Grizzly Industrial, Inc.®

HEAVY-DUTY MILL/DRILL
MODEL G1006/G1007
OWNER'S MANUAL

#JB10548 PRINTED IN CHINA

⚠ 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.

Table of Contents

SECTION 1: INTRODUCTION

Foreword

We are proud to offer the Model G1006/7 Mill/Drill. This machine is part of a growing Grizzly family of fine metalworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The specifications, drawings, and photographs illustrated in this manual represent the Model G1006/7 when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly. For your convenience, we always keep current Grizzly manuals available on our website at **www.grizzly.com**. Any updates to your machine will be reflected in these manuals as soon as they are complete. Visit our site often to check for the latest updates to this manual!

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

Functional Overview

The Model G1006/G1007 Mill/Drill is used to remove material from metal workpieces to form complex shapes. It can also be used as a traditional drill press.

Tooling attaches to the spindle that, in turn, attaches to the vertically moveable quill. The quill position is controlled by the downfeed handles and the fine micro-downfeed handwheel. The spindle is driven by the adjustable belt system contained within the head of the mill. The head itself can be moved across the table in a horizontal arc.

Generally, the tooling rotates in a stationary position while the table and workpiece move into the cutter in one of two paths—longitudinal (X-axis) and cross (Y-axis). Some operations, however, such as drilling or tapping, are better accomplished using vertical quill movement.

The Model G1007 includes a powerfeed that provides powered movement along the X-axis.

To perform milling tasks, the workpiece positioned and clamped to the table so that the movement of the table will bring the workpiece across the cutting tool to produce the desired cut. The depth of the quill is adjusted, as are any needed travel stops. The machine is turned ***ON*** and the table is moved either manually or by the power feed past the spinning cutting tool.

Once the pass is complete, adjustments may be made to the position of the quill and the table, and further passes follow, as necessary.

Identification

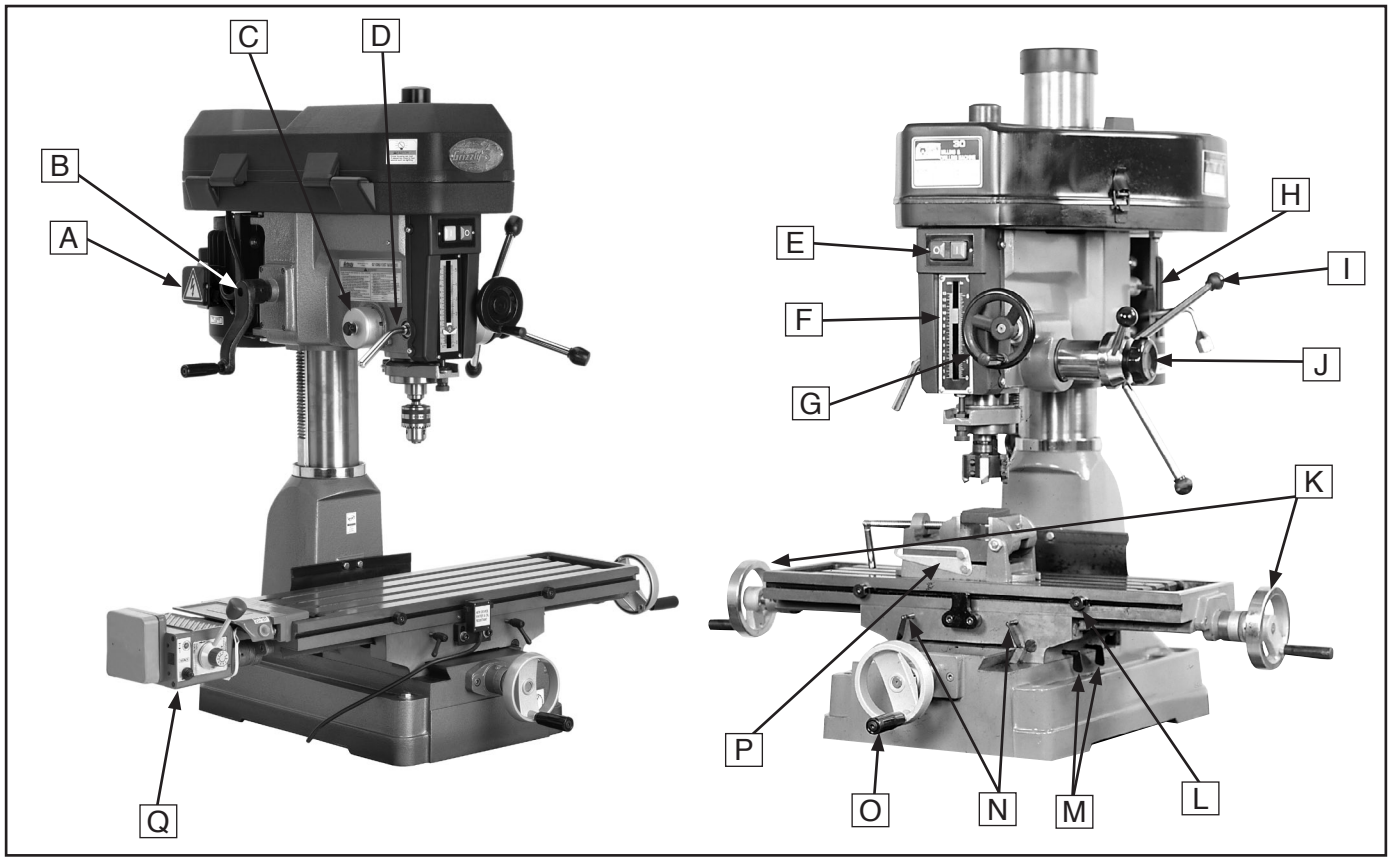

Figure 1. Identification.

A. Junction Box
B. Headstock Height Crank
C. Return Spring Assembly
D. Quill Lock
E. ON/OFF Swtich
F. Depth Stop
G. Micro-Downfeed Handwheel
H. Motor Pivot Lock
I. Downfeed Handles
J. Pinion Hub Lock Knob
K. X-Axis Handwheels
L. Longitudinal Stops
M. Gib Screws
N. Longitudinal Locks
O. Y-Axis Handwheel
P. Drilling Angle Vise
Q. Power Feed (G1007 Only)

MACHINE DATA SHEET

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

MODEL G1006 2 HP MILL/DRILL

Product Dimensions:

Weight	566 lbs.
Length/Width/Height	50 x 40 x 48-1/2 in.
Foot Print (Length/Width)	24 x 16 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	674 lbs.
Length/Width/Height	38 x 30 x 46 in.

Electrical:

Switch	Push Button with Thermal Overload Protection
Switch Voltage	110V
Cord Length	6 ft.
Cord Gauge	14 gauge
Recommended Breaker Size	20 amps at 110V, 15 amps at 220V
Plug	Yes

Motors:

Main

Type	TEFC Capacitor Start Induction
Horsepower	2 HP
Voltage	110/220V
Prewired	110V
Phase	Single
Amps	18/9A
Speed	1725 RPM
Cycle	60 Hz
Number Of Speeds	1
Power Transfer	Belt Drive
Bearings	Shielded, Permanently Lubricated

Main Specifications:

Operation Info

Spindle Travel	5 in.
Swing	15-7/8 in.
Longitudinal Table Travel	23-1/2 in.
Cross Table Travel	7 in.
Ram Travel	12 in.
Head Travel	5-1/4 in.
Head Swivel	360 deg.
Max. Dist Spindle To Column	8 in.
Max. Dist Spindle To Table	18 in.
Drilling Cap For Cast Iron	1-1/4 in.
Drilling Cap For Steel	1-1/4 in.
No. Of Vert. Spindle Speeds	12
Range Of Vert. Spindle Speeds	150, 225, 255, 350, 400, 500, 850, 1200, 1500, 1600, 2300, 3000 RPM
Quill Dia	2.950 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	2-1/16 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	Tapered Roller

Lead Screw Info

Lead Screw Diameter	15/16 in.
Lead Screw TPI	10
Lead Screw Length	36 in.

Construction

Spindle Housing Const	Cast Iron
Table Const	Ground Cast Iron
Head Const	Cast Iron
Column Const	Ground 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	G7314

Other Specifications:

ISO Factory	ISO 9001
Country Of Origin	China
Warranty	1 Year
Serial Number Location	ID Label on Head Casting
Assembly Time	1 hour

Features:

Clutch-Type Downfeed Mechanism
Graduations in Inches
Exclusive Fine Downfeed is Graduated in .001" and is Engaged by Clutch-Type Mechanism
Heavy-Duty 12 Speed Tapered Roller Bearing Spindle
Top Quality Workmanship Throughout
Push Button Switch with Thermal Overload Protector

Accessories Included:

1/2" Drill Chuck
3" Angle Vise
3" Face Mill

MACHINE DATA SHEET

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

MODEL G1007 MILL/DRILL W/ VARIABLE SPEED POWER FEED

Product Dimensions:

Weight	566 lbs.
Length/Width/Height	50 x 40 x 48-1/2 in.
Foot Print (Length/Width)	24 x 16 in.

Shipping Dimensions:

Type	Wood Crate
Content	Machine
Weight	686 lbs.
Length/Width/Height	38 x 30 x 46 in.

Electrical:

Switch	Push Button with Thermal Overload Protection
Switch Voltage	110V
Cord Length	6 ft.
Cord Gauge	14 gauge
Recommended Breaker Size	20 amps at 110V, 15 amps at 220V
Plug	Yes

Motors:

Main

Type	TEFC Capacitor Start Induction
Horsepower	2 HP
Voltage	110/220V
Prewired	110V
Phase	Single
Amps	18/9A
Speed	1725 RPM
Cycle	60 Hz
Number Of Speeds	1
Power Transfer	Belt Drive
Bearings	Shielded, Permanently Lubricated

Main Specifications:

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Spindle Travel	5 in.
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Cross Table Travel	7 in.
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Head Travel	5-1/4 in.
Head Swivel	360 deg.
Max. Dist Spindle To Column	8 in.
Max. Dist Spindle To Table	18 in.
Drilling Cap For Cast Iron	1-1/4 in.
Drilling Cap For Steel	1-1/4 in.
No. Of Vert. Spindle Speeds	12
Range Of Vert. Spindle Speeds	150, 225, 255, 350, 400, 500, 850, 1200, 1500, 1600, 2300, 3000 RPM
No. Of Longitudinal Feeds	Variable
Feed Rate	0 - 140 RPM
Quill Dia	2.950 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	2-1/16 in.
Stud Size	1/2 in.

Spindle Info

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Lead Screw Diameter	15/16 in.
Lead Screw TPI	10
Lead Screw Length	36 in.

Construction

Spindle Housing Const	Cast Iron
Table Const	Ground Cast Iron
Head Const	Cast Iron
Column Const	Ground 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	G7314

Other Specifications:

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

Features:

Clutch-Type Downfeed Mechanism
Graduations in Inches
Exclusive Fine Downfeed is Graduated in .001" and is Engaged by Clutch-Type Mechanism
Heavy Duty 12 Speed Tapered Roller Bearing Spindle
Top Quality Workmanship Throughout
Push Button Switch with Thermal Overload Protector
Servo-Type Variable Speed Power Feed Table, Mounted on Left Side

Accessories Included:

1/2" Drill Chuck
3" Angle Vise
3" Face Mill

Glossary Of Terms

The following is a list of common definitions, terms and phrases used throughout this manual as they relate to this mill and metalworking in general. Become familiar with these terms for assembling, adjusting and operating this mill. Your safety is **VERY** important to us at Grizzly!

Arbor: A machine shaft that supports a cutting tool.

Collet: A conical shaped split-sleeve bushing that holds round tools by pressing against their outside diameter.

Cutting Speed: The distance a point on a cutter moves in one minute, expressed in surface meters or feet per minute.

Dial Indicator: An instrument used in setup and inspection work that shows the amount of error in size or alignment of a part.

Dividing Head: A milling machine accessory used to divide a circular object into a number of equal parts.

Down or Climb Milling: Feeding the workpiece in the same or opposite direction as the cutter rotation.

End Milling: The operation of machining flat surfaces either horizontal, vertical, or at an angle using an end mill as a cutter.

Face Milling: The milled surface in this method results from the combined action of cutting edges located on the face or end of the cutting tools.

Feed Rate: Usually measured in inches per minute.

Fixture: A device that securely holds the workpiece in place during a cutting operation.

Form Milling: The machining of irregular contours by using form cutters.

Gang Milling: When more than two cutters are mounted on the arbor to machine surfaces of a workpiece.

Gib: A tapered wedge located along a sliding member to take up wear or to ensure a proper fit.

Headstock: The mill component that houses the vertical spindle, motor, and drive system.

Knee: The mill device that the saddle and table are mounted on, which can move along the Z-axis path.

Lead Screw: The device that moves the table along the X-axis, Y-axis, and Z-axis paths.

Peripheral Milling: The milled surface in this method is produced by cutting teeth located on the periphery (outer edge) of the cutter body.

Ram: The mill component that holds the headstock and moves in a linear path across the column.

Saddle: The sliding component that holds the table and moves along the Y-axis path.

Side Milling: The operation of machining a vertical surface on the side of a workpiece using a side milling cutter.

Slitting and Cutting Off: Metal slitting saws are used for milling narrow slots and for cutting off stock.

Spindle: The revolving hollow shaft that holds and drives the tool holder or arbor.

Turret: The top part of the column that the ram rotates on.

Ways: The precision machined and flat tracks on the mill on which the table, saddle, and knee travel.

X, Y, and Z-Axis: The straight path the table can travel longitudinally, crosswise, or vertically respectively.

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 THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
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 AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.

9. **MAKE WORKSHOP CHILDPROOF.** Use padlocks, master switches, and remove start switch keys.

10. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power ***OFF*** and allow all moving parts to come to a complete stop before leaving machine unattended.

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

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

13. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Grounded cords minimize shock hazards. Undersized cords create excessive heat. Always replace damaged extension cords.

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

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

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

17. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning machinery ***ON***.

18. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding or misaligned parts, broken parts, loose bolts, and any other conditions that may impair machine operation. Repair or replace damaged parts before operation.

19. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. Improper accessories increase risk of injury.

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

21. **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.

22. **DO NOT OVERREACH.** Maintain stability and balance at all times.

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

24. **ALWAYS LOCK MOBILE BASES (IF USED) BEFORE OPERATING MACHINERY**.

25. **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.

⚠WARNING
Additional Safety for Mills

1. **UNDERSTANDING CONTROLS.** Make sure you understand the use and operation of all controls.

2. **SAFETY ACCESSORIES.** Always use a chip guard in addition to your safety glasses when milling to prevent bodily injury.

3. **WORK HOLDING.** Before starting the machine, be certain the workpiece has been properly clamped to the table. NEVER hold the workpiece by hand when using the mill.

4. **CHUCK KEY SAFETY.** Always remove your chuck key, drawbar wrench, and any service tools immediately after use.

5. **SPINDLE SPEEDS.** Select the spindle speed that is appropriate for the type of work and material. Allow the mill/drill to gain full speed before beginning a cut.

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

7. **SPINDLE DIRECTION CHANGES.** Never reverse spindle direction while the mill/drill is in motion.

8. **STOPPING SPINDLE.** DO NOT stop the mill/drill using your hand against the chuck.

9. **BE ATTENTIVE.** DO NOT leave mill/drill running unattended for any reason.

10. **MACHINE CARE AND MAINTENANCE.** Never operate the mill with damaged or worn parts. Maintain your mill in proper working condition. Perform routine inspections and maintenance promptly. Put away adjustment tools after use.

11. **DISCONNECT POWER.** Make sure the mill is turned ***OFF***, disconnected from its power source and all moving parts have come to a complete stop before starting any inspection, adjustment, or maintenance procedure.

12. **AVOIDING ENTANGLEMENT**. Keep loose clothing articles such as sleeves, belts or jewelry items away from the mill spindle. Never wear gloves when operating the mill.

13. **TOOL HOLDING.** Always use the proper tools for the material you are milling. Make sure they are held firmly in the proper tool holder for the job.

14. **CLEAN-UP.** DO NOT clear chips by hand. Use a brush, and never clear chips while the mill is turning.

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

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

⚠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 lessen the possibility 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 G1006/7 is prewired for 110V operation. If you plan to operate your machine at 220V, the motor must be rewired (see Page 37).

Full Load Amperage Draw

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

Power Supply Circuit Requirements

You MUST connect your machine to a grounded circuit that is 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 G1006/7 comes prewired for 110V and includes a NEMA 5-15 plug. If you rewire the motor to 220V, we recommend using the plug and receptacle shown in **Figure 2** for 220V.

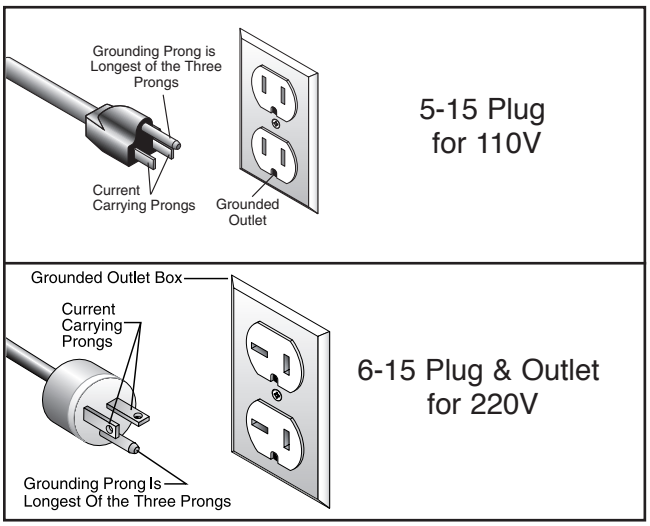


Figure 2. Recommended plug types.

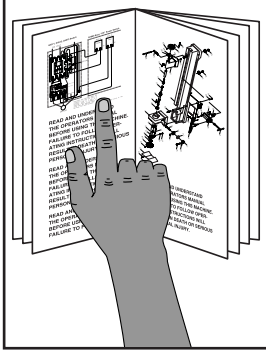
Extension Cords

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 10 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

Setup Safety

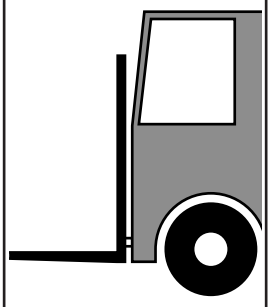


⚠WARNING

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 G1006/G1007 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.

Items Needed for Setup

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

Description **Qty**
- Safety Glasses (for each person).....1
- Wrench 10, 12, 14, 19mm.....1 Each
- Hex Wrench 2.5, 3, 4, 5mm.....1 Each

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.

Crate Contents (Figure 3)		Qty
A.	Drilling Angle Vise (Not Shown)	1
B.	Drill Chuck	1
C.	R8 Arbor	1
D.	Feed Levers with Knobs	3
E.	Plastic Handwheels w/Handles	3
F.	Lug Wrench 23mm	1
G.	Head Crank w/Handle	1
H.	Cap Screw M10-1.5 x 25 (Fly Cutter)	1
I.	Fender Washer 10mm (Fly Cutter)	1
J.	Fly Cutter	1

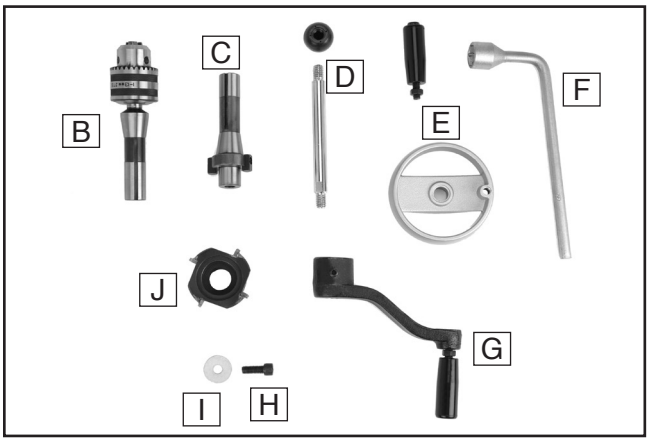


Figure 3. Inventory.

In addition to the parts shown in **Figure 3**, the Model G1007 comes with the power feed and its attachment accessories.

Power Feed (G1007 Only) (Figure 4)	Qty
K. Cap Screws ¼-20 x 1-½ (End Stops)	2
L. Flat Washers ¼" (End Stops)	2
M. End Stops	2
N. End Stop Clamp Plates	2
O. Hex Bolts M8-1.25 x 25 (Power Feed)	2
P. Lock Washers 8mm (Power Feed)	2
Q. Flange Bushings 8mm (Power Feed)	2
R. Powerfeed Mounting Bracket	1
S. Hex Bolts w/Tapered Tip M8-1.25 x 25 (Power Feed)	2
T. Gear Cover	1
U. Limit Switch Plate	1
V. Cap Screws M8-1.25 x 12 (Stop Bracket)	4
W. Flat Washers 8mm (Stop Bracket)	2
X. Powerfeed Unit (Not Shown)	1

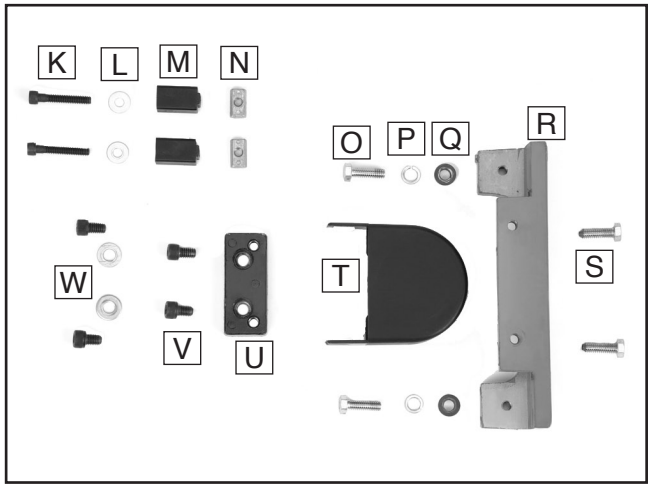


Figure 4. G1007 Power feed Inventory.

Note: *If you can't find an item on these lists, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for shipping purposes.*

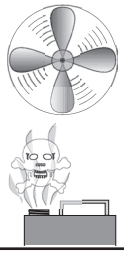
If any nonproprietary parts are missing (e.g. a nut or a washer), we will gladly replace them; or for the sake of expediency, replacements can be obtained at your local hardware store.

Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or degreaser shown in **Figure 5**. For thorough cleaning, some parts must be removed. **For optimum performance from your machine, clean all moving parts or sliding contact surfaces.** 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.

⚠WARNING

Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. DO NOT use these products to clean the machinery.



⚠CAUTION

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

G2544—Solvent Cleaner & Degreaser
A great product for removing the waxy shipping grease from your machine during clean up.

Figure 5. Cleaner/degreaser available from Grizzly.

Site Considerations

Floor Load

Refer to the **Machine Data Sheet** for the weight and footprint specifications of your machine. Some workbenches may require additional reinforcement to support both the machine and the workpiece.

Placement Location

Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your new machine. See **Figure 6** for the minimum working clearances.

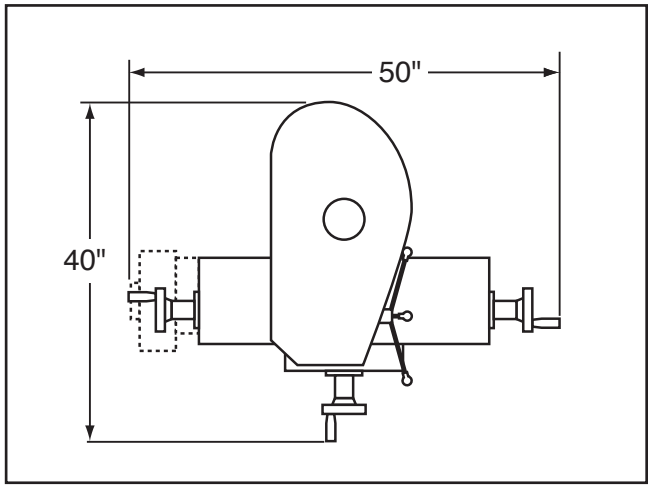
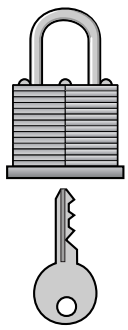


Figure 6. Minimum working clearances.



CAUTION

Children and visitors may be seriously injured if unsupervised around this machine. Lock entrances to the shop or disable start switch or power connection to prevent unsupervised use.

Moving & Placing Machine

When you are ready to move your mill to its permanent position, follow this procedure:

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

2. Move the table as close to the column as possible to help balance the machine during moving.

3. Place lifting straps under the head of the machine, as shown in **Figure 7**, then connect them to a forklift. Be sure that the straps connect to the forklift far enough apart that the straps are not resting on the plastic pulley cover.

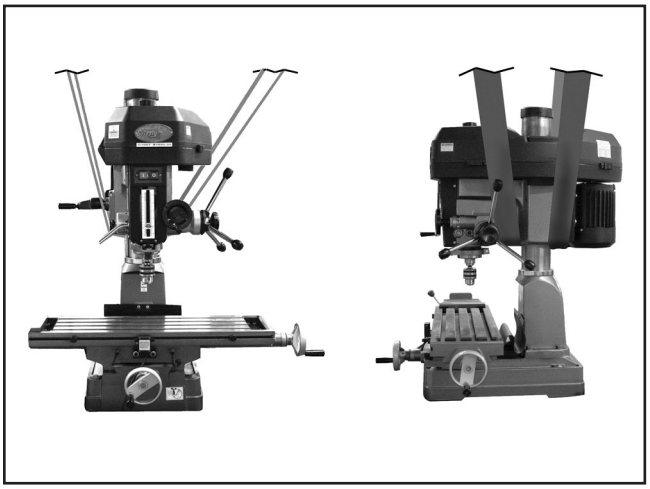


Figure 7. Proper lifting strap position.

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.

Mounting

Once you have determined that the inventory is complete, mount the machine to a workbench through the holes in the base. It is recommended that you cut a hole in your bench top to allow access to the under side of the base on the Mill/Drill. This will be necessary for adjusting the Y-plane leadscrew.

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.

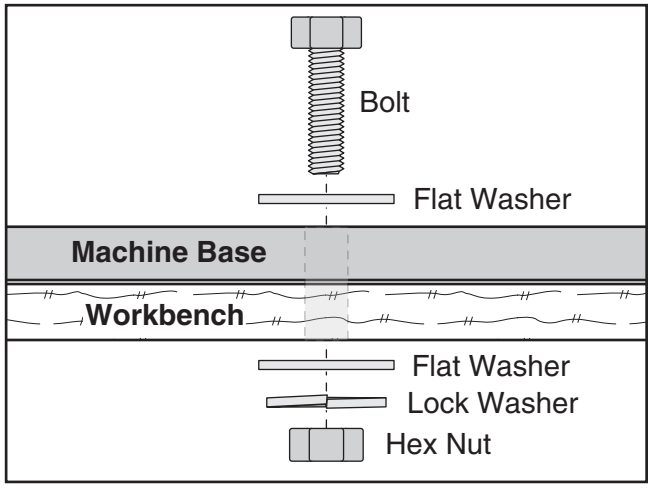


Figure 8. Example of a through mount setup.

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

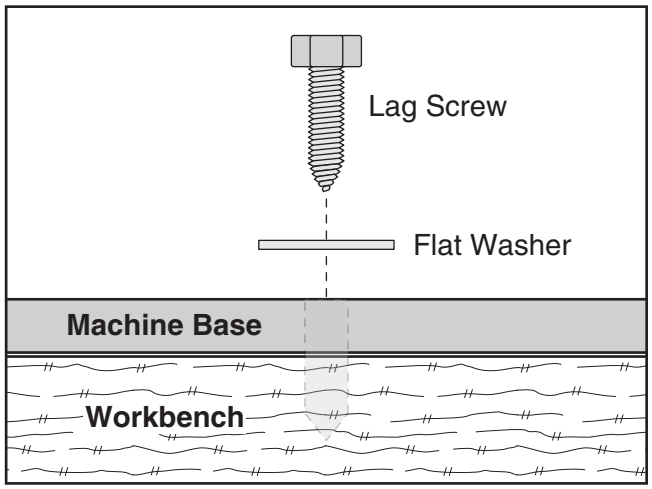


Figure 9. Example of a direct mount setup.

Assembly

Most of your Model G1006/G1007 has been assembled at the factory, but some parts must be assembled or installed after delivery. We have organized the assembly process into steps. Please follow along in the order presented here.

Drilling Angle Vise

The drilling angle vise provided with your Mill/Drill attaches to the table with a table clamping kit.

Table clamping kits are available through the Grizzly Catalog and must be purchased separately. See **Accessories** on **Page 28**. This table will accept 1/2" bolt clamping kits (G1076).

You can mount the drilling angle vise almost anywhere on the table, and it provides a myriad of uses when drilling.

⚠WARNING

Do not use the angle vise for milling. It is made strictly for holding materials to be drilled. This vise will not adequately clamp an object safely for a milling operation. There is not enough clamping pressure available and objects may be pulled out or upset in the vise jaws causing cutting tools to break and/or parts to be thrown. Any attempt to perform a milling operation using this vise may result in personal injury.

Power Feed (G1007 Only)

The Model G1007 features a 110V auto-feed mechanism which allows hands-free, side-to-side passes while milling. Variable-speed feed control makes flat surface milling more consistent.

To install the power feed:

1. Attach the 2 1/4" diameter drive gear to the left end of the longitudinal table leadscrew. The gear couplers on the drive gear and table leadscrew will lock together (**Figure 10**).

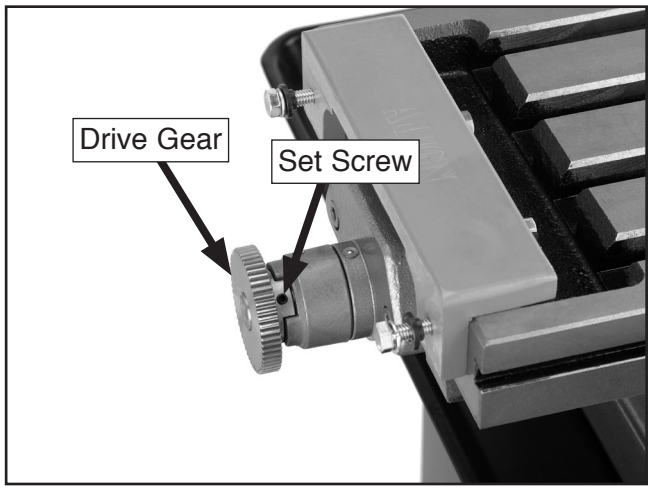


Figure 10. Attaching drive gear.

2. Set the clamping bracket assembly on the left end of the table. Mark the points on the table trough where the mounting bolts contact the table. Remove the clamping bracket assembly and spot drill to give the mounting bolts a small lip to "bite" without slipping on the rough cast surface. Set the clamping bracket assembly back on the end of the table and tighten down the mounting bolts (**Figure 11**).

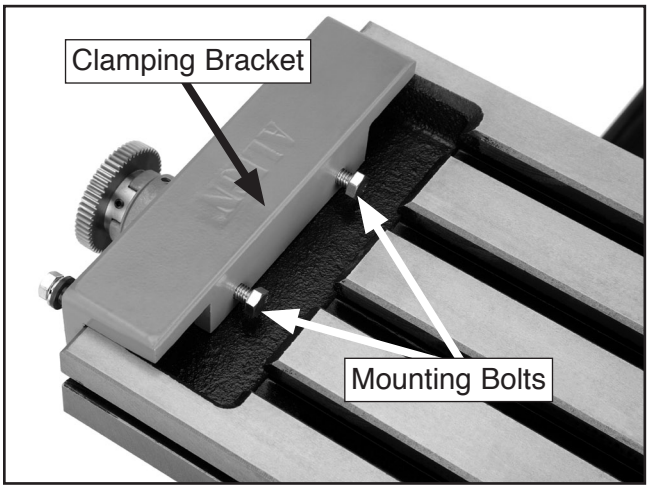


Figure 11. Clamping bracket assembly.

3. Attach the power feed body to the clamping bracket assembly with the hex bolts. Before tightening completely, position the power feed body so the gears mesh perfectly. Tighten the hex bolts when the gears are in mesh (**Figure 12**).

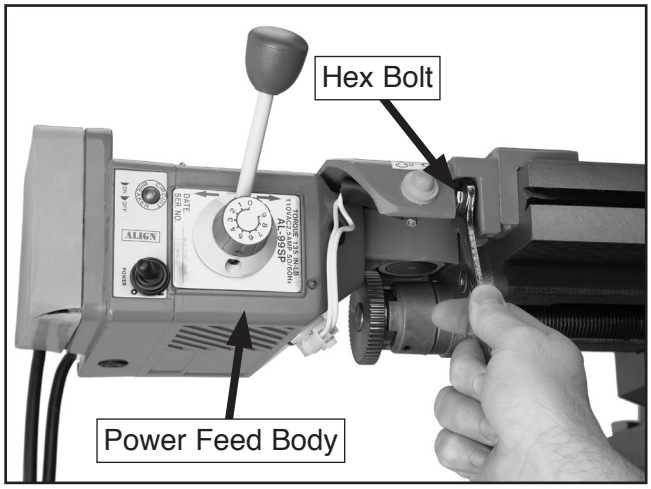


Figure 12. Attaching power feed body.

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 supporting bearings in the power feeder will wear out quickly.

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

5. Screw the knob onto the direction handle.

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

7. Insert the end stops into the slot on the front edge of the table, then tighten them (**Figure 13**).

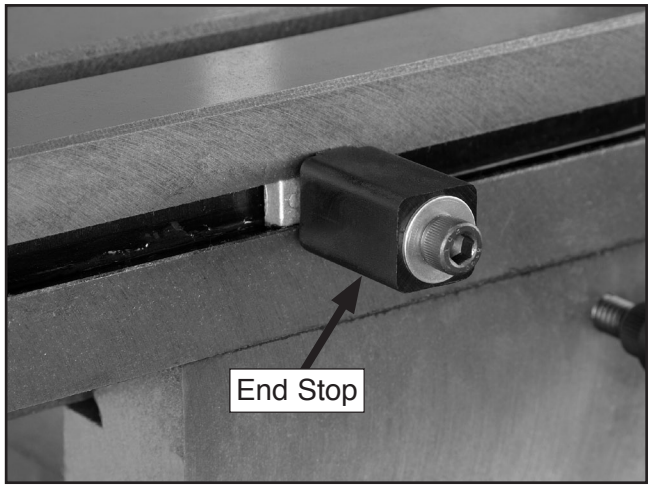


Figure 13. End stop.

NOTICE

Before using the G1007, place the power feeder cord and the control cord for the microswitch clear of any movements which 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. 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 switch bracket to the front of the Mill/Drill. Use the mounting bolts saved in **Step 8** (**Figure 14**).

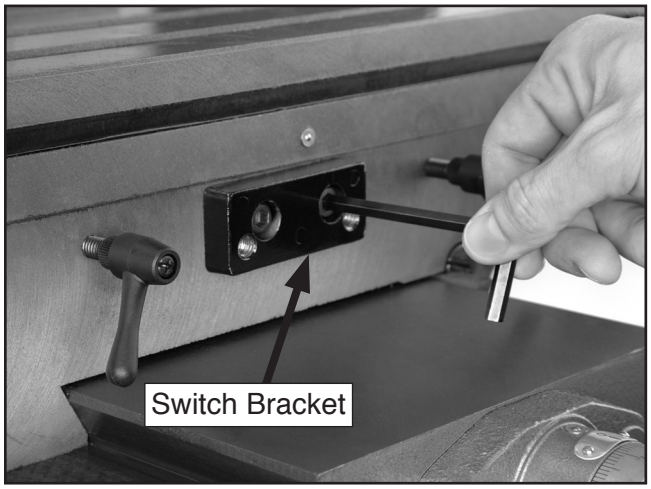


Figure 14. Limit switch bracket.

10. Mount the switch to the switch bracket with the cap screws provided. When the switch is depressed, the power feed automatically turns ***OFF*** and table movement stops (**Figure 15**).

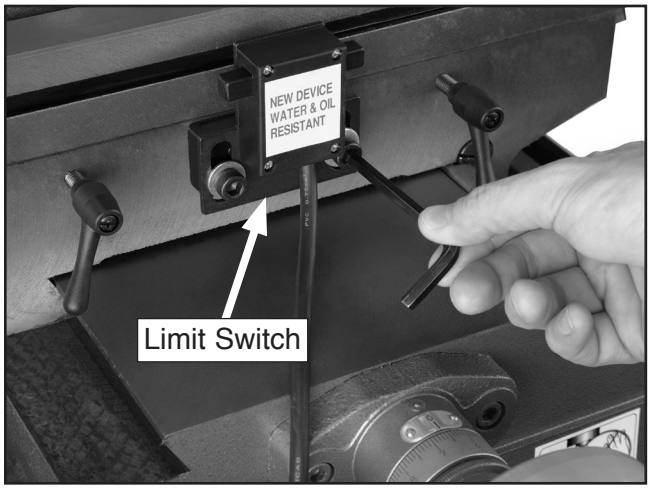


Figure 15. Limit switch.

Handwheels

There are three handwheels provided with the machine that control table movement. The Model G1007 only uses two of the handwheels.

To mount the handwheels to the machine:

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

2. Screw the handle into the handwheel and tighten the lock nut against the wheel. This nut acts as a locknut and a spacer (**Figure 16**).

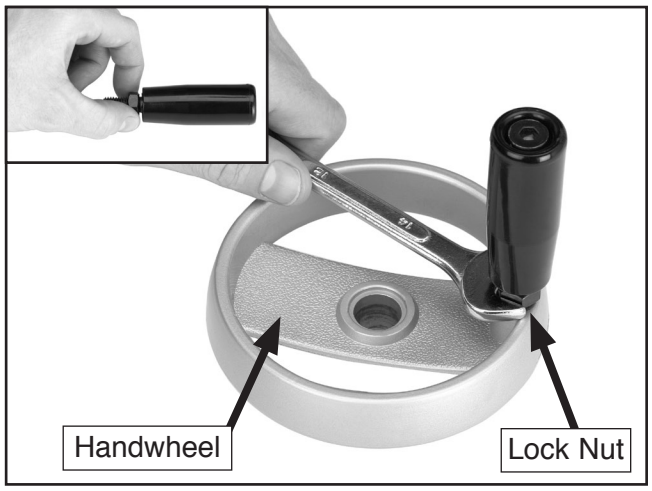


Figure 16. Handwheel assembly.

3. Secure one handwheel in each of the locations shown by sliding the handwheel onto the leadscrew and tightening the set screw (**Figure 17**).

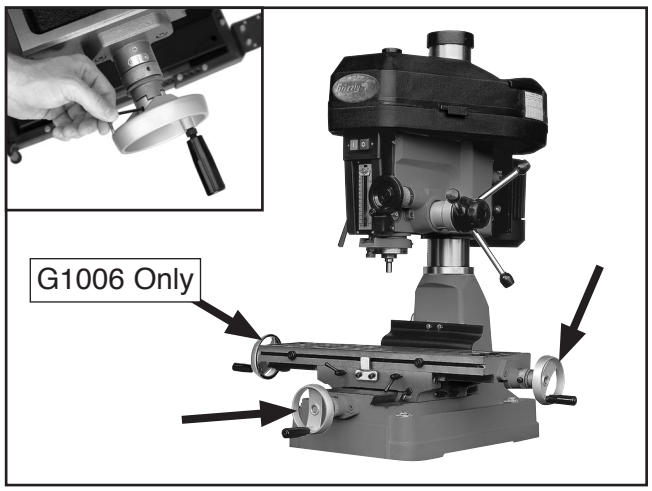


Figure 17. Handwheel installation.

Head Crank

The head crank secures to the left side of the machine and is used to adjust the height of the headstock.

To mount the head crank to the machine:

1. Assemble the head crank by attaching the handle in the same method used for the handwheels. Thread the handle into the crank body, then tighten the lock nut.

2. Slide the head crank onto the shaft, then tighten the set screw to secure it in place (**Figure 18**).

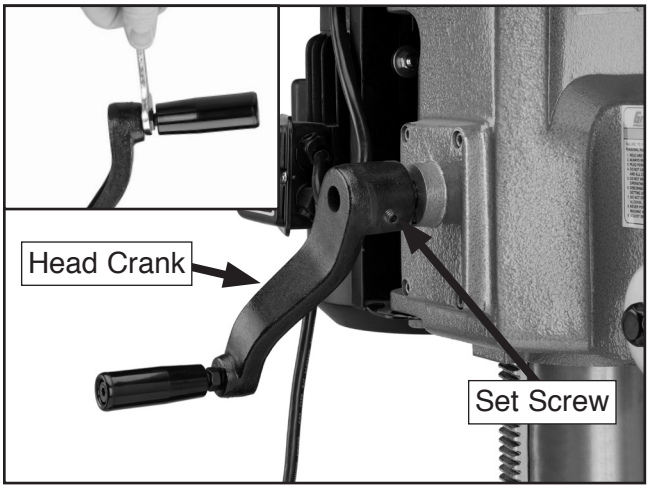


Figure 18. Head crank.

Feed Levers

The feed levers control the up and down movement of the spindle

To mount the feed levers to the machine:

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

2. Screw the levers with knobs into the threaded holes on the hub, located on the right side of the machine (**Figure 19**).

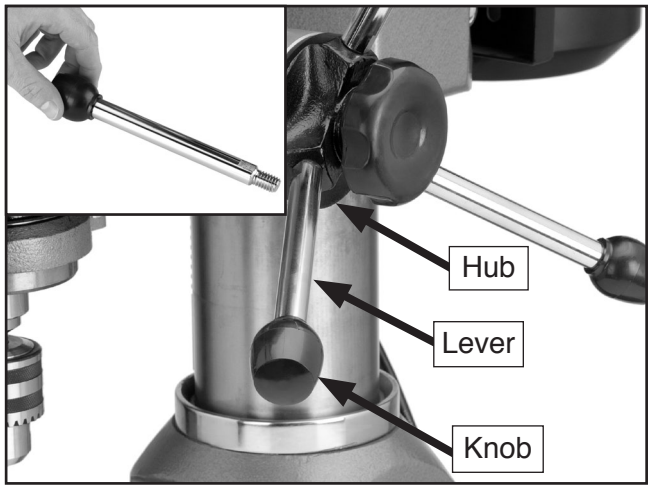


Figure 19. Feed levers.

Collet/Arbor

The Model G1006/G1007 feature an R-8 spindle which accepts many industrial collets and arbors.

To install a collet or an arbor:

1. Release the latches on the head cover and open it.

2. Insert the collet or cutting tool's arbor up into the spindle housing. Rotate the collet or arbor to line up the keyway with the matching pin in the spindle opening (**Figure 20**).

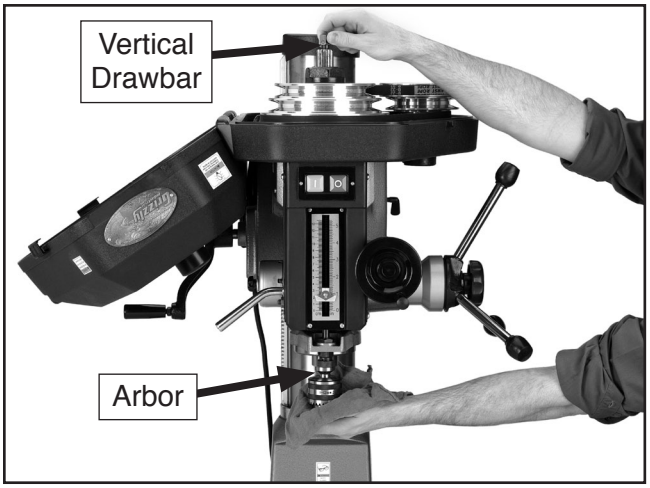


Figure 20. Collet arbor installation.

3. Turn the hex head at the top of the drawbar (located on the top, front of the head) clockwise until the threads at the bottom of the drawbar mesh with the female threads in the top of the collet or arbor.

4. Insert the cutter in the hole at the bottom of the collet and continue to tighten the drawbar until both the collet and cutter are tightly in place. Do not over-tighten the collet. Grasp the V-Belt that goes around the front pulley. Pull gently while tightening.

To remove a collet or an arbor:

1. Loosen the hex head at the top of the drawbar (2 or 3 turns).

2. Hold the cutter with a shop towel to prevent it from dropping completely out of the machine. Tap on the top of the drawbar with a rubber mallet to loosen the collet from the spindle (**Figure 21**).

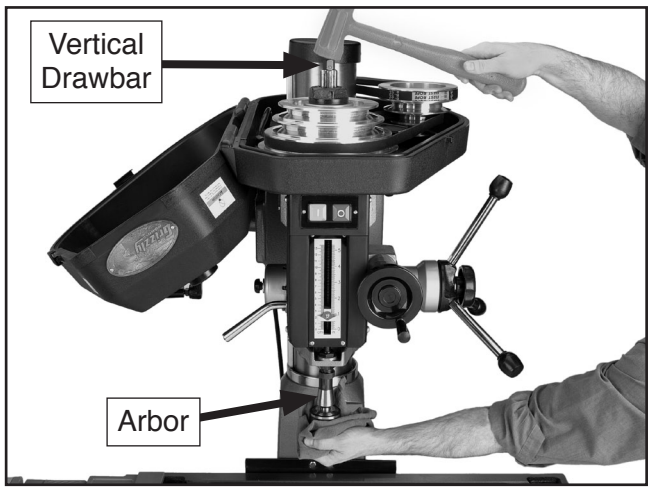


Figure 21. Collet removal.

3. Continue to turn the drawbar counterclockwise until it is free from the collet. Once loose, remove and replace with your desired collet. Remove cutting tools from spindle when not in use.

Drill Chuck/Arbor

Your Mill/Drill has been pre-fitted with a drill chuck arbor that has an R-8 shank and a Jacob's Taper. It is ready to accept the standard drill chuck provided with this machine.

To install the drill chuck:

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

2. Clean any grease, oil or debris off the Jacob's Taper already installed in your Mill/Drill.

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

4. Press the drill chuck onto the Jacob's Taper. Tap lightly with a rubber mallet 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 fitting provides a strong bond and will hold the drill chuck tightly* (**Figure 22**).

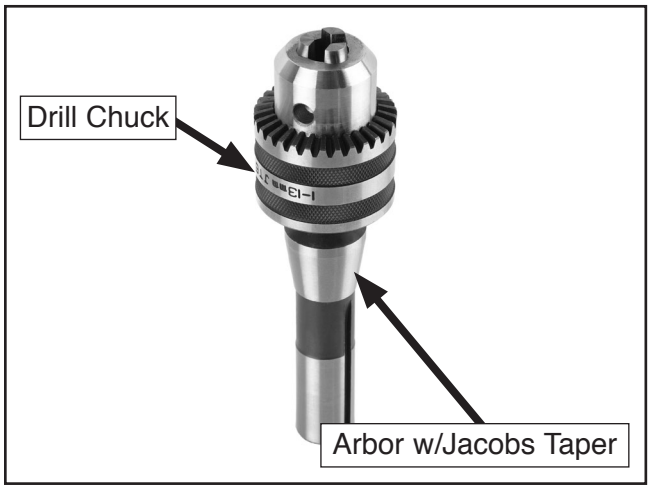


Figure 22. Drill chuck.

5. This drill chuck installation is permanent. Do not try to remove the drill chuck from the Jacob's Taper.

Fly Cutter/Arbor

⚠CAUTION

All types of milling cutters and drill bits are sharp. It is recommended that these not be handled directly. Use paper towels to hold sharp tooling to avoid cuts to your hands. Be careful while handling them and store them in a child safe location.

Your Mill/Drill comes equipped with a fly cutter that fits on the 1" stub end of the R-8 arbor.

To install the fly cutter:

1. Clean all grease, oil and debris off the R-8 arbor.

2. Clean all grease, oil and debris off the fly cutter.

3. Fit the fly cutter onto the stub end of the arbor so the keys on the arbor and the keyways on the fly cutter come together (**Figure 23**).

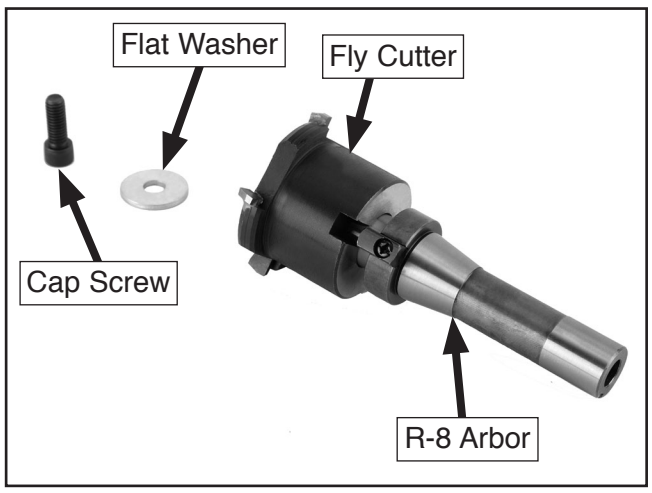


Figure 23. Fly cutter.

4. Secure the fly cutter to the arbor with the cap screw and washer provided.

5. Install the arbor with fly cutter into the Mill/Drill as described in **Collet/Arbor** on **Page 21.**

Test Run

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 34**.

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

To test run the machine:

1. Connect the machine to the power source.

2. Make sure you have read the safety instructions at the beginning of the manual and that the machine is setup properly.

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

4. Turn the machine ***ON***.

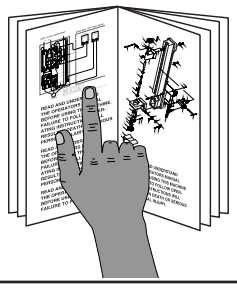
5. Listen to and watch for abnormal noises or actions. The machine should run smoothly with little or no vibration or rubbing noises.

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

6. Turn the machine ***OFF***.

SECTION 4: OPERATIONS

Operation Safety

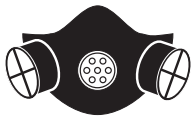


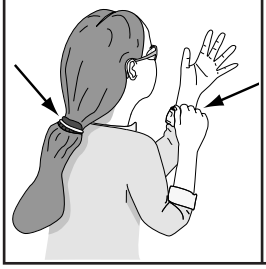
⚠WARNING

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 and lungs could result from using this machine without proper protective gear. Always wear safety glasses and a respirator 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.

Graduated Dials

The graduated dials on the handwheels for the table and fine feed can be indexed or “zeroed” to help make accurate and convenient movements. Each dial can be reset or locked with the set-screw or thumbscrew provided.

Example:

Suppose you want to drill a series of holes in a workpiece at 0.625" centers. After locating the first hole’s placement and drilling, you can set the dial of the appropriate axis to zero while holding the handwheel. Move the table 0.625". Drill the next hole and proceed as above (**Figure 24**).

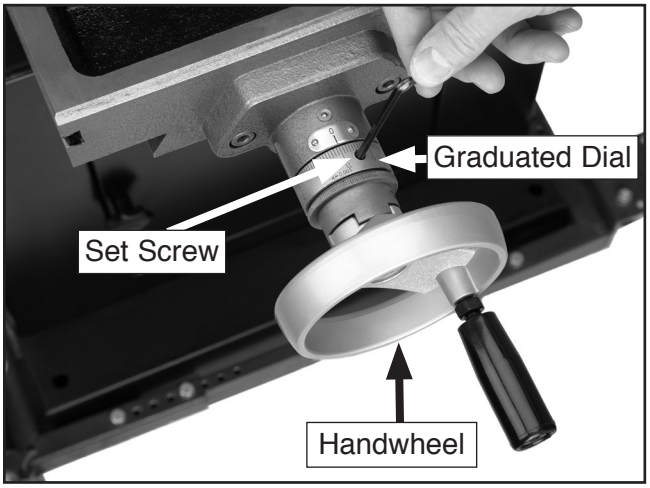


Figure 24. Setting dial indicators to zero.

Spindle Height

You have two options for spindle height adjustment—a drill press style, levered downfeed and a micro adjustment handwheel. To operate the downfeed lever, simply pull forward and down on the lever nearest you. The spindle will go down until you stop pulling or until it hits the depth stop.

To operate the micro-adjustment handwheel:

1. Tighten the locking knob located on the center of the hub for the down-feed levers (**Figure 25**).

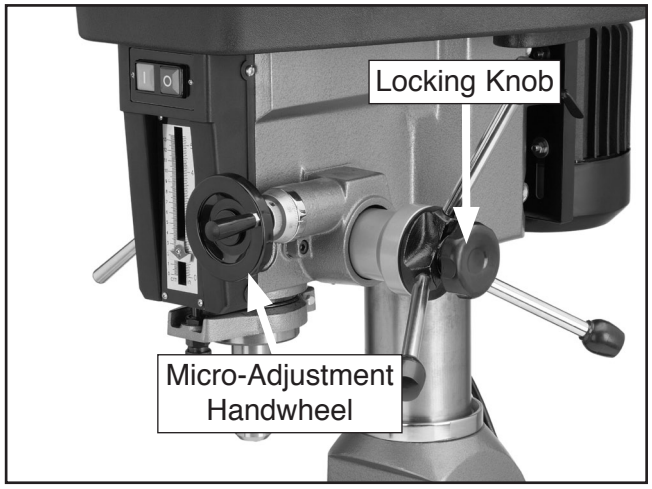


Figure 25. Micro-adjustment handwheel.

Note: *Locking out the levered downfeed will transfer control to the handwheel. The handwheel will not function if the locking knob is loose.*

2. Loosen the setscrew on the rim surface of the handwheel dial. Turn the dial until the "0" lines up with the index line. Tighten the setscrew.

3 Turn the handwheel according to the distance you want to move downward. Each complete revolution equals 0.100".

To lock the spindle:

1. Tighten the spindle locking lever to lock the spindle for milling operations.

Depth Stop

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

To calibrate the depth stop:

1. Make sure the spindle is drawn all the way up into the head. Place a piece of paper on the workpiece. Loosen the headstock bolts and lower the head until the drill bit or cutter just contacts the paper. Tighten the headstock bolts.

2. Turn 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. The depth stop leadscrew is controlled by the knurled knob under the front of the headstock (**Figure 26**).

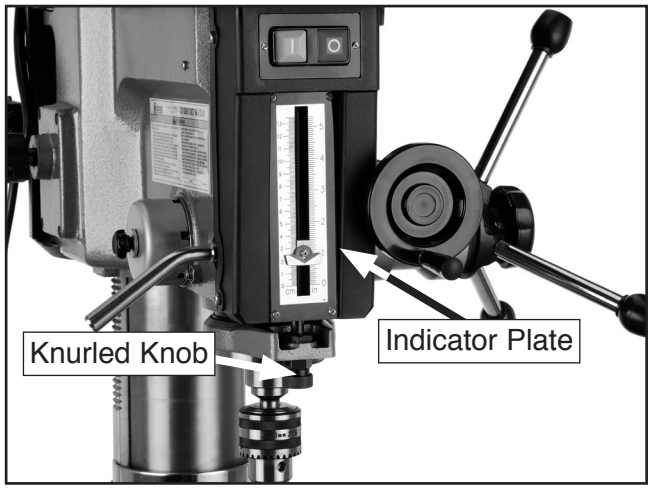


Figure 26. Setting depth stop.

Head Height

The head height on this Mill/Drill can be adjusted for various applications.

To adjust the head height:

1. Loosen the two head locking nuts located on the right side of the head near the back. Use the lug wrench provided (**Figure 27**).

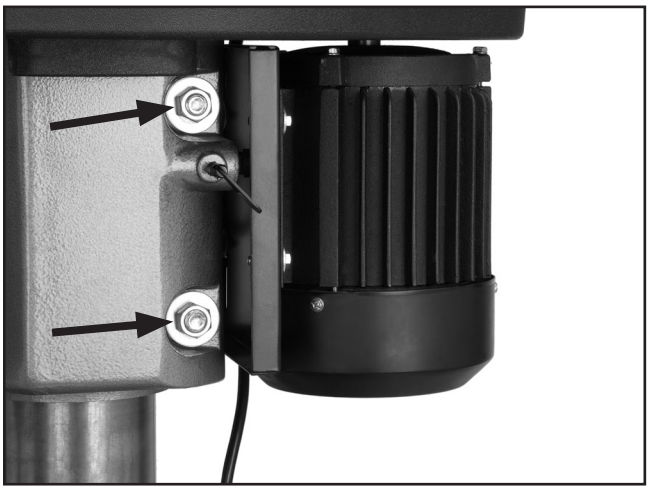


Figure 27. Head locking nuts.

2. Use the head crank to move the head up or down according to your needs.

3. Tighten the two head locking nuts.

Speed Changes

The Model G1006/G1007 is capable of twelve different speed settings. Different types of cuts and types of materials require varying speeds. Consult outside sources for information about appropriate speeds for different applications.

To change spindle speeds:

1. Loosen the motor locking lever. Pull the motor inward to move the rear pulley toward the spindle (**Figure 28**).

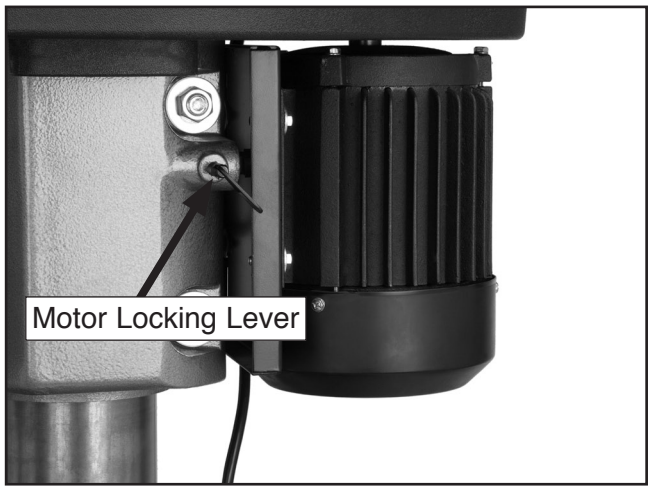


Figure 28. Motor locking lever.

2. Loosen the two idler pulley bolts that hold the center pulley system in place, so the pulley will float (**Figure 29**).

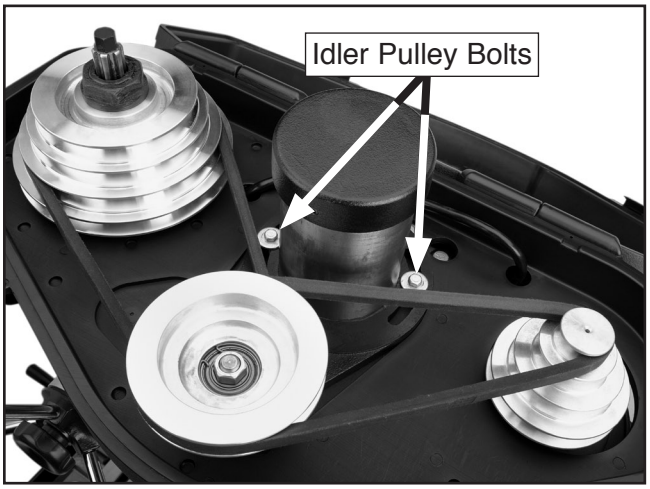


Figure 29. Pulley system.

3. With the center and rear pulleys loose, move the V-Belts to the position on the pulleys corresponding to the desired speed (**See chart below**).

4. Push the motor back to tighten the rear V-Belt and tighten the motor locking lever.

5. Tighten the bolts holding the center pulley in place.

RPM	Belt pos.	RPM	Belt pos.
150	4-5	850	1-6
225	3-5	1200	2-7
255	4-6	1500	3-8
350	2-5	1600	1-7
400	3-6	2300	2-8
500	4-7	3000	1-8

The belt arrangement shown below would result in a speed of 1600 RPM

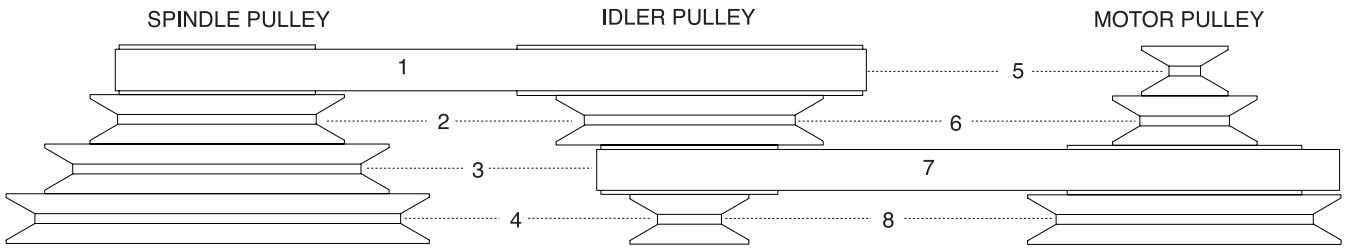


Figure 30. Spindle speed chart.

SECTION 5: ACCESSORIES

H2689—R-8 Quick Change Collet Set
An affordable quick change collet system with ultra precision. These spring collets are hardened and ground to exacting tolerances and offer incredible holding power. This set includes an R-8 arbor and nut, spanner wrench, plastic carrying case and collets sized 1/8", 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", and 1". What's more, the nut features a self-ejecting rim! A set like this will truly speed up any tool changing process. Drawbar size is 7/16" x 20.

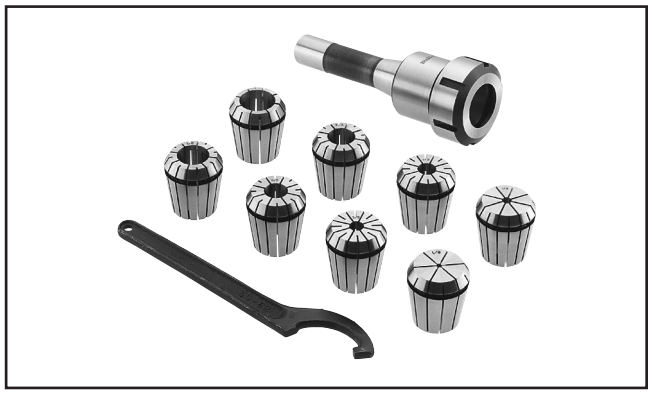


Figure 31. H2689 R-8 Quick Change Collet Set.

G9299—10" Yuasa-Type Rotary Table
This high precision rotary table features extra deep coolant channels, dual positive action locks, very low profiles, 10 second vernier scales, gear drives with oil immersion and satin chrome dials. See the current Grizzly catalog for full specifications. Features: 4.330" overall height (horizontal), 6.750" height to center hole (vertical), #3 Morse Taper, 0.465" T-slot width, and 117 lb. approximate shipping weight.

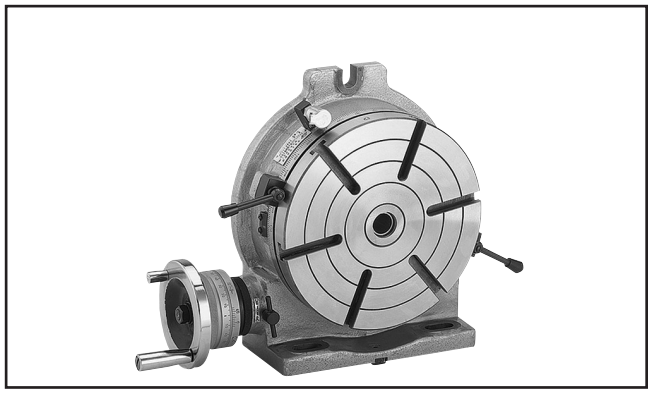


Figure 32. G9299 10" Yuasa-Type Rotary Table.

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

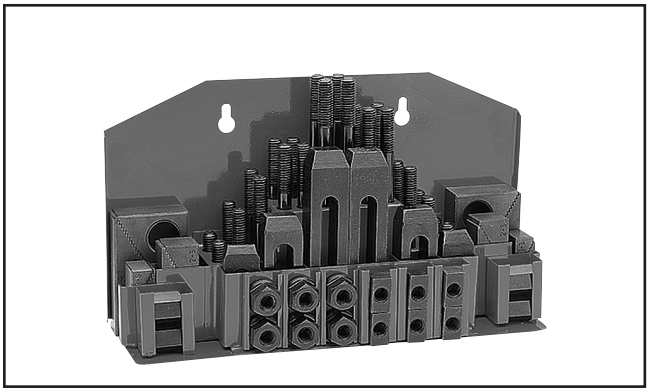


Figure 33. G1076 52-PC. Clamping Kit.

G9324—Boring Head Combo Set
Hardened and ground adjusting screws along with a wide base design guarantee a long life and trouble-free use. Includes a 3" boring head, R-8 shank with 1 1/2"-18 TPI, and a 12 piece 3/4" boring bar set.

Figure 34. G9324 Boring Head Combo Set.

G2861—Face Mill
G4051—Carbide Insert for Face Mill
This 2½" Face Mill accepts four carbide inserts (not included). Comes with an R-8 arbor.

Figure 35. G2861 Face Mill.

G9760—20-PC. 2 & 4 Flute TiN End Mill Set.
Includes these sizes and styles in two and four flute styles: 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 9/16", 5/8", 3/8", 11/16", and 3/4".

Figure 36. G9760 20-PC End Mill Set.

G5641—1-2-3 Blocks
G9815—Parallel Set
H5556—Edge Finder Set

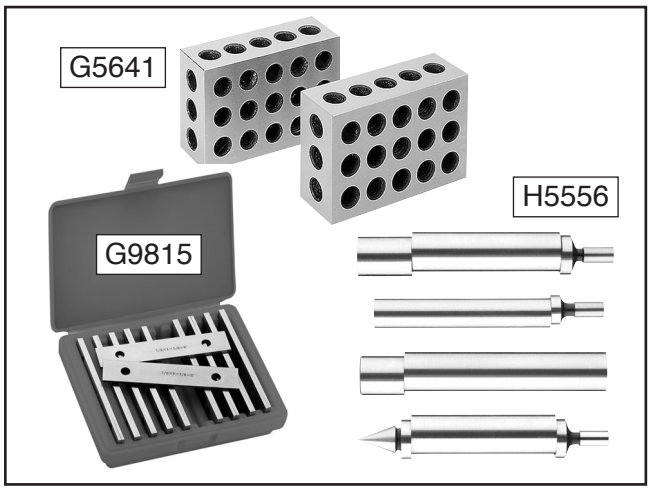


Figure 37. G5641 1-2-3 Blocks, G9815 Parallel Set, and H5556 Edge Finder Set.

G9765—9-PC. Ball End Mill Set
Features 2 flute ball nose end mills. Includes the following sizes: 1/8", 3/16", 1/4", 5/16", 3/8", 7/16", 1/2", 5/8" and 3/4".

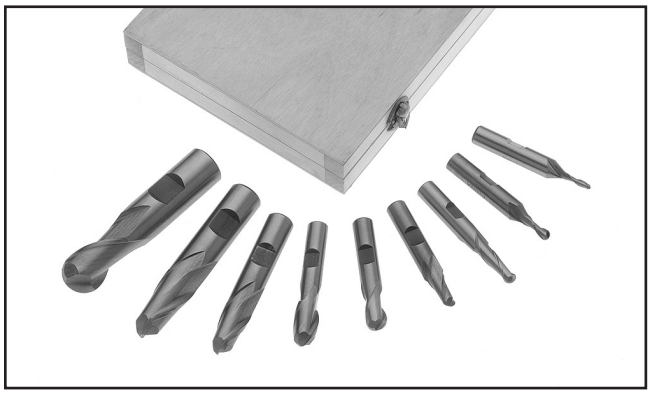
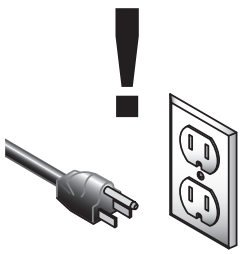


Figure 38. G9765 9 PC. Ball End Mill Set.

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 cutting tools.
- Worn or damaged wires.
- Any other unsafe condition.
- Clean/Vacuum chip buildup from machine.

Monthly Check:
- V-belt tension, damage, or wear.

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. Never blow the mill off 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 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 **Accessories** beginning on **Page 28**).

Gibs

The gibs are pre-adjusted at the factory and will not need further adjustment by you until after extended use. If movement seems too tight at first, make sure that all rust preventative is removed from the ways, lubricate them with oil, and work the table back and forth several times to loosen it up.

The gibs are adjusted by turning the large slotted screw heads in the front and right side of the table base 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.

Lubrication

Points requiring periodic lubrication are:

- **The main column.** A light film of oil (SAE 30) will smooth action and prevent rust and corrosion.
- **The quill.** A light coating of oil (SAE 30) will ensure smooth movement.
- **The quill return spring.** Oil annually with a light lubricant (SAE 30). Apply with a brush or squirt can.
- **The quill pinion.** Lubricate every 90 days with non-hardening grease.
- **The table leadscrews.** Lubricate once each week with several drops of SAE 30.
- **The table leadscrew bearings.** Lubricate the bearings located at the ends of the table and just in front of the Y axis hand crank on a daily basis. You will find oil ports with a ball. Apply a small amount of SAE 30 using the oil can's tip to push in the ball.
- **The table and apron slides.** Lubricate the table slides daily. An oil port with a ball is located on the operator's side of the table edge. The apron slide can be oiled directly. *Make sure to carefully clean chips and dirt off of this slide before oiling.*

V-Belts

Inspect regularly for tension and wear. Replace when necessary with a size B-42 belt for the spindle pulley to the idler pulley belt and a size B-34 belt from the idler pulley to the motor pulley belt. Check pulleys to ensure that they are properly aligned.

Quill

The internal quill pin is a setscrew and has been pre-adjusted at the factory. It should not need adjustment under normal circumstances.

The slotted setscrew 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 setscrew will work to eliminate 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 setscrew, contact Technical Support for advice.

Return Spring

⚠CAUTION

The spring's tail is located on the perimeter of the spring housing. This part may be sharp! 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. Loosen black thumb knob two or three turns (**Figure 39**).

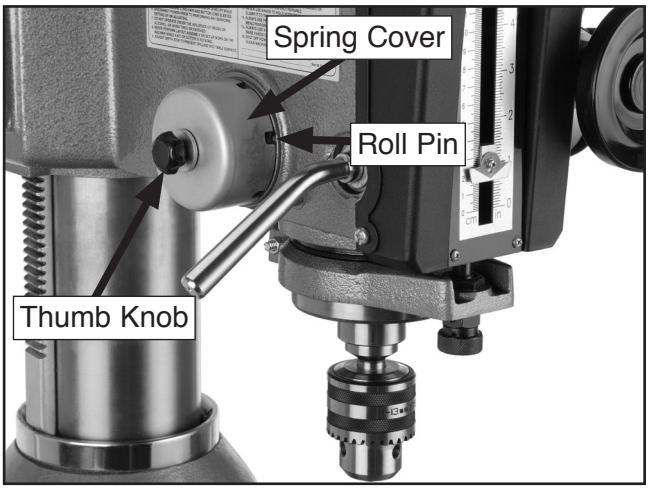


Figure 39. Spring cover.

⚠WARNING

Do not completely remove the cover! If you remove the spring cover, the spring will uncoil rapidly and create a great risk of injury.

2. Put on gloves and pull the spring cover out until the notches just clear the roll pin. Hold the spring cover tightly or the force of the spring will make it spin out of control.

3. Rotate the cover to adjust the tension. Push the cover back in to engage the roll pin in one of the notches (**Figure 40**).

Figure 40. Adjusting spring tension.

4. Tighten the black thumb knob.

Table Leadscrews

When you turn the handwheels to adjust the position of the table, you will notice slight play in the handwheel before the table begins to move. If this play exceeds 0.010" (measured with the dial at the base of each handwheel), then you will need to adjust the leadscrews.

These adjusters may require you to fabricate extensions for your hex wrenches. Make adjustments in small increments. Over-tightening can add unnecessary wear to both the leadscrews and the adjusters.

To adjust the X-plane leadscrew:

1. Locate the X-plane leadscrew adjuster under the middle of the table. The head on the adjustment screw faces to the right (**Figure 41**).

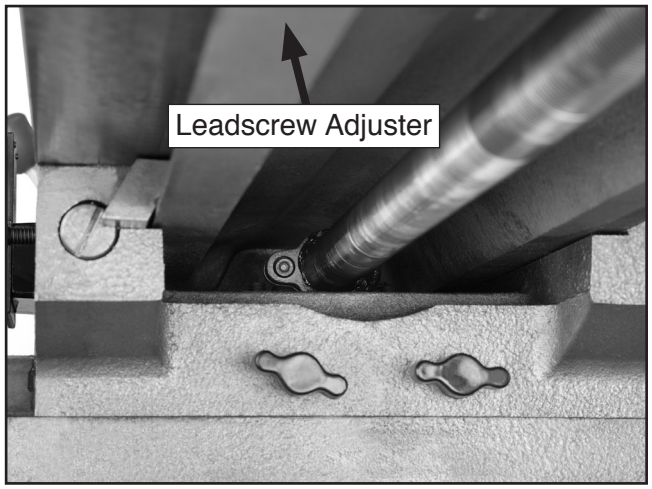


Figure 41. X-plane leadscrew adjuster.

2. Tighten the adjustment screw.

3. Test the adjustment by turning one of the side handwheels. You should detect less than 0.010" of play.

To adjust the Y-plane leadscrew:

1. Access the underside of the base through the hole in the bench under the base.

2. Locate the adjuster midway along the leadscrew, inside the base.

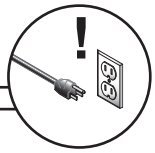
3. Tighten the set screw on the adjuster.

4. Test the adjustment by turning the front handwheel. You should detect less than 0.010" of play.

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.

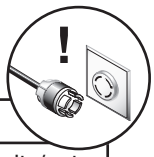
Troubleshooting



Motor & Electrical

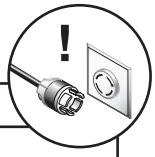
Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	1. Plug/receptacle is at fault or wired incorrectly.	1. Test for good contacts; correct the wiring.
	2. Motor connection wired incorrectly.	2. Correct motor wiring connections.
	3. Wall fuse/circuit breaker is blown/tripped.	3. Ensure circuit size is suitable for this machine; replace weak breaker.
	4. Overload relay has tripped.	4. Reset overload relay.
	5. Power supply switched ***OFF*** or is at fault.	5. Ensure power supply is switch on; ensure power supply has the correct voltage.
	6. Wiring is open/has high resistance.	6. Check for broken wires or disconnected/corroded connections, and repair/replace as necessary.
	7. Main power switch is at fault.	7. Replace faulty ON/OFF switch.
	8. Motor is at fault.	8. Test/repair/replace.
Machine stalls or is underpowered.	1. Feed rate/cutting speed too fast for task.	1. Decrease feed rate/cutting speed.
	2. Workpiece alignment is poor.	2. Eliminate workpiece binding; use jig or clamps and position table properly for workpiece alignment control.
	3. Wrong workpiece material.	3. Use metal with correct properties for your type of machining.
	4. Motor connection is wired incorrectly.	4. Correct motor wiring connections.
	5. V-belt(s) slipping.	5. Replace bad V-belt(s).
	6. Plug/receptacle is at fault.	6. Test for good contacts; correct the wiring.
	7. Motor bearings are at fault.	7. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
	8. Machine is undersized for the task.	8. Use smaller sharp cutters/drill bits; reduce the feed rate; reduce the spindle RPM; use cutting fluid if possible.
	9. Motor has overheated.	9. Clean off motor, let cool, and reduce workload.
	10. Contactor not getting energized or has poor contacts.	10. Test for power on all legs and contactor operation. Replace if faulty.
	11. Spindle rotation switch at fault.	11. Test/repair/replace switch.
	12. Motor is at fault.	12. Test/repair/replace motor.

Motor & Electrical (Continued)



Symptom	Possible Cause	Possible Solution
Machine has vibration or noisy operation.	1. Motor or component is loose.	1. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid.
	2. V-belts are slapping belt cover; are worn or loose.	2. Replace/re-tension V-belts.
	3. Belt pulley is loose.	3. Replace shaft, pulley, setscrew, and key as required.
	4. Motor mount loose/broken.	4. Tighten/replace.
	5. Machine is incorrectly mounted or sits unevenly.	5. Tighten/replace anchor studs in floor; relocate/shim machine.
	6. Workpiece is loose.	6. Use the correct holding fixture and re-clamp workpiece.
	7. Motor fan is rubbing on fan cover.	7. Replace dented fan cover; replace loose/damaged fan.
	8. Cutter is at fault.	8. Replace out-of-round cutter; replace/resharpen cutter; use appropriate feed rate and cutting RPM.
	9. Bit is chattering.	9. Replace/sharpen bit; index bit to workpiece; use appropriate feed rate and cutting RPM.
	10. Motor bearings are at fault.	10. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

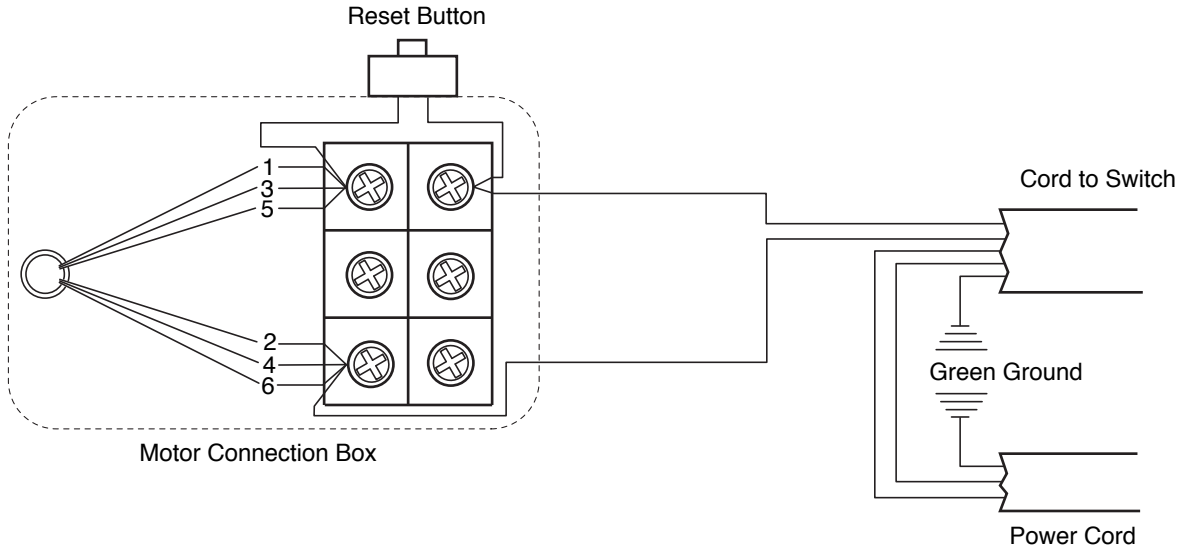
Operation and Work Results



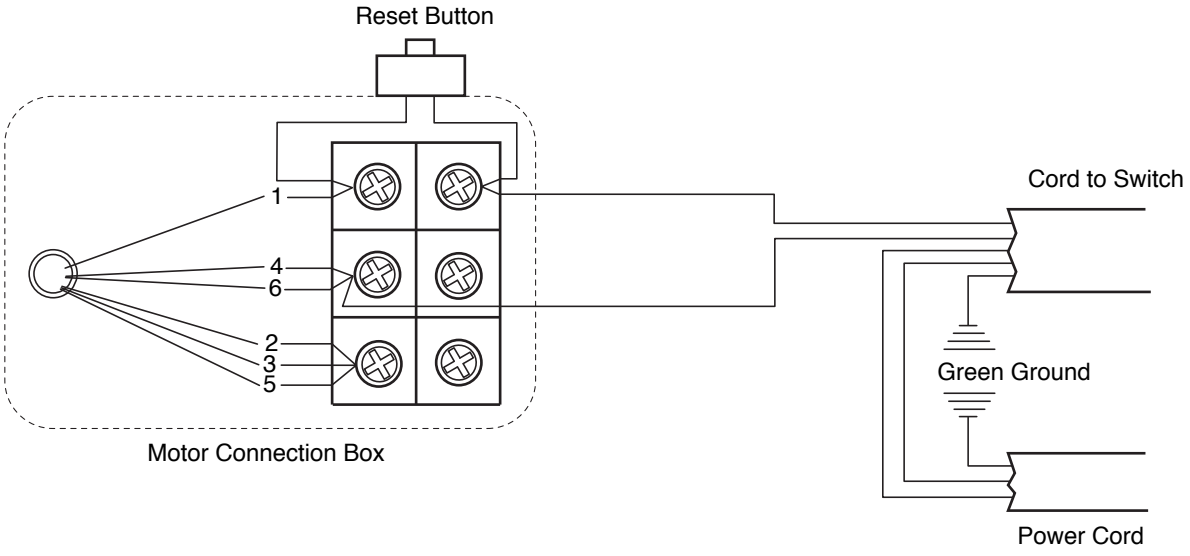
Symptom	Possible Cause	Possible Solution
Tool slips in collet.	1. Collet is not fully drawn up into spindle taper. 2. Wrong size collet. 3. Debris in collet or in spindle taper. 4. Taking too big of a cut.	1. Snug up draw bar. 2. Measure tool shank diameter and match with appropriate diameter collet. 3. Remove all oil and debris from collet and spindle taper. 4. Lessen depth of cut and allow chips to clear.
Breaking tools or cutters.	1. RPM and or feed rate is too fast. 2. Cutting tool getting too hot. 3. Taking too big of a cut.	1. Set correct RPM and feed rates. 2. Use coolant fluid or oil for appropriate application. 3. Lessen depth of cut and allow chips to clear.
Machine is loud when cutting. Overheats or bogs down in the cut.	1. Excessive depth of cut. 2. Dull cutting tools.	1. Decrease depth of cut. 2. Use sharp cutting tools.
Workpiece vibrates or chatters during operation.	1. Table locks not tight. 2. Quill lock not tight. 3. Workpiece not securely clamped to table or into mill vice. 4. RPM and feed rate too high.	1. Tighten down table locks. 2. Tighten quill lock. 3. Check that clamping is tight and sufficient for the job. Make sure mill vice is tight to the table. 4. Use appropriate RPM and feed for the job.
Table is hard to move.	1. Table locks are tightened down. 2. Chips have loaded up on ways. 3. Ways are dry and in need of lubrication. 4. 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. 4. Check to make sure that all limit stops are floating and not hitting the limit switch. 5. Adjust gibs (see **Page 30**).
Bad surface finish.	1. Wrong RPM or feed rate. 2. Dull cutting tool or poor cutting tool selection. 3. Wrong rotation of cutting tool. 4. Workpiece not securely clamped.	1. Adjust for appropriate RPM and feed rate. 2. Sharpen cutting tool or select a better cutting tool for the intended operation. 3. Check for proper cutting rotation for cutting tool. 4. Secure properly.

Wiring Diagram

110 Volt Wiring Diagram

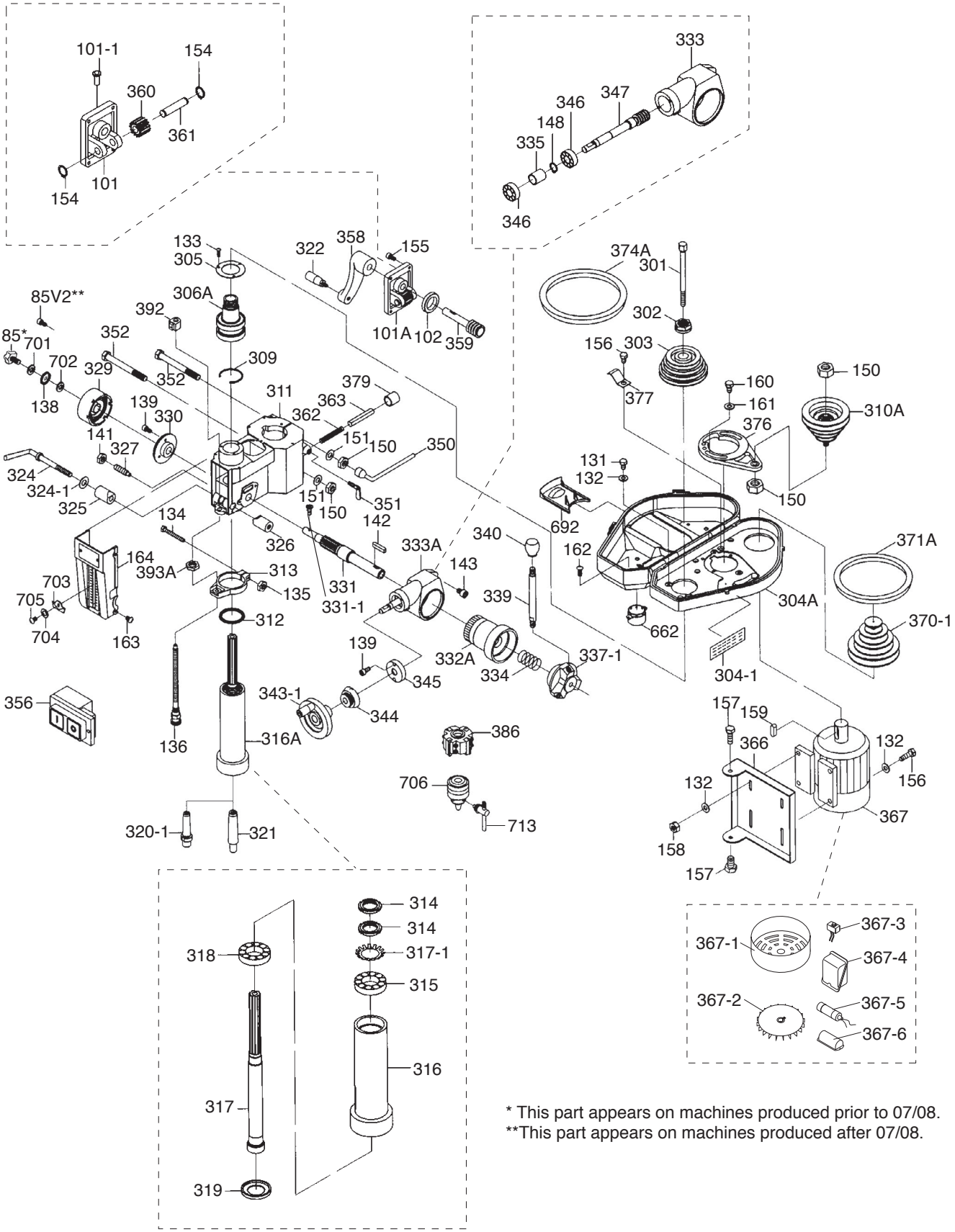


220 Volt Wiring Diagram



NOTE: For clockwise rotation (facing the end of the shaft) wire as shown above. For counter clockwise rotation, interchange leads 5 and 6.

Head Parts Breakdown



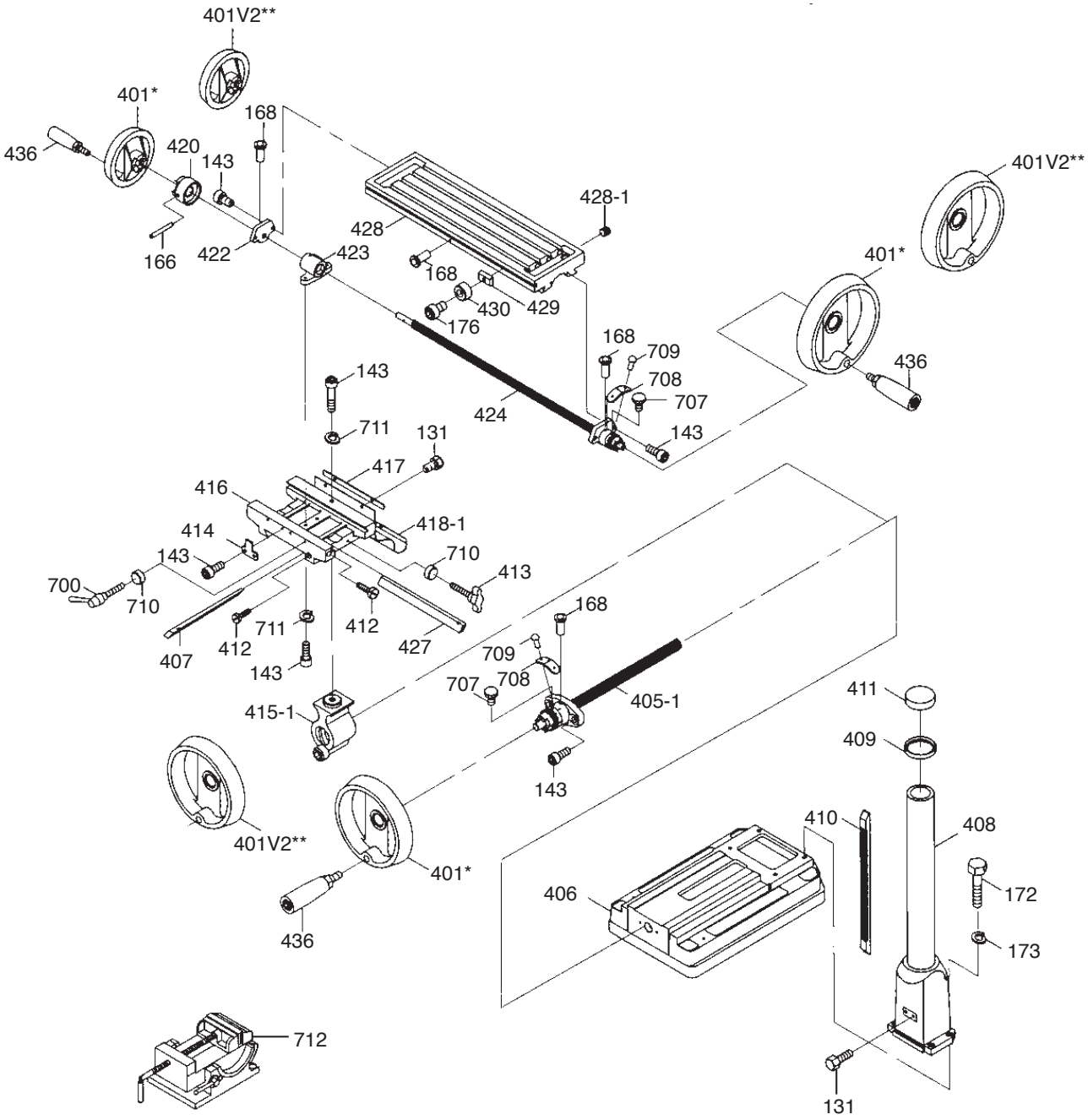
* This part appears on machines produced prior to 07/08.
**This part appears on machines produced after 07/08.

Head Parts List

REF	PART #	DESCRIPTION
85	PSW03-1	KNOB
85V2	PSB01	CAP SCREW 1/4-20 X 5/8
101	P1006101	CRANK BRACKET
101-1	P1006101-1	OIL CUP
101A	P1006101A	CRANK BRACKET ASSEMBLY
102	P1006102	WORM SHAFT BUSHING
131	PB07	HEX BOLT 5/16-18 X 3/4
132	PW07	FLAT WASHER 5/16
133	PS04	PHLP HD SCR 1/4-20 X 1/2
134	PB10	HEX BOLT 1/4-20 X 2
135	PN05	HEX NUT 1/4"-20
136	P1006136	GRADUATED ROD ASSY
138	P1014116	FENDER WASHER 1/4
139	PS01	PHLP HD SCR 10-24 X 1/2
141	PN08	HEX NUT 3/8"-16
142	PK25M	KEY 7 X 7 X 20
143	PSB07	CAP SCREW 5/16-18 X 3/4
148	PR05M	EXT RETAINING RING 15MM
150	PN04	HEX NUT 5/8"-11
151	PLW06	LOCK WASHER 5/8
154	PR02M	EXT RETAINING RING 14MM
155	PSB05	CAP SCREW 1/4-20 X 3/4
156	PB03	HEX BOLT 5/16-18 X 1
157	PB38	HEX BOLT 7/16-14 X 2
158	PN02	HEX NUT 5/16"-18
159	P1006159	KEY 7 X 7 X 37
160	PB11	HEX BOLT 5/16-18 X 1-1/2
161	PW07	FLAT WASHER 5/16
162	PB12	HEX BOLT 5/16-18 X 1-1/4
163	PS04	PHLP HD SCR 1/4-20 X 1/2
164	P1006164	FRONT COVER PLATE ASSEMBLY
301	P1126102	DRAWBAR 7/16-20 x 442L
302	P1006302	SPINDLE NUT 42-16 V1.08.97
303	P1006303	SPINDLE PULLEY
304-1	P1006304-1	SPEED CHART LABEL
304A	P1006304A	BOTTOM BELT COVER
305	P1006305	OUTER BEARING COVER
306A	P1006306A	TAPERED SPINDLE SLEEVE LH V2.12.98
309	PR52M	EXT RETAINING RING 80MM
310A	P1006310A	IDLER PULLEY ASSEMBLY
311	P1006311	HEAD CASTING
312	P1006312	RUBBER RING
313	P1006313	QUILL COLLAR
314	P1006314	TAKE UP NUT
315	P30206	TAPERED ROLLER BEARING 30206
316	P1006316	QUILL
316A	P1006316A	QUILL ASSEMBLY
317	P1006317	SPINDLE SHAFT
317-1	P1006317-1	SPECIAL STAR WASHER
318	P1006318	BEARING 30207J
319	P1006319	BEARING CAP
320-1	P1006320-1	CUTTER ARBOR ASSY
321	P1006321	CHUCK ARBOR
322	P1006322	HANDLE BOLT 3/8-16
324	P1006324	QUILL LOCK HANDLE
324-1	PW01	FLAT WASHER 1/2

REF	PART #	DESCRIPTION
325	P1006325	CLAMP COLLAR
326	P1006326	CLAMP NUT 3/8-16
327	P1006327	SPECIAL SCREW 3/8-16 X 38
329	P11261103	SPRING COVER ASSY
330	P1006330	SPRING BASE 76 X 76 X 19
331	P1006331	PINION SHAFT
331-1	PS01	PHLP HD SCR 10-24 X 1/2
332A	P1006332A	FINE FEED CLUTCH ASSEMBLY
333	P1006333	FINE FEED HOUSING
333A	P1006333-1	FINE FEED ASSEMBLY
334	P1006334	SPRING 27 X 17.5 X 17.5
335	P1006335	BEARING SPACER 34 X 28
337-1	P1006337-1	HANDLE BASE ASSY
339	P1006339	HANDLE ROD
340	P1006340	ROUND KNOB
343-1	P1006343-1	HANDWHEEL ASSY
344	P1006344	GRADUATED DIAL
345	P1006345	SLEEVE
346	P6202	BALL BEARING 6202ZZ
347	P1006347	WORM SHAFT
350	P1006350	HEAD WRENCH
351	P1006351	THUMB SCREW 3/8-16
352	PB46	HEX BOLT 5/8-11 X 6
356	P1006356	ON/OFF SWITCH
358	P1006358	ELEVATION CRANK
359	P1006359	WORM GEAR SHAFT
360	P1006360	PINION GEAR
361	P1006361	GEAR AXLE
362	P1006362	COMPRESSION SPRING 13 X 83
363	P1006363	MOTOR POSITION PIN
366	P1006366	MOTOR BASE
367	P1006367	2HP MOTOR 110/220V SINGLE PHASE
367-1	P1006367-1	MOTOR FAN COVER
367-2	P1006367-2	MOTOR FAN
367-3	P1006367-3	CIRCUIT BREAKER BUTTON
367-4	P1006367-4	JUNCTION BOX
367-5	PC150D	S CAPACITOR 150M 250V 1-3/8 X 2-3/4
367-6	P1006367-6	CAPACITOR COVER
370-1	P1006370-1	MOTOR PULLEY SET
371A	PVB34	V-BELT B-34 5L340
374A	PVB42	V-BELT B-42 5L420
376	P1006376	PULLEY SWING BASE
377	P1006377	CLIP PLATE
379	P1006379	RUBBER COLLAR
386	P1006386	FACE CUTTER
392	P1006392	POSITION SET BRACKET
393A	P1006393A	FIXED NUT
662	P1006662	DRAW BOLT COVER 75 X 54 X 42.5
692	P1006692	BELT COVER LID
701	PLW02	LOCK WASHER 1/4
702	PW06	FLAT WASHER 1/4
703	P1006703	LIMIT PLATE
704	P1006704	FLAT WASHER 1/8
705	P1006705	PHLP HD SCR 5-40 X 3/8
706	P1006706	CHUCK 1/2"-JT6
713	P1006713	CHUCK KEY

Column & Table Parts Breakdown



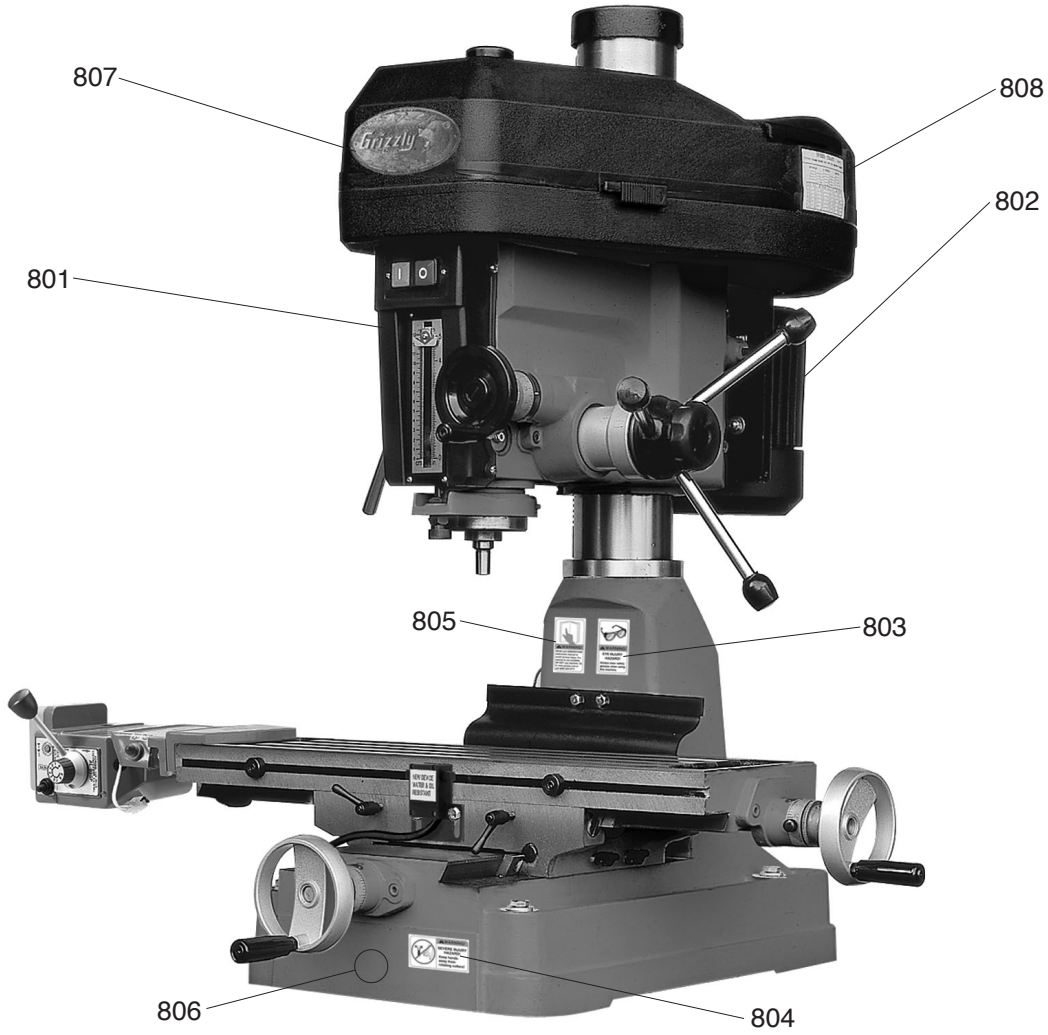
* This part appears on machines produced prior to 07/08.
**This part appears on machines produced after 07/08.

Column & Table Parts List

REF	PART #	DESCRIPTION
131	PB07	HEX BOLT 5/16-18 X 3/4
143	PSB07	CAP SCREW 5/16-18 X 3/4
166	PRP10M	ROLL PIN 5 X 36
168	P1006168	OIL CUP
172	PB64	HEX BOLT 5/8-11 X 2-1/2
173	PLW06	LOCK WASHER 5/8
176	PSB04	CAP SCREW 1/4-20 X 1/2
401	P1126201	HANDWHEEL W/HANDLE
401V2	P1006401V2	PLASTIC HANDWHEEL W/HANDLE V2.07.08
405-1	P1006405-1	ACME SCREW ASSY
406	P1006406	BASE
407	P1006407	SADDLE GIB
408	P1006408	COLUMN
409	P1006409	COLUMN FLANGE RING
410	P1006410	RACK
411	P1006411	COLUMN CAP
412	P1006412	GIB SCREW 5/16-18 X 35
413	P1006413	TABLE LOCK
414	P1006414	TABLE STOP
415-1	P1006415-1	CROSS LEADSCREW NUT ASSY

REF	PART #	DESCRIPTION
416	P1006416	SADDLE
417	P1006417	BOTTOM WAY COVER CLAMP
418-1	P1006418-1	WAY COVER ASSEMBLY
420	P1006420	LEADSCREW COLLAR
422	P1006422	LEFT FLANGE
423	P1005613	LONGITUDINAL LEADSCREW NUT
424	P1126224	LONGITUDINAL LEADSCREW
427	P1006427	TABLE GIB
428	P1006428	TABLE
428-1	P1006428-1	TABLE PLUG
429	P1006429	STOP BLOCK T-NUT 1/4-20
430	P1006430	SPACER
436	P1006436	HANDLE
700	P1006700	LOCK HANDLE
707	P1006707	KNURLED THUMB SCREW 1/4-20 X 3/8
708	P1006708	SCALE
709	P1006709	RIVET
710	P1006710	LOCK HANDLE BUSHING
711	PLW01	LOCK WASHER 5/16
712	P1006712	ANGLE VISE

Warning Labels Breakdown and List



REF	PART #	DESCRIPTION
801	P1006801	MACHINE ID LABEL
802	PLABEL-14	ELECTRICITY LABEL
803	P1006803	WEAR GLASSES LABEL
804	P1006804	ROTATING CUTTER LABEL

REF	PART #	DESCRIPTION
805	P1006805	READ MANUAL LABEL
806	PPAINT-1	GRIZZLY GREEN TOUCH UP PAINT
807	G9987	GRIZZLY NAMEPLATE-MINI
808	P1006808	SPINDLE SPEEDS LABEL

⚠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?

____ Cabinet Maker
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Modeltec
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Practical Homeowner
____ 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.