

Grizzly **Industrial, Inc.**®

MODEL T21322 **7½" MINI SHEAR BRAKE** **OWNER'S MANUAL** *(FOR MACHINES MANUFACTURED AFTER 2/09)*



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
#CR11621 PRINTED IN CHINA.



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

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

The owner of this machine/equipment 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, blade/cutter 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 errors do happen and we apologize for them.

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, immediately call our technical support for updates or clarification.

For your convenience, we always keep current Grizzly manuals and most updates available on our website at www.grizzly.com. Any updates to your machine will be reflected in these documents as soon as they are complete. Visit our site often to check for the latest updates!

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
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com

If you have any comments regarding this manual, please write to us at the address below:

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

Functional Overview

This 7½" Mini Shear Brake offers the metalworker the following two separate metal-forming tools, which are combined into one machine.

Brake

The brake is designed to fold boxes, pans, or trays from sheet metal up to 22 gauge. A number of fingers of different widths can be arranged in a variety of combinations to make bends of varying widths. Movable fingers also permit the sides of a box to be bent, without interfering with the sides that have previously been bent.

Shear

The shear cuts 22 gauge sheet metal with a moving knife that is controlled by a work lever mounted on either side of the machine. From left to right, the upper knife moves past the lower fixed knife, creating a shearing action. An adjustable stop can set straight cuts or create angled cuts. The extendable work lever allows for extra leverage when making a cut.



Identification

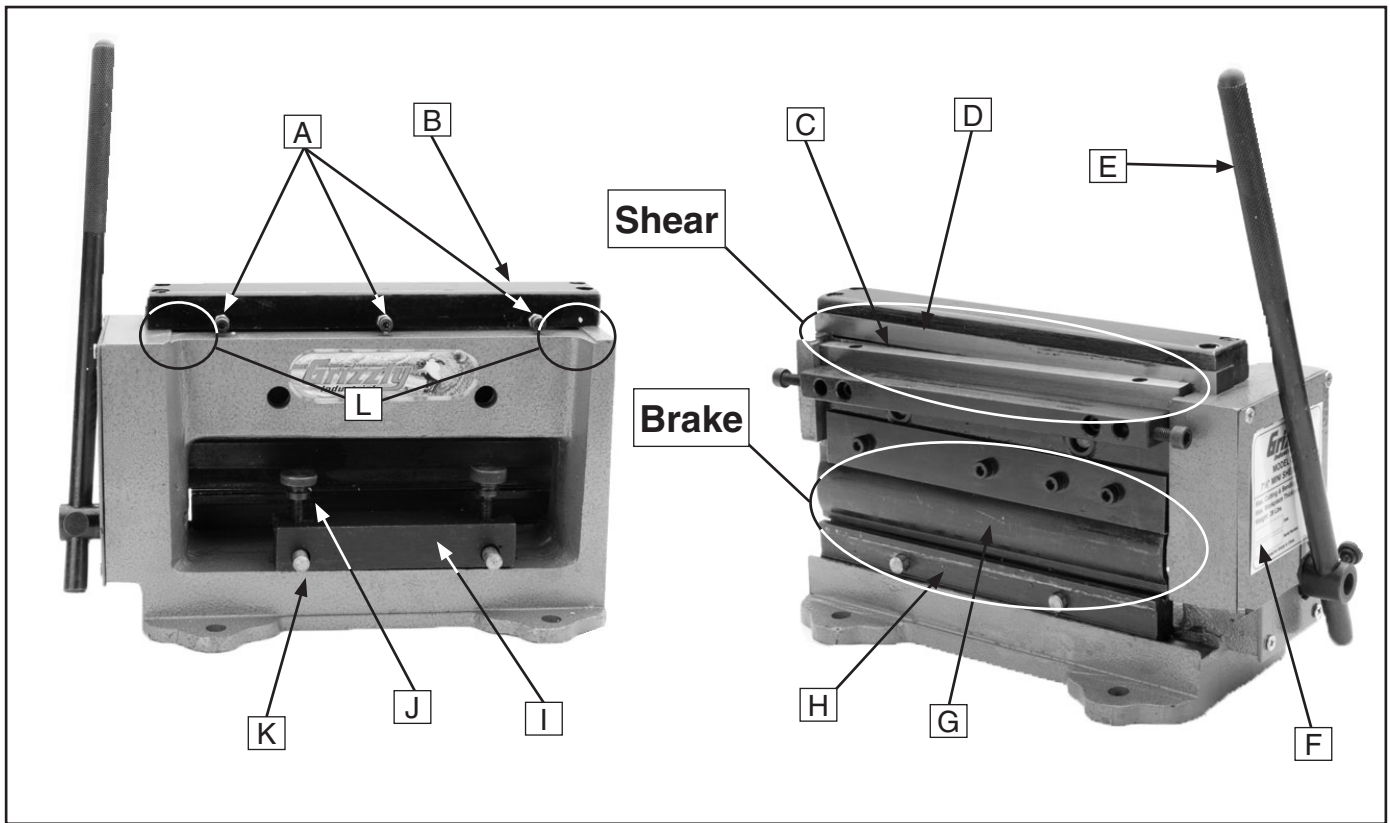


Figure 1. Identification.

- | | |
|----------------------------|---------------------------|
| A. Knife Adjustment Screws | G. 8" Brake Finger |
| B. Fixed Knife Retainer | H. Finger Receiver |
| C. Shearing Knife | I. Removable Stop |
| D. Fixed Knife | J. Stop Knob |
| E. Work Lever | K. Removable Support Rod |
| F. Gear Box | L. Workpiece Shear Guides |



MACHINE DATA SHEET

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

MODEL T21322 7-1/2" MINI SHEAR BRAKE

Product Dimensions:

Weight 27 lbs.
 Width/Depth/Height 11" x 11⁷/₁₆" x 6⁵/₈"
 Footprint (Width/Depth)..... 8³/₄" x 5³/₄"

Shipping Dimensions:

Type Cardboard
 Content..... Machine
 Weight..... 29 lbs.
 Length/Width/Height..... 20" x 13" x 7"

Capacities:

Maximum Width 7¹/₂"
 Maximum Thickness 22 Ga. Mild Steel
 Pan/Box Brake Minimum Reverse Bend 1/4"
 Pan/Box Brake Maximum Side Height @ 90° 5/8"

Construction

Brake..... Ground Steel, Hardened Edge
 Frame..... Cast Iron
 Base Cast Iron
 Shear Table Cast Iron
 Shear Blades Precision Ground Hardened Steel
 Shear Blade Type Reversible

Other Specifications:

Country of Origin..... China
 Warranty..... 1 Year
 Serial Number Location ID Label on Side of Machine
 Assembly Time 15 minutes

Features:

- Adjustable Rear Stops
- Rear Extension Arms
- Powder Coated Paint
- All Steel Construction



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.



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



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



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

- 1. READ THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
- 3. ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
- 4. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
- 5. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
- 6. NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.



WARNING

Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
8. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.
10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
11. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
12. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.
13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.
14. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in OFF position before reconnecting.
15. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
16. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**
17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery **ON**.
18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.
19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.
20. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
21. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.
22. **DO NOT OVERREACH.** Maintain stability and balance at all times.
23. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."
24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY.**
25. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.



WARNING

Additional Safety for Shear Brake Machines

- 1. OVERLOADING BRAKE.** Overloading this tool can cause injury from flying parts. Do not exceed the capacities specified on **Page 4**.
- 2. USAGE.** Do not use the brake as a press or a lever-operated crushing tool. Never use this machine without fully understanding its limitations.
- 3. METAL EDGES.** Always chamfer and deburr sharp sheet metal edges before bending or rolling sheet metal. Sharp edges can cut your fingers to the bone.
- 4. PINCHING.** Always keep hands away from the clamping fingers, and the shear knife. These areas present severe pinching and cutting hazards.
- 5. GLOVES, GLASSES, AND BOOTS.** Always wear leather gloves, approved safety glasses, and leather boots when using this tool.
- 6. TOOLS IN POOR CONDITION.** Inspect this combination machine for any cracked linkage, levers, or loose fasteners. Correct any problems before use.
- 7. GUARDS.** Keep all guards in place and in working order.
- 8. FOOTING.** Always have a secure footing when using this combination machine.
- 9. OPERATOR POSITION.** Keep all body parts out of the way of all moving parts. Serious pinches and cuts could occur.
- 10. PROPER USE.** Only use the shear for the purpose it was designed. **DO NOT** cut round stock, cable, chain, or hardened metals.
- 11. KNIFE MAINTENANCE.** Always keep knives properly adjusted and sharp.
- 12. OVERLOADING.** Never use any sort of cheater pipe on the end of the work lever or you may overload the brake or shear. Do not exceed 22 gauge of soft metals.
- 13. EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, **STOP** using the tool and contact our Technical Support at (570) 546-9663, or ask a qualified expert how the operation should be performed.

WARNING

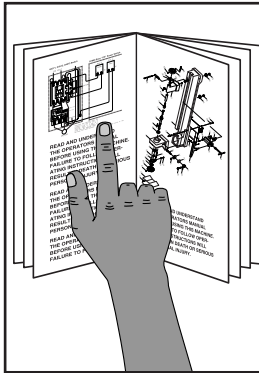
Like all machinery there is potential danger when operating this machine. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this machine with respect and caution to lessen the possibility of operator injury. If normal safety precautions are overlooked or ignored,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

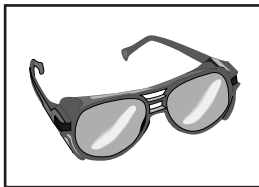


SECTION 2: SETUP



!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!

Set Up Items Needed

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

Description	Qty
• Safety Glasses	1
• Shop Rags.....	As Needed
• Cleaning Solvent	As Needed
• Medium Weight Paper.....	1-2 Sheets
• Wrench 13mm	1
• Wrench 14mm	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.



Inventory

Note: If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.

Box 1: (Figure 2)	Qty
A. Hex Bolts M8-1.25 x 60 (Base Mounting)...	4
B. Flat Washers 8mm (Base Mounting).....	4
C. Hex Nuts M8-1.25 (Base Mounting)	4
D. Finger 7/16"	1
E. Finger 5/8"	1
F. Finger 13/16"	1
G. Finger 1 1/8"	1
H. Finger 8" (Installed & Not Shown).....	1
I. Seating Block	1
J. Hex Wrench 3mm.....	1
K. Hex Wrench 4mm.....	1
L. Hex Wrench 5mm.....	1
M. Work Lever	1
N. Mini Shear Brake (Not Shown).....	1

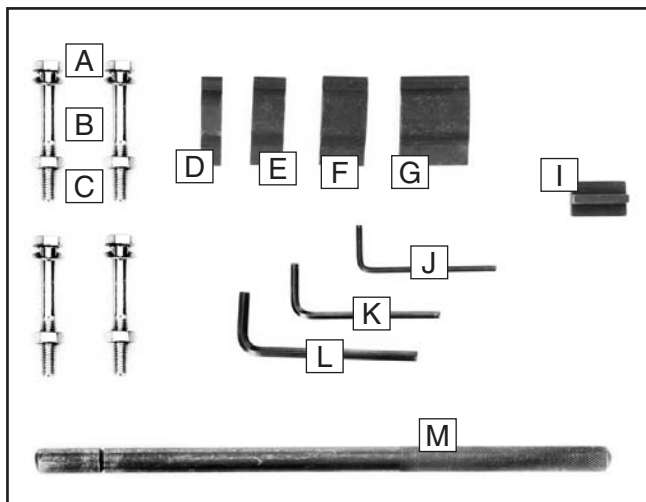
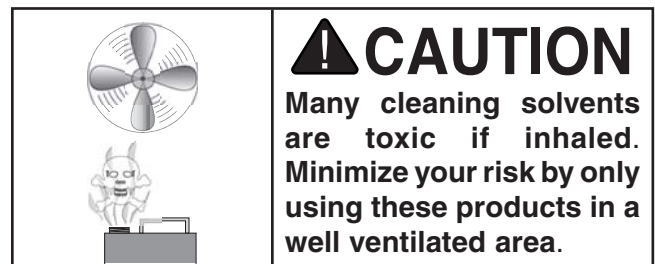
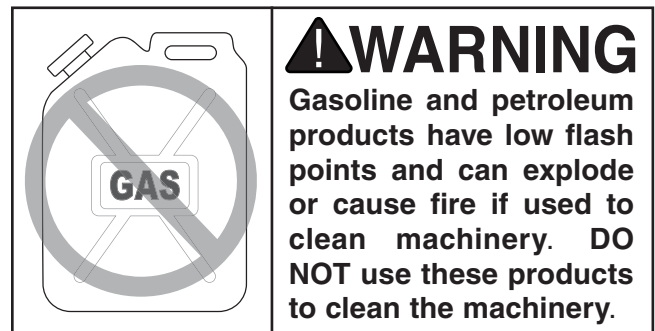


Figure 2. Inventory.

If any nonproprietary 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.

Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or degreaser, such as shown in **Figure 3**. For thorough cleaning, some parts must be removed as covered in **Setup** starting on **Page 8**. 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.



G2544—Solvent Cleaner & Degreaser
H9692—Orange Power Degreaser
 Great products for removing shipping grease.



Figure 3. Cleaner/degreasers available from Grizzly.



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 both the machine and workpiece.

Placement Location

Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your new machine. See **Figure 4** for the minimum working clearances.

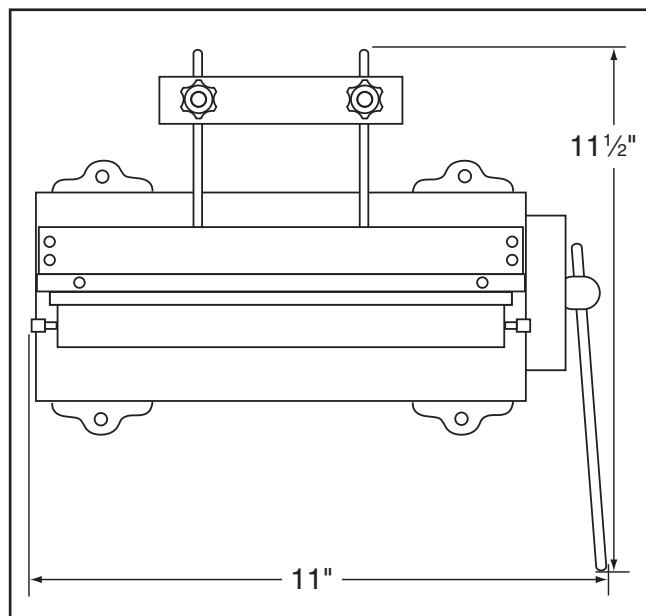
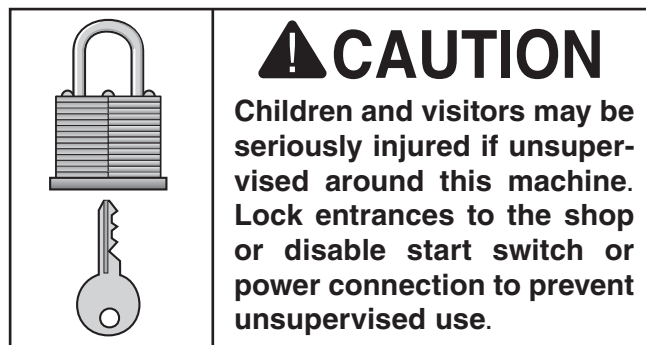


Figure 4. Minimum working clearances.



Mounting

Mount it to a workbench through the holes in the base. Mounting hardware has been included with your brake shear, however if you have special mounting requirements there are other mounting options available. **REMEMBER**, never use impact tools to tighten any mounting hardware that you chose to use. Do not overtighten or the cast iron base will crack.

The strongest mounting option is a "Through Mount" where holes are drilled all the way through the workbench, and hex bolts, washers, and hex nuts are used to secure the slip roll to the workbench.

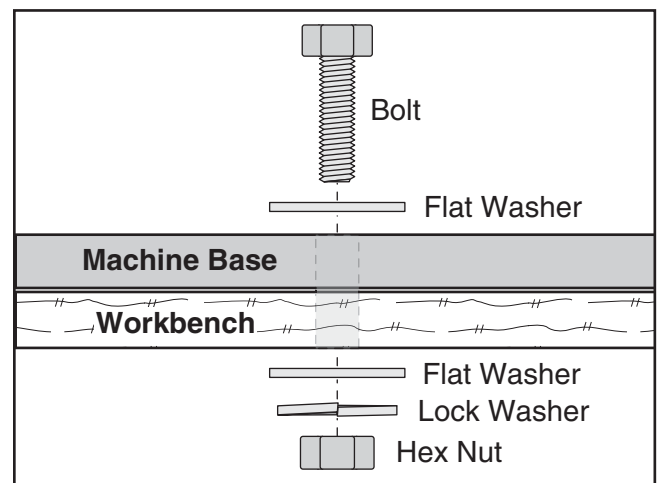


Figure 5. Example of a through mount setup.

Another option for mounting is a "Direct Mount" where the machine is simply secured to the workbench with lag screws.

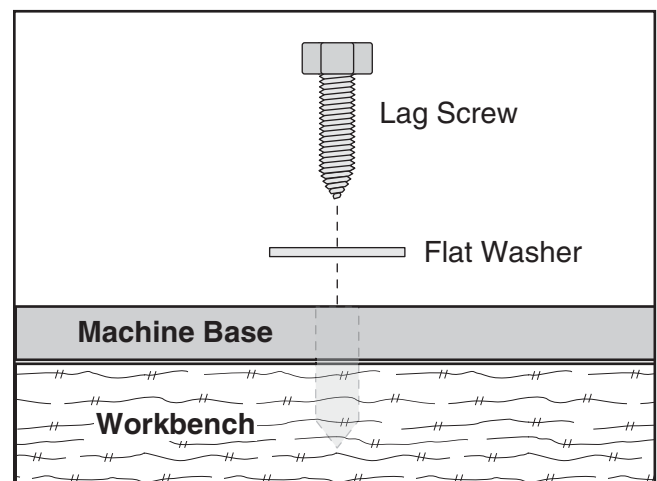


Figure 6. Example of a direct mount setup.

Setup

The Model T21322 comes from the factory almost fully assembled. However, some minor disassembly is required to remove storage grease and to relubricate the cleaned parts.

To set up the machine:

1. Insert the work lever into the hub, so the tip of the thumb knob fits in the groove in the lever (**Figure 7**), and secure it in place with the thumb knob.

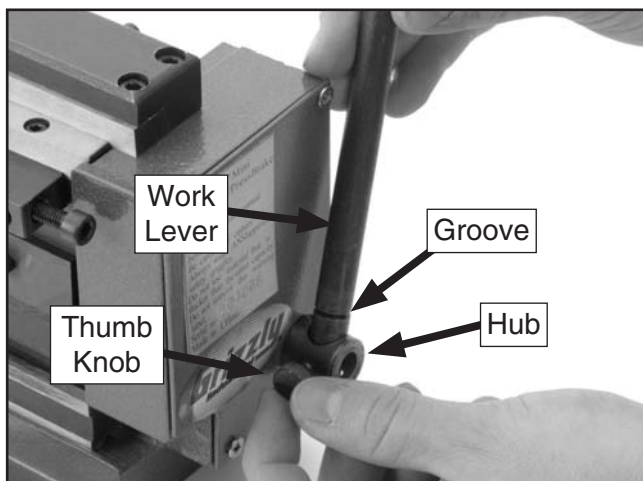


Figure 7. Work lever installation.

2. Using the work lever, position the 8" finger to the uppermost position (**Figure 8**).

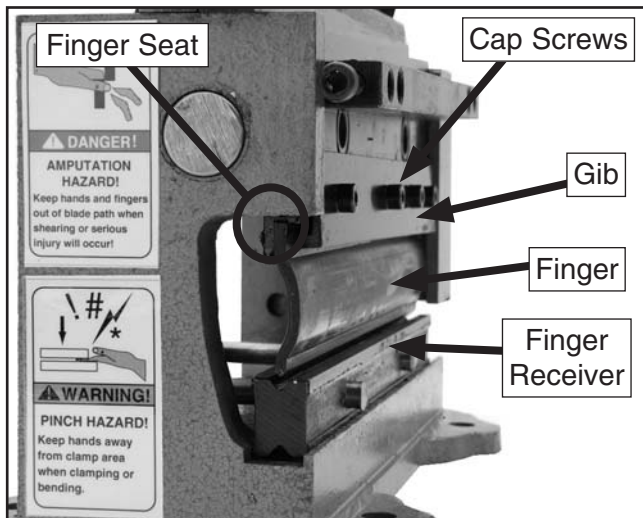


Figure 8. Removing fingers.

3. Using a 4mm hex wrench, loosen all of the cap screws that hold the gib (**Figure 8**), then slide the 8" finger out.
4. Clean all the fingers, the finger gib, and finger seat in the casting with mineral spirits (**Figure 9**).

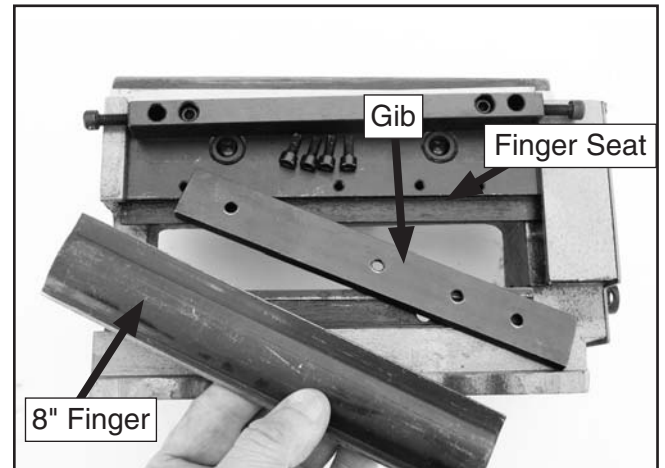


Figure 9. Finger and gib removal.

5. Dry and relubricate all parts with a high-quality anti-rust lubricant, such as shown in **Figure 23** on **Page 18**.
6. Position the gib and finger-tighten the cap screws enough to slide one or more fingers back into the finger receiver without the fingers falling out.
7. Install the fingers in the order necessary for your bending task.

Continued on next page →

8. Place the finger seating tool into the finger receiver seat (**Figure 10**) and use the work lever to lower and slightly preload the finger against the seating tool to seat the finger.

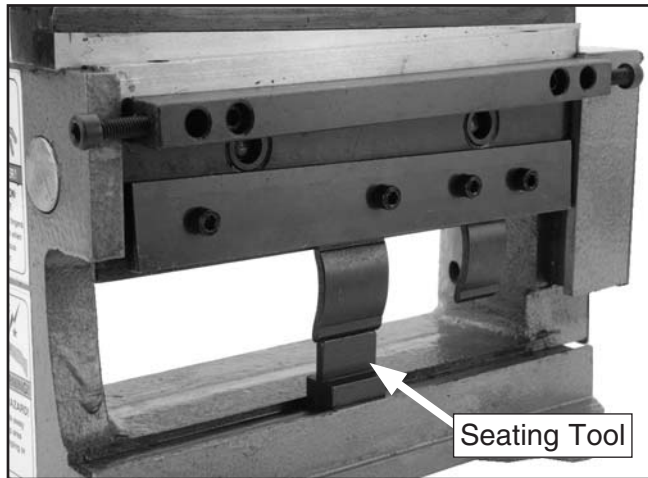


Figure 10. Seating fingers.

9. While holding the fingers in the seated position (**Figure 11**) with the work lever, tighten all the gib cap screws and reinstall the finger receiver.

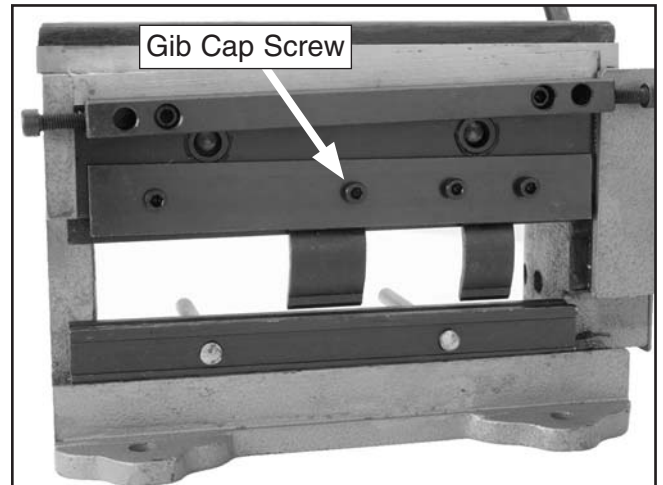


Figure 11. Seated fingers.

SECTION 3: OPERATIONS

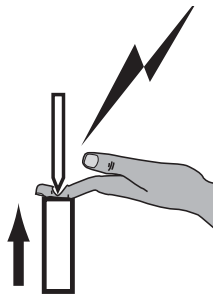
!WARNING

Damage to your eyes, hands and feet could result from using this machine without proper protective gear. Always wear safety glasses, leather gloves, and steel toe footwear when operating this machine.



!WARNING

The bending brake on this machine presents a pinching hazard. Make sure no body part or clothing is near the area where metal bending occurs. Failure to follow this warning may result in fingers being crushed or severed, leading to severe personal injury.



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.

General Brake Operations

The Model T21322 is a bench-mounted brake that bends mild sheet metal up to 22 gauge thick and 7½" wide.

To create a bend, the user places the sheet metal on top of the finger receiver. The finger slide is then lowered so the tips of the fingers line up with the bend line drawn or scribed into the metal. If needed, the rear stop can be adjusted so many bends can be made at the same location. The work lever is moved and the finger slide moves downward, causing the tips of the fingers to push the sheet metal into the finger receiver V-groove. To remove the workpiece, the user raises the finger receiver and slides the workpiece out from the front of the machine.

Note: When creating boxes, the fingers can be removed for clearance to allow all four box flanges to be bent upward.



Bend Allowance

Bending sheet metal slightly changes the length of the workpiece. Compensating for this change is called bend allowance. Typically, bend allowance must be determined when planning the starting length of the workpiece and position of your scribe lines. If bend allowance is ignored, your project or its bent sides may be longer or shorter than you originally intended, depending on whether you measure from the outside or inside of the bend (see **Figure 12**).

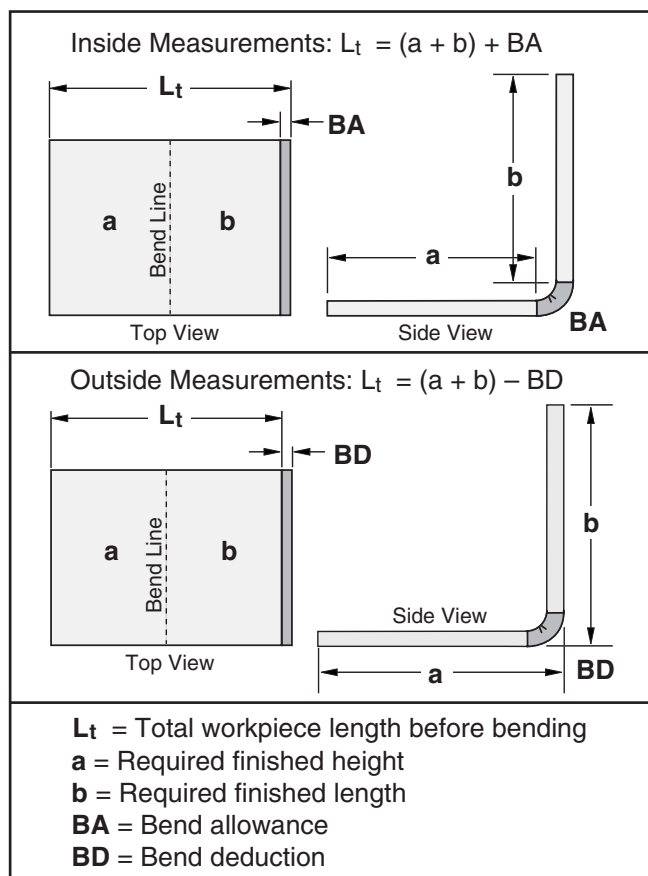


Figure 12. Understanding how bend allowance affects starting workpiece length.

The distance needed to account for bend allowance is mainly affected by workpiece thickness and bend radius. Since the Model T21322 only bends thin sheet metal with tight radii, bend allowance will only minimally affect projects made with this machine and may not even be noticeable.

To learn more about bend allowance and how to calculate it, refer to *Machinery's Handbook* or the internet.

Bending Sheet Metal

CAUTION

Do not operate the Model T21322 unless it has been securely clamped in place or mounted to a workbench, or it could tip over on you, causing an injury!

Bending operations require the fingers to be in line with the finger receiver. When moved, the fingers lower into the finger receiver where the tips of the fingers push the metal into the finger receiver V-groove. As a result a bend occurs. If a pan or box bend is desired, choose a finger or a selection of fingers that are as close as possible to the length of the pan or box side lengths. Remove the fingers that may interfere with the bend. For smaller bends, the finger receiver is reversible so the shallower V-groove is exposed.

Tip: During a bending operation, the fingers push the sheet metal down into the groove of the finger receiver. As the sheet metal slides down into the groove, scoring may occur. To avoid these marks, keep the receiver free of burrs, and adhere a strip of tape on the workpiece along the location to be bent.

To perform a basic bending operation:

1. If you chose to use the opposite finger receiver V-groove which is a different size, loosen the lock knobs and slide the rear stop off of the support rods (**Figure 13**).

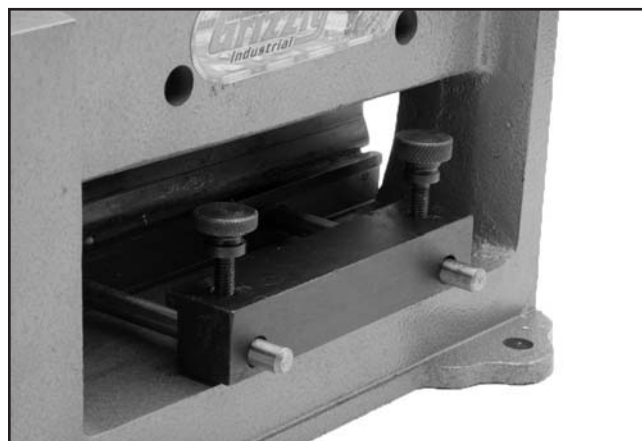


Figure 13. Rear stop.



2. Use the work lever to raise the fingers.
3. Lift the finger receiver up and out of the receiver slot in the base (**Figure 14**).



Figure 14. Removing finger receiver position.

4. Rotate the finger receiver so the desired V-groove is facing up and reinsert the receiver in the slot (**Figure 15**).
5. Draw or scribe a bend line in the sheet metal where the bend needs to be.
6. Line up the bend line with the tips of the fingers (**Figure 15**).

Note: For quick repeatability of bends that need to be made at the same location in sheet metal, the adjustable stop is used.



Figure 15. Workpiece alignment.

7. While holding the sheet metal steady, use the work lever to lower the fingers and bend the workpiece to the desired bend radius (**Figure 16**).



Figure 16. Bending the workpiece.

8. Raise the fingers and remove the workpiece.
9. If a reverse bend is required, reinstall the workpiece upside-down and repeat **Step 4** (**Figure 17**).

Note: The minimum reverse bend possible is $\frac{1}{4}$ ".



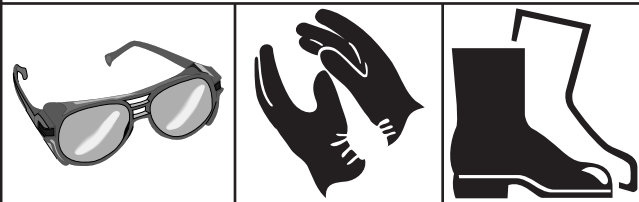
Figure 17. Minimum reverse bend.

General Shear Operations

This machine uses a set of reversible knives that shear mild steel up to 22 gauge. A movable lower knife passes next to the fixed upper knife, creating a shearing action. For repetitive cuts at the same dimensions, an adjustable rear stop is used.

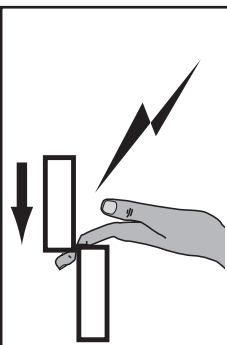
⚠ WARNING

Damage to your eyes, hands and feet could result from using this machine without proper protective gear. Always wear safety glasses, leather gloves, and steel toe footwear when operating this machine.



⚠ CAUTION

The shear on this machine presents a cutting hazard. Make sure no body part or clothing is near the area where metal shearing occurs. Failure to follow this warning may result in fingers being cut, leading to personal injury.



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.

Shearing Tips

- To avoid rolling the edge of the sheet metal and pinching it between the two knives, never cut any piece narrower than eight times the thickness of the material.

For example: If you have a sheet of 22 gauge mild steel where the thickness is 0.030", the minimum width of metal that can be cut is 0.240", or approximately 1/4" of an inch.

- Keep the knife gap at the smallest distance possible.
- The table below summarizes other materials and the equivalent decimal thicknesses that can be cut on this shear.

	16 Ga.	18 Ga.	22 Ga.
Mild Steel	0.0598"	0.0478"	0.0300"
Stainless	0.0625"	0.0500"	0.0312"
Zinc	0.0045"	0.0550"	0.0900"
Aluminum	0.0508"	0.0403"	0.0253"
Galvanized Steel	0.0635"	0.0516"	0.0336"

Figure 18. Equivalent material thickness chart.



Cutting Sheet Metal

To cut sheet metal:

1. Remove the rear stop (**Figure 19**), so the workpiece can be supported in cutting operations.

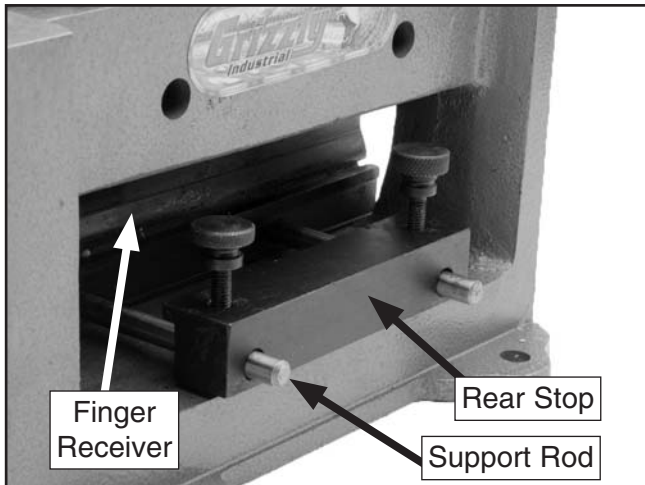


Figure 19. Rear adjustable stop.

2. Slide both support rods out from the finger receiver (**Figure 19**), and install the rods at the front of the machine just below the shearing knife (**Figure 20**).

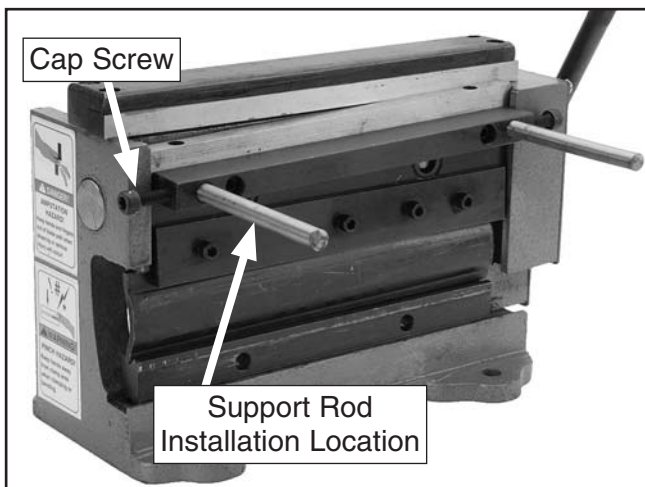


Figure 20. Support rod installation location.

3. Using the 5mm hex wrench, tighten the cap screws (**Figure 20**) to hold the rods in place.

4. Position one square edge of the workpiece up against a guide that is cast into the housing (**Figure 21**), and use the work lever to shear the metal.



Figure 21. Workpiece positioning.

5. When the cut is complete, remove the metal from the machine.

Note: For maximum knife life, and ease in shearing metal, keep the knives well oiled.

SECTION 4: ACCESSORIES

H5614—Wire Gauge US Standard

Calibrated for sheet metal sized from 0 to 30 gauge. The front is marked with gauge sizes, the back is marked with actual inch measurements.



Figure 22. H5614 Wire Gauge.

G5562—SLIPIT® 1 Qt. Gel

G5563—SLIPIT® 12 oz Spray

G2871—Boeshield® T-9 12 oz Spray

G2870—Boeshield® T-9 4 oz Spray

H3788—G96® Gun Treatment 12 oz Spray

H3789—G96® Gun Treatment 4.5 oz Spray



Figure 23. Recommended products for protecting unpainted cast iron/steel part on machinery.

H6073—Deluxe Power Snip

Lightweight aluminum cast handles. Full 3½" length of cut. Replaceable steel knives. 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 24. Model H6073 Deluxe Power Snip.

G5618—Deburring Tool with two Knives

G5619—Extra Aluminum Knives

G5620—Extra Brass and Cast Iron Knife

The quickest tool for smoothing freshly sheared metal edges. Comes with two knives, one for steel and aluminum and one for brass and cast iron.



Figure 25. G5618 Deburring tool.

Call 1-800-523-4777 To Order



G4956—Super Nibbler

The super nibbler is just the ticket for cutting sheet metal up to $\frac{3}{64}$ " thick. Extremely narrow headed design allows cuts in hard-to-reach areas, yet still features a safety guard to prevent flying splinters. 10 $\frac{1}{4}$ " overall.



Figure 26. Model G4956 Super Nibbler.

H5958—Sheet Metal Pliers

For bending and forming sheet metal. Jaws are 3 $\frac{1}{2}$ " side. Rubber grips. Overall length is 8". Ideal for HVAC Installers.



Figure 27. Model H5958 Sheet Metal Pliers.

G8781—4 $\frac{1}{2}$ " Suction Cup

Handle plate glass, glass mirrors and sheet metal with safety and security. Simple had lever action provides tremendous gripping power on any flat, smooth material. Buy two suction cups for two-handed control!



Figure 28. Model G8781 4 $\frac{1}{2}$ " Suction Cup.

H6131—Heavy-Duty Hand Riveter

Whether you're a full time sheet metal fabricator, or just making occasional repairs, you might as well invest in the best. This heavy-duty hand riveter with reinforced cast construction will be one of your most dependable tools.



Figure 29. Model H6131 Heavy-Duty Hand Riveter.

Call 1-800-523-4777 To Order



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.
- Any other unsafe condition.

Weekly Maintenance:

- Clean machine.
- Lubricate slide, knives and bare metal surfaces.
- Keep finger and finger receiver polished and free of nicks and burrs.

Bi Annual Maintenance:

- Clean and re-lubricate drive gears.

Cleaning

Cleaning the Model T21322 is relatively easy. Periodically wipe down the machine to remove dust and oil on the paint. Treat all unpainted cast iron and steel with a non-staining lubricant after cleaning.

Unpainted Cast Iron

Protect the unpainted cast iron 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 SLIPIT®, or Boeshield® T-9 (see **Section 5: Accessories** on **Page 18** for more details).

Lubrication

To lubricate the machine:

1. Using an oil can filled with any type of machine or motor oil, lubricate the fingers, finger receiver, knuckle sockets, slides, and knives (**Figure 30**).

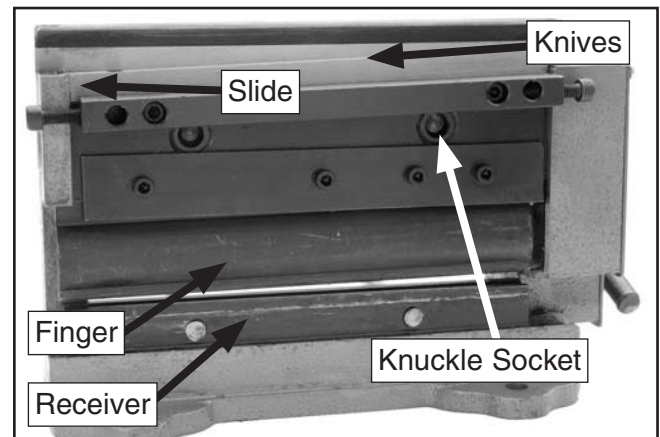


Figure 30. General oil lubrication locations.

2. Using the work lever to cycle the brake shear, apply oil to the end shaft (**Figure 31**) until the shaft is lubricated between the shaft journal and the main casting.



Figure 31. End shaft oil lubrication.

3. Unscrew the work lever retaining thumb screw and then remove the lever (**Figure 32**).

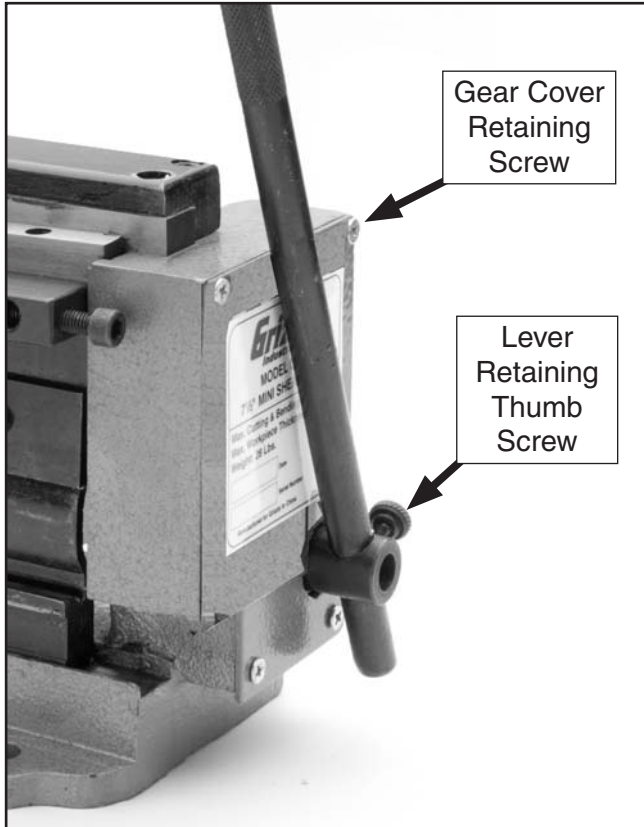


Figure 32. Gear cover removal.

4. Remove the four gear cover retaining screws, and remove the cover (**Figure 32**).

5. Using mineral spirits, a brush and a rag, clean and dry the rack and pinion gears (**Figure 33**) and the gear housing.

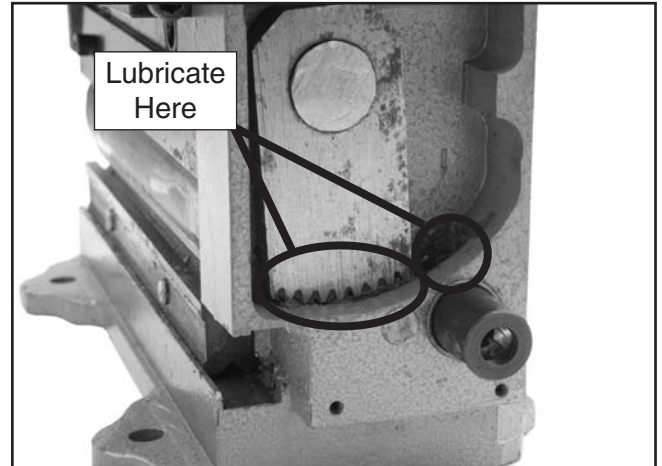


Figure 33. Gear grease locations.

6. Brush on a heavy coat of any multi-purpose GL2 grease. Insert and turn the work lever to disperse the grease.
7. Reassemble the brake shear.

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

Brake Operation

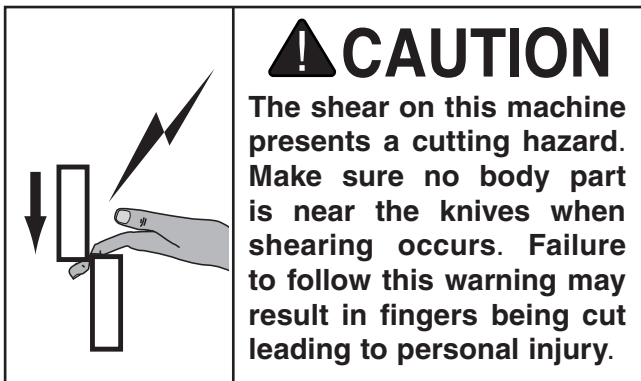
Symptom	Possible Cause	Possible Solution
Heavy resistance during bends.	1. Machine capacities are exceeded.	1. Use materials within the capacity of the machine.
Bend radius is not consistent across workpiece.	1. Machine capacities are exceeded. 2. Fingers and finger receiver not aligned.	1. Use materials within the capacity of the machine. 2. Adjust finger alignment and seating (Page 12).
Point of fingers are chipping or rolling.	1. Fingers and finger receiver not aligned. 2. Workpiece is too thick.	1. Adjust finger alignment and seating (Page 12). 2. Use materials within the capacity of the machine.
Workpiece shows scoring marks after bend.	1. Fingers or finger receiver has scratches.	1. Polish out scratches, and apply tape at the bend locations for protection.

Shear Operation

Symptom	Possible Cause	Possible Solution
Won't cut material.	1. Binding knives. 2. Cut exceeds machine capacities.	1. Remove knives, clean knife mounting, reinstall, and adjust (Page 24), or replace (Page 23). 2. Make cuts within the capacity of the machine.
Cuts aren't square.	1. Workpiece guides not being used. 2. Knife gap unequal across length. 3. Loose knife or gib.	1. See Figure 1 for guide identification and location for use. 2. Adjust knife gap to be equal across length (Page 23). 3. Tighten all knife and gib fasteners, and adjust knife (Page 23).
Poor quality of cuts, ripping or tearing.	1. Dull knives. 2. Poor knife gap set up. 3. Loose knife.	1. Replace or sharpen knives (Page 23). 2. Adjust knife gap to be equal across length (Page 23). 3. Remove knives, clean knife mounting, reinstall, and adjust (Page 24), or replace (Page 23).



Adjusting Knives



A few test cuts with a sheet of paper will determine if the current knife position is satisfactory for your needs.

Tools Required	Qty
Wrench 3mm.....	1
Hex Wrench 4mm.....	1

To perform the knife adjustment:

1. Oil the knives.
2. While keeping fingers clear of the knife (**Figure 34**), shear a sheet of paper to test for a clean cut.



Figure 34. Shear test.

—If the shear cuts fine at all locations along the knife, the knife is adjusted correctly and no adjustment is required.

—If the shear cuts the paper poorly at any location or if the knife binds, the knives need to be adjusted. Proceed to **Step 3**.

3. Using the 4mm hex wrench, loosen the front knife retaining cap screws (**Figure 35**) on both sides of the shear.

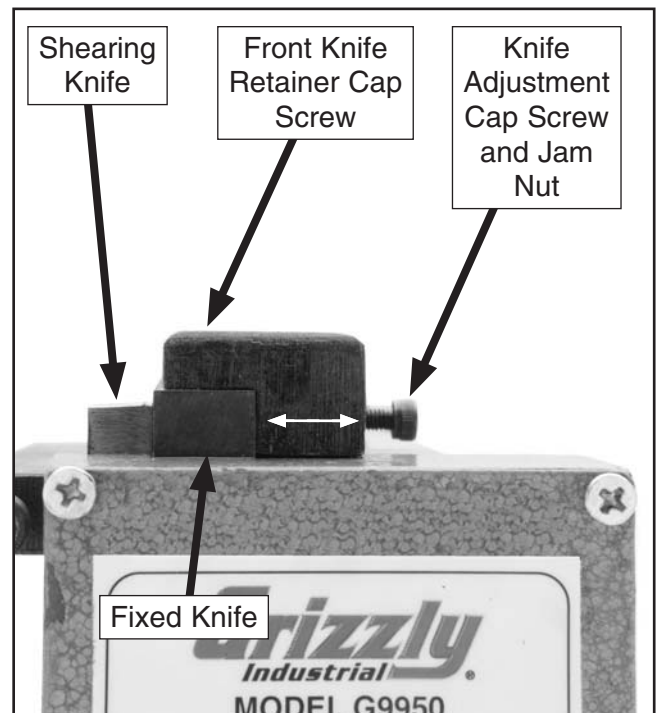


Figure 35. Knife adjustment.

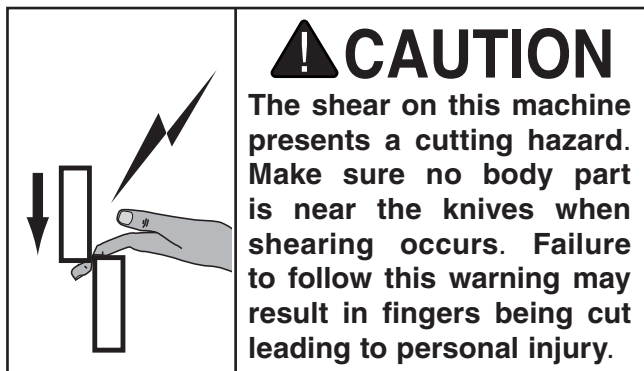
4. Using the 3mm wrench, loosen the three knife adjustment screw jam nuts (**Figure 35**).
5. Using the 4mm hex wrench, tighten or loosen the three table knife adjustment screws (**Figure 35**) to move the fixed knife into correct adjustment with the shearing knife.

Note: The idea is to position the fixed knife against the shearing knife to achieve snug and consistent knife rub without causing the knives to bind at any location. However, the shearing knife should never overlap the fixed knife. This misalignment will cause the knives to interfere with one another, causing damage to the cutting edge or other components.

6. When finished, tighten the jam nuts and the retainer cap screws.
7. Test the shearing action with a sheet of paper, and readjust knives if required.



Knife Sharpening/ Replacement



The knives on this shear are reversible and can be rotated to reveal additional cutting edges. The shearing knife has two cutting edges, while the fixed knife has four. When all edges on the knives have reached the end of their usable life, they can be reground by using wet grinding techniques for SK-4 metal or better. If sharpening services are not available in your area, replacement knives are available through Grizzly.com.

Tools Required	Qty
Hex Wrench 3mm.....	1
Hex Wrench 4mm.....	1

To rotate or replace the knives:

1. Put on leather gloves.
2. Using a 4mm hex wrench, remove the four knife retainer cap screws and then the knife retainer and the fixed knife (**Figure 36**).

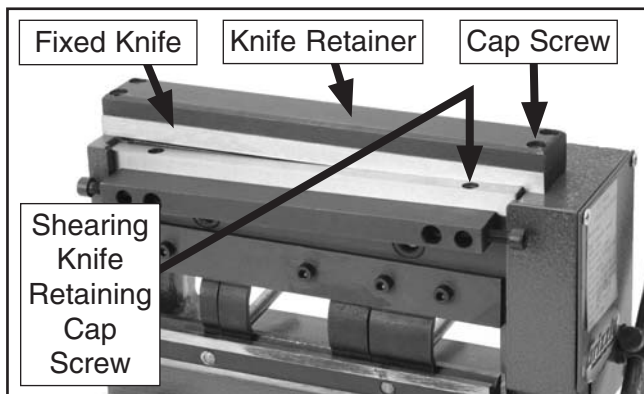


Figure 36. Shear components.

3. Using a 3mm hex wrench, remove the two shearing knife retaining cap screws (**Figure 36**).
4. Remove the knives and swap the position of the knives to expose new cutting edges or replace the knives (**Figure 37**).

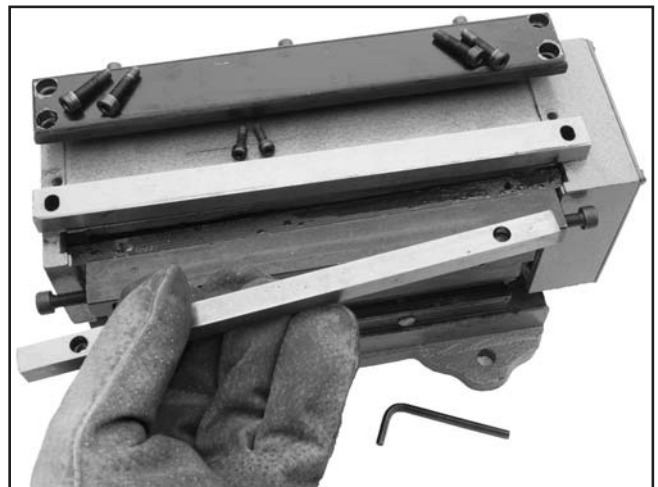


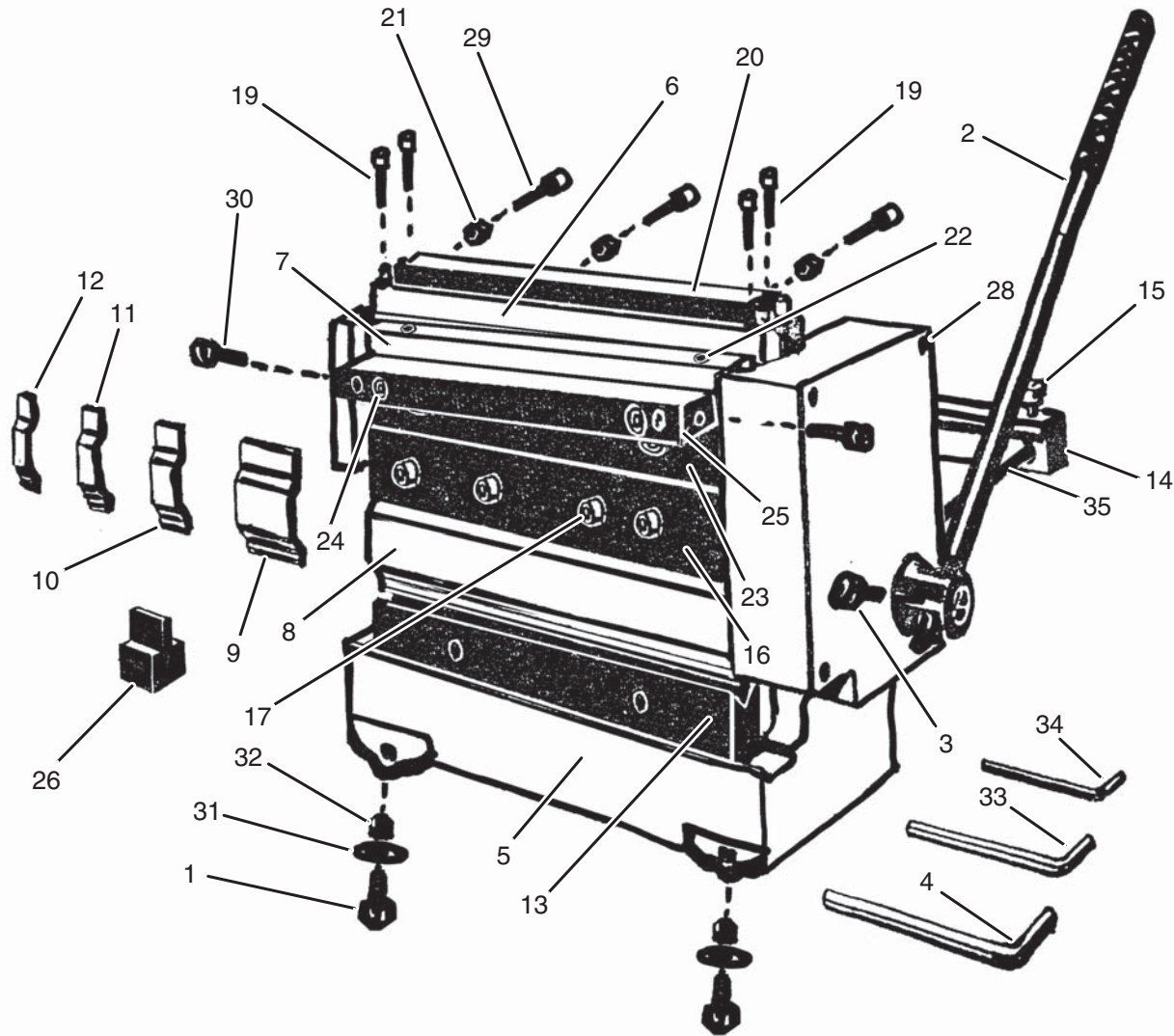
Figure 37. Knife removal/installation.

5. Lubricate the knives, then reinstall the knives and the knife retainer.
6. Next complete the **Adjusting Knives** procedure on **Page 23**.



SECTION 7: PARTS

Parts Breakdown and List

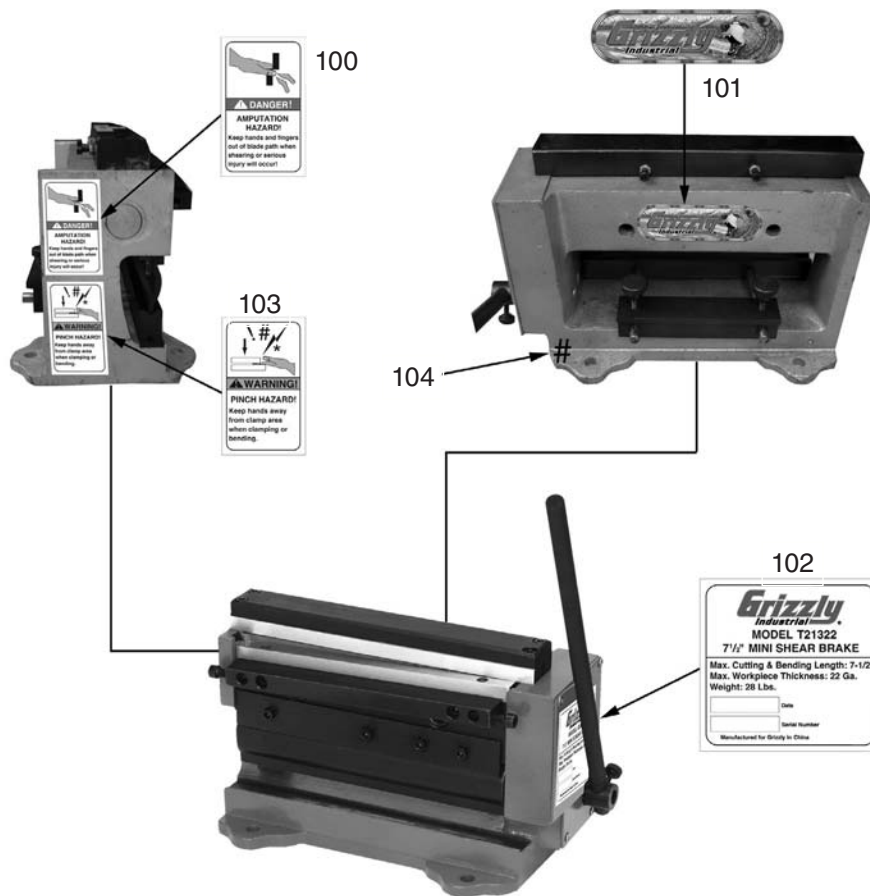


REF PART #	DESCRIPTION
1	PB44M HEX BOLT M10-1.5 X 75
2	PT21322002 WORK LEVER
3	PT21322003 KNURLED THUMB KNOB
4	PAW05M HEX WRENCH 5MM
5	PT21322005 MAIN CASTING
6	PT21322006 FIXED KNIFE
7	PT21322007 SHEARING KNIFE
8	PT21322008 FINGER 8"
9	PT21322009 FINGER 1-1/8"
10	PT21322010 FINGER 13/16"
11	PT21322011 FINGER 5/8"
12	PT21322012 FINGER 7/16"
13	PT21322013 FINGER RECEIVER
14	PT21322014 STOP
15	PT21322015 KNURLED THUMB KNOB
16	PSB33M CAP SCREW M5-.8 X 12
17	PSB38M CAP SCREW M5-.8 X 25

REF PART #	DESCRIPTION
19	PSB15M CAP SCREW M5-.8 X 20
20	PT21322020 GIB BLOCK
21	PN04M HEX NUT M4-.7
22	PSB17M CAP SCREW M4-.7 X 10
23	PT21322023 SLIDE
24	PSB10M CAP SCREW M5-.8 X 15
25	PT21322025 GIB
26	PT21322026 SEATING BLOCK
28	PFH19M FLAT HD SCR M4-.7 X 10
29	PSB162M CAP SCREW M4-.7 X 25
30	PSB06M CAP SCREW M6-1 X 25
31	PW04M FLAT WASHER 10MM
32	PN03M HEX NUT M8-1.25
33	PAW04M HEX WRENCH 4MM
34	PAW03M HEX WRENCH 3MM
35	PT21322035 SUPPORT ROD



Label Placement and Parts



REF	PART #	DESCRIPTION
100	PT21322100	AMPUTATION WARNING LABEL
101	PT21322101	GRIZZLY LOGO LABEL
102	PT21322102	MACHINE DATA LABEL

REF	PART #	DESCRIPTION
103	PT21322103	PINCH WARNING LABEL
104	PPAINT-1	GRIZZLY GREEN 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.





WARRANTY CARD

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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
- Card Deck
- Friend
- Website
- Catalog
- Other:

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

- | | | |
|---|--|---|
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| <input type="checkbox"/> Family Handyman | <input type="checkbox"/> Popular Science | <input type="checkbox"/> Wood |
| <input type="checkbox"/> Hand Loader | <input type="checkbox"/> Popular Woodworking | <input type="checkbox"/> Wooden Boat |
| <input type="checkbox"/> Handy | <input type="checkbox"/> Practical Homeowner | <input type="checkbox"/> Woodshop News |
| <input type="checkbox"/> Home Shop Machinist | <input type="checkbox"/> Precision Shooter | <input type="checkbox"/> Woodsmith |
| <input type="checkbox"/> Journal of Light Cont. | <input type="checkbox"/> Projects in Metal | <input type="checkbox"/> Woodwork |
| <input type="checkbox"/> Live Steam | <input type="checkbox"/> RC Modeler | <input type="checkbox"/> Woodworker West |
| <input type="checkbox"/> Model Airplane News | <input type="checkbox"/> Rifle | <input type="checkbox"/> Woodworker's Journal |
| <input type="checkbox"/> Modeltec | <input type="checkbox"/> Shop Notes | <input type="checkbox"/> Other: |
| <input type="checkbox"/> Old House Journal | <input type="checkbox"/> Shotgun News | |

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: _____

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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.

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