

# *Grizzly* *Industrial, Inc.*®

## MODEL G0705 MILL/DRILL w/STAND OWNER'S MANUAL



COPYRIGHT © MARCH, 2010 BY GRIZZLY INDUSTRIAL, INC. REVISED DECEMBER, 2010 (JB)  
**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE  
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**  
(FOR MODELS MANUFACTURED SINCE 09/09) #JB12469 PRINTED IN CHINA



## **WARNING!**

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

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

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

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



## **WARNING!**

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

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

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

# Table of Contents

<b>INTRODUCTION</b> .....	<b>2</b>	<b>SECTION 5: ACCESSORIES</b> .....	<b>35</b>
Manual Accuracy .....	2	<b>SECTION 6: MAINTENANCE</b> .....	<b>38</b>
Contact Info.....	2	Schedule .....	38
Machine Description .....	2	Cleaning and Protecting .....	38
Identification.....	3	Lubrication .....	39
<b>SECTION 1: SAFETY</b> .....	<b>7</b>	<b>SECTION 7: SERVICE</b> .....	<b>41</b>
Safety Instructions for Machinery .....	7	Troubleshooting .....	41
Additional Safety for Mill/Drills .....	9	Gibs.....	43
<b>SECTION 2: CIRCUIT REQUIREMENTS</b> .....	<b>10</b>	Leadscrew Backlash.....	44
110/220V Operation.....	10	<b>SECTION 8: WIRING</b> .....	<b>45</b>
110V Conversion .....	11	Wiring Safety Instructions .....	45
<b>SECTION 3: SETUP</b> .....	<b>14</b>	G0705 Wiring Diagram .....	46
Needed for Setup.....	14	G0705 Wiring Diagram (Continued) .....	47
Unpacking .....	14	<b>SECTION 9: PARTS</b> .....	<b>48</b>
Inventory .....	15	Headstock Parts Breakdown .....	48
Cleanup.....	16	Headstock Parts List.....	49
Site Considerations.....	17	Headstock Parts List (continued).....	50
Mounting Options.....	18	Base Parts Breakdown .....	51
Moving & Placing Machine .....	21	Base Parts List.....	52
Test Run .....	22	Electrical Components Breakdown and List	53
Break-In .....	23	Labels Breakdown and List.....	54
<b>SECTION 4: OPERATIONS</b> .....	<b>24</b>	<b>WARRANTY AND RETURNS</b> .....	<b>57</b>
Operation Overview .....	24		
Basic Controls.....	25		
Calculating Spindle Speed for Milling .....	27		
Speed Changes .....	28		
Calculating Spindle Speed for Drilling .....	29		
Spindle Height.....	30		
Loading Tooling .....	31		
Drill Chuck Arbor.....	32		
Collet Adapters .....	32		
Headstock Position .....	33		
Depth Stop.....	33		
Table Travel.....	34		
Graduated Dials.....	34		


# INTRODUCTION

## Manual Accuracy

We are proud to offer this manual with your new machine! We've made every effort to be exact with the instructions, specifications, drawings, and photographs of the machine we used when writing this manual. However, sometimes we still make an occasional mistake.

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

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

		<b>MODEL GXXXX</b> <b>MACHINE NAME</b>	
<b>SPECIFICATIONS</b>		<b>WARNING!</b>	
Motor:		<b>Manufacture Date of Your Machine</b> ing this machine: operation. s and respirator. sted/setup and suit before starting. 4. make sure the motor has stopped and disconnect power before adjustments, maintenance, or service. 5. DO NOT expose to rain or dampness. 6. DO NOT modify this machine in any way. 7. DO NOT remove safety guards. 8. Never leave machine running unattended. 9. DO NOT operate under the influence of drugs or alcohol. 10. Maintain machine carefully to prevent accidents.	
Specification:			
Specification:			
Specification:			
Weight:			
<input type="text"/>	Date		
<input type="text"/>	Serial Number		
Manufactured for Grizzly in Taiwan			

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

## Contact Info

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

Grizzly Industrial, Inc.  
1203 Lycoming Mall Circle  
Muncy, PA 17756  
Phone: (570) 546-9663  
E-Mail: [techsupport@grizzly.com](mailto:techsupport@grizzly.com)

We want your feedback on this manual. If you can take the time, please email or write to us at the address below and tell us how we did:

Grizzly Industrial, Inc.  
c/o Technical Documentation Manager  
P.O. Box 2069  
Bellingham, WA 98227-2069  
Email: [manuals@grizzly.com](mailto:manuals@grizzly.com)

## Machine Description

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

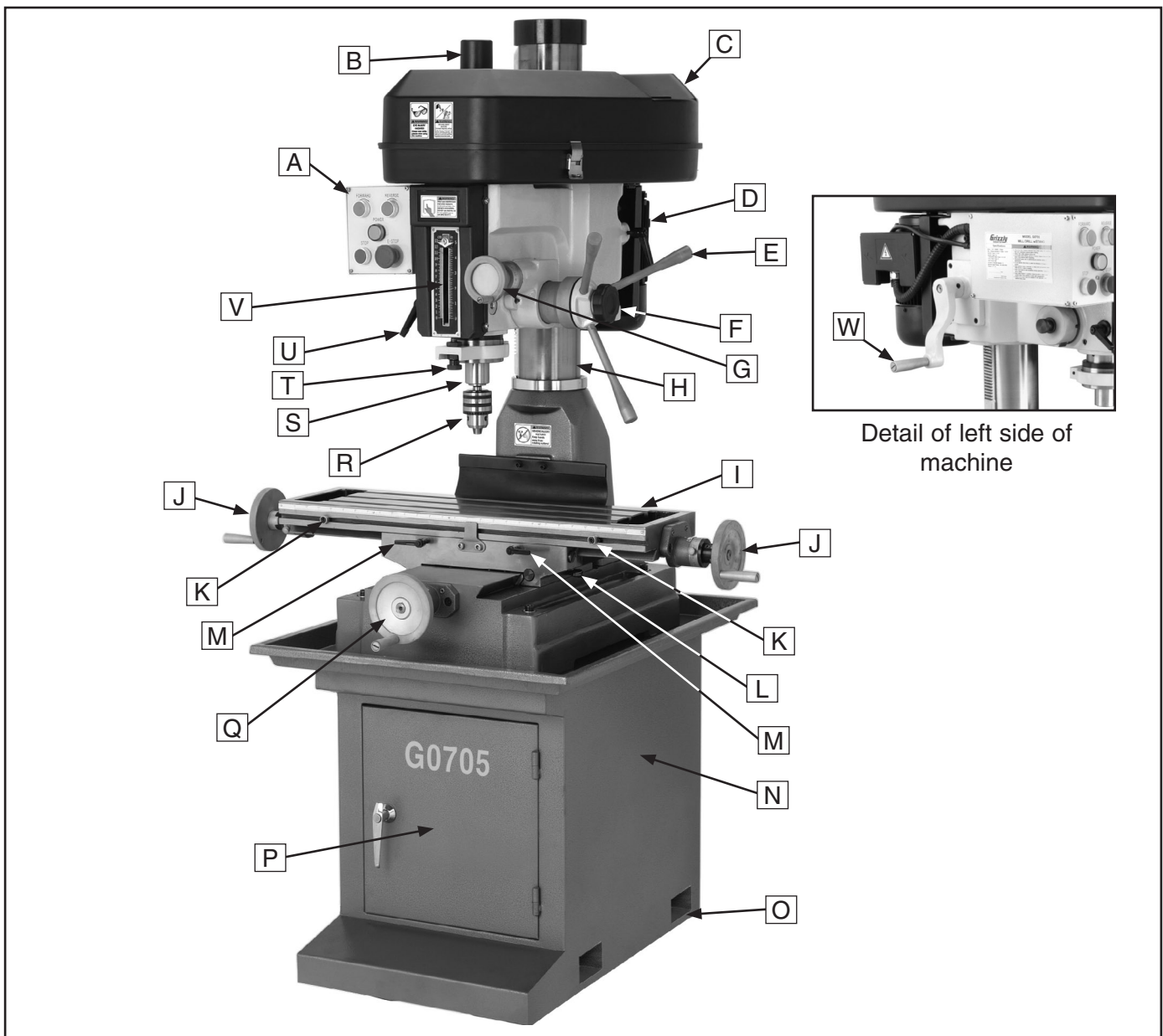
In milling operations, the location of the cutting tool is stationary while the workpiece is fed into the cutter by moving the table.

In drilling operations, the workpiece is held stationary on the table while the cutting tool is fed vertically into the workpiece with the movement of the spindle and head.





# Identification



**Figure 1.** Model G0705 identification.

- |                                   |                                     |
|-----------------------------------|-------------------------------------|
| <b>A.</b> Control Panel           | <b>M.</b> Longitudinal Travel Lock  |
| <b>B.</b> Drawbar & Cap           | <b>N.</b> Cabinet Stand             |
| <b>C.</b> Belt Cover              | <b>O.</b> Mounting Bolt Hole        |
| <b>D.</b> Motor                   | <b>P.</b> Cabinet Door              |
| <b>E.</b> Coarse Downfeed Lever   | <b>Q.</b> Cross Travel Handwheel    |
| <b>F.</b> Fine Downfeed Lock Knob | <b>R.</b> Chuck                     |
| <b>G.</b> Fine Downfeed Handwheel | <b>S.</b> Spindle                   |
| <b>H.</b> Column                  | <b>T.</b> Depth Stop                |
| <b>I.</b> Table                   | <b>U.</b> Quill Lock Lever          |
| <b>J.</b> Longitudinal Handwheel  | <b>V.</b> Depth Scale               |
| <b>K.</b> Table Stop              | <b>W.</b> Headstock Elevation Crank |
| <b>L.</b> Cross Travel Lock       |                                     |



# MACHINE DATA SHEET

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

## MODEL G0705 DRILL/MILL WITH STAND 29 INCH X 8 INCH TABLE

### Product Dimensions:

Weight..... 617 lbs.  
 Length/Width/Height..... 41-5/8 x 40-1/2 x 43-1/4 in.  
 Foot Print (Length/Width)..... 28-3/8 x 17-3/4 in.

### Shipping Dimensions:

#### Carton #1

Type..... Plywood  
 Content..... Machine  
 Weight..... 683 lbs.  
 Length/Width/Height..... 38 x 30 x 46 in.

#### Carton #2

Type..... Cardboard  
 Content..... Stand  
 Weight..... 99 lbs.  
 Length/Width/Height..... 29 x 18 x 22 in.

### Electrical:

Power Requirement..... 220V, Single-Phase, 60 Hz  
 Minimum Circuit Size..... 30A @110V, 15A @220V  
 Switch..... Front Mounted Forward Reverse Switch with Emergency Stop  
 Switch Voltage..... 220V  
 Cord Length..... 6.5 ft.  
 Cord Gauge..... 14 gauge  
 Plug Included..... NEMA 6-15  
 Recommended Plug/Outlet Type..... NEMA 5-20 @110V, NEMA 6-15 @220V

### Motors:

#### Main

Type..... TEFC Capacitor Start Induction  
 Horsepower..... 2 HP  
 Voltage..... 110V/220V  
 Prewired..... 220V  
 Phase..... Single  
 Amps..... 17.8/8.6  
 Speed..... 1725 RPM  
 Cycle..... 60 Hz  
 Number Of Speeds..... 1  
 Power Transfer ..... Belt Drive  
 Bearings..... Shielded and Permanently Sealed



**Main Specifications:**

**Operation Info**

Spindle Travel.....	4-11/16 in.
Longitudinal Table Travel.....	19-11/16 in.
Cross Table Travel.....	9 in.
Head Swivel.....	360 deg.
Max. Dist Spindle To Column.....	7-3/4 in.
Max. Dist Spindle To Table.....	17-5/16 in.
Drilling Cap For Cast Iron.....	1-3/16 in.
Drilling Cap For Steel.....	1 in.
No. Of Vert. Spindle Speeds.....	12
Range Of Vert. Spindle Speeds.....	140-2436 RPM

**Table Info**

Table Length.....	28-3/4 in.
Table Width.....	8-1/4 in.
Table Thickness.....	2-1/2 in.
No. Of T Slots.....	3
T Slots Width.....	5/8 in.
T Slots Height.....	1 in.
T Slots Centers.....	2-1/2 in.
Stud Size.....	1/2 in x 2-1/8 in.

**Spindle Info**

Spindle Taper.....	R-8
Spindle Sleeve Diameter.....	2.95 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.....	17-11/16 in.
Spindle Bearings.....	Tapered Roller

**Construction**

Spindle Housing Const.....	Cast Iron
Table Const.....	Precision-Ground Cast Iron
Head Const.....	Cast Iron
Column Const.....	Cast Iron
Base Const.....	Cast Iron
Stand Const.....	Steel
Paint.....	Epoxy

**Other**

Collars Calibrated.....	0.002 in.
-------------------------	-----------

**Other Specifications:**

ISO Factory .....	Yes, ISO 9001
Country Of Origin .....	China
Warranty .....	1 Year
Serial Number Location .....	Machine Label on Head Casting
Assembly Time .....	1 Hour
Sound Rating .....	< 80 dB



**Features:**

- Front mounted digital display
- Calibrated depth stop
- Fine feed downfeed control, graduated in 0.001 in.
- Coolant trough
- Replaceable brushes on universal motor
- Quill moves 0.108 in. per revolution of fine feed handwheel
- Table moves 0.100 in. per revolution of handwheel

**Accessories Included:**

- Drill chuck 1/16-1/2 in. with MT#3 spindle taper
- Tool box
- Chuck key
- Drift
- Oil bottle
- Hex wrenches
- Locking nuts for leveling feet
- R8 to MT#3 adapter
- MT#3 to MT#2 adapter
- Two T-bolts



# 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.



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



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



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

**NOTICE**

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

## WARNING

### Safety Instructions for Machinery

**OWNER'S MANUAL.** Read and understand this owner's manual BEFORE using machine. Untrained users can be seriously hurt.

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

**HAZARDOUS DUST.** Dust created while using machinery may cause cancer, birth defects, or long-term respiratory damage. Be aware of dust hazards associated with each workpiece material, and always wear a NIOSH-approved respirator to reduce your risk.

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

**HEARING PROTECTION.** Always wear hearing protection when operating or observing loud machinery. Extended exposure to this noise without hearing protection can cause permanent hearing loss.

**MENTAL ALERTNESS.** Be mentally alert when running machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.



# WARNING

## Safety Instructions for Machinery

**DISCONNECTING POWER SUPPLY.** Always disconnect machine from power supply before servicing, adjusting, or changing cutting tools (bits, blades, cutters, etc.). Make sure switch is in OFF position before reconnecting to avoid an unexpected or unintentional start.

**INTENDED USE.** Only use the machine for its intended purpose and only use recommended accessories. Never stand on machine, modify it for an alternative use, or outfit it with non-approved accessories.

**STABLE MACHINE.** Unexpected movement during operations greatly increases the risk of injury and loss of control. Verify machines are stable/secure and mobile bases (if used) are locked before starting.

**FORCING MACHINERY.** Do not force machine. It will do the job safer and better at the rate for which it was designed.

**GUARDS & COVERS.** Guards and covers can protect you from accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly before using machine.

**REMOVING TOOLS.** Never leave adjustment tools, chuck keys, wrenches, etc. in or on machine—especially near moving parts. Verify removal before starting!

**AWKWARD POSITIONS.** Keep proper footing and balance at all times when operating machine. Do not overreach! Avoid awkward hand positions that make workpiece control difficult or increase the risk of accidental injury.

**DANGEROUS ENVIRONMENTS.** Do not use machinery in wet locations, cluttered areas, around flammables, or in poorly-lit areas. Keep work area clean, dry, and well lighted to minimize risk of injury.

**APPROVED OPERATION.** Untrained operators can be seriously hurt by machinery. Only allow trained or properly supervised people to use machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make workshop kid proof!

**CHILDREN & BYSTANDERS.** Keep children and bystanders a safe distance away from work area. Stop using machine if children or bystanders become a distraction.

**FEED DIRECTION.** Unless otherwise noted, feed work against the rotation of blades or cutters. Feeding in the same direction of rotation may pull your hand into the cut.

**SECURING WORKPIECE.** When required, use clamps or vises to secure workpiece. A secured workpiece protects hands and frees both of them to operate the machine.

**UNATTENDED OPERATION.** Never leave machine running while unattended. Turn machine **OFF** and ensure all moving parts completely stop before walking away.

**MAINTENANCE & INSPECTION.** A machine that is not properly maintained may operate unpredictably. Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. Regularly inspect machine for loose bolts, alignment of critical parts, binding, or any other conditions that may affect safe operation. Always repair or replace damaged or mis-adjusted parts before operating machine.

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



# **WARNING**

## **Additional Safety for Mill/Drills**

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

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

**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.

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

**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.

**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.

**SPINDLE DIRECTION CHANGES.** Never reverse spindle direction when milling, boring, or facing a workpiece.

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

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

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

**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.

**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.

**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.

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

**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.

**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**

No list of safety guidelines can be complete. Every shop environment is different. Like all machines there is danger associated with the Model G0705. 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.

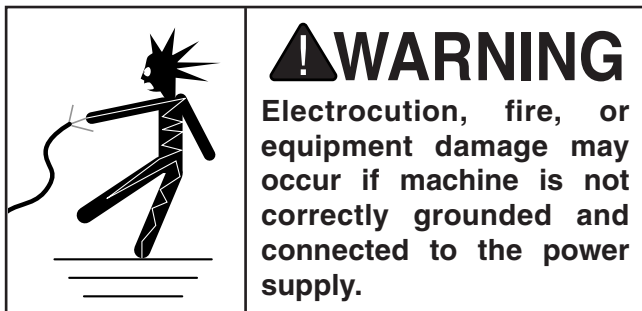




# SECTION 2: POWER SUPPLY

## Availability

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



## Full-Load Current Rating

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

**Full-Load Current Rating at 220V .... 8.6 Amps**

**Full-Load Current Rating at 110V .... 17.8 Amps**

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

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

## Circuit Information

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

**! CAUTION**  
For your own safety and protection of property, consult a qualified electrician if you are unsure about wiring practices or electrical codes in your area.

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

## Circuit Requirements for 220V

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

**Nominal Voltage** ..... 220V/240V  
**Cycle** ..... 60 Hz  
**Phase** ..... Single-Phase  
**Circuit Rating** ..... 15 Amps  
**Plug/Receptacle** ..... NEMA 6-15

## Circuit Requirements for 110V

This machine can be converted to operate on a 110V power supply (refer to **Voltage Conversion** later in this section). The intended 110V circuit must have a verified ground and meet the following requirements:

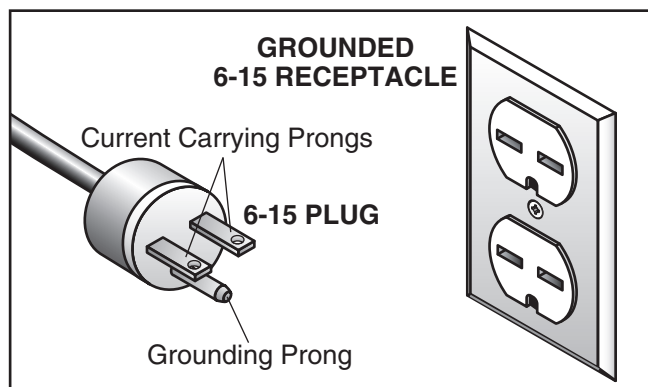
**Nominal Voltage** ..... 110V/120V  
**Cycle** ..... 60 Hz  
**Phase** ..... Single-Phase  
**Circuit Rating** ..... 30 Amps  
**Plug/Receptacle** ..... NEMA 5-20



## Grounding Requirements

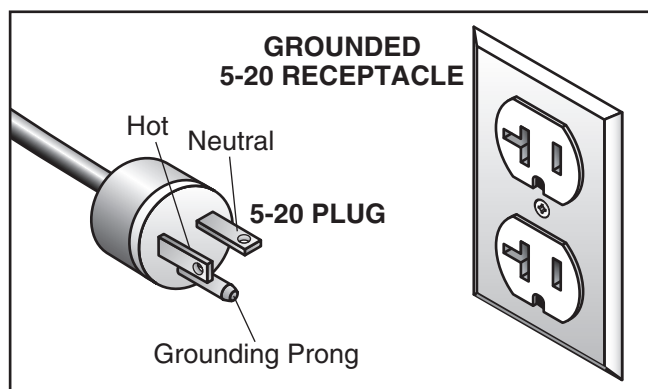
This machine **MUST** be grounded. In the event of certain malfunctions or breakdowns, grounding reduces the risk of electric shock by providing a path of least resistance for electric current.

**For 220V operation:** This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug (similar to the figure below). The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances.



**Figure 2.** Typical 6-15 plug and receptacle.

**For 110V operation:** The plug specified under “Circuit Requirements for 110V” on the previous page has a grounding prong that must be attached to the equipment-grounding wire inside the included power cord. The plug must only be inserted into a matching receptacle (see below) that is properly installed and grounded in accordance with all local codes and ordinances.



**Figure 3.** Typical 5-20 plug and receptacle.

## **!WARNING**

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

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

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

## Extension Cords

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

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

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

**Minimum Gauge Size .....12 AWG**  
**Maximum Length (Shorter is Better).....50 ft.**

## Voltage Conversion

The voltage conversion **MUST** be performed by a qualified electrician. To perform the voltage conversion, follow **110V Conversion on the next page**. If the diagram included on the motor conflicts with the one in this manual, the motor may have changed since the manual was printed. Use the diagram provided on the motor.



# 110V Conversion

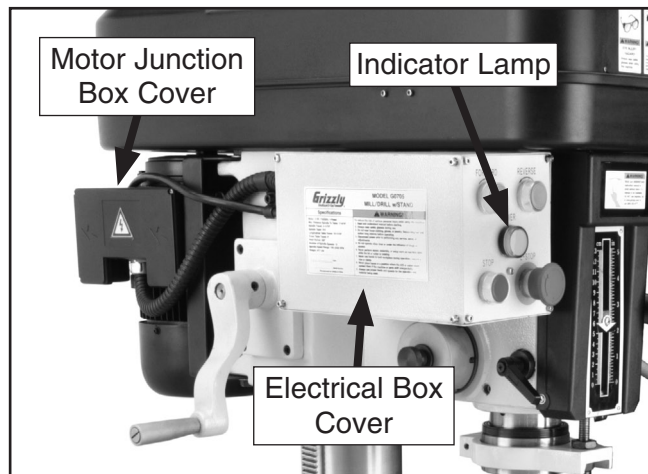
The Model G0705 can be converted for 110V operation. This conversion job consists of disconnecting the machine from the power source, replacing the contactors and power indicator lamp, and rewiring the motor.

The necessary components for this procedure can be purchased in the Model G0705 110V Conversion Kit (Part No. P0705311) by calling Grizzly Customer Service at (800) 523-4777.

All wiring changes must be inspected by a qualified electrician before the machine is connected to the power source. If, at any time during this procedure you need help, call Grizzly Tech Support at (570) 546-9663.

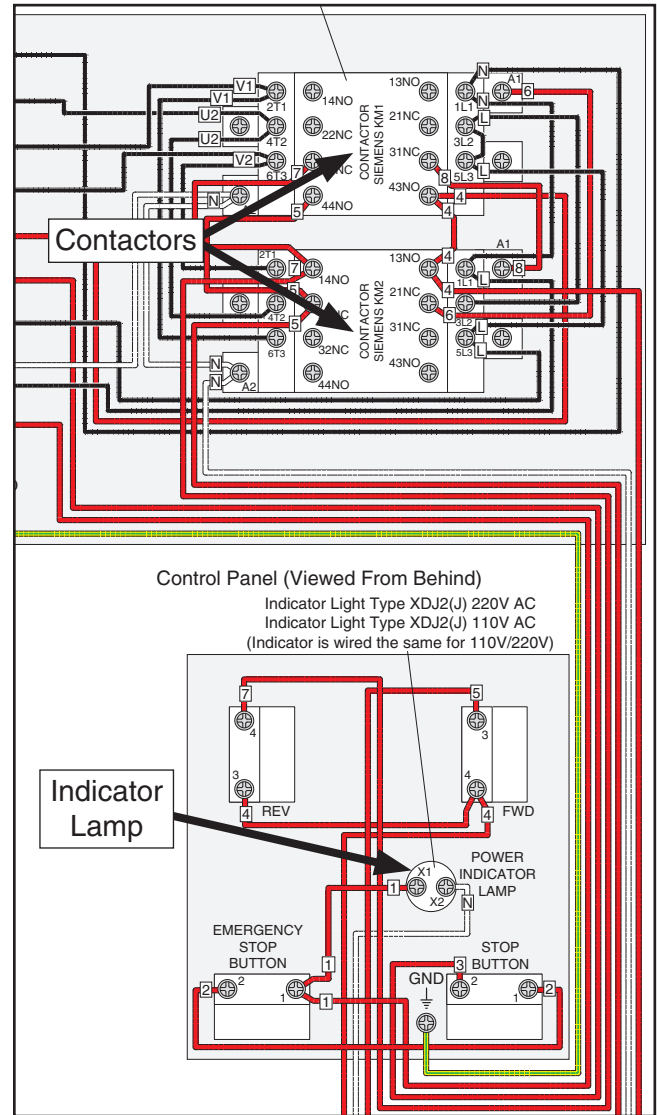
## To rewire the Model G0705 for 110V operation:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the electrical box and motor junction box covers shown in **Figure 4**.

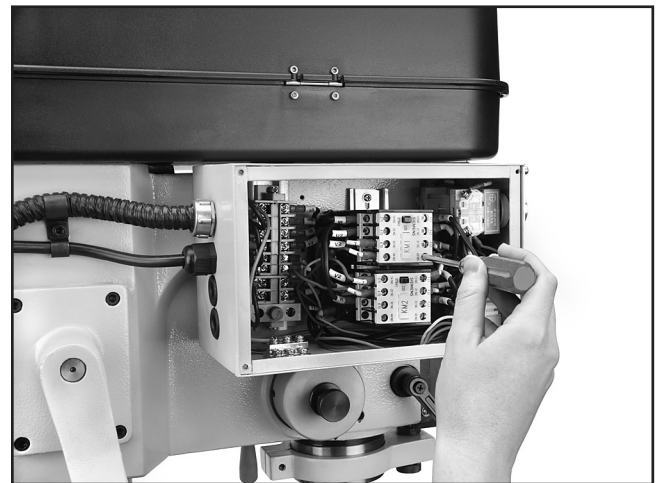


**Figure 4.** Cover locations.

3. Use a Phillips screwdriver to remove all of the wires that connect to the two contactors shown in **Figures 5 & 6**. If any of the wires are not clearly labeled, label them before removing to ensure that they will be replaced in the proper locations. Refer to **SECTION 8: WIRING** starting on **Page 45** for detailed wiring diagrams.

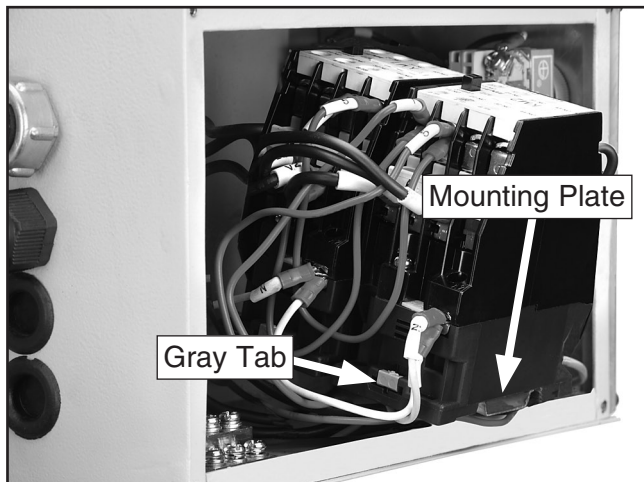


**Figure 5.** Partial wiring diagram.



**Figure 6.** Removing contactors.

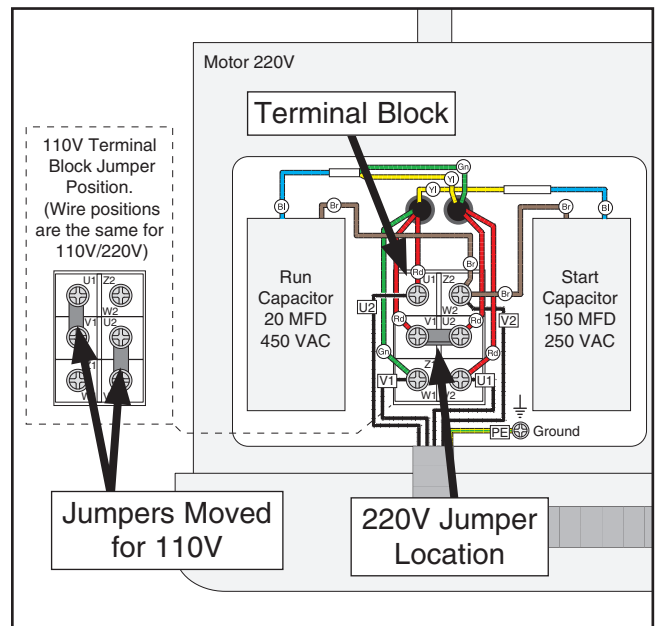
- Remove the screws that secure the brass contactor mounting plate to the back of the electrical box, then pull the contactors out to access the gray tab shown in **Figure 7**. Pull outward on the gray tab to release each contactor from the mounting plate.



**Figure 7.** Contactor release tab location.

- Install the two 110V contactors from the Model G0705 110V Conversion Kit in place of the contactors you removed in **Step 4**.
- Replace the wires you removed in **Step 3** to the corresponding terminals on the 110V contactors. The wiring is the same for 110V and 220V. Refer to **SECTION 8: WIRING** starting on **Page 45** for detailed wiring diagrams.
- Locate the indicator lamp shown in **Figures 4 & 5**. Disconnect the two wires from its terminals, then remove the lamp.
- Install the 110V indicator lamp from the Model G0705 110V Conversion Kit in place of the lamp you removed in **Step 7**.
- Connect the wires you removed in **Step 7** to the corresponding terminals on the 110V indicator lamp. The wiring is the same for 110V and 220V.

- Locate the terminal block located in the motor junction box, shown in **Figure 8**.



**Figure 8.** Jumper positions on terminal block.

*Continued on next page* →



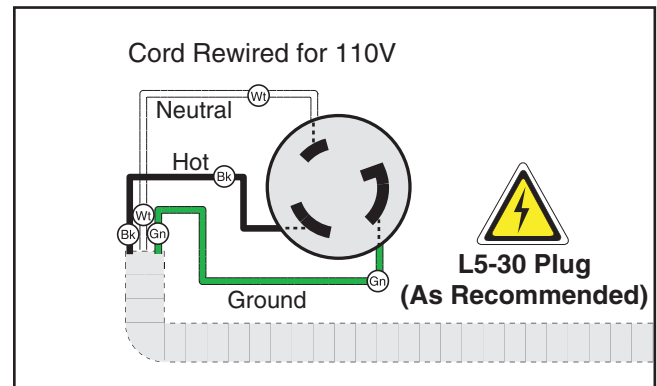
11. Use a Phillips screwdriver to remove the screws that secure the two metal jumpers to the terminal block, as shown in **Figure 9**, then remove both jumpers. Be careful not to mix up the locations of any of the wires while you do so.



**Figure 9.** Changing motor jumper positions.

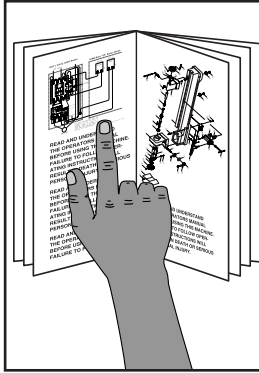
12. Place both of the jumpers into the 110V location shown in **Figure 8**.
13. Replace the screws you removed in **Step 11**, making sure all wires are secured in the same positions they were originally in, as shown in **Figure 8**. Refer to **SECTION 8: WIRING** starting on **Page 45** for detailed wiring diagrams.

14. Install a NEMA 5-20 plug such as the one shown in **Figure 3** onto the power cord, as illustrated in **Figure 10**. Refer to **SECTION 8: WIRING** starting on **Page 45** for detailed wiring diagrams.



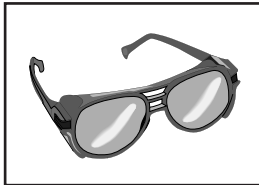
**Figure 10.** Cord rewired for 110V.

# SECTION 3: SETUP



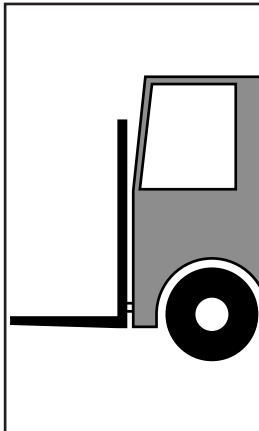
## **!WARNING**

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!



## **!WARNING**

Wear safety glasses during the entire setup process!



## **!WARNING**

The Model G0705 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment to move the shipping crate and remove the machine from the crate.

## Needed for Setup

The following are needed to complete the setup process:

Description	Qty
• Precision Level .....	1
• Safety Glasses (for each person) .....	1
• Solvent/Cleaner .....	1
• Shop Rags .....	1
• Brass Hammer .....	1
• Lifting Straps (Rated for at least 750 lbs.) ..	2
• Lifting Equipment (Rated for at least 750 lbs.) .....	1
• Another Person .....	1

## Unpacking

The Model G0705 was carefully packed when it left our warehouse. If you discover the machine is damaged after you have signed for delivery, *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, you should inventory the contents.



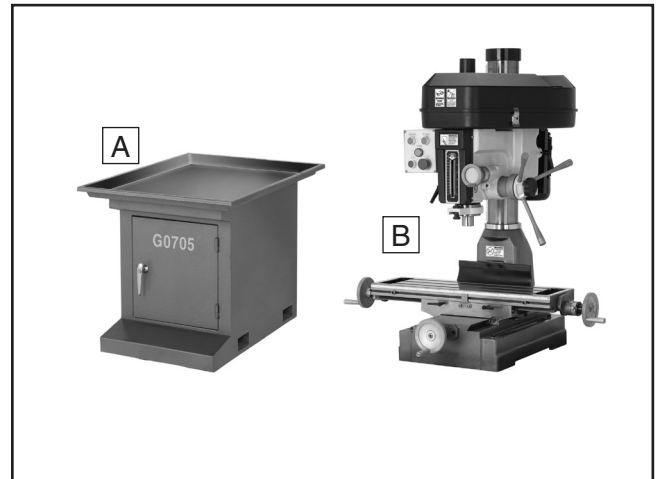
# Inventory

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

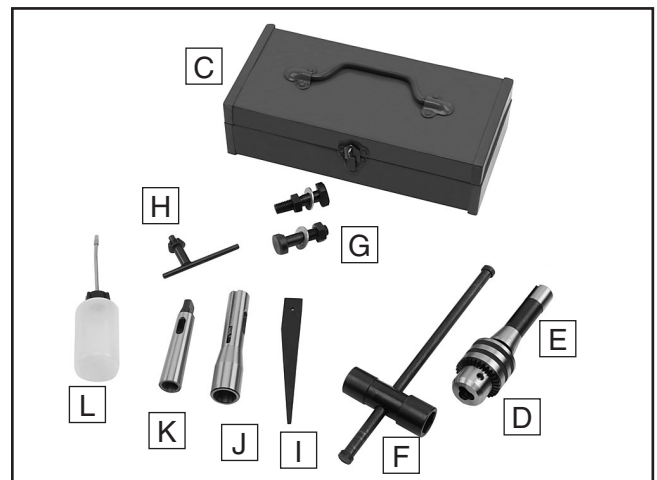
Crate Contents (Figures 11 & 12)	Qty
<b>A.</b> Cabinet Base.....	1
<b>B.</b> Machine.....	1
<b>C.</b> Toolbox.....	1
<b>D.</b> Drill Chuck B16 1–13mm.....	1
<b>E.</b> Drill Chuck Arbor R8–B16.....	1
<b>F.</b> Lug Wrench.....	1
<b>G.</b> T-Bolt Assemblies.....	2
—T-Bolt M14-2 x 55.....	2
—Flat Washer 14mm.....	2
—Hex Bolt M14-2.....	2
<b>H.</b> Drill Chuck Key.....	1
<b>I.</b> Drift Key.....	1
<b>J.</b> Collet Adapter R8 to MT#3.....	1
<b>K.</b> Collet Adapter MT#3 to MT#2.....	1
<b>L.</b> Bottle For Oil.....	1

## Not Shown

- Hex Wrenches 3, 4, 5mm..... 1 Each
- Hex Bolts M10-1.25 x 140..... 4
- Flat Washers 10mm..... 4
- Lock Washers 10mm..... 4
- Open-End Combo Wrench 17/19mm..... 1
- Hex Bolts M12-1.75 x 40..... 4
- Hex Nuts M12-1.75..... 4
- Cap Screws M6-1 x 16..... 3
- Flat Washers 6mm..... 3
- Drawbar..... 1



**Figure 11.** Main inventory.



**Figure 12.** Inventory.





# Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage.

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

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

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

## Before cleaning, gather the following:

- Disposable Rags
- Cleaner/degreaser (see below)
- Safety glasses & disposable gloves

## H9692—Orange Power Cleaner & Degreaser

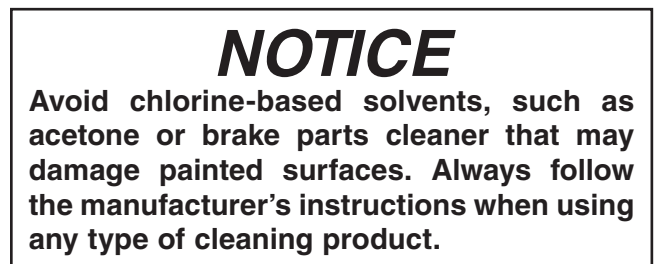
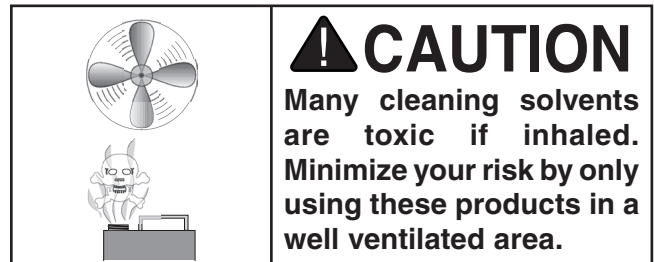
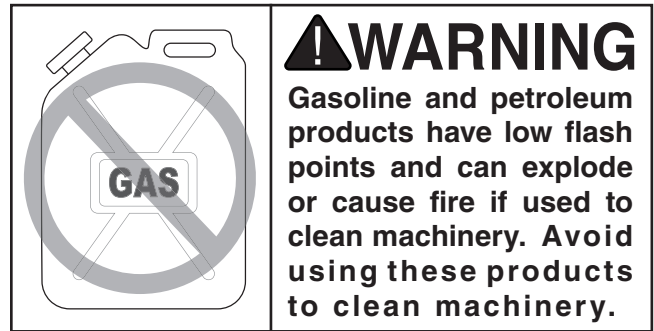
One of the best cleaners we've found for quickly and easily removing rust preventative.



**Figure 13.** Model H9692 Industrial Orange Power Cleaner/Degreaser (99.9% biodegradable).

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

Model G0705 (Mfg. since 09/09)



## Basic steps for removing rust preventative:

1. Put on safety glasses and disposable gloves.
2. Coat all surfaces that have rust preventative with a liberal amount of your cleaner/degreaser and let them soak for few minutes.

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

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

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

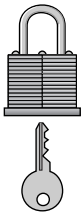
# Site Considerations

## Weight Load

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

## Space Allocation

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



## CAUTION

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

## Physical Environment

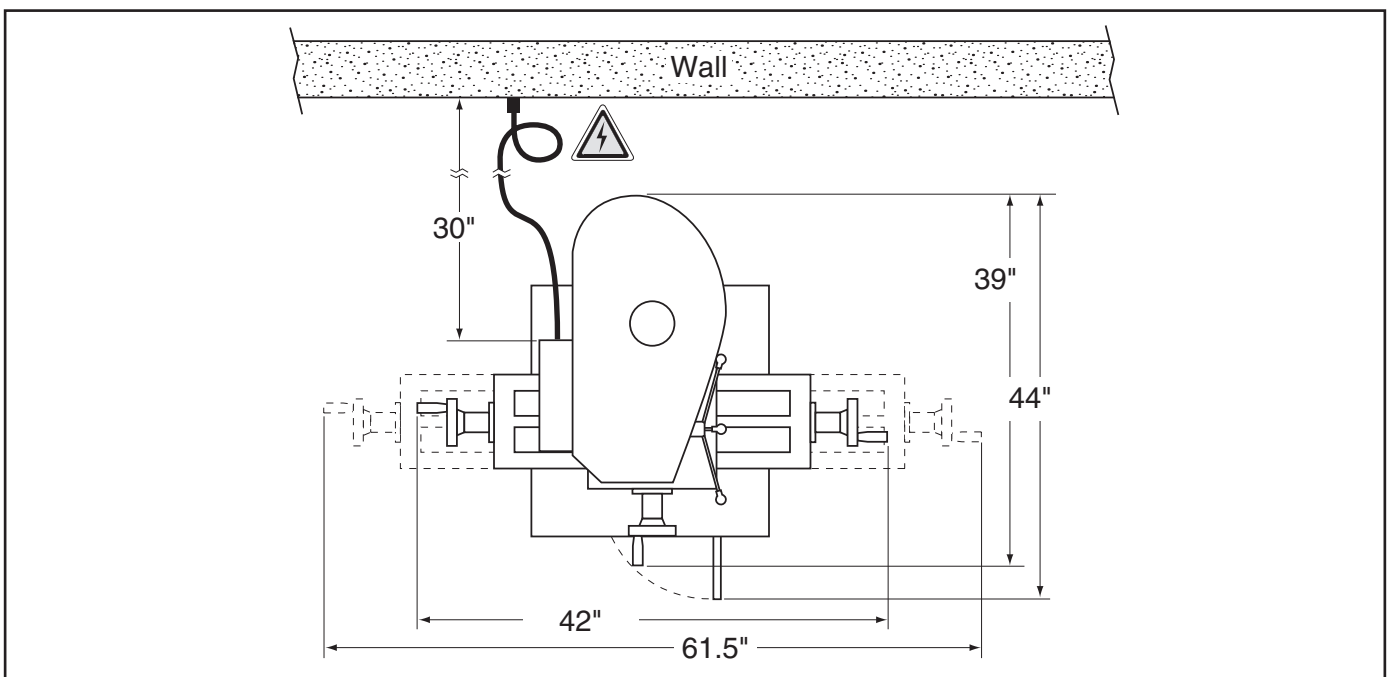
The physical environment where your machine is operated is important for safe operation and the longevity of its components. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous chemicals, airborne abrasives, or extreme conditions. Extreme conditions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

## Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave access to a means of disconnecting the power source or engaging a lockout/tagout device.

## Lighting

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



**Figure 14.** Space required for full machine range of motion and maintenance.



# Mounting Options

Before you place your machine on the cabinet, we recommend you consider the following options for leveling and mounting it. Deciding on a method for mounting and leveling before placing the machine on the cabinet will make the process much safer and easier.

**Option 1:** Use the included leveling bolts. The advantage of this method is that no additional hardware is required. The drawback is that the leveling bolts have a small footprint and may cause damage on surfaces other than concrete floors. If you plan to place the machine on a non-concrete floor, consider **Option 2**.

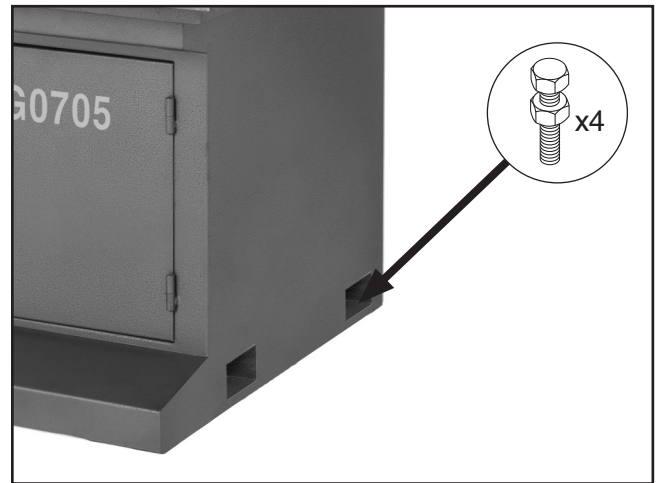
**Option 2:** Use aftermarket machine mounts. These are readily available and their broad footprint disperses the load more evenly. Grizzly offers four sizes:  
**G7158—1-1/2" Dia., 800 Lb Capacity**  
**G7159—3" Dia., 1600 Lb Capacity**  
**G7160—4-3/4" Dia., 8000 Lb Capacity**  
**G7161—6-1/4" Dia., 25,000 Lb Capacity**

**Option 3:** Mount the machine to the floor. This ensures that the machine will not move during use, maximizing safety. Because this is an optional step and floor materials may vary, this type of hardware is not included with the machine.

Read through the following two pages to better understand the options and determine the one that best suits your needs.

## Using the Included Leveling Bolt

1. Thread one M12-1.75 x 40 hex bolt with one M12-1.75 hex nut into the bolt mounting hole on each corner of the base, as shown in **Figure 15**.



**Figure 15.** Installing feet lock nuts.

2. Place the machine on the cabinet, using the methods described in **Moving & Placing Machine** on **Page 22**. Mount the machine to the base with the four M10-1.5 x 140 hex bolts.
3. Place a precision level on the table, then turn the leveling bolts as needed to level the machine. Once the machine is level, tighten the hex nut against the foot base to prevent the leveling bolt from turning.

## Using Machine Mounts

Using machine mounts, shown in **Figure 16**, gives the advantage of fast leveling and vibration reduction. The large size of the foot pads distributes the weight of the machine to reduce strain on the floor.

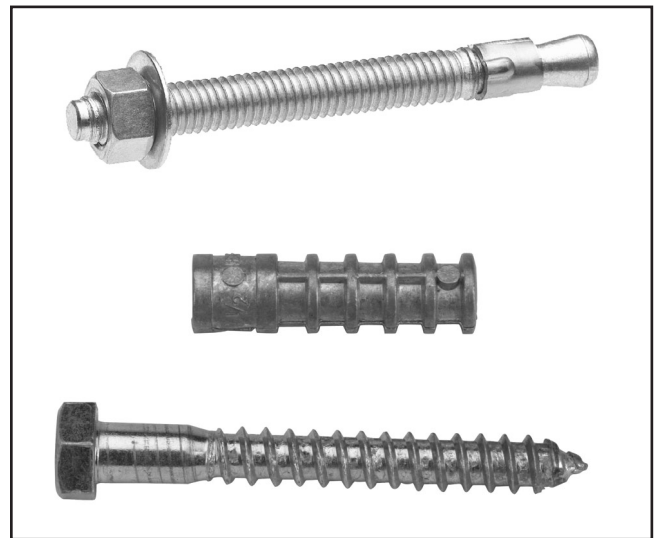


**Figure 16.** Machine mount example.

## Mounting to Shop Floor

Although not required, we recommend that you mount the cabinet to the floor. Because this is an optional step and floor materials may vary, mounting hardware is not included. To mount the machine to the floor, it is necessary to remove the pre-installed leveling feet, then level the cabinet with shims and the use of a precision level.

Lag shield anchors with lag bolts and anchor studs (**Figure 17**) are two popular methods for anchoring an object to a concrete floor. We suggest you research the many options and methods for mounting your machine and choose the best that fits your specific application.



**Figure 17.** Typical fasteners for mounting to concrete floors.

### ***NOTICE***

Anchor studs are stronger and more permanent alternatives to lag shield anchors; however, they will stick out of the floor, which may cause a tripping hazard if you decide to move your machine.

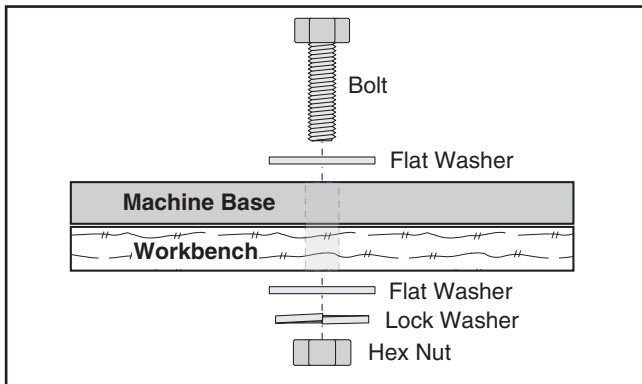
### ***NOTICE***

We strongly recommend securing your machine to the floor if it is hardwired to the power source. Consult with your electrician to ensure compliance with local codes.

## Mounting to a Workbench

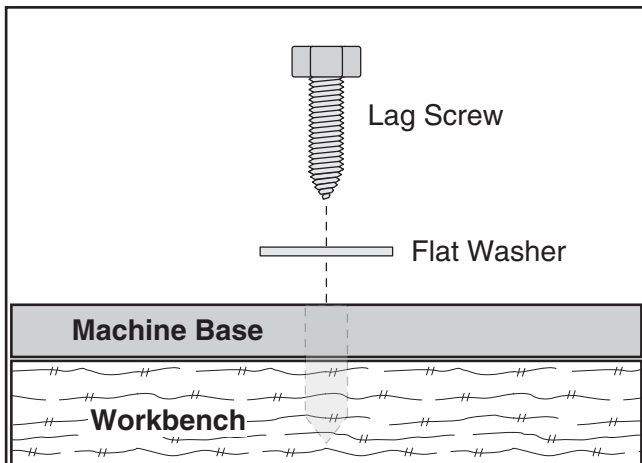
If you are placing the machine on an existing workbench, it must be securely attached to the workbench.

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 machine to the workbench.



**Figure 18.** 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 19.** Example of a direct mount setup.

## Assembly

Assembly of the Model G0705 consists of attaching the three handwheel handles to the machine.

**To assemble your machine:**

1. Use one M6-1 x 16 cap screw and 6mm flat washer to install each handwheel in the locations shown in **Figure 20**.

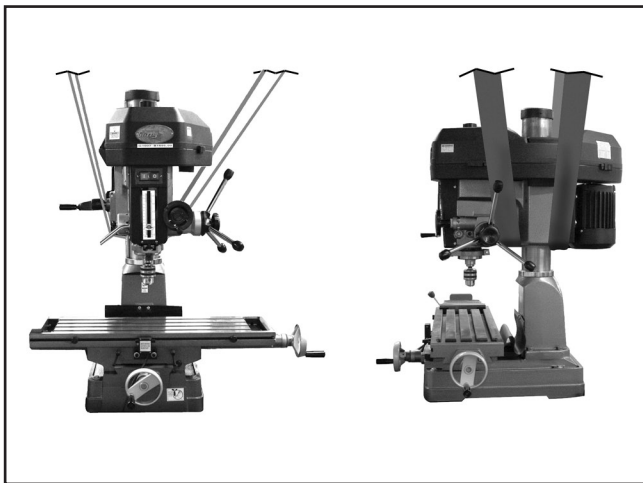


**Figure 20.** Table handwheel handles.

# Moving & Placing Machine

## To move your machine into position:

1. Move the shipping crate next to the workbench or cabinet.
2. Adjust the Y-axis handwheel to position 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 21**, then connect them to a forklift. Be sure that the straps connect to the forklift far enough apart that they are not putting pressure on the belt cover.



**Figure 21.** 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.

4. Unbolt the machine from the pallet, then with an assistant steadying the machine to prevent it from swinging, lift it slightly off of the pallet. Use the cross handwheel to move the table forward or backward as necessary to balance the machine so it hangs as close to level as possible.
5. Lift the machine and carefully place it onto the cabinet or workbench.
  - If you are using the cabinet, bolt the machine to it with the four M10-1.25 x 120 hex bolts and flat washers.

## Leveling

Whether you mount your machine to the cabinet stand or to an existing workbench, it must be leveled.

- If you mounted your machine to an existing workbench, use a precision level and metal shims as needed under the machine base to make sure the machine table is level from side-to-side and from front-to-back.
- If you mounted your machine to the cabinet, use a precision level and the cabinet's leveling bolts to make sure the machine table is level from side-to-side and from front-to-back.
- If you mounted your machine to the cabinet and mounted the cabinet to the floor, use a precision level and metal shims as needed to make sure the machine table is level from side-to-side and from front-to-back.



# Test Run

Once the assembly is complete, test run your machine to make sure it runs properly and is ready for regular operation. The test run consists of verifying the following: 1) The motor powers up and runs correctly and 2) the stop button safety feature works correctly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review **Troubleshooting on Page 41**.

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

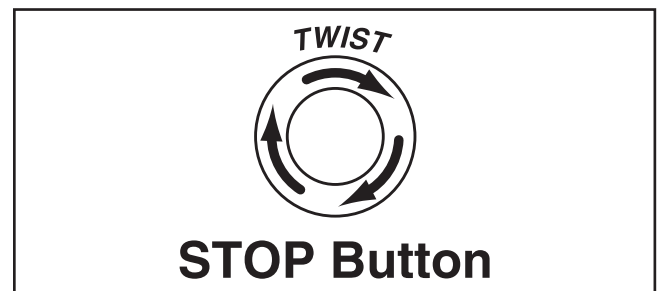
## **WARNING**

**Before starting the machine, make sure you have performed the preceding assembly and adjustment instructions, and you have read through the rest of the manual and are familiar with the various functions and safety features on this machine. Failure to follow this warning could result in serious personal injury or even death!**

### To test run the machine:

1. Make sure you understand 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. Push the EMERGENCY STOP button in, then twist it clockwise (see **Figure 22**) so it pops out. When the EMERGENCY STOP button pops out, the switch is reset and ready for operation.



**Figure 22.** Resetting the switch.

5. Verify that the machine is operating correctly by pushing the FORWARD button.
  - When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.
  - Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always turn the machine off, then disconnect the machine from power when investigating or correcting potential problems.

*Continued on next page* 



6. Press the STOP button to stop the machine. Allow the spindle to stop rotating before proceeding.
7. Repeat **Step 5** with the REVERSE button. The spindle should rotate in the opposite direction.
8. Press the EMERGENCY STOP button to stop the machine. Allow the spindle to stop rotating before proceeding.
9. WITHOUT resetting the switch, press the FORWARD button. The machine should not start.

—If the machine does not start, the EMERGENCY STOP button safety feature is working correctly. The Test Run is complete.

—If the machine does start (with the stop button pushed in), immediately disconnect power to the machine. The OFF button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.

## Break-In

### **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.

### **NOTICE**

DO NOT leave the area while break-in procedure is under way. You must be ready to stop the machine if any problem occurs.

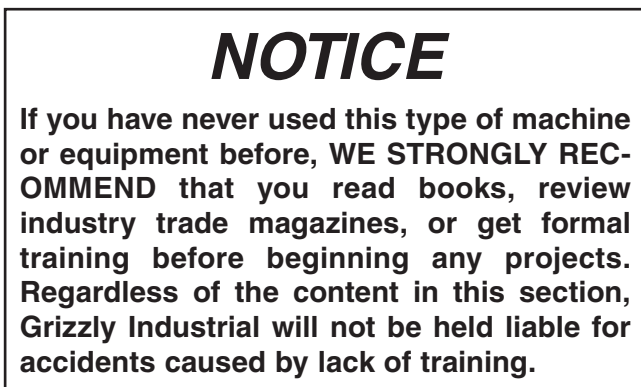
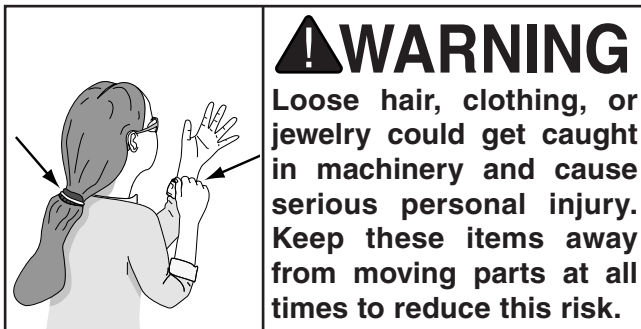
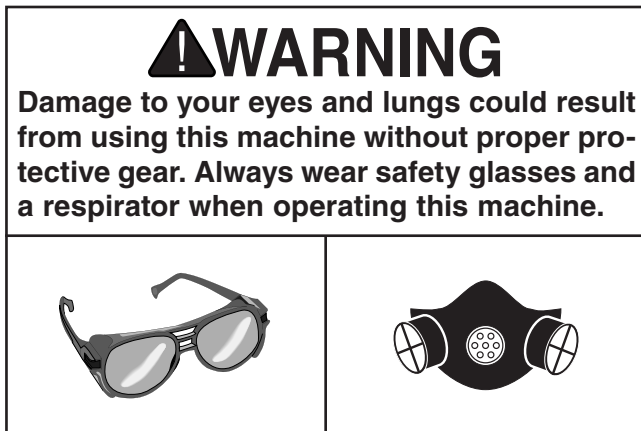
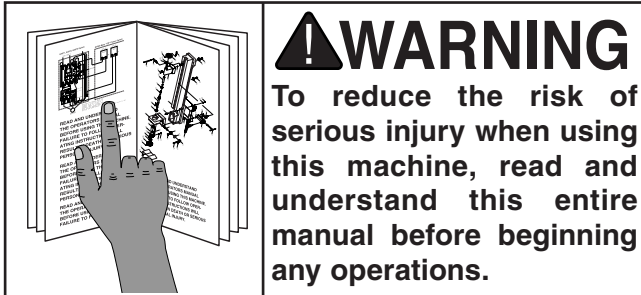
It is essential to closely follow the proper break-in procedures to ensure trouble free performance. Complete this process once you have familiarized yourself with all instructions in this manual.

#### To break in the spindle:

1. Make sure the machine has been properly lubricated. Refer to **Lubrication** on **Page 39**.
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 29**.
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 29**.



# SECTION 4: OPERATIONS



## Operation Overview

The purpose of this overview is to give the operator a basic understanding of how this machine operates—the big picture view of normal operations on this machine. Key concepts touched on here are covered in greater detail in later subsections. This overview is not intended to be a set of detailed instructions.

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

1. Loosens the vertical travel locks, then adjusts the headstock height above the table to ensure there is sufficient room to install the tooling in the spindle and the workpiece on the table.
2. Installs the desired tooling for the job.
3. Positions the workpiece as needed for the operation, then clamps the workpiece using applicable clamping devices, or a vise that is already mounted on the table, to ensure the workpiece does not move during the milling/drilling operation.
4. Positions the cutter or drill bit near the workpiece, then tightens vertical travel locks.
5. Selects the appropriate spindle speed for the milling or drilling operation using the speed selector knob and variable spindle speed knob.
6. Unlocks the X- and Y-axis table locks.
7. Wears safety glasses or a face shield.

Continued on next page →



8. For milling operations, loosens the quill lock lever and uses the quill feed lever or the fine feed knob to set the cutting tool height according to the workpiece. Then, presses the FORWARD or REVERSE button to start the spindle and uses the table handwheels to move the table so the cutter removes material evenly from the workpiece.

For drilling operations, presses the FORWARD button and uses the quill feed lever or fine feed knob to lower the drill bit into the workpiece, then raises the drill bit out of the workpiece using the same controls.

9. Presses the STOP button to stop the spindle.

## Basic Controls

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

**Depth Stop:** Stops the spindle travel at a pre-determined depth.

**Quill Lock:** Locks the quill in position.



Figure 23. Head controls.

**Fine Downfeed 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.

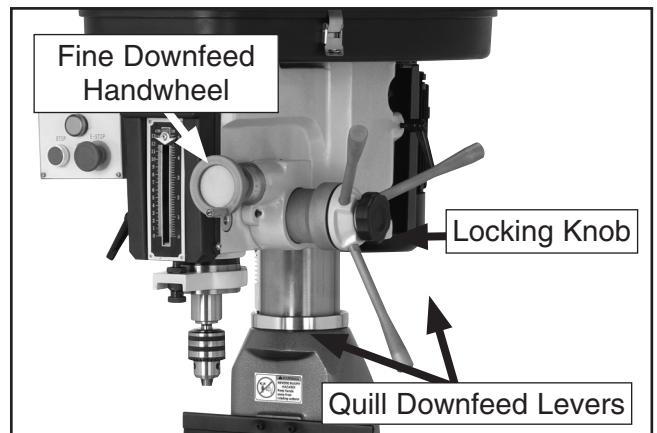


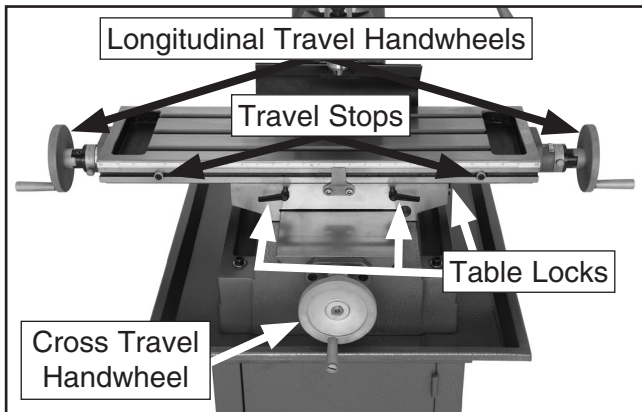
Figure 24. Spindle controls.

**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.

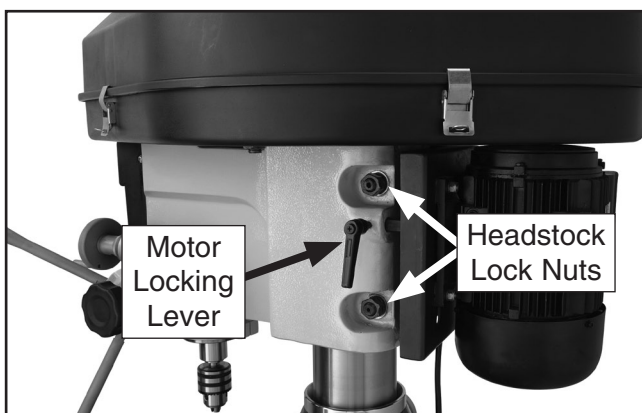
**Travel Stops:** Limit longitudinal table travel.



**Figure 25.** Table travel controls.

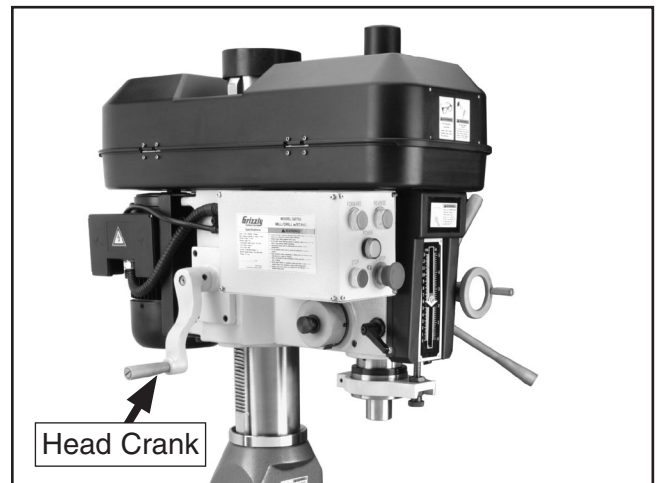
**Motor Locking Lever:** When tightened, locks motor in position and maintains belt tension. When loosened, frees motor and releases belt tension.

**Headstock Lock Nuts:** Clamp the headstock to the column. Can be loosened for headstock repositioning.



**Figure 26.** Headstock controls.

**Head Crank:** Changes the elevation of the entire headstock.



**Figure 27.** Head crank.

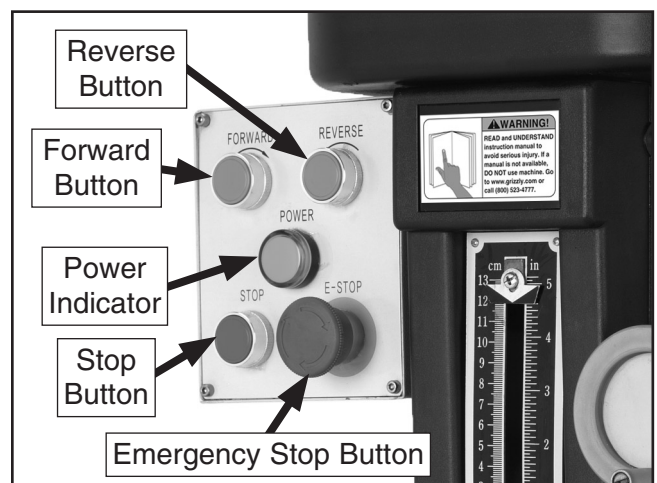
**Reverse Button:** Moves the spindle in a counter-clockwise direction.

**Forward Button:** Moves the spindle in a clockwise direction.

**Power Indicator:** Illuminates when power is supplied to the machine.

**Stop Button:** Stops spindle rotation.

**Emergency Stop Button:** Cuts power to the machine. Once pressed, must be twisted clockwise to reset.



**Figure 28.** Control panel.

# Calculating Spindle Speed for Milling

Before calculating the spindle speed for a milling operation, you must first understand the concept of "Cutting Speed" and how it differs from "Spindle Speed."

Cutting speed is defined as the rate at which a cutting tool's edge passes across the surface of a workpiece. It is generally measured in "surface feet per minute" (sfm), which represents the theoretical distance the cutting edge would travel across the material in a straight line in one minute.

Every workpiece material type has an ideal cutting speed to maximize cutting tool life, based on the hardness and microstructure of the material. The cutting speeds listed in **Figure 29** are intended to serve as a basic guideline only. For a high degree of accuracy, we recommend referring to *MACHINERY'S HANDBOOK* or spindle speed calculators on the web for more detailed information.

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.

It is important to note that the cutting speeds shown in **Figure 29** do not represent the recommended spindle speed in RPM. The relationship between cutting speed and spindle RPM is dependent on the diameter of the installed cutting tool. When a tool's cutting edge rotates, as is the case with a milling machine, the cutting speed of that tool is directly proportional to its diameter. Tools with larger diameters produce greater cutting speeds because each cutting edge travels farther per revolution of the spindle. Therefore, a larger diameter cutting tool will require a slower spindle speed to achieve the same cutting speed as a smaller cutting tool.

**To calculate the needed spindle speed in RPM:**

1. Use the table in **Figure 29** to find the cutting speed required for the workpiece material.
2. Measure the diameter of your cutting tool in inches.
3. Use the following formula to determine the needed spindle speed in RPM for your operation:

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

4. Refer to **Speed Changes** on the next page to set your spindle speed to the position closest to the RPM value given by the formula.
5. During operation, adjust the feed rate by increasing or decreasing how fast you turn the handwheels to fine-tune the performance of the cutting operation. To maximize tool life, use the highest feed rate possible without bogging down the machine or causing the tool to chatter.

## WARNING

**Failure to follow cutting speed guidelines when setting spindle speed may threaten operator and bystander safety with ejected parts or broken tools, and will put undue strain on moving parts, shorten tool life, and create poor workpiece results.**





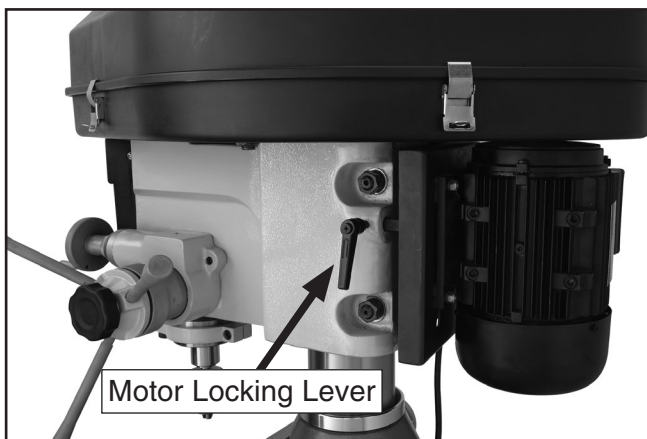
# Speed Changes

The Model G0705 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.

**Tools Needed** Qty  
Hex Wrench 6mm..... 1

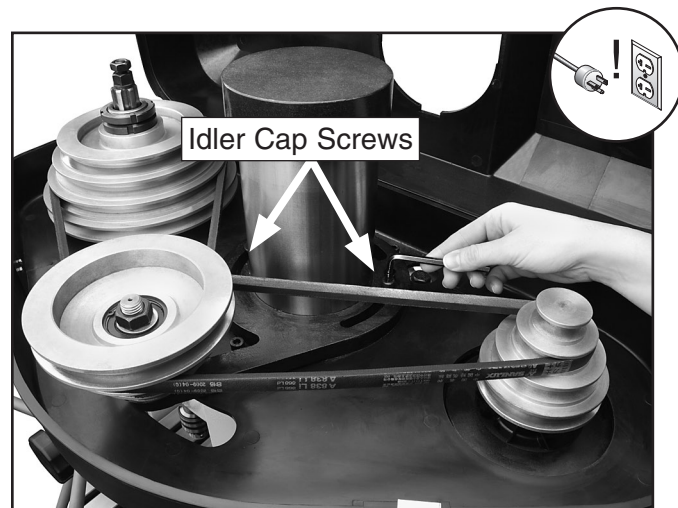
## To change spindle speeds:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen the motor locking lever. Pull the motor inward to move the rear pulley toward the spindle, then re-tighten the locking lever.



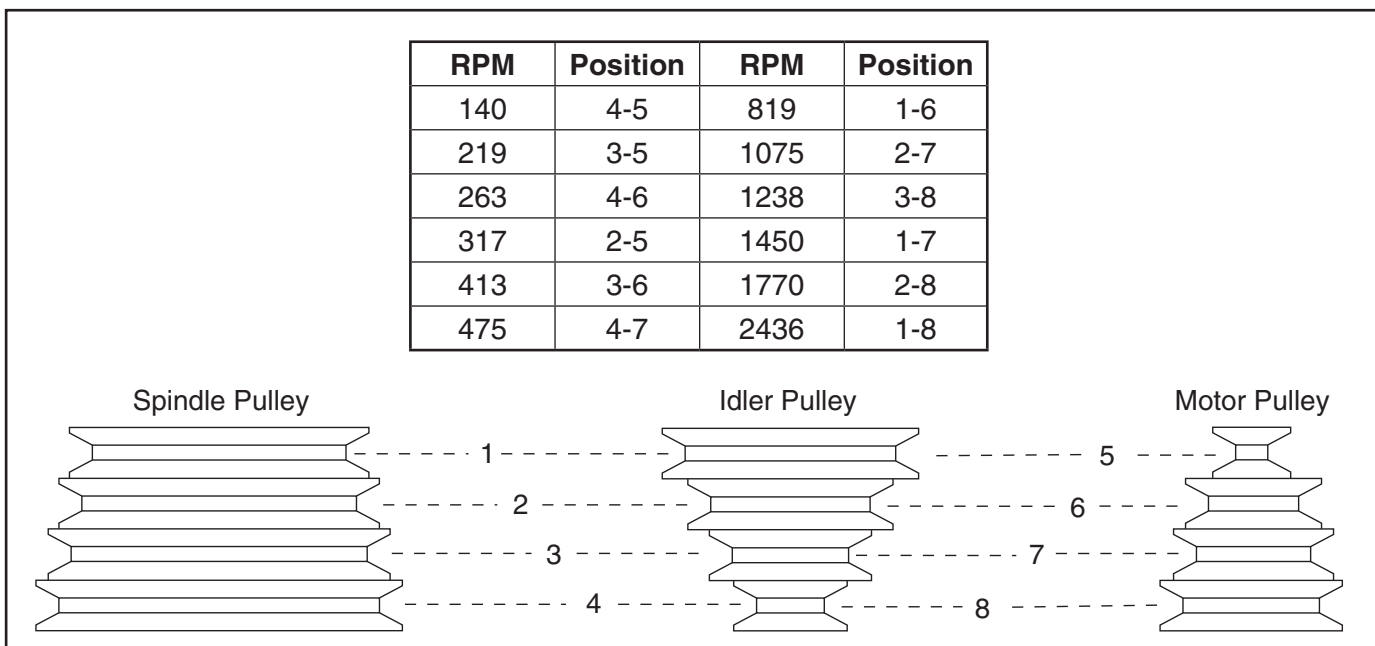
**Figure 30.** Motor locking lever.

3. Open the belt cover, then loosen the two idler cap screws (**Figure 31**) that hold the idler pulley in place so it can move freely.



**Figure 31.** 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**).
5. Loosen the motor locking lever and allow the spring to tighten the rear V-Belt, then re-tighten the motor locking lever.
6. Tighten the cap screws holding the idler pulley in place, then close and latch the belt cover.



**Figure 32.** Spindle speed chart.



# Calculating Spindle Speed for Drilling

## Using the Drill Bit Speed Chart

The chart shown in **Figure 33** is intended as a guide only. Always follow the manufacturer's speed recommendations if provided with your drill bits, cutters, or hole saws. Exceeding the recommended speeds may be dangerous to the operator.

The speeds shown here are intended to get you started. The optimum speed will always depend on various factors, including tool diameter, drilling pressure, material hardness, material quality, and desired finish.

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

## Lubrication Suggestions

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

### CAUTION

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

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

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

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

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

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

Figure 33. Drill bit speed chart.



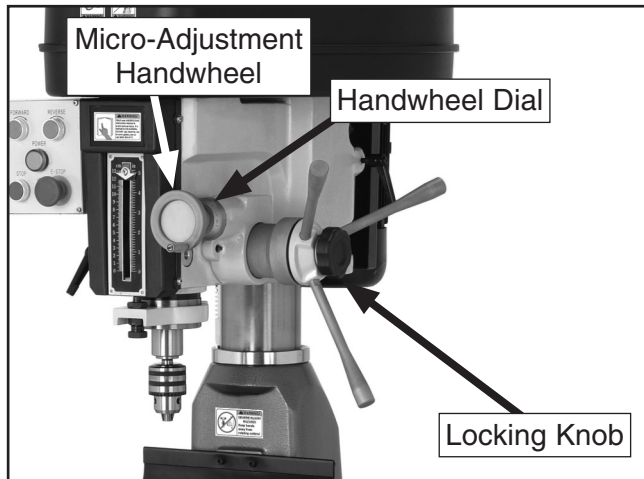


# Spindle Height

The Model G0705 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:

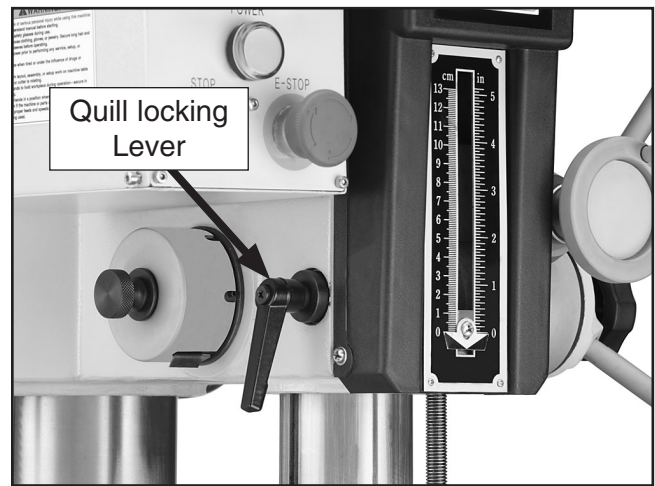
1. Tighten the locking knob located on the center of the hub for the downfeed levers (**Figure 34**). This transfers control from the downfeed levers to the micro-adjustment handwheel.



**Figure 34.** Micro-adjustment handwheel.

2. Loosen the thumb screw on the rim surface of the handwheel dial. Turn the dial until the "0" lines up with the index line. Tighten the thumb screw.
3. Turn the handwheel according to the distance you want to move the quill downward. Each complete revolution equals 0.108".

To lock the quill, Tighten the quill locking lever to lock the spindle for milling operations (**Figure 35**).



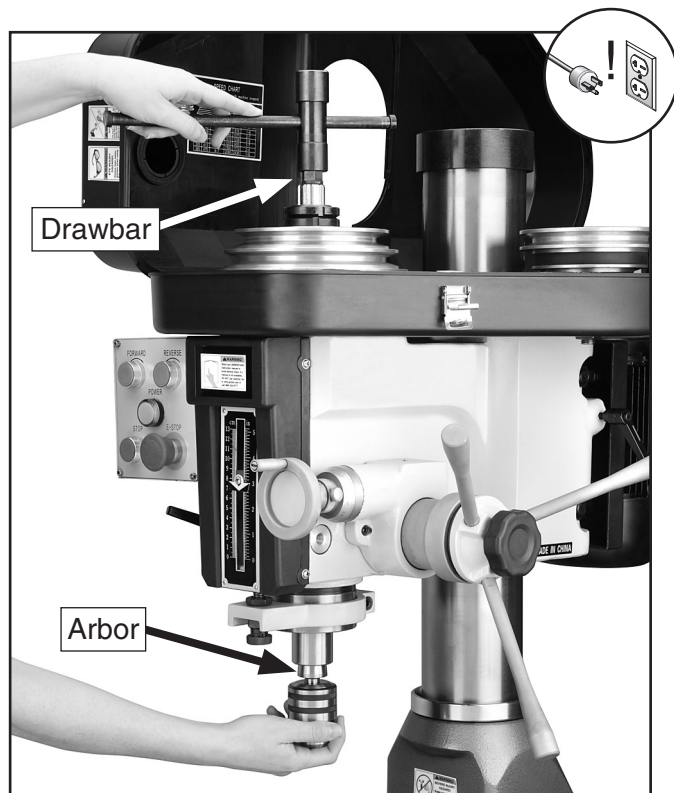
**Figure 35.** Quill locking.

# Loading Tooling

The Model G0705 features an R-8 spindle that accepts R-8 collets and arbors.

## To install tooling:

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 cutting tool and the spindle are clean and free of grease or other contaminants.
4. Insert the cutting tool's arbor up into the spindle housing. Rotate the tooling to line up the keyway with the matching pin in the spindle opening.
5. Turn the hex head at the top of the drawbar (located on the top, front of the head) clockwise, as shown in **Figure 36** until the threads at the bottom of the drawbar mesh with the female threads in the top of the collet/arbor.

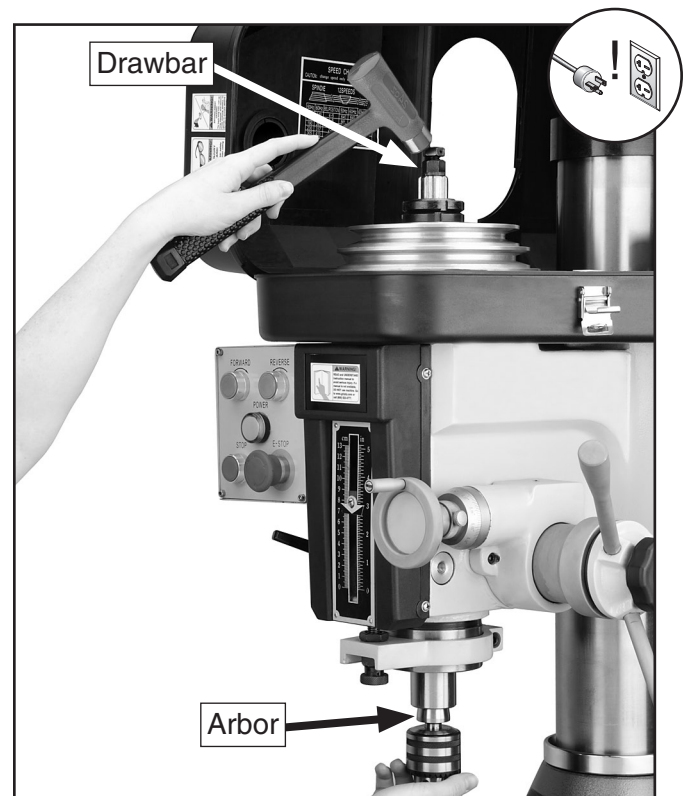


**Figure 36.** Collet/arbor installation.

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 and never use power tools to tighten it.
- If the drawbar bottoms out in the tooling and will tighten no farther before the tooling is tight in the spindle, tighten the drawbar lock nut to secure the tooling in the spindle.

## To remove tooling:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen, but do not remove the drawbar.
3. Hold the tooling with a shop towel to prevent it from dropping completely out of the machine. Tap on the top of the drawbar with a brass hammer to loosen the collet/arbor from the spindle, as shown in **Figure 37**.



**Figure 37.** Collet removal.

4. Unthread the drawbar until it is free from the tooling. Remove cutting tools from the spindle when not in use.

Model G0705 (Mfg. since 09/09)

# Drill Chuck Arbor

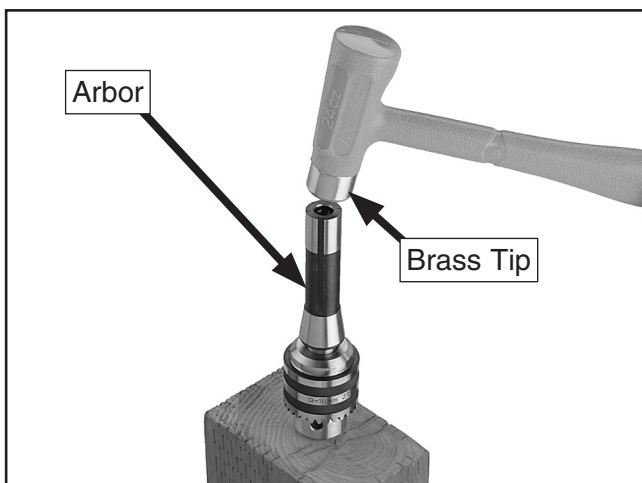
Your machine includes an R-8 drill chuck arbor and MT#3 drill chuck. Before use, the drill chuck must be installed onto the arbor. This drill chuck installation is intended to be semi-permanent.

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

## To install the drill chuck onto the arbor:

1. Clean the grease off the drill chuck and all taper mating surfaces. Pay particular attention to the MT#3 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 counterclockwise.
3. Insert the arbor into the drill chuck. Tap the arbor lightly with a brass or other soft-headed hammer, as shown in **Figure 38** to get a good fit.

**Note:** While it may not seem like there is anything keeping the drill chuck in place, the MT#3 taper fit provides a strong bond and will hold the drill chuck tightly.

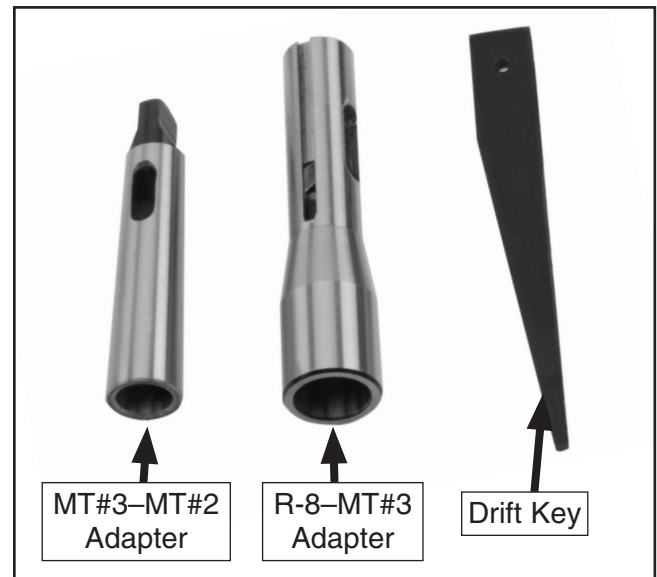


**Figure 38.** Drill chuck.

4. Refer to **Page 32** for detailed instructions for installing or removing the drill chuck and arbor in the spindle.

# Collet Adapters

The Model G0705 includes two adapters that will allow the use of MT#3 and MT#2 tooling. A drift key is also included to aid in the separation of the adapters and any installed tooling.



**Figure 39.** Adapters and drift key.

Use the adapters as necessary to fit the tooling you wish to install. If you are using a tool with an MT#2 taper, you will need to use both adapters.

If the adapters become stuck together or tooling becomes stuck in one of the adapters, use the drift key to separate them.

## To use the drift key:

1. DISCONNECT MACHINE FROM POWER!
2. Insert the pointed end of the drift key into the adapter slot so that it is against the top end of the lodged adapter or tooling.
3. Support the lodged adapter or tooling with a gloved hand to prevent it from falling out during the next step.
4. Gently tap on the broad end of the drift key. The drift key's wedge shape will force out the lodged adapter or tooling.

# Headstock Position

The headstock height and rotation on the Model G0705 can be adjusted for various applications. For increased quill rigidity and reduced vibrations, which will produce the best results, keep the quill 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 40**).



**Figure 40.** Headstock locking nuts.

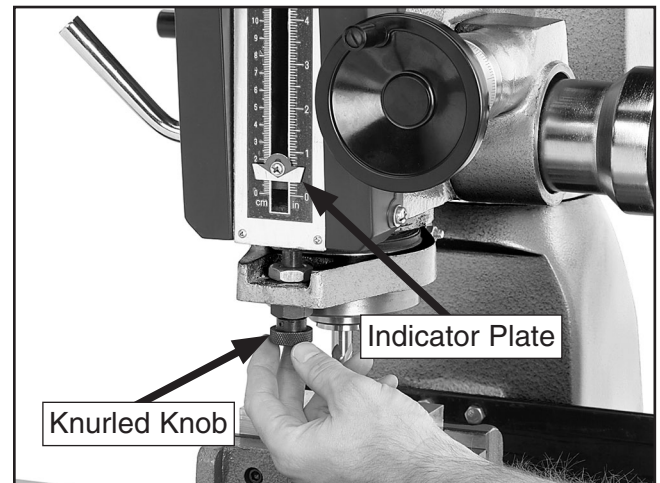
2. Use the head crank to move the head up or down, and rotate the headstock by hand according to your needs.
3. Tighten the two head locking nuts.

# Depth Stop

The depth stop is used to limit the range of downward movement by the drill bit or cutter. Maximum depth is  $4\frac{11}{16}$ ".

## 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 40** 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 41**).



**Figure 41.** Typical setting of depth stop.

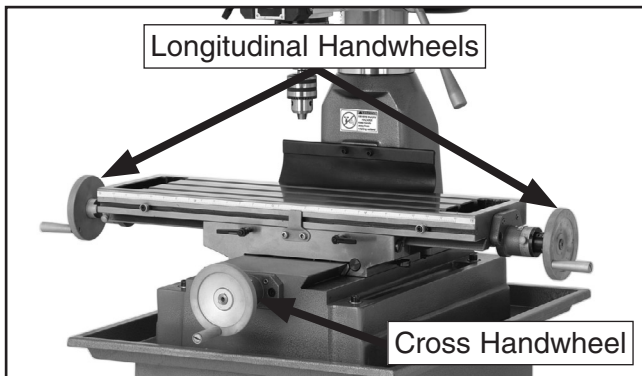


# Table Travel

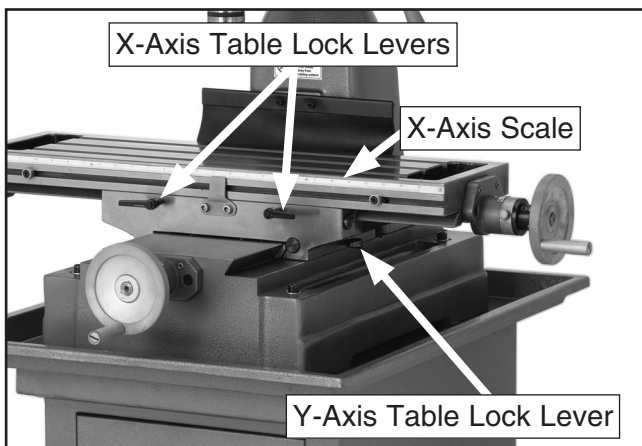
The mill/drill table moves in the longitudinal (X-axis) and cross (Y-axis) directions.

## Longitudinal Feed

The handwheels shown in **Figure 42** at each end of the table move the table longitudinally (X-axis). These handwheels will move the table in both directions. One complete revolution of either handwheel moves the longitudinal feed 0.100". A scale on the front of the table is used when a high tolerance is not required. The table locks located on the front of the table, shown in **Figure 43** lock the table in position longitudinally. Use these when performing operations that only require cross slide movement.



**Figure 42.** Table X- and Y-axis controls.



**Figure 43.** Table locks and scales.

## Cross Feed

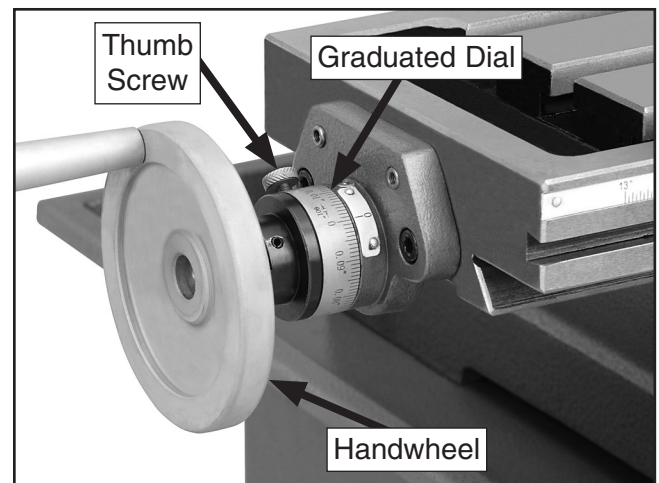
The cross handwheel shown in **Figure 42** move the table along the cross axis (Y-axis). One complete revolution of the handwheel moves the cross slide 0.100". The table lock lever located on the right side of the cross slide underneath the table, shown in **Figure 43** locks the table in the cross direction. Use his lock when performing operations that only require longitudinal table movement.

# Graduated Dials

The graduated dials (**Figure 44**) 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 thumbscrew attached to it.

## Example:

Suppose you want to drill a series of holes in a workpiece at 0.625" centers. After locating and drilling the first placement, 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 44.** Graduated dial.

# 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  $\frac{1}{8}$ ",  $\frac{1}{4}$ ",  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ ",  $\frac{7}{8}$ ", 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  $\frac{7}{16}$ " - 20.

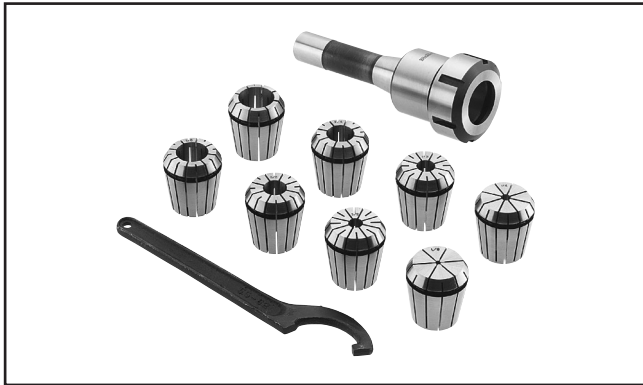


Figure 45. H2689 R-8 Quick Change Collet Set.

## 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.

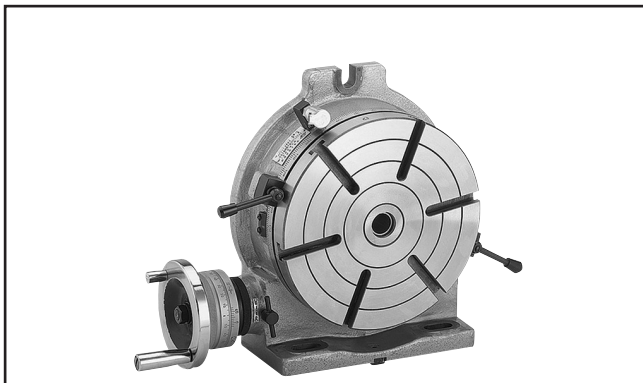


Figure 46. G9299 10" Yuasa-Type Rotary Table.

## 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.

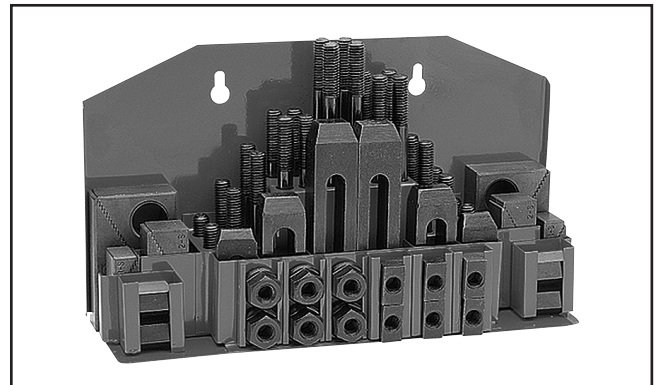


Figure 47. G1076 52-PC. Clamping Kit.

## 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  $1\frac{1}{2}$ "-18 TPI, and a 12 piece  $\frac{3}{4}$ " boring bar set.



Figure 48. G9324 Boring Head Combo Set.

**Call 1-800-523-4777 To Order**



**G2861—Face Mill**

**G4051—Carbide Insert for Face Mill**

This 2 1/2" Face Mill accepts four carbide inserts (not included). Comes with an R-8 arbor.



**Figure 49.** 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 50.** G9760 20-PC End Mill 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".

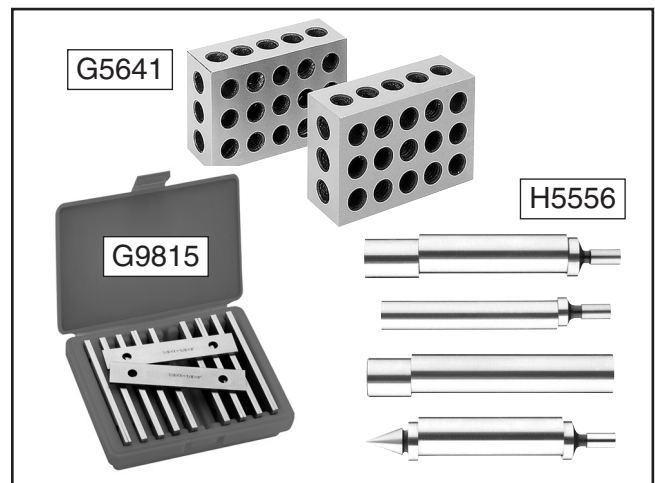


**Figure 51.** G9765 9 PC. Ball End Mill Set.

**G5641—1-2-3 Blocks**

**G9815—Parallel Set**

**H5556—Edge Finder Set**



**Figure 52.** G5641 1-2-3 Blocks, G9815 Parallel Set, and H5556 Edge Finder Set.

**H8370—Power Feed for Mills**

If you want to get the most out of your mill, you really need a power feed. This power feed comes with everything required to start milling with exact control. Comes supplied with a mounting bracket, gear, auto-stop limit switch with moveable stop pins, gear guard, and motor. Specs: 0–140 RPM, 200 RPM rapid switch, 440 in/lb. maximum torque, 110V 60Hz motor, 4:1 bevel drive gear.



**Figure 53.** H8370 Power Feed.



# SECTION 6: MAINTENANCE

---

---



## Schedule

---

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

### Daily Check:

- Make sure mill/drill is disconnected from power when not in use.
- Check for loose mounting bolts.
- Make sure mill/drill is clean and lubricated.
- Check for worn or damaged wires.
- Check for any other unsafe condition.

### Monthly Check:

- Check that gibs are adjusted properly.

### Biannual Check:

- Lubricate table leadscrews.

## Cleaning and Protecting

---

---

Metal chips left on the machine that have been soaked with water-based coolant will invite oxidation and a gummy residue buildup 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 them 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:

- A. Column.** A light film of oil (Mobil Vactra 2 or ISO 68 equivalent) will smooth action and prevent rust and corrosion.
- B. Column Rack.** Lubricate every 90 days with NLGI #2 grease.
- C. Quill.** A light coating of oil (Mobil Vactra 2) will ensure smooth movement.
- D. Quill Rack.** Lubricate every 90 days with NLGI #2 grease.
- E. Table Leadscrews.** Lubricate once each week with several drops of Mobil Vactra 2 or way oil. Refer to **Table Leadscrews** on this page for more information on this procedure.
- F. 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 Mobil Vactra 2 or way oil into the ball fitting, then clean up any residue with a cloth.
- G. Ways.** Periodically lubricate the ways with Mobil Vactra 2 or way oil.

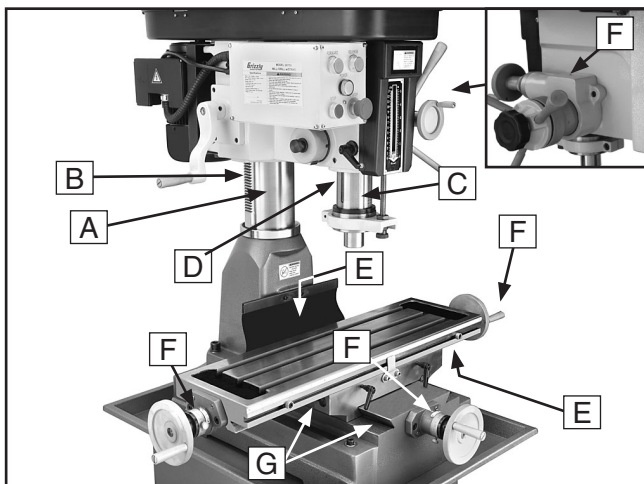


Figure 54. Ball oiler locations.

## Table Leadscrews

Every six months, or more frequently under heavy use, clean and lubricate the leadscrews.

### Items Needed:

	Qty
Mobil Vactra 2 or ISO 68 Equivalent.....	1
Stiff-Bristled Nylon Brush for Cleaning.....	1
Mineral Spirits.....	As needed for cleaning
Shop Rags.....	As needed for cleaning

### To lubricate the leadscrews:

1. DISCONNECT MILL/DRILL FROM POWER!
2. Using the cross handwheel, move the table as far forward as possible.
3. Lift or remove the rubber way cover, then use mineral spirits and a brush to clean as much of the existing oil and debris as possible off of the cross travel leadscrew shown in **Figure 55**. Allow the leadscrew to dry.

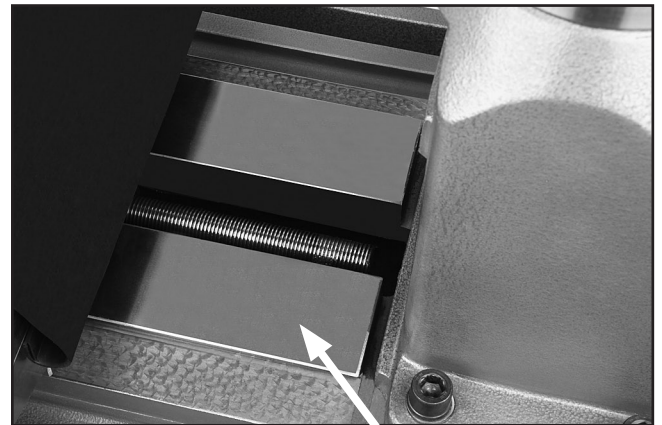
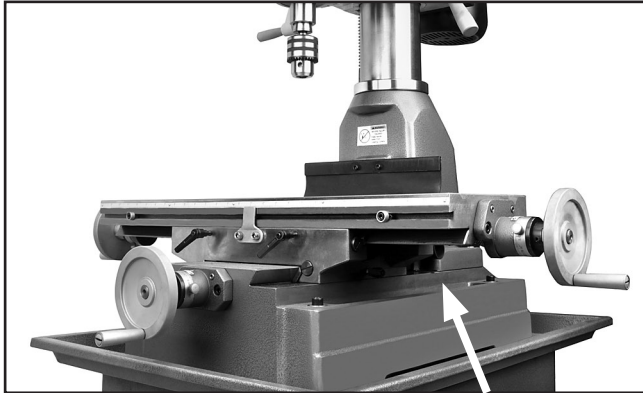


Figure 55. Cross travel leadscrew location.

4. Apply oil to the exposed leadscrew threads, then move the table through its full range of cross motion several times to disperse the oil along the full length of the leadscrew.

- Using the longitudinal handwheel, move the table as far to one side as possible.
- Use mineral spirits and a brush to clean as much of the oil and debris as possible off of the longitudinal leadscrew shown in **Figure 56**. Allow the leadscrew to dry.



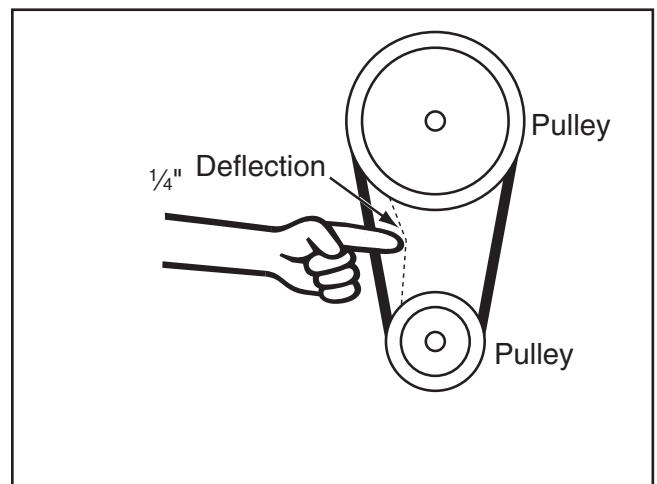
**Figure 56.** Longitudinal leadscrew location.

- Apply oil to the exposed leadscrew threads, then move the table through its full range of longitudinal motion several times to disperse the oil along the full length of the leadscrew.

## V-Belts

Inspect regularly for tension and wear. Refer to **Figure 57** for proper belt tension. Belt deflection should be approximately  $\frac{1}{4}$ " under moderate pressure. Replace when necessary with a size B-42 belt for the spindle pulley to the idler pulley and a size B-33 belt from the idler pulley to the motor pulley. Check pulleys to ensure that they are properly aligned.

To replace the V-belts, refer to **Speed Changes** on **Page 29** to loosen the belts. Remove them from the pulleys, then install new V-belts.



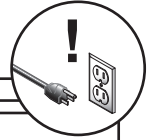
**Figure 57.** Belt tension.



# SECTION 7: SERVICE

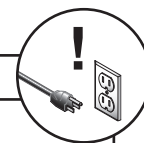
Review the troubleshooting and procedures in this section to fix or adjust your machine if a problem develops. If you need replacement parts or you are unsure of your repair skills, then feel free to call our Technical Support at (570) 546-9663.

## Troubleshooting



Symptom	Possible Cause	Possible Solution
Machine does not start.	<ol style="list-style-type: none"> <li>1. Wall fuse/circuit breaker is blown/tripped.</li> <li>2. Plug at fault or wired incorrectly.</li> <li>3. Motor wired incorrectly.</li> <li>4. Wiring is open/has high resistance.</li> <li>5. Machine power switch is at fault.</li> <li>6. Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Ensure circuit size is correct and a short does not exist. Reset breaker or replace fuse.</li> <li>2. Ensure plug is not damaged and is wired correctly.</li> <li>3. Ensure motor wiring is correct.</li> <li>4. Check for broken wires or disconnected/corroded connections; repair/replace as necessary.</li> <li>5. Ensure switch is wired correctly; replace if at fault.</li> <li>6. Test/repair/replace.</li> </ol>
Machine stalls or is overloaded.	<ol style="list-style-type: none"> <li>1. Feed rate too fast/cutting speed too slow.</li> <li>2. Wrong cutter type.</li> <li>3. Machine is undersized for the task or tooling is incorrect for the task.</li> <li>4. Motor connection is wired incorrectly.</li> <li>5. Motor has overheated.</li> <li>6. Motor bearings are at fault.</li> <li>7. Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust feed rate/cutting speed.</li> <li>2. Use the correct cutter for the task.</li> <li>3. Use smaller or sharper tooling; reduce feed rate or spindle speed; use cutting fluid if possible.</li> <li>4. Wire motor correctly for the intended voltage.</li> <li>5. Clean off motor, let cool, and reduce workload.</li> <li>6. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> <li>7. Test/repair/replace motor.</li> </ol>
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Motor or machine component is loose.</li> <li>2. Excessive depth of cut.</li> <li>3. Cutter/tooling is loose.</li> <li>4. Cutter is dull or at fault.</li> <li>5. Bit is chattering.</li> <li>6. Quill is overextended.</li> <li>7. Machine is incorrectly mounted or sits unevenly.</li> <li>8. Motor bearings are at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid.</li> <li>2. Decrease depth of cut.</li> <li>3. Make sure tooling is properly secured.</li> <li>4. Replace/resharpen cutter.</li> <li>5. Replace/sharpen bit; index bit to workpiece; use appropriate feed rate and cutting RPM (<b>Page 29</b>).</li> <li>6. Retract quill, then lower headstock.</li> <li>7. Tighten/replace mounting bolts in bench; relocate/shim machine.</li> <li>8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> </ol>





Symptom	Possible Cause	Possible Solution
Tool slips in collet.	<ol style="list-style-type: none"> <li>1. Collet is not fully drawn up into spindle taper.</li> <li>2. Wrong size collet.</li> <li>3. Debris on collet or in spindle taper.</li> <li>4. Taking too big of a cut.</li> <li>5. Making a climb cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten drawbar.</li> <li>2. Measure tool shank diameter and match with appropriate diameter collet.</li> <li>3. Clean collet and spindle taper.</li> <li>4. Lessen depth of cut and allow chips to clear.</li> <li>5. Reverse feed direction to avoid climb cuts.</li> </ol>
Breaking tools or cutters.	<ol style="list-style-type: none"> <li>1. Spindle speed is too slow/feed rate is too fast.</li> <li>2. Cutting tool getting too hot.</li> <li>3. Taking too big of a cut.</li> <li>4. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set spindle speed correctly (<b>Page 29</b>) or use a slower feed rate.</li> <li>2. Use coolant fluid or oil for appropriate application.</li> <li>3. Decrease depth of cut.</li> <li>4. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>
Workpiece vibrates or chatters during operation.	<ol style="list-style-type: none"> <li>1. Table locks not tight.</li> <li>2. Quill lock lever not tight.</li> <li>3. Workpiece not securely clamped to table or into mill vice.</li> <li>4. Spindle speed is too slow/feed rate is too fast.</li> <li>5. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten down table locks (<b>Page 35</b>).</li> <li>2. Tighten quill lock lever (<b>Page 31</b>).</li> <li>3. Check that clamping is tight and sufficient for the job. Make sure mill vice is tight to the table.</li> <li>4. Set spindle speed correctly (<b>Page 29</b>) or use a slower feed rate.</li> <li>5. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>
Table is hard to move.	<ol style="list-style-type: none"> <li>1. Table locks are tightened down.</li> <li>2. Chips have loaded up on ways.</li> <li>3. Ways are dry and need lubrication.</li> <li>4. Table limit stops are interfering.</li> <li>5. Gibs are too tight.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure table locks are fully released.</li> <li>2. Frequently clean away chips that load up during milling operations.</li> <li>3. Lubricate ways and handles (<b>Page 39</b>).</li> <li>4. Check to make sure that all table limit stops are not in the way.</li> <li>5. Adjust gibs (see <b>Page 43</b>).</li> </ol>
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Spindle speed is too slow/feed rate is too fast.</li> <li>2. Using a dull or incorrect cutting tool.</li> <li>3. Wrong direction of rotation of cutting tool.</li> <li>4. Workpiece not securely clamped.</li> <li>5. Spindle extended too far down.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set spindle speed correctly (<b>Page 29</b>) or use a slower feed rate.</li> <li>2. Sharpen cutting tool or select one that better suits the operation.</li> <li>3. Check for proper direction of cutting rotation for cutting tool.</li> <li>4. Secure properly to the table.</li> <li>5. Fully retract spindle and lower headstock. This increases rigidity.</li> </ol>





# Gibs

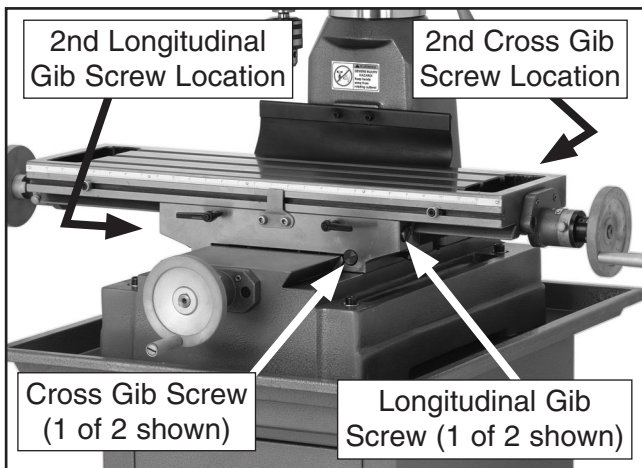
Gibs are wedge-shaped pieces of metal that fill the gap between the dovetailed ways of the machine. By adjusting the position of the gib in the gap, you can remove any play that might exist between the adjacent components. The gibs are pre-adjusted at the factory but due to storage, break-in, and usage, they may require adjustment.

Tools Needed	Qty
Standard #2 Screwdriver.....	1

## To adjust the table gibs:

1. DISCONNECT MILL/DRILL FROM POWER!
2. Loosen the table travel locks.
3. Loosen or tighten the cross gib screws (**Figure 58**) in an alternating manner to adjust the cross travel gib.

The table should slide smoothly in the cross direction with no play or looseness. Do not overtighten the gibs or premature slide and gib wear will occur.



**Figure 58.** Table gib adjustment screw locations.

4. Lubricate the cross way and gib.
5. Repeat the process for the longitudinal way gib using the longitudinal gib screws on the left and right sides of the table base.

# Return Spring

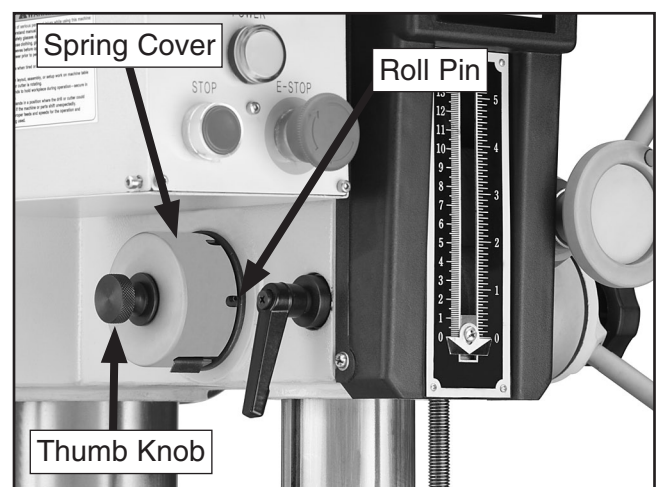
## ⚠ CAUTION

The tail end of the spring 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. Do not completely remove the cover! If you remove the spring cover, the spring will uncoil rapidly and create a risk of laceration or impact injury. Wear gloves and safety glasses during this procedure.

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.

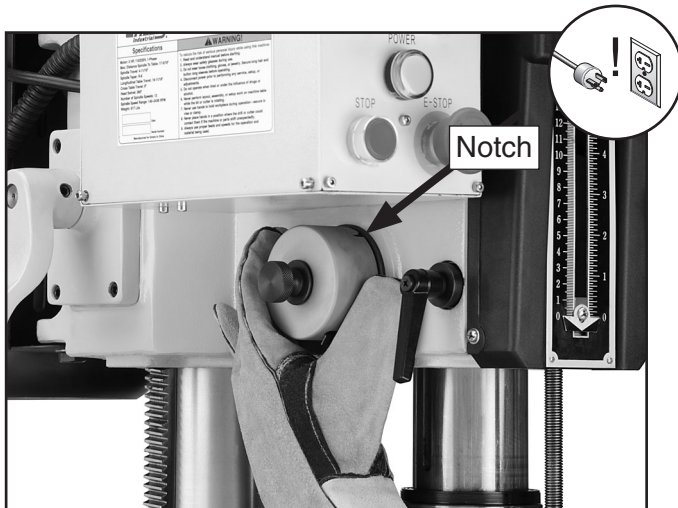
## To adjust the spring tension:

1. DISCONNECT MACHINE FROM POWER!
2. PUT ON SAFETY GLASSES!
3. Loosen the black thumb knob shown in **Figure 59** two or three turns. DO NOT completely remove the thumb knob.



**Figure 59.** Spring cover.

- 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.
- Rotate the cover to adjust the tension. Push the cover back in to engage the roll pin in one of the notches, as shown in **Figure 60**.



**Figure 60.** Adjusting spring tension.

- Tighten the black thumb knob.

## 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.

Make adjustments in small increments. Overtightening to attempt to reduce backlash to less than 0.003" is impractical and will add unnecessary wear to both the leadscrews and the adjusters.

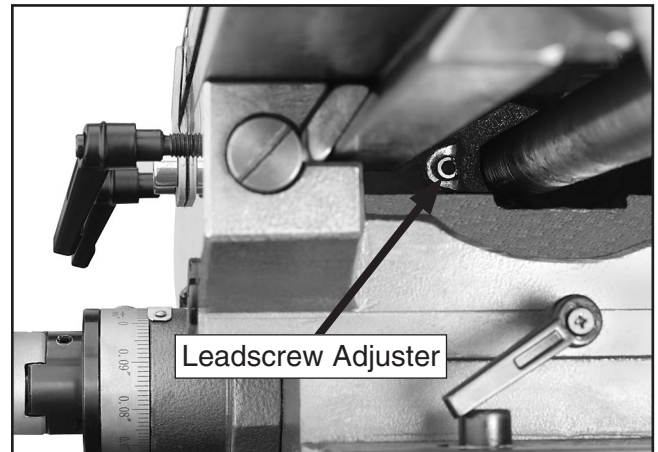
### Tools Needed

Qty

3mm Hex Bit.....	1
6" Extension for Hex Bit .....	1
Ratchet for Hex Bit .....	1

### To adjust the X-axis leadscrew:

- Locate the X-axis leadscrew adjuster shown in **Figure 61** under the middle of the table. The head on the adjustment screw faces to the right.



**Figure 61.** X-axis leadscrew adjuster.

- Tighten the adjustment screw.
- 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:

- Locate the adjuster midway along the Y-axis leadscrew, inside the base. This adjuster can be accessed by reaching under the way cover just behind the table.
- Tighten the adjustment screw and test the adjustment in the same manner as you did for the X-axis leadscrew.

# SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Study this section carefully. If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine.

## WARNING

### Wiring Safety Instructions

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

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

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

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

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

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
















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

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

#### NOTICE

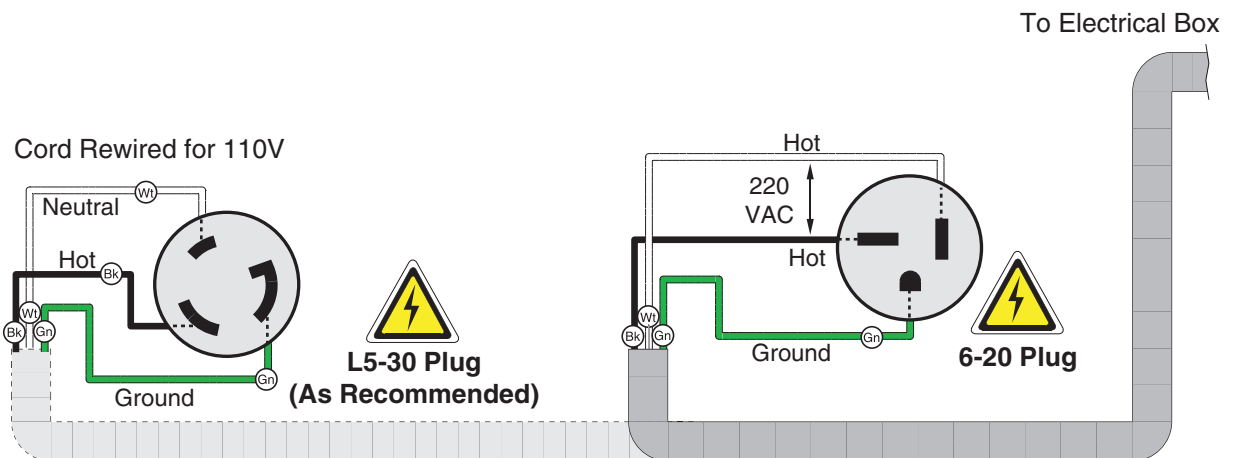
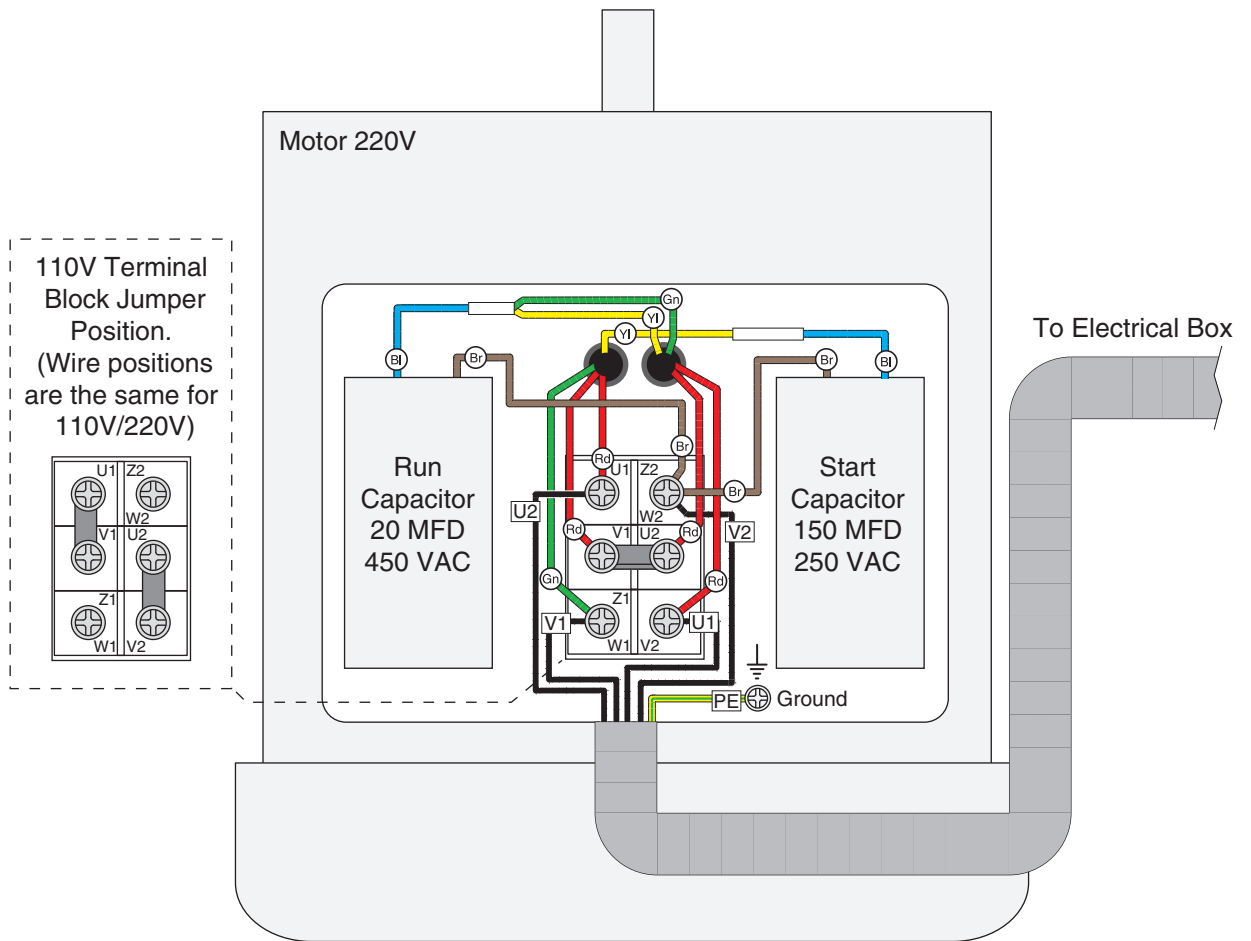
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at [www.grizzly.com](http://www.grizzly.com).

#### COLOR KEY

BLACK		BLUE		YELLOW		LIGHT BLUE	
WHITE		BROWN		YELLOW GREEN		BLUE WHITE	
GREEN		GRAY		PURPLE		TURQUOISE	
RED		ORANGE		PINK			



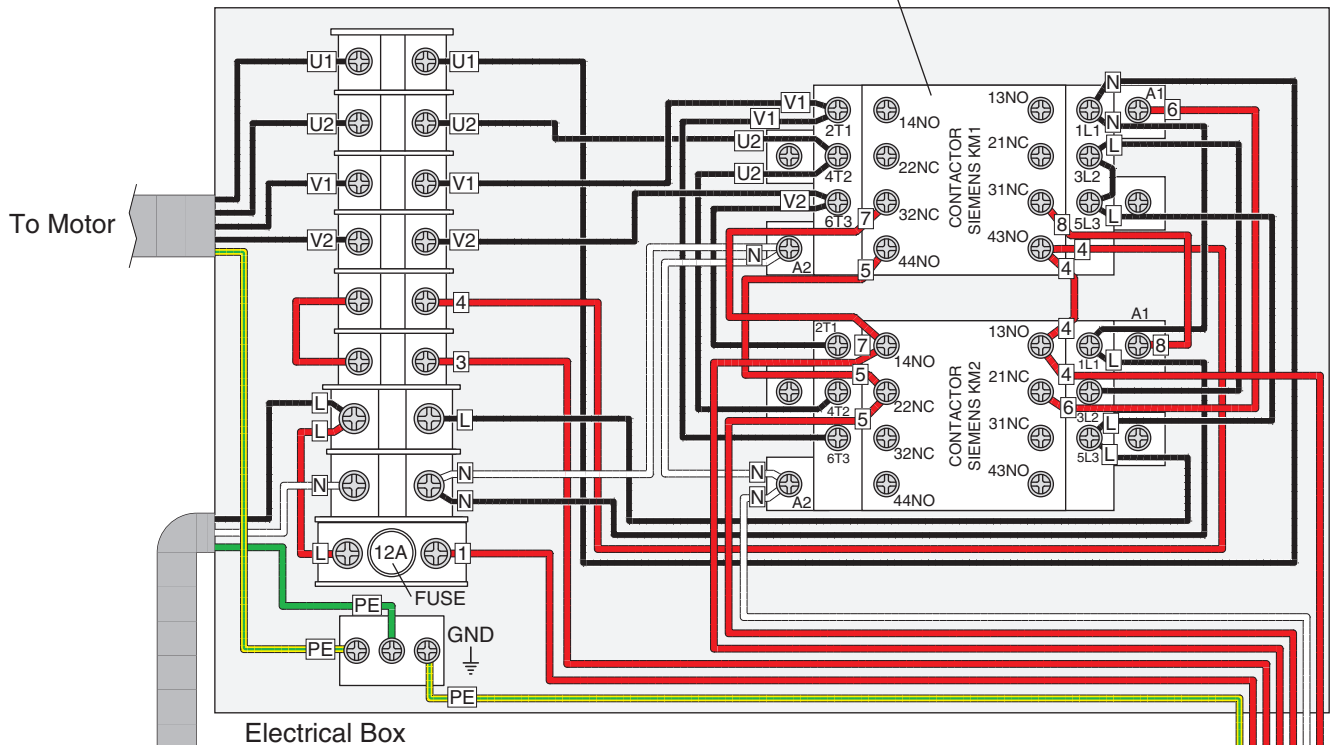
# G0705 Wiring Diagram



# G0705 Wiring Diagram (Continued)

## Contactor Information

For 220V, Contactor Type 3TB41 22-OX, Coil Voltage 220V/60Hz/1PH, SIEMENS  
 For 110V, Contactor Type 3TB41 22-OX, Coil Voltage 110V/60Hz/1PH, SIEMENS  
 (Contactor is wired the same for 110V/220V)



## Control Panel (Viewed From Behind)

Indicator Light Type XDJ2(J) 220V AC  
 Indicator Light Type XDJ2(J) 110V AC  
 (Indicator is wired the same for 110V/220V)

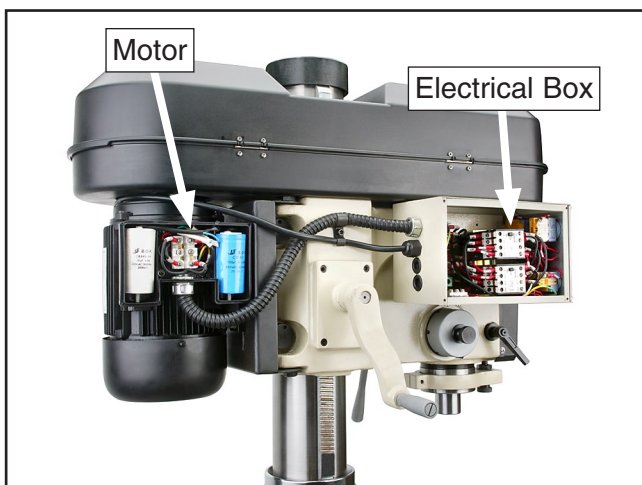
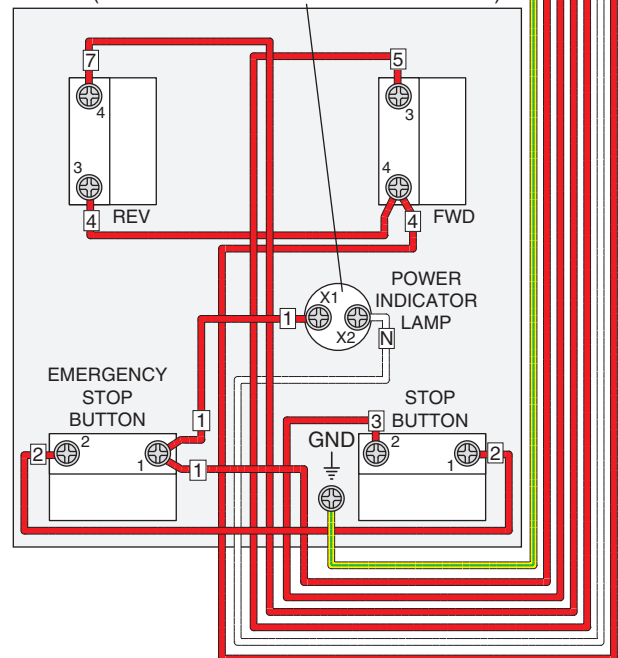
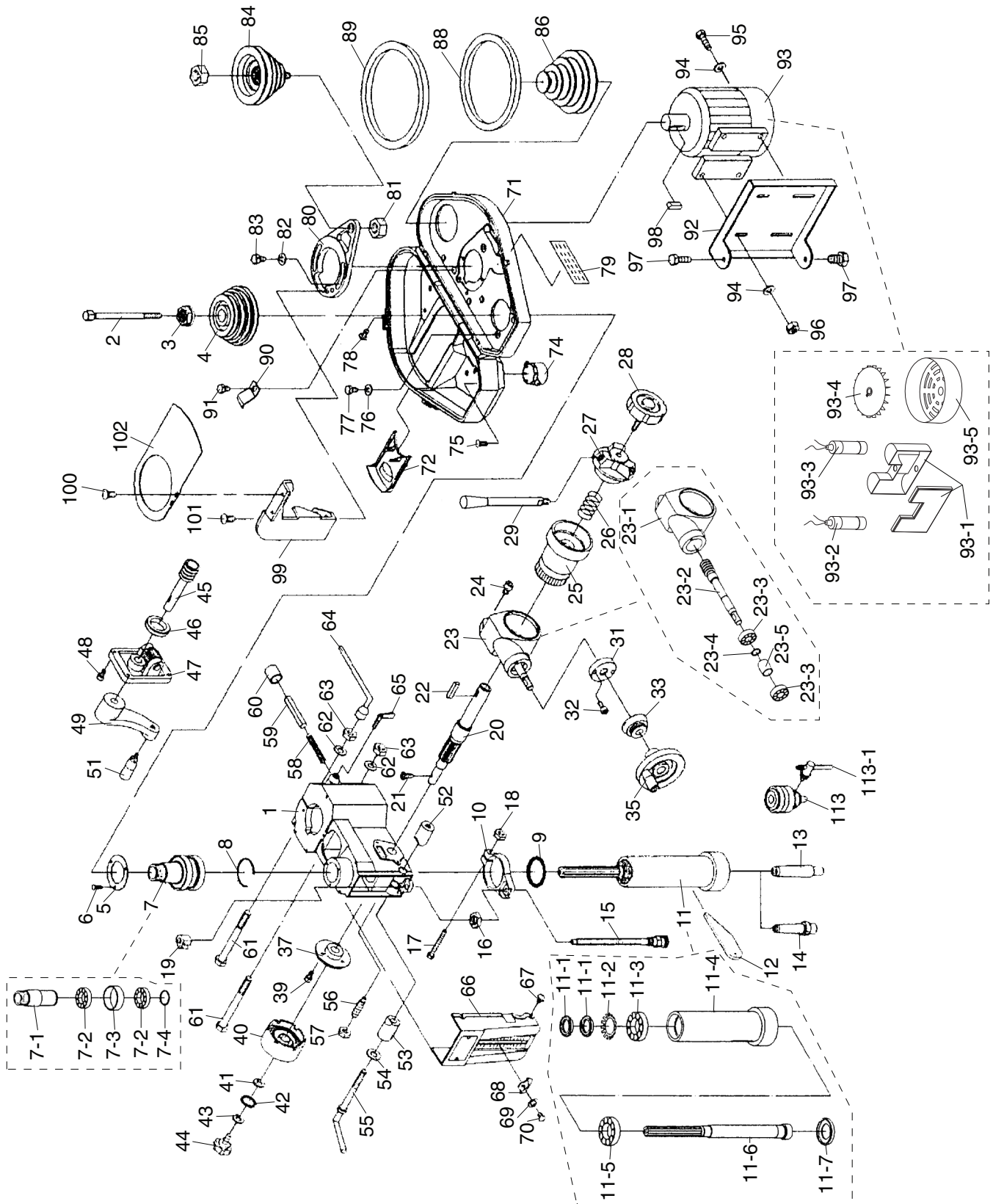


Figure 62. Electrical component locations.



# SECTION 9: PARTS

## Headstock Parts Breakdown





# Headstock Parts List

REF	PART #	DESCRIPTION
1	P0705001	HEAD CASTING
2	P0705002	DRAWBAR
3	P0705003	SPINDLE LOCK NUT
4	P0705004	SPINDLE PULLEY
5	P0705005	OUTER BEARING PLATE
6	PCAP04	CAP SCREW 1/4-20 x 1/2
7	P0705007	SPINDLE TAPER SLEEVE SET
7-1	P0705007-1	SPINDLE TAPER SLEEVE
7-2	P6009ZZ	BALL BEARING 6009ZZ
7-3	P0705007-3	SPACER 74MM
7-4	PR92M	EXT RETAINING RING 41MM
8	PR50M	INT RETAINING RING 80MM
9	P0705009	RUBBER FLANGE
10	P0705010	QUILL CLAMP
11	P0705011	QUILL ASSEMBLY
11-1	P0705011-1	SPANNER NUT
11-2	P0705011-2	TOOTHED SPINDLE WASHER
11-3	P30206	TAPERED ROLLER BEARING 30206
11-4	P0705011-4	SPINDLE SLEEVE MT#3
11-5	P30207	TAPERED ROLLER BEARING 30207
11-6	P0705011-6	SPINDLE SHAFT
11-7	P0705011-7	SPINDLE CUP
12	P0705012	DRIFT KEY
13	P0705013	CHUCK ARBOR R8-B16
14	P0705014	CUTTER ARBOR
15	P0705015	DEPTH STOP ASSEMBLY
16	P0705016	DEPTH STOP ADJUSTER
17	PCAP159M	CAP SCREW 1/4-20 x 2
18	PN05	HEX NUT 1/4-20
19	P0705019	DEPTH STOP BLOCK

REF	PART #	DESCRIPTION
20	P0705020	PINION SHAFT
21	PFH08	FLAT HD SCR 10-24 X 1/2
22	PK25M	KEY 7 X 7 X 20
23	P0705023	DOWNFEED ASSEMBLY
23-1	P0705023-1	CASE
23-2	P0705023-2	WORM SHAFT
23-3	P6202ZZ	BALL BEARING 6202ZZ
23-4	PR05M	EXT RETAINING RING 15MM
23-5	P0705023-5	SPACER 34MM
24	PCAP07	CAP SCREW 5/16-18 X 3/4
25	P0705025	SLEEVE ASSEMBLY
26	P0705026	COMPRESSION SPRING
27	P0705027	LEVER BASE
28	P0705028	FEED ADJUST KNOB M10-1.5 X 45
29	P0705029	LEVER
31	P0705031	WORM SHAFT COVER
32	PCAP02	CAP SCREW 10-24 X 3/8
33	P0705033	MICRO ADJUST INDICATOR SET
35	P0705035	HANDWHEEL ASSEMBLY
37	P0705037	TORSION SPRING BASE
39	PCAP33	CAP SCREW 10-24 X 3/4
40	P0705040	TORSION SPRING W/COVER
41	PLW02	LOCK WASHER 1/4
42	PW06	FLAT WASHER 1/4
43	PLW02	LOCK WASHER 1/4
44	P0705044	KNOB BOLT M8-1.25 X 12
45	P0705045	WORM SHAFT
46	P0705046	WORM SHAFT BUSHING
47	P0705047	ELEVATION ASSEMBLY



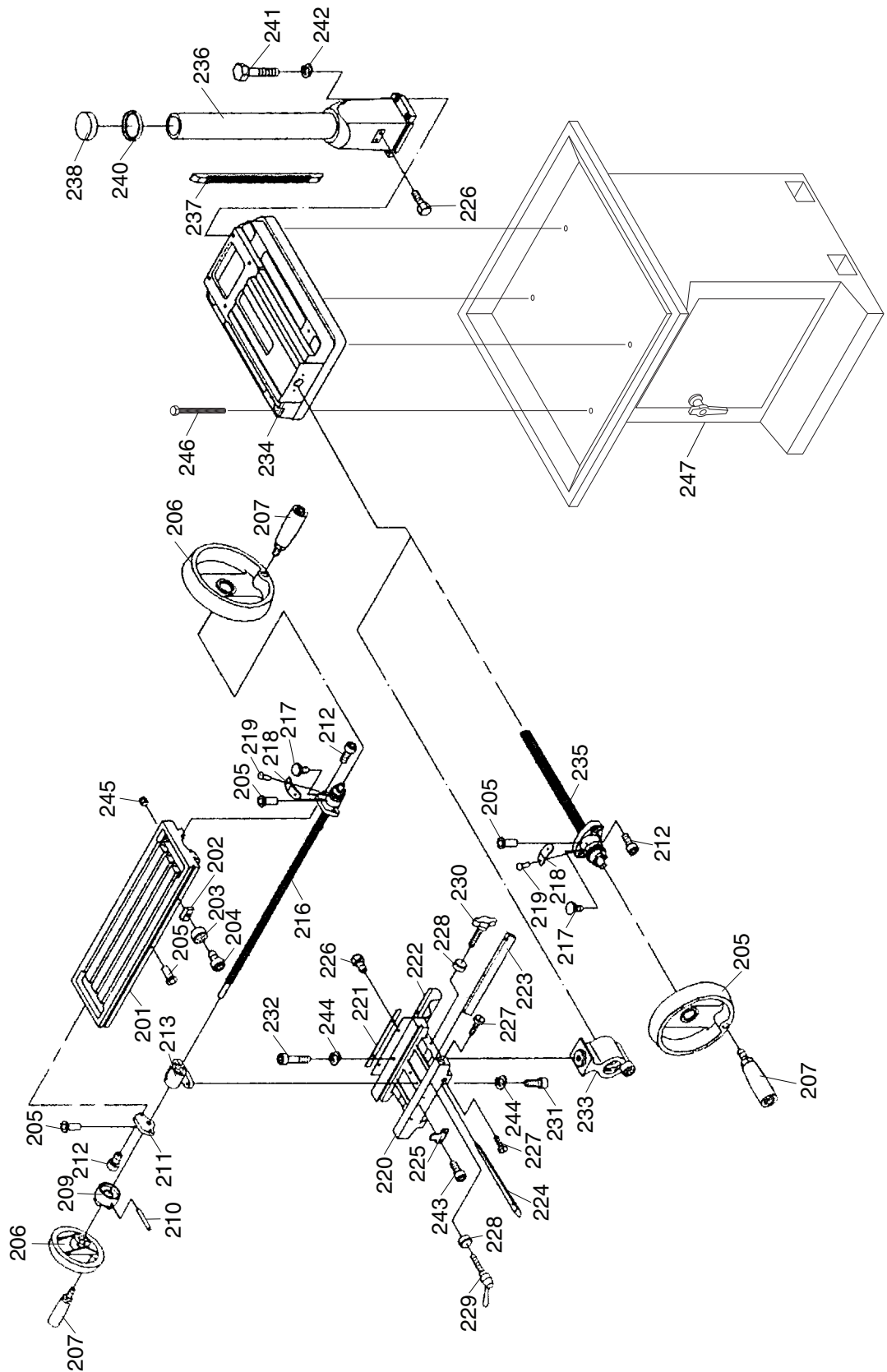
# Headstock Parts List (continued)

REF	PART #	DESCRIPTION
48	PCAP05	CAP SCREW 1/4-20 X 3/4
49	P0705049	ELEVATION CRANK
51	P0705051	CLAMP HANDLE
52	P0705052	OUTER QUILL CLAMP
53	P0705053	INNER QUILL CLAMP
54	P0705054	QUILL CLAMP SPACER
55	P0705055	QUILL CLAMP HANDLE
56	P0705056	SCREW KEY
57	PN08	HEX NUT 3/8-16
58	P0705058	COMPRESSION SPRING
59	P0705059	BELT TENSION PIN
60	P0705060	RUBBER PAD
61	PB46	HEX BOLT 5/8-11 X 6
62	PW14	FLAT WASHER 5/8
63	PN04	HEX NUT 5/8-11
64	P0705064	HEADSTOCK WRENCH
65	P0705065	LOCK HANDLE M8-1.25 X 25
66	P0705066	FRONT COVER PLATE ASSEMBLY
67	PCAP04	CAP SCREW 1/4-20 X 1/2
68	P0705068	LIMIT PLATE
69	PW18	FLAT WASHER #5
70	PS50	PHLP HD SCR 5-40 X 1/4
71	P0705071	BELT COVER
72	P0705072	LOWER BELT PLATE
74	P0705074	SPINDLE COVER
75	PCAP158M	CAP SCREW M3-.5 X 16
76	PW07	FLAT WASHER 5/16
77	PB32	HEX BOLT 5/16-18 X 5/8
78	PCAP04	CAP SCREW 1/4-20 X 1/2
79	P0705079	SPEED CHART

REF	PART #	DESCRIPTION
80	P0705080	PULLEY IDLER PLATE
81	PN04	HEX NUT 5/8-11
82	PW07	FLAT WASHER 5/16
83	PCAP08	CAP SCREW 5/16-18 X 1-1/2
84	P0705084	IDLER PULLEY
85	PN04	HEX NUT 5/8-11
86	P0705086	MOTOR PULLEY SET
88	PVB33	V-BELT B33
89	PVB42	V-BELT B42
90	P0705090	WIRE CLIP
91	PCAP09	CAP SCREW 5/16-18 X 5/8
92	P0705092	MOTOR MOUNT PLATE
93	P0705093	MOTOR 2HP 110/220V 1-PH
93-1	P0705093-1	MOTOR JUNCTION BOX
93-2	PC150D	S CAPACITOR 150M 250V 1-5/8 X 3-1/4
93-3	PC20B	R CAPACITOR 20M 450V 1-5/8 X 3-1/4
93-4	P0705093-4	MOTOR FAN
93-5	P0705093-5	MOTOR FAN COVER
94	PW07	FLAT WASHER 5/16
95	PB03	HEX BOLT 5/16-18 X 1
96	PN02	HEX NUT 5/16-18
97	PB36	HEX BOLT 7/16-14 X 3/4
98	PK109M	KEY 7 X 7 X 35
99	P0705099	GUARD BRACKET
100	PCAP03M	CAP SCREW M5-.8 X 8
101	PCAP26M	CAP SCREW M6-1 X 12
102	P0705102	PROTECTIVE PLATE
113	P0705113	CHUCK B16 1-13MM
113-1	P0705113-1	CHUCK KEY



# Base Parts Breakdown



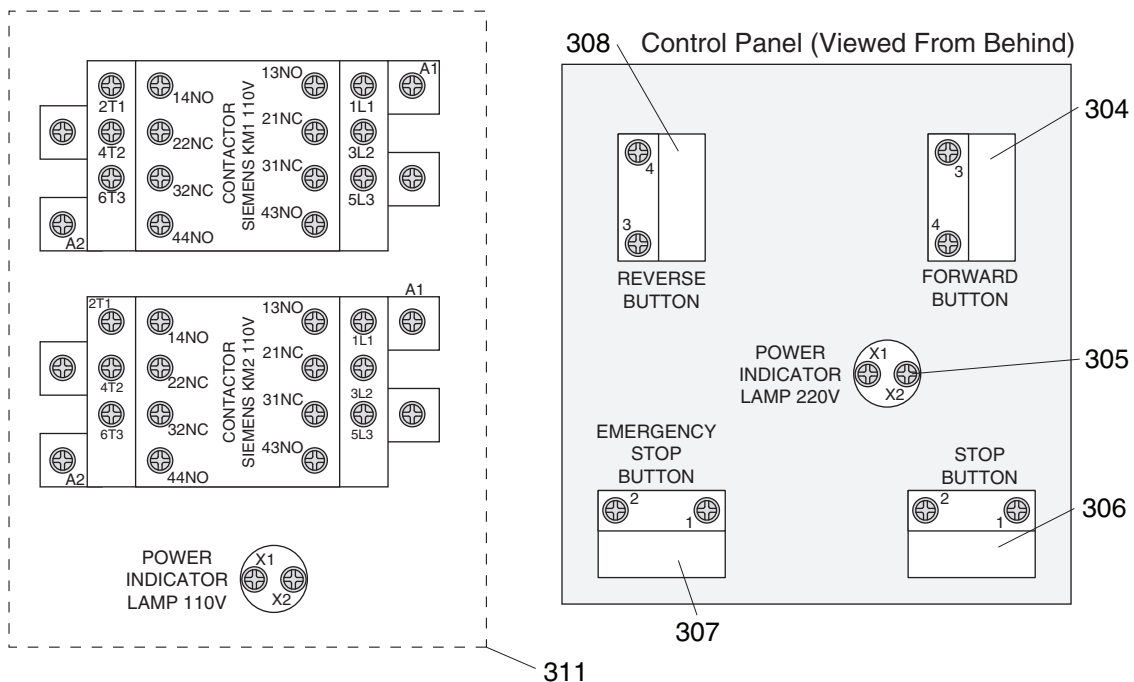
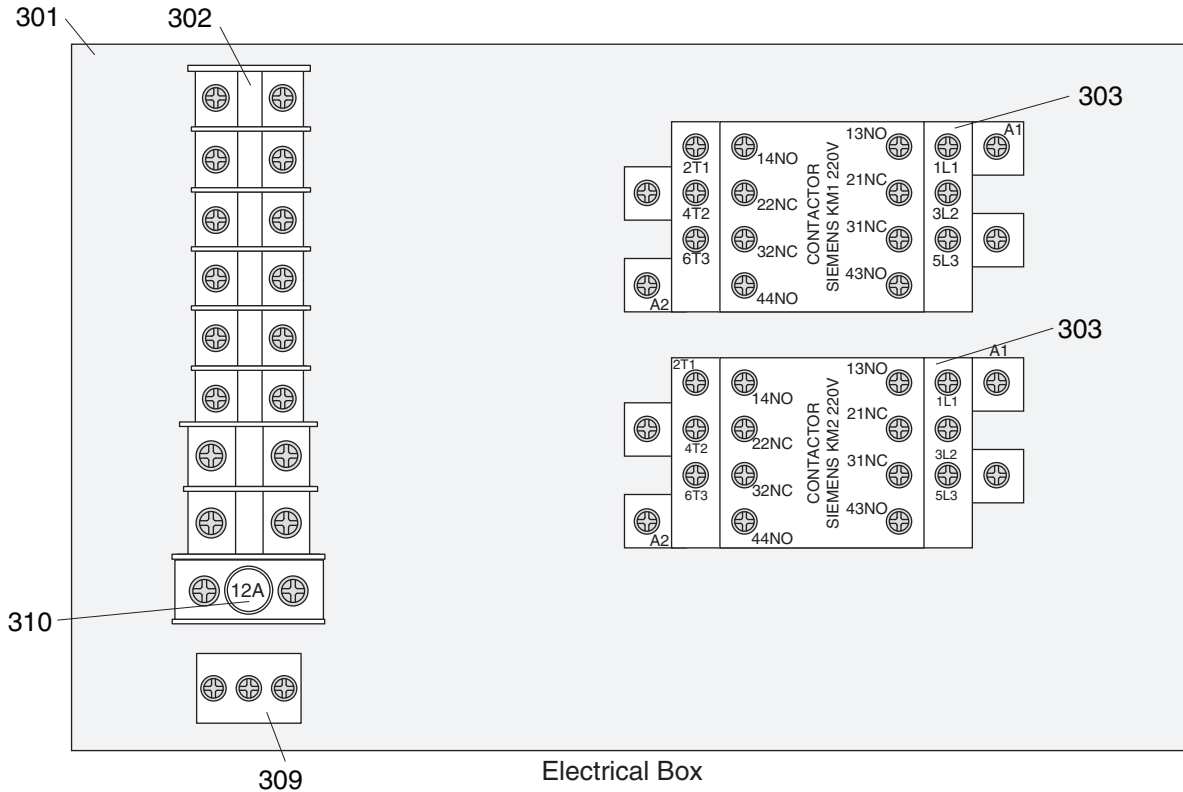
# Base Parts List

REF	PART #	DESCRIPTION
201	P0705201	TABLE
202	P0705202	T-NUT 1/4-20
203	P0705203	TABLE STOP
204	PCAP04	CAP SCREW 1/4-20 X 1/2
205	PLUBE001	TAP-IN BALL OILER 1/4
206	P0705206	TABLE HANDWHEEL
207	P0705207	HANDLE
209	P0705209	HANDWHEEL COLLAR
210	P0705210	DOWEL PIN
211	P0705211	LEFT FLANGE
212	PCAP03	CAP SCREW 5/16-18 X 1
213	P0705213	LONGITUDINAL HALF NUT
216	P0705216	LONGITUDINAL LEADSCREW
217	P0705217	KNURLED THUMBSCREW M5-.8 X 12
218	P0705218	INDICATOR PLATE
219	P0705219	RIVET 2MM
220	P0705220	SADDLE
221	P0705221	DUST COVER PLATE
222	P0705222	DUST COVER
223	P0705223	LONGITUDINAL GIB
224	P0705224	CROSS GIB
225	P0705225	TABLE CENTER STOP

REF	PART #	DESCRIPTION
226	PB09	HEX BOLT 5/16-18 X 1/2
227	P0705227	GIB SCREW
228	P0705228	LOCK HANDLE SPACER
229	P0705229	LOCK HANDLE M8-1.25 X 32
230	P0705229	LOCK HANDLE M8-1.25 X 32
231	PCAP03	CAP SCREW 5/16-18 X 1
232	PCAP107	CAP SCREW 5/16-18 X 2-1/4
233	P0705233	CROSS HALF NUT
234	P0705234	BASE
235	P0705235	CROSS LEADSCREW ASSEMBLY
236	P0705236	COLUMN BASE
237	P0705237	ELEVATION RACK
238	P0705238	COLUMN CAP
240	P0705240	COLUMN RING
241	PB64	HEX BOLT 5/8-11 X 2-1/2
242	PLW06	LOCK WASHER 5/8
243	PCAP07	CAP SCREW 5/16-18 X 3/4
244	PLW01	LOCK WASHER 5/16
245	P0705245	DRAIN PLUG
246	P0705246	HEX BOLT M10-1.5 X 140
247	P0705247	CABINET ASSEMBLY



# Electrical Components Breakdown and List

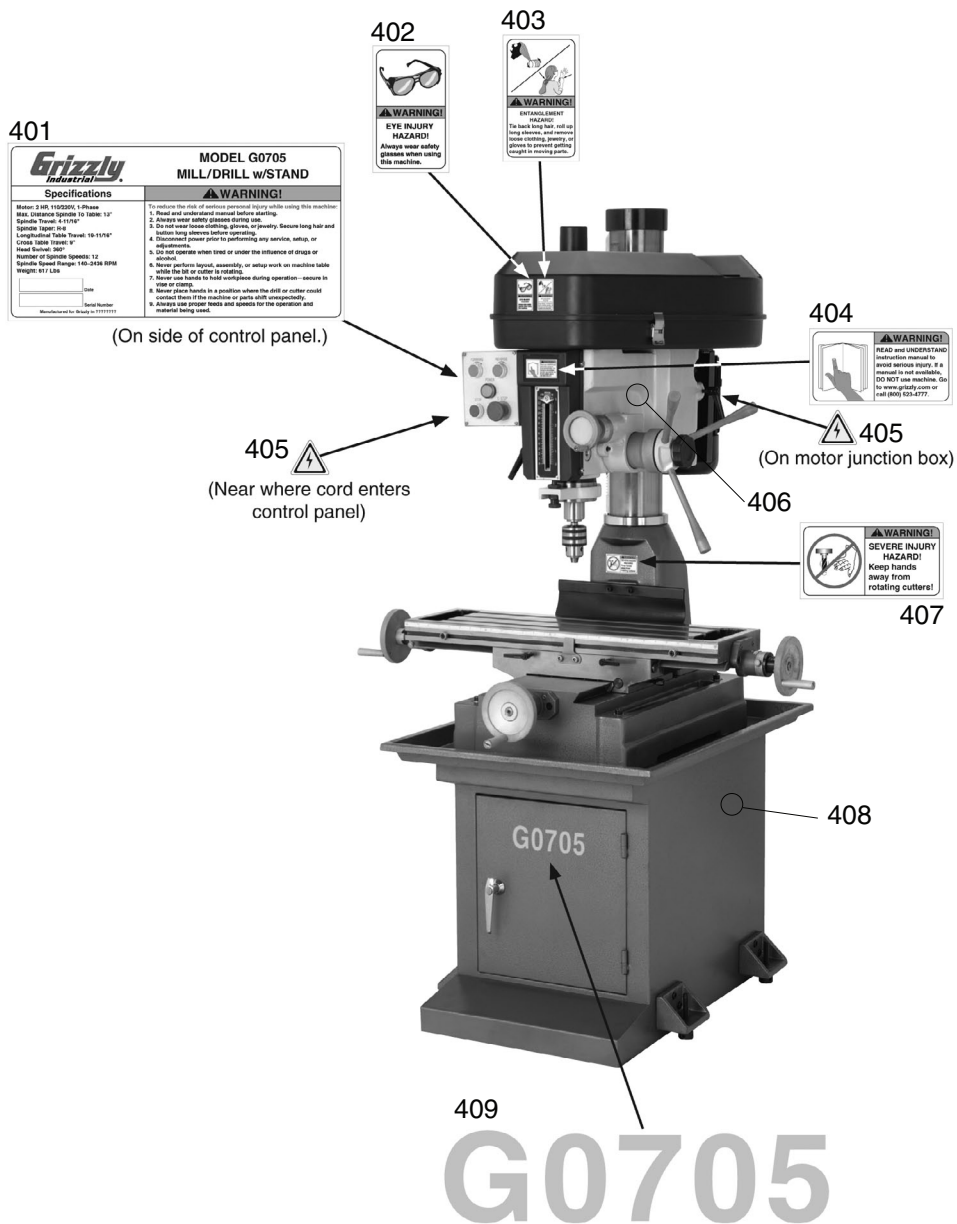


REF	PART #	DESCRIPTION
301	P0705301	ELECTRICAL BOX ASSEMBLY
302	P0705302	TERMINAL BLOCK ASSEMBLY
303	P0705303	CONTACTOR SIEMENS 3TB41 220V
304	P0705304	FORWARD BUTTON
305	P0705305	POWER INDICATOR LAMP 220V
306	P0705306	STOP BUTTON

REF	PART #	DESCRIPTION
307	P0705307	EMERGENCY STOP BUTTON
308	P0705308	REVERSE BUTTON
309	P0705309	GROUNDING BLOCK
310	P0705310	FUSE 12A
311	P0705311	CONVERSION KIT 110V FOR G0705



# Labels Breakdown and List



REF	PART #	DESCRIPTION
401	P0705401	MACHINE ID LABEL
402	PLABEL-11B	SAFETY GLASSES LABEL
403	PLABEL-55A	ENTANGLEMENT LABEL
404	PLABEL-12C	READ MANUAL LABEL
405	PLABEL-14A	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
406	PPAINT-11	PUTTY TOUCH UP PAINT
407	P0705407	CUTTER WARNING LABEL
408	PPAINT-1	GREEN TOUCH UP PAINT
409	P0705409	MODEL NUMBER 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](http://www.grizzly.com) to order new labels.







# 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?

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

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*<sup>®</sup>

**TOOL WEBSITE**

Buy Direct and Save with Grizzly<sup>®</sup> – Trusted, Proven and a Great Value!  
~Since 1983~

*Visit Our Website Today For  
Current Specials!*

**ORDER  
24 HOURS A DAY!  
1-800-523-4777**



## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>