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 metal lathe is used to remove material from a workpiece that is mounted to the spindle and rotated over the bed. The cutting tool is mounted alongside the bed and moved against the spinning workpiece to cut it.

Typical metal lathe cutting operations include facing, turning, parting, drilling, reaming, grooving, knurling, and threading. There are a wide variety of tools and workpiece holding devices available for each of these operations.

The G0765 features an electronic variable-speed control and digital RPM display that make it possible to select speeds within the selected range while the machine is running.

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.

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.

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.

Grizzly Documentation Manager
P.O. Box 2069
Bellingham, WA 98227-2069
Email: manuals@grizzly.com
Identification

Become familiar with the names and locations of the controls and features shown below to better understand the instructions in this manual.

Figure 1. Model G0765 identification.

A. On/Off Switch w/Emergency Stop Button
B. Power Light
C. High/Low Range Lever
D. Feed Direction Lever
E. 3-Jaw Chuck
F. Steady Rest
G. 4-Way Tool Post
H. Backsplash
I. Compound Rest
J. MT#2 Dead Center
K. Tailstock (see Page 6 for details)
L. Bedway
M. Compound Rest Handwheel
N. Chip Pan
O. Thread Dial
P. Half Nut Lever
Q. Cross Slide Handwheel
R. Carriage Handwheel
S. Leadscrew
T. Spindle Direction Switch
U. Fuse
V. Variable Speed Dial
W. End Cover

⚠️WARNING

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

⚠️WARNING

Untrained users have an increased risk of seriously injuring themselves with this machine. Do not operate this machine until you have understood this entire manual and received proper training.
Controls & Components

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

Refer to Figures 2–6 and the following descriptions to become familiar with the basic controls of this lathe.

Control Panel

A. On/Off Switch w/Emergency Stop Button: When pressed, cuts power to motor and control panel. To reset, press in side tab, lift switch cover, and press On button.

B. Spindle Speed RPM Display: Shows a digital readout of the spindle speed.

C. Power Light: Illuminates when machine is connected to power source, Emergency Stop Button is reset, and On button is pressed.

D. Spindle Switch: Starts, stops, and reverses spindle rotation.

E. Fuse: Protects control panel in case of an electrical overload.

F. Variable Speed Dial: Controls the variable speed of the spindle.

G. 4-Way Tool Post: Holds up to four cutting tools at once that can be individually indexed to the workpiece.

H. Compound Rest Handwheel: Moves the tool toward and away from the workpiece at the preset angle of the compound rest.

I. Thread Dial: Indicates when to engage the half nut during threading operations.

J. Half Nut Lever: Engages/disengages half nut for power feed and threading operations.

K. Cross Slide Handwheel: Moves the cross slide toward and away from the workpiece.

L. Carriage Handwheel: Moves the carriage along the bedway.

Figure 2. Control panel.

Carriage

Figure 3. Carriage controls.

Continued on next page
### Tailstock Controls

**M. Tailstock Quill:** Moves a tool or center mounted in the tailstock toward or away from the workpiece.

**N. Tailstock Quill Lock Lever:** Secures the quill position.

**O. Tailstock Lock Lever:** Secures tailstock in position along the bedway.

**P. Graduated Scale:** Indicates quill movement in increments of 0.001", with one full revolution equaling 0.04" of quill travel.

**Q. Quill Handwheel:** Moves quill toward or away from spindle.

**R. Offset Scale:** Indicates relative distance of tailstock offset from spindle centerline.

**S. Tailstock Offset Screws:** Adjusts tailstock offset left or right from spindle centerline (1 of 2).

### Rear Controls

**T. High/Low Range Lever:** Sets the spindle speed range to LOW (100–1000 RPM) or HIGH (100–2000 RPM). Do NOT shift while lathe is running or damage to machine may occur!

**U. Feed Direction Lever:** Used to select leadscrew rotation direction. Up is for clockwise rotation and leftward carriage movement. Center is neutral. Down is for counterclockwise leadscrew rotation and rightward carriage movement.

### End Gears

**Figure 5. Rear controls.**

**Figure 6. End gear components.**

Configuring the end gears (shown in Figure 6) controls the speed of the leadscrew for threading or power feed operations.
MODEL G0765 7" X 14" VARIABLE-SPEED BENCHTOP LATHE

Product Dimensions:
- Weight: 88 lbs.
- Width (side-to-side) x Depth (front-to-back) x Height: 30 x 9 x 10 in.
- Footprint (Length x Width): 29-3/4 x 8-1/2 in.

Shipping Dimensions:
- Type: Wood Crate
- Content: Machine
- Weight: 110 lbs.
- Length x Width x Height: 33 x 15 x 15 in.
- Must Ship Upright: Yes

Electrical:
- Power Requirement: 110V, Single-Phase, 60 Hz
- Full-Load Current Rating: 10A
- Minimum Circuit Size: 15A
- Connection Type: Cord & Plug
- Power Cord Included: Yes
- Power Cord Length: 6 ft.
- Power Cord Gauge: 18 AWG
- Plug Included: Yes
- Included Plug Type: NEMA 5-15
- Switch Type: ON/OFF Push Button Switch w/Safety Cover

Motors:
- Main
  - Horsepower: 3/4 HP
  - Phase: Single-Phase
  - Amps: 10A
  - Speed: 5000 RPM
  - Type: Universal Brush-Type
- Power Transfer: Belt Drive
- Bearings: Shielded & Permanently Sealed

Main Specifications:

**Operation Info**
- Swing Over Bed: 7 in.
- Distance Between Centers: 13-3/4 in.
- Swing Over Cross Slide: 2-1/8 in.
- Swing Over Saddle: 5 in.
- Maximum Tool Bit Size: 5/16 in.
- Compound Travel: 2-3/4 in.
- Carriage Travel: 12-1/2 in.
- Cross Slide Travel: 2-3/4 in.
<table>
<thead>
<tr>
<th><strong>Headstock Info</strong></th>
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<tbody>
<tr>
<td>Spindle Bore</td>
<td>0.78 in.</td>
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<tr>
<td>Spindle Size</td>
<td>3 in.</td>
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<tr>
<td>Spindle Taper</td>
<td>MT#3</td>
</tr>
<tr>
<td>Number of Spindle Speeds</td>
<td>Variable</td>
</tr>
<tr>
<td>Spindle Speeds</td>
<td>100 – 2000 RPM</td>
</tr>
<tr>
<td>Spindle Type</td>
<td>Intrinsic Back Plate</td>
</tr>
<tr>
<td>Spindle Bearings</td>
<td>Sealed &amp; Permanently Lubricated Ball Bearing</td>
</tr>
<tr>
<td>Spindle Length</td>
<td>7-1/4 in.</td>
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<tr>
<td>Spindle Length with 3-Jaw Chuck</td>
<td>9-1/8 in.</td>
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<tr>
<th><strong>Tailstock Info</strong></th>
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<td>Tailstock Quill Travel</td>
<td>2 in.</td>
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<tr>
<td>Tailstock Taper</td>
<td>MT#2</td>
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<tr>
<td>Tailstock Barrel Diameter</td>
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<tr>
<td>Number of Longitudinal Feeds</td>
<td>1</td>
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<tr>
<td>Range of Longitudinal Feeds</td>
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<tr>
<td>Number of Inch Threads</td>
<td>18</td>
</tr>
<tr>
<td>Range of Inch Threads</td>
<td>12 – 52 TPI</td>
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<tr>
<td>Number of Metric Threads</td>
<td>10</td>
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<tr>
<td>Range of Metric Threads</td>
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<tr>
<td>Bed Width</td>
<td>3-1/4 in.</td>
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<td>Carriage Leadscrew Diameter</td>
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<td>Leadscrew TPI</td>
<td>16 TPI</td>
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<td>Carriage Leadscrew Length</td>
<td>19-3/4 in.</td>
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<tr>
<td>Steady Rest Capacity</td>
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<td>Optional Stand</td>
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<td>Base</td>
<td>Cast Iron</td>
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<tr>
<td>Headstock</td>
<td>Cast Iron</td>
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<tr>
<td>End Gears</td>
<td>Machine-Cut Plastic (Polyoxymethylene)</td>
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<tr>
<td>Bed</td>
<td>Precision-Ground Cast Iron</td>
</tr>
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<td>Body</td>
<td>Cast Iron</td>
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<td>Paint Type/Finish</td>
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<td>Country of Origin</td>
<td>China</td>
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<td>Warranty</td>
<td>1 Year</td>
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<td>Approximate Assembly &amp; Setup Time</td>
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<tr>
<td>Sound Rating</td>
<td>76 dB</td>
</tr>
<tr>
<td>ISO 9001 Factory</td>
<td>Yes</td>
</tr>
<tr>
<td>Certified by a Nationally Recognized Testing Laboratory (NRTL)</td>
<td>No</td>
</tr>
</tbody>
</table>
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.
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 Metal Lathes

⚠️ WARNING ⚠️

Serious injury or death can occur from getting entangled in, crushed between, or struck by rotating parts on a lathe! Unsecured tools or workpieces attached to rotating objects can also strike nearby operators with deadly force. To minimize the risk of getting hurt or killed, anyone operating this machine MUST completely heed the hazards and warnings below.

CLOTHING, JEWELRY & LONG HAIR. Tie back long hair, remove jewelry, and do not wear loose clothing or gloves. These can easily get caught on rotating parts and pull you into lathe.

ROTATING PARTS. Always keep hands and body at a safe distance from rotating parts—especially those with projecting surfaces. Never hold anything against rotating workpiece, such as emery cloth, that can pull you into lathe.

GUARDING. Guards and covers protect against entanglement or flying objects. Always ensure they are properly installed while machine is running.

ADJUSTMENT TOOLS. Remove all chuck keys, wrenches, and adjustment tools before turning lathe ON. A tool left on the lathe can become a deadly projectile when spindle is started.

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

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

SPINDLE SPEEDS. Using spindle speeds that are too fast for the workpiece or clamping equipment can cause rotating parts to come loose and strike nearby people with deadly force. Always use slow spindle speeds with large or non-concentric workpieces. Never exceed rated RPM of the chuck.

CHUCKS. Chucks can be heavy and difficult to hold. During installation and removal, protect your hands and precision bed ways by using a chuck cradle or piece of plywood over the bed ways. Use lifting equipment, as necessary, for large chucks.

LONG STOCK SAFETY. Long stock can whip violently if not properly supported. Always support any stock that extends from the chuck/headstock more than three times its own diameter.

CLEARING CHIPS. Metal chips can be razor sharp. Avoid clearing them by hand or with a rag. Use a brush or vacuum instead.

SECURE WORKPIECE. An improperly secured workpiece can fly off spindle with deadly force. Make sure workpiece is properly secured before starting the lathe.

STOPPING SPINDLE. Always allow spindle to completely stop on its own, or use a brake, if provided. Never put hands or another object on a spinning workpiece to make it stop faster.

CRASHING. A serious explosion of metal parts can occur if cutting tool or other lathe component hits rotating chuck or a projecting part of workpiece. Resulting metal fragments can strike nearby people and lathe will be seriously damaged. To reduce risk of crashing, ALWAYS release automatic feeds after use, NEVER leave lathe unattended, and CHECK all clearances before starting lathe.

TOOL SELECTION. Cutting with incorrect or dull tooling increases risk of injury from broken or dislodged components, or as a result of extra force required for operation. Always use sharp tooling that is right for the job.

SANDING/POLISHING. To reduce risk of entanglement, never wrap emery cloth around rotating workpiece. Instead, use emery cloth with the aid of a tool or backing board.

MEASURING WORKPIECE. To reduce risk of entanglement, never measure rotating workpieces.
Additional Chuck Safety

WARNING

ENTANGLEMENT. Entanglement with a rotating chuck can lead to death, amputation, broken bones, or other serious injury. Never attempt to slow or stop the lathe chuck by hand, and always roll up long sleeves, tie back long hair, and remove any jewelry or loose apparel BEFORE operating.

CHUCK SPEED RATING. Excessive spindle speeds greatly increase the risk of the workpiece or chuck being thrown from the machine with deadly force. Never use spindle speeds faster than the chuck RPM rating or the safe limits of your workpiece.

USING CORRECT EQUIPMENT. Many workpieces can only be safely turned in a lathe if additional support equipment, such as a tailstock or steady/follow rest, is used. If the operation is too hazardous to be completed with the lathe or existing equipment, the operator must have enough experience to know when to use a different machine or find a safer way.

TRAINED OPERATORS ONLY. Using a chuck incorrectly can result in workpieces coming loose at high speeds and striking the operator or bystanders with deadly force. To reduce the risk of this hazard, read and understand this document and seek additional training from an experienced chuck user before using a chuck.

CHUCK CAPACITY. Avoid exceeding the capacity of the chuck by clamping an oversized workpiece. If the workpiece is too large to safely clamp with the chuck, use a faceplate or a larger chuck if possible. Otherwise, the workpiece could be thrown from the lathe during operation, resulting in serious impact injury or death.

CLAMPING FORCE. Inadequate clamping force can lead to the workpiece being thrown from the chuck and striking the operator or bystanders. Maximum clamping force is achieved when the chuck is properly maintained and lubricated, all jaws are fully engaged with the workpiece, and the maximum chuck clamping diameter is not exceeded.

PROPER MAINTENANCE. All chucks must be properly maintained and lubricated to achieve maximum clamping force and withstand the rigors of centrifugal force. To reduce the risk of a thrown workpiece, follow all maintenance intervals and instructions in this document.

DISCONNECT POWER. Serious entanglement or impact injuries could occur if the lathe is started while you are adjusting, servicing, or installing the chuck. Always disconnect the lathe from power before performing these procedures.
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.

WARNING
Electrocution, fire, shock, or equipment damage may occur if machine is not properly grounded and connected to power supply.

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 Rating.................................10A

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.

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.

110V Circuit Requirements
This machine is prewired to operate on a power supply circuit that has a verified ground and meets the following requirements:

Nominal Voltage ......................... 110V, 115V, 120V
Cycle .................................................60 Hz
Phase ........................................... Single-Phase
Power Supply Circuit ......................... 15 Amps

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

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

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.
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

Preparation

The list below outlines the basic process of preparing your machine for operation. Specific steps are covered later in this section.

The typical preparation process is as follows:

1. Unpack lathe and inventory contents of box/crate.
2. Clean lathe and its components.
3. Identify an acceptable location for lathe and move it to that location.
4. Assemble loose components and make any necessary adjustments or inspections to ensure lathe is ready for operation.
5. Connect lathe to power source.
6. Test run lathe to ensure it functions properly.
7. Perform spindle break-in procedure to prepare lathe for operation.

Needed for Setup

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

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Additional People</td>
<td>1</td>
</tr>
<tr>
<td>Safety Glasses</td>
<td>1</td>
</tr>
<tr>
<td>Cleaner/Degreaser (Page 18)</td>
<td>As Needed</td>
</tr>
<tr>
<td>Quality Metal Protectant</td>
<td>As Needed</td>
</tr>
<tr>
<td>Disposable Shop Rags</td>
<td>As Needed</td>
</tr>
</tbody>
</table>

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.*
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.

Installed Components (Figure 8) Qty.
A. 3" Three-Jaw Chuck w/Internal Jaw Set ....... 1
B. Steady Rest .................................................... 1
C. 4-Way Tool Post .............................................. 1
D. Compound Rest ............................................... 1
E. Tailstock .......................................................... 1
F. Chip Tray ......................................................... 1
G. Feet (not shown) ................................................. 4

Packaged Components (Figures 9–11) Qty.
H. Hex Wrench Set (2.5, 3, 4, 5, 6mm) ....... 1 Ea
I. Wrench Set (6/7, 8/10, 13/16mm) ............... 1 Ea
J. Bottle for Oil ..................................................... 1
K. 3-Jaw Chuck External Jaw Set ................. 1
L. Dead Center MT#3 ............................................ 1
M. Dead Center MT#2 ............................................ 1
N. Fuse ................................................................. 1
O. Cross Slide Handwheel Handle ................. 1
P. Carriage Handwheel Handle ...................... 1
Q. 3-Jaw Chuck Key ............................................. 1
R. Change Gear Set .............................................. 1
   — Change Gear (20-tooth, Installed) .............. 1
   — Change Gear (30-tooth) ............................. 1
   — Change Gear (35-tooth) ............................. 1
   — Change Gear (40-tooth) ............................. 2
   — Change Gear (45-tooth) ............................. 1
   — Change Gear (50-tooth) ............................. 1
   — Change Gear (55-tooth) ............................. 1
S. 5" Faceplate ..................................................... 1

**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.
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.

**WARNING**
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.

**CAUTION**
Many cleaning solvents are toxic if inhaled. Only work in a well-ventilated area.

**NOTICE**
Avoid chlorine-based solvents, such as acetone or brake parts cleaner, that may damage painted surfaces.

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from your machine during clean up.

**Figure 12. 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.

![Diagram](image)

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

Physical Environment
The physical environment where 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 13. Minimum working clearances.
Lifting & Placing

WARNING
HEAVY LIFT!
Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from another person.

With the help of another person, lift the machine to a suitable location.

Power Connection

Before the machine can be connected to the power source, all previous setup instructions in this manual must be completed to ensure that the machine has been assembled and installed properly.

Connecting Power
Always make sure the spindle dial on the headstock is turned to "0" (rotated fully counterclockwise) before connecting power.

Insert the power cord plug into a matching power supply receptacle.

Disconnecting Power
If you need to disconnect the machine from power for maintenance, service, or adjustments, turn the machine OFF and pull the plug completely out of the receptacle.

Assembly

With the exception of the handwheel handles, the lathe is shipped fully assembled.

Thread the handles into the cross slide handwheel and carriage handwheel, (see Figure 14).

Figure 14. Handwheel handles installed.
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.

⚠️ 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. Set spindle direction switch to neutral ("0" position), and turn variable speed dial all the way counterclockwise to "0".

2. Shift high/low range lever on back of lathe to LOW, and feed direction lever to neutral (see Figure 16).

3. Make sure chuck and jaws, if installed, are secure (see Chuck Installation on Page 26).

Note: If a chuck is not installed on the lathe, you do not need to install one for this test run.
4. Disengage half nut with lever shown in Figure 17.

![Half Nut Lever](image)

**Figure 17.** Half nut lever disengaged.

5. Press tab in on side of Emergency Stop button, lift switch cover, and press green ON button to reset Emergency Stop button. The spindle speed display and power button **should** illuminate to indicate that lathe is connected to power supply.

6. Verify lathe is operating correctly by turning spindle direction switch to "F" position. Slowly turn variable speed dial clockwise until spindle speed display shows 100 RPM. The spindle **should** rotate counterclockwise—down and toward the front of the lathe.

7. Push Emergency Stop button to turn lathe **OFF**. Then, without resetting Emergency Stop button, try to restart spindle rotation by turning variable speed dial all the way counterclockwise to "0" and then clockwise. The spindle **should not** start.

—If spindle **does** start with Emergency Stop button pressed in, the button is not operating correctly. This safety feature must operate properly before continuing operation. Turn variable speed dial counterclockwise to "0" to stop lathe, disconnect it from power, and call Tech Support for help.

Congratulations! The test run is complete. Turn lathe **OFF** and perform the following **Spindle Break-In** procedure.
Spindle Break-In

Before subjecting the spindle to operational loads, it is essential to complete the break-in process. This helps maximize the life of spindle bearings and other precision components by thoroughly lubricating them before placing them under load.

The break-in must be performed in succession with the Test Run procedure described in this manual, as the steps in that procedure prepare the lathe controls for the break-in process.

NOTICE
DO NOT perform this procedure independently of the Test Run section. The lathe could be seriously damaged if the controls are set differently than instructed in that section.

To perform the spindle break-in:

1. Successfully complete the Test Run procedure beginning on Page 21.

2. Set spindle direction switch to "F" (forward), ensure range lever is in LOW, and operate lathe for 10 minutes at 100 RPM.

3. Operate lathe at 1000 RPM for 10 minutes, then turn variable speed dial to "0" to stop spindle.

4. Shift range control lever to HIGH, then operate lathe at 2000 RPM for 10 minutes, then stop spindle.

5. Run lathe in reverse at 2000 RPM for 10 minutes, then turn speed dial to "0", turn spindle direction switch to "0", and press Emergency Stop button.

Congratulations! Spindle break-in is complete.

Recommended Adjustments

The following adjustments have been made at the factory. However, because of the many variables involved with shipping, we recommend you verify these adjustments to ensure the best results:

Factory adjustments that should be verified:

- Tailstock alignment (Page 32).
- Cross slide backlash adjustment (Page 56).
- Gib adjustments (Page 57).

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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.

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

1. Puts on safety glasses, rolls up sleeves, removes jewelry, and secures any clothing or hair that could get entangled in moving parts.

2. Examines workpiece to make sure it is suitable for turning, then securely mounts it in lathe.

3. Installs tooling, aligns it with workpiece, then backs it away to establish a safe startup clearance.

4. Removes all setup tools from lathe.

5. Checks for safe clearances by rotating workpiece by hand at least one full revolution.

6. Moves slides to where they will be used during operation.

7. If using power feed, selects appropriate feed rate and direction.

8. Resets Emergency Stop button and turns spindle direction switch to "F".

9. Rotates variable speed dial to set correct spindle speed.

10. Uses carriage handwheels or power feed options to move the tooling into workpiece for operations.

11. When finished turning, rotates variable speed dial to "0" to stop spindle, presses Emergency Stop button, then removes workpiece.

To reduce your risk of serious injury, read this entire manual BEFORE using machine.

To reduce the risk of eye injury from flying chips always wear safety glasses.

NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND 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.
Chuck & Faceplate Mounting

This lathe is equipped with an intrinsic backplate spindle nose. With this type of spindle, a chuck or faceplate is mounted directly to the backplate with hex nuts.

⚠️ WARNING

Never use spindle speeds faster than chuck RPM rating or safe limits of your workpiece. Excessive spindle speeds greatly increase risk of workpiece or chuck being thrown from machine with deadly force!

This lathe ships with the 3-jaw chuck installed. This is a scroll-type chuck where all three jaws move in unison when the chuck key is used.

The included faceplate has slots for T-bolts that hold standard or custom clamping hardware. With the correct clamping hardware, a faceplate offers a wide range of uses, including machining non-concentric workpieces, straight turning between centers, off-center turning, and boring.

Installation & Removal Device

Place a piece of plywood over the bedways to protect them from damage if a chuck or other tooling is dropped (see below).

Figure 18. Example of common device used during chuck installation and removal.
Chuck Installation

To ensure accurate work, it is extremely important to make sure the spindle nose and chuck mating surfaces are clean. Even a small amount of lint or debris can affect accuracy.

The chuck is properly installed when it is seated against the backplate shoulder (see Figure 19 below).

To install the chuck:

1. DISCONNECT LATHE FROM POWER!

2. Use an appropriate device to protect ways during installation process (refer to Installation & Removal Device on Page 25).

3. Thoroughly clean and wipe-down all mating surfaces with a lightly-oiled, lint-free rag.

4. Insert chuck screws through mounting holes in spindle backplate, as shown in Figure 20. Make sure chuck seats firmly and evenly against backplate shoulder.

5. Use a lock washer and hex nut on each chuck screw to secure chuck (see Figure 21). Tighten hex nuts evenly a small amount at a time in multiple steps.

Figure 19. Spindle backplate.

Tools Needed: Qty
Open-End Wrench 10mm.......................... 1

Figure 20. Inserting chuck into backplate.

Figure 21. Chuck secured against backplate.
Scroll Chuck Clamping

This 3-jaw, scroll-type chuck has an internal scroll-gear that moves all jaws in unison when adjusted with the chuck key. This chuck holds cylindrical parts on-center with the axis of spindle rotation and can be rotated at high speeds if the workpiece is properly clamped and balanced.

Never mix jaw types or positions to accommodate an odd-shaped workpiece. The chuck will spin out of balance and may throw the workpiece! Instead, use an independent jaw chuck or a faceplate.

- **Safer Inside Jaw Use**
  - Bar Stock
  - Correct

- **Insufficient Jaw Clamping**
  - Unstable Workpiece
  - Incorrect

- **Safer Outside Jaw Use**
  - Shallow Bar Stock
  - Correct

- **Unsafe Jaw Position and Poor Scroll Gear Engagement**
  - Poor Grip
  - Unstable Workpiece
  - Incorrect

- **Safer Outside Jaw Use**
  - Shallow Bar Stock
  - Correct

- **Unsafe Jaw Position**
  - Poor Scroll Gear Engagement
  - Incorrect

- **Safer Inside Jaw Use**
  - Cylinder
  - Correct

- **Unsafe Jaw Position**
  - Poor Scroll Gear Engagement
  - Incorrect

Figure 22. Jaw selection and workpiece holding.

Changing Jaw Set

The 3-jaw scroll chuck included with the lathe features inside and outside hardened steel jaw sets (see Figure below), which move in unison to center a concentric workpiece.

When installing the jaws, it is important to make sure they are installed correctly. Incorrect installation will result in jaws that do not converge evenly and are unable to securely clamp a workpiece.

- **Insufficient Jaw Clamping**
  - Unstable Workpiece

- **Unsafe Jaw Position**

- **Poor Scroll Gear Engagement**

Jaws are numbered from 1–3 (see Figure below). The number is typically stamped on the side or bottom. Jaws are designed to be installed counterclockwise in numerical order in the jaw guides, so they will hold a concentric workpiece evenly.

Figure 23. Chuck and jaw selection.

Figure 24. Jaw guide and jaw numbers.
To change jaw set:

1. DISCONNECT MACHINE FROM POWER!

2. Use appropriate device to protect ways (refer to Installation & Removal Device subsection).

3. Insert chuck key and turn it counterclockwise to back jaws out and remove them individually in descending order (i.e., 3, 2, 1).

4. Use mineral spirits to clean debris and grime from jaws and chuck jaw guides.

5. Apply thin coat of NLGI #2 grease to surfaces of removed jaw set. Store in safe place free from moisture and abrasives.

6. Rotate chuck key clockwise until you see tip of outer scroll-gear lead thread about to enter a jaw guide (see below).

7. Insert jaw #1 into jaw guide and hold jaw against scroll-gear.

8. Rotate chuck key clockwise one turn to engage tip of scroll-gear lead thread into jaw. Pull jaw; it should be locked into jaw guide.

9. Install remaining jaws in numerical order, in same manner. The jaws should converge evenly at center of chuck.

—if jaws do not converge evenly, remove them. Re-install jaws sequentially 1–3, and make sure each one engages with scroll-gear lead thread during its first rotation.

Figure 25. Lead thread on scroll gear.
Faceplate

Refer to the prior Chuck Installation subsection for instructions on installing the faceplate.

The faceplate included with your lathe can be used for a wide range of operations, including machining non-concentric workpieces, straight turning between centers, off-center turning, and boring.

The tools needed for mounting a workpiece will vary depending on the type of setup you have.

⚠️ WARNING
Machining non-concentric workpieces at high speeds could cause workpiece to be thrown from lathe with deadly force. To reduce this risk, use a low RPM, and use counter-weights to balance faceplate or workpiece.

⚠️ WARNING
Failure to properly secure workpiece to faceplate could cause workpiece to be thrown from lathe with deadly force. To reduce this risk, use a minimum of THREE independent clamping devices to hold workpiece onto faceplate.

To mount a non-concentric workpiece to a faceplate:

1. DISCONNECT MACHINE FROM POWER!
2. Position appropriate device across bed ways to protect them from any potential damage from workpiece contact during installation.
3. With help from another person or holding device to support workpiece, position it onto faceplate and clamp it in place with a minimum of three independent clamping devices (see below for an example).

Be sure to take into account rotational and cutting forces that will be applied to workpiece when clamping it to faceplate. If necessary, use counter-weights to balance assembly and use a dial indicator to make sure workpiece is properly positioned for your operation.

![Figure 26. Example of a workpiece clamped in a faceplate.](image-url)
Tailstock

The tailstock is typically used to support long workpieces at the side opposite the spindle, using a live or dead center. It can also hold a tapered drill bit (or a drill chuck with a regular drill bit) for boring holes. Unlike boring done with a drill press where the workpiece is fixed and the drill bit rotates, the drill bit in a tailstock remains stationary while the workpiece is rotated by the spindle.

The entire tailstock can be repositioned and locked in place along the length of the bed. An independently controlled offset adjustment allows the upper part of the tailstock to move perpendicular to the bedways so it can be aligned with the spindle center (for concentric turning) or offset from the spindle center (for tapered turning).

The tailstock quill also features independent adjustment controls that allow it to be advanced toward the spindle or locked firmly in position.

**Tailstock Quill Specs**

**Graduated Dial on Handwheel**
- Increments: 0.001"
- One Full Revolution: 0.200"

**Increments on Quill Scale**
- Inch: 0"–2" in 1/8" Increments
- Metric: 0–50mm in 1mm Increments

**Positioning Tailstock**

1. Rotate tailstock lock lever clockwise (facing machine) to unlock tailstock from bedways.
2. Slide tailstock to desired position by pushing it along the bedways.
3. Rotate tailstock lock lever counterclockwise to lock tailstock against bedways.

**Using Quill**

1. Loosen quill lock lever.
2. Turn quill handwheel clockwise to move quill toward spindle or counterclockwise to move it away from it.
3. Tighten quill lock lever.

![Figure 27. Tailstock controls and features.](image)
Installing Tooling
The tailstock quill accepts MT#2 tapered arbors (see the Figures below for examples).

**Figure 28.** Types of tapered arbors and tooling.

To install tooling in tailstock:

1. With tailstock locked in place, unlock quill, then use handwheel to extend it approximately 1".
2. Thoroughly clean and dry tapered mating surfaces of quill and center, making sure no lint or oil remains on tapers.
3. With a firm and quick motion, insert tool into quill. Check to see if it is firmly seated by attempting to twist it—a firmly seated tool will not twist.
4. Unlock tailstock and move it until tip of tool is close to, but not touching, workpiece, then lock tailstock.
5. Start spindle rotation, unlock quill lock lever, then turn quill handwheel clockwise to feed tool into workpiece.

**Figure 29.** Example photos of inserting tools into the tailstock.

Removing Tooling

1. Use shop rag to hold tool.
2. Rotate quill handwheel counterclockwise to fully retract quill into tailstock until tool is forced out of quill.

**Offsetting Tailstock**
The tailstock quill can be offset from the spindle centerline for turning tapers. Offsetting the quill toward the front of the lathe results in a taper at the tailstock end. Conversely, offsetting the quill toward the back of the lathe results in a taper at the spindle end.

**Note:** If the tooling has an open hole in the end, then a screw can be threaded into the end of the tool to provide a solid surface for the quill pin to push against when the quill is retracted for tool removal. Otherwise, removal of such tooling may be difficult.
To offset the tailstock:

1. Loosen tailstock lock to release clamping pressure on top and bottom castings.

2. Rotate adjustment set screws in opposite directions for desired offset (see Figure below).

3. Tighten tailstock lock to secure the offset.

Aligning Tailstock to Spindle Centerline

This is an essential adjustment that should be verified or performed each time the tailstock is used to turn concentric workpieces between centers or immediately after offsetting the tailstock when turning a taper. If the tailstock is not aligned with the spindle centerline when it is supposed to be, turning results will be inaccurate along the length of the workpiece.

**Items Needed**

- Hex Wrench 4mm .............................................. 1
- Round Stock 2" x 6" .......................................... 2

**To align the tailstock to the spindle centerline:**

1. Center drill both ends of one piece of round stock, then set it aside for use in Step 5.

2. Use the other piece of round stock to make a dead center, and turn it to a 60° point, as illustrated in the Figure below.
Note: As long as this dead center remains in the chuck, the point of the center will remain true to the spindle centerline. The point will have to be refinished whenever the center is removed and then returned to the chuck.

3. Install center in tailstock.

4. Attach lathe dog to test stock from Step 1, then mount it between centers, as shown in Figure below.

![Figure 34. Adjust tailstock toward the operator.](image)

Looking down from above.

Move tailstock toward front of lathe 1/2 the amount of taper.

Figure 34. Adjust tailstock toward the operator.

—If test stock is thicker at tailstock end, move tailstock toward front of lathe 1/2 the distance of the amount of taper, as shown in the Figure below.

![Figure 35. Adjust tailstock away from the operator.](image)

Looking down from above.

Move tailstock toward back of lathe 1/2 the amount of taper.

Figure 35. Adjust tailstock away from the operator.

7. Use calipers to measure both ends of workpiece.

—If test stock is thinner at tailstock end, move tailstock toward front of lathe 1/2 the distance of the amount of taper, as shown in the Figure below.

8. Repeat Steps 5–7 until desired accuracy is achieved.

5. Turn 0.010" off stock diameter.

6. Mount test or dial indicator so plunger is on tailstock quill.

7. Use calipers to measure both ends of workpiece.

—If test stock is thicker at tailstock end, move tailstock toward front of lathe 1/2 the distance of the amount of taper, as shown in the Figure below.

8. Repeat Steps 5–7 until desired accuracy is achieved.

5. Turn 0.010" off stock diameter.

6. Mount test or dial indicator so plunger is on tailstock quill.
Centers

**Figure 36** shows the MT#2 and MT#3 dead centers included with the lathe.

**Dead Centers**
Dead centers are one-piece high-speed steel centers that require low spindle speeds and a small amount of oil to reduce friction heat that may damage the workpiece.

Mount the MT#2 dead center (see **Figure 36**) in the tailstock. Since the workpiece will rotate against the center and generate friction, the tip of the center must be lubricated to avoid premature wear and maximize smooth operation.

Mount the MT#3 dead center (see **Figure 36**) in the spindle for operations where the workpiece rotates with the center and does not generate friction.

**Mounting Dead Center in Spindle**

1. **DISCONNECT LATHE FROM POWER!**

2. Thoroughly clean and dry all mating surfaces of spindle bore and center, making sure that no lint or oil remains on these surfaces.

3. Mount chuck or faceplate onto spindle, whichever is correct for your operation.

4. Insert MT#3 center into spindle bore through chuck or faceplate.

Below is an example photo of a dead center installed in spindle, using a lathe dog and faceplate for turning between centers.

**Removing Center from Spindle**
To remove center from the spindle, insert a piece of round bar stock (or similar tool) through outside end of spindle. Hold onto center with gloved hand or shop rag, then tap bar stock to knock center loose.
Mounting Center in Tailstock
The included MT#2 dead center or a live center (not included) can be used in tailstock. Mounting instructions are the same for both. **Figure** below shows an example photo of a dead center mounted in a tailstock.

![Dead Center](image)

**Figure 38.** Example of using dead center installed in the tailstock.

To mount a center in tailstock:

1. **DISCONNECT MACHINE FROM POWER!**

2. Thoroughly clean and dry tapered mating surfaces of tailstock quill bore and center, making sure no lint or oil remains on tapers.

3. Use quill handwheel to feed quill out from casting approximately 1".

   **Note:** *The maximum quill travel is 2", but we do not recommend extending quill more than 1" or stability and accuracy will be reduced.*

4. Insert center into tailstock quill.

5. Seat center firmly into quill during workpiece installation by rotating quill handwheel clockwise to apply pressure with center engaged in center hole of workpiece.

   **Note:** *Only apply enough pressure with tailstock quill to securely mount workpiece between centers. Avoid overtightening center against workpiece, or it may become difficult to remove later, and it will result in excessive friction and heat, which may damage workpiece and center.*

Removing Center from Tailstock
To remove the center from the quill, hold onto it with a gloved hand or shop rag, then rotate the quill handwheel counterclockwise to draw the quill back into the casting until the center releases.

Mounting Workpiece Between Centers

1. **DISCONNECT LATHE FROM POWER!**

2. Drill center holes in both ends of the workpiece.

3. Install MT#3 dead center in spindle with lathe dog and chuck or faceplate, then install live center or MT#2 dead center in tailstock.

4. Lubricate MT#2 dead center point and workpiece center holes, then mount workpiece between centers and hold it in place with light pressure from tailstock center.

5. **NOTICE**

   To avoid premature wear of dead center or damage to workpiece, use low spindle speeds and keep tip of dead center mounted in tailstock well lubricated.

   Seat center firmly into quill by rotating quill handwheel clockwise to apply pressure against workpiece (see example below).

![Example photo of a workpiece mounted between two centers.](image)

**Figure 39.** Example photo of a workpiece mounted between two centers.

**Note:** *Only apply enough pressure to securely mount the workpiece between centers. Avoid over-tightening the center against the workpiece, or it may become difficult to remove later. Also, over-tightening will result in excessive friction and heat, which may damage the workpiece or center.*
Steady Rest

The steady rest supports long shafts and can be mounted anywhere along the length of the bedway. Familiarize yourself with the steady rest components shown below to better understand the controls before using it.

Tools Needed for Installation/Removal Qty
Open-End Wrench 14mm.......................... 1
Open-End Wrench 16mm.......................... 1

To install and use the steady rest:

1. DISCONNECT LATHE FROM POWER!

2. Thoroughly clean all mating surfaces, then place steady rest base on bedways.

3. Loosen finger lock nuts (see Figure 40), turn finger adjustment knobs, and adjust fingers as required for workpiece.

4. Loosen steady rest lock nut, position steady rest where required to properly support workpiece, then secure lock nut.

5. Turn finger adjustment knobs so fingers barely touch workpiece, then tighten finger lock nuts.


Note: Mill or file tips if they show wear.

Figure 40. Steady rest components.
Compound Rest

The compound rest handwheel has an indirect-read graduated scale. This means that the distance shown on the scale represents the actual distance the cutting tool moves. The base of the compound rest has another graduated scale used for setting the cutting tool to a specific angle.

Graduated Dial
Increments.......................... 0.001" (0.025mm)
One Full Revolution............... 0.04" (1.02mm)

Tool Needed
Hex Wrench 5mm........................... 1

To set compound rest angle:

1. Loosen cap screws shown in Figure 41.

2. Rotate rest to desired angle, as indicated by scale at base, then retighten cap screws.

Tip: The first time you set the compound rest angle for cutting threads, mark the location on the cross slide as a quick reference point. This will allow you to quickly return the compound rest to that exact angle the next time you need to cut threads.

Four-Way Tool Post

The four-way tool post is mounted on top of the compound rest and allows a maximum of four tools to be loaded simultaneously.

Each tool can be quickly indexed to the workpiece by loosening the top handle, rotating the tool post to the desired position, then retightening the handle to lock the tool into position.

Installing Tool

To install a tool in the tool post:

1. Adjust tool post screws so cutting tool can fit underneath them (see Figure below).

2. Firmly secure cutting tool with at least two tool post screws.

3. Check and adjust cutting tool to spindle centerline, as instructed in next subsection.

⚠️ WARNING
Over-extending a cutting tool from the post will increase risk of tool chatter, breakage, or tool loosening during operation, which could cause metal pieces to be thrown at the operator or bystanders with great force. DO NOT extend a cutting tool more than 2.5 times the width of its cross-section (e.g., 2.5 x 0.5" = 1.25").

Figure 41. Compound rest angle adjustments.

Figure 42. Example of tool mounted in tool post.
Aligning Cutting Tool with Spindle Centerline

For most operations, the cutting tool tip should be aligned with the spindle centerline, as illustrated below.

There are a number of ways to check and align the cutting tool to the spindle centerline. If necessary, you can raise the cutting tool by placing steel shims underneath it. The shims should be as long and as wide as the cutting tool to properly support it.

Below are two common methods:

1. Move the tailstock center over the cross slide and use a fine ruler to measure the distance from the surface of the cross slide to the tip of the center. Adjust the cutting tool height so it is the same distance above the cross slide as the tailstock center.

2. Align the tip of the cutting tool with a tailstock center, as instructed in the following procedure. For this to work, the tailstock must be aligned to the spindle centerline (refer to Aligning Tailstock To Spindle Centerline for detailed instructions).

Tools Needed

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 6mm</td>
<td>1</td>
</tr>
<tr>
<td>Steel Shims</td>
<td>As Needed</td>
</tr>
<tr>
<td>Cutting Tool</td>
<td>1</td>
</tr>
<tr>
<td>Tailstock Center</td>
<td>1</td>
</tr>
</tbody>
</table>

To align cutting tool with tailstock center:

1. Mount cutting tool in tool post, then secure post so tool faces tailstock.
2. Install center in tailstock, and position center tip near cutting tool tip.
3. Lock tailstock and quill in place.
4. Adjust height of cutting tool so tool tip is aligned vertically with center tip, as illustrated below.
Manual Feed

The cutting tool can be manually fed into the workpiece using the carriage, cross slide, and compound rest handwheels shown below.

**Carriage Handwheel**

*Graduated Dial*

Increments .................. 0.01" (0.25mm)

One Full Revolution .......... 1.0" (25.4mm)

The carriage handwheel moves the carriage left or right along the bed. Adjust the position of the graduated scale by holding the handwheel with one hand and turning the dial with the other.

**Cross Slide Handwheel**

*Graduated Dial*

Increments .................. 0.001" (0.025mm)

One Full Revolution .......... 0.04" (1.02mm)

Use this handwheel to move the tool toward and away from the work. The cross slide handwheel has an indirect-read graduated dial. This means the distance shown on the scale represents the actual distance the tool moves.

**Compound Rest Handwheel**

*Graduated Dial*

Increments .................. 0.001" (0.025mm)

One Full Revolution .......... 0.04" (1.02mm)

Use this handwheel to move the cutting tool linearly along the set angle of the compound rest. Set the compound rest angle by hand-rotating it and securing in place with two cap screws. The compound rest has an indirect-read graduated dial.

Figure 45. Manual feeding controls.

Spindle Speed

Using the correct spindle speed is important for getting safe and satisfactory results, as well as maximizing tool life.

To set the spindle speed for your operation, you will need to: 1) Determine the best spindle speed for the cutting task, and 2) configure the lathe controls to produce the required spindle speed.

**Determining Spindle Speed**

Many variables affect the optimum spindle speed to use for any given operation, but the two most important are the recommended cutting speed for the workpiece material and the diameter of the workpiece, as noted in the formula shown below.

\[
\text{Spindle Speed (RPM)} = \frac{\text{Cutting Speed (FPM) x 12}}{\text{Dia. of Cut (in inches) x 3.14}}
\]

*Recommended Cutting Speed x 12

Dia. of Cut (in inches) x 3.14

*Double if using carbide cutting tool

Figure 46. Spindle speed formula for lathes.

Cutting speed, typically defined in feet per minute (FPM), is the speed at which the edge of a tool moves across the material surface.

A recommended cutting speed is an ideal speed for cutting a type of material in order to produce the desired finish and optimize tool life.

The books *Machinery’s Handbook* or *Machine Shop Practice*, and some internet sites, provide excellent recommendations for which cutting speeds to use when calculating the spindle speed. These sources also provide a wealth of additional information about the variables that affect cutting speed and they are a good educational resource.

Also, there are a large number of easy-to-use spindle speed calculators that can be found on the internet. These sources will help you take into account the applicable variables in order to determine the best spindle speed for the operation.
Setting Spindle Speed Range
The high/low range lever shown in Figure 47 is used to select one of the two spindle speed ranges.

![Figure 47. High/low range lever set to low.](image)

When the lever is moved to the right, as shown in Figure 47, the low spindle speed range (100–1000 RPM) is selected. When the lever is moved to the left, the high spindle speed range (100–2000) RPM is selected.

Setting Spindle Direction & Speed
Set the spindle rotation direction to forward or reverse with the spindle direction switch, shown in Figure 48. Reset the Emergency Stop button, press the ON button, then turn the variable speed dial clockwise until the desired spindle speed displays on the spindle speed display.

![Figure 48. Spindle speed and direction controls.](image)

Configuration Example
Follow this example to gain a better understanding of how to set the spindle speed.

To set spindle speed to 100 RPM:
1. Make sure spindle is completely stopped, and shift high/low range lever to LOW, as shown in Figure 47.

   **Note:** If high/low range lever does not easily adjust into position, rotate chuck by hand while you apply pressure to lever. When gears align, the lever will easily move into place.

2. Turn variable speed dial to "0".

3. Turn spindle direction switch to "F", and press ON button.

4. Adjust variable speed dial until spindle speed display reads 100 RPM.
Power Feed

The carriage has power feed options for either threading or non-threading operations. However, this subsection only covers using the power feed option for non-threading operations. To learn how to power the carriage for threading operations, refer to **Threading on Page 46**.

**NOTICE**

To avoid damaging lathe, ALWAYS make sure spindle is completely stopped BEFORE using headstock controls to make changes.

Power Feed Controls

Use the following descriptions and figures to understand the power feed controls.

Before using power feed, you may have to reconfigure the end gears, depending on how they are set up. The lathe comes from the factory with the end gears setup in the standard configuration (refer to **End Gears on Page 43**). This end gear configuration achieves a fixed feed rate of 0.04 in/rev. Refer to **End Gears on Page 43** for detailed instructions on how to configure the end gears.

A. **Spindle Switch**: Starts, stops, and reverses carriage travel when feed direction lever and half nut lever are engaged.

B. **Feed Direction Lever**: Selects carriage travel direction. The carriage moves left when feed direction lever is up, half nut lever is engaged, and spindle switch is set to "F".

The carriage moves right when the feed direction lever is all the way down. The carriage will not move when the lever is in the center position.

Carriage travel direction reverses when the spindle switch is set to "R".

C. **Half Nut Lever**: Engages/disengages half nut for power feed operations.

**NOTICE**

To avoid potential carriage/chuck crash, disengage half-nut lever immediately after completing power feeding operations.
Setting Power Feed Rate
Follow the example below to better understand how to set the lathe power feed.

Tools Needed:
Hex Wrenches 4 & 5mm ......................1 Ea
Open-End Wrenches 13 & 14mm.............1 Ea

To set power feed for 0.04 in./rev.:
1. DISCONNECT LATHE FROM POWER!
2. Gather two 80T and two 20T gears.
   Note: All change gears are stamped with the number of teeth they have except the 20T gears, which are black.
3. Remove end cover.
4. Remove cap screws and flat washers that secure existing gears.
5. Loosen hex nut shown in Figure 52, and pivot adjuster down to disengage gears from each other.
6. Remove existing A, B, C and D change gears (see Figure 52). Note: Some gears may be difficult to remove due to excess grease and debris. Once they are removed, clean gears with mineral spirits and wipe them down with a clean rag.
7. Replace A and C gears with 20T gears, and B and D gears with 80T gears (see Figure 55 on Page 43). The printed gear letters should face outward.
8. Reposition adjuster so gears mesh, tighten adjuster hex nut, then secure gears with cap screws and flat washers removed earlier.
9. Re-install end cover.
10. Push half nut lever down to engage power feed (see Figure 53).

The lathe is now set for a power feed rate of 0.04 in./rev.
End Gears

The end gears must be correctly setup for power feed and threading. Use the photo below to identify the A, B, C, and D change gears, which are also referenced on the headstock feed rate gear chart.

The following subsections explain how to configure the end gears, which are accessed by removing the end cover.

Power Feed Configuration

The end gears are preset by the factory in this configuration, which is only used for power feeding. Mesh the top 20T A gear with the 80T B gear, and mesh the 20T C gear with the 80T D gear (see Figure 55).

Primary Threading Configuration

This threading configuration is used for inch and metric threading. Mesh the A, B, and D gears, as shown in Figure 56. The C gear does not mesh with any other gears in this configuration, so it is not important which gear is installed in the C position. The B and C gears share a keyed bushing.

Secondary Threading Configuration

This threading configuration is used for a different range of threads and feed rates than the primary threading configuration. Mesh the A and B gears, and mesh the C and D gears, as shown in Figure 57. The B and C gears share a keyed bushing.
**End Gear Configuration Example**

Follow the example below to better understand how to configure the end gears for inch threading.

**Tools Needed**

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 4 &amp; 5mm</td>
<td>1 Ea</td>
</tr>
<tr>
<td>Open-End Wrenches 13 &amp; 14mm</td>
<td>1 Ea</td>
</tr>
</tbody>
</table>

**To configure end gears for threading 20 TPI:**

1. **DISCONNECT LATHE FROM POWER!**
2. Locate 20 TPI on gear chart shown in **Figure 58**.
3. Gather 40T, 65T, and 50T gears per change gear chart. The C gear, which is indicated by a "/", is installed on existing B/C change gear keyed bushing (see **Figure 59**).
4. Remove end cover.
5. Loosen adjuster hex nut shown in **Figure 60**, pivot adjuster down, and disengage gears.
6. Loosen hex nut behind B/C change gear shaft shown in **Figure 61**, then slide B/C gear away from D gear.
7. Remove cap screws and washers that secure gears, then remove gears.

**Note:** If any gears are difficult to remove, use a large flat head screwdriver to gently wiggle them off.

Leave existing C gear on keyed bushing. The C gear will not mesh with any of the other gears in this 20 TPI threading setup.

---

**Figure 58.** Locating change gears for 20 TPI.

**Figure 59.** B/C change gear and keyed bushing (gears removed for clarity).

**Note:** Depending upon configuration, C gear may not be 20T, as shown in **Figure 59**.
8. Remove key and bushing from D gear shaft (see Figure 62).

9. Remove existing B gear from keyed bushing shared with C gear.

10. Slide 65T B gear onto keyed bushing and firmly against C gear.

11. Slide 40T, 65T, and 50T gears onto gear shafts (see Figure 63), making sure to re-install key with 50T gear.

12. Slide bushing removed in Step 8 onto 50T gear.

13. Position adjuster so gears mesh. Then tighten adjuster hex nut and B/C gear shaft hex nut.


15. Re-install end cover.
Threading

The following subsections describe how to use the threading controls and charts to set up the lathe for a threading operation. If you are unfamiliar with how to cut threads on a lathe, we strongly recommend that you read books, review industry trade magazines, or get formal training before attempting any threading projects.

**Headstock Threading Controls**

The threading chart on the headstock face displays the settings for inch threading; a metric thread chart is provided on Page 70.

Using the controls on the lathe, follow the example below to understand how to set up the lathe for a threading operation.

**To set the lathe to thread 20 TPI:**

1. Configure gears as instructed in End Gear Configuration Example on Page 44.

2. Move high/low range lever to low, and move feed direction lever all the way up, as shown in Figure 64.

The lathe is now set up to cut 20 TPI threads.

---

**Figure 64.** Lever and dial settings for 20TPI.
**Thread Dial**

The numbers on the thread dial (Figure 65) are used with the thread dial chart to show when to engage the half nut during inch threading.

**Note:** The thread dial is not used for metric threading. You must leave the half nut engaged from the beginning until the turning is complete for this type of operation.

---

**NOTICE**

When threading, we recommend using the slowest speed possible and avoiding deep cuts, so you are able to disengage the half nut when required to prevent a carriage crash!

When the first cutting pass is complete, the operator disengages the carriage from the leadscrew using the half nut lever. The operator returns the carriage for the next pass and re-engages the half nut using the same thread dial setting to resume the cut in the previous pass.

---

**Thread Dial Chart**

The thread dial chart is located on the headstock, as shown in Figure 66.

---

**Figure 65. Apron threading controls.**

---

**Figure 66. Thread dial chart location.**

---

**Figure 67. Thread dial chart.**

---

**Thread Dial Chart**

<table>
<thead>
<tr>
<th>TPI</th>
<th>Scale</th>
<th>TPI</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>1,3,5,7</td>
<td>26</td>
<td>1,5</td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>28</td>
<td>1,3,5,7</td>
</tr>
<tr>
<td>14</td>
<td>1,5</td>
<td>32</td>
<td>1 – 8</td>
</tr>
<tr>
<td>16</td>
<td>1 – 8</td>
<td>36</td>
<td>1,3,5,7</td>
</tr>
<tr>
<td>18</td>
<td>1,5</td>
<td>38</td>
<td>1,5</td>
</tr>
<tr>
<td>19</td>
<td>1</td>
<td>40</td>
<td>1 – 8</td>
</tr>
<tr>
<td>20</td>
<td>1,3,5,7</td>
<td>44</td>
<td>1,3,5,7</td>
</tr>
<tr>
<td>22</td>
<td>1,5</td>
<td>48</td>
<td>1 – 8</td>
</tr>
<tr>
<td>24</td>
<td>1 – 8</td>
<td>52</td>
<td>1,3,5,7</td>
</tr>
</tbody>
</table>
The following examples explain how to use the thread dial and the thread dial chart.

**TPI Divisible by 8:** Use any line on the thread dial (see example in Figure 68).

<table>
<thead>
<tr>
<th>TPI</th>
<th>Dial Number</th>
<th>Thread Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>16, 24, 32, 40, 48</td>
<td>1–8</td>
<td><img src="image" alt="Figure 68" /></td>
</tr>
</tbody>
</table>

**Figure 68.** Any position on dial for threading TPI divisible by 8.

**Even TPI Divisible by 4:** Use any numbered line on thread dial (see example in Figure 69).

<table>
<thead>
<tr>
<th>TPI</th>
<th>Dial Number</th>
<th>Thread Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>12, 20, 28, 36, 44, 52</td>
<td>1, 3,5, 7</td>
<td><img src="image" alt="Figure 69" /></td>
</tr>
</tbody>
</table>

**Figure 69.** Example of inch thread pitch divisible by 4.

**Even TPI Not Divisible by 4 or 8:** Use opposing number pairs 1 and 5 on thread dial (see example in Figure 70).

**Odd TPI:** Use line 1 on thread dial (Figure 71).

**TPI Divisible by 8:** Use any line on the thread dial (see example in Figure 68).

<table>
<thead>
<tr>
<th>TPI</th>
<th>Dial Number</th>
<th>Thread Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>14, 18, 22, 26, 38</td>
<td>1, 5</td>
<td><img src="image" alt="Figure 70" /></td>
</tr>
</tbody>
</table>

**Figure 70.** Example of even numbered inch thread pitch.

<table>
<thead>
<tr>
<th>TPI</th>
<th>Dial Number</th>
<th>Thread Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>13, 19</td>
<td>1</td>
<td><img src="image" alt="Figure 71" /></td>
</tr>
</tbody>
</table>

**Figure 71.** Example of odd numbered inch thread pitch.
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.

H2987—½" Bent Lathe Dog
H2988—1" Bent Lathe Dog
H2989—1½" Bent Lathe Dog
H2990—2" Bent Lathe Dog
H2991—3" Bent Lathe Dog

T25206—11 Pc. Carbide Bit Set ⅜" 
This 11-Pc. Carbide-Tipped Tool Bit Set includes a wide variety of tool types for just about any machining operation. This set also includes two boring bars. Boring bars measure 4⅞" long. Shank size for all is ⅜".

H2987—⅝" Bent Lathe Dog
H2988—1" Bent Lathe Dog
H2989—1½" Bent Lathe Dog
H2990—2" Bent Lathe Dog
H2991—3" Bent Lathe Dog

D3640—Shop Fox Tool Table Plus
This new, tool table plus was designed to answer customer requests for a slightly wider and taller table than our D2056 to accommodate a variety of bench-top machines.

SB1365—South Bend Way Oil for Lathes
Engineered for the high pressure exerted on horizontal or vertical ways and slides. Protects against rust and corrosion. Ensures stick-free, smooth motion which maximizes finishes and extends the life of your machine. Won't gum up! 12 oz. AMGA#2 (ISO 68 Equivalent).

order online at www.grizzly.com or call 1-800-523-4777
SECTION 6: MAINTENANCE

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

Schedule

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 or fasteners.
- Worn, frayed, cracked, or damaged wires.
- Guards or covers removed.
- Emergency Stop button not working correctly.
- Damaged or malfunctioning components.

Daily, Before Operations
- Add oil to the ball oilers (Page 51).
- Lubricate the leadscrew and carriage rack (Page 52).
- Lubricate the bedways (Page 52).
- Clean/lubricate the cross slide and compound slide (Page 52).
- Disengage the half nut on the carriage (to prevent crashes upon startup).

Daily, After Operations
- Press the Emergency Stop button (to prevent accidental startup).
- Vacuum/clean all chips and swarf from bed, slides.
- Wipe down all unpainted or machined surfaces with an oiled rag.

Annually
- Lubricate change gear bushing and tumbler gears (Page 53).

Cleaning/Protecting
Because of its importance, we recommend that the cleaning routine be planned into the workflow schedule.

Typically, the easiest way to clean swarf from the machine is to use a wet/dry shop vacuum that is dedicated for this purpose. The small chips left over after vacuuming can be wiped up with a slightly oiled rag. Avoid using compressed air to blow off chips, as this may drive them deeper into the moving surfaces or cause sharp chips to fly into your face or hands.

All unpainted and machined surfaces should be wiped down daily to keep them rust free and in top condition. This includes any surface that is vulnerable to rust if left unprotected. Use a quality ISO 68 way oil (see Page 49 for offerings from Grizzly) to prevent corrosion.

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

The lathe has metal-to-metal sliding surfaces that require regular lubrication to maintain smooth movement and ensure long-lasting operation.

Other than the lubrication points covered in this section, all other bearings are internally lubricated and sealed at the factory. Simply leave them alone unless they need to be replaced.

Before performing any lubrication task, DISCONNECT LATHE FROM POWER!

We recommend using Model SB1365 Way Oil or equivalent (see Page 49) for most of the lubrication tasks.

### Lubrication Frequency

<table>
<thead>
<tr>
<th>Lubrication Task</th>
<th>Frequency</th>
<th>Page Ref.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball Oilers</td>
<td>Daily</td>
<td>This Page</td>
</tr>
<tr>
<td>Leadscrew, End Brackets,</td>
<td>Daily</td>
<td>52</td>
</tr>
<tr>
<td>and Carriage Rack</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bedways</td>
<td>Daily</td>
<td>52</td>
</tr>
<tr>
<td>Cross Slide &amp; Compound</td>
<td>Daily</td>
<td>52</td>
</tr>
<tr>
<td>Slide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Change Gear Bushing</td>
<td>Annually</td>
<td>53</td>
</tr>
<tr>
<td>Tumbler Gears</td>
<td>Annually</td>
<td>53</td>
</tr>
</tbody>
</table>

**NOTICE**

The recommended lubrication is based on light-to-medium usage. Keeping in mind that lubrication helps to protect the value and operation of the lathe, these lubrication tasks may need to be performed more frequently than recommended here, depending on usage.

Failure to follow reasonable lubrication practices as instructed in this manual could lead to premature failure of lathe components and will void the warranty.

**Items Needed**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Clean Rag</th>
<th>As Needed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mineral Spirits</td>
<td>As Needed</td>
</tr>
<tr>
<td>1</td>
<td>Wrench 4mm</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Pump-Type Oil Can w/Plastic Cone Tip</td>
<td></td>
</tr>
</tbody>
</table>

**Ball Oilers**

Oil Type: ISO 32 or Equivalent

Amount: 1 or 2 Squirts/Fill

Lubrication Frequency: Daily

This lathe has four ball oilers that should be oiled on a daily basis before beginning operation.

Proper lubrication of ball oilers is done with a pump-type oil can that has a plastic or rubber-ized cone tip. We do not recommend using metal needle or lance tips, as they can push the ball too far into the oiler, break the spring seat, and lodge the ball in the oil galley.

Lubricate the ball oilers before and after machine use, and more frequently under heavy use. When lubricating ball oilers, first clean the outside surface to remove any dust or grime. Push the tip of the oil can nozzle against the ball oiler to create a hydraulic seal, then pump the oil can once or twice. If you see sludge and contaminants coming out of the lubrication area, keep pumping the oil can until the oil runs clear. When finished, wipe away any excess oil.

Refer to **Figure 75** to identify the location of each ball oiler.
Leadscrew & Carriage Rack

Oil Type: Grizzly SB1365 or ISO 68 Equivalent
Amount: As Needed
Lubrication Frequency: Daily

Before lubricating the leadscrew and carriage rack (see Figure 76), clean them first with mineral spirits. Use a stiff brush to help remove any debris or grime. Apply a thin coat of oil along the entire length of the carriage rack. Use a stiff brush to make sure oil is applied into the leadscrew threads and both end brackets.

**Note:** In some environments, abrasive material can become caught in the leadscrew lubricant and drawn into the half nut. In this case, lubricate the leadscrew with a quality dry lubricant.

Bedways

Oil Type: Grizzly SB1365 or ISO 68 Equivalent
Amount: As Needed
Lubrication Frequency: Daily

Before lubricating the bedways (see Figure 76), clean them with mineral spirits. Apply a thin coat of oil along the length of the bedways. Move the steady rest, carriage, and tailstock to access the entire length of the bedways.

Cross Slide & Compound Slide

Oil Type: Grizzly SB1365 or ISO 68 Equivalent
Amount: Thin Coat
Lubrication Frequency: Daily

Use the handwheels to separately move the cross slide and compound slide as far forward as possible (see Figure 77). Clean the slides with mineral spirits and wipe down with a rag. Apply lubricant and move the slides back and forth to distribute the oil.

**Figure 77.** Location of bottom slides.
Change Gear Bushing
Grease Type........................White Lithium NLGI#2
Frequency..............................................Annually
Amount....................................................Thin Coat

The plastic end gears do not need to be lubricated. However, we recommend lightly lubricating the B/C change gear keyed bushing with white lithium grease.

Figure 78. B/C change gear removed to access keyed bushing.

Remove the end cover and B/C change gear, clean the shaft and keyed bushing with mineral spirits and dry. Apply a thin coat of white lithium grease to the inside of the bushing shaft, then reinstall it.

Tumbler Gears
Oil Type ....Grizzly SB1365 or ISO 68 Equivalent
Amount ..................................................2-3 Drops
Lubrication Frequency .........................Annually

Add lubricant between the bolt heads and tumbler gears shown in Figure 79.

Figure 79. Tumbler gear lubrication points.

Machine Storage

Preparing Lathe for Storage
1. DISCONNECT LATHE FROM POWER!
2. Thoroughly clean all unpainted, bare metal surfaces, then apply a liberal coat of way oil, heavy grease, or rust preventative. Take care to ensure these surfaces are completely covered but that the rust preventative or grease is kept off of painted surfaces.
3. Lubricate machine as outlined in lubrication section. Be sure to use an oil can to purge all ball oilers and oil passages with fresh oil.
4. Place a few moisture absorbing desiccant packs inside of the electrical box.
5. Cover lathe and place it in a dry area that is out of direct sunlight and away from hazardous fumes, paint, solvents, or gas. Fumes and sunlight can bleach or discolor paint.
6. Every few months, rotate by hand all gear-driven components a few times in several gear selections. This will keep bearings, bushings, gears, and shafts well lubricated and protected from corrosion—especially during winter months.

Slide carriage, tailstock, and steady rest down lathe bed to make sure that way spotting is not beginning to occur.

Bringing Lathe Out of Storage
1. Remove moisture-absorbing desiccant packs from electrical box.
2. Repeat Test Run and Spindle Break-In procedures, beginning on Page 21.
# SECTION 7: SERVICE

Review the troubleshooting and 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

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Machine does not start or a circuit breaker trips.</td>
<td>1. Emergency stop button engaged or at fault.</td>
<td>1. Press side tab in and lift switch cover. Press On button to reset; replace if not working properly.</td>
</tr>
<tr>
<td></td>
<td>2. Variable speed dial in OFF position or at fault.</td>
<td>2. Turn variable speed dial past &quot;0&quot;. Ensure dial has correct voltage. Replace if faulty.</td>
</tr>
<tr>
<td></td>
<td>3. Spindle direction switch turned to &quot;0&quot; or at fault.</td>
<td>3. Turn spindle direction switch to &quot;F&quot; or &quot;R&quot;. Ensure dial has correct voltage. Replace if faulty.</td>
</tr>
<tr>
<td></td>
<td>4. Blown fuse.</td>
<td>4. Replace fuse/ensure no shorts (<a href="#">Page 58</a>).</td>
</tr>
<tr>
<td></td>
<td>5. Incorrect power supply voltage.</td>
<td>5. Ensure correct power supply voltage.</td>
</tr>
<tr>
<td></td>
<td>6. Power supply circuit breaker tripped or fuse blown.</td>
<td>6. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse.</td>
</tr>
<tr>
<td></td>
<td>7. Wiring open/has high resistance.</td>
<td>7. Check/fix broken, disconnected, or corroded wires.</td>
</tr>
<tr>
<td></td>
<td>8. Motor brushes at fault.</td>
<td>8. Remove/replace brushes (<a href="#">Page 59</a>).</td>
</tr>
<tr>
<td>Machine stalls or is underpowered.</td>
<td>1. Feed rate/cutting speed too fast.</td>
<td>1. Decrease feed rate/cutting speed.</td>
</tr>
<tr>
<td></td>
<td>2. Wrong workpiece material.</td>
<td>2. Use correct type/size of metal.</td>
</tr>
<tr>
<td></td>
<td>3. Machine undersized for task.</td>
<td>3. Inspect and replace if at fault.</td>
</tr>
<tr>
<td></td>
<td>4. Motor overheated.</td>
<td>4. Use sharp bits; reduce feed rate/depth of cut.</td>
</tr>
<tr>
<td></td>
<td>5. Computer board at fault.</td>
<td>5. Clean motor, let cool, and reduce workload.</td>
</tr>
<tr>
<td></td>
<td>6. Motor speed dial at fault.</td>
<td>6. Test and replace if at fault.</td>
</tr>
<tr>
<td></td>
<td>7. Timing belt slipping.</td>
<td>7. Tension/replace belt; ensure pulleys are aligned.</td>
</tr>
<tr>
<td></td>
<td>8. Motor brushes at fault.</td>
<td>8. Remove/replace brushes (<a href="#">Page 59</a>).</td>
</tr>
<tr>
<td>Machine has vibration or noisy operation.</td>
<td>1. Motor or component loose.</td>
<td>1. Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid.</td>
</tr>
<tr>
<td></td>
<td>2. Pulley loose.</td>
<td>2. Realign/replace shaft, pulley, setscrew, and key.</td>
</tr>
<tr>
<td></td>
<td>3. Motor fan rubbing on fan cover.</td>
<td>3. Fix/replace fan cover; replace loose/damaged fan.</td>
</tr>
<tr>
<td></td>
<td>4. Motor bearings at fault.</td>
<td>4. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</td>
</tr>
<tr>
<td></td>
<td>5. Cutting tool chattering.</td>
<td>5. Replace/sharpen cutting tool; index tool to spindle centerline; use correct feed rate and cutting RPM.</td>
</tr>
<tr>
<td></td>
<td>6. Workpiece or chuck at fault.</td>
<td>6. Properly secure or center workpiece in chuck or faceplate; replace defective chuck.</td>
</tr>
</tbody>
</table>
## Lathe Operation

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bad surface finish.</td>
<td>1. Wrong spindle speed or feed rate.</td>
<td>1. Adjust for appropriate spindle speed and feed rate.</td>
</tr>
<tr>
<td></td>
<td>2. Dull tooling or wrong tool selection.</td>
<td>2. Sharpen tooling or select a better tool for the intended operation.</td>
</tr>
<tr>
<td></td>
<td>3. Tool height not at spindle centerline.</td>
<td>3. Adjust tool height to spindle centerline (see Page 38).</td>
</tr>
<tr>
<td></td>
<td>4. Too much play in gibs.</td>
<td>4. Tighten gibs (see Page 57).</td>
</tr>
</tbody>
</table>

| Tapered tool difficult to remove from tailstock quill. | 1. Quill not fully retracted into tailstock.                                   | 1. Turn quill handwheel until tapered tool is forced out of quill.                 |
|                                                       | 2. Contaminants not removed from taper before inserting into quill.            | 2. Clean taper and bore, then re-install tool.                                     |

| Cross slide, compound rest, or carriage feed has sloppy operation. | 1. Ways loaded with shavings, dust, or grime.                                 | 1. Clean ways and relubricate.                                                    |
|                                                                 | 2. Gibs are out of adjustment.                                                | 2. Adjust gibs (see Page 57).                                                     |
|                                                                 | 3. Handwheel loose or excessive backlash.                                    | 3. Tighten handwheel fasteners, adjust handwheel backlash to a minimum (see Page 56). |
|                                                                 | 4. Leadscrew mechanism worn or out of adjustment.                            | 4. Adjust leadscrew to remove end play (see Page 56).                             |

| Cross slide, compound, or carriage handwheels hard to move. | 1. Ways loaded with chips, dust, or grime.                                   | 1. Clean ways and lubricate.                                                      |
|                                                          | 2. Gibs are too tight.                                                       | 2. Loosen gibs slightly (see Page 57).                                            |
|                                                          | 3. Backlash setting too tight.                                                | 3. Slightly loosen backlash setting (see Page 56).                                |
|                                                          | 4. Bedways are dry.                                                           | 4. Lubricate bedways.                                                            |
|                                                          | 5. Half nut lever engaged.                                                    | 5. Disengage half nut lever for manual feeding.                                   |

| Cutting tool or machine components vibrate excessively during cutting. | 1. Tool holder not tight enough.                                             | 1. Check for debris, clean, and retighten.                                      |
|                                                                       | 2. Cutting tool sticks too far out of tool holder; lack of support.           | 2. Re-install cutting tool so no more than ⅓ of the total length is sticking out of tool holder. |
|                                                                       | 3. Gibs are out of adjustment.                                                | 3. Adjust gibs at affected component (see Page 57).  |
|                                                                       | 4. Dull cutting tool.                                                         | 4. Replace or resharpen cutting tool.                                            |
|                                                                       | 5. Incorrect spindle speed or feed rate.                                     | 5. Use the recommended spindle speed and feed rate.                             |

| Workpiece is tapered.                                                  | 1. Headstock and tailstock not properly aligned.                             | 1. Re-align tailstock to headstock spindle centerline (see Page 32).             |

| Chuck jaws will not move or do not move easily.                       | 1. Chips lodged in jaws or scroll plate.                                     | 1. Remove jaws, clean and lubricate scroll plate, then replace jaws.             |
Backlash Adjustment

Backlash is the amount of free play felt while changing rotation directions with the handwheel. This can be adjusted on the cross slide leadscrew. Before beginning any adjustment, make sure all associated components are cleaned and lubricated and locks are loose.

When adjusting backlash, tighten the components enough to remove backlash, but not so much that the components bind the leadscrew, making it hard to turn. Overtightening will cause excessive wear to the sliding block and leadscrew.

**NOTICE**
Reducing backlash to less than 0.002" is impractical and can lead to accelerated wear in the leadscrew and other components. Avoid the temptation to overtighten the backlash nut or screw while adjusting.

Cross Slide
Tools Needed:  
Hex Wrench 2.5mm ................. 1  
Hex Wrench 3mm ................... 1

The cross slide backlash is adjusted by tightening and loosening the inner and outer cap screws shown in Figure 80. The inner screw adjusts the height of the leadscrew nut, taking up lash between the nut and leadscrew.

![Figure 80. Cross slide backlash adjustment cap screw.](image)

Angle the compound rest so you can access the cap screws shown in Figure 80. Loosen the outer cap screws, adjust the inner cap screw, then tighten the outer cap screws. Move the cross slide handwheel back and forth and adjust backlash until it is approximately 0.002"–0.003", as indicated on the graduated dial. Re-adjust the compound rest angle when you are finished.

Leadscrew End-Play Adjustment

After a long period of time, you may find that the leadscrew develops excessive end-play or lateral movement. This lathe is designed so that end-play can be removed with a simple adjustment.

Tools Needed  
Hex Wrench ................ 4mm  
Open-End Wrench 12mm ........ 1

To remove leadscrew end play:

1. DISCONNECT LATHE FROM POWER.
2. Loosen set screw shown in Figure 81 several turns.
3. Tighten retaining nut with your fingers so it just contacts end bracket, then back nut off 1⁄8 turn.
4. Hold nut in position and tighten set screw against leadscrew until snug.

![Figure 81. Leadscrew end-play adjustments.](image)
Gib Adjustment

The goal of adjusting the gib screws is to remove sloppiness or "play" from the ways without over-adjusting them to the point where they become stiff and difficult to move.

In general, loose gibs cause poor finishes and tool chatter; however, over-tightened gibs cause premature wear and make it difficult to turn the handwheels.

The gib adjustment process usually requires some trial-and-error. Repeat the process as necessary until you find the best balance between loose and stiff movement. Most machinists find that the ideal gib adjustment is one where a small amount of drag or resistance is present, yet the handwheels are still somewhat easy to move.

Clean and lubricate the ways before beginning any adjustments. Refer to Lubrication on Page 51 for instructions and lubricant specifications.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Open-End Wrench 7mm</td>
<td>1</td>
</tr>
<tr>
<td>Hex Wrench 3mm</td>
<td>1</td>
</tr>
</tbody>
</table>

To adjust cross slide and compound slide gibs:

1. DISCONNECT LATHE FROM POWER!

2. Loosen three hex nuts on side of cross slide or compound slide (see Figures 82–83).

3. Adjust all three cap screws in small and equal increments, then test movement of slide by rotating handwheel.

   Note: Turning cap screws clockwise tightens the gib, and turning them counterclockwise loosens the gib.

4. When satisfied with gib adjustment, use hex wrench to prevent cap screws from moving, then retighten hex nuts to secure the settings.

5. Recheck movement of slide and, if necessary, repeat Steps 2–4.
Half Nut Adjustment

The rigidity of the half nut engagement is adjusted by tightening or loosening the half nut gib screws. Adjust the half nut if it feels too loose or too tight when being engaged. Movement that is too stiff will accelerate wear. Movement that is too sloppy will produce inaccurate turning or threading results.

Tool Needed
Hex Wrench 2mm.............................................. 1

To adjust half nut:

1. DISCONNECT LATHE FROM POWER!

2. Disengage half nut.

3. Adjust gib set screws (see Figure 84) in small, even increments so one end of gib does not become tighter than the other.

4. Engage/disengage half nut several times and notice how it feels. The adjustment is correct when half nut firmly and easily engages leadscrew while opening and closing.

5. Repeat Steps 3–4, if necessary, until satisfied with feel of half nut engagement.

Fuse Replacement

This lathe features an on-board fuse designed to blow to protect sensitive electrical parts from thermal damage in the event of an overload. If the spindle does not start, replace the fuse.

Replacement fuse part number: P0765166.

To replace fuse:

1. DISCONNECT LATHE FROM POWER!

2. Unthread fuse holder by rotating counterclockwise (see Figure 85) and remove fuse.

3. Insert new fuse into fuse holder.

4. Re-install fuse holder.

Figure 84. Half nut gib adjustment set screws.

Figure 85. Fuse holder and fuse.
Brush Replacement

This lathe is equipped with a universal motor that uses two carbon brushes to transmit electrical current inside the motor. These brushes are considered to be regular "wear items" or "consumables" that will need to be replaced during the life of the motor. The frequency of required replacement is often related to how much the motor is used and how hard it is pushed.

Replace the carbon brushes when the motor no longer reaches full power, or when the brushes measure less than 1/4" long (new brushes are 5/8" long).

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat Head Screwdriver #2</td>
<td>1</td>
</tr>
<tr>
<td>Phillips Head Screwdriver #2</td>
<td>1</td>
</tr>
</tbody>
</table>

Replacement brush part number: P0765150-1

To replace motor brushes:

1. DISCONNECT LATHE FROM POWER!

2. Remove the three screws that secure rear motor cover, then remove cover to gain access to rear brush (see Figure 86).

3. Unscrew rear brush cap and carefully remove brush from motor (see Figure 87).

4. Unscrew front brush cap and remove brush from motor (see Figure 88).

5. Install new brushes.

6. Re-install brush caps.

7. Replace rear motor cover.
Timing Belt Tension & Replacement

The timing belt transfers power from the motor to the drive pulley (see Figure 89).

Because the molded teeth in the belt fit together with matching teeth in the pulley, the timing belt will not slip unless the belt teeth become overly worn or belt tension is overly loose.

An improperly tensioned timing belt will slip, which quickly causes it to become damaged and unsuitable for further use. Therefore, it is essential to maintain belt tension properly to prevent slippage.

Once a timing belt begins to slip, it must be replaced in order to regain proper power transmission.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 4mm</td>
<td>1</td>
</tr>
<tr>
<td>Hex Wrench 5mm</td>
<td>1</td>
</tr>
<tr>
<td>Open-End Wrench/Socket 10mm</td>
<td>1</td>
</tr>
<tr>
<td>Phillips Head Screwdriver</td>
<td>1</td>
</tr>
<tr>
<td>Punch &amp; Hammer or Adjustable Spanner Wrench</td>
<td>1</td>
</tr>
<tr>
<td>Black Fine-Tip Felt Marker</td>
<td>1</td>
</tr>
</tbody>
</table>

Tools Needed

Tensioning Timing Belt

1. DISCONNECT LATHE FROM POWER!

2. Perform Steps 2–5 on Page 61 to remove components to access timing belt.

3. Verify belt is centered on drive pulley (see Figure 89) by hand-rotating chuck. The belt should be seated so it does not contact headstock or hang out at end of pulley.

—If belt is not centered, loosen motor mount hex nuts (see Figure 89), re-adjust motor position and re-tension belt.

4. Loosen both motor mount hex nuts.

5. Ensure belt teeth are properly engaged in pulley notches, push down on motor with light/moderate pressure, and tighten motor mount hex nuts.

Note: Position motor so you can access brush cap through hole in bed.

The timing belt is correctly tensioned when there is approximately 1⁄8" deflection when it is pushed with moderate pressure, as shown in Figure 90.

—If there is more than 1⁄8" deflection when timing belt is pushed with moderate pressure, loosen motor mount hex nuts, and adjust tension until it is correct.


Figure 89. Timing belt and motor mount hex nuts (components removed for clarity).

Figure 90. Correct timing-belt deflection.
Replacing Timing Belt

1. DISCONNECT LATHE FROM POWER!

2. Remove end cover, rear motor cover, and electrical cabinet.

3. Using a fine-tip felt marker, place alignment marks on inner spanner nut and gear shown in Figure 91. The purpose of these marks is to help re-install the outer spanner nut.

4. Carefully remove outer spanner nut, speed sensor, and sensor wheel.

5. Remove side cover assembly.

6. Loosen motor mount hex nuts shown in Figure 92.

7. Slide off old timing belt and install the new one, making sure that belt teeth are seated together with pulley teeth (see Figure 93).

8. Tension timing belt. (Refer to Tensioning Timing Belt on Page 60 for detailed instructions.)

9. Check alignment marks you made on inner spanner nut and gear in Step 3. The marks should still be aligned.

   —If marks are not aligned, adjust inner spanner nut as needed to align them.

10. Re-install side cover, sensor wheel, speed sensor, and outer spanner nut.

11. Re-install electrical cabinet, rear motor cover, and end cover.
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

Shocking 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 aftermarket 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.

COLOR KEY

BLACK BK BLUE BL YELLOW YL LIGHT BL
WHITE W BROWN BR YELLOW TG BLUE T
GREEN GR GRAY BY GREEN GP WHITE W
RED RD ORANGE OR PINK PK TURQUOISE T
Control Panel Wiring

Top of Control Panel
- KEDU KJD17B ON/OFF SWITCH
- POWER LAMP
- VARIABLE SPEED
- FUSE

Bottom of Control Panel
- To Motor
- To Speed Sensor
- To Plug

Front of Control Panel
- DIRECTION SWITCH

Left Side From Behind
- KEDU
- ZHA

Right Side From Behind
- KEDU
- ZHA

CIRCUIT BOARD
- JD-014
- REV A 09111
- CIRCUIT BOARD
- KSP

Page 65

Model G0765 (Mfd. Since 5/15)

READ ELECTRICAL SAFETY ON PAGE 62!
Control Panel Wiring Photos

Figure 94. G0765 wiring overview.

Figure 96. Control panel wiring (top).

Figure 95. Control panel wiring (bottom).

Figure 97. Control panel wiring (front).
Motor/Speed Sensor/ Plug Wiring

Figure 98. Motor wiring.

Figure 99. Speed sensor location.

Figure 100. Speed sensor wiring.

SPEED SENSOR

Wires connect on back side of circuit board

Neutral
Hot
Ground

110 VAC
5-15 Plug

MOTOR
83ZYT007
110V

To Control Panel
Page 63

To Control Panel
Page 63

To Control Panel
Page 63

READ ELECTRICAL SAFETY ON PAGE 62!

Model G0765 (Mfd. Since 5/15)
<table>
<thead>
<tr>
<th>REF</th>
<th>PART #</th>
<th>DESCRIPTION</th>
<th>REF</th>
<th>PART #</th>
<th>DESCRIPTION</th>
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<tbody>
<tr>
<td>1</td>
<td>P0765001</td>
<td>BED</td>
<td>56</td>
<td>P0765056</td>
<td>CAP SCREW M6-1 X 6</td>
</tr>
<tr>
<td>2</td>
<td>P0765002</td>
<td>3-JAW CHUCK 3&quot; W/INTERNAL JAWS</td>
<td>57</td>
<td>P0765057</td>
<td>FLAT WASHER 6MM</td>
</tr>
<tr>
<td>3</td>
<td>P0765003</td>
<td>SPINDLE MT#3</td>
<td>58</td>
<td>P0765058</td>
<td>BUSHING W/KEYWAY</td>
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<tr>
<td>4</td>
<td>P0765004</td>
<td>STUD-DE M6-1 X 60, 15</td>
<td>59</td>
<td>P0765059</td>
<td>GEAR 80T</td>
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<tr>
<td>5</td>
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<td>FLAT WASHER 6MM</td>
<td>60</td>
<td>P0765060</td>
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<td>6</td>
<td>P0765006</td>
<td>HEX NUT M6-1</td>
<td>61</td>
<td>P0765061</td>
<td>PIVOT ARM</td>
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<tr>
<td>7</td>
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<td>KEY 5 X 5 X 40</td>
<td>62</td>
<td>P0765062</td>
<td>FLAT WASHER 8MM</td>
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<tr>
<td>8</td>
<td>P0765008</td>
<td>KEY 4 X 4 X 8</td>
<td>63</td>
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<td>HEX NUT M8-1.25</td>
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<tr>
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<td>66</td>
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<td>GEAR SHAFT 16T</td>
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<td>P0765012</td>
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<td>P0765013</td>
<td>HEADSTOCK CASTING</td>
<td>68</td>
<td>P0765068</td>
<td>THREAD DIAL BODY</td>
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<tr>
<td>14</td>
<td>P0765014</td>
<td>COMBO GEAR 21T/29T</td>
<td>69</td>
<td>P0765069</td>
<td>SET SCREW M4-.7 X 10</td>
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<tr>
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<td>P0765016</td>
<td>GEAR 45T</td>
<td>71</td>
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<td>HALF NUT GIB</td>
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<tr>
<td>17</td>
<td>P0765017</td>
<td>SPANNER NUT</td>
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<td>P0765072</td>
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<tr>
<td>18</td>
<td>P0765018</td>
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<td>HALF NUT 2-PC SET</td>
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Please Note: We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call (800) 523-4777 or visit our online parts store at www.grizzly.com to check for availability.
## Steady Rest

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Model G0765 (Mfd. Since 5/15)
Labels & Cosmetics (Rear)

Safety labels help reduce the risk of serious injury caused by machine hazards. If any label comes off or becomes unreadable, the owner of this machine MUST replace it in the original location before resuming operations. For replacements, contact (800) 523-4777 or www.grizzly.com.

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Inch and metric thread charts for the Model G0765 are provided below for your reference. An inch thread chart is provided on the headstock, but a metric chart is not.

**Figure 101. Threads per inch chart (TPI).**

**Figure 102. Metric thread pitch chart.**
Name _____________________________________________________________________________
Street _____________________________________________________________________________
City _______________________ State _________________________ Zip _____________________
Phone # ____________________ Email _________________________________________________
Model # ____________________ Order # _______________________ Serial # __________________

WARRANTY CARD

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

1. How did you learn about us?
   - Advertisement  
   - Friend  
   - Catalog  
   - Card Deck  
   - Website  
   - Other: _______________________

2. Which of the following magazines do you subscribe to?
   - Cabinetmaker & FDM  
   - Family Handyman  
   - Hand Loader  
   - Handy  
   - Home Shop Machinist  
   - Journal of Light Cont.  
   - Live Steam  
   - Model Airplane News  
   - Old House Journal  
   - Popular Mechanics  
   - Popular Science  
   - Precision Shooter  
   - Projects in Metal  
   - RC Modeler  
   - Rifle  
   - Rocket Science  
   - Shop Notes  
   - Shotgun News  
   - Today’s Homeowner  
   - Wood  
   - Wooden Boat  
   - Woodshop News  
   - Woodsmith  
   - Workbench  
   - Wood  
   - Woodworker’s Journal  
   - Woodworker West  
   - Other: _______________________

3. What is your annual household income?
   - $20,000-$29,000  
   - $30,000-$39,000  
   - $40,000-$49,000  
   - $50,000-$59,000  
   - $60,000-$69,000  
   - $70,000+  

4. What is your age group?
   - 20-29  
   - 30-39  
   - 40-49  
   - 50-59  
   - 60-69  
   - 70+  

5. How long have you been a woodworker/metalworker?
   - 0-2 Years  
   - 2-8 Years  
   - 8-20 Years  
   - 20+ Years  

6. How many of your machines or tools are Grizzly?
   - 0-2  
   - 3-5  
   - 6-9  
   - 10+  

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

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

9. Would you allow us to use your name as a reference for Grizzly customers in your area?
   - Note: We never use names more than 3 times.  
   - Yes  
   - No  

10. Comments:__________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
______________________________________________________________________________________
WARRANTY & RETURNS

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

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

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

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

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

Thank you again for your business and continued support. We hope to serve you again soon.
Buy Direct and Save with Grizzly® – Trusted, Proven and a Great Value!
~Since 1983~

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24 HOURS A DAY!
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