MODEL G0982/G0983
6" X 27" MILL/DRILL
w/MIRROR DISPLAY

OWNER'S MANUAL

(For models manufactured since 01/24)

#CS23156 PRINTED IN CHINA V1.06.24

******Keep for Future Reference******

⚠ 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.

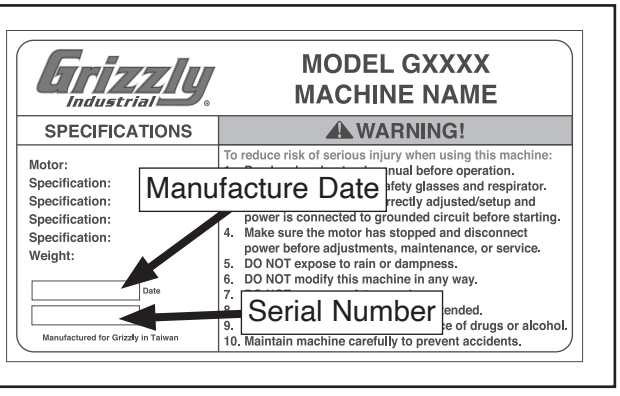
Manual Accuracy

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**.

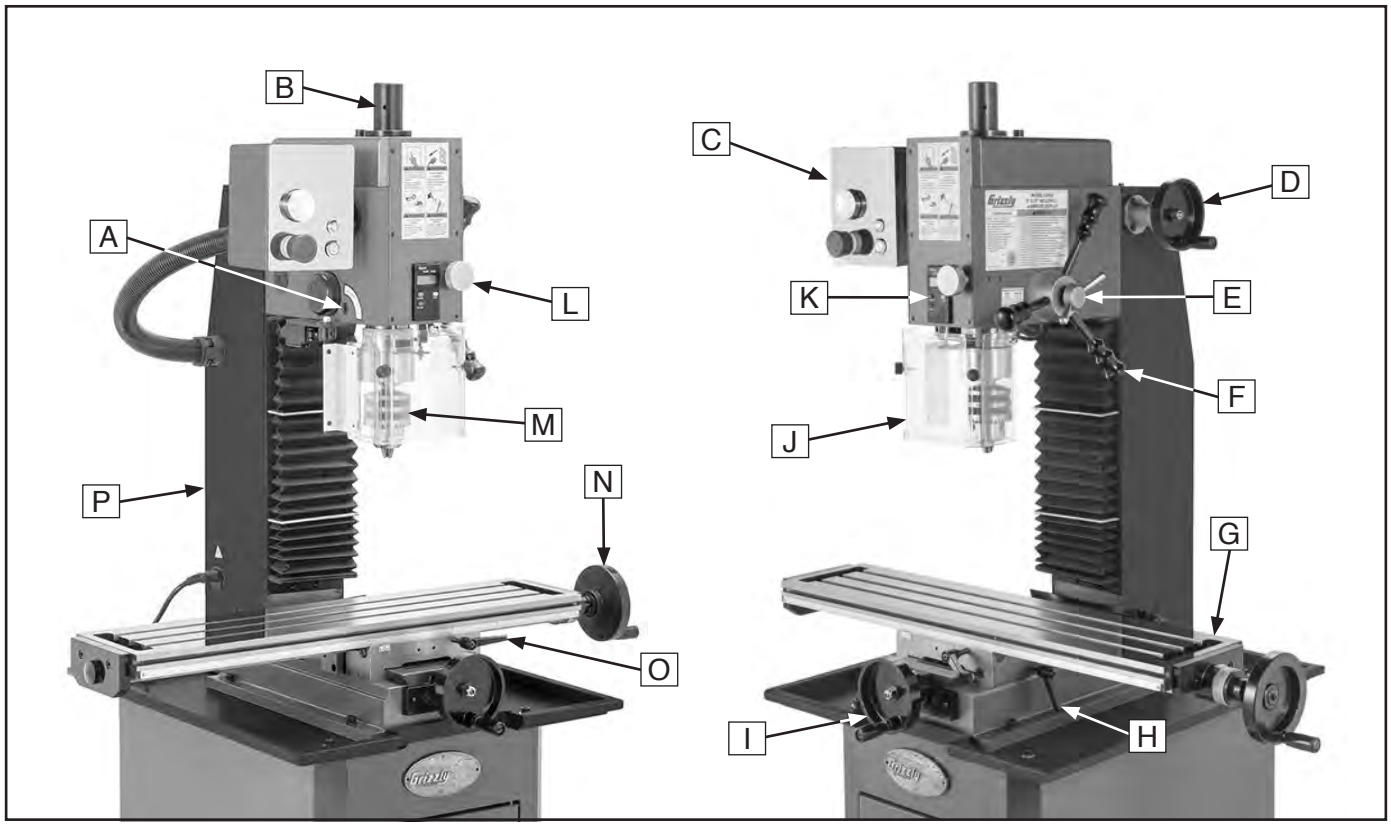
If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

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.

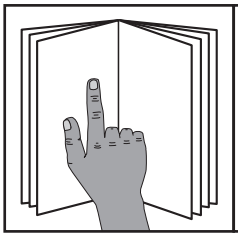


G0982 Identification

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



A. Quill Lock Screw
B. Drawbar Cover
C. Spindle Control Panel
D. Z-Axis Handwheel
E. Downfeed Selector Handle
F. Coarse Downfeed Handle
G. Table
H. Y-Axis Lock Handle
I. Y-Axis Handwheel
J. Chip Guard
K. Spindle Depth DRO
L. Fine Downfeed Knob
M. Chuck
N. X-Axis Handwheel
O. X-Axis Lock Handle
P. Column

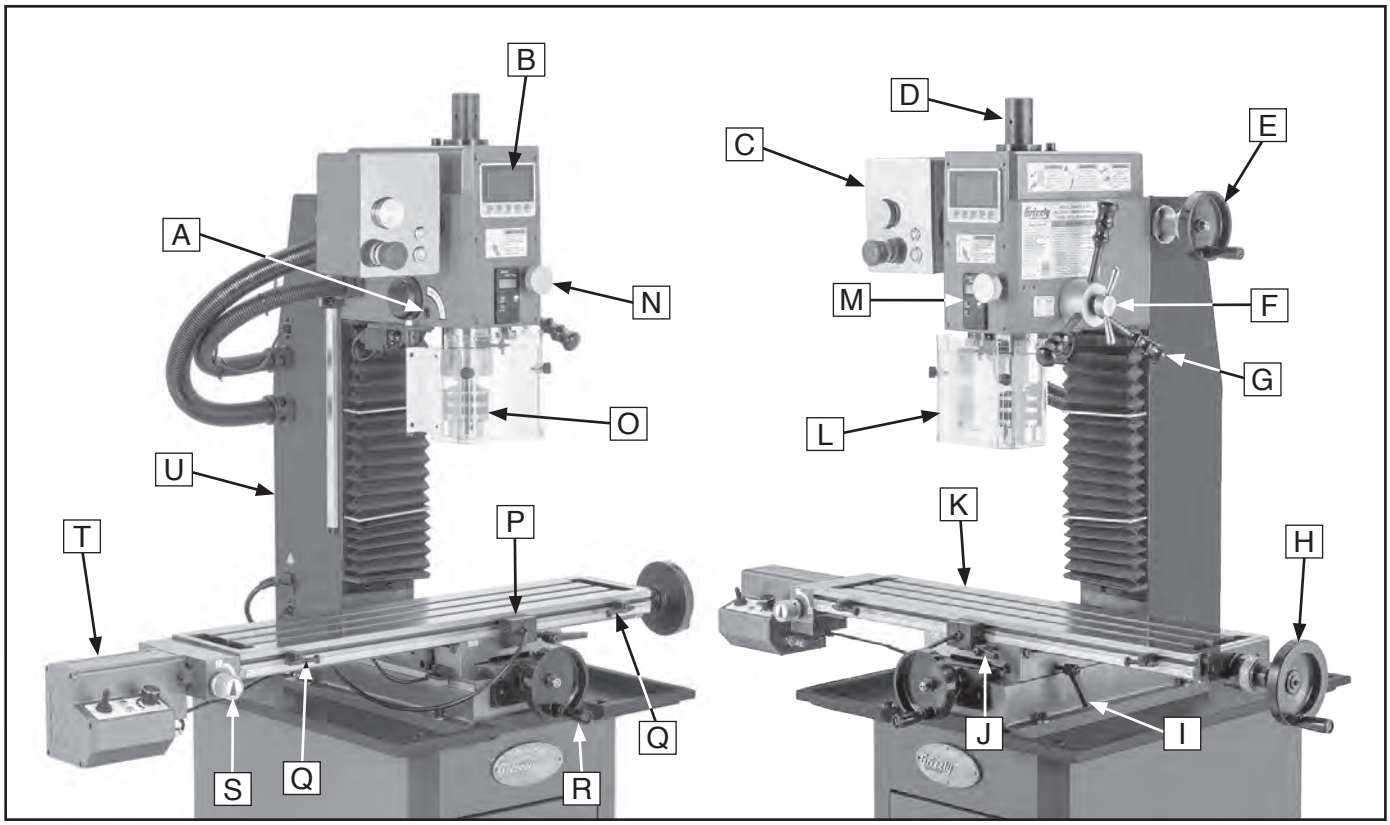


⚠WARNING

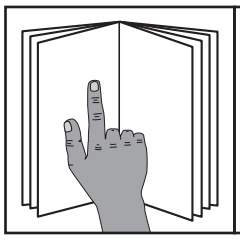
To reduce your risk of serious injury, read this entire manual BEFORE using machine.

G0983 Identification

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



A. Quill Lock Screw
B. 3-Axis DRO
C. Spindle Control Panel
D. Drawbar Cover
E. Z-Axis Handwheel
F. Downfeed Selector Handle
G. Coarse Downfeed Handle
H. X-Axis Handwheel
I. Y-Axis Lock Handle
J. X-Axis Lock Handle
K. Table
L. Chip Guard
M. Spindle Depth DRO
N. Fine Downfeed Knob
O. Chuck
P. Power Feed Limit Switch
Q. X-Axis Travel Limit Stops
R. Y-Axis Handwheel
S. Leadscrew Selector Knob
T. X-Axis Power Feed & Controls
U. Column



⚠WARNING

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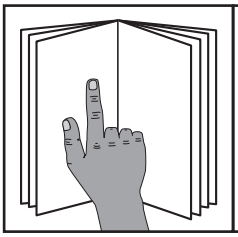
Controls & Components



⚠WARNING

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

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.

Spindle Control Panel

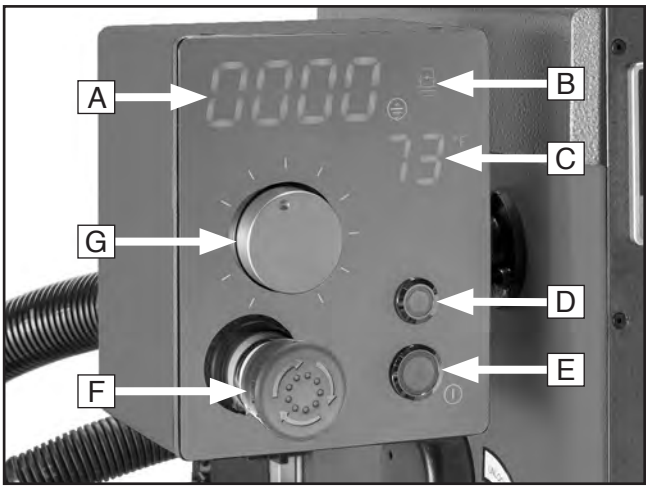


Figure 1. Spindle control panel components.

A. Spindle Speed DRO: Shows spindle speed.

B. Spindle Rotation Icon: Shows current spindle rotation direction.

C. Temperature DRO: Shows current room temperature.

D. Reverse Button: Changes spindle rotation direction. Illuminates when spindle rotates counterclockwise, as viewed from above. Spindle rotation does not need to be stopped before rotation is reversed.

E. Start/Stop Button: Starts and stops spindle rotation.

F. Emergency Stop Button: Stops spindle rotation and disables power to spindle control panel (and 3-axis DRO on G0983). Twist clockwise to reset.

G. Spindle Speed Dial: Adjusts spindle speed from 100–2000 RPM.

Spindle Downfeed

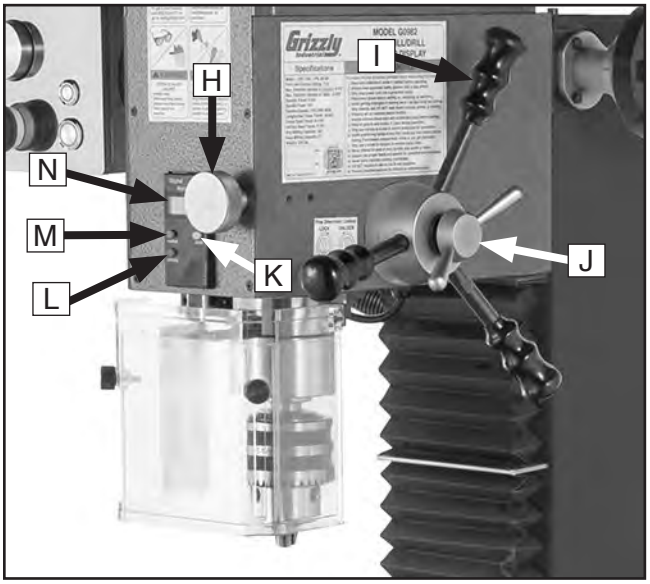


Figure 2. Right spindle downfeed components (G0982 shown).

H. Fine Downfeed Knob: Manually controls rate of fine spindle downfeed.

I. Coarse Downfeed Handle (1 of 3): Quickly moves spindle down for drilling operations; features spring-loaded spindle return.

J. Downfeed Selector Handle: Engages fine spindle control for milling operations.

K. ZERO Button: Zeroes spindle depth DRO anywhere along its travel.

L. Spindle Depth DRO OFF/ON Button: Turns spindle depth DRO display ***ON*** and ***OFF***.

M. mm/inch Button: Toggles spindle depth DRO between inches and millimeters.

N. Spindle Depth DRO: Displays spindle travel and depth.

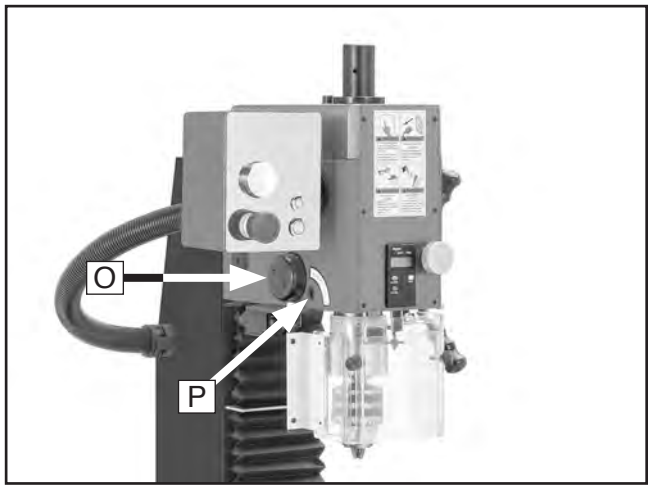


Figure 3. Left spindle downfeed components (G0982 shown).

O. Spindle Return Spring: Automatically returns quill into headstock.

P. Quill Lock Screw: Tightens to secure quill in place for increased stability during operations.

3-Axis DRO (G0983 Only)

Figure 4. 3-axis DRO components.

Q. 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.

R. Zero: Press to zero selected axis. Press and hold to zero all three axes.

S. mm inch: Press to toggle between mm and inches.

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

U. Enter: Button has no function on this machine.

V. Select: Press to change selected axis. Press and hold to turn DRO ***OFF***.

Manual Headstock & Table Travel

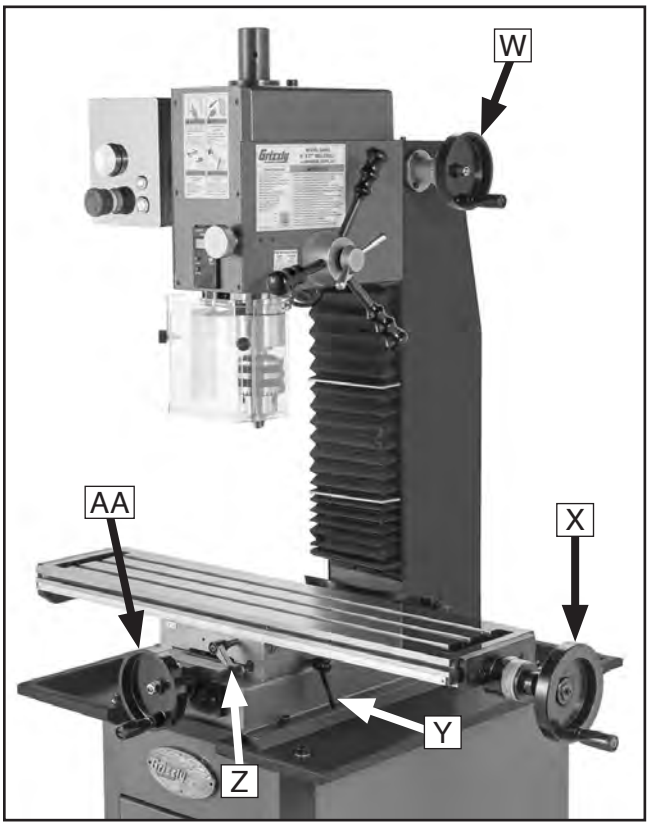


Figure 5. Right manual headstock and table travel components.

W. Z-Axis Handwheel: Moves headstock along Z-axis (up and down) and has a graduated dial measured in 0.0005" increments. One full revolution of handwheel equals 0.05".

X. X-Axis Handwheel: Moves table along X-axis (left and right) and has a graduated dial measured in 0.001" increments. One full revolution of handwheel equals 0.10".

Y. Y-Axis Lock Handle: Tighten to lock table position on Y-axis.

Z. X-Axis Lock Handle: Tighten to lock table position on X-axis.

AA. Y-Axis Handwheel: Moves table along X-axis (front and back) and has a graduated dial measured in 0.001" increments. One full revolution of handwheel equals 0.10".

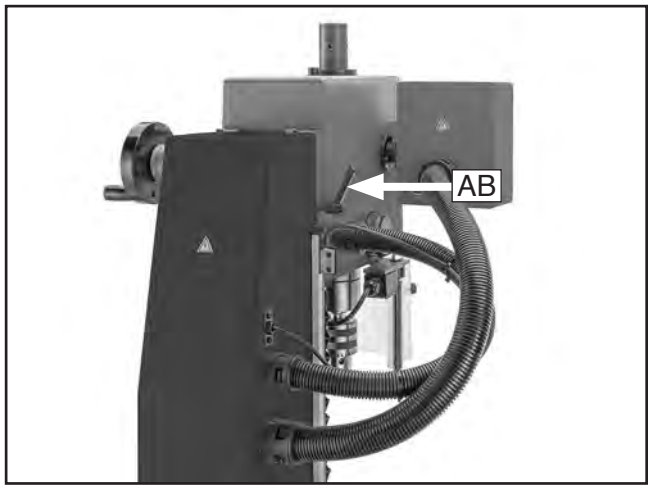


Figure 6. Left manual headstock and table travel components (G0983 shown).

AB. Z-Axis Lock Handle: Tighten to lock headstock position on Z-axis.

Chip Guard

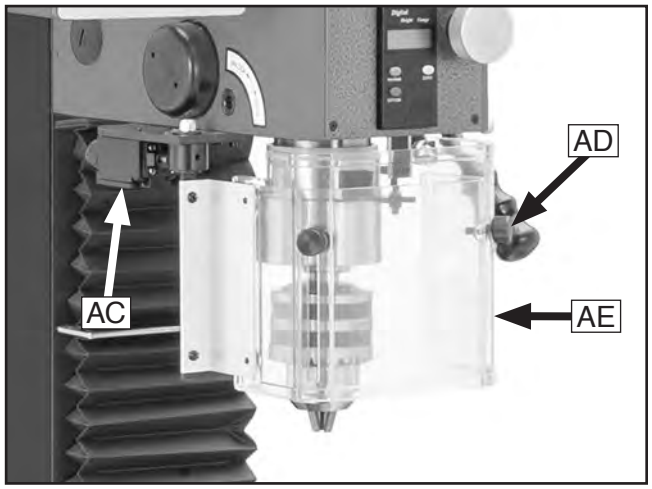


Figure 7. Chip guard components (G0982 shown).

AC. Chip Guard Limit Switch: Stops spindle and prevents it from starting when chip guard is opened.

AD. Chip Guard Lock Knob (1 of 2): Loosens to adjust chip guard extension; tightens to secure extension position.

AE. Chip Guard: Protects user from flying debris. Guard pivots out of the way for tooling changes and maintenance, and has an extension that adjusts up and down. When chip guard is opened, spindle will stop and spindle speed DRO will blink "Err".

X-Axis Power Feed (G0983 Only)

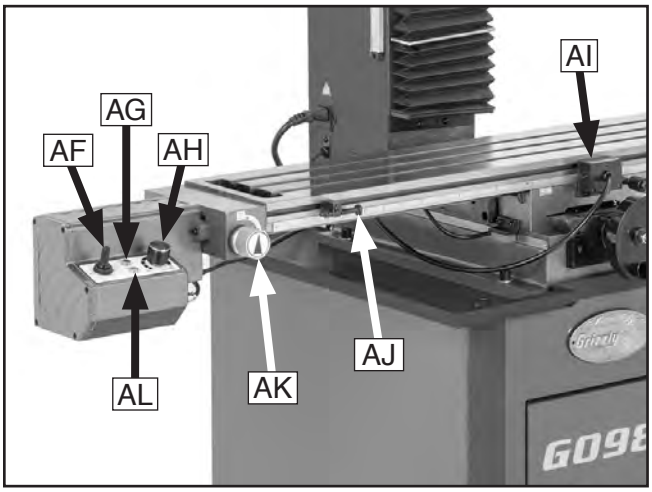


Figure 8. X-axis power feed components.

AF. Direction Switch: Moves table left and right. Center toggle position stops power feed motor.

AG. Power Indicator: Glows green when power feed is connected to power supply.

AH. Speed Control Dial: Turns power feed ***ON*** and ***OFF*** and adjusts power feed motor speed from 4–14 in/min. (100–300 mm/min.).

AI. Power Feed Limit Switch: Disables power feed table movement on X-axis when travel limit stops are contacted.

AJ. X-Axis Travel Limit Stop (1 of 2): Adjust for operation to limit power feed table movement on X-axis.

AK. Leadscrew Selector Knob: Rotate to engage or release power feed drive gear.

AL. 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 G0982 6" X 27" MILL/DRILL WITH MIRROR DISPLAY

Product Dimensions:

Weight..... 324 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 34-1/2 x 24-1/2 x 65-1/2 in.
Footprint (Length x Width)..... 22 x 14-1/2 in.
Space Required for Full Range of Movement (Width x Depth)..... 55 x 26-1/2 in.

Shipping Dimensions:

Carton #1

Type..... Wood Crate
Content..... Machine
Weight..... 298 lbs.
Length x Width x Height..... 37 x 29 x 36 in.
Must Ship Upright..... Yes

Carton #2

Type..... Cardboard Box
Content..... Stand
Weight..... 62 lbs.
Length x Width x Height..... 24 x 21 x 35 in.
Must Ship Upright..... Yes

Electrical:

Power Requirement..... 110V, Single-Phase, 60Hz
Full-Load Current Rating..... 11A
Minimum Circuit Size..... 15A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 72 in.
Power Cord Gauge..... 16 AWG
Plug Included..... Yes
Included Plug Type..... 5-15
Switch Type..... ON/OFF Button

Motors:

Main

Horsepower..... 1 HP
Phase..... Single-Phase
Amps..... 11A
Speed..... 4000 RPM
Type..... Universal
Power Transfer ..... Belt
Bearings..... Sealed & Permanently Lubricated

Main Specifications:

Operation Info

Spindle Travel	2-3/4 in.
Max Distance Spindle to Column	6-1/2 in.
Max Distance Spindle to Table	12-3/8 in.
Longitudinal Table Travel (X-Axis)	19-3/4 in.
Cross Table Travel (Y-Axis)	6-1/16 in.
Vertical Head Travel (Z-Axis)	9-1/4 in.
Drilling Capacity for Cast Iron	3/4 in.
Drilling Capacity for Steel	5/8 in.
End Milling Capacity	5/8 in.
Face Milling Capacity	2 in.

Table Info

Table Length	27-1/2 in.
Table Width	6-3/8 in.
Table Thickness	1-5/16 in.
Table Height (from Floor/Base)	6 in.
Table Weight Capacity	66 lbs.
Number of T-Slots	3
T-Slot Size	12mm
T-Slots Centers	1-9/16 in.
X/Y-Axis Travel per Handwheel Revolution	0.10 in.
Z-Axis Travel per Handwheel Revolution	0.05 in.

Spindle Info

Spindle Taper	R-8
Number of Vertical Spindle Speeds	Variable
Range of Vertical Spindle Speeds	100 - 2000 RPM
Quill Diameter	2.36 in.
Drawbar Thread Size	7/16-20
Drawbar Length	11-3/16
Spindle Bearings	Tapered Roller Bearings

Construction

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

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:

Z-Axis DRO for Spindle
LED Mirror Display
Dovetail Column w/ 0.0005" Graduated Handwheel
Manual Fine Downfeed Control
FWD/REV Spindle
Three 12mm T-Slots
Clear Chip Guard w/Safety Switch
R-8 Spindle Taper

MACHINE DATA SHEET

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

MODEL G0983 6" X 27" MILL/DRILL WITH MIRROR DISPLAY, 3-AXIS DRO, & POWER FEED

Product Dimensions:

Weight..... 337 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 42-1/2 x 24-1/2 x 65-1/2 in.
Footprint (Length x Width)..... 22 x 14-1/2 in.
Space Required for Full Range of Movement (Width x Depth)..... 64 x 26-1/2 in.

Shipping Dimensions:

Carton #1

Type..... Wood Crate
Content..... Machine
Weight..... 322 lbs.
Length x Width x Height..... 46 x 29 x 36 in.
Must Ship Upright..... Yes

Carton #2

Type..... Cardboard Box
Content..... Stand
Weight..... 62 lbs.
Length x Width x Height..... 24 x 21 x 35 in.
Must Ship Upright..... Yes

Electrical:

Power Requirement..... 110V, Single-Phase, 60Hz
Full-Load Current Rating..... 11A
Minimum Circuit Size..... 15A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 72 in.
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Main

Horsepower..... 1 HP
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Speed..... 4000 RPM
Type..... Universal
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Spindle Travel	2-3/4 in.
Max Distance Spindle to Column	6-1/2 in.
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Longitudinal Table Travel (X-Axis)	19-3/4 in.
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Drilling Capacity for Cast Iron	3/4 in.
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Table Length	27-1/2 in.
Table Width	6-3/8 in.
Table Thickness	1-5/16 in.
Table Height (from Floor/Base)	6 in.
Table Weight Capacity	66 lbs.
Number of T-Slots	3
T-Slot Size	12mm
T-Slots Centers	1-9/16 in.
X-Axis Table Power Feed Rate	4 - 14 in/min
X/Y-Axis Travel per Handwheel Revolution	0.10 in.
Z-Axis Travel per Handwheel Revolution	0.05 in.

Spindle Info

Spindle Taper	R-8
Number of Vertical Spindle Speeds	Variable
Range of Vertical Spindle Speeds	100 - 2000 RPM
Quill Diameter	2.36 in.
Drawbar Thread Size	7/16-20
Drawbar Length	11-3/16
Horizontal Spindle Bearing Type	Tapered Roller Bearings

Construction

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

Other Specifications:

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

SECTION 1: SAFETY

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

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

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

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

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

NOTICE **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 loose clothing, gloves, neckties, 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 to OFF position and press Emergency Stop button 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.

⚠WARNING

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

Full-Load Current Rating

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

Full-Load Current Rating at 110V
Machine ..... 11 Amps
Power Feed (G0983 Only)..... 1.4 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 requirements below. The Model G0983 power feed unit requires a separate power supply circuit meeting the same requirements.

Nominal Voltage 110V, 115V, 120V
Cycle ..... 60 Hz
Phase ..... Single-Phase
Power Supply Circuit ..... 15 Amps
Plug/Receptacle ..... NEMA 5-15

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

⚠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

The machine and Model G0983 power feed unit 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 and Model G0983 power feed unit are equipped with power cords that each have 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!

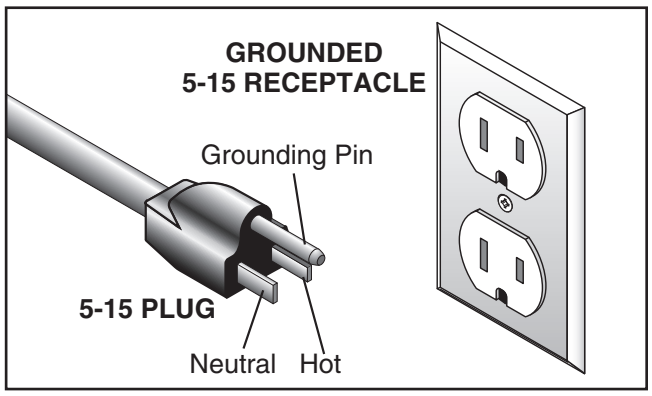
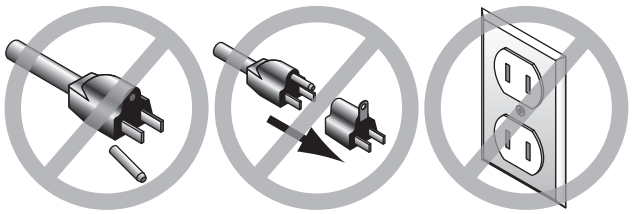


Figure 9. Typical 5-15 plug and receptacle.

⚠CAUTION



SHOCK HAZARD!

Two-prong outlets do not meet the grounding requirements for this machine or Model G0983 power feed unit. Do not modify or use an adapter on the plug provided—if it will not fit the outlet, have a qualified electrician install the proper outlet with a verified ground.

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

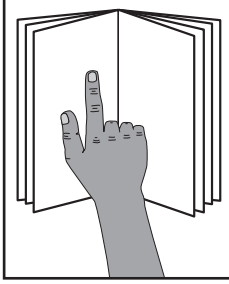
We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

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.....16 AWG
Maximum Length (Shorter is Better).....50 ft.

SECTION 3: SETUP

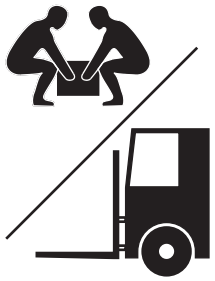


⚠WARNING

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 Sling (Rated for at least 400 lbs.)	1
• Lifting Equipment (Rated for at least 400 lbs.)	1
• Another Person	1
• Floor Mounting Anchors	4

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 (Figure 10)	Qty
A. Chip Tray	1
B. Studs M8-1.25 x 36, 101	4
C. Cap Screws M8-1.25 x 10	4
D. Cap Screws M8-1.25 x 30	4
E. Lock Washers 8mm	12
F. Flat Washers 8mm	12
G. Hex Nuts M8-1.25	4
H. Stand	1

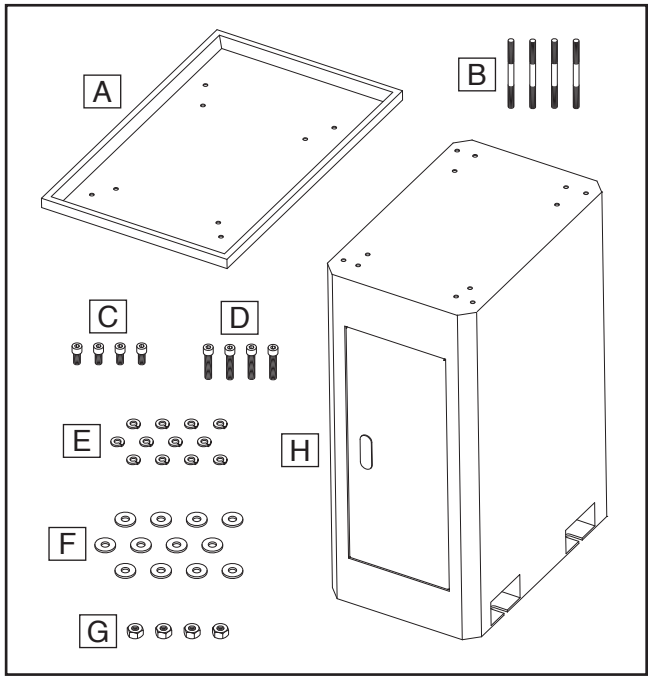


Figure 10. Box inventory.

Crate (Figure 11)	Qty
I. X-Axis Handwheel Handle (G0982 Only)	1
J. Power Cord for Mill/Drill 16AWG 72"	1
K. Power Adapter Power Cord 18AWG 55" (G0983 Only)	1
L. Power Adapter (G0983 Only)	1
M. Open-End Wrenches 8 x 10, 14 x 17, 17 x 19mm	1 Ea.
N. Drawbar Lock Lever	1
O. Spindle Spanner Wrench	1
P. Oil Bottle	1
Q. T-Slot Nuts M12-1.75	2
R. Drill Chuck Key	1
S. Hex Wrench 4-Pc. Set (3, 4, 5, 6mm)	1
T. Hex Wrench 8mm	1
U. Fuse 15A 250V (Spare)	1

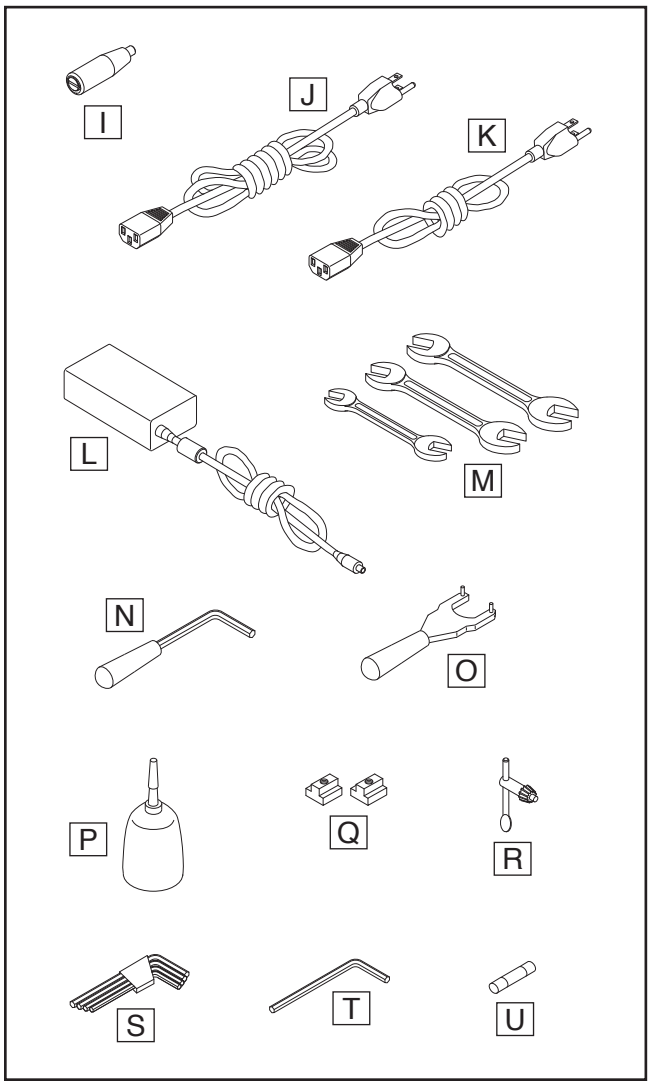
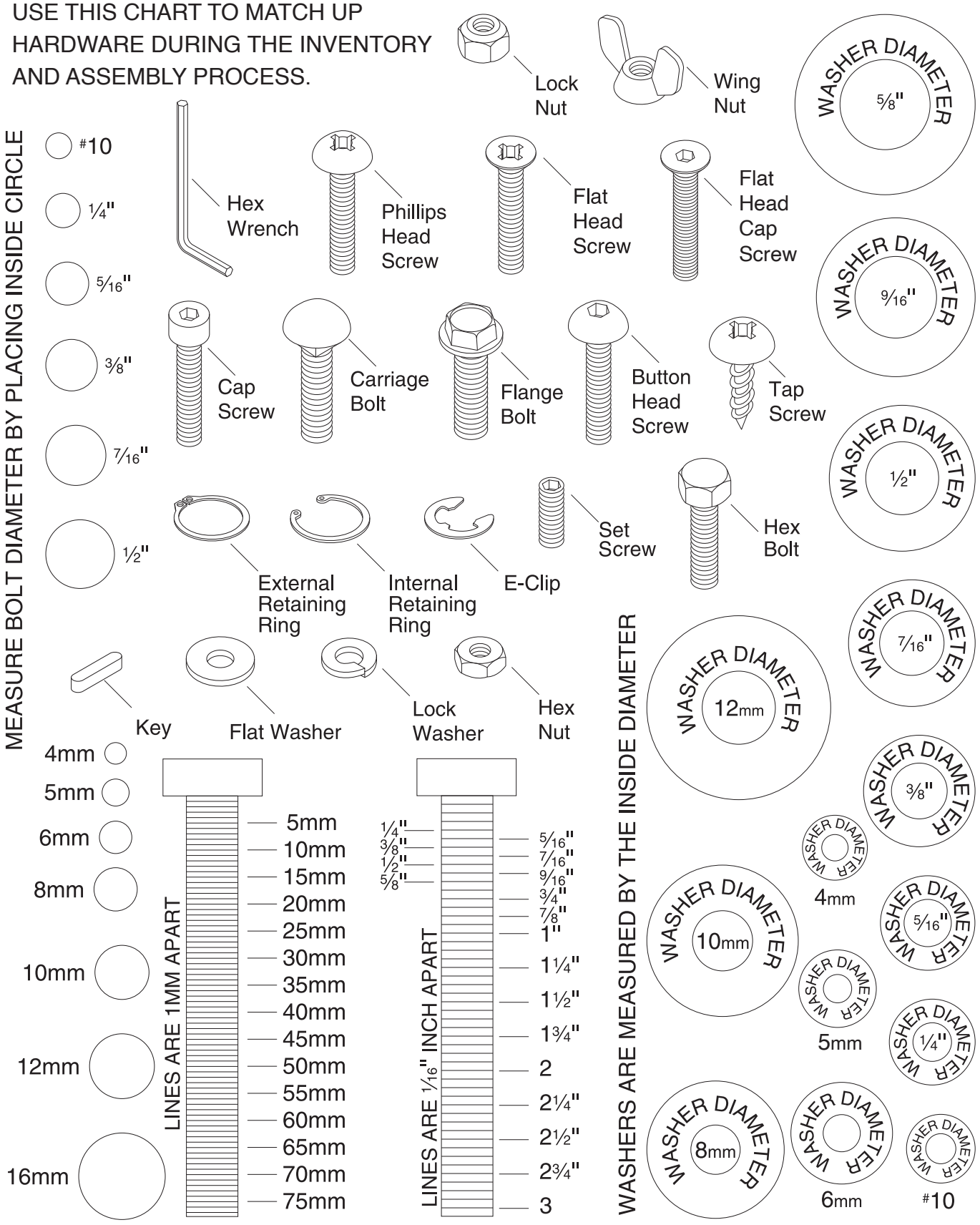


Figure 11. Crate inventory.

Hardware Recognition Chart

USE THIS CHART TO MATCH UP HARDWARE DURING THE INVENTORY AND ASSEMBLY PROCESS.



Cleanup

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

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

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

Before cleaning, gather the following:
- Disposable rags
- Cleaner/degreaser (WD•40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

Basic steps for removing rust preventative:

1. Put on safety glasses.

2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.

4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

⚠WARNING

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

⚠CAUTION

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

NOTICE

Avoid harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.

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

Order online at www.grizzly.com OR Call 1-800-523-4777

Figure 12. T23692 Orange Power Degreaser.

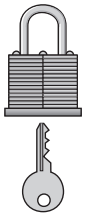
Site Considerations

Weight Load

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

Space Allocation

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



⚠CAUTION

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

Physical Environment

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

Electrical Installation

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

Lighting

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

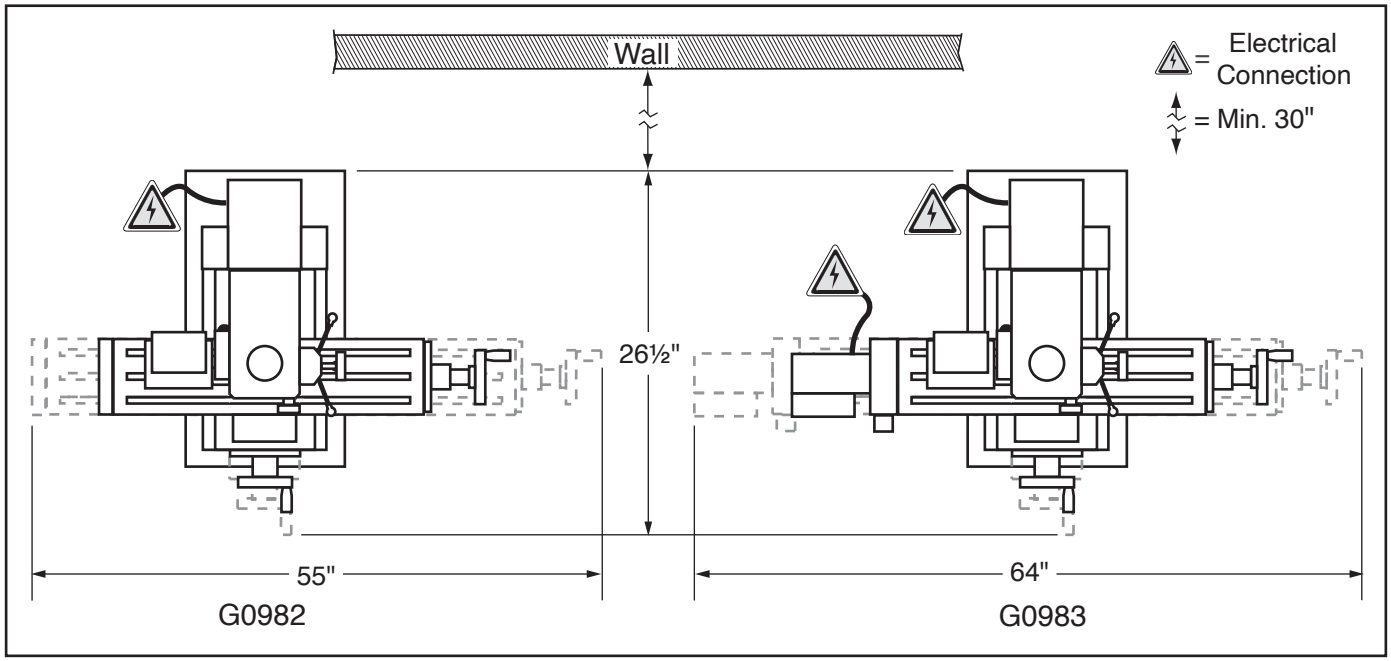


Figure 13. Minimum working clearances.

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).

To assemble machine:

1. Place machine pallet near final machine mounting location.

2. Place stand in desired location.

3. Attach chip tray to stand with (4) M8-1.25 x 10 cap screws, 8mm lock washers, and 8mm flat washers (see **Figure 14**). Hand-tighten fasteners for now.

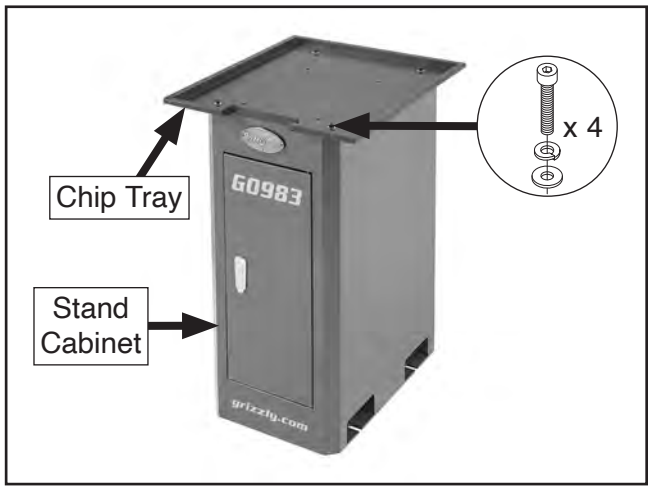


Figure 14. Chip tray attached to stand.

4. Fully tighten X-axis, Y-axis, and Z-axis lock handles (see **Figures 5–6** on **Pages 5–6**).

5. Position lifting sling under headstock (see **Figure 15**), and connect sling ends to forklift.

   Note: *DO NOT place sling over any controls or against any components that may be damaged from force required for lifting.*

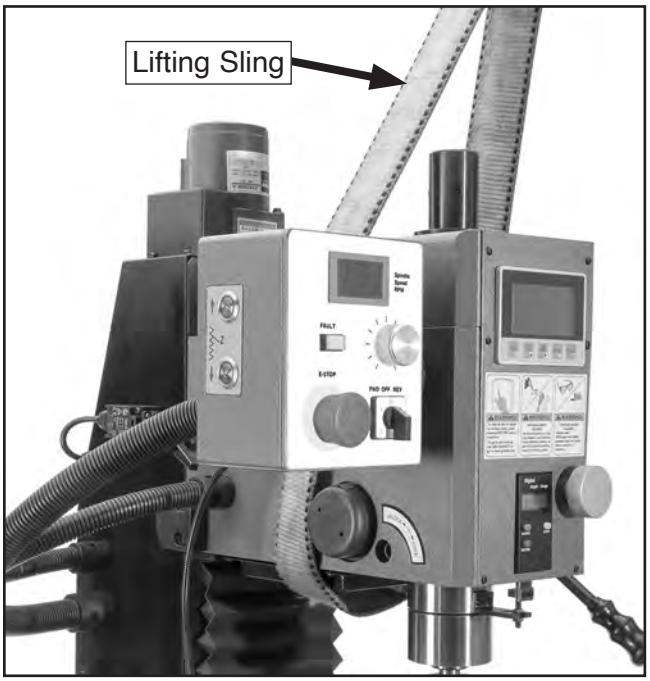


Figure 15. Example of lifting sling positioned under headstock.

⚠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.

6. Unbolt machine from pallet.

7. With assistant to steady machine to prevent it from swinging, carefully lift machine and place it onto stand (see **Figure 16**), then remove lifting sling.

8. Attach machine to stand with (4) M8-1.25 x 30 cap screws, 8mm lock washers, and 8mm flat washers (see **Figure 16**).

9. **G0982 Only:** Thread X-axis handwheel handle into X-axis handwheel (see **Figure 16**).

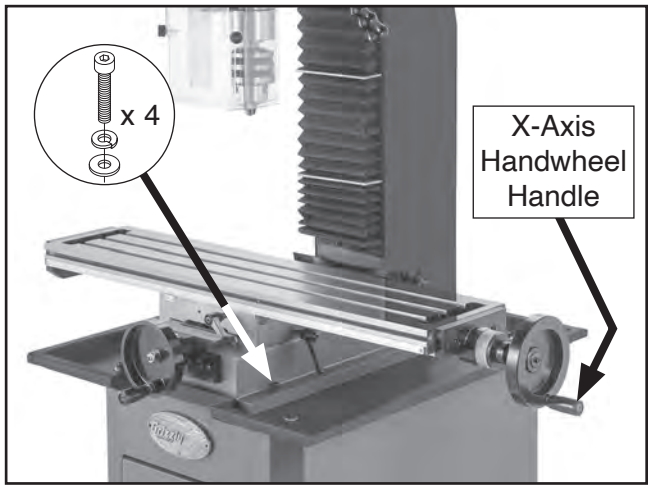


Figure 16. Machine attached to stand (G0982 shown).

10. Fully tighten fasteners from **Step 3**.

Anchoring to Floor

Number of Stand Mounting Holes..... 4
Diameter of Stand Mounting Holes..... ½"

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.

Four sets of mounting fasteners—including a stud, flat washer, lock washer, and hex nut—have been provided to attach to your stand. How you anchor these fasteners to the floor will depend on the type of shop floor you have. See **Figure 17** for an example of how to mount the stand to a concrete floor with the included mounting fasteners.

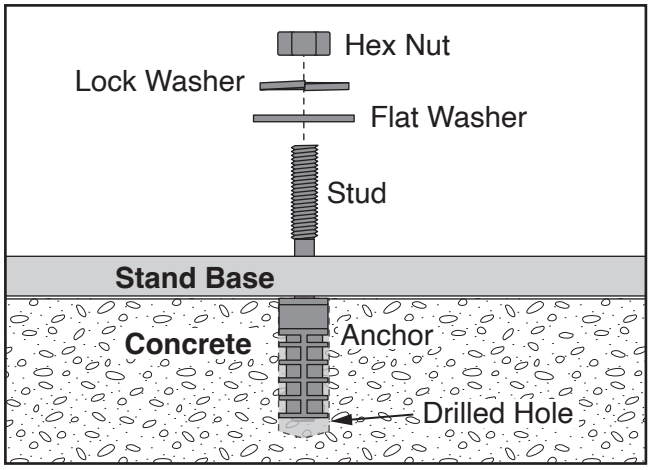


Figure 17. Anchoring machinery to concrete floor with included hardware.

Anchors 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, any time local codes apply, you MUST follow the anchoring methodology specified by the code.

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 Emergency Stop button (see **Figure 18**).

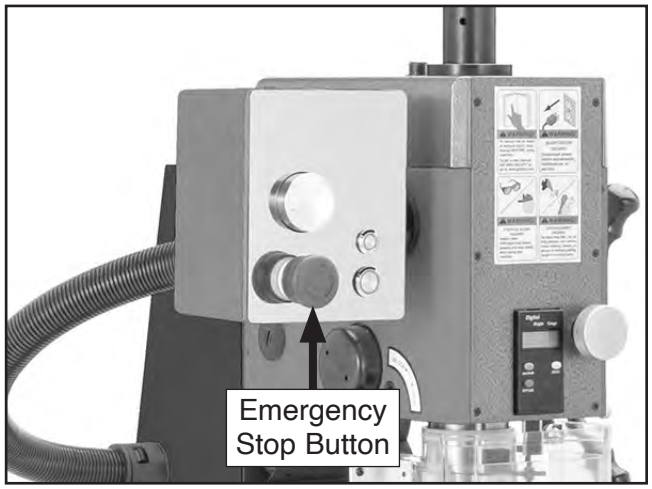


Figure 18. Location of Emergency Stop button (G0982 shown).

2. Connect 16AWG mill/drill power cord to male receptacle on column (see **Figure 19**).

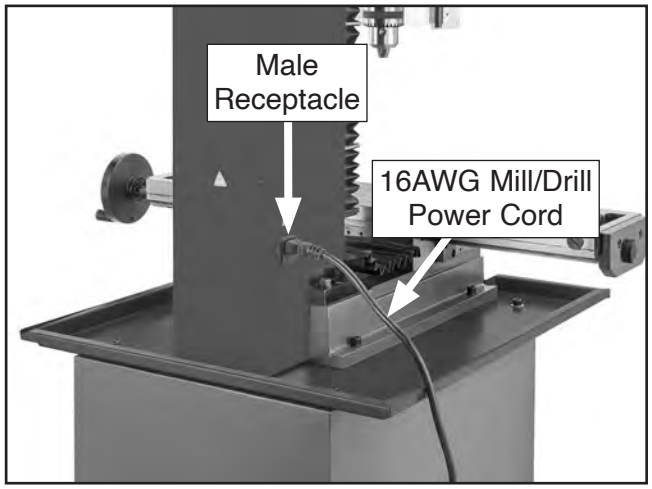


Figure 19. Power cord connected to mill/drill.

3. **G0983 Only:** Connect 16AWG power adapter cord to power feed socket (see **Figure 20**).

4. **G0983 Only:** Connect 18AWG power adapter power cord to male receptacle on power adapter (see **Figure 20**).

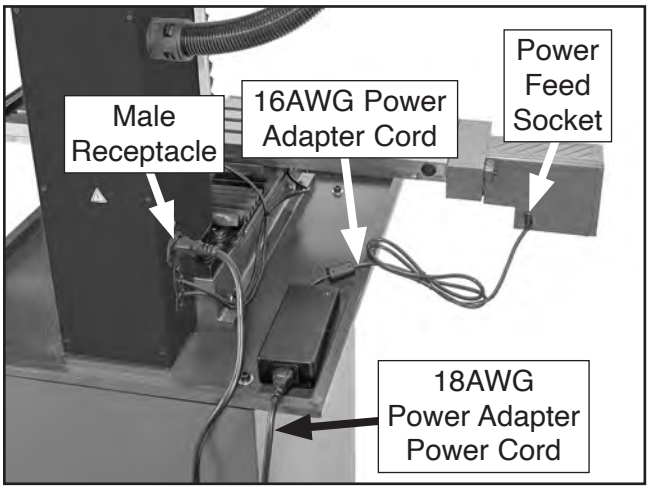


Figure 20. Power adapter connected to power feed and power cord.

5. Insert mill/drill power cord plug into matching power supply receptacle.

6. **G0983 Only:** Insert power adapter plug into matching power supply receptacle.

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 Emergency Stop button disables the spindle properly, 3) the chuck guard safety switch disables the spindle properly, and 4) the spindle 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 cords are well clear of table movement and potential direction of travel.

2. Press Emergency Stop button in (see **Figure 21**).

3. Turn spindle speed dial (see **Figure 21**) all the way counterclockwise. This will prevent spindle from starting at a high speed.

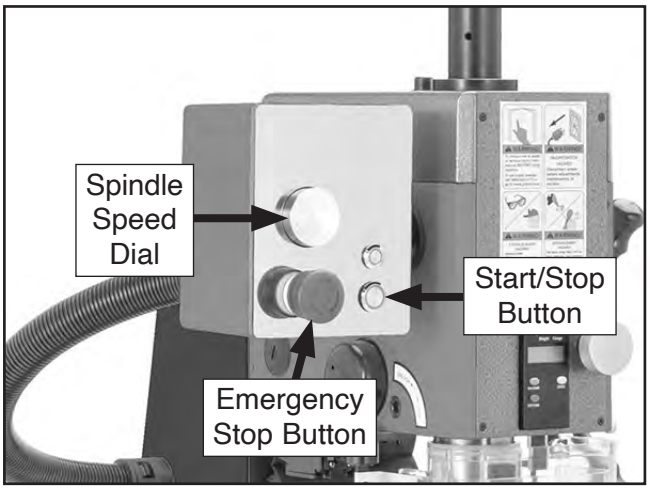


Figure 21. Spindle control panel (G0982 shown).

4. Twist Emergency Stop button clockwise until it springs out (see **Figure 22**). This resets switch so spindle can start.

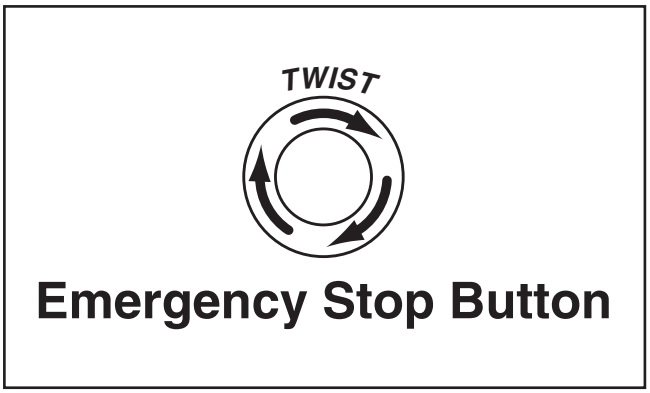


Figure 22. Resetting Emergency Stop button.

5. Press Start/Stop button (see **Figure 21**) to start spindle rotation. Verify motor starts up and runs smoothly without any unusual problems or noises.

6. Slowly turn spindle speed dial clockwise to test variable-speed, then turn it all the way counterclockwise.

7. Press Emergency Stop button to stop spindle rotation.

8. WITHOUT resetting Emergency Stop button, try to start spindle rotation by pressing ON button. Spindle should not rotate.

   — If spindle *does not* rotate, safety feature of Emergency Stop button is working correctly. Proceed to **Step 9**.

   — If spindle *does* rotate, immediately turn machine ***OFF*** and disconnect power. Safety feature of Emergency Stop button is NOT working properly and must be replaced before further using machine.

9. Reset Emergency Stop button.

10. Press Start/Stop button to start spindle rotation.

11. Press Reverse button (see **Figure 23**) to reverse spindle rotation. Reverse button will illuminate and spindle rotation icon (see **Figure 23**) will change to display counterclockwise rotation. Verify motor changes directions and starts up and runs smoothly without any unusual problems or noises.

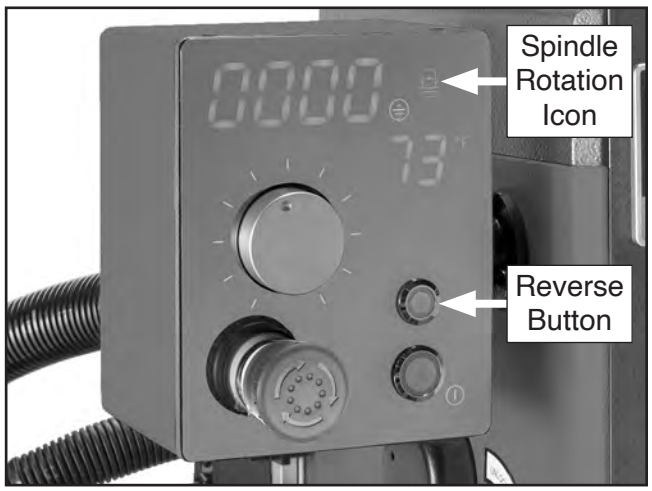


Figure 23. Location of Reverse button and spindle rotation icon.

12. Slowly turn spindle speed dial clockwise to test variable-speed for counterclockwise direction, then turn it all the way counterclockwise.

13. While being careful to avoid rotating chuck and spindle, pivot chip guard forward and away from chuck (see **Figure 24**). Spindle will stop rotating and "Err" will blink on spindle speed DRO.

   — If spindle does not stop, immediately turn machine ***OFF*** and disconnect power. Safety feature of chip guard safety switch is NOT working properly and must be replaced before further using machine.

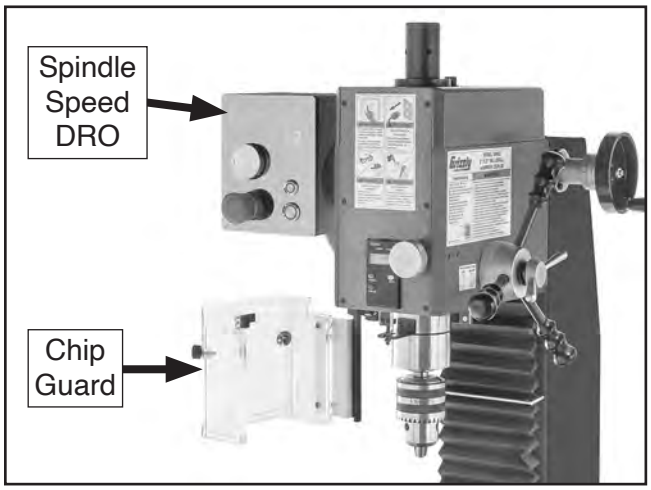


Figure 24. Chip guard pivoted away from chuck.

14. WITHOUT pivoting chip guard back in place, press Start/Stop button once to reset it, then try to start spindle rotation by pressing Start/Stop button.

   — If spindle *does not* rotate, safety feature of chip guard is working correctly. Proceed to **Step 15**.

   — If spindle *does* rotate, immediately turn machine ***OFF*** and disconnect power. Safety feature of chip guard is NOT working properly and must be replaced before further using machine.

15. Pivot chip guard back into place.

16. Press Reverse button and Start/Stop button to reset them.

   — **G0982:** Test Run is complete! Complete **Spindle Break-In** on **Page 28** before proceeding with operations.

   — **G0983:** Proceed to **Step 17** to complete Test Run for power feed components.

17. Read **Controlling Table Travel** section, beginning on **Page 32**, to understand function of power feed, table locks, and limit stops.

18. Turn power feed speed control dial (see **Figure 25**) all the way counterclockwise to prevent high-speed startup.

19. Move direction switch (see **Figure 25**) to neutral (middle) position.

20. Turn leadscrew selector knob (see **Figure 25**) counterclockwise to disengage power feed drive gear.

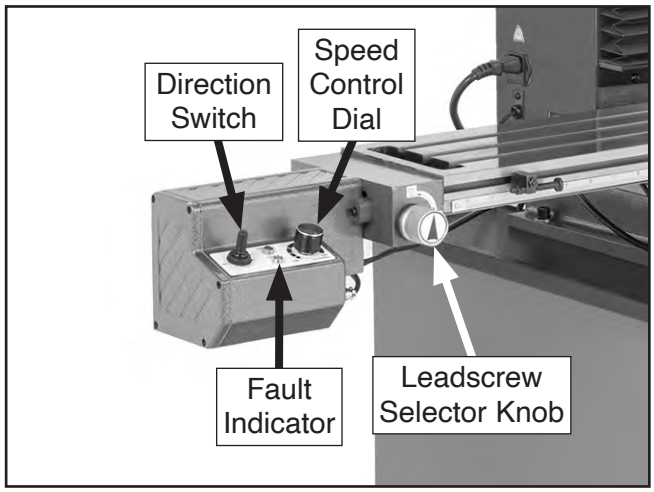


Figure 25. Left X-axis power feed components.

21. Loosen X-axis lock handle (see **Figure 26**).

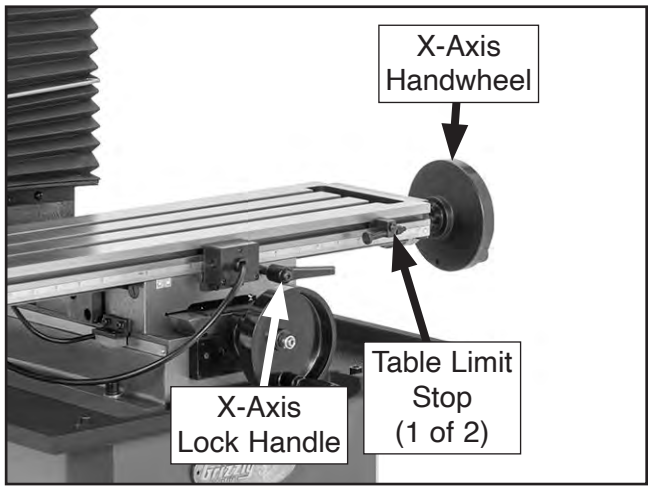


Figure 26. Right X-axis table controls.

22. Turn leadscrew selector knob 90º clockwise to engage power feed drive gear.

Note: *If selector knob does not turn the full 90º, drive gear is not aligned with X-axis leadscrew threads. Engage and turn X-axis handwheel (see **Figure 26**) until knob can be turned fully, then disengage handwheel.*

⚠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.

23. Move direction switch to left position.

24. Turn speed control dial clockwise to turn power feed ***ON***, then gradually increase speed to confirm that table is moving left.

25. Watch for table limit stop to engage limit switch (see **Figure 26**). When it engages, fault indicator light should illuminate (see **Figure 25**) 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 26**.

    — 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 power feed ***OFF*** and disconnect power. Contact Tech Support before continuing with Test Run.

26. Turn speed control dial all the way counterclockwise and move direction switch to neutral position to correct fault mode.

27. Move direction switch through neutral (middle) position and to right position.

28. Turn speed control dial clockwise to turn power feed ***ON***. Table should begin moving 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 power feed ***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. Test Run is complete! Complete **Spindle Break-In** before proceeding with operations.

Spindle Break-In

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.

NOTICE

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

To perform spindle break-in:

1. Make sure spindle area is free of obstructions.

2. Press Start/Stop button (see **Figure 27**) to start spindle rotation.

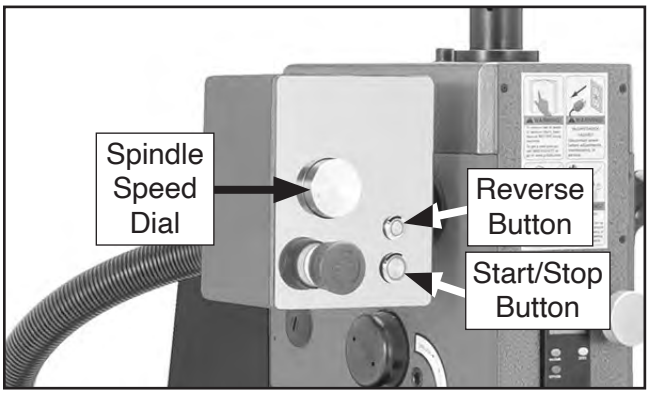


Figure 27. Spindle control panel (G0982 shown).

3. Allow spindle to run clockwise (as viewed from above) at about 100 RPM for 10 minutes.

4. Press Reverse button (see **Figure 27**) and allow spindle to run counterclockwise (as viewed from above) at about 100 RPM for another 10 minutes.

5. Use spindle speed dial (see **Figure 27**) to adjust spindle to about 200 RPM, then run spindle in either direction for 10 minutes.

6. Repeat **Step 5** for each speed listed below in progressive order:

a. 500 RPM
b. 1000 RPM
c. 2000 RPM

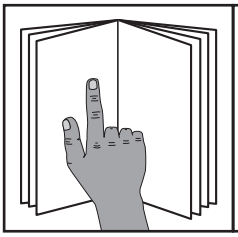
7. Press Start/Stop button to stop spindle rotation. Congratulations! Spindle break-in is now complete.

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.

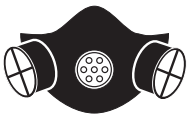


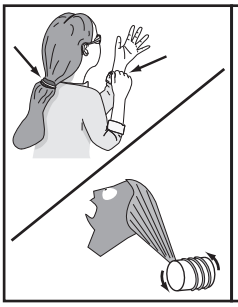
⚠WARNING

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

⚠WARNING

Eye injuries, respiratory problems, or hearing loss can occur while operating this tool. Wear personal protective equipment to reduce your risk from these hazards.





⚠WARNING

Keep hair, clothing, and jewelry away from moving parts at all times. Entanglement can result in death, amputation, or severe crushing injuries!

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

1. Examines the 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. Adjusts headstock height above table.
5. Puts on personal protective equipment.
6. Connects machine to power.
7. Starts spindle rotation and sets correct spindle speed for operation.
8. Uses downfeed and table controls to perform operation.
9. Waits for spindle to completely stop before removing workpiece.
10. 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/drill is controlled by the coarse downfeed lever or the fine downfeed knob.

Use **Figures 28–29** and the following descriptions to become familiar with the spindle downfeed controls.

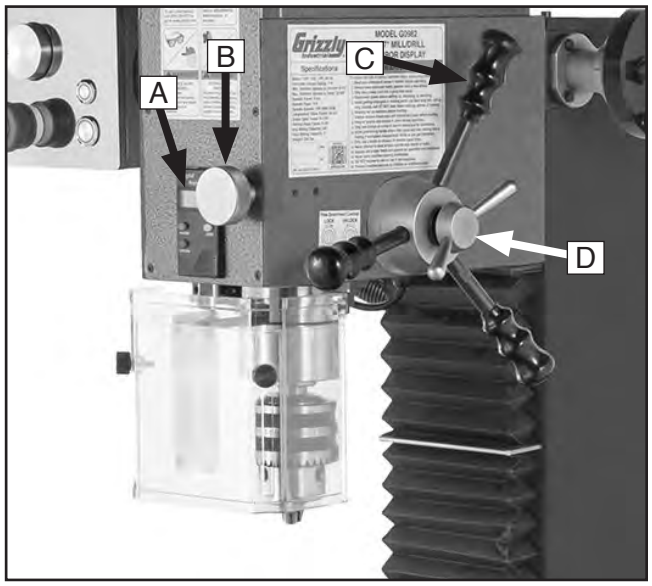


Figure 28. Right spindle downfeed components (G0982 shown).

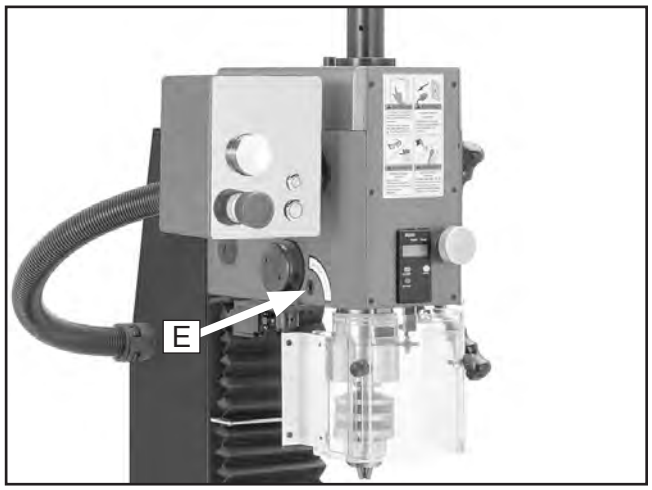


Figure 29. Left spindle downfeed components (G0982 shown).

A. **Spindle Depth DRO:** Shows depth of spindle downfeed in inches or millimeters. Measurement can be set to zero at any point along spindle travel.

B. **Fine Downfeed Knob:** Manually controls rate of fine spindle downfeed.

C. **Coarse Downfeed Handle (1 of 3):** Manually controls quick spindle downfeed.

D. **Downfeed Selector Handle:** Tighten to use spindle with fine downfeed knob. Loosen to use spindle with coarse downfeed handles.

E. **Quill Lock Screw:** Secures quill in place for increased stability during operations. Use supplied quill lock lever to loosen and tighten quill.

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 28**).

2. Loosen quill lock with quill lock lever (see **Figure 29**).

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 30**).

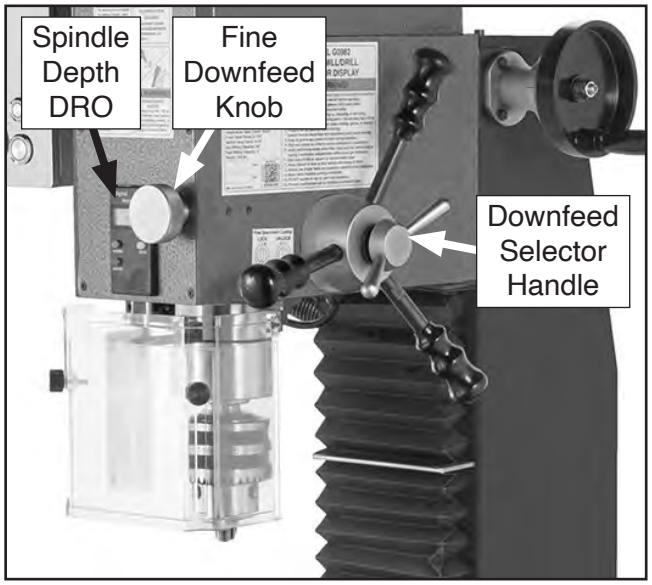


Figure 30. Fine spindle downfeed components (G0982 shown).

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

1. Adjust headstock on Z-axis so cutting tool is just above workpiece surface, then secure headstock.

2. Tighten downfeed selector handle (see **Figure 30**) 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.

Using Spindle Depth DRO

1. Press OFF/ON button (see **Figure 31**). A reading should appear on display.

2. Press mm/inch button (see **Figure 31**) to toggle display between inches and millimeters.

3. Press ZERO button (see **Figure 31**) to "zero" readout at any point along spindle travel. Current reading will be cleared and scale will reset to 0.00.

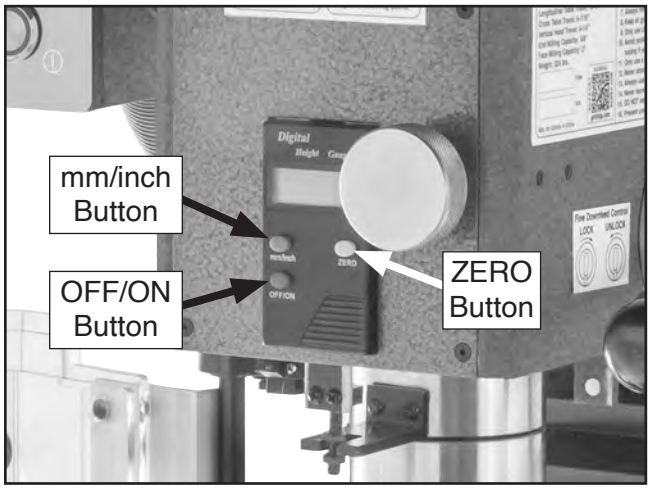


Figure 31. Spindle depth DRO.

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 32**:

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

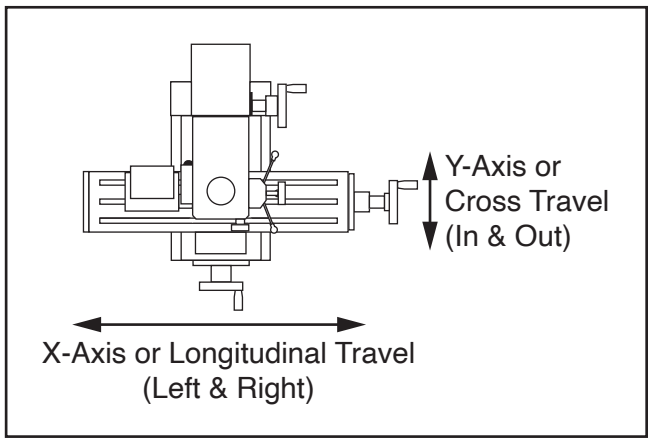


Figure 32. Directions of table movement.

Both the X- and Y-axes feature table locks (see **Figure 33**). 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.

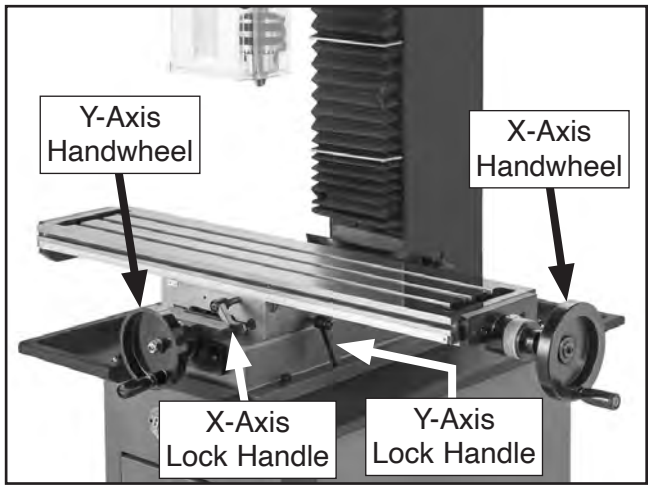


Figure 33. Location of manual table controls (G0982 shown).

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

The table travel is adjusted with the handwheels on the front and side of the table (see **Figure 33**). The X-axis handwheel is spring-loaded. Press it in while turning to engage the leadscrew.

On the Model G0983, turn the leadscrew selector knob counterclockwise to disengage the power feed drive gear in order to move the table with the X-axis handwheel.

G0983 Power Feed

On the Model G0983, the X-axis table travel can also be controlled with the power feed (see **Figure 34**).

Use the leadscrew selector knob (see **Figure 34**) to engage or release the power feed drive gear. Adjustable limit stops and a limit switch (see **Figure 34**) control the power feed travel.

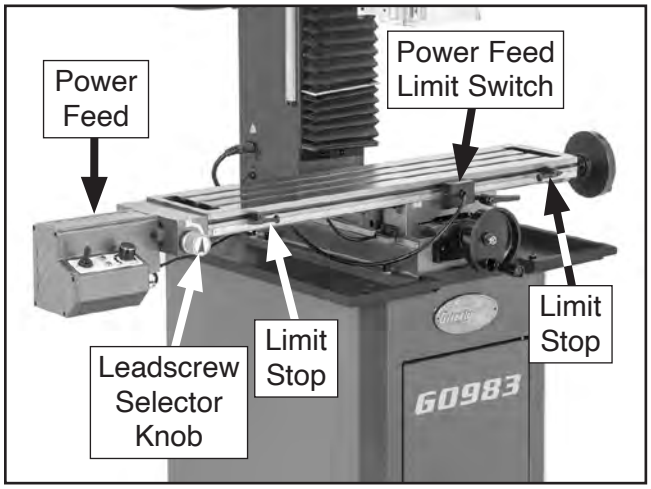


Figure 34. X-axis power feed components.

⚠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.

The power feed rate is variable from 4–14 in./min. (100–300 mm/min.). Turn the speed control dial clockwise to turn the power feed ***ON*** and adjust the speed (see **Figure 35**).

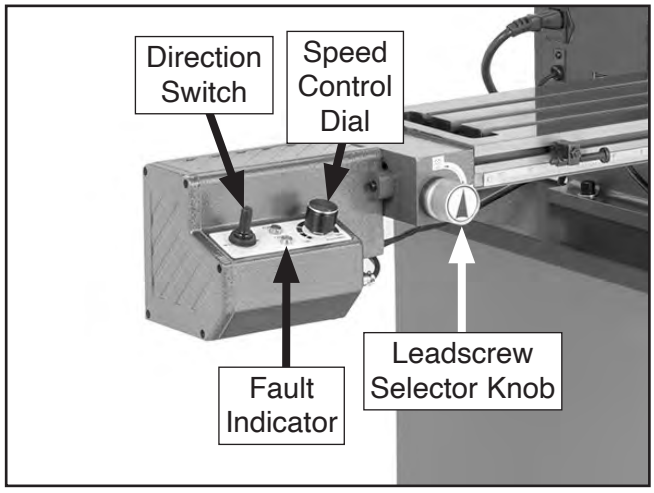


Figure 35. Power feed controls.

To use power feed:

1. Adjust location of table travel limit stops to suit workpiece (see **Figure 34** on **Page 32**). Lock stops in position.

2. Turn power feed speed control dial (see **Figure 35**) all the way counterclockwise.

3. Move direction switch (see **Figure 35**) to neutral (middle) position.

4. Turn leadscrew selector knob (see **Figure 35**) counterclockwise to disengage power feed drive gear.

5. Connect power feed to provided 5A power supply and grounded 5-15 outlet. Power light will illuminate.

NOTICE

There is no separate power switch for power feed. Turn speed control dial all the way counterclockwise, and make sure power cords and other wires do not interfere with table movement before connecting power feed to power.

6. Loosen X-axis lock handle (see **Figure 33** on **Page 32**).

7. Turn leadscrew selector knob 90° clockwise to engage power feed drive gear.

Note: *If selector knob does not turn the full 90°, drive gear is not aligned with X-axis leadscrew threads. Engage and turn X-axis handwheel (see **Figure 35**) until knob can be turned fully, then disengage handwheel.*

8. Turn speed control dial clockwise to turn power feed ***ON*** (see **Figure 35**).

9. Use direction switch and speed control dial to move table to desired position. Move direction switch to neutral (middle) position to stop power feed and table movement.

10. If necessary, turn leadscrew selector knob counterclockwise and use X-axis handwheel to make fine adjustments to table location.

11. If fault indicator (see **Figure 35**) 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) and has a dovetailed slide that allows users to reposition the headstock or change tooling without losing workpiece alignment with a hole or milling path. The Z-axis handwheel has a graduated dial that is in 0.0005" increments, with one full revolution equalling 0.05".

To adjust headstock:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen Z-axis lock handle shown in **Figure 36**.

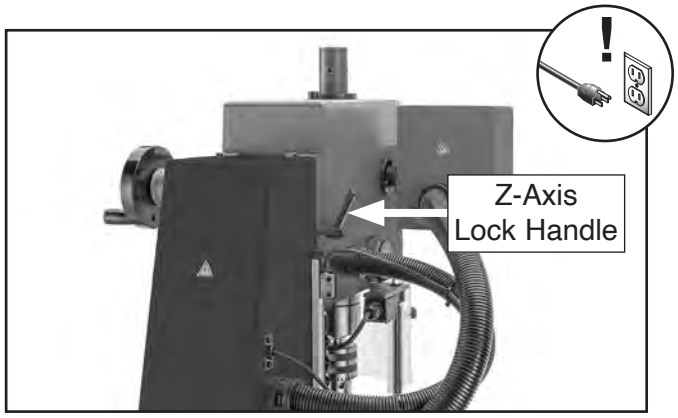


Figure 36. Location of Z-axis lock handle (G0983 shown).

3. Use Z-axis handwheel (see **Figure 37**) to adjust headstock height, then tighten Z-axis lock handle.

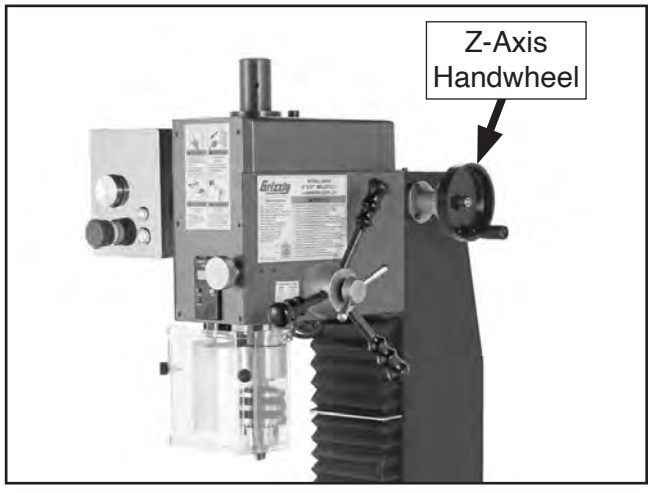


Figure 37. Location of Z-axis handwheel (G0982 shown).

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 new drill chuck and arbor:

1. Use acetone or lacquer thinner to clean drill chuck and arbor mating surfaces, especially bore.

2. Retract chuck jaws completely into chuck.

3. Insert small end of arbor into chuck.

4. Hold assembly by arbor and tap chuck onto block of wood with medium force, as illustrated below.

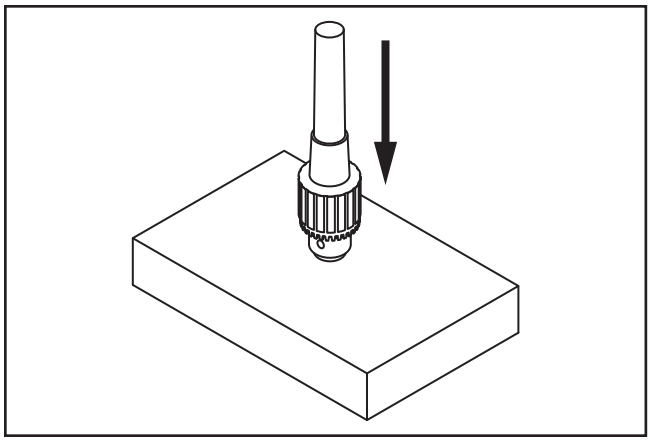


Figure 38. Tapping drill chuck/arbor on block of wood.

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.

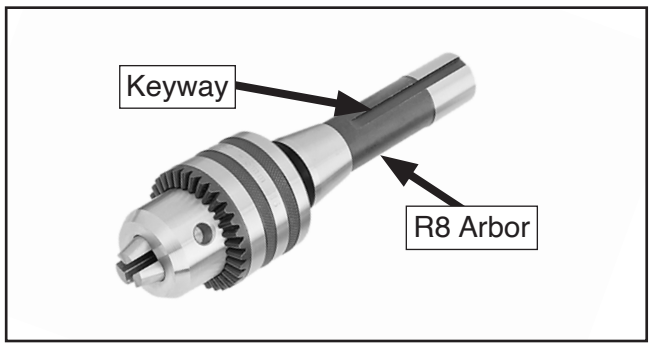


Figure 39. Drill chuck joined with R8 arbor.

⚠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.

Tools Needed	Qty
Drawbar Lock Lever	1
Spindle Spanner Wrench	1
Brass-Head or Dead-Blow Hammer	1

Removing Tooling

1. DISCONNECT MACHINE FROM POWER!

2. Unscrew drawbar cap to remove (see **Figure 40**).

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

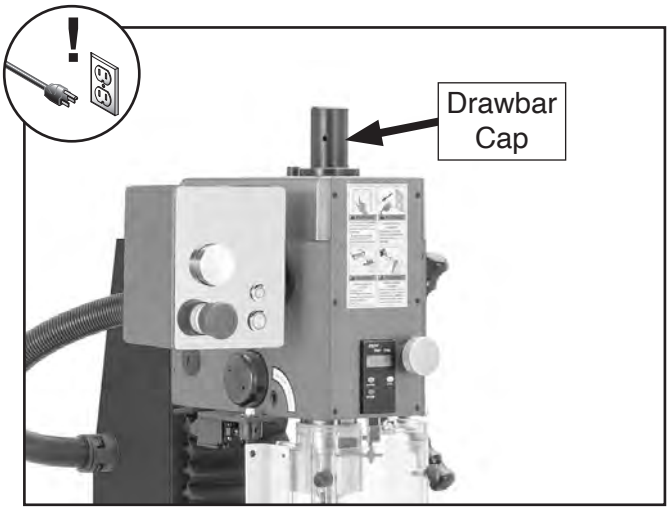


Figure 40. Location of drawbar cap.

3. Use drawbar lock lever or 8mm hex wrench in top of drawbar and spindle spanner wrench in holes in bottom of spindle to loosen drawbar (see **Figure 41**).

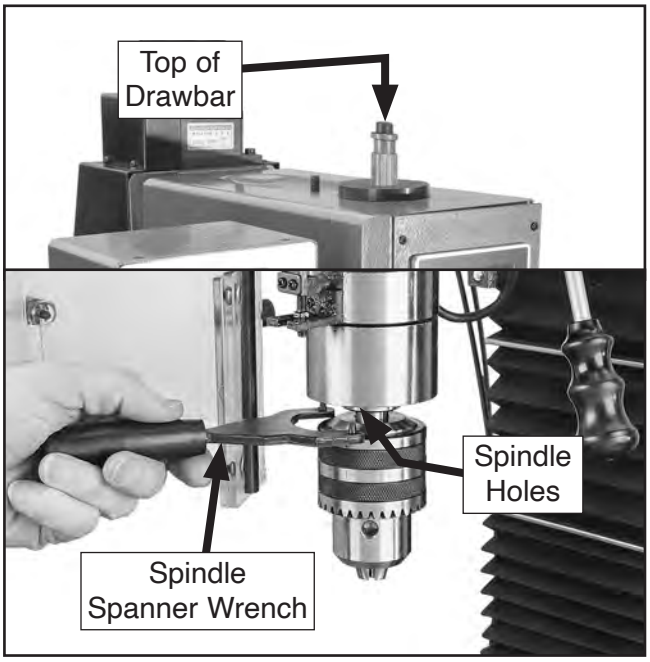


Figure 41. Example of loosening drawbar.

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 42**.

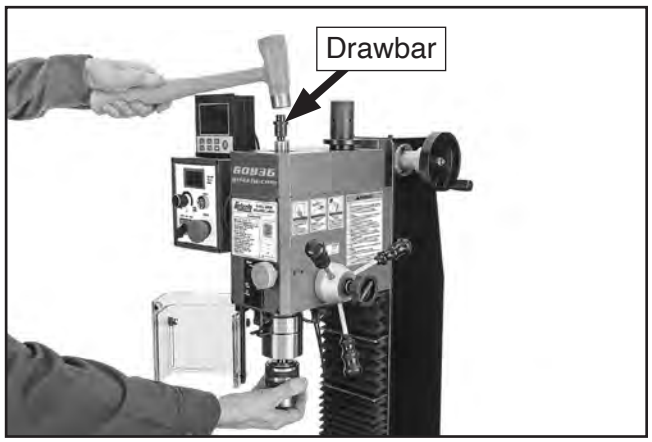


Figure 42. Example of using hammer to loosen drawbar.

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

Installing 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 drawbar lock lever or 8mm hex wrench in top of drawbar and spindle spanner wrench in holes in bottom of spindle to tighten drawbar (see **Figure 41** on **Page 35**).

6. Install drawbar cap.

Determining Spindle Speed

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

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 43**.

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

*Double if using carbide cutting tool

Figure 43. 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.

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.

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.

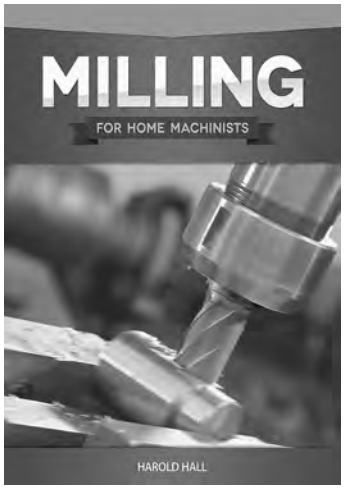


Figure 44. T25615 Milling for Home Machinists.

G2861—Face Mill
G4051—Replacement Carbide Inserts
This 2½" Face Mill accepts four carbide inserts (included) and comes with an R8 arbor. It takes a 7/16"-20 drawbar.

Figure 45. G2861 Face Mill.

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. Set fits 7/16" T-slots and includes 3/8"-16 studs. Racks can be bolted to the wall or side of machine for easy access.

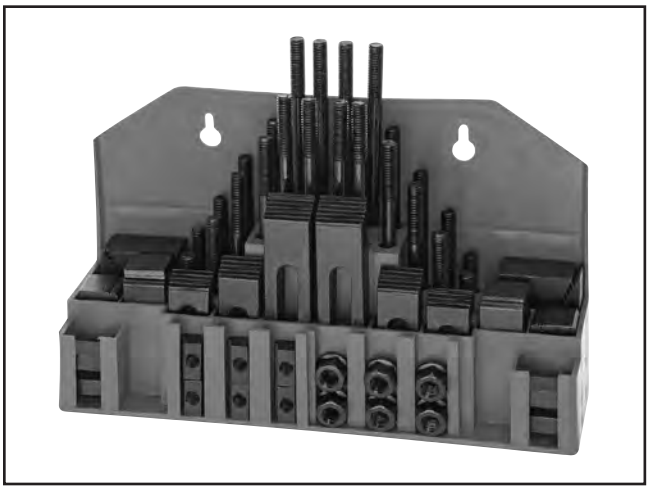
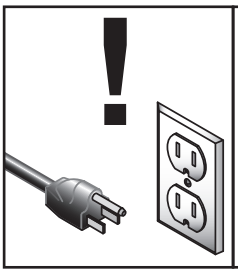


Figure 46. T26485 58-Pc. Clamping Kit.

SECTION 6: MAINTENANCE



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

Schedule

For optimum performance from 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.
- Debris or built-up grime on machine.
- Any other unsafe condition.

Daily Maintenance
- Lubricate table and column ways (**Page 39**).
- Lubricate quill surface (**Page 40**).

Weekly Maintenance
- Lubricate leadscrews (**Page 40**).

Semi-annual Maintenance
- Check belt for damage or wear (**Page 41**).
- Lubricate quill rack (**Page 41**).

Cleaning & 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 **Figure 47** for offerings from Grizzly).

Recommended Metal Protectants

G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 11 Oz. Spray

Figure 47. Recommended products for protecting unpainted cast iron/steel parts on machinery.

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!

NOTICE

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 warranty.

Table & 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
Phillips Head Screwdriver #2	1

Move way covers out of the way and clean X-, Y-, and Z-axis ways (see **Figures 48–50**) 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.

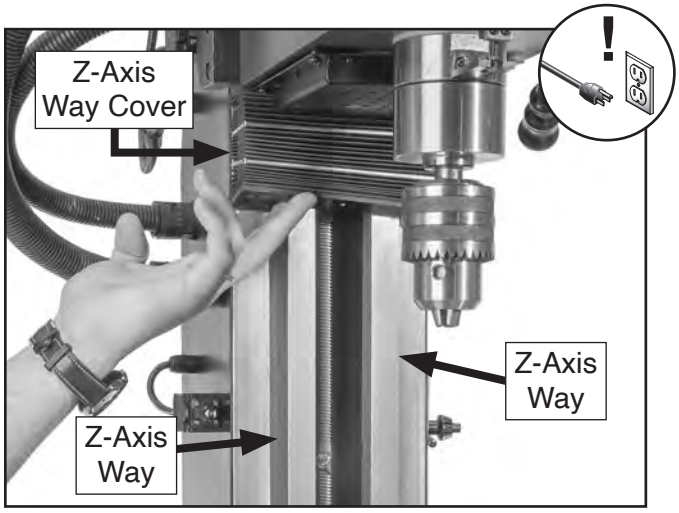


Figure 48. Example of Z-axis way cover moved to reveal ways.

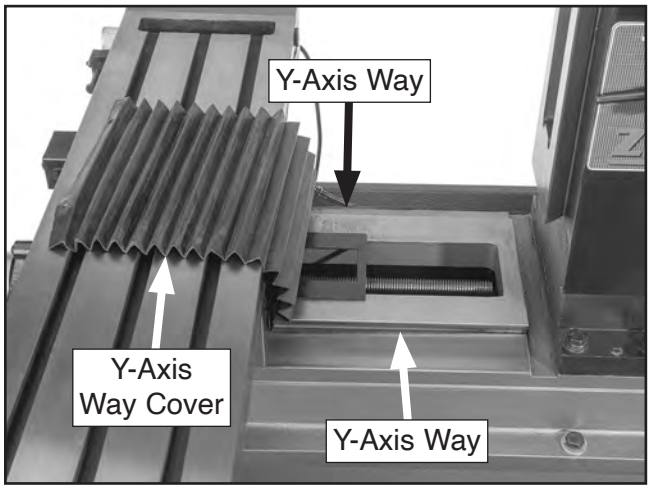


Figure 49. Example of Y-axis way cover moved to reveal ways.

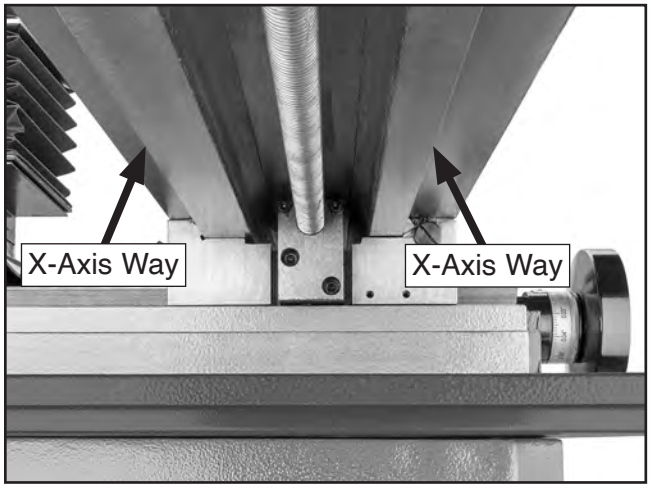


Figure 50. Location of X-axis ways (G0982 shown).

Quill 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 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 51**).

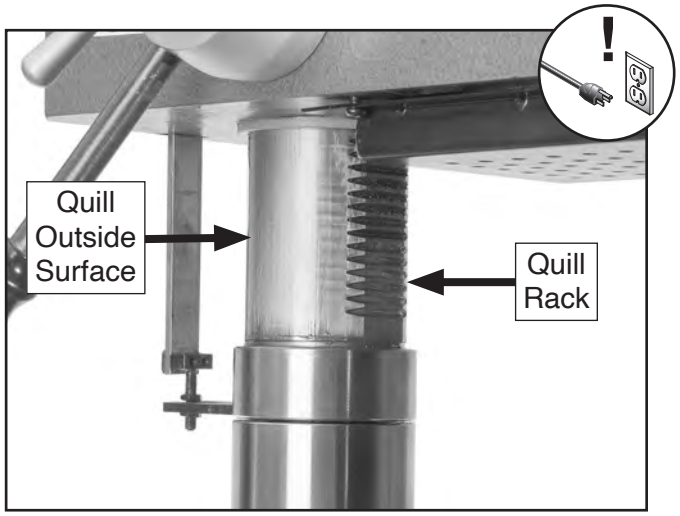


Figure 51. Location of quill surface and rack.

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.

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
Phillips Head Screwdriver #2	1

Move way covers out of the way and clean X- , Y- and Z-axis leadscrews (see **Figures 52–54**) 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.

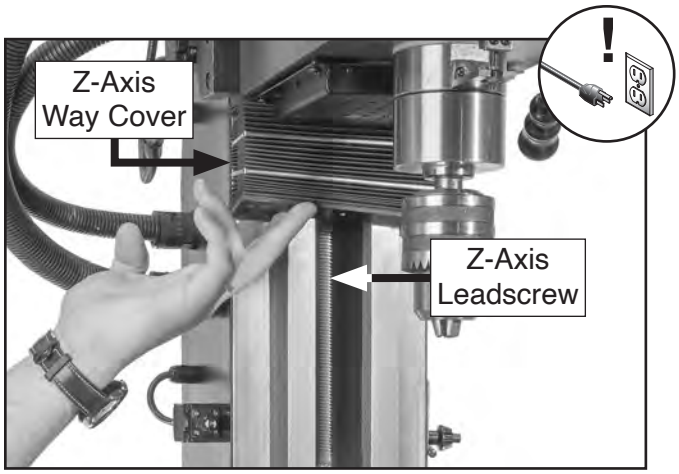


Figure 52. Example of Z-axis way cover moved to reveal leadscrew.

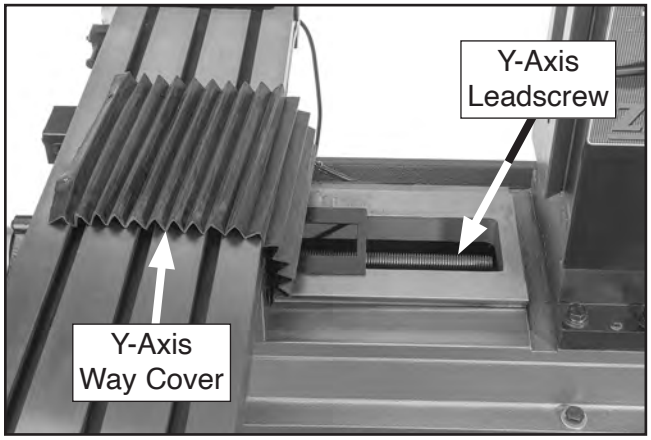


Figure 53. Example of Y-axis way cover moved to reveal leadscrew.

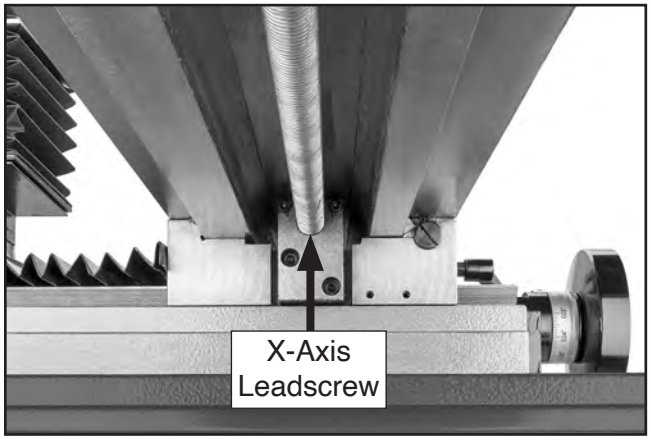


Figure 54. Location of X-axis leadscrew (G0982 shown).

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 55**). Lock in position.

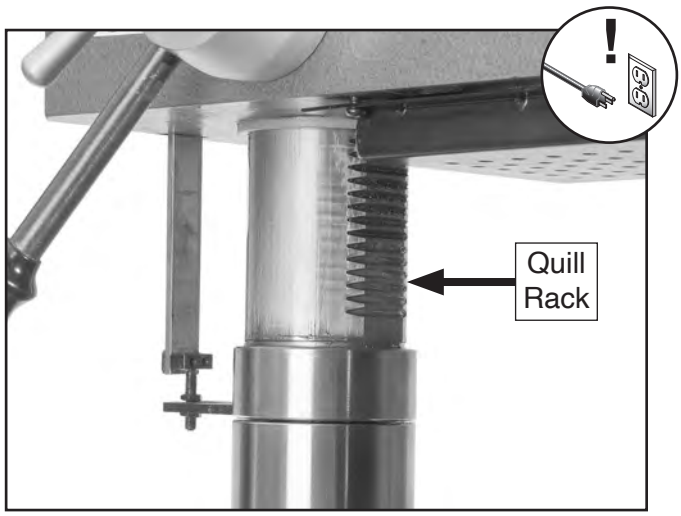


Figure 55. Location of quill rack.

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 quill surface around rack (refer to **Quill Surface** lubrication section on **Page 40**).*

Checking/Replacing Belt

The belt transfers power from the motor to the spindle. If the belt is worn or damaged in any way, the mill/drill will not operate optimally, and unnecessary wear on the moving parts will occur. Inspect the belt regularly for damage or wear and replace it if necessary.

⚠CAUTION

Use care when handling belt as it could pinch your fingers. It may also be hot after extended use, so wait to touch belt if machine has been in use.

Items Needed	Qty
Phillips Head Screwdriver #2	1
Hex Wrenches 2, 4, 8mm	1 Ea.
Flat Head Screwdriver ¼"	1
Replacement Belt (#P0982502)	1

To check/replace belt:

1. DISCONNECT MACHINE FROM POWER!

2. Remove (2) flat head cap screws shown in **Figure 56**).

3. Remove cap screw shown in **Figure 56**, then remove headstock cover.

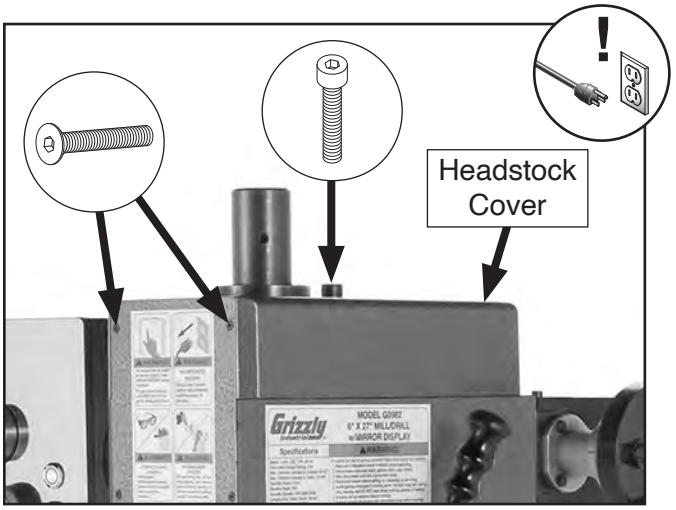


Figure 56. Location of headstock cover and securing screws.

4. Check belt tension by applying moderate pressure on belt with your finger (see **Figure 57**). There should be approximately ¼" of belt defection when belt is pressed (see **Figure 58**).

   — If belt is not worn or damaged, and belt tension is correct, then no adjustment is necessary. Install headstock cover.

   — If belt is worn or damaged, then proceed to **Step 5**.

   — If belt tension is incorrect, then proceed to **Step 6**.

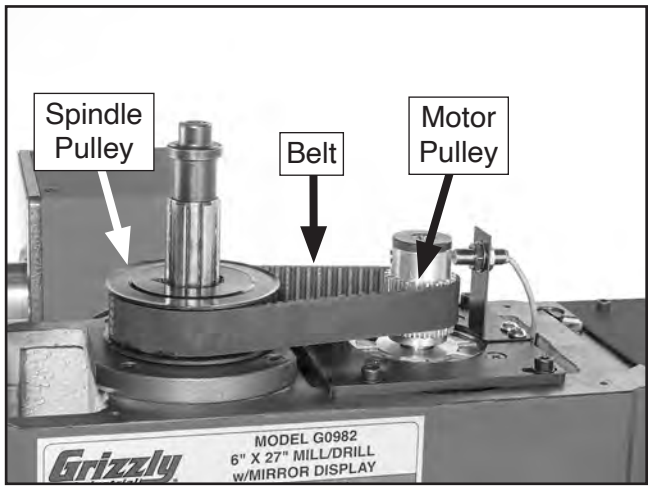


Figure 57. Location of belt and pulleys.

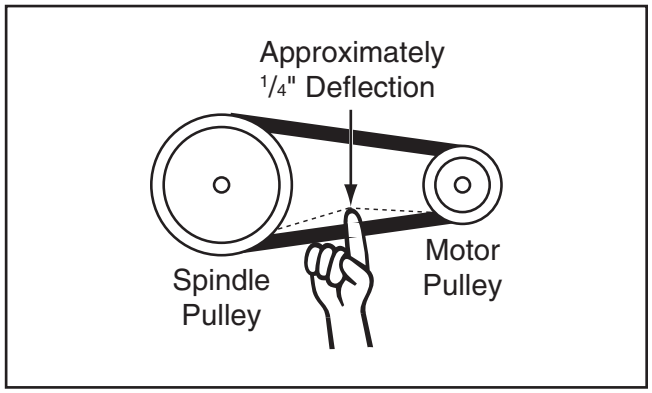


Figure 58. Correct belt deflection.

5. Remove (2) Phillips head screws shown in **Figure 59** to remove spindle speed sensor from motor mount.

6. Loosen (4) cap screws shown in **Figure 59** to push motor pulley towards spindle pulley to release belt tension.

   — If belt is worn or damaged, remove old belt and replace with new one.

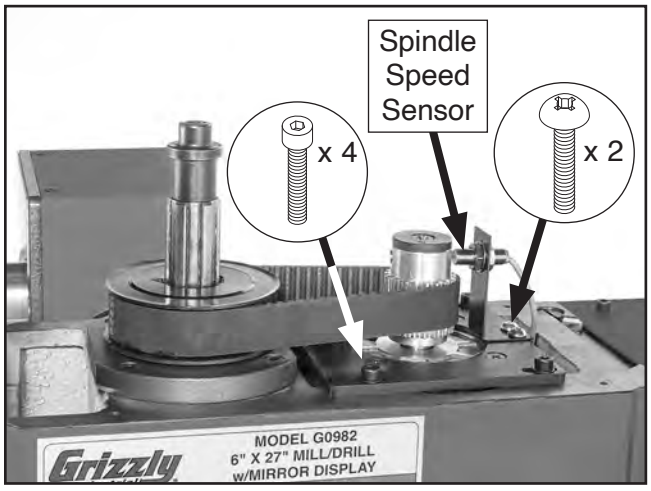


Figure 59. Location of belt tension components.

7. Push motor pulley away from spindle pulley until there is approximately ¼" of belt deflection, then tighten cap screws from **Step 6**.

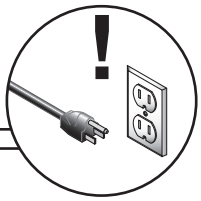
8. Install spindle speed sensor if it was removed.

9. Install headstock 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.	1. Emergency Stop button depressed.	1. Rotate Emergency Stop button head to reset.
	2. Chip guard open.	2. Close guard.
	3. Blown machine fuse.	3. Replace fuse (**Page 47**)/ensure no shorts.
	4. Incorrect power supply voltage or circuit size.	4. Ensure correct power supply voltage and circuit size (**Page 15**).
	5. Motor speed potentiometer at fault.	5. Test/replace if at fault.
	6. Power supply circuit breaker tripped or fuse blown.	6. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.
	7. Wiring broken, disconnected, or corroded.	7. Fix broken wires or disconnected/corroded connections (**Page 52**).
	8. Motor brushes worn out.	8. Replace brushes (**Page 50**).
	9. Column socket plug receptacle at fault.	9. Replace socket plug receptacle.
	10. Start/Stop, Emergency Stop, or Reverse button at fault.	10. Replace button.
	11. Chip guard safety switch at fault.	11. Replace switch.
	12. Circuit board at fault.	12. Inspect/replace if at fault.
	13. Motor or motor bearings at fault.	13. Replace motor.
Machine stalls or is underpowered.	1. Wrong workpiece material.	1. Use correct type/size of material.
	2. Machine undersized for task.	2. Use correct, sharp cutter/bit; reduce feed rate (**Page 30**); reduce spindle RPM (**Page 36**); use cutting fluid if possible.
	3. Extension cord too long.	3. Move machine closer to power supply; use shorter extension cord (**Page 16**).
	4. Belt slipping/pulleys misaligned.	4. Clean/tension/replace belt (**Page 41**); ensure pulleys are aligned.
	5. Motor brushes worn out.	5. Replace brushes (**Page 50**).
	6. Circuit board at fault.	6. Inspect/replace if at fault.
	7. Motor speed potentiometer at fault.	7. Test/replace if at fault.
	8. Pulley slipping on shaft.	8. Tighten/replace loose pulley.
	9. Motor overheated.	9. Clean motor, let cool, and reduce workload.
	10. Motor or motor bearings at fault.	10. Replace motor.
Spindle speed DRO does not work/display is incorrect.	1. Speed sensor catching on pulley.	1. Adjust position.
	2. Wiring broken, disconnected, or corroded.	2. Fix broken wires or disconnected/corroded connections (**Page 52**).
	3. Speed sensor at fault.	3. Replace sensor.
	4. Spindle speed DRO circuit board at fault.	4. Inspect/replace if at fault.

Motor & Electrical (Cont.)

Symptom	Possible Cause	Possible Solution
Spindle depth DRO does not work/display is incorrect.	1. Battery is dead. 2. Spindle depth DRO at fault.	1. Replace battery (**Page 47**). 2. Replace DRO.
3-axis DRO does not work/display is incorrect (G0983 only).	1. Wiring broken, disconnected, or corroded. 2. X-, Y-, or Z-axis sensor(s) at fault. 3. 3-axis DRO circuit board at fault. 4. 3-axis DRO at fault.	1. Fix broken wires or disconnected/corroded connections (**Page 52**). 2. Replace sensor(s). 3. Inspect/replace if at fault. 4. Replace DRO.
Machine has vibration or noisy operation.	1. Motor or component loose. 2. Belt worn, loose, pulleys misaligned or belt slapping cover. 3. Pulley loose. 4. Motor mount loose/broken. 5. Chuck or cutter at fault. 6. Spindle loose, improperly installed, or damaged. 7. Spindle bearings at fault. 8. Motor bearings at fault.	1. Replace damaged or missing bolts/nuts or tighten if loose. 2. Inspect/replace belt (**Page 41**). Realign pulleys if necessary. 3. Secure pulley on shaft. 4. Tighten/replace. 5. Replace unbalanced chuck (**Page 34**); replace/resharpen cutter; use correct feed rate (**Page 30**). 6. Tighten loose spindle, reinstall spindle ensuring mating surfaces are clean, replace spindle if damaged. 7. Test by rotating spindle; rotational grinding/loose shaft requires bearing replacement. 8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

Operation

Symptom	Possible Cause	Possible Solution
Tool loose in spindle.	1. Cutter/tooling loose. 2. Cutting tool not fully drawn up into spindle taper. 3. Debris on cutting tool or in spindle taper. 4. Taking too big of a cut.	1. Secure cutter/tooling (**Page 35**). 2. Tighten drawbar. 3. Clean cutting tool and spindle taper. 4. Lessen depth of cut and allow chips to clear.
Breaking tools or cutters.	1. Spindle speed/feed rate too fast for depth of cut, cutting tool size, or workpiece material. 2. Improper or no lubricant/cutting tool getting too hot. 3. Dull/incorrect cutting tool. 4. Cutting tool too small. 5. Spindle extended too far down during or at beginning of operation.	1. Reduce spindle speed (**Page 36**); reduce feed rate (**Page 30**); take lighter cut; allow chips to clear. 2. Use proper lubricant for operation. 3. Sharpen/replace cutting tool. 4. Use larger cutting tool and slower feed rate (**Page 30**). 5. Fully retract spindle and lower headstock (**Page 34**). This increases rigidity.
Workpiece or tool vibrates or chatters during operation.	1. Table locks not tight. 2. Workpiece not secure. 3. Spindle speed/feed rate too fast. 4. Gibs too loose in table. 5. Bit chattering. 6. Spindle extended too far down during or at beginning of operation.	1. Tighten table locks (**Page 32**). 2. Properly clamp workpiece on table or in vise. 3. Reduce spindle speed (**Page 36**)/feed rate (**Page 30**). 4. Tighten gibs (**Page 48**). 5. Replace/sharpen bit; index bit to workpiece; reduce feed rate (**Page 30**). 6. Fully retract spindle and lower headstock (**Page 34**). This increases rigidity.

Operation (Cont.)

Symptom	Possible Cause	Possible Solution
Workpiece or tool vibrates or chatters during operation.	7. Quill lock screw not tight. 8. Chuck/cutter at fault. 9. Bump on belt.	7. Tighten quill lock screw. 8. Replace unbalanced chuck (**Page 34**); replace/resharpen cutter. 9. Replace belt (**Page 41**).
Cutting results not square.	1. Table travel inconsistent.	1. Adjust gibs (**Page 48**).
Table hard to move with handwheels.	1. Table locks tightened down. 2. Chips loaded up on ways. 3. Power feed leadscrew selector knob is engaged (G0983 only). 4. Ways and leadscrew(s) binding/need lubrication. 5. Gibs too tight. 6. Table limit stops interfering (G0983 only).	1. Loosen table locks (**Page 32**). 2. Frequently clean away chips during operations. 3. Disengage leadscrew selector knob (**Page 32**). 4. Clean and lubricate ways and leadscrew(s) (**Page 39**). 5. Adjust gibs (**Page 48**). 6. Adjust table limit stops out of the way (**Page 32**).
Headstock hard to move.	1. Headstock lock tightened down. 2. Ways and leadscrew binding/need lubrication. 3. Gib too tight.	1. Loosen headstock lock (**Page 34**). 2. Clean and lubricate ways and leadscrew (**Page 39**). 3. Adjust gib (**Page 48**).
Bad surface finish.	1. Spindle speed/feed rate too fast. 2. Workpiece not secure. 3. Dull/incorrect cutting tool. 4. Wrong rotation direction of cutting tool. 5. Spindle extended too far down during or at beginning of operation.	1. Reduce spindle speed (**Page 36**)/feed rate (**Page 30**). 2. Properly clamp workpiece on table or in vise. 3. Sharpen/replace cutting tool; select better tool for operation. 4. Check for proper direction of cutting tool rotation. 5. Fully retract spindle and lower headstock (**Page 34**). This increases rigidity.
Spindle does not return to highest position.	1. Worn return spring.	1. Replace return spring.

G0983 Power Feed

Symptom	Possible Cause	Possible Solution
Power feed does not start, or power supply breaker immediately trips after startup.	1. Direction switch is in center (neutral) position. 2. X-axis lock handle is engaged. 3. Leadscrew selector knob is not engaging drive gear. 4. Limit stop is engaging X-axis limit switch. 5. Power feed movement is obstructed, illuminating power feed fault light. 6. Incorrect power supply voltage or circuit size. 7. Power feed potentiometer at fault. 8. Power supply circuit breaker tripped or fuse blown. 9. Wiring broken, disconnected, or corroded. 10. Motor brushes worn out. 11. Direction switch at fault.	1. Toggle direction switch to desired direction of table travel (**Page 32**). 2. Loosen lock handle (**Page 32**). 3. Use leadscrew selector knob to engage drive gear (**Page 32**). 4. Adjust limit stop (**Page 32**). 5. Clear any obstruction then turn speed control dial fully counterclockwise to clear fault. 6. Ensure correct power supply voltage and circuit size. 7. Test/replace if at fault. 8. Ensure circuit is free of shorts. Reset circuit breaker or replace fuse. 9. Fix broken wires or disconnected/corroded connections (**Page 52**). 10. Replace brushes (**Page 50**). 11. Replace switch.

G0983 Power Feed (Cont.)

Symptom	Possible Cause	Possible Solution
Power feed does not start, or power supply breaker immediately trips after startup.	12. Circuit board at fault. 13. X-axis limit switch(es) at fault. 14. Gears not meshing/teeth missing. 15. Motor shaft and gear shaft not engaged. 16. Motor or motor bearings at fault.	12. Inspect/replace if at fault. 13. Replace switch(es). 14. Replace check gears and adjust/replace. 15. Replace clutch. 16. Replace motor.
Power feed stalls or is underpowered.	1. Circuit board at fault. 2. Power feed potentiometer at fault. 3. Motor brushes worn out. 4. Motor overheated. 5. Extension cord too long. 6. Motor or motor bearings at fault.	1. Inspect/replace if at fault. 2. Test/replace if at fault. 3. Replace brushes (**Page 50**). 4. Clean motor, let cool, and reduce workload. 5. Move machine closer to power supply; use shorter extension cord (**Page 16**). 6. Replace motor.
Power feed speed will not adjust or is inconsistent.	1. Speed dial stripped. 2. Wiring broken, disconnected, or corroded. 3. Power feed potentiometer at fault.	1. Replace dial. 2. Fix broken wires or disconnected/corroded connections (**Page 52**). 3. Test/replace if at fault.

Replacing Fuse

This machine features a fuse designed to protect sensitive electrical parts in the event of an electrical overload. If the fuse burns out, replace it.

Items Needed	Qty
Flat Head Screwdriver ¼"	1
Replacement Fuse 15A 250V (#P0982449)	1

To replace fuse:

1. DISCONNECT MACHINE FROM POWER!

2. Disconnect mill/drill power cord from male receptacle on column (see **Figure 60**).

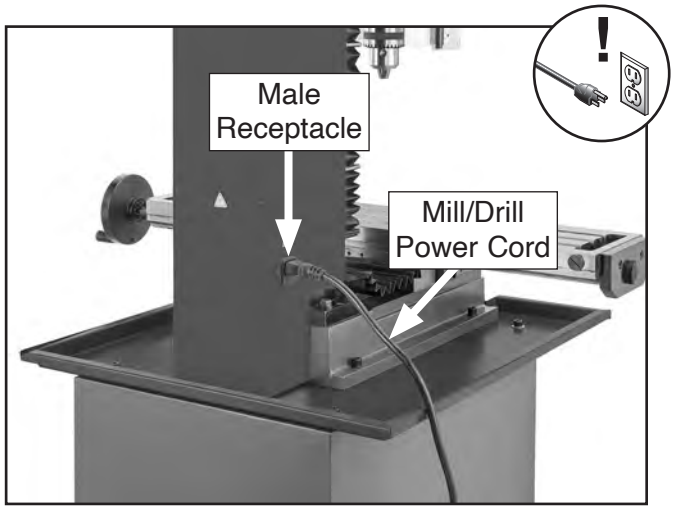


Figure 60. Mill/drill power cord connected to male receptacle on column (G0982 shown).

3. Pry fuse compartment (see **Figure 61**) from male receptacle on column.

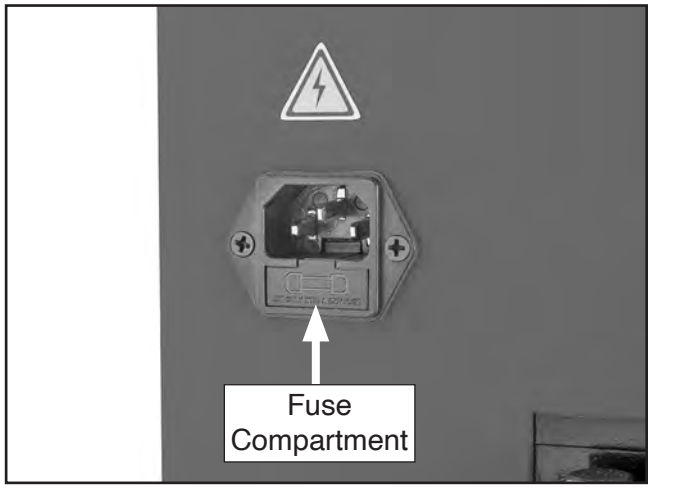


Figure 61. Location of fuse compartment.

4. Remove old fuse and replace with new one.

5. Install fuse compartment.

6. Connect mill/drill power cord to male receptacle on column.

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 spindle depth DRO battery:

1. Slide battery cover to right to expose battery, as shown in **Figure 62**.

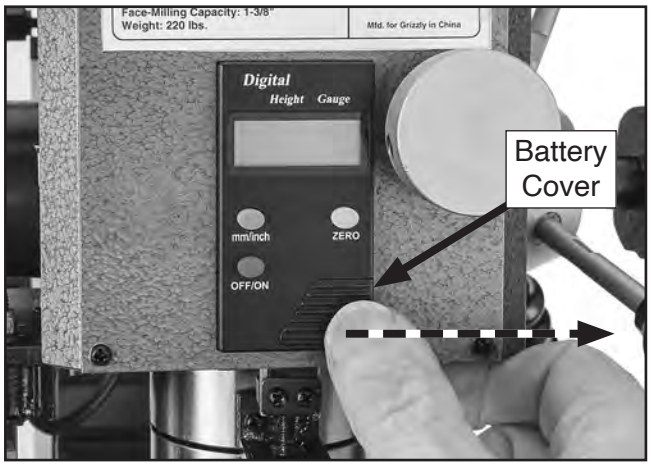


Figure 62. Example of removing spindle depth DRO battery cover.

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

3. Replace battery cover.

Adjusting Gibs

The gibs affect the accuracy of the headstock and 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 ¼"	1

Make sure the X- and Y-axis table lock handles are loose. Then, loosen one gib adjustment screw (see **Figures 63**–**64**) 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.

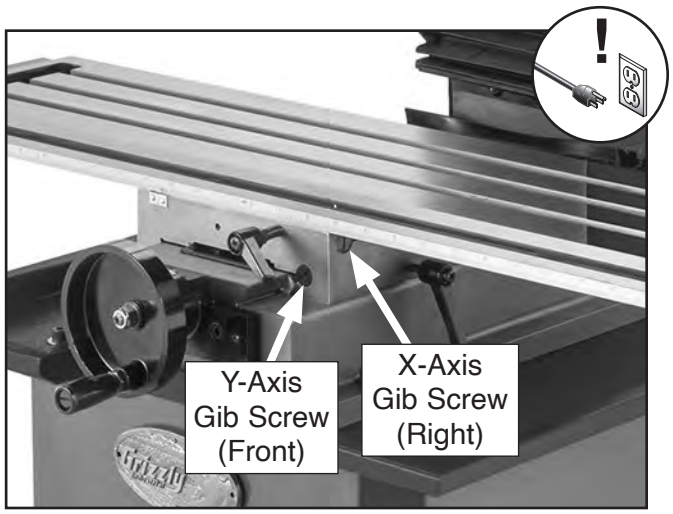


Figure 63. Location of front/right gib screws (G0982 shown).

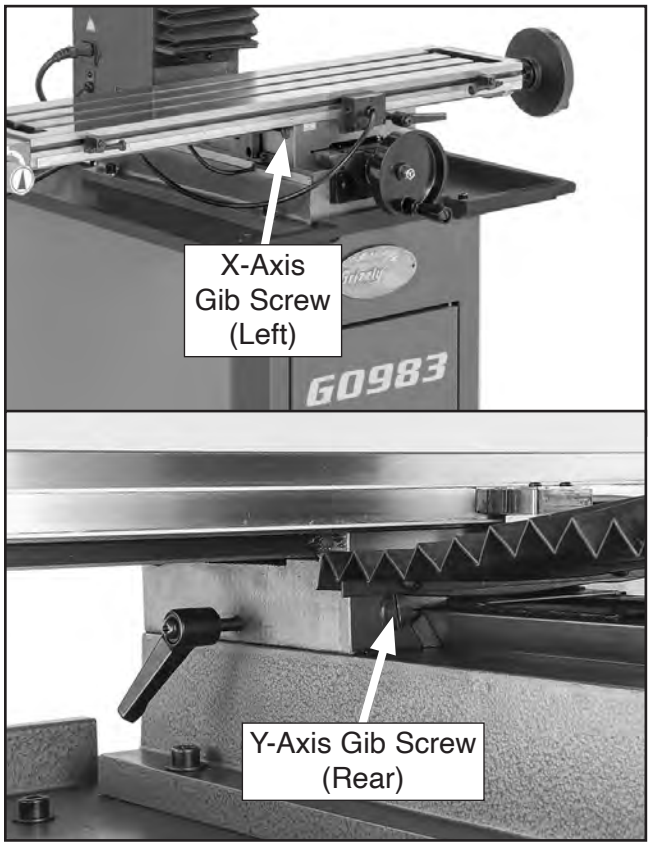


Figure 64. Location of rear/left gib screws (G0983 shown).

Z-Axis Gib

Tools Needed	Qty
Phillips Head Screwdriver #1	1
Flat Head Screwdriver ¼"	1

To adjust Z-axis gib:

1. Remove (2) Phillips head screws securing top of Z-axis way cover in place (see **Figure 65**).

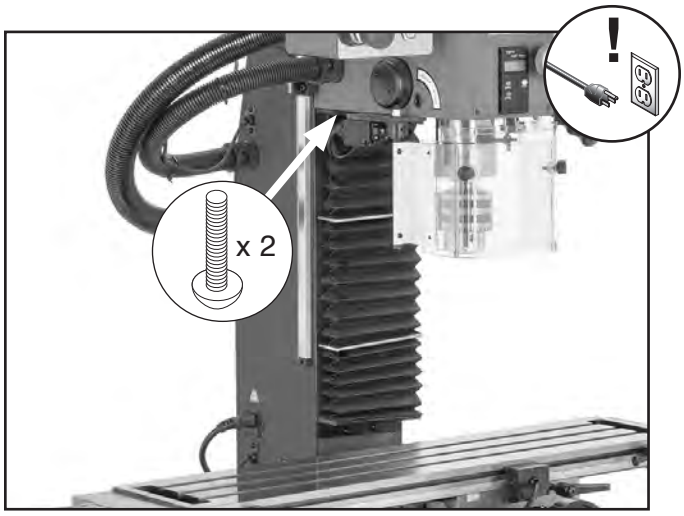


Figure 65. Location of Z-axis cover Phillips head screws.

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 66**).

   Note: *Bottom Z-axis gib screw is behind way cover in* ***Figure 66****.*

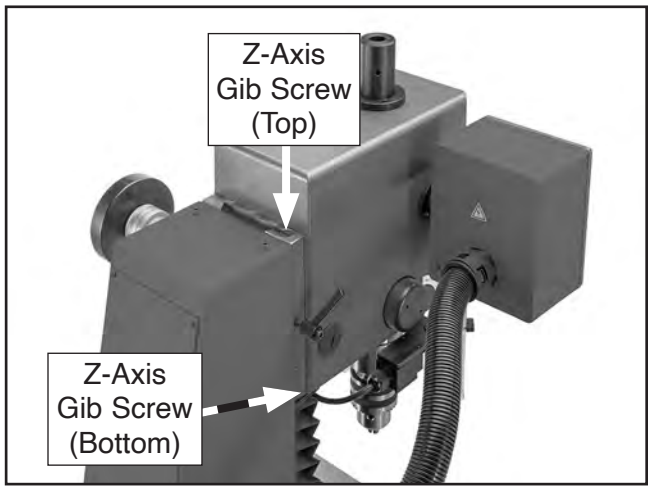


Figure 66. Location of Z-axis gib screws (G0982 shown).

4. Use Z-axis handwheel to move headstock and test gib adjustment. Continue adjusting gib screws until you feel a slight drag in headstock movement.

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 67**). The Y-axis leadscrew nut has cap screws at the bottom and is accessed by removing the way cover (see **Figure 67**).

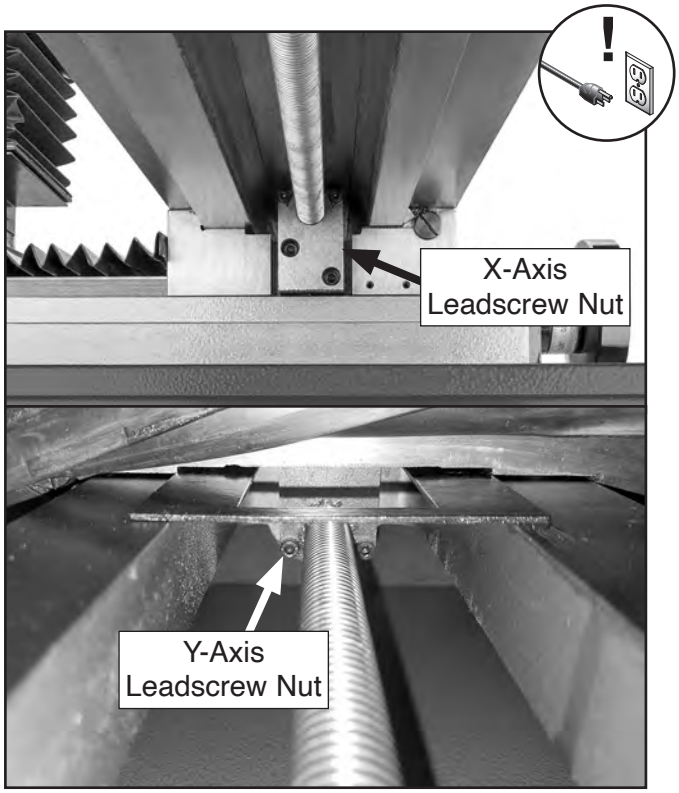


Figure 67. Location of leadscrew nuts.

Replacing Motor Brushes

This spindle motor uses carbon brushes to transmit electrical current inside the motor. These brushes are considered to be regular "wear items" or "consumables" that will need to be replaced during the life of the motor. 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 the spindle motor at the same time when the motor no longer reaches full power, or when brushes measure less than ½" (new brushes are ¾"). If your machine is used frequently, we recommend keeping an extra set of replacement brushes on-hand to avoid any downtime.

Replacing Spindle Motor Brushes

Items Needed	Qty
Replacement Brush Pair (#P0982420-1)	1
Phillips Head Screwdriver #2	1
Hex Wrenches 2, 4, 8mm	1 Ea.
Flat Head Screwdriver ¼"	1

To replace spindle motor brushes:

1. DISCONNECT MACHINE FROM POWER!

2. Remove (2) flat head cap screws shown in **Figure 68**.

3. Remove cap screw shown in **Figure 68**, then remove headstock cover.

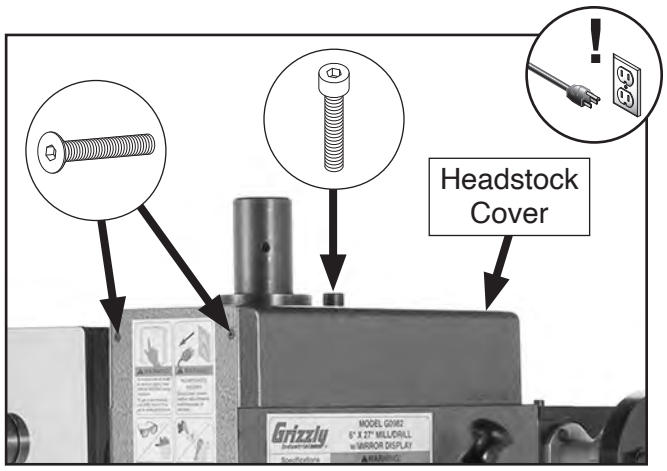


Figure 68. Location of headstock cover and securing screws.

4. Remove (2) Phillips head screws shown in **Figure 69** to remove spindle speed sensor from motor mount.

5. Remove (4) cap screws shown in **Figure 69** and push motor pulley toward spindle pulley to remove belt tension.

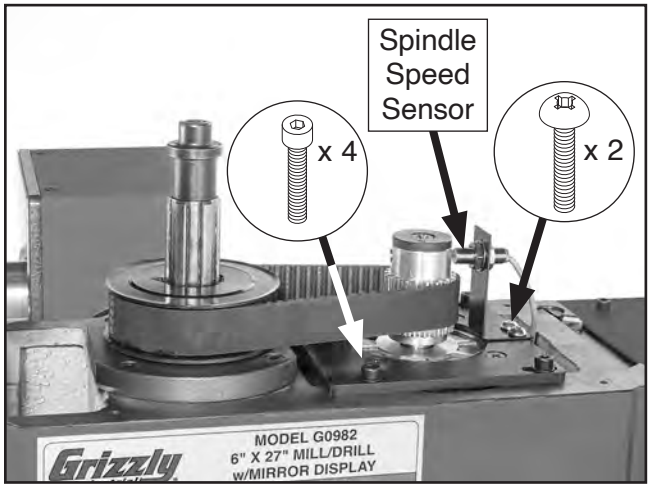


Figure 69. Location of belt removal components.

6. Remove belt from pulleys.

7. Lift entire spindle motor assembly out of headstock (see **Figure 70**).

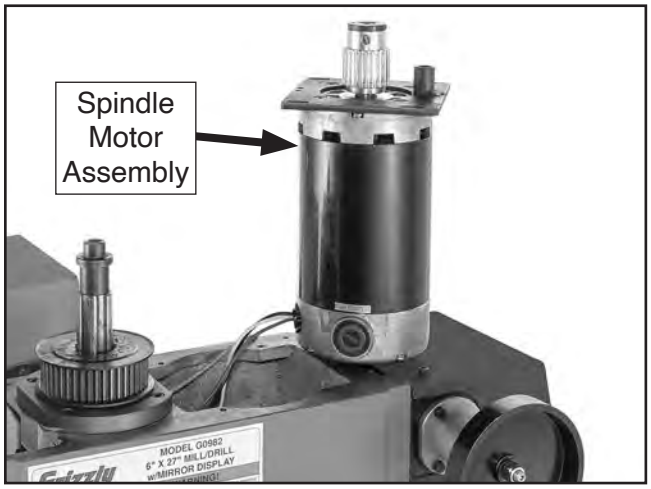


Figure 70. Location of spindle motor brush caps.

8. Remove brush caps and worn brushes (see **Figure 71**) from motor.

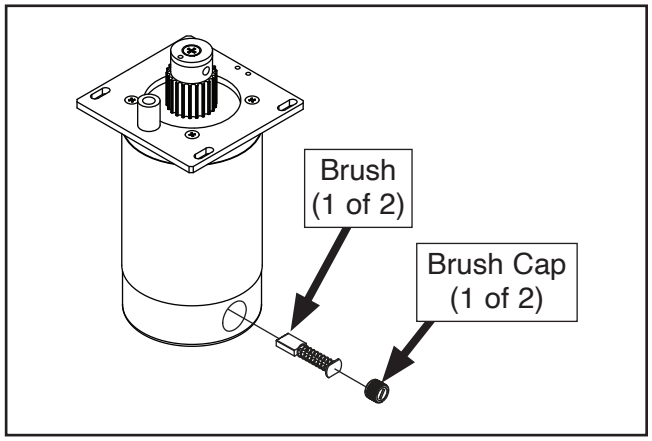


Figure 71. Location of brushes under brush caps.

9. Replace both spindle motor brushes and install brush caps.

10. Install spindle motor.

11. Install and tension belt (refer to **Checking/ Replacing Belt** on **Page 41**).

12. Install spindle speed sensor.

13. Install headstock cover.

Replacing Power Feed Motor Brushes (Model G0983 Only)

The Model G0983 power feed motor also has carbon brushes. Replace both carbon brushes on the power feed motor at the same time when the motor no longer reaches full power, or when brushes measure less than 3/16" (new brushes are 7/16").

Items Needed	Qty
Phillips Head Screwdriver #2	1
Penny or Dime	1
Replacement Brush Pair (#P0982503-1)	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 72**).

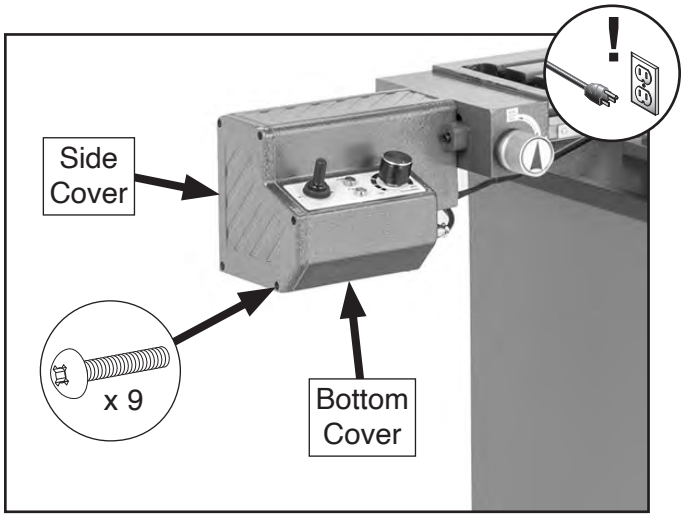


Figure 72. Location of power feed covers.

3. Remove brush caps and worn brushes from motor (see **Figure 73**). See **Figure 71** 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 73****.*

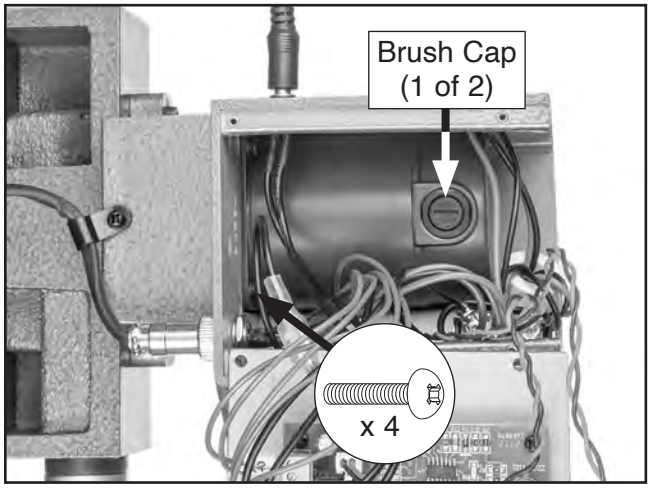


Figure 73. Location of power feed motor brush caps.

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 aftermarket parts.

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

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

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

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

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

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

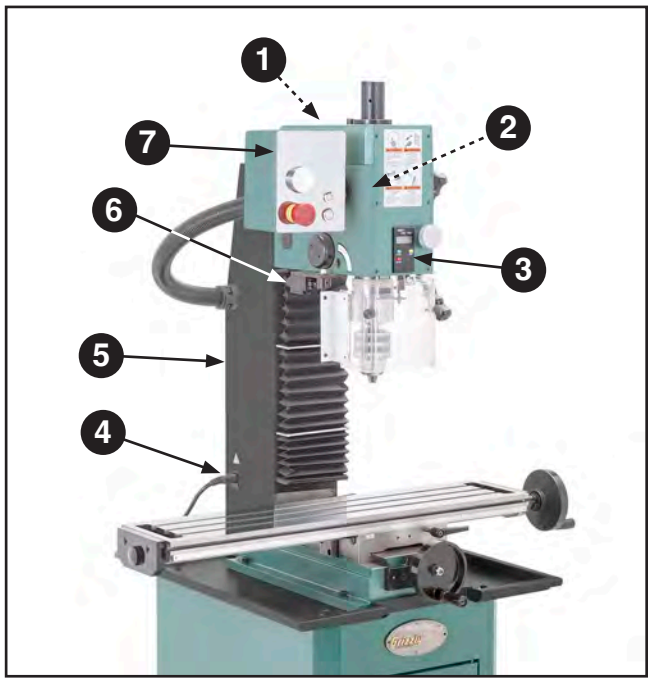
NOTICE

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

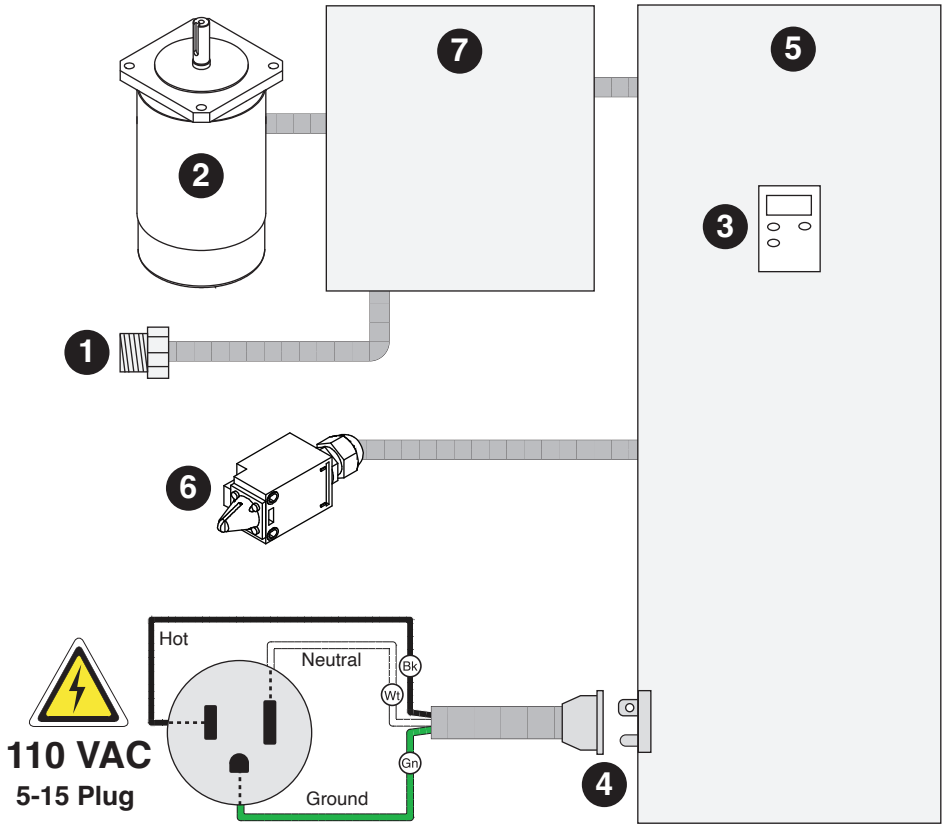
COLOR KEY

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

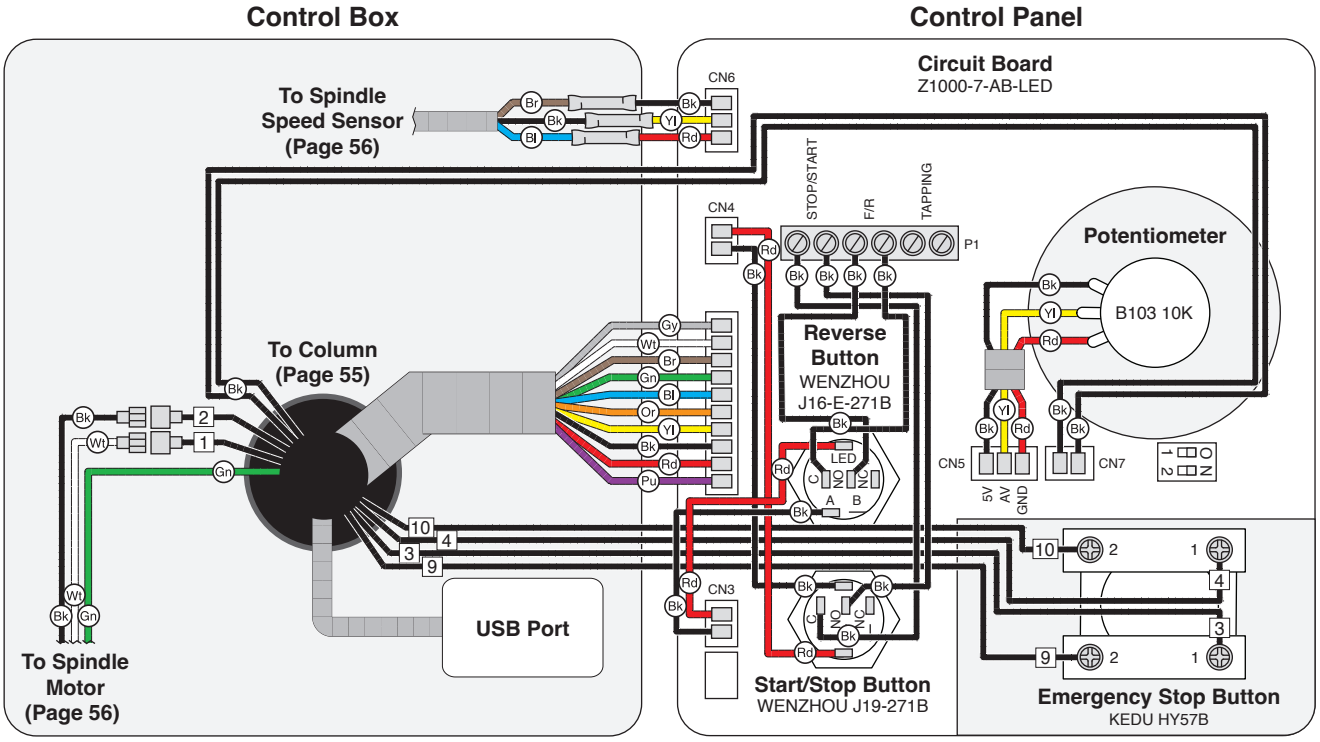
G0982 Main Wiring Overview



1	Spindle Speed Sensor (**Page 56**)
2	Spindle Motor (**Page 56**)
3	Spindle Depth DRO (Battery Operated)
4	Column Power Connection
5	Column Electrical Compartment (**Page 55**)
6	Chip Guard Safety Switch (**Page 56**)
7	Control Panel (**Page 54**)



G0982 Control Panel



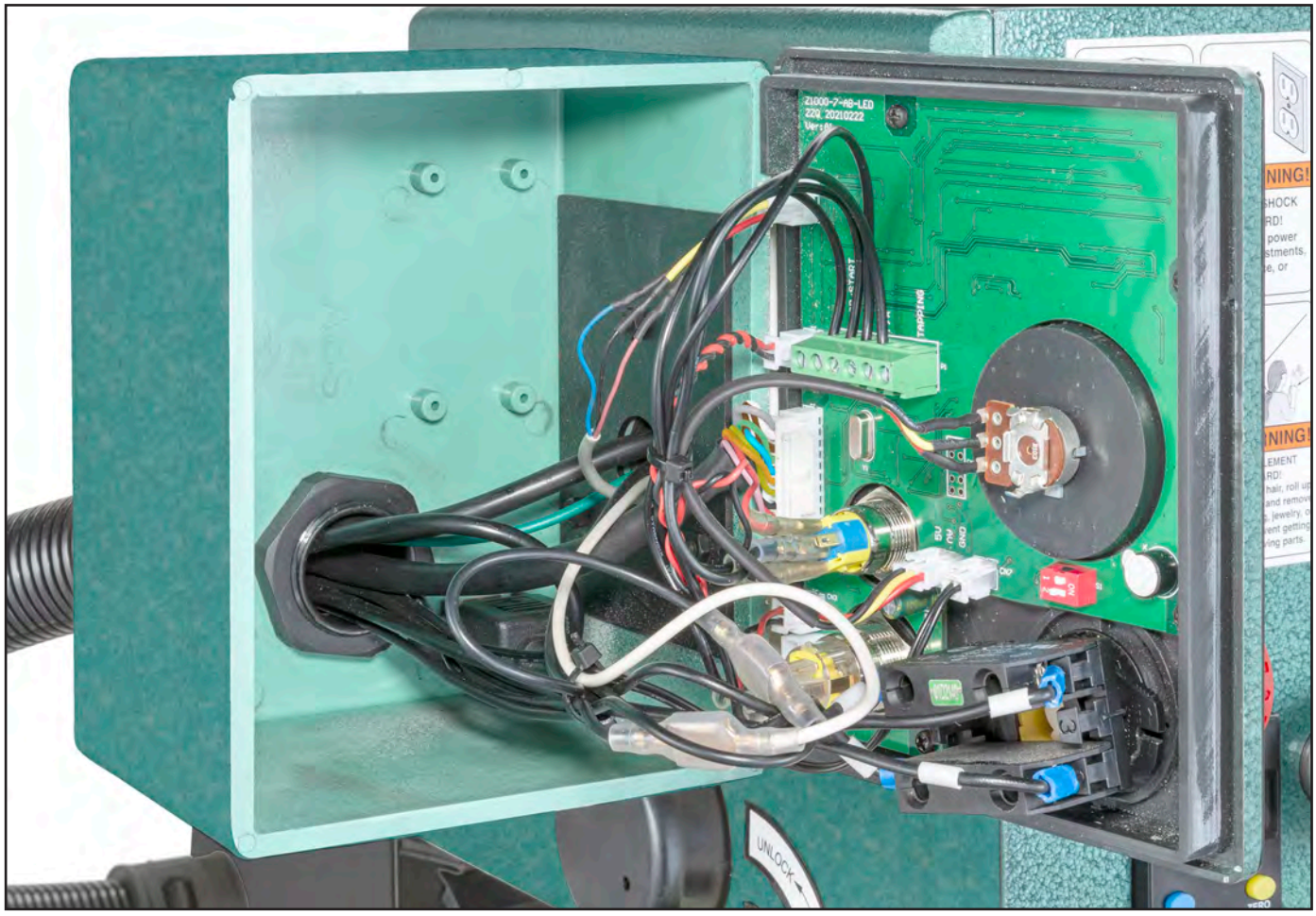


Figure 74. Control box wiring.

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G0982 Column

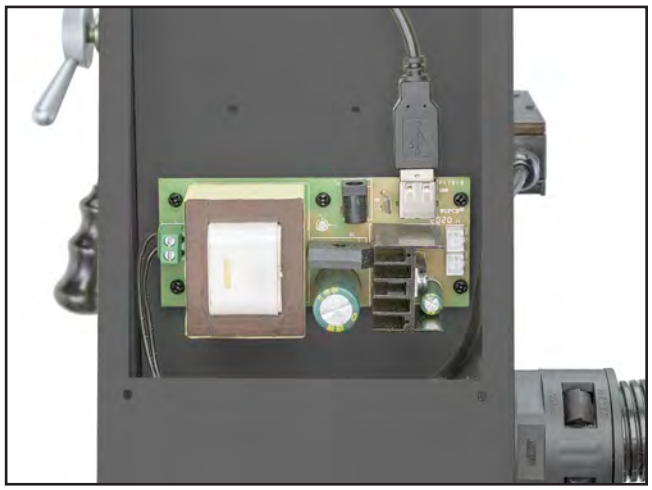


Figure 75. Upper column wiring.

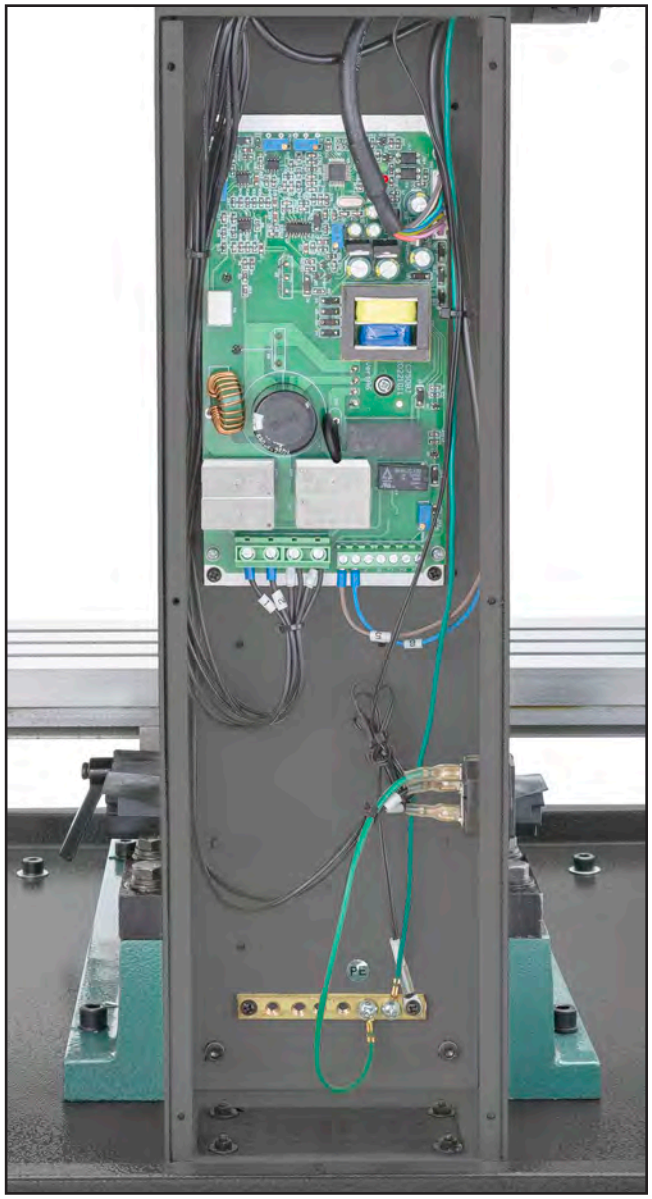
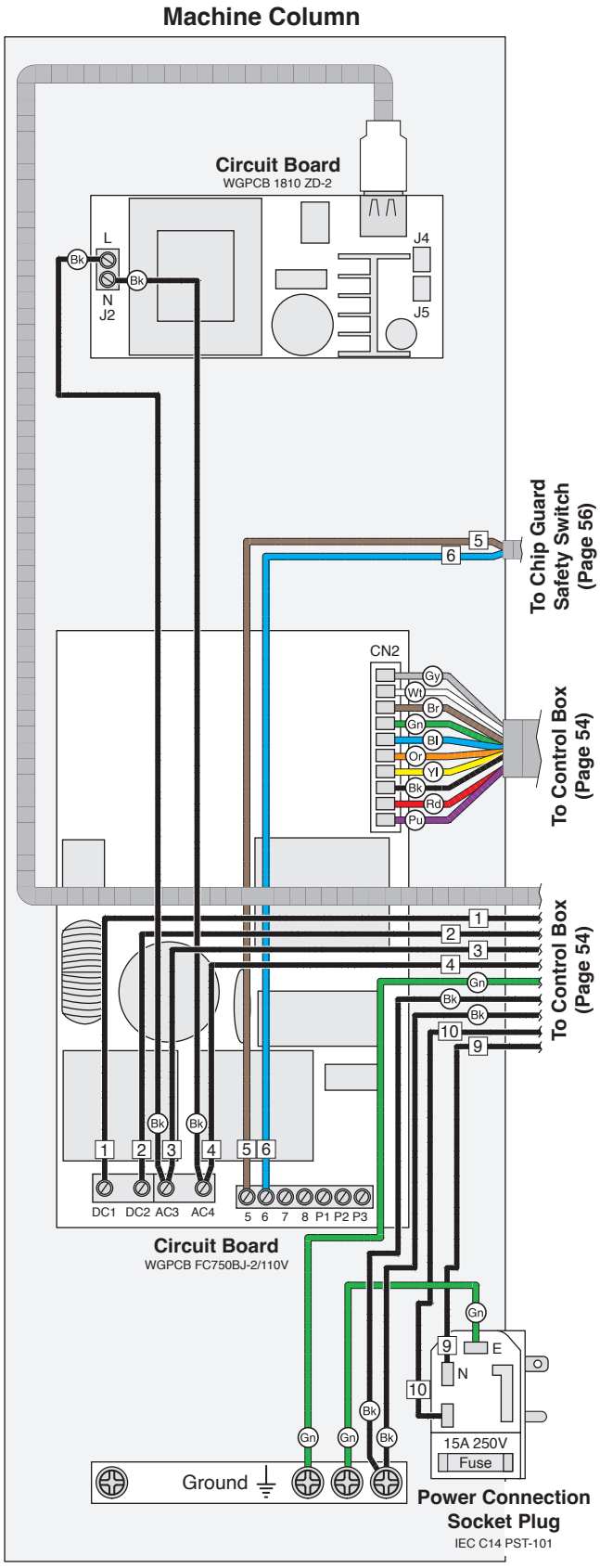


Figure 76. Lower column wiring.



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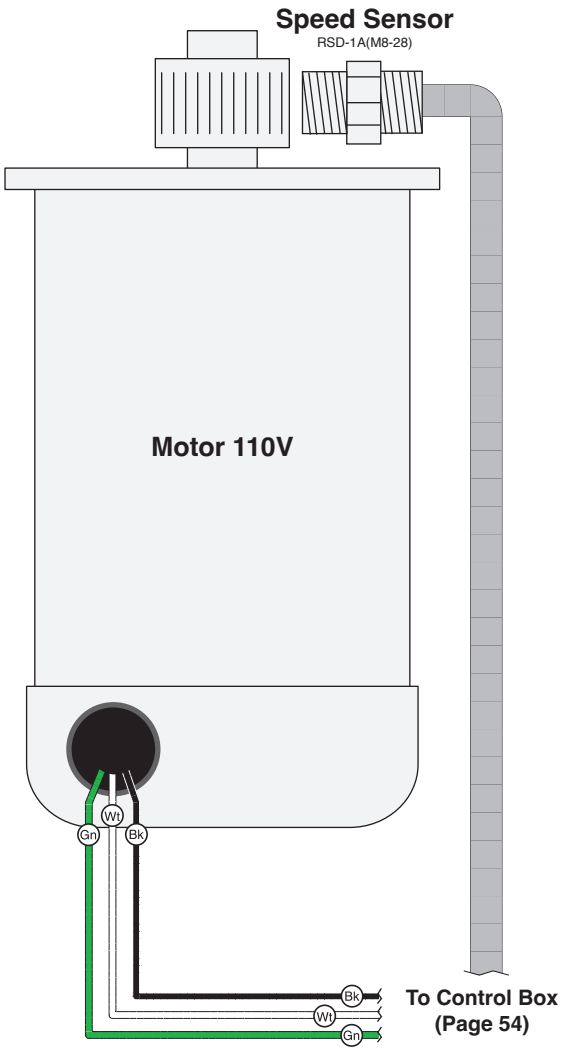
G0982 Spindle Motor & Speed Sensor



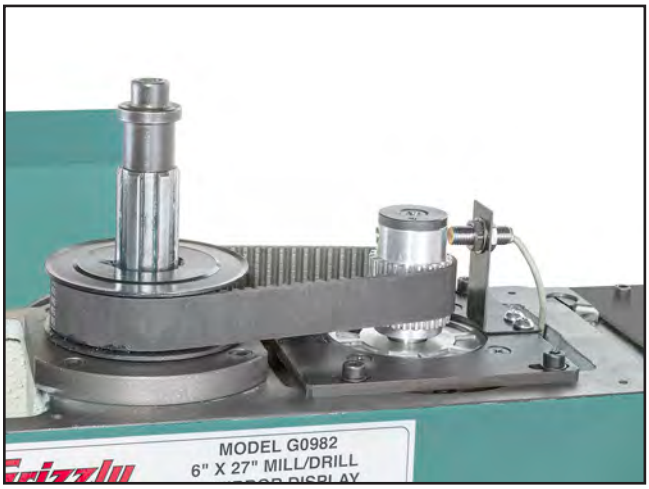


Figure 77. Spindle speed sensor.

Figure 78. Spindle motor wiring.

G0982 Chip Guard Safety Switch

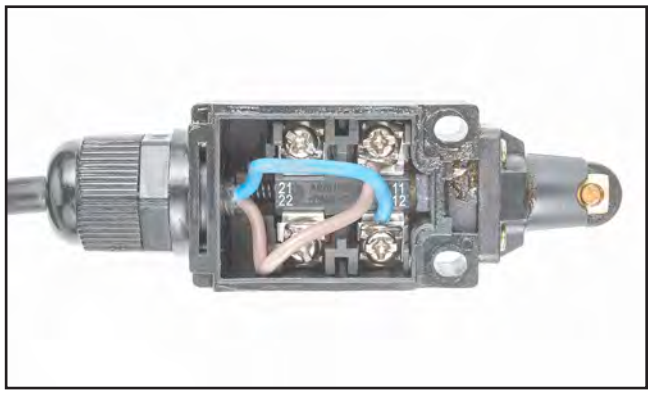
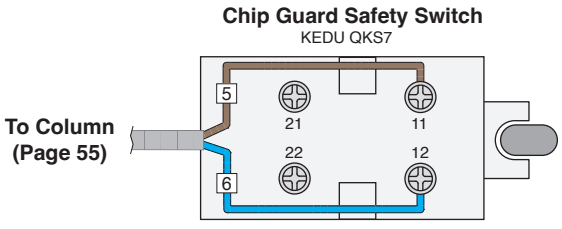


Figure 79. Chip guard safety switch.



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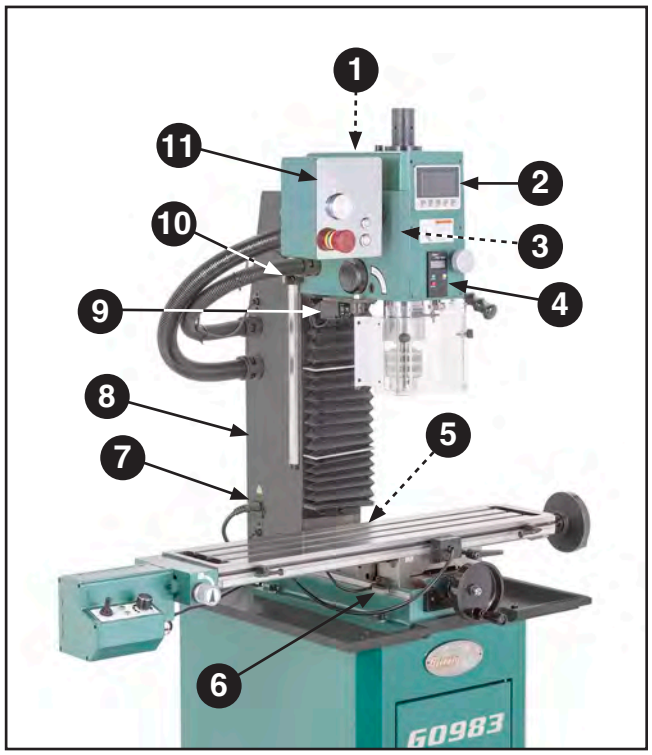
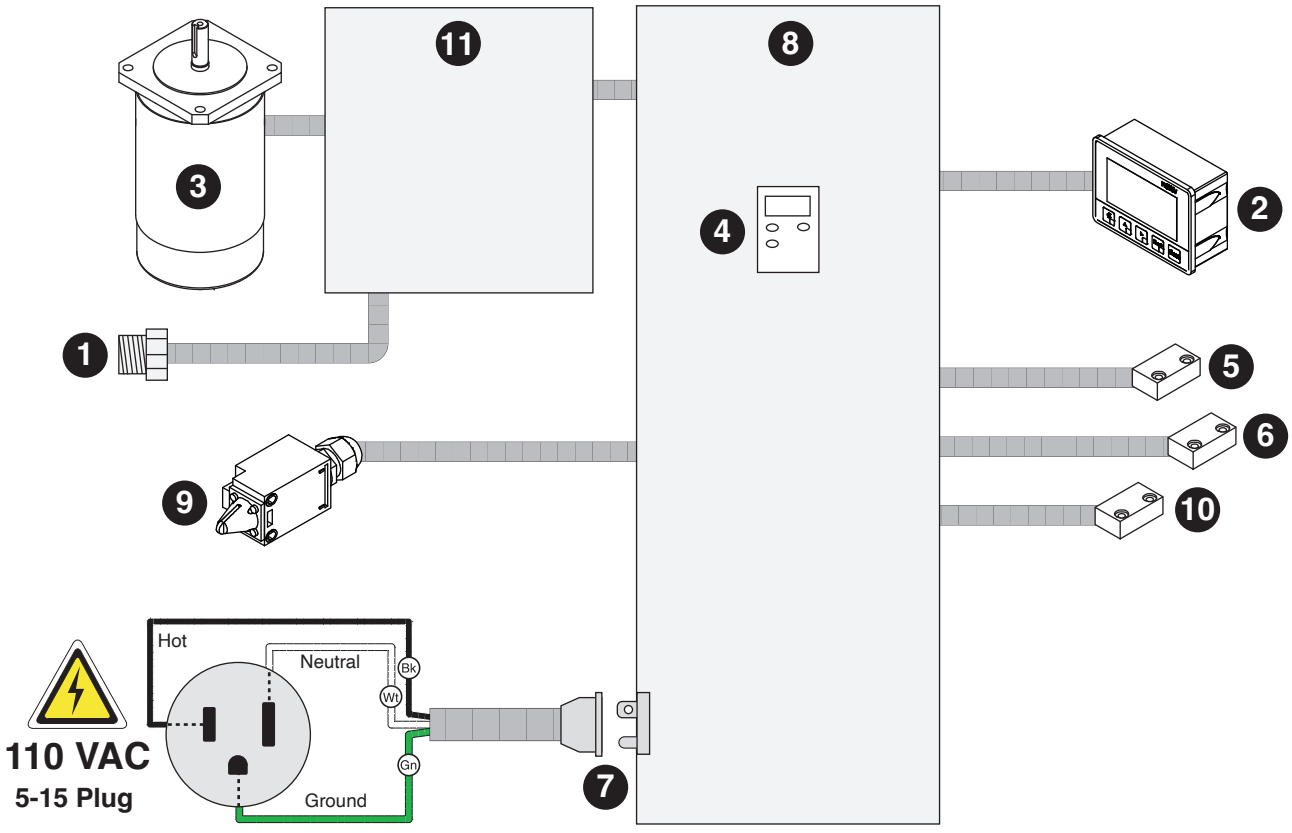
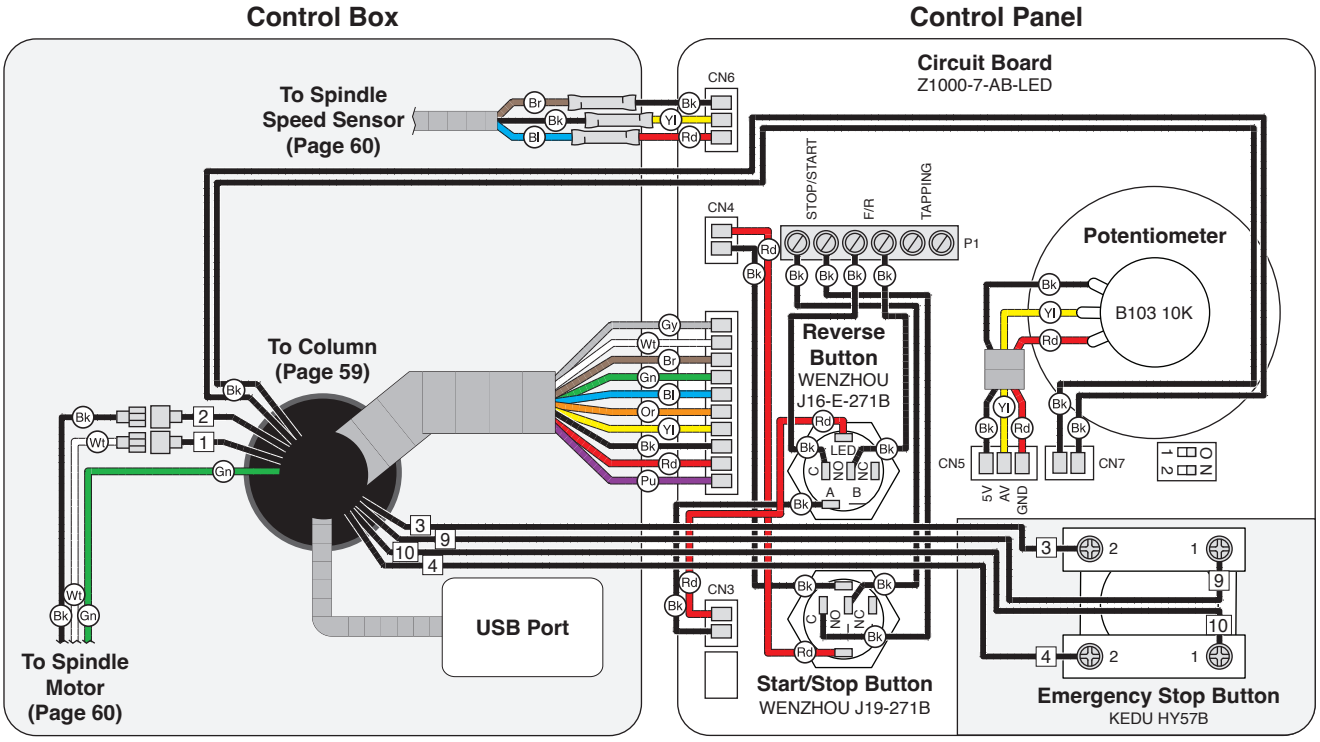
G0983 Main Wiring Overview



1	Spindle Speed Sensor (**Page 60**)
2	3-Axis DRO (**Page 61**)
3	Spindle Motor (**Page 60**)
4	Spindle Depth DRO (Battery Operated)
5	X-Axis Sensor (**Page 61**)
6	Y-Axis Sensor (**Page 61**)
7	Column Power Connection
8	Column Electrical Compartment (**Page 59**)
9	Chip Guard Safety Switch (**Page 60**)
10	Z-Axis Sensor (**Page 61**)
11	Control Panel (**Page 58**)



G0983 Control Panel



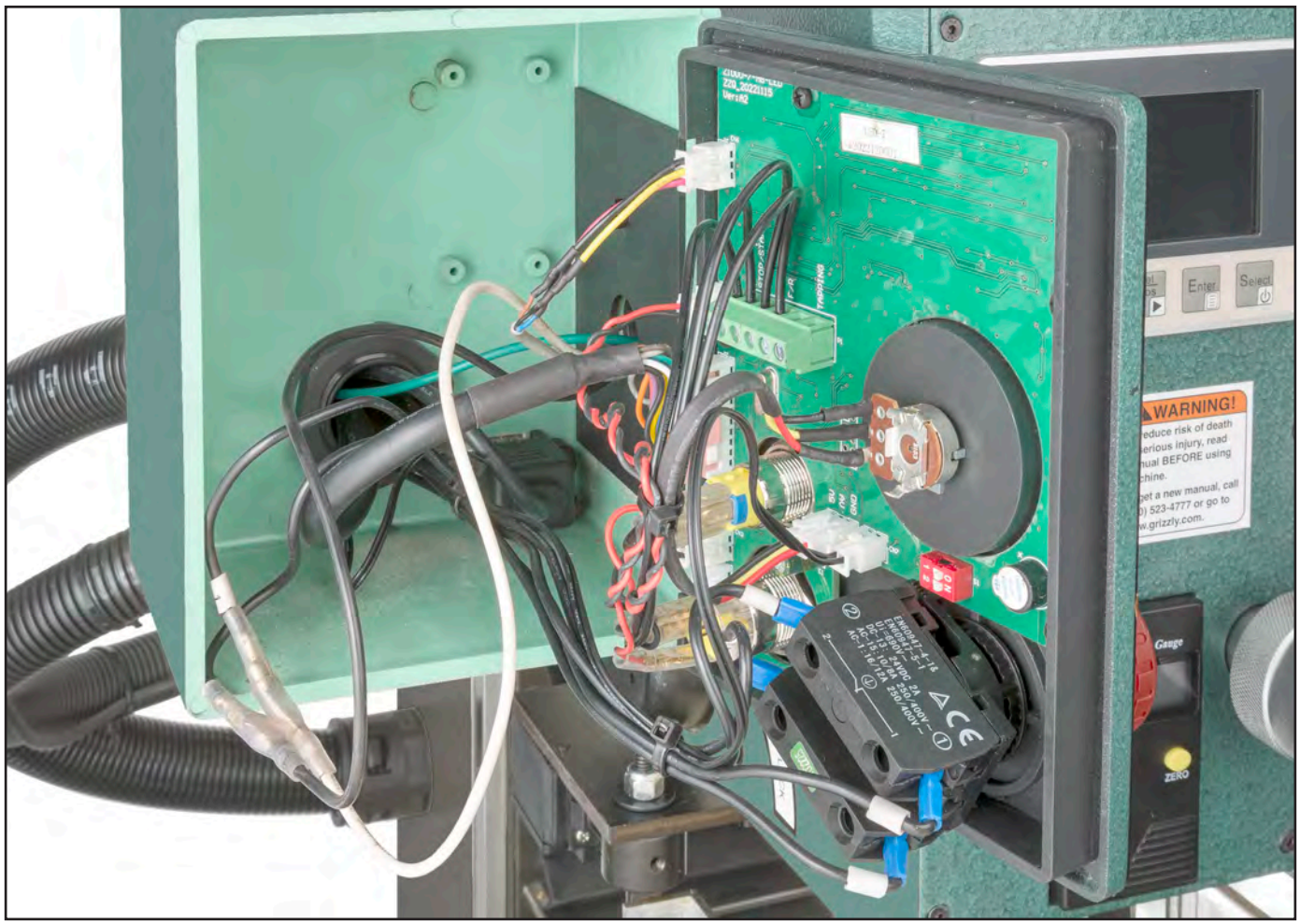


Figure 80. Control box wiring.

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G0983 Column

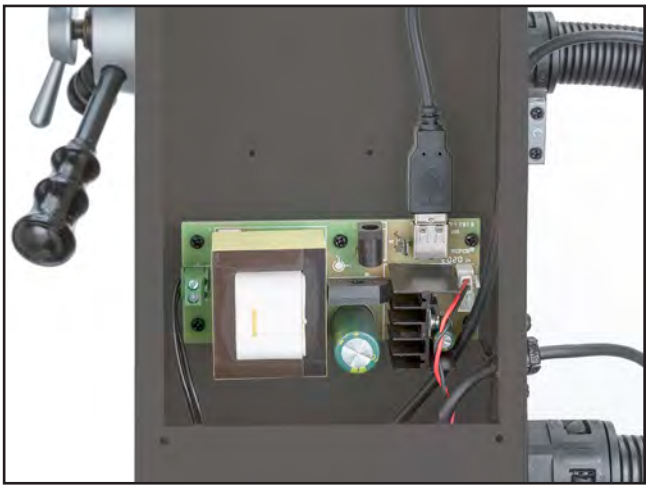


Figure 81. Upper column wiring.

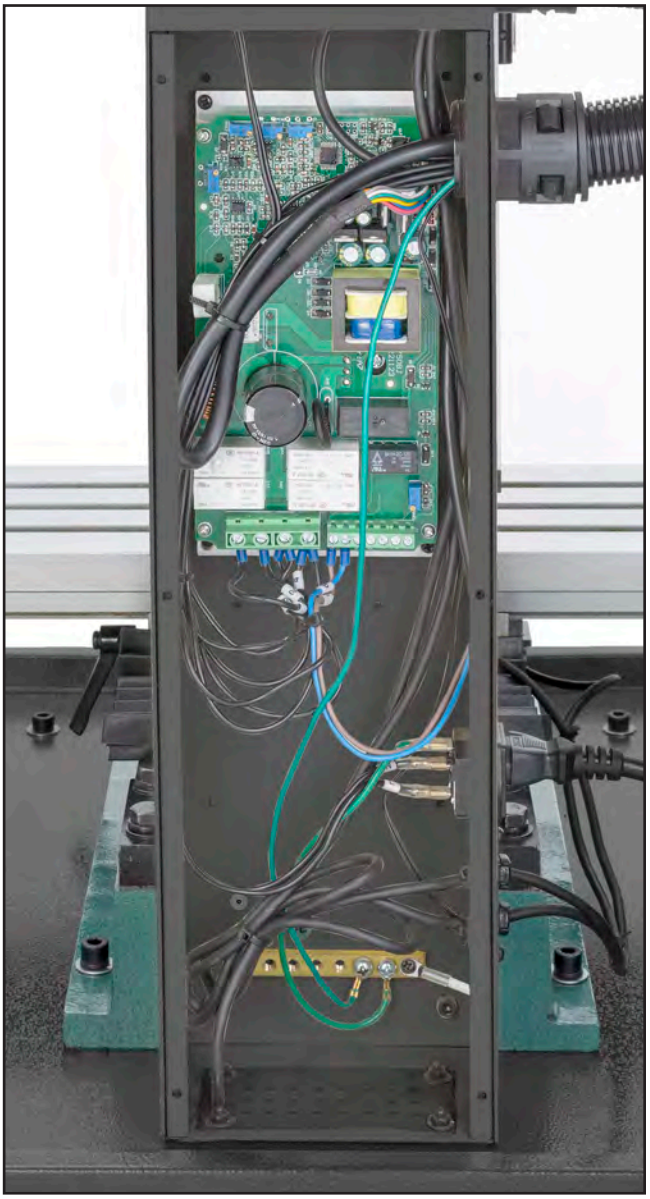
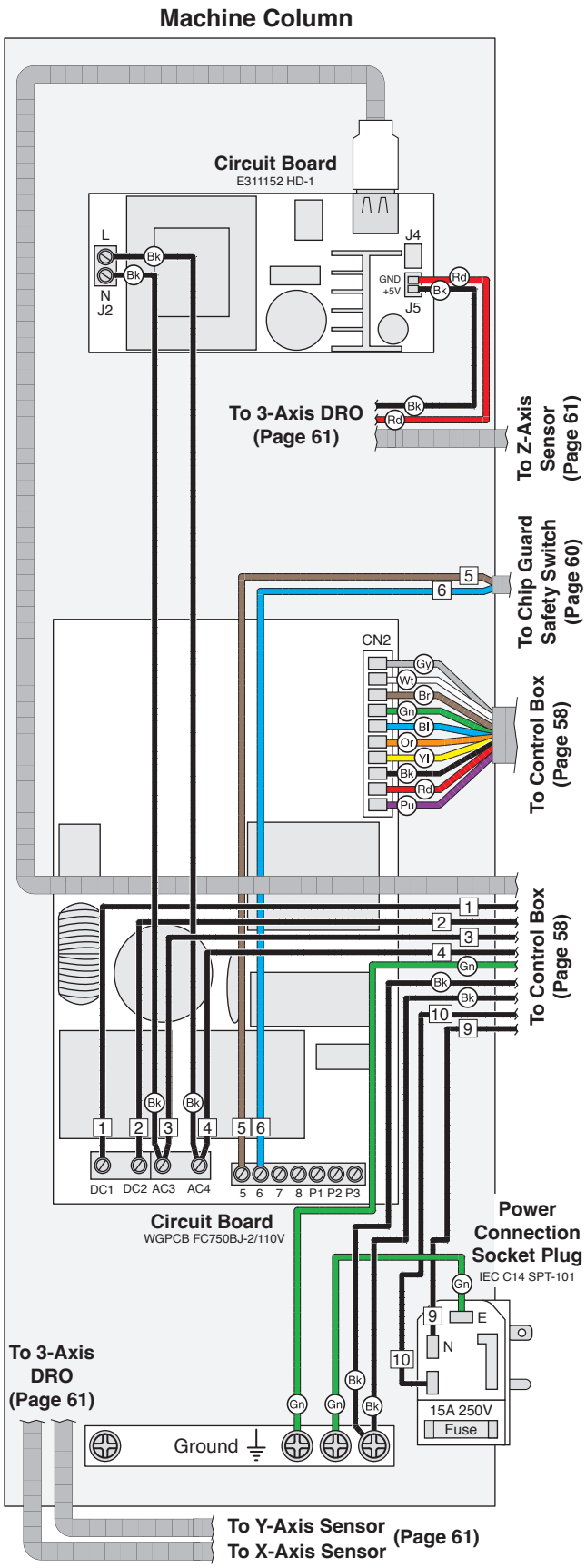


Figure 82. Lower column wiring.



G0983 Spindle Motor & Speed Sensor

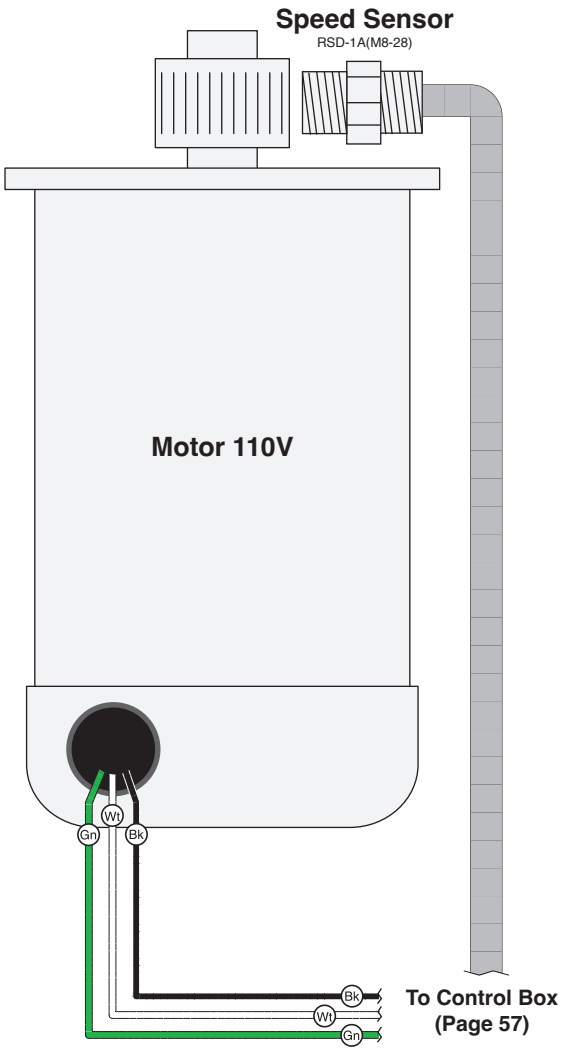


Figure 83. Spindle speed sensor.

Figure 84. Spindle motor wiring.

G0983 Chip Guard Safety Switch

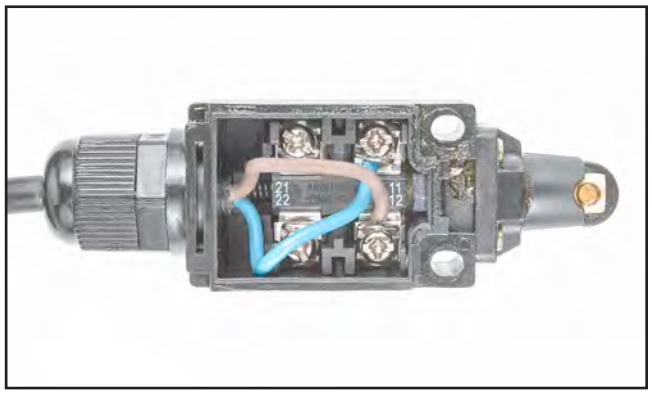
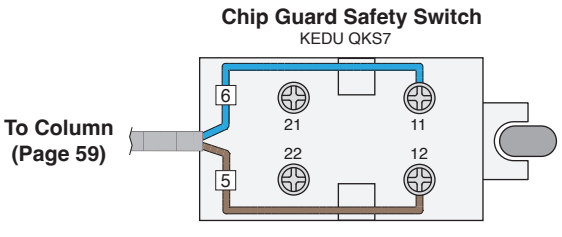


Figure 85. Chip guard safety switch.



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G0983 3-Axis DRO & Sensors

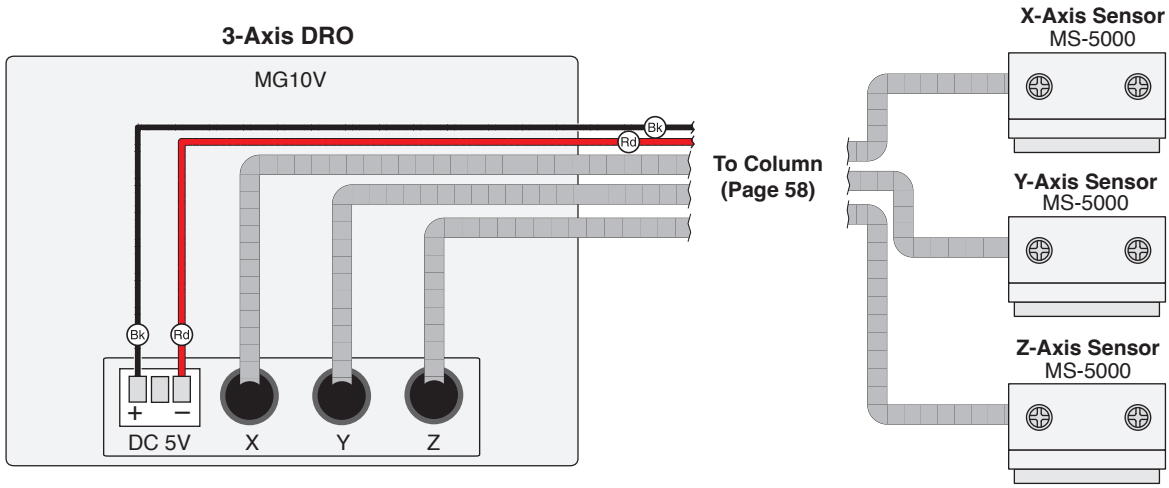


Figure 86. 3-axis DRO and spindle depth DRO wiring.

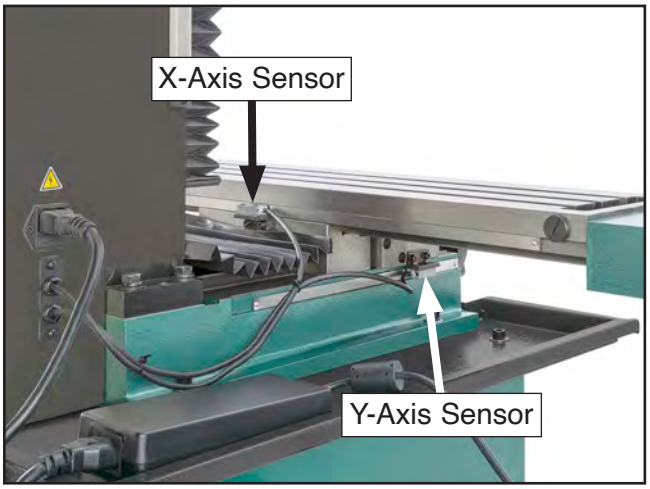


Figure 87. X- and Y-axis sensors.

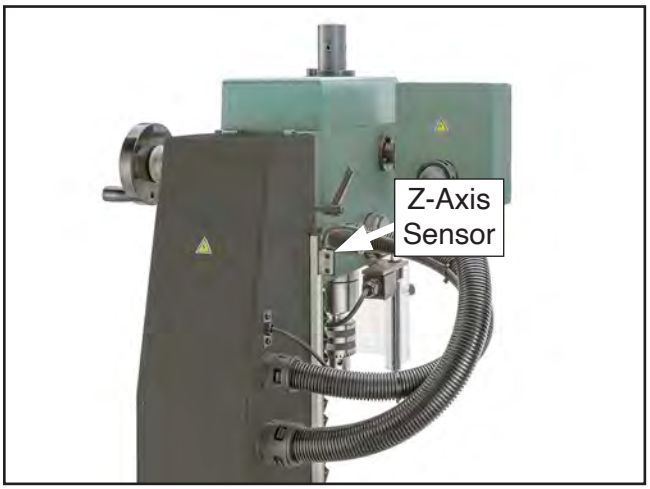
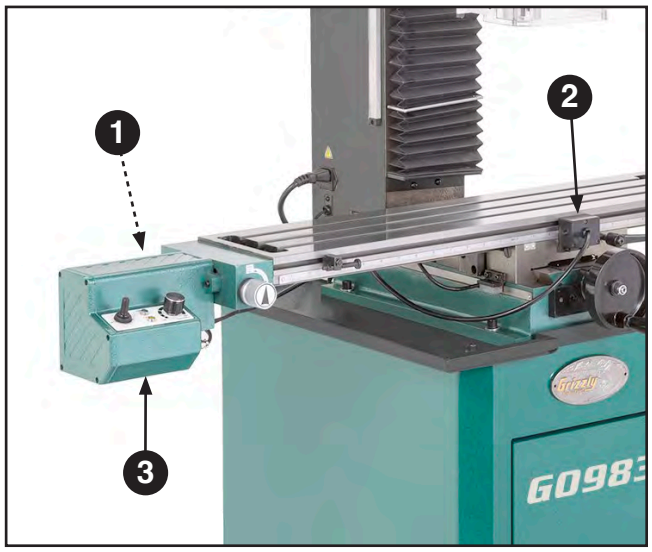


Figure 88. Z-axis sensor.

G0983 Power Feed Wiring Overview



1	Power Feed Power Connection Port
2	X-Axis Limit Switches (**Page 63**)
3	Power Feed (**Page 63**)

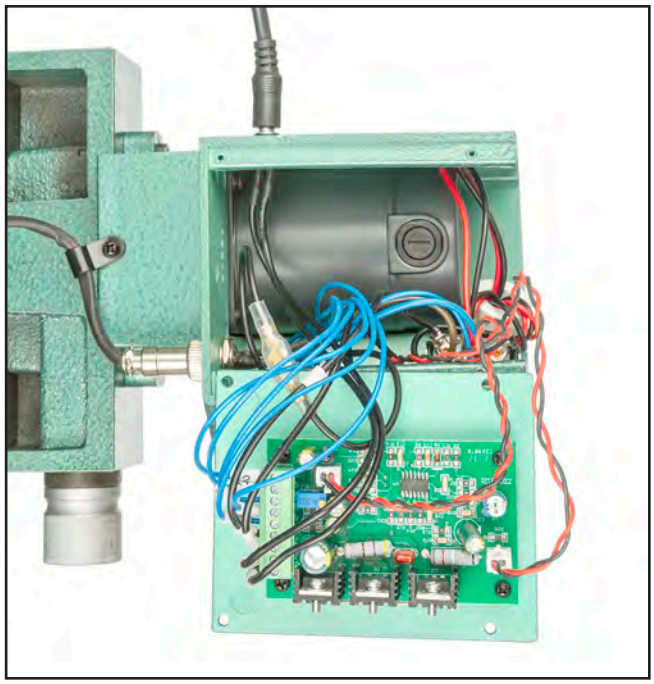
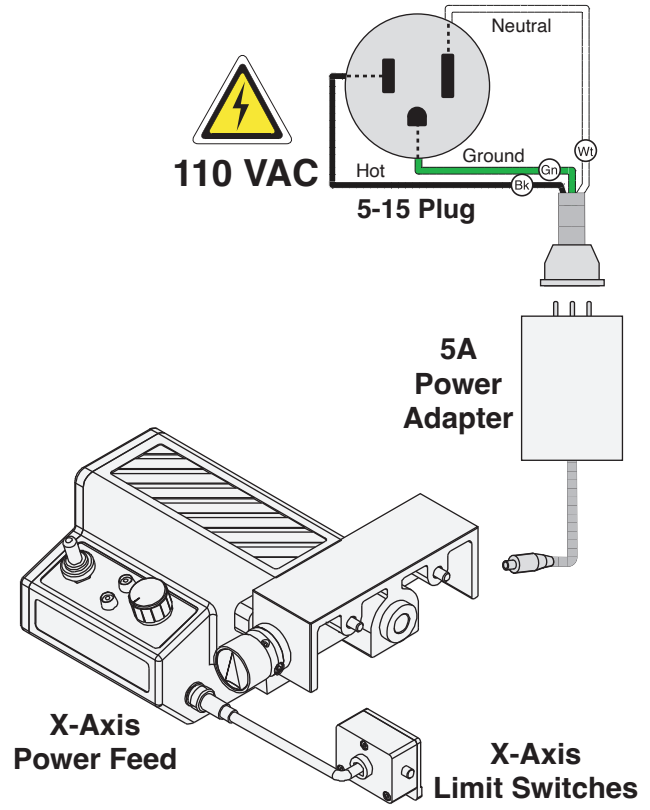


Figure 89. Power feed box wiring (as viewed from bottom).



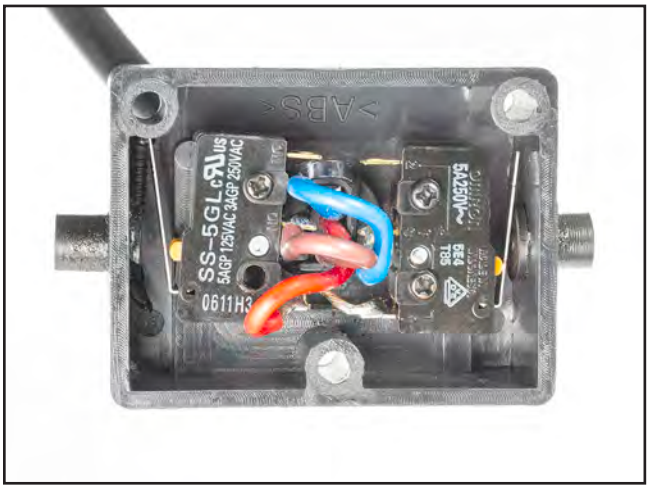


Figure 90. X-axis limit switch wiring.

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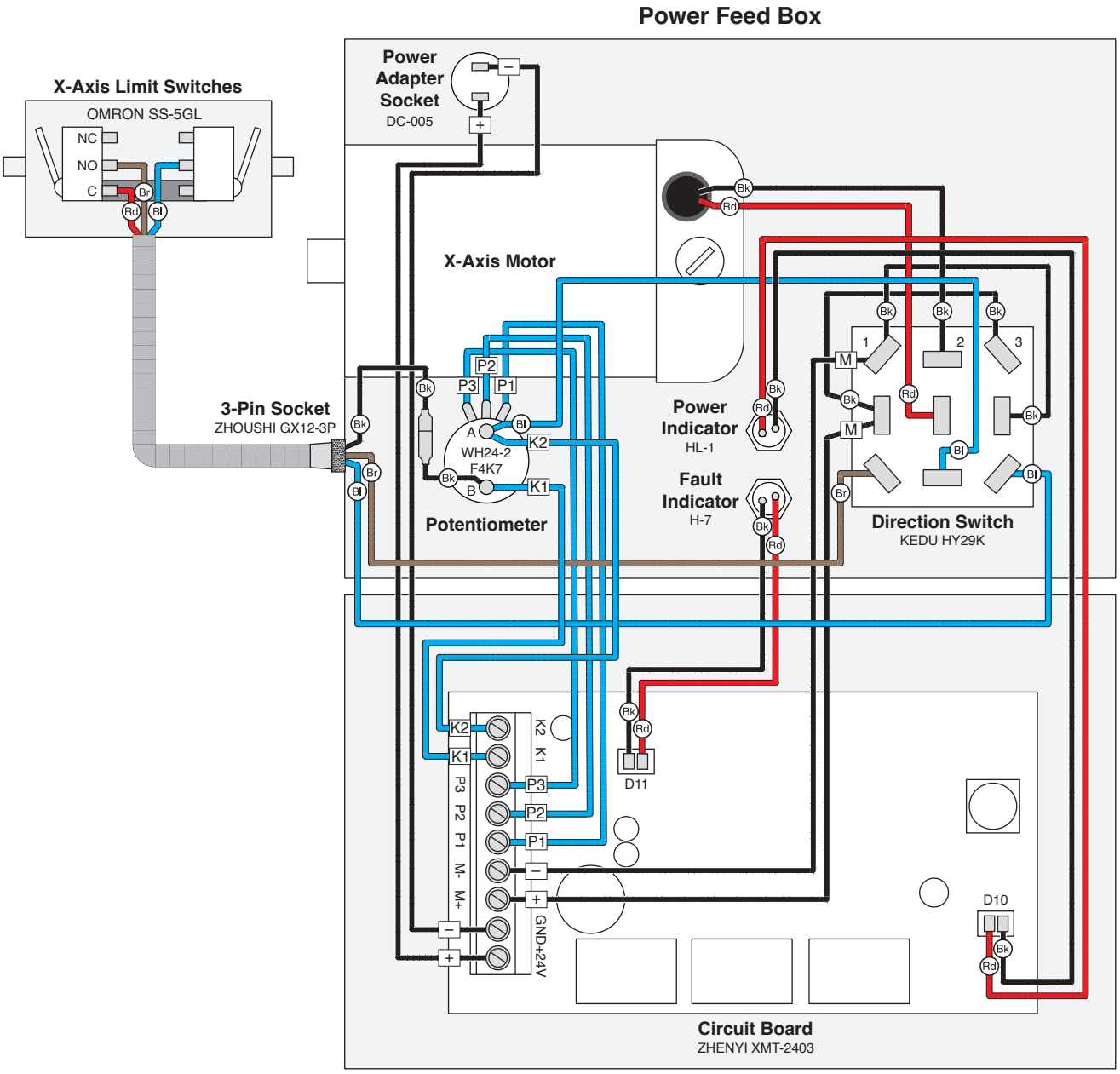
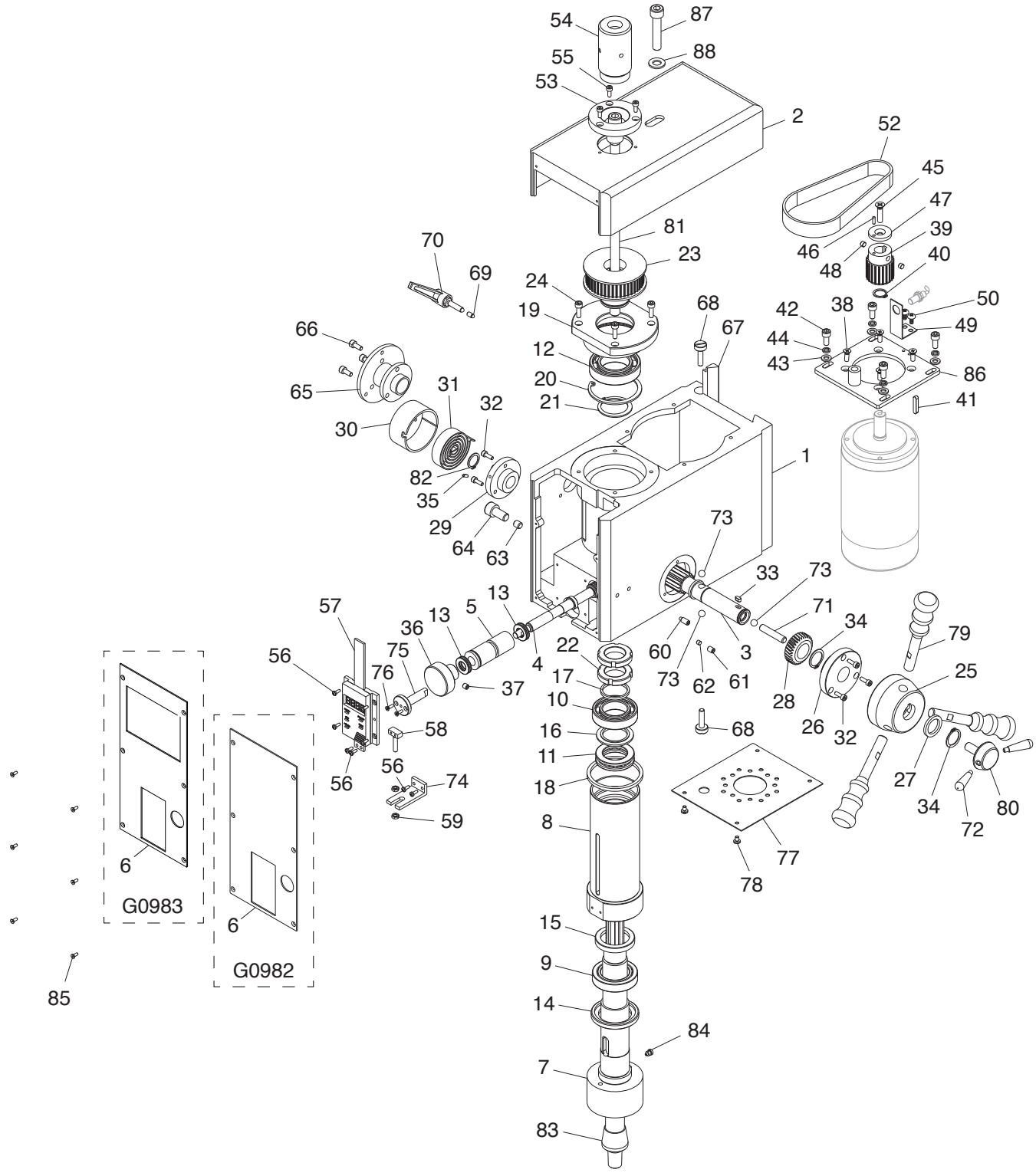
G0983 Power Feed



SECTION 9: PARTS

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

Headstock

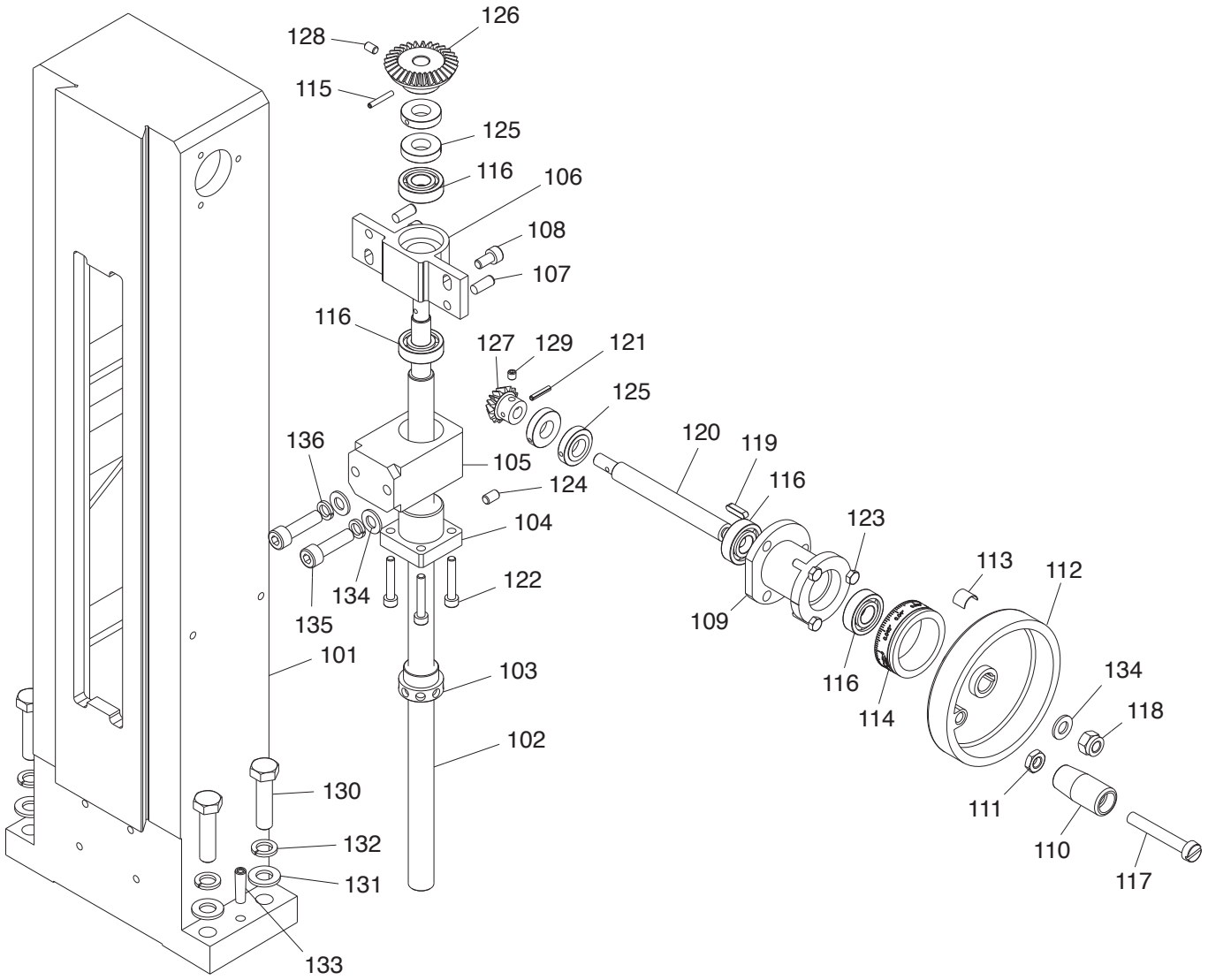


Headstock Parts List

REF	PART #	DESCRIPTION
1	P0982001	HEADSTOCK HOUSING
2	P0982002	HEADSTOCK COVER
3	P0982003	DOWNFEED GEAR SHAFT
4	P0982004	FINE DOWNFEED WORM SHAFT
5	P0982005	WORM ECCENTRIC SLEEVE
6	P0982006	HEADSTOCK PANEL (G0982)
6	P0983006	HEADSTOCK PANEL (G0983)
7	P0982007	SPINDLE R8
8	P0982008	QUILL
9	P0982009	TAPERED ROLLER BEARING 32907
10	P0982010	BALL BEARING 80106-OPEN
11	P0982011	THRUST BEARING 8106
12	P0982012	BALL BEARING 80107-OPEN
13	P0982013	THRUST BEARING 12 X 22 X 5 P4
14	P0982014	SPINDLE OIL SEAL 40.2 X 58 X 7MM
15	P0982015	SPINDLE OIL SEAL 35.5 X 48 X 7MM
16	P0982016	SPACER 30.2 X 45 X 3MM
17	P0982017	SPACER 30.3 X 37 X 9MM
18	P0982018	SPACER 60 X 68 X 4MM
19	P0982019	SPINDLE BEARING SEAT
20	P0982020	INT RETAINING RING 62MM
21	P0982021	EXT RETAINING RING 35MM
22	P0982022	SPANNER NUT M27-1.5
23	P0982023	SPINDLE PULLEY
24	P0982024	CAP SCREW M5-.8 X 16
25	P0982025	DOWNFEED LEVER HUB
26	P0982026	GEAR SHAFT SUPPORT FLANGE (RIGHT)
27	P0982027	SPACER 20 X 28 X 3.5MM
28	P0982028	BEVEL GEAR 30T
29	P0982029	GEAR SHAFT SUPPORT FLANGE (LEFT)
30	P0982030	RETURN SPRING COVER
31	P0982031	FLAT COIL SPRING
32	P0982032	CAP SCREW M4-.7 X 12
33	P0982033	KEY 4 X 4 X 8
34	P0982034	EXT RETAINING RING 20MM
35	P0982035	ROLL PIN 3 X 8
36	P0982036	FINE DOWNFEED KNOB
37	P0982037	SET SCREW M6-1 X 6
38	P0982038	FLAT HD SCR M5-.8 X 14
39	P0982039	MOTOR PULLEY
40	P0982040	EXT RETAINING RING 14MM
41	P0982041	KEY 5 X 5 X 25
42	P0982042	CAP SCREW M6-1 X 14
43	P0982043	FLAT WASHER 6MM

REF	PART #	DESCRIPTION
44	P0982044	LOCK WASHER 6MM
45	P0982045	FLAT HD SCR M6-1 X 25
46	P0982046	DOWEL PIN 3 X 10
47	P0982047	OUTPUT SHAFT CAP
48	P0982048	MAGNET 6MM
49	P0982049	SENSOR MOUNT
50	P0982050	PHLP HD SCR M4-.7 X 6
52	P0982052	TIMING BELT 5M385
53	P0982053	DRAWBAR COVER MOUNT
54	P0982054	DRAWBAR COVER
55	P0982055	CAP SCREW M4-.7 X 10
56	P0982056	PHLP HD SCR M3-.5 X 8
57	P0982057	SPINDLE DEPTH DRO GD300-165
58	P0982058	SQUARE SCREW BRACKET M5-.8 X 22
59	P0982059	HEX NUT M5-.8
60	P0982060	SET SCREW M6-1 X 14 DOG-PT
61	P0982061	SET SCREW M6-1 X 8
62	P0982062	ECCENTRIC SLEEVE LOCK BLOCK
63	P0982063	SLEEVE LOCK SHAFT 8 X 9MM
64	P0982064	CAP SCREW M10-1.5 X 20
65	P0982065	CONTROL PANEL CORD COLUMN
66	P0982066	CAP SCREW M5-.8 X 12
67	P0982067	Z-AXIS GIB
68	P0982068	GIB SCREW M6-1 X 24
69	P0982069	Z-AXIS LOCKING ROD 5 X 20.5
70	P0982070	ADJUSTABLE HANDLE M6-1 X 46
71	P0982071	DOWEL PIN 8 X 42.5MM
72	P0982072	FIXED HANDLE M5-.8 X 6
73	P0982073	STEEL BALL 8MM
74	P0982074	SENSOR MOUNTING BRACKET
75	P0982075	SPINDLE SLEEVE LOCATING SHAFT
76	P0982076	FLAT HD SCR M3-.5 X 10
77	P0982077	HEADSTOCK BASE PLATE
78	P0982078	PHLP HD SCR M4-.7 X 6
79	P0982079	LEVER HANDLE M12-1.5 X 94
80	P0982080	DOWNFEED SELECTOR HUB
81	P0982081	DRAWBAR 7/16-20 X 11-3/16
82	P0982082	EXT RETAINING RING 16MM
83	P0982083	ARBOR R8 X JT6
84	P0982084	CYLINDRICAL KEY W/SHOULDER 3 X 3.8MM
85	P0982085	FLAT HD CAP SCR M3-.5 X 8
86	P0982086	SPINDLE MOTOR MOUNTING PLATE
87	P0982087	CAP SCREW M10-1.5 X 50
88	P0982088	FLAT WASHER 10MM

Column



REF	PART #	DESCRIPTION
101	P0982101	COLUMN
102	P0982102	Z-AXIS LEADSCREW
103	P0982103	LIFT LOCK NUT (METRIC)
104	P0982104	LIFT LOCK NUT (INCH)
105	P0982105	Z-AXIS LEADSCREW MOUNTING BRACKET
106	P0982106	LEADSCREW BEARING BLOCK
107	P0982107	TAPER PIN W/INT THREAD M6-1 X 16
108	P0982108	CAP SCREW M6-1 X 12
109	P0982109	BEARING SEAT
110	P0982110	HOLLOW HANDLE
111	P0982111	HEX NUT M8-1.25 THIN
112	P0982112	HANDWHEEL 12 X M8-1.25
113	P0982113	PLATE SPRING
114	P0982114	GRADUATED DIAL
115	P0982115	ROLL PIN 3 X 20
116	P0982116	BALL BEARING 6001ZZ
117	P0982117	HANDLE SCREW M8-1.25 X 55
118	P0982118	LOCK NUT M8-1.25

REF	PART #	DESCRIPTION
119	P0982119	KEY 4 X 4 X 16
120	P0982120	Z-AXIS HANDWHEEL SHAFT
121	P0982121	ROLL PIN 3 X 16
122	P0982122	CAP SCREW M5-.8 X 20
123	P0982123	HEX BOLT M5-.8 X 16
124	P0982124	SET SCREW M6-1 X 10
125	P0982125	LOCK RING M12-1 X 6
126	P0982126	BEVEL GEAR 30T
127	P0982127	BEVEL GEAR 15T
128	P0982128	SET SCREW M5-.8 X 8
129	P0982129	SET SCREW M5-.8 X 5
130	P0982130	HEX BOLT M10-1.5 X 40
131	P0982131	FLAT WASHER 10MM
132	P0982132	LOCK WASHER 10MM
133	P0982133	TAPER PIN W/INT THREADS M6-1 X 24
134	P0982134	FLAT WASHER 8MM
135	P0982135	CAP SCREW M8-1.25 X 30
136	P0982136	LOCK WASHER 8MM

Table

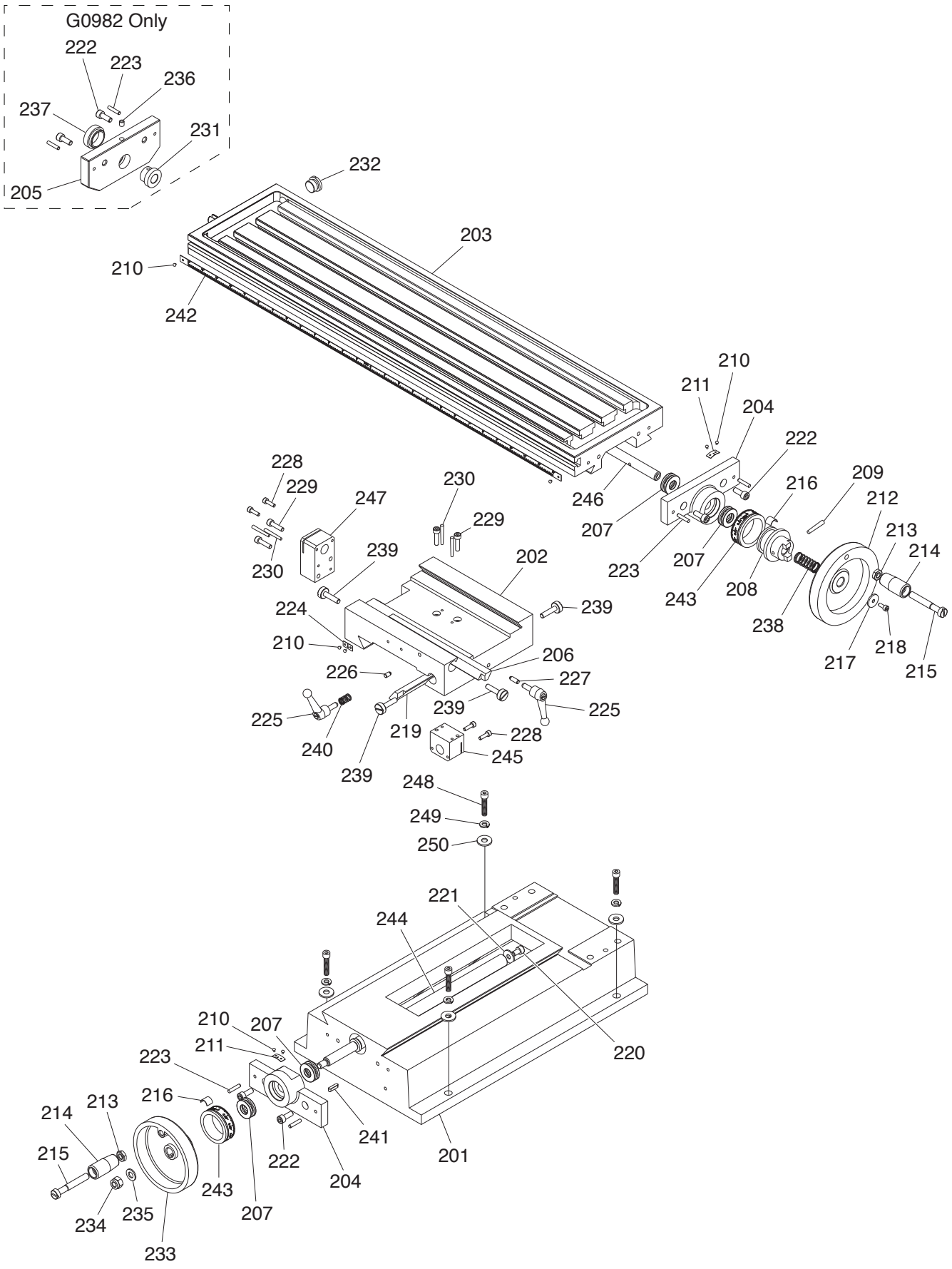
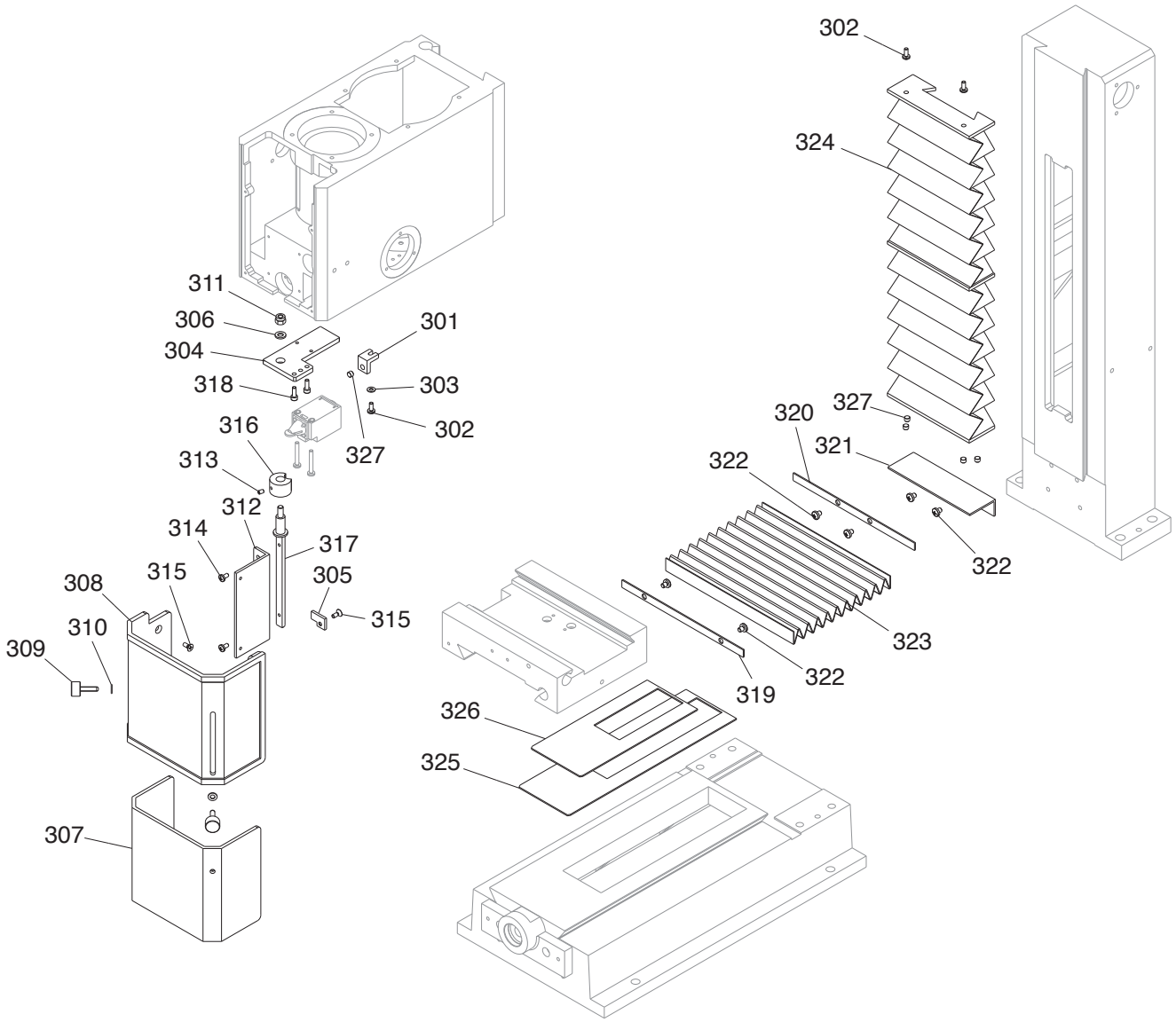


Table Parts List

REF	PART #	DESCRIPTION
201	P0982201	TABLE BASE
202	P0982202	SADDLE
203	P0982203	TABLE
204	P0982204	BEARING SEAT
205	P0982205	TABLE END COVER (G0982)
206	P0982206	X-AXIS GIB
207	P0982207	THRUST BEARING 8101
208	P0982208	X-AXIS LEADSCREW CLUTCH
209	P0982209	TAPER PIN 4 X 28
210	P0982210	RIVET 2 X 4MM NAMEPLATE, STEEL
211	P0982211	DIAL INDICATOR
212	P0982212	HANDWHEEL 20 X M8-1
213	P0982213	HEX NUT M8-1.25 THIN
214	P0982214	HOLLOW HANDLE
215	P0982215	SHOULDER SCREW M8-1 X 9.5, 13 X 5
216	P0982216	PLATE SPRING
217	P0982217	FLAT WASHER 12MM
218	P0982218	CAP SCREW M4-.7 X 10
219	P0982219	Y-AXIS GIB
220	P0982220	CAP SCREW M6-1 X 10
221	P0982221	FENDER WASHER 6MM
222	P0982222	CAP SCREW M6-1 X 16
223	P0982223	TAPER PIN 4 X 20MM
224	P0982224	X-AXIS SCALE INDICATOR
225	P0982225	ADJUSTABLE HANDLE M6-1 X 16

REF	PART #	DESCRIPTION
226	P0982226	X-AXIS LOCKING PIN
227	P0982227	Y-AXIS LOCKING PIN
228	P0982228	CAP SCREW M4-.7 X 14
229	P0982229	CAP SCREW M5-.8 X 20
230	P0982230	TAPER PIN 3 X 30
231	P0982231	LEADSCREW SLEEVE (G0982)
232	P0982232	DRAIN PLUG M16-1.5 X 6
233	P0982233	HANDWHEEL 10 X M8-1
234	P0982234	LOCK NUT M8-1.25
235	P0982235	FLAT WASHER 8MM
236	P0982236	BALL OILER 6MM PRESS-IN (G0982)
237	P0982237	TABLE COVER PLUG (G0982)
238	P0982238	COMPRESSION SPRING 1 X 14.2 X 33
239	P0982239	GIB SCREW M6-1 X 25
240	P0982240	COMPRESSION SPRING 1 X 9.2 X 14
241	P0982241	KEY 4 X 4 X 16
242	P0982242	X-AXIS SCALE
243	P0982243	GRADUATED DIAL
244	P0982244	Y-AXIS LEADSCREW
245	P0982245	Y-AXIS LEADSCREW NUT
246	P0982246	X-AXIS LEADSCREW
247	P0982247	X-AXIS LEADSCREW NUT
248	P0982248	CAP SCREW M8-1.25 X 30
249	P0982249	LOCK WASHER 8MM
250	P0982250	FLAT WASHER 8MM

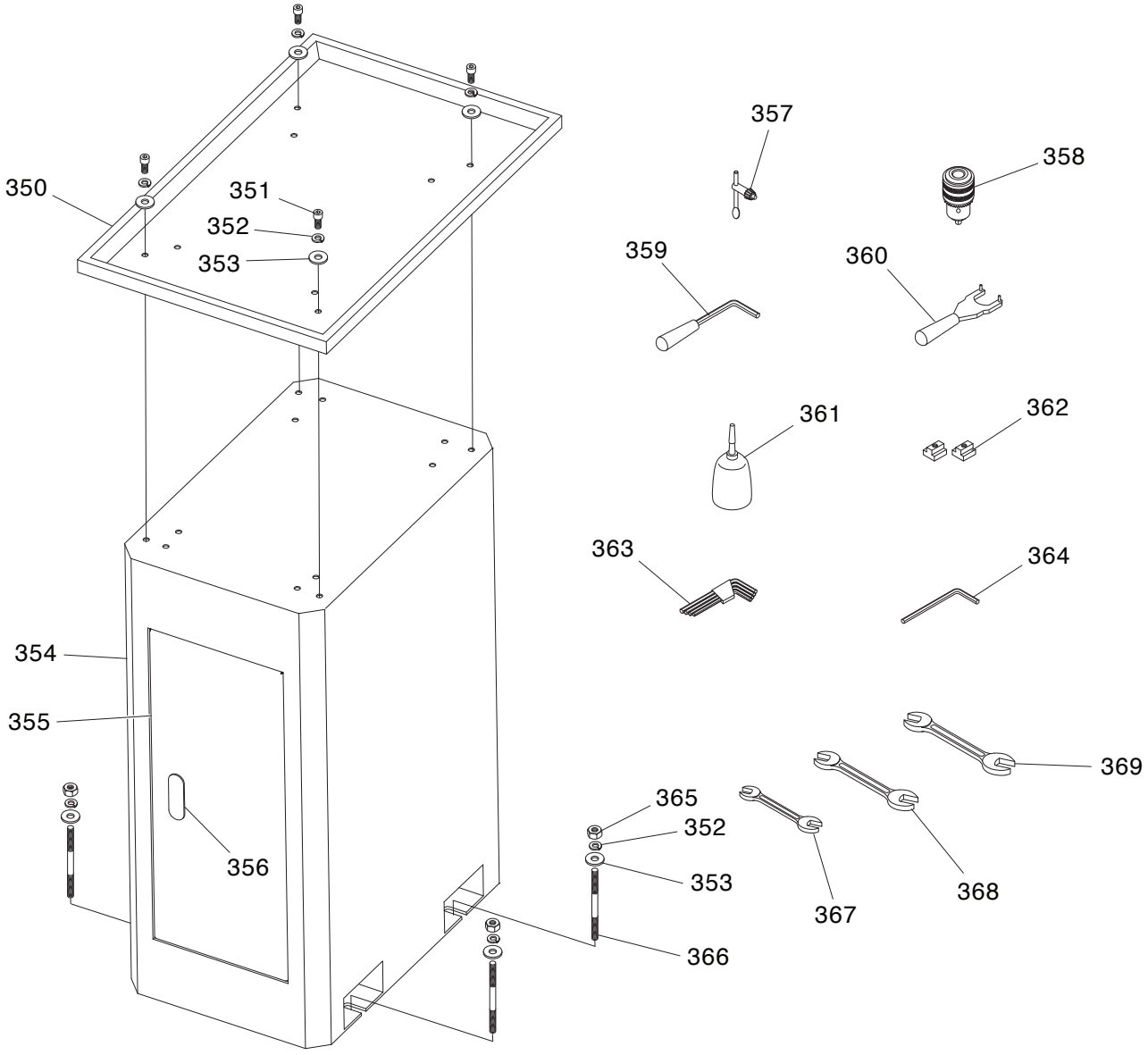
Chip Guard & Way Covers



REF	PART #	DESCRIPTION
301	P0982301	MAGNET MOUNT
302	P0982302	PHLP HD SCR M4-.7 X 10
303	P0982303	FLAT WASHER 4MM
304	P0982304	SAFETY SWITCH MOUNT
305	P0982305	STRIKE PLATE
306	P0982306	FLAT WASHER 6MM
307	P0982307	CHIP GUARD EXTENSION
308	P0982308	CHIP GUARD
309	P0982309	KNURLED THUMB SCREW M5-.8 X 25, D12
310	P0982310	FLAT WASHER 5MM
311	P0982311	LOCK NUT M6-1
312	P0982312	CHIP GUARD MOUNTING BRACKET
313	P0982313	SET SCREW M4-.7 X 6
314	P0982314	PHLP HD SCR M4-.7 X 8

REF	PART #	DESCRIPTION
315	P0982315	FLAT HD SCR M4-.7 X 10
316	P0982316	ROD LOCK COLLAR
317	P0982317	CHIP GUARD ROD
318	P0982318	CAP SCREW M4-.7 X 12
319	P0982319	WAY COVER SCREW BRACKET (FRONT)
320	P0982320	WAY COVER SCREW BRACKET (REAR)
321	P0982321	WAY COVER MAGNET BRACKET
322	P0982322	PHLP HD SCR M5-.8 X 6
323	P0982323	Y-AXIS WAY COVER
324	P0982324	Z-AXIS WAY COVER
325	P0982325	SPLASH GUARD (LARGE)
326	P0982326	SPLASH GUARD (SMALL)
327	P0982327	MAGNET 6MM

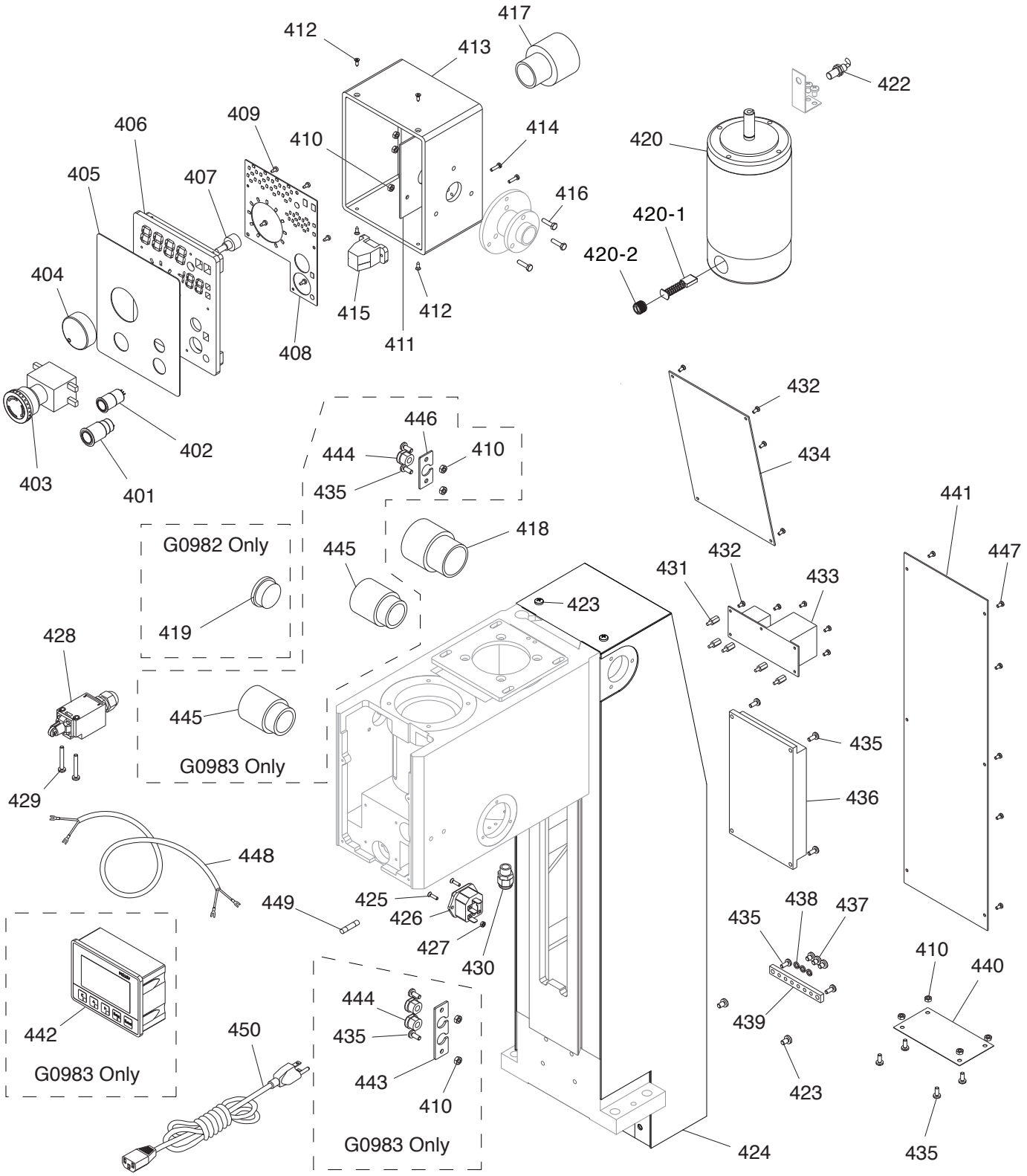
Stand & Accessories



REF	PART #	DESCRIPTION
350	P0982350	CHIP TRAY
351	P0982351	CAP SCREW M8-1.25 X 10
352	P0982352	LOCK WASHER 8MM
353	P0982353	FLAT WASHER 8MM
354	P0982354	CABINET
355	P0982355	CABINET DOOR
356	P0982356	DOOR LOCK ASSEMBLY
357	P0982357	DRILL CHUCK KEY 5/16" STD 11T SD-9/16"
358	P0982358	DRILL CHUCK JT6 1/8"-5/8"
359	P0982359	DRAWBAR/QUILL LOCK LEVER

REF	PART #	DESCRIPTION
360	P0982360	SPINDLE SPANNER WRENCH 50MM
361	P0982361	OIL BOTTLE
362	P0982362	T-SLOT NUT M12-1.75
363	P0982363	HEX WRENCH SET (4-PC)
364	P0982364	HEX WRENCH 8MM
365	P0982365	HEX NUT M8-1.25
366	P0982366	STUD-DE M8-1.25 X101, 36
367	P0982367	WRENCH 8 X 10MM OPEN-ENDS
368	P0982368	WRENCH 14 X 17MM OPEN-ENDS
369	P0982369	WRENCH 17 X 19MM OPEN-ENDS

Main Electrical Components

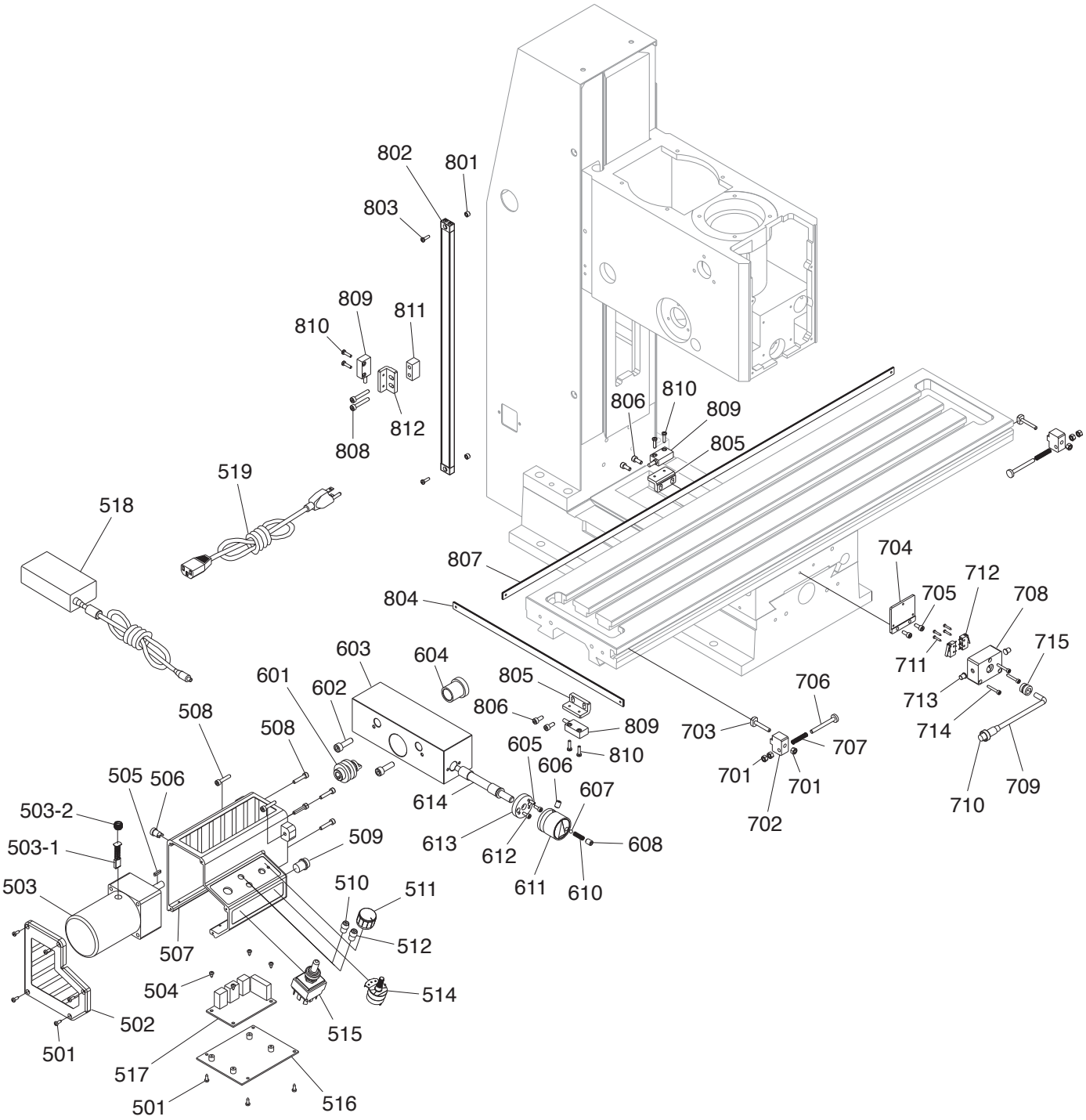


Main Electrical Components Parts List

REF	PART #	DESCRIPTION
401	P0982401	ON/OFF BUTTON WENZHOU J19-271B
402	P0982402	REVERSE BUTTON WENZHOU J16-E-271B
403	P0982403	E-STOP BUTTON KEDU HY57B
404	P0982404	SPINDLE SPEED DIAL
405	P0982405	MIRROR PANEL
406	P0982406	CONTROL PANEL
407	P0982407	POTENTIOMETER B103 10K
408	P0982408	LED CIRCUIT BOARD Z1000-7-AB-LED
409	P0982409	TAP SCREW M2.9 X 6.5
410	P0982410	HEX NUT M4-.7
411	P0982411	MOUNTING PLATE
412	P0982412	TAP SCREW M2.9 X 10
413	P0982413	CONTROL BOX
414	P0982414	PHLP HD SCR M3-.5 X 12
415	P0982415	USB PORT W/CORD 47"
416	P0982416	HEX BOLT M4-.7 X 16
417	P0982417	STRAIN RELIEF TYPE-5 M32-1.5
418	P0982418	STRAIN RELIEF TYPE-5 M40-1.5
419	P0982419	HOLE PLUG 28MM (G0982)
420	P0982420	MOTOR 1HP 110VDC
420-1	P0982420-1	CARBON BRUSH (2-PC SET)
420-2	P0982420-2	BRUSH CAP
422	P0982422	SPEED SENSOR RSD-1A(M8-28)
423	P0982423	PHLP HD SCR M5-.8 X 8
424	P0982424	COLUMN COVER
425	P0982425	FLAT HD SCR M3-.5 X 12

REF	PART #	DESCRIPTION
426	P0982426	RECEPTACLE W/FUSE MALE IEC C14 PST-101
427	P0982427	HEX NUT M3-.5
428	P0982428	LIMIT SWITCH KEDU QKS7
429	P0982429	PHLP HD SCR M4-.7 X 30
430	P0982430	STRAIN RELIEF TYPE-3 M12-1.75
431	P0982431	STANDOFF-HEX MF M3-.5 X 6, M3-.5 NYLON
432	P0982432	PHLP HD SCR M3-.5 X 6
433	P0982433	CIRCUIT BOARD WGPCB 1810 ZD-2
434	P0982434	ELECTRICAL PANEL (UPPER)
435	P0982435	PHLP HD SCR M4-.7 X 10
436	P0982436	CIRCUIT BOARD WGPCB FC750BJ-2/110V
437	P0982437	PHLP HD SCR M5-.8 X 6
438	P0982438	LOCK WASHER 5MM
439	P0982439	GROUND TERMINAL BAR
440	P0982440	DUST SCREEN
441	P0982441	ELECTRICAL PANEL (LOWER)
442	P0983442	3-AXIS DIGITAL DISPLAY SIEG MG10V (G0983)
443	P0983443	STRAIN RELIEF MOUNTING PLATE DOUBLE (G0983)
444	P0983444	STRAIN RELIEF TYPE-1 1/2" (G0983)
445	P0983445	STRAIN RELIEF TYPE-5 M30-1.5 (G0983)
446	P0983446	STRAIN RELIEF MOUNTING PLATE SINGLE (G0983)
447	P0982447	FLAT HD SCR M3-.5 X 6
448	P0982448	LIMIT SWITCH CORD
449	P0982449	FUSE 15A 250V
450	P0982450	POWER CORD 16G 3W 72" 5-15P

G0983 Power Feed & 3-Axis Sensors

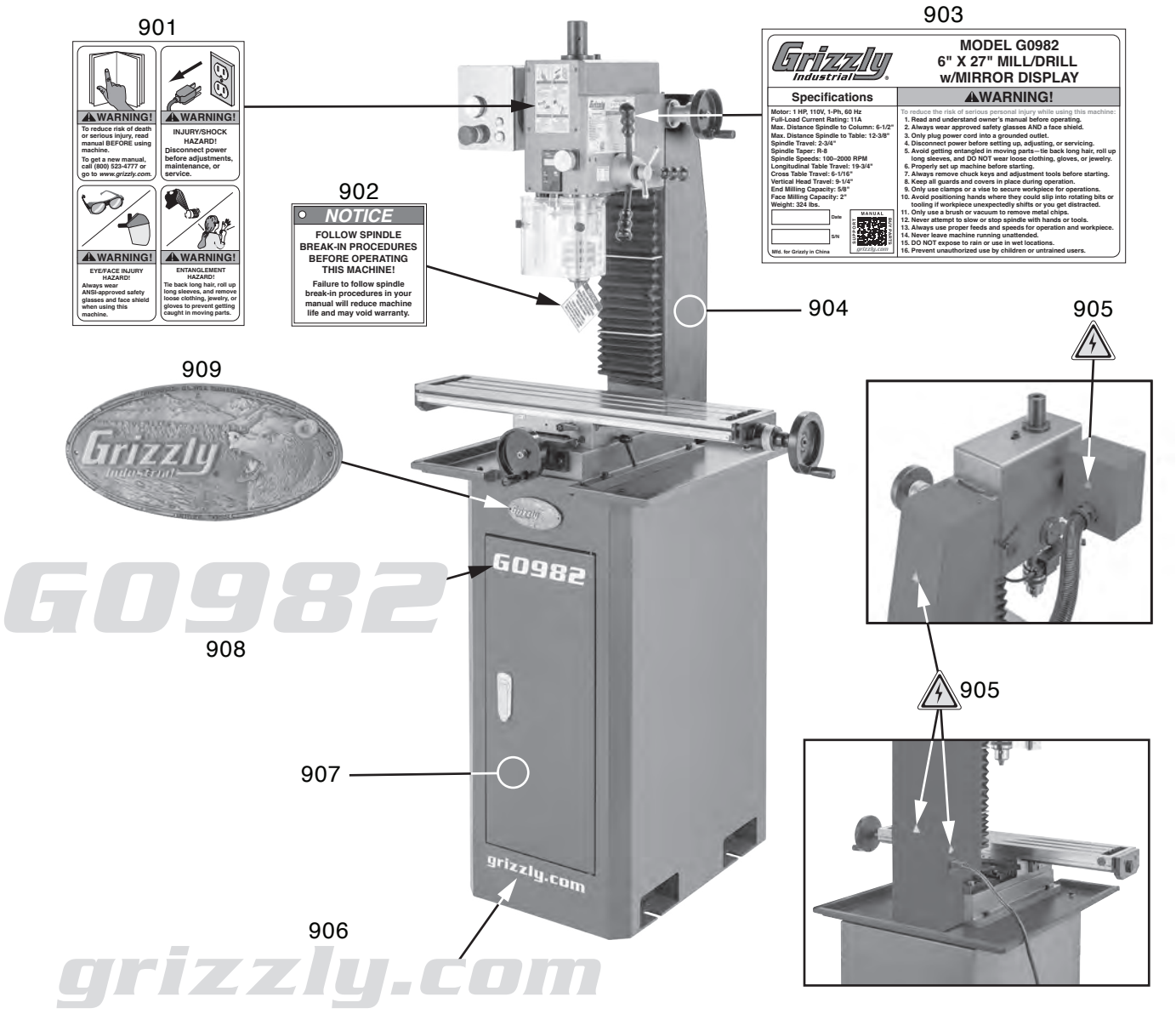


G0983 Power Feed & 3-Axis Sensors Parts List

REF	PART #	DESCRIPTION
501	P0983501	TAP SCREW M2.9 X 10
502	P0983502	CONTROL BOX COVER (SIDE)
503	P0983503	MOTOR 96W 24VDC
503-1	P0983503-1	CARBON BRUSH (2-PC SET)
503-2	P0983503-2	BRUSH CAP
504	P0983504	TAP SCREW M2.9 X 6.5
505	P0983505	KEY 3 X 3 X 12
506	P0983506	SOCKET DC-005
507	P0983507	CONTROL BOX
508	P0983508	CAP SCREW M4-.7 X 20
509	P0983509	3-PIN CONNECTOR SOCKET ZHOUSHI GX12-3P
510	P0983510	POWER INDICATOR HL-1
511	P0983511	SPEED DIAL
512	P0983512	FAULT INDICATOR H-7
514	P0983514	POTENTIOMETER H24-2 4.7K
515	P0983515	DIRECTION SWITCH KEDU HY29K
516	P0983516	CONTROL BOX COVER (BOTTOM)
517	P0983517	CIRCUIT BOARD ZHENYI XMT-2403
518	P0983518	POWER ADAPTER W/CORD 16G 2W 48" DCP
519	P0983519	ADAPTER POWER CORD 18G 3W 59" 5-15P
601	P0983601	CLUTCH ASSEMBLY
602	P0983602	CAP SCREW M6-1 X 20
603	P0983603	ECCENTRIC SHAFT BOX
604	P0983604	SHAFT SLEEVE
605	P0983605	ROLL PIN 3 X 8
606	P0983606	SET SCREW M6-1 X 8
607	P0983607	STEEL BALL 4MM
608	P0983608	SET SCREW M6-1 X 8
610	P0983610	COMPRESSION SPRING 0.7 X 4 X 25
611	P0983611	LEADSCREW SELECTOR KNOB M6-1

REF	PART #	DESCRIPTION
612	P0983612	CAP SCREW M3-.5 X 8
613	P0983613	LEADSCREW SELECTOR FLANGE
614	P0983614	ECCENTRIC SHAFT
701	P0983701	HEX NUT M5-.8
702	P0983702	X-AXIS LIMIT BLOCK
703	P0983703	T-BOLT M5-.8 X 30
704	P0983704	SWITCH BOX MOUNTING PLATE
705	P0983705	CAP SCREW M4-.7 X 10
706	P0983706	KNURLED THUMB SCREW M5-.8 X 25, D12
707	P0983707	COMPRESSION SPRING 0.5 X 5.2 X 34
708	P0983708	SWITCH BOX
709	P0983709	X-AXIS LIMIT SWITCH CORD 20G 3W 39"
710	P0983710	3-PIN CONNECTOR PLUG M12-3
711	P0983711	TAP SCREW M4 X 10
712	P0983712	X-AXIS LIMIT SWITCH OMRON SS-5GL
713	P0983713	SWITCH PRESS BUTTON
714	P0983714	CAP SCREW M4-.7 X 8
715	P0983715	STRAIN RELIEF TYPE-1 1/2"
801	P0983801	SPACER 3.2 X 6 X 4MM
802	P0983802	Z-AXIS MAGNETIC SCALE
803	P0983803	PHLP HD SCR M3-.5 X 10
804	P0983804	Y-AXIS MAGNETIC SCALE
805	P0983805	X/Y AXIS SENSOR BRACKET
806	P0983806	CAP SCREW M4-.7 X 10
807	P0983807	X-AXIS MAGNETIC SCALE
808	P0983808	CAP SCREW M4-.7 X 25
809	P0983809	MAGNETIC SENSOR SIEG MG10V
810	P0983810	PHLP HD SCR M3-.5 X 12
811	P0983811	SPACER BLOCK
812	P0983812	Z-AXIS SENSOR BRACKET

G0982 Labels & Cosmetics



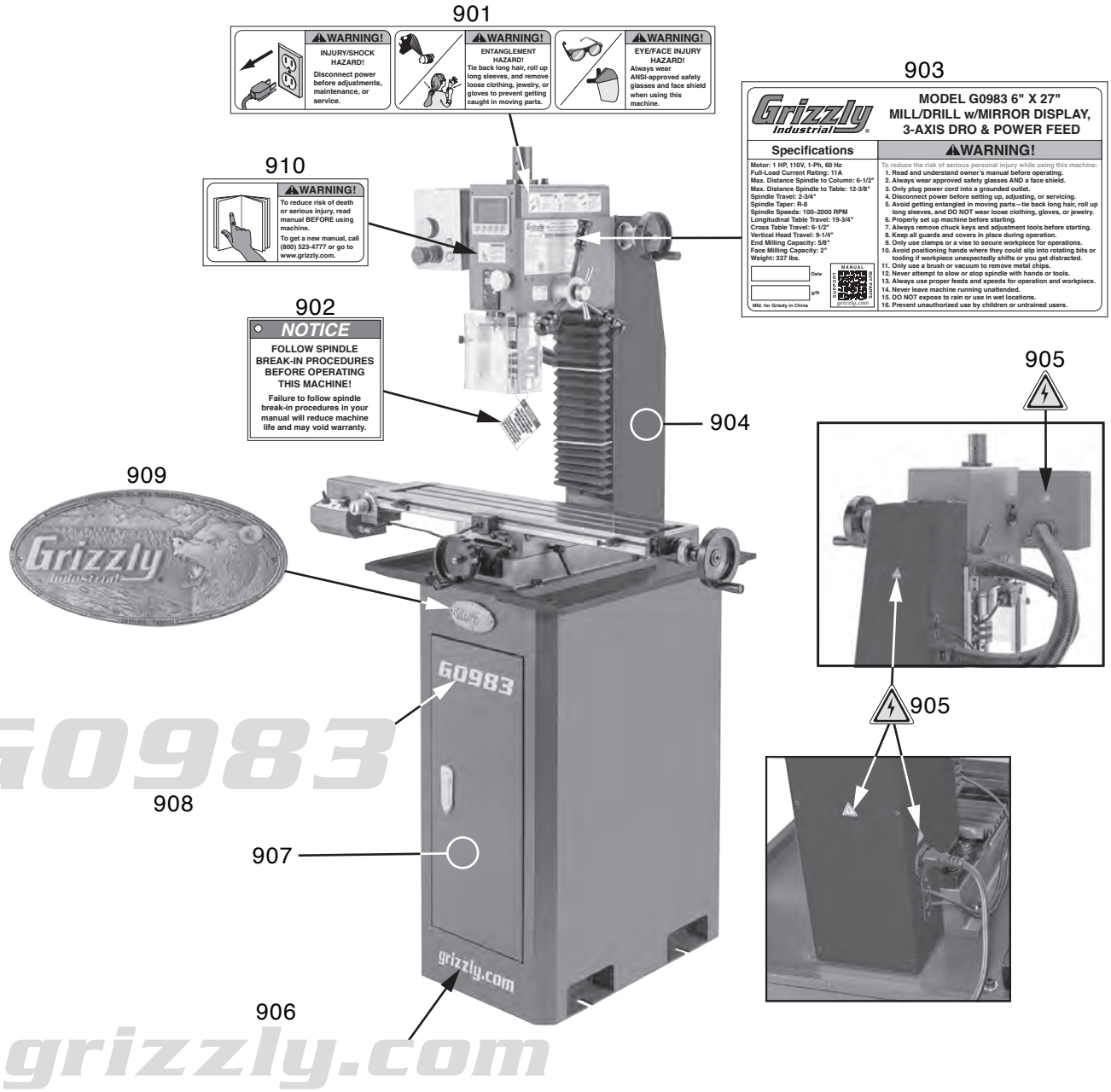
REF	PART #	DESCRIPTION
901	P0982901	COMBO WARNING LABEL
902	P0982902	NOTICE HANG TAG
903	P0982903	MACHINE ID LABEL
904	P0982904	TOUCH-UP PAINT, GRIZZLY BLACK
905	P0982905	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
906	P0982906	GRIZZLY.COM LABEL
907	P0982907	TOUCH-UP PAINT, GRIZZLY GREEN
908	P0982908	MODEL NUMBER LABEL
909	P0982909	GRIZZLY NAMEPLATE MINI

⚠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.

G0983 Labels & Cosmetics



REF	PART #	DESCRIPTION
901	P0983901	COMBO WARNING LABEL
902	P0983902	NOTICE HANG TAG
903	P0983903	MACHINE ID LABEL
904	P0983904	TOUCH-UP PAINT, GRIZZLY BLACK
905	P0983905	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
906	P0983906	GRIZZLY.COM LABEL
907	P0983907	TOUCH-UP PAINT, GRIZZLY GREEN
908	P0983908	MODEL NUMBER LABEL
909	P0983909	GRIZZLY NAMEPLATE MINI
910	P0983910	READ MANUAL LABEL

⚠WARNING

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

WARRANTY & RETURNS

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

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

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.

For further information about the warranty, visit **https://www.grizzly.com/forms/warranty** or scan the QR code below to be automatically directed to our warranty page.

WARRANTY

grizzly.com