



**MODEL G0935**  
**1-1/2 HP MILL/DRILL**  
**w/POWER HEAD & STAND**  
**OWNER'S MANUAL**  
*(For models manufactured since 04/21)*



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OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**  
#AICS21883 PRINTED IN CHINA

V1.09.21



## **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

### WARNING

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

### CAUTION

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



## 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.

		MODEL GXXXX MACHINE NAME	
SPECIFICATIONS		 WARNING!	
Motor:		To reduce risk of serious injury when using this machine:	
Specification:		1. Read manual before operation.	
Specification:		2. Wear safety glasses and respirator.	
Specification:		3. Make sure machine is properly adjusted/setup and	
Specification:		4. Make sure the motor has stopped and disconnect	
Weight:		5. DO NOT expose to rain or dampness.	
		6. DO NOT modify this machine in any way.	
		7.	
		8.	
		9.	
		10. Maintain machine carefully to prevent accidents.	

Manufactured for Grizzly in Taiwan

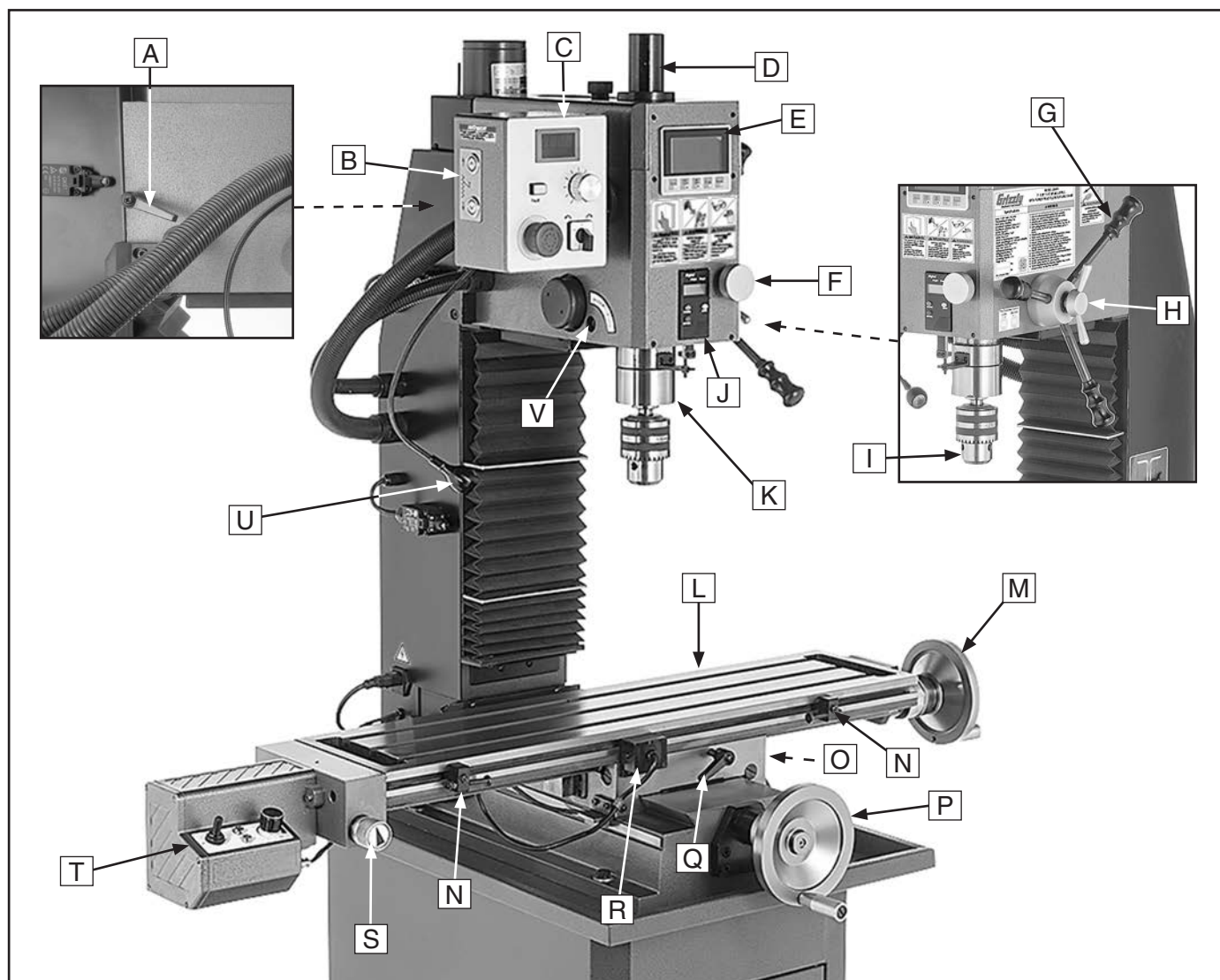
Manufacture Date:

Serial Number:



# Identification

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



- |                                    |  |
|------------------------------------|--|
| <b>A.</b> Z-Axis Lock Handle       | <b>L.</b> Table                                |
| <b>B.</b> Z-Axis Controls          | <b>M.</b> X-Axis Handwheel                     |
| <b>C.</b> Spindle Control Panel    | <b>N.</b> X-Axis Adjustable Travel Limit Stops |
| <b>D.</b> Drawbar Cover            | <b>O.</b> Y-Axis Lock Handle                   |
| <b>E.</b> 3-Axis DRO               | <b>P.</b> Y-Axis Handwheel                     |
| <b>F.</b> Fine Downfeed Knob       | <b>Q.</b> X-Axis Lock Handle                   |
| <b>G.</b> Coarse Downfeed Handle   | <b>R.</b> Power Feed Limit Switch              |
| <b>H.</b> Downfeed Selector Handle | <b>S.</b> Leadscrew Selector Knob              |
| <b>I.</b> Chuck                    | <b>T.</b> X-Axis Power Feed and Controls       |
| <b>J.</b> Spindle Depth DRO        | <b>U.</b> LED Worklight                        |
| <b>K.</b> Spindle                  | <b>V.</b> Quill Lock                           |

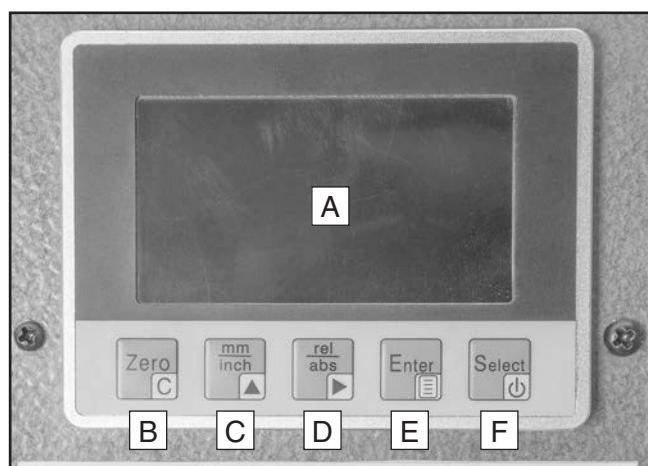


# Controls & Components



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

## 3-Axis DRO



**Figure 1.** 3-axis DRO.

**A. 3-Axis DRO Display:** Shows location and movement of table and headstock along X-, Y-, and Z-axes to within 0.001" or 0.001mm. Measurements can be recorded starting anywhere along axis movement.

**B. Zero C:** Press to zero selected axis.

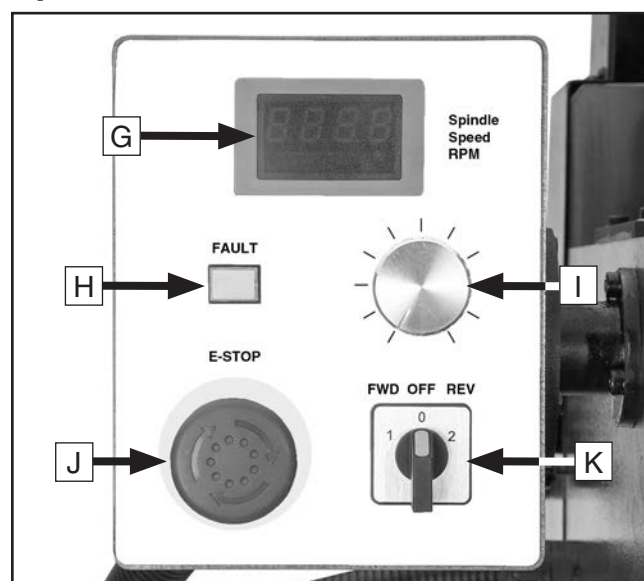
**C. mm inch:** Press to toggle between mm and inches.

**D. rel abs:** Press to toggle between absolute or relative measurement for selected axis.

**E. Enter:** Button has no function on this machine.

**F. Select:** Press to change selected axis.

## Spindle Control Panel



**Figure 2.** Spindle control panel.

**G. Spindle Speed Tachometer:** Shows spindle speed from 80–5000 RPM.

**H. FAULT Indicator:** Illuminates if an operation fault occurs, if E-STOP button is pressed, or if headstock cover is removed. Headstock cover must be in place to operate spindle. Reset FAULT by resetting E-STOP button.

**I. Spindle Speed Dial:** Rotate to turn spindle **ON** and **OFF**; varies spindle speed from 80–1700 RPM when belt is positioned for low speed range; varies spindle speed from 280–5000 RPM when belt is positioned for high speed range.

**J. E-STOP Button:** Press to stop spindle rotation and disable power to spindle control panel. Twist clockwise to reset.

**K. FWD/OFF/REV Switch:** Turn to FWD (1) to rotate spindle clockwise. Turn to REV (2) to rotate spindle counterclockwise. Turn to OFF (0) to stop spindle.





## Headstock Controls

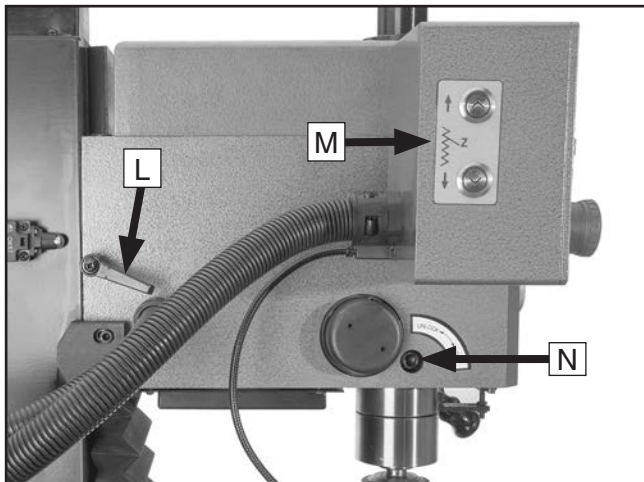


Figure 3. Z-axis controls.

- L. Z-Axis Lock Handle:** Tighten to lock headstock in position.
- M. Z-Axis Controls:** Moves headstock up or down.
- N. Quill Lock Screw:** Use with supplied quill lock hex wrench to secure quill in place for increased stability during operations.

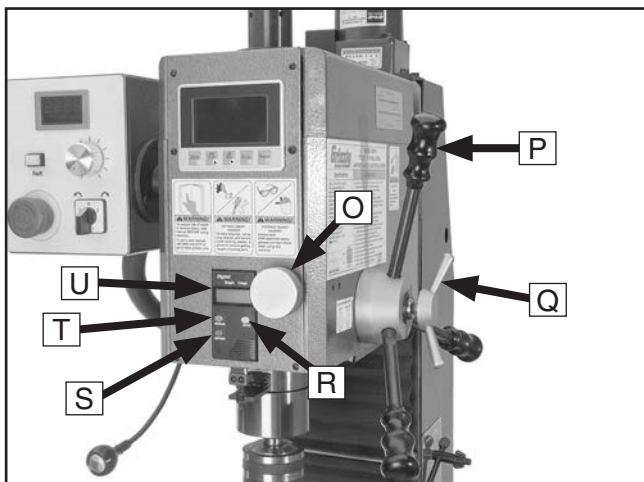


Figure 4. Spindle depth and headstock controls.

- O. Fine Downfeed Knob:** Manually controls rate of fine spindle downfeed.
- P. Coarse Downfeed Handle:** Pull down for fast spindle downfeed with drilling operations; features spring-loaded spindle return.
- Q. Downfeed Selector Handle:** Rotate to engage fine spindle control for milling operations.

- R. ZERO Button:** Press to zero Spindle Depth DRO anywhere along its travel.
- S. Spindle Depth DRO OFF/ON Button:** Press to turn Spindle Depth DRO display **ON** and **OFF**.
- T. mm/inch Button:** Press to toggle Spindle Depth DRO between inches and millimeters.
- U. Spindle Depth DRO:** Displays spindle travel and depth.

## X-Axis Power Feed Controls

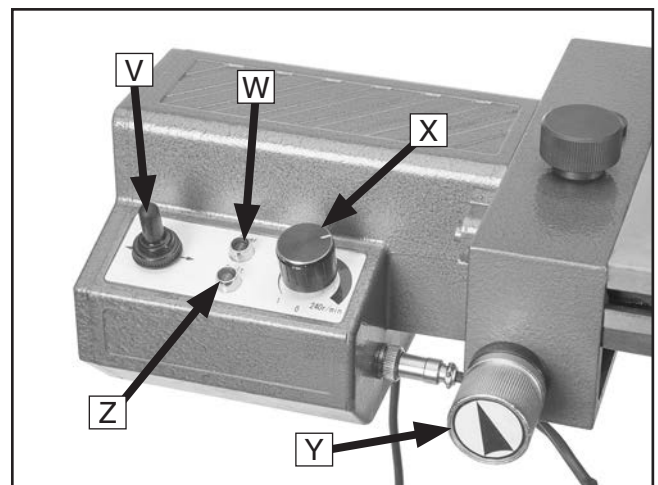


Figure 5. Power feed controls.

- V. Direction Switch:** Moves table left and right. Center toggle position stops power feed motor.
- W. Power Indicator:** Glows green when power feed is connected to power supply.
- X. Speed Control Dial:** Rotate to turn power feed **ON** and **OFF**. Varies power feed motor speed from 0–240 RPM.
- Y. Leadscrew Selector Knob:** Rotate to engage or release power feed drive gear.
- Z. Fault Indicator:** Illuminates when power feed encounters fault or when power feed limit switch is activated. Reset by turning speed control dial to 0.





# MACHINE DATA SHEET

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

## MODEL G0935 1-1/2 HP MILL/DRILL W/POWER HEAD & STAND

### Product Dimensions:

Weight..... 353 lbs.  
Width (side-to-side) x Depth (front-to-back) x Height..... 37-1/2 x 32 x 68-1/2 in.  
Footprint (Length x Width)..... 20-1/2 x 11-1/2 in.

### Shipping Dimensions:

Type..... Wood Crate  
Content..... Machine  
Weight..... 574 lbs.  
Length x Width x Height..... 47 x 37 x 81 in.  
Must Ship Upright..... Yes

### Electrical:

Power Requirement..... 110V, Single-Phase, 60 Hz  
Full-Load Current Rating..... 12A  
Minimum Circuit Size..... 15A  
Connection Type..... Cord & Plug  
Power Cord Included..... Yes  
Power Cord Length..... 60 in.  
Power Cord Gauge..... 14 AWG  
Plug Included..... Yes  
Included Plug Type..... 5-15  
Switch Type..... Forward/Reverse Switch w/Emergency Stop Button

### Motors:

#### Main

Horsepower..... 1-1/2 HP  
Amps..... 12A  
Speed..... 4000 RPM  
Type..... DC Motor  
Power Transfer ..... Belt  
Bearings..... Sealed & Permanently Lubricated

#### Z-Axis

Horsepower..... 25W  
Phase..... Single-Phase  
Amps..... 0.6A  
Speed..... 1500 RPM  
Type..... TENV Induction  
Power Transfer ..... Direct  
Bearings..... Sealed & Permanently Lubricated





## Main Specifications:

### Operation Info

Spindle Travel.....	3-5/64 in.
Max Distance Spindle to Column.....	9-1/16 in.
Max Distance Spindle to Table.....	12-5/8 in.
Longitudinal Table Travel (X-Axis).....	19-11/16 in.
Cross Table Travel (Y-Axis).....	7-7/8 in.
Vertical Head Travel (Z-Axis).....	13-3/8 in.
Drilling Capacity for Cast Iron.....	1-1/8 in.
Drilling Capacity for Steel.....	3/4 in.
End Milling Capacity.....	3/4 in.
Face Milling Capacity.....	1-15/16 in.

### Table Info

Table Length.....	29-1/8 in.
Table Width.....	7-1/16 in.
Table Thickness.....	2-1/16 in.
Table Height (from Floor/Base).....	7-1/16 in.
Table Weight Capacity.....	110 lbs.
Number of T-Slots.....	3
T-Slot Size.....	15/32 in.
T-Slots Centers.....	2-1/16 in.
X-Axis Table Power Feed Rate.....	0.001 in.
X/Y-Axis Travel per Handwheel Revolution.....	0.1 in.

### Spindle Info

Spindle Taper.....	R-8
Number of Vertical Spindle Speeds.....	2 Ranges
Range of Vertical Spindle Speeds.....	80 - 1700, 280 - 5000 RPM
Quill Diameter.....	2.36 in.
Drawbar Thread Size.....	7/16-20
Drawbar Length.....	10-13/16 in.
Spindle Bearings.....	Angular Contact Ball Bearings

### Construction

Spindle Housing/Quill.....	Cast Iron
Table.....	Cast Iron
Head.....	Cast Iron
Column/Base.....	Cast Iron
Base.....	Cast Iron
Stand.....	Cast Iron
Paint Type/Finish.....	Powder Coated

### Other Specifications:

Country of Origin .....	China
Warranty .....	1 Year
Approximate Assembly & Setup Time .....	1 Hour
Serial Number Location .....	ID Label
ISO 9001 Factory .....	Yes



**Features:**

- 18" Swing
- Bright LED Worklight
- Includes Cabinet Stand w/Built-In Storage
- Digital Spindle Depth DRO w/0.001" Resolution
- Magnetic Tool Holder
- Front-Mounted Emergency Stop Button
- 3-Axis DRO w/0.001" Resolution
- Digital RPM Display
- 0-240 RPM Variable-Speed X-Axis Power Feed
- 30W 2A DC Motor w/1800 RPM Inside Power Feed
- R-8 Spindle
- Two Variable-Speed Spindle Ranges: 80 - 1700 and 280 - 5000 RPM
- Three 12mm T-slots
- 3" Spindle Stroke w/Fine Downfeed
- 3/4" Drilling Capacity in Steel
- 1-1/8" Drilling Capacity in Cast Iron
- Motorized Head Elevation
- Handwheel Dials with 0.001" Graduations

**Accessories Included:**

- JT6 Drill Chuck 1-16mm



# 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.



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



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



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

### **NOTICE**

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

## Safety Instructions for Machinery

### **WARNING**

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

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

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

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

#### **ELECTRICAL EQUIPMENT INJURY RISKS.**

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

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

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



## WARNING

**WEARING PROPER APPAREL.** Do not wear 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 Mill/Drills

## WARNING

You can be seriously injured or killed by getting clothing, jewelry, or long hair entangled with rotating cutter/spindle. You can be severely cut or have fingers amputated from contact with rotating cutters. You can be blinded or struck by broken cutting tools, metal chips, workpieces, or adjustment tools thrown from the rotating spindle with great force. To reduce your risk of serious injury when operating this machine, completely heed and understand the following:

**UNDERSTAND ALL CONTROLS.** Make sure you understand the function and proper use of all controls before starting. This will help you avoid making mistakes that result in serious injury.

**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.

**WEAR FACE SHIELD.** Always wear a face shield in addition to safety glasses. This provides more complete protection for your face than safety glasses alone.

**USE CORRECT SPINDLE SPEED.** Follow recommended speeds and feeds for each size and type of cutting tool. This helps avoid tool breakage during operation and ensures best cutting results.

**INSPECT CUTTING TOOL.** Inspect cutting tools for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked cutting tools immediately.

**PROPERLY SECURE CUTTER.** Firmly secure cutting tool or drill bit so it does not fly out of spindle during operation.

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

**CLEAN MACHINE SAFELY.** Metal chips or shavings can be razor sharp. DO NOT clear chips by hand or compressed air that can force chips farther into machine—use a brush or vacuum instead. Never clear chips while spindle is turning.

**SECURE WORKPIECE TO TABLE.** Clamp workpiece to table or secure in a vise mounted to table, so workpiece cannot unexpectedly shift or spin during operation. NEVER hold workpiece by hand during operation.

**PROPERLY MAINTAIN 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.

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

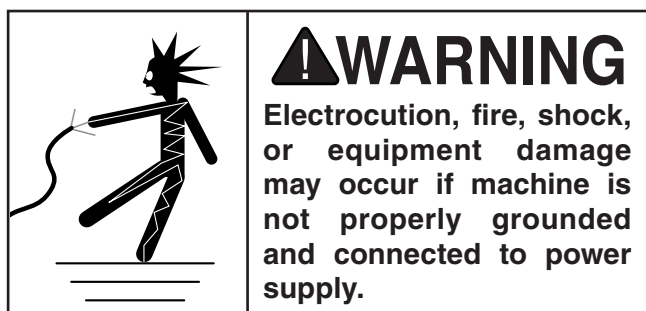
**REMOVE CHUCK KEY & SPINDLE TOOLS.** Always remove chuck key, drawbar wrench, and other tools used on the spindle immediately after use. This will prevent them from being thrown by the spindle upon startup.



# SECTION 2: POWER SUPPLY

## Availability

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



## Full-Load Current Rating

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

### Full-Load Current Rating at 110V..... 12 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.

## **! 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.**

## 110V 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 ..... 110V, 115V, 120V**  
**Cycle ..... 60 Hz**  
**Phase ..... Single-Phase**  
**Power Supply Circuit ..... 15 Amps**

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.*

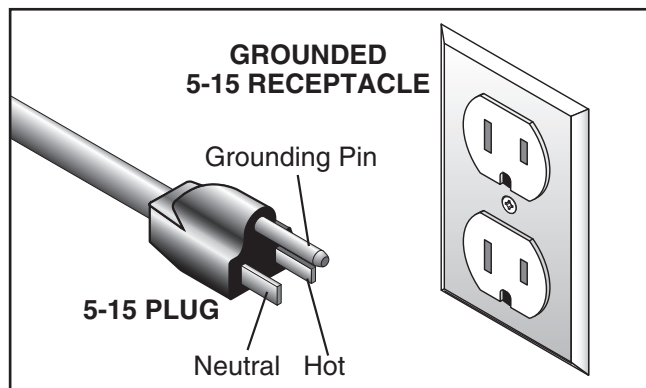




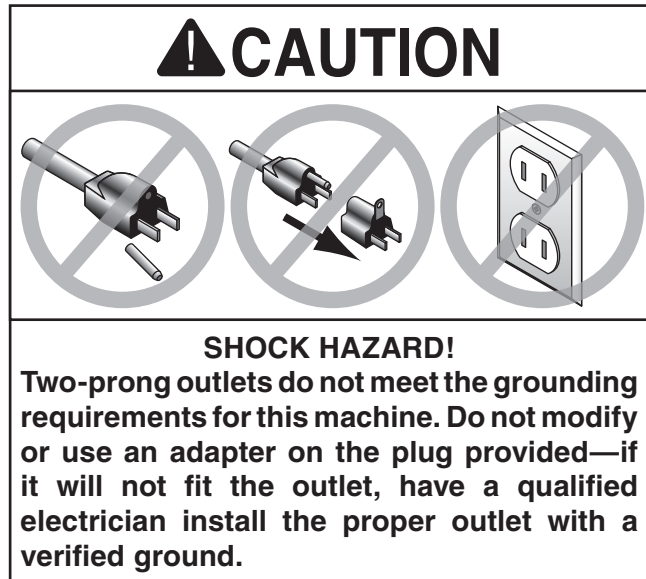
## Grounding & Plug Requirements

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 6.** Typical 5-15 plug and receptacle.



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.

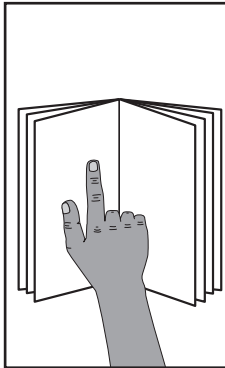
Extension cords cause voltage drop, which can damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

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 ..... 12 AWG**  
**Maximum Length (Shorter is Better)..... 50 ft.**

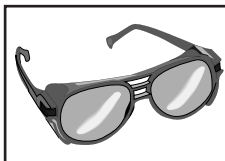


# SECTION 3: SETUP



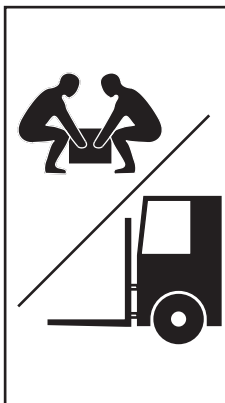
## **!WARNING**

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

- Disposable Rags ..... As Needed
- Cleaner/Degreaser ..... As Needed
- Safety Glasses (for each person) ..... 1 Pr.
- Disposable Gloves ..... As Needed
- Lifting Equipment  
(Rated for at least 750 lbs.) ..... 1
- Lifting Sling (Rated for at least 750 lbs.) .... 2
- Mounting Hardware ..... As Needed
- Flat Head Screwdriver 1/4" ..... 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.*



# 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 7)	Qty
A. Mill/Drill Unit (Not Shown) .....	1
B. Oil Bottle.....	1
C. T-Nuts M12-1.75.....	4
D. Power Cord for Mill/Drill 16AWG 59" .....	1
E. Power Cord for Power Feed 18AWG 59" ...	1
F. 5A Power Supply Adapter 16AWG 48".....	1
G. Quill Lock Lever.....	1
H. Chuck Key .....	1
I. Open-End Wrench 17/19mm .....	1
J. Open-End Wrench 14/17mm .....	1
K. Open-End Wrench 8/10mm.....	1
L. Hex Wrench 8mm.....	1
M. Low-Speed Range V-Belt.....	1
N. Fuse 2A 250V .....	1
O. Fuse 20A 250V .....	1
P. Hex Wrench Set 3, 4, 5, 6mm.....	1
Q. Spindle Spanner Wrench .....	1
R. Handwheel Handles .....	2

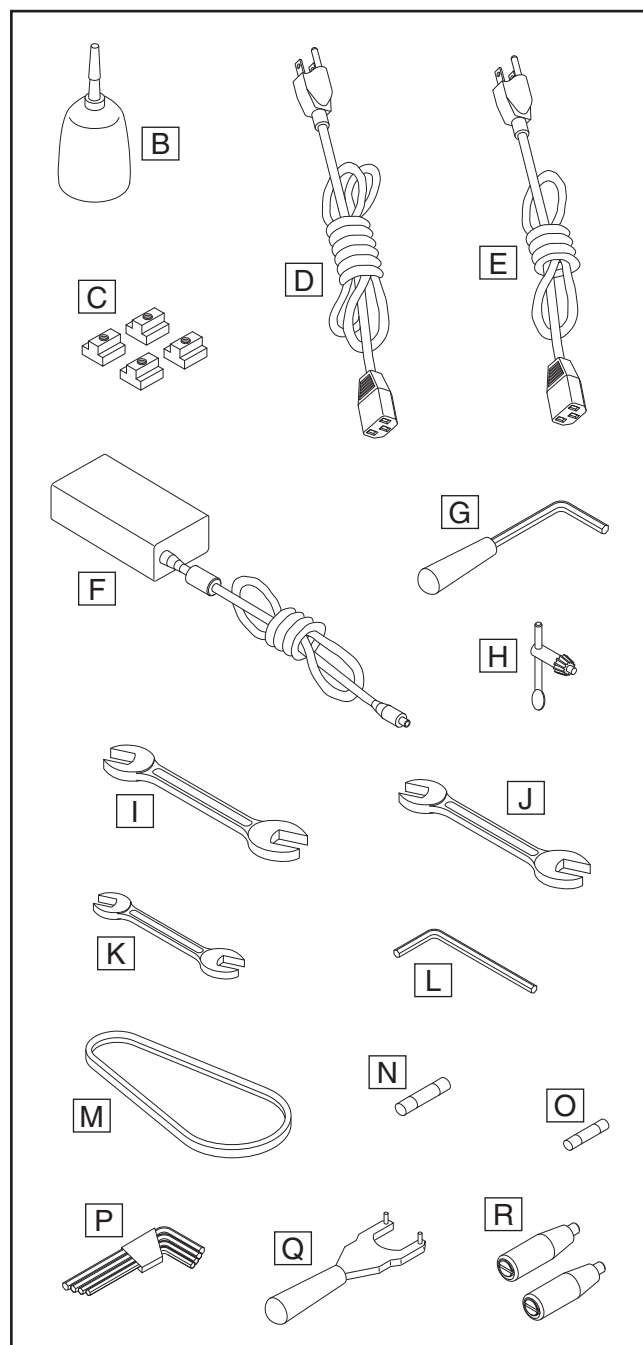


Figure 7. G0935 inventory.



# Cleanup

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

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

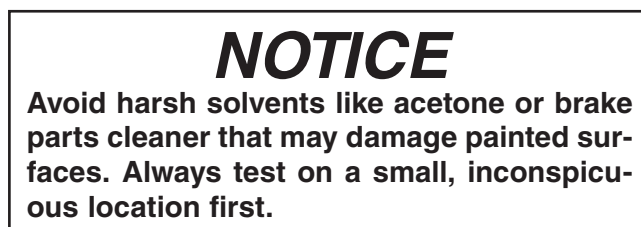
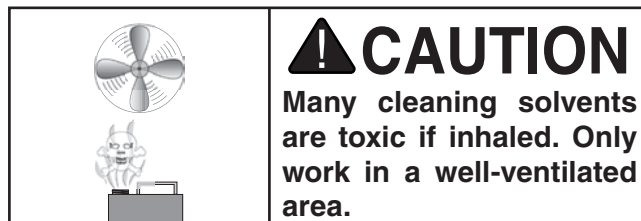
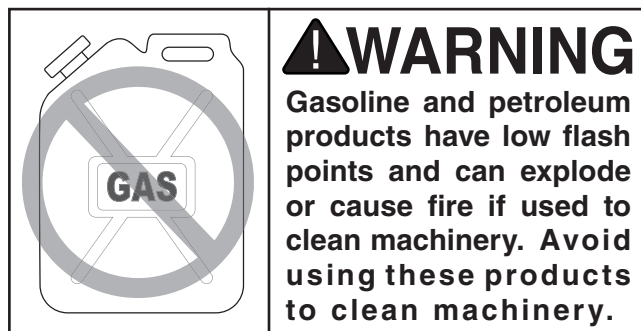
There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

## Before cleaning, gather the following:

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

## Basic steps for removing rust preventative:

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



## 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 8.** T23692 Orange Power Degreaser.



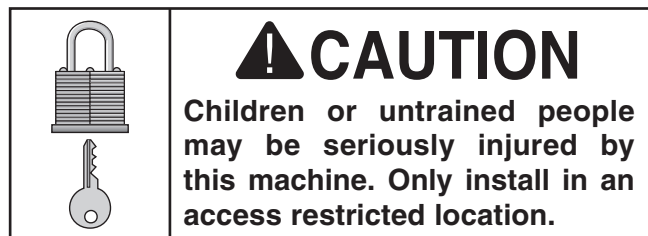
# Site Considerations

## 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.**



## Physical Environment

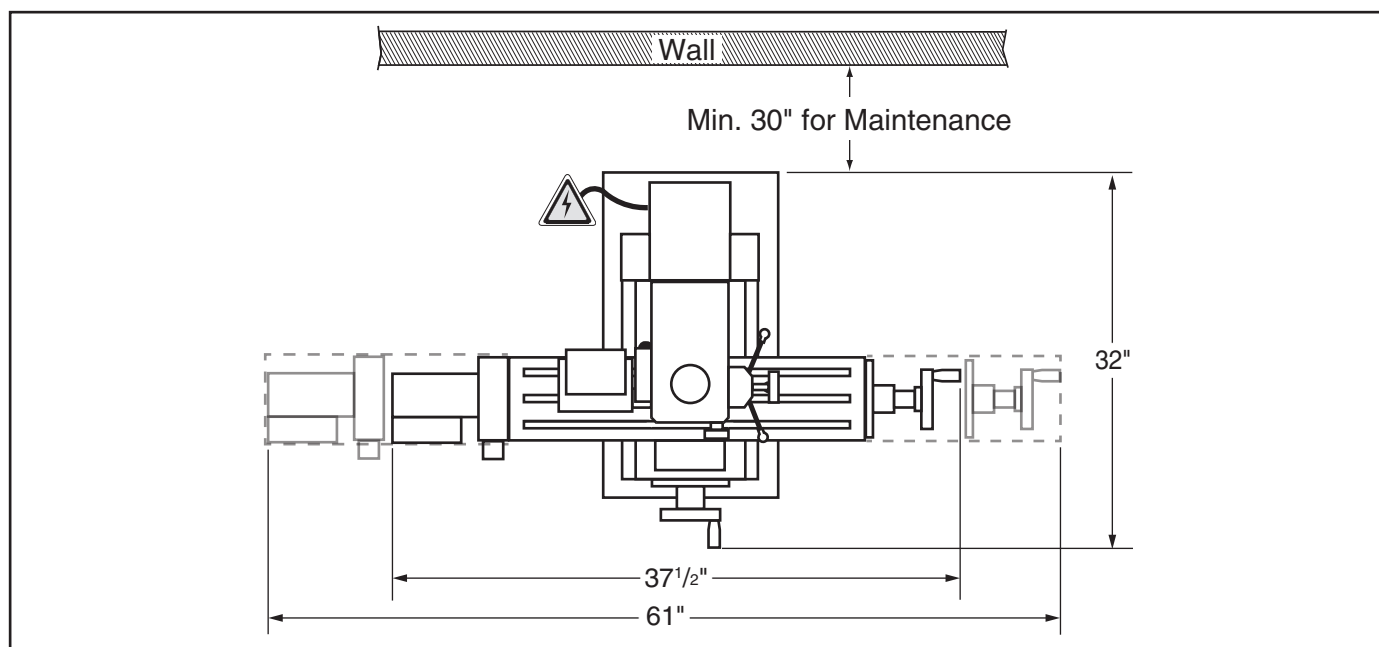
The physical environment where the machine is operated is important for safe operation and longevity of machine components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions 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

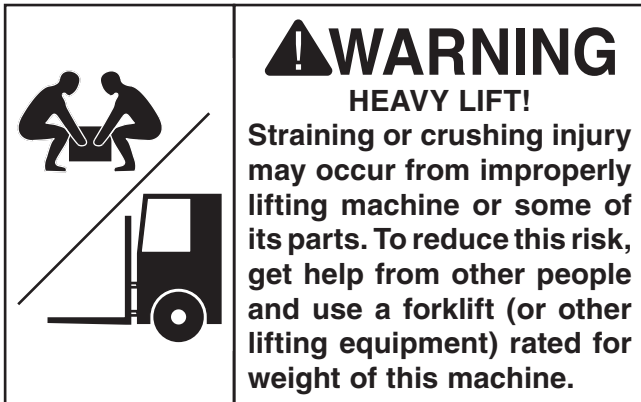
Lighting around the machine must be adequate enough that operations can be performed safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.



**Figure 9.** Minimum working clearances.



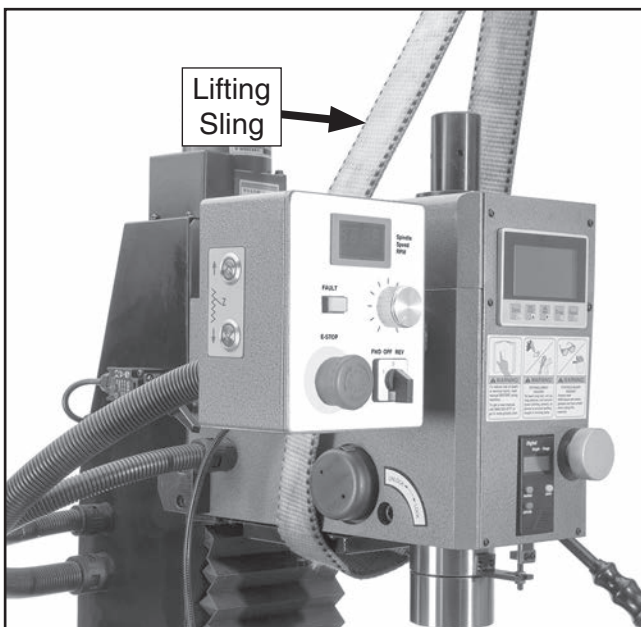
# Lifting & Placing



## To lift and place machine:

1. Move shipping crate to installation location.
2. Move machine work table as close to column as possible.
3. Tighten Z-axis and X/Y-axis table locks.
4. Position lifting sling under headstock, and connect sling ends to forklift (see **Figure 10**).

**Note:** Use caution and make sure lifting sling does not pinch or bend DRO or power cables.



**Figure 10.** Lifting sling used to lift G0935.

5. Use forklift to move machine to final location.

# Anchoring to Floor

Number of Mounting Holes ..... 4  
Diameter of Mounting Hardware..... 1/2"

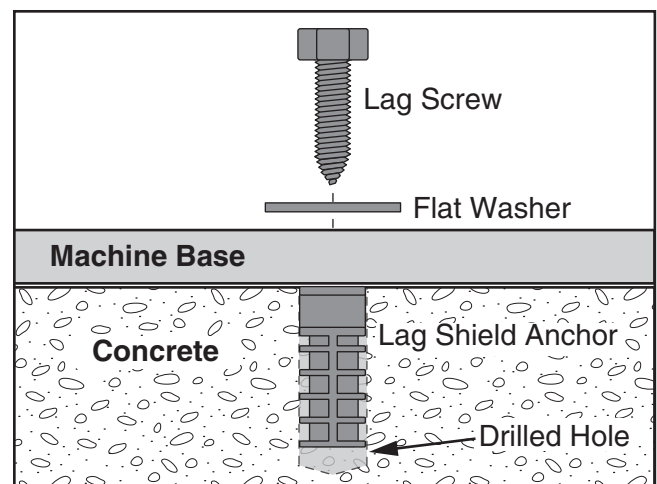
Anchoring machinery to the floor prevents tipping or shifting and reduces vibration that may occur during operation, resulting in a machine that runs slightly quieter and feels more solid.

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 11.** Popular method for anchoring machinery to a concrete floor.

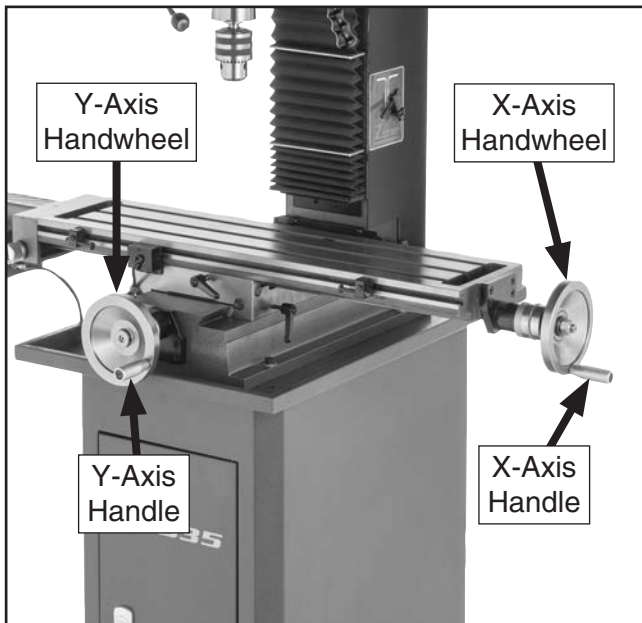




# Assembly

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 ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

The Model G0935 comes nearly fully assembled from the factory; however, the handwheel handles for the table need to be installed. Before use, thread X- and Y-axis handles into handwheels, as shown in **Figure 12**.



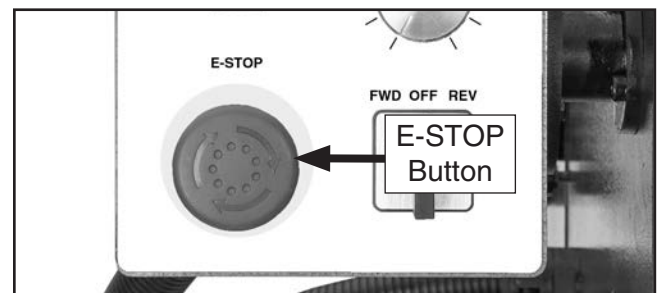
**Figure 12.** X- and Y-axis handles installed in handwheels.

# Power Connection

Before the machine can be connected to the power source, an electrical circuit and connection device must be prepared per the **POWER SUPPLY** section in this manual, and all previous setup instructions in this manual must be complete to ensure that the machine has been assembled and installed properly.

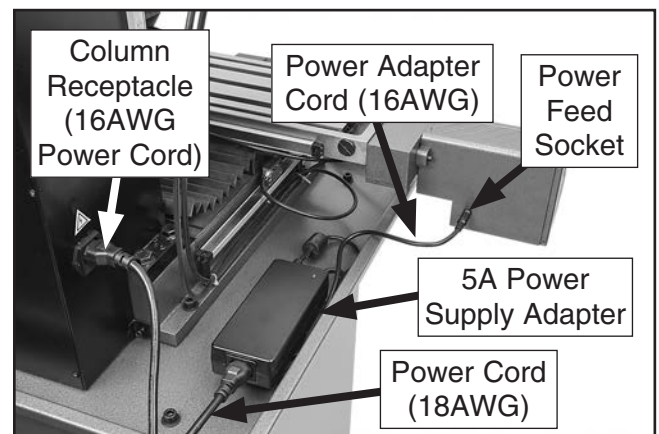
**To connect machine to power:**

1. Press E-STOP button (see **Figure 13**).



**Figure 13.** Location of E-STOP button.

2. Connect 16AWG 5A power adapter cord to power feed socket, as shown in **Figure 14**.
3. Connect 18AWG power cord socket to male receptacle on power supply adapter, as shown in **Figure 14**.
4. Connect 16AWG power cord to male receptacle on column, as shown in **Figure 14**.



**Figure 14.** Power supply connections.

5. Insert (2) power cord plugs into matching power supply receptacles.



# 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.

The test run consists of verifying the following: 1) The motor powers up and runs correctly, 2) the E-STOP button works correctly, 3) the headstock safety switch works correctly, and 4) the headstock and power feed controls work correctly.

## 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.

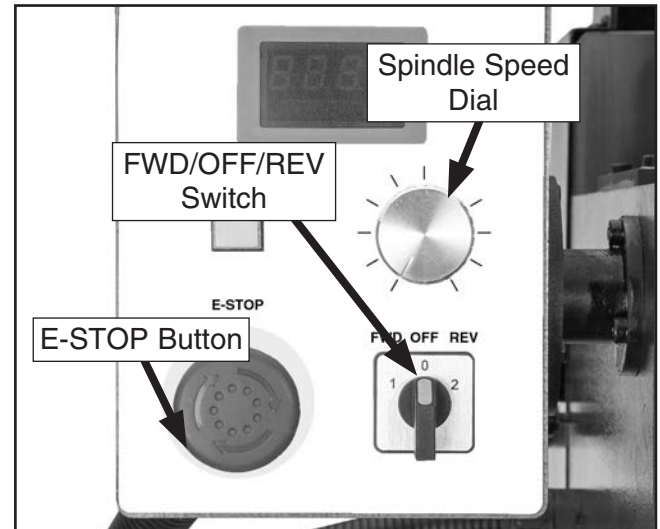
## WARNING

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.

To test run machine:

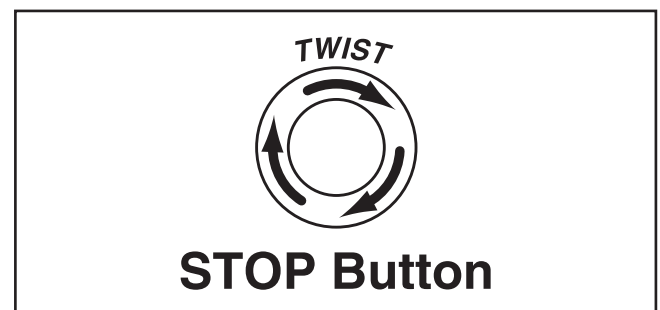
1. Clear all setup tools away from machine. Make sure cables and cords are well clear of table movement and potential direction of travel.

2. Press E-STOP button in (see **Figure 15**).
3. Turn spindle speed dial (see **Figure 15**) all the way counterclockwise. This will prevent spindle from starting at a high speed.
4. Turn FWD/OFF/REV switch to OFF position (see **Figure 15**).



**Figure 15.** Spindle control panel.

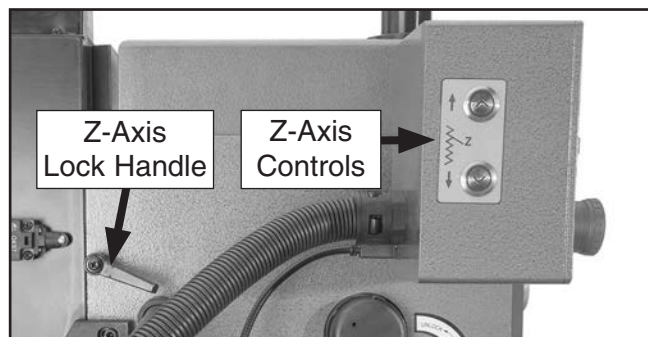
5. Connect machine to power by inserting power cord into a matching receptacle.
6. Twist E-STOP button clockwise until it springs out (see **Figure 16**). This resets switch so machine can start. Control panel will illuminate.



**Figure 16.** Resetting E-STOP button.



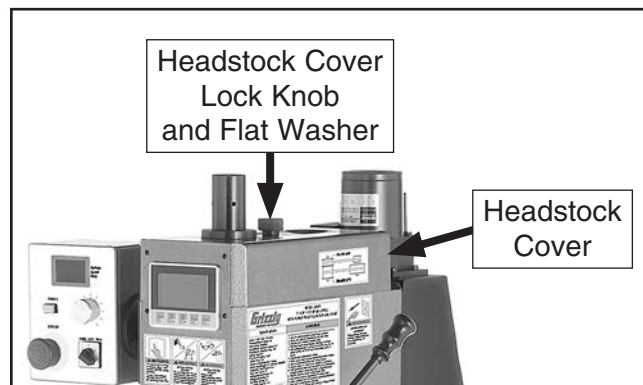
7. Loosen Z-axis lock handle, then press Z-axis buttons and verify headstock moves up and down smoothly without any unusual problems or noises (see **Figure 17**). Tighten Z-axis lock handle.



**Figure 17.** Z-axis control components.

8. Turn FWD/OFF/REV switch to FWD position.
9. Turn spindle speed dial clockwise to start spindle rotation. Verify motor starts up and runs smoothly without any unusual problems or noises.
10. Press E-STOP button to turn machine **OFF**.
11. Rotate spindle speed dial all the way counterclockwise. **WITHOUT** resetting E-STOP button, try to start spindle rotation by rotating spindle speed dial clockwise. Spindle should not rotate.
  - If spindle *does not* rotate, safety feature of E-STOP button is working correctly.
  - If spindle *does* rotate, immediately turn machine **OFF** and disconnect power. Safety feature of E-STOP button is NOT working properly and must be replaced before further using machine.

12. Remove headstock cover lock knob and flat washer to remove headstock cover (see **Figure 18**).

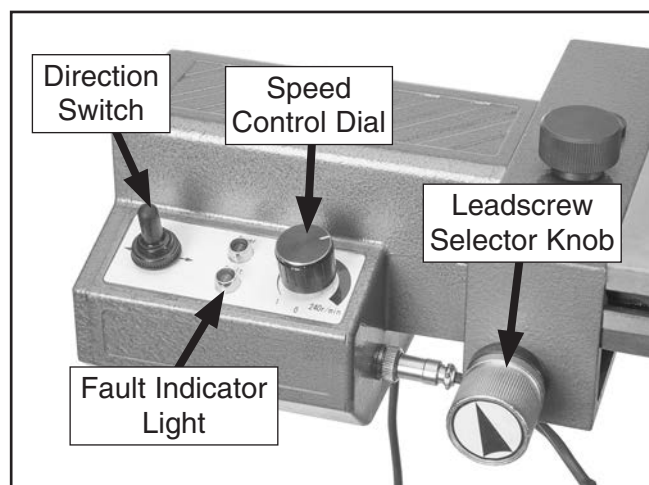


**Figure 18.** Location of headstock cover removal components.

13. Reset E-STOP button.
14. Try to start spindle rotation by turning spindle speed dial clockwise. Spindle should not rotate.
  - If spindle *does not* rotate, headstock safety switch is working correctly.
  - If spindle *does* rotate, immediately turn machine **OFF** and disconnect power. Safety feature of headstock cover safety switch is NOT working properly and must be replaced before further using machine.
15. Press E-STOP button.
16. Install headstock cover, flat washer, and lock knob.
17. Read **Controlling Table Travel** section, beginning on **Page 27**, to understand function of power feed, table locks, and limit stops.

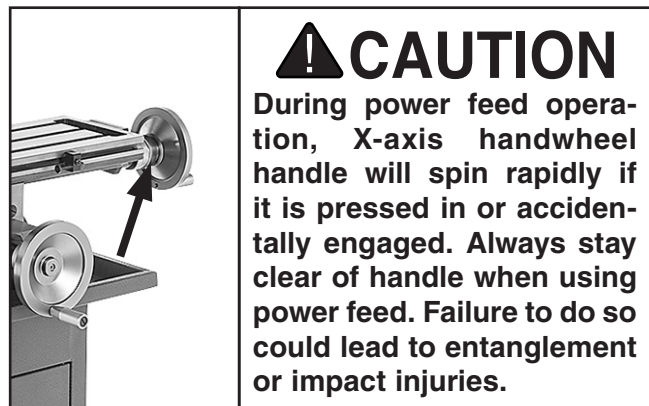


18. Turn speed control dial (see **Figure 19**) all the way counterclockwise to prevent high-speed startup.
19. Move direction switch to neutral (middle) position (see **Figure 19**).
20. Turn leadscrew selector knob (see **Figure 19**) counterclockwise to disengage power feed drive gear.

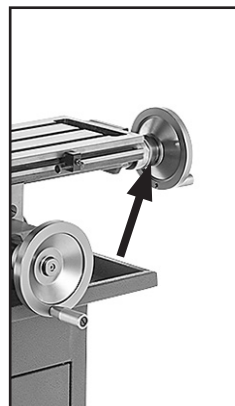


**Figure 19.** Power feed controls.

21. Connect power feed to power by inserting power cord into a matching receptacle.



**Figure 20.** X-axis table lock, table limit stops, and limit switch.



**⚠ CAUTION**

During power feed operation, X-axis handwheel handle will spin rapidly if it is pressed in or accidentally engaged. Always stay clear of handle when using power feed. Failure to do so could lead to entanglement or impact injuries.

22. Loosen X-axis table lock on front of table (see **Figure 20**).

23. Turn leadscrew selector knob clockwise to engage power feed drive gear.
24. Move direction switch to left position.
25. Turn speed control dial clockwise to turn power feed **ON**, then gradually increase speed to confirm that table is moving to left.
26. Watch for table limit stop to hit limit switch (see **Figure 20**). When it hits, fault indicator light should illuminate (see **Figure 19**) and motor should stop. If power feed does not stop, turn speed control dial all the way counterclockwise and move direction switch to middle (OFF) position.
  - If fault indicator light illuminates and power feed stops, power feed limit switch is working correctly. Proceed to **Step 27**.
  - If fault indicator *does not* illuminate, or power feed *does not* stop, fault indicator light or power feed limit switch is not working correctly. Immediately turn machine **OFF** and disconnect power. Contact Tech Support before continuing with Test Run.
27. Turn speed control dial all the way counterclockwise to correct fault mode.
28. Flip direction switch through neutral (middle) position and all the way to the right. Turn speed control dial clockwise to turn power feed **ON**. Table should begin moving to the right.





29. Confirm that table stops moving when table limit stop presses against limit switch.

- If fault indicator light illuminates and power feed stops, power feed limit switch is working correctly. Proceed to **Step 30**.
- If fault indicator *does not* illuminate, or power feed *does not* stop, fault indicator light or power feed limit switch is not working correctly. Immediately turn machine **OFF** and disconnect power. Contact Tech Support before continuing with Test Run.

30. Move direction switch to neutral (middle) position and turn speed control dial all the way counterclockwise.

- If power feed operates as expected according to **Controlling Table Travel** section, beginning on **Page 27**, congratulations! Test Run is complete. Continue to perform the **Spindle Bearing Break-In** procedure.
- If power feed *does not* operate as expected, immediately stop machine, disconnect it from power, and fix problem **BEFORE** operating machine. **Troubleshooting** table in the SERVICE section of this manual can help.

## Spindle Bearing Break-In

### NOTICE

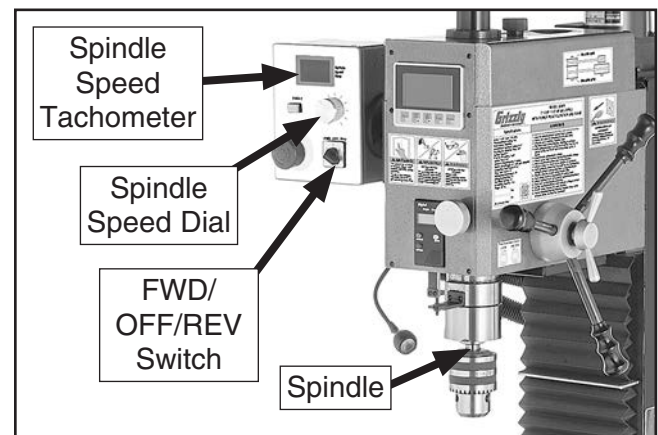
**You must complete this procedure to maintain the warranty. Failure to do this could cause rapid wear-and-tear of spindle bearings once they are placed under load.**

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 break in spindle bearing:

1. Reset E-STOP button so machine can start.
2. Turn FWD/OFF/REV switch to FWD (see **Figure 21**) to run spindle in forward direction.



**Figure 21.** Controls for spindle bearing break-in procedure.

2. Rotate spindle speed dial clockwise to turn machine **ON**, then set spindle speed at 100 RPM. Run for 10 minutes in forward direction. Turn spindle speed dial completely counterclockwise to stop spindle, turn FWD/OFF/REV switch to REV, and run spindle in reverse at 100 RPM for 10 minutes.

**Note:** Switching spindle rotation from FWD to REV without allowing spindle to come to a complete stop will result in FAULT mode and possible damage to machine. Always turn spindle speed dial completely counterclockwise and allow spindle to come to a complete stop before changing spindle direction.

3. Repeat the previous step at spindle speeds of 280, 2500, and 5000 RPM. Be sure to run the spindle for a minimum of 5 minutes in each direction of rotation at each speed.

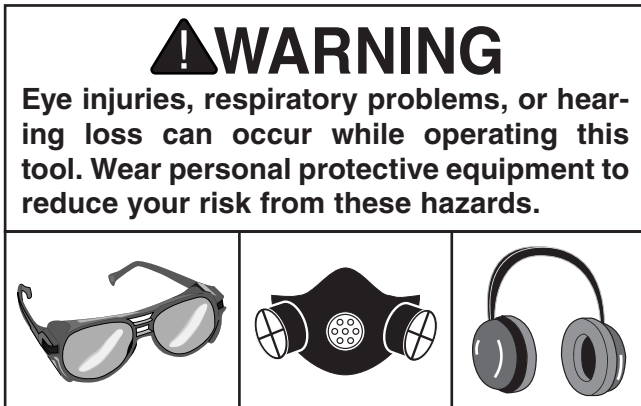


# SECTION 4: OPERATIONS

## Operation Overview

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

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



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

1. Examines workpiece to make sure it is suitable for milling/drilling.
2. Securely clamps workpiece to table.
3. With machine disconnected from power, installs correct tooling.
4. Rotates spindle speed dial all the way counterclockwise.
5. Puts on personal protective equipment.
6. Sets FWD/REV switch to suit cutting operation/tooling, connects machine to power, and resets E-STOP button.
7. Rotates spindle speed dial clockwise to turn spindle rotation **ON**, and sets correct spindle speed for operation.
8. Adjusts headstock height above table.
9. Uses table, headstock, or downfeed controls to perform operation.
10. Turns spindle rotation **OFF** when complete.
11. Waits for spindle to completely stop before removing workpiece or changing spindle direction.
12. Disconnects machine from power before changing/removing tooling.

## 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.

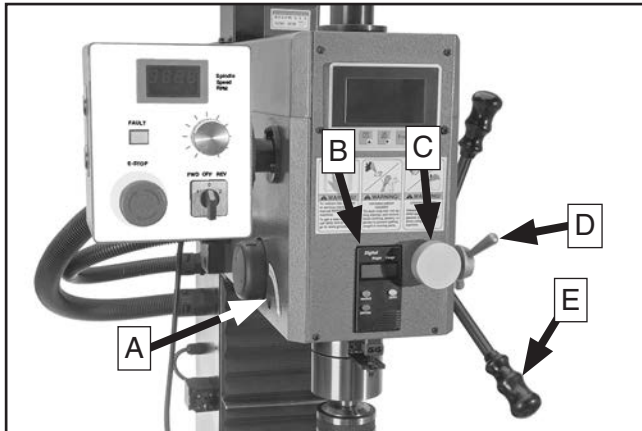




# Using Spindle Downfeed

Spindle downfeed movement on the mill is controlled by the coarse downfeed lever or the fine downfeed knob.

Use **Figure 22** and the following descriptions to become familiar with spindle downfeed controls.



**Figure 22.** Identification of downfeed controls.

- A. Quill Lock.** Secures quill in place for increased stability during operations. Use supplied quill lock lever to loosen and tighten quill.
- B. Spindle Depth DRO.** Shows depth of spindle downfeed in inches or millimeters. Measurement can be set to zero at any point along spindle travel.
- C. Fine Downfeed Knob.** Manually controls rate of fine spindle downfeed.
- D. Downfeed Selector Handle.** Tighten to use spindle with fine downfeed knob. Loosen to use spindle with coarse downfeed handles.
- E. Coarse Downfeed Handle.** Manually controls quick spindle downfeed.

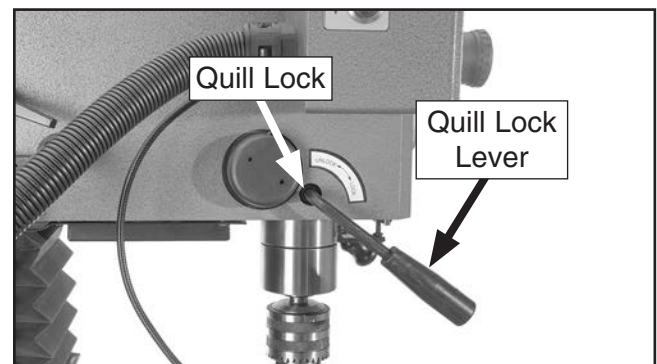
## Using Coarse Downfeed

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 to the top position when released.

**Note:** *To maintain control of the upward spindle travel and the rotating bit in your workpiece, always continue holding the handle until the spindle returns to the top position. Letting go of the handle too soon will cause the spindle to retract too quickly and slam up into the headstock.*

### To use coarse downfeed:

1. Loosen downfeed selector handle to engage coarse downfeed handles (see **Figure 22**).
2. Loosen quill lock with quill lock lever (see **Figure 23**).



**Figure 23.** Location of quill lock controls.

3. Turn spindle depth DRO **ON** and zero it out.
4. Use coarse downfeed handles to raise and lower spindle while referencing spindle depth DRO for precise movement.

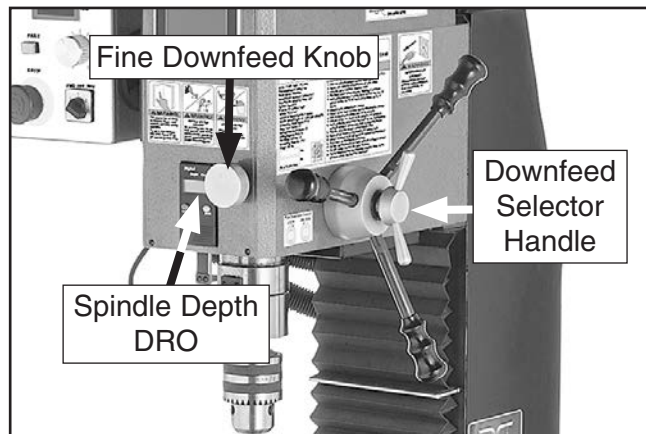


## Using Fine Downfeed

To engage the fine downfeed, turn the downfeed selector handle clockwise until tightened. When fine downfeed is engaged, the spindle only moves up or down when the fine downfeed knob is rotated (there is no automatic spindle return to the top position, as with the coarse downfeed controls).

This manual level of control makes it easy to precisely lock the spindle depth in place with the quill lock lever when milling a flat surface across the face of a workpiece, to ensure the spindle depth does not move until the entire milling operation is complete.

The fine downfeed knob allows for a precise amount of material to be removed from the workpiece (see **Figure 24**).



**Figure 24.** Fine downfeed controls.

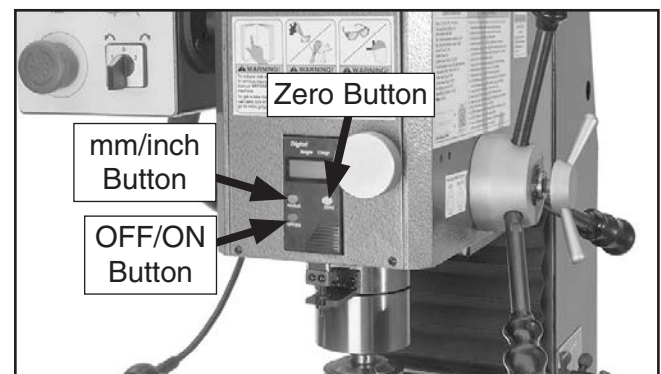
**In the following example, the fine downfeed controls are used to mill 0.010" off a workpiece:**

1. Use Z-axis controls to adjust cutting tool just above workpiece surface, then secure headstock with Z-axis lock handle on left side of column.
2. Tighten downfeed selector handle (see **Figure 24**) to engage fine downfeed knob.
3. Loosen quill lock with quill lock lever.
4. Rotate fine downfeed knob clockwise and lower cutting tool so it just touches workpiece.

5. Move workpiece out of the way, using X/Y-axis table handwheels.
6. Using spindle depth DRO to gauge spindle movement, rotate fine downfeed knob clockwise until DRO displays 0.010" of movement.
7. Tighten quill lock with quill lock lever.
8. Turn spindle speed dial clockwise, adjust speed as appropriate, and perform milling operation by moving workpiece under cutting tool with X/Y-axis table handwheels.
9. Turn spindle speed dial completely counter-clockwise when milling operation is complete.

## Using Spindle Depth DRO

1. Press OFF/ON button (see **Figure 25**). A reading should appear on display.



**Figure 25.** Spindle depth DRO.

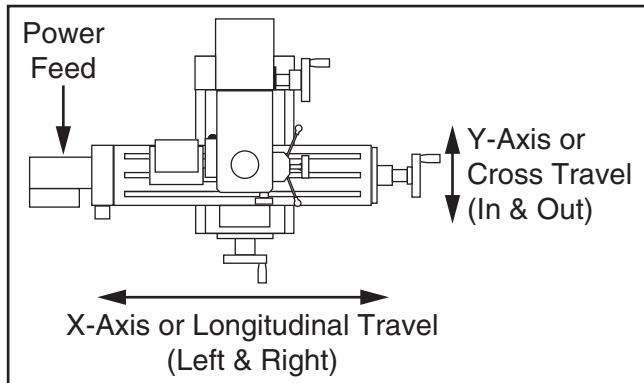
2. Press mm/inch button to select display increments of inches or millimeters.
3. Press ZERO to "zero" readout at any point along spindle travel. Current reading will be cleared and scale will reset to 0.00.
4. Press OFF/ON button when operation is complete to conserve battery.



# Controlling Table Travel

The table travels in two directions, as illustrated in **Figure 26**:

- X-axis (longitudinal, controlled by power feed or handwheel)
- Y-axis (cross, controlled by handwheel)

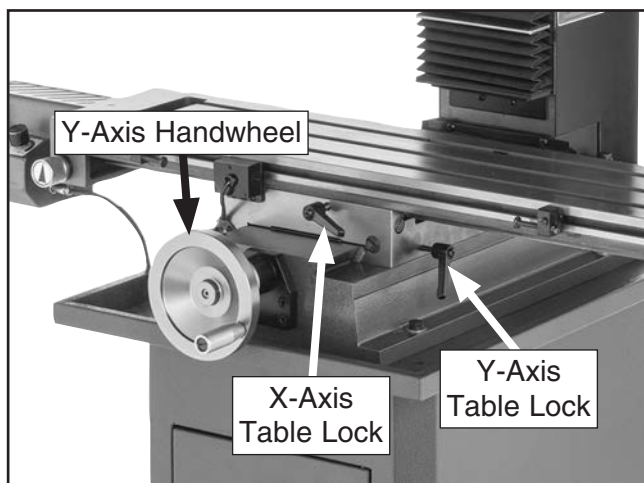


**Figure 26.** Directions of table movement.

Both the X- and Y-axes feature table locks. To ensure unexpected movement of the table does not occur during precision operations, use these locks to secure the table along any axis that should not move for any given operation.

The table handwheels have graduated dials in 0.001" increments, with one full revolution equaling 0.10".

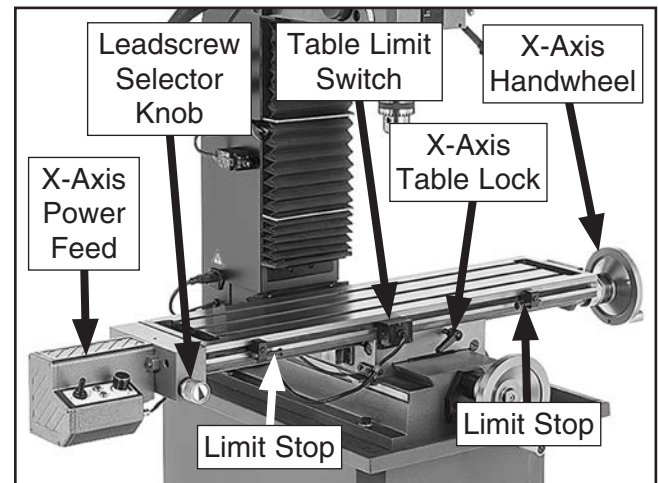
Y-axis table travel is adjusted with the handwheel on the front of the table base (see **Figure 27**).



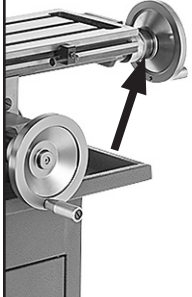
**Figure 27.** Y-axis controls.

## X-Axis Handwheel & Power Feed

X-axis table travel is controlled with both a handwheel and power feed (see **Figure 28**). The X-axis handwheel is spring-loaded. Press it in while turning to engage the leadscrew.



**Figure 28.** X-axis table travel controls.



**CAUTION**

During power feed operation, X-axis handwheel handle will spin rapidly if it is pressed in or accidentally engaged. Always stay clear of handle when using power feed. Failure to do so could lead to entanglement or impact injuries.

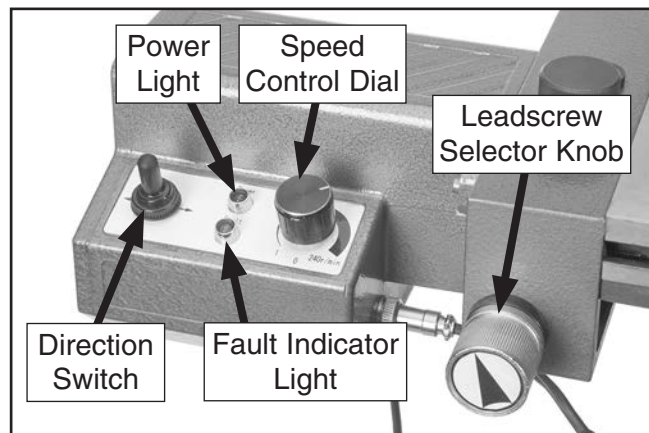
Use the leadscrew selector knob (see **Figure 28**) to engage or release the power feed drive gear. Adjustable limit stops and a limit switch (see **Figure 28**) control power feed travel.

## NOTICE

There is no separate power switch for the power feed. Make sure power cords and other wires do not interfere with table movement.



The power feed speed is variable from 0–240 RPM. Turn the speed control dial clockwise to turn the power feed **ON** and adjust the speed (see **Figure 29**).



**Figure 29.** Table power feed controls.

## Using Power Feed

1. Adjust location of table travel limit stops to suit workpiece (see **Figure 29**). Lock stops in position.
2. Connect power feed to provided 5A power supply and grounded 5-15 outlet. Power light will illuminate.
3. Turn leadscrew selector knob clockwise to engage power feed drive gear.

**Note:** To move table with X-axis handwheel, turn leadscrew selector knob counterclockwise to disengage power feed drive gear.

4. Loosen X-axis table lock (see **Figure 27** on **Page 27**).
5. Move direction switch to neutral (middle) position (see **Figure 29** on **Page 27**).
6. Turn speed control dial clockwise to turn power feed **ON** (see **Figure 28** on **Page 27**).
7. Use direction switch and speed control dial (see **Figure 29** on **Page 27**) to move table to desired position. Move direction switch to neutral (middle) position to stop power feed and table movement.

8. Turn leadscrew selector knob counterclockwise and use X-axis handwheel to make fine adjustments to table location.
9. If fault light illuminates, power feed has exceeded table travel limit or reached an obstruction. Eliminate fault condition by turning speed control dial to "0" position and moving direction switch to neutral (middle) position.

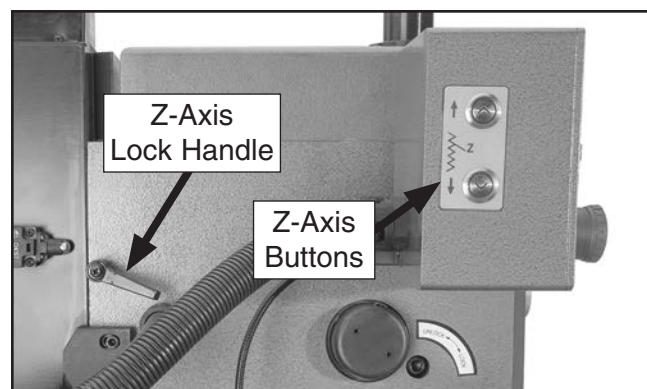
## Adjusting Headstock

The headstock can be adjusted up and down the column (Z-axis). The G0935 has a dovetailed slide that allows users to reposition the headstock or change tooling without losing workpiece alignment with a hole or milling path.

### To adjust headstock:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen Z-axis lock handle shown in **Figure 30**.
3. Use Z-axis buttons shown in **Figure 30** to adjust headstock height, then tighten Z-axis lock handle.

**Note:** For maximum spindle rigidity when milling, keep the spindle retracted into the headstock as far as possible with quill locked and fine downfeed lock knob tightened.



**Figure 30.** Z-axis controls.





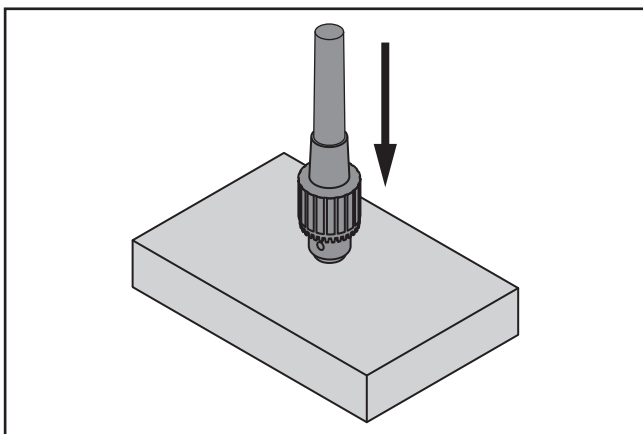
# Joining New Drill Chuck & Arbor

An arbor and drill chuck come pre-installed on this machine. The following procedure describes how to install a new chuck in the case that you want a different chuck in the future. As it is very difficult to separate an existing chuck and arbor assembly, we recommend obtaining a new arbor and joining the two together.

Items Needed	Qty
Acetone or Lacquer Thinner.....	As Needed
New Chuck .....	1
New Arbor .....	1
Block of Wood .....	1

## To join drill chuck and arbor:

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



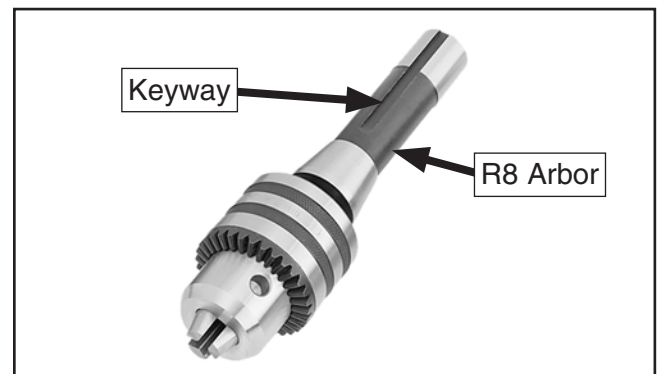
**Figure 31.** Tapping drill chuck/arbor on block of wood.

5. Attempt to separate drill chuck and arbor by hand—if they separate, repeat **Steps 3–4**.

# Removing/Installing Tooling

This machine features an R8 spindle taper and requires R8 tooling. R8 tooling arbors are secured in position from the top end with a drawbar and feature a keyway for easy alignment.

Before installation, always ensure the tapered surfaces of the arbor and spindle are completely clean and free of any dust, debris, or lint. This will help ensure proper fit and accurate cutting results.



**Figure 32.** Drill chuck joined with R8 arbor.

**! 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.

The R8 arbor supports a wide range of tools, such as machining arbors, end-mill holders, and fly cutters for cutting operations.

## Removing Tooling

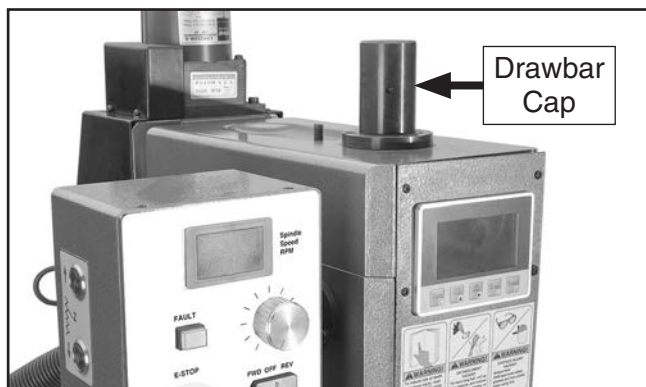
Tools Needed	Qty
Hex Wrench 8mm.....	1
Spindle Spanner Wrench .....	1
Brass-Head or Dead-Blow Hammer.....	1



## To remove tooling:

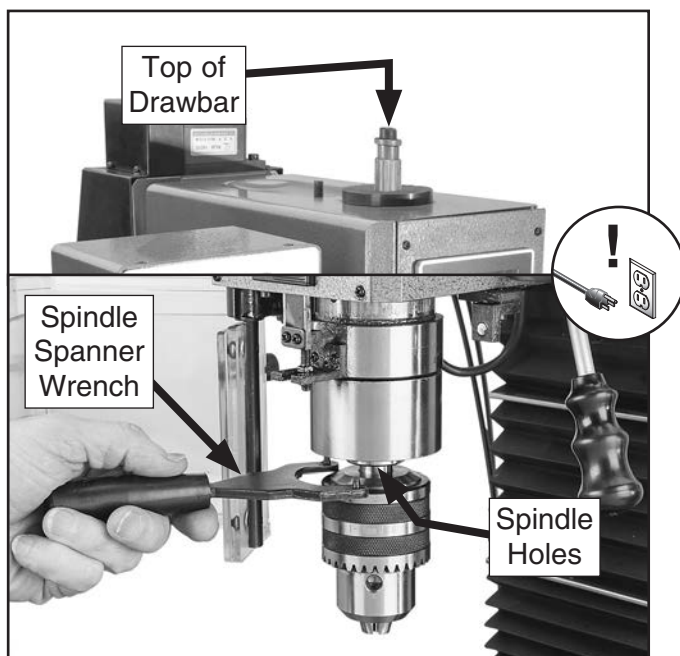
1. DISCONNECT MACHINE FROM POWER!
2. Unscrew drawbar cap to remove (see **Figure 33**).

**Note:** There is a hole in top of the drawbar cap to allow access to drawbar and to perform the following steps without removing cap.



**Figure 33.** Location of drawbar cap.

3. Use hex wrench in top of drawbar and spindle spanner wrench in holes in bottom of spindle to loosen drawbar (see **Figure 34**).

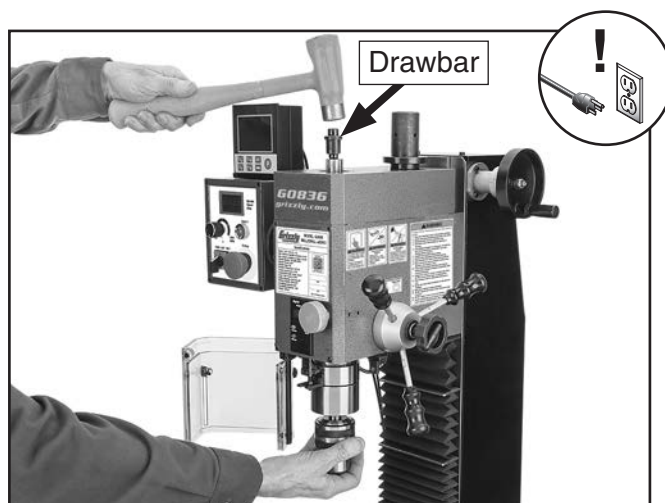


**Figure 34.** Using hex wrench and spindle spanner wrench to loosen drawbar.

## NOTICE

**DO NOT** completely unscrew drawbar before striking it with hammer in following step. You will damage threads on drawbar and arbor.

4. Tap top of drawbar with brass-head or dead-blow hammer to unseat taper, as shown in **Figure 35**.



**Figure 35.** Example of using hammer to loosen drawbar.

5. Hold onto tooling with one hand and fully unthread drawbar with other hand.

## Installing Tooling

Tools Needed	Qty
Hex Wrenches 3, 8mm.....	1 Ea.
Spindle Spanner Wrench .....	1

### To install tooling:

1. DISCONNECT MACHINE FROM POWER!
2. Clean debris or oily substances from inside spindle taper and tooling mating surface.
3. Align keyway of tool arbor with protruding pin inside spindle taper, and firmly push arbor into spindle to seat it.
4. With one hand holding tool in place, insert drawbar into spindle from top of headstock, then thread it into tool by hand until snug.





## NOTICE

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

5. Use hex wrench in top of drawbar and spindle spanner wrench in holes in bottom of spindle to tighten drawbar (see **Figure 34**).
6. Install drawbar cap.

## Setting 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 determine the best spindle speed for the cutting task, and adjust the spindle speed range and spindle speed dial to the required 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 36**.

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

\*Double if using carbide cutting tool

**Figure 36.** Spindle speed formula for mill/drills.

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

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

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

Also, there are many spindle-speed calculators on the internet. These sources will help you consider the applicable variables in order to determine the best spindle speed for the operation.

### Setting Spindle Speed Range

The Model G0935 has two spindle speed ranges: a low speed range that spans from 80–1700 RPM and a high speed range that spans from 280–5000 RPM. Each speed range is determined by the belt configuration on the pulleys.

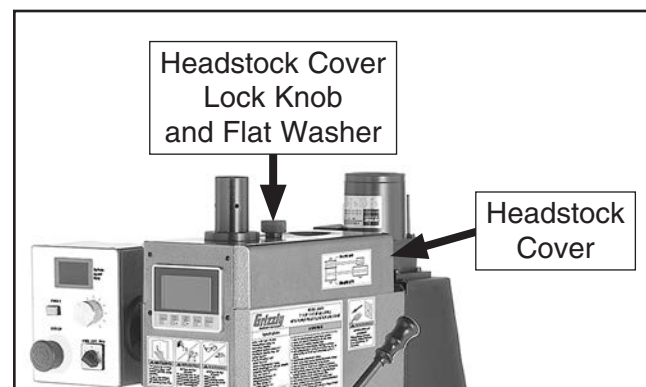
#### Tools Needed

Qty

Hex Wrench 4mm..... 1

#### To set spindle speed range:

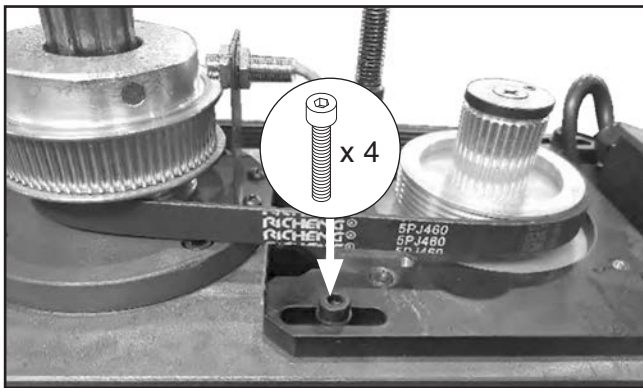
1. DISCONNECT MACHINE FROM POWER!
2. Remove headstock cover lock knob and flat washer to remove headstock cover (see **Figure 37**).



**Figure 37.** Location of headstock cover removal components.

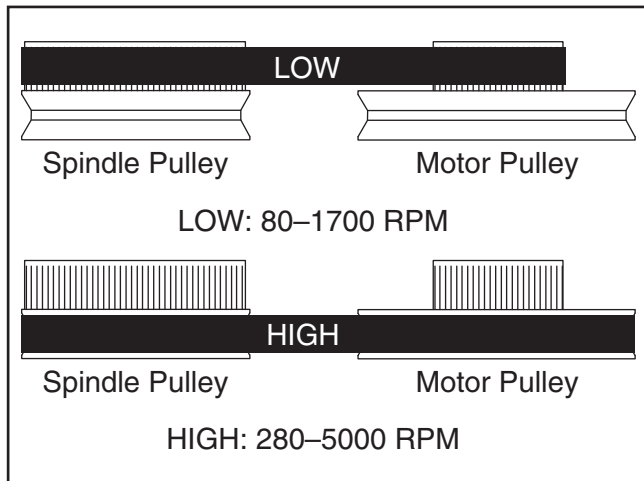


- Loosen (4) cap screws shown in **Figure 38** to release belt tension.



**Figure 38.** Location of belt tension cap screws.

- Refer to belt configuration chart shown in **Figure 39** to configure belts on pulleys for selected spindle speed range.

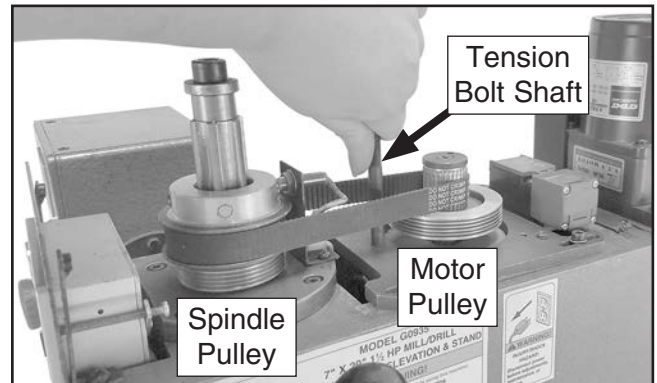


**Figure 39.** Belt configuration chart.

**IMPORTANT:** Model G0935 ships with high speed range belt installed. Belt for low speed range is smaller than high speed range belt and has teeth to engage upper pulleys. Only one belt should be installed at a time, and belt must be installed on correct pulleys.

— If either belt is worn or damaged, replace.

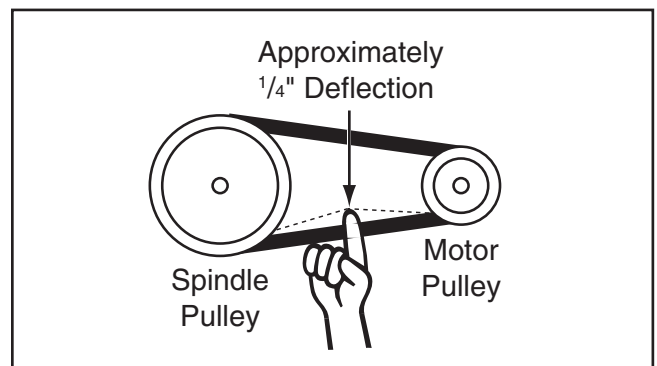
- After belt is properly positioned on pulleys, use tension bolt shaft shown in **Figure 40** to push motor pulley away from spindle pulley and engage belt tension.



**Figure 40.** Applying belt tension.

- Tension belt until there is approximately  $\frac{1}{4}$ " of belt deflection when you apply moderate pressure on belt with your finger (see **Figure 41**).

— If belt cannot be tensioned correctly, belt is worn and needs to be replaced.



**Figure 41.** Correct belt deflection.

- When belt has been tensioned correctly, tighten (4) cap screws loosened in **Step 3** to secure.
- Install headstock cover and secure with flat washers and headstock cover lock knob.



# SECTION 5: ACCESSORIES

## **! WARNING**

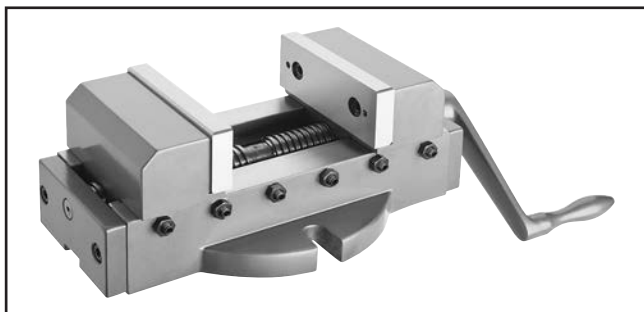
Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

## **NOTICE**

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

### **H7576—Precision Self-Centering Vise**

Both jaws on this precision vise move in equal and opposite directions so vise remains centered with the milling machine spindle. Maximum jaw opening 4".



**Figure 42.** H7576 Specialty Milling Vise.

### **G9760—20-Pc. 2 & 4 Flute TiN End Mill Set**

Includes these sizes and styles in two and four flute styles:  $\frac{3}{16}$ ",  $\frac{1}{4}$ ",  $\frac{5}{16}$ ",  $\frac{3}{8}$ ",  $\frac{7}{16}$ ",  $\frac{1}{2}$ ",  $\frac{9}{16}$ ",  $\frac{5}{8}$ ",  $\frac{3}{8}$ ",  $\frac{11}{16}$ ", and  $\frac{3}{4}$ ".



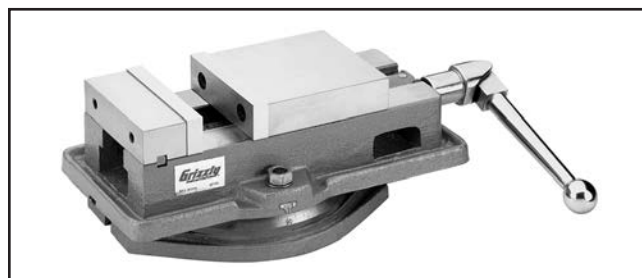
**Figure 43.** G9760 20-Pc. End Mill Set.

### **G7156—4" ( $3\frac{5}{8}$ ") Precision Milling Vise**

### **G7154—5" ( $4\frac{1}{2}$ ") Precision Milling Vise**

### **G7155—6" ( $5\frac{5}{8}$ ") Precision Milling Vise**

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



**Figure 44.** G7154 Precision Milling Vise.

### **T26485—58-Pc. Clamping Kit**

This clamping kit includes: (24) studs (four studs each: 3", 4", 5", 6", 7", and 8" long), (6) step block pairs, (6) T-nuts, (6) flange nuts, (4) coupling nuts, and (6) end hold-downs. The Model T26485 set fits  $\frac{7}{16}$ " T-slots and includes  $\frac{3}{8}$ "-16 studs. Racks can be bolted to the wall or side of machine for easy access.



**Figure 45.** T26485 58-Pc. Clamping Kit.

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



### **T25702— 5-Pc. R8 End Mill Holder Set**

This all-inclusive set features a precision 3" boring head, R8 shank, five-piece set of  $\frac{3}{4}$ " carbide tipped boring bars, five-piece set of  $\frac{1}{2}$ " HSS boring bars,  $\frac{1}{2}$ " to  $\frac{3}{4}$ " adapter, wrenches and fitted case.



**Figure 46.** T25702 5-Pc. R8 End Mill Holder Set.

### **G5680—Adjustable Parallel Set**

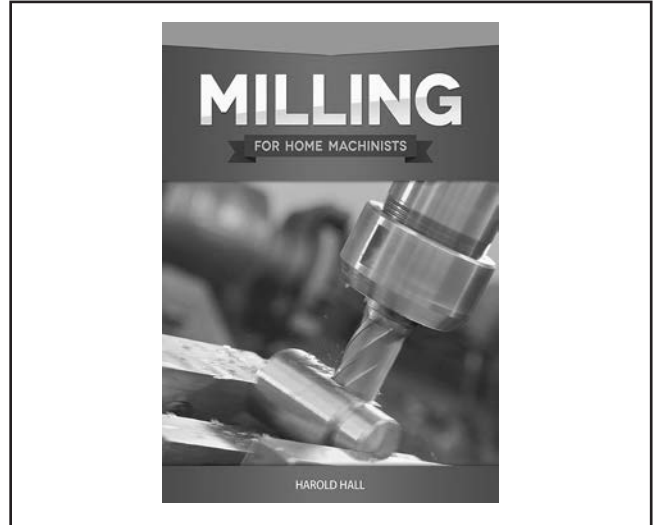
Create any parallel from  $\frac{3}{8}$ " to  $2\frac{1}{4}$ " with this six-piece adjustable parallel set. Features machined and ground faces and locking set screws. Protected in a vinyl pouch.



**Figure 47.** G5680 Adjustable Parallel Set.

### **T25615—Milling for Home Machinists**

This is a project-based course book that provides a complete introduction to milling and the use of the milling machine. It assumes no prior knowledge and works through the process of using a home shop mill from beginning to end.



**Figure 48.** T25615 Milling for Home Machinists.

### **G2861—Face Mill**

#### **G4051—Replacement Carbide Inserts**

This  $2\frac{1}{2}$ " Face Mill accepts four carbide inserts (included) and comes with an R8 arbor. It takes a  $\frac{7}{16}$ "-20 drawbar.



**Figure 49.** G2861 Face Mill.

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



**T23889—V-Block Set with Clamp-Double Slot**  
 These clamping V-blocks feature double slots for extra clamping options. Hardened and ground to ensure accuracy and durability. Capacity 1½" diameter and each measures 2" L x 1⅞" W x 1⅞" H.



**Figure 50.** T23889 V-Block Set.

**T26419—NLGI#2 Syn-O-Gen Synthetic Grease**  
 Formulated with 100% pure synthesized hydrocarbon basestocks that are compounded with special thickeners and additives to make Syn-O-Gen non-melt, tacky, and water resistant. Extremely low pour point, extremely high temperature oxidation, and thermal stability produce a grease that is unmatched in performance.



**Figure 51.** T26419 Syn-O-Gen Synthetic Grease.

## SB1365—South Bend Way Oil-ISO 68

Engineered for the high pressure exerted on horizontal or vertical ways and slides. Protects against rust and corrosion. Ensures stick-free, smooth motion which maximizes finishes and extends the life of your machine. Won't gum up! 12 oz. AMGA#2 (ISO 68 Equivalent)



**Figure 52.** SB1365 South Bend Way Oil.

## Recommended Metal Protectants

G5562—SLIPIT® 1 Qt. Gel

G5563—SLIPIT® 12 Oz. Spray

G2870—Boeshield® T-9 4 Oz. Spray

G2871—Boeshield® T-9 12 Oz. Spray

H3788—G96® Gun Treatment 12 Oz. Spray

H3789—G96® Gun Treatment 4.5 Oz. Spray



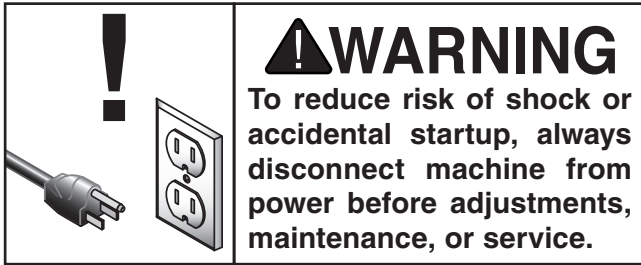
**Figure 53.** Recommended products for protecting unpainted cast iron/steel parts on machinery.

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





# SECTION 6: MAINTENANCE



## Schedule

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

### Ongoing

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

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

### Daily Maintenance

- Lubricate table and column ways (**Page 37**).
- Lubricate quill outside surface (**Page 38**).

### Weekly Maintenance

- Lubricate leadscrews (**Page 37**).

### Semi-annual Maintenance

- Lubricate quill rack (**Page 38**).

## Cleaning and Protecting

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

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

Keep unpainted cast-iron surfaces rust-free with regular applications a quality metal protectant (see **Page 35** for offerings from Grizzly).

## NOTICE

The recommended lubrication is based on light-to-medium usage. Since lubrication helps to protect value and operation of machine, these lubrication tasks may need to be performed more frequently than recommended, depending on usage.

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





# 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!

## Table and Column Ways

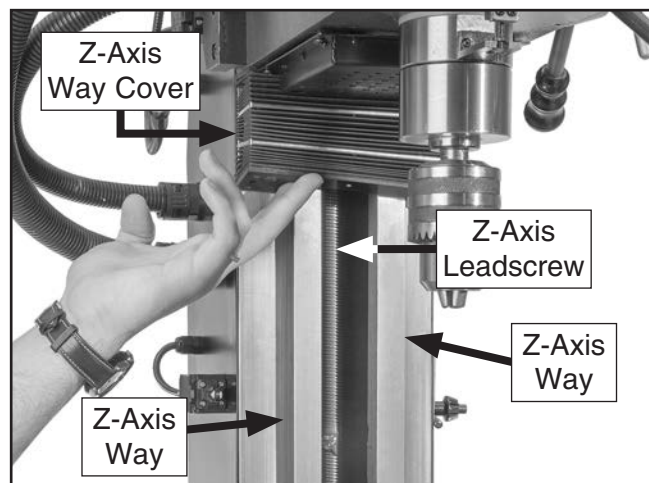
Lube Type..... SB1365 or ISO 68 Equivalent  
Lube Amount .....Thin Coat  
Lubrication Frequency .....8 Hours of Operation

### Items Needed

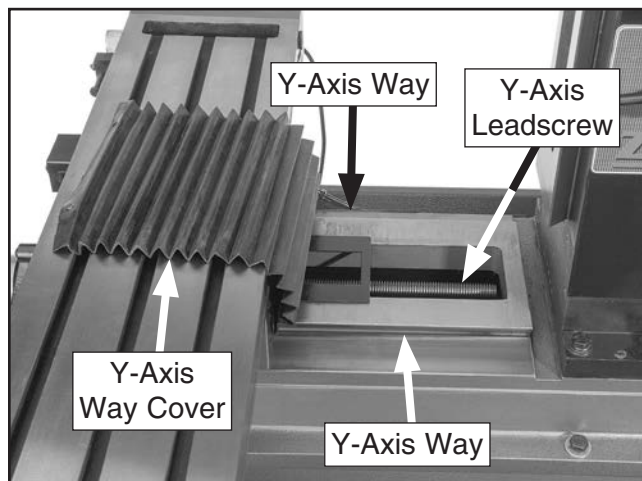
### Qty

Shop Rags..... As Needed  
Mineral Spirits..... As Needed  
SB1365 or ISO 68 Equivalent..... As Needed

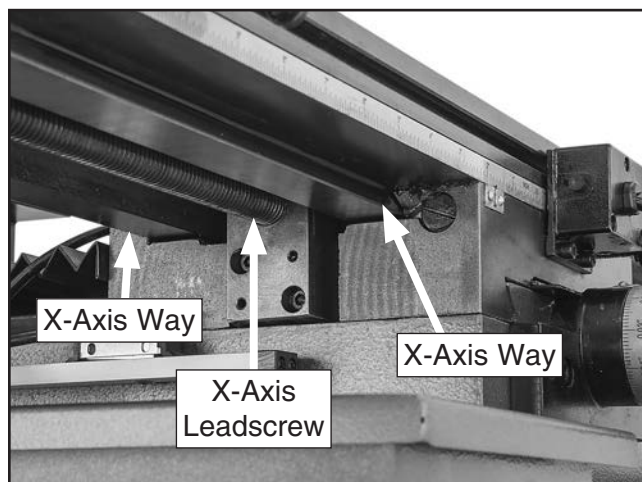
Move way covers out of the way and clean X-, Y-, and Z-axis ways (see **Figures 54–56**) with rags and mineral spirits to remove grime and old lubrication. Wipe ways with recommended lubrication, then move components back and forth several times over full range of travel to spread lubricant and ensure smooth movement.



**Figure 54.** Location of Z-axis way cover and ways.



**Figure 55.** Location of Y-axis way cover and ways.



**Figure 56.** Location of X-axis ways.

## Leadscrews

Lube Type..... SB1365 or ISO 68 Equivalent  
Lube Amount .....Thin Coat  
Lubrication Frequency .....40 Hours of Operation

### Items Needed

### Qty

Stiff Brushes..... 2  
Mineral Spirits..... As Needed  
SB1365 or ISO 68 Equivalent..... As Needed

Move way covers out of the way and clean X-, Y- and Z-axis leadscrews (see **Figures 54–56**) with brush and mineral spirits to remove grime and old lubrication. Use clean brush to wipe leadscrew teeth with recommended lubrication, then move components back and forth several times over full range of travel to spread lubricant and ensure smooth movement.



## Quill Outside Surface

Lube Type..... SB1365 or ISO 68 Equivalent  
 Lube Amount .....Thin Coat  
 Lubrication Frequency .....8 Hours of Operation

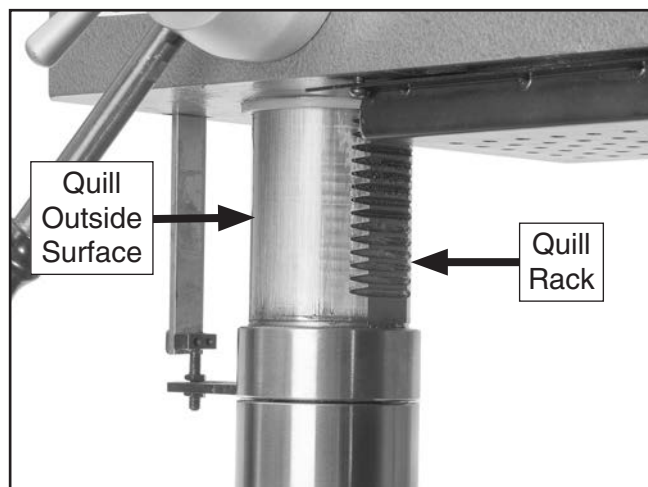
### Items Needed

### Qty

Shop Rags..... As Needed  
 Mineral Spirits..... As Needed  
 SB1365 or ISO 68 Equivalent..... As Needed

### To lubricate quill outside surface:

1. Fully lower quill and lock in position.
2. Without disturbing grease on quill rack, clean outside smooth surface of quill with mineral spirits and shop rags (see **Figure 57**).



**Figure 57.** Quill lubrication area.

3. When dry, apply thin coat of ISO 68 or equivalent oil to smooth surface, then move spindle up and down to evenly distribute oil.

## Quill Rack

Lube Type..... T26419 or NLGI#2 Equivalent  
 Lube Amount .....Thin Coat  
 Lubrication Frequency .....6–12 Months

### Items Needed

### Qty

Shop Rags..... As Needed  
 Mineral Spirits..... As Needed  
 Stiff Brush..... 2  
 T26419 or NLGI#2 Equivalent ..... As Needed

### To lubricate quill rack:

1. Lower quill to gain full access to quill rack (see **Figure 57**). Lock in position.

2. Clean teeth with mineral spirits, shop rags, and brush.
3. When dry, use clean brush to apply thin coat of grease to teeth and raise/lower quill several times to evenly distribute.

**Note:** Re-apply oil that may have been removed during the cleaning process to the smooth quill surface around the rack (refer to **Quill Outside Surface** lubrication section).

## Replacing Spindle Depth DRO Battery

If the spindle depth DRO stops operating correctly, the 3V lithium cell battery must be replaced.

### Item Needed

### Qty

Battery LR44 3V ..... 1

### To replace DRO battery:

1. Slide battery cover to right to expose battery, as shown in **Figure 58**.



**Figure 58.** Battery cover for spindle depth DRO.

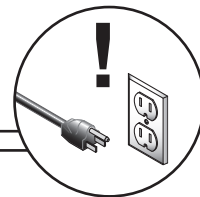
2. Remove old battery, dispose of it according to state and federal regulations, then replace it with a new one.
3. Replace battery cover.



# SECTION 7: SERVICE

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

## Troubleshooting



### Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start, or power supply breaker immediately trips after startup.	<ol style="list-style-type: none"> <li>1. E-STOP button depressed/at fault.</li> <li>2. Headstock cover removed/safety switch at fault.</li> <li>3. Blown machine fuse.</li> <li>4. Incorrect power supply voltage or circuit size.</li> <li>5. Power supply circuit breaker tripped or fuse blown.</li> <li>6. Wiring broken, disconnected, or corroded.</li> <li>7. Motor brushes worn out.</li> <li>8. Circuit board at fault.</li> <li>9. FOR/OFF/REV switch at fault.</li> <li>10. Potentiometer at fault.</li> <li>11. Column power connection port at fault.</li> <li>12. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Rotate E-STOP button head to reset. Replace if at fault.</li> <li>2. Install cover/replace switch.</li> <li>3. Replace fuse/ensure no shorts.</li> <li>4. Ensure correct power supply voltage and circuit size.</li> <li>5. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.</li> <li>6. Fix broken wires or disconnected/corroded connections.</li> <li>7. Remove/replace brushes (<b>Page 45</b>).</li> <li>8. Inspect/replace if at fault.</li> <li>9. Test/replace switch.</li> <li>10. Test/replace potentiometer.</li> <li>11. Test/replace connection port.</li> <li>12. Replace motor.</li> </ol>
Machine stalls or is underpowered.	<ol style="list-style-type: none"> <li>1. Feed rate/cutting speed too fast.</li> <li>2. Cutter/bit incorrect; machine undersized for task.</li> <li>3. Wrong workpiece material.</li> <li>4. Belt slipping/pulleys misaligned.</li> <li>5. Motor brushes worn out.</li> <li>6. Pulley slipping on shaft.</li> <li>7. Motor overheated.</li> <li>8. Extension cord too long.</li> <li>9. Circuit board at fault.</li> <li>10. Potentiometer at fault.</li> <li>11. Run capacitor at fault.</li> <li>12. FOR/OFF/REV switch at fault.</li> <li>13. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease feed rate/cutting speed (<b>Page 31</b>).</li> <li>2. Use correct/sharp cutter/bit; decrease feed rate; reduce spindle RPM (<b>Page 31</b>); use cutting fluid if possible.</li> <li>3. Use correct size/type of material (<b>Page 6</b>).</li> <li>4. Clean/tension/replace belt (<b>Page 31</b>); ensure pulleys are aligned.</li> <li>5. Remove/replace brushes (<b>Page 45</b>).</li> <li>6. Tighten/replace loose pulley/shaft.</li> <li>7. Clean motor, let cool, reduce workload.</li> <li>8. Move machine closer to power supply; use shorter extension cord.</li> <li>9. Inspect and replace if at fault.</li> <li>10. Test/replace potentiometer.</li> <li>11. Test/repair/replace.</li> <li>12. Test/replace switch.</li> <li>13. Replace motor.</li> </ol>
LED worklight does not illuminate.	<ol style="list-style-type: none"> <li>1. USB not plugged in at column circuit board or control panel port.</li> <li>2. LED burned out.</li> <li>3. Wiring broken, disconnected, or corroded.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check USB connections.</li> <li>2. Replace LED.</li> <li>3. Fix broken wires or disconnected/corroded connections.</li> </ol>



## Motor & Electrical (Cont.)

Symptom	Possible Cause	Possible Solution
Spindle depth DRO does not give reading.	<ol style="list-style-type: none"> <li>1. Battery is dead.</li> <li>2. Spindle depth DRO at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace battery (<b>Page 38</b>).</li> <li>2. Replace DRO.</li> </ol>
3-axis DRO does not give reading/reading is incorrect.	<ol style="list-style-type: none"> <li>1. Wiring broken, disconnected, or corroded.</li> <li>2. X-, Y-, or Z-axis sensor(s) at fault.</li> <li>3. 3-axis DRO at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Fix broken wires or disconnected/corroded connections.</li> <li>2. Replace sensor(s).</li> <li>3. Replace DRO.</li> </ol>
Spindle speed will not display, adjust, or is inconsistent.	<ol style="list-style-type: none"> <li>1. Spindle speed dial stripped.</li> <li>2. Wiring broken, disconnected, or corroded.</li> <li>3. Potentiometer at fault.</li> <li>4. Spindle speed sensor at fault.</li> <li>5. Spindle speed DRO at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace dial.</li> <li>2. Fix broken wires or disconnected/corroded connections.</li> <li>3. Test/replace potentiometer.</li> <li>4. Replace sensor.</li> <li>5. Replace DRO.</li> </ol>
FWD/OFF/REV switch does not work.	<ol style="list-style-type: none"> <li>1. Headstock cover is removed, E-STOP button is pressed, or machine in "FAULT" mode (fault indicator light is illuminated).</li> <li>2. Wiring broken, disconnected, or corroded.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install headstock cover or reset E-STOP button to clear fault then select FWD or REV.</li> <li>2. Fix broken wires or disconnected/corroded connections.</li> </ol>
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Machine incorrectly mounted to floor.</li> <li>2. Workpiece loose.</li> <li>3. Bit is chattering.</li> <li>4. Excessive depth of cut.</li> <li>5. Motor or component loose.</li> <li>6. Belt worn, loose, pulleys misaligned or belt slapping cover.</li> <li>7. Pulley loose.</li> <li>8. Motor mount loose/broken.</li> <li>9. Spindle loose, improperly installed, or damaged.</li> <li>10. Chuck or cutter at fault.</li> <li>11. Spindle bearings at fault.</li> <li>12. Motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten mounting hardware, or shim.</li> <li>2. Use correct holding fixture and reclamp workpiece.</li> <li>3. Replace/sharpen bit; index bit to workpiece; use appropriate cutting RPM (<b>Page 31</b>).</li> <li>4. Decrease depth of cut.</li> <li>5. Replace damaged or missing bolts/nuts or tighten if loose.</li> <li>6. Inspect/replace belt (<b>Page 31</b>). Realign pulleys if necessary.</li> <li>7. Secure pulley on shaft.</li> <li>8. Tighten/replace.</li> <li>9. Tighten loose spindle, re-install spindle ensuring mating surfaces are clean, replace spindle if damaged.</li> <li>10. Replace unbalanced chuck; replace/resharpen cutter; use correct depth of cut.</li> <li>11. Test by rotating spindle; rotational grinding/loose shaft requires bearing replacement.</li> <li>12. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> </ol>
Headstock will not raise or lower.	<ol style="list-style-type: none"> <li>1. Headstock locked.</li> <li>2. Z-axis limit switch engaged.</li> <li>3. Wiring broken, disconnected, or corroded.</li> <li>4. Z-axis limit switch(es) at fault.</li> <li>5. Z-axis jog button(s) at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Loosen headstock lock handle (<b>Page 28</b>).</li> <li>2. Headstock travel limit has been reached. Re-configure operation so it requires less headstock travel.</li> <li>3. Fix broken wires or disconnected/corroded connections.</li> <li>4. Replace limit switch(es).</li> <li>5. Replace jog button(s).</li> </ol>



## Operation

Symptom	Possible Cause	Possible Solution
Tool loose in spindle.	<ol style="list-style-type: none"> <li>1. Cutter/tooling loose.</li> <li>2. Cutting tool not fully drawn up into spindle taper.</li> <li>3. Debris on cutting tool or in spindle taper.</li> <li>4. Taking too big of a cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Secure cutter/tooling (<b>Page 29</b>).</li> <li>2. Tighten drawbar (<b>Page 31</b>).</li> <li>3. Clean cutting tool and spindle taper.</li> <li>4. Lessen depth of cut and allow chips to clear.</li> </ol>
Breaking tools or cutters.	<ol style="list-style-type: none"> <li>1. Spindle speed/feed rate too fast for depth of cut, cutting tool size, or workpiece material.</li> <li>2. Improper or no cutting fluid/cutting tool getting too hot.</li> <li>3. Dull/incorrect cutting tool.</li> <li>4. Cutting tool too small.</li> <li>5. Spindle extended too far down.</li> <li>6. Taking too big of a cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce spindle speed (<b>Page 31</b>)/reduce feed rate/ take lighter cut.</li> <li>2. Use proper cutting fluid for operation.</li> <li>3. Sharpen/replace cutting tool.</li> <li>4. Use larger cutting tool and slower feed rate.</li> <li>5. Fully retract spindle and lower headstock to increase rigidity.</li> <li>6. Lessen depth of cut and allow chips to clear.</li> </ol>
Table hard to move.	<ol style="list-style-type: none"> <li>1. Table locked.</li> <li>2. Chips loaded up on ways.</li> <li>3. Table ways and leadscrews need lubrication.</li> <li>4. X- and Y-gibs too loose.</li> <li>5. Table limit stops interfering.</li> </ol>	<ol style="list-style-type: none"> <li>1. Loosen table lock handles (<b>Page 27</b>).</li> <li>2. Frequently clean away chips during operations.</li> <li>3. Clean/lubricate table ways and leadscrews (<b>Page 37</b>).</li> <li>4. Adjust gibs (<b>Page 43</b>).</li> <li>5. Adjust table limit stops out of the way (<b>Page 27</b>).</li> </ol>
Headstock hard to raise or lower.	<ol style="list-style-type: none"> <li>1. Headstock locked.</li> <li>2. Column ways and leadscrew need lubrication.</li> <li>3. Z-axis gib too tight.</li> </ol>	<ol style="list-style-type: none"> <li>1. Loosen headstock lock handle (<b>Page 28</b>).</li> <li>2. Clean/lubricate column ways and leadscrew (<b>Page 37</b>).</li> <li>3. Adjust gib (<b>Page 43</b>).</li> </ol>
Workpiece or tool vibrates or chatters during operation.	<ol style="list-style-type: none"> <li>1. Table not locked.</li> <li>2. Workpiece loose.</li> <li>3. Cutter/tooling loose.</li> <li>4. Spindle speed/feed rate too fast.</li> <li>5. X-, Y-, or Z gib(s) too loose.</li> <li>6. Spindle extended too far down.</li> <li>7. Chuck or cutter at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten table lock handles (<b>Page 27</b>).</li> <li>2. Use correct holding fixture and reclamp workpiece.</li> <li>3. Secure cutter/tooling (<b>Page 29</b>).</li> <li>4. Reduce spindle speed (<b>Page 31</b>)/reduce feed rate.</li> <li>5. Adjust gib(s) (<b>Page 43</b>).</li> <li>6. Fully retract spindle and lower headstock to increase rigidity.</li> <li>7. Replace unbalanced chuck; replace/resharpen cutter; use correct depth of cut.</li> </ol>
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Spindle speed/feed rate too fast.</li> <li>2. Workpiece loose.</li> <li>3. Table not locked.</li> <li>4. Dull/incorrect cutting tool.</li> <li>5. Wrong rotational direction of cutting tool.</li> <li>6. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce spindle speed (<b>Page 31</b>)/feed rate.</li> <li>2. Use correct holding fixture and reclamp workpiece.</li> <li>3. Tighten table lock handles (<b>Page 27</b>).</li> <li>4. Sharpen/replace cutting tool; select better tool for operation.</li> <li>5. Check for proper direction of cutting tool rotation.</li> <li>6. Fully retract spindle and lower headstock to increase rigidity.</li> </ol>
Cutting results not square.	<ol style="list-style-type: none"> <li>1. Table or headstock travel inconsistent.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust gib(s) (<b>Page 43</b>).</li> </ol>
Threads not smooth.	<ol style="list-style-type: none"> <li>1. Cutting edge chipped on cutting tool.</li> <li>2. Cutting tool not centered.</li> <li>3. Chip packing.</li> <li>4. Galling (adhesion between surfaces).</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace cutting tool.</li> <li>2. Center cutting tool.</li> <li>3. Use spiral point/spiral fluted taps; reduce number of flutes to provide extra chip room.</li> <li>4. Use proper cutting fluid; reduce tapping speed.</li> </ol>





## Power Feed

Symptom	Possible Cause	Possible Solution
Power feed does not move table or slips.	<ol style="list-style-type: none"> <li>1. Power feed not plugged in.</li> <li>2. Table locked.</li> <li>3. Leadscrew selector knob is not engaging drive gear.</li> <li>4. Power feed fault light is illuminated.</li> <li>5. Direction switch in center position.</li> <li>6. Speed control dial set to '0'.</li> <li>7. Limit stop is engaging X-axis limit switch.</li> <li>8. Gears not meshing/teeth missing.</li> <li>9. Motor shaft and gear shaft not engaged.</li> <li>10. Wiring broken, disconnected, or corroded.</li> <li>11. X-axis limit switch is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Plug in power feed (<b>Page 19</b>).</li> <li>2. Loosen table lock handles (<b>Page 27</b>).</li> <li>3. Use leadscrew selector knob to engage drive gear (<b>Page 27</b>).</li> <li>4. Clear any obstruction then turn speed control dial fully counterclockwise to clear fault.</li> <li>5. Toggle direction switch to desired direction of table travel (<b>Page 27</b>).</li> <li>6. Turn speed control dial clockwise to increase travel speed (<b>Page 27</b>).</li> <li>7. Adjust limit stop (<b>Page 27</b>).</li> <li>8. Check gears and adjust/replace.</li> <li>9. Replace clutch.</li> <li>10. Fix broken wires or disconnected/corroded connections.</li> <li>11. Replace limit switch.</li> </ol>
Speed will not adjust or is inconsistent.	<ol style="list-style-type: none"> <li>1. Speed dial stripped.</li> <li>2. Wiring broken, disconnected, or corroded.</li> <li>3. Potentiometer at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace dial.</li> <li>2. Fix broken wires or disconnected/corroded connections.</li> <li>3. Test/replace potentiometer.</li> </ol>





# Adjusting Gibs

The gibs affect the accuracy of the work table by restricting slide movements along their ways.

Screws on each end allow gib adjustments to increase or decrease the friction between the sliding surfaces of the ways.

The goal of gib adjustment is to remove unnecessary sloppiness without causing binding in the dovetail ways. Tight gibs make the movements more accurate, but harder to perform. Loose gibs make the movements sloppy, but easier to perform. Many experienced machinists adjust the gibs until there is just a slight drag in table movement.

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

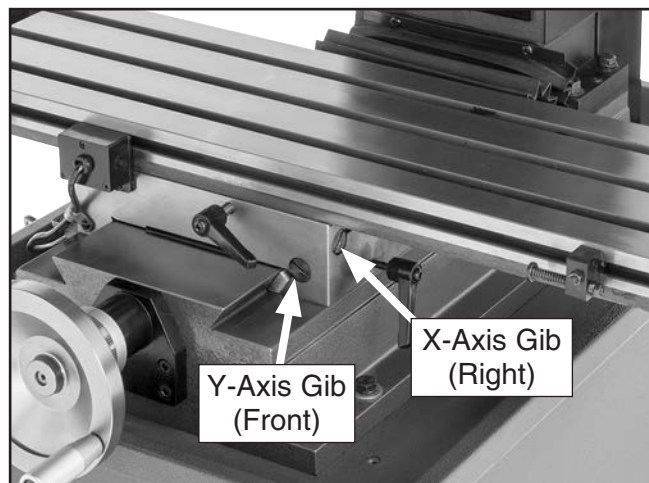
## X/Y-Axis Gibs

### Tool Needed

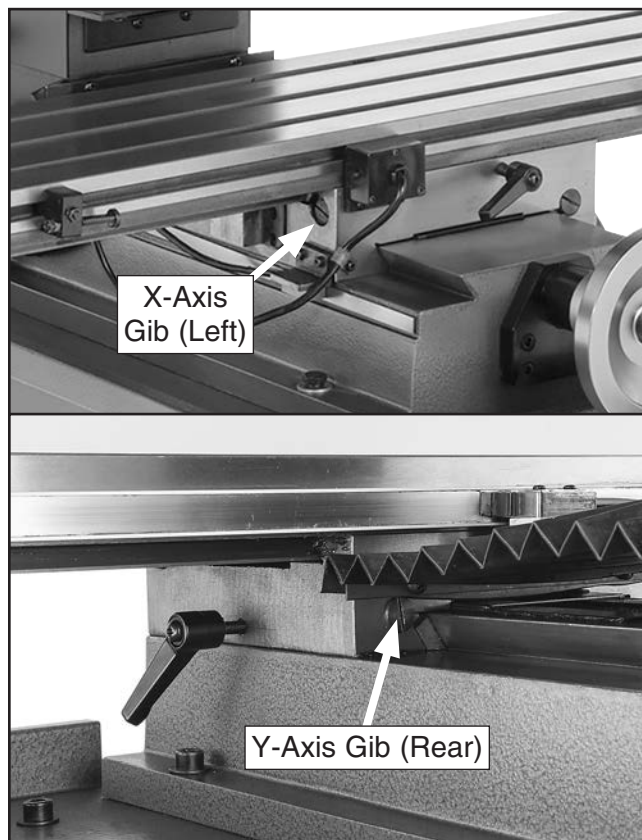
Qty

Flat Head Screwdriver 1/4"..... 1

Make sure the X- and Y-axis table lock handles are loose. Then, loosen one gib adjustment screw (see **Figures 59– 60**) and tighten the opposing screw the same amount to move the gib, while at the same time using the handwheels to move the table until you feel a slight drag in that path of movement.



**Figure 59.** Location of front-right gib screws.



**Figure 60.** Location of rear-left gib screws.

## Z-Axis Gib

### Tools Needed

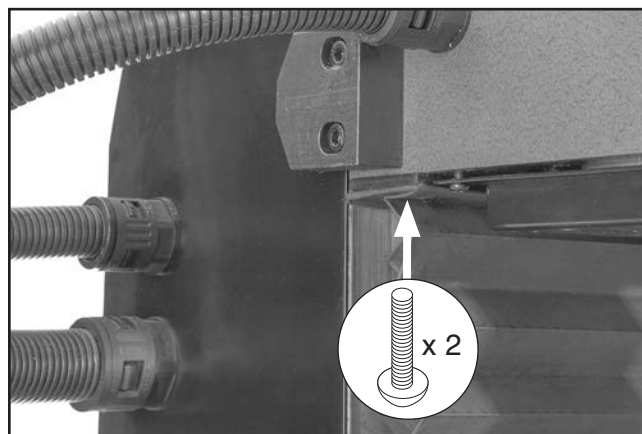
Qty

Phillips Head Screwdriver #1..... 1

Flat Head Screwdriver 1/4"..... 1

### To adjust Z-axis gib:

1. Remove (2) Phillips head screws securing top of Z-axis way cover in place (see **Figure 61**).

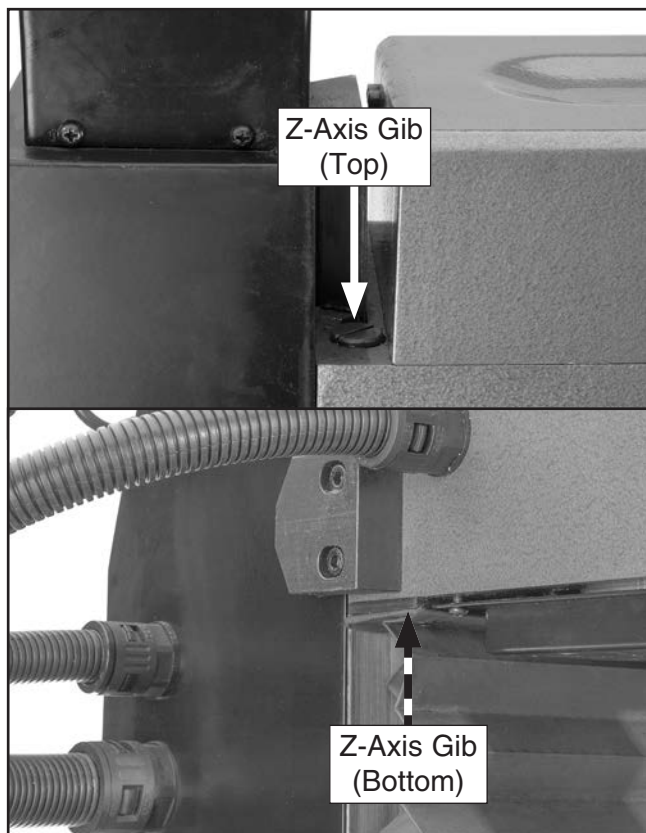


**Figure 61.** Example of locations of Z-axis cover Phillips head screws.

2. Loosen Z-axis lock handle.



3. Loosen one Z-axis gib adjustment screw and tighten opposing screw the same amount to move gib (see **Figure 62**).



**Figure 62.** Example of Z-axis gib screws (bottom screw hidden behind way cover).

4. Connect machine to power and use Z-axis control buttons to test headstock movement.
  - If headstock moves up and down column smoothly, gib has been adjusted correctly. Proceed to **Step 5**.
  - If headstock moves up and down column slowly, or drags, gibs are too tight. Disconnect power and repeat **Steps 3–4**.
  - If headstock moves up and down column too fast, or slips on ways, gibs are too loose. Disconnect power and repeat **Steps 3–4**.
5. Install top of Z-axis way cover with screws removed in **Step 1**.
6. Tighten Z-axis lock handle.

## Adjusting Leadscrew Backlash

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

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

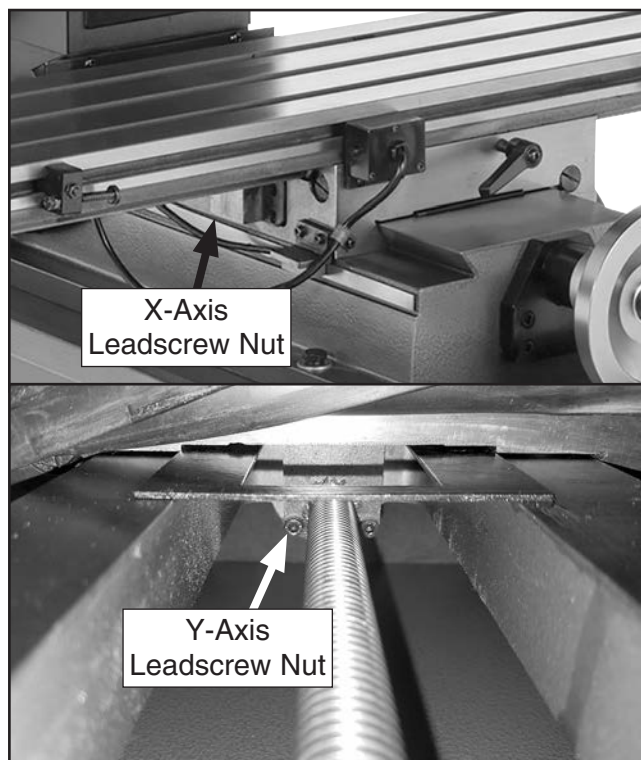
The X- and Y-axis leadscrew backlash is adjusted by tightening/loosening the two cap screws on the leadscrew nuts. This adjusts the force that the split leadscrew nuts exert on the threads.

### Tool Needed

**Qty**

Hex Wrench 3mm (Long) ..... 1

The X-axis leadscrew nut is accessed from under the left side of the table and has cap screws at the top (see **Figure 63**). The Y-axis leadscrew nut has cap screws at the bottom and is accessed by removing the way cover (see **Figure 63**).



**Figure 63.** Location of leadscrew nuts.



# Replacing Brushes

This machine is equipped with two universal motors that use carbon brushes to transmit electrical current inside the motors. These brushes are considered to be regular "wear items" or "consumables" that will need to be replaced during the life of the motors. The frequency of required replacement is often related to how much the motor is used and how hard it is pushed.

Replace both carbon brushes on a motor at the same time when the motor no longer reaches full power, or when brushes measure less than indicated below.

	New Brush	Brush Needing Replacement
Spindle Motor	5/8" Long	1/4" Long
Power Feed Motor	7/16" Long	3/16" Long

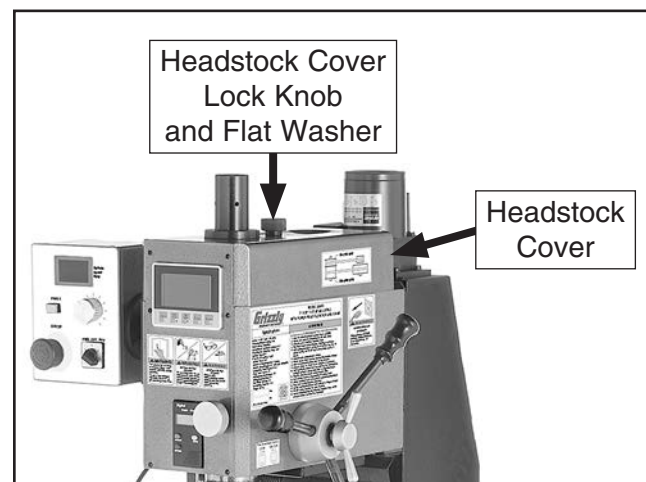
If your machine is used frequently, we recommend keeping an extra set of each pair of replacement brushes on-hand to avoid any downtime.

## Replacing Spindle Motor Brushes

Items Needed	Qty
Hex Wrench 4mm.....	1
Flat Head Screwdriver 1/4" .....	1
Replacement Brush Pair (P0935099).....	1

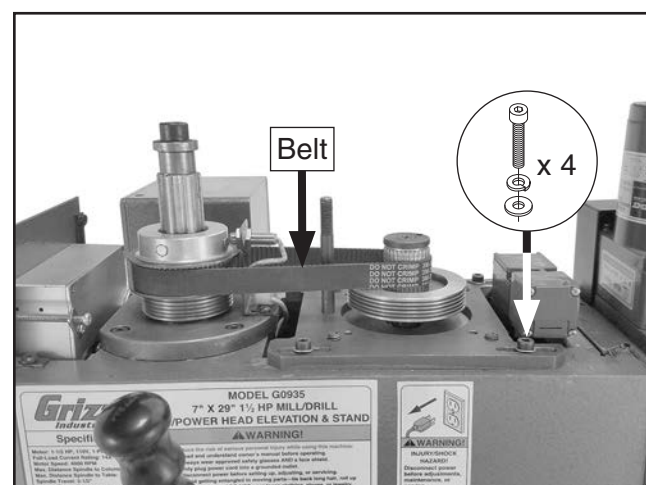
To replace spindle motor brushes:

1. DISCONNECT MACHINE FROM POWER!
2. Remove headstock cover lock knob and flat washer to remove headstock cover (see **Figure 64**).



**Figure 64.** Location of headstock cover removal components.

3. Remove (4) cap screws, flat washers, and lock washers shown in **Figure 65** to release belt tension.
4. Remove belt from pulleys (see **Figure 65**).

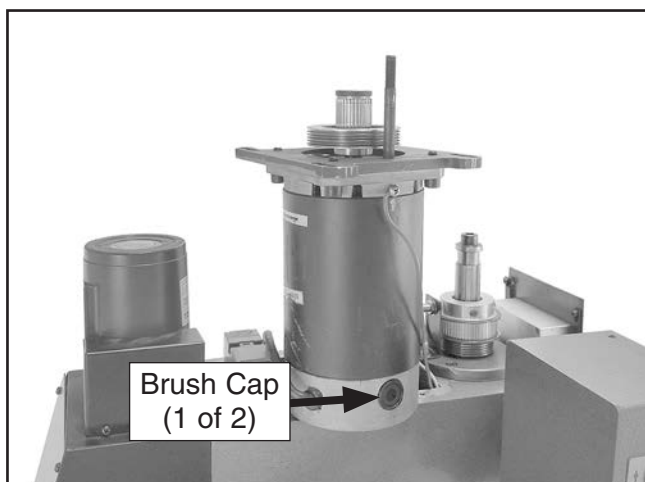


**Figure 65.** Location of belt tension cap screws.



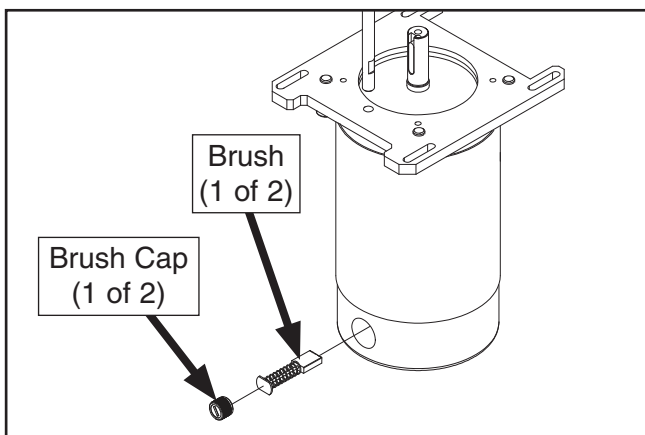


5. Lift entire spindle motor assembly out of headstock (see **Figure 66**).



**Figure 66.** Location of spindle motor brush caps.

6. Remove brush caps and worn brushes from motor (see **Figure 67**).



**Figure 67.** Location of brushes under brush caps.

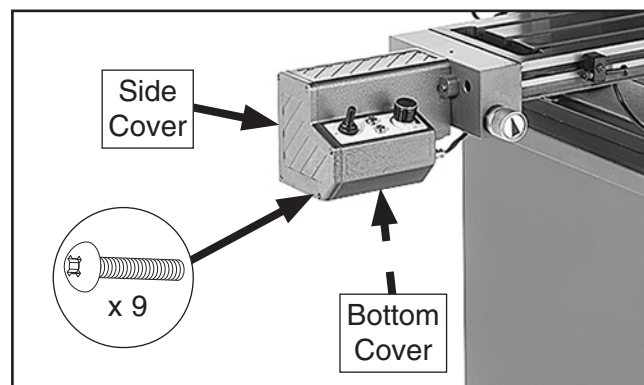
7. Replace both spindle motor brushes and install brush caps.
8. Install spindle motor.
9. Install belt (refer to **Setting Spindle Speed** on **Page 31**).
10. Install headstock cover.

## Replacing Power Feed Motor Brushes

Items Needed	Qty
Phillips Head Screwdriver #2 .....	1
Penny or Dime.....	1
Replacement Brush Pair (P0935353-3) .....	1

## To replace power feed motor brushes:

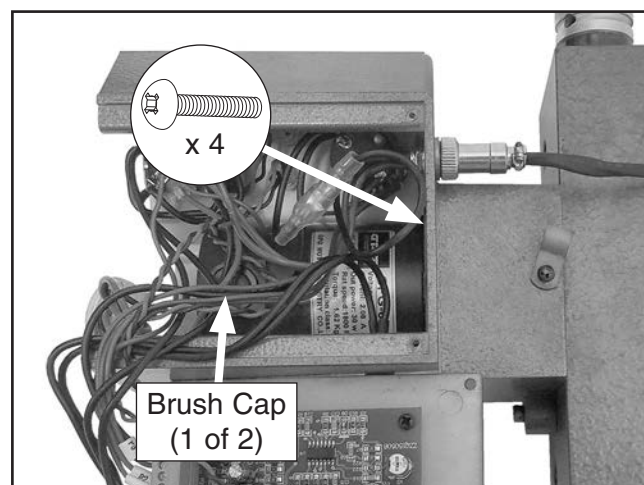
1. DISCONNECT MACHINE FROM POWER!
2. Remove (9) Phillips head screws to open power feed side and bottom covers (see **Figure 68**).



**Figure 68.** Location of power feed covers.

3. Remove brush caps and worn brushes from motor (see **Figure 69**). See **Figure 67** for an example of how motor brushes fit into motor.

**Note:** It may be easier to access brush cap on other side of motor with motor removed from power feed box. To remove motor, remove (4) screws shown in **Figure 69**.



**Figure 69.** Location of power feed motor brush caps.

4. Replace both power feed motor brushes and install brush caps.
5. Install power feed motor (if removed).
6. Install power feed side and bottom covers.



# SECTION 8: WIRING

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

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

## ⚠ WARNING

### Wiring Safety Instructions

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

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

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

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

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

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

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

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

#### NOTICE

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

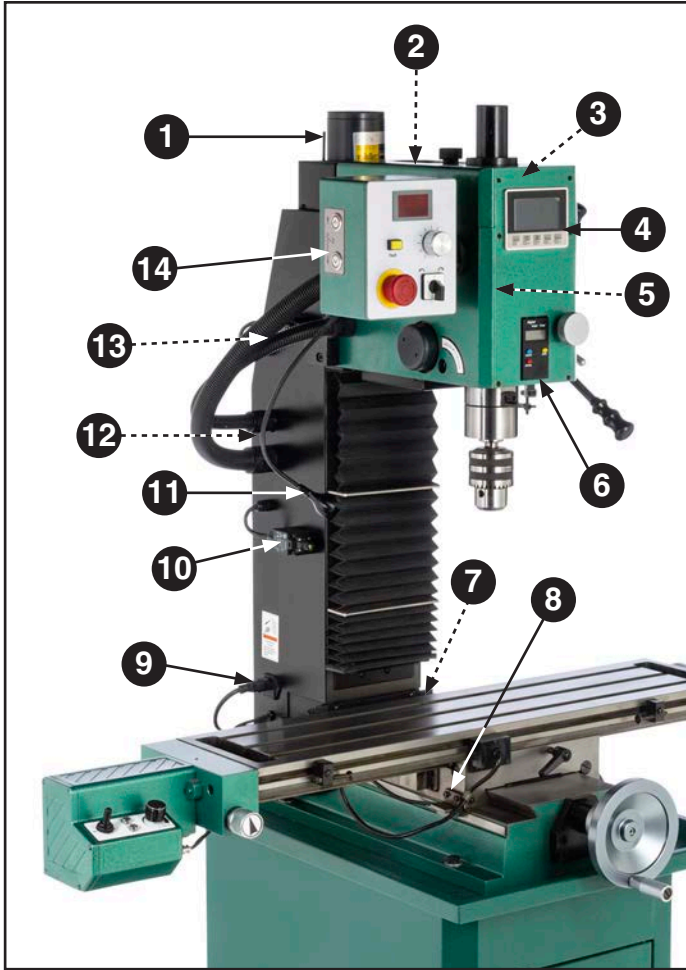
#### COLOR KEY

BLACK — 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	

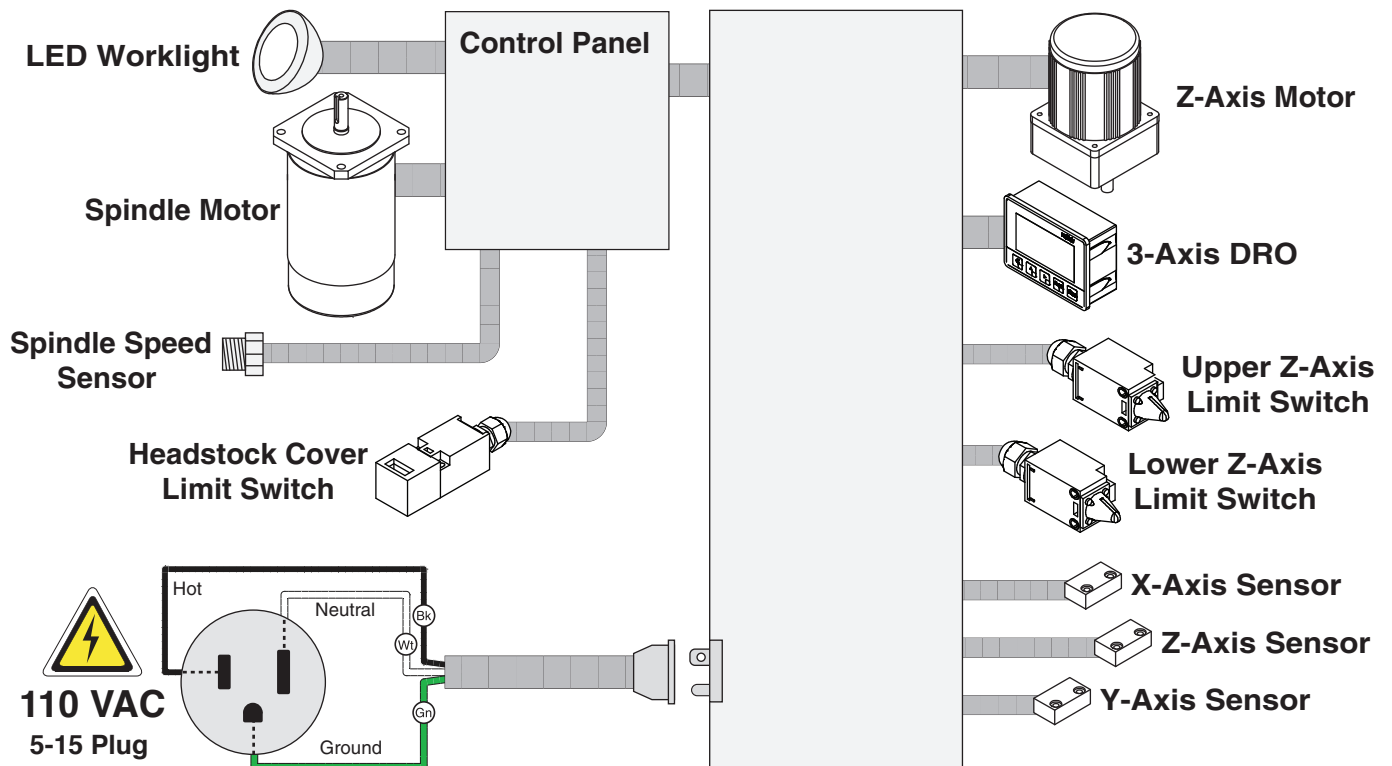




# Main Wiring Overview



<b>1</b>	Z-Axis Motor ( <b>Page 51</b> )
<b>2</b>	Headstock Cover Safety Switch ( <b>Page 53</b> )
<b>3</b>	Spindle Speed Sensor ( <b>Page 49</b> )
<b>4</b>	3-Axis DRO ( <b>Page 52</b> )
<b>5</b>	Spindle Motor ( <b>Page 49</b> )
<b>6</b>	Spindle Depth DRO (Battery Operated)
<b>7</b>	X-Axis Sensor ( <b>Page 52</b> )
<b>8</b>	Y-Axis Sensor ( <b>Page 52</b> )
<b>9</b>	Column Power Connection Port ( <b>Page 50</b> )
<b>10</b>	Lower Z-Axis Limit Switch ( <b>Page 51</b> )
<b>11</b>	LED Worklight ( <b>Page 53</b> )
<b>12</b>	Column ( <b>Page 50</b> ) and Z-Axis Sensor ( <b>Page 52</b> )
<b>13</b>	Upper Z-Axis Limit Switch ( <b>Page 51</b> )
<b>14</b>	Spindle Control Panel and Z-Axis Jog Buttons ( <b>Page 49</b> )



# Control Panel Wiring

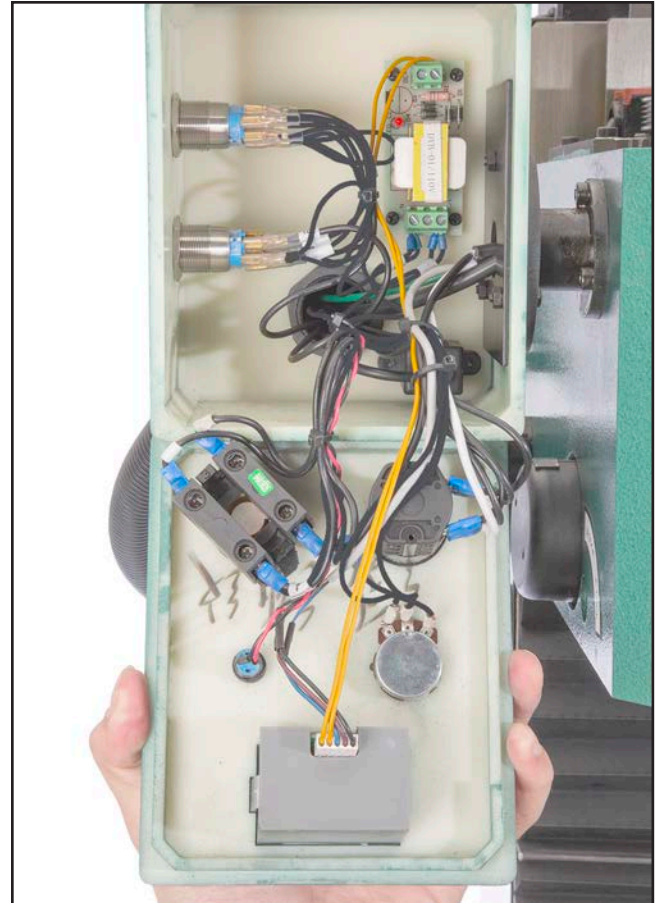
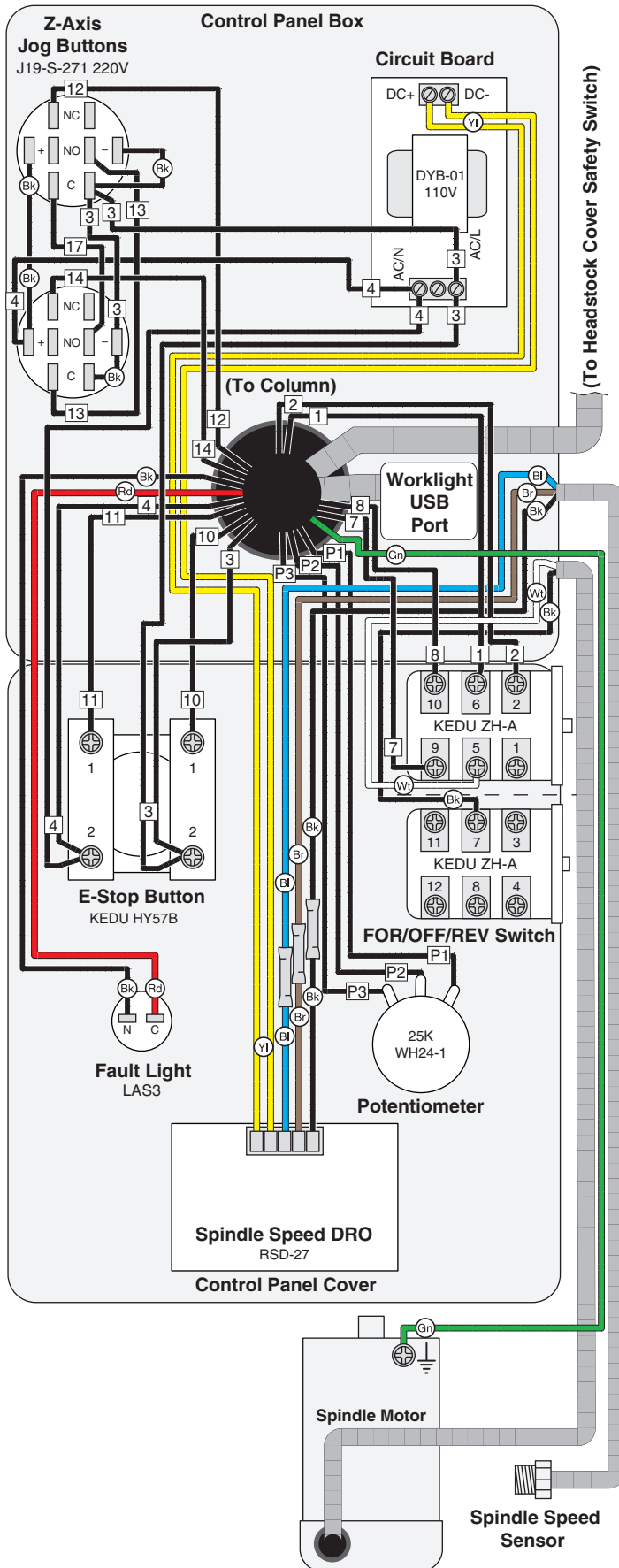


Figure 70. Control box wiring.

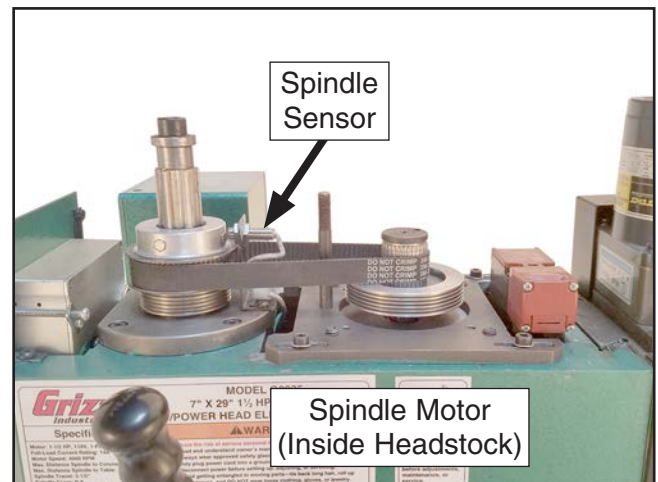


Figure 71. Spindle speed sensor and spindle motor.

# Column Wiring

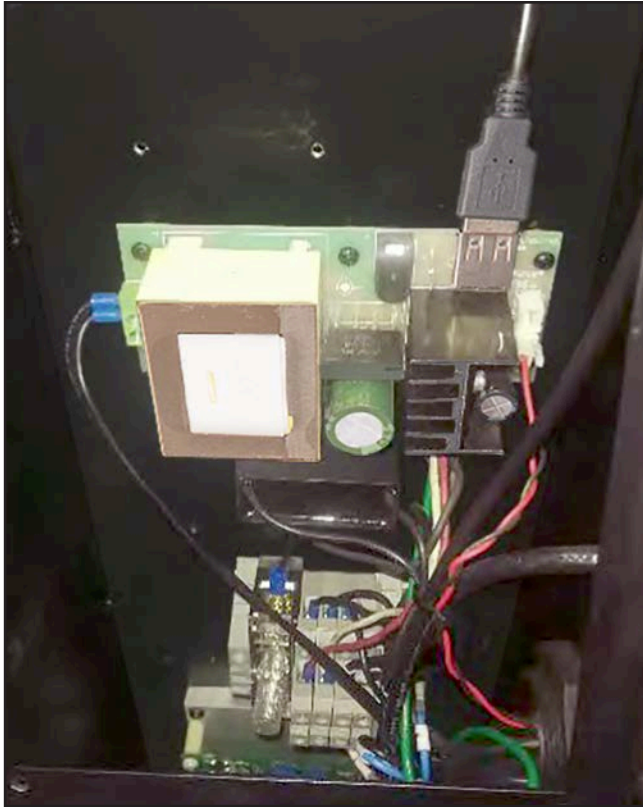


Figure 72. Upper column wiring.

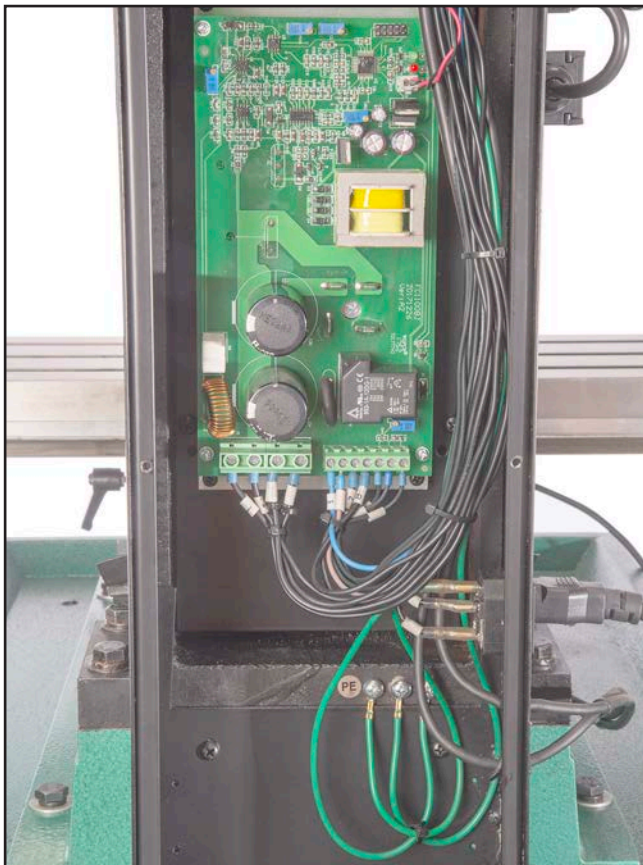
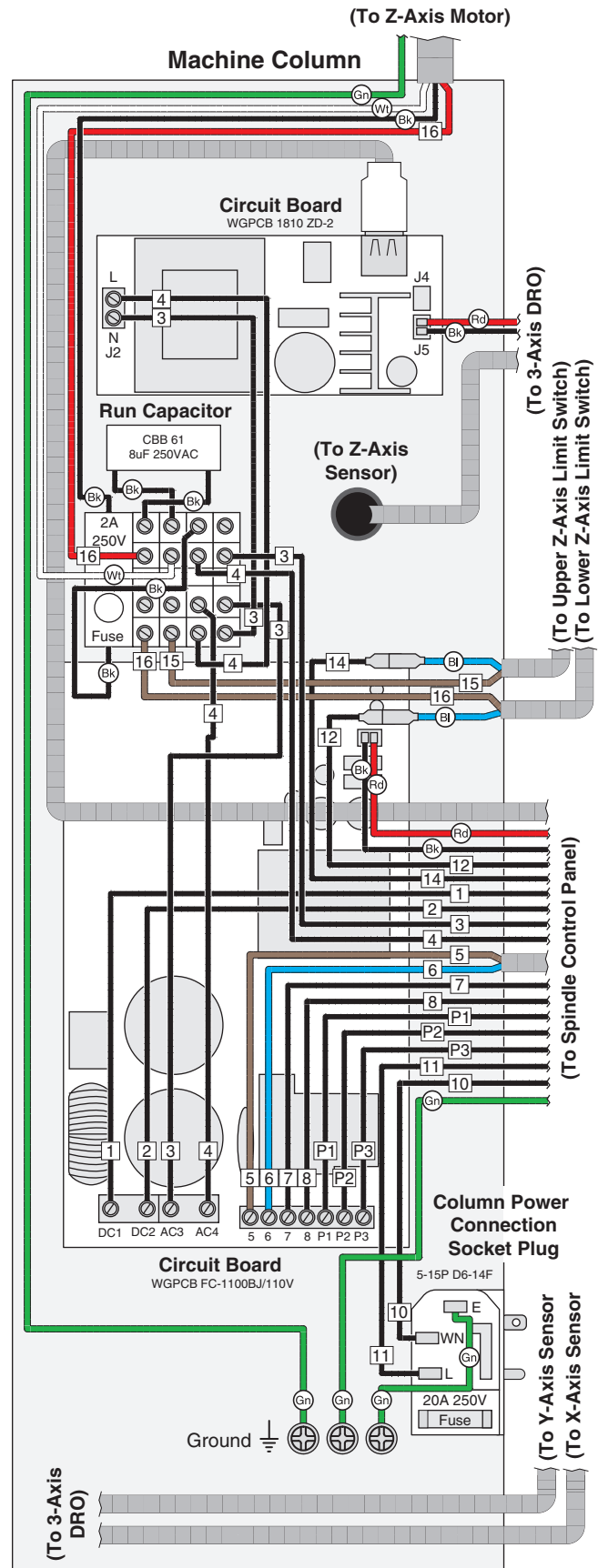


Figure 73. Lower column wiring.

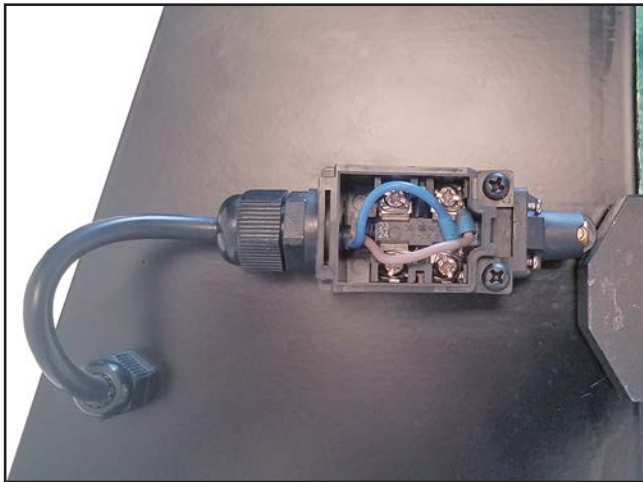
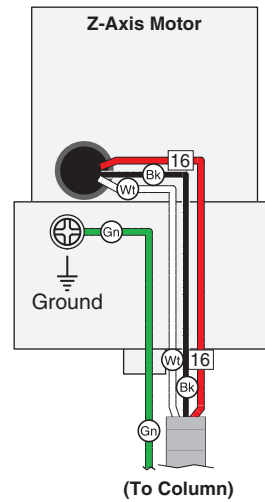




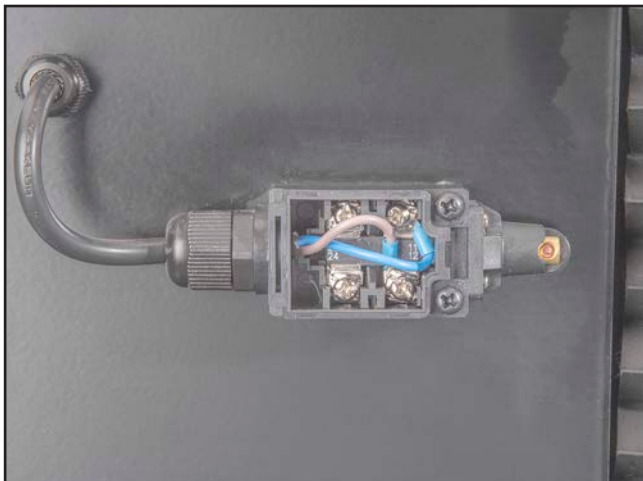
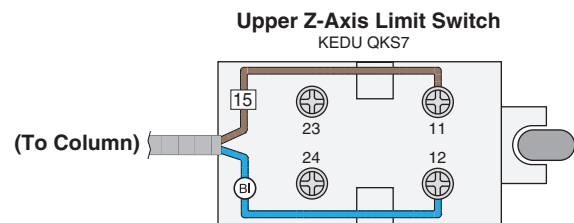
# Z-Axis Motor & Limit Switch Wiring



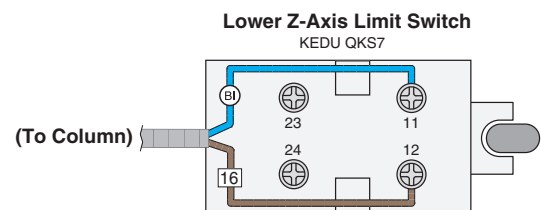
**Figure 74.** Z-axis motor wiring.



**Figure 75.** Upper Z-axis limit switch wiring.



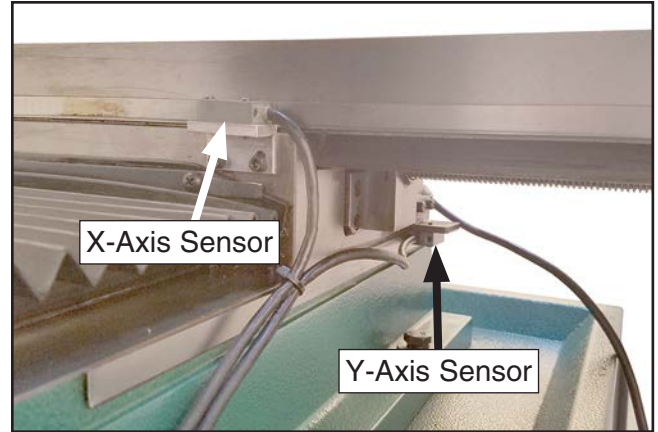
**Figure 76.** Lower Z-axis limit switch wiring.



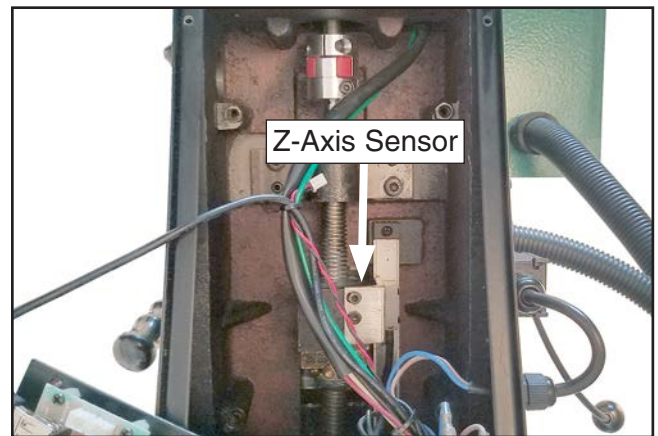
# 3-Axis DRO & Sensors Wiring



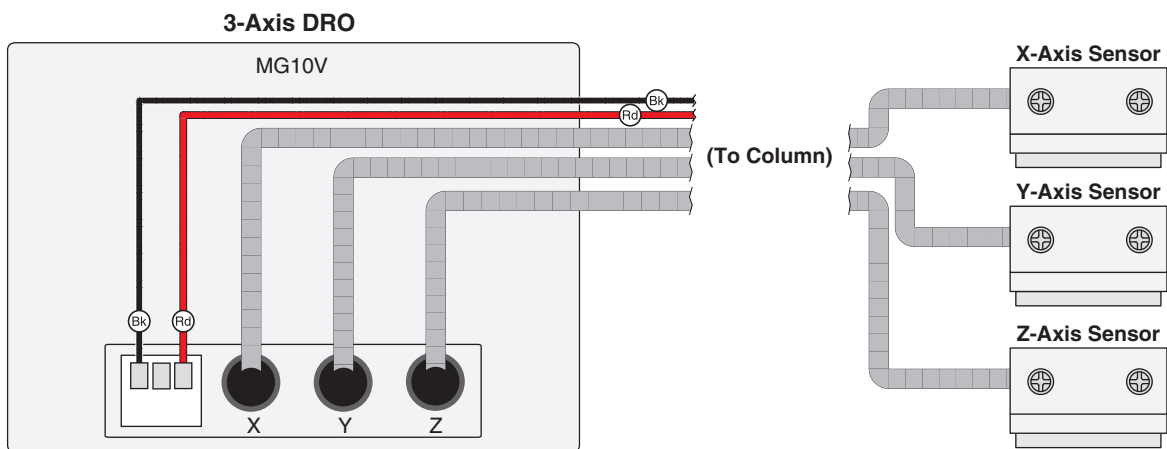
**Figure 77.** 3-axis DRO and spindle depth DRO wiring.



**Figure 78.** X- and Y-axis sensors.



**Figure 79.** Z-axis sensor.

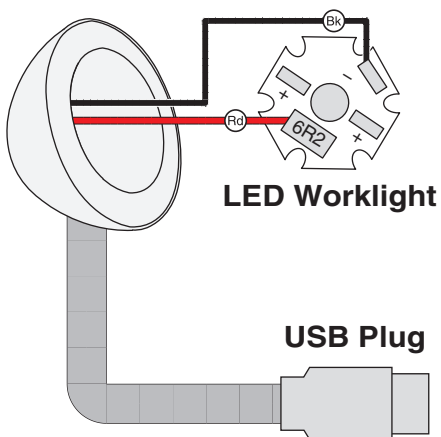
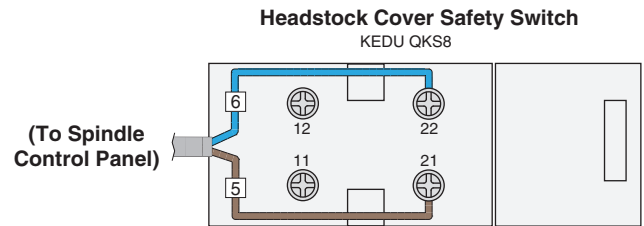




# Headstock Cover Safety Switch & LED Worklight Wiring

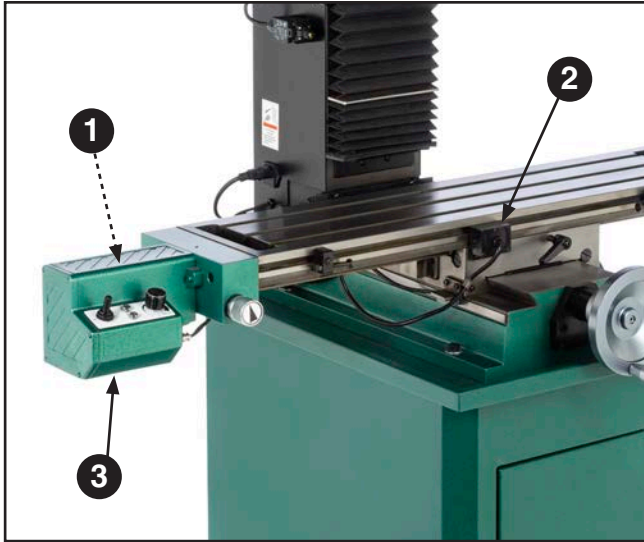


**Figure 80.** Headstock cover safety switch wiring.

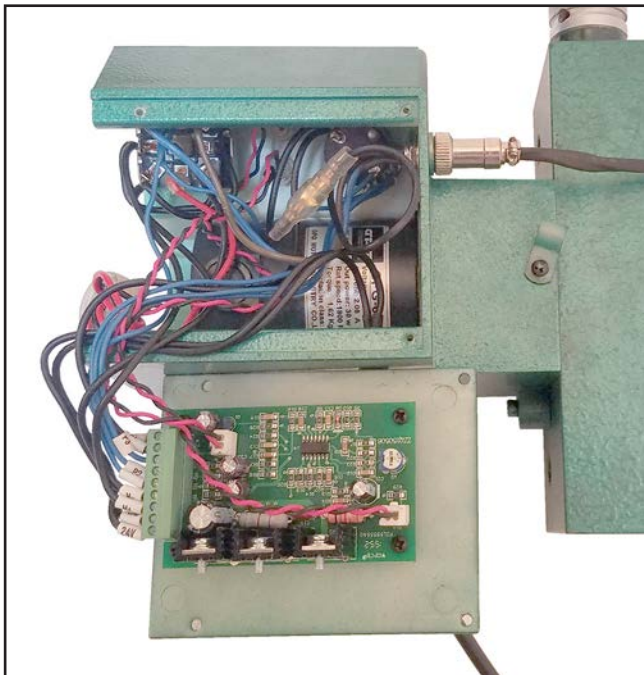
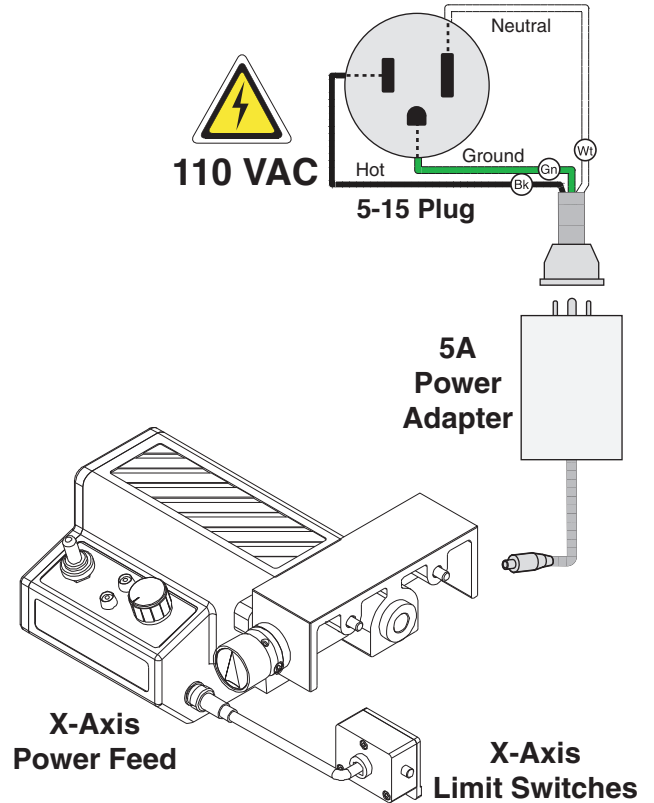


**Figure 81.** LED worklight wiring.

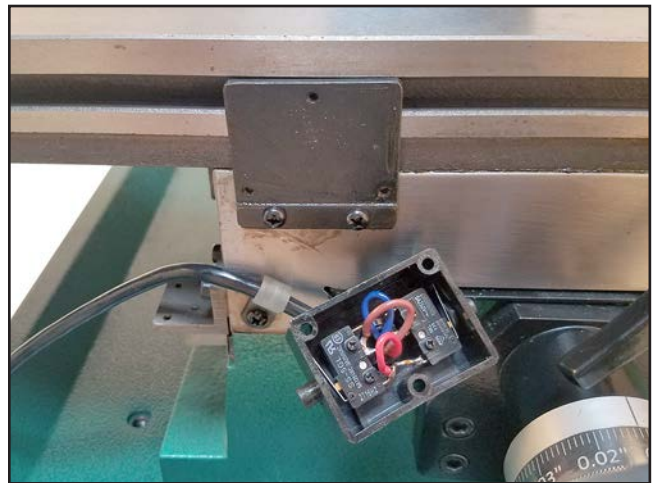
# Power Feed Wiring Overview



<b>1</b>	Power Feed Power Connection Port
<b>2</b>	X-Axis Limit Switches ( <b>Page 55</b> )
<b>3</b>	Power Feed ( <b>Page 55</b> )

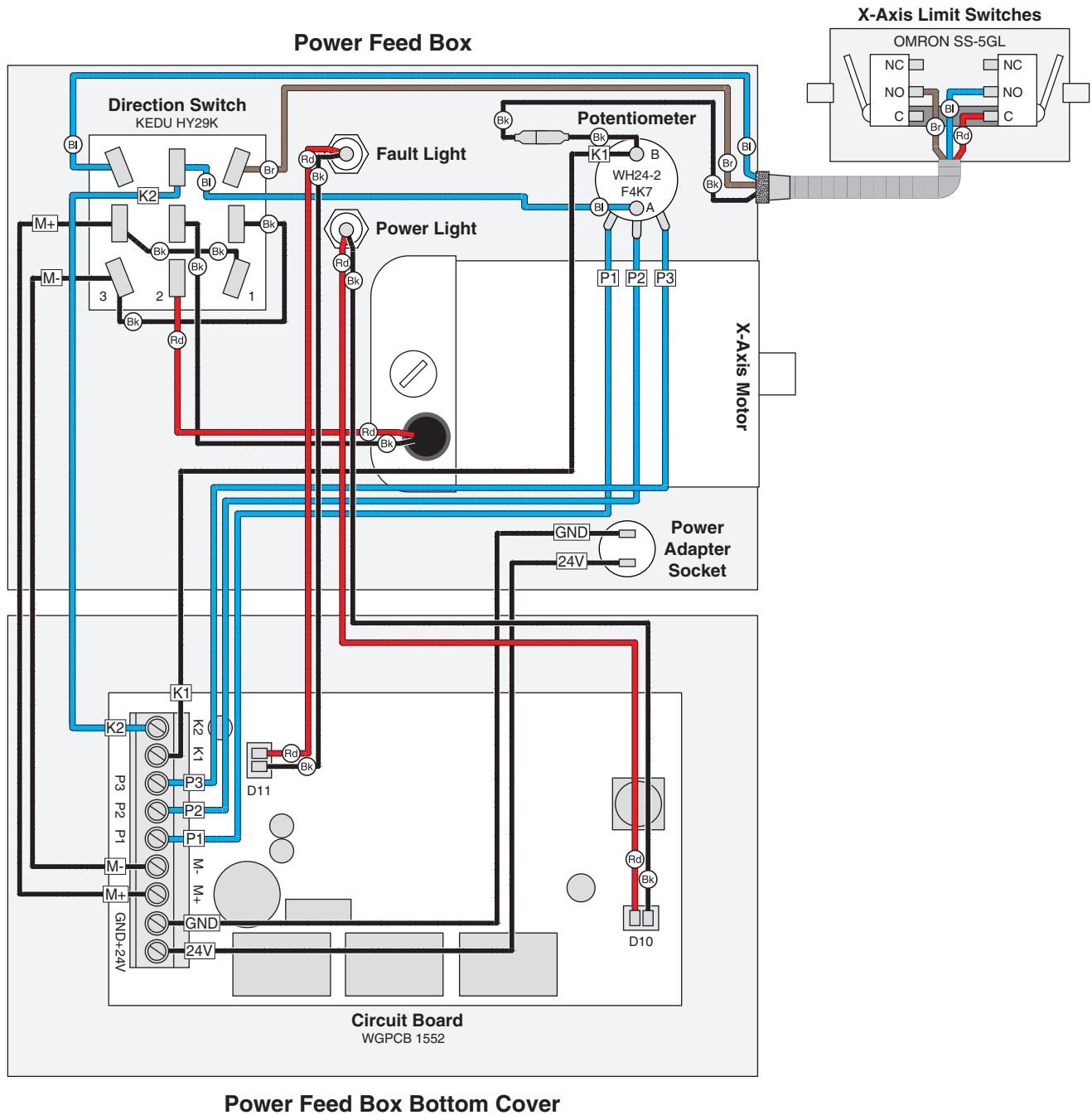


**Figure 82.** Power feed box wiring (as viewed from bottom).



**Figure 83.** X-axis limit switch wiring.

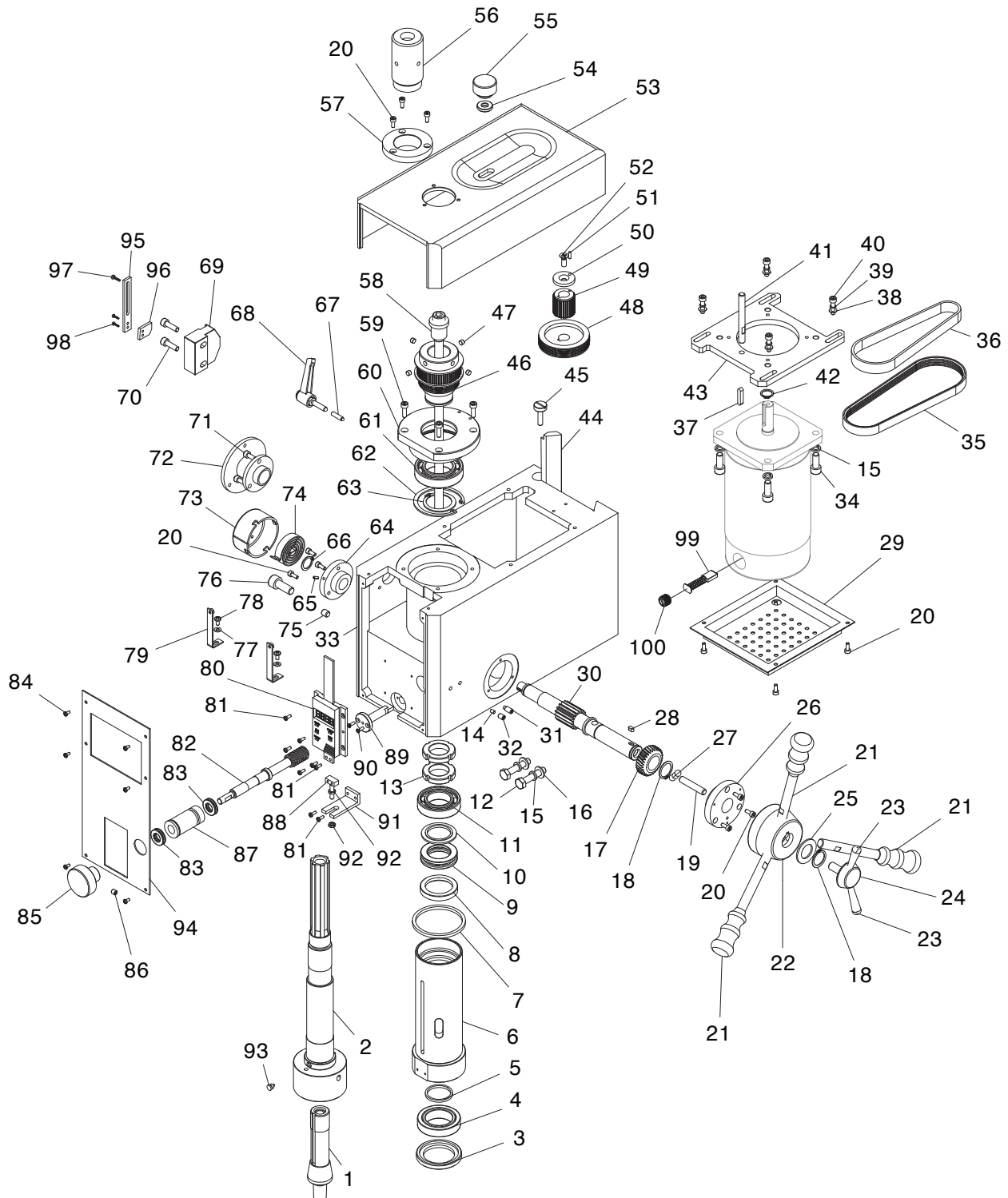
# Power Feed Wiring



# 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](http://www.grizzly.com/parts) to check for availability.

## Headstock



# Headstock Parts List

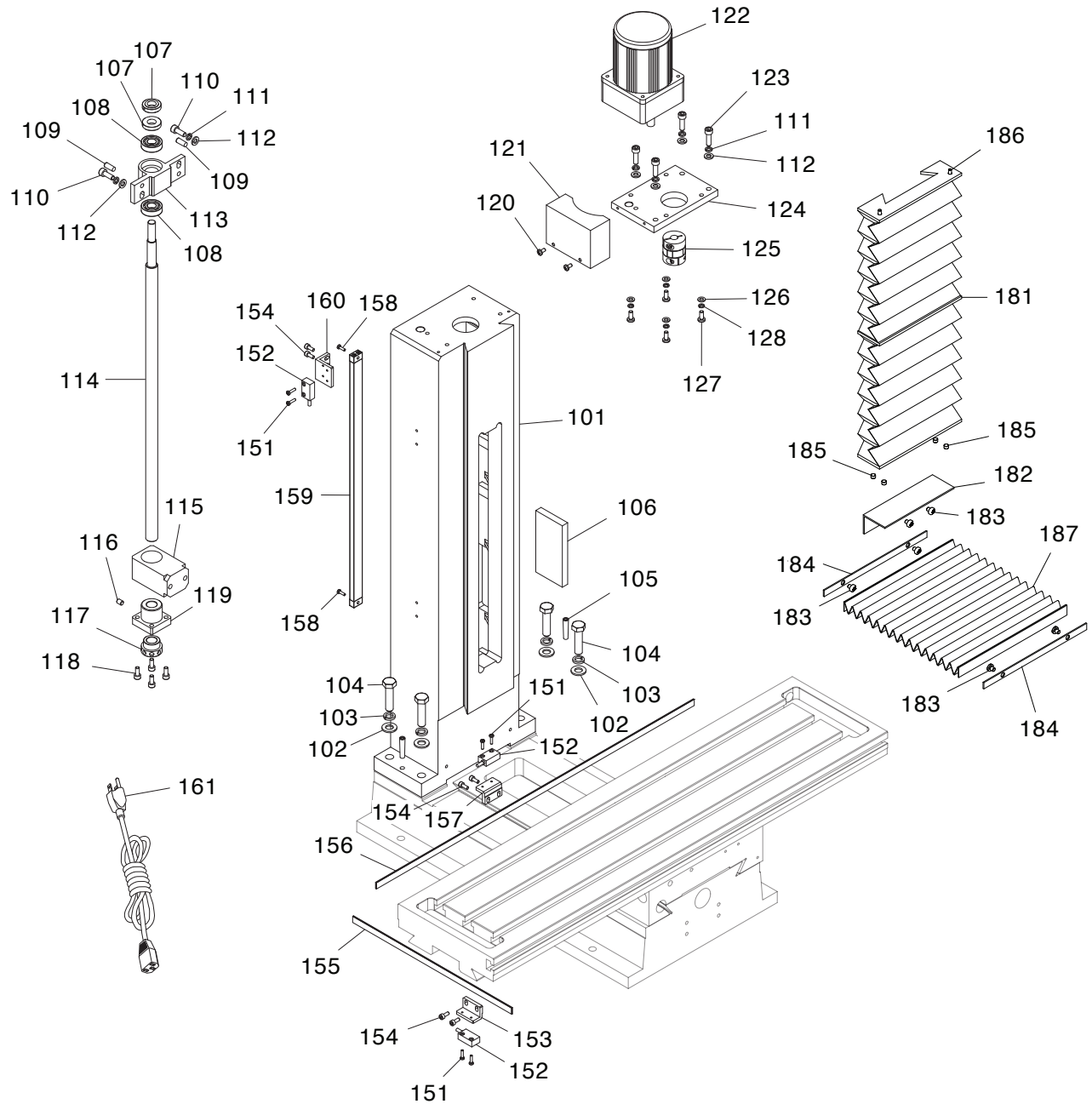
REF PART #	DESCRIPTION
1	P0935001 ARBOR JT6
2	P0935002 SPINDLE R8
3	P0935003 SPINDLE OIL SEAL 7 X 40.5MM
4	P0935004 TAPERED ROLLER BEARING 32907
5	P0935005 SPACER 30.3 X 37 X 9
6	P0935006 QUILL
7	P0935007 FLAT WASHER 60 X 68 X 4MM
8	P0935008 SPINDLE OIL SEAL 3 X 35.5MM
9	P0935009 THRUST BEARING 8106
10	P0935010 FLAT WASHER 30.2 X 45 X 3MM
11	P0935011 BALL BEARING 80106-OPEN
12	P0935012 HEX BOLT M8-1.25 X 40
13	P0935013 SPANNER NUT M27-1.5
14	P0935014 ECCENTRIC SLEEVE LOCK BLOCK
15	P0935015 LOCK WASHER 8MM
16	P0935016 FLAT WASHER 8MM
17	P0935017 BEVEL GEAR
18	P0935018 EXT RETAINING RING 20MM
19	P0935019 DOWEL PIN 8 X 42.5MM
20	P0935020 CAP SCREW M4-.7 X 10
21	P0935021 LEVER HANDLE M12-1.5 X 94, 160L
22	P0935022 DOWNFEED LEVER HUB
23	P0935023 FIXED HANDLE 12 X 45, M5-1 X 6
24	P0935024 DOWNFEED SELECTOR HUB
25	P0935025 FLAT WASHER 8MM
26	P0935026 GEAR SHAFT SUPPORT FLANGE (RIGHT)
27	P0935027 STEEL BALL 8MM
28	P0935028 KEY 4 X 4 X 8 RE
29	P0935029 HEADSTOCK BASE PLATE
30	P0935030 DOWNFEED GEAR SHAFT
31	P0935031 SET SCREW M6-1 X 14 DOG-PT
32	P0935032 SET SCREW M6-1 X 8
33	P0935033 HEADSTOCK HOUSING
34	P0935034 CAP SCREW M8-1.25 X 20
35	P0935035 V-BELT 6V 18L J RIBBED
36	P0935036 TIMING BELT 3M X 420
37	P0935037 KEY 5 X 5 X 25 RE
38	P0935038 FLAT WASHER 5MM
39	P0935039 LOCK WASHER 5MM
40	P0935040 CAP SCREW M5-.8 X 20
41	P0935041 STUD-UDE M10-1.5 X 7, M8-1 X 20, 75
42	P0935042 EXT RETAINING RING 14MM
43	P0935043 SPINDLE MOTOR MOUNTING PLATE
44	P0935044 Z-AXIS GIB
45	P0935045 GIB SCREW M6-1 X 24
46	P0935046 SPINDLE PULLEY
47	P0935047 MAGNET 6MM
48	P0935048 MOTOR PULLEY, HIGH SPEED
49	P0935049 MOTOR PULLEY, LOW SPEED
50	P0935050 OUTPUT SHAFT CAP

REF PART #	DESCRIPTION
51	P0935051 DOWEL PIN 3 X 10
52	P0935052 FLAT HD SCR M6-1 X 16
53	P0935053 HEADSTOCK COVER
54	P0935054 FLAT WASHER 8.5 X 16 X 4MM NYLON
55	P0935055 KNOB M8-1, D25, ROUND KD
56	P0935056 DRAWBAR DUST COVER
57	P0935057 DUST COVER MOUNT
58	P0935058 DRAWBAR M10-1.5 X 35, 295
59	P0935059 CAP SCREW M5-.8 X 16
60	P0935060 SPINDLE BEARING SEAT
61	P0935061 BALL BEARING 80107-OPEN
62	P0935062 INT RETAINING RING 62MM
63	P0935063 EXT RETAINING RING 35MM
64	P0935064 GEAR SHAFT SUPPORT FLANGE (LEFT)
65	P0935065 ROLL PIN 3 X 8
66	P0935066 EXT RETAINING RING 16MM
67	P0935067 Z-AXIS LOCKING ROD 5 X 20.5
68	P0935068 ADJUSTABLE HANDLE M6-1 X 46, 50L
69	P0935069 Z-AXIS LIMIT SWITCH BLOCK
70	P0935070 CAP SCREW M6-1 X 20
71	P0935071 CAP SCREW M5-.8 X 12
72	P0935072 CONTROL PANEL CORD COLUMN
73	P0935073 RETURN SPRING COVER
74	P0935074 FLAT COIL SPRING
75	P0935075 SLEEVE LOCK SHAFT 8 X 9MM
76	P0935076 CAP SCREW M10-1.5 X 25
77	P0935077 FLAT WASHER 4MM
78	P0935078 PHLP HD SCR M4-.7 X 8
79	P0935079 HEADSTOCK CONTROL PANEL BRACKET
80	P0935080 SPINDLE DEPTH DRO GD300-165
81	P0935081 PHLP HD SCR M3-.5 X 8
82	P0935082 FINE DOWNFEED WORM SHAFT
83	P0935083 THRUST BEARING 12 X 22 X 5 P4
84	P0935084 PHLP HD SCR M3-.5 X 6
85	P0935085 FINE DOWNFEED DIAL
86	P0935086 SET SCREW M6-1 X 6
87	P0935087 WORM ECCENTRIC SLEEVE
88	P0935088 SQUARE SCREW BRACKET M5-.8 X 22
89	P0935089 SPINDLE SLEEVE LOCATING SHAFT
90	P0935090 FLAT HD SCR M3-.5 X 10
91	P0935091 SENSOR MOUNTING BRACKET
92	P0935092 HEX NUT M5-.8
93	P0935093 CYLINDRICAL KEY W/SHOULDER 3 X 3.8MM
94	P0935094 HEADSTOCK CONTROL PANEL
95	P0935095 ADJUSTMENT BRACKET
96	P0935096 LIMIT TAB
97	P0935097 PHLP HD SCR M5-.8 X 8
98	P0935098 PHLP HD SCR M4-.7 X 8
99	P0935099 CARBON BRUSHES (PAIR)
100	P0935100 BRUSH CAP





# Column



# Column Parts List

## REF PART # DESCRIPTION

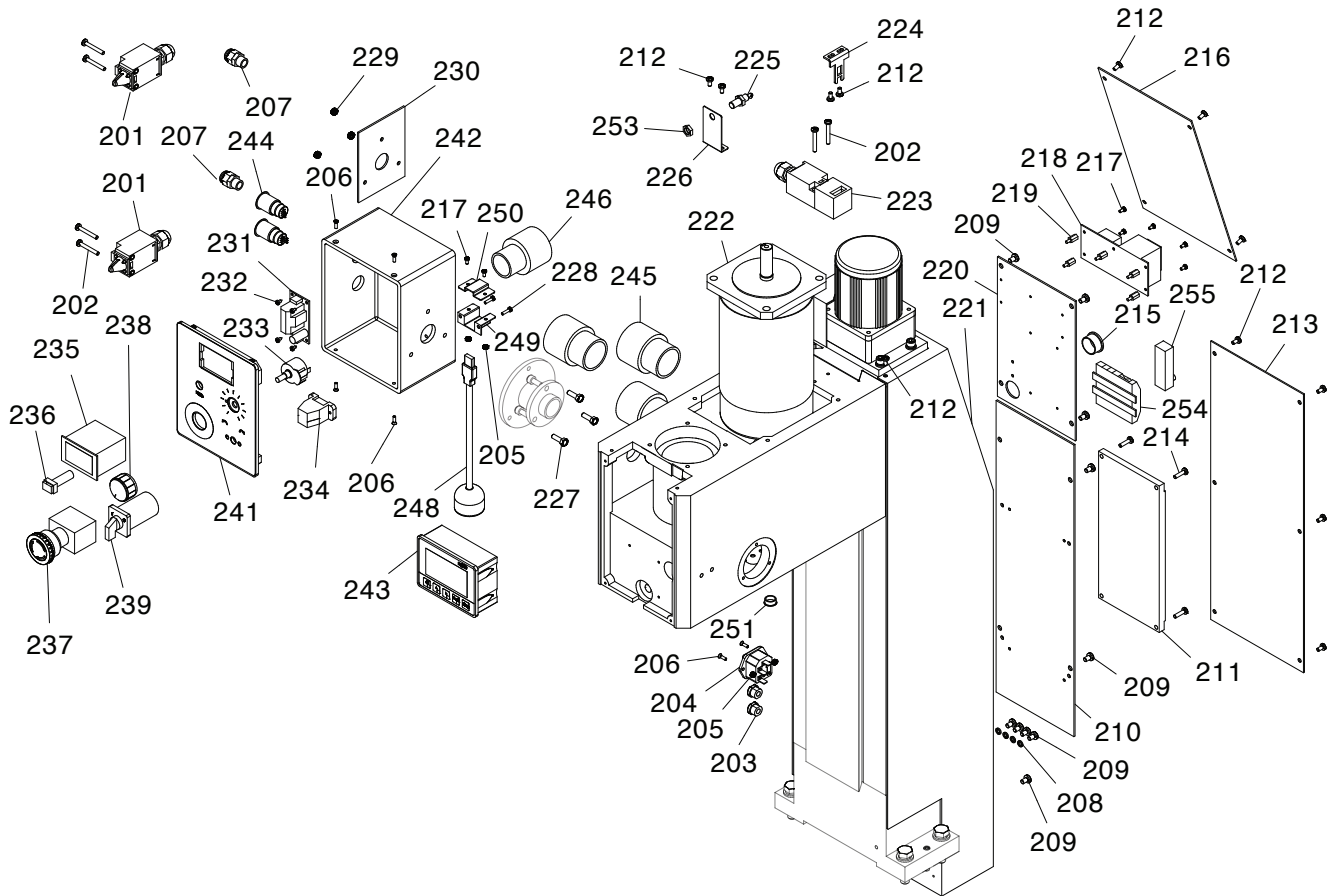
101	P0935101	COLUMN
102	P0935102	FLAT WASHER 10MM
103	P0935103	LOCK WASHER 10MM
104	P0935104	HEX BOLT M10-1.5 X 40
105	P0935105	TAPER PIN W/INT THREADS M6-1 X 32
106	P0935106	MAGNETIC BLOCK
107	P0935107	LOCK RING M12-1 X 6
108	P0935108	BALL BEARING 6001-OPEN
109	P0935109	TAPER PIN W/INT THREAD M6-1 X 16
110	P0935110	CAP SCREW M6-1 X 16
111	P0935111	LOCK WASHER 6MM
112	P0935112	FLAT WASHER 6MM
113	P0935113	LEADSCREW BEARING BLOCK
114	P0935114	Z-AXIS LEADSCREW M12-1 X 27.5
115	P0935115	Z-AXIS LEADSCREW MOUNTING BRACKET
116	P0935116	SET SCREW M6-1 X 8
117	P0935117	LIFT LOCK NUT (METRIC)
118	P0935118	CAP SCREW M5-.8 X 12
119	P0935119	LIFT LOCK NUT (INCH)
120	P0935120	PHLP HD SCR M4-.7 X 8
121	P0935121	MOTOR HOOD
122	P0935122	MOTOR W/GEARBOX 25W 110V 1-PH 4GN-18K
123	P0935123	CAP SCREW M6-1 X 20

## REF PART # DESCRIPTION

124	P0935124	Z-AXIS MOTOR MOUNTING PLATE
125	P0935125	CLUTCH
126	P0935126	FLAT WASHER 5MM
127	P0935127	PHLP HD SCR M5-.8 X 12
128	P0935128	LOCK WASHER 5MM
151	P0935151	PHLP HD SCR M3-.5 X 12
152	P0935152	MAGNETIC SENSOR SIEG
153	P0935153	Y-AXIS SENSOR BRACKET
154	P0935154	CAP SCREW M4-.7 X 10
155	P0935155	Y-AXIS MAGNETIC SCALE
156	P0935156	X-AXIS MAGNETIC SCALE
157	P0935157	X-AXIS SENSOR BRACKET
158	P0935158	PHLP HD SCR M3-.5 X 10
159	P0935159	Z-AXIS MAGNETIC SCALE
160	P0935160	Z-AXIS SENSOR BRACKET
161	P0935161	POWER CORD 16G 3W 59" 5-15P
181	P0935181	Z-AXIS WAY COVER
182	P0935182	WAY COVER MAGNET BRACKET
183	P0935183	PHLP HD SCR M5-.8 X 6
184	P0935184	WAY COVER SCREW BRACKET
185	P0935185	ROUND MAGNET 6MM
186	P0935186	PHLP HD SCR M4-.7 X 10
187	P0935187	Y-AXIS WAY COVER



# Cabinet & Controls



## REF PART # DESCRIPTION

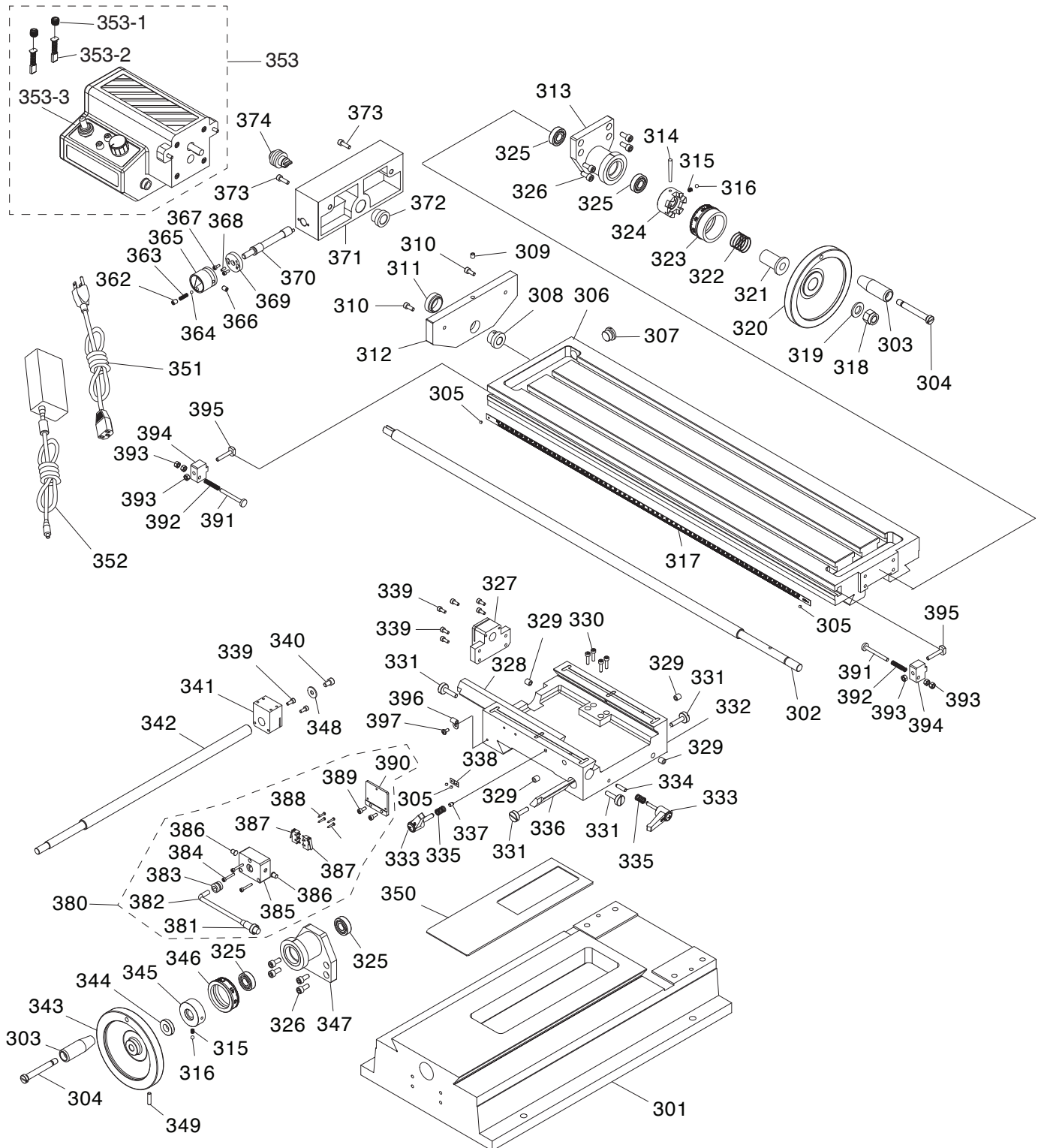
201	P0935201	LIMIT SWITCH KEDU QKS7
202	P0935202	PHLP HD SCR M4-.7 X 30
203	P0935203	STRAIN RELIEF TYPE-1 1/2"
204	P0935204	SOCKET PLUG 5-15 W/FUSE DB-14F
205	P0935205	HEX NUT M3-.5
206	P0935206	FLAT HD SCR M3-.6 X 10
207	P0935207	STRAIN RELIEF TYPE-3 M12-1.75
208	P0935208	LOCK WASHER 5MM
209	P0935209	PHLP HD SCR M5-.8 X 8
210	P0935210	ELECTRICAL MOUNTING PLATE (LOWER)
211	P0935211	CIRCUIT BOARD WGPCB FC-1100BJ/110V
212	P0935212	PHLP HD SCR M4-.7 X 8
213	P0935213	ELECTRICAL PANEL (LOWER)
214	P0935214	PHLP HD SCR M4-.7 X 16
215	P0935215	FLANGED BUSHING
216	P0935216	ELECTRICAL PANEL (UPPER)
217	P0935217	PHLP HD SCR M3-.5 X 6
218	P0935218	CIRCUIT BOARD WGPCB 1810 ZD-2
219	P0935219	STAND-OFF HEX MF M3-.5 X 6, M3-.5
220	P0935220	ELECTRICAL MOUNTING PLATE (UPPER)
221	P0935221	COLUMN COVER
222	P0935222	MOTOR 1.5HP 110V 1-PH
223	P0935223	SAFETY SWITCH KEDU QKS8
224	P0935224	SAFETY SWITCH INSERT KEDU QKS8-1
225	P0935225	SPINDLE SPEED SENSOR ASSEMBLY SIEG
226	P0935226	SPINDLE SPEED SENSOR BRACKET

## REF PART # DESCRIPTION

227	P0935227	HEX BOLT M5-.8 X 16
228	P0935228	PHLP HD SCR M3-.5 X 12
229	P0935229	HEX NUT M4-.7
230	P0935230	ELECTRICAL MOUNTING PLATE
231	P0935231	CIRCUIT BOARD DYB-01 110V
232	P0935232	TAP SCREW M2.9 X 6.5
233	P0935233	POTENTIOMETER 4.7K WH24-1
234	P0935234	USB PORT W/CORD 47"
235	P0935235	SPINDLE SPEED DRO SIEG RSD-27
236	P0935236	POWER LAMP LAS3
237	P0935237	E-STOP BUTTON KEDU HY57B
238	P0935238	SPINDLE SPEED DIAL 30MM
239	P0935239	FOR/OFF/REV SWITCH KEDU ZH-A
241	P0935241	CONTROL PANEL
242	P0935242	CONTROL BOX
243	P0935243	3-AXIS DIGITAL DISPLAY SIEG MG10V
244	P0935244	JOG BUTTON SIEG J19-S-271
245	P0935245	STRAIN RELIEF TYPE-5 M40-1.5
246	P0935246	STRAIN RELIEF TYPE-5 M32-1.5
248	P0935248	LED WORKLIGHT ASSEMBLY SIEG 5V
249	P0935249	USB PORT BRACKET
250	P0935250	USB PORT CLAMP PLATE
251	P0935251	HOLE PLUG 13MM
253	P0935253	HEX NUT M4-.7 THIN
254	P0935254	TERMINAL BAR 4P
255	P0935255	FUSE HOLDER



# Table



# Table Parts List

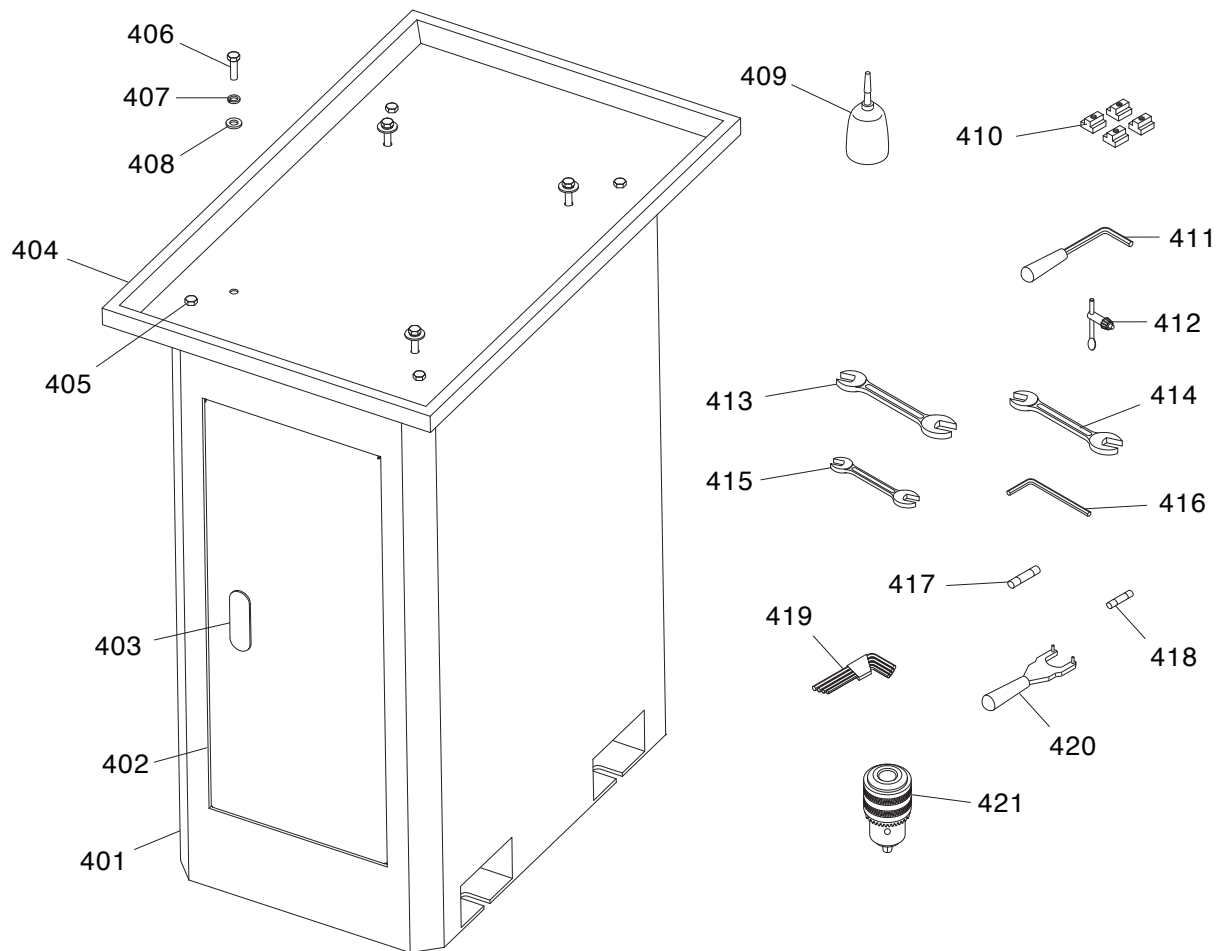
REF	PART #	DESCRIPTION
301	P0935301	TABLE BASE
302	P0935302	X-AXIS LEADSCREW M4-1 X 30
303	P0935303	HOLLOW HANDLE 20 X 60, 8.5
304	P0935304	SHOULDER SCREW M8-1 X 9.5, 13 X 5
305	P0935305	RIVET 2 X 4MM NAMEPLATE
306	P0935306	TABLE
307	P0935307	DRAIN PLUG M16-1.5 X 6
308	P0935308	LEADSCREW SLEEVE
309	P0935309	BALL OILER 6MM PRESS-IN
310	P0935310	CAP SCREW M5-.8 X 12
311	P0935311	TABLE BRACKET PLUG
312	P0935312	TABLE BRACKET
313	P0935313	BEARING SEAT
314	P0935314	TAPER PIN 4 X 40
315	P0935315	COMPRESSION SPRING 0.5 X 4.65 X 9
316	P0935316	STEEL BALL 5MM
317	P0935317	X-AXIS SCALE
318	P0935318	LOCK NUT M12-1.75
319	P0935319	FLAT WASHER 12MM
320	P0935320	HANDWHEEL TYPE-8 130D X 20B X M8-1
321	P0935321	HANDWHEEL SLEEVE
322	P0935322	COMPRESSION SPRING 1.2 X 24 X 23
323	P0935323	GRADUATED DIAL SAE
324	P0935324	X-AXIS LEADSCREW CLUTCH
325	P0935325	BALL BEARING 6001-OPEN
326	P0935326	CAP SCREW M6-1 X 14
327	P0935327	X-AXIS LEADSCREW NUT
328	P0935328	X-AXIS GIB
329	P0935329	BALL OILER 8MM PRESS-IN
330	P0935330	CAP SCREW M4-.7 X 16
331	P0935331	GIB SCREW M6-1 X 24
332	P0935332	SADDLE
333	P0935333	ADJUSTABLE HANDLE M6-1 X 16, 48L
334	P0935334	Y-AXIS LOCKING PIN
335	P0935335	COMPRESSION SPRING 1 X 9.2 X 14
336	P0935336	Y-AXIS GIB
337	P0935337	Y-AXIS LOCKING PIN
338	P0935338	0-POSITION LABEL
339	P0935339	CAP SCREW M4-.7 X 10
340	P0935340	CAP SCREW M6-1 X 10
341	P0935341	Y-AXIS LEADSCREW NUT
342	P0935342	Y-AXIS LEADSCREW M16-2.5 X 280
343	P0935343	HANDWHEEL TYPE-8 130D X 10B X M8-1
344	P0935344	LOCK RING

REF	PART #	DESCRIPTION
345	P0935345	DIAL SLEEVE
346	P0935346	GRADUATED DIAL SAE
347	P0935347	BEARING SEAT
348	P0935348	FLAT WASHER 6MM
349	P0935349	SET SCREW M5-.8 X 20
350	P0935350	SPLASH GUARD
351	P0935351	POWER FEED POWER CORD 18G 3W 59" 5-15P
352	P0935352	POWER FEED ADAPTER W/CORD 16G 2W 48" C+P
353	P0935353	POWER FEED ASSEMBLY SIEG ZD30
353-1	P0935353-1	BRUSH CAP
353-2	P0935353-2	CARBON BRUSHES (PAIR)
353-3	P0935353-3	POWERFEED SIDE COVER
362	P0935362	SET SCREW M6-1 X 8
363	P0935363	COMPRESSION SPRING 0.7 X 4 X 25
364	P0935364	STEEL BALL 4MM
365	P0935365	LEADSCREW SELECTOR KNOB M6-1
366	P0935366	SET SCREW M6-1 X 8 CONE-PT
367	P0935367	CAP SCREW M3-.5 X 8
368	P0935368	ROLL PIN 3 X 8
369	P0935369	LEADSCREW SELECTOR FLANGE
370	P0935370	LEADSCREW SELECTOR ECCENTRIC SHAFT
371	P0935371	ECCENTRIC SHAFT BOX
372	P0935372	SHAFT SLEEVE
373	P0935373	CAP SCREW M5-.8 X 16
374	P0935374	CONNECTOR ASSEMBLY
380	P0935380	X-AXIS LIMIT SWITCH ASSEMBLY
381	P0935381	X-AXIS POWER FEED PLUG M12-3 3-PIN
382	P0935382	X-AXIS LIMIT SWITCH CORD 21G 3W 4-3/4"
383	P0935383	STRAIN RELIEF TYPE-1 1/2"
384	P0935384	CAP SCREW M3-.5 X 20
385	P0935385	X-AXIS LIMIT SWITCH HOUSING
386	P0935386	LIMIT SWITCH PRESS BUTTON
387	P0935387	LIMIT SWITCH OMRON SS-5GL
388	P0935388	TAP SCREW M2.2 X 13
389	P0935389	CAP SCREW M4-.7 X 10
390	P0935390	X-AXIS LIMIT SWITCH MOUNTING PLATE
391	P0935391	KNURLED THUMB SCREW M5-.8 X 25, D12
392	P0935392	COMPRESSION SPRING 0.5 X 4.5 X 28
393	P0935393	HEX NUT M5-.8
394	P0935394	X-AXIS LIMIT BLOCK
395	P0935395	T-BOLT M5-.8 X 40
396	P0935396	CORD CLAMP 20AWG
397	P0935397	PHLP HD SCR M4-.7 X 8





# Stand & Accessories



## REF PART # DESCRIPTION

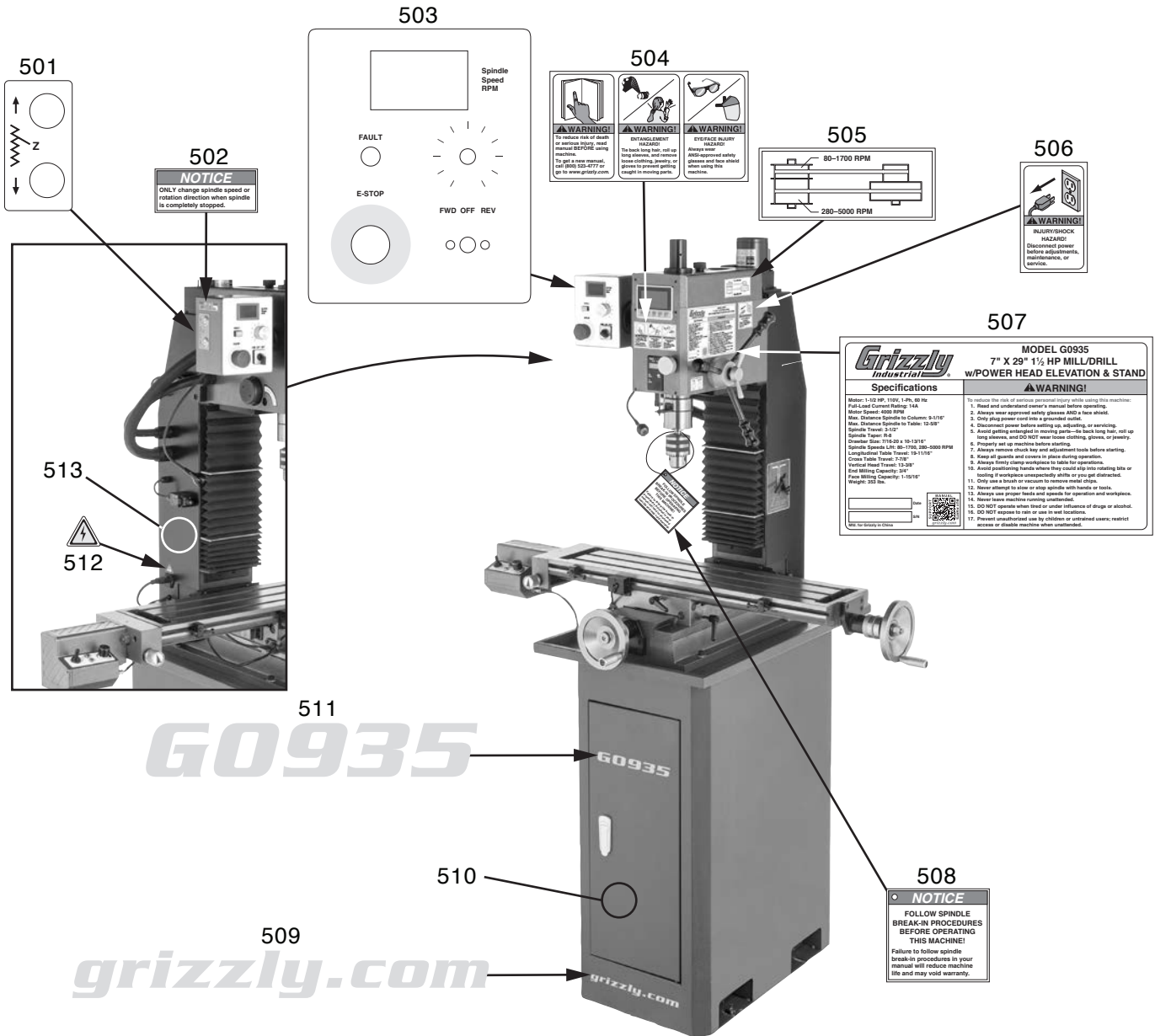
401	P0935401	CABINET
402	P0935402	CABINET DOOR
403	P0935403	DOOR LOCK ASSEMBLY
404	P0935404	CHIP TRAY
405	P0935405	HEX BOLT M8-1.25 X 16
406	P0935406	HEX BOLT M8-1.25 X 40
407	P0935407	LOCK WASHER 8MM
408	P0935408	FLAT WASHER 8MM
409	P0935409	OIL BOTTLE
410	P0935410	T-NUT M12-1.75
411	P0935411	QUILL LOCK LEVER

## REF PART # DESCRIPTION

412	P0935412	DRILL CHUCK KEY 5/16" STD 11T SD-9/16"
413	P0935413	WRENCH 17 X 19MM OPEN-ENDS
414	P0935414	WRENCH 14 X 17MM OPEN-ENDS
415	P0935415	WRENCH 8 X 10MM OPEN-ENDS
416	P0935416	HEX WRENCH 8MM
417	P0935417	FUSE 2V 250A
418	P0935418	FUSE 20V 250A
419	P0935419	HEX WRENCH SET (4-PC)
420	P0935420	SPINDLE SPANNER WRENCH
421	P0935421	DRILL CHUCK JT6 X 1-16MM



# Labels & Cosmetics



## REF PART # DESCRIPTION

501	P0935501	Z-AXIS BUTTON LABEL
502	P0935502	SPINDLE SPEED NOTICE LABEL
503	P0935503	CONTROL PANEL LABEL
504	P0935504	COMBO WARNING LABEL
505	P0935505	SPINDLE SPEED RANGE LABEL
506	P0935506	DISCONNECT POWER LABEL
507	P0935507	MACHINE ID LABEL

## REF PART # DESCRIPTION

508	P0935508	SPINDLE BREAK-IN HANG TAG
509	P0935509	GRIZZLY.COM LABEL
510	P0935510	TOUCH-UP PAINT, GRIZZLY GREEN
511	P0935511	MODEL NUMBER LABEL
512	P0935512	ELECTRICITY LABEL
513	P0935513	TOUCH-UP PAINT, GRIZZLY BLACK

## ! WARNING

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



# WARRANTY & RETURNS

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

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

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

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

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

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

To take advantage of this warranty, you must register it at <https://www.grizzly.com/forms/warranty>, or you can scan the QR code below to be automatically directed to our warranty registration page. Enter all applicable information for the product.





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