

# *Grizzly* **Industrial, Inc.**®

## **MODEL G3616/G3617 MILLING MACHINE OWNER'S MANUAL**



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE  
OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.**  
#TR7337 PRINTED IN CHINA



## **WARNING!**

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

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

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

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



## **WARNING!**

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

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

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

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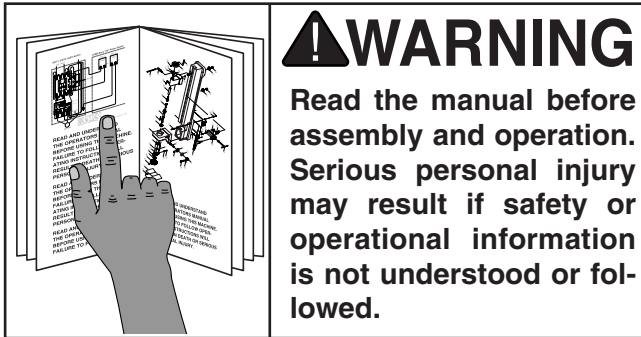
# INTRODUCTION

## Foreword

We are proud to offer the Model G3616/G3617 Mill. This machine is part of a growing Grizzly family of fine metalworking machinery. When used according to the guidelines set forth in this manual, you can expect years of trouble-free, enjoyable operation and proof of Grizzly's commitment to customer satisfaction.

We are pleased to provide this manual with the Model G3616/G3617. It was written to guide you through assembly, review safety considerations, and cover general operating procedures.

The specifications, drawings, and photographs illustrated in this manual represent the Model G3616/G3617 as supplied when the manual was prepared. For your convenience, we always keep current Grizzly manuals available on our website at [www.grizzly.com](http://www.grizzly.com). Any updates to your machine will be reflected in these manuals as soon as they are complete.



## Contact Info

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

Grizzly Industrial, Inc.  
% Technical Documentation Manager  
P.O. Box 2069  
Bellingham, WA 98227-2069

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

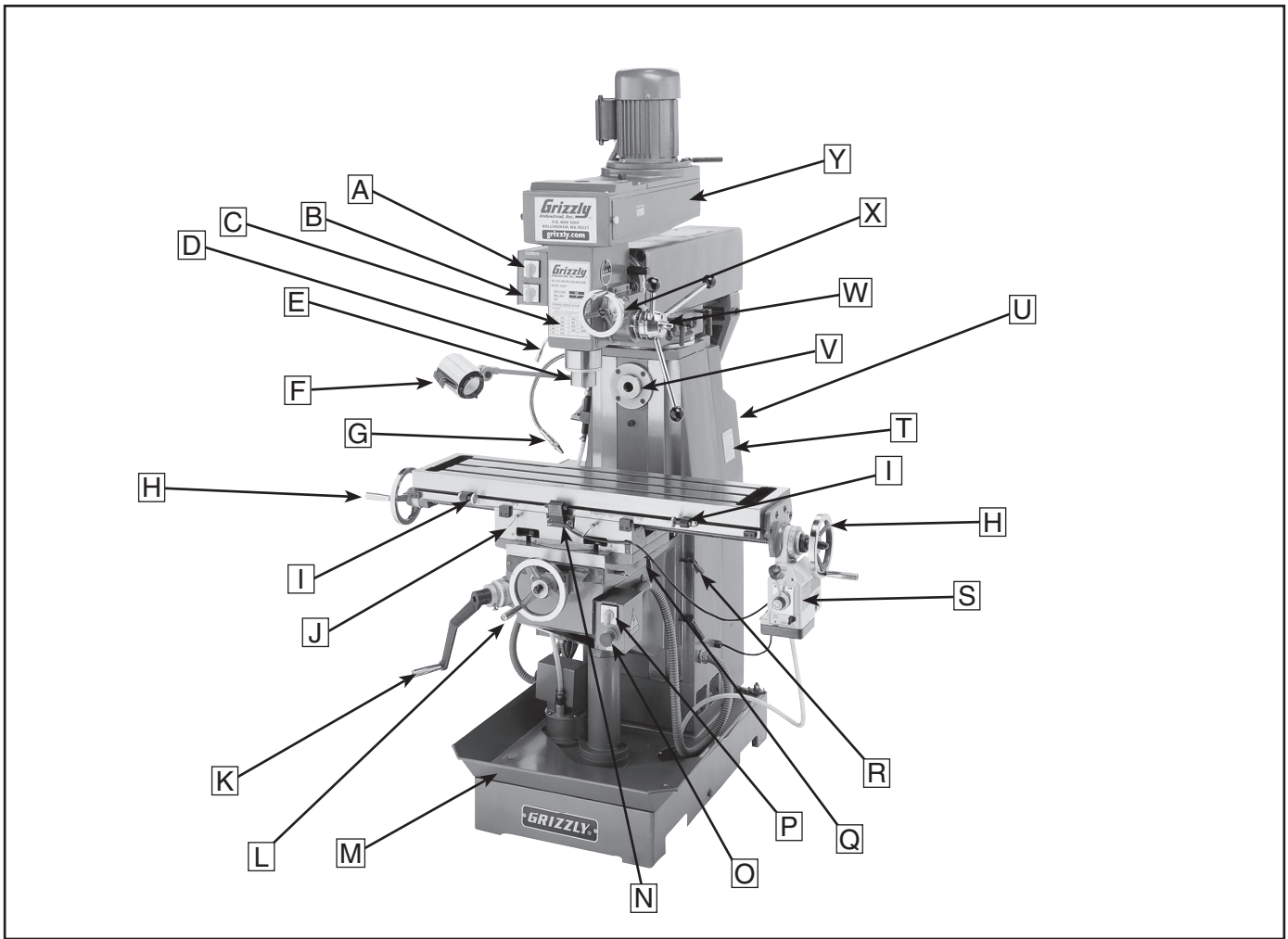
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Web Site: <http://www.grizzly.com>

## NOTICE

This machine is designed for highly skilled individuals who have an understanding of metalworking. This manual instructs on the assembly and controls of this machine, but does not describe the skills and techniques involved in crafting metal. If you are not an experienced metalworker, additional information sources are necessary to realize the full potential of this machine. Classes, trade journals, metalworking magazines, and your local library are good places to start.



# Identification



**Figure 1.** The following is a list of controls and components on the Model G3616/G3617. Please take time to become familiar with each term and its location. These terms will be used throughout the manual and knowing them is essential to understanding the instructions and terminology used in this manual.

- |  |  |
|--|--|
| <b>A.</b> Vertical Spindle ON/OFF Switch         | <b>O.</b> Emergency Stop                                       |
| <b>B.</b> Coolant ON/OFF Switch                  | <b>P.</b> Horizontal Spindle ON/OFF                            |
| <b>C.</b> Vertical Spindle Speed Setting Chart   | <b>Q.</b> Cross Feed Lock (2 Places)                           |
| <b>D.</b> Vertical Quill Travel Lock             | <b>R.</b> Knee Feed Lock (2 Places)                            |
| <b>E.</b> Vertical Spindle                       | <b>S.</b> Powerfeed Controls                                   |
| <b>F.</b> Work Light                             | <b>T.</b> Horizontal Spindle Speed Setting Chart               |
| <b>G.</b> Coolant Hose                           | <b>U.</b> Access Cover for Horizontal Spindle Speed Adjustment |
| <b>H.</b> Longitudinal Feed Handwheel (2 Places) | <b>V.</b> Horizontal Spindle (G3617 only)                      |
| <b>I.</b> Powerfeed Hard Stop (2 Places)         | <b>W.</b> Quill Feed Handle and Lock                           |
| <b>J.</b> Longitudinal Feed Lock (2 Places)      | <b>X.</b> Micro-Feed Adjustment Handle                         |
| <b>K.</b> Knee Feed Handwheel                    | <b>Y.</b> Access Panel for Vertical Spindle Speed Adjustment   |
| <b>L.</b> Cross Feed Handwheel                   |  |
| <b>M.</b> Coolant Tray                           |  |
| <b>N.</b> Powerfeed Limit Switch                 |  |





# MACHINE DATA SHEET

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

## MODEL G3616 VERTICAL MILL

### Product Dimensions:

Weight..... 1322 lbs.  
Length/Width/Height..... 41-15/16 x 41-3/4 x 80-15/16 in.  
Foot Print (Length/Width)..... 28-3/4 x 18 in.

### Shipping Dimensions:

Type..... Wood Crate  
Content..... Machine  
Weight..... 1996 lbs.  
Length/Width/Height..... 44 x 45 x 88 in.

### Electrical:

Switch..... Forward/Reverse  
Switch Voltage..... 220V  
Cord Length..... 6 ft.  
Cord Gauge..... 12 gauge  
Recommended Breaker Size..... 15 amps at 220V, 30 amps at 110V  
Plug..... No

### Motors:

#### Main

Type..... TEFC Capacitor Start Induction  
Horsepower..... 2 HP  
Voltage..... 110/220V  
Prewired..... 220V  
Phase..... Single  
Amps..... 20/10A  
Speed..... 1725 RPM  
Cycle..... 60 Hz  
Number Of Speeds..... 1  
Power Transfer ..... V-Belt Drive  
Bearings..... Shielded, Permanently Lubricated

#### Coolant

Type..... AC Sealed  
Horsepower..... 1/8 HP  
Voltage..... 110/220V  
Prewired..... 220V  
Phase..... Single  
Amps..... 0.9/0.45A  
Cycle..... 60 Hz  
Number Of Speeds..... 1  
Power Transfer ..... Direct Drive  
Bearings..... Shielded, Permanently Lubricated

*The information contained herein is deemed accurate as of 10/1/2007 and represents our most recent product specifications. Due to our ongoing improvement efforts, this information may not accurately describe items previously purchased.*



**Main Specifications:**

**Operation Info**

Spindle Travel.....	5 in.
Swing.....	44 in.
Longitudinal Table Travel.....	15-1/2 in.
Cross Table Travel.....	8-1/2 in.
Vert. Table Travel.....	13 in.
Table Swivel.....	Left and Right 45 deg.
Knee Travel.....	13 in.
Ram Travel.....	11 in.
Ram Swivel Angle.....	90 deg.
Head Travel.....	5 in.
Head Swivel.....	90 deg.
Head Tilt.....	Left and Right 90 deg.
Turret Or Column Swivel.....	Left and Right 90 deg.
Max. Dist Spindle To Column.....	22 in.
Max. Dist Spindle To Table.....	15 in.
Drilling Cap For Cast Iron.....	1-1/4 in.
Drilling Cap For Steel.....	1-1/4 in.
No. Of Vert. Spindle Speeds.....	9
Range Of Vert. Spindle Speeds.....	270, 390, 550, 615, 860, 930, 1800, 1960, 2950 RPM
No. Of Longitudinal Feeds.....	Variable
Feed Rate.....	0 - 140 RPM
Quill Dia.....	3-1/2 in.

**Table Info**

Table Length.....	31-1/2 in.
Table Width.....	9-1/2 in.
Table Thickness.....	2-1/2 in.
No. Of T Slots.....	3
T Slots Width.....	0.640 in.
T Slots Height.....	1 in.
T Slots Centers.....	1-5/8 in.
Stud Size.....	1/2 in.

**Lead Screw Info**

Lead Screw Diameter.....	1 in.
Lead Screw TPI.....	5
Lead Screw Length.....	37 in.

**Construction**

Spindle Housing Const.....	Cast Iron
Table Const.....	Surface Ground Cast Iron
Head Const.....	Cast Iron
Column Const.....	Cast Iron
Base Const.....	Cast Iron
Paint.....	Epoxy

**Other**

Collars Calibrated.....	0.001 in.
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**Spindle Info**

Spindle Taper.....	R-8
End Milling Cap.....	1 in.
Face Milling Cap.....	3 in.
Draw Bar Diameter.....	0.550 in.
Draw Bar TPI.....	20
Draw Bar Length.....	16-5/8 in.
Spindle Bearings.....	Roller and Ball

*The information contained herein is deemed accurate as of 10/1/2007 and represents our most recent product specifications. Due to our ongoing improvement efforts, this information may not accurately describe items previously purchased.*



**Other Specifications:**

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

**Features:**

Coolant System  
Fine Down Feed  
Reversing Switch  
Longitudinal Power Feed  
Work Light  
Centralized Controls

**Accessories Included:**

Drill Chuck with Arbor  
Milling Vise  
Set of R-8 Collets

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# MACHINE DATA SHEET

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

## MODEL G3617 HORIZONTAL / VERTICAL MILL

### Product Dimensions:

Weight..... 2054 lbs.  
 Length/Width/Height..... 54-7/8 x 59 x 80-3/4 in.  
 Foot Print (Length/Width)..... 35-5/8 x 20-1/2 in.

### Shipping Dimensions:

Type..... Wood Crate  
 Content..... Machine  
 Weight..... 2429 lbs.  
 Length/Width/Height..... 53 x 45 x 88 in.

### Electrical:

Switch..... Forward/Reverse  
 Switch Voltage..... 220V  
 Cord Length..... 6 ft.  
 Cord Gauge..... 12 gauge  
 Recommended Breaker Size..... 15 amps at 220V, 30 amps at 110V  
 Plug..... No

### Motors:

#### Vertical

Type..... TEFC Capacitor Start/Run  
 Horsepower..... 2 HP  
 Voltage..... 110/220V  
 Prewired..... 220V  
 Phase..... Single  
 Amps..... 20/10A  
 Speed..... 1725 RPM  
 Cycle..... 60 Hz  
 Number Of Speeds..... 1  
 Power Transfer ..... V-Belt  
 Bearings..... Shielded, Permanently Lubricated

#### Horizontal

Type..... TEFC Capacitor Start/Run  
 Horsepower..... 1-1/2 HP  
 Voltage..... 110/220V  
 Prewired..... 220V  
 Phase..... Single  
 Amps..... 16/8A  
 Speed..... 1725 RPM  
 Cycle..... 60 Hz  
 Number Of Speeds..... 1  
 Power Transfer ..... V-Belt  
 Bearings..... Shielded, Permanently Lubricated

*The information contained herein is deemed accurate as of 10/1/2007 and represents our most recent product specifications. Due to our ongoing improvement efforts, this information may not accurately describe items previously purchased.*



**Coolant**

Type.....	AC Sealed
Horsepower.....	1/8 HP
Voltage.....	110/220V
Prewired.....	220V
Phase.....	Single
Amps.....	0.9/0.45A
Cycle.....	60 Hz
Number Of Speeds.....	1
Power Transfer .....	Direct Drive
Bearings.....	Shielded, Permanently Lubricated

**Main Specifications:**

**Operation Info**

Spindle Travel.....	5 in.
Swing.....	54 in.
Longitudinal Table Travel.....	22 in.
Cross Table Travel.....	8-1/2 in.
Vert. Table Travel.....	13 in.
Table Swivel.....	Left and Right 45 deg.
Knee Travel.....	13 in.
Ram Travel.....	11 in.
Ram Swivel Angle.....	90 deg.
Head Travel.....	5 in.
Head Swivel.....	90 deg.
Head Tilt.....	Left and Right 90 deg.
Turret Or Column Swivel.....	Left and Right 90 deg.
Max. Dist Spindle To Column.....	27 in.
Max. Dist Spindle To Table.....	13-3/4 in.
Drilling Cap For Cast Iron.....	1-1/4 in.
Drilling Cap For Steel.....	1-1/4 in.
Max. Dist Horz. Spindle Center To Table.....	11-3/8 in.
No. Of Vert. Spindle Speeds.....	9
Range Of Vert. Spindle Speeds.....	270, 390, 490, 615, 860, 930, 1600, 1960, 2950 RPM
No. Of Horz. Spindle Speeds.....	8
Range Of Horz. Spindle Speeds.....	72, 170, 210, 240, 290, 550, 830, 1300 RPM
No. Of Longitudinal Feeds.....	Variable
Feed Rate.....	0 - 140 RPM
Quill Dia.....	3-1/2 in.

**Table Info**

Table Length.....	39-3/8 in.
Table Width.....	9-1/2 in.
Table Thickness.....	2-1/2 in.
No. Of T Slots.....	3
T Slots Width.....	0.640 in.
T Slots Height.....	1 in.
T Slots Centers.....	3 in.
Stud Size.....	1/2 in.

**Lead Screw Info**

Lead Screw Diameter.....	1 in.
Lead Screw TPI.....	5
Lead Screw Length.....	43 in.

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**Construction**

Spindle Housing Const.....	Cast Iron
Table Const.....	Surface Ground Cast Iron
Head Const.....	Cast Iron
Column Const.....	Cast Iron
Base Const.....	Cast Iron
Paint.....	Epoxy

**Other**

Collars Calibrated.....	0.001 in.
-------------------------	-----------

**Spindle Info**

Spindle Taper.....	R-8
End Milling Cap.....	1 in.
Face Milling Cap.....	3 in.
Draw Bar Diameter.....	0.550 in.
Draw Bar TPI.....	20
Draw Bar Length.....	16-5/8 in.
Spindle Bearings.....	Roller and Ball
Horz. Spindle Taper.....	R-8
Horz. Spindle Sizes.....	1, 1-1/4 in.
Horz. Spindle Bearing Type.....	Ball

**Other Specifications:**

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

**Features:**

- Coolant System
- Longitudinal, Variable Speed Power Feed
- Work Light
- Centralized Motor Controls

**Accessories Included:**

- Drill Chuck with Arbor
- Milling Vise
- Set of R-8 Collets

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# SECTION 1: SAFETY

## WARNING

### For Your Own Safety Read Instruction Manual Before Operating This Equipment

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are 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 equipment.

## WARNING

### Safety Instructions for Machinery

- 1. READ THROUGH THE ENTIRE MANUAL BEFORE STARTING MACHINERY.** Machinery presents serious injury hazards to untrained users.
- 2. MAKE SURE ALL GUARDS ARE IN THEIR CORRECT PLACE AND WORK CORRECTLY BEFORE USING MACHINERY. NEVER OPERATE MACHINE WITHOUT GUARDS.**
- 3. ALWAYS USE ANSI APPROVED SAFETY GLASSES WHEN OPERATING MACHINERY.** Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
- 4. ALWAYS WEAR AN ANSI APPROVED RESPIRATOR WHEN OPERATING MACHINERY THAT PRODUCES DUST.** Wood dust is a carcinogen and can cause cancer and severe respiratory illnesses.
- 5. ALWAYS USE HEARING PROTECTION WHEN OPERATING MACHINERY.** Machinery noise can cause permanent hearing damage.
- 6. WEAR PROPER APPAREL. DO NOT** wear loose clothing, gloves, neckties, rings, or jewelry which may get caught in moving parts. Wear protective hair covering to contain long hair and wear non-slip footwear.



# WARNING

## Safety Instructions for Machinery

7. **NEVER OPERATE MACHINERY WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Be mentally alert at all times when running machinery.
8. **BEWARE WOOD DUST ALLERGIES.** Certain woods may cause an allergic reaction in people and animals, especially when exposed to fine dust. Make sure you know what type of wood dust you will be exposed to and always wear an ANSI approved respirator.
9. **ONLY ALLOW TRAINED AND PROPERLY SUPERVISED PERSONNEL TO OPERATE MACHINERY.** Make sure operation instructions are safe and clearly understood.
10. **KEEP CHILDREN AND VISITORS AWAY.** Keep all children and visitors a safe distance from the work area.
11. **MAKE WORKSHOP CHILD PROOF.** Use padlocks, master switches, and remove start switch keys.
12. **NEVER LEAVE WHEN MACHINE IS RUNNING.** Turn power **OFF** and allow all moving parts to come to a complete stop before leaving machine unattended.
13. **DO NOT USE IN DANGEROUS ENVIRONMENTS.** DO NOT use machinery in damp, wet locations, or where any flammable or noxious fumes may exist.
14. **KEEP WORK AREA CLEAN AND WELL LIT.** Clutter and dark shadows may cause accidents.
15. **USE A GROUNDED EXTENSION CORD RATED FOR THE MACHINE AMPERAGE.** Undersized cords overheat and reduce voltage. Replace extension cords if they become damaged. DO NOT use extension cords for 220V machinery.
16. **ALWAYS DISCONNECT FROM POWER SOURCE BEFORE SERVICING MACHINERY.** Make sure switch is in *OFF* position before reconnecting.
17. **MAINTAIN MACHINERY WITH CARE.** Keep blades sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
18. **REMOVE ADJUSTING KEYS AND WRENCHES.** Make a habit of checking for keys and adjusting wrenches before turning *ON* machinery.
19. **CHECK FOR DAMAGED PARTS BEFORE USING MACHINERY.** Check for binding and alignment of parts, broken parts, part mounting, loose bolts, and any other conditions that may affect machine operation. Repair or replace damaged parts.
20. **USE RECOMMENDED ACCESSORIES.** Refer to the instruction manual for recommended accessories. The use of improper accessories may cause risk of injury.
21. **DO NOT FORCE MACHINERY.** Work at the speed for which the machine or accessory was designed.
22. **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.
23. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
24. **MANY MACHINES WILL EJECT THE WORKPIECE TOWARD THE OPERATOR.** Know and avoid conditions that cause the workpiece to be ejected.
25. **ALWAYS LOCK MOBILE BASES BEFORE OPERATING MACHINERY.**



## WARNING

# Additional Safety Instructions for Mills

- 1. SETUP.** Do not use until mill is completely setup according to this instruction manual.
- 2. OPERATOR UNDERSTANDING.** Do not use the mill until all controls and adjustments are understood.
- 3. ADJUSTMENT TOOLS.** Ensure that all wrenches and adjusting keys have been removed before starting machine.
- 4. CORRECT SPEEDS.** Always use the recommended speeds and feeds with milling cutters and router bits.
- 5. DEPTH STOP.** Adjust depth stop to prevent drilling into table work surface.
- 6. CLEAN WORK AREA.** Keep area around the mill free from oil, tools, and chips.
- 7. HOLDING WORKPIECES.** Never hold workpieces with your hands during milling or drilling. Instead, clamp it to the table or use a vise bolted to the table to secure workpiece and prevent rotation.
- 8. HANDLING SHARP CUTTERS.** Never handle sharp cutters with bare hands. Paper towels or shop rags wrapped around them will help to avoid injury.
- 9. CLEANING OFF SHAVINGS.** Always use a brush—not a rag—to remove metal shavings or chips.
- 10. UNSECURE BITS/CUTTERS.** Be sure drill bit is securely locked in the chuck or cutter has been secured in a holder or collet before turning the mill **ON**.
- 11. DAMAGED MACHINE.** Never operate mill if any part is damaged or broken until it is properly repaired or replaced.
- 12. PROPER CLEARANCE.** Be sure cutter, workpiece and machine parts have proper working clearance throughout the range of motion you intend to use.
- 13. FINGER PROXIMITY.** Never place your fingers in a position where drill or cutter could contact them if a part shifts unexpectedly. Serious personal injury could result.
- 14. ADJUSTMENTS DURING OPERATION.** Never perform layout, assembly, or setup work on the mill while a bit or cutter is rotating.
- 15. LEAVING MACHINE.** Shut off power, remove drill or cutting tool, and clean tool before leaving machine.
- 16. EXPERIENCING DIFFICULTIES.** If at any time you are experiencing difficulties performing the intended operation, stop using the machine! Then contact our Technical Support or ask a qualified expert how the operation should be performed.

## 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.

## WARNING

Like all power tools, there is danger associated with the Model G3616/G3617 Mill. Accidents are frequently caused by lack of familiarity or failure to pay attention. Use this tool 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: CIRCUIT REQUIREMENTS

## 110/220V Single-Phase

### **!WARNING**

**Serious personal injury could occur if you connect the machine to the power source before you have completed the set up process. DO NOT connect the machine to the power source until instructed to do so.**

The Model G3616/G3617 Horizontal/Vertical Mill has two 110/220V single-phase motors. Both motors come prewired for 220V operation, which is the preferred power supply for the Model G3616/G3617. Only one motor will ever operate at a time, so the circuit requirements below are for the vertical spindle motor, which has the highest amp draw.

### Amperage Draw

The 2 HP vertical spindle motor on the Model G3616/G3617 is the largest motor on the machine and it will draw the following amps, when combined with the coolant pump motor:

220V Connection ..... 10.9 Amps  
 110V Connection ..... 20.45 Amps

### Circuit Breaker Requirements

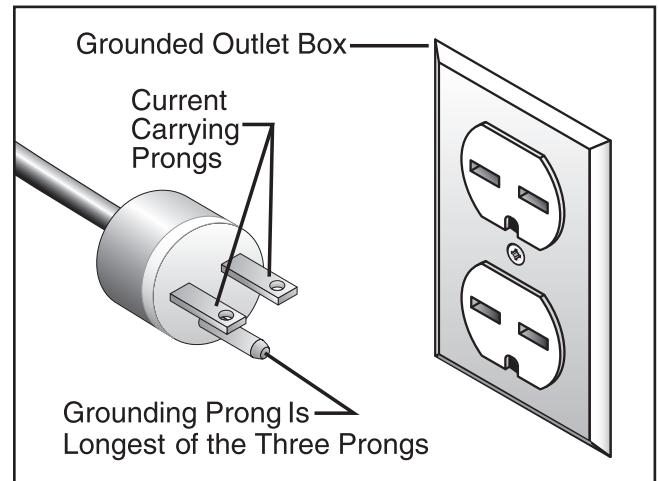
Install your machine on a dedicated circuit to reduce the possibility of tripping the circuit breaker. If the circuit breaker frequently trips, have the circuit inspected by a qualified electrician. Never use a larger circuit breaker than stated below, or you will increase the risk of fire.

220V Circuit Breaker ..... 15 Amps  
 110V Circuit Breaker ..... 25 Amps

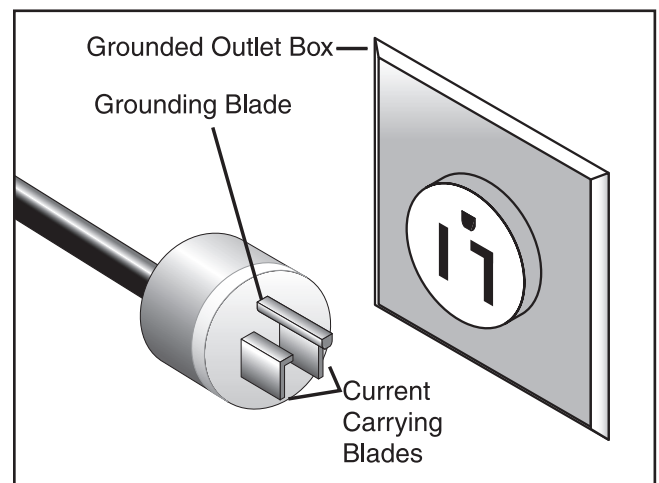
### Plug Type

The cord set enclosed does not have a plug as the style of plug you require will depend upon the type of service you currently have or plan to install. We recommend using the following plug and receptacles (see **Figures 2 & 3** for examples):

220V Plug & Receptacle ..... 6-15  
 110V Plug & Receptacle ..... 5-30



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

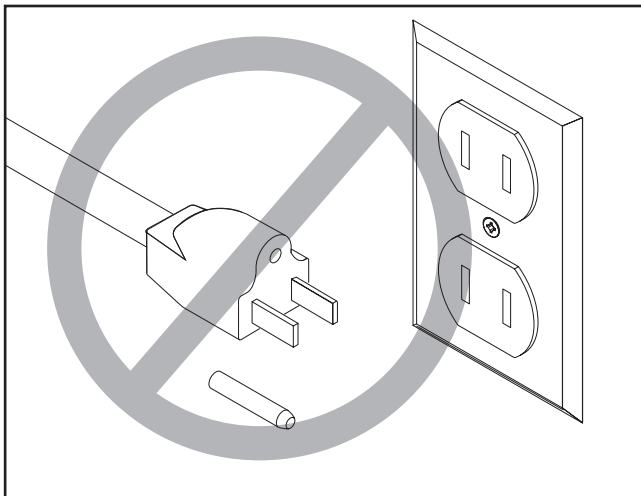
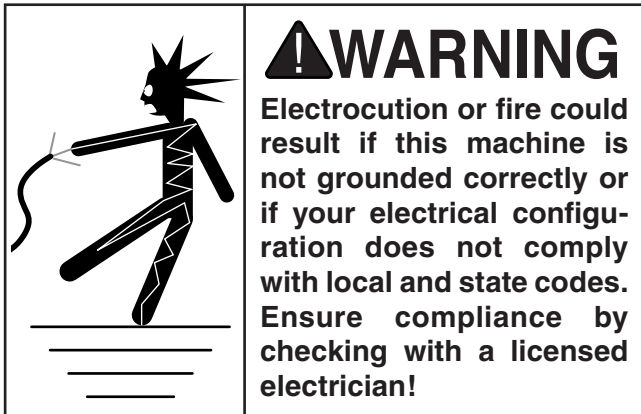


**Figure 3.** 5-30 plug and receptacle.



# Grounding

In the event of an electrical short, grounding reduces the risk of electric shock. This tool is equipped with a power cord that has a grounding wire, which must be properly connected to the grounding prong on the plug; likewise, the outlet must be properly installed and grounded as well. All electrical connections must be made in accordance with local codes and ordinances.



## ⚠ 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

## 220V Operation

We do not recommend the use of extension cords on 220V equipment. Instead, arrange the placement of your equipment and the installed wiring to eliminate the need for extension cords.

## 110V Operation

If you find it necessary to use a 110V extension cord:

- Make sure the cord is rated Standard Service (grade S) or better.
- The extension cord must contain a ground wire and plug pin.
- Use at least a 12 gauge cord that is 50 feet long or less.

# Rewiring to 110V

Regardless of these instructions, all rewiring must be performed/inspected by a qualified electrician before placing the machine into operation.

Before starting, you must order the 110V conversion kit available for your machine. (G7947 110V kit is #P7947600; G7948 110V conversion kit is #P7948600.

### To rewire the G3616/G3617 for 110V:

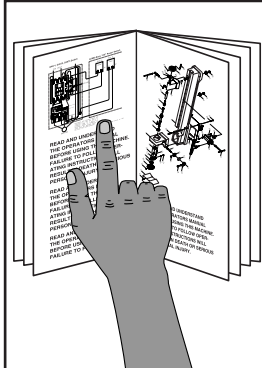
1. Rewire the spindle motor(s) and the coolant motor as shown on the junction box cover on each motor.
2. Replace the spindle motor relay(s) and the coolant motor relay in the electrical control box (see **Pages 45 & 48**) with the relays from the conversion kit. Use the dial settings given on Page to set the relays.
3. Change the 220V wire on the transformer to 110V.



# SECTION 3: SET UP

## About This Section

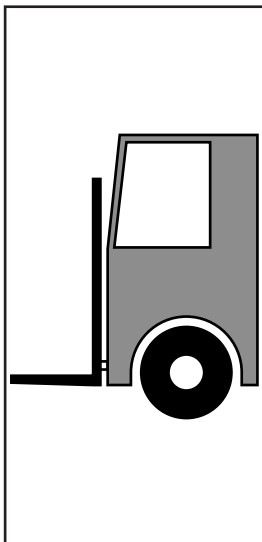
The purpose of this section is to guide you through the required steps to get your machine out of its crate and into operating condition.



**!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 set up process!



**!WARNING**  
The Model G3616/G3617 is a heavy machine. Serious personal injury may occur if safe moving methods are not followed. To be safe, you will need assistance and power equipment when moving the shipping crate and removing the machine from the crate.

## Items Needed for Set Up

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

Description	Qty
• Flat Head Screwdriver.....	1
• Phillips Screwdriver, short handle .....	1
• Safety Glasses (for each person) .....	1
• 19mm Open-ended Wrench.....	1
• Solvent (for cleaning) .....	Varies
• Shop rags (for cleaning).....	Varies

## Unpacking

The Model G3616/G3617 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

After the crate has been removed, you will find one wooden box, one tool box, one way cover, and one wrench, all attached to the base of the crate. A vise, with swivel base, is attached to the table of the mill. After all the parts have been removed from the two boxes, you should have the following items:

## Wooden Box/On-Crate Items (Figure 4)

	Qty
A. Horizontal Arbor 1 1/4" (G3617 only) .....	1
B. Horizontal Arbor 1" (G3617 only) .....	1
C. Way Cover.....	1
D. Vertical Drawbar.....	1
E. Horizontal Drawbar (G3617 Only).....	1
F. Wrench.....	1

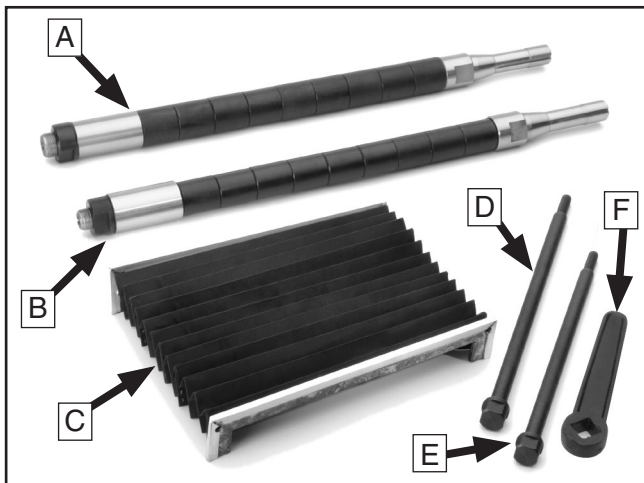


Figure 4. Wooden box and on-crate items.

## Tool Box (Figure 5 & 6)

	Qty
A. Tool Box .....	1
B. Drill Chuck, w/Key 1-16mm JT33.....	1
C. Handwheel Handles .....	3
D. Drift Key.....	1
E. Hex Wrench.....	1
F. Wrench 21/24mm .....	1
G. R8 - MT2 Adaptor.....	1
H. R8 - MT3 Adaptor.....	1
I. R8 - JT33 Adaptor.....	1
J. One set R8 collets.....	13
includes: .....	1/8, 3/16, 1/4, 5/16, 3/8, 7/16, 1/2, 9/16, 5/8, 11/16, 3/4, 13/16, 7/8
K. Knee Handle.....	1

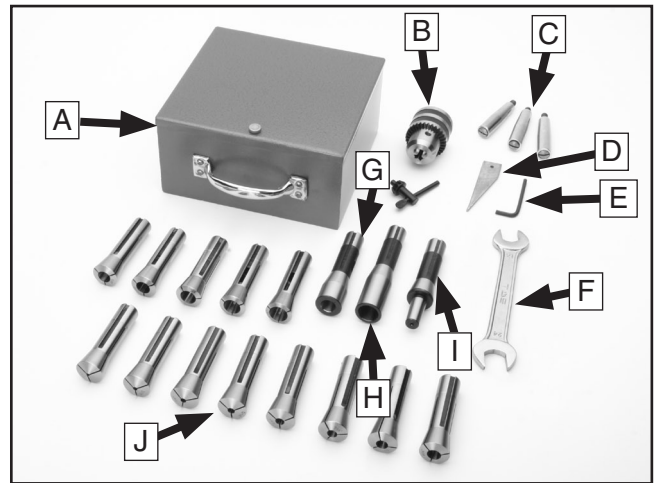


Figure 5. Toolbox items.

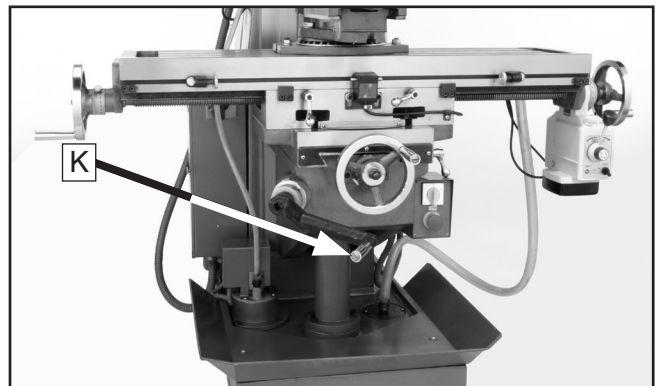


Figure 6. Knee handle shown on mill.

In the event that any nonproprietary parts are missing (e.g. a nut or a washer), we would be glad to replace them, or for the sake of expediency, replacements can be obtained at your local hardware store.



# Hardware Recognition Chart

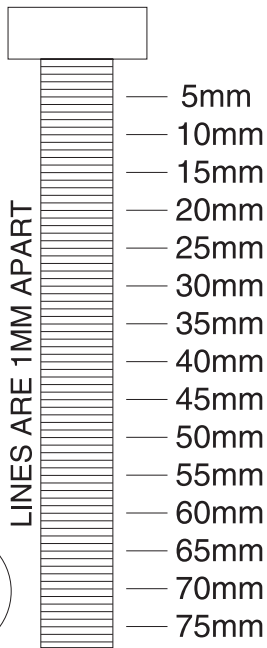
USE THIS CHART TO MATCH UP HARDWARE DURING THE ASSEMBLY PROCESS.

MEASURE BOLT DIAMETER BY PLACING INSIDE CIRCLE

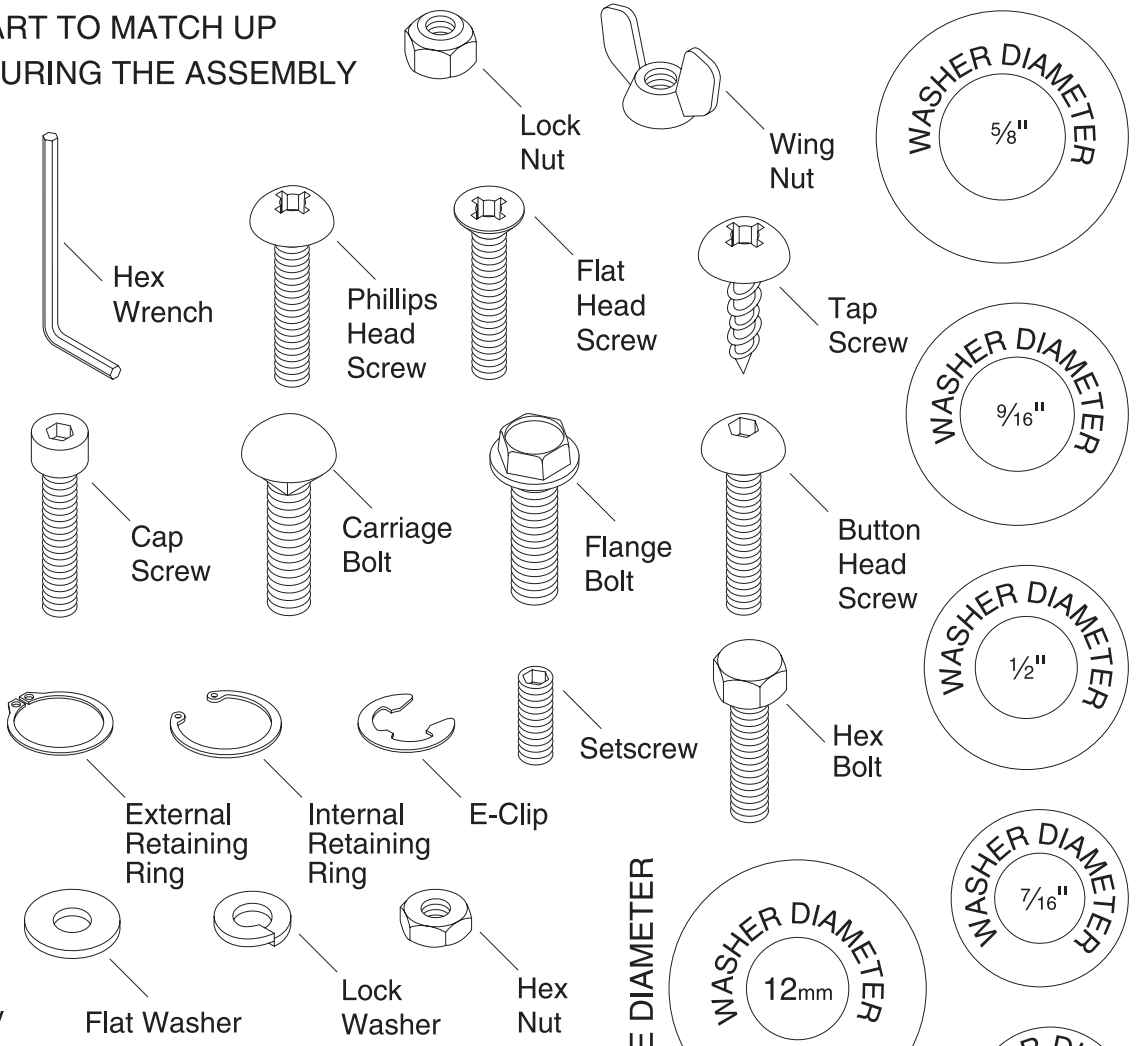
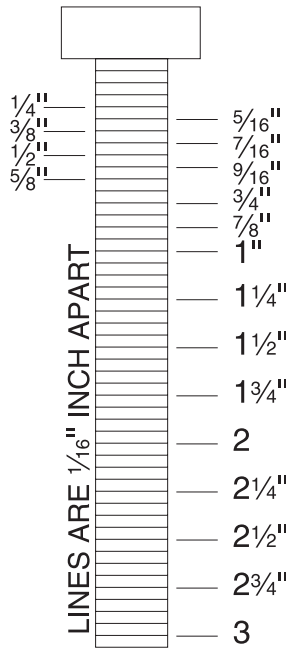
- #10
- 1/4"
- 5/16"
- 3/8"
- 7/16"
- 1/2"

- 4mm
- 6mm
- 8mm
- 10mm
- 12mm
- 16mm

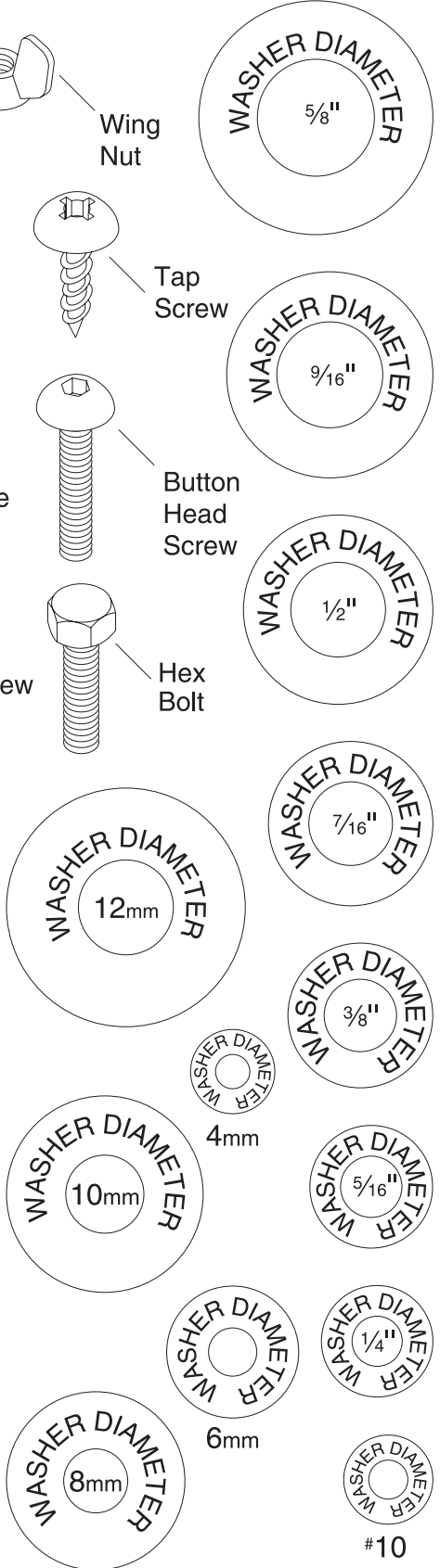
LINES ARE 1MM APART



LINES ARE 1/16" INCH APART



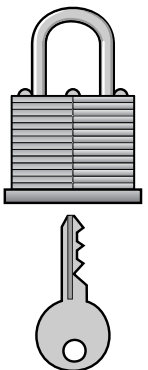
WASHERS ARE MEASURED BY THE INSIDE DIAMETER



# Clean Up

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

## Site Considerations

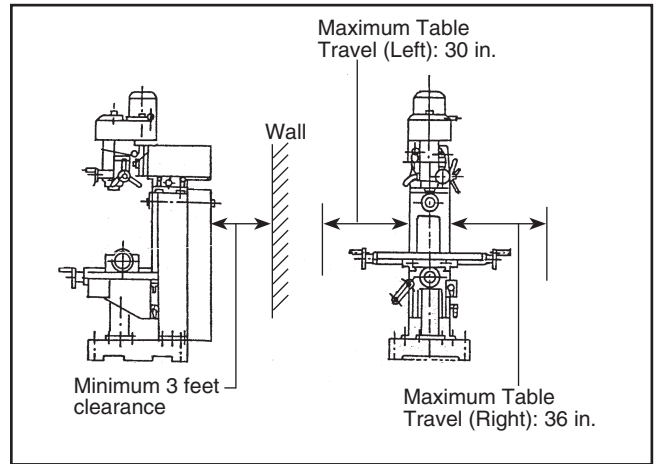
	<p><b>⚠ CAUTION</b></p> <p>Unsupervised children and visitors inside your shop could cause serious personal injury to themselves. Lock all entrances to the shop when you are away and <b>DO NOT</b> allow unsupervised children or visitors in your shop at any time!</p>
--	--

### Floor Load

The weight and footprint size for your machine is located in the machine data sheet. Most commercial floors are suitable for your machine. Some residential floors may require additional reinforcement to support both the machine and operator.

### Working Clearances

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 mill. See **Figure 7** for the minimum working clearances of the Model G3616/G3617.



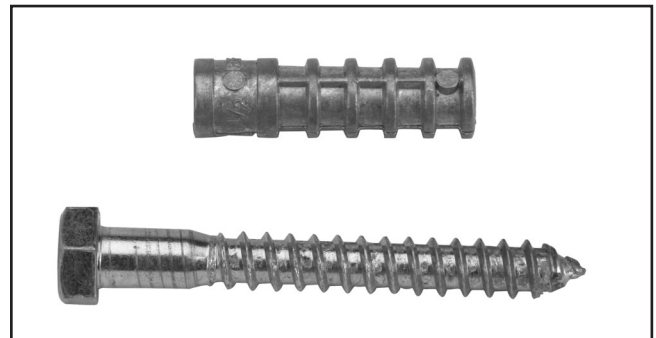
**Figure 7.** Working clearances.

## Mounting to Floor

Although not required, we recommend that you mount your new milling machine to the floor. Because this is an optional step and floor materials may vary, floor mounting hardware is not included.

**Note:** The instructions below are given for a typical heavy-duty shop floor made of 6" thick concrete. Also, anchor studs may be substituted for lag bolts, but they will stick out of the floor if you decide to move your machine at a later point.

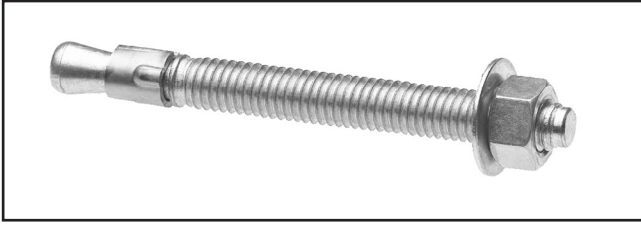
Items Required:	Qty
• Hammer Drill .....	1
• 1/2" Punch (at least 8" Long) .....	1
• 1/2" Hammer Drill Bit (at least 12" long) .....	1
• Lag Shields 5/16" x 3" (see <b>Figure 8</b> ) .....	4
• Lag Bolts 5/16" x 8" .....	4
• Fender Washers 5/16" .....	4
• Hammer .....	1
• Precision Level .....	1



**Figure 8.** Typical lag bolt and shield anchor.



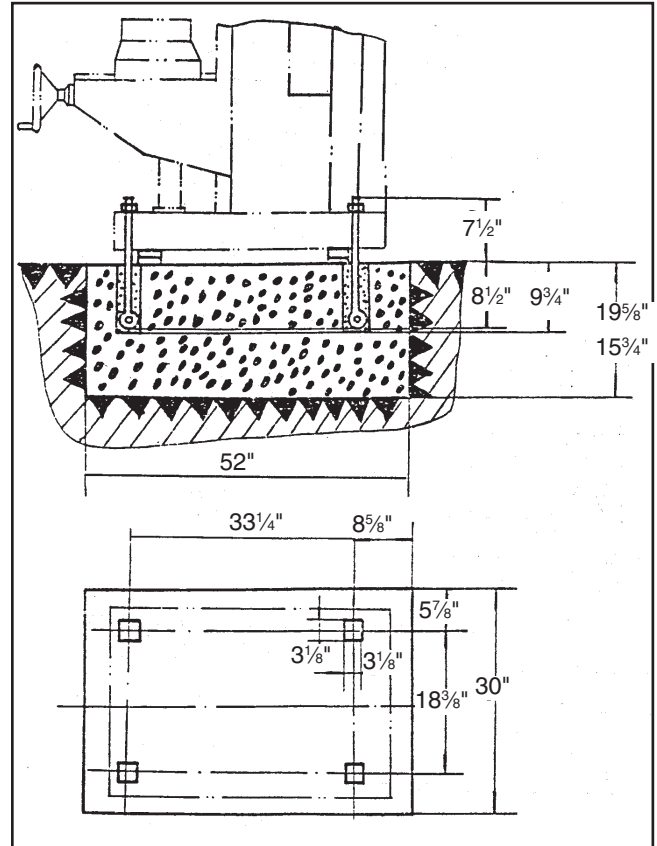
**Note:** Anchor studs, as shown in **Figure 9** below, are stronger and more permanent alternatives to lag shield anchors; however, they will stick out of the floor, which may cause difficulties if you decide to move your mill at a later point.



**Figure 9.** Typical anchor stud.

**To mount the mill to the floor:**

1. Locate the mill as close to electrical power as possible, providing a minimum of three feet of clearance between the back of machine and the wall.
2. Put on safety glasses and a dust mask before starting!
3. Use the mounting holes in the milling machine base to act as a guide, or layout holes as shown in **Figure 10**, for drilling into your floor, and drill approximately 3½" deep into the concrete floor.



**Figure 10.** Foundation plan for machine installation (all units listed in mm).

4. Using compressed air and a vacuum hose, remove the concrete dust from the newly drilled holes.
5. Using the hammer and punch, pound the lag shields into the concrete below the stand feet and flush with the surface of the concrete.
6. Secure the mill to the floor with the 5/16" lag bolts and washers. Use the level to make sure the table is flat along its travel. If it is not level, insert steel shims under the mill. Once the mill is level, finish tightening the bolts.



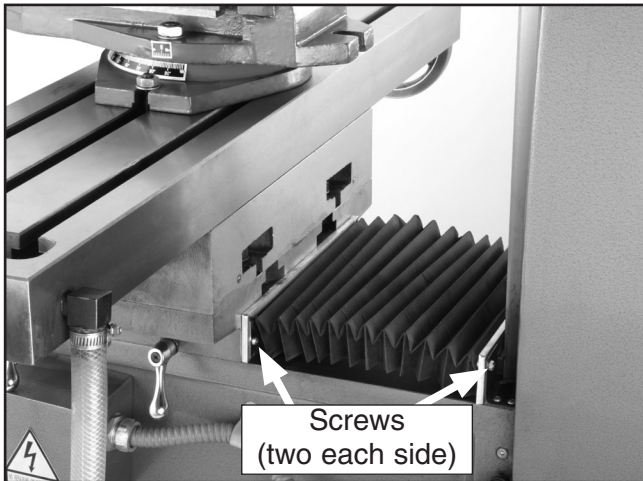
# Way Cover Installation

The way cover should be installed to protect and keep the back portion of the cross ways clean.

**Tools required:** Qty  
Phillips Screwdriver, short handle ..... 1

## To install the way cover:

1. Remove the four screws from the machine at the way cover mounting location (**Figure 11**). **Note:** *The two screws located near the column use a nut and washer.*
2. Place the way cover on the machine and align it with the fastener holes.
3. Attach the way cover with the four screws removed in **Step 1**.

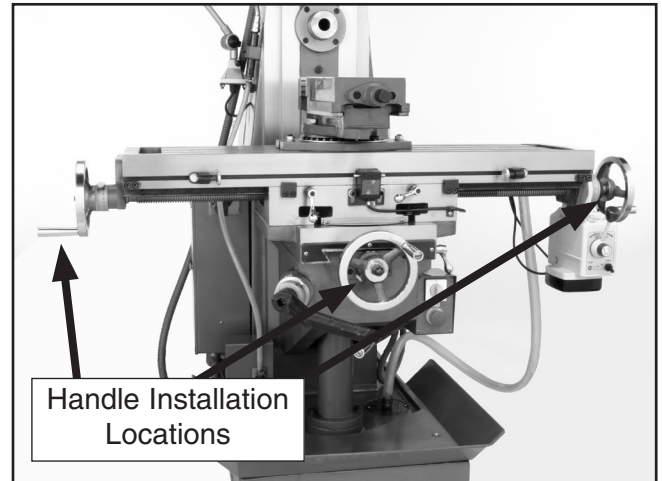


**Figure 11.** Way cover mounted in the correct location on the machine.

# Handle Installation

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

Install and tighten the three handles on the handwheels shown in **Figure 12**.



**Figure 12.** Locations for handle installation.

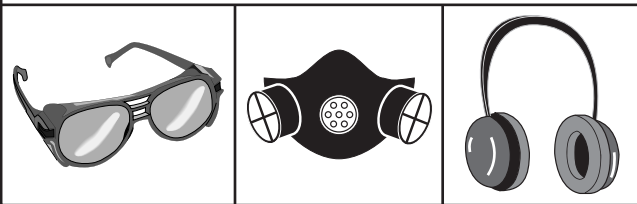


# SECTION 4: OPERATION

## Operation Safety

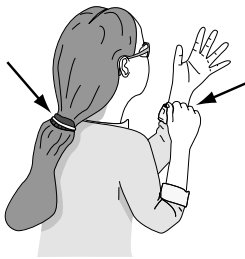
### ⚠️ WARNING

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



### ⚠️ WARNING

Loose hair and clothing could get caught in machinery and cause serious personal injury. Keep loose clothing and long hair away from moving machinery. Remove watches, rings, bracelets, and other jewelry from hands, wrists, and neck before operating the mill.



### 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.

## Setting RPM

Whether using the vertical or horizontal spindle, you need to 1) determine the RPM needed to cut your workpiece, and 2) adjust the V-belts in the access panel for the spindle you will use for the operation.

To determine the needed RPM:

1. Use the table in **Figure 13** to determine the cutting speed required for the material of your workpiece.

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 13.** Cutting speed table for HSS cutting tools.

2. Measure the diameter of your cutting tool in inches.
3. Use the following formula to determine the needed RPM for your operation:

$$(\text{Cutting Speed} \times 4) / \text{Tool Diameter} = \text{RPM}$$



**To adjust the V-belts for the vertical spindle:**

1. Examine the *Vertical Spindle Speed Chart* (Figure 14 or on the front of the mill above the vertical spindle) to find the closest match to your needed RPM.

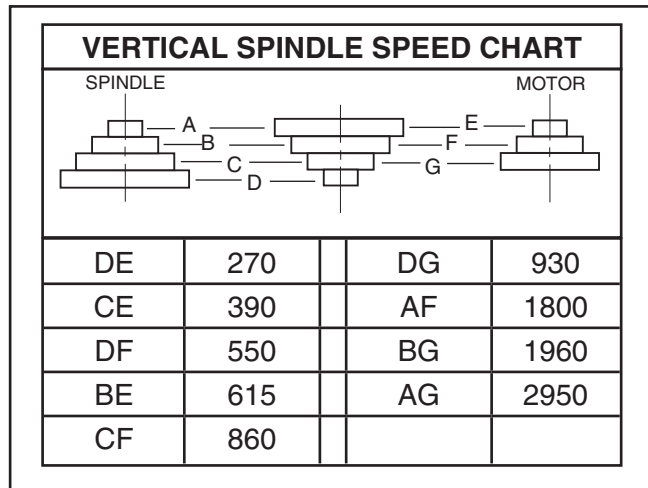
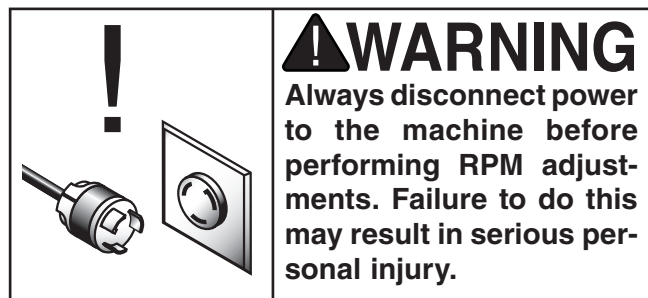


Figure 14. Vertical spindle speed chart.



2. Make sure the main power is **OFF** to the machine before proceeding any further, as you will be working with the spindle V-belts and this is a dangerous area.
3. Remove the access panel to the vertical spindle pulleys.
4. Loosen the motor nut next to the handle, loosen the center pulley nut (see Figure 15), and pull the motor forward to release tension on the V-belts.
5. Move the front belt to the desired position. You will need to move the center pulley set in order to accomplish this.
6. Move the center pulley set back to position and tighten the nut.

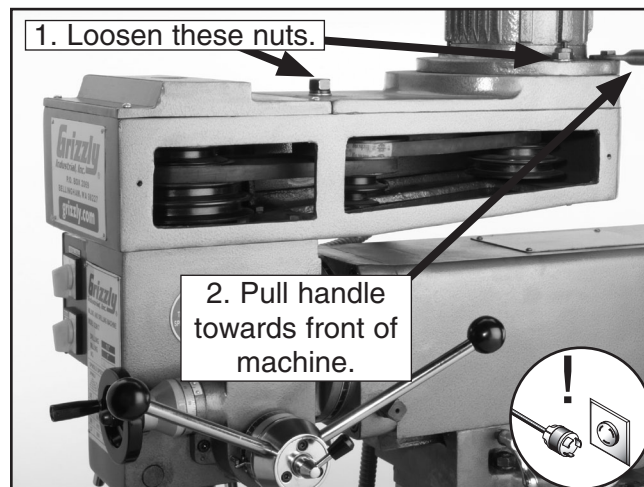


Figure 15. Vertical spindle access panel.

7. Move the rear V-belt to the appropriate pulley set for the given RPM.
8. Push the motor back into place and tighten the nut.
9. Replace the access cover by inserting the hand screws, then connect the machine to the power source.

**To adjust the V-belts for the horizontal spindle:**

1. Examine the *Horizontal Spindle Speed Chart* (Figure 16 or on the access cover at the rear of the mill) to find the closest match to your needed RPM.
2. Make sure the main power is disconnected from the machine before proceeding any further, as you will be working with the spindle V-belts and this is a dangerous area.

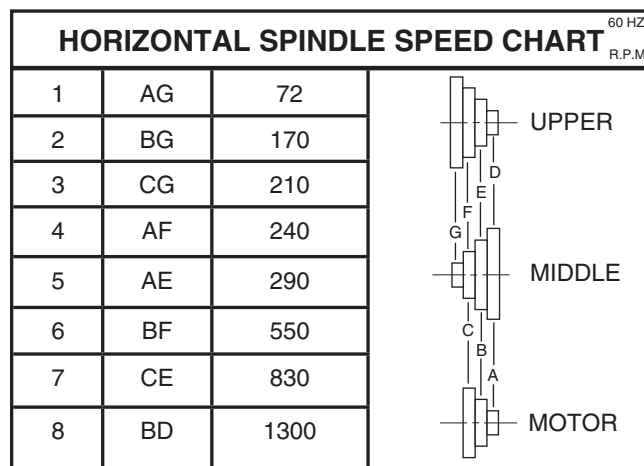
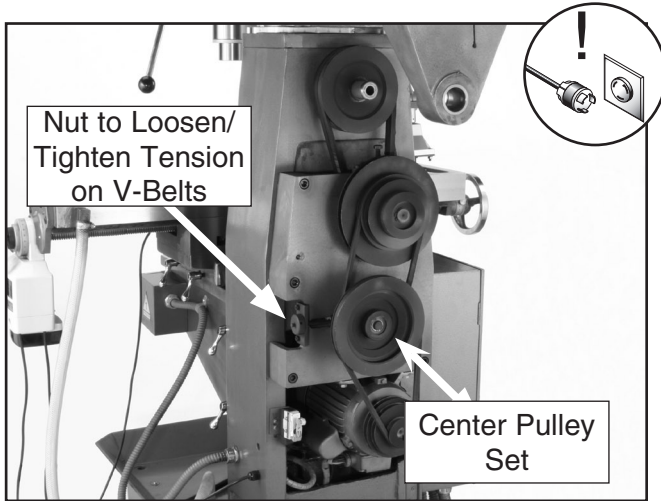


Figure 16. Horizontal spindle speed chart.



4. Open the access panel to the horizontal spindle pulleys (see **Figure 17**).



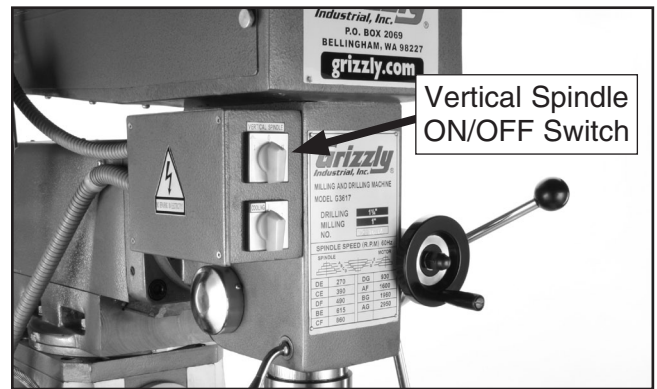
**Figure 17.** Horizontal spindle access area.

5. Loosen the bolt that holds the center pulley set in place. The bolt can be accessed through opening next to the tension nut.
6. Remove the tension nut between the motor and the middle pulley sets to release tension on the V-belts.
7. Slide the center pulley set to the right to release the tension and allow belt movement.
8. Move the V-belts to the appropriate pulley sets for the needed RPM.
9. Move the center pulley set back into position, reinstall the tension nut, and bring the pulleys to the proper tension.
10. Tighten the nut to secure the center pulley set.
11. Close the access cover by inserting the hand screw, then connect the machine to the power source.

# Turning Spindle ON

## Vertical Spindle

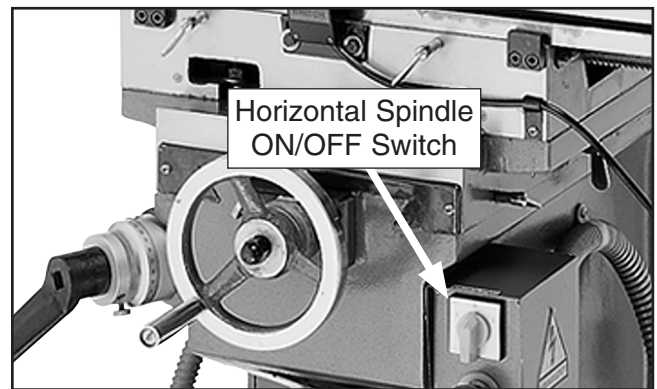
1. Make sure the main power is **ON**.
2. Make sure hands and other items are clear of the cutting tool.
3. Using the ON/OFF switch shown in **Figure 18**, turn the spindle **ON** to the appropriate setting, based on the cutting tool setup.



**Figure 18.** Vertical spindle ON/OFF switch.

## Horizontal Spindle (G3617 Only)

1. Make sure main power is **ON**.
2. Make sure hands and other items are clear of the cutting tool.
3. Using the ON/OFF switch shown in **Figure 19**, turn the spindle **ON** in the appropriate direction, based on the cutting tool setup.



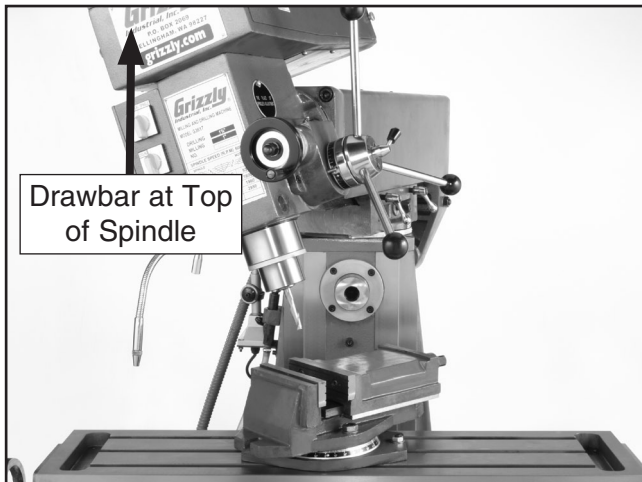
**Figure 19.** Horizontal spindle ON/OFF switch.



# Loading Tools

## To load a tool in the vertical spindle:

1. Make sure the spindle is **OFF**.
2. Clean any debris from the spindle opening.
3. Insert the tool holder or a collet into the spindle.
4. Rotate the tool holder until the groove lines up with the key and the tool holder slides into the spindle.
5. Using a wrench, tighten the drawbar (see **Figure 20**) until the tool is secure in the spindle.



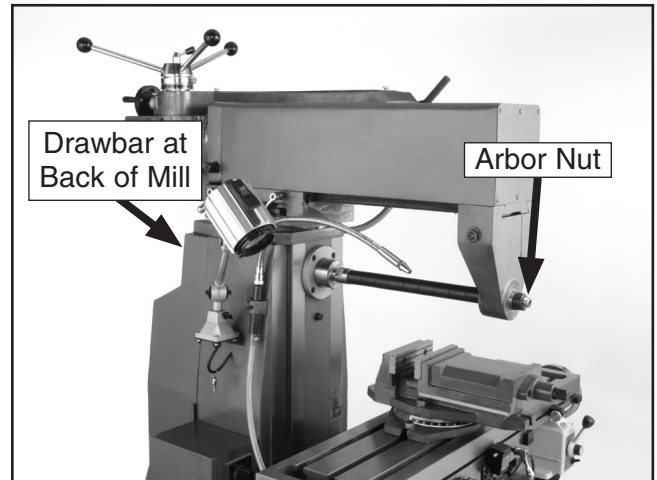
**Figure 20.** Vertical spindle with tool loaded.

6. Clear all items away from the cutting tool before turning the spindle **ON**.

## To load a tool in the horizontal spindle (G3617 only):

1. Make sure the spindle is turned **OFF**.
2. Clean any debris from the spindle opening.
3. Rotate the vertical spindle 90°.
4. Rotate the spindle box 180° so that the spindle support is in-line with the horizontal spindle axis.

5. Insert the arbor, with the cutting tool already loaded into the spindle (see **Figure 21**).



**Figure 21.** Horizontal spindle with arbor loaded.

6. Rotate the arbor until the groove lines up with the key and the tool holder slides into the spindle.
7. Using a wrench, tighten the drawbar until the tool is secure in the spindle.
8. Adjust the spindle support distance to provide proper support during the cutting operation.
9. Tighten the arbor nut to keep the cutting tool and arbor secure.
10. Clear all items away from the cutting tool before turning the spindle **ON**.

**Note:** Remove the drawbar from the horizontal spindle when not in use.



# Unloading Tools

To unload a tool from either spindle:

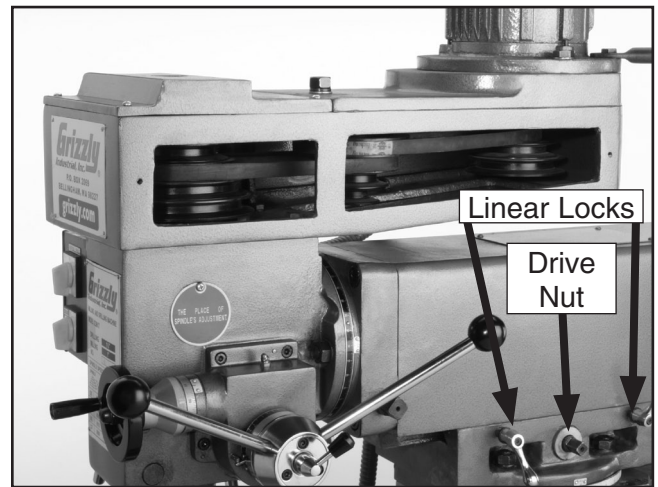
1. Make sure the spindle is turned **OFF**.
2. Remove any debris or chips from the tool and the tool holder/arbor.
3. Return the vertical quill to its upmost position.
4. Lock the spindle in place to keep it from rotating.
5. Using a wrench, loosen the drawbar nut, keeping one hand on the tool holder for support.
6. Once the tool is loosened, you may need to strike the drawbar with a dead blow or rubber mallet to release the tool holder from the spindle.
7. Clean any debris from the spindle opening area.

# Spindle Head Positioning

The vertical spindle head can be positioned linearly (parallel to the cross feed), vertically, and horizontally.

To position the spindle head linearly:

1. Make sure the spindle is stopped and the work area is free from obstructions before proceeding.
2. Loosen the two linear lock handles that lock the travel (see **Figure 22**).



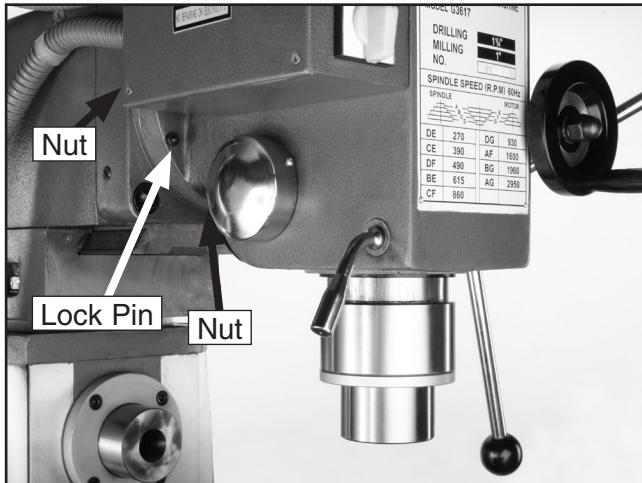
**Figure 22.** Location for linear movement of head.

3. Place the knee travel handle on the drive nut (**Figure 22**) and rotate it either clockwise or counterclockwise until the spindle is in the desired position.
4. Remove the handle and return it to the knee travel nut.
5. Tighten the two linear lock handles to lock the travel.



### To position the spindle head vertically:

1. Make sure the spindle is stopped and the work area is free from obstructions before proceeding.
2. Loosen the three nuts that lock the spindle in place (see **Figure 23**).



**Figure 23.** Vertical rotation of head components.

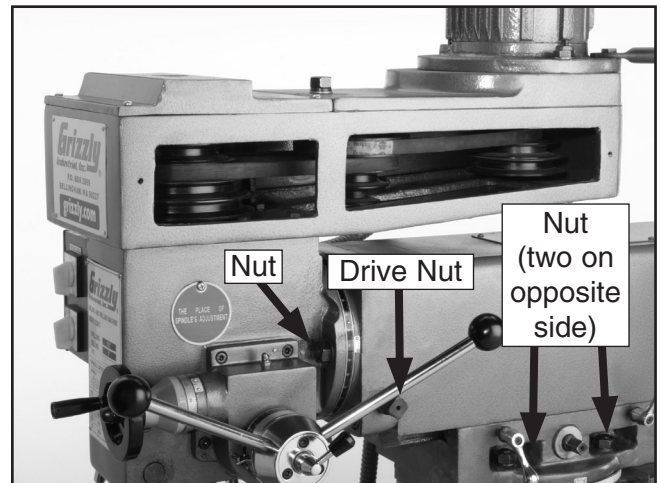
3. Remove the lock pin from its position by pulling it out.
4. Rotate the drive nut (**Figure 24**) either clockwise or counterclockwise until the spindle is in the desired position. There is a graduated scale on the spindle to aid in setting the angular position.
5. Tighten the three nuts to lock the spindle in place, and push in the lock pin as far as it will go.

**Note:** For accurate positioning, additional setup tools should be used to determine the actual angular setting.

### To position the spindle head horizontally:

1. Make sure the spindle is stopped and the work area is free of obstructions before proceeding.
2. Using a wrench, loosen the four nuts at the top of the mill base. (**Figure 24**)
3. Push or pull the spindle to the desired position. At the base, there is a graduated scale for positioning the spindle.
4. Tighten the four nuts to lock the spindle in position.

**Note:** This positioning method will generally be done when switching between horizontal and vertical operations.



**Figure 24.** Vertical and horizontal rotation components.

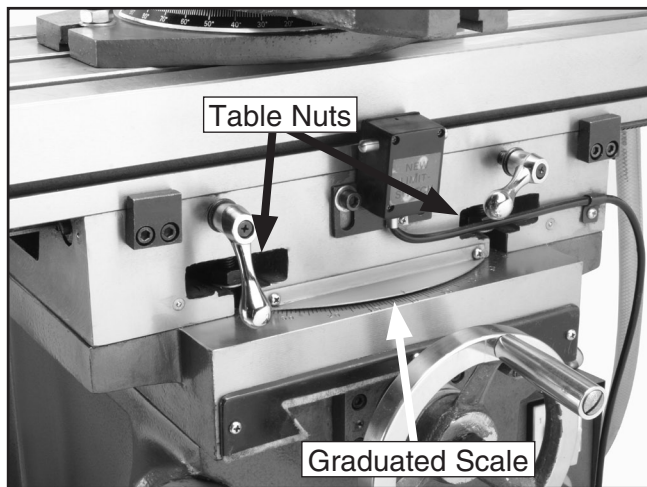


# Table Rotation

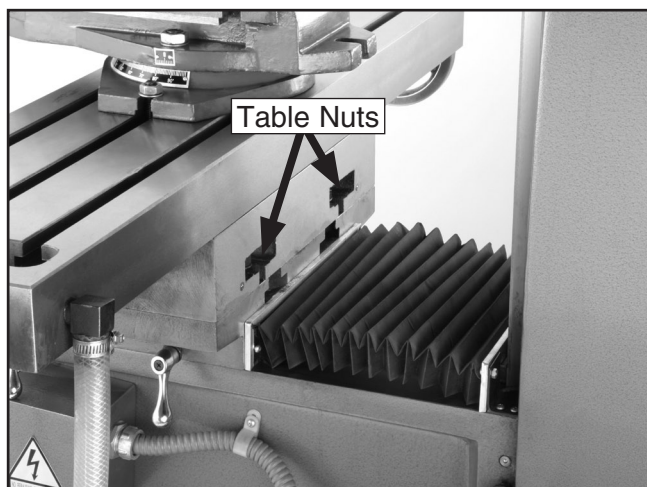
The mill table can be rotated 45° in either direction for positioning the workpiece.

## To rotate the mill table:

1. Make sure the power is turned **OFF**.
2. Remove as many items from the mill table as possible. This will make rotating the table easier.
3. Loosen four nuts, two in front and two in back, to free the table for rotation (see **Figures 25 & 26**).



**Figure 25.** Front two table nuts.



**Figure 26.** Rear table nuts.

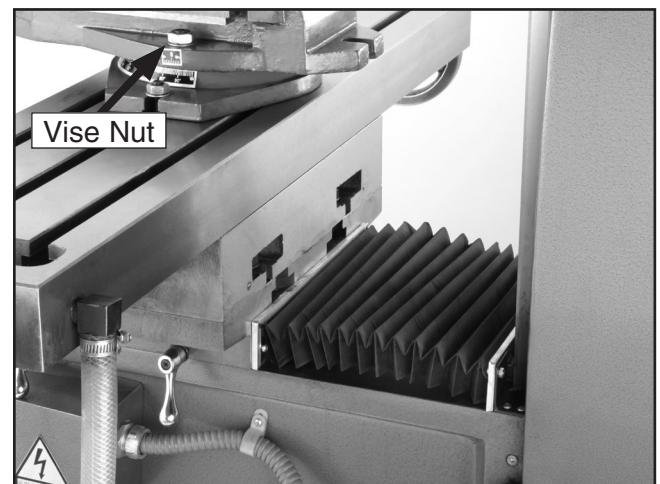
4. Rotate table to desired position. There is a graduated scale to use when setting the position.
5. Tighten the four nuts to secure the table in position.

# Vise Rotation

The Model G3616/G3617 comes equipped with a milling vise. The vise has a swivel base that allows it to rotate 360°.

## To rotate the vise:

1. Make sure the power is turned **OFF**.
2. Loosen the vise nuts (see **Figure 27**), one on each side, to free up the vise.



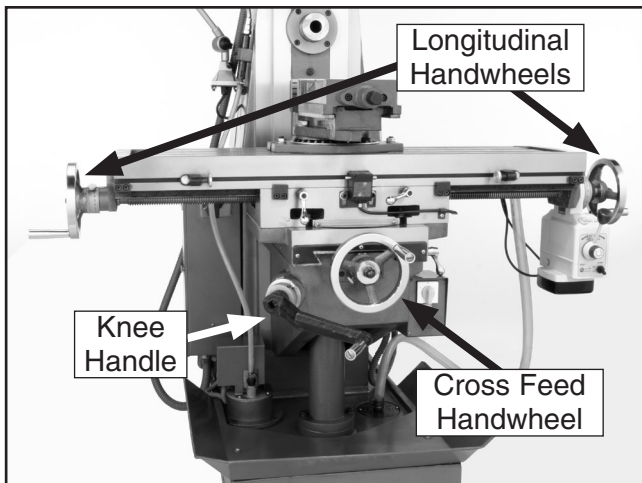
**Figure 27.** Vise nuts (1 of 2 shown).

3. Rotate the vise to the desired position. The swivel base has graduations for more accurate positioning.
4. Tighten the two nuts to lock the vise in place.



# Table Travel

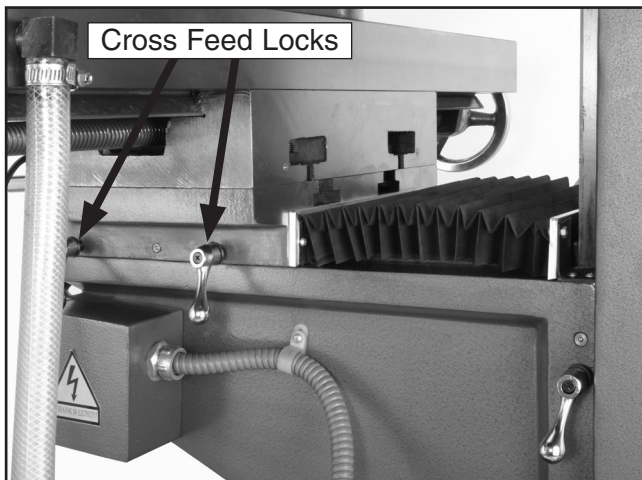
The table of the Model G3616/G3617 can be moved in 3 axes: **Cross Feed**, **Longitudinal Feed**, and **Knee Feed**. Each of these axes are handwheel controlled (see **Figure 28**). All handwheels are graduated to accurately position the workpiece in relation to the tool.



**Figure 28.** Table travel handwheel locations.

## Cross Feed

The cross feed is controlled by the center handwheel and two locks on the right side of the mill, under the table (see **Figures 28 & 29**).



**Figure 29.** Cross feed lock locations.

## Longitudinal Feed Control

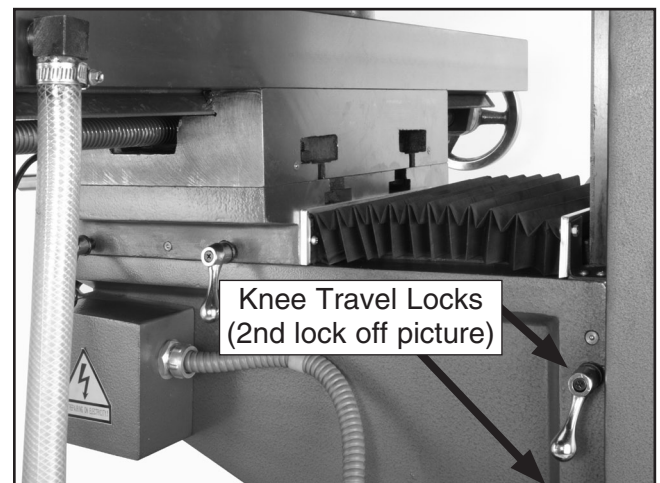
The longitudinal feed is controlled by two handwheels, one at each end of the table, and two locks at the front of the table (see **Figures 28 & 30**).



**Figure 30.** Longitudinal feed lock locations.

## Knee Feed

The knee feed is controlled by one handle, just off center at the front of the machine, and two locks on the right side of machine where the knee meets the ways (see **Figures 28 & 31**).



**Figure 31.** Knee feed lock locations.



# Quill Travel

## Quill Feed Control

The quill feed is controlled by the handle on the right of the spindle and a lock on the left. The handle allows the mill to operate as a drill press. Pull the handle towards you and the quill will feed down towards the workpiece. The quill feed handle is spring loaded so that it will automatically return to its upmost vertical position. DO NOT let go of the handle at the end of an operation to return the tool to its starting position.

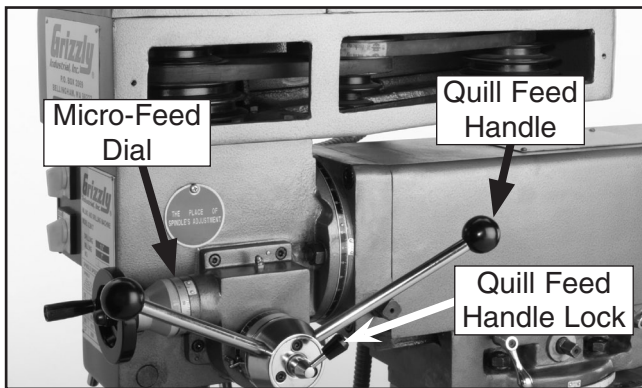


Figure 32. Quill feed handles.

## Micro-Feed Adjustment

The spindle position can be accurately controlled through the use of the micro-feed adjustment handle. To use this feature, you must first lock the quill feed by turning the handle at the center of the handwheel all the way in. Once the quill feed is locked, if you turn the micro-feed adjustment handwheel, you can position the cutter using the graduated dial.

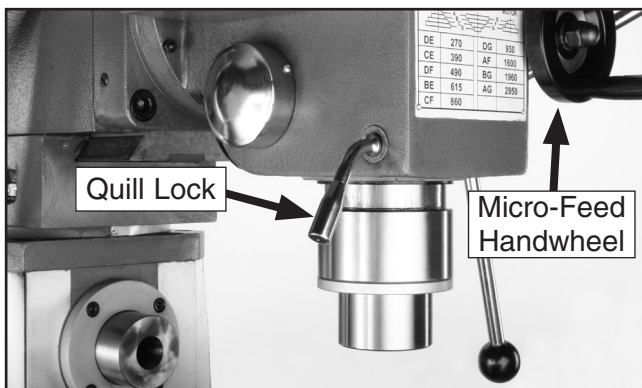


Figure 33. Quill lock and micro-feed handles.

# Power Feed

The Model G3616/G3617 comes equipped with a power feed option on the longitudinal travel. The power feed has the following options (see **Figure 34** for items **A–D**, and see **Figure 35** for items **E–G**):

- A. Right/Left Feed Selector**—Switch the lever to the left or the right for the desired travel direction. The table **MUST** come to a complete stop before changing directions.
- B. Rapid Speed Switch**—Depressing this switch will cause the table to feed at its maximum rate until it is released.
- C. Feed Setting Dial**—Setting from 0 (no travel) to 10 (fastest travel). There is no correlation between the numerical setting on the dial and actual feed in inches per minute (IPM).
- D. ON/OFF Switch**—Starts/stops the power feed. (The power feed should be left **OFF** when not in use.)

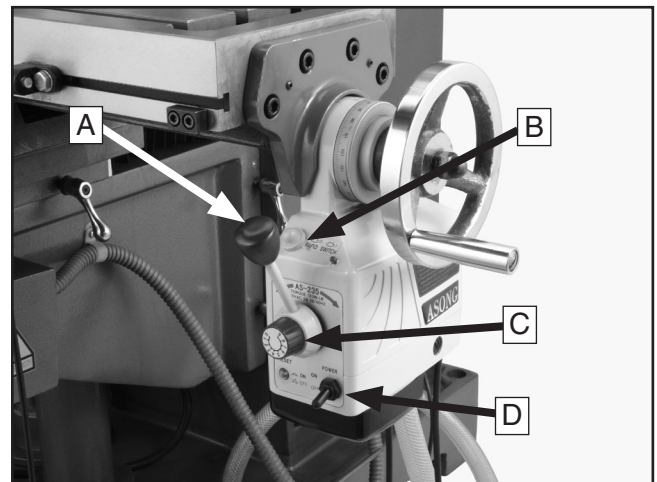


Figure 34. Power feed controls.



- E. **Limit Switch**—Stops the power feed when it makes contact with the adjustable power feed stops.
- F. **Power Feed Stops**—Adjustable stops trigger the limit switch when the power feed is at the end of its travel.
- G. **Table Hard Stop**—Actual limits of longitudinal travel. DO NOT remove unless servicing the mill.

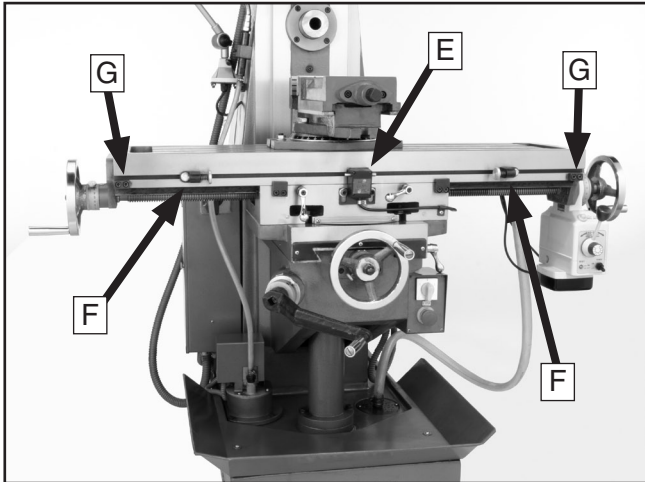


Figure 35. Power feed and table stops.

## Coolant System

The Model G3616/G3617 is equipped with a coolant system (see **Figure 36**), which should be filled prior to starting the pump to avoid damage.

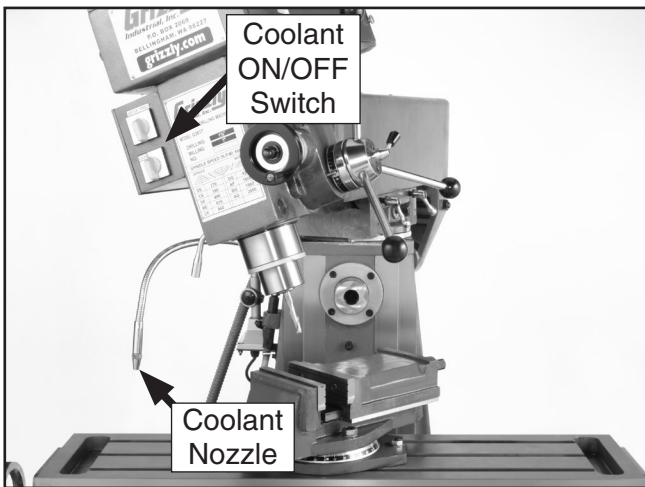


Figure 36. Coolant Controls.

## NOTICE

Running the pump without coolant in the system may permanently damage the cooling system on your mill. This is considered abuse and will not be covered by the warranty.

### Turning Coolant **ON**

1. Adjust the flexible nozzle to the general area that you want coolant applied.
2. Turn the coolant switch to **ON**.
3. Adjust the nozzle as needed.

## Spindle Break-In Procedure

Complete this process once you have familiarized yourself with all instructions in this manual. **Note:** *These instructions must be followed for both the horizontal and vertical spindles.*

### To break-in the spindles:

1. Make sure the mill has been properly lubricated.
2. Make sure the spindle area is free of obstructions.
3. Set the spindle speed to the lowest RPM.
4. Turn the spindle **ON** and let it run for a minimum of 10 minutes.
5. Repeat these steps for each RPM setting.



# 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  $\frac{7}{16}$ " x 20.

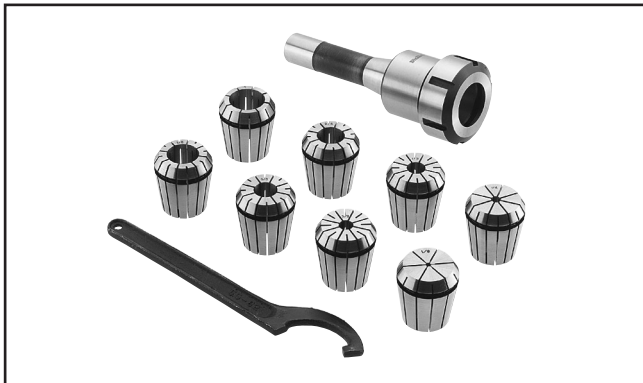


Figure 37. H2689 R-8 Quick Change Collet Set.

## 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.

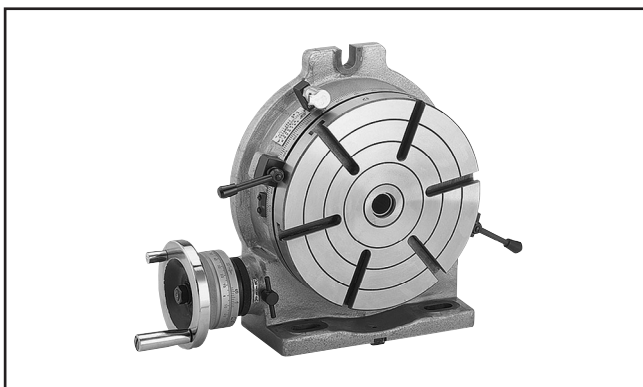


Figure 38. G9299 10" Yuasa-Type Rotary Table.

## G1076—52-PC. Clamping Kit

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

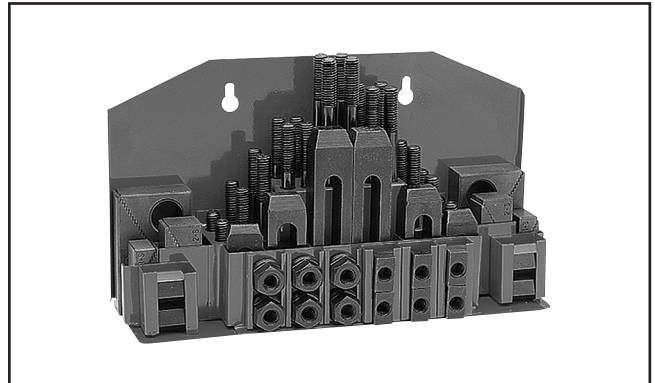


Figure 39. G1076 52-PC. Clamping Kit.

## 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 40. 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 41.** 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 42.** 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".

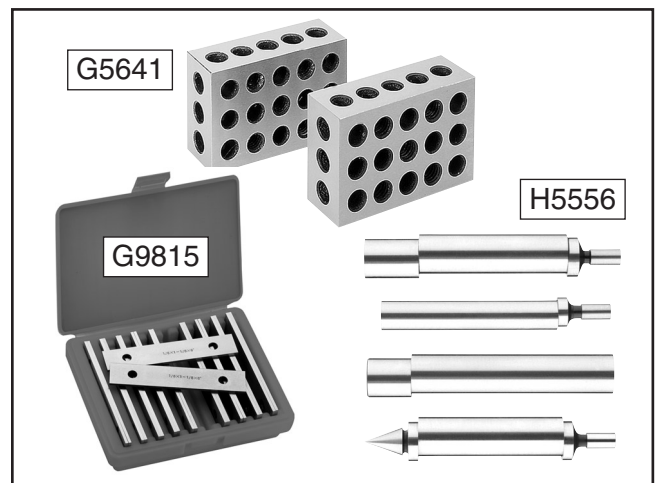


**Figure 43.** G9765 9 PC. Ball End Mill Set.

**G5641—1-2-3 Blocks**

**G9815—Parallel Set**

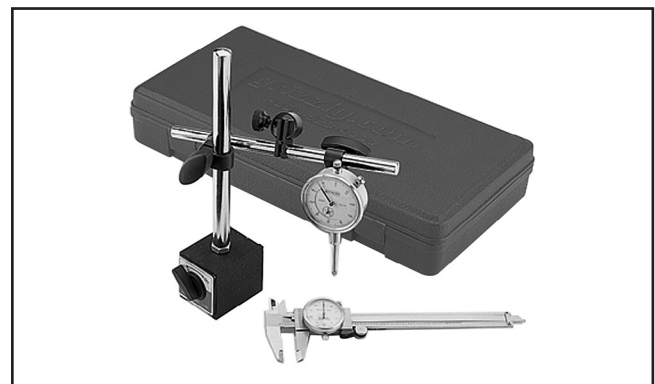
**H5556—Edge Finder Set**



**Figure 44.** G5641 1-2-3 Blocks, G9815 Parallel Set, and H5556 Edge Finder Set.

**H3022—Measurement Tool Set**

Includes magnetic base, 1" dial indicator (.001"), and 6" dial caliper (.001"). The extremely low price has made this a very popular seller!



**Figure 45.** H3022 Measurement Tool Set.

**G7897—Machining Fluid**



**Figure 46.** G7897 Machining Fluid.



- G7984—Face Shield**
- H1298—Dust Sealed Safety Glasses**
- H1300—UV Blocking, Clear Safety Glasses**
- H2347—Uvex® Spitfire Safety Glasses**
- H0736—Shop Fox® Safety Glasses**

Safety Glasses are essential to every shop. If you already have a pair, buy extras for visitors or employees. You can't be too careful when it comes to shop safety!



**Figure 47.** Our most popular safety glasses.

- H1302—Standard Earmuffs**
- H4979—Deluxe Twin Cup Hearing Protector**
- H4977—Work-Tunes Radio Headset Earmuffs**

Protect yourself comfortably with a pair of cushioned earmuffs. Especially important if you or employees operate for hours at a time.



**Figure 48.** Our most popular earmuffs.

- G5562—SLIPIT® 1 Qt. Gel**
- G5563—SLIPIT® 12 oz Spray**

Used on cast iron table surfaces and other unpainted metal surfaces to reduce rust and corrosion. This product is perfect for keeping tools clean, especially during long-term storage.



**Figure 49.** SLIPIT® gel and spray.

- H3788—G96® Gun Treatment 12 oz Spray**
- H3789—G96® Gun Treatment 4.5 oz Spray**

This triple action gun treatment cleans, lubricates and protects all metal parts. Contains solvents that completely remove all traces of rust and corrosion and leaves no gummy residue.



**Figure 50.** G96® Gun Treatment spray.

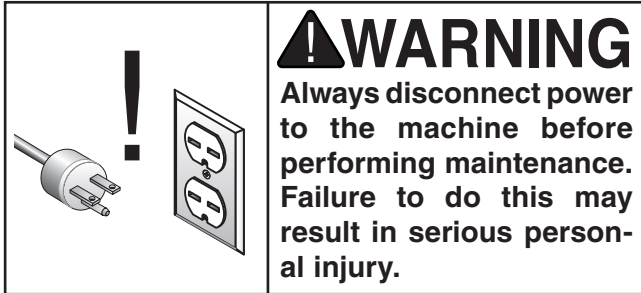
**Call 1-800-523-4777 To Order**



# SECTION 6: MAINTENANCE

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## General

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Your Model G3616/G3617 requires very little maintenance. A thorough cleaning, on a regular basis, will increase the machine durability and efficiency by removing chips and grime that can gum up moving parts.

A regular application of a protective spray coating will keep the table and other bare metal parts from rusting and pitting.

**Remember:** When performing maintenance and repairs on shop equipment, always disconnect the machine from its power supply first!

## Schedule

---

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

### Daily Check:

- Check to ensure V-belts are tight.
- Clean machine to remove debris.
- Make sure table/vise are clean of metal chips before placing anything on/in them.
- Clean spindle openings before inserting tools.
- Any other unsafe condition.

### Weekly Maintenance:

- Thoroughly clean machine ways of chips and debris.
- Clean/grease longitudinal, cross, and knee lead screws.

### Monthly Check:

- V-belt tension, damage, or wear.
- Clean/vacuum dust buildup from inside cabinets and off motors.
- Check oil level in gear box and power feed; fill if needed.

### Quarterly Check:

- Clean out coolant tank and replace coolant.

## Cleaning

---

Cleaning the Model G3616/G3617 is relatively easy. Vacuum excess metal chips from the table and ways, and wipe off the remaining waste with a dry cloth. If any coolant is left on the table, wipe it up with a rag. Treat all unpainted cast iron and steel with a non-staining lubricant after cleaning.

## Unpainted Cast Iron

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

Keep exposed cast iron rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9.



# Lubrication

## Power Feed

The power feed uses SAE 40 oil.

## Ball Fittings

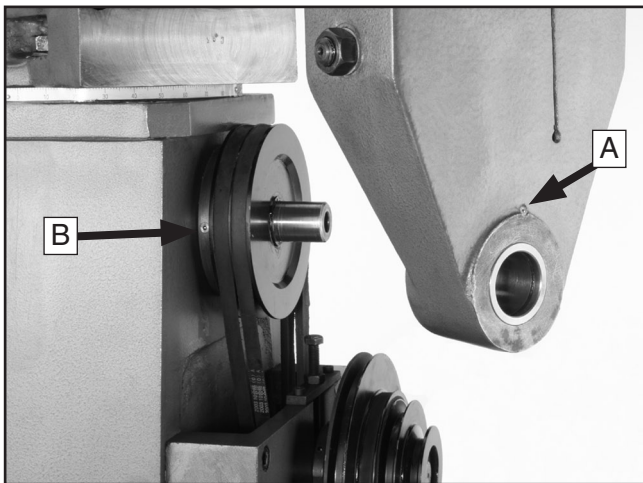
Ball fittings, shown in **Figures 51–57**, are responsible for the majority of the machine lubrication. To lubricate ball fittings, depress the ball with the tip of the oil can nozzle and squirt a little oil inside the fitting. Make sure to clean the outside of the ball fitting before and after each use to keep out contaminants.

For ball fitting lubrication points, use a manual oiler (oil can) filled with ISO 68 or SAE 20W non-detergent oil or similar lubricant.

**Lubricate the following areas every 8 hours of actual use:**

### Back of Machine (Figure 51):

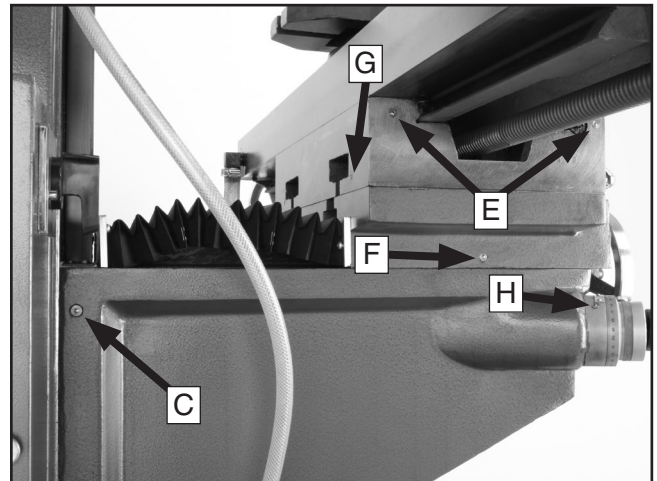
- A. Horiz. Arbor Support Bearing (G3617 Only)
- B. Horiz. Spindle Pulleys (G3617 Only) *Must open back access cover to do this.*



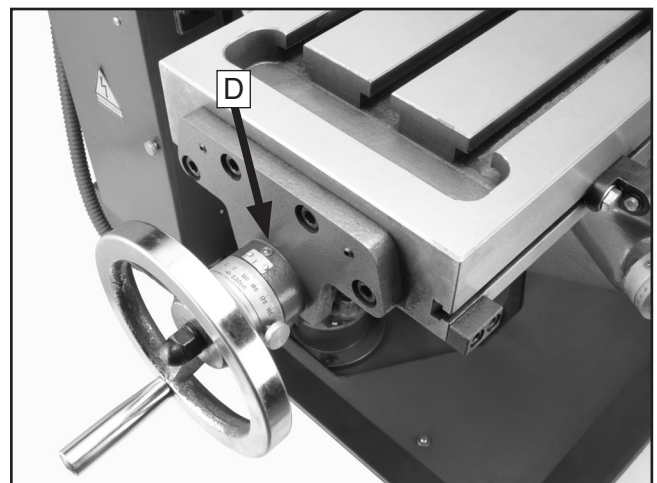
**Figure 51.** Back of Machine Fittings.

### Left Side of Machine (Figures 52–54):

- C. Column/Knee Intersection
- D. Longitudinal Feed Handwheel
- E. Longitudinal Ways (Under Table)
- F. Cross Ways (Under Table)
- G. Table Rotation (Front and Back)
- H. Knee Feed Handwheel



**Figure 52.** Left side of mill, under table.



**Figure 53.** Longitudinal handwheel.

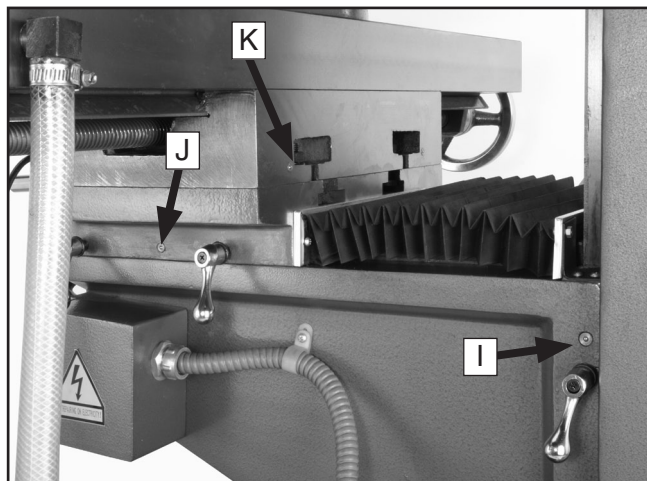


**Figure 54.** Front of mill.

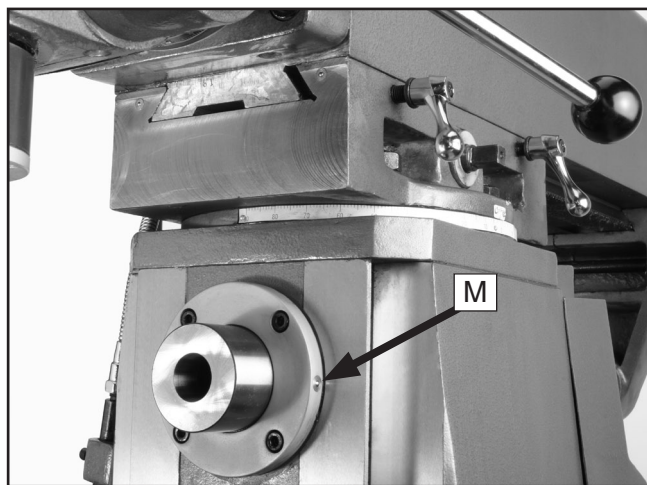


**Right Side of Machine (Figures 55–57):**

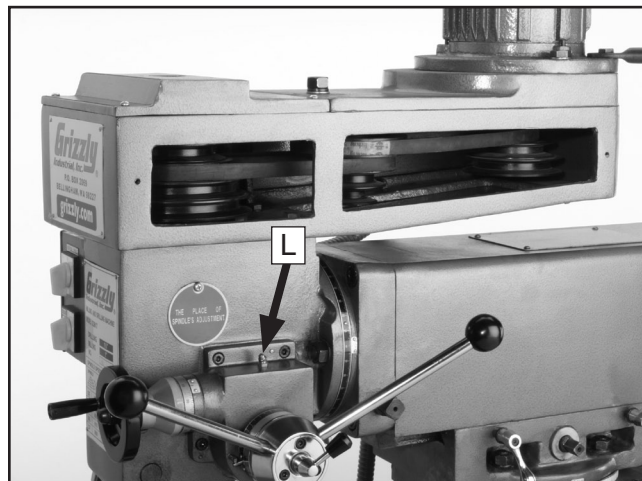
- I. Column/Knee Intersection
- J. Cross Ways (Under Table)
- K. Table rotation (Front and Back)
- L. Quill Feed
- M. Horizontal Spindle (G3617 Only)



**Figure 55.** Right side of mill, under table.



**Figure 56.** Horizontal spindle.



**Figure 57.** Quill handwheel.

**Leadscrews**

Directly apply a small amount of all-purpose grease to all of the lead screw, and move the attached part all the way through its full range of motion on the leadscrew.

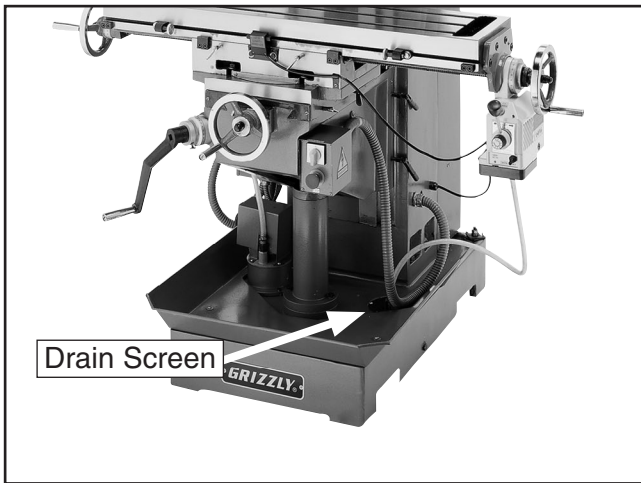


# Checking/Adding Coolant

A small amount of coolant is lost during normal machining operations.

## To check/add coolant, do these steps:

1. Remove the drain screen (**Figure 58**), and inspect how far the coolant is from the top of the tank.
  - If the coolant is more than 2" from the top of the tank, add more coolant to fill the tank.



**Figure 58.** Coolant tank drain screen location.

# Changing Coolant

The Model G3616/G3617 coolant tank holds approximately 4 gallons of coolant. We recommend changing this fluid every six months or sooner if it develops an unpleasant odor.

For the best protection against rust, always follow the coolant manufacturer's recommendations for coolant/water ratios.

## **!WARNING**

The reservoir on this machine is designed to store cutting fluid. During storage some fluids grow dangerous microbes, or due to the collection of toxic metal chips in the fluid, the fluid can become a potent and extremely poisonous solution to humans and animals.

Use the correct personal protection equipment when handling cutting fluids to prevent infections and poisoning.

Follow Federal, State, and the fluid manufacturer requirements to properly dispose of used cutting fluid.

## To change the cutting coolant, do these steps:

1. Place an oil pan under the drain plug, remove the drain plug, and allow the coolant to drain completely.
2. Remove the drain screen and clean out any sludge through the opening. Using a magnet when cleaning will help remove metal particles.
3. Replace the drain plug.
4. Fill the tank with a new mixture of coolant by pouring into the tank opening where the drain screen was removed.
5. Replace the drain screen you removed in **Step 2**.



# SECTION 7: SERVICE

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## About Service

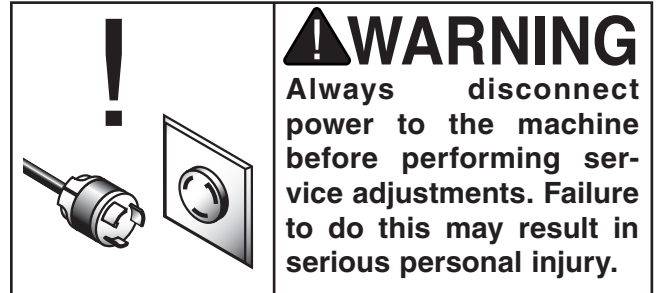
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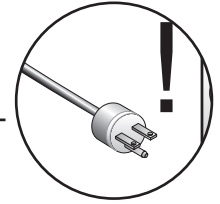
This section is designed to help the operator with adjustments that were made at the factory and that might also need to be made during the life of the machine.

This section is provided for your convenience—it is not a substitute for the Grizzly Service Department. If any adjustments arise that are not described in this manual, then feel free to call the Grizzly Technical Support at (570) 546-9663.

Similarly, if you are unsure of how to perform any procedure in this section, the Grizzly Technical Support personnel will be happy to guide you through the procedures or help in any other way.



# Troubleshooting



This section covers the most common problems. **WARNING!** DO NOT make any adjustments until the mill is unplugged and all moving parts have come to a complete stop.

## Motor/Electrical

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Machine does not start or breaker trips.	<ol style="list-style-type: none"> <li>Emergency stop push-button is engaged, or is faulty.</li> <li>Plug or receptacle is at fault or wired incorrectly.</li> <li>Start capacitor is faulty.</li> <li>The thermal protection relay below the motor contactor is tripped.</li> <li>Contactor not getting energized or has burnt contacts.</li> <li>Wall fuse or circuit breaker is blown or tripped.</li> <li>Motor connection is wired incorrectly.</li> <li>Power supply is faulty, or is switched <b>OFF</b>.</li> <li>Electrical box door is open, or door safety switch is faulty.</li> <li>Motor ON button or ON/OFF switch is faulty.</li> <li>Centrifugal Switch is at fault.</li> <li>Spindle rotation switch at fault.</li> <li>Cable or wiring is open or has high resistance.</li> <li>Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>Rotate the button knob clockwise slightly until it pops out, or replace faulty emergency switch.</li> <li>Test power plug and receptacle for good contact and correct wiring.</li> <li>Test and replace capacitor as required.</li> <li>If no short exists, turn the cut-out dial on the relay to increase working amps, and push the reset pin, or replace weak relay.</li> <li>Test for power in and out on all legs, and contactor operation. Replace unit if faulty.</li> <li>Make sure circuit breaker/fuse is sized correctly for machine load, or replace weak breaker.</li> <li>Correct motor wiring.</li> <li>Make sure all hot lines and grounds are operational and have correct voltage on all legs.</li> <li>Close door, or replace faulty limit switch.</li> <li>Replace faulty ON button or ON/OFF switch.</li> <li>Adjust or replace the centrifugal switch if available.</li> <li>Turn switch to FWD or REV, or replace bad switch.</li> <li>Troubleshoot wires for internal or external breaks, check for disconnected or corroded connections and repair or replace wiring.</li> <li>Test, repair or replace motor.</li> </ol>
Machine stalls or is underpowered.	<ol style="list-style-type: none"> <li>Wrong workpiece material.</li> <li>Incorrect spindle speed for task.</li> <li>Run capacitor is faulty.</li> <li>Low power supply voltage.</li> <li>Belt(s) is slipping.</li> <li>Motor bearings are at fault.</li> <li>Machine is undersized for the task.</li> <li>Motor has overheated.</li> <li>Centrifugal switch is at fault.</li> <li>Motor is at fault.</li> </ol>	<ol style="list-style-type: none"> <li>Only process metal that has the correct properties for your type of machining.</li> <li>Decrease spindle speed.</li> <li>Test/replace capacitor as required.</li> <li>Make sure all hot lines and grounds are operational and have correct voltage on all legs.</li> <li>Replace bad belts as a matched set, align pulleys, and re-tension.</li> <li>Rotate motor shaft for noisy or burnt bearings, repair/replace as required.</li> <li>Use smaller sharp mill/cutters/drill bits, and reduce the feed rate, reduce the spindle RPM, and use cutting fluid if possible.</li> <li>Unobstructed motor cooling air flow, let motor cool, and reduce workload on machine.</li> <li>Adjust or replace the centrifugal switch if available.</li> <li>Test, repair or replace motor.</li> </ol>
Spindle starts, but coolant pump will not start.	<ol style="list-style-type: none"> <li>Coolant pump relay tripped.</li> <li>Switch at fault.</li> <li>Pump damaged by running without coolant present.</li> </ol>	<ol style="list-style-type: none"> <li>Press the reset button on the coolant pump relay.</li> <li>Replace switch.</li> <li>Replace pump.</li> </ol>



## Machine Performance

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
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 in collet or in spindle taper.</li> <li>4. Taking too big of a cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Snug up draw bar.</li> <li>2. Measure tool shank diameter and match with appropriate diameter collet.</li> <li>3. Remove all oil and debris from collet and spindle taper.</li> <li>4. Lessen depth of cut and allow chips to clear.</li> </ol>
Breaking tools or cutters.	<ol style="list-style-type: none"> <li>1. RPM and or feed rate is too fast.</li> <li>2. Cutting tool getting too hot.</li> <li>3. Taking too big of a cut.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use tables to set correct RPM and feed rates.</li> <li>2. Use cutting fluid or oil for appropriate application.</li> <li>3. Lessen depth of cut and allow chips to clear.</li> </ol>
Machine is loud when cutting. Overheats or bogs down in the cut.	<ol style="list-style-type: none"> <li>1. Excessive depth of cut.</li> <li>2. Dull cutting tools.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease depth of cut.</li> <li>2. Use sharp cutting tools.</li> </ol>
Workpiece vibrates or chatters during operation.	<ol style="list-style-type: none"> <li>1. Table locks not tight.</li> <li>2. Spindle lock not tight.</li> <li>3. Workpiece not securely clamped to table or into mill vise.</li> <li>4. RPM and feed rate too high.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten down table locks.</li> <li>2. Tighten spindle lock.</li> <li>3. Check that clamping is tight and sufficient for the job. Make sure mill vise is tight to the table.</li> <li>4. Use appropriate RPM and feed for the job.</li> </ol>
Table hard to move.	<ol style="list-style-type: none"> <li>1. Table locks are tightened down.</li> <li>2. Chips have loaded up on bedways.</li> <li>3. Bedways are dry and in need of lubrication.</li> <li>4. Longitudinal stops are interfering.</li> <li>5. Gibs are too tight.</li> </ol>	<ol style="list-style-type: none"> <li>1. Check to make sure table locks are fully released.</li> <li>2. Frequently clean away chips that load up during milling operations.</li> <li>3. Lubricate bedways and handles.</li> <li>4. Check to make sure that stops are floating and not hitting the center stop.</li> <li>5. Loosen gib screw(s)</li> </ol>
Micro-feed adjuster won't lower the quill.	<ol style="list-style-type: none"> <li>1. Quill knob is not tightened down</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the quill knob clockwise to tighten and engage the micro-feed adjuster.</li> </ol>
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Wrong RPM or feed rate.</li> <li>2. Dull cutting tool or poor cutting tool selection.</li> <li>3. Wrong rotation of cutting tool.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust for appropriate RPM and feed rate.</li> <li>2. Sharpen cutting tool or select a better cutting tool for the intended operation.</li> <li>3. Check for proper cutting rotation for cutting tool.</li> </ol>

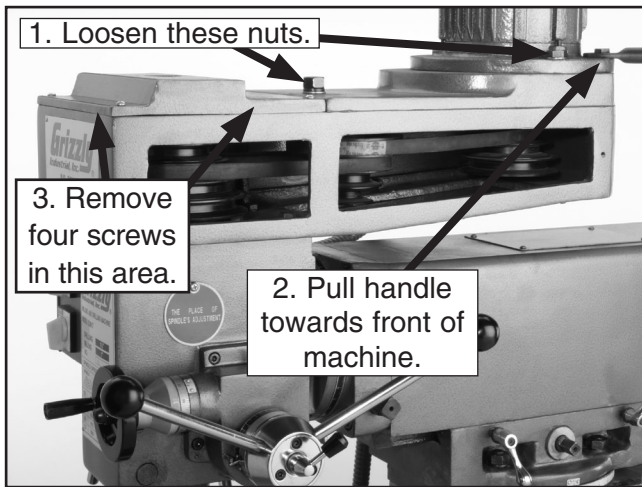


# Replacing V-belts

When a V-belt is worn, cracked, or broken, it needs to be replaced. The following instructions are for belt replacement.

## Vertical Spindle

1. Loosen the motor nut and center pulley nut.
2. Pull the motor towards the front of the mill.
3. Remove the four Phillips head screws on the top cover (See **Figure 59**), and remove the cover.



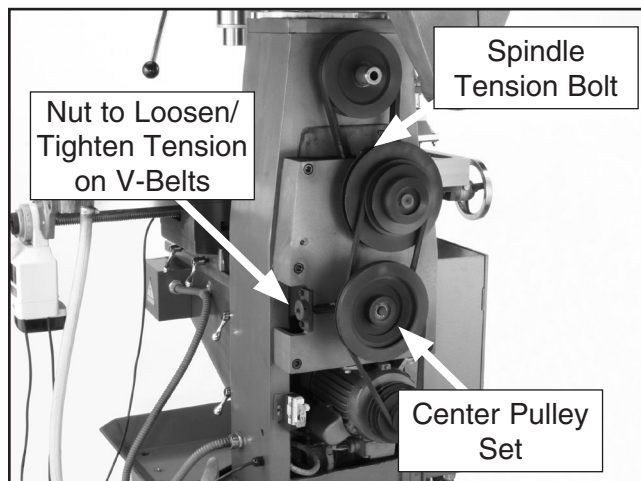
**Figure 59.** Vertical spindle access area.

4. Open the access panel to the V-belts.
5. Remove the front V-belt by moving the belt down the center pulley set and then up the front pulley set.
6. Remove the rear V-belt by moving the belt down both pulley sets.
7. Replace the rear V-belt first, by placing the belt under both pulley sets and then working up.
8. Replace the front V-belt by dropping the belt down over the front pulley set, through the opening in the top, and then working it under the center pulley set.
9. Move the V-belts to the desired RPM setting and tighten the nuts. Review *Setting RPM* on **Page 22** for detailed instructions.
10. Replace the access cover and secure in place with the two thumb screws.
11. Replace the top cover and secure in place with the four Phillips head screws.



## Horizontal Spindle (G3617 Only)

1. Open the access panel to the horizontal spindle pulleys.
2. Loosen the bolt that holds the center pulley set (See **Figure 60**) in place. The bolt can be accessed through the opening next to the tension nut.
3. Remove the tension nut between the motor and the middle pulley sets to release tension on the V-belts.
4. Slide the center pulley set to the right to release tension and allow belt movement.
5. Remove the damaged V-belt and replace it. **Note:** *The upper V-belt must be installed first.*
6. Move the V-belts to the appropriate pulley sets for the needed RPM.
7. Move the center pulley set back into position and reinstall the tension nut, bring the pulleys to the proper tension.
8. Tighten the nut to secure the center pulley set.
9. Close the access cover by inserting the knob screw, then connect the machine to the power source.



**Figure 60.** Horizontal spindle access area.

## V-Belts Directly on Horizontal Spindle

1. To replace the V-belts that are mounted on the spindle, first complete **Steps 1–4** from the **Horizontal Spindle** instructions.
2. Loosen the spindle tension bolt. Do not loosen the nut (see **Figure 60**).
3. Pull the upper pulley set up to loosen tension on the spindle pulleys.
4. Remove the damaged V-belt and replace it.
5. Tighten spindle tension bolt.
6. Push the upper pulley set back into position.
7. Complete **Steps 7–9** from the **Horizontal Spindle** instructions.



# Adjusting Gibs

The gibs control the accuracy of the table movements. Tight gibs make the table movement more accurate, but harder to move. Loose gibs make the table movement sloppy, but easy to move.

## NOTICE

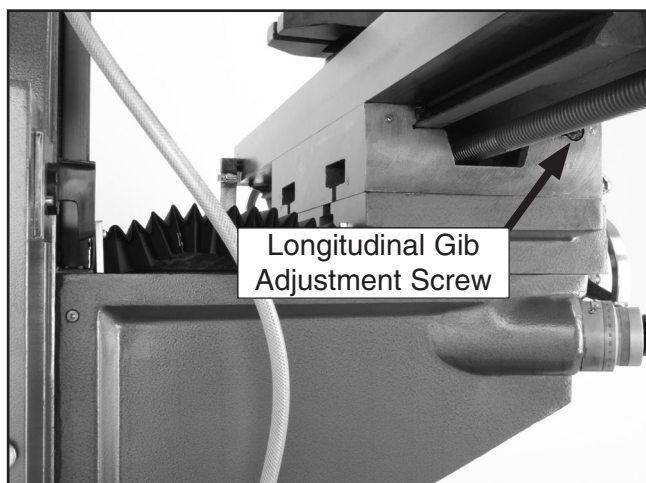
When adjusting gibs, the goal of gib adjustment is to remove unnecessary sloppiness without causing the slides to bind. Loose gibs may cause poor finishes on the workpiece and may cause undue wear on the slide. Over-tightening may cause premature wear.

Each sliding dovetail on the Model G3616/G3617 has a gib that is sandwiched between two adjustment screws (see **Figures 61–64** for the locations of one end of each adjustment screw).

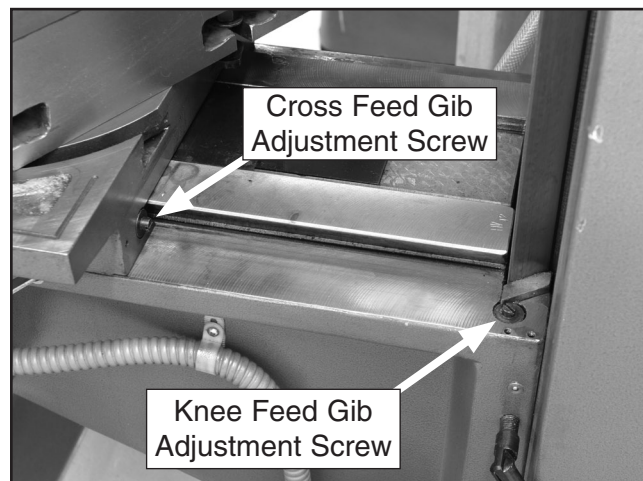
Some minor components must be removed to access all the gib adjustment screws.

Adjust the gibs by loosening one screw and tightening the other at the opposite end until a slight drag is felt while moving the table/knee along the dovetail slides; then tighten the loose screw at the other end to lock the setting in place.

**Note:** *The G3617 spindle support adjusts along the dovetail slide by a clamping system.*



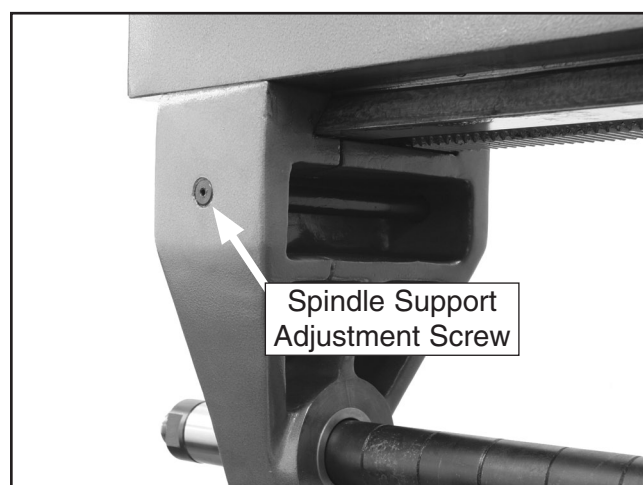
**Figure 61.** Longitudinal gib location.



**Figure 62.** Cross feed and knee feed gib locations.



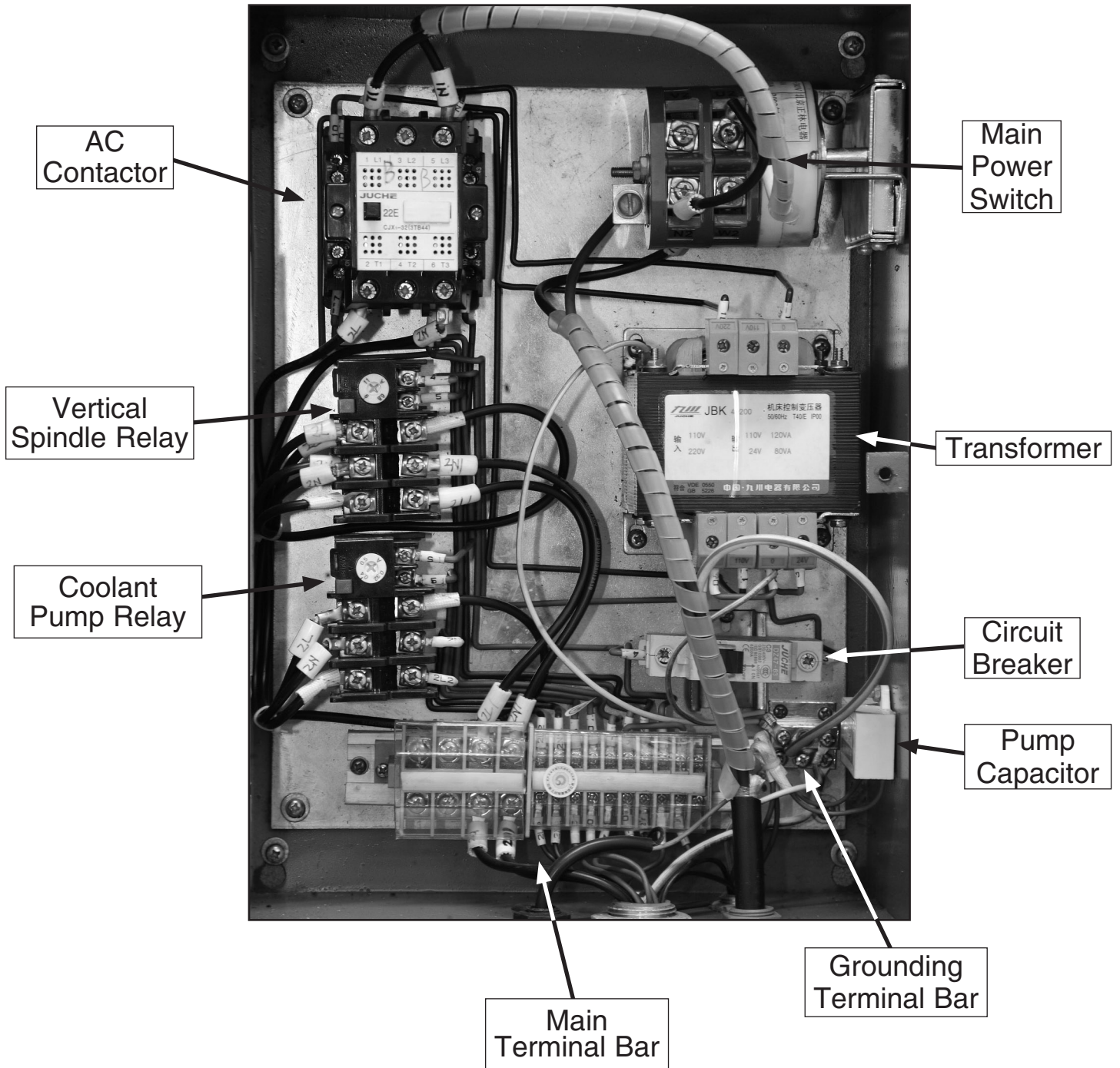
**Figure 63.** Spindle head gib location.



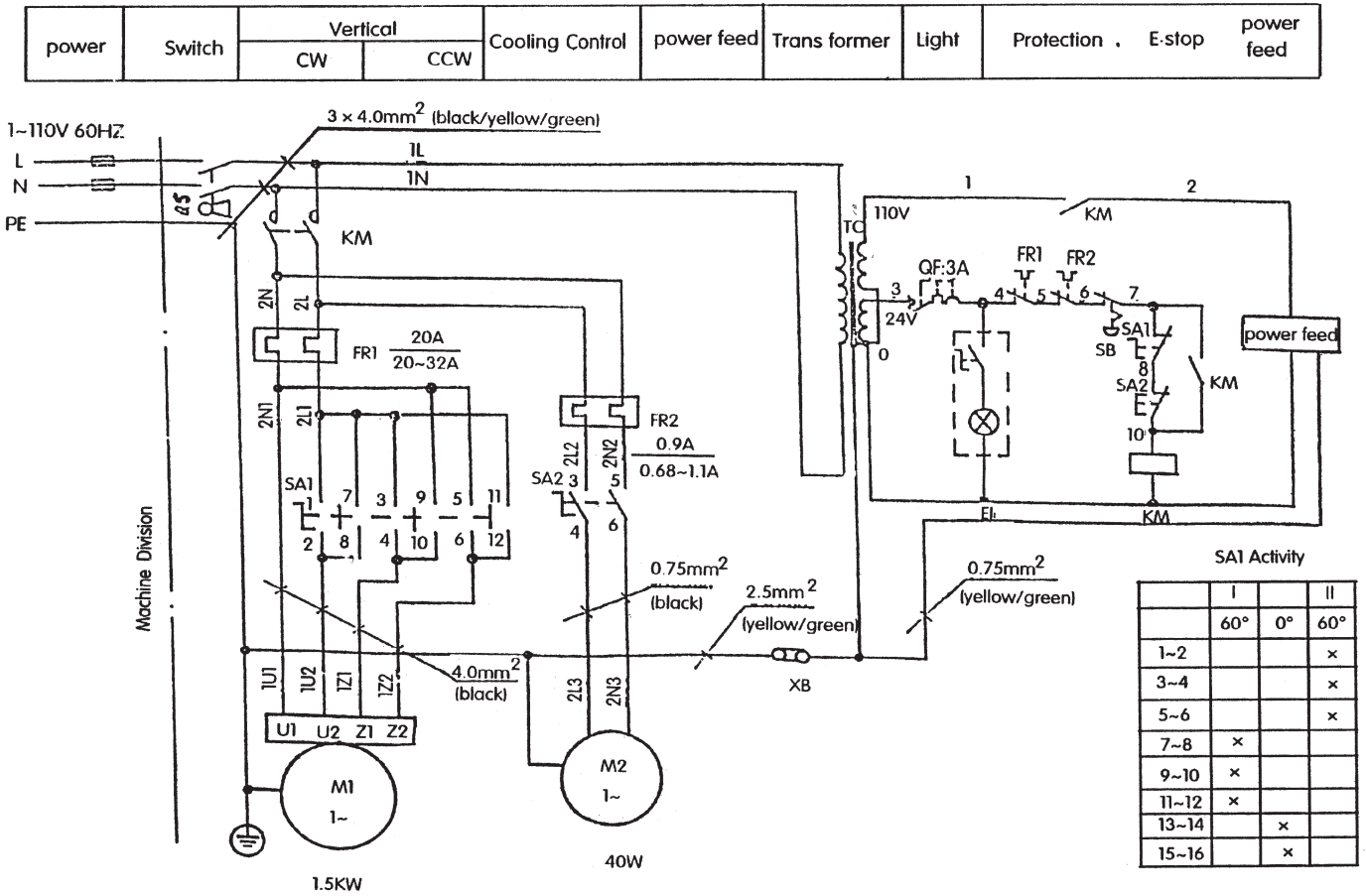
**Figure 64.** Spindle support gib location.



# G3616 Wiring Box Identification



# G3616 110V Wiring Diagram

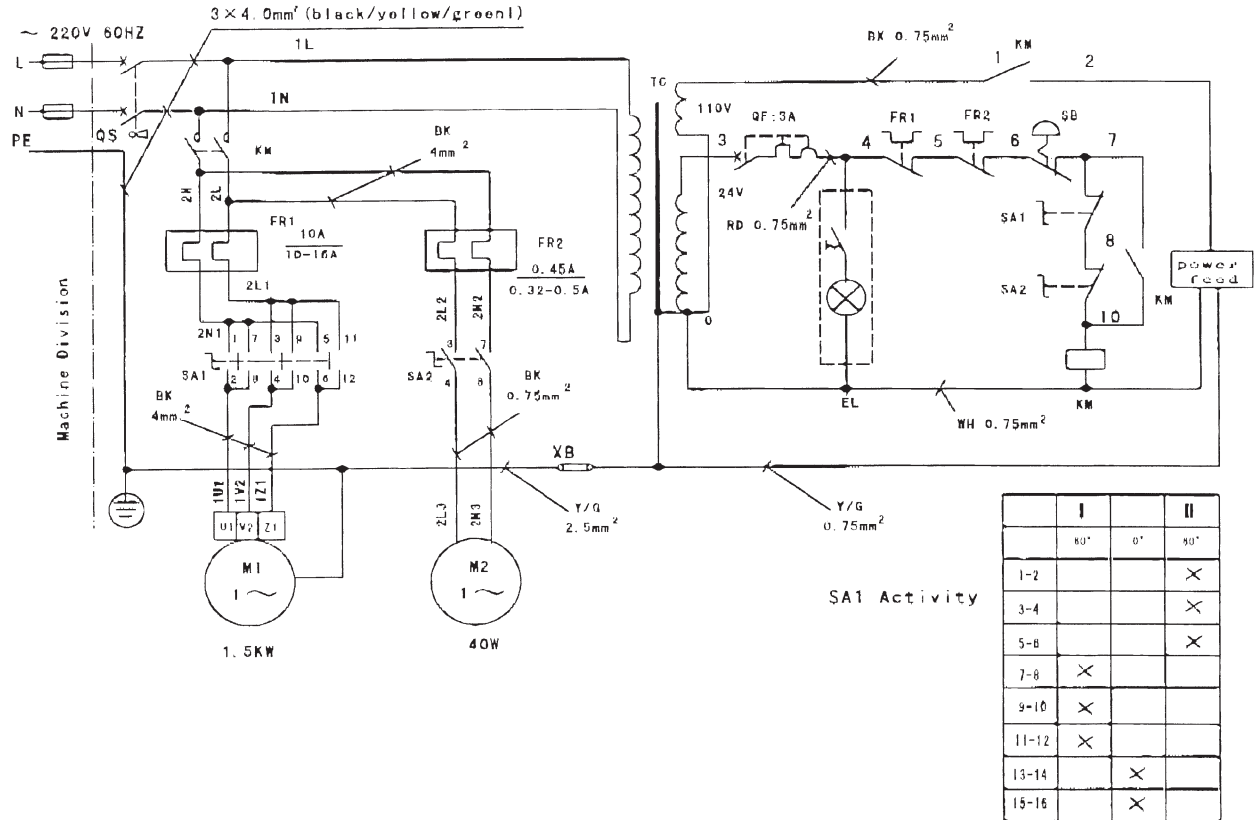


CODE	NAME	SPECIFICATIONS
M1	SINGLE-PHASE MOTOR (VERTICAL)	YC1000L2-4 1PH 110V/220V 60HZ 2HP 1725 RPM V1
M2	COOLANT PUMP	YDB-12TH 40W 1PH 110V/220V 60HZ 12L/MIN 3M
A1	POWER FEED	AS-235 AC 110V
KM	AC CONTACTOR	CJX1-32/22 AC 24V 60HZ
QS	MAIN POWER SWITCH	HZ12-40/15
FR1	SPINDLE MOTOR RELAY	JR16-20/3D DIAL SETTING:20A CURRENT RANGE: 20~32A
FR2	COOLANT PUMP MOTOR RELAY	JR16-20/3D DIAL SETTING:0.9A CURRENT RANGE 0.68~1.1A
SA1	COMBINATION SWITCH FOR VERTICAL SPINDLE	HZ5C-25/M4D035
SA2	COMBINATION SWITCH FOR COOLANT PUMP	HZ5C-10/M2C005
SB	EMERGENCY STOP BUTTON	LAY3-02ZS/1 2NC
QF	CIRCUIT BREAKER	DZ47-63 (1P 3A)
TC	TRANSFORMER	JBK4-200 1:0-110V 0:0-110V/120VA 0-220V 0-24V/80VA
EL	HALOGEN LAMP	JC-38 (50W AC:24V)



# G3616 220V Wiring Diagram

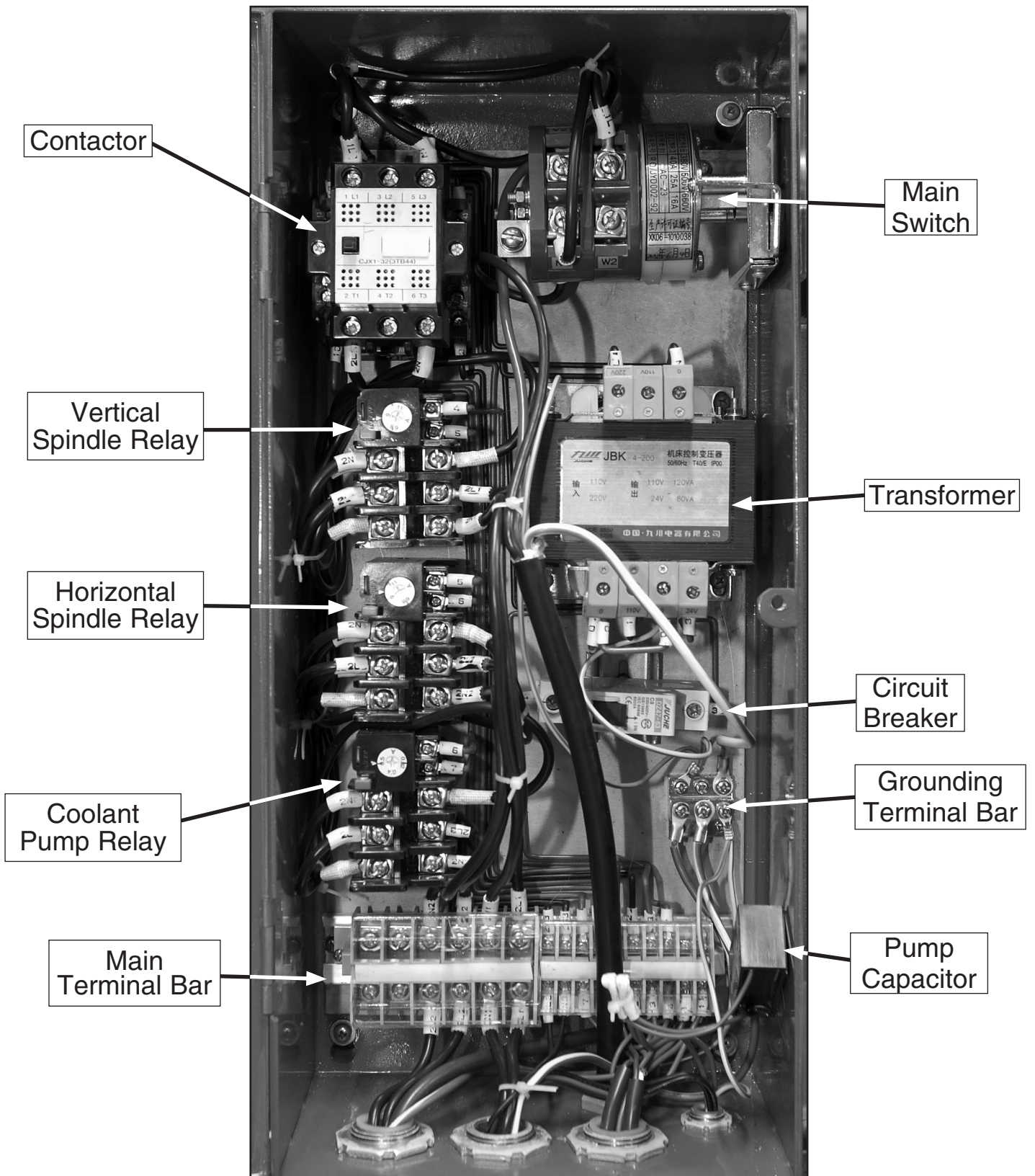
POWER	POWER Switch	Vertical		Coolant	Trans-former	Light	Prot-ection	E-Stop	power feed
		CW	CCW						



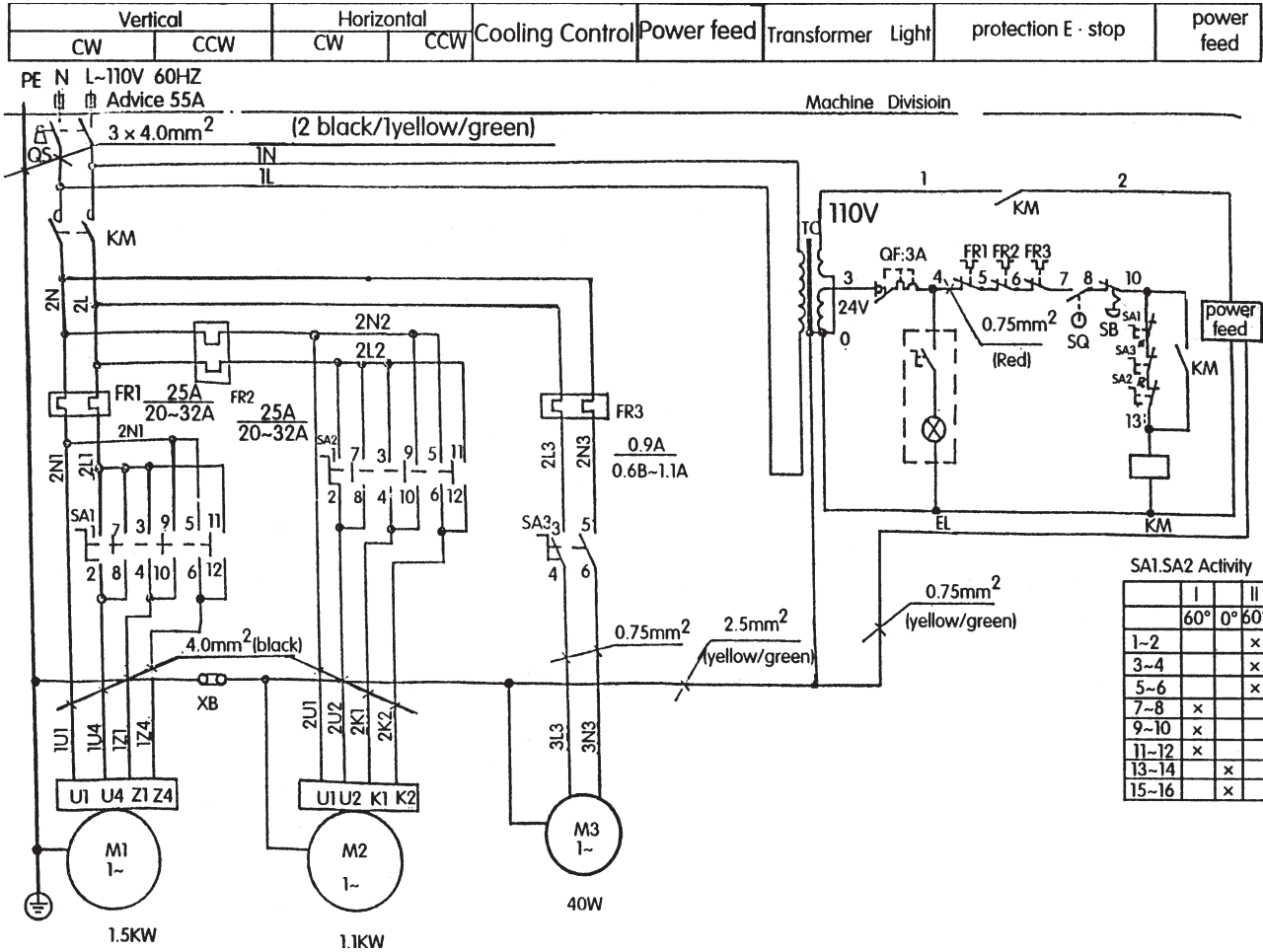
CODE	NAME	SPECIFICATIONS
M1	SINGLE-PHASE MOTOR (VERTICAL)	YC1000L2-4 1PH 110V/220V 60HZ 2HP 1725 RPM V1
M2	COOLANT PUMP	YDB-12TH 40W 1PH 110V/220V 60HZ 12L/MIN 3M
A1	POWER FEED	AS-235 AC 110V
KM	AC CONTACTOR	CJX1-32/22 AC 24V 60HZ
QS	MAIN SWITCH	HZ12-40/15
FR1	RELAY	JR16-20/3D DIAL SETTING:10A CURRENT RANGE: 10~16A
FR2	RELAY	JR16-20/3D DIAL SETTING:0.45A CURRENT RANGE 0.32~0.5A
SA1	COMBINATION SWITCH FOR VERTICAL SPINDLE	HZ5C-25/M4D035
SA2	COMBINATION SWITCH FOR COOLANT PUMP	HZ5C-10/M2C005
SB	EMERGENCY STOP BUTTON	LAY3-02ZS/1 2NC
QF	CIRCUIT BREAKER	DZ47-63 (1P 3A)
TC	TRANSFORMER	JBK4-200 1:0-110V 0:0-110V/120VA 0-220V 0-24V/80VA
EL	HALOGEN LAMP	JC-38 (50W AC:24V)



# G3617 Wiring Box Identification



# G3617 110V Wiring Diagram

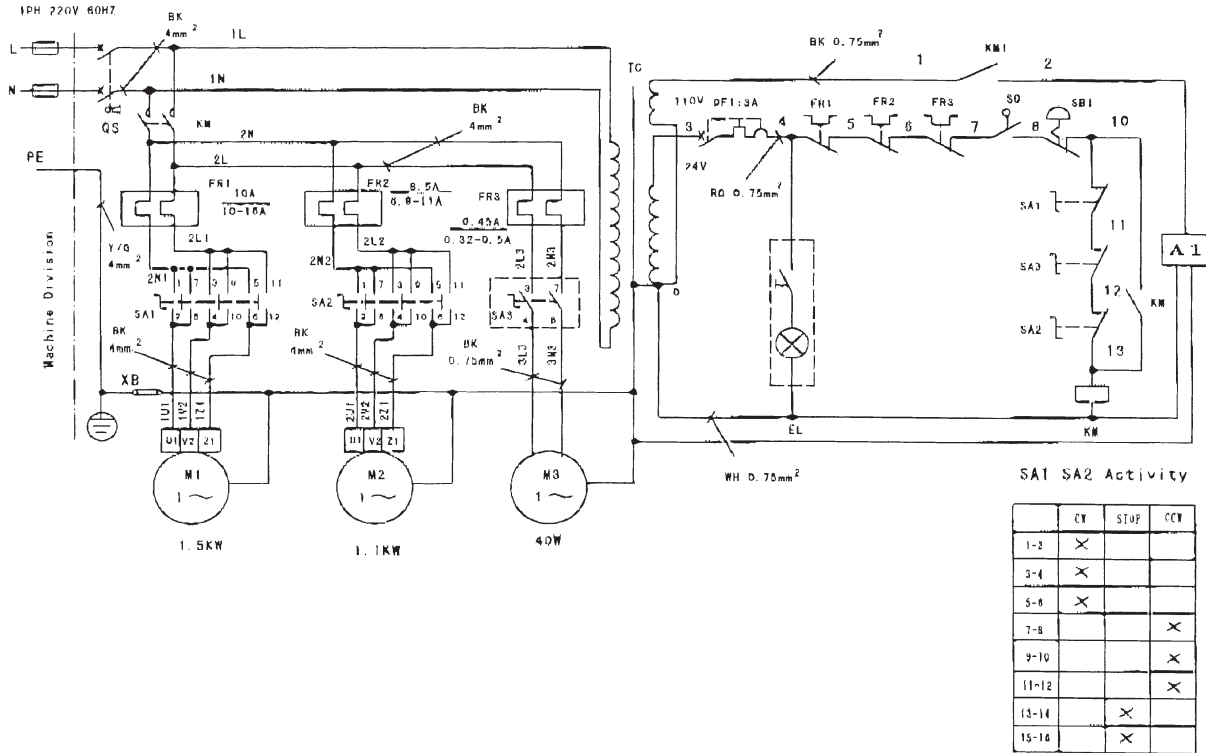


CODE	NAME	SPECIFICATIONS
M1	SINGLE-PHASE MOTOR (VERTICAL)	YC1000L2-4 1PH 110V/220V 60HZ 2HP 1725 RPM V1
M2	SINGLE-PHASE MOTOR (HORIZONTAL)	YC90L2-4 1PH 110V/220V 60HZ 1.5HP 1725 RPM B3
M3	COOLANT PUMP	YDB-12TH 40W 1PH 110V/220V 60HZ 12L/MIN 3M
A1	POWER FEED	AS-235 AC 110V
KM	AC CONTACTOR	CJX1-32/22 AC 24V 60HZ
QS	MAIN POWER SWITCH	HZ12-40/15
FR1	VERTICAL SPINDLE MOTOR RELAY	JR16-20/3D <b>DIAL: 25A</b> CURRENT RANGE: 20-32A
FR2	HORIZONTAL SPINDLE MOTOR RELAY	JR16-20/3D <b>DIAL: 25A</b> CURRENT RANGE: 20-32A
FR3	COOLANT PUMP MOTOR RELAY	JR16-20/3D <b>DIAL: 0.9A</b> CURRENT RANGE 0.6-1.1A
SA1	COMBINATION SWITCH FOR VERTICAL SPINDLE	HZ5C-25/M4D035v
SA2	COMBINATION SWITCH FOR HORIZONTAL SPINDLE	HZ5C-25/M4D035
SA3	COMBINATION SWITCH FOR COOLANT PUMP	HZ5C-10/M2C005
SB	EMERGENCY STOP BUTTON	LAY3-02ZS/1 2NC
SQ	MICRO SWITCH	LXW6-11DL LE:3A
QF	CIRCUIT BREAKER	DZ47-63 (1P 3A)
TC	TRANSFORMER	JBK4-200 1:0-110V 0:0-110V/120VA 0-220V 0-24V/80VA
EL	HALOGEN LAMP	JC-38 (50W AC:24V)



# G3617 220V Wiring Diagram

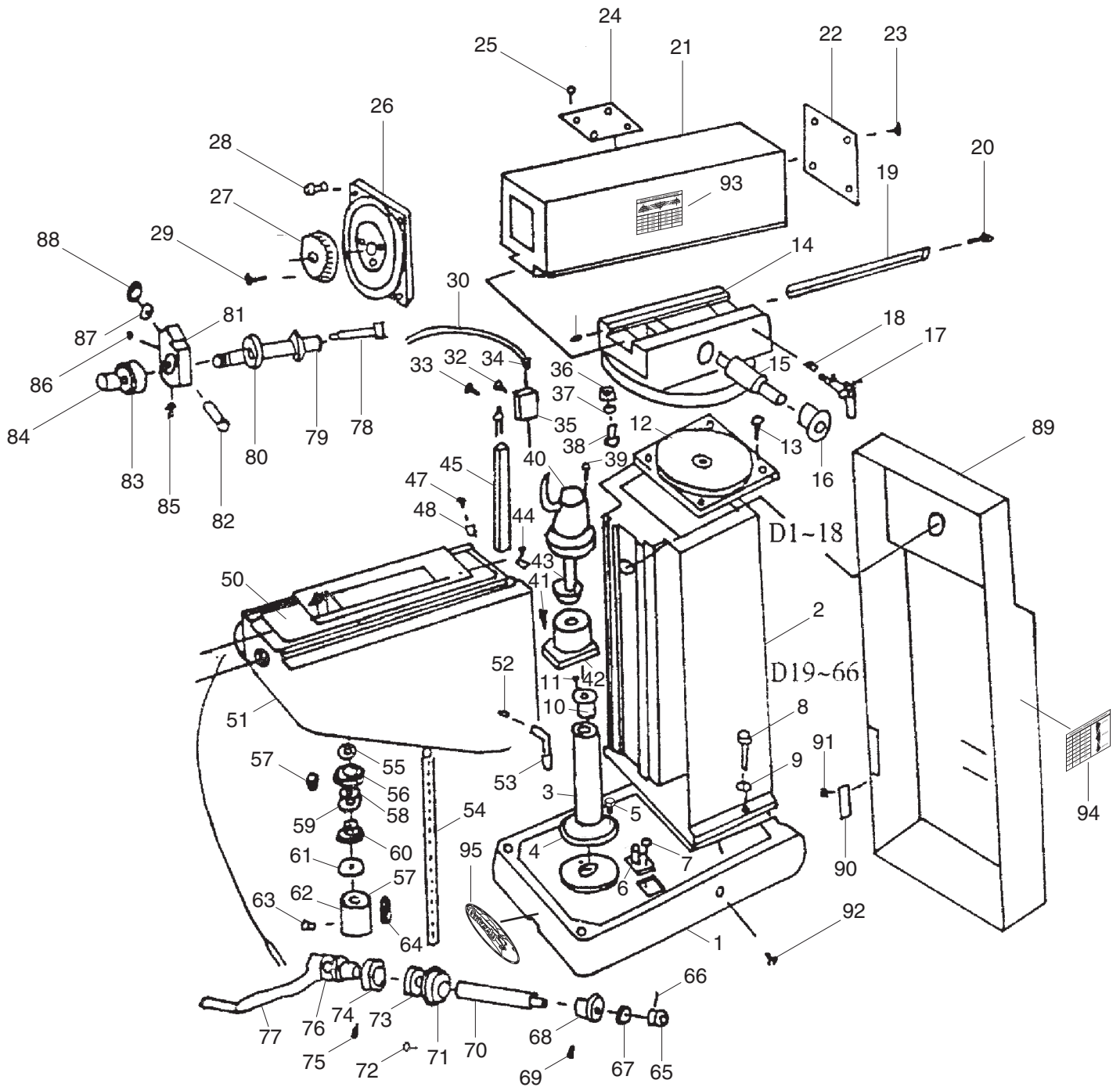
POWER	POWER Switch	Vertical		Horizontal		Coolant	Trans- former	Light	E-Stop Protection	power feed
		CW	CCW	CW	CCW					



CODE	NAME	SPECIFICATIONS
M1	SINGLE-PHASE MOTOR (VERTICAL)	YC1000L2-4 1PH 110V/220V 60HZ 2HP 1725 RPM V1
M2	SINGLE-PHASE MOTOR (HORIZONTAL)	YC90L2-4 1PH 110V/220V 60HZ 1.5HP 1725 RPM B3
M3	COOLANT PUMP	YDB-12TH 40W 1PH 110V/220V 60HZ 12L/MIN 3M
A1	POWER FEED	AS-235 AC 110V
KM	AC CONTACTOR	CJX1-32/22 AC 24V 60HZ
QS	MAIN SWITCH	HZ12-40/15
FR1	VERTICAL SPINDLE MOTOR RELAY	JR16-20/3D <b>DIAL: 10A</b> CURRENT RANGE: 10~16A
FR2	HORIZONTAL SPINDLE MOTOR RELAY	JR16-20/3D <b>DIAL: 8.5A</b> CURRENT RANGE: 6.8~11A
FR3	COOLANT PUMP MOTOR RELAY	JR16-20/3D <b>DIAL: 0.45A</b> CURRENT RANGE 0.32~0.5A
SA1	COMBINATION SWITCH FOR VERTICAL SPINDLE	HZ5C-25/M4D035
SA2	COMBINATION SWITCH FOR HORIZONTAL SPINDLE	HZ5C-25/M4D035
SA3	COMBINATION SWITCH FOR COOLANT PUMP	HZ5C-10/M2C005
SB	EMERGENCY STOP BUTTON	LAY3-02ZS/1 2NC
SQ	MICRO SWITCH	LXW6-11DL LE:3A
QF	CIRCUIT BREAKER	DZ47-63 (1P 3A)
TC	TRANSFORMER	JBK4-200 1:0-110V 0:0-110V/120VA 0-220V 0-24V/80VA
EL	HALOGEN LAMP	JC-38 (50W AC:24V)



# Column Parts Breakdown



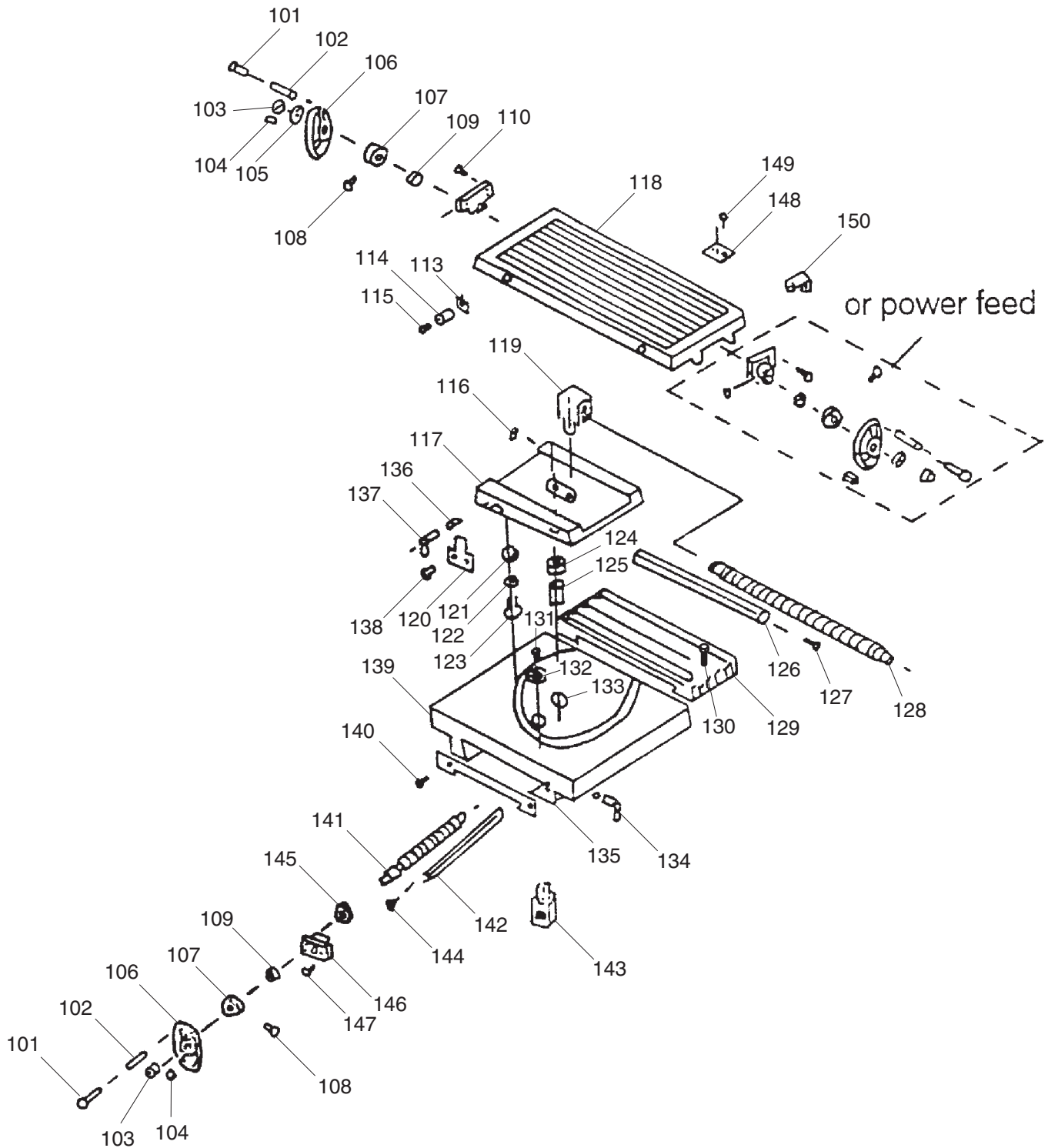
# Column Parts List

REF	PART #	DESCRIPTION
1	P3616001	BASE
2	P3616002	COLUMN (G3616)
2	P3617002	COLUMN (G3617)
3	P3616003	ELEVATING SCREW HOUSING
4	PLW06M	LOCK WASHER 10MM
5	PB116M	HEX BOLT M10-1.5 x 45
6	P3616006	CONNECT TUBE
7	PS38M	PHLP HD SCR M4-.7 x 10
8	PB131M	HEX BOLT M16-2 X 65
9	PLW10M	LOCK WASHER 16MM
10	P3616010	COLLAR
11	PSB31M	CAP SCREW M8-1.25 x 25
12	P3616012	HOLD SUPPORT
13	PSB77M	CAP SCREW M12-1.75 X 30
14	P3616014	AROUND BRACKET
15	P3616015	FEED SHAFT
16	P3616016	COLLAR
17	P3617017	CLAMP BOLT M12-1.75 X 58 X 25
18	P3616018	CLAMP BLOCK
19	P3616019	GIB
20	PFH42M	FLAT HD SCR M8-1.25 x 40
21	P3616021	OVERARM
22	P3616022	COVER
23	PS08M	PHLP HD SCR M5-.8 X 12
24	P3616024	COVER
25	PS08M	PHLP HD SCR M5-.8 X 12
26	P3616026	HOLD BRACKET
27	P3616027	GEAR
28	PSB122M	CAP SCREW M16-2 X 50
29	PSB123M	CAP SCREW M16-2 X 60
30	P3616030	NOZZLE
31	P3616031	OIL CUP
32	PSB01M	CAP SCREW M6-1 x 16
33	PSB01M	CAP SCREW M6-1 x 16
34	P3616034	CONNECT TUBE
35	P3616035	HOLD BRACKET
36	PN13M	HEX NUT M16-2
37	PLW10M	LOCK WASHER 16MM
38	P3616038	T BOLT M16-2 X 63
39	PS08M	PHLP HD SCR M5-.8 X 12
40	P3616040	ELECTRIC PUMP
41	PB83M	HEX BOLT M6-1 X 16
42	P3616042	SUPPORT
43	P3616043	DUST COVER
44	PS08M	PHLP HD SCR M5-.8 X 12
45	P3616045	GIB
46	P3616046	ADJUST SCREW M8-1.25
47	PS08M	PHLP HD SCR M5-.8 X 12

REF	PART #	DESCRIPTION
48	P3616048	WIPER PLATE
49	P3616049	WIPER PLATE
50	P3616050	WIPER PLATE
51	P3616051	KNEE
52	P3616052	CLAMP BLOCK
53	P3616053	CLAMP BOLT M10-1.5 x 58 X 25
54	P3616054	HOIST DESCEND LEAD SCREW
55	P3616055	CIRCULAR NUT
56	P3616056	CONICAL GEAR
57	PK95M	KEY 6 X 6 X 10
58	P3616058	BALL BEARING 25 X 42 X 11
59	P3616059	ADJUST WASHER
60	P3616060	COLLAR
61	P3616061	BALL BEARING 25 X 42 X 11
62	P3616062	HEX NUT DIA. 42 X 60MM
63	PSS16M	SET SCREW M8-1.25 X 10
64	PK09M	KEY 8 X 8 X 36
65	P3616065	CONICAL GEAR
66	PK34M	KEY 5 X 5 X 20
67	PW19M	FLAT WASHER 42 x 25 x 3MM
68	P3616068	COLLAR
69	PSS80M	SET SCREW M8-1.25 x 15
70	P3616070	SHAFT
71	P3616071	COLLAR
72	PSB114M	CAP SCREW M6-1 x 22
73	P3616073	BALL BEARING 25 X 42 X 11
74	P3616074	SCALE RING
75	P3617075	KNURLED THUMB SCR M6-1 X 10
76	P3616076	COLLAR
77	P3616077	HANDLE
78	P3617078	LIFT BAR (G3617)
79	P3617079	TOOLHOLDER (G3617)
80	P3617080	CUTTER BAR COLLAR (G3617)
81	P3617081	SUPPORT (G3617)
82	P3617082	SPECIAL BOLT M16-2 X 218 (G3617)
83	P3617083	COLLAR (G3617)
84	P3617084	SPECIAL NUT M22 X 1.5MM (G3617)
85	PSS06M	SET SCREW M8-1.25 x 16 (G3617)
86	P3617086	OIL CUP (G3617)
87	PW08M	FLAT WASHER 16MM (G3617)
88	PN13M	HEX NUT M16-2 (G3617)
89	P3617089	BEHIND COVER (G3617)
90	P3617090	HINGE (G3617)
91	PFH25M	FLAT HD SCR M4-.7 X 12 (G3617)
92	PS96M	PHLP HD SCR M10-1.5 x 8 (G3617)
93	P3616093	VERTICAL SPINDLE SPEEDS LABEL
94	P3617094	HORZ SPINDLE SPEEDS LABEL
95	G8588	GRIZZLY CAST IRON LOGO PLATE



# Rotary Table Parts Breakdown



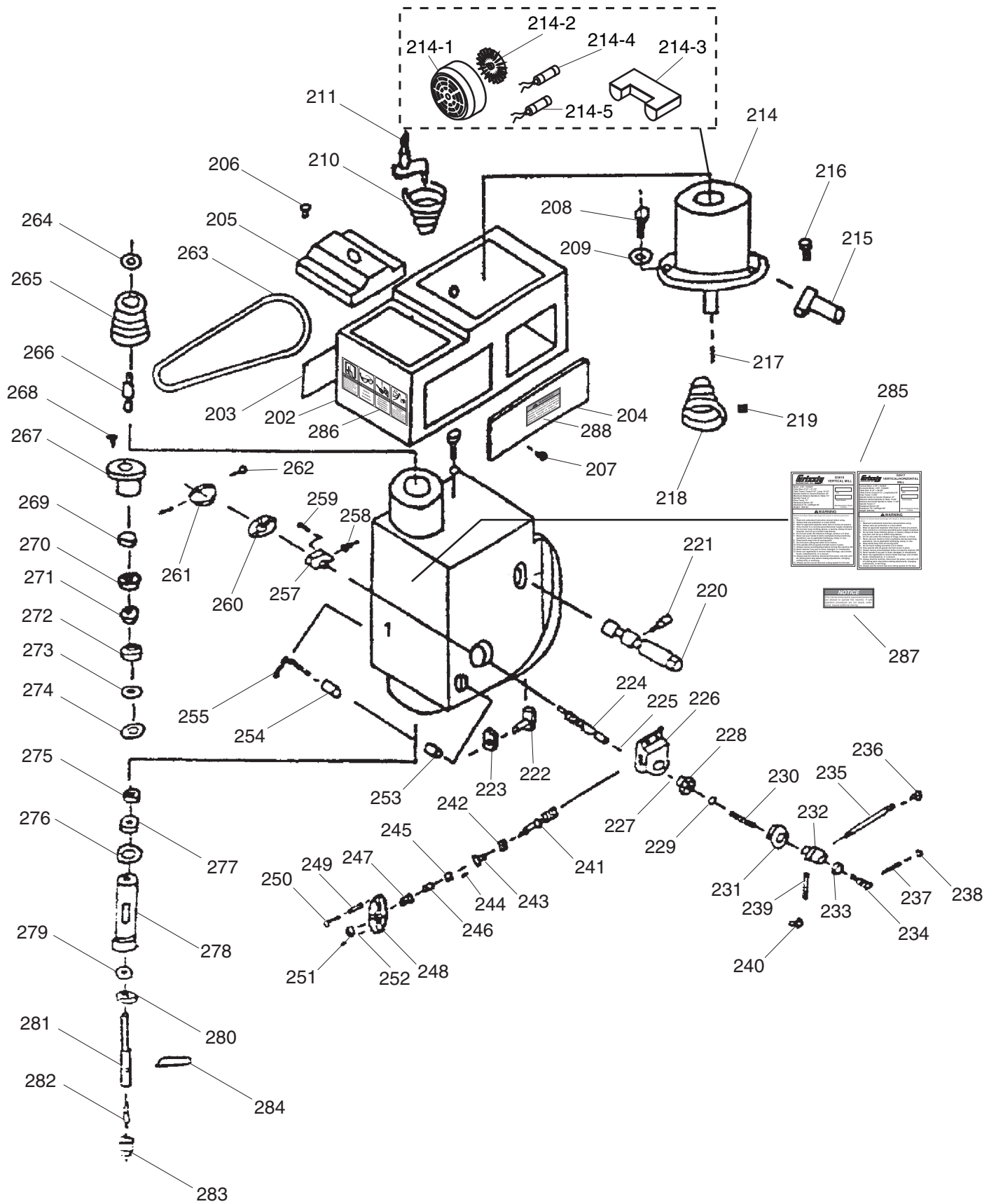
# Rotary Table Parts List

REF	PART #	DESCRIPTION
101	P3616101	HANDLE
102	P3616102	HANDLE COLLAR
103	PN09M	HEX NUT M12-1.75
104	PK96M	KEY 3 X 3 X 20
105	PLW05M	LOCK WASHER 12MM
106	P3616106	HAND WHEEL
107	P3616107	SCALE RING
108	PSB04M	CAP SCREW M6-1 X 10
109	P3616109	BALL BEARING 17 X 30 X 9
110	PSB61M	CAP SCREW M10-1.5 x 20
111	P3616111	SUPPORT
112	P3616112	OIL CUP
113	P3616113	SCREW BRACKET
114	P3616114	DOG
115	PSB01M	CAP SCREW M6-1 X 16
116	P3616116	OIL CUP
117	P3617117	ROTARY BRACKET
118	P3616118	TABLE (G3616)
118	P3617118	TABLE (G3617)
119	P3616119	SPECIAL NUT 1" (LEAD NUT)
120	P3617120	LIMIT ASSEMBLY
121	PN09M	HEX NUT M12-1.75
122	PW06M	FLAT WASHER 12MM
123	P3616123	T BOLT M12-1.75 X 45
124	P3616124	SHAFT MOUNT
125	P3616125	SHAFT
126	P3616126	GIB

REF	PART #	DESCRIPTION
127	P3616127	ADJUST SCREW M8-1.25
128	P3616128	LONG LEAD SCREW (G3616)
128	P3617128	LONG LEAD SCREW (G3617)
129	P3617129	WAY COVER
130	PS68M	SLOT SCREW M6-1 X 12
131	P3616131	FLAT HD SCR M8-1.25 x 20
132	P3616132	SPECIAL WASHER 32 X 9 X 1.5
133	P3616133	SADDLE
134	P3616134	CLAMP BOLT M10-1.5 x 58 X 25
135	P3616135	CARRIAGE CLAMP BLOCK
136	P3616136	CLAMP BLOCK
137	P3616134	CLAMP BOLT M10-1.5 x 58 X 25
138	PB03M	HEX BOLT M8-1.25 X 16
139	P3616139	WIPER PLATE
140	PS08M	PHLP HD SCR M5-.8 X 12
141	P3617141	CROSS HEAD LEAD SCREW
142	P3616142	GIB
143	P3617143	SPECIAL NUT 1"
144	P3616144	ADJUST SCREW M8-1.25
145	P3617145	BALL BEARING 17 X 30 X 9
146	P3616146	SUPPORT
147	PSB02M	CAP SCREW M6-1 x 20
148	P3616148	OIL COVER
149	PS05M	PHLP HD SCR M5-.8 x 8
150	P3616150	CONNECT TUBE
151	P3616151	COMPLETE MILLING VISE



# Head Parts Breakdown



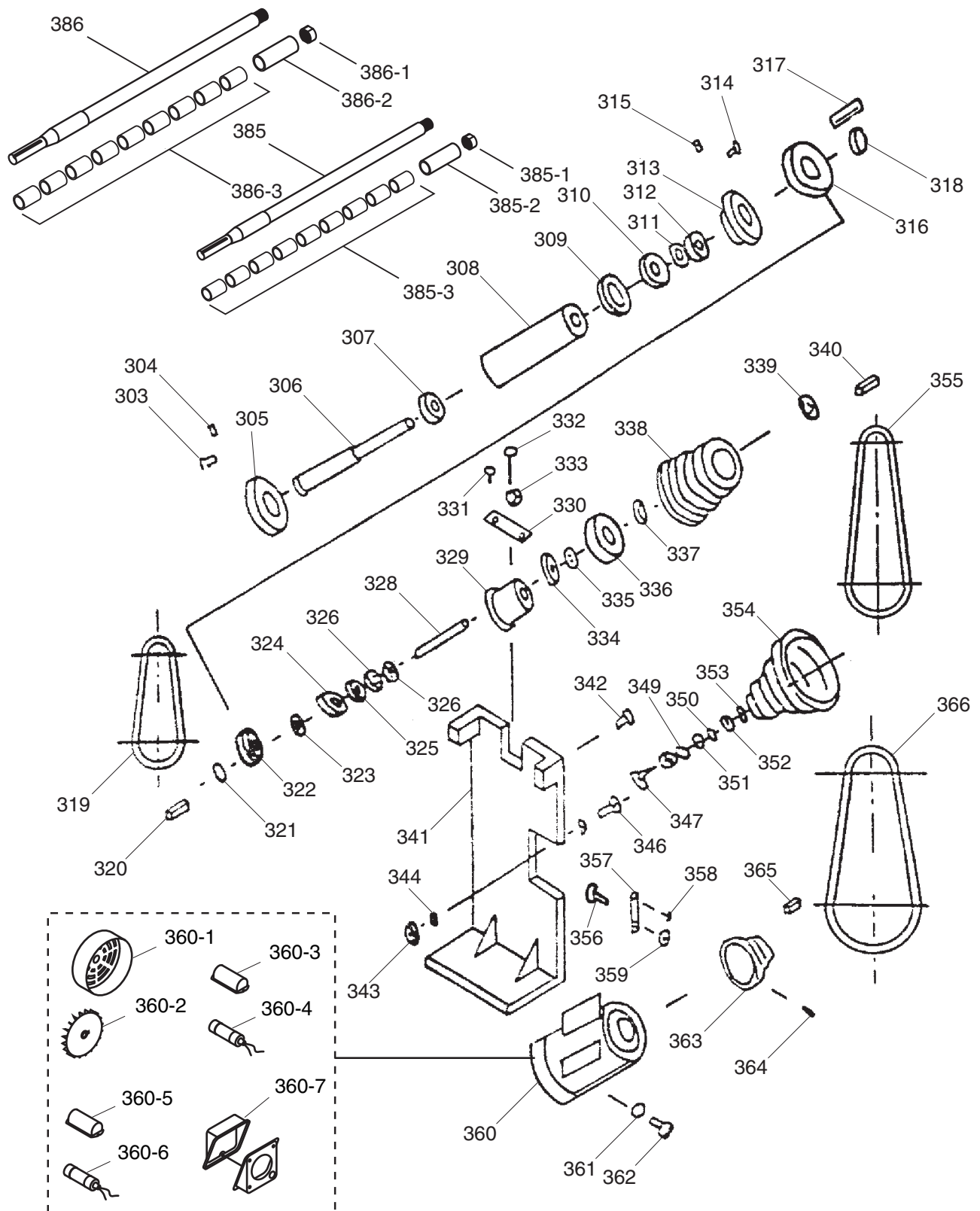
# Head Parts List

REF	PART #	DESCRIPTION
201	P3616201	SPINDLE BOX
202	P3616202	MOTOR BASE
203	P3616203	LEFT COVER
204	P3616204	RIGHT COVER
205	P3616205	PULLEY COVER
206	PS26M	SLOT HEAD SCREW M6-1 x 20
207	P3616207	KNURLED SCREW M6-1 X 10
208	PB74M	HEX BOLT M10-1.5 x 20
209	PLW06M	LOCK WASHER 10MM
210	P3616210	CENTER PULLEY
211	P3616211	CENTER PULLEY SHAFT
212	PB07M	HEX BOLT M8-1.25 x 25
213	PW10M	FLAT WASHER 14MM
214	P3616214	MOTOR
214-1	P3616214-1	MOTOR FAN COVER
214-2	P3616214-2	MOTOR FAN
214-3	P3616214-3	CAPACITOR BOX
214-4	PC150A	S CAPACITOR 150MFD 250VAC
214-5	PC20A	R CAPACITOR 20MFD 400VAC
215	P3616215	HANDLE
216	PB07M	HEX BOLT M8-1.25 x 25
217	PK41M	KEY 8 X 8 X 40
218	P3616218	MOTOR PULLEY
219	PSS04M	SET SCREW M6-1 X 12
220	P3616220	WORM GEAR
221	PSB13M	CAP SCREW M8-1.25 x 30
222	P3616222	T BOLT M16-2 X 63
223	PN13M	HEX NUT M16-2
224	P3616224	FEED SHAFT
225	PK09M	KEY 8 X 8 X 36
226	P3616226	HANDLWHEEL GEAR BOX
227	PSB14M	CAP SCREW M8-1.25 x 20
228	P3616228	BEVEL GEAR
229	PR15M	EXT RETAINING RING 30MM
230	P3616230	COMPRESSION SPRING
231	P3616231	SCALE RING
232	P3616232	HANDLE BRACKET HUB
233	P3616233	COVER
234	PB133M	HEX BOLT M16-2 X 90
235	P3617235	HANDLE BAR
236	P3617236	FEED SHAFT KNOB M12-1.75
237	P3616237	HANDLE
238	P3616238	HANDLE COLLAR KNOB
239	P3616239	SCALE
240	P3616240	RIVET
241	P3616241	WORM GEAR
242	P3616242	BALL BEARING 15 X 28 X 9

REF	PART #	DESCRIPTION
243	P3616243	SMALL COVER
244	PSB26M	CAP SCREW M6-1 X 12
245	P3616245	BALL BEARING 15 X 28 X 9
246	P3616246	COLLAR
247	P3616247	SCALE RING
248	P3617248	HANDLE WHEEL
249	P3617249	HANDLE COLLAR
250	P3617250	HANDLE
251	PN26M	ACORN NUT M12-1.75
252	PK97M	KEY 4 X 4 X 14
253	P3616253	CLAMP BLOCK
254	P3616254	CLAMP BLOCK
255	P3616255	CLAMP HANDLE
257	P3616257	SPRING SEAT
258	PS11M	SCREW M6-1 X 16
259	PSS19M	SET SCREW M8-1.25 x 30
260	P3616260	SPRING PLATE
261	P3616261	SPRING CAP
262	PS17M	PHLP HD SCR M4-.7 x 6
263	PVB30	V-BELT B-30 5L300
264	P3616264	SLOTTED LOCK NUT M50 X 1.5MM
265	P3616265	SPINDLE PULLEY
266	P3616266	SPRING SLEEVE
267	P3616267	COLLAR
268	PSB01M	CAP SCREW M6-1 X 16
269	PR67M	INT RETAINING RING 75MM
270	P6009ZZ	BALL BEARING 6009ZZ
271	P3616271	COLLAR
272	P6009ZZ	BALL BEARING 6009ZZ
273	PR67M	INT RETAINING RING 75MM
274	PR56M	EXT RETAINING RING 45MM
275	P3616275	PULLEY NUT
276	PLW13M	LOCK WASHER 40MM
277	P6003	BALL BEARING 6003ZZ
278	P3616278	QUILL
279	P3616279	BALL BEARING 50 X 80 X 20
280	P3616280	DUST COVER
281	P3616281	SPINDLE
282	P3616282	ARBOR R-8 X
283	P3616283	DRILL CHUCK
284	P3616284	WEDGE SHIFTER
285	P3616285	G3616 MACHINE ID LABEL
285	P3617285	G3617 MACHINE ID LABEL
286	P3616286	SECONDARY WARNINGS LABEL
287	P3616287	PROPER TRAINING NOTICE
288	P3616288	BELT GUARD LABEL



# G3617 Horizontal Spindle Parts Breakdown



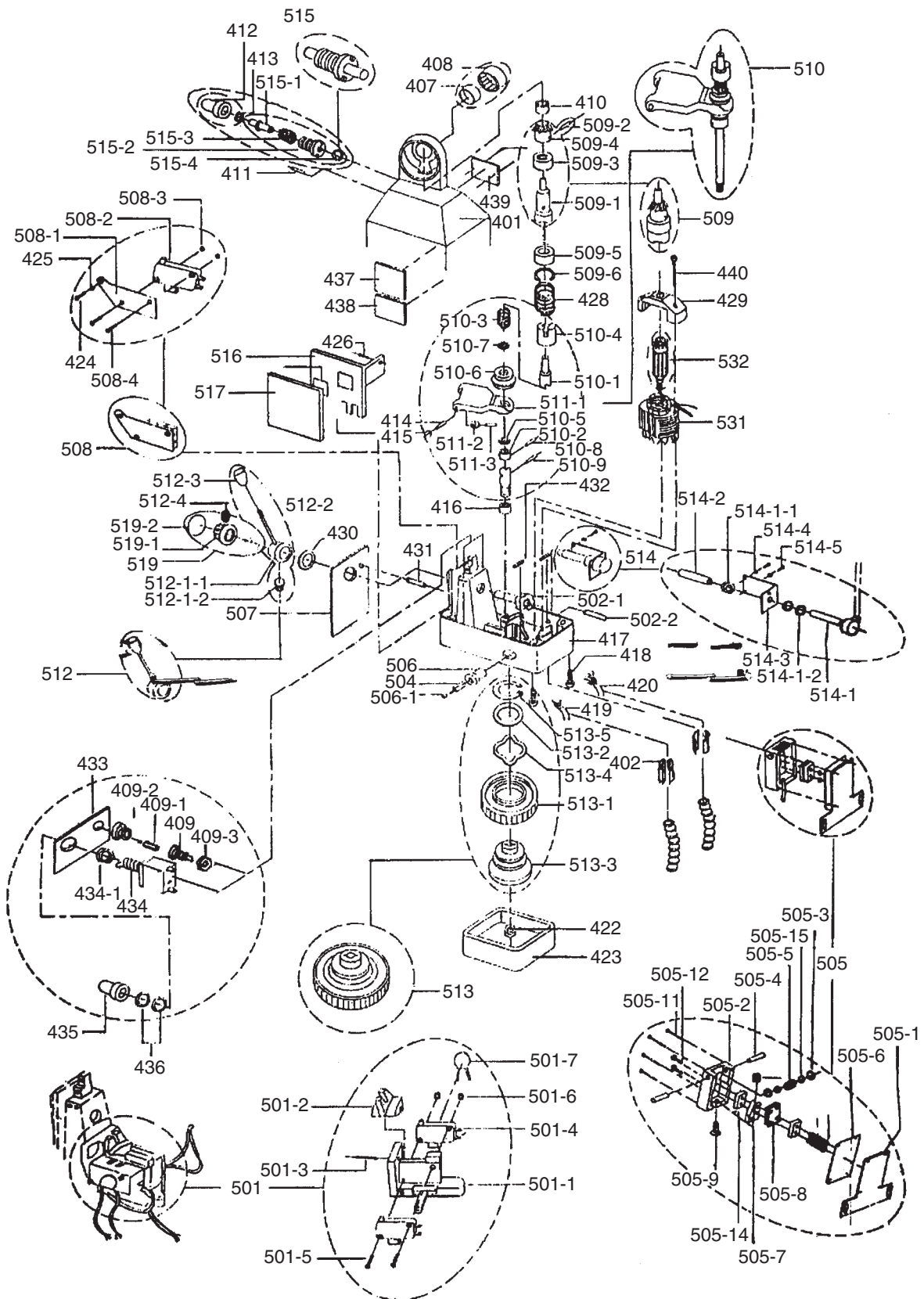
# G3617 Horizontal Spindle Parts List

REF	PART #	DESCRIPTION
303	PSB31M	CAP SCREW M8-1.25 x 25
304	P3617304	OIL CUP
305	P3617305	COVER
306	P3617306	SPINDLE
307	P3617307	BALL BEARING 55 X 90 X 23
308	P3617308	COLLAR
309	P3617309	BALL BEARING 40 X 90 X 25
310	P3617310	SPECIAL WASHER 52 X 4
311	P3617311	FLAT WASHER 39MM
312	P3617312	SLOTTED LOCK NUT M39 X 1.5MM
313	P3617313	COVER
314	PSB31M	CAP SCREW M8-1.25 x 25
315	P3617315	OIL CUP
316	P3617316	SPINDLE PULLEY
317	PK90M	KEY 10 X 10 X 25
318	PR12M	EXT RETAINING RING 35MM
319	PVA30	V-BELT A-30 4L300
320	PK42M	KEY 6 X 6 X 30
321	PR09M	EXT RETAINING RING 20MM
322	P3617322	WHEEL
323	P6003	BALL BEARING 6003ZZ
324	P3617324	BEARING 37MM
325	P6003	BALL BEARING 6003ZZ
326	P3617326	COLLAR
328	P3617328	SMALL SHAFT
329	P3617329	COLLAR
330	P3617330	SUPPORT
331	PSB02M	CAP SCREW M6-1 x 20
332	PB13M	HEX BOLT M10-1.5 x 80
333	PN02M	HEX NUT M10-1.5
334	PR25M	INT RETAINING RING 47MM
335	PR11M	EXT RETAINING RING 25MM
336	P3617336	SPECIAL NUT M64 X 2
337	PR25M	INT RETAINING RING 47MM
338	P3617338	PULLEY
339	PR11M	EXT RETAINING RING 25MM
340	P3617340	KEY 8 X 8 X 50
341	P3617341	MOTOR BASE
342	PSB124M	CAP SCREW M12-1.75 X 80

REF	PART #	DESCRIPTION
343	PN13M	HEX NUT M16-2
344	PW08M	FLAT WASHER 16MM
345	PW08M	FLAT WASHER 16MM
346	P3617346	SMALL SHAFT
347	P3617347	CONNECT
349	P6003	BALL BEARING 6003ZZ
350	P3617350	COLLAR
351	P6003	BALL BEARING 6003ZZ
352	PR18M	EXT RETAINING RING 17MM
353	PR21M	INT RETAINING RING 35MM
354	P3617354	PULLEY
355	PVA31	V-BELT A-31 4L310
356	P3617356	ADJUST SCREW M8-1.25
357	P3617357	SUPPORT
358	PSB02M	CAP SCREW M6-1 x 20
359	P3617359	SPECIAL NUT M8-1.25
360	P3617360	MOTOR
360-1	P3617360-1	MOTOR FAN COVER
360-2	P3617360-2	MOTOR FAN
360-3	P3617360-3	R CAPACITOR COVER
360-4	PC020B	R CAPACITOR 20MFD 450VAC
360-5	P3617360-5	S CAPACITOR COVER
360-6	PC150A	S CAPACITOR 150MFD 250VAC
360-7	P3617360-7	WIRING BOX
361	PLW04M	LOCK WASHER 8MM
362	PB07M	HEX BOLT M8-1.25 x 25
363	P3617363	MOTOR WHEEL
364	PSS04M	SET SCREW M6-1 X 12
365	PK43M	KEY 8 X 8 X 45
366	PVA31	V-BELT A-31 4L310
385	P3617385	1" HORIZONTAL ARBOR
385-1	P3617385-1	1" ARBOR NUT
385-2	P3617385-2	1" ARBOR SLEEVE
385-3	P3617385-3	1" ARBOR SPACER
386	P3617386	1-1/4" HORIZONTAL ARBOR
386-1	P3617386-1	1-1/4" ARBOR NUT
386-2	P3617386-2	1-1/4" ARBOR SLEEVE
386-3	P3617386-3	1-1/4" ARBOR SPACER



# Power Feed Parts Breakdown



# Power Feed Parts List

REF	PART #	DESCRIPTION
401	P3616401	TOP HOUSING
402	PN20M	HEX NUT M32-2
403	PW20M	FLAT WASHER 35MM
404	P3616404	BEVEL GEAR
405	PW08M	FLAT WASHER 16MM
406	PLN09	LOCK NUT M12-1.75
407	P3616407	INNER RING 20/28
408	P3616408	NEEDLE BEARING
409	P3616409	CIRCUIT BREAKER SUPPORT
409-1	P3616409-1	CIRCUIT BREAKER
409-2	P3616409-2	CIRCUIT BREAKER COVER
409-3	PN09M	HEX NUT M12-1.75
410	P3616410	BUSHING BEARING
411	P3616411	LIGHT TRANSMITTER
412	P3616412	HEX SEAL BOOT
413	PN09M	HEX NUT M12-1.75
414	P3616414	LIFT FORK SHAFT
415	P3616415	CRESCENT RING
416	P3616416	BUSHING BEARING
417	P3616417	BOTTOM HOUSING
418	P3616418	SPECIAL SCREW
419	P3616419	POWER CORD
420	P3616420	CONTROL CORD
421	P3616421	CORD CLAMP
422	P3616422	LOCKING NUT
423	P3616423	BOTTOM COVER
424	PS38M	PHLP HD SCR M4-.7 X 10
425	PN04M	HEX NUT M4-.7
426	PS17M	PHLP HD SCR M4-.7 X 6
427	P3616427	ADAPTOR
428	P3616428	SPRING FOR TOP HOUSING
429	P3616429	BEARING MOUNT
430	PLW02M	LOCK WASHER 4MM
431	PRP76M	ROLL PIN 4 X 16
432	PSS79M	SET SCREW M4-.7 X 6
433	P3616433	LABEL
434	P3616434	ON/OFF SWITCH
434-1	PN09M	HEX NUT M12-1.75
435	P3616435	CAP OF ON/OFF SWITCH
436	PN09M	HEX NUT M12-1.75
437	P3616437	CAUTION LABEL
438	P3616438	LABEL
439	P3616439	LABEL
440	PS94M	PHLP HD SCR M5-.8 X 75
501	P3616501	MICRO SWITCH ASSY
501-1	P3616501-1	MICRO SWITCH HOLDER
501-2	P3616501-2	SWITCH ACTUATOR
501-3	P3616501-3	PIN ACTUATOR
501-4	P3616501-4	MICRO SWITCH

REF	PART #	DESCRIPTION
501-5	PS95M	PHLP HD SCR M3-.5 X 30
501-6	PN07M	HEX NUT M3-.5
501-7	P3616501-7	CAPACITOR
502-1	P3616502-1	CAM ASSEMBLY
502-2	PRP11M	ROLL PIN 2.5 X 16
503-1	P3616503-1	MOTOR FIELD ASSEMBLY
503-2	P3616503-2	ARMATURE ASSEMBLY
504	P3616504	BRUSH
505	P3616505	LIMIT SWITCH ASSEMBLY
505-1	P3616505-1	HOLD PLATE
505-1	PN07M	HEX NUT M3-.5
505-11	PS97M	PHLP HD SCR M3-.5 X 34
505-12	PS98M	PHLP HD SCR M3-.5 X 16
505-13	PS59M	PHLP HD SCR M3-.5 X 14
505-14	P3616505-14	MICRO SWITCH
505-15	P3616505-15	CRESCENT RING
505-2	P3616505-2	LIMIT SWITCH HOLDER
505-3	P3616505-3	LIMIT PLATE
505-4	P3616505-4	ACTUATOR
505-5	P3616505-5	SPRING
505-6	P3616505-6	LIMIT SWTCH GASKET
505-7	P3616505-7	ACTUATOR
505-8	P3616505-8	CONNECTING PLATE
505-9	PS12M	PHLP HD SCR M3-.5 X 6
506	P3616506	BRUSH HOLDER
506-1	P3616506-1	BRUSH CAP
507	P3616507	ON/OFF NAMPLATE
508	P3616508	MICRO SWITCH ASSEMBLY
508-1	P3616508-1	MICRO SWITCH HOLDER
508-2	P3616508-2	MICRO SWITCH
508-3	PN07M	HEX NUT M3-.5
508-4	PS59M	PHLP HD SCR M3-.5 X 14
509	P3616509	DRIVE GEAR ASSEMBLY
509-1	P3616509-1	DRIVE GEAR SHAFT
509-2	PRP37M	ROLL PIN 3 X 14
509-3	P80018	BALL BEARING 80018
509-4	P3616509-4	DRIVE GEAR
509-5	P3616509-5	SPACER
509-6	PR66M	INT RETAINING RING 25MM
510	P3616510	LIFT FORK ASSEMBLY
510-1	P3616510-1	DRIVING SHAFT
510-2	P3616510-2	SHAFT MOUNT
510-3	P3616510-3	SPRING
510-4	P3616510-4	CLUTCH
510-5	PW18M	FLAT WASHER 18MM
510-6	P3616510-6	BEARING COVER
510-7	P3616510-7	BEARING
510-8	PRP02M	ROLL PIN 3 X 16
510-9	PRP02M	ROLL PIN 3 X 16



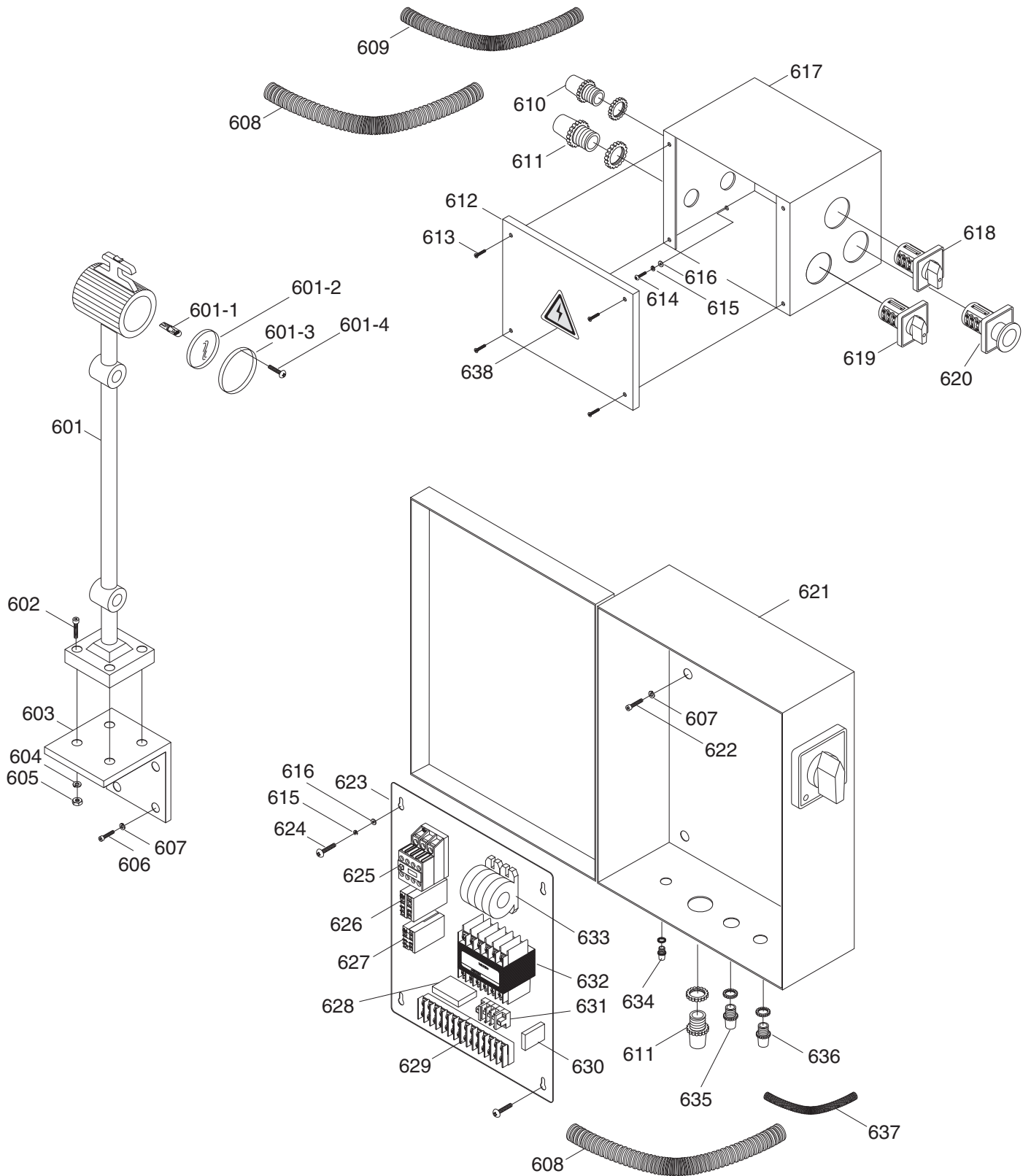
# Power Feed Parts List, continued

REF	PART #	DESCRIPTION
511-1	P3616511-1	LIFTFORK
511-2	P3616511-2	LIFTFORK RING
511-3	P3616511-3	PIN, LIFTFORK RING 3 X 14
512-1	P3616512-1	X CONTROL HANDLE ASSY
512-2	P3616512-2	Y,Z CONTROL HANDLE ASSY
512-3	P3616512-3	HANDLE KNOB M8-1.25
512-4	PSS04M	SET SCREW M6-1 X 12
512-5	P3616512-5	CONTROL HANDLE
513	P3616513	ZYTEL GEAR ASSEMBLY
513-1	P3616513-1	ZYTEL GEAR WITHOUT HUB
513-2	PW21M	FLAT WASHER 32MM
513-3	P3616513-3	HUB OF ZYTEL GEAR
513-4	P3616513-4	LOCK WASHER 38MM
513-5	PR29M	INT RETAINING RING 32MM
514-1	P3616514-1	POTENTIOMETER ASSEMBLY
514-2	P3616514-2	POTENTIOMETER RING
514-3	P3616514-3	POTENTIOMETER SARAIN
514-4	PW05M	FLAT WASHER 4MM
514-5	PS17M	PHLP HD SCR M4-.7 X 6
515	P3616515	RAPID SWITCH BUTTON
515-1	P3616515-1	RAPID SWITCH PLUNGER

REF	PART #	DESCRIPTION
515-2	P3616515-2	RAPID SWITCH HOUSING
515-3	P3616515-3	SPRING FOR RAPID SWITCH
515-4	PEC13M	E-CLIP 5MM
516	P3616516	CIRCUIT BOARD ASSEMBLY
517	P3616517	CIRCUIT BOARD INSULATOR
518	P3616518	TRAVEL STOP ASSEMBLY
518-1	P3616518-1	TRAVEL STOP
518-2	P3616518-2	TRAVEL STOP BASE
518-3	P3616518-3	TRAVEL STOP SHAFT
518-4	P3616518-4	SPRING
518-5	PB07M	HEX BOLT M8-1.25 X 25
518-6	P3616518-6	SPACER
518-7	PR39M	EXT RETAINING RING 8MM
519	P3616519	SPEED CONTROL KNOB ASSEMBLY
519-1	P3616519-1	SPEED CONTROL KNOB M6-1
519-2	P3616519-2	SPEED CONTROL LABEL
519-3	PSS49M	SET SCREW M4-.7 X 16
512-1-1	P3616512-1-1	X CONTROL HANDLE DISC
512-1-2	P3616512-1-2	Y,Z CONTROL HANDLE DISC
514-1-1	PN03M	HEX NUT M8-1.25
514-1-2	P3616514-1-2	POTENTIOMETER WASHER



# G3616 Electrical Parts Breakdown



# G3616 Electrical Parts List

REF	PART #	DESCRIPTION
601	P3616601	HALOGEN LAMP
601-1	P3616601-1	BULB
601-2	P3616601-2	BULB COVER
601-3	P3616601-3	BULB COVER RETAINER
601-4	PS55M	PHLP HD SCR M3-.5 X 10
602	PSB01M	CAP SCREW M6-1 x 16
603	P3616603	LAMP MOUNTING BRACKET
604	PLW03M	LOCK WASHER 6MM
605	PN01M	HEX NUT M6-.8
606	PSB01M	CAP SCREW M6-1 x 16
607	PLW01M	LOCK WASHER 5MM
608	P3616608	CONDUIT 20MM
609	P3616609	CONDUIT 15MM
610	P3616610	STRAIN RELIEF 20MM
611	P3616611	STRAIN RELIEF 25MM
612	P3616612	VERTICAL SWITCH BOX COVER
613	PFH31M	FLAT HD SCR M4-.7 X 8
614	PS08M	PHLP HD SCR M5-.8 X 12
615	PLW01M	LOCK WASHER 5MM
616	PW02M	FLAT WASHER 5MM
617	P3616617	VERTICAL SWITCH BOX
618	P3616618	VERT SPINDLE SWITCH M4D035
619	P3616619	COOLANT PUMP SWITCH M2C005

REF	PART #	DESCRIPTION
620	P3616620	E-STOP BUTTON LAY3-02ZS/1
621	P3616621	MAIN WIRING BOX W/LATCH
622	PSB33M	CAP SCREW M5-.8 X 12
623	P3616623	ELECTRICAL BOARD
624	PS09M	PHLP HD SCR M5-.8 X 10
625	P3616625	CONTACTOR CJX1-32/22 24V
626	P3616626	RELAY JR16-20/3D 10-16A 220V
626A	P3616626A	RELAY JR16-20/3D 20-32A 110V
627	P3616627	RELAY JR16-20/3D 0.32-0.5A 220V
627A	P3616627A	RELAY JR16-20/3D 0.68-1.1A 110V
628	P3616628	CIRCUIT BREAKER DZ47-63(1P,3A)
629	P3616629	LARGE TERMINAL BAR
630	P3616630	MICRO SWITCH
631	P3616631	SMALL TERMINAL BAR
632	P3616632	TRANSFORMER
633	P3616633	MAIN SWITCH W/KNOB
634	P3616634	STRAIN RELIEF 6.5MM
635	P3616635	STRAIN RELIEF 15MM
636	P3616636	STRAIN RELIEF 13MM
637	P3616637	CONDUIT 10MM
638	PLABEL-14	ELECTRICITY LABEL
650	P3616650	110V CONVERSION KIT





# G3617 Electrical Parts List

REF	PART #	DESCRIPTION
601	P3616601	HALOGEN LAMP
601-1	P3616601-1	BULB
601-2	P3616601-2	BULB COVER
601-3	P3616601-3	BULB COVER RETAINER
601-4	PS55M	PHLP HD SCR M3-.5 X 10
602	PSB33M	CAP SCREW M5-.8 X 12
603	P3616603	LAMP MOUNTING BRACKET
604	P3616604	LOCK WASHER 5MM
605	PN06M	HEX NUT M5-.8
606	P3616606	CAP SCREW M5
607	PLW01M	LOCK WASHER 5MM
608	P3616608	CONDUIT 20MM
609	P3616609	CONDUIT 15MM
610	P3616610	STRAIN RELIEF 20MM
611	P3616611	STRAIN RELIEF 25MM
612	P3616612	VERTICAL SWITCH BOX COVER
613	PFH31M	FLAT HD SCR M4-.7 X 8
614	PS08M	PHLP HD SCR M5-.8 X 12
615	PLW01M	LOCK WASHER 5MM
616	PW02M	FLAT WASHER 5MM
617	P3617617	VERTICAL SWITCH BOX
618	P3616618	VERT SPINDLE SWITCH M4D035
619	P3616619	COOLANT PUMP SWITCH M2C005
620	P3616609	CONDUIT 15MM
621	P3616610	STRAIN RELIEF 20MM
622	P3617622	HORIZONTAL SWITCH BOX
623	P3616623	MAIN WIRING BOX W/LATCH
624	PW02M	FLAT WASHER 5MM
625	PLW01M	LOCK WASHER 5MM

REF	PART #	DESCRIPTION
626	PSB33M	CAP SCREW M5-.8 X 12
627	PS07M	PHLP HD SCR M4-.7 X 8
628	P3617628	HORZ SWITCH BOX COVER
629	P3616618	HORIZ SPINDLE SWITCH M4D035
630	P3616620	E-STOP BUTTON LAY3-02ZS/1
631	PLW01M	LOCK WASHER 5MM
632	PS09M	PHLP HD SCR M5-.8 X 10
633	P3617633	ELECTRICAL BOARD
634	PS09M	PHLP HD SCR M5-.8 X 10
635	P3616625	CONTACTOR CJX1-32/22 24V
636	P3617626	RELAY JR16-20/3D 10-16A 220V
636A	P3616626A	RELAY JR16-20/3D 20-32A 110V
637	P3616637	RELAY JR16-20/3D 6.8-11A 220V
637A	P3616626A	RELAY JR16-20/3D 20-32A 110V
638	P3616627	RELAY JR16-20/3D 0.32-0.5A 220V
638A	P3616627A	RELAY JR16-20/3D 0.68-1.1 110V
639	P3616629	LARGE TERMINAL BAR
640	P3616630	MICRO SWITCH
641	P3616631	SMALL TERMINAL BAR
642	P3616632	TRANSFORMER
643	P3616633	MAIN SWITCH W/KNOB
644	P3616634	STRAIN RELIEF 6.5MM
645	P3616635	STRAIN RELIEF 15MM
646	P3616636	STRAIN RELIEF 13MM
647	P3616637	CONDUIT 10MM
648	P3616628	CIRCUIT BREAKER DZ47-63(1P,3A)
649	PLABEL-14	ELECTRICITY LABEL
650	P3617650	110V CONVERSION KIT







# WARRANTY CARD

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Model # \_\_\_\_\_ Order # \_\_\_\_\_ Serial # \_\_\_\_\_

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 Card Deck

Friend  
 Website

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

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 Hand Loader  
 Handy  
 Home Shop Machinist  
 Journal of Light Cont.  
 Live Steam  
 Model Airplane News  
 Modeltec  
 Old House Journal

Popular Mechanics  
 Popular Science  
 Popular Woodworking  
 Practical Homeowner  
 Precision Shooter  
 Projects in Metal  
 RC Modeler  
 Rifle  
 Shop Notes  
 Shotgun News

Today's Homeowner  
 Wood  
 Wooden Boat  
 Woodshop News  
 Woodsmith  
 Woodwork  
 Woodworker West  
 Woodworker's Journal  
 Other:

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

\$20,000-\$29,000  
 \$50,000-\$59,000

\$30,000-\$39,000  
 \$60,000-\$69,000

\$40,000-\$49,000  
 \$70,000+

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

20-29  
 50-59

30-39  
 60-69

40-49  
 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

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**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:** \_\_\_\_\_

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# WARRANTY AND RETURNS

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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.

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