MODEL G3358
MILLING/DRILLING MACHINE
OWNER'S MANUAL

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#JB10659 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.

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INTRODUCTION

Foreword

We are proud to offer the Model G3358 Milling/Drilling Machine. 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 G3358 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 G3358 Milling/Drilling Machine is used to shape metal and other solid workpieces by removing material through the use of a rotating cutting tool. In milling operations, this cutting tool remains in a stationary position while the workpiece is drawn across it by the user-controlled movement of the table. The Model G3358 can also be used as a traditional drill press.

Tooling inserts into the R-8 spindle that is held in place by a drawbar. The vertical position of the tooling is controlled by the head position, the downfeed handles, and the micro-adjustment handwheel. The spindle is driven by the adjustable belt system contained within the pulley housing.

During milling operations, the operator clamps the workpiece to the table and aligns the necessary axis to produced the desired cut. The operator turns the machine on, then moves the table to bring the workpiece into the rotating cutting tool. Once the pass is complete, adjustments may be made to the position of the spindle and the table, and further passes follow, as necessary.

During drilling operations, the operator clamps the workpiece to the table and aligns the workpiece to the drill bit using the table handwheels. The operator turns the machine on, then lowers the quill using the quill downfeed levers. Once the operation is complete, the table handwheels can be used to reposition the workpiece for drilling additional holes, if necessary.

Identification

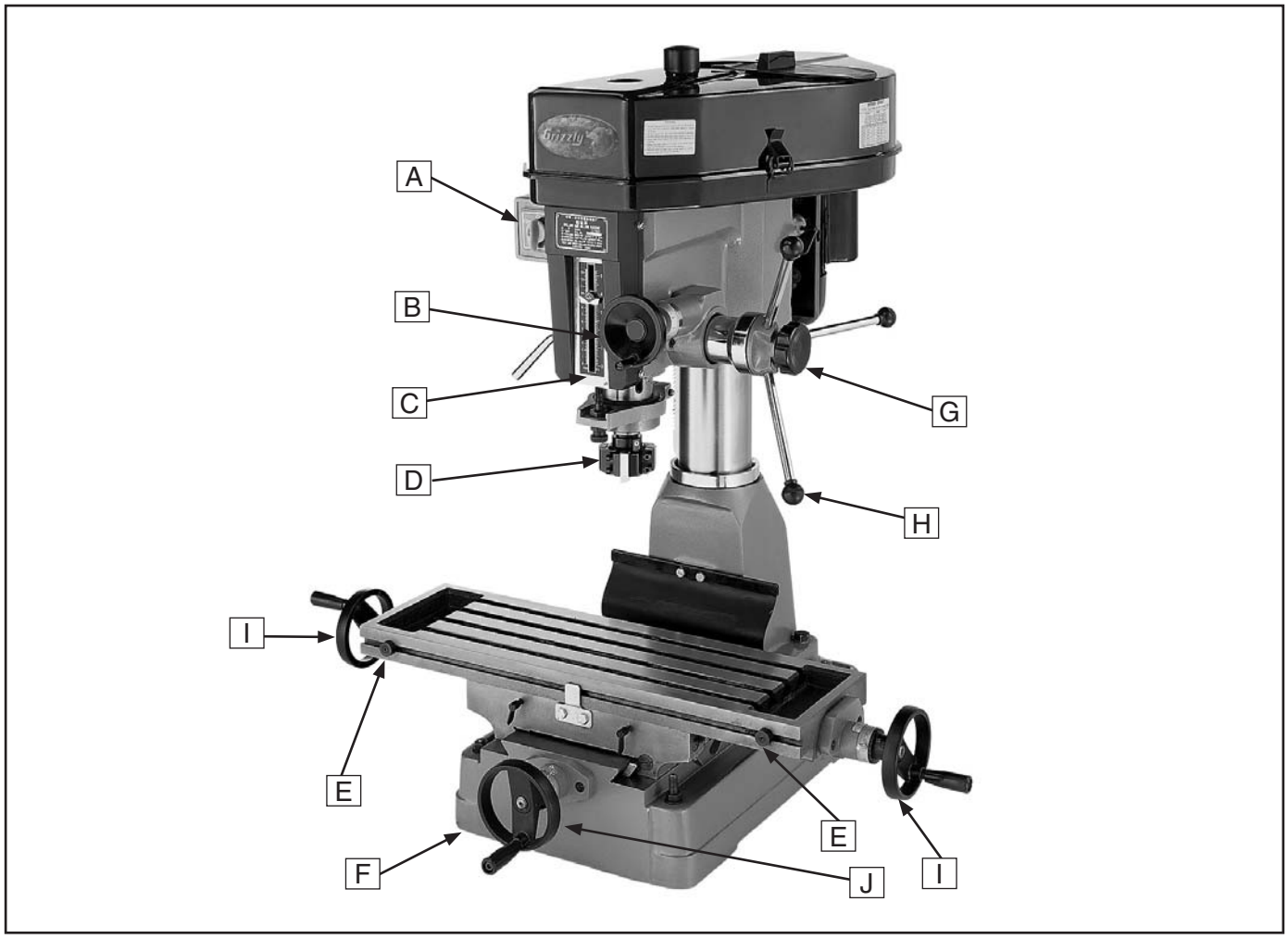


Figure 1. Model G3358 Identification.

A. Directional Switch—Turns the machine ON and changes directional rotation of spindle from clockwise to counterclockwise.

B. Micro-Adjustment Handwheel—Controls depth of cut by 0.001" increments.

C. Depth Stop—Allows you to make repeated cuts to the same depth.

D. 3" Face Mill—Performs facing cuts on large surfaces.

E. Longitudinal Stops—Limits table travel for repeatable positioning.

F. Cast Iron Base—Keeps vibrations to a minimum, ensuring precision.

G. Micro-Adjustment Lock Knob—Must be tightened to engage the Micro-Adjustment Handwheel.

H. Quill Downfeed Levers—Control coarse vertical movement of the quill.

I. Longitudinal (X-Axis) Handwheel—Allow longitudinal table travel.

J. Cross (Y-Axis) Handwheel—Allow cross table travel.

MACHINE DATA SHEET

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

MODEL G3358 MILL / DRILL

Product Dimensions:

Weight..... 540 lbs.
Length/Width/Height.....41-1/2 x 41-1/2 x 43 in.
Foot Print (Length/Width)..... 23 x 18 in.

Shipping Dimensions:

Type..... Wood Crate
Content..... Machine
Weight..... 620 lbs.
Length/Width/Height..... 33 x 31 x 46 in.

Electrical:

Switch..... Forward/Reverse
Switch Voltage..... 220V
Cord Length..... 6 ft.
Cord Gauge.....12 gauge
Minimum Circuit Size.....30A at 110V; 15A at 220V
Plug Included.....No
Recommended Plug/Outlet Type.....L5-30 at 110V; 6-15 at 220V

Motors:

Main

Type..... TEFC Capacitor Start Induction
Horsepower.....2 HP
Voltage.....110/220V
Prewired.....220V
Phase..... Single
Amps.....20/10.5A
Speed.....1725 RPM
Cycle.....60 Hz
Number Of Speeds..... 1
Power Transfer ..... V-Belt Drive
Bearings..... Shielded, Permanently Lubricated

Main Specifications:

Operation Info

Spindle Travel	5 in.
Swing	15-7/8 in.
Longitudinal Table Travel	19-3/4 in.
Cross Table Travel	7 in.
Head Travel	12 in.
Head Swivel	360 deg.
Turret Or Column Swivel	360 deg.
Max. Dist Spindle To Column	7 in.
Max. Dist Spindle To Table	17-3/4 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	140 - 2570 RPM
Quill Dia	2.950 in.

Table Info

Table Length	28-3/4 in.
Table Width	8-1/4 in.
Table Thickness	1-7/8 in.
No. Of T Slots	4
T Slots Width	0.55 in.
T Slots Height	0.94 in.
T Slots Centers	1-3/4 in.
Stud Size	3/8 in.

Spindle Info

Spindle Taper	R-8
Spindle Sleeve Diameter	3 in.
End Milling Cap	3/4 in.
Face Milling Cap	3 in.
Draw Bar Diameter	7/16 in.
Draw Bar TPI	20
Draw Bar Length	15-5/8 in.
Spindle Bearings	Tapered Roller

Lead Screw Info

Lead Screw Diameter	15/16 in.
Lead Screw TPI	10
Lead Screw Length	32 in.

Construction

Spindle Housing Const	Cast Iron
Table Const	Surface Ground 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	G7314

Other Specifications:

Country Of Origin ..... China
Warranty ..... 1 Year
Serial Number Location ..... Label on Head Casting
Assembly Time ..... 1 hour

Features:

Clutch-Type Downfeed Mechanism
Graduations in Inches

Accessories Included:

1/2" Drill Chuck
15/16" Lock Wrench
3" Face Milling Cutter
Arbor Bolt
Inner Hexagon Wrench
R8-JT3 Tapered Bar

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 machine to gain full speed before beginning a cut.

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

7. **SPINDLE DIRECTION CHANGES.** Never reverse spindle direction while the machine is in motion.

8. **STOPPING SPINDLE.** DO NOT stop the machine using your hand against the chuck.

9. **BE ATTENTIVE.** DO NOT leave machine 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 spindle. Never wear gloves when operating the machine.

13. **TOOL HOLDING.** Always use the proper tools for the material you are machining. 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 machine is running.

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 G3358 is prewired for 220V operation. If you plan to operate your machine at 110V, the motor must be rewired (see Page 35).

Full Load Amperage Draw

Amp Draw at 110V.....20 Amps
Amp Draw at 220V (prewired).....10.5 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).....30 Amps
Minimum Circuit Size (220V)..... 15 Amps

Power Connection Device

The Model G3358 comes prewired for 220V. We recommend using an 6-15 plug. If you rewire the motor to 110V, we recommend using the plug and receptacle shown in **Figure 2** for 110V.

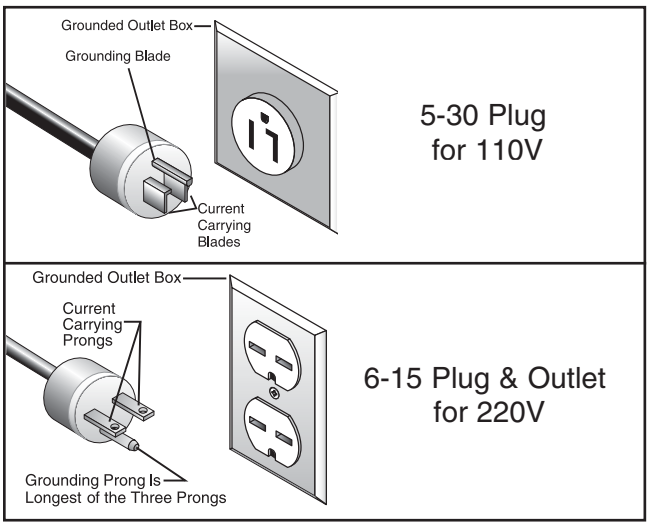


Figure 2. Recommended plug types.

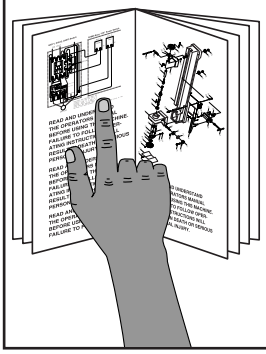
Extension Cords

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

Setup Safety

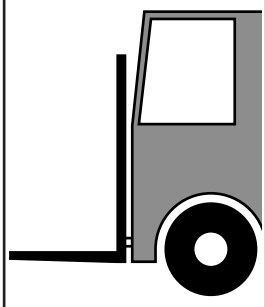


WARNING

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 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.

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.

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, 3mm	1 Each

Inventory

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

Crate Contents (Figure 3)	Qty
A. Model G3358 Milling/Drilling Machine (not shown)	1
B. Handwheels	3
C. Drill Chuck	1
D. Chuck Key	1
E. Drill Chuck Collet R8-JT3	1
F. Head Crank	1
G. Handles	4
H. Column Cap	1
I. Cap Screws M8-1.25 x 25mm	2
J. Socket Wrench 24mm	1
K. Face Mill w/4 HSS Bits	1
L. Feed Levers	3
M. Hex Wrenches 4, 5, 6mm	3

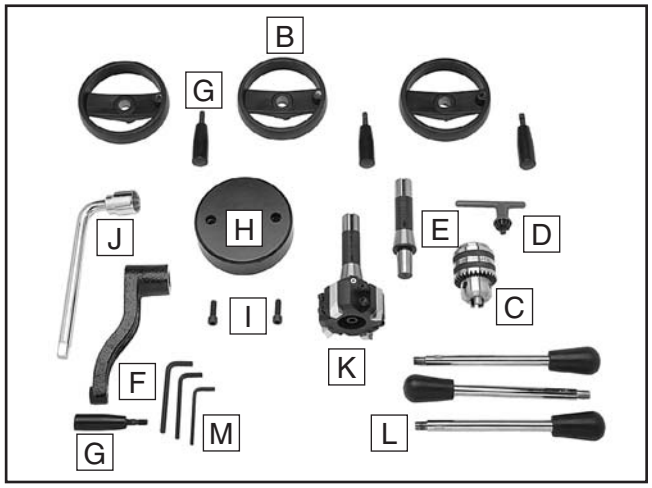
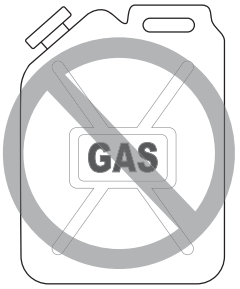


Figure 3. Inventory.

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 4**. 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 4. Cleaner/degreaser available from Grizzly.

Site Considerations

Workbench Load

Refer to the **Machine Data Sheet** for the weight and footprint specifications of your machine. Some floors may require additional reinforcement to support both the machine, the workbench 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 5** for the minimum working clearances.

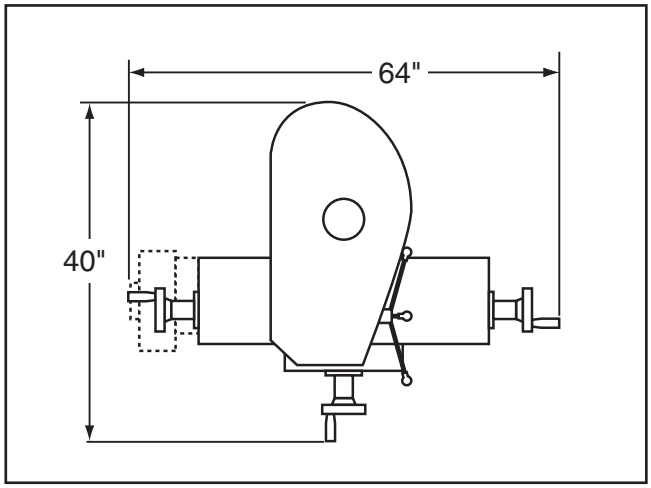
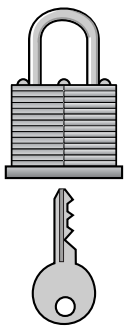


Figure 5. Minimum working clearances.



⚠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

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. Adjust the Y-Axis handwheel to position the table as close to the column as possible to help balance the machine during moving.

4. Place lifting straps under the head of the machine, as shown in **Figure 6**, 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 metal pulley cover.

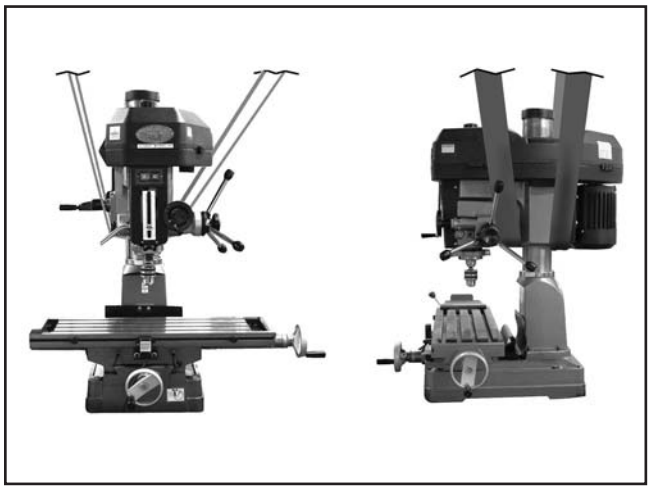


Figure 6. Typical lifting strap position.

⚠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. 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 33.**

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 7**).

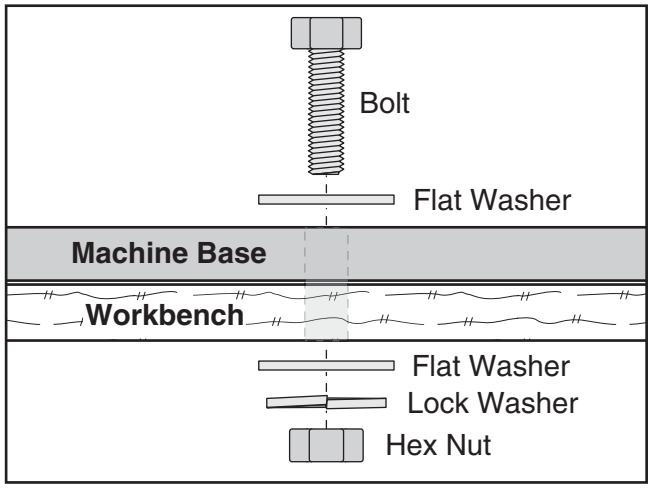


Figure 7. Example of a through mount setup.

Another option for mounting is a "Direct Mount" where the machine is simply secured to the workbench with a lag screw (**Figure 8**).

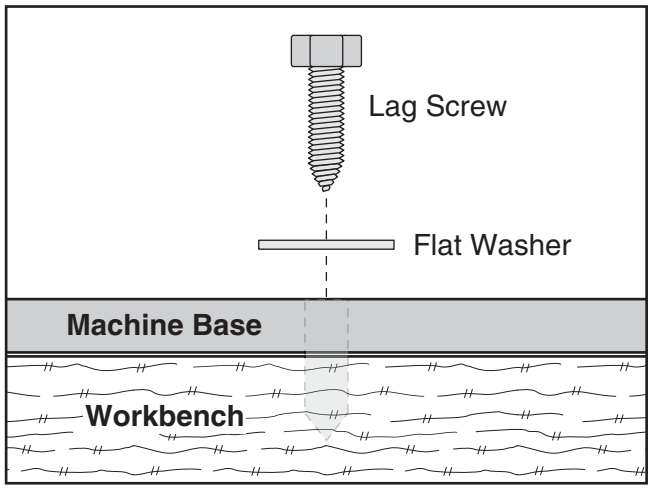


Figure 8. Example of a direct mount setup.

Assembly

Handwheels

There are three handwheels provided with the machine that control table movement.

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 9**).

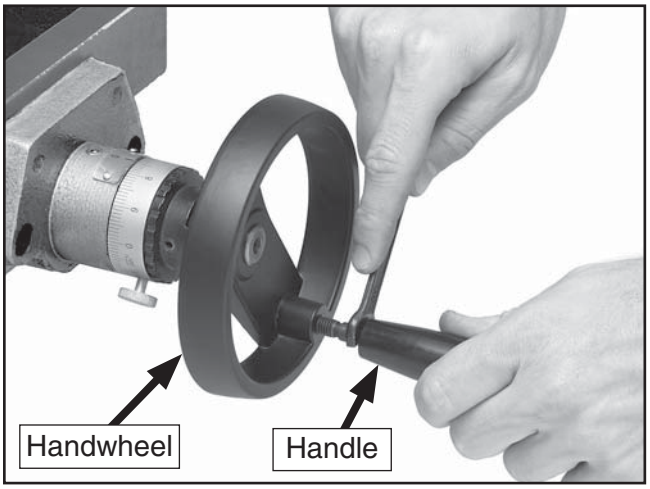


Figure 9. Handwheel assembly.

3. Secure one handwheel in each of the locations shown by sliding the handwheel onto the leadscrew and tightening the set screw (**Figure 10**).

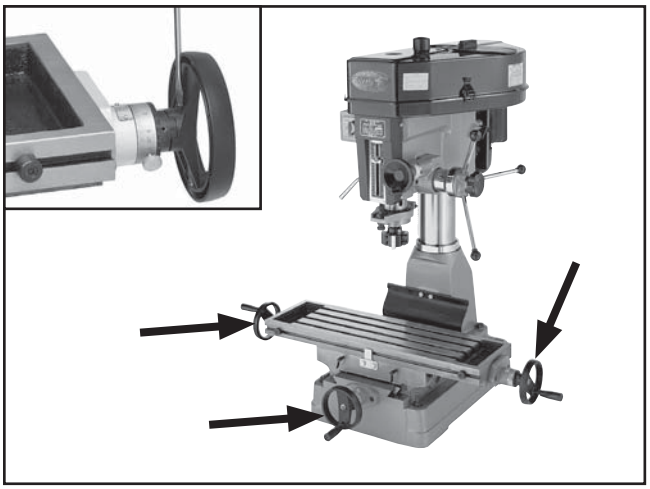
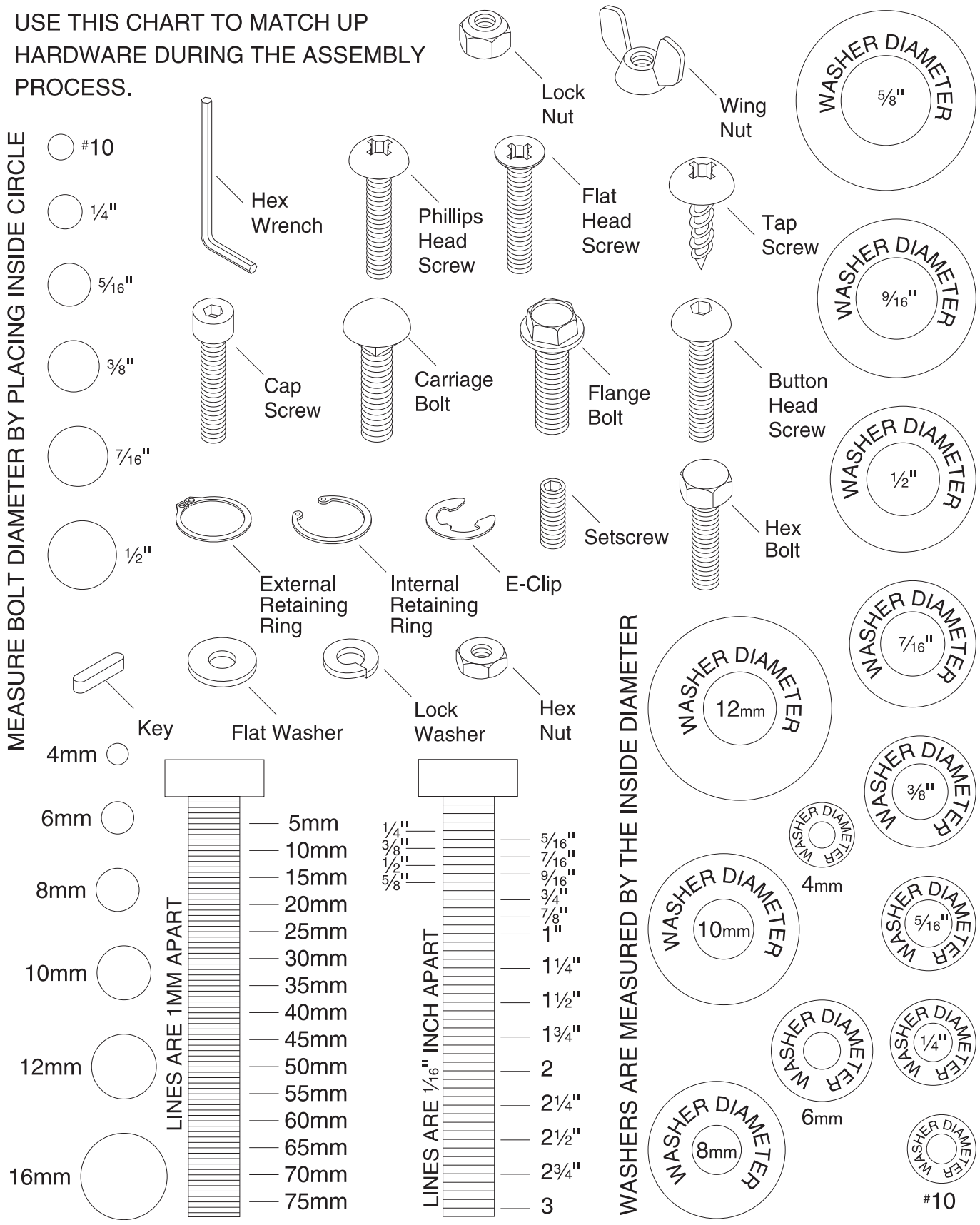


Figure 10. Handwheel installation.

Hardware Recognition Chart



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 11**).

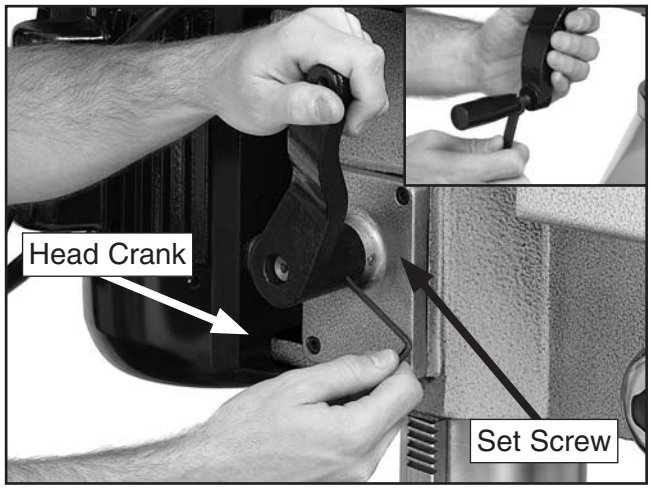


Figure 11. Head crank.

Column Cap

A 6mm hex wrench is needed to install the column cap to the column.

To install the column cap to the column:

1. Slide the column cap over the column and the rack gear that sits on the side of the column.

2. Align the holes of the column cap over the holes in the column.

3. Screw the M8-1.25 x 25 cap screws into the column (**Figure 12**).

Figure 12. Properly installed column cap.

Feed Levers

The feed levers control the coarse 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 (if not already done).

2. Screw the levers with knobs into the threaded holes on the hub, located on the right side of the machine (**Figure 13**).

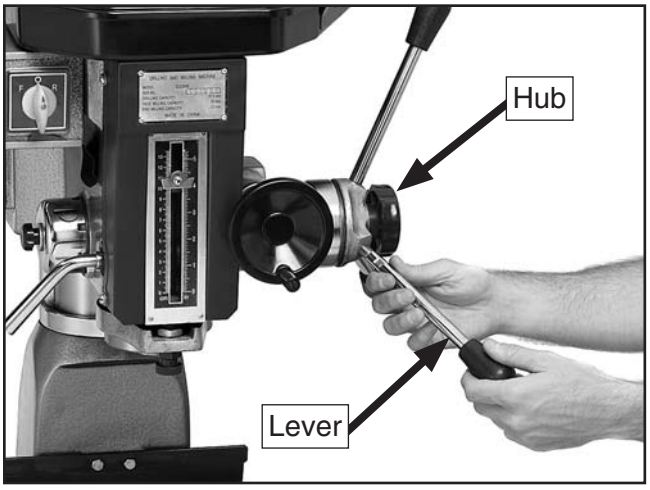


Figure 13. Feed levers.

Drill Chuck Arbor

Your machine 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. This drill chuck installation is intended to be permanent.

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 14**).

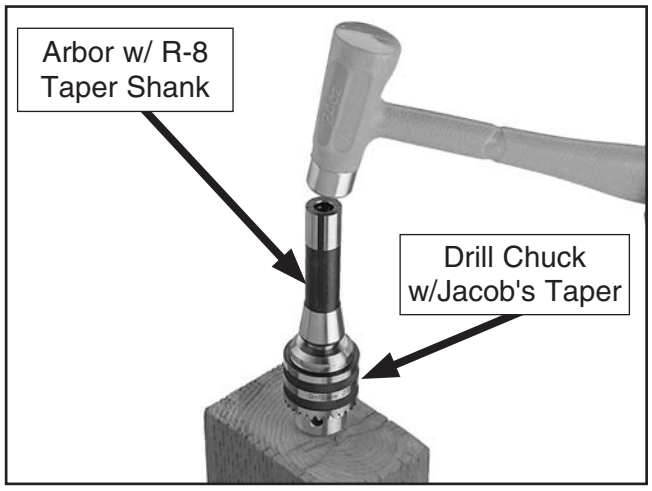


Figure 14. Drill chuck.

Face Mill

⚠CAUTION

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

The Model G3358 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 grease, oil and debris off the R-8 arbor and face mill.

2. Fit the face mill onto the stub end of the arbor so the keys on the arbor and the keyways on the face mil come together (**Figure 15**).

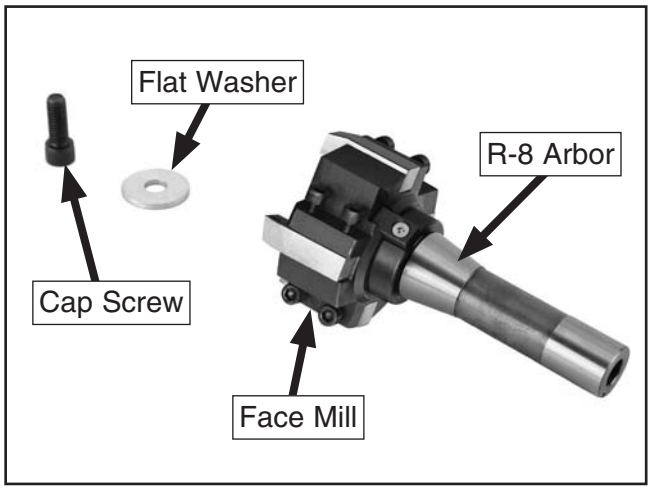


Figure 15. Face mill.

3. Secure the face mill to the arbor with the cap screw and washer provided.

4. Install the arbor with face mill into the machine as described in **Collet/Arbor** on **Page 20.**

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 29**.

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

To test run the machine:

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 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***.

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.

To break-in the spindle:

1. Make sure the machine has been properly lubricated. Refer to **Lubrication** on **Page 28**.

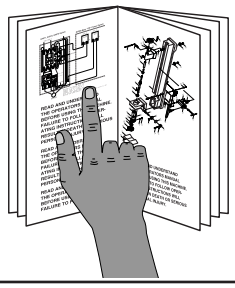
2. Make sure the spindle area is free of obstructions.

3. Set the spindle speed to the lowest RPM. Refer to **Speed Changes** on **Page 23**.

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 23**.

SECTION 4: OPERATIONS

Operation Safety

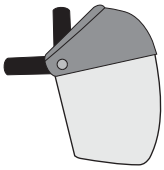


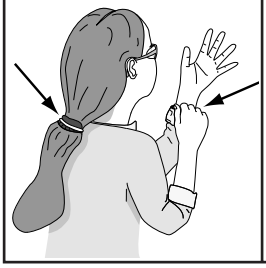
⚠WARNING

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 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.

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

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

Spindle Lock: Locks the spindle in position vertically.

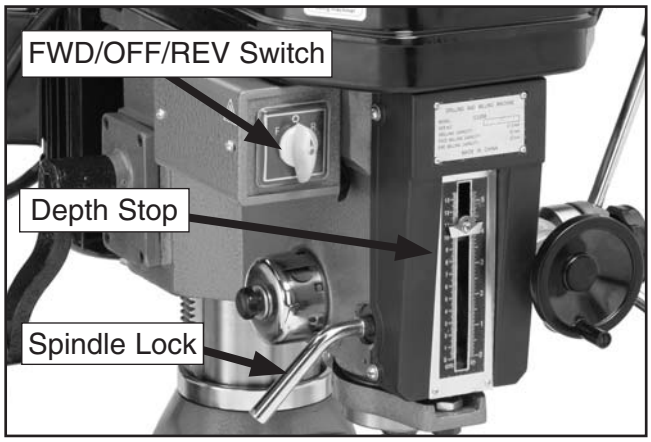


Figure 16. Head controls.

Micro-Adjustment Handwheel: Provides fine control over vertical spindle travel.

Locking Knob: Engages/disengages the micro-adjustment handwheel.

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

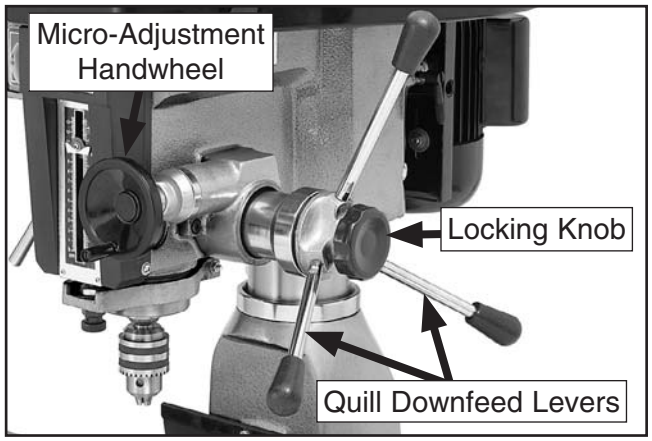


Figure 17. Spindle Controls.

Head Crank: Changes the elevation of the entire headstock.

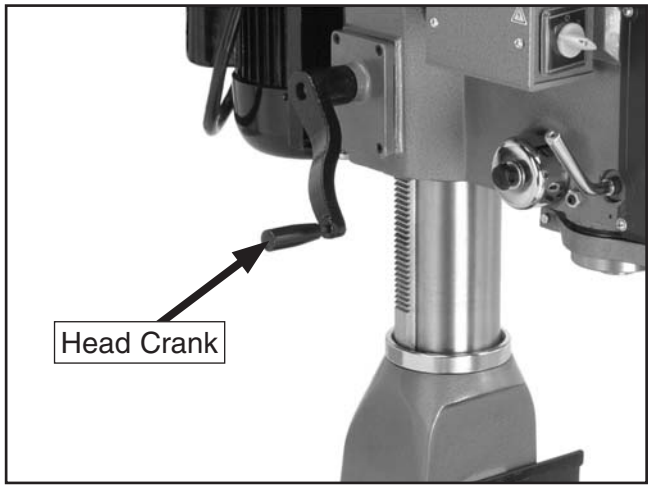


Figure 18. Head crank.

Longitudinal Travel Handwheels: Control longitudinal (X-Axis) travel of the table.

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

Table Locks: Lock the table in position along their respective axes.

Travel Stops: Limit longitudinal table travel.

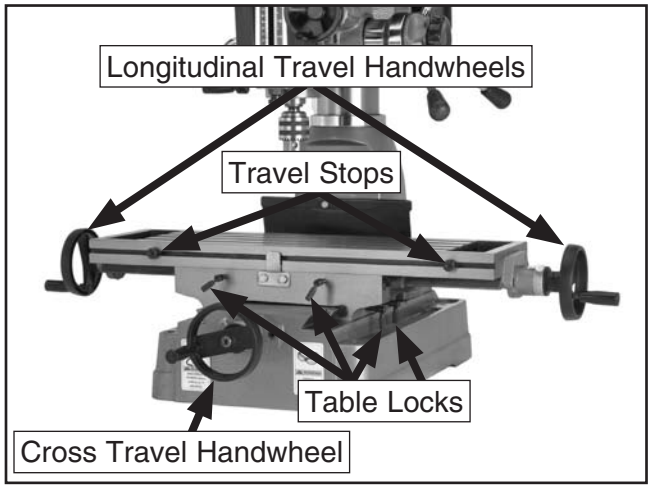


Figure 19. Table travel controls.

Collet/Arbor

The Model G3358 features an R-8 spindle which accepts many industrial collets and arbors.

To install a collet or an arbor:

1. DISCONNECT MACHINE FROM POWER!

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

3. Make sure the tapered mating surfaces of the collet or arbor and the spindle are clean and free of grease or other impurities.

4. 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**).

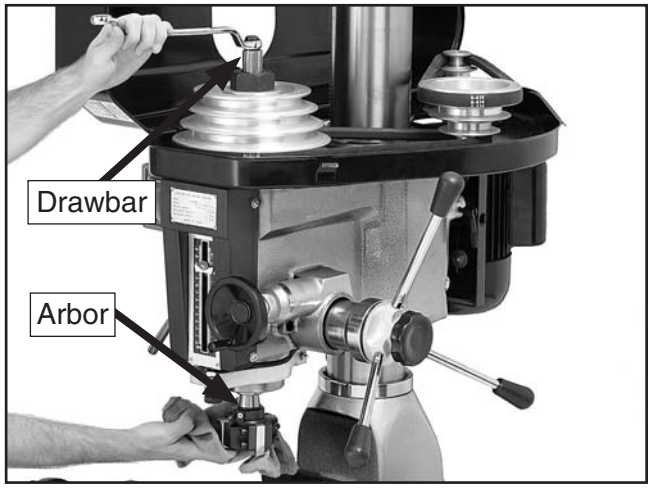


Figure 20. Collet/arbor installation.

5. 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/arbor.

6. If you're using a collet, insert the cutter in the hole at the bottom of the collet. Be sure to protect your hands from the cutter with leather gloves or a shop rag.

7. Continue to tighten the drawbar until both the collet and cutter, or arbor are tightly in place. Do not over-tighten the drawbar.

To remove a collet or an arbor:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen but do not remove the drawbar.

3. 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/arbor from the spindle (**Figure 21**).

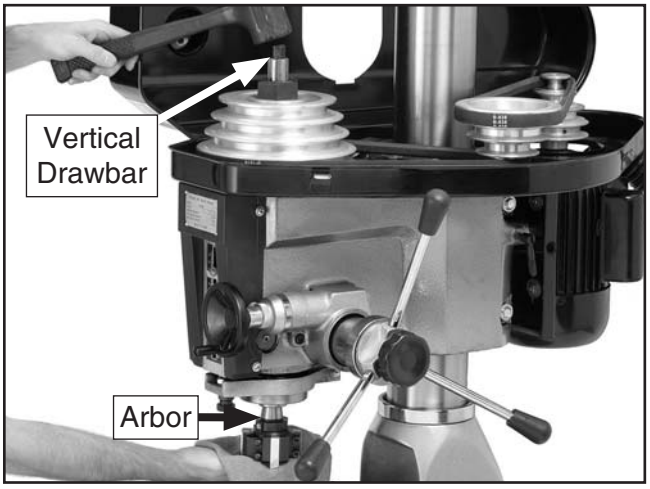


Figure 21. Collet removal.

4. Unthread the drawbar until it is free from the collet/arbor. Once loose, remove and replace with your desired collet/arbor. Remove cutting tools from the spindle when not in use.

Spindle Height

The Model G3358 has coarse downfeed levers and a micro-adjustment handwheel. To operate the downfeed levers, 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 downfeed levers (**Figure 22**). This transfers control from the downfeed levers to the micro-adjustment handwheel.

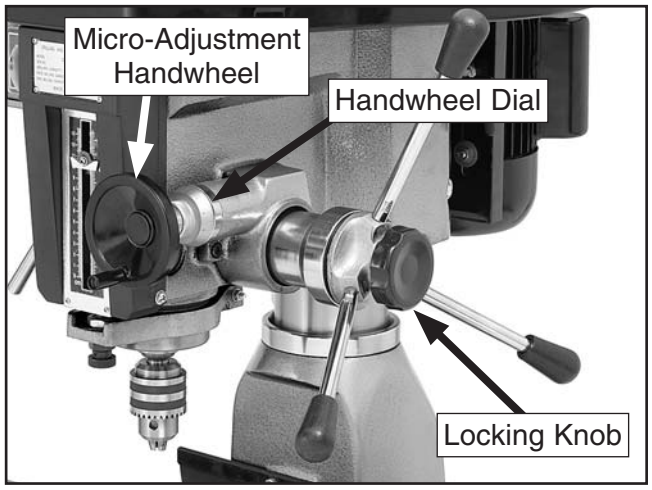


Figure 22. Micro-adjustment handwheel.

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

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 (**Figure 23**).

Figure 23. Spindle locking.

Headstock Height

The headstock height on the Model G3358 can be adjusted for various applications. For best results during milling, keep the headstock fully retracted and set the headstock as low as possible.

To adjust the headstock height:

1. Using the lug wrench provided, loosen the two headstock locking nuts located on the right side of the head near the back (**Figure 24**).

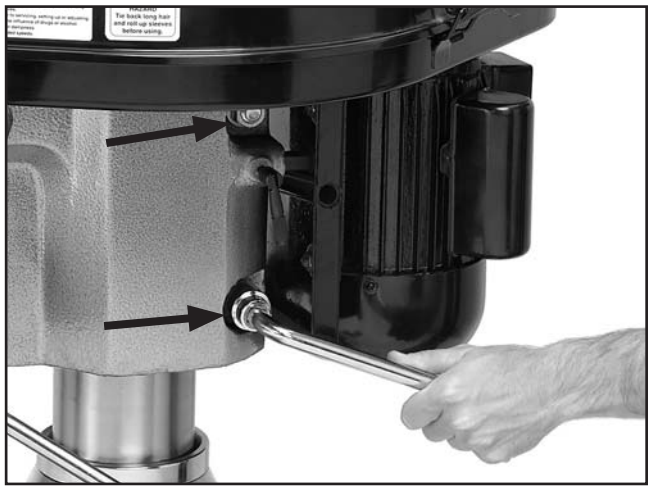


Figure 24. Headstock locking nuts.

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

3. Tighten the two head locking nuts.

Depth Stop

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

To calibrate the 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. Loosen the headstock locking nuts and lower the head until the drill bit or cutter just contacts the paper. Tighten the headstock locking nuts. (Refer to **Figure 24** for the location of the headstock locking nuts).

2. 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 25**).

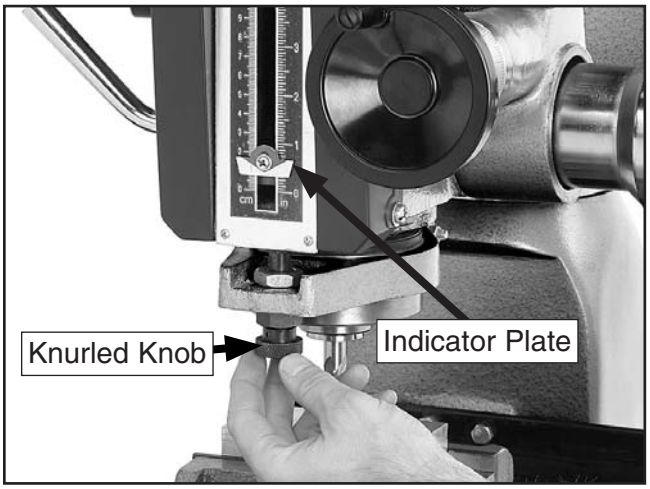


Figure 25. Setting depth stop.

Speed Changes

The Model G3358 is capable of twelve different speed settings. Different types of cuts and materials require varying speeds. Refer to the chart in **Figure 29** for appropriate cutting speeds.

To change spindle speeds:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen the motor locking lever. Pull the motor inward to move the rear pulley toward the spindle (**Figure 26**).

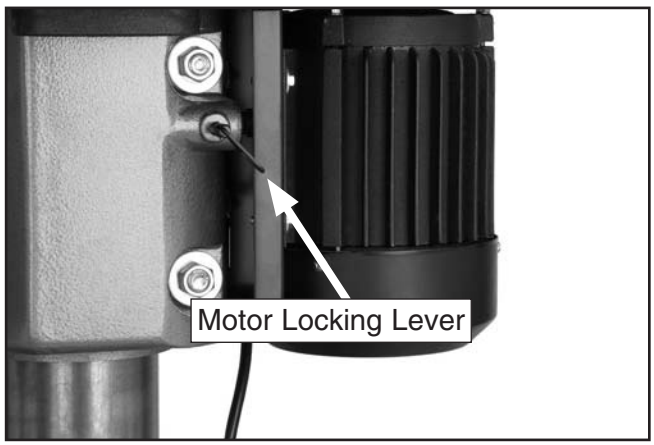


Figure 26. Motor locking lever.

3. Loosen the two idler pulley bolts that hold the idler pulley in place so the pulley can move freely (**Figure 27**).

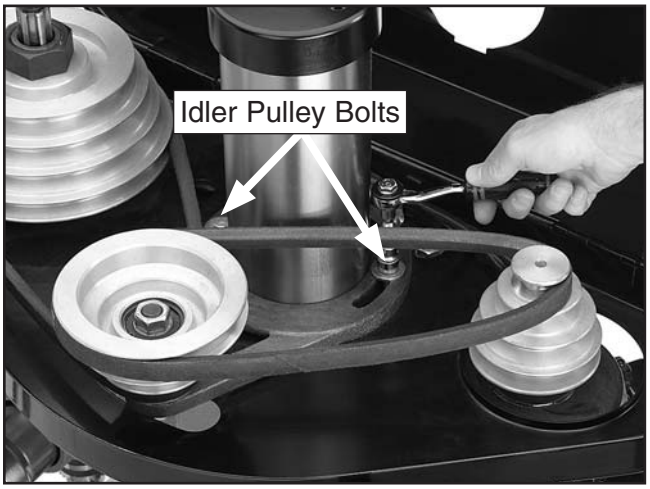


Figure 27. Pulley system.

4. With the center and rear pulleys loose, move the V-belts to the corresponding position for the desired speed (**see chart below**).

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

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

RPM	Position	RPM	Position
140	A-1	875	B-4
215	A-2	1140	C-3
265	B-1	1275	D-2
320	A-3	1600	C-4
420	B-2	1910	D-3
485	C-1	2570	D-4

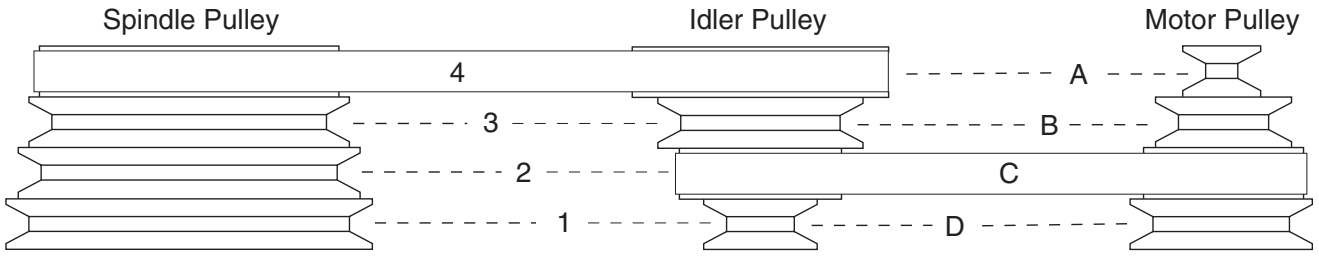


Figure 28. Spindle speed chart.

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 29. Cutting speed table for HSS cutting tools.

⚠WARNING

Failure to follow RPM and feed rate guidelines may threaten operator and bystander safety from ejected parts or broken tools.

NOTICE

Failure to follow RPM and feed rate guidelines will put undue strain on moving parts, shorten tool life, and create poor workpiece results.

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 30**).

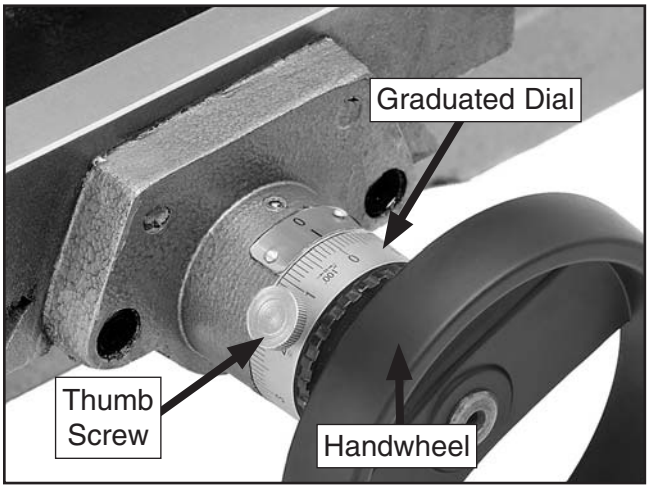


Figure 30. Setting dial indicators to zero.

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.

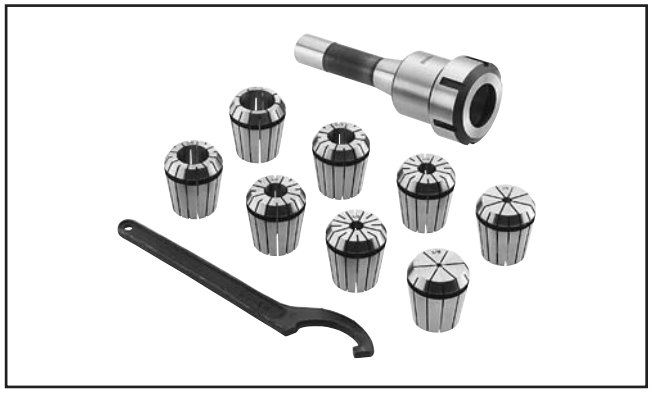


Figure 31. H2689 R-8 Quick Change Collet Set.

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.

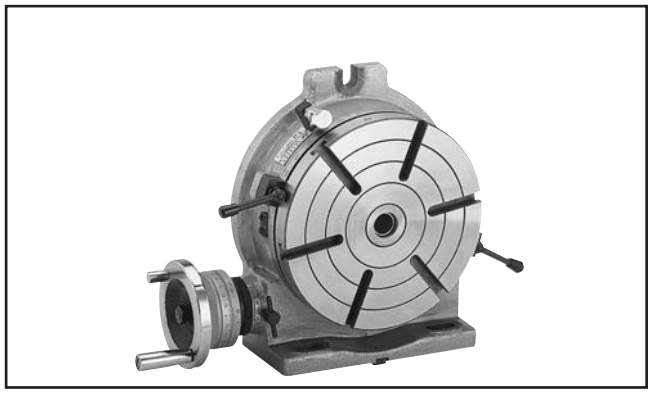


Figure 32. G9299 10" Yuasa-Type Rotary Table.

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.

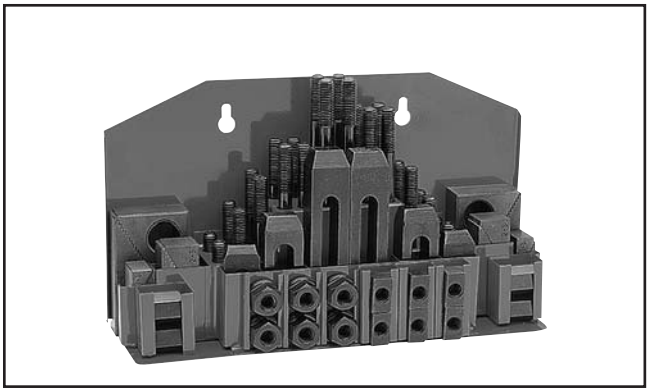


Figure 33. G1076 52-PC. Clamping Kit.

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.

Call 1-800-523-4777 To Order

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.

Call 1-800-523-4777 To Order

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

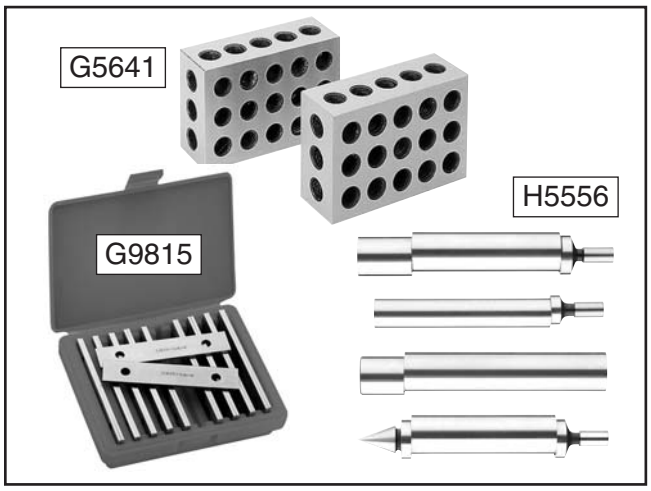


Figure 37. G5641 1-2-3 Blocks, G9815 Parallel Set, and H5556 Edge Finder Set.

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".

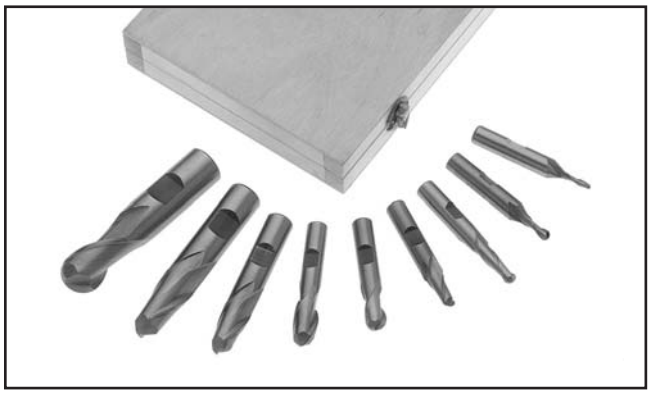
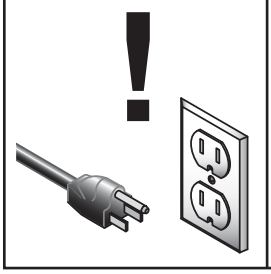


Figure 38. G9765 9 PC. Ball End Mill Set.

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.
- V-belt tension, damage, or wear.
- Lubrication (**Page 28**)

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 off the mill 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 the Grizzly catalog or website).

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 pinion.** Lubricate every 90 days with non-hardening grease.
- **The table leadscrews.** Lubricate once each week with several drops of SAE 30.
- **Ball Oilers.** Wipe the outer surface of the ball fitting with a clean cloth to remove contaminants. Press the ball of the fitting with the tip of the oiler. Press a few drops of oil into the ball fitting, then clean up any residue with a cloth (**Figure 39**).
- **Ways.** Periodically lubricate the ways with Moly-D way oil.

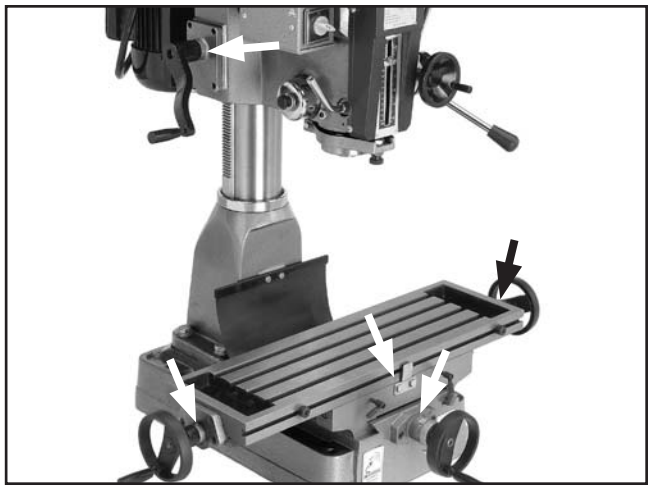


Figure 39. Ball oiler locations.

V-Belts

Inspect regularly for tension and wear. Refer to **Figure 40** for proper belt tension. Belt deflection should be approximately 1/4" under moderate pressure. 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.

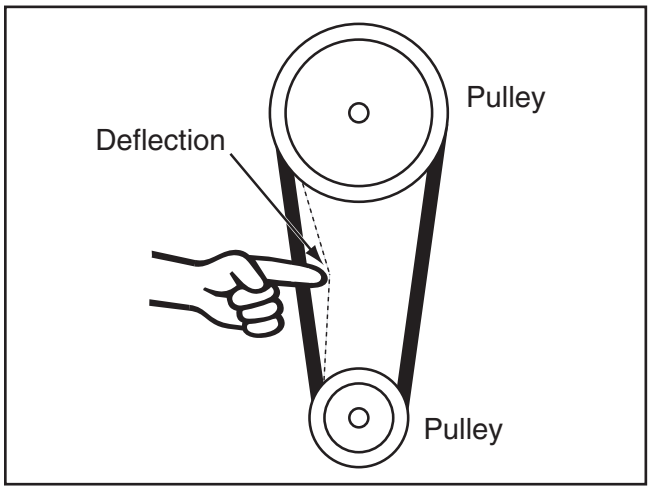


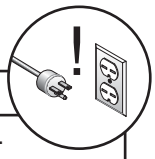
Figure 40. Belt tension.

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.

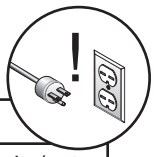
Troubleshooting

Motor & Electrical



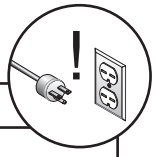
Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	1. Plug/receptacle is at fault or wired incorrectly.	1. Test for good contacts; correct the wiring.
	2. Motor connection wired incorrectly.	2. Correct motor wiring connections.
	3. Wall fuse/circuit breaker is blown/tripped.	3. Ensure circuit size is suitable for this machine; replace weak breaker.
	4. Power supply switched ***OFF*** or is at fault.	4. Ensure power supply is switch on; ensure power supply has the correct voltage.
	5. Wiring is open/has high resistance.	5. Check for broken wires or disconnected/corroded connections, and repair/replace as necessary.
	6. Main power switch is at fault.	6. Replace faulty FWD/OFF/REV switch.
	7. Motor is at fault.	7. Test/repair/replace.
Machine stalls or is overloaded.	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 cutter type.	3. Use cutter 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. Spindle rotation switch at fault.	10. Test/repair/replace switch.
	11. Motor is at fault.	11. 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 mounting bolts in bench; 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. 4. Spindle extended too far down.	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. 4. Fully retract spindle and lower headstock. This increases rigidity.
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. 5. Spindle extended too far down.	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. 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 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. 5. Adjust gibs (see **Page 33**).
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. 5. Spindle extended too far down.	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. 5. Fully retract spindle and lower headstock. This increases rigidity.

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. DISCONNECT MACHINE FROM POWER!

2. PUT ON SAFETY GLASSES!

3. Loosen the black thumb knob two or three turns (**Figure 41**).

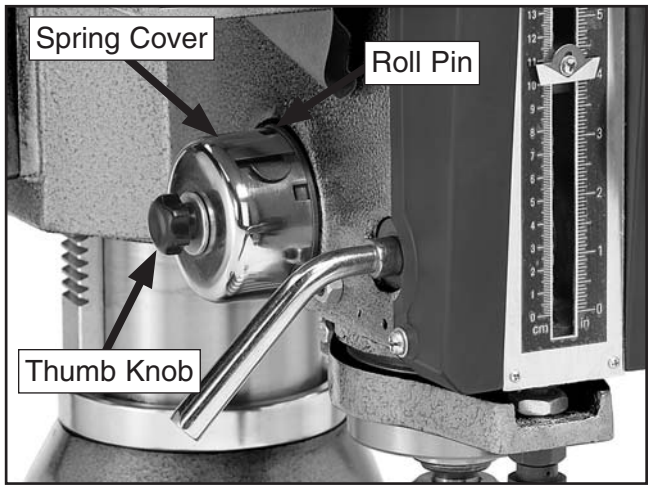


Figure 41. Spring cover.

⚠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.

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 42**).

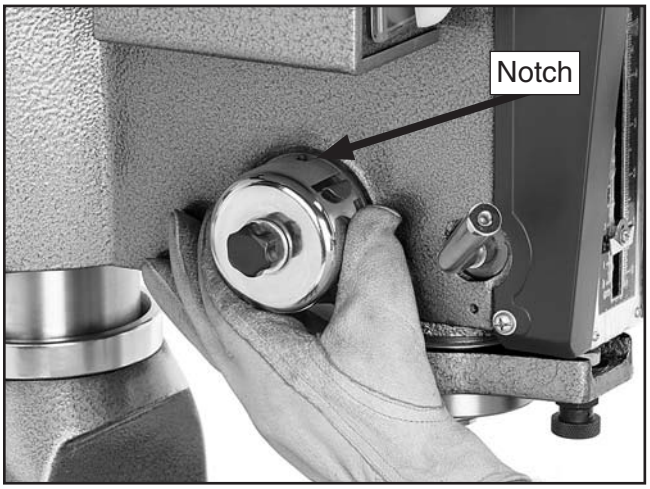


Figure 42. Adjusting spring tension.

6. Tighten the black thumb knob.

Quill

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

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 leadscrews.

These adjusters may require you to fabricate extensions for your hex wrenches. 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 adjusters.

To adjust the X-axis leadscrew:

1. Locate the X-axis leadscrew adjuster under the middle of the table. The head on the adjustment screw faces to the right (**Figure 43**).

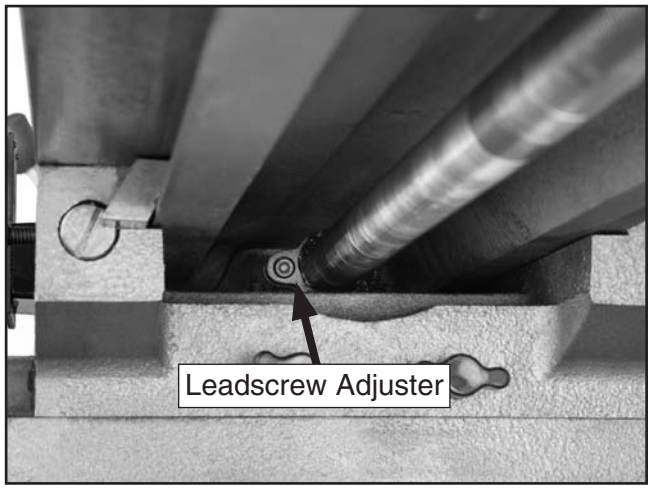


Figure 43. X-axis leadscrew adjuster.

2. Tighten the adjustment screw.

3. Test the adjustment by turning one of the side handwheels. You should detect less than 0.008" of play.

To adjust the Y-axis 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 between 0.002" and 0.008" of play.

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 waxy rust preventative coating is removed from the ways, lubricate them with oil, and work the table back-and-forth several times until the movement is loosened.

The gibs are adjusted by turning the large slotted screwheads 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.

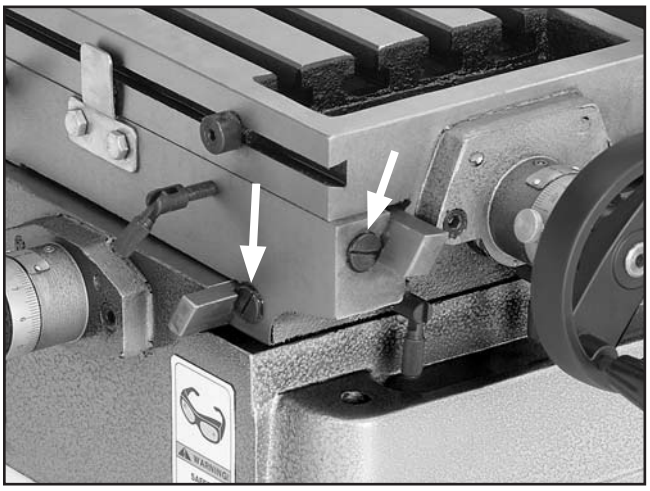


Figure 44. Gib adjustment screw locations.

SECTION 8: WIRING

⚠WARNING
Electrical Safety Instructions

1. **PRINTED INFORMATION.** The electrical information included in this section is current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical system of future machines. Study the photos and diagrams in this section carefully. If you notice differences between your machine and these diagrams, call Technical Support at (570) 546-9663 for assistance.

2. **SHOCK HAZARD.** Disconnect the power from the machine before servicing electrical components. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death.

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

4. **CIRCUIT REQUIREMENTS.** You MUST follow the **CIRCUIT REQUIREMENTS** section on **Page 9**. **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.**

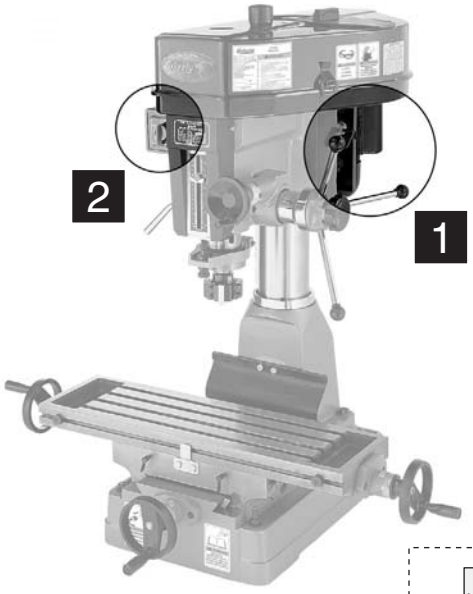
5. **GROUNDED CIRCUIT.** Electrocution or fire could result if the machine is not grounded and installed in compliance with electrical codes. Compliance MUST be verified by a qualified electrician.

6. **EXPERIENCING DIFFICULTIES.** If at any time 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.*

Wiring Diagram

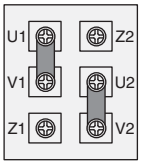


COLOR KEY

BLACK	Bk
WHITE	Wt
GREEN	Gn
RED	Rd
YELLOW	Yl
BLUE	Bl
BROWN	Br

Figure 46. Motor wiring.

1 110V/220V MOTOR (Prewired 220V)



110V MOTOR WIRING (Note Jumper Locations)

(Rewired to 110V)

Neutral

Hot

110 VAC

Ground

110V 5-30 Plug (As Recommended)

Ground

Hot

220 VAC

Hot

220V 6-15 Plug (As Recommended)

Run Capacitor 40MFD 450VAC

Start Capacitor 400MFD 265VAC

Ground

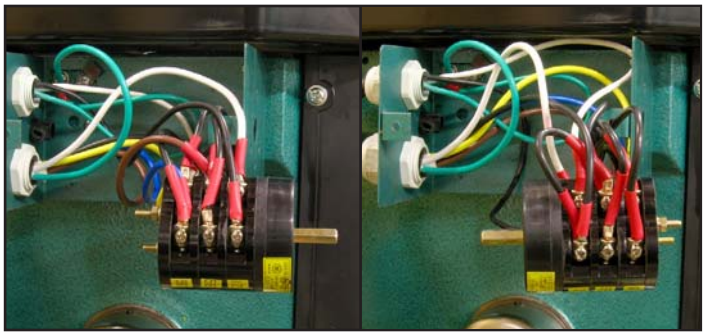


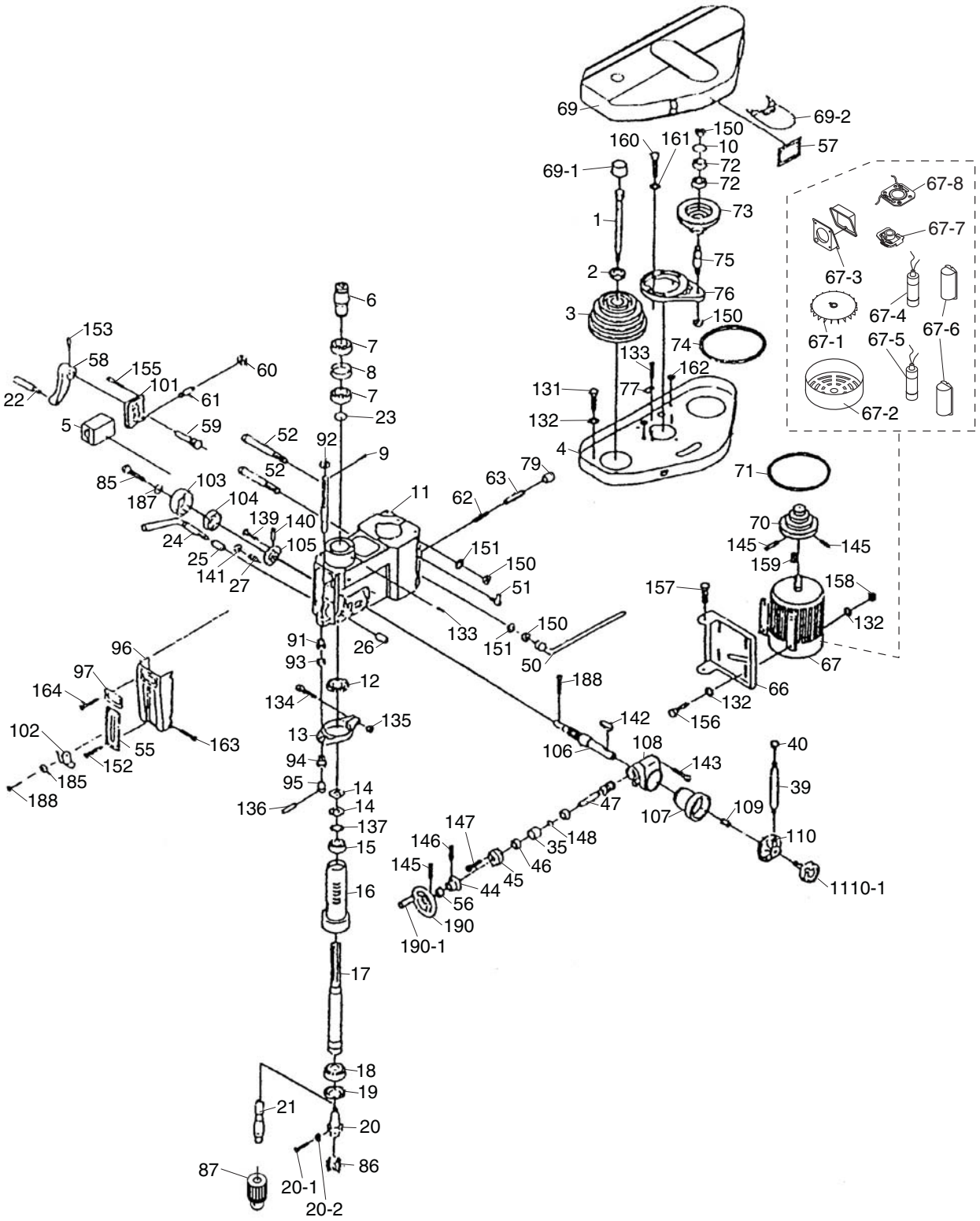
Figure 45. Switch wiring (both sides shown).

2 FWD/OFF/REV SWITCH (Both Sides Shown)

View this page in color at *www.grizzly.com.*

SECTION 9: PARTS

Main Parts Breakdown
1000 Series



Main Parts List

REF	PART #	DESCRIPTION
1001	P33581001	DRAW BAR 7/16-20 X 402MM
1002	P33581002	SPINDLE LOCK NUT
1003	P33581003	SPINDLE PULLEY
1004	P33581004	BELT BOTTOM COVER
1005	P33581005	SWITCH
1006	P33581006	SPINDLE TAPER SLEEVE
1007	P6009	BALL BEARING 6009ZZ
1008	P33581008	BEARING SPACER
1009	P33581009	QUILL STOP ADJ ROD M12 X 235
1010	PR25M	INT RETAINING RING 47MM
1011	P33581011	HEAD BODY
1012	P33581012	RUBBER FLANGE
1013	P33581013	FEED BASE
1014	P33581014	LOCK NUT M30-1.5
1015	P33581015	TAPER BEARING 30205/P5
1016	P33581016	SPINDLE SLEEVE
1017	P33581017	SPINDLE SHAFT
1018	P33581018	TAPER BEARING 30207/P5
1019	P33581019	BEARING CAP
1020	P33581020	CUTTER ARBOR R8
1020-1	PFH30M	FLAT HD SCR M5-.8 X 8
1020-2	P33581020-2	KEY
1021	P33581021	CHUCK ARBOR JT#3-R8
1022	P33581022	GRIP
1023	PR56M	EXT RETAINING RING 45MM
1024	P33581024	QUILL LOCK HANDLE
1025	P33581025	COLLAR
1026	P33581026	THREADED COLLAR
1027	P33581027	SCREW KEY
1035	P33581035	BEARING SPACER
1039	P33581039	QUILL HANDLE
1040	P33581040	QUILL HANDLE KNOB M12-1.25
1044	P33581044	MICRO ADJUSTING INDICATOR
1045	P33581045	WORM COVER
1046	P6202	BALL BEARING 6202ZZ
1047	P33581047	WORM SHAFT
1050	P33581050	LOCK HANDLE
1051	P33581051	SPECIAL WING SCREW
1052	P33581052	HEAD BOLT M16-2 X 150
1055	P33581055	GRADUATED DIAL

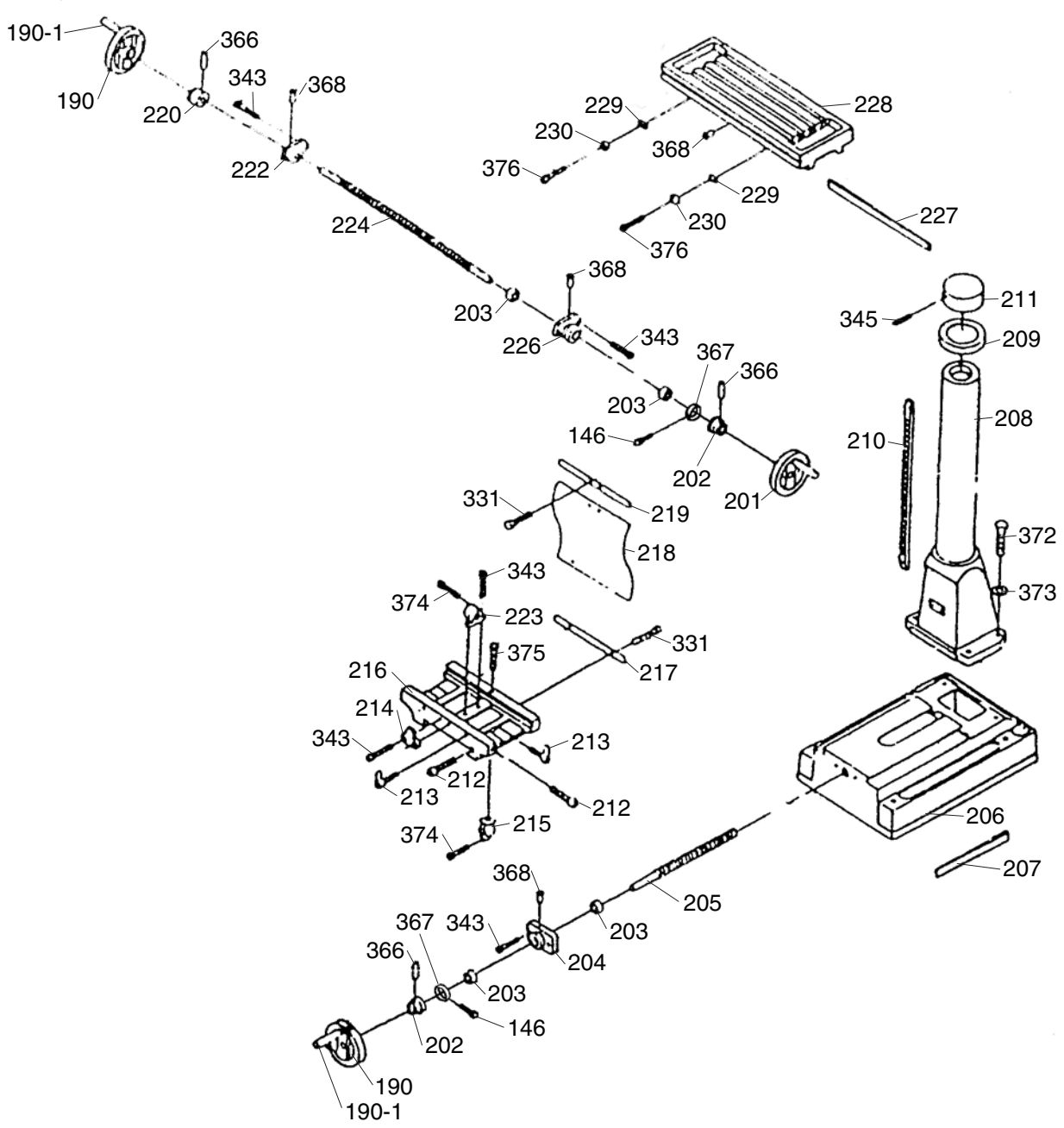
REF	PART #	DESCRIPTION
1056	P33581056	SPACER
1057	P33581057	NAME PLATE
1058	P33581058	HEAD HANDLE
1059	P33581059	WORM SHAFT
1060	P33581060	WORM
1061	P33581061	SHAFT
1062	P33581062	COMPRESSION SPRING
1063	P33581063	PIN
1066	P33581066	MOTOR MOUNT
1067	P33581067	MOTOR 2HP 110/220V
1067-1	P33581067-1	MOTOR FAN
1067-2	P33581067-2	MOTOR HOUSING
1067-3	P33581067-3	JUNCTION BOX
1067-4	P33581067-4	S CAPACITOR 400M 265V 2 X 3-3/4
1067-5	P33581067-5	R CAPACITOR 40M 450V 2 X 3-3/4
1067-6	P33581067-6	CAPACITOR COVER
1067-7	P33581067-7	CENTRIFUGAL SWITCH
1067-8	P33581067-8	CONTACT PLATE
1069	P33581069	BELT TOP COVER
1069-1	P33581069-1	DRAWBAR COVER
1069-2	P33581069-2	PLASTIC COVER
1070	P33581070	MOTOR PULLEY
1071	P33581071	V-BELT 5L330
1072	P6204	BALL BEARING 6204ZZ
1073	P33581073	IDLER PULLEY
1074	PVB40	V-BELT B-40 5L400
1075	P33581075	IDLER PULLEY SHAFT
1076	P33581076	IDLER PULLEY BASE
1077	P33581077	CLIP PLATE
1079	P33581079	RUBBER COLLAR
1085	P33581085	KNOB M6-1 X 14
1086	P33581086	FACE MILL 80MM
1087	P33581087	DRILL CHUCK JT#3 0"-1/2"
1091	P33581091	STOP NUT M20-1.5 X 23
1092	P33581092	STOP BLOCK
1093	PLN07M	LOCK NUT M16-2
1094	P33581094	SUPPORT BASE
1095	P33581095	DEPTH STOP KNOB
1096	P33581096	FRONT COVER PLATE
1097	P33581097	PROTECTION PIECE

Main Parts List (continued)

REF	PART #	DESCRIPTION
1101	P33581101	COLUMN GEAR COVER
1102	P33581102	LIMIT PLATE
1103	P33581103	SPRING COVER
1104	P33581104	COILED SPRING
1105	P33581105	SPRING BASE
1106	P33581106	PINION SHAFT
1107	P33581107	FEED COVER
1108	P33581108	WORM GEAR BOX
1109	P33581109	COMPRESSION SPRING
1110	P33581110	SPRING BASE
1110-1	P33581110-1	CLUTCH KNOB
1131	PB03M	HEX BOLT M8-1.25 x 16
1132	PW01M	FLAT WASHER 8MM
1133	PS16M	PHLP HD SCR M8-1.25 X 16
1134	PB39M	HEX BOLT M6-1 X 50
1135	PN01M	HEX NUT M6-1
1136	PRP64M	ROLL PIN 3 X 18
1137	PLW16M	LOCK WASHER 30MM
1139	PS76M	PHLP HD SCR M8-1.25 X 12
1140	PRP44M	ROLL PIN 3 X 10
1141	PN02M	HEX NUT M10-1.5
1142	PK70M	KEY 8 X 8 X 12
1143	PSB14M	CAP SCREW M8-1.25 X 20

REF	PART #	DESCRIPTION
1145	PSS31M	SET SCREW M5-.8 X 8
1146	P33581146	KNURLED SCREW M5-.8 X 12
1147	PSB24M	CAP SCREW M5-.8 X 16
1148	PR05M	EXT RETAINING RING 15MM
1150	PN13M	HEX NUT M16-2
1151	PW08M	FLAT WASHER 16MM
1152	PHTEK11M	TAP SCREW M3 X 8
1153	PSS14M	SET SCREW M8-1.25 X 12
1155	PSB02M	CAP SCREW M6-1 X 20
1156	PB07M	HEX BOLT M8-1.25 X 25
1157	P33581157	HEX BOLT M12-1 X 25
1158	PN03M	HEX NUT M8-1.25
1159	P33581159	KEY 8 X 40
1160	PB26M	HEX BOLT M8-1.25 X 30
1161	PW01M	FLAT WASHER 8MM
1162	P33581162	OUTLINE BUSHING
1163	PS76M	PHLP HD SCR M8-1.25 X 12
1164	PHTEK11M	TAP SCREW M3 X 8
1185	P33581185	DEPTH STOP INDICATOR
1187	PW01M	FLAT WASHER 8MM
1188	PS39M	PHLP HD SCR M8-1.25 X 10
1190	P33581190	DOWNFEED CONTROL KNOB
1190-1	P33581190-1	KNOB HANDLE

Base Parts Breakdown
1000 Series

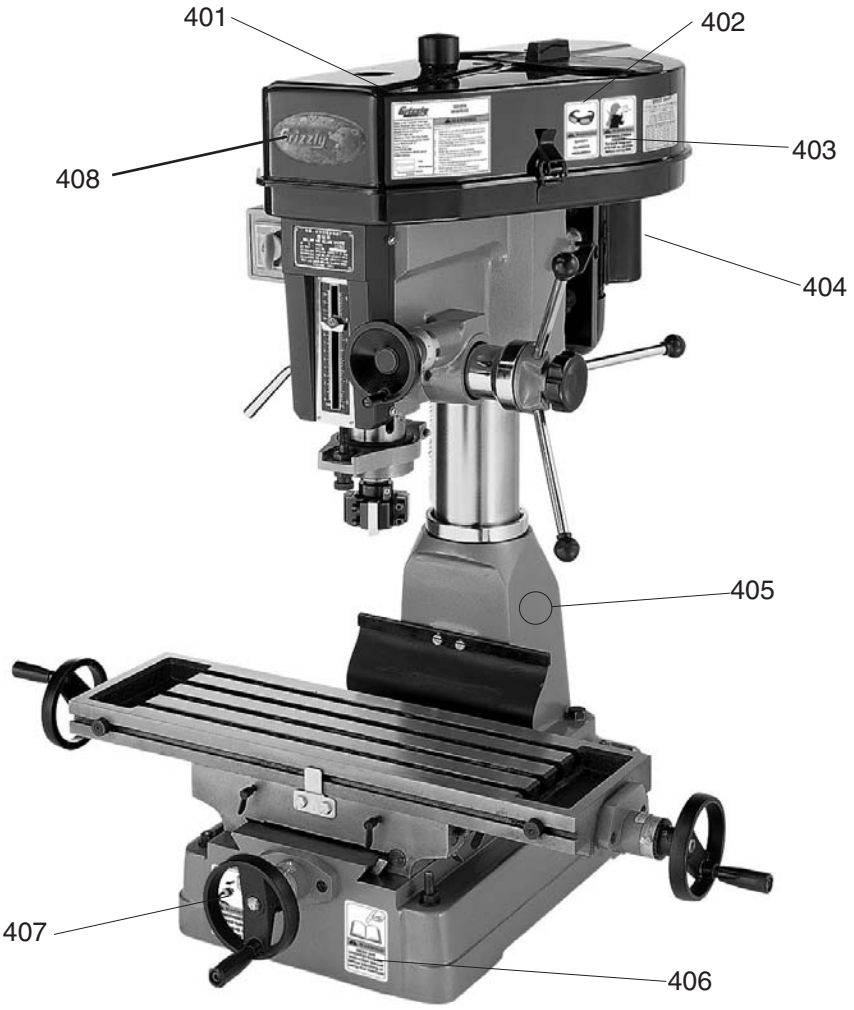


Base Parts List

REF	PART #	DESCRIPTION
1146	P33581146	KNURLED SCREW M5-.8 X 12
1201	P33581201	TABLE HANDLE WHEEL
1202	P33581202	DIAL CLUTCH
1203	P8103	THRUST BEARING 8103
1204	P33581204	SQUARE FLANGE
1205	P33581205	CROSSFEED LEAD SCREW
1206	P33581206	BASE
1207	P33581207	CROSS SLIDE GIB
1208	P33581208	COLUMN BASE
1209	P33581209	COLUMN FLANGE RING
1210	P33581210	RACK
1211	P33581211	COLUMN HEAD
1212	P33581212	GIB STRIP BOLT
1213	P33581213	LEAF SCREW
1214	P33581214	MOVABLE FIXED BLOCK
1215	P33581215	CROSS SLIDE LEAD SCREW NUT
1216	P33581216	CENTER BASE
1217	P33581217	WAY COVER BRACKET
1218	P33581218	WAY COVER
1219	P33581219	WAY COVER BRACKET

REF	PART #	DESCRIPTION
1220	P33581220	TABLE CLUTCH
1222	P33581222	LEFT FLANGE
1223	P33581223	LEAD SCREW NUT
1224	P33581224	LONGITUDINAL LEAD SCREW
1226	P33581226	RIGHT FLANGE
1227	P33581227	LONGITUDINAL GIB
1228	P33581228	TABLE
1229	P33581229	FIXED BLOCK
1230	P33581230	MOVABLE FIXED RING
1331	PB06M	HEX BOLT M8-1.25 X 12
1343	PSB31M	CAP SCREW M8-1.25 X 25
1345	PSS21M	SET SCREW M8-1.25 X 25
1366	PRP30M	ROLL PIN 5 X 50
1367	P33581367	GRADUATED COLLAR
1368	P33581368	BALL OILER
1372	PB165M	HEX BOLT M16-2 X 60
1373	PLW10M	LOCK WASHER 16MM
1374	PSB33M	CAP SCREW M5-.8 X 12
1375	PSB14M	CAP SCREW M8-1.25 X 20
1376	PSB26M	CAP SCREW M6-1 X 12

Label Breakdown and List



REF	PART #	DESCRIPTION
1401	P33581401	MACHINE ID LABEL
1402	P33581402	WEAR GLASSES LABEL
1403	P33581403	ENTANGLEMENT LABEL
1404	PLABEL-14	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
1405	PPAINT-1	GRIZZLY GREEN TOUCH UP PAINT
1406	P33581406	READ MANUAL LABEL
1407	P33581407	DISCONNECT POWER LABEL
1408	G9987	GRIZZLY NAMEPLATE

⚠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.

grizzly.com
TOOL WEBSITE

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