

# READ THIS FIRST



**Model G0694**

**\*\*\*IMPORTANT UPDATE\*\*\***

**For Machines Mfd. Since 09/13  
and Owner's Manual Revised 06/18**

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

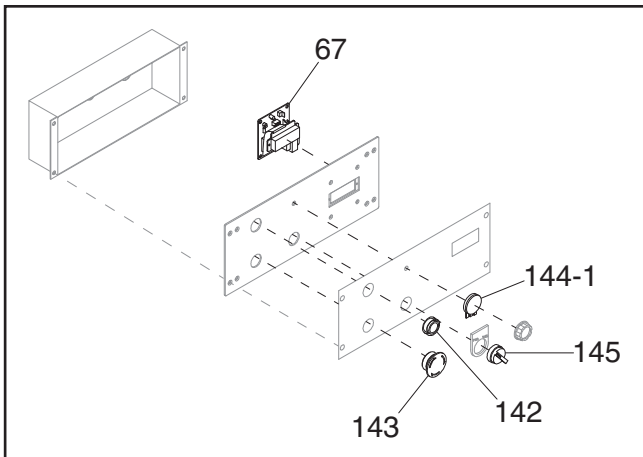
The following changes were recently made since the owner's manual was printed:

- Wiring Diagram and Electrical Components have been updated.
- Part descriptions have been updated.

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

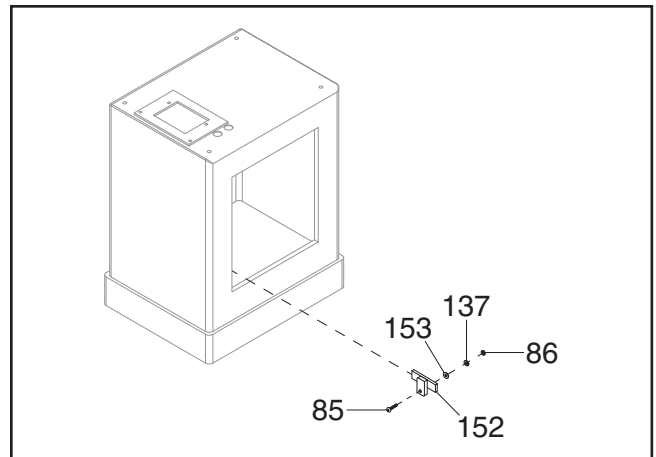
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## Revised Lathe Parts



REF	PART #	DESCRIPTION
67	P0694067	RPM DRO LEC RPM101-2-UZ01
142	P0694142	ON BUTTON NHD NPB22-F 22MM GREEN
143	P0694143	EMERGENCY STOP BUTTON NPB22-H 22MM RED
144-1	P0694144-1	POTENTIOMETER TOCOS RV24YN20S B102
145	P0694145	FWD/REV SWITCH NSS22-S 22MM

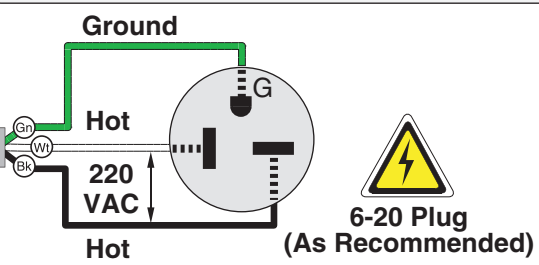
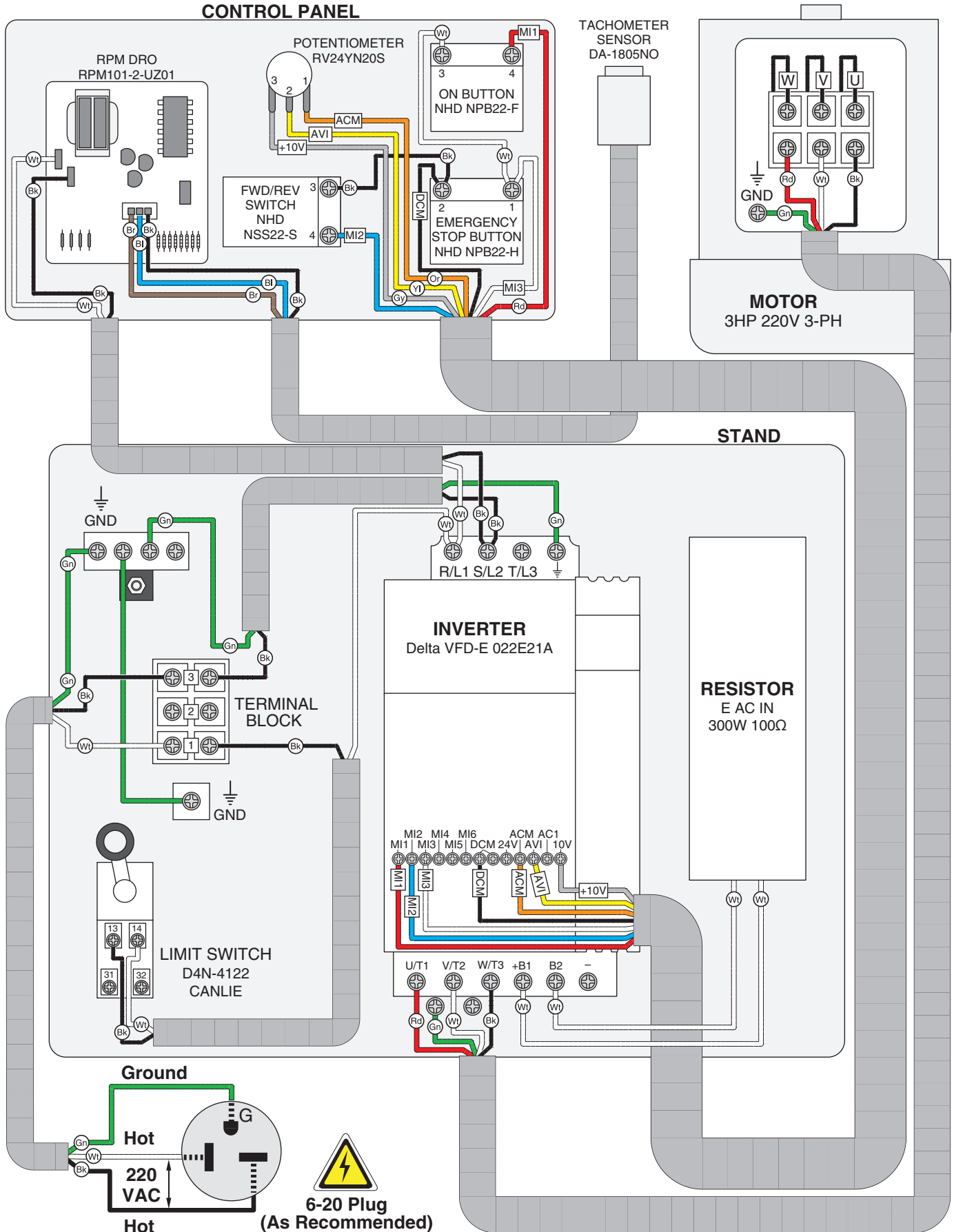
## Revised Stand Parts



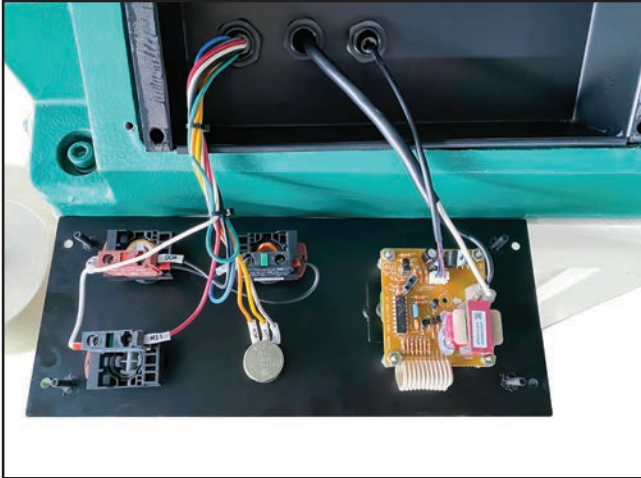
REF	PART #	DESCRIPTION
85	P0694085	PHLP HD SCR 10-24 X 3/4
86	P0694086	HEX NUT 10-24
137	P0694137	LOCK WASHER #10
152	P0694152	CHASSIS GROUND BAR
153	P0694153	FLAT WASHER 5 X 12 X 1MM

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# Wiring Diagram



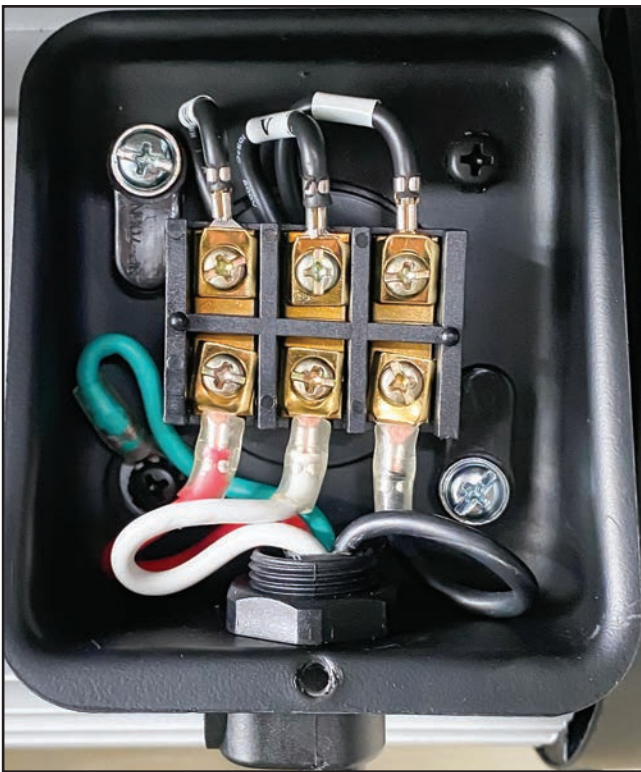
# Electrical Components



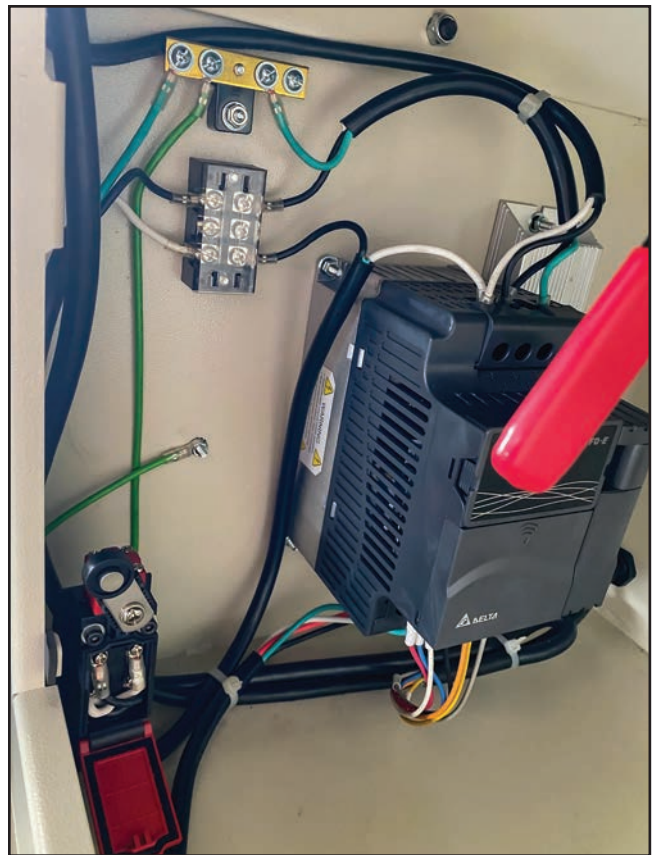
**Figure 1.** Control panel wiring.



**Figure 3.** Tachometer sensor location.



**Figure 2.** Motor junction box wiring.



**Figure 4.** Stand electrical overview.



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# *Grizzly* **Industrial, Inc.**®

## **MODEL G0694 20" X 43" HEAVY-DUTY VARIABLE SPEED WOOD LATHE OWNER'S MANUAL**



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V3.06.18



## **WARNING!**

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

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

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

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



## **WARNING!**

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

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

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



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# INTRODUCTION

## Machine Description

The G0694 20" x 43" Heavy-Duty Variable Speed Wood Lathe is designed to turn wood stock so the operator can remove material with a hand held cutting tool called a chisel.

The variable speed control allows for infinite spindle speed adjustment from 50–3,000 RPM and the digital readout provides a precise reading of the current spindle speed.

The outboard tool rest and double-sided spindle allows for the turning of workpieces with diameters larger than 20" on the outboard side of the lathe.

## Contact Info

We stand behind our machines! If you have questions or need help, contact us with the information below. Before contacting, make sure you get the **serial number** and **manufacture date** from the machine ID label. This will help us help you faster.

Grizzly Technical Support  
1815 W. Battlefield  
Springfield, MO 65807  
Phone: (570) 546-9663  
Email: techsupport@grizzly.com

We want your feedback on this manual. What did you like about it? Where could it be improved? Please take a few minutes to give us feedback.

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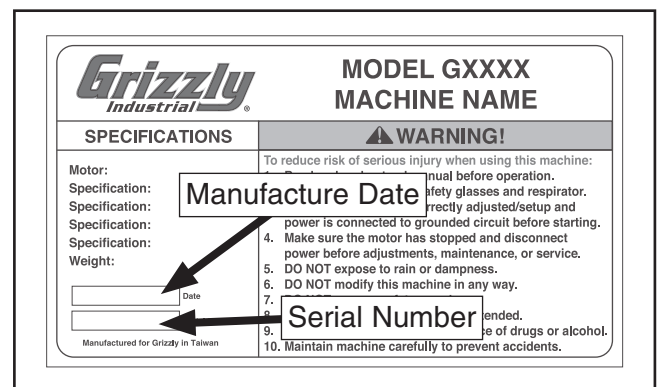
## Manual Accuracy

We are proud to provide a high-quality owner's manual with your new machine!

We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual.**

If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at [www.grizzly.com](http://www.grizzly.com).

Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **Manufacture Date** and **Serial Number** from the machine ID label (see below). This information is required for us to provide proper tech support, and it helps us determine if updated documentation is available for your machine.





# Identification

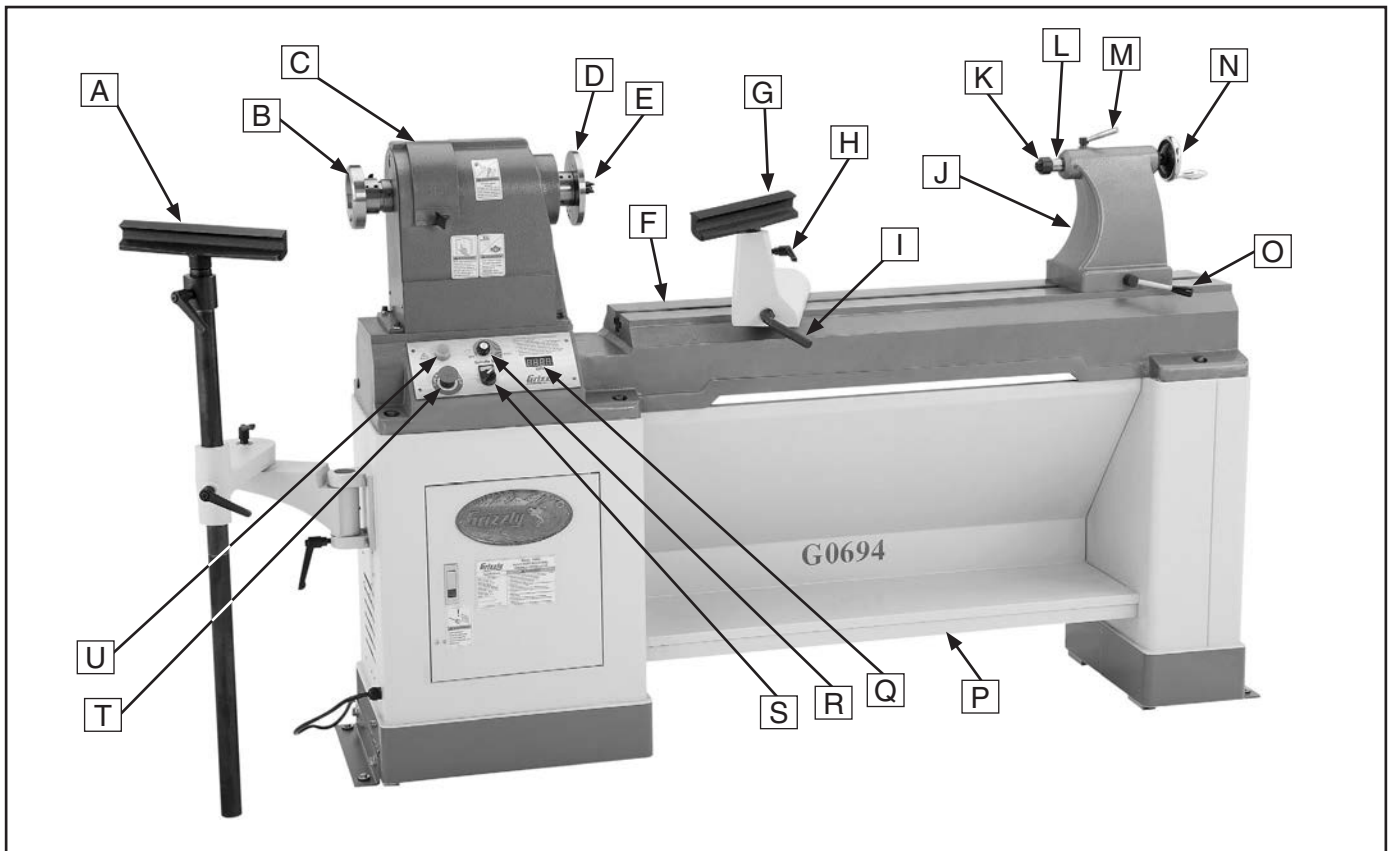


Figure 1. Identification.

- |                                     |                               |
|-------------------------------------|-------------------------------|
| A. Outboard Tool Rest               | L. Quill                      |
| B. Outboard Handwheel               | M. Quill Lock                 |
| C. Headstock                        | N. Quill Adjustment Handwheel |
| D. Faceplate                        | O. Tailstock Base Lock        |
| E. Spur Center                      | P. Stand                      |
| F. Bed                              | Q. RPM Digital Readout        |
| G. Tool Rest                        | R. Speed Dial                 |
| H. Tool Rest Height Adjustment Lock | S. FWD/REV Switch             |
| I. Tool Rest Holder Lock            | T. Emergency STOP Button      |
| J. Tailstock                        | U. ON Button                  |
| K. Live Center                      |                               |

## CAUTION

**For Your Own Safety Read Instruction Manual Before Operating Lathe**

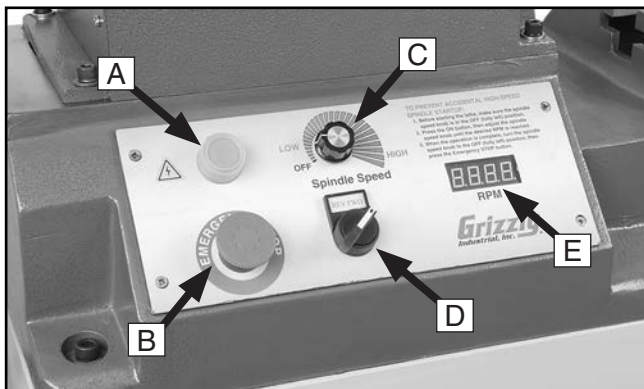
- Wear eye protection.
- Do not wear gloves, necktie, or loose clothing.
- Tighten all locks before operating.
- Rotate workpiece by hand before applying power.
- Rough out workpiece before installing on faceplate.
- Do not mount split workpiece or one containing knot.
- Use lowest speed when starting new workpiece.



# Controls & Components

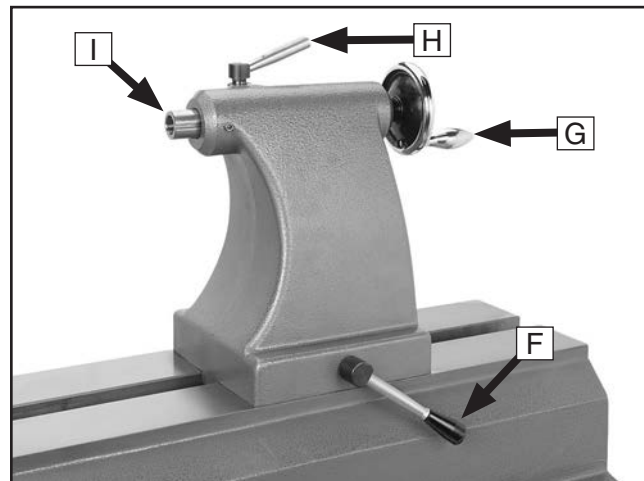


Refer to **Figures 1–3** and the following descriptions to become familiar with the basic controls of this machine.



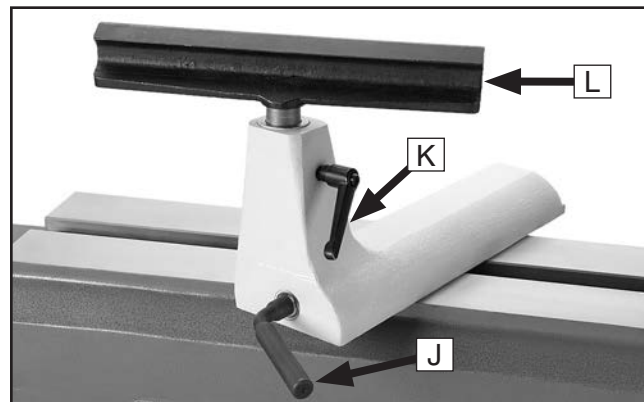
**Figure 2.** Control panel.

- A. ON Button:** Starts the spindle rotation.
- B. EMERGENCY STOP Button:** Turns the spindle rotation **OFF**.
- C. Variable Speed Dial:** Adjusts the spindle speed from low to high within the range governed by the pulley belt position.
- D. FWD/REV Switch:** Toggles the spindle direction between clockwise and counter-clockwise.
- E. RPM Digital Readout:** Indicates the spindle speed in RPM (revolutions per minute).



**Figure 3.** Tailstock lock lever.

- F. Tailstock Base Lock:** Secures tailstock in position along bed.
- G. Tailstock Handwheel:** Moves quill toward and away from spindle.
- H. Quill Lock:** Secures quill in position.
- I. Quill:** Holds centers or tooling. Can be moved toward and away from spindle.



**Figure 4.** Location tool rest levers.

- J. Tool Rest Base (Banjo) Lock Lever:** Secures tool rest base (banjo) in position along bed.
- K. Tool Rest Lock Handle:** Secures tool rest in position.
- L. Tool Rest:** Provides stable platform for cutting tools.





# MACHINE DATA SHEET

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

## MODEL G0694 20" X 43" HEAVY-DUTY VARIABLE-SPEED WOOD LATHE

### Product Dimensions:

Weight..... 578 lbs.  
Width (side-to-side) x Depth (front-to-back) x Height..... 103 x 25 x 49-1/2 in.  
Footprint (Length x Width)..... 77 x 16-1/2 in.

### Shipping Dimensions:

Type..... Wood Crate  
Content..... Machine  
Weight..... 814 lbs.  
Length x Width x Height..... 26 x 84 x 56 in.

### Electrical:

Power Requirement..... 220V, Single-Phase, 60 Hz  
Prewired Voltage..... 220V  
Full-Load Current Rating..... 19.6A  
Minimum Circuit Size..... 20A  
Connection Type..... Cord & Plug  
Power Cord Included..... Yes  
Power Cord Length..... 6 ft.  
Power Cord Gauge..... 14 AWG  
Plug Included..... No  
Recommended Plug Type..... 6-20  
Switch Type..... Push Button ON/OFF Switch  
Inverter (VFD) Type..... Delta VFD-E  
Inverter (VFD) Size..... 3 HP

### Motors:

#### Main

Horsepower..... 3 HP  
Phase..... 3-Phase  
Amps..... 9A  
Speed..... 50-1725 RPM  
Type..... TEFC Induction  
Bearings..... Sealed & Permanently Lubricated  
Centrifugal Switch/Contacts Type..... N/A

### Main Specifications:

#### Operation Information

Swing Over Bed..... 20 in.  
Swing Over Tool Rest Base..... 16-1/4 in.  
Distance Between Centers..... 43 in.  
Swing Over Gap..... 24-7/8 in.  
Max. Distance Tool Rest to Spindle Center..... 8 in.  
No of Spindle Speeds..... Variable  
Spindle Speed Range..... 50 – 3000 RPM  
Floor to Center Height..... 45 in.



**Spindle Information**

Spindle Taper..... MT#2  
 Spindle Thread Size..... 1-1/4" x 8 TPI  
 Spindle Thread Direction..... Right Hand  
 Type of Included Spindle Center..... Spur  
 Outboard Spindle Thread Direction..... Right Hand  
 Outboard Spindle Size..... 1-1/4 in.  
 Outboard Spindle TPI..... 8 TPI

**Tool Rest Information**

Tool Rest Width..... 13-13/16 in.  
 Tool Rest Post Diameter..... 1-1/4 in.  
 Tool Rest Post Length..... 5-1/8 in.  
 Tool Rest Base Height..... 2-1/16 in.

**Tailstock Information**

Tailstock Taper..... MT#2  
 Type of Included Tailstock Center..... Live

**Construction**

Bed..... Precision-Ground Cast Iron  
 Stand..... Pre-Formed Steel  
 Headstock..... Cast Iron  
 Tailstock..... Cast Iron  
 Paint Type/Finish..... Enamel

**Features:**

- Single-Phase Inverter for 3-Phase Variable Speed Motor
- Included Spur & Live Centers
- 13-3/4 in. Wide Outboard Tool Rest
- Indexed Spindle Every 15 Degrees
- 3-Step Pulley System
- Reversible Variable Speed Motor Control
- Quick Release Belt Tension Lever for Quick Speed Range Changes



# SECTION 1: SAFETY

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

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

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

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

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

**NOTICE** Alerts the user to useful information about proper operation of the machine to avoid machine damage.

## Safety Instructions for Machinery

### ⚠ WARNING

**OWNER'S MANUAL.** Read and understand this owner's manual **BEFORE** using machine.

**TRAINED OPERATORS ONLY.** Untrained operators have a higher risk of being hurt or killed. Only allow trained/supervised people to use this machine. When machine is not being used, disconnect power, remove switch keys, or lock-out machine to prevent unauthorized use—especially around children. Make your workshop kid proof!

**DANGEROUS ENVIRONMENTS.** Do not use machinery in areas that are wet, cluttered, or have poor lighting. Operating machinery in these areas greatly increases the risk of accidents and injury.

**MENTAL ALERTNESS REQUIRED.** Full mental alertness is required for safe operation of machinery. Never operate under the influence of drugs or alcohol, when tired, or when distracted.

**ELECTRICAL EQUIPMENT INJURY RISKS.** You can be shocked, burned, or killed by touching live electrical components or improperly grounded machinery. To reduce this risk, only allow qualified service personnel to do electrical installation or repair work, and always disconnect power before accessing or exposing electrical equipment.

**DISCONNECT POWER FIRST.** Always disconnect machine from power supply **BEFORE** making adjustments, changing tooling, or servicing machine. This prevents an injury risk from unintended startup or contact with live electrical components.

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



# WARNING

**WEARING PROPER APPAREL.** Do not wear clothing, apparel or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to reduce risk of slipping and losing control or accidentally contacting cutting tool or moving parts.

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

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

**REMOVE ADJUSTING TOOLS.** Tools left on machinery can become dangerous projectiles upon startup. Never leave chuck keys, wrenches, or any other tools on machine. Always verify removal before starting!

**USE CORRECT TOOL FOR THE JOB.** Only use this tool for its intended purpose—do not force it or an attachment to do a job for which it was not designed. Never make unapproved modifications—modifying tool or using it differently than intended may result in malfunction or mechanical failure that can lead to personal injury or death!

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

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

**GUARDS & COVERS.** Guards and covers reduce accidental contact with moving parts or flying debris. Make sure they are properly installed, undamaged, and working correctly BEFORE operating machine.

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

**NEVER STAND ON MACHINE.** Serious injury may occur if machine is tipped or if the cutting tool is unintentionally contacted.

**STABLE MACHINE.** Unexpected movement during operation greatly increases risk of injury or loss of control. Before starting, verify machine is stable and mobile base (if used) is locked.

**USE RECOMMENDED ACCESSORIES.** Consult this owner's manual or the manufacturer for recommended accessories. Using improper accessories will increase the risk of serious injury.

**UNATTENDED OPERATION.** To reduce the risk of accidental injury, turn machine **OFF** and ensure all moving parts completely stop before walking away. Never leave machine running while unattended.

**MAINTAIN WITH CARE.** Follow all maintenance instructions and lubrication schedules to keep machine in good working condition. A machine that is improperly maintained could malfunction, leading to serious personal injury or death.

**DAMAGED PARTS.** Regularly inspect machine for damaged, loose, or mis-adjusted parts—or any condition that could affect safe operation. Immediately repair/replace BEFORE operating machine. For your own safety, DO NOT operate machine with damaged parts!

**MAINTAIN POWER CORDS.** When disconnecting cord-connected machines from power, grab and pull the plug—NOT the cord. Pulling the cord may damage the wires inside. Do not handle cord/plug with wet hands. Avoid cord damage by keeping it away from heated surfaces, high traffic areas, harsh chemicals, and wet/damp locations.

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





# Additional Safety for Wood Lathes

## WARNING

Serious injury or death can occur from getting entangled in, crushed between, or struck by rotating parts on a lathe! Rotating workpieces can come loose and strike operator or bystanders with deadly force if they are improperly secured, rotated too fast, or are not strong enough for the rotational forces required for turning. Improper tool setup or usage can cause tool kickback or grabbing, resulting in impact injury or entanglement. To reduce the risk of operator (or bystander) injury or death, anyone operating this machine **MUST** completely heed the hazards and warnings below.

**VERIFY WORKPIECE INTEGRITY.** Verify each workpiece is free of knots, splits, nails, or foreign material to ensure it can safely rotate on spindle without breaking apart or causing tool kickback.

**PROPERLY PREPARE WORKPIECE.** Before mounting, cut off waste portions to balance workpiece for safe rotation and removal of large edges that can catch on tooling.

**SECURE LOCKS.** Verify tool rest, headstock, and tailstock are secure before turning lathe **ON**.

**SECURE WORKPIECE.** Use proven setup techniques and always verify workpiece (and centers/tooling holding workpiece) are well-secured before starting lathe. Only use high-quality fasteners with non-tapered heads for faceplate attachment.

**ADJUST TOOL SUPPORT.** An improperly supported tool may be grabbed or ejected. Adjust tool rest approximately  $\frac{1}{4}$ " away from workpiece and  $\frac{1}{8}$ " above workpiece center line to provide proper support for turning tool. Firmly hold turning tool with both hands against tool rest.

**REMOVE ADJUSTMENT TOOLS.** Remove all chuck keys, wrenches, and adjustment tools before turning lathe **ON**. These items can become deadly projectiles when spindle is started.

**CHECK CLEARANCES.** Before starting spindle, verify workpiece has adequate clearance by hand-rotating it through its entire range of motion.

**TEST NEW SETUPS.** Test each new setup by starting spindle rotation at lowest speed and standing to side of lathe until workpiece reaches full speed and you can verify safe rotation.

**WEAR PROPER PPE.** Always wear a face shield and safety glasses when operating lathe. Do not wear gloves, necktie or loose clothing. Keep long hair away from rotating spindle.

**USE CORRECT SPEEDS.** Select correct spindle speed for workpiece size, type, shape, and condition. Use low speeds when roughing or when turning large, long, or non-concentric workpieces. Allow spindle to reach full speed before turning.

**AVOID TOOL KICKBACK.** This occurs when turning tool is grabbed or ejected from workpiece with great force. Commonly caused by poor workpiece selection/preparation, improper tool usage, or improper machine setup or tool rest adjustment.

**SAFELY PERFORM ROUGHING.** Use correct tool. Take light cuts, use low speeds, and firmly support tool with both hands.

**USE SHARP TOOLS.** Sharp tools cut with less resistance than dull tools. Using dull tools increases the risk of tool kickback or grabbing.

**SAFELY STOPPING ROTATION.** Always allow rotating workpiece to stop on its own. Never put hands or another object on workpiece to stop it.

**SAFELY MEASURE WORKPIECE.** Only measure mounted workpiece after it has completely stopped. Trying to measure a spinning workpiece increases entanglement risk.

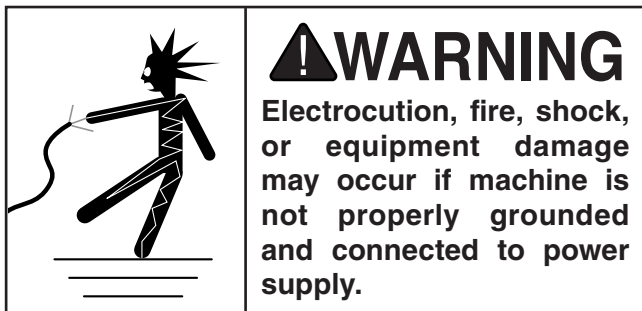
**SANDING/POLISHING.** To reduce entanglement risk, remove tool rest before sanding. Never completely wrap sandpaper around workpiece.



# SECTION 2: POWER SUPPLY

## Availability

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



## Full-Load Current Rating

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

### Full-Load Current Rating at 220V . 19.6 Amps

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

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

## Circuit Requirements for 220V

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

**Nominal Voltage** ..... 220V/240V  
**Cycle** ..... 60 Hz  
**Phase** ..... 1-Phase  
**Power Supply Circuit** ..... 20 Amps  
**Plug/Receptacle** ..... NEMA 6-20

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



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



## Grounding Instructions

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

The power cord and plug specified under “Circuit Requirements for 220V” on the previous page has an equipment-grounding wire and a grounding prong. The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances (see figure below).

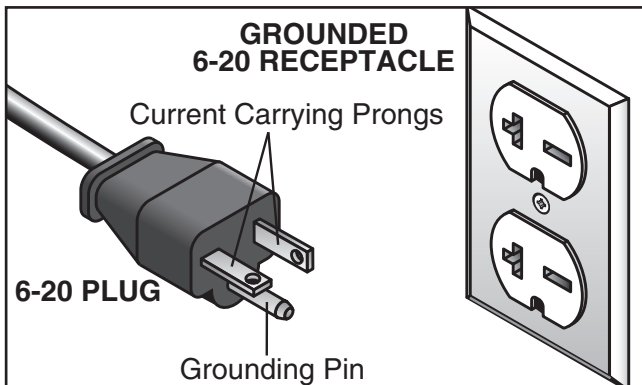
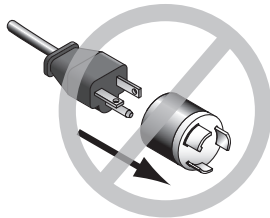


Figure 5. Typical 6-20 plug and receptacle.

## **⚠️ WARNING**

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

## **⚠️ CAUTION**



**No adapter should be used with plug. If plug does not fit available receptacle, or if machine must be reconnected for use on a different type of circuit, reconnection must be performed by an electrician or qualified service personnel, and it must comply with all local codes and ordinances.**

## **⚠️ WARNING**

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

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

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

## Extension Cords

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

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

Any extension cord used with this machine must be in good condition and contain a ground wire and matching plug/receptacle. Additionally, it must meet the following size requirements:

**Minimum Gauge Size ..... 14 AWG**  
**Maximum Length (Shorter is Better).....50 ft.**



# SECTION 3: SETUP

## Needed for Setup

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

Description	Qty
• Additional People .....	At Least 1
• Safety Glasses .....	1 For Each Person
• Cleaner/Degreaser .....	As Needed
• Disposable Shop Rags.....	As Needed
• Lifting Equipment (At Least 750 lb. Rating):	
—Forklift or Hoist .....	1
—Lifting Straps.....	2
• Precision Level .....	1

## Unpacking

This machine was carefully packaged for safe transport. When unpacking, separate all enclosed items from packaging materials and inspect them for shipping damage. ***If items are damaged, please call us immediately at (570) 546-9663.***

**IMPORTANT:** Save all packaging materials until you are completely satisfied with the machine and have resolved any issues between Grizzly or the shipping agent. ***You MUST have the original packaging to file a freight claim. It is also extremely helpful if you need to return your machine later.***

	<p style="text-align: center;"><b>⚠ WARNING</b></p> <p style="text-align: center;"><b>SUFFOCATION HAZARD!</b></p> <p>Keep children and pets away from plastic bags or packing materials shipped with this machine.</p>
---	--

## Inventory

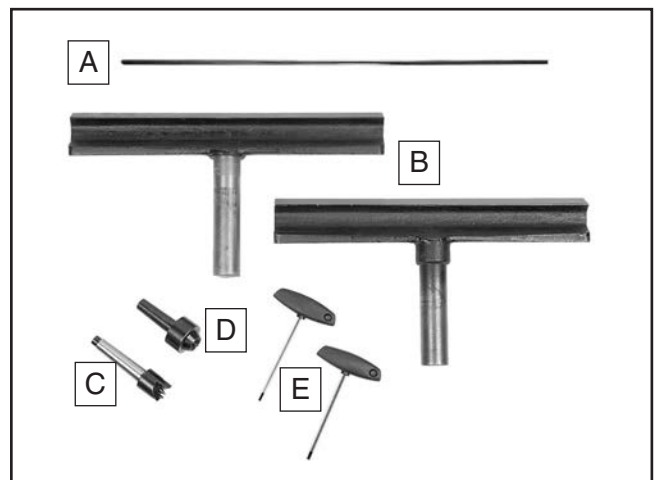
The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

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

### **NOTICE**

**If you cannot find an item on this list, carefully check around/inside the machine and packaging materials. Often, these items get lost in packaging materials while unpacking or they are pre-installed at the factory.**

Inventory: (Figure 6)	Qty
A. Knockout Rod.....	1
B. Tool Rests .....	2
C. Spur Center MT#2 .....	1
D. Live Center MT#2 .....	1
E. T-Handle Hex Wrenches 3, 4mm .....	1 Each



**Figure 6.** Model G0694 small component inventory.



# Cleanup

The unpainted surfaces of your machine are coated with a heavy-duty rust preventative that prevents corrosion during shipment and storage. This rust preventative works extremely well, but it will take a little time to clean.

Be patient and do a thorough job cleaning your machine. The time you spend doing this now will give you a better appreciation for the proper care of your machine's unpainted surfaces.


There are many ways to remove this rust preventative, but the following steps work well in a wide variety of situations. Always follow the manufacturer's instructions with any cleaning product you use and make sure you work in a well-ventilated area to minimize exposure to toxic fumes.

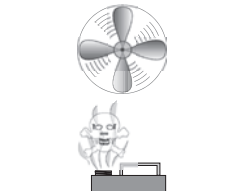
## Before cleaning, gather the following:

- Disposable rags
- Cleaner/degreaser (WD-40 works well)
- Safety glasses & disposable gloves
- Plastic paint scraper (optional)

## Basic steps for removing rust preventative:

1. Put on safety glasses.
2. Coat the rust preventative with a liberal amount of cleaner/degreaser, then let it soak for 5–10 minutes.
3. Wipe off the surfaces. If your cleaner/degreaser is effective, the rust preventative will wipe off easily. If you have a plastic paint scraper, scrape off as much as you can first, then wipe off the rest with the rag.
4. Repeat **Steps 2–3** as necessary until clean, then coat all unpainted surfaces with a quality metal protectant to prevent rust.

	<b>WARNING</b> Gasoline and petroleum products have low flash points and can explode or cause fire if used to clean machinery. Avoid using these products to clean machinery.
--	--

	<b>CAUTION</b> Many cleaning solvents are toxic if inhaled. Only work in a well-ventilated area.
--	---

<b>NOTICE</b> Avoid harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.
---

**T23692—Orange Power Degreaser**  
T23692—Orange Power Degreaser is a heavy-duty cleaning product for removing the waxy, shipping grease from the **non-painted** parts of the machine during clean up.

<p>Call <b>1-800-523-4777</b> To Order <b>1-800-929-4777</b> To Order</p>	
---	---

Figure 7. T23692 Orange Power Degreaser.





# Site Considerations

## Weight Load

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

## Space Allocation

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



## Physical Environment

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

## Electrical Installation

Place this machine near an existing power source. Make sure all power cords are protected from traffic, material handling, moisture, chemicals, or other hazards. Make sure to leave enough space around machine to disconnect power supply or apply a lockout/tagout device, if required.

## Lighting

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

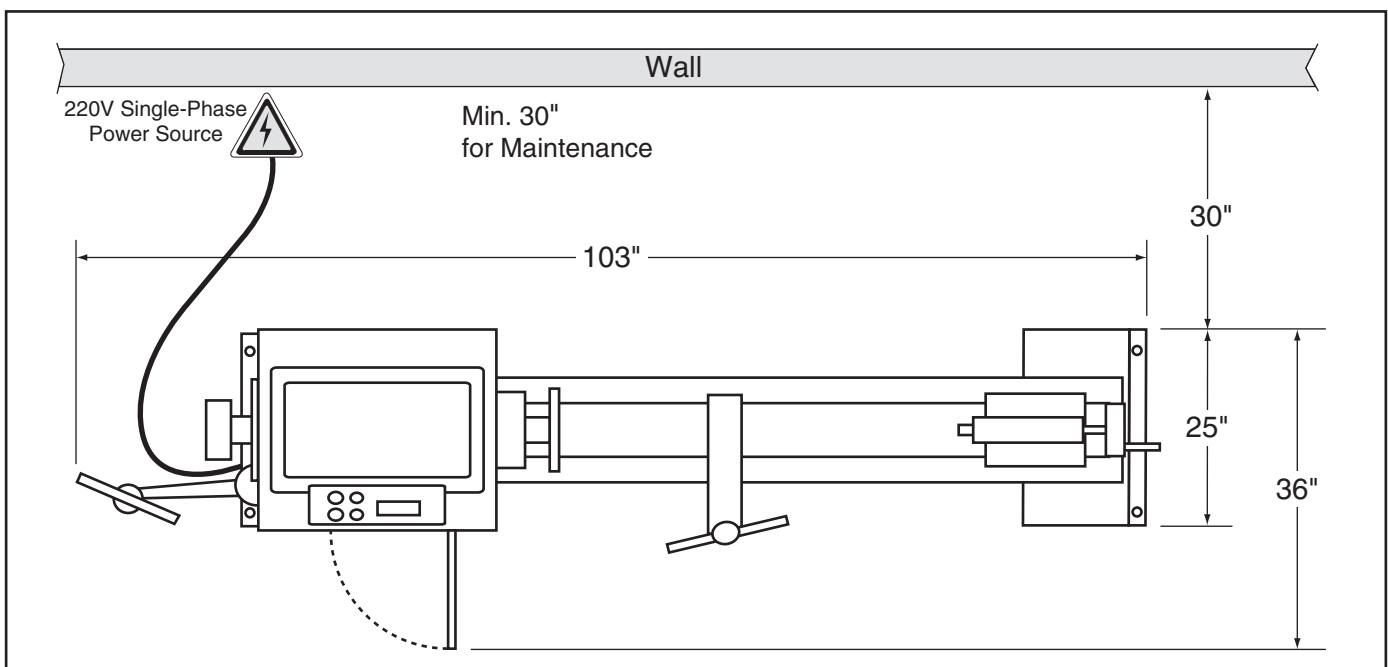
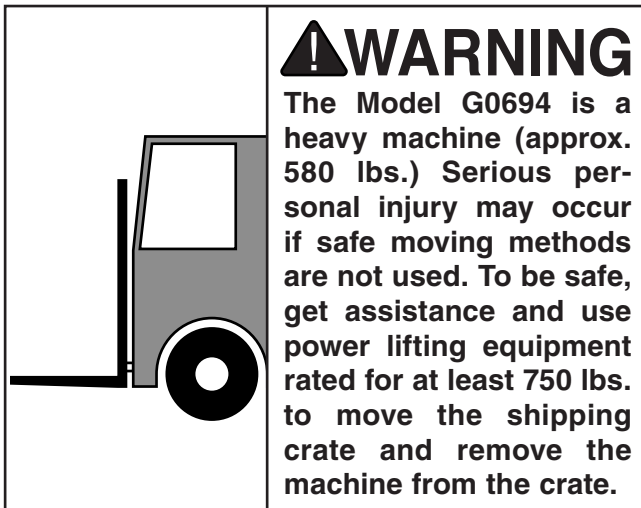


Figure 8. Minimum working clearances.





# Moving & Placing Lathe



## To move and place your lathe:

1. Remove the top crate from the shipping pallet.
2. To help balance the load, lock the outboard tool rest assembly as close as possible to the lathe body, then move the tailstock and center tool rest assembly to the extreme right of the bedway.
3. Remove the small items from the shipping pallet, then remove the lag bolts securing the lathe to the pallet.

4. Feed the lifting straps under the bedway, as shown in **Figure 9**, making sure they spread as wide as possible.



**Figure 9.** Lifting straps positioned to lift the lathe.

5. With assistance, steady the load and lift the lathe from the shipping pallet.  
  
—If the load is unbalanced, immediately lower the lathe and reposition the lifting straps as necessary. Repeat this step until you are satisfied that the load is safely balanced.
6. Have an assistant steady the load to keep it from swaying as you lift the lathe only enough to clear the shipping pallet and any floor obstacles, then move it to its working location.



# Anchoring to Floor

**Number of Mounting Holes ..... 8**  
**Diameter of Mounting Hardware..... 3/8"**

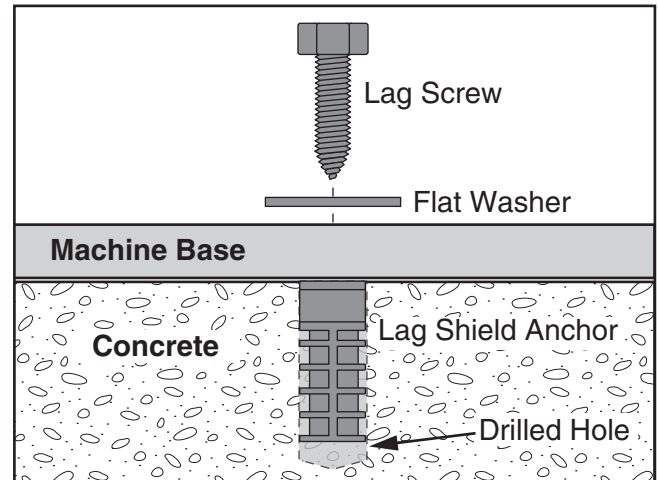
Anchoring machinery to the floor prevents tipping or shifting and reduces vibration that may occur during operation, resulting in a machine that runs slightly quieter and feels more solid.

If the machine will be installed in a commercial or workplace setting, or if it is permanently connected (hardwired) to the power supply, local codes may require that it be anchored to the floor.

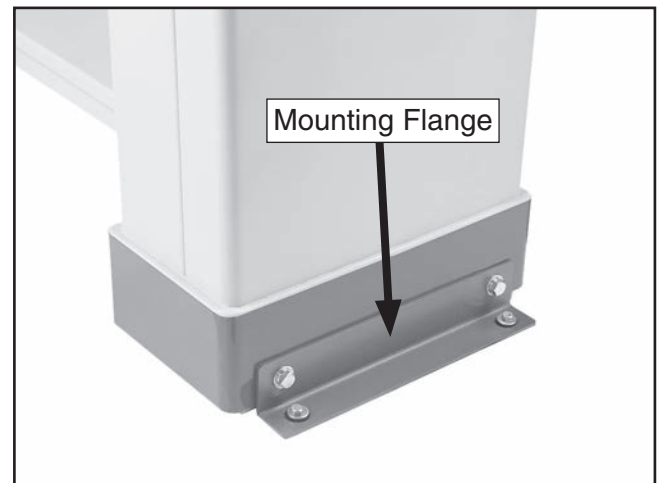
If not required by any local codes, fastening the machine to the floor is an optional step. If you choose not to do this with your machine, we recommend placing it on machine mounts, as these provide an easy method for leveling and they have vibration-absorbing pads.

## Anchoring to Concrete Floors

Lag shield anchors with lag screws (see below) are a popular way to anchor machinery to a concrete floor, because the anchors sit flush with the floor surface, making it easy to unbolt and move the machine later, if needed. However, anytime local codes apply, you **MUST** follow the anchoring methodology specified by the code.



**Figure 10.** Popular method for anchoring machinery to a concrete floor.



**Figure 11.** Right side mounting flange.



# Test Run

Once assembly is complete, test run the machine to ensure it is properly connected to power and safety components are functioning correctly.

If you find an unusual problem during the test run, immediately stop the machine, disconnect it from power, and fix the problem BEFORE operating the machine again. The **Troubleshooting** table in the **SERVICE** section of this manual can help.

The Test Run consists of verifying the following: 1) The motor powers up and runs correctly, and 2) the EMERGENCY STOP button works correctly.

## **!WARNING**

Serious injury or death can result from using this machine BEFORE understanding its controls and related safety information. DO NOT operate, or allow others to operate, machine until the information is understood.

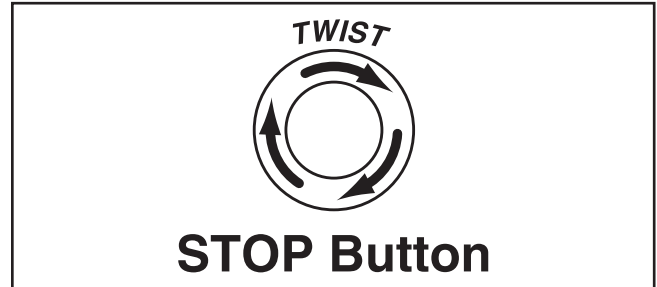
## **!WARNING**

DO NOT start machine until all preceding setup instructions have been performed. Operating an improperly set up machine may result in malfunction or unexpected results that can lead to serious injury, death, or machine/property damage.

### To test run machine:

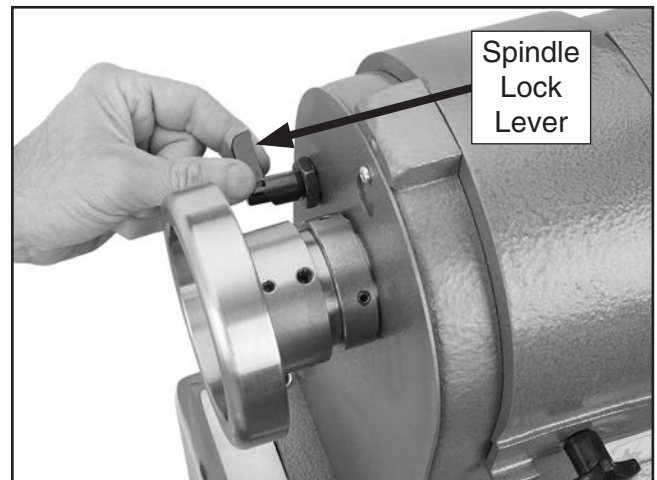
1. Clear all setup tools away from machine.
2. Press EMERGENCY STOP button.
3. Connect machine to power by inserting power cord plug into a matching receptacle.

4. Twist EMERGENCY STOP button clockwise until it springs out (see **Figure 11**). This resets the switch so the machine can start.



**Figure 12.** Resetting the EMERGENCY STOP.

5. To unlock the spindle so that it can freely rotate in the next steps, pull the spindle lock lever out and rotate it so that it is in the twelve o'clock position, as shown in **Figure 13**.



**Figure 13.** Unlocking the spindle.



6. Turn the speed dial counterclockwise to set the spindle speed at zero.
7. Connect the lathe to power.
8. Verify that the machine is operating correctly by pushing the ON button, then use the speed dial to increase the spindle speed.
  - When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.
  - Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always stop the machine and disconnect it from power before investigating or correcting potential problems.
9. Press the EMERGENCY STOP button to stop the machine.
10. WITHOUT resetting the switch, press the ON button. The machine should not start.
  - If the machine does *not start*, the EMERGENCY STOP button safety feature is working correctly.
  - If the machine *does* start (with the EMERGENCY STOP button pushed in), immediately disconnect power to the machine. The STOP button safety feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.
11. Verify that the power is not connected out of phase by starting/stopping the machine in the *FWD* direction and determining if the spindle turns in the *counterclockwise* direction (looking at the spindle from the tailstock side of the lathe).
  - If the spindle does NOT turn counterclockwise, it is turning in the wrong direction. Stop the machine, disconnect it from power, then swap any two of the three power wires inside the motor wiring junction box (refer to the **Wiring Diagram** on **Page 48** for specific information).





# SECTION 4: OPERATIONS

## Operation Overview

The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand.

Due to the generic nature of this overview, it is **not** intended to be an instructional guide. To learn more about specific operations, read this entire manual, seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

	<p><b>!WARNING</b> To reduce your risk of serious injury, read this entire manual <b>BEFORE</b> using machine.</p>
--	--

<p><b>!WARNING</b> To reduce risk of eye injury from flying chips or lung damage from breathing dust, always wear safety glasses and a respirator when operating this machine.</p>	
	

<p><b>NOTICE</b> If you are not experienced with this type of machine, <b>WE STRONGLY RECOMMEND</b> that you seek additional training outside of this manual. Read books/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.</p>
--

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

1. Examines the workpiece to make sure it is suitable for turning. No extreme bows, knots, or cracks should exist.
2. Prepares and trims up the workpiece in a jointer or table saw to make it roughly concentric.
3. Installs the workpiece between centers.
4. Adjusts the tool rest to within  $\frac{1}{8}$ " of the workpiece centerline, and sets the minimum clearance between the workpiece and the tool rest lip to  $\frac{1}{4}$ " gap.
5. Positions and locks any dust collection-hoods near the workpiece to collect wood chips, and secures in place.
6. Verifies the pulley ratio is set for the type of wood and size of workpiece installed.
7. Verifies the spindle variable speed dial is turned all the way counterclockwise so the spindle does not start in high speed.
8. Verifies the spindle direction switch is selecting the correct direction.
9. Verifies the spindle lock is disengaged, and the spindle and workpiece rotate freely throughout the full range of motion.
10. Ties back loose hair and clothing and puts on face shield and respirator. Takes all other required safety precautions.
11. Starts the lathe and dust collector, adjusts the lathe speed, and carefully begins the turning operation, keeping the chisel against the tool rest the entire time it is cutting.



# Workpiece Inspection

Some workpieces are not safe to turn or may require modification before they are safe to turn.

**Before turning, inspect all workpieces for the following:**

- **Workpiece Type:**

This machine is intended for turning natural wood products. Never attempt to turn any composite wood materials, plastics, metal, stone, or rubber workpieces; turning these materials can lead to machine damage or severe injury.

- **Foreign Objects:**

Nails, staples, dirt, rocks and other foreign objects are often embedded in wood. While cutting, these objects can become dislodged and hit the operator, cause tool grab, or break the turning tool, which might then fly apart. Always visually inspect your workpiece for these items. If they can't be removed, DO NOT turn the workpiece.

- **Large/Loose Knots:**

Loose knots can become dislodged during the turning operation. Large knots can cause a workpiece to completely break in half during turning and cause machine damage and injury. Choose workpieces that do not have large/loose knots.

- **Excessive Warping:**

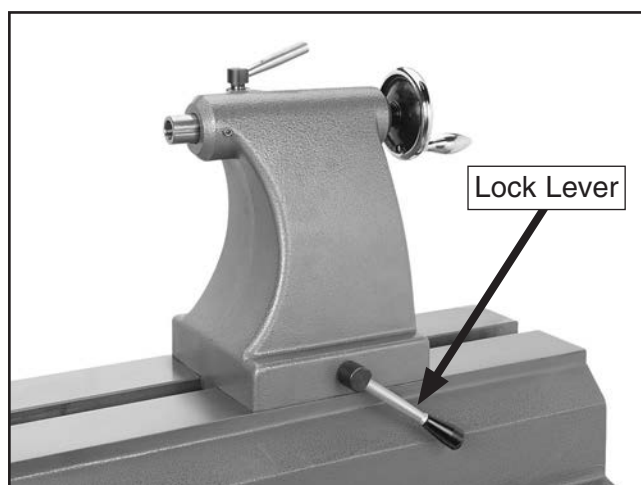
Workpieces with excessive bowing or twisting are unstable and unbalanced. Never turn these workpieces at high speed, or instability will be magnified and the workpiece can be ejected from the lathe causing injury. Only turn concentric workpieces!

# Adjusting Tailstock

The tailstock is equipped with a cam-action clamping system to secure it to the lathe bed. When the lever is tightened, a locking plate lifts up underneath the bed and clamps the tailstock in place.

**To position and lock the tailstock in position:**

1. Loosen the lock lever and move the tailstock to the desired position along the bed (see **Figure 14**).



**Figure 14.** Tailstock lock lever.

2. Tighten the lock lever to secure the tailstock to the bed.

**Note:** *The hex nut underneath the tailstock may require occasional tightening to restore proper clamping pressure and lever position. When adjusted properly, the lever should be at the horizontal position when the tailstock is fully clamped to the bed.*

## **!WARNING**

**Always operate the lathe with the tailstock firmly locked to the bed. Otherwise, the workpiece can be ejected causing serious personal injury.**





# Adjusting Tool Rest

The tool rest assembly consists of two components: the tool rest base (or banjo) and the tool rest. The tool rest base moves forward/backward along the length of the lathe bed. The tool rest rotates and moves up and down in the tool rest base. Locks for both components allow you to secure the tool rest in position after making these adjustments.

When adjusting the tool rest, position it as close as possible to the workpiece without actually touching it. This maximizes support where the cutting occurs and minimizes leverage, reducing the risk of injury if a "catch" occurs.

Many woodturners typically set the height of the tool rest  $\frac{1}{8}$ " above or below the centerline of the workpiece, depending on their height, the type of tool they're using, and the type of operation they're performing.

**As a rule of thumb:** For most (spindle) turning operations, the cutting tool should contact the workpiece slightly above centerline. For most inside (bowl) turning operations, the cutting tool should contact the workpiece slightly below centerline.

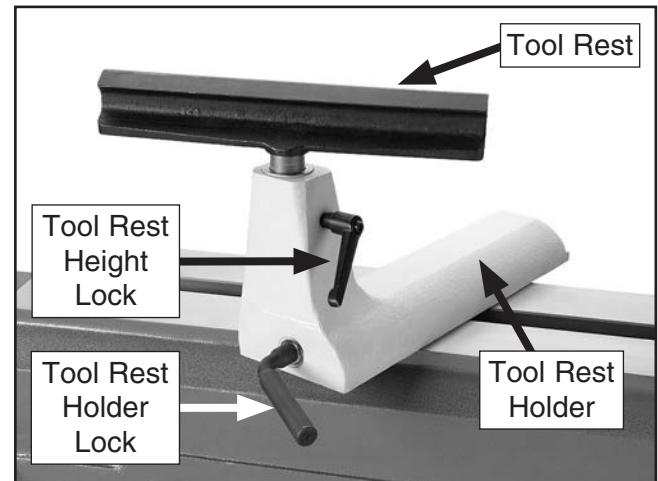
Keeping all these factors in mind, your main goal when adjusting the tool rest should be providing maximum support for the type of tool being used, in a position that is safe and comfortable for you.

## ⚠️ WARNING

Improperly supported or positioned cutting tools can "catch" on workpiece, ejecting tool from your hands with great force. To reduce this risk, always ensure tool rest is properly positioned for each type of operation, cutting tool is firmly supported against tool rest BEFORE cutting, and cutting tool is properly positioned to cut at the correct angle for tool and operation type.

## Positioning Inboard Tool Rest on Bedway

1. Loosen the tool rest holder lock lever and move the tool rest assembly to the desired position on the lathe bed (see **Figure 15**).



**Figure 15.** Tool rest controls.

2. Re-engage the tool rest holder lock to secure the tool rest assembly in position.

**Note:** The hex nut underneath the tool rest holder (see **Figure 15**) may require occasional tightening to restore proper clamping pressure and lever position. When adjusted properly, the lever should be at the horizontal position when the tailstock is fully clamped to the bed.

## ⚠️ WARNING

Always operate the lathe with the tool rest holder firmly locked to the bed. Otherwise, the workpiece can be ejected, causing serious personal injury.

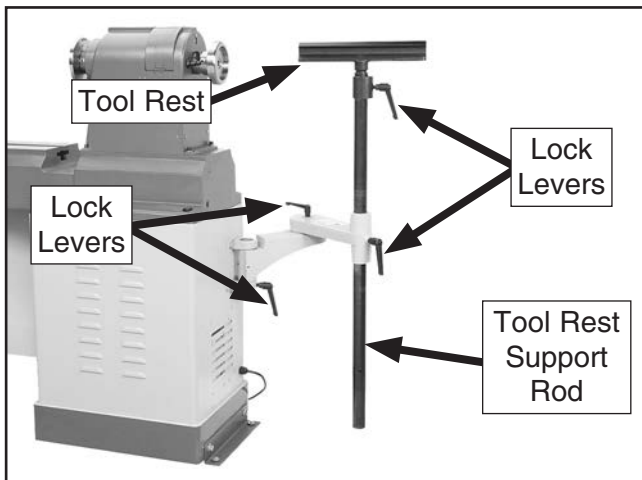


# Outboard Tool Rest

When the workpiece is larger than 20" in diameter, mount the workpiece on the outboard side of the lathe and use the outboard tool rest.

## To use the outboard tool rest:

1. While firmly holding the tool rest support rod, loosen the lock levers shown in **Figure 16**.



**Figure 16.** Outboard tool rest assembly.

2. Adjust the tool rest support rod so that it rests firmly on the floor.
3. Adjust the position and height of the tool rest for your operation.

**Note:** As with the inboard tool rest, make sure the outboard tool rest is approximately  $\frac{1}{4}$ " away from the workpiece and approximately  $\frac{1}{8}$ " above the workpiece center line.

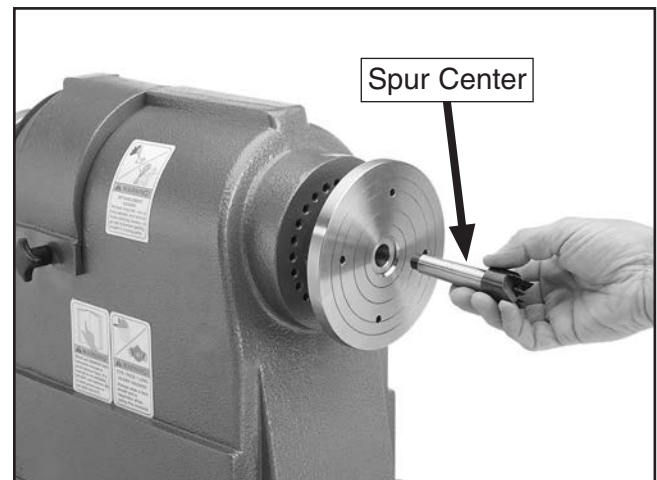
4. Firmly re-tighten all lock levers before starting the operation.

# Installing/Removing Headstock Center

The included spur center installs into the headstock spindle with an MT#2 tapered fit.

## Installing Headstock Center

1. DISCONNECT MACHINE FROM POWER!
2. Make sure the mating surfaces of the center and spindle are free of debris and oily substances before inserting the center.
3. Insert the tapered end of the center into the spindle, and push it in with a quick, firm motion (see **Figure 17**).



**Figure 17.** Installing center into the headstock spindle.

4. Make sure the center is securely installed by attempting to pull it out by hand—a properly installed center will not pull out easily.



## Removing Headstock Center

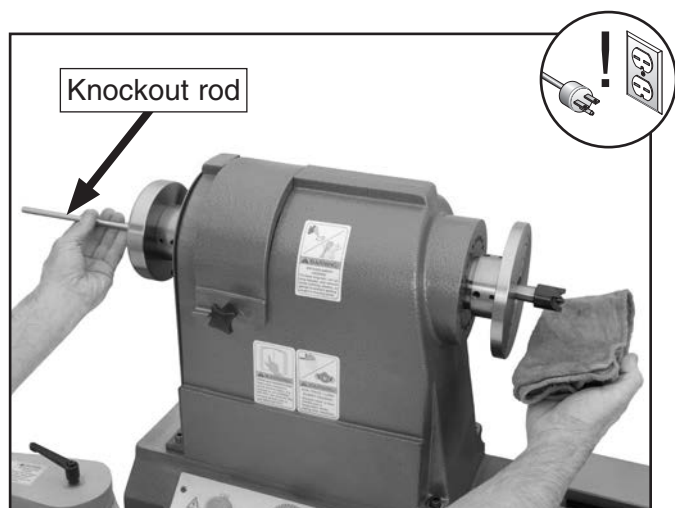
### Tools Needed

Knockout Rod..... 1

Qty

### To remove the headstock center:

1. DISCONNECT LATHE FROM POWER!
2. Hold the center with a rag or a glove so the center does not fall to the floor when it pops free of the spindle.
3. Insert the knockout rod through the outbound end of the spindle and firmly tap the center to remove it, as shown in **Figure 18**.



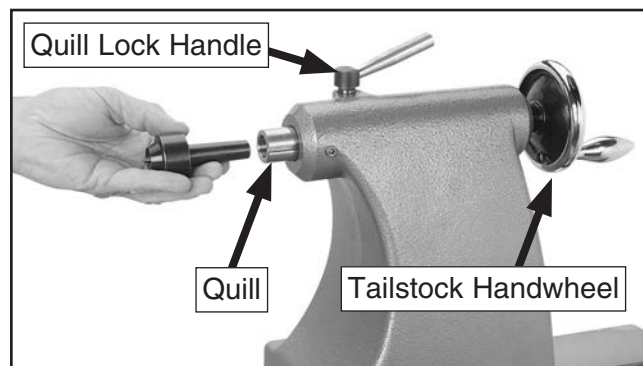
**Figure 18.** Removing the headstock center.

## Installing/Removing Tailstock Center

The included live center installs into the tailstock quill with an MT#2 tapered fit.

### Installing Tailstock Center

1. Loosen the quill lock handle and rotate the tailstock handwheel until the quill extends about 1" (see **Figure 19**).



**Figure 19.** Installing center into tailstock quill.

2. Make sure the mating surfaces of the center and quill are free of debris and oily substances before inserting the center.
3. Insert the tapered end of the center into the tailstock quill, as shown in **Figure 19**.
4. Make sure center is securely installed by attempting to pull it out by hand—a properly installed center will not easily pull out by hand.
5. Secure the quill in place by re-tightening the quill lock handle.

### Removing Tailstock Center

1. Loosen the quill lock handle.
2. Hold the center with a rag or a glove so the center does not fall to the floor when it is pushed free of the tailstock.
3. Rotate the tailstock handwheel counterclockwise—the tailstock quill will retract back into the quill, causing the center to be released from the quill.



# Installing Faceplate/ Handwheel

## ⚠ CAUTION

Always disconnect the lathe from power before using the spindle lock feature. Never resume turning operations without making sure that the spindle lock is disengaged and the spindle turns freely by hand. Otherwise personal injury or property damage could result.

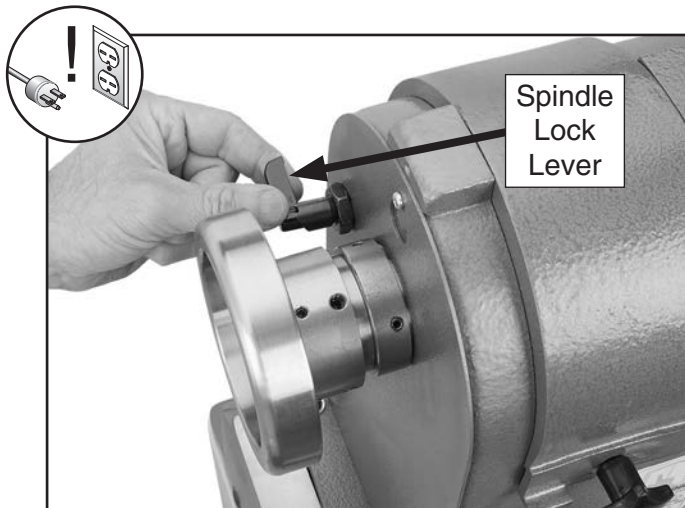
The faceplate can be mounted on the outboard side of the lathe for turning workpieces larger than 20" in diameter. In this case, the handwheel is mounted on the inboard side.

To mount a workpiece to the faceplate, refer to **Faceplate Turning** on **Page 30**.

Items Needed	Qty
T-Handle Hex Wrench 3mm.....	1

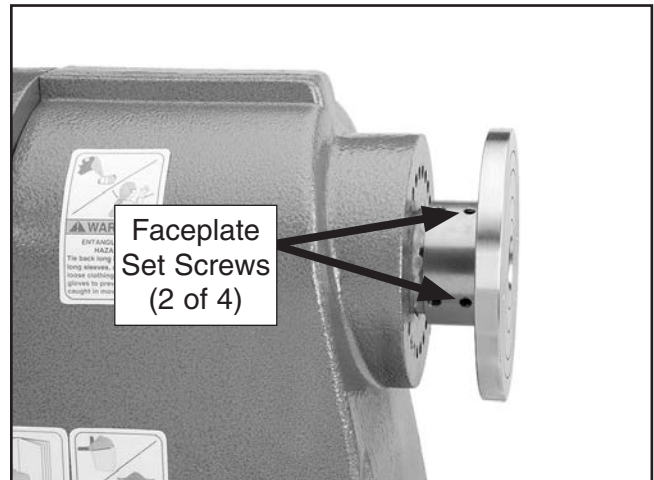
## Installing Faceplate or Handwheel

1. DISCONNECT MACHINE FROM POWER!
2. Pull the spindle lock lever out, then rotate it from the 12 o'clock unlocked position to the 6 o'clock locked position (see **Figure 20**).



**Figure 20.** Using the spindle lock lever.

3. Rotate the spindle by hand until the lock pin engages and keeps the spindle from rotating.
4. Apply a thin coat of light machine oil on the spindle threads, then thread the faceplate or handwheel onto the spindle until it is snug.
5. Tighten the four faceplate or handwheel set screws just behind the faceplate to secure it to the spindle (see **Figure 21**).



**Figure 21.** Headstock faceplate set screw.

## ⚠ WARNING

To prevent the workpiece from flying off during operation, the faceplate **MUST** be firmly threaded onto the spindle and secured in place by fully tightening the four faceplate set screws. If these instructions are not properly performed, serious personal injury could occur.

6. Move the spindle lock lever from the 6 o'clock locked position to the 12 o'clock unlocked position.

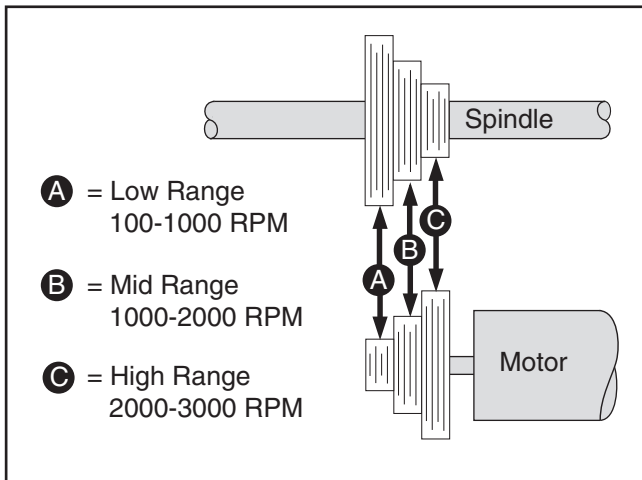
## Removing Faceplate or Handwheel

Apply the spindle lock, loosen the four set screws, and unthread the faceplate or handwheel.



# Adjusting Spindle Speeds

The Model G0694 has three speed ranges for maximum turning options. These ranges are selected by changing belt positions on the motor and spindle pulleys (see **Figure 22**).



**Figure 22.** Speed ranges for each belt position.

When turning a workpiece where a lot of material must be removed and a rough finish does not matter, low range, which has more torque, is best. When turning a workpiece where a clean finish is required, and only light cuts are made, high range is best. Mid range is a compromise between the two ranges. Use the speed dial to adjust the spindle speed within each range.

## **! WARNING**

Always choose the correct spindle speed for your operation. Using the wrong speed may lead to the workpiece breaking loose or being thrown from the lathe at a high rate of speed, causing fatal or severe impact injuries.

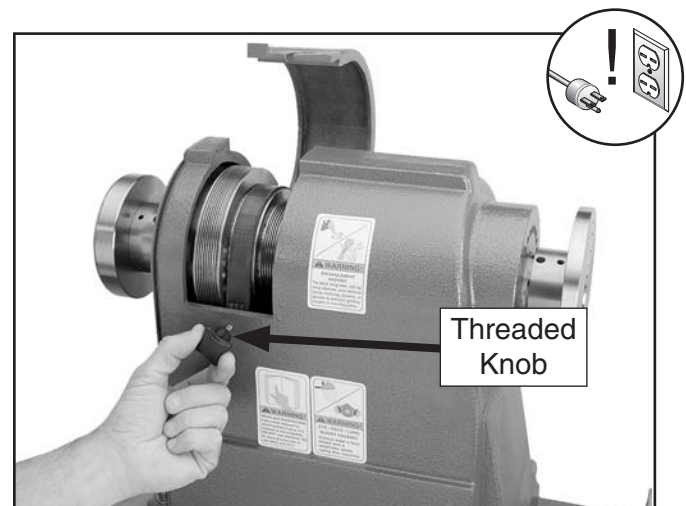
Refer to the chart in **Figure 23** for help choosing the correct spindle speed. Note that both the diameter of the workpiece and the type of cutting determines the spindle speed.

Diameter of Work-piece	Roughing RPM	General Cutting RPM	Finishing RPM
Under 2"	1520	3000	3000
2-4"	760	1600	2480
4-6"	510	1080	1650
6-8"	380	810	1240
8-10"	300	650	1000
10-12"	255	540	830
12-14"	220	460	710
14-16"	190	400	620

**Figure 23.** Model G0694 typical spindle speed recommendations.

### To change speed ranges:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the threaded knob and open the upper belt access panel, as shown in **Figure 24**.

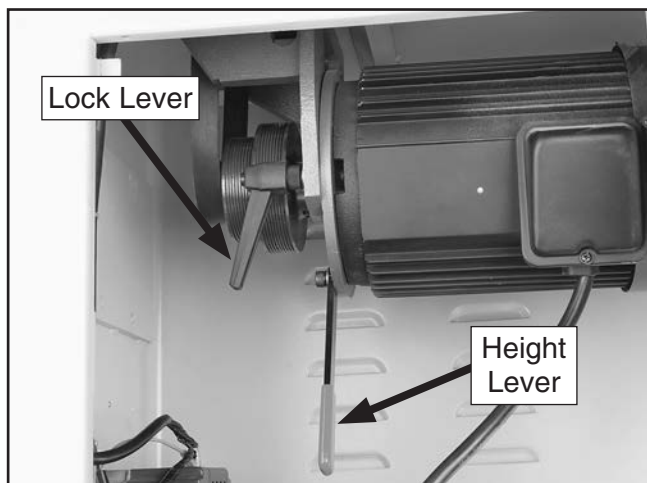


**Figure 24.** Belt access panel removed.





3. Open the cabinet door, loosen the lock lever, pull up on the height lever to raise the motor to the highest position, then re-tighten the lock lever to secure the motor in place (**Figure 25**).



**Figure 25.** Motor lock and height levers.

4. Position the belt on the motor and spindle pulleys for the correct speed range.
5. Loosen the lock lever and allow the motor weight to tension the belt. There should be almost no belt looseness or belt deflection.

**Note:** *If the motor does not hang freely against the belt, you may have to manually push the height lever to tension the belt.*

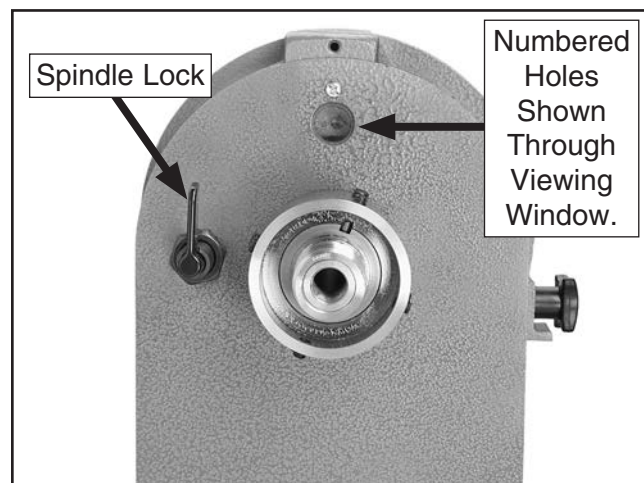
6. Tighten the lock lever.
7. Close the belt access panel and cabinet door.

## Indexing

Indexing on a lathe is typically used for workpiece layout and other auxiliary operations that require equal distances around the workpiece circumference, such as clock faces or inlays.

By applying the spindle lock into one of the 24 holes in the spindle, the workpiece can be positioned to one of 24 equal points that are 15° degrees apart.

For special sequencing of positions, each spindle position has its own number, which can be viewed through the viewing window, as shown in **Figure 26**, on the outboard side of the headstock.



**Figure 26.** Spindle lock lever and viewing window.

### **NOTICE**

**Always disconnect the lathe from power before using the spindle lock feature. Never resume turning operations without making sure that the spindle lock is disengaged and the spindle turns freely by hand. Otherwise machine damage could result.**





# Selecting Turning Tools

Lathe tools come in a variety of shapes and sizes, and usually fall into five major categories.

- **Gouges**—Mainly used for rough cutting, detail cutting, and cove profiles. The rough gouge is a hollow, double-ground tool with a round nose, and the detail gouge is a hollow, double-ground tool with either a round or pointed nose.

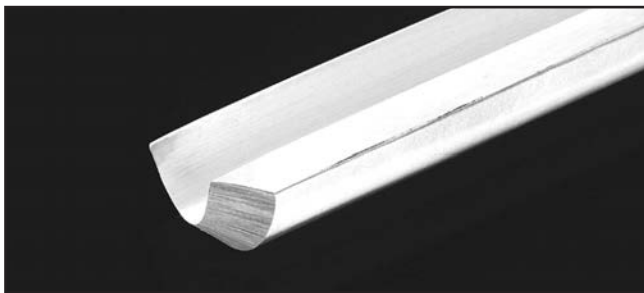


Figure 27. Example of a gouge.

- **Skew Chisel**—A very versatile tool that can be used for planing, squaring, V-cutting, beading, and parting off. The skew chisel is flat, double-ground with one side higher than the other (usually at an angle of 20°–40°).



Figure 28. Example of a skew chisel.

- **Scrapers**—Typically used where access for other tools is limited, such as hollowing operations. This is a flat, double-ground tool that comes in a variety of profiles (round nose, spear point, square nose, etc.) to match many different contours.



Figure 29. Example of a round nose scraper.

- **Parting Tools**—Used for sizing and cutting off work. This is a flat tool with a sharp pointed nose that may be single- or double-ground.



Figure 30. Example of a parting tool.

- **Specialty Tools**—These are the unique, special function tools to aid in hollowing, bowl making, cutting profiles, etc. The Swan Neck Hollowing Tool shown on **Page 34** is a good example of a speciality tool.



# Spindle Turning

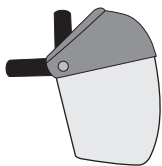
Spindle turning is the operation performed when a workpiece is mounted between the headstock and the tailstock (see **Figure 31** for an example).



**Figure 31.** Typical spindle turning operation.

## ! WARNING

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



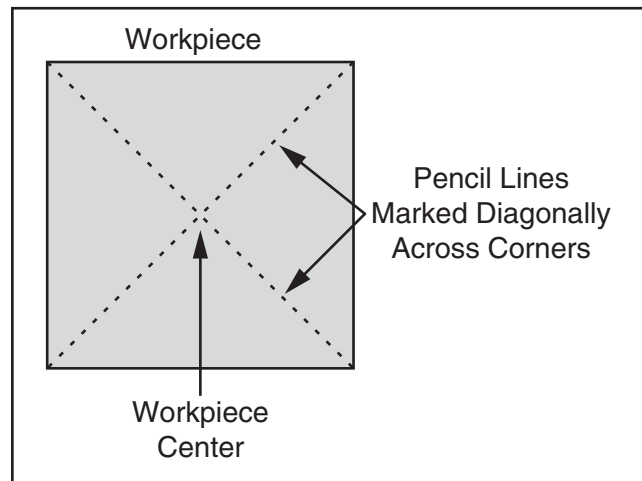
## NOTICE

Always disconnect the lathe from power before using the spindle lock feature. Never resume turning operations without making sure that the spindle lock is disengaged and the spindle turns freely by hand. Otherwise machine damage could result.

Items Needed	Qty
Pencil.....	1
Wood Mallet.....	1
Hand Drill.....	1
1/4" Drill Bit.....	1
Hand Saw.....	1

## Setting Up for Spindle Turning

1. Find the center point of both ends of your workpiece by drawing diagonal lines from corner to corner across the end of the workpiece (See **Figure 32**).



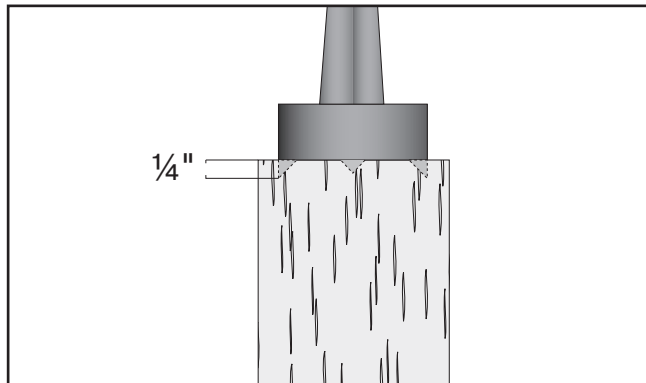
**Figure 32.** Workpiece marked diagonally from corner to corner to determine the center.

2. Using a wood mallet and spur center, tap a center mark into both ends of the workpiece.
3. Using a 1/4" drill bit, drill a 1/4" deep hole at the center mark on the end of the workpiece to be mounted on the headstock spur center.
4. To help embed the spur center into the workpiece, cut 1/8" deep saw kerfs with a handsaw in the same end of the workpiece along the diagonal lines marked in **Step 1**.

**Note:** If your workpiece is over 2" x 2", cut the corners off the workpiece lengthwise to make turning safer and easier.



5. Making sure the spur center is aligned with the workpiece center you marked earlier, drive the spur center least  $\frac{1}{4}$ " into the end of the workpiece (see **Figure 33**).



**Figure 33.** Spur center properly embedded.

6. With the workpiece still attached, insert the spur center into the headstock spindle (refer to **Installing/Removing Headstock Center** on **Page 22** for additional instructions).

**Note:** Use the tool rest to support the opposite end of the workpiece so that the workpiece and spur center do not separate.

7. Install the live center into the tailstock quill and tighten the quill lock lever to lock the quill in position (refer to **Page 23** for additional instructions).
8. Slide the tailstock toward the workpiece until the point of the live center touches the workpiece center mark, then lock the tailstock in this position.
9. Loosen the quill lock handle and rotate the tailstock handwheel to push the live center into the workpiece at least a  $\frac{1}{4}$ ".

## **WARNING**

Do not press the workpiece too firmly with the tailstock or the bearings will bind and overheat. Likewise, do not adjust too loosely or the workpiece will spin off the lathe. Use good reason and care, otherwise, serious personal injury could result.

10. Properly adjust tool rest to workpiece (see **Adjusting Tool Rest** on **Page 21**).
11. Before beginning lathe operation, rotate the workpiece by hand to ensure that there is safe clearance through the full rotation.

## **WARNING**

Keep the turning tool on the tool rest the ENTIRE time that it is in contact with the workpiece. Otherwise, the spinning workpiece could force the lathe tool out of your hands or entangle your hands with the workpiece.

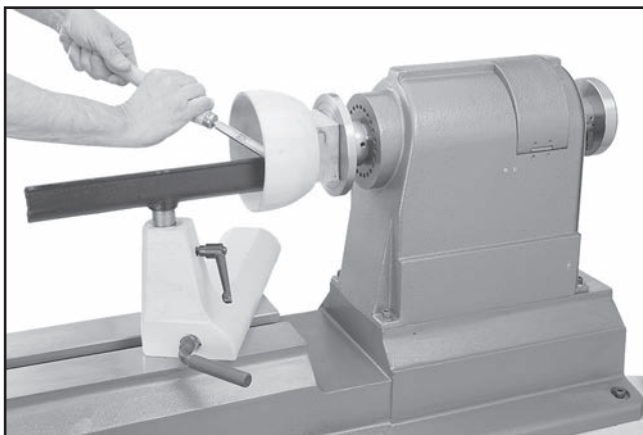


## Spindle Turning Safety Tips

- When turning the lathe **ON**, stand away from the path of the spinning workpiece until the lathe reaches full speed and you can verify that the workpiece will not come loose.
- Use the slowest speed when starting or stopping the lathe.
- Select the right speed range and speed for the size of the workpiece and the type of cut (refer to **Adjusting Spindle Speed** on **Page 25** for detailed instructions and guidelines).
- Learn the correct techniques for the tools you use. If you are unsure about how to use the lathe or any lathe tool, read books or magazines about lathe techniques and seek training from experienced lathe users.

## Faceplate Turning

Faceplate turning is done when a workpiece is mounted to the faceplate, which is then mounted to the headstock spindle. This type of turning is usually done with open-faced workpieces like bowls or plates (see **Figure 34** for an example).



**Figure 34.** Typical faceplate turning operation.

## Mounting Workpiece on Faceplate

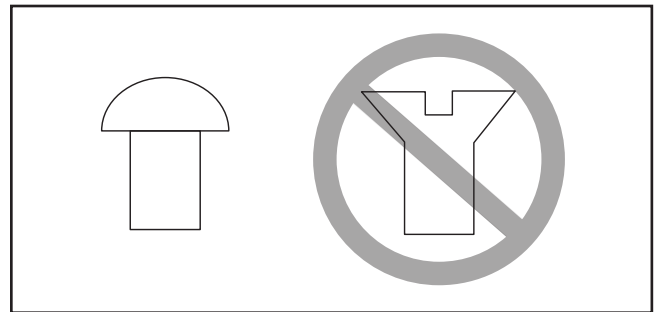
1. Mark the workpiece center as in **Spindle Turning** (see **Page 28**).

**Note:** *Cut off corners of the workpiece to make it as close to "round" as possible.*

### **NOTICE**

**Only use tap screws or wood screws with non-tapered heads (Figure 35) to attach the faceplate to the workpiece. Do NOT use dry-wall screws or screws with tapered heads, because they can split the faceplate or snap off during operation.**

2. Center the faceplate on the workpiece and attach it with wood screws that do not have tapered heads (see **Figure 35**).



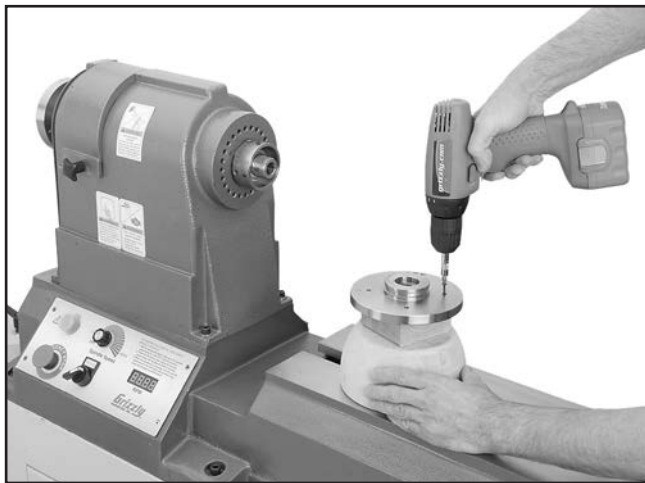
**Figure 35.** Correct and incorrect screw types for mounting faceplate to workpiece.

3. Thread and secure the faceplate onto the headstock spindle (refer to **Installing/Faceplate/Handwheel** on **Page 24** for faceplate mounting instructions).



## Using Backing Block

If wood screws cannot be placed in the workpiece, then the faceplate can be mounted on a backing block that is glued to the workpiece (see **Figure 36** for an example).



**Figure 36.** Typical attachment of faceplate to workpiece (shown with backing block).

### Items Needed

	Qty
Hand Drill.....	1
1/4" Drill Bit.....	1
Scrapwood.....	As Needed
Wood Glue.....	As Needed
Clamps.....	As Needed

### To mount your workpiece to a backing block:

1. Make the backing block from a piece of scrap wood that is flat on both sides.
2. Locate and mark the center of both the workpiece and backing block.
3. Drill a 1/4" hole through the center of the backing block.
4. Looking through the hole in the backing block to line up the center with the workpiece, glue and clamp the backing block to the workpiece.

**Note:** Allow the glue to cure according to the manufacturer's instructions.

5. Attach the faceplate as detailed in the previous subsection.

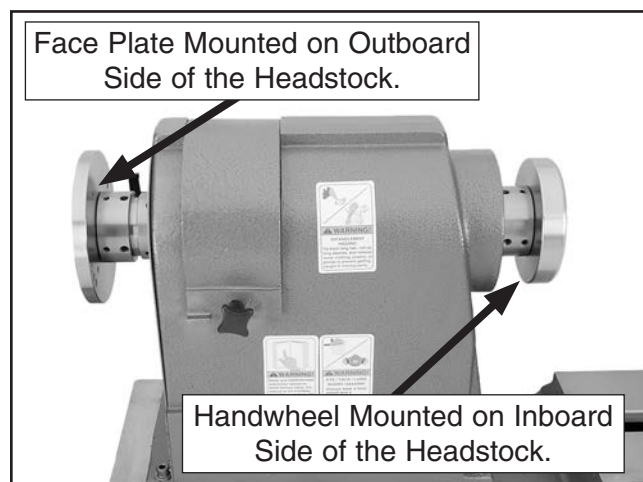
## Outboard Turning

### ⚠ WARNING

Keep the lathe chisel against the tool rest the **ENTIRE** time you are cutting or when feeding the chisel into the workpiece. Otherwise, the spinning workpiece could knock the chisel out of your hands or pull your hands into the workpiece, resulting in serious entanglement or impact injuries.

When the workpiece is larger than 20" in diameter, mount it on the outboard side of the lathe.

To do this, swap the faceplate and handwheel positions as shown in **Figure 37** (refer to **Installing Faceplate/Handwheel** on **Page 24** for detailed instructions).



**Figure 37.** Spindle setup for outboard turning.

As well, you must use the outboard tool rest (refer to **Outboard Tool Rest** on **Page 21** for detailed instructions).

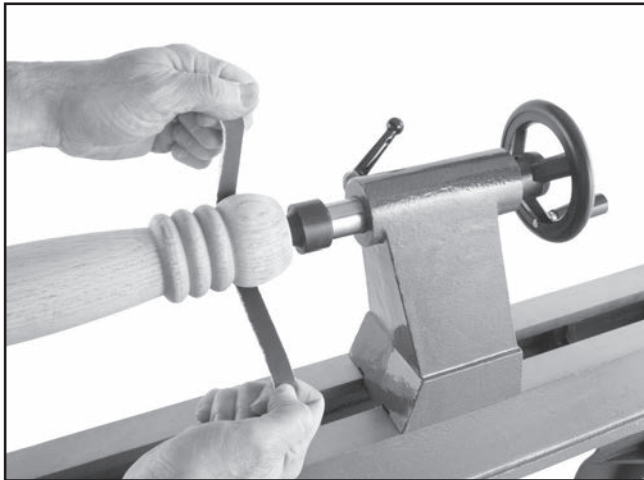
### ⚠ WARNING

When outboard turning, rotate the workpiece by hand before connecting the machine to power to make sure that it will not come in contact with any obstacle. Otherwise, it could break apart during operation and cause serious impact injuries.



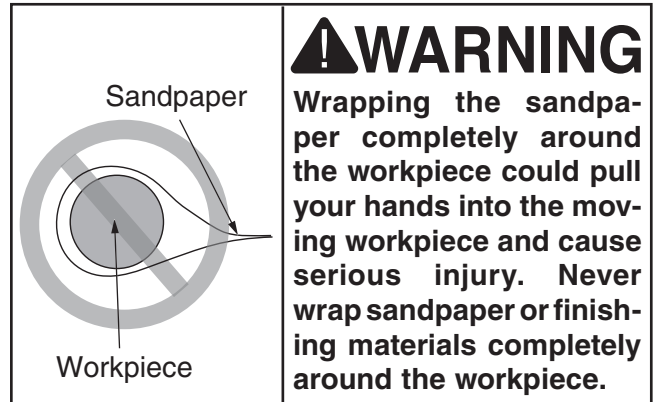
# Sanding/Finishing

After the turning operations are complete, the workpiece can be sanded and finished before removing it from the lathe (see **Figure 38** for an example).



**Figure 38.** Typical sanding operation.

**Note:** *Whenever sanding or finishing, move the tool rest holder out of the way to increase personal safety and gain adequate working room.*





# SECTION 5: ACCESSORIES

## **!WARNING**

Installing unapproved accessories may cause machine to malfunction, resulting in serious personal injury or machine damage. To reduce this risk, only install accessories recommended for this machine by Grizzly.

## **NOTICE**

Refer to our website or latest catalog for additional recommended accessories.

### **H6267—4-Jaw Wood Chuck 1 $\frac{1}{4}$ " x 8TPI**

This 4-Jaw, Self-Centering Chuck with dove-tailed jaws is great for small bowl and plate turning and features jaws that grip by clamping around the workpiece or expanding to fit a turned recess. The minimum diameter required for clamping around the workpiece is 1 $\frac{1}{4}$ ", and the minimum diameter required for expansion is 1 $\frac{3}{16}$ ". Includes T-handled wrenches, wood screw point and machined chuck lever. Compact design is ideal for smaller lathes. Works great with optional H6268 and H6269 jaws, which are available for additional clamping options.



Figure 39. Model H6267 4-Jaw Wood Chuck.

### **Basic Eye Protection**

T20501—Face Shield Crown Protector 4"

T20502—Face Shield Crown Protector 7"

T20503—Face Shield Window

T20451—"Kirova" Clear Safety Glasses

T20452—"Kirova" Anti-Reflective S. Glasses

T20456—DAKURA Safety Glasses, Black/Clear



Figure 40. Assortment of basic eye protection.

### **D2304—6-PC Deluxe HSS Lathe Chisel Set**

This deluxe chisel set features beefy ash handles for unsurpassed control, brass ferrules and high-speed steel blades. Includes: a 17" long  $\frac{13}{16}$ " Parting Tool;  $\frac{13}{16}$ " Round Nose and  $\frac{3}{8}$ " Gouge; a 19" long 1" Skew; a  $\frac{5}{8}$ " Gouge and a 22 $\frac{3}{4}$ " long  $\frac{3}{8}$ " Gouge. Comes in a beautiful blow-molded carrying case. An extremely popular set!



Figure 41. Model H1064 6-PC Chisel Set.

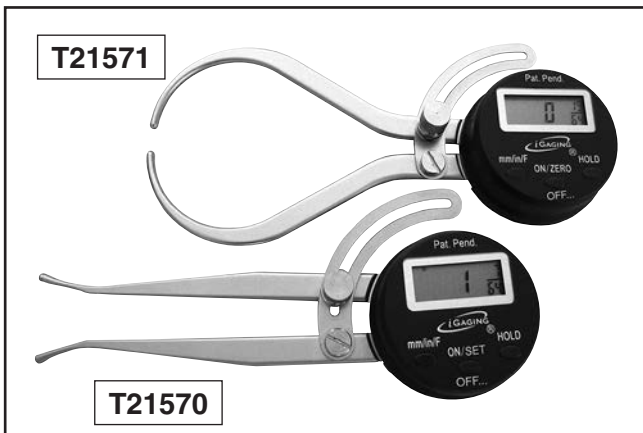


**H6542—Robert Sorby HSS 8-PC Turning Set**  
 If quality is king, then start bowing. Made in England, these Robert Sorby lathe tools are especially for the perfectionist wood turner. Includes  $\frac{3}{4}$ " roughing gouge,  $\frac{3}{8}$ " &  $\frac{1}{2}$ " spindle gouge,  $\frac{3}{8}$ " bowl gouge,  $\frac{3}{4}$ " standard skew,  $\frac{3}{16}$ " diamond side cut scraper, 1" square scraper and  $\frac{1}{2}$ " round scraper. Full size handles are 16"–19".



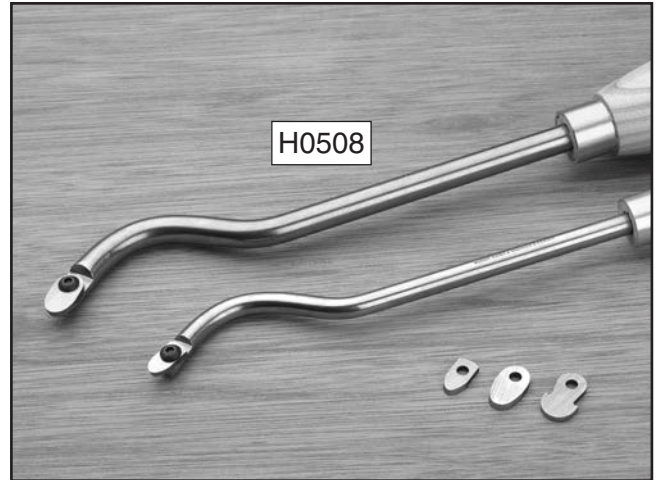
**Figure 42.** Model H6542 Robert Sorby 8-PC Set.

**T21570—Inside Caliper 0.5–6" I.D.**  
**T21571—Outside Caliper 0–6" O.D.**  
**T21572—Inside Caliper 0.5–8" I.D.**  
**T21573—Outside Caliper 0–8" O.D.**  
 These Metric Fractional Calipers feature a large LCD display, spring-loaded travel, and alloy jaws with a chrome finish. They read in inch, metric, and fractional, and are accurate to within 0.01".



**Figure 43.** Metric fractional calipers.

**H0507—20" Swan Neck Hollowing Tool**  
**H0508—24" Swan Neck Hollowing Tool**  
 An excellent choice for blind turning or undercutting where reach is restricted. H0507 is designed for end grain use while H0508 (with a more substantial steel cross section) is designed for both end grain and side grain (bowl) use.



**Figure 44.** Swan neck hollowing tools.

**H5954—Robert Sorby Stebcentre MT#2**  
 Razor sharp teeth bite into the workpiece for secure operation and the spring loaded center point controls the amount of drive or slip. This patented feature helps avoid the problem of "dig-in." Production turners can also load and unload their work while the lathe is still running!

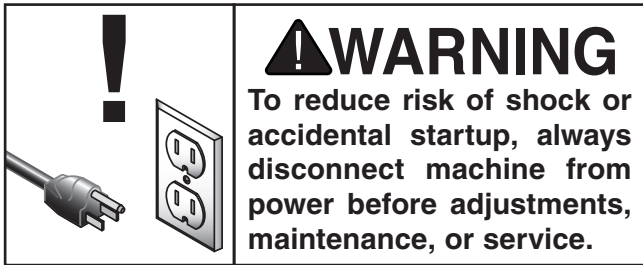


**Figure 45.** Robert Sorby stebcentre.

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# SECTION 6: MAINTENANCE



## Schedule

For optimum performance from this machine, this maintenance schedule must be strictly followed.

### Ongoing

To maintain a low risk of injury and proper machine operation, if you ever observe any of the items below, shut down the machine immediately and fix the problem before continuing operations:

- Loose mounting bolts.
- Lubricate tailstock, inboard tool rest, outboard tool rest, and spur and live centers.
- Worn or damaged wires.
- Any other unsafe condition.

### Weekly Maintenance

- Clean off dust buildup.
- Clean and lubricate lathe bed and tailstock.

### Monthly Check

- V-belt tension, damage, or wear.
- Clean/vacuum dust buildup from inside cabinet and off motor.

### Annually

- Re-check the bedways for being level side-to-side and front-to-back.
- Lubricate the spindle bearings.

## Cleaning & Protecting

Cleaning the Model G0694 is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. If any resin has built up, use a resin dissolving cleaner to remove it.

Protect the unpainted cast iron table by wiping it clean after every use—this ensures moisture from wood dust does not remain on bare metal surfaces. Keep the table rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9.

## Spindle Bearing Lubrication

The tapered roller bearings on the G0694 spindle are pre-lubricated by the factory, but they will require re-lubrication over time. After the first year of use, clean and lubricate the spindle bearings, and thereafter repeat every two years. If the lathe is to be used daily, clean and re-lubricate bearings annually. The spindle bearings are located on the outboard and inboard side of the headstock.

### Items Needed

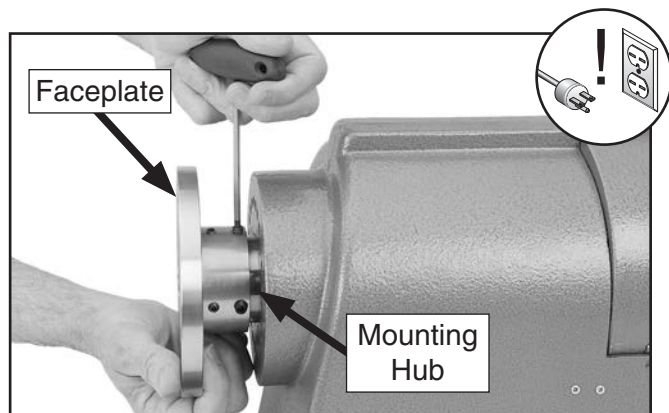
Hex Wrench 3mm.....	1
Hex Wrench 4mm.....	1
Grease Gun.....	1
Needle Nose Adapter.....	1
T26419 or NLGI#2 our Equivalent .....	1
Mineral Spirits.....	As Needed
Shop Rags.....	As Needed
Cleaning Brush.....	As Needed
ISO 32 or Equivalent .....	As Needed
Spanner Wrench.....	1
Hammer.....	1





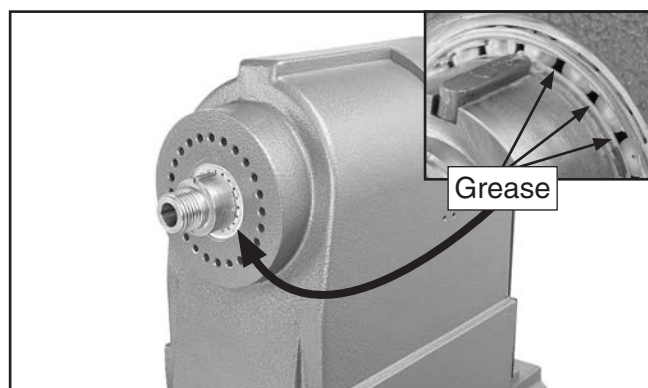
## Lubricating Spindle Bearings

1. DISCONNECT LATHE FROM POWER!
2. Loosen the set screws closest to the faceplate on the inboard mounting hub and remove the faceplate.
3. Loosen the set screws on the inner face of the mounting hub, as shown in **Figure 46**, then remove the mounting hub.



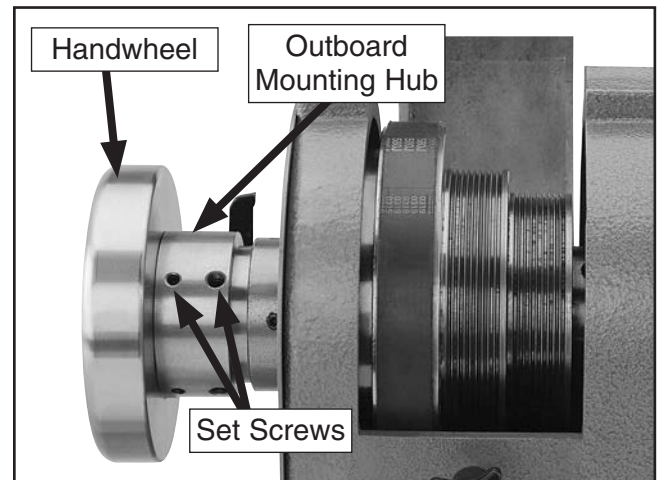
**Figure 46.** Loosening set screws on inboard mounting hub.

4. Place a few rags inside the headstock against the inner side of the bearing to catch any grease and debris for the next step.
5. Wipe down the outer race of the roller bearing with a clean cloth to remove any grime or debris.
6. Use a brush, mineral spirits, and an air gun to remove old grease from the bearing until it is clean and dry.
7. Use a grease gun with a needle adapter to insert lithium grease into the spaces between each of the rollers shown in **Figure 47**.



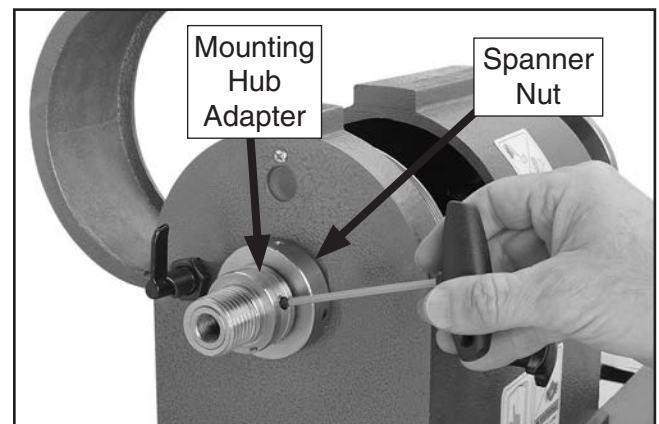
**Figure 47.** Location to add grease in between roller gaps.

8. Wipe the outer and inner race of the spindle bearing to remove extra grease.
9. Reinstall the inboard mounting hub and the faceplate.
10. Loosen the set screws closest to the handwheel on the outboard mounting hub (see **Figure 48**), unthread the handwheel, loosen the inner set of set screws, then remove the mounting hub.



**Figure 48.** Outboard mounting hub.

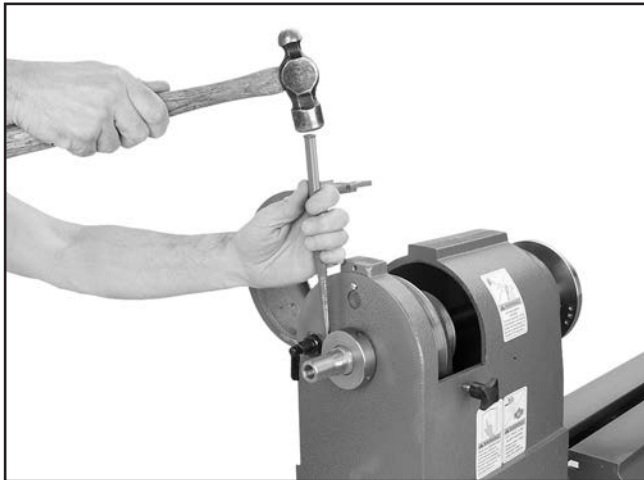
11. Loosen the set screws on the outboard mounting hub adapter (see **Figure 49**). Unthread the mounting hub adapter using a spanner wrench with a 5mm pin, or by placing a 5mm diameter metal rod long enough to be used as a lever into the spanner nut hole.



**Figure 49.** Loosening set screw on outboard mounting hub adapter.



12. Loosen the set screws on the spanner nut, and use a spanner wrench or a hammer and a punch to loosen and remove the nut, as shown in **Figure 50**.



**Figure 50.** Unseating outboard spanner nut.

13. Repeat **Steps 3–7** on the outboard spindle bearing.
14. Reinstall the spanner nut. Only tighten the spanner nut far enough to achieve 0.001"–0.002" end play on the faceplate.

**Tip:** Use a dial indicator, as shown in **Figure 67** on **Page 45**, to measure end play on the faceplate.

15. When the correct amount of end play is reached, tighten the spanner nut an additional  $\frac{1}{8}$  turn to preload the bearings.
16. Reinstall the outboard mounting hub adapter, mounting hub, and handwheel in the reverse order.

## General Lubrication

An essential part of lubrication maintenance is cleaning the components before lubricating them.

This step is critical because dust and chips build up on lubricated components, which makes them hard to move. Simply adding more grease to built-up grime will not result in smooth moving parts.

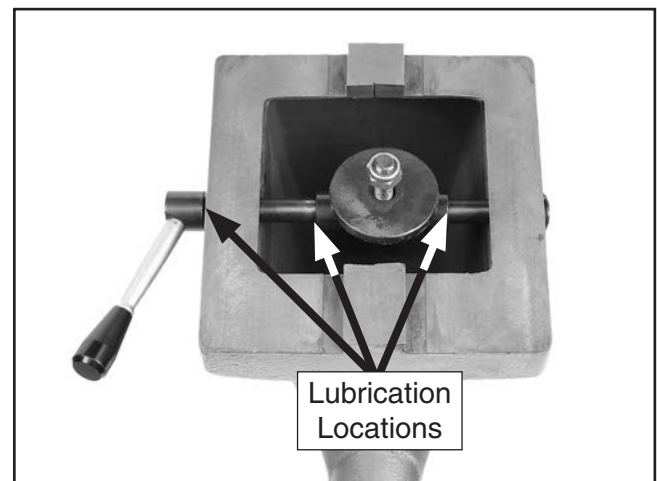
Clean the components in this section with mineral spirits and relubricate them.

The following are the main components that need to be lubricated:

- Tailstock
- Inboard Toolrest
- Outboard Toolrest
- Spur and Live Centers

### Tailstock

1. Loosen the tailstock lock lever, slide the tailstock off the bed, then turn it over.
2. Clean the shaft on the underside of the tailstock with mineral spirits and a rag.
3. Place a couple drops of light machine oil at each of the locations shown in **Figure 51**.



**Figure 51.** Locations to lubricate tailstock.

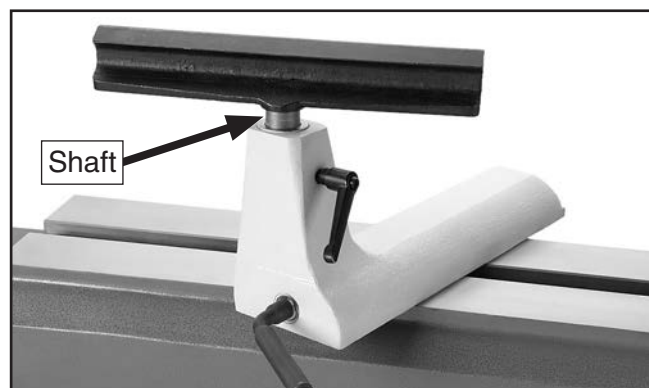
4. Pivot the tailstock lock lever and move the locking plate back and forth to distribute the oil.



5. Wipe off any excess oil and re-install the tailstock on the bed.
6. Loosen the quill lock handle and rotate the tailstock handwheel until the quill extends fully (approximately 3½").
7. Clean the outside and inside of the quill with a rag and mineral spirits.
8. Place a few drops of light machine oil on a rag and wipe down the inside and outside of the quill so only a minimal amount of oil remains.
9. Return the quill to the prior position.

### Inboard Tool Rest

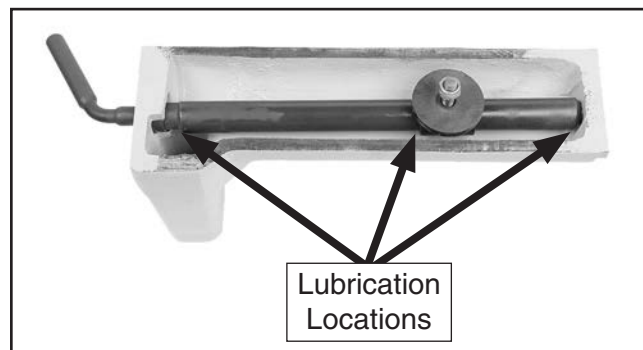
Clean the tool rest shaft (**Figure 52**) with mineral spirits and a rag, then wipe a thin coat of light machine oil onto the shaft to distribute the oil.



**Figure 52.** Location to lubricate tool rest.

**To lubricate the bottom of the tool rest holder:**

1. Loosen the tool rest lock lever, slide the tool rest holder off of the bed, then turn it over on a protected surface.
2. Clean the shaft on the underside of the tool rest holder with mineral spirits and a rag.
3. Place a couple drops of machine oil at each pivot point at the shaft ends and under the locking plate. Turn the tool rest lock lever and move the locking plate to distribute the oil (see **Figure 53**).

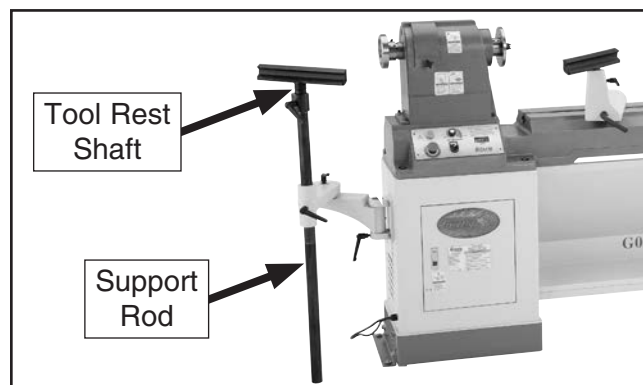


**Figure 53.** Locations to lubricate bottom of tool rest holder.

4. Re-install the tool rest holder on the bed.

### Outboard Tool Rest

1. Clean the outboard tool rest shaft and support rod with mineral spirits and a rag.
2. Place several drops of light machine oil on a rag and wipe it up and down the tool rest support rod (see **Figure 54**).



**Figure 54.** Locations to lubricate outboard tool rest.

3. Remove the outboard tool rest, wipe the shaft, then replace it.

### Spur and Live Centers

Remove the spur center from the headstock spindle and the live center from the tailstock (see **Page 22** and **23** for further details).

Clean each center with mineral spirits and a rag, then place several drops of light machine oil on a rag and wipe each center down.

Reinstall each center according to the instructions on **22** and **23**.

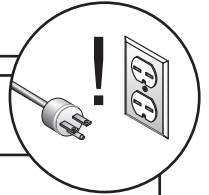




# SECTION 7: SERVICE

Review the troubleshooting procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note:** *Please gather the serial number and manufacture date of your machine before calling.*

## Troubleshooting



### Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or immediately shuts down after startup.	<ol style="list-style-type: none"> <li>EMERGENCY STOP button depressed.</li> <li>Incorrect power supply voltage or circuit size.</li> <li>Power supply circuit breaker tripped or fuse blown.</li> <li>Motor wires connected incorrectly.</li> <li>Wiring open/has high resistance.</li> <li>ON button at fault.</li> <li>EMERGENCY STOP button at fault.</li> <li>Variable-speed potentiometer at fault.</li> <li>Inverter/control box at fault.</li> <li>Motor at fault.</li> </ol>	<ol style="list-style-type: none"> <li>Twist button clockwise to reset.</li> <li>Ensure correct power supply voltage and circuit size.</li> <li>Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse.</li> <li>Correct motor wiring connections (<b>Page 48</b>).</li> <li>Check/fix broken, disconnected, or corroded wires.</li> <li>Replace switch.</li> <li>Replace.</li> <li>Replace.</li> <li>Inspect inverter/controller box; replace.</li> <li>Repair/replace.</li> </ol>
Machine stalls or is underpowered.	<ol style="list-style-type: none"> <li>Machine undersized for task.</li> <li>Workpiece material not suitable for machine.</li> <li>Feed rate/cutting speed too fast.</li> <li>Belt slipping.</li> <li>Pulley slipping on shaft.</li> <li>Motor overheated.</li> <li>Motor wired incorrectly.</li> <li>Plug/receptacle at fault.</li> <li>Motor at fault.</li> </ol>	<ol style="list-style-type: none"> <li>Use sharp chisels; reduce feed rate/depth of cut.</li> <li>Only cut wood/ensure moisture is below 20%.</li> <li>Decrease feed rate/cutting speed (<b>Page 25</b>).</li> <li>Tension/replace belt; ensure pulleys are aligned (<b>Page 42</b>); belts are clean and not damaged.</li> <li>Replace loose pulley/shaft; tighten pulley set screws.</li> <li>Clean motor, let cool, and reduce workload.</li> <li>Wire motor correctly (<b>Page 48</b>).</li> <li>Test for good contacts/correct wiring.</li> <li>Repair/replace.</li> </ol>
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>Motor or component loose.</li> <li>Machine incorrectly mounted or sits unevenly on floor.</li> <li>Belt worn, loose, or slapping cover.</li> <li>Pulley loose.</li> <li>Motor fan rubbing on fan cover.</li> <li>Motor mount loose/broken.</li> <li>Motor bearings at fault.</li> <li>Workpiece/faceplate at fault.</li> </ol>	<ol style="list-style-type: none"> <li>Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid.</li> <li>Tighten/replace anchor studs in floor; relocate/shim machine; adjust feet.</li> <li>Inspect/replace belt. Ensure pulleys are aligned.</li> <li>Tighten pulley set screw; re-align/replace shaft, pulley set screw, and key.</li> <li>Fix/replace fan cover; replace loose/damaged fan.</li> <li>Tighten/replace.</li> <li>Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> <li>Center workpiece in chuck/faceplate; reduce RPM.</li> </ol>



## Wood Lathe Operation

Symptom	Possible Cause	Possible Solution
Vibration noise while machine is running; noise changes when speed is changed.	<ol style="list-style-type: none"> <li>1. Belt cover loose.</li> <li>2. Dented fan cover on motor.</li> <li>3. Worn or damaged spindle bearing(s).</li> <li>4. Loose pulley.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten belt cover lock knob; if necessary install a soft, vibration-dampening material between the belt cover and the headstock casting.</li> <li>2. Replace or adjust fan cover. Inspect motor fan and replace if damaged.</li> <li>3. Replace spindle bearing(s).</li> <li>4. Adjust pulley.</li> </ol>
Excessive vibration.	<ol style="list-style-type: none"> <li>1. Workpiece mounted incorrectly.</li> <li>2. Workpiece warped, out of round, or is flawed.</li> <li>3. Spindle speed is set too fast for mounted workpiece.</li> <li>4. Lathe is resting on an uneven surface.</li> <li>5. Motor mount bolts are loose.</li> <li>6. Belt is worn or damaged.</li> <li>7. Worn or damaged spindle bearing(s).</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-mount workpiece, making sure that centers are embedded in true center of workpiece.</li> <li>2. Cut workpiece to correct, or use a different workpiece.</li> <li>3. Reduce the spindle speed.</li> <li>4. Shim cabinets and mounting flanges to remove any wobbles present in the stand.</li> <li>5. Tighten motor mount bolts.</li> <li>6. Replace belt (see <b>Page 42</b>).</li> <li>7. Replace spindle bearings.</li> </ol>
Chisels grab or dig into workpiece.	<ol style="list-style-type: none"> <li>1. Tool rest set too low or chisel angle incorrect.</li> <li>2. Tool rest set too far from workpiece.</li> <li>3. Wrong chisel/tool being used.</li> <li>4. Chisel/tool dull.</li> </ol>	<ol style="list-style-type: none"> <li>1. Set tool rest higher. See <b>Pages 21–22</b> for how to properly set the tool rest height and angle.</li> <li>2. Move the tool rest closer to the workpiece. See <b>Pages 21–22</b> for the proper workpiece/tool rest clearance.</li> <li>3. Use the correct chisel/tool; educate yourself by reading books, trade magazines, or seeking help from an experienced lathe operator.</li> <li>4. Sharpen or replace the chisel/tool.</li> </ol>
Bad surface finish.	<ol style="list-style-type: none"> <li>1. Wrong spindle speed.</li> <li>2. Dull chisel or wrong chisel being used for the operation.</li> <li>3. Loose workpiece.</li> </ol>	<ol style="list-style-type: none"> <li>1. Use trial-and-error to find a better spindle speed.</li> <li>2. Sharpen chisel or try a different chisel.</li> <li>3. Tighten workpiece.</li> </ol>
Tailstock moves.	<ol style="list-style-type: none"> <li>1. Tailstock mounting bolt loose.</li> <li>2. Bed surface is oily or greasy.</li> </ol>	<ol style="list-style-type: none"> <li>1. Tighten so lever locks at horizontal position.</li> <li>2. Clean bedway surface to remove excess oil/grease.</li> </ol>
Cannot remove tapered tool from tailstock barrel.	<ol style="list-style-type: none"> <li>1. Tailstock quill has not retracted all the way back into the tailstock.</li> <li>2. Debris was not removed from taper before inserting into barrel.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn the quill handwheel until it forces taper out of barrel.</li> <li>2. Always make sure that taper surfaces are clean.</li> </ol>



# Belt Adjustment

For optimal power transmission from the motor to the spindle, the belt must be in good condition and properly tensioned. The belt should be checked for cracks, fraying and wear. Check belt tension every three months; more often if the lathe is used frequently.

## Checking Belt

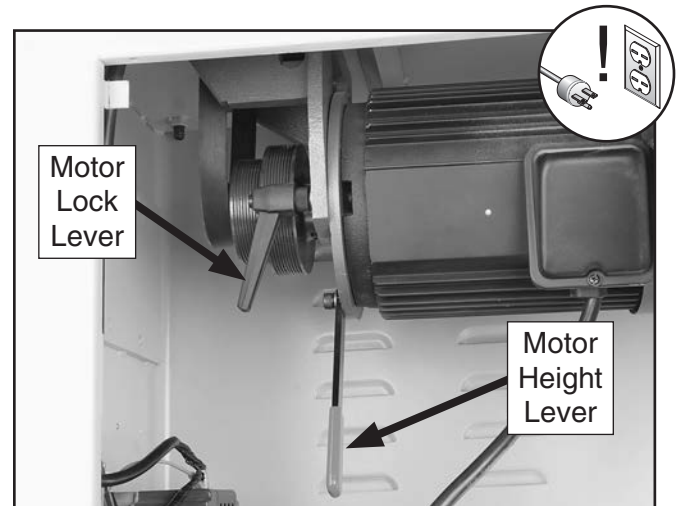
1. DISCONNECT LATHE FROM POWER!
2. Open the cabinet door.
3. Push the center of the belt. It should feel rigid to the touch with almost no deflection or play.

—If the belt is cracked, frayed or glazed, it should be replaced immediately. Proceed to **Changing Belt/Bearing Service** on **Page 42**.

—If there is deflection in the belt, proceed to the *Tensioning Belt* subsection.

## Tensioning Belt

1. DISCONNECT LATHE FROM POWER!
2. Loosen the motor lock lever shown in **Figure 55**, raise the motor up using the height lever, then let the motor hang down on its own weight to tension the belt.



**Figure 55.** Motor tension controls.

**Note:** *If the motor does not freely hang against the belt, you may have to manually push the height lever to tension the belt.*

3. Make sure the belt ribs fit in the pulley grooves.
4. Tighten the motor tension lock lever.
5. Close the cabinet door.



# Changing Belt/ Bearing Service

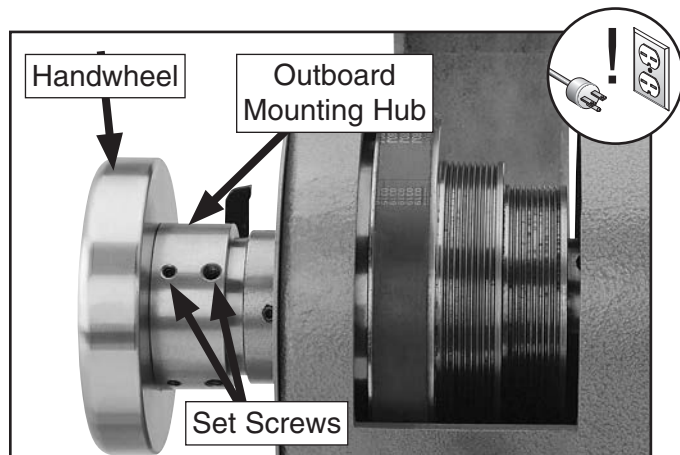
Removing the belt is a special procedure that should not be rushed. Only replace the belt if it is slipping/damaged or if you need to replace the spindle bearings.

For this procedure you will remove the handwheel and mounting hub, hub adapter, spanner nut, outboard spindle bearing, end plate and speed sensor. You will also need to reset the spindle bearing preload and reinstall all of the components. Set aside approximately two hours to perform this procedure.

Tools Needed	Qty
Another Person.....	1
Hex Wrench 3mm.....	1
Hex Wrench 4mm.....	1
Hammer.....	1
Punch.....	1
2x4 6" Long.....	1
White Lithium Grease.....	As Needed
Metal Rod 6" Long 5mm Diameter.....	2
Spanner Wrench with 5mm Pin (Optional).....	1
Dial Indicator with Magnetic Base.....	1

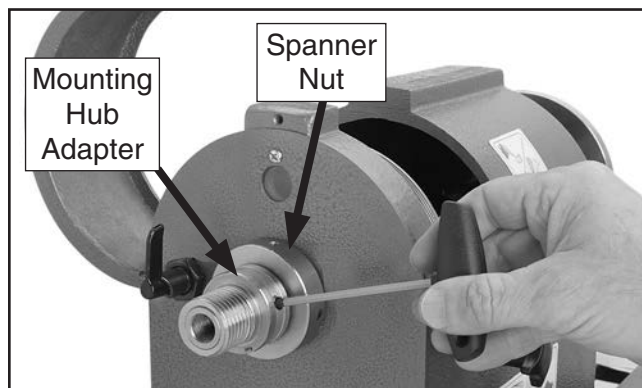
## To remove the existing belt and install a new belt:

1. DISCONNECT LATHE FROM POWER!
2. Loosen the outer set screws on the outboard mounting hub (see **Figure 56**), unthread the handwheel, loosen the inner set of set screws, then remove the mounting hub.



**Figure 56.** Outboard mounting hub location.

3. Loosen the set screws on the outboard mounting hub adapter (see **Figure 57**), place a hex wrench in one of the spanner nut set screws to hold the nut in place, then unthread the mounting hub adapter.



**Figure 57.** Loosening set screw on outboard mounting hub adapter.

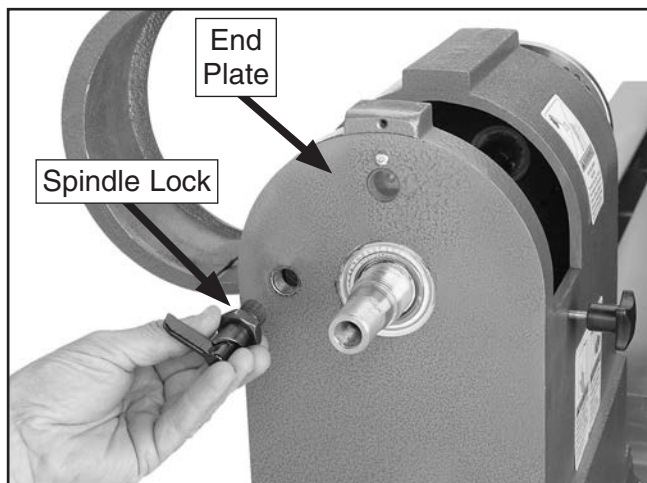
4. Loosen the set screws on the spanner nut, use a hammer and a punch to knock it loose, as shown in **Figure 58**, then remove it.



**Figure 58.** Unseating outboard spanner nut.



5. Unthread the lock nut on the spindle lock mechanism, then remove the unit (see **Figure 59**).



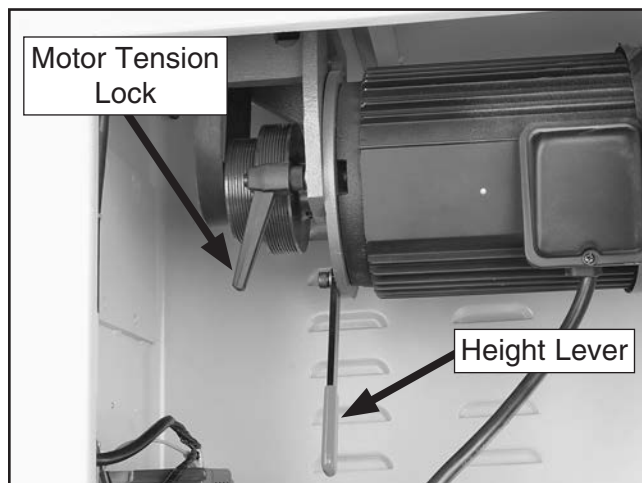
**Figure 59.** Removing spindle lock mechanism.

6. Remove the end plate, then open the belt cover.
7. Remove the Phillips head screws that secure the speed sensor (**Figure 60**), then reach inside the headstock and rest the sensor cord over the internal crossbar, or bring it outside the headstock so it is out of the way during the following steps.



**Figure 60.** Removing speed sensor screws.

8. Loosen the motor tension lock (see **Figure 61**), raise the motor up as far as possible using the height lever, tighten the tension lock, then remove the belt from the motor pulley.



**Figure 61.** Motor tension controls.

9. While an assistant holds the inboard end of the spindle and pulls it toward the tailstock, use a hammer and 2x4 to drive the outboard end of the spindle toward the tailstock, as shown in **Figure 62**. This will expose the inboard spindle bearing.



**Figure 62.** Loosening spindle.

10. Remove the belt from the spindle pulley.
11. Remove the outboard spindle bearing.
12. Inspect the inboard and outboard roller bearings for pitting, cracks or heavy wear. Replace them if either shows signs of serious wear.
13. Clean the spindle bearings using mineral spirits and compressed air.

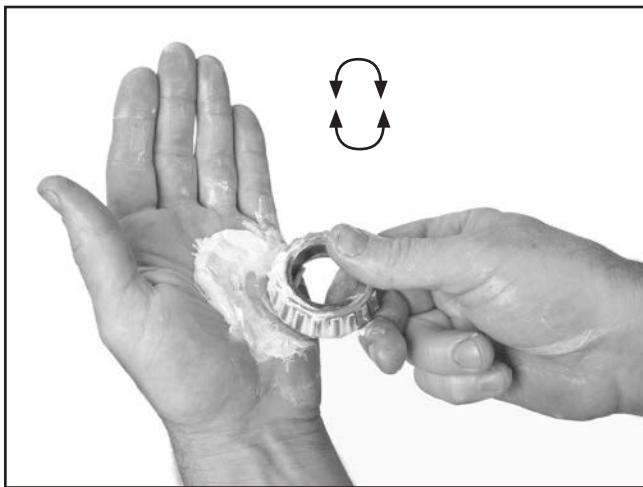




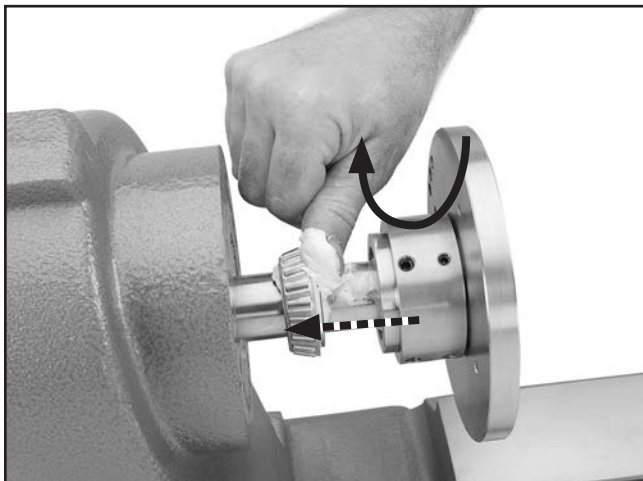
## NOTICE

Do not spin a spindle bearing while blowing it off with compressed air or it could fly apart.

14. Place a thick layer of grease on the bottom of your palm, and in a sweeping motion, use the large side of the bearing cage to scrape the grease off your palm and into the spaces between the rollers. Continue doing this while rotating the bearing 360° until the grease emerges from the other side of the bearing cage, as shown in **Figures 63–64**.

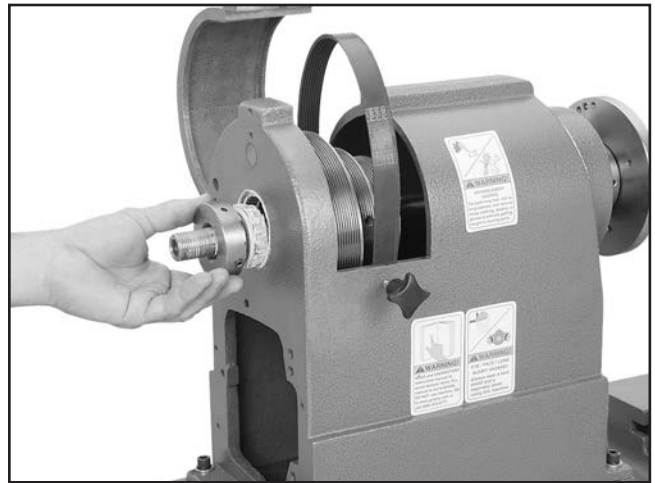


**Figure 63.** Packing outboard roller bearing with grease.



**Figure 64.** Packing inboard roller bearing with grease.

15. Place the belt around one of the pulley grooves. (Avoid getting grease on the belt or pulleys.)
16. Insert the spindle through the outboard end of the headstock, then slide the bearing you removed in **Step 11** onto the outboard spindle.
17. Thread the spanner nut (see **Figure 65**) onto the outboard spindle until it contacts the outboard bearing.



**Figure 65.** Outboard bearing and spanner nut reinstalled.

18. Insert a 5mm diameter metal rod through the faceplate into one of the indexing holes on the headstock to keep the spindle from moving during the next step.

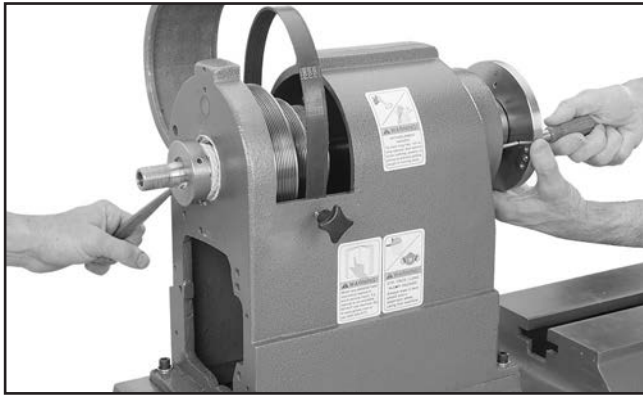
## NOTICE

For the next step you will use the spanner nut to press the bearing back onto the shaft. Do not keep tightening the spanner nut once the end place is removed from the spindle or you will destroy the bearings!



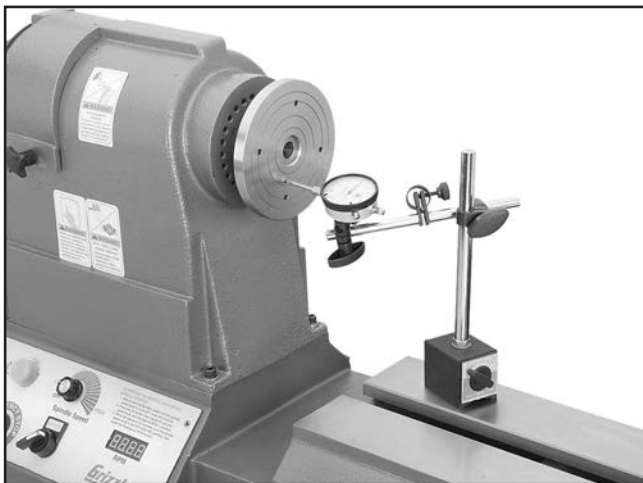


19. While an assistant holds the metal rod through the faceplate to prevent the spindle from turning in the headstock, tighten the spanner nut until it is snug and seat the outboard bearing, as shown in **Figure 66**.



**Figure 66.** Seating outboard roller bearing.

20. Set up a dial indicator, as shown in **Figure 67**, and while holding the spanner nut with a leather glove, push and pull it toward the tailstock to determine the amount of end play. The correct amount of end play is 0.001"–0.002".



**Figure 67.** Using a dial indicator to measure end play.

21. Loosen or tighten the spanner nut until end play is 0.001"–0.002", tighten the spanner nut an additional  $\frac{1}{8}$  turn to preload the bearings.

22. Put on a pair of leather gloves and remove the spanner nut.
23. Reinstall the speed sensor with the screws you removed earlier (see **Figure 68**). Make sure the cord does not touch the pulley sheaves or hang down near them.

**Tip:** To avoid entangling the speed sensor cord in the pulleys, tie it onto the inboard side of the cross support bar inside the headstock.

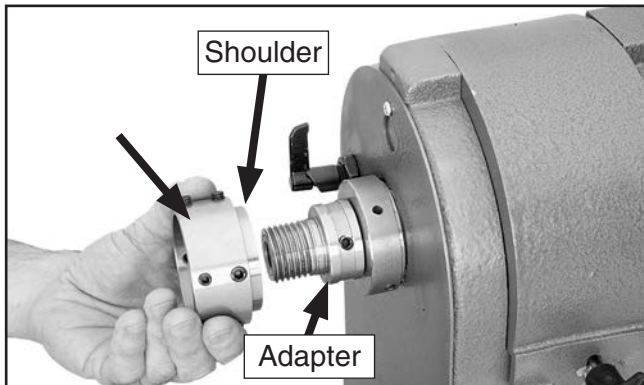


**Figure 68.** Reinstalling speed sensor.

24. Replace the cover on the outboard end of the spindle and secure it with the spindle lock mechanism you removed in **Step 5**.
25. Thread the spanner nut fully onto the spindle, then secure it with the two set screws.
26. Thread the mounting hub adapter onto the spindle and tighten the three set screws.
27. Align the key in the adapter with the keyway in the outboard mounting hub.

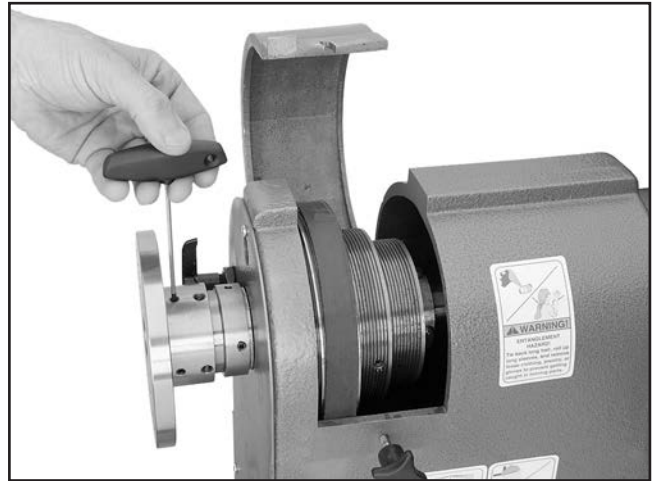


28. Slide the mounting hub onto the adapter (see **Figure 69**), making sure the shoulder of the hub faces the headstock, then tighten the inner set screws on the hub.



**Figure 69.** Threading on mounting hub.

29. Thread the handwheel onto the mounting hub, then tighten the outer set screws on the mounting hub (see **Figure 70**).



**Figure 70.** Securing handwheel.

30. Re-install the belt on the appropriate motor pulley groove.
31. Properly re-tension the belt (refer to *Tensioning Belt* on **Page 41** for detailed instructions).



# SECTION 8: WIRING

These pages are current at the time of printing. However, in the spirit of improvement, we may make changes to the electrical systems of future machines. Compare the manufacture date of your machine to the one stated in this manual, and study this section carefully.

If there are differences between your machine and what is shown in this section, call Technical Support at (570) 546-9663 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** *Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.*

## WARNING

### Wiring Safety Instructions

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

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

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

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

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

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















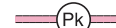
**CAPACITORS/INVERTERS.** Some capacitors and power inverters store an electrical charge for up to 10 minutes after being disconnected from the power source. To reduce the risk of being shocked, wait at least this long before working on capacitors.

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

#### NOTICE

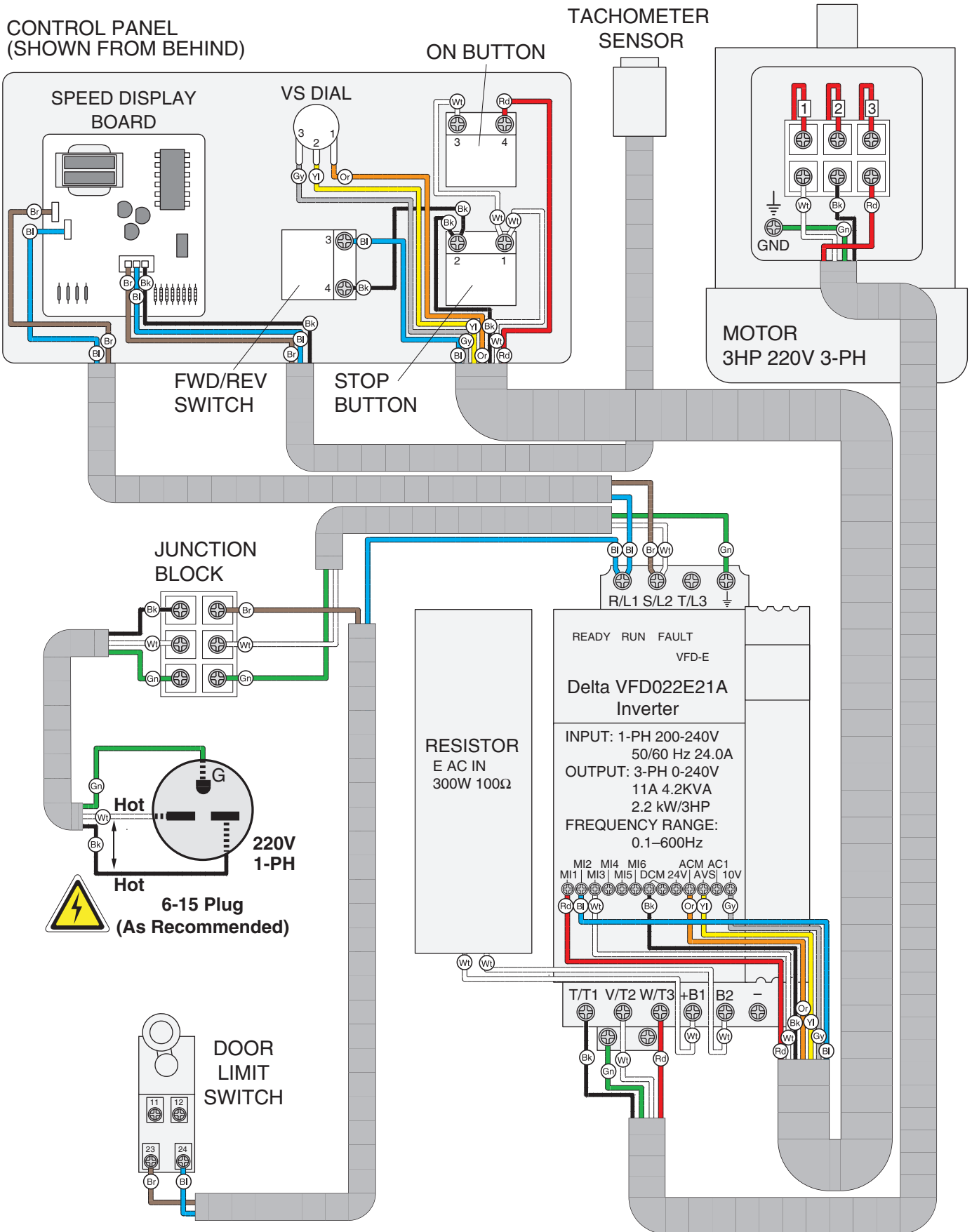
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at [www.grizzly.com](http://www.grizzly.com).

#### COLOR KEY

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



# Wiring Diagram



# Electrical Components



Figure 71. Control panel wiring.



Figure 72. Tachometer sensor location.

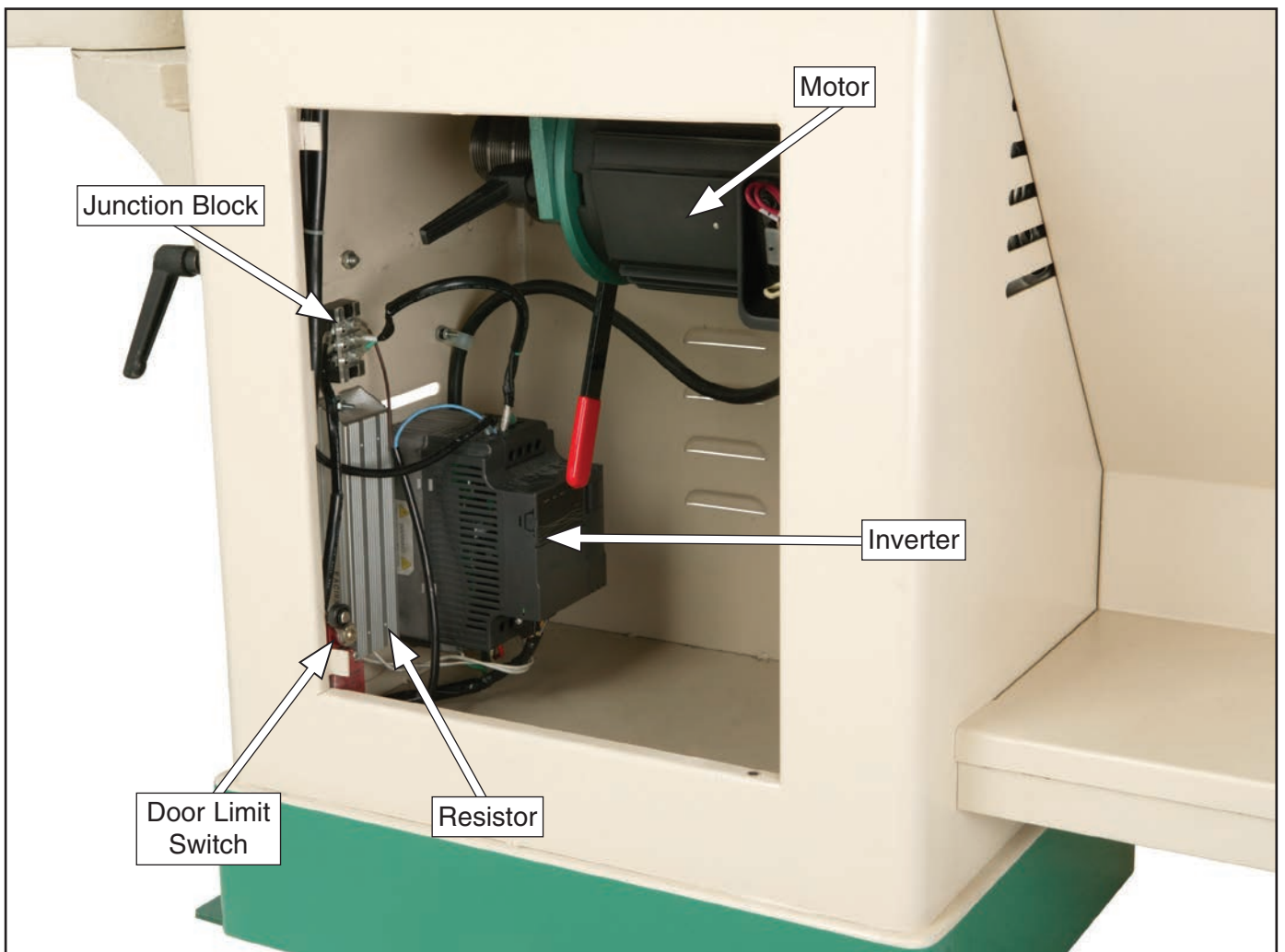


Figure 73. Wiring component location.

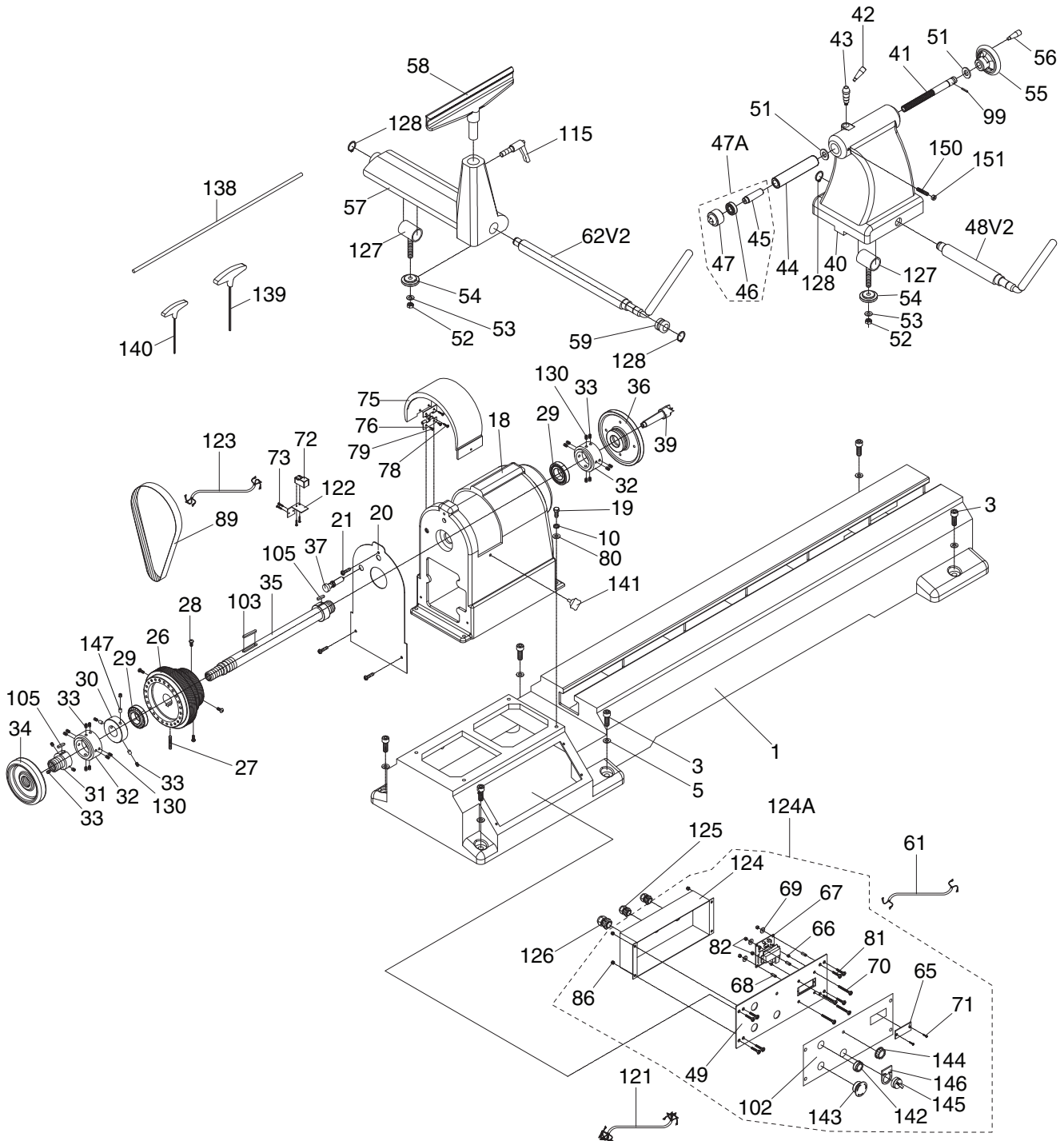




# SECTION 9: PARTS

We do our best to stock replacement parts when possible, but we cannot guarantee that all parts shown are available for purchase. Call **(800) 523-4777** or visit **www.grizzly.com/parts** to check for availability.

## Lathe



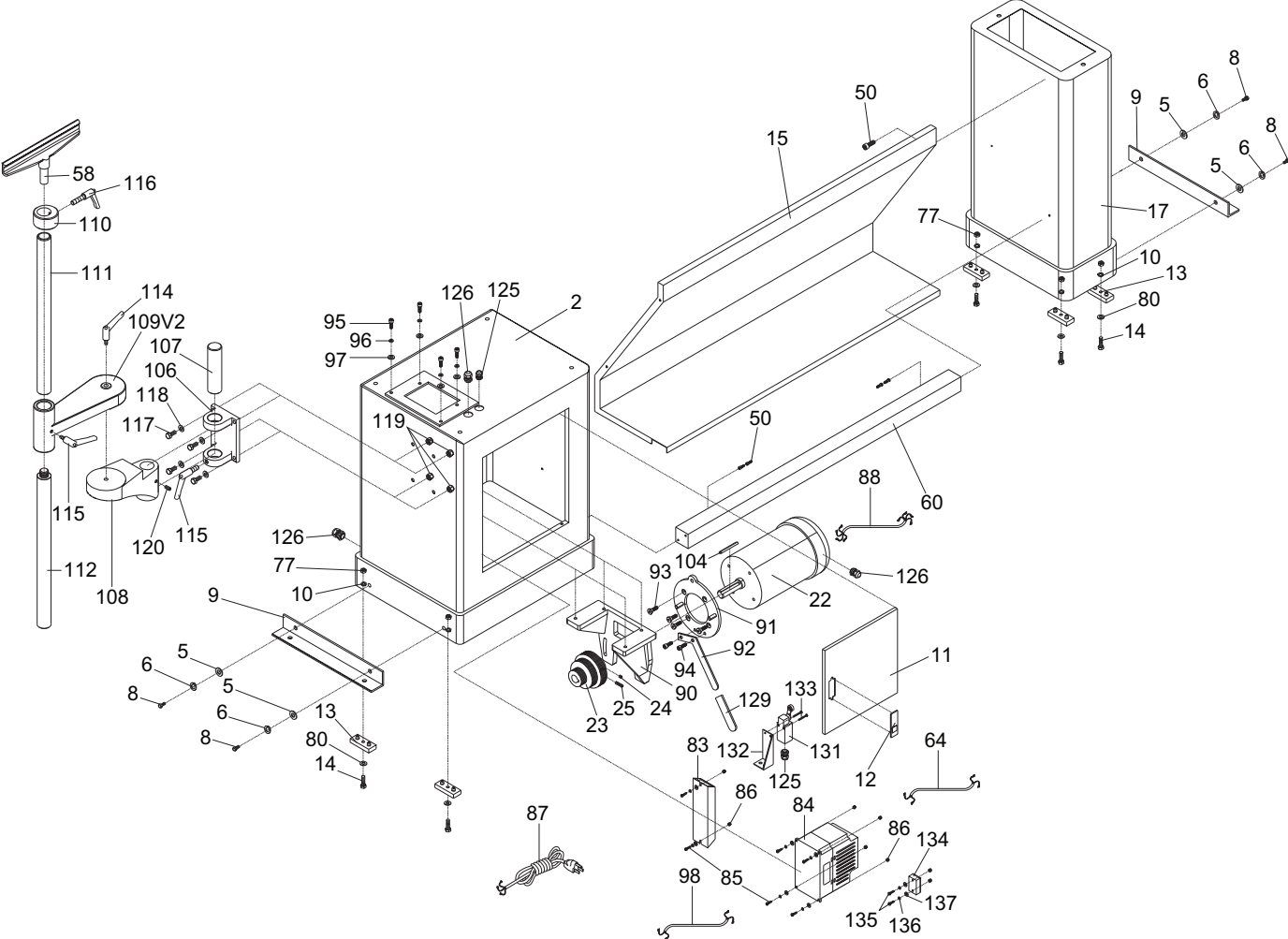
# Lathe Parts List

REF	PART #	DESCRIPTION
1	P0694001	BED
3	P0694003	HEX BOLT 7/16-14 X 1-1/2
18	P0694018	HEADSTOCK
19	P0694019	HEX BOLT 5/16-18 X 1-1/4
20	P0694020	BELT WHEEL COVER
21	P0694021	PHLP HD SCR 10-24 X 5/16
26	P0694026	PULLEY 3-STEP J9 SHEAVES
27	P0694027	SET SCREW M8-1.25 X 40
28	P0694028	PHLP HD SCR M6-1 X 16
29	P0694029	TAPERED ROLLER BEARING LM67048/10
30	P0694030	LOCK COLLAR
31	P0694031	SPINDLE ADAPTER
32	P0694032	SHAFT JOINT
33	P0694033	SET SCREW 1/4-20 X 3/8
34	P0694034	SPINDLE HANDWHEEL
35	P0694035	SPINDLE
36	P0694036	FACE PLATE 1-1/4 X 8 TPI
37	P0694037	LOCK SET
39	P0694039	SPUR CENTER
40	P0694040	TAILSTOCK BASE
41	P0694041	TAILSTOCK LEADSCREW
42	P0694042	SHORT HANDLE
43	P0694043	CAM SPINDLE
44	P0694044	TAILSTOCK QUILL
45	P0694045	LIVE CENTER SHAFT
46	P0694046	BALL BEARING 6002ZZ
47	P0694047	LIVE CENTER HEAD
47A	P0694047A	LIVE CENTER ASSY
48V2	P0694048V2	TAILSTOCK LOCK SHAFT 7" V2.12.09
49	P0694049	CONTROL PANEL FACEPLATE
51	P0694051	FLAT WASHER 16MM
52	P0694052	LOCK NUT M12-1.75
53	P0694053	FLAT WASHER 1/2
54	P0694054	SLIDE PLATE
55	P0694055	HANDWHEEL
56	P0694056	HANDWHEEL HANDLE
57	P0694057	TOOL REST BASE
59	P0694059	TUBE
61	P0694061	DIGITAL DISPLAY CORD 2W 18AWG
62V2	P0694062V2	TOOL REST LOCK SHAFT 7" V2.12.09

REF	PART #	DESCRIPTION
65	P0694065	ACRYLIC BOARD
66	P0694066	SPACING COLLAR
67	P0694067	TRANSFORMER 5VA 220V
68	P0694068	SPACER
69	P0694069	FIBER WASHER 12MM
70	P0694070	FLAT HD SCR 5-40 X 1
71	P0694071	FLAT HD SCR 5-40 X 3/4
72	P0694072	TACH SENSOR W/CORD BAKS DA-1805NO
73	P0694073	PHLP HD SCR M3-.5 X 20
75	P0694075	UPPER COVER
76	P0694076	HINGE ASSY W/O SCREWS
78	P0694078	FLAT HD SCR 10-24 X 5/16
79	P0694079	FLAT HD SCR 10-24 X 1/4
81	P0694081	FLAT HD SCR 10-24 X 5/8
82	P0694082	HEX NUT 5-40
89	P0694089	RIBBED V-BELT 580J9
99	P0694099	ROLL PIN 6 X 25
102	P0694102	FACEPLATE LABEL
103	P0694103	KEY 8 X 7 X 50
105	P0694105	KEY 5 X 5 X 18
121	P0694121	CONTROL PANEL CORD 8 WIRE 18AWG
122	P0694122	TACH SENSOR BRACKET
123	P0694123	TACH SENSOR CORD 3W 24AWG
124	P0694124	SWITCH BOX
124A	P0694124A	COMPLETE SWITCH BOX ASSY
127	P0694127	RING SHAFT
128	P0694128	EXT RETAINING RING 19MM
130	P0694130	SET SCREW 5/16-18 X 5/16
138	P0694138	PUSH ROD 8 X 600MM
139	P0694139	WRENCH T-HANDLE 4MM X 100L
140	P0694140	WRENCH T-HANDLE 3MM X 100L
141	P0694141	THUMB SCREW 1/4-20 X 5/8
142	P0694142	GO BUTTON (GREEN)
143	P0694143	STOP BUTTON (RED)
144	P0694144	SPEED DIAL
145	P0694145	FWD/REV KNOB
146	P0694146	FWD/REV PLATE
147	P0694147	SLUG 5 X 8MM COPPER
150	P0694150	SET SCREW M4-.7 X 25
151	P0694151	HEX NUT M4-.7



# Stand



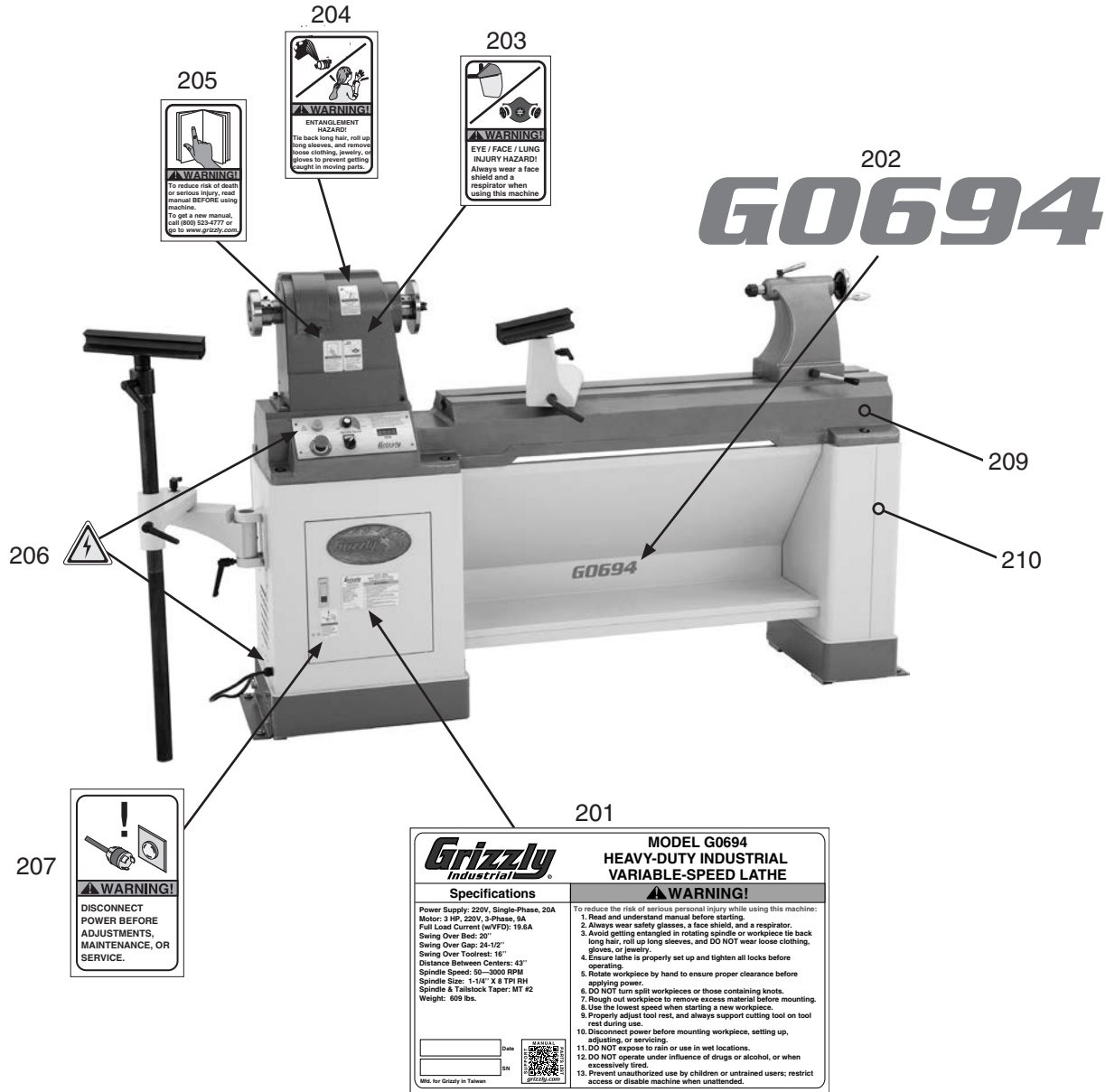
# Stand Parts List

REF	PART #	DESCRIPTION
2	P0694002	LEFT STAND (CABINET)
5	P0694005	LOCK WASHER 12MM
6	P0694006	LOCK WASHER 12MM
8	P0694008	HEX BOLT 7/16-14 X 1-1/4
9	P0694009	L-BRACKET
10	P0694010	LOCK WASHER 5/16
11	P0694011	DOOR
12	P0694012	STAND ACCESS HANDLE
13	P0694013	RUBBER FOOT
14	P0694014	HEX BOLT 5/16-18 X 5/8
15	P0694015	PARTITION BOARD
17	P0694017	RIGHT STAND
22	P0694022	MOTOR 3HP 220V 3-PH
23	P0694023	MOTOR PULLEY
24	P0694024	SET SCREW M8-1.25 X 8
25	P0694025	SET SCREW M8-1.25 X 30
50	P0694050	CAP SCREW 10-24 X 1/2
58	P0694058	TOOL REST
60	P0694060	L-BRACKET
64	P0694064	LIMIT SWITCH CORD 2W 18AWG
77	P0694077	HEX NUT 5/16-18
80	P0694080	FLAT WASHER 5/16
83	P0694083	RESISTOR EACIN 300W 100 OHMS
84	P0694084	INVERTER DELTA VFD-E 022E21A
85	P0694085	PHLP HD SCR 10-24 X 3/4
86	P0694086	HEX NUT 10-24
87	P0694087	POWER CORD 3 WIRE 14AWG
88	P0694088	MOTOR CORD 4 WIRE 14AWG
90	P0694090	MOTOR BRACKET
91	P0694091	MOTOR MOUNTING PLATE
92	P0694092	BELT TENSION HANDLE

REF	PART #	DESCRIPTION
93	P0694093	FLAT HD CAP SCR M8-1.25 X 20
94	P0694094	CAP SCREW M8-1.25 X 15
95	P0694095	CAP SCREW M8-1.25 X 25
96	P0694096	LOCK WASHER 3/8
97	P0694097	FLAT WASHER 3/8
98	P0694098	INVERTER PWR CORD 2W 14AWG
104	P0694104	KEY 8 X 7 X 90
106V2	P0694106V2	OUTBOARD MOUNTING BRACKET V2.03.15
107	P0694107	OUTBOARD ARBOR SHAFT
108	P0694108	LOWER BRACKET
109V2	P0694109V2	UPPER BRACKET V2.10.09
110	P0694110	ARBOR SHAFT TUBE
111	P0694111	OUTBOARD LONG SHAFT
112	P0694112	OUTBOARD SHORT SHAFT
114	P0694114	ADJUSTABLE HANDLE M12-1.5 X 60
115	P0694115	ADJUSTABLE HANDLE M12-1.75 X 20
116	P0694116	ADJUSTABLE HANDLE M12-1.75 X 25
117	P0694117	HEX BOLT M8-1.25 X 30
118	P0694118	FLAT WASHER 8MM
119	P0694119	LOCK NUT M8-1.25
120	P0694120	SET SCREW M8-1.25 X 10
125	P0694125	STRAIN RELIEF LT PG11
126	P0694126	STRAIN RELIEF LT PG13.5
129	P0694129	RUBBER HANDLE COVER
131	P0694131	LIMIT SWITCH CANLIE D4N-4122
132	P0694132	LIMIT SWITCH BRACKET
133	P0694133	PHLP HD SCR M4-.7 X 35
134	P0694134	TERMINAL 3-POST W/COVER
135	P0694135	PHLP HD SCR 10-24 X 1
136	P0694136	FLAT WASHER #10
137	P0694137	LOCK WASHER #10



# Labels & Cosmetics



REF	PART #	DESCRIPTION
201	P0694201	MACHINE ID LABEL
202	P0694202	MODEL NUMBER LABEL
203	P0694203	FACE SHIELD RESPIRATOR LABEL
204	P0694204	ENTANGLEMENT LABEL
205	P0694205	READ MANUAL LABEL

REF	PART #	DESCRIPTION
207	P0694207	DISCONNECT POWER LABEL
208	P0694208	GRIZZLY NAMEPLATE-SMALL
209	P0694209	"GRIZZLY GREEN" PAINT
210	P0694210	"GRIZZLY PUTTY" PAINT
211	P0694211	BELT POSITION LABEL

**⚠ WARNING**

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







# WARRANTY CARD

Name \_\_\_\_\_  
 Street \_\_\_\_\_  
 City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_  
 Phone # \_\_\_\_\_ Email \_\_\_\_\_  
 Model # \_\_\_\_\_ Order # \_\_\_\_\_ Serial # \_\_\_\_\_

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

1. How did you learn about us?

Advertisement       Friend       Catalog  
 Card Deck       Website       Other:

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

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

3. What is your annual household income?

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

4. What is your age group?

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

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

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

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

0-2       3-5       6-9       10+

7. Do you think your machine represents a good value?       Yes       No

8. Would you recommend Grizzly Industrial to a friend?       Yes       No

9. Would you allow us to use your name as a reference for Grizzly customers in your area?

**Note:** We never use names more than 3 times.       Yes       No

10. Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE

\_\_\_\_\_
\_\_\_\_\_
\_\_\_\_\_



Place Stamp Here



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



FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name \_\_\_\_\_
Street \_\_\_\_\_
City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

# WARRANTY AND RETURNS

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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.

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

# *grizzly.com*<sup>®</sup>

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