MODEL H8178 POWER FEED

OWNER'S MANUAL

#CR10064 PRINTED IN CHINA

⚠ WARNING!

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

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

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

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

⚠ WARNING!

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

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

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

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INTRODUCTION

Foreword

We are proud to offer the Model H8178 Power Feed. This machine is part of a growing Grizzly family of fine metalworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The specifications, drawings, and photographs illustrated in this manual represent the Model H8178 when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly.

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

Contact Info

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

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

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MACHINE DATA SHEET

MODEL H8178 POWER FEED FOR MODEL G0463 & G0619 MILL/DRILLS

Product Dimensions:

Weight.....13 lbs.
Width/Depth/Height.....7.75"W x 7.5"D x 5"H

Electrical:

Switch..... Dual Micro Limit Switch
Power Supply Voltage.....110V
Cord Length..... 7 ft.
Cord Gauge.....18 gauge
Recommended Breaker Size..... 15 amp
Plug.....NEMA 5-15
Power Supply.....110VAC, Single-Phase
Circuit Board Protection.....Fuse, 5A
Automatic Motor Overload Protection.....Circuit Board Controlled Motor Shutdown
Motor Control.....Circuit Board w/Rheostat
Rapid Feed Speed Option.....Yes, Push Button
Feed Speed Range.....0-1100 mm/min

Motor:

Type.....Class E, Brush-Type 110VDC
Horsepower.....0.2 HP
Amps.....1.8A
Watts.....150W
Speed.....4000 RPM
Power Transfer .....Gearbox w/All Steel Gears
Bearings.....Bushing and Permanently Lubricated Ball Bearing

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 which are intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures.

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

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

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

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

⚠WARNING

Safety Instructions for Machinery

1. **READ THROUGH 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 AN ANSI APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust is a carcinogen and can cause cancer and severe respiratory illnesses.
4. **ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing damage.
5. **WEAR PROPER APPAREL.** DO NOT wear loose clothing, gloves, neckties, rings, or jewelry which may get caught 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 CHILD PROOF.** 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 LIT.** Clutter and dark shadows may cause accidents.

13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Undersized cords overheat and lose power. Replace extension cords if they become damaged. DO NOT use extension cords for 220V machinery.

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 and alignment of parts, broken parts, part mounting, loose bolts, and any other conditions that may affect machine operation. Repair or replace damaged parts.

19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. The use of improper accessories may cause 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.** Keep proper footing and balance at all times.

23. **MANY MACHINES WILL EJECT THE WORKPIECE TOWARD THE OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."

24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY**.

25. **BE AWARE THAT CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Make sure you know the hazards associated with the type of dust you will be exposed to and always wear a respirator approved for that type of dust.

⚠WARNING

Additional Safety for Power Feeds

1. **UNDERSTANDING CONTROLS.** Make sure you understand the use and operation of all power feed controls.

2. **SAFETY ACCESSORIES.** Always wear your safety glasses when using the power feed.

3. **WORK HOLDING.** Before starting the power feed, be certain the workpiece has been properly clamped to the table. NEVER hold the workpiece against the table by hand during power feed operations.

4. **SPINDLE SPEEDS.** Select the spindle speed that is appropriate for the type of work and material. Allow the mill/drill to gain full speed before beginning a power feed operation.

5. **POWER DISRUPTION.** In the event of a local power outage when using the power feed, turn ***OFF*** all switches to avoid possible sudden start up once power is restored.

6. **BE ATTENTIVE.** DO NOT leave the area for any reason during any power feed operation.

7. **DISCONNECT POWER.** Unplug the power feed from power before starting any inspection, adjustment, or maintenance procedure.

8. **MACHINE CARE AND MAINTENANCE.** Never operate the power feed if the table is out of adjustment, is damaged, or has worn parts. Maintain your mill/drill in proper working condition. Perform routine inspections and maintenance promptly. Put away adjustment tools after use.

9. **AVOIDING ENTANGLEMENT.** Keep loose clothing articles such as sleeves, belts or jewelry items away from the table handwheels, and moving parts.

10. **CLEAN-UP.** DO NOT clear chips by hand, or blow off with compressed air. Use a brush, and never clear chips while the power feed is operating.

11. **CUTTING TOOL INSPECTION.** Inspect end mills for sharpness, chips, or cracks before beginning a power feed operation. Replace dull, chipped, or cracked cutting tools immediately. Handle new cutting tools with care. Leading edges are very sharp and can cause lacerations.

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

⚠WARNING

No list of safety guidelines can be complete. Every shop environment is different. Like all machines there is danger associated with the Model H8178. 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.

SECTION 2: CIRCUIT REQUIREMENTS

110V Operation

⚠WARNING

Serious personal injury could occur if you connect the machine to the power source before you have completed the set up process. DO NOT connect the machine to the power source until instructed to do so.

Amperage Draw

The Model H8178 motor draws the following amps under maximum load:

Motor Draw ..... 1.8 Amps

Circuit Recommendations

We recommend connecting your machine to a dedicated and grounded circuit that is rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. **If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, consult a qualified electrician.**

Circuit Breaker..... 15 Amps

Plug/Receptacle Type

Included Plug Type..... NEMA 5-15

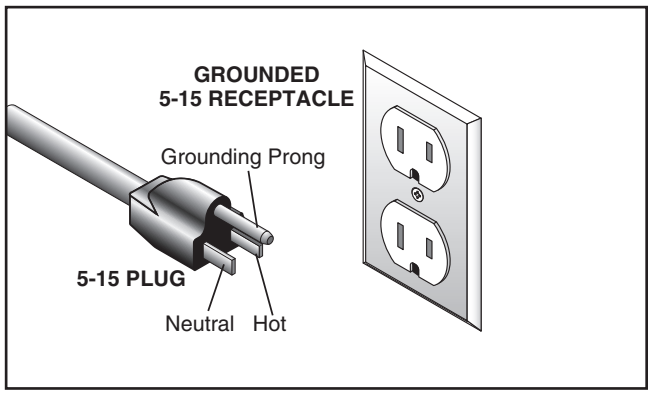
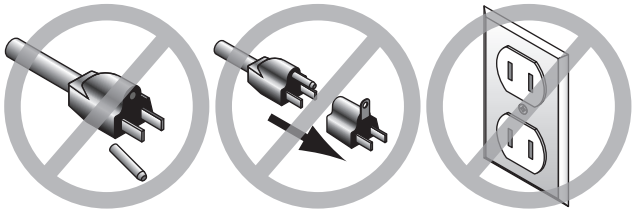


Figure 1. A 5-15 plug and receptacle.

⚠WARNING

Electrocution or fire could result if this machine is not grounded correctly or if your electrical configuration does not comply with local and state codes. Ensure compliance by checking with a qualified electrician!

⚠CAUTION



SHOCK HAZARD!

Two-prong outlets do not meet the grounding requirements for this machine. Do not modify or use an adapter on the plug provided—if it will not fit the outlet, have a qualified electrician install the proper outlet with a verified ground.

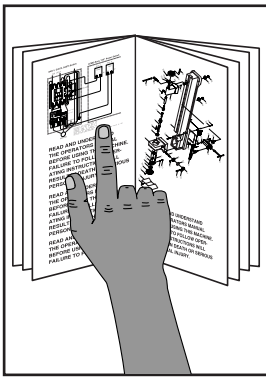
Extension Cords

We do not recommend the use of extension cords, if you find it absolutely necessary:

- Use at least a 14 gauge cord that does not exceed 50 feet in length!
- The extension cord must also contain a ground wire and plug pin.
- A qualified electrician MUST size cords over 50 feet long to prevent motor damage.

SECTION 3: SETUP

Setup Safety



⚠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 set up process!

Unpacking

The Model H8178 was carefully packed when it left our warehouse. If you discover the machine is damaged after you have signed for delivery, *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, you should inventory the contents.

Items Needed for Setup

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

Tools & Hardware Needed:	**Qty**
• Wrench 10mm	1
• Center Punch	1
• Power Drill	1
• Drill Bit (#25)	1
• Bottoming Tap (#10-24)	1
• Flat Head Screws (#10-24 x 1/2")	2
• Hex Wrench (3mm)	1
• Hex Wrench (4mm)	1
• Hex Wrench (5mm)	1
• Phillips Screwdriver (#1)	1
• Phillips Screwdriver (#2)	1
• Flat Tip Screwdriver (#2)	1
• Flat Metal File (10")	1
• Small Hammer	1
• Dowel Punch 1/8"	1
• Medium Workbench Vise	1

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.

Box 1 (see Figures 2–3):	Qty
A. Limit Switch Assembly	1
B. Power Feed Unit	1
C. Power Cord	1
D. Cap Screws M6-1 x 16 (Power Feed)	2
E. Limit Blocks R/L 10mm	1 Set
F. Limit Blocks R/L 8mm	1 Set
G. Limit Blocks R/L 6mm	1 Set

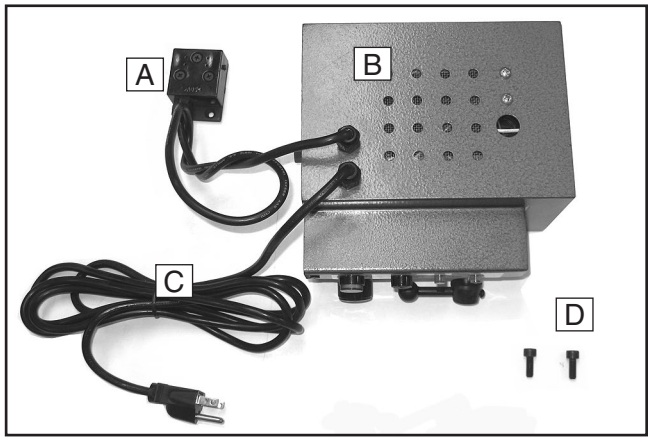


Figure 2. Inventory.

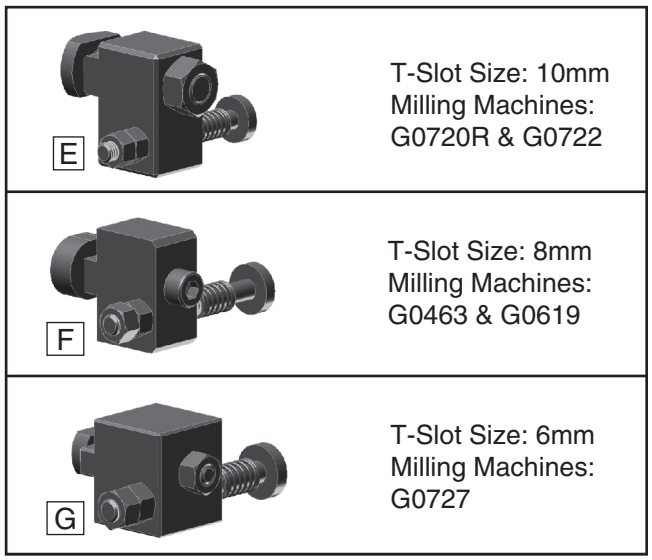


Figure 3. Limit block styles.

Installation

These instructions cover the power feed installation for the Grizzly Model G0463 and G0619 small mill/drills. Follow these steps carefully, and your power feed installation should be quick and trouble free.

To install the power feed:

1. DISCONNECT THE MILL FROM POWER!

2. Loosen the gib screw lock nuts (**Figure 4**), and adjust the X-axis table gib screws, so the table moves with slight resistance as felt in the handwheel.

Note: *Make your adjustments on all four locations equally and in small increments.*

Figure 4. X-axis gib adjustment.

3. When properly adjusted, tighten the lock nuts.

4. Locate the X-axis lead screw half-nut (see **Figure 5**).

5. Adjust both cap screws until the handwheel has approximately 0.003" backlash as shown by the dial.

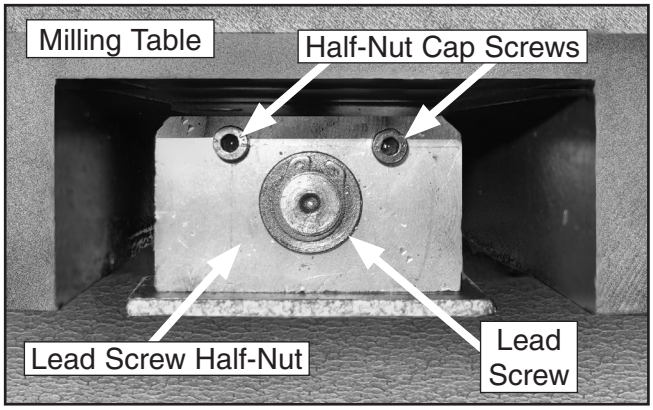


Figure 5. X-axis leadscrew backlash adjustment.

6. Use the #1 Phillips screwdriver to remove the four flat head screws from both ends of the power feed.

7. Carefully slide the motor and mounting plate from the housing a few inches as shown in **Figure 6**.

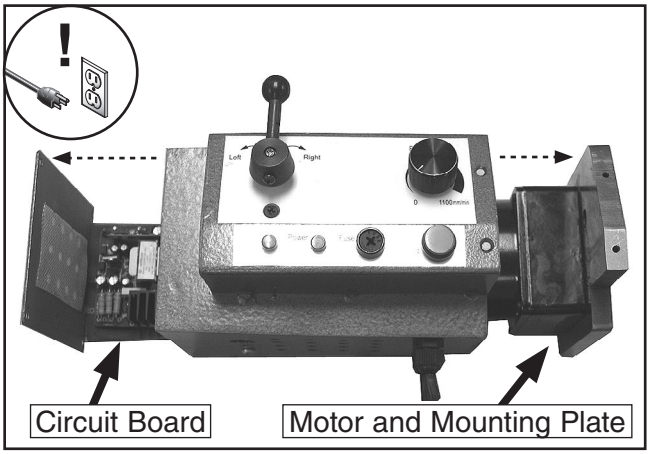


Figure 6. Power feed breakdown.

8. Carefully slide the circuit board and vent cover from the housing a few inches as shown in **Figure 6**.

9. Using a standard screwdriver, pry the leadscrew dust cap off (**Figure 7**).

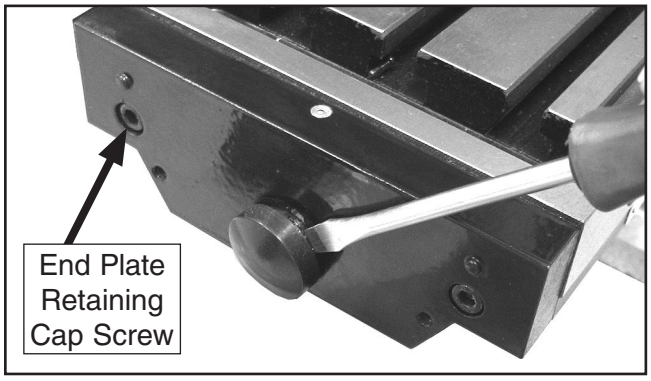


Figure 7. Cap removal.

10. Use a 5mm hex wrench, remove the two end plate retaining cap screws (**Figure 7**).

11. Thread the cap screws into the power feed mounting holes (**Figure 8**), and in an alternating fashion, tighten the screws to remove the table end plate.

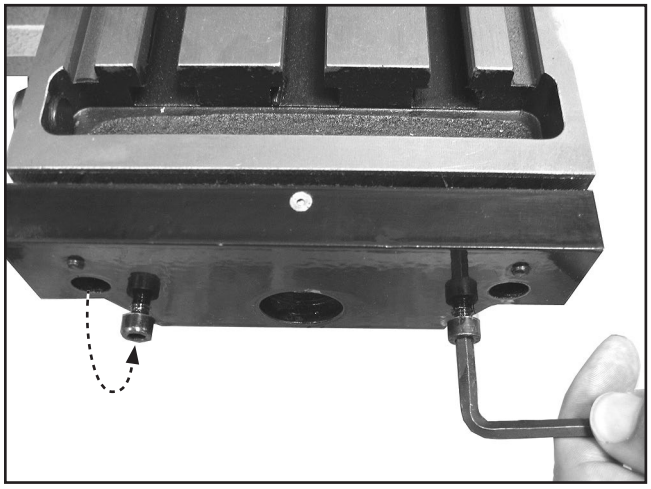


Figure 8. End plate removal.

12. On both tapered pins, measure and record the amount of pin protrusion from the face of the end plate (**Figure 9**).

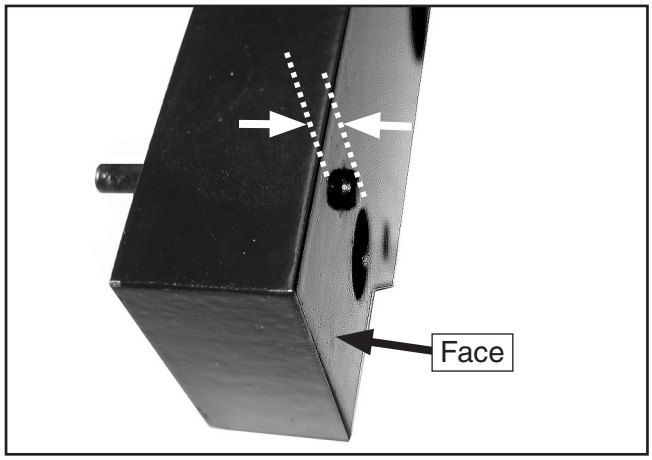


Figure 9. Pin protrusion.

13. Using a hammer, and working from the inside out as shown in **Figure 10**, drive both wedge pins from the end plate**.**

DO NOT attempt to take a short cut and hammer the protruding pins flush with the end plate cover. The pins are tapered and you **WILL** crack the end plate.

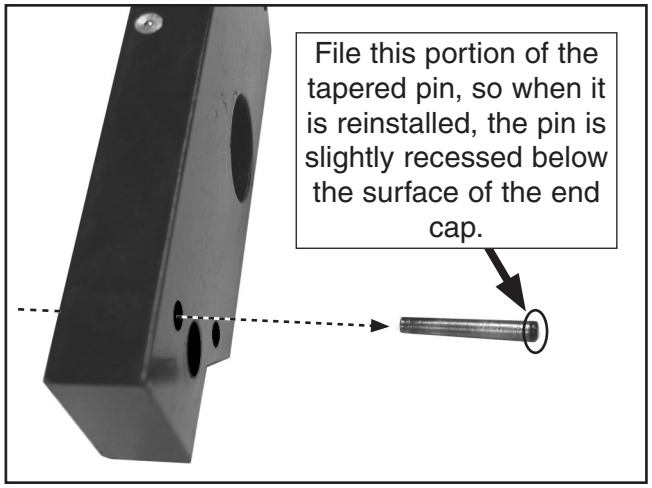


Figure 10. Pin removal.

14. Using a file or bench grinder, shorten the pins, so they are recessed slightly below the face when reinstalled.

15. Using soft jaws, secure the end plate in a vise with the painted surface facing up (**Figure 11**).

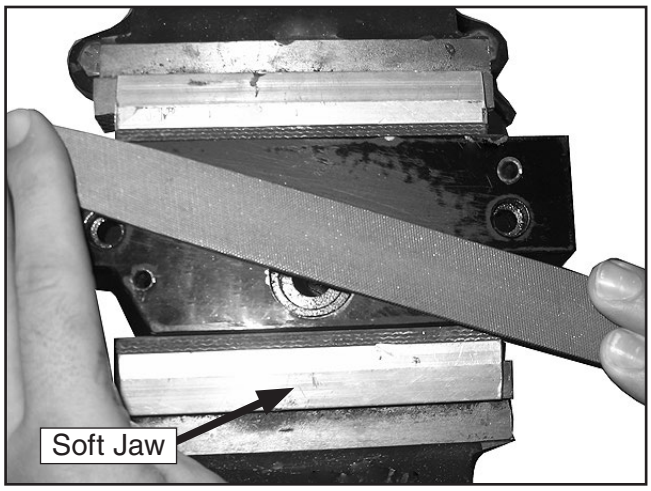


Figure 11. End plate surface preparation.

16. Using a 10" or longer flat metal file, remove any high spots in the paint and give the end cap a flat surface for the power feed to mate with.

Note: *We do not recommend removing the paint completely, just ensure that the surface is flat.*

17. Using a standard screwdriver, scrape away any paint from the bushing bore (**Figure 12**), so when the power feeder is mounted, the bushing sits properly in the bore without binding.

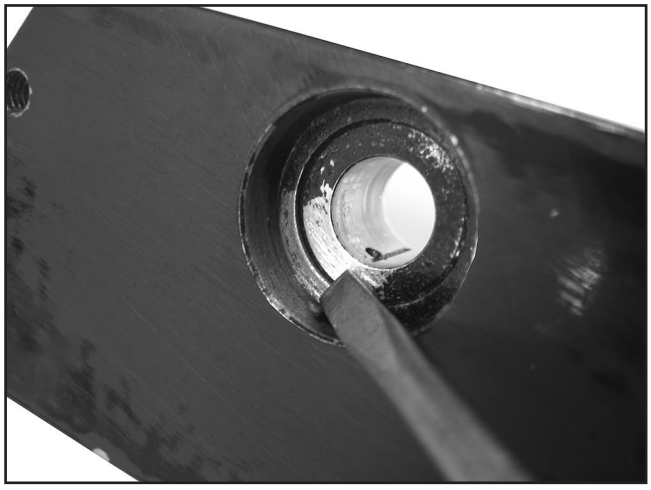


Figure 12. Bushing bore preparation.

18. Reinstall the end plate, and drive the tapered pins in (**Figure 13**), so they are slightly recessed in the end plate face.

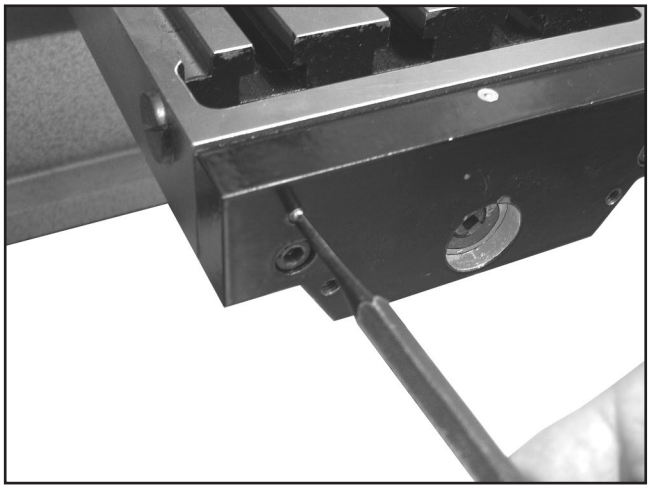


Figure 13. Pin reinstallation.

19. Rotate the power feed drive tang so it aligns with the lead screw slot (**Figure 14**).

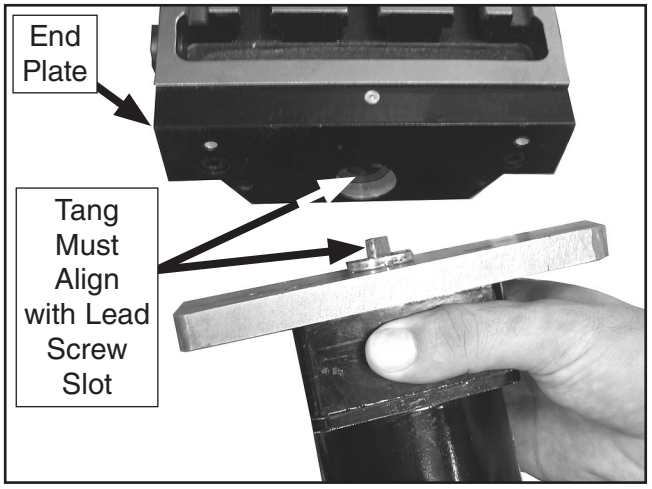


Figure 14. Motor installation.

20. Place the power feed motor onto to the end plate, and secure the power feed motor to the end plate with the two M6-1 x 16mm cap screws.

21. Carefully slide the circuit board and vent cover back into the power feed housing (**Figure 15**), but do not install the four mounting screws at this time.

The circuit board and vent cover must be left loose so you can insert the motor into the case without pinching or crushing wires.

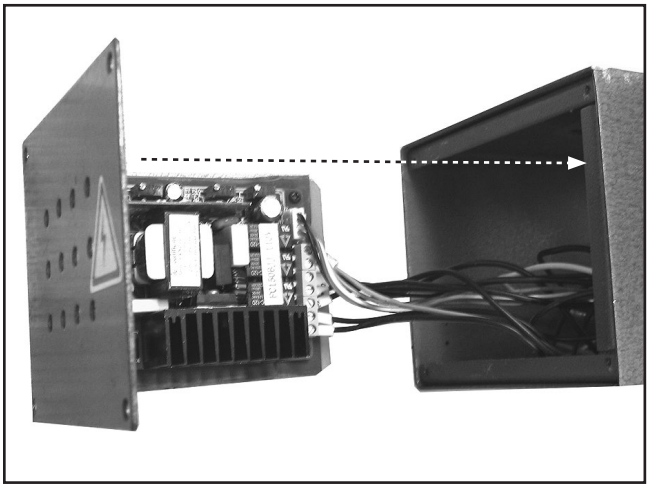


Figure 15. Circuit board installation.

22. Being careful not to crush or bind the circuit board wires, slide the power feed housing onto the end of the motor (**Figure 16**).

Do not force the housing onto the motor. You may have to reposition the circuit board and vent cover during this process to avoid motor and circuit board wire interference.

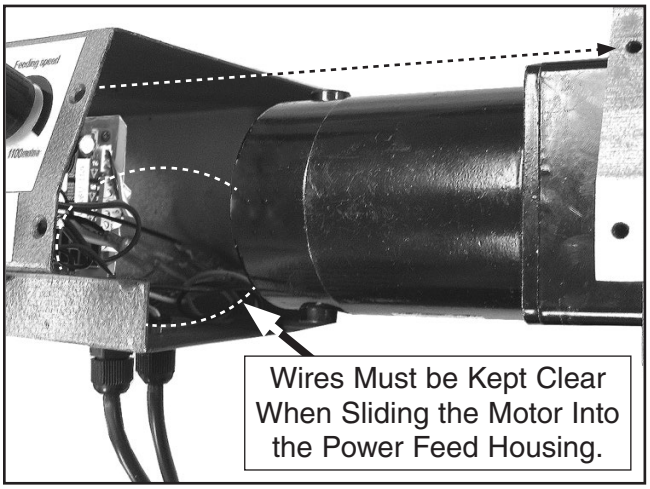


Figure 16. Final assembly.

23. Secure the vent cover and the mounting plate to the power feed housing with the eight previously removed flat head screws removed in **Step 6**.

NOTICE

Make sure to position the left and right stops so that the table can travel an additional 10mm before the leadscrew runs out of thread. The reason for this additional table travel is that after using the rapid feed feature, the momentum of the motor armature keeps rotating leadscrew so the table moves a few millimeters past your normal stop location. If the lead screw runs out of travel before the table naturally slows to a stop, a damaging hard stop will occur.

Periodically, make sure that you always have the appropriate table free travel past the stop setting to prevent damaging hard stops.

24. Install the appropriate left and right feed stops for your milling machine into the table slot, as shown in **Figure 17**.

Note: *You may want to additionally drill and insert a roll pin to prevent any chance of a stop block inadvertently moving past the stop setting. If the stop moves past your maximum stop setting, the lead screw will run out of thread and slam the table and power feed to a hard stop causing possible damage.*

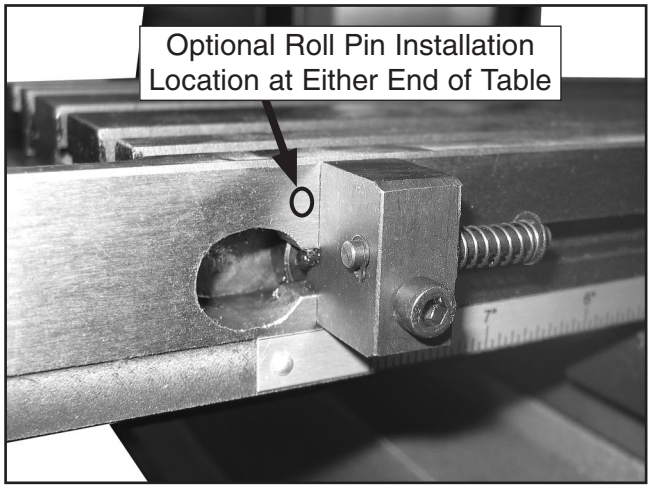


Figure 17. Feed stop and optional pin location.

25. Using a phillips screwdriver, remove the three mounting screws that secure the limit switch to its mounting plate.

26. Install the limit switch mounting plate on the side of the milling table base so the limit switch stop pins are horizontally aligned with the stop pins as shown in **Figure 18.**

Also make sure that when mounted, the limit switch housing has enough of a gap (also shown in **Figure 18**) between the gib screw lock nut so it can be adjusted.

27. When the mounting plate is properly positioned, center punch one mounting hole.

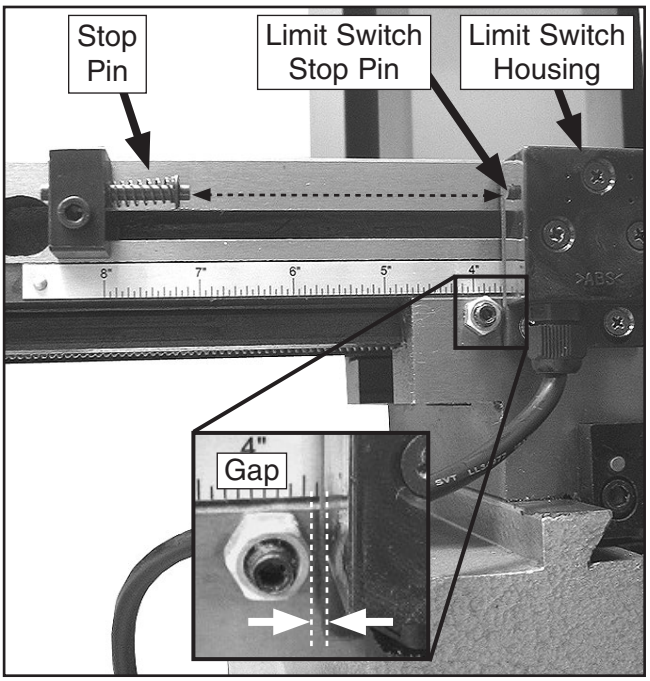


Figure 18. Alignment specifications.

28. Using your electric drill, drill one #25 mounting hole 1/2" deep into the table base.

29. Using a #10-24 bottoming tap, cut threads into the hole.

30. Secure the limit switch mounting plate to the table base with one #10-24 x 1/2" flat head screw.

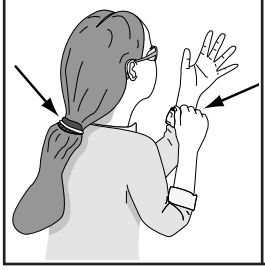
31. Center punch the other hole and drill, tap, and install the remaining screw.

32. Install the limit switch to the mounting plate with the three previously removed screws.

33. Secure the power and limit switch power cables away from the path of the moving table and handwheels.

SECTION 4: OPERATIONS

Operation Safety

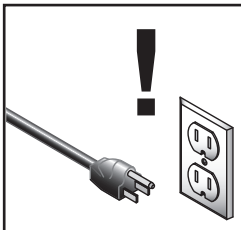


⚠WARNING

Loose hair and clothing could get caught in machinery and cause serious personal injury. Keep loose clothing and long hair away from moving machinery.

⚠CAUTION

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.



NOTICE

Always disconnect power from the power feed when not in use. Failure to do this may result in power feed damage.

Power Feed Controls

Refer to the list below and see **Figure 19** to understand the power feed controls.

A. Feed Direction Lever: There are 3 lever positions: Left, Center (neutral), and Right. Only adjust lever when feed speed dial is turned all the way off. When not in use, keep lever in center (neutral) position.

B. Feed Speed Dial: Slowly rotate right (CW) to set the feed speed. When finished, always turn the feed speed dial all the way left (CCW) until it clicks off, then move the feed lever to the center position.

C. Fault Lamp: Indicates overload or operator adjusted feed direction lever without first turning feed speed dial off. To reset and turn lamp off, turn feed speed dial all the way off and move the feed direction lever to center.

D. Power Lamp: Indicates power feed is connected to power supply.

E. Fuse: Protects circuits from damage caused by thermal overload or electrical short.

F. Rapid Feed Button: Moves table in the selected direction of feed direction lever at full speed while button is pressed.

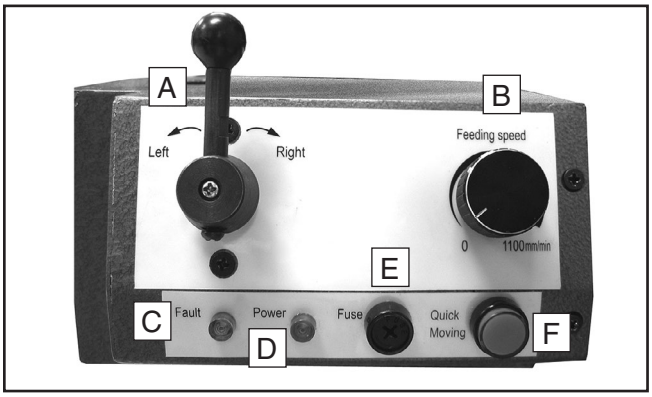


Figure 19. Power feed controls.

SECTION 5: ACCESSORIES

H8179—Horizontal Milling Table
Take advantage of the Model G0619 mill/drill 90° tilting headstock feature. Install this lifted cast-iron horizontal milling table for the correct clearance when making those side-milling operations.

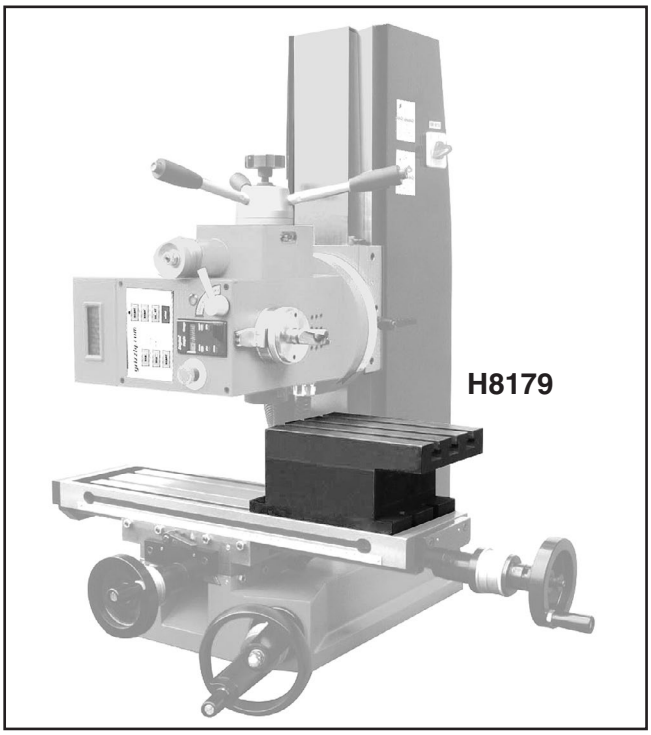


Figure 20. Horizontal milling worktable.

H8177—Worktable with Angle
Enjoy having an economical way to support your workpiece at an array of angles. This high-quality tilting worktable is quick and easy to setup and use.

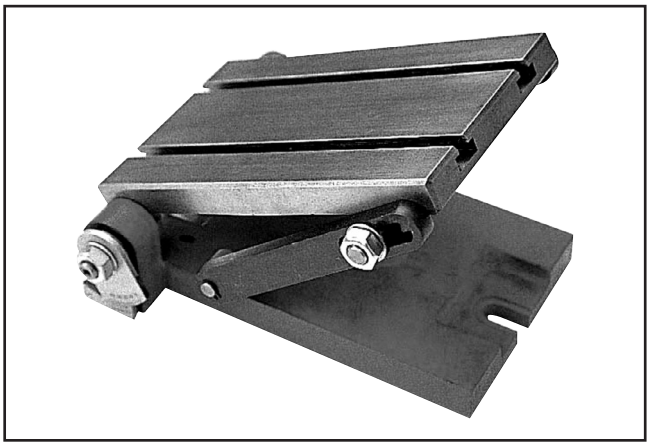


Figure 21. Worktable with angle.

G9002—2½" Swivel Base Milling Vise
G5971—3½" Swivel Base Milling Vise
G5972—4" Swivel Base Milling Vise
G5973—5" Swivel Base Milling Vise
G5974—6" Swivel Base Milling Vise
G5975—8" Swivel Base Milling Vise
Vises feature 360° rotation with fine graduations, drop forged handle, precision ground jaw faces, enclosed acme screw and detachable swivel base.

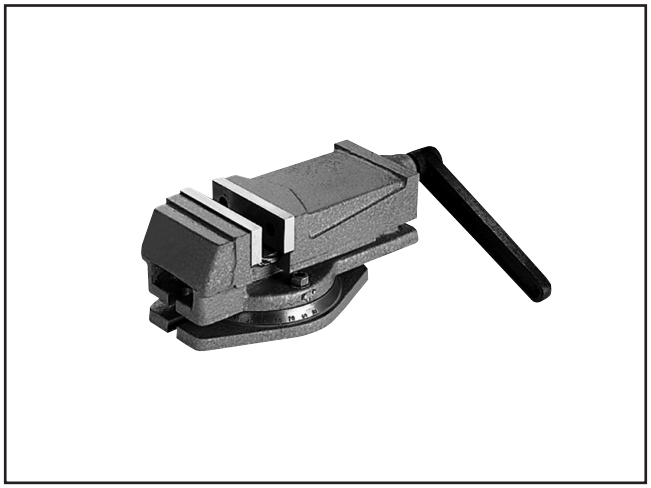
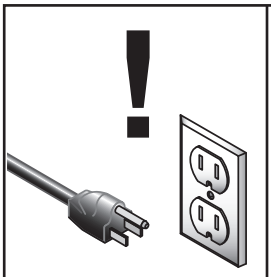


Figure 22. Swivel base milling vise.

H5685—4" Rotary Table
The perfect rotary table for all you model makers and those doing smaller precision work. Comes with clamping kit.

Figure 23. H5685 4" Rotary Table.

SECTION 6: MAINTENANCE



⚠WARNING

Always disconnect power to the machine before performing maintenance. Failure to do this may result in serious personal injury.

Schedule

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

Daily Check:
- Loose mounting screws.
- Table, leadscrews, and ways are clean and lubricated.
- Worn or damaged wires.
- Power feed stops are secured and properly adjusted to prevent a table crash or "hard stops."

Monthly Check:
- Gibs are adjusted properly.
- Oil power feed stop pins (**Figure 24**).

Annual or Biannual Check:
- Lubricate headstock lead screw and gears.

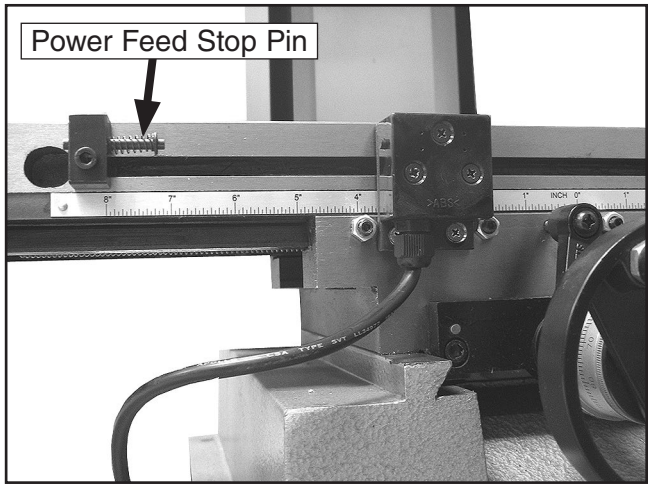


Figure 24. Power feed stop pin lubrication.

Brush Replacement

During the life of your power feeder, you may have to replace the brush set if the unit loses RPM or becomes noisy. This is a simple task and only takes a few minutes.

Tools Needed:	**Qty**
Standard Screwdriver (#3)	1
Needle Nose Pliers	1

To replace the brushes:

1. DISCONNECT MACHINE FROM POWER!

2. Unscrew the power feed top dust cap (**Figure 25**).

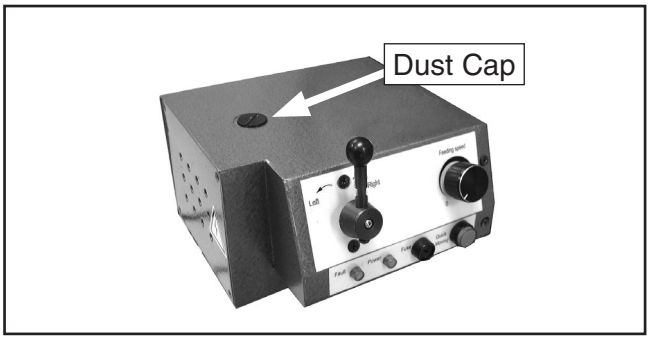


Figure 25. Top dust cap location.

3. Unscrew the brush retaining cap, use needle nose pliers to replace the brush, and reinstall the caps (**Figure 26**).

4. Replace the remaining brush at the underside of the power feed.

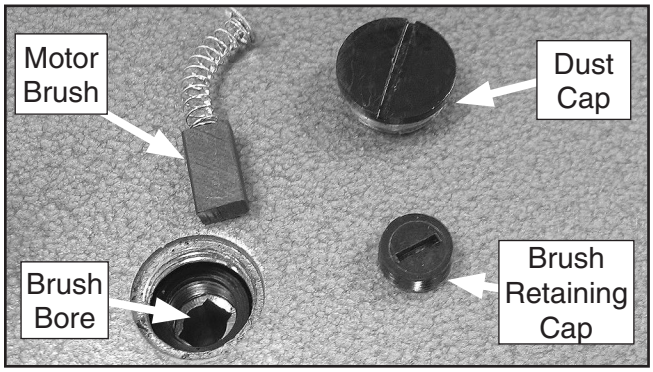


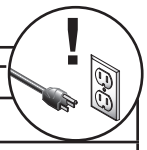
Figure 26. Brush components.

SECTION 7: SERVICE

About Service

Review the troubleshooting and procedures in this section to fix 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



Symptom	Possible Cause	Possible Solution
Power feed will not turn on or move the table.	1. Power cord is faulty.	1. Check all electrical connections, and repair or replace wires or connections as required.
	2. Power lamp is not lit and fuse has blown.	2. Correct short and replace the fuse.
	3. Fault lamp is lit.	3. Reset the power feed by moving the feed direction lever to the center position and turning the feed speed dial to 0.
	4. Limit switch is stuck open.	4. Replace limit switch assembly.
	5. Motor brush is at fault.	5. Replace brush set (**Page 15**).
	6. Feed direction switch is at fault.	6. Replace switch.
	7. Feed speed rheostat is at fault.	7. Replace rheostat.
	8. Circuit board is at fault.	8. Replace circuit board.
	9. Gearbox is at fault.	9. Replace motor and gearbox assy.
	10. Motor is at fault.	10. Replace motor and gearbox assy.
Power feed moves table at inconsistent speeds during a pass.	1. Table gib is binding table.	1. Clean, lubricate, and adjust table gib.
	2. Leadscrew is binding.	2. Clean, lubricate, and adjust leadscrew.
	3. Motor brush is at fault.	3. Replace brush set.
	4. Feed speed rheostat is at fault.	4. Replace switch.
	5. Circuit board is at fault.	5. Replace circuit board.
	6. Gearbox is at fault.	6. Replace motor and gearbox assy.
	7. Motor is at fault.	7. Replace motor and gearbox assy.
Power feed works only in one direction.	1. Wiring at fault.	1. Tighten loose connection, or repair wiring.
	2. Feed direction switch at fault.	2. Replace feed direction switch.
	3. Limit Switch is at fault.	3. Replace limit switch assembly.
	4. Circuit board is at fault.	4. Replace circuit board.
Poor surface finish, or vibration when milling with power feed.	1. Table feed rate or cutter speed at fault.	1. Slow feed rate, recalculate cutter speed.
	2. Cutter at fault.	2. Sharpen or replace cutter, or use correct cutter.
	3. Loose table.	3. Adjust gibs, lead screws, and tighten Y-axis gib lock.
	4. Loose headstock.	4. Tighten Z-axis gib and spindle locks.
	5. Power feed gearbox at fault.	5. Replace motor and gearbox assy.

SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

⚠WARNING
Wiring Safety Instructions

SHOCK HAZARD. Working on wiring that is connected to a power source is extremely dangerous. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. Disconnect the power from the machine before servicing electrical components!

MODIFICATIONS. Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved aftermarket parts.

WIRE CONNECTIONS. All connections must be tight to prevent wires from loosening during machine operation. Double-check all wires disconnected or connected during any wiring task to ensure tight connections.

CIRCUIT REQUIREMENTS. You MUST follow the requirements at the beginning of this manual when connecting your machine to a power source.

WIRE/COMPONENT DAMAGE. Damaged wires or components increase the risk of serious personal injury, fire, or machine damage. If you notice that any wires or components are damaged while performing a wiring task, replace those wires or components.

MOTOR WIRING. The motor wiring shown in these diagrams is current at the time of printing but may not match your machine. If you find this to be the case, use the wiring diagram inside the motor junction box.

CAPACITORS/INVERTERS. Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (570) 546-9663.

NOTICE

The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW GREEN	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	PURPLE	Pu	TURQUOISE	Tu
RED	Rd	ORANGE	Or	PINK	Pk		

Electrical Components

Note: *Available in color online at* ***grizzly.com***

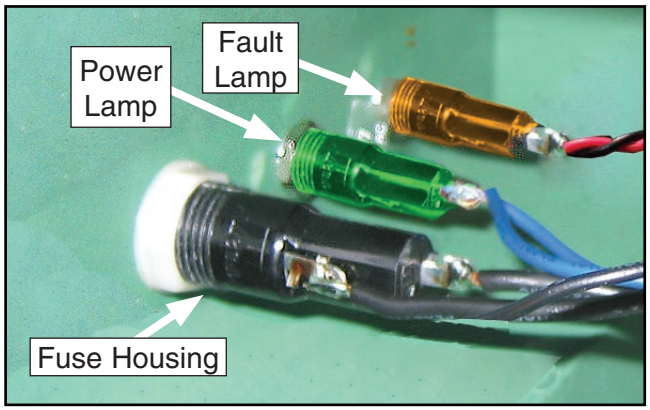


Figure 27. Control panel electrical.

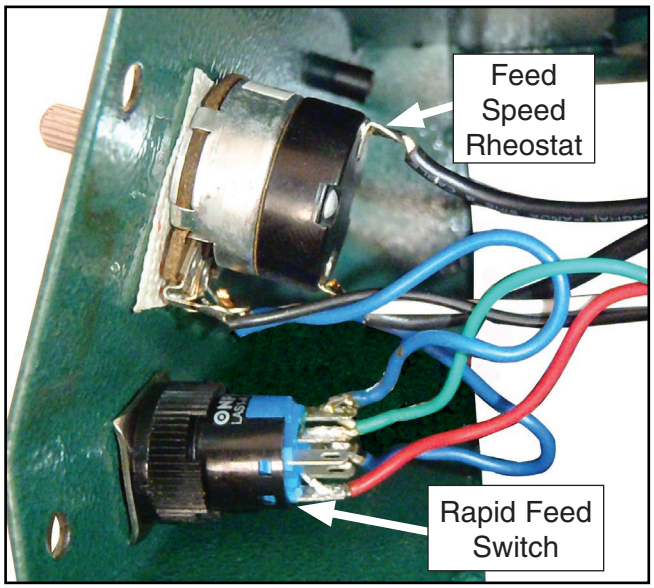


Figure 28. Feed speed rheostat and rapid feed switch (side view).

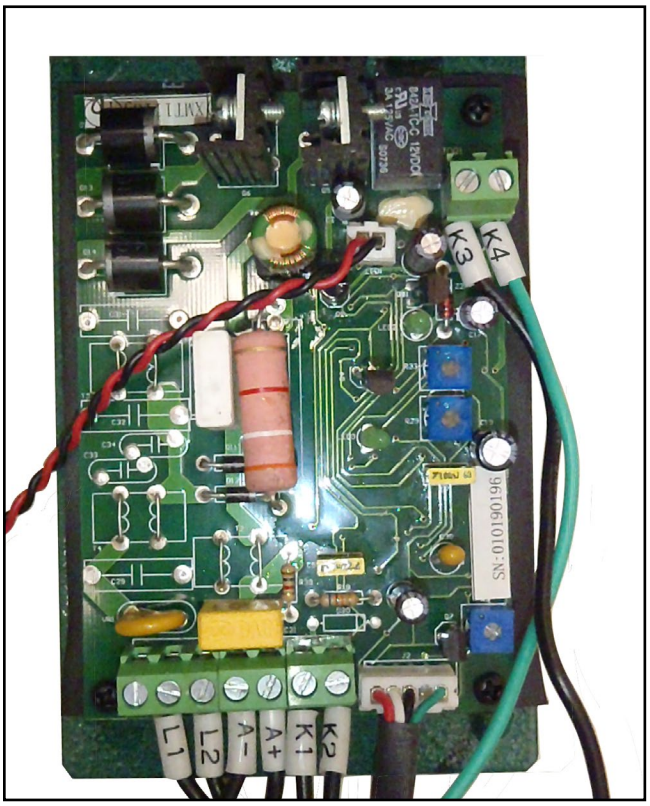


Figure 29. Circuit board.

Figure 30. Feed direction switch
(Top-side view A).

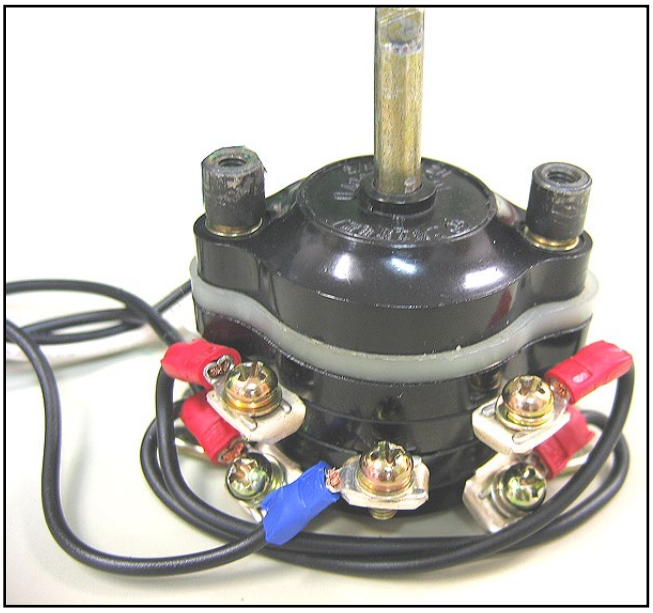


Figure 31. Feed direction switch
(Top-side view B).

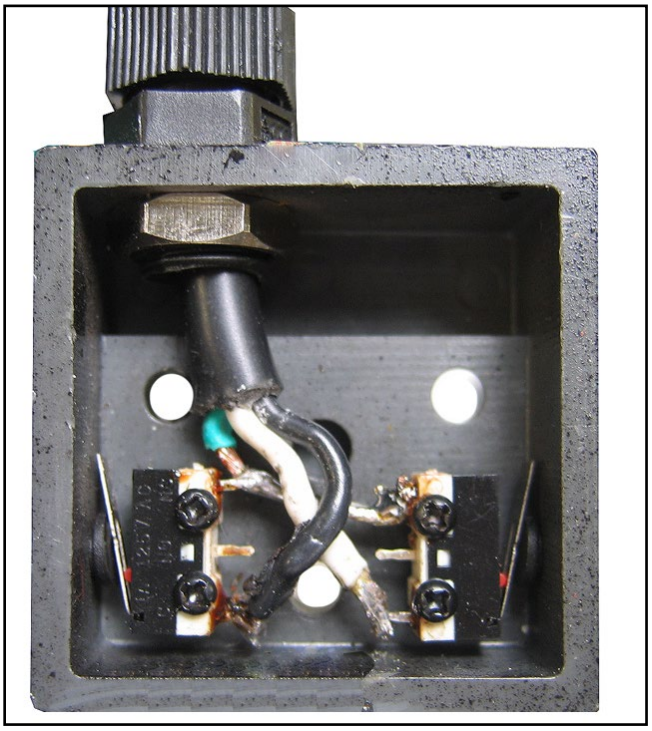
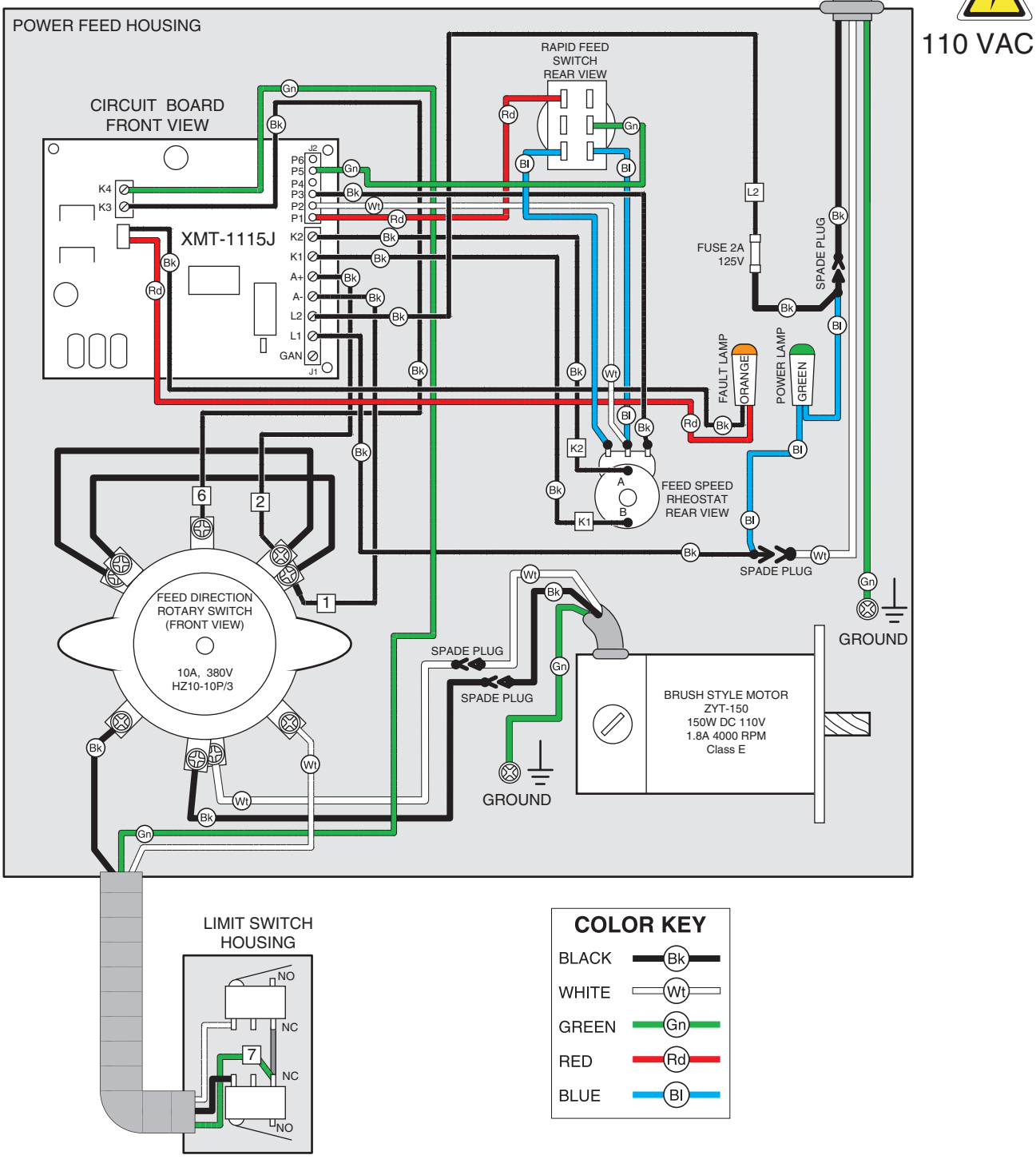


Figure 32. Limit switch assembly.

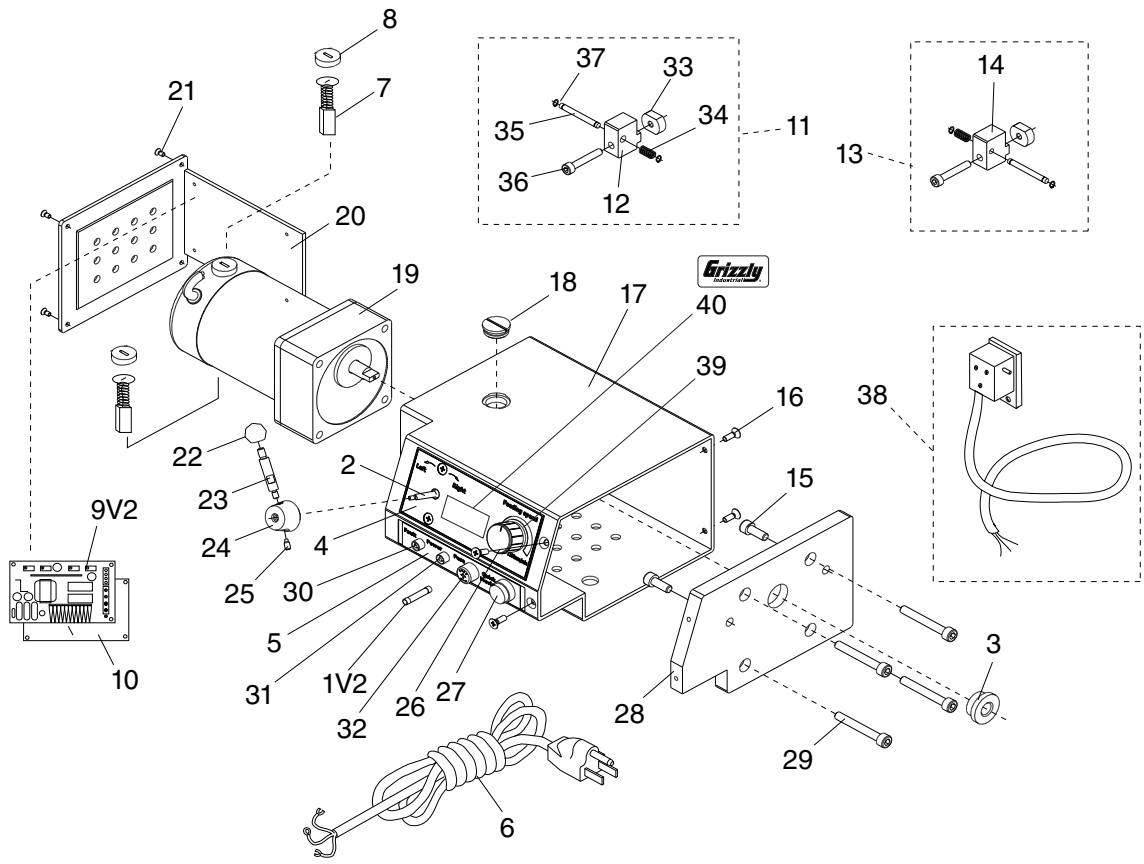
STOP *READ ELECTRICAL SAFETY ON PAGE 18!*

Wiring Diagram

This wiring diagram can be viewed online in full color at www.grizzly.com.



Parts Breakdown



REF	PART #	DESCRIPTION
1V2	PH8178001V2	FUSE 2A V2.07.07
2	PH8178002	FEED DIRECTION SWITCH
3	PH8178003	FEED SHAFT BUSHING
4	PH8178004	UPPER LABEL
5	PH8178005	LOWER LABEL
6	PH8178006	POWER CORD 110V 7'
7	PH8178007	BRUSH SET
8	PH8178008	BRUSH CAP
9V2	PH8178009V2	CIRCUIT BOARD XMT-1115J V2.07.07
10	PH8178010	INSULATOR
11	PH8178011	RIGHT STOP ASSEMBLY
12	PH8178012	RIGHT STOP BLOCK
13	PH8178013	LEFT STOP ASSEMBLY
14	PH8178014	LEFT STOP BLOCK
15	PSB01M	CAP SCREW M6-1 X 16
16	PFH25M	FLAT HD SCR M4-.7 X 12
17	PH8178017	HOUSING
18	PH8178018	DUST PLUG
19	PH8178019	MOTOR AND GEARBOX
20	PH8178020	VENT COVER

REF	PART #	DESCRIPTION
21	PFH49M	FLAT HD SCR M3-.5 X 6
22	PH8178022	FEMALE BALL KNOB M5-.8
23	PH8178023	LEVER
24	PH8178024	LEVER HUB
25	PS07M	PHLP HD SCR M4-.7 X 8
26	PH8178026	DIAL KNOB
27	PH8178027	RAPID FEED BUTTON
28	PH8178028	MOUNTING PLATE
29	PSB30M	CAP SCREW M6-1 X 45
30	PH8178030	FAULT LAMP
31	PH8178031	POWER LAMP
32	PH8178032	FUSE HOUSING
33	PH8178033	T-NUT
34	PH8178034	COMPRESSION SPRING
35	PH8178035	SHAFT PIN
36	PSB95M	CAP SCREW M5-.8 X 30
37	PH8178037	CRIMP CLIP
38	PH8178038	LIMIT SWITCH ASSEMBLY
39	PH8178039	POTENTIOMETER - SPEED SWITCH
40	PH8178040	GRIZZLY LOGO LABEL 7/8 X 2

Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____

Model # _____ Order # _____ Serial # _____

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

1. How did you learn about us?

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

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

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

3. What is your annual household income?

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

4. What is your age group?

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

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

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

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

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

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

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

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

10. Comments: _____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
Stamp
Here

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

FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY AND RETURNS

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

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

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

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

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

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