MODEL T34346
12" BENCHTOP
ENGLISH WHEEL
OWNER'S MANUAL
(For models manufactured since 10/24)

#KS23384 PRINTED IN CHINA V1.11.24

******Keep for Future Reference******

⚠ 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.

Table of Contents

INTRODUCTION

Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support
1815 W. Battlefield
Springfield, MO 65807
Phone: (570) 546-9663
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

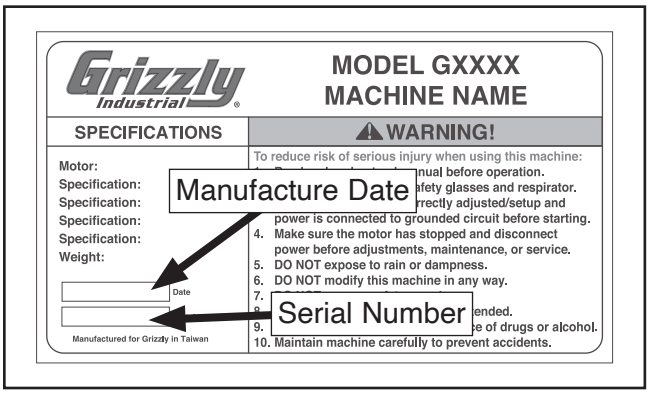
Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual**.

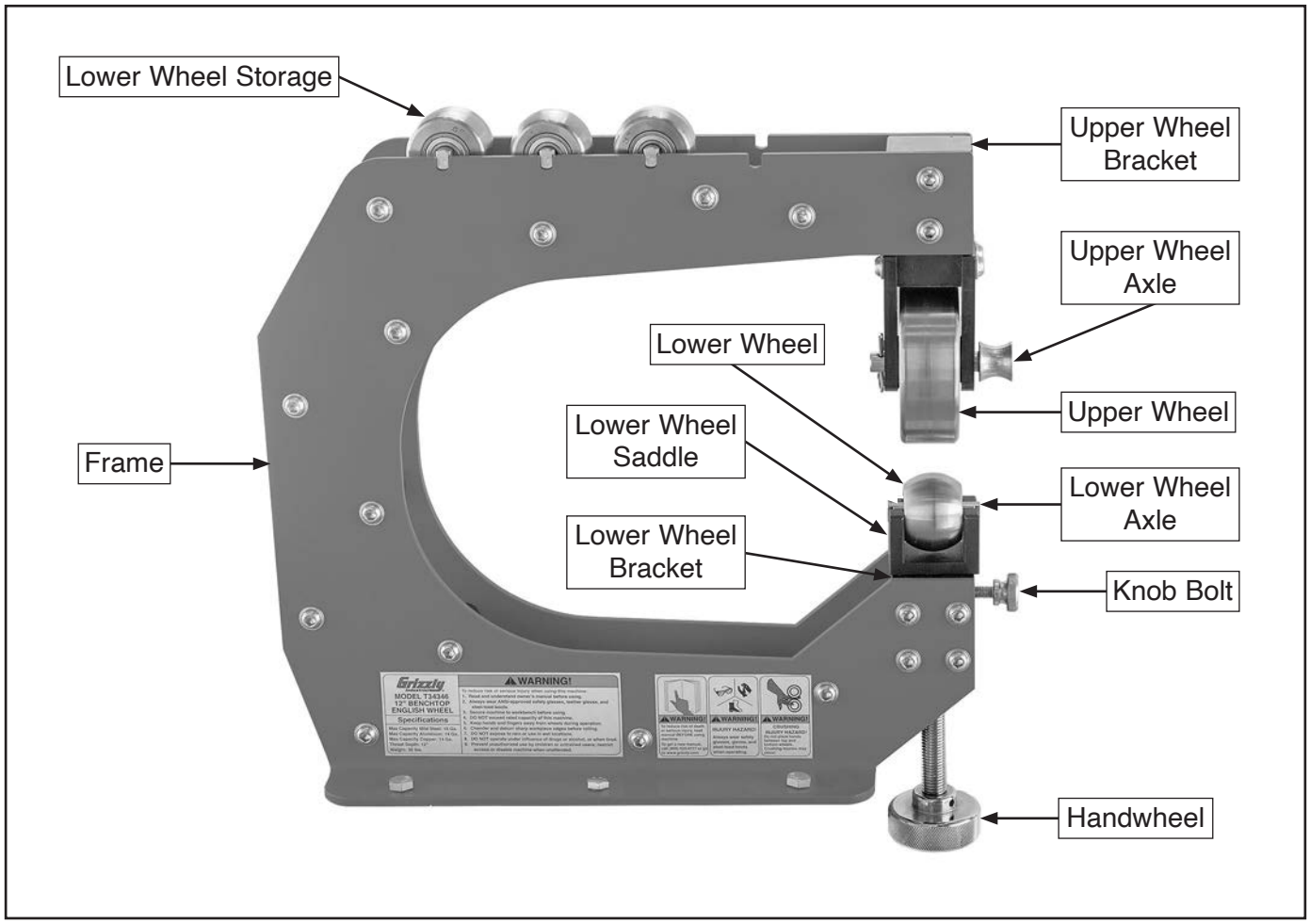
If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

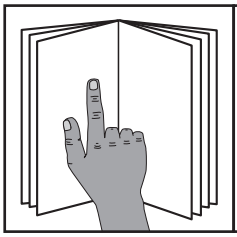
Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **manufacture date** and **serial number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation is available for your machine.



Identification

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

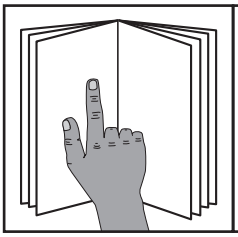




⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

Controls & Components



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

Refer to the following figure and descriptions to become familiar with the basic controls and components of this machine. Understanding these items and how they work will help you understand the rest of the manual and minimize your risk of injury when operating this machine.

Main Components

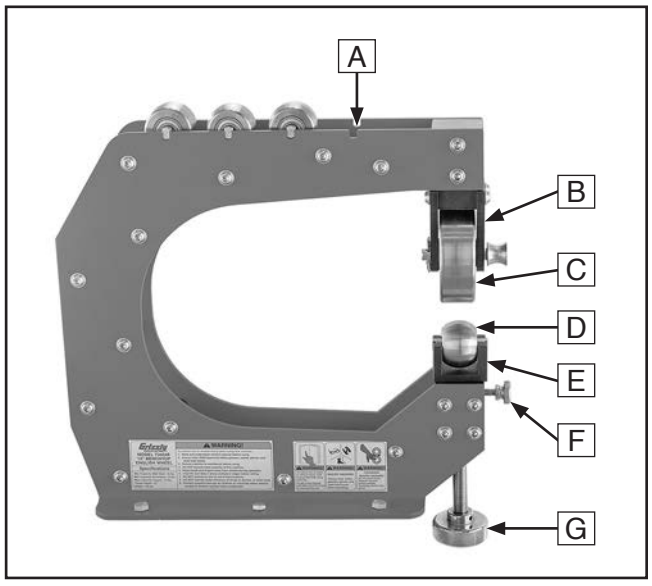


Figure 1. Main components.

A. Lower Wheel Storage: Stores lower wheels when not in use.

B. Upper Wheel Bracket: Secures upper wheel with included upper wheel axle. Can be rotated perpendicular to the frame for long workpieces, or parallel to the frame for wide workpieces.

C. Upper Wheel: Flat wheel braces workpiece against lower wheel during forming operations. Can be rotated 90º with upper wheel bracket to accommodate different workpiece sizes.

D. Lower Wheel (1 of 4): Produces workpiece curvature and contour shape. Different wheel sizes create different shaping results (see **Selecting Lower Wheels** on **Page 15**).

E. Lower Wheel Saddle: Raises or lowers lower wheel, and rotates 90º. Raise to pinch workpiece between upper and lower wheels.

F. Knob Bolt: Secures lower wheel position.

G. Handwheel: Rotates to raise or lower the lower wheel saddle.

MACHINE DATA SHEET

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

MODEL T34346 12" BENCHTOP ENGLISH WHEEL

Product Dimensions:

Weight	38 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	5-1/2 x 17-1/2 x 16 in.
Footprint (Length x Width)	13-1/2 x 5-1/2 in.

Shipping Dimensions:

Type	Cardboard Box
Content	Machine
Weight	43 lbs.
Length x Width x Height	19 x 18 x 7 in.
Must Ship Upright	No

Main Specifications:

Operation Information

Number of Upper Wheels	1
Upper Wheel Diameter	3-13/16 in.
Upper Wheel Contour	Flat
Number of Lower Wheels	4
Lower Wheel Diameter	1-7/8 in.
Lower Wheel Contours	1, 2, 3, and 5 in. Radius
Maximum Workpiece Capacity (Mild Steel)	16 Gauge
Maximum Workpiece Capacity (Aluminum, Copper)	14 Gauge
Throat Depth	12 in.

Construction

Frame	Steel
Handwheel	Steel
Wheels	Hardened Steel
Paint Type/Finish	Powder Coated

Other Specifications:

Country of Origin	China
Warranty	1 Year
Approximate Assembly & Setup Time	10 Minutes
Serial Number Location	ID Label

Features:

Upper and Lower Wheels Can be Rotated and Locked at 90°
Lower Wheel Storage on Frame
Assorted Lower Wheel Shaping Radii (1", 2", 3", and 5")

SECTION 1: SAFETY

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. Always use common sense and good judgment.

⚠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 **Alerts the user to useful information about proper operation of the machine to avoid machine damage.**

Safety Instructions for Machinery

⚠WARNING

OWNER'S MANUAL. Read and understand this owner's manual BEFORE using machine.

TRAINED OPERATORS ONLY. Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

DANGEROUS ENVIRONMENTS. Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

MENTAL ALERTNESS REQUIRED. Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

ELECTRICAL EQUIPMENT INJURY RISKS. You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

DISCONNECT POWER FIRST. Always disconnect machine from power supply BEFORE making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

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.

⚠WARNING

WEARING PROPER APPAREL. Do not wear loose clothing, gloves, neckties, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

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

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

REMOVE ADJUSTING TOOLS. Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

USE CORRECT TOOL FOR THE JOB. Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

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.

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

GUARDS & COVERS. Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

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

NEVER STAND ON MACHINE. Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

STABLE MACHINE. Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

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

UNATTENDED OPERATION. To reduce the risk of accidental injury, turn machine ***OFF*** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

MAINTAIN WITH CARE. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

DAMAGED PARTS. Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

MAINTAIN POWER CORDS. When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

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

Additional Safety for English Wheels

⚠WARNING

Fingers can be broken or severely pinched if caught between wheels during operation. Severe cuts can occur from sliding along or pushing against sharp workpiece edges. To minimize risk of injury, anyone operating this machine MUST completely heed the hazards and warnings below.

PINCHING/CRUSHING HAZARD. The rolling momentum of wheels can pull your fingers between them, resulting in pinching or crushing injuries. Always keep your hands away from wheel path when moving workpiece through wheels.

METAL EDGES. The sharp edges of sheet metal can quickly cut your fingers or hands. Always wear heavy leather gloves when handling sheet metal. Always chamfer and deburr sharp metal edges before inserting them into English wheel.

TOOL USAGE. This English wheel was designed only to form curves in sheet metal material such as steel, aluminum, and copper. Do not attempt to process any other material (e.g., glass, ceramic, plastic, etc.) that could result in material or tool breakage. Do not modify this tool in any way and do not exceed the capacity listed in the **Machine Data Sheet**.

CRUSHING HAZARD. If wheels or frame should unexpectedly fall, crushing injuries could result. Always make sure frame is correctly mounted to bench or floor, as appropriate. Make sure wheels are properly installed on support brackets or storage racks. Wear steel-toed boots.

BODY POSITION. Losing your balance while tracking could result in impact injuries or cuts from sheet metal. Make sure your body and footing are balanced and in a good position to support your movement and momentum while tracking.

TOOL INSPECTION. Using English wheel with excessively worn or damaged parts could cause tool to fail and present injury hazards, as well as yield poor results. Always inspect each part of English wheel before beginning operations.

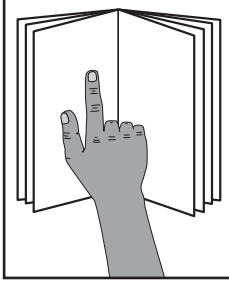
⚠WARNING

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 starting the machine!

⚠WARNING

Wear safety glasses during the entire setup process!

Needed for Setup

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

Description	Qty
• Safety Glasses	1 Pair
• C-Clamps (2" Minimum)	2
• Cleaner/Degreaser (**Page 9**)	As Needed
• Disposable Shop Rags	As Needed
• Disposable Gloves	As Needed
• Mounting Hardware (**Page 9**)	As Needed

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 call us immediately at (570) 546-9663.***

IMPORTANT: Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. *You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.*

Inventory

The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

If any non-proprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

NOTICE

If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.

Box Inventory (Figure 2)	Qty
A. English Wheel Frame	1
B. Upper Wheel, Flat, $3^{13}/_{16}$" Diameter	1
C. Lower Wheel, 1" Radius, $1^{7}/_{8}$" Diameter	1
D. Lower Wheel, 2" Radius, $1^{7}/_{8}$" Diameter	1
E. Lower Wheel, 3" Radius, $1^{7}/_{8}$" Diameter	1
F. Lower Wheel, 5" Radius, $1^{7}/_{8}$" Diameter	1
G. Lower Wheel Axles	4
H. Upper Wheel Axle	1
I. Lower Wheel Saddle	1
J. Handwheel	1
K. Knob Bolt	1
L. Hex Wrench 6mm	1
M. Hairpin	1

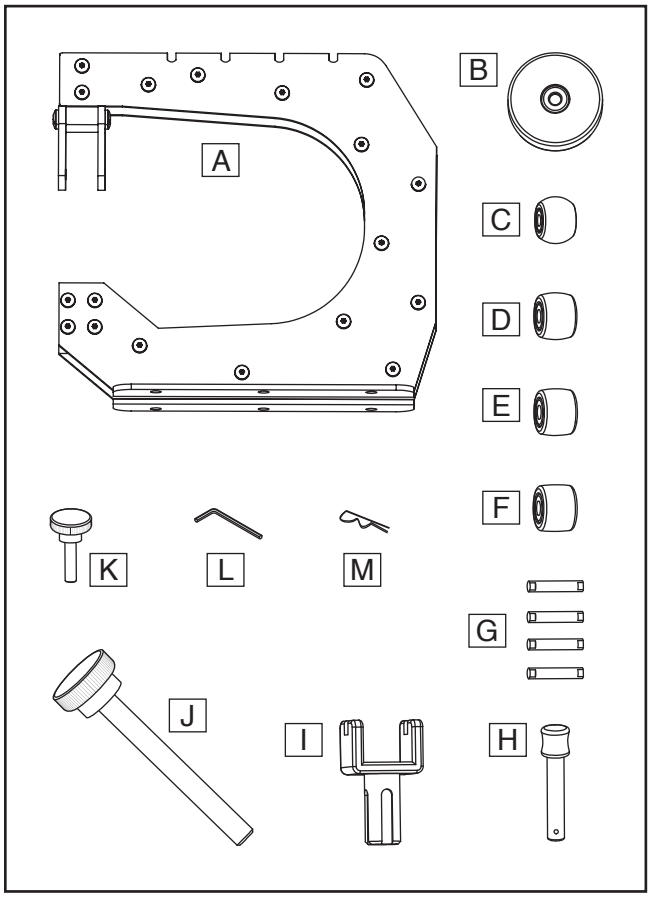


Figure 2. Box inventory.

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 works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.

There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:

- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

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

NOTICE

Avoid harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.

Site Considerations

Workbench Load

Refer to the **Machine Data Sheet** for the weight and footprint specifications of your machine. Some workbenches may require additional reinforcement to support the weight of the machine and workpiece materials.

Placement Location

Consider anticipated workpiece sizes and additional space needed for auxiliary stands, work tables, or other machinery when establishing a location for this machine in the shop. Below is the minimum amount of space needed for the machine.

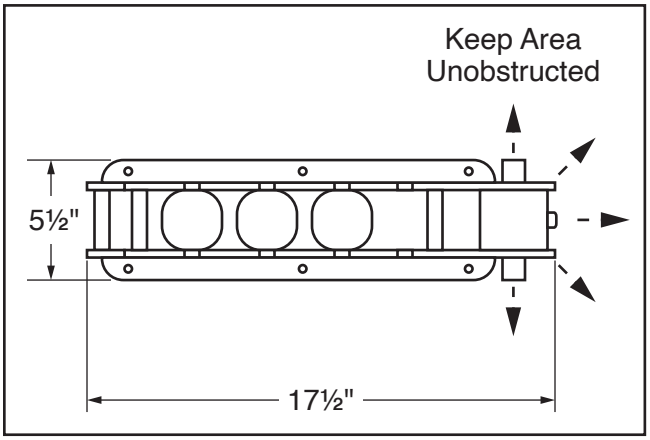
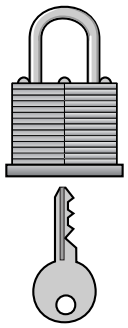


Figure 3. Minimum working clearances.



⚠CAUTION

Children and visitors may be seriously injured if unsupervised around this machine. Lock entrances to the shop or disable start switch or power connection to prevent unsupervised use.

Bench Mounting

Number of Mounting Holes 6
Dia. of Mounting Hardware Needed ..... 7/16"

The base of this machine has mounting holes that allow it to be fastened to a workbench or other mounting surface to prevent it from moving during operation and causing accidental injury or damage.

The strongest mounting option is a "Through Mount" (see example below) where holes are drilled all the way through the workbench—and hex bolts, washers, and hex nuts are used to secure the machine in place.

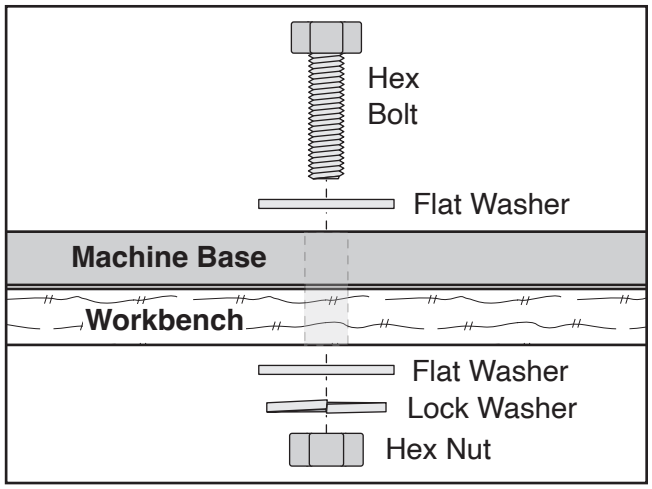


Figure 4. "Through Mount" setup.

Another option is a "direct mount" (see example below) where the machine is secured directly to the workbench with lag screws and washers.

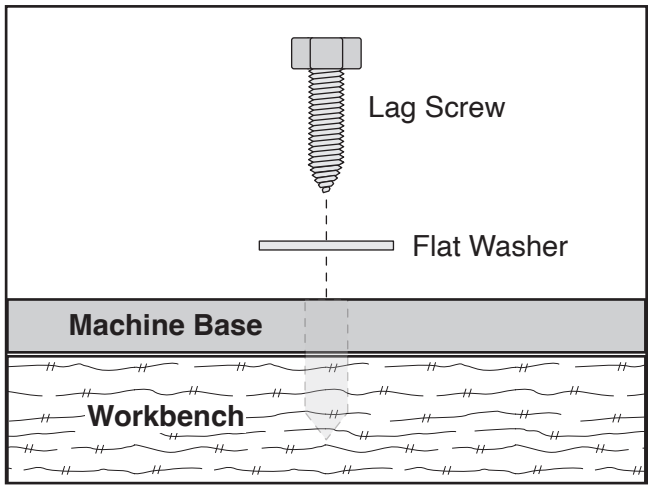


Figure 5. "Direct Mount" setup.

Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

To assemble machine:

1. Place machine frame on mounting location and secure with (2) C-clamps (see **Figure 6**).

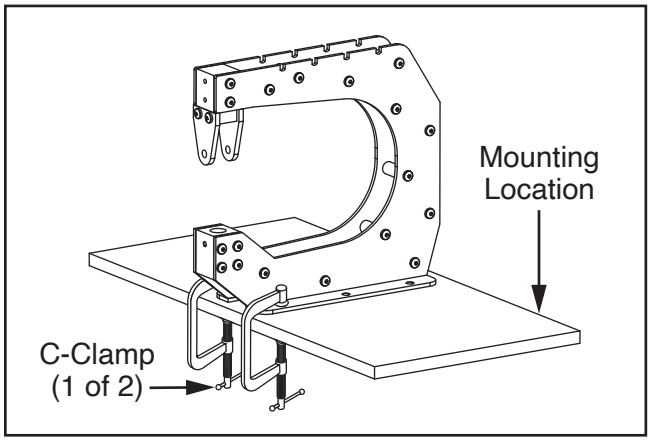


Figure 6. Machine secured to mounting location.

2. Secure machine frame to mounting location as recommended in **Bench Mounting**.

3. Insert (1) lower wheel axle in each lower wheel and place lower wheels in lower wheel storage (see **Figure 7**).

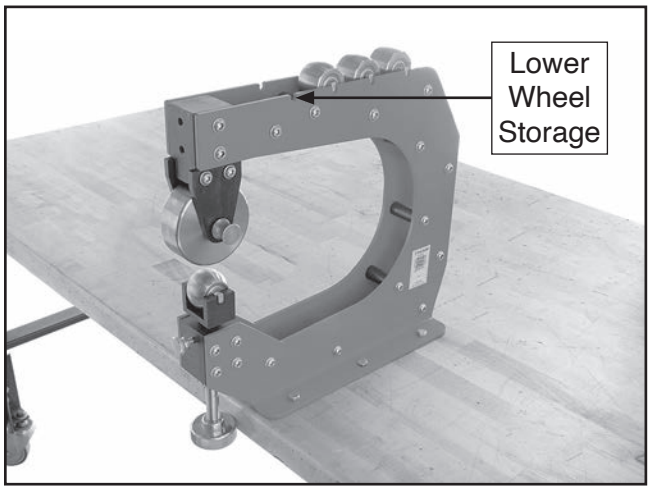


Figure 7. Location of lower wheel storage.

4. Insert lower wheel saddle into lower wheel bracket (see **Figure 8**).

5. Thread handwheel into lower wheel bracket and continue tightening until it starts raising lower wheel saddle (see **Figure 8**).

6. Thread knob bolt into lower wheel bracket and tighten to secure (see **Figure 8**).

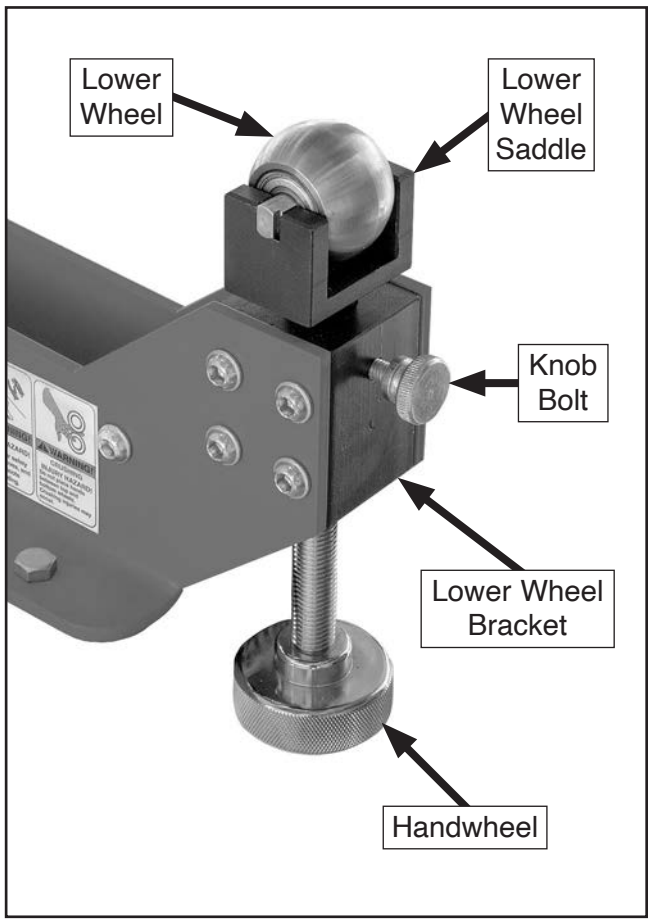


Figure 8. Lower wheel components installed.

⚠CAUTION

CRUSHING HAZARD! Hold upper wheel securely when installing or it may fall on your foot! Always wear steel-toed footwear when operating this machine.

7. Hold upper wheel in upper wheel bracket, then install upper wheel axle (see **Figure 9**).

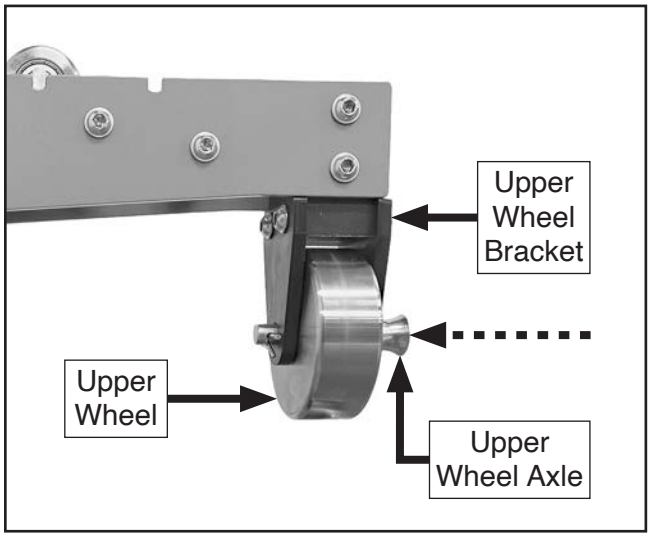


Figure 9. Upper wheel installed.

8. Install hairpin in upper wheel axle to secure upper wheel (see **Figure 10**).

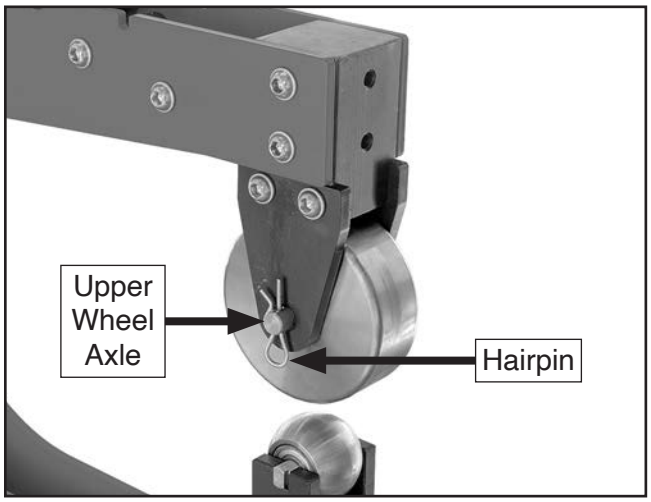


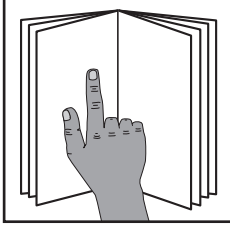
Figure 10. Upper wheel secured.

SECTION 3: OPERATIONS

Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is **not** intended to be an instructional guide. To learn more about specific operations, read this entire manual, seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.



⚠WARNING

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

⚠WARNING

Bodily injury could result from using this machine. Always wear safety glasses, leather gloves, and steel-toed footwear when operating machine or handling sheet metal.

NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/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.

To complete a typical operation, the operator does the following:

1. Puts on safety glasses, leather gloves, and steel-toed footwear.
2. Deburrs sharp edges (see **SECTION 4: ACCESSORIES** on **Page 23** for optional deburring tool).
3. Cleans workpiece and wheels thoroughly and removes all abrasive particles.
4. Installs lower wheel with greatest radius (least amount of curve).
5. Loosens knob bolt and rotates handwheel until distance between bottom of upper wheel and top of lower wheel are about a ½" apart.
6. Marks approximately 1" frame around workpiece (see **Page 18**), then inserts workpiece between wheels.
7. Rotates handwheel until there is just enough pressure to prevent workpiece from skipping or slipping, then tightens knob bolt.
8. Moves workpiece back and forth between wheels using a tracking pattern (see **Tracking Patterns** on **Page 19**), rolling it up to an edge, rotating it slightly, then pulling it back.
9. When workpiece no longer stretches, user rotates handwheel just enough to slightly increase pressure.
10. When workpiece no longer moves through wheels, operator changes lower wheel to next lowest radius.
11. Repeats **Steps 3–10** until curve is attained.

Selecting Lower Wheels

Choose a lower wheel that will produce the contour you desire (see **Figure 11**).

Domed lower wheels create tighter curves; flat areas at the center range from 1/8" to 1/2" wide (see **Figure 11**). The wider the flat area, the wider the track produced on the workpiece.

See **Figure 12** for more detailed specifications of each wheel included with the Model T34346.

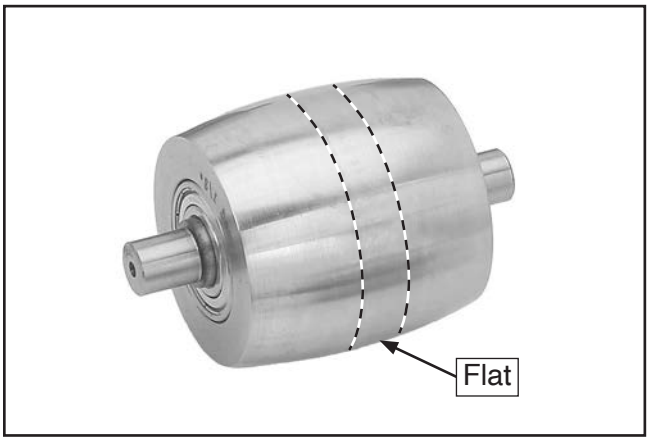


Figure 11. Domed lower wheel.

WHEEL DESIGNATION	FLAT	DIAMETER	WIDTH	EDGE RADIUS	CROWN RADIUS
Upper Wheel					
Flat 3 13/16"	1.5"	3.8125"	1.75"	0.125"	—
Lower Wheels					
Domed 1" Radius	0.125"	1.875"	1.375"	—	1"
Domed 2" Radius	0.25"	1.875"	1.375"	0.065"	2"
Domed 3" Radius	0.375"	1.875"	1.375"	0.065"	3"
Domed 5" Radius	0.5"	1.875"	1.375"	0.065"	5"

Figure 12. Upper and lower wheel specifications.

Installing/Removing Lower Wheel

Any one of the lower wheels can be installed and removed quickly to accommodate different operations. See **Selecting Lower Wheels** on **Page 15** to select a lower wheel that best forms the intended contour.

⚠CAUTION

CRUSHING HAZARD! Hold lower wheel securely when installing/removing or it may fall on your foot! Always wear steel-toed footwear when operating this machine.

Installing Lower Wheel

1. Loosen knob bolt and rotate handwheel until lower wheel saddle is flush with lower wheel bracket (see **Figure 13**).

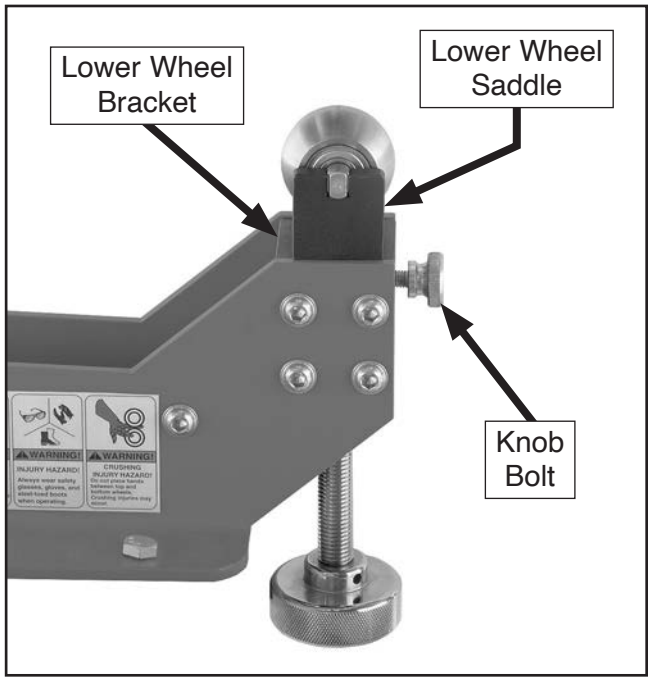


Figure 13. Lower wheel saddle lowered flush with bracket.

2. Install lower wheel in lower wheel saddle and make sure lower wheel axle is fully seated in saddle yokes (see **Figure 14**).

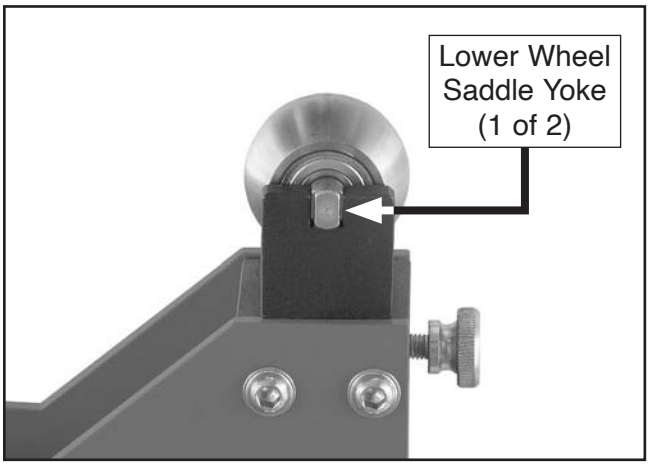


Figure 14. Lower wheel axle fully seated in saddle yokes.

3. Rotate handwheel until bottom of upper wheel and top of lower wheel are about a ½" apart.

4. Insert workpiece between wheels and rotate handwheel until there is just enough pressure to prevent workpiece from skipping or slipping, then tighten knob bolt to secure lower wheel position.

Removing Lower Wheel

1. With a firm grasp on workpiece, loosen knob bolt and use handwheel to lower the lower wheel saddle until workpiece can be removed.

2. Rotate handwheel until lower wheel saddle is flush with lower wheel bracket, as shown in **Figure 13**.

3. With a firm grasp on lower wheel, lift up to remove it.

Rotating Wheels

The wheels can be positioned perpendicular to the frame (**Figure 15**, **A**) for long workpieces or parallel to the frame (**Figure 15**, **B**) for wide workpieces.

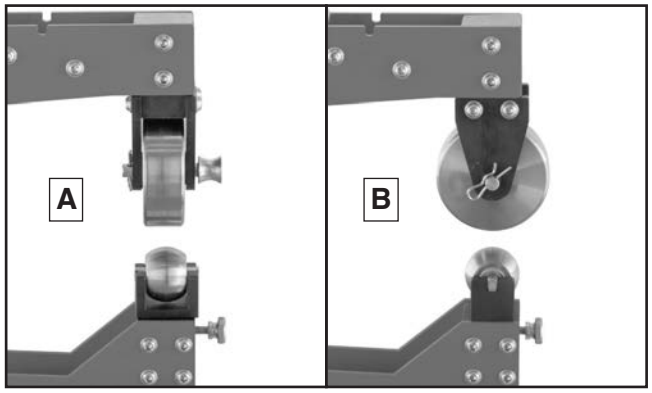


Figure 15. Wheels positioned to accommodate different workpiece sizes.

⚠CAUTION

CRUSHING HAZARD! Hold upper/lower wheels securely when rotating or they may fall on your foot! Always wear steel-toed footwear when operating this machine.

Tool Needed	Qty
Hex Wrench 6mm	1

Rotating Upper Wheel

1. With a firm grasp on upper wheel, loosen and remove (4) flange screws connecting upper wheel bracket to frame (see **Figure 16**).

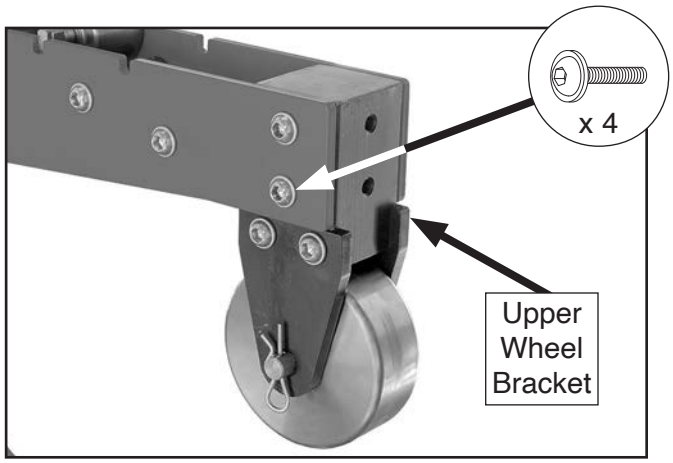


Figure 16. Location of upper wheel bracket fasteners.

2. Remove upper wheel bracket from frame, rotate 90º, then re-install upper wheel bracket and secure with (4) flange screws removed in **Step 1** (see **Figure 17**).

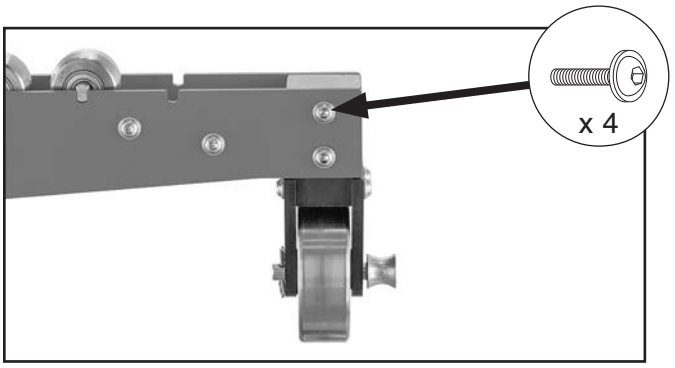


Figure 17. Upper wheel bracket installed.

Rotating Lower Wheel

1. Loosen knob bolt and rotate handwheel until lower wheel saddle is flush with lower wheel bracket (see **Figure 18**).

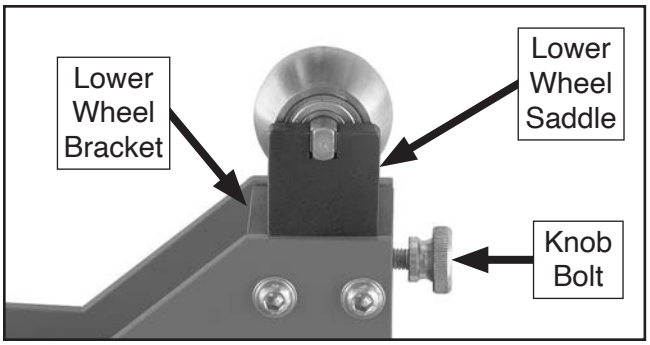


Figure 18. Lower wheel saddle lowered flush with bracket.

2. Rotate lower wheel saddle 90º, as shown in **Figure 19**.

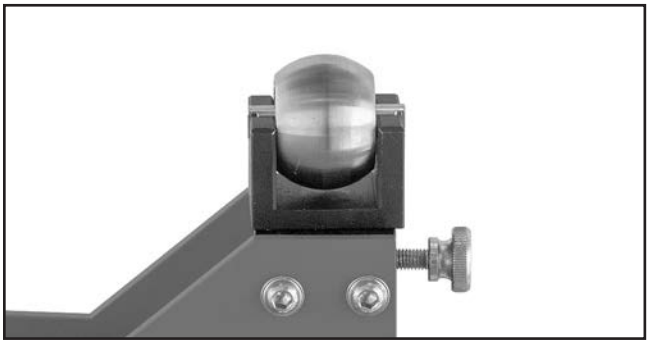


Figure 19. Lower wheel saddle rotated 90º.

3. Rotate handwheel until lower wheel is at operating height, then tighten knob bolt to secure.

Tracking Tips

- Stretching metal into a curve should be a gradual process. Always start with just enough wheel pressure to prevent the workpiece from skipping or slipping through the wheels. After the initial curve has formed, increase the pressure slightly and continue stretching the metal. Repeat this process until the desired curve is attained. Using too much pressure will damage the workpiece surface and produce poor results.

- Start with the lower wheel that has the greatest radius (least amount of curve), then decrease the wheel radius a step at a time until the desired curve is reached.

- Mark the workpiece with a non-permanent marker to make it easier to follow tracking patterns or contour the metal.

- Practice with a scrap piece that is the same material and thickness as the final workpiece.

- Leave a frame around the workpiece of approximately 1" that does not go through the wheels (see **Figure 20**). As the center of the workpiece stretches and the frame does not, the metal is forced to bend into a curve. Some workpieces may need a larger frame to accommodate expansion of the metal and removal of excess material, if needed.

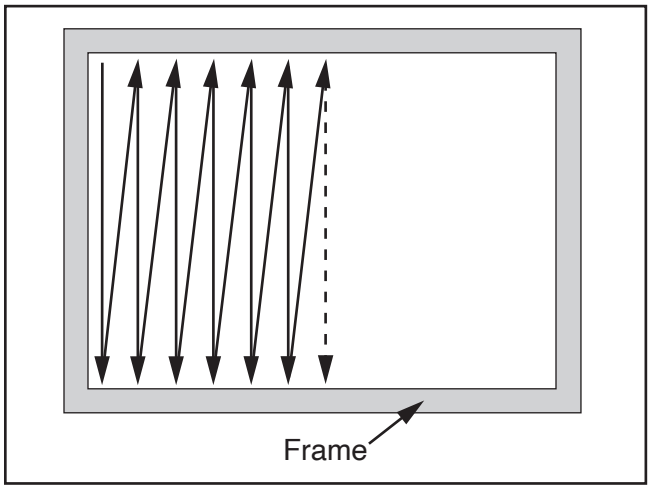


Figure 20. Example of frame around workpiece and basic back-and-forth tracking pattern.

- Overlap each pass with the previous one in a smooth, back-and-forth movement through the wheels, as shown in **Figure 20**. There are many patterns of tracking that will produce different results. Refer to **Page 19** for additional tracking patterns. Choosing the correct pattern for your operation is a matter of research and experience.

- Try using the lightest wheel pressure possible to shape the workpiece. Too much pressure may crease or damage the metal. Light pressure is best for smoothing; higher pressure is best for rough shaping.

- Take your time. Start rolling slowly and increase your speed. Many passes through the wheels with gradual increases in pressure and lower wheel radii will produce good results and reduce the risk of damaging the workpiece surface.

Tracking Patterns

As metal passes between the upper and lower wheels, a "track" or shiny line is pressed into the metal. Various tracking patterns can be used to shape workpieces depending upon their shape or size.

Note: *Most of the figures in this section are shown without a frame for clarity, but we recommend leaving about a 1" border around the workpiece (see **Figure 21**) so the metal bends correctly.*

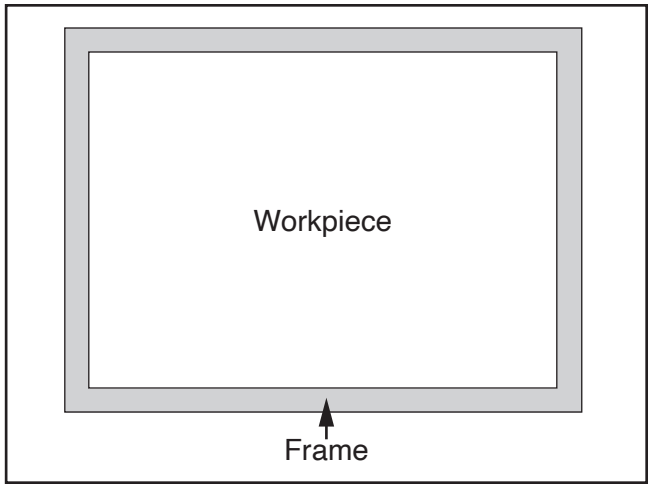


Figure 21. Example of frame around workpiece.

Zigzag Pattern

This patterns resembles the closely-spaced tracks of a lawn mower cutting a lawn. It can be used for a variety of workpiece shapes.

To use zigzag tracking pattern:

1. Insert workpiece between wheels at point **A**, and start rolling it along left edge, as shown in **Figure 22**.

   CAUTION: Move your hands out of wheel pathway so you do not pinch them!

2. Push workpiece forward to stop point (see **Figure 22**).

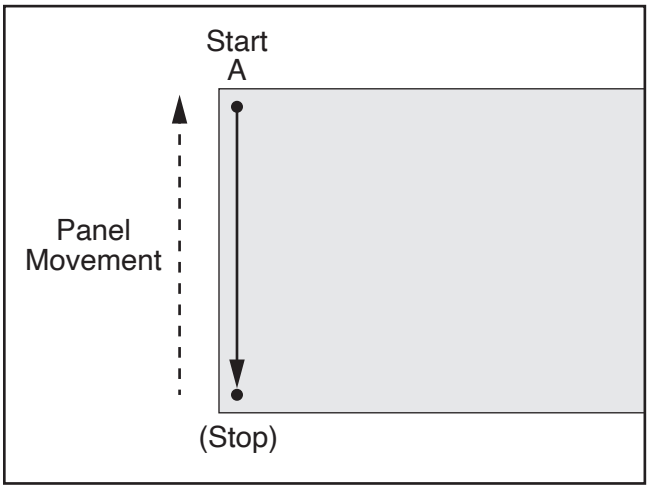


Figure 22. Starting zigzag pattern.

3. Turn workpiece counterclockwise slightly (see **Figure 23**).

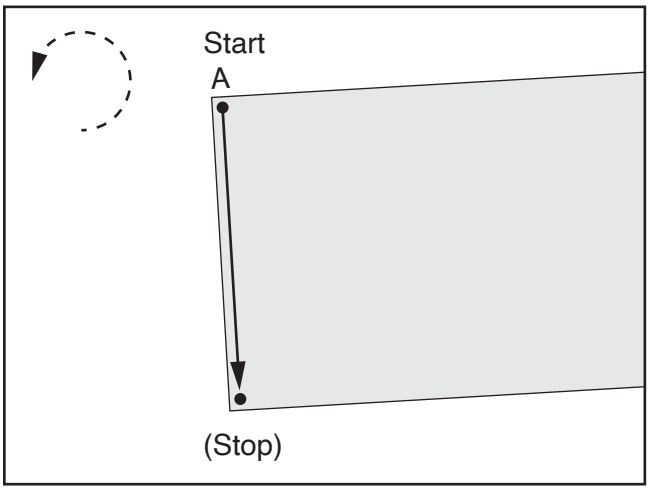


Figure 23. Workpiece turned counterclockwise.

4. Pull workpiece back until it reaches next point near far edge, as shown in **Figure 24**.

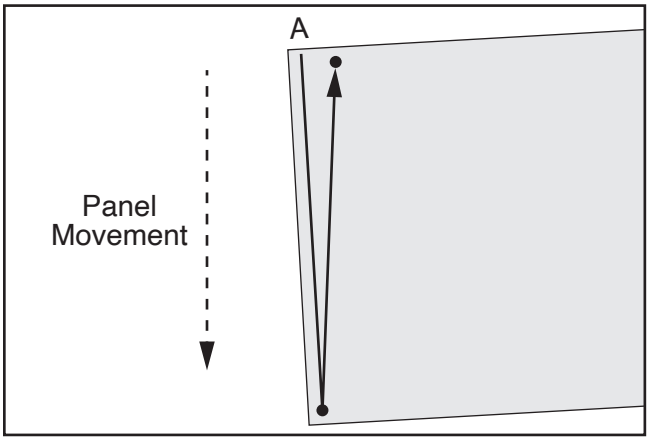


Figure 24. Wheels moved to next point.

5. Turn workpiece clockwise (see **Figure 25**).

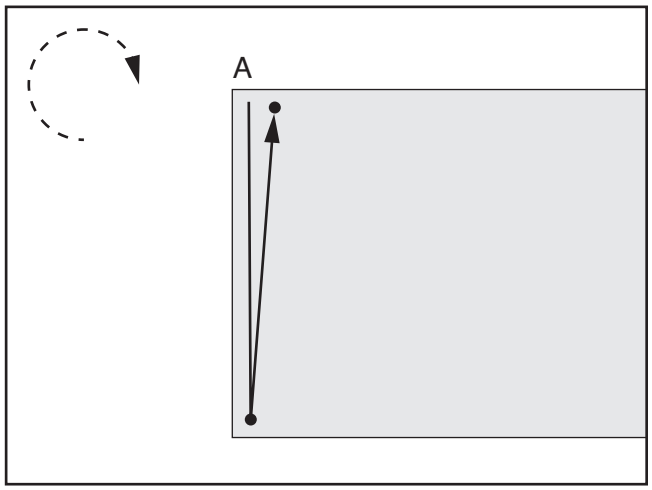


Figure 25. Workpiece turned clockwise.

6. Continue feeding workpiece to other side in same manner, following pattern shown in **Figure 26**.

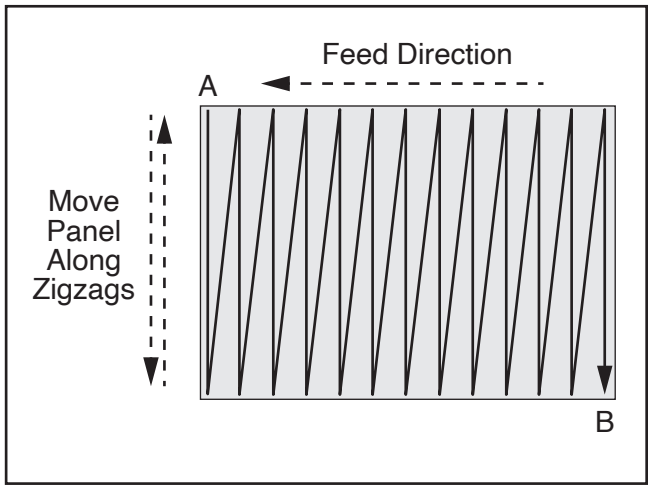


Figure 26. Zigzagging while feeding workpiece to other side.

Note: *Try keeping tracks close to each other. Use a non-permanent marker to mark lines in a consistent pattern.*

7. When wheels reach point **B**, reverse feed direction (see **Figure 27**) and return to point **A**.

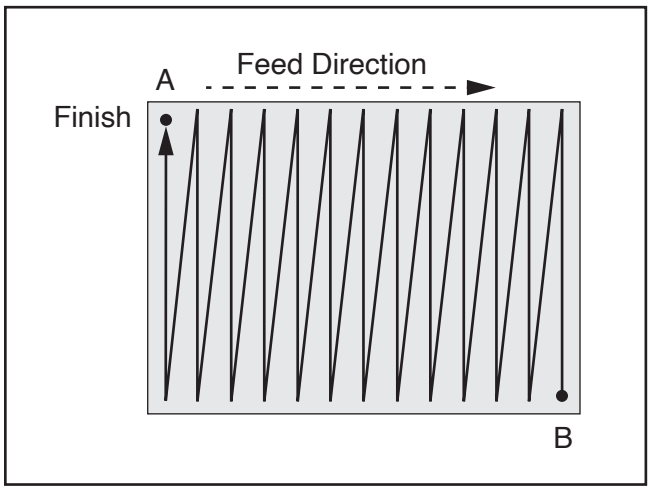


Figure 27. Zigzagging while feeding workpiece to right.

Star Pattern

The star pattern (see **Figure 28**) is useful for shaping round workpieces.

Note: *Avoid rolling directly over center of workpiece. Making excessive passes could overstretch metal.*

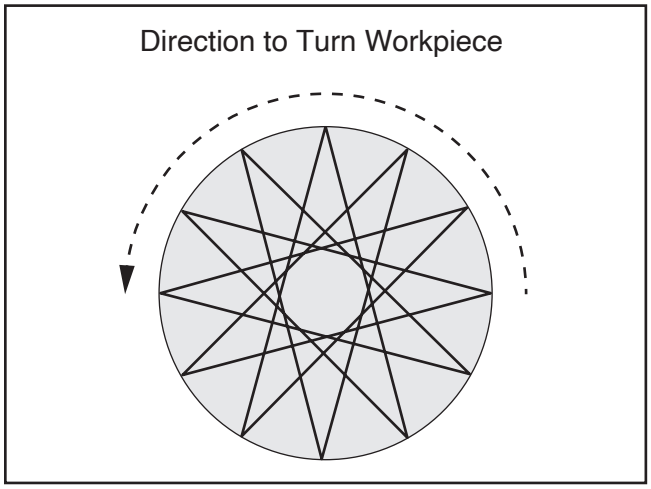


Figure 28. Star pattern.

Staggered Stop Pattern

With this pattern, the track alternates between three different sets of lines, helping reduce ridges that may form at the stopping point of tracks. This technique is useful on larger workpieces.

Note: *It may help to draw lines on the workpiece with a non-permanent marker so you can see the outside, middle, and inside lines more clearly. Clean the wheels and workpiece when finished.*

To use staggered stop pattern:

1. From starting point, roll workpiece from outside line on one side to outside line on opposite side (see **Figure 29**).

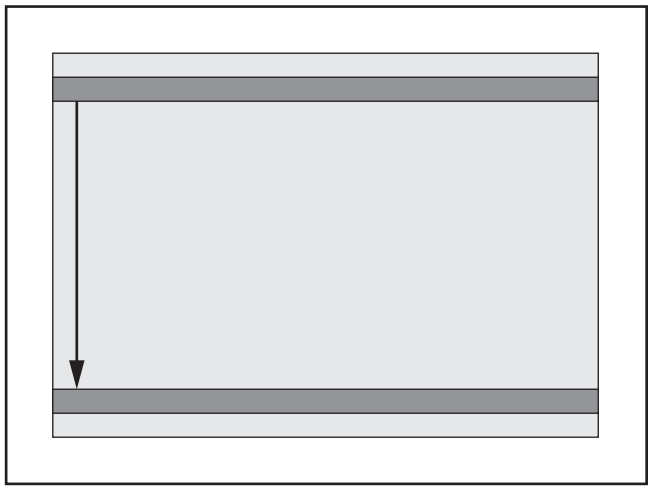


Figure 29. Example of rolling outside to outside line.

2. Roll workpiece from middle line on one side to middle line on opposite side, as shown in **Figure 30**.

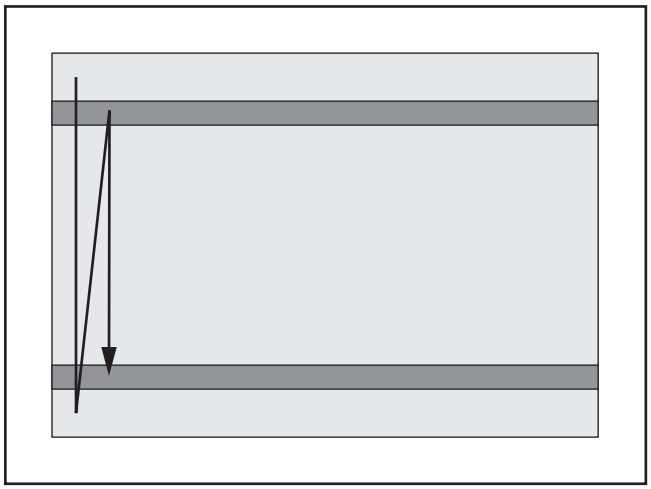


Figure 30. Example of rolling middle to middle line.

3. Roll workpiece from inside line on one side to inside line on opposite side (see **Figure 31**).

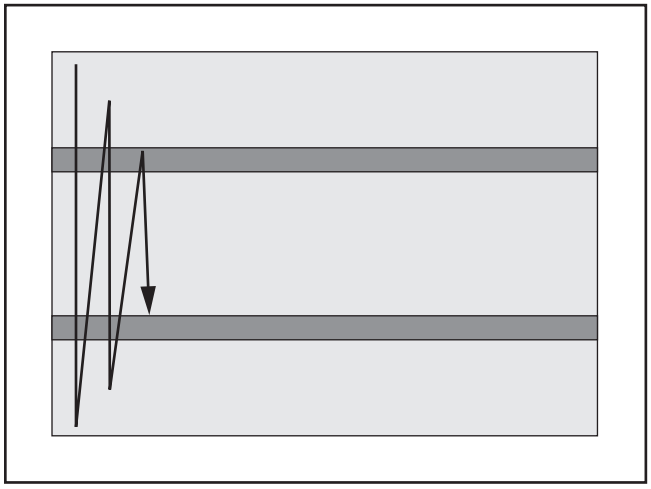


Figure 31. Example of rolling inside to inside line.

4. Repeat **Steps 1–3**, as you move across workpiece, randomly alternating between outside, middle, and inside lines, as shown in **Figures** below.

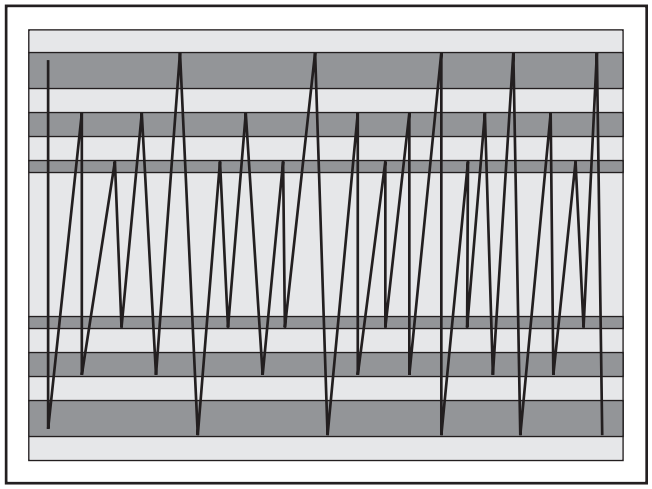


Figure 32. Staggered pattern, showing line sets.

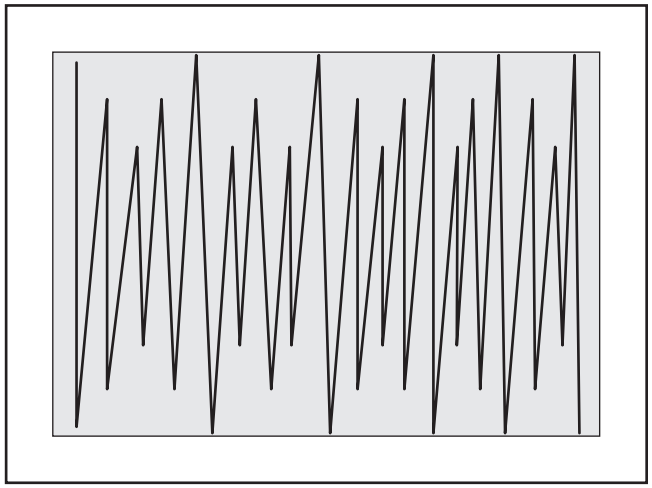


Figure 33. Staggered pattern shown without line sets.

Crisscrossing Tracks

Crisscrossing tracks can help produce smoother curves in your workpiece when using the zigzag or staggered stop pattern.

After running tracks along one length of the workpiece (see **Figure 34**, **A**), turn the metal sheet 90° and run tracks along the opposite length (see **Figure 34**, **B**) so the workpiece is equally covered by both sets of tracks (see **Figure 34**, **C**).

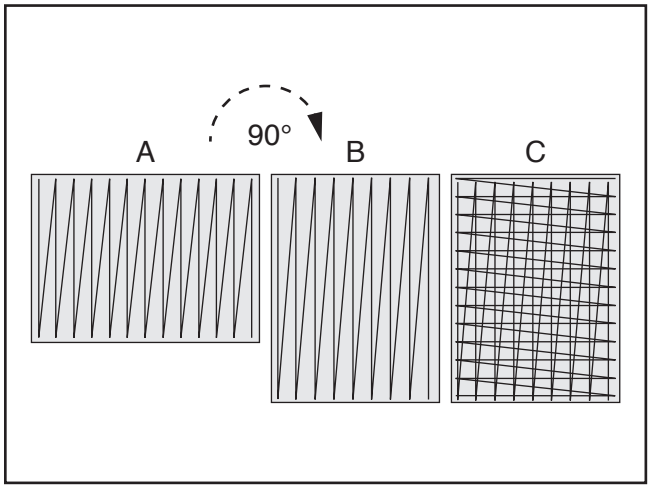


Figure 34. Crisscrossing tracks.

SECTION 4: ACCESSORIES

⚠WARNING

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

NOTICE

Refer to our website or latest catalog for additional recommended accessories.

G5618—Deburring Tool w/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.

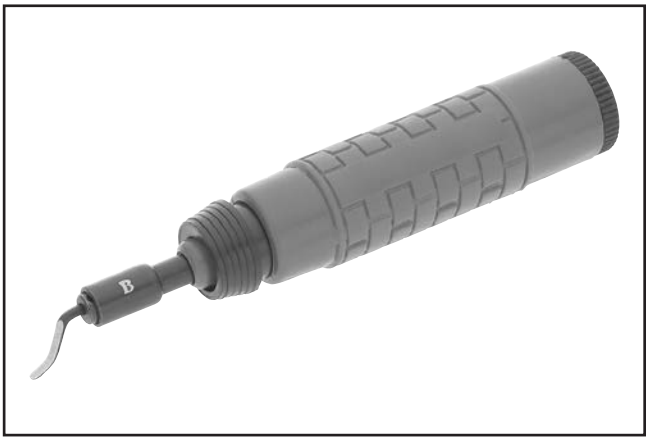


Figure 35. G5618 Deburring Tool.

H5503—Electric Sheet Metal Shear
This electric sheet metal shear features a ½ HP, 110V, 2500 RPM, 3.8 amp motor with a 360 degree adjustable swivel head and variable speed range from 0 to 2500 SPM. Cuts up to 14 gauge in mild steel and 18 gauge in stainless, at up to 150 inches per minute.

Figure 36. H5503 Electric Sheet Metal Shear.

T33692—3-in-1 Roller Stand
Use with the single roller for infeed or outfeed support. Flip the top piece over and use the 8-roller ball side for omnidirectional support. The height adjusts based on your workpiece dimensions, and the locking handle gives added stability. Stand can support up to 300 pounds!

Figure 37. T33692 3-in-1 Roller Stand.

G5748—Steel Stamping Set - ⅛" A-Z
These hardened steel stamping letters span the entire alphabet (A–Z).

Figure 38. G5748 Steel Stamping Set.

D4132—4-Head Suction Cup
Handle plate glass, glass mirrors, and sheet metal with safety and security. Simple lever action provides tremendous gripping power on any flat, smooth material. Weight Capacity: 260 lbs.

Figure 39. D4132 4-Head Suction Cup.

T32719—36" Benchtop Pan and Box Brake
This benchtop pan and box brake is used to make straight bends, boxes, pans, and trays in sheet metal that is 18-gauge or thinner.

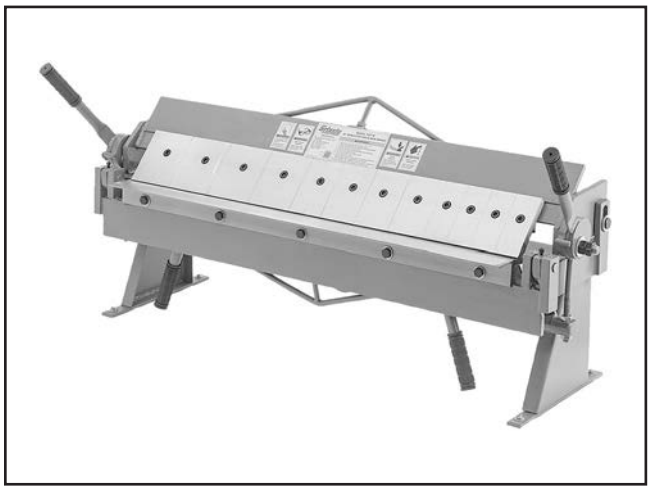


Figure 40. T10718 36" Benchtop Pan and Box Brake.

G0878—40A Plasma Cutter
The G0878 40 Amp Plasma Cutter is a compact 25-pound unit with the cutting power to quickly cut through steel up to ½" thick. Just attach the unit to your air compressor with the easy-to-attach ¼" NPT fitting, plug the cutter into your standard 120V household power, and you're ready to go.

Figure 41. G0878 40A Plasma Cutter.

D2056—Shop Fox Tool Table
The composite top with butcher block-look measures 13" x 23" x 1", is 30½" from the floor, and boasts a 700 lb. weight capacity. The footprint measures 21" x 32".

Figure 42. D2056 Shop Fox Tool Table.

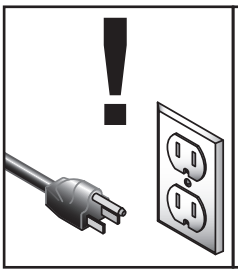
D2671—8 oz. Cross Peen Hammer
Features genuine hickory handles and is extremely well balanced. The narrow face on one side is for starting small tacks, and the round face on the other side is for finishing the job.

Figure 43. D2671 8 oz. Cross Peen Hammer.

T31648—Metal Shrinking/Stretching Combo Pk.
Commonly used in autobody work, metal shrinker/stretchers make curves in sheet metal by compressing, or "shrinking" it and expanding, or "stretching" it. Can create long, compound-curved metal pieces out of a single strip of metal, without multiple splice points. With one dedicated shrinker and one dedicated stretcher, you can clamp both tools in a vise and switch between operations without having to change out dies.

Figure 44. T31648 Metal Shrinker/Stretcher Combo Pack.

SECTION 5: MAINTENANCE



⚠WARNING
To reduce risk of shock or accidental startup, always disconnect machine from power before adjustments, maintenance, or service.

Schedule

For optimum performance from this machine, this maintenance schedule must be strictly followed.

Ongoing
To minimize your risk of injury and maintain proper machine operation, stop using the machine immediately if you ever observe any of the items below, and fix the problem before continuing operations:

- Damaged or dirty wheels.
- Damaged or cracked frame.
- Hardware/fasteners for security.
- Any other unsafe condition.

Daily Maintenance
- Clean and protect wheels.

Monthly Maintenance
- Clean and lubricate lower wheel saddle stem.
- Clean and lubricate handwheel shaft.

Cleaning & Protecting

Cleaning the Model T34346 is relatively easy. Periodically wipe down the machine to remove dust and debris—this ensures rust-promoting material does not remain on bare metal surfaces.

Since all bearings on the Model T34346 are sealed and permanently lubricated, simply leave them alone until they need to be replaced. DO NOT lubricate them.

Protect the unpainted metal surfaces with regular applications of products like SLIPIT®, as shown in **Figure 45** below.

Recommended Metal Protectants
G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 11 Oz. Spray

Figure 45. Recommended products for protecting unpainted cast iron/steel parts on machinery.

Lubrication

When lubricating this machine, first clean the components before lubricating them. This step is critical because grime and dust build up on lubricated components, which makes them hard to move. Simply adding more lubricant will not result in smooth moving parts.

T26685—Moly-D ISO 32 Multi-Function Oil
T26419—Syn-O-Gen Synthetic Grease

Figure 46. Recommended lubrication products.

Wheels

Lubrication Type ....T26685 or ISO 32 Equivalent
Lubrication Amount .....Thin Coat
Lubrication Frequency ..... Daily

To protect against rust, apply a thin coat of oil to the upper and lower wheels when they are not being used or before storing them. Remove any excess oil before using the wheels.

Lower Wheel Saddle & Handwheel

Lubrication Type ... T26419 or NLGI#2 Equivalent
Lubrication Amount .....Thin Coat
Lubrication Frequency .....Monthly

Use mineral spirits to clean any debris and built-up grease from the lower wheel saddle, then wipe it dry (see **Figure 47**). Brush a thin coat of grease on the lower wheel saddle stem and the threads of the handwheel shaft, then raise and lower the lower wheel saddle through its full range of motion to distribute the grease.

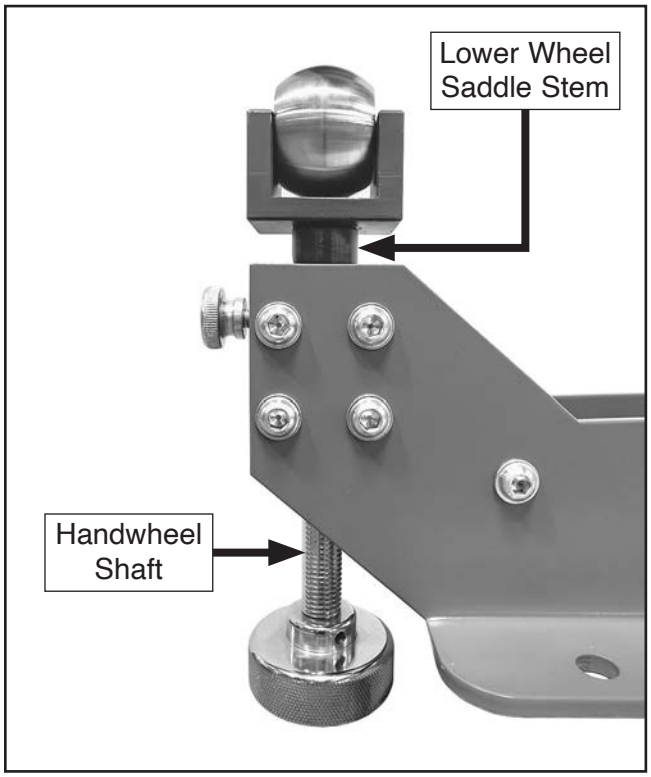


Figure 47. Lower wheel saddle lubrication points.

SECTION 6: SERVICE

Review the troubleshooting procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note:** *Please gather the serial number and manufacture date of your machine before calling.*

Troubleshooting

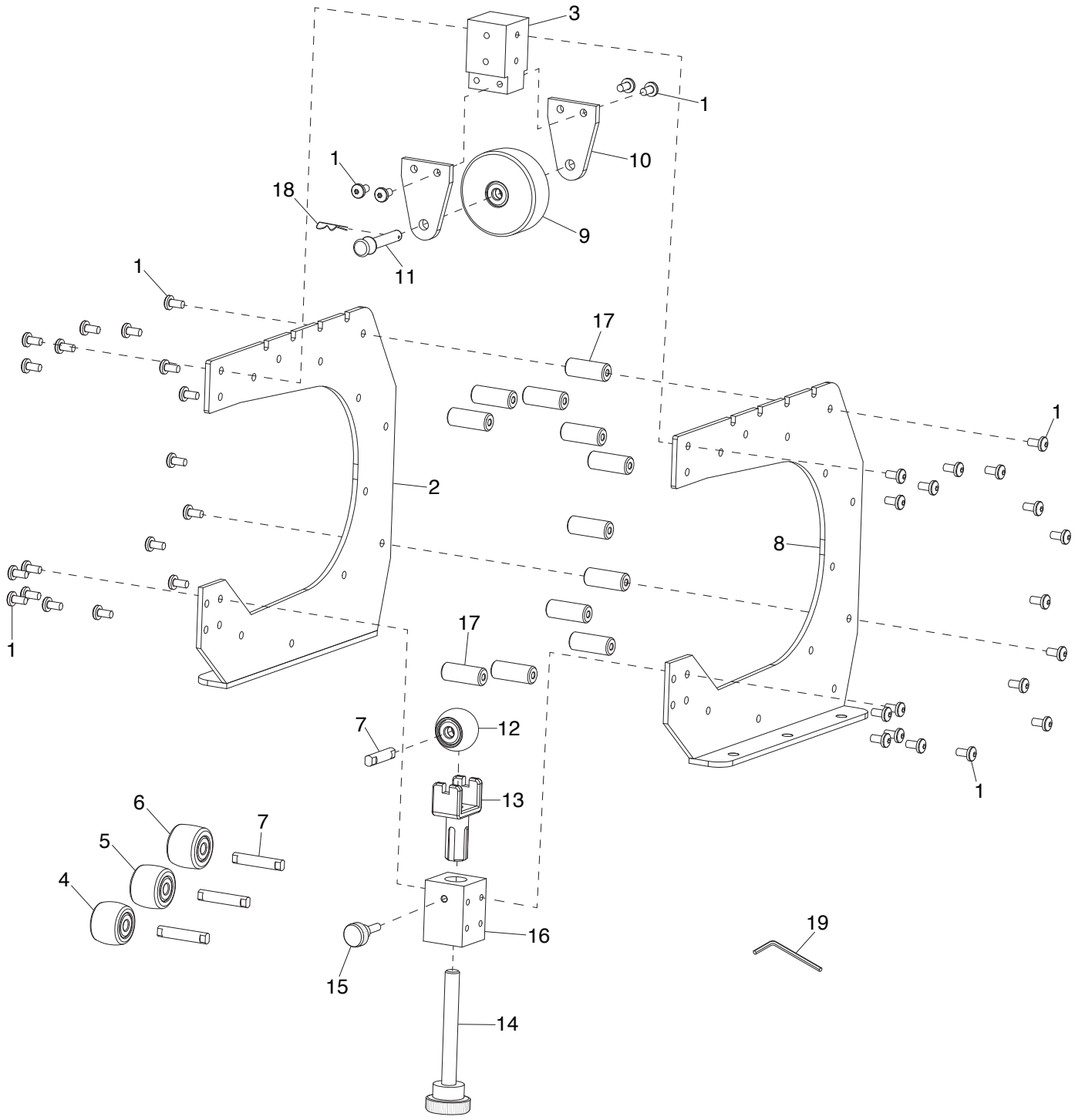
Operations

Symptom	Possible Cause	Possible Solution
Workpiece surface is marred or scratched.	1. Too much wheel pressure. 2. Wheels are dirty. 3. Wheel is damaged.	1. Reduce wheel pressure. 2. Clean and protect all wheel surfaces (**Page 27**). 3. Replace wheel (**Page 16**).
Workpiece has wrinkles.	1. Tracking pattern at fault. 2. Too much wheel pressure.	1. Use a consistent and smooth tracking pattern that overlaps with each back-and-forth pass (**Page 19**). 2. Start with least amount of pressure, then gradually increase pressure when curve stops forming (**Page 18**).
Excessive force required to move workpiece through wheels.	1. Too much wheel pressure. 2 Wheel bearings at fault.	1. Reduce wheel pressure. 2. Replace wheel bearings.
Workpiece curve is too high.	1. Lower wheel radius is too small.	1. Use a lower wheel with a larger radius (less crown).
Workpiece curve is not high enough.	1. Lower wheel radius is too large.	1. Start with lower wheel of largest radius (least curve) and work up to correct radius for operation.
Workpiece curve will not form.	1. Not enough wheel pressure. 2. Lower wheel has flat surface.	1. Start with least amount of pressure, then gradually increase pressure when curve stops forming (**Page 18**). 2. Use lower wheel(s) with a radius (crown).
Wheel does not shape workpiece.	1. Workpiece is too thick. 2. Crown is too low; incorrect wheel selection. 3. Incorrect pressure.	1. Use sheet metal of appropriate thickness (**Page 5**). 2. Use a lower wheel with a higher crown. 3. Increase pressure on workpiece.
Upper wheel swivels.	1. Upper wheel bracket is not secured by frame.	1. Secure upper wheel bracket fasteners (**Page 17**).
Lower wheel saddle will not engage, or has trouble engaging.	1. Lower wheel saddle binds.	1. Lubricate lower wheel saddle components (**Page 27**).

SECTION 7: PARTS

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call **(800) 523-4777** or visit **www.grizzly.com/parts** to check for availability.

Main

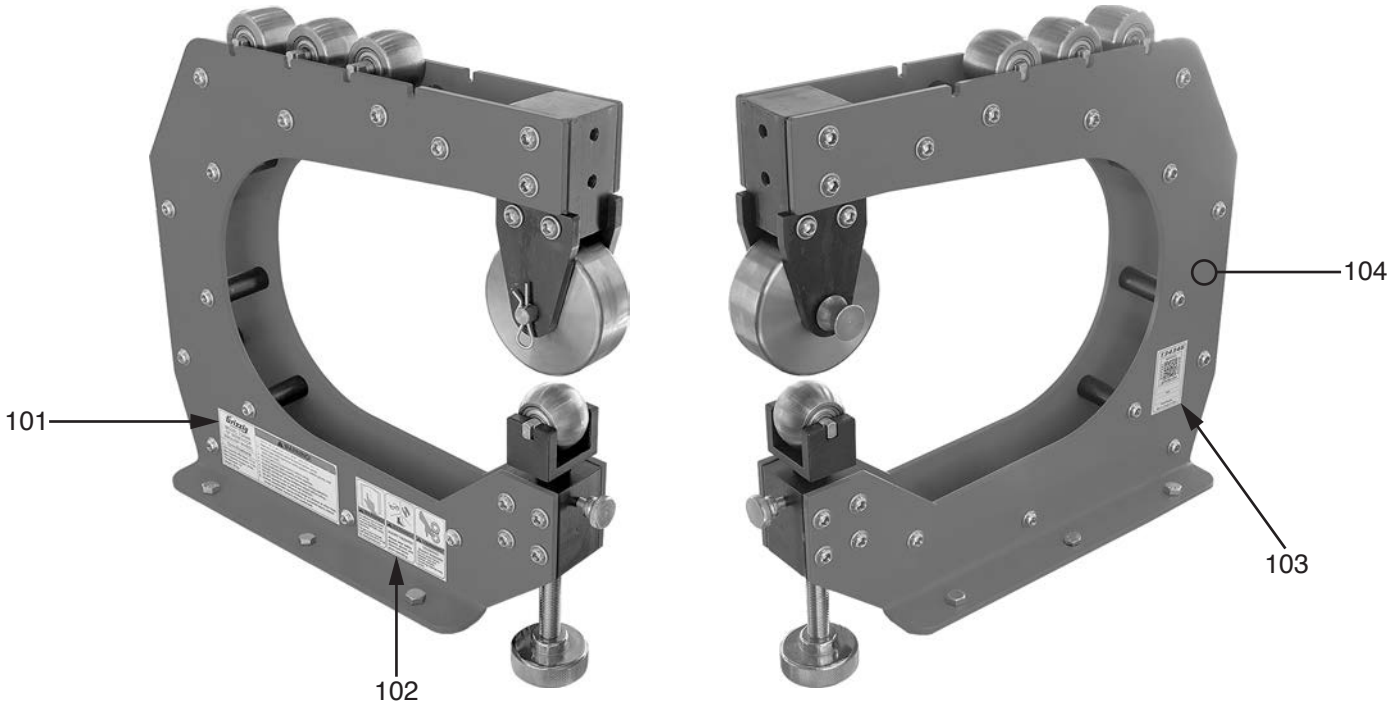


Main Parts List

REF	PART #	DESCRIPTION
1	PT34346001	FLANGE SCREW M8-1.25 X 16
2	PT34346002	SIDE FRAME, LEFT
3	PT34346003	UPPER WHEEL BRACKET
4	PT34346004	LOWER WHEEL, DOMED 2" RADIUS
5	PT34346005	LOWER WHEEL, DOMED 3" RADIUS
6	PT34346006	LOWER WHEEL, DOMED 5" RADIUS
7	PT34346007	LOWER WHEEL AXLE
8	PT34346008	SIDE FRAME, RIGHT
9	PT34346009	UPPER WHEEL, 3-13/16" FLAT
10	PT34346010	UPPER WHEEL TAB

REF	PART #	DESCRIPTION
11	PT34346011	UPPER WHEEL AXLE
12	PT34346012	LOWER WHEEL, DOMED 1" RADIUS
13	PT34346013	LOWER WHEEL SADDLE
14	PT34346014	HANDWHEEL
15	PT34346015	KNOB BOLT M8-1.25 X 20
16	PT34346016	LOWER WHEEL BRACKET
17	PT34346017	FRAME SPACER
18	PT34346018	COTTER PIN 1-3MM X 46MM HAIRPIN
19	PT34346019	HEX WRENCH 6MM

Labels & Cosmetics



REF	PART #	DESCRIPTION
101	PT34346101	MACHINE ID LABEL
102	PT34346102	COMBO WARNING LABEL

REF	PART #	DESCRIPTION
103	PT34346103	QR CODE LABEL
104	PT34346104	TOUCH-UP PAINT, GRIZZLY GREEN

⚠WARNING

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine MUST replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or www.grizzly.com.

WARRANTY & 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.

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.

In the event you need to use 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.

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.

For further information about the warranty, visit **https://www.grizzly.com/forms/warranty** or scan the QR code below to be automatically directed to our warranty page.

WARRANTY

grizzly.com