Grizzly Industrial, Inc.

MODEL G0768/G0769
8" X 16" VARIABLE-SPEED LATHE & LATHE/MILL
OWNER'S MANUAL
(For models manufactured since 6/17)

Model G0768

Model G0769

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WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE OR FORM WITHOUT THE WRITTEN APPROVAL OF GRIZZLY INDUSTRIAL, INC.
# BLTSDM16348 PRINTED IN CHINA
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**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.

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**WARNING!**

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

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

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

**INTRODUCTION** ................................................. 3
  Machine Description ........................................ 3
  Contact Info ................................................ 3
  Manual Accuracy ........................................... 3
  Identification (G0768) ...................................... 4
  Identification (G0769) ...................................... 5
  Controls & Components ..................................... 6
  Headstock ................................................... 6
  Carriage ..................................................... 6
  Tailstock .................................................... 7
  End Gears, Pulleys, V-Belts .............................. 7
  Milling Headstock (G0769 Only) ......................... 8
  G0768 Data Sheet ........................................... 9
  G0769 Data Sheet ......................................... 11

**SECTION 1: SAFETY** ........................................ 13
  Safety Instructions for Machinery ..................... 13
  Additional Safety for Metal Lathes ..................... 15
  Additional Safety for Mills/Drills ..................... 16
  Additional Lathe Chuck Safety ......................... 17

**SECTION 2: POWER SUPPLY** ............................... 18
  Availability .............................................. 18
  Full-Load Current Rating ............................... 18
  110V Circuit Requirements ............................ 18
  Grounding & Plug Requirements ...................... 19
  Extension Cords ......................................... 19

**SECTION 3: SETUP** ......................................... 20
  Setup Overview ......................................... 20
  Unpacking ............................................... 20
  Needed for Setup ....................................... 20
  Inventory ............................................... 21
  Cleanup .................................................. 22
  Site Considerations .................................... 23
  Lifting & Placing ....................................... 24
  Mounting .................................................. 25
  Leveling ................................................... 26
  Assembly ................................................... 26
  Test Run ................................................... 27
  Spindle Break-In ....................................... 29
  Lathe Spindle Break-In ................................ 29
  Mill Spindle Break-In (G0769 Only) ................. 29
  Recommended Adjustments ............................. 30

**SECTION 4: LATHE OPERATIONS** ......................... 31
  Operation Overview ..................................... 31
  Chuck & Faceplate Mounting ......................... 32
  Installation & Removal Device ....................... 32
  Chuck Installation ..................................... 32
  Scroll Chuck Clamping ................................ 33
  Changing Jaw Set ....................................... 34
  4-Jaw Chuck ............................................. 35
  Faceplate ............................................... 36
  Tailstock ............................................... 37
  Tailstock Quill Specs .................................. 37
  Positioning Tailstock .................................. 37
  Using Quill .............................................. 37
  Installing Tooling ...................................... 38
  Removing Tooling ....................................... 38
  Offsetting Tailstock ................................... 38
  Aligning Tailstock to Spindle Centerline .......... 39
  Centers ................................................... 41
  Dead Centers ............................................ 41
  Mounting Dead Center in Spindle .................... 41
  Removing Center from Spindle ....................... 41
  Mounting Center in Tailstock ....................... 42
  Removing Center from Tailstock ..................... 42
  Mounting Workpiece Between Centers ............... 42
  Steady Rest ............................................. 43
  Follow Rest .............................................. 43
  Compound Rest .......................................... 44
  Four-Way Tool Post ..................................... 44
  Installing Tool ......................................... 44
  Aligning Cutting Tool with Spindle Centerline .... 45
  Manual Feed .............................................. 46
  Carriage Handwheel .................................... 46
  Cross Slide Handwheel ................................ 46
  Compound Rest Handwheel .............................. 46
  Spindle Speed ........................................... 47
  Determining Spindle Speed ............................ 47
  Setting Spindle Speed ................................ 47
  Setting Spindle Direction & Speed .................. 47
  Configuration Example ................................ 48
  Understanding Gear Charts .......................... 49
  Feed & Thread Charts Label ......................... 49
  How to Read the Feed Chart ......................... 50
  How to Read the Thread Charts ...................... 51
  End Gears ................................................ 52
  Power Feed Configuration ............................. 52
  Primary Threading Configuration ..................... 52
  Secondary Threading Configuration .................. 52
  Configuring End Gears ................................ 53
  Power Feed .............................................. 56
  Power Feed Controls .................................. 56
  Setting Power Feed Rate .............................. 57
  Threading ................................................ 58
  Headstock Threading Controls ....................... 58
  Apron Threading Controls ............................. 59
  Thread Dial .............................................. 59
  Thread Dial Chart ....................................... 59
INTRODUCTION

Machine Description

The Model G0768 and G0769 share lathe features such as a 600 Watt (¾ HP) 110V DC motor, variable-speed controls with digital RPM display, high/low spindle speed ranges, 4" 3-jaw and 4-jaw chucks, a convenient quick-lock tailstock, a 4-way turret toolpost, steady and follow rests, and reverse feed for cutting left-hand threads.

The Model G0769 additionally features a 600 Watt (¾ HP) milling headstock motor, 45° left/right head tilt, coarse and fine downfeed controls, Z-axis dovetailed ways for maximum precision, and a ½" drill chuck. The cross slide table features T-slots for mounting a vise. The lathe/mill selector switch also makes changing between lathe and milling modes easy.

Both machines can be mounted on a sturdy workbench, or the optional Model T26599 stand—with cabinet space for storing tooling and accessories.

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
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 G0768 identification.

WARNING
To reduce your risk of serious injury, read this entire manual BEFORE using machine.
Identification (G0769)

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

Figure 2. Model G0769 identification.
Controls & Components

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

Refer to Figures 3–8 and the following descriptions to become familiar with the basic controls of this machine.

Headstock

A. **Feed Direction Dial:** Used to select direction of lead screw rotation when spindle is rotating in downward (F) direction. Used to switch between right or left thread cutting.

B. **Spindle Speed Dial:** Controls spindle speed.

C. **Spindle Speed RPM Display:** Shows spindle speed.

D. **Spindle Direction Switch:** Selects spindle rotation direction.

E. **ON/OFF Switch w/Emergency Stop Button:** When pressed, cuts power to motor and control panel. To reset, press front tab, lift switch cover, and press green ON button. Cover must be unlatched for machine to run.

F. **Lathe/Mill Selector Switch (G0769 Only):** Used to select between lathe mode (1), or mill mode (2).

Carriage

G. **Carriage Handwheel:** Manually moves carriage left or right along bedway.

H. **Cross Slide Handwheel:** Moves cross slide toward and away from workpiece.

I. **4-Way Tool Post:** Holds up to four cutting tools at once that can be individually indexed to workpiece and quickly moved into position when needed.

J. **Cross Slide Table (G0769 Only):** Supports workpieces for milling/drilling operations. Includes T-slots for mounting milling vises or other fixtures.

K. **Compound Rest Handwheel:** Moves tool toward and away from workpiece at preset compound angle.

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

M. **Half Nut Lever:** Engages/disengages half nut for power feeding and threading operations.
Tailstock

N. **Tailstock Quill**: Uses an MT#2 taper to hold centers or other tooling, features a scale on top.

O. **Tailstock Quill Lock Lever**: Secures quill position.

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

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

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

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

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

---

End Gears, Pulleys, V-Belts

U. **End Gears**: The configuration of the end gears controls the leadscrew speed for power feeding, and inch and metric threading.

V. **V-Belts**: Transfer power from motor to idler and spindle pulleys. The position of the top V-belt on idler and spindle pulleys controls spindle speed.

---

**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.
Milling Headstock (G0769 Only)

Figure 7. Right side milling headstock controls.

X. **Fine Downfeed Handwheel**: Provides fine control over vertical spindle travel to provide Z-axis control when milling.

Y. **Vertical Travel Lock Levers**: Locks position of headstock to column.

Z. **Downfeed Selector Knob**: Selects between fine and coarse downfeed modes. Tighten to engage fine downfeed. Loosen to use coarse downfeed.

AA. **Coarse Downfeed Handles**: Moves spindle down quickly when rotated and automatic spring return brings spindle back up to top when you release downward pressure on handles. Typically used for drilling holes or checking spindle positioning during setups.

Figure 8. Left side milling headstock controls.

AB. **Vertical Handwheel**: Raises and lowers headstock for Z-axis control over spindle positioning during setups.

AC. **High/Low Gearbox Knob**: Selects low range "L" or high range "H" for spindle speed.

AD. **Quill Lock Lever**: Locks vertical position of quill (or Z-axis) when tightened. Typically used in conjunction with spindle downfeed controls when milling.
MODEL G0768 8" X 16" VARIABLE-SPEED LATHE

Product Dimensions:
- Weight: 144 lbs.
- Width (side-to-side) x Depth (front-to-back) x Height: 36 x 16 x 14 in.
- Footprint (Length x Width): 31-1/2 x 10-1/2 in.

Shipping Dimensions:
- Type: Wood Crate
- Content: Machine
- Weight: 166 lbs.
- Length x Width x Height: 36 x 19 x 17 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: 16 AWG
- Plug Included: Yes
- Included Plug Type: 5-15
- Switch Type: ON/OFF Push Button Switch w/Safety Cover

Motors:
- Horsepower: 600W (3/4 HP)
- Phase: Single-Phase
- Amps: 10A
- Speed: 5250 RPM
- Type: Universal Brush-Type
- Power Transfer: Belt Drive
- Bearings: Shielded & Permanently Lubricated
- Centrifugal Switch/Contacts Type: N/A

Main Specifications:

Operation Info
- Swing Over Bed: 8-1/4 in.
- Distance Between Centers: 15-3/4 in.
- Swing Over Cross Slide: 4-5/8 in.
- Swing Over Saddle: 6-7/8 in.
- Maximum Tool Bit Size: 3/8 in.
- Compound Travel: 2-1/8 in.
- Carriage Travel: 15-3/4 in.
- Cross Slide Travel: 3 in.
### Headstock Info

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spindle Bore</td>
<td>0.787 in.</td>
</tr>
<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>50 – 1000, 100 – 2000 RPM</td>
</tr>
<tr>
<td>Spindle Type</td>
<td>Intrinsic Back Plate</td>
</tr>
<tr>
<td>Spindle Bearings</td>
<td>Tapered Roller</td>
</tr>
<tr>
<td>Spindle Length</td>
<td>8-5/8 in.</td>
</tr>
<tr>
<td>Spindle Length with 3-Jaw Chuck</td>
<td>10-5/8 in.</td>
</tr>
<tr>
<td>Spindle Length with 4-Jaw Chuck</td>
<td>10-5/8 in.</td>
</tr>
<tr>
<td>Spindle Length with Faceplate</td>
<td>9-3/4 in.</td>
</tr>
</tbody>
</table>

### Tailstock Info

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tailstock Quill Travel</td>
<td>2 in.</td>
</tr>
<tr>
<td>Tailstock Taper</td>
<td>MT#2</td>
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<td>Tailstock Barrel Diameter</td>
<td>0.87 in.</td>
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### Threading Info

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<tr>
<td>Number of Longitudinal Feeds</td>
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</tr>
<tr>
<td>Range of Longitudinal Feeds</td>
<td>0.0037, 0.0068 in./rev.</td>
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<td>Number of Inch Threads</td>
<td>15</td>
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<tr>
<td>Range of Inch Threads</td>
<td>9 – 44 TPI</td>
</tr>
<tr>
<td>Number of Metric Threads</td>
<td>12</td>
</tr>
<tr>
<td>Range of Metric Threads</td>
<td>0.4 – 3.0 mm</td>
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### Dimensions

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<tr>
<td>Bed Width</td>
<td>4 in.</td>
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<tr>
<td>Carriage Leadscrew Diameter</td>
<td>5/8 in.</td>
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<tr>
<td>Leadscrew TPI</td>
<td>12 TPI</td>
</tr>
<tr>
<td>Carriage Leadscrew Length</td>
<td>22 in.</td>
</tr>
<tr>
<td>Steady Rest Capacity</td>
<td>1/4 – 1-1/4 in.</td>
</tr>
<tr>
<td>Follow Rest Capacity</td>
<td>1/4 – 1-1/4 in.</td>
</tr>
<tr>
<td>Floor to Center Height</td>
<td>8-1/2 in.</td>
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### Other

<table>
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<tr>
<th>Specification</th>
<th>Model T26599</th>
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<tr>
<td>Optional Stand</td>
<td>Model T26599</td>
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### Construction

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<tr>
<th>Specification</th>
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<tr>
<td>Base</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>Headstock</td>
<td>Cast Iron</td>
</tr>
<tr>
<td>End Gears</td>
<td>Steel</td>
</tr>
<tr>
<td>Bed</td>
<td>Precision-Ground Cast Iron</td>
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<tr>
<td>Paint Type/Finish</td>
<td>Epoxy</td>
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### Other Specifications:

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<tr>
<th>Specification</th>
<th>Details</th>
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<td>Country of Origin</td>
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<tr>
<td>Warranty</td>
<td>1 Year</td>
</tr>
<tr>
<td>Approximate Assembly &amp; Setup Time</td>
<td>1 Hour</td>
</tr>
<tr>
<td>Serial Number Location</td>
<td>ID Label</td>
</tr>
<tr>
<td>ISO 9001 Factory</td>
<td>Yes</td>
</tr>
<tr>
<td>Certified by a Nationally Recognized Testing Lab (NRTL)</td>
<td>No</td>
</tr>
</tbody>
</table>
MODEL G0769 8" X 16" LATHE WITH MILLING HEAD

Product Dimensions:
- Weight: 234 lbs.
- Width (side-to-side) x Depth (front-to-back) x Height: 36 x 20 x 34 in.
- Footprint (Length x Width): 31-1/2 x 10-1/2 in.

Shipping Dimensions:
- Type: Wood Crate
- Content: Machine
- Weight: 287 lbs.
- Length x Width x Height: 36 x 23 x 35 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: 16 AWG
- Plug Included: Yes
- Included Plug Type: 5-15
- Switch Type: ON/OFF Push Button Switch w/Safety Cover

Motors:
- Lathe Spindle
  - Horsepower: 600W (3/4 HP)
  - Phase: Single-Phase
  - Amps: 10A
  - Speed: 5250 RPM
  - Type: Universal Brush-Type
  - Power Transfer: Belt Drive
  - Bearings: Shielded & Permanently Sealed
  - Centrifugal Switch/Contacts Type: N/A

- Mill Spindle
  - Horsepower: 600W (3/4 HP)
  - Phase: Single-Phase
  - Amps: 10A
  - Speed: 4800 RPM
  - Type: Universal Brush-Type
  - Power Transfer: Gear Drive
  - Bearings: Shielded & Permanently Sealed
  - Centrifugal Switch/Contacts Type: N/A
<table>
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<tr>
<th><strong>Main Specifications:</strong></th>
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<tr>
<td><strong>Lathe Info</strong></td>
</tr>
<tr>
<td>Swing Over Bed:...........</td>
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<tr>
<td>Distance Between Centers:</td>
</tr>
<tr>
<td>Swing Over Cross Slide:</td>
</tr>
<tr>
<td>Swing Over Saddle:</td>
</tr>
<tr>
<td>Maximum Tool Bit Size:</td>
</tr>
<tr>
<td>Compound Travel:</td>
</tr>
<tr>
<td>Carriage Travel:</td>
</tr>
<tr>
<td>Cross Slide Travel:</td>
</tr>
<tr>
<td>Spindle Bore:</td>
</tr>
<tr>
<td>Spindle Taper:</td>
</tr>
<tr>
<td>Number Of Spindle Speeds:</td>
</tr>
<tr>
<td>Mill Speed Range:</td>
</tr>
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<td>Spindle Type:</td>
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<td>Tailstock Quill Travel:</td>
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<tr>
<td>Tailstock Taper:</td>
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<tr>
<td>Number of Longitudinal Feeds:</td>
</tr>
<tr>
<td>Range of Longitudinal Feeds:</td>
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<tr>
<td>Number of Inch Threads:</td>
</tr>
<tr>
<td>Range of Inch Threads:</td>
</tr>
<tr>
<td>Number of Metric Threads:</td>
</tr>
<tr>
<td>Range of Metric Threads:</td>
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<tr>
<td><strong>Mill Info</strong></td>
</tr>
<tr>
<td>Mill Taper:</td>
</tr>
<tr>
<td>Mill Spindle Travel:</td>
</tr>
<tr>
<td>Mill Swing:</td>
</tr>
<tr>
<td>Distance Spindle To Work Table:</td>
</tr>
<tr>
<td>Distance Spindle To Bed:</td>
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<tr>
<td>Distance Spindle To Center Line:</td>
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<tr>
<td>Mill Head Vertical Travel:</td>
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<td>Mill Head Tilt (Left/Right):</td>
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<td>Maximum Tool Bit Size:</td>
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<tr>
<td>Drilling Capacity For Steel:</td>
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<tr>
<td>Drilling Capacity For Cast Iron:</td>
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<tr>
<td>Table Size Length:</td>
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<tr>
<td>Table Size Width:</td>
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<tr>
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<tr>
<td>Number of T-Slots:</td>
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<tr>
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<tr>
<td>Drawbar TPI:</td>
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<tr>
<td>Drawbar Length:</td>
</tr>
<tr>
<td>Number of Mill Drill Speeds:</td>
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<tr>
<td>Mill Speed Range:</td>
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<tr>
<td><strong>Construction</strong></td>
</tr>
<tr>
<td>Bed:</td>
</tr>
<tr>
<td>Headstock:</td>
</tr>
<tr>
<td>Body:</td>
</tr>
<tr>
<td>End Gears:</td>
</tr>
<tr>
<td>Paint Type/Finish:</td>
</tr>
</tbody>
</table>
For Your Own Safety, Read Instruction Manual Before Operating This Machine

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

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

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

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

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

### 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**

The primary risks of operating a Metal Lathe are as follows: You can be seriously injured or killed by getting entangled in, crushed between, or struck by rotating parts on a lathe. You can be struck with deadly force by unsecured tools or workpieces attached to rotating objects. To reduce your risk of serious injury when operating this machine, completely heed and understand the following:

**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 Safety for Mills/Drills

⚠️ WARNING

You can be seriously injured or killed by getting clothing, jewelry, or long hair entangled with rotating cutter/spindle. You can be severely cut or have fingers amputated from contact with rotating cutters. You can be blinded or struck by broken cutting tools, metal chips, workpieces, or adjustment tools thrown from the rotating spindle with great force. To reduce your risk of serious injury when operating this machine, completely heed and understand the following:

UNDERSTAND ALL CONTROLS. Make sure you understand the function and proper use of all controls before starting. This will help you avoid making mistakes that result in serious injury.

AVOIDING ENTANGLEMENT. DO NOT wear loose clothing, gloves, or jewelry, and tie back long hair. Keep all guards in place and secure. Always allow spindle to stop on its own. DO NOT stop spindle using your hand or any other object.

WEAR FACE SHIELD. Always wear a face shield in addition to safety glasses. This provides more complete protection for your face than safety glasses alone.

USE CORRECT SPINDLE SPEED. Follow recommended speeds and feeds for each size and type of cutting tool. This helps avoid tool breakage during operation and ensures best cutting results.

INSPECT CUTTING TOOL. Inspect cutting tools for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked cutting tools immediately.

PROPERLY SECURE CUTTER. Firmly secure cutting tool or drill bit so it does not fly out of spindle during operation.

POWER DISRUPTION. In the event of a local power outage during operation, turn spindle switch OFF to avoid a possible sudden startup once power is restored.

CLEAN MACHINE SAFELY. Metal chips or shavings can be razor sharp. DO NOT clear chips by hand or compressed air that can force chips farther into machine—use a brush or vacuum instead. Never clear chips while spindle is turning.

SECURE WORKPIECE TO TABLE. Clamp workpiece to table or secure in a vise mounted to table, so workpiece cannot unexpectedly shift or spin during operation. NEVER hold workpiece by hand during operation.

PROPERLY MAINTAIN MACHINE. Keep machine in proper working condition to help ensure that it functions safely and all guards and other components work as intended. Perform routine inspections and all necessary maintenance. Never operate machine with damaged or worn parts that can break or result in unexpected movement during operation.

DISCONNECT POWER FIRST. To reduce risk of electrocution or injury from unexpected startup, make sure mill/drill is turned OFF, disconnected from power, and all moving parts have come to a complete stop before changing cutting tools or starting any inspection, adjustment, or maintenance procedure.

REMOVE CHUCK KEY & SPINDLE TOOLS. Always remove chuck key, drawbar wrench, and other tools used on the spindle immediately after use. This will prevent them from being thrown by the spindle upon startup.
Additional Lathe 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.

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

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.

Two-prong outlets do not meet the grounding requirements for this machine. Do not modify or use an adapter on the plug provided—if it will not fit the outlet, have a qualified electrician install the proper outlet with a verified ground.
SECTION 3: SETUP

Setup Overview

The list below outlines the basic process of setting up the machine for first-time operation. Specific steps are covered later in this section.

The typical setup process is as follows:

1. Unpack machine and inventory contents of box/crate.
2. Clean machine and its components.
3. Move machine to an acceptable location.
4. Assemble machine and make sure it is ready for operation.
5. Connect machine to power source.
6. Test run machine and various safety components to ensure they function properly.
7. Perform spindle break-in procedure to prepare spindle bearings for operational loads.

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 packing to file a freight claim. It is also extremely helpful if you need to return your machine later.

WARNING
SUFFOCATION HAZARD!
Keep children and pets away from plastic bags or packing materials shipped with this machine. Discard immediately.

Needed for Setup

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

Description
- Additional People
- Safety Glasses
- Cleaner/Degreaser (Page 22)
- Quality Metal Protectant
- Disposable Shop Rags
- Forklift
- Lifting Slings (rated for at least 300 lbs.)
- Mounting Hardware (Page 25)
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 10)  Qty.
A. 3-Jaw Chuck 4" w/Internal Jaw Set...... 1
B. Steady Rest........................................ 1
C. 4-Way Tool Post ................................ 1
D. Drill Chuck 1/2" w/Chuck Key (G0769) .... 1
E. Milling Headstock (G0769) .................... 1
F. Backsplash ........................................... 1
G. Tailstock ............................................... 1
H. Follow Rest (Not Shown)...................... 1

![Figure 10. Installed components (G0769 shown).](image)

Loose Components (Figure 11)  Qty.
I. Chip Pan (Not Shown)......................... 1
J. Toolbox ............................................... 1
K. Oil Bottle for Oil ................................. 1
L. Faceplate 6 3/4" .................................. 1
M. 3-Jaw Chuck External Jaw Set ............. 1
N. Hex Wrench Set (2.5, 3, 4, 5, 6mm) ..... 1 Ea
O. Flat Head Screwdriver #2 .................... 1
P. Phillips Head Screwdriver #2 .............. 1
Q. Spanner Wrench .................................. 1
R. Wrench Set (6/7, 8/10, 14/16mm) ......... 1
S. Lathe Chuck Key ................................. 1
T. Square Socket T-Wrench ...................... 1
U. Handwheel Handles ......................... 2
V. Fuse Set ............................................. 1
  — 10A (G0768) ..................................... 1
  — 15A (G0768) ..................................... 1
  — 10A (G0769) ..................................... 2
  — 15A (G0769) ..................................... 1
W. Dead Center MT#2 .......................... 1
X. Dead Center MT#3 .......................... 1
Y. Change Gear Set ................................. 1
  — Change Gear (20-tooth, Installed) ....... 2
  — Change Gear (30-tooth, Installed) ....... 2
  — Change Gear (33-tooth) ...................... 1
  — Change Gear (40-tooth) ...................... 1
  — Change Gear (50-tooth) ...................... 1
  — Change Gear (53-tooth) ...................... 1
  — Change Gear (55-tooth) ...................... 1
  — Change Gear (57-tooth) ...................... 1
  — Change Gear (60-tooth) ...................... 1
  — Change Gear (63-tooth) ...................... 1
  — Change Gear (65-tooth) ...................... 1
  — Change Gear (70-tooth) ...................... 1
  — Change Gear (71-tooth) ...................... 1
  — Change Gear (72-tooth) ...................... 1
  — Change Gear (80-tooth, Installed) ....... 2
  — Change Gear (84-tooth, Installed) ....... 1
Z. 4-Jaw Universal Chuck 4" (Not Shown) .... 1

![Figure 11. Packaged components.](image)

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.
Clean up

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.

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.](image-url)
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 other people and use a forklift (or other lifting equipment) rated for weight of this machine.

Do not attempt to lift or move the machine without using the proper lifting equipment (such as a forklift or crane) or the necessary assistance from other people. Refer to *Needed for Setup* on Page 20 for details.

**To lift and place machine:**

1. Remove shipping crate top and sides, then remove chip pan, 4-jaw chuck, faceplate, and toolbox from shipping pallet.

2. Position chip pan on selected mounting surface and use it as a template to mark hole locations for mounting hardware (refer to *Leveling & Mounting* on Page 25).

—If mounting machine to optional T26599 stand (see *Accessories* on Page 68), align holes in chip pan with pre-drilled mounting holes in stand.

3. Unbolt machine from shipping pallet.

**WARNING**

Only use lifting slings and power lifting equipment rated for at least 300 lbs. and in good working condition. If machine falls or tips over while moving it, serious personal injury and property damage could result.

4. To balance load for lifting, move tailstock and carriage to extreme right end of bedway, then lock them in place.

**Note:** Before trying to move carriage, make sure carriage lock is loose and half nut is disengaged.

5. Wrap lifting slings around bed and between leadscrew and bedway, as shown in Figure 14, to help prevent bending leadscrew during lifting.

![Figure 14. Example of lifting sling positions.](image)

6. Attach lifting slings to forklift forks (or other power lifting equipment).

**Note:** To balance the load when lifting, the lifting strap closest to the headstock must be slightly shorter than the lifting strap on the tailstock side. If you are using lifting straps of equal length, this can be achieved by wrapping the lifting strap on the headstock side one or more times around the forklift fork, or by placing a block of wood on the fork to raise up the ends of the lifting strap.

7. Have an assistant hold mill headstock to steady load, then lift machine just enough to clear any obstacles and move it to its mounting position.

Mounting

Number of Mounting Holes ......................... 2
Diameter of Mounting Hardware .................. 5/16"

The chip pan and lathe base have holes that allow the machine to be mounted to the optional Model T26599 Stand (see Figure 15) or a workbench.

Figure 15. T26599 Stand for G0768/G0769.

The T26599 Stand is specifically designed for the G0768/G0769 and comes with pre-drilled mounting holes that match the base of these machines. You MUST mount your machine to a stand or workbench to prevent it from unexpectedly moving during operation, which could lead to personal injury or property damage.

Follow these guidelines when mounting your machine to ensure safe and accurate cutting results:

- Make sure stand or workbench can adequately support weight of machine and materials, and that it will not move or vibrate during operation.

- Use a silicon sealant between the machine base and chip pan to prevent coolant or other fluids from leaking through onto the stand, workbench, or floor.

—If mounting machine to a stand, follow the instructions included with it. Ensure stand is anchored to floor.

—If mounting machine to a workbench, drill holes all the way through workbench, and use hex bolts, washers, and hex nuts to secure machine in place (see example below).

Figure 16. Example of a “Through Mount” setup.
Leveling

**NOTICE**

For accurate turning results and to prevent warping the cast iron bed and ways, the lathe bedways MUST be leveled from side-to-side and from front-to-back on both ends.

Recheck the bedways 24 hours after installation, two weeks after that, and then annually to make sure they remain level.

Leveling machinery helps precision components, such as bedways, remain straight and flat during the lifespan of the machine. The bed on a lathe that is not level may slowly twist due to the dynamic loads placed on the machine during operation.

For best results, use a precision level that is at least 12" long and sensitive enough to show a distinct movement when a 0.003" shim (approximately the thickness of one sheet of standard newspaper) is placed under one end of the level.

See **Figure 17** for an example of a high-precision level.

**Assembly**

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

Use a flat head screwdriver to attach the handwheel handles shown in **Figure 18**.

**Figure 18.** Handwheel handles installed.

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**Figure 17.** Grizzly Model H2683 12" Master Machinist's Level.
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. Make sure all tools and objects used during setup are cleared away from machine.

2. Press Emergency Stop button cover (see Figure 19) to prevent unexpected start up.

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

   **G0769 Only:** Set lathe/mill selector switch to "0" (see Figure 19 on Page on this page).

4. Shift feed direction dial to neutral (see Figure 20).

5. Make sure chuck and jaws, if installed, are secure (see Chuck Installation on Page 32).

   **Note:** If a chuck is not installed on the lathe, you do not need to install one for this test run.

6. Disengage half nut with lever shown in Figure 21.
7. Connect machine to power. The spindle speed RPM display will illuminate.

8. Press tab in on side of Emergency Stop button and lift switch cover to reset it.

9. Turn spindle direction switch to "F" position.

**G0769 Only:** Set lathe/mill selector switch to "1" for lathe mode.

10. Press green ON button, leaving switch cover open.

11. Slowly rotate spindle speed dial clockwise until spindle speed display shows 100 RPM. The spindle should rotate counterclockwise—down and toward front of lathe.

The machine should run smoothly with little to no vibration or rubbing noises.

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

12. Press Emergency Stop button to turn lathe OFF. Then, without resetting Emergency Stop button, try to restart spindle rotation by rotating spindle speed dial all the way counterclockwise and then clockwise. The spindle should not start.

—If the 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 spindle speed dial all the way counterclockwise to stop lathe, disconnect it from power, and call Tech Support for help.

**Model G0768:** Congratulations! Test Run is complete! Now perform the Spindle Break-In procedure beginning on Page 29.

**Model G0769:** Continue with remaining test run instructions.

13. Rotate spindle speed dial all the way counterclockwise.

14. Set lathe/mill selector switch to "2" for mill mode.

15. Rotate high/low gearbox knob to low "L" (see Figure 22).

**Note:** It may be necessary to rotate spindle by hand so gears will mesh.

![Gearbox Knob](image)

**Figure 22.** High/low gearbox knob set to low "L".

16. Reset Emergency Stop button.

17. Press green ON button.

18. Rotate spindle speed dial clockwise until spindle speed display shows 50 RPM.

19. Mill spindle should begin clockwise rotation (as viewed from top).

20. Press Emergency Stop button.

Congratulations! Model G0769 test run is complete. Now perform the Spindle Break-In procedure.
Spindle Break-In

The spindle break-in procedure distributes lubrication throughout the bearings to reduce the risk of early bearing failure if there are any "dry" spots or areas where lubrication has settled in the bearings. You must complete this procedure before placing operational loads on the spindle for the first time when the machine is new or if it has been sitting idle for longer than 6 months.

Always start the spindle break-in at the lowest speed to minimize wear if there are dry spots. Allow the spindle to run long enough to warm up and distribute the bearing grease, then incrementally increase spindle speeds and repeat this process at each speed until reaching the maximum spindle speed. Following the break-in procedure in this progressive manner helps minimize any potential wear that could occur before lubrication is fully distributed.

You must complete this procedure to maintain the warranty. Failure to do this could cause rapid wear-and-tear of spindle bearings once they are placed under load.

Lathe Spindle Break-In

1. Successfully complete Test Run procedure beginning on Page 27.
2. Reset Emergency Stop button.
   - **G0769 Only:** Set lathe/mill selector switch to "1" for lathe mode.
3. Press green ON button.
4. Rotate spindle speed dial until spindle speed display shows 50 RPM and run lathe for minimum of 10 minutes.
5. Without stopping lathe, use spindle speed dial to run lathe at 1000 and 2000 RPM for 10 minutes each.

   **Note:** If necessary, refer to Setting Spindle Speed on Page 47 for detailed instructions.
6. Rotate spindle speed dial all the way counter-clockwise, then press Emergency Stop button.
7. Set spindle direction switch to "R", then reset Emergency Stop button.
8. Press ON button.
9. Rotate spindle speed dial to 2000 RPM and run lathe for 10 minutes.
10. Rotate spindle speed dial all the way counter-clockwise, then press Emergency Stop button.

Congratulations! Lathe spindle break-in is complete.

Mill Spindle Break-In (G0769 Only)

1. Successfully complete Lathe Spindle Break-In.
2. Set spindle direction switch to "F".
3. Set lathe/mill selector switch to "2" for mill mode.
4. Rotate high/low gearbox knob to low "L."
5. Reset Emergency Stop button.
6. Press ON button.
7. Rotate spindle speed dial clockwise to 50 RPM and run spindle for a minimum of 10 minutes.
8. Rotate spindle speed dial all the way counter-clockwise.
9. Press Emergency Stop button.
10. Rotate high/low gearbox knob to high "H."
11. Reset Emergency Stop button.
12. Press ON button.
13. Use spindle speed dial to run mill at 1000 and 2000 RPM for 10 minutes each.
14. Rotate spindle speed dial all the way counterclockwise, then press Emergency Stop button.

15. Repeat Steps 7–10 from Lathe Spindle Break-In in a similar manner for mill.

Congratulations! Mill 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 39
- Cross slide backlash adjustment........ Page 82
- Leadscrew backlash......................... Page 82
- Gib adjustments .............................. Page 83
SECTION 4: LATHE 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 lathe operation, the operator does the following:

1. Securely mounts workpiece in lathe.
2. Puts on safety glasses and a face shield, rolls up sleeves, removes jewelry, and secures any clothing, jewelry, or hair that could get entangled in moving parts.
3. Installs tooling on toolpost, 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. Presses ON button and rotates spindle speed dial to set correct spindle speed.
10. Uses carriage handwheels or power feed options to move tooling into workpiece for operations.
11. When finished turning, rotates spindle speed dial completely counterclockwise, presses Emergency Stop button, then removes workpiece.

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

WARNING
To reduce risk of eye or face injury from flying chips, always wear approved safety glasses and face shield when operating this machine.

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.

To reduce risk of eye or face injury from flying chips, always wear approved safety glasses and face shield when operating this machine.
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 23. Example of common device used during chuck installation and removal.](image)

To install chuck:

1. DISCONNECT MACHINE FROM POWER!
2. Use an appropriate device to protect ways (refer to Installation & Removal Device subsection).
3. Thoroughly clean and wipe down all mating surfaces with a lightly-oiled, lint-free rag.

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 24).

![Figure 24. Spindle backplate parts.](image)

**Tools Needed:**

<table>
<thead>
<tr>
<th>Qty</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Open-End Wrench 13mm</td>
</tr>
<tr>
<td>1</td>
<td>Lathe Chuck Key</td>
</tr>
</tbody>
</table>

**To install chuck:**

1. DISCONNECT MACHINE FROM POWER!
2. Use an appropriate device to protect ways (refer to Installation & Removal Device subsection).
3. Thoroughly clean and wipe down all mating surfaces with a lightly-oiled, lint-free rag.
4. Insert (3) M8-1.25 X 35 set screws through mounting holes in spindle backplate, as shown in Figure 25. Make sure chuck seats firmly and evenly against backplate shoulder.

5. Use (1) 8mm flat washer and (1) M8-1.25 hex nut on each chuck screw to secure chuck (see Figure 26). Tighten hex nuts evenly a small amount at a time and in multiple steps.

---

**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.

**IMPORTANT:** 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.

---

**Figure 27.** 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.

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 #1 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 the same manner. The jaws should converge evenly at center of chuck.

—If jaws do not converge evenly, remove them. Check that jaw numbers and jaw guides match. Re-install jaws sequentially 1–3, making sure each one engages with scroll-gear lead thread during its first rotation.
4-Jaw Chuck

Refer to the Chuck Installation subsection for instructions on installing the 4-jaw chuck.

The 4-jaw chuck features independently adjustable jaws for holding non-concentric or off-center workpieces. Each jaw can be independently removed from the chuck body and reversed for a wide range of work holding versatility.

⚠️ WARNING
Because of dynamic forces involved in machining a non-concentric or off-center workpiece, always use a low spindle speed to reduce risk of workpiece coming loose and being thrown from lathe, which could cause death or serious personal injury.

Mounting Workpiece

1. DISCONNECT MACHINE FROM POWER!

2. Use an appropriate device to protect ways (refer to Chuck Safety & Support Devices section for more details).

3. Use chuck key to open each jaw so workpiece will fit into spindle opening and lay flat against chuck face and jaw steps.

4. With help from another person or a holding device, position workpiece so it is centered in chuck.

5. Tighten each jaw in small increments. After tightening first jaw, continue tightening remaining jaws in an opposing sequence, similar to sequential order shown below.

6. After workpiece is secured by jaws, use dial indicator to make sure workpiece is centered in chuck.

— If workpiece is not correctly centered, make fine adjustments by slightly loosening one jaw and tightening opposing jaw until workpiece is correctly positioned (see below for an example).

---

Figure 31. 4-jaw chuck tightening sequence.

Figure 32. Example of a non-cylindrical workpiece correctly positioned on a 4-jaw chuck.
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 33. Example of a workpiece clamped in a faceplate.](image)
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 .......................... 0.04"

Increments on Quill Scale
Inch ............................................. 0"–2" in \( \frac{1}{8} \)" 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. Rotate quill lock lever counterclockwise to loosen quill.

2. Turn quill handwheel clockwise to move quill toward spindle or counterclockwise to move it away from spindle.

3. Rotate quill lock lever clockwise to secure quill.

Figure 34. Tailstock controls and features.
Installing Tooling

The tailstock quill accepts MT#2 tapered arbors (see the Figures below for examples).

Figure 35. 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.

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: The marks on the offset indicator are arbitrary. For a precise offset, use a dial indicator to check quill movement while adjusting the screws.

Figure 36. Example photos of inserting tools into the tailstock.

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.

Figure 37. Left offset adjustment.
**Tools Needed**

<table>
<thead>
<tr>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 4mm</td>
</tr>
</tbody>
</table>

To offset 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 below).

3. Tighten tailstock lock to secure the offset.

**Figure 38.** Example of set screw adjustment in relation to tailstock movement.

**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**

<table>
<thead>
<tr>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 4mm</td>
</tr>
<tr>
<td>Round Stock 2&quot; x 6&quot;</td>
</tr>
</tbody>
</table>

To align tailstock to spindle centerline:

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

2. Use another piece of round stock to make a dead center, and turn it to a 60° point, as illustrated below.

**Figure 39.** Turning a dead center.

**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 a lathe dog to the test stock from Step 1, then mount it between centers, as shown below.

5. Turn 0.010” off stock diameter.

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

7. Use calipers to measure both ends of the 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 below.

---

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

Figure 43 shows the MT#2 and MT#3 dead centers included with the lathe.

**Figure 43.** Dead centers.

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 43) 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 43) in the spindle for operations where the workpiece rotates with the center and does not generate friction.

Mounting Dead Center in Spindle

1. DISCONNECT MACHINE 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.

**Figure 44.** Example of using a dead center with a faceplate and lathe dog.

Removing Center from Spindle

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

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 MACHINE FROM POWER!
2. Drill center holes in both ends of 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.

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 the 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.

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.

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

**Notice**

Figure 45. Example of using dead center installed in the tailstock.

Figure 46. 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 13mm.......................... 1
Open-End Wrench 14mm.......................... 1

Tip: To reduce the effects of friction, lubricate the finger tips with generous amounts of anti-seize lubricant during operation. Note: Mill or file the tips if they show wear.

Follow Rest

The follow rest mounts to the saddle and supports the workpiece near the cutting tool to prevent deflection from the pressure of the cutting tool. The follow rest fingers adjust in the same manner as the fingers on the steady rest.

Tip: To reduce the effects of friction, lubricate the finger tips with generous amounts of anti-seize lubricant during operation.

Tool Needed  Qty
Hex Wrench 4mm................................... 1

To install and use steady rest:

1. DISCONNECT MACHINE FROM POWER!
2. Thoroughly clean all mating surfaces.
3. Place steady rest base on bedways and secure with clamp plate, hex bolt, and lock nut.
4. Loosen finger lock nuts (see Figure 47), turn finger adjustment knobs, and adjust fingers as required for workpiece.
5. Loosen steady rest lock nut, position steady rest where required to properly support workpiece, then secure lock nut.
6. Turn finger adjustment knobs so fingers are barely touching workpiece, then tighten finger lock nuts.
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.................. 0.05" (1.27mm)

To set compound rest angle:

1. Loosen cap screws shown in Figure 49.

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 tool in tool post:

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

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

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

Figure 49. Compound rest angle adjustments.

Figure 50. 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.

![Diagram of cutting tool and spindle centerline](image)

**Figure 51.** Cutting tool aligned with spindle centerline (viewed from tailstock).

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:**

- 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.

- 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>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool Post T-Wrench</td>
</tr>
<tr>
<td>Steel Shims</td>
</tr>
<tr>
<td>Cutting Tool</td>
</tr>
<tr>
<td>Tailstock Center</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.

![Diagram of cutting tool aligned to tailstock center](image)

**Figure 52.** Cutting tool aligned to the tailstock center.
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" (25.4mm)

Use the carriage handwheel to move 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............................. 0.002" (0.05mm)
One Full Revolution.................. 0.08" (2.03mm)

Use this handwheel to move the tool toward and away from the work. The cross slide handwheel has a direct-read graduated dial, which shows the total amount of material removed from the diameter of the workpiece.

Compound Rest Handwheel
Graduated Dial
Increments............................. 0.001" (0.025mm)
One Full Revolution.................. 0.05" (1.27mm)

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 it with the two cap screws (see Figure 49 on Page 44). The compound rest has an indirect-read graduated dial.

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.

\[
\text{Spindle Speed (RPM)} = \frac{\text{Recommended Cutting Speed (FPM) x 12 \times Dia. of Cut (in inches) x 3.14}}{3600}
\]

*Recommended Cutting Speed (FPM) x 12
Dia. of Cut (in inches) x 3.14 = Spindle Speed (RPM)

*Double if using carbide cutting tool

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
One of two spindle speed ranges is selected by repositioning the top V-belt between the spindle and idler pulleys (see Figure 55). Select the A position for low (50-1000 RPM) or B position for high (100–2000 RPM) speed ranges. The V-belt diagram below is also found on the headstock.

Tools Needed
Hex Wrench 4mm.............................................. 1

Setting Spindle Direction & Speed
Set the spindle rotation direction to forward or reverse with the spindle direction switch, shown in Figure 56. Reset the Emergency Stop button, press the ON button, select "1" on the lathe/mill selector (Model G0769 only) then turn the spindle speed dial clockwise until the desired spindle speed displays on the spindle speed RPM display.

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

To set spindle speed to 100 RPM:
1. DISCONNECT MACHINE FROM POWER!
2. Open end cover.
3. Loosen tensioner screw (see Figure 57) to loosen V-belt tension.

Figure 55. Belt positioned for low speed.

Figure 56. Spindle speed and direction controls.

Figure 57. Location of tensioner screw used for tightening/loosening V-belts when changing belt positions.
4. Move top V-belt to A position (see Figure 58) to select low speed range (50–1000 RPM).

5. Re-tension V-belt (refer to "Tensioning V-Belts" on Page 81).

6. Re-install end cover.

7. Reset Emergency Stop button.

8. Rotate spindle direction switch to "F" or "R", and press ON button.

9. Rotate spindle speed dial clockwise until spindle speed display reads 100 RPM.

---

**Understanding Gear Charts**

This subsection explains how to understand the feed and thread charts on the headstock. If you do not understand lathe gear charts, or need a quick refresher, read this before configuring the end gears for power feeding or threading operations.

**Feed & Thread Charts Label**

The feed and thread charts label (see Figure 59) provides information for setting up end gears for threading or non-threading operations. The top displays a feed chart, the bottom displays metric and inch thread charts.

**Feed Chart**—Displays headstock end gear positions for different speeds of automatic feed (power feed) used with turning operations (see Figure 60).

---

**Figure 58. V-belt positioned in low speed range.**

**Figure 59. Feed and thread charts label.**

**Figure 60. Feed chart.**
Thread Charts—Display headstock end gear positions used for cutting various metric or inch threads (see Figure 61).

<table>
<thead>
<tr>
<th>Metric Thread Chart</th>
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<tbody>
<tr>
<td>0.40</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td>F</td>
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</tbody>
</table>

<table>
<thead>
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<th>Inch Thread Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
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<td>E</td>
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<td>F</td>
</tr>
</tbody>
</table>

How to Read the Feed Chart
Figure 62 identifies the three available feed rates and the feed icon at the top of the feed rate chart.

<table>
<thead>
<tr>
<th>Feed Rates</th>
</tr>
</thead>
<tbody>
<tr>
<td>in/c</td>
</tr>
<tr>
<td>Feed Rate Icon</td>
</tr>
</tbody>
</table>

0.0037" 0.0068"

A B 84 30
C D 20 80
E F 80 80

<table>
<thead>
<tr>
<th>Feed Rate Chart</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0037&quot; 0.0068&quot;</td>
</tr>
<tr>
<td>A</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
<tr>
<td>E</td>
</tr>
<tr>
<td>F</td>
</tr>
</tbody>
</table>

Figure 63 identifies the end gears on the upper, middle, and lower shafts, and the 40-tooth (40T) spindle gear. The gears are represented by letters in the columns and the diagram.

Upper Shaft Gears

<table>
<thead>
<tr>
<th>Columns</th>
</tr>
</thead>
</table>
| A B 84 30
C D 20 80
E F 80 80 |

Spindle Gear

40

Middle Shaft Gears

Lower Shaft Gears

Figure 63. Identification of upper, middle and lower shaft gears.
Each shaft has room to mount gears in two positions—forward and rear (see Figure 64).

Both positions must be filled for the gears to work properly. This also applies to “blank” areas on the chart, such as the one right of the 80T (E) gear in Figure 64 (the dashed box is used for identification only). A spacer should be installed in this position on the shaft. A spacer is not listed on the chart because the chart only reflects ACTIVE gear positions.

The lines shown between the numbers in Figure 65 identify which gears mesh.

For example, to set the feed rate for 0.0037 in./rev., mesh the 30T (B) gear with the 80T (D) gear, and mesh the 20T (C) gear with the 80T (E) gear.

How to Read the Thread Charts

Figure 66 identifies the charts to use when setting carriage feed movement for metric or inch threading.

The shaded boxes in Figure 67 show the threads per inch (TPI) on the applicable chart.

Figure 68 identifies the end gears on the upper, middle, and lower shafts. The gears are represented by letters.

Figure 64. Forward and rear gear positions.

Figure 65. Lines indicate which gears mesh.

Figure 66. Icons indicate inch or metric threads.

Figure 67. Numbers in shaded boxes indicate the TPI or threads per inch.

Figure 68. Identification of gears on shafts.
Each shaft has room to mount gears in two positions—forward and rear (see Figure 69).

Because there is only one spacer, on some setups smaller gears must be used as spacers on the adjustable gears. Both positions must be filled for the gears to work properly. This also applies to the "blank" areas on the chart, such as the one left of the 50T (F) gear shown in Figure 69. A spacer should be installed in this position on the shaft. A spacer is not listed because chart only reflects ACTIVE gear positions.

**NOTICE**

Because there is only one spacer, on some setups smaller gears must be used as spacers on the adjustable gears.

The lines shown between the numbers in Figure 70 indicate which gears should be in mesh.

For example, to set the lathe to cut 9 TPI (threads per inch), mesh the 80T (C) gear with the 53T (A) and 30T (E) gears.

**End Gears**

This section explains how to configure end gears for power feeding and threading operations.

**Power Feed Configuration**

The end gears are preset by the factory in this configuration, which is used for power feeding. Mesh the B and D gears and the C and E gears (see Figure 71). A spacer (F) is installed on the lower shaft behind the E gear.

**Figure 69.** Identification of forward and rear gear positions.

**Figure 70.** Lines between numbers indicate gears that should be in mesh.

**Figure 71.** Power feed change gear configuration.
Primary Threading Configuration
This threading configuration is used for inch and metric threading. Mesh the A and C, and D and F gears, as shown in Figure 72. The A/B and C/D change gears each share a keyed bushing. A spacer (E) is installed on the lower shaft in front of the F gear.

Figure 72. Primary threading configuration.

Secondary Threading Configuration
This threading configuration is used for a different range of inch threads. Mesh the A, C, and E gears, as shown in Figure 73. The A/B, and C/D gears each share a keyed bushing. The B and D gears (e.g. 20T or 30T) function as spacers since they do not mesh with other gears. A spacer (F) is installed on the lower shaft behind the E gear.

Figure 73. Secondary threading configuration.

Configuring End Gears
Follow the example below to understand how to change the gears from the factory set power feed configuration to the primary inch threading configuration. Concepts are similar to those for setting up gears for power feeding.

Note: Many of the techniques and concepts explained here also apply to setting up gears for power feeding.

Tools Needed

<table>
<thead>
<tr>
<th>Tools</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 5mm</td>
<td>1 Ea</td>
</tr>
<tr>
<td>Open-End Wrenches 6, 14, 17mm</td>
<td>1 Ea</td>
</tr>
<tr>
<td>Punch</td>
<td>1</td>
</tr>
<tr>
<td>Hammer</td>
<td>1</td>
</tr>
</tbody>
</table>

To configure end gears for 20 TPI:

1. DISCONNECT MACHINE FROM POWER!

2. Locate 20 TPI on thread chart shown in Figure 74.

3. Gather 53T, 80T, 60T, and 50T gears. (The 80T gear may already be installed.)

4. Remove end gear cover.

Figure 74. Gear positions for 20 TPI on thread chart.
5. Loosen adjuster cap screw shown in Figure 75, and pivot adjuster down to disengage gears.

![Figure 75. Adjuster cap screw location.]

6. Remove hex nuts, e-clips, and flat washer that secure gears (see Figure 75).

7. Loosen top and bottom gear shafts to make it easier to remove gears in following steps.

8. Slide 80T and 84T gears off shafts, then remove middle C/D (20T/80T) gear and shaft (see Figure 76).

![Figure 76. Gear removal identification.]

9. Remove keyed spacer from lower gear shaft (see Figure 77).

![Figure 77. Location of keyed spacer.]

10. Slide 50T gear onto lower shaft with hub facing in, re-install keyed spacer and flat washer, then thread on hex nut finger-tight, for now (see Figure 78).

![Figure 78. 50T gear installed on lower shaft.]

11. Remove gear shaft from middle C/D (20T/80T) gear (see Figure 79).

![Figure 79. Shaft removed from 20T/80T gear.]

Tip: Hold middle shaft T-nut in adjuster while removing 20T/80T gear so T-nut does not fall off.
12. Remove 20T gear with keyed bushing from 80T gear (see Figure 80).

Figure 80. 20T gear removed from 80T gear.

13. Remove keyed bushing from 20T gear.

14. Connect 80T and 60T gear with keyed bushing, as shown in Figure 81. The 80T gear hub faces out; the 60T gear hub faces the 80T gear.

Figure 81. 80T and 60T gears connected.

15. Put dab of NLGI #2 grease onto 80T/60T gear shaft, then insert longer end of shaft into gear (see Figure 82).

Figure 82. Shaft installed into 80T/60T gears.

16. Thread short end of 80T/60T gear shaft into T-nut on adjuster until finger tight (see Figure 83).

Figure 83. 80T/60T gear threaded onto T-nut.

17. Remove 30T gear with keyed bushing from 84T gear.

18. Install 30T gear with keyed bushing onto 53T gear (see Figure 84). Hub of 53T gear should face 30T gear.

Figure 84. 53T/30T gears assembled.

19. Put a dab of grease on upper shaft, then slide 53T/30T gear on, as shown in Figure 85.

Figure 85. 53T/30T gear installed on upper shaft.
20. Re-install e-clips and hex nuts onto middle and top gear shafts.

21. Adjust lash between meshed gears so it is approximately 0.003", then tighten gear shafts and fasteners.

22. Swing adjuster up and mesh 53T gear with 40T spindle gear (see Figure 86).


24. Re-install end gear cover. The end gears are now configured for 20 TPI.

Power Feed

The carriage has power feed (or automatic feed) options for threading or non-threading operations. This section describes how to use the power feed option for non-threading operations. To learn how to power the carriage for threading operations, refer to Threading on Page 58.

NOTICE

To avoid damaging lathe, NEVER allow cutting tool to run into chuck! 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 (refer to Power Feed Configuration on Page 52). The lathe comes from the factory with the end gears set up in the power feed configuration.

A. Spindle Direction Switch: Enables forward or reverse carriage travel when feed direction dial and half nut lever are engaged. The carriage will not move when the switch is in the "0" position.
B. **Feed Rate Chart:** Displays end gear settings for selected feed rate (see Figure 88).

![Figure 88. Feed chart.](image)

C. **Feed Direction Dial:** Selects carriage travel direction without changing direction of headstock rotation. The carriage moves left when feed direction dial is turned right, half nut lever is engaged, and spindle direction switch is set to "F".

The carriage moves right when the feed direction dial is turned to the left. The carriage will not move when the lever is in the center position.

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

![Figure 89. Feed direction dial.](image)

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

![Figure 90. Half nut lever.](image)

**NOTICE**

To avoid potential carriage/chuck crash, disengage half nut lever immediately after completing power feed 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 rate to 0.0037 in./rev.:

1. **DISCONNECT MACHINE FROM POWER!**

2. Locate the 0.0037 in./rev. column heading on the feed rate chart, as shown in Figure 91.

![Figure 91. Change gears for 0.0037 in./rev. on feed chart.](image)
3. Gather the required A–F change gears: 84T, 30T, 20T and two 80T gears, based upon the chart in Figure 91.

4. Remove end cover.

5. Loosen adjuster cap screw shown in Figure 92, and pivot adjuster down to disengage gears.

6. Remove hex nuts, e-clips, and flat washers that secure existing gears.

7. Replace A/B gear with 84T and 30T gears, replace C/D gear with 20T and 80T gears, and install spacer with 80T gear on bottom shaft (see Figure 93).

8. Adjust lash between meshed gears so it is approximately 0.003", then tighten the gear shafts.

9. Swing the adjuster up and mesh the 84T gear with the spindle gear.

10. Secure the adjuster cap screw.

11. Re-install end gear cover. The lathe is now set for a power feed rate of 0.0037 in./rev.

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 and metric threading.

Using the controls on the lathe, follow the example below to understand how to set up the lathe for the desired threading operation.
To set lathe to thread 20 TPI right-hand threads:

1. Configure gears as instructed in End Gear Configuration Example on Page 53.

2. Place the top V-belt in the A position for low (50-1000 RPM), as shown in Figure 94.

3. Move the feed direction dial to the right (see Figure 95). The lathe is now set up to cut 20 TPI threads.

Apron Threading Controls

The half nut lever engages the carriage with the leadscrew, which moves the carriage and cutting tool along the length of the workpiece for threading operations (see Figure 96).

When threading, use slowest speed possible and avoid deep cuts, so you are able to disengage 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

The numbers on the thread dial (Figure 96) 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. For that type of operation, you must leave the half nut engaged from the beginning until turning is complete.

**NOTICE**

When threading, use slowest speed possible and avoid deep cuts, so you are able to disengage half nut when required to prevent a carriage crash!

Figure 94. Top V-belt in "A" position.

Figure 95. Feed direction dial setting.

Figure 96. Apron threading controls.
Thread Dial Chart
The thread dial chart is located on the headstock, as shown in Figure 96.

Find the TPI (threads per inch) that you want to cut on the thread dial chart (see Figure 97), then reference the scale number to the right. The scale numbers indicate when to engage the half nut for a specific thread pitch as indicated by the thread dial.

Odd TPI: For threading odd numbered TPI, use any pair of opposite numbers on the thread dial (see the example in Figure 99).

Even TPI Divisible by 4 or 8: For threading even numbered TPI not divisible by 4 or 8, use any numbered line on the thread dial (see the example in Figure 100).

Even TPI Divisible by 4: For threading even pitches divisible by 4, use any mark on the thread dial (see the example in Figure 101).

Note: You can choose to use only the number 1 to cut any thread if you do not want to use the chart, or if you forget any of the following rules.

The following examples explain how to use the thread dial and the thread dial chart.

Any TPI: For threading any TPI, use only the number 1 on the thread dial (see the example in Figure 98).

Table

<table>
<thead>
<tr>
<th>T.P.I.</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure 98. Thread dial position for any numbered TPI.

INDICATOR TABLE

<table>
<thead>
<tr>
<th>TPI</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Odd</td>
<td>1, 5</td>
</tr>
<tr>
<td>Even</td>
<td>1, 3, 5, 7</td>
</tr>
<tr>
<td>12, 16, 20, 24, 32, 40, 44</td>
<td>1–8</td>
</tr>
</tbody>
</table>

Figure 97. Thread dial chart.

Even TPI Not Divisible by 4 or 8: For threading even numbered TPI divisible by 4, use any numbered line on the thread dial (see the example in Figure 100).

Table

<table>
<thead>
<tr>
<th>T.P.I.</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>10, 14, 18, 22</td>
<td>1, 3, 5, 7</td>
</tr>
</tbody>
</table>

Figure 100. Any numbered line on dial for threading even numbered TPI.

Figure 99. Thread dial positions for odd numbered TPI.

Figure 101. Any mark on dial for threading even TPI divisible by 4.
LEC 5: MILL 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.

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

WARNING
To reduce risk of eye or face injury from flying chips, always wear approved safety glasses and face shield when operating this machine.

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.

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

1. Puts on personal protective equipment.
2. Securely clamps workpiece to cross slide table.
3. With machine disconnected from power, installs correct tooling.
4. Adjusts mill headstock height.
5. Selects correct gear setting on milling headstock gearbox for desired speed range.
6. Connects machine to power.
7. Rotates spindle speed dial to lowest setting, and resets Emergency Stop button.
8. Presses ON button, turns spindle direction switch to "F", and rotates spindle speed dial to correct spindle speed.
9. Uses spindle downfeed and table controls to perform operation.
10. Presses Emergency Stop button and waits for spindle to completely stop before removing workpiece, changing tooling, or changing spindle speeds.
Removing Compound Rest

The compound rest and tool post must be removed before milling/drilling so the cross slide table can be used as the milling table.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 3mm</td>
<td>1</td>
</tr>
<tr>
<td>Hex Wrench 4mm</td>
<td>1</td>
</tr>
</tbody>
</table>

Removing Compound Rest

Remove the two cap screws that secure compound rest (see Figure 102), then remove it.

Figure 102. Location of compound rest cap screws.

Re-installing Compound Rest

Align compound rest with swivel base mounting holes and nut (see Figure 103), then secure with cap screws previously removed.

Note: While re-installing compound rest, use a 3mm hex wrench to press swivel base up from underneath and keep it from sliding back down into cross slide.

Figure 103. Swivel base components.
Headstock Movement

The milling headstock moves in the following ways:

- Travels up and down the column (Z-axis).
- Tilts 45° left or right relative to the table.

Raising/Lowering Headstock
1. DISCONNECT MACHINE FROM POWER!

2. Loosen both Z-axis lock levers shown in Figure 104.

3. Use vertical handwheel shown in Figure 105 to adjust headstock height.

4. Retighten lock levers.

Tilting Headstock

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrench 16mm</td>
<td>1</td>
</tr>
<tr>
<td>Wrench 14mm</td>
<td>1</td>
</tr>
</tbody>
</table>

To tilt headstock:

1. DISCONNECT MACHINE FROM POWER!

2. Support headstock with one hand, then loosen headstock center bolt and angle lock nut (see Figure 106).

3. While viewing tilt scale, rotate headstock to required angle, then retighten center bolt and angle lock nut to secure headstock.

Figure 104. Location of Z-Axis lock levers.

Figure 105. Location of Z-Axis handwheel.

Figure 106. Headstock tilt controls.
Table Travel

The cross slide table travels in two directions, as illustrated in Figure 107:

- X-axis (longitudinal)
- Y-axis (cross)

![Figure 107. Possible directions of cross slide travel.]

These movements are controlled by the carriage handwheel and cross slide handwheel, (see Figure 108).

Carriage Handwheel (X-Axis)
Graduated Dial
Increments................................ 0.01" (0.25mm)
One Full Revolution................... 1" (25.4mm)

Use the carriage handwheel to move 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 (Y-Axis)
Graduated Dial
Increments................................ 0.002" (0.05mm)
One Full Revolution................... 0.08" (2.03mm)

Use this handwheel to move the cross slide table toward or away from the tooling. The cross slide handwheel has a direct-read graduated dial, which will read twice the actual table cross feed travel.

![Figure 108. Table travel controls.]

Using Spindle Downfeed Controls

The Model G0769 features two different types of spindle downfeed controls: coarse and fine, as shown in Figure 109.

Coarse Downfeed

Coarse downfeed is typically used for drilling applications. Rotate either of the coarse downfeed handles (see Figure 109) to lower the spindle, and an internal coil spring helps raise the spindle back to the top position when you stop applying downward pressure on the handle.

Note: To maintain control of the upward spindle travel and the rotating bit in your workpiece, always continue holding the handle until the spindle returns to the top position. Letting go of the coarse downfeed handles when the spindle is in the lowered position will cause the spindle to retract too quickly and slam up into the headstock or lift the workpiece and cause it to spin out of control.

The coarse downfeed hub features a graduated dial that measures spindle movement in 0.02" increments, with one full revolution equaling 2.00" of spindle travel.

Fine Downfeed

Fine downfeed is typically used for milling applications, because the spindle only moves up or down when the fine downfeed handwheel (see Figure 109) is rotated (there is no automatic spindle return to the top position, as with the coarse downfeed controls). This allows the spindle height to be locked in place for precise Z-axis positioning of a cutter or end-mill when milling a flat surface across the face of a workpiece. In order to ensure the milled surface remains flat, the spindle height cannot move until the entire milling operation is complete.

The fine downfeed graduated dial measures spindle movement in 0.001" increments, with one full revolution equaling 0.080" of spindle travel.

Engaging Fine Downfeed Controls

In the following example, the fine downfeed controls are used to mill 0.010" off a workpiece:

1. Use vertical travel handwheel (see Figure 105 on next page) to adjust cutting tool just above workpiece surface, then secure the headstock with Z-axis lock levers.
2. Tighten downfeed selector knob (see Figure 109) to engage fine downfeed handwheel.
3. Loosen quill lock lever.
4. Rotate fine downfeed handwheel clockwise and lower cutting tool so it just touches workpiece.
5. Move workpiece out of the way.
6. Using graduated dial to gauge spindle movement, rotate fine downfeed handwheel clockwise 0.010".
7. Tighten quill lock lever.
8. Turn mill/drill ON and perform cutting pass.
Installing/Removing Tooling

The Model G0769 includes a 1/2" drill chuck with MT#2 arbor (see Figure 110).

![Figure 110. 1/2" chuck joined with MT#2 arbor.]

---

CAUTION
Cutting tools are sharp and can easily cause cutting injuries. Always protect your hands with leather gloves or shop rags when handling cutting tools.

Installing Tooling

<table>
<thead>
<tr>
<th>Tools Needed</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrench 8mm</td>
<td>1</td>
</tr>
<tr>
<td>Wrench 17mm</td>
<td>1</td>
</tr>
<tr>
<td>Wrench 25mm</td>
<td>1</td>
</tr>
</tbody>
</table>

To install tooling:

1. DISCONNECT MACHINE FROM POWER!
2. Remove drawbar cap (see Figure 111).
3. Insert tooling into spindle until in contacts drawbar.
4. Working from top, thread drawbar by hand into tooling until it is snug (see Figure 112).
5. Tighten drawbar.

**Note:** Do not overtighten drawbar. Overtightening makes tool removal difficult and will damage arbor and threads.
6. Tighten drawbar lock nut, as shown in Figure 113.
7. Re-install drawbar cap.

![Figure 111. Location of drawbar cap.]

![Figure 112. Threading drawbar into tooling.]

![Figure 113. Tightening drawbar lock nut.]

Model G0768/G0769 (Mfd. Since 6/17)
Removing Tooling

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wrench 8mm</td>
<td>1</td>
</tr>
<tr>
<td>Wrench 17mm</td>
<td>1</td>
</tr>
<tr>
<td>Wrench 25mm</td>
<td>1</td>
</tr>
<tr>
<td>Brass Hammer</td>
<td>1</td>
</tr>
</tbody>
</table>

Tools Needed

To remove tooling:

1. DISCONNECT MACHINE FROM POWER!

2. Remove drawbar cap.

3. Loosen drawbar lock nut (see Figure 113) on previous page.

4. Unthread drawbar from tooling one full rotation.

   **Note:** Do not fully unthread tooling from drawbar or the drawbar and tool threads could be damaged in the next step.

5. Tap top of drawbar with hammer to unseat taper (see Figure 114).

6. Hold onto tooling with one hand and fully unthread drawbar.
Spindle Speed

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

To set the mill spindle speed for operation, you will need to: 1) Determine the best spindle speed for the cutting/drilling task, and 2) configure the high/low gearbox knob for the desired speed range, 3) use the spindle speed dial and spindle speed RPM display to get the 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 cutting tool, as noted in the formula shown in Figure 115.

\[
\text{Spindle Speed (RPM)} = \frac{\text{Recommended Cutting Speed (FPM)} \times 12}{\text{Tool Dia. (in inches)} \times 3.14} \times 2
\]

Figure 115. Spindle speed formula for mill/drills.

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

1. Rotate spindle speed dial all the way counterclockwise to set spindle speed to lowest value.

2. Rotate high/low gearbox knob (see Figure 116) to either “L” (spindle speeds 50–100 RPM) or “H” (spindle speeds 100–2000 RPM).

   Note: When switching between gears, it may be necessary to rotate spindle by hand so gears will align and engage.

3. Press ON button and turn spindle direction switch to “F”.

4. While watching RPM display, rotate spindle speed dial clockwise until desired RPM is reached.
SECTION 6: 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.

T25206—11 Pcs. Carbide Bit Set 5/8"
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 4 7/8" long. Shank size for all is 5/16".

Figure 117. T25206 11-Pc. carbide-tipped tool set.

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

Figure 118. Model H2987 1/2" Bent Lathe Dog.

T26599—Optional Stand for G0768/G0769
- Size: 29 1/2" W x 32" H x 16" D
- Drawers: 12" W x 8" H x 12" D

Figure 119. T26599 Stand for G0768/G0769.

SB1365—South Bend Way Oil-ISO 68
T23964—Moly-D Multi-purpose NLGI#2 Grease

Figure 120. Recommended products for machine lubrication.

T25206—11 Pcs. Carbide Bit Set 5/8"
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 4 7/8" long. Shank size for all is 5/16".

Figure 117. T25206 11-Pc. carbide-tipped tool set.

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

Figure 118. Model H2987 1/2" Bent Lathe Dog.

T26599—Optional Stand for G0768/G0769
- Size: 29 1/2" W x 32" H x 16" D
- Drawers: 12" W x 8" H x 12" D

Figure 119. T26599 Stand for G0768/G0769.

SB1365—South Bend Way Oil-ISO 68
T23964—Moly-D Multi-purpose NLGI#2 Grease

Figure 120. Recommended products for machine lubrication.

order online at www.grizzly.com or call 1-800-523-4777
G9361—Heavy-Duty Triple Bearing Live Center MT#2
This Triple Bearing Live Center is hardened to 61-65 Rockwell and has a unique head driving mechanism that prevents dust, chips, and coolant from entering the internal workings. Made with precision, high-quality bearings, this live center has an accuracy of 0.0003".

Figure 121. G9361 MT#2 Live Center.

G9788—4-Pc. Measuring Tool Set
This is the set you need for accurate measurements. Includes a stainless steel 6" dial caliper, a 6" scale with inch scale on one side and a metric scale on the other, a 1" carbide-tipped micrometer with vernier scale, and a 4" precision square with beveled edge. Comes with molded case and micrometer adjustment wrench.

Figure 122. G9788 4-Pc. Measuring Tool Set.

H7991—Mini Mag Base Indicator Set
Set features a 7 Jewel indicator with 0.0005" resolution. The mini magnetic base measures 1\(\frac{3}{16}\)" x 1\(\frac{3}{16}\)" x 1\(\frac{3}{8}\)" and includes a single lock knob for easy setups. Includes 2 dovetail tool posts and a protective plastic case.

Figure 123. H7991 Mini Mag Base Indicator Set.

H5930—4-Pc. Center Drill Set 60°
Double-ended HSS Center Drills are precision ground. Each set includes sizes 1–4.

<table>
<thead>
<tr>
<th>SIZE</th>
<th>BODY DIA.</th>
<th>DRILL DIA.</th>
<th>OVERALL LENGTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>(\frac{1}{8})&quot;</td>
<td>(\frac{3}{8})&quot;</td>
<td>1(\frac{1}{4})&quot;</td>
</tr>
<tr>
<td>2</td>
<td>(\frac{3}{16})&quot;</td>
<td>(\frac{5}{32})&quot;</td>
<td>1(\frac{5}{8})&quot;</td>
</tr>
<tr>
<td>3</td>
<td>(\frac{1}{4})&quot;</td>
<td>(\frac{7}{32})&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>4</td>
<td>(\frac{5}{32})&quot;</td>
<td>(\frac{1}{8})&quot;</td>
<td>2(\frac{1}{8})&quot;</td>
</tr>
</tbody>
</table>

Figure 124. HSS ground center-drill sets.

G9361—Heavy-Duty Triple Bearing Live Center

order online at www.grizzly.com or call 1-800-523-4777

Model G0768/G0769 (Mfd. Since 6/17)
T10253—2" Mini Self-Centering Vise with Swivel Base
Ideal for holding small parts and model making. Has self-centering jaws and adjustable gib on a dovetailed way. 2½" jaw opening, 2" jaw width, 2½" crank handle, and base swivels 360°. Overall size is 6¾" L x 4" W x 3½" H with handle removed.

Figure 125. T10253 2" Mini Self-Centering Vise.

4-Flute C-2 Grade Carbide End Mills
These American-made 4-flute Carbide End Mills feature standard cutting lengths and nominal minus diameter tolerances. Recommended for profiling and finishing non-ferrous materials.

<table>
<thead>
<tr>
<th>Model</th>
<th>Cutting Dia.</th>
<th>Flute Lgth</th>
<th>OA Lgth</th>
</tr>
</thead>
<tbody>
<tr>
<td>H3649</td>
<td>1/16&quot;</td>
<td>3/16&quot;</td>
<td>1½&quot;</td>
</tr>
<tr>
<td>H3650</td>
<td>3/32&quot;</td>
<td>3/8&quot;</td>
<td>1½&quot;</td>
</tr>
<tr>
<td>H3651</td>
<td>1/8&quot;</td>
<td>1/2&quot;</td>
<td>1½&quot;</td>
</tr>
<tr>
<td>H3652</td>
<td>5/32&quot;</td>
<td>9/16&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>H3653</td>
<td>3/16&quot;</td>
<td>5/8&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>H3654</td>
<td>7/32&quot;</td>
<td>5/8&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>H3655</td>
<td>1/4&quot;</td>
<td>3/4&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>H3656</td>
<td>9/32&quot;</td>
<td>3/4&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>H3657</td>
<td>5/16&quot;</td>
<td>13/16&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>H3658</td>
<td>3/8&quot;</td>
<td>7/8&quot;</td>
<td>2½&quot;</td>
</tr>
<tr>
<td>H3659</td>
<td>7/16&quot;</td>
<td>1&quot;</td>
<td>2¾&quot;</td>
</tr>
<tr>
<td>H3660</td>
<td>1/2&quot;</td>
<td>1&quot;</td>
<td>3&quot;</td>
</tr>
</tbody>
</table>

Figure 126. 4-flute C-2 grade carbide end mills.

H6195—3" Rotary Table w/ Clamps
For horizontal or vertical use. 3" diameter table rotates 360°. Low profile—only 1.670" tall. 45/16" T-slots. 1:36 ratio or 10° per handwheel revolution. Scale reads to 15 minutes. Has brass lock knob. Table height in horizontal position: 1½"; in vertical position: 3¼".

Figure 127. H6195 3" Rotary Table w/Clamps.

MT#2 End Mill Holders
Hold your end mills in the Model G0769 spindle with these quality end mill holders. Sized for various end mill shanks.

<table>
<thead>
<tr>
<th>Model</th>
<th>MT</th>
<th>Drawbar</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>T25703</td>
<td>#2</td>
<td>3/8&quot;-16 TPI</td>
<td>3/16&quot;</td>
</tr>
<tr>
<td>T25704</td>
<td>#2</td>
<td>3/8&quot;-16 TPI</td>
<td>3/8&quot;</td>
</tr>
<tr>
<td>T25705</td>
<td>#2</td>
<td>3/8&quot;-16 TPI</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>T25706</td>
<td>#2</td>
<td>3/8&quot;-16 TPI</td>
<td>5/8&quot;</td>
</tr>
</tbody>
</table>

Figure 128. MT#2 end mill holders.

order online at www.grizzly.com or call 1-800-523-4777
SECTION 7: MAINTENANCE

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 or not requiring you to reset it before starting the machine again.
- Damaged or malfunctioning components.

Daily, Before Operations

- Add oil to the ball oilers (Page 72).
- Lubricate the leadscrew and carriage rack (Page 73).
- Lubricate the bedways (Page 73).
- Clean/lubricate the cross slide and compound slide (Page 73).
- Disengage the half nut on the carriage (to prevent crashes upon startup).
- Lubricate column ways—G0769 Only (Page 75).
- Lubricate quill outside surface—G0769 Only (Page 75).

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.

Every 90 Hours of Operation

- Lubricate quill rack—G0769 Only (Page 75).
- Lubricate headstock gears—G0769 (Page 76).

Every 120 Hours of Operation

- Lubricate Z-axis leadscrew—G0769 Only (Page 76).

Annually

- Lubricate end gears (Page 74).

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 brush and wet/dry shop vacuum that are 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 68 for offerings from Grizzly) to prevent corrosion.
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 MACHINE FROM POWER!

We recommend using Model SB1365 Way Oil or equivalent (see Page 68) for most lubrication tasks.

**Lubrication Frequency**

<table>
<thead>
<tr>
<th>Lubrication Task</th>
<th>Frequency</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball Oilers</td>
<td>Daily</td>
<td>This Page</td>
</tr>
<tr>
<td>Leadscrew &amp; Carriage Rack</td>
<td>Daily</td>
<td>73</td>
</tr>
<tr>
<td>Bedways</td>
<td>Daily</td>
<td>73</td>
</tr>
<tr>
<td>Feed Gearbox</td>
<td>Annually</td>
<td>73</td>
</tr>
<tr>
<td>Cross Slide &amp; Compound Slide</td>
<td>Daily</td>
<td>73</td>
</tr>
<tr>
<td>End Gears</td>
<td>Annually</td>
<td>74</td>
</tr>
<tr>
<td>Mill Column Ways</td>
<td>Daily</td>
<td>75</td>
</tr>
<tr>
<td>Mill Quill Outside Surface</td>
<td>Daily</td>
<td>75</td>
</tr>
<tr>
<td>Mill Quill Rack</td>
<td>90 Hrs.</td>
<td>75</td>
</tr>
<tr>
<td>Mill Z-Axis Leadscrew</td>
<td>120 Hrs.</td>
<td>76</td>
</tr>
<tr>
<td>Mill Headstock Gears</td>
<td>90 Hrs.</td>
<td>76</td>
</tr>
</tbody>
</table>

**Ball Oilers**

Lube Type ....................................... ISO 32 Equivalent
Lube 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 rubberized 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 129 to identify the location of each ball oiler.

**NOTICE**

The recommended lubrication is based on light-to-medium usage. Since lubrication helps to protect value and operation of machine, these lubrication tasks may need to be performed more frequently than recommended, depending on usage.

Failure to follow reasonable lubrication practices as instructed in this manual could lead to premature failure of machine components and will void the warranty.
**Leadscrew & Carriage Rack**
Lube Type: Model SB1365 or ISO 68 Equivalent  
Lube Amount: As Needed  
Lubrication Frequency: Daily

Before lubricating the leadscrew and carriage rack (see Figure 130), 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.

**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.

![Figure 130. Leadscrew, rack and bedways.](image)

**Bedways**
Lube Type: Model SB1365 or ISO 68 Equivalent  
Lube Amount: As Needed  
Lubrication Frequency: Daily

Before lubricating the bedways (see Figure 130), 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.

**Feed Gearbox**
Lube Type: Model T23964 or NLGI#2 Equivalent  
Lubrication Frequency: Annually or As Needed

The gearbox can be quickly lubricated (as necessary or if noisy) by removing the set screw shown in Figure 109 and adding a shot or two of grease from a grease gun. The grease inside the gearbox will eventually need to be replaced. To do this, remove the gearbox cover, use mineral spirits and a stiff brush to clean gears, allow them to dry, reapply new grease, and re-install cover.

![Figure 131. Feed gearbox quick lubrication location.](image)

**Cross Slide & Compound Slide**
Lube Type: Model SB1365 or ISO 68 Equivalent  
Lube Amount: Thin Coat  
Lubrication Frequency: Daily

Use the handwheels to separately move the cross slide and compound rest as far forward as possible (see Figure 132). 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 132. Location of bottom slides.](image)
**End Gears**

Lube Type..Model T23964 or NLGI#2 Equivalent Frequency............. Annually or When Changing

The end gears, shown in Figure 133, should always have a thin coat of heavy grease to minimize corrosion, noise, and wear. Wipe away excess grease that could be thrown onto the V-belts and reduce optimal power transmission from the motor.

![End Gears](image)

**Figure 133.** End gears.

**Handling & Care**

Make sure to clean and lubricate any gears you install or change. Be very careful during handling and storage—the grease coating on the gears will easily pickup dirt or debris, which can then spread to the other gears and increase the rate of wear.

Make sure the end cover remains installed whenever possible to keep the gears free of dust or debris from the outside environment.

**Lubricating**

1. DISCONNECT MACHINE FROM POWER!

2. Remove end gear cover and all end gears shown in Figure 133.

3. Clean end gears thoroughly with mineral spirits to remove old grease. Use a small brush if necessary to clean between teeth.

4. Clean shafts, and wipe away any grease splatters in vicinity and on inside of end cover.

5. Using a clean brush, apply a thin layer of white lithium grease on the gears. Make sure to get grease between gear teeth, but do not fill teeth valleys.

6. Apply a small dab of grease to each gear shaft.

7. Install end gears and mesh them together with an approximate 0.002"–0.004" backlash. Once gears are meshed together, apply a small dab of grease between them where they mesh together—this grease will be distributed when gears rotate and re-coat any areas scraped off during installation.

8. Re-install end cover before re-connecting machine to power.
**Column Ways (G0769)**

Lube Type: Model SB1365 or ISO 68 Equivalent  
Lube Amount: ........................................ Thin Coat  
Lubrication Frequency: ............................... Daily

Regular lubrication will ensure your milling headstock performs at its highest potential. Regularly wipe table and column ways with recommended lubrication, then move components back and forth several times to ensure smooth movements (see **Figure 134**).

![Z-Axis Ways (1 of 2)](image)

*Figure 134. Z-axis way lubrication location.*

**Quill Rack**

Lube Type: Model T23964 or NLGI#2 Equivalent  
Lube Amount: ........................................ Thin Coat  
Lubrication Frequency: ............................... 90 hrs. of Operation

Move quill all the way down to gain full access to quill rack (see **Figure 136**), lock the quill in place, then clean teeth with mineral spirits, shop rags, and a brush.

![Quill Rack](image)

*Figure 136. Quill rack location.*

When dry, use a brush to apply a thin coat of grease to teeth, then raise/lower the quill several times to evenly distribute grease.

**Note:** Re-apply oil that may have been removed during the cleaning process to the quill surface around the rack.

**Quill Outside Surface**

Lube Type: Model SB1365 or ISO 68 Equivalent  
Lube Amount: ........................................ Thin Coat  
Lubrication Frequency: ............................... Daily

Without disturbing grease on quill rack, clean outside smooth surface of quill (see **Figure 135**) with mineral spirits and shop rags.

![Quill Outside Surface](image)

*Figure 135. Outside surface of quill.*

When dry, apply thin coat of lubricant to smooth surface, then move spindle up and down to evenly distribute oil.
Z-Axis Leadscrew (G0769)
Lube Type: Model T23964 or NLGI#2 Equivalent
Lube Amount: Thin Coat
Lubrication Frequency: 120 hrs. of Operation

To lubricate Z-axis leadscrew:
1. Lower headstock approximately ¾ of the way down the Z-axis ways, as shown in Figure 137.
2. Use mineral spirits and a brush to clean as much existing grease and debris off of Z-axis leadscrew shown in Figure 137 as possible. When dry, apply NLGI#2 grease to exposed leadscrew threads. Move headstock through its full range of motion several times to disperse grease along full length of leadscrew.

Headstock Gears (G0769)
Lube Type: Model T23964 or NLGI#2 Equivalent
Lube Amount: Thin Coat
Lubrication Frequency: 90 hrs. of Operation

To lubricate headstock gears:
1. Remove cap screw and headstock gear access cover, as shown in Figure 138.
2. Using small brush, apply thin coat of grease to headstock gears.
3. Operate mill/drill in both high and low gear settings to work grease through gears.
4. Re-install access cover and cap screw removed in Step 1.
Machine Storage

To prevent the development of rust and corrosion, the lathe must be properly prepared if it will be stored for a long period of time. Doing this will ensure the lathe remains in good condition for later use.

Preparing Machine for Storage

1. DISCONNECT MACHINE 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 and that 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 electrical box.

5. Cover machine 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. Move mill headstock up and down column (Model G0769 only).

Bringing Machine Out of Storage

1. Remove moisture-absorbing desiccant packs from electrical box.

2. Repeat Test Run and Spindle Break-In procedures, beginning on Page 27.

To prevent the development of rust and corrosion, the lathe must be properly prepared if it will be stored for a long period of time. Doing this will ensure the lathe remains in good condition for later use.
Review the troubleshooting procedures in this section if a problem develops with your machine. If you need replacement parts or additional help with a procedure, call our Technical Support. **Note: Please gather the serial number and manufacture date of your machine before calling.**

## Troubleshooting

### Motor & Electrical

<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. 2. Incorrect power supply voltage. 3. Blown fuse. 4. Power supply circuit breaker tripped or fuse blown. 5. Wiring open/has high resistance. 6. On/Off switch at fault. 7. Spindle speed dial in OFF position or at fault. 8. Spindle direction switch turned to &quot;0&quot; or at fault. 9. Lathe/mill selector switch in neutral, or at fault. 10. Motor brushes at fault. 11. Motor at fault. 12. Spindle rotation switch at fault.</td>
<td>1. Press side tab in and lift switch cover. Press On button to reset; replace if not working properly. 2. Ensure correct power supply voltage. 3. Replace fuse/ensure no shorts (Page 85). 4. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse. 5. Check/fix broken, disconnected, or corroded wires. 6. Replace switch. 7. Turn spindle speed dial past &quot;0&quot;. Ensure dial has correct voltage. Replace if faulty. 8. Turn spindle direction switch to &quot;F&quot; or &quot;R&quot;. Ensure dial has correct voltage. Replace if faulty. 9. Turn lathe/mill selector switch to &quot;lathe&quot; or &quot;mill&quot; mode. Replace if faulty. 10. Remove/replace brushes (Page 86). 11. Test/repair/replace. 12. Test/replace switch.</td>
</tr>
<tr>
<td>Machine has vibration or noisy operation.</td>
<td>1. Motor or component loose. 2. Bit chattering. 3. V-belt(s) worn or loose. 4. Motor fan rubbing on fan cover. 5. Motor mount loose/broken.</td>
<td>1. Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid. 2. Replace/sharpen bit; index bit to workpiece; use correct feed rate and cutting RPM; retract tool holder and position workpiece closer. 3. Inspect/replace belts with a new matched set. 4. Fix/replace fan cover; replace loose/damaged fan. 5. Tighten/replace.</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. 2. Dull tooling or poor tool selection. 3. Tool height not at spindle centerline. 4. Too much play in gibs.</td>
<td>1. Adjust for appropriate spindle speed and feed rate. 2. Sharpen tooling or select a better tool for the intended operation. 3. Adjust tool height to spindle centerline (see Page 45). 4. Tighten gibs (see Page 83).</td>
</tr>
<tr>
<td>Tapered tool difficult to remove from tailstock quill.</td>
<td>1. Quill not fully retracted into tailstock. 2. Contaminants not removed from taper before inserting into quill.</td>
<td>1. Turn quill handwheel until tapered tool is forced out of quill. 2. Clean taper and bore, then re-install tool.</td>
</tr>
<tr>
<td>Cross slide, compound rest, or carriage feed has sloppy operation.</td>
<td>1. Ways loaded with shavings, dust, or grime. 2. Gibs are out of adjustment. 3. Handwheel loose or excessive backlash. 4. Leadscrew mechanism worn or out of adjustment.</td>
<td>1. Clean ways and relubricate. 2. Adjust gib (see Page 83). 3. Tighten handwheel fasteners, adjust handwheel backlash to a minimum (see Page 82). 4. Adjust leadscrew to remove end play (see Page 82).</td>
</tr>
<tr>
<td>Cutting tool or machine components vibrate excessively during cutting.</td>
<td>1. Tool holder not tight enough. 2. Cutting tool sticks too far out of tool holder; lack of support. 3. Gibs are out of adjustment. 4. Dull cutting tool. 5. Incorrect spindle speed or feed rate.</td>
<td>1. Check for debris, clean, and retighten. 2. Re-install cutting tool so no more than 1/3 of the total length is sticking out of tool holder. 3. Adjust gib at affected component (see Page 83). 4. Replace or resharpen cutting tool. 5. Use the recommended spindle speed and feed rate.</td>
</tr>
<tr>
<td>Workpiece is tapered.</td>
<td>1. Headstock and tailstock not properly aligned.</td>
<td>1. Re-align tailstock to headstock spindle centerline (see Page 39).</td>
</tr>
<tr>
<td>Chuck jaws will not move or do not move easily.</td>
<td>1. Chips lodged in jaws or scroll plate.</td>
<td>1. Remove jaws, clean and lubricate scroll plate, then replace jaws.</td>
</tr>
</tbody>
</table>
### Mill Operation

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Possible Cause</th>
<th>Possible Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tool slips in spindle.</td>
<td>1. Tool is not fully drawn up into spindle taper.</td>
<td>1. Tighten drawbar (Do not overtighten).</td>
</tr>
<tr>
<td></td>
<td>2. Debris on tool or in spindle taper.</td>
<td>2. Clean collet and spindle taper.</td>
</tr>
<tr>
<td></td>
<td>3. Taking too big of cut.</td>
<td>3. Lessen depth of cut and allow chips to clear.</td>
</tr>
<tr>
<td>Breaking tools or cutters.</td>
<td>1. Spindle speed/feed rate is too fast.</td>
<td>1. Set spindle speed correctly (Page 67) or use slower feed rate.</td>
</tr>
<tr>
<td></td>
<td>2. Cutting tool too small.</td>
<td>2. Use larger cutting tool and slower feed rate.</td>
</tr>
<tr>
<td></td>
<td>3. Cutting tool getting too hot.</td>
<td>3. Use coolant fluid or oil for appropriate application if possible.</td>
</tr>
<tr>
<td></td>
<td>4. Taking too big of a cut.</td>
<td>4. Lessen depth of cut and allow chips to clear.</td>
</tr>
<tr>
<td></td>
<td>5. Spindle extended too far down.</td>
<td>5. Fully retract spindle and lower headstock. This increases rigidity.</td>
</tr>
<tr>
<td>Workpiece vibrates or chatters during</td>
<td>1. Workpiece not secure.</td>
<td>1. Properly clamp workpiece on table or in vise.</td>
</tr>
<tr>
<td>operation.</td>
<td>2. Spindle speed/feed rate is too fast.</td>
<td>2. Set spindle speed correctly (Page 67) or use slower feed rate.</td>
</tr>
<tr>
<td></td>
<td>3. Spindle extended too far down.</td>
<td>3. Fully retract spindle and lower headstock. This increases rigidity.</td>
</tr>
<tr>
<td>Cross slide table is hard to move.</td>
<td>1. Chips have loaded up on ways.</td>
<td>1. Frequently clean away chips that load up during milling operations.</td>
</tr>
<tr>
<td></td>
<td>2. Ways are dry and need lubrication.</td>
<td>2. Lubricate ways (Page 73).</td>
</tr>
<tr>
<td></td>
<td>3. Gibs are too tight.</td>
<td>3. Adjust gibs (see Page 83).</td>
</tr>
<tr>
<td>Bad surface finish.</td>
<td>1. Spindle speed/feed rate is too fast.</td>
<td>1. Set spindle speed correctly (Page 67) or use a slower feed rate.</td>
</tr>
<tr>
<td></td>
<td>2. Using dull or incorrect cutting tool.</td>
<td>2. Sharpen cutting tool or select one that better suits operation.</td>
</tr>
<tr>
<td></td>
<td>3. Wrong rotation of cutting tool.</td>
<td>3. Check for proper cutting rotation for cutting tool.</td>
</tr>
<tr>
<td></td>
<td>4. Workpiece not secure.</td>
<td>4. Properly clamp workpiece on table or in vise.</td>
</tr>
<tr>
<td></td>
<td>5. Spindle extended too far down.</td>
<td>5. Fully retract spindle and lower headstock. This increases rigidity.</td>
</tr>
</tbody>
</table>
Tensioning & Replacing V-Belts

V-belts stretch and wear with use, so it is important to routinely monitor belt tension. V-belts that are improperly tensioned or exposed to grease/oil will slip and poorly transmit power from the motor. To ensure optimal power transmission, inspect belts on a monthly basis to verify they are properly tensioned and free of grease/oil. Replace V-belts when they become cracked, frayed, or glazed.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hex Wrench 3, 4mm</td>
<td>1 Ea.</td>
</tr>
<tr>
<td>Open-End Wrench 10, 13 mm</td>
<td>1 Ea.</td>
</tr>
</tbody>
</table>

To adjust tension or replace V-belts:

1. DISCONNECT MACHINE FROM POWER!

2. Remove end cover and electrical panel (see Figure 139).

3. Using flat 10mm wrench provided with lathe, hold pivot block bolt shown in Figure 140, and loosen hex nut with 13mm wrench.

4. Turn tensioner screw (see Figure 141) clockwise to tension V-belts or counterclockwise to loosen V-belts.

   —If replacing V-belts, loosen idler pulley and carefully roll upper and lower V-belts off of pulleys, then re-install new V-belts in same manner.

![Figure 141. Tensioner screw and V-belts.](image)

5. Tension V-belts until there is approximately 1/8" deflection when pushed with moderate pressure, as shown in Figure 142.

![Figure 142. Correct V-belt deflection.](image)

   —If there is more than 1/8" deflection when the V-belts are pushed with moderate pressure, adjust tension until it is correct.

6. Tighten pivot block bolt and hex nut loosened in Step 3.

7. Re-install and secure end cover and electrical panel.
Adjusting Backlash

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 nut and leadscrew.

**NOTICE**

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

Cross Slide

Tools Needed:  
Hex Wrench 3mm ............................................. 1

The cross slide backlash is adjusted by tightening and loosening the set screw shown in Figure 139. The set screw adjusts the height of the leadscrew nut, taking up lash between the nut and leadscrew.

Figure 143. Cross slide backlash adjustment.

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.

Adjusting Leadscrew End Play

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

Tools Needed  
Hex Wrench 4mm.............................................. 1  
Open-End Wrench 14mm................................. 1

To remove leadscrew end play:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen set screw shown in Figure 144 several turns.

3. Tighten retaining nut with your fingers so it just contacts end bracket, then back nut off ½ turn.

4. Hold nut in position and tighten set screw against leadscrew until snug.

Figure 144. Leadscrew end play adjustments.
Adjusting Gibs

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 cross-slide and compound slide both use a straight gib, which is adjusted with cap screws and hex nuts along its length. The screws push the gib in to create more contact with the sliding surfaces. The Z-axis ways (G0769 only) use a tapered gib, which is adjusted with screws on each end.

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 72 for instructions and lubricant specifications.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
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<tr>
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<td>Hex Wrench 3mm</td>
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<tr>
<td>Flat Head Screwdriver #2</td>
<td>1</td>
</tr>
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</table>

1. DISCONNECT MACHINE FROM POWER!

2. Loosen hex nuts on side of cross slide or compound slide (see Figures 145–146).

3. Adjust all corresponding 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 set screws from moving, then retighten hex nuts to secure settings.

5. Re-check movement of slide and, if necessary, repeat Steps 2–4.
Adjusting Z-Axis Way Gib
Loosen one gib adjustment screw (see Figure 147) and tighten the opposing screw the same amount to move the gib, while at the same time using the handwheel to move the headstock until you feel a slight drag in the path of movement.

Adjusting Half Nut
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.

Tools Needed

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

To adjust half nut:

1. DISCONNECT MACHINE FROM POWER!
2. Disengage half nut.
3. Loosen thread dial cap screw, tilt dial out of way, then secure to access gib screws and nuts (see Figure 148).
4. Loosen gib nuts and adjust screws in small, even increments so one end of the gib does not become tighter than the other.
5. 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.
6. Repeat Steps 4–5, if necessary, until satisfied with feel of half nut engagement.
7. Re-install thread dial so teeth mesh with leadscrew, then tighten cap screw.
Replacing Leadscrew Shear Pin

The longitudinal leadscrew is secured to the feed rate gearing in the headstock with the use of a soft-metal shear pin (see Figure 149). The shear pin is designed to break and disengage power to the leadscrew to help protect more expensive lathe components if you crash your carriage or take too large of a cut and overload the lathe.

Replacement shear pin part number: P0768334.

Figure 149. Longitudinal leadscrew shear pin.

Tools Needed

<table>
<thead>
<tr>
<th>Tool</th>
<th>Qty</th>
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</thead>
<tbody>
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<td>Hammer</td>
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</tr>
<tr>
<td>Punch 3mm</td>
<td>1</td>
</tr>
</tbody>
</table>

To replace shear pin:

1. DISCONNECT MACHINE FROM POWER!

2. Rotate leadscrew so shear pin faces up and down. If connecting collar rotates independently from leadscrew, then rotate collar so shear pin hole aligns with those in leadscrew.

3. Use punch and hammer to drive out pieces of old shear pin.

4. Make sure hole in collar and leadscrew are aligned, then tap new shear pin completely through holes in collar and leadscrew.

Replacing Fuse

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

The Model G0768 has two fuses, the Model G0769 has three fuses.

G0768 Replacement Fuses: (1) P0768906, (1) P0768911.
G0769 Replacement Fuses: (1) P0769906, (2) P0768911.

To replace fuses:

1. DISCONNECT MACHINE FROM POWER!

2. Unthread fuse holders (see Figure 150) by rotating them counterclockwise, then remove fuses.

3. Insert new fuses.

4. Re-install fuse holders.

Figure 150. Fuse holders and fuses (Model G0768 shown).
Replacing Brushes

This machine is equipped with one (G0768) or two (G0769) universal motors that use carbon brushes to transmit electrical current inside the motor. These brushes are considered to be regular "wear items" or "consumables" that will eventually need to be replaced. The frequency of this replacement is directly 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>Qty</th>
<th>Hex Wrench 3, 4mm</th>
<th>1 Ea</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Flat Head Screwdriver #2</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Phillips Head Screwdriver #2</td>
<td>1</td>
</tr>
</tbody>
</table>

G0768/G0769 Lathe Motor Replacement Brushes: P0768046
G0769 Mill Motor Replacement Brushes: P0769786

Replacing Lathe Motor Brushes

1. **DISCONNECT MACHINE FROM POWER!**

2. Remove end cover, electrical panel, and back splash to access motor brushes.

   **Note:** Carefully handle the electrical panel. Try to avoid straining any wires so they do not disconnect. On Model G0769 remove mill motor cable harness and cable clamp from back splash before removing it.

3. Loosen tensioner screw several turns (see Figure 151) to remove tension on V-belts.

4. Remove motor mount cap screws (see Figure 151).

5. Rotate motor to access top motor brush shown in Figure 152.

6. Unscrew brush cap and carefully remove brush from motor (see Figure 153).

7. Install new brush and re-install brush cap.

8. Repeat Steps 5–7 to replace bottom motor brush.


10. Tension V-belts (refer to Tensioning V-Belts on Page 81 for details).

11. Re-install back splash, electrical panel, and end cover.

12. **G0769 Only:** Re-install cable harness onto back splash with cable clamp.
Replacing Mill Motor Brushes (G0769)

1. **DISCONNECT MACHINE FROM POWER!**

2. Remove drawbar cap, then remove motor cover by removing cap screws (see Figure 154).

3. Unscrew front brush cap and carefully remove brush from motor (see Figure 155).

4. Install new brush and re-install brush cap.

5. Repeat **Steps 3–4** to replace rear motor brush.

6. Replace mill motor cover and drawbar cap.

**Figure 154.** Location of mill motor cover screws.

**Figure 155.** Front motor brush components removed.
SECTION 9: WIRING

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

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

WARNING

Wiring Safety Instructions

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

MODIFICATIONS. Modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire. This includes the installation of unapproved 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 BL - BLUE BL - YELLOW Y1 - LIGHT BLUE LB - WHITE W - BROWN BR - YELLOW Y2 - BLUE BW - GREEN GR - PURPLE Pu - WHITE W - RED RD - ORANGE OR - PINK Pk - TURQUOISE Tu -
G0768 Wiring Overview

- Direction Switch
- Emergency Stop
- Fuses and Plug
- JD-014 REV 091111 Circuit Board
- DC Motor Speed Control JYMC-220B-II
- JD-013 REV C 120823 Circuit Board
- DRO
- RPM Sensor (Inside)
- Potentiometer
- Motor (Inside) 110V 10A Single-Phase ¾ HP 5250 RPM
G0768 Wiring Photos

Figure 156. Front panel.

Figure 157. Top panel.

Figure 158. RPM sensor.

Figure 159. Back panel.
G0769 Wiring Overview

Mill Motor (Inside)
110V 10A
Single-Phase
3/4 HP 4800 RPM

Lathe/Mill Selector Switch

Fuses and Plug

Speed Control Circuit Board

Filter Circuit Board

Direction Switch

Emergency Stop

RPM Sensor (Inside)

Potentiometer

Lathe Motor (Inside)
110V 10A
Single-Phase
3/4 HP 5250 RPM

DRO
## SECTION 10: PARTS

### Headstock

<table>
<thead>
<tr>
<th>REF</th>
<th>PART #</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>P0768001</td>
<td>CAP SCREW M5-.8 X 25</td>
</tr>
<tr>
<td>2</td>
<td>P0768002</td>
<td>FLAT WASHER 5MM</td>
</tr>
<tr>
<td>3</td>
<td>P0768003</td>
<td>MOTOR 600W 110VDC (G0768)</td>
</tr>
<tr>
<td>3</td>
<td>P0769003</td>
<td>MOTOR 600W 110VDC (G0769)</td>
</tr>
<tr>
<td>4</td>
<td>P0768004</td>
<td>MOTOR PULLEY</td>
</tr>
<tr>
<td>5</td>
<td>P0768005</td>
<td>KEY 4 X 4 X 20</td>
</tr>
<tr>
<td>6</td>
<td>P0768006</td>
<td>SET SCREW M6-1 X 8</td>
</tr>
<tr>
<td>7</td>
<td>P0768007</td>
<td>V-BELT 5M375 GATES POLYFLEX (G0768)</td>
</tr>
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<td>P0769007</td>
<td>V-BELT 5M387 GATES POLYFLEX (G0769)</td>
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<td>P0768008</td>
<td>MOTOR MOUNT (G0768)</td>
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<td>MOTOR MOUNT (G0769)</td>
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<td>9</td>
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<td>FLAT WASHER 8MM</td>
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<td>10</td>
<td>P0768010</td>
<td>CAP SCREW M8-1.25 X 20</td>
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<td>MOUNT BLOCK</td>
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<td>12</td>
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<td>P0768013</td>
<td>TENSION ADJUSTMENT BLOCK</td>
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<td>15</td>
<td>P0768015</td>
<td>PIVOT BLOCK BOLT M8-1.25 X 35</td>
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<td>16</td>
<td>P0768016</td>
<td>IDLER PIVOT BLOCK</td>
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<td>P0768017</td>
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<td>18</td>
<td>P0768018</td>
<td>HEX NUT M6-1.25</td>
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<td>19</td>
<td>P0768019</td>
<td>INT RETAINING RING 8MM</td>
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<td>P0768020</td>
<td>IDLER SHAFT</td>
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<td>P0768021</td>
<td>BALL BEARING 608ZZ</td>
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<td>IDLER PULLEY</td>
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<td>INT RETAINING RING 22MM</td>
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<td>P0768027</td>
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<td>END GEAR COVER (G0769)</td>
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<td>STUD-DE M10-1.5 X 90, 35</td>
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<td>KNUERLED KNOB M10-1.5</td>
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<td>P0768038</td>
<td>CASTING SEAL</td>
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<td>TAPERED ROLLER BEARING 30206</td>
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<td>BLOCK, ROUND ENDS</td>
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Model G0768/G0769 (Mfd. Since 6/17)
# Carriage Components & Accessories

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<td>TOOL POST HANDLE M5-.8 X 5</td>
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<td>102</td>
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<td>TOOL POST HUB</td>
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<td>INDENT PIN</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](http://www.grizzly.com) to check for availability.
Steady & Follow Rest

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Model G0768/G0769 (Mfd. Since 6/17)
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<td>HEX BOLT M3-.5 X 6</td>
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<td>783</td>
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<td>SPEED SENSOR CORD</td>
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<td>HEX BOLT M3-.5 X 6</td>
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<td>785</td>
<td>P0769785</td>
<td>DRAWBAR 3/8-16 X 8-1/2</td>
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<td>786</td>
<td>P0769786</td>
<td>MOTOR CARBON BRUSH 2-PC SET</td>
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<td>787</td>
<td>P0769787</td>
<td>MOTOR CARBON BRUSH CAP</td>
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<tr>
<td>788</td>
<td>P0769788</td>
<td>PRELOAD ADJUSTMENT SCREW M5-.8 X 10</td>
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## G0768 Labels & Cosmetics

### INDICATOR TABLE

<table>
<thead>
<tr>
<th>REF</th>
<th>PART #</th>
<th>DESCRIPTION</th>
<th>REF</th>
<th>PART #</th>
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<tr>
<td>701</td>
<td>P0768701</td>
<td>FEED RATE CHART LABEL</td>
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<td>COMBO WARNING LABEL</td>
<td>709</td>
<td>P0768709</td>
<td>GEARBOX LABEL</td>
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<td>703</td>
<td>P0768703</td>
<td>GENERAL WARNINGS LABEL</td>
<td>710</td>
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<td>VARIABLE SPEED LABEL</td>
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<td>705</td>
<td>P0768705</td>
<td>GRIZZLY PUTTY TOUCH-UP PAINT</td>
<td>712</td>
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<td>PINCH/ENTANGLEMENT WARNING LABEL</td>
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<td>P0768706</td>
<td>GRIZZLY GREEN TOUCH-UP PAINT</td>
<td>713</td>
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<td>OVERHEATING MOTOR NOTICE LABEL</td>
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<td>707V2</td>
<td>P0768707V2</td>
<td>THREAD DIAL CHART V2.04.16</td>
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</tbody>
</table>

### WARNING

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.
## INDICATOR TABLE

<table>
<thead>
<tr>
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<tr>
<td>Even</td>
<td>1, 3, 5, 7</td>
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### Safety Labels and Cosmetics

- **MACHINE ID LABEL** (Part #: P0769801)
- **GRIZZLY PUTTY TOUCH-UP PAINT** (Part #: P0769802)
- **THREAD DIAL CHART V2.04.16** (Part #: P0769803V2)
- **GRIZZLY GREEN TOUCH-UP PAINT** (Part #: P0769804)
- **FEED DIRECTION LABEL** (Part #: P0769805)
- **CONTROL PANEL LABEL** (Part #: P0769806)
- **GEAR CONFIGURATION CHART LABEL** (Part #: P0769807)
- **DISCONNECT POWER WARNING LABEL** (Part #: P0769808)
- **SPINDLE SPEED HAZARD LABEL** (Part #: P0769809)
- **COMBO WARNING LABEL** (Part #: P0769810)
- **GRIZZLY LOGO LABEL (RED)** (Part #: P0769811)
- **LOW/HI SPEED LABEL** (Part #: P0769812)
- **ENTANGLEMENT HAZARD LABEL** (Part #: P0769813)
- **ELECTRICITY LABEL** (Part #: P0769814)
- **OVERHEATING MOTOR NOTICE LABEL** (Part #: P0769815)

---

**WARNING**

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## G0768 Electrical Component Diagram

### Top Panel
- 902
- 903
- 905
- 906
- 908
- 909
- 910
- 904
- 905

### Front Panel
- 912

### Inside Electrical Compartment
- 911
- 910

### Rear Panel
- 912

### Reference Parts

<table>
<thead>
<tr>
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<th>DESCRIPTION</th>
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<tr>
<td>902</td>
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<td>E-STOP KEDU JD17B 120V</td>
</tr>
<tr>
<td>903</td>
<td>P0768903</td>
<td>ROTARY SWITCH KEDU ZHA EN61058</td>
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<tr>
<td>904</td>
<td>P0768904</td>
<td>DRO CIRCUIT BOARD</td>
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<td>905</td>
<td>P0768905</td>
<td>POTENTIOMETER WX14-12 1K7</td>
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<td>FUSE 15A 250V FAST-ACTING GLASS</td>
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<td>907</td>
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<td>FUSE HOLDER MF528 15A 250V</td>
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<tr>
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<td>RPM SENSOR</td>
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G0769 Electrical Component Diagram

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### Threading & Feeding Chart

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### Thread Dial Chart

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<td>18</td>
<td>1-8</td>
</tr>
<tr>
<td>24</td>
<td>1-8</td>
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All Others 1, 4, 7

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**INDICATOR TABLE**

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<tr>
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<tbody>
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<td>9</td>
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<td>18</td>
<td>1-8</td>
</tr>
<tr>
<td>24</td>
<td>1-8</td>
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</tbody>
</table>

All Others 1, 4, 7
WARRANTY CARD

Name___________________________________________________________________________
Street___________________________________________________________________________
City _______________________ State _________________________ Zip _____________________
Phone # ____________________ Email _________________________________________________
Model # ____________________ Order # _______________________ Serial # __________________

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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