

# **Grizzly** **Industrial, Inc.**®

## **MODEL G0754** **HEAVY-DUTY MILL/DRILL** **w/POWER FEED** **OWNER'S MANUAL** *(For models manufactured since 1/13)*



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OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**  
#TS15626 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

## Machine Description

The mill/drill is used to shape metal workpieces by removing material with the use of a rotating cutting tool.

In milling operations, the cutting tool remains stationary while the workpiece is drawn across it by moving the table.

In drilling operations, the workpiece is held stationary on the table while the cutting tool moves up-and-down with the movement of the spindle.

## Contact Info

We stand behind our machines. If you have any questions or need help, use the information below to contact us. Before contacting, please get the serial number and manufacture date of your machine. This will help us help you faster.

Grizzly Technical Support  
1203 Lycoming Mall Circle  
Muncy, PA 17756  
Phone: (570) 546-9663  
Email: techsupport@grizzly.com

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

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

## Manual Accuracy

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

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

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

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

		<b>MODEL GXXXX</b> <b>MACHINE NAME</b>	
<b>SPECIFICATIONS</b>		<b>▲ WARNING!</b>	
Motor:		To reduce risk of serious injury when using this machine:	
Specification:		1. Read manual before operation.	
Specification:		2. Wear safety glasses and respirator.	
Specification:		3. Make sure safety devices are correctly adjusted/setup and	
Weight:		4. power is connected to grounded circuit before starting.	
		5. Make sure the motor has stopped and disconnect	
		6. power before adjustments, maintenance, or service.	
		7. DO NOT expose to rain or dampness.	
		8. DO NOT modify this machine in any way.	
		9. Do not use while tired, drowsy, or under the influence of drugs or alcohol.	
		10. Maintain machine carefully to prevent accidents.	

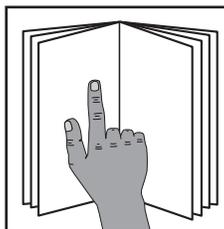
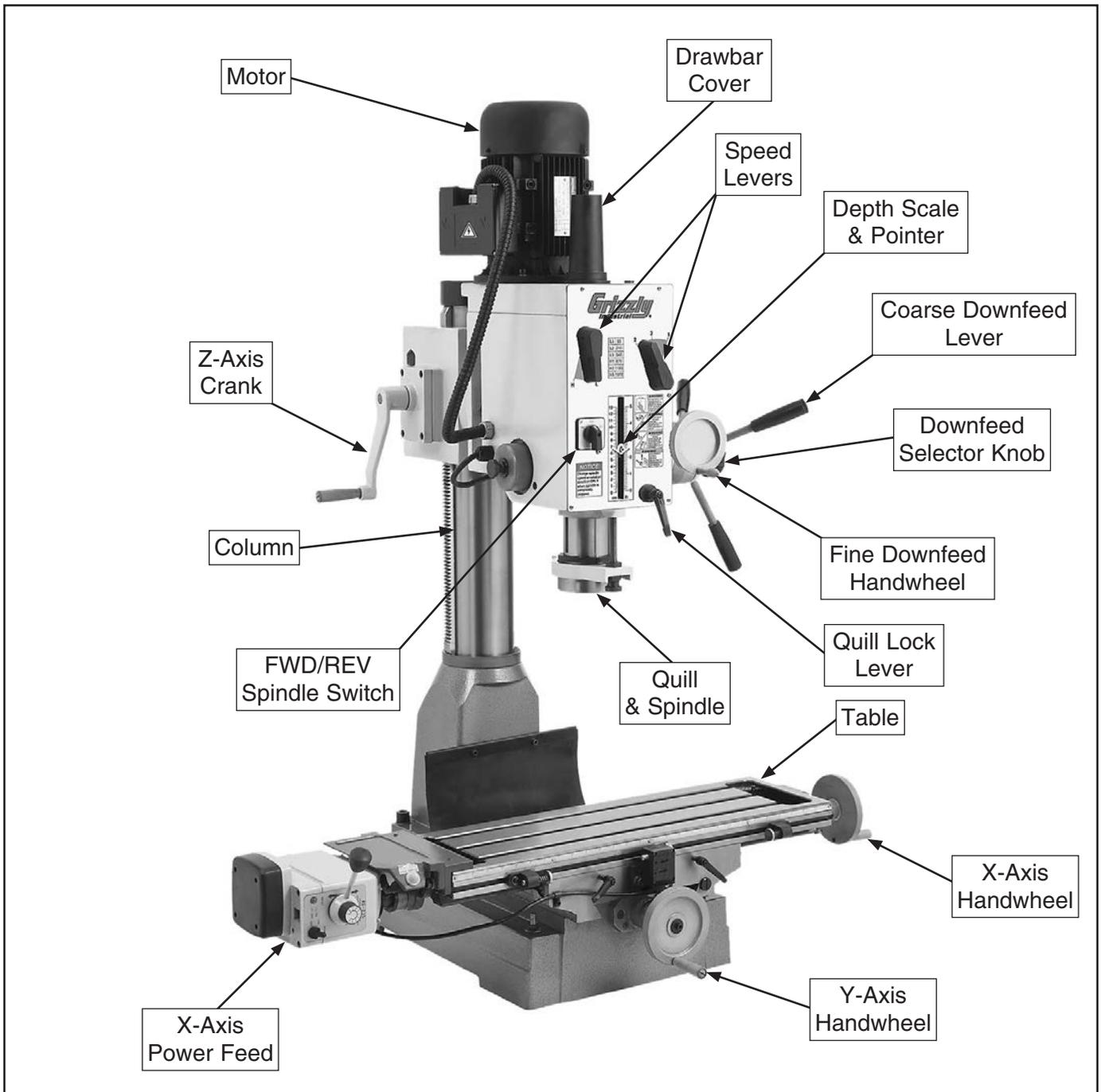
Manufactured for Grizzly in Taiwan

Manufacture Date:

Serial Number:



# Identification



## **!WARNING**

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





# MACHINE DATA SHEET

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

## MODEL G0754 HEAVY-DUTY MILL/DRILL WITH POWER FEED

### Product Dimensions:

Weight..... 640 lbs.  
 Width (side-to-side) x Depth (front-to-back) x Height..... 47 x 31 x 56 in.  
 Footprint (Length x Width)..... 24 x 16 in.  
 Space Required for Full Range of Movement (Width x Depth)..... 62-1/2 x 42 in.

### Shipping Dimensions:

Type..... Wood Crate  
 Content..... Machine  
 Weight..... 706 lbs.  
 Length x Width x Height..... 46 x 30 x 47-1/4 in.  
 Must Ship Upright..... Yes

### Electrical:

Power Requirement..... 220V, Single-Phase, 60 Hz  
 Prewired Voltage..... 220V  
 Full-Load Current Rating..... 8.6A  
 Minimum Circuit Size..... 15A  
 Connection Type..... Cord & Plug  
 Power Cord Included..... Yes  
 Power Cord Length..... 6 ft.  
 Power Cord Gauge..... 14 AWG  
 Plug Included..... No  
 Recommended Plug Type..... 6-15  
 Switch Type..... Forward/Reverse Switch

### Motors:

#### Main

Type..... TEFC Capacitor-Start Induction  
 Horsepower..... 2 HP  
 Phase..... Single-Phase  
 Amps..... 8.6A  
 Speed..... 1725 RPM  
 Power Transfer ..... Gear Drive  
 Bearings..... Shielded & Permanently Lubricated



**Main Specifications:**

**Operation Info**

Spindle Travel.....	5 in.
Max Distance Spindle to Column.....	11 in.
Max Distance Spindle to Table.....	17 in.
Longitudinal Table Travel (X-Axis).....	14-1/2 in.
Longitudinal Leadscrew (X-Axis).....	15 in.
Cross Table Travel (Y-Axis).....	8 in.
Vertical Head Travel (Z-Axis).....	14-1/2 in.
Head Tilt (Left/Right).....	90 deg.
Drilling Capacity for Cast Iron.....	1-1/2 in.
Drilling Capacity for Steel.....	1-1/4 in.
End Milling Capacity.....	1-3/16 in.
Face Milling Capacity.....	3 in.

**Table Info**

Table Length.....	28-3/4 in.
Table Width.....	8-1/4 in.
Table Thickness.....	1-1/2 in.
Number of T-Slots.....	3
T-Slot Size.....	1/2 in.
T-Slots Centers.....	2-1/2 in.

**Spindle Info**

Spindle Taper.....	R-8
Number of Vertical Spindle Speeds.....	6
Range of Vertical Spindle Speeds.....	90 – 1970 RPM
Quill Diameter.....	3 in.
Drawbar Thread Size.....	7/16-20
Drawbar Length.....	17-3/4 in.
Spindle Bearings.....	Tapered Roller Bearings

**Construction**

Spindle Housing/Quill.....	Cast Iron
Table.....	Precision-Ground Cast Iron
Head.....	Cast Iron
Column/Base.....	Precision-Ground Cast Iron
Base.....	Cast Iron
Paint Type/Finish.....	Enamel

**Other Specifications:**

Country of Origin .....	China
Warranty .....	1 Year
Approximate Assembly & Setup Time .....	1 Hour
Serial Number Location .....	ID Label on Headstock
ISO 9001 Factory .....	Yes
Certified by a Nationally Recognized Testing Laboratory (NRTL) .....	No

**Features:**

- High-Precision P5 (ABEC-5 Equivalent) Spindle Bearings
- Longitudinal Variable-Speed Power Feed
- Spindle Speed Change w/Gearhead Levers
- Dovetail Ways
- Table is Coolant-System Ready
- Heavy-Duty Cast-Iron Construction
- Fine Downfeed Control
- Made in ISO 9001 Factory



# SECTION 1: SAFETY

## For Your Own Safety, Read Instruction Manual Before Operating This Machine

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

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

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

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

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

## Safety Instructions for Machinery

### **WARNING**

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

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

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

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

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

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

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



# WARNING

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



# WARNING

## Additional Safety for Mill/Drills

**UNDERSTANDING CONTROLS.** Make sure you understand the use and operation of all controls before starting the mill/drill.

**SAFETY ACCESSORIES.** To reduce the risk of injury from flying chips, always use a face shield in addition to safety glasses when using the mill/drill.

**CLEAN-UP.** Metal chips can cut your hands. DO NOT clear chips by hand or compressed air that can force the chips father into the machine. Use a brush or vacuum, and never clear chips while the spindle is turning.

**SECURING TOOLING.** Objects that are thrown by the spinning action of the mill/drill can be deadly missiles. Always firmly secure the cutting tool before starting the machine. Always remove the chuck key, drawbar wrench, and any tools immediately after use.

**CUTTING TOOL INSPECTION.** Inspect cutting tools for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked cutting tools immediately. Handle cutting tools with care. Leading edges are very sharp and can cause lacerations.

**STOPPING SPINDLE.** Serious injury may occur if you try to stop the moving spindle by hand. DO NOT stop the spindle using your hand or any other object. Allow the spindle to stop on its own.

**WORK HOLDING.** A workpiece that moves unexpectedly during operation can result in personal injury or damage to tooling and the machine. Before starting the machine, be certain the workpiece is properly clamped to the table. NEVER hold the workpiece by hand during operation.

**MACHINE CARE AND MAINTENANCE.** Never operate the mill/drill with damaged or worn parts that can break apart and cause injury or property damage. Maintain your mill/drill in proper working condition. Perform routine inspections and maintenance promptly. Put tools away after use.

**MAINTENANCE/ADJUSTMENTS.** To avoid possible electrocution or physical injury, make sure the mill is turned **OFF**, disconnected from power, and all moving parts have come to a complete stop before changing cutting tools or starting any inspection, adjustment or maintenance procedure.

**SPINDLE SPEEDS.** For safe and good results, select the spindle speed that is correct for the type of work and material. Allow the spindle to reach full speed before beginning a cut.

**POWER DISRUPTION.** In the event of a local power outage during operation, turn spindle switch **OFF** to avoid possible sudden start up once power is restored.

# WARNING

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

# CAUTION

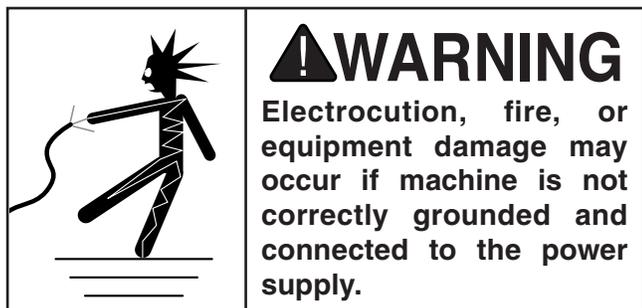
No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or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



# SECTION 2: POWER SUPPLY

## Availability

Before installing the machine, consider the availability and proximity of the required power supply circuit. If an existing circuit does not meet the requirements for this machine, a new circuit must be installed. To minimize the risk of electrocution, fire, or equipment damage, installation work and electrical wiring must be done by an electrician or qualified service personnel in accordance with all applicable codes and standards.



## Full-Load Current Rating

The full-load current rating is the amperage a machine draws at 100% of the rated output power. On machines with multiple motors, this is the amperage drawn by the largest motor or sum of all motors and electrical devices that might operate at one time during normal operations.

### Full-Load Current Rating at 220V .... 8.6 Amps

The full-load current is not the maximum amount of amps that the machine will draw. If the machine is overloaded, it will draw additional amps beyond the full-load rating.

If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets the requirements in the following section.

## Circuit Requirements for 220V

This machine is prewired to operate on a 220V power supply circuit that has a verified ground and meets the following requirements:

**Nominal Voltage .....220V**  
**Cycle .....60 Hz**  
**Phase ..... 1-Phase**  
**Power Supply Circuit ..... 15 Amps**  
**Plug/Receptacle ..... NEMA 6-15**

A power supply circuit includes all electrical equipment between the breaker box or fuse panel in the building and the machine. The power supply circuit used for this machine must be sized to safely handle the full-load current drawn from the machine for an extended period of time. (If this machine is connected to a circuit protected by fuses, use a time delay fuse marked D.)



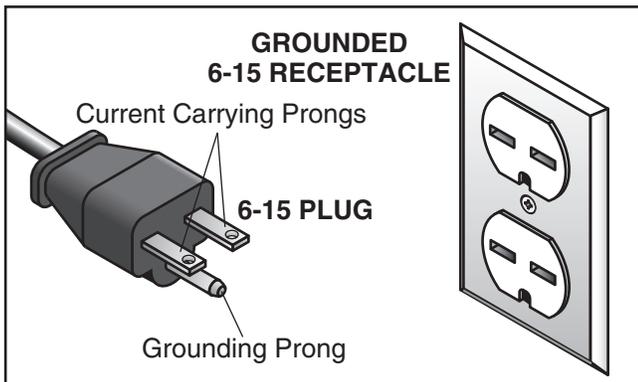
**Note:** *The circuit requirements listed in this manual apply to a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure that the circuit is properly sized for safe operation.*



## Grounding Instructions

This machine **MUST** be grounded. In the event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current.

The power cord and plug specified under “Circuit Requirements for 220V” on the previous page has an equipment-grounding wire and a grounding prong. The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances (see figure below).

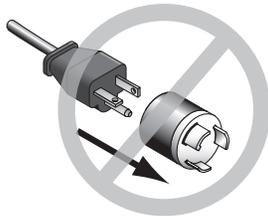


**Figure 1.** Typical 6-15 plug and receptacle.

### **! WARNING**

**Serious injury could occur if you connect the machine to power before completing the setup process. DO NOT connect to power until instructed later in this manual.**

### **! CAUTION**



**No adapter should be used with the required plug. If the plug does not fit the available receptacle, or the machine must be reconnected for use on a different type of circuit, the reconnection must be made by a qualified electrician and comply with all local codes and ordinances.**

Improper connection of the equipment-grounding wire can result in a risk of electric shock. The wire with green insulation (with or without yellow stripes) is the equipment-grounding wire. If repair or replacement of the power cord or plug is necessary, do not connect the equipment-grounding wire to a live (current carrying) terminal.

Check with a qualified electrician or service personnel if you do not understand these grounding requirements, or if you are in doubt about whether the tool is properly grounded. If you ever notice that a cord or plug is damaged or worn, disconnect it from power, and immediately replace it with a new one.

## Extension Cords

We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:

**Minimum Gauge Size .....14 AWG**  
**Maximum Length (Shorter is Better).....50 ft.**



# SECTION 3: SETUP

## Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover any damage, *please call us immediately 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.



## Needed for Setup

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

Description	Qty
• Additional People .....	1
• Safety Glasses .....	1 Per Person
• Cleaner/Degreaser ( <b>Page 12</b> ) ...	As Needed
• Disposable Shop Rags.....	As Needed
• Forklift.....	1
• Lifting Strap (rated for at least 1000 lbs.) ...	1
• Mounting Hardware ( <b>Page 14</b> ) ...	As Needed
• Screwdriver Flat Head #2.....	1
• Brass Hammer .....	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.

Small Item Inventory: (Figure 2)	Qty
A. Handwheel Handles w/Screws.....	2
B. T-Bolts M12-1.75 x 55 w/Washers & Nuts ..	2
C. Bottle for Oil .....	1
D. Toolbox.....	1
E. Open-End Wrenches 17/19, 22/24mm ..	1 Ea
F. Hex Wrench Set 3, 4, 5, 10mm.....	1 Ea
G. Drift Key.....	1
I. Drill Chuck B16, 1–13mm w/Chuck Key .....	1
J. Spindle Sleeve R-8–MT#3 .....	1
K. Drill Chuck Arbor R-8–B16.....	1
L. Spindle Sleeve MT#3–MT#2 .....	1

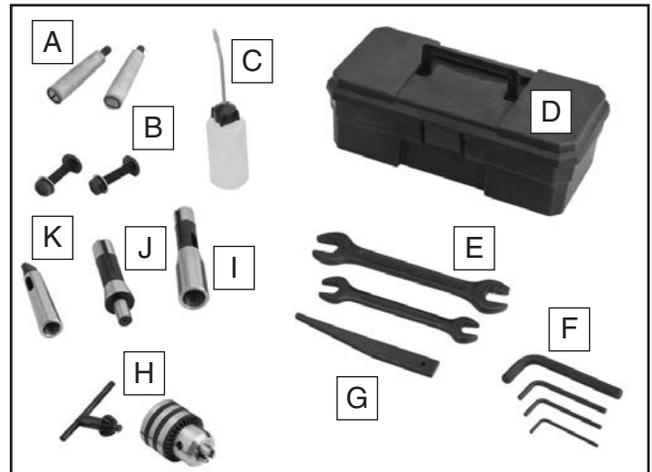


Figure 2. Small item inventory.

## NOTICE

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



# Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

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

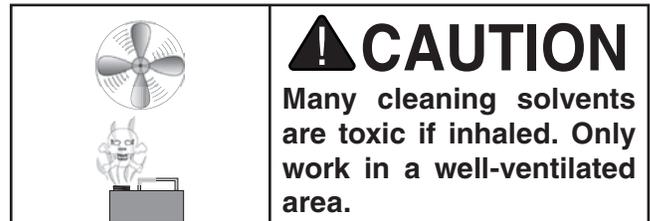
There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

## Before cleaning, gather the following:

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

## Basic steps for removing rust preventative:

1. Put on safety glasses.
2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.
4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.



## T23692—Orange Power Degreaser

A great product for removing the waxy shipping grease from your machine during clean up.



Figure 3. T23692 Orange Power Degreaser.



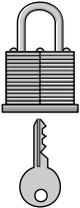
# Site Considerations

## Weight Load

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

## Space Allocation

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

	<p><b>CAUTION</b> Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</p>
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## Physical Environment

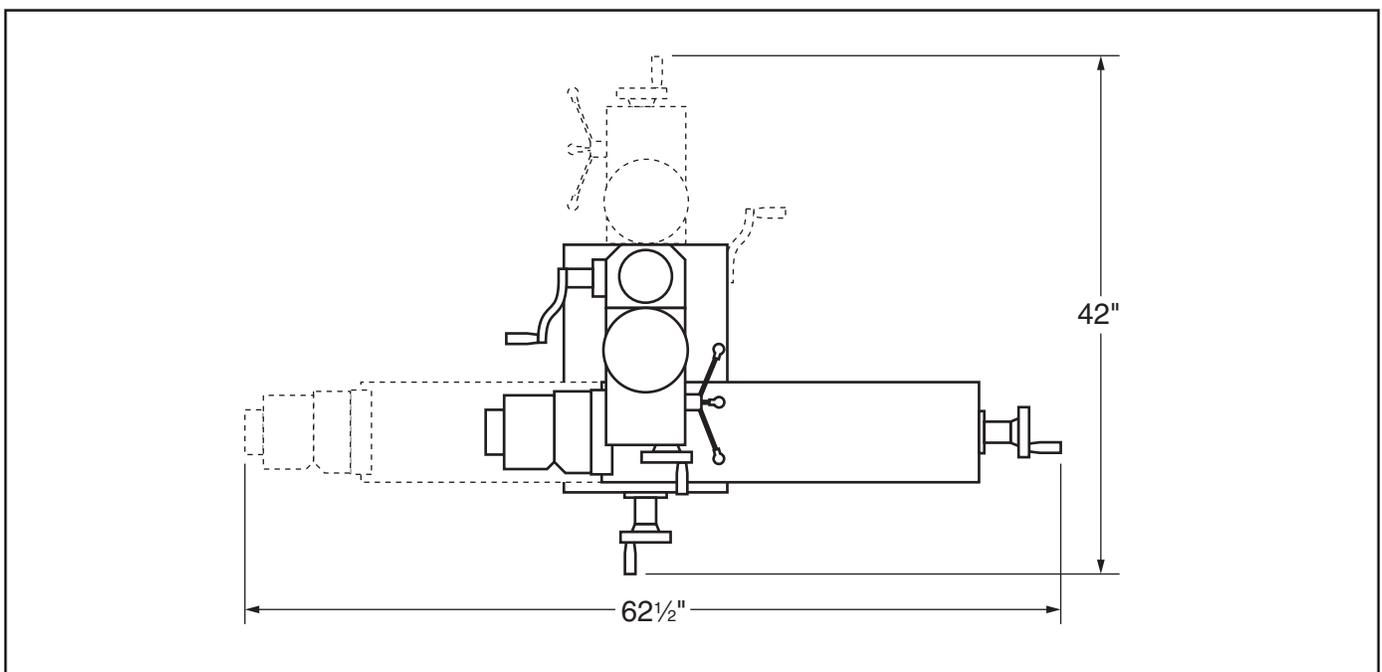
The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions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

## Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave enough space around machine to disconnect power supply or apply a lockout/tagout device, if required.

## Lighting

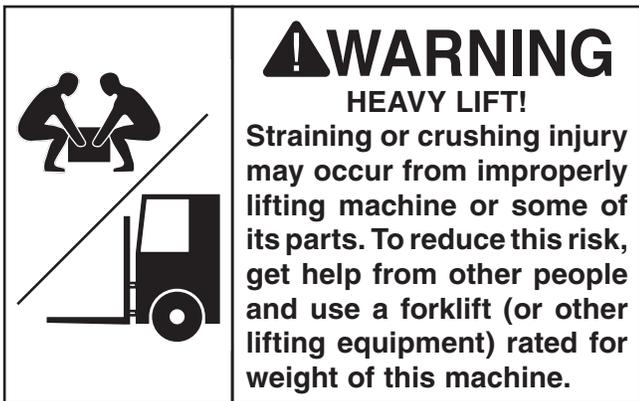
Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.



**Figure 4.** Minimum working clearances.



# Lifting & Placing



## To move your machine into position:

1. Move the shipping crate next to the workbench or stand you have for the mill/drill, then unbolt the machine from the pallet.
2. To help balance the machine during moving, move the table as close to the column as possible, and raise the headstock to its highest position.
3. Place a lifting strap under the headstock of the machine, as shown in **Figure 5**, connect it to a forklift, then lift and place the machine.

**Note:** Make sure you tighten all the locks that restrict moving parts to avoid sudden shifts which could unbalance the machine.

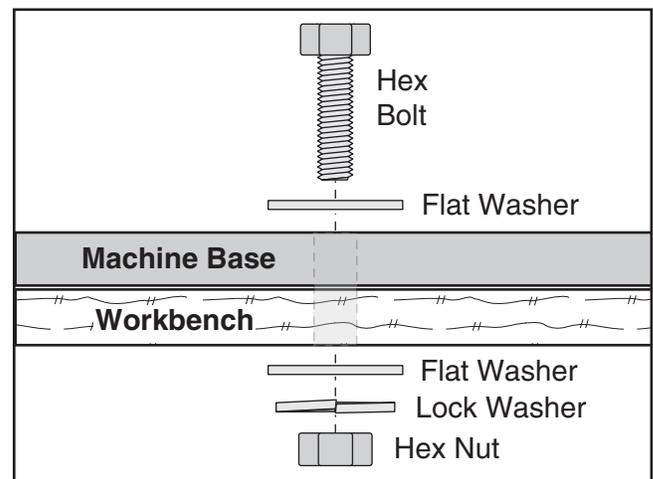


**Figure 5.** Typical lifting strap position.

# Mounting

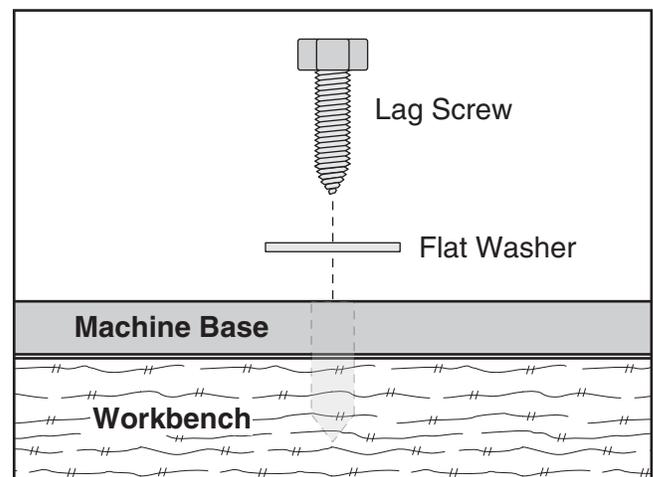
The machine base has holes to accommodate mounting hardware. Additionally, you may consider providing a hole in your workbench or stand for access to the underside of the machine base. This will be necessary for adjusting the Y-axis leadscrew backlash (refer to **Adjusting Leadscrew Backlash** on **Page 34** ).

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 mill/drill to the workbench (**Figure 6**).



**Figure 6.** 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 7**).



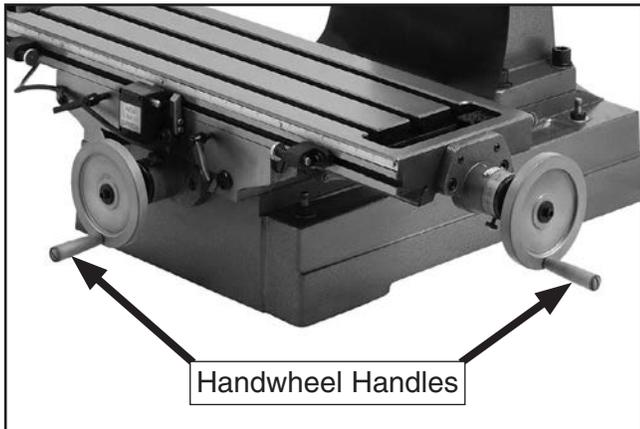
**Figure 7.** Example of a direct mount setup.



# Assembly

The mill/drill was fully assembled at the factory except for the handwheel handles.

Use a flat-head screwdriver to attach the handwheels handles, as shown in **Figure 8**.



**Figure 8.** Handwheel handles attached.

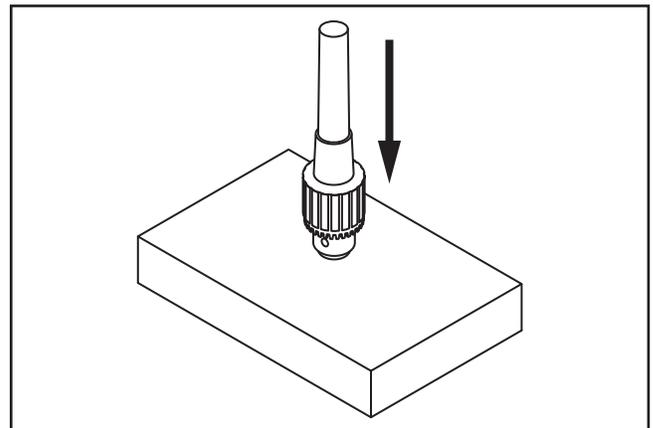
# Joining Drill Chuck & Arbor

The joining of the drill chuck and arbor is intended to be semi-permanent. If you would like to use a different chuck in the future, we recommend obtaining a new arbor.

**Important:** Do NOT install the drill chuck and arbor into the spindle until AFTER the test run.

## To join the drill chuck and arbor:

1. Use acetone or lacquer thinner to clean the drill chuck and arbor mating surfaces, especially the bore.
2. Retract the chuck jaws completely into the chuck.
3. Insert the small end of the arbor into the chuck.
4. Hold the assembly by the arbor and tap the chuck onto a block of wood with medium force, as illustrated in **Figure 9**.



**Figure 9.** Tapping drill chuck/arbor on block of wood.

5. Attempt to separate the drill chuck and arbor—if they do separate, begin again from **Step 1**.



# Lubricating Mill/Drill

---



The headstock oil reservoir must have the proper amount of oil in it before the mill/drill can be operated for the first time.

Damage caused by running the mill/drill without oil in the reservoir will not be covered under warranty. Refer to the **Lubrication** section, beginning on **Page 28**, for details on how to check and add oil.

# Test Run

---

Once the assembly is complete, test run your machine to make sure it runs properly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review the **Troubleshooting** on **Page 32**.

If you still cannot remedy a problem, contact our Tech Support at (570) 546-9663 for assistance.

## **NOTICE**

**Make sure the headstock has the proper amount of oil before performing the *Test Run* and *Spindle Break-In*. Otherwise, the headstock components may be damaged and void the warranty. Refer to *Page 29* for detailed instructions.**

### To test run the machine:

1. Make sure you have read the safety instructions at the beginning of the manual and that the machine is set up properly.
2. Make sure all tools and objects used during setup are cleared away from the machine.
3. Connect the machine to the power source.
4. Rotate the spindle switch to FWD to turn the machine **ON**.
5. Listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.  
  
—Strange or unusual noises should be investigated and corrected before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.
6. Turn the machine **OFF**.



# Spindle Bearing Break-In

## **NOTICE**

Complete the spindle bearing break-in procedure to prevent rapid wear and tear of spindle components once the mill is placed into operation.

Before operation loads are placed on the spindle bearings, complete this break-in procedure to fully distribute internal lubrication and reduce the risk of early failure.

### To perform the spindle break-in procedure:

1. Make sure the spindle is completely stopped and set the spindle speed to 90 RPM (refer to **Page 25** for detailed instructions).

## **NOTICE**

Do not leave the lathe unattended during the Spindle Break-In procedure. If your attention is needed elsewhere during this procedure, stop the lathe and restart the procedure later from the beginning.

2. Run the machine for a minimum of 10 minutes.
3. Repeat **Step 2** for each of the spindle speeds.
4. Change the headstock oil (refer to **Page 28** for detailed instructions).

The spindle break-in of the mill is now complete!

# Inspections & Adjustments

The following list of adjustments were performed at the factory before the machine was shipped:

- Gib Adjustments ..... **Page 34**
- Leadscrew Backlash Adjustments..... **Page 34**

Be aware that machine components can shift during the shipping process. Pay careful attention to these adjustments during operation of the machine. If you find that the adjustments are not set according to the procedures in this manual or your personal preferences, re-adjust them.

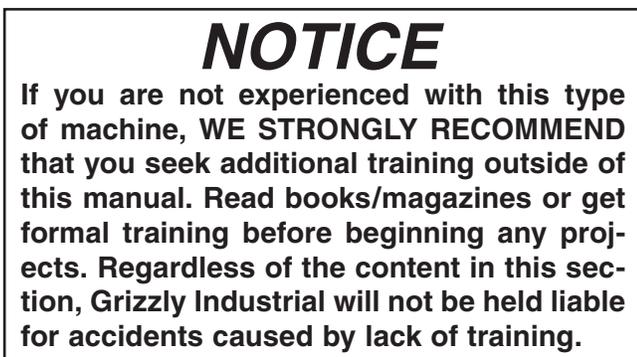


# SECTION 4: OPERATIONS

## Operation Overview

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

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



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

1. Examines workpiece to make sure it is suitable for cutting.
2. Puts on protective gear.
3. Securely clamps workpiece to the table.
4. With the machine disconnected from power, installs correct cutting tool.
5. Adjusts headstock height above the table.
6. Without the machine running, checks the range of table or spindle movement necessary for the operation to make sure the setup is safe and correct.
7. Selects the correct spindle speed.
8. Connects the machine to power and turns it **ON**.
9. Uses downfeed controls or table controls to perform the cutting operation.
10. Turns the machine **OFF** and waits for the spindle to completely stop before removing workpiece.



# Downfeed Controls

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## Identification

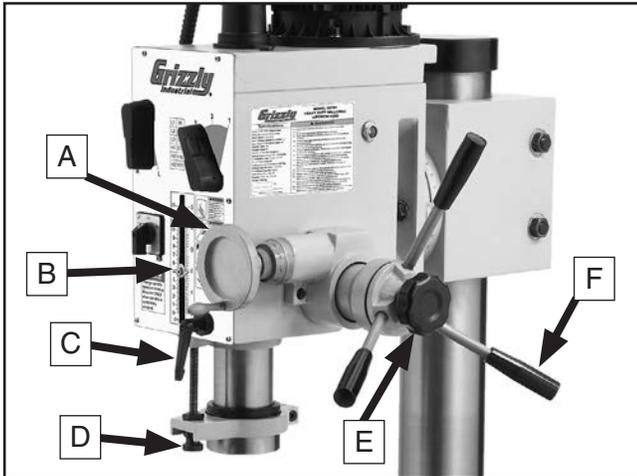


Figure 10. Downfeed controls.

- A. Fine Downfeed Handwheel
- B. Depth Pointer and Scale
- C. Quill Lock Lever
- D. Depth Pointer Adjustment Knob
- E. Downfeed Selector Knob
- F. Coarse Downfeed Lever

## Using Coarse Downfeed

1. *Loosen* the downfeed selector knob to engage the coarse downfeed levers.
2. Adjust the depth pointer with the adjustment knob as a visual downfeed guide.
3. Use the coarse downfeed levers to raise and lower the spindle.

## Using Fine Downfeed

1. *Tighten* the downfeed selector knob to engage the fine downfeed handwheel.
2. Adjust the depth pointer with the adjustment knob as a visual downfeed guide.
3. Rotate the fine downfeed handwheel to raise and lower the spindle.

---

## Depth Stop

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The depth stop limits the downward movement of the cutting tool. With the use of the depth pointer adjustment knob (see **D** in **Figure 10**), it can be adjusted anywhere within 0"–5". This is useful when performing the same operation multiple times.



# Headstock Movement

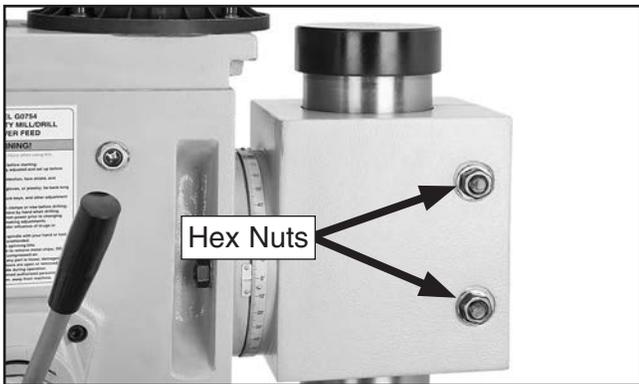
The headstock moves in the following ways:

- Rotates 360° around the column.
- Travels up and down the column.
- Tilts 90° left and right relative to the table.

Tools Needed	Qty
Wrench 22mm .....	1
Wrench 24mm .....	1

## Rotating Headstock

1. DISCONNECT MACHINE FROM POWER!
2. Loosen the two hex nuts shown in **Figure 11**.

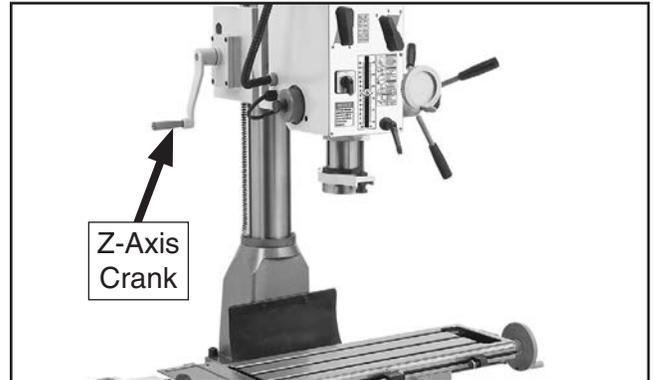


**Figure 11.** Hex nuts that lock headstock on column.

3. Make sure the headstock and cords can move unobstructed, then manually rotate the headstock around the column.
4. Re-tighten the hex nuts before connecting to power.

## Raising/Lowering Headstock

1. DISCONNECT MILL FROM POWER!
2. Loosen the two hex nuts shown in **Figure 11**.
3. Use the Z-axis crank shown in **Figure 12** to adjust the headstock height.



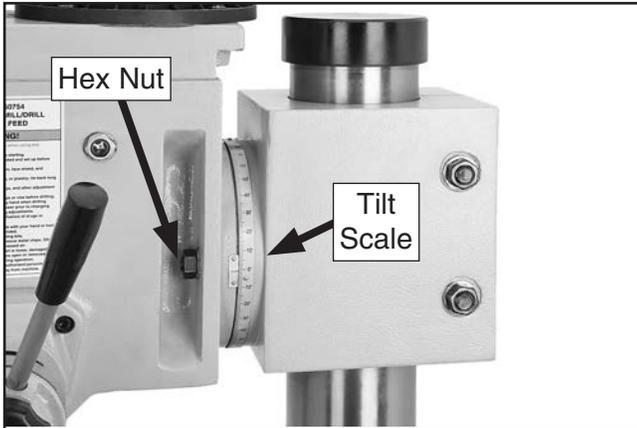
**Figure 12.** Z-axis crank.

4. Re-tighten the hex nuts before connecting to power.

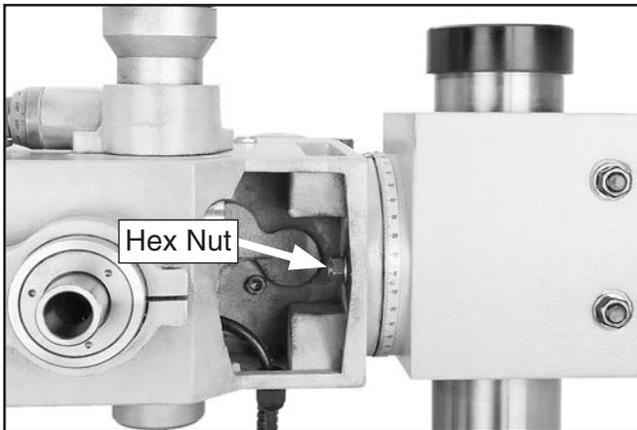


## Tilting Headstock

1. DISCONNECT MACHINE FROM POWER!
2. Loosen the three locking hex nuts (see **Figures 13–14**).



**Figure 13.** Tilt locking hex nut (one on each side of head).



**Figure 14.** Hex nut underneath headstock.

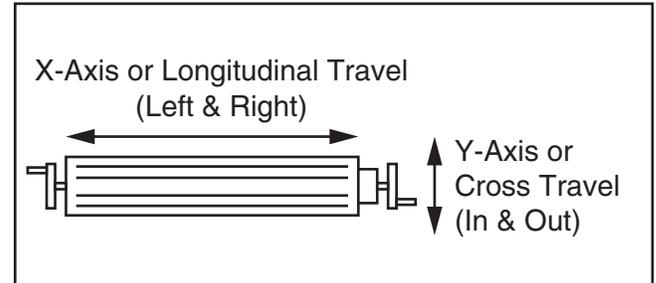
3. Using the scale shown in **Figure 13** as a guide, swivel the headstock and re-tighten the three hex nuts to secure it.
4. Re-tighten the hex nuts before connecting to power.

## Table Travel

The table travels in two directions, as illustrated in **Figure 15**:

- X-axis (longitudinal)
- Y-axis (cross)

These movements are controlled by handwheels and the X-axis power feed.

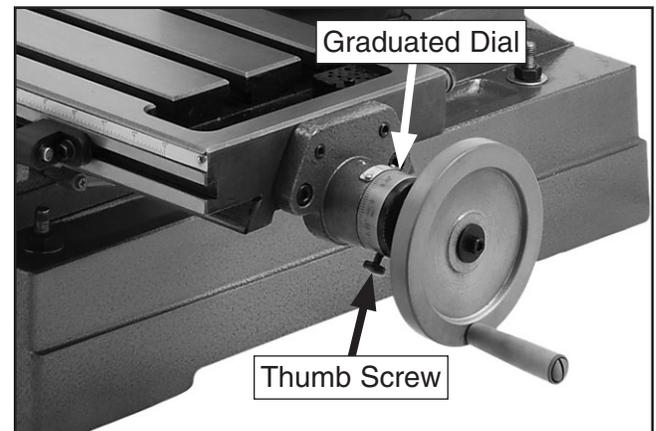


**Figure 15.** The directions of table movement.

## Graduated Index Rings

The handwheels have graduated scales that are used to determine table movement in 0.001" increments, with one full revolution equalling 0.100".

Use the thumb screw shown in **Figure 16** to adjust the graduated dial for a relative starting point.



**Figure 16.** Graduated dial and thumb screw.



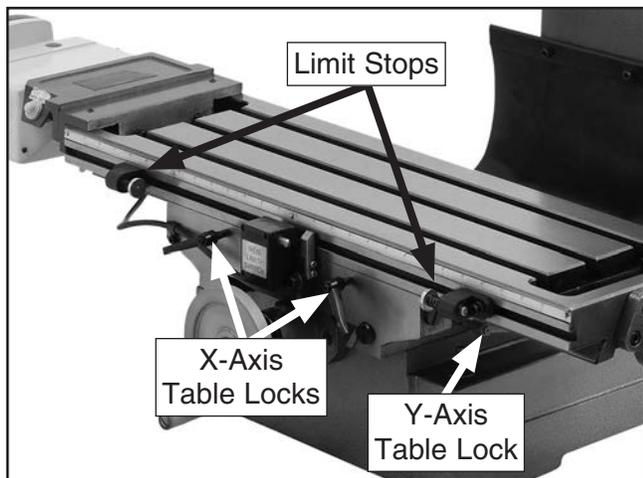
## X-Axis Handwheel

Tool Needed	Qty
Hex Wrench 5mm.....	1

### To use the X-axis handwheel:

1. Loosen the X-axis table locks shown in **Figure 17**.

**Note:** When tightened, table locks increase table rigidity.



**Figure 17.** Table locks and limit stops.

2. Position the limit stops along the front of the table to restrict table travel.
3. Adjust the X-axis graduated dial to zero, then use the handwheel to move the table.

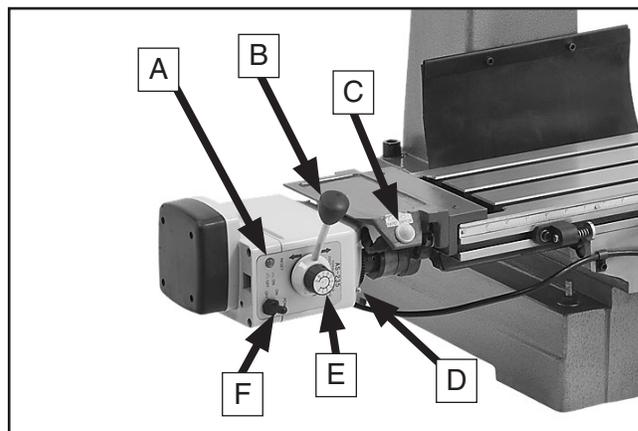
## Y-Axis Handwheel

The saddle does not have limit stops. To move the table along the Y-axis, loosen the Y-axis table lock shown in **Figure 17**, then use the handwheel in front of the table in the same manner as the X-axis handwheel.

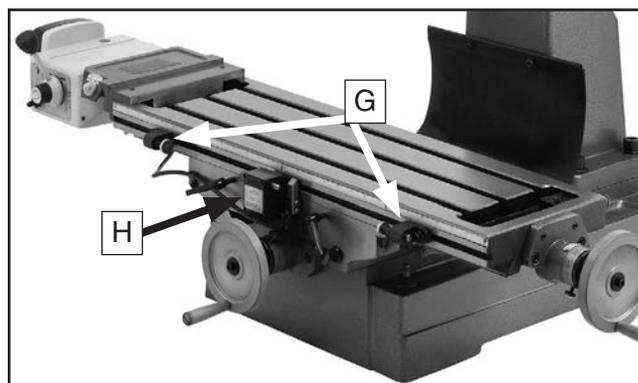
## X-Axis Power Feed

Use **Figures 18–19** and the following descriptions to become familiar with the power feed controls.

**Note:** The power feed must be connected to an independent, grounded 110V power supply to operate.



**Figure 18.** X-axis power feed controls.



**Figure 19.** Limit switch and limit stops.

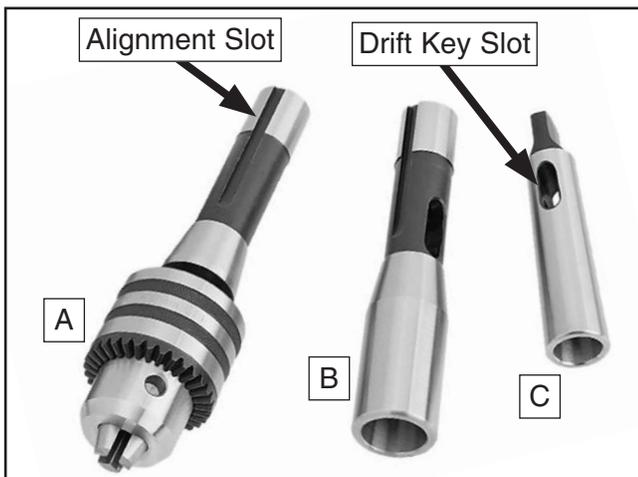
- A. ON/OFF Light.** Lights when the unit is turned **ON**.
- B. Direction Lever.** Controls the direction of powered table travel.
- C. Rapid Switch.** When held down, moves the table rapidly in the direction chosen.
- D. Power Light.** Lights when the unit is connected to power.
- E. Speed Dial.** Controls the rate of power feed.
- F. ON/OFF Switch.** Turns the power feed **ON** and **OFF**.
- G. Limit Stops.** Restrict table movement in their locked position along the front of the table.
- H. Limit Switch.** Stops table movement when either side plunger contacts a limit stop.



# Installing/Removing Tooling

The Model G0754 includes the following spindle tools (see **Figure 20**):

- A. **B16 Drill Chuck w/R-8 Arbor.** Joined with the drill chuck.
- B. **R-8-MT#3 Spindle Sleeve.** Used for MT#3 tools and will accommodate tools with a tang. It also has a drift key slot for tool removal.
- C. **MT#3-MT#2 Spindle Sleeve.** Used with the R-8-MT#3 spindle sleeve for MT#2 tools and has a drift key slot for tool removal.

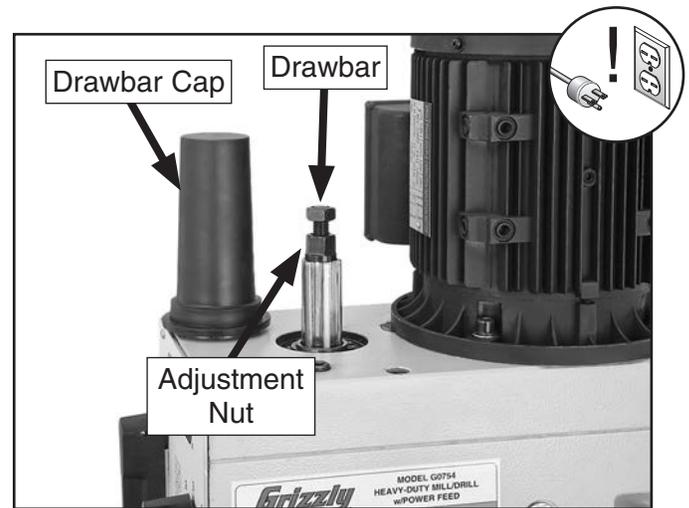


**Figure 20.** Tool and arbors included with Model G0754.



## Installing Tooling

1. DISCONNECT MACHINE FROM POWER!
2. Remove the drawbar cap as shown in **Figure 21**.



**Figure 21.** Drawbar components.

3. Align the tool alignment slot (see **Figure 21**) with the pin inside the spindle, then insert your tooling into the spindle until it contacts the drawbar.

**Note:** The height of the drawbar inside the spindle can be changed by rotating the adjustment nut (see **Figure 21**).

4. Working from the top, thread the drawbar by hand into the tool until it is snug, then use a 19mm wrench to tighten it.

**Note:** Do not overtighten the drawbar. Overtightening makes tool removal difficult and will damage the arbor and threads.

5. Re-install the drawbar cap.



## Removing Tooling

Tools Needed	Qty
Wrench 19mm .....	1
Brass Head or Dead Blow Hammer .....	1

### To remove tooling:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the drawbar cap, and unthread the drawbar from the tool one full rotation.

**Note:** Do not fully unthread the tool from the drawbar, or the drawbar and tool threads could be damaged in the next step.

3. Tap the top of the drawbar with the hammer to unseat the taper.
4. Hold on to the tool with one hand and fully unthread the drawbar.

## Spindle Speed

Using the correct spindle speed is important for safe and satisfactory results, as well as maximizing tool life.

To set the spindle speed for your operation, you will need to: 1) Determine the best spindle speed for the cutting task, and 2) configure the spindle speed levers to produce the required spindle speed.

### Determining Spindle Speed

Many variables affect the optimum spindle speed to use for any given operation, but the two most important are the recommended cutting speed for the workpiece material and the diameter of the cutting tool, as noted in the formula shown in **Figure 22**.

$\frac{\text{*Recommended Cutting Speed (FPM)} \times 12}{\text{Tool Dia. (in inches)} \times 3.14} = \text{Spindle Speed (RPM)}$
<p>*Double if using carbide cutting tool</p>

**Figure 22.** Spindle speed formula for mill/drills.

Cutting speed, typically defined in feet per minute (FPM), is the speed at which the edge of a tool moves across the material surface.

A recommended cutting speed is an ideal speed for cutting a type of material in order to produce the desired finish and optimize tool life.

The books **Machinery's Handbook** or **Machine Shop Practice**, and some internet sites, provide excellent recommendations for which cutting speeds to use when calculating the spindle speed. These sources also provide a wealth of additional information about the variables that affect cutting speed and they are a good educational resource.

Also, there are a large number of easy-to-use spindle speed calculators that can be found on the internet. These sources will help you take into account the applicable variables in order to determine the best spindle speed for the operation.



## Setting Spindle Speed

Use the chart below or the one on the headstock when setting the spindle speed.

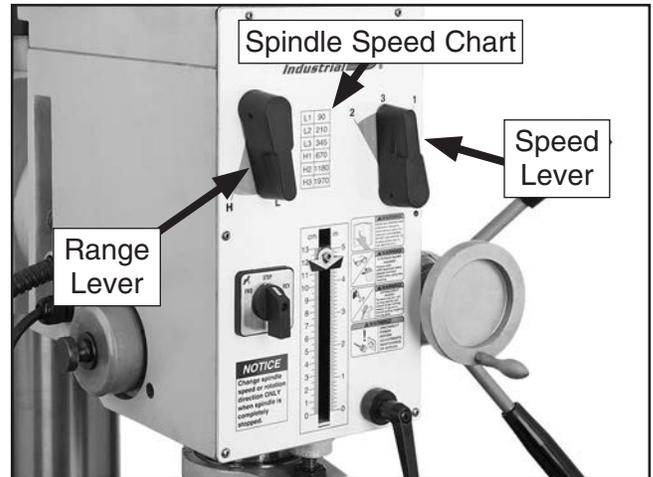
Spindle Speed	Range Lever	Speed Lever
90 RPM	L	1
210 RPM	L	2
345 RPM	L	3
670 RPM	H	1
1180 RPM	H	2
1970 RPM	H	3

### **NOTICE**

Change spindle speed **ONLY** when the spindle is completely stopped. Otherwise, machine damage could occur.

With the spindle completely stopped, position the spindle speed levers (see **Figure 23**) to set the spindle speed.

**Note:** If necessary, rotate the spindle by hand to mesh the gears when changing speeds.



**Figure 23.** Spindle speed controls.



# SECTION 5: ACCESSORIES

## **! WARNING**

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

## **NOTICE**

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

**G7156—4" (3<sup>5</sup>/<sub>8</sub>") Precision Milling Vise**

**G7154—5" (4<sup>1</sup>/<sub>2</sub>") Precision Milling Vise**

**G7155—6" (5<sup>5</sup>/<sub>8</sub>") Precision Milling Vise**

Swiveling Milling Vises feature perfectly aligned, precision ground jaws, large Acme® screws and easy to read 0°–360° scales.



Figure 24. G7154 Precision Milling Vise.

**G7066—5" Tilting/Swiveling Milling Vise**

**H7576—Precision Self-Centering Vise**

**H2716—Milling Vise for Round Parts**



Figure 25. Specialty milling vises.

**T23962—ISO 68 Moly-D Way Oil, 5 gal.**

**T23963—ISO 32 Moly-D Machine Oil, 5 gal.**

Moly-D oils are some of the best we've found for maintaining the critical components of machinery because they tend to resist run-off and maintain their lubricity under a variety of conditions—as well as reduce chatter or slip. Buy in bulk and save with 5-gallon quantities.



Figure 26. ISO 68 and ISO 32 machine oil.

**High Pressure Oil Cans For Ball Oilers**

**H7616—Plastic Nozzle**

**H7617—Flexible Plastic Nozzle**

Whether you are lubricating cutting tools or maintaining machinery in top operating condition, you will appreciate these High Pressure Oil Cans. Each can holds 5 ounces of oil and has a trigger-activated, high-pressure pump.



Figure 27. High Pressure Oil Cans.

**order online at [www.grizzly.com](http://www.grizzly.com) or call 1-800-523-4777**



### H7527—6" Rotary Table Set

Use this 6" Rotary Table in either the horizontal or vertical position for a variety of milling applications and with the set of dividing plates and adjustable tailstock, your milling applications are nearly unlimited. With 4° table movement per handle rotation and 20 second vernier scale, control is very accurate and precise. Also includes a 3/8" clamping set for the 4-slot table. Everything you need in one great set!

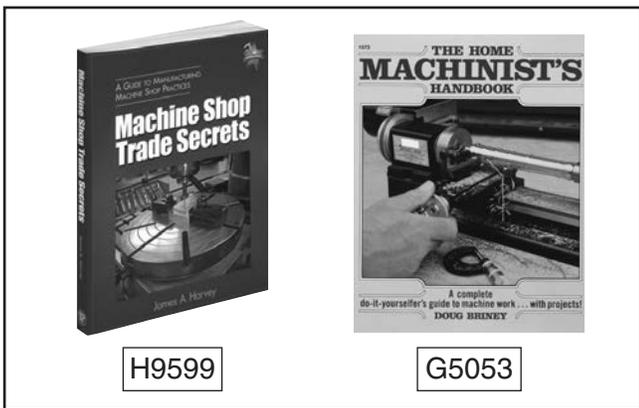


Figure 28. H7527 6" Rotary Table Set.

### H9599—Machine Shop Trade Secrets

### G5053—The Home Machinist's Handbook

Excellent reference pages for novices and professionals alike. Each book is filled with drawings, charts and tables for getting the most of your milling machine. Model H9599 has 320 pages. Model G5053 has 275 pages.



H9599

G5053

Figure 29. Great texts for mill/drills.

### G1075—52-PC. Clamping Kit

This clamping kit includes 24 studs, 6 step block pairs, 6 T-nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold-downs. The rack is slotted so it can be mounted close to the machine for easy access.

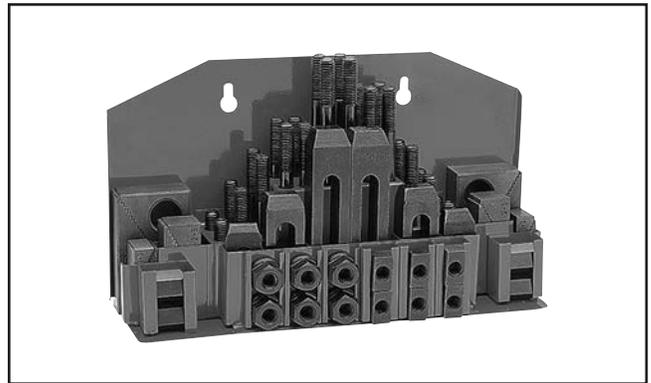


Figure 30. G1075 52-PC. Clamping Kit.

### SB1348—South Bend® 8-Pc. R-8 Collet Set

### SB1349—South Bend® 16-Pc. R-8 Collet Set

Get true South Bend® quality and precision with one of these Quick-Change Collet Sets. Each set includes hardened and precision-ground spring collets for maximum holding power, collet chuck, spanner wrench, and protective moulded case.



Figure 31. Model SB1349 South Bend 16-Pc. R-8 Collet Set.

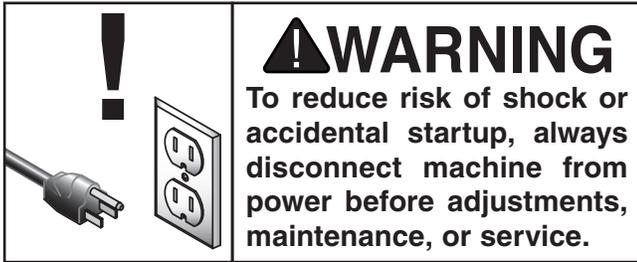
**order online at [www.grizzly.com](http://www.grizzly.com) or call 1-800-523-4777**



# SECTION 6: MAINTENANCE

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## Schedule

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

### Daily Check:

- Loose mounting bolts.
- Damaged tooling.
- Worn or damaged wires.
- Clean debris and built up grime off of machine.
- Any other unsafe condition.

### Every 8 Hours of Operation:

- Check/add headstock oil (**Page 29**).
- Lubricate ball oilers (**Page 30**).
- Lubricate table ways, column and rack, and quill (**Page 30**).

### Every 40 Hours of Operation:

- Lubricate table leadscrews (**Page 31**).

### Every 90 Hours of Operation:

- Lubricate quill rack and pinion (**Page 31**).

### Every 180 Days of Operation:

- Change headstock oil (**Page 29**).

## Cleaning and Protecting

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Metal chips left on the machine that have been soaked with water-based coolant will invite oxidation and a gummy residue build-up around the moving parts. Use a brush and shop vacuum to remove chips and debris from the working surfaces of the mill/drill. Never blow off the mill/drill with compressed air, as this will force metal chips deep into the mechanisms and may cause injury to yourself or bystanders.

Remove any rust build-up from unpainted cast iron surfaces of your mill/drill and treat with a non-staining lubricant after cleaning.

Keep unpainted cast iron surfaces rust-free with regular applications ISO 68 way oil (see **Page 26** for offerings from Grizzly).

## Lubrication

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An essential part of lubrication is cleaning the components before lubricating them.

This step is critical because grime and chips build up on lubricated components, which makes them hard to move. Simply adding more lubricant will not result in smooth moving parts.

Clean all exterior components in this section with mineral spirits, shop rags, and brushes before lubricating.

**DISCONNECT MACHINE FROM POWER BEFORE PERFORMING LUBRICATION!**

## NOTICE

Follow reasonable lubrication practices as outlined in this manual. Failure to do so could lead to premature failure of your machine and will void the warranty.



## Headstock

Oil Type .....Model T23962 or ISO 68 Equivalent  
 Oil Amount..... 3¼ Qt.  
 Check/Add Frequency ..... 8 hrs. of Operation  
 Change Frequency ..... Annually

The headstock has the proper amount of oil when the sight glass is halfway full (see **Figure 32**).



**Figure 32.** Headstock oil sight glass.

<b>Tool Needed</b>	<b>Qty</b>
Hex Wrench 8mm.....	1

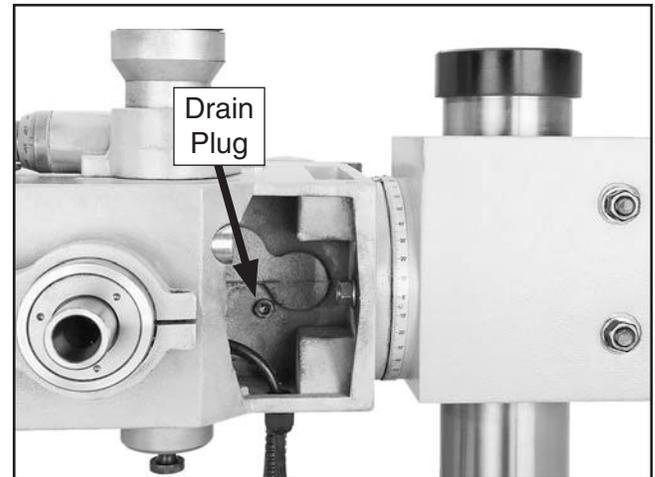
### To change the headstock oil:

1. Run the spindle at 670 RPM for approximately 10 minutes to warm the oil.
2. DISCONNECT MACHINE FROM POWER!
3. Remove the fill plug (see **Figure 33**).



**Figure 33.** Headstock oil fill plug.

4. Place a 1-gallon or larger drain pan on the table under the headstock.
5. Remove the drain plug (see **Figure 34**) from underneath the headstock and allow the oil to drain into the pan.



**Figure 34.** Headstock drain plug (headstock tilted 90° for clarity).

## **NOTICE**

**Follow federal, and state, and local requirements for proper disposal of used oil.**

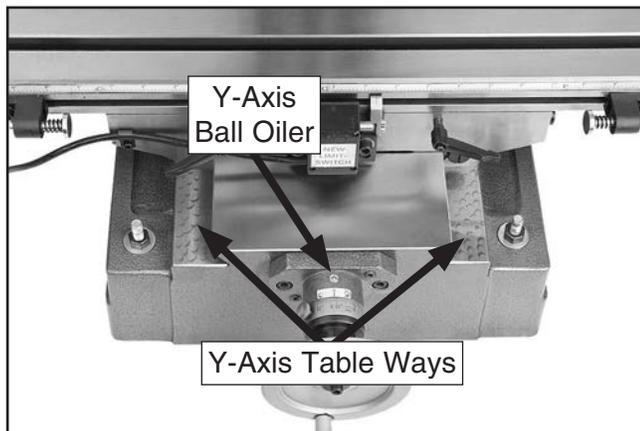
6. Replace the drain plug.
7. Add oil until the sight glass is halfway full, then replace the fill plug.
8. Clean up any spilled oil to prevent slipping hazards.



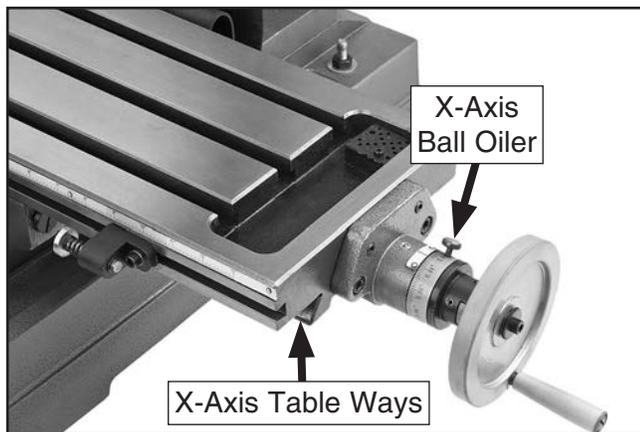
## Ball Oilers

Oil Type .....Model T23963 or ISO 32 Equivalent  
 Oil Amount..... 1–2 Pumps  
 Lubrication Frequency..... 8 hrs. of Operation

Proper lubrication of ball oilers shown in **Figures 35–36** is done with a pump-type oil can that has a plastic or rubberized cone tip (see **Page 26** for offerings from Grizzly). We do not recommend using metal needle or lance tips, as they can push the ball too far into the oiler, break the spring seat, and lodge the ball in the oil galley.



**Figure 35.** Y-axis ball oiler and ways.



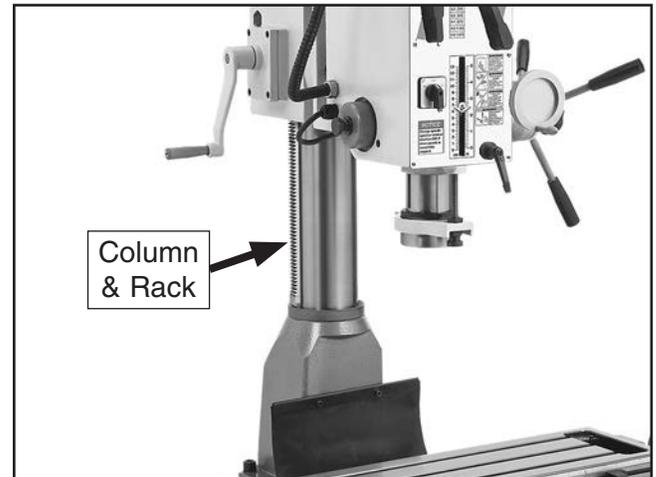
**Figure 36.** X-axis ball oiler and ways.

Push the tip of the oil can nozzle against the ball oiler to create a hydraulic seal, then pump the oil can once or twice. If you see sludge and contaminants coming out of the lubrication area, continue pumping the oil can until the oil runs clear. When finished, wipe away the excess oil.

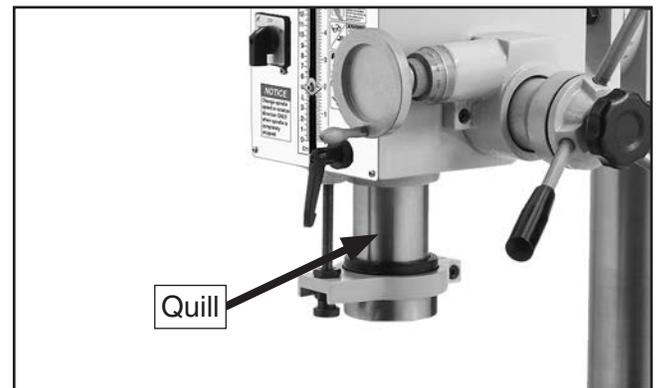
## Table Ways, Column & Rack, & Quill

Oil Type .....Model T23962 or ISO 68 Equivalent  
 Oil Amount.....Thin Coat  
 Lubrication Frequency..... 8 hrs. of Operation

Refer to **Figures 35–38** to identify each component to lubricate.



**Figure 37.** Column and rack.



**Figure 38.** Outside surface of the quill.

Use the component controls to access all surfaces, then clean them with mineral spirits, shop rags, and, where appropriate, brushes.

When dry, apply a thin coat of oil to the surfaces. Use clean brushes to apply oil to the grooves of the column rack. Move each component through the entire path of travel several times to distribute the lubricant.

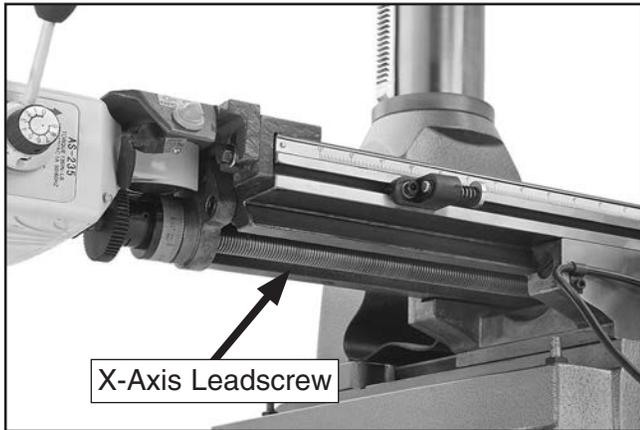
**Note:** Take care not to remove the quill rack grease without re-applying it.



## Table Leadscrews

Oil Type .....Model T23962 or ISO 68 Equivalent  
Oil Amount.....Thin Coat  
Lubrication Frequency ..... 40 hrs. of Operation

Move the table as necessary to access the entire length of the X- and Y-axis leadscrews (see **Figures 39–40**), then use mineral spirits, shop rags, and a brush to clean them.



**Figure 39.** X-axis leadscrew.

**Note:** Use a 5mm hex wrench to remove the way cover from the base to access the Y-axis leadscrew.



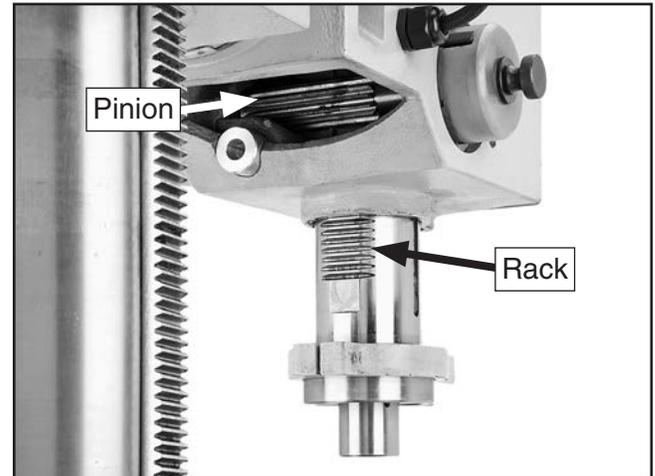
**Figure 40.** Y-axis leadscrew.

When dry, use a clean brush to apply a thin coat of oil to the leadscrews, then move the table through the X- and Y-axis paths to distribute the oil.

## Quill Rack & Pinion

Oil Type ..... NLGI#2 Grease or Equivalent  
Oil Amount.....Thin Coat  
Lubrication Frequency ..... 90 hrs. of Operation

Move the quill up and down to gain full access to the quill rack and pinion (see **Figure 41**), then clean the teeth with mineral spirits, shop rags, and a brush.



**Figure 41.** Quill rack and pinion.

When dry, use a brush to apply a thin coat of grease to the teeth, then raise/lower the quill several times to distribute the grease.

**Note:** Re-apply oil to the quill smooth outside surface that was removed during the cleaning process.



# SECTION 7: SERVICE

Review the troubleshooting and procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support at (570) 546-9663.

**Note:** Please gather the serial number and manufacture date of your machine before calling.

## Troubleshooting



Symptom	Possible Cause	Possible Solution
Machine does not start.	<ol style="list-style-type: none"> <li>1. Plug at fault or wired incorrectly.</li> <li>2. Incorrect power supply voltage.</li> <li>3. Wall fuse/circuit breaker is blown/tripped.</li> <li>4. Wiring is open/has high resistance.</li> <li>5. Spindle switch is at fault.</li> <li>6. Motor wired incorrectly.</li> <li>7. Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure plug is not damaged and is wired correctly.</li> <li>2. Ensure power supply voltage matches circuit requirements (<b>Page 9</b>).</li> <li>3. Ensure circuit size is correct and a short does not exist. Reset breaker or replace fuse.</li> <li>4. Check for broken wires or disconnected/corroded connections; repair/replace as necessary.</li> <li>5. Ensure switch is wired correctly; replace if at fault.</li> <li>6. Ensure motor wiring is correct (<b>Page 36</b>).</li> <li>7. Test/repair/replace.</li> </ol>
Machine stalls or is overloaded.	<ol style="list-style-type: none"> <li>1. Feed rate/cutting speed too fast.</li> <li>2. Wrong cutter type.</li> <li>3. Machine is undersized for the task or tooling is incorrect for the task.</li> <li>4. Motor has overheated.</li> <li>5. Motor wired incorrectly.</li> <li>6. Motor bearings are at fault.</li> <li>7. Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease feed rate/cutting speed.</li> <li>2. Use the correct cutter for the task.</li> <li>3. Use smaller or sharper tooling; reduce feed rate or spindle speed; use cutting fluid if possible.</li> <li>4. Clean off motor, let cool, and reduce workload.</li> <li>5. Ensure motor wiring is correct (<b>Page 36</b>).</li> <li>6. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> <li>7. Test/repair/replace motor.</li> </ol>
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Motor or machine component is loose.</li> <li>2. Workpiece not secure.</li> <li>3. Excessive depth of cut.</li> <li>4. Cutter/tooling is loose.</li> <li>5. Cutter is dull or at fault.</li> <li>6. Bit is chattering.</li> <li>7. Machine is incorrectly mounted or sits unevenly.</li> <li>8. Motor fan is rubbing on fan cover.</li> <li>9. Motor bearings are at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid.</li> <li>2. Properly clamp workpiece on table or in vise.</li> <li>3. Decrease depth of cut.</li> <li>4. Make sure tooling is properly secured.</li> <li>5. Replace/resharpen cutter.</li> <li>6. Replace/sharpen bit; index bit to workpiece; use appropriate feed rate and cutting RPM.</li> <li>7. Tighten/replace mounting bolts in bench; relocate/shim machine.</li> <li>8. Replace dented fan cover or damaged fan.</li> <li>9. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> </ol>



Symptom	Possible Cause	Possible Solution
Tool slips in spindle.	<ol style="list-style-type: none"> <li>1. Tool is not fully drawn up into spindle taper.</li> <li>2. Debris on tool or in spindle taper.</li> <li>3. Taking too big of a cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten drawbar.</li> <li>2. Clean collet and spindle taper.</li> <li>3. Lessen depth of cut and allow chips to clear.</li> </ol>
Breaking tools or cutters.	<ol style="list-style-type: none"> <li>1. Spindle speed/feed rate is too fast.</li> <li>2. Cutting tool too small.</li> <li>3. Cutting tool getting too hot.</li> <li>4. Taking too big of a cut.</li> <li>5. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set spindle speed correctly (<b>Page 25</b>) or use slower feed rate.</li> <li>2. Use larger cutting tool and slower feed rate.</li> <li>3. Use coolant fluid or oil for appropriate application.</li> <li>4. Decrease depth of cut.</li> <li>5. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>
Workpiece vibrates or chatters during operation.	<ol style="list-style-type: none"> <li>1. Table locks not tight.</li> <li>2. Workpiece not secure.</li> <li>3. Spindle speed/feed rate is too fast.</li> <li>4. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten down table locks.</li> <li>2. Properly clamp workpiece on table or in vise.</li> <li>3. Set spindle speed correctly (<b>Page 25</b>) or use a slower feed rate.</li> <li>4. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>
Table is hard to move.	<ol style="list-style-type: none"> <li>1. Table locks are tightened down.</li> <li>2. Chips have loaded up on ways.</li> <li>3. Ways are dry and need lubrication.</li> <li>4. Table limit stops are interfering.</li> <li>5. Gibs are too tight.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure table locks are fully released.</li> <li>2. Frequently clean away chips that load up during milling operations.</li> <li>3. Lubricate ways (<b>Page 30</b>).</li> <li>4. Check to make sure that all table limit stops are not in the way.</li> <li>5. Adjust gibs (see <b>Page 34</b>).</li> </ol>
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Spindle speed/feed rate is too fast.</li> <li>2. Using a dull or incorrect cutting tool.</li> <li>3. Wrong rotation of cutting tool.</li> <li>4. Workpiece not secure.</li> <li>5. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set spindle speed correctly (<b>Page 25</b>) or use a slower feed rate.</li> <li>2. Sharpen cutting tool or select one that better suits the operation.</li> <li>3. Check for proper cutting rotation for cutting tool.</li> <li>4. Properly clamp workpiece on table or in vise.</li> <li>5. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>



# Adjusting Gibs

Gibs are tapered lengths of metal that are sandwiched between two moving surfaces. Gibs control the gap between these surfaces and how they slide past one another. Correctly adjusting the gibs is critical to producing good milling results.

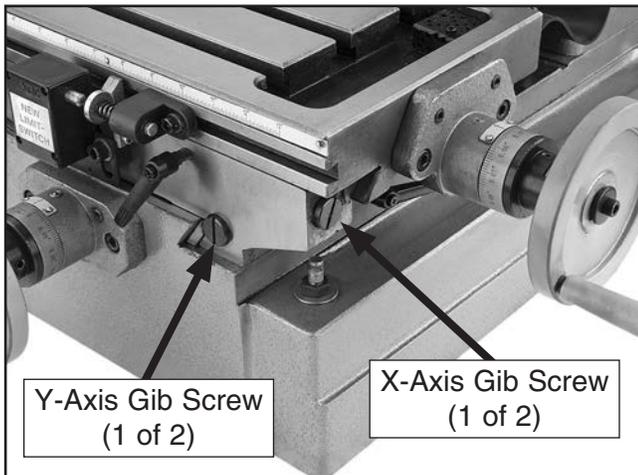
Tight gibs make table movement more accurate but stiff. Loose gibs make moving the table sloppy but easier to do. The goal of gib adjustment is to remove unnecessary sloppiness without causing the ways to bind.

**Tip:** *Some experienced machinists recommend adjusting the gibs until there is a slight drag in table movement.*

Screws on each end of the gib allow gib adjustment to increase or decrease the friction pressure between the sliding surfaces. Correctly positioning the gib is a matter of trial and error and patience.

**DISCONNECT MACHINE FROM POWER BEFORE ADJUSTING THE GIBS!**

Make sure all table locks are loose. Then, loosen one gib adjustment screw (see **Figure 42**) and tighten the opposing screw the same amount to move the gib, while at the same time using the handwheels to move the table until you feel a slight drag in that path of movement.



**Figure 42.** Location of table gib screws.

# Adjusting Leadscrew Backlash

Leadscrew backlash is the amount of freeplay movement in the leadscrew (when changing the direction of rotation) before the attached device begins to move.

Leadscrews must have a certain amount of backlash, but over time, this will increase with normal wear. Generally, 0.003"–0.006" leadscrew backlash is acceptable to ensure smooth movement and reduce the risk of premature thread wear.

The X- and Y-axis leadscrew backlash is adjusted by using a long 5mm hex wrench to tighten/loosen the cap screw on the leadscrew nut. This adjusts the force the split leadscrew nut exerts on the leadscrew threads.

The X-axis leadscrew nut shown in **Figure 43** is accessed from underneath the left side of the table.

The Y-axis leadscrew nut is similar and is accessed from underneath the machine base.



**Figure 43.** X-axis leadscrew nut adjusting cap screw.



# 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 after-market 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

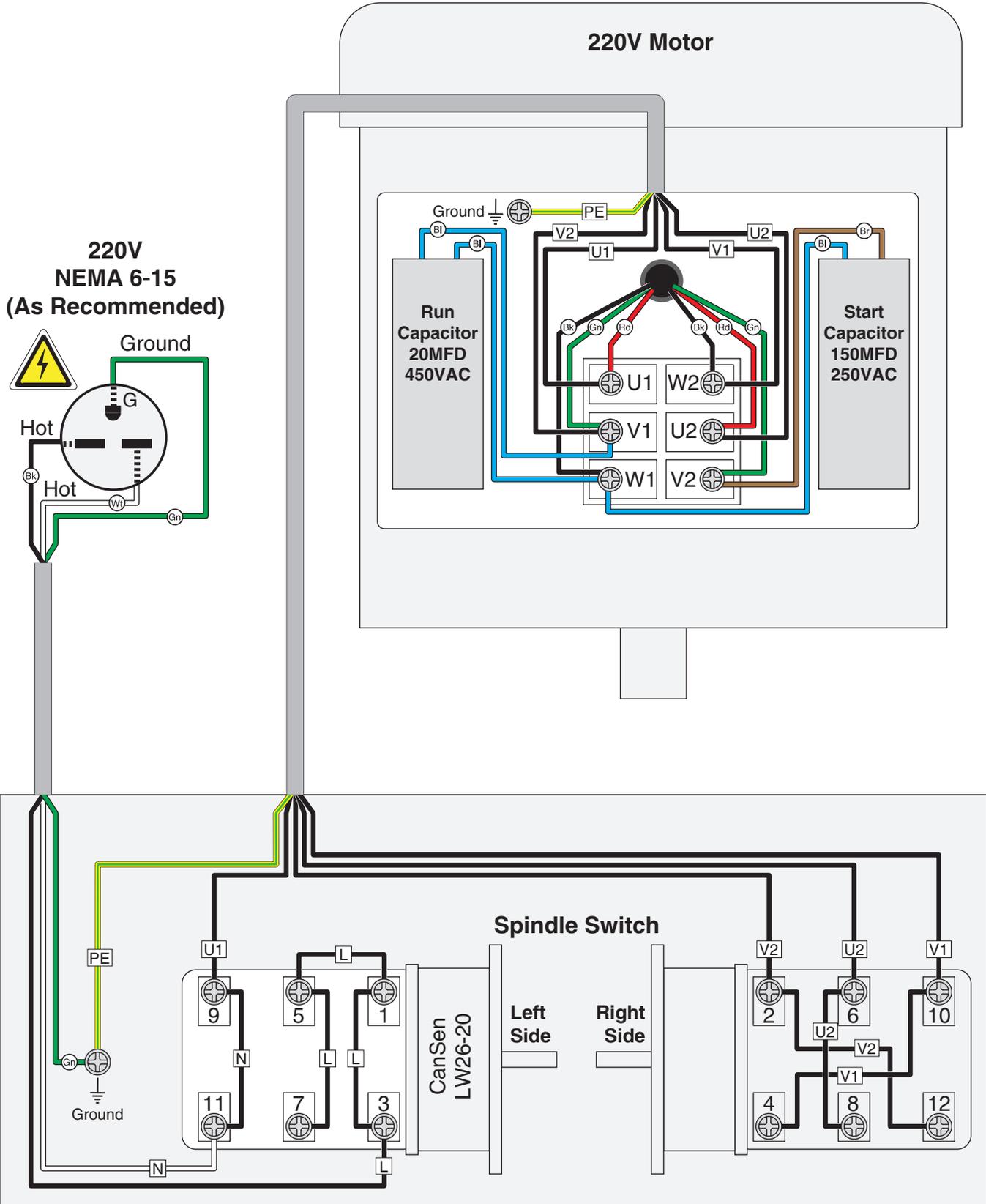
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at [www.grizzly.com](http://www.grizzly.com).

#### COLOR KEY

BLACK		BLUE		YELLOW		LIGHT BLUE	
WHITE		BROWN		YELLOW GREEN		BLUE WHITE	
GREEN		GRAY		PURPLE		TURQUOISE	
RED		ORANGE		PINK			

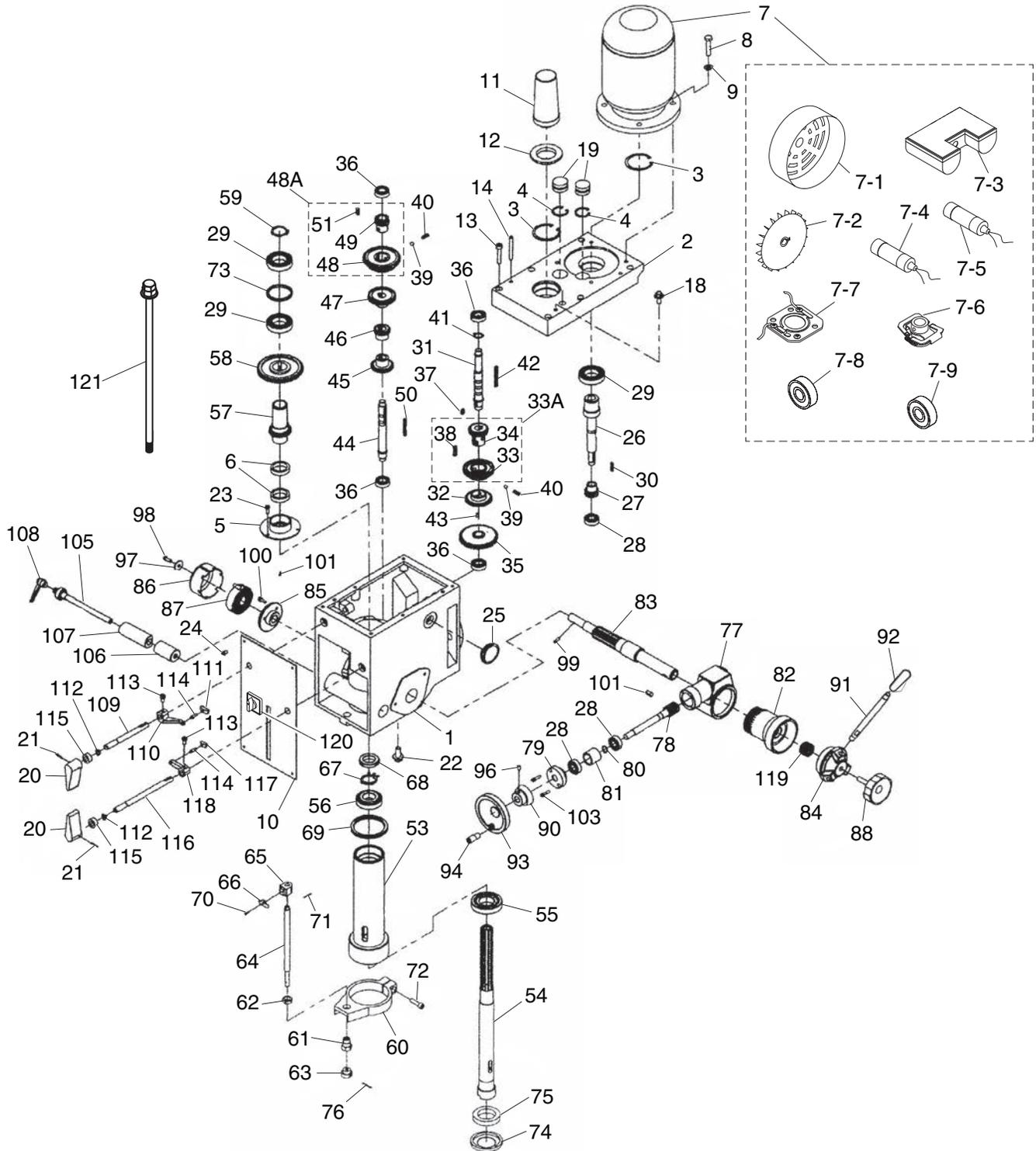


# Electrical Wiring



# SECTION 9: PARTS

## Head



**Please Note:** We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call (800) 523-4777 or visit our online parts store at [www.grizzly.com](http://www.grizzly.com) to check for availability.



# Head Parts List

REF	PART #	DESCRIPTION
1	P0754001	HEADSTOCK HOUSING
2	P0754002	HEADSTOCK TOP COVER
3	PR38M	INT RETAINING RING 62MM
4	PR21M	INT RETAINING RING 35MM
5	P0754005	FLANGED END CAP
6	P0754006	QUILL SEAL
7	P0754007	MOTOR 2HP 220V 1-PH
7-1	P0754007-1	MOTOR FAN COVER
7-2	P0754007-2	MOTOR FAN
7-3	P0754007-3	MOTOR JUNCTION BOX
7-4	PC150E	S CAPACITOR 150M 250V 1-5/8 X 3
7-5	PC20D	R CAPACITOR 20M 450V 1-1/2 X 3-1/4
7-6	P0754007-6	CENTRIFUGAL SWITCH 25-1725
7-7	P0754007-7	CONTACT PLATE
7-8	P6205ZZ	BALL BEARING 6205ZZ
7-9	P6205ZZ	BALL BEARING 6205ZZ
8	PB07M	HEX BOLT M8-1.25 X 25
9	PW01M	FLAT WASHER 8MM
10	P0754010	HEADSTOCK FRONT COVER
11	P0754011	DRAWBAR CAP
12	P0754012	DRAWBAR CAP RUBBER SEAL
13	PCAP05M	CAP SCREW M8-1.25 X 50
14	P0754014	TAPER PIN 8 X 50
18	P0754018	OIL FILL PLUG 1/2" NPT
19	P0754019	CASTING PLUG
20	P0754020	SHIFT LEVER
21	PRP16M	ROLL PIN 3 X 25
22	P0754022	OIL DRAIN PLUG 1/2" NPT
23	PS07M	PHLP HD SCR M4-.7 X 8
24	PCAP18M	CAP SCREW M4-.7 X 8
25	P0754025	OIL SIGHT GLASS 3/4" NPT
26	P0754026	DRIVE SHAFT
27	P0754027	GEAR 14T
28	P6003ZZ	BALL BEARING 6003ZZ
29	P6007ZZ	BALL BEARING 6007ZZ
30	PK143M	KEY 6 X 6 X 25
31	P0754031	IDLER SHAFT
32	P0754032	GEAR 29T
33A	P0754033A	MATCHED GEAR SET 35T/21T (3 PCS)
33	P0754033	GEAR 35T
34	P0754034	GEAR 21T
35	P0754035	GEAR 41T
36	P6202ZZ	BALL BEARING 6202ZZ
37	PK101M	KEY 6 X 6 X 14
38	PK32M	KEY 6 X 6 X 28
39	PSTB002M	STEEL BALL 8MM
40	P0754040	COMPRESSION SPRING
41	PR07M	EXT RETAINING RING 18MM
42	PK128M	KEY 5 X 5 X 60
43	PSS116M	SET SCREW M6-.75 X 8
44	P0754044	SPINDLE SHAFT
45	P0754045	GEAR 25T
46	P0754046	GEAR 18T
47	P0754047	GEAR 32T

REF	PART #	DESCRIPTION
48A	P0754048A	MATCHED GEAR SET 43/16T (3 PCS)
48	P0754048	GEAR 43T
49	P0754049	GEAR 16T
50	PK182M	KEY 6 X 6 X 75
51	PK36M	KEY 5 X 5 X 50
53	P0754053	QUILL
54	P0754054	SPINDLE
55	P30207-P5	TAPERED ROLLER BEARING 30207 P5
56	P30206-P5	TAPERED ROLLER BEARING 30206 P5
57	P0754057	SPLINED SLEEVE
58	P0754058	GEAR 53T
59	PR12M	EXT RETAINING RING 35MM
60	P0754060	DEPTH ROD MOUNT
61	P0754061	INT THREADED SHOULDER BOLT M16-2 X 10
62	PN48M	HEX NUT M16-2 THIN
63	P0754063	DEPTH ROD KNURLED KNOB M16-2
64	P0754064	STUD-FT M12-1.75 X 230
65	P0754065	DEPTH ROD DOG
66	P0754066	DEPTH POINTER
67	P0754067	SPANNER NUT LOCK WASHER
68	P0754068	SPANNER NUT
69	P0754069	QUILL RUBBER SEAL
70	PCAP110M	CAP SCREW M4-.7 X 6
71	PRP64M	ROLL PIN 3 X 18
72	PCAP31M	CAP SCREW M8-1.25 X 25
73	P0754073	SPACER
74	P0754074	SPINDLE END CAP
75	P0754075	SPINDLE SEAL
76	PRP64M	ROLL PIN 3 X 18
77	P0754077	WORM GEAR HOUSING
78	P0754078	WORM SHAFT
79	P0754079	WORM SHAFT END BRACKET
80	PR02M	EXT RETAINING RING 14MM
81	P0754081	SPACER
82	P0754082	WORM GEAR
83	P0754083	PINION SHAFT
84	P0754084	LEVER HUB
85	P0754085	SPRING BASE
86	P0754086	SPRING COVER
87	P0754087	COILED SPRING
88	P0754088	KNOB BOLT M10-1.5 X 45
90	P0754090	FINE DOWNFEED GRADUATED DIAL
91	P0754091	SHOULDER STUD-UDE M12-1.75 X 145 15,20
92	P0754092	TAPERED HANDLE M12-1.75
93	P0754093	FINE DOWNFEED HANDWHEEL
94	P0754094	HANDWHEEL HANDLE
96	P0754096	KNURLED THUMB SCREW M5-.8 X 12
97	PW03M	FLAT WASHER 6MM
98	P0754098	KNURLED THUMB SCREW M6-1 X 12
99	PS05M	PHLP HD SCR M5-.8 X 8
100	PFH86M	FLAT HD CAP SCR M6-1 X 12
101	PCOTS004M	STANDARD COTTER PIN 8 X 20
103	PCAP50M	CAP SCREW M5-.8 X 10
105	P0754105	LOCK LEVER SHAFT



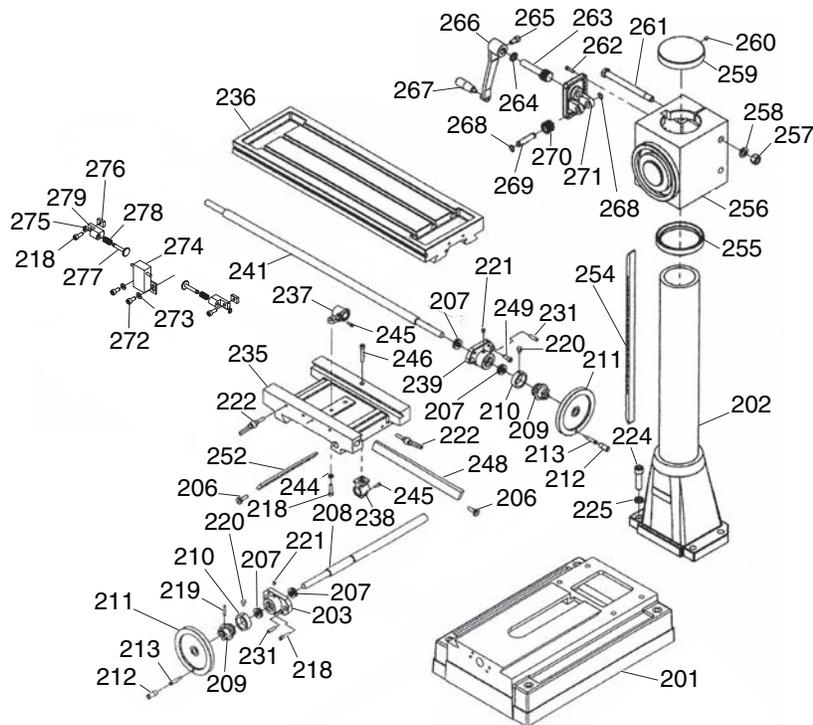
# Head Parts List

REF	PART #	DESCRIPTION
106	P0754106	INSIDE LOCK PLUNGER
107	P0754107	OUTSIDE LOCK PLUNGER
108	P0754108	ADJUSTABLE HANDLE
109	P0754109	SPEED RANGE SHIFT SHAFT
110	P0754110	SPEED RANGE SHIFT ROCKER ARM
111	P0754111	SPEED RANGE SHIFT FORK
112	P0754112	EXT RETAINING RING 12MM
113	P0754113	CAP SCREW M6-1 X 14

REF	PART #	DESCRIPTION
114	P0754114	SHIFT ROD
115	P0754115	SHAFT SEAL
116	P0754116	SPEED SHIFT SHAFT
117	P0754117	SPEED SHIFT FORK
118	P0754118	SPEED SHIFT ROCKER ARM
119	P0754119	COMPRESSION SPRING
120	P0754120	ROTARY SWITCH CANSEN LW26-20
121	P0754121	DRAWBAR ASSEMBLY 7/16-20 X 17-3/4



# Table & Column

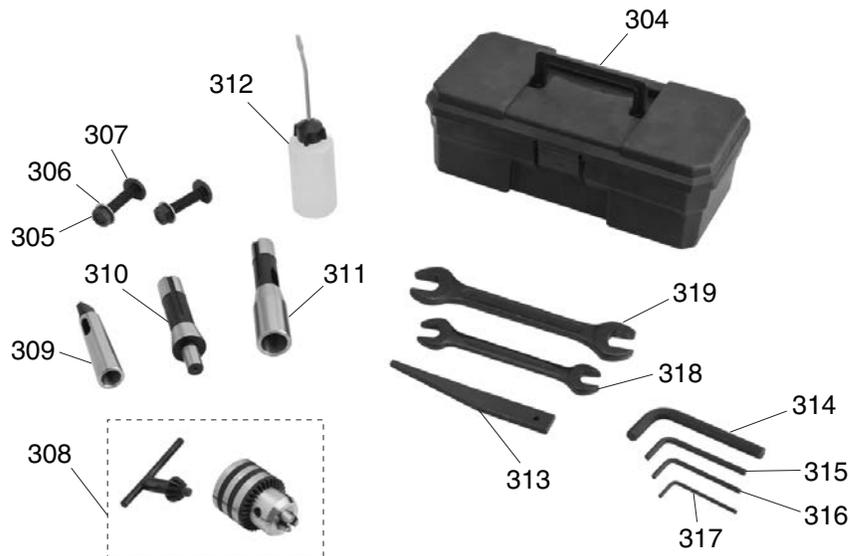
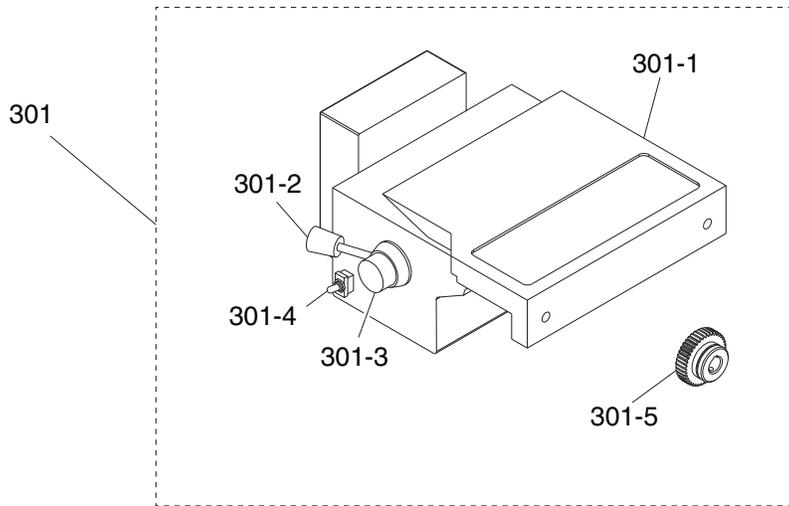


PART #	DESCRIPTION
P0754201	BASE
P0754202	COLUMN
P0754203	CROSS LEADSCREW BRACKET
P0754206	GIB ADJUSTMENT SCREW
P0754207	THRUST BEARING 51103
P0754208	Y-AXIS LEADSCREW
P0754209	DIAL CLUTCH
P0754210	TABLE GRADUATED DIAL
P0754211	TABLE HANDWHEEL
P0754212	HANDWHEEL HANDLE
P0754213	HANDLE SHOULDER SCREW M8-1.25 X 12 72L
P0754218	CAP SCREW M8-1.25 X 20
P0754219	DOWEL PIN 5 X 45
P0754220	KNURLED THUMB SCREW M5-.8 X 12
P0754221	TAP-IN BALL OILER 8MM
P0754222	LOCK LEVER
P0754224	CAP SCREW M16-2 X 60
P0754225	LOCK WASHER 16MM
P0754231	INT THREADED STUD-FT M8-1.25 X 20
P0754235	SADDLE
P0754236	TABLE
P0754237	X-AXIS LEADSCREW NUT
P0754238	CROSS LEADSCREW NUT
P0754239	RIGHT X-AXIS LEADSCREW BRACKET
P0754241	X-AXIS LEADSCREW
P0754244	FLAT WASHER 8MM
P0754245	CAP SCREW M5-.8 X 20
P0754246	CAP SCREW M8-1.25 X 45
P0754248	TABLE GIB

REF	PART #	DESCRIPTION
249	P0754249	CAP SCREW M8-1.25 X 30
252	P0754252	SADDLE GIB
254	P0754254	COLUMN RACK
255	P0754255	COLUMN RACK LOCK RING
256	P0754256	Z-AXIS GEAR HOUSING
257	P0754257	HEX NUT M16-2
258	P0754258	FLAT WASHER 16MM
259	P0754259	COLUMN LID
260	P0754260	SET SCREW M8-1.25 X 12
261	P0754261	HEX BOLT M16-2 X 190
262	P0754262	CAP SCREW M6-1 X 25
263	P0754263	WORM SHAFT
264	P0754264	THRUST WASHER
265	P0754265	CAP SCREW M10-1.5 X 20
266	P0754266	Z-AXIS CRANK
267	P0754267	CRANK HANDLE
268	P0754268	EXT RETAINING RING 14MM
269	P0754269	SHAFT
270	P0754270	HELICAL GEAR
271	P0754271	WORM SHAFT BRACKET
272	P0754272	CAP SCREW M8-1.25 X 6
273	P0754273	FLAT WASHER 8MM
274	P0754274	POWER FEED LIMIT SWITCH
275	P0754275	EXT RETAINING RING 8MM
276	P0754276	T-SLOT NUT M8-1.25
277	P0754277	POWER FEED LIMIT STOP
278	P0754278	COMPRESSION SPRING
279	P0754279	LIMIT STOP HOUSING



# Power Feed & Accessories

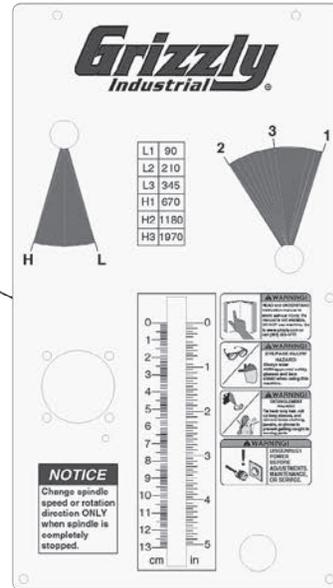
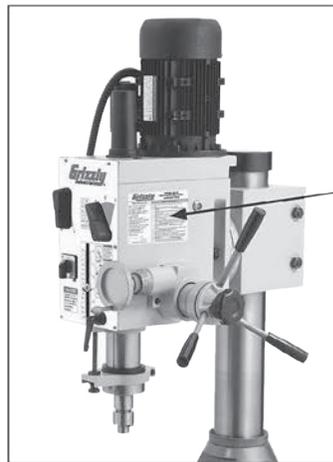
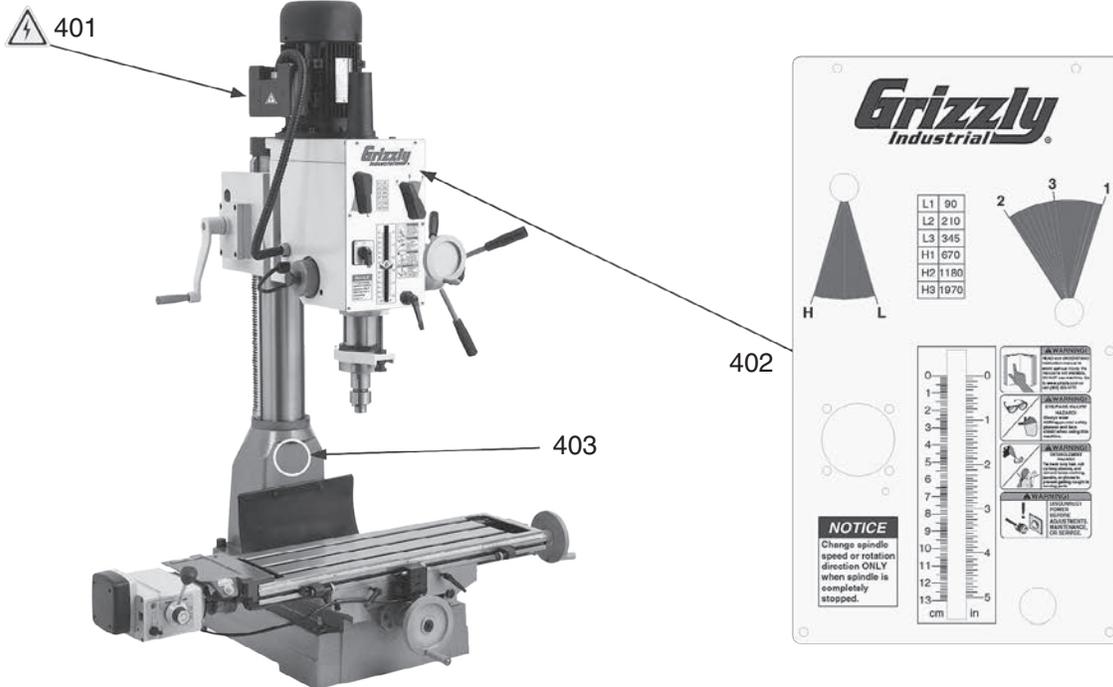


REF	PART #	DESCRIPTION
301	P0754301	POWER FEED ASSY ALIGN AS-235
301-1	P0754301-1	MOUNTING BRACKET 2-PC
301-2	P0754301-2	CONTROL HANDLE
301-3	P0754301-3	SPEED CONTROL KNOB
301-4	P0754301-4	ON/OFF SWITCH
301-5	P0754301-5	ZYTEL GEAR ASSEMBLY
304	P0754304	TOOLBOX
305	P0754305	HEX NUT M12-1.75
306	P0754306	FLAT WASHER 12MM
307	P0754307	T-BOLT M12-1.75 X 55
308	P0754308	DRILL CHUCK B16 W/CHUCK KEY

REF	PART #	DESCRIPTION
309	P0754309	SPINDLE SLEEVE MT#3-MT#2
310	P0754310	DRILL CHUCK ARBOR R8-B16
311	P0754311	SPINDLE SLEEVE R8-MT#3
312	P0754312	BOTTLE FOR OIL
313	P0754313	DRIFT KEY
314	P0754314	HEX WRENCH 10MM
315	P0754315	HEX WRENCH 5MM
316	P0754316	HEX WRENCH 4MM
317	P0754317	HEX WRENCH 3MM
318	P0754318	WRENCH 17 X 19 OPEN-ENDS
319	P0754319	WRENCH 22 X 24 OPEN-ENDS



# Labels & Cosmetics



REF	PART #	DESCRIPTION
401	P0754401	ELECTRICITY LABEL
402	P0754402	CONTROL PANEL LABEL

REF	PART #	DESCRIPTION
403	P0754403	GRIZZLY GREEN TOUCH-UP PAINT
404	P0754404	MACHINE ID LABEL

## WARNING

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





# 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?
 

<input type="checkbox"/> Advertisement	<input type="checkbox"/> Friend	<input type="checkbox"/> Catalog
<input type="checkbox"/> Card Deck	<input type="checkbox"/> Website	<input type="checkbox"/> Other:
  
2. Which of the following magazines do you subscribe to?
 

<input type="checkbox"/> Cabinetmaker & FDM	<input type="checkbox"/> Popular Science	<input type="checkbox"/> Wooden Boat
<input type="checkbox"/> Family Handyman	<input type="checkbox"/> Popular Woodworking	<input type="checkbox"/> Woodshop News
<input type="checkbox"/> Hand Loader	<input type="checkbox"/> Precision Shooter	<input type="checkbox"/> Woodsmith
<input type="checkbox"/> Handy	<input type="checkbox"/> Projects in Metal	<input type="checkbox"/> Woodwork
<input type="checkbox"/> Home Shop Machinist	<input type="checkbox"/> RC Modeler	<input type="checkbox"/> Woodworker West
<input type="checkbox"/> Journal of Light Cont.	<input type="checkbox"/> Rifle	<input type="checkbox"/> Woodworker's Journal
<input type="checkbox"/> Live Steam	<input type="checkbox"/> Shop Notes	<input type="checkbox"/> Other:
<input type="checkbox"/> Model Airplane News	<input type="checkbox"/> Shotgun News	
<input type="checkbox"/> Old House Journal	<input type="checkbox"/> Today's Homeowner	
<input type="checkbox"/> Popular Mechanics	<input type="checkbox"/> Wood	
  
3. What is your annual household income?
 

<input type="checkbox"/> \$20,000-\$29,000	<input type="checkbox"/> \$30,000-\$39,000	<input type="checkbox"/> \$40,000-\$49,000
<input type="checkbox"/> \$50,000-\$59,000	<input type="checkbox"/> \$60,000-\$69,000	<input type="checkbox"/> \$70,000+
  
4. What is your age group?
 

<input type="checkbox"/> 20-29	<input type="checkbox"/> 30-39	<input type="checkbox"/> 40-49
<input type="checkbox"/> 50-59	<input type="checkbox"/> 60-69	<input type="checkbox"/> 70+
  
5. How long have you been a woodworker/metalworker?
 

<input type="checkbox"/> 0-2 Years	<input type="checkbox"/> 2-8 Years	<input type="checkbox"/> 8-20 Years	<input type="checkbox"/> 20+ Years
------------------------------------	------------------------------------	-------------------------------------	------------------------------------
  
6. How many of your machines or tools are Grizzly?
 

<input type="checkbox"/> 0-2	<input type="checkbox"/> 3-5	<input type="checkbox"/> 6-9	<input type="checkbox"/> 10+
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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 & RETURNS

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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.

# *grizzly.com*<sup>®</sup>

**TOOL WEBSITE**

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