MODEL G0808
VARIABLE-SPEED GEARHEAD
DRILL PRESS w/CROSS-SLIDE TABLE
OWNER'S MANUAL

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#WK17932 PRINTED IN TAIWAN V1.03.16

⚠ 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

Contact Info

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

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

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

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

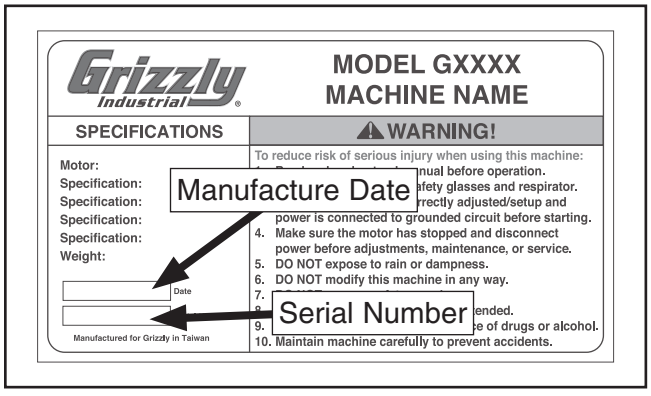
Manual Accuracy

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

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

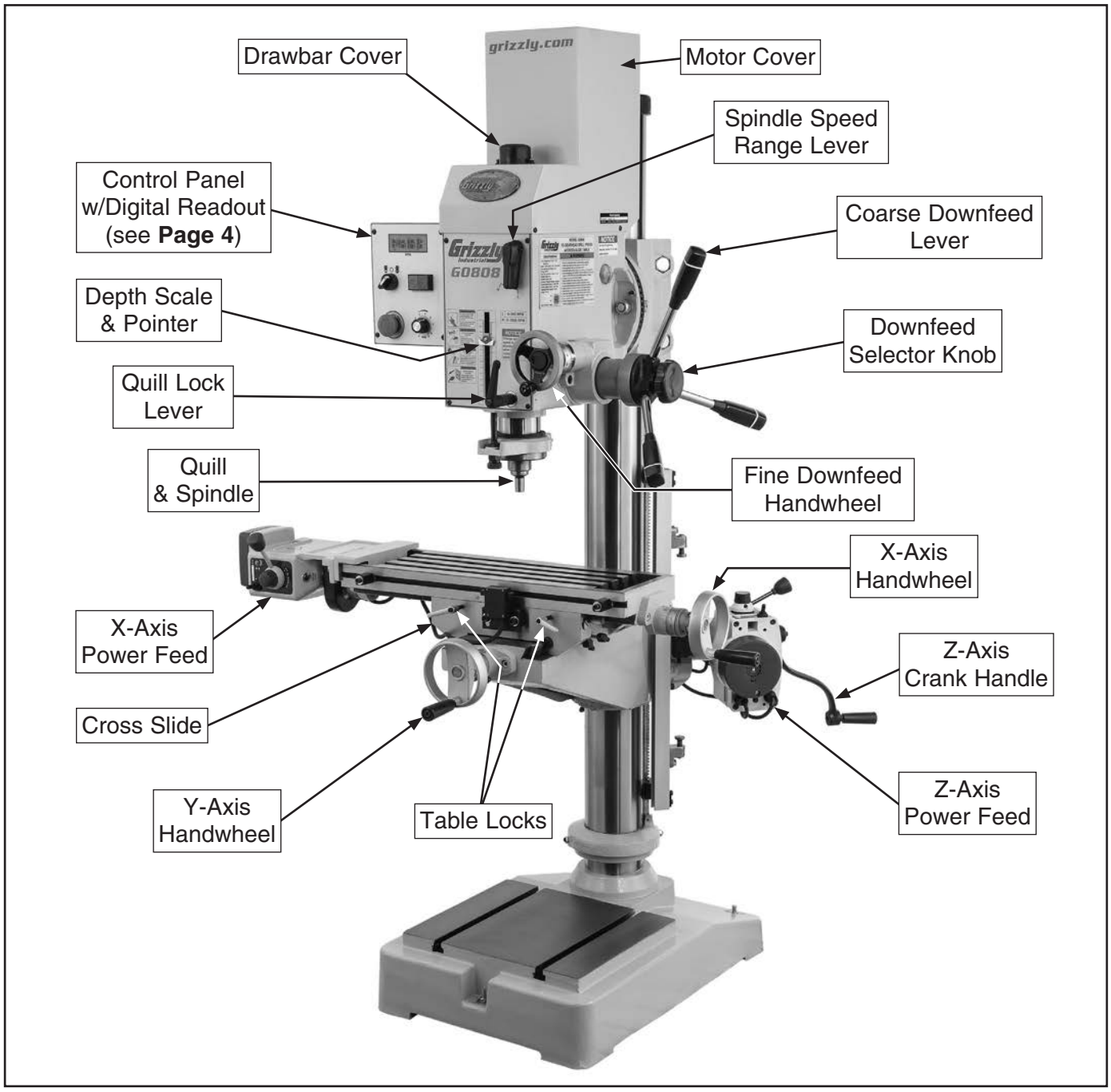
If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

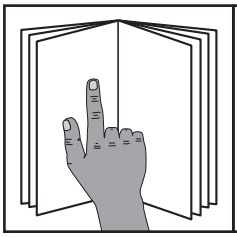
Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **Manufacture Date** and **Serial Number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation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



Identification

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

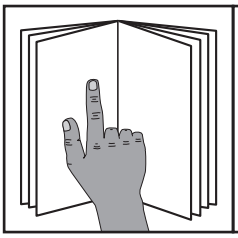




⚠WARNING

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

Controls & Components



⚠WARNING

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

Refer to **Figures 1–7** and the following descriptions to become familiar with the basic controls and components of this machine. Understanding these items and how they work will help you understand the rest of the manual and stay safe when operating this machine.

Control Panel

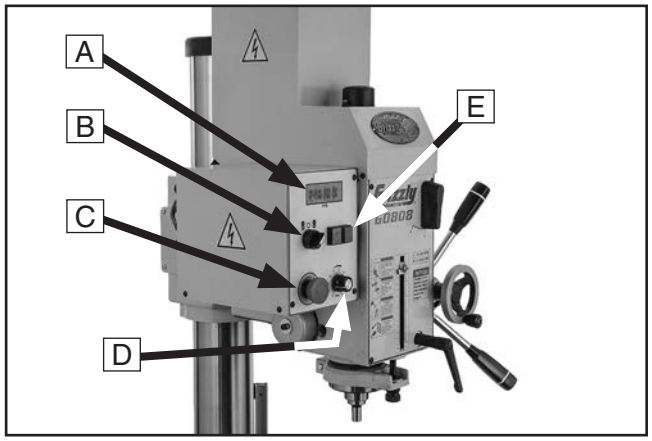


Figure 1. Control panel controls.

A. Digital Readout: Displays spindle RPM.

B. Spindle Direction Switch: Selects direction of spindle rotation.

C. Emergency Stop/Reset Button: Stops all machine functions. Twist clockwise to reset.

D. Spindle Speed Dial: Selects spindle speed from 0–2500 RPM.

E. ON/OFF Buttons: Starts and stops spindle rotation.

Headstock

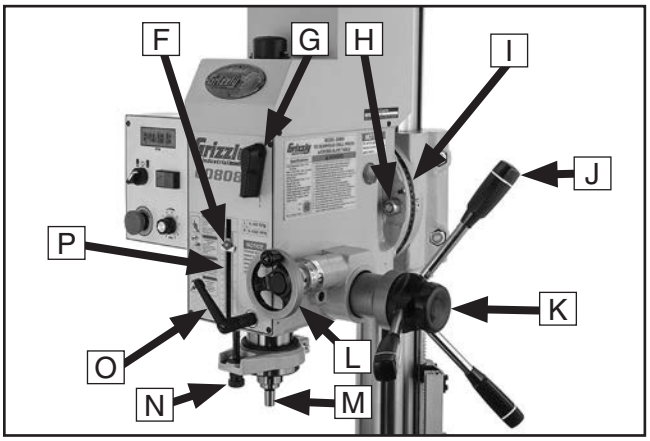


Figure 2. Headstock controls.

F. Depth Stop: Stops downward spindle travel at pre-determined depth.

G. Spindle Speed Range Lever: Selects between low and high spindle speed ranges.

H. Headstock Tilt Locking Nuts: Secure headstock tilt setting.

I. Headstock Tilt Scale: Indicates angle of headstock tilt from 30° left to 90° right.

J. Coarse Downfeed Levers: Provide coarse control over vertical spindle travel.

K. Downfeed Selector Knob: Engages/disengages fine downfeed handwheel.

L. Fine Downfeed Handwheel: Provides fine control over vertical spindle travel.

M. Spindle and Quill: Holds tooling for drilling operations.

N. Depth Stop Adjustment Knob: Determines depth of cut.

O. Quill Lock: Locks quill in position.

P. Depth Scale: Indicates depth of cut.

X/Y Cross Table

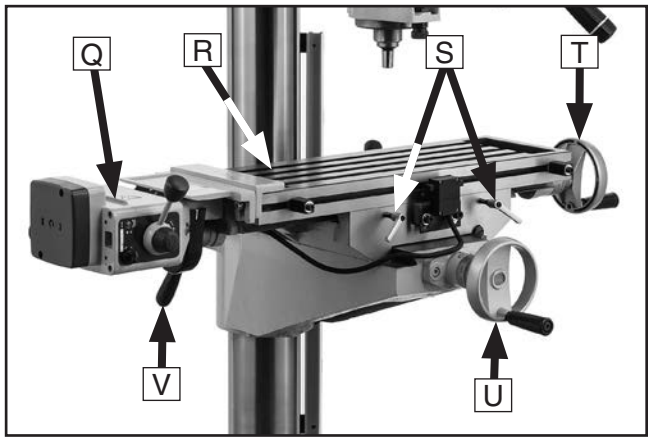


Figure 3. Table controls and components.

Q. X-Axis Power Feed: Moves table along X-axis (left and right) when turned ***ON*** (see **Page 6** for more information).

R. Table: Equipped with four ½" T-slots for mounting workpiece. Adjusts in X-(left to right), Y-(front to back), and Z-(up and down) axes.

S. X-Axis Table Locks: Tighten to prevent X-axis table movement for increased rigidity during operations where the X-axis should not move.

T. X-Axis Handwheel: Manually moves table along X-axis (left and right).

U. Y-Axis Handwheel: Manually moves table along Y-axis (front and back).

V. Z-Axis Table Lock: Tighten to secure table height setting.

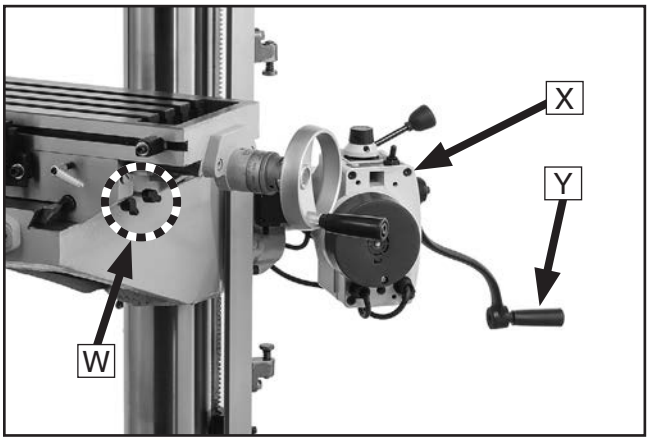


Figure 4. Z-axis table controls and components.

W. Y-Axis Table Locks: Tighten to prevent Y-axis table movement.

X. Z-Axis Power Feed: Moves table along Z-axis (up and down) when turned ***ON*** (see **Page 6** for more information).

Y. Z-Axis Crank Handle: Manually moves table along Z-axis (up and down).

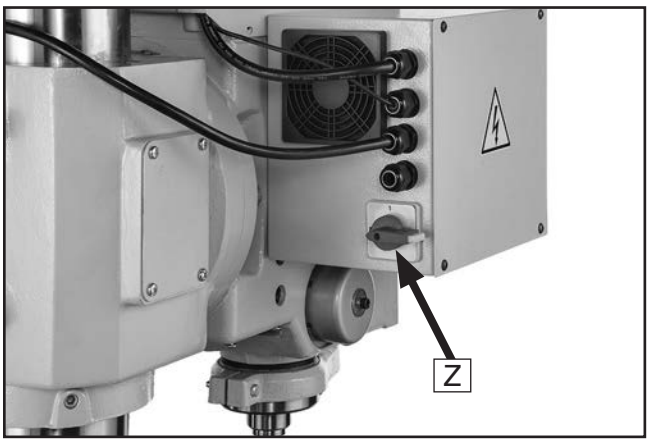


Figure 5. Master Power Switch in OFF position.

Z. Master Power Switch: Toggles incoming power ***ON*** or ***OFF***. Vertical position toggles incoming power ***ON***. Horizontal position, (see **Figure 5**) toggles incoming power ***OFF***.

Note: *Can be locked in OFF position with a padlock to prevent unauthorized usage.*

Power Feed Identification

Model G0808 is equipped with power feed units for X- and Z-axis table movement. Refer to **Figures 6** and **7** and the following descriptions to understand the functions of the various components of the power feed system.

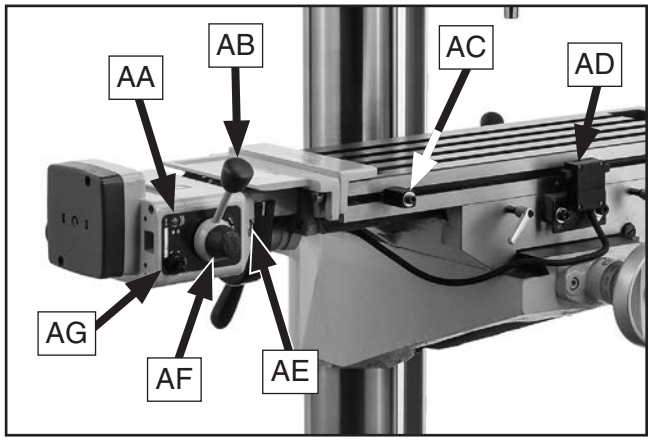


Figure 6. X-axis power feed controls.

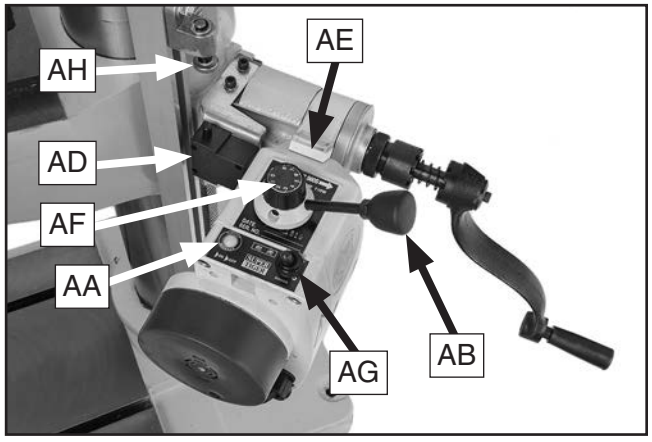


Figure 7. Z-axis power feed controls.

AA. Reset Button: Resets internal circuit breaker if unit is overloaded and shuts down.

AB. Directional Lever: Selects direction of table movement. Center position is neutral.

AC. X-Axis Limit Stop (1 of 2 Shown): Limits X-axis table travel.

AD. Limit Switch: Stops powered table movement when switch comes in contact with either limit stop.

AE. Rapid Traverse Button: When pressed, moves table at full speed when already in motion.

AF. Speed Dial: Controls speed of table movement. Turning dial clockwise causes table to move faster.

Note: *Feed rates for table travel are extremely difficult to precisely calculate. We recommend that you combine research and experimentation to find feed rates that best work for your operations.*

AG. ON/OFF Switch: Enables/disables power to unit.

AH. Z-Axis Limit Stop (1 of 2 Shown): Limits Z-axis table travel.

MACHINE DATA SHEET

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

MODEL G0808 VARIABLE-SPEED GEARHEAD DRILL PRESS WITH CROSS-SLIDE TABLE

Product Dimensions:

Weight	705 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	42 x 46-1/2 x 77-1/2 in.
Footprint (Length x Width)	26 x 18-1/2 in.
Space Required for Full Range of Movement (Width x Depth)	56-1/2 x 46-1/2 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	739 lbs.
Length x Width x Height	36 x 34 x 78 in.
Must Ship Upright	Yes

Electrical:

Power Requirement	220V, Single-Phase, 60 Hz
Full-Load Current Rating	5.5A
Minimum Circuit Size	15A
Power Cord Included	Yes
Power Cord Length	6 ft.
Power Cord Gauge	14 AWG
Plug Included	Yes
Included Plug Type	6-15
Switch Type	Magnetic Switch
Inverter Type	KB-26D

Motors:

Main

Type	TEFC Induction
Horsepower	1.5 HP
Phase	3-Phase
Amps	5.5A
Speed	1720 RPM
Power Transfer	Gear Drive
Bearings	Shielded & Permanently Lubricated

Main Specifications:

Operation Information

Swing	20-3/4 in.
Spindle Taper	R-8
Spindle Travel	4-7/8 in.
Max. Distance From Spindle to Column	10-7/16 in
Max. Distance From Spindle to Table	17-1/2 in.
Number of Spindle Speeds	Variable
Range of Spindle Speeds	0 – 2500 RPM
Max. Head Tilt (Left/Right)	30/90 deg.
Drilling Capacity (Mild Steel)	1-9/16 in.
End Milling Capacity	3/4 in.
Face Milling Capacity	3-15/16 in.

Spindle Information

Distance From Spindle to Base	42 in.
Quill Diameter	2-15/16 in.

Table Information

Table Swivel Around Column	360 deg.
Longitudinal Travel	15 in.
Cross Travel	7 in.
Table Length	23 in.
Table Width	7-1/2 in.
Table Thickness	1-3/4 in.
Vertical Table Travel	17-3/4 in.
Number of T-Slots	4
T-Slot Size	1/2 in.
T-Slot Centers	1-1/2 in.
Floor-To-Table Height	22-1/2 in.

Construction

Table	Cast Iron
Column	Cast Iron
Spindle Housing	Cast Iron
Head	Cast Iron
Base	Cast Iron
Paint Type/Finish	Enamel

Other Related Information

Base Length	26 in.
Base Width	18-1/2 in.
Column Diameter	4-1/2 in.
Quill Flange/Collar Diameter	3-3/4 in.

Other Specifications:

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

Features:

Variable Frequency Drive for 3-Phase Speed Control with Single-Phase Power
Longitudinal Power Feed on Precision-Ground Cast-Iron Table with Independent Power Supply
Power Feed or Hand Crank-Enabled Rack and Pinion Table Elevation
Coarse and Fine Downfeed Controls
Cast-Iron Base with Two 1/2" T-Slots, 8-7/8" on Center
360 Deg. Table Positioning Around Column
360 Deg. Head Positioning Around Column
Digital Speed Display
Front-Mounted E-Stop Button
Forward/Reverse Spindle Switch
Headstock Features 2.64 qt. Capacity

Accessories Included:

Socket Wrench 13/23mm
Hex Wrenches 3, 4, 5mm

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 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.

Additional Safety for Drill Presses

⚠WARNING

Serious injury or death can occur from getting clothing, jewelry, or long hair entangled in rotating spindle or bit/cutting tool. Contact with rotating bit/cutting tool can result in severe cuts or amputation of fingers. Flying metal chips can cause blindness or eye injuries. Broken bits/cutting tools, unsecured workpieces, chuck keys, or other adjustment tools thrown from rotating spindle can strike nearby operator or bystanders with deadly force. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

WEARING PROPER PPE. Flying chips created by drilling can cause eye injuries or blindness. Always wear a face shield in addition to safety glasses. Always keep hands and fingers away from drill bit/cutting tool. Avoid awkward hand positions, where a sudden slip could cause hand to move into bit/cutting tool.

AVOIDING ENTANGLEMENT. DO NOT wear loose clothing, gloves, or jewelry, and tie back long hair. Keep all guards in place and secure. Always allow spindle to stop on its own. DO NOT stop spindle using your hand or any other object.

REMOVING ADJUSTMENT TOOLS. Chuck key, drawbar wrench, and other tools left on machine can become deadly projectiles when spindle is started. Remove all loose items or tools used on spindle immediately after use.

SECURING BIT/CUTTING TOOL. Firmly secure bit/cutting tool so it does not fly out of spindle during operation or startup.

SECURING TABLE AND HEADSTOCK. To avoid accidental contact with tool/bit, tighten all table and headstock locks before operating drill.

CORRECT SPINDLE SPEED. Using wrong spindle speed can cause bits/cutting tools to break and strike operator or bystanders. Follow recommended speeds and feeds for each size/type of bit/cutting tool and workpiece material.

WORKPIECE PREPARATION. To avoid loss of workpiece control, DO NOT drill material with an uneven surface on the table, unless a suitable support is used. To avoid impact injuries, make sure workpiece is free of nails or foreign objects in area to be drilled.

WORKPIECE CONTROL. An unsecured workpiece may unexpectedly shift, spin out of control, or be thrown if bit/cutting tool "grabs" during operation. Clamp workpiece to table or in table-mounted vise, or brace against column to prevent rotation. NEVER hold workpiece by hand during operation. NEVER start machine with bit/cutting tool touching workpiece; allow spindle to gain full speed before drilling.

INSPECTING BIT/CUTTING TOOL. Damaged bits/cutting tools may break apart during operation and hit operator or bystanders. Dull bits/cutting tools increase cutting resistance and are more likely to grab and spin/throw workpiece. Always inspect bits/cutting tools for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked bits/cutting tools immediately.

MAINTAINING MACHINE. Keep machine in proper working condition to help ensure that it functions safely and all guards and other components work as intended. Perform routine inspections and all necessary maintenance. Never operate machine with damaged or worn parts that can break or result in unexpected movement during operation.

CLEANING MACHINE SAFELY. To avoid contact with tool/bit, never clear chips while spindle is turning. To avoid cuts and eye injuries, DO NOT clear chips by hand or with compressed air—use a brush or vacuum instead.

DISCONNECT POWER FIRST. To reduce risk of electrocution or injury from unexpected startup, make sure drill is turned ***OFF***, disconnected from power, and all moving parts have come to a complete stop before changing bits/cutting tools or starting any inspection, adjustment, or maintenance procedure.

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.

⚠WARNING

Electrocution, fire, or equipment damage may occur if machine is not correctly grounded and connected to the power supply.

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 .... 5.5 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 specified circuit requirements.

Circuit Information

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.)

⚠CAUTION

For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or electrical codes in your area.

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

Circuit Requirements

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

Nominal Voltage 208V, 220V, 230V, 240V
Cycle ..... 60 Hz
Phase ..... Single-Phase
Power Supply Circuit ..... 15 Amps
Plug/Receptacle ..... NEMA 6-15

Grounding Requirements

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.

This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug. Only insert plug into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances. DO NOT modify the provided plug!

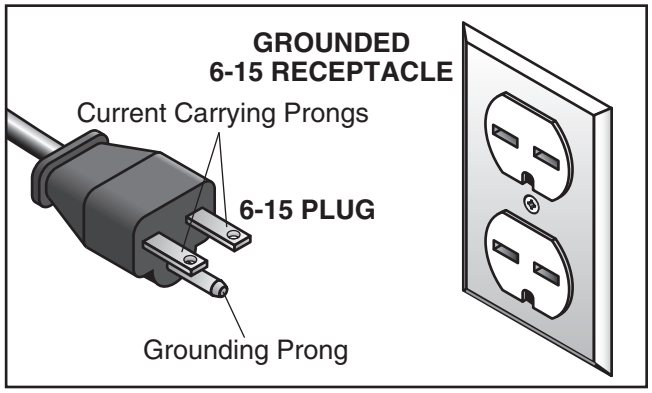
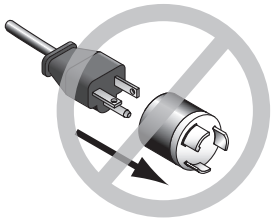


Figure 8. Typical 6-15 plug and receptacle.

⚠CAUTION



No adapter should be used with plug. If plug does not fit available receptacle, or if machine must be reconnected for use on a different type of circuit, reconnection must be performed by an electrician or qualified service personnel, and it must comply with all local codes and ordinances.

⚠WARNING

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

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

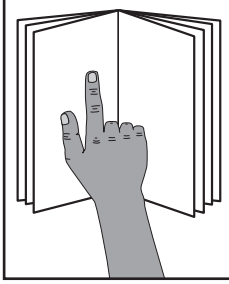
We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

Extension cords cause voltage drop, which can 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 be in good condition and contain a ground wire and matching plug/receptacle. Additionally, it must meet the following size requirements:

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

SECTION 3: SETUP

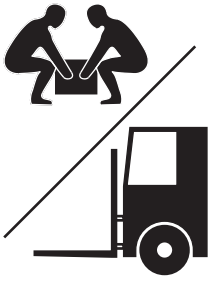


⚠WARNING

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

⚠WARNING

Wear safety glasses during the entire setup process!



⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

Needed for Setup

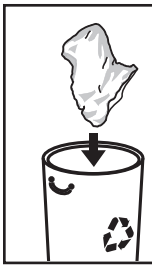
The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Safety Glasses (for each person)	1
• Cleaner/Degreaser (**Page 16**)	1
• Disposable Shop Rags	1
• Lifting Slings (Rated for at least 800 lbs.)	2
• Lifting Equipment (Rated for at least 800 lbs.)	1
• Additional People	1
• Hex Wrench 2.5mm	1
• Hex Wrench 3mm	1
• Hex Wrench 5mm	1
• Hex Wrench 6mm	1
• Open-End Wrench 12mm	1
• Open-End Wrench 14mm	1
• Brass Hammer	1

Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

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



⚠WARNING

SUFFOCATION HAZARD!

Keep children and pets away from plastic bags or packing materials shipped with this machine. Discard immediately.

Inventory

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

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

NOTICE

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

Box 1 (Figure 9)	Qty
A. Handwheel w/Folding Handle	1
B. Handwheels	2
C. Hex Wrenches 3, 4, 5mm	1 Ea.
D. Revolving Handle Assemblies:	
Handles	3
Handle Screws 3/8"-16 x 2 5/8"	3
E. Coarse Downfeed Lever Shafts	3
F. Coarse Downfeed Lever Handles	3
G. Wrench 13mm/23mm	1

Box 2 (Figures 10–11)	Qty
H. X-Axis Power Feed Bracket	1
I. X-Axis Power Feed Unit	1
J. X-Axis Power Feed Gear Guard	1
K. Direction Lever Handle	1
L. Limit Switch Mounting Block	1
M. Limit Switch Mounting Hardware:	
Cap Screws M8-1.25 x 12	2
Flat Washers 8mm	2
N. X-Axis Leadscrew Gear 56T	1
O. X-Axis Limit Stop Assemblies:	
Limit Stops	2
Cap Screws 1/4"-20 x 1 1/2"	2
Flat Washers 1/4"	2
Slide Nuts 1/4"-20	2
P. X-Axis Power Feed Hardware:	
Cap Screws M6-1 x 25	2
Flat Washers 6mm	2

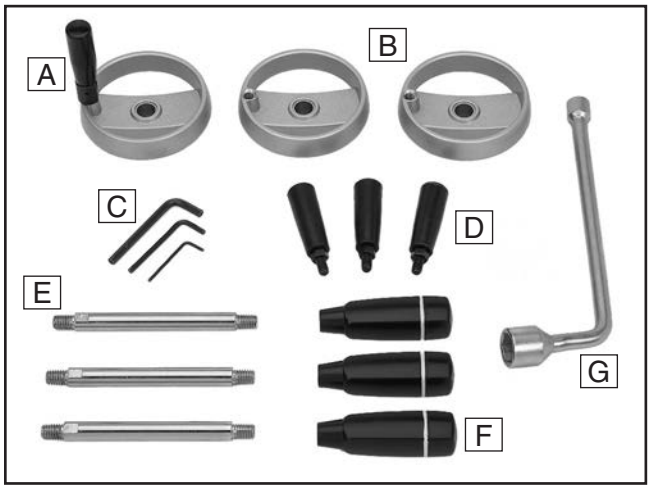


Figure 9. Box 1 contents.

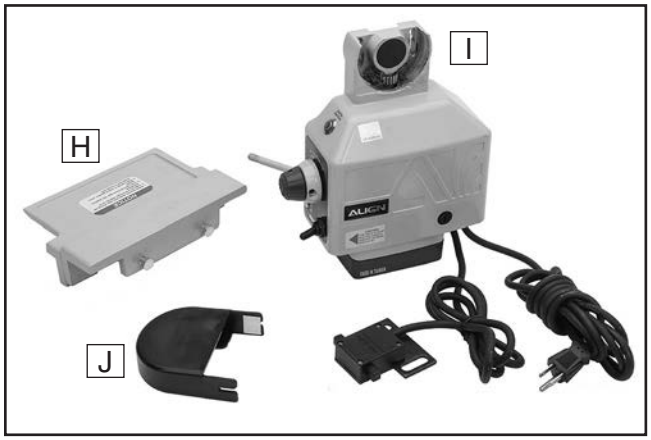


Figure 10. Box 2 large component contents.

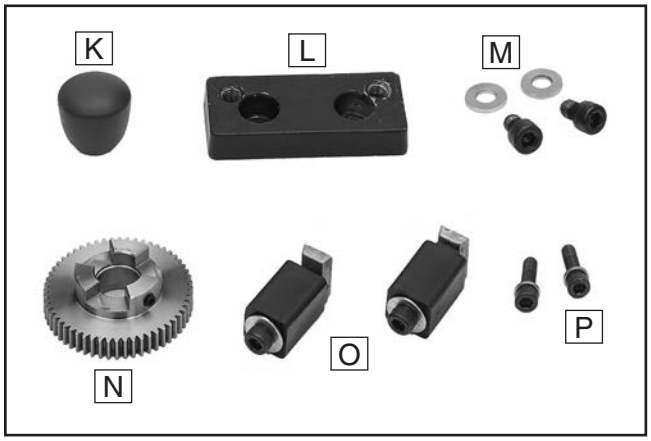


Figure 11. Box 2 small component contents.

Cleanup

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

⚠WARNING

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

⚠CAUTION

Many cleaning solvents are toxic if inhaled. Only work in a well-ventilated area.

NOTICE

Avoid chlorine-based solvents, such as acetone or brake parts cleaner, that may damage painted surfaces.

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from the ***non-painted*** parts of the machine during clean up.

Figure 12. T23692 Orange Power Degreaser.

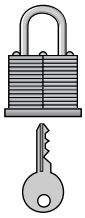
Site Considerations

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.**



⚠CAUTION

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

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.

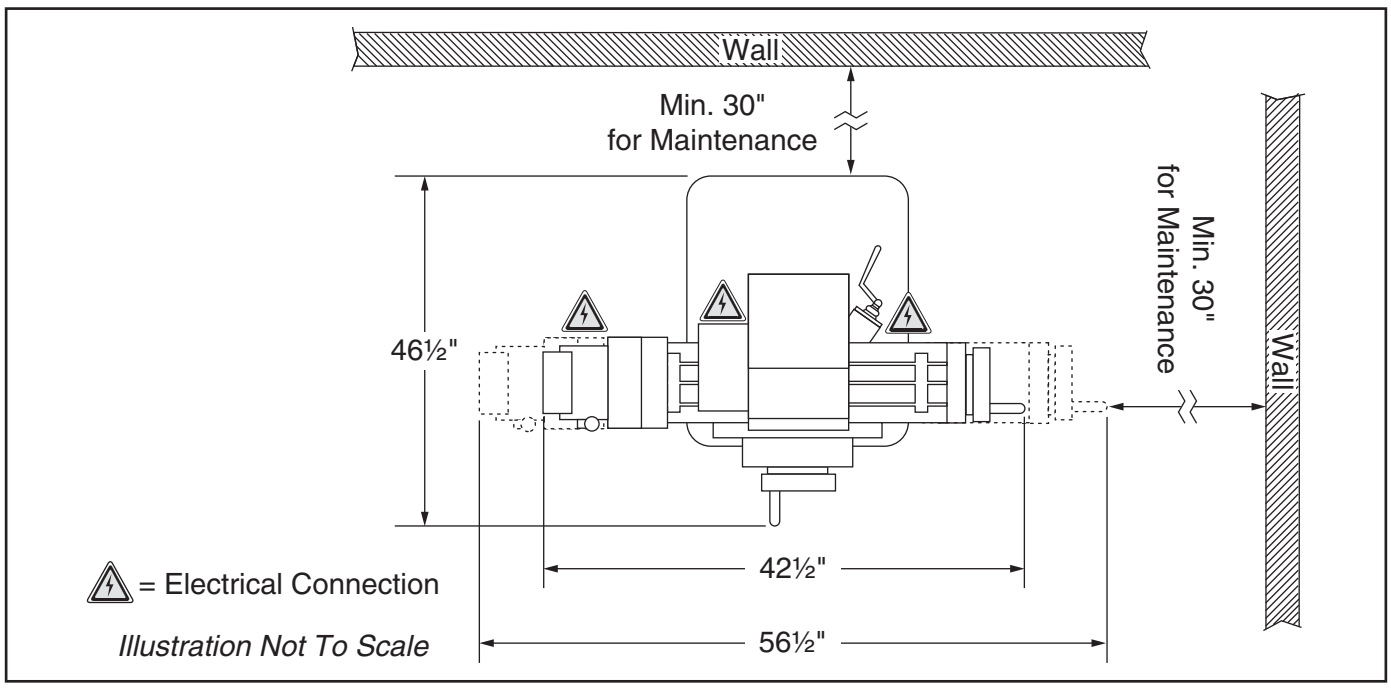
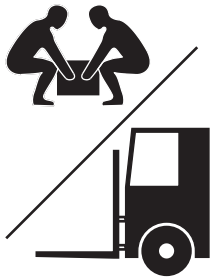


Figure 13. Minimum working clearances.

Lifting & Placing



⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

To lift and place machine:

1. Move shipping crate next to intended location of drill press, then remove top portion of crate from shipping pallet.

2. To help balance machine when moving, move table as close to base as possible and center table in X-axis.

3. Place lifting sling around headstock (see **Figure 14**), and attach it securely to forklift (or other power lifting equipment).

   Note: *To avoid sudden shifts that could unbalance machine, tighten all locks that restrict moving parts before lifting.*

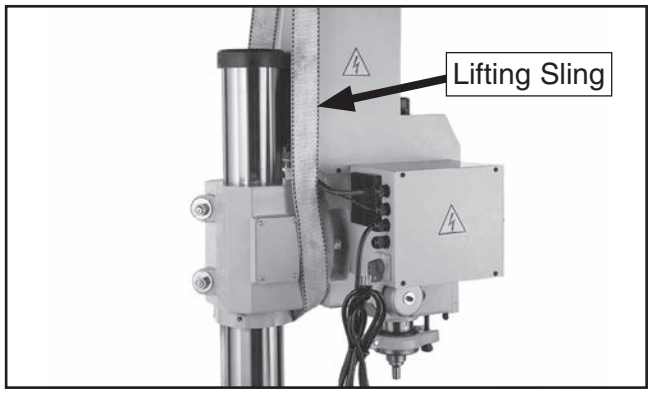


Figure 14. Lifting sling position.

4. Unbolt machine from pallet.

5. With another person to help to steady machine, lift it just enough to clear pallet and any floor obstacles, then place it in its final position on shop floor.

Anchoring to Floor

Number of Mounting Holes 3
Diameter of Mounting Hardware..... 5/8"

Anchoring machinery to the floor prevents tipping or shifting and reduces vibration that may occur during operation, resulting in a machine that runs slightly quieter and feels more solid.

If the machine will be installed in a commercial or workplace setting, or if it is permanently connected (hardwired) to the power supply, local codes may require that it be anchored to the floor.

If not required by any local codes, fastening the machine to the floor is an optional step. If you choose not to do this with your machine, we recommend placing it on machine mounts, as these provide an easy method for leveling and they have vibration-absorbing pads.

Anchoring to Concrete Floors

Lag shield anchors with lag screws (see below) are a popular way to anchor machinery to a concrete floor, because the anchors sit flush with the floor surface, making it easy to unbolt and move the machine later, if needed. However, anytime local codes apply, you MUST follow the anchoring methodology specified by the code.

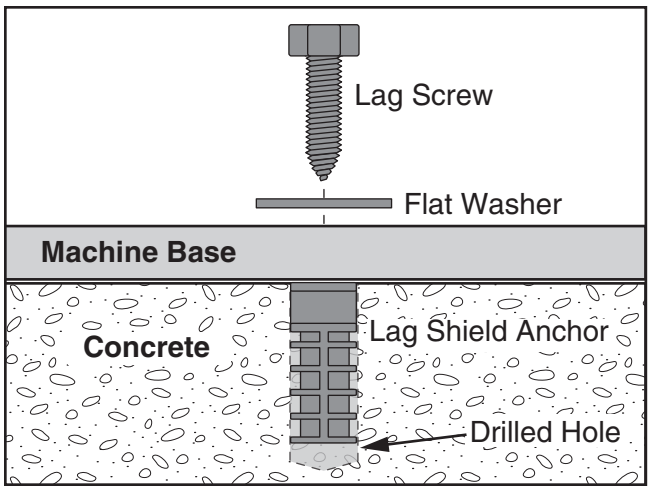


Figure 15. Popular method for anchoring machinery to a concrete floor.

Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To make sure the assembly process goes smoothly, clean all parts that have any heavy-duty rust preventative applied by the factory (if applicable).

The Model G0808 ships with an extra X-axis handwheel and handle in case you choose not to install the X-axis power feed. If you choose not to install the X-axis power feed, skip those assembly steps, and install the extra handwheel (with handle) in its place, in a similar manner as the Y-axis handwheel assembly steps on **Page 22**.

To assemble machine:

1. Remove cap screw and washer that secure Z-axis crank handle, then remove crank handle, turn it around, and re-install it with compression spring, as shown in **Figure 16**.

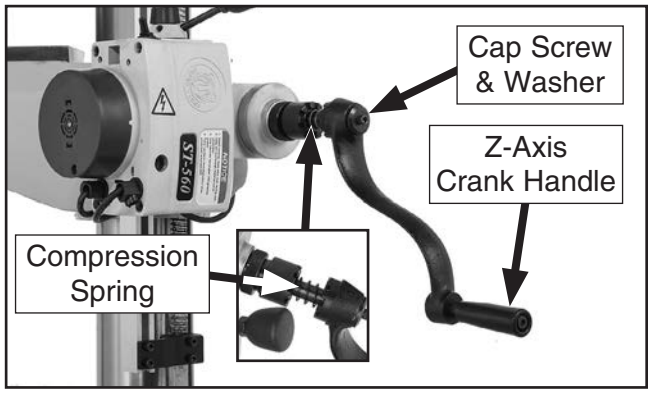


Figure 16. Z-axis crank handle installed correctly.

2. Loosen Z-axis table lock (see **Figure 17**).

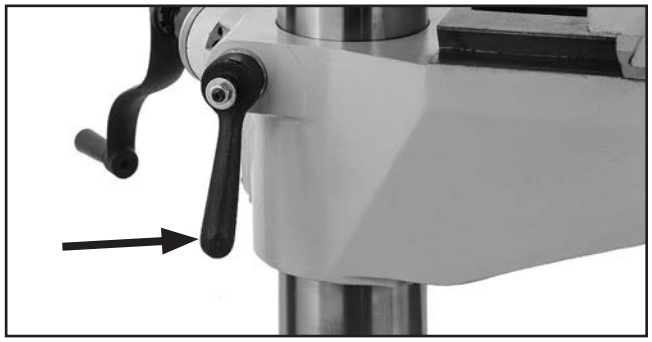


Figure 17. Location of Z-axis table lock.

3. Use Z-axis crank handle to just slightly lower table.

   Note: *Only exert mild pressure when lowering table during **Step 3**, otherwise you could damage knee by forcing it down against lower brace (see **Figure 18**).*

4. Remove upper wooden brace, raise table slightly, then remove lower wooden brace (see **Figure 18**).

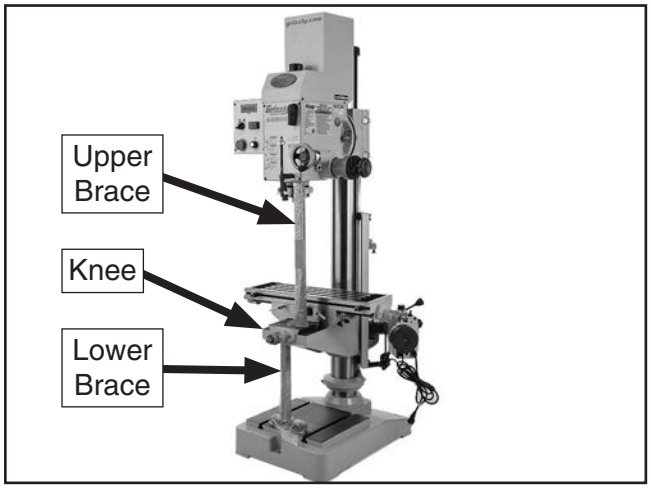


Figure 18. Wooden shipping braces to be removed during assembly.

5. Install coarse downfeed lever shafts and handles onto coarse downfeed hub (see **Figure 19**).

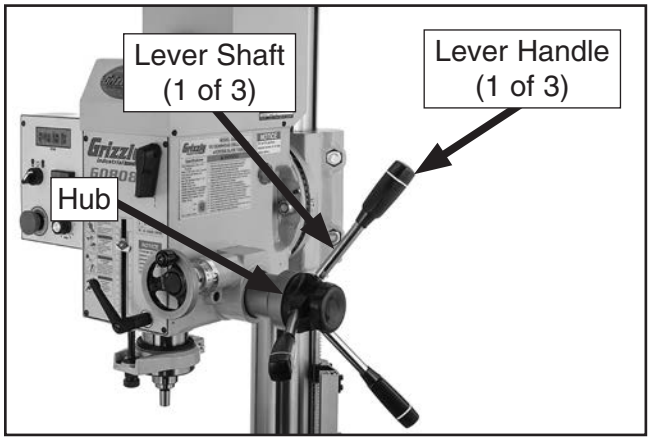


Figure 19. Coarse downfeed lever shafts and handles installed.

Note: *If you choose to install the X-axis power feed, continue to **Step 6**. If you choose to NOT install the X-axis power feed, skip ahead to **Step 16**.*

6. Slide X-axis leadscrew gear onto X-axis leadscrew and tighten set screw (see **Figure 19**).

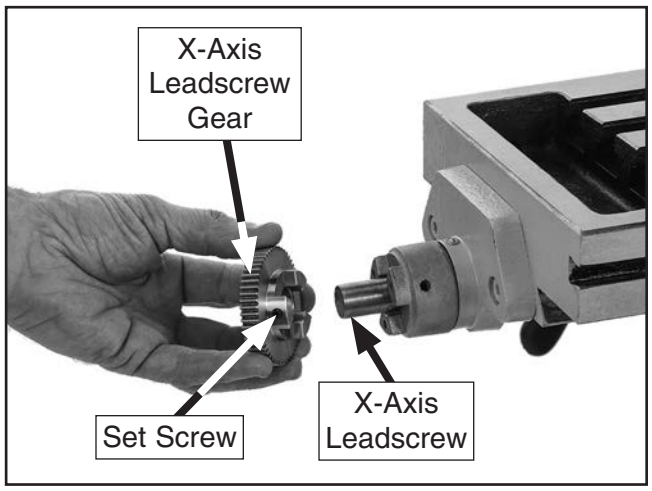


Figure 20. Installing X-axis table lock.

7. Install X-axis power feed bracket assembly onto left end of table, then tighten pre-installed mounting bolts (see **Figure 21**).

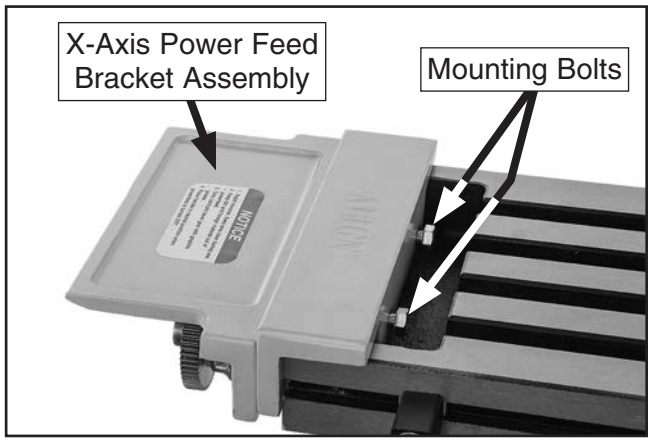


Figure 21. X-axis power feed bracket assembly mounted to table.

8. Loosen hex bolts shown in **Figure 22**, then remove left side of X-axis power feed bracket assembly.

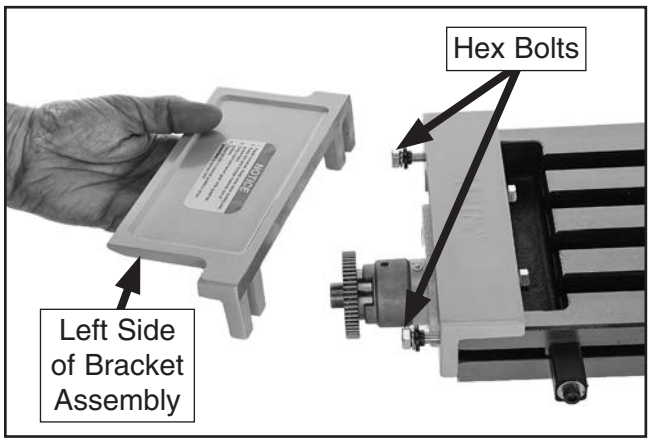


Figure 22. Left side of X-axis power feed bracket assembly removed.

9. Install left side of bracket assembly onto X-axis power feed unit with (2) M6-1 x 25 cap screws and (2) 6mm flat washers (see **Figure 23**). Do not fully tighten cap screws.

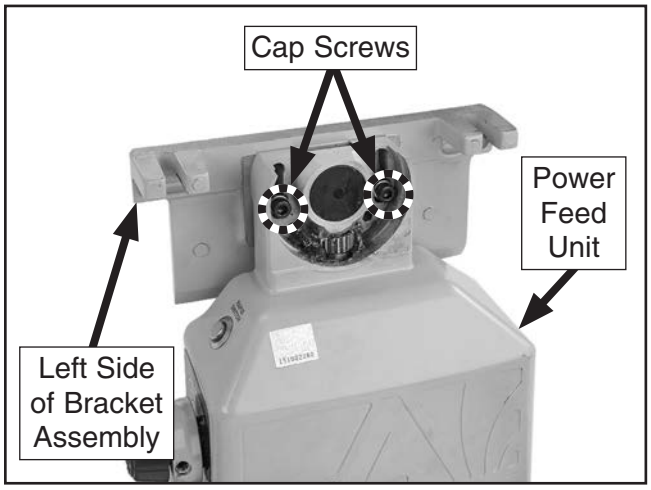


Figure 23. Left side of bracket assembly mounted to power feed unit.

10. Install power feed unit onto right side of bracket assembly and temporarily tighten hex bolts (see **Figure 24**).

11. Move power feed unit until power feed gear teeth align with X-axis leadscrew gear teeth, then tighten cap screws from **Step 8** (see **Figure 24**).

12. Loosen hex bolts from **Step 10**, adjust power feed unit until power feed gear meshes with X-axis leadscrew gear, then fully tighten hex bolts (see **Figure 24**).

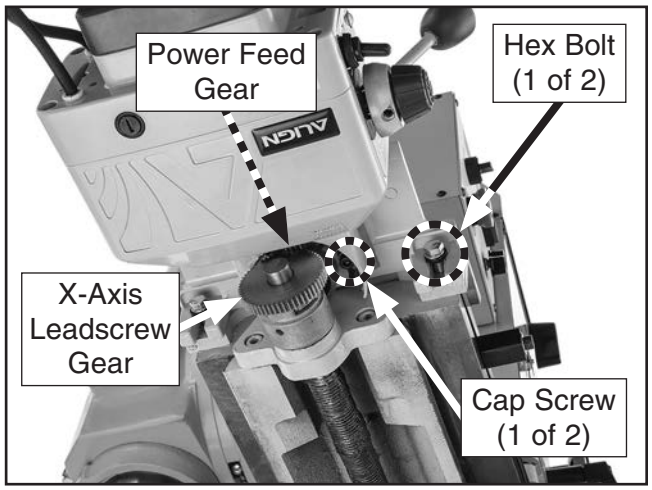


Figure 24. Left side of power feed bracket with attached power feed unit mounted to right side of bracket.

13. Install direction lever handle, as shown in **Figure 25**.

14. Remove adhesive backing from gear guard and install over X-axis table gear, as shown in **Figure 25**.

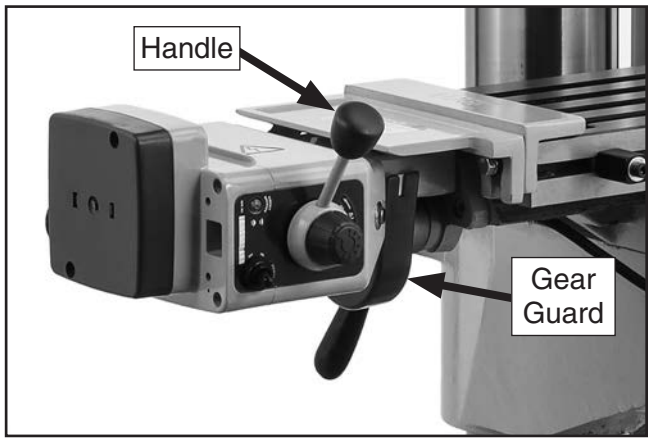


Figure 25. Gear cover installed.

15. Loosen and remove factory-installed limit stops, then insert both accessory limit stop assemblies into groove in table, as shown in **Figure 26**.

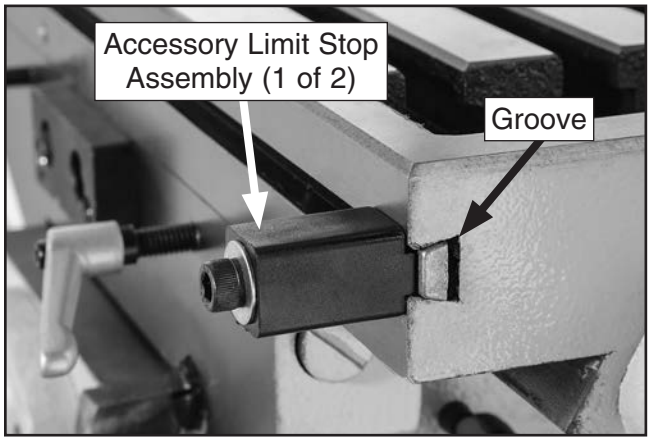


Figure 26. Accessory limit stop assembly mounted in table groove (1 of 2 shown).

16. Slide one limit stop all the way to left end of table, and slide the other stop all the way to right end.

17. Remove factory-installed stop plate, then use its mounting screws to install limit switch mounting block in its place (see **Figure 27**).

18. Install X-axis limit switch to mounting block using (2) included M8-1.25 x 12 cap screws and 8mm flat washers (see **Figure 27**).

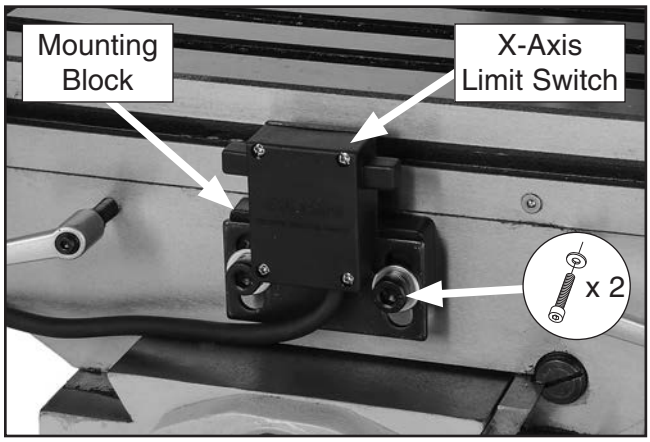


Figure 27. X-axis limit switch installed.

19. Mount handwheel with pre-installed folding handle to right end of X-axis leadscrew (see **Figure 28)**, and tighten set screw on base of handwheel to secure it (see **Figure 29**).

20. Mount a remaining handwheel to Y-axis leadscrew (see **Figure 28**), and tighten set screw on base of handwheel (see **Figure 29**).

21. Thread screw of revolving handle assembly into handwheel from **Step 19**, then tighten jam nut against handwheel to secure handle (see **Figure 28**).

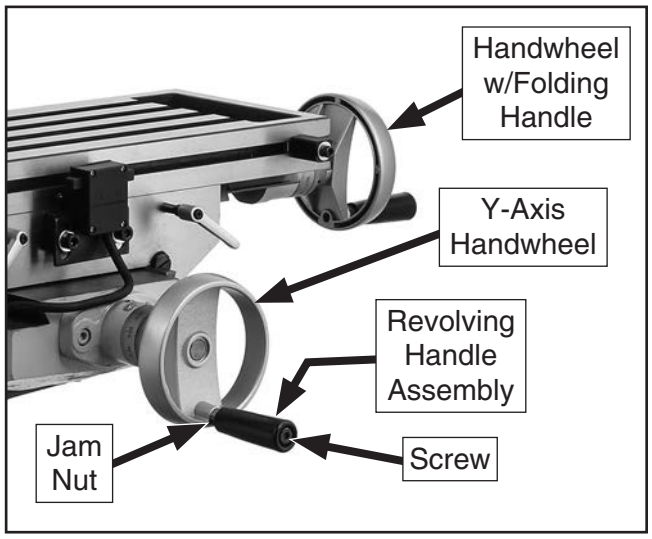


Figure 28. Table handwheels installed.

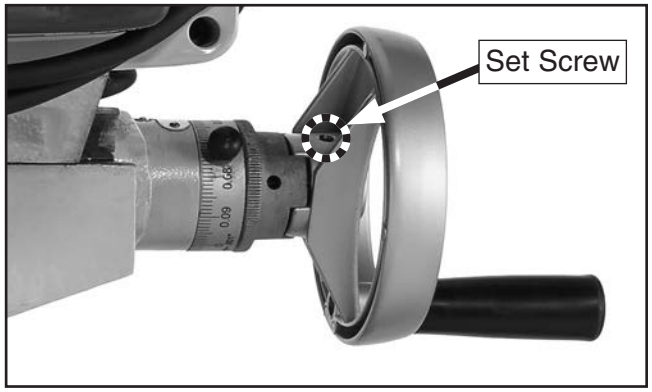


Figure 29. Set screw on base of handwheel (Y-axis shown).

Verify Lubrication

This machine was shipped from the factory with oil in it, but the headstock oil reservoir level must be verified before the machine can be operated for the first time. Refer to the **Lubrication** section, beginning on **Page 39,** for details on how to check oil.

NOTICE

Damage caused by running the mill without oil in the reservoir will not be covered under warranty.

Test Run

Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components are functioning correctly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

⚠WARNING

Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.

⚠WARNING

DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly set up machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.

Refer to **Figures 30–31** for the locations of the various controls necessary for performing the **Test Run**.

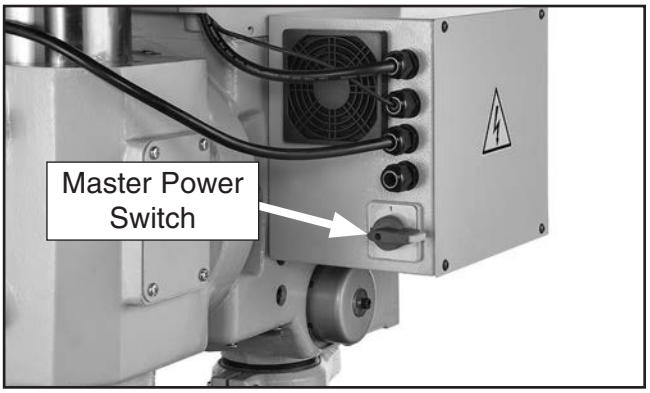


Figure 30. Master Power Switch in OFF ("0") position.

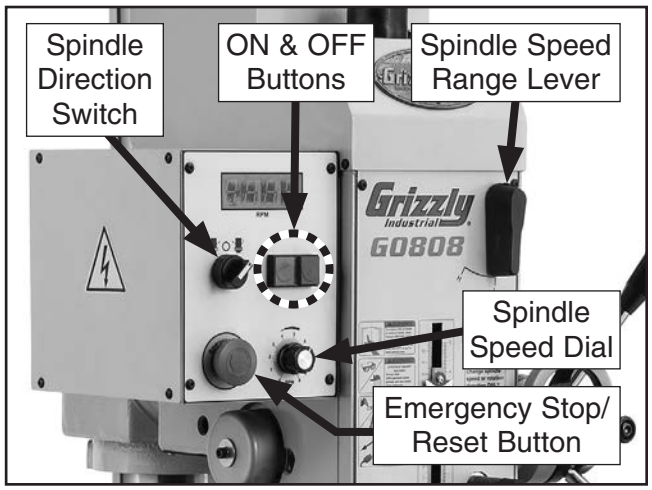


Figure 31. Location of controls necessary for Test Run.

To test run machine:

1. Clear all setup tools away from machine.
2. Rotate Master Power Switch to ON ("1") position.
3. Press Emergency Stop/Reset button.
4. Move spindle direction switch to neutral (middle) position.
5. Rotate spindle speed dial to "0".
6. Move spindle speed range lever to "L".
7. Connect machine to power by inserting power cord plug into a matching receptacle. Digital readout and ON/OFF buttons will illuminate.
8. Twist Emergency Stop button clockwise until it springs out (see **Figure 32**). This resets switch so machine can start.

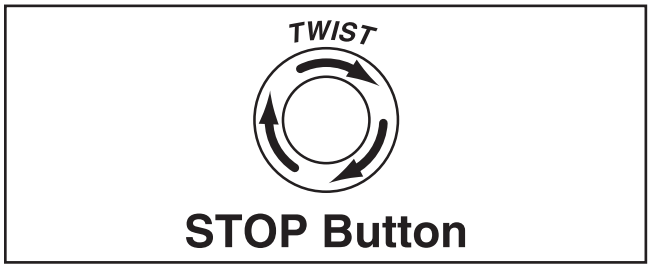


Figure 32. Resetting the switch.

9. Press green ON button to turn machine ***ON***.
10. Move spindle direction switch to the right, and then slowly rotate spindle speed dial to "1". Verify motor starts up and runs smoothly without any unusual problems or noises.
11. Press Emergency Stop button to turn machine ***OFF***.
12. WITHOUT resetting Emergency Stop button, try to start machine by pressing the ON button. The machine should not start.

    — If the machine *does not* start, the safety feature of the Emergency Stop button is working correctly. Congratulations! The **Test Run** is complete.

    — If the machine *does* start, immediately turn it ***OFF*** and disconnect power. The safety feature of the Emergency Stop button is NOT working properly and must be replaced before further using the machine.

Power Feed Test Run

Model G0808 comes with power feed units for X- and Z-axis table travel. Proper operation of the limit switches (attached to the front middle of the table and at the base of the Z-axis power feed unit) is important to the operation of the power feed units. Refer to Controls & Components, beginning on **Page 4**, to understand the names and locations of components referenced in this section.

Both X- and Z-axis power feed units operate in a similar way. Therefore, use the following instructions to test run both units. If either power feed does not operate as expected during the following steps, disconnect it from power and contact our Tech Support at (570) 546-9663 for assistance.

⚠CAUTION

During power feed operation, handwheels/cranks will spin rapidly if engaged. To reduce risk of entanglement or impact injury, always disengage X-axis handwheel/Z-axis elevation crank when using power feed. Failure to do so could lead to entanglement or impact injuries.

To test run power feed units:

1. Make sure all tools, cables, and other items are well clear of table movement and potential direction of travel.

2. Refer to **Operating Power Feed** section, beginning on **Page 28**, to understand how power feeds, table locks, and limit switches function.

3. Adjust limit stops to allow for maximum table movement in following steps.

4. Loosen all applicable table locks.

5. Plug X-axis power feed power cord into a matching power supply receptacle.

6. Make sure power feed direction lever is in neutral (middle) position, turn speed dial counterclockwise to lowest setting, then move ON/OFF switch to ON position.

7. Move direction lever to left, slowly turn speed dial clockwise to increase speed, then confirm that table is moving to the left.

8. Press and hold Rapid Traverse button for a few moments to confirm rapid traverse is operating correctly. Table should move rapidly to the left.

9. Release Rapid Traverse Button. Table should resume normal speed.

10. Allow table limit stop to hit limit switch. Table movement should stop.

    — If table movement does not stop, Turn OFF power feed and DISCONNECT POWER IMMEDIATELY. Contact Tech Support.

11. Move direction lever through neutral (middle) position and all the way to the right. Table should begin moving in opposite direction.

12. Allow table limit stop to hit limit switch. Table movement should stop.

    — If table movement does not stop, Turn OFF power feed and DISCONNECT POWER IMMEDIATELY. Contact Tech Support.

13. Repeat **Steps 11–12** with table moving in opposite direction.

14. Move direction knob to neutral (middle) position, turn speed dial to lowest setting, and press OFF button.

15. Retighten table locks.

16. Loosen Z-axis table lock, then repeat this same Test Run process with Z-axis power feed unit.

Congratulations! The **Test Run** is complete. Continue to the next page to perform the **Spindle Break-In** and **Inspections & Adjustments** procedures.

Spindle Break-In

NOTICE

You must complete this procedure to maintain the warranty. Failure to do this could cause rapid wear-and-tear of spindle bearings once they are placed under load.

The spindle break-in procedure distributes lubrication throughout the bearings to reduce the risk of early bearing failure if there are any "dry" spots or areas where lubrication has settled in the bearings. You ***must*** complete this procedure ***before*** placing operational loads on the spindle for the first time when the machine is new or if it has been sitting idle for longer than 6 months.

Always start the spindle break-in at the lowest speed to minimize wear if there *are* dry spots. Allow the spindle to run long enough to warm up and distribute the bearing grease, then incrementally increase spindle speeds and repeat this process at each speed until reaching the maximum spindle speed. Following the break-in procedure in this progressive manner helps minimize any potential wear that could occur before lubrication is fully distributed.

To perform spindle break-in procedure:

1. Set spindle speed range lever to low and rotate spindle speed dial to "0" (see **Page 4**).

2. Slowly rotate spindle speed dial to "1" and run spindle for 10 minutes, then turn machine ***OFF***.

3. Reverse spindle rotation direction, then run spindle at same speed for another 10 minutes, then turn machine ***OFF***.

4. Repeat **Steps 2–3** with spindle speed dial set to "4" and "8" for 5 minutes in each direction.

5. Set spindle speed range lever to high, then repeat **Steps 2–4** at 5 minutes each.

   Congratulations, the **Spindle Break-In** is now complete!

Inspections & Adjustments

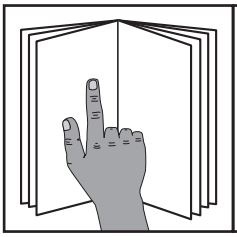
The following list of adjustments were performed at the factory before the machine was shipped:

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.

NOTICE

Since the drill head may have moved during the shipping process, you will need to tram the spindle with the table to ensure a 90° alignment. Refer to the *Tramming Spindle* section, beginning on *Page* 48 for detailed instructions.

SECTION 4: OPERATIONS

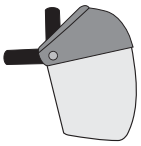


⚠WARNING

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

⚠WARNING

To reduce risk of eye or face injury from flying chips, always wear approved safety glasses and a face shield when operating this machine.



NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

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 typical operation, operator does following:

1. Examines workpiece to make sure it is suitable for drilling.
2. Installs correct tooling for operation.
3. Firmly secures workpiece to table using a vise or T-slot clamps.
4. Adjusts table height, then locks it in place.
5. Puts on required safety glasses and face shield.
6. Connects machine to power.
7. Selects spindle direction, range, and speed, then turns machine ***ON***.
8. Begins drilling operations.
9. When finished, turns machine ***OFF***, rotates Master Power Switch OFF ("0") position, and disconnects machine from power.

Master Power Switch

The Master Power Switch (see **Figure 33**) toggles the incoming power ***ON*** and ***OFF***. It can be locked in the OFF ("0") position to prevent unauthorized use.

To lock the switch in the ***OFF*** position, rotate the switch to the ***OFF*** position, press the locking tab in, then insert a padlock with a maximum shank diameter of 3⁄16" through the hole in the tab and switch body (see **Figure 33**).

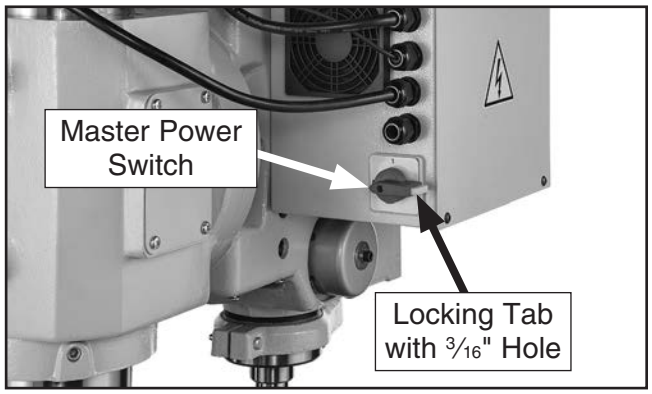


Figure 33. Master power switch.

Table Movement

The table travels in three directions (see **Figure 34**). This travel is controlled by table handwheels and the Z-axis crank handle. Additionally, the table can be moved along the X- and Z-axis with the power feed and manually rotated 360° around the column.

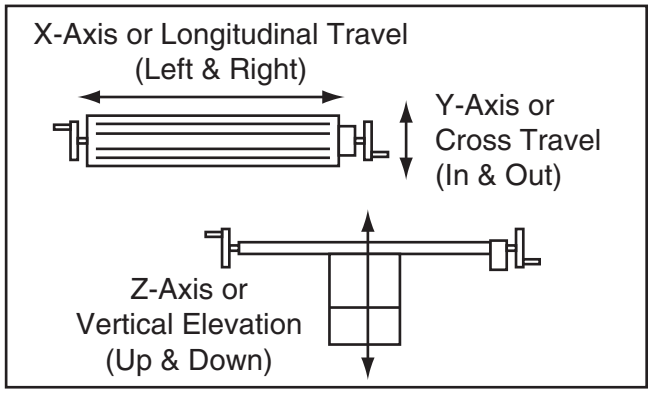


Figure 34. The directions of table movement.

Graduated Collars

The table handwheels have graduated collars (see **Figure 35**) that are used to determine table movement in 0.001" increments with one full revolution equaling 0.100" of travel.

Additionally, each collar has a thumbscrew that is used to adjust the dial to "0".

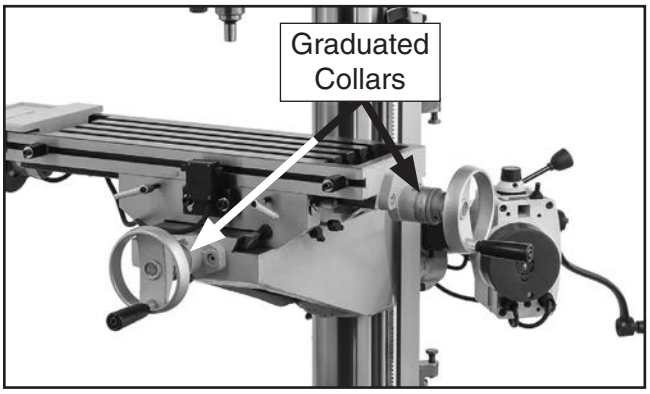


Figure 35. Locations of graduated collars.

Table Locks

Use table locks to increase the rigidity of the table when movement in that axis is not required for the operation.

Refer to **Figure 36** to identify the locks for each table axis.

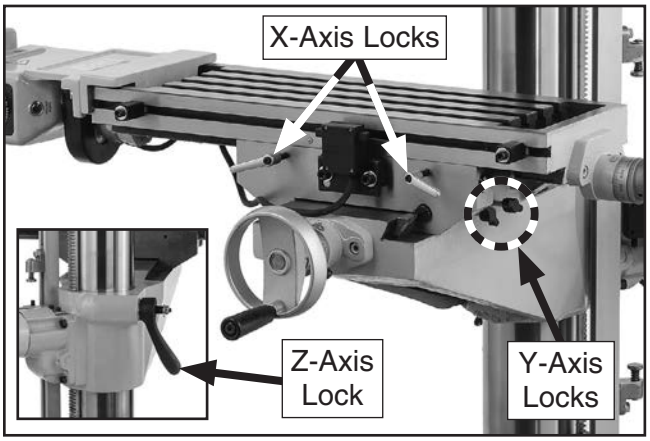


Figure 36. Location of table locks.

NOTICE

Always keep table locked in place unless table movement is required. Unexpected table and workpiece movement could cause tooling to bind with workpiece, which may damage tooling or workpiece.

Limit Stops

Use X- and Z-axis limit stops (see **Figures 37–38**) in conjunction with each power feed to set the total amount of travel. The limit stops come into contact with the limit switch and stop power feed motion.

If not being used, position stops as far away from limit switches as possible, so as not to interfere with table movement.

Tools Needed	**Qty**
Hex Wrenches 5, 12mm	1 Ea.

To adjust the position of the X-axis limit stops (see **Figure 37**), loosen the cap screws that secure the stops, move the stops to the desired positions, then tighten securely.

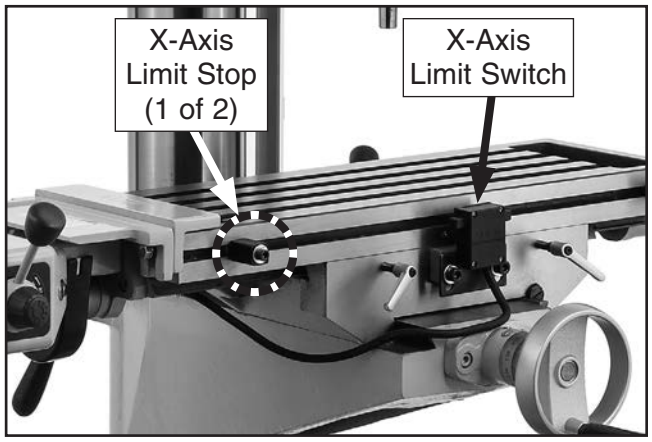


Figure 37. X-axis limit switch and stops.

To adjust the position of the Z-axis limit stops, loosen the stop bracket bolts, raise or lower the stops to the desired positions, then retighten bolts (see **Figure 38**).

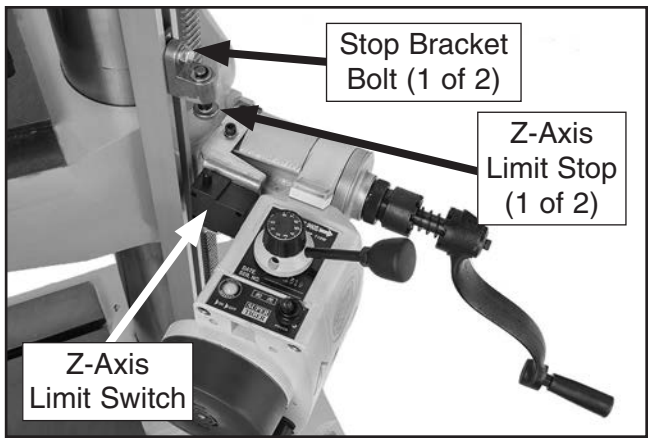


Figure 38. Location of Z-axis limit switch and upper stop with stop bracket bolt.

Operating Power Feed

The X- and Z-axis power feed units operate in a similar way. Therefore, use the following instructions to operate both units. For additional component details, refer to **Power Feed Identification** on **Page 6**.

To operate X- or Z-axis power feed:

1. Loosen table lock(s).

2. Turn speed dial (see **Figure 39**) all the way counterclockwise to slowest setting.

3. Move direction lever to neutral (middle) position, then move ON/OFF switch (see **Figure 39**) to ON position.

4. With your hand poised over ON/OFF switch in case you need to suddenly turn unit ***OFF***, move direction lever (see **Figure 39**) to select desired direction of table travel.

5. Use speed dial (see **Figure 39**) to slowly bring speed of movement up to desired rate.

   To cause table to instantly move at full speed when already in motion, press rapid traverse button (see **Figure 39**). The table will resume previous speed when button is released.

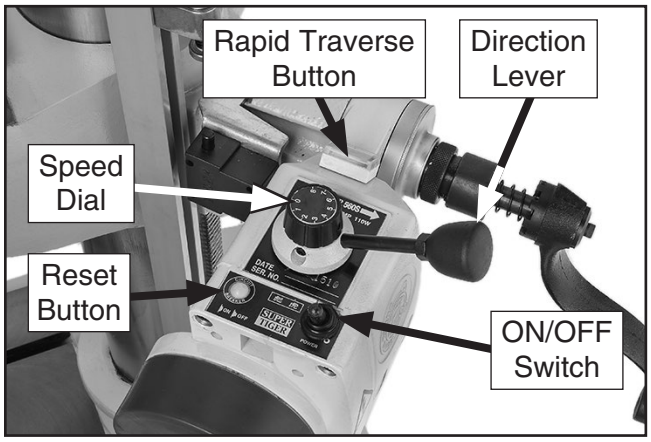


Figure 39. Power feed controls (Z-axis shown).

6. When you are finished using power feed, turn unit ***OFF***, rotate speed dial all the way counterclockwise, and move direction lever to neutral (middle) position to avoid unexpected table movement later.

Head Tilt

The head tilts from 30° left to 90° right. The 0° index pin locks the head perpendicular to the table and must be removed before tilting the head. A scale on the side of the head indicates the angle of tilt (see **Figure 40**).

NOTICE

When positioning head back to 0° after tilting it, you will need to tram it to ensure spindle is precisely perpendicular to table for proper drilling accuracy. Refer to *Tramming Spindle* section on *Page 48* for instructions.

Tools Needed	**Qty**
Screwdriver Phillips #2	1
Open-End Wrench 10mm	1
Open-End Wrench or Socket 24mm	1
Small Hammer/Mallet	1

To tilt head:

1. DISCONNECT MACHINE FROM POWER!

2. Tighten hex nut on 0° index pin (see **Figure 40**) against headstock, which will force pin out. Pull pin out of hole to allow head to tilt in following steps.

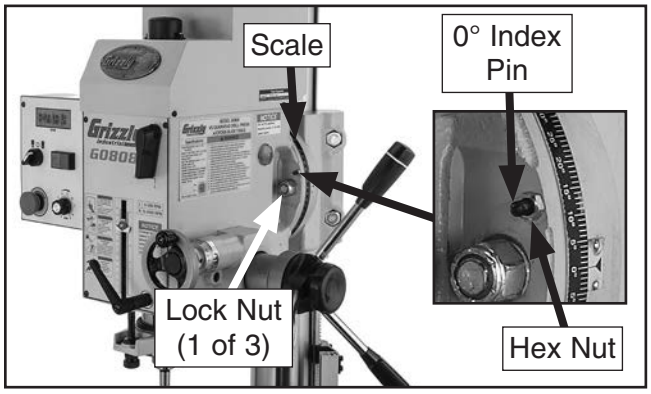


Figure 40. Head tilting controls.

3. Remove cover plate from bottom of headstock (see **Figure 41**).

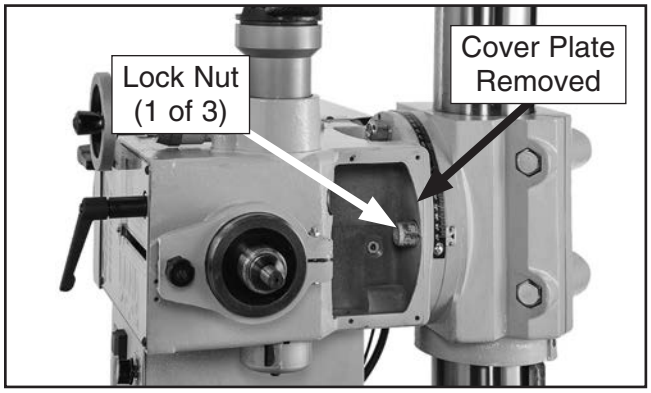


Figure 41. Cover plate removed from bottom of headstock (headstock tilted 90° for clarity).

4. Loosen three lock nuts (one on each side of head and one inside head) that secure head tilt setting (see **Figures 41–40**).

5. With assistance from another person to support head, tilt head to desired position.

— If tilting head to an angle other than 0° (perpendicular to table), use scale (see **Figure 40**) as a guide for setting tilt angle.

— If returning head to 0° (perpendicular to table), use scale as a guide. When head is at 0°, re-insert index pin with hex nut, and gently tap it with a small hammer or mallet to seat it.

6. Retighten lock nuts from **Step 4**.

Installing/Removing Tooling

This machine features a spindle that accepts R-8 tooling. Make sure speed range lever is set to "L" to prevent spindle rotation when installing/removing tooling.

⚠CAUTION

Cutting tools are sharp and can easily cause laceration injuries. Always protect your hands with leather gloves or shop rags when handling cutting tools.

Installing Tooling

Tools Needed	Qty
Hex Wrench 3mm	1
Wrench or Socket 17mm	1

To Install Tooling:

1. DISCONNECT MACHINE FROM POWER!

2. Clean any debris or oily substances from inside spindle taper and mating surface of tooling.

   Note: *Debris or oily substances can prevent the tooling and spindle from properly mating. This condition can cause excessive vibration, poor cutting results, or tool/workpiece damage.*

3. Remove motor cover (see **Figure 42**).

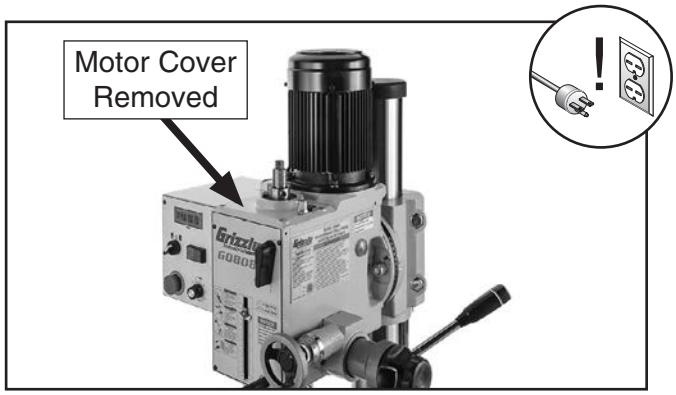


Figure 42. Motor cover removed.

4. Align tool slot (see **Figure 43**) with pin inside spindle, then insert tooling all the way into spindle.

Figure 43. Example of R8 tooling with alignment slots.

5. With one hand holding tool in place, insert drawbar into spindle from top of head, then thread it into tool by hand until snug (see **Figure 44**).

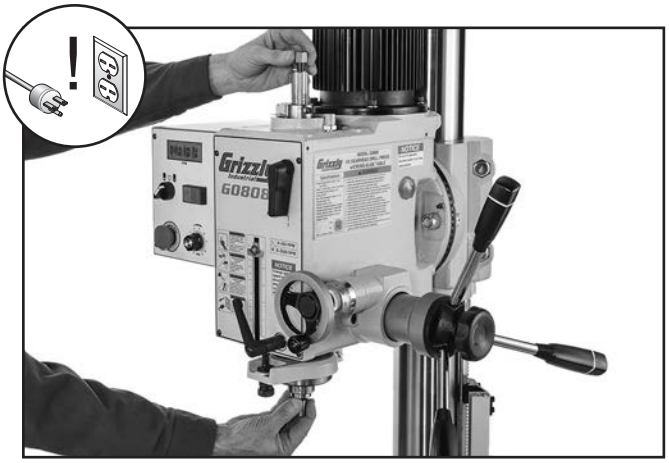


Figure 44. Threading drawbar into tooling.

6. Use wrench to tighten drawbar an additional ¼ turn.

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

7. Re-install motor cover.

Removing Tooling

Tools Needed	Qty
Hex Wrench 3mm	1
Wrench or Socket 17mm	1
Brass-Head or Dead-Blow Hammer	1

To remove tooling:

1. DISCONNECT MACHINE FROM POWER!

2. Set spindle speed range lever to "L" to prevent spindle rotation during next step.

3. Remove motor cover.

4. Unthread drawbar from tool one full rotation.

   Note: *Make sure that drawbar has at least three threads engaged with tooling, or drawbar and tool threads could be damaged during next step.*

5. Tap top of drawbar with brass-head or dead-blow hammer to unseat taper (see **Figure 45**).

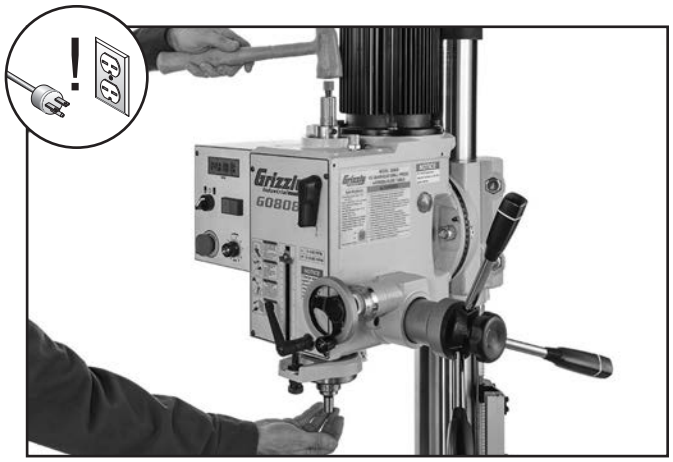


Figure 45. Tapping drawbar to unseat tool taper.

6. Support tool with one hand and fully unthread drawbar from tool.

Spindle Downfeed

Spindle downfeed movement on the drill press is controlled by two mechanisms: 1) The coarse downfeed lever, and 2) the fine downfeed handwheel (see **Figure 46**). Refer to **Controls & Components** on **Page 4** for detailed descriptions of all downfeed controls and components.

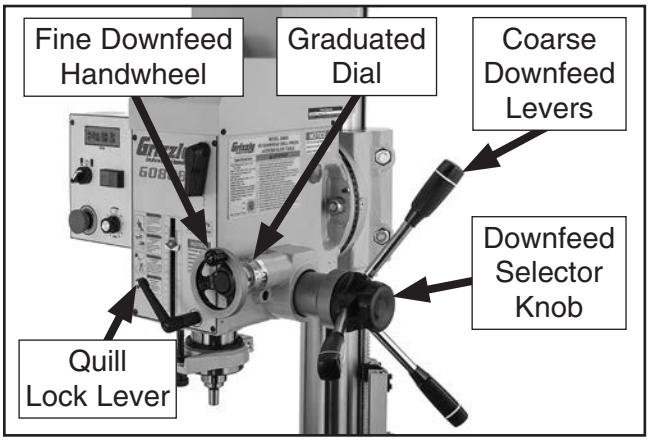


Figure 46. Downfeed controls.

Using Coarse Downfeed

Coarse downfeed is typically used for drilling, because it allows you to quickly lower the spindle with varying speed/pressure, and it automatically retracts the spindle back to the top position when released.

To engage coarse downfeed, make sure the spindle is completely stopped, and loosen the downfeed selector knob (see **Figure 46**).

Note: *To maintain control of the upward spindle travel, always continue holding the coarse downfeed levers until the spindle returns to the top position. Letting go of the levers too soon will cause the spindle to retract too quickly and slam up into the headstock.*

Using Fine Downfeed

Fine downfeed is typically used for precise, non-retractable Z-axis positioning of a cutter or end-mill when milling a flat surface across the face of a workpiece. The fine downfeed handwheel is equipped with a graduated collar (see **Figure 46** on **Page 31**) with 0.001" increments. Each complete revolution of the handwheel equals 0.100".

In order to ensure the milled surface remains flat, the quill lock lever should be locked after each adjustment to ensure the spindle height cannot move until the entire milling operation is complete.

To engage fine downfeed, make sure the spindle is completely stopped, and tighten the downfeed selector. Rotate the fine downfeed handwheel to raise or lower the spindle (see **Figure 46** on **Page 31**).

Setting Depth Stop

The depth stop limits the drilling depth or downward movement of the cutting tool. The maximum depth is 5". This is useful when performing the same operation multiple times.

To set depth stop:

1. DISCONNECT MACHINE FROM POWER!

2. Install tooling (refer to **Page 30**), then make sure spindle is drawn all the way up into headstock.

3. Loosen Z-axis table lock, and raise table until it is approximately ⅛" below tooling.

4. Rotate depth stop adjustment knob until top of depth stop pointer is level with desired depth as listed on scale (see **Figure 47**).

   Note: *The depth stop scale functions as a general guide only. It is not intended for tight-tolerance, precision results. To calibrate the depth stop see* ***Calibrating Depth Stop*** *on* ***Page 43.***

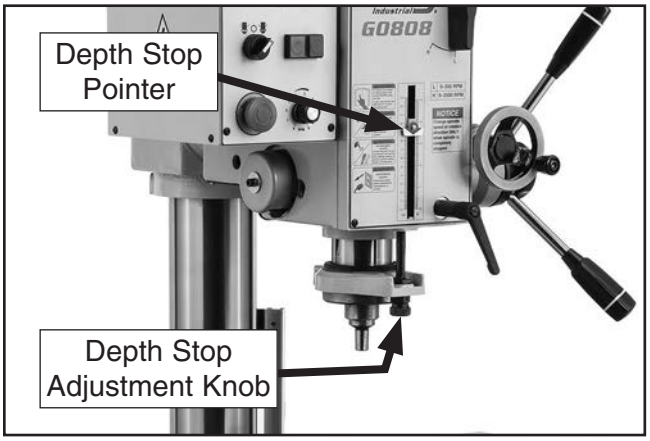


Figure 47. Location of depth stop controls.

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 range lever and spindle speed dial 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 48**.

$$\frac{{}^{*}\text{Recommended Cutting Speed (FPM)} \times 12}{\text{Tool Dia. (in inches)} \times 3.14} = \text{Spindle Speed (RPM)}$$

*Double if using carbide cutting tool

Figure 48. Spindle speed formula for milling.

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	Range Lever
0–350 RPM	L
0–2500 RPM	H

NOTICE

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

To set spindle speed:

1. With spindle completely stopped, position spindle speed range lever (see **Figure 49**) to high or low ("H" or "L") range.

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

2. Rotate spindle speed dial (see **Figure 49**) to approximate desired spindle speed, then turn machine ***ON***. If necessary, adjust spindle speed dial with machine running to fine-tune spindle speed.

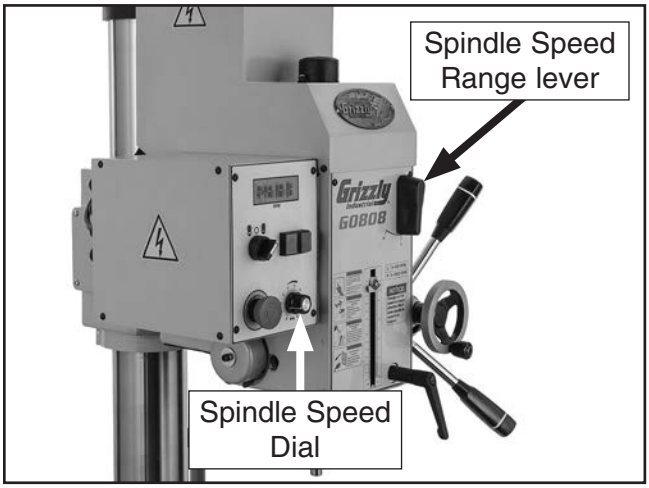


Figure 49. Spindle speed controls.

Calculating Spindle Speed for Drilling

Using the Drilling Speed Chart

The chart shown in **Figure 50** is intended as a guide only. Always follow the manufacturer's speed recommendations if provided with your drill bits, cutters, or hole saws. Exceeding the recommended speeds may be dangerous to the operator or cause damage to the tooling.

The speeds shown here are intended to get you started. The optimum speed will always depend on various factors, including tool diameter, drilling pressure, material hardness, material quality, and desired finish.

Often, when drilling materials other than wood, some type of lubrication is necessary.

Lubrication Suggestions

Wood .....None
Plastics .....Soapy Water
Brass .....Water-Based Lubricant
Aluminum..... Paraffin-Based Lubricant
Mild Steel..... Oil-Based Lubricant

⚠CAUTION

Larger bits turning at slower speeds tend to grab the workpiece aggressively. This can result in the operator's hand being pulled into the bit or the workpiece being thrown with great force. Always clamp the workpiece to the table to prevent injuries.

Twist/Brad Point Drill Bits	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/16" – 3/16"	3000	2500	2500	2500	3000	2500
13/64" – 3/8"	2000	1500	2000	1250	2500	1250
25/64" – 5/8"	1500	750	1500	750	1500	600
11/16" – 1"	750	500	1000	400	1000	350

Spade/Forstner Bits	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/4" – 1/2"	2000	1500				
9/16" – 1"	1500	1250				
1-1/8" – 1-7/8"	1000	750				
2–3"	500	350				

Hole Saws	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/2" – 7/8"	500	500	600	600	600	500
1" – 1-7/8"	400	400	500	500	500	400
2" – 2-7/8"	300	300	400	400	400	300
3" – 3-7/8"	200	200	300	300	300	200
4" – 5"	100	100	200	200	200	100

Rosette Cutters	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
Carbide Insert Type	350	250				
One-Piece Type	1800	500				

Tenon/Plug Cutters	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
3/8" – 1/2"	1200	1000				
5/8" – 1"	800	600				

Figure 50. Drilling speed chart.

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.

G8867—Cobalt Alloy Drill Bits 1/16"–1/2", 29-Pc.
These cobalt alloy bits are resistant to heat and stress, allowing them to turn faster without overheating. The 135° split point enables the drill to use less thrust and eliminates the tendency of the drill point to walk, which makes these great for use in portable drills or drill presses. Cobalt Alloy bits retain their edge sharpness longer than normal HSS bits, resulting in a significant saving of time and money in the workshop.

Figure 51. Model G8867 Cobalt Alloy Drill Bits 1/16"–1/2", 29-Pc.

G3658—Tin-Coated 115-Pc. Drill Bit Set
Titanium nitride-coated bits last up to six times as long as uncoated bits. This 115-piece set features 29 fractional bits, from 1/16"–1/2" in increments of 1/64", letter bits from A–Z, and 60 number bits. Housed in a rugged steel case.

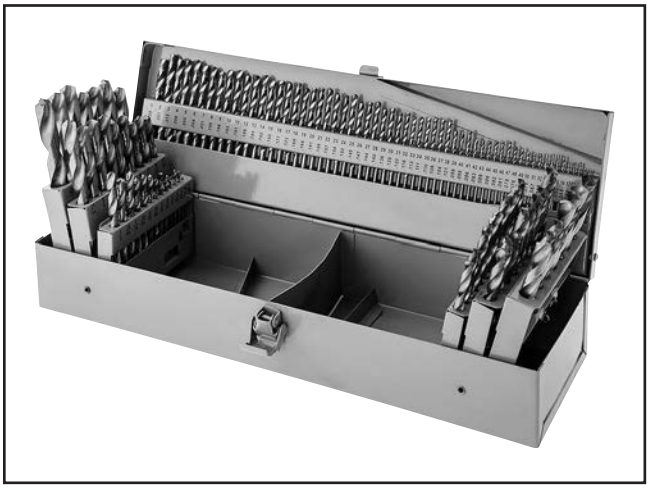


Figure 52. Model G3658 115-Pc. Drill Bit Set.

H8263—1/2" x R-8 Keyless Chuck with Integral Shank
These precision, keyless drill chucks have integral shanks to fit a variety of spindles including Morse taper, R-8 and Cat 40. Each chuck has a knurled grip for plenty of torque and if that's not enough, they are spanner wrench compatible. (Spanner wrench not included.) Made in an ISO 9001 certified factory.

Figure 53. Model H8263 Precision Keyless Drill Chuck.

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

T24799—1-2-3 Precision Parallel Blocks
T24800—2-4-6 Precision Parallel Blocks
These blocks are extremely handy for layout and set up work. Matched blocks are hardened and precision ground so all six sides are square to within 0.0003".

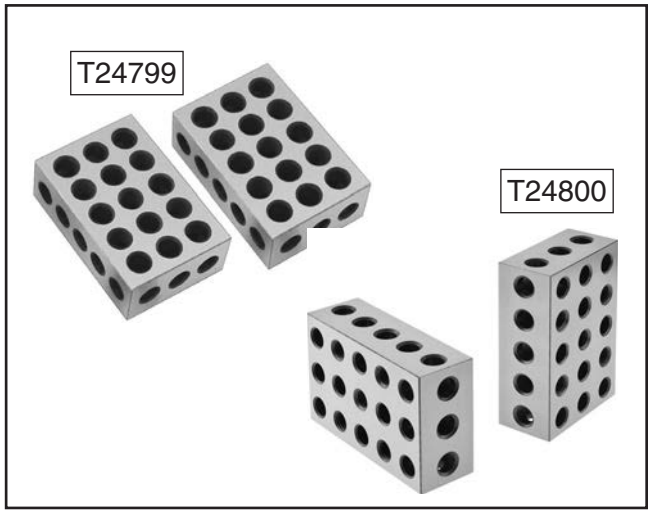


Figure 55. T24799 and T24800 Precision Parallel Blocks.

H7527— 6" Rotary Table w/ Div. Plates
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 degree 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 56. H7527 6" Rotary Table w/Div. Plates.

T10440—Precision 3-Way Drill Press Vise
This Precision 3-Way Drill Press Vise is made from graded cast-iron and features a prismatic fixed jaw for holding round material, stepped jaws for holding thin material, and precision-ground right angle faces for horizontal and vertical positioning. Includes a sturdy lip along both sides of the base, allowing vise to be mounted to nearly any machine table, using common T-slot clamps.

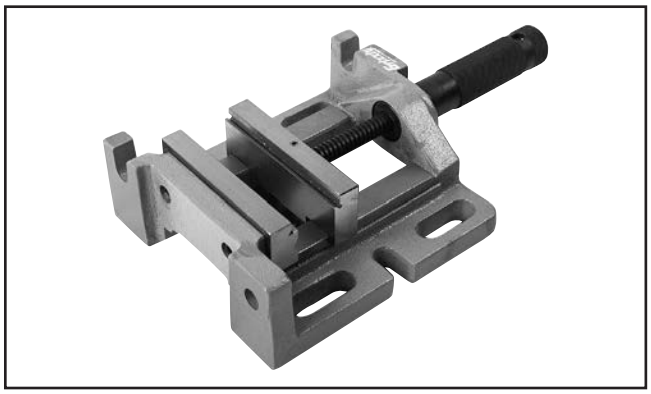


Figure 57. Model T10440 Precision 3-Way Drill Press Vise.

order online at www.grizzly.com or call 1-800-523-4777

G1075—58-Pc. Clamping Kit
This 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. Made for ½" T-slots.

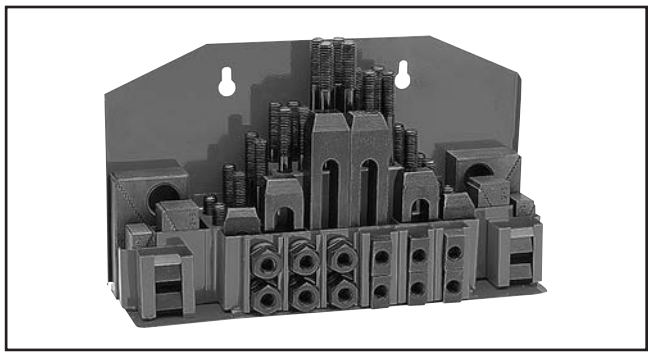


Figure 58. G1075 58-Pc. Clamping Kit.

H5608—V-Block Pair w/Clamps 1⅝"
H5609—V-Block Pair w/Clamps 1¾"
H5610—V-Block Pair w/Clamps 2"
H5611—V-Block Pair w/Clamps 2¾"
Each V-Block pair is precision-ground and numbered to match for accuracy.

Figure 59. H5611 V-Block Pair w/Clamps pictured.

G9806—Dial Indicator
H3326—Digital Indicator
These indicators are perfect for tramming mill spindles. Both models feature a range of 0.05", while Model G9806 has graduations of 0.0001", and Model G3326 has graduations of 0.0005".

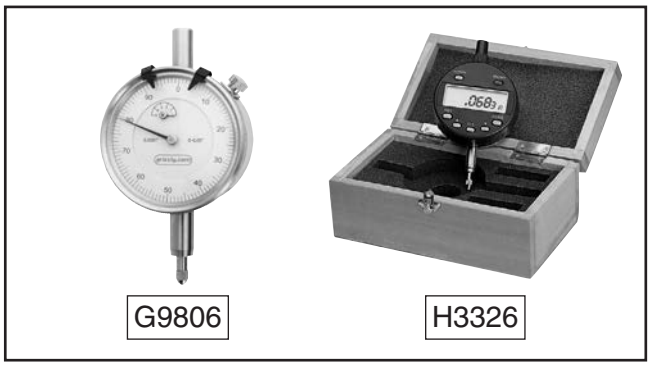


Figure 60. Grizzly Dial Indicators.

SB1365—South Bend Way Oil-ISO 68
T26419—Syn-O-Gen Synthetic Grease

Figure 61. Recommended products for machine lubrication.

H6572—Grease-Resistant Mat 3' x 3' x ¾"
These Black Grease Resistant Mats are engineered for proper back and leg support. The non-slip surface features a modular interlock design, which enables the user to create a custom floor. Mats measure 36" x 36" x ¾".

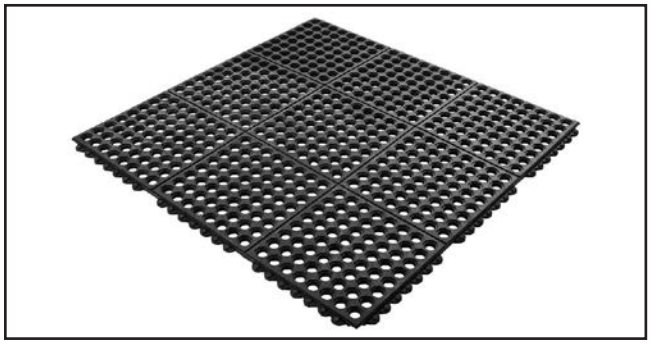
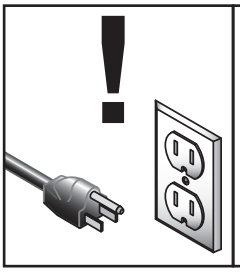


Figure 62. Model H6572 Grease-Resistant Mat 3' x 3' x ¾".

order online at www.grizzly.com or call 1-800-523-4777

SECTION 6: MAINTENANCE



⚠WARNING

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

Schedule

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

Ongoing

To help minimize your risk of injury and maintain proper machine operation, if you ever observe any of the items below shut the machine down immediately, disconnect it from power, and fix the problem before continuing operations.

- Loose mounting bolts or fasteners.
- Worn, frayed, cracked, or damaged wires.
- Any other unsafe condition.

Before Beginning Operations

- Turn the spindle direction switch to the OFF (middle) position to prevent spindle startup when connected to power (see **Page 4**).
- Make sure the X- and Z-axis power feed units are turned ***OFF*** to prevent unintentional table movement when connected to power (see **Page 28**).
- Perform lubrication tasks as directed in the **Lubrication** section, beginning on **Page 39**.
- Check table movement in all three axis directions for loose/tight gibs. Adjust the gibs if necessary (see **Page 46**).

Daily, After Operations

- Disconnect the machine from power.
- Vacuum/clean all debris from table, slides, and base.
- Wipe down all unpainted or machined surfaces with a good quality rust preventative.

Cleaning & Protecting

Regular cleaning is one of the most important steps in taking good care of this machine. Each operator is responsible for cleaning the machine immediately after using it or at the end of the day. We recommend that the cleaning routine be planned into the workflow schedule, so that adequate time is set aside to do the job right.

Typically, the easiest way to clean debris from the ways and table is to use a wet/dry shop vacuum that is dedicated for this purpose only. Small metal chips leftover after vacuuming can be wiped up with a slightly oiled rag. Avoid using compressed air to blow off metal chips, as this may drive them deeper into moving surfaces and could cause sharp chips to fly into your face or hands.

Besides the ways and elevation leadscrew, all other unpainted and machined surfaces should be wiped down daily to keep them rust-free and in top condition. This includes any surface that could be vulnerable to rust if left unprotected (this especially includes any parts that may be exposed to water soluble cutting fluids). Typically with these parts, a thin film of oil is all that is necessary for protection.

Keep tables rust-free with ISO 68 way oil.

Lubrication

This machine has numerous moving metal-to-metal contacts that require regular and proper lubrication to ensure efficient and long-lasting operation, and to protect your investment.

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.

Before performing any lubrication task, DISCONNECT MACHINE FROM POWER!

Important: *Before adding lubricant, clean any debris and grime from the fill hole/grease fitting and the immediate area to prevent contamination of the new lubricant.*

Use the schedule and information in **Figure 63** as a guide for lubrication tasks. Follow the referenced sections on the following pages for detailed instructions.

NOTICE

The following recommended lubrication schedule is based on light to medium usage. You may need to lubricate some of these items more frequently depending on individual usage.

Lubrication Task	Frequency (Hours of Operation)	Page Ref.
Quill, Column, and Column Rack	8 Hrs.	**This Page**
Headstock Reservoir	8 Hrs.	**40**
X- and Y-Axis Leadscrews	40 Hrs.	**41**
Quill Rack and Pinion	90 Hrs.	**41**
Power Feed Gears	160 Hrs.	**42**

Figure 63. Recommended lubrication tasks, schedules, and instruction page references.

NOTICE

Failure to follow reasonable lubrication practices as instructed in this manual could lead to premature failure of the machine and will void the warranty.

Quill, Column, & Column Rack

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

Use the controls to access all surfaces (see **Figures 64–65**), 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.*

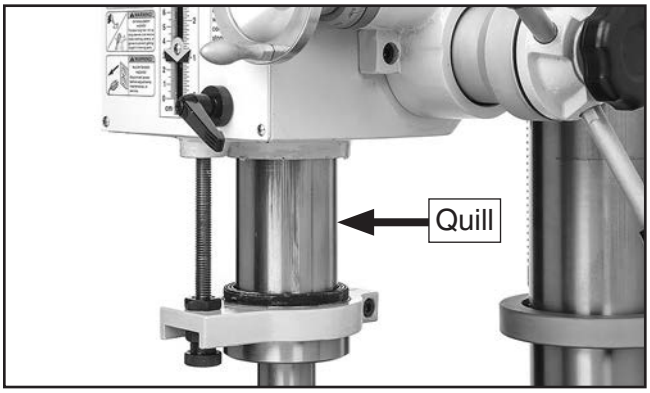


Figure 64. Outside surface of quill.

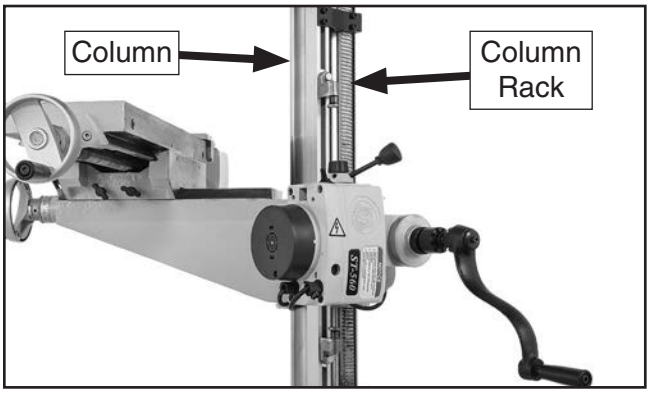


Figure 65. Column and rack.

Headstock Reservoir

Oil Type .....Model T23963 or ISO 32 Equivalent
Oil Amount..... 2½ Qt.
Check/Add Frequency.....8 Hrs. of Operation
Change Frequency..... Every 180 Days

The headstock has the proper amount of oil when the sight glass is halfway full (see **Figure 66**).

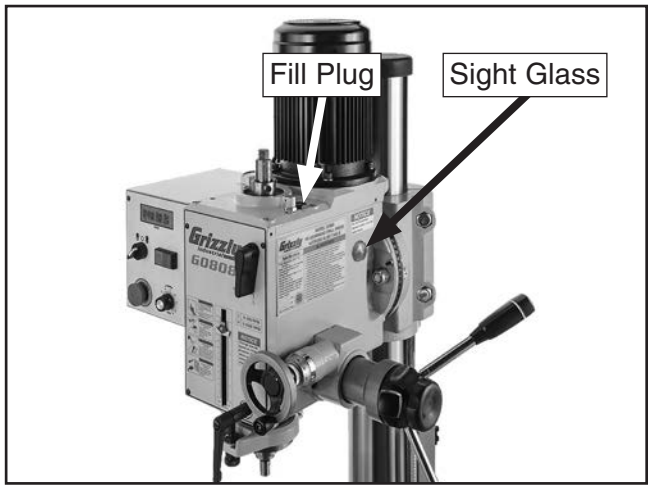


Figure 66. Location of headstock oil sight glass and fill plug.

Tools Needed	**Qty**
Screwdriver Phillips #2	1
Open-End Wrench 22mm	1
Hex Wrench 3mm	1
Hex Wrench 6mm	1
Drain Pan (1-Gallon or Larger)	1

To change headstock oil:

1. Run spindle at approximately 500 RPM for approximately 10 minutes to warm headstock oil.

2. DISCONNECT MACHINE FROM POWER!

3. Remove motor cover and fill plug (see **Figure 66**).

4. Place drain pan on table under headstock.

5. Remove cover plate from bottom of headstock (see **Figure 67**).

6. Remove drain plug (see **Figure 67**) from underneath headstock and allow oil to drain into pan.

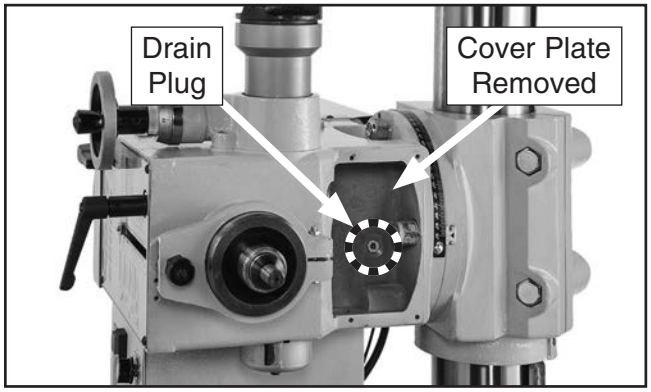


Figure 67. Headstock drain plug (headstock tilted 90° for clarity).

NOTICE

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

7. Replace drain plug.

8. Add oil until sight glass is halfway full, then re-install fill plug, cover plate, and motor cover.

9. Clean up any spilled oil to prevent slipping hazards.

X-Axis & Y-Axis Leadscrews

Grease Type .....NLGI #2 or Equivalent
Grease Amount .....Thin Coat
Check/Add Frequency .....40 Hrs. of Operation

Use mineral spirits to clean any debris and built-up grime from the leadscrews shown in **Figures 68–69**, then wipe them dry. Brush a thin coat of lubricant on the threads of the leadscrews, then rotate each leadscrew through its full path to distribute the grease.

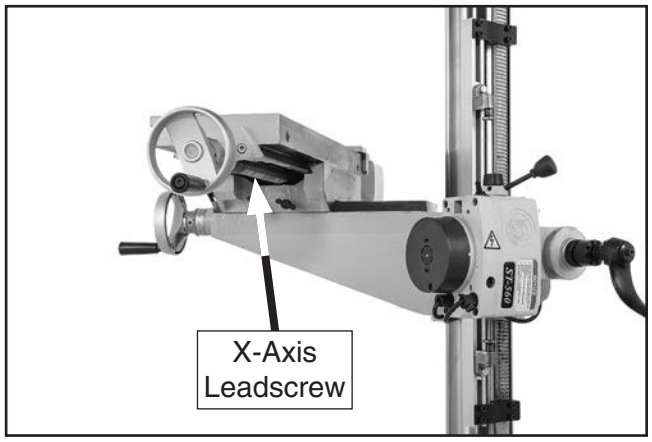


Figure 68. X-axis leadscrew as viewed from underneath right side of table.

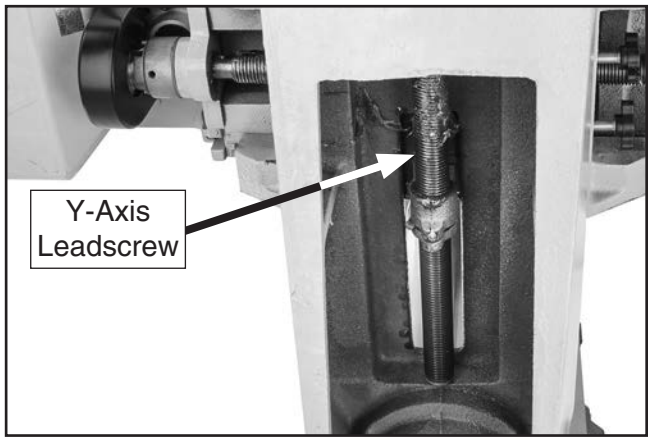


Figure 69. Y-axis leadscrew as viewed from underneath knee.

Quill Rack & Pinion

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

Remove cover plate from bottom of headstock, then move the quill up and down to gain full access to the quill rack and pinion (see **Figure 70**). Clean the teeth with mineral spirits, shop rags, and a brush.

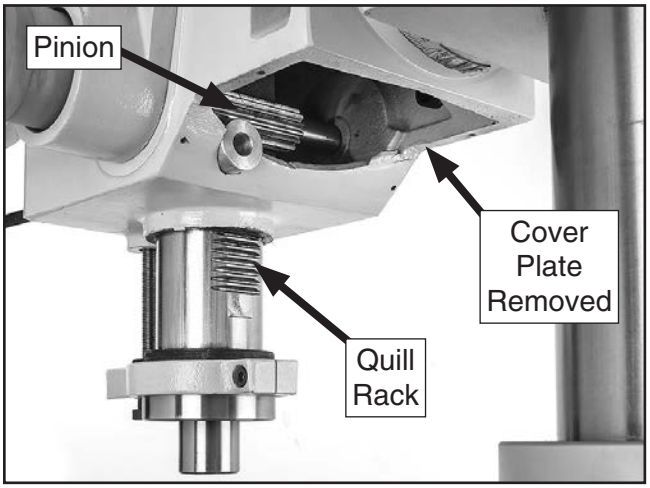


Figure 70. Quill rack and pinion.

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. Re-install cover plate when finished.

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

Power Feed Gears

To lubricate the Z-axis power feed gears, always make sure column rack has adequate lubrication (see **Page 39**), which will disburse throughout the Z-axis power feed gears.

To lubricate the X-axis power feed gears, follow the instructions below.

Grease Type.....NLGI #2 or Equivalent
Grease Amount.....Two Pumps of Grease Gun
Check/Add Frequency.....160 Hrs. of Operation

Materials Needed **Qty**
Double-Sided Adhesive Tape..... As Needed
Rubbing Alcohol and Shop Rags..... As Needed

To lubricate X-axis power feed gears:

1. DISCONNECT MACHINE FROM POWER!

2. Remove gear guard (see **Figure 71**).

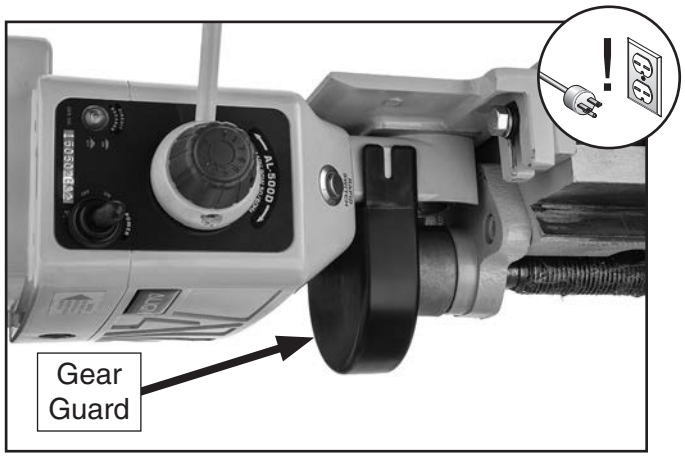


Figure 71. Location of gear guard.

3. Brush a light coat of grease on teeth of power feed gear and X-axis table gear (see **Figure 72**).

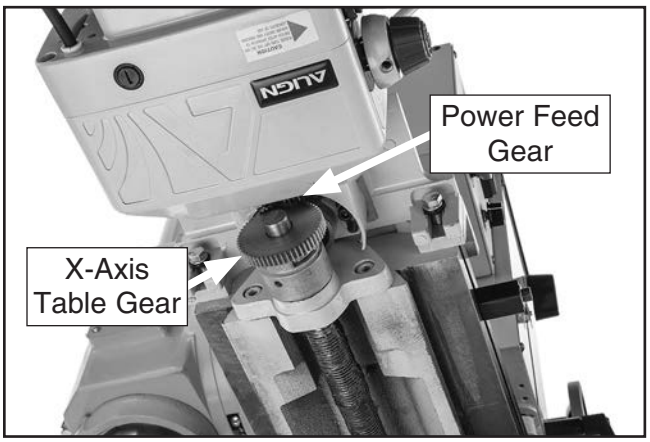
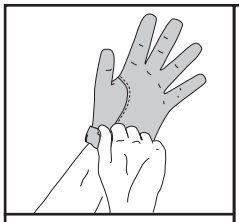


Figure 72. Lubrication points for X-axis power feed gears.

4. Use rubbing alcohol or other appropriate solvent/cleaner to thoroughly clean grease/residue from mating surfaces of gear guard, then re-install guard using double-sided adhesive tape.

Tensioning Return Spring

The spring tension for automatic quill recoil has been pre-set at the factory. It should not need adjustment under most normal circumstances. If it does need adjustment, the spring housing is located on the left side of the headstock.



⚠WARNING

If the return spring should come loose from the spring cap and rapidly unwind, laceration or impact injuries could occur. Always wear heavy leather gloves and safety glasses when adjusting the return spring tension.

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

To adjust spring tension:

1. DISCONNECT MACHINE FROM POWER!

2. PUT ON SAFETY GLASSES!

3. Loosen cap screw shown in **Figure 73** 2–3 turns (DO NOT completely remove it).

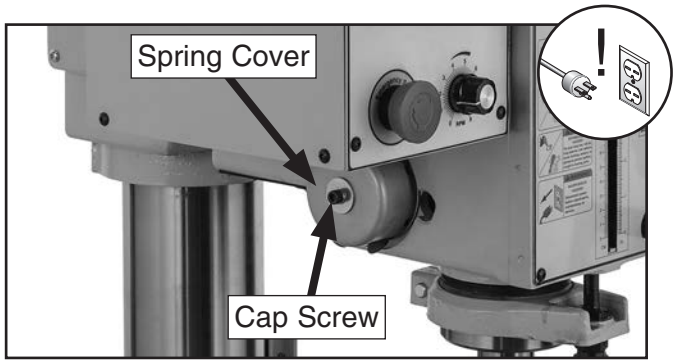


Figure 73. Spring tension components.

4. Wearing heavy leather gloves, pull spring cover out enough so notches just clear roll pin (see **Figure 74**). HOLD SPRING COVER TIGHTLY during this step, or force of spring will cause cover to spin out of your hands.

5. Rotate cover counterclockwise to increase tension, then push cover back in to engage roll pin with one of the notches, as shown in **Figure 74**, then retighten cap screw.

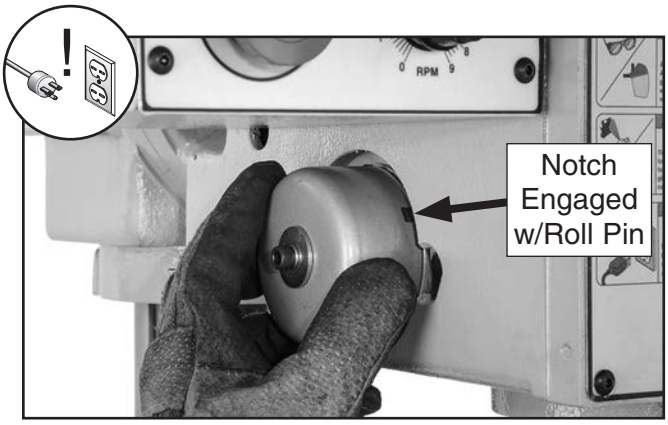


Figure 74. Adjusting spring tension by rotating spring cover to engage next notch with roll pin.

Calibrating Depth Stop

The depth stop can be calibrated to improve accuracy. Make sure the spindle is retracted all the way into the quill, then follow the steps below.

Tool Needed **Qty**
Screwdriver Phillips #2 1

To calibrate depth stop:

1. Lower depth stop (see **Figure 75**) until pointer reaches bottom of its travel.

2. Loosen Phillips head screw shown in **Figure 75**, and position pointer so its upper edge aligns with zero, then re-tighten screw.

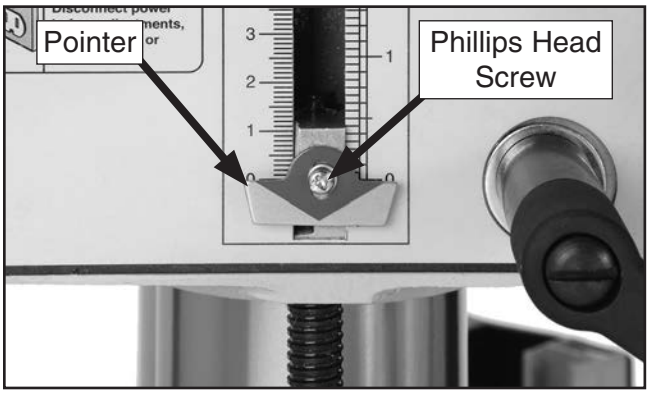


Figure 75. Depth stop calibrated.

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

Troubleshooting

Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or quickly shuts down after startup.	1. Master Power Switch in OFF position. 2. Emergency Stop button depressed/at fault. 3. Power supply circuit breaker tripped or fuse blown. 4. Incorrect power supply voltage or circuit size. 5. Motor wires connected incorrectly. 6. Wiring open/has high resistance. 7. ON/OFF switch at fault. 8. Spindle rotation switch at fault. 9. Variable-Speed potentiometer at fault. 10. Inverter/control box at fault. 11. Motor at fault.	1. Remove lock (if applicable) and rotate switch to ON position (**Page 50**). 2. Rotate button head to reset. Replace. 3. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse. 4. Ensure correct power supply voltage and circuit size, according to specified circuit requirements. 5. Correct motor wiring connections (**Page 50**). 6. Check/fix broken, disconnected, or corroded wires. 7. Replace switch. 8. Test/replace switch. 9. Test/replace potentiometer. 10. Inspect inverter/controller box; replace. 11. Test/repair/replace motor.
Machine stalls or is underpowered.	1. Machine undersized for task. 2. Wrong workpiece material. 3. Motor overheated. 4. Motor wires connected incorrectly. 5. Gearbox at fault. 6. Variable-Speed potentiometer at fault. 7. Inverter/control box at fault. 8. Motor bearings at fault.	1. Use correct cutter/bit; reduce feed rate or cutting speed; use cutting fluid if necessary. 2. Use proper material type for machine. 3. Clean motor, let cool, and reduce workload. 4. Correct motor wiring connections (**Page 50**). 5. Select appropriate speed range; replace broken or slipping gears. 6. Test/replace potentiometer. 7. Inspect inverter/controller box; replace. 8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
Machine has vibration or noisy operation.	1. Workpiece loose. 2. Chuck or cutter at fault. 3. Motor or component loose. 4. Motor fan rubbing on fan cover. 5. Motor mount loose/broken. 6. Machine incorrectly mounted to floor. 7. Spindle bearings at fault. 8. Motor bearings at fault.	1. Use the correct holding fixture/reclamp workpiece. 2. Replace unbalanced chuck; replace/resharpen cutter; use correct feed rate. 3. Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid. 4. Fix/replace fan cover; replace loose/damaged fan. 5. Tighten/replace motor mount. 6. Tighten mounting bolts; relocate/shim machine. 7. Test by rotating spindle; rotational grinding/loose shaft requires bearing replacement. 8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

Drilling Operation

Symptom	Possible Cause	Possible Solution
Tool loose in spindle.	1. Tool is not fully drawn up into spindle taper. 2. Debris on tool or in spindle taper. 3. Taking too big of a cut.	1. Tighten drawbar (**Page 30**). 2. Clean tool and spindle taper, then re-install. 3. Lessen depth of cut and allow chips to clear.
Breaking tools or cutters.	1. Spindle speed/feed rate is too fast. 2. Taking too big of a cut. 3. Cutting tool is too small. 4. Cutting tool getting too hot. 5. Spindle extended too far down.	1. Reduce spindle speed (**Page 33**); reduce feed rate. 2. Decrease depth of cut and allow chips to clear. 3. Use larger cutting tool and slower feed rate. 4. Use coolant or oil for appropriate application. 5. Fully retract spindle and raise table (**Pages 27** & **31**). This increases rigidity.
Workpiece or tool vibrates or chatters during operation.	1. Table locks not tight. 2. Workpiece not secure. 3. Spindle speed/feed rate is too fast. 4. Spindle extended too far down. 5. Quill lock lever not tight. 6. Gibs too loose in table.	1. Tighten table locks (**Page 27**). 2. Properly clamp workpiece on table or in vise. 3. Reduce spindle speed (**Page 33**); reduce feed rate. 4. Fully retract spindle and raise table (**Pages 27** & **31**). This increases rigidity. 5. Tighten quill lock lever (**Page 31**). 6. Tighten gibs (**Page 46**).
Table is hard to move.	1. Table locks tightened down. 2. Chips loaded up on ways. 3. Ways dry and need lubrication. 4. Table limit stops interfering. 5. Gibs too tight.	1. Make sure table locks are fully released (**Page 27**). 2. Frequently clean away chips that load up during operations. 3. Lubricate ways. 4. Adjust table limit stops out of the way. 5. Adjust gibs (**Page 46**).
Bad surface finish.	1. Spindle speed/feed rate too fast. 2. Dull or incorrect cutting tool/bit. 3. Wrong rotation direction of cutting tool. 4. Workpiece not secure. 5. Spindle extended too far down.	1. Reduce spindle speed (**Page 33**); reduce feed rate. 2. Sharpen cutting tool or select one that better suits the operation. 3. Reverse cutting tool rotation. 4. Properly clamp workpiece on table or in vise. 5. Fully retract spindle (this increases rigidity), and raise table (**Pages 27** & **31**).
Cutting/drilling results not square.	1. Table and spindle not at 90° to each other. 2. Table travel is inconsistent.	1. Tram spindle (**Page 48**). 2. Adjust gibs (**Page 46**).
Spindle overheats.	1. Machine operated at high speeds for extended period.	1. Allow machine to cool.
Lack of power at spindle.	1. Wrong voltage.	1. Correct voltage.
Spindle does not fully retract.	1. Poorly adjusted return spring. 2. Worn return spring.	1. Increase return spring tension (**Page 43**). 2. Replace return spring.

Power Feed

Symptom	Possible Cause	Possible Solution
Power feed does not move table or is slipping.	1. Table locked. 2. Direction lever not engaged. 3. Gears not meshing or teeth missing. 4. Motor shaft and gear shaft not engaged.	1. Disengage table locks (**Page 27**). 2. Select speed, engage direction lever (**Page 28**). 3. Check gears and adjust/replace. 4. Replace clutch.
Operates at high speed only or is inconsistent.	1. Rapid traverse button at fault. 2. Wiring harness unplugged from circuit board.	1. Inspect/replace rapid traverse button. 2. Reconnect wiring harness.

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.

Gibs are adjusted with gib screws (see **Figures 76**–**77**) that move the tapered gib back-and-forth to increase or decrease the friction pressure between the sliding surfaces. The process of properly adjusting the gibs requires trial-and-error and patience.

Refer to the figures on this page to identify the locations of the gibs, and one of the two adjustment screws for each.

Note: *It will be necessary to remove small parts, such as way wipers and covers, to access the gib adjustment screws.*

Tool Needed	**Qty**
Flat Head Screwdriver #2	1

To adjust each gib:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen locks for component you are adjusting.
3. Loosen one gib adjustment screw, then tighten the other the same amount to move the gib.
4. Use handwheel/crank (if applicable) to move component until you feel a slight drag in the path of movement. Repeat **Steps 3–4** as necessary.

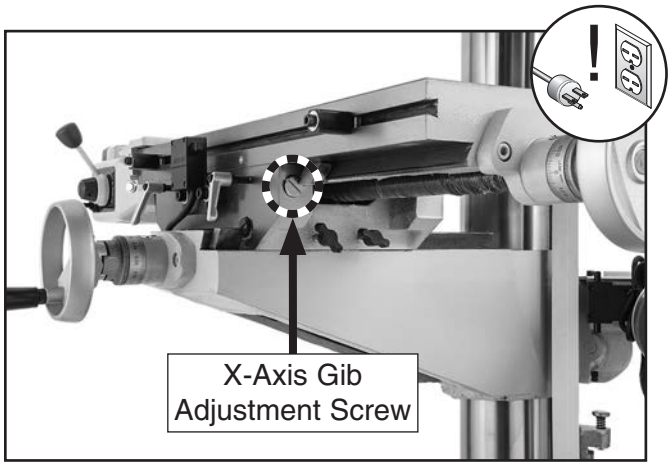


Figure 76. X-axis gib adjustment screw (1 of 2).

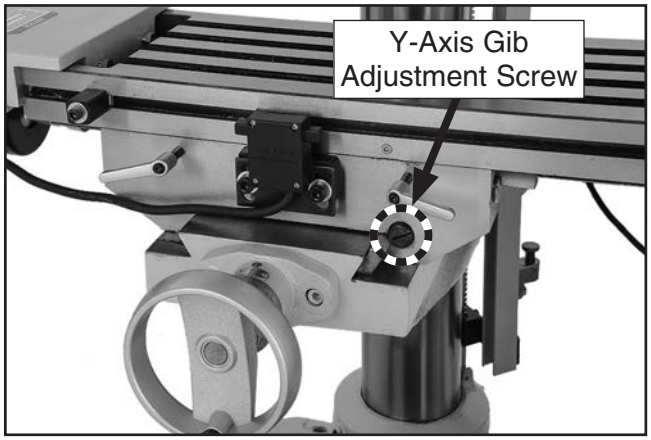


Figure 77. Y-axis gib adjustment screw (1 of 2).

Adjusting Leadscrew Backlash

Leadscrew backlash is the amount of motion or "play" in leadscrew rotation before the attached device begins to move. Leadscrews will always have a certain amount of backlash that will increase with normal wear.

Generally, 0.005"–0.010" leadscrew backlash is acceptable to ensure smooth movement and reduce the risk of premature thread wear. However, if you find it necessary to adjust leadscrew backlash, perform the procedures listed below.

Tool Needed	**Qty**
T-Handle Hex Wrench 5mm	1

To adjust leadscrew backlash:

Use a 5mm hex wrench to tighten or loosen the cap screws on the leadscrew nuts shown in **Figures 78–79**, then test the amount of backlash by slowly rocking the handwheels back-and-forth. Repeat if necessary.

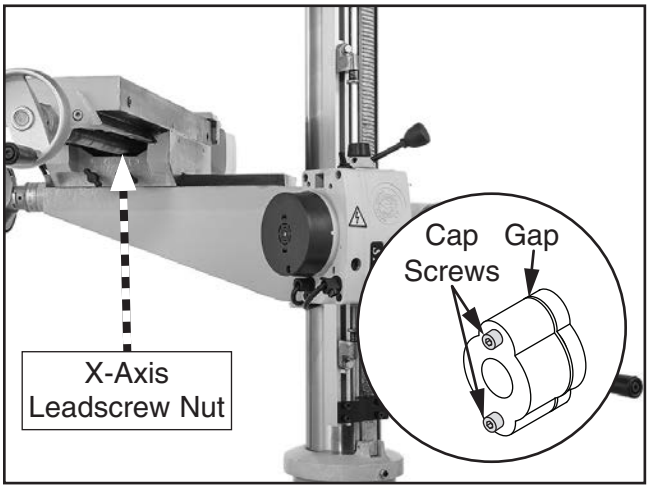


Figure 78. X-axis leadscrew nut located under right side of table.

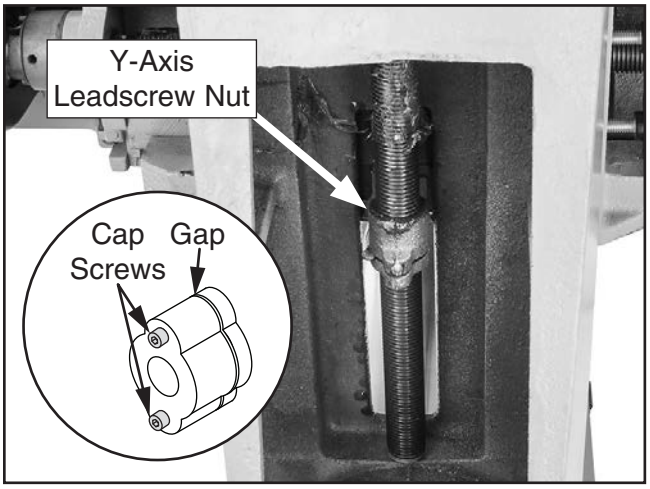


Figure 79. Y-axis leadscrew nut located inside knee.

Tramming Spindle

After positioning the head at an angle and when your operation requires that the spindle axis be precisely perpendicular to the table, you must tram or align the spindle with the table to ensure the spindle is exactly 90° to the table.

This procedure involves mounting a dial test indicator to the quill or spindle, rotating it around the table, and adjusting the spindle axis (Z-axis) 90° to the table X- and Y-axis, as illustrated in the figure below.

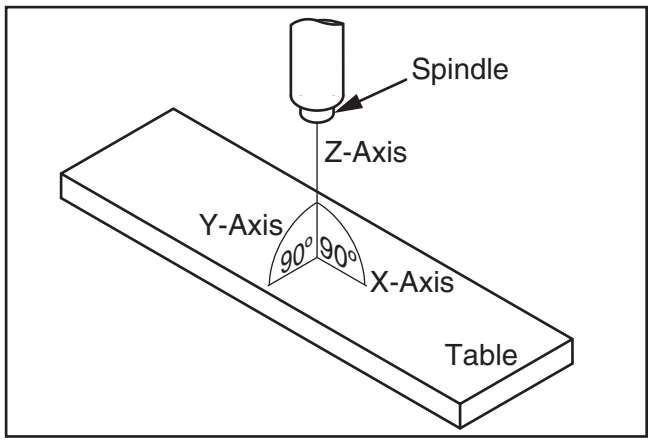


Figure 80. Spindle Z-axis perpendicular to the table X- and Y-axis.

We encourage you to research the many variations of spindle tramming to find the one that works best for you. If you do not already have a preference for performing this operation, use the following widely-used procedure for accurately tramming the spindle to the table.

Keep in mind that all workpiece top surfaces are not exactly parallel with the table top. You may choose to tram the spindle to the top surface of the workpiece after it is mounted rather than tramming the spindle to the table.

Tools Needed	**Qty**
Dial Test Indicator (with at least 0.0005" resolution)	1
Indicator Holder (mounted on the quill/spindle)	1
Precision Parallel Block (at least 9" in length)	1

Note: *A precision-ground plate can be substituted for the parallel blocks. Keep in mind that the farther the indicator point can be placed from the spindle axis, the more accurate the alignment measurements will be.*

To tram spindle to table:

1. DISCONNECT MACHINE FROM POWER!

2. Prepare machine for tramming by performing following tasks:

   - Verify the table is clean by running your hand over the top of it. If necessary, stone the table to remove all nicks and burrs, then clean off all debris.

   - Position the table for the operation you intend to perform after tramming—preferably centered with the saddle.

   - Tighten any table, knee, quill, or ram locks that should be tight during the intended operation.

3. Place parallel block underneath spindle.

4. Install indicator holder in spindle or on quill, then mount indicator so that point is as parallel to block as possible (see figure below).

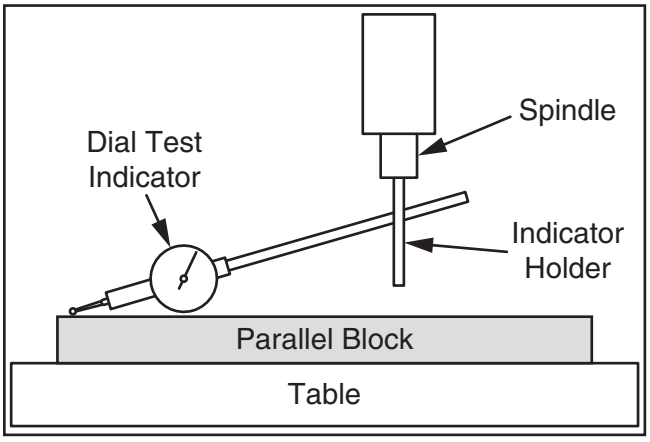


Figure 81. Dial test indicator mounted.

5. To measure spindle alignment along X-axis, place parallel block directly under spindle and indicator across length of table, as illustrated in figure below.

Note: *If you must re-position the quill or the knee to accommodate the above step, then review the tasks in* ***Step 2*** *to make sure the machine is properly prepared for tramming.*

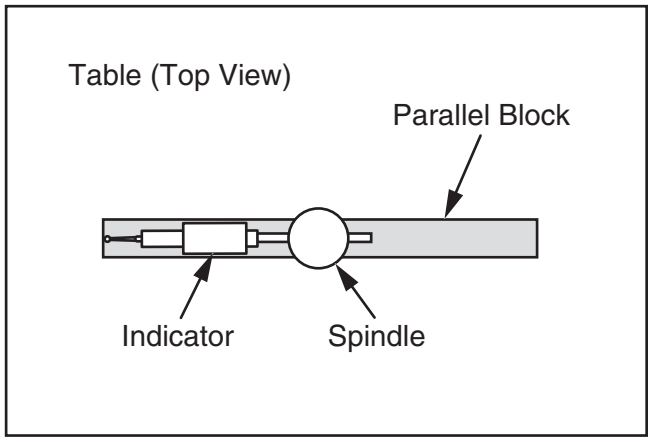


Figure 82. Parallel block and indicator positioned for the X-axis measurement (top view).

Note: *Your general goal in the next steps should be to get the difference of the indicator readings between the ends of the parallel bar down to 0.0005". However, the acceptable variance will depend on the requirements for your operation.*

6. Rotate spindle by hand so that indicator point rests on one end of parallel block, then zero the dial.

7. Rotate spindle so that indicator point rests in same manner on other end of block, then read dial.

— If the indicator dial still reads zero or is within the acceptable variance, continue on with **Step 8**.

— If the indicator dial has moved from zero beyond the acceptable variance, you will need to compensate for that amount by rotating the head left or right. Repeat **Steps 6–7** until you are satisfied with the spindle axis alignment along the table X-axis.

Note: *Keep one of the rotation lock bolts just snug so the head does not move loosely while you adjust it. Remember to tighten all the rotation lock bolts after adjusting the head.*

8. Place parallel block directly under spindle and across width of table, as illustrated in figure below.

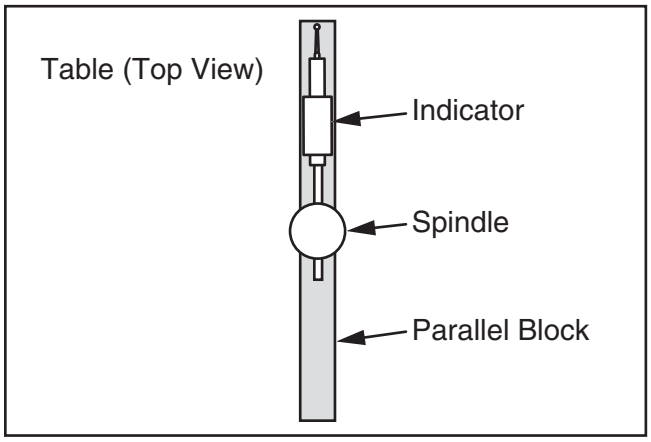


Figure 83. Parallel block and indicator positioned for the Y-axis measurement (top view).

9. Rotate spindle so indicator point rests on parallel bar, as illustrated in figure above, then zero the dial.

10. Rotate spindle so that indicator point rests on other end of bar in same manner, then read dial.

— If the indicator dial still reads zero or is within the acceptable variance, the spindle is precisely perpendicular to the table in both the X- and Y-axis, and the tramming procedure is complete.

— If the indicator dial has moved from zero beyond the acceptable variance, you will need to compensate for that amount by tilting the head forward or backward. Repeat **Steps 9–10** until you are satisfied with the spindle axis alignment along the table Y-axis.

Note: *Keep one of the tilt lock bolts just snug so the head does not move loosely while you adjust it. Remember to tighten all the tilt lock bolts after adjusting the head.*

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

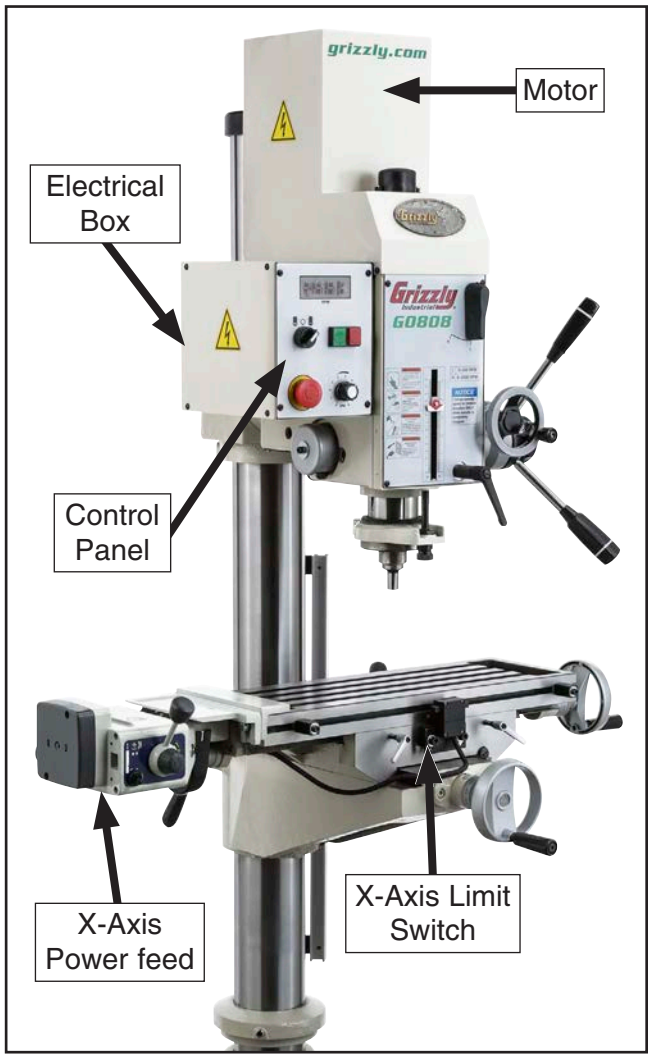


Figure 84. Electrical component wiring overview.

Figure 86. Motor wiring.

Figure 87. Electrical box wiring.

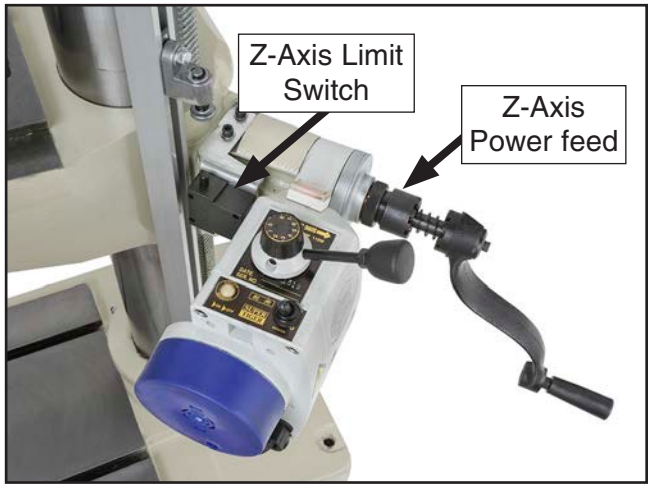


Figure 85. Z-axis power feed unit.

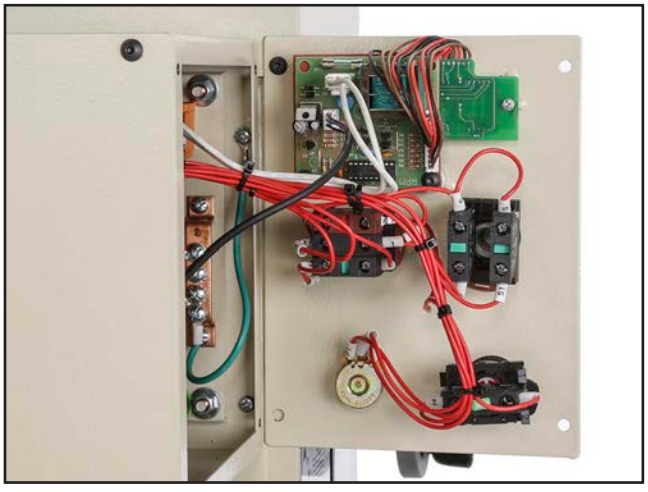
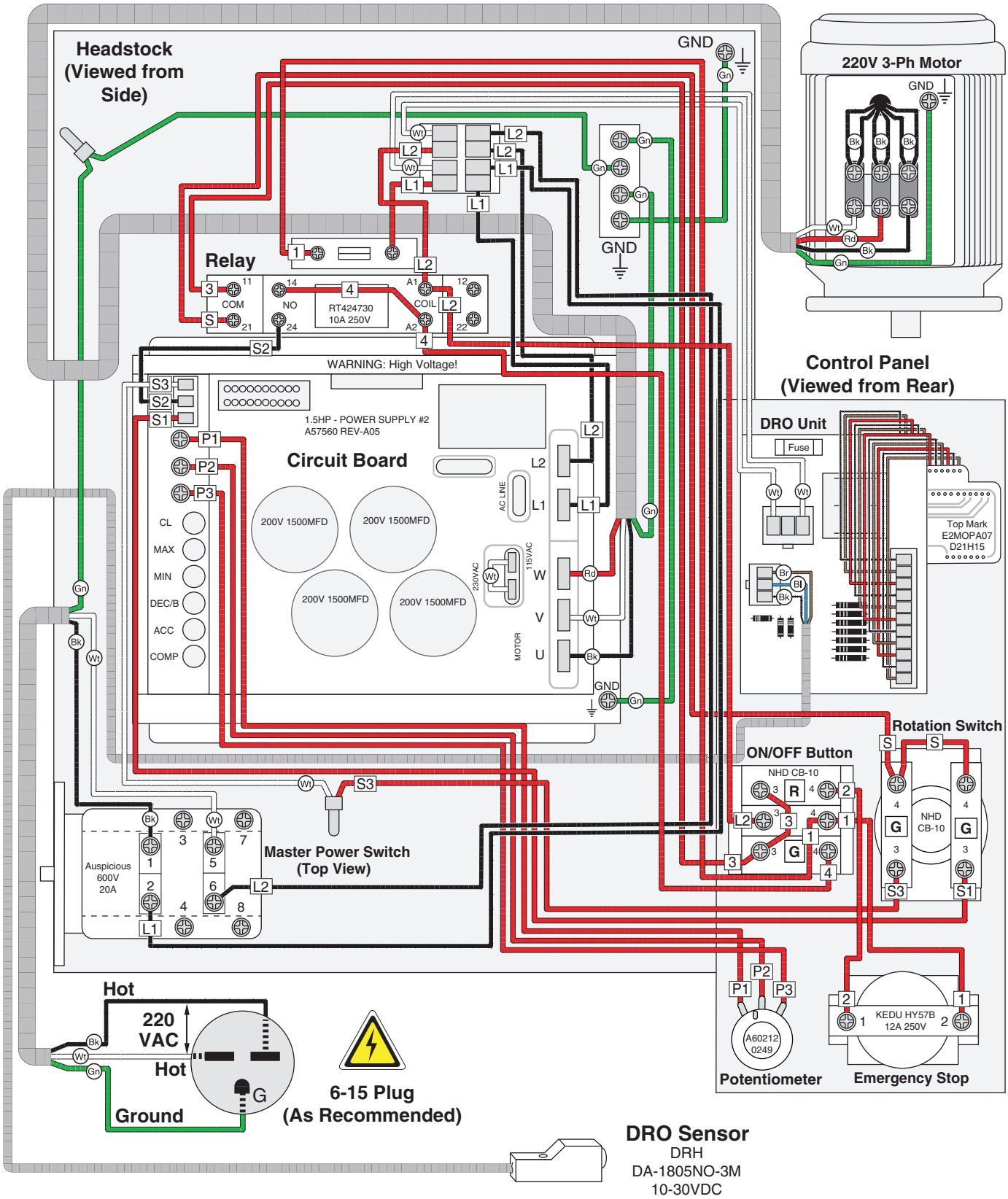


Figure 88. Control panel wiring.

Wiring Diagram (Main)



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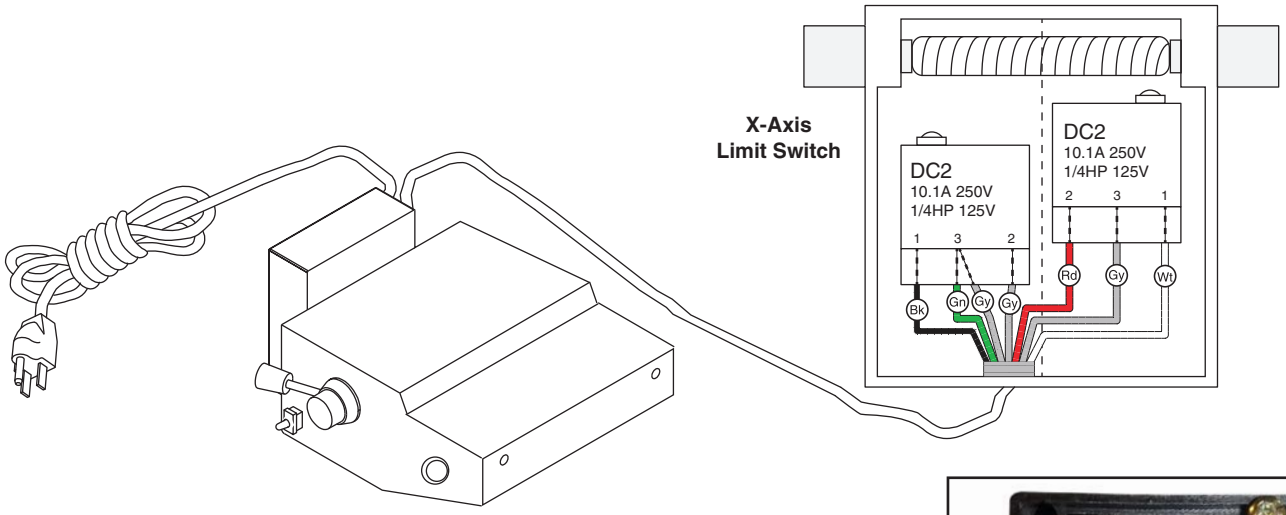
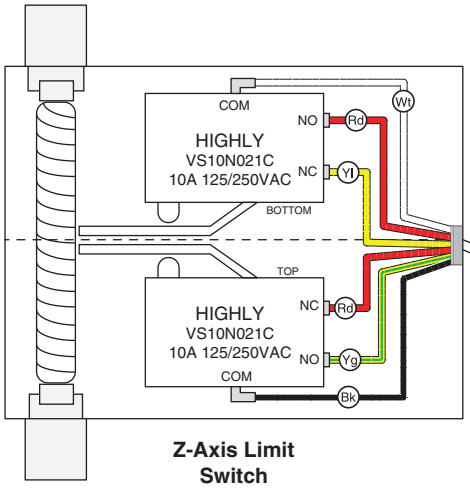
Wiring Diagram (Power Feed)



X-Axis Power Feed Unit
ALIGN
AL-500D

Figure 90. X-Axis limit switch wiring.



Z-Axis Limit Switch

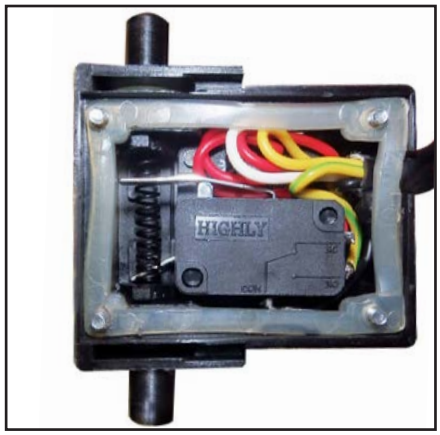
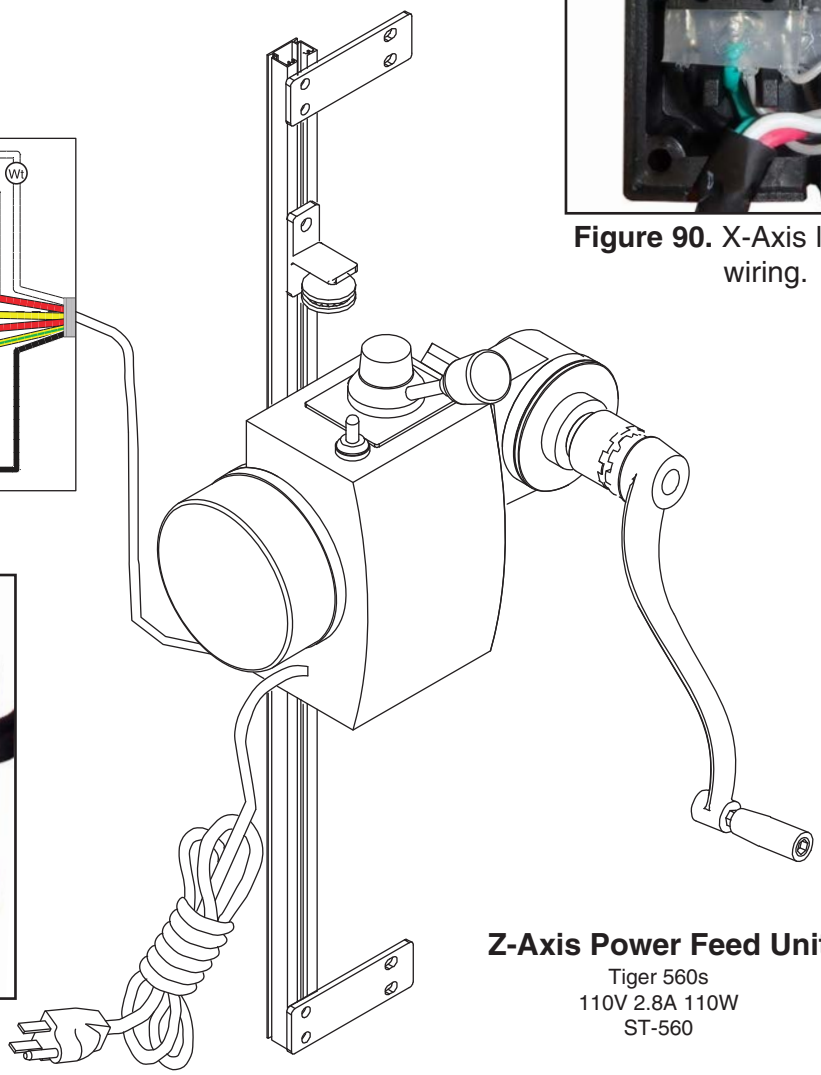


Figure 89. Z-Axis limit switch wiring.



Z-Axis Power Feed Unit
Tiger 560s
110V 2.8A 110W
ST-560

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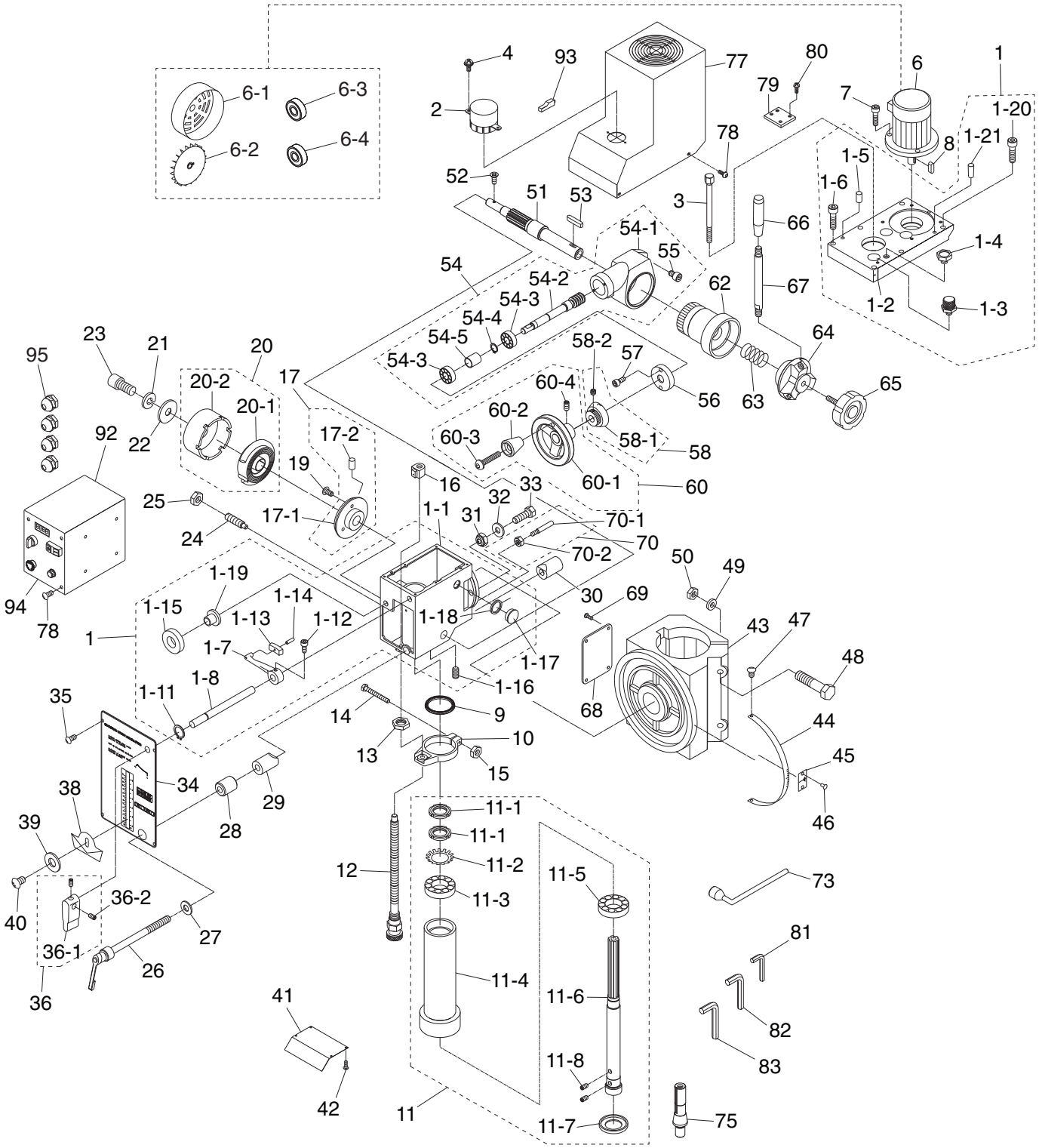
SECTION 9: PARTS

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

Headstock



Headstock Parts List

REF	PART #	DESCRIPTION
1	P0808001	HEADSTOCK ASSEMBLY
1-1	P0808001-1	HEADSTOCK CASTING
1-2	P0808001-2	HEADSTOCK COVER
1-3	P0808001-3	VENT PLUG 1/8" NPT
1-4	P0808001-4	OIL FILL PLUG 3/8" NPT
1-5	P0808001-5	TAPER PIN 10.3 X 30
1-6	P0808001-6	CAP SCREW 5/16-18 X 1-1/4
1-7	P0808001-7	SPEED RANGE SHIFT LEVER
1-8	P0808001-8	SPEED RANGE SHIFT SHAFT
1-11	P0808001-11	EXT RETAINING RING 12MM
1-12	P0808001-12	CAP SCREW 1/4-20 X 1/2
1-13	P0808001-13	SPEED RANGE SHIFT FORK
1-14	P0808001-14	DOWEL PIN 4 X 16
1-15	P0808001-15	OIL SEAL 12 X 22 X 7
1-16	P0808001-16	OIL DRAIN PLUG 1/4 NPT
1-17	P0808001-17	OIL SIGHT GLASS 30MM
1-18	P0808001-18	O-RING 28 X 2.6
1-19	P0808001-19	OIL SEAL COVER 12MM
1-20	P0808001-20	CAP SCREW 5/16-18 X 2
1-21	P0808001-21	TAPER PIN 10.3 X 50
2	P0808002	SPINDLE CAP
3	P0808003	DRAWBAR 7/16-20 X 16-5/16
4	P0808004	PHLP HD SCR M4-.7 X 10
6	P0808006	MOTOR 1HP 220V/440V 3-PH
6-1	P0808006-1	MOTOR FAN COVER
6-2	P0808006-2	MOTOR FAN
6-3	P0808006-3	BALL BEARING 6203ZZ (REAR)
6-4	P0808006-4	BALL BEARING 6204ZZ (FRONT)
7	P0808007	CAP SCREW 3/8-16 X 1
8	P0808008	KEY 6 X 6 X 30
9	P0808009	QUILL SEAL (RUBBER)
10	P0808010	DEPTH ROD MOUNT
11	P0808011	SPINDLE ASSEMBLY R8
11-1	P0808011-1	SPANNER NUT M30-1.5
11-2	P0808011-2	EXT TOOTH WASHER 30MM
11-3	P0808011-3	TAPERED ROLLER BEARING E30206J
11-4	P0808011-4	QUILL
11-5	P0808011-5	TAPERED ROLLER BEARING 30207J
11-6	P0808011-6	SPINDLE R8
11-7	P0808011-7	SPINDLE END CAP
11-8	P0808011-8	SET SCREW 8-32 X 1/4
12	P0808012	QUILL DEPTH LEADSCREW ASSY 1/2-10 x 8.5
13	P0808013	QUILL DEPTH SUPPORT NUT M16-1.5
14	P0808014	HEX BOLT 1/4-20 X 2
15	P0808015	HEX NUT 1/4-20
16	P0808016	QUILL DEPTH STOP BLOCK
17	P0808017	SPRING BASE ASSEMBLY
17-1	P0808017-1	SPRING BASE
17-2	P0808017-2	DOWEL PIN 3 X 12
19	P0808019	PHLP HD SCR 10-24 X 3/4
20	P0808020	RETURN SPRING ASSEMBLY
20-1	P0808020-1	FLAT COILED SPRING
20-2	P0808020-2	RETURN SPRING COVER
21	P0808021	LOCK WASHER 1/4
22	P0808022	FENDER WASHER 1/4
23	P0808023	CAP SCREW 1/4-20 X 5/8

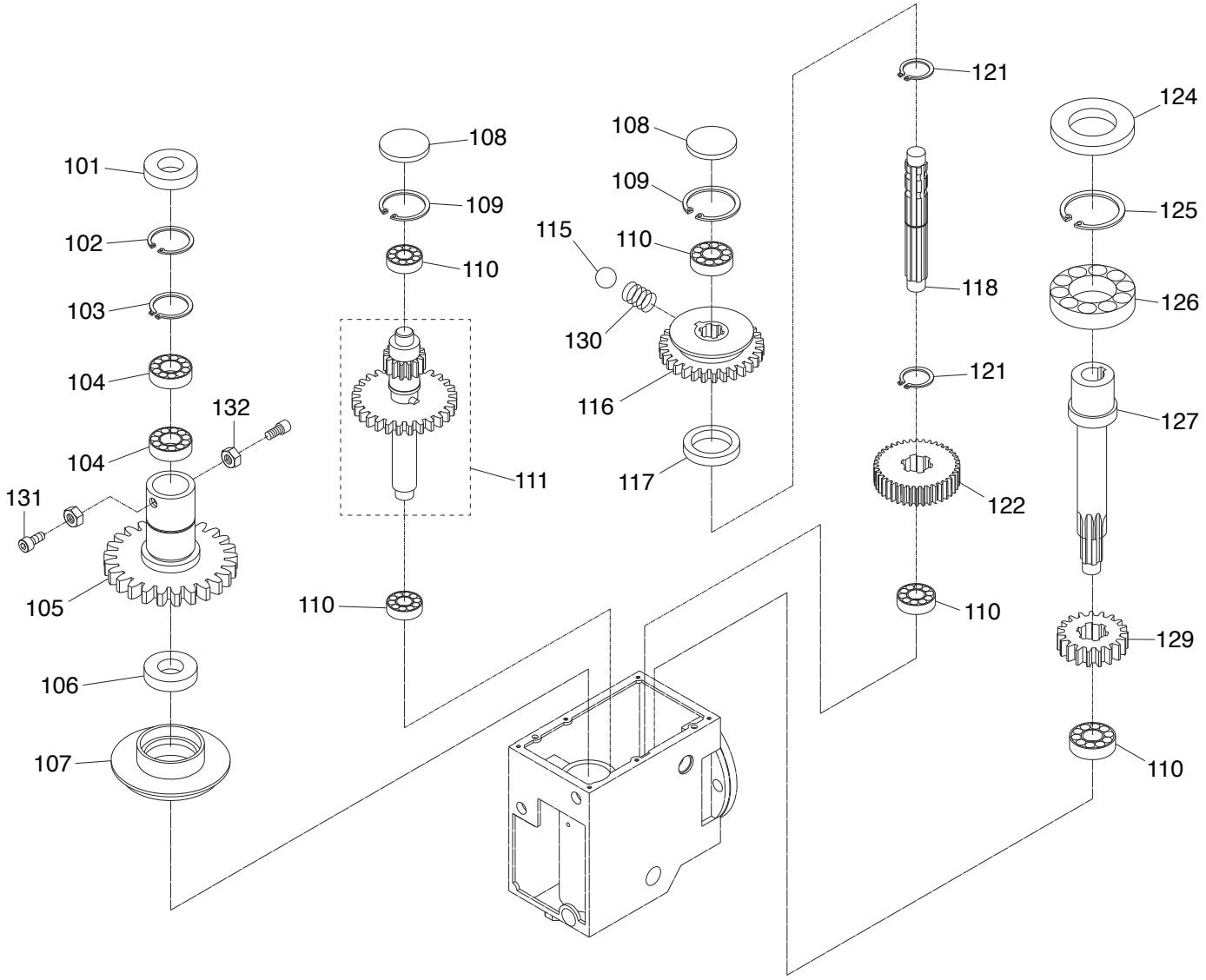
REF	PART #	DESCRIPTION
24	P0808024	ALIGNMENT PIN 3/8-16 X 38
25	P0808025	HEX NUT 3/8-16
26	P0808026	ADJUSTABLE HANDLE 9"L, 1/2-13 X 2-3/4
27	P0808027	FLAT WASHER 1/2
28	P0808028	LOCK PLUNGER SLEEVE
29	P0808029	OUTSIDE LOCK PLUNGER
30	P0808030	INSIDE LOCK PLUNGER
31	P0808031	LOCK NUT 5/8-11
32	P0808032	DOCK WASHER 5/8 X 1-9/16 X 1/8
33	P0808033	HEX BOLT 5/8-11 X 5-1/2
34	P0808034	HEADSTOCK FACEPLATE
35	P0808035	PHLP HD SCR 10-24 X 3/8
36	P0808036	SPEED RANGE LEVER ASSEMBLY
36-1	P0808036-1	SPEED RANGE LEVER
36-2	P0808036-2	SET SCREW 5/16-18 X 5/16
38	P0808038	DEPTH INDICATOR
39	P0808039	FLAT WASHER 1/8
40	P0808040	PHLP HD SCR 4-40 X 1/4
41	P0808041	DUST SHIELD
42	P0808042	PHLP HD SCR 10-24 X 3/8
43	P0808043	HEAD ADAPTER
44	P0808044	HEAD TILT SCALE
45	P0808045	TILT SCALE INDICATOR
46	P0808046	RIVET 2 X 4MM
47	P0808047	PHLP HD SCR 10-24 X 3/8
48	P0808048	HEX BOLT 5/8-11 X 5-1/2
49	P0808049	DOCK WASHER 5/8 X 1-9/16 X 1/8
50	P0808050	HEX NUT 5/8-11
51	P0808051	PINION SHAFT
52	P0808052	FLAT HD SCR 10-24 X 1/2
53	P0808053	KEY 7 X 7 X 20
54	P0808054	WORM SHAFT ASSEMBLY
54-1	P0808054-1	WORM SHAFT HOUSING
54-2	P0808054-2	WORM SHAFT
54-3	P0808054-3	BALL BEARING 6202ZZ
54-4	P0808054-4	EXT RETAINING RING 15MM
54-5	P0808054-5	BEARING SPACER 34 X 27.5 X 30
55	P0808055	CAP SCREW 5/16-18 X 3/4
56	P0808056	WORM SHAFT END BRACKET
57	P0808057	PHLP HD SCR 10-24 X 1/2
58	P0808058	FINE DOWNFEED DIAL ASSEMBLY
58-1	P0808058-1	FINE DOWNFEED GRADUATED DIAL
58-2	P0808058-2	SET SCREW 1/4-20 X 5/16
60	P0808060	FINE DOWNFEED HANDWHEEL ASSEMBLY
60-1	P0808060-1	HANDWHEEL TYPE-24 4"D X 1/2"B X 5/16-18
60-2	P0808060-2	KNOB 5/16, 1 X 1 (PLASTIC)
60-3	P0808060-3	SHOULDER SCREW 5/16-18 X 1/4, 3/8 X 1
60-4	P0808060-4	SET SCREW 5/16-18 X 5/16
62	P0808062	WORM GEAR
63	P0808063	COMPRESSION SPRING 2.4 X 17.5 X 25
64	P0808064	COARSE DOWNFEED LEVER HUB
65	P0808065	KNOB BOLT 3/8-16 X 1-5/8, 6 LOBE (PLASTIC)
66	P0808066	LEVER HANDLE 1/2-13, 1-1/4 X 4-3/8
67	P0808067	LEVER SHAFT 1/2-13 X 3/4, 6-3/4L
68	P0808068	HEADSTOCK ADAPTER COVER PLATE
69	P0808069	PHLP HD SCR 1/4-20 X 3/8

Headstock Parts List (Continued)

REF	PART #	DESCRIPTION
70	P0808070	INDEX PIN ASSEMBLY
70-1	P0808070-1	INDEX PIN M6-1 X 18, 6.5 X 34
70-2	P0808070-2	HEX NUT M6-1
73	P0808073	L-WRENCH 13MM X 23MM
75	P0808075	CHUCK ARBOR R8 X JT6
77	P0808077	MOTOR COVER
78	P0808078	PHLP HD SCR M5-.8 X 8
79	P0808079	RPM SENSOR BRACKET

REF	PART #	DESCRIPTION
80	P0808080	PHLP HD SCR M3-.5 X 5
81	P0808081	HEX WRENCH 3MM
82	P0808082	HEX WRENCH 4MM
83	P0808083	HEX WRENCH 5MM
92	P0808092	CONTROL PANEL BOX
93	P0808093	RPM SENSOR DRH DA-1805NO-3M 10-30VDC
94	P0808094	CONTROL PANEL COVER
95	P0808095	STRAIN RELIEF TYPE-3 PG11

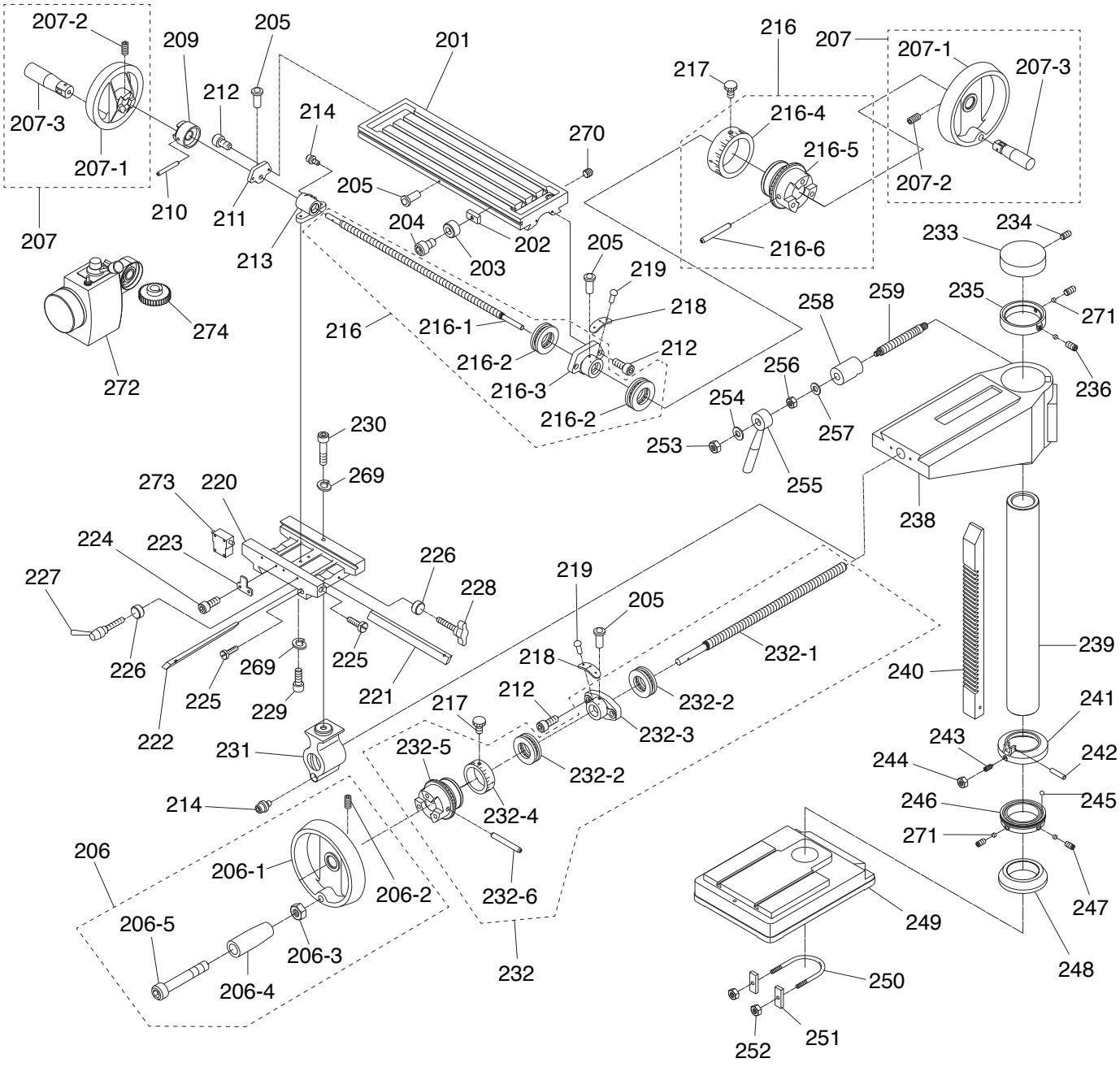
Gearbox



REF	PART #	DESCRIPTION
101	P0808101	OIL SEAL 40 X 68 X 8T
102	P0808102	INT RETAINING RING 68MM
103	P0808103	EXT RETAINING RING 40MM
104	P0808104	BALL BEARING 6008ZZ
105	P0808105	GEAR 53T
106	P0808106	OIL SEAL 35 X 45 X 8
107	P0808107	OIL SEAL RING
108	P0808108	BEARING COVER 35MM
109	P0808109	INT RETAINING RING 35MM
110	P0808110	BALL BEARING 6202ZZ
111	P0808111	GEAR SHAFT ASSEMBLY 15T/41T
115	P0808115	STEEL BALL 5/16
116	P0808116	COMBO GEAR 16T/42T

REF	PART #	DESCRIPTION
117	P0808117	BUSHING
118	P0808118	GEAR SHAFT
121	P0808121	EXT RETAINING RING 20MM
122	P0808122	GEAR 31T
124	P0808124	OIL SEAL 35 X 62 X 8
125	P0808125	INT RETAINING RING 62MM
126	P0808126	BALL BEARING 6007ZZ
127	P0808127	GEAR SHAFT
129	P0808129	GEAR 28T
130	P0808130	COMPRESSION SPRING 0.8 X 7.1 X 15
131	P0808131	CAP SCREW M6-1 X 8
132	P0808132	HEX NUT M6-1

Column


207-2
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232-4
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206-1
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206-3
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206-4
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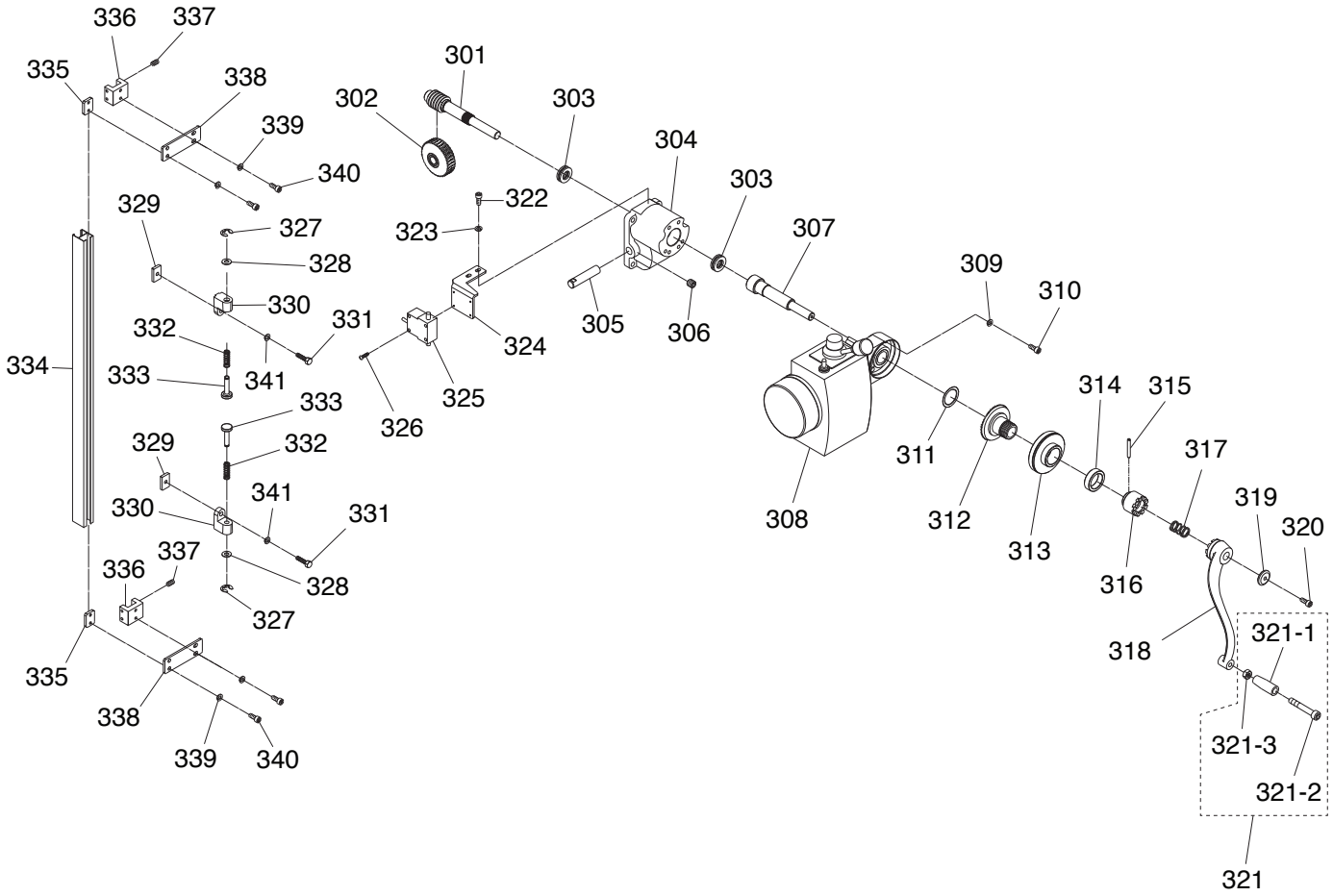
252

Column Parts List

REF	PART #	DESCRIPTION
201	P0808201	TABLE
202	P0808202	SLIDE NUT 1/4-20
203	P0808203	LIMIT STOP
204	P0808204	CAP SCREW 1/4-20 X 1/2
205	P0808205	BALL OILER 1/4 PRESS-IN
206	P0808206	Y-AXIS HANDWHEEL ASSEMBLY
206-1	P0808206-1	HANDWHEEL TYPE-22 120D X 17B-S X 3/8-16
206-2	P0808206-2	SET SCREW M6-1 X 8
206-3	P0808206-3	HEX NUT 3/8-16
206-4	P0808206-4	HANDLE 3/8, 1D X 2-3/4L (PLASTIC)
206-5	P0808206-5	CAP SCREW 3/8-16 X 3-1/2
207	P0808207	X-AXIS HANDWHEEL ASSEMBLY
207-1	P0808207-1	HANDWHEEL TYPE-22 120D X 17B-S X M10-1.5
207-2	P0808207-2	SET SCREW M6-1 X 8
207-3	P0808207-3	FOLDING HANDLE M10-1.5 X 12, 23 X 90
209	P0808209	X-AXIS LEADSCREW CLUTCH (LEFT)
210	P0808210	ROLL PIN 5 X 38
211	P0808211	X-AXIS LEADSCREW BRACKET (LEFT)
212	P0808212	CAP SCREW 5/16-18 X 1
213	P0808213	X-AXIS LEADSCREW NUT
214	P0808214	CAP SCREW M5-.8 X 16
216	P0808216	X-AXIS LEADSCREW ASSEMBLY
216-1	P0808216-1	X-AXIS LEADSCREW
216-2	P0808216-2	THRUST BEARING 51103
216-3	P0808216-3	X-AXIS LEADSCREW BRACKET (RIGHT)
216-4	P0808216-4	GRADUATED COLLAR (METRIC)
216-5	P0808216-5	X-AXIS LEADSCREW CLUTCH (RIGHT)
216-6	P0808216-6	ROLL PIN 5 X 38
217	P0808217	KNURLED THUMB SCREW 1/4-20 X 1/2
218	P0808218	DIAL INDICATOR
219	P0808219	RIVET 2 X 4MM
220	P0808220	TABLE BASE
221	P0808221	GIB (X-AXIS)
222	P0808222	GIB (Y-AXIS)
223	P0808223	LIMIT STOP BRACKET
224	P0808224	CAP SCREW M8-1.25 X 12
225	P0808225	GIB BOLT 5/16-18 X 1
226	P0808226	BUSHING
227	P0808227	ADJUSTABLE HANDLE 2"L, 5/16-18 X 1-3/8
228	P0808228	T-KNOB 5/16-18 X 1-5/8
229	P0808229	CAP SCREW 5/16-18 X 1

REF	PART #	DESCRIPTION
230	P0808230	CAP SCREW 5/16-18 X 2-1/4-20
231	P0808231	Y-AXIS LEADSCREW NUT
232	P0808232	Y-AXIS LEADSCREW ASSEMBLY
232-1	P0808232-1	Y-AXIS LEADSCREW
232-2	P0808232-2	THRUST BEARING 51103
232-3	P0808232-3	Y-AXIS LEADSCREW BRACKET
232-4	P0808232-4	GRADUATED COLLAR (METRIC)
232-5	P0808232-5	X-AXIS LEADSCREW CLUTCH (RIGHT)
232-6	P0808232-6	ROLL PIN 5 X 38
233	P0808233	COLUMN CAP
234	P0808234	SET SCREW 5/16-18 X 5/16
235	P0808235	COLUMN COLLAR (UPPER)
236	P0808236	SET SCREW 1/2-13 X 5/8
238	P0808238	KNEE
239	P0808239	COLUMN
240	P0808240	RACK
241	P0808241	RACK RING
242	P0808242	ROLL PIN 5 X 38
243	P0808243	SET SCREW 5/16-18 X 13/16 DOG-PT
244	P0808244	HEX NUT 5/16-18
245	P0808245	STEEL BALL 10MM
246	P0808246	RACK RING BASE
247	P0808247	SET SCREW 1/2-13 X 5/8
248	P0808248	COLUMN COLLAR (LOWER)
249	P0808249	BASE
250	P0808250	U-BOLT 1/2-13
251	P0808251	U-BOLT RETAINER BLOCK
252	P0808252	HEX NUT 1/2-13
253	P0808253	HEX NUT 3/8-16
254	P0808254	FLAT WASHER 3/8
255	P0808255	Z-AXIS LOCK HANDLE 16D X 45L
256	P0808256	HEX NUT 5/8-11
257	P0808257	FLAT WASHER 5/8
258	P0808258	LOCK PLUNGER (Z-AXIS)
259	P0808259	Z-AXIS LOCK BOLT 1/2-13 X 5/8, 4-3/8L
269	P0808269	LOCK WASHER 5/16
270	P0808270	DRAIN PLUG 1/4 NPT
271	P0808271	BUSHING (BRASS)
272	P0808272	POWER FEED UNIT ALIGN AL-500D
273	P0808273	LIMIT SWITCH ALIGN DC2
274	P0808274	X-AXIS LEADSCREW GEAR 56T

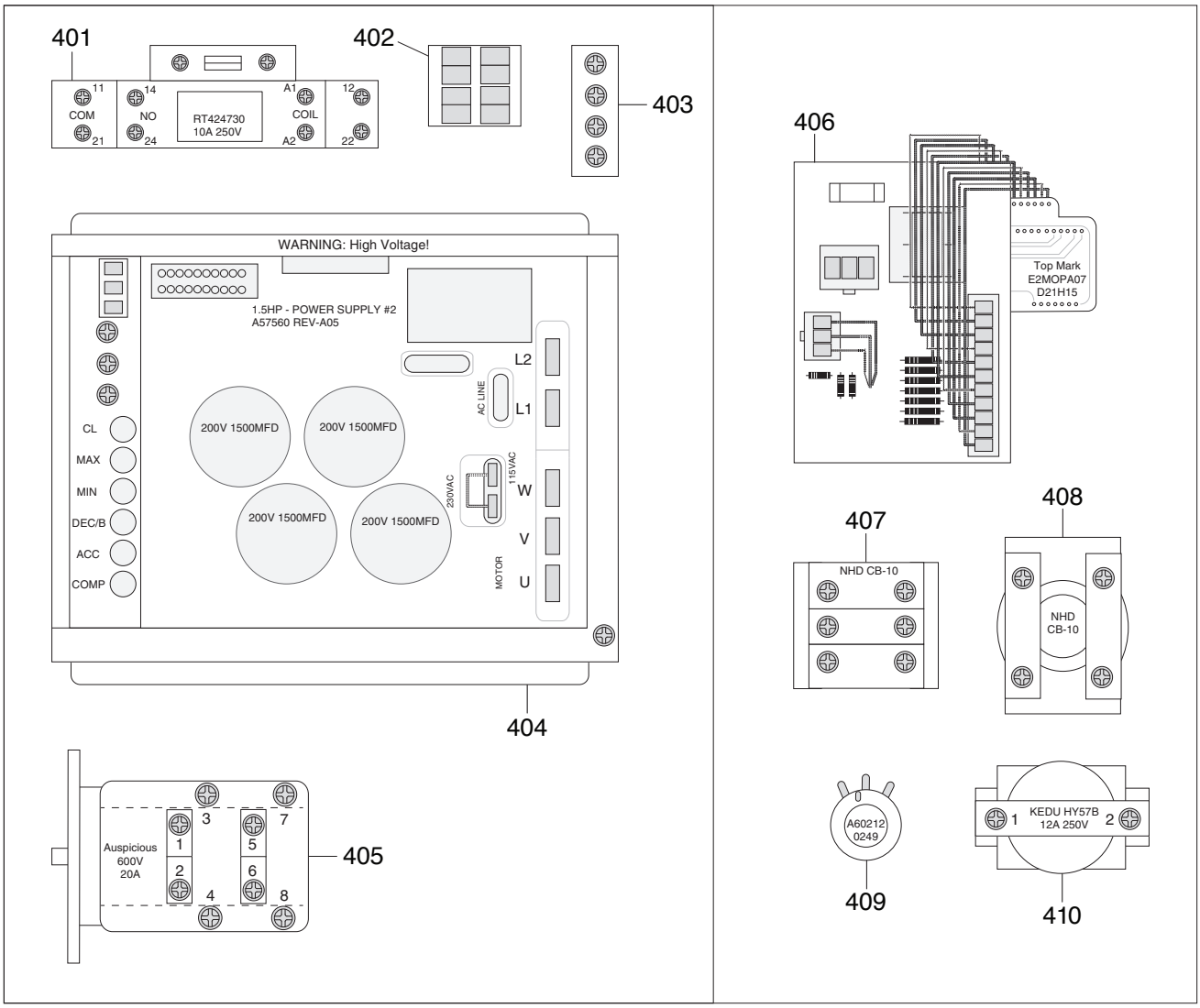
Z-Axis Power Feed



REF	PART #	DESCRIPTION
301	P0808301	WORM SHAFT
302	P0808302	WORM GEAR 33T
303	P0808303	THRUST BEARING 51104
304	P0808304	Z-AXIS CRANK BRACKET
305	P0808305	SHAFT
306	P0808306	SET SCREW M6-1 X 10
307	P0808307	Z-AXIS POWER FEED SHAFT
308	P0808308	Z-AXIS POWER FEED ASSEMBLY
309	P0808309	LOCK WASHER 8MM
310	P0808310	CAP SCREW M8-1.25 X 35
311	P0808311	SPACER
312	P0808312	BEVEL GEAR
313	P0808313	BEVEL GEAR COVER
314	P0808314	KNURLED COLLAR
315	P0808315	ROLL PIN 5 X 30
316	P0808316	DETENT COLLAR
317	P0808317	COMPRESSION SPRING 1.5 X 20 X 37
318	P0808318	Z-AXIS CRANK
319	P0808319	BEVELED WASHER 6 X 30 X 5
320	P0808320	CAP SCREW M6-1 X 20
321	P0808321	Z-AXIS CRANK HANDLE ASSEMBLY
321-1	P0808321-1	HANDLE 2-3/4"L X 1"OD X 3/8"ID (PLASTIC)

REF	PART #	DESCRIPTION
321-2	P0808321-2	CAP SCREW 3/8-16 X 3-1/2
321-3	P0808321-3	HEX NUT 3/8-16
322	P0808322	CAP SCREW M6-1 X 15
323	P0808323	LOCK WASHER 6MM
324	P0808324	Z-AXIS LIMIT SWITCH BRACKET
325	P0808325	LIMIT SWITCH TIGER HIGHLY VS10N021C
326	P0808326	PHLP HD SCR M3-.5 X 20
327	P0808327	E-CLIP 6MM
328	P0808328	FLAT WASHER 8MM
329	P0808329	LIMIT STOP CLAMP PLATE
330	P0808330	Z-AXIS LIMIT STOP BLOCK
331	P0808331	HEX BOLT 5/16-18 X 1
332	P0808332	COMPRESSION SPRING 1 X 11 X 34
333	P0808333	LIMIT STOP PLUNGER
334	P0808334	GUIDE SHAFT
335	P0808335	LIMIT STOP ASSEMBLY CLAMP PLATE
336	P0808336	LIMIT STOP ASSEMBLY MOUNT BLOCK
337	P0808337	SET SCREW M6-1 X 10
338	P0808338	LIMIT STOP ASSEMBLY MOUNT BRACKET
339	P0808339	CAP SCREW M6-1 X 15
340	P0808340	LOCK WASHER 6MM
341	P0808341	LIMIT STOP BLOCK WASHER 8MM

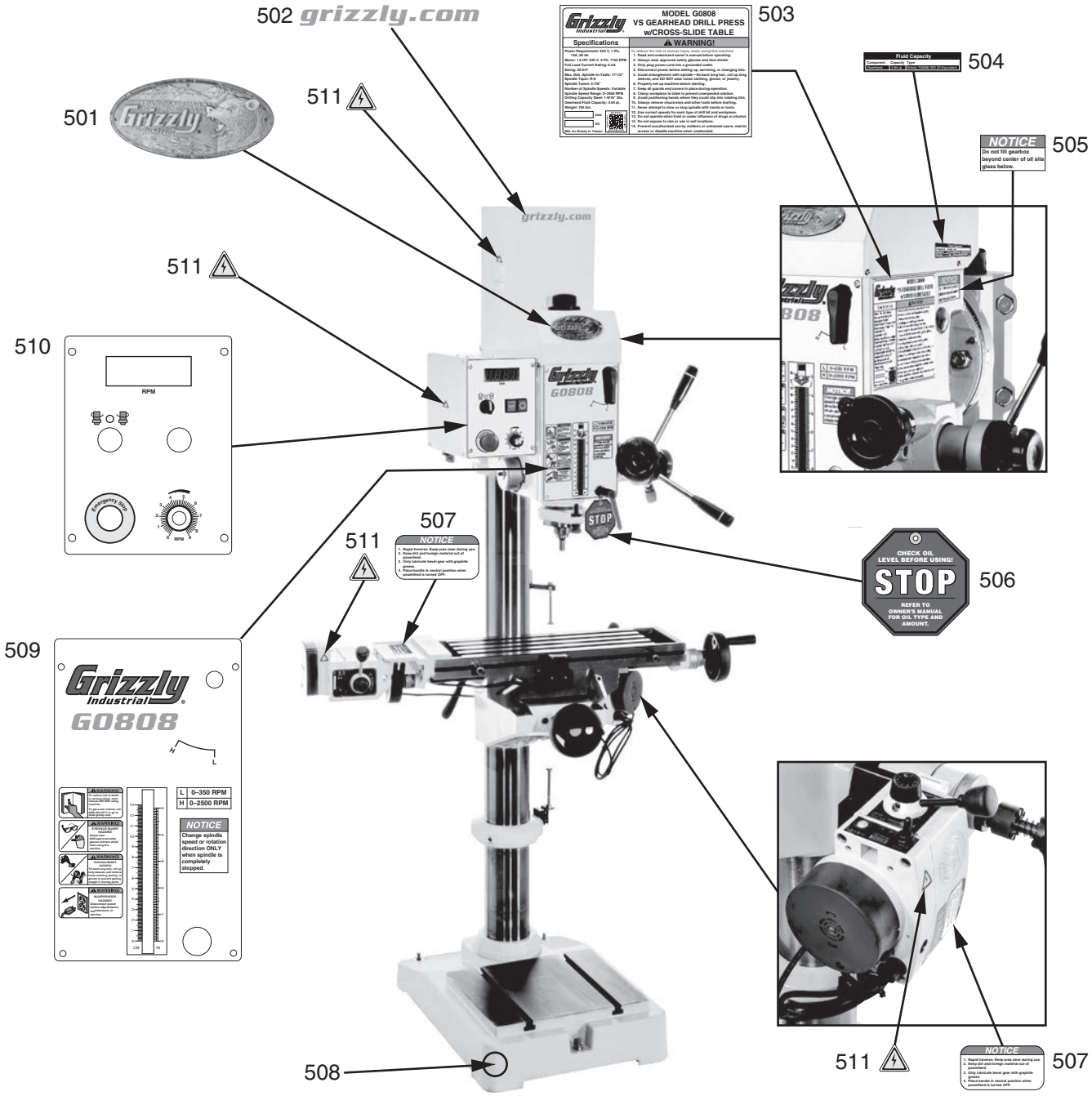
Electrical



REF	PART #	DESCRIPTION
401	P0808401	RELAY RT424730 10A 250V
402	P0808402	WIRE JUNCTION TERMINAL
403	P0808403	GROUND TERMINAL 4P
404	P0808404	CIRCUIT BOARD REV-A05 A57560
405	P0808405	ROTARY SWITCH AUSP AC-21A 600V 20A

REF	PART #	DESCRIPTION
406	P0808406	DRO TOP MARK E2MOPA07 D21H15
407	P0808407	ON/OFF SWITCH NHD CB-10 22MM
408	P0808408	ROTARY SWITCH NHD CB-10 22MM
409	P0808409	POTENTIOMETER A60212 0249
410	P0808410	E-STOP KEDU HY57B 18A 125V/12A 250V

Labels



REF	PART #	DESCRIPTION
501	P0808501	GRIZZLY NAMEPLATE
502	P0808502	GRIZZLY.COM LABEL
503	P0808503	MACHINE ID LABEL
504	P0808504	FLUID CAPACITY LABEL
505	P0808505	GEARBOX FILL NOTICE
506	P0808506	STOP CHECK OIL TAG

REF	PART #	DESCRIPTION
507	P0808507	RAPID TRAVERSE NOTICE
508	P0808508	TOUCH-UP PAINT, GRIZZLY BEIGE
509	P0808509	FACEPLATE/WARNING COMBO LABEL
510	P0808510	CONTROL PANEL LABEL
511	P0808511	ELECTRICITY 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.

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: _____

_____

_____

_____

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Stamp
Here

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

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Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY & RETURNS

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

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

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®

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