MODEL G0510Z
1 HP SHAPER
OWNER'S MANUAL
(For models manufactured since 11/21)

C US
208624

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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.

Table of Contents

INTRODUCTION

Contact Info

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

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

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

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

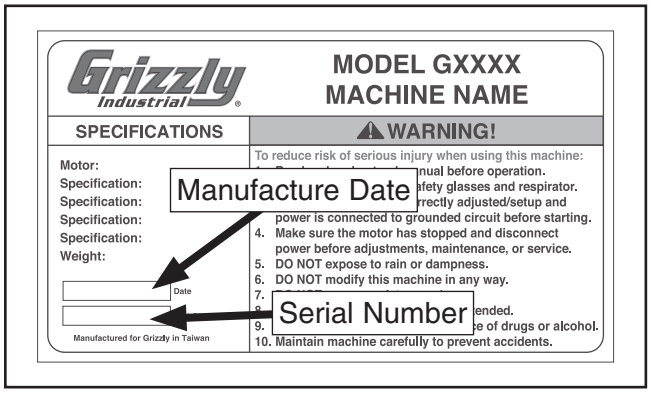
Manual Accuracy

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**.

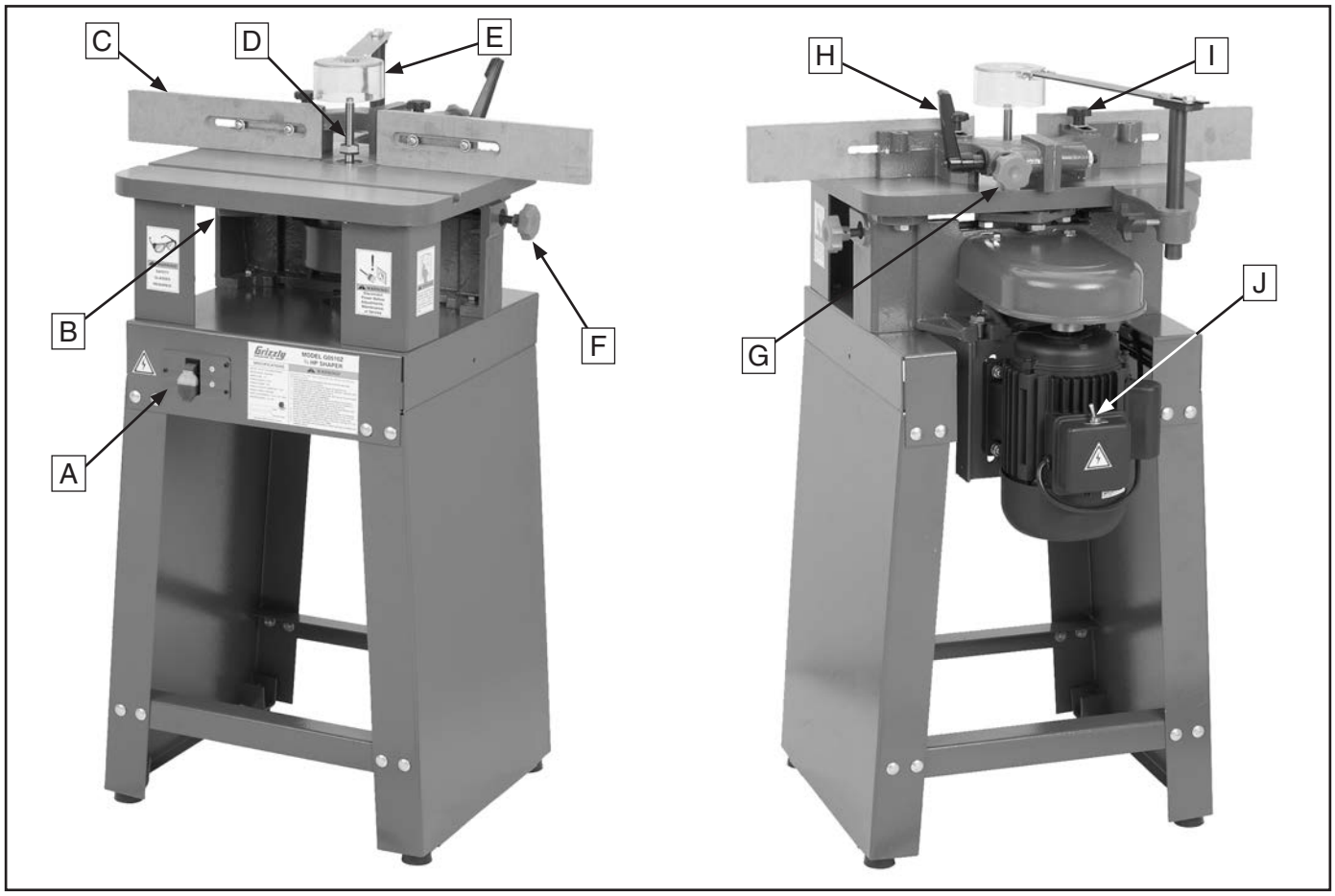
If you find this to be the case, and the difference between the manual and machine leaves you confused or unsure about something, check our website for an updated version. We post current manuals and manual updates for free on our website at **www.grizzly.com**.

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

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



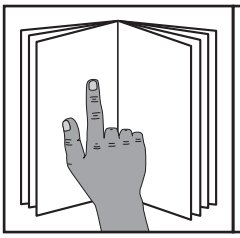
A. ON/OFF Paddle Switch w/Removable Key
B. Spindle Elevation Lever
C. Fence
D. Spindle
E. Cutterhead Guard
F. Spindle Elevation Lock Knob
G. Fence Offset Knob
H. Fence Offset Lock Lever
I. Fence Lock Knob (1 of 2)
J. FOR/REV Switch

⚠WARNING

For Your Own Safety Read Instruction Manual Before Operating Shaper

a) Wear eye protection.
b) Always keep cutterhead guard in place and in proper operating condition.
c) Be sure keyed washer is directly under spindle nut and spindle nut is tight.
d) Feed workpiece AGAINST rotation of cutter.
e) Keep fingers away from revolving cutter–use fixtures when necessary.
f) Do not use awkward hand positions.

Controls & Components



⚠WARNING

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

Refer to the following figures and descriptions to become familiar with the basic controls and components of this machine. Understanding these items and how they work will help you understand the rest of the manual and minimize your risk of injury when operating this machine.

Work Area Controls

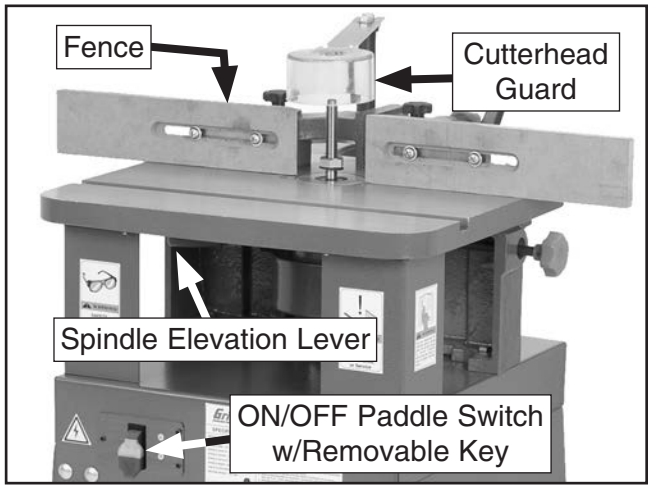


Figure 1. Work area components (front).

Fence: Each fence is independently adjustable side-to-side, front to back, removable for freehand shaping, and made of wood for tighter tolerances with cutterhead.

Cutterhead Guard: Adjusts to protect user from chips thrown by cutterhead and allows for a clear view of the workpiece cutting area.

Spindle Elevation Lever: Raises and lowers cutter to desired height.

ON/OFF Paddle Switch w/Removable Key: Turns machine ***ON***/***OFF*** and prevents accidental startup.

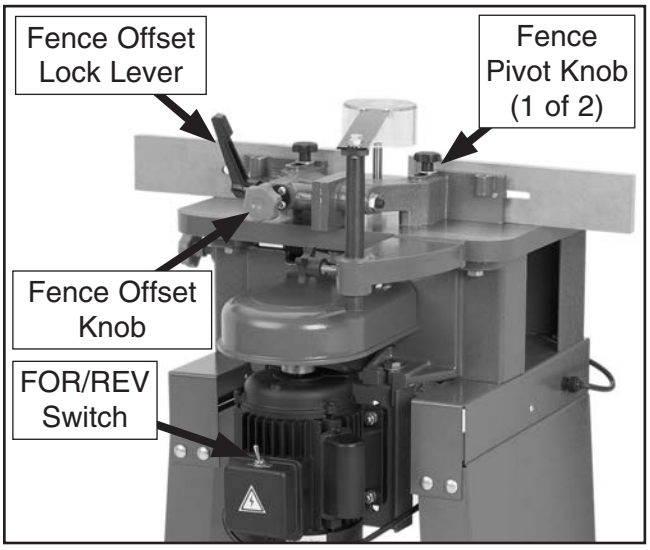


Figure 2. Work area components (rear).

Forward/Reverse (FOR/REV) Switch: Changes spindle direction for specific work applications. Switch is located on motor junction box.

Fence Offset Knob: Adjusts fence alignment.

Fence Offset Lock Lever: Locks fence alignment setting.

Fence Pivot Knobs: Tighten to lock fence position on table. Loosen to allow entire fence assembly to pivot around cutterhead opening.

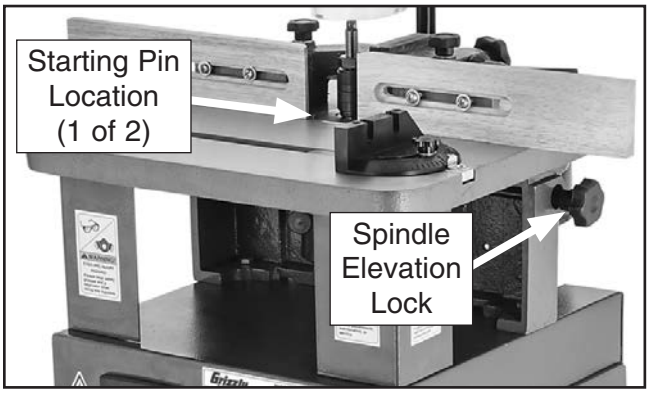


Figure 3. Other work area components.

Starting Pin (see Page 27): Supports workpiece during beginning of freehand cuts until workpiece contacts rub collar.

Spindle Elevation Lock: Locks spindle and bit height adjustments.

MACHINE DATA SHEET

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

MODEL G0510Z 1 HP SHAPER

Product Dimensions:

Weight	167 lbs.
Width (side-to-side) x Depth (front-to-back) x Height	27 x 23 x 40-1/4 in.
Footprint (Length x Width)	16-5/8 x 18-7/8 in.

Shipping Dimensions:

Type	Cardboard Box
Content	Machine
Weight	172 lbs.
Length x Width x Height	26 x 20 x 23 in.
Must Ship Upright	Yes

Electrical:

Power Requirement	120V, Single-Phase, 60 Hz
Full-Load Current Rating	13A
Minimum Circuit Size	15A
Connection Type	Cord & Plug
Power Cord Included	Yes
Power Cord Length	6 ft.
Power Cord Gauge	14 AWG
Plug Included	Yes
Included Plug Type	5-15
Switch Type	ON/OFF Paddle Switch w/Removable Key

Motors:

Main

Horsepower	1 HP
Phase	Single-Phase
Amps	13A
Speed	3450 RPM
Type	TEFC Capacitor-Start Induction
Power Transfer	Belt Drive
Bearings	Sealed & Permanently Lubricated
Centrifugal Switch/Contacts Type	Internal

Main Specifications:

Operation Info

Max. Cutter Height	2-5/8 in.
Max. Cutter Diameter	2-7/8 in.
Spindle Sizes	1/2 in.
Spindle Lengths	3 in.
Exposed Spindle Length	2-7/8 in.
Spindle Cap. Under the Nut	2-3/8 in.
Spindle Speeds	13,200 RPM
Spindle Travel	7/8 in.
Spindle Openings	1-3/8, 1-3/4, 3 in.

Table Info

Number of Table Inserts	1
Table Insert Sizes I.D.	1-3/8, 1-3/4 in.
Table Insert Sizes O.D.	3 in.
Table Counterbore Diameter	3 in.
Table Counterbore Depth	3/8 in.
Table Size Length	17-3/4 in.
Table Size Width	15-5/8 in.
Table Size Thickness	1-1/8 in.
Floor to Table Height	34-1/4 in.
Table Fence Length	26 in.
Table Fence Width	1/2 in.
Table Fence Height	2-3/4 in.

Miter Gauge Info

Miter Angle	0 – 60 deg. L/R
Miter Gauge Slot Type	Straight Slot
Miter Gauge Slot Width	3/4 in.
Miter Gauge Slot Height	7/16 in.

Construction

Table	Precision-Ground Cast Iron
Base	Pre-Formed Steel
Body Assembly	Cast Iron
Fence	Cast Iron with Wood
Miter Gauge	Plastic
Guard	Plastic
Spindle Bearings	Shielded & Permanently Lubricated
Paint Type/Finish	Powder Coated

Other

Mobile Base	D2260A

Other Specifications:

Country of Origin	China
Warranty	1 Year
Approximate Assembly & Setup Time	1-1/2 Hours
Serial Number Location	ID Label on Stand
Certified by a Nationally Recognized Testing Laboratory (NRTL)	Yes

Features:

Includes Miter Gauge and Starting Pins
Precision-Ground Cast-Iron Table
Green Powder-Coat Paint
Split Cast-Iron Fence Assembly, Independently Adjustable, with Wood Faces for Offset Profile Shaping
Shielded and Permanently Lubricated Spindle Bearings
Includes 1/4" and 1/2" Router Bit Adapter
ON/OFF Switch w/Removable Key
Reversing Switch
Cast-Iron Body Construction
Preformed Steel Stand

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

Safety Instructions for Machinery

⚠WARNING

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

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

⚠WARNING

Serious cuts, amputation, entanglement, or death can occur from contact with rotating cutter. Cutters or other parts improperly secured to spindle can fly off and strike nearby operators with great force. Flying debris can cause eye injuries or blindness. To minimize risk of getting hurt or killed, anyone operating shaper MUST completely heed hazards and warnings below.

AVOIDING CUTTER CONTACT: Keep unused portion of cutter below table. Use smallest table insert possible. Adjust fences and guards as close as practical to cutter, or use a zero-clearance fence or box guard. *Always keep some type of guard or other protective device between your hands and cutter at all times!*

PROTECT HANDS/FINGERS: While feeding workpiece, avoid awkward hand positions. Never pass hands directly over, or in front of, cutter. As one hand approaches a 6-inch radius point from cutter, move it in an arc motion away from cutter, and reposition it on the outfeed side.

FEEDING WORKPIECE: To reduce risk of accidental cutterhead contact, always use push blocks or some type of fixture, jig, or hold-down device to safely feed workpiece while cutting. Use an outfeed support table if shaping long workpieces to ensure proper support throughout entire cutting procedure. ALWAYS feed workpiece AGAINST rotation of cutter. NEVER start shaper with workpiece contacting cutter!

CUTTING DEPTH: Never attempt to remove too much material in one pass. Doing this increases risk of workpiece kickback. Instead, make several light passes—this is a safer way to cut and it leaves a cleaner finish.

WORKPIECE CONDITION: Shaping a workpiece with knots, holes, or foreign objects increases risk of kickback and cutter damage/breakage. Thoroughly inspect and prepare workpiece before shaping. Always "square up" a workpiece before shaping or flatten workpiece edges with a jointer or planer. Rough, warped, or wet workpieces increase risk of kickback.

CUTTER POSITIONING: Whenever possible, make shaping cuts with cutter on *underside* of workpiece to reduce operator exposure to cutter.

SMALL WORKPIECES: There is a high risk of accidental cutter contact with small workpieces, because they are closer to cutter and more difficult to control. To reduce your risk, only feed small workpieces using jigs or holding fixtures that allow your hands to stay safely away from cutter. When possible, shape longer stock and cut to size.

SAFE CUTTER CLEARANCES: Operator or bystanders may be hit by flying debris if cutter contacts fence, guard, or table insert upon startup. Always ensure any new cutter setup has proper cutter rotational clearance before startup.

SAFE CUTTER INSTALLATION: Improperly secured knives/inserts, cutters, or rub collars may become dangerous projectiles if they come loose. Always ensure keyed washer is directly under spindle nut and spindle nut is tight. If spindle does not use a keyed washer, always use two spindle nuts together, and ensure BOTH are tight. Never use cutters/bits rated for an RPM lower than spindle speed.

AVOIDING CLIMB CUTS: Feeding workpiece in same direction of cutter rotation is a "climb cut." Climb cutting can aggressively pull workpiece—and hands—into cutter. Always first verify direction of cutter rotation before starting, and always feed workpiece AGAINST cutter rotation.

SAFETY GUARDS. To reduce risk of unintentional contact with cutter, always ensure included cutter guard, or a properly dimensioned box guard, or some other type of guard is installed and correctly positioned before operation.

CONTOUR SHAPING: To reduce risk of unintentional cutter contact while freehand shaping or using a rub collar as a guide, always use an overhead or "ring" type guard. To reduce kickback risk, always use starting pin or pivot board when starting the cut. NEVER start shaping at a corner!

SECTION 2: POWER SUPPLY

Availability

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

⚠WARNING

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

Full-Load Current Rating

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

Full-Load Current Rating at 120V ..... 13 Amps

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

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

⚠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.

120V Circuit Requirements

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

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

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

⚠CAUTION

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

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

Grounding & Plug Requirements

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!

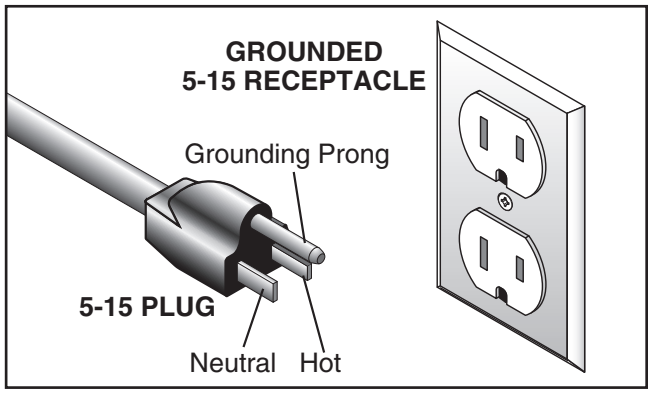
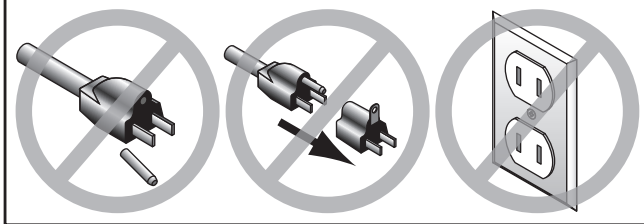


Figure 4. Typical 5-15 plug and receptacle.

⚠CAUTION



SHOCK HAZARD!

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

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

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

Extension Cords

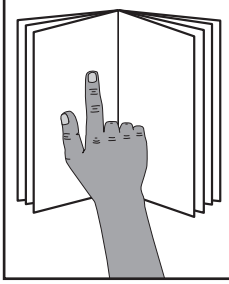
We do not recommend using an extension cord with this machine. If you must use an extension cord, only use it if absolutely necessary and only on a temporary basis.

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

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

Minimum Gauge Size .....12 AWG
Maximum Length (Shorter is Better).....50 ft.

SECTION 3: SETUP

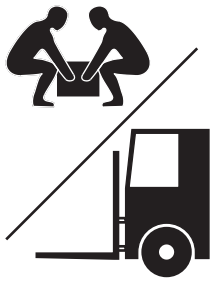


⚠WARNING

This machine presents serious injury hazards to untrained users. Read through this entire manual to become familiar with the controls and operations before starting the machine!

⚠WARNING

Wear safety glasses during the entire setup process!



⚠WARNING

HEAVY LIFT!

Straining or crushing injury may occur from improperly lifting machine or some of its parts. To reduce this risk, get help from other people and use a forklift (or other lifting equipment) rated for weight of this machine.

Needed for Setup

The following items are needed, but not included, for the setup/assembly of this machine.

Description	Qty
• Precision Level	1
• Safety Glasses (for each person)	1
• Solvent/Cleaner	1
• Shop Rags	1
• Brass Hammer	1
• Lifting Straps (Rated for at least 750 lbs.)	2
• Lifting Equipment (Rated for at least 750 lbs.)	1
• Another Person	1
• Wood Blocks 4 x 4	2
• Straightedge 24"	1
• Phillips Head Screwdriver #2	1

Unpacking

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

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

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.

Inventory (Figures 5–6):	Qty
A. Shaper Assembly	1
B. Stand Sides w/Feet	2
C. Safety Guard Mounting Post	1
D. Fence Assembly	1
E. Fence Faces	2
F. Miter Bar w/Handle	1
G. Stand Cross Braces	2
H. Miter Gauge	1
I. Router Bit Collet ½"	1
J. Router Bit Collet ¼"	1
K. Safety Guard	1
L. Flat Wrench 26mm	1
M. Safety Guard Attachment Bar	1
N. Table Insert 1¾"	1
O. Stand Hardware Bag	
—Carriage Bolts M8-1.25 x 12	16
—Flat Washers ⅜"	16
—Hex Nuts M8-1.25	16
P. Fence/Guard Hardware Bag	
—Star Knobs M8-1.25	2
—Fender Washers 8mm	2
—Hex Bolts M8-1.25 x 12	2
—Phillips Head Screws M8-1.25 x 20	4
—Flat Washers 8mm	6
—Phillips Head Screws M4-.7 x 10	2
—Hex Nuts M4-.7	2
Q. Router Table Spacer Kit	
—Spacers ½"	7
—Hex Bolts M12-1.75 x 40	5
—Hex Bolts M12-1.75 x 30	2
—Lock Washers 12mm	7
R. Router Bit Adapter	1
S. Open-End Wrench 8/10mm (not shown)	1
T. Open-End Wrench 12/14mm (not shown)	1
U. Open-End Wrench 22/24mm (not shown)	1
V. Open-End Wrench 27/30mm (not shown)	1

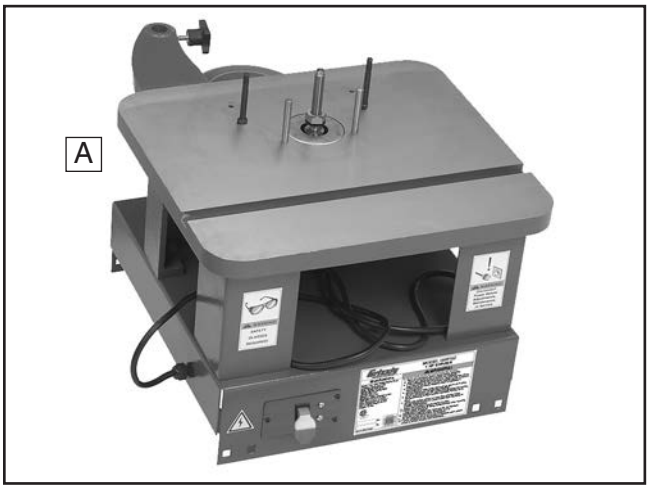


Figure 5. Shaper assembly.

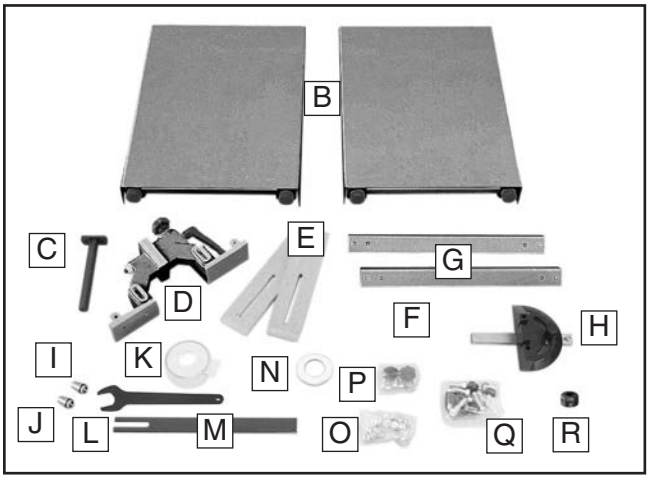


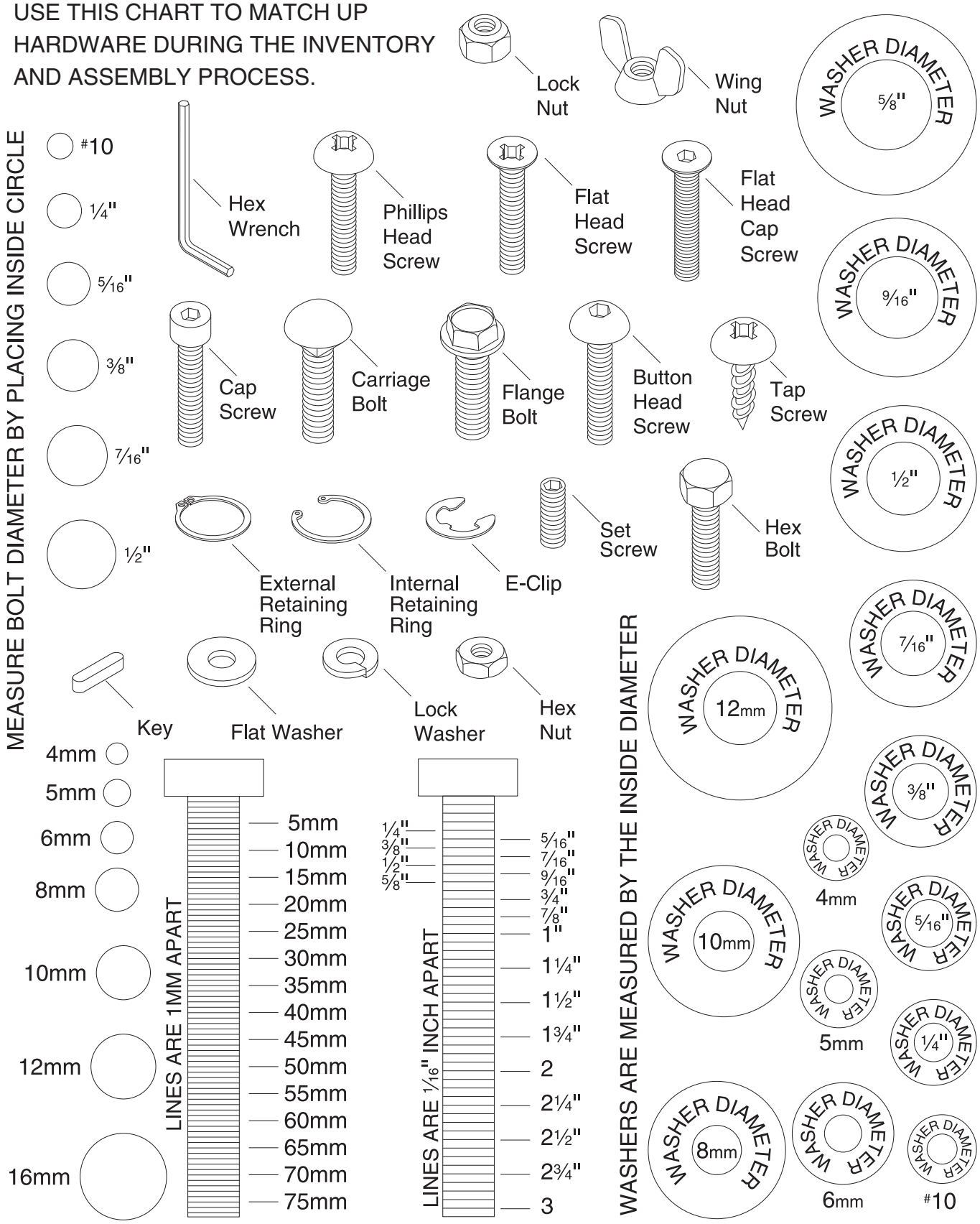
Figure 6. Shaper inventory components.

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.

Hardware Recognition Chart

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



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

T23692—Orange Power Degreaser
A great product for removing the waxy shipping grease from the ***non-painted*** parts of the machine during clean up.

Figure 7. T23692 Orange Power Degreaser.

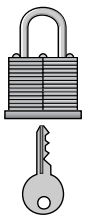
Site Considerations

Weight Load

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

Space Allocation

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



⚠CAUTION

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

Physical Environment

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

Electrical Installation

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

Lighting

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

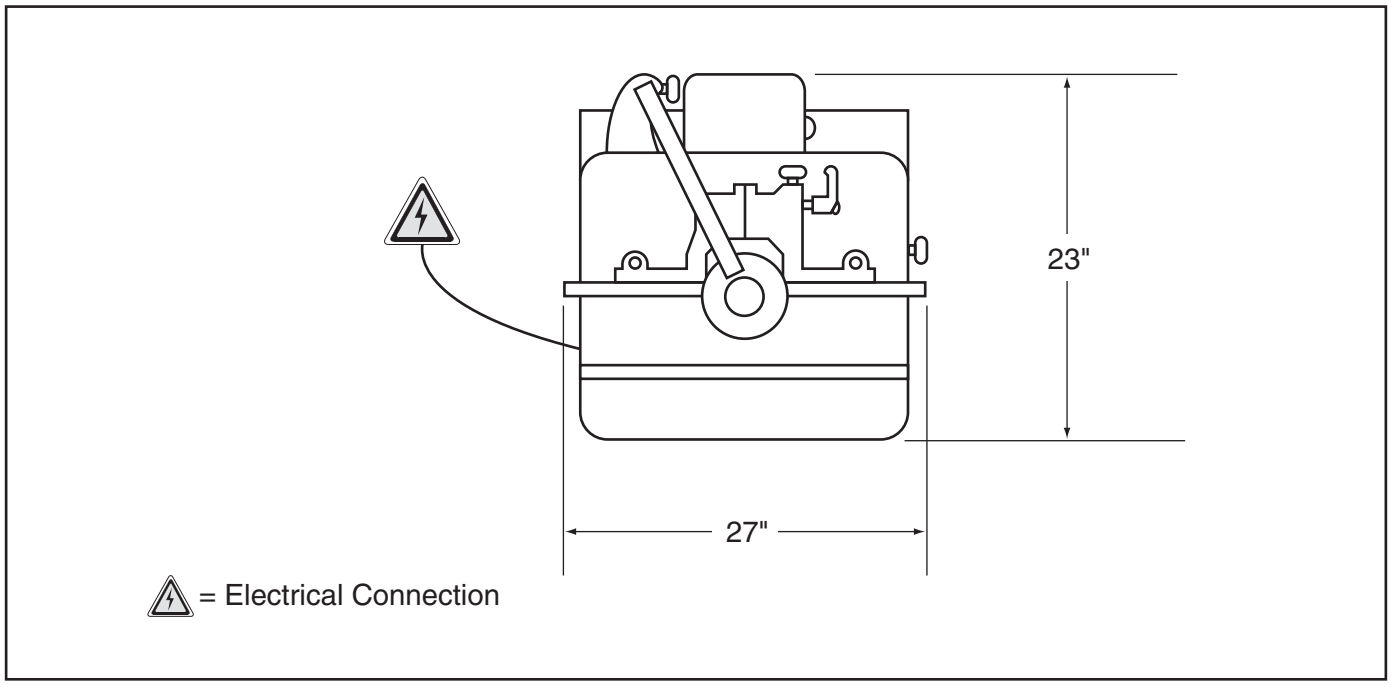


Figure 8. Minimum working clearances.

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).

Note: *Sheet steel will often "spring" after it has been fabricated at the factory, occasionally making it difficult to line up precisely with other parts. Do not be surprised if the stand requires a bit of "persuasion" to fit together. On the other hand, if the parts just do not seem to work together, try switching parts around (such as cross braces).*

To assemble shaper:

1. Lay one stand side on ground and attach (2) cross braces with (4) M8-1.25 x 12 carriage bolts, 3/8" flat washers, and M8-1.25 hex nuts, as shown in **Figure 9**. *DO NOT fully tighten nuts and bolts at this time.*

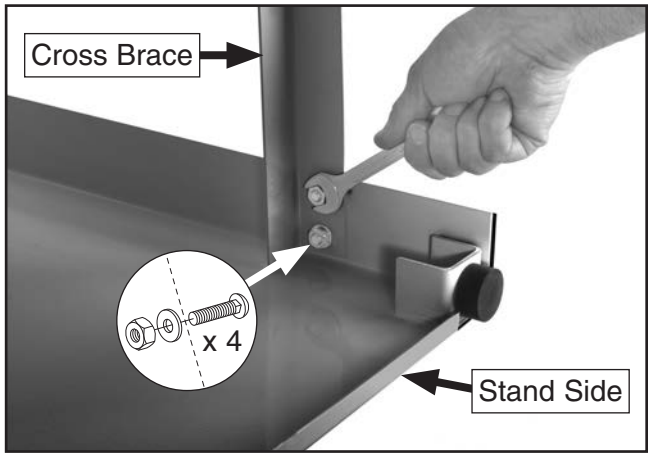


Figure 9. Attaching cross braces to stand side.

2. Attach remaining stand side to other end of cross braces in same manner as **Step 1**. Stand assembly should now look like **Figure 10**.

Figure 10. Stand fully assembled.

3. Place shaper table upside down on (2) 4x4 blocks, as shown in **Figure 11**.

   Note: *Make sure spindle DOES NOT touch ground or weight of shaper may damage spindle.*

4. Place stand assembly on shaper and attach it with (8) M8-1.25 x 12 carriage bolts, 3/8" flat washers, and M8-1.25 hex nuts, as shown in **Figure 11**.

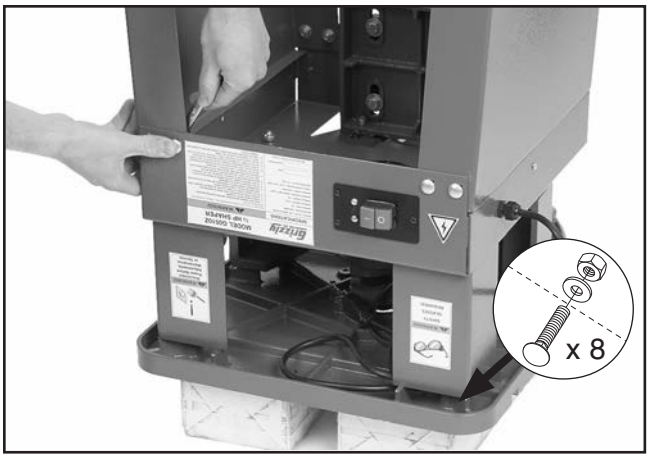


Figure 11. Example of attaching stand to shaper unit.

5. Have assistant help you turn shaper unit rightside-up.

6. Level shaper, then tighten all assembly bolts on stand.

7. Place fence assembly over studs that are already mounted to shaper table.

8. Use (2) 8mm fender washers and M8-1.25 star knobs to tighten fence assembly to table.

9. Mount fence faces to fence assembly with (4) M8-1.25 x 20 Phillips head screws and 8mm flat washers, as shown in **Figure 12**.

   Note: *Make sure that Phillips head screws are beyond outer surface of fence faces.*

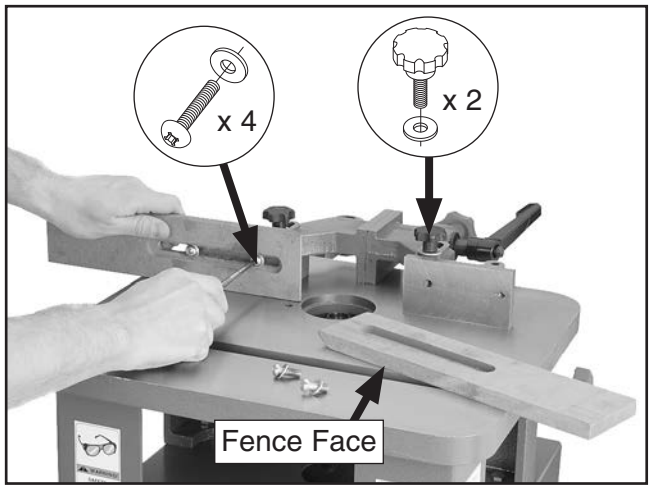


Figure 12. Mounting fence faces to fence assembly.

10. Place straightedge against fence faces and align them as close as possible.

11. Inspect entire length of both fences for gaps that indicate fences are not in a straight line with each other.

    — If fences are straight, then no further adjustments are necessary.

    — If fences are not straight, then they should be resurfaced on jointer as one unit. Refer to **Truing the Fence** on **Page 42** for instructions on how to do this.

12. Insert mounting post into bracket that is bolted to back of shaper table, and tighten star knob to lock mounting post in place (see **Figure 13**).

13. Secure attachment bar to mounting post with (2) M8-1.25 x 12 hex bolts and 8mm flat washers (see **Figure 13**).

14. Attach safety guard with (2) M4-.7 x 10 Phillips head screws and M4-.7 hex nuts. Completed assembly of safety guard should now look like **Figure 13**.

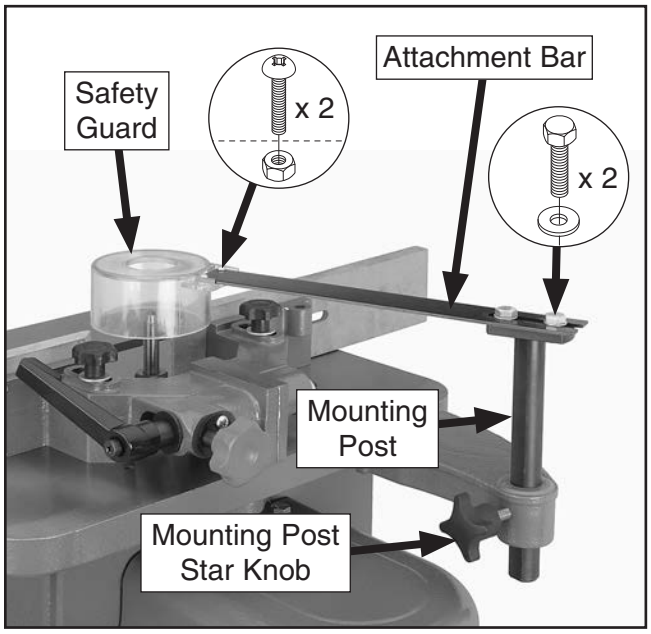


Figure 13. Safety guard components correctly assembled on shaper.

⚠WARNING

The guard protects the operator from inadvertent contact with the cutter which could cause serious personal injury. DO NOT operate the shaper with the guard removed. Always replace the guard before operation if it has been removed for machine service or maintenance.

Preparing Spindle for Test Run

To ensure your safety during the test run, make sure the spindle is tight and completely remove the spindle nut and rub collars. If these items are loose during the **Test Run**, they could fly off and strike the operator or bystanders with great force.

To prepare spindle for test run:

1. Place wrench on spindle flats at top of spindle.

2. Place wrench on drawbar nut underneath table (**Figure 14**) and tighten spindle.

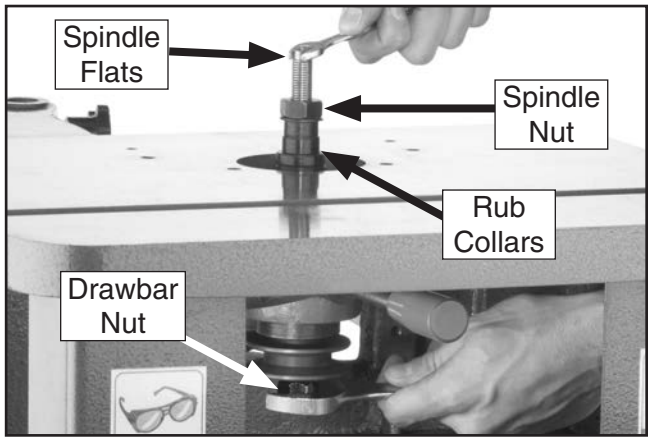


Figure 14. Checking spindle to make sure it is tight (pulley guard removed for clarity).

3. Remove spindle nut and all rub collars.

⚠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.

⚠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.

Test Run

Once assembly is complete, you are ready to test run the machine. The Test Run consists of verifying the following: 1) The motor powers up and runs correctly, and 2) the switch disabling key disables the switch properly.

To test run machine:

1. Clear all setup tools away from machine.

2. Connect machine to power supply.

3. Move FOR/REV switch located on motor to FOR setting. Turn machine ***ON***. Verify motor operation, and then turn machine ***OFF***.

4. Move FOR/REV switch to REV, and turn machine ***ON***.

   Motor should run smoothly and without vibration or unusual problems or noises in both directions. Correct any problems before operating machine further (see **Troubleshooting** on **Page 32**).

5. Remove switch disabling key, as shown in **Figure 15**.

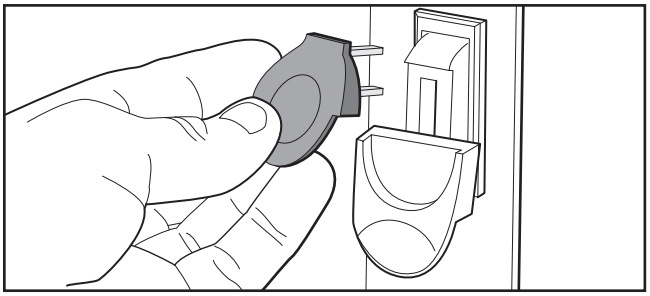


Figure 15. Removing key from paddle switch.

6. Try to start machine with paddle switch. Machine should not start.

   — If machine *does not* start, switch disabling feature is working correctly. Congratulations! Test run is complete.

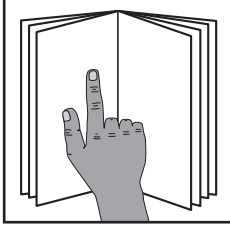
   — If machine *does start*, immediately stop machine. Switch disabling feature is not working correctly. Safety feature must work properly before proceeding with operations. Call Tech Support for help.

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 and seek additional training from experienced machine operators, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.

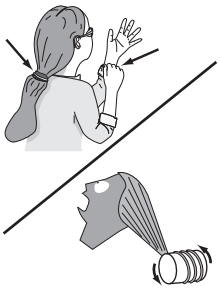


⚠WARNING

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

⚠WARNING

Eye injuries, respiratory problems, or hearing loss can occur while operating this tool. Wear personal protective equipment to reduce your risk from these hazards.



⚠WARNING

Keep hair, clothing, and jewelry away from moving parts at all times. Entanglement can result in death, amputation, or severe crushing injuries!

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 shaping operation, the operator does the following:

1. Examines workpiece to make sure it is suitable for shaping.
2. Chooses, installs, and adjusts shaper cutter or router bit to desired height.
3. Adjusts fence to desired position then locks it.
4. Checks outfeed side of machine for proper support and to make sure workpiece can safely move past cutter/bit without interference.
5. Places workpiece on infeed side of machine and stabilizes it with hold-downs, jigs, or other safety workpiece holding devices.
6. Removes any clothing, apparel, or jewelry that may become entangled in shaper.
7. Puts on safety glasses, respirator, and hearing protection, and locates push sticks if needed.
8. Turns machine ***ON***.
9. Verifies cutter/bit rotation and feed direction.
10. Feeds workpiece through the cut while maintaining firm pressure on workpiece against both table and fence, while always keeping hands and fingers out of the cutting path.
11. Turns machine ***OFF***.

Workpiece Inspection

Some workpieces are not safe to cut or may require modification before they are safe to cut. **Before cutting, inspect all workpieces for the following:**

- ***Material Type:*** This machine is intended for cutting natural and man-made wood products, laminate covered wood products, and some plastics. Cutting drywall or cementitious backer board creates extremely fine dust and may reduce the life of the bearings. This machine is NOT designed to cut metal, glass, stone, tile, etc.; cutting these materials with a table saw may lead to injury.

- ***Foreign Objects:*** Nails, staples, dirt, rocks and other foreign objects are often embedded in wood. While cutting, these objects can become dislodged and hit the operator, cause kickback, or break the blade, which might then fly apart. Always visually inspect your workpiece for these items. If they can't be removed, DO NOT cut the workpiece.

- ***Large/Loose Knots:*** Loose knots can become dislodged during the cutting operation. Large knots can cause kickback and machine damage. Choose workpieces that do not have large/loose knots or plan ahead to avoid cutting through them.

- ***Wet or "Green" Stock:*** Cutting wood with a moisture content over 20% causes unnecessary wear on the blades, increases the risk of kickback, and yields poor results.

- ***Excessive Warping:*** Workpieces with excessive cupping, bowing, or twisting are dangerous to cut because they are unstable and often unpredictable when being cut. DO NOT use workpieces with these characteristics!

- ***Minor Warping:*** Workpieces with slight cupping can be safely supported if the cupped side is facing the table or the fence. On the contrary, a workpiece supported on the bowed side will rock during a cut and could cause kickback or severe injury.

Shaper Cutters or Router Bits

Shaper Cutters

Pros—Shaper cutters are larger, more durable and generally last longer than router bits. If you plan on cutting many linear feet of a certain profile, then shaper cutters are the best choice.

Cons—Shaper cutters are more expensive than router bits and are generally larger, which makes them less compatible for small projects.

The Model G0510Z is ready to use shaper cutters when shipped. If you plan on using shaper cutters with your shaper, read **Installing Cutters** on this page.

Router Bits

Pros—Router bits are much cheaper than shaper cutters and come in a wider range of profiles and sizes. If you plan on making smaller projects that do not require many linear feet of cutting, then router bits are the best choice.

Cons—Router bits are not as durable as shaper cutters, and because of their small size, they lend themselves better to the faster speeds of a router.

If you plan to use router bits in your shaper, you must first convert the shaper to a router table. Refer to the **Router Table Conversion** instructions on **Page 40** to learn how to do this.

Installing Cutters

⚠WARNING

Machine operates at 13,200 RPM, and provided spindle is designed for ½" bore cutters. Always check rated speed for any cutter before installing. If shaper is faster than rated speed of cutter, then cutter may fly apart during operation and cause injury. Do not use cutters rated for speeds lower than spindle speed!

Tools Needed:	**Qty**
Open-End Wrench 23mm	1
Open-End Wrench 8mm	1

To install shaper cutter:

1. DISCONNECT MACHINE FROM POWER!
2. Place spacer or collar (if needed) at base of spindle to support cut at desired height.
3. Place cutter on spindle and make sure cutter rotation direction is correct.
4. Place appropriate spacer or collar (if needed) above cutter (refer to **Page 27** for more information).
5. Place spindle washer on top of spacers/cutter, and thread on spindle nut (see **Page 19**).
6. Tighten spindle nut while holding spindle stationary with 8mm wrench on spindle flats for leverage, as shown in **Figure 16**.

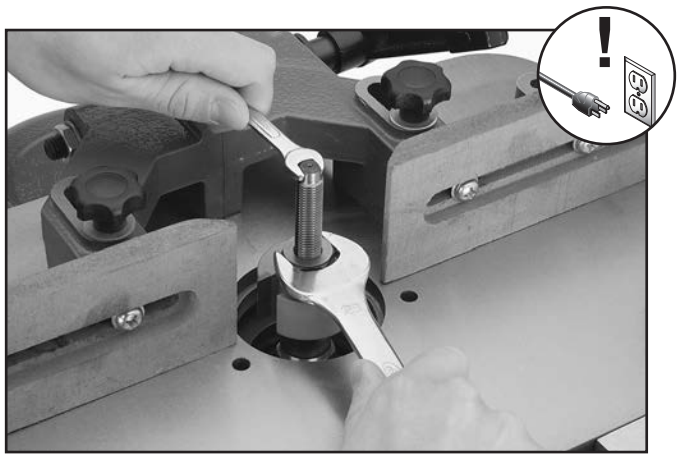


Figure 16. Tightening spindle lock nut.

Installing Router Bits

In order to use router bits, you must first convert the shaper to a router table. Refer to the **Router Table Conversion** instructions on **Page 40** to learn how to do this. The Model G0510Z comes with ½" and ¼" router bit collets for use with router bit shanks of the same size.

⚠WARNING

Always check rated speed for any router bit before installing it. If shaper is faster than rated speed of the cutter, then cutter may fly apart during operation and cause injury. Do not use router bits rated for speeds lower than spindle speed!

Tools Needed:	**Qty**
Spindle Wrench 26mm	1
Open-End Wrench 30mm	1

To install router bit:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen collet nut and insert router bit all the way (see **Figure 17**).
3. Use spindle elevation lever (see **Figure 17**) to raise spindle and gain access to spindle flats beneath table.
4. Hold spindle flats with spindle wrench, and tighten collet nut, as shown in **Figure 17**.

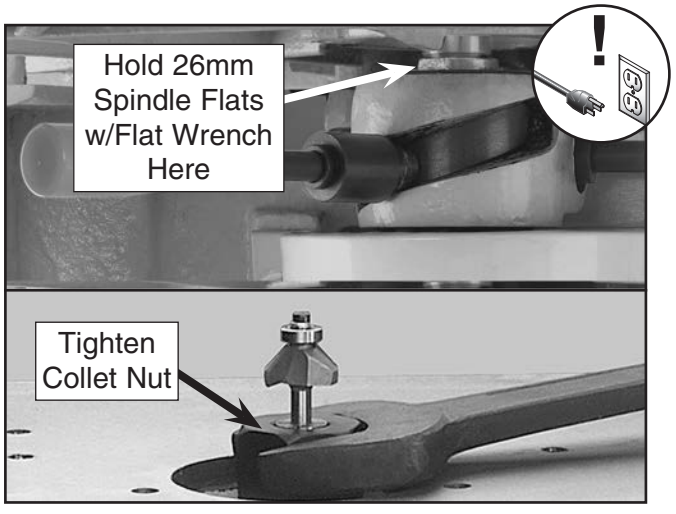


Figure 17. Tightening collet nut.

Using Table Inserts

Your shaper includes two table inserts with inside openings of 1⅜" and 1¾" (see **Figure 18**). The table counterbore without an insert installed is 3" in diameter.

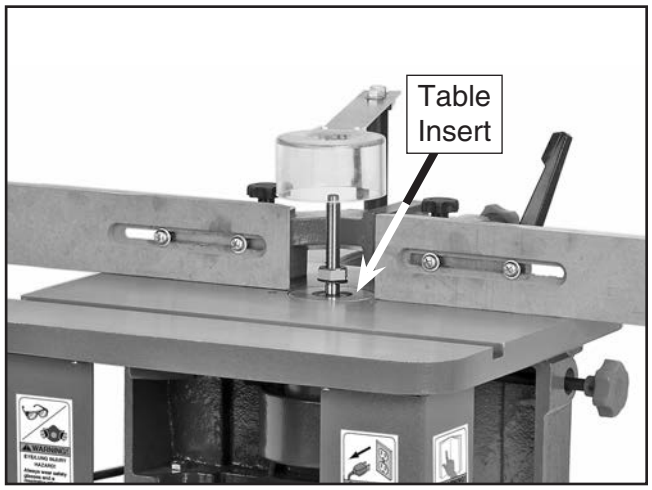


Figure 18. Example of table insert installed.

Use the smallest opening that the cutter/bit will allow without interfering with its rotation. This offers more support for the workpiece and reduces the amount of chips that can fall into the machine.

Changing Rotation

Always check the direction of the cutter rotation before any shaping operation.

The G0510Z is equipped with a FOR/REV (forward and reverse) switch, as shown in **Figure 19**. In most cases, the shaper should be run in the FOR direction. If you are using router bits, always run the shaper in the FOR direction. Router bits are not designed to run backwards.

In some instances, it will be necessary to flip the cutter over and reverse the cutter rotation.

Whenever possible, mount the cutter so the stock is milled on the bottom side (the side away from the operator). This does a better job and it is safer for the operator. Refer to **Rub Collars**, **Page 27**.

Figure 19. FOR/REV switch.

Adjusting Spindle Height

The spindle height is adjustable to allow for precision positioning of cutter/bit exposure from the table surface.

After making adjustments, it is extremely important to always lock the spindle in place before operating the shaper. Otherwise, the spindle position can easily shift, causing inconsistent cutting results from workpiece to workpiece.

To adjust cutter height:

1. Loosen spindle elevation lock shown in **Figure 20**.

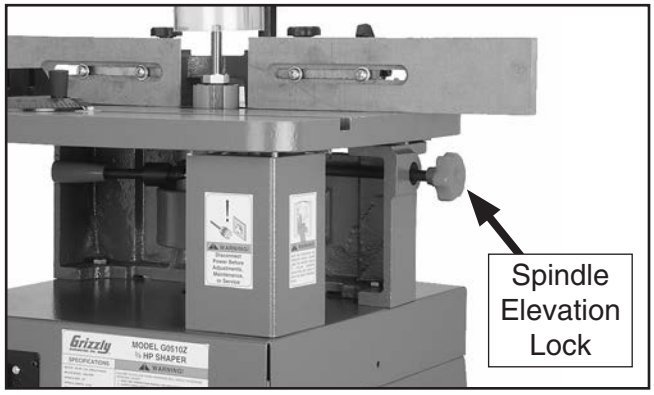


Figure 20. Spindle elevation lock knob.

2. Move spindle up or down with elevation adjustment lever, shown in **Figure 21**, until desired spindle height is obtained.

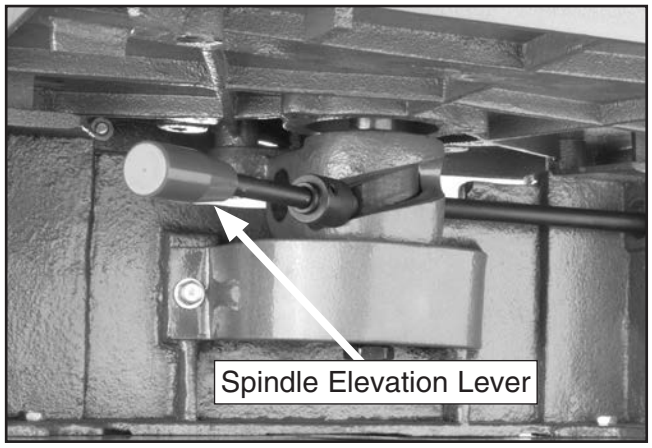


Figure 21. Spindle elevation lever.

3. Lock spindle into position with lock knob.

Fence Adjustments

Each side of the fence is independently adjustable to compensate for different cutting thicknesses and special shaping applications. One turn of the adjustment knob (see **Figure 22**) moves the split fence approximately $^{3}/_{64}$" (.040"). When removing material from the whole face of your workpiece, the outfeed fence should be adjusted to the proper offset to provide support for the workpiece as it passes over the cutter.

To adjust fence for straight shaping:

1. Loosen lock handle (see **Figure 22**).

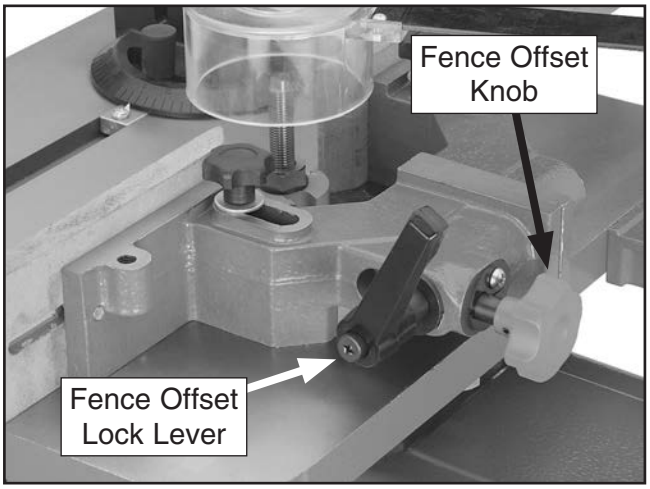


Figure 22. Controls for fence adjustments.

2. Adjust infeed fence so cutter will remove desired amount of stock.

   Note: *To help determine best setting, select wood for test piece that most closely resembles your actual workpiece.*

3. Lock infeed fence in position with locking handle to prepare to make test cut.

⚠WARNING

The fence may not always be perfectly parallel to miter slot; therefore, using miter gauge can cause binding and possible kickback of workpiece towards operator. DO NOT use miter gauge to feed material along fence face when straight shaping. Use a push stick and hold-downs to keep workpiece in position.

5. Turn shaper ***ON*** and advance 36" or longer test sample of desired cut about 8'', then stop. Swing test piece away from cutter and turn machine ***OFF***.

6. When cutter comes to complete stop, adjust outfeed fence to support new profiled edge. Lock outfeed fence into position and retest. See **Figures 23–24** for improper and proper outfeed fence positioning.

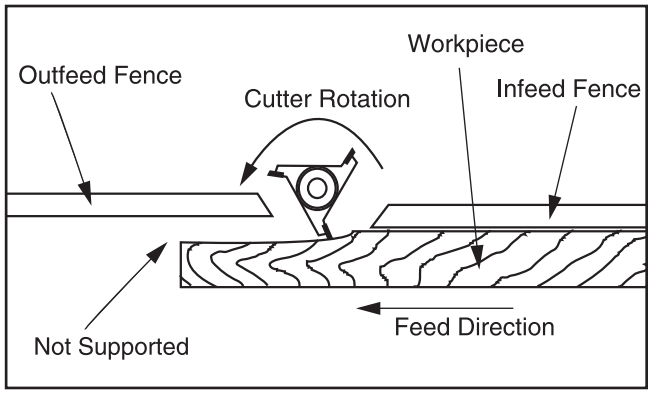


Figure 23. Improper outfeed fence adjustment.

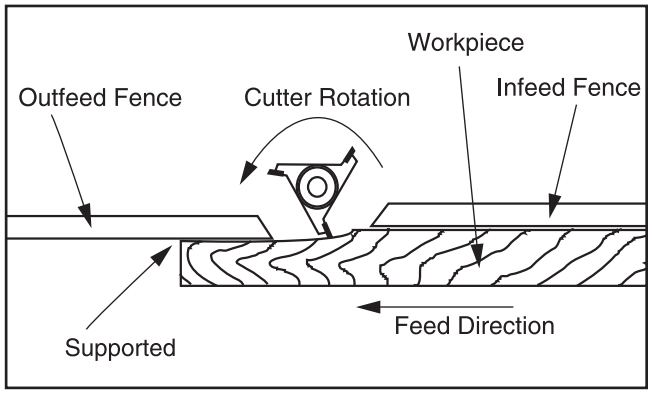


Figure 24. Proper outfeed fence adjustment.

Straight Shaping

⚠WARNING

Attempting to operate the shaper without proper knowledge of the machine could cause serious injury or death! Read through the entire manual carefully before attempting to make any cuts with your shaper.

When shaping straight stock, use the fence assembly. Refer to **Fence Board Alignment** on **Page 42** for information on aligning fences. Grizzly offers hold-down accessories, or shop-made hold-downs can also be used to help guide workpiece.

To shape straight stock:

1. Install appropriate cutter onto spindle.

2. Check cutter rotation.

3. Adjust spindle height for desired cut.

4. Lock spindle height into position with spindle elevation lock.

5. Position fences for desired depth-of-cut.

6. Position hold-down or other safety device (see **Figures 25–26**), and put on safety glasses and dust mask/respirator.

Figure 25. Safety boards and push stick in use.

⚠WARNING

Always use cutterhead guard, and only use a miter gauge to shape end of your workpiece.

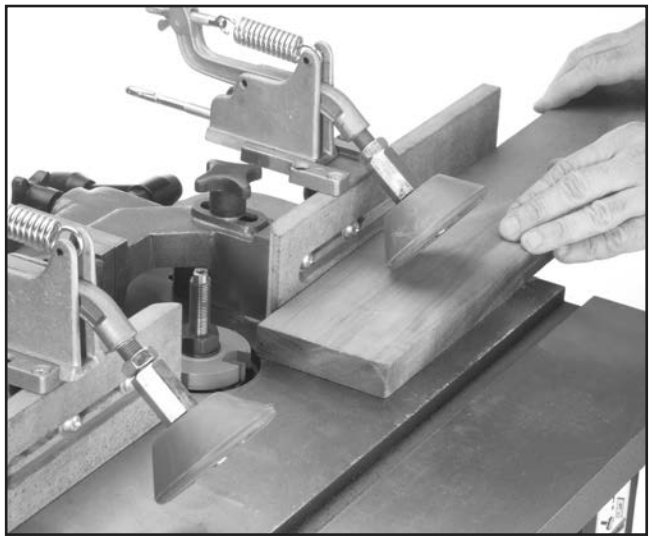


Figure 26. Anti-kickback board buddies in use. (Guard removed for clarity—ALWAYS use guard!)

7. To test setup, run scrap piece of stock through shaper using your left hand to support workpiece against fence and your right hand to feed, as shown in **Figure 27**. Switch hands for clockwise rotation.

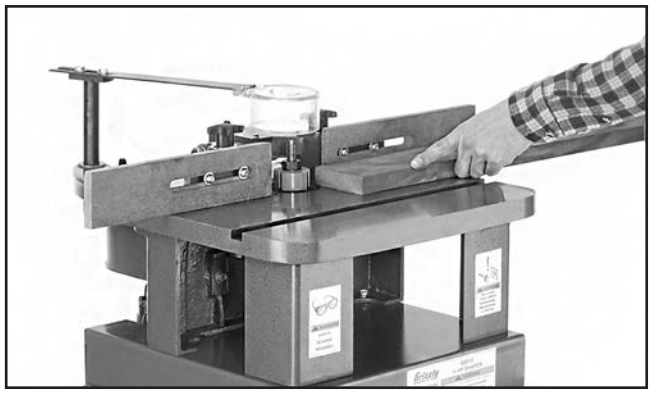


Figure 27. Feeding scrap piece into shaper to test setup.

8. Confirm sample stock has been shaped properly, make any final adjustments, then run workpiece through shaper.

Partial Face Removal

Tool Needed	Qty
Straightedge 24"	1

To partially remove stock face:

1. DISCONNECT MACHINE FROM POWER!

2. Adjust infeed fence to approximate desired depth of cut, and lock infeed fence in place.

3. Use straightedge to adjust outfeed fence to same plane as infeed fence, and lock outfeed fence in place.

4. Set right and left wood faces to barely clear cutter (see **Figure 28**). This allows maximum support possible for workpiece while passing cutter.

Note: *Remember to tighten wood fence faces before starting shaper.*

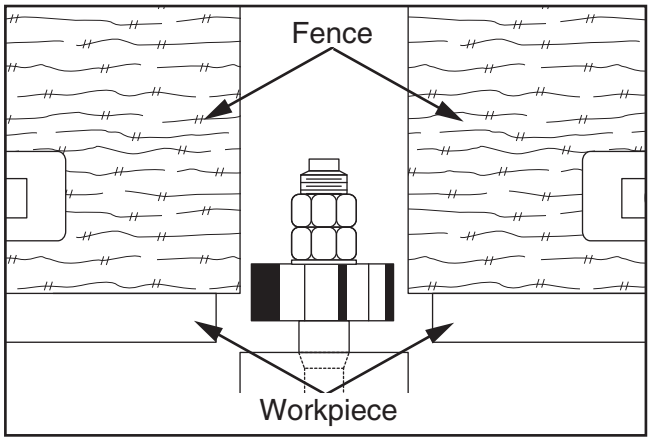


Figure 28. Lateral fence alignment.

5. Run test piece through shaper.

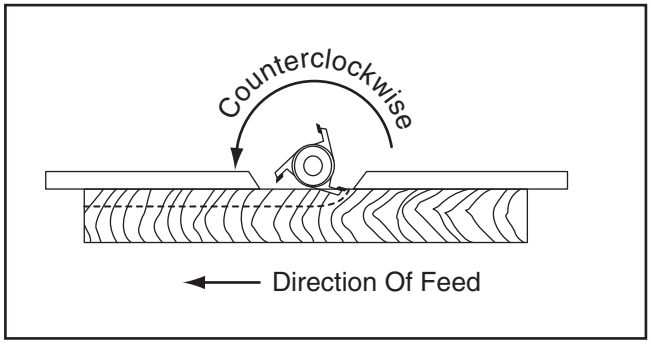


Figure 29. Partial feed fence adjustment.

Perimeter Cutting

When a workpiece requires all sides to receive a shaped profile, it is important to begin with the end grain sides before cutting the long grain side. As a cutter approaches the edge of end grain, a small amount of tear-out will commonly occur. By running end grain edges first, the tear-out is removed when the long grain cuts are completed.

Completing cuts in multiple passes (when possible) rather than one heavy cut, will often produce cleaner results and can prolong cutter life.

To cut edge around workpiece perimeter:

1. Cut workpiece sides (1 & 2) with end grain *first* (see **Figure 30**).

2. Cut sides (3 & 4) *with* grain last to make parallel with sides in previous step, or in sequence, as shown in **Figure 30**.

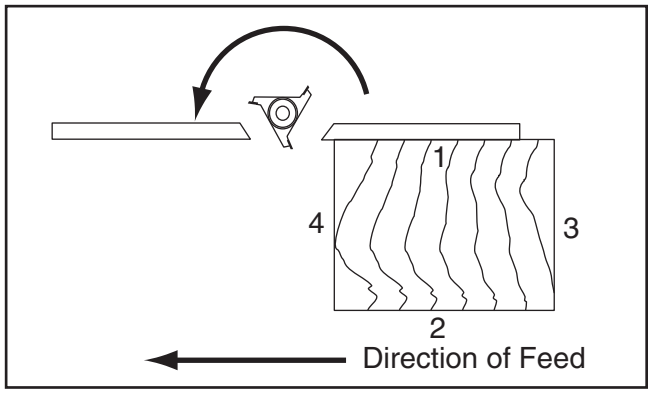


Figure 30. Starting perimeter cutting with end grain cut.

Rub Collars

Rub collars are used when shaping curved or irregular workpieces, such as arched doors or round table tops, and to limit the depth of your cut. When using a solid rub collar, do not use excessive pressure when running your workpiece through the shaper. Otherwise, a groove may burn into your pattern and be transferred to your workpiece. Instead, take several passes, using lighter pressure against the rub collar.

There are two types of rub collars—solid and ball-bearing. While the Model G0510Z comes with solid rub collars, Grizzly carries an extensive line of ball bearing rub collars as upgrades. See our current catalog or website for listings.

Use rub collars in any of the following positions:

1. **Rub collar below cutter:** When rub collar is placed below cutter (see **Figure 31**), cut progress can be observed. However, any unintentional movement may lift workpiece into cutter, damaging work and creating a dangerous situation. *We DO NOT recommend using rub collar in this position.*

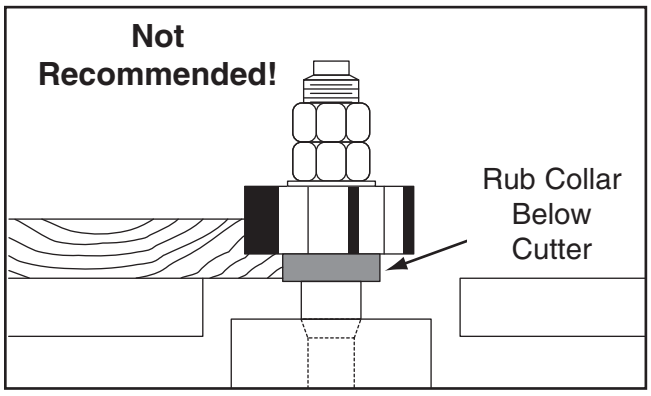


Figure 31. Cutting with rub collar below cutter.

2. **Rub collar above cutter:** Cut *cannot* be seen during operation when rub collar is above cutter (see **Figure 32**). However, this offers some advantages—stock is not affected by slight variations in thickness and accidental lifting will not damage workpiece. Simply correct any change in height by repeating operation.

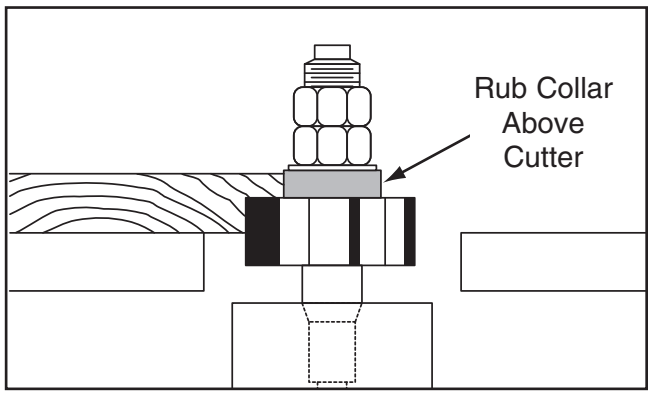


Figure 32. Cutting with rub collar above cutter.

3. **Rub collar between two cutters:** Using rub collar between two cutters offers distinct advantage of performing two cuts at once or eliminating the need to change cutters for two different operations (see **Figure 33**). Notice that part of workpiece edge remains uncut and rides along rub collar.

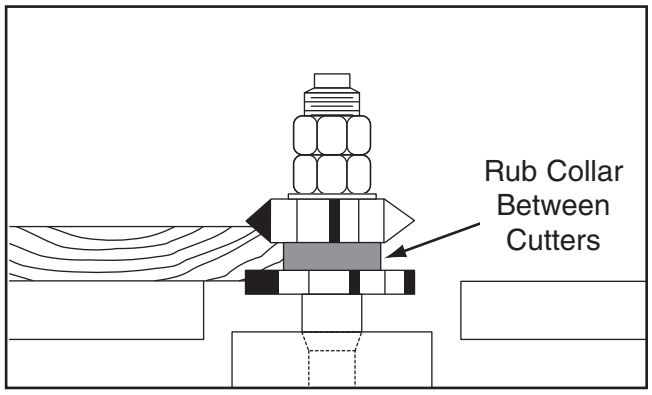


Figure 33. Using rub collar between cutters.

Irregular Shaping

⚠WARNING

Freehand shaping greatly increases chance that operator may lose control of workpiece; therefore, use a starting pin to increase control while freehand shaping. Loss of control could result in loss of fingers or other serious personal injury.

Irregular or freehand shaping takes a high degree of skill and dexterity. The fence assembly is not used in irregular shaping, so rub collars **must** be used. Refer to **Rub Collars** on **Page 27** for details.

When doing freehand work, a starting pin must be used! The purpose of the starting pin is to support the workpiece during the beginning of the cut. Your shaper is supplied with a starting pin that can be placed in one of the holes located in the shaper table. The work should be placed in the starting position, using the starting pin for support as illustrated in **Figure 34**.

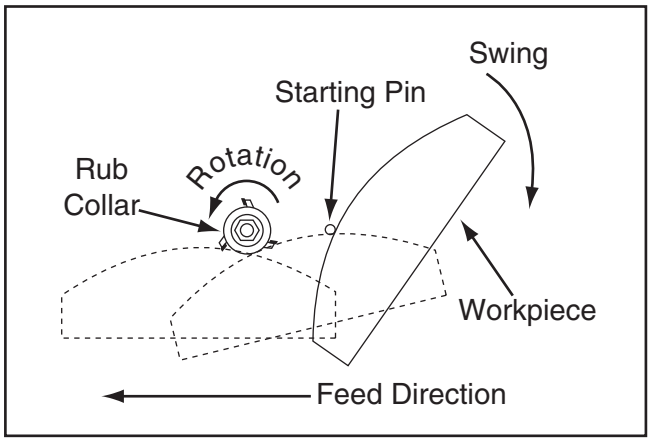
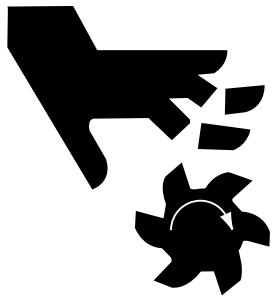


Figure 34. Using a starting pin for irregular shaping.

Next, carefully swing the workpiece into the cutter while holding it firmly against the starting pin. After the cut has been started, the workpiece should be swung away from the starting pin and supported just by the rub collar, as shown by the broken line positions in **Figure 34**.

Note: *Always feed against the rotation of the cutter.*

⚠WARNING



All guards MUST be installed on your shaper before operating it. Shapers are dangerous machines that can quickly cause serious injury if some kind of guard is not used. To protect yourself, read and follow the entire manual carefully and do additional research on shop made guards and safety jigs.

Tool Needed: **Qty**
Open-End Wrench 8mm..... 1

Using Starting Pin

1. DISCONNECT MACHINE FROM POWER!
2. Remove fence assembly by removing fence pivot knobs and flat washers and lifting fence free.
3. Use wrench to remove threaded fence pivot bolts.
4. Choose appropriate cutter for application and lock it in place.
5. Check cutter rotation.
6. Adjust spindle height to align workpiece to cutter.
7. Insert starting pin into table surface, using pin location that best supports workpiece.
8. Use some type of hold-down fixture and guard when doing freehand work.
9. To test setup, run scrap piece of wood stock through shaper using your left hand to support workpiece against starting pin and your right hand to feed. Keep firm pressure on your workpiece so it runs tight to rub collar. Feed *against* cutter rotation only.

NOTICE

Incorrectly feeding stock—feeding WITH rotation of cutter—creates potentially uncontrollable feed situation that may pull stock from your hands. Follow instructions at all times or serious injury can occur.

Using Starting Block

Sometimes the starting pin will not be in the most advantageous position. To remedy this situation, firmly clamp a board in the desired position to act as a starting block (see **Figure 35**)**.** Some type of pivot point **must** be used.

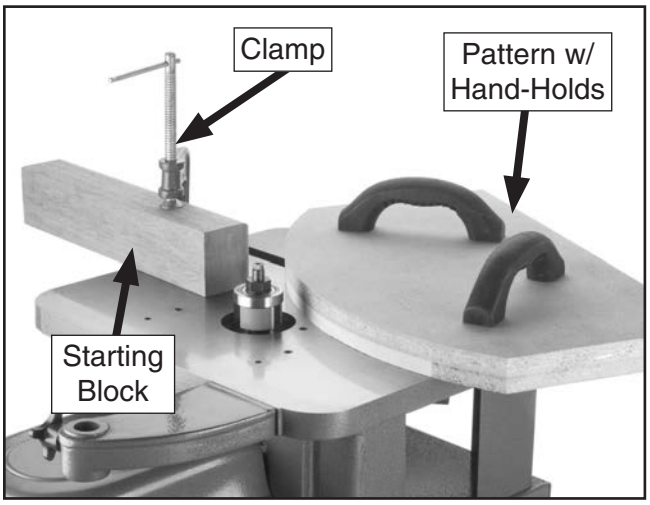


Figure 35. Starting fixture in place for jig.

The purpose of the starting block is to support the workpiece during the beginning of the cut. The workpiece is typically placed in the starting position, using the starting fixture for support, then swung into the cutter while holding the workpiece firmly against the starting fixture. After the cut has been started, the work is swung away from the starting fixture and is supported only by the rub collar. **Always feed AGAINST the rotation of the cutter and do not start cuts at corners in order to avoid kickback or grain tear-out.**

When using a solid rub collar, do not use excessive pressure when running your workpiece through the shaper. Otherwise, a groove may burn into your pattern and be transferred to your workpiece. Instead, take several passes, using lighter pressure against the rub collar. If you find this to be a consistent problem, you may consider using ball bearing rub collars instead of solid collars. See our current catalog or website for listings.

Pattern Work

When using a pattern, a rub collar or ball bearing can be positioned either above, below, or between cutters.

The pattern is usually used when the entire edge is to be shaped or when many duplicate pieces are needed. Pattern work is particularly useful when rough cutting irregular shapes oversize and then shaping the edge in a simple two-step operation. A pattern, when attached to a workpiece by adding toggle clamps, hand-holds, or other safety devices, make a fixture. **Figure 36** shows proper setup of pattern and bearing rub collar.

You have greater flexibility when choosing the correct diameter rub collar for pattern work than for non-pattern work. If you look at **Figure 36**, you will notice that the position of the pattern determines the depth of cut. In other words, your pattern size is dependent upon the inter-relationship of the rub collar cutting diameter, and the desired amount of material removed. Changing either the cutter or the rub collar will change the amount of material removed. Planning ahead, you can best decide which rub collars are best suited for your application.

Always perform test cuts on scrap stock to ensure pattern works as required.

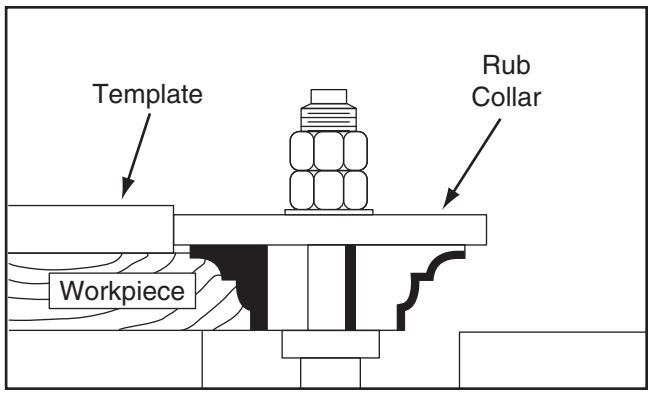


Figure 36. The position of the pattern on the workpiece and bearing size determines the depth of cut.

Things to consider when making pattern or fixture:

- Use material that will smoothly follow rub collar, ball bearing or fence.
- Secure workpiece to pattern (on sides that will not be cut) with toggle clamps, or fasten with wood screws.
- Make fixture stable! Use proven methods and materials, and attach hand-holds for operator comfort and safety.
- Ensure clamps and hidden screws do not come into contact with cutter.
- Design fixture so that all cutting occurs beneath workpiece.
- Always consider rub collar diameter for correct depth-of-cut when designing pattern.
- Make sure workpiece rests flat on work table, *not* on work fixture.
- Remember, there are tremendous cutting forces involved. Fixtures *must* be solid and stable, and any workpiece must be firmly secured.

NOTICE

Use care in designing and making fixtures. Clamps and screws cannot touch the cutter, and the fixtures must be stable in use, with the workpiece resting on the shaper table, not on the fixture. The workpiece must be fixed securely to the jig.

Shaping Small Stock

Feeding small stock through a shaper is always dangerous. If you must shape small stock, use a zero-clearance fence. This will provide greater protection for the operator, better workpiece support, and reduced tearout on narrow or fragile stock.

⚠CAUTION

ALWAYS use hold-downs or featherboards and push sticks when shaping small or narrow stock. These devices keep your hands away from the spinning cutter/bit and sufficiently support the stock to allow a safe and effective cut, reducing the risk of personal injury.

To shape small stock:

1. DISCONNECT MACHINE FROM POWER!

2. Create zero-clearance fence suitable for your application (see **Making a Zero Clearance Fence** on **Page 33**) and install on shaper.

3. Position safety guard as low as possible while still clearing cutter/bit or create custom box guard (see **Making Box Guards** on **Page 35**).

4. Install hold-downs or featherboards and adjust them to height of workpiece, positioning them as close to cutter/bit as possible to support workpiece against fence through cut.

   Note: *When using zero-clearance fence, featherboards or hold-downs must either be clamped or mounted to zero-clearance fence. Please refer to* ***Making Featherboards*** *on* ***Page 32*** *for instructions on making shop-made featherboards.*

5. Mount/clamp featherboards to zero-clearance fence. Adjust to width of workpiece, positioning them as close to cutter/bit as possible to support workpiece against fence through cut.

6. Connect machine to power.

7. Use push sticks to push workpiece through cut (see **Making Push Sticks** on **Page 34** to make your own).

SECTION 5: SHOP-MADE SAFETY ACCESSORIES

Making Featherboards

Featherboards flex with minor height or width variations from stock as it passes through. Because of the consistent pressure featherboards place on the stock, cuts are more consistent, the risk of kickback is greatly reduced, and the operator's hands do not need to get near the cutter/bit to maintain feeding pressure. If a kickback does occur, featherboards will also slow down or stop the workpiece.

Figure 37 shows the dimensions of a basic featherboard. The ultimate size is flexible and should be built around the size of stock you are shaping. The fingers can be cut with a bandsaw or table saw.

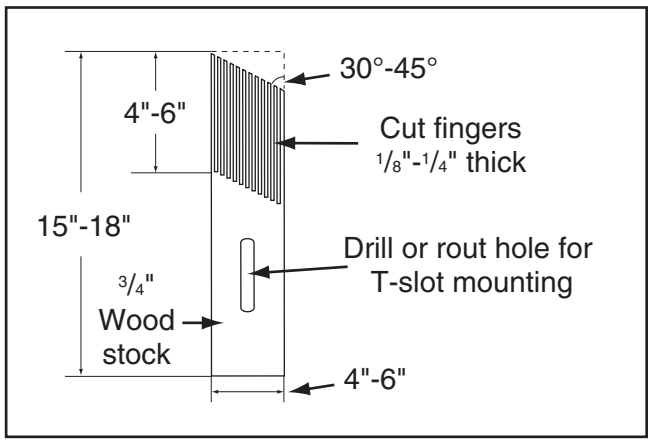


Figure 37. Basic featherboard construction.

To install a featherboard, feed a piece of stock halfway through the machine, then turn the machine ***OFF***. Place the featherboard against the stock so all the fingers touch the edge of the stock, then use T-slot mounting hardware or clamps to secure the featherboard. For best results, place featherboards just before and just after the cutter/bit.

IMPORTANT: Cuts made across the grain result in weak fingers that easily break when flexed. When made correctly, the fingers should withstand flexing from moderate pressure. To test the finger flexibility, push firmly on the ends with your thumb. If the fingers do not flex, they are likely too thick (the cuts are too far apart).

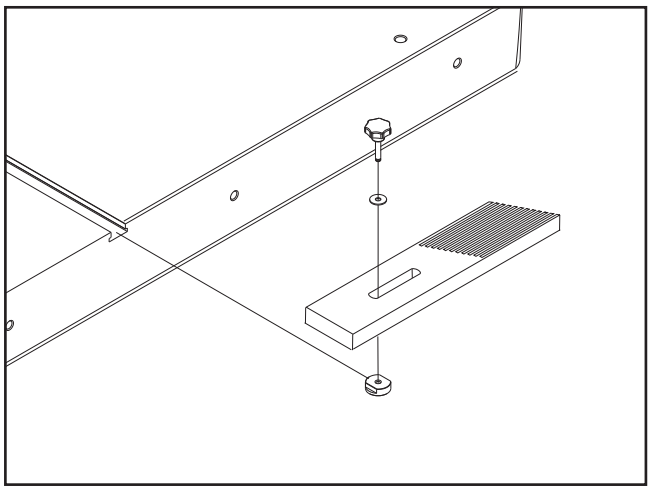


Figure 38. Shop-made table featherboard using T-mount hardware.

Making a Zero-Clearance Fence

A shop-made zero-clearance fence provides more support than a standard fence and reduces tearout on narrow or fragile stock. Using a zero-clearance fence is the best way to reduce the risk associated with shaping inherently dangerous small stock.

Items Needed:	**Qty**
Phillips Head Screwdriver #2	1
Stock 2¾" x 30" x ¾"	1
Drill/Drill Press	1
Drill Bits 11/32", 11/16"	1 Ea.

To make a zero-clearance fence:

1. DISCONNECT MACHINE FROM POWER!

2. Remove fence faces from fence assembly by removing (4) Phillips head screws and flat washers shown in **Figure 39**.

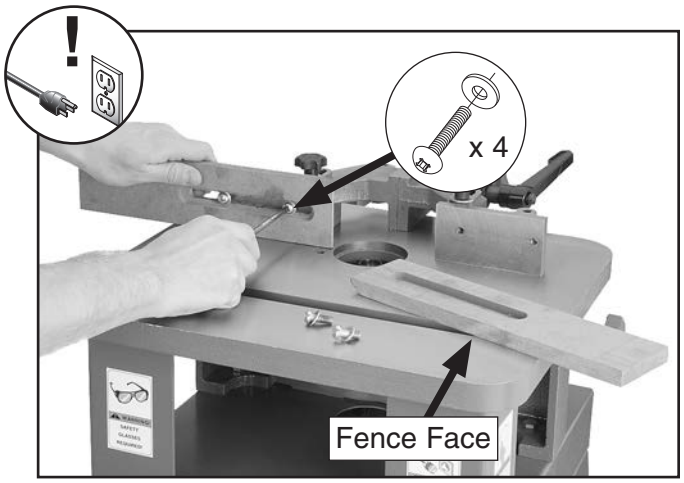


Figure 39. Removing fence faces from fence assembly.

3. Select piece of straight and smooth stock that is same height as fence faces, approximately ¾" thick, and approximately 30" long.

4. Position board over length of guard/fence assembly and mark mounting holes and outline cutter/bit and spindle profile.

5. Cut an outline of spindle and cutter/bit from center of stock, as illustrated in **Figure 40**.

Note: *Make outline as close as possible to cutter/bit and spindle without interfering with rotation.*

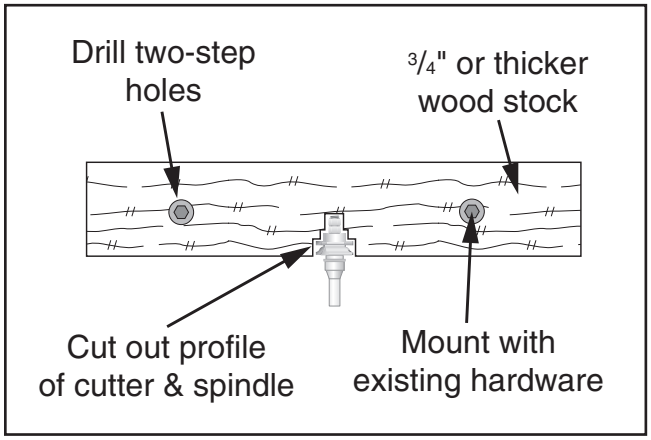


Figure 40. Example of a zero-clearance fence.

6. Drill countersunk mounting holes in zero-clearance fence so Phillips head screws and flat washers from **Step 2** can be used to secure it to fence assembly in the same manner.

Note: *Drilling the holes is a two-step process. Drill the first holes all the way through the board with a diameter a little larger than the shaft of the mounting screw. Drill the second holes halfway through the boards with a diameter a little larger than the screw head. Drill these second holes deep enough that the screw heads will be well below the surface of the board.*

7. Secure zero-clearance fence to fence assembly, check for proper clearance, then run test piece through the shaper to verify results.

Making Push Sticks

When used correctly, push sticks reduce the risk of injury by keeping hands away from the cutter/bit. In the event of an accident, a push stick can absorb damage that would have otherwise happened to hands or fingers. Use push sticks whenever your hands will get within 12" of the cutter/bit. To maintain control when shaping large workpieces, start by feeding with your hands then use push sticks to finish the operation, so your hands are not on the end of the workpiece as it passes through the cutter/bit.

Feeding: Place the notched end of the push stick against the end of the workpiece (see **Figure 42**), and move the workpiece into the cutter/bit with steady downward and forward pressure.

Supporting: A second push stick can be used to keep the workpiece firmly against the fence while cutting. When using this method, only apply pressure before the cutter/bit; otherwise, pushing the workpiece against or behind the cutter/bit will increase the risk of kickback.

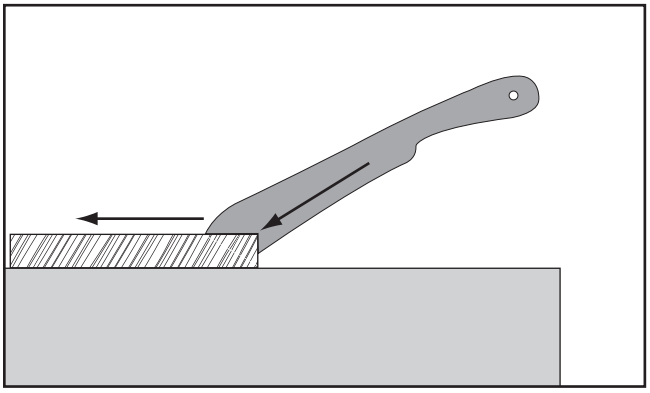


Figure 41. Side view of push stick in use.

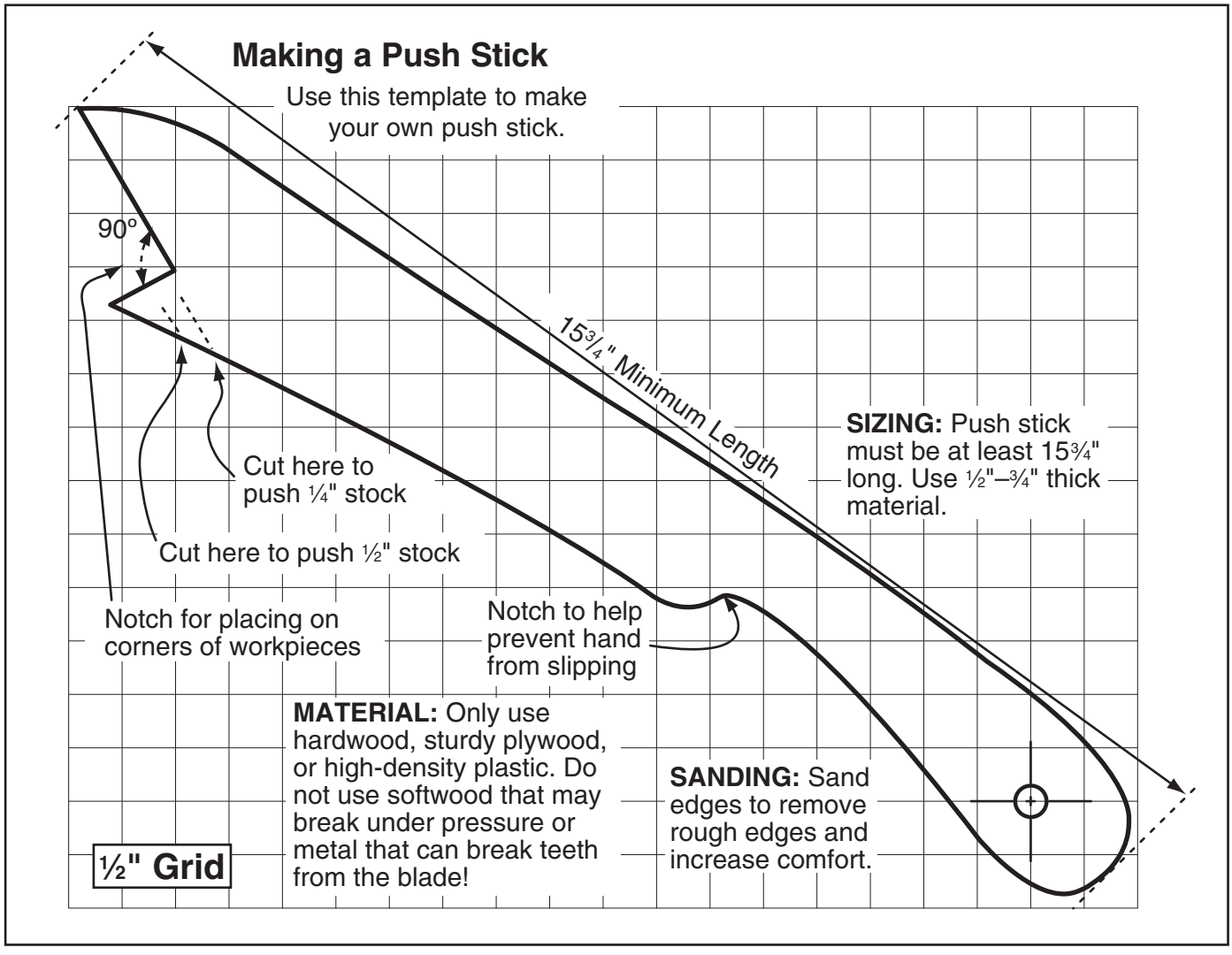


Figure 42. Template for a basic shop-made push stick (not shown at actual size).

Making Box Guards

Shop-made box guards are an excellent way to enclose the cutter/bit to virtually eliminate accidental contact with the cutter/bit during operation. The drawback to box guards is that one size does not fit all. Often, professional woodworkers who use box guards make multiple guards that are different sizes.

Figure 43 shows one way to make and attach a box guard to the Model G0510Z. This guard replaces the plastic safety guard that is included with the shaper. For durability and strength, use a hardwood when making box guards. When installing the box guard, adjust the box guard approximately ¼" above the stock you will shape and use featherboards on both sides.

Note: *DO NOT use the box guard as a hold-down or featherboard; instead, use a featherboard that has the ability to flex with the minor height variations of your stock.*

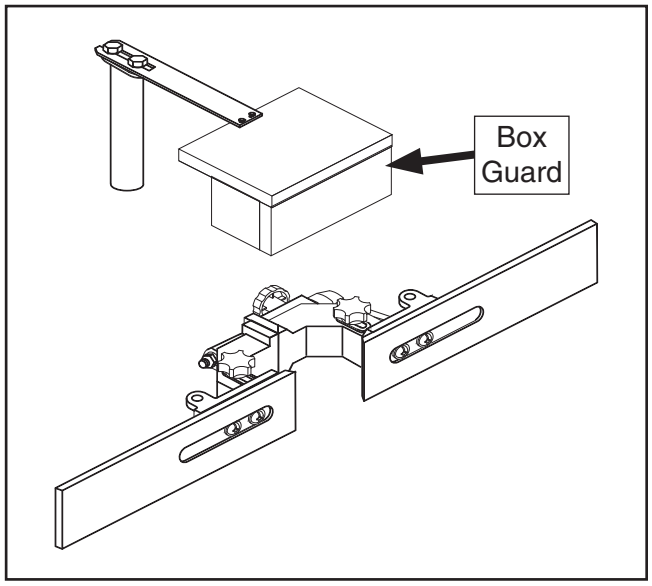


Figure 43. Box guard attached instead of included plastic guard (table removed for clarity).

Tips for making a custom box guard:

The thickness of your workpiece will determine the height of the box guard. Therefore, you will need to build a separate box guard for each workpiece of a different thickness if attaching the guard in a way that the height cannot be adjusted. A box guard can be used with or without a zero-clearance fence (see **Making a Zero Clearance Fence** on **Page 33** for instructions).

The box guard can either attach directly to wooden fence boards (or board) with screws (as shown in **Figure 44**) or attach directly to the guard fence assembly with the plastic guard hardware (as shown in **Figure 43**). In either case, featherboards should also be used on either side to support the workpiece. Construct the box guard in a way that it extends out over the cutter/bit area while leaving enough distance between the guard and the table for the workpiece to easily pass by the cutter/bit. Refer to **Figure 44** for an example.

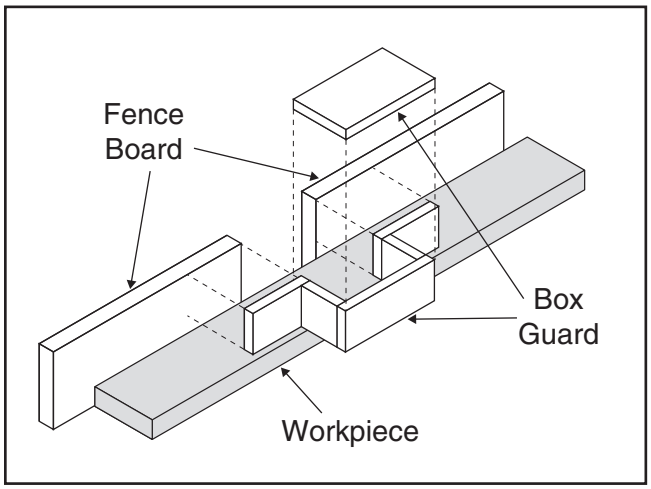


Figure 44. Example of custom box guard attached to wooden fence boards.

SECTION 6: ACCESSORIES

WARNING

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

NOTICE

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

Basic Eye Protection

T20501—Face Shield Crown Protector 4"
T20502—Face Shield Crown Protector 7"
T20503—Face Shield Window
T20451—"Kirova" Clear Safety Glasses
T20456—DAKURA Safety Glasses, Black/Clear

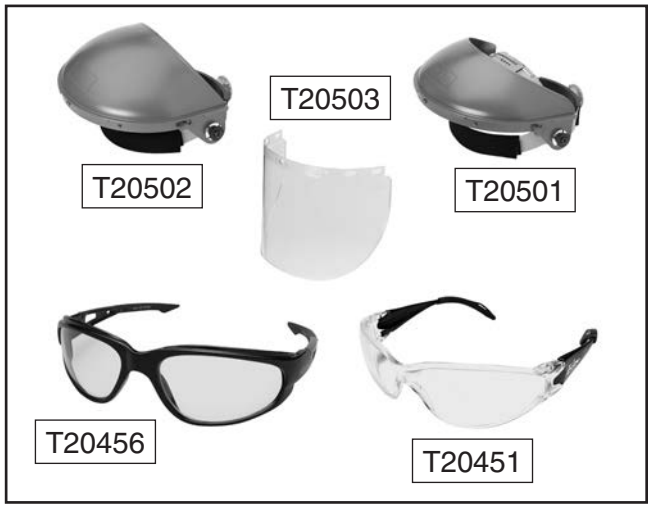


Figure 45. Assortment of basic eye protection.

T28922—Bear Crawl "Cub" Mobile Base
The Cub version of the Bear Crawl was designed for small-footprint machines weighing up to 900lbs. It features wide-inline fixed casters and outrigger swivel casters to keep your equipment moving effortlessly on almost any surface. This is a high-quality mobile base that will make your shop more convenient and efficient and will keep your equipment stable and rolling for years to come. Adjusts from 14" x 14" to 22½" x 22½"!

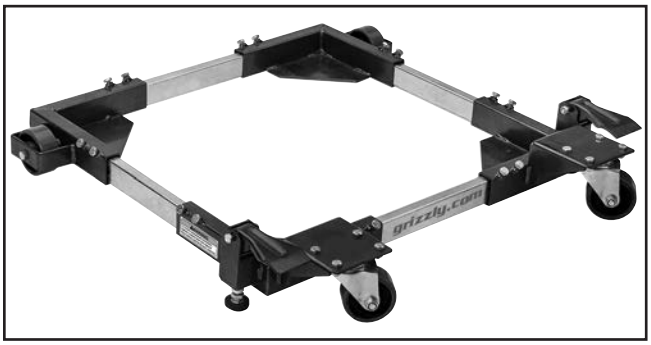


Figure 46. T28922 Bear Crawl "Cub" Mobile Base.

H5565—Custom Molding Set
Make all the custom moulding you want with this four piece ½" shank set. Contains: C1383 face mould, C1390 multi form, C1524 crown mould and C1528 cove mould. Comes complete with wooden box.

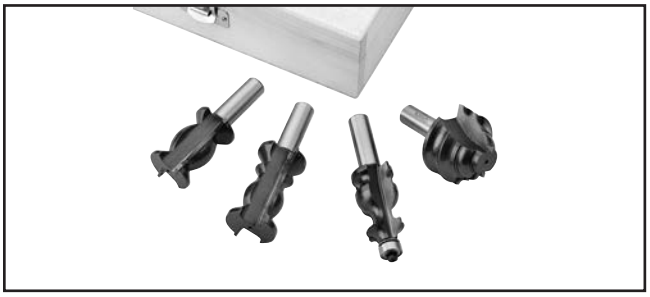
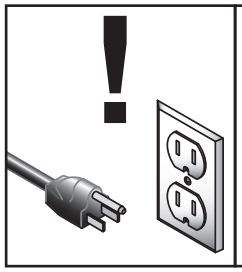


Figure 47. H5565 Custom Molding Set.

SECTION 7: MAINTENANCE



⚠WARNING
To reduce risk of shock or accidental startup, always disconnect machine from power before adjustments, maintenance, or service.

Schedule

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

Daily Check
- Loose mounting bolts.
- Damaged shaper bits.
- Clean/lubricate table and miter gauge.
- Worn or damaged wires.
- Any other unsafe condition.

Weekly Maintenance
- Check/clean/lubricate offset adjustment on fence

Monthly Check
- V-belt tension, damage, or wear.
- Clean/vacuum dust buildup from in and around cabinet and off motor.
- Check/lubricate spindle elevation housing.

Annually
- Replace V-belt.

Lubrication

The only parts on this machine that require periodic lubrication is where the spindle cartridge rides on the elevation housing. Use a light grease or anti-seizing compound on the ways. The frequency of lubrication depends on the amount you use the shaper. As a habit, inspect this area at least once a month.

Cleaning & Protecting

Cleaning the Model G0510Z is relatively easy. Vacuum excess wood chips and sawdust, and wipe off the remaining dust with a dry cloth. Blow out hard-to-reach areas with compressed air, and keep the spindle clear of wood dust and chips. If any resin has built up, use a resin dissolving cleaner to remove it.

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

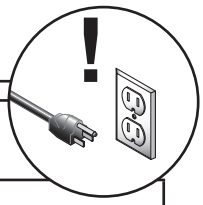
G2871—Boeshield® T-9 12 oz Spray
G2870—Boeshield® T-9 4 oz Spray
Perfect for unpainted cast iron surfaces, this ozone-friendly protective spray penetrates deep and really holds up against corrosive environments. Lubricates metals for months and is also safe for use on most paints, plastics, and vinyls. Developed by Boeing engineers for aircraft applications—this is the best!

Figure 48. Boeshield® T-9 spray.

SECTION 8: SERVICE

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

Troubleshooting



Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	1. Switch disabling key removed. 2. Power supply switched OFF or at fault. 3. Plug/receptacle at fault/wired wrong. 4. Motor connection wired wrong. 5. Wall circuit breaker tripped. 6. Wiring open/has high resistance. 7. Start capacitor at fault. 8. Spindle switch at fault. 9. Motor at fault.	1. Install switch disabling key. 2. Ensure power supply is ***ON***/has correct voltage. 3. Test for good contacts; correct the wiring. 4. Correct motor wiring connections (**Page 44**). 5. Ensure circuit size is correct/replace weak breaker. 5. Check/fix broken, disconnected, or corroded wires. 7. Test/replace if faulty. 8. Replace switch. 9. Test/repair/replace.
Machine stalls or is underpowered.	1. Workpiece material not suitable for machine. 2. Fence/jig loose or misaligned. 3. Motor wired incorrectly. 4. Plug/receptacle at fault. 5. Pulley slipping on shaft. 6. Motor bearings at fault. 7. Machine undersized for task. 8. Motor overheated. 9. Spindle switch at fault. 10. Motor at fault.	1. Only cut wood/ensure moisture is below 20% (**Page 21**). 2. Adjust fence (**Page 24**)/jig. 3. Wire motor correctly (**Page 44**). 4. Test for good contacts/correct wiring. 5. Replace loose pulley/shaft. 6. Test/repair/replace. 7. Use correct, sharp cutter; reduce feed rate/depth of cut. 8. Clean motor, let cool, and reduce workload. 9. Test/replace switch. 10. Test/repair/replace.
Machine has vibration or noisy operation.	1. Motor or component loose. 2. Cutter at fault. 3. Spindle at fault. 4. Pulley loose. 5. Motor mount loose/broken. 6. Machine incorrectly mounted. 7. Motor fan rubbing on fan cover. 8. Motor bearings at fault.	1. Inspect/replace damaged bolts/nuts, and re-tighten. 2. Replace damaged cutter. 3. Tighten loose spindle; replace defective spindle or spindle cartridge. 4. Realign/replace shaft, pulley, set screw, and key. 5. Tighten/replace. 6. Tighten mounting bolts; relocate/shim machine. 7. Fix/replace fan cover; replace loose/damaged fan. 8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.

Symptom	Possible Cause	Possible Solution
Workpiece is burned when cut.	1. Dull cutter. 2. Too slow of a feed rate. 3. Pitch build-up on cutter. 4. Cutter rotating in the wrong direction. 5. Taking too deep of a cut.	1. Replace cutter or have it professionally sharpened. 2. Increase feed speed. 3. Clean cutter with a blade and bit cleaning solution. 4. Reverse the direction of the cutter rotation (**Page 23**). 5. Make several passes of light cuts.
Fuzzy grain.	1. Wood may have high moisture content or surface wetness. 2. Dull cutter.	1. Check moisture content and allow to dry if moisture is more than 20% (**Page 21**). 2. Replace or have cutter professionally sharpened.
Chipping.	1. Knots or conflicting grain direction in wood. 2. Nicked or chipped cutter. 3. Feeding workpiece too fast. 4. Taking too deep of a cut. 5. Cutting against the grain of the wood.	1. Inspect workpiece for knots and grain direction (**Page 21**); only use clean stock. 2. Replace the cutter, or have it professionally sharpened. 3. Slow down the feed rate. 4. Take a smaller depth of cut. (Always reduce cutting depth when working with hard woods.) 5. Cut with the grain of the wood.
Divots in the edge of the cut.	1. Inconsistent feed speed. 2. Inconsistent pressure against the fence and rub collar. 3. Fence not adjusted correctly.	1. Move smoothly or use a power feeder. 2. Apply constant pressure. 3. Adjust fence (**Page 24**).
Workpiece kicks back toward operator.	1. Taking too deep of a cut. 2. Workpiece is warped, rough, has high moisture content, or loose/large knots. 3. Workpiece pinched between cutter/bit and table or cutter/bit and guard.	1. Make several passes of light cuts. 2. Inspect workpiece (**Page 21**); only use smooth, dry stock without loose/large knots. 3. Ensure proper clearance between cutter/bit, guard, and table.
Workpiece pulls forward/ejects from operator's hands.	1. Cutter rotating in the wrong direction.	1. Reverse the direction of the cutter rotation (**Page 23**).
Workpiece hits outfeed fence.	1. Fence not adjusted correctly.	1. Adjust fence (**Page 24**).
Excessive snipe (gouge in end of board that is uneven with rest of cut).	1. Fence not adjusted correctly. 2. Inconsistent pressure against the fence and rub collar.	1. Adjust fence (**Page 24**). 2. Apply constant pressure.

Router Table Conversion

To use router bits with the shaper, you must convert the shaper to a router table by installing the provided table spacers and router bit collet. This process typically takes approximately 20 minutes.

Items Needed:	Qty
Router Bit Adapter	1
Spacers ½"	7
Hex Bolts M12-1.75 x 40	5
Hex Bolts M12-1.75 x 30	2
Lock Washers 12mm	7
Flat Wrench 26mm	1
Open-End Wrenches 8, 14, 17mm	1 Each

To convert shaper for use as router table:

1. DISCONNECT MACHINE FROM POWER!

2. Remove spindle lock nut and any cutters or rub collars installed on spindle.

3. Remove table from shaper by removing (7) bolts and washers that secure it in place.

4. Loosen and remove taper nut (see **Figure 49**) while holding top of spindle with wrench.

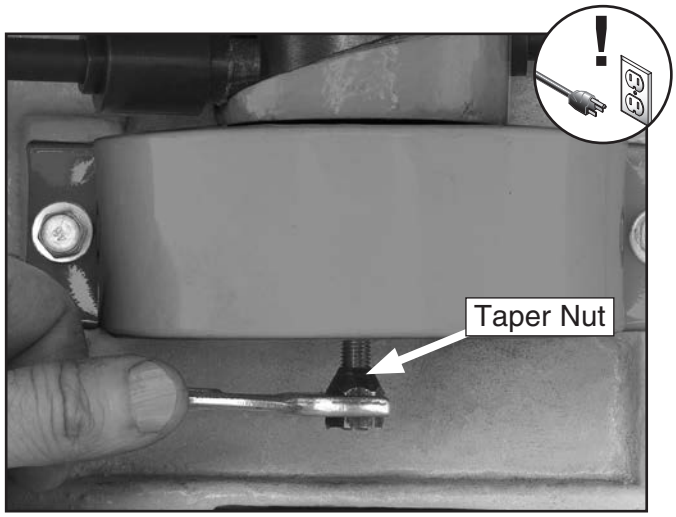


Figure 49. Removing taper nut from drawbar.

5. Gently tap bottom of drawbar to knock spindle loose.

6. Remove spindle/drawbar assembly from spindle cartridge.

7. Place desired collet into collet nut by pushing it in until it snaps into place (see **Figure 50**).

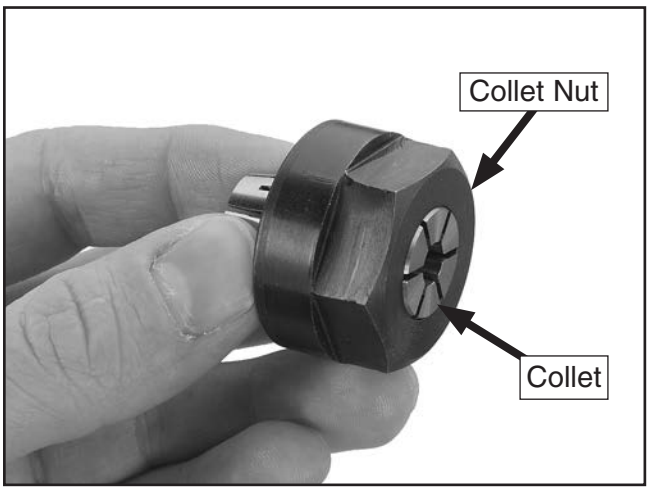


Figure 50. Collet snapped into collet nut.

8. Insert collet into spindle cartridge and tighten collet nut until collet is flush with top of collet nut, as shown in **Figure 51**.

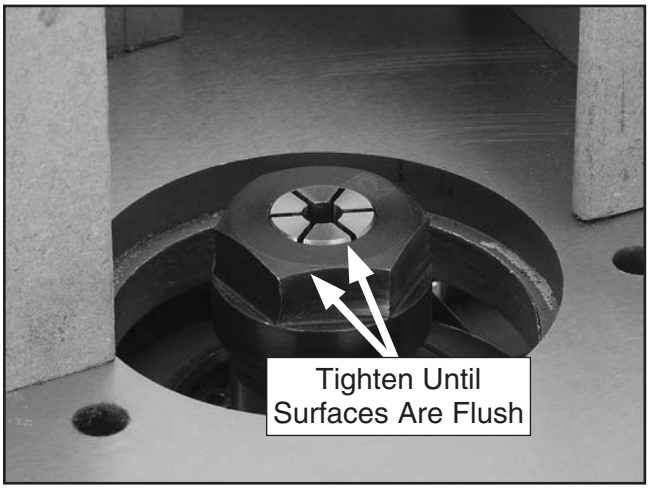


Figure 51. Collet flush with top of collet nut.

9. Place table spacers over table mounting holes on shaper.

10. Place table on spacers and secure it to shaper with hex bolts and lock washers from router table spacer kit (see **Figure 52**).

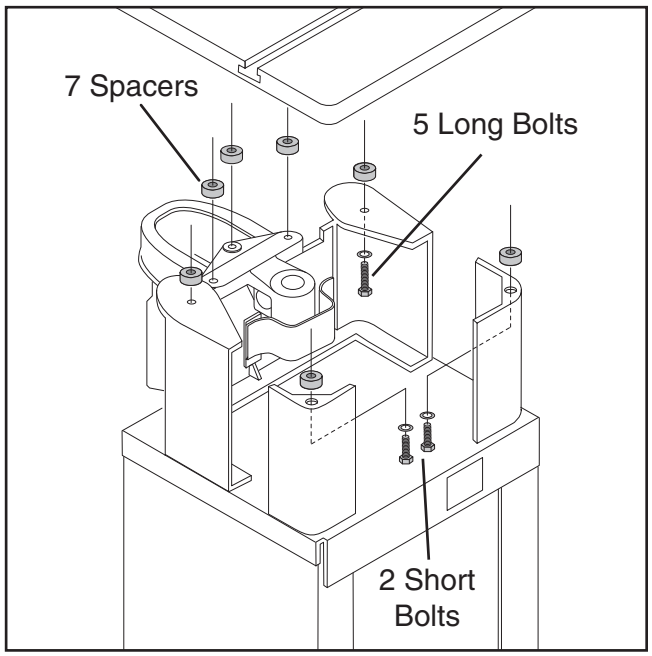


Figure 52. Installing table spacers to convert shaper to router table.

11. Save removed table bolts for when you need to convert Model G0510Z back to use as shaper.

Shaper Conversion

Use these procedures to convert the Model G0510Z from a router table to a shaper.

The Model G0510Z can still use shaper cutters without removing the table spacers, but you may not be able to use the full profile of all cutters with the table in this position.

Items Needed:	**Qty**
Flat Wrench 26mm	1
Wrench 14mm	1
Wrench/Socket 17mm	1
Wrench 8mm	1
Wrench 30mm	1
Hex Bolts M12-1.75 x 20	2
Flat Washers ½"	2
Hex Bolts M12-1.75 x 25	5
Lock Washers ½"	5

To convert router table to shaper:

1. DISCONNECT MACHINE FROM POWER!

2. Remove any router bits that are installed in collet.

3. Remove table and table spacers from shaper by removing (7) bolts and lock washers that secure table in place.

4. Replace table with (2) M12-1.75 x 20 hex bolts, (2) ½" flat washers, (5) M12-1.75 x 25 hex bolts, and (2) ½" lock washers (original mounting bolts you removed when you converted shaper for use as router table).

5. Insert spindle/drawbar assembly into spindle cartridge.

6. Thread drawbar nut onto bottom of drawbar with taper side up.

7. Tighten taper nut by holding another wrench on spindle flats, as shown in **Figure 53**.

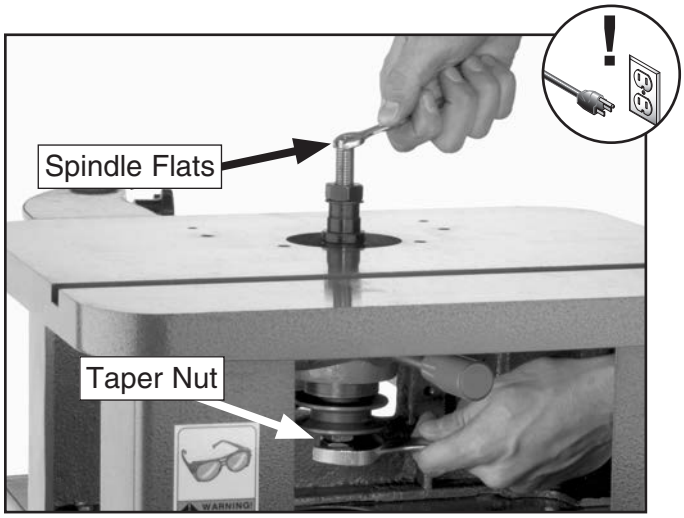


Figure 53. Tightening taper nut to install shaper cutter spindle (pulley guard removed for clarity).

Fence Board Alignment

For safe and accurate shaping, the fence boards must be parallel with one another so that they properly support the workpiece through the entire cutting operation.

Tools Needed	Qty
Phillips Screwdriver #2	1
Precision Straightedge 24"	1
Shims	As Needed

To make fence boards parallel:

1. DISCONNECT MACHINE FROM POWER!

2. Make sure fence boards are even with each other, then place straightedge against both fence boards, as shown in **Figure 54**.

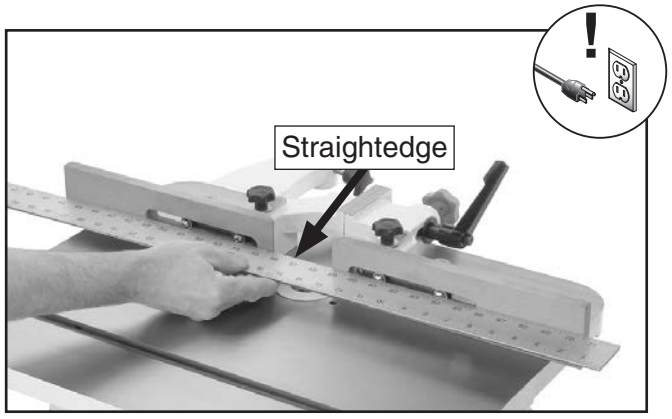


Figure 54. Example of aligning fence boards.

   — If there is a gap between straightedge and fence boards, use shims as needed between fence boards and mounting brackets to make boards completely parallel with each other along their entire length.

Truing Fence

A flat and properly aligned fence creates a safer, smoother cutting operation. A damaged or worn fence should be replaced. Be sure to replace BOTH fences at the same time to ensure each is properly flattened and align correctly.

To true fence:

1. Ensure bolts through wood fence facing on each side are tight and adequately countersunk.

2. To align fence faces, rotate fence offset knob so they are in alignment. Micro-adjust and check alignment with straightedge.

3. If fences are not coplanar with each other, remove both fences and resurface as one unit. You can perform this operation on a jointer, as shown in **Figure 55**.

NOTICE

Make sure screws are countersunk deep enough so workpiece will not come in contact with heads of screws! Check screw depth after each pass to ensure that screws will not contact knives!

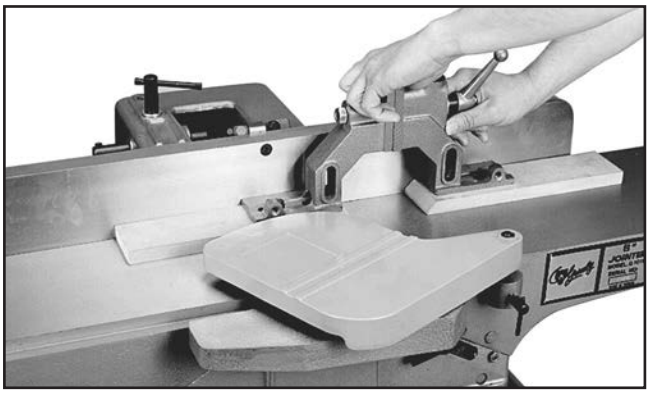


Figure 55. Resurfacing fences on jointer.

Replacing Spindle Cartridge Assembly

The spindle cartridge assembly features factory-sealed bearings. A sealed bearing requires no lubrication during its lifetime.

If a bearing fails, your shaper will probably develop a noticeable rumble, which increases when the machine is put under load. If allowed to worsen, overheating of the housing containing the bad bearing could occur, which may cause the bearing to seize and possibly damage other parts of the machine.

Rather than disassemble the spindle cartridge to remove the bad bearings, Grizzly offers replacement spindle cartridge assemblies (Part# P0510Z317) as whole units, which makes replacement very simple. The whole procedure can be accomplished in 15-20 minutes.

Tools Needed:	**Qty**
Flat Wrench 26mm	1
Wrench/Socket 19mm	1
Wrench 14mm	1
Wrench 8mm	1
Replacement Spindle Cartridge Assembly	1

To replace spindle cartridge assembly:

1. DISCONNECT MACHINE FROM POWER!

2. Remove spindle and drawbar from spindle cartridge assembly. (Remove tapered drawbar nut and tap drawbar up to knock it loose.)

3. Take off spindle pulley cover by removing (2) mounting bolts shown in **Figure 56**.

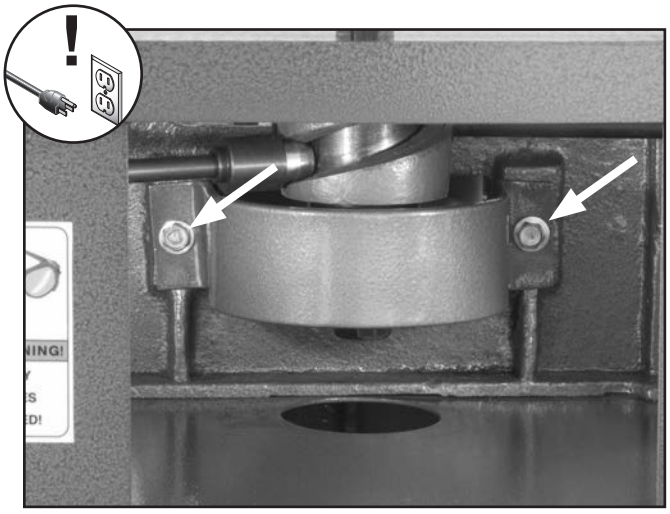


Figure 56. Spindle pulley cover mounting bolts.

4. Loosen (2) motor mount bolts, slide motor forward, and remove V-belt.

5. Loosen spindle lock knob.

6. Remove cartridge nut on bottom of spindle, as shown in **Figure 57**, and slide pulley off.

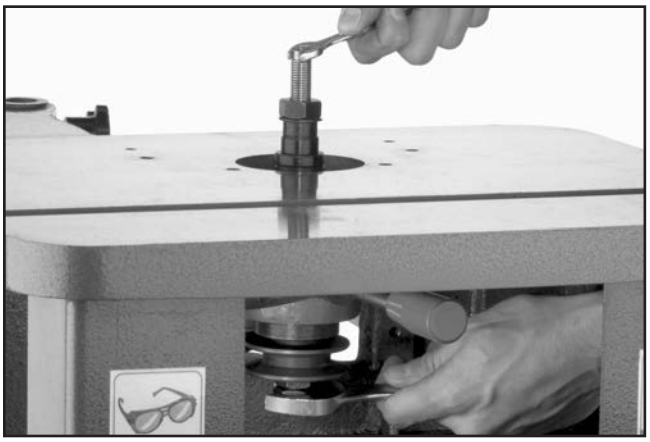


Figure 57. Loosening spindle cartridge nut.

7. Hold your hand under spindle cartridge and remove elevation handle by unthreading it counterclockwise. Spindle cartridge should drop into your hand.

8. Install new cartridge assembly in reverse order of disassembly.

SECTION 9: WIRING

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

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

⚠WARNING
Wiring Safety Instructions

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

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

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

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

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

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

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

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

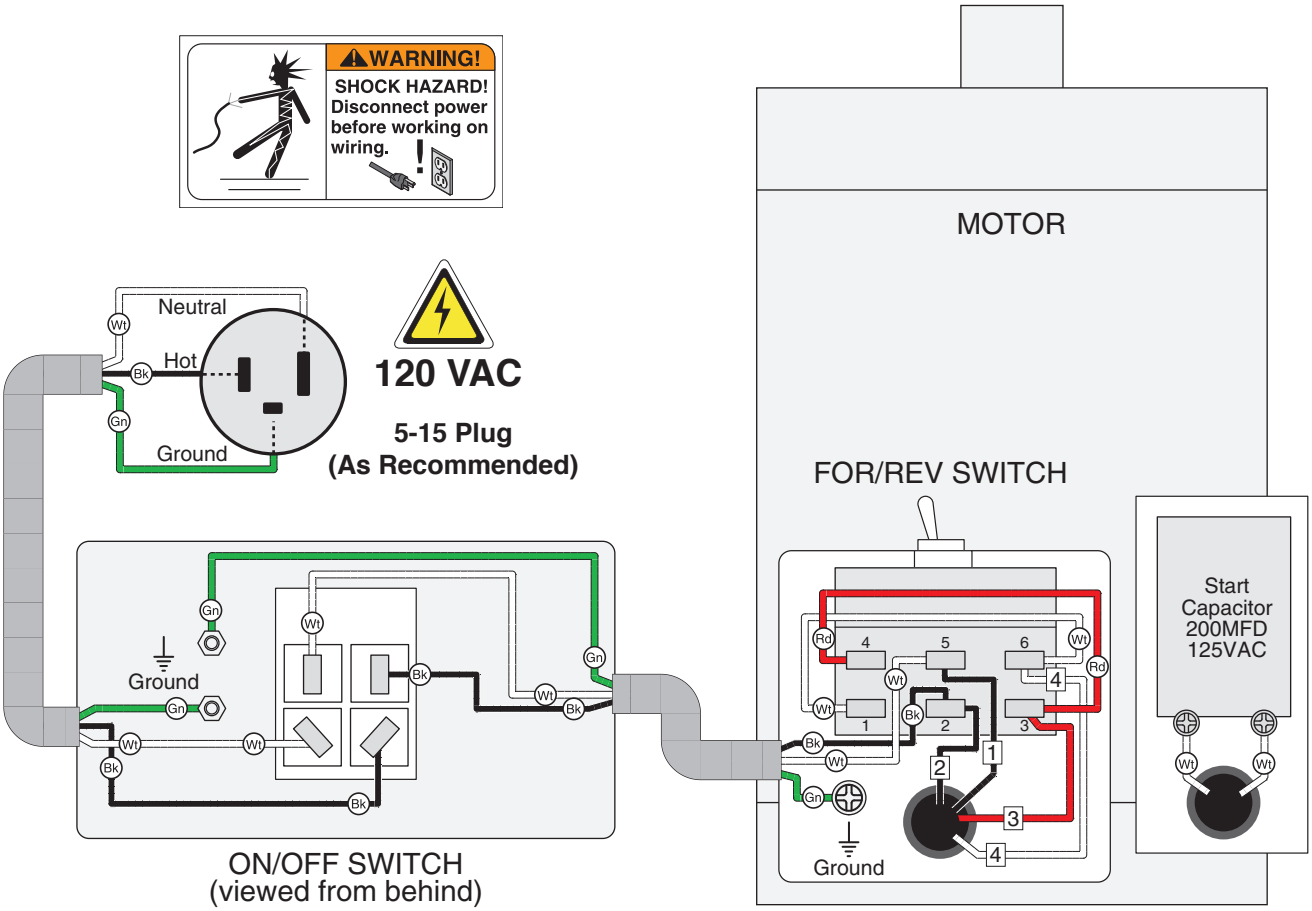
NOTICE

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

COLOR KEY

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

Electrical Components & Wiring



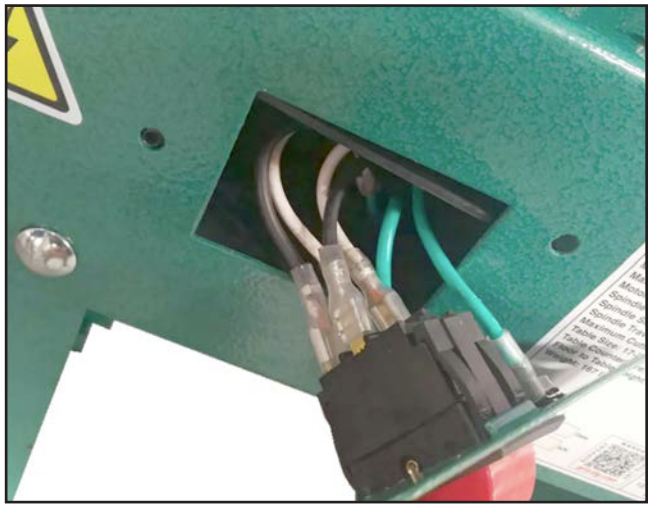
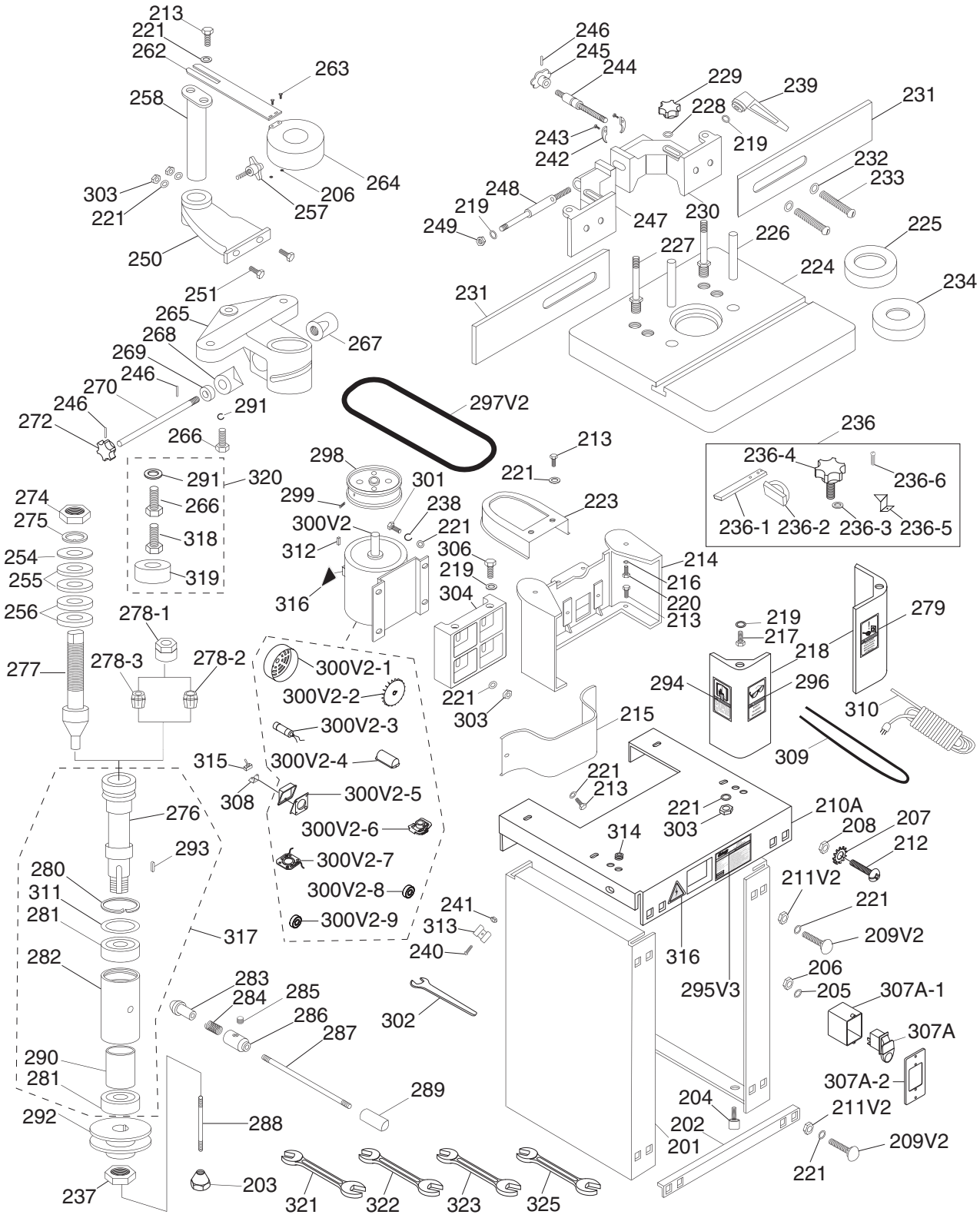


Figure 58. ON/OFF switch.

Figure 59. Forward/Reverse switch.

SECTION 10: PARTS

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



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Parts List

REF	PART #	DESCRIPTION
201	P0510Z201	SIDE PANEL
202	P0510Z202	TIE BAR
203	P0510Z203	TAPER NUT M8-1.25
204	P0510Z204	RUBBER FOOT
205	P0510Z205	FLAT WASHER 4MM
206	P0510Z206	HEX NUT M4-.7
207	P0510Z207	EXT TOOTH WASHER 5MM
208	P0510Z208	HEX NUT M5-.8
209V2	P0510Z209V2	CARRIAGE BOLT M8-1.25 X 12 V2.11.21
210A	P0510Z210A	SHELF V2.07.07
211V2	P0510Z211V2	HEX NUT M8-1.25 V2.11.21
212	P0510Z212	PHLP HD SCR M5-.8 X 12
213	P0510Z213	HEX BOLT M8-1.25 X 12
214	P0510Z214	TABLE SUPPORT
215	P0510Z215	SPINDLE PULLEY GUARD
216	P0510Z216	LOCK WASHER 1/2"
217	P0510Z217	HEX BOLT M12-1.75 X 20
218	P0510Z218	TABLE LEG
219	P0510Z219	FLAT WASHER 1/2"
220	P0510Z220	HEX BOLT M12-1.75 X 25
221	P0510Z221	FLAT WASHER 3/8"
223	P0510Z223	BELT GUARD
224	P0510Z224	WORKING TABLE
225	P0510Z225	TABLE INSERT 1-3/4"
226	P0510Z226	TAPER PIN
227	P0510Z227	CLAMP STUD
228	P0510Z228	FLAT WASHER 5/16"
229	P0510Z229	STAR KNOB (FEMALE) M8-1.25
230	P0510Z230	FENCE BODY RIGHT
231	P0510Z231	FENCE 1 PC
232	P0510Z232	FLAT WASHER 8MM
233	P0510Z233	PHLP HD SCR M8-1.25 X 20
234	P0510Z234	TABLE INSERT 1-3/8"
236	P0510Z236	COMPLETE MITER GAUGE
236-1	P0510Z236-1	MITER BAR
236-2	P0510Z236-2	MITER GAUGE BODY
236-3	P0510Z236-3	FLAT WASHER 6MM
236-4	P0510Z236-4	STAR KNOB M6-1 X 16
236-5	P0510Z236-5	POINTER
236-6	P0510Z236-6	PHLP HD SCR M4-.7 X 8
237	P0510Z237	CARTRIDGE NUT M18-1.5
238	P0510Z238	LOCK WASHER 3/8"
239	P0510Z239	LOCK HANDLE M12-1.75
240	P0510Z240	PHLP HD SCR M6-1 X 12
241	P0510Z241	HEX NUT M6-1

REF	PART #	DESCRIPTION
242	P0510Z242	HALF COLLAR
243	P0510Z243	PHLP HD SCR M6-1 X 12
244	P0510Z244	ADJUSTING SCREW STUD
245	P0510Z245	STAR KNOB 8MM, PINNED
246	P0510Z246	ROLL PIN 3 X 20
247	P0510Z247	FENCE BODY LEFT
248	P0510Z248	CLAMP STUD
249	P0510Z249	HEX NUT M12-1.75
250	P0510Z250	MOUNTING BRACKET
251	P0510Z251	HEX BOLT M8-1.25 X 30
254	P0510Z254	RUB COLLAR 1/2 X 1-3/16 X 3/16
255	P0510Z255	RUB COLLAR 1/2 X 1-3/16 X 1/4
256	P0510Z256	RUB COLLAR 1/2 X 1-3/16 X 3/8
257	P0510Z257	STAR KNOB BOLT M10-1.5 X 28
258	P0510Z258	GUARD MOUNTING POST
262	P0510Z262	GUARD ATTACHMENT BAR
263	P0510Z263	PHLP HD SCR M4-.7 X 12
264	P0510Z264	SAFETY GUARD
265	P0510Z265	HOUSING BRACKET
266	P0510Z266	HEX BOLT M12-1.75 X 30
267	P0510Z267	CLAMP SLEEVE RIGHT
268	P0510Z268	CLAMP SLEEVE LEFT
269	P0510Z269	STUFF RING
270	P0510Z270	LOCK BAR
272	P0510Z272	STAR KNOB 12MM, PINNED
274	P0510Z274	SPINDLE NUT
275	P0510Z275	SAFETY WASHER
276	P0510Z276	SPINDLE CARTRIDGE
277	P0510Z277	CUTTER SPINDLE V2.02.08
278-1	P0510Z278-1	ROUTER BIT COLLET NUT
278-2	P0510Z278-2	ROUTER BIT COLLET 1/2"
278-3	P0510Z278-3	ROUTER BIT COLLET 1/4"
279	P0510Z279	UNPLUG MACHINE LABEL
280	P0510Z280	INT RETAINING RING 47MM
281	P0510Z281	BALL BEARING 6204
282	P0510Z282	SPINDLE HOUSING
283	P0510Z283	BEARING CONE
284	P0510Z284	COIL SPRING
285	P0510Z285	SET SCREW M8-1.25 X 8
286	P0510Z286	SPRING COLLAR
287	P0510Z287	STUD M12-1.75 X 355
288	P0510Z288	DRAWBAR M8-1.25 X 130 V2.02.08
289	P0510Z289	SLIP-ON HANDLE 12MM
290	P0510Z290	BEARING SLEEVE
291	P0510Z291	LOCK WASHER 12MM

⚠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.

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Parts List (Cont.)

REF	PART #	DESCRIPTION
292	P0510Z292	SPINDLE PULLEY
293	P0510Z293	KEY 4 X 4 X 20
294	P0510Z294	READ MANUAL LABEL
295V3	P0510Z295V3	MACHINE LABEL CSA V3.03.17
296	P0510Z296	SAFETY GLASSES LABEL
297V2	P0510Z297V2	V-BELT A29 V2.11.17
298	P0510Z298	MOTOR PULLEY
299	P0510Z299	SET SCREW M6-1 X 10
300V2	P0510Z300V2	MOTOR 1HP 120V 1-PH V2.10.16
300V2-1	P0510Z300V2-1	FAN COVER
300V2-2	P0510Z300V2-2	FAN
300V2-3	P0510Z300V2-3	CAPACITOR 125V 200M (3" X 1")
300V2-4	P0510Z300V2-4	CAPACITOR COVER
300V2-5	P0510Z300V2-5	WIRING BOX
300V2-6	P0510Z300V2-6	CENTRIFUGAL SWITCH
300V2-7	P0510Z300V2-7	CONTACT PLATE
300V2-8	P0510Z300V2-8	BALL BEARING 6204ZZ (FRONT)
300V2-9	P0510Z300V2-9	BALL BEARING 6204ZZ (REAR)
301	P0510Z301	HEX BOLT M8-1.25 X 35
302	P0510Z302	FLAT WRENCH 26MM
303	P0510Z303	HEX NUT M8-1.25
304	P0510Z304	MOTOR MOUNT PLATE

REF	PART #	DESCRIPTION
306	P0510Z306	HEX BOLT M12-1.75 X 35
307A	P0510Z307A	ON/OFF PADDLE SWITCH
307A-1	P0510Z307A-1	SWITCH REAR COVER V2.07.07
307A-2	P0510Z307A-2	SWITCH FRONT COVER V2.07.07
308	P0510Z308	FWD/REV SWITCH
309	P0510Z309	MOTOR CORD
310	P0510Z310	POWER CORD 14G
311	P0510Z311	WAVY WASHER 45MM
312	P0510Z312	KEY 5 X 5 X 22
313	P0510Z313	STRAIN RELIEF
314	P0510Z314	STRAIN RELIEF
315	P0510Z315	FWD/REV SWITCH
316	P0510Z316	ELECTRICITY LABEL
317	P0510Z317	SPINDLE CARTRIDGE ASSEMBLY
318	P0510Z318	HEX BOLT M12-1.75 X 40
319	P0510Z319	RUB COLLAR 1/2 X 1-3/16 X 1/2
320	P0510Z320	ROUTER TABLE SPACER KIT
321	P0510Z321	WRENCH 8 X 10MM OPEN-ENDS
322	P0510Z322	WRENCH 12 X 14MM OPEN-ENDS
323	P0510Z323	WRENCH 27 X 30MM OPEN-ENDS
325	P0510Z325	WRENCH 22 X 24MM OPEN-ENDS

⚠WARNING

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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.

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.

In the event you need to use 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.

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.

To take advantage of this warranty, you must register it at **https://www.grizzly.com/forms/warranty**, or you can scan the QR code below to be automatically directed to our warranty registration page. Enter all applicable information for the product.

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