



MODEL G0750GV
12" X 36" EVS GUNSMITHING
LATHE w/DRO

OWNER'S MANUAL

(For models manufactured since 03/18)



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**WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE
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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.



WARNING!

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

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

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

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INTRODUCTION

Machine Description

The Model G0750GV 12" x 36" Gunsmithing Lathe features an electronic variable-speed (EVS) spindle control and a built-in two-axis DRO. The totally enclosed gearbox gives you quieter operation, smoother performance, reduced oil-change frequency, and longer gear and bearing life. Also includes an outboard spindle "spider" support and a tailstock with 1/2" square-drive lock-down for precise alignment of centers—specifically for professional gunsmiths.

This lathe is packed with high-end features and all the essential accessories you need to get started.

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
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Bellingham, WA 98227-2069
Email: manuals@grizzly.com

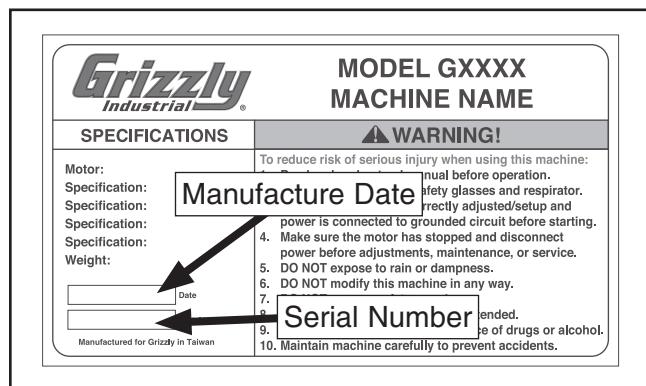
Manual Accuracy

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

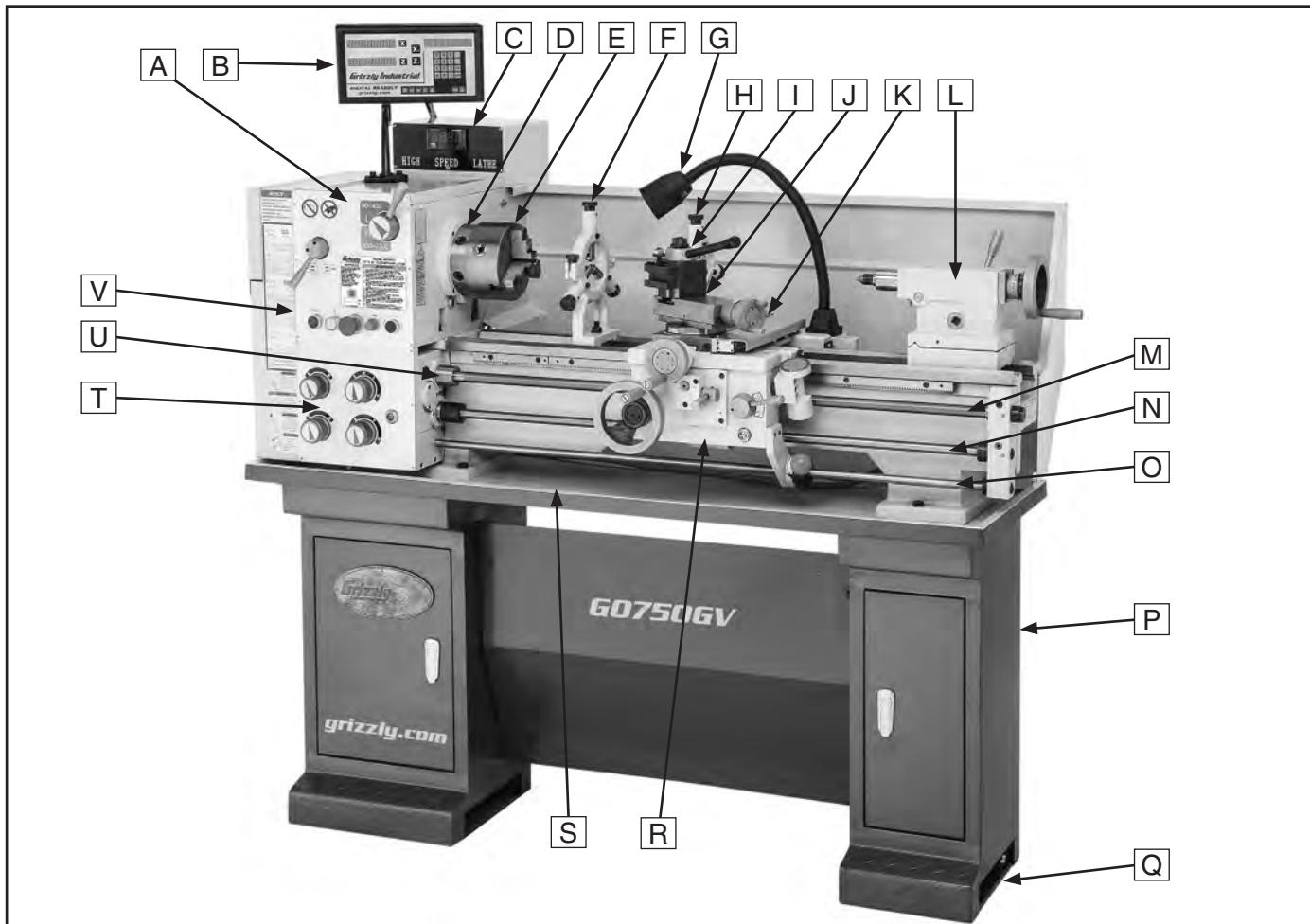
We made every effort to be exact with the instructions, specifications, drawings, and photographs in this manual. Sometimes we make mistakes, but our policy of continuous improvement also means that **sometimes the machine you receive is slightly different than shown in the manual**.

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.



Identification



- A.** Headstock
- B.** X/Z-Axis DRO
- C.** Spindle Speed Tachometer
- D.** D1-5 Camlock MT#5 Spindle
- E.** 3-Jaw Chuck 6"
- F.** Steady Rest
- G.** LED Work Light
- H.** Follow Rest
- I.** Quick-Change Tool Post
- J.** Compound Rest
- K.** Cross Slide w/DRO

- L.** Tailstock (see **Page 5** for details)
- M.** Longitudinal Leadscrew
- N.** Feed Rod
- O.** Control Rod
- P.** Storage Cabinet
- Q.** Stand Mounting Points
- R.** Carriage (see **Page 4** for details)
- S.** Chip Tray
- T.** Quick-Change Gearbox
- U.** Leadscrew Safety Clutch
- V.** Headstock Controls (see **Page 4** for details)

!WARNING

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

!WARNING

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



Controls & Components

Refer to Figures 1–6 and the following descriptions to become familiar with the basic controls of this lathe.

Headstock

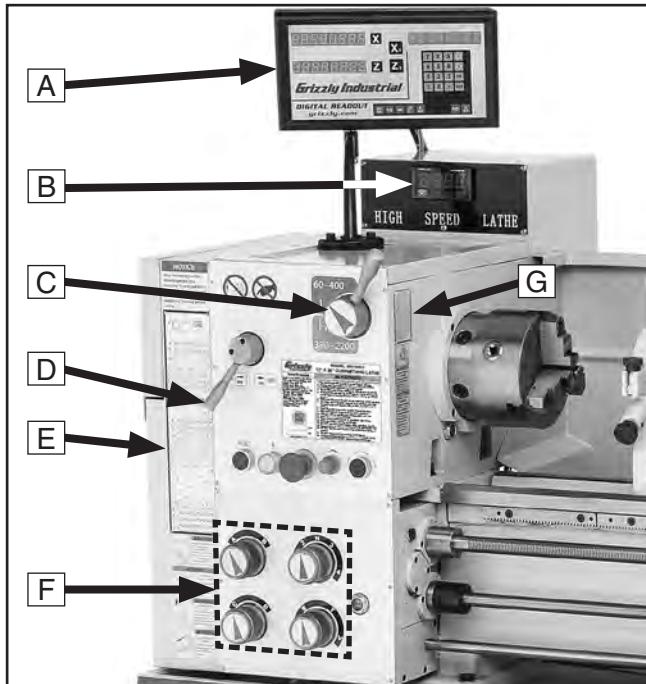


Figure 1. Headstock controls.

- A. **X/Z-Axis DRO:** Displays travel of carriage and cross slide relative to chuck.
- B. **Spindle-Speed Tachometer:** Shows spindle speed in RPM. (Display remains on as long as machine is connected to power.)
- C. **Spindle-Speed Range Lever:** Used to select low-range spindle speed (60–400 RPM) or high-range spindle speed (380–2200 RPM).
- D. **Feed Direction Lever:** Controls rotation direction of leadscrew and feed rod.
- E. **Thread and Feed Charts:** Display configuration of gearbox dials and end gears for various threading and feeding options.
- F. **Quick-Change Gearbox Dials:** Control the leadscrew and feed rod speed for threading and feeding operations.

Carriage

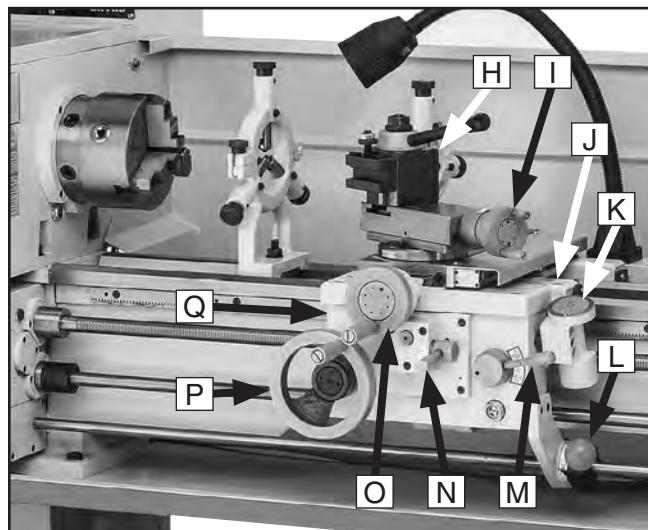


Figure 2. Carriage controls.

- G. **Thread Dial Chart:** Indicates on which thread dial reading to engage the half nut for specific inch thread pitches.
- H. **Quick-Change Tool Post:** Allows the operator to quickly load and unload tools.
- I. **Compound Rest Handwheel:** Moves the tool toward and away from the workpiece at the preset angle of the compound rest.
- J. **Carriage Lock:** Secures the carriage in place for greater rigidity when it should not move.
- K. **Thread Dial:** Indicates when to engage the half nut during threading operations.
- L. **Spindle Lever:** Starts, stops, and reverses direction of spindle rotation.
- M. **Half-Nut Lever:** Engages/disengages the half nut for threading operations.
- N. **Feed Selection Lever:** Selects the carriage or cross slide for power feed.
- O. **Cross Slide Handwheel:** Moves the cross slide toward and away from the workpiece.
- P. **Carriage Handwheel:** Moves the carriage along the bed.
- Q. **Apron:** Houses the carriage gearing and controls.



Tailstock

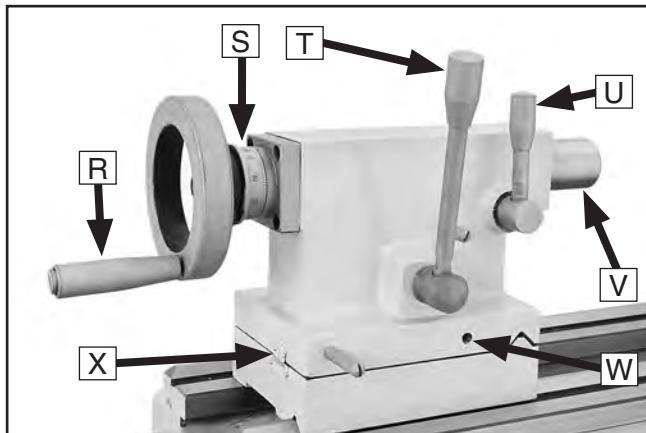


Figure 3. Tailstock controls (rear).

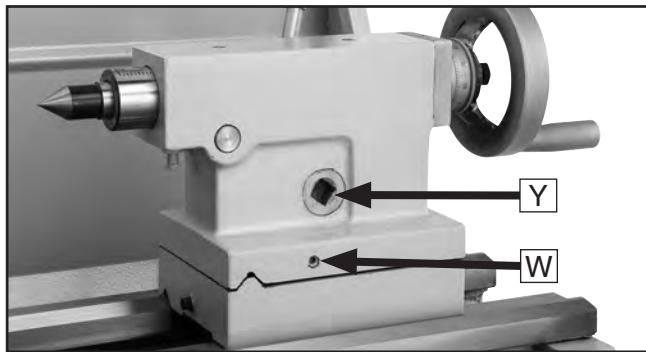


Figure 4. Tailstock controls (front).

- R. **Quill Handwheel:** Moves the quill toward or away from the spindle.
- S. **Graduated Scale:** Indicates quill movement in increments of 0.001" with one full revolution equaling 0.100" of quill travel.
- T. **Tailstock Lock Lever:** Secures the tailstock in position along the bedway.
- U. **Quill Lock Lever:** Secures quill in position.
- V. **Quill:** Moves toward and away from the spindle and holds centers and tooling.
- W. **Tailstock Offset Screws:** Adjusts the tailstock offset left or right from the spindle centerline.
- X. **Offset Scale:** Indicates the relative distance of tailstock offset from the spindle centerline.
- Y. **½" Square Drive Lock-Down:** Use with a torque wrench for precise alignment of centers.

Control Panel

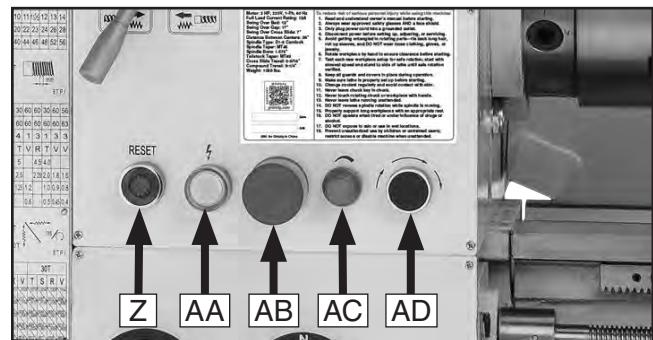


Figure 5. Control panel.

- Z. **RESET Button:** Glows red if machine enters fault mode or has a short circuit. Resets machine functions when pressed *in*.
- AA. **Power Button:** Press to turn machine **ON**. Illuminates when lathe controls are receiving power.
- AB. **Emergency Stop Button:** Push to stop all machine functions. Twist clockwise to reset.
- AC. **Variable Spindle-Speed Dial:** Changes spindle speed within set speed range.
- AD. **Jog/Inching Button:** Starts forward spindle rotation as long as it is pressed.

End Gears

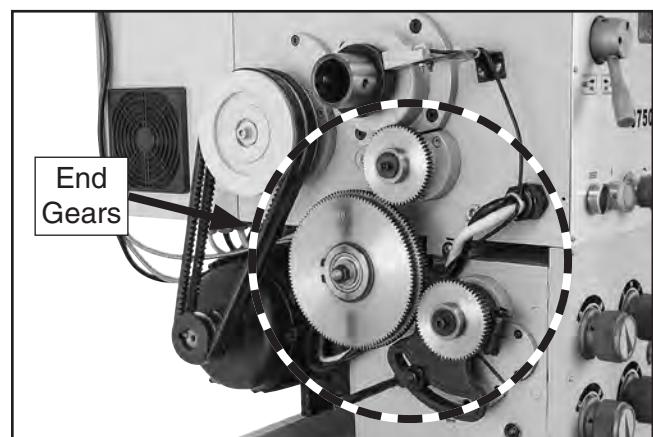


Figure 6. End gear components.

Configuring the end gears shown in **Figure 6** will control the speed of the leadscrew for threading or the feed rod for power feed operations. The rotational speed of these components depends not only on the end-gear configuration, but the spindle speed as well.





MACHINE DATA SHEET

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

MODEL G0750GV 12" X 36" EVS GUNSMITHING LATHE W/ DRO

Product Dimensions:

Weight.....	1059 lbs.
Width (side-to-side) x Depth (front-to-back) x Height.....	67 x 29-1/2 x 56 in.
Footprint (Length x Width).....	61-1/2 x 18 in.

Shipping Dimensions:

Carton #1

Type.....	Wood Crate
Content.....	Machine
Weight.....	882 lbs.
Length x Width x Height.....	67 x 30 x 30 in.
Must Ship Upright.....	Yes

Carton #2

Type.....	Cardboard Box
Content.....	Left Stand
Weight.....	177 lbs.
Length x Width x Height.....	30 x 25 x 21 in.
Must Ship Upright.....	No

Carton #3

Type.....	Cardboard Box
Content.....	Right Stand
Weight.....	177 lbs.
Length x Width x Height.....	30 x 25 x 21 in.
Must Ship Upright.....	No

Electrical:

Power Requirement.....	220V, Single-Phase, 60 Hz
Full-Load Current Rating.....	12A
Minimum Circuit Size.....	15A
Connection Type.....	Cord & Plug
Power Cord Included.....	Yes
Power Cord Length.....	72 in.
Power Cord Gauge.....	14 AWG
Plug Included.....	Yes
Included Plug Type.....	NEMA 6-15
Switch Type.....	Control Panel w/Magnetic Switch Protection
Inverter (VFD) Type.....	Fuji FRN0012C2S-7C
Inverter (VFD) Size.....	3 HP

Motors:

Main

Horsepower.....	2 HP
Phase.....	3-Phase
Amps.....	8.5A
Speed.....	1725 RPM
Type.....	TEFC Frequency
Power Transfer	Twin V-Belt Drive
Bearings.....	Shielded & Permanently Lubricated



Cabinet Fan

Phase.....	1-Phase
Amps.....	0.3A
Type.....	Universal 24V
Power Transfer	Direct
Bearings.....	Sealed & Permanently Lubricated

Main Specifications:

Operation Info

Swing Over Bed.....	12 in.
Distance Between Centers.....	36 in.
Swing Over Cross Slide.....	7 in.
Swing Over Saddle.....	11-11/32 in.
Swing Over Gap.....	17 in.
Maximum Tool Bit Size.....	5/8 in.
Compound Travel.....	3-1/4 in.
Carriage Travel.....	30-1/2 in.
Cross Slide Travel.....	5-5/16 in.

Headstock Info

Spindle Bore.....	1.57 in.
Spindle Taper.....	MT#5
Number of Spindle Speeds.....	Variable Speed
Spindle Speeds.....	60–2200 RPM
Spindle Type.....	D1-5 Camlock
Spindle Bearings.....	High-Precision Tapered Roller
Spindle Length.....	17 in.
Spindle Length with 3-Jaw Chuck.....	21-3/4 in.
Spindle Length with 4-Jaw Chuck.....	21-1/4 in.
Spindle Length with Faceplate.....	18-1/2 in.

Tailstock Info

Tailstock Quill Travel.....	3-3/4 in.
Tailstock Taper.....	MT#3
Tailstock Barrel Diameter.....	1.575 in.

Threading Info

Number of Longitudinal Feeds.....	32
Range of Longitudinal Feeds.....	0.0020–0.0548 in./rev.
Number of Cross Feeds.....	32
Range of Cross Feeds.....	0.0007–0.0187 in./rev.
Number of Inch Threads.....	34
Range of Inch Threads.....	4–56 TPI
Number of Metric Threads.....	26
Range of Metric Threads.....	0.4–7.0mm

Dimensions

Bed Width.....	7-1/4 in.
Carriage Leadscrew Diameter.....	7/8 in.
Leadscrew TPI.....	8 TPI
Carriage Leadscrew Length.....	46-3/4 in.
Steady Rest Capacity.....	3/16 - 1-1/2 in.
Follow Rest Capacity.....	1/4 - 3/4 in.
Faceplate Size.....	10 in.
Feed Rod Diameter.....	3/4 in.
Floor to Center Height.....	46-1/4 in.



Construction

Base.....	Cast Iron
Headstock.....	Cast Iron
End Gears.....	Flame-Hardened Steel
Bed.....	Induction-Hardened, Precision-Ground Cast Iron
Body.....	Cast Iron
Stand.....	Formed Steel
Paint Type/Finish.....	Epoxy

Fluid Capacities

Headstock Capacity.....	3.5 qt.
Headstock Fluid Type.....	ISO 32 Oil (eg. Grizzly T23963, Mobil DTE Light)
Gearbox Capacity.....	1 qt.
Gearbox Fluid Type.....	ISO 68 Oil (eg. Grizzly T23962, Mobil Vactra 2)
Apron Capacity.....	0.5 qt.
Apron Fluid Type.....	ISO 68 Oil (eg. Grizzly T23962, Mobil Vactra 2)

Other Specifications:

Country of Origin	China
Warranty	1 Year
Approximate Assembly & Setup Time	2 Hours
Serial Number Location	ID Label on Headstock
Sound Rating	83 dB
ISO 9001 Factory	Yes
Certified by a Nationally Recognized Testing Laboratory (NRTL)	No

Features:

- 1/2 in. Tailstock Square-Drive Lock-Down to use with Torque Wrench for Precise Positioning
- 23 in. Minimum Gun Barrel Length Through Spindle w/4-Jaw Chuck (Allows for Barrel to Stick Out for Threading)
- 2-Axis Digital Readout
- Electronic Variable-Speed Spindle w/Digital Tachometer
- Removable Bed Gap
- Quick-Change Gearbox Controls
- On/Off/Reverse Spindle Switch on Carriage
- LED Work Light
- Steady and Follow Rests with Roller Bearing Supports
- Feed Rod Clutch
- Outboard Spindle Support Spider
- Cast-Iron Stand with Extended Base
- Cast-Aluminum End-Gear Cover

Accessories Included:

- 6 in. 3-Jaw Chuck with 2-Piece Reversible Jaws
- 8 in. 4-Jaw Chuck with Reversible Jaws
- 10 in. Faceplate
- MT#3 Live Center
- (2) MT#3 Dead Centers (1 Carbide-Tipped)
- Quick-Change Tool Post with 1 Tool Holder
- Set of 6 Change Gears
- Toolbox



SECTION 1: SAFETY

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

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



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



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



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



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

Safety Instructions for Machinery



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

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

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

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

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

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

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



WARNING

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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



Additional Safety for Metal Lathes

WARNING

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

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

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

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

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

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

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

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

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.

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.

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.

COOLANT SAFETY. Coolant can become very toxic through prolonged use and aging. To minimize toxicity, change coolant regularly. When using, position nozzle properly to avoid splashing operator or causing a slipping hazard on floor.

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

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

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



Additional Chuck Safety

⚠️WARNING

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

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

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

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

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

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

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

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

⚠️WARNING

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

⚠️CAUTION

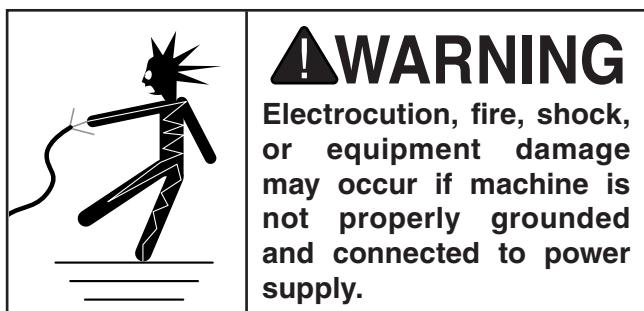
No list of safety guidelines can be complete. Every shop environment is different. Always consider safety first, as it applies to your individual working conditions. Use this and other machinery with caution and respect. Failure to do so could result in serious personal injury, damage to equipment, or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



SECTION 2: POWER SUPPLY

Availability

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



Full-Load Current Rating

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

Full-Load Current Rating w/VFD 12A

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

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

Circuit Requirements for 220V

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

Nominal Voltage 208V, 220V, 230V, 240V
Cycle..... 60 Hz
Phase 1-Phase
Power Supply Circuit 15 Amps
Plug/Receptacle NEMA 6-15

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.



Grounding Instructions

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

This machine is equipped with a power cord that has an equipment-grounding wire and a grounding plug. Only insert plug into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances. DO NOT modify the provided plug!

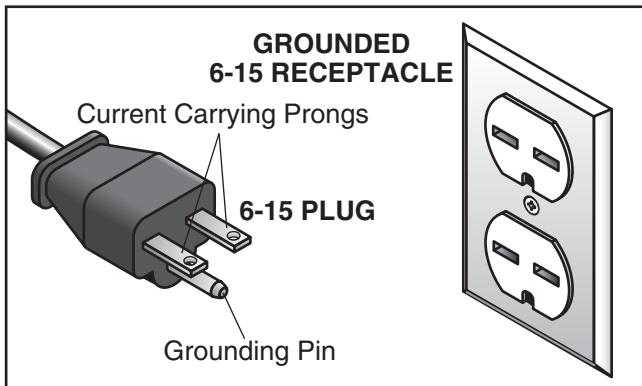


Figure 7. Typical 6-15 plug and receptacle.

WARNING

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

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

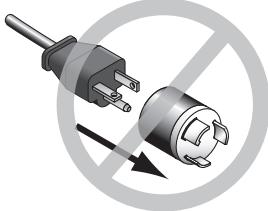
We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

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 Size14 AWG
Maximum Length (Shorter is Better).....50 ft.

! CAUTION



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



SECTION 3: SETUP

Preparation

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

The typical preparation process is as follows:

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

Unpacking

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

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

Needed for Setup

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

- **For Lifting and Moving:**
 - A forklift with extension forks, or other power lifting device rated for at least 2000 lbs.
 - Two lifting straps rated for at least 2000 lbs. each
 - A lifting safety hook rated for at least 2000 lbs.
 - Another person for moving machine
 - Tube of silicone sealant
- **For Power Connection:**
 - A power source that meets the minimum circuit requirements for this machine (review **Power Supply** on **Page 13** for details)
 - An electrician or qualified service personnel to ensure a safe and code-compliant connection to the power source
- **For Assembly:**
 - Shop rags
 - Cleaner/degreaser (see **Page 18**)
 - Quality metal protectant lubricant
 - Safety glasses for each person
 - Floor mounting hardware as needed (see **Page 22**)
 - Precision level at least 12" long



Inventory

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

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

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

Main Components (Figure 8)	Qty.
A. Main Unit	1
B. 6" Three-Jaw Chuck w/2-Piece Jaws.....	1
C. Steady Rest.....	1
D. Quick-Change Tool Post	1
E. Follow Rest.....	1
F. Backsplash	1
G. Chip Tray	1
H. Right Cabinet.....	1
I. Front Panel.....	1
J. Left Cabinet.....	1

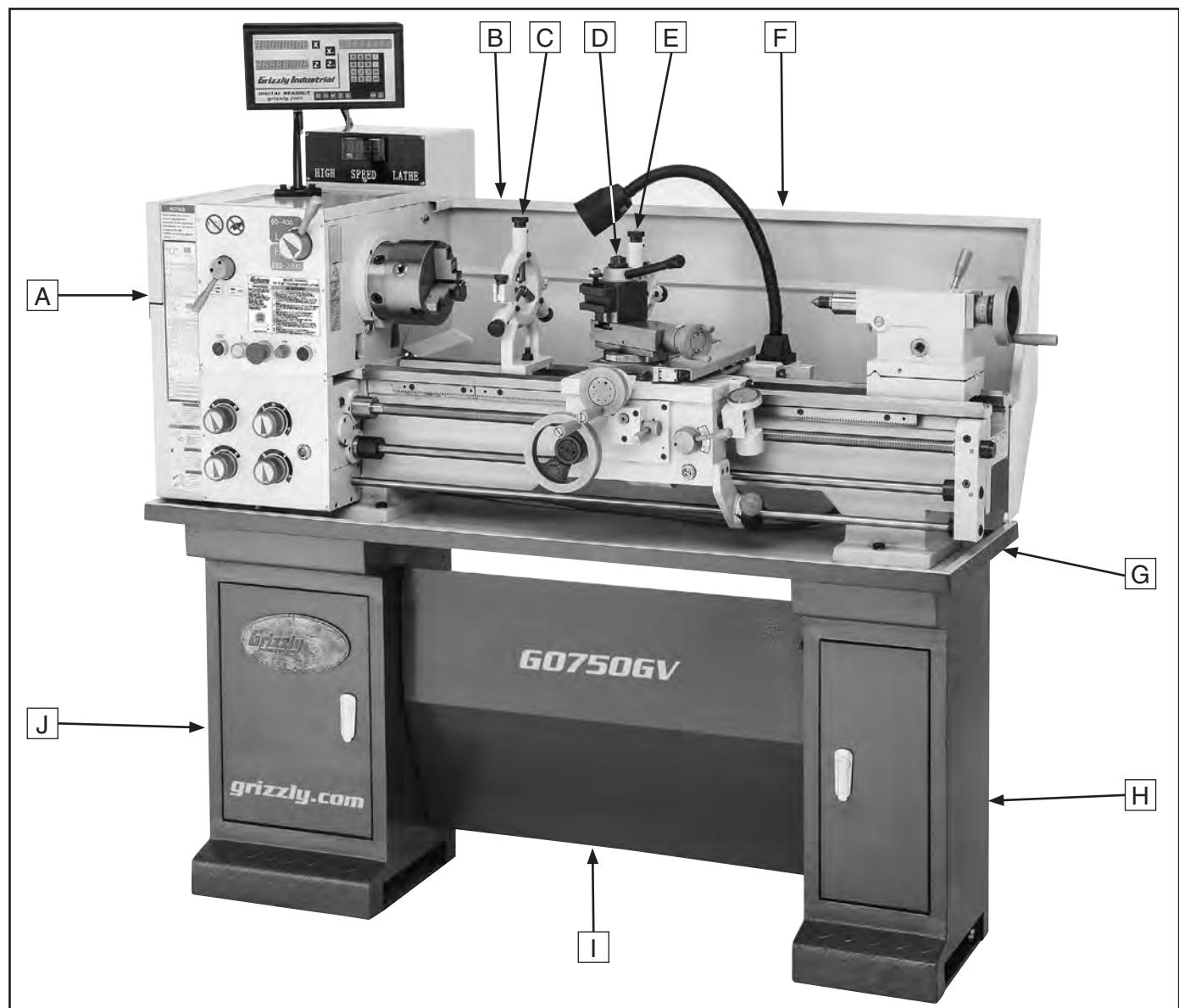


Figure 8. Main components.



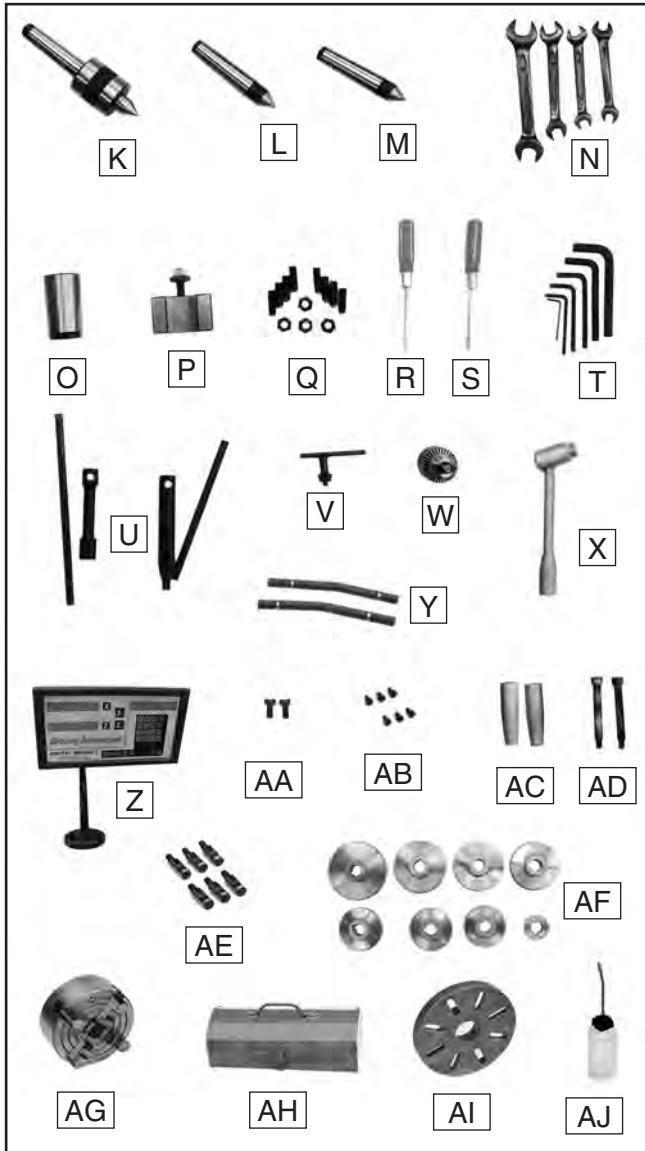


Figure 9. Packaged components.

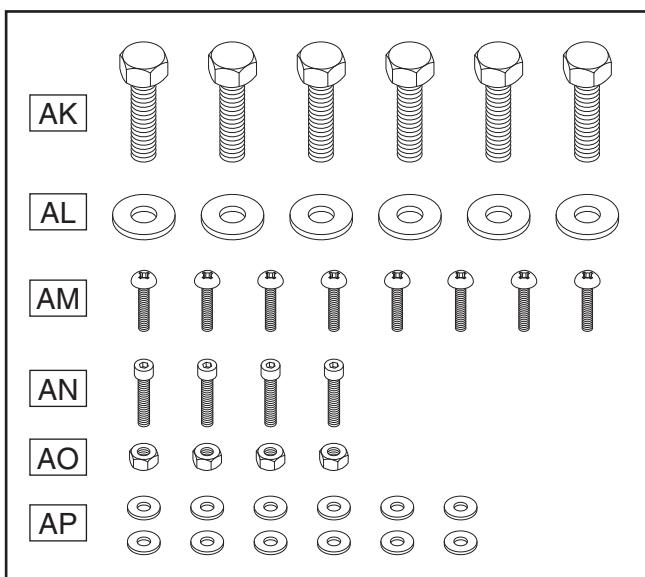


Figure 10. Cabinet base fasteners.

Packaged Components (Figure 9)

K.	Live Center MT#3	1
L.	Standard Dead Center MT#3	1
M.	Carbide-Tipped Dead Center MT#3	1
N.	Wrenches 9/11, 10/12, 12/14, 17/19mm .1 Ea	
O.	Tapered Spindle Sleeve MT#5-#3.....	1
P.	Quick-Change Tool Holder.....	1
Q.	Spider Screws (w/4 M10-1.5 Hex Nuts)	8
R.	Standard Screwdriver #2.....	1
S.	Phillips Screwdriver #2	1
T.	Hex Wrenches 2, 4, 5, 6, 8, 10mm.....	1 Ea
U.	Jaw Chuck & Spindle Wrenches	1 Ea
V.	Drill Chuck Key.....	1
W.	Drill Chuck B16 1.5-13mm	1
X.	½" Quill Tailstock Lock Handle	1
Y.	Front Panel Brackets (Left & Right).....	2
Z.	DRO Unit w/Mounting Bracket	1
AA.	Cap Screws M8-1.25 x 25	2
AB.	Cap Screws M6-1 x 14 (6 Installed)	6
AC.	Hollow Handles (Handwheels)	2
AD.	Shoulder Screws	2
AE.	Camlock Studs (6 Installed)	6
AF.	Change Gear Set: —Gear 120/127T (Installed, not shown).... —Change Gear 60T (Installed, not shown) 1 —Change Gear 57T	1
	—Change Gear 54T	1
	—Change Gear 30T	1
	—Gear 78T.....	1
	—Gear 69T	1
	—Gear 66T	1
	—Gear 63T	1
	—Gear 56T	1
AG.	8" Four-Jaw Universal Chuck	1
AH.	Tool Box.....	1
AI.	10" Faceplate.....	1
AJ.	Bottle for Oil (Not for Ball Oilers).....	1

Cabinet Base Fasteners (Figure 10)

AK	Hex Bolts M12-1.75 x 40	6
AL	Flat Washers 12mm	6
AM	Phillips Head Screws M6-1 x 10.....	8
AN	Cap Screws M6-1 x 10	4
AO	Hex Nuts M6-1	4
AP	Flat Washers 6mm	12



Cleanup

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

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

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

Before cleaning, gather the following:

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

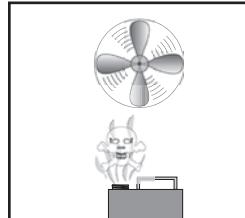
Basic steps for removing rust preventative:

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



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 harsh solvents like acetone or brake parts cleaner that may damage painted surfaces. Always test on a small, inconspicuous location first.

T23692—Orange Power Degreaser

A great product for removing the waxy shipping grease from the **non-painted** parts of the machine during clean up.



Figure 11. T23692 Orange Power Degreaser.



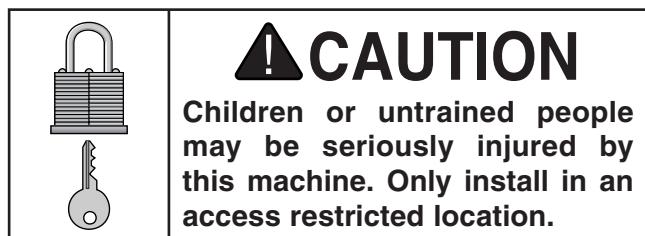
Site Considerations

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.

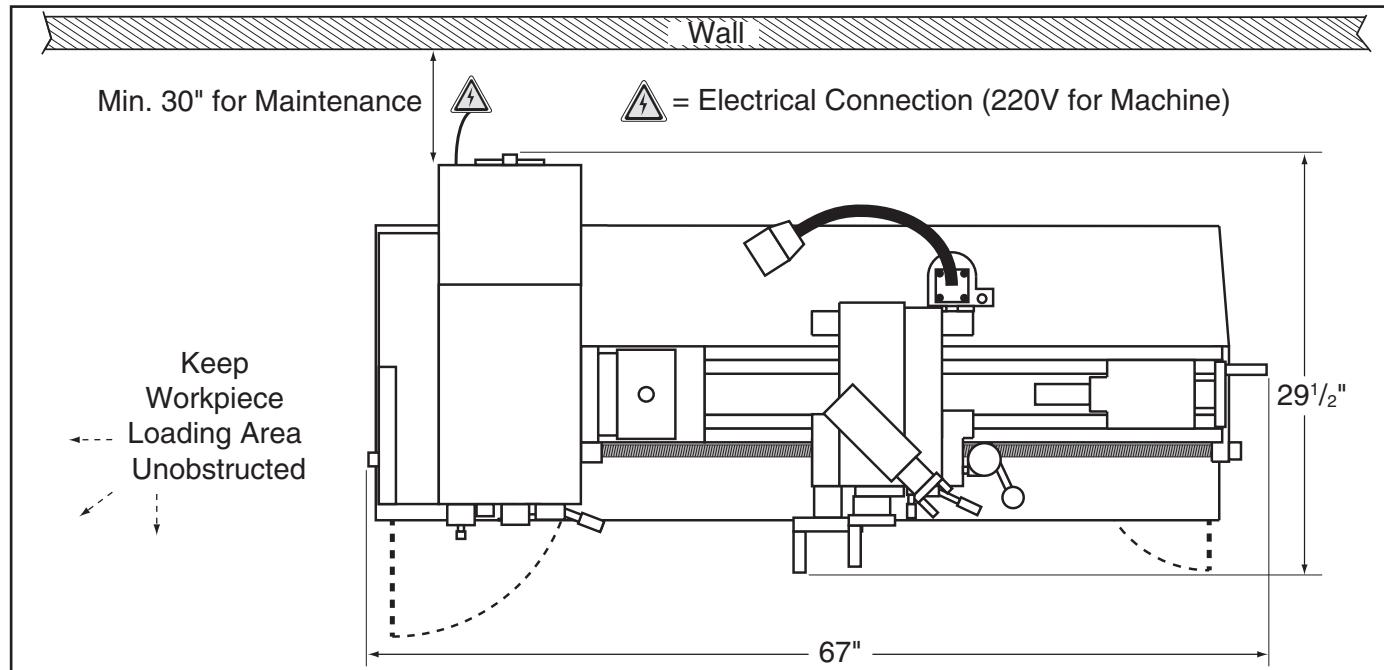


Figure 12. Minimum working clearances.



Assembly

The machine must be fully assembled before it can be operated. Before beginning the assembly process, refer to **Needed for Setup** and gather all listed items. To ensure the assembly process goes smoothly, first clean any parts that are covered or coated in heavy-duty rust preventative (if applicable).

To assemble lathe:

1. Position left and right cabinets approximately 34" apart in prepared location (see **Figure 13**).
2. Attach front panel brackets to cabinets with (4) M6-1 x 10 Phillips head screws and (4) 6mm flat washers (see **Figure 13**).

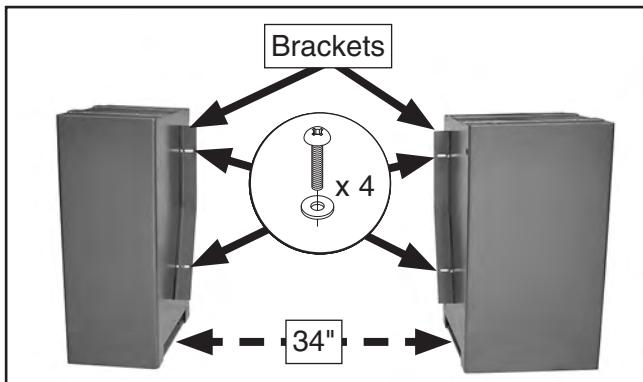


Figure 13. Brackets attached (rear view).

3. Attach front panel to panel brackets with (4) M6-1 x 10 Phillips head screws, (4) 6mm flat washers, and (4) M6-1 hex nuts (see **Figure 14**).

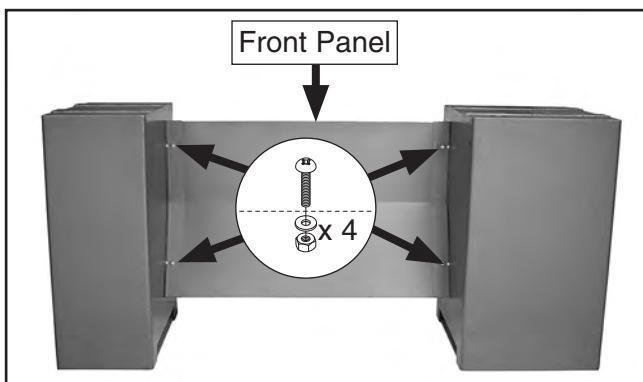


Figure 14. Front panel attached.

WARNING

This machine and its parts are heavy! Serious personal injury may occur if safe moving methods are not used during the following steps. To reduce the risk of a lifting or dropping injury, ask others for help, and use powered lifting equipment.

IMPORTANT: During the following steps, DO NOT attempt to lift or move this lathe without using the proper lifting equipment (such as a forklift or crane) or the necessary assistance from other people. Each piece of lifting equipment must be rated for at least 2000 lbs. to support dynamic loads that may be applied while lifting.

4. Remove shipping crate, then remove small components from shipping pallet.
5. Move lathe to its prepared location while it is still attached to shipping pallet.
6. Unbolt lathe from shipping pallet.
7. Attach handles to handwheels with shoulder screws, as shown in **Figure 15**.

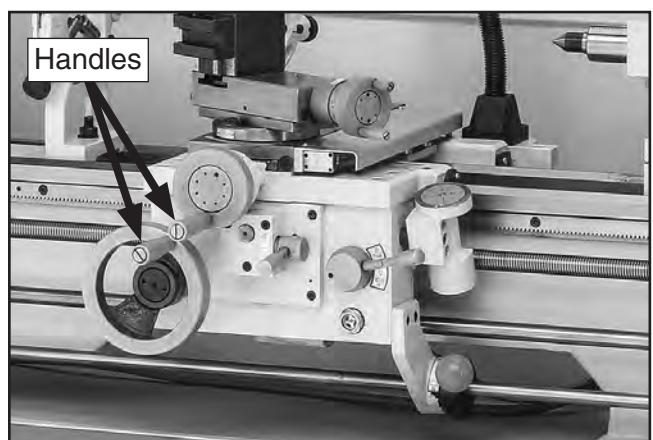


Figure 15. Handles attached to handwheels.



8. To safely balance load for lifting, disengage half nut and feed selection levers and loosen carriage lock, then move tailstock and carriage to right end of bedway and lock them in place.
9. Wrap two lifting straps around bedway pedestals and route them behind control rod, feed rod, and leadscrew. Either attach them to a safety hook (see **Figure 16**) or forklift forks (see **Figure 17**). This will keep lifting straps away from these critical components and prevent them bending from during lifting.

IMPORTANT: Make sure the lifting straps will not contact the bedway DRO sensor, or it could be damaged during the lifting process.

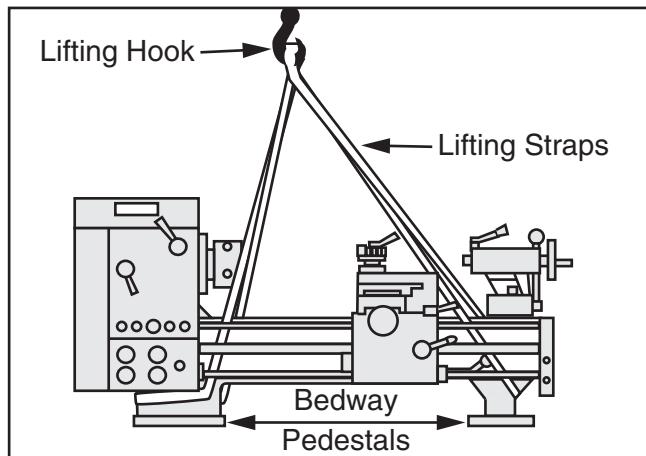


Figure 16. Lifting setup for a crane to keep straps from bending leadscrew and rods.

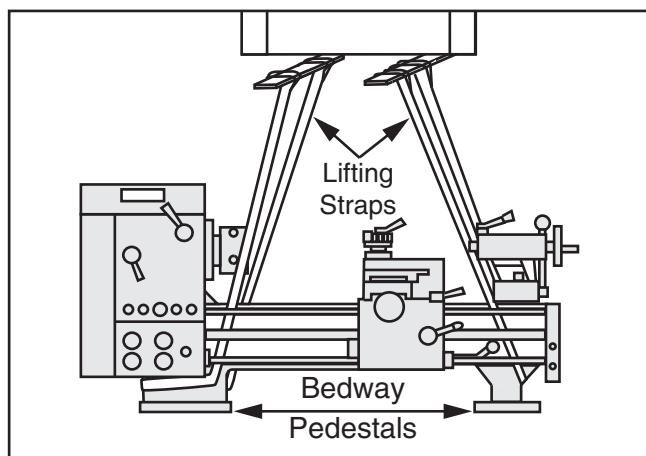


Figure 17. Lifting setup for a forklift to keep straps from bending leadscrew and rods.

10. Position chip pan on top of cabinet stand and align (6) mounting holes with those in cabinets.
11. Remove headstock end cover to gain better access to the headstock base pedestal (see **Figure 18**).

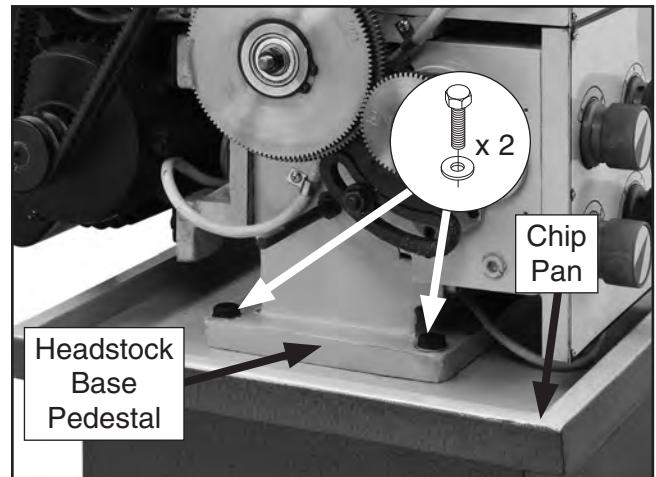


Figure 18. Lathe mounting hex bolts 2 of 6. (Headstock end cover removed for clarity.)

12. Slowly raise lathe from pallet and have another person hold onto lathe to prevent it from swinging as you move it over stand.
13. Place lathe on stand while aligning mounting holes in lathe bed with holes in chip pan.
14. Insert (6) M12-1.75 x 40 hex bolts and (6) 12mm flat washers through chip pan. Partially thread them into cabinet mounting holes (see **Figure 18**), but do not fully tighten them until instructed.
15. Use holes in bottom of cabinets as guides for marking mounting holes in floor (refer to the following section **Anchoring to Floor**).
16. Shim between lathe and chip pan as necessary to level ways at all four corner locations (refer to **Leveling on Page 23**).
17. Fully tighten (6) hex bolts to secure lathe to cabinet stand.

IMPORTANT: You will need to lift the assembled lathe out of the way in order to drill mounting holes.



18. For best results, recheck ways in 24 hours to make sure they are still level and have not twisted. Re-shim as required.
19. Apply bead of silicone around each base pedestal where they contact chip tray, to further reduce possibility of fluids leaking into cabinets.
20. Install backsplash with (4) M6-1 x 10 cap screws and (4) 6mm flat washers, as shown in **Figure 19**.

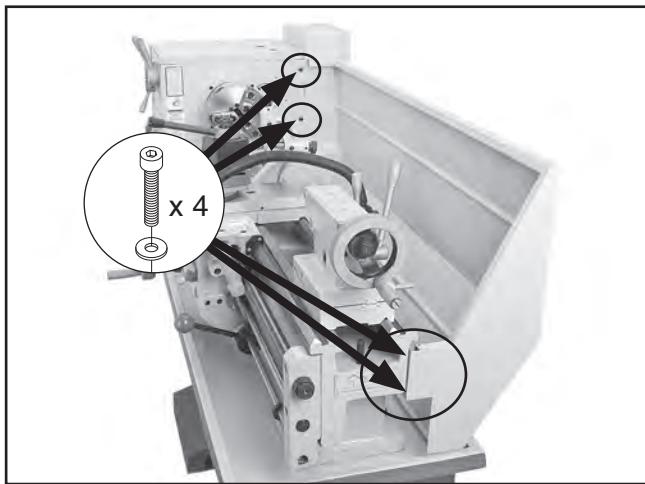


Figure 19. Locations to secure backsplash.

21. Install DRO mounting bracket in pre-threaded holes on top of headstock using (2) M8-1.25 x 25 cap screws.
22. Attach DRO display unit to DRO mounting bracket, then connect X-axis and Z-axis sensor wires and power cord to back of DRO display.

Anchoring to Floor

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

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

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

Anchoring to Concrete Floors

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

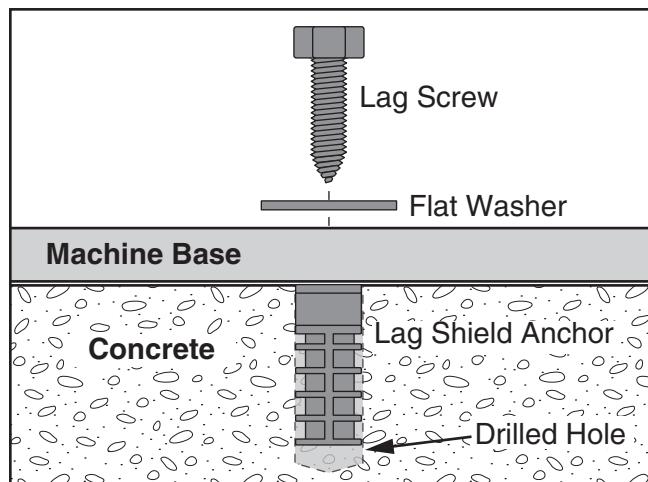


Figure 20. Popular method for anchoring machinery to a concrete floor.



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.

Re-check 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. Components on a machine that is not level may slowly twist due to the dynamic loads placed on the machine during operation.

IMPORTANT: Use only hand tools to secure machine to floor. Do not tighten with impact tools, which can permanently twist and bend components and pull a level machine out of alignment.

If needed, use metal shims between the lathe bed and chip pan when leveling the machine.

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 the figure below for an example of a high precision level offered by Grizzly.

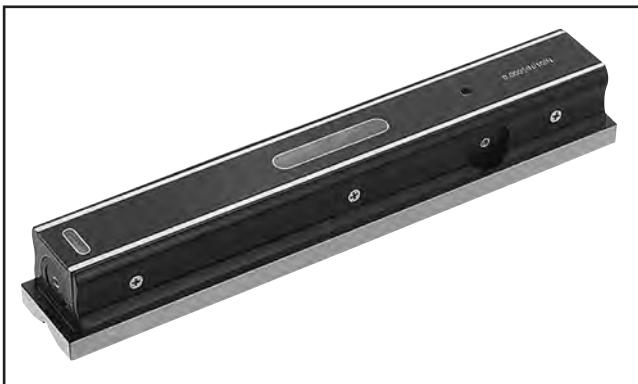


Figure 21. Model H2683 Master Machinist's Level.

Lubricating Lathe



The headstock, quick-change gearbox, and apron oil reservoirs must have the proper amount of oil in them before the lathe can be operated.

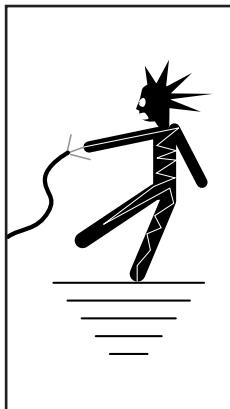
Damage caused to the bearings and gears from running the lathe without oil in the reservoirs will not be covered under warranty. Refer to the **Lubrication** section, beginning on **Page 60**, for checking and adding oil.

In addition to the reservoirs, we also recommend that you lubricate all other points on the machine at this time. To do this, follow the steps provided in the maintenance schedule on **Page 59**.

Note: If this lathe was shipped with oil in the reservoirs, do not change that oil until after the test run and spindle break-in procedures.



Power Connection



WARNING

Electrocution or fire may occur if machine is ungrounded, incorrectly connected to power, or connected to an undersized circuit. Use an electrician or a qualified service personnel to ensure a safe power connection.

Before the machine can be connected to the power supply, there must be an electrical circuit that meets the **Circuit Requirements for 220V** on **Page 13**.

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.

IMPORTANT: *Using an incorrectly sized extension cord may decrease the life of electrical components on your machine. Refer to **Extension Cords** on **Page 14** for more information.*

To connect lathe to power:

1. Press Emergency Stop button on front of headstock.
2. Turn variable spindle speed dial fully counter-clockwise so spindle will turn at lowest speed at startup.
3. Plug cord into matching power supply receptacle and power source as specified in **Circuit Requirements for 220V** on **Page 13**.

NOTICE

To avoid unexpected start-up, keep the Emergency Stop button pressed in until instructed otherwise in the Test Run.

Test Run

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

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

The test run consists of verifying the following:
1) The motor powers up and runs correctly, and
2) the emergency stop button safety feature, work lamp, and jog button all work correctly.

WARNING

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

WARNING

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

To test run machine:

1. Clear away all tools and objects used during assembly, lubrication, and preparation.
2. Secure chuck and jaws (refer to **Chuck Installation** on **Page 29**).



- To ensure carriage components do not unexpectedly move during following steps, disengage half-nut lever and feed selection lever (see **Figure 22**).
- Set spindle lever in OFF (middle) position (see **Figure 22**).

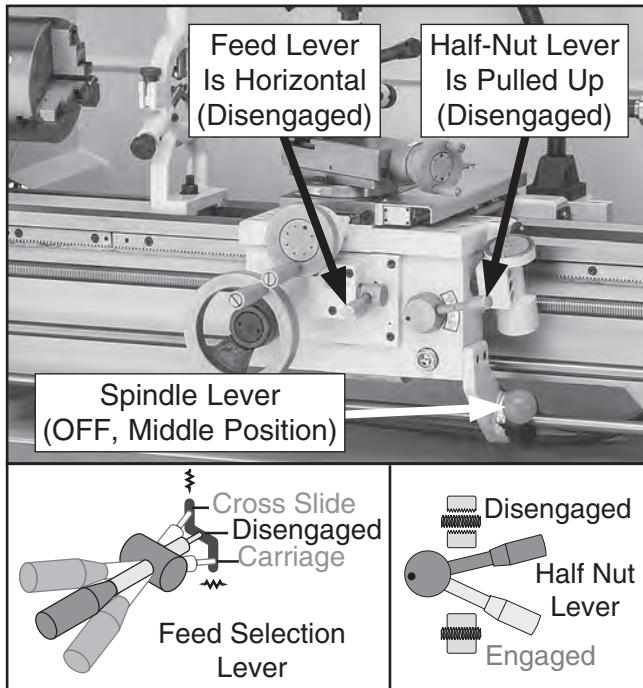


Figure 22. Disengaging carriage components.

- Rotate Emergency Stop button clockwise so it pops out (see **Figure 23**).
- Set spindle speed range lever in Low (L) range (see **Figure 23**).
- Turn variable spindle speed dial fully counter-clockwise so spindle will turn at lowest speed at startup (see **Figure 23**).

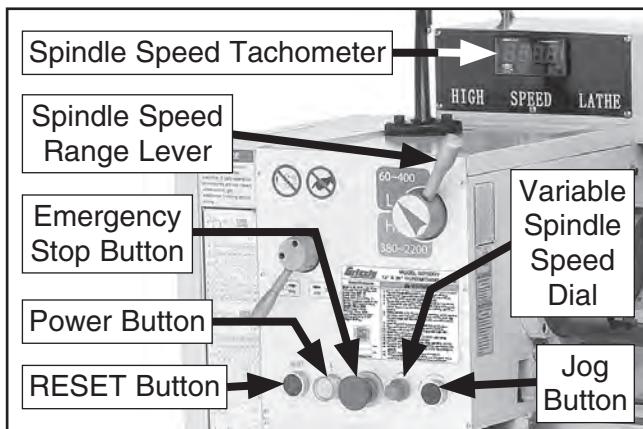


Figure 23. Spindle speed and operation controls.

- Turn rotary ON/OFF switch to **ON**.
- Push Power button (see **Figure 23**), move spindle lever (see **Figure 22**) down to start spindle rotation, then turn variable spindle-speed dial (see **Figure 23**) until spindle speed tachometer indicates 70 RPM. Top of chuck should turn down and toward the front of the lathe.
 - When operating correctly, the machine will run smoothly with little or no vibration or rubbing noises.
 - Investigate and correct abnormal noises or vibrations before operating the machine further. Always disconnect the machine from power when investigating or correcting potential problems.
- Push Emergency Stop button to turn lathe **OFF**, then, without resetting Emergency Stop button, try to restart spindle rotation, as instructed in **Step 8**. The spindle should *not* start.
 - If spindle rotation *does* start with Emergency Stop button pressed in, the Emergency Stop button safety feature is not operating correctly. This safety feature must operate properly before continuing operation. Use spindle lever to stop lathe, disconnect it from power, and call Tech Support for help.
- Move spindle lever to OFF (middle) position, and reset Emergency Stop button by twisting it clockwise until it pops out.
- Press power button, then press and briefly hold the jog button (see **Figure 23**), then release it. The spindle should rotate when the jog button is pressed and come to a complete stop when released.
- Ensure work lamp functions properly.

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



Spindle Break-In

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

After spindle break-in is complete, we recommend changing headstock and gearbox oil to remove any metal particles or debris that are present from the assembly and break-in process.

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

NOTICE

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

To perform spindle break-in procedure:

1. Successfully complete the **Test Run** procedure beginning on **Page 24**.
2. Set spindle speed range lever in Low (L) range, select forward spindle rotation, then turn machine **ON** and run spindle at 70 RPM for 10 minutes.
3. Turn machine **OFF**, switch spindle rotation to reverse, then turn machine **ON** and run spindle at 70 RPM for 10 more minutes.

IMPORTANT: Always turn lathe **OFF** when switching spindle rotation direction or changing spindle speed range to avoid damaging gears.

4. Repeat **Steps 2–3** at 200 and 400 RPM for 5 minutes each. Turn machine **OFF**.
5. Set spindle speed range lever to High (H).

6. Repeat **Steps 2–3** at spindle speeds of 500, 1000, and 2200 RPM. Run for a minimum of 5 minutes at each speed in each direction of rotation.
7. Press Emergency Stop button and **DISCONNECT MACHINE FROM POWER!**
8. Change the headstock and gearbox oil before operating the machine further to ensure full machine warranty (refer to **Lubrication** on **Page 60**).

Recommended Adjustments

The following adjustments have been made at the factory. However, because of the many variables involved with shipping, we recommend that you at least verify the following adjustments to ensure the best possible results from the lathe.

Step-by-step instructions for these adjustments can be found on the pages referenced below.

Factory adjustments that should be verified:

- Tailstock alignment (see **Page 36**).
- Cross slide and compound slide backlash adjustment (see **Page 69**).
- Gib adjustments (see **Page 70**).

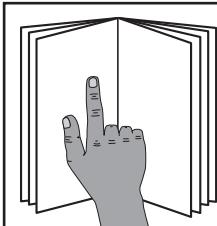


SECTION 4: OPERATIONS

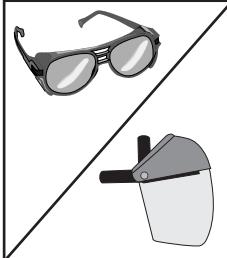
Operation Overview

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

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



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



WARNING
To reduce the risk of eye injury from flying chips, always wear safety glasses or a face shield when operating lathe.

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 operation, the operator does the following:

1. Puts on safety glasses or face shield, rolls up sleeves, removes jewelry, and secures any clothing or hair that could get entangled in moving parts.
2. Examines workpiece to make sure it is suitable for turning, then securely mounts it in lathe.
3. For long pipes, rods, and shafts, installs required safety anchoring support(s) and steady/follow rests.
4. Installs tooling, aligns it with workpiece, then backs it away from workpiece to establish a safe startup clearance.
5. Removes all setup tools from lathe.
6. Checks for safe clearances by rotating workpiece by hand at least one full revolution.
7. Moves apron, cross slide, and tool rests to where they will be used during operation.
8. Sets correct spindle speed for operation, then double-checks speed setting.
9. If using power feed, selects proper feed rate for operation.
10. Resets Emergency Stop button, then starts spindle rotation.
11. Uses carriage handwheels or power feed options to move tooling into workpiece for operation.
12. When finished cutting, moves spindle lever to OFF position, then removes workpiece.



Chuck & Faceplate Mounting

This lathe is equipped with a D1-type spindle nose. This type of spindle uses camlocks that are adjusted with a chuck key to securely mount a chuck or faceplate with repeatable precision and ease.

WARNING

Never use spindle speeds faster than the chuck RPM rating or the safe limits of your workpiece. Excessive spindle speeds greatly increase the risk of the workpiece or chuck being thrown from the 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 4-jaw chuck features independent jaws, which are used for square or unevenly-shaped stock, and to mount work that needs to be adjusted to near-zero total indicated runout.

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.

Both the 4-jaw chuck and faceplate require installation of camlock studs before use. Refer to **Chuck Installation** on Page 29 for camlock details.

Chuck Safety & Support Devices

Because chucks are heavy and often awkward to hold, some kind of lifting, support, or protective device should be used during installation or removal. The weight and size of the chuck will determine the appropriate device to use (refer to the following figure for examples).

WARNING

Dropping a chuck can result in amputation, serious crushing injuries, or property damage. Always use a support or protective device to reduce this risk during installation or removal.

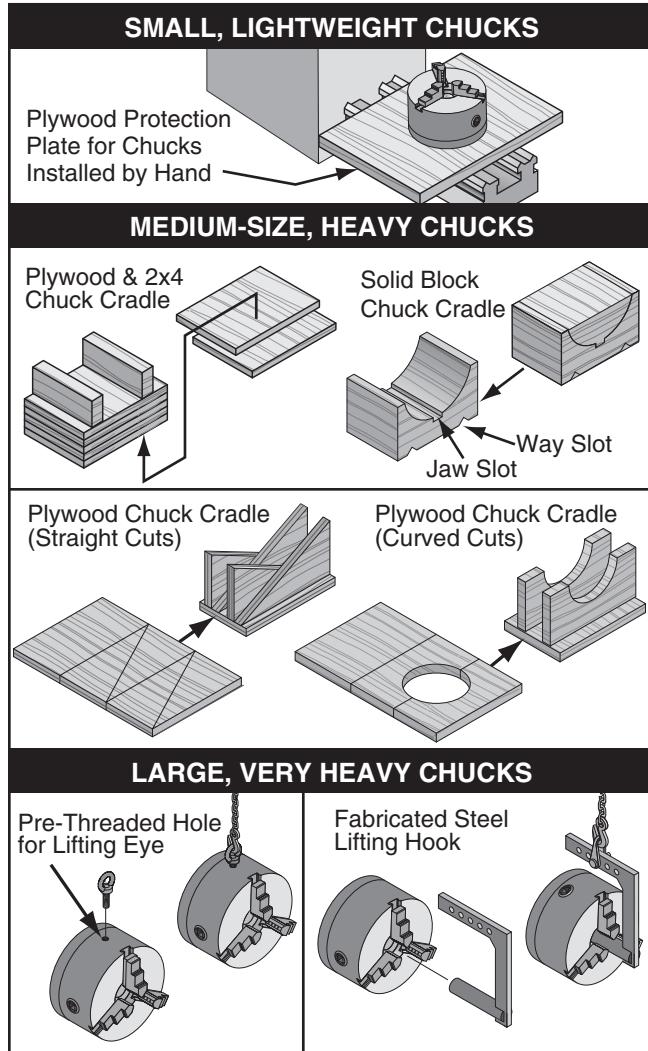


Figure 24. Examples of common devices used during chuck installation and removal.



Chuck Installation

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

The chuck is properly installed when all camlocks are tight, the spindle and chuck tapers firmly lock together, and the back of the chuck is firmly seated against the face of the spindle all the way around—without any gaps.

To install chuck:

1. DISCONNECT MACHINE FROM POWER!
2. Use appropriate lifting, support, or protective device to protect ways and support chuck during installation process (refer to **Chuck Safety & Support Devices**).
3. Clean and lightly oil camlock studs, then thoroughly clean mating surfaces of spindle and chuck.
4. Install chuck by inserting camlock studs straight into spindle cam holes.

IMPORTANT: *Avoid inserting the studs by pivoting them in from an angle or rotating the spindle. This can damage studs or spindle cam holes.*

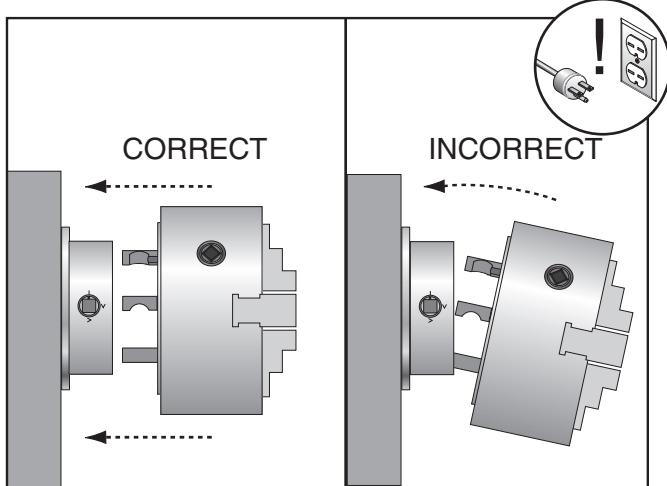


Figure 25. Inserting camlock studs into spindle cam holes.

5. Incrementally tighten camlocks in criss-cross or star pattern to ensure that chuck seats evenly against spindle.
6. When chuck is fully seated and all camlocks are tight, verify that cam line is between the two "V" marks on spindle nose, as shown in following figure.

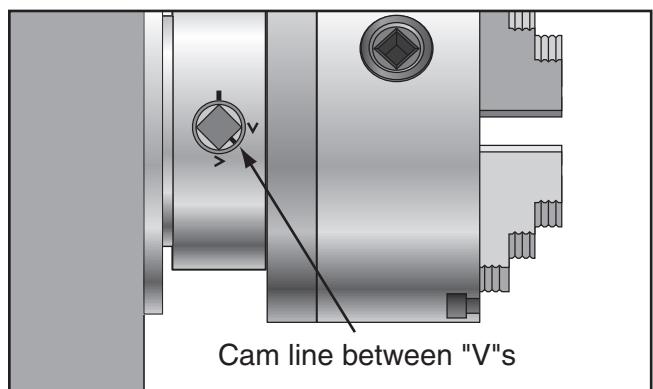


Figure 26. Cam line positioned between the "V" marks after the camlocks are fully tightened.

- If cam line is NOT between "V" marks when camlock is tight, stud may be installed at incorrect height. To fix this, adjust stud height as shown in following figure. Make sure to re-install stud cap screw afterward.
- If adjusting stud height does not correct problem, try swapping stud positions on chuck.

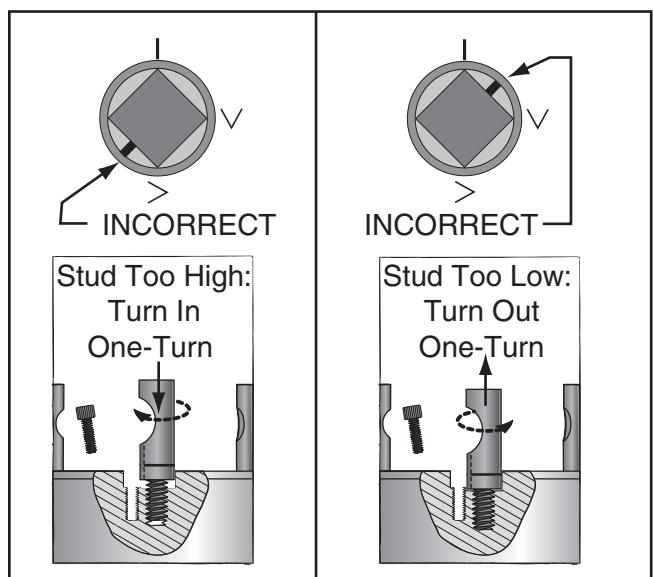


Figure 27. Correcting an improperly installed camlock stud.



7. Verify that chuck fits spindle properly by checking for any gaps between mating surfaces.
 - If there is not a gap, proceed to **Step 8**.
 - If there *is* a gap, remove chuck, re-clean mating surfaces carefully, and re-install. If problem persists, contact our Tech Support.
8. Verify that chuck/spindle tapers are seated firmly together by removing chuck, per **Chuck Removal** instructions on following page, and pay close attention to how easily tapers release.
 - If it was necessary to bump chuck or use a mallet to release tapers, then they are seating together properly.
 - If tapers released easily with little intervention, they are not seated together firmly as required. Remove chuck, re-clean mating surfaces carefully, and re-install. If problem persists, contact our Tech Support.

Registration Marks

Lightly stamp registration marks across the mating seams of chuck components. These marks will help you re-install the chuck in the same position after removal, which ensures consistent chuck balance and turning results, and allows the same camlocks and studs to operate together for consistent locking and unlocking.

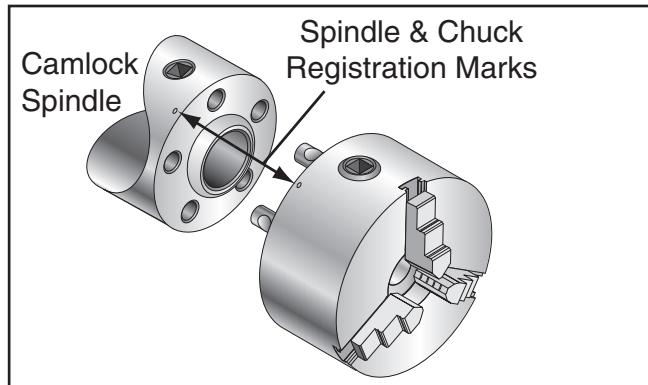


Figure 28. Registration mark locations.

Chuck Removal

To remove chuck:

1. DISCONNECT MACHINE FROM POWER!
2. Use appropriate lifting, support, or protective device to protect ways and support chuck (refer to **Chuck Safety & Support Devices** section for more details).
3. Loosen camlocks by turning key counter-clockwise until each cam line is aligned with its corresponding spindle mark, as shown below.

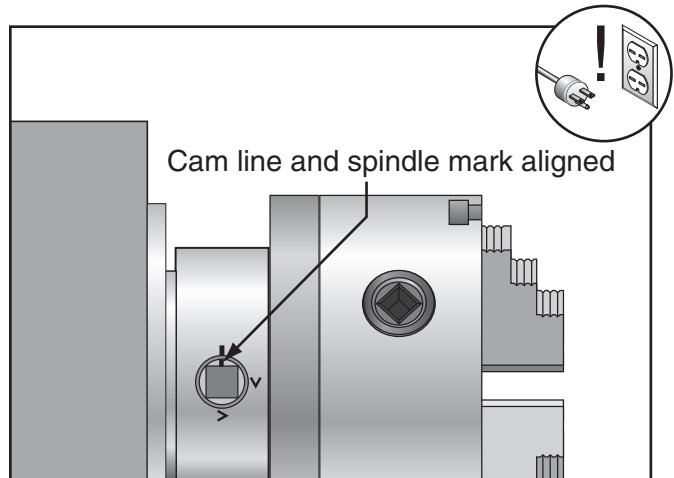


Figure 29. Camlock is fully loosened when the cam line is aligned with the spindle mark.

Tip: *Camlocks can become very tight. A cheater pipe may be used as a last resort to add leverage when loosening. After loosening, you may need to wiggle the chuck key in the camlock to fully disengage the stud.*

4. Using dead blow hammer or other soft mallet, lightly tap around outer circumference of chuck body to loosen it from spindle.
5. Remove chuck from spindle, using light rocking motion to carefully slide studs out of cam holes.
 - If chuck does not immediately come off, rotate it approximately 60° and tap it again. Make sure all marks on cams and spindle are properly aligned for removal.



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.

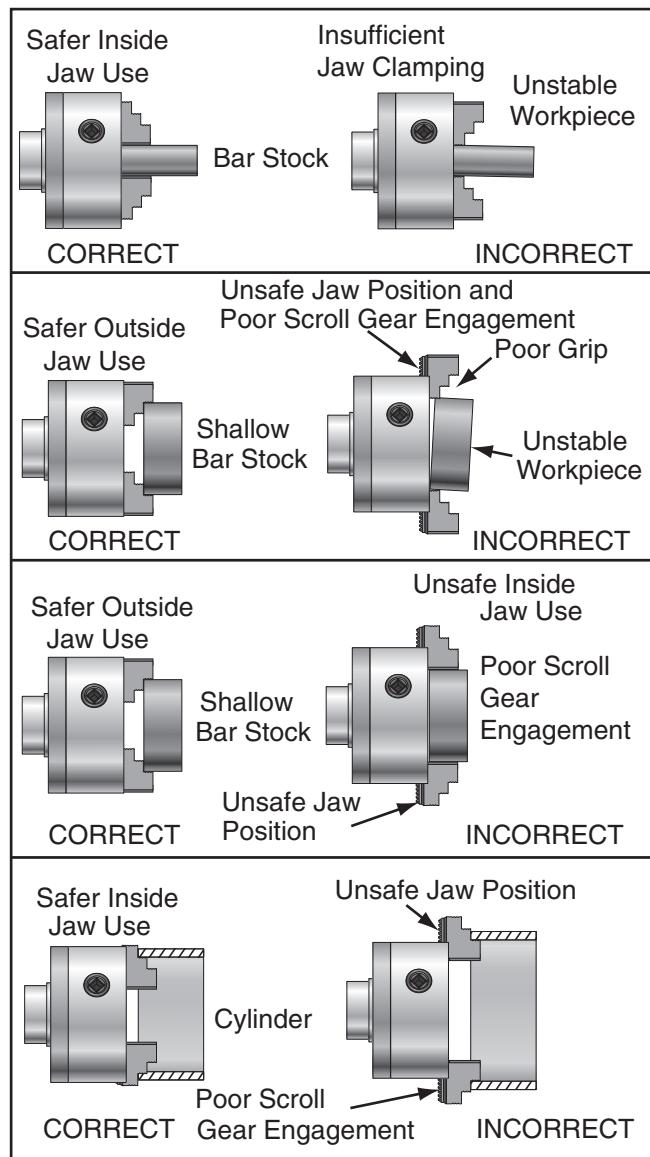


Figure 30. Jaw selection and workpiece holding.

Chuck Jaw Reversal

This chuck has 2-piece jaws that consist of a reversible top jaw and a master jaw. The top jaw can be removed, rotated 180°, and re-installed in the reverse position for additional work-holding options. When reversing the top jaws, always keep them matched with their original master jaw to ensure the best fit.

To reverse 2-piece jaws:

1. DISCONNECT MACHINE FROM POWER!
2. Remove cap screws that secure top jaw to master (bottom) jaw.
3. Remove top jaw, rotate it 180°, then re-install it with longest cap screw in tallest portion of jaw.
4. Repeat Steps 2–3 with each remaining jaw (we recommend only reversing one jaw at a time to keep all original parts together).

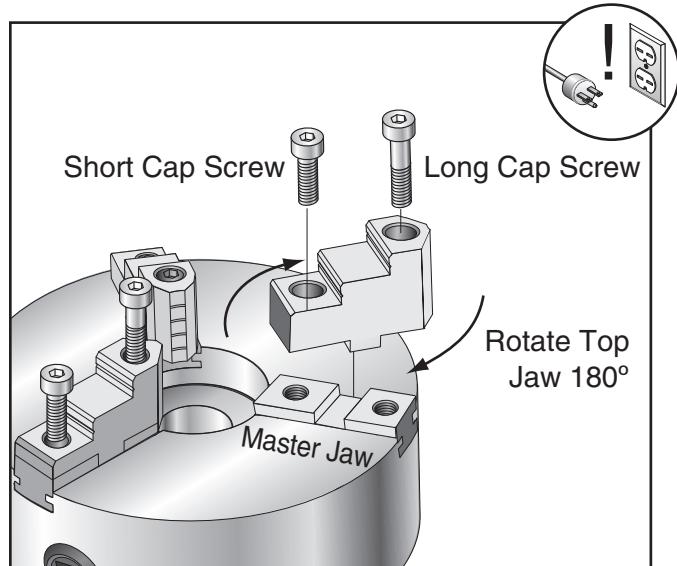


Figure 31. Reversing the chuck jaws.



4-Jaw Chuck

Refer to the **Chuck Installation** or **Chuck Removal** sections for instructions on installing or removing 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.

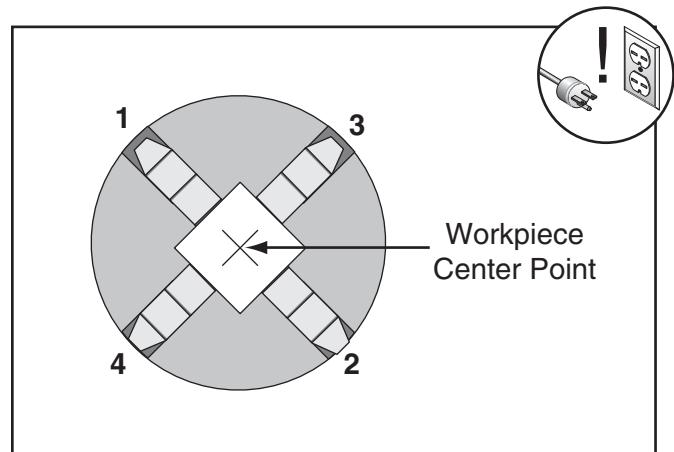


Figure 32. 4-jaw tightening sequence.

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).

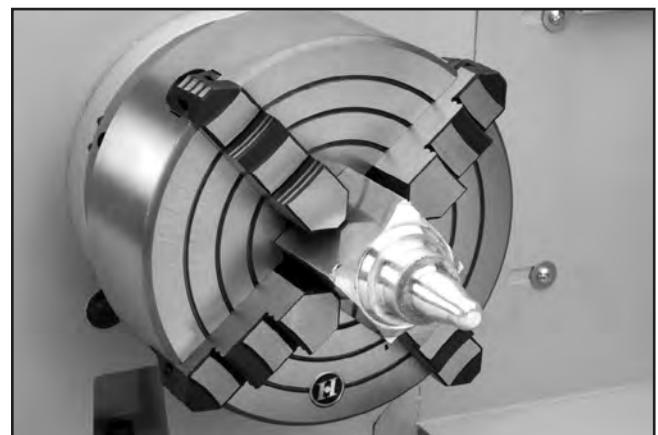


Figure 33. Generic picture of non-cylindrical workpiece correctly mounted on the 4-jaw chuck.



Faceplate

Refer to the prior **Chuck Installation** and **Chuck Removal** subsections for instructions on installing or removing 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 the workpiece to be thrown from the lathe with deadly force. To reduce this risk, only machine non-concentric workpieces at low speeds and clamp counter-weights to the faceplate to balance it.

WARNING

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

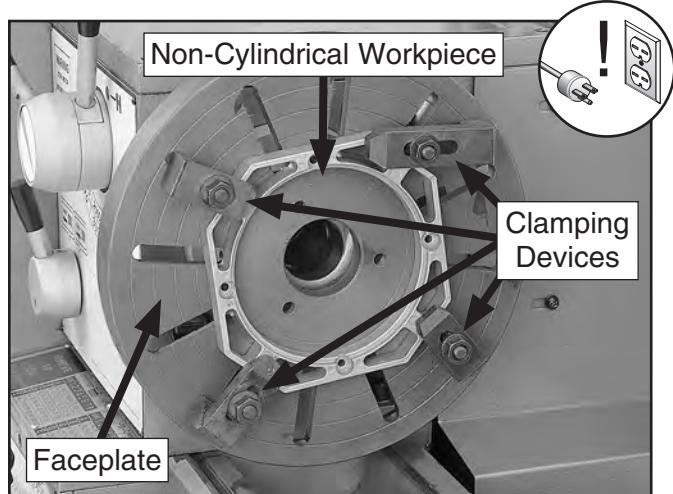


Figure 34. Generic picture of workpiece clamped in a faceplate.



Tailstock

The tailstock (see **Figure 35**) is typically used to support long workpieces by means of a live or dead center (refer to **Centers** on **Page 38** in the following section). It can also be used to hold a drill or chuck to bore holes in the center of a part. Custom arbors and tapers can also be cut on your lathe by using the offset tailstock adjustment.

Also, a torque wrench can be used with the tailstock $\frac{1}{2}$ " square drive lock-down for repeating super-accurate vertical alignment.

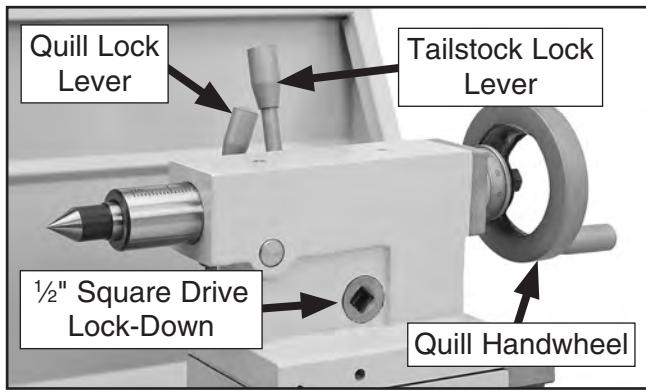


Figure 35. Tailstock and quill lock levers in locked position.

Graduated Dial

Increments.....	0.001"
One Full Revolution	0.100"

Increments on Quill

Inch 0"-4" in 0.100" 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.

Optional: To precisely secure tailstock, insert a $\frac{1}{2}$ " drive torque wrench in square drive shown in **Figure 35**, then tighten tailstock to a maximum of 40 lbs./ft. of torque. The center point will be drawn down as much as 0.006". DO NOT exceed 40 lbs./ft. or damage to ways and tailstock will occur.

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.

Installing Tooling

This tailstock uses a quill with an MT#3 taper that has a lock slot in the back of the bore that accepts tang arbors and drill bits (see the **Figures** below for examples).

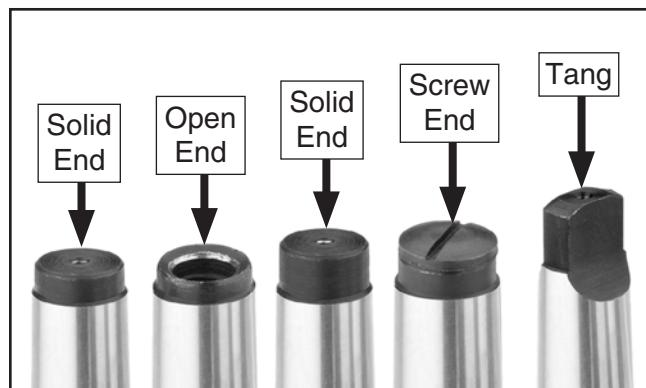


Figure 36. Types of tapered arbors and tooling.

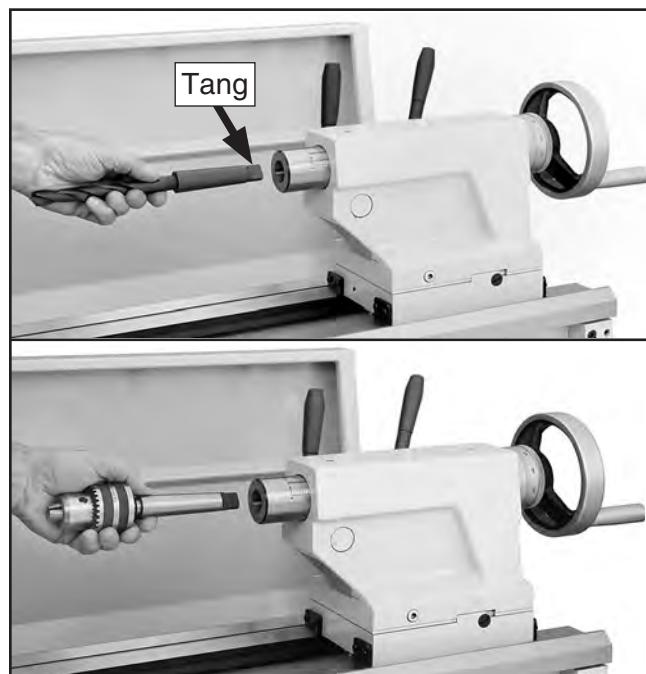


Figure 37. Example photos of inserting tools with tangs into the tailstock.



However, other tooling without tangs, such as the four remaining tools shown previously, can still be used if the potential load will not exceed the strength of the tapered fit. For example, this includes smaller drill chucks, drill bits, and centers.

Note: If the tooling has an open hole in the end but is too short to be exposed in the drift slot for removal, then a screw can be threaded into the end of the tool to provide a solid surface for the quill pin to push against when the quill is retracted for tool removal. Otherwise, removal of such tooling may be difficult.

To install and use 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 that no lint or oil remain on tapers.

Note: If tapered tool shaft has a tang, align it with slot in back of quill before seating it.

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 relock 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 until tool is forced out of quill.
 - If tool does not come loose by retracting quill, extend quill and use drift key in slot shown in **Figure** below to remove tool.



Figure 38. Drift key slot in the side of the 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 (see **Figure 39** on the next page) are arbitrary. For a precise offset, use a dial indicator to check quill movement while adjusting the screws.

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



To offset tailstock:

1. Rotate adjustment set screws (shown in **Figure 39**) in opposite directions for desired offset.

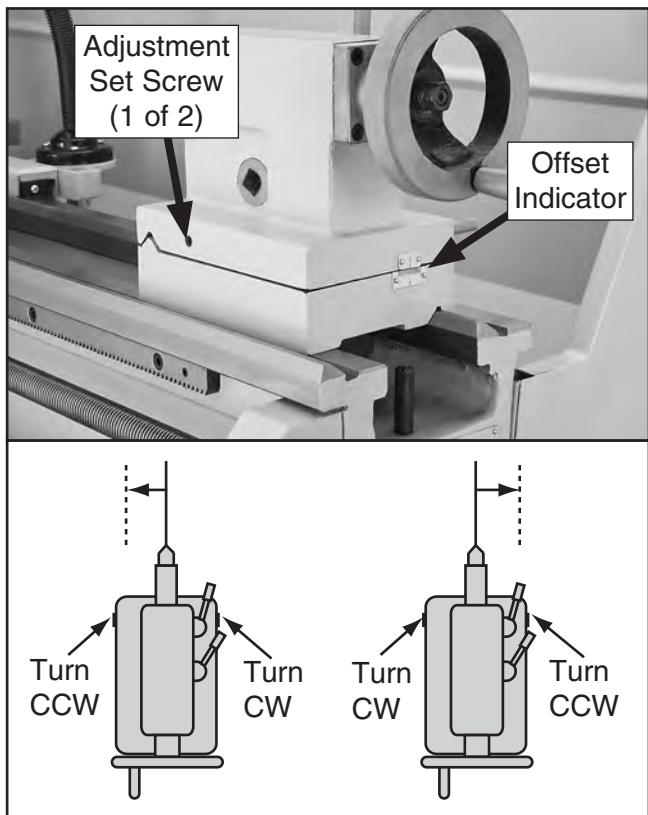


Figure 39. Set screw adjustment in relation to tailstock movement.

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	Qty
Hex Wrench 4mm.....	1
Lathe Dog.....	1
Round Stock 2" x 6"	2
Precision Level	1

To align tailstock to spindle centerline:

1. Use precision level to make sure bedway is level from side to side and from front to back.
 - If bedway is not level, correct this condition before continuing with this procedure (refer to **Leveling** section in this manual).
2. Center drill both ends of a piece of round stock, then set it aside for use in **Step 5**.
3. Use another piece of round stock to make a dead center. Turn it to a 60° point, as illustrated below.

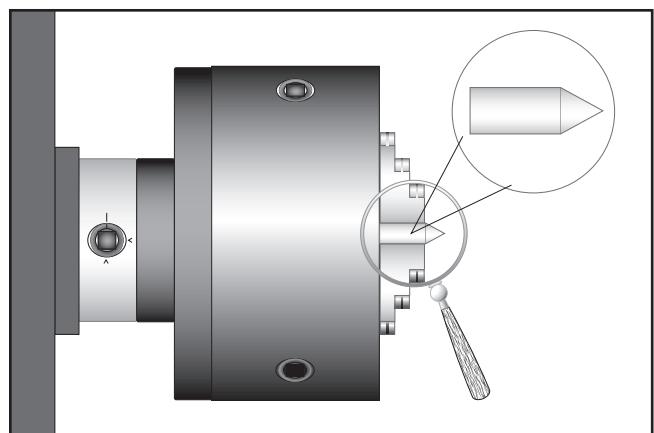


Figure 40. Turning a dead center.



4. Install center in tailstock.
5. Attach lathe dog to test stock from **Step 2**, then mount it between centers, as shown below.

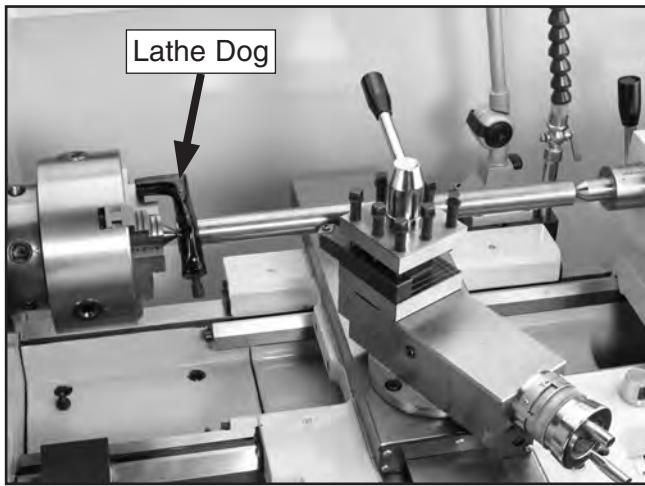


Figure 41. Example of stock mounted between centers.

6. Turn 0.010" off stock diameter.
7. Mount test or dial indicator so that plunger is on tailstock quill.

Note: If necessary in the following step, refer to the **Offsetting Tailstock** subsection for detailed instructions.

8. Use calipers to measure both ends of work-piece.

—If test stock is *thicker* at tailstock end, move tailstock toward *front* of lathe $\frac{1}{2}$ the distance of taper amount, as shown below.

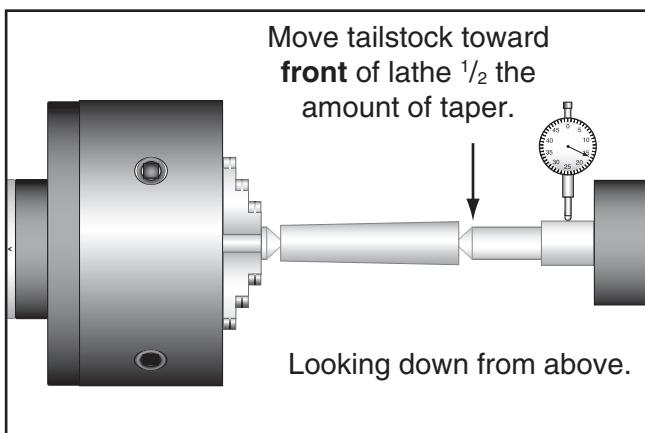


Figure 42. Adjust tailstock toward the operator.

—If test stock is *thinner* at tailstock end, move tailstock toward *back* of lathe $\frac{1}{2}$ the distance of taper amount, as shown below.

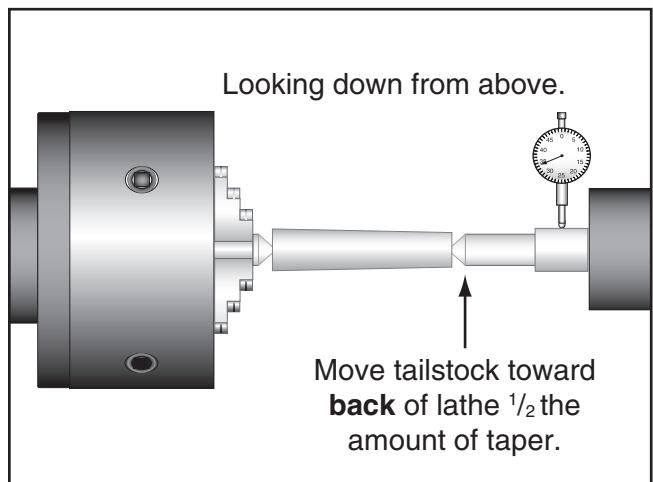


Figure 43. Adjust tailstock away from the operator.

9. Repeat **Steps 6–8** until desired accuracy is achieved.



Centers

Figure 44 shows the MT#3 dead centers and live center included with the lathe. In addition, an MT#5–MT#3 tapered spindle sleeve is included for mounting in the spindle.

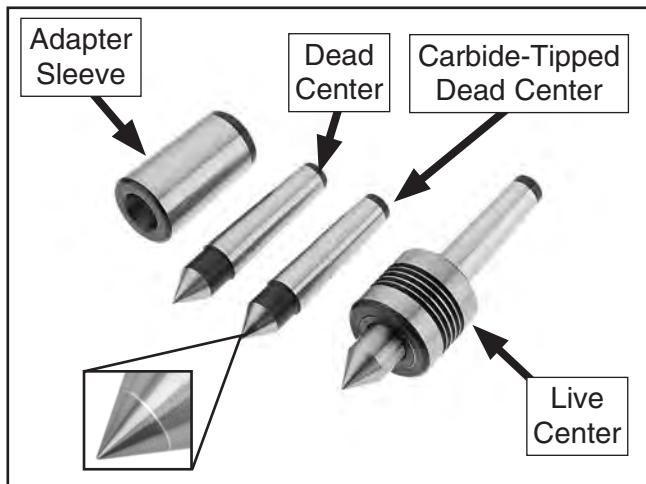


Figure 44. Adapter sleeve and centers.

Dead Centers

A dead center is a one-piece center that does not rotate with the workpiece and is used to support long, slender workpieces without introducing the bearing play of a live center.

Use the dead center in the spindle for operations where the workpiece rotates very slowly and does not generate excessive friction.

The carbide-tipped dead center can better withstand the effects of friction and is best used in the tailstock where the workpiece will rotate against it. The tip of the center must be generously lubricated during the operation to avoid premature wear and maximize smooth operation. Using low spindle speeds will also reduce the heat and wear from friction.

Live Centers

A live center has bearings that allow the center tip and the workpiece to rotate together; it can be installed in the tailstock quill for higher speeds, or when more tailstock force is required.

Mounting Dead Center in Spindle

1. DISCONNECT MACHINE FROM POWER!
2. Thoroughly clean and dry tapered mating surfaces of spindle bore, adapter sleeve, and center, making sure that no lint or oil remains on tapers.

Note: This will prevent the tapered surfaces from seizing due to operational pressures, which could make it very difficult to remove the center.
3. Mount faceplate onto spindle.
4. Insert center into sleeve, then insert sleeve into spindle bore through faceplate.

Figure 45 shows an example of a dead center installed in the spindle, using a lathe dog and faceplate for turning between centers.

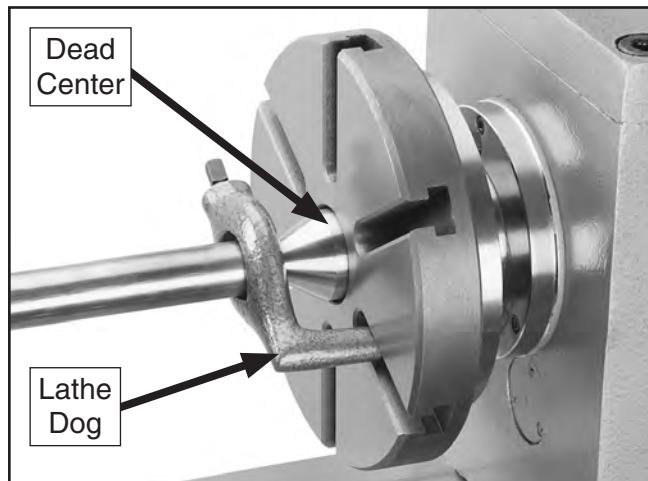


Figure 45. Example of using a dead center with a faceplate and lathe dog.



Removing Center from Spindle

To remove the sleeve and center from the spindle, insert a piece of round bar stock (or similar) through the outside end of the spindle. Have another person hold onto the sleeve and center with a gloved hand or shop rag, then tap the bar stock to knock the sleeve loose.

Mounting Center in Tailstock

Either a carbide-tipped dead center or live center can be used in the tailstock. Mounting instructions are the same for both. **Figure 46** shows an example photo of a dead center mounted in a tailstock.

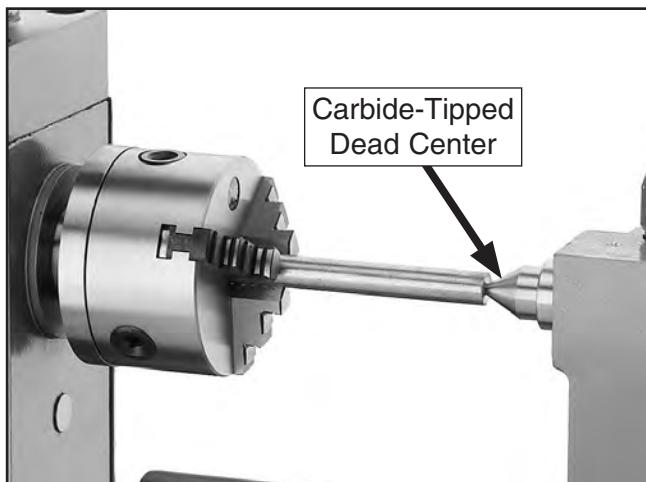


Figure 46. Example of using a carbide-tipped dead center installed in the tailstock.

NOTICE

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

To mount a center in the tailstock:

1. DISCONNECT MACHINE FROM POWER!
2. Thoroughly clean and dry tapered mating surfaces of tailstock quill bore and center, making sure that 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 $3\frac{3}{4}$ ", but we do not recommend extending the quill more than 2" 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 in workpiece.

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

Removing Center from Tailstock

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

If the center does not come loose by retracting the quill, extend the quill to expose the slot shown in **Figure 47**, then use a drift key to remove the center.

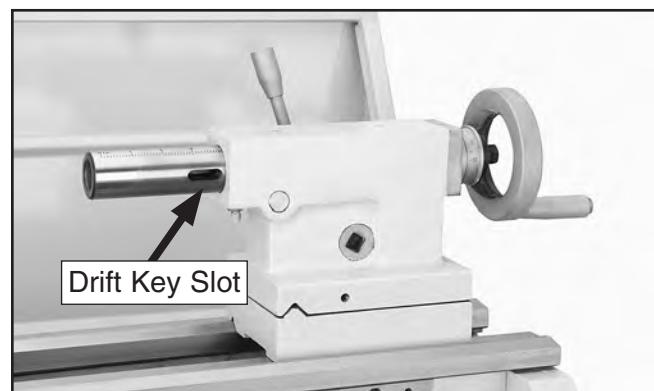


Figure 47. Drift key slot in the side of the quill.



Mounting Workpiece Between Centers

1. DISCONNECT MACHINE FROM POWER!
2. Drill center holes in both ends of workpiece.
3. Install dead center in spindle with lathe dog and chuck or faceplate, then install live center or carbide-tipped dead center in tailstock.
4. Lubricate workpiece center holes, then mount it between centers and hold it in place with light pressure from tailstock center.
5. Seat center firmly into quill by rotating quill handwheel clockwise to apply pressure against workpiece (see the example in **Figure 48**).

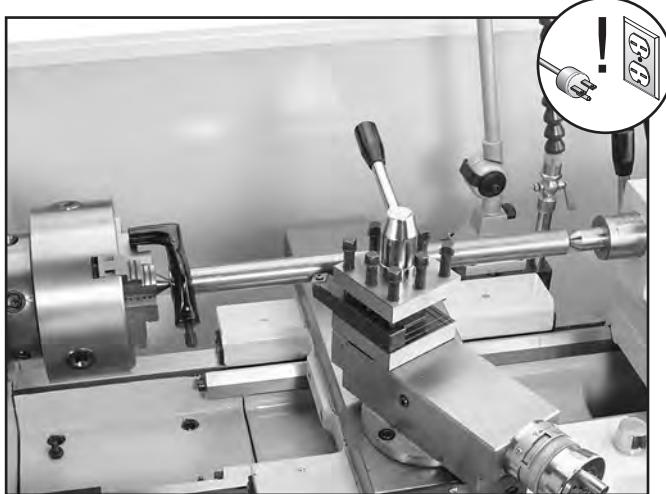


Figure 48. Example of a workpiece mounted between the centers.

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.

Drill Chuck & Arbor

The drill chuck attaches to the tailstock quill with the included B16 to MT#3 arbor, shown in **Figure 49**. Matched tapers on the arbor and the inside of the chuck create a semi-permanent assembly when properly joined. The drill chuck can accept tooling from $\frac{1}{16}$ " – $\frac{1}{2}$ ".

Items Needed	Qty
Rubber or Wooden Mallet	1
Mineral Spirits.....	As Needed

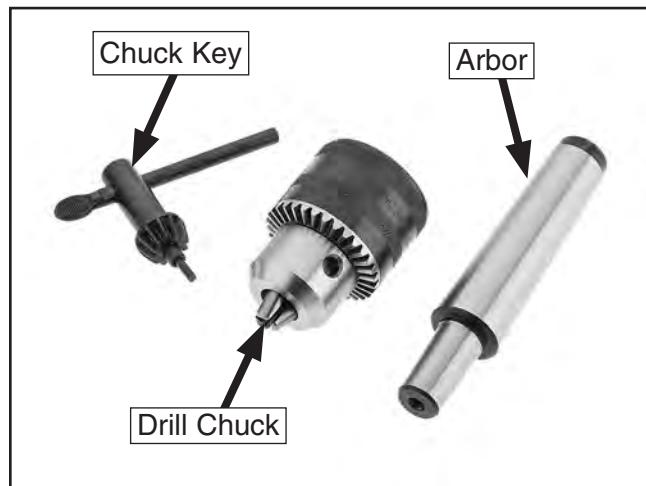


Figure 49. Chuck components.

To assemble drill chuck and mount it in tailstock quill:

1. Use mineral spirits to thoroughly clean drill chuck, arbor and quill barrel, and dry all surfaces before assembly.
2. Place drill chuck face down on a workbench.
3. Insert short tapered end of arbor into socket in back of drill chuck and tap it with a rubber or wooden mallet.

The procedure for mounting and removing the chuck and arbor from the tailstock quill is the same as for a center. Refer to **Mounting Center in Tailstock** and **Removing Center from Tailstock**.



Steady Rest

The steady rest supports long, small-diameter shafts and can be mounted anywhere along the length of the bedway.

Familiarize yourself with the steady-rest components shown in **Figure 50** to better understand the controls.

Items Needed	Qty
Hex Wrench 3mm.....	1
Open-End Wrench 10mm.....	1
Open-End Wrench 19mm.....	1

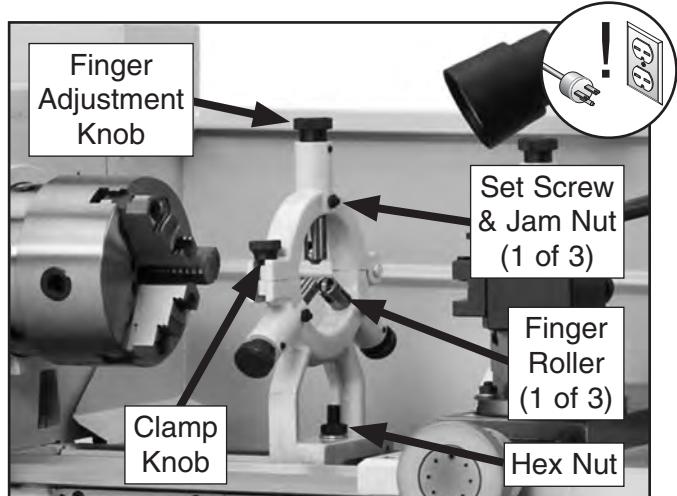


Figure 50. Steady rest components.

To install and use steady rest:

1. DISCONNECT MACHINE FROM POWER!
2. Thoroughly clean all mating surfaces, then place steady rest base on bedways so triangular notch fits over bedway prism.
3. Position steady rest with base clamp where required to properly support workpiece, then tighten hex nut shown in **Figure 50** to secure it in place.

4. Loosen clamp knob that secures two halves of steady rest and open top portion, as shown in **Figure 51**.



Figure 51. Workpiece mounted in the steady rest.

5. Loosen (3) jam nuts and set screws so finger roller positions can be adjusted.
6. Use finger adjustment knobs to position bottom two finger rollers against workpiece, as shown in **Figure 51**.
7. Close steady rest, then use finger adjustment knobs to adjust all three finger rollers so that they just touch workpiece without causing deflection.

Note: The finger rollers should not be pre-loaded against the workpiece in any great manner.

8. Lock fingers with set screws and jam nuts, then tighten clamp knob.



Follow Rest

The follow rest mounts to the saddle with two cap screws (see **Figure 52**). It is used on long, slender parts to prevent workpiece deflection from the pressure of the cutting tool during operation. Adjust the follow rest fingers in the same manner as the those on the steady rest.

Note: To reduce the effects of friction, lubricate the rollers with way oil during operation.

Items Needed	Qty
Hex Wrench 8mm.....	1
Open-End Wrench 10mm.....	1

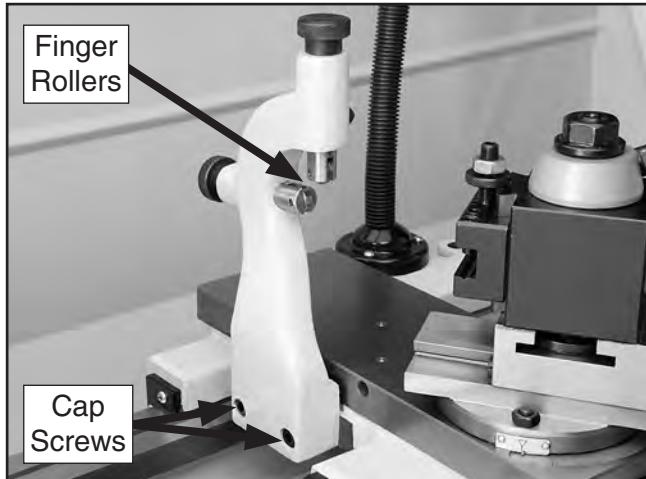


Figure 52. Follow rest attachment.

Compound Rest & Carriage Locks

The compound rest and carriage have locks that can be tightened to provide additional rigidity during operation, especially during heavy cuts.

See **Figure 53** to identify the locations of the locks for each device.

Note: The cross slide does not have a locking provision.

Items Needed	Qty
Hex Wrench 3mm.....	1
Hex Wrench 6mm.....	1

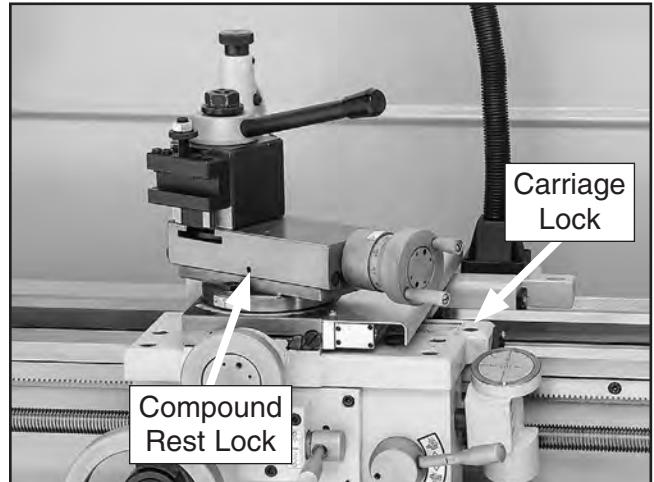


Figure 53. Location of compound rest and carriage locks.



Compound Rest

The compound rest handwheel has an indirect-read graduated scale. This means if you move the cutter in 0.001" you will have removed 0.002" of material from the diameter of your workpiece. The base of the compound rest has another graduated scale used for setting the cutting tool to a specific angle, up to 60° left or right.

Graduated Dial

Increments..... 0.001" (0.02mm)
One Full Revolution..... 0.100" (2.54mm)

Items Needed	Qty
Wrench Open-Ends 14mm	1

To set compound rest at a certain angle:

1. Loosen (2) hex nuts at base of compound rest (see **Figure 54**).

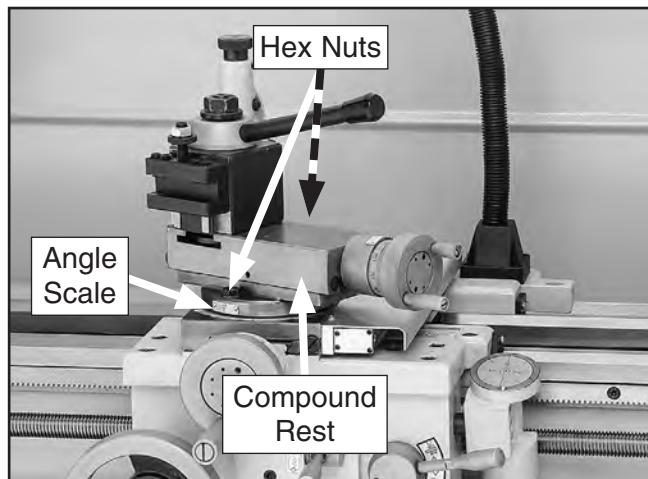


Figure 54. Compound rest adjustments.

2. Rotate rest to desired angle, as indicated by scale at base, then re-tighten (2) hex nuts.

Tip: The first time you set the angle of the compound rest 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.

Tool Post

The quick-change tool post (see **Figure 55**) is a 200-series design.

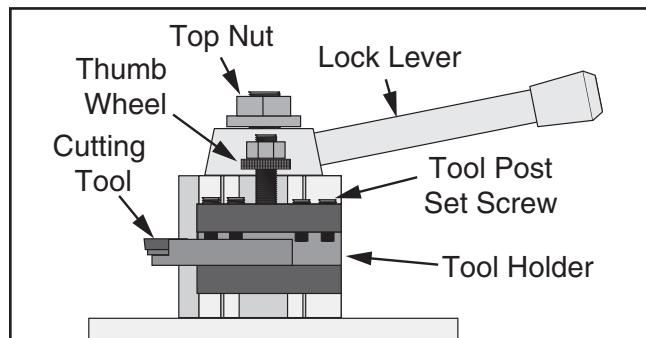


Figure 55. Example of tool mounted in tool post.

Tool holders can be quickly loaded and unloaded using the lock lever. Tools up to $\frac{5}{8}$ " can be secured by tightening the tool holder set screws. The thumb wheel rotates to adjust cutting tool height. The tool post is rotated by loosening the top nut.

Installing Tool

Items Needed	Qty
Open-End Wrench/Socket 27mm.....	1
Hex Wrench 5mm.....	1

To install a tool in tool post:

1. Position tool in holder so cutting edge extends just enough to allow tool to cut freely—but no more. Cutting edge must be well supported to ensure good cutting results and avoid chipping.

WARNING

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



2. Secure tool with at least two set screws.
3. Adjust cutting tool height to spindle centerline, as instructed in next subsection.

Aligning Cutting Tool with Spindle Centerline

For most operations, the cutting tool tip should be aligned vertically with the spindle centerline, as illustrated in **Figure 56**.

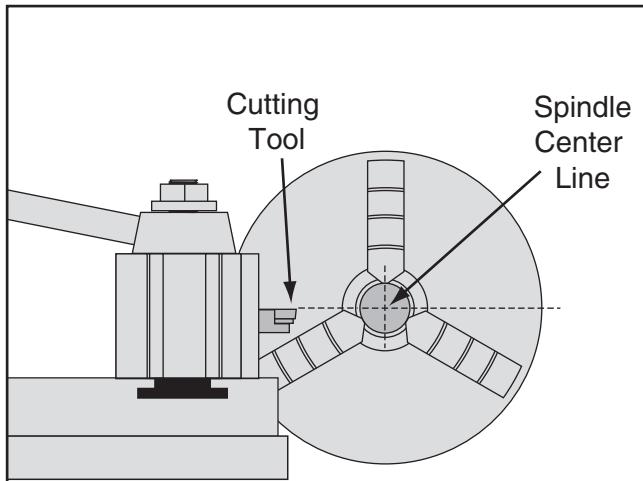


Figure 56. Cutting tool aligned with spindle centerline (viewed from tailstock).

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:

- **Rough Alignment:** 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.
- **Precise Alignment:** Align the tip of the cutting tool with a tailstock center, as described in the following procedure. For this to be accurate, the tailstock must be aligned to the spindle centerline first (refer to **Aligning Tailstock To Spindle Centerline** on **Page 36** for detailed instructions).

Items Needed	Qty
Hex Wrench 5mm.....	1
Open-End Wrench/Socket 27mm.....	1
Steel Shims	As Needed
Cutting Tool	1
Fine Ruler.....	1
Tailstock Center.....	1

To align cutting tool with tailstock center:

1. Mount cutting tool and secure post so tool faces tailstock.
2. Align tailstock to spindle (see **Page 36**).
3. Move carriage and cutting tool to tailstock (do not move tailstock).
4. Adjust height of cutting tool tip to meet center tip, as shown in **Figure 57**.

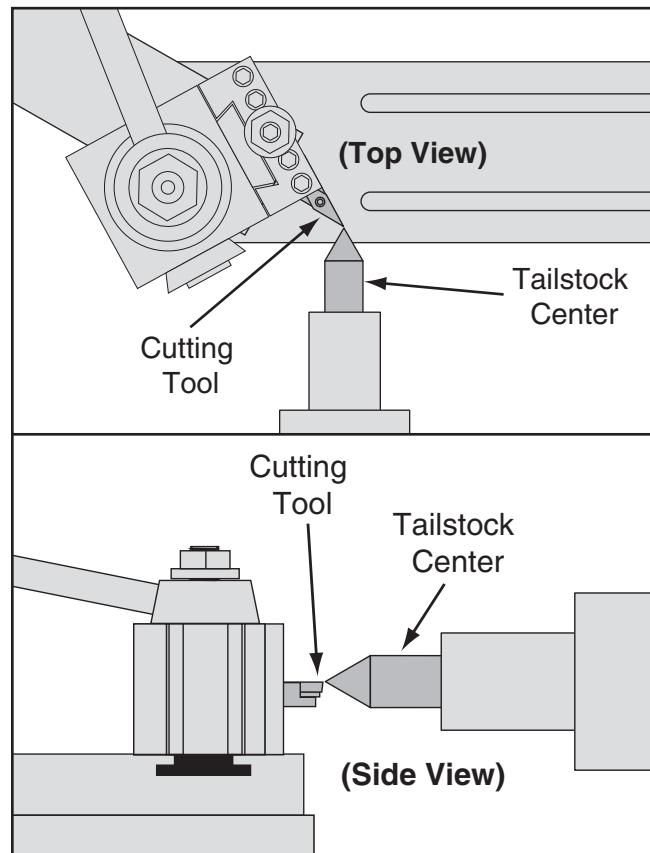


Figure 57. Cutting tool aligned to the tailstock center.



Spider

This lathe is equipped with a set of outboard spindle supports otherwise known as a "spider" (see **Figure 58**).

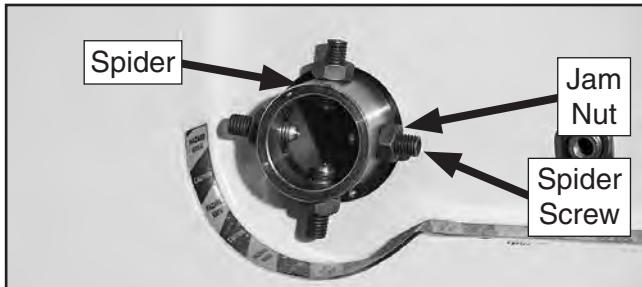


Figure 58. Spider components.

⚠ CAUTION

Remove spider screws when not in use. Always DISCONNECT LATHE FROM POWER when installing, removing, or adjusting spider screws. Ignoring this warning can lead to personal injury or machine damage.

The spider is especially designed for supporting gun barrels during chambering operations; however, it is a great support option for almost any long workpiece that extends through the outboard side of the spindle.

⚠ WARNING

The spider on this lathe spindle is intended to add additional rigidity to long workpieces, and serve as an additional vibration damper. It is not intended to replace anchored support at the center or end of long pipes, shafts, or rods for high-speed turning. Ignoring this warning can lead to workpiece whip, creating a risk of personal injury or death.

The tips of the spider screws have brass wear pads that hold the workpiece without causing indents in the surface finish.

When spider screws are installed, always use the jam nuts to lock each spider screw in position. Merely tightening the spider screws against the workpiece and leaving the jam nuts loose is not safe. Spider screws that loosen during operation can crash into the lathe end cover.

Manual Feed

The handwheels shown in **Figure 59** allow the operator to manually move the cutting tool.

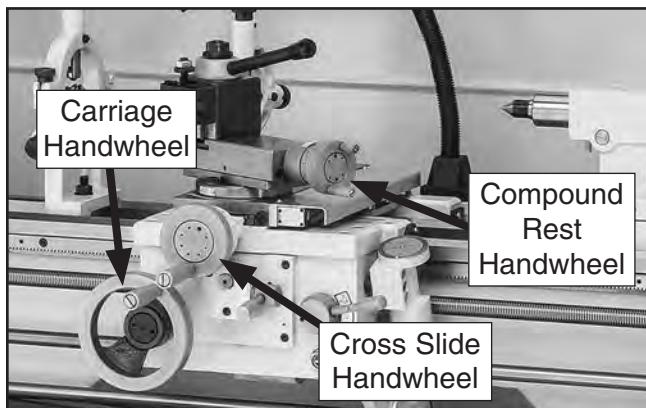


Figure 59. Carriage controls.

Carriage Handwheel

The carriage handwheel moves the carriage left or right along the bed. It has a graduated dial with 0.005" increments. One full revolution moves the carriage 0.56".

Cross-Slide Handwheel

The cross-slide handwheel moves the tool toward and away from the work. Adjust the position of the graduated scale by holding the handwheel with one hand and turning the dial with the other. The cross-slide handwheel has an indirect-read graduated dial, which shows the actual distance the tool moves. The dial has 0.002" (0.05mm) increments. One full revolution moves the slide 0.200" (5.08mm).

Compound-Rest Handwheel

The compound-rest handwheel moves the cutting tool linearly along the set angle of the compound rest. The compound-rest angle is set by hand-rotating it and securing in place with two hex nuts. The compound rest has an indirect-read graduated dial with 0.001" (0.02mm) increments. One full revolution of the handwheel moves the slide 0.100" (2.54mm).



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, keeping in mind the length of the workpiece on both sides of the headstock, and 2) configure the lathe controls to produce the required spindle speed for the best cut with the safest means possible.

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 in **Figure 60**.

$$\frac{\text{*Recommended Cutting Speed (FPM)} \times 12}{\text{Dia. of Cut (in inches)} \times 3.14} = \frac{\text{Spindle Speed}}{\text{(RPM)}}$$

*Double if using carbide cutting tool

Figure 60. Spindle speed formula for lathes.

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

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

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

Also, there are a large number of easy-to-use spindle speed calculators that can be found on the internet. These sources will help you take into account the applicable variables in order to determine the best spindle speed for the operation.

Setting Spindle Speed

Determine spindle speed, then use the spindle speed lever, shown in **Figure 61**, to select the spindle speed range that best suits your cutting task.

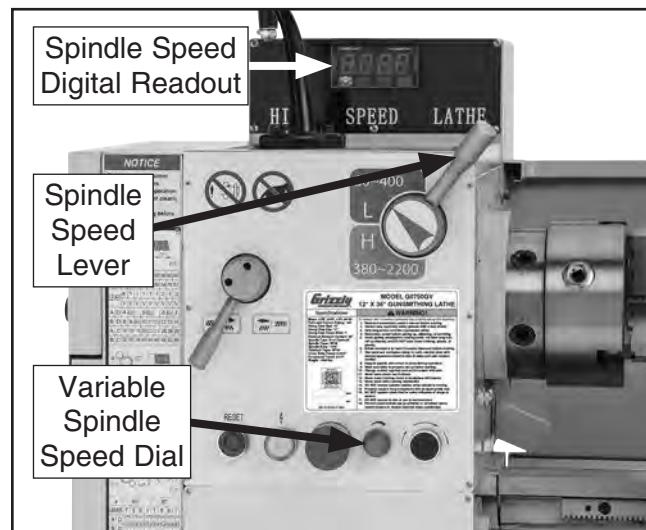


Figure 61. Spindle speed controls and display.

NOTICE

To avoid damaging gears, **ALWAYS** make sure the spindle is completely stopped BEFORE moving the spindle speed levers.

To adjust spindle speed:

1. Make sure spindle is turned **OFF** and has come to a complete stop.
2. Set spindle speed lever to low (L, 60–400 RPM) or high (H, 380–2200 RPM).

NOTICE

Headstock label indicates allowable spindle speed for cutting operations within that range. If knob is set to H (high speed), do not attempt cutting operations at less than 380 RPM, and do not exceed 400 RPM in L (low speed).

3. Turn spindle **ON**, then turn variable spindle speed dial to adjust speed shown on spindle speed digital readout to your calculated speed (see **Figure 61**).



Power Feed

Both the carriage and cross slide have power feed capability when the carriage is engaged with the feed rod. The rate that these components move per revolution of the feed rod is controlled by the quick-change gearbox lever positions and the end gear configuration.

The feed per revolution and the spindle speed must be considered together—this is the feed rate. The sources you use to determine the optimum spindle speed for an operation will also provide the optimal feed to use with that spindle speed.

Often, the experienced machinist will use the feeds and speeds given in their reference charts or web calculators as a starting point, then make minor adjustments to the feed rate (and sometimes spindle speed) to achieve the best results.

The carriage can alternately be driven by the leadscrew for threading operations. However, this section only covers the use of the power feed option for the carriage and cross slide components for non-threading operations. To learn how to power the carriage for threading operations, refer to **Threading on Page 51**.

NOTICE

If feed selection lever and half nut are engaged at same time, machine damage could occur. Even though there is a lock-out device to prevent this, it could break if forced.

NOTICE

Before using any power feed or threading operations, make sure to loosen carriage lock first. Ignoring this warning can cause serious machine damage.

NOTICE

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

Power Feed Controls

Use **Figures 62–63** and the following descriptions to understand the power feed controls.

IMPORTANT: Before using power feed, you may have to re-configure the end gears, depending on how they are set up. Refer to **End Gears on Page 49** for detailed instructions.

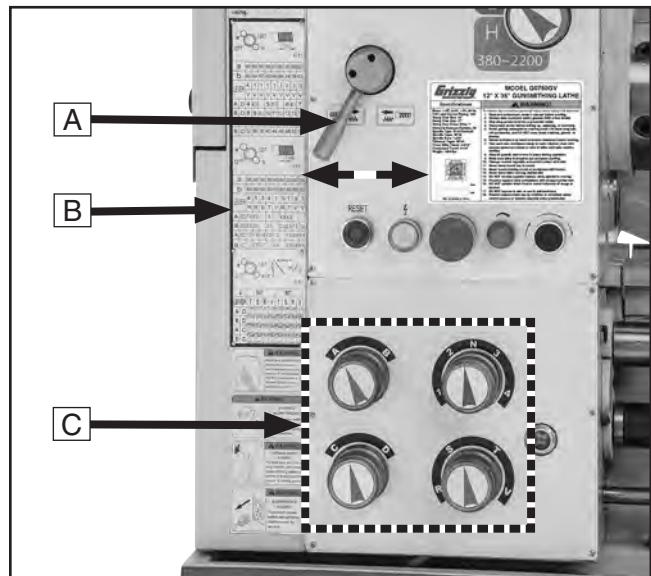


Figure 62. Power feed controls.

- A. **Feed Direction Lever:** Selects the direction for power feed. When the lever is positioned as shown in **Figure 62**, the carriage will move along the bed toward the spindle, or the cross feed will travel toward the rear of the lathe.
- B. **Feed Rate Chart:** Displays the settings for the quick-change gearbox dials for the selected feed rate. Refer to **Setting Power Feed Rate** subsection on the next page for detailed instructions.
- C. **Quick-Change Gearbox Feed Dials:** Refer to feed rate chart to position these to select different feed rates.



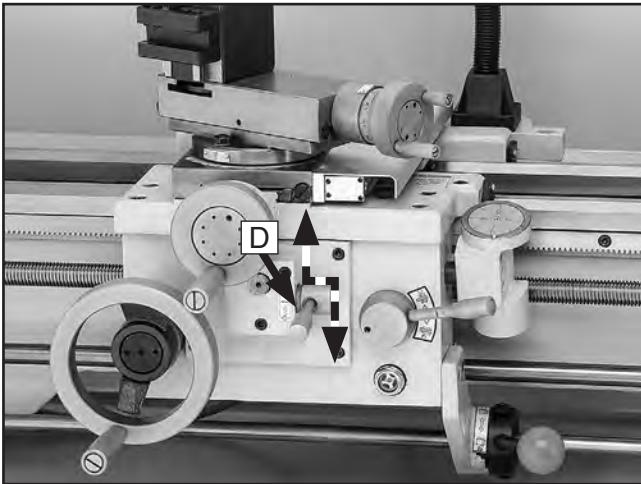


Figure 63. Apron power feed control.

D. Feed Selection Lever: Changes the power feed to either the cross slide or the carriage.

When the lever is down and the indent pin is pointing up, the cross slide is selected. Conversely, when the lever is up and the pin is pointing down, the carriage is selected.

In the middle position, the apron gears are disengaged from the feed rod and neither component will move.

Note: When using this lever, you may need to slightly rotate the handwheel so that the apron gears can mesh.

Setting Power Feed Rate

The feed rate chart (see **Figure 62** on previous page for location) displays the settings for the headstock feed controls for feed rates.

Examining the chart, you will see a series of boxes separated by slashes. The top number is the carriage feed rate, the bottom number is the cross-slide feed rate, as shown in **Figure 64**.

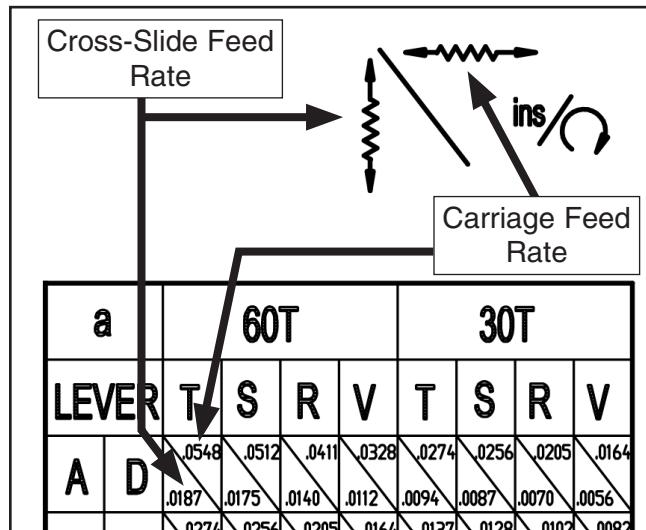


Figure 64. Cross slide and carriage feed rates.

Using the controls on the lathe, follow along with the example below to better understand how to set the lathe for the desired power feed rate.

Setting Cross-Slide Power Feed Rate of 0.0017 in./rev.

1. Locate box on feed rate chart that lists 0.0017 in./rev., as shown in **Figure 65**.

		60T				30T			
LEVER		T	S	R	V	T	S	R	V
A	D	.0548 .0187 .0274 .0094 .0137 .0047 .0069	.0512 .0175 .0256 .0205 .0128 .0035 .0064	.0411 .0140 .0164 .0070 .0102 .0028 .0051	.0328 .0112 .0094 .0087 .0047 .0024 .0047	.0274 .0094 .0137 .0047 .0128 .0022 .0012	.0256 .0087 .0128 .0070 .0102 .0017 .0009	.0205 .0070 .0102 .0056 .0082 .0017 .0020	.0164 .0056 .0082 .0020 .0002 .0014 .0007

Figure 65. 0.0017 in./rev. location on feed chart.



- Locate applicable change gear on chart—in this case it is the 60T gear.
- Install 60T gear in the upper "a" position so it meshes with 120T gear (refer to **Power Feed Configuration** on this page for details).
- Position gearbox dials as directed by chart shown in **Figure 66**. Be sure to point top right dial to "N" to select feed rod and disengage leadscrew. If necessary, use chuck key to rock spindle back and forth to help mesh gears.

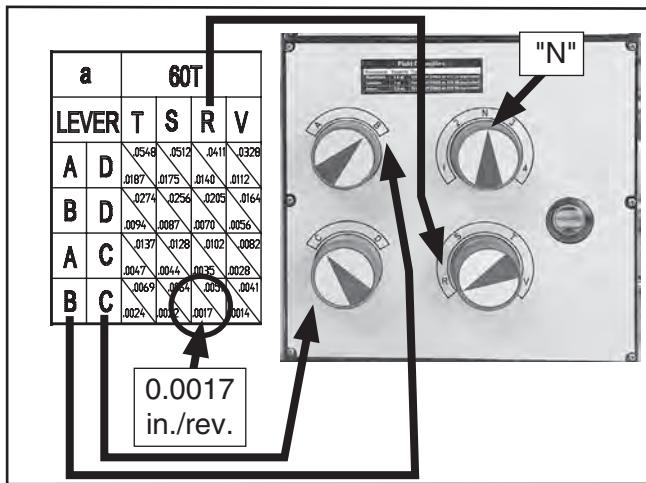


Figure 66. Gearbox dials positioned for 0.0017 in./rev.

- The cross slide is now set up for a power feed rate of 0.0017 in./rev.

End Gears

The end gears must be correctly set up for power feed, inch, or metric threading operations. Use the photo below to identify the upper "a" gear, middle 120T/127T change gears, and lower "b" gear, which are also referenced on the headstock feed and threading charts.

The following subsections explain how to configure the end gears.

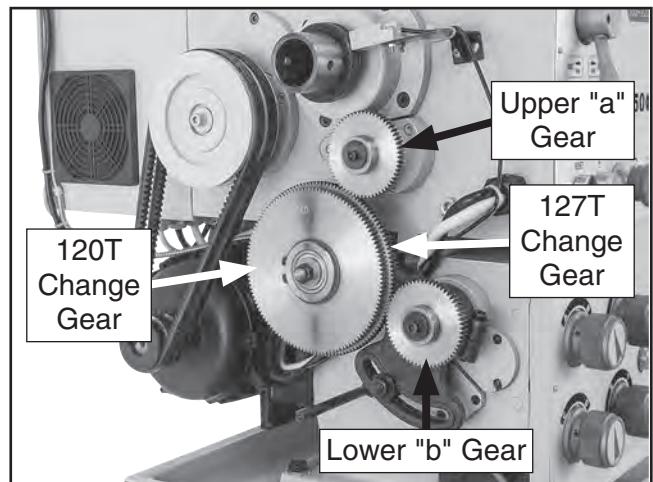


Figure 67. Change gear identification.

Power Feed Configuration

Install either a 60T or 30T gear in the upper "a" position and mesh it with the 120T gear. Gear selection depends upon which feed speed is selected. Install another 60T gear in the bottom position, and mesh it with the 120T gear.

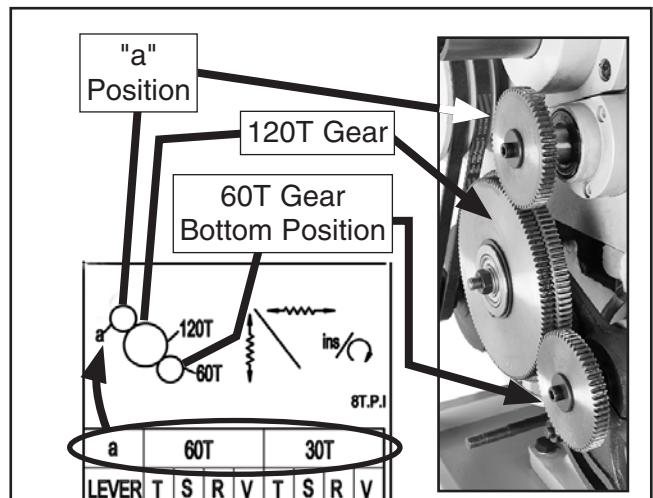


Figure 68. Power feed chart change gears.



Inch Threading Configuration

A change gear corresponding to the "b" row on the chart is installed in the lower "b" position so it meshes with the 120T gear. A change gear corresponding to the "a" row is installed in the upper "a" position and meshes with the 120T gear, as shown below.

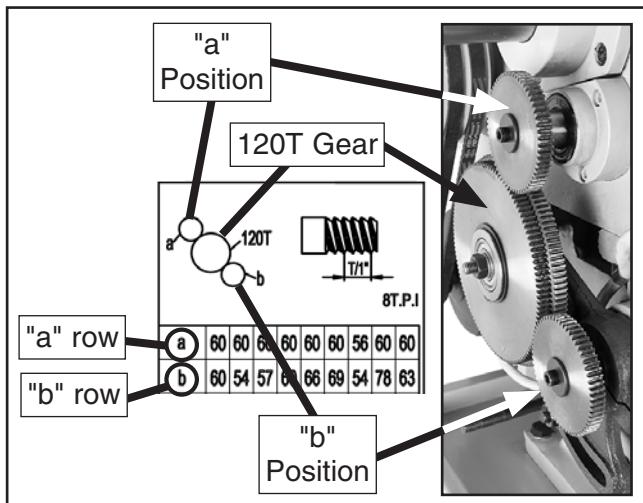


Figure 69. Inch feed chart change gears.

Metric Threading Configuration

A change gear corresponding to the "b" row on the chart is installed in the lower "b" position so it meshes with the inner 120T gear. A change gear corresponding to the "a" row is installed in the "a" position so it meshes with the outer 127T gear, as shown below.

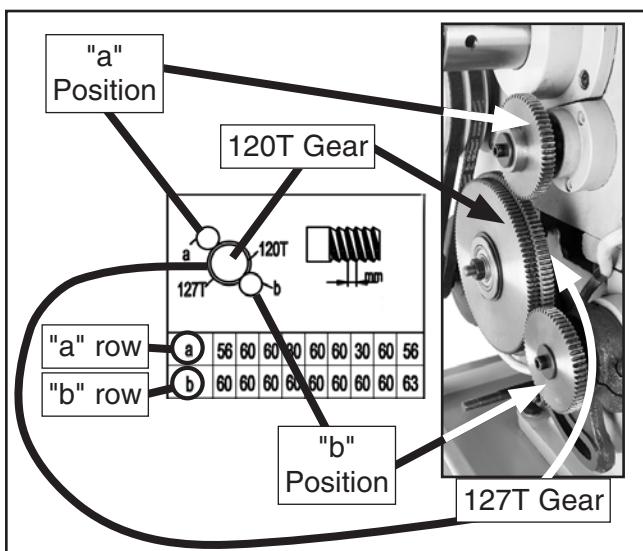


Figure 70. Metric feed chart change gears.

End-Gear Configuration Example

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

Tools Needed

	Qty
Hex Wrench 5mm.....	1
Hex Wrench 6mm.....	1
Wrench 17mm.....	1

To configure end gears for threading 18 TPI:

1. Locate **18** on inch thread chart, then locate the **60** "a" position gear and **54** "b" position gear (see **Figure 71**), which correspond to 18 TPI. Gather **60T** and **54T** gears.

60T & 54T Gears	a	60	60	60	60	60	60	56	60	60
	b	60	54	57	60	66	69	54	78	63
LEVER		4	1	1	1	1	1	2	1	3
		V	V	V	V	V	V	V	V	V
A D		4½			5	5½		6	6½	7
B D		8	9	9½	10	11	11½	12	13	14
18 TPI	A	0	16	18	19	20	22	23	24	26

Figure 71. Locating change gears for 18 TPI.

2. DISCONNECT MACHINE FROM POWER!
3. Remove headstock end gear cover.
4. Loosen arm support cap screw shown in **Figure 72**.

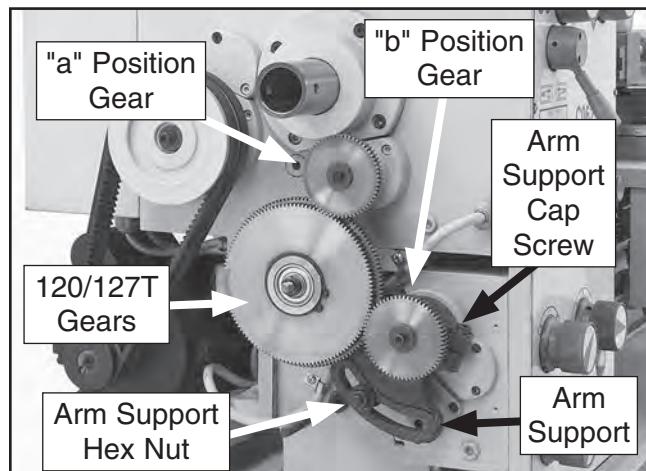


Figure 72. Arm support and end gears.



- While holding **120T/127T** gears, loosen arm support hex nut and slowly let gears pivot down and away from upper "a" position gear, as illustrated below.

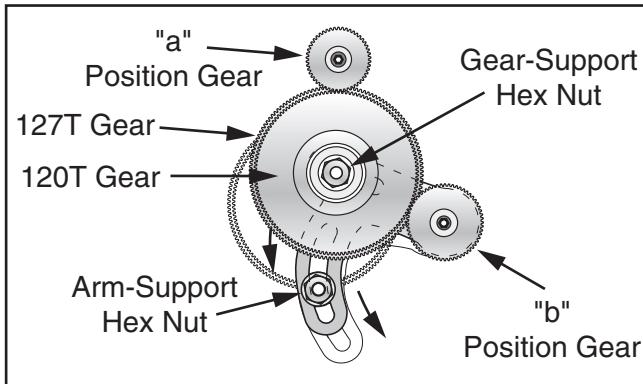


Figure 73. End gear placement.

- Loosen **120T/127T** gear support hex nut and slide middle gear away from lower "b" position gear.
- Remove cap screw and flat washer from upper "a" position and "b" position gears, then slide gears off shafts.
- Slide **60T** gear onto "a" position shaft and **54T** gear onto 'b" position shaft, making sure to align keys and keyways.

Note: Position the flat, non-stepped face of the gears away from the headstock so they will mesh with the 120T gear in **Step 11**.

- Secure **60T** and **54T** gears with flat washers and cap screws removed earlier.

- Slide **120T** gear against lower **54T** gear (see **Figure 74**) until they mesh with 0.002" to 0.004" backlash, then tighten gear support hex nut.

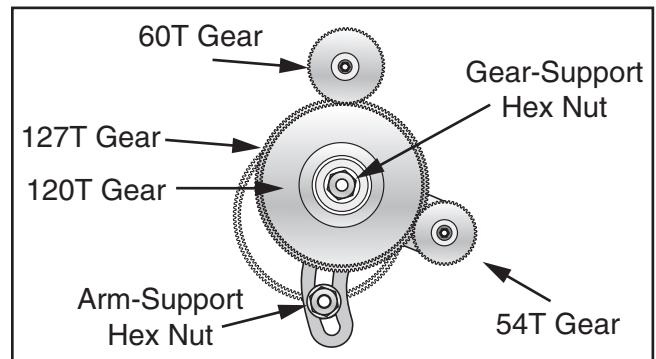


Figure 74. 60T & 54T gears installed.

- Rotate **120T** gear up against **60T** gear until they mesh with 0.002" to 0.004" backlash.
- Tighten arm support hex nut.
- Secure arm support cap screw (see **Figure 72**).
- Re-install end gear cover.

Threading

The following subsections will describe how to use the threading controls and charts to set up the lathe for a threading operation. If you are unfamiliar with the process of cutting 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 charts on the headstock face display 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 dials for 18 TPI:

- DISCONNECT MACHINE FROM POWER!



2. Locate 18 TPI on inch threading chart below.

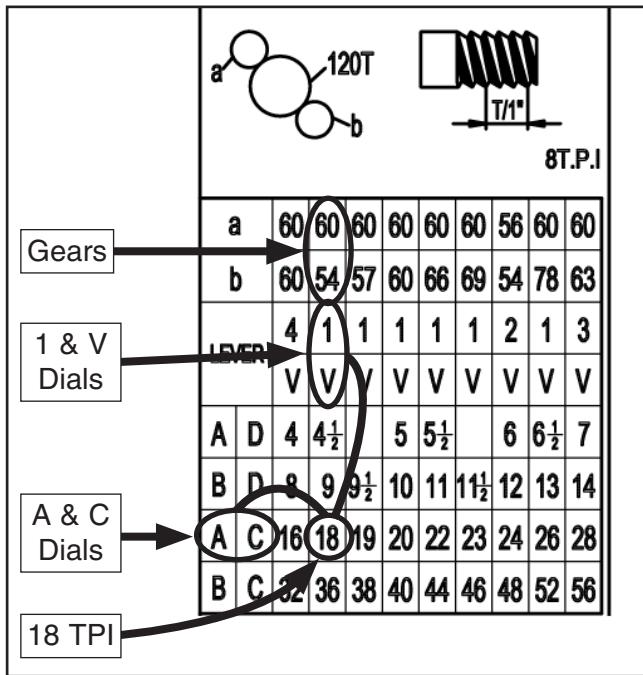


Figure 75. 18 TPI and corresponding dial positions.

3. Install 60T and 54T gears, as instructed in **Gear Configuration Example on Page 50**.
4. Locate **A** and **C** to the left of 18 TPI and find **1** and **V** above it.

Note: In the next step, use the chuck key to rock the spindle back-and-forth to help mesh the gears as you make adjustments.

5. Verify carriage lock is loose (see **Figure 76**)

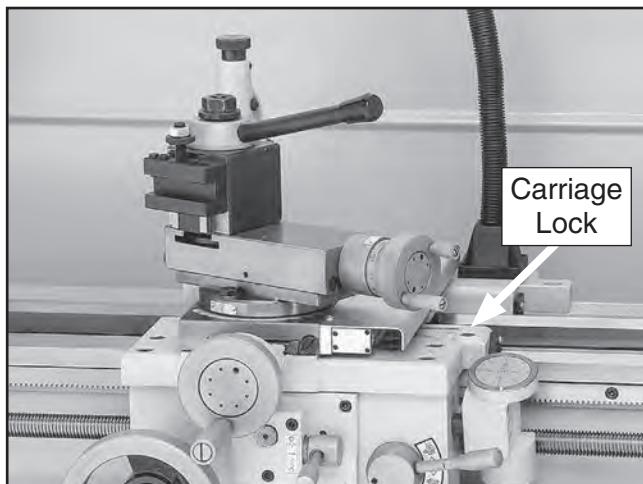


Figure 76. Location of carriage lock.

6. Position gearbox dials, as shown in **Figure 77**.

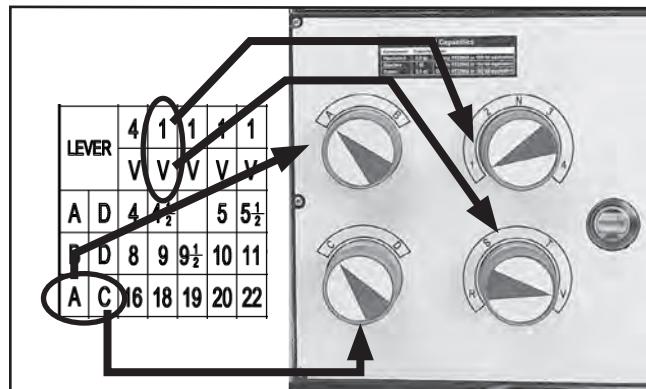


Figure 77. Gearbox dial settings for 18 TPI.

The lathe is now set up to cut 18 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 78**).

IMPORTANT: Make sure the feed selection lever is in the disengaged (middle) position before attempting to engage the half nut.

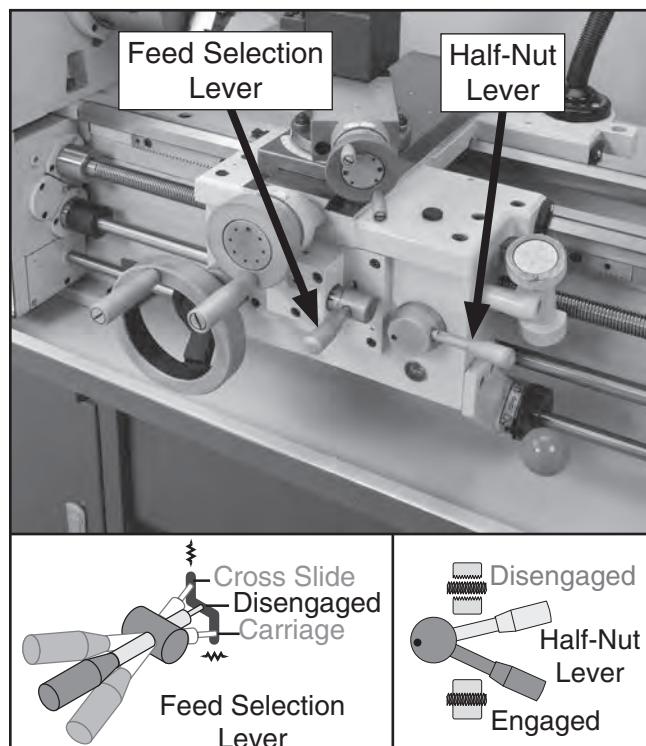


Figure 78. Apron threading controls.



Thread Dial (Non-Metric Threads)

Items Needed	Qty
Hex Wrench 5mm.....	1

The numbers on the thread dial are used with the thread dial chart to show when to engage the half nut during inch threading. Loosen the cap screw on the thread dial (see **Figure 79**), pivot the gear teeth so they mesh with the leadscrew threads, then re-tighten the cap screw.

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

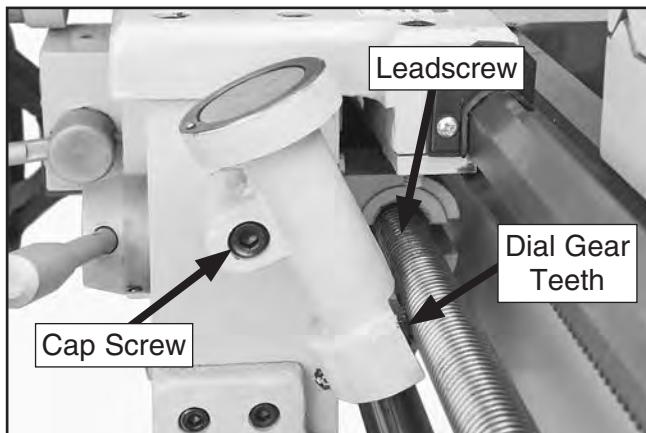


Figure 79. Thread dial engaged with the leadscrew.

NOTICE

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

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



Thread Dial Chart

The thread dial chart is located on the headstock, as shown in **Figure 80**.

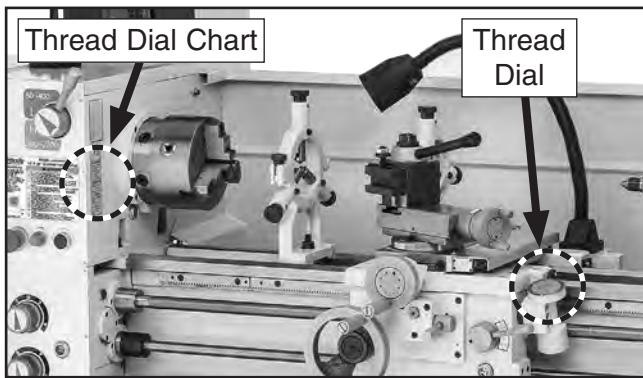


Figure 80. Thread dial chart location.

To use the thread chart, find the TPI that you want to cut and reference the "Scale" number(s) next to it. The scale number(s) indicate when to engage the half nut when cutting that TPI.

For Example: If you are cutting 13 TPI threads, the chart shows "1, 3, 5, 7" next to the 13 (see the shaded boxes in **Figure 81**).

INDICATOR TABLE					
T.P.I.	SCALE	T.P.I.	SCALE	T.P.I.	SCALE
4	1-8	11-1/2	1,5/3,7	28	1-8
4-1/2	1,5/3,7	12	1-8	32	1-8
5	1,3,5,7	13	1,3,5,7	36	1-8
5-1/2	1,5/3,7	14	1-8	38	1-8
6	1-8	16	1-8	40	1-8
6-1/2	1,5/3,7	18	1-8	44	1-8
7	1,3,5,7	19	1,3,5,7	46	1-8
8	1-8	20	1-8	48	1-8
9	1,3,5,7	22	1-8	52	1-8
9-1/2	1,5/3,7	23	1,3,5,7	56	1-8
10	1-8	24	1-8		
11	1,3,5,7	26	1-8		

Figure 81. Thread dial chart.

IMPORTANT: You can engage on the number 1 on the thread dial 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.

Even TPI: For threading even numbered TPI, use any mark on the thread dial (see the example in **Figure 82**).

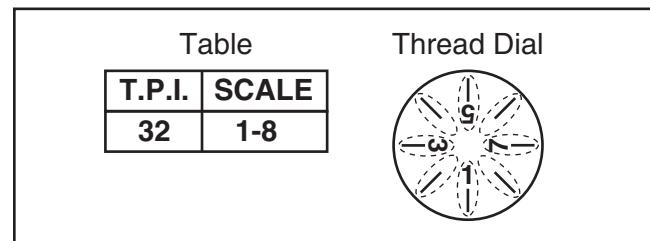


Figure 82. Any mark on dial for threading even numbered TPI.

Odd TPI: For threading odd numbered TPI, use any numbered line on the thread dial (see the example in **Figure 83**).

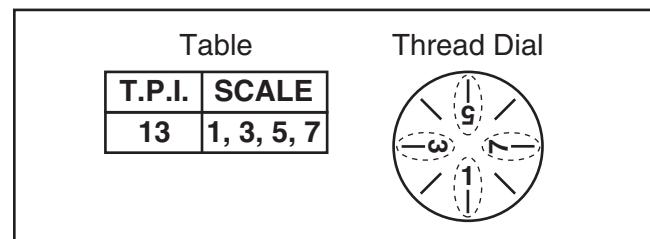


Figure 83. Any number on dial for threading odd numbered TPI.

Any Other TPI: For threading any other TPI, use only the number 1 on the thread dial (see the example in **Figure 84**).

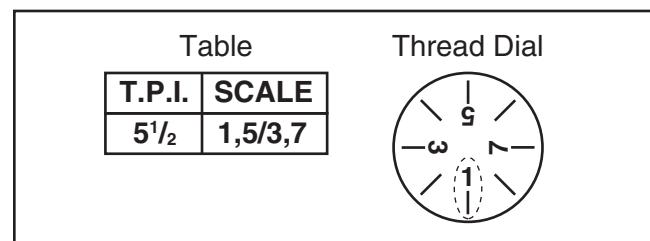


Figure 84. Thread dial position for any numbered TPI.



SECTION 5: ACCESSORIES

WARNING

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

NOTICE

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

T23962—ISO 68 Moly-D Machine Oil, 5 gal.

T23963—ISO 32 Moly-D Machine Oil, 5 gal.

Moly-D oils are some of the best we've found for maintaining the critical components of machinery because they tend to resist run-off and maintain their lubricity under a variety of conditions—as well as reduce chatter or slip. Buy in bulk and save with 5-gallon quantities.

T23962

T23963

Figure 85. ISO 68 and ISO 32 machine oil.

T26419—Syn-O-Gen Multi-purpose Grease

Syn-O-Gen Multi-purpose Synthetic Grease is formulated with 100% pure synthesized hydrocarbon base stocks to impart its remarkable properties.



Figure 86. T26419 Syn-O-Gen Grease.

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T10295—7-Pc. Indexable Carbide Set $\frac{5}{8}$ "

This 7-piece turning tool set is ideal for just about any project. Supplied with right-hand and left-hand turning/facing tool holders, the set is complemented with one threading and cut-off tool. Indexable inserts ensure cutting surfaces stay sharp.

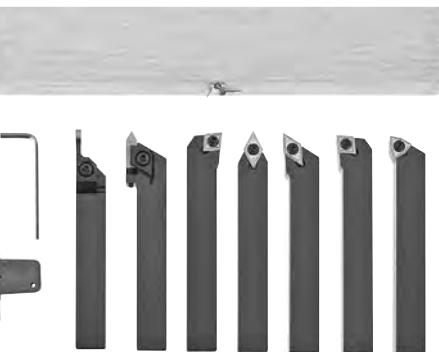


Figure 87. T10295 7-Pc. Indexable Carbide Tool Set.

T10439—4-Pc. Carbide Insert CCMT Boring Bar Set

These right-hand indexable solid steel Boring Bars use $\frac{1}{4}$ " and $\frac{3}{8}$ ", 80° diamond inserts and feature a negative 7° end and side cutting angle. Includes $\frac{3}{8}$ " x 6", $\frac{1}{2}$ " x 7", $\frac{5}{8}$ " x 8", and $\frac{3}{4}$ " x 10" boring bars. Set comes with Torx® wrenches and fitted aluminum case with handle.



Figure 88. T10439 Carbide Insert CCMT Boring Bar Set.

T10556—Taper Attachment Kit

P0750GV1216-3—LED Bulb 24V Bi-Pin

Replacement bulb for the Model G0750GV work light.

H2987—½" Bent Lathe Dog

H2988—1" Bent Lathe Dog

H2989—1½" Bent Lathe Dog

H2990—2" Bent Lathe Dog

H2991—3" Bent Lathe Dog

Just the thing for precision machining between centers! These bent tail Lathe Dogs are made of durable cast iron and feature square head bolts.



Figure 89. H2987 ½" Bent Lathe Dog.

T10665—Adjustable Reamer Holder MT#3

Mount this Pacific Tool and Gauge Adjustable Reamer Holder in your lathe tailstock, secure a barrel chambering reamer in the holder for free floating reamer movement. A knurled wheel adjustment controls the amount of tension, which also limits free-floating movement.



Figure 90. T10665 PTG Reamer Holder MT#3.

T10667—Bald Eagle Reamer Holder MT#3

Holder is designed to allow free movement of a floating reamer in 3 directions: vertical, horizontal and angular, as required for proper performance of any floating reamer.



Figure 91. Bald Eagle Reamer Holder MT#3.

H8314—Threading Tool Holder, Left-Hand

H8315—Threading Tool Holder, Right-Hand

For threading tough to machine materials. Made of high quality alloy steel, these holders offer maximum rigidity because of the "on edge" design of the cutter and double fastening system. Inserts not included. 20 x 20mm shank. Overall length: 4^{15/16}".



Figure 92. H8314 & H8315 Tool Holders.

H5930—4-Pc. Center Drill Set 60°

H5931—4-Pc. Center Drill Set 82°

Double ended HSS Center Drills are precision ground. Each set includes sizes 1-4.

SIZE	BODY DIA.	DRILL DIA.	OVERALL LENGTH
1	1/8"	3/64"	1 1/4"
2	3/16"	5/64"	1 7/8"
3	1/4"	7/64"	2"
4	5/16"	1/8"	2 1/8"

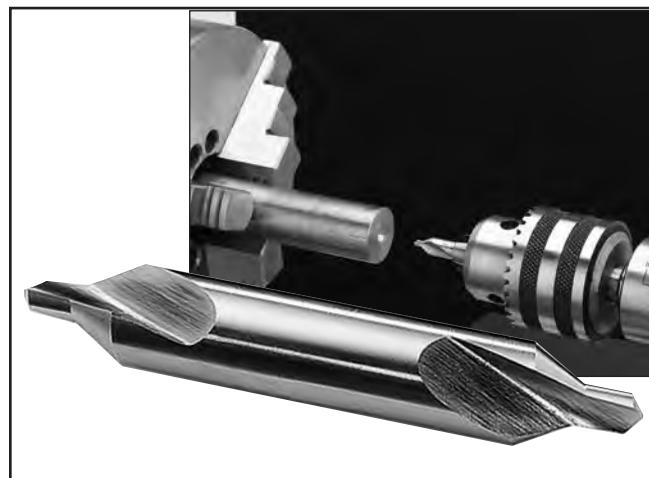


Figure 93. HSS ground center-drill sets.

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G4985—Machine Shop Practice-Vol. 1 - Book

G4986—Machine Shop Practice-Vol. 2 - Book

Karl Hans Moltrecht's two-volume work on metalworking operations delivers the ultimate teaching and reference tool for basic cutting operations, layout work, lathe turning, drilling operations, taper and angle turning, and boring work. Written to aid the beginner as well as the experienced machinist or engineer. Due to their nature, books are non-returnable. Defective books will be replaced.

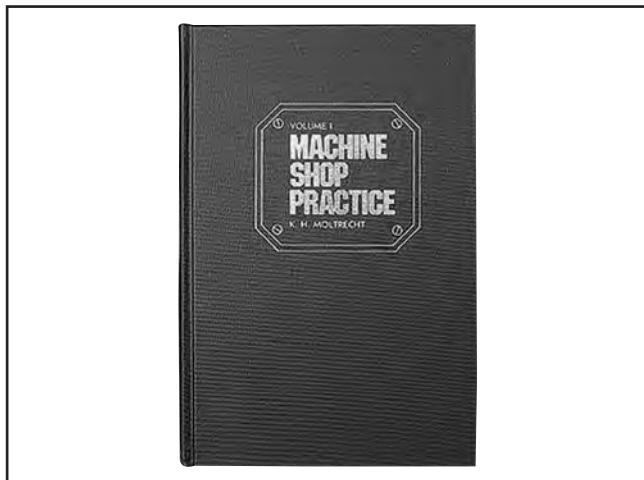


Figure 94. G4985 Machine Shop Practice Book.

H7617—Oil Can w/Flex Nozzle

This high-pressure oil can is perfect for lubricating the ball oilers found on your machine. Holds 5 ounces of oil.



Figure 95. H7617 Oil Can W/Flex Nozzle.

SBCE3450—How to Run a Lathe—English

First printed in 1907, this 56th edition is an exact reprint from 1966. Well illustrated with vintage photos and drawings, this 128-page book is written specifically about the care and operation of a metal lathe. "This book is to aid the beginner or apprentice in the machine shop and the student in the school shop to secure a better understanding of the fundamental operations of modern lathe practice in use in modern industries in the United States."

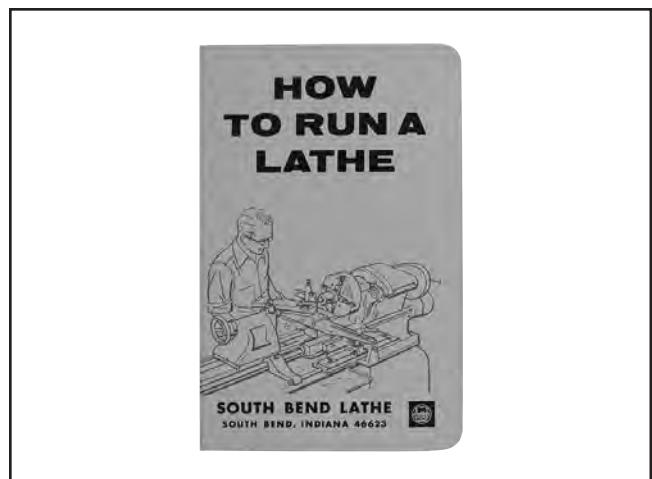


Figure 96. How to Run a Lathe.

T10719—Crown Savers for .17 to .45 Caliber Barrels (10 Pk.)

T10720—Crown Savers for .50 Caliber Barrels (3 Pk.)

With crown savers you never have to recrown the barrel when installing muzzle brakes or doing any job requiring a center in the end of the barrel crown.



Figure 97. T10720 Crown Savers.

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Basic Eye Protection

- T20501—Face Shield Crown Protector 4"
- T20502—Face Shield Crown Protector 7"
- T20503—Face Shield Window
- T20451—"Kirova" Clear Safety Glasses
- T20452—"Kirova" Anti-Reflective S. Glasses
- T20456—DAKURA Safety Glasses, Black/Clear



Figure 98. Basic assortment of eye protection.

T25613—Metal Lathe for Home Machinists

Metal Lathe for Home Machinists is a project-based course that provides a complete introduction to the lathe and lathe metalworking. It assumes no prior knowledge and works through the process of using a lathe from beginning to end. The reader advances through a series of practice projects that teach how to use the lathe and develop essential skills through practical application.

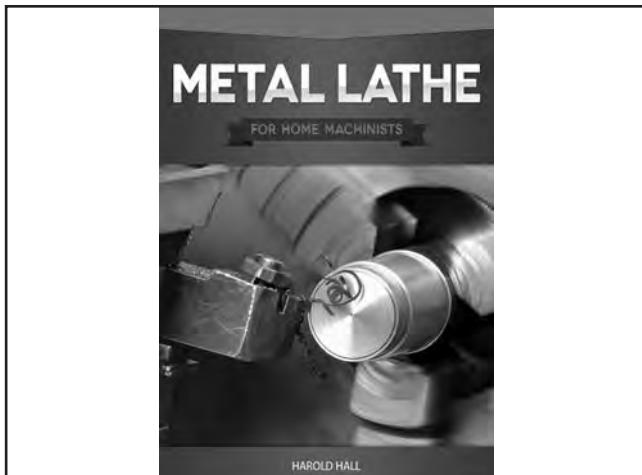


Figure 99. T25613 Metal Lathe for Home Machinists.

- SB1366—South Bend Cutting Oil, 12 oz.
- H7617—High-Pressure 5 oz. Oil Can w/Flex Nozzle
- T10615—Viper's Venom Cutting Oil, 1 Qt.
- T24918 & T24919—Slugger Cutting Fluid, 1 Qt. & Slugger Cutting Paste

Protect your drill press and cutting tools with superior cutting fluid products from Grizzly.com.



Figure 100. Cutting fluid options from Grizzly.

Quick-Change Tool Holders

All models are Series 200

- G5699—Turning Holders $\frac{1}{4}'' \sim \frac{5}{8}''$
- G5700—Turning/Boring Holder $\frac{1}{4}'' \sim \frac{5}{8}''$; $\frac{1}{2}'' \varnothing$
- G5701—Boring Bar Holder $\frac{3}{4}''$
- G5703—Morse Taper Holder MT#3
- G5704—Parting Tool Holder $\frac{5}{8}''$
- G5705—Knurling Tool Holder $\frac{1}{4}'' \sim \frac{5}{8}''$



Figure 101. Quick-change tool holders.

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SECTION 6: 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/RESET button not working correctly or not requiring you to reset it before starting the machine again.
- Oil level not visible in the sight glasses.
- Damaged or malfunctioning components.

Daily, Before Operations

- Check/add headstock oil ([Page 60](#)).
- Check/add gearbox oil ([Page 62](#)).
- Check/add apron oil ([Page 62](#)).
- Lubricate the bedways ([Page 63](#)).
- Clean/lubricate the leadscrew ([Page 63](#)).
- Add oil to the ball oilers ([Page 63](#)).
- Disengage the feed selection lever on the apron (to prevent crashes upon startup).
- Ensure carriage lock bolt is loose.
- This machine has two fans for the VFD in the electrical box. Make sure that one fan draws air in and the other fan pushes air out. Make sure fan filter screens are clean and air flow is not blocked. An overheated VFD and/or electrical box will shorten the life of the VFD.

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.

Semi-Annually

- Change the headstock oil ([Page 60](#)).

Annually

- Change the gearbox oil ([Page 62](#)).
- Change the apron oil ([Page 62](#)).
- Lubricate end gears ([Page 64](#)).
- Check/level bedways ([Page 23](#)).

Cleaning/Protecting

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

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

All unpainted and machined surfaces should be wiped down daily to keep them rust free and in top condition. This includes any surface that is vulnerable to rust if left unprotected (especially parts that are exposed to water soluble cutting fluid). Use way oil to prevent corrosion.



Lubrication

Use the information in the charts below as a daily guide for lubrication tasks. We recommend using Grizzly Model T23962 or T23963 lubricants (see [Page 55](#)) for most of the lubrication tasks.

Lubrication Frequency

Lubrication Task	Frequency	Pg.
Check Headstock	Daily	63
Check Quick-Change Gearbox	Daily	62
Check Apron	Daily	62
Bedways	Daily	63
Longitudinal Leadscrew	As Required Before Use	63
Ball Oilers	Daily	63
End Gears	Annually or When Changed	64

Lubrication Amount & Type

Lubrication Task	Oil Type	Amount
Headstock	ISO 32 (T23963)	3.5 Qts.
Quick-Change Gearbox	ISO 68 (T23962)	1 Qt.
Apron	ISO 68 (T23963)	0.5 Qt.
Bedways	ISO 68 (T23963)	As Needed
Longitudinal Leadscrew	ISO 68 (T23963)	As Needed
Ball Oilers	ISO 32 (T23963)	1-2 Squirts
End Gears	NLGI #2	Brushed On

Items Needed	Qty
Hex Wrench 8mm.....	1
Hex Wrench 6mm.....	1
Phillips Screwdriver #2	1
2-Gallon Catch Pan	1
Narrow-Neck Funnel.....	1
8" Section $\frac{3}{8}$ " NPT Threaded Pipe	1
Brushes	2 or More
Pump-Type Oil Can (Plastic or Rubber Tip)	1
Shop Rags.....	As Needed
Mineral Spirits.....	As Needed

NOTICE

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

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

Headstock

Oil Type Grizzly T23963 or ISO 32 Equivalent
 Oil Amount..... 3.5 Quarts
 Check/Add Frequency Daily
 Change Frequency Semi-Annually

The headstock gearing is lubricated by an oil bath that distributes the lubricant with the motion of the gears, much like an automotive manual transmission. Change the oil after the first 2 hours of use, then semi-annually.



Checking Oil Level

The headstock reservoir has the proper amount of oil when the oil level in the sight glass is approximately halfway. The oil sight glass is located below the chuck, as shown in **Figure 102**.



Figure 102. Location of headstock oil sight glass.

Adding Oil

The oil fill plug is located on top of the headstock, as shown in **Figure 103**, behind the DRO mounting bracket. Add oil until level reaches halfway in sight glass (see **Figure 102** on **Page 73**).

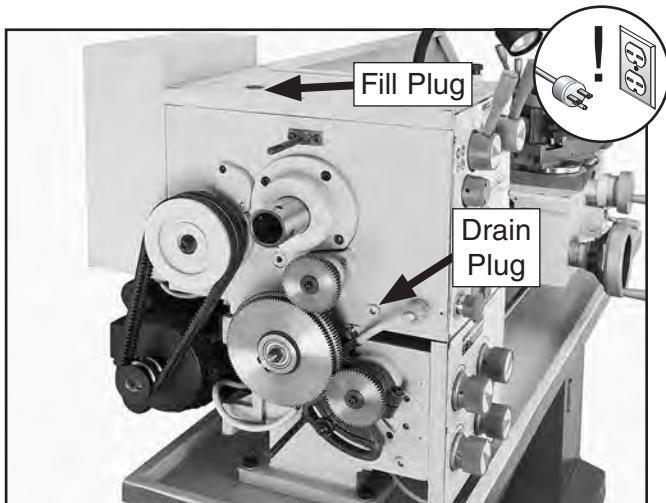


Figure 103. Headstock fill and drain plugs.

To change headstock oil:

1. DISCONNECT MACHINE FROM POWER!
2. Remove end gear cover.
3. Remove V-belts so that oil does not get on them, necessitating their replacement (refer to the **V-Belt Tension & Replacement** on **Page 73** for detailed instructions).
4. Remove fill plug from top of headstock.
5. Place a 2-gallon drain pan under headstock drain plug (see **Figure 103**), then remove drain plug.
Tip: Use an 8" section of $\frac{3}{8}$ " NPT threaded pipe to serve as an extension drain tube after removing the drain plug.
6. When headstock reservoir is empty, replace drain plug and wipe up spilled oil.
7. Fill headstock reservoir until oil level is approximately halfway in sight glass, then replace fill plug.
8. Re-install and re-tension V-belts, then secure end-gear cover before re-connecting lathe to power.



Quick-Change Gearbox

Oil Type Grizzly T23962 or ISO 68 Equivalent
Oil Amount..... 1 Quart
Check/Add Frequency..... Daily
Change Frequency Annually

Checking Oil Level

The gearbox reservoir has the proper amount of oil when the oil level in the sight glass is approximately halfway. The oil sight glass is located on the front of the gearbox, as shown in **Figure 104**.

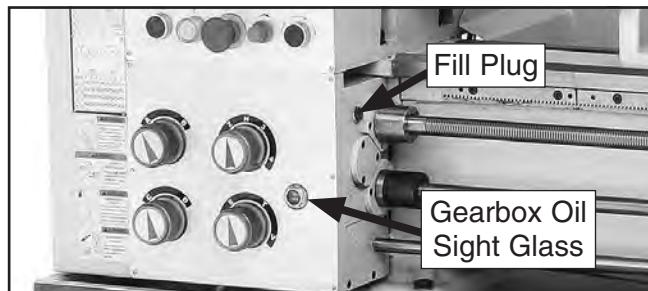


Figure 104. Location of quick-change oil sight glass and fill plug.

Changing Oil

Place a catch pan under the quick-change gearbox drain plug (see **Figure 105**). Remove the gearbox fill plug (see **Figure 104**), then remove the drain plug and allow the gearbox reservoir to empty.

Tip: Use an 8" section of $\frac{3}{8}$ " NPT threaded pipe to serve as an extension drain tube after removing the drain plug.

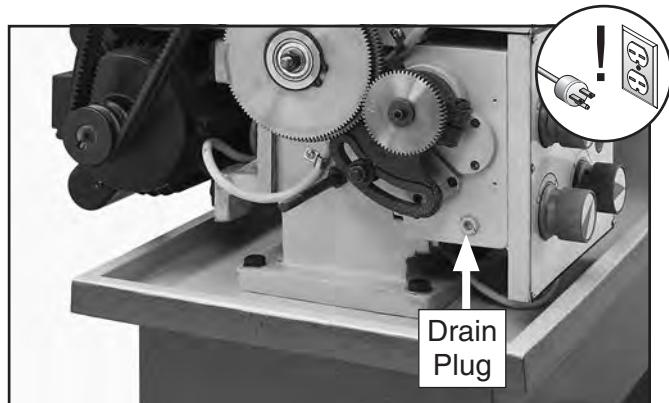


Figure 105. Location of the quick-change gearbox drain plug.

Re-install the drain plug and add oil until the level is approximately halfway in the gearbox oil sight glass, then re-install the fill plug.

Apron

Oil Type Grizzly T23962 or ISO 68 Equivalent
Oil Amount..... 0.5 Quarts
Check/Add Frequency..... Daily
Change Frequency Annually

Checking Oil Level

The apron oil sight glass is on the front of the apron, as shown in **Figure 106**. Maintain the oil volume so that the level is approximately halfway in the sight glass.



Figure 106. Location of apron oil sight glass.

Changing Oil & Flushing Reservoir

Small metal particles may accumulate at the bottom of the reservoir with normal use. Therefore, to keep the reservoir clean, drain and flush it at least once a year.

To change apron oil and flush reservoir:

1. Move cross slide all the way to the back.
2. Place catch pan under apron drain plug shown in **Figure 107**.



Figure 107. Location of apron drain plug.

3. Remove fill plug, then remove drain plug and empty reservoir.



- Flush reservoir by pouring a small amount of clean oil into fill hole and allowing it to drain out bottom.
- Replace drain plug, add oil as previously described, then re-install fill plug.

Extended Service Task

Under heavy workloads, it may become necessary to remove oil sight glasses on the headstock, gearbox, and apron to remove oil residue or film. Clean the sight glass only with hot, soapy water. Mineral spirits may cloud the glass and obscure the oil level.

Bedways

Oil Type Grizzly T23962 or ISO 68 Equivalent
 Oil Amount..... As Needed
 Lubrication Frequency..... Daily

Before lubricating the bedways (see **Figure 108**), clean them with mineral spirits. Apply a thin coat of oil along the length of the bedway. Move the steady rest, carriage, and tailstock to access the entire length of the bedways. If the lathe is in a moist or dirty environment, increase the lubrication frequency.

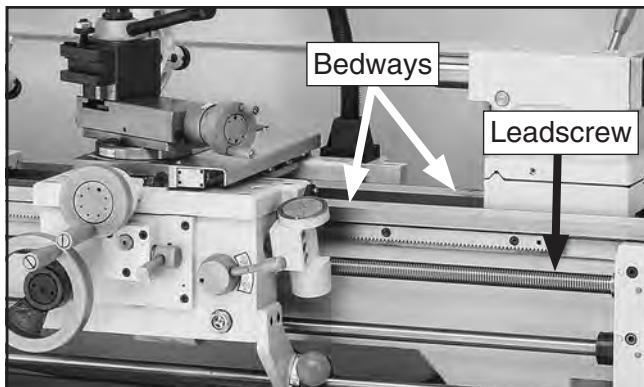


Figure 108. Bedways and leadscrew lubrication points.

Longitudinal Leadscrew

Oil Type Grizzly T23962 or ISO 68 Equivalent
 Oil Amount..... As Needed
 Lubrication Frequency..... Daily

Before lubricating the leadscrew (see **Figure 108**), clean it first with mineral spirits. A stiff brush works well to help clean out the threads. Make sure to move the carriage out of the way, so you can clean the entire length of the leadscrew.

Apply a thin coat of oil along the length of the leadscrew. Use a stiff brush to make sure the oil is applied evenly and down into the 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.

Ball Oilers

Oil Type Grizzly T23963 or ISO 32 Equivalent
 Oil Amount..... 1 or 2 Squirts
 Lubrication Frequency..... Daily

This lathe has 15 ball oilers that should be oiled on a daily basis before beginning operation. Refer to **Figures 109–113** for their locations.

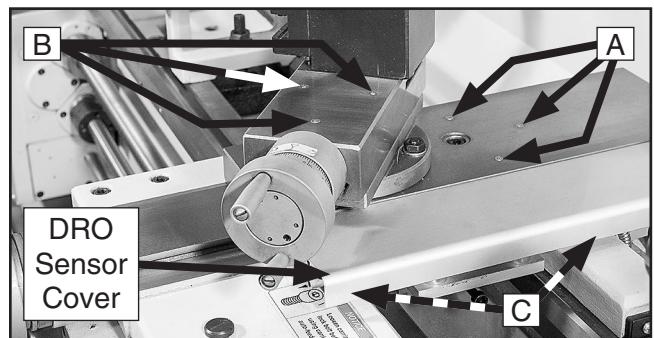


Figure 109. Saddle and cross-slide ball oilers.

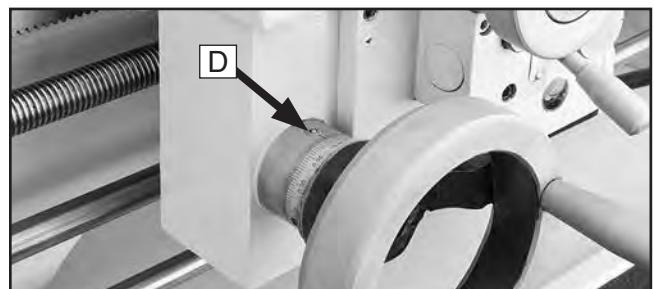


Figure 110. Carriage handwheel ball oiler.

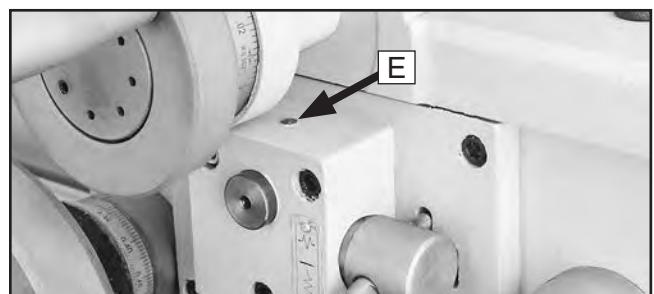


Figure 111. Feed selection lever ball oiler.



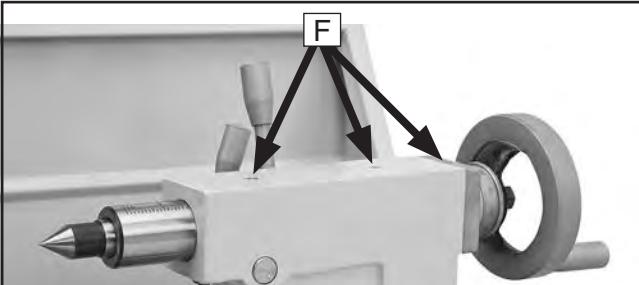


Figure 112. Tailstock ball oilers.

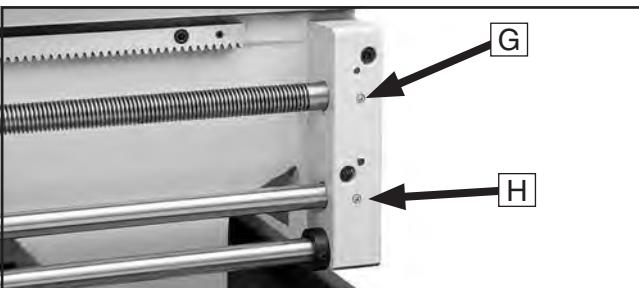


Figure 113. Leadscrew and feed rod ball oilers.

Lubricating

Proper lubrication of ball oilers is done with a pump-type oil can that has a plastic or rubberized cone tip (see **Accessories** section, beginning on **Page 55**). Do not use the metal-tipped oil bottle included with the G0750GV tools, as it 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 rubber or plastic 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.

- A. Cross-slide leadscrew & slides
- B. Compound-rest leadscrew & slides
- C. Saddle slides (remove DRO sensor cover to access ball oilers)
- D. Carriage handwheel
- E. Feed selection lever gearing
- F. Tailstock ball oilers
- G. Leadscrew end bearing
- H. Feed rod end bearing

Removal & Replacement

To remove a damaged ball oiler, thread a coarse wood screw and flat washer partially into the ball oiler. Place an open-end wrench under the washer, then carefully pry out the ball oiler.

Clean out the ball oiler opening. Verify no broken ball oiler parts remain in component oil galleries.

Note: You may need to disassemble a component to remove broken ball oiler parts.

To install the new ball oiler, freeze it for an hour or two, then press or tap it into the bore until flush using a piece of wood.

End Gears

Grease Type.....T26419 (or NLGI#2 Equivalent)
Frequency.....Annually or When Changing

The end gears, shown in **Figure 114**, 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.

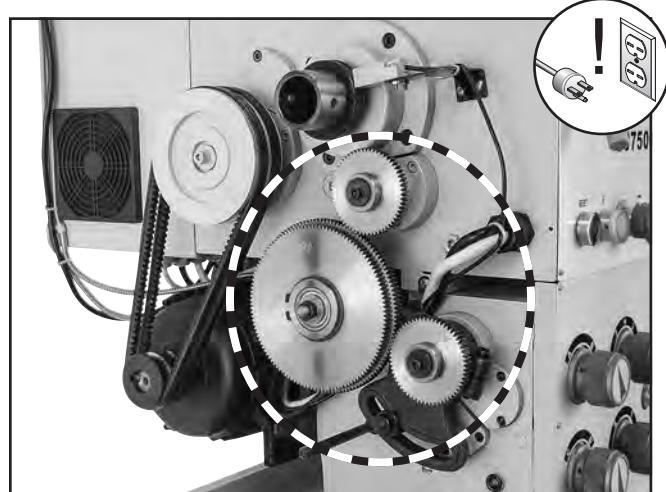


Figure 114. End gears.

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 gear 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 114**.
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 gear cover.
5. Using clean brush, apply thin layer of grease on gear teeth. Make sure to get grease between gear teeth, but do not fill teeth valleys.
6. Install end gears and mesh them together with an approximate 0.002"-0.004" backlash. Once gears are meshed together, apply 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.
7. Re-install end gear cover before re-connecting lathe to power.

4. Thoroughly clean all unpainted, bare metal surfaces, then apply liberal coat of way oil, heavy grease, or rust preventative. Take care to ensure these surfaces are completely covered but that rust preventative or grease is kept off of painted surfaces.
5. Lubricate machine as outlined in lubrication section. Be sure to use pump-type oil can to fill all ball oilers and oil passages with fresh oil.
6. Loosen or remove V-belts so they do not become stretched during storage period. (Be sure to place maintenance note near power button as a reminder that belts have been loosened or removed.)
7. Place a few moisture-absorbing desiccant packs inside electrical box.
8. Cover lathe and place it in a dry area that is out of direct sunlight and away from hazardous fumes, paint, solvents, or gas. Fumes and sunlight can bleach or discolor paint.
9. Every few months, rotate by hand all gear-driven components a few times in high and low gear ranges. This will keep bearings, bushings, gears, and shafts well lubricated and protected from corrosion—especially during winter months.

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 Lathe for Storage

1. Run lathe and bring all reservoirs to operating temperature, then drain and refill them with clean oil.
2. DISCONNECT MACHINE FROM POWER!
3. Due to limited lubrication between mating surfaces, remove tooling, chuck, and tailstock centers. Long-term storage condensation between mating surfaces can cause seizing and make later removal extremely difficult.

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

Bringing Lathe Out of Storage

1. Re-install V-belts and re-tension them (refer to **Page 73**) if you removed them for storage purposes.
2. Remove moisture-absorbing desiccant packs from electrical box.
3. Repeat **Test Run** and **Spindle Break-In** procedures, beginning on **Page 24**.



SECTION 7: SERVICE

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

Troubleshooting



Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a circuit breaker trips.	<ol style="list-style-type: none">RESET or E-Stop button engaged or at fault.Circuit breaker tripped in machine electrical box.Power supply switched OFF or at fault.Motor/plug wired incorrectly.Thermal overload relay has tripped.Wall fuse/circuit breaker is blown/tripped; short in electrical system; start-up load too high for circuit.Start capacitor at fault.Contactor not getting energized/has burned contacts.Wiring is open/has high resistance.Motor is at fault.	<ol style="list-style-type: none">Press RESET button to reset circuit; rotate E-Stop button to reset; replace if not working properly.Inspect/reset circuit breaker; determine if overload is due to heavy operation; ensure power source has correct voltage.Ensure power supply is ON/has correct voltage.Correct motor/plug wiring connections (Page 84).Turn the thermal relay cut-out dial to increase working amps and push the reset pin. Replace if tripped multiple times (weak relay).Verify circuit is rated for machine amp load; troubleshoot and repair cause of overload; replace weak breaker; find/repair electrical short.Test/replace if faulty.Test for power on all legs and contactor operation. Replace unit if faulty.Check for broken wires or disconnected/corroded connections, and repair/replace as necessary.Test/repair/replace.
Motor stalls or is underpowered.	<ol style="list-style-type: none">Belt(s) slipping.Run capacitor at fault.Plug/receptacle at fault.Gearbox at fault.Motor overheated.Contactor not energized/has poor contacts.Motor bearings at fault.Motor at fault.	<ol style="list-style-type: none">Tension/replace belt(s); ensure pulleys are aligned.Test/repair/replace.Test for good contacts/correct wiring.Select appropriate gear ratio; replace broken or slipping gears.Allow motor to cool; reduce load on motor.Test all legs for power/replace if faulty.Test/repair/replace.Test/repair/replace.



Motor & Electrical (Cont.)

Symptom	Possible Cause	Possible Solution
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> 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. 6. Pulley loose. 7. Machine incorrectly mounted. 8. Motor bearings at fault. 9. Workpiece or chuck at fault. 	<ol style="list-style-type: none"> 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 (Page 73). 4. Fix/replace fan cover; replace loose/damaged fan. 5. Tighten/replace. 6. Re-align/replace shaft, pulley set screw, and key. 7. Tighten mounting bolts; relocate/shim machine. 8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 9. Center workpiece; replace defective chuck.

Lathe Operation

Symptom	Possible Cause	Possible Solution
Entire machine vibrates upon startup and while running.	<ol style="list-style-type: none"> 1. Workpiece is unbalanced. 2. Loose or damaged V-belt(s). 3. V-belt pulleys are not properly aligned. 4. Worn or broken gear present. 5. Chuck or faceplate is unbalanced. 6. Gears not aligned in headstock or no backlash. 7. Broken gear or bad bearing. 8. Workpiece is hitting stationary object. 9. Spindle bearings at fault. 	<ol style="list-style-type: none"> 1. Re-install workpiece as centered with the spindle bore as possible. 2. Re-tension/replace the V-belt(s) as necessary (Page 73). 3. Align V-belt pulleys. 4. Inspect gears, and replace if necessary (Page 49). 5. Re-balance chuck or faceplate; contact a local machine shop for help. 6. Adjust change gears and establish backlash (Page 47). 7. Replace broken gear or bearing. 8. Stop lathe immediately and correct interference problem. 9. Reset spindle bearing preload or replace worn spindle bearings (Page 77).
Bad surface finish.	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 1. Adjust for appropriate spindle speed and feed rate (Page 46). 2. Sharpen tooling or select a better tool for the intended operation. 3. Adjust tool height to spindle centerline (Page 44). 4. Tighten gibs (Page 70).
Tapered tool difficult to remove from tailstock quill.	<ol style="list-style-type: none"> 1. Quill is not retracted all the way back into the tailstock. 2. Contaminants not removed from taper before inserting into quill. 	<ol style="list-style-type: none"> 1. Turn the quill handwheel until it forces the tapered tool out of quill. 2. Clean the taper and bore, then re-install tool.
Cross slide, compound rest, or carriage feed has sloppy operation.	<ol style="list-style-type: none"> 1. Gibs are out of adjustment. 2. Handwheel is loose or backlash is high. 3. Leadscrew mechanism worn or out of adjustment. 	<ol style="list-style-type: none"> 1. Adjust gib (a) (Page 70). 2. Tighten handwheel fasteners, adjust handwheel backlash to a minimum (Page 69). 3. Adjust leadscrew to remove end play (Page 70).



Lathe Operation (Cont.)

Symptom	Possible Cause	Possible Solution
Cross slide, compound, or carriage handwheels hard to move.	<ol style="list-style-type: none"> Dovetail ways loaded with shavings, dust, or grime. Gib screws are too tight. Backlash setting too tight. Bedways are dry. 	<ol style="list-style-type: none"> Remove gibbs, clean ways, lubricate, and re-adjust gibbs. Loosen gib screw(s) slightly (Page 70) and lubricate bedways. Slightly loosen backlash setting (Page 69). Lubricate bedways/ball oilers (Page 63).
Cutting tool or machine components vibrate excessively during cutting.	<ol style="list-style-type: none"> Tool holder not tight enough. Cutting tool sticks too far out of tool holder; lack of support. Gibs are out of adjustment. Dull cutting tool. Incorrect spindle speed or feed rate. 	<ol style="list-style-type: none"> Check for debris, clean, and re-tighten. Re-install cutting tool so no more than $\frac{1}{3}$ of the total length is sticking out of tool holder. Adjust gibbs at affected component (Page 70). Replace or resharpen cutting tool. Use the recommended spindle speed and feed rate.
Workpiece is tapered.	<ol style="list-style-type: none"> Headstock and tailstock are not properly aligned with each other. 	<ol style="list-style-type: none"> Re-align the tailstock to the headstock spindle centerline (Page 36).
Chuck jaws will not move or do not move easily.	<ol style="list-style-type: none"> Chips lodged in the jaws or scroll plate. 	<ol style="list-style-type: none"> Remove jaws, clean and lubricate scroll plate, then replace jaws.
Carriage will not feed or is hard to move.	<ol style="list-style-type: none"> Gears are not all engaged. Half-nut lever engaged. Loose screw on the feed handle. Carriage lock is tightened down. Chips have loaded up on bedways. Bedways are dry and in need of lubrication. Gibs are too tight. Gears or shear pin broken. 	<ol style="list-style-type: none"> Adjust gear levers (Page 50). Disengage half-nut lever (Page 52). Tighten. Check to make sure the carriage lock bolt is fully released (Page 42). Frequently clean away chips that load up during turning operations. Lubricate bedways/ball oilers (Page 63). Loosen gib screw(s) slightly (Page 70). Replace gears or shear pin (Page 74).
Gear change levers will not shift into position.	<ol style="list-style-type: none"> Gears not aligned inside headstock/Quick-Change gearbox. 	<ol style="list-style-type: none"> Rotate spindle by hand with light pressure on the lever until gear falls into place.



Backlash Adjustment

Backlash is the amount of play in a leadscrew and can be felt as the free play in a handwheel when changing direction of rotation. The amount of the backlash can be viewed on the handwheel micrometer-collar graduated dial.

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

Items Needed	Qty
Hex Wrench 6mm.....	1
Hex Wrench 5mm.....	1
Punch Pin 2mm	1

Cross Slide Backlash

1. Feed cross slide toward front of machine until it reaches end of its travel.
2. Remove cap screw that secures cross slide leadscrew nut (see **Figure 115**).



Figure 115. Location of cap screw that secures the leadscrew nut.

3. Rotate cross slide handle clockwise to feed leadscrew nut out from under cross slide, as shown in **Figure 116**.

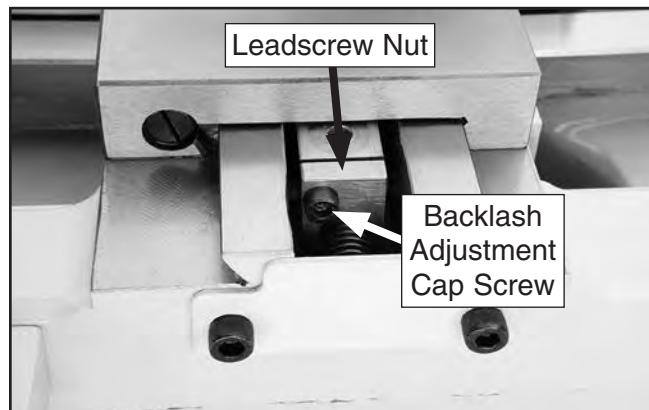


Figure 116. Leadscrew nut location and adjustment.

4. Tighten backlash adjustment cap screw shown in **Figure 116** in small increments.
5. Hold leadscrew nut and test after each adjustment by rotating handwheel back and forth until backlash amount is acceptable.
6. Feed leadscrew nut back under cross slide and replace cap screw removed in **Step 2**.

Compound Slide Backlash

1. Turn compound slide handwheel counter-clockwise several turns.
2. Loosen set screws on compound slide faceplate several turns (see **Figure 117**).

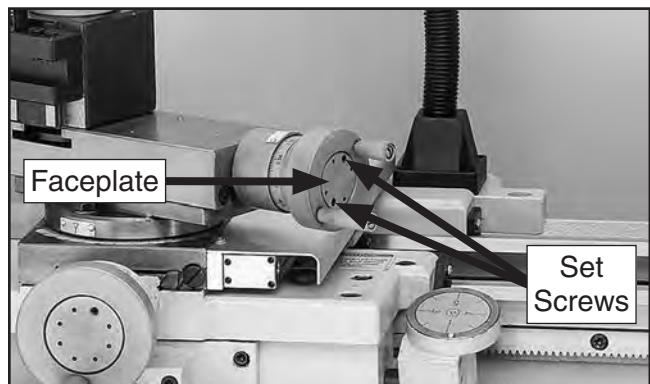


Figure 117. Compound slide backlash adjustments.

3. Use punch pin to loosen faceplate and turn it until backlash is approximately 0.002"-0.003", as indicated on graduated dial.
4. Secure setting with set screws.
5. Repeat adjustments above if necessary.



Electrical Cabinet Cooling Fan Cleaning

The electrical cabinet contains a variable-frequency drive that generates heat during operation. Keeping the fan screens clean is critical to prevent the VFD from overheating and becoming damaged.

Keep both fan screens brushed clean. Use of high-pressure air may rip the fan filters. Clean the screens as required to maintain cabinet cooling.

Leadscrew End-Play Adjustment

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

Items Needed	Qty
Hex Wrench 3mm.....	1
Wrench 24mm	1
Mineral Spirits.....	As Needed
NLGI#2 Grease	As Needed

To remove leadscrew end play:

1. DISCONNECT MACHINE FROM POWER!
2. Back out leadscrew set screw approximately five turns (see **Figure 118**).

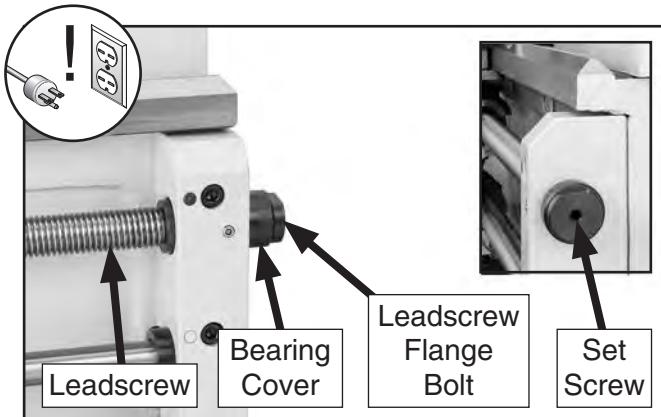


Figure 118. Leadscrew end play bearings.

3. Un-thread leadscrew flange bolt (**Figure 118**), and slide bearing cover off end of leadscrew.
4. Clean bearings with minerals spirits, then dry and repack them with NLGI#2 grease. Re-install bearing cover.
5. Using left hand, pull leadscrew toward tailstock. Thread leadscrew flange bolt back on finger tight with no leadscrew end-play.
6. Hold leadscrew flange bolt with wrench, and tighten set screw until it is snug at bottom of bore.

Gib Adjustment

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

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

The cross-slide and compound slide on this lathe each use a long steel wedge called a gib that is positioned between the component and its dovetailed-ways. At the end of each gib is a gib screw, which moves and holds the gib. Depending upon which direction the gib moves, the space between the sliding ways increases or decreases to control the rigidity of the cross slide and compound slide.

Before adjusting the gib, loosen the locks for the device so that the gib can freely slide during adjustment, then lubricate the ways.

The gib adjustment process usually requires some trial and error. Repeat the adjustment 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 easy to move.



Items Needed	Qty
Standard Screwdriver #2.....	1
Hex Wrench 3mm.....	1

Cross Slide Gib

Make sure the ways and leadscrew have been cleaned and re-lubricated before beginning adjustments. Refer to **Ball Oiler Lubrication on Page 63** for instructions and lubricant specifications.

To adjust cross slide gib:

1. DISCONNECT MACHINE FROM POWER!
2. Adjust gib screws as follows:
 - To increase slide tension, loosen rear gib screw $\frac{1}{8}$ turn, and tighten front gib screw $\frac{1}{8}$ turn (see **Figure 119**).
 - To decrease slide tension, loosen front gib screw $\frac{1}{8}$ turn, and tighten rear gib screw $\frac{1}{8}$ turn (see **Figure 119**).

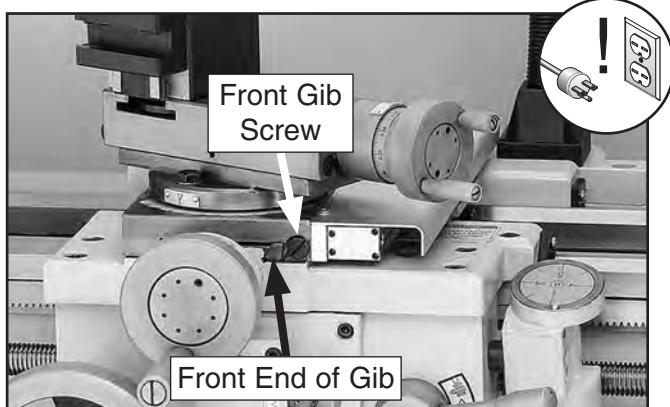


Figure 119. Cross slide gib components.

3. Repeat adjustments as necessary until gib screw drag is acceptable.

Compound Slide Gib

Figure 120 shows the gib location on the compound slide. The compound slide gib adjusts in the same manner and with the same tools as the cross slide gib. However, in this case, to increase or decrease tension, the gib adjustment screw directions are reversed.

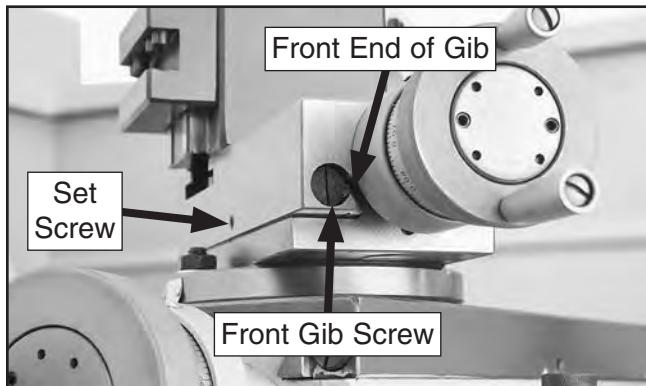


Figure 120. Compound slide gib components.

Saddle Gib

The saddle is supplied with a carriage lock on the front right-hand side of the slide (see **Figure 121**). This bolt locks the saddle in place for increased rigidity when making face cuts. Before making adjustments to the saddle gib, make sure that this lock is loose by turning it counterclockwise one full turn.

IMPORTANT: *Do not loosen the carriage lock more than a couple of turns or the components inside will come apart. Re-installing these components is difficult and time consuming.*

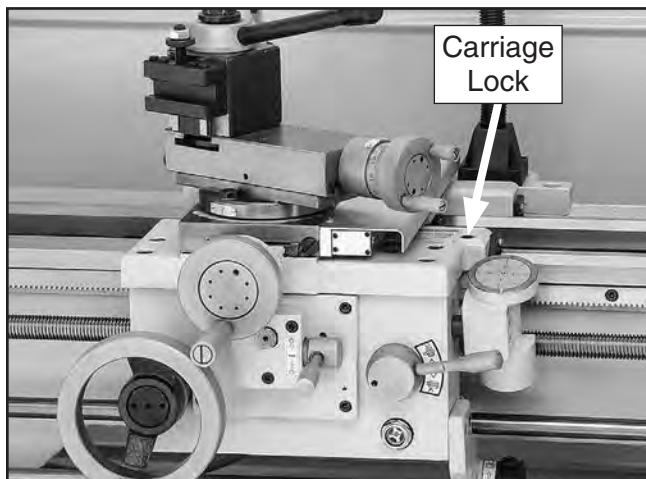


Figure 121. Location of carriage lock.



The saddle gib is located on the bottom of the back edge of the slide (see **Figure 122**). This gib is designed differently than the cross or compound slide gibs. Instead of being a wedge-shaped plate, it is a flat bar. The gib pressure is applied by four set screws. Jam nuts secure these set screws in place, so they will not loosen during operation.

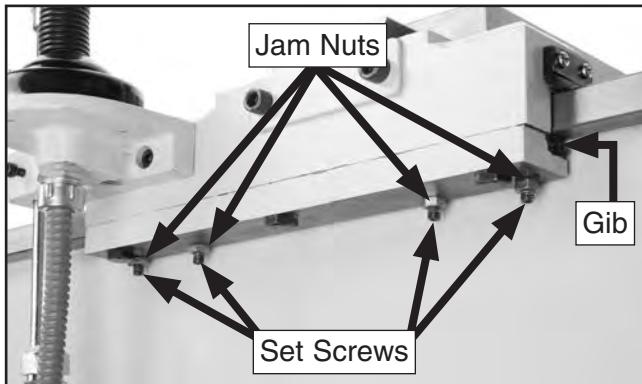


Figure 122. Saddle gib components.

Items Needed	Qty
Open-End Wrench 10mm.....	1
Hex Wrench 3mm.....	1
Hex Wrench 6mm.....	1

To adjust saddle slide gib:

1. DISCONNECT MACHINE FROM POWER!
2. Clean and lubricate lathe bedways (refer to **Page 63** for instructions).
3. If carriage lock (see **Figure 121** on **Page 71**) is tight, loosen it two turns.
4. Loosen jam nuts on four set screws shown in **Figure 122**, and adjust set screws same amount as follows:
 - To tighten carriage gib, tighten set screws.
 - To loosen gib, loosen set screws.
5. Move carriage back and forth and repeat adjustments as necessary until gib pressure is acceptable.
6. Hold set screws in place and tighten jam nuts.
7. Move carriage again to double-check gib adjustment.

Half-Nut Adjustment

The half-nut mechanism can be adjusted if it becomes loose from wear. The half nut is mounted in ways with a gib exerting pressure between components to reduce sloppy movement. The half-nut gib is a flat bar-type gib, similar to the saddle gib, and is tensioned with three set screws.

Items Needed	Qty
Hex Wrenches 2.5, 6mm.....	1 Each
Open-End Wrench 8mm.....	1

To adjust half nut:

1. DISCONNECT MACHINE FROM POWER!
2. Disengage half nut and remove thread dial.
3. Loosen hex nuts on set screws shown in **Figure 123**.

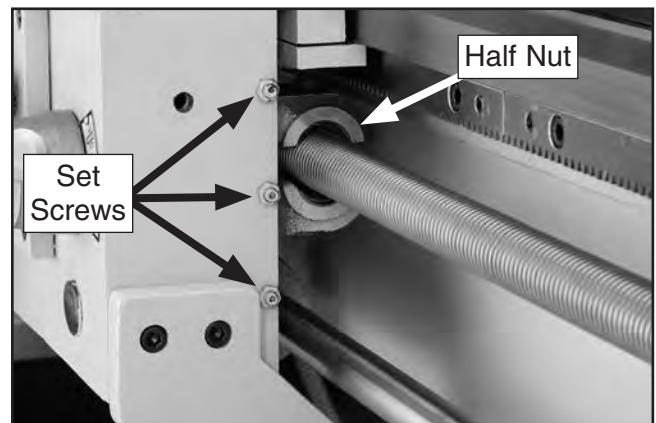


Figure 123. Half-nut gib set screws.

4. Tighten each set screw approximately $\frac{1}{8}$ turn, then retighten hex nuts without moving set screws.
5. Move carriage handwheel until half nut can fully close, then open/close half nut several times and notice how it feels. Half nut is correctly adjusted when you feel slight drag while opening and closing it. It should not feel stiff or loose.
6. Repeat **Steps 3–5**, if necessary, until you are satisfied with half-nut adjustment, then re-install thread dial.



V-Belt Tension & Replacement

After initial break in, the V-belts slightly stretch and seat into the pulley. It is important to check and adjust them to compensate for this initial wear. Check the tension thereafter on a monthly basis. If the belts become excessively worn or damaged, replace them as a matched set.

Items Needed	Qty
Open-End Wrench 17mm.....	1

Tensioning V-Belts

1. DISCONNECT MACHINE FROM POWER!
2. Remove end gear cover.
3. Loosen motor mount hex bolts shown in **Figure 124**.

Note: *It may be more convenient to access the motor mount hex nuts if you first remove the rear splash guard.*

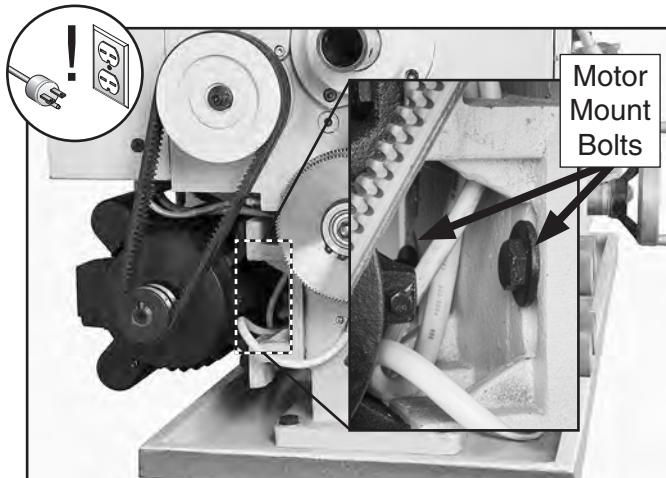


Figure 124. Checking V-belt deflection.

4. Push down on motor and re-tighten mounting hex bolts.

5. Check belt tension: Each belt is correctly tensioned when there is approximately $\frac{1}{4}$ " deflection when it is pushed with moderate pressure, as shown in **Figure 125**.

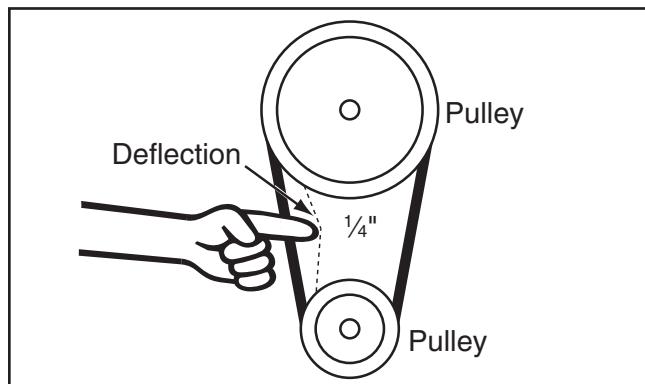


Figure 125. Correct timing-belt deflection.

— If there is more than $\frac{1}{4}$ " deflection when each belt is pushed with moderate pressure, loosen motor mount bolts, lower motor, adjust belt tension as required, then tighten bolts.

6. Replace end gear cover.

Replacing V-Belts

1. DISCONNECT MACHINE FROM POWER!
2. Remove end gear cover.
3. Loosen motor mount bolts (see **Figure 124**), slide motor up, and remove V-belts.
4. Install new matched set of V-belts so they equally share load.
5. Tension belts. (Refer to **Tensioning V-Belts** on this page for instructions.)
6. Replace end gear cover.



Leadscrew Shear Pin Replacement

A straight 4 x 42mm brass shear pin (see **Figure 126**) holds the leadscrew and the drive hub together. The pin is designed to break and disengage the power transfer to the leadscrew to help protect more expensive lathe components in the case of a carriage crash or the lathe is overloaded.

Contact Grizzly Customer Service at (570) 546-9663 to order a replacement shear pin (Part P0750GV0960).

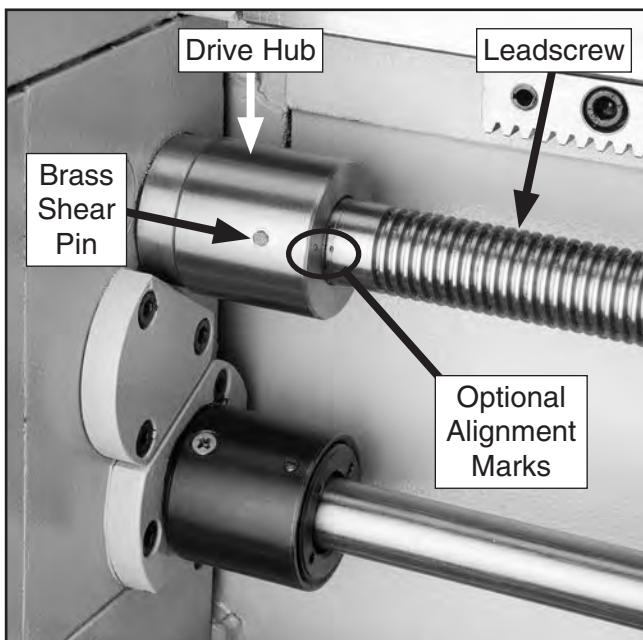


Figure 126. Leadscrew shear pin.

Items Needed	Qty
Hammer.....	1
Dowel Punch $\frac{3}{16}$ "	1
Drill Bit $\frac{1}{8}$ "	1
Hand Drill	1
Wood Screw #8 x 1" (or longer)	1
Pointed Center Punch	1
Standard Pliers	1

To replace leadscrew shear pin:

1. DISCONNECT MACHINE FROM POWER!
2. Unlock half-nut lever and turn top right gearbox dial to "N" (see **Figure 127**) so leadscrew can be rotated by hand.

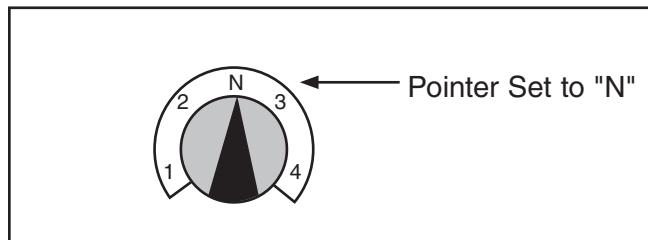


Figure 127. Gearbox dial set to "N".

3. Rotate drive hub, and inspect it to see if pin is still stuck in both sides of it.
 - If one half of shear pin has fallen out and leadscrew shaft can be seen through pin hole, rotate leadscrew until you see end of inner sheared pin. Use $\frac{3}{16}$ " dowel punch to tap pin out through other side.
 - If shear pin halves are stuck in both sides of drive hub, center punch one pin and drill $\frac{1}{8}$ " hole in pin approximately $\frac{1}{4}$ " deep. Thread a #8 wood screw into hole until screw begins to thread into brass. Using pliers, pull pin from hole, then drive out rest of pin, as described above.
4. Align holes in drive hub with hole in leadscrew, and tap new shear pin into position until it is flush.

Tip: For easy shear pin replacement in the future, use the center punch or a scribe and mark the end of the drive hub and the side of the leadscrew with a timing mark to indicate where true hole alignment is located. Next, scribe a line on the leadscrew just where it enters the drive hub, this line will indicate correct depth of leadscrew. Should the pin ever shear again, line-up the marks, and drive out the pin pieces, and tap in the new pin.



Feed Clutch Adjustment

This lathe is equipped with a feed rod clutch (see **Figure 128**) that connects the feed drive hub with the feed rod through a set of spring-loaded ball bearings. This clutch helps protect the apron feed system from overload. The feed rod clutch comes set from the factory, and unless there is a problem, it needs no adjustment.

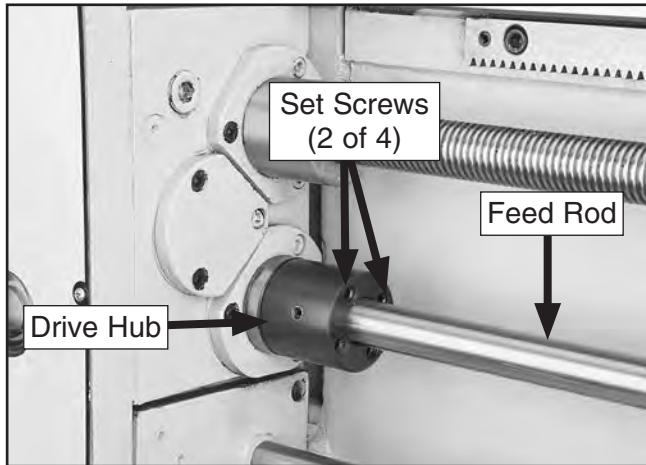


Figure 128. Feed rod clutch.

The clutch may slip if the path for the carriage or the cross feed is obstructed during turning or facing operations, the tool bit crashes into a workpiece shoulder, the carriage lock is incorrectly tightened when the feed selection lever is engaged, or if too deep of a cut is taken—causing a sudden binding of the tool and workpiece.

Never completely tighten the feed clutch past its normal setting in an attempt to completely eliminate clutch slip. Doing so will void the warranty, and can lead to a non-slipping clutch, resulting in catastrophic gearbox damage.

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

To adjust feed rod clutch:

1. DISCONNECT MACHINE FROM POWER!
2. Point top right dial at "N", then position bottom right-hand gearbox dial pointer between "S" and "T" (see **Figure 129**). This allows feed rod to move freely so adjustments can be made to clutch.

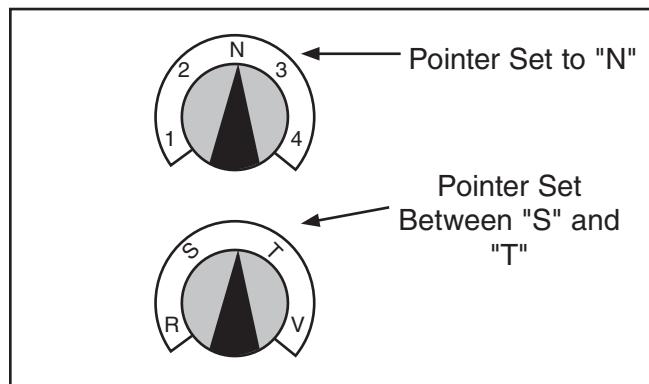


Figure 129. Gearbox dial settings for feed clutch adjustment.

- If clutch slips during normal work loads, increase clutch spring pressure by tightening each clutch drive set screw (see **Figure 128**) one full turn, then recheck for slippage.
- If clutch does not slip when it should, reduce clutch spring pressure by loosening each clutch set screw one full turn, then recheck for slippage.



Gap Insert Removal & Installation

This lathe is equipped with a removable gap insert that will allow for turning large diameter workpieces. The gap was seated, pre-loaded, and then ground for precise mating and alignment at the factory.

Removing the gap can cause the lathe insert to slightly spring out of shape. When re-installed, there is no guarantee that original alignment and flush mating will be the same. For this reason, removing the gap is considered a permanent alteration to the lathe, even if it is later re-installed.

Items Needed	Qty
Open-End Wrench 14mm.....	1
Hex Wrench 8mm.....	1
Heavy Dead-Blow Hammer.....	1
Miscellaneous C-Clamps	As Required
Wooden Blocks	As Required
Mineral Spirits.....	As Needed

To remove gap insert:

1. DISCONNECT MACHINE FROM POWER!
2. Remove (4) cap screws that secure gap to bed (see **Figure 130**).
3. Tighten dowel-pin jack nuts (see **Figure 130**) to draw pins from gap.

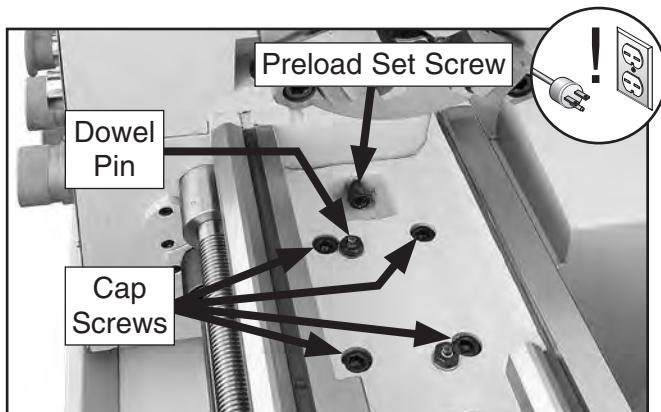


Figure 130. Gap retaining fasteners.

4. Loosen preload set screw (see **Figure 130**) a few turns until it no longer contacts headstock.
5. Tap outside of gap piece with dead-blow hammer to loosen it, and, with help of another person, remove gap piece.

To re-install gap:

1. Clean all mating surfaces completely with mineral spirits and inspect and remove any burrs. ALL MATING SURFACES MUST BE ABSOLUTELY CLEAN!
2. Lightly oil lint-free cloth with way oil, and rub thin film into pores of freshly cleaned gap surfaces. Next, place gap in position on lathe bed.
3. Back off threaded dowel pin jam nuts until they are flush with end of pins, and drop pins into pin holes in gap.
4. Jostle gap closer to its final alignment until pins seat naturally.
5. Install and lightly snug (4) cap screws in order that will draw gap closer into alignment. Using wood blocks and clamps to get mating surfaces into alignment can also be helpful.
6. When alignment and flush mating is acceptable, tighten (4) cap screws in a pattern that will maintain or improve alignment.
7. Wait 24 hours, then check for quality of mating. If unacceptable, use clamps and wood blocks, then loosen and tighten appropriate cap screws to draw in and release certain areas of gap to achieve required alignment.
8. When satisfied with alignment, tap dowel pins the rest of the way into gap until they are in a fully seated position, and thread jack nuts down until they just contact gap.
9. Tighten preload set screw inward until it contacts headstock and resistance can be felt, then tighten it an additional $\frac{3}{4}$ turn.



Bearing Preload

This lathe is shipped from the factory with the spindle bearing preload adjusted. If the spindle ever develops a bit of end play and the workpiece finish suffers, you can adjust the bearing preload to remove the end play and improve the workpiece finish.

Adjusting the bearing preload requires using a spanner wrench or a punch and hammer. You can either purchase the spanner wrench at a tool store or fabricate one, using the diagram shown in **Figure 131**.

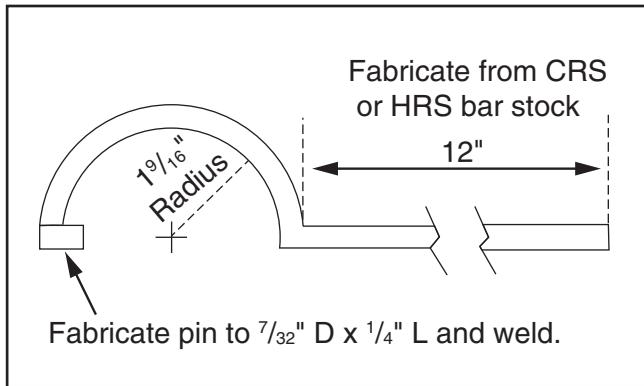


Figure 131. Spanner wrench diagram.

Items Needed	Qty
Spanner Wrench (see Figure 131)	1
Chuck Key	1
Dead-Blow Hammer	1
Wooden Block	1
Dial Indicator	1
Hex Wrench 6mm	1

To adjust the preload:

1. Run lathe for 20 minutes on high speed to bring lathe to normal temperature.
2. DISCONNECT MACHINE FROM POWER!

3. Remove chuck (see **Page 30**), then shift spindle to neutral by positioning spindle speed range lever and headstock feed direction lever in middle positions (see **Figure 132**).



Figure 132. Spindle speed range lever and headstock feed direction lever set to neutral.

4. Remove end gear cover, then remove outboard spindle cover (see **Figure 133**).

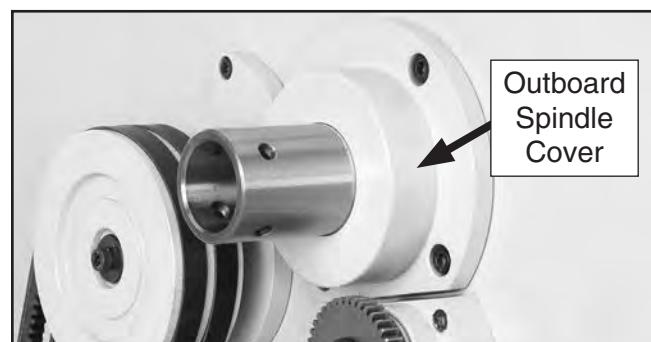


Figure 133. Outboard spindle cover.

5. Place chuck key in cam-lock socket and keep spindle from rotating.
6. Using a spanner wrench, or hammer and punch, loosen outer spanner nut (see **Figure 134**) counterclockwise and remove it.

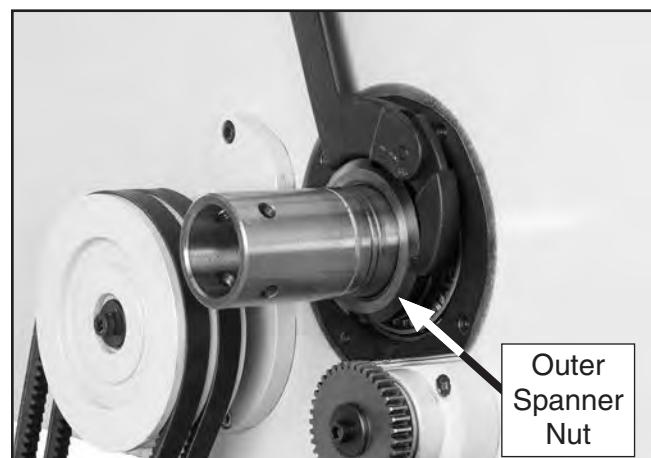


Figure 134. Loosening outer spanner nut.



7. Loosen inner spanner nut one turn.

Note: You may have to tap on the outboard end of the spindle as explained in **Step 8**, to help unload the spindle and break the spanner nut loose.

8. Place wooden block over outboard end of spindle, tap it a few times with a small sledge or heavy dead-blow hammer (**Figure 135**). Your goal is to slide spindle forward just enough to introduce spindle end play that you can feel by hand.

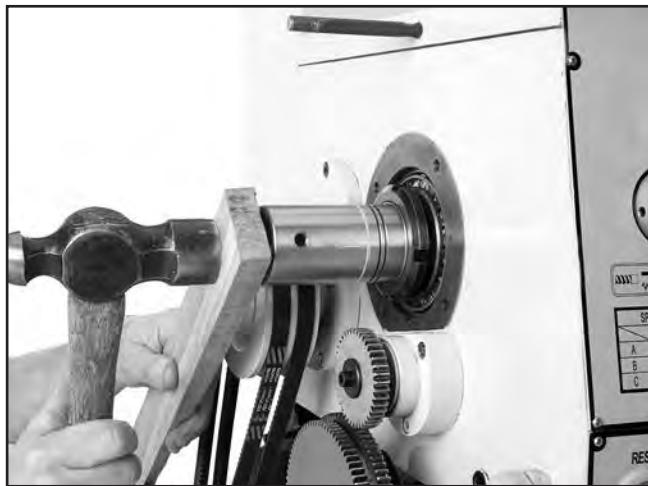


Figure 135. Introducing detectable end-play.

9. Place dial indicator on cross slide and move carriage toward headstock until contact point of indicator touches spindle face, as shown in **Figure 136**.

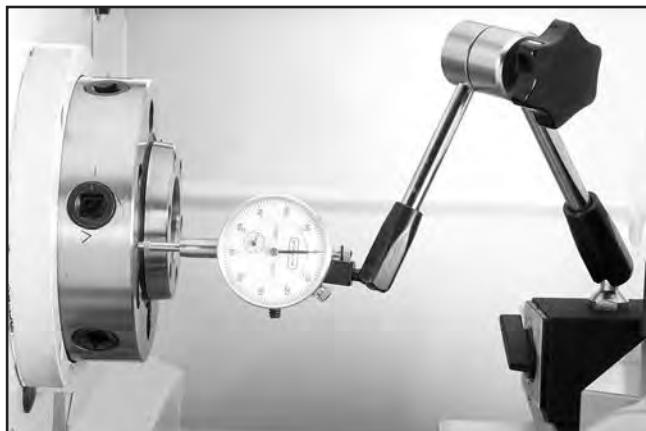


Figure 136. Dial indicator setup.

10. Move carriage an additional 0.100" toward headstock.

11. Insert chuck key into a cam socket to prevent spindle from turning, then tighten inner spanner nut until dial indicator needle just stops moving (see **Figure 137**).

Note: For convenience and accuracy, we recommend having another person watch the dial while you tighten the inner spanner nut.



Figure 137. Adjusting spindle bearings.

While tightening the inner spanner nut, rock the spindle back and forth slightly with the chuck key to make sure the spindle tapered roller bearings seat properly in their races.

When the dial indicator needle stops moving, there will be no spindle end play and no bearing preload. It is important that you find this point without tightening the spanner nut too much and inadvertently preloading the spindle bearings.

If you think you have gone past the zero end-play point, unload the bearings by repeating **Steps 7–11**, then re-tighten the inner spanner nut until it has reached the zero end play position.



- 12.** Tighten spanner nut an additional $\frac{1}{16}$ " along its circumference. See **Figure 138** for example of this measurement.

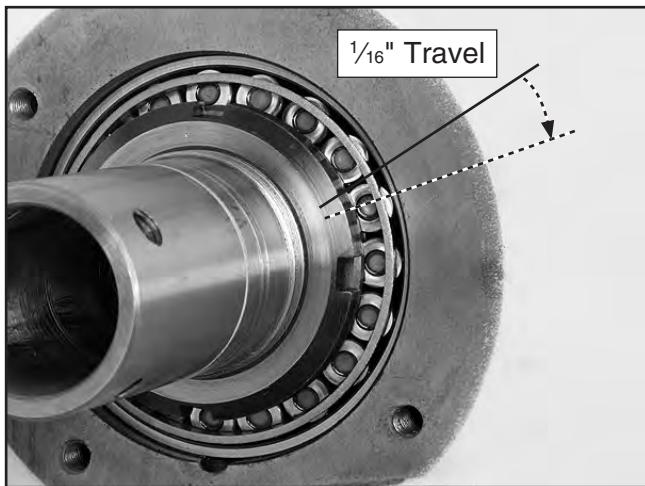


Figure 138. Final spanner nut rotation.

- 13.** Without allowing inner spanner nut to tighten any further, install and tighten outer spanner nut against inner nut.

Note: *Do not overtighten the outer spanner nut because additional preload can force the bearings even tighter against the races in the headstock and cause the headstock to compress, or crack, or cause bearing failure.*

- 14.** Re-install outboard spindle cover.

To confirm that bearings are correctly preloaded:

- 1.** Re-attach all removed lathe components and prepare it for operation.
- 2.** Install chuck and tighten jaws.
- 3.** Set spindle speed range lever to high.
- 4.** Connect lathe to power and turn lathe spindle **ON**. Increase spindle speed to maximum using variable spindle-speed dial.
- 5.** Let lathe run for 20 minutes, periodically shutting it down and checking temperature.
- 6.** Turn spindle **OFF**, disconnect lathe from power, and check temperature of spindle.
 - If spindle nose is slightly warm to the touch, you have correct bearing preload.
 - If spindle nose is hotter than you can comfortably keep your hand on, the preload is too tight and you must repeat bearing preload adjustment procedure. When repeating the procedure, rotate inner spanner nut a little less during **Step 12** in the preceding instructions.



SECTION 8: WIRING

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

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

⚠️WARNING

Wiring Safety Instructions

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

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

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

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

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

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

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

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

NOTICE

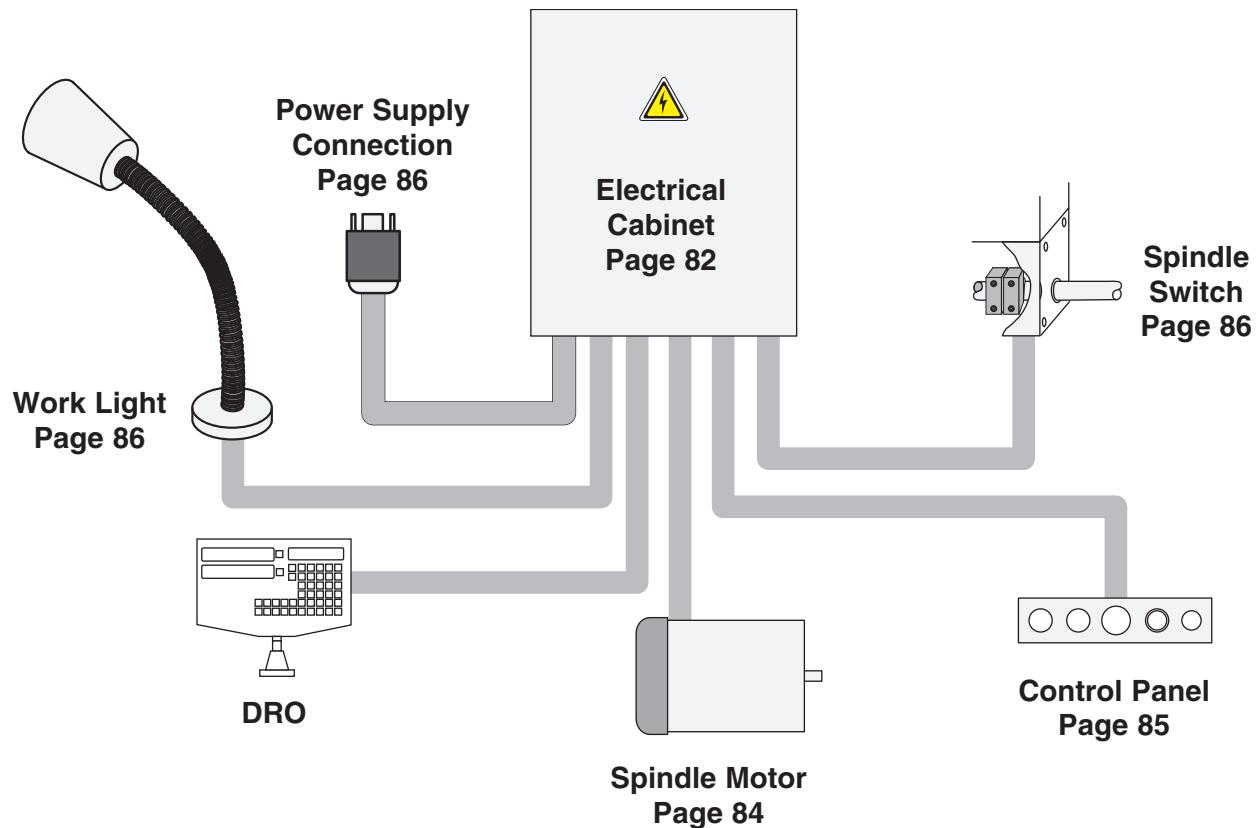
The photos and diagrams included in this section are best viewed in color. You can view these pages in color at www.grizzly.com.

COLOR KEY

BLACK	Bk	BLUE	Bl	YELLOW	Yl	LIGHT BLUE	Lb
WHITE	Wt	BROWN	Br	YELLOW	Yg	BLUE WHITE	Bw
GREEN	Gn	GRAY	Gy	GREEN		TUR- QUOISE	Tu
RED	Rd	ORANGE	Or	PURPLE	Pu		
				PINK	Pk		



Wiring Overview



Component Location Index

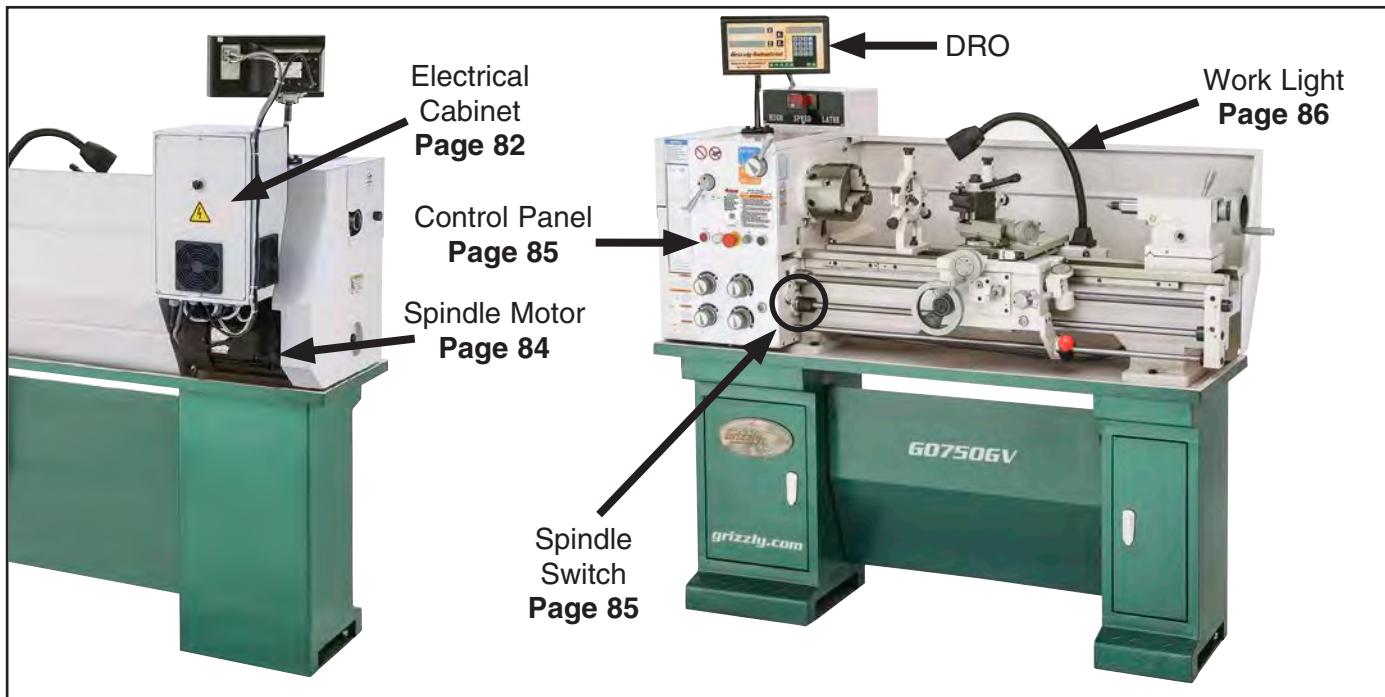
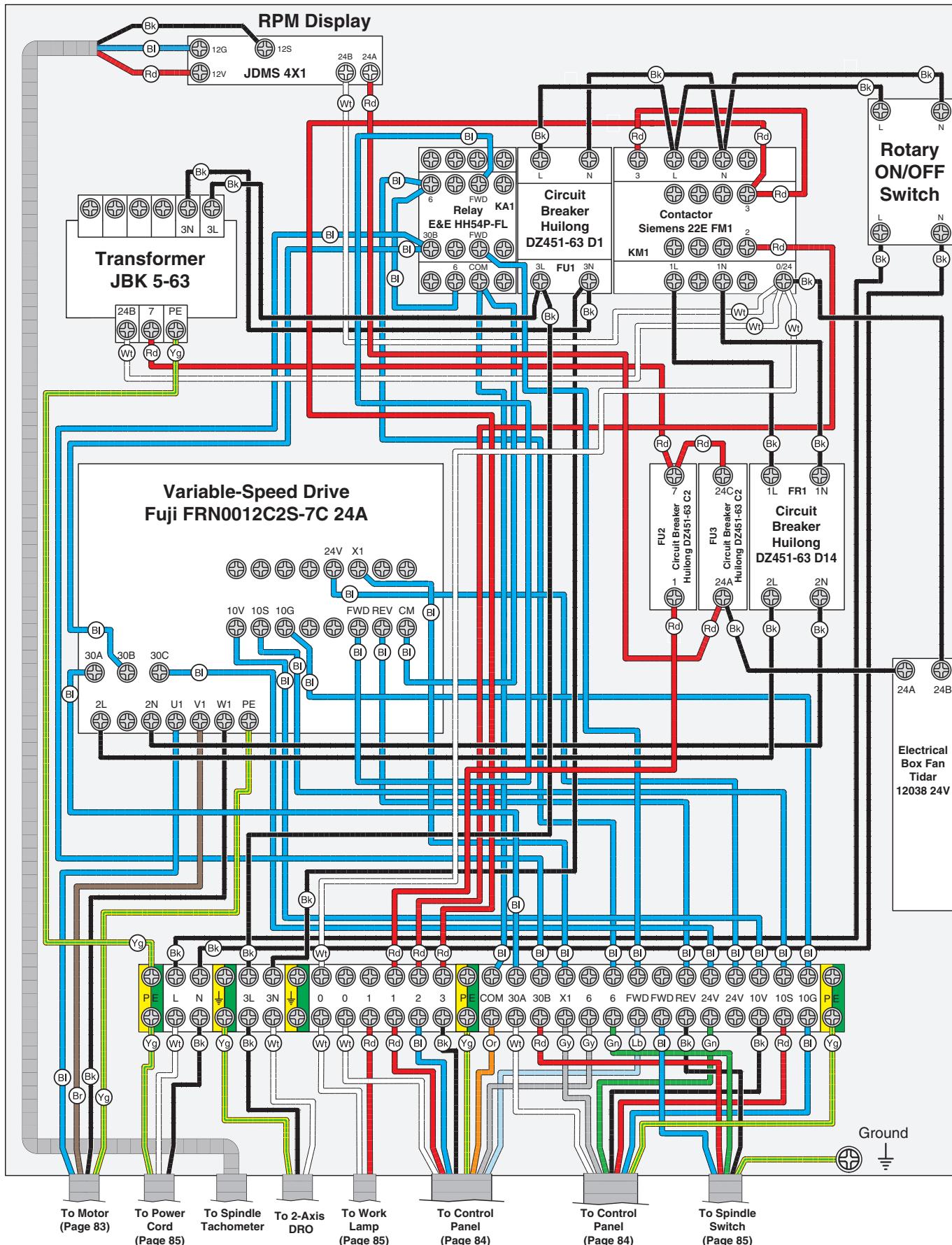


Figure 139. Component location index.

Electrical Cabinet Wiring



Electrical Cabinet

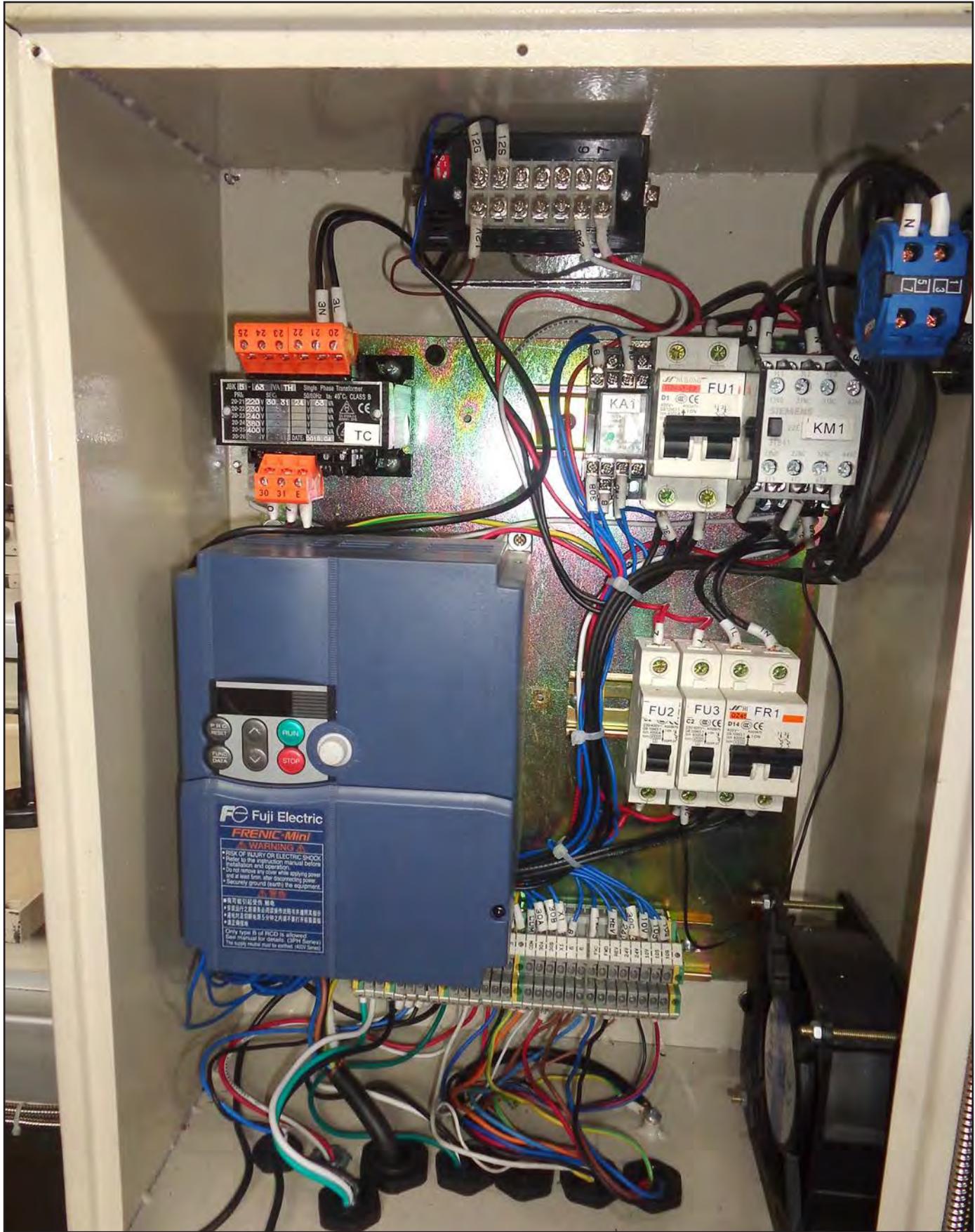
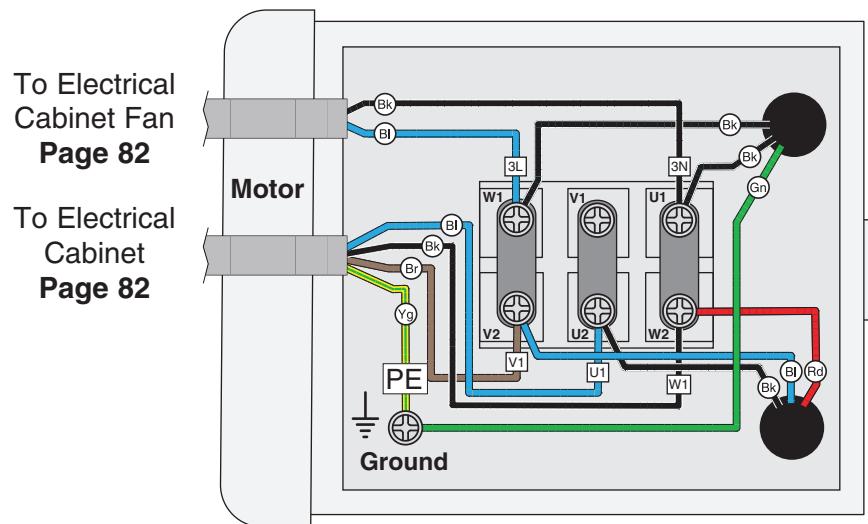


Figure 140. Electrical cabinet wiring.

Motor Wiring



Figure 141. Spindle motor junction box.



Control Panel Wiring

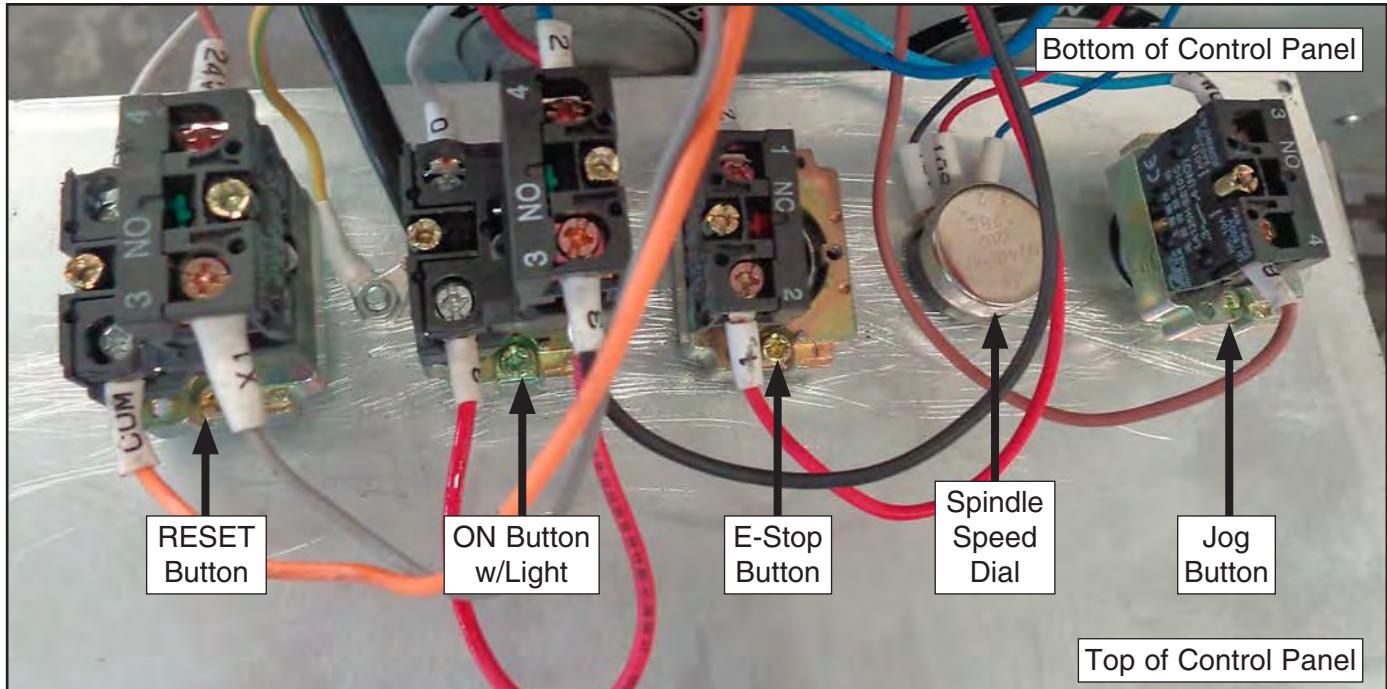
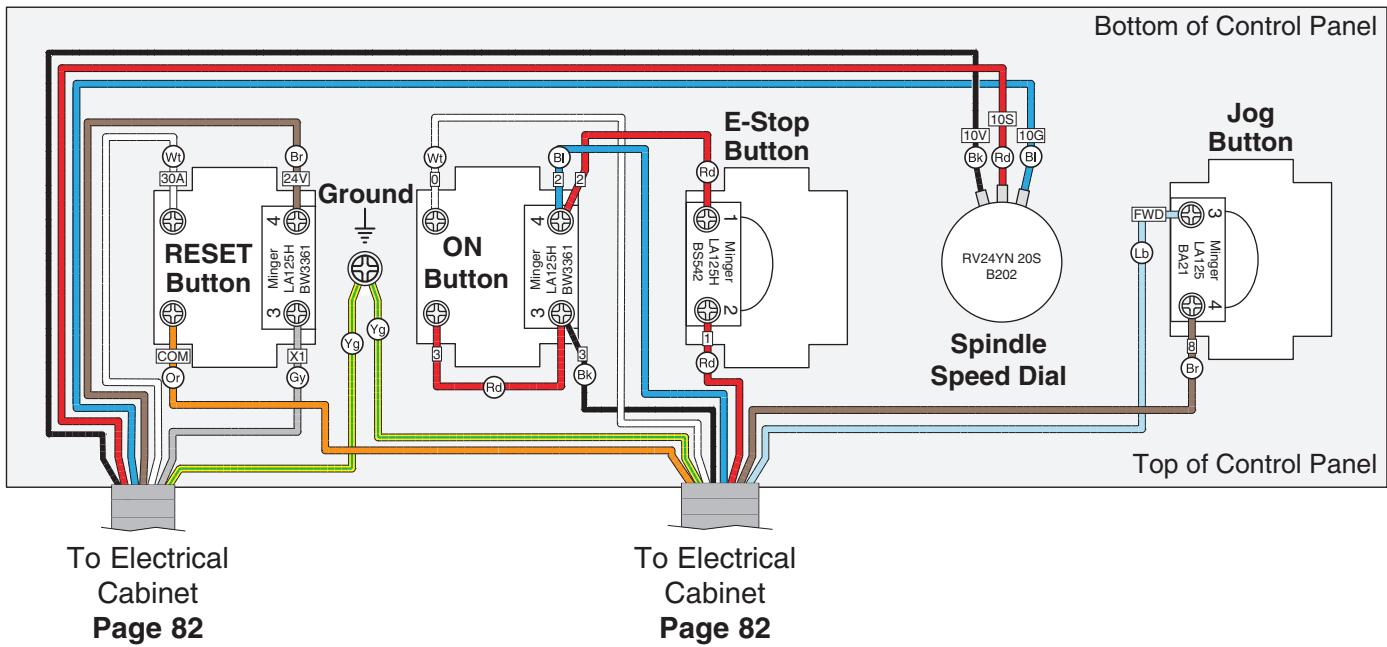


Figure 142. Control panel wiring.



Other Component Wiring Diagrams

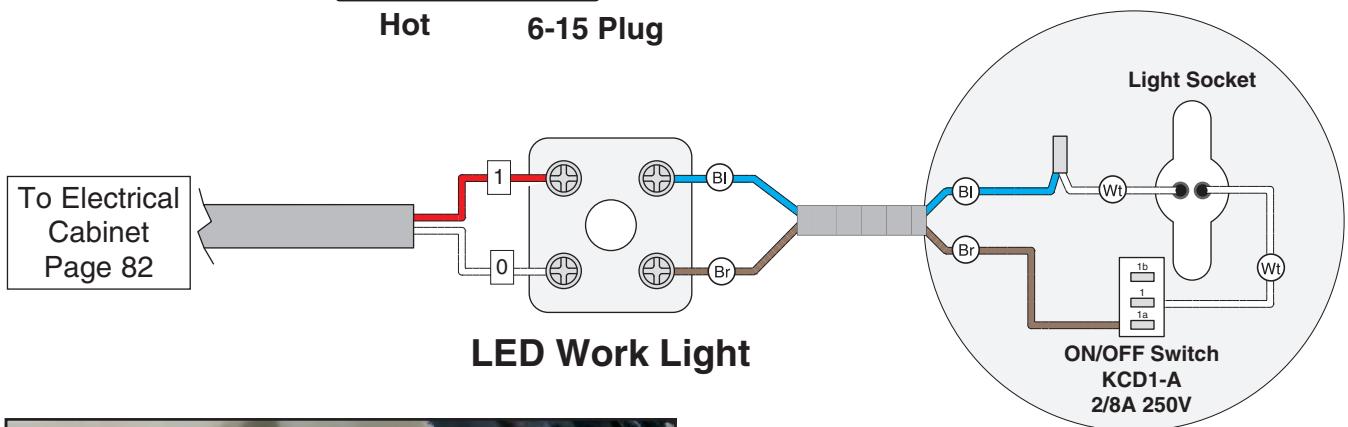
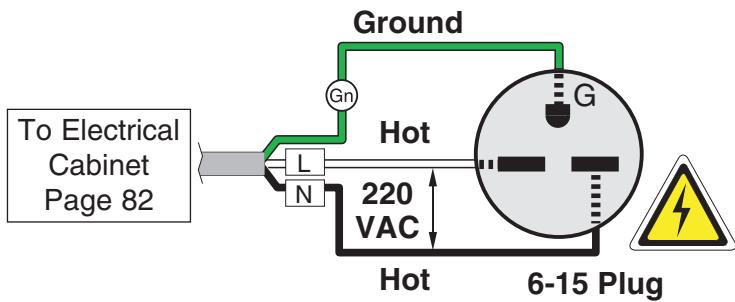


Figure 143. Work light wiring.

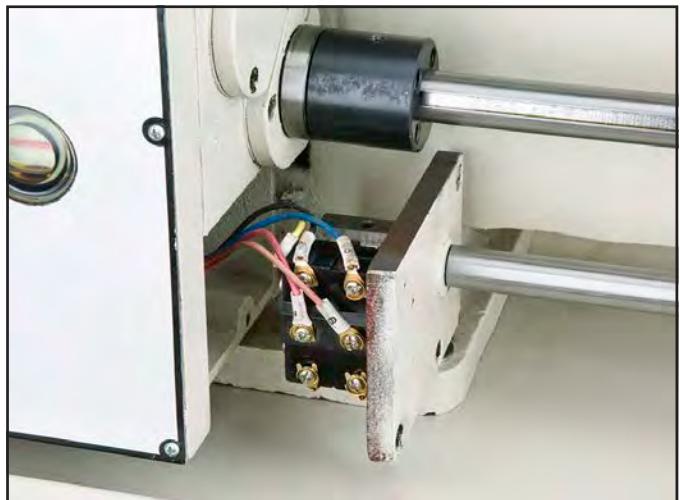
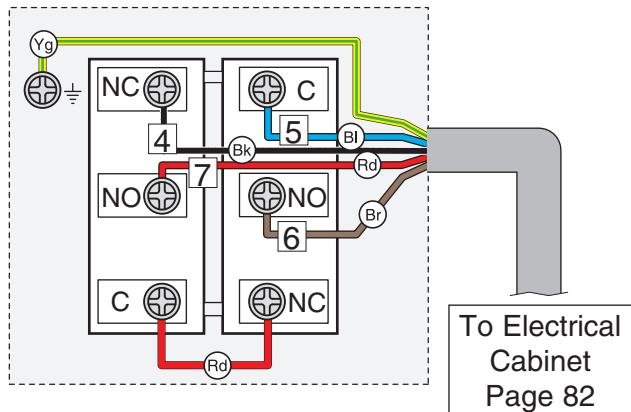
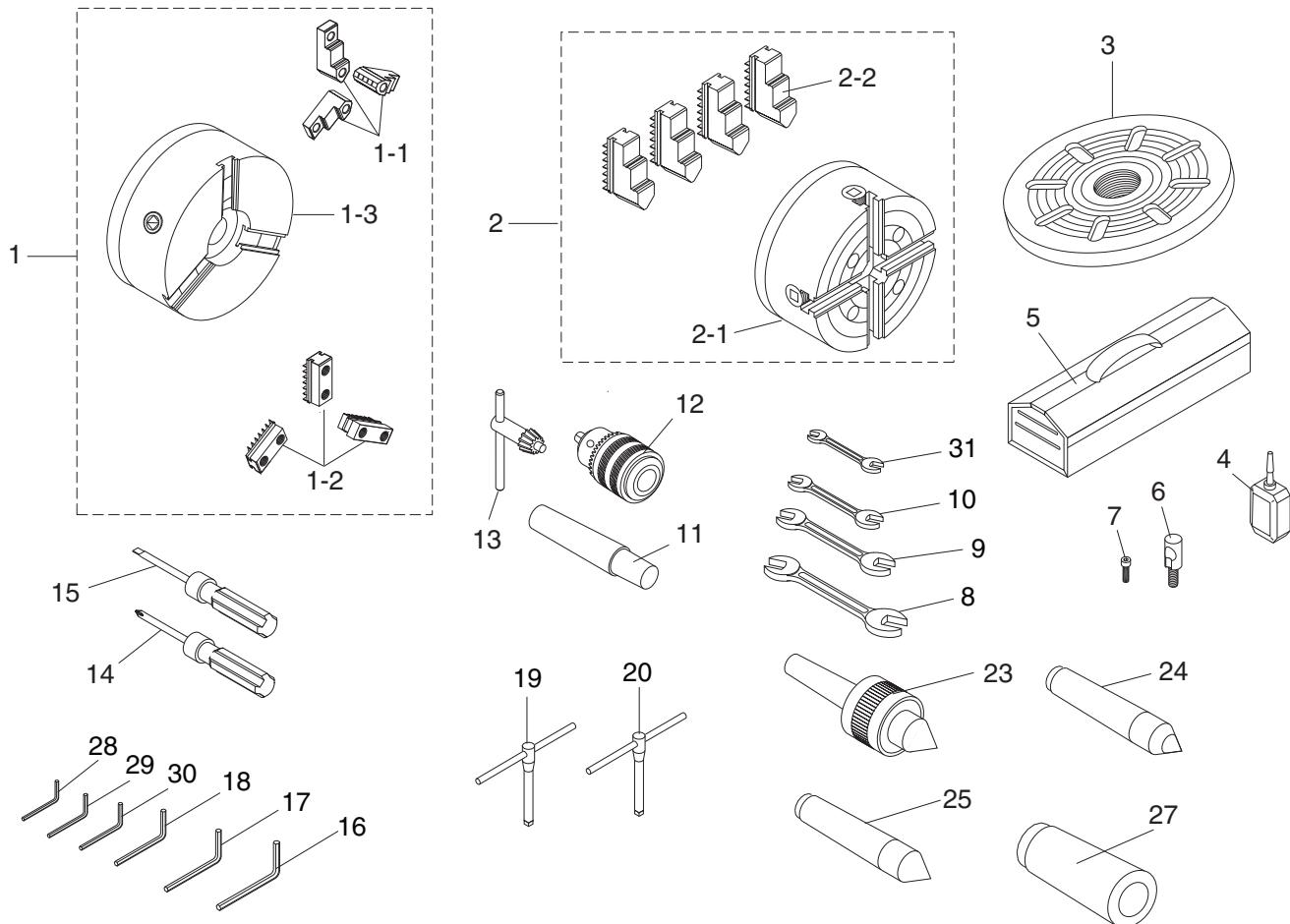


Figure 144. Spindle ON/OFF rotation switch.



SECTION 9: PARTS

Accessories



REF PART # DESCRIPTION

1	P0750GV0001	3-JAW CHUCK ASSEMBLY 6" D1-5 SCROLL
1-1	P0750GV0001-1	3-JAW CHUCK TOP JAW SET
1-2	P0750GV0001-2	3-JAW CHUCK BOTTOM JAW SET
1-3	P0750GV0001-3	3-JAW CHUCK 6"
2	P0750GV0002	4-JAW INDEPENDENT CHUCK ASSEMBLY
2-1	P0750GV0002-1	4-JAW INDEPENDENT CHUCK BODY 8"
2-2	P0750GV0002-2	4-JAW CHUCK REVERSIBLE JAW 4-PC SET
3	P0750GV0003	FACEPLATE 10" D1-5
4	P0750GV0004	BOTTLE FOR OIL
5	P0750GV0005	TOOLBOX
6	P0750GV0006	CAMLOCK STUD D1-5
7	P0750GV0007	CAP SCREW M6-1 X 14
8	P0750GV0008	WRENCH 17 X 19MM OPEN-ENDS
9	P0750GV0009	WRENCH 12 X 14MM OPEN-ENDS
10	P0750GV0010	WRENCH 10 X 12MM OPEN-ENDS
11	P0750GV0011	DRILL CHUCK ARBOR MT#3/B16
12	P0750GV0012	DRILL CHUCK B16 1.5-13MM

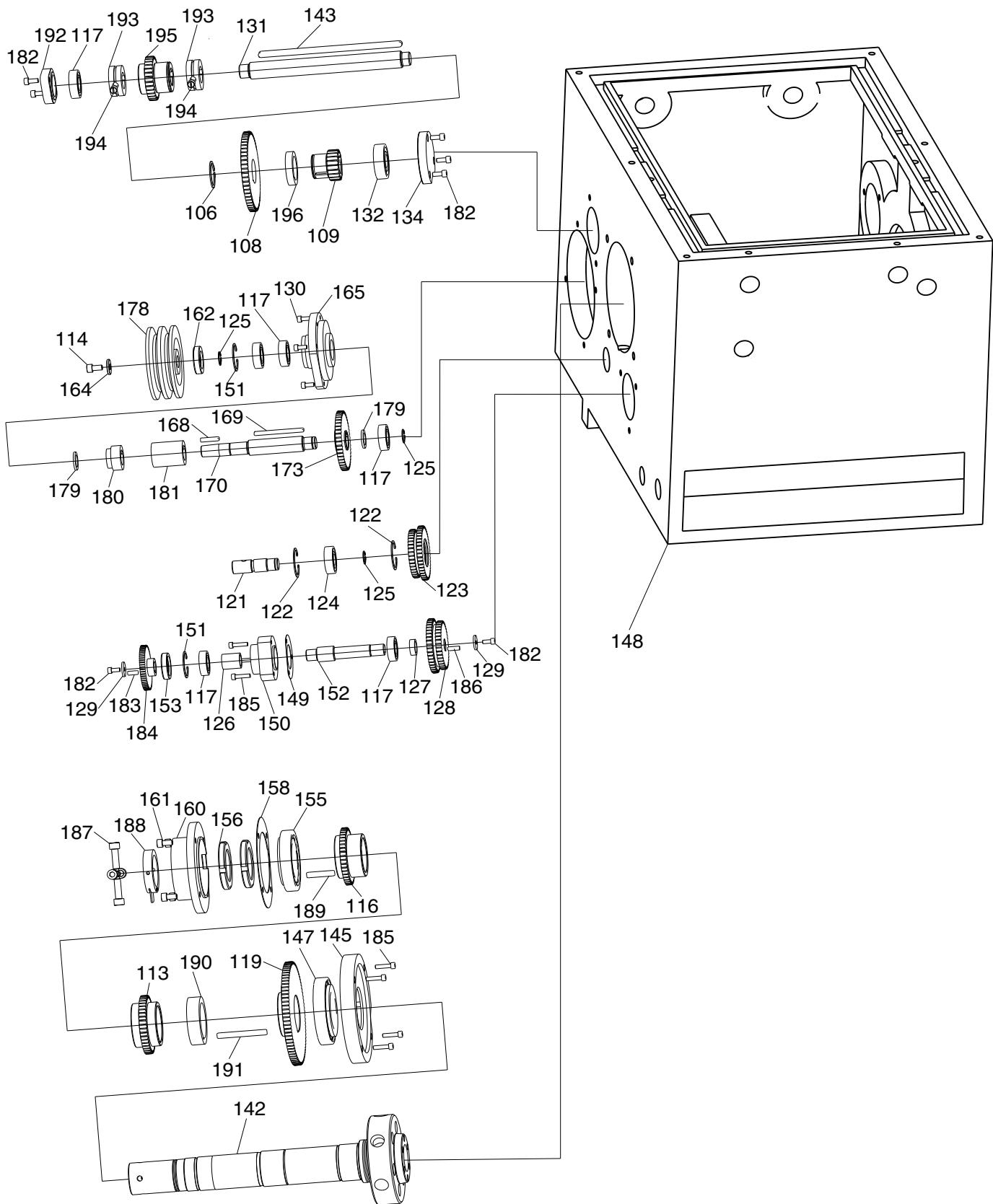
REF PART # DESCRIPTION

13	P0750GV0013	DRL CHK KEY 6MM STD 12T SD-14MM
14	P0750GV0014	PHILLIPS SCREWDRIVER #2
15	P0750GV0015	FLAT SCREWDRIVER #2
16	P0750GV0016	HEX WRENCH 10MM
17	P0750GV0017	HEX WRENCH 8MM
18	P0750GV0018	HEX WRENCH 6MM
19	P0750GV0019	CHUCK WRENCH 3-JAW
20	P0750GV0020	CHUCK WRENCH 4-JAW
23	P0750GV0023	LIVE CENTER MT#3
24	P0750GV0024	DEAD CENTER MT#3 CARBIDE TIPPED
25	P0750GV0025	DEAD CENTER MT#3 HSS
27	P0750GV0027	SPINDLE SLEEVE MT#5-MT#3
28	P0750GV0028	HEX WRENCH 2MM
29	P0750GV0029	HEX WRENCH 4MM
30	P0750GV0030	HEX WRENCH 5MM
31	P0750GV0031	WRENCH 9 X 11MM OPEN-ENDS

Please Note: We do our best to stock replacement parts whenever possible, but we cannot guarantee that all parts shown here are available for purchase. Call (800) 523-4777 or visit our online parts store at www.grizzly.com to check for availability.



Headstock Internal Gears



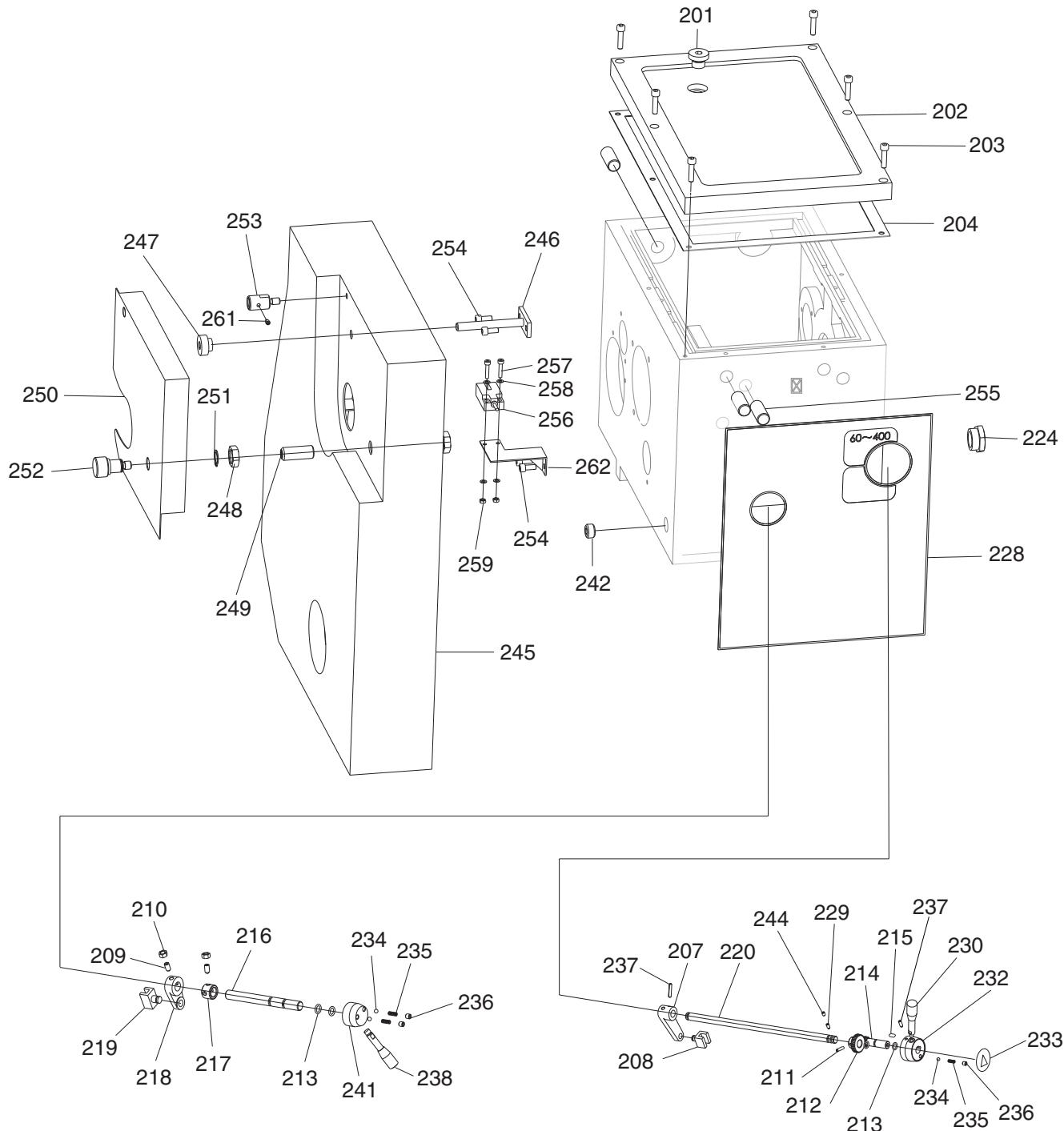
Headstock Internal Gears Parts List

REF PART #	DESCRIPTION
106	P0750GV0106 EXT RETAINING RING 36MM
108	P0750GV0108 GEAR 58T
109	P0750GV0109 GEAR 21T
113	P0750GV0113 GEAR 46T
114	P0750GV0114 CAP SCREW M6-1 X 14
116	P0750GV0116 GEAR 45T
117	P0750GV0117 BALL BEARING 6004-2RS
119	P0750GV0119 GEAR 83T
121	P0750GV0121 GEAR SHAFT
122	P0750GV0122 INT RETAINING RING 47MM
123	P0750GV0123 COMBO GEAR 40/45T
124	P0750GV0124 BALL BEARING 6204-2RS
125	P0750GV0125 EXT RETAINING RING 20MM
126	P0750GV0126 BUSHING
127	P0750GV0127 SPACER
128	P0750GV0128 COMBO GEAR 45/40T
129	P0750GV0129 FLAT WASHER 6MM
130	P0750GV0130 CAP SCREW M6-1 X 16
131	P0750GV0131 GEAR SHAFT
132	P0750GV0132 BALL BEARING 6304-2RS
134	P0750GV0134 GEAR SHAFT COVER (R)
142	P0750GV0142 SPINDLE D1-5
143	P0750GV0143 KEY 8 X 8 X 210
145	P0750GV0145 INBOUND SPINDLE BEARING COVER
147	P0750GV0147 TAPER ROLLER BEARING HR 30211J NSK
148	P0750GV0148 HEADSTOCK CASTING
149	P0750GV0149 BEARING BLOCK GASKET
150	P0750GV0150 BEARING BLOCK
151	P0750GV0151 INT RETAINING RING 42MM
152	P0750GV0152 SHAFT
153	P0750GV0153 OIL SEAL PD25 X 45 X 10

REF PART #	DESCRIPTION
155	P0750GV0155 TAPER ROLLER BEARING HR 30211J NSK
156	P0750GV0156 SPANNER NUT
158	P0750GV0158 OUTBOARD BEARING COVER GASKET
160	P0750GV0160 OUTBOARD SPINDLE BEARING COVER
161	P0750GV0161 CAP SCREW M8-1.25 X 12
162	P0750GV0162 OIL SEAL PD20 X 45 X 10
164	P0750GV0164 FENDER WASHER 6MM
165	P0750GV0165 PULLEY SHAFT COVER
168	P0750GV0168 KEY 5 X 5 X 30
169	P0750GV0169 KEY 5 X 5 X 80
170	P0750GV0170 SPINDLE PULLEY SHAFT
173	P0750GV0173 GEAR 47T
178	P0750GV0178 BELT PULLEY
179	P0750GV0179 SPACER
180	P0750GV0180 SPACER
181	P0750GV0181 SPACER
182	P0750GV0182 CAP SCREW M6-1 X 14
183	P0750GV0183 KEY 5 X 5 X 18
184	P0750GV0184 GEAR
185	P0750GV0185 CAP SCREW M6-1 X 25
186	P0750GV0186 KEY 5 X 5 X 20
187	P0750GV0187 SPIDER BOLT SET SCREW M10-1.5 X 30
188	P0750GV0188 TACHOMETER RING
189	P0750GV0189 KEY 5 X 5 X 45
190	P0750GV0190 SPACER
191	P0750GV0191 KEY 5 X 5 X 80
192	P0750GV0192 COVER
193	P0750GV0193 SPACER
194	P0750GV0194 SET SCREW M10-1.5 X12
195	P0750GV0195 GEAR
196	P0750GV0196 SPACER



Headstock Controls

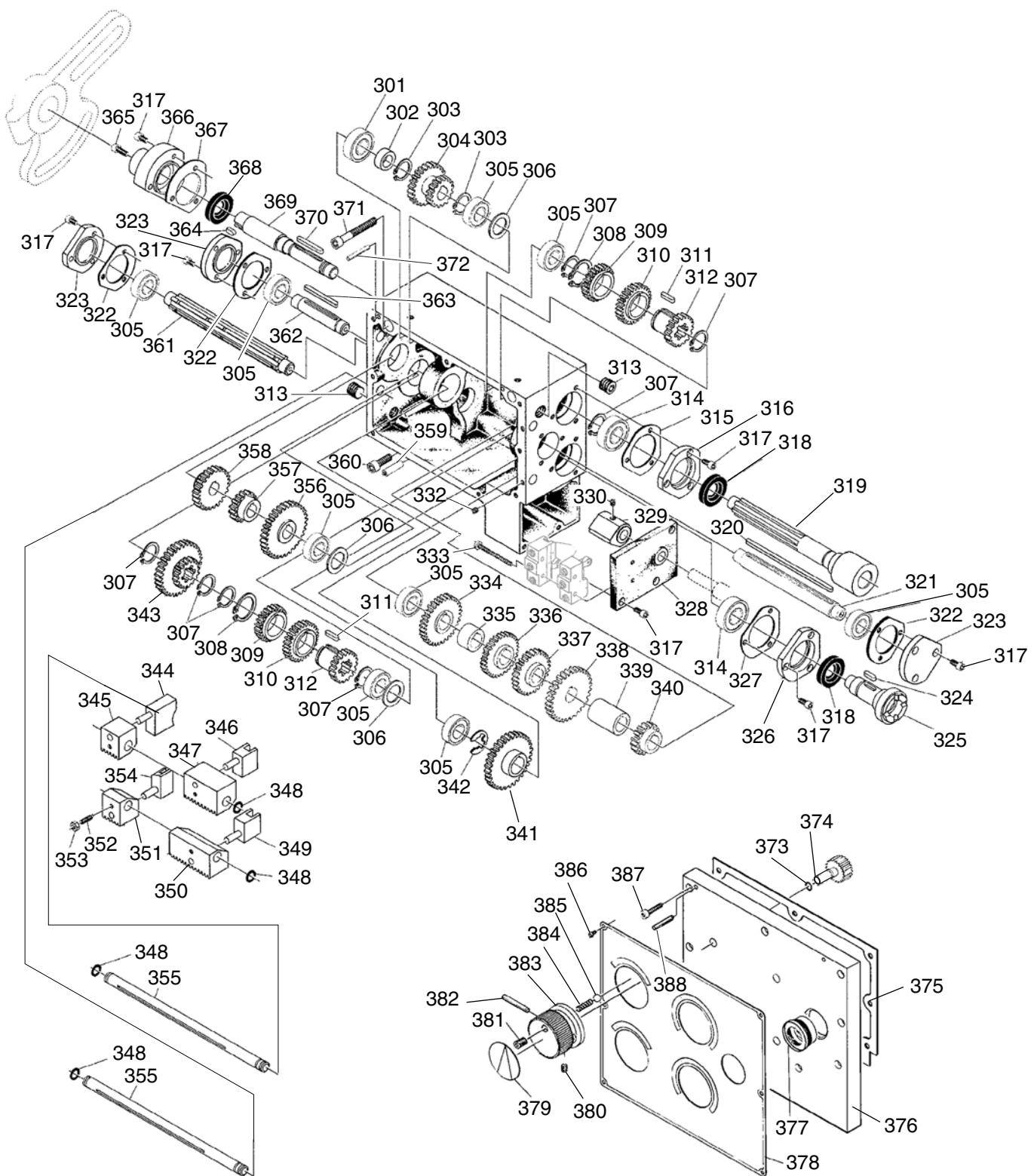


Headstock Controls Parts List

REF PART #	DESCRIPTION	REF PART #	DESCRIPTION		
201	P0750GV0201	OIL FILL PLUG 3/4" NPT PLASTIC	235	P0750GV0235	COMPRESSION SPRING 1.2 X 4.8 X 27
202	P0750GV0202	HEADSTOCK COVER	236	P0750GV0236	SET SCREW M8-1.25 X 8
203	P0750GV0203	CAP SCREW M6-1 X 25	237	P0750GV0237	ROLL PIN 5 X 40
204	P0750GV0204	HEADSTOCK COVER GASKET	238	P0750GV0238	HANDLE M10-1.5 X 10
207	P0750GV0207	SPINDLE SPEED SHIFTING ARM	241	P0750GV0241	HANDLE HUB
208	P0750GV0208	SPINDLE SPEED SHIFTING FORK	242	P0750GV0242	OIL DRAIN PLUG 3/8" NPT
209	P0750GV0209	SET SCREW M8-1.25 X 16	244	P0750GV0244	SET SCREW M6-1 X 8
210	P0750GV0210	HEX NUT M8-1.25	245	P0750GV0245	END GEAR COVER
211	P0750GV0211	ROLL PIN 5 X 24	246	P0750GV0246	END COVER TOP BOLT M10-1.5 X 80
212	P0750GV0212	GEAR 38T	247	P0750GV0247	THUMB NUT M10-1.5
213	P0750GV0213	O-RING 11.2 X 2.65	248	P0750GV0248	HEX NUT M16-2
214	P0750GV0214	PINION SHAFT	249	P0750GV0249	STUD-FT M16-2 X 40
215	P0750GV0215	KEY 5 X 5 X 8	250	P0750GV0250	SPIDER GUARD
216	P0750GV0216	SHAFT	251	P0750GV0251	EXT RETAINING RING 16MM
217	P0750GV0217	LOCK COLLAR	252	P0750GV0252	KNURLED THUMB SCREW M10-1.5
218	P0750GV0218	FEED DIRECTION SHIFTING ARM	253	P0750GV0253	SPIDER GUARD KNOB BOLT M8-1.25 X 14
219	P0750GV0219	FEED DIRECTION SHIFTING FORK	254	P0750GV0254	CAP SCREW M6-1 X 16
220	P0750GV0220	SPINDLE SPEED SHAFT	255	P0750GV0255	PLUG
224	P0750GV0224	OIL SIGHT GLASS M20-1.5	256	P0750GV0256	PHOTOELECTRIC SWITCH
228	P0750GV0228	FRONT CONTROL PLATE	257	P0750GV0257	CAP SCREW M4-.7 X 20
229	P0750GV0229	SET SCREW M6-1 X 12	258	P0750GV0258	FLAT WASHER 4MM
230	P0750GV0230	HANDLE M8-1.25 X 40	259	P0750GV0259	HEX NUT M4-.7
232	P0750GV0232	SPINDLE SPEED HANDLE HUB	261	P0750GV0261	ROLL PIN 5 X 30
233	P0750GV0233	INDICATOR PLATE	262	P0750GV0262	MOUNTING BRACKET
234	P0750GV0234	STEEL BALL 6MM			



Quick-Change Gearbox

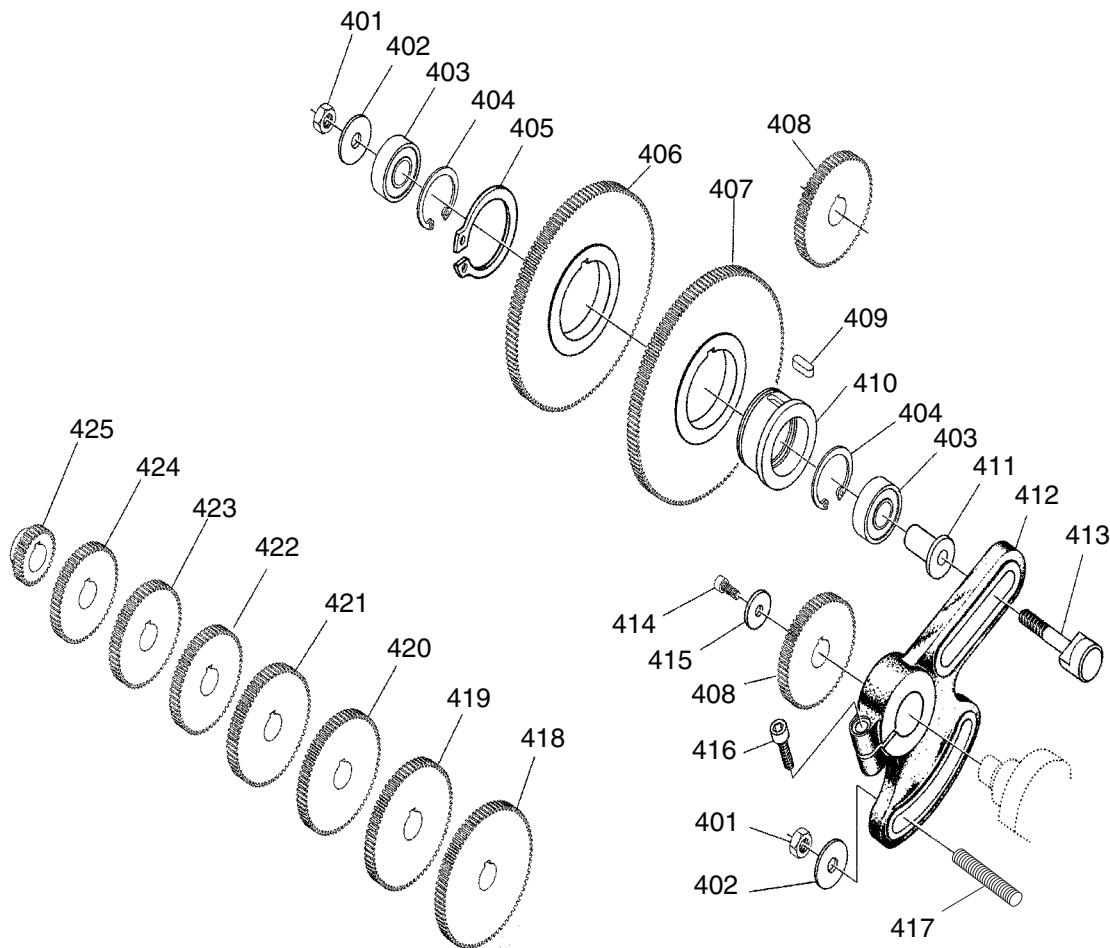


Quick-Change Gearbox Parts List

REF PART #	DESCRIPTION	REF PART #	DESCRIPTION		
301	P0750GV0301	BALL BEARING 6203-2RS	346	P0750GV0346	SHIFT FORK B
302	P0750GV0302	SPACER	347	P0750GV0347	SHIFT FORK B RACK
303	P0750GV0303	EXT RETAINING RING 16MM	348	P0750GV0348	O-RING 12 X 1.9
304	P0750GV0304	COMBO GEAR 16T/24T	349	P0750GV0349	SHIFT FORK C
305	P0750GV0305	BALL BEARING 6202-2RS	350	P0750GV0350	SHIFT FORK C RACK
306	P0750GV0306	SPACER	351	P0750GV0351	SHIFT FORK D RACK
307	P0750GV0307	EXT RETAINING RING 20MM	352	P0750GV0352	SET SCREW M4-.7 X 16
308	P0750GV0308	EXT RETAINING RING 28MM	353	P0750GV0353	HEX NUT M4-.7
309	P0750GV0309	GEAR 24T	354	P0750GV0354	SHIFT FORK D
310	P0750GV0310	GEAR 28T	355	P0750GV0355	SHIFT FORK SHAFT
311	P0750GV0311	KEY 4 X 4 X 22	356	P0750GV0356	GEAR 32T
312	P0750GV0312	GEAR 18T	357	P0750GV0357	GEAR 16T
313	P0750GV0313	GEARBOX FILL/DRAIN PLUG 3/8" NPT	358	P0750GV0358	GEAR 24T
314	P0750GV0314	BALL BEARING 6004-2RS	359	P0750GV0359	TAPERED PIN 8 X 26
315	P0750GV0315	LEADSCREW BEARING COVER GASKET	360	P0750GV0360	CAP SCREW M8-1.25 X 25
316	P0750GV0316	LEADSCREW BEARING COVER	361	P0750GV0361	LOWER GEARBOX SPLINED SHAFT
317	P0750GV0317	CAP SCREW M5-.8 X 12	362	P0750GV0362	UPPER GEARBOX SHAFT
318	P0750GV0318	OIL SEAL 25 X 40 X 7	363	P0750GV0363	KEY 4 X 4 X 55
319	P0750GV0319	LEADSCREW SHAFT	364	P0750GV0364	KEY 5 X 5 X 18
320	P0750GV0320	KEY 4 X 4 X 145	365	P0750GV0365	CAP SCREW M6-1 X 16
321	P0750GV0321	SHAFT	366	P0750GV0366	LWR CHANGE GEAR SHAFT BRACKET
322	P0750GV0322	BEARING COVER GASKET	367	P0750GV0367	GEAR SHAFT BRACKET GASKET
323	P0750GV0323	BEARING COVER	368	P0750GV0368	OIL SEAL 22 X 35 X 7
324	P0750GV0324	KEY 5 X 5 X 18	369	P0750GV0369	LOWER CHANGE GEAR SHAFT
325	P0750GV0325	FEED ROD SHAFT	370	P0750GV0370	KEY 5 X 5 X 45
326	P0750GV0326	FEED ROD SHAFT BEARING COVER	371	P0750GV0371	CAP SCREW M8-1.25 X 65
327	P0750GV0327	FEED ROD SHAFT GASKET	372	P0750GV0372	ROLL PIN 4 X 30
328	P0750GV0328	SPINDLE SWITCH COVER	373	P0750GV0373	O-RING 7 X 1.9
329	P0750GV0329	SPINDLE SWITCH ARM	374	P0750GV0374	PINION SHAFT
330	P0750GV0330	SET SCREW M6-1 X 8	375	P0750GV0375	GEARBOX COVER GASKET
332	P0750GV0332	SET SCREW M5-.8 X 6	376	P0750GV0376	GEARBOX COVER
333	P0750GV0333	BUTTON HD CAP SCR M4-.7 X 45	377	P0750GV0377	GEARBOX OIL SIGHT GLASS A12
334	P0750GV0334	GEAR 32T	378	P0750GV0378	GEARBOX COVER PLATE
335	P0750GV0335	SPACER	379	P0750GV0379	GEARBOX DIAL COVER PLATE
336	P0750GV0336	GEAR 30T	380	P0750GV0380	SET SCREW M6-1 X 8
337	P0750GV0337	GEAR 28T	381	P0750GV0381	SET SCREW M6-1 X 10
338	P0750GV0338	GEAR 30T	382	P0750GV0382	ROLL PIN 5 X 40
339	P0750GV0339	SPACER	383	P0750GV0383	GEARBOX DIAL
340	P0750GV0340	GEAR 16T	384	P0750GV0384	COMPRESSION SPRING 1 X 5 X 20
341	P0750GV0341	GEAR 32T	385	P0750GV0385	STEEL BALL 6MM
342	P0750GV0342	E-CLIP 15MM	386	P0750GV0386	PHLP HD SCR M4-.7 X 8
343	P0750GV0343	GEAR 32T/16T	387	P0750GV0387	CAP SCREW M5-.8 X 25
344	P0750GV0344	SHIFT FORK A	388	P0750GV0388	ROLL PIN 5 X 40
345	P0750GV0345	SHIFT FORK A RACK			



End Gears


REF PART # DESCRIPTION

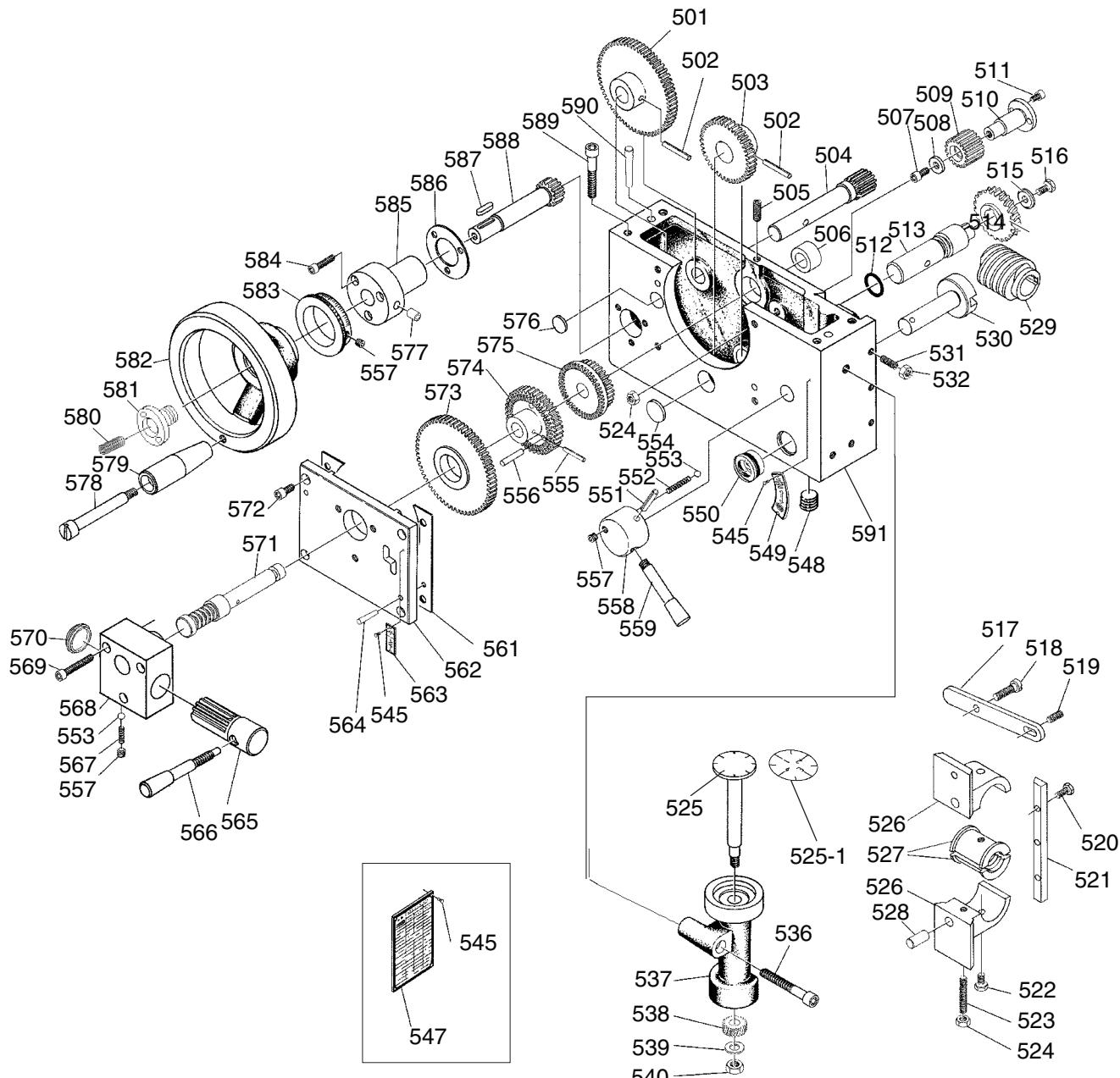
401	P0750GV0401	HEX NUT M10-1.5
402	P0750GV0402	FENDER WASHER 10MM
403	P0750GV0403	BALL BEARING 6203ZZ
404	P0750GV0404	INT RETAINING RING 40MM
405	P0750GV0405	EXT RETAINING RING 55MM
406	P0750GV0406	GEAR 120T
407	P0750GV0407	GEAR 127T
408	P0750GV0408	GEAR 60T
409	P0750GV0409	KEY 6 X 6 X 18
410	P0750GV0410	BEARING HOUSING
411	P0750GV0411	ARM SUPPORT BUSHING
412	P0750GV0412	PIVOT ARM
413	P0750GV0413	GEAR MOUNTING BOLT M10-1.5 X 45

REF PART # DESCRIPTION

414	P0750GV0414	CAP SCREW M6-1 X 15
415	P0750GV0415	FENDER WASHER 6MM
416	P0750GV0416	CAP SCREW M8-1.25 X 30
417	P0750GV0417	STUD-FT M10-1.5 X 70
418	P0750GV0418	GEAR 78T
419	P0750GV0419	GEAR 69T
420	P0750GV0420	GEAR 66T
421	P0750GV0421	GEAR 63T
422	P0750GV0422	GEAR 57T
423	P0750GV0423	GEAR 56T
424	P0750GV0424	GEAR 54T
425	P0750GV0425	GEAR 30T



Apron



NOTE: Thread Dial Chart
Located on Headstock



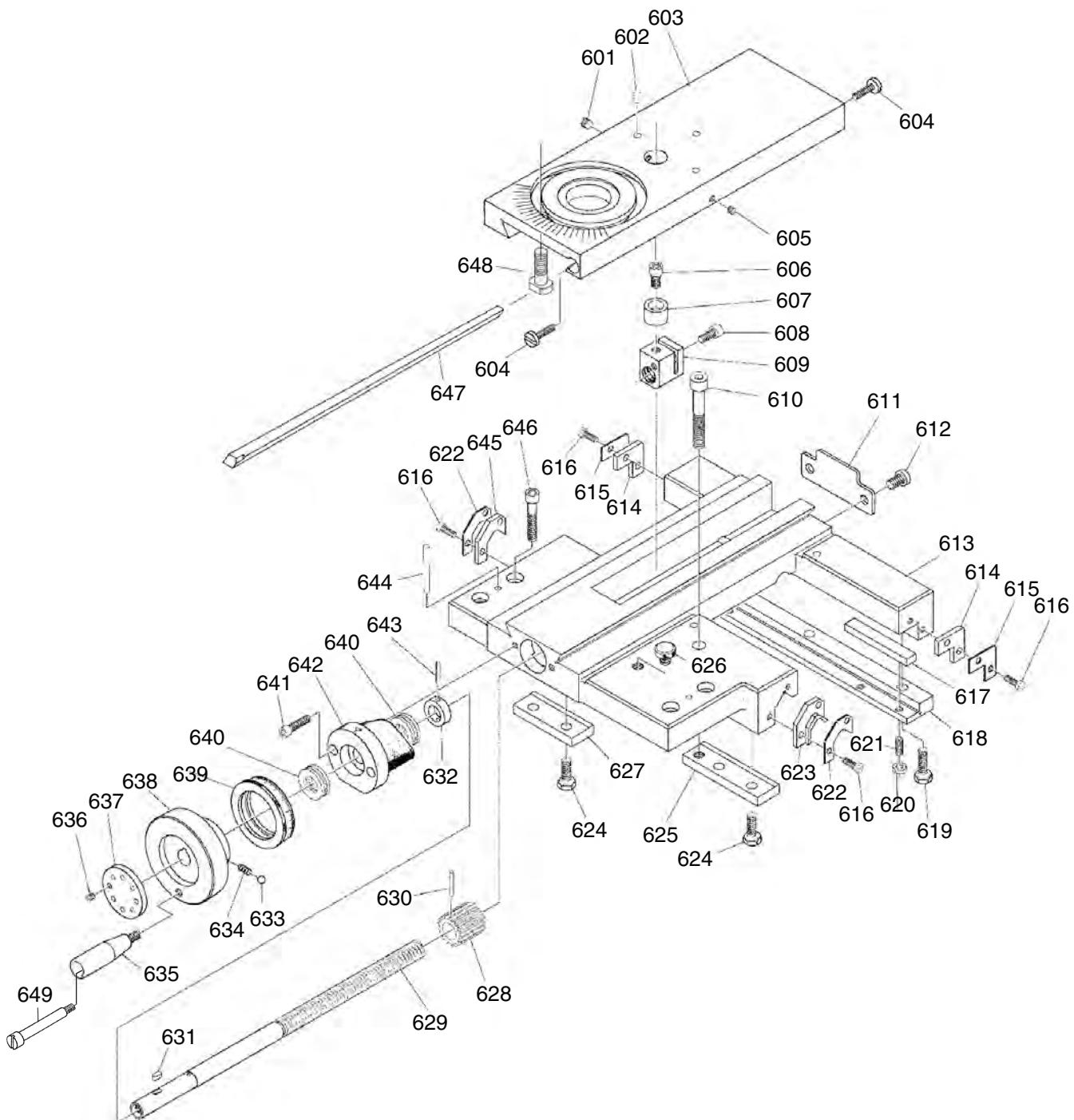
Apron Parts List

REF	PART #	DESCRIPTION
501	P0750GV0501	GEAR 60T
502	P0750GV0502	ROLL PIN 5 X 30
503	P0750GV0503	GEAR 40T
504	P0750GV0504	PINION 13T
505	P0750GV0505	SET SCREW M6-1 X 16 DOG-PT
506	P0750GV0506	BUSHING
507	P0750GV0507	CAP SCREW M6-1 X 12
508	P0750GV0508	FLAT WASHER 6MM
509	P0750GV0509	GEAR 18T
510	P0750GV0510	IDLER SHAFT
511	P0750GV0511	CAP SCREW M5-.8 X 12
512	P0750GV0512	O-RING 19.8 X 2.4 P20
513	P0750GV0513	SHAFT
514	P0750GV0514	WORM GEAR
515	P0750GV0515	WORM GEAR FLAT WASHER 6MM
516	P0750GV0516	CAP SCREW M6-1 X 12
517	P0750GV0517	INTERLOCK LEVER
518	P0750GV0518	CAP SCREW M6-1 X 20
519	P0750GV0519	SET SCREW M6-1 X 12
520	P0750GV0520	HEX BOLT M5-.8 X 20
521	P0750GV0521	HALF NUT GIB
522	P0750GV0522	HEX BOLT M6-1 X 10
523	P0750GV0523	SET SCREW M6-1 X 35
524	P0750GV0524	HEX NUT M6-1
525	P0750GV0525	DIAL INDICATOR
525-1	P0750GV0525-1	THREAD DIAL LABEL
526	P0750GV0526	HALF NUT RETAINER 2-PC
527	P0750GV0527	HALF NUT ASSEMBLY
528	P0750GV0528	DOWEL PIN 8 X 16
529	P0750GV0529	WORM SHAFT
530	P0750GV0530	CAM SHAFT
531	P0750GV0531	SET SCREW M5-.8 X 16 CUP-PT
532	P0750GV0532	HEX NUT M5-.8
536	P0750GV0536	CAP SCREW M8-1.25 X 50
537	P0750GV0537	THREAD DIAL BODY
538	P0750GV0538	HELICAL GEAR 24T
539	P0750GV0539	FLAT WASHER 8MM
540	P0750GV0540	HEX NUT M8-1.25
545	P0750GV0545	STEEL FLUTED RIVET 2 X 5
547	P0750GV0547	THREAD DIAL CHART
548	P0750GV0548	DRAIN PLUG 1/8" NPT
549	P0750GV0549	HALF-NUT INDICATOR PLATE

REF	PART #	DESCRIPTION
550	P0750GV0550	OIL SIGHT GLASS M20-1.5
551	P0750GV0551	ROLL PIN 5 X 35
552	P0750GV0552	COMPRESSION SPRING
553	P0750GV0553	STEEL BALL 3/16
554	P0750GV0554	PLUG
555	P0750GV0555	ROLL PIN 3 X 25
556	P0750GV0556	DOWEL PIN 5 X 25
557	P0750GV0557	SET SCREW M6-1 X 6
558	P0750GV0558	LEVER HUB
559	P0750GV0559	LEVER
561	P0750GV0561	SPACER
562	P0750GV0562	FRONT COVER
563	P0750GV0563	FEED INDICATOR PLATE
564	P0750GV0564	TAPER PIN 5 X 20
565	P0750GV0565	CAM SHAFT
566	P0750GV0566	CHANGE LEVER W/KNOB M8-1.25 X 20
567	P0750GV0567	COMPRESSION SPRING
568	P0750GV0568	BRACKET
569	P0750GV0569	CAP SCREW M6-1 X 35
570	P0750GV0570	PLUG
571	P0750GV0571	TOOTHED SHIFT SHAFT
572	P0750GV0572	CAP SCREW M6-1 X 16
573	P0750GV0573	CLUTCH GEAR 63T
574	P0750GV0574	CLUTCH GEAR 40T
575	P0750GV0575	COMBO CLUTCH GEAR 30T
576	P0750GV0576	PLUG
577	P0750GV0577	BALL OILER 8MM PRESS-IN
578	P0750GV0578	SHOULDER BOLT M8-1.25 X 8
579	P0750GV0579	HANDWHEEL HANDLE
580	P0750GV0580	SET SCREW M6-1 X 20
581	P0750GV0581	HANDWHEEL RETAINER
582	P0750GV0582	HANDWHEEL
583	P0750GV0583	CALIBRATED RING
584	P0750GV0584	CAP SCREW M5-.8 X 25
585	P0750GV0585	SUPPORT HUB
586	P0750GV0586	SPACER
587	P0750GV0587	KEY 5 X 5 X 20
588	P0750GV0588	GEARED SHAFT 14T
589	P0750GV0589	CAP SCREW M8-1.25 X 30
590	P0750GV0590	TAPERED PIN 8 X 40
591	P0750GV0591	APRON CASE



Saddle



Saddle Parts List

REF PART # DESCRIPTION

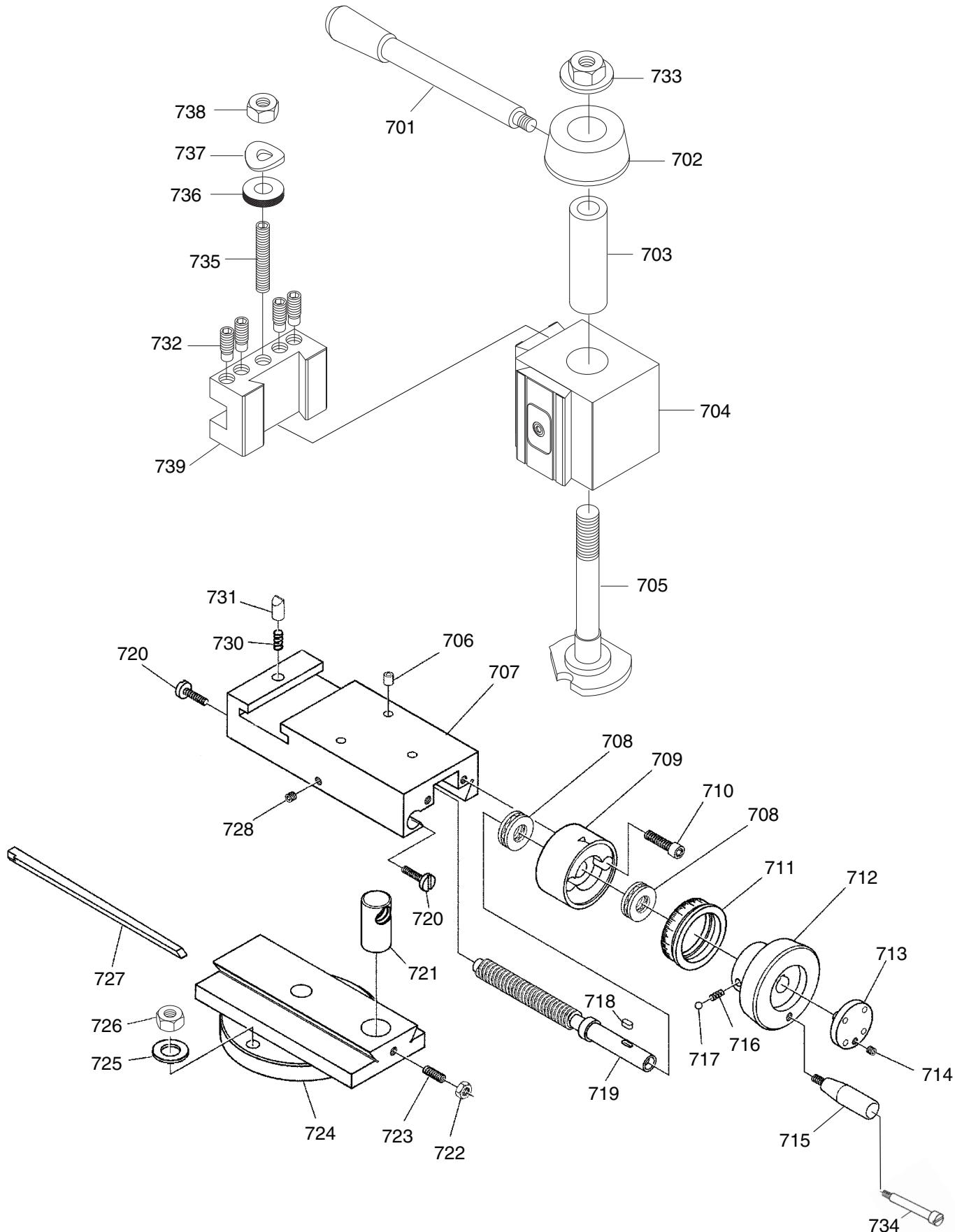
601	P0750GV0601	SET SCREW M8-1.25 X 8
602	P0750GV0602	BALL OILER 6MM PRESS-IN
603	P0750GV0603	CROSS SLIDE
604	P0750GV0604	GIB SCREW
605	P0750GV0605	SET SCREW M6-1 X 8
606	P0750GV0606	CAP SCREW M8-1.25 X 12
607	P0750GV0607	BUSHING
608	P0750GV0608	CAP SCREW M6-1 X 18
609	P0750GV0609	LEADSCREW NUT M8-1.25 BRASS
610	P0750GV0610	CAP SCREW M8-1.25 X 55
611	P0750GV0611	DUST PLATE
612	P0750GV0612	PHLP HD SCR M8-1.25 X 12
613	P0750GV0613	SADDLE
614	P0750GV0614	SADDLE WIPER (REAR)
615	P0750GV0615	SADDLE WIPER PLATE (REAR)
616	P0750GV0616	PHLP HD SCR M5-.8 X 10
617	P0750GV0617	GIB
618	P0750GV0618	SADDLE GIB REAR
619	P0750GV0619	HEX BOLT M8-1.25 X 25
620	P0750GV0620	HEX NUT M6-1 THIN
621	P0750GV0621	SET SCREW M6-1 X 16 CONE-PT
622	P0750GV0622	SADDLE WIPER PLATE (FRONT)
623	P0750GV0623	SADDLE WIPER (RIGHT FRONT)
624	P0750GV0624	HEX BOLT M8-1.25 X 20
625	P0750GV0625	SADDLE GIB RIGHT FRONT

REF PART # DESCRIPTION

626	P0750GV0626	OIL FILL PLUG M10-1.5
627	P0750GV0627	SLIDE PLATE LEFT FRONT
628	P0750GV0628	GEAR 13T
629	P0750GV0629	CROSS SLIDE LEADSCREW
630	P0750GV0630	ROLL PIN 3 X 28
631	P0750GV0631	KEY 5 X 5 X 10
632	P0750GV0632	CROSS SLIDE SUPPORT HUB BUSHING
633	P0750GV0633	STEEL BALL 6MM
634	P0750GV0634	COMPRESSION SPRING
635	P0750GV0635	HOLLOW HANDLE 16 X 22, 75
636	P0750GV0636	SET SCREW M5-.8 X 16 CONE POINT
637	P0750GV0637	BACKLASH ADJUSTMENT NUT
638	P0750GV0638	HANDWHEEL TYPE-15 86D X M8-1.25
639	P0750GV0639	GRADUATED DIAL
640	P0750GV0640	THRUST BEARING 8102
641	P0750GV0641	CAP SCREW M6-1 X 25
642	P0750GV0642	HANDWHEEL BRACKET
643	P0750GV0643	ROLL PIN 3 X 25
644	P0750GV0644	TAPERED PIN 5 X 45
645	P0750GV0645	SADDLE WIPER (LEFT FRONT)
646	P0750GV0646	CAP SCREW M8-1.25 X 35
647	P0750GV0647	CROSS SLIDE GIB
648	P0750GV0648	CROSS SLIDE T-BOLT M8-1.25 X 45
649	P0750GV0649	SHOULDER SCR M8-1.25 X 8, 10 X 67



Compound Rest & Tool Post



Compound Rest & Tool Post Parts List

REF PART # DESCRIPTION

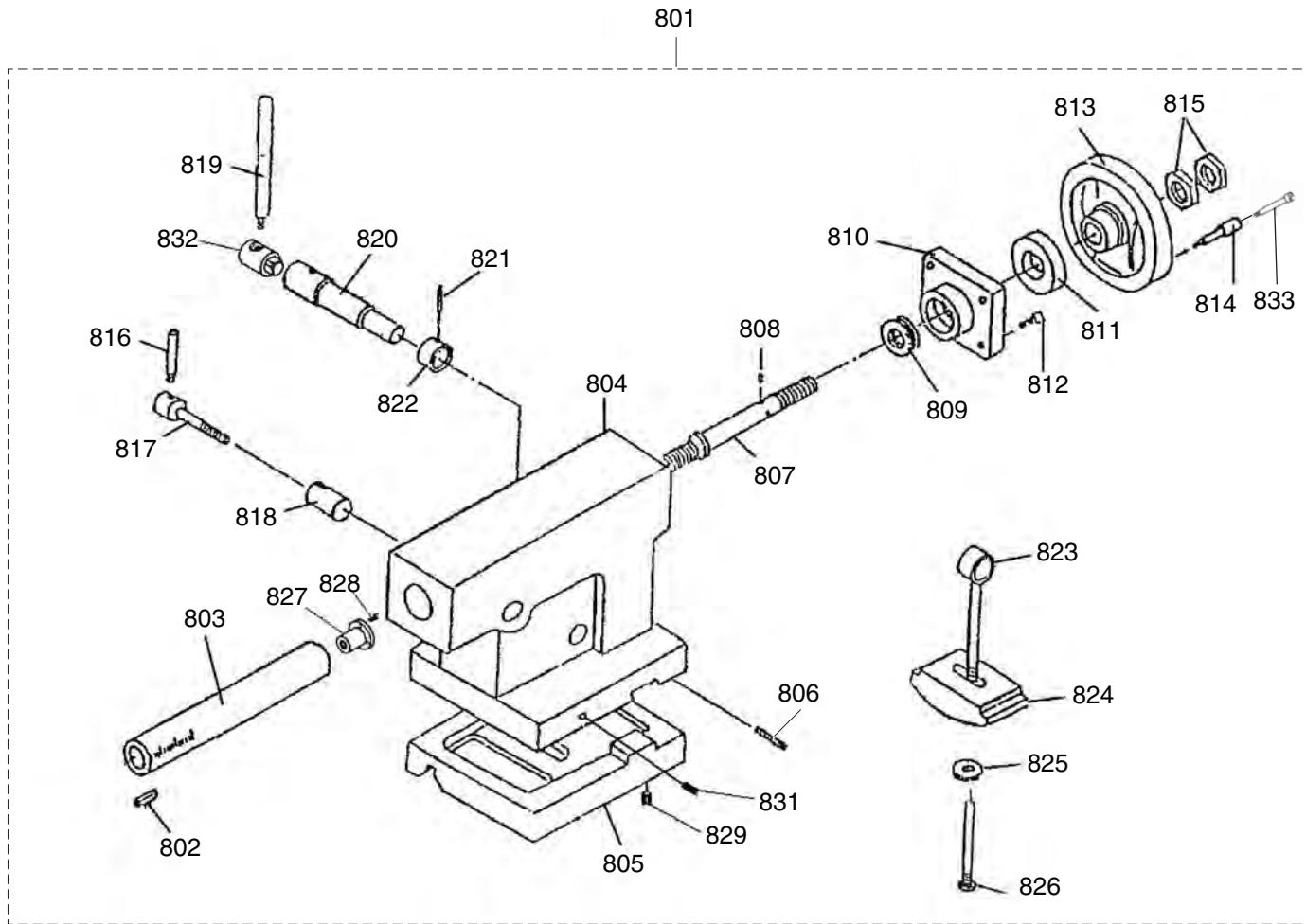
701	P0750GV0701	TOOL POST HANDLE M12-1.75 X 8
702	P0750GV0702	TOOL POST HANDLE HUB
703	P0750GV0703	TOOL POST BUSHING
704	P0750GV0704	QUICK CHANGE TOOL POST BLOCK
705	P0750GV0705	TOOL POST BOLT M16-1.5 X 35
706	P0750GV0706	BALL OILER 8MM PRESS-IN
707	P0750GV0707	COMPOUND REST
708	P0750GV0708	THRUST BEARING 8101
709	P0750GV0709	HANDWHEEL BRACKET
710	P0750GV0710	CAP SCREW M6-1 X 25
711	P0750GV0711	GRADUATED DIAL
712	P0750GV0712	HANDWHEEL
713	P0750GV0713	BACKLASH ADJ. NUT
714	P0750GV0714	SET SCREW M5-.8 X 6
715	P0750GV0715	HANDLE LARGE M5-.8 X 10 50L
716	P0750GV0716	COMPRESSION SPRING
717	P0750GV0717	STEEL BALL 4MM
718	P0750GV0718	KEY 4 X 4 X 10
719	P0750GV0719	COMPOUND REST LEADScrew

REF PART # DESCRIPTION

720	P0750GV0720	GIB SCREW
721	P0750GV0721	COMPOUND REST LEADScrew NUT
722	P0750GV0722	HEX NUT M6-1
723	P0750GV0723	SET SCREW M6-1 X 16
724	P0750GV0724	SWIVEL SLIDE
725	P0750GV0725	FLAT WASHER 8MM
726	P0750GV0726	HEX NUT M8-1.25
727	P0750GV0727	COMPOUND REST GIB
728	P0750GV0728	SET SCREW M6-1 X 8
730	P0750GV0730	COMPRESSION SPRING
731	P0750GV0731	ALIGNMENT PIN
732	P0750GV0732	SET SCREW M10-1.5 X 14 DOG-PT
733	P0750GV0733	FLANGE NUT M16-1.5
734	P0750GV0734	SHOULDER SCR M8-1.25 X 8, 6 X 34
735	P0750GV0735	SET SCREW M10-1 X 45
736	P0750GV0736	KNURLED THUMB NUT M10-1
737	P0750GV0737	WAVY WASHER 10MM
738	P0750GV0738	HEX NUT M10-1
739	P0750GV0739	TOOL HOLDER



Tailstock Parts List



REF PART # DESCRIPTION

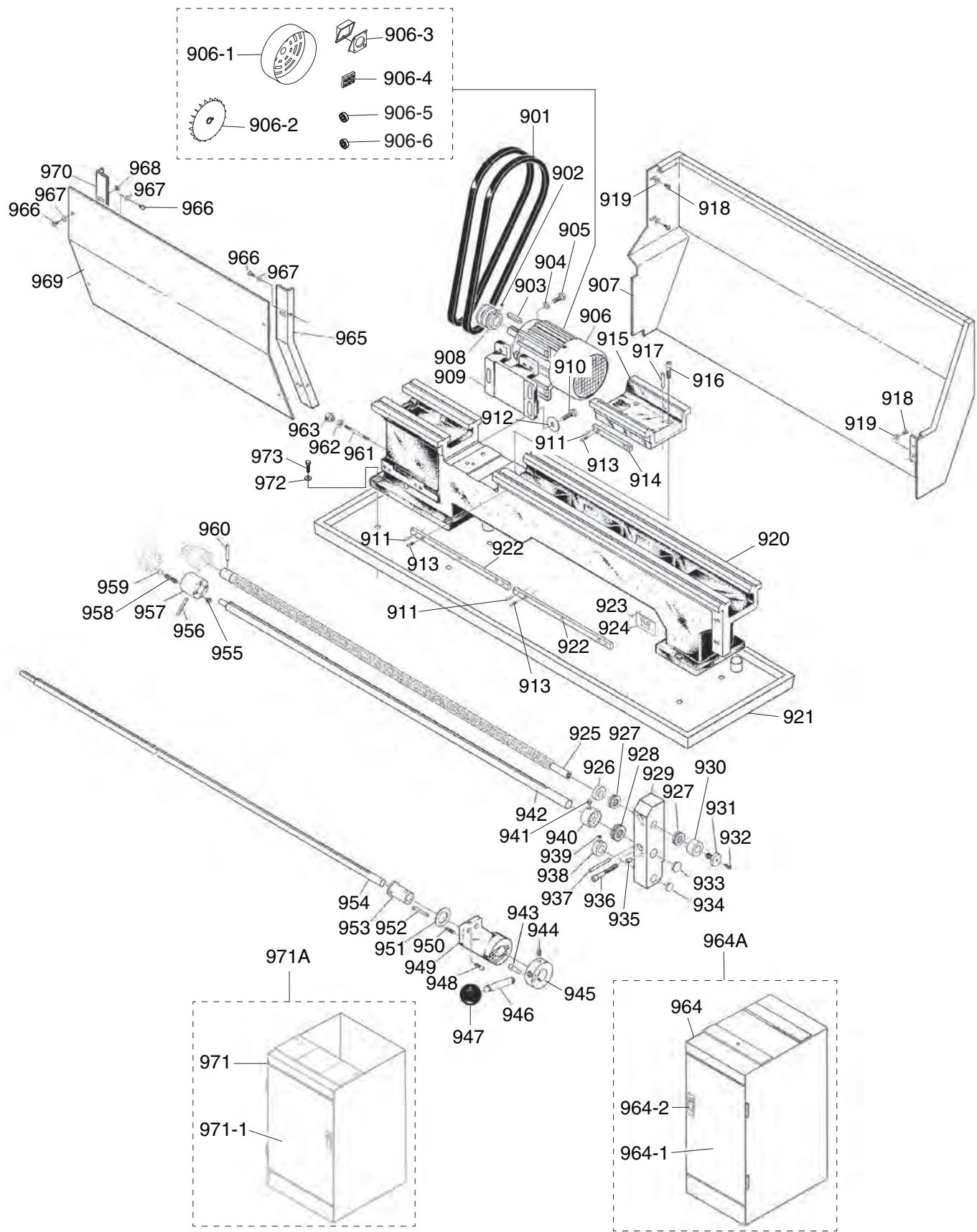
801	P0750GV0801	TAILSTOCK ASSEMBLY
802	P0750GV0802	KEY 8 X 8 X 30
803	P0750GV0803	TAILSTOCK QUILL
804	P0750GV0804	TAILSTOCK BODY
805	P0750GV0805	CLAMPING BASE
806	P0750GV0806	SET SCREW M10-1.5 X 50
807	P0750GV0807	QUILL LEADSCREW
808	P0750GV0808	ROLL PIN 4 X 10
809	P0750GV0809	THRUST BEARING 8101
810	P0750GV0810	HANDWHEEL BRACKET
811	P0750GV0811	GRADUATED DIAL
812	P0750GV0812	CAP SCREW M6-1 X 20
813	P0750GV0813	QUILL HANDWHEEL
814	P0750GV0814	HOLLOW HANDLE 16 X 22, 75
815	P0750GV0815	HEX NUT M12-1.75
816	P0750GV0816	QUILL LOCK HANDLE M12-1.75 X 16 170L

REF PART # DESCRIPTION

817	P0750GV0817	QUILL LOCK BOLT
818	P0750GV0818	LOCK SHAFT
819	P0750GV0819	TAILSTOCK LOCK HANDLE M10-1.5 X 12 90L
820	P0750GV0820	TAILSTOCK LOCK SHAFT
821	P0750GV0821	ROLL PIN 5 X 30
822	P0750GV0822	LOCK COLLAR
823	P0750GV0823	CLAMP BOLT 3-7/8"
824	P0750GV0824	CLAMP SHOE
825	P0750GV0825	FLAT WASHER 12MM
826	P0750GV0826	BASE BLOCK BOLT M12-1.75 X 110
827	P0750GV0827	QUILL LEADSCREW NUT
828	P0750GV0828	CAP SCREW M4-.7 X 10
829	P0750GV0829	SET SCREW M6-1 X 30
831	P0750GV0831	SET SCREW M8-1.25 X 50
832	P0750GV0832	HANDLE BASE
833	P0750GV0833	SHOULDER SCR M8-1.25 X 8



Lathe Bed & Motor

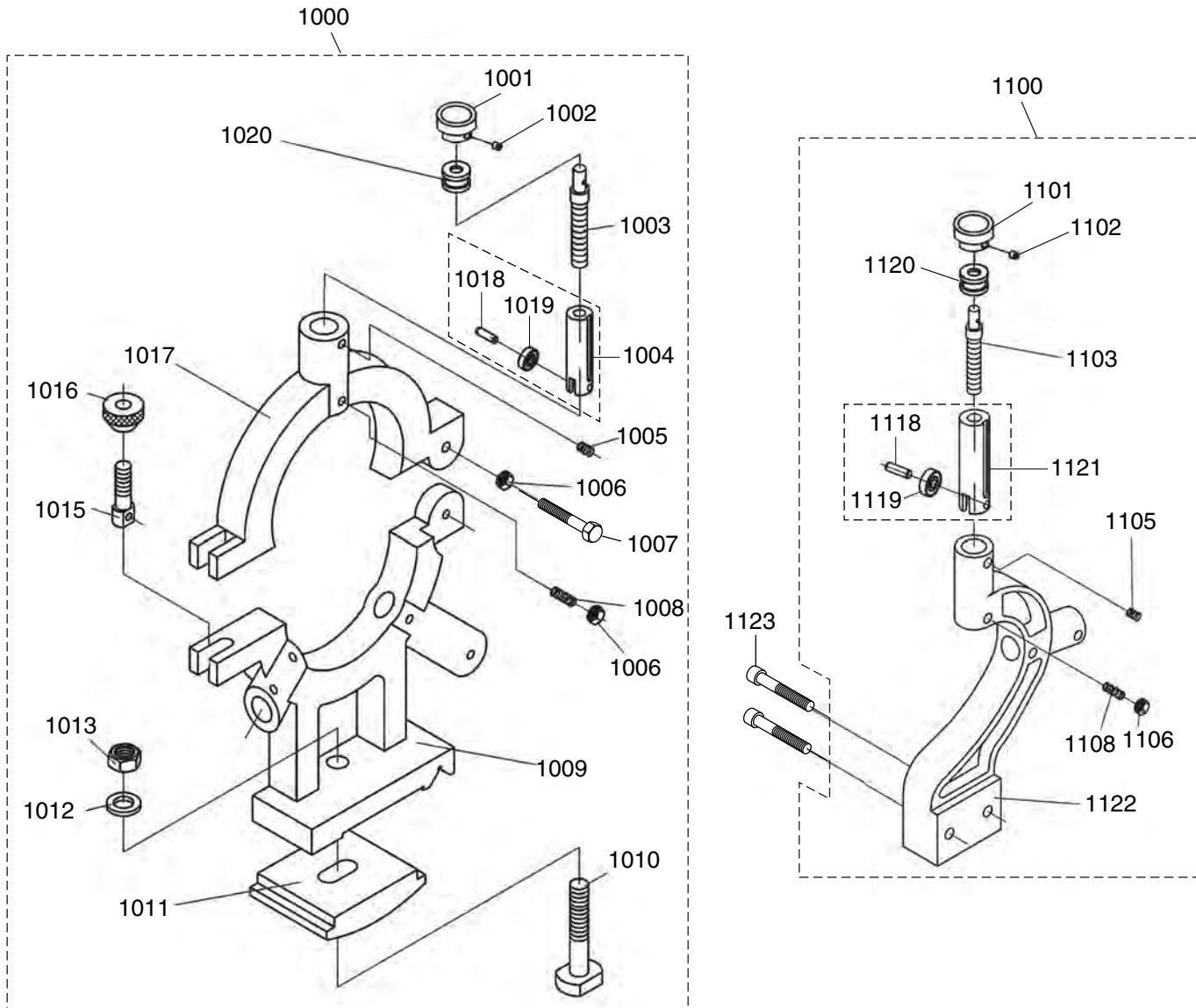


Lathe Bed & Motor Parts List

REF	PART #	DESCRIPTION	REF	PART #	DESCRIPTION
901	P0750GV0901	V-BELT V13 X 795	937	P0750GV0937	TAPER PIN 5 X 60
902	P0750GV0902	SET SCREW M5-.8 X 10	938	P0750GV0938	LOCK COLLAR
903	P0750GV0903	KEY 8 X 8 X 20	939	P0750GV0939	SET SCREW M6-1 X 8
904	P0750GV0904	FLAT WASHER 10MM	940	P0750GV0940	LOCKING BEARING COVER
905	P0750GV0905	HEX BOLT M10-1.5 X 25	941	P0750GV0941	SET SCREW M8-1.25 X 10
906	P0750GV0906	MOTOR 2HP 220V 3-PH	942	P0750GV0942	FEED ROD
906-1	P0750GV0906-1	MOTOR FAN COVER	943	P0750GV0943	INDEX LUG PIN
906-2	P0750GV0906-2	MOTOR FAN	944	P0750GV0944	SET SCREW M8-1.25 X 16 DOG-PT
906-3	P0750GV0906-3	MOTOR JUNCTION BOX	945	P0750GV0945	RETAINER LOCK COLLAR
906-4	P0750GV0906-4	MOTOR TERMINAL BLOCK	946	P0750GV0946	SPINDLE ON/OFF LEVER
906-5	P0750GV0906-5	BALL BEARING 6205ZZ (FRONT)	947	P0750GV0947	BALL KNOB M10-1.5 ROUND
906-6	P0750GV0906-6	BALL BEARING 6205ZZ (REAR)	948	P0750GV0948	CAP SCREW M6-1 X 16
907	P0750GV0907	SPLASH GUARD	949	P0750GV0949	HOUSING
908	P0750GV0908	MOTOR PULLEY	950	P0750GV0950	COMPRESSION SPRING 1 X 6 X 20
909	P0750GV0909	MOTOR MOUNT	951	P0750GV0951	THRUST WASHER
910	P0750GV0910	HEX BOLT M10-2.5 X 30	952	P0750GV0952	KEY 4 X 4 X 40
911	P0750GV0911	ROLL PIN 5 X 25	953	P0750GV0953	FLANGED SLEEVE
912	P0750GV0912	FLAT WASHER 10MM	954	P0750GV0954	CONTROL ROD
913	P0750GV0913	CAP SCREW M6-1 X 25	955	P0750GV0955	SET SCREW M8-1.25 X 10 CONE-PT
914	P0750GV0914	GAP RACK	956	P0750GV0956	ROLL PIN 5 X 40
915	P0750GV0915	GAP INSERT	957	P0750GV0957	CLUTCH ASSEMBLY
916	P0750GV0916	CAP SCREW M10-1.5 X 45	958	P0750GV0958	COMPRESSION SPRING
917	P0750GV0917	THREADED TAPER PIN 8 X 45	959	P0750GV0959	STEEL BALL 6MM
918	P0750GV0918	PHLP HD SCR M6-1 X 10	960	P0750GV0960	SHEAR PIN
919	P0750GV0919	FLAT WASHER 6MM	961	P0750GV0961	STUD-UDE M10-1.5 X 145, 35, 25
920	P0750GV0920	LATHE BED	962	P0750GV0962	HEX NUT M10-1.5
921	P0750GV0921	CHIP PAN	963	P0750GV0963	KNURLED KNOB M10-1.5
922	P0750GV0922	RACK 16-1/2" LONG 1PC	964A	P0750GV0964A	STAND ASSY (RIGHT)
923	P0750GV0923	RIVET 2 X 5MM STEEL FLUTED	964	P0750GV0964	STAND BASE (RIGHT)
924	P0750GV0924	INFORMATION PLATE	964-1	P0750GV0964-1	STAND DOOR (RIGHT)
925	P0750GV0925	LONGITUDINAL LEADSCREW	964-2	P0750GV0964-2	DOOR LATCH
926	P0750GV0926	SLEEVE	965	P0750GV0965	PANEL BRACKET (RIGHT)
927	P0750GV0927	THRUST BEARING 8102	966	P0750GV0966	PHLP HD SCR M5-.8 x 8
928	P0750GV0928	THRUST BEARING 8104	967	P0750GV0967	FLAT WASHER 5MM
929	P0750GV0929	HOUSING	968	P0750GV0968	HEX NUT M5-.8
930	P0750GV0930	BEARING COVER	969	P0750GV0969	CENTER PANEL
931	P0750GV0931	SHOULDER FLANGE SCREW	970	P0750GV0970	PANEL BRACKET (LEFT)
932	P0750GV0932	SET SCREW M6-1 X 20 CONE-PT	971A	P0750GV0971A	STAND ASSY (LEFT)
933	P0750GV0933	END PLUG 20MM	971	P0750GV0971	STAND BASE (LEFT)
934	P0750GV0934	END PLUG 20MM	971-1	P0750GV0971-1	STAND DOOR (LEFT)
935	P0750GV0935	BALL OILER 6MM PRESS-IN	972	P0750GV0972	FLAT WASHER 14MM
936	P0750GV0936	CAP SCREW M8-1.25 X 60	973	P0750GV0973	HEX BOLT M14-2 X 45



Steady & Follow Rest Assemblies

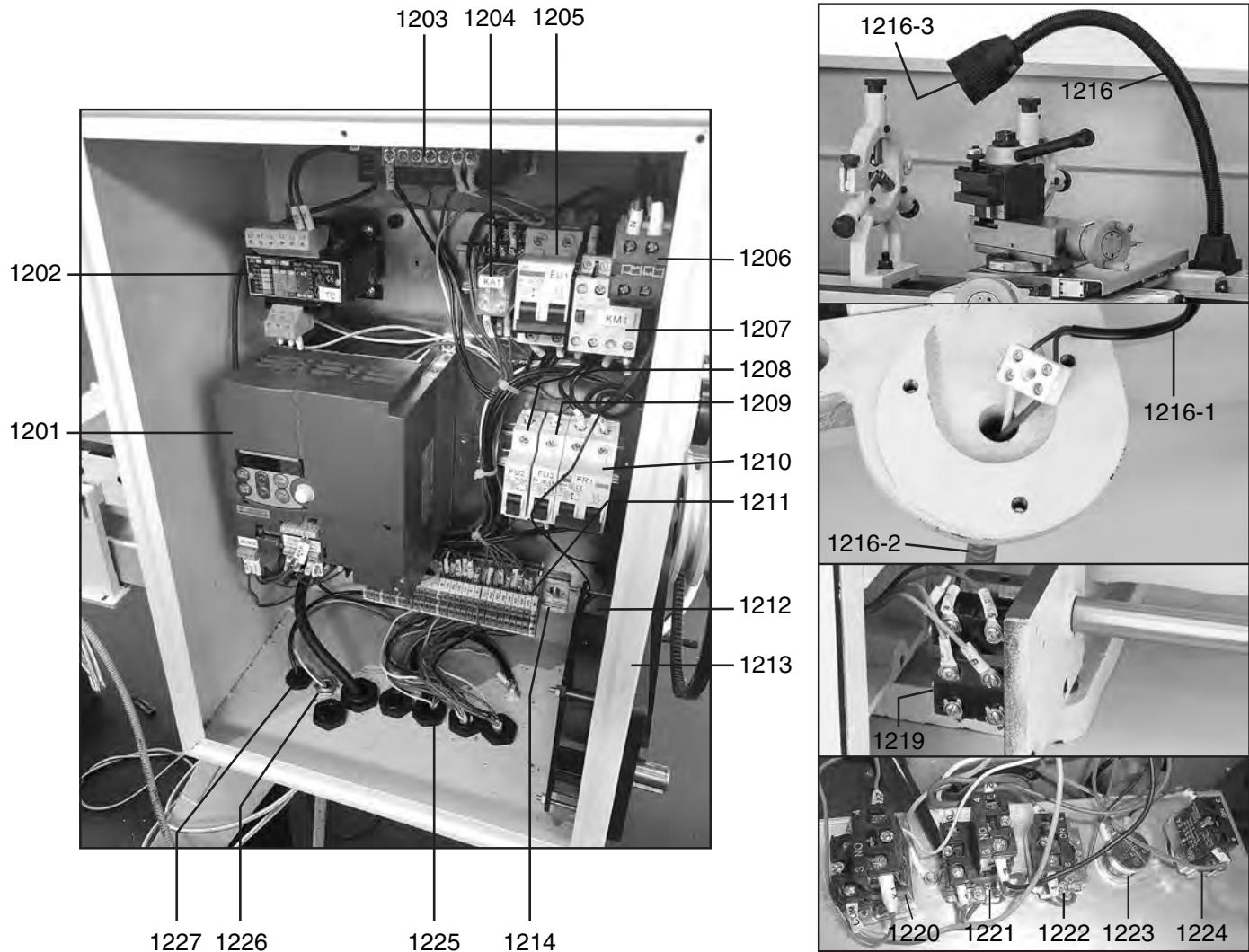


REF	PART #	DESCRIPTION
1000	P0750GV1000	STEADY REST ASSY
1001	P0750GV1001	KNURLED FINGER KNOB
1002	P0750GV1002	SET SCREW M6-1 X 6 CONE-PT
1003	P0750GV1003	FINGER ADJUSTMENT SCREW
1004	P0750GV1004	FINGER 3" W/BEARING ASSEMBLY
1005	P0750GV1005	SET SCREW M6-1 X 8
1006	P0750GV1006	HEX NUT M6-1
1007	P0750GV1007	HEX BOLT M6-1 X 30
1008	P0750GV1008	SET SCREW M6-1 X 16 DOG-PT
1009	P0750GV1009	LOWER STEADY REST CASTING
1010	P0750GV1010	T-BOLT M12-1.75 X 75
1011	P0750GV1011	CLAMP PLATE
1012	P0750GV1012	FLAT WASHER 12MM
1013	P0750GV1013	HEX NUT M12-1.75
1015	P0750GV1015	LOCK BOLT M10-1.5 X 18
1016	P0750GV1016	KNURLED THUMB KNOB M10-1.5
1017	P0750GV1017	UPPER BODY CASTING

REF	PART #	DESCRIPTION
1018	P0750GV1018	DOWEL PIN 5 X 16
1019	P0750GV1019	BALL BEARING 625ZZ
1020	P0750GV1020	BUSHING
1100	P0750GV1100	FOLLOW REST ASSY
1101	P0750GV1101	KNURLED FINGER KNOB
1102	P0750GV1102	SET SCREW M6-1 X 6 CONE-PT
1103	P0750GV1103	FINGER ADJUSTMENT SCREW
1105	P0750GV1105	SET SCREW M6-1 X 8
1106	P0750GV1106	HEX NUT M6-1
1108	P0750GV1108	SET SCREW M6-1 X 16 DOG-PT
1118	P0750GV1118	DOWEL PIN 5 X 16
1119	P0750GV1119	BALL BEARING 625ZZ
1120	P0750GV1120	BUSHING
1121	P0750GV1121	FINGER 3" W/BEARING ASSEMBLY
1122	P0750GV1122	FOLLOW REST CASTING
1123	P0750GV1123	CAP SCREW M8-1.25 X 35



Electrical Components



REF PART # DESCRIPTION

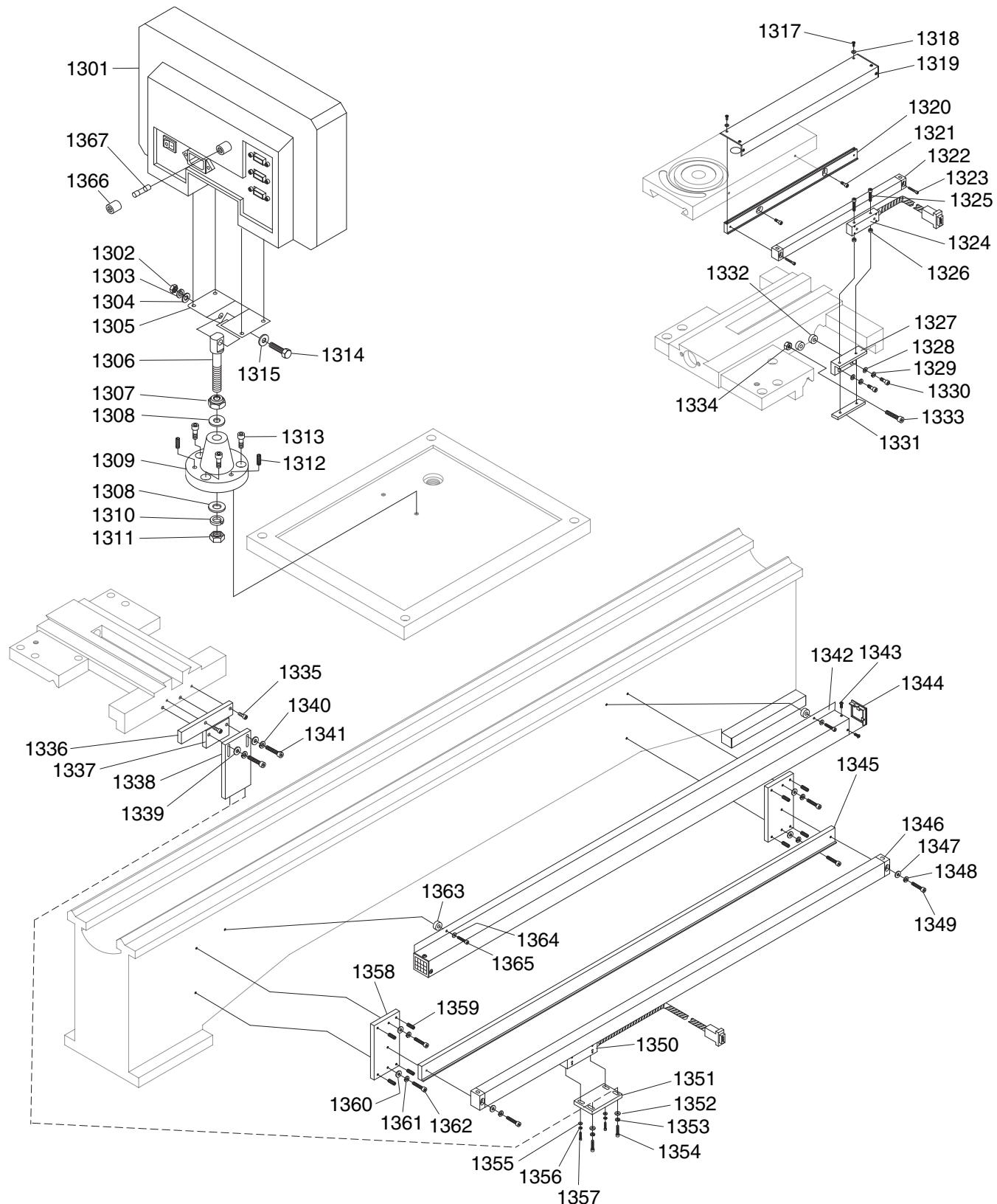
1201	P0750GV1201	VFD FUJI FRN0012C2S-7C 24A
1202	P0750GV1202	TRANSFORMER JBK 5-63
1203	P0750GV1203	SPINDLE TACHOMETER JDMS 4X1
1204	P0750GV1204	RELAY E&E HH54P-FL
1205	P0750GV1205	CIRCUIT BREAKER HUILONG DZ451-63 D1
1206	P0750GV1206	ROTARY ON/OFF SWITCH
1207	P0750GV1207	CONTACTOR SIEMENS 22E FM1
1208	P0750GV1208	CIRCUIT BREAKER HUILONG DZ451-63 C2
1209	P0750GV1209	CIRCUIT BREAKER HUILONG DZ451-63 C2
1210	P0750GV1210	CIRCUIT BREAKER HUILONG DZ451-63 D14
1211	P0750GV1211	TERMINAL BAR 30P
1212	P0750GV1212	ELECTRICAL BOX FAN TIDAR 12038 24V
1213	P0750GV1213	ELECTRICAL BOX
1214	P0750GV1214	ELECTRICAL MOUNTING PLATE

REF PART # DESCRIPTION

1215	P0750GV1215	WORK LIGHT TERMINAL BLOCK 2P
1216	P0750GV1216	WORK LIGHT ASSY
1216-1	P0750GV1216-1	WORK LIGHT CORD 22G 2W 24"
1216-2	P0750GV1216-2	CONDUIT 1/2" X 56"
1216-3	P0750GV1216-3	LED BULB 24V MR16 (1W X 3)
1219	P0750GV1219	SPINDLE LIMIT SWITCH
1220	P0750GV1220	RESET MINGER LAH125-BW3361
1221	P0750GV1221	POWER MINGER LAH125-BW3361
1222	P0750GV1222	E-STOP MINGER LAH125-BS542
1223	P0750GV1223	SPINDLE SPEED DIAL RV24YN 20S
1224	P0750GV1224	JOG MINGER LA125-BA21
1225	P0750GV1225	STRAIN RELIEF TYPE-3 M20-1.5
1226	P0750GV1226	STRAIN RELIEF TYPE-7 1/2 NPT
1227	P0750GV1227	STRAIN RELIEF TYPE-3 M16-1.5



Digital Readout



Digital Readout Parts

REF PART # DESCRIPTION

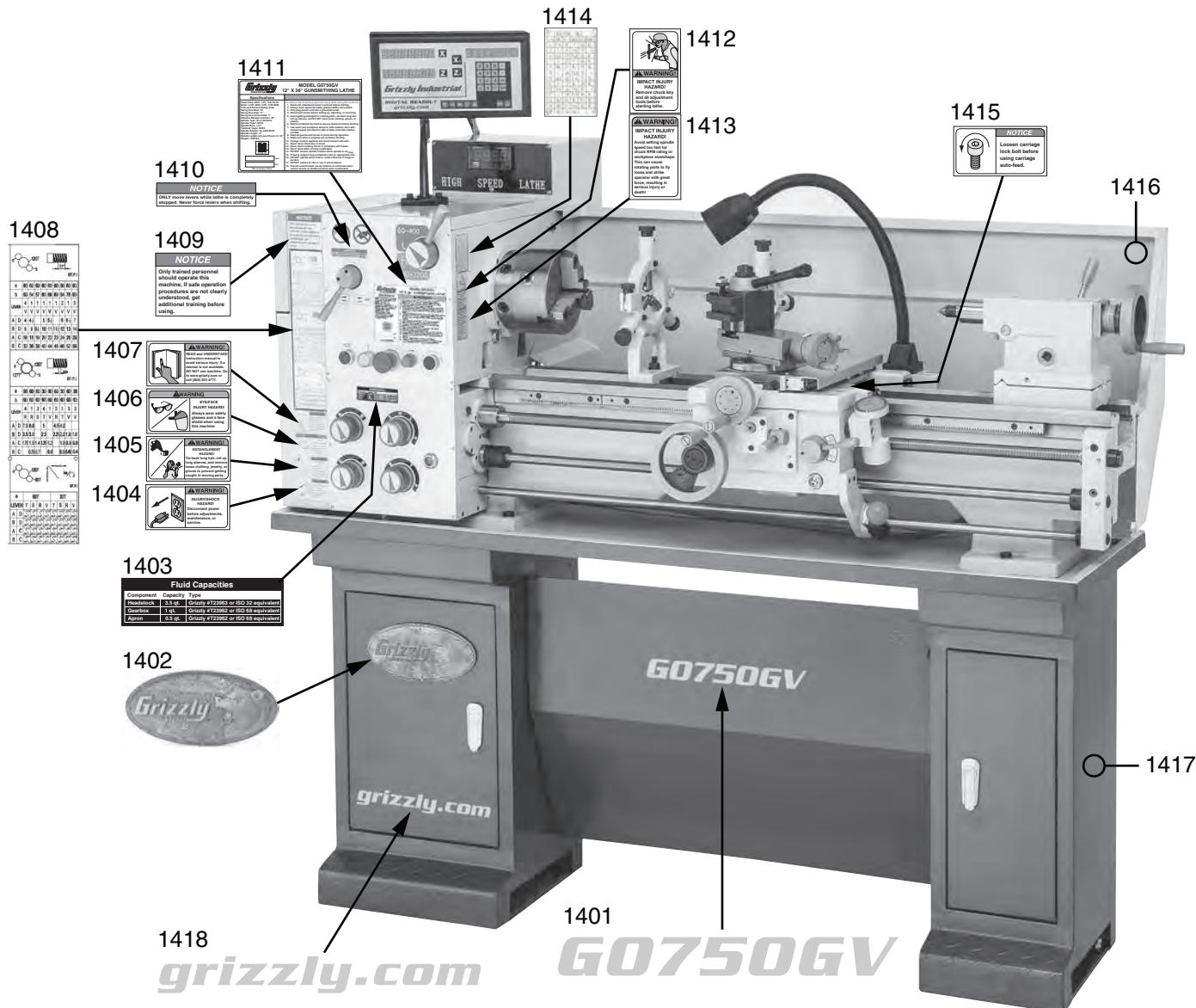
1301	P0750GV1301	DRO DISPLAY
1302	P0750GV1302	HEX NUT M8-1.25
1303	P0750GV1303	LOCK WASHER 8MM
1304	P0750GV1304	FLAT WASHER 8MM
1305	P0750GV1305	DISPLAY MOUNT PLATE
1306	P0750GV1306	DISPLAY MOUNT POST
1307	P0750GV1307	LOCK NUT M10-1.5
1308	P0750GV1308	FLAT WASHER 10MM
1309	P0750GV1309	DISPLAY MOUNT BASE
1310	P0750GV1310	LOCK WASHER 10MM
1311	P0750GV1311	HEX NUT M10-1.5
1312	P0750GV1312	SET SCREW M6-1 X 20
1313	P0750GV1313	CAP SCREW M8-1.25 X 22
1314	P0750GV1314	HEX BOLT M8-1.25 X 60
1315	P0750GV1315	FLAT WASHER 8MM
1317	P0750GV1317	PHLP HD SCR M4-7 X 8
1318	P0750GV1318	FLAT WASHER 4MM
1319	P0750GV1319	DRO CROSS SLIDE SENSOR COVER
1320	P0750GV1320	DRO CROSS SLIDE ADAPTER PLATE
1321	P0750GV1321	CAP SCREW M5-.8 X 10
1322	P0750GV1322	DRO CROSS SLIDE SENSOR 345MM
1323	P0750GV1323	CAP SCREW M4-7 X 14
1324	P0750GV1324	X-AXIS DRO SENSOR W/BNC CONNECTOR
1325	P0750GV1325	CAP SCREW M4-7 X 35
1326	P0750GV1326	SPACER 4.8 X 6 X 18OD
1327	P0750GV1327	SADDLE ADAPTER PLATE
1328	P0750GV1328	FLAT WASHER 5MM
1329	P0750GV1329	LOCK WASHER 5MM
1330	P0750GV1330	CAP SCREW M5-.8 X 25
1331	P0750GV1331	DRO ATTACHMENT PLATE
1332	P0750GV1332	SPACER
1333	P0750GV1333	CAP SCREW M6-1 X 70
1334	P0750GV1334	HEX NUT M6-1

REF PART # DESCRIPTION

1335	P0750GV1335	CAP SCREW M6-1 X 20
1336	P0750GV1336	LAMP MOUNTING PLATE
1337	P0750GV1337	DRO SPACER PLATE
1338	P0750GV1338	DRO SENSOR PLATE
1339	P0750GV1339	FLAT WASHER 6MM
1340	P0750GV1340	LOCK WASHER 6MM
1341	P0750GV1341	CAP SCREW M6-1 X 40
1342	P0750GV1342	DRO POSITION SENSOR COVER
1343	P0750GV1343	TAP SCREW M3 X 6
1344	P0750GV1344	END CAP
1345	P0750GV1345	DRO POSITION SENSOR MOUNTING PLATE
1346	P0750GV1346	DRO POSITION SENSOR 1146MM
1347	P0750GV1347	FLAT WASHER 5MM
1348	P0750GV1348	LOCK WASHER 5MM
1349	P0750GV1349	CAP SCREW M5-.8 X 30
1350	P0750GV1350	Z-AXIS DRO SENSOR W/BNC CONNECTOR
1351	P0750GV1351	DRO SENSOR BRACKET
1352	P0750GV1352	FENDER WASHER 6MM
1353	P0750GV1353	LOCK WASHER 6MM
1354	P0750GV1354	CAP SCREW M6-1 X 25
1355	P0750GV1355	FENDER WASHER 4MM
1356	P0750GV1356	LOCK WASHER 4MM
1357	P0750GV1357	CAP SCREW M4-.7 X 13
1358	P0750GV1358	DRO ADAPTER PLATE
1359	P0750GV1359	SET SCREW M5-.8 X 16
1360	P0750GV1360	FLAT WASHER 5MM
1361	P0750GV1361	LOCK WASHER 5MM
1362	P0750GV1362	CAP SCREW M5-.8 X 25
1363	P0750GV1363	SPACER 5.2 X 6 X 18OD
1364	P0750GV1364	FLAT WASHER 5MM
1365	P0750GV1365	CAP SCREW M5-.8 X 16
1366	P0750GV1366	FUSE CAP
1367	P0750GV1367	FUSE 0.5A 250V FAST-ACTING, GLASS, 0.18"



Labels & Cosmetics, Front


REF PART # DESCRIPTION

1401	P0750GV1401	MODEL NUMBER LABEL
1402	P0750GV1402	GRIZZLY NAMEPLATE (SMALL)
1403	P0750GV1403	FLUID CAPACITIES LABEL
1404	P0750GV1404	DISCONNECT POWER LABEL
1405	P0750GV1405	ENTANGLEMENT WARNING LABEL
1406	P0750GV1406	FACESHIELD/GLASSES LABEL
1407	P0750GV1407	READ MANUAL LABEL
1408	P0750GV1408	FEED & THREAD CHART
1409	P0750GV1409	TRAINED OPERATORS NOTICE LABEL

REF PART # DESCRIPTION

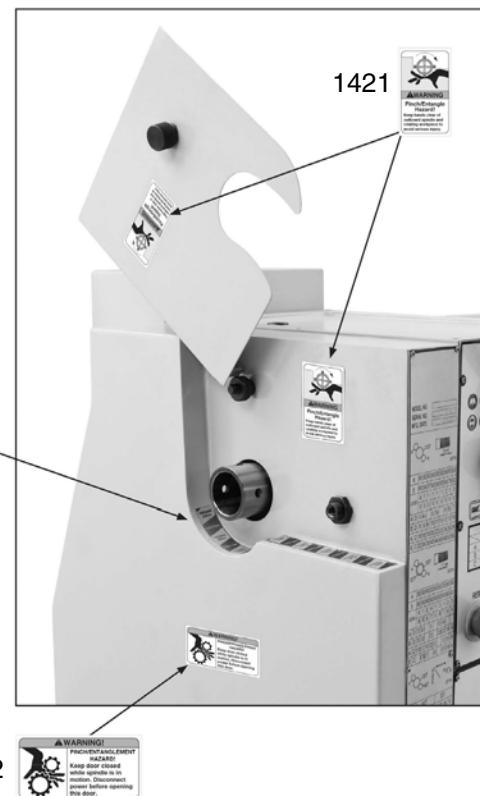
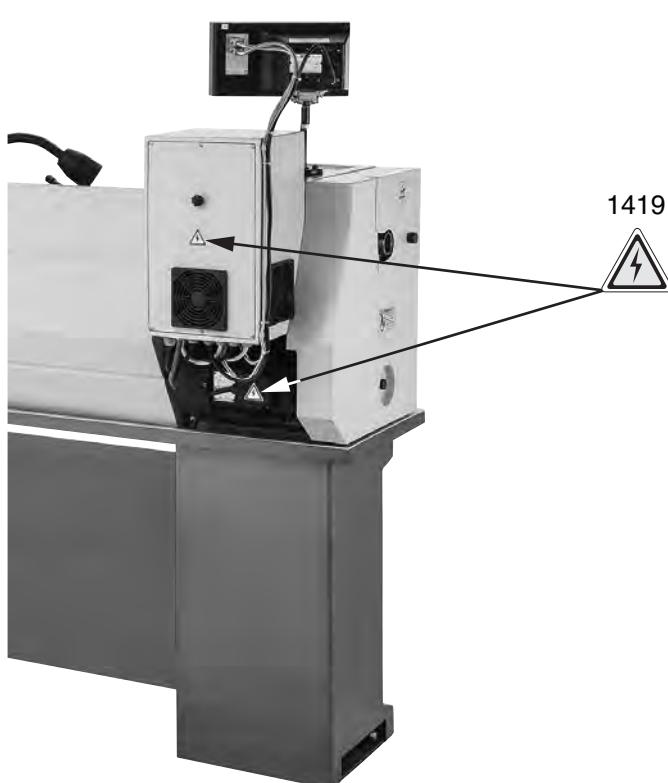
1410	P0750GV1410	LEVERS NOTICE LABEL
1411	P0750GV1411	MACHINE ID LABEL
1412	P0750GV1412	IMPACT INJURY WARNING LABEL
1413	P0750GV1413	SPINDLE SPEED WARNING LABEL
1414	P0750GV1414	THREAD DIAL CHART
1415	P0750GV1415	CARRIAGE LOCK BOLT NOTICE
1416	P0750GV1416	TOUCH-UP PAINT, GRIZZLY PUTTY
1417	P0750GV1417	TOUCH-UP PAINT, GRIZZLY GREEN
1418	P0750GV1418	GRIZZLY.COM LABEL

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.



Labels & Cosmetics, Rear & Side


REF PART # DESCRIPTION

1419	P0750GV1419	ELECTRICITY LABEL
1420	P0750GV1420	HAZARD AREA-CAUTION LABEL

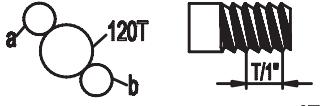
REF PART # DESCRIPTION

1421	P0750GV1421	SPIDER ENTANGLEMENT LABEL
1422	P0750GV1422	END GEAR ENTANGLEMENT LABEL



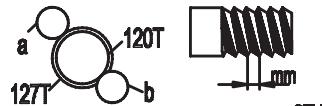
SECTION 10: APPENDIX

Threading & Feed Charts



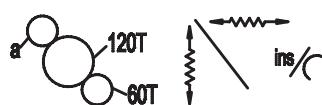
8T.P.I

a	60	60	60	60	60	60	56	60	60	
b	60	54	57	60	66	69	54	78	63	
LEVER	4	1	1	1	1	1	2	1	3	
	V	V	V	V	V	V	V	V	V	
A	D	4	4½		5	5½	6	6½	7	
B	D	8	9	9½	10	11	11½	12	13	14
A	C	16	18	19	20	22	23	24	26	28
B	C	32	36	38	40	44	46	48	52	56



8T.P.I

a	56	60	60	30	60	60	30	60	56	
b	60	60	60	60	60	60	60	60	63	
LEVER	4	1	3	4	1	3	1	3	3	
	R	R	S	T	V	R	T	V	V	
A	D	7.0	6.0		5		4.5	4.0		
B	D	3.5	3.0		2.5		2.25	2.0	1.8	1.6
A	C	1.75	1.5	1.4	1.25	1.2		1.0	0.9	0.8
B	C		0.75	0.7		0.6		0.5	0.45	0.4



8T.P.I

a	60T				30T				
LEVER	T	S	R	V	T	S	R	V	
A	D	.0548 .0187	.0512 .0175	.0411 .0140	.0328 .0112	.0274 .0094	.0256 .0087	.0205 .0070	.0164 .0056
B	D	.0274 .0094	.0256 .0087	.0205 .0070	.0164 .0056	.0137 .0047	.0128 .0044	.0102 .0035	.0082 .0028
A	C	.0137 .0047	.0128 .0044	.0102 .0035	.0082 .0028	.0069 .0024	.0064 .0022	.0055 .0017	.0044 .0014
B	C	.0069 .0024	.0064 .0022	.0051 .0017	.0041 .0014	.0034 .0012	.0031 .0011	.0025 .0009	.0020 .0007





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
 Card Deck

Friend
 Website

Catalog
 Other:

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

Cabinetmaker & FDM
 Family Handyman
 Hand Loader
 Handy
 Home Shop Machinist
 Journal of Light Cont.
 Live Steam
 Model Airplane News
 Old House Journal
 Popular Mechanics

Popular Science
 Popular Woodworking
 Precision Shooter
 Projects in Metal
 RC Modeler
 Rifle
 Shop Notes
 Shotgun News
 Today's Homeowner
 Wood

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

3. What is your annual household income?

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

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

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

4. What is your age group?

20-29
 50-59

30-39
 60-69

40-49
 70+

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

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

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

0-2 3-5 6-9 10+

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

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

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

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

10. Comments: _____

CUT ALONG DOTTED LINE

FOLD ALONG DOTTED LINE



Place
Stamp
Here



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



FOLD ALONG DOTTED LINE

Send a Grizzly Catalog to a friend:

Name _____
Street _____
City _____ State _____ Zip _____

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

WARRANTY & RETURNS

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

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

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

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

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

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



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Current Specials!*

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