# READ THIS FIRST

**Model G0645**

******IMPORTANT UPDATE******

**For Machines Mfd. Since 03/17**
**and Owner's Manual Revised 03/10**

***For questions or help with this product contact Tech Support at (570) 546-9663 or techsupport@grizzly.com***

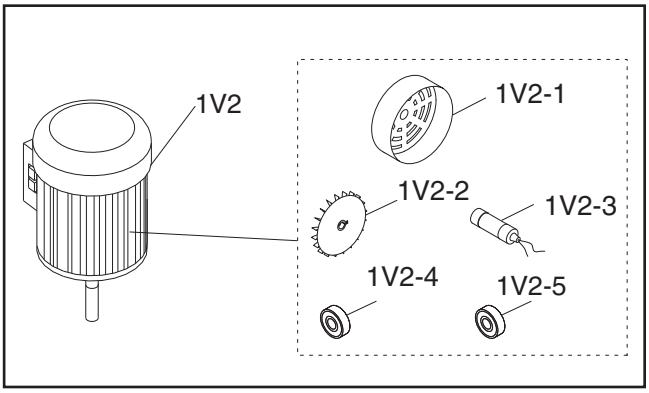
**The following changes were recently made to this machine since the owner's manual was printed:**

- Changed motor and wiring.

Aside from this information, all other content in the owner's manual applies and MUST be read and understood for your own safety. **IMPORTANT: Keep this update with the owner's manual for future reference.**

*For questions or help, contact our Tech Support at (570) 546-9663 or techsupport@grizzly.com.*

## V2 Motor Parts




| REF | PART # | DESCRIPTION |
|---|---|---|
| 1V2 | P0645001V2 | MOTOR 1/2HP 110V 1-PH V2.03.17 |
| 1V2-1 | P0645001V2-1 | FAN COVER |
| 1V2-2 | P0645001V2-2 | FAN |
| 1V2-3 | P0645001V2-3 | R CAPACITOR 45M 300V 1-3/8 X 2-7/8 |
| 1V2-4 | P0645001V2-4 | BALL BEARING 6202ZZ (FRONT) |
| 1V2-5 | P0645001V2-5 | BALL BEARING 6203ZZ (REAR) |


#BL19012 PRINTED IN CHINA

# Electrical Components & Wiring Diagram (Revised)

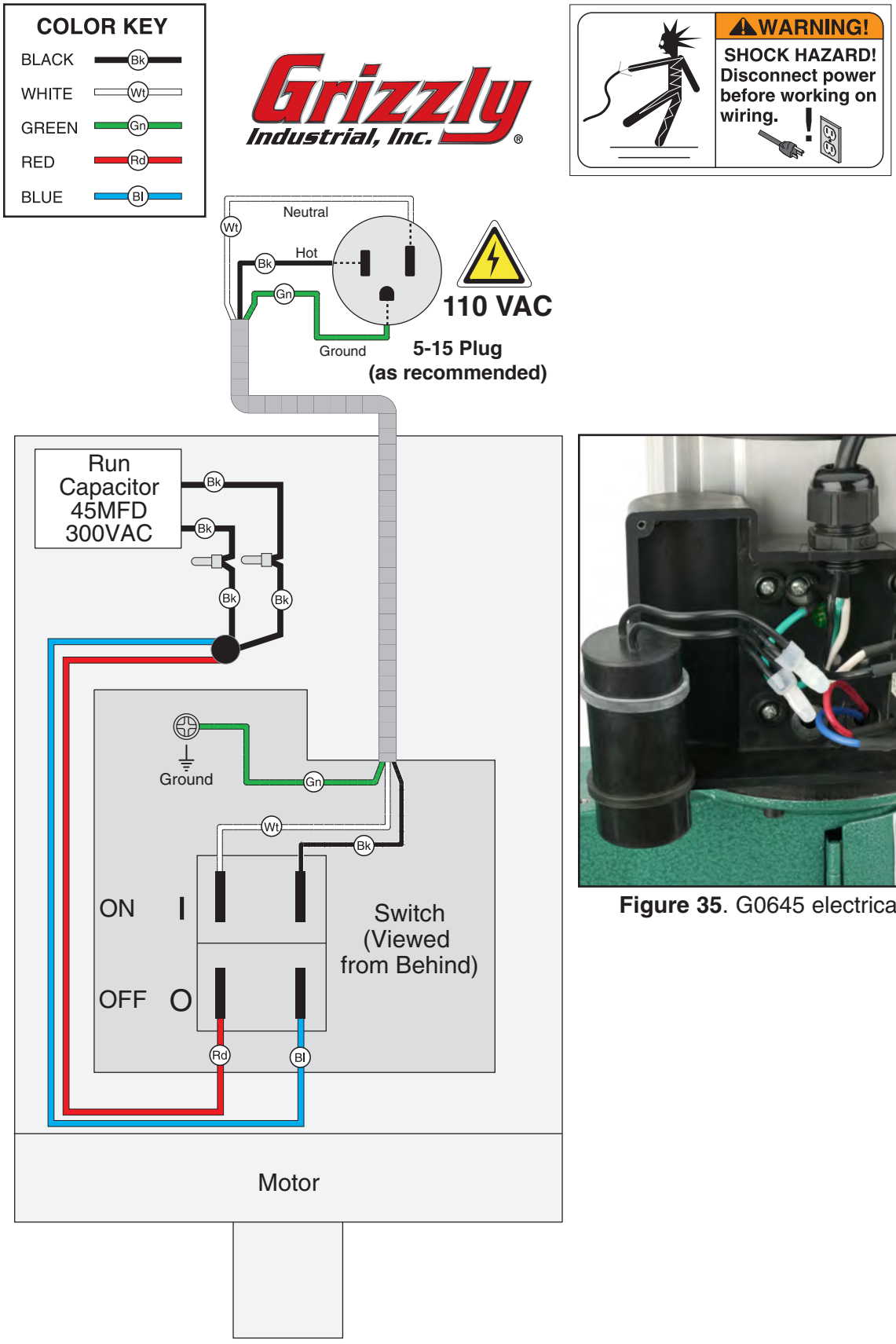





**Figure 35**. G0645 electrical components.

# MODEL G0645
# BENCHTOP MORTISING MACHINE
## OWNER'S MANUAL


(FOR MODELS MANUFACTURED SINCE 10/07) #BL10079 PRINTED IN CHINA

# ⚠ WARNING!

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

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

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

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

# ⚠ WARNING!

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

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

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

# Table of Contents

# INTRODUCTION

## Foreword

We are proud to offer the Model G0645 Benchtop Mortising Machine. This machine is part of a growing Grizzly family of fine woodworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

The specifications, drawings, and photographs illustrated in this manual represent the Model G0645 when the manual was prepared. However, owing to Grizzly's policy of continuous improvement, changes may be made at any time with no obligation on the part of Grizzly.

For your convenience, we always keep current Grizzly manuals available on our website at **www.grizzly.com**. Any updates to your machine will be reflected in these manuals as soon as they are complete. Visit our site often to check for the latest updates to this manual!

## Contact Info

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

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

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

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

# MACHINE DATA SHEET

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

## MODEL G0645 1/2 HP BENCH-TOP MORTISING MACHINE

**Product Dimensions:**

| | |
|---|---|
| Weight | 70 lbs. |
| Length/Width/Height | 29 x 13-3/4 x 32 in. |
| Foot Print (Length/Width) | 13-3/4 x 16-1/4 in. |

**Shipping Dimensions:**

| | |
|---|---|
| Type | Cardboard |
| Content | Machine |
| Weight | 76 lbs. |
| Length/Width/Height | 22 x 19 x 17 in. |

**Electrical:**

| | |
|---|---|
| Switch | ON/OFF Push Button |
| Switch Voltage | 110V |
| Cord Length | 6 ft. |
| Cord Gauge | 18 guage |
| Minimum Circuit Size | 15 amp |
| Plug Included | Yes |

**Motors:**

**Main**

| | |
|---|---|
| Type | TEFC Capacitor Start Induction |
| Horsepower | 1/2 HP |
| Voltage | 110V |
| Prewired | 110V |
| Phase | Single |
| Amps | 6A |
| Speed | 1725 RPM |
| Cycle | 60 Hz |
| Number Of Speeds | 1 |
| Power Transfer | Direct Drive |
| Bearings | Shielded and Permanently Sealed |

**Main Specifications:**

**Operation**

| | |
|---|---|
| Spindle Taper | JT#2 |
| No Of Spindle Speeds | 1 |
| Range Of Spindle Speeds | 1725 RPM |

**Cutting Capacities**

| | |
|---|---|
| Maximum Stock Width | 8-1/2 in. |
| Maximum Stock Thickness | 6 in. |
| Maximum Mortising Depth | 3 in. |
| Maximum Chisel Travel | 4-5/8 in. |
| Maximum Dist Column To Chisel | 5 in. |
| Chisel Size Range | 1/4, 5/16, 3/8, 1/2 in. |
| Fence to Chisel Center Distance | 4 in. |

**Table Information**

| | |
|---|---|
| Table Size Length | 12-1/4 in. |
| Table Size Width | 10-1/2 in. |
| Table Size Thickness | 1-3/4 in. |

**Chuck Information**

| | |
|---|---|
| Chuck Type | Keyed-Type |
| Chuck Size | 3/8 in. |
| Chuck Capacity | 3/8 in. |

**Construction**

| | |
|---|---|
| Base | Iron |
| Head | Cast Aluminum |
| Table | Cast Iron |
| Paint | Epoxy |
| Column | Cast Iron |
| Fence | Cast Iron |

**Other**

| | |
|---|---|
| Handle Length | 16 in. |
| Head Drive | Manual |

**Other Specifications:**

| | |
|---|---|
| Country Of Origin | China |
| Warranty | 1 Year |
| Serial Number Location | ID Label on Center of the Stand |
| Assembly Time | 30 minutes |

**Features:**

Tool Storage Rack in Back of Column
Includes Four Chisels
Dovetail Height Movement
Rack & Pinion Table Movement
Includes Riser Block fo Raising Height

# Identification

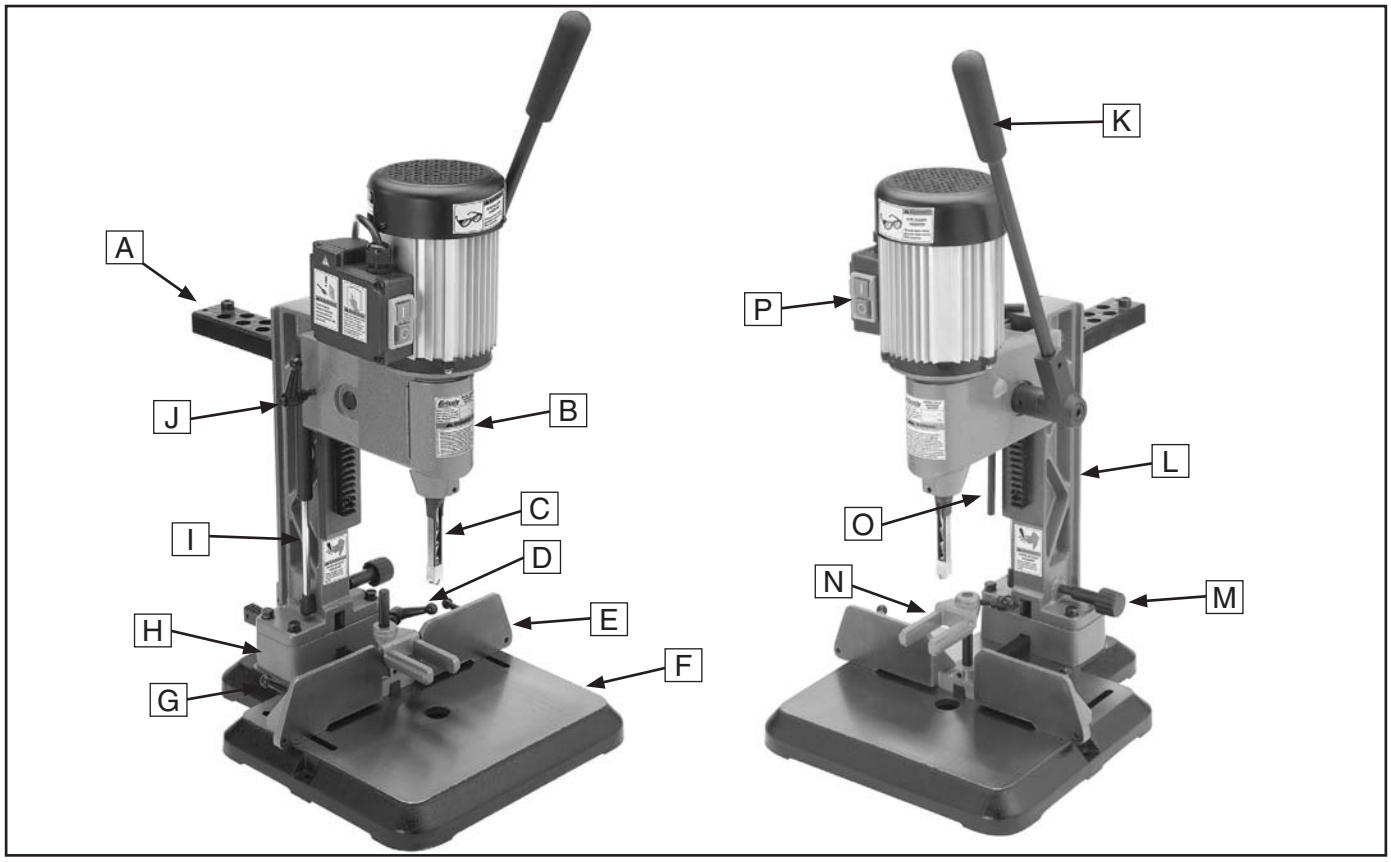



**Figure 1.** Model G0645 features.

**A.** Tool Storage Rack
**B.** Chuck Access Cover
**C.** Chisel and Drill Bit Set
**D.** Hold Down Lock Lever
**E.** Fence
**F.** Base
**G.** Fence Lock Lever
**H.** Extension Block
**I.** Gas Spring
**J.** Depth Stop Lock Lever
**K.** Hand Lever
**L.** Column
**M.** Fence Adjustment Knob
**N.** Hold Down
**O.** Depth Stop Rod
**P.** ON/OFF Switch

# SECTION 1: SAFETY

## ⚠WARNING

## For Your Own Safety, Read Instruction Manual Before Operating this Machine

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

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

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

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

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

## ⚠WARNING

## Safety Instructions for Machinery

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

# ⚠WARNING
# Safety Instructions for Machinery

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

# ⚠WARNING
# Additional Safety for Mortising Machines

1. **HAND PROTECTION**. Do not place your hands under an installed chisel at any time or near the chisel while the spindle is in motion. Chisels may become hot during operation! Allow chisels to cool before handling. Chisels are sharp! Always use caution when handling, especially when installing or removing.

2. **USING CORRECT MATERIALS.** Mortising materials such as metals, plastics, and glass can result in serious personal injury and machine damage. Do not use the machine for anything except mortising in wood.

3. **RESPIRATOR AND SAFETY GLASSES.** Dust and chips created from mortising and may be ejected, becoming hazards to the eyes and lungs. Always wear a respirator and safety glasses while operating the machine.

4. **CHISEL COMPATIBILITY**. Mortising bits can fly out of chuck at the operator if not properly secured, causing serious personal injury. Make sure the mortising bit fits a minimum of 1/2" into the chuck.

5. **ADJUSTMENTS.** Hands may be seriously injured if they come in contact with the chisel and drill bit during operation. Do not adjust the machine or workpiece while the mortising machine is running. Wait for the spindle to come to a complete stop and unplug the machine before continuing.

6. **INSPECTING MACHINE**. Loose chisels and bits can be ejected at the operator, or the headstock can fall if not properly secured, causing serious personal injury. Inspect the machine for smooth head casting movement, loose drill bits/chisel housing, loose nuts/bolts and lock levers before connecting the machine to power and operating. Correct any problems before use.

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

## ⚠WARNING

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

## ⚠CAUTION

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

# SECTION 2: CIRCUIT REQUIREMENTS

## 110V Operation

**⚠WARNING**

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

**⚠WARNING**

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

### Full Load Amperage Draw

Motor Draw.....6 Amps

### Minimum Circuit Requirements

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

110V Circuit.....15 Amps

### Power Connection Device

The Model G0645 comes with a 5-15 plug, similar to **Figure 2**, to connect the machine to power.

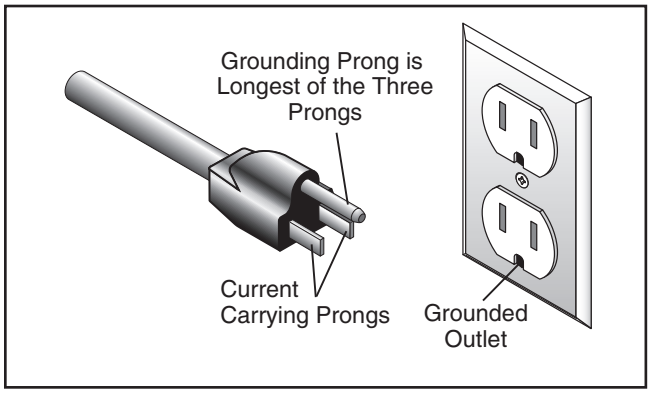
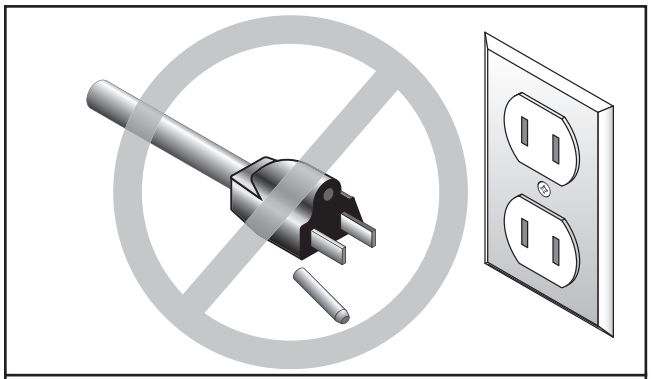



**Figure 2**. Typical 5-15 plug and receptacle.



**⚠CAUTION**

**This machine MUST have a ground prong in the plug to help ensure that it is grounded. DO NOT remove ground prong from plug to fit into a two-pronged outlet! If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician.**

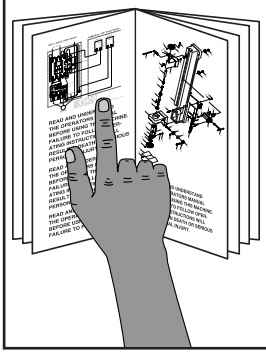
### Extension Cords

We do not recommend using extension cords, but if you find it absolutely necessary:

- Use at least a 14 gauge cord that does not exceed 50 feet in length!
- The extension cord must have a ground wire and plug pin.
- A qualified electrician MUST size cords over 50 feet long to prevent motor damage.

# SECTION 3: SETUP

## Setup Safety



**⚠WARNING**

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

**⚠WARNING**

**Wear safety glasses during the entire setup process!**

**⚠WARNING**

**This machine and its components are heavy. Get lifting help to move heavy items.**

## Items Needed for Setup

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

| Description | Qty |
|---|---|
| • Safety Glasses (for each person) | 1 |
| • Mounting Hardware | As Needed |
| • Shop Rags for Cleaning | As Needed |
| • Solvent Cleaner/Degreaser | As Needed |
| • Assistant for Lifting Help | 1 |
| • Flat Head Screwdriver | 1 |
| • Phillips Head Screwdriver | 1 |
| • Wrench/Socket 13mm (optional, for extension block) | 1 |

## Unpacking

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

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

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

# Inventory

The following is a description of the main components shipped with your machine. Lay the components out to inventory them.

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

| **Box 1: (Figure 3)** | | **Qty** |
|---|---|---|
| **A.** | Hand Lever | 1 |
| **B.** | Gas Spring | 1 |
| **C.** | Tool Storage Rack | 1 |
| **D.** | Hold Down | 1 |
| **E.** | Mortising Chisel and Bit ¼" | 1 |
| **F.** | Mortising Chisel and Bit 5/16" | 1 |
| **G.** | Mortising Chisel and Bit ⅜" | 1 |
| **H.** | Mortising Chisel and Bit ½" | 1 |
| **I.** | Extension Block | 1 |
| **J.** | Hardware & Tools (Not Shown) | 1 |
| | — Chuck Key/ Hex Wrench 4mm | 1 |
| | — Hex Wrenches 4, 8 mm | 1 Each |
| | — Hex Bolts M8-1.25 x 80 (Extension) | 4 |
| | — Flat Washers 6mm (Storage Rack) | 2 |
| | — Long Hold Down Rod (Extension) | 1 |

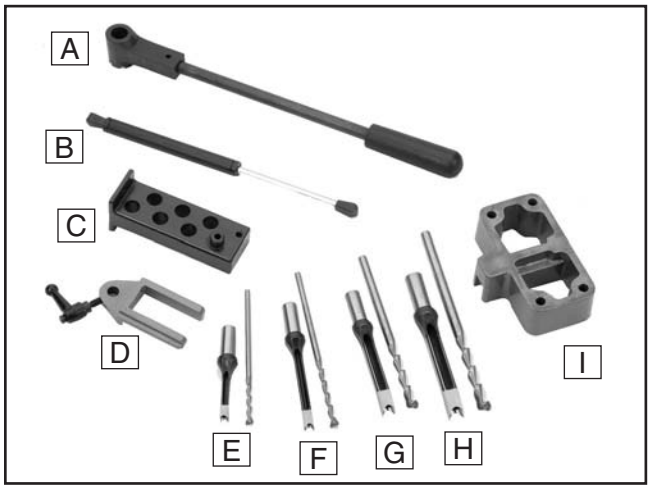
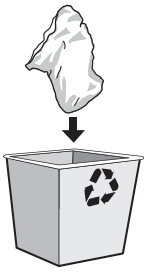



**Figure 3.** G0645 inventory.

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

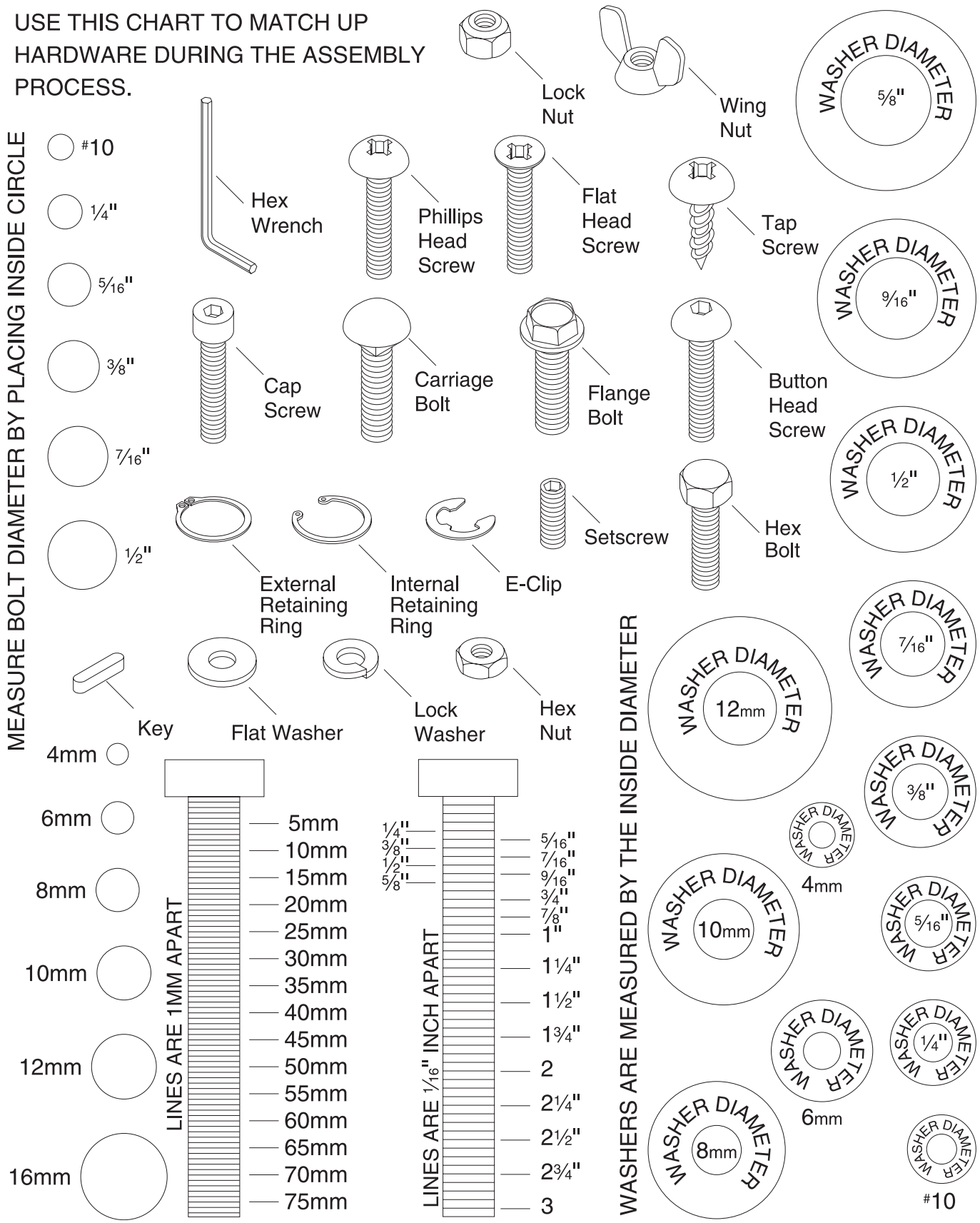


**⚠WARNING**

**SUFFOCATION HAZARD!**

**Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.**

# Hardware Recognition Chart



# Clean Up

The unpainted surfaces are coated with a waxy oil to prevent corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser such as Grizzly's G7895 Citrus Degreaser. To clean thoroughly, some parts must be removed. **For optimum performance from your machine, clean all moving parts or sliding contact surfaces.** Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.


**⚠WARNING**

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

**⚠CAUTION**

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

**G7895—Grizzly Citrus Degreaser**
This natural, citrus-based degreaser is a great solution for removing export grease, and it's much safer to work around than nasty solvents.


**Figure 4.** Grizzly citrus degreaser.

# Site Considerations

## Workbench Load

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

## Placement Location

Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your new machine. See **Figure 5** for the minimum working clearances. The workbench should be located where plenty of working clearance exists for larger workpieces.

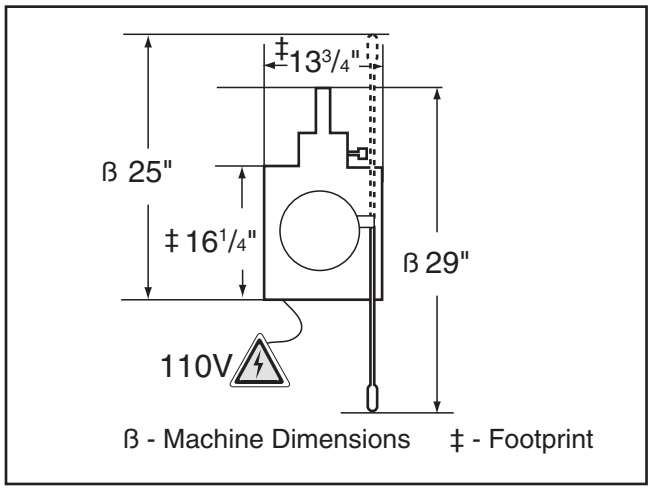
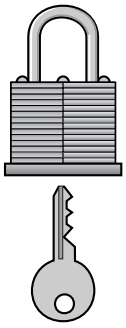



**Figure 5.** Minimum working clearances.



**⚠CAUTION**

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

# Mounting

Mount the mortising machine to a workbench through the two holes in the base.

The strongest mounting option is a "Through Mount" where holes are drilled all the way through the workbench, and hex bolts, washers, and hex nuts are used to secure the mortising machine to the workbench.

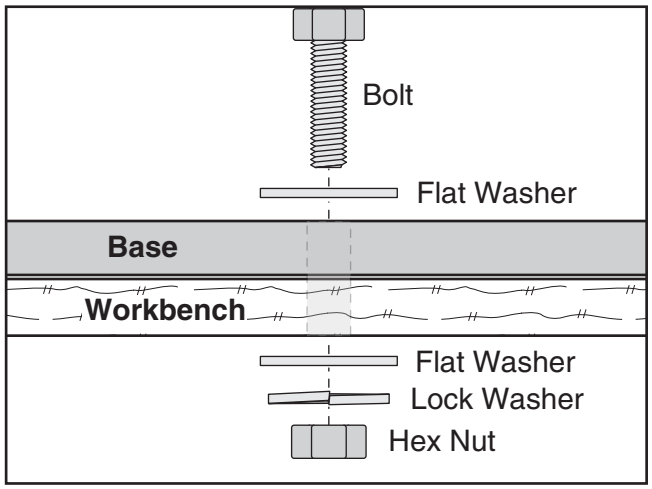



**Figure 6.** Example of a through mount setup.

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

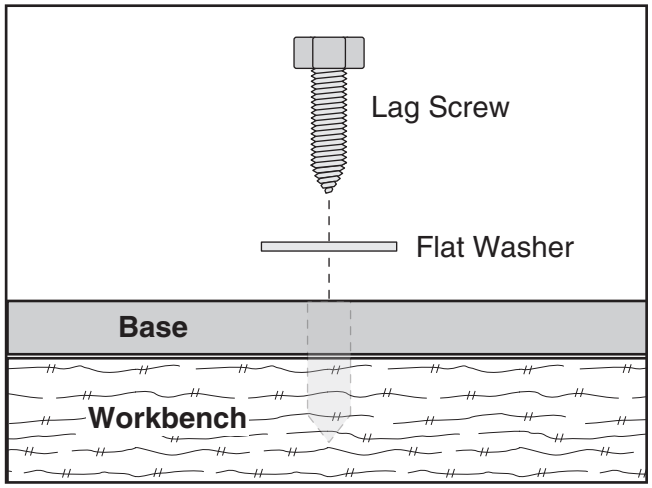



**Figure 7.** Example of a direct mount setup.

# Assembly

The included extension block will extend the column an additional 1¾", so workpieces up to 6" thick can be mortised. You will not be able to use the fence adjustment knob when the extension block is installed. If you do not want to install the extension block, skip **Steps 6-10**.

**To assemble the Model G0645:**

1. Secure the handle onto the hub using the spring and shoulder bolt already attached to the headstock, as shown in **Figure 8**.

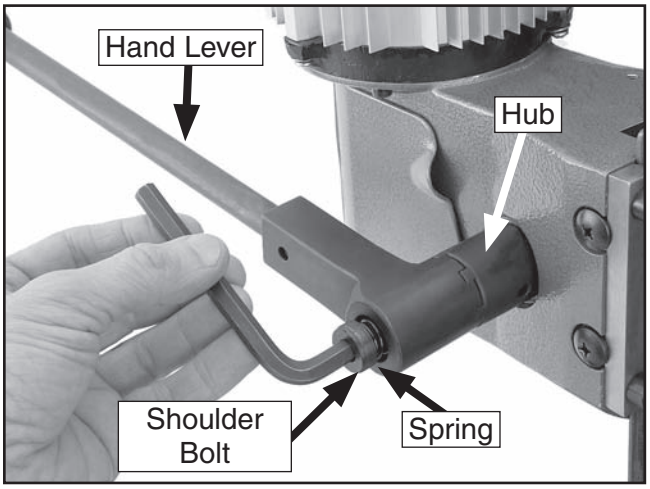



**Figure 8.** Hand lever installed.

2. Loosen the lock lever and insert the depth stop rod into the hole on the headstock, as shown in **Figure 9**.

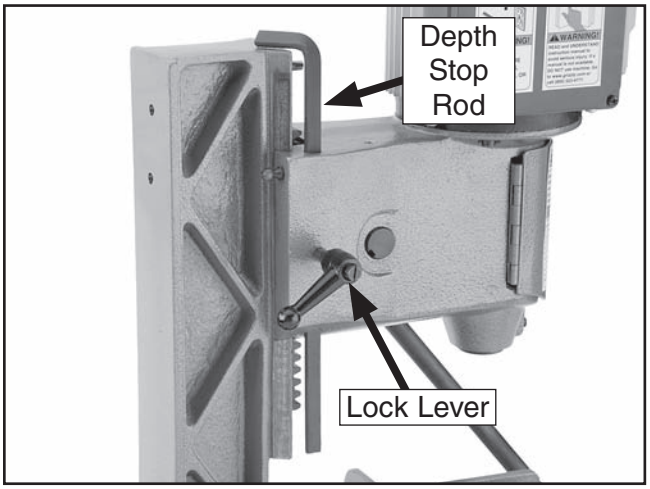



**Figure 9**. Depth stop rod installed.

**3.** Lift the headstock to the top position using the hand lever. Position the depth stop so it contacts the top of the headstock, as shown in **Figure 10**, and secure the lock knob so the headstock does not move.

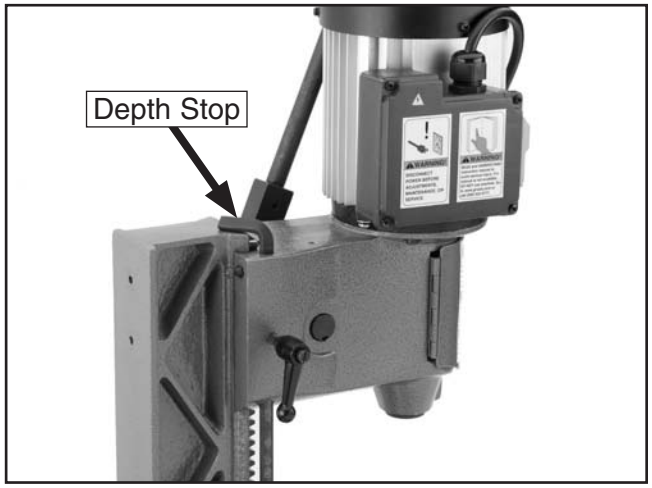



**Figure 10**. Depth stop contacting headstock.

**4.** Snap the gas spring ball sockets onto the ball studs, as shown in **Figures 11 & 12**.

**Tip**: *It may help to use a flat head screwdriver to leverage the bottom gas spring ball socket onto the ball stud.*

## ⚠WARNING

**The headstock must be locked in place before the gas spring is installed. Serious personal injury can occur if the headstock drops during installation.**

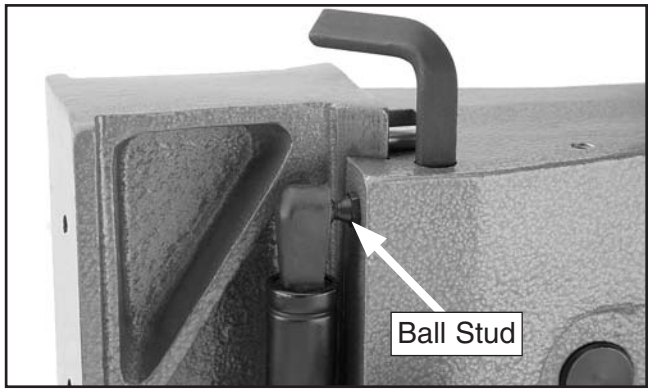



**Figure 11**. Gas spring attached to top of headstock.

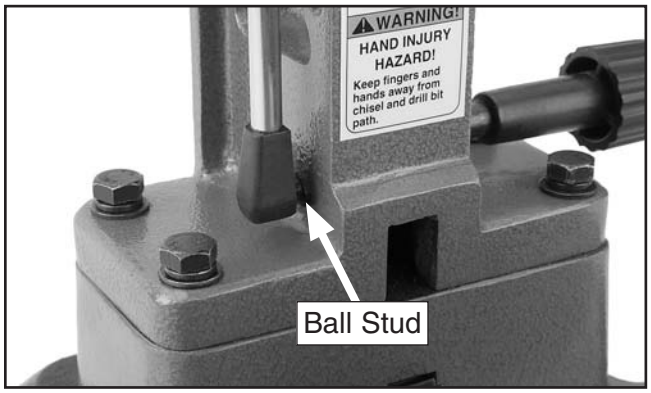



**Figure 12**. Gas spring attached to bottom of column.

**5.** Install the tool storage rack, as shown in **Figure 13**, with the M6-1 x 15 Phillips head screws and flat washers already attached to the headstock.

**Figure 13**. Tool storage rack installed.

## ⚠WARNING

**CRUSHING HAZARD!**

**Have an assistant hold the headstock during the following step. The headstock is heavy and could cause serious personal injury if not supported.**

**6.** Remove the four M8-1.25 x 25 hex bolts, flat washers and lock washers securing the column to the base, shown in **Figure 14**, and temporarily lay the headstock on its side on the workbench.

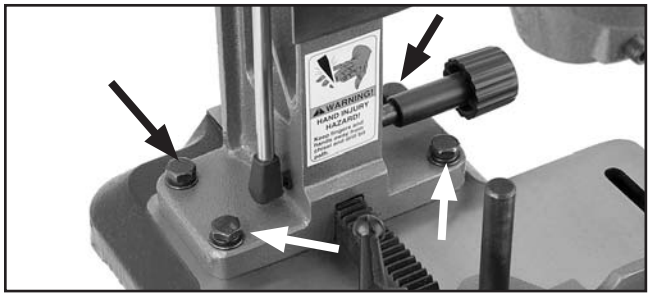


**Figure 14**. Hex bolts and washers securing column to base.

7. Place the extension block over the rack and base, and align the mounting holes, as shown in **Figure 15**.

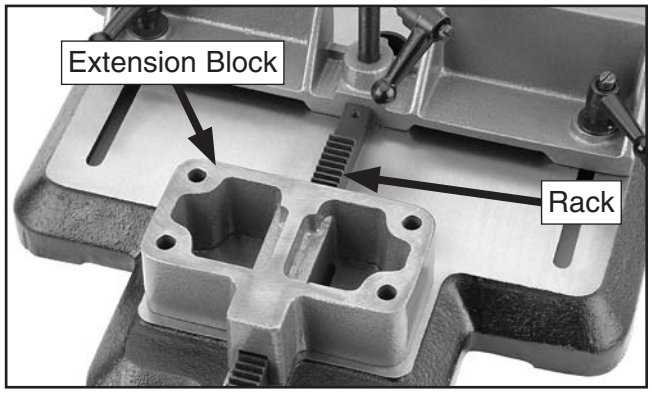



**Figure 15**. Extension block positioned on base.

8. Place the column over the extension block, align the mounting holes, have an assistant hold the headstock upright, and secure the column to the base with the M8-1.25 x 80 hex bolts and the washers removed in **Step 6**, as shown in **Figure 16**.

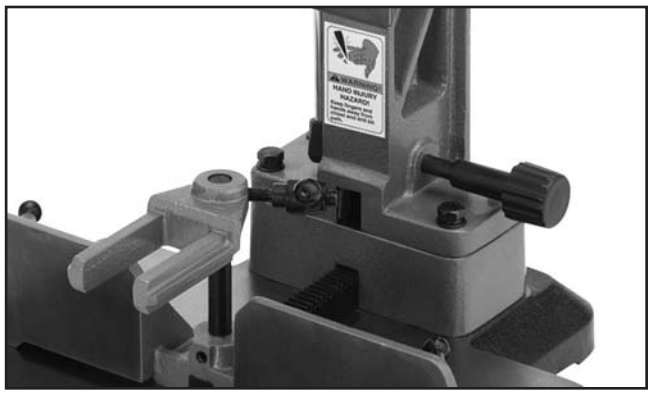


**Figure 16**. Extension block installed.

9. Remove the hold down, loosen the set screw securing the short hold down rod, and remove the rod.

10. Insert the long hold down rod into the shaft on the fence, secure with the set screw, and reinstall the hold down.

# Test Run

Once the assembly is complete, test run your machine.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review the **Troubleshooting** on **Page 25**.

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

**To test run the machine:**

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

2. Verify that there is not a drill bit or chisel installed, and that all tools are cleared away from the machine.

3. Connect the machine to the power source.

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

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

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

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

# SECTION 4: OPERATIONS

## Operation Safety

**⚠WARNING**

**Damage to your eyes and lungs could result from using this machine without proper protective gear. Always wear safety glasses and a respirator when operating this machine.**

**⚠WARNING**

**Never mortise treated lumber—the smoke is extremely poisonous.**

***NOTICE***

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

## Basic Operations

This machine uses a hollow chisel with a drill bit to cut square holes called mortises. After setting the fence, depth stop, and hold down, use the hand lever to lower the chisel and bit into the workpiece, then raise the hand lever to remove the chisel and bit from the workpiece.

## Basic Controls

Below is a summary of the basic controls used during mortising operations. Use the list with **Figure 17** to become familiar with your mortising machine.

**ON/OFF Switch:** Starts or stops motor.

**Depth Stop Rod**: Controls the mortise depth.

**Hand Lever:** Raises or lowers headstock.

**Fence Lock Handles**: Locks fence. When loosened, allows fence to move.

**Fence Adjustment Knob**: Moves fence back and forth on the table—is disabled when the extension block is installed.

**Hold Down Lock Lever**: Locks hold down.

**Hold Down:** Holds workpiece down when chisel is raised after mortise is cut.

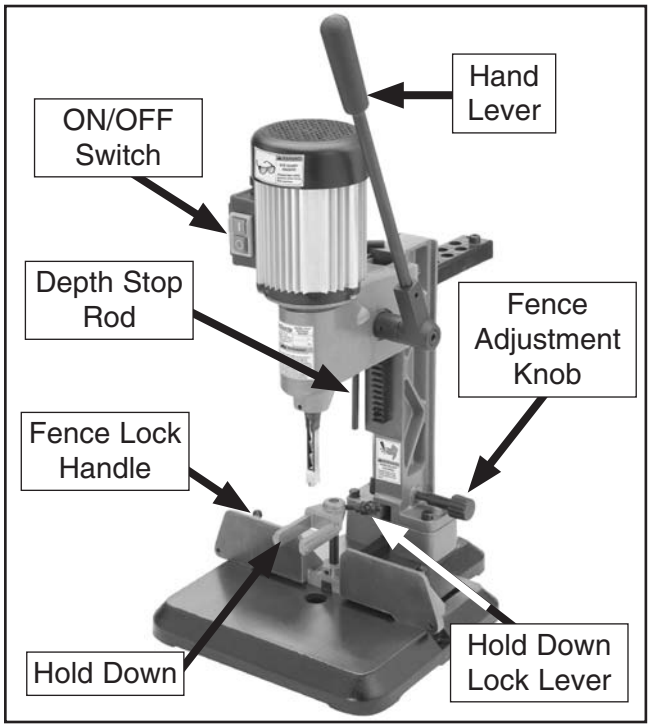
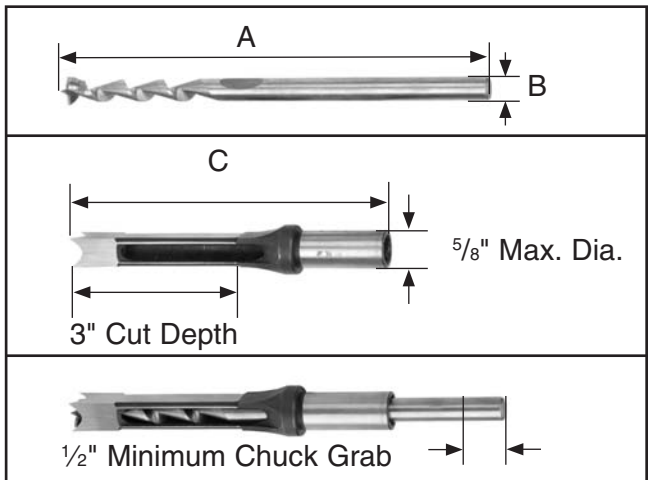



**Figure 17**. Model G0645 basic controls.

# Installing Mortising Chisel

This mortising machine uses 5/8" shank chisels ranging from 1/4"–1/2". If you want to use chisels that did not come with this machine, make sure they conform to the dimensions in the **Figure 18**.




| Chisel | Min. Overall Bit Length (A) | Max Drill Bit Dia. (B) | Min. Overall Chisel Length (C) |
|---|---|---|---|
| 1/4" | 6 1/4" | 11/64" | 4 1/4" |
| 5/16" | 6 1/4" | 7/32" | 4 1/4" |
| 3/8" | 7 5/16" | 17/64" | 5 1/2" |
| 1/2" | 7 5/16" | 3/8" | 5 1/2" |

**Figure 18**. G0645 chisel and drill bit dimensions.

**To install a mortising chisel:**

1. DISCONNECT THE MORTISING MACHINE FROM POWER!

2. Lock the headstock in the fully raised position.

3. Put on a pair of leather gloves to protect your hands, or wrap a shop towel around the sharp end of the chisel. Place a wood scrap on the table to protect it during chisel and bit installation.

4. Slide the bit into the chisel and loosen the chisel lock set screw (**Figure 19**) on the headstock.

5. Insert the chisel into the bushing shown in **Figure 19**, and tighten the chisel lock set screw.

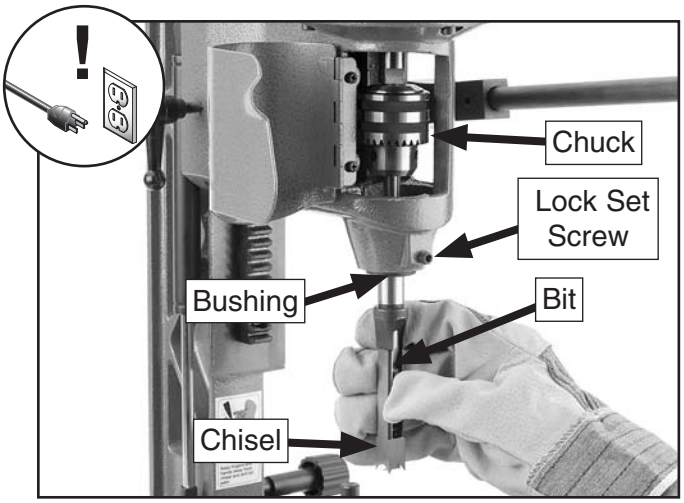



**Figure 19**. Inserting chisel into bushing.

6. Open the chuck access cover.

7. Using the chuck key, tighten the drill bit into the drill chuck so the tip extends 1/16"–3/16" beyond the chisel, as shown in **Figure 20**. The correct distance depends on the wood type and operation.

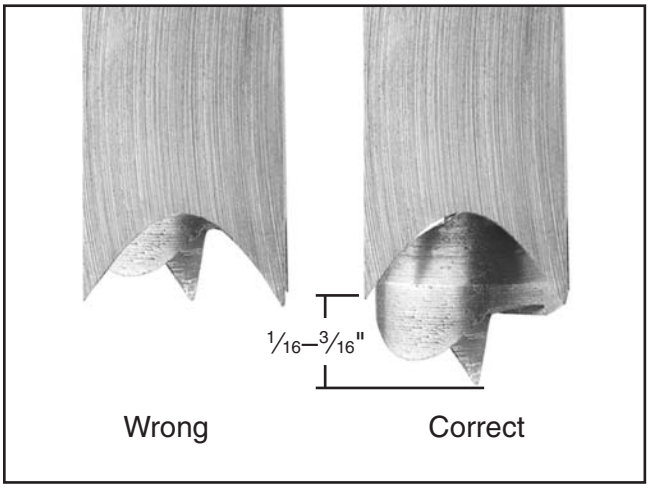



**Figure 20**. Drill bit extension.

8. Rotate the chuck by hand and make sure no binding occurs.

   —If binding occurs, loosen the chisel lock set screw and rotate the chisel 90°.

**9.** Place a square against the fence and chisel, as shown in **Figure 21**, to verify that the chisel is square to the fence.

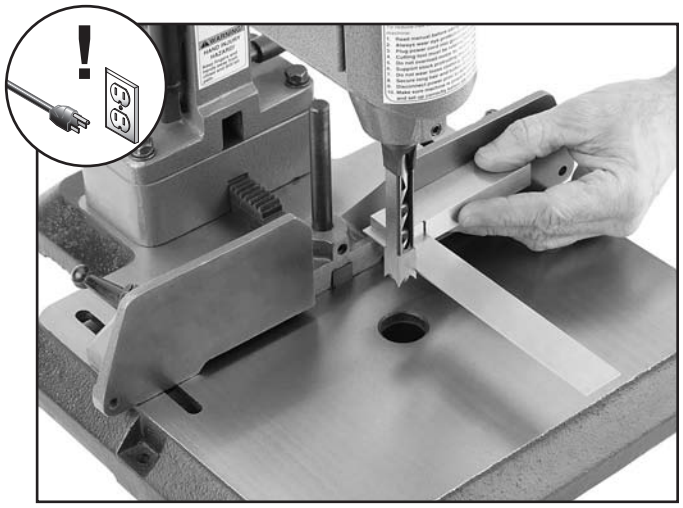


**Figure 21**. Squaring chisel to fence.

—If the chisel is not square to the fence, loosen the chisel lock set screw, twist the chisel into alignment, then tighten the set screw.

**10.** Close the chuck access door and carefully tighten the fence lock handles, making sure the fence does not move.

—If the fence does move, repeat **Steps 7 & 8**.

# Adjusting Depth Stop Rod

When adjusted correctly, the depth stop rod ensures that the mortise is not cut too deep and repeated mortise depths are consistent. Always make the mortise at least an ⅛" deeper than the tenon to allow room for excess glue.

**To adjust the depth stop rod:**

**1.** Loosen the depth lock lever, lower the chisel until it contacts the top of the workpiece.

**2.** Adjust the depth stop using one of the methods below:

- Adjust the depth stop rod above the column to the desired depth of the mortise cut, using a ruler, as shown in **Figure 22** and then tighten the lock lever.

**Figure 22**. Adjusting depth stop using ruler.

- Another method of setting the depth stop is to mark the depth of the mortise cut on the side or front of the workpiece with a pencil, lower the bottom of the chisel to the line, as shown in **Figure 23**, then lock the depth stop.

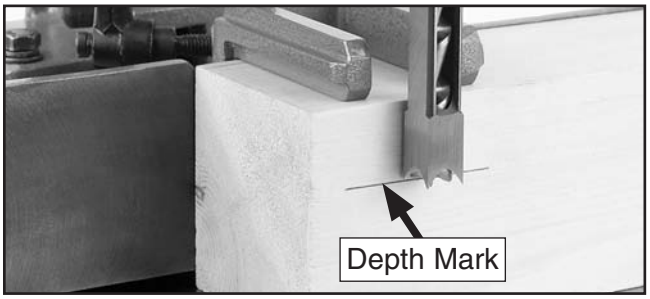



**Figure 23**. Depth marked on workpiece.

# Adjusting Fence

The fence can be moved back and forth on the table by loosening the spring-loaded lock levers, rotating the fence adjustment knob, and tightening the lock levers (**Figure 24**).

**Note:** *The fence adjustment knob cannot be used when the extension block is installed.*

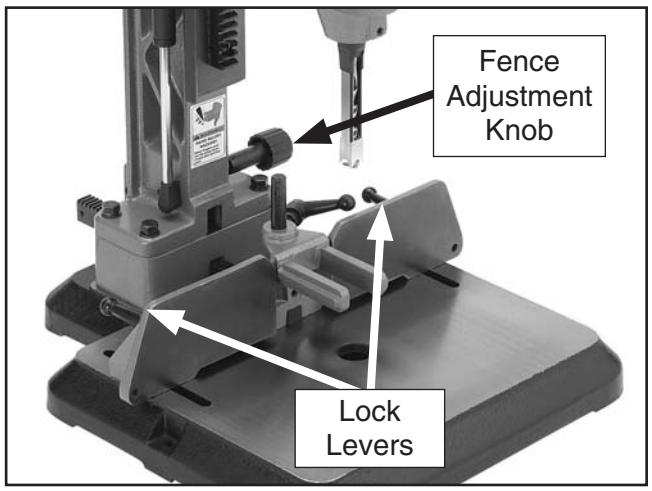



**Figure 24**. Fence controls.

# Hold Down

The hold down acts as a clamp, holding the workpiece to the table surface. The hold down must be used to keep the workpiece from raising when the chisel is removed after a cut.

**To use the hold down:**

1. Position the chisel over the workpiece and lock the depth stop rod.

2. Loosen the hold down rod lock lever, adjust the bottom of the hold down $^{1}/_{16}$" above the top of the workpiece—allowing the workpiece to move horizontally for making multiple mortises, then secure the lock lever, as shown in **Figure 25**.

   When placed in the position shown in **Figure 25**, the bracket will hold down a workpiece slightly taller than the fence.

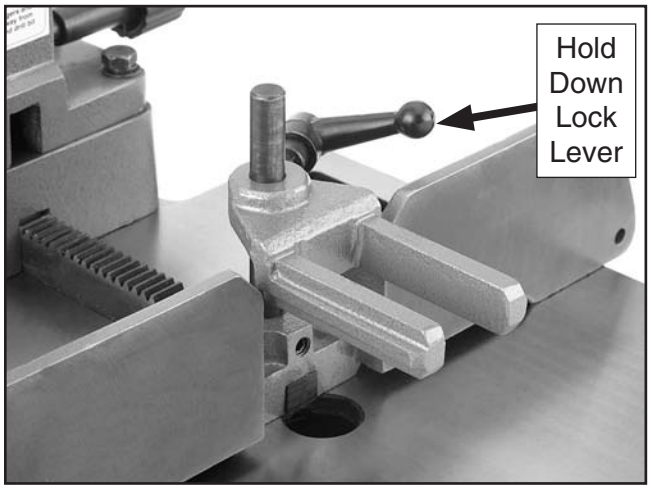



**Figure 25**. Low hold down position.

The hold down may also be placed directly on the workpiece when making multiple mortises. However, each time you cut a mortise you will have to loosen the lock knob, move the workpiece, and then secure the hold down.

You can also flip the hold down to hold thicker workpieces, as shown in **Figure 26**.

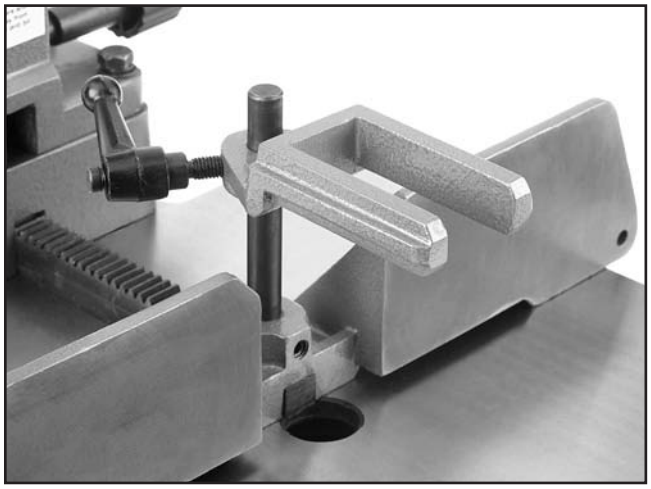


**Figure 26**. High hold down position.

# Basic Mortising Operations

**To make a basic mortise:**

1. DISCONNECT THE MORTISING MACHINE FROM POWER!

2. Verify that the chisel and fence are square (see **Installing Chisel**, **Page 18**) and adjust as needed.

3. Secure the fence lock handles, place a piece of scrap lumber the same dimensions as the workpiece flush with the fence, and set the depth stop (see **Adjusting Depth Stop Rod**, **Page 19**).

**⚠WARNING**

**HAND INJURY HAZARD!**

**During the next step, keep fingers and hands away from chisel and drill bit path when cutting the mortise.**

4. Layout the desired mortise on the test piece.

5. Position and lock the hold down.

6. Align the chisel with the mortise outline (see **Figure 27**), turn the power ***ON***, and use the hand lever to steadily feed the mortising chisel into the test piece.

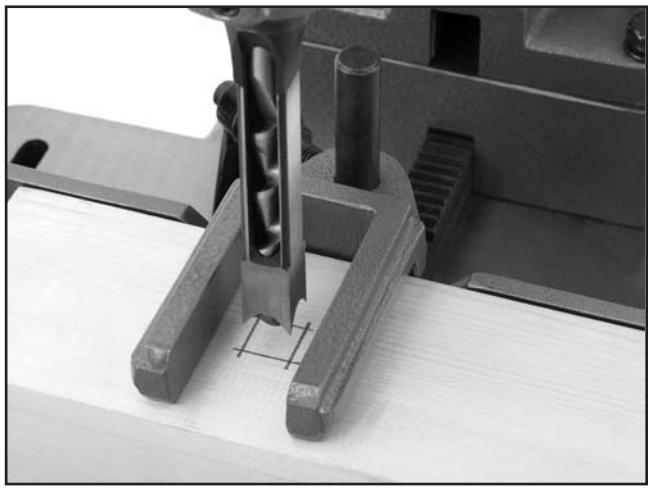


**Figure 27**. Aligning chisel with outline.

**⚠WARNING**

**Pulling down on the handle can be difficult on some woods. However, NEVER use a cheater pipe or handle extender on the handle. You could break the hand lever and be seriously injured.**

—The feed rate must be fast enough to prevent the tip of the bit from burning, but slow enough to prevent the motor from stalling. This speed will vary depending on the wood type, moisture content, and frequency of chip clearing from the mortise.

—When cutting deep mortises, make a 1" deep cut, then back off and allow the chips to clear before cutting deeper.

**Note:** *Some chisel noise and smoke is normal, but we recommend using a small amount of lubrication on the drill bit (not the chisel) to keep this to a minimum. See* ***Page 24*** *for more information on lubricating the drill bit.*

7. When the desired depth is achieved, move the hand lever back to the upper position. The test piece should remain in place as this is done.

8. Turn the power ***OFF***.

9. Check the placement of the hole on the test piece, and adjust the fence if necessary. When the desired accuracy of placement is achieved, repeat **Steps 4-8** on the actual workpiece.

10. When making rectangular mortises, follow the sequence of cuts shown in **Figure 28**. Position the chisel over the center of cuts 5, 6 and 7, since these only use part of the chisel.

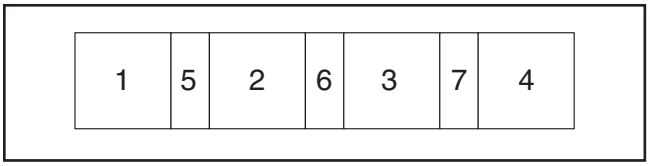



**Figure 28**. Sequence of cuts.

# Rotating Column

The head and column assembly can be adjusted for mortising off of the base—this will allow the mortising machine to accommodate a taller workpiece.

**To rotate the column 180°:**

1. With assistance, remove the four hex bolts and washers securing the column to the base, and set the column and headstock aside.

2. Remove the hardware mounting the base to the workbench.

3. Remove the fence lock levers and the fence.

4. Place the back of the base flush with workbench edge and remount the base with the hardware removed earlier.

5. If used, rotate the fence and extension block 180°, and place them on the base.

6. Remount the column to the base with the hex bolts and washers removed earlier, as shown in **Figure 29**.

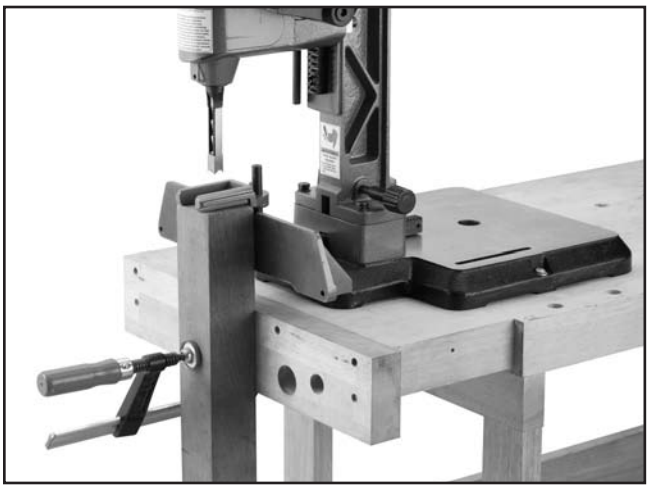


**Figure 29**. Column rotated 180° for larger workpiece.

7. Place the workpiece flush against the fence and secure with a clamp, as shown in **Figure 29**.

8. Reverse **Steps 1-7** to mount the column and headstock for normal operation.

# SECTION 5: ACCESSORIES

**⚠WARNING**

**Using accessories or attachments not recommended for this machine may cause the machine to function differently than intended, which may increase the risk of serious personal injury. Only use recommended accessories for ths machine.**

**H7583—Tenoning Jig**
Use this simple jig on your table saw to make tenons for a mortise and tenon joint. Precision adjustments make it easy to create a perfect tenon every time.

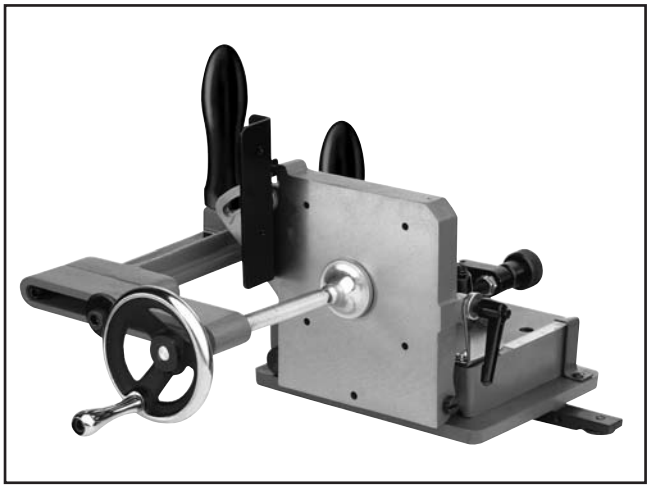


**Figure 30.** Table saw tenoning jig.

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

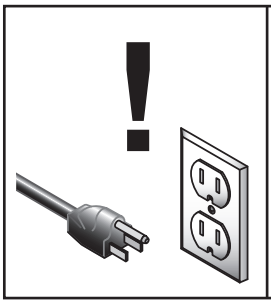

**Figure 31.** Recommended products for protecting unpainted cast iron/steel part on machinery.

***NOTICE***

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

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

# SECTION 6: MAINTENANCE



**⚠WARNING**

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

## Schedule

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

**Daily Check:**

- Loose mounting bolts.
- Worn switch or damaged wires.
- Any other unsafe condition.
- Worn or damaged chisel or bits.

## Cleaning

Cleaning the Model G0645 is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it. Treat all unpainted cast iron and steel with a non-staining lubricant after cleaning.

## Unpainted Cast Iron

Protect the unpainted cast iron surfaces on the table by wiping the table clean after every use—this ensures moisture from wood dust does not remain on bare metal surfaces.

Keep tables rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9 (see **Section 5: Accessories** on **Page 23** for more details).

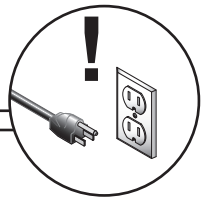
## Drill Bits & Mortising Chisels

The drill bits for mortising chisels operate under extreme conditions. A small amount of bees wax applied to the drill bit can aid in reducing heat and expelling chips. It is important that a small amount is used and none is applied to the chisel. Bees wax coming into contact with the finished surfaces will impede adhesion of glues and finishes.

# SECTION 7: SERVICE

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

## Troubleshooting



### Motor & Electrical

| Symptom | Possible Cause | Possible Solution |
|---|---|---|
| Motor will not start; fuses or circuit breakers blow. | 1. Tripped breaker.<br>2. Short circuit in line cord or plug.<br>3. Open circuit in motor or loose connections. | 1. Repair for cause of tripped breaker and reset.<br>2. Repair or replace cord or plug for damaged insulation and shorted wires.<br>3. Inspect all lead connections on motor for loose or open connections. |
| Motor overheats or stalls (resulting in blown fuses or tripped circuit). | 1. Short circuit in motor or loose connections.<br>2. Air circulation through the motor restricted.<br>3. Incorrect size fuses or circuit breakers.<br>4. Motor overloaded. | 1. Replace motor connections with loose/shorted terminals or worn insulation.<br>2. Clean out motor to provide normal air circulation.<br>3. Install correct fuses or circuit breakers.<br>4. Reduce load on motor. |
| Loud repetitious noise coming from machine. | 1. Motor fan is hitting the cover. | 1. Adjust fan cover mounting position, tighten fan, or shim fan cover. |

### Mortising Operations

| Symptom | Possible Cause | Possible Solution |
|---|---|---|
| Difficult to pull lever down during machine operation. | 1. Drill bit does not protrude enough from the end of the chisel.<br>2. Chisel or drill bit is dull.<br>3. Mortising operating handle is not positioned for maximum leverage.<br>4. Chisel is too big for job. | 1. Adjust the drill bit depth.<br>2. Sharpen/replace drill bit and chisel.<br>3. Adjust the handle for maximum length, and position it so you have the maximum leverage at the most dificult mortising depth.<br>4. Use up to 1/2" chisel (maximum). |
| Mortising bit and chisel are extremely noisy, chatter, and smoke. (An average amount of noise and chatter are normal for any mortising machine.) | 1. Drill bit out of alignment with chisel.<br>2. The chisel mounting bushing is loose or damaged causing poor drill bit-to-chisel alignment.<br>3. The chisel or drill bit is bent.<br>4. Normal condition. | 1. Reinstall chisel in a different position.<br>2. Replace bushing, using care not to over-tighten the chisel retaining set screw.<br>3. Replace the chisel and drill bit as a matched set.<br>4. Some amount of chatter and smoke is normal. |
| Moritising bit and chisel generate smoke and burn the workpiece. | 1. The drill bit is dull.<br>2. Drilling pressure is too aggressive and overheats the drill bit.<br>3. Wood chips load up in the chisel and overheat the drill bit.<br>4. Wood is too green, has high moisture content, or is pressure treated. | 1. Sharpen/replace drill bit and chisel.<br>2. Adjust drill bit depth, reduce drilling pressure, clear chips often.<br>3. Apply small amount of bees wax to drill bit; face chisel slot sideways; clear chips often.<br>4. Only mortise dry, untreated wood. |

# Adjusting Gibs

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

The Model G0645 has a dovetail gib located on the side of the headstock (**Figure 32**).

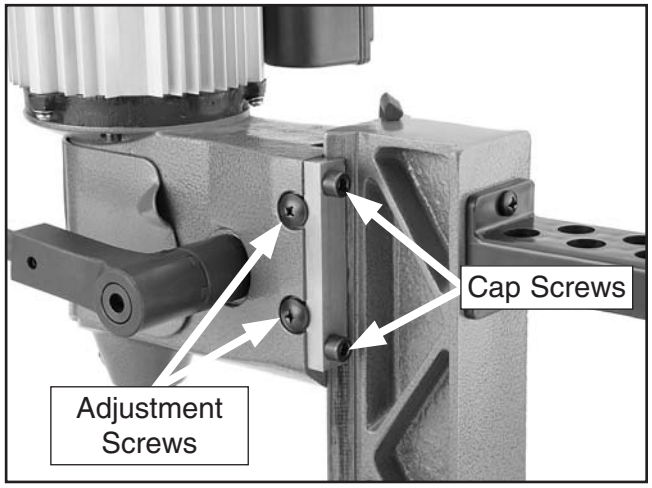



**Figure 32**. Adjustment screws for headstock gib.

The gib controls the accuracy of the sliding parts and keeps them stable during operation. The goal of adjusting the gib is to remove unnecessary play when the slides are moved, without tightening them so much that they bind. The gib can be tightened or loosened by using the adjustment screws.

**To adjust the gibs:**

1. Loosen the cap screws and move the headstock up or down slowly while turning the adjustment screws.

2. Tighten the cap screws when you obtain a snug fit between the column and gib with a minimal amount of side-to-side movement.

# Replacing Gas Spring

**Tools Needed:** **Qty**
Flat Head Screwdriver.....1

When working correctly, the gas spring shown in **Figure 33** keeps the headstock under pressure so it does not drop when the operating handle is released. If you ever notice that the gas spring stops working correctly, then promptly replace it.

**To replace the gas spring:**

1. Raise the headstock as far as it will go and set the depth stop to keep the head from falling.

2. Pull the gas spring off of the ball studs, as shown in **Figure 33**.

   **Tip:** *Position the flat part of the screwdriver close to the ball stud on the gas spring as shown in **Figure 34**, to prevent snapping the ball stud off.*

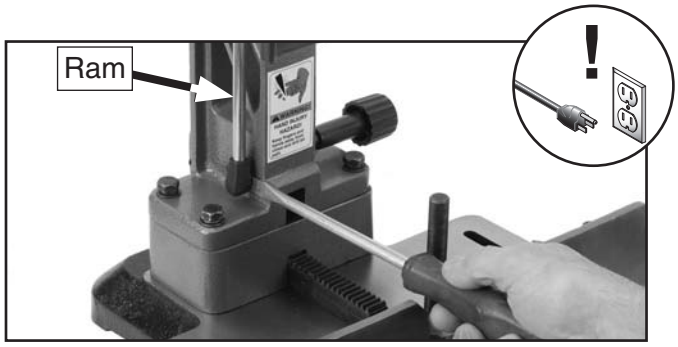



**Figure 33.** Removing gas spring from ball stud.

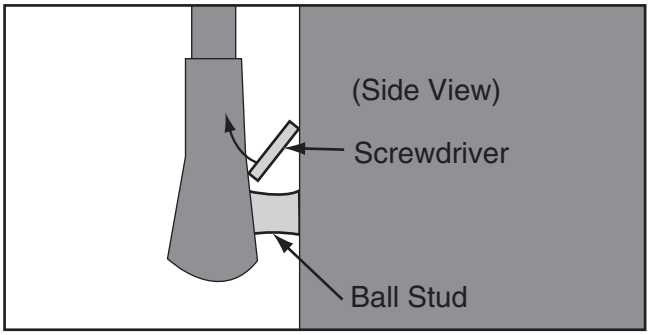



**Figure 34**. Correctly leveraging gas spring.

3. Replace the gas spring on the ball studs so the ram end points down.

# Electrical Components & Wiring Diagram

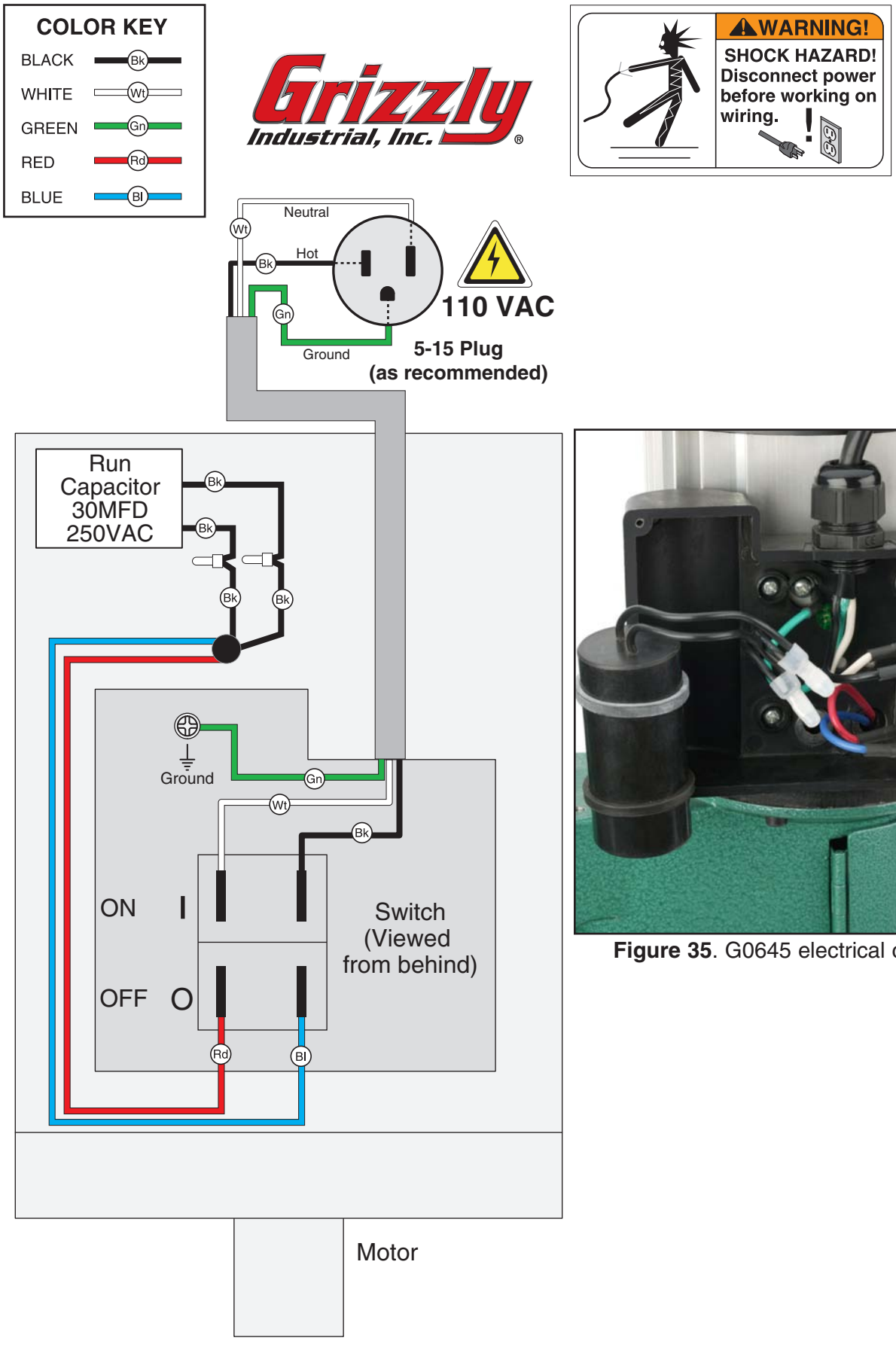
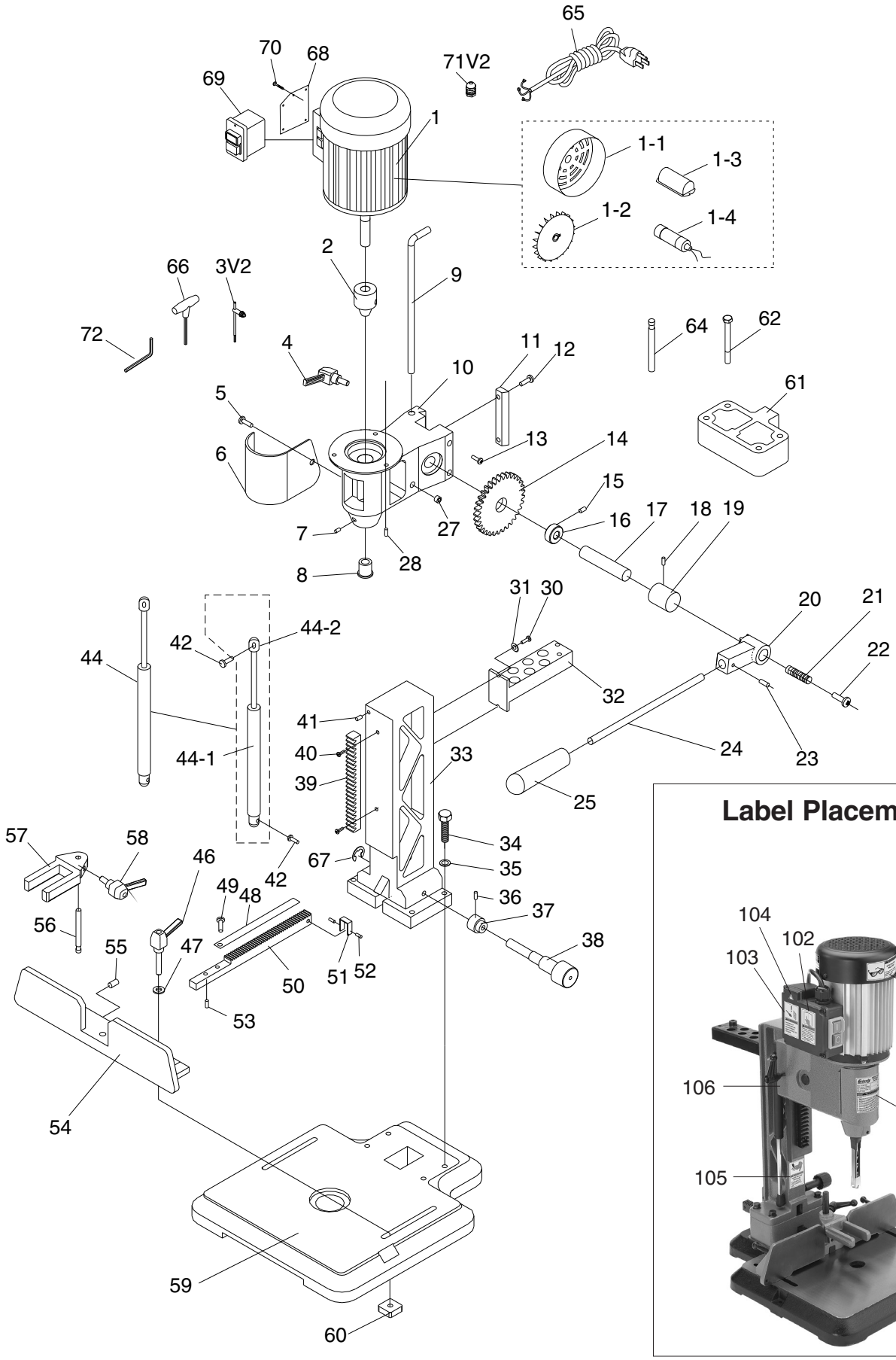





**Figure 35**. G0645 electrical components.

# Parts Breakdown




## Label Placement

# Parts List

| REF | PART # | DESCRIPTION |
|---|---|---|
| 1 | P0645001 | MOTOR 1/2 HP 110V |
| 1-1 | P0645001-1 | FAN COVER |
| 1-2 | P0645001-2 | FAN |
| 1-3 | P0645001-3 | CAPACITOR COVER |
| 1-4 | P0645001-4 | R CAPACITOR 25M 300V 2-7/8 X 1-3/8 |
| 2 | P0645002 | CHUCK JT#2 0-3/8" |
| 3V2 | P0645003V2 | DRILL CHUCK KEY 1/4" STD 12T SD-5/8" V2 |
| 4 | P0645004 | LOCK LEVER M8-1.25 X 20 |
| 5 | PS07M | PHLP HD SCR M4-.7 X 8 |
| 6 | P0645006 | CHUCK ACCESS COVER |
| 7 | PSS09M | SET SCREW M8-1.25 X 20 |
| 8 | P0645008 | BUSHING |
| 9 | P0645009 | DEPTH STOP ROD |
| 10 | P0645010 | HEADSTOCK |
| 11 | P0645011 | DOVETAIL GIB |
| 12 | PSB14M | CAP SCREW M8-1.25 X 20 |
| 13 | PS39M | PHLP HD SCR M8-1.25 X 10 |
| 14 | P0645014 | GEAR |
| 15 | P0645015 | SET SCREW M5-.8 X 10 |
| 16 | P0645016 | SPACER |
| 17 | P0645017 | SHAFT |
| 18 | PRP08M | ROLL PIN 6 X 30 |
| 19 | P0645019 | CLUTCH |
| 20 | P0645020 | CLUTCH COLLAR |
| 21 | P0645021 | COMPRESSION SPRING |
| 22 | P0645022 | SHOULDER BOLT M10-1.5 X 15 |
| 23 | PRP07M | ROLL PIN 6 X 20 |
| 24 | P0645024 | HANDLE |
| 25 | P0645025 | RUBBER GRIP |
| 27 | P0645027 | MAGNET |
| 28 | PSB24M | CAP SCREW M5-.8 X 16 |
| 30 | PS11M | PHLP HD SCR M6-1 X 16 |
| 31 | PW03M | FLAT WASHER 6MM |
| 32 | P0645032 | TOOL STORAGE RACK |
| 33 | P0645033 | COLUMN ASSEMBLY |
| 34 | PB07M | HEX BOLT M8-1.25 X 25 |
| 35 | PW01M | FLAT WASHER 8MM |

| REF | PART # | DESCRIPTION |
|---|---|---|
| 36 | PSS09M | SET SCREW M8-1.25 X 20 |
| 37 | P0645037 | GEAR |
| 38 | P0645038 | FENCE ADJUSTMENT KNOB |
| 39 | P0645039 | COLUMN RACK |
| 40 | PSB28M | CAP SCREW M6-1 X 15 |
| 41 | P0645041 | ALIGNMENT PIN |
| 42 | P0645042 | BALL END |
| 44 | P0645044 | GAS SPRING ASSEMBLY |
| 44-1 | P0645044-1 | CYLINDER |
| 44-2 | P0645044-2 | COLUMN ADAPTER |
| 46 | P0645046 | LOCK LEVER M8-1.25 X 50 |
| 47 | PW01M | FLAT WASHER 8MM |
| 48 | P0645048 | DUST COVER 10 X 5/8 (METAL) |
| 49 | PS05M | PHLP HD SCR M5-.8 X 8 |
| 50 | P0645050 | FENCE ADJUSTMENT RACK |
| 51 | P0645051 | BRACKET |
| 52 | PSS16M | SET SCREW M8-1.25 X 10 |
| 53 | PSS09M | SET SCREW M8-1.25 X 20 |
| 54 | P0645054 | FENCE |
| 55 | PSS16M | SET SCREW M8-1.25 X 10 |
| 56 | P0645056 | SHORT HOLD DOWN ROD 104MM |
| 57 | P0645057 | HOLD DOWN |
| 58 | P0645058 | LOCK LEVER M8-1.25 X 20 |
| 59 | P0645059 | BASE |
| 60 | PSN03M | SQUARE NUT M8-1.25 |
| 61 | P0645061 | EXTENSION BLOCK |
| 62 | PB82M | HEX BOLT M8-1.25 X 80 |
| 64 | P0645064 | LONG HOLD DOWN ROD 145MM |
| 65 | P0645065 | POWER CORD 18AWG X 3C |
| 66 | P0645066 | T-HANDLE HEX WRENCH 4MM |
| 67 | PEC07M | E-CLIP 7MM |
| 68 | P0645068 | SWITCH COVER |
| 69 | P0645069 | ON/OFF SWITCH KJD20-6F/110V |
| 70 | PHTEK31M | TAP SCREW M4 X 14 |
| 71V2 | P0645071V2 | STRAIN RELIEF TYPE 3 M16-1.5 V2 |
| 72 | PAW08M | HEX WRENCH 8MM |

# Label Placement

| REF | PART # | DESCRIPTION |
|---|---|---|
| 100 | P0645100 | ID LABEL |
| 101 | P0645101 | SAFETY GLASSES LABEL 2-3/4" X 1-1/2" |
| 102 | P0645102 | READ MANUAL LABEL 1-1/2" X 2-1/2" |
| 103 | P0645103 | DISCONN POWER LABEL 1-1/2" X 2-1/2" |

| REF | PART # | DESCRIPTION |
|---|---|---|
| 104 | PLABEL-14 | ELECTRICITY LABEL |
| 105 | P0645105 | HAND INJURY LABEL 1-1/2" X 2-1/2" |
| 106 | PPAINT-1 | GRIZZLY GREEN TOUCH UP PAINT |

## ⚠WARNING

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

# Grizzly Industrial, Inc. WARRANTY CARD

Name _____

Street _____

City _____ State _____ Zip _____

Phone # _____ Email _____ Invoice # _____

Model # _____ Order # _____ Serial # _____

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

**1.** How did you learn about us?

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

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

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

**3.** What is your annual household income?

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

**4.** What is your age group?

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

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

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

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

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

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

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

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

**10.** Comments: _____

_____

_____

_____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

Place
Stamp
Here

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

FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name_____

Street_____

City_____State_____Zip_____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

# WARRANTY AND RETURNS

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

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

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

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

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

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