MODEL G1126
GEAR-HEAD MILL/DRILL
OWNER'S MANUAL

(FOR MODELS MANUFACTURED SINCE 10/95) #TRBLTSJB11771 PRINTED IN TAIWAN

⚠ WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance and service of this machine/equipment.

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

The owner of this machine/equipment 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, blade/cutter 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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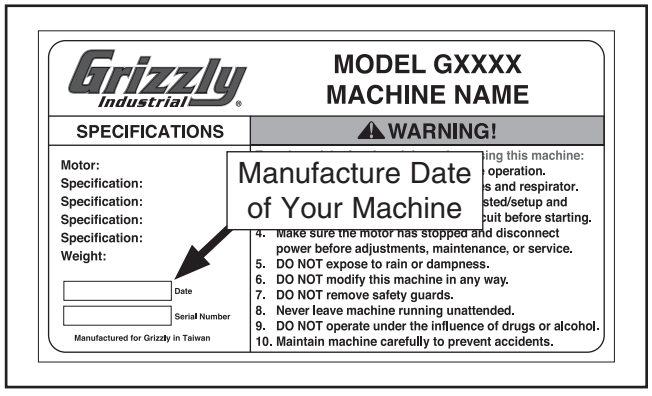
INTRODUCTION

Manual Accuracy

We are proud to offer this manual with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes errors do happen and we apologize for them.

Also, owing to our policy of continuous improvement, **your machine may not exactly match the manual**. If you find this to be the case, and the difference between the manual and machine leaves you in doubt, check our website for the latest manual update or call technical support for help.

Before calling, find the manufacture date of your machine by looking at the date stamped into the machine ID label (see below). This will help us determine if the manual version you received matches the manufacture date of your machine.



For your convenience, we post all available manuals and manual updates for free on our website at **www.grizzly.com**. Any updates to your model of machine will be reflected in these documents as soon as they are complete.

Contact Info

We stand behind our machines. If you have any service questions, parts requests or general questions about the machine, please call or write us at the location listed below.

Grizzly Industrial, Inc.
1203 Lycoming Mall Circle
Muncy, PA 17756
Phone: (570) 546-9663
Fax: (800) 438-5901
E-Mail: techsupport@grizzly.com

If you have any comments regarding this manual, please write to us at the address below:

Grizzly Industrial, Inc.
C/O Technical Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com

Machine Description

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

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

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

Identification

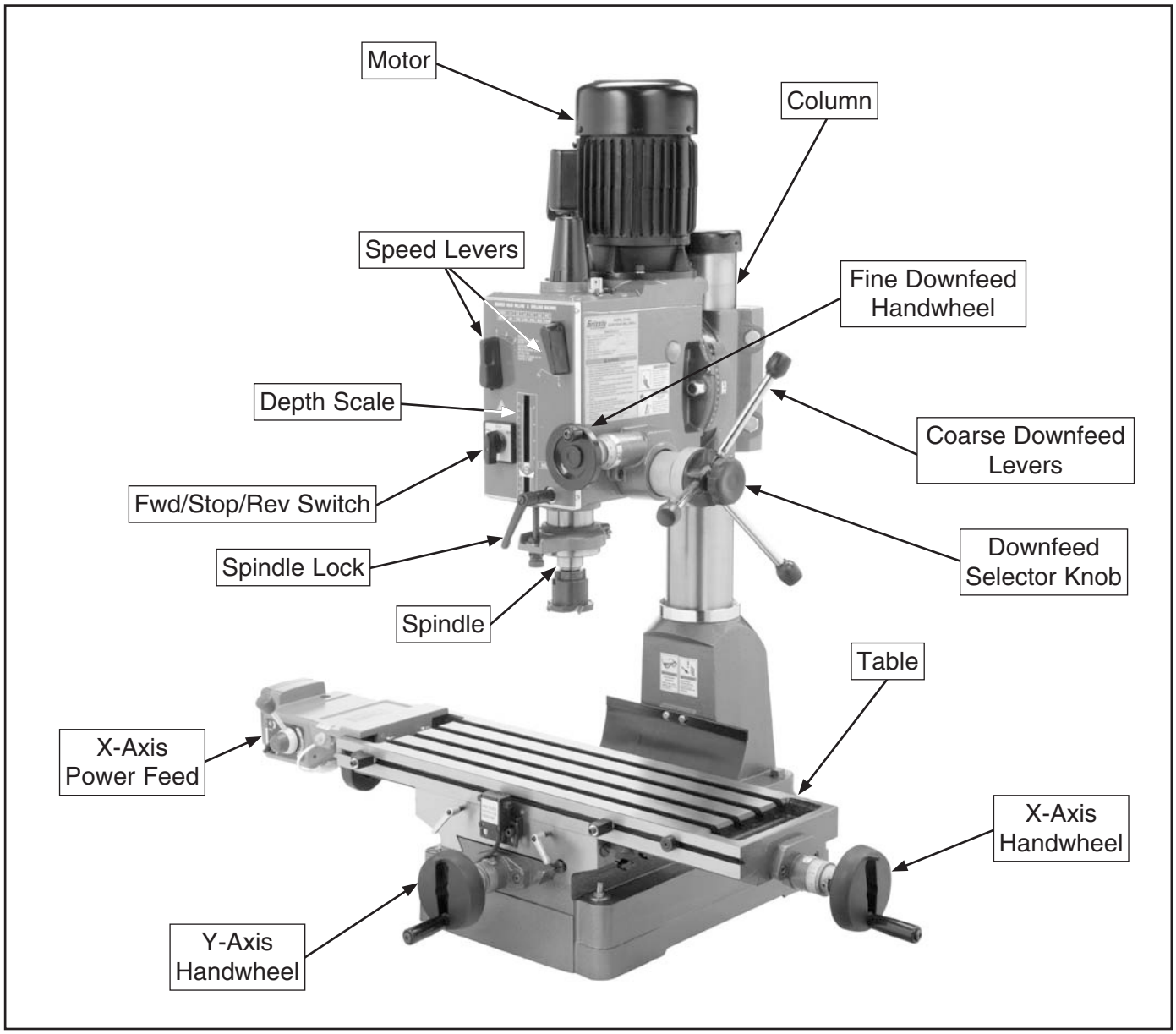
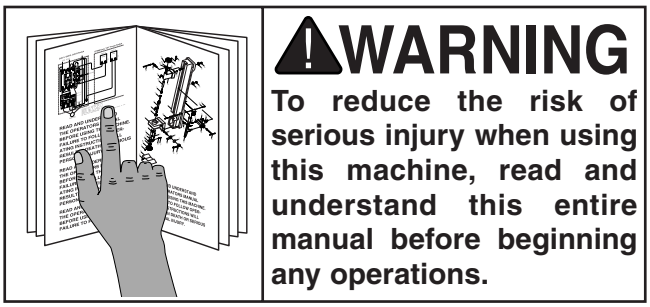


Figure 1. G1126 identification.



WARNING

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

MACHINE DATA SHEET

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

MODEL G1126 GEAR-HEAD MILL/DRILL

Product Dimensions:

Weight..... 631 lbs.
Length/Width/Height..... 47 x 32 x 55 in.
Foot Print (Length/Width)..... 24 x 16 in.

Shipping Dimensions:

Type..... Wood Crate
Content..... Machine
Weight..... 705 lbs.
Length/Width/Height..... 37 x 29 x 47 in.

Electrical:

Switch..... Reversible
Switch Voltage..... 110/220V
Cord Length..... 6 ft.
Cord Gauge..... 14 gauge
Minimum Circuit Size..... 20 amp
Plug Included..... Yes

Motors:

Main

Type..... TEFC Capacitor Start Induction
Horsepower..... 1-1/2 HP
Voltage..... 110/220V
Prewired..... 110V
Phase..... Single
Amps..... 18/9A
Speed..... 1720 RPM
Cycle..... 60 Hz
Number Of Speeds..... 1
Power Transfer ..... Direct
Bearings..... Shielded, Permanently Lubricated

Main Specifications:

Operation Info

Spindle Travel	5 in.
Swing	20-1/2 in.
Longitudinal Table Travel	20-1/2 in.
Cross Table Travel	9 in.
Ram Travel	12 in.
Head Travel	5-1/4 in.
Head Swivel	360 deg.
Head Tilt	Right 30, Left 90 deg.
Max. Dist Spindle To Column	9-1/2 in.
Max. Dist Spindle To Table	16 in.
Drilling Cap For Cast Iron	1 in.
Drilling Cap For Steel	1 in.
No. Of Vert. Spindle Speeds	6
Range Of Vert. Spindle Speeds	65, 130, 220, 480, 925, 1550 RPM
Quill Dia	3 in.

Table Info

Table Length	32 in.
Table Width	9-1/2 in.
Table Thickness	1-7/8 in.
No. Of T Slots	4
T Slots Width	0.625 in.
T Slots Height	7/8 in.
T Slots Centers	2-1/8 in.
Stud Size	1/2 in.

Spindle Info

Spindle Taper	R-8
End Milling Cap	3/4 in.
Face Milling Cap	3 in.
Draw Bar Diameter	7/16 in.
Draw Bar TPI	7/16 - 20
Draw Bar Length	16-1/2 in.
Spindle Bearings	Ball Bearing

Lead Screw Info

Lead Screw Diameter	15/16 in.
Lead Screw TPI	10
Lead Screw Length	35 in.

Construction

Spindle Housing Const	Cast Iron
Table Const	Cast Iron
Head Const	Cast Iron
Column Const	Cast Iron
Base Const	Cast Iron
Paint	Epoxy

Other

Collars Calibrated	0.001 in.
Column Dia	4-1/2 in.
Optional Stand	G5944
Mobile Base	G7314Z

Other Specifications:

ISO Factory ..... ISO 9001
Country Of Origin ..... Taiwan
Warranty ..... 1 Year
Serial Number Location ..... Machine Label on Head Casting
Assembly Time ..... 1-1/2 hours

Features:

Graduations in Inches
Servo-Type Variable Speed Power Feed Table With Auto Stops
Calibrated Fine Downfeed
Zero Setting Dials
Heavy-Duty Cast Iron Construction
Zero Setting Dials

SECTION 1: SAFETY

⚠WARNING

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.

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

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

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

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

⚠WARNING

Safety Instructions for Machinery

1. **READ ENTIRE MANUAL BEFORE STARTING.** Operating machine before reading the manual greatly increases the risk of injury.
2. **ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses—they are NOT safety glasses.
3. **ALWAYS WEAR A NIOSH APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Most types of dust (wood, metal, etc.) can cause severe respiratory illnesses.
4. **ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing loss.
5. **WEAR PROPER APPAREL.** DO NOT wear loose clothing, gloves, neckties, rings, or jewelry that can catch in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.
6. **NEVER OPERATE MACHINERY WHEN TIRED OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.

⚠WARNING
Safety Instructions for Machinery

7. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.

8. **KEEP CHILDREN/VISITORS AWAY.** Keep all children and visitors away from machinery. When machine is not in use, disconnect it from power, lock it out, or disable the switch to make it difficult for unauthorized people to start the machine.

9. **UNATTENDED OPERATION.** Leaving machine unattended while its running greatly increases the risk of an accident or property damage. Turn machine ***OFF*** and allow all moving parts to come to a complete stop before walking away.

10. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.

11. **KEEP WORK AREA CLEAN AND WELL LIGHTED.** Clutter and dark shadows may cause accidents.

12. **USE A GROUNDED POWER SUPPLY RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Operating machine on an incorrect size of circuit increases risk of fire.

13. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY**. Make sure switch is in OFF position before reconnecting.

14. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.

15. **MAKE SURE GUARDS ARE IN PLACE AND WORK CORRECTLY BEFORE USING MACHINERY.**

16. **REMOVE CHUCK KEYS OR ADJUSTING TOOLS.** Make a habit of never leaving chuck keys or other adjustment tools in/on the machine—especially near spindles!

17. **DAMAGED MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, other conditions that may impair machine operation. Always repair or replace damaged parts before operation.

18. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.

19. **SECURE WORKPIECE.** Use clamps or a vise to hold the workpiece when practical. A secured workpiece protects your hands and frees both hands to operate the machine.

20. **DO NOT OVERREACH.** Maintain stability and balance at all times when operating machine.

21. **MANY MACHINES CAN EJECT WORKPIECES TOWARD OPERATOR.** Know and avoid conditions that cause the workpiece to "kickback."

22. **STABLE MACHINE.** Machines that move during operations greatly increase the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

23. **CERTAIN DUST MAY BE HAZARDOUS** to the respiratory systems of people and animals, especially fine dust. Be aware of the type of dust you are exposed to and always wear a respirator designed to filter that type of dust.

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

⚠WARNING
Additional Safety Instructions for Mill/Drills

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

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

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

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

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

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

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

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

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

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

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

⚠WARNING

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

⚠CAUTION

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

SECTION 2: CIRCUIT REQUIREMENTS

110/220V Operation

⚠WARNING

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

⚠WARNING

Electrocution or fire could result if machine is not grounded and installed in compliance with electrical codes. Compliance MUST be verified by a qualified electrician!

NOTICE

The Model G1126 is prewired for 110V operation. If you plan to operate your machine at 220V, the motor must be rewired (see Page 48).

Full Load Amperage Draw

Amp Draw at 110V (prewired).....18 Amps
Amp Draw at 220V .....9 Amps

Power Supply Circuit Requirements

The power supply circuit for your machine MUST be grounded and rated for the amperage given below. Never replace a circuit breaker on an existing circuit with one of higher amperage without consulting a qualified electrician to ensure compliance with wiring codes. **If you are unsure about the wiring codes in your area or you plan to connect your machine to a shared circuit, consult a qualified electrician.**

Minimum Circuit Size (110V).....20 Amps
Minimum Circuit Size (220V) ..... 15 Amps

Power Connection Device

The Model G1126 comes prewired with a NEMA 5-15 plug for connection to power. If you rewire the motor to 220V, we recommend using the plug and receptacle shown in **Figure 2** for 220V.

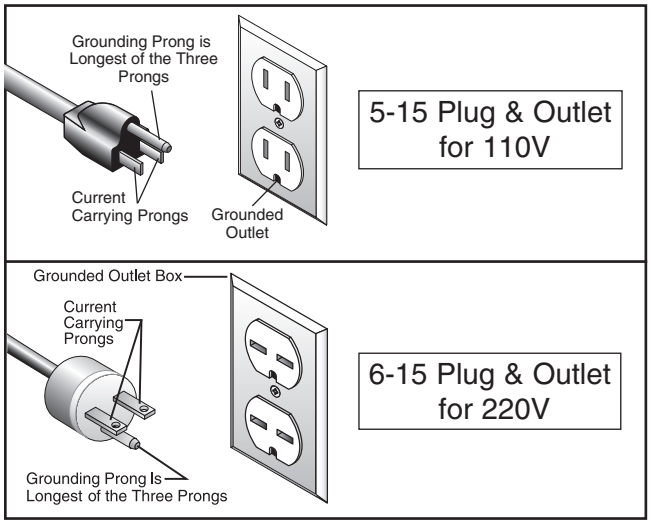


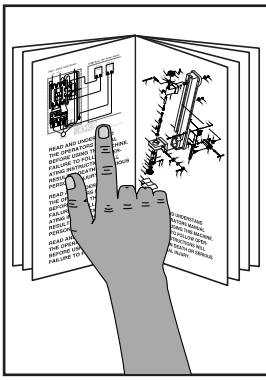
Figure 2. Recommended plug types.

Extension Cords

Using extension cords may reduce the life of the motor. Instead, place the machine near a power source. If you must use an extension cord:

- For 110V, use at least a 12 gauge cord that does not exceed 50 feet in length.
- For 220V, use at least a 14 gauge cord that does not exceed 50 feet in length.
- The extension cord must have a ground wire and plug pin.

SECTION 3: SETUP

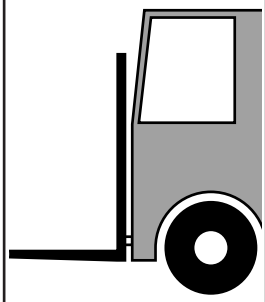


⚠WARNING

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 G3358 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 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 (**Page 14**)	As Needed
• Disposable Shop Rags	As Needed
• Forklift	1
• Additional People	1
• Wrenches 12, 17mm	1
• Hex Wrench 8mm	1

Unpacking

Your machine was carefully packaged for safe transportation. Remove the packaging materials from around your machine and inspect it. If you discover the machine is damaged, *please immediately call Customer Service 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.

Inventory

The following is a description of the main components shipped with your machine.

Box 1 Contents (Figure 3)	Qty
A. Headstock Wrench	1
B. Lever Knobs	3
C. Hex Wrenches 3, 4, 5mm	1 Ea.
D. Downfeed Levers	3
E. Head Crank Handle	1
F. Flat Washer 3/8"	1
G. Cap Screw 3/8-16 x 1"	1

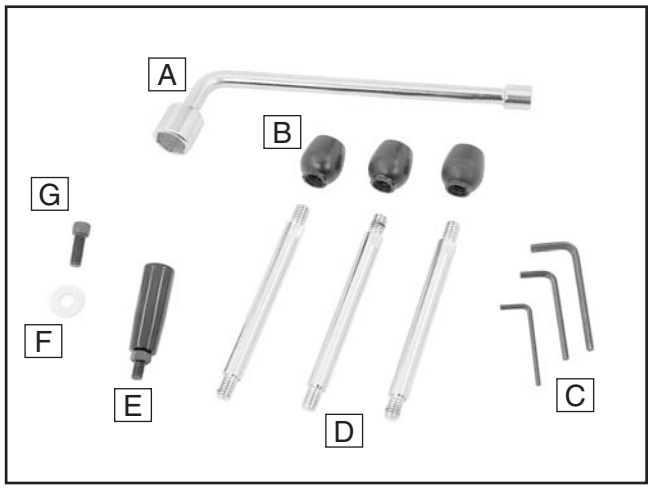


Figure 3. Inventory (bag 1).

Box 1 Contents (Cont'd, Figure 4)	Qty
H. Handwheels	3
I. Handwheel Center Caps	3
J. Handwheel Handles	3

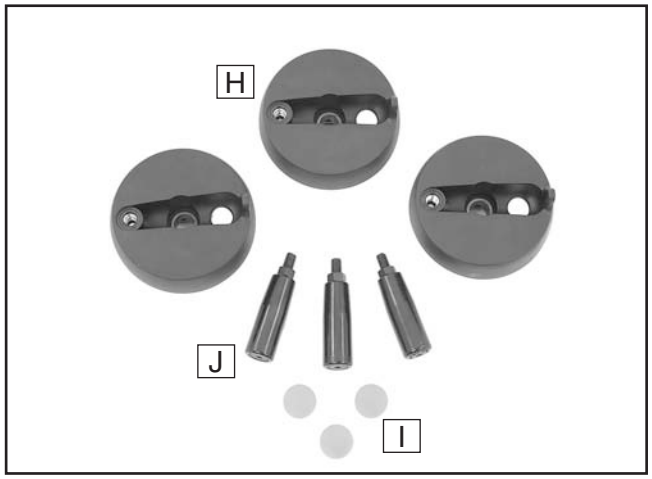


Figure 4. Inventory (bag 2).

Box 1 Contents (Cont'd, Figure 5)	Qty
K. Arbor R8/Jacobs Taper #6 (chuck)	1
L. Arbor R8/Stub (face mill cutter)	1
M. Chuck Key	1
N. Drill Chuck JT#6	1
O. Face Mill Cutter 3"	1

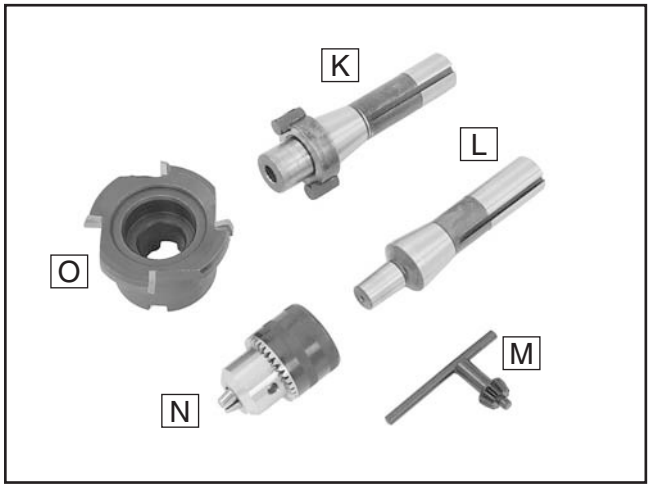


Figure 5. Inventory (miscellaneous items).

Box 2 Contents (Figure 6)	Qty
P. Power Feed Assembly	1
Q. Power Feed Clamping Bracket	1
R. Gear Cover	1
S. Drive Gear	1
T. Limit Switch Bracket	1
U. Cap Screws M8-1.25 x 10	2
V. End Stop Assemblies	2

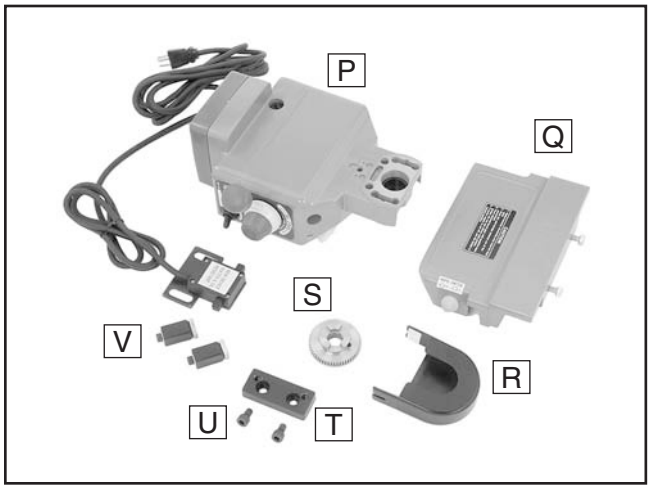


Figure 6. Powerfeed inventory.

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 has been your machine's close ally and guardian since it left the factory. If your machine arrived to you free of rust, then be thankful that the rust preventative protected it during its journey...and try to stay thankful as you clean it off, because it can be challenging to remove if you are unprepared and impatient.

Plan on spending some time cleaning your machine. The time you spend doing this will reward you with smooth sliding parts and a better appreciation for the proper care of your machine's unpainted surfaces.

Although there are many ways to successfully remove the rust preventative, these instructions walk you through what works well for us.

Before cleaning, gather the following:
- Disposable Rags
- Cleaner/degreaser (see below)
- Safety glasses & disposable gloves

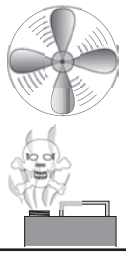
H9692—Orange Power Cleaner & Degreaser
One of the best cleaners we've found for quickly and easily removing rust preventative.

Figure 7. Model H9692 Industrial Orange Power Cleaner/Degreaser (99.9% biodegradable).

Note: *In a pinch, automotive degreasers, mineral spirits or WD•40 can be used to remove rust preventative. Before using these products, though, test them on an inconspicuous area of your paint to make sure they will not damage it.*

⚠WARNING

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



⚠CAUTION

Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.

NOTICE

Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.

Basic steps for removing rust preventative:

1. Put on safety glasses and disposable gloves.

2. Coat all surfaces that have rust preventative with a liberal amount of your cleaner/degreaser and let them soak for few minutes.

3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily.

   Note: *To clean off thick coats of rust preventative on flat surfaces, such as tables, use a PLASTIC paint scraper to scrape off the majority of the coating before wiping it off with your rag. (Do not use a metal scraper or you may scratch your machine.)*

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

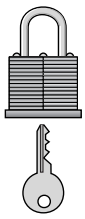
Site Considerations

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 your machine is operated is important for safe operation and the longevity of its 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.

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.

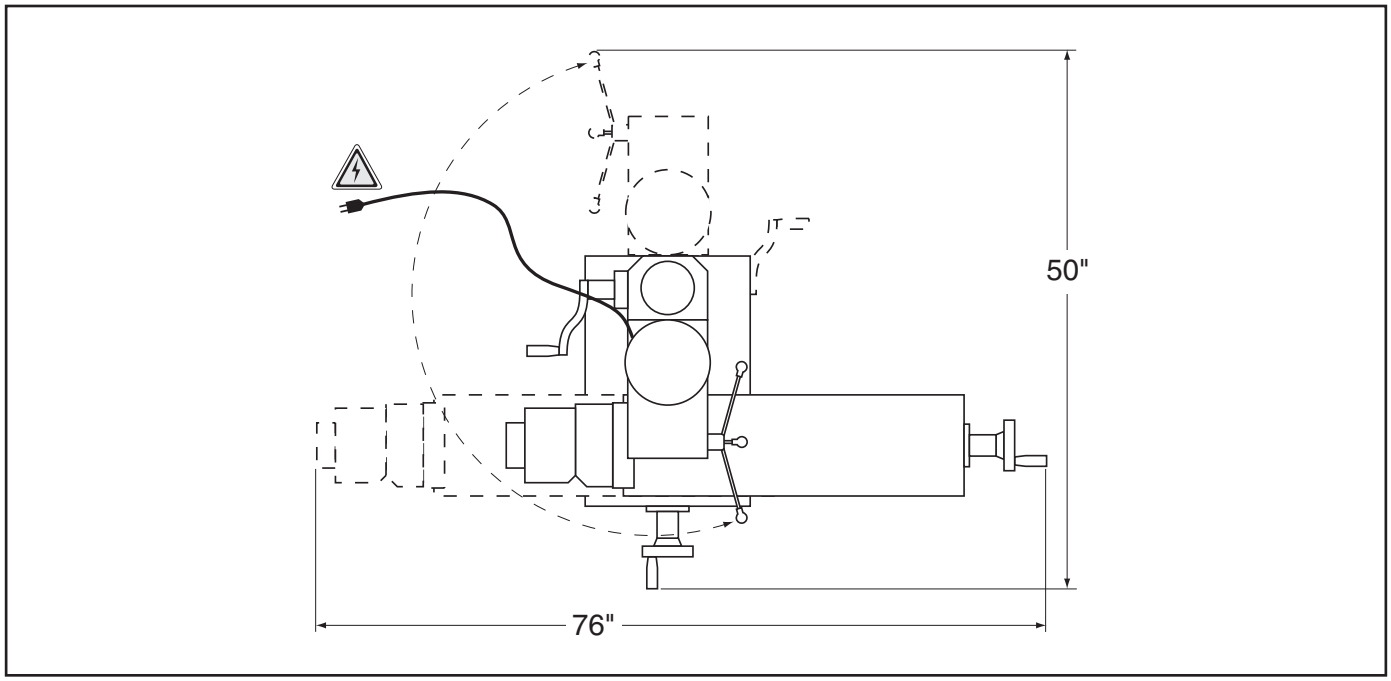


Figure 8. Minimum working clearances.

Moving & Placing Machine

⚠WARNING

When using power lifting equipment, make sure the equipment is safe, fully operational, and adequately rated for the weight being lifted. The operator of the equipment must be experienced and able to use safe methods during these processes. Failure to heed these warnings could result in serious personal injury or death.

To move your machine into position:

1. Move the shipping crate next to the mounting table or stand.

2. Remove the mounting bolts holding the mill to the bottom of the crate.

3. Position the table as close to the column as possible and raise the headstock to its highest position to help balance the machine during moving.

4. Place a lifting strap under the head of the machine, as shown in **Figure 9**, then connect it to a forklift. Make sure you tighten all the locks that restrict moving parts to avoid sudden shifts which could unbalance the machine.

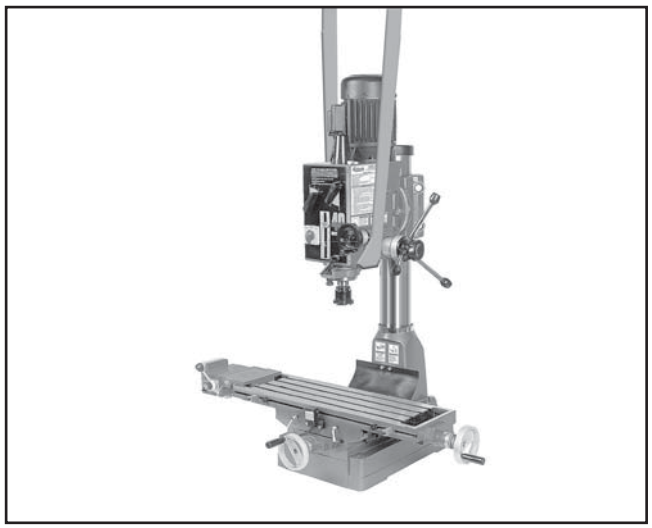


Figure 9. Typical lifting strap position.

Mounting

Once you have determined that the inventory is complete, mount the machine to a workbench through the holes in the base. We recommend that you cut a hole in your bench top to allow access to the under side of the base on the machine. This will be necessary for adjusting the Y-plane leadscrew. Refer to **Leadscrew Backlash** on **Page 46.**

The strongest mounting option is a "Through Mount" where holes are drilled all the way through the workbench, and hex bolts, washers, and hex nuts are used to secure the drill press to the workbench (**Figure 10**).

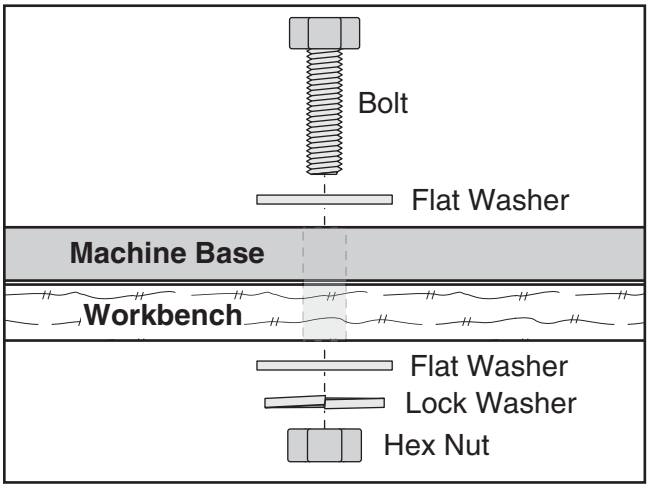


Figure 10. Example of a through mount setup.

Another option for mounting is a "Direct Mount" where the machine is simply secured to the workbench with a lag screw (**Figure 11**).

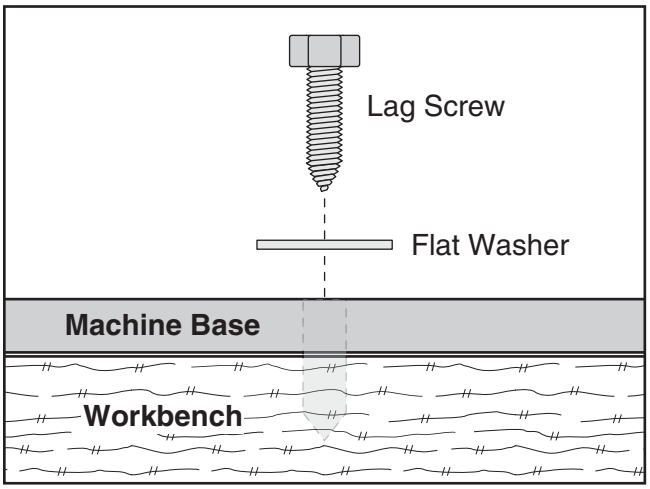


Figure 11. Example of a direct mount setup.

Assembly

The Model G1126 features a 110V power feed, which allows hands-free, side-to-side passes while milling. Variable-speed feed control makes flat surface milling more consistent.

To assemble the machine:

1. Attach the 2 1/4" diameter drive gear to the left end of the longitudinal table leadscrew. Slide the gear over the shaft, as shown in **Figure 12**, then tighten the set screw.

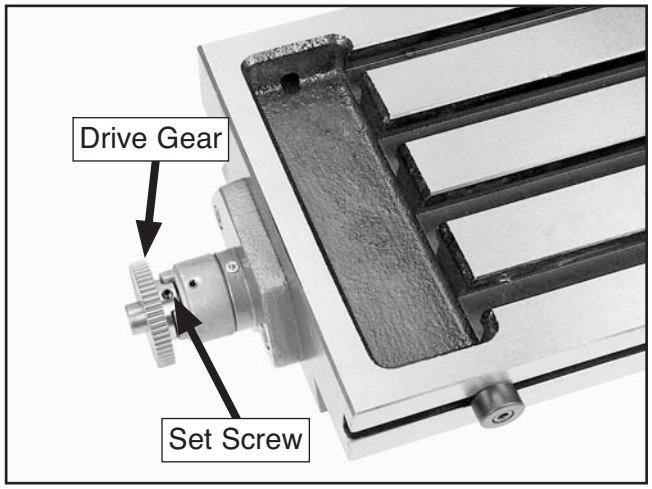


Figure 12. Attaching drive gear.

2. Set the clamping bracket assembly on the left end of the table and tighten down the mounting bolts (**Figure 13**).

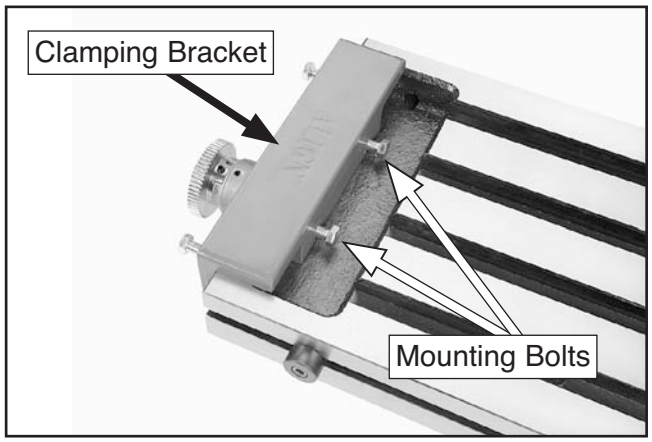


Figure 13. Clamping bracket assembly.

3. Attach the power feed body to the mounting bracket assembly with the pre-installed cap screws, then attach the mounting bracket to the clamping bracket with the two hex bolts. Before tightening completely, position the power feed body so the gears mesh perfectly.

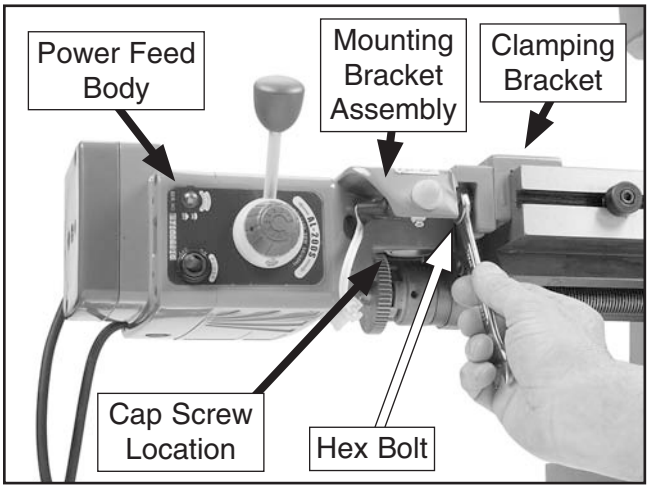


Figure 14. Attaching power feed body.

NOTICE

Use care when aligning the table leadscrew gears with the gearing on the power feed. The fit is correct when you can just slightly wiggle one gear without engaging the other. If there is too much space between the gears, teeth can be stripped under heavy loads. If the teeth mesh too tightly, the bearings in the power feeder will have a reduced life span.

4. Tighten the hex bolts when the gears are in mesh (**Figure 14**).

5. Plug the rapid switch cord into the receptacle provided on the bottom of the power feed body.

6. Place the plastic gear cover on the bottom of the power feed to protect the gears.

7. Remove the pre-installed round end stops from the slot on the front edge of the table, then insert the power feed end stops in their place and tighten them (**Figure 15**).

   Note: *The T-nuts for the pre-installed end stops may be difficult to remove as a result of the rust preventative used during shipping. If this is the case, a light tap from a screwdriver and hammer will release them.*

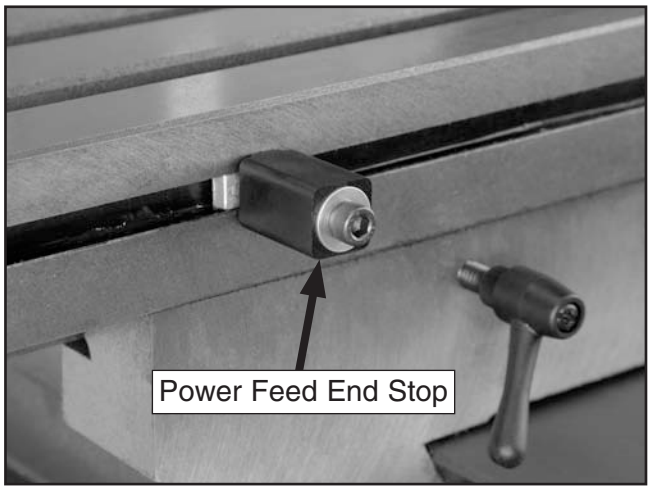


Figure 15. Power feed end stop.

NOTICE

Before using the Model G1126, place the power feeder cord and the control cord for the micro switch clear of any movements that could pinch or crush them. Before using the power feed, mark the maximum distance the table can move before the power feed comes in contact with the machine's base or when the leadscrew runs out of threads. Use that mark as a reference each time you re-adjust your table stops. This is the best way to avoid damaging the power feed and/or causing an unsafe condition.

8. Remove the center travel stop at the front of the table. Save the mounting bolts.

9. Secure the limit switch bracket to the front of the mill/drill with the mounting bolts saved in **Step 8** (**Figure 16**).

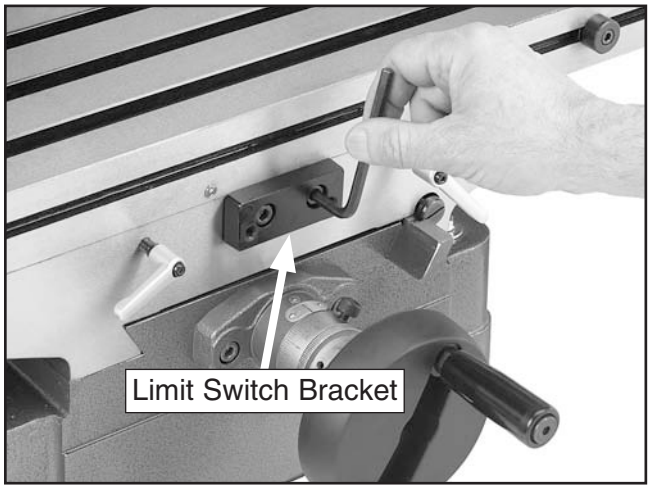


Figure 16. Limit switch bracket.

10. Mount the limit switch to the limit switch bracket with the (2) M8-1.25 x 10 cap screws. Adjust the vertical position of the switch so that the power feed end stops will contact the buttons on either side of the switch. When these buttons are depressed, the power feed automatically turns ***OFF*** and table movement stops (**Figure 17**).

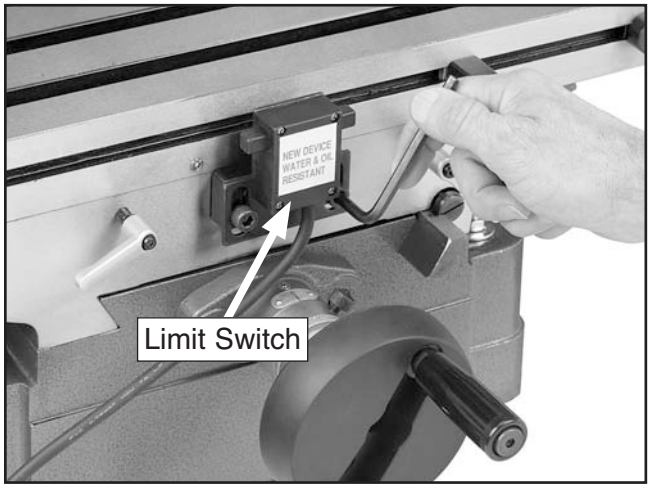


Figure 17. Limit switch.

11. Turn the lock nut on the handwheel handles until it is almost against the plastic handle.

12. Screw each handle into a handwheel and tighten the nut against the wheel. This nut acts as a lock nut and a spacer. Insert a plastic center cap into the center of each handwheel (**Figure 18**).

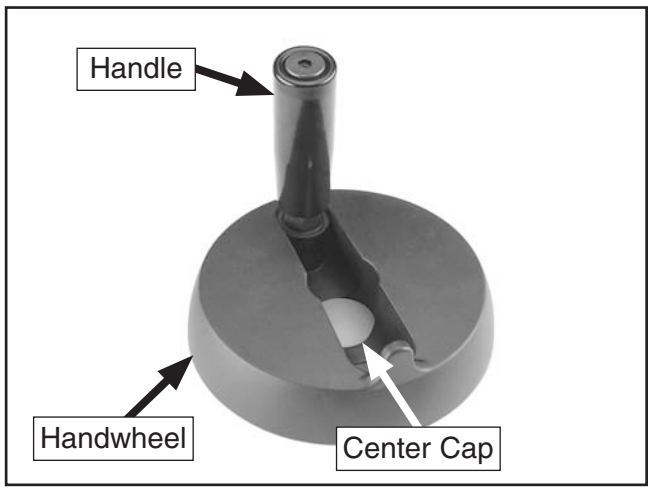


Figure 18. Handwheel assembly.

13. Secure one handwheel in each of the locations shown in **Figure 19** by sliding the handwheel onto the leadscrew and tightening the set screw.

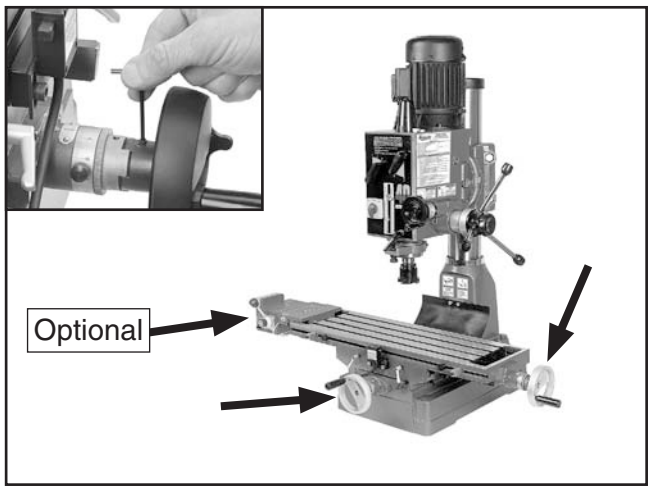


Figure 19. Handwheel installation.

14. Attach the head crank handle in the same method used for the handwheels. Thread the handle into the crank body, then tighten the lock nut (**Figure 20**).

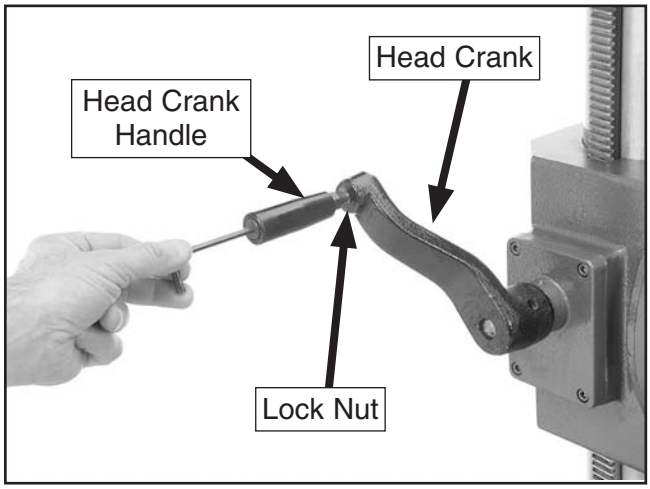


Figure 20. Head crank.

15. Screw a black knob onto an end of each of the three chrome feed levers.

16. Screw the levers with knobs into the threaded holes on the hub, located on the right side of the machine (**Figure 21**).

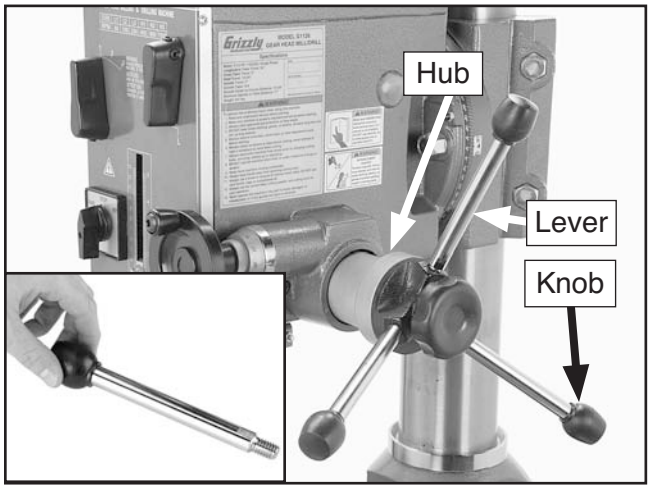


Figure 21. Feed levers.

Drill Chuck Arbor

Your machine has been pre-fitted with a drill chuck arbor that has an R-8 shank and a #2 Jacob's Taper. It is ready to accept the standard drill chuck provided with this machine. This drill chuck installation is intended to be semi-permanent. If you would like to use a different chuck after performing this procedure, we recommend obtaining a new arbor.

Tip: *For a permanent installation, chill the arbor in the freezer for 15 minutes before performing the following procedure. The taper will expand as it returns to room temperature, permanently locking the chuck.*

To install the drill chuck:

1. Clean the grease off the drill chuck and all taper mating surfaces. Pay particular attention to the bore in the drill chuck—it must be free from all grease, oil and debris.

2. Retract the drill chuck jaws fully by turning the body of the drill chuck clockwise.

3. Press the drill chuck onto the Jacob's Taper. Tap lightly with a brass or other soft-headed hammer to get a good fit.

   Note: *While it may not seem like there is anything keeping the drill chuck in place, the Jacob's Taper fit provides a strong bond and will hold the drill chuck tightly* (**Figure 22**).

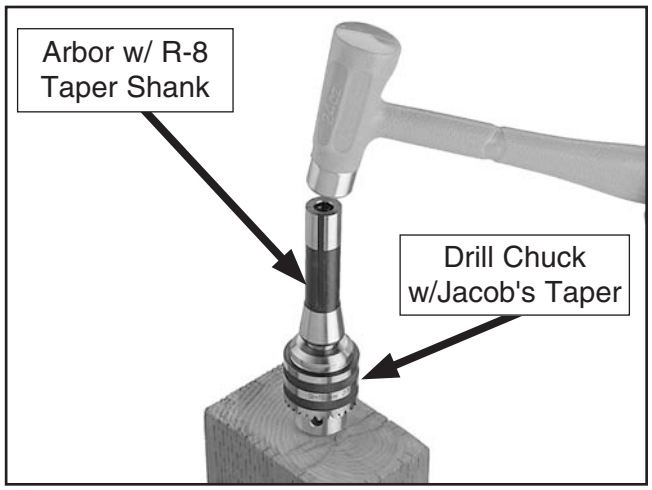


Figure 22. Drill chuck.

Face Mill

⚠CAUTION

All types of milling cutters and drill bits are sharp. Use leather gloves or shop towels to hold sharp tooling to avoid cutting your hands. Store cutters in a child-safe location.

The Model G1126 comes equipped with a 3" face mill and a 1" R-8 stub arbor. If they are not already assembled, continue below.

To install the face mill:

1. Clean all storage grease, and rust preventative off the R-8 arbor and face mill. Wipe down with a clean light oil to protect against rust.

2. Fit the face mill onto the stub end of the arbor so the keys on the arbor and the keyways on the face mill come together (**Figure 23**).

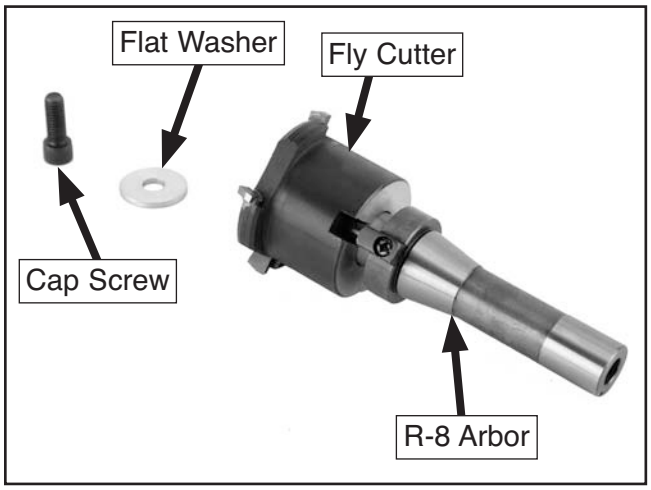


Figure 23. Face mill assembly.

3. Secure the face mill to the arbor with the ⅜"-16 x 1" cap screw and ⅜" washer provided.

4. Install the arbor with face mill into the machine as described in **R8 Collets** on **Page 28.**

Test Run & Break In

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

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review the **Troubleshooting** on **Page 42**.

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

Test Run

1. Make sure you have read the safety instructions at the beginning of the manual and that the machine is set up properly.

2. Make sure all tools and objects used during setup are cleared away from the machine.

3. Connect the machine to the power source.

4. Turn the **FWD/STOP/REV** switch to the **FWD** position.

5. Listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.

   —Strange or unusual noises must be investigated and corrected before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.

6. Turn the **FWD/STOP/REV** switch to the **STOP** position and allow the spindle to come to a complete stop.

7. Repeat Steps 4–6 for the **REV** position.

NOTICE

Failure to follow spindle break-in procedures will likely cause rapid deterioration of the spindle and other related parts and may void the warranty.

It is essential to closely follow the proper break-in procedures to ensure trouble free performance. Complete this process once you have familiarized yourself with all instructions in this manual.

Break-In

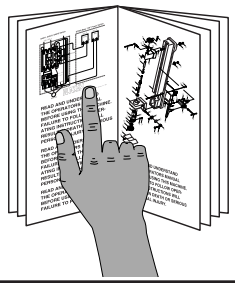
1. Make sure the machine has been properly lubricated. Refer to **Lubrication** on **Page 37**.

2. Make sure the spindle area is free of obstructions.

3. Set the spindle speed to the lowest RPM. Refer to **Speed Changes** on **Page 32**.

4. Turn the spindle ON and let it run for a minimum of 10 minutes. Repeat this step for each RPM setting. Refer to **Speed Changes** on **Page 32**.

SECTION 4: OPERATIONS

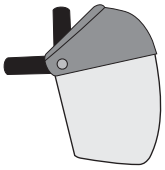


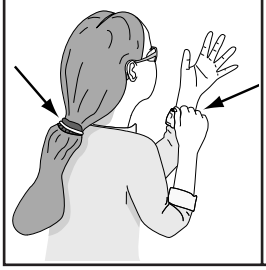
⚠WARNING

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.

⚠WARNING

Damage to your eyes could result from using this machine without proper protective gear. Always wear safety glasses or a face shield when operating this machine.





⚠WARNING

Loose hair, clothing, or jewelry could get caught in machinery and cause serious personal injury. Keep these items away from moving parts at all times to reduce this risk.

NOTICE

If you have never used this type of machine or equipment before, WE STRONGLY RECOMMEND that you read books, trade magazines, or get formal training before beginning any projects. Regardless of the content in this section, Grizzly Industrial will not be held liable for accidents caused by lack of training.

Basic Controls

Use the descriptions and figures below to become familiar with the basic controls of your machine.

Speed Lever: Selects low range (L) or high range (H) for the spindle speed.

Range Lever: Gives three spindle speed selections (1, 2, or 3) in low range and three spindle speed selections (1, 2, or 3) in high range.

FWD/STOP/REV Switch: Controls the direction of the spindle and turns main power to the machine ***ON***/***OFF***.

Spindle Lock: Locks the spindle in position vertically.

Depth Stop: Stops the spindle travel at a predetermined depth.

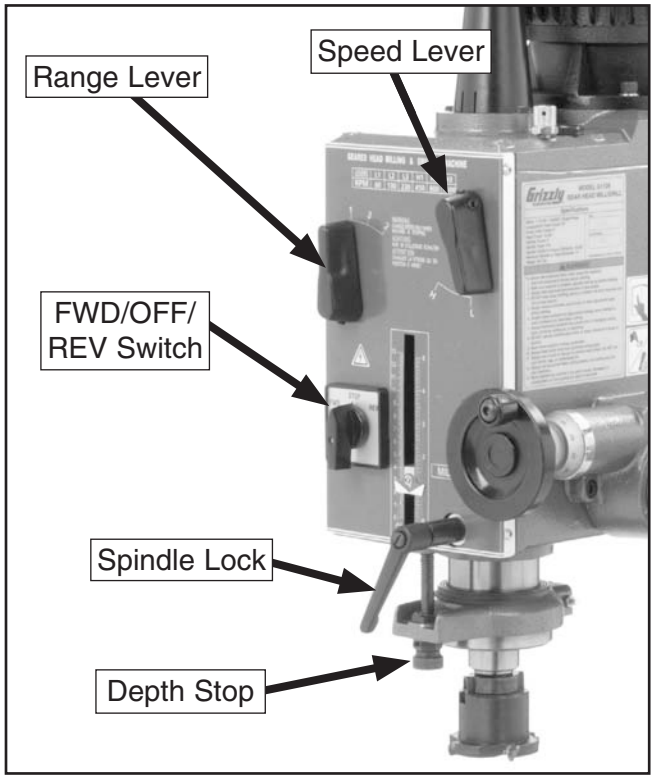


Figure 24. Head controls.

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

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

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

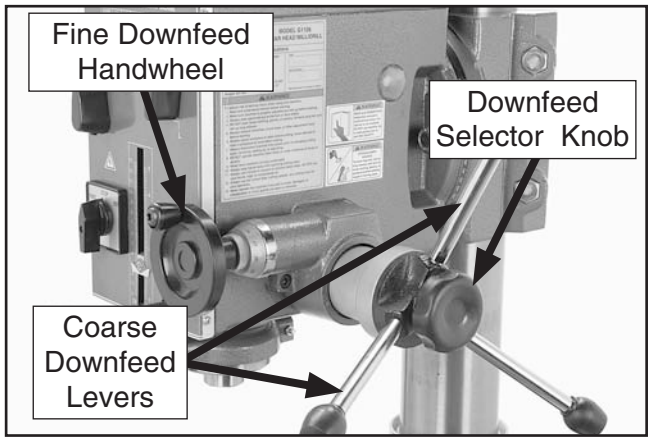


Figure 25. Spindle controls.

Z-Axis Head Crank: Changes the elevation of the entire headstock.

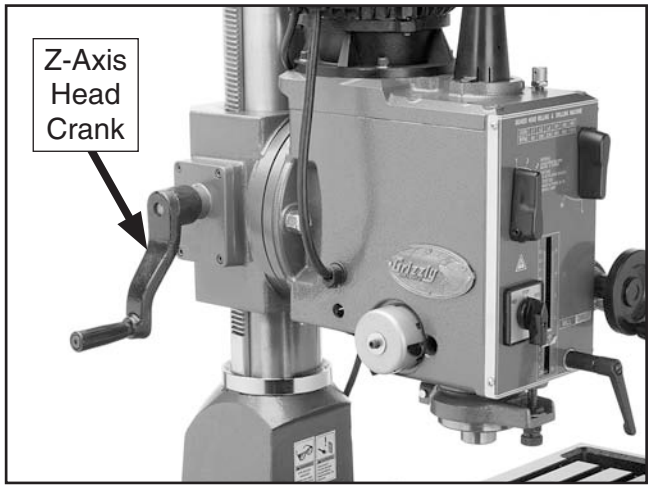


Figure 26. Z-axis head crank.

X-Axis Handwheel: Controls longitudinal (X-Axis) travel of the table.

Y-Axis Handwheel: Controls cross (Y-Axis) travel of the table.

X-Axis and Y-Axis Table Locks: Lock the table in position along their respective axes.

Travel Stops: Limit longitudinal table travel.

X-Axis Power Feed: An auto-feed mechanism with variable speed control that moves the table side-to-side for smooth, consistent movement.

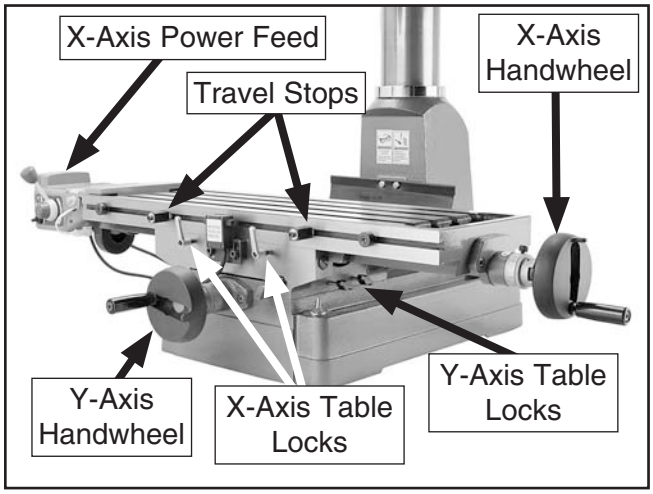


Figure 27. G1126 Table travel controls.

Direction Lever: Starts, reverses, and stops longitudinal table movement.

Rapid Movement Button: Moves the table at the maximum speed in the direction selected.

ON/OFF Switch: The master power switch for the power feed.

Speed Dial: Controls the speed that the table moves—turn the dial clockwise to increase the speed.

Power Lamp: Lights when the power feed is turned ***ON***.

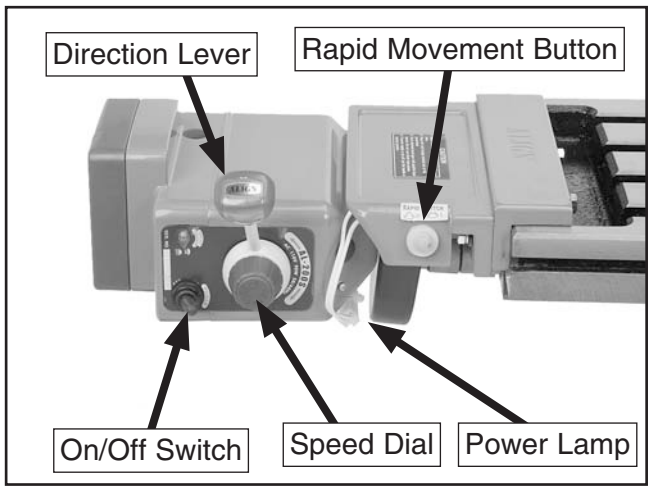


Figure 28. Power feed controls.

Limit Stops: Activate the limit switch. Secure these devices along the table to set the range of movement.

Limit Switch: Stops powered table movement when either limit stop presses a plunger on the switch.

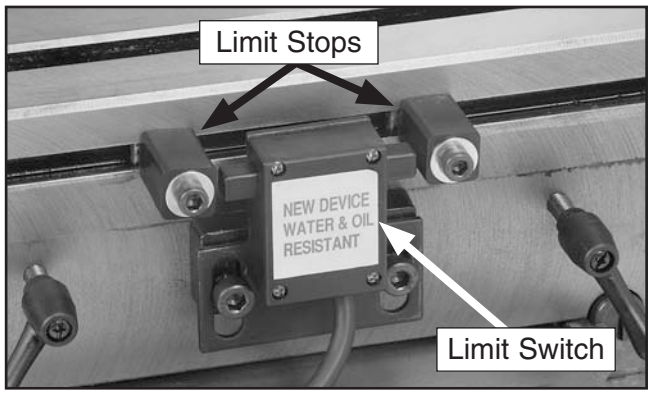


Figure 29. Limit switch and stops.

Operation Overview

This overview gives you the basic process that happens during an operation with this mill/drill. Familiarize yourself with this process to better understand the remaining parts of the **Operation** section.

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

1. Loosens the locking nuts on the column, adjusts the headstock height above the table to ensure there is sufficient room to install the tooling in the spindle and the workpiece on the table.

2. Removes the draw bar cap, then firmly inserts the tooling (collet with cutter, face mill, or drill chuck with taper shank) into the spindle, so the keyway in the tooling aligns with the pins inside the spindle.

3. While holding the tooling with one hand, tightens the draw bar, then reinstalls the cap.

4. Mounts the workpiece onto a vise that is already mounted on the table, to ensure the workpiece does not move during the milling/drilling operation.

5. Sets the X-axis travel stops as required for controlling X-axis movement of the cutterhead around the workpiece.

6. Positions the cutter or drill bit near the workpiece, then tightens column locknuts.

7. Selects the appropriate RPM for the milling or drill operation using the speed and range levers.

8. Sets the depth stop to determine how far the cutter or drill bit will descend vertically.

9. Unlocks the X and Y-axis table locks.

10. Wears safety glasses or a face shield.

11. Turns the switch to FWD.

12. Loosens the spindle lock and uses the coarse downfeed lever or fine downfeed handwheel to lower the cutting tool near the top or side of the workpiece.

13. For milling operations, uses the X-axis handwheel or power feed to move the table left and right and uses the Y-axis handwheel to move the table in or out so the cutter removes material evenly from the workpiece.

14. For drilling operations, uses the coarse downfeed lever or fine downfeed handle to lower the drill bit into the workpiece, then raises the drill bit out of the workpiece using the same controls.

15. Turns the switch to the STOP position to turn the machine off.

Spindle Height Controls

The spindle height is changed by unlocking the spindle lock and using the coarse downfeed levers or the fine downfeed handwheel (**Figure 30**). The spindle height scale indicates the spindle height.

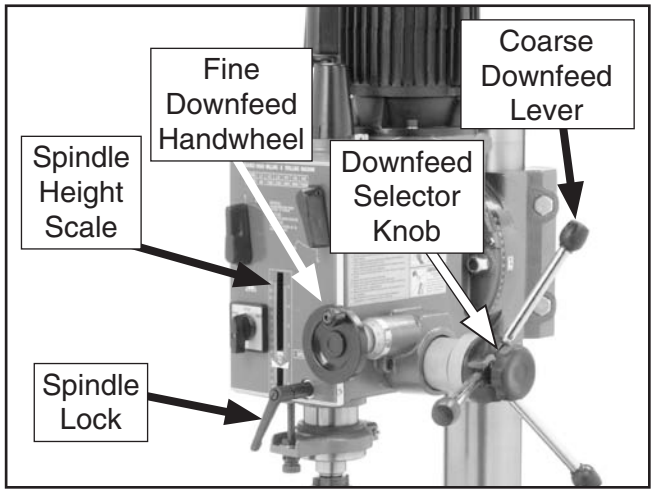


Figure 30. Spindle controls.

Changing Spindle Position Using Coarse Downfeed Levers

1. Unlock the spindle lock and loosen the downfeed selector knob.

2. Pull down on any of the coarse downfeed levers to lower or raise the spindle. Observe the scale on the headstock faceplate to monitor movement in inches or millimeters. The maximum range of travel is 5".

3. Lock the spindle lock to hold the spindle in a particular position if you choose.

Tip: *Milling with the spindle fully extended can cause tool chatter. For maximum spindle rigidity when milling, it is better to keep the spindle retracted into the headstock as far as possible with the spindle lock tightened, and the downfeed selector knob tightened.*

Changing Spindle Position Using Fine Feed Knob

1. Unlock the spindle lock and tighten the downfeed selector knob.

2. Rotate the fine feed knob to lower or raise the spindle in small increments. Observe the scale on the knob to monitor movement in thousandths of an inch (**Figure 31**).

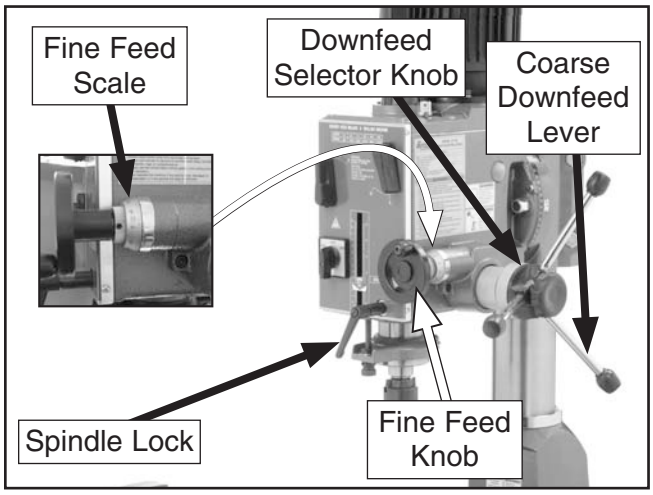


Figure 31. Spindle fine feed controls.

3. Tighten the spindle lock to hold the spindle in a particular position if you choose.

Tip: *Milling with the spindle fully extended can cause tool chatter. For maximum spindle rigidity when milling, it is better to keep the spindle retracted into the headstock as far as possible with the spindle lock tightened, and the downfeed selector knob tightened.*

Depth Stop

The depth stop is used to limit the range of downward movement by the drill bit or cutter. Maximum depth is 5".

Calibrating Depth Stop

1. Move the coarse downfeed levers down until the spindle bottoms out.

2. Tighten the downfeed selector knob.

3. Loosen the screw on the indicator plate shown in **Figure 32** and adjust top of the plate so it is at 0"/0mm.

   Note: *The arrow on the indicator plate should face down.*

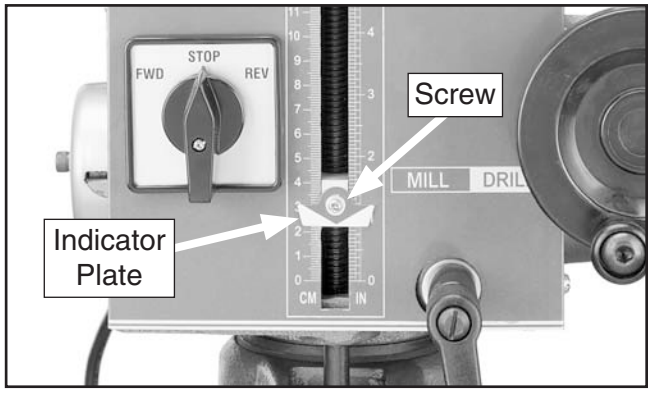


Figure 32. Depth stop indicator.

Using Depth Stop

1. Install the cutting tool, then make sure the spindle is drawn all the way up into the head. To prevent damaging the workpiece, place a piece of paper on the workpiece.

2. Loosen the headstock locking nuts and lower the head until the drill bit or cutter just contacts the paper.

3. Tighten the headstock locking nuts. (Refer to **Figure 36** for the location of the headstock locking nuts).

4. Turn the knurled knob of the depth stop leadscrew until the top of the indicator plate is level with your desired depth as listed on the scale to the left or right (**Figure 33**).

Figure 33. Setting depth stop.

Drill Chuck

Installation

1. DISCONNECT THE MACHINE FROM POWER!

2. Remove the drawbar cap (see **Figure 34**).

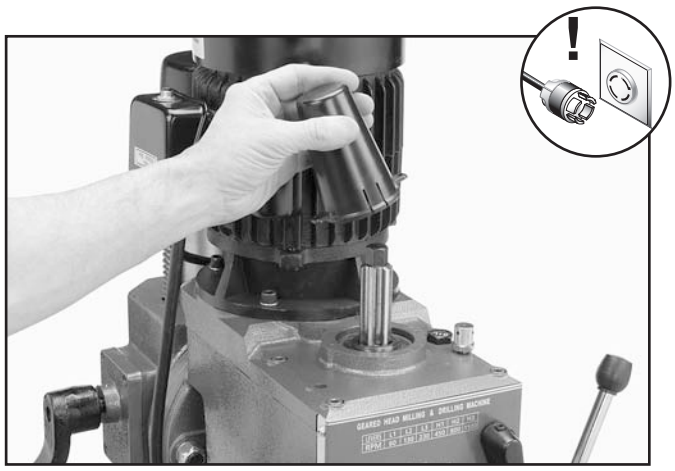


Figure 34. Drawbar and cover.

3. Insert the chuck arbor into the spindle (**Figure 35**), so it engages the alignment pins inside of the spindle and makes contact with the drawbar threads.

Figure 35. Chuck support.

4. Thread the drawbar into the arbor until the arbor is seated up into the spindle taper.

5. While supporting the chuck with one hand, snug the drawbar with the 17mm wrench.

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

6. Reinstall the drawbar cap.

Removal

1. DISCONNECT THE MACHINE FROM POWER!

2. Remove the safety cap that covers the drawbar.

NOTICE

DO NOT completely unscrew the drawbar before striking it with the hammer. You will damage the threads on the drawbar and the arbor.

3. Using the 17mm wrench, loosen the drawbar one turn only. DO NOT remove it.

4. Tap the top of the drawbar with the hammer. This will unseat the taper of the arbor from the spindle (see **Figure 34**).

5. Hold one hand under the chuck and finish loosening the drawbar by hand until it falls out of the spindle.

   Note: *The chuck is attached to the arbor using a JT6 taper. This attachment is considered to be semi-permanent. There should be no need to remove the chuck from the arbor. Inspect the chuck from time to time to make sure it is still tight on the arbor. If it is loose, use a dead-blow or other soft headed hammer to re-seat the taper.*

R-8 Collets

If you do not use the drill chuck and arbor, you need to use a collet to insert the cutting tool into the spindle. Your Model G1126 features an R-8 spindle taper, which gives the freedom to use standard R-8 collets. These optional collets come in many sizes, typically ranging from 1/16" to 7/8" and 3mm to 20mm, and should be matched to your cutting tool shank size.

Installation

1. DISCONNECT THE MACHINE FROM POWER!

2. Remove the drawbar safety cap.

3. Using a clean rag, carefully wipe clean the surface of the collet and spindle taper. Ensure that it is free of debris and is lightly oiled.

4. Insert the cutting tool into the collet, then insert the collet up into the spindle taper.

5. Rotate the collet so it engages the alignment pins inside of the spindle, then slide the collet upward until it makes contact with the drawbar threads.

6. Thread the drawbar into the collet until the collet draws up into the spindle taper.

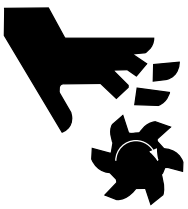
7. While supporting the tool in the collet with one hand, snug the drawbar with the 17mm wrench in your opposite hand.

   Note: *Do not overtighten the drawbar. Overtightening makes collet removal difficult and will damage the drawbar threads, collet, and the spindle taper. Keep in mind that the taper keeps the collet and tool in place. The drawbar simply aids in seating the taper.*

Removal

1. DISCONNECT THE MACHINE FROM POWER!

2. Tighten the spindle lock.



⚠CAUTION

LACERATION HAZARD! Leading edges of end mills and other cutting tools can be very sharp. Protect your hands with gloves or a shop towel when handling.

3. Protect the table surface with a piece of cardboard or hold the cutter/tool with a shop towel to prevent it from falling out of the collet.

4. Using the 17mm wrench, loosen the drawbar one turn.

NOTICE

DO NOT completely unscrew the drawbar before striking it with the hammer. You will damage the threads on the drawbar and the arbor.

5. Using a hammer, tap on the drawbar to unseat the taper.

6. Unscrew the rest of the drawbar by hand and remove the collet.

   Note: *When not in use, always remove collets and cutting tools from the spindle taper. Oxidation may cause the collet to seize and make it hard to remove later.*

Headstock Travel (Z-axis and Rotation)

The headstock height is adjustable in the vertical Z-axis to accept large workpieces. For unique operations, the headstock can be tilted between 30° left or 90° right using the scale on the headstock.

Raising or Lowering the Headstock

1. Using the lug wrench provided, loosen the two headstock locking nuts shown in **Figure 36**.

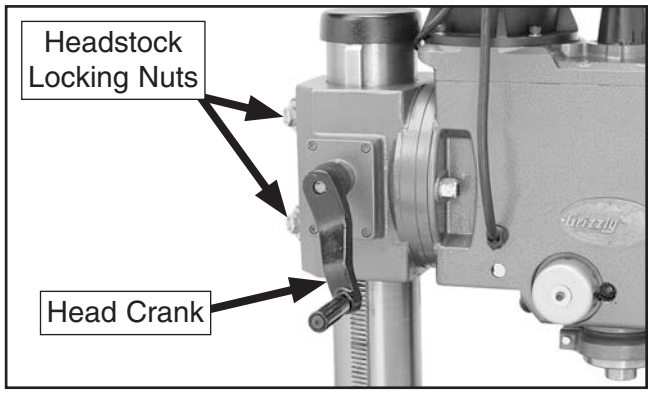


Figure 36. Headstock travel controls.

2. Turn the Z-axis head crank shown in **Figure 36** to raise or lower the headstock, then tighten the headstock locking nuts.

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

Rotating Headstock to Left or Right

1. DISCONNECT THE MACHINE FROM POWER!

2. Raise the headstock with the head crank far enough up so you have adequate room to access and remove the gearing cover under the headstock in **Step 6**.

3. Secure the two headstock locking nuts with the lug wrench.

4. Using a 24mm wrench, loosen the two headstock retaining nuts (**Figure 37**–**38**).

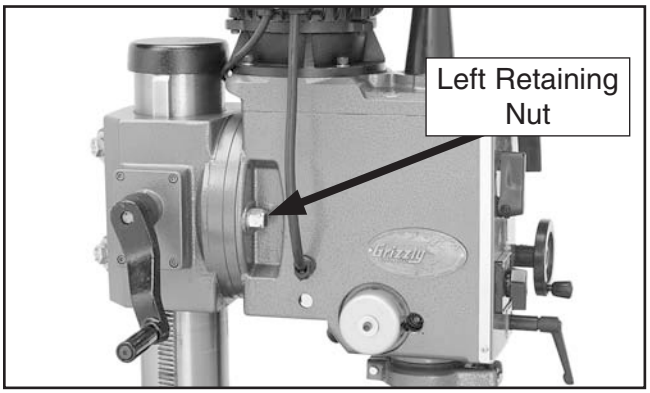


Figure 37. Left retaining nut location.

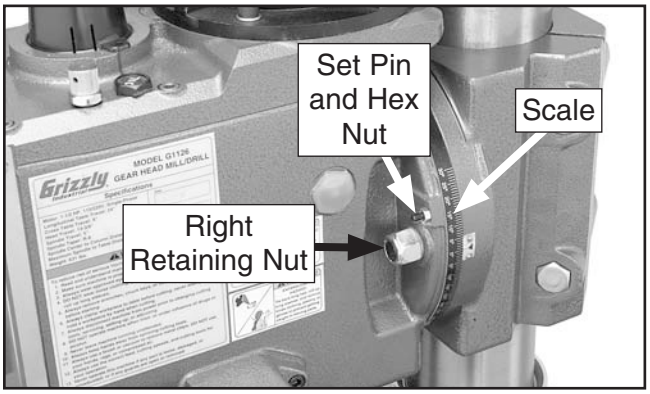


Figure 38. Right headstock side tilt controls.

5. Use a 10mm wrench to tighten the hex nut on the set pin (**Figure 38**), then remove the set pin and set it aside.

6. Remove the gearing cover (**Figure 39**).

Figure 39. Removing gearing cover.

⚠WARNING

During the next step the headstock will be free to tilt after the internal locking nut is loosened. Since the headstock is heavy, it could tilt uncontrollably, causing serious personal injury and damage to the machine. We strongly recommend having an assistant support the headstock while you tilt it to the desired angle.

7. Use a 24mm wrench to loosen the locking nut inside the headstock, shown in **Figure 40**.

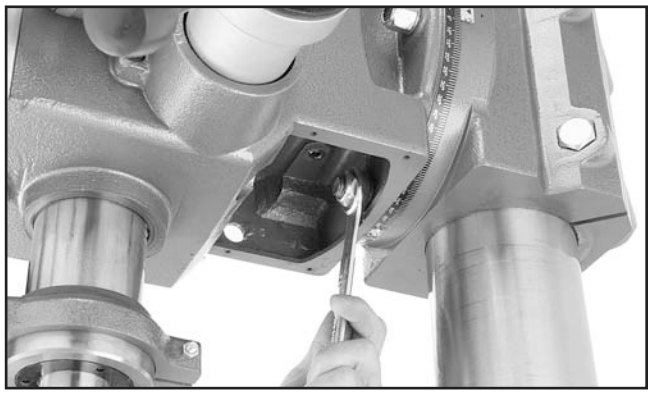


Figure 40. Loosening lock nut inside headstock.

8. Grasp the headstock firmly, and while watching the tilt scale, rotate the headstock to the required angle.

9. Tighten the nut shown in **Figure 40**, then reinstall the gearing cover.

Note: *Reinstalling the gearing cover will keep chips and debris flying up during cutting operations from lodging in the pinion gear inside the headstock.*

The headstock scale is labeled for tilting between 30° left and 90° right, but the headstock can be tilted further than indicated on the scale, if required.

Returning Headstock to Vertical Position

1. Remove the gearing cover, loosen the locking nut shown in **Figure 40**, then loosen the two retaining nuts on either side of the headstock.

2. Tilt the headstock until the 0º mark on the scale aligns with the arrow on the column assembly.

3. Insert the set pin into the hole that it was you removed from, tap it gently with a rubber hammer to seat it, then snug the hex nut against the headstock.

Table Travel (X-Axis and Y-Axis)

Longitudinal Feed

The longitudinal feed is moved by the X-axis handwheel at the right end of the table or the X-axis power feed at the left end of the table, as shown in **Figure 41**.

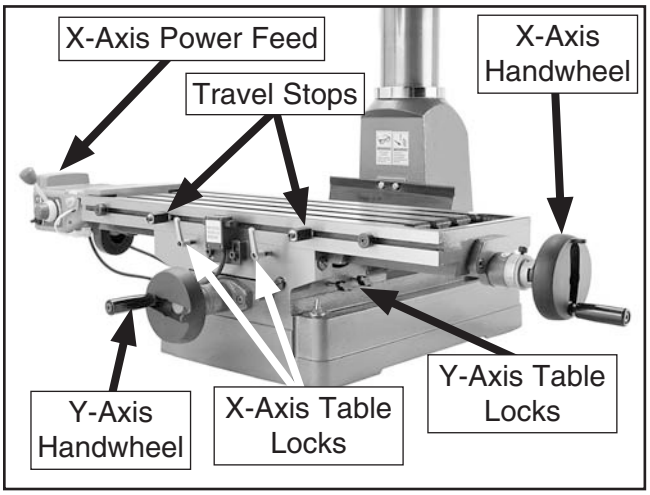


Figure 41. Table X-and Y-axis controls.

To operate the longitudinal feed handwheel:

1. Loosen the two X-axis table locks.

2. Loosen the knurled screw (see **Figure 42**), align the 0 mark on the handwheel bracket with the corresponding 0 mark on the handwheel, then tighten the screw.

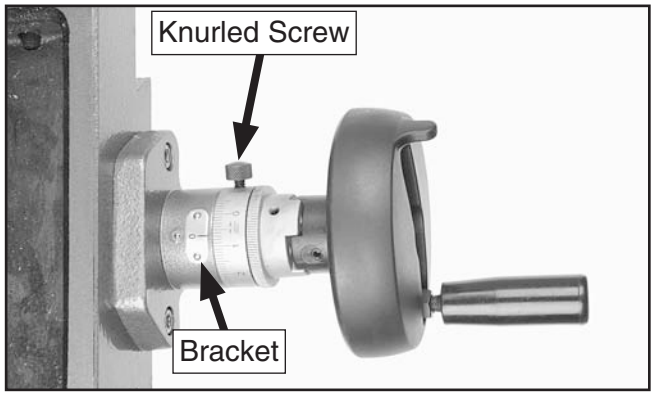


Figure 42. X-axis handwheel features.

3. Turn the handwheel according to the distance you want to move the table left or right. Each complete revolution equals 0.100".

To operate the longitudinal power feed:

1. Loosen the two X-axis table locks.

2. Position the limit stops along their slot to confine the distance you want the table to travel, then tighten the cap screws to secure them in place.

3. Rotate the speed dial (**Figure 43**) to the slowest speed, then turn the direction lever to the desired direction of travel.

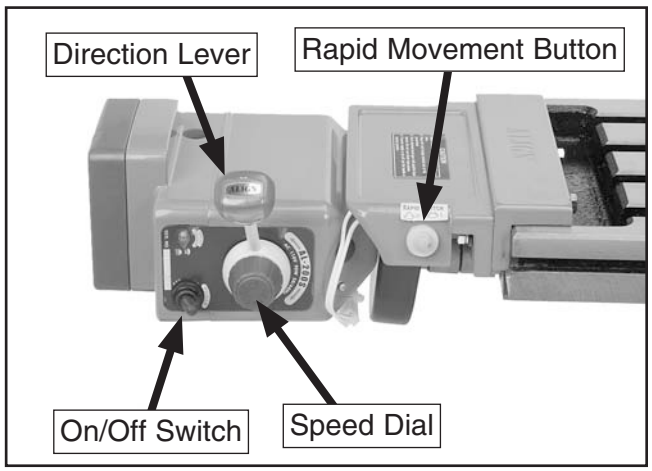


Figure 43. Power feed features.

4. Use the switch to turn the power feed ***ON***, then adjust the speed dial for the desired feed rate.

Note: *Power feed rates are difficult to precisely adjust. We recommend that you experiment with different dial settings to find the feed rate that best works for your operation.*

5. Press the rapid movement button to speed up the movement of the table in the selected direction.

6. When you are finished using the power feed, position the direction lever to the center OFF position, then use the power switch to turn the unit ***OFF***.

Cross Feed

The cross slide in **Figure 41** is moved with the Y-axis handwheel on the front of the table base.

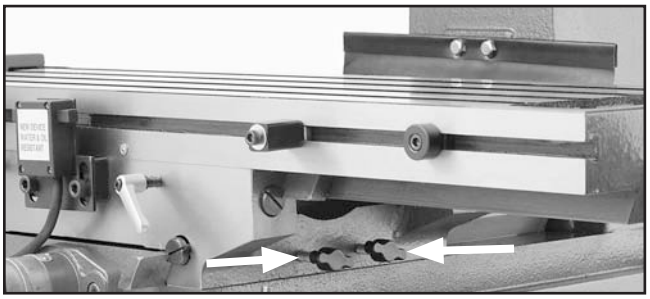


Figure 44. Y-axis table locks.

To operate the cross feed handwheel:

1. Loosen the two table locks shown in **Figure 41**.

2. Loosen the knurled screw (see **Figure 45**), align the 0 mark on the handwheel bracket with the corresponding 0 mark on the handwheel, then tighten the screw.

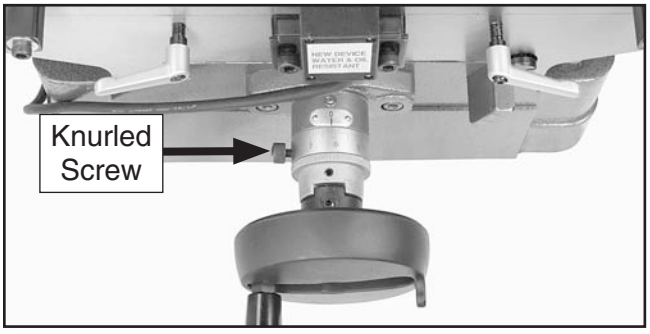


Figure 45. Y-axis handwheel features.

3. Turn the handwheel according to the distance you want to move the table in or out. Each complete revolution equals 0.100".

Calculating and Setting Spindle RPM

Closely follow the proper cutting speed and proper feed to reduce undue strain on all moving parts and increase operator safety.

Prior to milling, determine the RPM needed to cut your workpiece, then set the RPM on the machine. Read the example below.

An example of how to determine your needed spindle RPM:

1. Match up the workpiece material with the required cutting speed in the table in **Figure 46**.

   — Example:
   Alloy Steel = 40 SFM.

2. Measure the diameter of your cutting tool in inches and convert to decimal.

   — Example:
   HSS ¾" diameter end mill = 0.75 dia.

3. Use the following formula to determine the needed RPM for your operation:

   (Cutting Speed x 4) /Tool Diameter = RPM

   — Example: $\frac{40 \times 4}{0.75} =$ 213.3 RPM

4. Make sure the spindle motor is turned ***OFF*** and the spindle is stopped.

5. Move the range lever and speed lever on the headstock (**Figure 47**) to the position that will put the spindle speed closest to your calculated spindle speed of 213.3 RPM.

   — Example:
   L3 + 3 = 230 RPM

Cutting Speeds for High Speed Steel (HSS) Cutting Tools	
Workpiece Material	Cutting Speed (sfm)
Aluminum & alloys	300
Brass & Bronze	150
Copper	100
Cast Iron, soft	80
Cast Iron, hard	50
Mild Steel	90
Cast Steel	80
Alloy Steel, hard	40
Tool Steel	50
Stainless Steel	60
Titanium	50
Plastics	300-800
Wood	300-500

Note: *For carbide cutting tools, double the cutting speed. These values are a guideline only. Refer to the MACHINERY'S HANDBOOK for more detailed information.*

Figure 46. Cutting speed table for HSS cutting tools.

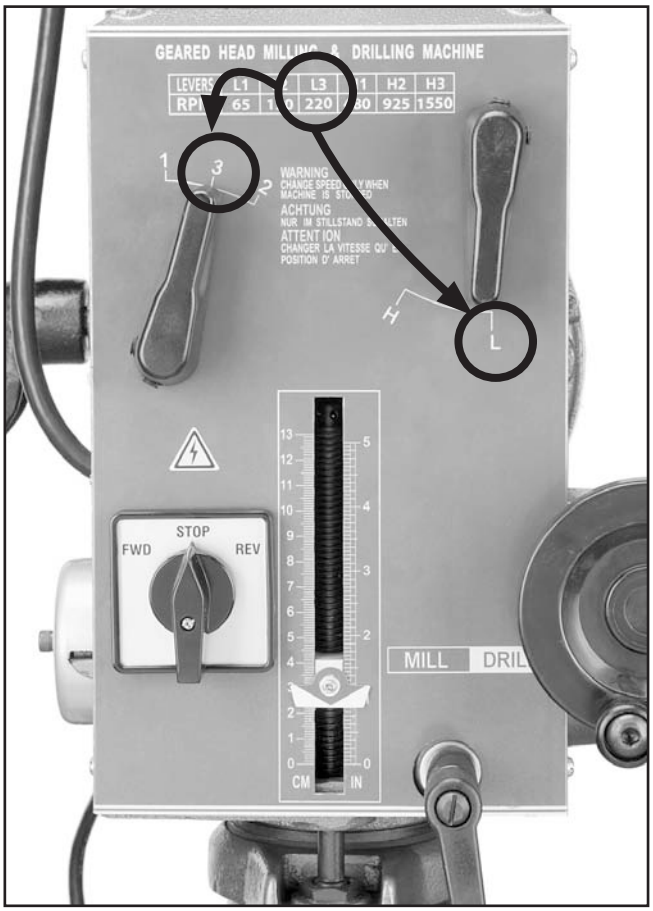


Figure 47. Lever positions for changing RPM.

Drilling Speed

Using the Drill Bit Speed Chart

Always follow the manufacturer's speed recommendations if provided with your drill bits or cutters. Exceeding the recommended speeds may be dangerous to the operator.

The chart shown in **Figure 48** is intended as a guide only. The optimum speed will always depend on various factors, including tool diameter, drilling pressure, material hardness, material quality, and desired finish.

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

Lubrication Suggestions

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

⚠CAUTION

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

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

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

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

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

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

Figure 48. Drill bit speed chart.

SECTION 5: ACCESSORIES

H7527—6" Rotary Table Set
Use this 6" Rotary Table in either the horizontal or vertical position for a variety of milling applications and with the set of dividing plates and adjustable tailstock, your milling applications are nearly unlimited. With 4° table movement per handle rotation and 20 second vernier scale, control is very accurate and precise. Also includes a ⅜" clamping set for the 4-slot table. Everything you need in one great set!

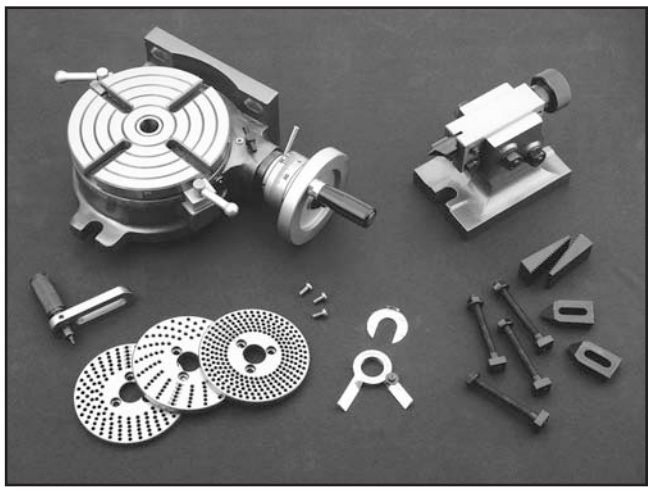


Figure 49. H7527 6" Rotary Table Set.

H9599—Machine Shop Trade Secrets
G5053—The Home Machinist's Handbook
Excellent reference pages for novices and professionals alike. Each book is filled with drawings charts and tables for getting the most of your milling machine. Model H9599 has 320 pages. Model G5053 has 275 pages.

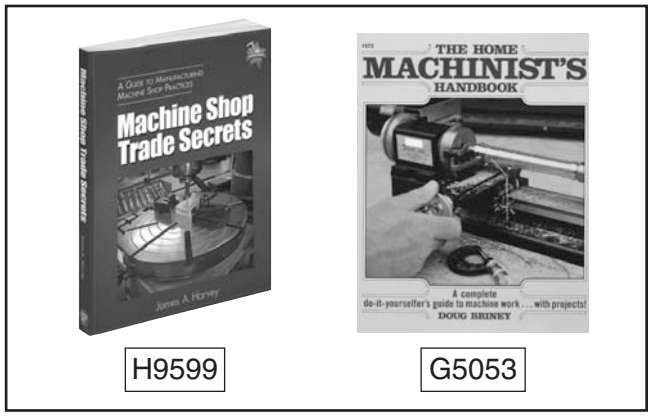


Figure 50. Great texts for milling machines.

Basic Eye Protection

T20501—Face Shield Crown Protector 4"
T20502—Face Shield Crown Protector 7"
T20503—Face Shield Window
T20452—"Kirova" Anti-Reflective S. Glasses
T20451—"Kirova" Clear Safety Glasses
H0736—Shop Fox® Safety Glasses
H7194—Bifocal Safety Glasses 1.5
H7195—Bifocal Safety Glasses 2.0
H7196—Bifocal Safety Glasses 2.5

Figure 51. Assortment of basic eye protection.

Recommended Metal Protectants

G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 12 oz Spray
G2871—Boeshield® T-9 12 oz Spray
G2870—Boeshield® T-9 4 oz Spray
H3788—G96® Gun Treatment 12 oz Spray
H3789—G96® Gun Treatment 4.5 oz Spray

Figure 52. Recommended products for protecting unpainted cast iron/steel.

T10067—8 Pc. R-8 Quick Change Collet Set
T10068—16 Pc. R-8 Quick Change Collet Set
These are the best collet sets we've ever carried. They can be used in production shops and for high precision work. Includes R-8 quick change collet chuck, 1/4", 5/16", 3/8", 1/2", 5/8", 3/4" and 1" collets, spanner wrench and moulded plastic case. The 16 pc. set includes everything in the 8 pc. set plus 1/8", 3/16", 7/16", 9/16", 11/16", 13/16", 7/8", and 15/16" collets. Made in Taiwan!

Figure 53. T10067 & T10068 Collet Sets.

G1432—Drill Chuck Arbor R-8 to JT#6
G1433—Drill Chuck Arbor R-8 to JT#33
G1675—Drill Chuck Arbor R-8 to JT#3
H6202—Precision Drill Chuck JT#3 1/64"–1/2"
H6203—Precision Drill Chuck JT#6 1/64"–1/2"
H6204—Precision Drill Chuck JT#3 1/32"–5/8"
These precision arbors and chucks are CNC machined to very high tolerances and are suitable for high speed drilling.

Figure 54. High precision arbor and chuck.

H2861—Face Mill
G4051—Carbide Insert for Fly Cutter
G1646—R-8 Collet Set of 12
This 2 1/2" Fly Cutter accepts four carbide inserts (not included). Comes with an R-8 arbor.

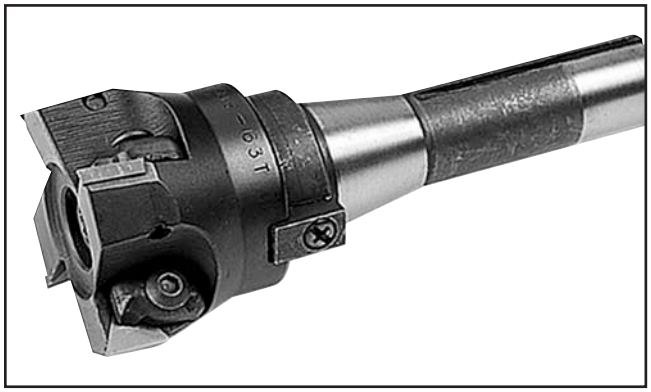


Figure 55. H2861 Face Mill.

G5774—R-8 End Mill Holder Set
Hold various sized end mills in your R-8 spindle with this End Mill Holder Set. Includes holders for 3/16", 3/8", 1/2", 5/8" and 3/4" end mills.

Figure 56. G5774 R-8 End Mill Holder Set.

G5683—Magnetic Base Lamp 60W 110V
H7801—Magnetic Base Lamp 40W 110V
Clamp to any ferrous part of the machine to add instant light to your work area!

Figure 57. Magnetic base lamps.

H6088—2 Axis Grizzly DRO 10" x 24"
H6092—3 Axis Grizzly DRO 10" x 24" x 5"
Features selectable resolution down to 5µm, absolute/incremental coordinate display, arc function, line of holes function, 199 user defined datum points, centering/cutter offset, double sealed scales, inch/millimeter display options, calculator with trig functions, and linear error compensation. These feature-packed DRO's will fit into just about any budget because you're not paying extra to a middleman, but don't let the low price fool you, these are some of the finest DRO's on the market today.

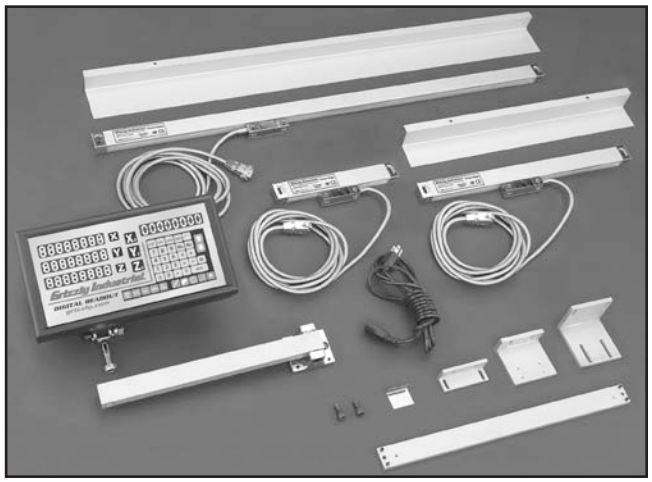


Figure 58. H6092 3 Axis Grizzly DRO.

G5944—Optional Stand for G1126
Sheet metal cabinet stand with storage space. Weighs 74 lbs.

Figure 59. G5944 Optional Stand.

Call 1-800-523-4777 To Order

G1076—52-PC. Clamping Kit
This clamping kit includes 24 studs, 6 step block pairs, 6 T-nuts, 6 flange nuts, 4 coupling nuts, and 6 end hold-downs. The rack is slotted so it can be mounted close to the machine for easy access.

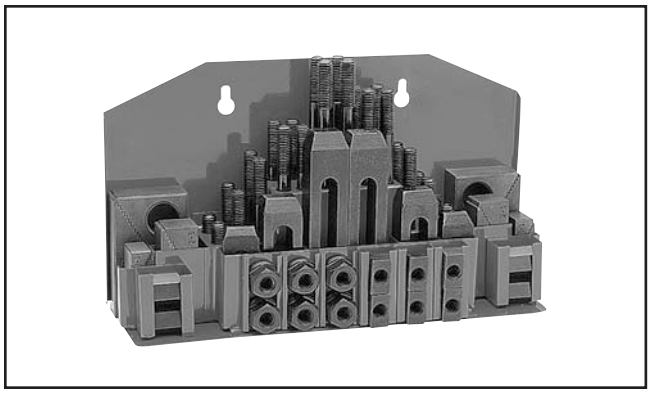


Figure 60. G1076 52-PC. Clamping Kit.

G7156—4" (3⅝") Precision Milling Vise
G7154—5" (4½") Precision Milling Vise
G7155—6" (5⅝") Precision Milling Vise
Swiveling Milling Vises feature perfectly aligned, precision ground jaws, large Acme® screws and easy to read 0°–360° scales.

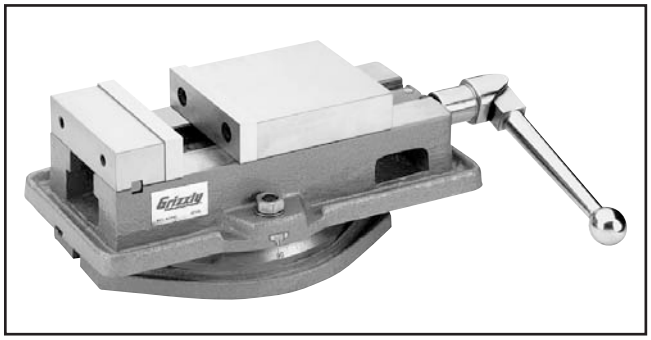
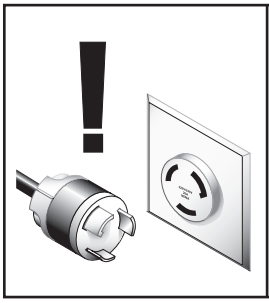


Figure 61. G7154 Precision Milling Vise.

G7066—5" Tilting/Swiveling Milling Vise
H7576—Precision Self-Centering Vise
H2716—Milling Vise for Round Parts

Figure 62. Specialty milling vises.

SECTION 6: MAINTENANCE



⚠WARNING

Always disconnect power to the machine before performing maintenance. Failure to do this may result in serious personal injury.

Schedule

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

Daily Check:
- Loose mounting bolts.
- Damaged tooling.
- Worn or damaged wires.
- Clean debris and built up grime off of machine.
- Headstock oil level and general lubrication.
- Any other unsafe condition.

Every 8 Hours of Operation:
- Lubricate main rack and column (**Page 38)**
- Lubricate the quill (**Page 38**)

Every 40 Hours of Operation:
- Lubricate table leadscrew (**Page 39**)
- Lubricate ball oilers (**Page 39**)
- Lubricate the ways (**Page 40**)
- Drain the coolant trough.

Every 30 Days of Operation:
- Check oil breather plug (**Page 41**)

Every 90 Days of Operation:
- Lubricate rack and pinion (**Page 38**).

Every 180 Days of Operation:
- Change gearbox oil (**Page 40**)

Cleaning and Protecting

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

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

Keep unpainted cast iron surfaces rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9 (see the Grizzly catalog or website).

Lubrication

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

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

Clean the components in this section with an oil/grease solvent cleaner, such as shown on **Page 14** of this manual.

DISCONNECT THE POWER BEFORE PERFORMING LUBRICATION!

NOTICE

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

Tools Needed:

Paint Brush for Grease Application 1
NLGI#2 Multi-Purpose Grease Tube 1
ISO 68 or Equivalent Oil 1
10W30 Oil Bottle 1
Way Oil Bottle..... 1
Wire Brush..... 1
Toothpick 1
Mineral Spirits.....I Cup
Shop Rags..... As Required
Phillips Head Screwdriver..... 1
Hex Wrench 6mm..... 1
Wrench 22mm 1
Oiler Bottle..... 1

Rack and Pinion

Lubricant	Frequency	Qty
NLGI#2 Grease	Every 90 Days of Operation	Moderate Coat

To lubricate the rack and pinion:

1. DISCONNECT THE MACHINE FROM POWER!

2. Remove the gearing cover under the headstock.

3. Use mineral spirits, a toothbrush or wire brush, and rags, and thoroughly clean the rack and pinion (**Figure 63**).

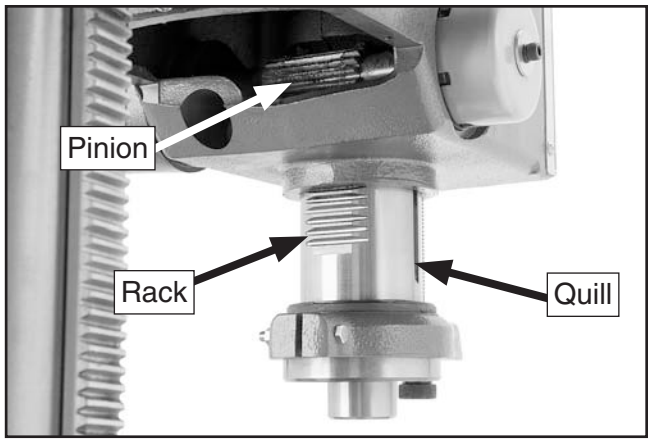


Figure 63. Rack, pinion and quill.

4. Brush NLG1#2 grease onto the rack and pinion gear teeth.

Quill

Lubricant	Frequency	Qty
ISO 68 Lubricant or Equivalent	Every 8 Hours of Operation	Thin Coat

To lubricate the quill:

1. DISCONNECT THE MACHINE FROM POWER!

2. Lower the quill (**Figure 63**) and use a rag and mineral spirits to clean the quill.

3. Use a brush or clean rag to apply a thin coat of lubricant.

4. Move the quill up and down to spread the lubricant thoroughly.

Main Column and Rack

Lubricant	Frequency	Qty
ISO 68 or equivalent	Every 8 Hours of Operation	Light Coat

To lubricate the main column and rack:

1. Use a rag, brush, and mineral spirits to wipe away the old lubricant and built-up grime on the rack and column (**Figure 64**), and move the headstock up and down to ensure all surfaces are clean.

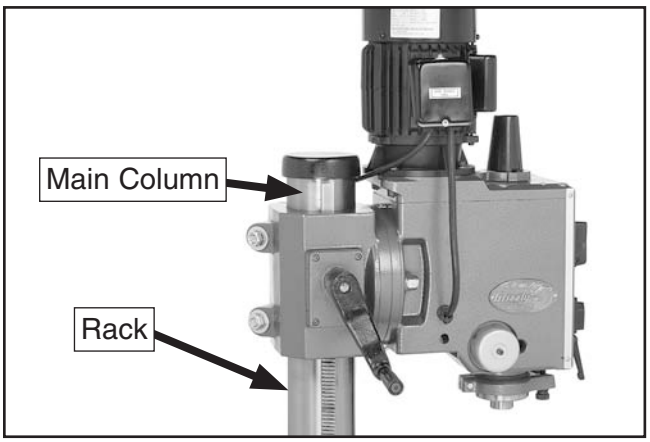


Figure 64. Main column and rack.

2. Use a brush to apply lubricant to the rack and column, then move the headstock up and down to thoroughly distribute the lubricant.

Table Leadscrew

Lubricant	Frequency	Qty
ISO 68/Equivalent	Every 40 Hours of Operation	Thin Coat

To lubricate the table leadscrew:

1. DISCONNECT THE MACHINE FROM POWER!

2. Use a wire brush, rags, and mineral spirits to remove built-up grime and debris from the leadscrew (**Figure 65**).

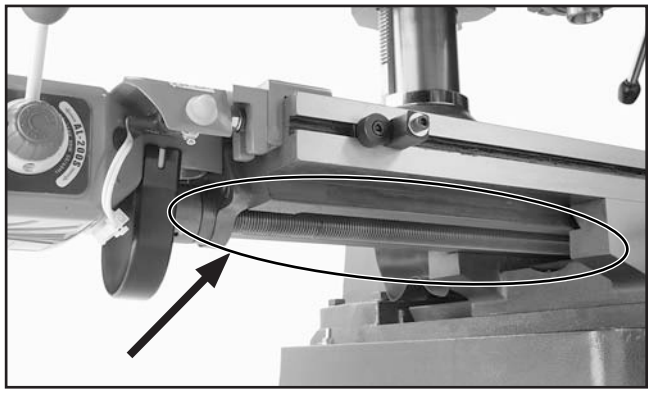


Figure 65. Leadscrew lubrication location (left side shown).

3. Use a brush or clean rag to wipe lubricant onto the leadscrew, then move the X-axis handwheel or use the X-axis power feed to move the table back and forth to distribute the lubricant along the entire length of the leadscrew.

Ball Oilers

Lubricant	Frequency	Qty
10W30 Non-Detergent Oil	Every 40 Hours of Operation	Thin Coat

To lubricate the ball oilers (Figure 66):

1. Wipe the outer surface of the ball fitting with a clean cloth to remove contaminants.

2. Press the ball of the fitting with the tip of an oiler, press a few drops of oil into the ball fitting, then clean up any residue with a cloth.

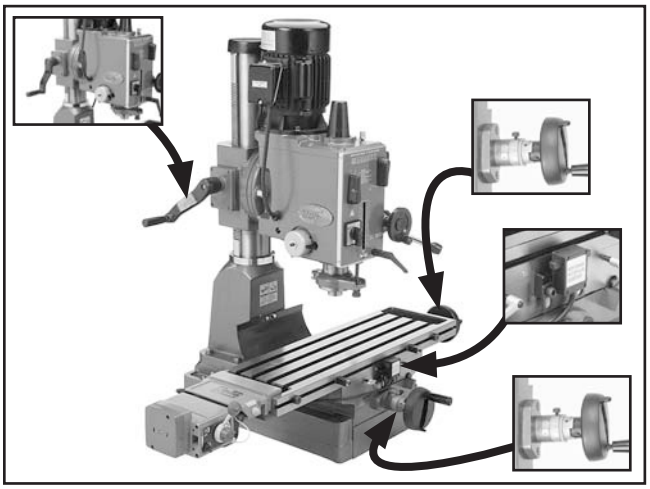


Figure 66. Ball oiler locations.

Ways

Lubricant	Frequency	Qty
Way Oil	Every 40 Hours of Operation	Thin Coat

To lubricate the ways:

1. Use a shop rag and mineral spirits to wipe away the old lubricant and built-up grime on the ways, then brush on a thin coat of way oil onto the X- and Y-axis ways (see **Figure 67**).

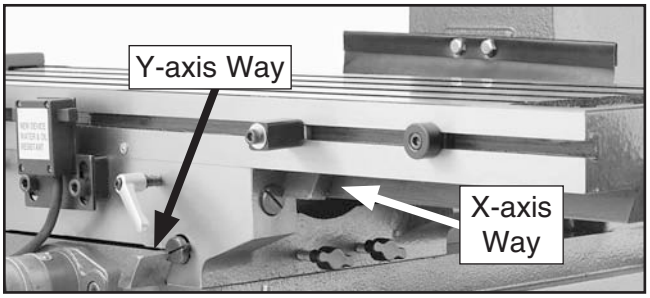


Figure 67. Table ways.

2. Move the X- and Y-axis handwheels through their full range of movement to evenly distribute the lubricant.

Gearbox

Lubricant	Frequency	Qty
10W30 Non-Detergent Oil	After Break-in, Then Every 6 Months	As Needed

To change the gearbox oil:

1. Remove the oil fill plug (**Figure 68**) using a 22mm wrench.

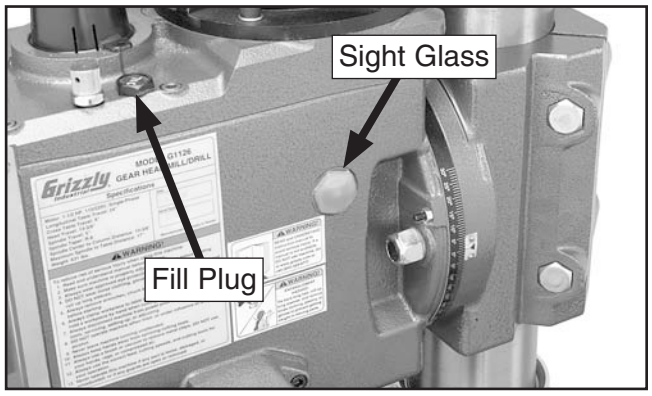


Figure 68. Location of oil fill plug.

2. Remove the gearing cover to access the drain plug (see **Figure 69**), place a catch pan under the plug, remove it with a 6mm wrench and let the oil drain out.

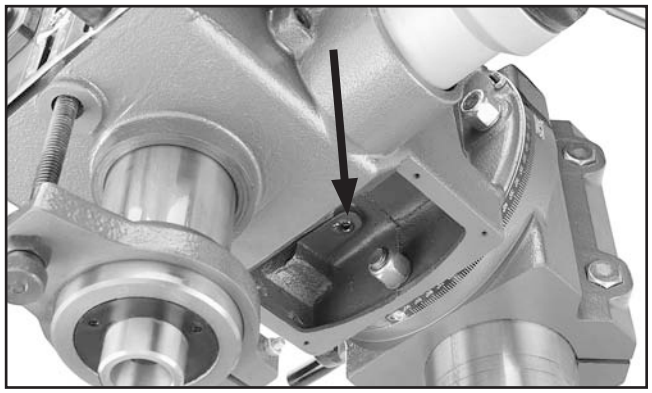


Figure 69. Location of oil drain plug.

3. Reinstall the drain plug, fill the gear box with the 10W30 non-detergent oil until the sight glass (see **Figure 68**) is ¾ full, then re-install the oil fill plug.

Oil Breather Plug

The oil breather plug needs to be cleaned at least once a month to ensure proper airflow through the gearbox. Over time debris and grime can build up on the check valve on the breather plug, which can be blown out with compressed air.

To clean the oil breather plug:

1. Unthread the breather plug (**Figure 70**) from the headstock.

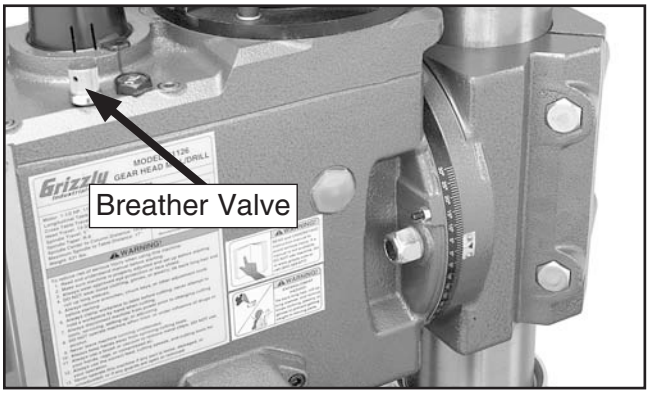


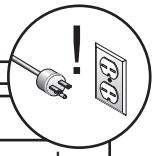
Figure 70. Location of breather valve.

2. Put on a pair of safety glasses, then carefully blow compressed air through the threaded end of the breather plug.

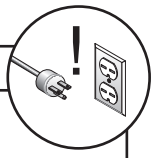
SECTION 7: SERVICE

Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

Troubleshooting



Symptom	Possible Cause	Possible Solution
Machine does not start.	1. Circuit breaker on machine tripped.	1. Press reset button on motor junction box; reduce load on motor to prevent overheating.
	2. Plug at fault or wired incorrectly.	2. Ensure plug is not damaged and is wired correctly.
	3. Motor wired incorrectly.	3. Ensure motor wiring is correct.
	4. Wall fuse/circuit breaker is blown/tripped.	4. Ensure circuit size is correct and a short does not exist. Reset breaker or replace fuse.
	5. Wiring is open/has high resistance.	5. Check for broken wires or disconnected/corroded connections; repair/replace as necessary.
	6. Machine power switch is at fault.	6. Ensure switch is wired correctly; replace if at fault.
	7. Motor is at fault.	7. Test/repair/replace.
Machine stalls or is overloaded.	1. Feed rate/cutting speed too fast.	1. Decrease feed rate/cutting speed.
	2. Wrong cutter type.	2. Use the correct cutter for the task.
	3. Machine is undersized for the task or tooling is incorrect for the task.	3. Use smaller or sharper tooling; reduce feed rate or spindle speed; use cutting fluid if possible.
	4. Motor connection is wired incorrectly.	4. Wire motor correctly for the intended voltage.
	5. Motor bearings are at fault.	5. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
	6. Motor has overheated.	6. Clean off motor, let cool, and reduce workload.
	7. Motor is at fault.	7. Test/repair/replace motor.
Machine has vibration or noisy operation.	1. Motor or machine component is loose.	1. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid.
	2. Excessive depth of cut.	2. Decrease depth of cut.
	3. Cutter/tooling is loose.	3. Make sure tooling is properly secured.
	4. Cutter is dull or at fault.	4. Replace/resharpen cutter.
	5. Bit is chattering.	5. Replace/sharpen bit; index bit to workpiece; use appropriate feed rate and cutting RPM.
	6. Machine is incorrectly mounted or sits unevenly.	6. Tighten/replace mounting bolts in bench; relocate/shim machine.
	7. Motor fan is rubbing on fan cover.	7. Replace dented fan cover or damaged fan.
	8. Motor bearings are at fault.	8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.



Symptom	Possible Cause	Possible Solution
Tool slips in collet.	1. Collet is not fully drawn up into spindle taper. 2. Wrong size collet. 3. Debris on collet or in spindle taper. 4. Taking too big of a cut.	1. Tighten draw bar. 2. Measure tool shank diameter and match with appropriate diameter collet. 3. Clean collet and spindle taper. 4. Lessen depth of cut and allow chips to clear.
Breaking tools or cutters.	1. Spindle speed/feed rate is too fast. 2. Cutting tool getting too hot. 3. Taking too big of a cut. 4. Spindle extended too far down.	1. Set spindle speed correctly (**Page 32**) or use a slower feed rate. 2. Use coolant fluid or oil for appropriate application. 3. Decrease depth of cut. 4. Fully retract spindle and lower headstock. This increases rigidity.
Workpiece vibrates or chatters during operation.	1. Table locks not tight. 2. Spindle lock not tight. 3. Workpiece not securely clamped to table or into mill vice. 4. Spindle speed/feed rate is too fast. 5. Spindle extended too far down.	1. Tighten down table locks (**Page 30**). 2. Tighten spindle lock (**Page 25**). 3. Check that clamping is tight and sufficient for the job. Make sure mill vice is tight to the table. 4. Set spindle speed correctly (**Page 32**) or use a slower feed rate. 5. Fully retract spindle and lower headstock. This increases rigidity.
Table is hard to move.	1. Table locks are tightened down. 2. Chips have loaded up on ways. 3. Ways are dry and need lubrication. 4. Table limit stops are interfering. 5. Gibs are too tight.	1. Make sure table locks are fully released. 2. Frequently clean away chips that load up during milling operations. 3. Lubricate ways and handles (**Page 37**). 4. Check to make sure that all table limit stops are not in the way. 5. Adjust gibs (see **Page 45**).
Bad surface finish.	1. Spindle speed/feed rate is too fast. 2. Using a dull or incorrect cutting tool. 3. Wrong rotation of cutting tool. 4. Workpiece not securely clamped. 5. Spindle extended too far down.	1. Set spindle speed correctly (**Page 32**) or use a slower feed rate. 2. Sharpen cutting tool or select one that better suits the operation. 3. Check for proper cutting rotation for cutting tool. 4. Secure properly to the table. 5. Fully retract spindle and lower headstock. This increases rigidity.

Return Spring

⚠CAUTION

A sharp spring tail is located on the perimeter of the spring housing. Use leather gloves or a heavy shop towel to cover the tail while loading or unloading return spring pressure. Failure to use such precautions may result in personal injury.

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

To adjust the spring tension:

1. DISCONNECT MACHINE FROM POWER!
2. PUT ON SAFETY GLASSES!
3. Loosen the cap screw knob two or three turns (**Figure 71**).

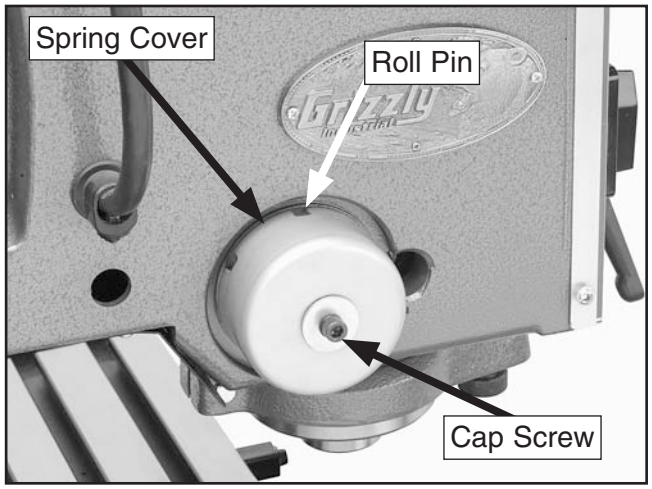


Figure 71. Spring cover.

⚠CAUTION

Do not completely remove the spring cover during the next step or it will rapidly uncoil, which may lead to hand lacerations and is difficult to re-install.

4. Put on gloves and pull the spring cover out enough so the notches just clear the roll pin. Hold the spring cover tightly or the force of the spring will spin it out of your hands.
5. Rotate the cover to adjust the tension. Push the cover back in to engage the roll pin in one of the notches (**Figure 72**).

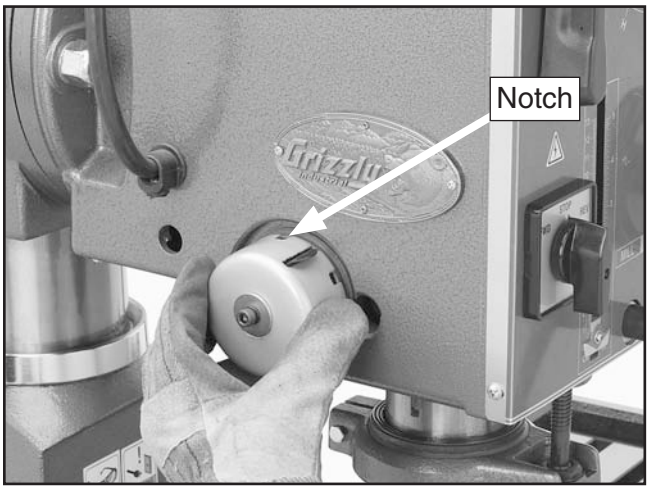


Figure 72. Adjusting spring tension.

6. Tighten the black thumb knob.

Gibs

The gibs are pre-adjusted at the factory but due to storage, break-in, and usage, may require adjustment. If movement seems too tight at first, make sure that all the rust preventative that was shipped on the machine is removed from the ways. Lubricate the ways with oil, and work the table back-and-forth several times until the movement is easier.

The gibs are adjusted by turning the large slotted screw heads in the front and right side of the table base (**Figure 73**) until you feel a slight drag when you turn the handwheels. The screw at the front of the machine affects movement from front to back. The screw under the right side of the table affects longitudinal movement. You can loosen the screws if your table movement seems excessively stiff.

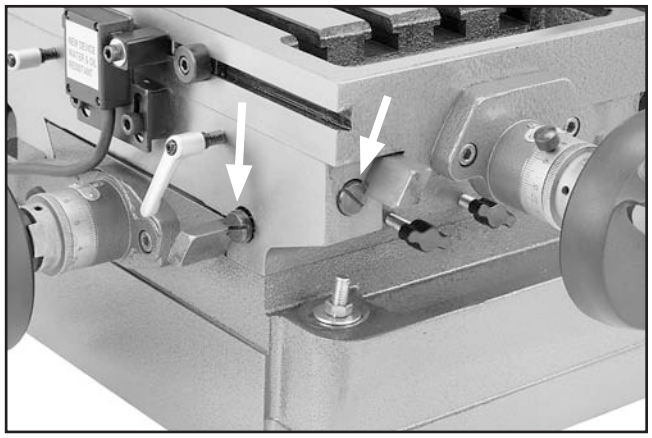


Figure 73. Gib adjustment screw locations.

Quill

The internal quill pin (**Figure 74**) is a set screw and has been pre-adjusted at the factory. It should not need adjustment under normal circumstances.

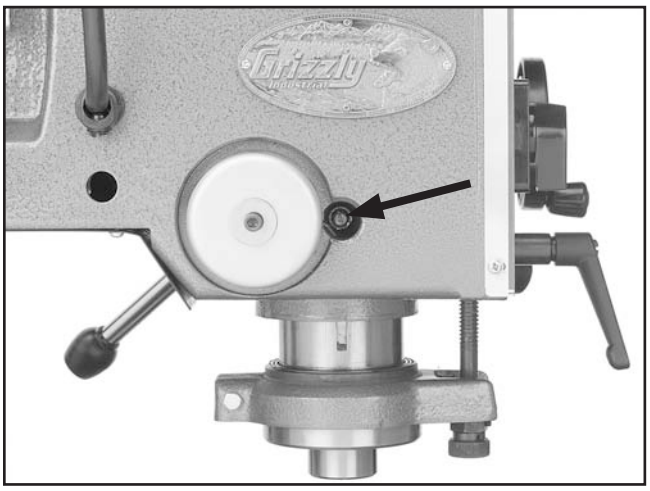


Figure 74. Internal quill pin.

The slotted set screw on the left side of the head is used for limiting the amount of rotational play in the quill body. Loosening the check-nut and tightening the set screw reduces this play in the quill.

If you are worried that you might have excessive quill play, spindle looseness, or if an accident has occurred that requires re-adjusting this set screw, contact Technical Support for advice on how to perform this service properly.

Leadscrew Backlash

When you turn the handwheels to adjust the position of the table, you will notice slight play (backlash) in the handwheel before the table begins to move. If this play is greater than 0.008" (measured with the dial at the base of each handwheel), then you will need to adjust the leadscrew nuts.

To reach the adjustment screws on the leadscrew nut, you may have to fabricate extensions for your hex wrenches. When adjusting, make adjustments in small increments. Over-tightening to attempt to reduce backlash to less than 0.003" is impractical and will add unnecessary wear to both the leadscrews and the leadscrew nuts.

To adjust the X-axis leadscrew:

1. Locate the X-axis leadscrew nut under the middle of the table. The head on the adjustment screw faces to the right (**Figure 75**).

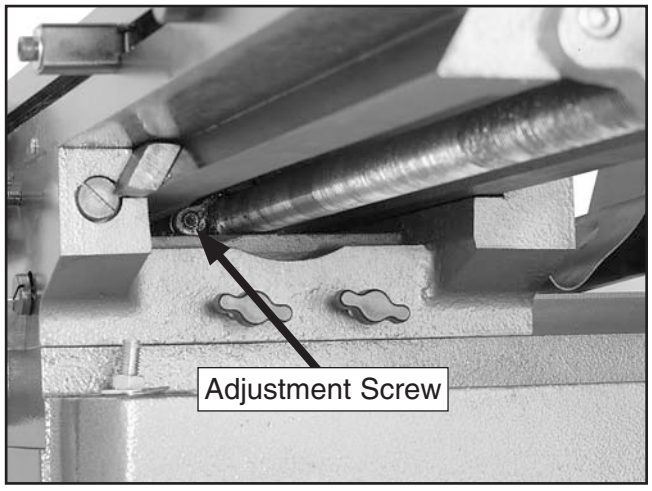


Figure 75. X-axis leadscrew adjuster.

2. Tighten the adjustment screw.

3. Test the adjustment by turning one of the side handwheels. The ideal amount of play when properly adjusted is 0.003"–0.006".

To adjust the Y-axis leadscrew nut:

1. Locate the leadscrew nut through the underside of the base.

2. Tighten the adjustment screw on the leadscrew nut in the same manner as discussed for the X-axis leadscrew adjustment.

3. Test the adjustment by turning one of the side handwheels. The ideal amount of play when properly adjusted is 0.003"–0.006".

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. 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.

⚠WARNING
Wiring Safety Instructions

1. **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!

2. **QUALIFIED ELECTRICIAN.** Due to the inherent hazards of electricity, only a qualified electrician should perform wiring tasks on this machine. If you are not a qualified electrician, get help from one before attempting any kind of wiring job.

3. **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.

4. **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 before completing the task.

5. **MODIFICATIONS.** Using aftermarket parts or modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire.

6. **MOTOR WIRING.** The motor wiring shown in these diagrams is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.

7. **CAPACITORS.** Some capacitors store an electrical charge for up to five minutes after being disconnected from the power source. To avoid being shocked, wait at least this long before working on capacitors.

8. **CIRCUIT REQUIREMENTS.** You MUST follow the requirements on **Page 10** when connecting your machine to a power source.

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

NOTICE

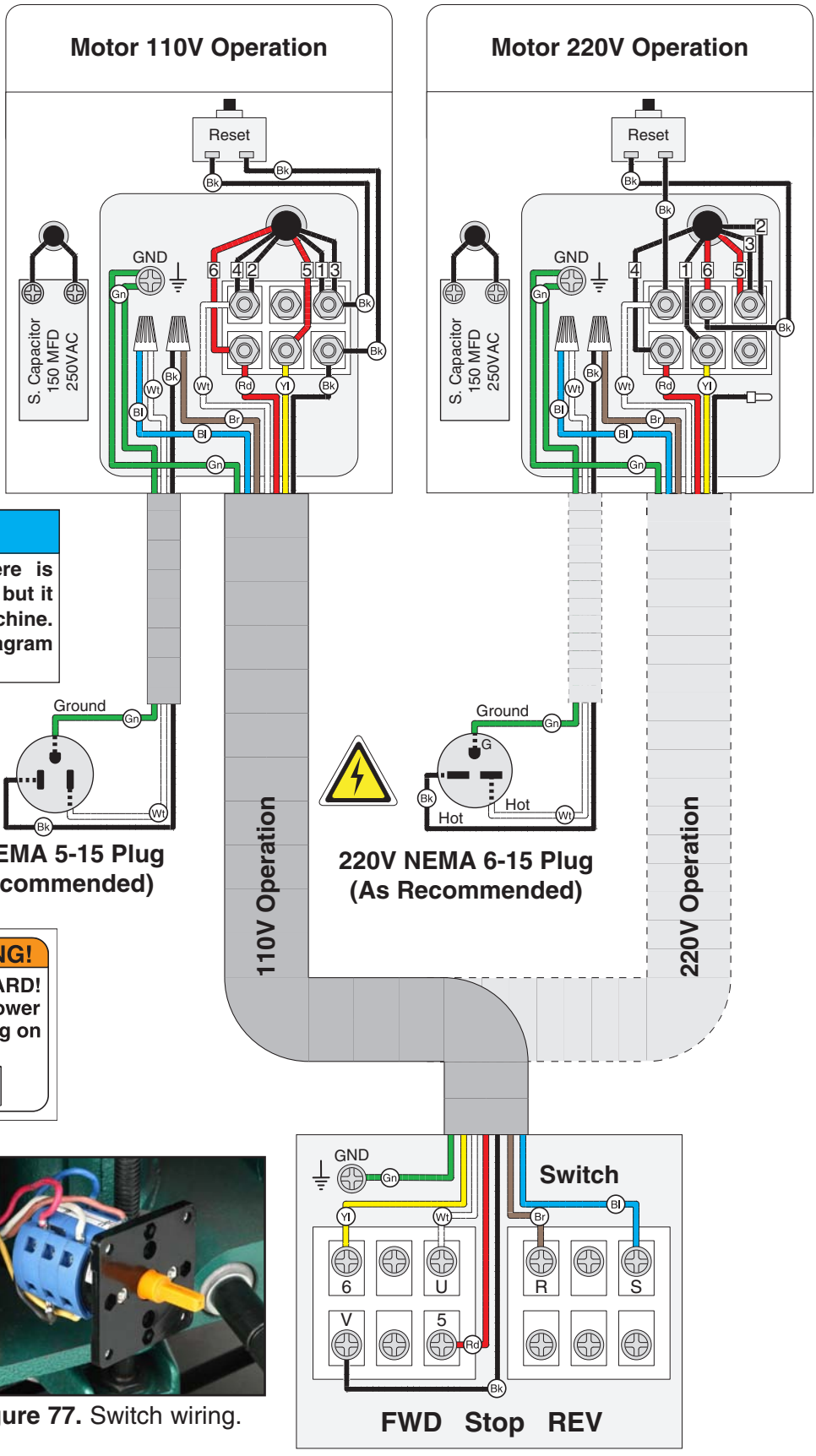
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

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

Electrical Wiring Diagram

Figure 76. 110V motor wiring.



NOTICE

The motor wiring shown here is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.

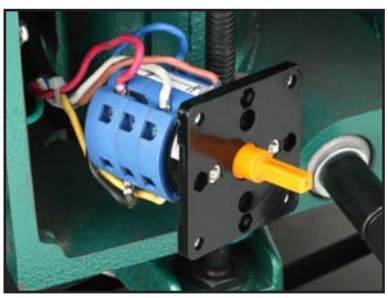


Figure 77. Switch wiring.

SECTION 9: PARTS

Table & Column Breakdown

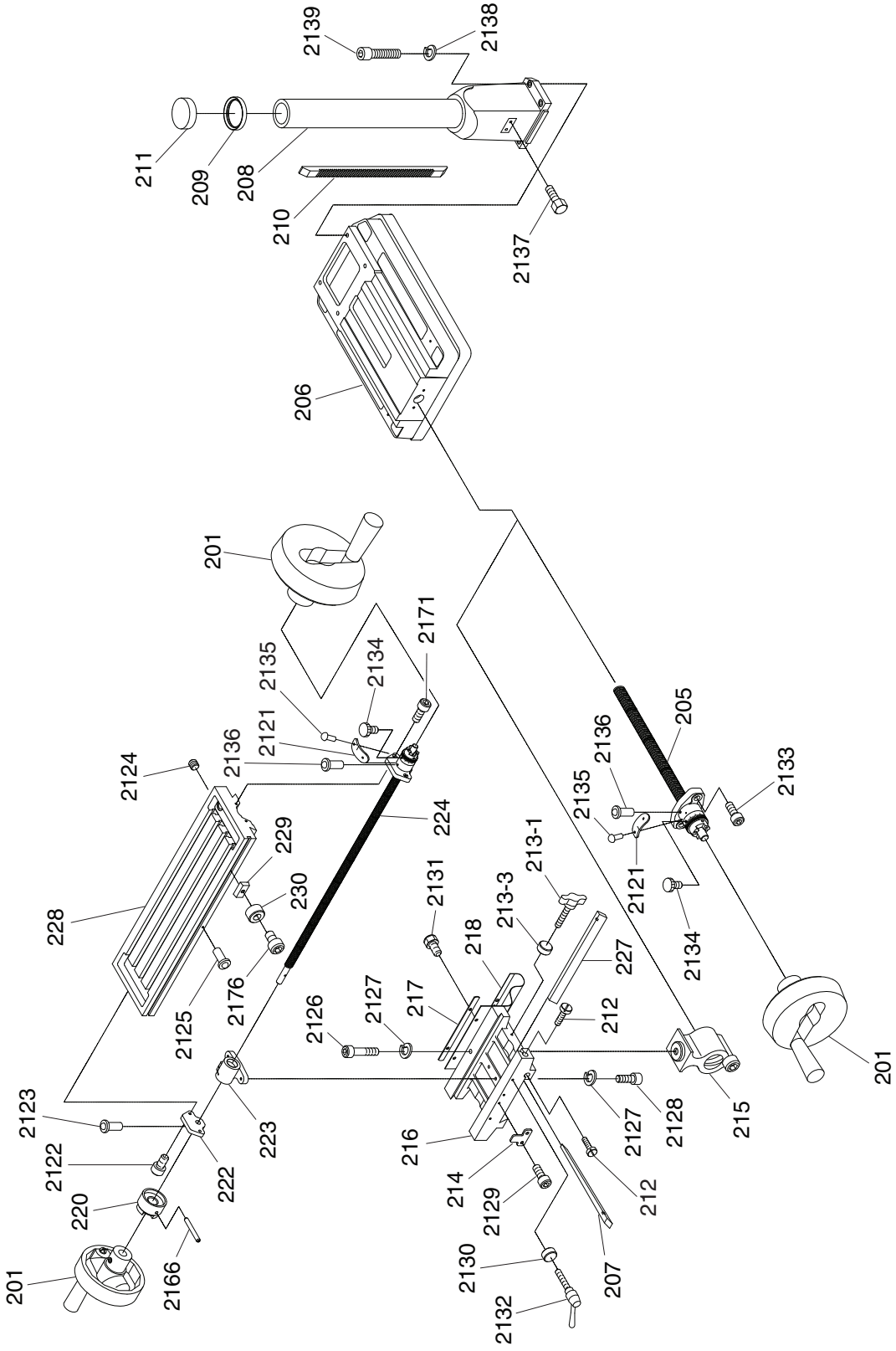
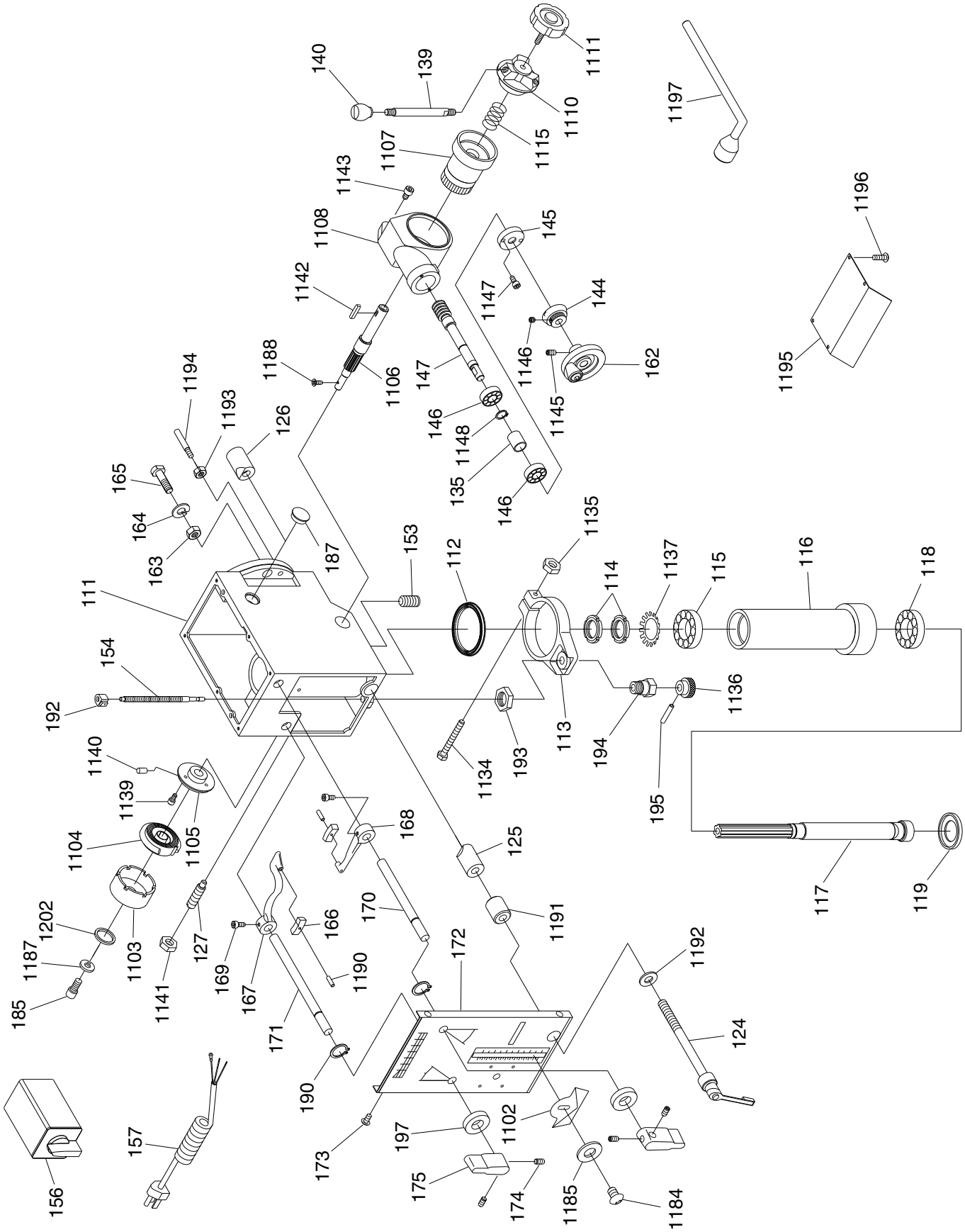


Table & Column Parts List

REF	PART #	DESCRIPTION
201	P1126201	TABLE HANDWHEEL
205	P1126205	LEADSCREW ASSY M23.5-2.5 X 468
206	P1126206	BASE
207	P1126207	CROSS SLIDE GIB
208	P1126208	COLUMN
209	P1126209	COLUMN RING
210	P1126210	RACK
211	P1126211	COLUMN CAP
212	P1126212	GIB BOLT 5/16"-18 X 1-3/8"
213-1	P1126213-1	CROSS LOCK BOLT
213-3	P1126213-3	BUSHING
214	P1126214	LONGITUDINAL LIMIT BLOCK
215	P1126215	LEADSCREW NUT M23.5-2.5
216	P1126216	SADDLE
217	P1126217	WAY COVER PLATE
218	P1126218	WAY COVER
220	P1126220	LEFT LONGITUDINAL CLUTCH
222	P1126222	LEFT LEADSCREW BRACKET
223	P1005613	LEADSCREW NUT M23.5-2.5
224	P1126224	LEADSCREW ASSY M23.5-2.5 X 97
227	P1126227	LONGITUDINAL GIB
228	P1126228	TABLE
229	P1005602	T-NUT 1/4-20

REF	PART #	DESCRIPTION
230	P1005603	LIMIT STOP SLEEVE
2121	P11262121	INDICATOR PLATE
2122	PCAP03	CAP SCREW 5/16-18 X 1
2123	P11262123	BALL OILER 1/4
2124	P11262124	PLUG 1/4 X 3/8
2125	P11262123	BALL OILER 1/4
2126	PCAP12	CAP SCREW 5/16-18 X 2-1/2
2127	PLW01	LOCK WASHER 5/16
2128	PCAP03	CAP SCREW 5/16-18 X 1
2129	PCAP30	CAP SCREW 5/16-18 X 1/2
2130	P11262130	BUSHING
2131	PB09	HEX BOLT 5/16-18 X 1/2
2132	P11262132	LONGITUDINAL LOCK BOLT
2133	PCAP03	CAP SCREW 5/16-18 X 1
2134	P11262134	DIAL POSITION SCREW
2135	P11261199	RIVET 2MM
2136	P11262123	BALL OILER 1/4
2137	PB09	HEX BOLT 5/16-18 X 1/2
2138	PLW06	LOCK WASHER 5/8
2139	PCAP27	CAP SCREW 5/8-11 X 2-1/2
2166	PRP28M	ROLL PIN 5 X 40
2171	PCAP03	CAP SCREW 5/16-18 X 1
2176	PCAP04	CAP SCREW 1/4-20 X 1/2

Head Breakdown

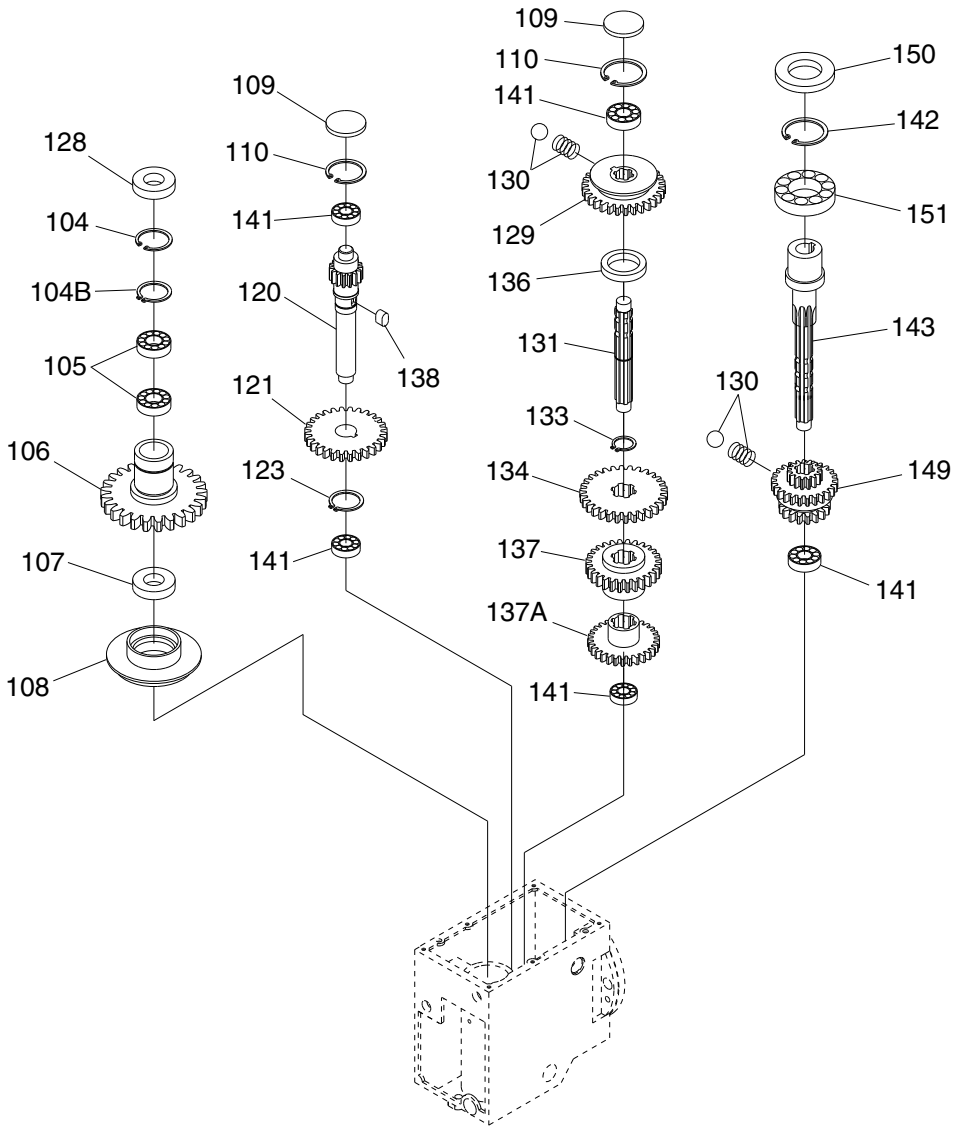


Head Parts List

REF	PART #	DESCRIPTION
111	P1126111	HEADSTOCK CASTING
112	P1126112	RUBBER FLANGE
113	P1126113	FEED BASE
114	P1126114	SPANNER NUT OD 29.5-20 UNF
115	P30206	TAPERED ROLLER BEARING 30206
116	P1126116	QUILL
117	P1126117	SPINDLE
118	P30207	TAPERED ROLLER BEARING 30207
119	P1126119	BEARING CAP
124	P1126124	QUILL LOCK ROD
125	P1126125	FRONT QUILL LOCK SLEEVE
126	P1126126	REAR QUILL LOCK SLEEVE
127	P1126127	DOG POINT SET SCREW 3/8-16 X 1-1/2
135	P1126135	BEARING SPACER 34 X 28
139	P1126139	COARSE DOWNFEED LEVER
140	P1126140	KNOB
144	P1126144	FINE DOWNFEED GRADUATED RING
145	P1126145	WORM COVER
146	P6202ZZ	BALL BEARING 6202ZZ
147	P1126147	WORM SHAFT
153	P1126153	OIL DRAIN PLUG
154	P1126154	DEPTH SCREW
156	P1126156	FWD/REV SWITCH
157	PWRCRD110L	POWER CORD
162	P1126162	HANDWHEEL
163	PLN07	LOCK NUT 5/8-11
164	PLW06	LOCK WASHER 5/8
165	P1126165	SPECIAL HEX BOLT
166	P1126166	SHIFTING FORK BRACKET
167	P1126167	SHIFTING FORK LEFT
168	P1126168	SHIFTING FORK RIGHT
169	PCAP04	CAP SCREW 1/4-20 X 1/2
170	P1126170	SHIFTING SHAFT RIGHT
171	P1126171	SHIFTING SHAFT LEFT
172	P1126172	HEADSTOCK FRONT COVER
173	PS06	PHLP HD SCR 10-24 X 3/8
174	PSS17	SET SCREW 5/16-18 X 5/16
175	P1126175	SHIFTING LEVER
185	PCAP01	CAP SCREW 1/4-20 X 5/8
187	P1126187	OIL SIGHT GLASS
190	PR03M	EXT RETAINING RING 12MM

REF	PART #	DESCRIPTION
192	P1126192	DEPTH SCREW NUT
193	P1126193	THIN HEX NUT 5/8-18
194	P1126194	DEPTH SCREW BASE
195	P1126195	SPECIAL PIN
197	P1126197	OIL SEAL
1102	P11261102	DEPTH INDICATOR
1103	P11261103	SPRING COVER
1104	P11261104	TENSION SPRING
1105	P11261105	SPRING BASE
1106	P11261106	PINION SHAFT
1107	P11261107	WORM GEAR
1108	P11261108	DOWNFEED GEAR HOUSING
1110	P11261110	COARSE DOWNFEED LEVER HUB
1111	P11261111	LOCK KNOB 3/8"-16 X 5/8
1115	P11261115	COMPRESSION SPRING 175 X 25MM
1134	PB10	HEX BOLT 1/4-20 X 2
1135	PN05	HEX NUT 1/4-20
1136	P11261136	KNURLED DEPTH KNOB
1137	P11261137	LOCK WASHER 30 X 39 X 1.0
1139	PS08	PHLP HD SCR 10-24 X 3/4
1140	P11261140	SPECIAL PIN
1141	PN08	HEX NUT 3/8-16
1142	PK25M	KEY 7 X 7 X 20
1143	PCAP07	CAP SCREW 5/16-18 X 3/4
1145	PSS05	SET SCREW 5/16-18 X 1/4
1146	PSS11	SET SCREW 1/4-20 X 1/4
1147	PCAP02	CAP SCREW 10-24 X 3/8
1148	PR05M	EXT RETAINING RING 15MM
1184	PS41	PHLP HD SCR 6-32 X 1/4
1185	PW16	FLAT WASHER #6
1187	P11261187	SPECIAL WASHER 65 X 25 X 2.0
1188	PFH08	FLAT HD SCR 10-24 X 1/2
1190	P11261190	SPECIAL PIN
1191	P11261191	QUILL LOCK SLEEVE
1192	PW01	FLAT WASHER 1/2
1193	P11261193	SPECIAL HEX NUT
1194	P11261194	THREADED MITER PIN
1195	P11261195	DUST PLATE
1196	PS06	PHLP HD SCR 10-24 X 3/8
1197	P11261197	SOCKET WRENCH
1202	PW06	FLAT WASHER 1/4

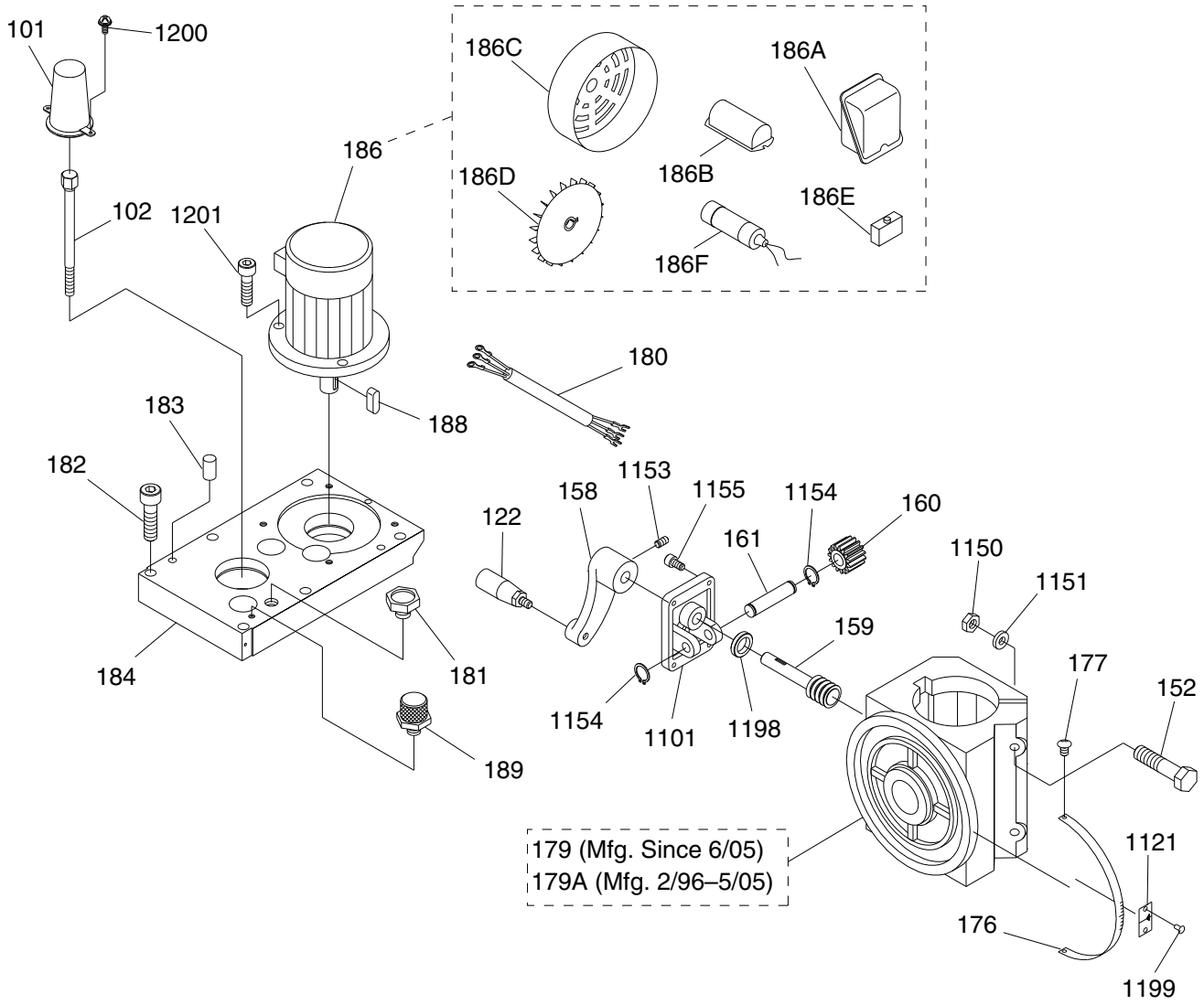
Gearing



REF	PART #	DESCRIPTION
104	PR23M	INT RETAINING RING 40MM
104B	P1126104B	SPECIAL EXT RETAINING RING
105	P6008OPEN	BALL BEARING 6008 OPEN
106	P1126106	SPINDLE SLEEVE GEAR
107	P1126107	OIL SEAL 35 X 45 X 8
108	P1126108	SEAL RETAINER
109	P1126109	DUST COVER
110	PR21M	INT RETAINING RING 35MM
120	P1126120	GEAR SHAFT
121	P1126121	GEAR 41T
123	PR12M	EXT RETAINING RING 35MM
128	P1126128	OIL SEAL 40 X 68 X 8
129	P1126129	GEAR 16T/43T
130	P1126130	SPRING- BALL ASSEMBLY 9 X 7

REF	PART #	DESCRIPTION
131	P1126131	GEAR SHAFT
133	PR07M	EXT RETAINING RING 18MM
134	P1126134	GEAR
136	P1126136	BUSHING
137	P1126137	GEAR 28T
137A	P1126137A	GEAR 35T
138	PK95M	KEY 6 X 6 X 10
141	P6202OPEN	BALL BEARING 6202 OPEN
142	PR38M	INT RETAINING RING 62MM
143	P1126143	SHAFT
149	P1126149	GEAR 22T/31T/15T
150	P1126150	OIL SEAL 35 X 62 X 8
151	P6007ZZ	BALL BEARING 6007ZZ

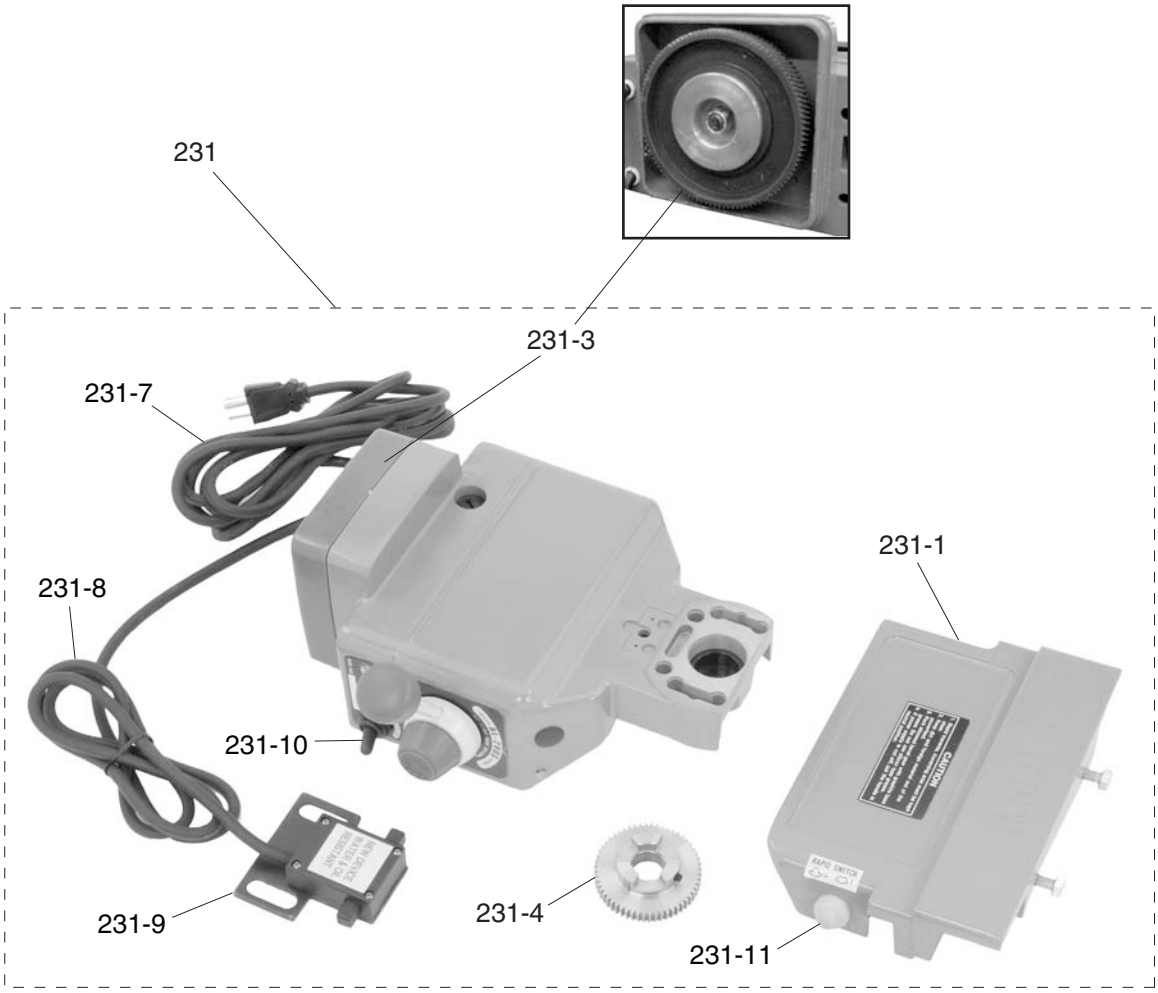
Motor & Column Bracket

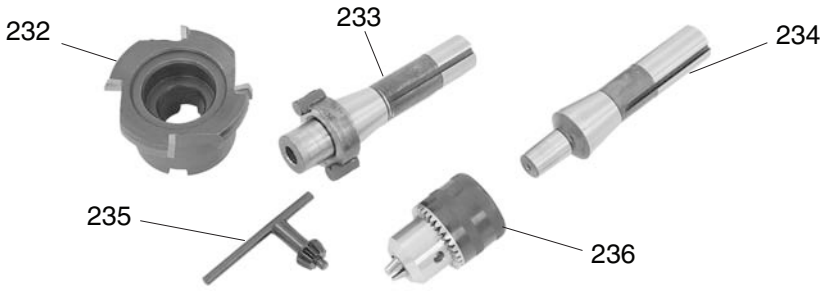


REF	PART #	DESCRIPTION
101	P1126101	DRAWBAR COVER
102	P1126102	DRAWBAR 7/16-20 X 17-3/8
122	P1126122	GRIP
152	PB100	HEX BOLT 5/8-11 X 8
158	P1126158	ELEVATION CRANK
159	P1126159	WORM SHAFT
160	P1126160	WORM
161	P1126161	SHAFT
176	P1126176	HEAD TILT SCALE
177	PS06	PHLP HD SCR 10-24 X 3/8
179	P1126179	HEAD COLUMN BRACKET V2.06.05
179A	P1126179A	HEAD COLUMN BRACKET V1.02.96
180	P1126180	MOTOR CORD 3-WIRE
181	P1126181	OIL FILLER PLUG
182	PCAP05M	CAP SCREW M8-1.25 X 50
183	P1126183	SPECIAL PIN
184	P1126184	HEAD CASTING COVER
186	P1126186	MOTOR 1-1/2HP 110/220V 1PH
186A	P1126186A	MOTOR JUNCTION BOX

REF	PART #	DESCRIPTION
186B	P1126186B	CAPACITOR COVER
186C	P1126186C	MOTOR FAN COVER
186D	P1126186D	MOTOR FAN
186E	P1126186E	CIRCUIT BREAKER
186F	P1126186F	S. CAPACITOR 150M 250V 1-3/8 x 3
188	PK42M	KEY 6 X 6 X 30
189	P1126189	RELIEF VALVE
1101	P11261101	ELEVATION CRANK BRACKET
1121	P1126121	INDICATOR PLATE
1150	PN04	HEX NUT 5/8"-11
1151	PW14	FLAT WASHER 5/8
1153	PSS05	SET SCREW 5/16-18 X 1/4
1154	PR02M	EXT RETAINING RING 14MM
1155	PCAP06	CAP SCREW 1/4-20 X 1
1198	P11261198	BUSHING
1199	P11261199	RIVET 2MM
1200	PS17M	PHLP HD SCR M4-.7 X 6
1201	PCAP14	CAP SCREW 3/8-16 X 1

Power Feed & Accessories

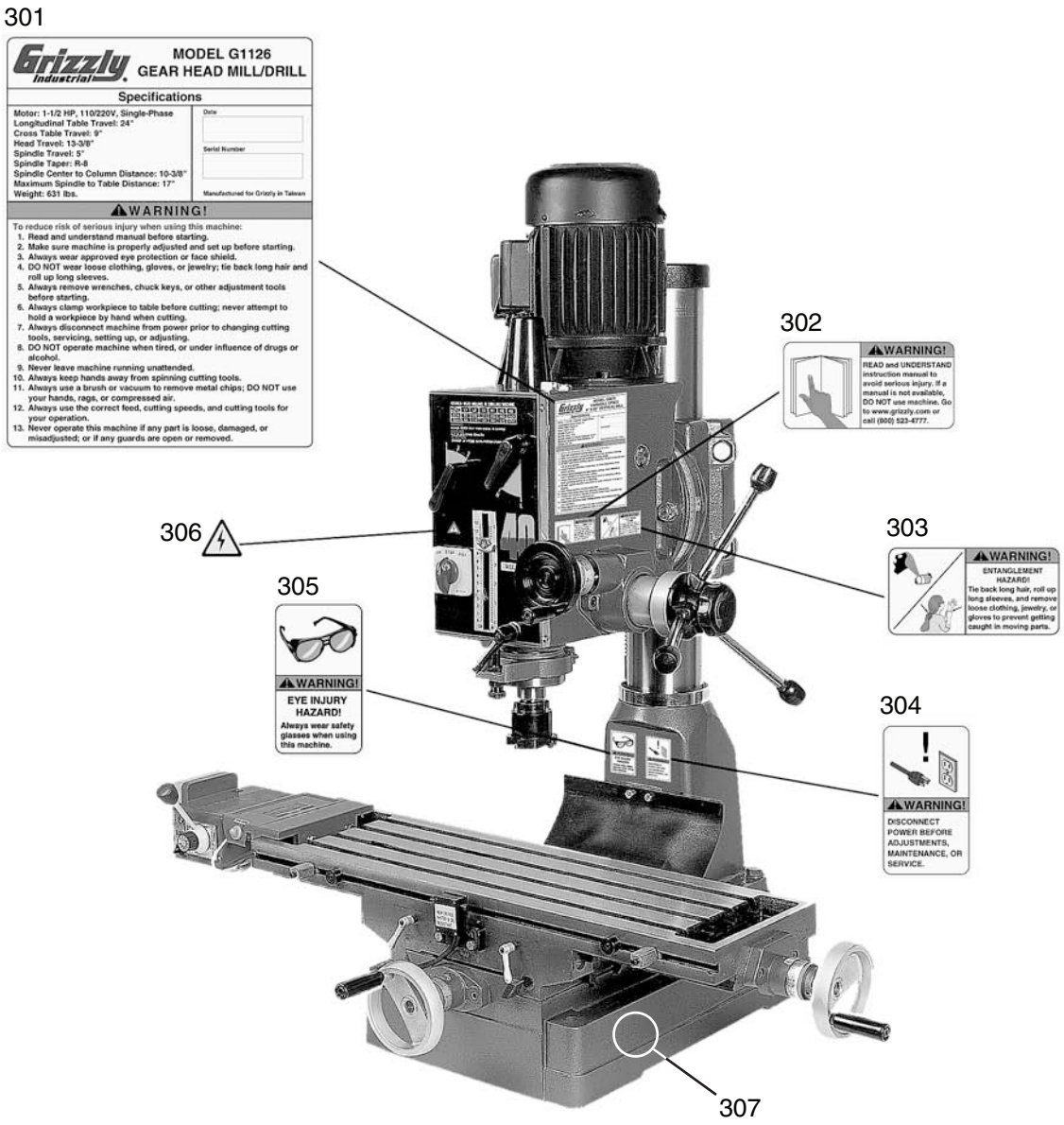




REF	PART #	DESCRIPTION
231	P1126231	POWER FEED ASSEMBLY
231-1	P1126231-1	POWER FEED MOUNTING BRACKET
231-3	P1126231-3	POWER FEED LEXAN GEAR
231-4	P1126231-4	MAIN DRIVE GEAR
231-7	P1126231-7	POWER FEED POWER CORD
231-8	P1126231-8	LIMIT SWITCH CORD
231-9	P1126231-9	LIMIT SWITCH ASSEMBLY

REF	PART #	DESCRIPTION
231-10	P1126231-10	ON/OFF SWITCH
231-11	P1126231-11	RAPID SWITCH
232	P1126232	FACE MILL CUTTER 3"
233	P1126233	ARBOR R8/STUB
234	P1126234	ARBOR R8/JT#2
235	P1126235	CHUCK KEY
236	P1126236	DRILL CHUCK JT#2

Label Placement & List



REF	PART #	DESCRIPTION
301	P1126301	MACHINE ID LABEL
302	PLABEL-12D	READ MANUAL LABEL
303	PLABEL-55C	ENTANGLEMENT HAZARD LABEL
304	PLABEL-62A	DISCONNECT WARNING LABEL

REF	PART #	DESCRIPTION
305	PLABEL-11B	EYE INJURY HAZARD LABEL
306	PLABEL-14	ELECTRICITY LABEL
307	PPAINT-1	GRIZZLY GREEN TOUCH-UP PAINT

⚠WARNING

Safety labels warn about machine hazards and ways to prevent injury. The owner of this machine MUST maintain the original location and readability of the labels on the machine. If any label is removed or becomes unreadable, REPLACE that label before using the machine again. Contact Grizzly at (800) 523-4777 or www.grizzly.com to order new labels.

Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____ Invoice # _____

Model # _____ Order # _____ Serial # _____

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

1. How did you learn about us?

____ Advertisement ____ Friend ____ Catalog
____ Card Deck ____ Website ____ Other:

2. Which of the following magazines do you subscribe to?

____ Cabinetmaker & FDM
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

3. What is your annual household income?

____ $20,000-$29,000 ____ $30,000-$39,000 ____ $40,000-$49,000
____ $50,000-$59,000 ____ $60,000-$69,000 ____ $70,000+

4. What is your age group?

____ 20-29 ____ 30-39 ____ 40-49
____ 50-59 ____ 60-69 ____ 70+

5. How long have you been a woodworker/metalworker?

____ 0-2 Years ____ 2-8 Years ____ 8-20 Years ____ 20+ Years

6. How many of your machines or tools are Grizzly?

____ 0-2 ____ 3-5 ____ 6-9 ____ 10+

7. Do you think your machine represents a good value? _____Yes _____No

8. Would you recommend Grizzly Industrial to a friend? _____Yes _____No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
Note: *We never use names more than 3 times.* _____Yes _____No

10. Comments: _____

_____

_____

_____

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 AND 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.