

Grizzly **Industrial, Inc.**®

MODEL G0726 **12" x 54" MILLING MACHINE** **w/POWER FEEDS & DIGITAL READOUT** **OWNER'S MANUAL** *(For models manufactured since 7/11)*



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**
#TS14438 PRINTED IN CHINA



WARNING!

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

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

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

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



WARNING!

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

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

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

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INTRODUCTION

Machine Description

The Model G0726 milling machine is designed to remove material from a metal workpiece that is secured to the work table or a mill vise. The cutting tool is fixed to the rotating spindle and moved into the workpiece by lowering the spindle or moving the table. The table moves in three axes (X-, Y-, and Z-axis) with a power feed assist for the X-axis.

Spindle downfeed options are rapid (coarse) control or slow (fine) control with adjustable auto-downfeed controls.

The Model G0726 offers a 50–350 RPM range of spindle speeds and three auto-downfeed rates.

The wide range of cutting tools and optional equipment available, combined with the flexible features of this milling machine, make possible countless metalworking operations.

Contact Info

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

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

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

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



Manual Accuracy

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

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

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

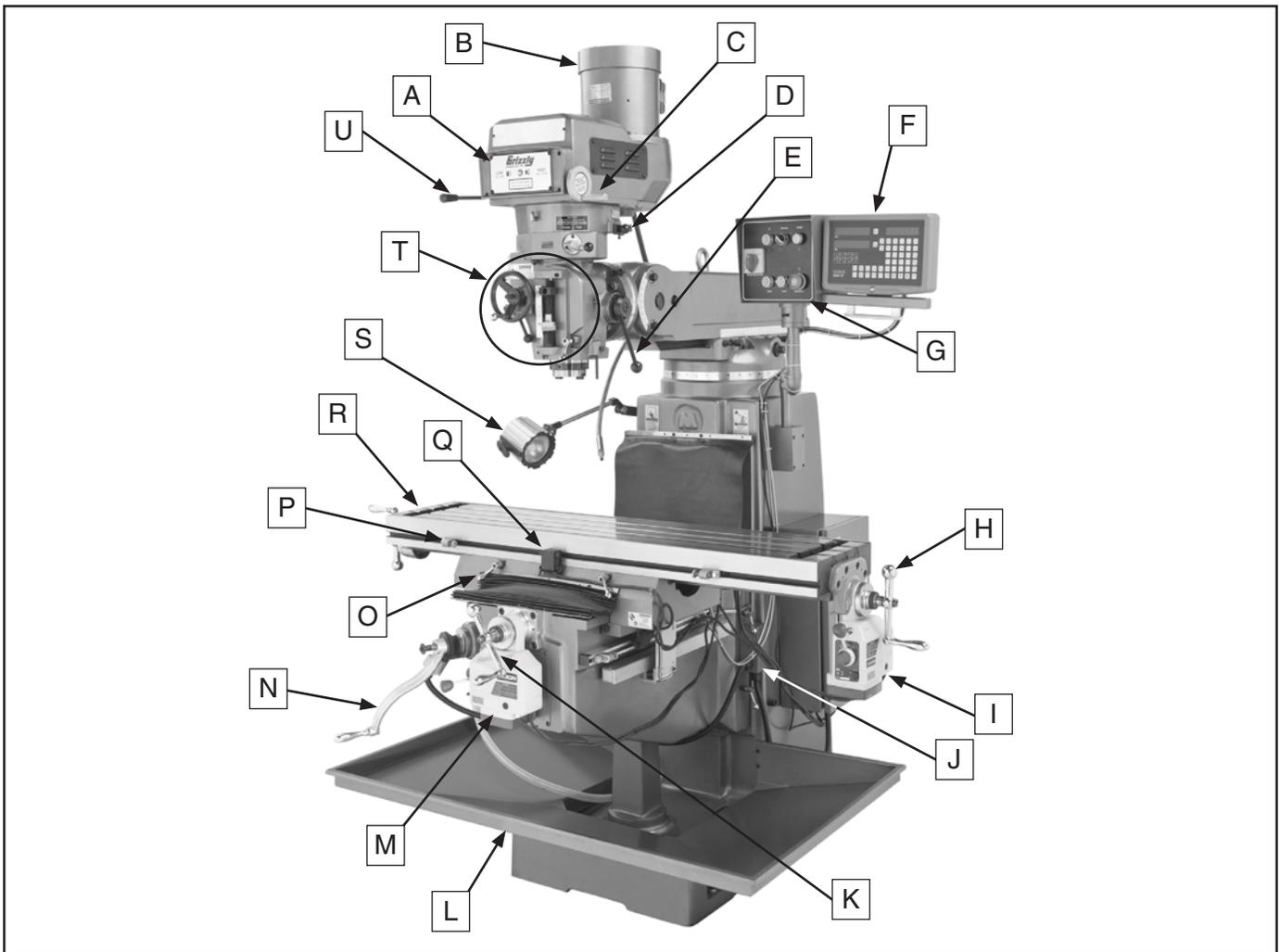
Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **Manufacture Date** and **Serial Number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation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

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

Manufacture Date: []

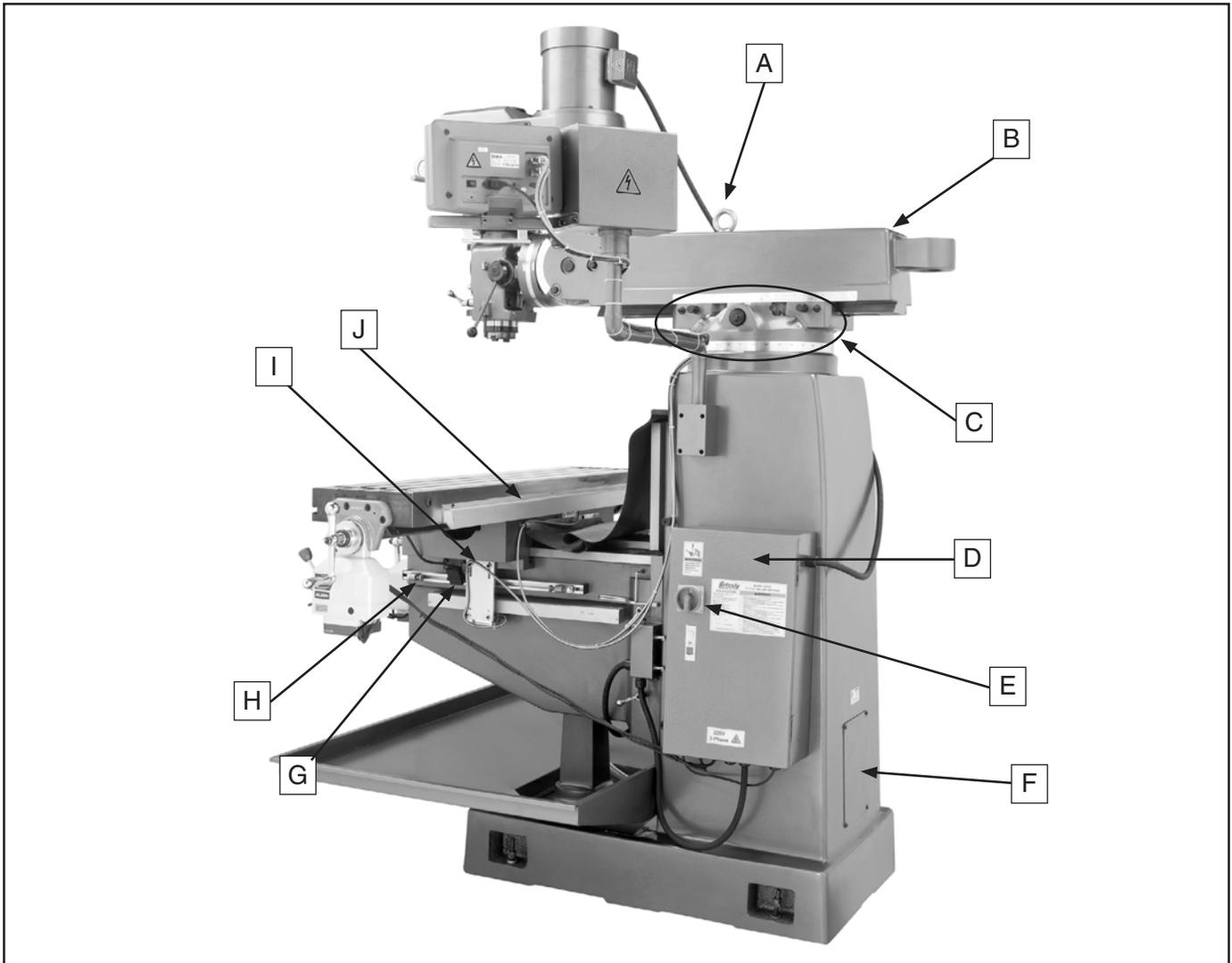
Serial Number: []

Identification

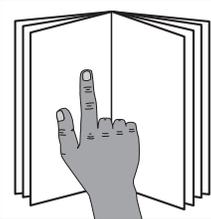


- | | |
|--|---|
| A. Variable Spindle Speed Readout | L. Splash Pan |
| B. Spindle Motor | M. Y-Axis Power Feed |
| C. Variable Speed Handwheel | N. Z-Axis Crank Handle |
| D. Spindle Speed Range Selector | O. Table Lock |
| E. Coarse Downfeed Handle | P. X-Axis Limit Stop |
| F. Digital Readout | Q. X-Axis Limit Switch |
| G. Control Panel (refer Page 28 for details) | R. Table |
| H. X-Axis Ball Handle | S. Halogen Work Light |
| I. X-Axis Power Feed | T. Fine & Auto-Downfeed Controls (refer to Page 36 for details) |
| J. Z-Axis Limit Switch | U. Spindle Brake |
| K. Y-Axis Ball Handle | |





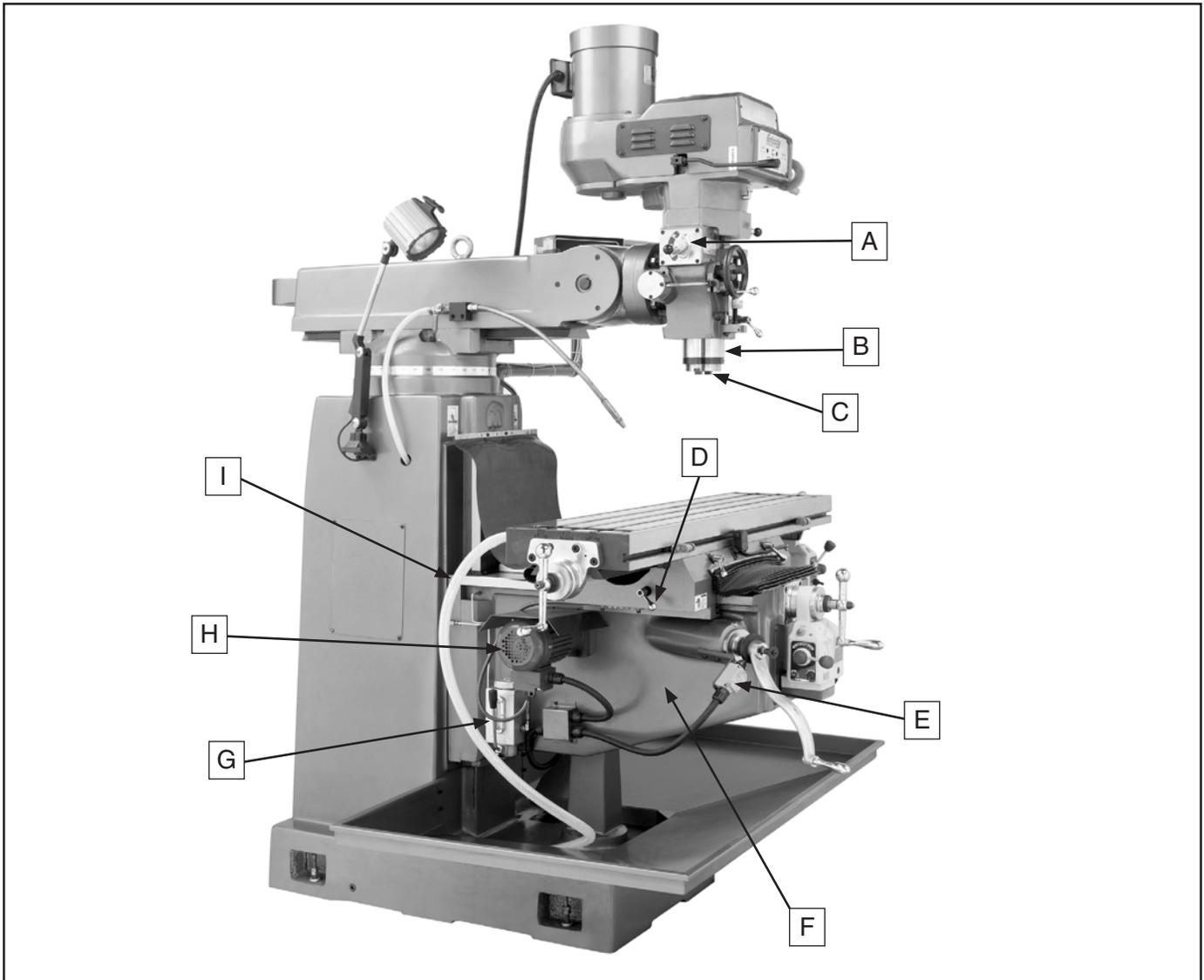
- A. Lifting Eye Bolt
- B. Ram
- C. Turret & Ram Controls
- D. Electrical Cabinet
- E. Master Power Switch
- F. Coolant Pump & Reservoir Access
- G. Y-Axis Limit Switch
- H. Y-Axis Limit Stop
- I. Y-Axis Digital Readout Scale & Cover
- J. X-Axis Digital Readout Scale & Cover



!WARNING

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





- A.** Auto-Downfeed Rate Selector
- B.** Quill
- C.** Spindle NT40
- D.** Saddle Lock
- E.** Z-AXIS Crank Safety Switch

- F.** Knee
- G.** One-Shot Oiler
- H.** Z-Axis Motor
- I.** Coolant Return Hose





MACHINE DATA SHEET

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

MODEL G0726 12" X 54" MILLING MACHINE

Product Dimensions:

Weight..... 3960 lbs.
 Width (side-to-side) x Depth (front-to-back) x Height..... 55-5/8 x 61 x 93 in.
 Footprint (Length x Width)..... 51 x 24-1/4 in.
 Space Required for Full Range of Movement (Width x Depth)..... 100 x 72 in.

Shipping Dimensions:

Type..... Wood Crate
 Content..... Machine
 Weight..... 3750 lbs.
 Length x Width x Height..... 70 x 75 x 91 in.
 Must Ship Upright..... Yes

Electrical:

Power Requirement..... 220V, 3-Phase, 60 Hz
 Prewired Voltage..... 220V
 Full-Load Current Rating..... 15.7A
 Minimum Circuit Size..... 20A
 Connection Type..... Cord & Plug
 Power Cord Included..... No
 Recommended Power Cord..... "S"-Type, 4-Wire, 12 AWG, 300 VAC
 Plug Included..... No
 Recommended Plug Type..... 15-20
 Switch Type..... Control Panel w/Magnetic Switch Protection
 Recommended Phase Converter..... G5845

Motors:

Main

Type..... TEFC Induction
 Horsepower..... 5 HP
 Phase..... 3-Phase
 Amps..... 14.2A
 Speed..... 1725 RPM
 Power Transfer Belt Drive w/Variable-Speed Pulley
 Bearings..... Shielded & Permanently Lubricated

Table Elevation

Type..... TEFC Induction
 Horsepower..... 1/2 HP
 Phase..... 3-Phase
 Amps..... 1.5A
 Power Transfer Direct Drive
 Bearings..... Shielded & Permanently Lubricated



Main Specifications:

Operation Info

Spindle Travel.....	5 in.
Max Distance Spindle to Column.....	29-1/2 in.
Max Distance Spindle to Table.....	22-1/4 in.
Longitudinal Table Travel (X-Axis).....	28 in.
Cross Table Travel (Y-Axis).....	14-1/4 in.
Vertical Table Travel (Z-Axis).....	16-1/2 in.
Ram Travel.....	20-1/2 in.
Turret or Column Swivel (Left /Right).....	360 deg.
Head Tilt (Left/Right).....	90 deg.
Head Tilt (Front/Back).....	45 deg.
Drilling Capacity for Cast Iron.....	1-3/4 in.
Drilling Capacity for Steel.....	1-3/4 in.
End Milling Capacity.....	1-1/4 in.
Face Milling Capacity.....	4 in.

Table Info

Table Length.....	54 in.
Table Width.....	12 in.
Table Thickness.....	4 in.
Number of T-Slots.....	3
T-Slot Size.....	5/8 in.
T-Slots Centers.....	2-1/2 in.
Number of Longitudinal Feeds.....	Variable
X-Axis Table Power Feed Rate.....	0 – 13.34 FPM
X/Y-Axis Travel per Handwheel Revolution.....	0.200 in.
Z-Axis Travel per Handwheel Revolution.....	0.100 in.

Spindle Info

Spindle Taper.....	NT#40
Number of Vertical Spindle Speeds.....	Variable
Range of Vertical Spindle Speeds.....	50 – 3750 RPM
Quill Diameter.....	4.134 in.
Quill Feed Rates.....	0.0015, 0.003, 0.008 in./rev.
Drawbar Thread Size.....	5/8-11
Drawbar Length.....	11 in.
Spindle Bearings.....	Angular Contact Bearings

Construction

Spindle Housing/Quill.....	Chrome-Plated & Precision-Ground Steel
Table.....	Hardened & Precision-Ground Meehanite Cast Iron
Head.....	Meehanite Cast Iron
Column/Base.....	Meehanite Cast Iron
Base.....	Cast Iron
Paint Type/Finish.....	Enamel

Other Specifications:

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



SECTION 1: SAFETY

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

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



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



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



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

NOTICE

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

Safety Instructions for Machinery



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

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

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

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

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

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

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



WARNING

WEARING PROPER APPAREL. Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips, which could cause loss of workpiece control.

HAZARDOUS DUST. Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and 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!

INTENDED USAGE. Only use machine for its intended purpose and never make modifications not approved by Grizzly. Modifying machine or using it differently than intended may result in malfunction or mechanical failure that can lead to serious 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.

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.

CHECK DAMAGED PARTS. Regularly inspect machine for any condition that may affect safe operation. Immediately repair or replace damaged or mis-adjusted parts before operating machine.

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

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



WARNING

Additional Safety for Milling Machines

UNDERSTANDING CONTROLS: The mill is a complex machine that presents severe cutting or amputation hazards if used incorrectly. Make sure you understand the use and operation of all controls before you begin milling.

SAFETY ACCESSORIES: Flying chips or debris from the cutting operation can cause eye injury or blindness. Always use safety glasses or a face shield when milling.

WORK HOLDING: Before starting the machine, be certain the workpiece has been properly clamped to the table. NEVER hold the workpiece by hand during operation. Milling a workpiece that is not properly secured to the table or in a vise could cause the workpiece to be ejected at the operator with deadly force!

SPINDLE SPEED: To avoid tool or workpiece breakage that could send flying debris at the operator and bystanders, use the correct spindle speed for the operation. Allow the spindle to gain full speed before beginning the cut.

CHIP CLEANUP: Chips from the operation are sharp and hot. Touching them can cause burns or cuts. Using compressed air to clear chips could cause them to fly into your eyes, and may drive them deep into the working parts of the machine. Use a brush or vacuum to clear away chips and debris from machine or workpiece and NEVER clear chips while spindle is turning.

STOPPING SPINDLE: To reduce the risk of hand injuries or entanglement hazards, DO NOT attempt to stop the spindle with your hand or a tool. Allow the spindle to stop on its own or use the spindle brake.

SPINDLE DIRECTION CHANGE: Changing spindle rotation direction while it is spinning could lead to impact injury from broken tool or workpiece debris, as well as workpiece or machine damage. ALWAYS make sure the spindle is at a complete stop before changing spindle direction.

MACHINE CARE & MAINTENANCE: Operating the mill with excessively worn or damaged machine parts increases risk of machine or workpiece breakage which could eject hazardous debris at the operator. Operating a mill in poor condition will also reduce the quality of the results. To reduce this risk, maintain the mill in proper working condition by ALWAYS promptly performing routine inspections and maintenance.

CUTTING TOOL USAGE: Cutting tools have very sharp leading edges—handle them with care! Using cutting tools that are in good condition helps to ensure quality milling results and reduces risk of personal injury from broken tool debris. Inspect cutting tools for sharpness, chips, or cracks before each use, and ALWAYS make sure cutting tools are firmly held in place before starting the machine.

WARNING

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

CAUTION

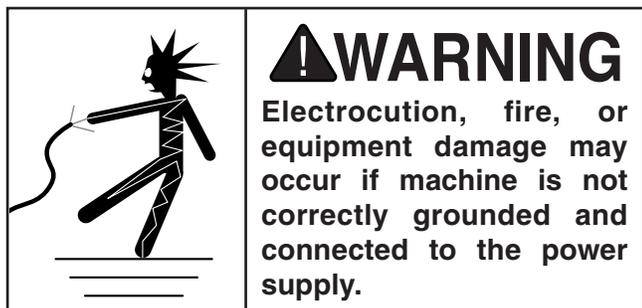
No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or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



SECTION 2: POWER SUPPLY

Availability

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



Full-Load Current Rating

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

Full-Load Current Rating at 220V .. 15.7 Amps

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

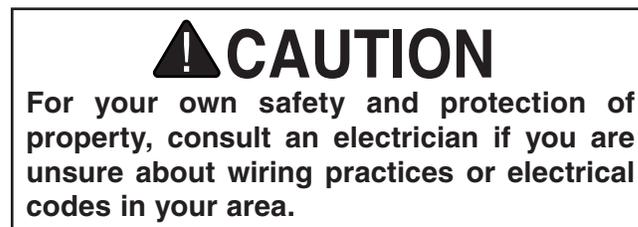
If the machine is overloaded for a sufficient length of time, damage, overheating, or fire may result—especially if connected to an undersized circuit. To reduce the risk of these hazards, avoid overloading the machine during operation and make sure it is connected to a power supply circuit that meets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

Circuit Requirements for 220V

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

Nominal Voltage220V
Cycle60 Hz
Phase Three-Phase
Power Supply Circuit 20 Amps
Plug/Receptacle NEMA 15-20
Cord “S”-Type, 4-Wire, 12 AWG, 300 VAC

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



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



Grounding Instructions

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

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

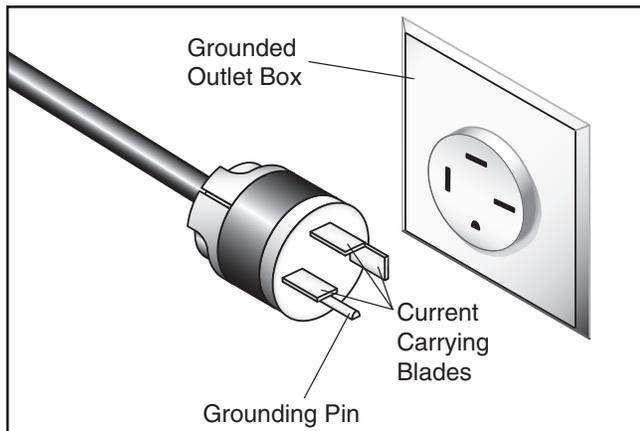
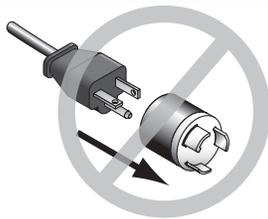


Figure 1. Typical 15-20 plug and receptacle.

! WARNING

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

! CAUTION



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

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

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

Extension Cords

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

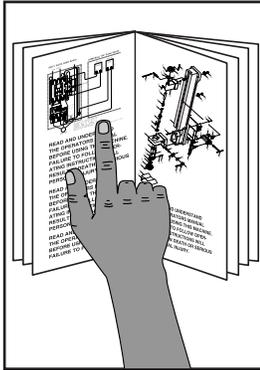
Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases as the extension cord size gets longer and the gauge size gets smaller (higher gauge numbers indicate smaller sizes).

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

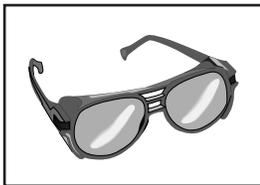
Minimum Gauge Size12 AWG
Maximum Length (Shorter is Better).....50 ft.



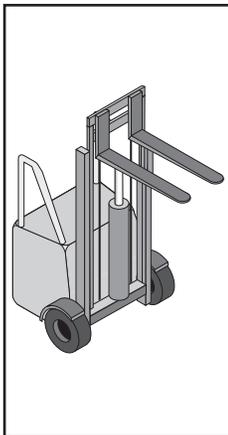
SECTION 3: SETUP



!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
The Model G0726 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment rated for at least 4500 lbs. to move the shipping crate and remove the machine from the crate.

Needed for Setup

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

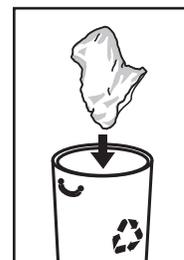
Description	Qty
• Safety Glasses	1
• Cleaner/Degreaser	As Needed
• Disposable Shop Rags.....	As Needed
• Power Lifting Equipment, Lifting Straps, Lifting Chain & Safety Hook (rated for at least 4500 lbs. each).....	1
• Additional People	2
• Wrench 14mm	1
• Straightedge 4'	1
• Precision Level	1

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover any damage, *please call us immediately at (570) 546-9663 for advice.*

Save the containers and all packing materials for possible inspection by the carrier or its agent. *Otherwise, filing a freight claim can be difficult.*

When you are completely satisfied with the condition of your shipment, inventory the contents.



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



Inventory

NOTICE

The toolbox and other small parts are inside the base of the column. You must remove the coolant pump access panel and the coolant pump from the rear of the column to access these items.

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.

Description: (Figure 2)	Qty
A. Front Way Cover.....	1
B. Rear Way Cover.....	1
C. Drawbar $\frac{5}{8}$ "-11 x 11".....	1
D. Fine Downfeed Handle.....	1
E. Ball Handles (X-Axis).....	2
F. Ball Handle (Y-Axis).....	1
G. Auto-Downfeed Direction Pin.....	1
H. Toolbox.....	1
I. Ball Handle Handles.....	3
J. Bottle for Oil.....	1
K. Z-Axis Crank.....	1
L. Hex Wrench Set 1.5-10mm.....	1
M. Coarse Downfeed Handle.....	1
N. Screwdrivers Slotted #2, Phillips #2.. 1 Each	
O. Wrench 18 x 21mm Closed-Ends.....	1
P. Wrench 17 x 19mm Closed-Ends.....	1
Q. Splash Pan.....	1
R. Coolant Return Hose w/Clamp.....	1

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.

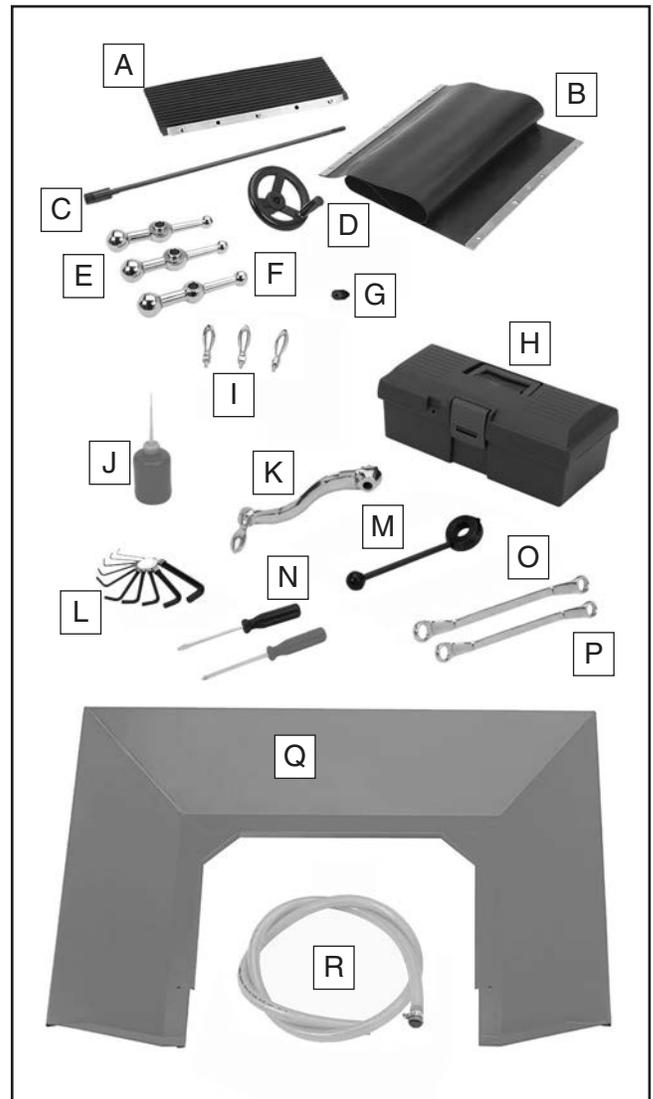


Figure 2. Small item inventory.



Cleanup

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

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

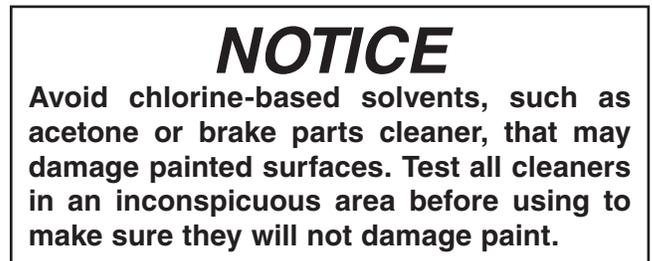
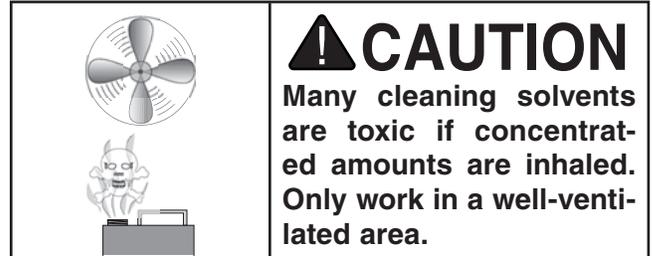
There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

Before cleaning, gather the following:

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

Basic steps for removing rust preventative:

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



T23692—Orange Power Degreaser

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



Figure 3. T23692 Orange Power Degreaser.



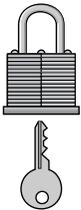
Site Considerations

Weight Load

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

Space Allocation

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



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 access to a means of disconnecting the power source or engaging a lockout/tagout device, if required.

Lighting

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

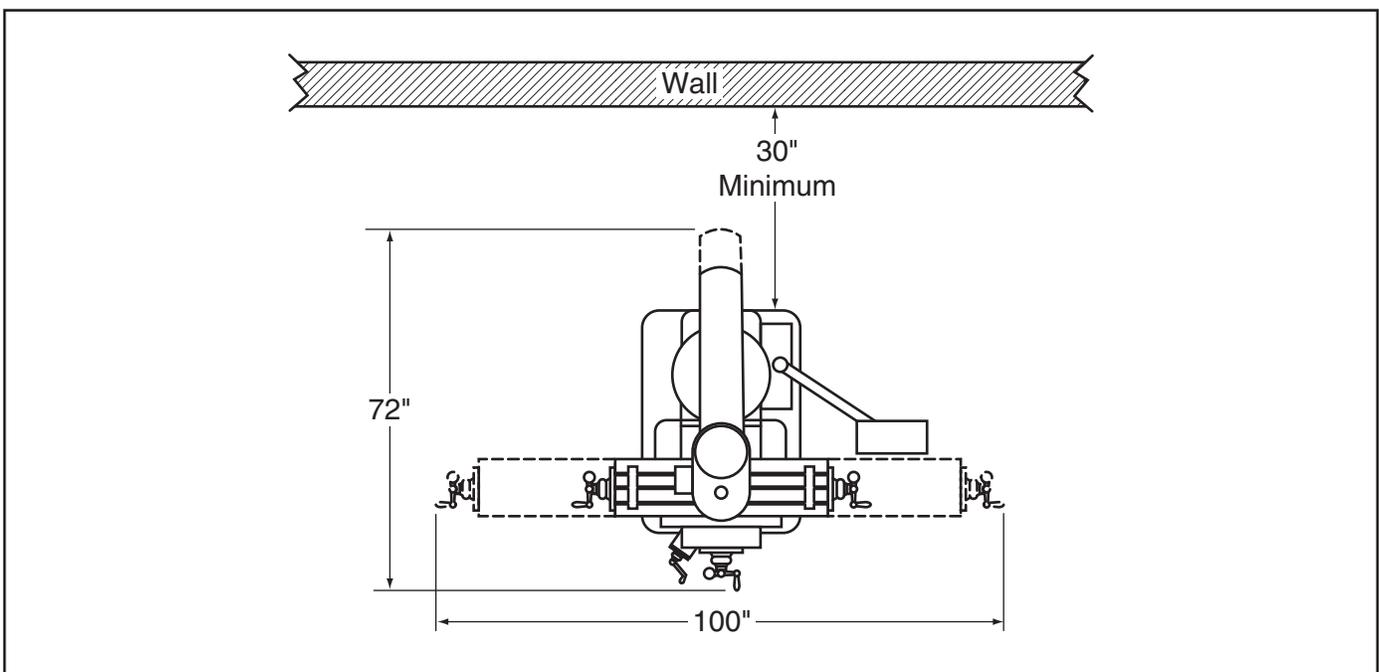
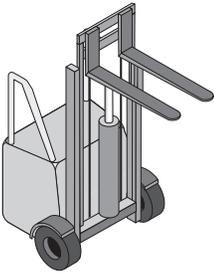


Figure 4. Minimum working clearances.



Lifting & Placing Mill



⚠️ WARNING
The Model G0726 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment rated for at least 4500 lbs. to move the shipping crate and remove the machine from the crate.

Lifting and placing the mill requires at least two other people for assistance and a forklift with two lifting straps, lifting chain, and a safety hook rated for at least 4500 lbs. each.

To lift and move the mill:

1. Position ram and headstock as illustrated in **Figure 5** (refer to **Head Movement** on **Page 32** and **Ram Movement** on **Page 33** for detailed instructions).

Note: After re-positioning ram and headstock, make sure they are locked in place to prevent unexpected movement during lifting and moving.

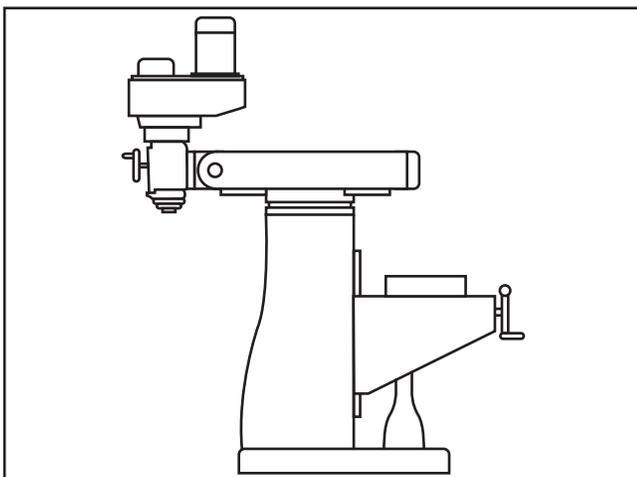


Figure 5. Correct ram and head position before lifting.

2. Place lifting straps under ram and connect them to forklift safety hook and chain, as illustrated in **Figure 6**.

Note: Place padding between straps and mill to protect ram and ways, and to keep from cutting lifting straps.

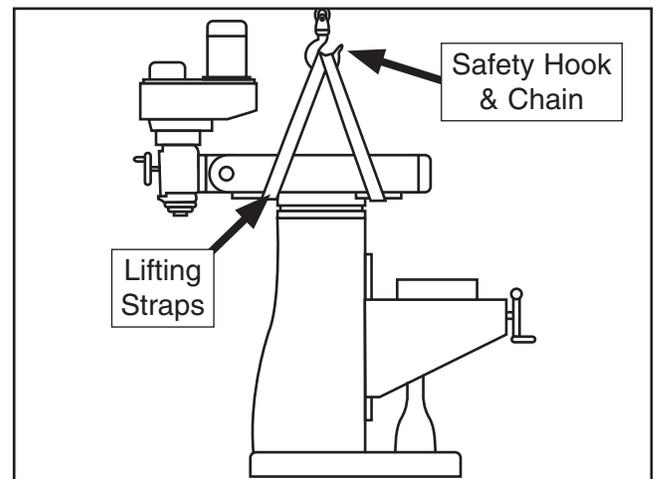


Figure 6. Lifting straps attached to safety hook and chain in preparation for lifting.

3. Unbolt mill from shipping pallet.
4. With your assistants steadying the mill to keep it from swaying, lift mill a couple of inches.

—If mill tips to one side, lower it to the ground and adjust ram or table to balance load. Make sure to re-tighten lock levers and bolts before lifting mill again.

—If mill lifts evenly, continue to move it to its permanent location.



Leveling

Leveling machinery helps precision components, such as dovetail ways, remain straight and flat during the lifespan of the machine. Components on an unlevelled machine may slowly twist due to the dynamic loads placed on the machine during operation.

Use metal shims between the base and the floor when leveling the machine.

For best results, use a precision level that is at least 12" long and sensitive enough to show a distance movement when a 0.003" shim (approximately the thickness of one sheet of standard newspaper) is placed under one end of the level.

See **Figure 7** for an example of a high precision level provided by Grizzly.

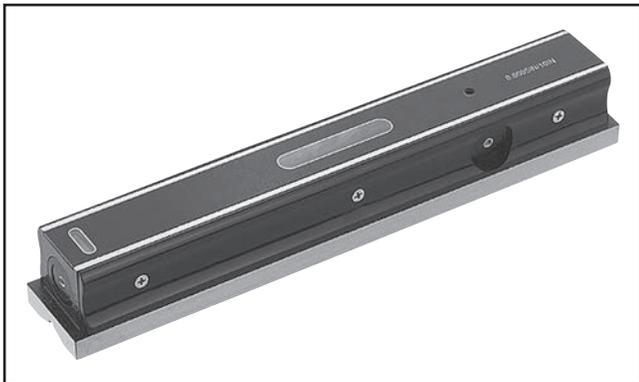


Figure 7. Model H2683 12" Master Machinist's Level.

Anchoring to Floor

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

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

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

Anchoring to Concrete Floors

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

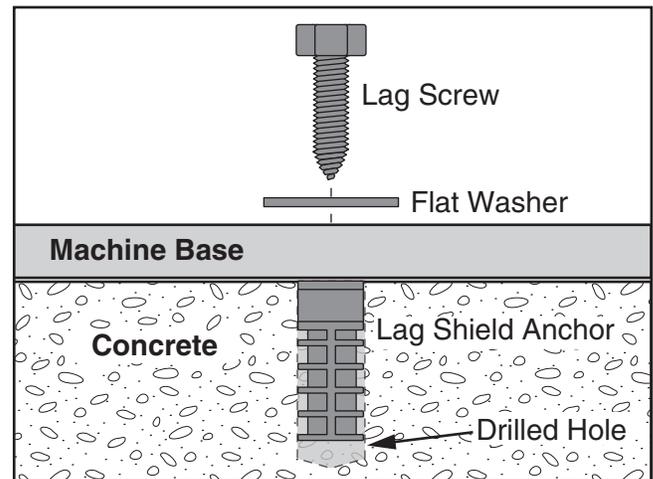


Figure 8. Popular method for anchoring machinery to a concrete floor.



Assembly

To assemble the mill:

1. Remove pre-installed hex nuts from leadscrew ends, align ball handle keyways with leadscrew keys as you slide ball handles on, then secure them with hex nuts (see **Figure 9**).

Note: Tighten hex nuts just until they are snug. Overtightening could increase the wear of moving parts.

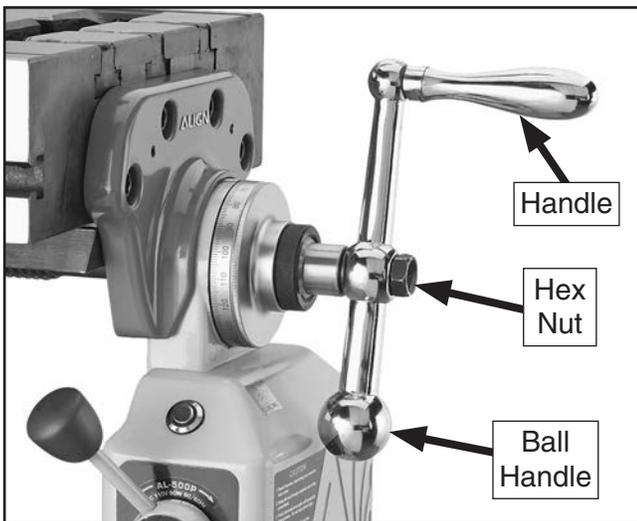


Figure 9. Ball handle installed (1 of 3).

2. Thread handles into small end of the ball handles and tighten them with 14mm wrench.

3. Remove cap screw and spacer from Z-axis leadscrew end, slide crank onto shaft as shown in **Figure 10**, then re-install cap screw and spacer.

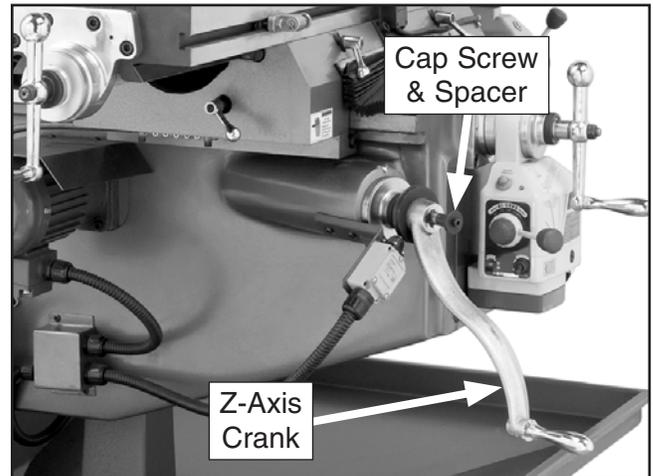


Figure 10. Z-axis crank installed.

4. Move table all the way forward, then attach rear way cover with the four pre-installed cap screws, as shown in **Figure 11**.

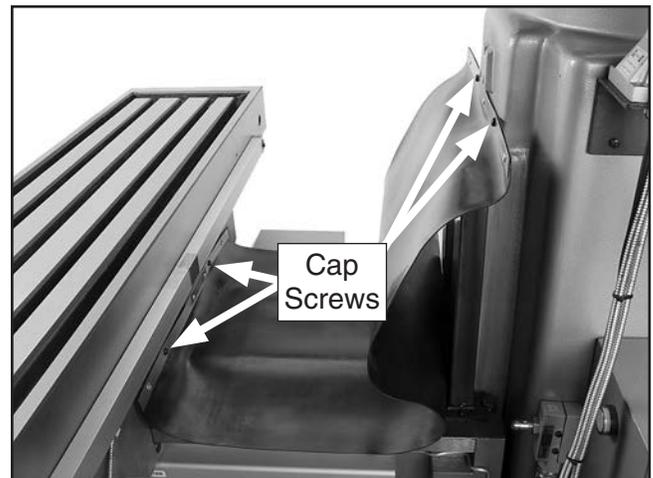


Figure 11. Rear way cover installed (digital readout scale cover removed).



5. Move table all the way back toward the column, then attach front way cover with the five pre-installed cap screws, as shown in **Figure 12**.

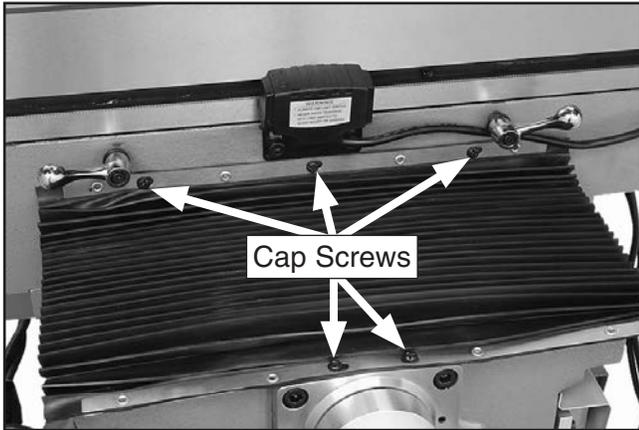


Figure 12. Front way cover installed.

6. Raise knee with Z-axis crank, remove the four pre-installed cap screws from both sides of column (see **Figure 13**).

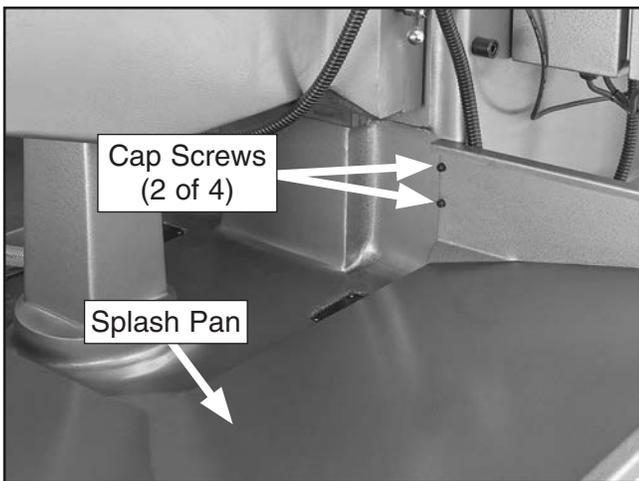


Figure 13. Splash pan installed.

7. Slide splash pan onto machine base, then secure it in place with cap screws removed in **Step 6**.

8. Attach one end of coolant return hose to table connector with the pre-installed hose clamp, as shown in **Figure 14**.

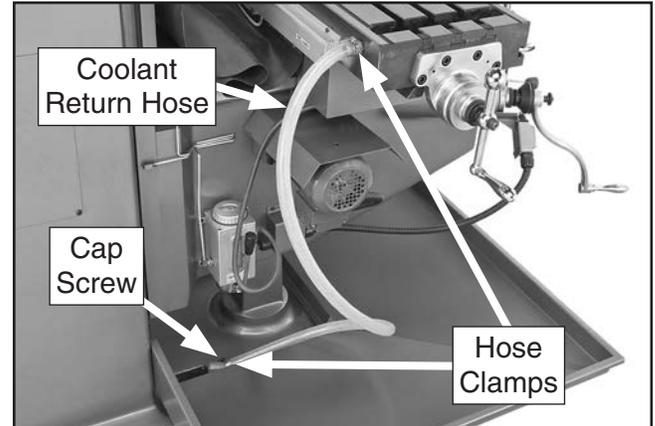


Figure 14. Coolant return hose attached to table.

9. Tug coolant return hose to make sure that it is securely attached. If it is not, repeat **Step 8** until it is.
10. Loosen hose clamp cap screw on base (see **Figure 14**), slide other end of coolant return hose underneath it, then re-tighten cap screw.
11. Install coarse downfeed lever and fine downfeed handwheel, as shown in **Figure 15**.

Note: Make sure pins on the back of these devices are fully seated in the hubs.

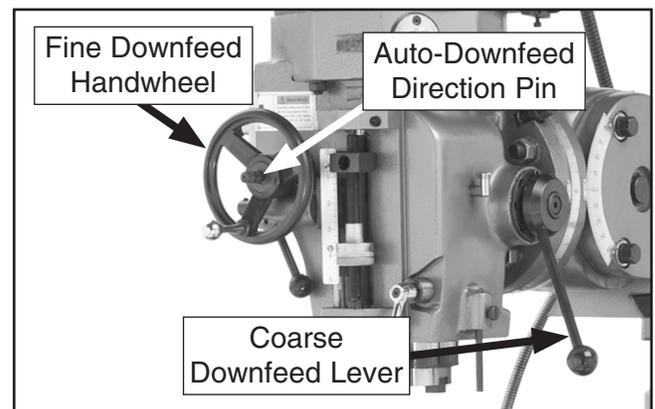


Figure 15. Downfeed controls installed.

12. Thread auto-downfeed direction pin into hub of fine downfeed handwheel (see **Figure 15**).



Power Connection

Before the machine can be connected to the power source, an electrical circuit must be made available that meets the minimum specifications given in **Circuit Requirements for 220V** on **Page 12**. If a power circuit has not been prepared for the machine, do that now.

To ensure a safe and code-compliant setup, all electrical work must be done by an electrician or qualified service personnel.

To connect the power supply to the mill:

1. Turn master power switch **OFF** (see **Figure 16**), then press latch to open electrical cabinet door.

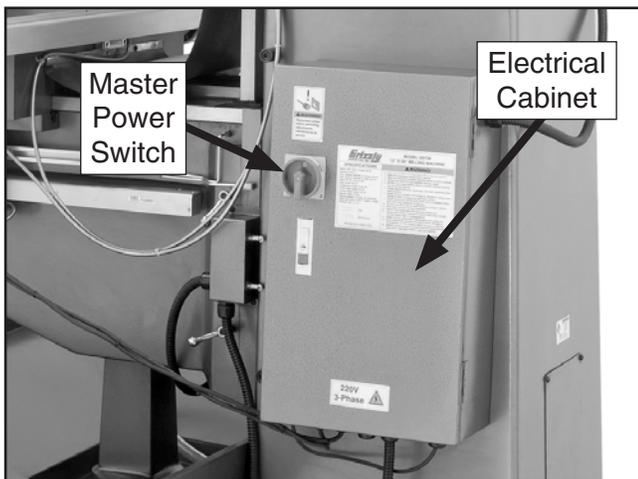


Figure 16. Master power switch location.

2. Install a strain relief in available hole in bottom of electrical cabinet (see **Figure 17**), then pull incoming power cord through strain relief.

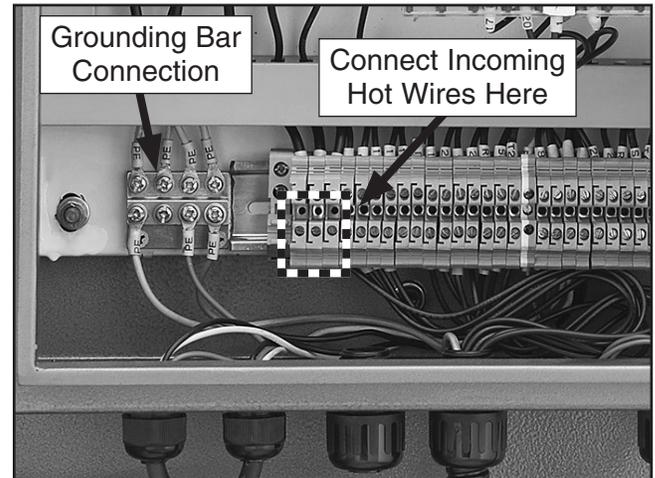


Figure 17. Incoming power connections.

3. Connect incoming hot wires to the bottom of the first three terminal bar connectors shown in **Figure 17**, then connect incoming ground wire to grounding bar (refer to the **Electrical Cabinet Wiring Diagram** on **Page 57** for additional details).
4. Leave slack in the wires inside cabinet, tighten strain relief to secure the cord, then tug on power cord outside electrical cabinet to make sure wires do not move inside cabinet.

—If wires do move when you tug on power cord outside electrical cabinet, disconnect the wires, reposition cord, then tighten the strain relief so that the cord will not move when tugged on. Re-connect wires as instructed in **Step 3**.
5. Close and lock electrical cabinet door.



Test Run

Once the assembly is complete, test run your machine to make sure it runs properly and is ready for regular operation.

During the test run, you will verify the proper operation of the following:

- Spindle motor
- EMERGENCY STOP button
- Z-axis power feed
- Coolant pump
- X- and Y-axis power feeds

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review **Troubleshooting** on **Page 50**.

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

Test Run the Mill

1. Make sure you understand safety instructions at beginning of manual and machine is setup properly.
2. Make sure all tools and objects used during setup are cleared away from machine.
3. Lubricate mill, as instructed in **Lubrication** on **Page 45**.
4. Fill coolant reservoir (refer to **Coolant** on **Page 48** for detailed instructions).
5. Make sure speed range selector is in the low position (refer to **Adjusting Spindle Speed** on **Page 35** for detailed instructions).

6. Turn MASTER POWER SWITCH (located on the electrical cabinet door) **ON** to enable power to the control panel—POWER LAMP should illuminate (see **Figure 18**).

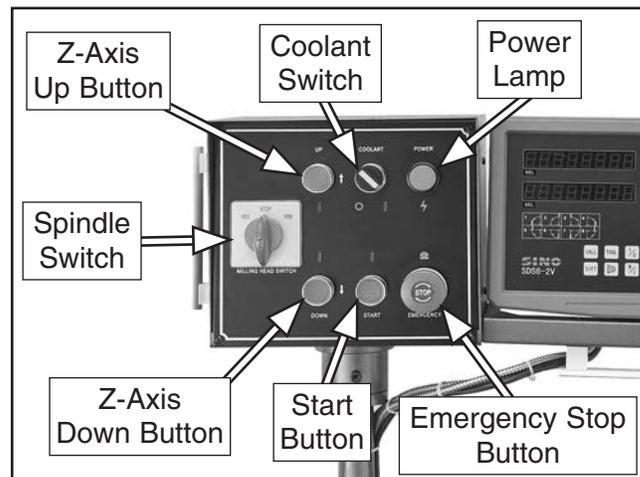


Figure 18. Control panel components.

7. Push EMERGENCY STOP button on control panel, then twist it clockwise so it pops out. When button pops out, it is reset and mill is ready for operation.
8. Move the downfeed selector to the forward position (disengage or manual) so spindle does not feed into table during this test (refer to **Downfeed Controls** on **Page 36** for detailed instructions).
9. Turn SPINDLE SWITCH to the forward (FOR) position, then push START button to begin spindle rotation.



10. Verify that machine is operating correctly.
 - When operating correctly, machine runs smoothly with little or no vibration or rubbing noises.
 - Investigate and correct strange or unusual noises or vibrations before operating machine further. Always stop machine and disconnect it from power before investigating or correcting potential problems.
11. Rotate SPINDLE SWITCH to the STOP position and wait for spindle to completely stop.
12. Pull Z-axis crank away from limit switch to be able to properly perform the next step.
13. Verify power is not connected out of phase by using Z-axis UP and DOWN buttons on control panel to raise and lower knee.
 - If knee moves opposite of button used, stop machine, disconnect machine from power, then swap any two of the three incoming power wires that connect to electrical box terminal bar (refer to **Power Connection** on **Page 22** for detailed information).
14. Press EMERGENCY STOP button to turn machine **OFF**, then wait for spindle to stop on its own.
15. WITHOUT resetting EMERGENCY STOP button, turn SPINDLE SWITCH to the forward (FOR) position and press START button—machine should not start.
 - If the machine does start (with EMERGENCY STOP button pushed in), turn MASTER POWER SWITCH **OFF**, then immediately disconnect power to machine. The EMERGENCY STOP button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.
16. Reset EMERGENCY STOP button, then press START button to start spindle rotation again.
17. Point coolant nozzle onto table, turn COOLANT SWITCH to "I" or **ON**, then open nozzle valve and check for proper operation of coolant system.
18. Turn coolant pump **OFF**, then turn SPINDLE SWITCH to STOP position to halt spindle rotation.



Test Run X- & Y-Axis Power Feeds

The mill comes with a power feed units for the X- and Y-axis table travel. Proper operation of the limit switch attached to the front of the table is critical for the safe use of this power feed unit.

If the power feed does not operate as expected during the following steps, disconnect the mill from power and contact our Tech Support at (360) 734-1540 for assistance.

⚠ CAUTION

The ball handles stay engaged with the leadscrews and could spin rapidly when using the power feeds. This could lead to impact injuries. Always stay clear of the ball handles when using the power feeds.

To test run the X- & Y-axis power feed:

1. Make sure all tools, cables, and other items are well clear of table movement as you follow these steps.
2. Refer to **Table Movement**, beginning on **Page 29**, to understand how power feeds, table locks, and limit switches function.
3. Loosen X- and Y-axis table locks on the front of table (see **Figure 19**).

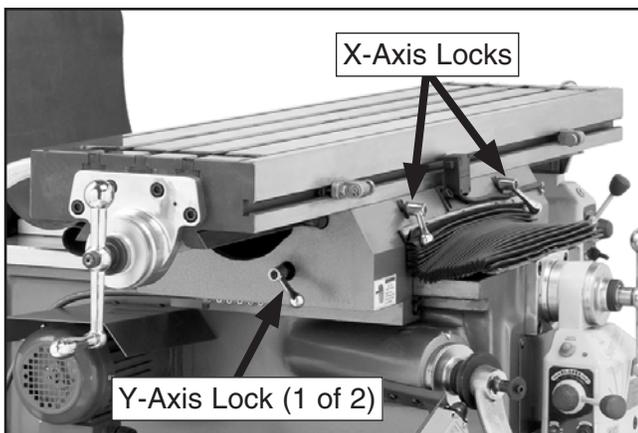


Figure 19. X- and Y-axis table locks.

4. Make sure X-axis power feed directional lever is in the neutral (middle) position, turn speed dial counterclockwise to the lowest setting, then flip power switch to the ON (up) position.
5. Turn directional lever to left, then slowly turn speed dial clockwise to increase speed and confirm table moves.
6. Allow table limit stop to hit limit switch and turn power feed OFF, which will stop table movement.
7. Turn the directional lever through neutral (middle) position and to the right. The table should begin moving in the opposite direction.
8. Confirm table stops moving again when limit stop presses against limit switch plunger.
9. Move directional lever to neutral (middle) position and flip power switch to OFF (down) position.
10. Test run Y-axis power feed in the same manner.

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



Spindle Bearing Break-In

NOTICE

Failure to complete the spindle break-in process may lead to premature failure of the bearings—this will not be covered under warranty.

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

To perform the spindle break-in procedure:

1. After successfully completing the **Test Run** procedure, make sure the spindle switch is in the OFF position and the spindle has come to a complete stop.
2. Move the spindle speed range selector to the LOW position (refer to **Adjusting Spindle Speed** on **Page 35** for detailed instructions).

NOTICE

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

3. Turn the spindle switch to the forward position, press the start button, then use the variable speed handwheel to adjust the spindle speed to approximately 300 RPM.
4. Let the mill run at this speed for 20 minutes, then turn the spindle switch to the OFF position and allow the spindle to come to a complete stop.
5. Turn the spindle switch to the reverse (REV) position, press the start button, then let the mill run for another 20 minutes in reverse.

6. Turn the spindle switch to OFF position, wait for the spindle to come to a complete stop, then move the spindle speed range selector to the HIGH position and start forward spindle rotation.
7. Set the spindle speed at approximately 2150 RPM, then repeat **Steps 4–5**.
8. Stop spindle rotation. The spindle break-in is now complete and the machine is ready for operation.

Recommended Adjustments

For your convenience, the adjustments listed below have been performed at the factory.

However, because of the many variables involved with shipping, we recommend that you at least verify the following adjustments to ensure the best possible results from your new machine.

Factory adjustments that should be verified:

1. Gib adjustment (**Page 52**).
2. Leadscrew backlash adjustment (**Page 53**).

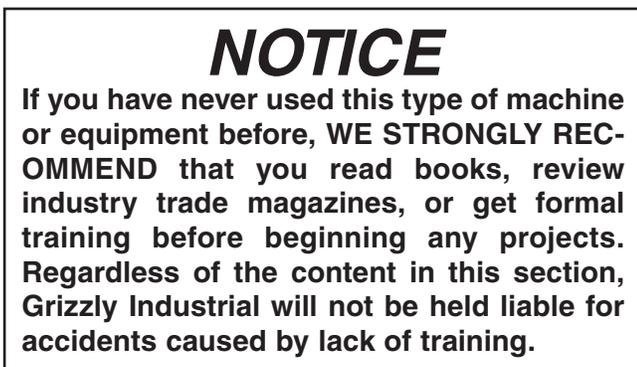
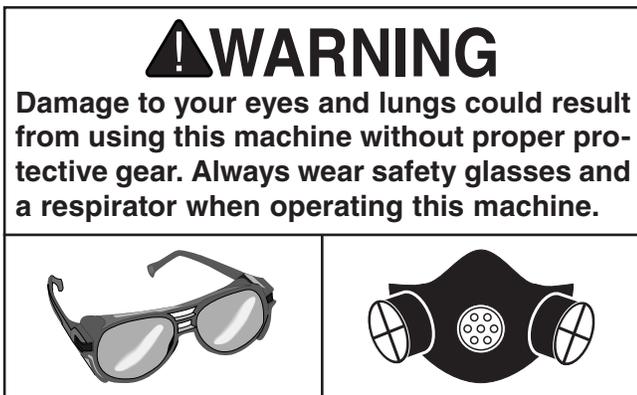
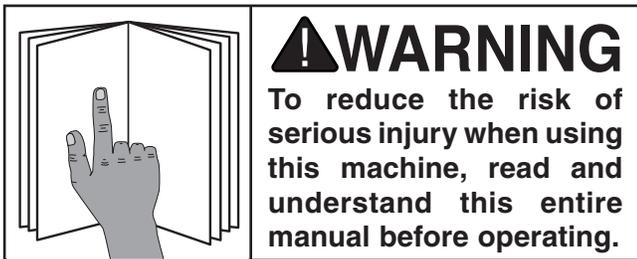


SECTION 4: OPERATIONS

Operation Overview

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

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



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

1. Examines workpiece to make sure it is suitable for milling.
2. Firmly clamps workpiece to table or a mill vise.
3. Installs correct cutting tool for operation.
4. Uses manual downfeed and table controls to correctly position cutting tool and workpiece for operation.
5. Puts on personal protective gear, and makes sure workpiece and table are clear of all tools, cords, and other items.
6. Starts spindle rotation, sets correct spindle speed, and performs operation.
7. Turns mill **OFF** and waits for spindle to stop on its own before making adjustments or removing workpiece.



Basic Controls

Refer to **Figures 20–23** and the descriptions below to become familiar with the basic controls of the mill.

Master Power Switch

The master power switch enables power to the control panel. Turning this switch **OFF** does NOT disconnect the mill from power.

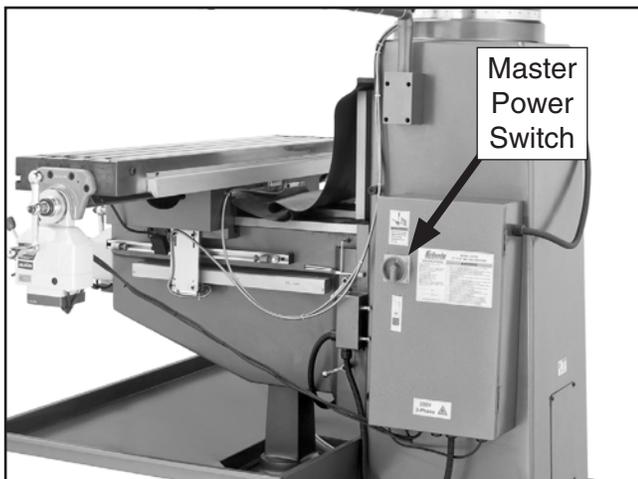


Figure 20. Master power switch.

Control Panel

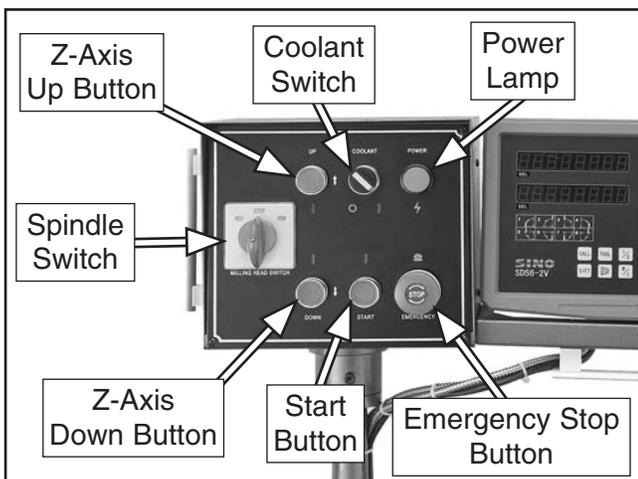


Figure 21. Control panel components.

Spindle Switch. Starts, stops, or reverses spindle rotation after START button is pressed.

Z-Axis Up & Down Buttons. Control Z-axis powered movement.

Coolant Switch. Starts/stops the coolant pump.

Power Lamp. Lights when the master power switch is turned **ON**.

Start Button. Starts spindle rotation in the direction selected by the spindle switch. You must press this button to enable all electrical components after resetting the emergency STOP button.

Emergency STOP Button. Cuts power to all mill components. Twist clockwise until it pops out to reset it and enable operations.

Work Lamp & Coolant Valve

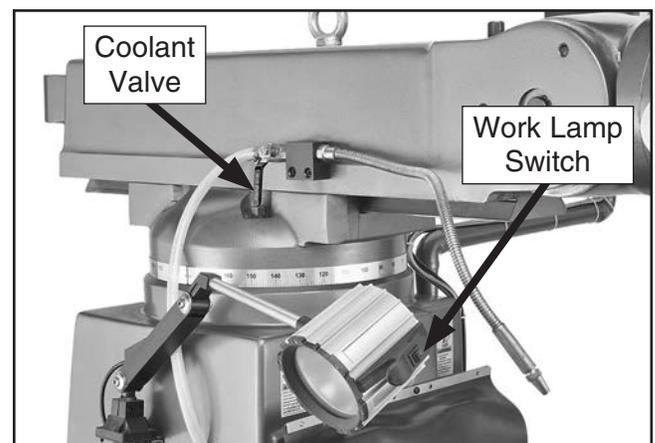


Figure 22. Work lamp and coolant valve.

Work Lamp. Illuminates the work area with a halogen light bulb that is controlled by the switch on the handle.

Coolant Valve. The lever on the coolant valve controls the flow of coolant to the nozzle.

Spindle Brake Lever

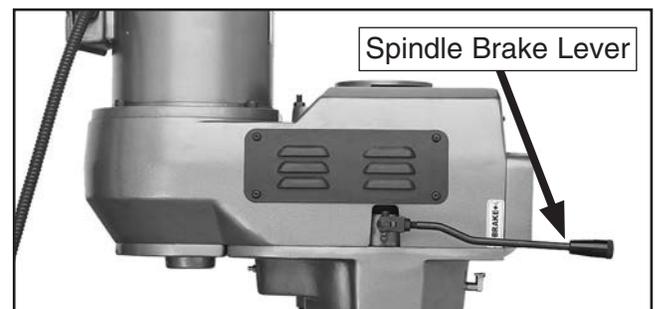


Figure 23. Spindle brake lever.

Spindle Brake Lever. Quickly brings the spindle to a stop after power is cut to the spindle motor.



Table Movement

The table can be moved along three paths (see **Figure 24**) manually using ball handles or hand crank, or with the power feeds.

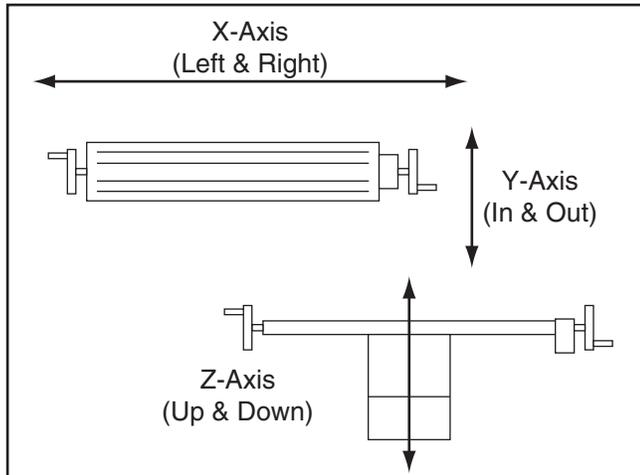


Figure 24. The three paths of movement of the table.

Digital Readout

The digital readout (see **Figure 25**) displays the exact positions of the table for X- and Y-axis paths.

Refer to the **Digital Readout Manual** included with your mill for operational instructions regarding the many functions of this unit.



Figure 25. Digital readout.

Locks

Use the X-, Y-, and Z-axis locks shown in **Figures 26–27** to hold the table in position when increased rigidity is needed.

Note: Remember to loosen the appropriate locks when table movement is needed in that direction.

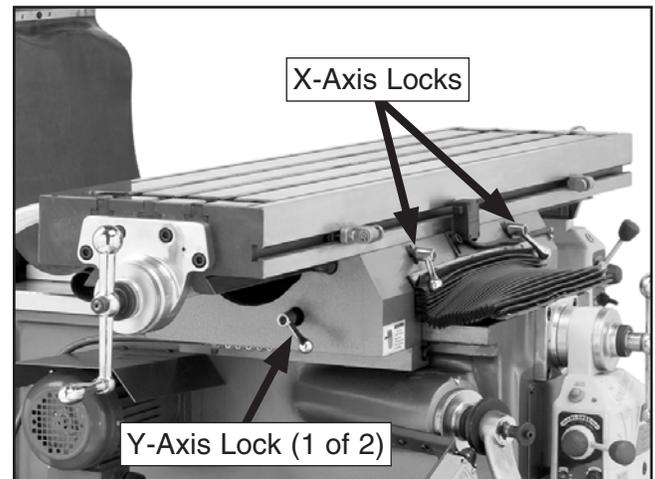


Figure 26. X- and Y-axis locks.



Figure 27. Z-axis locks.

NOTICE

Always keep the table locked in place unless controlled movement is required for your operation. Unexpected table movement during operations could cause the cutter to bind with the workpiece, which could result in damage to the cutter or workpiece.



X- & Y-Axis Power Feeds

Graduated Dial Increments	Resolution
Each Mark	0.001"
One Revolution.....	0.200"

Besides the ball handles for manual X- and Y-axis table movement, your mill is equipped with power feed systems for each of these paths. Refer to **Figures 28–29** and the following descriptions to understand the functions of the power feed systems.

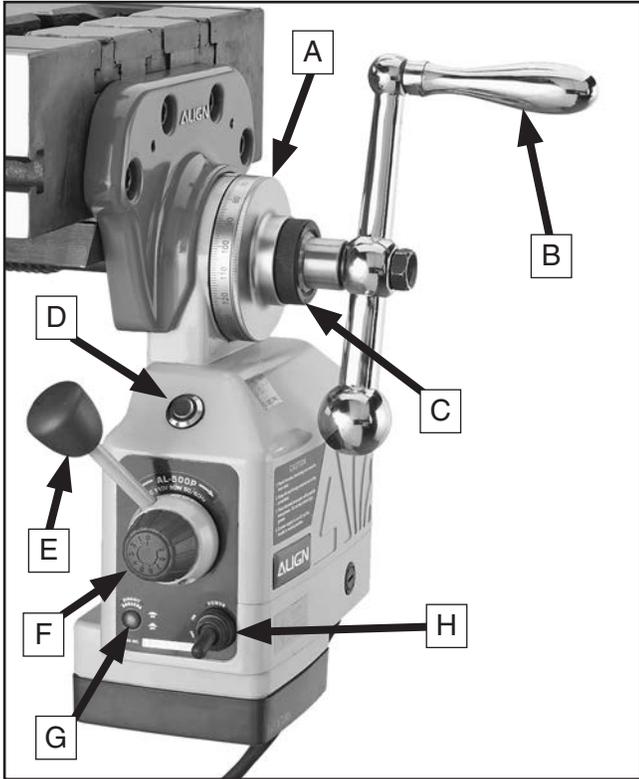


Figure 28. Power feed unit (Y-axis unit shown).

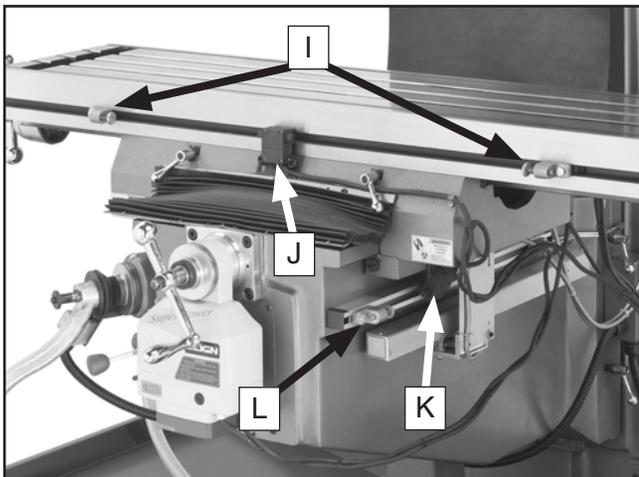


Figure 29. Limit stops and switches.

- A. Graduated Dial.** Displays the distance of table travel.
- B. Ball Handle.** Manually moves the table along the path when rotated.
- C. Dial Lock Collar.** Locks the position of the graduated dial relative to the leadscrew. Loosen this collar to adjust the dial to a different setting, such as when zeroing it out.
- D. Rapid Switch.** Moves the table at maximum speed only while pressed.
- E. Direction Lever:** Controls the direction of travel, and stops movement when in the center position.
- F. Speed Dial:** Controls the rate of travel for the power feed.
- G. Circuit Breaker Button.** Pops out and cuts power to the unit when it is overloaded. Push the button to reset the circuit breaker.
- H. Power Switch.** Turns the unit **ON** and **OFF**.
- I. X-Axis Limit Stops.** Limits X-axis table movement.
- J. X-Axis Limit Switch.** Stops X-axis table movement when it engages one of the limit stops.
- K. Y-Axis Limit Switch.** Stops Y-axis table movement when it engages one of the limit stops.
- L. Y-Axis Limit Stop (1 of 2).** Limits Y-axis table movement.



⚠ CAUTION

Stay clear of the spinning ball handles when using the power feeds to prevent entanglement injuries.

Tools Needed	Qty
Hex Wrench 8mm.....	1
Wrench or Socket 12mm.....	1

To operate the X- or Y-axis power feed:

1. Loosen appropriate table locks for the desired path of travel.
2. Loosen limit stop hex bolt or cap screw, position limit stop along slot to limit travel, then re-tighten fastener to secure it in place.
3. Rotate speed dial to slowest speed and set direction lever for desired direction of travel.
4. Use power switch to turn power feed **ON**, and adjust speed dial for desired feed rate.
5. When you are finished using power feed, position the direction lever to the center OFF position, then use power switch to turn unit **OFF**.

Z-Axis Crank & Power Feed

Graduated Dial Increments	Resolution
Each Mark	0.001"
One Revolution.....	0.100"

When the vertical crank handle is engaged for manual operation, the safety switch below the crank disables the vertical power feed (see **Figure 30**).

Push the handle into the leadscrew to engage it for manual operation. Pull it out to dis-engage it from the safety switch, which enables the use of the vertical power feed buttons on the control panel.

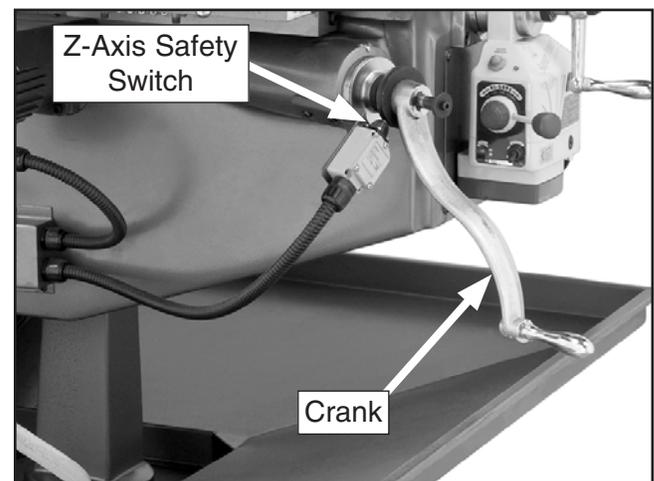


Figure 30. Z-axis crank and safety switch.



Head Movement

The mill head tilts 45° back-and-forth, and rotates 90° from left-to-right (see **Figures 31–32**).

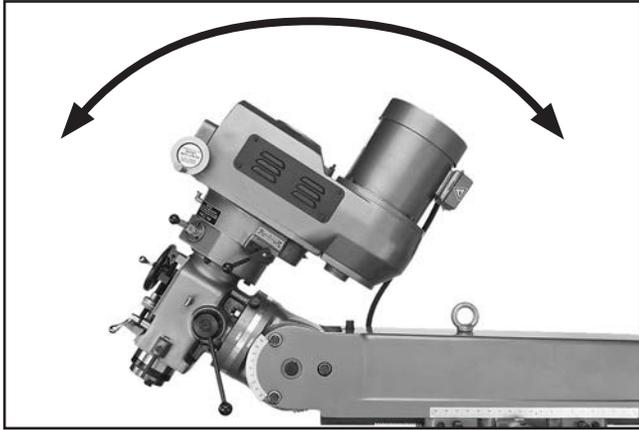


Figure 31. Head tilted back 30°.

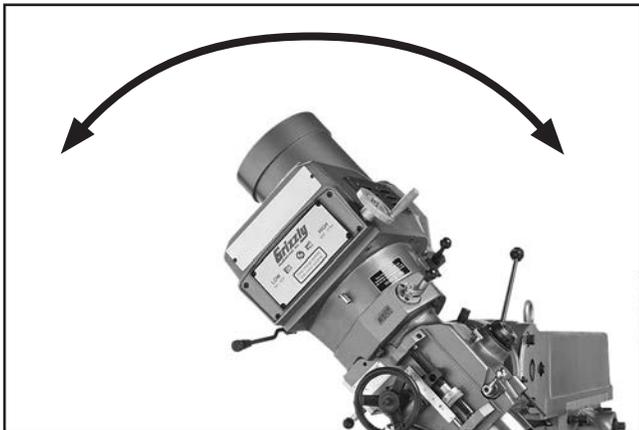


Figure 32. Head tilted to the left 45°.

⚠ CAUTION

The head is heavy. When tilting or rotating the head, get help to support the weight as you use the controls.

Tilting the Head

Tool Needed	Qty
Wrench or Socket 19mm	1

To tilt the head:

1. DISCONNECT MILL FROM POWER!
2. Loosen the three tilt locking bolts shown in **Figure 33**.

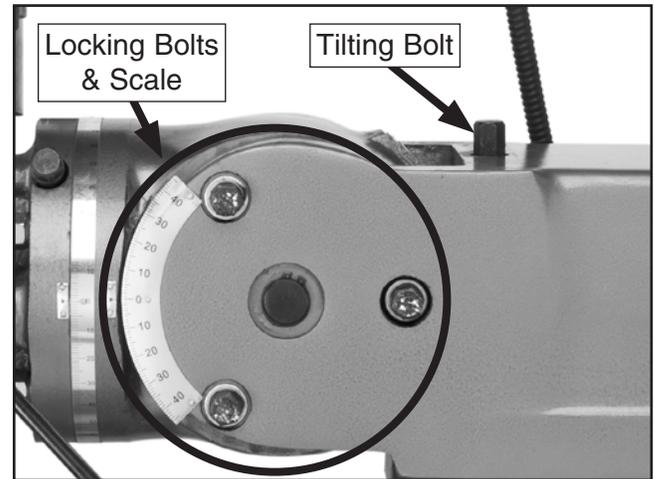


Figure 33. Head tilting controls.

3. Supporting weight of head, slowly rotate the tilting bolt.

Note: Turn tilting bolt clockwise to tilt head back and counterclockwise to tilt it forward.

4. Re-tighten locking bolts to secure head in place.

NOTICE

When the head has been tilted or rotated, you will need to tram the spindle with the table to ensure a 90° alignment. Refer to the *Tramming Spindle* section on *Page 54* for detailed instructions.



Rotating the Head

Tools Needed	Qty
Wrench or Socket 19mm.....	1
Wrench or Socket 23mm.....	1

To rotate the head:

1. DISCONNECT MILL FROM POWER!
2. Loosen the four hex nuts behind head plate (see **Figure 34**).

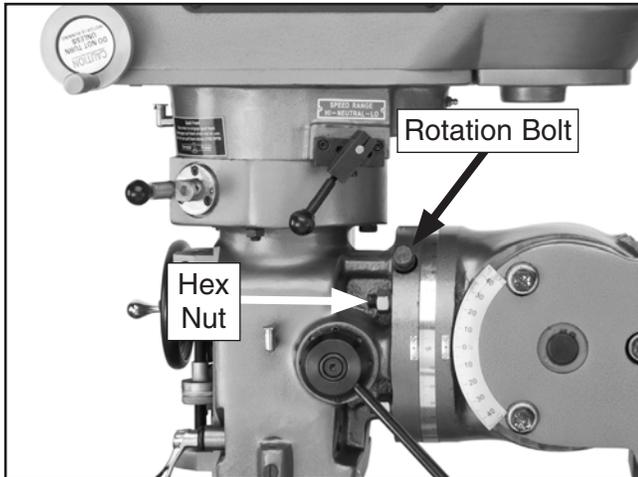


Figure 34. Head rotation controls.

3. Supporting weight of head, slowly turn rotation bolt.

Note: Turn rotation bolt clockwise to rotate head left and counterclockwise to rotate it right.

4. Re-tighten hex nuts to secure head in place.

NOTICE

Always lock the head firmly in place after adjusting the tilt or rotation. Unexpected movement of the head during operations could cause the cutter to bind with the workpiece, which could result machine or workpiece damage.

Ram Movement

The ram moves back-and-forth horizontally and rotates 360° around the column.

Tools Needed	Qty
Wrench 17mm.....	1
Wrench 19mm	1

Moving Ram Back & Forth

1. DISCONNECT MILL FROM POWER!
2. Loosen the two locking bolts shown in **Figure 35**.

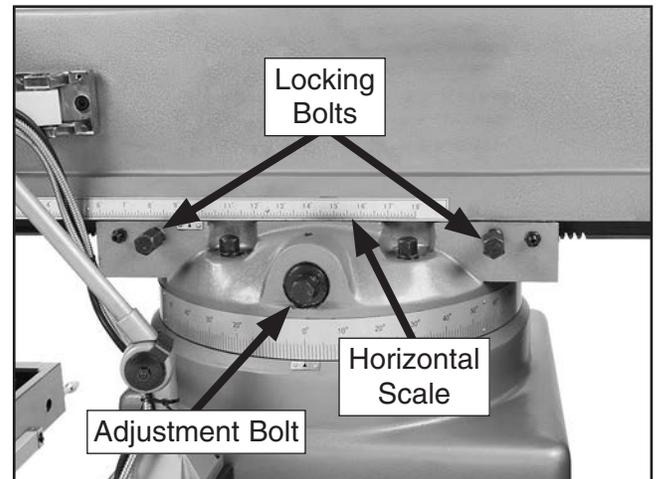


Figure 35. Ram horizontal movement controls.

3. Slowly turn adjustment bolt to move ram to desired position along horizontal scale.

Note: Turn adjustment bolt clockwise to move ram back and counterclockwise to move ram forward.

4. Re-tighten locking bolts to secure ram in place.



Rotating the Ram

1. DISCONNECT MILL FROM POWER!
2. Loosen the four locking bolts (see **Figure 36**). There are two bolts on each side of ram.

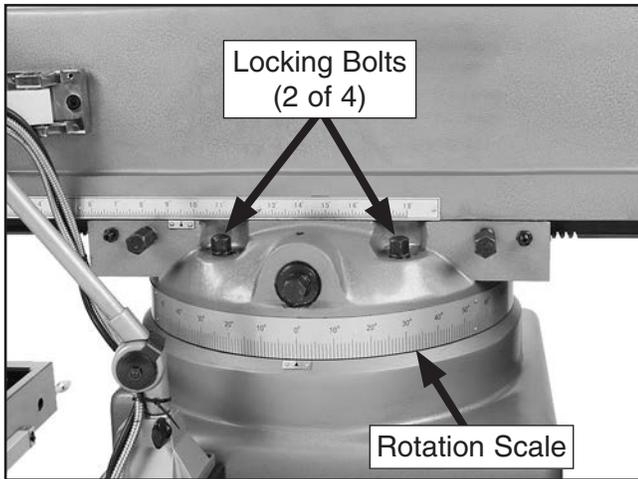


Figure 36. Ram rotation locking bolts.

3. Push against the headstock to manually rotate ram around the column to desired position on rotation scale.

Note: Take care not to entangle or stretch electrical cabling as you move ram and head.

4. Re-tighten the four locking bolts to secure ram in place.

NOTICE

Always lock the ram firmly in place after adjusting its position. Unexpected movement of the ram and head during operations could cause the cutter to bind with the workpiece, which could result in machine or workpiece damage.

Spindle Speed

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

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

Determining Spindle Speed

Many variables affect the optimum spindle speed to use for any given operation, but the two most important are the recommended cutting speed for the workpiece material and the tool diameter, as noted in the formula shown in **Figure 37**.

$$\frac{\text{Cutting Speed* (SFM)} \times 4}{\text{Tool Diameter (in inches)}} = \text{RPM}$$

* Double if using carbide cutting tool

Figure 37. Spindle speed formula for mills.

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

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

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

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



Adjusting Spindle Speed

1. Make sure spindle switch is in the OFF position and spindle is stopped.
2. Select the range in chart below that includes desired spindle speed.

Range	RPM
Low Range	50–420
High Range	420–3750

Figure 38. Spindle speed ranges.

NOTICE

To avoid damage to the drive system, make sure the spindle motor is turned **OFF** and the spindle is stopped **BEFORE** you change the *spindle speed range*.

Note: In the next step, make sure locking pin is seated in indent for desired speed range.

3. Press spindle speed range selector handle in toward head to retract locking pin and move selector (see **Figure 39**).

Note: Move handle to the **forward** position for **high** range, or move it to the **rear** position for **low** range.

As you move selector handle, it may be necessary to rotate the spindle by hand to engage gears.

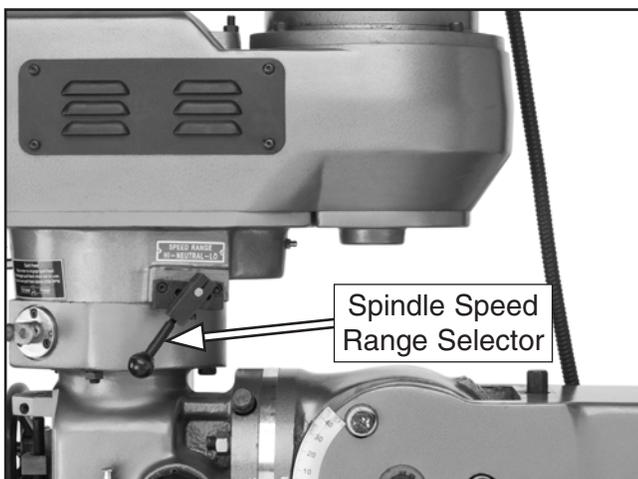


Figure 39. Spindle speed range selector.

NOTICE

Always ensure the spindle is rotating **BEFORE** using the variable speed handwheel. Otherwise, the variable speed system can be damaged.

4. Start spindle rotation, then rotate variable speed handwheel until desired spindle speed is displayed in speed readout window on head, shown in **Figure 40**.

Note: The window on the **left** is for **low** range, and the window on the **right** is for **high** range.

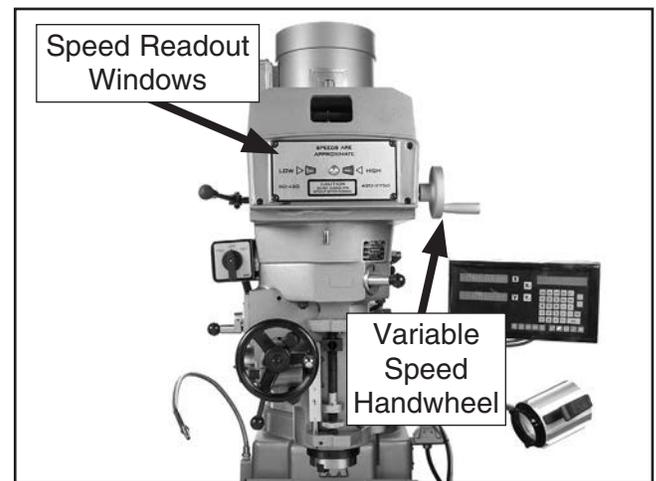


Figure 40. Variable speed handwheel and readout windows.



Spindle Downfeed

Spindle downfeed movement on the mill is controlled by three mechanisms: 1) The coarse downfeed lever for rapid spindle movement, 2) the fine downfeed handwheel for slower spindle movement, and 3) the auto-downfeed system for powered spindle movement.

Downfeed Controls

Use **Figure 41** and the following descriptions to become familiar with the spindle downfeed controls.

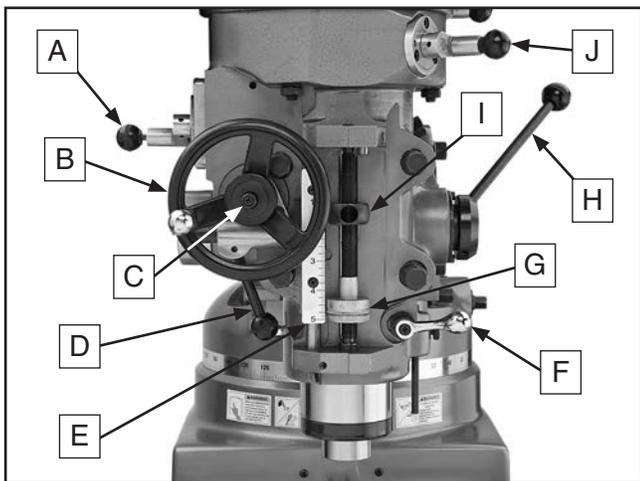


Figure 41. Downfeed controls.

- A. Auto-Downfeed Rate Selector.** Selects one of the three auto-downfeed rates.
- B. Fine Downfeed Handwheel.** Manually controls slow spindle downfeed.
- C. Auto-Downfeed Direction Pin.** Starts, stops, and reverses the auto-downfeed direction.

NOTICE

When spindle rotation is reversed, either by changing the spindle speed range or by using the spindle direction switch, the direction of spindle auto-downfeed will reverse.

- D. Fine Downfeed Clutch Lever.** Engages the fine/auto-downfeed gears.
- E. Downfeed Scale.** Used with the quill dog, shows the depth of spindle downfeed in inches.
- F. Quill Lock Lever.** Secures the quill in place for increased stability during operations.
- G. Downfeed Stop & Locking Wheel.** Sets the depth of spindle downfeed. The stop is threaded into position, then the locking wheel is used to secure it in place.
- H. Coarse Downfeed Lever.** Manually controls quick spindle downfeed.
- I. Quill Dog.** Moves with the quill and spindle, and disengages the downfeed clutch lever when it contacts either the top or the downfeed stop.
- J. Downfeed Selector.** Sets the mill for manual downfeed or auto-downfeed control.



Coarse Downfeed

Use the coarse downfeed lever to quickly move the spindle manually.

To use the coarse downfeed:

1. Make sure spindle is completely stopped.
2. Pull downfeed selector knob out, then rotate it clockwise until knob pin seats in the forward manual (disengaged) detent (see **Figure 42**).

Note: *It may be necessary to turn spindle by hand as you move the selector to engage the gears.*

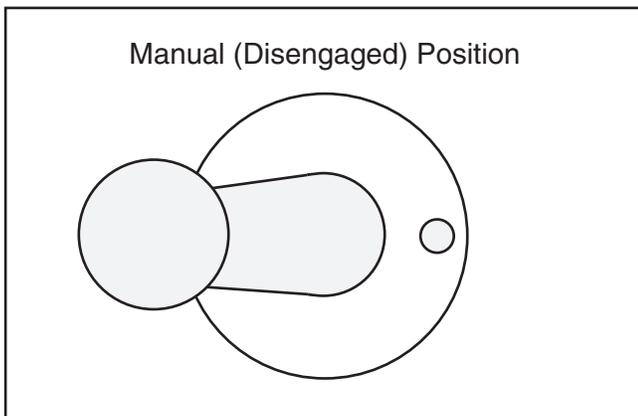


Figure 42. Downfeed selector in manual (disengaged) position.

3. Make sure pin of the coarse downfeed lever hub is engaged with one of the detents on hub (see **Figure 43**).

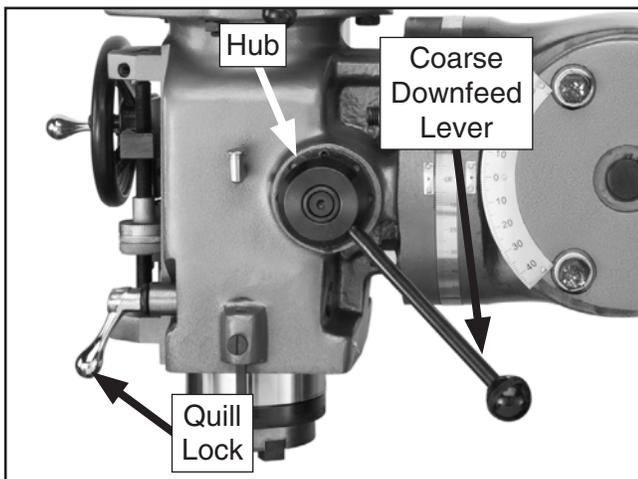


Figure 43. Coarse downfeed handle installed.

4. Make sure quill lock is loose so quill can move freely.
5. Rotate coarse downfeed lever around hub to control spindle depth.

Fine Downfeed

The fine downfeed handwheel provides a slower and more controlled method of spindle movement.

To use the fine downfeed:

1. Make sure spindle is completely stopped.
2. Pull downfeed selector knob out, then rotate it clockwise until knob pin seats in the forward manual (disengaged) detent (see **Figure 42**).

Note: *It may be necessary to turn the spindle by hand as you move the selector to enable the gears to mesh.*

3. Set auto-downfeed direction pin in the neutral (middle) position to disengage fine downfeed handwheel from auto-downfeed gears.
4. Position downfeed stop for desired spindle depth, then secure it in place with locking wheel.
5. Use coarse downfeed lever to lower spindle slightly until you can pull fine downfeed clutch lever out to the left and it locks in place. This will engage fine downfeed handwheel with quill and spindle.
6. To lower spindle, rotate fine downfeed handwheel. When quill dog meets downfeed stop, clutch lever will disengage and spindle will return to the top.



Auto-Downfeed

When using the auto-downfeed system, the spindle will move in the direction you choose with the auto-downfeed direction pin. When the quill dog reaches the top or meets the downfeed stop, the downfeed clutch lever will release. Then, if the spindle was traveling upward, the movement will simply stop. If the spindle was traveling downward, then the spindle will move back to the top at a rate controlled by the return spring on the left side of the head.

To use the auto-downfeed:

1. Make sure spindle is completely stopped.
2. Pull downfeed selector knob out, then rotate it clockwise until knob pin seats in the auto-downfeed (engaged) detent (see **Figure 44**).

Note: It may be necessary to turn spindle by hand as you move selector to engage gears.

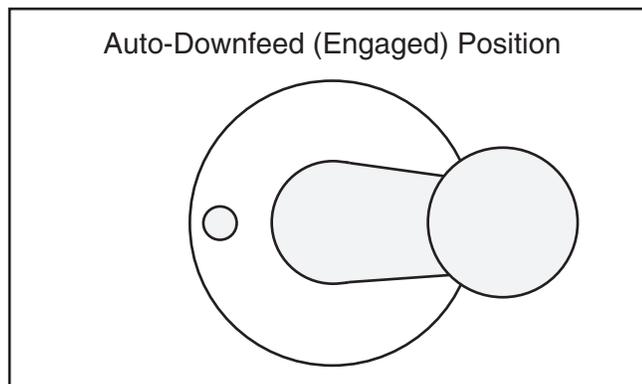


Figure 44. Downfeed selector in auto-downfeed (engaged) position.

3. Position downfeed stop for desired spindle depth, then secure it in place with locking wheel.

4. Position auto-downfeed direction pin in center of handwheel for desired direction of spindle travel. If necessary, rock fine downfeed handwheel back-and-forth to move pin all the way in or out.

Note: The direction pin has three positions (see **Figure 45**): 1) **In** for one downfeed direction, 2) **middle** for neutral or no movement, and 3) **out** for the reverse direction. The direction of spindle travel for in and out positions is relative to direction of spindle rotation. Keep in mind that spindle rotation and downfeed direction will reverse when the spindle speed range is changed.

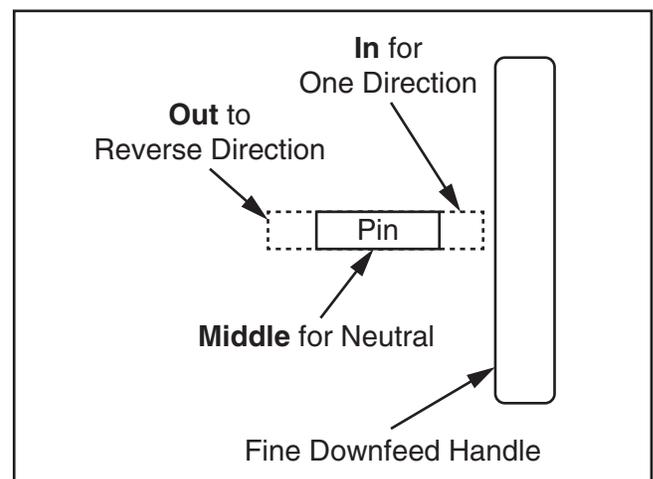


Figure 45. Three positions of auto-downfeed direction pin.

5. Make sure clutch lever is all the way to the right in the disengaged position so spindle will not travel when rotation is started.

Note: We recommend that you complete the remaining steps without a cutting tool installed, without a workpiece in place, and with the table lower than the maximum spindle downfeed travel. This will enable you to test and confirm settings before beginning actual cutting.

NOTICE

To avoid damage to the system gearing, never use the auto-downfeed system with spindle speeds over 1750 RPM.



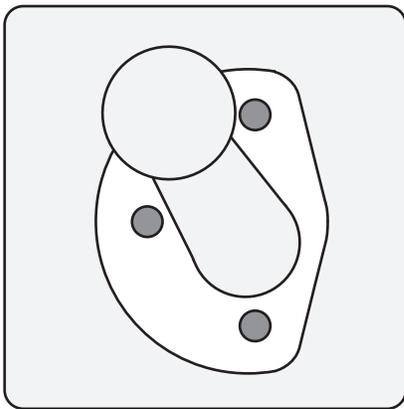
- Set mill for the desired spindle speed, then begin spindle rotation.

NOTICE

ALWAYS start spindle rotation before changing the auto-downfeed rate to avoid the risk of gear damage.

- Select one of the three downfeed rates by pulling knob of auto-downfeed rate selector out, position selector over appropriate detent, then release knob. Make sure pin is firmly seated by attempting to move selector without pulling knob out.

Note: Refer to the illustration in **Figure 46** when selecting the downfeed rate.



Upper = 0.003 in./rev.
Middle = 0.0015 in./rev.
Lower = 0.008 in./rev.

(Rates given in inches of travel per revolution of the spindle)

Figure 46. Positions of auto-downfeed rate selector.

- Use coarse downfeed lever to lower spindle slightly until you can pull clutch lever out to the left and it locks in place, which will start auto-downfeed spindle travel.

Spindle Brake

Your mill is equipped with a spindle brake that is operated by moving the brake lever up or down to quickly stop spindle rotation (see **Figure 47**).

The spindle brake does not turn the motor **OFF**. **ONLY** use the spindle brake lever after you have turned the spindle motor **OFF**.

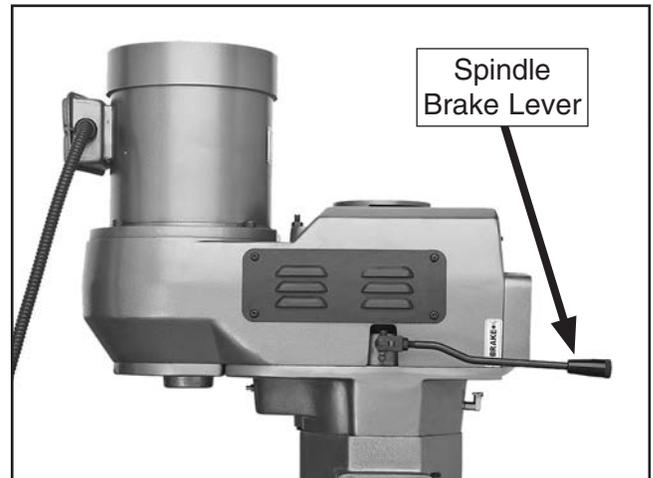


Figure 47. Spindle brake lever.



Loading/Unloading Tooling

Your mill is equipped with an NT40 spindle and a 5/8"-11 x 11" drawbar that includes one spacer for tool attachment flexibility.

Tools Needed	Qty
Wrench 21mm	1

Loading Tooling

1. DISCONNECT MILL FROM POWER!
2. Clean any debris or oily substances from the mating surfaces of the NT40 tool holder and spindle tapers.
3. Align the spindle lugs with the slots on the tool holder, then push the tool firmly into the spindle taper to seat it (see **Figure 48**).

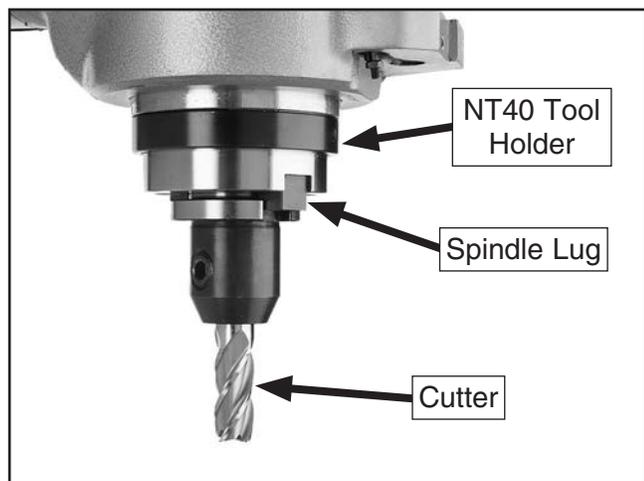


Figure 48. Cutting tool and holder installed into the spindle.

⚠ CAUTION

Cutting tools are sharp and can quickly injure your hands. Always protect your hands when handling cutting tools.

4. While holding the tool in place, insert the drawbar through the top of the spindle, as shown in **Figure 49**, then thread it into the tool.

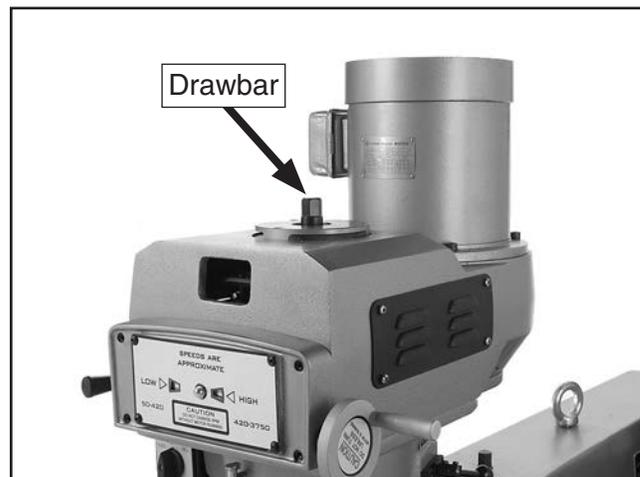


Figure 49. Drawbar inserted through the top of the spindle.

5. Only tighten the drawbar into the tool holder until it is snug.

Note: *Over-tightening the drawbar could make removing the tool holder from the spindle difficult.*

Unloading Tooling

1. DISCONNECT MILL FROM POWER!
2. Keep the spindle engaged with either the low or high speed range to stop the spindle from rotating.
3. Support the tool and holder with one hand, then completely un-thread the drawbar with the other.

—If the tool holder does not immediately release from the spindle taper when the drawbar is loosened, thread the drawbar back into the tool holder two complete turns, then tap the top of the drawbar with a dead-blow hammer or rubber mallet to break the tool holder loose.



SECTION 5: ACCESSORIES

⚠️ WARNING

Some aftermarket accessories can be installed on this machine that could cause it to function improperly, increasing the risk of serious personal injury. To minimize this risk, only install accessories recommended for this machine by Grizzly.

NOTICE

Refer to the newest copy of the Grizzly Catalog for other accessories available for this machine.

H8368—Electric Power Drawbar

Reduce your tool changing time to a fraction. This easy-to-use Power Drawbar kit will enable you to make tool changes in a flash on both manual and CNC milling machines. It has enough torque for tapers ranging from R-8 to NT50 and simple installation is supported by complete instructions. Specifications: Motor 220V, 7.5 maximum amperage draw, 2100 RPM, and 240 ft/lbs.



Figure 50. H8368 electric power drawbar.

H5791—NT40 Quick Change Collet Set

This self-ejecting system offers quick change outs and precise, rigid control. This set comes supplied with an NT40 collet chuck, wrench and fitted plastic case. NT40 collets are sized 1/8", 1/4", 3/8", 1/2", 5/8", 3/4", 7/8" and 1".



Figure 51. H5791 NT40 Quick Change Collet Set.

T23962—ISO 68 Moly-D Way Oil, 5 gal.

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

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



Figure 52. ISO 68 and ISO 32 machine oil.

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



G9299—10" Yuasa-Type Rotary Table

This high precision rotary table features extra deep coolant channels, dual positive action locks, very low profiles, 10 second vernier scales, gear drives with oil immersion and satin chrome dials. See the current Grizzly catalog for full specifications. Features: 4.330" overall height (horizontal), 6.750" height to center hole (vertical), #3 Morse Taper, 0.465" T-slot width, and 117 lbs. approximate shipping weight.

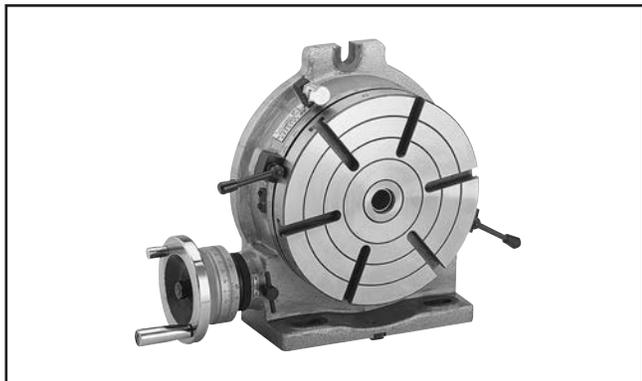


Figure 53. G9299 10" Yuasa-Type Rotary Table.

NT40 End Mill Holders

H5792— $\frac{3}{8}$ "

H5793— $\frac{1}{2}$ "

H5794— $\frac{5}{8}$ "

H5795— $\frac{3}{4}$ "

H5796—1"

H5797— $1\frac{1}{4}$ "

H5798— $1\frac{1}{2}$ "

Sized to fit all common end mill shanks, these precision NT40 end mill holders fit any NT40 taper.



Figure 54. NT40 End Mill Holder.

Call 1-800-523-4777 To Order

T10063—Milling Vise $12\frac{5}{16}$ " x $6\frac{9}{16}$ "

T10064—Milling Vise $17\frac{1}{8}$ " x $8\frac{3}{4}$ "

- Ultra precise in flatness, parallelism and verticality.
- Anti-lift mechanism ensures the workpiece does not lift when jaws are tightened.
- Ductile iron body.
- Flame hardened vise bed and jaws.
- Sealed bearing system.
- 8200 lbs. of clamping pressure.



Figure 55. T10064 Milling vise (handle included, but not shown).

G9757—10-Piece 2-Flute HSS End Mill Set

Priced for outstanding value, this 10-piece assortment of high-speed steel end mills feature the following sizes: $\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ ", $\frac{3}{8}$ ", $\frac{7}{16}$ ", $\frac{1}{2}$ ", $\frac{9}{16}$ ", $\frac{5}{8}$ ", $1\frac{1}{16}$ ". and $\frac{3}{4}$ ". Finely-crafted mills are singled ended. Includes wooden storage case.



Figure 56. G9757 10-Piece HSS End Mill Set.

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



G5758—5" x 7" Tilt Table

G5759—7" x 10" Tilt Table

Set your work at any angle from -45° to $+45^{\circ}$ with these sturdy Tilt Tables. Heavy-duty construction includes T-slots, two locking screws, and precision base with a scale.

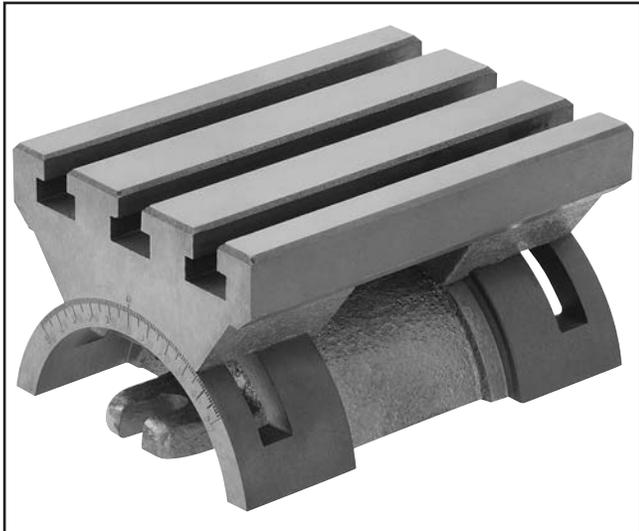


Figure 57. Tilt Table.

G5641—1-2-3 Blocks

G5642—2-4-6 Blocks

These blocks are extremely handy for layout and set up work. Matched blocks are hardened and precision ground so all six sides are square to within 0.0003". These blocks also feature five tapped holes and 18 untapped holes for clamping. Sold in pairs. G5641 tapped holes are $\frac{3}{8}$ "-16, and overall size is 1" x 2" x 3". G5642 tapped holes are $\frac{5}{8}$ "-11, and overall size is 2" x 4" x 6".

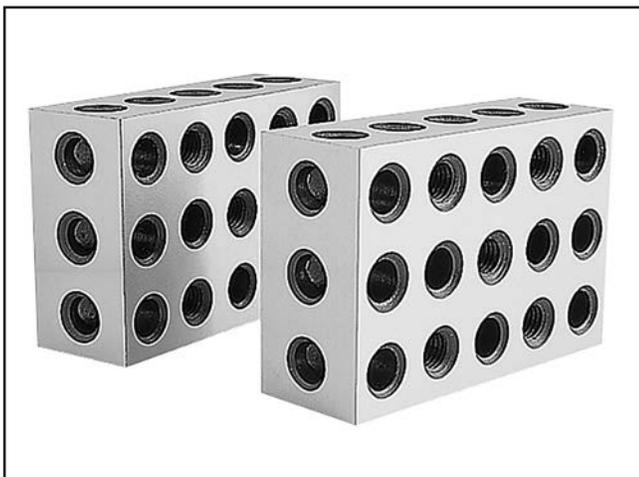


Figure 58. 1-2-3 and 4-5-6 Blocks.

G1076—52-PC. Clamping Kit for $\frac{5}{8}$ " T-Slots

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

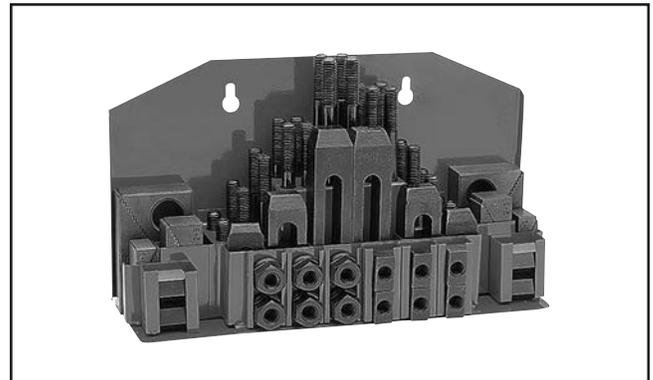


Figure 59. G1076 52-PC. Clamping Kit.

H5802—NT40 to MT#2 Sleeve

H5803—NT40 to MT#3 Sleeve

H8139—NT40 to R8 Adapter



Figure 60. NT40 Sleeves and Adapter.

G5678— Steel Parallel Sets $\frac{3}{16}$ " Thickness

G5678— Steel Parallel Sets $\frac{1}{2}$ " Thickness

These ground and hardness sets feature four pairs of 6" long parallels which are accurate to within 0.0003" in parallelism and 0.0002" in height.

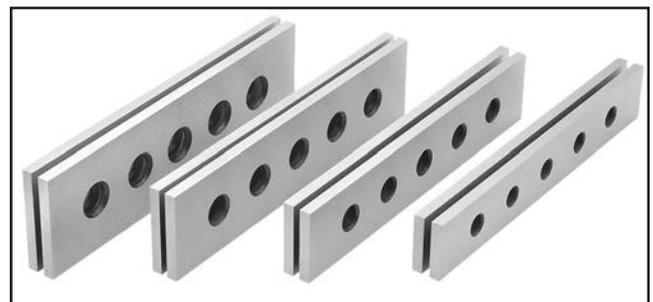


Figure 61. Steel parallel sets.

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



SECTION 6: MAINTENANCE



Schedule

Regular maintenance will help ensure proper care of the equipment. We strongly recommend that all operators make a habit of following maintenance procedures listed below. For optimum performance from this machine, this maintenance schedule must be strictly followed.

Ongoing

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

- Loose mounting bolts or fasteners.
- Worn, frayed, cracked, or damaged wires.
- Emergency STOP button not working correctly.
- Missing belt guards.
- Reduction in braking speed or efficiency.
- Coolant not flowing correctly.
- Any other unsafe condition.

Before Beginning Operations

- Make sure the electric cabinet door is closed and properly latched.
- Turn the spindle direction switch to the OFF position to prevent high-speed spindle start-up when connected to power.
- Move the downfeed selector to the manual position to prevent the spindle from unexpectedly downfeeding when rotation is started.
- Make sure the X- and Y-axis power feeds are turned OFF to prevent unintentional table movement when connected to power.
- Check the coolant reservoir in the base. Fill it or clean it out if necessary.
- Perform all required lubrication tasks.
- Check table movement in all three axes for loose/tight gibs. Adjust the gibs if necessary.

Daily, After Operations

- Push the emergency STOP button, turn the master power switch **OFF**, and disconnect the machine from power.
- Vacuum/clean all chips and swarf from table, slides, and base.
- Wipe down all unpainted or machined surfaces with a high-quality rust preventative.



Cleaning & Protecting

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

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

All visible swarf should be removed from the mill during cleaning.

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

Lubrication

The mill has numerous moving metal-to-metal contacts that require regular and proper lubrication to ensure efficient and long-lasting operation.

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.

DISCONNECT MILL FROM POWER before performing any lubrication task!

Important: *Before adding lubricant, clean the debris and grime from the oil cup or grease fitting and the immediate area to prevent contamination of the oil cups, grease fittings, or new lubricant.*

Use the schedule and information in the chart below as a daily guide for lubrication tasks.

Lubrication Task	Frequency (Hours of Operation)	Page Ref.
Quill Gearing	4–8	46
One-Shot Oiler (Table Ways & Leadscrews)	4–8	46
Bull Gear	40	46
Ram Ways	40	46
Z-Axis Leadscrew Bevel Gears	40	47
X- & Y-Axis Power Feed Gears	80	47

NOTICE

The recommended lubrication schedule is based on light-to-medium usage. Keeping in mind that lubrication helps to protect the value and operation of the mill, these lubrication tasks may need to be performed more frequently depending on usage.



Quill Gearing

Oil TypeGrizzly T23962 or ISO 68 Equivalent
Amount Fill Oil Cup
Add Frequency 4–8 hrs. of Operation

Lift the oil cup cap shown in **Figure 62** to add the oil.

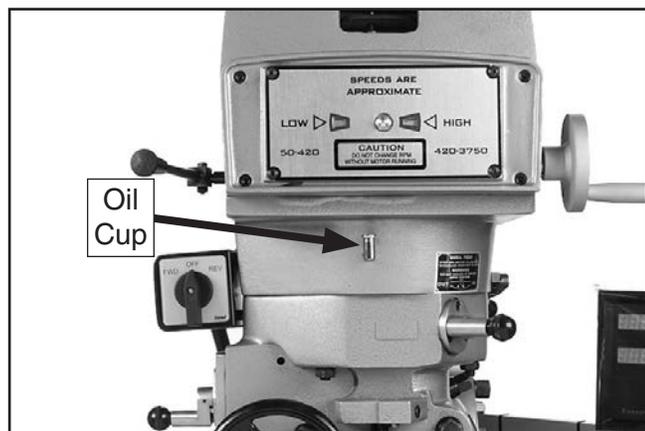


Figure 62. Quill gearing oil cup.

Bull Gear

Grease TypeNLGI#2 or Equivalent
AmountTwo Pumps from Grease Gun
Add Frequency 40 hrs. of Operation

Use a grease gun to add lubricant to the grease fitting shown in **Figure 64**.

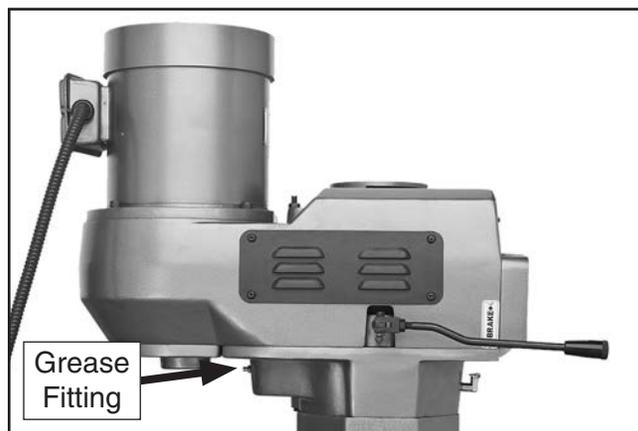


Figure 64. Bull gear grease fitting.

One-Shot Oiler

Oil TypeGrizzly T23962 or ISO 68 Equivalent
Amount One Pull of Pump Handle
Check/Add Frequency 4–8 hrs. of Operation
Reservoir Capacity Approximately 1/2 Quart

The one-shot oiler is connected to a series of tubes that carry the lubricant to wear points along the table, saddle, knee ways, and the lead-screws. After using the oiler pump handle shown in **Figure 63**, move the table through all paths of movement to evenly distribute the lubricant.

Use the sight glass on the front of the oiler to know when to re-fill the reservoir.

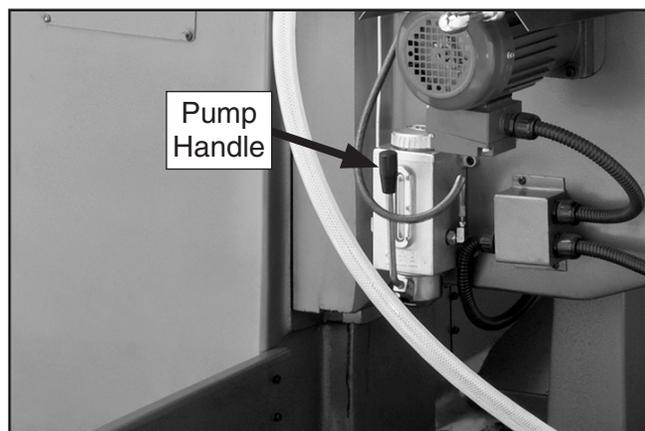


Figure 63. One-shot oiler.

Ram Ways

Oil TypeGrizzly T23962 or ISO 68 Equivalent
AmountThin Coat
Add Frequency 40 hrs. of Operation

Use a shop rag and mineral spirits to wipe away grime and debris from the ram ways (see **Figure 65**). Move the ram back and forth to wipe a thin coat of oil onto the full length of the ways.

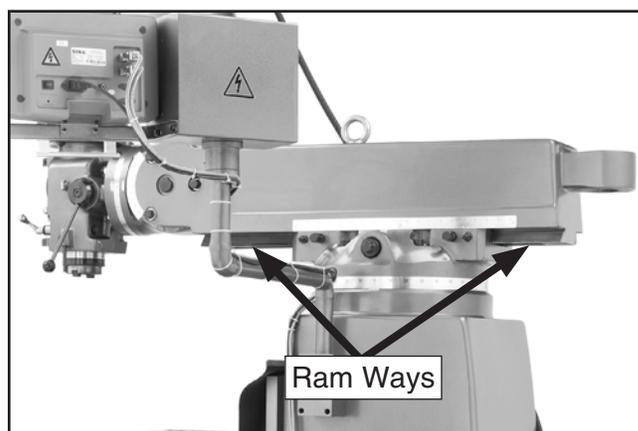


Figure 65. Ram ways.



Z-Axis Leadscrew Bevel Gears

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

Use a clean, stiff brush and mineral spirits to clean away the old grease and grime from the bevel gears (see **Figure 66**), then brush a thin coat of grease onto and into the teeth of the gears.



Figure 66. Z-Axis leadscrew bevel gears.

X- & Z-Axis Power Feed Gears

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

Tool Needed	Qty
Wrench 19mm	1

To lubricate the power feed gears:

1. DISCONNECT MILL FROM POWER!
2. Remove hex nut and ball handle from power unit end of the X-axis leadscrew.
3. Unthread and remove knurled retaining ring and graduated dial ring from end of leadscrew.

4. Remove brass bevel gear from leadscrew, then remove leadscrew alignment key (see **Figure 67**).

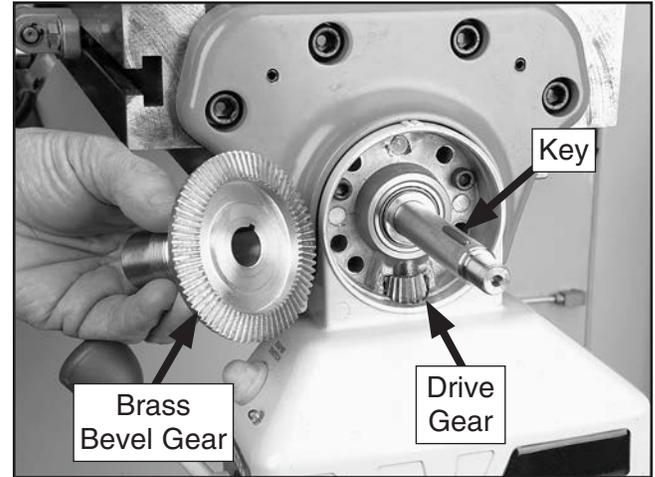


Figure 67. Power feed gears and key.

5. Brush a light coat of grease on bevel gear teeth and smaller drive gear.
6. Replace leadscrew alignment key, then align bevel gear keyway with key as you slide gear onto leadscrew and mesh its teeth with drive gear.
7. Replace graduated dial ring into position and secure it with knurled retaining ring—do not overtighten.
8. Slide ball handle onto leadscrew, align keyway with leadscrew alignment key, then secure it with hex nut removed in **Step 2**.
9. Move table with ball handle to check gear movement and distribute grease on gears. If the movement is not smooth, repeat **Steps 2–8** until it is.



Coolant

Hazards

As some coolant ages, dangerous microbes can proliferate and create a biological hazard. The risk of exposure to this hazard can be greatly reduced by replacing the old coolant on a monthly basis, as indicated in the maintenance schedule.

The important thing to keep in mind when working with the coolant is to minimize exposure to your skin, eyes, and respiratory system by wearing the proper PPE (personal protective equipment), such as splash-resistant safety glasses, long-sleeve gloves, protective clothing, and a NIOSH approved respirator.

	<p>! WARNING BIOLOGICAL & POISON HAZARD!</p>
	<p>Use the correct personal protection equipment when handling coolant. Follow federal, state, and fluid manufacturer requirements for proper disposal.</p>

A small amount of coolant is lost during normal operation. Check the coolant reservoir regularly and fill it if necessary. We recommend changing the coolant every three months or sooner if it develops an unpleasant odor. However, be sure to follow the coolant manufacturer's instructions when checking, adding, or changing coolant.

The coolant reservoir holds approximately 6–7 gallons (22–27 liters) of fluid.

<p>NOTICE</p> <p>Running the coolant pump without adequate coolant in the reservoir may permanently damage the coolant pump, which will not be covered by the warranty.</p>
--

Checking/Adding Coolant

Tool Needed	Qty
Phillips Screwdriver	1

To check/add coolant:

1. DISCONNECT MILL FROM POWER!
2. Remove coolant reservoir access panel on rear of the column, as shown in **Figure 68**.

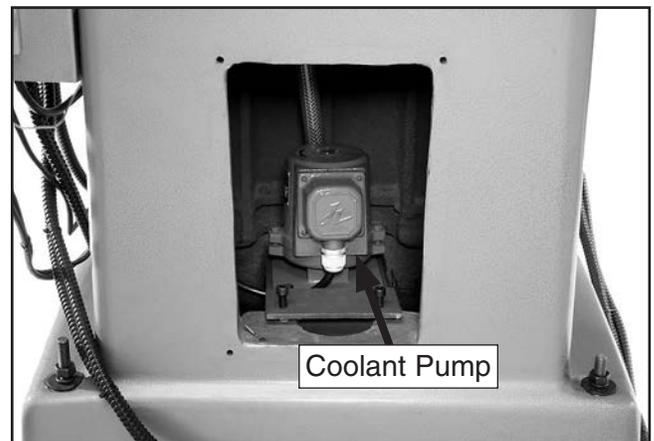


Figure 68. Coolant reservoir access panel removed.

3. Use a clean metal tool as a dip stick to measure level of coolant in the reservoir. If level is lower than 3", add coolant by pouring it through coolant drain screens on base of mill.

Note: Clean away debris and grime from drain screens and surrounding area before adding coolant.

4. Re-install access panel before resuming milling operations.

Changing Coolant

Tools Needed	Qty
Phillips Screwdriver	1
Hex Wrench 5mm.....	1
Catch Pan.....	1
Empty Bucket 5 Gal.....	1
Rubber Hose (optional)	1
New Coolant.....	Approx. 6–7 Gallons



To change the coolant:

1. Put on personal protective equipment.
2. Place catch pan on table, position the coolant nozzle into pan, then use coolant pump to drain reservoir.

Note: *When catch pan is near full, empty it into 5 gallon bucket, then repeat process.*

Tip: *Alternately, slide a rubber hose onto coolant nozzle and point it into 5 gallon bucket.*

3. DISCONNECT MILL FROM POWER!
4. Remove coolant reservoir access panel from the rear of column.
5. Remove the two pump mounting cap screws and move pump out of the way.
6. Thoroughly clean out bottom of the reservoir and the base of pump. Make sure interior is completely dry before adding new coolant.

Note: *Use a cleaning solution that is compatible with type of coolant. For instance, if you are using a water-base coolant, then use a water-base cleaning solvent.*

7. When reservoir and pump are clean and dry, replace the pump, and access panel.

Tip: *Place a couple of magnets inside reservoir under return screens to collect metal particles to keep them out of coolant pump.*

8. Clean away debris and grime from coolant drain screen on base of mill, then pour coolant through one of the screens to fill reservoir.

Machine Storage

The mill must be properly prepared if it will be stored for any period of time. Doing this will help prevent the development of rust and corrosion and ensure the mill remains in good condition for later use.

Note: *When taking the mill out of storage, repeat the **Test Run** and the **Spindle Break-In**.*

To prepare the mill for storage:

1. DISCONNECT MILL FROM POWER!
2. Lubricate mill as directed in **Lubrication** beginning on **Page 45**.
3. Clean out coolant reservoir as directed in **Changing Coolant** on this page.
4. Thoroughly clean all unpainted, bare metal surfaces, then coat them with quality rust preventative. Take care to ensure these surfaces are completely covered but rust preventative is kept off painted surfaces.

Note: *If the machine will be out of service for only a short period of time, use way oil or a good grade of medium-weight machine oil (not auto engine oil) in place of rust preventative.*

5. Loosen belts to prevent them from stretching during storage. Post a reminder on mill that belts need to be re-installed or tensioned before resuming operations.
6. Place a few moisture-absorbing desiccant packs inside electrical cabinet.
7. Cover and place machine in a dry area that is out of direct sunlight and away from hazardous fumes, paint, solvents, or gas. Fumes and sunlight can bleach or discolor paint and plastic parts.
8. At least once a month, start mill and run all gear-driven components for a few minutes. This will keep bearings, bushings, gears, and shafts well lubricated and protected from corrosion.



SECTION 7: SERVICE

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

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

Troubleshooting



Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	<ol style="list-style-type: none"> Emergency STOP button is pushed in or is at fault. Plug/receptacle is at fault or wired incorrectly. Power supply is switched OFF or is at fault. Motor connection wired incorrectly. ON button is at fault. Motor windings or motor is at fault. 	<ol style="list-style-type: none"> Turn the emergency STOP button clockwise until it pops out; replace if faulty. Test for good contacts; correct the wiring. Ensure hot lines have correct voltage on all legs and main power supply is switched ON. Correct motor wiring connections. Replace faulty ON button. Replace motor.
Machine stalls or is overloaded.	<ol style="list-style-type: none"> Machine is undersized for the task. Workpiece alignment is poor. Dull or incorrect cutting tool. Gearbox is at fault. Motor connection is wired incorrectly. Plug/receptacle is at fault. Pulley/sprocket slipping on shaft. Motor bearings are at fault. Motor has overheated. Motor is at fault. 	<ol style="list-style-type: none"> Use smaller, sharper tooling; reduce the feed rate; reduce the spindle RPM; use coolant. Eliminate workpiece binding; use vise or clamps as required for workpiece alignment control. Use sharp and correct cutting tool for the operation. Replace broken or slipping gears. Correct motor wiring connections. Test for good contacts; correct the wiring. Replace loose pulley/shaft. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. Clean off motor, let cool, and reduce workload. Test and repair or replace.
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> Tool holder or cutter is at fault. Workpiece alignment is poor. Motor or component is loose. Pulley is loose. Machine is incorrectly mounted or sits unevenly. Motor fan is rubbing on fan cover. Motor bearings are at fault. Gearbox is at fault. 	<ol style="list-style-type: none"> Replace out-of-round tool holder; replace/resharpen cutter; use appropriate feed rate and cutting RPM. Eliminate workpiece binding; use vise or clamps as required for workpiece alignment control. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid. Realign/replace shaft, pulley, setscrew, and key as required. Tighten/replace mounting bolts in floor; relocate/shim machine. Replace dented fan cover or fan. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. Rebuild gearbox for bad gear(s)/bearing(s).



Operation



Symptom	Possible Cause	Possible Solution
Tool slips in collet.	<ol style="list-style-type: none"> 1. Collet is not fully drawn into spindle taper. 2. Wrong size collet. 3. Debris on collet or spindle mating surface. 4. Excessive depth of cut. 	<ol style="list-style-type: none"> 1. Snug up drawbar. 2. Use correct collet for shank diameter. 3. Remove oil and debris from collet and spindle mating surfaces, then re-install. 4. Decrease depth of cut and allow chips to clear.
Breaking tooling.	<ol style="list-style-type: none"> 1. Spindle speed/feed rate too fast. 2. Tooling getting too hot. 3. Excessive depth of cut. 	<ol style="list-style-type: none"> 1. Use correct spindle RPM and feed rate. 2. Use coolant; reduce spindle RPM/feed rate. 3. Decrease depth of cut and allow chips to clear.
Machine is loud when cutting; overheats or bogs down in the cut.	<ol style="list-style-type: none"> 1. Excessive depth of cut. 2. Dull tooling. 3. Feed rate too fast. 	<ol style="list-style-type: none"> 1. Decrease depth of cut and allow chips to clear. 2. Use sharp tooling. 3. Decrease feed rate.
Workpiece vibrates or chatters during operation.	<ol style="list-style-type: none"> 1. Locks not tight. 2. Workpiece not securely clamped to table or mill vise. 3. Tooling not secure or is damaged. 4. Spindle speed/feed rate too fast. 5. Gibs are too loose. 	<ol style="list-style-type: none"> 1. Tighten all locks on mill that are not associated with movement for the operation. 2. Check that clamping is tight and sufficient for the operation; make sure mill vise is tight to table. 3. Secure tooling; replace if damaged. 4. Use correct spindle RPM and feed rate. 5. Properly adjust gibs (see Page 52).
Table hard to move.	<ol style="list-style-type: none"> 1. Locks are tightened down. 2. Chips have loaded up on the ways. 3. Ways are dry and in need of lubrication. 4. Gibs are too tight. 	<ol style="list-style-type: none"> 1. Fully loosen locks needed for movement. 2. Frequently clean away chips that load up during operations. 3. Lubricate ways (see Page 46). 4. Properly adjust gibs (see Page 52).
Bad surface finish.	<ol style="list-style-type: none"> 1. Wrong spindle speed/feed rate. 2. Dull/damaged tooling; wrong tooling for operation. 3. Wrong spindle rotation for tooling. 4. Workpiece not securely clamped to table or mill vise. 5. Gibs are too loose. 	<ol style="list-style-type: none"> 1. Use correct spindle RPM and feed rate. 2. Sharpen/replace tooling; use correct tooling for operation. 3. Check for proper spindle rotation for tooling. 4. Check that clamping is tight and sufficient for the operation; make sure mill vise is tight to table. 5. Properly adjust gibs (see Page 52).
X- or Y-axis power feed chatters or grinds on operation.	<ol style="list-style-type: none"> 1. Bevel gear is loose. 2. Power feed unit is at fault. 	<ol style="list-style-type: none"> 1. Tighten ball handle hex nut. 2. Replace.
Z-axis power feed does not work.	<ol style="list-style-type: none"> 1. Z-axis crank engaged, tripping safety switch. 2. Safety switch/motor at fault. 	<ol style="list-style-type: none"> 1. Disengage Z-axis crank. 2. Test/repair/replace.
Knees moves in opposite direction of button selected.	<ol style="list-style-type: none"> 1. Machine is wired out of phase. 	<ol style="list-style-type: none"> 1. Swap any two of the three incoming power wires that connect to the machine (Page 22).



Adjusting Gibs

Gibs are tapered lengths of metal between two sliding surfaces. Gibs control the size of the gap between these surfaces, which affects how accurately they slide. Correctly adjusting the gibs is critical to producing good milling results.

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

There is a screw on each end of the gib that can be rotated to increase or decrease the friction between the sliding surfaces. The process of properly adjusting the gibs requires trial-and-error and patience.

DISCONNECT MILL FROM POWER BEFORE ADJUSTING THE GIBS!

Make sure all table and knee locks are loose and that the table is centered on the saddle. Then, loosen one gib adjustment screw and tighten the other the same amount to move the gib. Use the handwheels/crank to move the table/knee until you feel a slight drag in that path of movement.

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

The table (X-axis) has one gib located under the front of the table (see **Figure 69**).

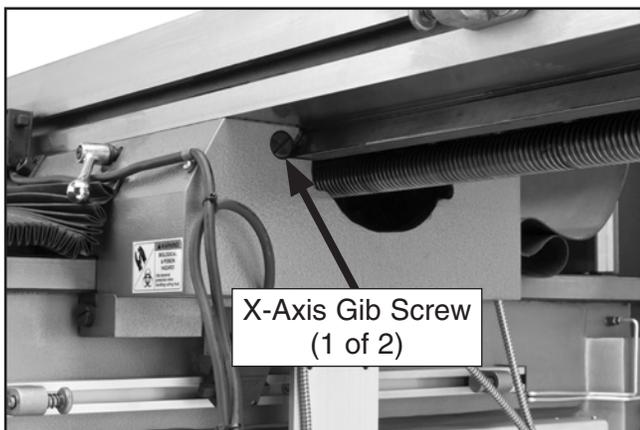


Figure 69. Table gib screw (1 of 2).

The saddle (Y-axis) has a gib on both sides (see **Figure 70**).

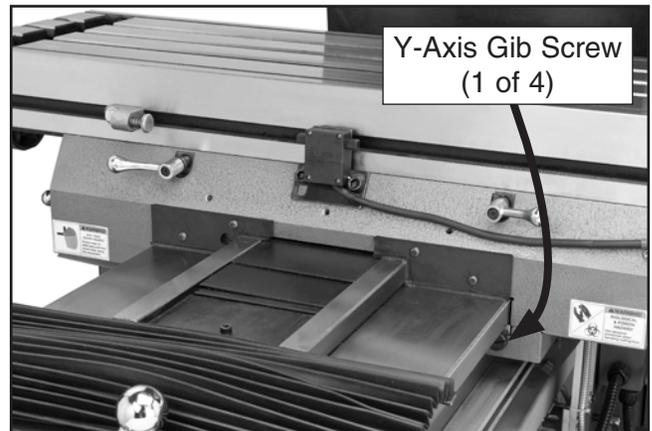


Figure 70. Saddle gib screws (1 of 4).

The knee (Z-axis) has three gibs—two on either side of the left column dovetail way and one on the right dovetail way (see **Figures 71–72**).

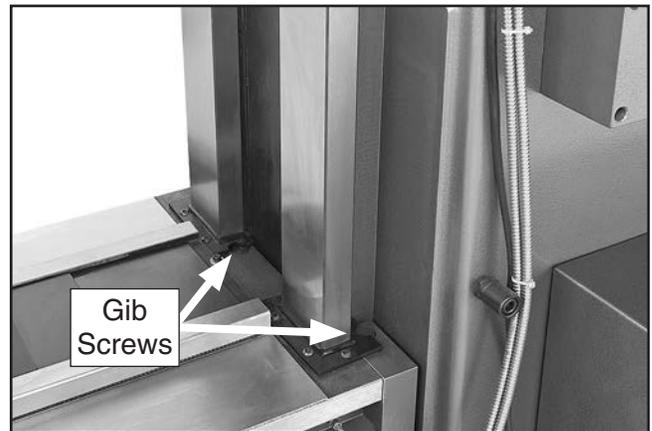


Figure 71. Knee gib screws (2 of 6).

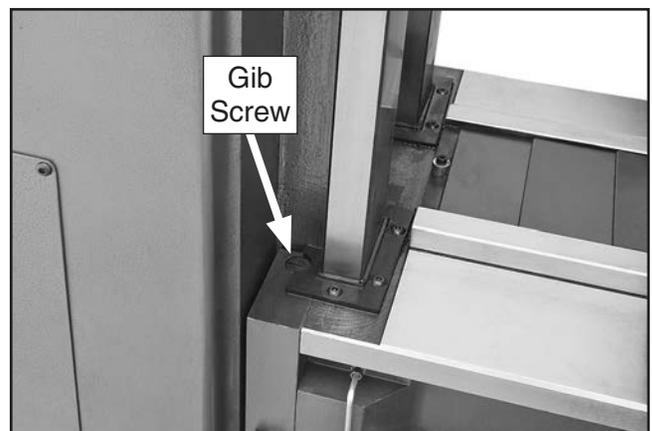


Figure 72. Knee gib screw (1 of 6).



Adjusting Backlash

Leadscrew backlash is the amount of free play in the leadscrew when changing direction of table movement. Leadscrews always have a certain amount of backlash that will increase with wear. Generally, 0.005"–0.010" of backlash is acceptable.

Tools Needed	Qty
Phillips Screwdriver	1
Wrench 19mm	1
Hex Wrench 5mm.....	1

To adjust Y-axis leadscrew backlash:

1. DISCONNECT MILL FROM POWER!
2. Remove front way cover, move table all the way back, then remove ball handle and keyed spacers from Y-axis feed leadscrew.
3. Remove graduated dial assembly, key, and remaining spacers from leadscrew.

Note: *Keep track of small parts as you take them off, and note the order of assembly.*

4. Remove the two cap screws that hold power feed unit to the bearing bracket (see **Figure 73**).

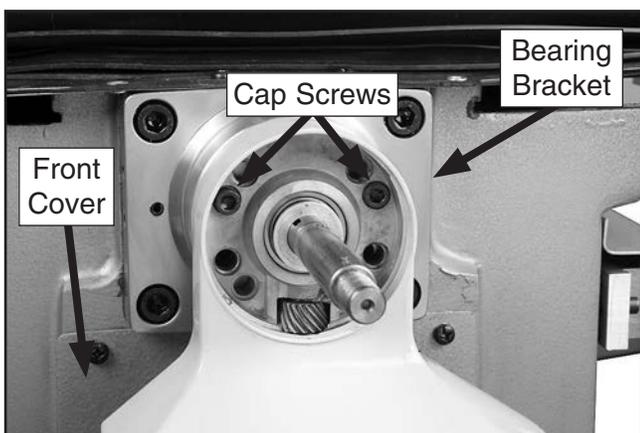


Figure 73. Power feed secured to bearing bracket.

5. Carefully slide power feed unit off leadscrew and lay it aside, then remove front cover from the table.
6. Loosen the two cap screws on leadscrew nut shown in **Figure 74**, then rotate adjustment plate in small increments.

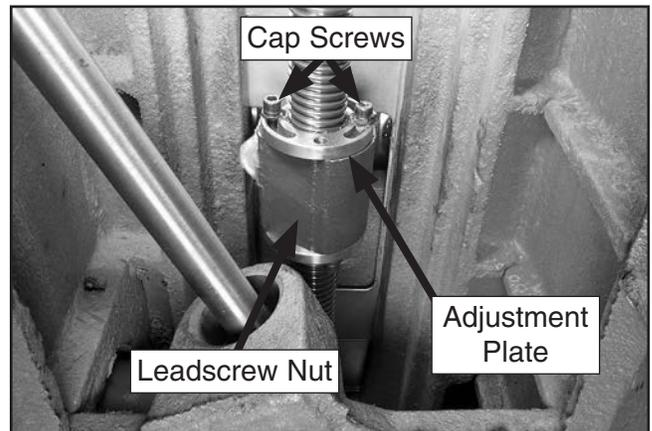


Figure 74. Y-axis feed leadscrew nut and backlash adjustment plate.

7. Re-install key and ball handle onto leadscrew, then test backlash by rocking handle back-and-forth.
8. When you are satisfied with the amount of backlash, re-tighten adjustment plate cap screws.
9. Make sure all surfaces are clean of debris, then re-install components removed for this procedure.

The X-axis leadscrew backlash is adjusted in the same manner. Refer to **Figure 75** for the location of the X-axis backlash adjustment plate as viewed from the left underside of the table.

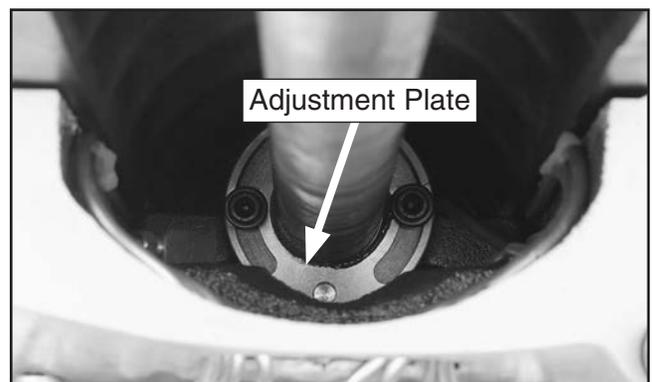


Figure 75. X-axis backlash adjustment plate.



Tramming Spindle

When your operation requires that the spindle axis be precisely perpendicular to the table, you must tram the spindle with the table.

This procedure involves mounting a dial indicator to the quill or spindle, rotating it around the table, and adjusting the head position so that the spindle axis is 90° to the table X- and Y-axis, as illustrated in **Figure 76**.

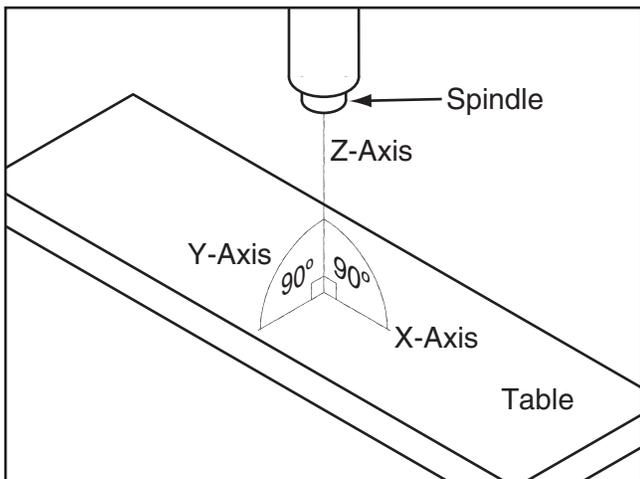


Figure 76. Spindle centerline properly trammed to the table.

Note: Keep in mind that the top surface of your workpiece will not likely be exactly parallel with the table top. Depending on your operation, you may choose to tram the spindle to the top surface of the workpiece after it is mounted instead of tramming to the table.

Tools Needed

Qty

Dial Indicator (with at least 0.0005" resolution) . 1
Indicator Holder (mounted on quill/spindle) 1
Precision Parallel Block..... 1

Note: A precision-ground plate can be substituted for the parallel block. The farther the indicator point can be placed from the spindle axis, the more accurate the alignment measurements will be.

To tram the spindle to the table:

1. DISCONNECT MILL FROM POWER!
2. Prepare mill by performing the following tasks:
 - Stone table to remove all nicks and burrs, then clean off all debris. Verify table is clean by running your hand over the top of it.
 - Position table for the milling operation you intend to perform after tramming—preferably centered with saddle.
 - Tighten any table, knee, quill, or ram locks that should be tight during the intended milling operation.
3. Place parallel block underneath spindle.
4. Install indicator holder into spindle or onto quill, then mount indicator onto it so that the point is as parallel to the block as possible (see the illustration in **Figure 77** for an example).

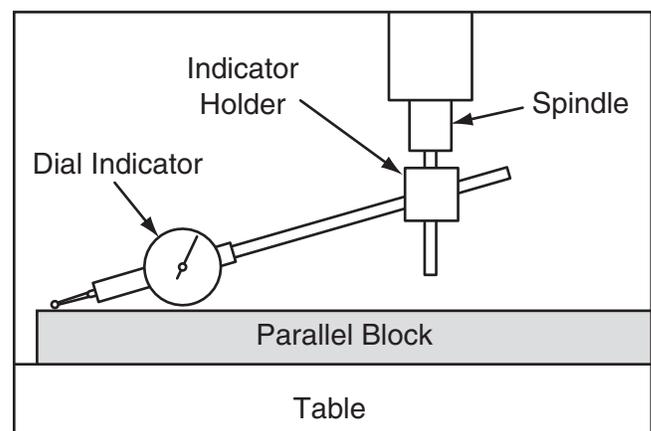


Figure 77. Dial indicator mounted.



- To measure spindle alignment along X-axis, place the parallel block directly under spindle and indicator across length of table, as illustrated in **Figure 78**.

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

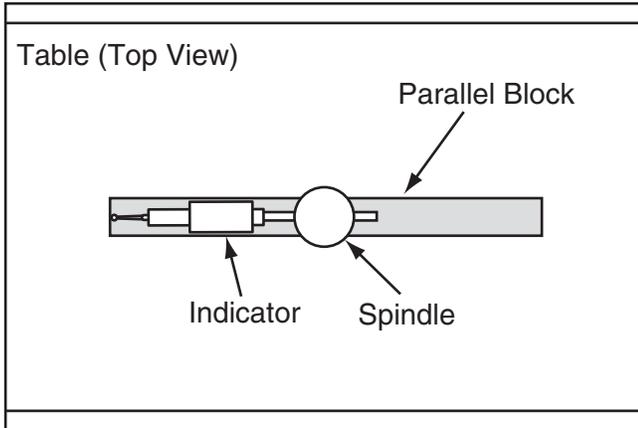


Figure 78. Setup for the X-axis adjustment.

Note: Generally, the goal is to get the difference of the indicator readings between ends of the parallel bar down to 0.0005". However, the acceptable variance will depend on the requirements for your operation.

- Rotate spindle by hand so that the indicator point rests on one end of parallel block, as illustrated in **Figure 78**, then zero dial.
- Rotate spindle so that the indicator point rests in the same manner on other end of block, then read dial.

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

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

Tip: Keep one of the rotation lock bolts snug so that the head does not move loosely while you adjust it in small amounts.

- Re-tighten rotation lock bolts.

Note: It is a good idea to repeat **Steps 6-7** again in case the head moved slightly during the process of re-tightening lock bolts.

- Place parallel block directly under spindle and across width of the table, as illustrated in **Figure 79**.

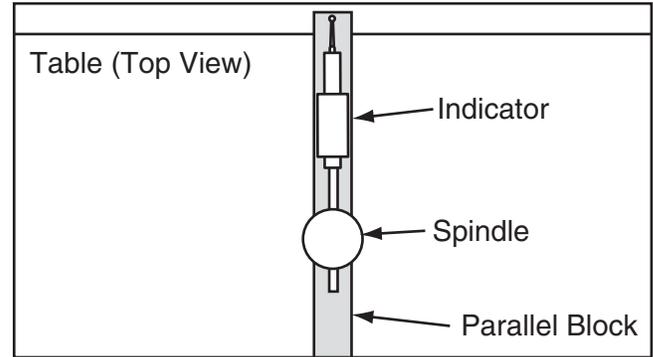


Figure 79. Setup for Y-axis adjustment.

- Rotate spindle so that the indicator point rests on parallel block, as illustrated in **Figure 79**, then zero dial.
- Rotate spindle so that the indicator point rests on other end of the block in the same manner, then read dial.

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

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

Tip: Keep one of the tilt lock bolts snug so that the head is not completely loose while you adjust it in small amounts.

- Re-tighten tilt lock bolts.

Note: It is a good idea to repeat **Steps 10–11** again in case the head moved slightly during the process of re-tightening the lock bolts.



SECTION 8: WIRING

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

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

WARNING

Wiring Safety Instructions

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

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

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

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

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

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

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

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

NOTICE

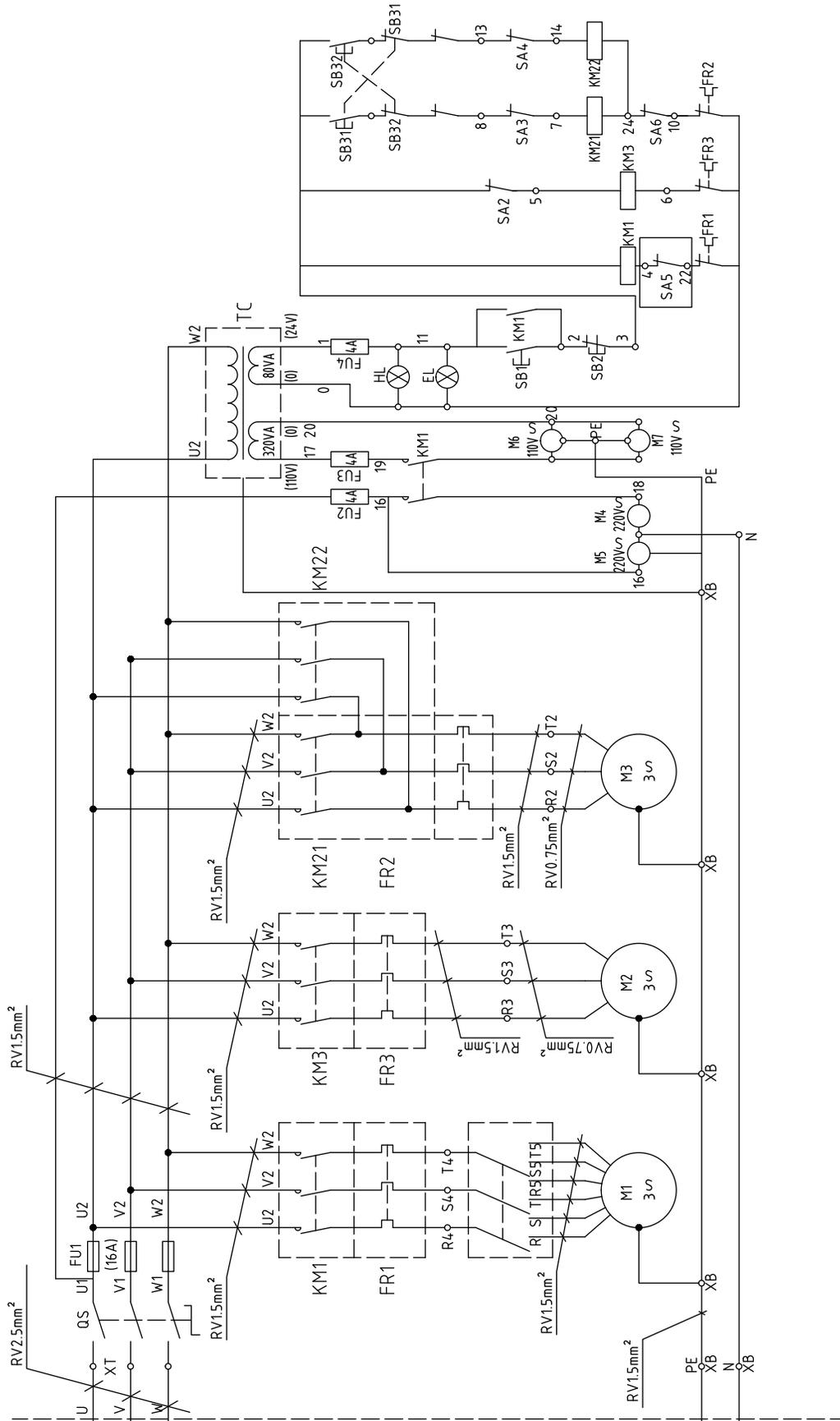
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

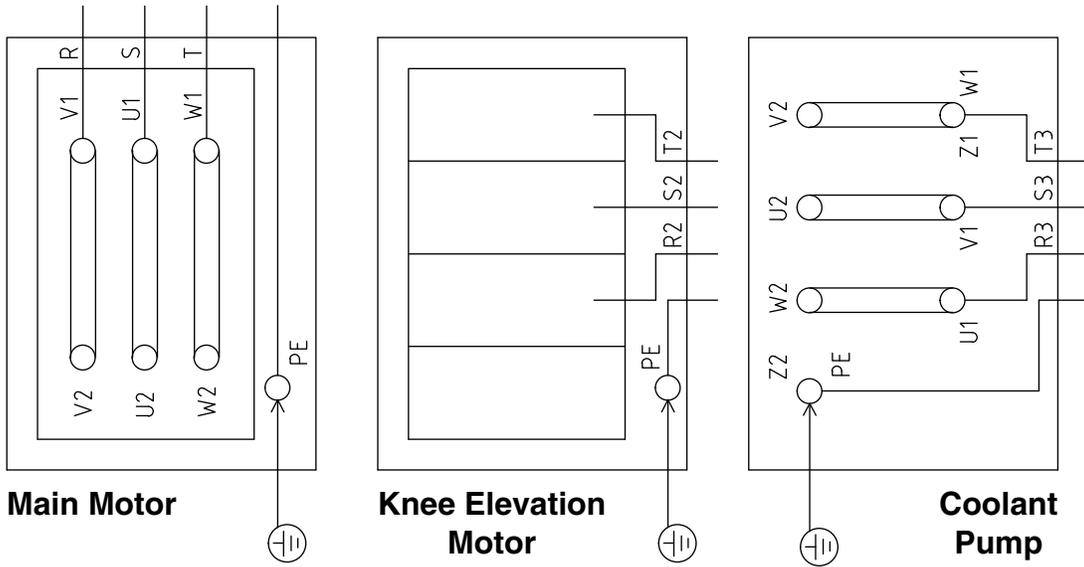
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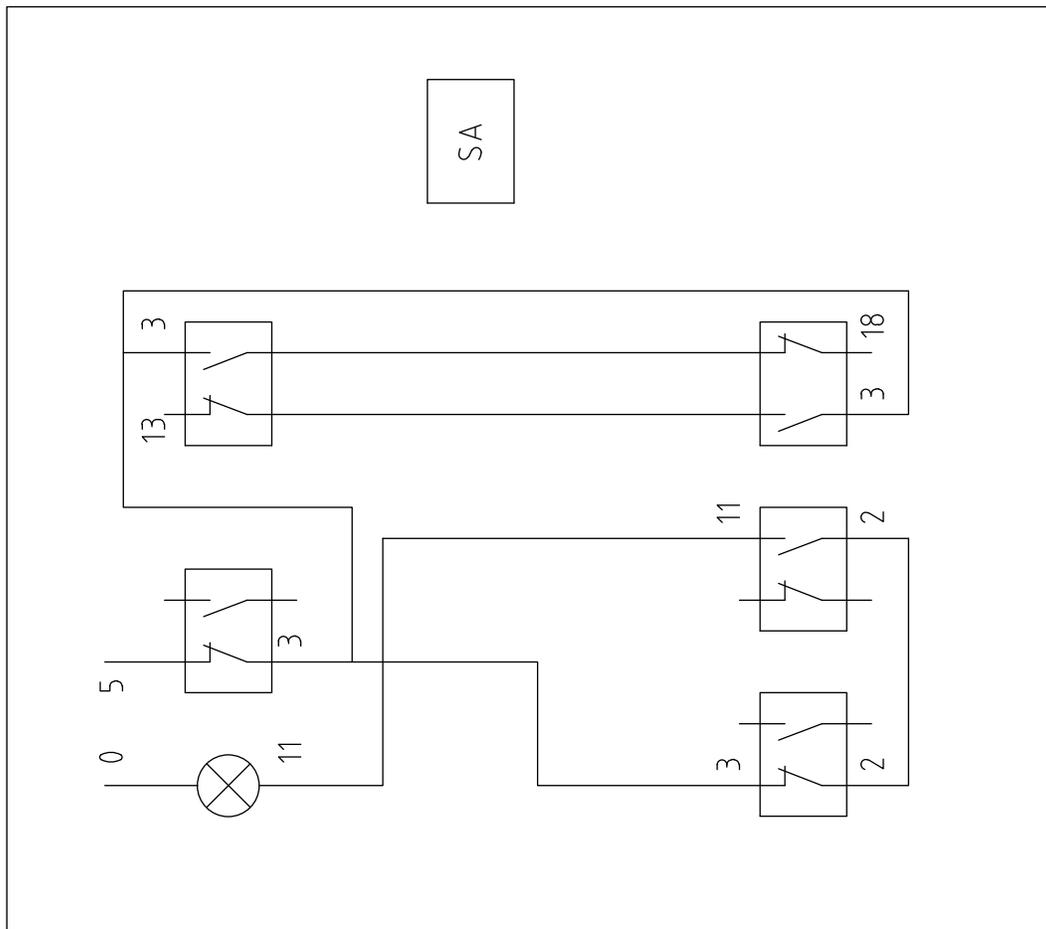
Electrical Cabinet Wiring Diagram



Motor Wiring Diagram

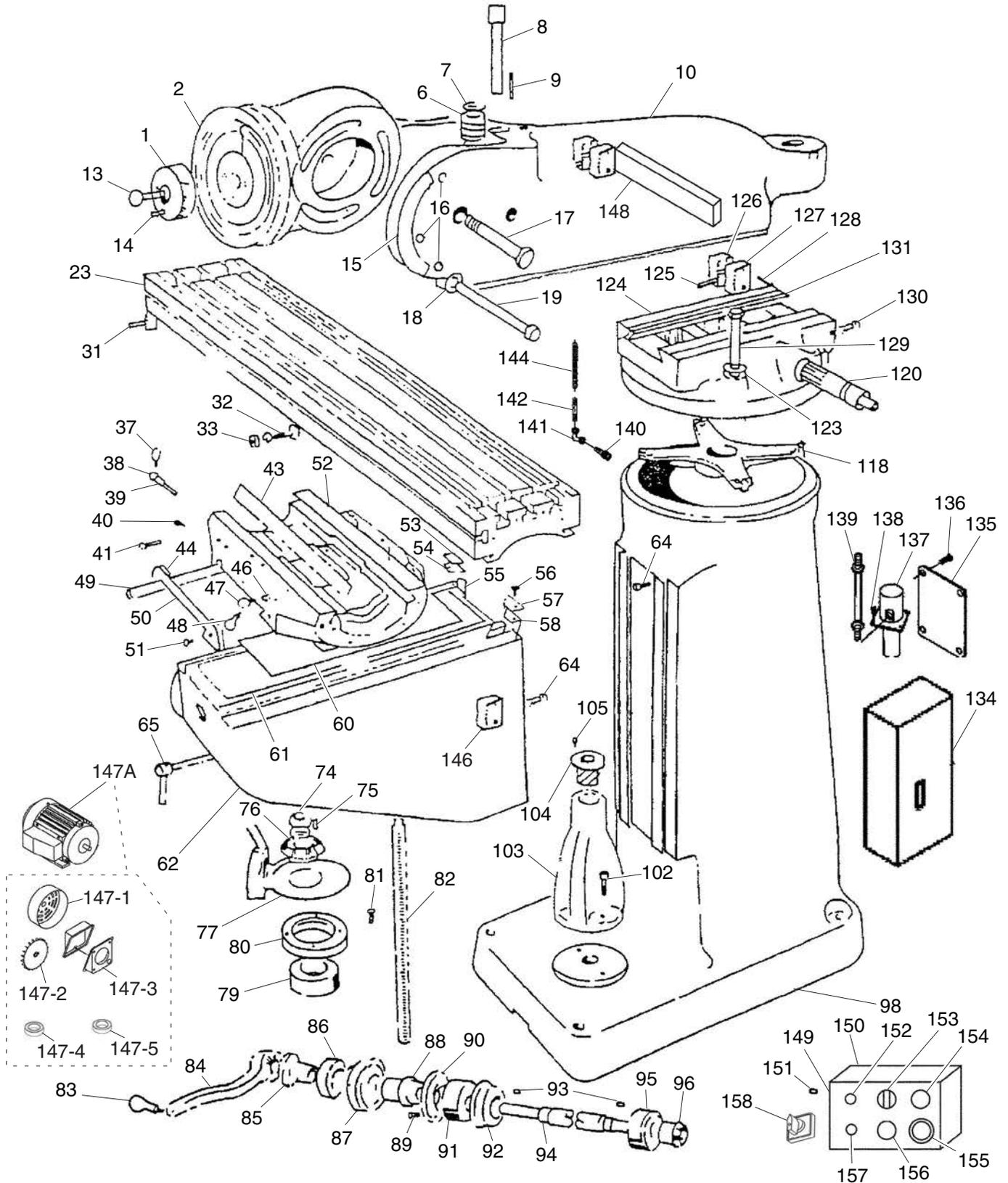


Control Panel



SECTION 9: PARTS

Base Machine



Base Machine Parts List

REF	PART #	DESCRIPTION
1	P0726001	QUILL HOUSING ADJUST GEAR
2	P0726002	RAM ADAPTER
6	P0726006	VERT. ADJUSTING WORM GEAR
7	P0726007	WORM THRUST WASHER
8	P0726008	VERTICAL WORM SHAFT
9	P0726009	WORM KEY
10	P0726010	RAM
13	PCAP13M	CAP SCREW M8-1.25 X 30
14	P0726014	ROLL PIN
15	P0726015	SCALE
16	PRIV001M	STEEL FLUTED RIVET 2 X 5MM
17	P0726017	PIVOT HEX BOLT 28.5 X 195MM
18	P0726018	CHAMFERED WASHER
19	P0726019	ADAPTER LOCKING BOLT
23	P0726023	TABLE
31	P0726031	LIMIT STOP T-BOLT
32	P0726032	TABLE STOP
33	PN02M	HEX NUT M10-1.5
37	P0726037	TABLE LOCK HANDLE
38	P0726038	SADDLE LOCK BOLT
39	P0726039	SADDLE LOCK PLUNGER
40	P0726040	LIMIT SWITCH CAP SCREW
41	P0726041	GIB ADJUSTMENT SCREW
43	P0726043	TABLE GIB
44	P0726044	SADDLE WAY WIPER
46	P0726046	TABLE LOCK PLUNGER
47	P0726047	TABLE LOCK BOLT
48	P0726048	TABLE LOCK HANDLE
49	P0726049	SADDLE GIB
50	P0726050	SADDLE WIPER PLATE
51	PS08M	PHLP HD SCR M5-.8 X 12
52	P0726052	SADDLE
53	P0726053	COLUMN WAY WIPER (L)
54	P0726054	WAY WIPER PLATE (L)
55	P0726055	COLUMN GIB
56	PCAP33M	CAP SCREW M5-.8 X 12
57	P0726057	COLUMN WAY WIPER (R)
58	P0726058	WAY WIPER PLATE (R)
60	P0726060	CHIP GUARD (UPPER)
61	P0726061	CHIP GUARD (LOWER)
62	P0726062	KNEE
64	P0726064	CAP SCREW M10-1.5 X 15
65	P0726065	KNEE LOCK HANDLE ASSY
74	PN01	HEX NUT 1/2-20
75	PK23M	KEY 5 X 5 X 25
76	PW10M	FLAT WASHER 13MM
77	P0726077	BEVEL GEAR
79	P6306ZZ	BALL BEARING 6306ZZ
80	P0726080	BEARING RETAINING RING
81	PCAP01M	CAP SCREW M6-1 X 16

REF	PART #	DESCRIPTION
82	P0726082	Z-AXIS LEADSCREW
83	P0726083	CRANK HANDLE
84	P0726084	Z-AXIS CRANK
85	P0726085	GEARSHAFT CLUTCH INSERT
86	P0726086	DIAL LOCK NUT
87	P0726087	GRADUATED DIAL
88	P0726088	DIAL HOLDER
89	PCAP02M	CAP SCREW M6-1 X 20
90	P0726090	BEARING RETAINING RING
91	P6204ZZ	BALL BEARING 6204ZZ
92	P0726092	BEARING CAP
93	PK48M	KEY 4 X 4 X 20
94	P0726094	Z-AXIS CRANK SHAFT
95	P6204ZZ	BALL BEARING 6204ZZ
96	P0726096	BEVEL PINION
98	P0726098	COLUMN
102	PCAP47M	CAP SCREW M10-1.5 X 40
103	P0726103	PEDESTAL
104	P0726104	Z-AXIS LEADSCREW NUT
105	PCAP01M	CAP SCREW M6-1 X 16
118	P0726118	TURRET SPIDER
120	P0726120	RAM PINION
123	P0726123	CHAMFERED WASHER
124	P0726124	TURRET
125	P0726125	RAM CLAMP BAR
126	P0726126	RAM CLAMP UNTAPPED
127	P0726127	RAM CLAMP TAPPED
128	P0726128	ROLL PIN
129	P0726129	LOCKING HEX BOLT M12-1.75
130	P0726130	GIB ADJUSTMENT SCREW
131	P0726131	RAM GIB
134	P0726134	ELECTRICAL CABINET W/DOOR
135	P0726135	COOLANT PUMP ACCESS COVER
136	PS09M	PHLP HD SCR M5-.8 X 10
137	P0726137	COOLANT PUMP 90W 220V 3-PH
138	PCAP28M	CAP SCREW M6-1 X 15
139	P0726139	COOLANT HOSE 3/8 ID
140	P0726140	PIPE NIPPLE 3/8" NPT
141	P0726141	ELBOW JOINT 3/8" NPT 90 DEG
142	P0726142	RISER PIPE 3/8" NPT
144	P0726144	COOLANT NOZZLE
146	P0726146	KNEE LIMIT SWITCH WANIKI LXW5-11Q
147	P0726147	Z-AXIS MOTOR 1/8HP 220V 3-PH
147-1	P0726147-1	MOTOR FAN COVER
147-2	P0726147-2	MOTOR FAN
147-3	P0726147-3	MOTOR WIRING JUNCTION BOX
147-4	P0726147-4	MOTOR FRONT BALL BEARING
147-5	P0726147-5	MOTOR REAR BALL BEARING
148	P0726148	CONTROL PANEL PIVOT ARM ASSY
149	P0726149	CONTROL PANEL PLATE



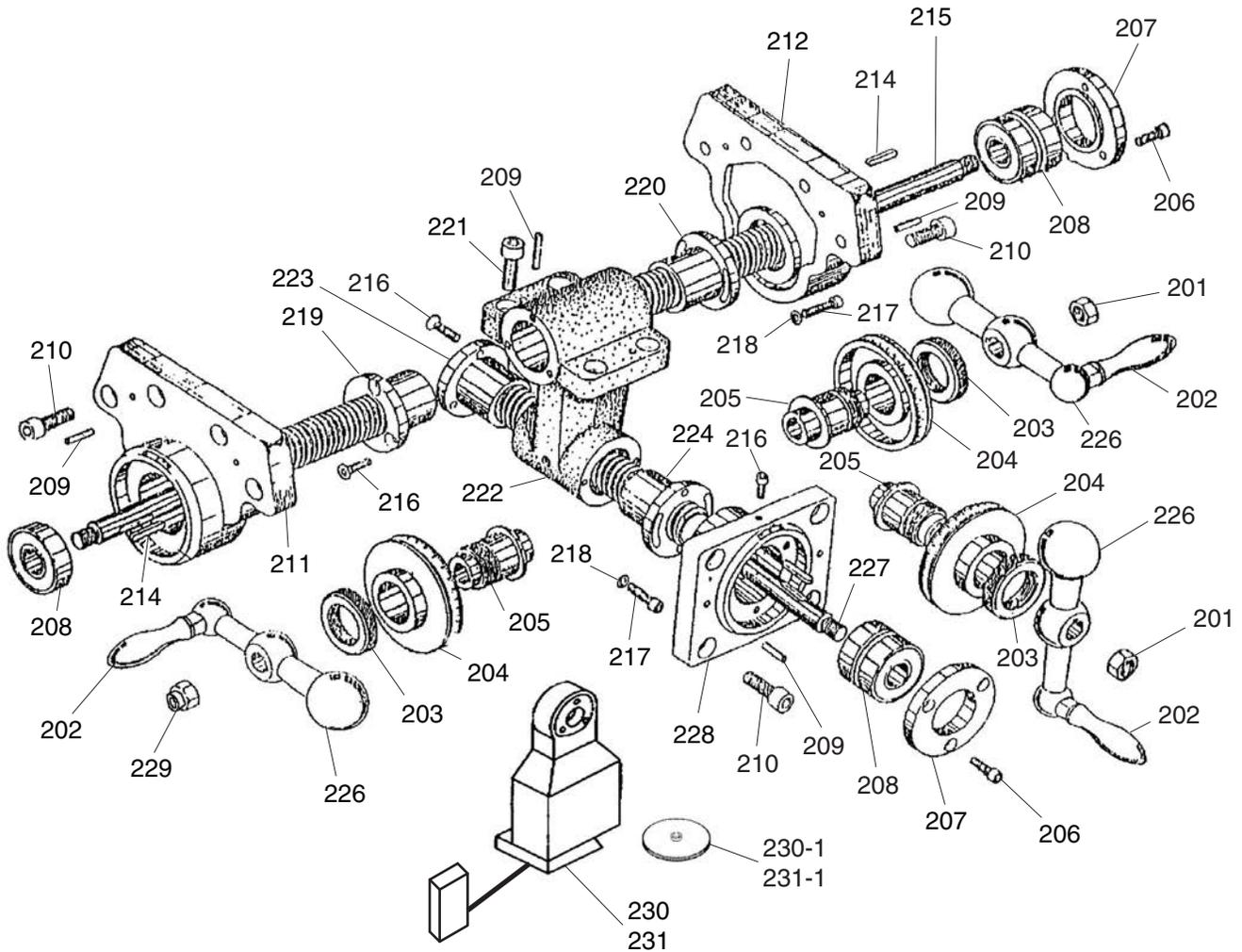
Base Machine Parts List

REF	PART #	DESCRIPTION
150	P0726150	CONTROL PANEL BOX
151	PS09M	PHLP HD SCR M5-.8 X 10
152	P0726152	UP BUTTON SHSMAO Y090-LAY37
153	P0726153	PUMP SWITCH SHSMAO Y090-LAY37
154	P0726154	POWER LIGHT SHUANGKE AD56-22DS

REF	PART #	DESCRIPTION
155	P0726155	E-STOP BUTTON SHSMAO Y090-LAY37
156	P0726156	ON BUTTON SHSMAO Y090-LAY37
157	P0726157	DOWN BUTTON SHSMAO Y090-LAY37
158	P0726158	SPINDLE SWITCH YK AC3 200-500V



X- & Y-Axis Leadscrews

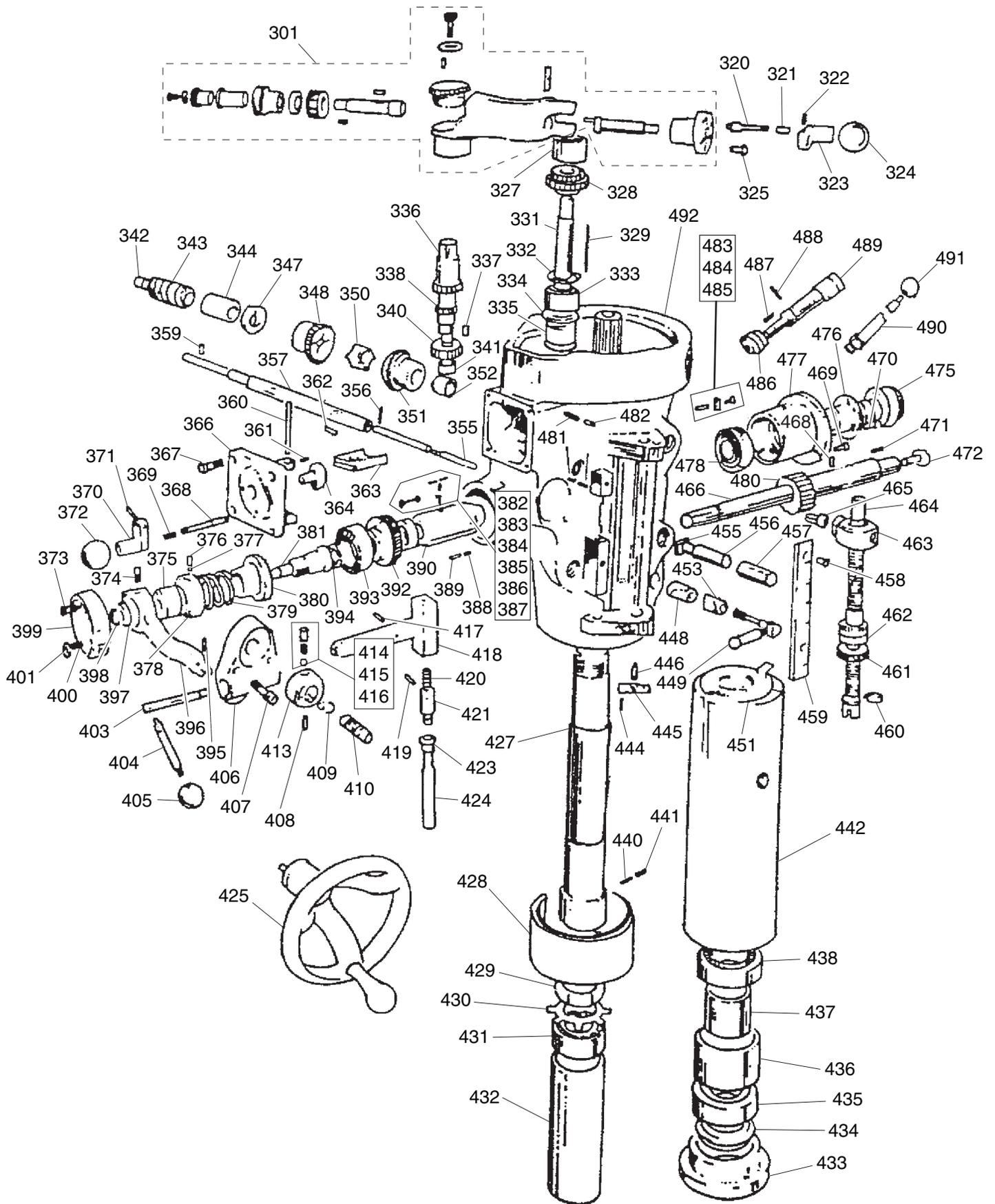


REF	PART #	DESCRIPTION
201	PN01	HEX NUT 1/2-20
202	P0726202	BALL CRANK HANDLE
203	P0726203	DIAL LOCK NUT
204	P0726204	GRADUATED DIAL
205	P0726205	DIAL HOLDER
206	PCAP04M	CAP SCREW M6-1 X 10
207	P0726207	BEARING RETAINER RING
208	P204-20	BALL BEARING 204-20
209	PRP05M	ROLL PIN 5 X 30
210	PCAP61M	CAP SCREW M10-1.5 X 20
211	P0726211	LEFT BEARING BRACKET
212	P0726212	RIGHT BEARING BRACKET
214	PK92M	KEY 3 X 3 X 25
215	P0726215	X-AXIS LEADSCREW
216	PCAP02M	CAP SCREW M6-1 X 20
217	PCAP02M	CAP SCREW M6-1 X 20

REF	PART #	DESCRIPTION
218	PW03M	FLAT WASHER 6MM
219	P0726219	X-AXIS LEADSCREW NUT (L)
220	P0726220	X-AXIS LEADSCREW NUT (R)
221	PCAP61M	CAP SCREW M10-1.5 X 20
222	P0726222	LEADSCREW NUT BRACKET
223	P0726223	Y-AXIS LEADSCREW NUT (B)
224	P0726224	Y-AXIS LEADSCREW NUT (F)
226	P0726226	BALL HANDLE
227	P0726227	Y-AXIS LEADSCREW
228	P0726228	BEARING BRACKET
229	P0726229	RAISED-TOP HEX NUT
230	P0726230	X-AXIS PF W/LS ALIGN 111008765
230-1	P0726230-1	X-AXIS PF LEXAN GEAR
231	P0726231	Y-AXIS PF W/LS ALIGN 111011961
231-1	P0726231-1	Y-AXIS PF LEXAN GEAR



Downfeed System



Downfeed System Parts

REF	PART #	DESCRIPTION
301	P0726301	DOWNFEED SHAFT ASSEMBLY
320	P0726320	GEARSHAFT PLUNGER
321	P0726321	COMPRESSION SPRING
322	PRP42M	ROLL PIN 3 X 20
323	P0726323	SHIFT CRANK
324	P0726324	SHIFT CRANK ROUND KNOB
325	PCAP15M	CAP SCREW M5-.8 X 20
327	P0726327	CLUSTER GEAR SHAFT BEARING
328	P0726328	CLUSTER GEAR
329	P0726329	CLUSTER GEAR KEY
331	P0726331	CLUSTER GEAR SHAFT
332	PR06M	EXT RETAINING RING 16MM
333	P0726333	GEAR SLEEVE
334	PW26MM	FLAT WASHER 22MM
335	P0726335	FEED REVERSE BEVEL PINION
336	P0726336	FEED GEAR
337	PK39M	KEY 3 X 3 X 10
338	P0726338	CLUSTER GEAR INPUT SHAFT
340	P0726340	FEED GEAR
341	P0726341	NEEDLE BEARING 9.5 X 14 X 13MM
342	P0726342	BUSHING
343	P0726343	WORM GEAR
344	P0726344	FEED WORM SHAFT BUSHING
347	P0726347	FEED WORM SHAFT WASHER
348	P0726348	FEED REVERSE BEVEL GEAR
350	P0726350	FEED REVERSE CLUTCH
351	P0726351	FEED REVERSE BEVEL GEAR
352	P0726352	BUSHING
355	P0726355	REVERSE CLUTCH ROD
356	PRP61M	ROLL PIN 3 X 12
357	P0726357	FEED WORM SHAFT
359	P0726359	PIN
360	P0726360	FEED SHAFT ROD
361	PSS07M	SET SCREW M5-.8 X 5
362	PK39M	KEY 3 X 3 X 10
363	P0726363	FEED GEAR SHIFT CRANK
364	P0726364	CLUSTER GEAR SHAFT CRANK
366	P0726366	CLUSTER GEAR COVER
367	PCAP24M	CAP SCREW M5-.8 X 16
368	P0726368	GEAR SHIFT PLUNGER
369	P0726369	COMPRESSION SPRING
370	P0726370	SHIFT CRANK
371	PRP42M	ROLL PIN 3 X 20
372	P0726372	SHIFT CRANK ROUND KNOB
373	PCAP108M	CAP SCREW M5-.8 X 45
374	P0726374	CLUTCH RING PIN
375	P0726375	CLUTCH RING
376	PSS03M	SET SCREW M6-1 X 8
377	P0726377	BRASS PLUG
378	P0726378	OVERLOAD CLUTCH LOCK NUT
379	P0726379	SAFETY CLUTCH SPRING
380	P0726380	OVERLOAD CLUTCH
381	P0726381	OVERLOAD CLUTCH SLEEVE

REF	PART #	DESCRIPTION
382	PLW01M	LOCK WASHER 55M
383	P0726383	ALIGNMENT SCREW
384	P0726384	LOCK SCREW
385	PSS02M	SET SCREW M6-.8 X 6
386	P0726386	LOCK SCREW
387	PSS02M	SET SCREW M6-.8 X 6
388	P0726388	COMPRESSION SPRING
389	P0726389	CLUTCH LEVER SPRING PLUNGER
390	P0726390	QUILL PINION SHAFT BUSHING
392	P0726392	OVERLOAD CLUTCH WORM GEAR
393	P0726393	OVERLOAD CLUTCH RING
394	PR05M	EXT RETAINING RING 15MM
395	P0726395	DOWEL PIN
396	P0726396	OVERLOAD CLUTCH TRIP LEVER
397	P0726397	OVERLOAD CLUTCH WASHER
398	PR01M	EXT RETAINING RING 10MM
399	P0726399	CLUTCH ARM COVER
400	PSS11M	SET SCREW M6-1 X 16
401	P0726401	CAM BRACKET LOCK NUT
403	P0726403	CAM ROD
404	P0726404	TRIP HANDLE
405	P0726405	TRIP HANDLE ROUND KNOB
406	P0726406	FEED TRIP BRACKET
407	PCAP02M	CAP SCREW M6-1 X 20
408	PSS02M	SET SCREW M6-1 X 6
409	PK39M	KEY 3 X 3 X 10
410	P0726410	FEED REVERSE KNOB ROD
413	P0726413	HANDWHEEL CLUTCH
414	PSTB002M	STEEL BALL 8MM
415	P0726415	COMPRESSION SPRING
416	PSS20M	SET SCREW M8-1.25 X 8
417	PRP02M	ROLL PIN 3 X 16
418	P0726418	CAM ROD SLEEVE
419	PRP61M	ROLL PIN 3 X 12
420	P0726420	COMPRESSION SPRING
421	P0726421	TRIP PLUNGER
423	P0726423	TRIP PLUNGER BUSHING
424	P0726424	FEED TRIP PLUNGER
425	P0726425	HANDWHEEL
427	P0726427	SPINDLE
428	P0726428	QUILL SKIRT
429	P0726429	SPANNER NUT
430	P0726430	SPANNER LOCK WASHER
431	P7008ZZ	ANGULAR CONTACT BEARING 7008ZZ
432	P0726432	SLEEVE
433	P0726433	QUILL NOSE
434	P0726434	SPINDLE DIRT SHIELD
435	P7010ZZ	ANGULAR CONTACT BEARING 7010ZZ
436	P0726436	BEARING SPACER
437	P0726437	BUSHING
438	P7010ZZ	ANGULAR CONTACT BEARING 7010ZZ
440	PSS03M	SET SCREW M6-1 X 8
441	P0726441	COLLET ALIGNMENT SCREW



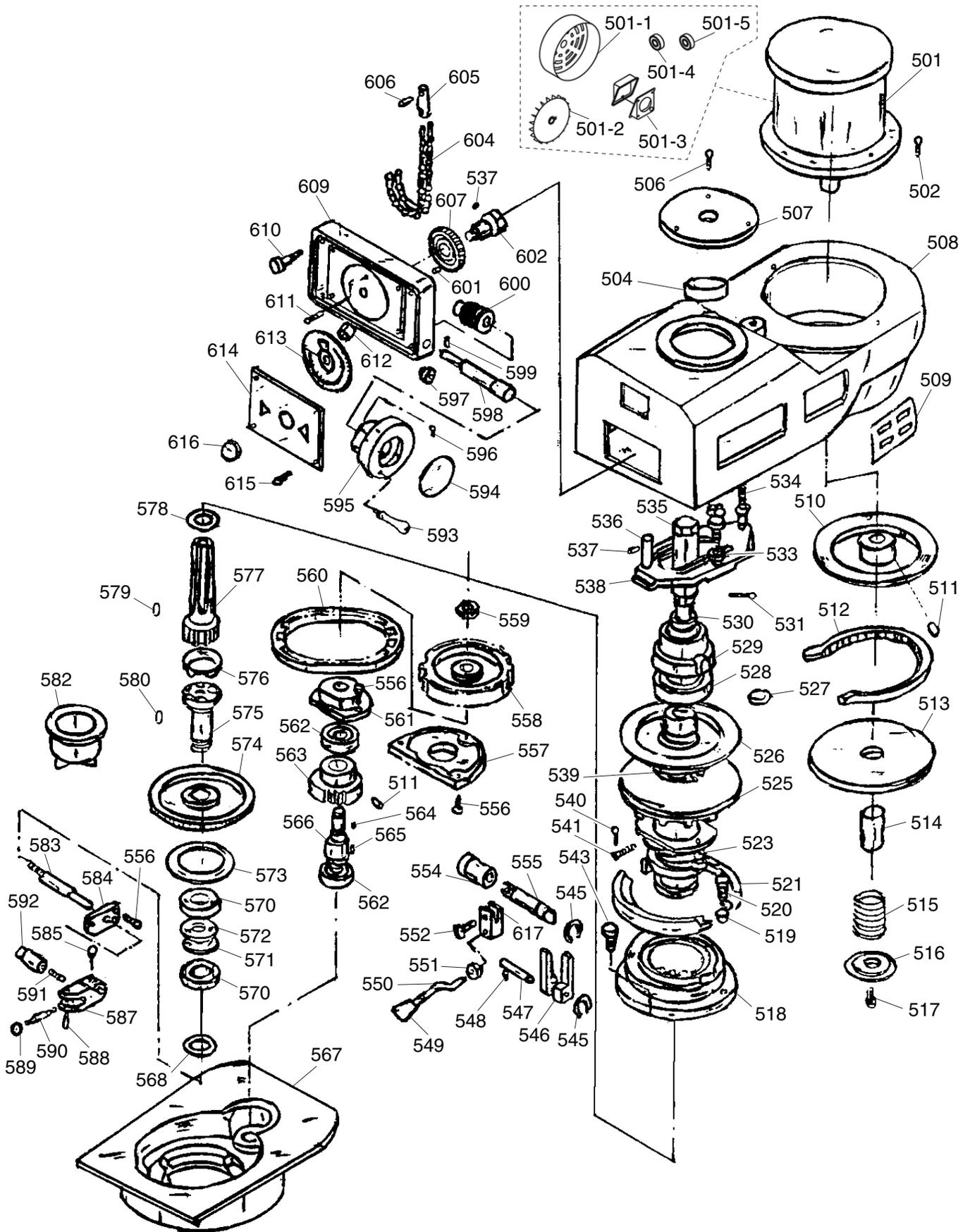
Downfeed System Parts

REF	PART #	DESCRIPTION
442	P0726442	QUILL
444	PSS50M	SET SCREW M4-.7 X 20
445	P0726445	FEED TRIP LEVER
446	P0726446	TRIP LEVER PIN
448	P0726448	QUILL LOCK SLEEVE
449	P0726449	QUILL LOCK HANDLE
451	P0726451	FELT WASHER
453	P0726453	QUILL LOCK SLEEVE TAPPED
455	P0726455	T-BOLT
456	P0726456	LOWER CLAMPING BOLT SPACER
457	P0726457	CLAMPING BOLT LOCK
458	PS17M	PHLP HD SCR M4-.7 X 6
459	P0726459	SCALE
460	P0726460	QUILL LEADSCREW LOCK SCREW
461	P0726461	QUILL LOCK NUT
462	P0726462	QUILL STOP NUT
463	P0726463	QUILL DOG
464	P0726464	QUILL LEADSCREW
465	PCAP75M	CAP SCREW M10-1.5 X 18
466	P0726466	QUILL PINION SHAFT
468	PRP01M	ROLL PIN 4 X 17

REF	PART #	DESCRIPTION
469	PS02M	PHLP HD SCR M4-.7 X 12
470	PRP35M	ROLL PIN 5 X 10
471	P0726471	KEY 3 X 3 X 18
472	P0726472	PINION SHAFT HUB SCREW
475	P0726475	RACK FEED HANDLE HUB
476	P0726476	PINION SHAFT HUB SLEEVE
477	P0726477	SPRING COVER
478	P0726478	TORSION SPRING
480	P0726480	QUILL PINION
481	PSS11M	SET SCREW M6-1 X 16
482	P0726482	HEAD CASTING SCREW
483	P0726483	REVERSE TRIP BALL LEVER
484	P0726484	FEED REVERSE TRIP PLUNGER
485	P0726485	REVERSE TRIP BALL LEVER SCREW
486	P0726486	WORM GEAR
487	PK48M	KEY 4 X 4 X 20
488	PSS03M	SET SCREW M6-1 X 8
489	P0726489	WORM SHAFT
490	P0726490	PINION SHAFT HUB HANDLE
491	P0726491	PINON SHAFT ROUND KNOB
492	P0726492	HEAD CASTING



Headstock



Headstock Parts

REF	PART #	DESCRIPTION
501	P0726501	MOTOR 5HP 220V 3-PH AEFV 112-4
501-1	P0726501-1	MOTOR FAN COVER
501-2	P0726501-2	MOTOR FAN
501-3	P0726501-3	MOTOR JUNCTION BOX
501-4	P6205ZZ	BALL BEARING 6205ZZ
501-5	P6205ZZ	BALL BEARING 6205ZZ
502	P0726502	MOTOR MOUNT CAP SCREW 3/8-16
504	P6009ZZ	BALL BEARING 6009ZZ
506	PCAP02M	CAP SCREW M6-1 X 20
507	P0726507	SPINDLE TOP COVER
508	P0726508	UPPER HEADSTOCK HOUSING, ALUMINUM
509	P0726509	HOUSING SIDE COVER, PLASTIC
510	P0726510	MOTOR FIXED PULLEY
511	PCAP31M	CAP SCREW M8-1.25 X 25
512	P0726512	VARIABLE SPEED BELT 3828 9001/Q828
513	P0726513	MOTOR MOVABLE PULLEY
514	P0726514	MOTOR PULLEY SHAFT
515	P0726515	COMPRESSION SPRING
516	P0726516	SPRING BASE
517	P0726517	SPRING BASE CAP SCREW
518	P0726518	BRAKE BRACKET, ALUMINUM
519	PCAP68M	CAP SCREW M6-1 X 8
520	PS03M	PHLP HD SCR M6-1 X 8
521	P0726521	BRAKE SHOE 2-PC SET
523	P6012ZZ	BALL BEARING 6012ZZ
525	P0726525	LOWER SPINDLE PULLEY
526	P0726526	UPPER SPINDLE PULLEY
527	PR56M	EXT RETAINING RING 45MM
528	P6012ZZ	BALL BEARING 6012ZZ
529	P0726529	SLIDING SLEEVE, ALUMINUM
530	P0726530	DRAWBAR SPACER 22 X 13 X 8
531	PRP42M	ROLL PIN 3 X 20
533	P0726533	SLEEVE
534	P0726534	PLATE ADJUSTING ROD
535	P0726535	DRAWBAR 5/8"-11
536	P0726536	CHAIN PIN
537	PRP76M	ROLL PIN 4 X 16
538	P0726538	SPEED CHANGE PLATE
539	PR43M	EXT RETAINING RING 50MM
540	PS50	PHLP HD SCR 5-40 X 1/4
541	P0726541	BRAKE EXTENSION SPRING
543	PB09M	HEX BOLT M8-1.25 X 20
545	PEC04M	E-CLIP 13MM
546	P0726546	BRAKE PIVOT ARM 2-PC SET
547	P0726547	BRAKE PIVOT ROD
548	PCAP85M	CAP SCREW M6-1 X 6
549	P0726549	TAPERED KNOB 3/8-16
550	P0726550	BRAKE LEVER
551	PN08	HEX NUT 3/8-16
552	PCAP06M	CAP SCREW M6-1 X 25

REF	PART #	DESCRIPTION
554	P0726554	BRAKE SHAFT SLEEVE
555	P0726555	BRAKE SHAFT
556	PCAP01M	CAP SCREW M6-1 X 16
557	P0726557	PULLEY COVER
558	P0726558	TIMING BELT PULLEY
559	PN04	HEX NUT 5/8-11
560	P0726560	TIMING BELT 225L
561	P0726561	BEARING HOUSING
562	P6203ZZ	BALL BEARING 6203ZZ
563	P0726563	PINION GEAR
564	PK47M	KEY 4 X 4 X 15
565	P0726565	TIMING BELT CLUTCH
566	P0726566	PINION SHAFT
567	P0726567	HEADSTOCK BOTTOM COVER
568	P0726568	BULL GEAR SEAT
570	P0726570	BEARING SLEEVE
571	P0726571	SPACER
572	P0726572	BEARING SLEEVE
573	P0726573	THRUST WASHER
574	P0726574	SPINDLE TIMING PULLEY
575	P0726575	CLUTCH
576	P0726576	CLUTCH SHAFT SLEEVE RING
577	P0726577	SPLINE SHAFT
578	P0726578	SPACER
579	PK34M	KEY 5 X 5 X 20
580	PK70M	KEY 8 X 8 X 12
582	P0726582	BEARING HOUSING
583	P0726583	CLUTCH GEAR SHAFT
584	P0726584	SPEED RANGE POSITIONING PLATE
585	PCAP33M	CAP SCREW M5-.8 X 12
587	P0726587	PIVOT ARM
588	PRP07M	ROLL PIN 6 X 20
589	P0726589	ROUND PLASTIC KNOB 1/4"-20
590	P0726590	SPRING STUD 1/4"-20 X 3/4"
591	P0726591	COMPRESSION SPRING
592	P0726592	SPEED RANGE POSITIONING PIN
593	P0726593	HANDWHEEL HANDLE
594	P0726594	SPEED HANDWHEEL INFO PLATE
595	P0726595	HANDWHEEL
596	PSS02M	SET SCREW M6-1 X 6
597	P0726597	BRASS SLEEVE
598	P0726598	SPEED CHANGE SHAFT
599	PRP61M	ROLL PIN 3 X 12
600	P0726600	WORM
601	PRP115M	ROLL PIN 5 X 8
602	P0726602	CHAIN SHAFT
604	P0726604	CHAIN
605	P0726605	CHAIN MASTER LINK
606	P0726606	MASTER LINK PIN
607	P0726607	WORM GEAR



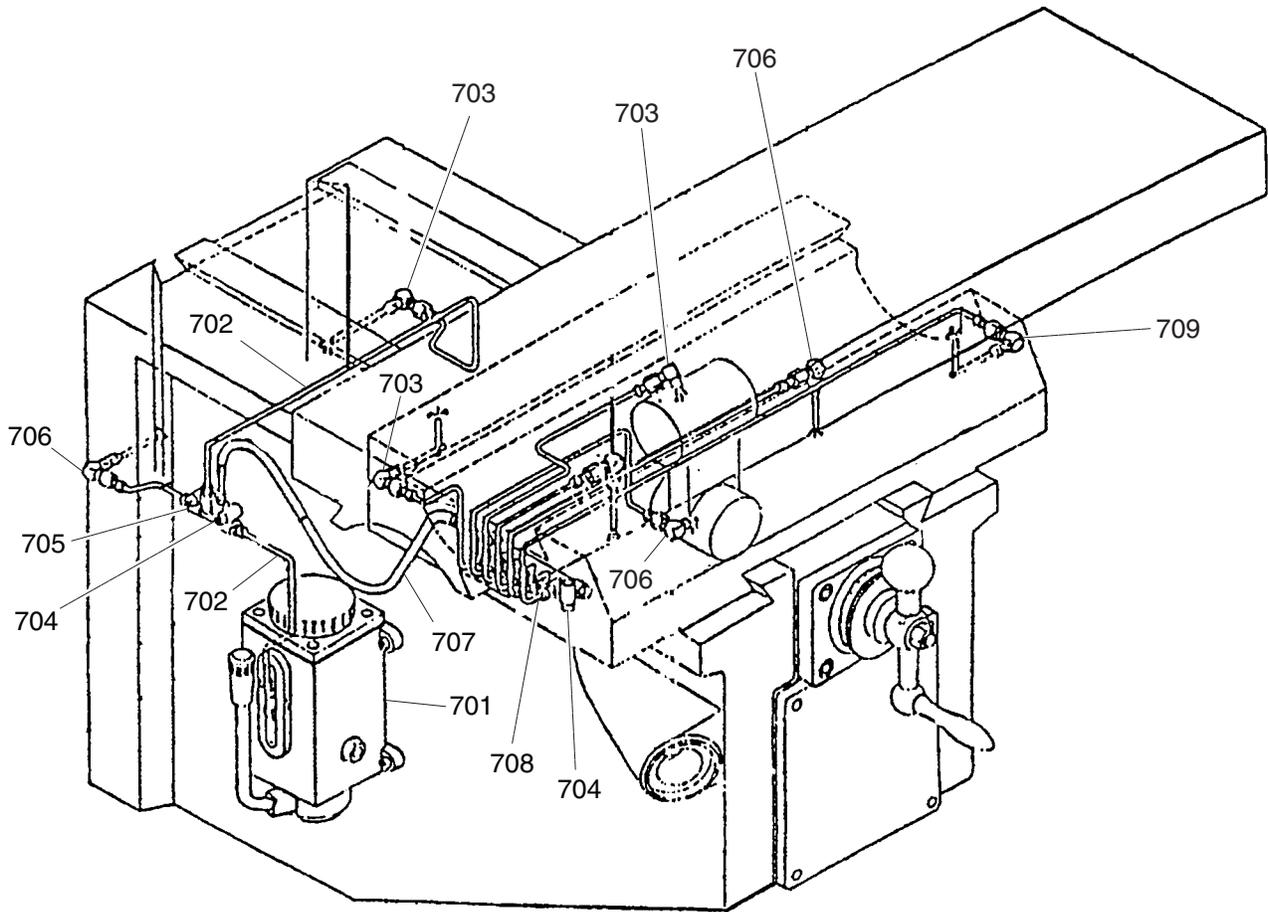
Headstock Parts

REF	PART #	DESCRIPTION
609	P0726609	HEADSTOCK FRONT COVER, ALUMINUM
610	PCAP07M	CAP SCREW M6-1 X 30
611	PCAP01M	CAP SCREW M6-1 X 16
612	P0726612	BRASS SLEEVE
613	P0726613	SPEED CHANGE DIAL

REF	PART #	DESCRIPTION
614	P0726614	SPEED CHANGE INDICATOR PLATE
615	PCAP26M	CAP SCREW M6-1 X 12
616	PN40	ACORN NUT 5/16-18
617	P0726617	BRAKE PIVOT ARM



One-Shot Oiler



REF	PART #	DESCRIPTION
701	P0726701	ONE-SHOT OILER
702	P0726702	ALUMINUM PIPE
703	P0726703	OIL DISTRIBUTOR CPS4
704	P0726704	DISTRIBUTOR HEX BOLT
705	P0726705	OIL DISTRIBUTOR A4

REF	PART #	DESCRIPTION
706	P0726706	OIL DISTRIBUTOR CPS3
707	P0726707	STEEL FLEXIBLE TUBE
708	P0726708	OIL DISTRIBUTOR A8
709	P0726709	OIL DISTRIBUTOR CPS5



Accessories

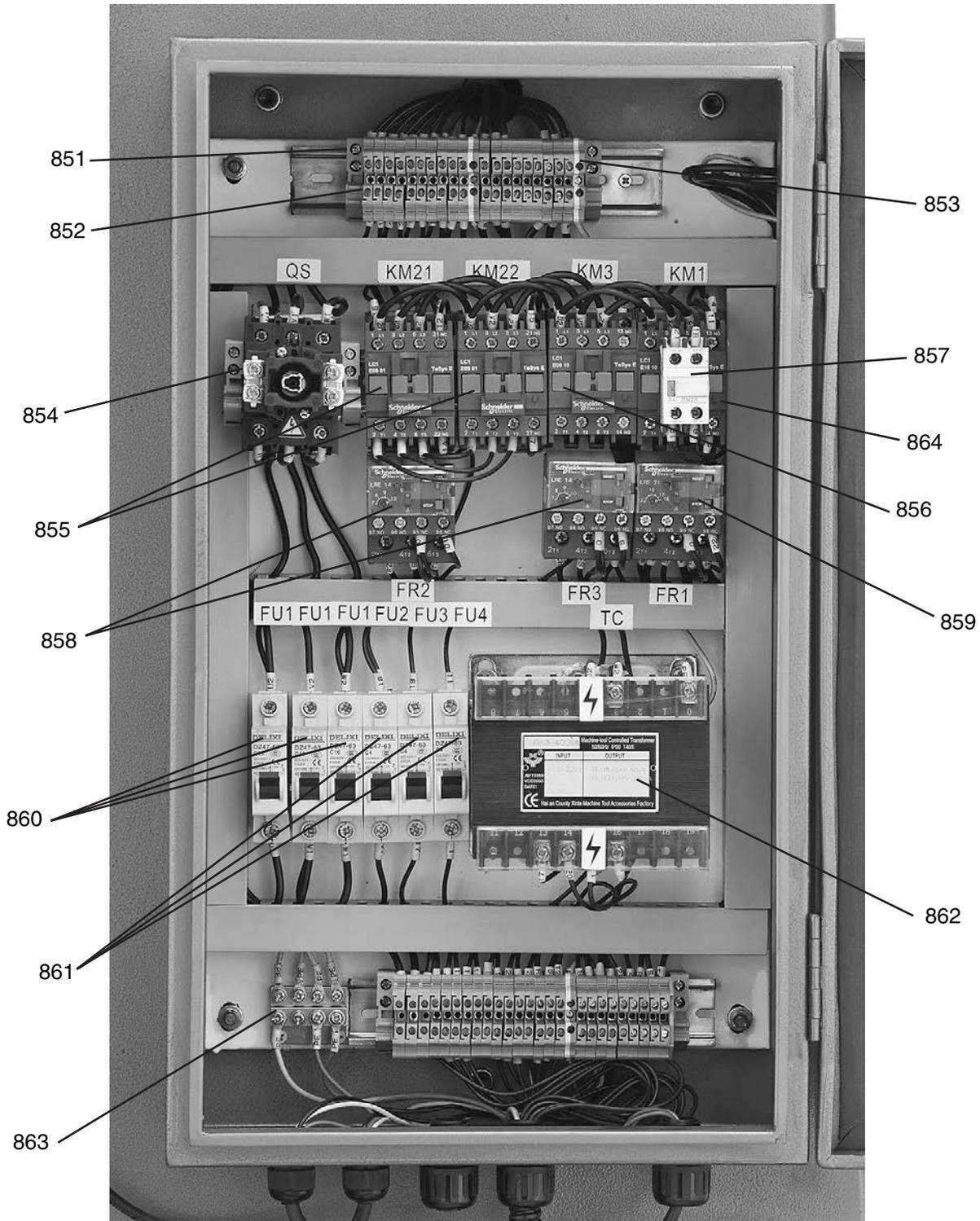


REF	PART #	DESCRIPTION
801	P0726801	DIGITAL DISPLAY UNIT SINO SDS6-2V
803	P0726803	X-AXIS DRO SCALE
804	P0726804	Y-AXIS DRO SCALE
806	P0726806	OIL BOTTLE
807	PWR1719	WRENCH 17 X 19 CLOSED-ENDS
808	P0726808	WRENCH 18 X 21 CLOSED-ENDS
809	PSDP2	SCREWDRIVER PHILLIPS #2
810	PSDF2	SCREWDRIVER STANDARD #2
811	PAW04M	HEX WRENCH 4MM
812	PAW05M	HEX WRENCH 5MM
813	PAW06M	HEX WRENCH 6MM

REF	PART #	DESCRIPTION
814	PAW08M	HEX WRENCH 8MM
815	P0726815	POWER FEED MANUAL
816	P0726816	DIGITAL READOUT MANUAL
817	P0726817	X-AXIS DRO SCALE COVER
818	P0726818	Y-AXIS DRO SCALE COVER
819	P0726819	COOLANT RETURN HOSE W/CLAMP
820	P0726820	HALOGEN WORK LIGHT ASSY
821	P0726821	RUBBER WAY COVER
822	P0726822	RUBBER CHIP DEFLECTOR
823	P0726823	SPLASH PAN



Electrical Cabinet

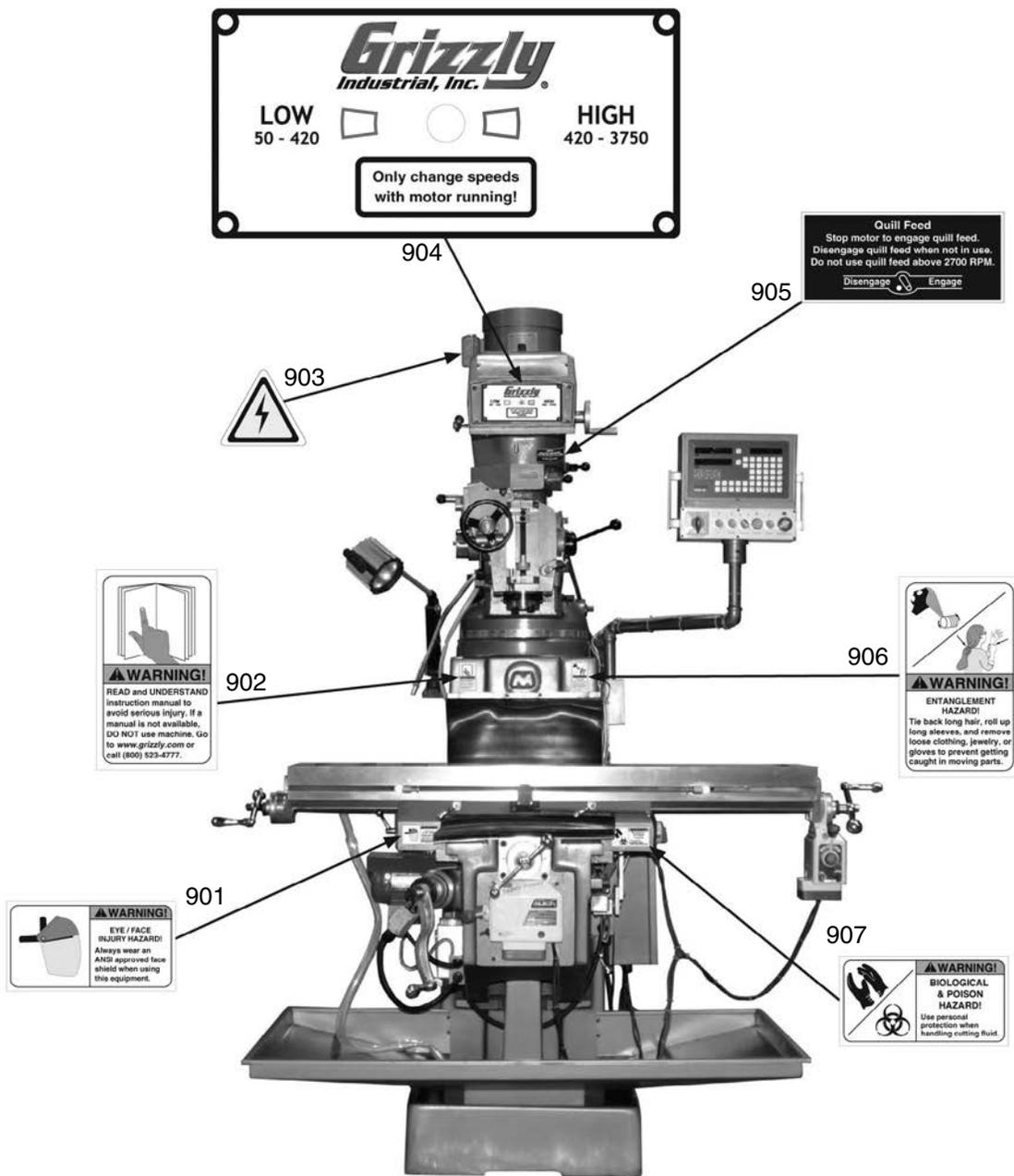


REF	PART #	DESCRIPTION
851	P0726851	TERMINAL BAR CLAMP
852	P0726852	STANDARD TERMINAL BAR 1-POST
853	P0726853	GROUND TERMINAL BAR 1-POST
854	P0726854	MASTER POWER SWITCH TAYEE LW42B32M
855	P0726855	CONTACTOR SCHN LC1E09-01 24V
856	P0726856	CONTACTOR SCHN LC1E09-10 24V
857	P0726857	CONTACTOR STOP SWITCH SRK F4-20

REF	PART #	DESCRIPTION
858	P0726858	OL RELAY SCHN LRE14 7-10A
859	P0726859	OL RELAY SCHN LRE21 12-18A
860	P0726860	CIRCUIT BREAKER DELIXI DZ47-63C16
861	P0726861	CIRCUIT BREAKER DELIXI DZ47-63C4
862	P0726862	TRANSFORMER XINTE JBK3-400VA 220-320V
863	P0726863	GROUND BUS BAR 8-POST
864	P0726864	CONTACTOR SCHN LC1E18-10 24V



Machine Labels (Front)



REF	PART #	DESCRIPTION
901	PLABEL-54C	EYE/FACE HAZARD LABEL
902	PLABEL-12A	READ MANUAL LABEL
903	PLABEL-14A	ELECTRICITY LABEL
904	P0726904	SPEED CHANGE LABEL PLATE

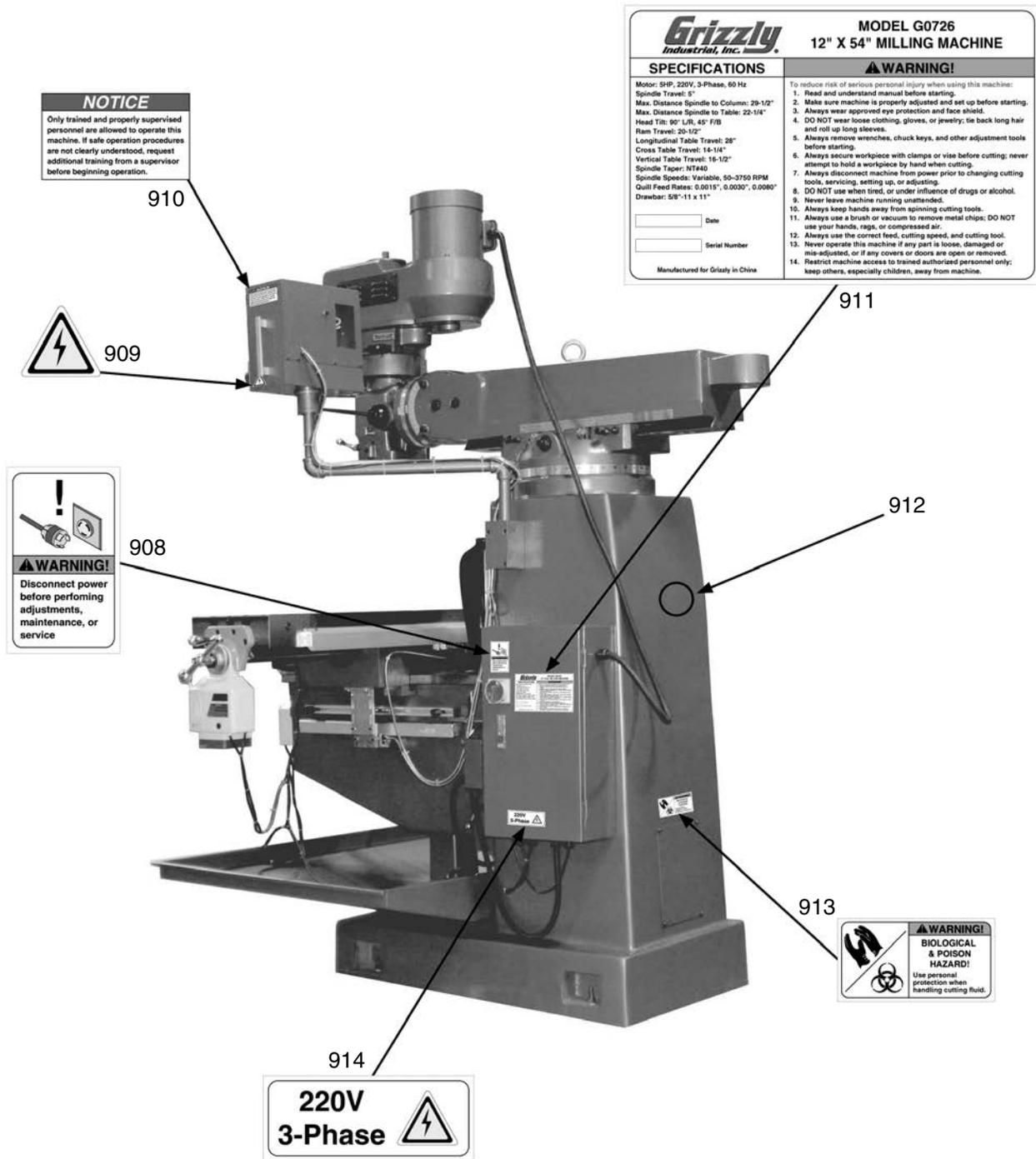
REF	PART #	DESCRIPTION
905	P0726905	QUILL FEED LABEL PLATE
906	PLABEL-55	ENTANGLEMENT HAZARD LABEL
907	PLABEL-50C	BIO-HAZARD LABEL

⚠️ 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.



Machine Labels (Right Side)



Grizzly Industrial, Inc.		MODEL G0726 12" X 54" MILLING MACHINE
SPECIFICATIONS		⚠ WARNING!
Motor: 5HP, 220V, 3-Phase, 60 Hz Spindle Travel: 6" Max. Distance Spindle to Column: 29-1/2" Max. Distance Spindle to Table: 22-1/4" Head Tilt: 90° L/R, 45° F/B Ram Travel: 20-1/2" Longitudinal Table Travel: 28" Cross Table Travel: 14-1/4" Vertical Table Travel: 16-1/2" Spindle Taper: MT40 Spindle Speeds: Variable, 50-3750 RPM Quill Feed Rates: 0.0015", 0.0030", 0.0080" Drawbar: 5/8"-11 x 11"		To reduce risk of serious personal injury when using this machine: 1. Read and understand manual before starting. 2. Make sure machine is properly adjusted and set up before starting. 3. Always wear approved eye protection and face shield. 4. DO NOT wear loose clothing, gloves, or jewelry; tie back long hair and roll up long sleeves. 5. Always remove wrenches, chuck keys, and other adjustment tools before starting. 6. Always secure workpiece with clamps or vise before cutting; never attempt to hold a workpiece by hand when cutting. 7. Always disconnect machine from power prior to changing cutting tools, servicing, setting up, or adjusting. 8. DO NOT use when tired, or under influence of drugs or alcohol. 9. Never leave machine running unattended. 10. Always keep hands away from spinning cutting tools. 11. Always use a brush or vacuum to remove metal chips; DO NOT use your hands, rags, or compressed air. 12. Always use the correct feed, cutting speed, and cutting tool. 13. Never operate this machine if any part is loose, damaged or mis-adjusted, or if any covers or doors are open or removed. 14. Restrict machine access to trained authorized personnel only; keep others, especially children, away from machine.
_____ Date _____ Serial Number		
Manufactured for Grizzly in China		

REF	PART #	DESCRIPTION
908	PLABEL-63	DISCONNECT POWER LABEL
909	PLABEL-14A	ELECTRICITY LABEL
910	P0726910	TRAINED PERSONNEL LABEL
911	P0726911	MACHINE ID LABEL

REF	PART #	DESCRIPTION
912	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT
913	PLABEL-50B	BIO-HAZARD LABEL
914	P0726914	220V 3-PH LABEL





WARRANTY CARD

Name _____
 Street _____
 City _____ State _____ Zip _____
 Phone # _____ Email _____
 Model # _____ Order # _____ Serial # _____

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

- How did you learn about us?

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

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

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

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

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

<input type="checkbox"/> 0-2	<input type="checkbox"/> 3-5	<input type="checkbox"/> 6-9	<input type="checkbox"/> 10+
------------------------------	------------------------------	------------------------------	------------------------------
- Do you think your machine represents a good value? Yes No
- Would you recommend Grizzly Industrial to a friend? Yes No
- Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: We never use names more than 3 times. Yes No

10. Comments: _____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE



Place Stamp Here



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



FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name _____
Street _____
City _____ State _____ Zip _____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY & RETURNS

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

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

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

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

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

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

grizzly.com[®]

TOOL WEBSITE

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