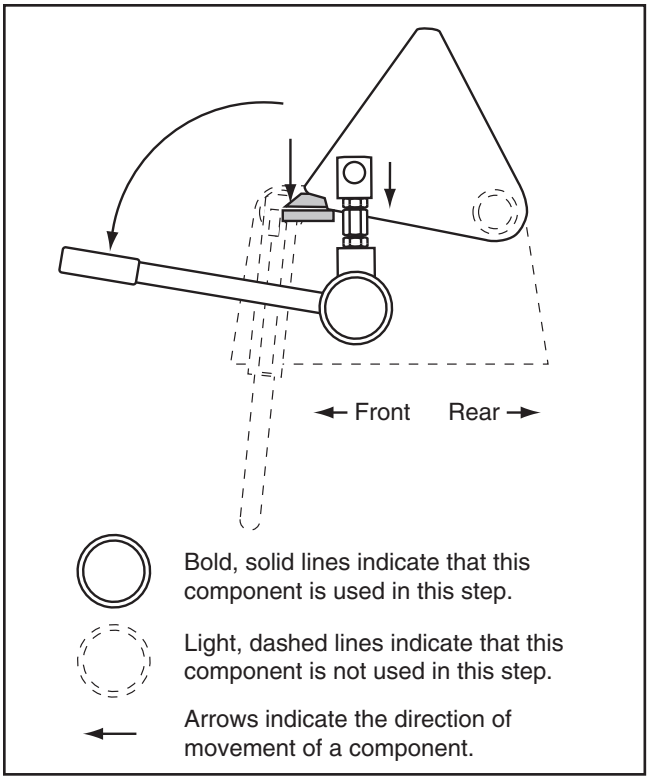


Figure 2. Illustration Legend.

MACHINE DATA SHEET

Customer Service #: (570) 546-9663 • To Order Call: (800) 523-4777 • Fax #: (800) 438-5901

MODEL T23035
60" HAND BRAKE

Product Dimensions:

Weight	653 lbs.
Length/Width/Height	73⅝" x 37½" x 43½"
Foot Print (Length/Width)	65" x 21⅝"

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	776 lbs.
Length/Width/Height	81" x 26" x 46"

Capacities:

Maximum Width	60"
Maximum Thickness	18 Ga. Mild Steel
Minimum Reverse Bend	½"

Construction

Brake	Precision Ground Steel, Hardened Edge
Frame	Welded Steel
Table	Precision Ground Steel
Stand	Steel

Other Specifications:

Country Of Origin	China
Warranty	1 Year
Serial Number Location	ID Label on Front of Machine
Assembly Time	10 minutes

Features:

Easy-to-Adjust Thickness and Setback
Spring-Assisted Bending Leaf

SECTION 1: SAFETY

⚠WARNING

For Your Own Safety, Read Instruction Manual Before Operating this Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

⚠DANGER **Indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.**

⚠WARNING **Indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.**

⚠CAUTION **Indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury. It may also be used to alert against unsafe practices.**

NOTICE **This symbol is used to alert the user to useful information about proper operation of the machine.**

⚠WARNING

Safety Instructions for Machinery

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine. Untrained users can be seriously hurt.

EYE PROTECTION. Always wear ANSI-approved safety glasses or a face shield when operating or observing machinery to reduce the risk of eye injury or blindness from flying particles. Everyday eyeglasses are not approved safety glasses.

HAZARDOUS DUST. Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and always wear a NIOSH-approved respirator to reduce your risk.

WEARING PROPER APPAREL. Do not wear clothing, apparel, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips which could cause a loss of workpiece control.

HEARING PROTECTION. Always wear hearing protection when operating or observiing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

MENTAL ALERTNESS. Be mentally alert when running machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

⚠WARNING

DISCONNECTING POWER SUPPLY. Always disconnect machine from power supply before servicing, adjusting, or changing cutting tools (bits, blades, cutters, etc.). Make sure switch is in OFF position before reconnecting to avoid an unexpected or unintentional start.

APPROVED OPERATION. Untrained operators can be seriously hurt by machinery. Only allow trained or properly supervised people to use machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in wet or rainy locations, cluttered areas, around flammables, or in poorly-lit areas. Keep work area clean, dry, and well-lighted to minimize risk of injury.

ONLY USE AS INTENDED. Only use machine for its intended purpose. Never modify or alter machine for a purpose not intended by the manufacturer or serious injury may result!

USE RECOMMENDED ACCESSORIES. Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

CHILDREN & BYSTANDERS. Keep children and bystanders a safe distance away from work area. Stop using machine if children or bystanders become a distraction.

REMOVE ADJUSTING TOOLS. Never leave adjustment tools, chuck keys, wrenches, etc. in or on machine—especially near moving parts. Verify removal before starting!

SECURING WORKPIECE. When required, use clamps or vises to secure workpiece. A secured workpiece protects hands and frees both of them to operate the machine.

FEED DIRECTION. Unless otherwise noted, feed work against the rotation of blades or cutters. Feeding in the same direction of rotation may pull your hand into the cut.

FORCING MACHINERY. Do not force machine. It will do the job safer and better at the rate for which it was designed.

GUARDS & COVERS. Guards and covers can protect you from accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly before using machine.

NEVER STAND ON MACHINE. Serious injury or accidental contact with cutting tool may occur if machine is tipped. Machine may be damaged.

STABLE MACHINE. Unexpected movement during operations greatly increases the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

AWKWARD POSITIONS. Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

UNATTENDED OPERATION. Never leave machine running while unattended. Turn machine ***OFF*** and ensure all moving parts completely stop before walking away.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. An improperly maintained machine may increase the risk of serious injury.

CHECK DAMAGED PARTS. Regularly inspect machine for damaged parts, loose bolts, mis-adjusted or mis-aligned parts, binding, or any other conditions that may affect safe operation. Always repair or replace damaged or mis-adjusted parts before operating machine.

EXPERIENCING DIFFICULTIES. If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Contact our Technical Support Department at (570) 546-9663.

⚠WARNING
Additional Safety Instructions for Hand Brakes

OVERLOADING HAND BRAKE. Over-loading this tool can cause injury from flying parts. Do not exceed the machine capacities.

SECURING HAND BRAKE. Secure hand brake to the floor before using. Tipping may occur during use and the machine could fall, causing serious injury or property damage.

METAL EDGES. Sharp edges on sheet metal can result in severe cuts. Always chamfer and de-burr sharp sheet metal edges before bending in the hand brake.

PINCHING. To prevent pinching hazards, lower the clamping leaf when not in use.

CRUSHING & AMPUTATION INJURIES. The hand brake can quickly crush or amputate fingers or hands. Never place fingers or hands between the leaves and the clamping block.

GLOVES AND GLASSES. Always wear leather gloves and approved safety glasses when using this machine.

BACK INJURIES. The lifting motion required to operate this machine is potentially harmful if proper technique is not used. To avoid back injuries, keep your back vertical and lift with your legs while raising the bending leaf, and never over-exert yourself.

TOOLS IN POOR CONDITION. Loose hardware or cracks could result in sudden, uncontrolled movements during use. Inspect the hand brake for any cracked linkage, levers, or loose fasteners. Correct any problems before use.

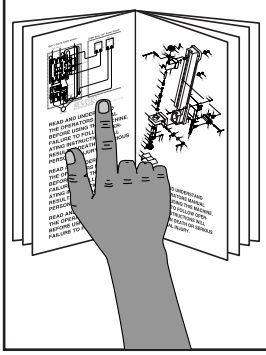
⚠WARNING

Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to decrease the risk of operator injury. If normal safety precautions are overlooked or ignored, serious personal injury may occur.

⚠CAUTION

No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or poor work results.

SECTION 2: SETUP

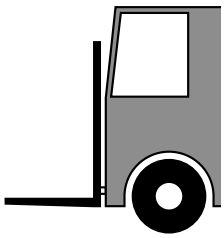


⚠WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before operating the machine!

⚠WARNING

Wear safety glasses during the entire setup process!



⚠WARNING

This machine and its components are very heavy. Use power lifting equipment such as a forklift to move heavy items.

Needed for Setup

The following are needed to complete the setup process, but are not included with your machine:

Description	Qty
• Safety Glasses	1
• Mounting Hardware	4
• Power Lifting Equipment (Rated for at least 1000 lbs.	1

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.

Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage.

This rust preventative has been your machine's close ally and guardian since it left the factory. If your machine arrived to you free of rust, then be thankful that the rust preventative protected it during its journey...and try to stay thankful as you clean it off, because it can be challenging to remove if you are unprepared and impatient.

Plan on spending some time cleaning your machine. The time you spend doing this will reward you with smooth sliding parts and a better appreciation for the proper care of your machine's unpainted surfaces.

Although there are many ways to successfully remove the rust preventative, these instructions walk you through what works well for us.

Before cleaning, gather the following:
- Disposable Rags
- Cleaner/degreaser (see below)
- Safety glasses & disposable gloves

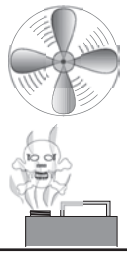
H9692—Orange Power Cleaner & Degreaser
One of the best cleaners we've found for quickly and easily removing rust preventative.

Figure 3. Model H9692 Industrial Orange Power Cleaner/Degreaser (99.9% biodegradable).

Note: *In a pinch, automotive degreasers, mineral spirits or WD•40 can be used to remove rust preventative. Before using these products, though, test them on an inconspicuous area of your paint to make sure they will not damage it.*

⚠WARNING

Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. Avoid using these products to clean machinery.



⚠CAUTION

Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.

NOTICE

Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.

Basic steps for removing rust preventative:

1. Put on safety glasses and disposable gloves.

2. Coat all surfaces that have rust preventative with a liberal amount of your cleaner/degreaser and let them soak for few minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily.

   Note: *To clean off thick coats of rust preventative on flat surfaces, such as tables, use a PLASTIC paint scraper to scrape off the majority of the coating before wiping it off with your rag. (Do not use a metal scraper or you may scratch your machine.)*

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

Site Considerations

Physical Environment

The physical environment where your machine is operated is important for safe operation and the longevity of its components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature range exceeds 41°–104°F; the relative humidity range exceeds 20–95% (non-condensing); or the environment is subject to vibration, shocks, or bumps.

Space Allocation

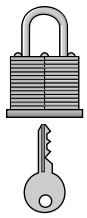
Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers as required by the maintenance and service described in this manual. **See below for required space allocation.**

Weight Load

Refer to the **Machine Data Sheet** for the weight of your machine. Make sure that the surface upon which the machine is placed will bear the weight of the machine, additional equipment that may be installed on the machine, and the heaviest workpiece that will be used. Additionally, consider the weight of the operator and any dynamic loading that may occur when operating the machine.

Lighting

Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.



⚠CAUTION

Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.

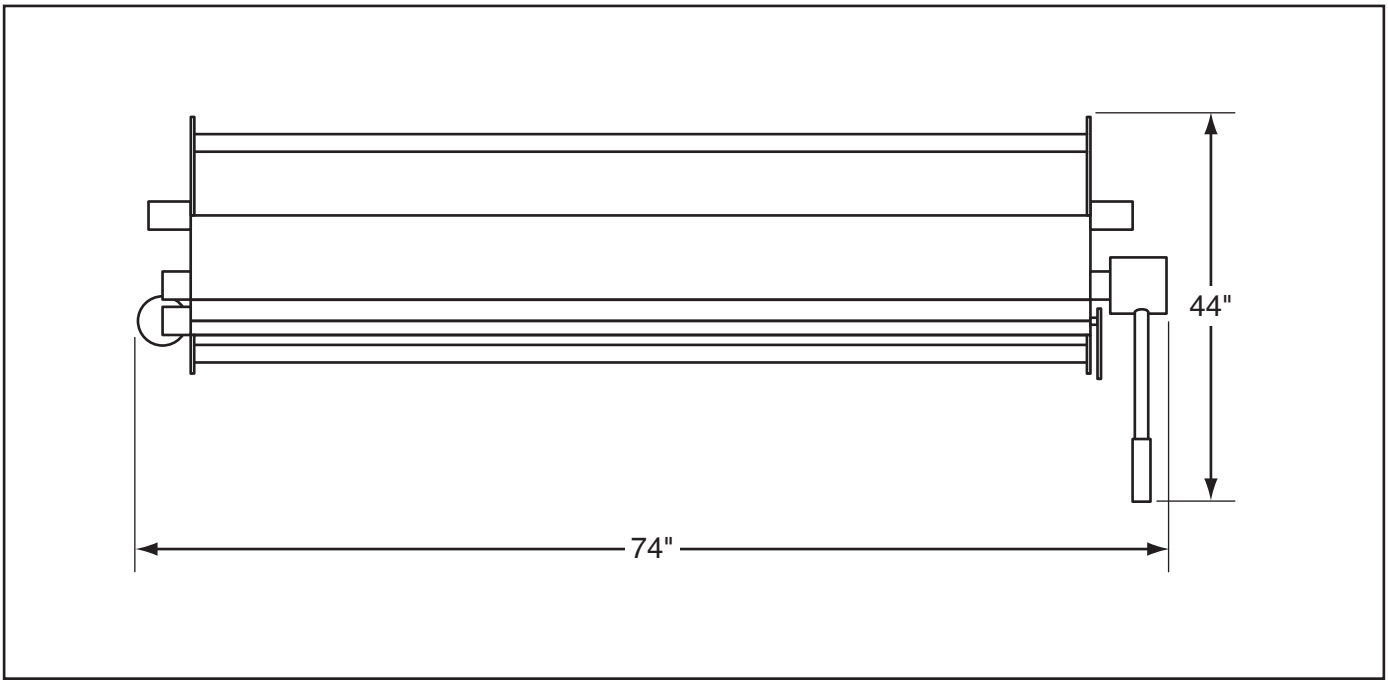
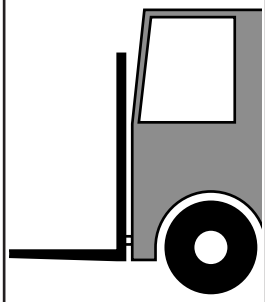


Figure 4. Minimum working clearances.

Moving & Placing Machine



⚠WARNING

The Model T23035 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment to move the shipping crate and remove the machine from the crate.

Remove the shipping crate from the pallet, then remove the screws that secure the machine to the pallet.

Use a forklift to lift the machine from the pallet and move it to a suitable location. Before using the machine, mount it to the floor.

⚠WARNING

Do not operate the Model T23035 unless it has been securely mounted to the floor. During use it could tip over and fall, causing property damage or injury.

Mounting to Shop Floor

To prevent the hand brake from tipping over from the dynamic forces during operation, it is required that you mount the hand brake to the floor. Because floor materials vary, floor mounting hardware is not included.

Bolting to Concrete Floors

Anchor studs and lag shield anchors with lag bolts (see **Figure 5**) and are two popular methods for anchoring an object to a concrete floor. We suggest you research the many options and methods for mounting your machine and choose the best that fits your specific application.

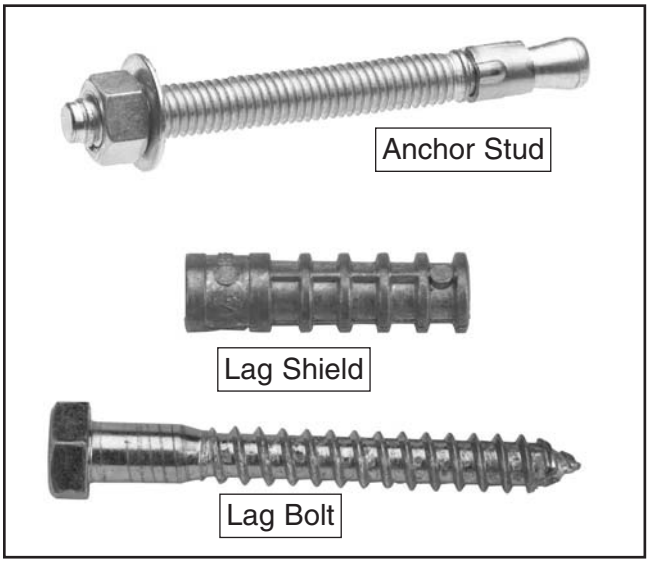
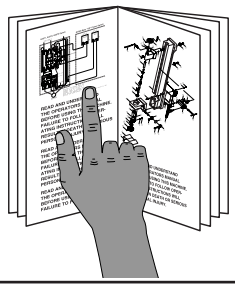


Figure 5. Typical fasteners for mounting to concrete floors.

SECTION 3: OPERATIONS

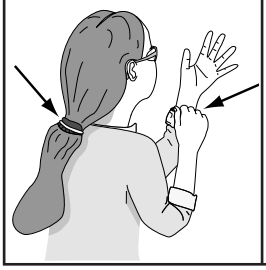


⚠WARNING

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

⚠WARNING

Damage to your eyes and hands could result from using this machine without proper protective gear. Always wear safety glasses and heavy gloves when operating this machine.



⚠WARNING

Loose hair, clothing, or jewelry could get caught in machinery and cause serious personal injury. Keep these items away from moving parts at all times to reduce this risk.

NOTICE

If you have never used this type of machine or equipment before, we strongly recommend that you read books, trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Basic Controls

Refer to **Figures 6–7** and the following descriptions to become familiar with the basic controls of your hand brake.

Setback Wheel: Adjusts the setback of the clamping leaf for the workpiece thickness and desired crease radius.

Turn-buckle: Adjusts the height of the clamping leaf for workpiece thickness.

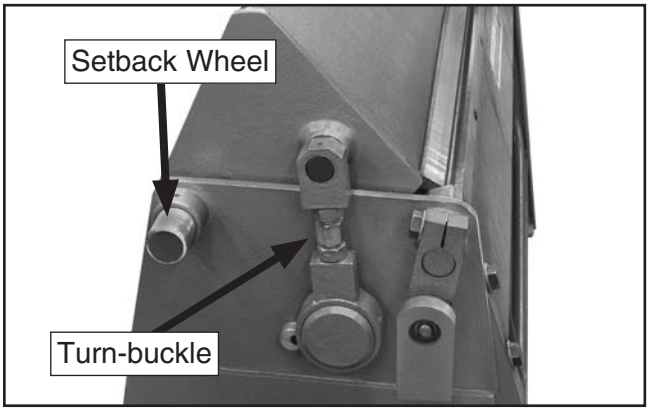


Figure 6. Setback wheel and turn-buckle.

Clamping Leaf Handle: Moves the clamping leaf down to clamp the workpiece and up to release the workpiece.

Bending Leaf: Pivots up to create the crease in the workpiece.

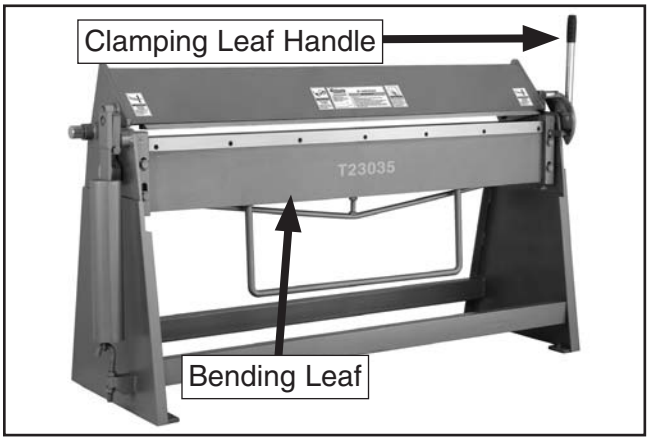


Figure 7. Controls.

Adjusting Setback

Before beginning bending operations, consider the differences in sheet metal gauges when trying to achieve either sharp or rounded bends, and allow for the differences by adjusting the setback.

The setback (**A**) is the distance from the forward edge of the clamping leaf to the edge of the clamping block, as shown in **Figure 8**. The setback distance is determined by the gauge of the workpiece and the desired radius of the bend.

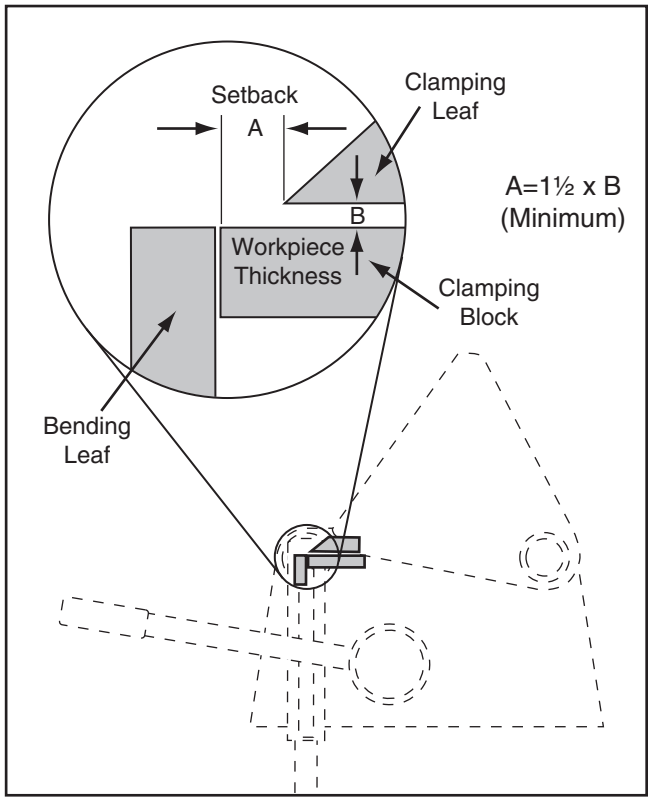


Figure 8. Setback distance.

Normally, setback (**A**) is adjusted at least 1½–2 times the workpiece thickness (**B**). Thicker or tempered workpieces will need a larger setback.

NOTICE

You must include the thickness of folded edges or joints when determining the proper setback, or the brake may be damaged.

To adjust the setback:

1. Use the clamping leaf lever to raise the clamping leaf off of the clamping block, then locate the setback wheels located at each end of the machine (see **Figure 9**).

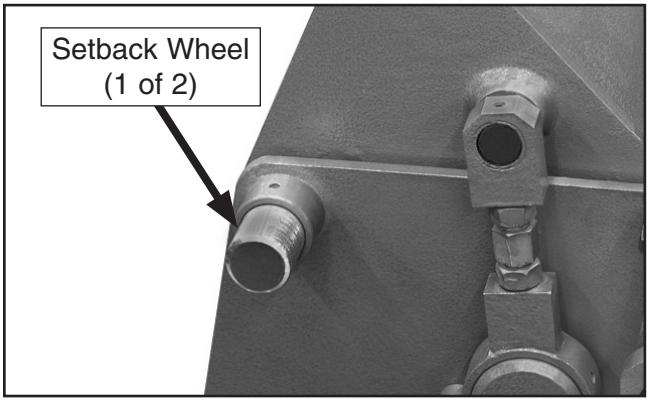


Figure 9. Setback wheel (left side shown).

2. Rotate the two setback wheels equal amounts. Turning the wheels one way will move the clamping leaf forward. Turning them the other way will move the clamping leaf backward. (Because the adjusting mechanism is an eccentric, turning the adjusting wheels a full turn will only bring the clamping leaf to its original position.) Be sure the setback is set evenly across the clamping leaf.

3. Lower the clamping leaf over the clamping block, then check for setback distance.

4. Repeat **Steps 1–3** until the desired setback is achieved.

   Note: *After performing these adjustments, make sure the clamping leaf is parallel with the bending leaf, or your bend will be distorted (see **Figure 10**).*

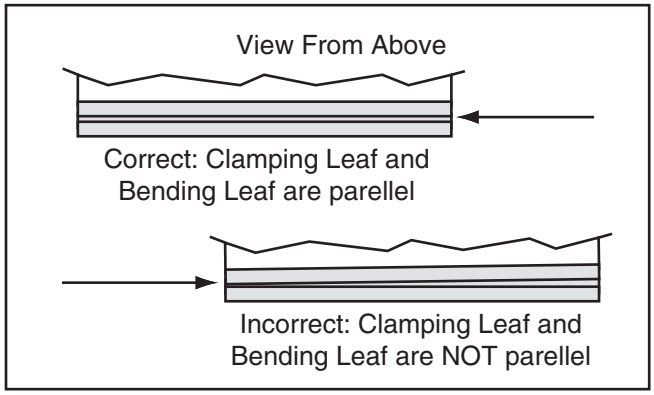


Figure 10. Setback parallelism.

Adjusting Clamping Pressure

The clamping pressure must be adjusted for different workpiece thicknesses. The ideal pressure will have medium resistance at the clamp handle, and will lock the workpiece into position easily. This pressure is controlled by adjusting the turn-buckles located at each end of the machine.

To adjust the clamping pressure:

1. Lower the bending leaf onto the workpiece. It is best if the workpiece is the same width as the bench hand brake. This will ensure that the clamping pressure is set evenly across the machine. If the workpiece is not the same width as the machine, place two pieces of metal the same thickness as the workpiece at each end.

2. When the clamping leaf is just touching the workpiece, the clamping leaf handle should be between the 7 and 8 o'clock position (angled below horizontal). This position will apply the optimal clamping force and minimize the likelihood of loosening.

3. Use a 24mm wrench to loosen the upper and lower lock nuts shown in **Figure 11**, and adjust the turn-buckle until the clamp handle is in the 7–8 O'clock position (as shown) when the clamping leaf just touches the workpiece.

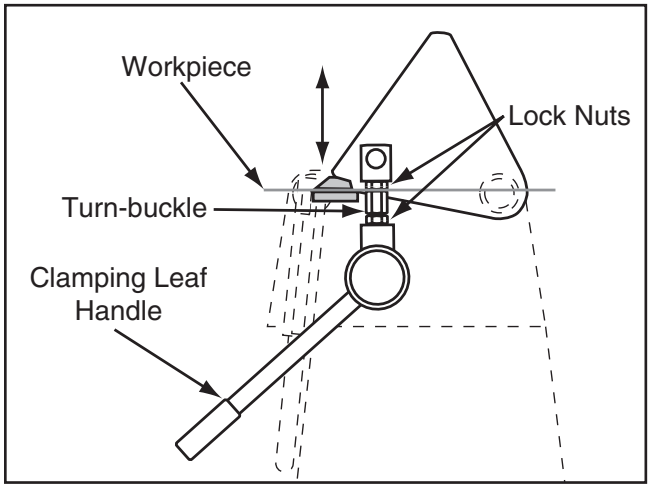


Figure 11. Clamping pressure adjustment.

4. Tighten the lock nuts to ensure that the position is maintained.

5. Make sure the clamping pressure is even on both ends of the workpiece.

6. Make adjustments as needed for sufficient and even clamping pressure, repeating **Steps 3–5**.

Basic Bending

⚠WARNING

Do not operate the Model T23035 unless it has been securely mounted to the floor. During use it could tip over and fall, causing property damage or injury.

Bending operations require that the clamping leaf be parallel with the edge of the clamping block and that the setback and clamping pressure are correctly adjusted for the thickness of the workpiece.

To perform a basic bending operation:

1. Raise the clamping leaf.

2. Insert the workpiece between the clamping leaf and the clamping block.

3. Align the area on the workpiece to be bent with the edge of the clamping leaf and clamp the workpiece in place using the clamping leaf handle (see **Figure 12**).

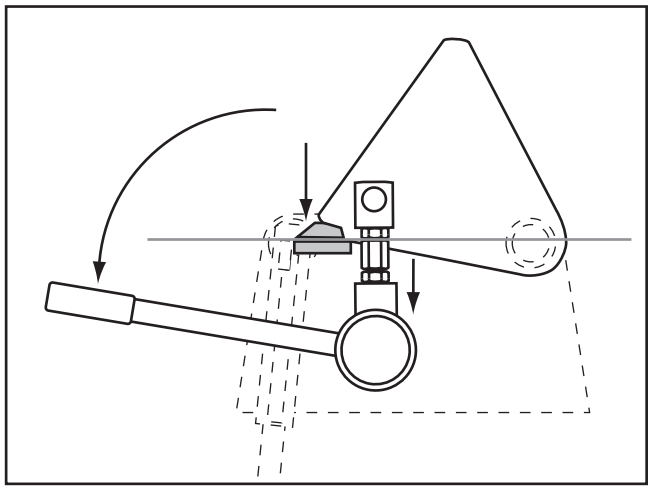


Figure 12. Clamping workpiece.

Note*: If the handle does not clamp the workpiece when you lower the clamping leaf over the workpiece, the clamping pressure will need to be increased.* (See **Adjusting Clamping Pressure** on **Page 14**.)

4. Lift the bending leaf until the workpiece has reached the desired bend angle, then lower the bending leaf (see **Figure 13**).

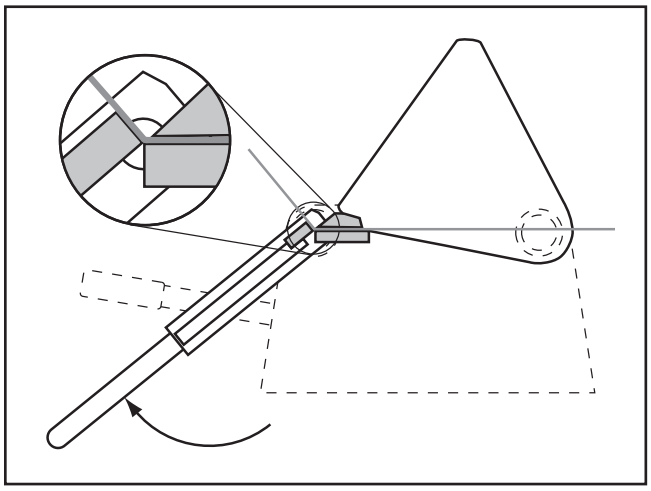


Figure 13. Bending workpiece.

5. Raise the clamping leaf handle to release the workpiece from the machine.

Bending Allowance

To bend metal objects accurately, you need to consider the total length of each bend, especially when more than one bend is required. This is called bend allowance.

Subtract bend allowance from the sum of the workpiece outside dimensions to obtain the overall length and width of the blank needed to make a particular part.

Exact allowances can only be obtained by trial-and-error due to differences in sheet metal hardness, whether the bend is with or across the grain, and difficulties in making an exact bend radius. Bend allowances accurate enough for average use may be found in metalworking handbooks.

Angle Stop

The Model T23035 has an angle stop to efficiently create the same angle bend in multiple workpieces.

Note: *The angle indicated by the scale may not reflect the final angle of the workpiece once the workpiece is removed from the machine. This is due to the variation in malleability and "spring" in different materials and in workpieces of different dimensions. An amount of trial-and-error may be required.*

To adjust the angle stop:

1. Loosen the hex bolt on the angle stop to release it (see **Figure 14**).

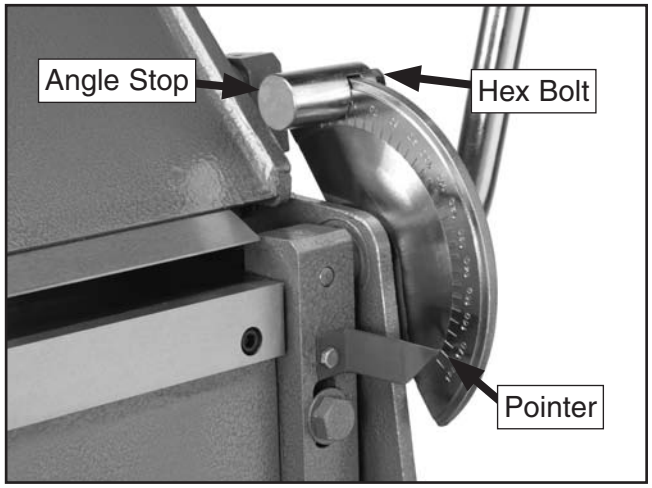


Figure 14. Angle stop.

2. Bend a workpiece to the desired angle. While still holding the bending leaf at that angle, have an assistant place the angle stop against the pointer.

3. For each following bend, lift the bending leaf until the pointer reaches the angle stop.

Spring-Assist Adjustment

The Model T23035 is equipped with a spring-assist mechanism to reduce the effort required to create bends. If you find that the spring assist is not correct for the thickness material you are bending, you can adjust the level of assist.

To adjust the spring-assist:

1. Loosen the spring bracket hex bolt (see **Figure 15**).

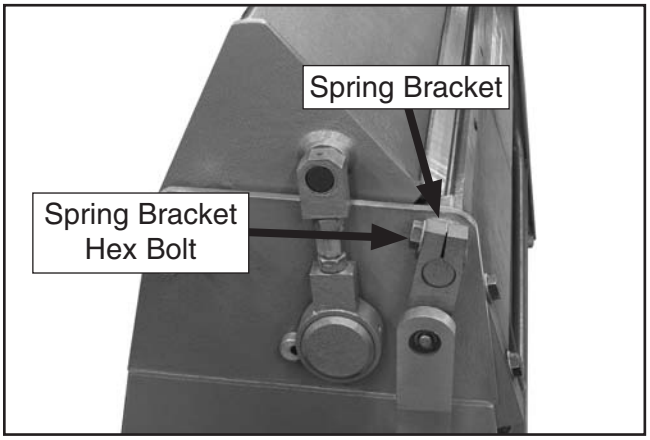


Figure 15. Spring-assist assembly.

2. Have an assistant hold the bending leaf at an angle of about 45°.

   Note: *With the spring bracket hex bolt loosened, the bending leaf should move without rotating the spring bracket. If the spring bracket still moves with the bending leaf, use a dead blow hammer to loosen the spring bracket so it rotates freely on the bending leaf shaft.*

3. Re-tighten the spring bracket hex bolt.

4. Repeat **Steps 1–3**, if necessary, until the desired spring tension is achieved.

   —To increase the tension, have your assistant hold the bending leaf higher while you tighten the spring bracket hex bolt.

   —To decrease the tension, have your assistant hold the bending leaf lower while you tighten the spring bracket hex bolt.

SECTION 4: ACCESSORIES

G5618—Deburring Tool with two Blades
The quickest tool for smoothing freshly sheared metal edges. Comes with two blades, one for steel and aluminum and one for brass and cast iron.

Figure 16. Model G5618 Deburring tool.

G2871—Boeshield® T-9 12 oz Spray
G2870—Boeshield® T-9 4 oz Spray
This ozone friendly protective spray penetrates deep and really holds up against corrosive environments. Lubricates metals for months and is safe for use on most paints, plastics, and vinyls.

Figure 17. Boeshield® T-9 spray.

H6073—Deluxe Power Snip
Lightweight aluminum cast handles. Full 3½" length of cut. Replaceable steel blades. Fully enclosed finger loops protect hands from sharp edges. Long handles provide plenty of leverage. Multi-purpose snip for sheet metal, vinyl and plastic.

Figure 18. Model H6073 Deluxe Power Snip.

G8124—Pneumatic Nibbler
Push type Pneumatic Nibbler makes quick work of sheet steel up to 1/16" thick and soft metal up to 5/64" thick. Features 3500 strokes per minute at an average air consumption of 6 CFM.

Figure 19. Model G8124 Pneumatic Nibbler

SECTION 5: MAINTENANCE

Schedule

For optimum performance from your machine, follow this maintenance schedule and refer to any specific instructions given in this section.

Daily Check:
- Loose mounting bolts.
- Damaged dies
- Any other unsafe condition.

Weekly Maintenance:
- Clean machine.
- Lubricate apron pivots.
- Lubricate bushings.

Cleaning

Cleaning the Model T23035 is relatively easy. Periodically wipe down the machine to remove dust and oil. Treat all unpainted surfaces with a non-staining lubricant after cleaning.

Unpainted Surfaces

Protect the unpainted surfaces on the machine by wiping it clean after every use—this ensures rust-promoting debris does not remain on bare metal surfaces.

Keep the machine rust-free with regular applications of products like Boeshield® T-9 (see **Section 4: Accessories** on **Page 17** for more details).

Lubrication

Lubricating the Model T23035 consists of applying lubricant to the cam wheels, bushings, and the hinge pins.

Oiling Locations

Apply several drops of SAE 30 or equivalent oil from an oil can into the oil holes shown in **Figure 24**. Move each component back-and-forth several times to disperse the oil, then wipe off excess oil. Be sure to lube the oil holes on both sides of the machine.

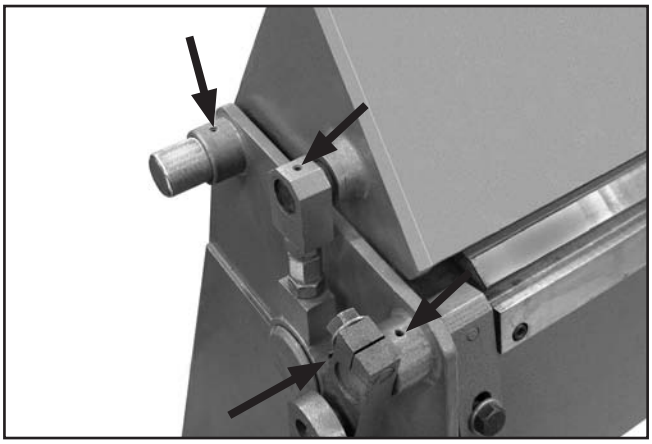


Figure 24. Oil locations (left side shown).

SECTION 6: SERVICE

Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

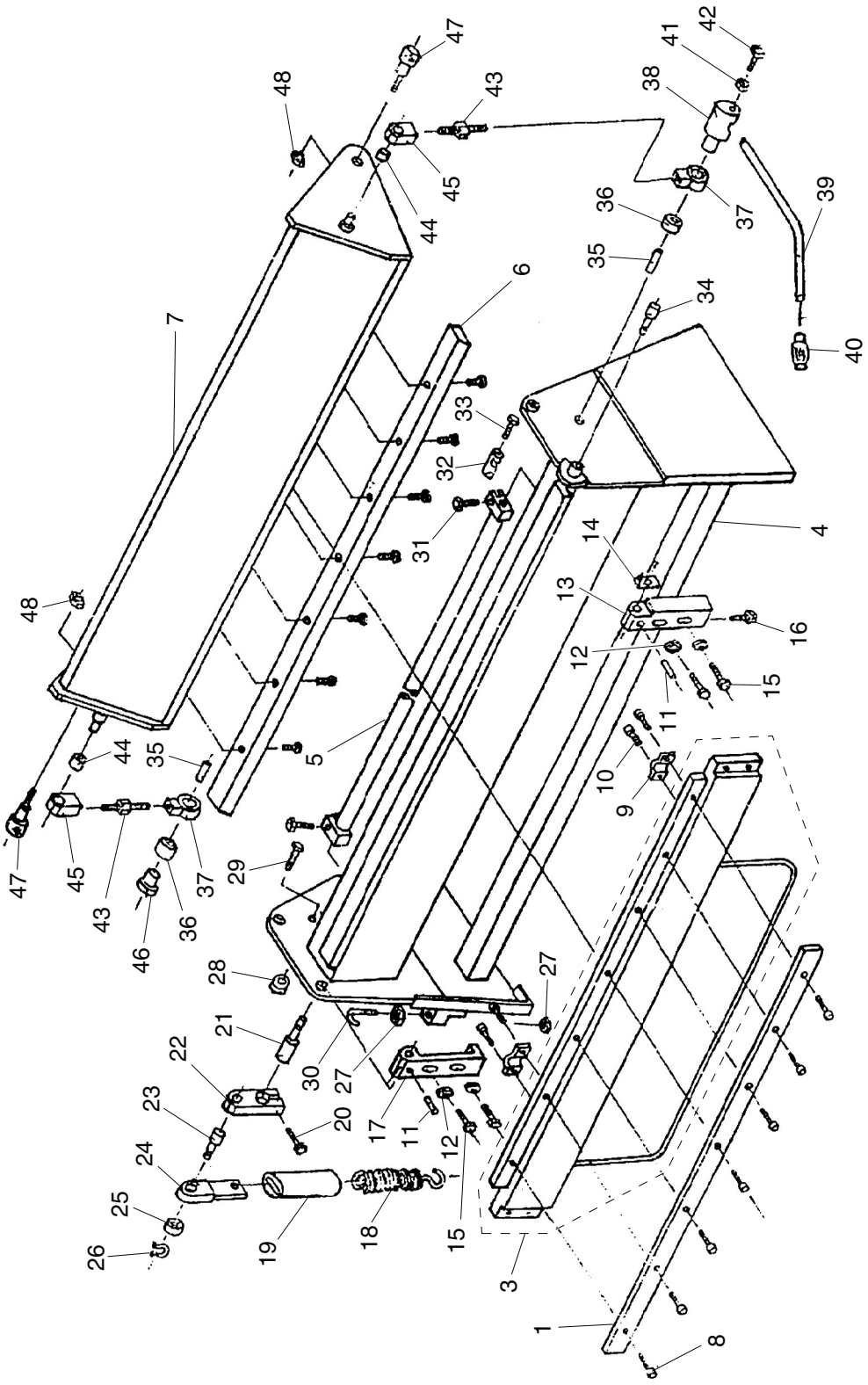
Troubleshooting

Operations

Symptom	Possible Cause	Possible Solution
Heavy resistance is felt when bends are being created.	1. Machine capacities are exceeded. 2. Setback is insufficient and workpiece is being pinched.	1. Use materials within the capacity of the machine. 2. Increase setback (see **Page 13**).
Bend radius is not consistent across workpiece.	1. Machine capacities are exceeded. 2. Clamping leaf is not vertically parallel to the clamping block. 3. Clamping pressure is insufficient. 4. Setback is not equal on both sides.	1. Use materials within the capacity of the machine. 2. Adjust turn-buckles as needed (see **Page 14**). 3. Adjust turn-buckles (see **Page 14**). 4. Adjust setback as needed (see **Page 13**).
Leading edge of clamping leaf is chipping or rolling.	1. Setback is insufficient. 2. Workpiece is too thick.	1. Increase setback (see **Page 13**). 2. Use materials within the capacity of the machine.
Clamping leaf does not stay clamped.	1. Turn-buckles are improperly adjusted (too short).	1. Lengthen turn-buckles as necessary (see **Page 14**).

SECTION 7: PARTS

Parts Breakdown

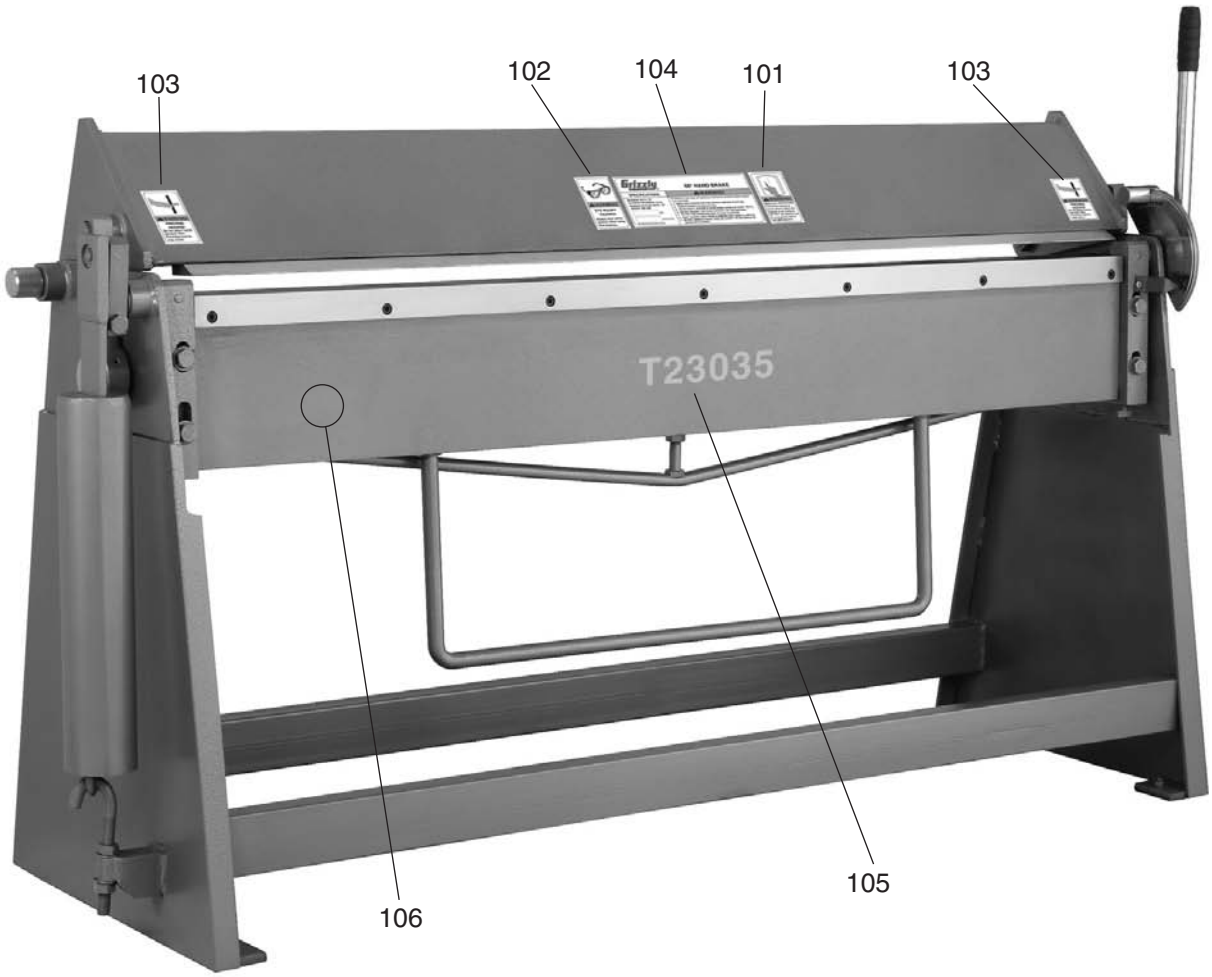


Parts List

REF	PART #	DESCRIPTION
1	PT23035001	LOWER BENDING DIE
3	PT23035003	BENDING LEAF ASSEMBLY
4	PT23035004	BODY
5	PT23035005	CONNECTING SHAFT
6	PT23035006	UPPER DIE
7	PT23035007	CLAMPING LEAF
8	PCAP14M	CAP SCREW M8-1.25 X 20
9	PT23035009	HANDLE CLAMP
10	PT23035010	HANDLE MOUNTING SCREW
11	PT23035011	LEAF BRACKET PIN
12	PW08M	FLAT WASHER 16MM
13	PT23035013	BENDING LEAF BRACKET RIGHT
14	PT23035014	POINTER
15	PB132M	HEX BOLT M16-2 X 40
16	PB132M	HEX BOLT M16-2 X 40
17	PT23035017	BENDING LEAF BRACKET LEFT
18	PT23035018	TENSION SPRING
19	PT23035019	SPRING COVER
20	PB132M	HEX BOLT M16-2 X 40
21	PT23035021	SPRING BRACKET SHAFT
22	PT23035022	SPRING BRACKET
23	PT23035023	SPRING POST
24	PT23035024	SPRING HANGER
25	P6301ZZ	BALL BEARING 6301ZZ

REF	PART #	DESCRIPTION
26	PR03M	EXT RETAINING RING 12MM
27	PN13M	HEX NUT M16-2
28	PT23035028	CAM
29	PB25M	HEX BOLT M12-1.75 X 25
30	PT23035030	HOOK BOLT M12-1.75 X 180
31	PB132M	HEX BOLT M16-2 X 40
32	PT23035032	ANGLE STOP
33	PB07M	HEX BOLT M8-1.25 X 25
34	PT23035034	SHAFT
35	PT23035035	SMALL SHAFT
36	PT23035036	LARGE BUSHING
37	PT23035037	BOTTOM TURNBUCKLE BRACKET
38	PT23035038	RIGHT ECCENTRIC SHAFT
39	PT23035039	HANDLE
40	PT23035040	HANDLE GRIP
41	PN09M	HEX NUT M12-1.75
42	PB25M	HEX BOLT M12-1.75 X 25
43	PT23035043	DOUBLE-END THREADED TURNBUCKLE
44	PT23035044	BUSHING
45	PT23035045	TOP TURNBUCKLE BRACKET
46	PT23035046	LEFT ECCENTRIC SHAFT
47	PT23035047	ECCENTRIC BOLT
48	PN28M	HEX NUT M20-2.5

Labels Breakdown and List



REF	PART #	DESCRIPTION
101	PBLABEL-12A	READ MANUAL LABEL VL
102	PLABEL-11A	SAFETY GLASSES VL
103	PT23035103	PINCHING HAZARD LABEL

REF	PART #	DESCRIPTION
104	PT23035104	MACHINE ID LABEL
105	PT23035105	MODEL NUMBER LABEL
106	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT

⚠WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine MUST maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, REPLACE that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.

Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____ Invoice # _____

Model # _____ Order # _____ Serial # _____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?

____ Advertisement ____ Friend ____ Catalog
____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinetmaker & FDM
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____Yes _____No

8. Would you recommend Grizzly Industrial to a friend? _____Yes _____No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____Yes _____No

10. Comments: _____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
Stamp
Here

GRIZZLY INDUSTRIAL, INC.
P.O. BOX 2069
BELLINGHAM, WA 98227-2069

FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY AND RETURNS

Grizzly Industrial, Inc. warrants every product it sells for a period of **1 year** to the original purchaser from the date of purchase. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence, accidents, repairs or alterations or lack of maintenance. This is Grizzly's sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant or represent that the merchandise complies with the provisions of any law or acts unless the manufacturer so warrants. In no event shall Grizzly's liability under this warranty exceed the purchase price paid for the product and any legal actions brought against Grizzly shall be tried in the State of Washington, County of Whatcom.

We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special, or consequential damages arising from the use of our products.

To take advantage of this warranty, contact us by mail or phone and give us all the details. We will then issue you a "Return Number,'' which must be clearly posted on the outside as well as the inside of the carton. We will not accept any item back without this number. Proof of purchase must accompany the merchandise.

The manufacturers reserve the right to change specifications at any time because they constantly strive to achieve better quality equipment. We make every effort to ensure that our products meet high quality and durability standards and we hope you never need to use this warranty.

Please feel free to write or call us if you have any questions about the machine or the manual.

Thank you again for your business and continued support. We hope to serve you again soon.