

# 24" 7½ HP BANDSAW

MODEL SB1123



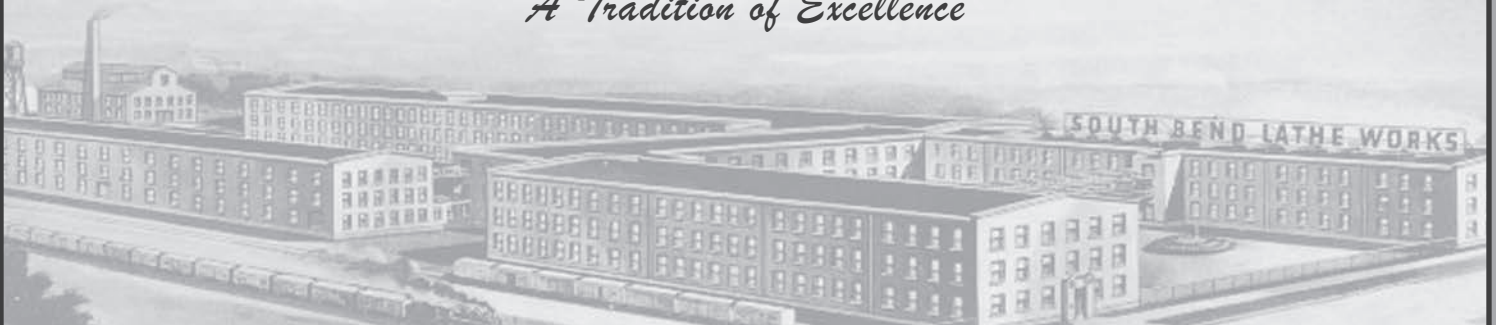
**OWNER'S MANUAL**

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# Scope of Manual

This manual helps the reader understand the machine, how to prepare it for operation, how to control it during operation, and how to keep it in good working condition. We assume the reader has a basic understanding of how to operate this type of machine, but that the reader is not familiar with the controls and adjustments of this specific model. As with all machinery of this nature, learning the nuances of operation is a process that happens through training and experience. If you are not an experienced operator of this type of machinery, read through this entire manual, then learn more from an experienced operator, schooling, or research before attempting operations. Following this advice will help you avoid serious personal injury and get the best results from your work.

# Manual Feedback

We've made every effort to be accurate when documenting this machine. However, errors sometimes happen or the machine design changes after the documentation process—so the manual may not exactly match your machine. If a difference between the manual and machine leaves you in doubt, contact our customer service for clarification.

We highly value customer feedback on our manuals. If you have a moment, please share your experience using this manual. What did you like about it? Is there anything you would change to make it better? Did it meet your expectations for clarity, professionalism, and ease-of-use?

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# Updates

For your convenience, any updates to this manual will be available to download free of charge through our website at:

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# Customer Service

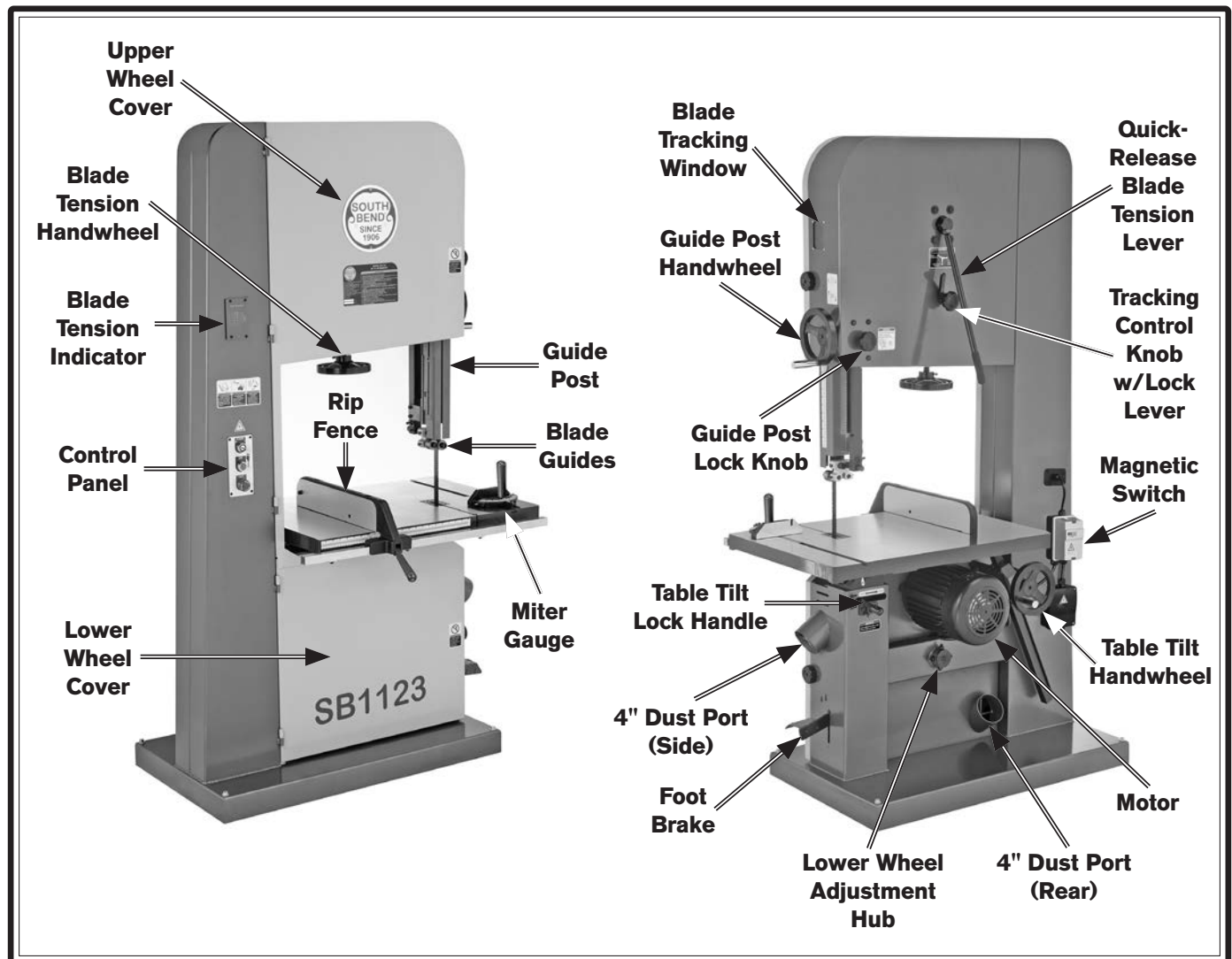
We stand behind our machines. If you have any service questions, parts requests or general questions about your purchase, feel free to contact us.

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# Identification

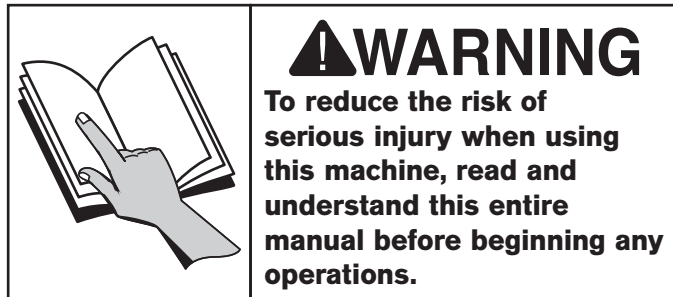


## **⚠ CAUTION**

**For Your Own Safety, Read Instruction Manual Before Operating Saw.**

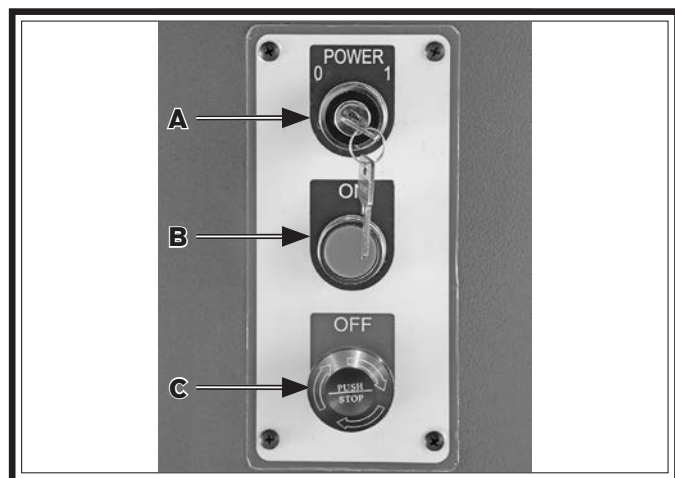
- a) **Wear eye protection.**
- b) **Do not remove jammed cutoff pieces until blade has stopped.**
- c) **Maintain proper adjustment of blade tension, blade guides, and thrust bearings.**
- d) **Adjust upper guide to just clear workpiece.**
- e) **Hold workpiece firmly against table.**

## Description of Controls & Components



Refer to **Figures 1–8** and the following descriptions to become familiar with the basic controls and components used to operate this machine.

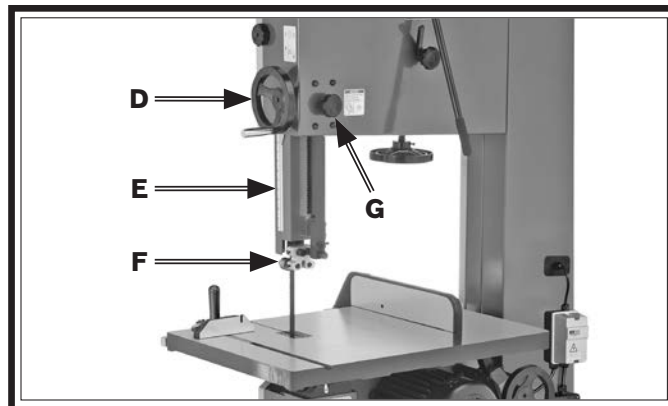
### Control Panel



**Figure 1. Control panel.**

- A. Master Power Key Switch:** Turns incoming power *ON* and *OFF*. Requires key.
- B. ON Button:** Turns motor *ON* when pressed.
- C. OFF Button:** Turns motor *OFF* when pressed. Motor will not start until switch is reset. Twist clockwise to reset.

### Guide Post



**Figure 2. Guide post controls.**

- D. Guide Post Handwheel:** Adjusts height of guide post above workpiece, using a rack-and-pinion system.
- E. Guide Post w/Scale:** Houses upper blade guides and support bearing, and shields operator from upper portion of blade. Adjusts up or down as necessary to position upper blade guides/support bearing as close as possible to workpiece for maximum cutting accuracy and minimum blade exposure to operator. Scale on side of guide post indicates height of upper blade guide above table.
- F. Upper Blade Guide & Support Bearing:** Supports blade above workpiece during operations.
- G. Guide Post Lock Knob:** Secures guide post position after adjustment.



## Table Tilt

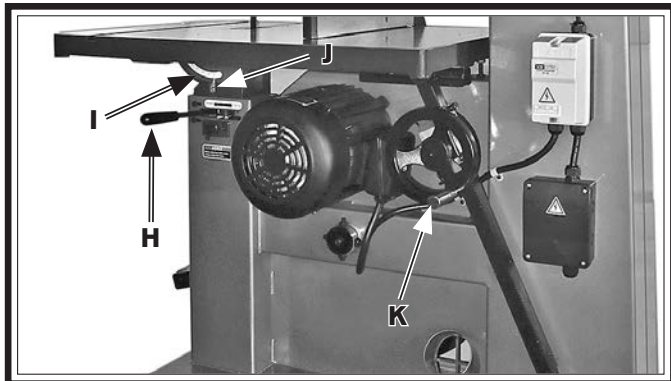


Figure 3. Table tilt controls.

- H. Table Tilt Lock Lever:** Secures table tilt position on trunnion. Must be loosened before table tilt can be adjusted.
- I. Trunnion w/Table Tilt Scale:** Functions as a tilting base for table. Graduated in degrees from 5° left – 45° right for setting bevel angle.
- J. Table Tilt Indicator:** Shows table tilt angle.
- K. Table Tilt Handwheel:** Adjusts angle of table tilt using a rack-and-pinion system.

## Foot Brake



Figure 4. Location of foot brake.

- L. Foot Brake:** When pedal is pressed, brake shoe physically stops blade wheels, and limit switch electronically turns motor **OFF**.

**IMPORTANT:** After the foot brake is pressed, the machine can be restarted by pressing the **ON** button. The **OFF** button does not have to be reset.

## Fence & Miter Gauge

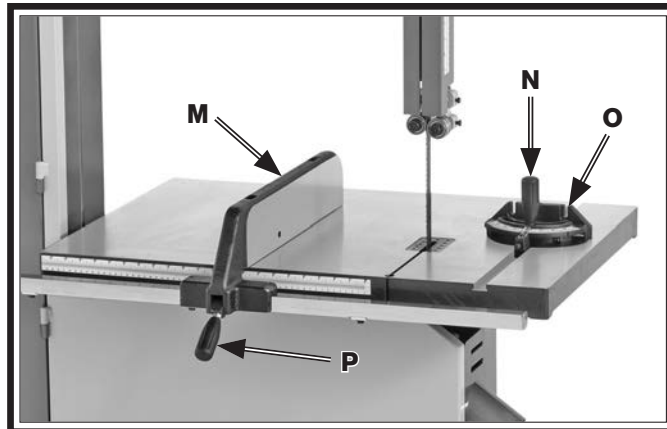


Figure 5. Fence and miter gauge controls.

- M. Rip Fence:** Used for ripping. Distance from blade determines width of cut.
- N. Miter Gauge Lock Knob:** Secures angle position of miter gauge.
- O. Miter Gauge:** Typically used for cross cuts. Can be adjusted from 0°–60° left or right, and has stops at 45°L, 0°, and 45°R.
- P. Fence Lock Handle:** Secures fence position.

## Lower Wheel Adjustment



Figure 6. Lower wheel adjustment controls.

- Q. Lower Wheel Adjustment Hub:** Adjusts position of lower wheel to upper wheel if coplanar adjustments become necessary (refer to **Page 65**).

**Note:** The wheels are factory-set to be coplanar, so we strongly recommend that you avoid making adjustments here unless it becomes absolutely necessary.

## Blade Tension & Tracking

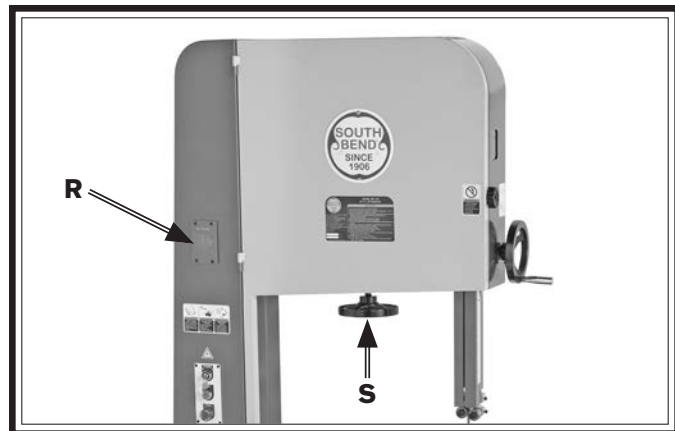


Figure 7. Tension scale and blade tension handwheel.

- R. Blade Tension Scale:** Displays blade tension using numbers 0–38. For reference purposes only—after you have found the proper tension for the blade installed.
- S. Blade Tension Handwheel:** Increases/decreases blade tension (refer to **Page 27**).

### **! WARNING**

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

### **! CAUTION**

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

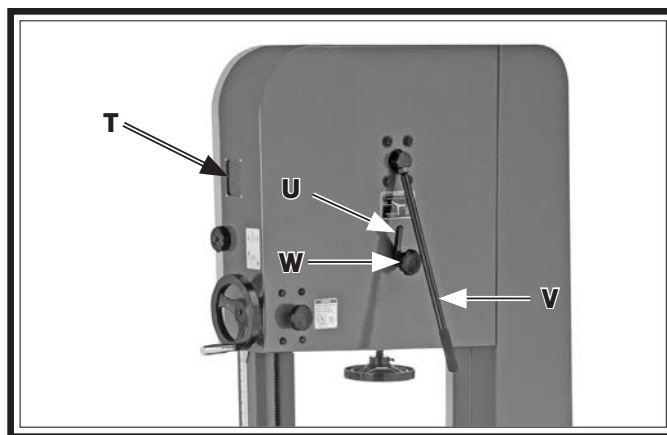


Figure 8. Tracking window, blade tracking controls, and blade tension quick-release lever.

- T. Blade Tracking Window:** Allows monitoring/adjustment of blade tracking without requiring wheel cover to be open (refer to **Page 22**).
- U. Tracking Control Lock Lever:** Secures position of blade tracking control knob.
- V. Blade Tension Quick-Release Lever:** Quickly releases blade tension to speed up blade changes and prevent unnecessary stretching of blade and wear on saw components when not in use. Move clockwise to release blade tension; move counterclockwise to tension blade; and position downward to partially tension blade when tracking. To prolong life of blade, always release blade tension when saw is not in use.
- W. Tracking Control Knob:** Adjusts tilt position of upper wheel to set/control blade tracking (refer to **Page 22**).



## Model SB1123 24" 7-1/2 HP Bandsaw

**Product Dimensions**

Weight..... 847 lbs.  
 Width (side-to-side) x Depth (front-to-back) x Height..... 48 x 32 x 83-1/2 in.  
 Footprint (Length x Width)..... 41-1/2 x 23-1/2 in.

**Shipping Dimensions**

Type..... Wood Slat Crate  
 Content..... Machine  
 Weight..... 948 lbs.  
 Length x Width x Height..... 46 x 28 x 89 in.  
 Must Ship Upright..... Yes

**Electrical**

Power Requirement..... 220V or 440V, 3-Phase, 60 Hz  
 Prewired Voltage..... 220V  
 Full-Load Current Rating..... 20A at 220V, 10A at 440V  
 Minimum Circuit Size..... 30A at 220V, 15A at 440V  
 Connection Type..... Permanent (Hardwire)  
 Power Cord Included..... No  
 Plug Included..... No  
 Switch Type..... Control Panel w/Magnetic Switch Protection & Lockout Key  
 Voltage Conversion Kit..... G440VSB1123 for 440V  
 Recommended Phase Converter..... G5845

**Motors**

**Main**

Horsepower..... 7.5 HP  
 Phase..... 3-Phase  
 Amps..... 20A/10A  
 Speed..... 1720 RPM  
 Type..... TEFC Induction  
 Power Transfer ..... Belt  
 Bearings..... Shielded & Permanently Lubricated

**Main Specifications**

**Main Specifications**

Bandsaw Size..... 24 in.  
 Max Cutting Width (Left of Blade)..... 24-3/8 in.  
 Max Cutting Width (Left of Blade) w/Fence..... 23 in.  
 Max Cutting Height (Resaw Height)..... 16 in.  
 Blade Speeds..... 5100 FPM



**Blade Information**

Standard Blade Length.....	181 in.
Blade Length Range.....	180 - 181-1/2 in.
Blade Width Range.....	1/4 - 1-1/2 in.
Type of Blade Guides.....	Double Ball Bearing
Guide Post Adjustment Type.....	Rack & Pinion
Has Quick-Release.....	Yes

**Table Information**

Table Length.....	33-1/2 in.
Table Width.....	23-5/8 in.
Table Thickness.....	2 in.
Table Tilt.....	Left 5 - Right 45 deg.
Table Tilt Adjustment Type.....	Rack & Pinion
Floor-to-Table Height.....	34-1/2 in.
Fence Locking Position.....	Front
Fence is Adjustable for Blade Lead.....	Yes
Resaw Fence Attachment Included.....	No
Miter Gauge Included.....	Yes

**Miter Gauge Information**

Miter Angle.....	0 - 60 deg. L/R
Miter Gauge Slot Type.....	T-Slot
Miter Gauge Slot Width.....	3/4 in.
Miter Gauge Slot Height.....	3/8 in.

**Construction Materials**

Table.....	Precision-Ground Cast Iron
Trunnion.....	Cast Iron
Fence.....	Precision-Ground Cast Iron
Base/Stand.....	Pre-Formed Steel
Frame/Body.....	Pre-Formed Steel
Wheels.....	Computer-Balanced Cast Iron
Tire.....	Rubber
Wheel Cover .....	Pre-Formed Steel
Paint Type/Finish.....	Epoxy/Powder Coat

**Other Related Information**

Wheel Diameter.....	24-3/4 in.
Wheel Width.....	1-3/4 in.
Number of Dust Ports.....	2 (Min 400 CFM Each)
Dust Port Size.....	4 in.
Compatible Mobile Base.....	D2058A & D2246A, T28000 & T28346

**Other**

Country of Origin .....	Taiwan
Warranty .....	2 Years
Approximate Assembly & Setup Time .....	30 Minutes
Serial Number Location .....	ID Label
ISO 9001 Factory .....	Yes




# Understanding Risks of Machinery

Operating all machinery and machining equipment can be dangerous or relatively safe depending on how it is installed and maintained, and the operator's experience, common sense, risk awareness, working conditions, and use of personal protective equipment (safety glasses, respirators, etc.).

The owner of this machinery or equipment is ultimately responsible for its safe use. This responsibility includes proper installation in a safe environment, personnel training and usage authorization, regular inspection and maintenance, manual availability and comprehension, application of safety devices, integrity of cutting tools or accessories, and the usage of approved personal protective equipment by all operators and bystanders.

The manufacturer of this machinery or equipment will not be held liable for injury or property damage from negligence, improper training, machine modifications, or misuse. Failure to read, understand, and follow the manual and safety labels may result in serious personal injury, including amputation, broken bones, electrocution, or death.

The signals used in this manual to identify hazard levels are as follows:

 <b>DANGER</b>	<i>Death or catastrophic harm WILL occur.</i>	 <b>CAUTION</b>	<i>Moderate injury or fire MAY occur.</i>
 <b>WARNING</b>	<i>Death or catastrophic harm COULD occur.</i>	<b>NOTICE</b>	<i>Machine or property damage may occur.</i>

## Basic Machine Safety

**Owner's Manual:** All machinery and machining equipment presents serious injury hazards to untrained users. To reduce the risk of injury, anyone who uses THIS item MUST read and understand this entire manual before starting.

**Personal Protective Equipment:** Operating or servicing this item may expose the user to flying debris, dust, smoke, dangerous chemicals, or loud noises. These hazards can result in eye injury, blindness, long-term respiratory damage, poisoning, cancer, reproductive harm or hearing loss. Reduce your risks from these hazards by wearing approved eye protection, respirator, gloves, or hearing protection.

**Trained/Supervised Operators Only:** Untrained users can seriously injure themselves or bystanders. Only allow trained and properly supervised personnel to operate this item. Make sure safe operation instructions are clearly understood. If electrically powered, use padlocks and master switches, and remove start switch keys to prevent unauthorized use or accidental starting.

**Guards/Covers:** Accidental contact with moving parts during operation may cause severe entanglement, impact, cutting, or crushing injuries. Reduce this risk by keeping any included guards/covers/doors installed, fully functional, and positioned for maximum protection.

**Entanglement:** Loose clothing, gloves, neckties, jewelry or long hair may get caught in moving parts, causing entanglement, amputation, crushing, or strangulation. Reduce this risk by removing/securing these items so they cannot contact moving parts.

**Mental Alertness:** Operating this item with reduced mental alertness increases the risk of accidental injury. Do not let a temporary influence or distraction lead to a permanent disability! Never operate when under the influence of drugs/alcohol, when tired, or otherwise distracted.

**Safe Environment:** Operating electrically powered equipment in a wet environment may result in electrocution; operating near highly flammable materials may result in a fire or explosion. Only operate this item in a dry location that is free from flammable materials.

**Electrical Connection:** With electrically powered equipment, improper connections to the power source may result in electrocution or fire. Always adhere to all electrical requirements and applicable codes when connecting to the power source. Have all work inspected by a qualified electrician to minimize risk.

**Disconnect Power:** Adjusting or servicing electrically powered equipment while it is connected to the power source greatly increases the risk of injury from accidental startup. Always disconnect power **BEFORE** any service or adjustments, including changing blades or other tooling.

**Secure Workpiece/Tooling:** Loose workpieces, cutting tools, or rotating spindles can become dangerous projectiles if not secured or if they hit another object during operation. Reduce the risk of this hazard by verifying that all fastening devices are properly secured and items attached to spindles have enough clearance to safely rotate.

**Chuck Keys or Adjusting Tools:** Tools used to adjust spindles, chucks, or any moving/rotating parts will become dangerous projectiles if left in place when the machine is started. Reduce this risk by developing the habit of always removing these tools immediately after using them.

**Work Area:** Clutter and dark shadows increase the risks of accidental injury. Only operate this item in a clean, non-glaring, and well-lit work area.

**Properly Functioning Equipment:** Poorly maintained, damaged, or malfunctioning equipment has higher risks of causing serious personal injury compared to those that are properly maintained. To reduce this risk, always maintain this item to the highest standards and promptly repair/service a damaged or malfunctioning component. Always follow the maintenance instructions included in this documentation.

**Unattended Operation:** Electrically powered equipment that is left unattended while running cannot be controlled and is dangerous to bystanders. Always turn the power **OFF** before walking away.

**Health Hazards:** Certain cutting fluids and lubricants, or dust/smoke created when cutting, may contain chemicals known to the State of California to cause cancer, respiratory problems, birth defects, or other reproductive harm. Minimize exposure to these chemicals by wearing approved personal protective equipment and operating in a well ventilated area.

**Difficult Operations:** Attempting difficult operations with which you are unfamiliar increases the risk of injury. If you experience difficulties performing the intended operation, **STOP!** Seek an alternative method to accomplish the same task, ask a qualified expert how the operation should be performed, or contact our Technical Support for assistance.

# Additional Bandsaw Safety

## WARNING

**Serious cuts, amputation, or death can occur from contact with the moving saw blade during operation or if blade breakage occurs. Serious injury or death can also occur from getting fingers, hair, or clothing entangled in moving parts if the machine is operated while the doors are open. To reduce this risk, anyone operating this machine MUST completely heed the hazards and warnings below.**

**Hand Placement.** Placing hands or fingers in line with blade or too close to blade during operation may result in serious injury if hands slip or workpiece moves unexpectedly. Do not position fingers or hands in line with blade, and never reach under table while blade is moving.

**Small/Narrow Workpieces.** If hands slip during a cut while holding small workpieces with fingers, serious personal injury or amputation may occur. Always support/feed small or narrow workpieces with push sticks, push blocks, jig, vise, or some type of clamping fixture.

**Blade Speed.** Cutting workpiece before blade is at full speed could cause blade to grab workpiece and pull hands into blade. Allow blade to reach full speed before starting cut. DO NOT start machine with workpiece contacting blade.

**Feed Rate.** To avoid risk of workpiece slipping and causing operator injury, always feed stock evenly and smoothly. Do not force workpiece through the cut.

**Blade Condition.** Dull blades require more effort to perform cut, increasing risk of accidents. Do not operate with dirty, dull, cracked or badly worn blades. Inspect blades for cracks and missing teeth before each use. Always maintain proper blade tension and tracking while operating.

**Clearing Jams and Cutoffs.** Always stop bandsaw and disconnect power before clearing scrap pieces that get stuck between blade and table insert. Use brush or push stick, not hands, to clear cutoff scraps or clean chips from table.

**Blade Control.** To avoid risk of injury due to blade contact, always allow blade to stop on its own. DO NOT try to stop or slow blade with your hand or the workpiece.

**Guards/Covers.** Blade guards and covers protect operator from the moving bandsaw blade. The wheel covers protect operator from getting entangled with rotating wheels or other moving parts. ONLY operate this bandsaw with blade guard in proper position and wheel covers completely closed.

**Upper Blade Guide Support.** To minimize exposure of operator to blade and provide maximum blade support while cutting, keep upper blade guides adjusted to just clear workpiece (approximately  $\frac{1}{8}$ "– $\frac{1}{4}$ " above workpiece).

**Cutting Techniques.** To avoid blade getting pulled off wheels or accidentally breaking and striking operator, always turn bandsaw OFF and wait for blade to come to a complete stop before backing workpiece out of blade. DO NOT back workpiece away from blade while bandsaw is running. DO NOT force or twist blade while cutting, especially when sawing small curves. This could result in blade damage or breakage.

**Workpiece Support.** To maintain maximum control and reduce risk of blade contact/breakage, always ensure adequate support of long/large workpieces. Always keep workpiece flat and firm against table/fence when cutting to avoid loss of control. If necessary, use a jig or other work-holding device.

## Preparation Overview

The purpose of the preparation section is to help you prepare your machine for operation. The list below outlines the basic process. Specific steps for each of these points will be covered in detail later in this section.

### The typical preparation process is as follows:

1. Unpack the machine and inventory the contents of the box/crate.
2. Clean the machine and its components.
3. Identify an acceptable location for the machine and move it to that location.
4. Level the machine and either bolt it to the floor or place it on mounts.
5. Assemble the loose components and make any necessary adjustments or inspections to ensure the machine is ready for operation.
6. Connect the machine to the power source.
7. Test run the machine to make sure it functions properly and is ready for operation.

### WARNING

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

## Required for Setup

The items listed below are required to successfully set up and prepare this machine for operation.

### For Lifting

- A forklift or other power lifting device rated for the weight of the machine.
- 1x4 and 2x4 blocks.
- Lifting strap w/safety hooks or chain (rated for at least 1000 lbs.)

### For Power Connection

- A power source that meets the minimum circuit requirements for this machine. (Refer to the **Power Supply Requirements** section for details.)
- A qualified electrician to ensure a safe and code-compliant connection to the power source.

### For Assembly

- Safety Glasses
- Cleaner/Degreaser
- Disposable Shop Rags/Gloves
- Straightedge 36"
- Floor Mounting Hardware (As Needed)
- Fine Ruler
- Feeler Gauge 0.016"
- Dust Collection System
- Dust Hoses 4" (x2)
- Hose Clamps 4" (x2)
- Machinist's Square
- Phillips Head Screwdriver #2
- Hex Wrench 8mm




# Power Supply Requirements

## 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 applicable electrical codes and safety standards.

	<p><b>⚠ WARNING</b>  <b>Electrocution or fire may occur if machine is not correctly grounded and attached to the power supply. Use a qualified electrician to ensure a safe power connection.</b></p>
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## Full-Load Current Rating

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

**Full-Load Rating at 220V ..... 20 Amps**

**Full-Load Rating at 440V ..... 10 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 requirements in the following section.

## Circuit Information

A power supply circuit includes all electrical equipment between the main breaker box or fuse panel in your building and the incoming power connections inside the machine. This circuit must be safely sized to handle the full-load current that may be 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.)

<p><b>⚠ CAUTION</b>  <b>For your own safety and protection of property, consult an electrician if you are unsure about wiring practices or applicable electrical codes.</b></p>
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**Note:** The circuit requirements in this manual are for a dedicated circuit—where only one machine will be running at a time. If this machine will be connected to a shared circuit where multiple machines will be running at the same time, consult a qualified electrician to ensure the circuit is properly sized.

## Grounding Requirements

This machine must be grounded! In the event of certain types of malfunctions or breakdowns, grounding provides a path of least resistance for electric current in order to reduce the risk of electric shock.

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 an electrician or qualified 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.

### Phase Converters

DO NOT use a static phase converter to create 3-phase power—it can quickly decrease the life of electrical components on this machine. If you must use a phase converter, only use a rotary phase converter.

**⚠️ WARNING**

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

### Circuit Requirements for 220V

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

- Nominal Voltage ..... 220V/230V/240V
- Cycle ..... 60 Hz
- Phase ..... 3-Phase
- Circuit Rating..... 30 Amps
- Connection ..... Hardwire with Locking Switch

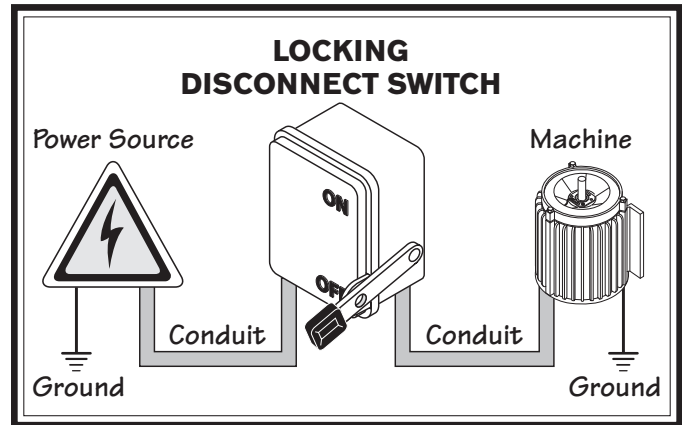
### Circuit Requirements for 440V

This machine can be converted to operate on a 440V power supply. To do this, follow the **Voltage Conversion** instructions included in this manual. The intended 440V circuit must have a verified ground and meet the following requirements:

- Nominal Voltage ..... 440V/480V
- Cycle ..... 60 Hz
- Phase ..... 3-Phase
- Circuit Rating..... 15 Amps
- Connection ..... Hardwire with Locking Switch

### Connection Type

A permanently connected (hardwired) power supply is typically installed with wires running through mounted and secured conduit. A disconnecting means, such as a locking switch (see **Figure 9**), must be provided to allow the machine to be disconnected (isolated) from the power supply when required. This installation must be performed by an electrician in accordance with all applicable electrical codes and ordinances.



**Figure 9. Typical setup of a permanently connected machine.**

### Extension Cords

Since this machine must be permanently connected to the power supply, an extension cord cannot be used.

# Converting Voltage to 440V

The Model SB1123 can be converted to 440V operation. This conversion consists of: 1) Disconnecting the saw from power, 2) replacing the magnetic switch, 3) rewiring the motor for 440V operation.

All wiring changes must be inspected by a qualified electrician or service personnel before the saw is connected to the power source. If, at any time during this procedure you need assistance, call Grizzly Tech Support at (570) 546-9663.

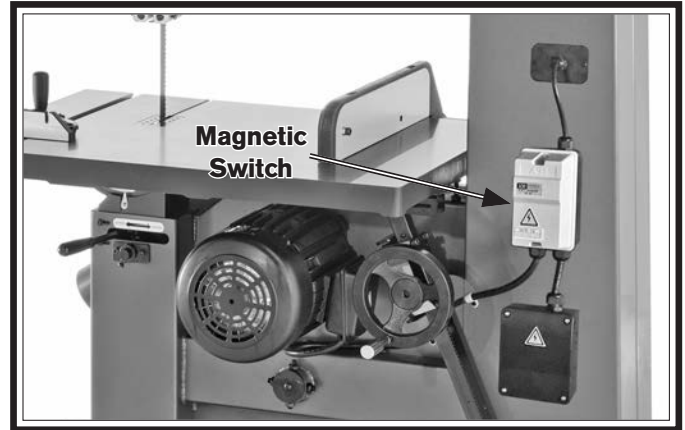
**Items Needed**

	<b>Qty</b>
Phillips Head Screwdriver.....	1
440V Magnetic Switch (Part PSB1123453).....	1
Wrench or Socket 6mm.....	1

**To convert SB1123 to 440V operation:**

1. DISCONNECT MACHINE FROM POWER!

2. Remove 220V magnetic switch from machine column (see **Figure 10**) and replace with 440V magnetic switch (refer to wiring diagram on **Page 74**).



**Figure 10. Location of magnetic switch.**

3. Rewire motor for 440V operation (refer to wiring diagram on **Page 74**).

**Note:** *If the diagram included on the motor conflicts with the one in this manual, the motor may have changed since the manual was printed. Use the diagram provided on the motor.*

# Unpacking

This item was carefully packaged to prevent damage during transport. If you discover any damage, please immediately call Customer Service at (360) 734-1540 for advice. You may need to file a freight claim, so save the containers and all packing materials for possible inspection by the carrier or its agent.

# Inventory

Box 1 (Figure 11)	Qty
A. Bandsaw (Not Shown) .....	1
B. Fence.....	1
C. Fence Rail.....	1
D. Miter Gauge .....	1
E. Open-Ends Wrench 10/13mm .....	1
F. Open-Ends Wrench 17/19mm.....	1
G. Hex Wrench 6mm .....	1
H. Hex Wrench 5mm .....	1
I. Eye Bolts M12-1.75 x 22 .....	2
J. Guide Post Handwheel .....	1

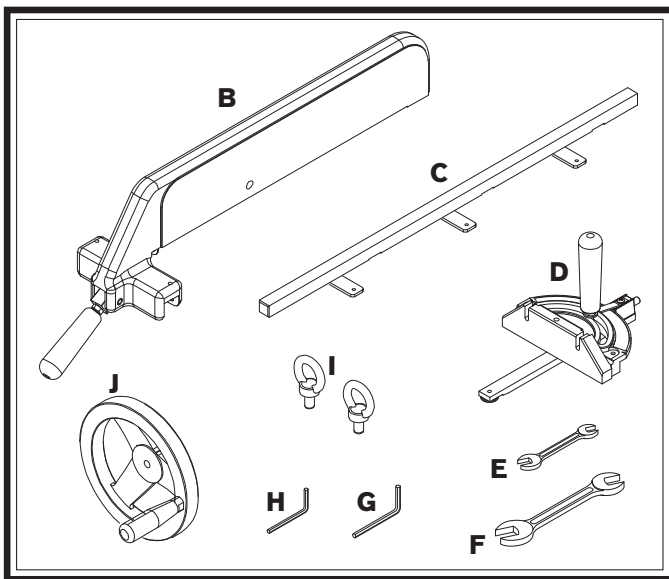


Figure 11. Box 1 inventory.

Box 2 (Figure 12)	Qty
K. Riser Blocks.....	2
L. Hex Bolts M12-1.75 x 100.....	4
M. Flat Washers 12mm.....	4
N. Lock Washers 12mm.....	4

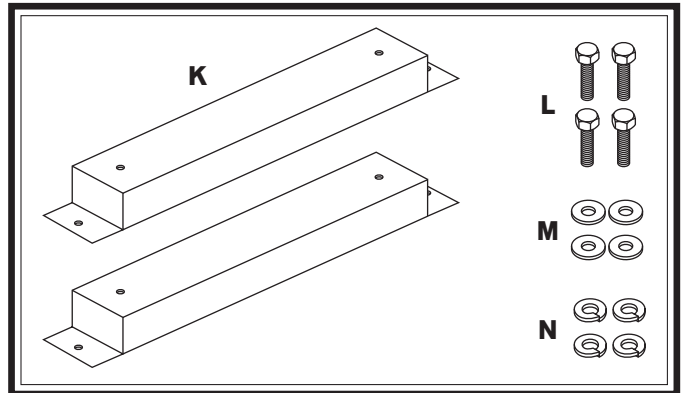


Figure 12. Box 2 inventory.

## 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 packing materials while unpacking or they are pre-installed at the factory.

# Cleaning & Protecting

The unpainted surfaces are coated at the factory with a heavy-duty rust preventative that prevents corrosion during shipment and storage. The benefit of this rust preventative is that it works very well. The downside is that it can be time-consuming to thoroughly remove.


Be patient and do a careful job when cleaning and removing the rust preventative. The time you spend doing this will reward you with smooth-sliding parts and a better appreciation for the proper care of the unpainted surfaces.


Although there are many ways to successfully remove the rust preventative, the following process works well in most situations.

### Before cleaning, gather the following:

- Disposable rags
- Cleaner/degreaser (certain citrus-based degreasers work extremely well and they have non-toxic fumes)
- Safety glasses & disposable gloves

**Note:** Automotive degreasers, mineral spirits, or WD•40 can be used to remove rust preventative. Before using these products, though, test them on an inconspicuous area of a painted surface to make sure they will not damage it.

	<p><b>!WARNING</b> Gasoline and petroleum products have low flash points and can explode or cause fire if used for cleaning. Avoid using these products to remove rust preventative.</p>
---	--

	<p><b>!CAUTION</b> Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.</p>
---	--

## NOTICE

**Avoid chlorine-based solvents, such as acetone or brake parts cleaner that may damage painted surfaces. Always follow the manufacturer's instructions when using any type of cleaning product.**

### Basic steps for removing rust preventative:

1. Put on safety glasses and disposable gloves.
2. Coat all surfaces that have rust preventative with a liberal amount of your cleaner or degreaser and let them soak for a few minutes.
3. Wipe off the surfaces. If your cleaner or degreaser is effective, the rust preventative will wipe off easily.

**Note:** To clean off thick coats of rust preventative on flat surfaces, such as beds or tables, use a PLASTIC paint scraper to scrape off the majority of the coating before wiping it off with your rag. (Do not use a metal scraper or it may scratch the surface.)

4. Repeat Steps 2–3 as necessary until clean, then coat all unpainted surfaces with a quality metal protectant or light oil to prevent rust.

### T23692—Orange Power Degreaser

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

<p>Order online at <a href="http://www.grizzly.com">www.grizzly.com</a> OR Call 1-800-523-4777</p>	
--	---

Figure 13. T23692 Orange Power Degreaser.



# Location

## Physical Environment

The physical environment where your machine is operated is important for safe operation and longevity of parts. For best results, operate this machine in a dry environment that is free from excessive moisture, hazardous or flammable chemicals, airborne abrasives, or extreme conditions. Extreme conditions for this type of machinery are generally those where the ambient temperature is outside the range of 41°–104°F; the relative humidity is outside the range of 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 access to a means of disconnecting the power source or engaging a lockout/tagout device.

## Lighting

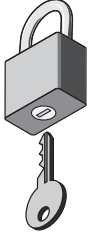
Lighting around the machine must be adequate enough to perform operations safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

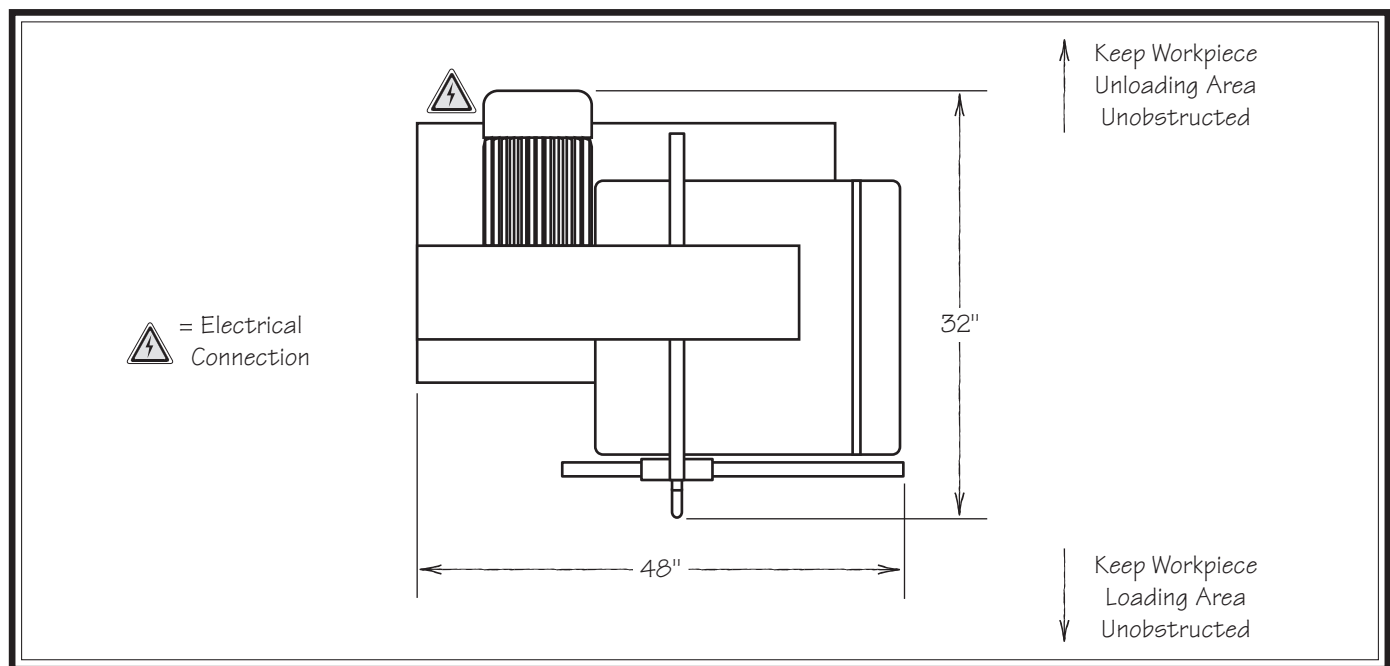
## Weight Load

Refer to the **Machine Specifications** 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

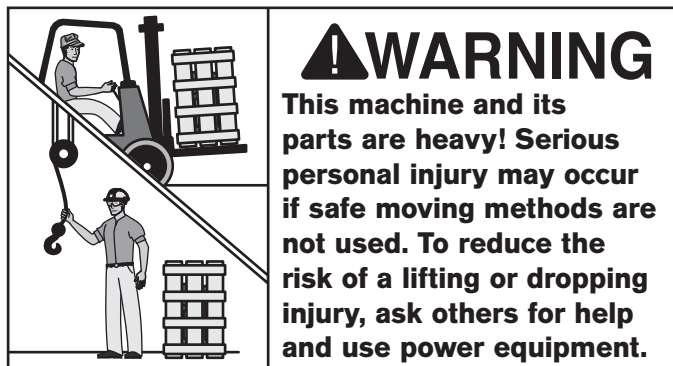
Consider the largest size of workpiece that will be processed through this machine and provide enough space around the machine for adequate operator material handling or the installation of auxiliary equipment. With permanent installations, leave enough space around the machine to open or remove doors/covers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

	<p><b>⚠ CAUTION</b>  <b>Children or untrained people may be seriously injured by this machine. Only install in an access restricted location.</b></p>
---	---



**Figure 14. Clearances.**

## Lifting & Moving

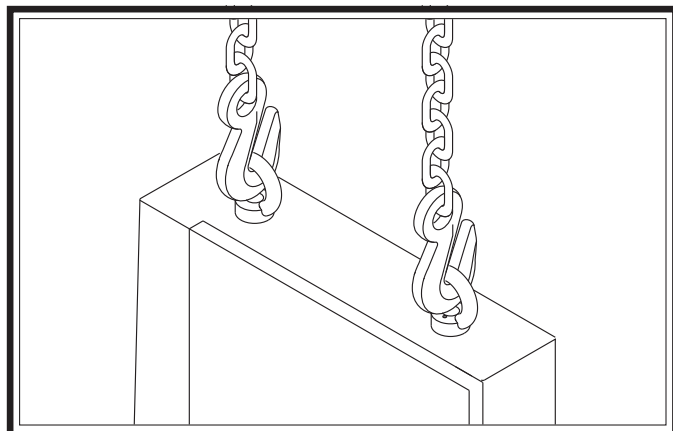


Special care should be taken when moving this bandsaw. To reduce your risk of injury or accidental damage, use one of the following methods to lift or move the bandsaw.

If you plan to use the included riser blocks to increase the working height of the machine, we recommend installing them while the machine is lifted off the pallet, following **Step 3** below. For details, see **Installing Riser Blocks** on **Page 20**.

### Using Forklift & Eye Bolts

1. Use forklift to move crate to a prepared location, then remove crate from shipping pallet.
2. Unbolt bandsaw from pallet.
3. Install eye bolts. Make sure they are threaded all the way in, then place lifting hooks through eye bolts (see **Figure 15**) and lift bandsaw slowly with forklift just enough to clear pallet.



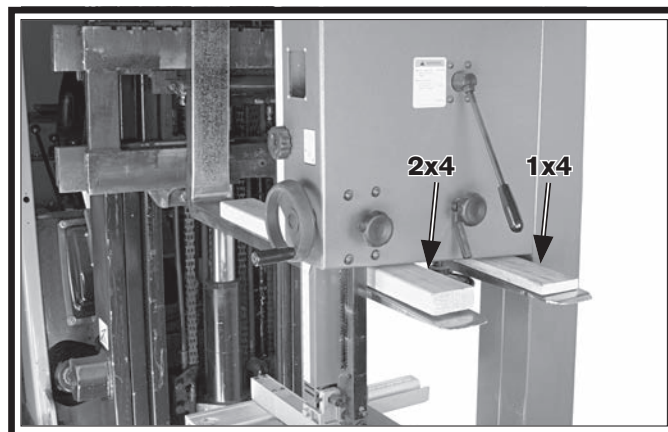
**Figure 15. Lifting locations.**

4. Remove pallet, then slowly lower bandsaw into position.

### Using Forklift & Wood Blocks

1. Use forklift to move crate to prepared location, then remove crate from shipping pallet.
2. Unbolt bandsaw from pallet.
3. Carefully place forklift forks under bandsaw head. Insert a 1x4 block between head and left fork, and a 2x4 block between head and right fork so bandsaw remains relatively level when lifted, as shown in **Figure 16**.

**Note:** *If you are concerned about your forklift forks hitting the tension handwheel, remove handwheel before positioning forks, then re-install it after placing bandsaw in final location.*



**Figure 16. Example of lifting bandsaw with forklift and using wood blocks on forks.**

4. Lift bandsaw off of pallet, remove pallet, then slowly lower bandsaw into position.

# Anchoring to Floor

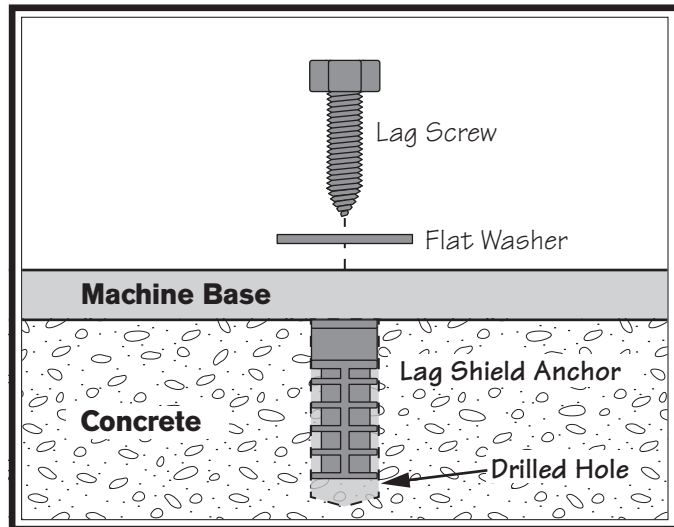
**Number of Mounting Holes** .....4  
**Diameter of Mounting Hardware**..... 1/2"

Anchoring machine to the floor prevents tipping or shifting that may occur during operation with large/heavy workpieces.

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

## Mounting to Concrete Floors

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



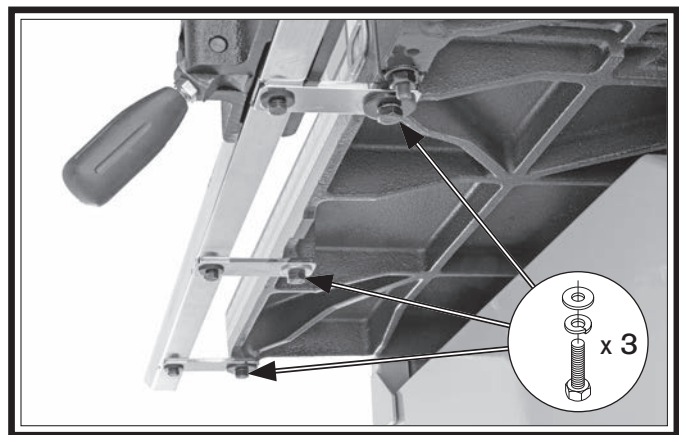
**Figure 17. Popular method for anchoring machinery to a concrete floor.**

# Assembly

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

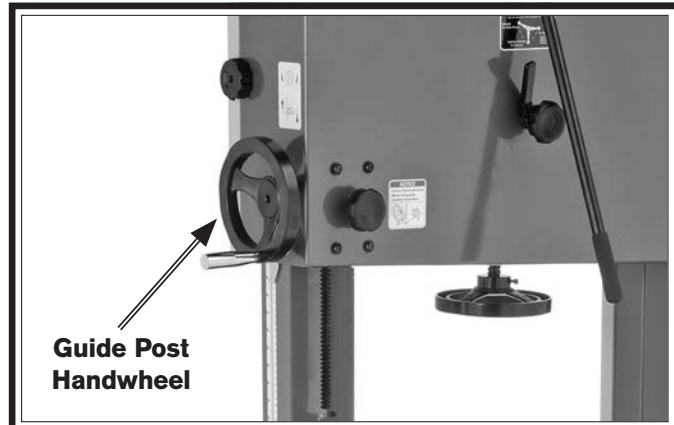
## To assemble bandsaw:

1. Install fence rail on table using (3) pre-installed hex bolts, lock washers, and flat washers (see **Figure 18**).



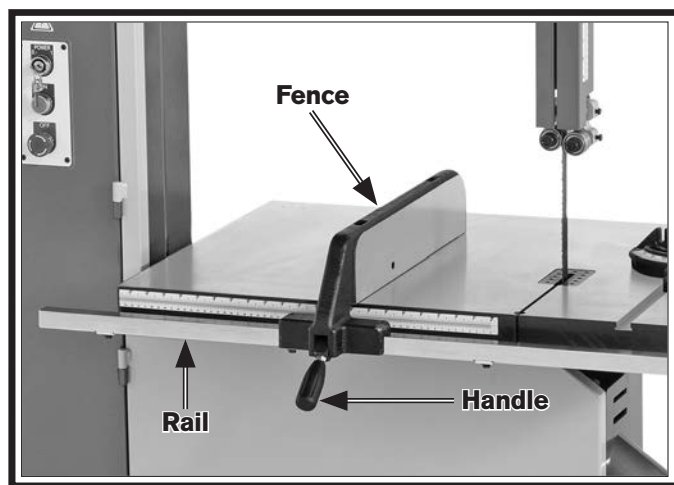
**Figure 18. Fence rail installed.**

- Slide guide post handwheel (see **Figure 19**) onto shaft and secure with pre-installed cap screw.



**Figure 19. Guide post handwheel installed.**

- Pull fence handle up and place fence on rail (see **Figure 20**).
- Push fence handle down to lock fence in place (see **Figure 20**).



**Figure 20. Fence installed on table.**

## Installing Riser Blocks

The Model SB1123 comes with riser blocks that can be used to increase the floor-to-table height from 33" to 34½".

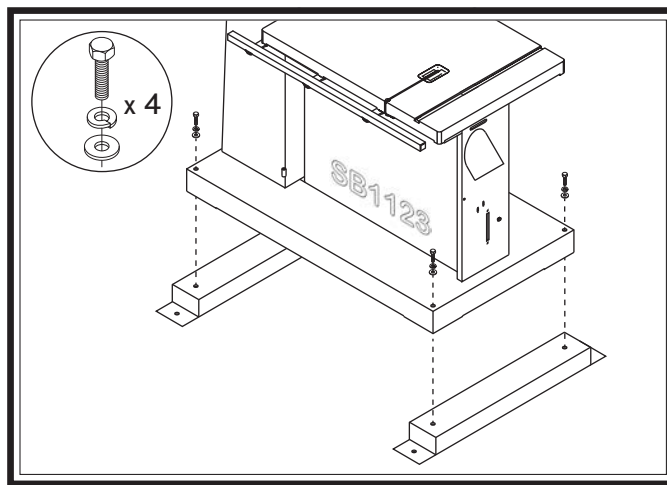


**Figure 21. Riser block components.**

### To install riser blocks:

- Lift bandsaw with forklift or other power equipment.
- Insert (4) hex bolts, lock washers, and flat washers (see **Figure 22**) through holes in base of machine.
- Align hex bolts with threaded holes in riser blocks (see **Figure 22**) and securely tighten.

**Note:** Riser blocks are equipped with tabs for securing the bandsaw to the floor to maximize stability.



**Figure 22. Riser block location and installation hardware.**

## Dust Collection

### ⚠ CAUTION

This machine creates a lot of wood chips/dust during operation. Breathing airborne dust on a regular basis can result in permanent respiratory illness. Reduce your risk by wearing a respirator and capturing the dust with a dust-collection system.

#### Minimum CFM at each Dust Port: 400 CFM

Do not confuse this CFM recommendation with the rating of the dust collector. To determine the CFM at the dust port, you must consider these variables: (1) CFM rating of the dust collector, (2) hose type and length between the dust collector and the machine, (3) number of branches or wyes, and (4) amount of other open lines throughout the system. Explaining how to calculate these variables is beyond the scope of this manual. Consult an expert or purchase a good dust collection "how-to" book.

#### To connect dust collection system to machine:

1. Fit a 4" dust hose over each dust port, and secure them in place with hose clamps (see **Figure 23**).



**Figure 23. Dust hoses attached.**

**Note:** For best results, connect free ends of hoses to a 4" Y-fitting and secure with hose clamps, then connect fitting to your dust collection system. See **Accessories**, beginning on **Page 51**, for more information.

2. Tug hoses to make sure they do not come off.

**Note:** A tight fit is necessary for proper performance.



## Adjustment Overview

The bandsaw is one of the most versatile woodworking machines. However, it has multiple components that must be properly adjusted for the best cutting results.

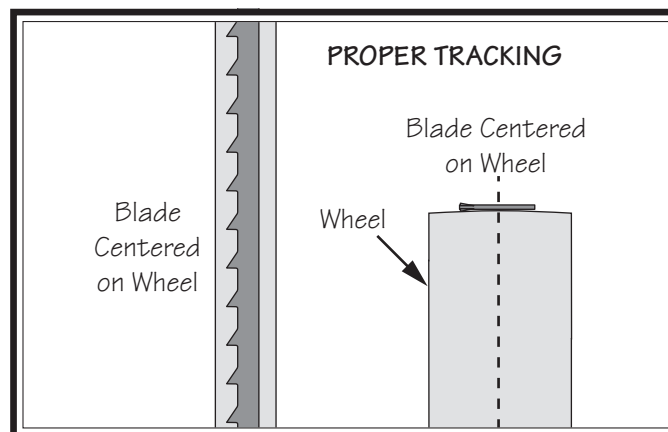
For practical and safety reasons, some adjustments and test operations must be performed before performing other necessary adjustments. Below is an overview of all the adjustments and the order in which they should be performed:

1. Initial Blade Tracking
2. Power Connection
3. Test Run
4. Tensioning Blade
5. Fine-Tune Tracking
6. Adjusting Blade Support Bearings
7. Adjusting Blade Guide Bearings
8. Aligning Table
9. Aligning Fence
10. Calibrating Fence Pointer
11. Aligning Miter Gauge

## Initial Blade Tracking

"Tracking" refers to how the blade rides on the bandsaw wheels. Proper tracking is important for maintaining bandsaw adjustments, achieving correct blade tension, and cutting accurately. Improper tracking reduces cutting accuracy, causes excess vibrations, and places stress on the blade and other bandsaw components. The shape of the wheels and the orientation of the wheels in relation to each other determine how the blade tracks.

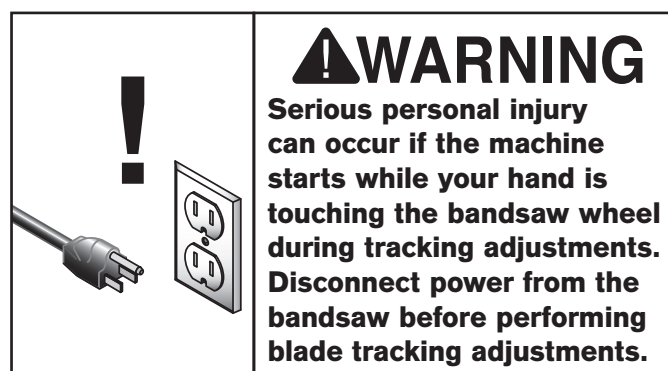
Bandsaw wheels are either flat or crowned and both shapes track differently. This bandsaw has crowned wheels. As the wheels spin, a properly tracking blade naturally tracks at the center of the wheel (see **Figure 24**).



**Figure 24. Blade centered on crown of wheel.**

Blade tracking is primarily affected by the tilt of the upper wheel, known as "center tracking." However, the alignment of both wheels plays an important part as well (see **Aligning Wheels** on **Page 63** for more details).

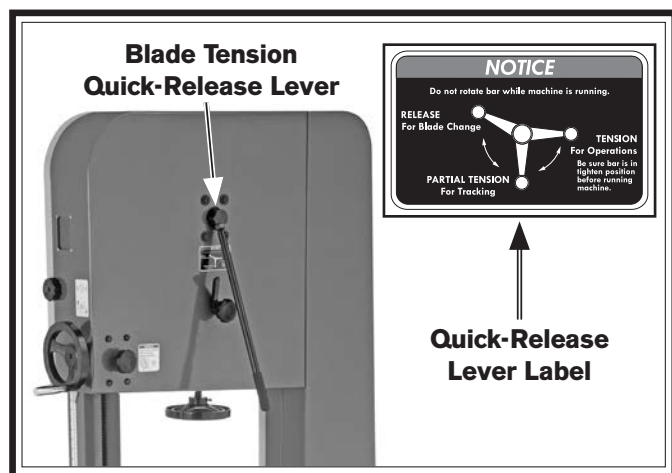
The wheels on this bandsaw were aligned at the factory, so center tracking is the only adjustment that needs to be checked/performed when the saw is new.



**To adjust blade tracking:**

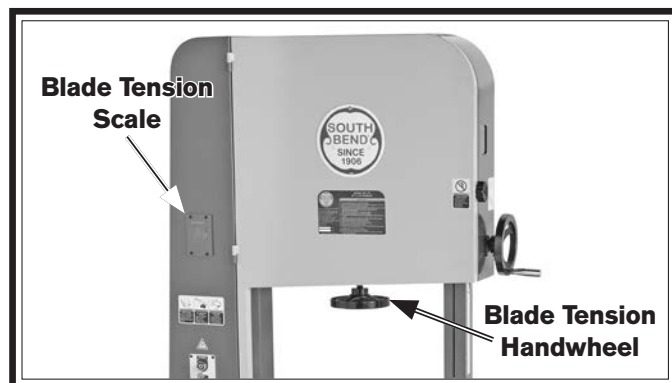
1. DISCONNECT MACHINE FROM POWER!
2. Adjust upper and lower blade guides away from blade, and raise upper guides approximately  $\frac{2}{3}$  of the way up (see **Adjusting Blade Guide Bearings on Page 30** for detailed instructions).
 

**Note:** After test run is successfully completed, you will be instructed on how to more accurately tension the blade for optimum results.
3. Rotate blade tension quick-release lever to PARTIAL TENSION setting (see **Figure 25**).



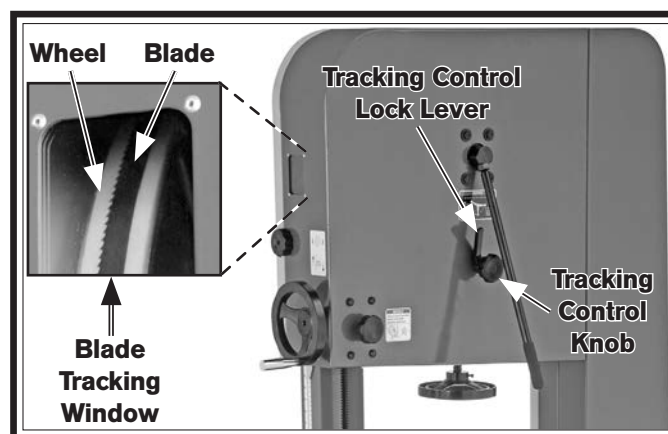
**Figure 25.** Blade tension quick-release lever rotated to PARTIAL TENSION setting.

4. Rotate blade tension handwheel (see **Figure 26**) until blade tension matches mark on blade tension scale for appropriate blade thickness. Rotate handwheel *clockwise* to increase blade tension. Rotate handwheel *counterclockwise* to decrease blade tension.



**Figure 26.** Blade tensioning controls.

5. Loosen tracking control lock lever on back of bandsaw (see **Figure 27**).
6. Rotate upper wheel by hand several times and watch how blade rides on wheel (see **Figure 27**).
  - If the blade *consistently* rides in the center of the upper wheel, it is tracking properly and no adjustments are necessary; proceed to **Step 8**.
  - If the blade *does not consistently* ride in the center of the upper wheel, it is not tracking properly; proceed to **Step 7**.
7. Adjust tracking control knob (see **Figure 27**) in small amounts and continue to rotate upper wheel by hand at the same time until blade consistently rides in center of wheel.




**Figure 27.** Blade tracking controls.

8. Tighten tracking control lock lever.

**Note:** For the best performance from your saw, regularly maintain proper tracking of the blade. Fine-tune tracking must be done with the bandsaw turned **ON**. Refer to **Page 28** for more information.

# Power Connection



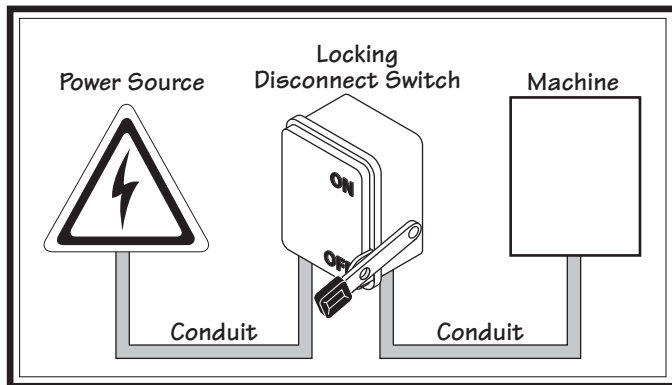
**⚠ WARNING**

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

Hardwire setups require power supply lines to be enclosed inside of conduit, which is securely mounted and constructed in adherence to applicable electrical codes.

A hardwire setup for this machine must be equipped with a locking disconnect switch as a means to disconnect the power during adjustments or maintenance, which is a typical requirement for many lock-out/tag-out safety programs.

**Figure 28** shows a simple diagram of a hardwire setup with a locking disconnect switch between the power supply and the machine.



**Figure 28. Typical hardwire setup with a locking disconnect switch.**

Due to the complexity required for planning, bending, and installing the conduit necessary for a code-compliant hardwire setup, an electrician or other qualified person **MUST** perform this type of installation.

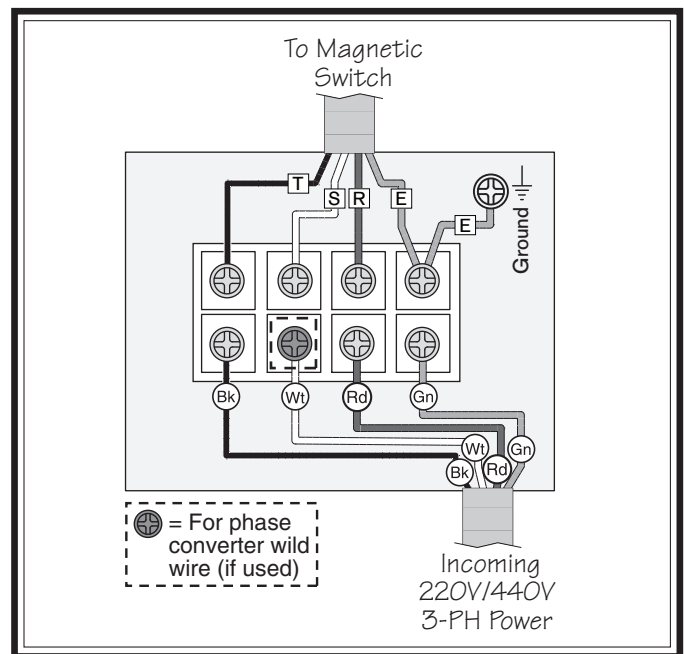
## ⚠ WARNING

Connecting power supply wires to machine without first disconnecting power supply may result in serious injury or death.

**To connect power supply wires to machine:**

1. Remove cover from power supply junction box.
2. Insert incoming power wires through strain relief (see **Figure 29**) at bottom of junction box, connect wires to terminals shown below, then install junction box cover.

**Note:** When using a phase converter, connect the manufactured power leg or "wild wire" to the terminal indicated in **Figure 29**. This terminal can handle power fluctuation because it is wired directly to the motor. The other wires connect to the controls and must be consistent to prevent damage.



**Figure 29. Terminal box connections.**

3. Shut off main power at power source circuit breaker and attach wires to locking shut-off switch.

## Test Run

After all preparation steps have been completed, the machine and its safety features must be tested to ensure correct operation. If you discover a problem with the operation of the machine or its safety components, do not operate it further until you have resolved the problem.

**Note:** Refer to **Troubleshooting** on **Page 68** for solutions to common problems. If you need additional help, contact our Tech Support at (360) 734-1540.

The test run consists of verifying the following:

- Motor powers up and runs correctly.
- OFF button works correctly.
- Foot brake limit switch works correctly.
- Upper door limit switch works correctly.

### **⚠️ WARNING**

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

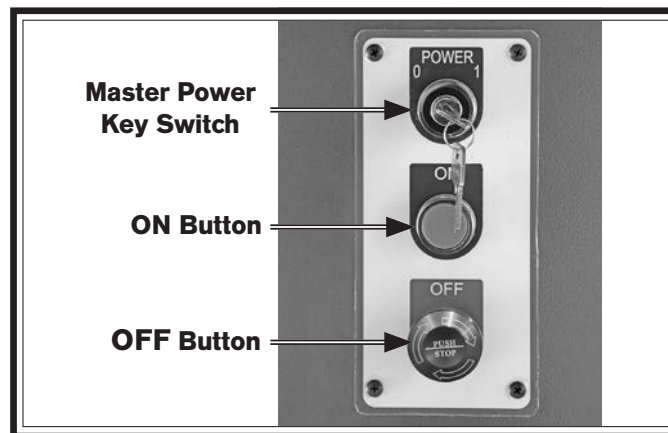
### **⚠️ WARNING**

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

#### To test run machine:

1. Clear all setup tools away from machine.
2. Press OFF button.
3. Connect machine to power source.

4. Insert key into Master Power Key Switch, then rotate switch to "1" position (see **Figure 30**). This turns incoming power **ON**.
5. Twist OFF button clockwise until it springs out (see **Figure 30**). This resets switch so machine can start.
6. Press ON button (see **Figure 30**) to turn machine **ON**. Verify motor starts up and runs smoothly without any unusual problems or noises.



**Figure 30. Location of power controls for turning machine ON and OFF.**

7. Press OFF button to turn machine **OFF**.
8. WITHOUT resetting OFF button, try to start machine by pressing ON button. Machine should not start.
  - If the machine *does not* start, the safety feature of the OFF button is working correctly.
  - If the machine *does* start, immediately turn it **OFF**, disconnect power, and contact customer service for assistance. The safety feature of the OFF button is NOT working properly and must be replaced before further using the machine.

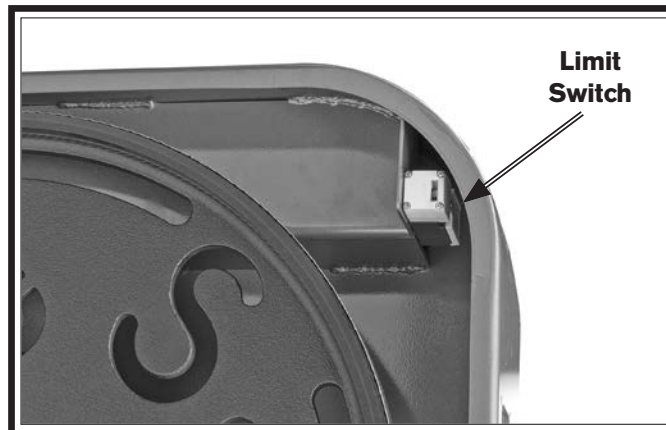
9. Repeat **Steps 5–6** to turn machine **ON**.
10. Allow motor to reach full speed, then step on foot brake pedal (see **Figure 31**). Blade should stop moving and motor should turn **OFF**.



**Figure 31. Location of foot brake pedal.**

- If the blade stops moving and the motor turns **OFF**, the foot brake feature is working correctly.
- If the blade does not stop moving, or the motor does not turn **OFF**, the foot brake feature is not working correctly. Turn machine **OFF**, disconnect power immediately, and contact customer service for assistance.

11. Make sure blade has fully stopped, open upper wheel cover a few inches to reveal limit switch (see **Figure 32**), then turn bandsaw **ON**.



**Figure 32. Location of limit switch in upper wheel cover.**

- If the bandsaw *does not start*, then the upper wheel cover limit switch is working correctly. Test run is complete.
- If the bandsaw *starts*, the upper wheel cover limit switch is not working correctly. Turn machine **OFF**, disconnect power immediately, and contact customer service for assistance.



## Tensioning Blade

A properly tensioned blade is essential for making accurate cuts, maximizing blade life, and making other bandsaw adjustments. However, a properly tensioned blade will not compensate for cutting problems caused by excessive feed rate, hardness variations between workpieces, and improper blade selection.

Optimal cutting results for any type of workpiece are achieved through a combination of correct blade selection, proper blade tension, properly adjusted blade guides and other bandsaw components, and using an appropriate feed rate.

Improper blade tension is unsafe, produces inaccurate and inconsistent results, and introduces unnecessary wear on bandsaw components. Over-tensioning the blade increases the chance of the blade breaking or wheel misalignment. Under-tensioned blades wander excessively while cutting and will not track properly during operation.

The method used to tension the blade is often a matter of preference. This manual describes two methods: the flutter method and the deflection method. Either method will help you properly tension the blade. Experience and personal preference will help you decide which method you prefer.

**Note:** *The tensioning done on the blade before the **Test Run** was an approximate tension. The following procedures fine-tune the blade tension.*

## The Flutter Method

Using the flutter method, you intentionally loosen the blade until it just passes the point of being too loose (when it begins to flutter). Then you gradually tighten the blade until proper tension is reached.

### To tension bandsaw blade using flutter method:

1. DISCONNECT MACHINE FROM POWER!
2. Make sure blade is properly tracking as instructed in **Initial Blade Tracking** subsection on **Page 22**.
3. Raise guide post all the way, and move upper and lower guide bearings away from blade (refer to **Page 30** for more information).
4. Engage blade tension quick-release lever to apply tension to blade.
5. Connect bandsaw to power, then turn it **ON**.
6. Use blade tension handwheel to slowly decrease blade tension until you see blade start to flutter.
7. Slowly increase tension until blade stops fluttering, then tighten blade tension adjustment knob an additional  $\frac{1}{8}$  to  $\frac{1}{4}$  of a turn.
8. DISCONNECT MACHINE FROM POWER!
9. Adjust blade guides as described in **Adjusting Blade Support Bearings** and **Adjusting Blade Guide Bearings** on **Pages 29–30**.

## The Deflection Method

The deflection method is much more subjective than the flutter method. Each blade will deflect differently and every user will determine what "moderate pressure" means. The following are general guidelines for tensioning the blade with this method.

### To tension bandsaw blade using deflection method:

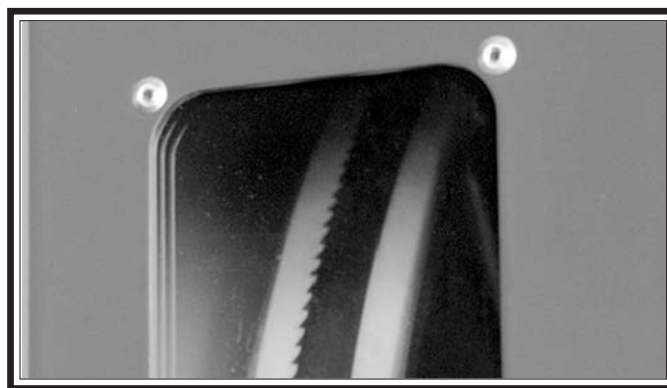
1. DISCONNECT MACHINE FROM POWER!
2. Make sure blade is properly tracking as instructed in **Initial Blade Tracking** subsection on **Page 22**.
3. Raise guide post all the way and move upper and lower guide bearings away from blade (refer to **Page 30** for more information).
4. Engage blade tension quick-release lever to apply tension to blade.
5. Using moderate pressure, push center of blade sideways.
  - If blade deflects approximately  $\frac{1}{4}$ ", it is properly tensioned. Proceed to **Step 6**.
  - If blade deflects less than  $\frac{1}{4}$ ", it is over-tensioned. Rotate blade tension handwheel counterclockwise two full turns and repeat **Step 5**.
  - If blade deflects  $\frac{1}{4}$ " or more, blade is not properly tensioned. Rotate blade tension handwheel clockwise to incrementally tension blade, and repeat **Step 5** until blade is properly tensioned.
6. Adjust blade guides as described in **Adjusting Blade Support Bearings** and **Adjusting Blade Guide Bearings** on **Pages 29–30**.

## Fine-Tune Tracking

During setup, the blade was tracked without the machine connected to power (refer to **Page 22**). In this procedure, the bandsaw is turned **ON** to perform fine tuning of the tracking. Make small changes with the blade tracking knob as you monitor the effect on the blade tracking.

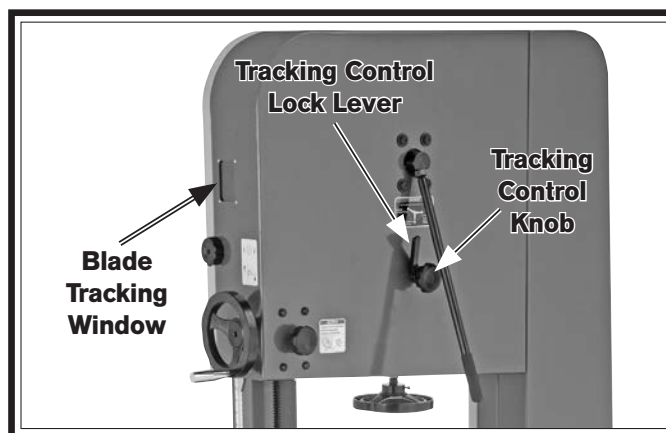
### To fine-tune blade tracking:

1. Close wheel covers and turn bandsaw **ON**.
2. Observe blade tracking path through clear tracking window on right edge of bandsaw (see **Figures 33–34**).



**Figure 33.** Example of blade, viewed through tracking window.

3. If necessary, loosen tracking control lock lever and use tracking control knob (see **Figure 34**) to adjust the blade so it tracks on the center of the wheel.
4. Tighten tracking control lock lever (see **Figure 34**) to secure setting, then turn machine **OFF**.



**Figure 34.** Fine-tune tracking controls.

# Adjusting Blade Support Bearings

The support bearings are positioned behind the blade near the blade guides and prevent the blade from pushing backward during cutting operations. Proper adjustment of the support bearings helps you make accurate cuts and prevents the blade teeth from coming in contact with the blade guides while cutting. If this happens, the blade "tooth set" can be ruined, which will greatly reduce the blade's ability to make good cuts.

There are support bearings on the upper and lower blade guide assemblies. Both adjust in a similar manner. The following instructions refer to the upper support bearings.

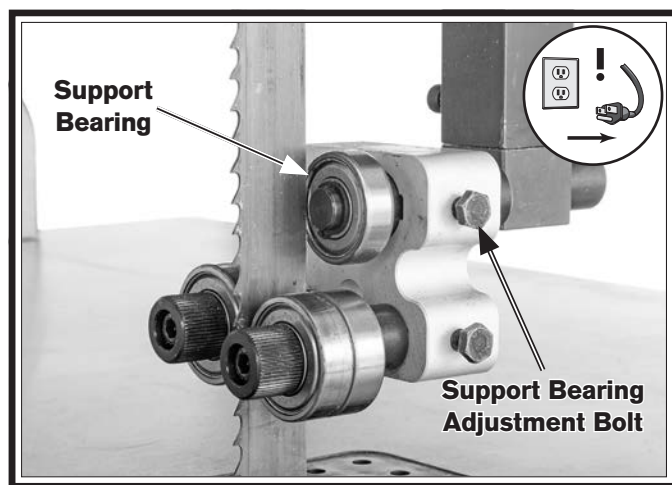
**IMPORTANT:** *To ensure best results while cutting, make sure the blade is tracking and tensioned correctly before performing this procedure (see **Tensioning Blade** on **Page 27**).*

### Tools Needed

	Qty
Wrench or Socket 10mm .....	1
Feeler Gauge 0.016" .....	1

### To adjust support bearing:

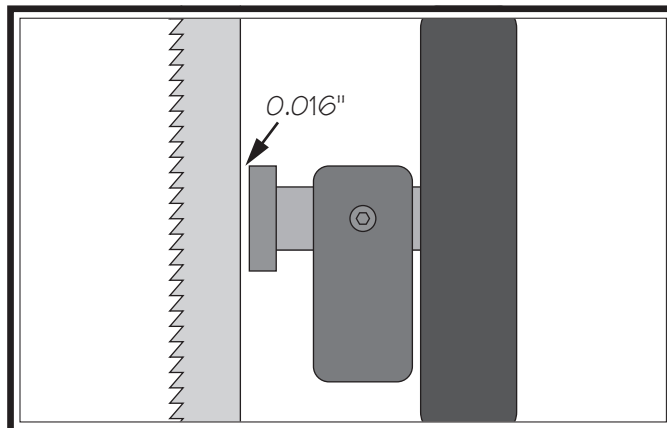
1. DISCONNECT MACHINE FROM POWER!
2. Loosen support bearing adjustment bolt (see **Figure 35**).



**Figure 35.** Upper support bearing assembly and controls (guide post cover removed for clarity).

3. Position support bearing approximately 0.016" away from back of blade, as illustrated in **Figure 36**.

**Note:** *The main purpose of this adjustment is to prevent the blade from being pushed backward far enough that the blade guides will contact (and ruin) the "tooth set" of the blade during cutting operations.*



**Figure 36.** Bearing positioned approximately 0.016" away from back of blade.

4. Tighten bearing adjustment bolt to lock support bearing in place.

# Adjusting Blade Guide Bearings

The blade guide bearings can be adjusted left-to-right, as well as front-to-back, relative to the blade. Properly adjusted blade guide bearings provide side-to-side support, from just behind the gullets to the back of the blade, to help keep the blade straight while cutting.

There are blade guide bearings on the upper and lower blade guide assemblies. Both adjust in a similar manner.

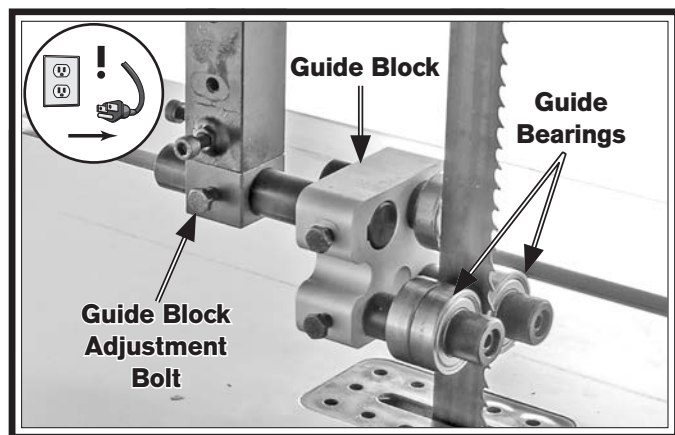
**IMPORTANT:** Make sure the blade is tracking and tensioned correctly before performing this procedure (see **Tensioning Blade** on **Page 27**).

Tools Needed	Qty
Wrench or Socket 10mm.....	1
Hex Wrench 5mm .....	1

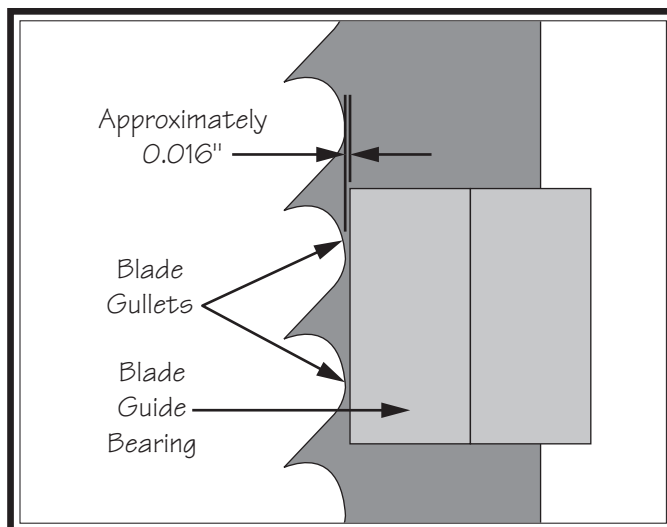
## Adjusting Upper Blade Guides

1. DISCONNECT MACHINE FROM POWER!
2. Loosen guide block adjustment bolt shown in **Figure 37**, then position guide bearings just behind blade gullets, as illustrated in **Figure 38**. Retighten bolt to secure setting.

**Note:** The guide bearings should be positioned behind the gullets a distance equal to that of the support bearing behind the blade (see **Page 29**).



**Figure 37.** Upper guide bearing components (guide post cover removed for clarity).

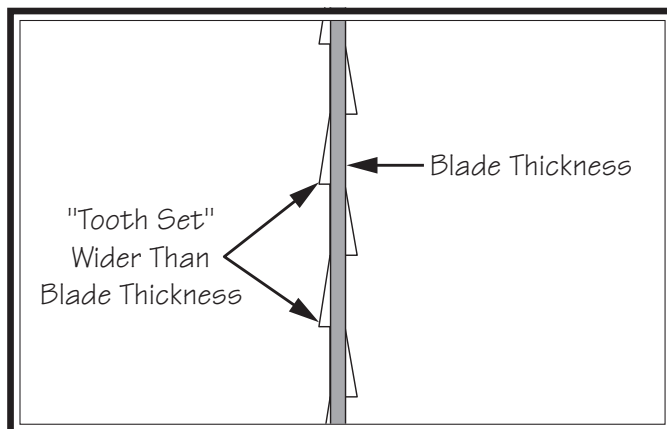


**Figure 38.** Blade guide bearing positioned just behind blade gullets.

**Note:** With wider blades, it may not be possible to bring the guide bearings just behind the blade gullets. Position them as far forward as possible without allowing the guide bearing housing to touch the back of the blade.

## NOTICE

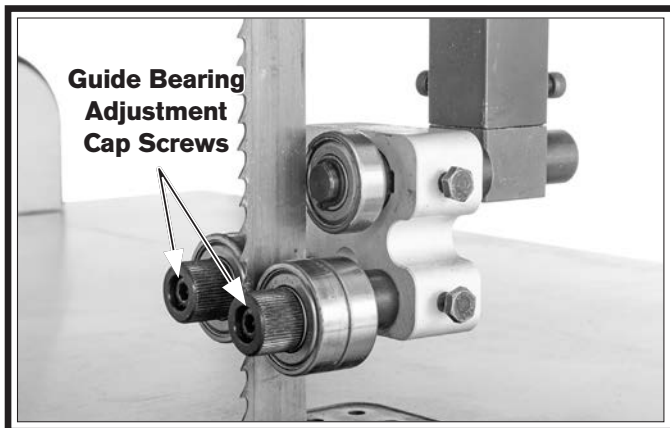
**Blade teeth are angled out slightly, protruding wider than the blade thickness; this is known as blade "tooth set" (see Figure 39). If angled out parts of the teeth contact guide bearings during operation, they will get bent inward, ruining the tooth set. Therefore, the support bearing must be set to prevent teeth from contacting guide bearings during operation (refer to Page 29 for details).**



**Figure 39.** Illustration of blade "tooth set."

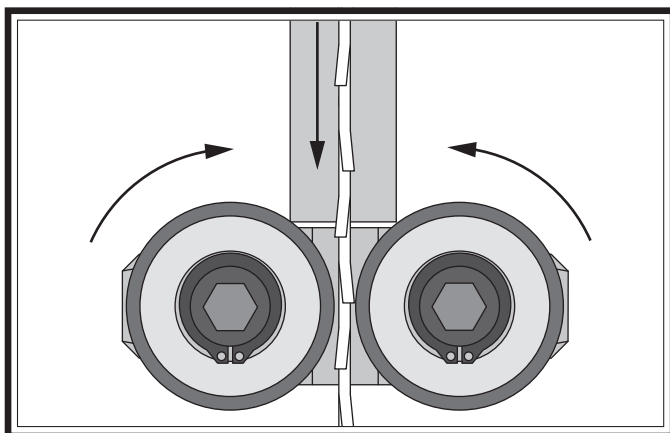


- Loosen both guide bearing adjustment cap screws (see **Figure 40**), then position guide bearings so they are close to—but not quite touching—sides of blade.



**Figure 40.** Location of upper guide bearing adjustment cap screws (guide post cover removed for clarity).

**Note:** When the blade guide bearings are properly adjusted, they should only rotate during cutting operations, or when the blade is deflected to the left or right (see **Figure 41**).



**Figure 41.** Blade guide bearings rotating during cutting operation.

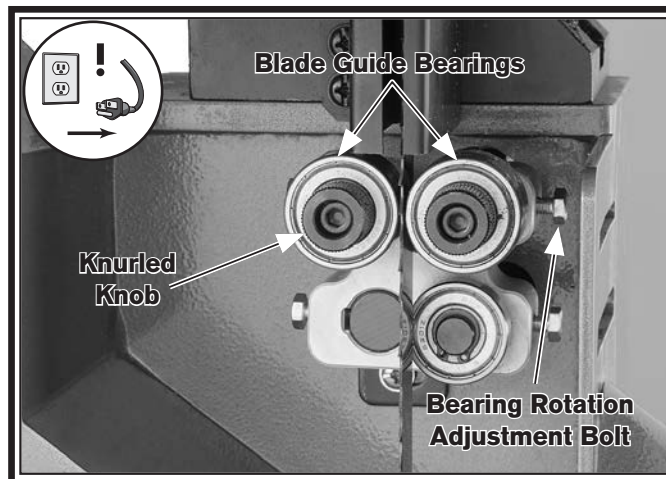
- Retighten cap screws to secure settings. Rotate blade by hand to check the setting, and, if necessary, repeat **Steps 3–4**.

## NOTICE

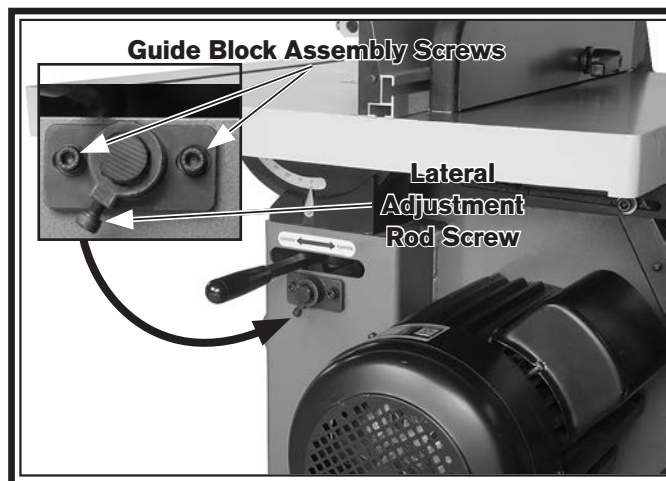
Whenever changing blade or adjusting blade tension or tracking, the support and guide bearings must be re-adjusted before resuming operation to ensure proper blade support.

## Adjusting Lower Blade Guides

- Make sure the blade is tracking properly and that it is correctly tensioned.
- DISCONNECT MACHINE FROM POWER!
- Follow the procedure for adjusting upper blade guides on **Page 30**.



**Figure 42.** Lower blade guide controls.



**Figure 43.** Lower blade guide controls (rear view).



# Aligning Table

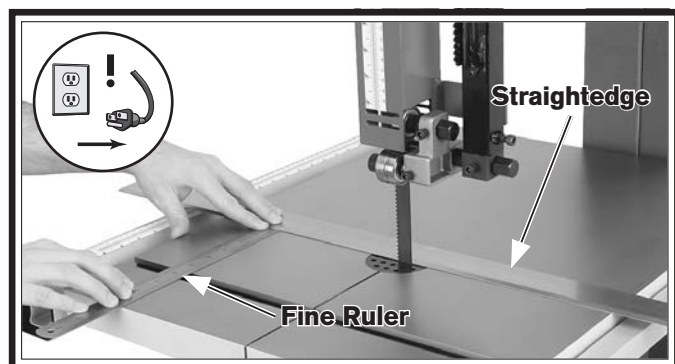
To ensure cutting accuracy, the table should be aligned so that the miter slot is parallel to the bandsaw blade, and that the table is perpendicular (front to back) to the blade. These procedures work best with a wide (1½") blade installed.

### Tools Needed

	Qty
Straightedge 36" .....	1
Fine Ruler .....	1
Machinist's Square.....	1
Hex Wrench 8mm .....	1

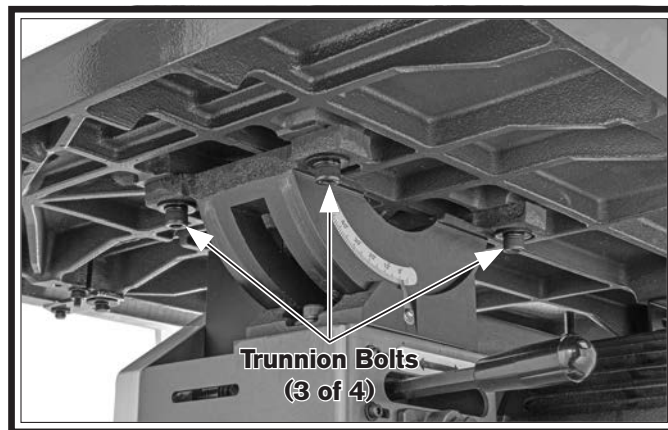
## Adjusting Miter Slot Parallelism

1. Make sure blade is tracking properly (see **Page 22**) and that it is correctly tensioned (see **Page 27**).
2. **DISCONNECT MACHINE FROM POWER!**
3. Place an accurate straightedge along blade so that it lightly touches both front and back of blade without going across a tooth (see **Figure 44**).
4. Use a fine ruler to measure distance between straightedge and miter slot (see **Figure 44**). Distance should be the same at front and back of table.
  - If the distance *is* the same at the front and back of the table, no adjustment is necessary; proceed to **Adjusting Table Perpendicular to Blade**.
  - If the distance *is not* the same at the front and back of the table, it must be adjusted; proceed to **Step 5**.



**Figure 44.** Example of checking miter slot parallelism.

5. Loosen trunnion cap screws that secure table (see **Figure 45**).

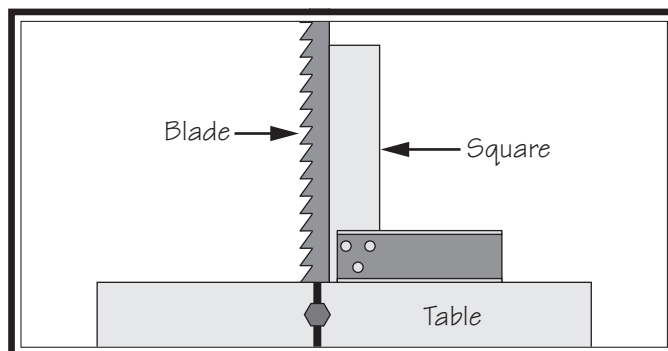


**Figure 45.** Location of trunnion bolts.

6. Adjust table until distance between straightedge and miter slot is the same at front and back of table.
7. Tighten trunnion bolts, then repeat **Step 4** to verify adjustment.

## Adjusting Table Perpendicular to Blade

1. **DISCONNECT MACHINE FROM POWER!**
2. Place a square on table and against back of blade, as illustrated in **Figure 46**. Table should be perpendicular to back of blade.
  - If the table *is* perpendicular to the back of the blade, no adjustment is necessary; proceed to **Aligning Fence on Page 33**.
  - If the table *is not* perpendicular to the back of the blade, you must shim the table; proceed to **Step 3**.



**Figure 46.** Squaring back of blade and table.

3. Determine which trunnion is on low side of table, then remove two cap screws (see **Figure 45**) from low trunnion.
4. Insert a shim, such as a thin washer, between table and low trunnion at each mounting location.
5. Re-install and tighten trunnion cap screws, then repeat **Step 2** to verify adjustment.

## Aligning Fence

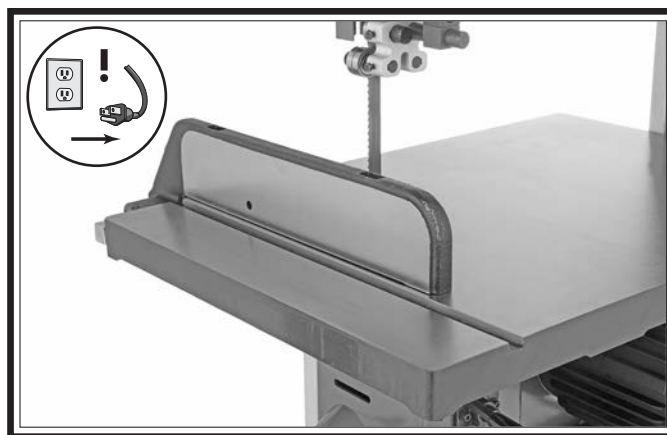
To ensure cutting accuracy, the fence should be aligned parallel with the blade. This is achieved by aligning the fence to the miter slot *after* miter slot parallelism is properly adjusted, as instructed on **Page 32**.

**Note:** Occasionally, even after aligning the fence, a symptom known as "blade lead" can happen, which may require the fence to be skewed slightly to compensate for the blade lead. Refer to **Blade Lead** beginning on **Page 49** for more information on blade lead causes and skewing the fence.

Tool(s) Needed	Qty
Wrench or Socket 13mm.....	1

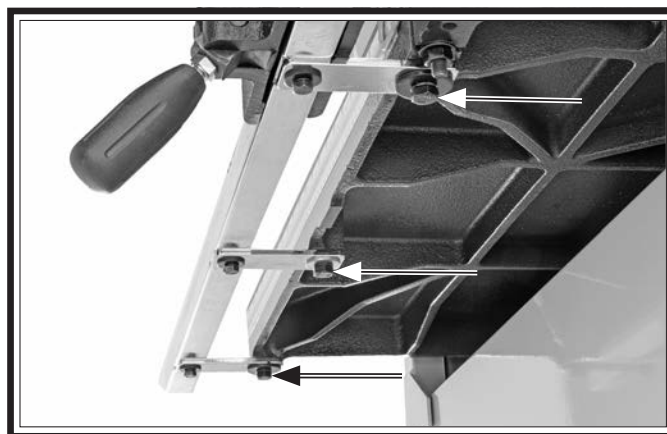
### To align fence:

1. DISCONNECT MACHINE FROM POWER!
2. Make sure table is aligned with blade (see **Adjusting Miter Slot Parallelism** on **Page 32** for detailed instructions).
3. Mount fence on right side of blade and even with the miter slot, as shown in **Figure 47**.
  - If the fence face *is* even with the miter slot from front to back, no further adjustment is necessary.
  - If fence face *is not* even with miter slot along its length, proceed to **Step 4**.



**Figure 47. Fence even with the miter slot.**

4. Loosen hex bolts that secure fence rail to table (see **Figure 48**).



**Figure 48. Location of fence rail hex bolts.**

5. With fence locked onto rail, shift fence by hand until fence is even with miter slot along its entire length, then tighten rail hex bolts.
6. Slide fence along the entire length of the rail to ensure it does not bind against the table.
  - If fence *does* bind against table, loosen rail hex bolts and pull rail away from table, then repeat **Steps 5–6**.

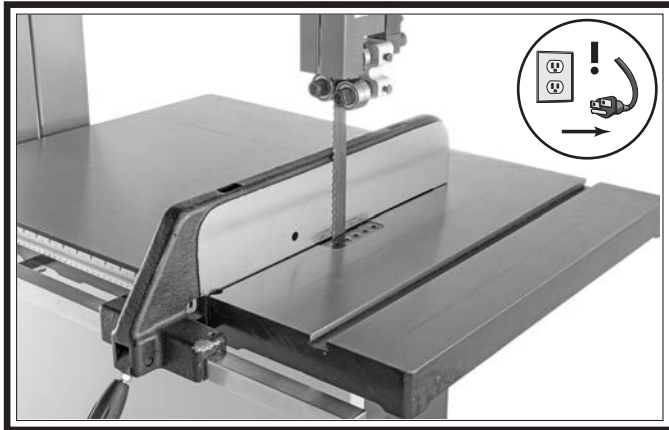
# Calibrating Fence Pointer

After the fence is properly aligned with the table, the fence pointer must be calibrated to ensure accurate positioning of the fence on the scale.

Items Needed	Qty
Phillips Head Screwdriver #2.....	1

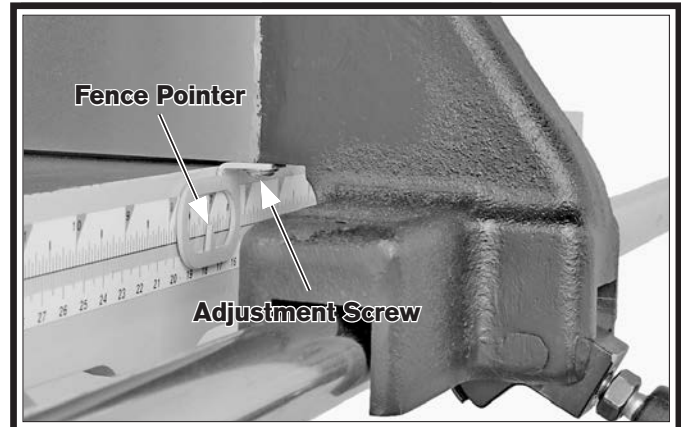
## To calibrate fence pointer:

1. Make sure blade is properly tensioned (see **Page 27**).
2. DISCONNECT MACHINE FROM POWER!
3. Position fence against left side of blade so it is touching the blade without applying pressure to it (see **Figure 49**), then lock fence in place.



**Figure 49. Fence against the blade.**

4. Loosen pointer adjustment screw shown in **Figure 50**, set pointer in line with "0" mark on scale, then re-tighten screw.



**Figure 50. Fence pointer components.**

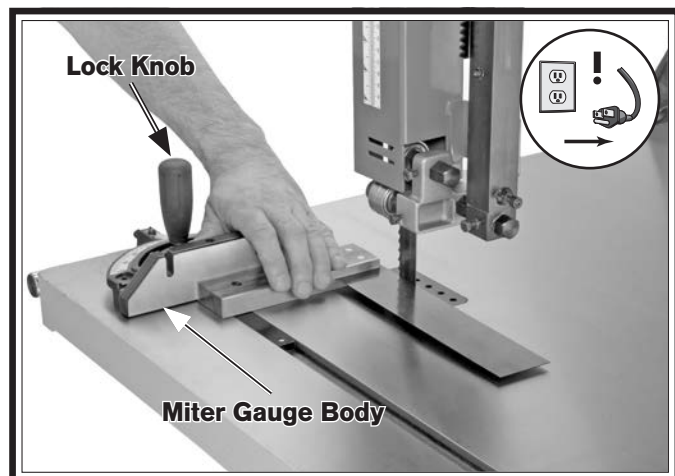
## Aligning Miter Gauge

The miter gauge needs to be calibrated to the blade when it is first mounted in the miter slot.

Tools Needed	Qty
Phillips Head Screwdriver #2.....	1
Machinist's Square.....	1

### To align miter gauge:

1. Make sure blade is properly tensioned (**Page 27**) and tracking correctly (**Page 29**).
2. DISCONNECT MACHINE FROM POWER!
3. Place one edge of square against face of miter gauge and other edge of square against blade side, as shown in **Figure 51**.



**Figure 51. Example of squaring miter gauge to blade.**

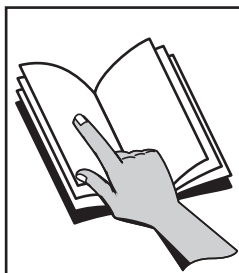
**Note:** Make sure square does not go across a blade tooth when performing this step.

- If square rests flush and evenly against both miter gauge face and blade side, then no adjustments are necessary.
  - If square *does not* rest flush and evenly against both miter gauge face and blade side, the miter gauge must be calibrated; proceed to **Step 4**.
4. Loosen lock knob on miter gauge and adjust face flush with edge of square.
  5. Tighten lock knob, and verify square rests flush and evenly against both miter gauge face and blade side.
- Note:** Sometimes the tightening procedure can affect the adjustment.
6. Loosen screw that secures angle pointer, adjust pointer to 0° mark on scale, then retighten screw to secure setting.

## Operation Overview

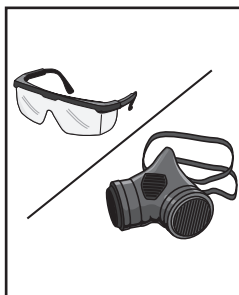
The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so they can more easily understand the controls discussed later in this manual.

**Note:** Due to the generic nature of this overview, it is not intended to be an instructional guide for performing actual machine operations. To learn more about specific operations and machining techniques, seek training from people experienced with this type of machine, and do additional research outside of this manual by reading "how-to" books, trade magazines, or websites.



### **⚠️ WARNING**

To reduce the risk of serious injury when using this machine, read and understand this entire manual before beginning any operations.



### **⚠️ WARNING**

To reduce risk of eye injury from flying chips or lung damage from breathing dust, always wear safety glasses and a respirator when operating this machine.

### **⚠️ WARNING**

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

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

1. Examines the workpiece to make sure it is suitable for cutting.
  2. Adjusts table tilt, if necessary, to correct angle of desired cut.
  3. If using fence, adjusts it for width of cut and then locks it in place. If using miter gauge, adjusts angle and locks it in place.
  4. Loosens guide post lock knob, adjusts upper blade guide height to just clear the workpiece (no more than ¼" above workpiece), then retightens guide post lock knob.
  5. Checks to make sure workpiece can safely pass all the way through blade without interference from other objects.
  6. Puts on safety glasses and respirator.
  7. Starts dust collector, then starts bandsaw.
  8. Holds workpiece firmly and flatly against both table and fence (or miter gauge), and then pushes workpiece into blade at a steady and controlled rate until cut is complete.
- Operator is very careful to keep fingers away from blade and uses a push stick to feed narrow workpieces.
9. Stops bandsaw.



## Basic Functions of a Bandsaw

A properly adjusted bandsaw can be safer to operate than most other saws and performs many types of cuts with ease and accuracy. It is capable of performing the following types of cuts:

### Straight Cuts

- Miters
- Angles
- Compound Angles
- Resawing
- Ripping
- Crosscutting

### Irregular Cuts

- Simple and Complex Curves
- Duplicate Parts
- Circles
- Beveled Curves

## Basic Cutting Tips

Here are some basic tips to follow when operating the bandsaw:

- Replace, sharpen, and clean blades often for best performance. Check guides, tension, and alignment settings periodically and adjust when necessary to keep the saw running in top condition.
- Use light and even pressure while cutting. Light feeding pressure makes it easier to cut straight, reduces blade lead, and prevents undue friction or strain on the bandsaw components and the blade.
- Avoid twisting the blade when cutting around tight corners. Allow the blade to saw its way around the corners. Always use relief cuts when possible.
- Misusing the saw or using incorrect techniques (e.g. twisting the blade with the workpiece, incorrect feed rate, etc.) is unsafe and results in poor cuts.

## Workpiece Inspection

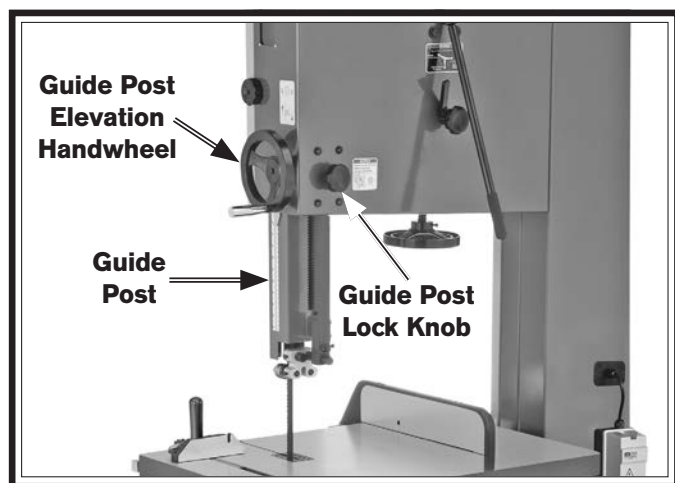
Some workpieces are not safe to cut or may require modification before they are safe to cut.

**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 bandsaw 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 often dangerous to cut because they can be unstable and 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.

## Setting Upper Blade Guide Height

When cutting, the blade guides must always be positioned so they just clear (no more than  $\frac{1}{4}$ " ) the workpiece. The guide post, shown in **Figure 52**, allows the upper blade guide assembly to be quickly adjusted for height.



**Figure 52.** Location of guide post, elevation handwheel, and lock knob.

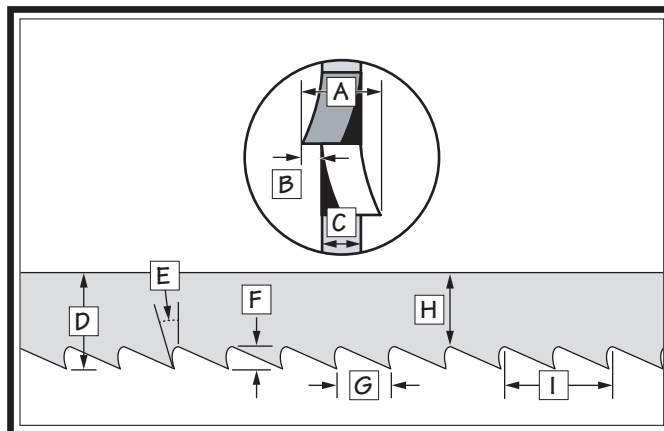
### To adjust height of upper blade guides:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen guide post lock knob.
3. Use guide post elevation handwheel to adjust height of guide post so that blade guide assembly just clears (no more than  $\frac{1}{4}$ " ) workpiece.
4. Retighten lock knob to secure setting.

## Blade Selection

Selecting the right blade requires a knowledge of the various blade characteristics to match the blade with the particular cutting operation.

### Blade Terminology



**Figure 53.** Bandsaw blade components.

- A. Kerf:** The amount of material removed by the blade during cutting.
- B. Tooth Set:** The amount each tooth is bent left or right along the blade.
- C. Gauge:** The thickness of the blade.
- D. Blade Width:** The widest point of the blade measured from the tip of the tooth to the back edge of the blade.
- E. Tooth Rake:** The angle of the tooth face from a line perpendicular to the length of the blade.
- F. Gullet Depth:** The distance from the tooth tip to the bottom of the curved area (gullet).
- G. Tooth Pitch:** The distance between tooth tips.
- H. Blade Back:** The distance between the bottom of the gullet and the back edge of the blade.
- I. TPI:** The number of teeth per inch measured from gullet to gullet.

## Blade Dimensions

Length Range ..... 180"–181½"  
 Width Range..... ¼"–1½"

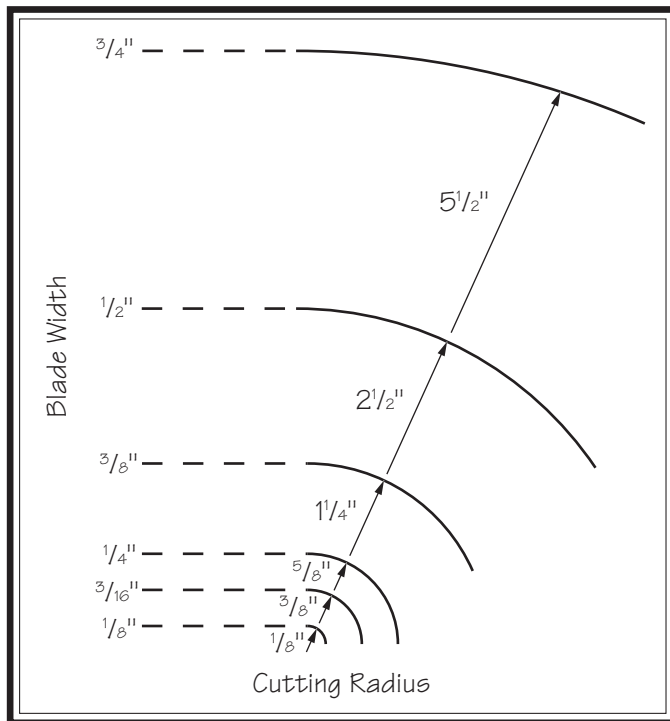
## Blade Length

Measured by the blade circumference, blade lengths are specific to each bandsaw. They are determined by the wheel diameter and distance between the wheels. Blades will vary slightly even in the same length because of how they are welded. Refer to **Accessories** on **Page 51** for replacement blades from Grizzly.

## Blade Width

Measured from the back of the blade to the tip of the blade tooth (the widest point), blade width is often the first consideration given to blade selection. Blade width dictates the largest and smallest curve that can be cut, as well as how accurately it can cut a straight line.

- **Curve Cutting:** Use the chart in **Figure 54** to determine the correct blade for curve cutting. Determine the smallest radius curve that will be cut on your workpiece and use the corresponding blade width (refer to **Cutting Curves** on **Page 48** for more information).

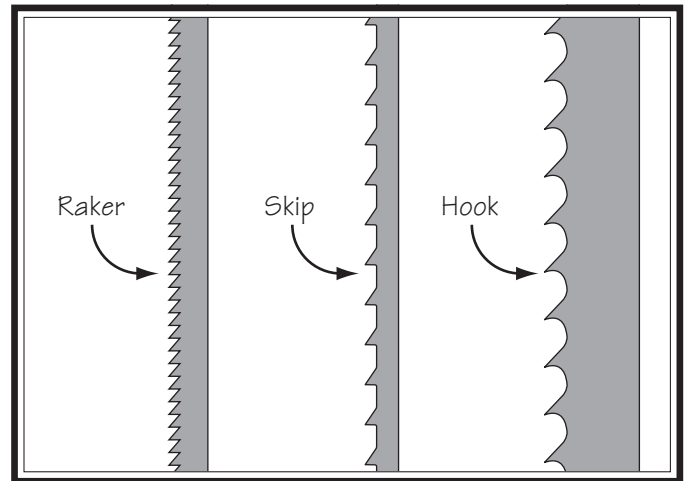


**Figure 54. Recommended cutting radius per blade width.**

- **Straight Cutting:** Use the largest width blade that you own. Large blades excel at cutting straight lines and are less prone to wander (known as blade lead—refer to **Page 49** for more information on blade lead).

## Tooth Style

**Figure 55** illustrates the three main blade tooth styles:



**Figure 55. Main blade tooth styles.**

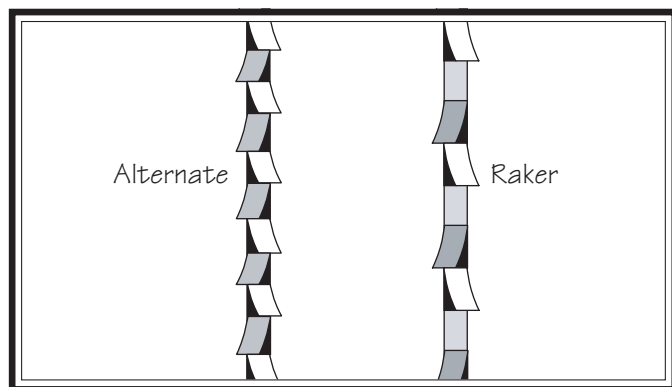
- **Raker:** Considered to be the standard because the tooth size and shape are the same as the tooth gullet. The teeth on raker blades usually are very numerous, have no angle, and produce cuts by scraping the material. As a result, smooth cuts can be achieved without cutting fast or generating more heat than other tooth types.
- **Skip:** Similar to a raker blade, except that it is missing every other tooth. Because of the design, skip toothed blades have a much larger gullet than raker blades, and therefore, cut faster and generate less heat. However, these blades also leave a rougher cut than raker blades.
- **Hook:** The teeth have a positive angle (downward) which makes them dig into the material, and the gullets are usually rounded for easier waste removal. These blades are excellent for the tough demands of resawing and ripping thick material.

## Tooth Pitch

Measured as TPI (teeth per inch), tooth pitch determines the number of teeth. More teeth per inch (fine pitch) will cut slower, but smoother; while fewer teeth per inch (coarse pitch) will cut rougher, but faster. As a general rule, choose blades that will have at least two teeth in the material at all times. Use fine-pitched blades on harder woods and coarse-pitched blades on softer woods.

## Tooth Set

Two common tooth sets for wood bandsaw blades are alternate and raker. Each different type of tooth set removes material in a different manner, leaving cuts with different characteristics (see **Figure 56**).



**Figure 56. Common woodcutting bandsaw blade tooth sets.**

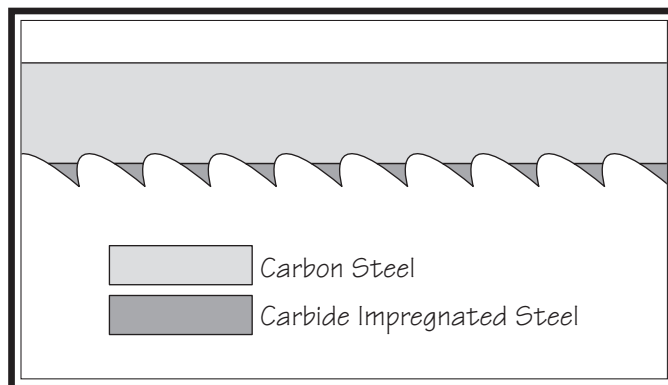
- **Alternate:** An all-purpose arrangement where the teeth are bent evenly left and right of the blade.
- **Raker:** Three teeth in a recurring group—one bent left, one bent right, and then one that is not bent. The raker set is ideal for most contour cuts.

## Blade Material

Bandsaw blades must meet two requirements: flexibility and hardness. The flexibility of a blade allows it to travel on the wheel as a band, while hardness allows the teeth to cut and hold an edge. Modern material technology has allowed bandsaw blades to meet these requirements in various ways.

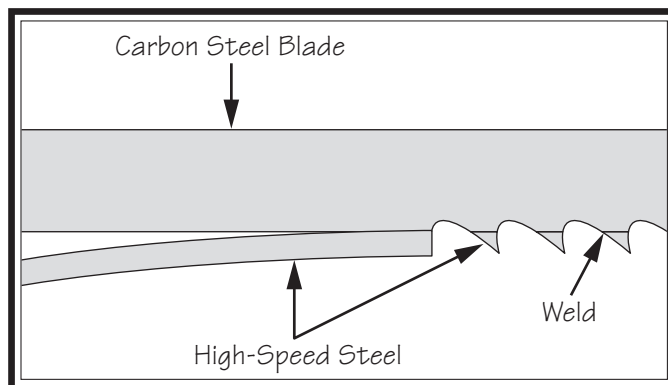
**Carbon Steel:** These blades are differentially heat treated to provide hard teeth that will hold an edge, and yet be flexible in the back.

**Carbide Tooth:** Extremely hard carbide is either welded onto or impregnated into the carbon steel blades, providing superior edge-holding characteristics (see **Figure 57**).



**Figure 57. Carbide-tooth blade composition.**















**Bi-metal Blade:** A strip of high-speed tool steel is precision welded to a flexible carbon blade, then teeth are ground into the blade to provide good edge-holding qualities for blades taking a lot of abuse (see **Figure 58**).









**Figure 58. Bi-metal blade composition.**

# Blade Selection Chart

Use the blade selection chart below as a general guide when selecting a blade for your operation.

Cutting Operation	Blade Width		
	Narrow (1/8"-1/4")	Medium (3/16"-1/2")	Wide (1/2"-1")
Resawing			 <b>C</b>
Ripping Thin Stock			 <b>M</b>
Ripping Thick Stock			 <b>C</b>
Ripping Round Stock		 <b>M</b>	 <b>M</b>
Crosscutting Thin Stock			 <b>F</b>
Crosscutting Thick Stock			 <b>M</b>
Crosscutting Round Stock		 <b>F</b> <b>M</b>	 <b>F</b> <b>M</b>
Miter Cut			 <b>F</b> <b>M</b>
Tenons		 <b>M</b>	 <b>M</b>
Sharp Curves	 <b>F</b>		
Gradual Curves		 <b>F</b> <b>M</b>	

Key					
Tooth Type			Tooth Pitch (Teeth Per Inch or TPI)		
					
Hook	Raker	Skip	Fine (14-32 TPI)	Medium (4-12 TPI)	Coarse (2-4 TPI)



# Blade Care & Break-In      Blade Breakage

## Blade Care

A bandsaw blade is a thin piece of steel that is subjected to tremendous strain. You can obtain longer use from a bandsaw blade if you give it fair treatment and always use the appropriate feed rate for your operation.

Be sure to select blades with the proper width, set, type, and pitch for each application. Using the wrong blade will produce unnecessary heat and shorten the life of the blade.

A clean blade will perform much better than a dirty blade. Dirty or gummed up blades pass through the cutting material with much more resistance than clean blades. This extra resistance also causes unnecessary heat.

## Blade Break-In

The tooth tips and edges of a new blade are extremely sharp, and cutting at too fast of a feed rate fractures the beveled edges of the teeth and causes premature blade wear.

### To properly break in a new blade:

1. Choose correct speed for blade and material of operation.
2. Reduce feed pressure by half for first 50–100 in<sup>2</sup> of material cut.
3. To avoid twisting blade when cutting, adjust feed pressure when total width of blade is in cut.

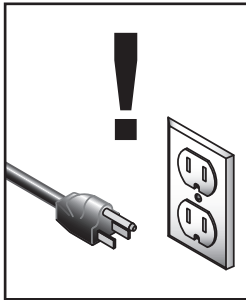
Many conditions may cause a bandsaw blade to break. Blade breakage is unavoidable in some cases, since it is the natural result of the peculiar stresses that bandsaw blades are subjected to.

Blade breakage is also due to avoidable circumstances. Avoidable blade breakage is most often the result of poor care or judgement on the part of the operator when mounting or adjusting the blade or support guides.

### The most common causes of blade breakage are:

- Faulty alignment or adjustment of the blade guides.
- Forcing or twisting a wide blade around a short radius.
- Feeding the workpiece too fast.
- Dull or damaged teeth.
- Over-tensioned blade.
- Upper blade guide assembly set too high above the workpiece. Adjust the top blade guide assembly so that there is approximately  $\frac{1}{8}$ "– $\frac{1}{4}$ " between the bottom of the assembly and the workpiece.
- Using a blade with a lumpy or improperly finished braze or weld.
- Leaving the blade tensioned when not in use.
- Using the wrong pitch (TPI) for the workpiece thickness. The general rule of thumb is to have no less than two teeth in contact with the workpiece at all times during cutting.

# Changing Blade

	<p><b>⚠ WARNING</b>                  Disconnect bandsaw from power <b>BEFORE</b> changing blade. Serious personal injury could occur if machine is started during this procedure.</p>
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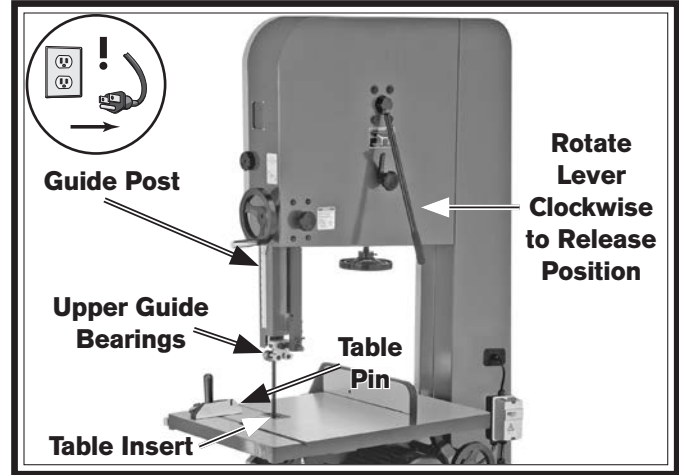
	<p><b>⚠ CAUTION</b>  <b>LACERATION HAZARD!</b>                  Bandsaw blades are sharp and difficult to handle. Wear heavy leather gloves while handling to reduce the risk of being cut.</p>
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Blade changes entail removing the existing blade, installing the new blade, then properly adjusting the blade tension, tracking, and guides.

Tools Needed	Qty
Hex Wrench 6mm .....	1
Wrench or Socket 10mm.....	1

# Removing Blade

1. DISCONNECT MACHINE FROM POWER!
2. Release blade tension by rotating blade tension quick-release lever (see **Figure 59**) clockwise to RELEASE position.
3. Remove table insert and table pin (see **Figure 59**). Adjust upper and lower guide bearings as far away as possible from blade.



**Figure 59. Blade changing controls (table pin hidden behind miter gauge).**

4. Open upper and lower wheel covers and, with gloved hands, slide blade off of both wheels.
5. Slide it through slot in table to remove it.

## Installing Blade

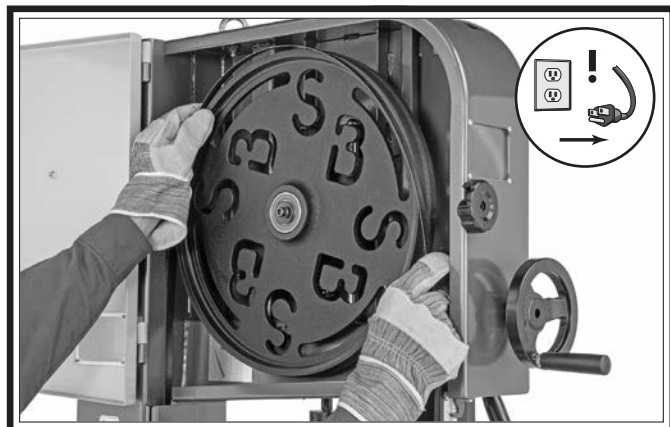
### Tools Needed

	Qty
Hex Wrench 6mm .....	1
Wrench or Socket 10mm .....	1

1. DISCONNECT MACHINE FROM POWER!
2. Slide blade through table slot, ensuring teeth are pointing down toward front of table.

**Note:** *If the teeth will not point downward in any orientation, the blade is inside-out. Remove the blade, and twist it right-side-out.*

3. Slip blade through blade guides, and mount it on upper and lower wheels (see **Figure 60**).



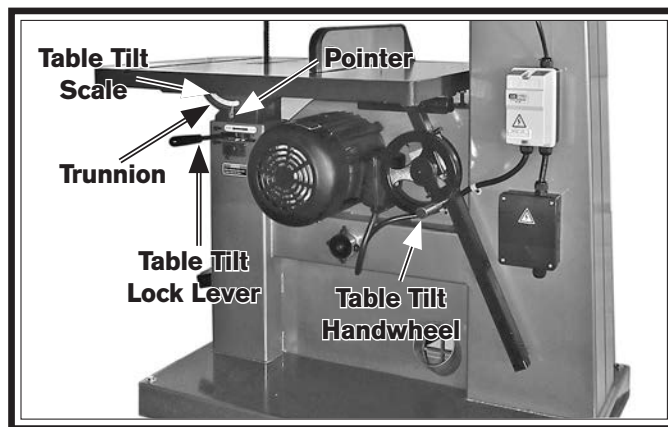
**Figure 60.** Example of placing blade on upper wheel.

4. Rotate blade tension quick-release lever counterclockwise to PARTIAL TENSION position.
5. Adjust blade tension (refer to **Page 27**) and blade tracking (refer to **Page 28**).
6. Adjust upper/lower guide bearings and support bearings (refer to instructions beginning on **Page 30**).
7. Close and secure wheel covers, and re-install table insert and table pin.
8. If necessary, adjust blade tension quick-release lever (refer to **Page 59** for more information).

## Tilting Table

The table can be tilted from 5° left–45° right to make beveled cuts. A table tilt scale with pointer is provided on the trunnion, and a positive stop is provided for quickly returning the table back to 0° from a right-tilt setting (see **Figure 61**).

**Note:** *The tilt scale on the trunnion serves as a guide only. For more accurate results use a bevel gauge or protractor to set the desired table tilt relative to the blade.*



**Figure 61.** Table tilt controls.

### Tilting Table

1. DISCONNECT MACHINE FROM POWER!
2. Loosen table tilt lock lever (see **Figure 61**).
3. Rotate table tilt handwheel until table reaches desired angle, then retighten lock lever.

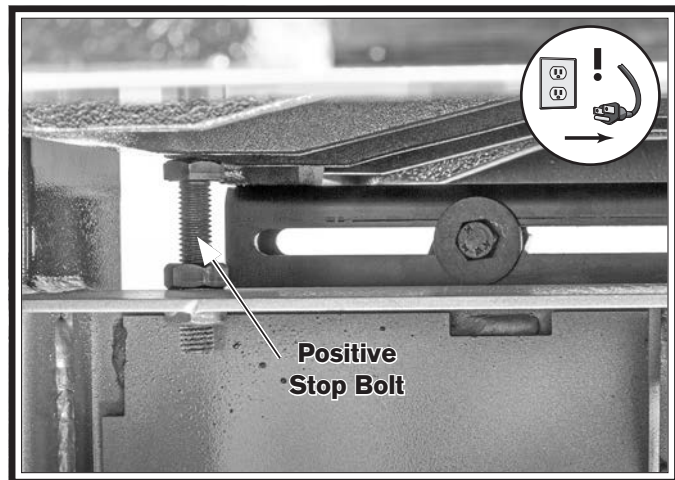
## Using Positive Stop

The positive stop allows you to quickly return the table to 0° from a right-tilt setting. The positive stop is adjustable, allowing for calibration, or if desired, minor deviations from 0°.

Tools Needed	Qty
Open-End Wrenches 17mm.....	2

### To use positive stop:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen table tilt lock lever (see **Figure 61**).
3. Use handwheel to tilt table to desired angle, then secure position by tightening table tilt lock lever (see **Figure 62**).
4. Loosen jam nut on stop bolt (see **Figure 62**) and turn bolt until it just touches bottom of table.



**Figure 62. Location of positive stop bolt.**

5. Tighten jam nut to secure stop bolt setting.

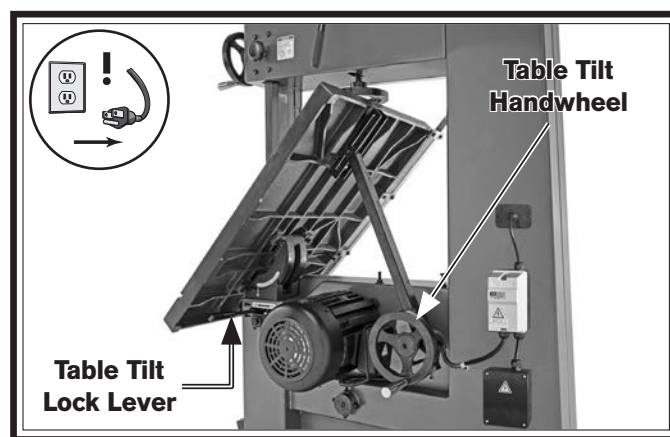
**Note:** It is always a good idea to check the table tilt scale and make sure the positive stop is calibrated.

## Checking/Calibrating Positive Stop

Tools Needed	Qty
Open-End Wrenches 17mm.....	2
Machinist's Square.....	1
Phillips Head Screwdriver #2.....	1

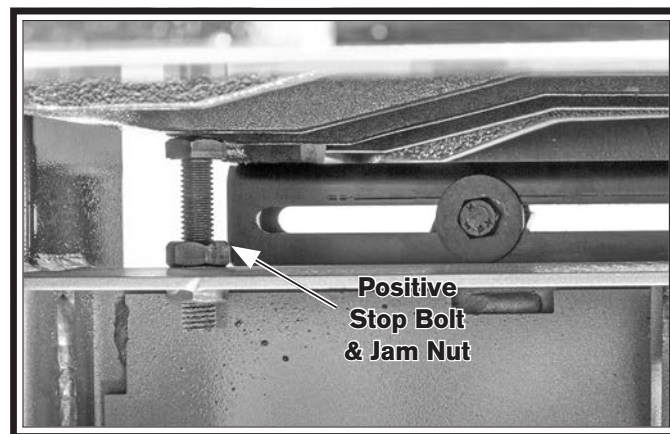
### To check/calibrate positive stop:

1. Correctly set blade tension and raise guide post all the way up.
2. DISCONNECT MACHINE FROM POWER!
3. Loosen table tilt lock lever, and use table tilt handwheel to raise table (see **Figure 63**).



**Figure 63. Table tilted up.**

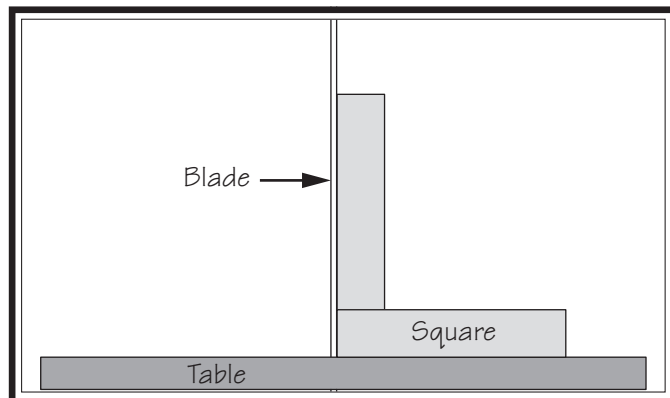
4. Open both wheel covers, loosen positive stop jam nut shown in **Figure 64**, then lower positive stop bolt so it will not interfere with table tilt in the following steps.



**Figure 64. Positive stop bolt and jam nut.**

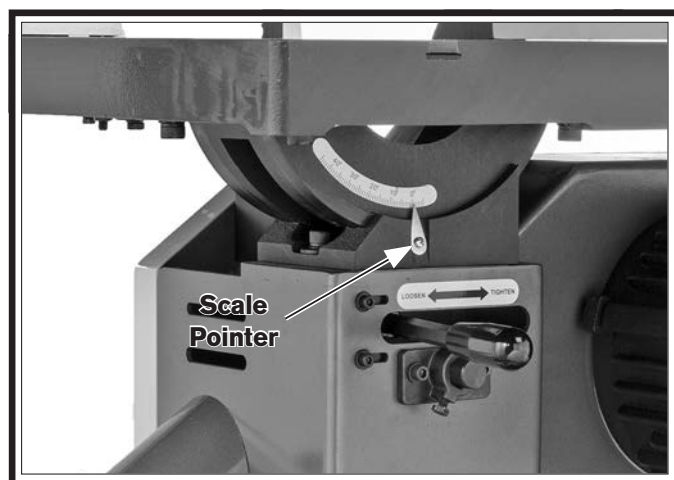


- Lower table and place a machinist's square flat on table against the side of the blade, as illustrated in **Figure 65**.



**Figure 65. Squaring table to the blade.**

- Use table tilt handwheel to adjust table square to blade, then tighten tilt lock lever.
- Adjust positive stop bolt up until it just touches table, then re-tighten jam nut to hold it in place.
- Re-check table to make sure it is square to the blade. If necessary, repeat this procedure until you are satisfied.
- Loosen screw on table tilt scale pointer, but do not remove it (see **Figure 66**).



**Figure 66. Table tilt scale pointer.**

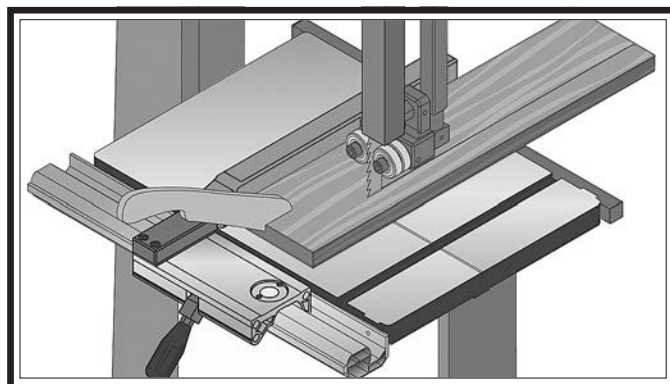
- Align pointer tip with zero on scale, then re-tighten screw.
- Close and secure both wheel covers before beginning operation.

## Ripping

"Ripping" means cutting with the grain of the wood stock. For plywood and other processed wood, ripping simply means cutting down the length of the workpiece. Beveled rip cuts may be performed by tilting the table.

### To make a rip cut:

- Adjust fence to match width of cut on your workpiece, then lock fence in place.
- Adjust blade guide assembly to proper height above workpiece.
- After all safety precautions have been met, turn bandsaw **ON** and wait for it to come to full speed. Slowly feed workpiece into blade until blade is completely through workpiece. **Figure 67** shows an example of a ripping operation.



**Figure 67. Example of a ripping operation.**

## ⚠ WARNING

**ALWAYS** use a push stick when ripping narrow pieces. Failure to follow these warnings may result in amputation or laceration injuries!

## ⚠ WARNING

**NEVER** place fingers or hands in the line of cut. If you slip, your hands or fingers may go into the blade and may be cut.

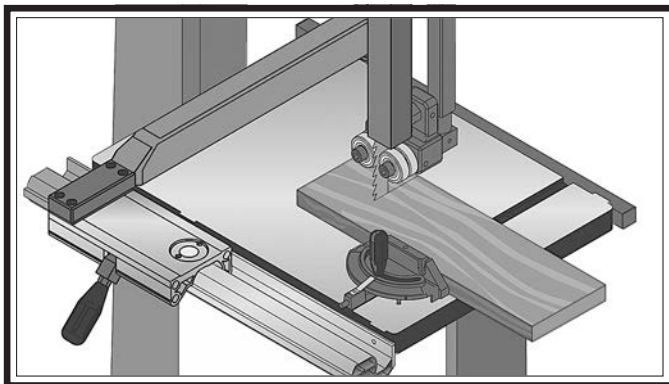


## Crosscutting

Crosscutting is the process of cutting across the grain of wood. For plywood and other processed wood, crosscutting simply means cutting across the width of the material. Crosscuts can be 90° or angled using the miter gauge. Compound crosscuts are those where the miter is angled and the table tilted.

### To make a crosscut:

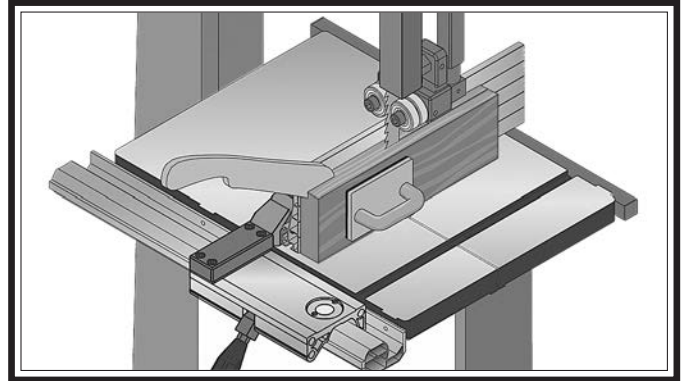
1. Mark workpiece on edge where you want to begin cut.
2. Adjust blade guide assembly to proper height above workpiece.
3. Adjust miter gauge to correct angle needed for cut.
4. Move fence out of the way. Place workpiece evenly against miter gauge, then line up mark with blade.
5. After all safety precautions have been met, turn bandsaw **ON** and wait for it to come to full speed. Slowly feed workpiece into blade until blade is all the way through workpiece. **Figure 68** shows an example of a crosscutting operation.



**Figure 68.** Example of a crosscutting operation with the miter gauge.

## Resawing

"Resawing" means cutting the thickness of a board into two or more thinner boards (see **Figure 69** for an example). The maximum height of a board that can be resawn is limited by the maximum cutting height of the bandsaw.



**Figure 69.** Example of a resawing operation.

One of the most important considerations for resawing is blade selection—a wide blade cuts straighter and is less prone to blade lead (see **Blade Lead** on **Page 49** for more information).

For most applications, use a blade with a hook or a skip tooth style. Choose blades with fewer teeth-per-inch (from 3 to 6 TPI), because they offer larger gullet capacities for clearing sawdust, which reduces heat buildup and strain on the motor.

## ⚠ WARNING

**When resawing thin pieces, a wandering blade (blade lead) can tear through the side of the workpiece, exposing your hands to the blade teeth. Always use push blocks when resawing and keep your hands clear of the blade.**

## Cutting Curves

When cutting curves, simultaneously feed and turn the stock carefully so the blade follows the layout line without twisting. If curves are sharp or tight, use a narrower blade with more TPI (teeth per inch) and make relief cuts to avoid having to back the workpiece away from the blade.

Always make short cuts first, then proceed to the longer cuts. Relief cuts reduce the chance of the blade being pinched or twisted. Relief cuts are cuts made through the waste portion of the workpiece and are stopped at the layout line, so when you're cutting along the layout line, waste wood is released from the workpiece, alleviating any pressure on the back of the blade. Relief cuts also make it easier to back the workpiece out once the saw blade has come to a stop, if needed.

### **NOTICE**

The list below displays blade widths and the corresponding minimum radii for those blade widths.

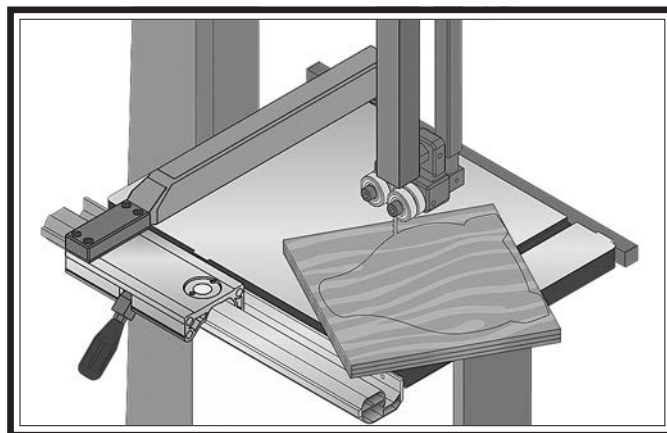
Width	Min. Radius
1/8"	1/8"
3/16"	3/8"
1/4"	5/8"
3/8"	1 1/4"
1/2"	2 1/2"
5/8"	3 3/4"
3/4"	5 1/2"

## Stacked Cuts

One of the benefits of a bandsaw is its ability to cut multiple copies of a particular shape by stacking a number of workpieces together. However, before making stacked cuts, ensure that the table is perpendicular (90°) to the blade—otherwise, any error in this setting will be compounded in the workpieces.

### To complete a stacked cut:

1. Align workpieces from top to bottom.
2. Secure all pieces together in a manner that will not interfere with cutting. Hot gluing along edges works well, as does brad nailing through waste portion. (Be careful not to cut into brads or you may break blade!)
3. Lay out shape you intend to cut on face of top piece.
4. Make relief cuts perpendicular to outline of your intended shape in areas where changes in blade direction could strain woodgrain or cause blade to bind.
5. Cut stack of pieces along your layout line as though you were cutting a single piece (see **Figure 70** for an example of a stacked cut setup).



**Figure 70.** Example of a stacked cut setup.

## Using Foot Brake

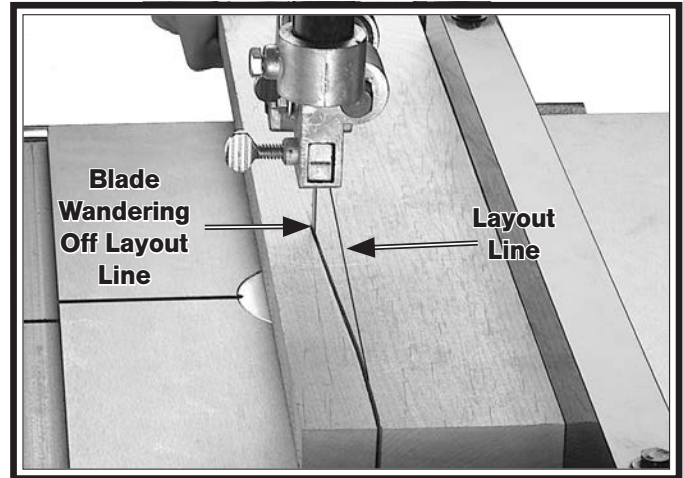
The Model SB1123 is equipped with a foot brake (see **Figure 71**). Use the brake only in emergency situations to disconnect power to the motor and stop the blade.



**Figure 71. Location of foot brake.**

## Blade Lead

Bandsaw blades may wander off of the layout line when sawing, as shown in **Figure 72**. This is called blade lead.



**Figure 72. Example of blade lead.**

### **! CAUTION**

**The foot brake will not stop the bandsaw wheels and blade instantly. DO NOT become over confident and relax your safety awareness because of the foot brake feature.**

Blade lead is usually caused by excessive feed rate/pressure, a dull or abused blade, or improper blade tension. If your blade is sharp/undamaged, properly tensioned, and you are using light feeding pressure, and there is still blade lead, perform the following procedures.

<b>Items Needed</b>	<b>Qty</b>
Wood Board 3/4" x 3" x 16" .....	1
Hex Wrench 5mm .....	1
Clamp.....	1

### **Correcting Blade Lead**

- 1.** Make sure blade is properly tensioned and blade guides are adjusted correctly.
- 2.** Make sure miter slot and fence are parallel to blade line (see **Aligning Table** and **Aligning Fence** procedures for detailed information).
- 3.** Perform test cut with bandsaw, using less pressure when feeding workpiece through cut.
  - If there is still blade lead present, compensate for this condition by skewing the fence, as instructed in the following procedure.

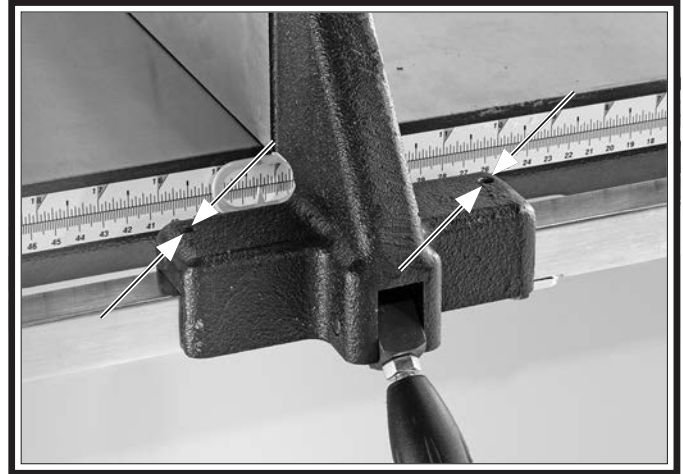
## Skewing Fence

1. Cut a straight and parallel wood board approximately  $\frac{3}{4}$ " thick x 3" wide x 16" long.

**Tip:** Cut your board out of a new piece of  $\frac{3}{4}$ " plywood, using a table saw. The straight "factory edge" of the plywood will ensure accuracy during the following steps. Alternatively, you can use a jointer and table saw to straighten a piece of scrap wood.

2. On wide face of board, draw a straight line parallel to long edge, similar to layout line shown in **Figure 72**.
3. Slide fence out of the way and cut along layout line halfway through board. Turn bandsaw **OFF** and wait for blade to stop. Do not move board.
4. Clamp board to bandsaw table, then slide fence over to board so it barely touches one edge of board.

5. Adjust the four fence set screws (see **Figure 73**) to skew the fence so that it is parallel with the wood board, contacting it evenly along its length.



**Figure 73. Location of fence adjustment set screws.**

6. Finish cut using fence.
  - If blade lead is still present, repeat **Steps 1–5** until cutting results are satisfactory.

## Accessories

This section includes the most common accessories available for your machine through our exclusive dealer, Grizzly Industrial, Inc., at [grizzly.com](http://grizzly.com).

### 180" Replacement Blades

Model	Width	TPI	Type	Gauge
H6988	½"	3	Hook	0.025
H6989	½"	4	Hook	0.025
H6990	½"	6	Hook	0.025
H6991	½"	10	Raker	0.025
H6992	½"	14	Raker	0.025
T25023	⅜"	3	Raker	0.032
T25057	¾"	2/3	Claw	0.025
H6993	1"	2	Hook	0.035
H6994	1"	6	Hook	0.035
H6995	1"	10	Raker	0.035
H6997	1"	3	Hook	0.025
H8630	1"	3	Claw	0.035
T33244	1"	1.3	Hook	0.035
T33245	1"	3	Hook	0.035
T33246	1"	3/4	VP	0.035
H6996	1¼"	1.3	Hook	0.035

## Basic Eye Protection

**T32323**—Woodturners Face Shield

**T32401**—EDGE Brazeau Safety Glasses, Clear

**T32402**—EDGE Khor G2 Safety Glasses, Tint

**T32404**—EDGE Mazeno Safety Glasses, Clear



Figure 74. Assortment of basic eye protection.

**D2272**—Tilting Roller Stand

Adjusts from 26" to 44", 0°–45°. 150 lb. capacity.

**D2273**—Single Roller Stand

Adjusts from 26½" to 45". 250 lb. capacity.

**D2274**—5 Roller Stand

Adjusts from 26" to 44½". 250 lb. capacity.

These super heavy-duty roller stands feature convenient hand knobs for fast height adjustment.

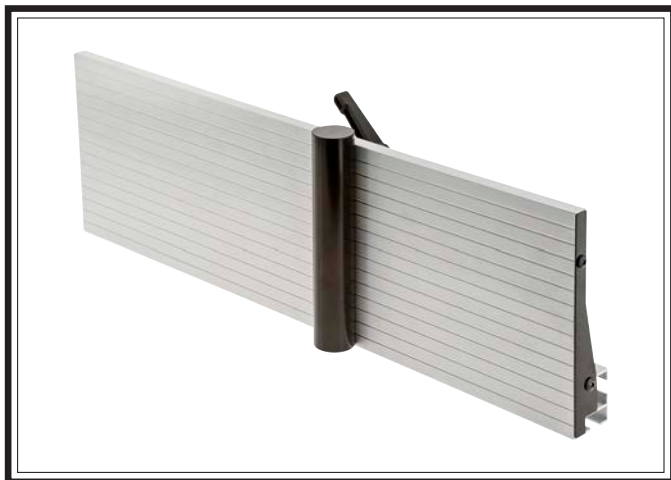


Figure 75. Accessory roller stands.



**T1194—Resaw Fence w/Drift Bar**

Anyone who's ever tried to rip or resaw on a bandsaw without adjusting for blade drift knows the natural line of cut is not always parallel to the fence. Forcing the wood against the fence will put strain on the blade and cause a wandering cut line. The easiest way to compensate for blade drift is to scribe a cut line on the edge or face of your workpiece and use a drift bar mounted to your fence. The drift bar acts as a thickness gauge and adjusts the angle of cut with the scribed line, ensuring a uniform thickness without putting undue strain on the blade. This includes the 19<sup>7</sup>/<sub>8</sub>"L x 5<sup>15</sup>/<sub>16</sub>"W resaw fence and drift bar so you have everything you need to start cutting down on drift!



**Figure 76. T1194 Resaw Fence w/Drift Bar.**

**T26419—NLGI#2 Syn-O-Gen Synthetic Grease**

Formulated with 100% pure synthesized hydrocarbon basestocks that are compounded with special thickeners and additives to make Syn-O-Gen non-melt, tacky, and water-resistant. Extremely low pour point, extremely high temperature oxidation, and thermal stability produce a grease that is unmatched in performance.



**Figure 77. T26419 Syn-O-Gen Synthetic Grease.**

**Recommended Metal Protectants**

- G5562—SLIPIT® 1 Qt. Gel**
- G5563—SLIPIT® 12 Oz. Spray**



**Figure 78. Recommended products for protecting unpainted cast iron/steel part on machinery.**

- H2499—Small Half-Mask Respirator**
- H3631—Medium Half-Mask Respirator**
- H3632—Large Half-Mask Respirator**
- H3635—Cartridge Filter Pair P100**

Wood dust has been linked to nasal cancer and severe respiratory illnesses. If you work around dust everyday, a half-mask respirator can be a lifesaver. Also compatible with safety glasses!



**Figure 79. Half-mask respirator with disposable cartridge filters.**

**SB1094—5 HP Cyclone Dust Collector**

The Model SB1094 features a 5 HP motor, a whopping 2399 CFM of airflow capacity, and a 60-gallon collection capacity. It's packed with features like a built-in sound muffler, an automatic filter paddle brush for easy cleaning, a remote-controlled magnetic switch, and a quick-release lift handle for easy sawdust disposal.



Figure 80. SB1094 5 HP Cyclone Dust Collector.

- D4206—Clear Flexible Hose 4" x 10'**
- D4256—45° Elbow 4"**
- D4216—Black Flexible Hose 4" x 10'**
- W1034—Heavy-Duty Clear Flex Hose 4" x 10'**
- D2107—Hose Hanger 4 1/4"**
- W1015—Y-Fitting 4" x 4" x 4"**
- W1017—90° Elbow 4"**
- W1019—Hose Coupler (Splice) 4"**
- W1317—Wire Hose Clamp 4"**
- W1007—Plastic Blast Gate 4"**
- W1053—Anti-Static Grounding Kit**

We've hand picked a selection of commonly used dust collection components for machines with 4" dust ports.



Figure 81. Dust collection accessories.

**T10456—Heavy-Duty Anti-Fatigue Mat 3' x 5'**

This Heavy-Duty Anti-Fatigue Mat features beveled edges and no-slip tread for safety and comfort. Open-hole design allows liquid to drain through, so it's perfect for wet or oily conditions. Measures 3' wide x 5' long x 3/8" thick.

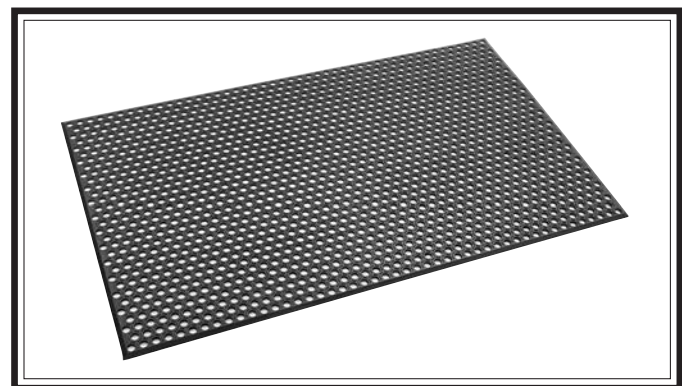
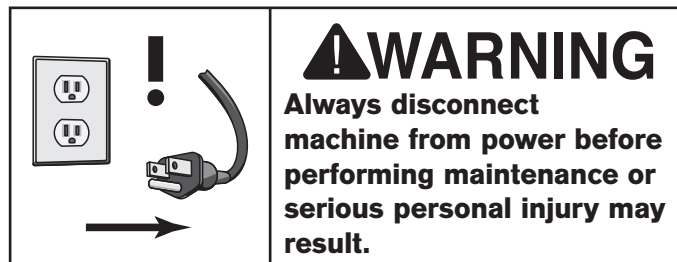


Figure 82. T10456 Anti-Fatigue Mat.

# Maintenance Schedule **Cleaning & Protecting**



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

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

### Ongoing

- Loose mounting bolts.
- Worn or damaged saw blade.
- Worn or damaged wires.
- Check/clean wheel brushes.
- Clean/protect table surface.
- Check lubrication points.
- Any other unsafe condition.

### Monthly Check

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

## Wheel Brushes

The bandsaw is equipped with lower wheel brushes to keep saw dust from building up on the tire. The brushes should be checked daily and cleaned when they become dirty.

There are adjustment brackets that allow the brushes to be adjusted for bristle wear (refer to **Adjusting Wheel Brushes** on **Page 59** for detailed instructions).

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

Protect the unpainted cast-iron surfaces on the 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 (see **Accessories** section for more details).

## Lubrication

An essential part of lubrication is cleaning the components before lubricating them. This step is critical because dust and chips build up on lubricated components, which makes them hard to move. Simply adding more grease to built-up grime will not result in smooth moving parts. Clean the components in this section with an oil/grease solvent cleaner or mineral spirits before applying lubrication.

All bearings are sealed and permanently lubricated. Leave them alone until they need to be replaced.

### Items Needed

### Qty

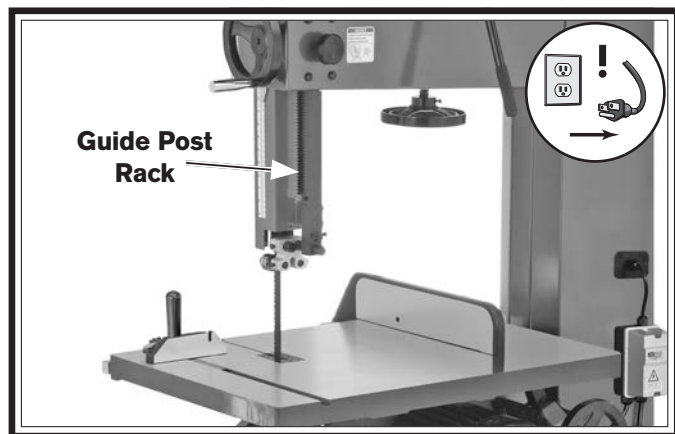
Mineral Spirits .....	As Needed
Oil/Grease Solvent .....	As Needed
Clean Rags.....	As Needed
NLGI#2 Grease or Equivalent .....	As Needed

### Guide Post Rack

Lubrication Type...NLGI#2 Grease or Equivalent  
 Amount ..... Thin Coat  
 Frequency ..... As Needed

**To lubricate guide post rack and pinion:**

1. DISCONNECT MACHINE FROM POWER!
2. Lower guide post all the way.
3. Use a rag and mineral spirits to wipe off any grease and sawdust build-up on rack (see **Figure 83**).



**Figure 83. Guide post rack exposed for lubrication.**

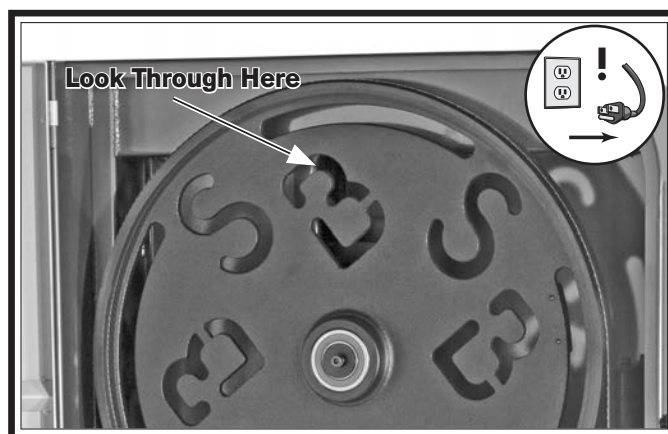
4. Apply a thin coat of lubricant to rack.
5. Move guide post up and down several times to distribute lubricant, then remove any excess grease to help reduce potential sawdust build-up.

### Blade Tension Adjustment Assembly

Lubrication Type...NLGI#2 Grease or Equivalent  
 Amount ..... Thin Coat  
 Frequency ..... As Needed

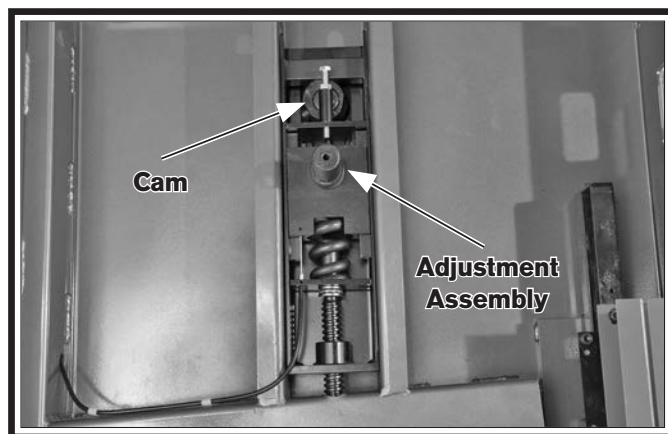
**To lubricate tension adjustment assembly:**

1. DISCONNECT MACHINE FROM POWER!
2. Open upper wheel cover and look through top of wheel (see **Figure 84**).



**Figure 84. Location of blade tension adjustment assembly.**

3. Use a rag and mineral spirits to wipe off any grease and sawdust build-up on blade tension adjustment assembly and tension lever cam (see **Figure 85**), then apply thin coat of lubricant to these areas.



**Figure 85. Lubrication locations for tension adjustment assembly (upper wheel removed for clarity).**

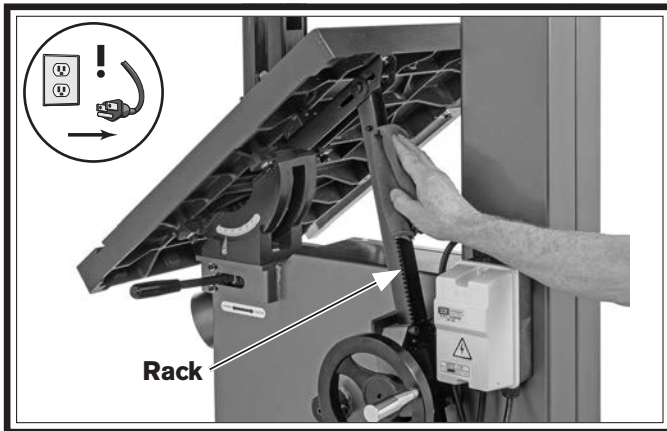


## Table Tilt Rack & Pinion Assembly

Lubrication Type...NLGI#2 Grease or Equivalent  
 Amount ..... Thin Coat  
 Frequency ..... As Needed

### To lubricate table tilt rack & pinion assembly:

1. DISCONNECT MACHINE FROM POWER!
2. With table perpendicular to blade, and using a rag and mineral spirits, wipe off all existing grease and sawdust buildup from rack.
3. Move table up to its maximum 45° angle and wipe off all existing grease and sawdust buildup from rack (see **Figure 86**).

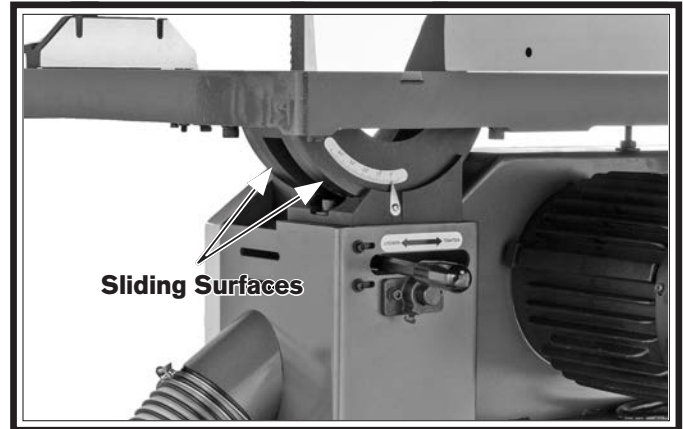


**Figure 86. Lubricating table tilt rack and pinion assembly.**

4. Apply a thin coat of multi-purpose NLGI#2 grease to rack.
5. Move table up and down several times to distribute grease, then wipe off any excess.

## Trunnions

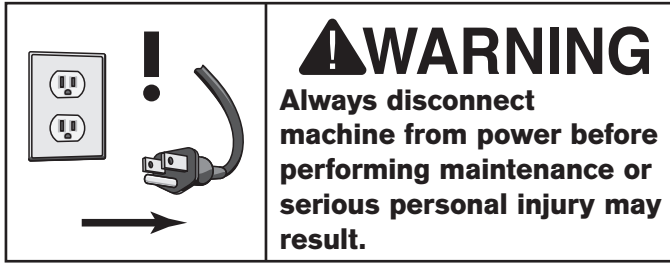
The cast-iron trunnions (see **Figure 87**) produce a fine graphite powder over time that acts as a lubricant. We recommend not adding lubricant to the trunnions, which could make a sticky substance that would prevent smooth movement.



**Figure 87. Cast-iron trunnions produce their own lubricant.**



# Tensioning/Replacing V-Belts



## Tensioning/Replacing V-Belts

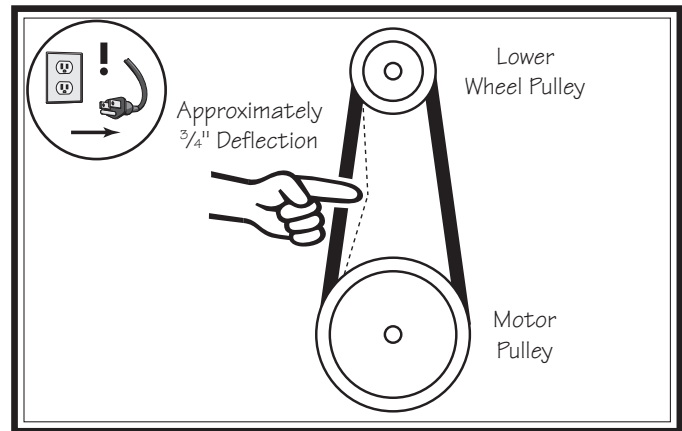
To ensure optimum power transmission from the motor to the blade, the V-belts must be properly tensioned, and free of cracks, fraying, and wear. Belt tension and condition should be checked at least every 3 months—more often if the bandsaw is used daily.

<b>Tools Needed</b>	<b>Qty</b>
Hex Wrench 6mm .....	1
Open-End Wrench or Socket 13mm .....	1
Replacement V-Belt (PN PSB1123209) .....	1

### To check/adjust V-belt tension:

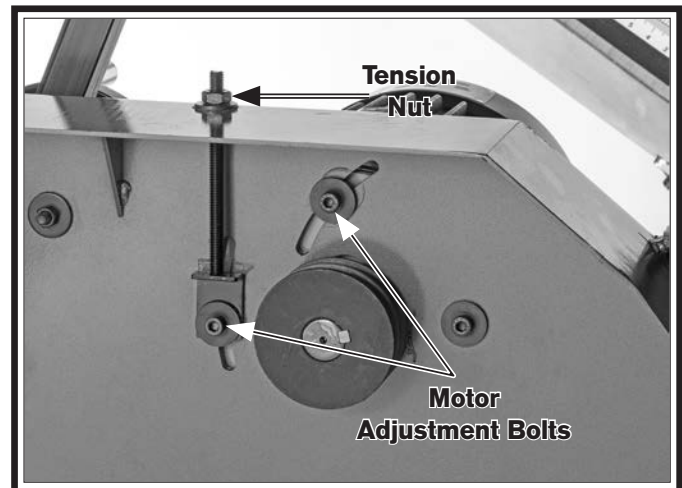
1. DISCONNECT MACHINE FROM POWER!
2. Open wheel covers.
3. Inspect V-belts; if they are cracked, frayed, or glazed, replace them (refer to **Replacing V-Belts** on **Page 58**).

4. Check V-belt tension by applying moderate pressure between pulleys (see **Figure 88**).
  - If V-belt deflection is approximately  $\frac{3}{4}$ " , belts are correctly tensioned and no adjustment is necessary.
  - If deflection is *not* approximately  $\frac{3}{4}$ " , V-belts are not correctly tensioned. Proceed to **Step 5**.



**Figure 88. V-belt deflection.**

5. Loosen motor adjustment bolts (see **Figure 89**).
6. Adjust belt tension by turning tension nut (see **Figure 89**). Turn nut clockwise to increase tension; turn nut counterclockwise to decrease tension.



**Figure 89. Location of V-belt tension controls (wheel removed for clarity).**

7. When belt tension is correct, tighten motor adjustment bolts, and close wheel covers.

## Replacing V-Belts

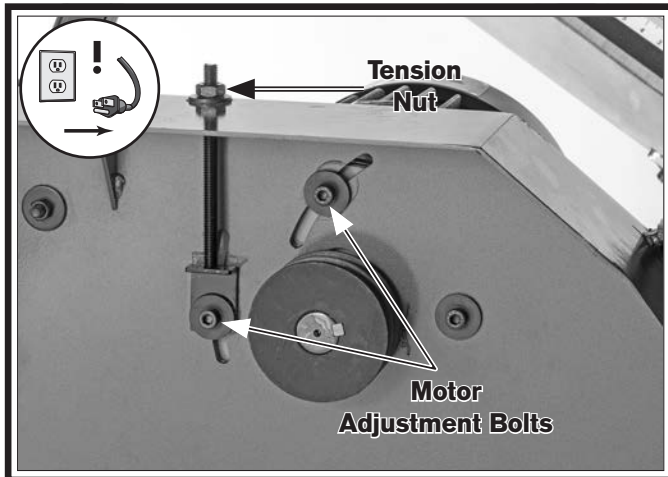
To replace the V-belts, you must remove the blade and the lower wheel. After re-installation, you must properly re-tension the V-belts.

### Tools Needed

	<b>Qty</b>
Hex Wrench 6mm .....	1
Open-End Wrench or Socket 13mm .....	1

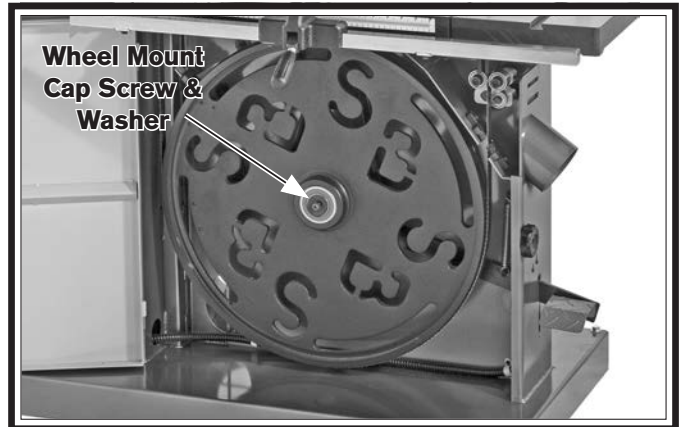
### To replace V-belts:

1. DISCONNECT MACHINE FROM POWER!
2. Open both wheel covers, and remove blade (refer to **Changing Blade** on **Page 43**).
3. Loosen motor adjustment bolts shown in **Figure 90**, then turn tension nut counterclockwise until belts are loose.



**Figure 90.** Location of V-belt removal controls (wheel removed for clarity).

4. Unthread wheel cap screw (see **Figure 91**) and carefully slide lower wheel off of bearing shaft.

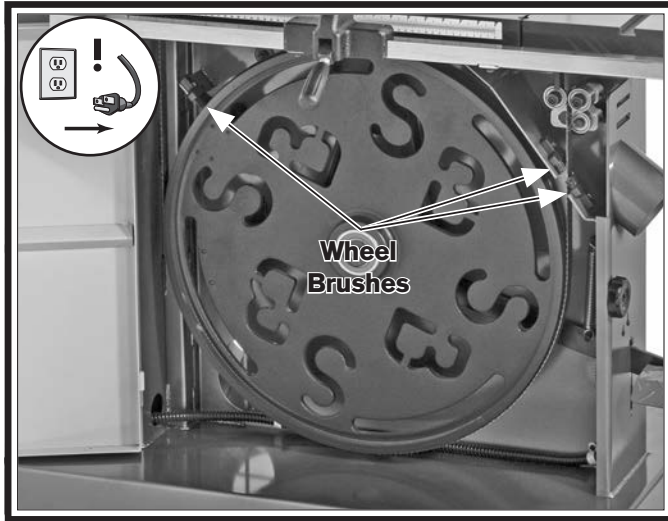


**Figure 91.** Location of lower wheel mount cap screw and washer.

5. Slip old V-belts off of wheel pulley, and install new V-belts in their place.
6. Slide lower wheel back onto bearing shaft, and secure with cap screw removed in **Step 4**.
7. Slip belts over motor pulley, then properly tension V-belts (refer to **Tensioning/Replacing V-belts** on **Page 57**).
8. Install blade (refer to **Changing Blade** on **Page 43**), and close and secure wheel covers.

# Adjusting Wheel Brushes

The lower wheel has brushes (see **Figure 92**) that are designed to sweep sawdust off the wheel and blade during operation. In order to work properly, the brushes must make firm contact with the wheel and blades.



**Figure 92.** Location of wheel brushes.

<b>Tools Needed</b>	<b>Qty</b>
Hex Wrench 5mm .....	1
Open-End Wrench 10mm .....	1

### To adjust wheel brushes:

1. DISCONNECT MACHINE FROM POWER!
2. Open wheel covers.
3. Loosen cap screws and lock nuts that secure wheel brushes in place (see **Figure 92**).
4. Adjust wheel brushes so they make firm, even contact with wheel and blade without bending the bristles, then tighten cap screws to secure wheel brushes in place.

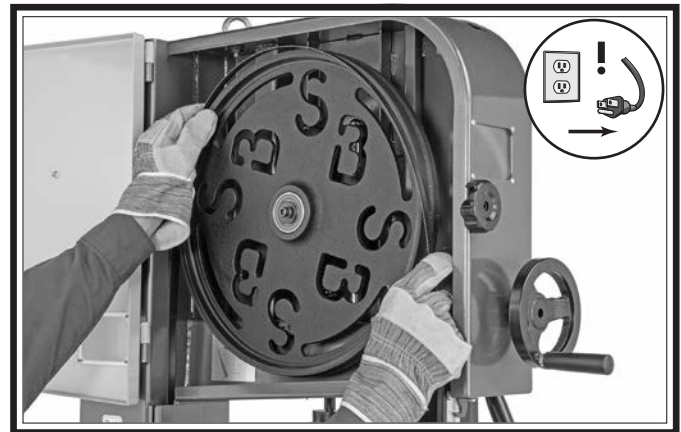
# Adjusting Quick-Release Lever

The blade tension quick-release lever was adjusted at the factory for use with the pre-installed blade. However, because blade lengths can vary by manufacturer, and because the tension spring can lose its "spring" after years of use, you may need to adjust the tension lever adjustment bolt so the blade tension lever works correctly.

<b>Tools Needed</b>	<b>Qty</b>
Hex Wrench 6mm .....	1
Open-End Wrenches 13mm .....	2

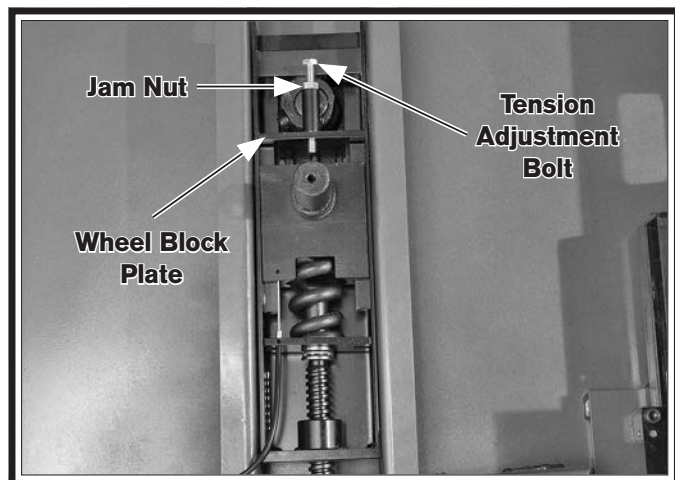
### To adjust blade tension quick-release lever:

1. Tension blade (refer to **Tensioning Blade** on **Page 27**).
  2. DISCONNECT MACHINE FROM POWER!
  3. Move quick-release lever to **RELEASE** position.
- Note:** Refer to quick-release lever label on rear of machine for lever positions.
4. Open wheel covers, remove blade (see **Figure 93**), and remove upper wheel.



**Figure 93.** Example of removing blade and upper wheel to access blade tension lever components.

- Loosen jam nut on tension adjustment bolt 7–10 turns (see **Figure 94**).



**Figure 94.** Components for adjusting quick-release lever.

- Rotate quick-release lever to TENSION position.
- Turn blade tension handwheel until blade tension matches mark on blade tension scale for appropriate blade width.
- Thread tension adjustment bolt down until it contacts the wheel block plate, then back it off 1–2 turns tighten jam nut.
- Replace wheel, blade (refer to **Changing Blade** on **Page 43**), and close blade covers.

## Adjusting Guide Post Parallelism

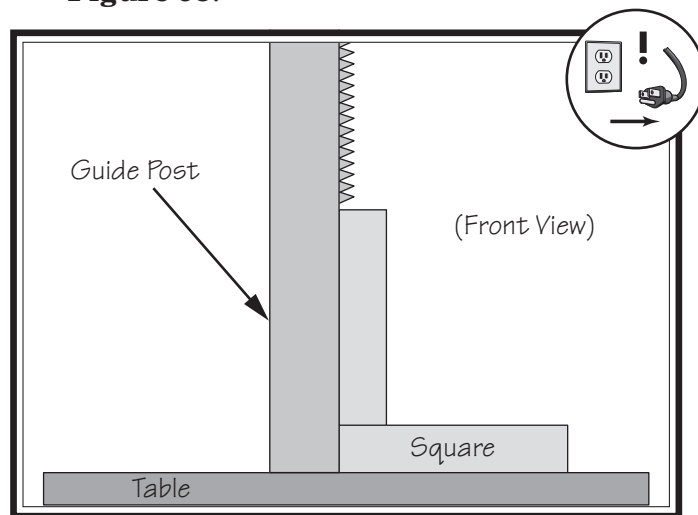
The guide post assembly should remain parallel with the blade front to back and side to side along its length of travel. If it does not, follow these instructions to adjust it.

**IMPORTANT:** Make sure the table is aligned with the blade from side to side and front to back before beginning these procedures (refer to **Aligning Table** on **Page 32** for detailed instructions).

Tools Needed	Qty
Machinist's Square.....	1
Small Ruler .....	1
Hex Wrench 4, 5, 8mm .....	1 Ea.

### Checking/Adjusting Guide Post Parallel with Blade Side to Side

- DISCONNECT MACHINE FROM POWER!
- Loosen guide post lock knob, lower guide post to within 1" of table top, then tighten knob.
- Place machinist's square on table next to right-hand side of guide post, as shown in **Figure 95**.

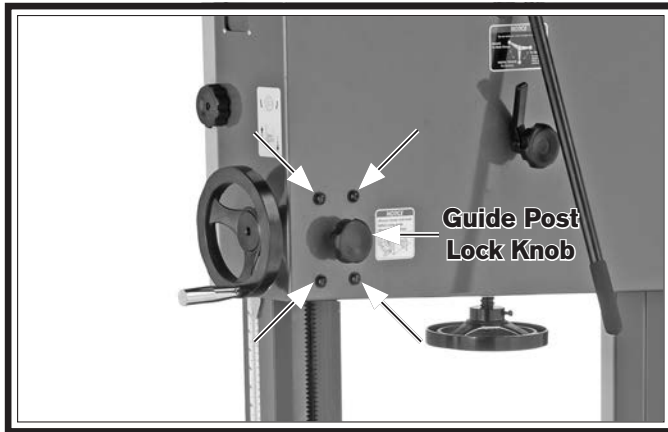


**Figure 95.** Example of checking guide post squareness.

— If there is no gap between square and guide post along its full length, no adjustments need to be made. Proceed to next procedure.

— If there is a gap between square and the guide post, guide post is not parallel to blade. Proceed to **Step 4**.

4. Loosen guide post lock knob and each of the four screws shown in **Figure 96** ¼-turn.

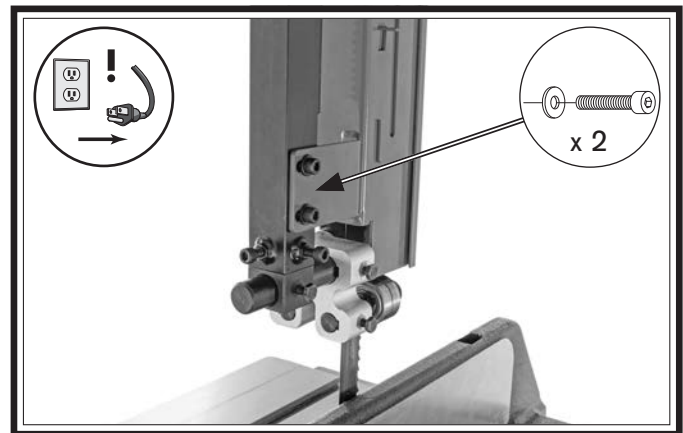


**Figure 96. Guide post lock knob and adjustment screws.**

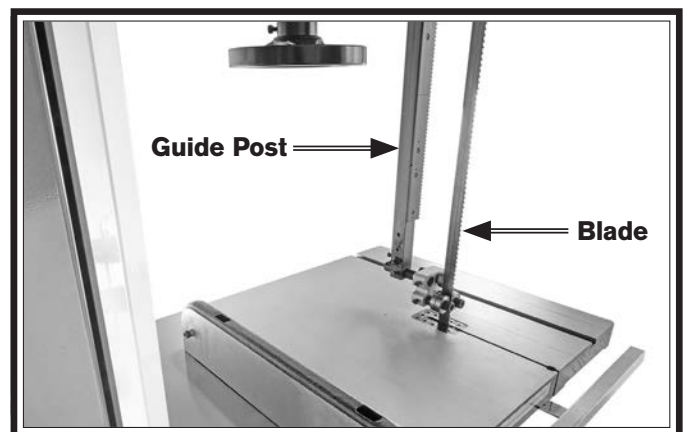
5. Gently tap lower part of guide post in appropriate direction until there is no gap between square and guide post.
6. Tighten lock knob and screws loosened in **Step 4**.

## Checking/Adjusting Guide Post Parallel with Blade Front to Back

1. DISCONNECT MACHINE FROM POWER!
2. Loosen guide post lock knob, lower blade guide assembly all the way down, then tighten lock knob.
3. Remove (2) cap screws and flat washers that secure guide post guard, then move it up and out of the way (see **Figures 97–98**).



**Figure 97. Location of screws and flat washers that secure guide post guard.**



**Figure 98. Example of guide post guard removed.**

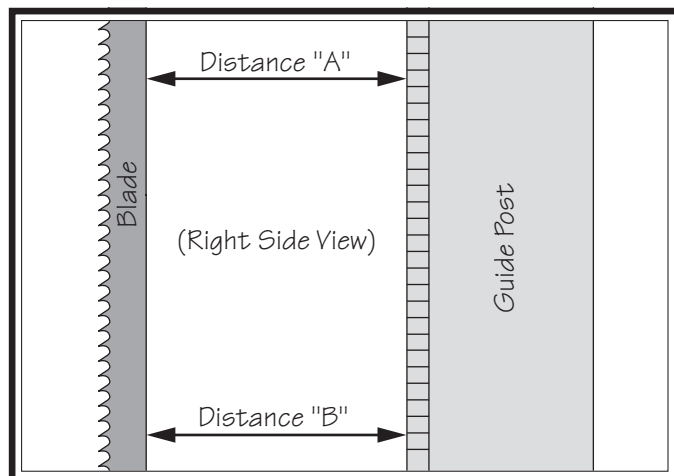


4. Measure distance "A" between upper front face of guide post rack and back of blade (see **Figure 99**).

5. Measure distance "B" between bottom front face of guide post rack and back of blade (see **Figure 99**).

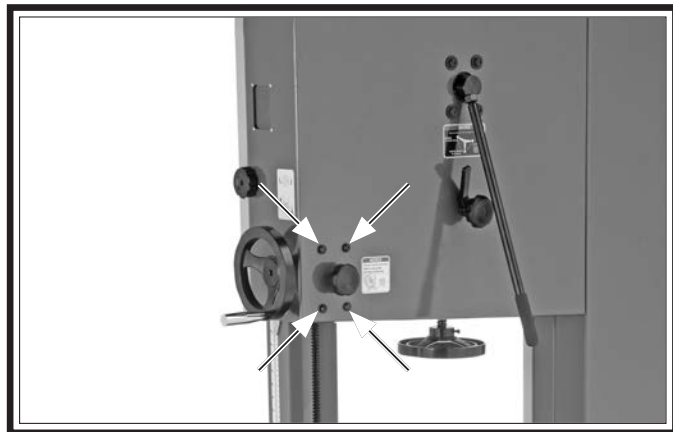
— If measurements taken in **Steps 4–5** are equal, no adjustments need to be made. Proceed to **Step 9**.

— If measurements taken in **Steps 4–5** are not equal, proceed to **Step 6**.



**Figure 99. Example of measuring distance between guide post rack and blade.**

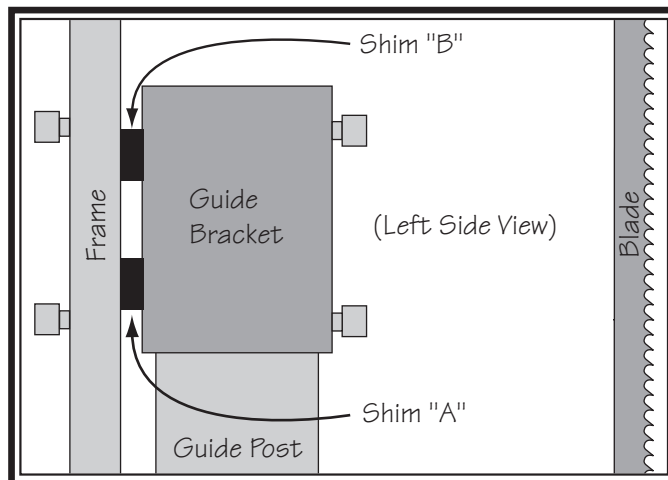
6. Loosen four cap screws shown in **Figure 100** just enough to fit metal shims between frame and guide post bracket.



**Figure 100. Guide post parallelism adjustment screws.**

— If distance between guide post and blade is greater at *bottom* than at *top*, place a shim between bottom of bracket and frame (see **Figure 101**). This will tilt bottom of guide post toward the blade.

— If distance between guide post and blade is less at *bottom* than at *top*, place a shim between top of bracket and frame (see **Figure 101**). This will tilt bottom of guide post away from blade.



**Figure 101. Location for placing shims.**

7. Tighten four screws shown in **Figure 100**, then repeat **Steps 4–5**.

— If measurements are equal, proceed to **Step 9**.

— If measurements are *not* equal, repeat **Steps 6–7** until guide post is parallel with blade.

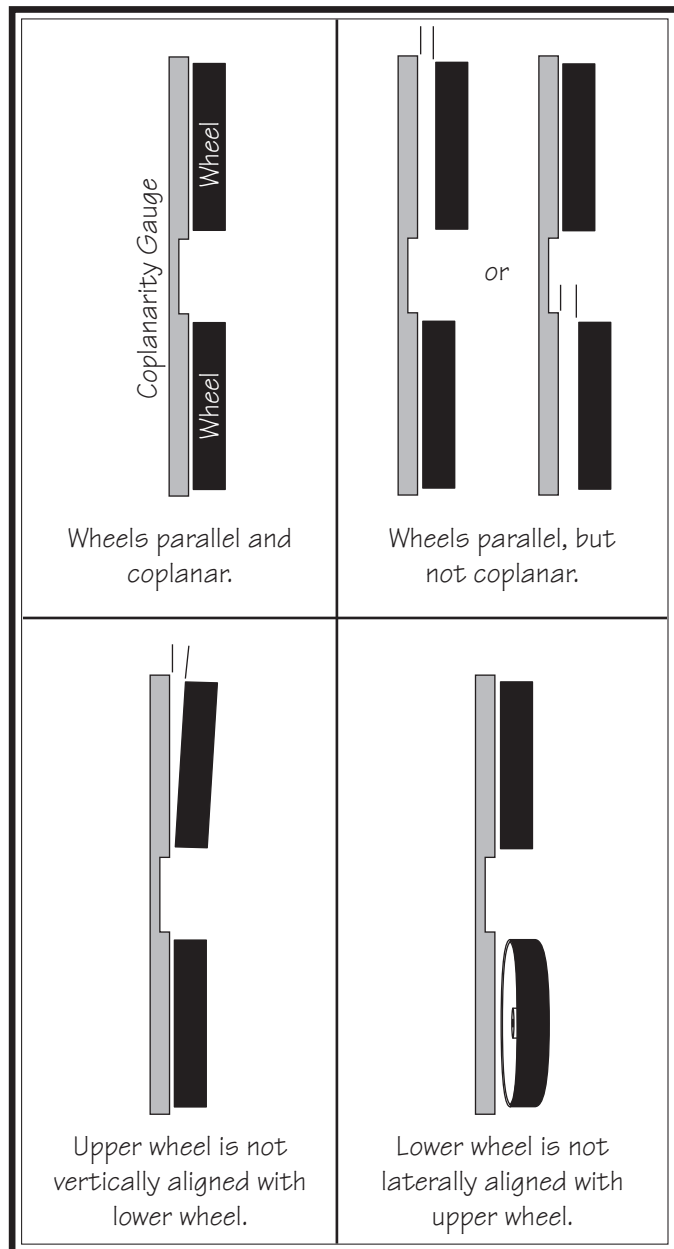
8. Install guide post guard using screws removed in **Step 3**.

9. Rotate upper wheel by hand and make sure blade does not contact guide post guard. If it does, loosen screws from **Step 3**, adjust guard so that blade will not make contact with it, then tighten screws.

# Aligning Wheels

The following adjustment was performed at the factory and should not need to be performed again unless there is a wheel alignment problem, or one or more wheels are replaced.

When wheels are coplanar (see **Figure 102**), the bandsaw is more likely to cut straight without wandering; and vibration, heat, and blade wear are considerably decreased because the blade is automatically balanced on the wheel.



**Figure 102. Wheel alignment illustration.**

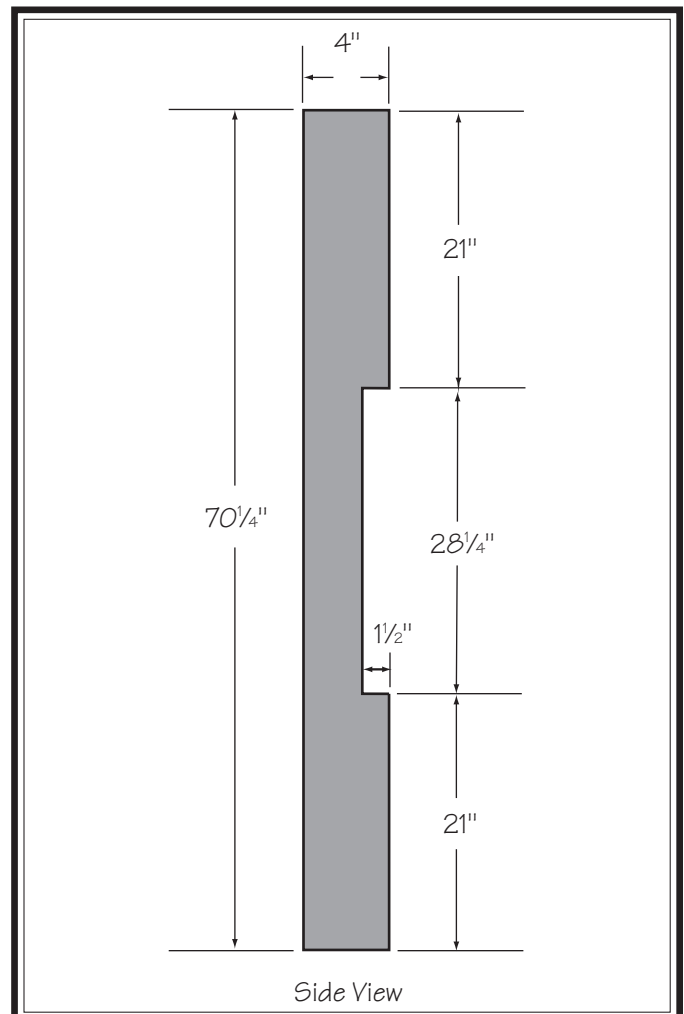
Bringing the wheel into alignment may require a combination of shimming a wheel and adjusting the position of the lower wheel shaft.

Items Needed	Qty
70 <sup>1</sup> / <sub>4</sub> " Long 2x4 .....	1
Hex Wrenches 6, 8mm .....	1 Ea
Open-End Wrench or Socket 13mm .....	1
Tape Measure .....	1
Fine Ruler .....	1

## Checking Wheel Alignment

1. Make "Coplanarity Gauge" shown in **Figure 103**.

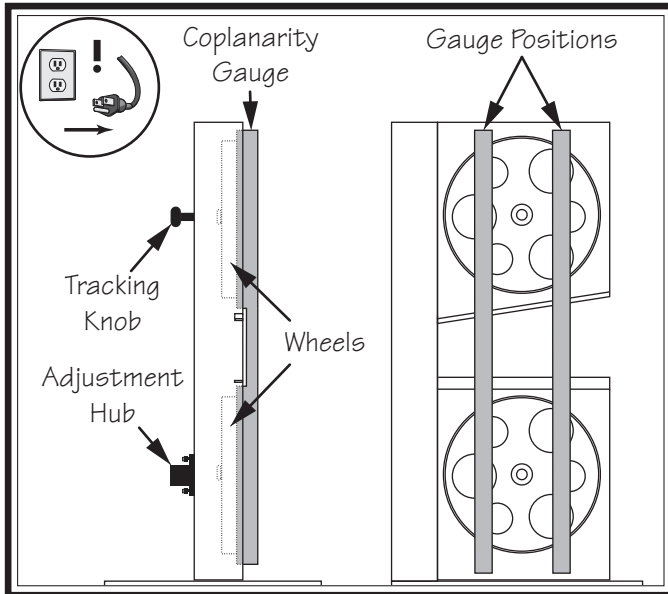
**Note:** For best results, straighten the 2x4 with a jointer before cutting. Alternatively, you can cut the gauge out of a new sheet of 1/2"-3/4" plywood using a table saw. The "factory edge" of the plywood will ensure a straight and parallel gauge.



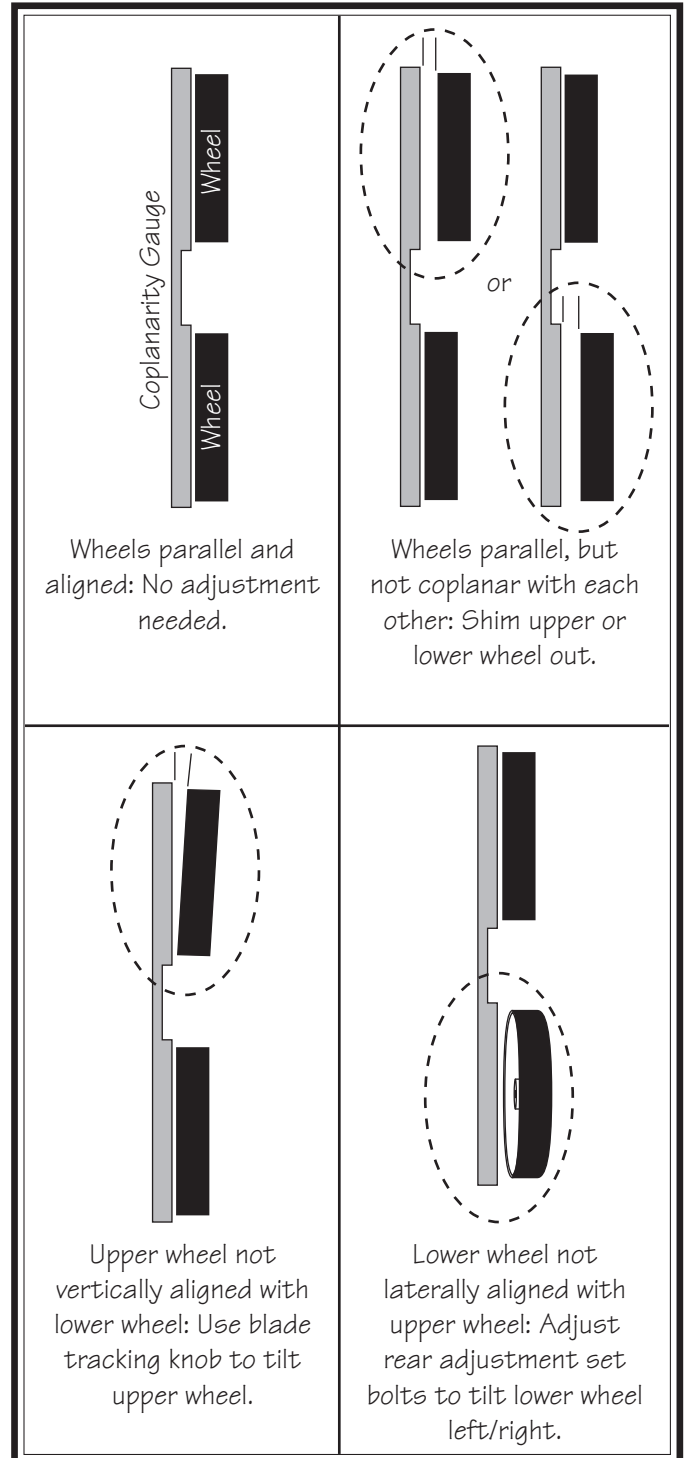
**Figure 103. Dimensions of coplanarity gauge.**

2. DISCONNECT MACHINE FROM POWER!
3. Remove blade (refer to **Changing Blade** on **Page 43**), remove table, then re-install and properly tension blade (refer to **Tensioning Blade** beginning on **Page 27**).
4. Place coplanarity gauge up against both wheels in positions shown in **Figure 104**. Make sure gauge fully extends across rims of both wheels.

5. Check wheel alignment and adjust tracking knob to bring both wheels into alignment as much as possible. If wheels cannot be adjusted coplanar, use **Figure 105** to determine how to proceed with alignment adjustments.



**Figure 104. Illustration of using coplanarity gauge to check wheel alignment.**



**Figure 105. Wheel alignment illustration with solutions to misalignment problems.**

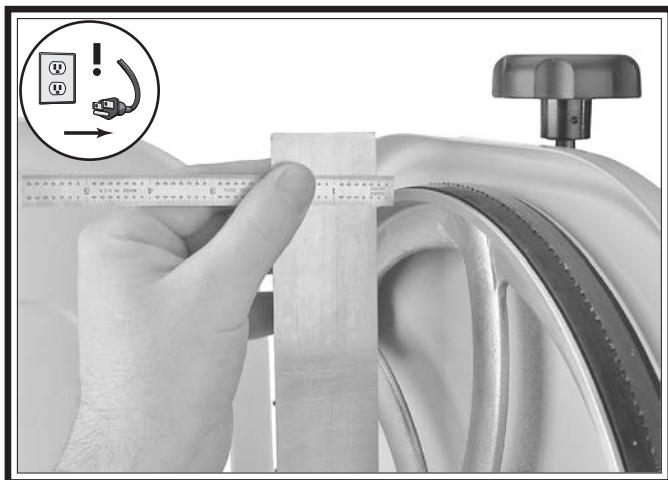
## Shimming a Wheel

When the wheels are parallel but not coplanar, one of the wheels must be shimmed out to bring it into the same plane as the other wheel.

**Tip:** *Standard washers work well for shimming a wheel because they can easily be stacked to get the desired height.*

### To shim a wheel:

1. DISCONNECT MACHINE FROM POWER!
2. Adjust upper wheel tracking so that it is parallel with lower wheel.
3. With coplanarity gauge touching both rims of wheel that does not need to be shimmed out, measure distance away from other wheel with a fine ruler (see **Figure 106**). The distance measured with ruler is distance this wheel must be shimmed.



**Figure 106.** Generic example photo of measuring the distance to shim a wheel to make it coplanar with other wheel.

4. Remove blade.
5. Remove wheel to be shimmed. Place as many shims as necessary to correct gap measured in **Step 3** onto wheel shaft.
6. Re-install and secure wheel.
7. Re-install blade (refer to **Changing Blade** on **Page 43**) and properly tension and track blade.

8. Perform previous **Checking Wheel Alignment** procedure, beginning on **Page 63**, and adjust wheels as necessary make them parallel and coplanar.

**Tip:** *The first time you get the wheels coplanar, place a mark on each wheel where you held the coplanarity gauge, then use this position again in the future if you need to repeat the procedure. This assures repeated accuracy every time you adjust the wheels.*

— If no further adjustments are necessary, remove blade, re-install table, and then re-install blade.

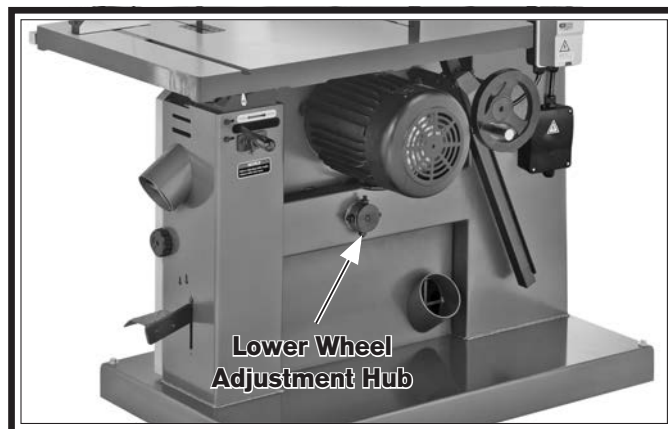
— If the lower wheel is tilted in relation to the upper wheel, proceed to **Adjusting Lower Wheel Shaft Position**.

## Adjusting Lower Wheel Shaft Position

If the lower wheel is tilted in relation to the upper wheel, perform the following procedure to make it coplanar with the upper wheel.

There are four adjustment bolts with hex nuts in the lower wheel adjustment hub, shown in **Figure 107**. These adjust the wheel tilt from side to side and up and down.

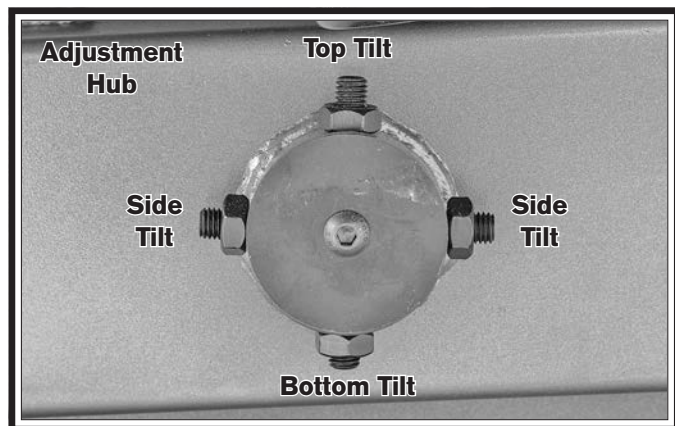
**Note:** *If you make a mistake during the following procedure, it can be very difficult to correct. Therefore, it is important to double check wheel alignment (see **Page 63**), and troubleshoot all other possible solutions (see **Troubleshooting**) prior to adjusting the lower wheel shaft position.*



**Figure 107.** Location of rear adjustment components.

**To adjust lower wheel shaft position:**

1. DISCONNECT MACHINE FROM POWER!
2. Loosen jam nuts on lower wheel adjustment hub (see **Figure 108**).



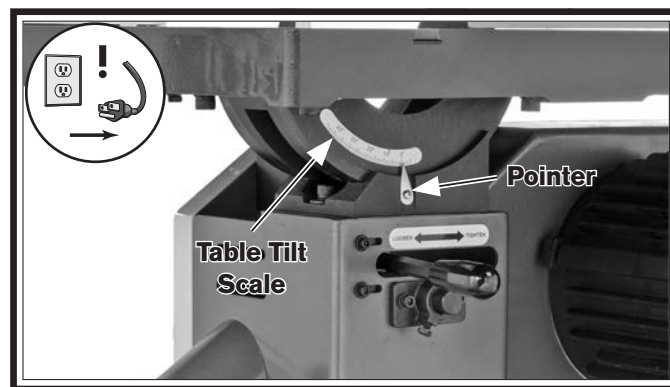
**Figure 108. Lower wheel adjustment controls.**

3. Loosen one tilt adjustment set screw, then tighten opposing set screw approximately an equal amount.
4. Check wheels with coplanarity gauge, and repeat **Step 3** as needed until lower wheel is parallel and coplanar with upper wheel.
5. Tighten jam nuts to lock tilt adjustment set screws in position.
6. Perform previous **Checking Wheel Alignment** procedure, beginning on **Page 63**, and adjust wheels as necessary to make them parallel and coplanar.
7. When wheels are parallel and coplanar, remove blade, re-install table, and then re-install blade.

# Calibrating Table Tilt Scale Pointer

The table tilt scale pointer (see **Figure 109**) was calibrated at the factory. However, after prolonged use the pointer may shift, requiring adjustment.

**Note:** The table tilt scale functions as a basic guide only. For high-precision cuts, use a protractor or bevel gauge to set the angle of table tilt.

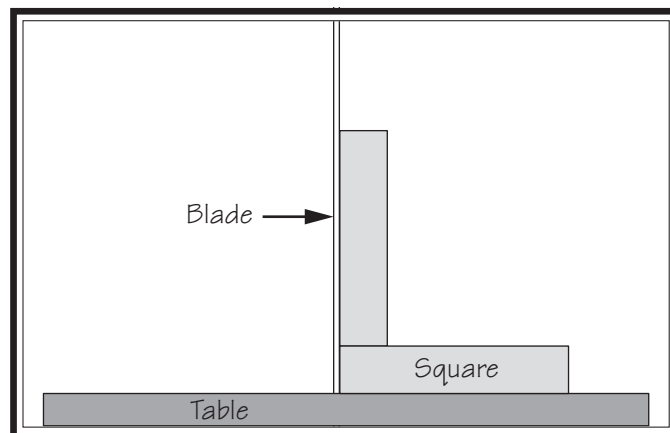


**Figure 109. Location of table tilt scale and pointer.**

Tools Needed	Qty
Machinist's Square.....	1
Phillips Head Screwdriver #2.....	1

**To calibrate table tilt scale pointer:**

1. DISCONNECT MACHINE FROM POWER!
2. Place one edge of square on table and other edge of square against blade side, as shown in **Figure 110**.



**Figure 110. Adjusting table perpendicular to blade (side to side).**



- Adjust table tilt (refer to **Tilting Table**, beginning on **Page 45** for more information) until square rests flush and evenly against *both* table *and* blade side.

**Note:** Make sure square does not go across a blade tooth when performing this step.

- Loosen Phillips head screw that secures table tilt pointer (see **Figure 109** on **Page 66**), adjust pointer to "0" on scale, then retighten screw.

## Replacing Brake Shoe

The brake shoe needs to be replaced if one or more of the following conditions are met:

- If the bandsaw takes noticeably longer to stop when the foot brake is pushed.
- The foot brake makes metal-to-metal grinding sounds.
- The thickness of the brake shoe pad measures 1mm or less.

### Components and Hardware Needed

Replacement Brake Shoe (Part PSB1123026)..... 1

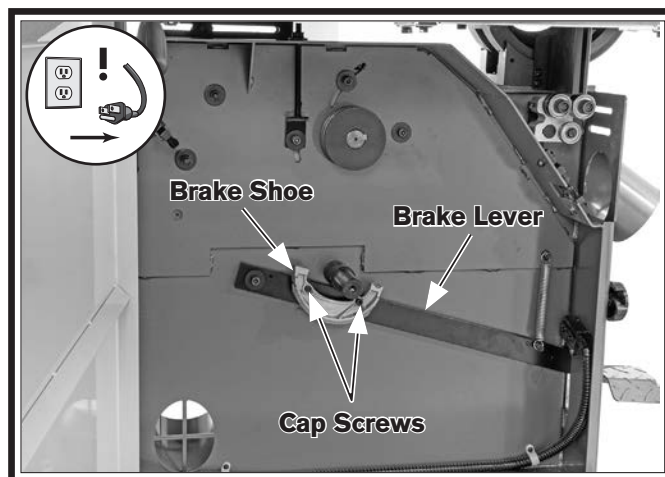
### Tool(s) Needed

Hex Wrenches 6, 8mm..... 1 Ea

### To replace brake shoe:

- DISCONNECT MACHINE FROM POWER!
- Remove blade (refer to **Changing Blade** on **Page 43**).
- Remove lower wheel and V-belts (refer to **Steps 1–6** in **Replacing V-Belts** on **Page 58**).

- Remove cap screws, lock washers, and bushings that secure brake shoe to brake lever, then remove brake shoe (see **Figure 111**).



**Figure 111. Lower wheel removed to expose brake shoe components.**

- Install new brake shoe using cap screws, lock washers, and bushings removed in **Step 3**.
- Re-install V-belts and lower wheel.
- Tension V-belts (refer to **Tensioning/Replacing V-belts** on **Page 57**).
- Re-install, tension, and track blade, then adjust upper and lower blade guides and support bearings as needed (refer to **Changing Blade** on **Page 43**).
- Close wheel covers.

If you need replacement parts, or if you are unsure how to do any of the solutions given here, feel free to call us at (360) 734-1540.

## Motor & Electrical

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips immediately upon startup.	<ol style="list-style-type: none"> <li>1. Keyed power switch in OFF position.</li> <li>2. OFF button depressed/at fault.</li> <li>3. Door safety switch disengaged/at fault.</li> <li>4. Incorrect power supply voltage or circuit size.</li> <li>5. Plug/receptacle at fault/wired incorrectly.</li> <li>6. Power supply circuit breaker tripped or fuse blown.</li> <li>7. Motor wires connected incorrectly.</li> <li>8. Thermal overload relay has tripped/at fault.</li> <li>9. Contactor not energized/at fault.</li> <li>10. Wiring broken, disconnected, or corroded.</li> <li>11. ON button at fault.</li> <li>12. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn keyed power switch to ON position.</li> <li>2. Rotate button head to reset. Replace if at fault.</li> <li>3. Close door. Adjust/replace limit switch (<b>Page 72</b>).</li> <li>4. Ensure correct power supply voltage and circuit size.</li> <li>5. Test for good contacts; correct the wiring (<b>Page 72</b>).</li> <li>6. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse.</li> <li>7. Correct motor wiring connections (<b>Page 72</b>).</li> <li>8. Reset. Adjust/replace if at fault.</li> <li>9. Test all legs for power; replace if necessary.</li> <li>10. Fix broken wires or disconnected/corroded connections.</li> <li>11. Replace button.</li> <li>12. Replace motor.</li> </ol>
Main motor stalls or is underpowered.	<ol style="list-style-type: none"> <li>1. Dull blade.</li> <li>2. Workpiece material unsuitable for machine.</li> <li>3. Feed rate/cutting speed too fast.</li> <li>4. Workpiece crooked; fence loose or misadjusted.</li> <li>5. Dust collection ducting problem.</li> <li>6. Machine undersized for task.</li> <li>7. Blade slipping on wheels or not properly tensioned.</li> <li>8. Belt(s) slipping/pulleys misaligned.</li> <li>9. Motor wired incorrectly.</li> <li>10. Plug/receptacle at fault.</li> <li>11. Pulley slipping on shaft.</li> <li>12. Extension cord too long.</li> <li>13. Contactor not energized/at fault.</li> <li>14. Motor or motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Sharpen/replace blade (<b>Page 43</b>).</li> <li>2. Only cut wood/ensure moisture is below 20%.</li> <li>3. Decrease feed rate/cutting speed.</li> <li>4. Straighten or replace workpiece/adjust fence.</li> <li>5. Clear blockages, seal leaks, use smooth wall duct, eliminate bends, close other branches.</li> <li>6. Use correct blade/reduce feed rate or depth of cut.</li> <li>7. Adjust blade tracking and tension (<b>Page 28</b>).</li> <li>8. Clean/tension/replace belt(s) (<b>Page 57</b>); ensure pulleys are aligned (<b>Page 63</b>).</li> <li>9. Wire motor correctly (<b>Page 72</b>).</li> <li>10. Test for good contacts/correct wiring.</li> <li>11. Tighten/replace loose pulley/shaft.</li> <li>12. Move machine closer to power supply; use shorter extension cord.</li> <li>13. Test all legs for power; repair/replace if at fault.</li> <li>14. Replace motor.</li> </ol>

**Motor & Electrical (Cont.)**

Symptom	Possible Cause	Possible Solution
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> <li>1. Motor or component loose.</li> <li>2. Blade weld at fault/teeth broken.</li> <li>3. Blade at fault.</li> <li>4. V-belt(s) worn, loose, pulleys misaligned or belt slapping cover.</li> <li>5. Pulley loose.</li> <li>6. Motor mount loose/broken.</li> <li>7. Motor fan rubbing on fan cover.</li> <li>8. Motor bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Replace damaged or missing bolts/nuts or tighten if loose.</li> <li>2. Replace blade (<b>Page 43</b>).</li> <li>3. Replace warped/bent blade; resharpen dull blade.</li> <li>4. Inspect/replace belts with a new matched set. Realign pulleys if necessary (<b>Page 63</b>).</li> <li>5. Secure pulley on shaft.</li> <li>6. Tighten/replace.</li> <li>7. Fix/replace fan cover; replace loose/damaged fan.</li> <li>8. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.</li> </ol>

**Operating Machine**

Symptom	Possible Cause	Possible Solution
Blade or teeth break/crack.	<ol style="list-style-type: none"> <li>1. Blade tension is incorrect.</li> <li>2. Blade is incorrect for application.</li> <li>3. Excessive feed rate/pressure.</li> <li>4. Cutting corners too sharply.</li> <li>5. Blade is dull/weld at fault.</li> <li>6. Blade is tracking incorrectly.</li> <li>7. Blade guides/support bearings not adjusted properly, allowing guides to hit blade teeth.</li> <li>8. Wheel worn or incorrectly installed.</li> <li>9. Fence or miter slot out of alignment with blade.</li> <li>10. Blade guide bearings at fault.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust blade tension (<b>Page 27</b>).</li> <li>2. Use correct blade for application (<b>Page 38</b>).</li> <li>3. Reduce feed rate/pressure.</li> <li>4. Use a wider arc on outside cuts, or use relief cuts to make tight inside cuts.</li> <li>5. Replace blade (<b>Page 43</b>).</li> <li>6. Adjust blade tracking (<b>Page 28</b>).</li> <li>7. Adjust blade guides/support bearings properly, so guides cannot contact teeth during operation (<b>Page 29</b>).</li> <li>8. Replace or re-install wheel.</li> <li>9. Align miter slot and fence with blade (<b>Page 35</b>).</li> <li>10. Replace blade guide bearings.</li> </ol>
Blade slows, smokes, shows overheating or wear on one side.	<ol style="list-style-type: none"> <li>1. Blade contacting table insert.</li> <li>2. Blade guides are worn or misadjusted.</li> <li>3. Blade installed backwards.</li> <li>4. Too much side pressure when feeding workpiece.</li> <li>5. Wheels are out of alignment.</li> <li>6. Dull, bell-mouthed, or incorrect blade.</li> <li>7. Fence not parallel with blade.</li> <li>8. Table top surface is not parallel or square to blade.</li> <li>9. V-belt loose or slipping.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust blade guides to eliminate any side pressure (<b>Page 30</b>); properly align table (<b>Page 32</b>).</li> <li>2. Adjust upper blade guides as close to workpiece as possible.</li> <li>3. Check blade rotation. Re-install blade if necessary (<b>Page 43</b>).</li> <li>4. Feed workpiece straight into blade.</li> <li>5. Adjust wheels to be coplanar (<b>Page 63</b>).</li> <li>6. Replace blade (<b>Page 43</b>).</li> <li>7. Adjust fence parallel with blade (<b>Page 33</b>).</li> <li>8. Adjust/shim table/trunnion position until blade and table are parallel and square (<b>Page 32</b>).</li> <li>9. Tighten V-belt. Replace if worn or oily. (<b>Page 57</b>).</li> </ol>

**Operating Machine (Cont.)**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Possible Solution</b>
Finished workpieces are rough or show scoring.	<ol style="list-style-type: none"> <li>1. Blade is overloaded and twists.</li> <li>2. Blade TPI is too coarse.</li> <li>3. Blade is loose and fluttering.</li> <li>4. Blade tracking is incorrect.</li> <li>5. Blade has missing/bent teeth, or faulty weld.</li> </ol>	<ol style="list-style-type: none"> <li>1. Decrease feed rate; ensure proper TPI (<b>Page 38</b>).</li> <li>2. Use correct blade for material and speed of cut (<b>Page 38</b>).</li> <li>3. Adjust blade tension as required (<b>Page 27</b>).</li> <li>4. Adjust blade tracking (<b>Page 28</b>).</li> <li>5. Replace blade (<b>Page 43</b>).</li> </ol>
Table is hard to tilt.	<ol style="list-style-type: none"> <li>1. Table tilt lock lever is engaged.</li> <li>2. Sawdust or pitch trapped between trunnion and base.</li> <li>3. Metal burrs on trunnion.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disengage table tilt lock lever (<b>Page 44</b>).</li> <li>2. Remove table and clean trunnion sliding surfaces free of sawdust or pitch.</li> <li>3. Remove burrs.</li> </ol>
Table does not tilt to 45 or 0 degrees.	<ol style="list-style-type: none"> <li>1. Table tilt scale pointer not calibrated.</li> <li>2. Positive stop not set correctly.</li> </ol>	<ol style="list-style-type: none"> <li>1. Calibrate table tilt scale pointer (<b>Page 66</b>).</li> <li>2. Adjust positive stop (<b>Page 44</b>).</li> </ol>
Blade tracks incorrectly or comes off wheels.	<ol style="list-style-type: none"> <li>1. Tracking is not adjusted properly.</li> <li>2. Wheels are not coplanar.</li> <li>3. Blade tension too loose.</li> <li>4. Blade guides/support bearings improperly adjusted.</li> <li>5. Feeding workpiece too fast.</li> <li>6. Incorrect blade for operation.</li> <li>7. Blade is bell-mouthed, worn, or dull.</li> <li>8. Wheel is damaged or worn.</li> </ol>	<ol style="list-style-type: none"> <li>1. Adjust tracking (<b>Page 28</b>).</li> <li>2. Adjust wheels to be coplanar (<b>Page 63</b>).</li> <li>3. Increase blade tension (<b>Page 27</b>).</li> <li>4. Properly adjust blade guides/support bearings (<b>Page 28</b>).</li> <li>5. Feed workpiece slower.</li> <li>6. Install correct blade (<b>Page 38</b>).</li> <li>7. Install new blade and remove tension from blade when not in use.</li> <li>8. Replace wheel.</li> </ol>
Cut is crooked or blade wanders (blade lead).	<ol style="list-style-type: none"> <li>1. Excessive feed rate/pressure.</li> <li>2. Blade tension too loose.</li> <li>3. Blade is too narrow or tooth type/TPI is incorrect for the cut.</li> <li>4. Inadequate blade support.</li> <li>5. Blade dull or has damaged tooth set from improper guides/support bearing adjustment.</li> <li>6. Blade tracking is incorrect.</li> <li>7. Table is loose.</li> <li>8. Fence or miter slot out of alignment with blade.</li> <li>9. Blade guides/support bearings improperly adjusted.</li> <li>10. Tooth set is uneven or teeth are sharper on one side than the other.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce feed rate/pressure.</li> <li>2. Increase blade tension (<b>Page 27</b>).</li> <li>3. Use wider blade. Ensure tooth type and TPI are correct (<b>Page 38</b>).</li> <li>4. Position upper blade guides to just clear workpiece. Properly adjust blade guides/support bearings (<b>Page 28</b>).</li> <li>5. Replace blade (<b>Page 43</b>).</li> <li>6. Adjust blade tracking (<b>Page 28</b>).</li> <li>7. Tighten table trunnion mounting bolts or tilt lock lever (<b>Page 44</b>).</li> <li>8. Align miter slot and fence with blade (<b>Page 35</b>).</li> <li>9. Properly adjust blade guides/support bearings (<b>Page 32</b>).</li> <li>10. Replace blade (<b>Page 43</b>).</li> </ol>

**Operating Machine (Cont.)**

<b>Symptom</b>	<b>Possible Cause</b>	<b>Possible Solution</b>
Blade dulls prematurely.	<ol style="list-style-type: none"> <li>1. Excessive feed rate/pressure.</li> <li>2. Wrong blade tooth type or TPI.</li> <li>3. Blade is twisted.</li> <li>4. Blade is slipping on wheel.</li> <li>5. Blade guides hitting teeth and ruining tooth set.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce feed rate/pressure.</li> <li>2. Use blade with correct tooth type and TPI (<b>Page 38</b>).</li> <li>3. Re-install blade; replace (<b>Page 43</b>).</li> <li>4. Adjust blade tension (<b>Page 27</b>).</li> <li>5. Properly adjust guide bearings (<b>Page 30</b>).</li> </ol>
Gullets loaded with chips.	<ol style="list-style-type: none"> <li>1. Excessive feed rate/pressure.</li> <li>2. Blade TPI is too fine.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce feed rate/pressure.</li> <li>2. Install correct blade (<b>Page 38</b>).</li> </ol>
Back side of blade deformed/cracked.	<ol style="list-style-type: none"> <li>1. Excessive feed rate/pressure.</li> <li>2. Blade tension too high.</li> <li>3. Blade support bearings improperly adjusted.</li> </ol>	<ol style="list-style-type: none"> <li>1. Reduce feed rate/pressure.</li> <li>2. Adjust blade tension (<b>Page 27</b>).</li> <li>3. Properly adjust blade support bearings (<b>Page 28</b>).</li> </ol>
Sawdust buildup inside cabinet.	<ol style="list-style-type: none"> <li>1. Blade brushes under table are worn or misadjusted.</li> <li>2. Clogged dust port.</li> <li>3. Low CFM (airflow) from dust collection system.</li> </ol>	<ol style="list-style-type: none"> <li>1. Properly adjust brushes; replace if necessary (<b>Page 59</b>).</li> <li>2. Clean dust port.</li> <li>3. Inspect ducting for leaks/clogs and repair as necessary; move dust collector closer to machine; install a stronger dust collector (<b>Page 21</b>).</li> </ol>



# Electrical Safety Instructions

These pages are accurate at the time of printing. In the constant effort to improve, however, we may make changes to the electrical systems of future machines. Study this section carefully. If you see differences between your machine and what is shown in this section, call Technical Support at (360) 734-1540 for assistance BEFORE making any changes to the wiring on your machine.

**Shock Hazard:** It is extremely dangerous to perform electrical or wiring tasks while the machine is connected to the power source. Touching electrified parts will result in personal injury including but not limited to severe burns, electrocution, or death. For your own safety, disconnect machine from the power source before servicing electrical components or performing any wiring tasks!

**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.

**Modifications:** Using aftermarket parts or modifying the wiring beyond what is shown in the diagram may lead to unpredictable results, including serious injury or fire.

**Motor Wiring:** The motor wiring shown in these diagrams is current at the time of printing, but it may not match your machine. Always use the wiring diagram inside the motor junction box.

**Circuit Requirements:** Connecting the machine to an improperly sized circuit will greatly increase the risk of fire. To minimize this risk, only connect the machine to a power circuit that meets the minimum requirements given in this manual.

**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.

**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 before completing the task.

**Experiencing Difficulties:** If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (360) 734-1540.

## WIRING DIAGRAM COLOR KEY

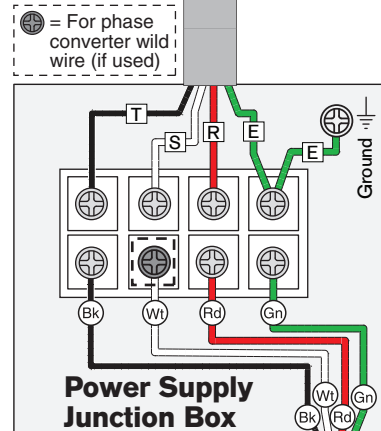
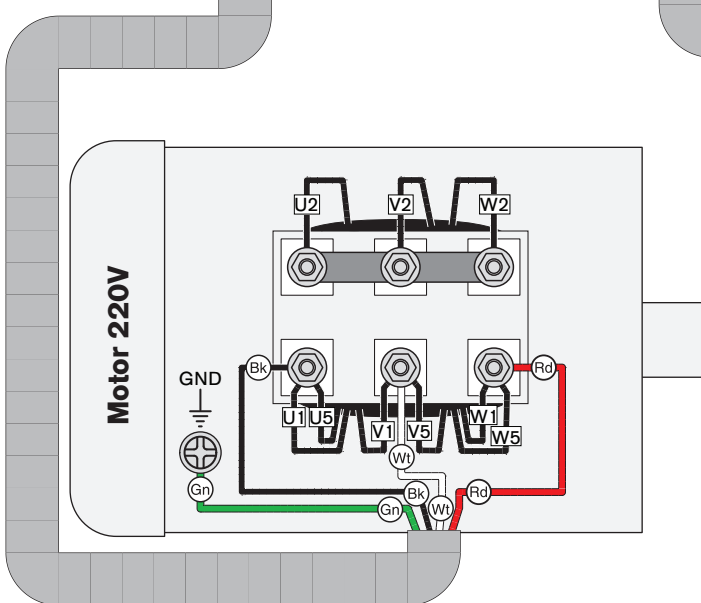
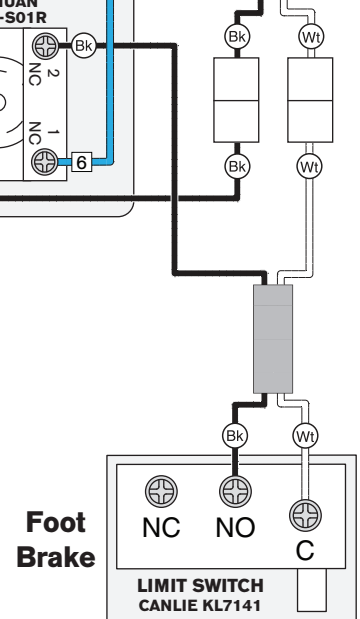
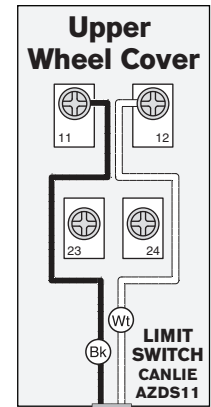
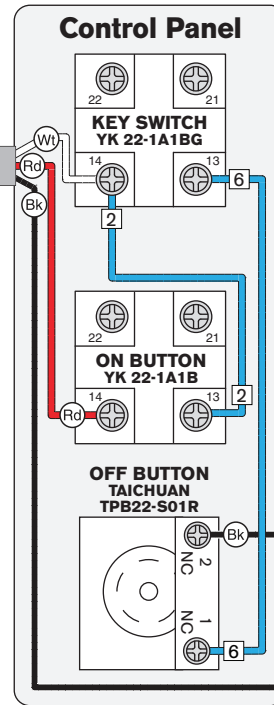
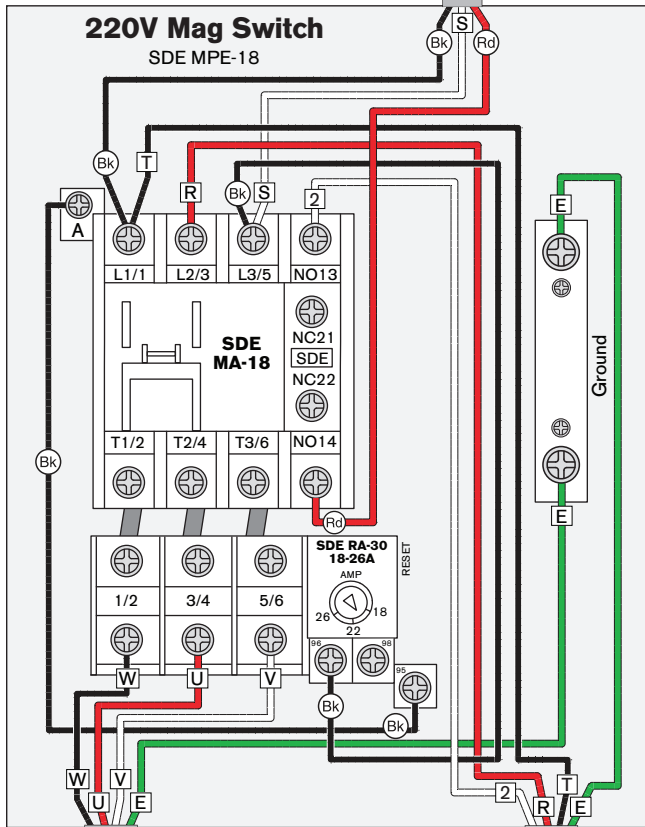
BLACK — Bk	BLUE WHITE — Bw	RED — Rd	PINK — Pk	WHITE — Wt
BLUE — Bl	GREEN — Gn	LIGHT BLUE — Lb	PURPLE — Pu	YELLOW GREEN — Yg
BROWN — Br	GRAY — Gy	ORANGE — Or	TUR-QUIOSE — Tu	YELLOW — Yl

**NOTICE:** The photos and diagrams included in this section are best viewed in color. You can see them in color at [www.southbendtools.com](http://www.southbendtools.com).

# Wiring Diagram 220V

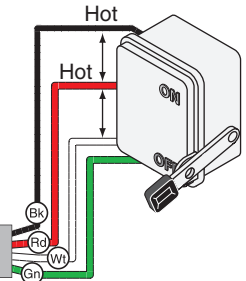
**⚠ WARNING!**

**SHOCK HAZARD!**  
Disconnect power before working on wiring.



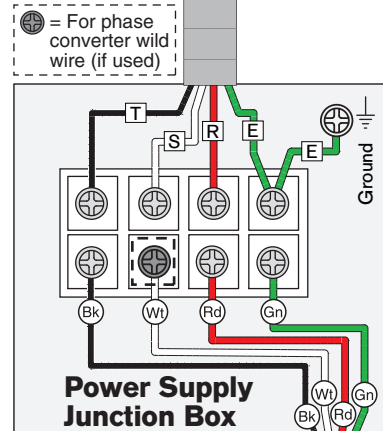
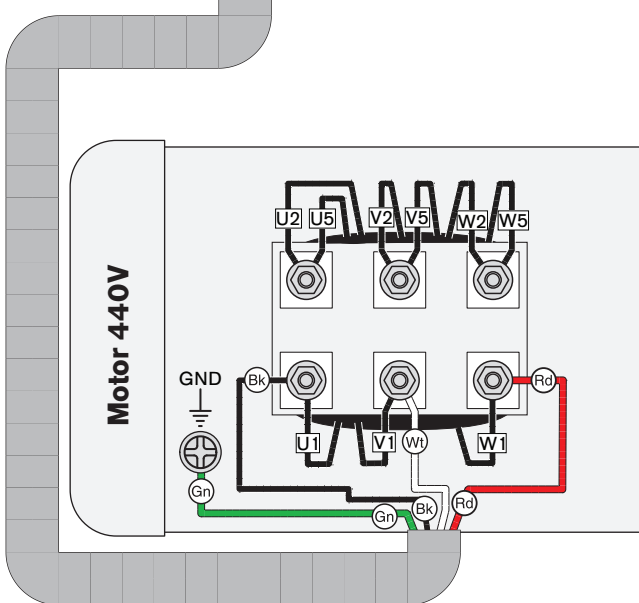
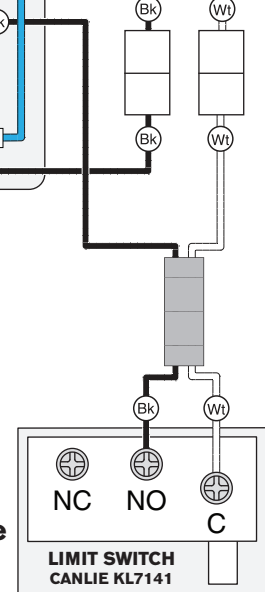
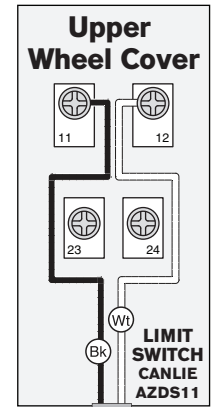
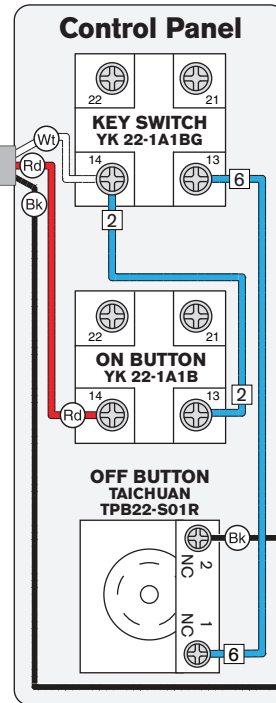
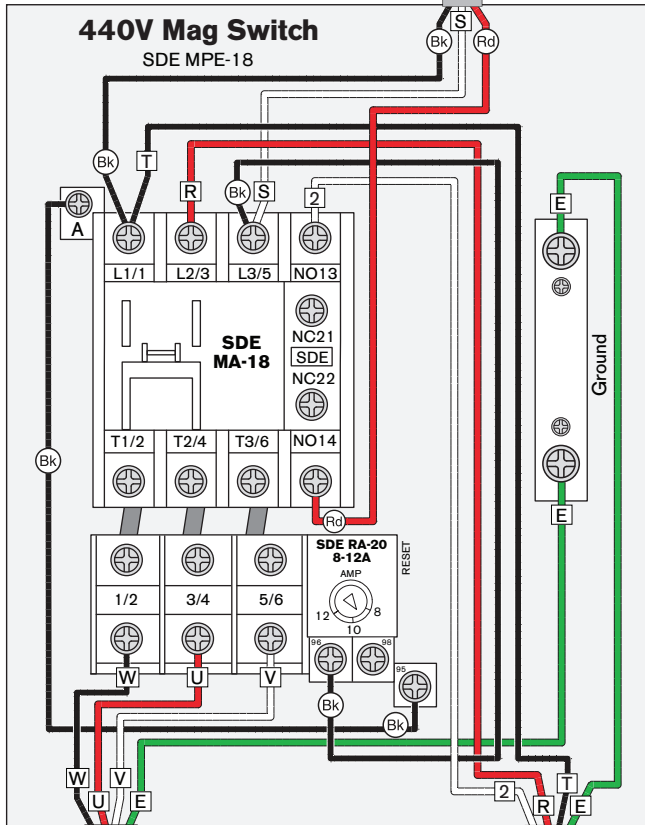
220 VAC 3-Phase

**DISCONNECT SWITCH**  
(as recommended)



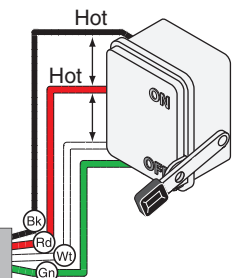
# Wiring Diagram 440V

**⚠ WARNING!**  
**SHOCK HAZARD!**  
 Disconnect power before working on wiring.



440V Conversion  
3-Phase 440 VAC

**⚡**  
**DISCONNECT SWITCH**  
 (as recommended)



# Electrical Component Pictures

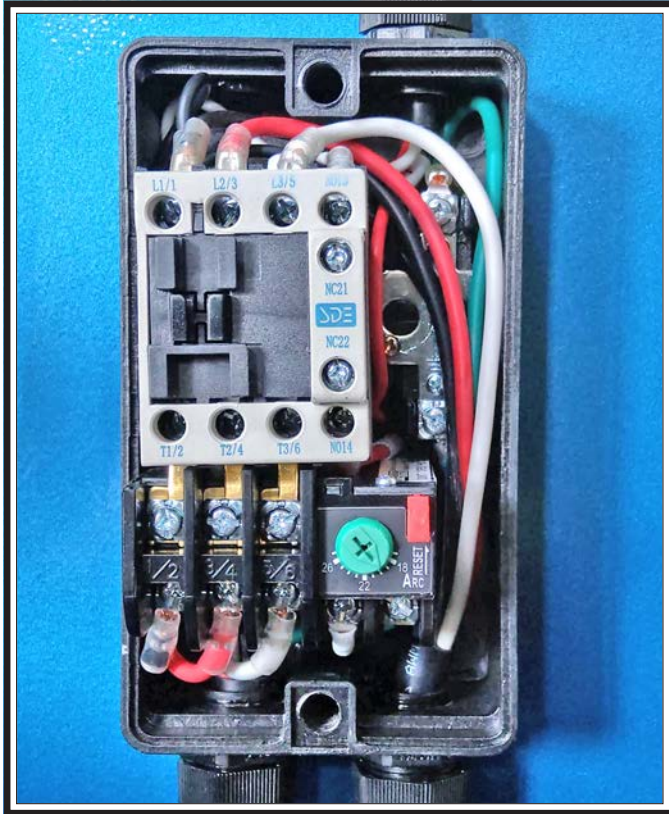


Figure 112. Magnetic switch wiring (220V).

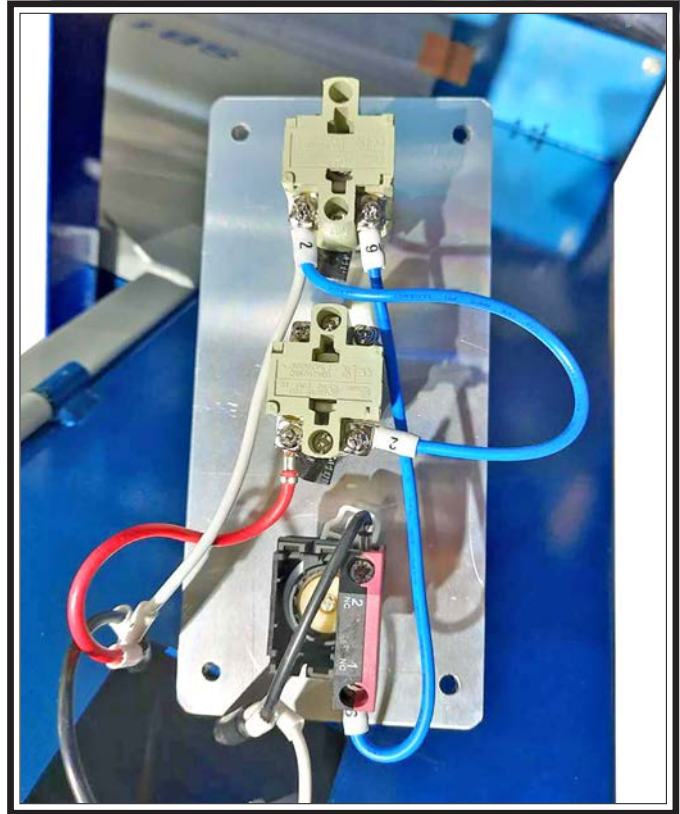


Figure 114. Control panel wiring.

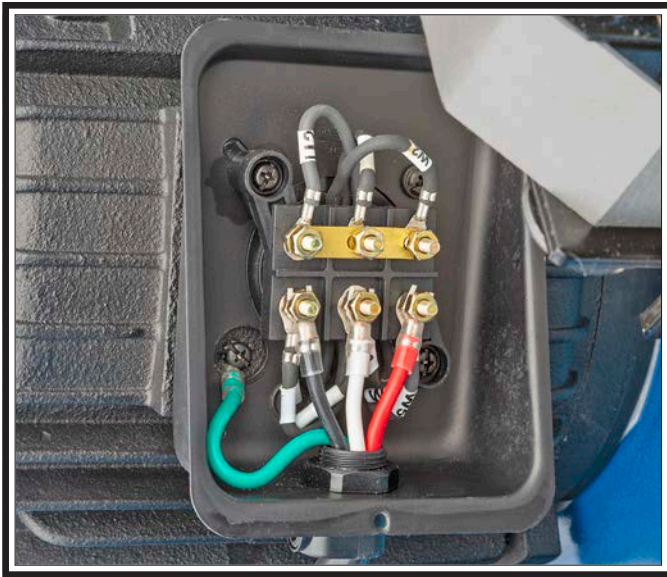


Figure 113. Upper wheel cover limit switch.



Figure 115. Foot brake limit switch.





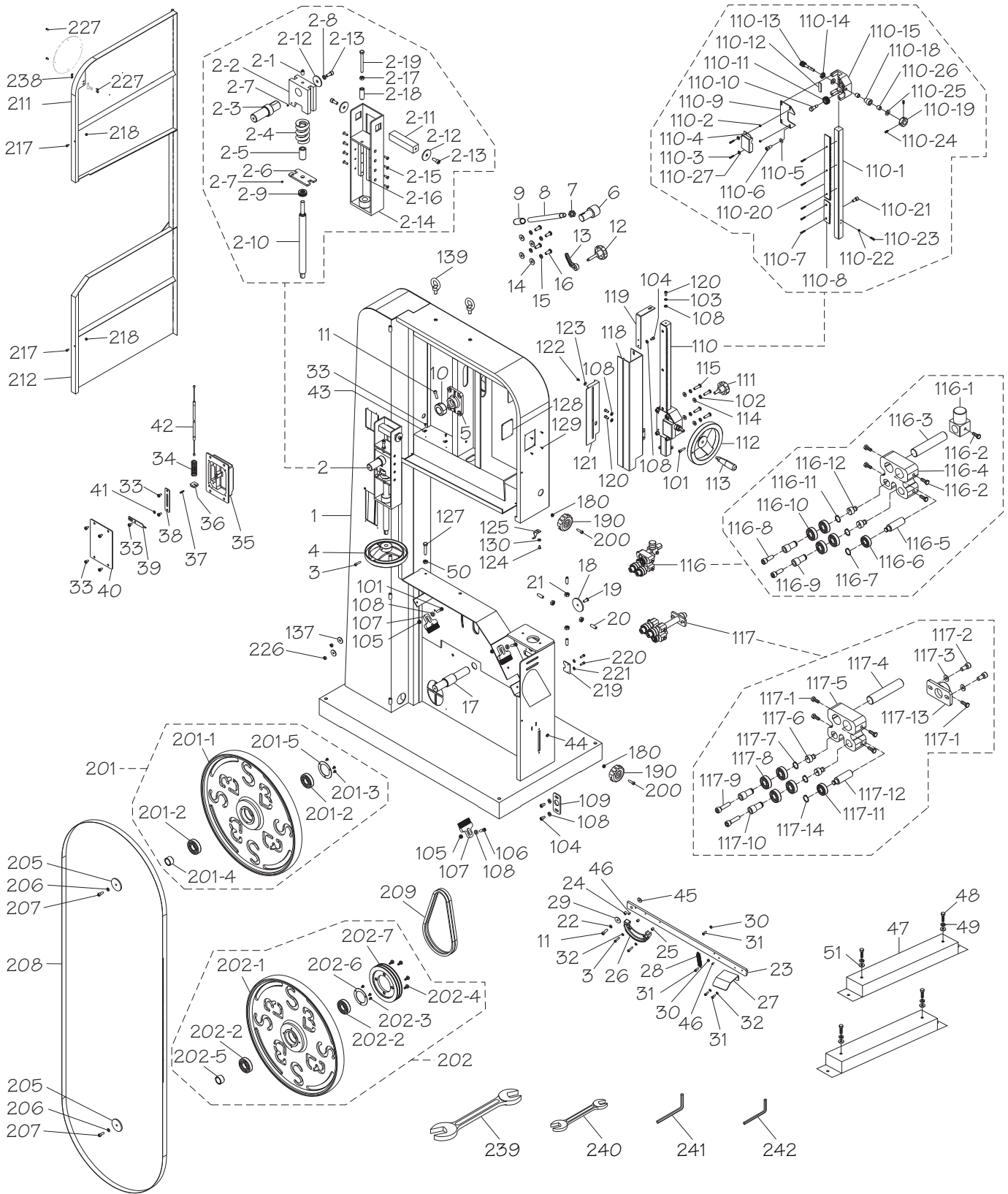
**Figure 116. 220V motor junction box wiring (220V).**



**Figure 117. Power supply junction box (220V).**



# Main



# Main Parts List

REF	PART #	DESCRIPTION
1	PSB1123001	MACHINE BODY
2	PSB1123002	UPPER WHEEL SLIDING ASSEMBLY
2-1	PSB1123002-1	SET SCREW M10-1.5 X 16
2-2	PSB1123002-2	GUIDE BLOCK
2-3	PSB1123002-3	UPPER WHEEL SHAFT
2-4	PSB1123002-4	COMPRESSION SPRING 12 X 4 X 70
2-5	PSB1123002-5	BUSHING
2-6	PSB1123002-6	PRESS BLOCK
2-7	PSB1123002-7	SET SCREW M5-.8 X 5
2-8	PSB1123002-8	LOCK WASHER 8MM
2-9	PSB1123002-9	THRUST BEARING 51201
2-10	PSB1123002-10	HANDWHEEL SHAFT
2-11	PSB1123002-11	SQUARE SHAFT
2-12	PSB1123002-12	FLAT WASHER 8MM
2-13	PSB1123002-13	CAP SCREW M8-1.25 X 20
2-14	PSB1123002-14	UPPER WHEEL HINGE ASSEMBLY
2-15	PSB1123002-15	FLAT HD CAP SCR M5-.8 X 16
2-16	PSB1123002-16	LOCATE PLATE
2-17	PSB1123002-17	HEX NUT M8-1.25
2-18	PSB1123002-18	BUSHING
2-19	PSB1123002-19	HEX BOLT M8-1.25 X 90
3	PSB1123003	CAP SCREW M6-1 X 25
4	PSB1123004	HANDWHEEL TYPE-35 178DX14B-S
5	PSB1123005	HOUSING PLATE
6	PSB1123006	ECCENTRIC SHAFT
7	PSB1123007	HEX NUT M16-2
8	PSB1123008	HANDLE SHAFT 470MM M16-2
9	PSB1123009	HANDLE SLEEVE
10	PSB1123010	CAM
11	PSB1123011	CAP SCREW M8-1.25 X 25
12	PSB1123012	KNOB BOLT M10-1.5 X 55, 6-LOBE, D62
13	PSB1123013	LOCK HANDLE M10-1.5
14	PSB1123014	FLAT WASHER 10MM
15	PSB1123015	LOCK WASHER 10MM
16	PSB1123016	PHLP HD SCR M10-1.5 X 25
17	PSB1123017	LOWER WHEEL SHAFT
18	PSB1123018	COVER
19	PSB1123019	PHLP HD SCR M8-1.25 X 20
20	PSB1123020	SET SCREW M10-1.5 X 30
21	PSB1123021	HEX NUT M10-1.5
22	PSB1123022	LOCK WASHER 8MM
23	PSB1123023	BRAKE LEVER
24	PSB1123024	BUSHING
25	PSB1123025	BUSHING
26	PSB1123026	BRAKE SHOE
27	PSB1123027	BRAKE PEDAL
28	PSB1123028	EXTENSION SPRING 1.6 X 40 X 63
29	PSB1123029	FLAT WASHER 8MM
30	PSB1123030	HEX NUT M6-1
31	PSB1123031	CAP SCREW M6-1 X 16
32	PSB1123032	LOCK WASHER 6MM

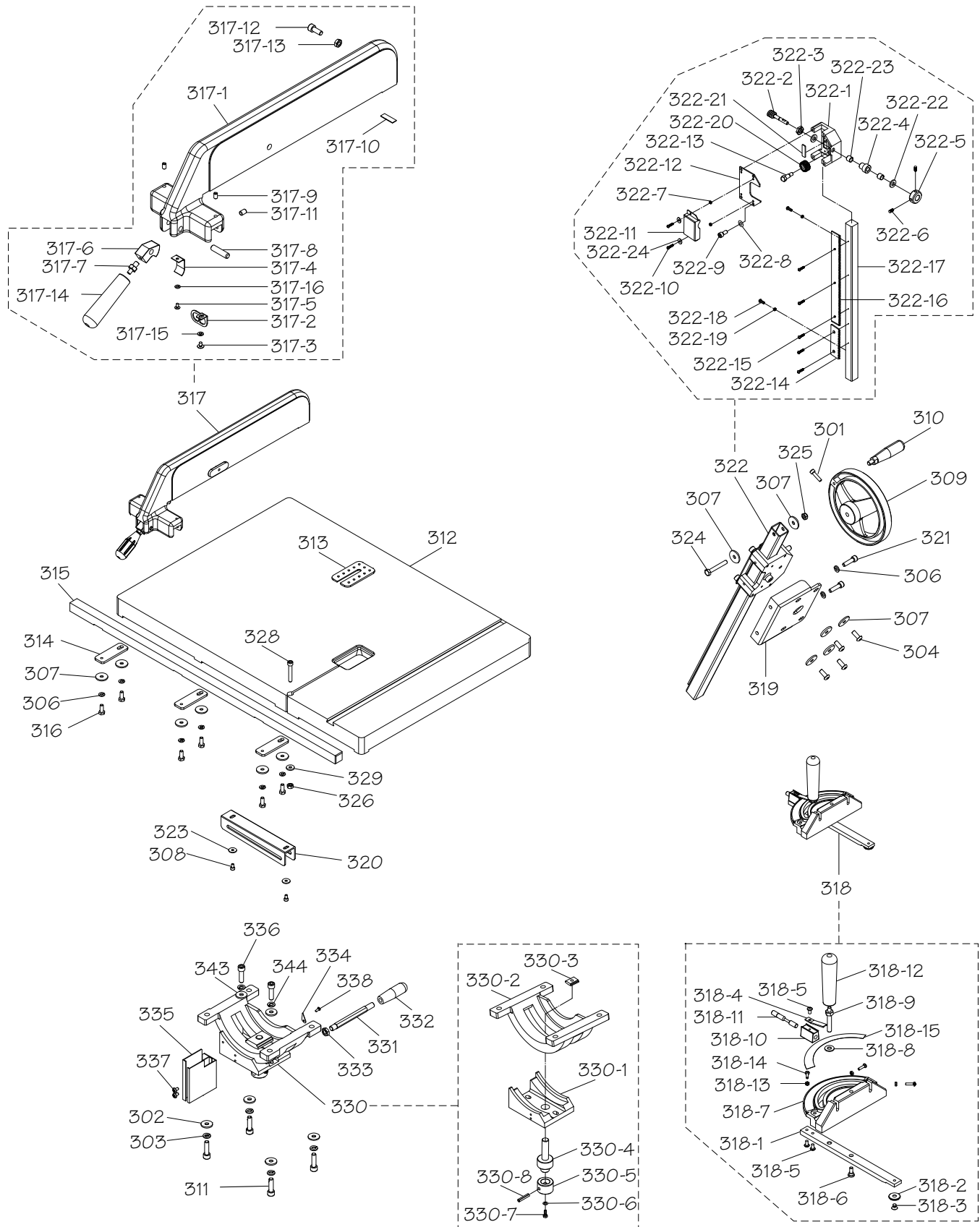
REF	PART #	DESCRIPTION
33	PSB1123033	TAP SCREW M4 X 10
34	PSB1123034	COMPRESSION SPRING 1 X 8 X 40
35	PSB1123035	UPPER WHEEL SLIDING BRACKET
36	PSB1123036	MOVING PLATE
37	PSB1123037	ROLL PIN 3 X 12
38	PSB1123038	FIXED PLATE
39	PSB1123039	TENSION POINTER
40	PSB1123040	TENSION SCALE
41	PSB1123041	FLAT WASHER 4MM
42	PSB1123042	TENSION WIRE
43	PSB1123043	CORD CLAMP 3/16"
44	PSB1123044	GUARD STRIP
45	PSB1123045	FENDER WASHER 13 X 26 X 0.7 COPPER
46	PSB1123046	SET SCREW M7-1 X 10
47	PSB1123047	RISER BLOCK
48	PSB1123048	HEX BOLT M12-1.75 X 100
49	PSB1123049	LOCK WASHER 12MM
50	PSB1123050	HEX NUT M10-1.5
51	PSB1123051	FLAT WASHER 12MM
101	PSB1123101	CAP SCREW M6-1 X 25
102	PSB1123102	LOCK WASHER 8MM
103	PSB1123103	LOCK WASHER 6MM
104	PSB1123104	CAP SCREW M6-1 X 10
105	PSB1123105	HEX NUT M6-1 NYLON
106	PSB1123106	HEX BOLT M6-1 X 25
107	PSB1123107	BRUSH
108	PSB1123108	FLAT WASHER 6MM
109	PSB1123109	SUPPORT PLATE
110	PSB1123110	UPPER BLADE GUIDE POST ASSEMBLY
110-1	PSB1123110-1	UPPER BLADE GUIDE SUPPORT BLOCK
110-2	PSB1123110-2	HEX NUT M5-.8
110-3	PSB1123110-3	PHLP HD SCR M5-.8 X 10
110-4	PSB1123110-4	COVER
110-5	PSB1123110-5	LOCK WASHER 8MM
110-6	PSB1123110-6	CAP SCREW M8-1.25 X 16
110-7	PSB1123110-7	FLAT HD SCR M4-.7 X 10
110-8	PSB1123110-8	EXTENSION RACK
110-9	PSB1123110-9	COVER
110-10	PSB1123110-10	PINION GEAR BOLT
110-11	PSB1123110-11	PINION GEAR
110-12	PSB1123110-12	FIXED PLATE
110-13	PSB1123110-13	WORM SHAFT
110-14	PSB1123110-14	HEX NUT M16-1.5
110-15	PSB1123110-15	GUIDE BRACKET
110-18	PSB1123110-18	BUSHING
110-19	PSB1123110-19	LOCK COLLAR
110-20	PSB1123110-20	RACK
110-21	PSB1123110-21	CAP SCREW M6-1 X 16
110-22	PSB1123110-22	HEX NUT M4-.7
110-23	PSB1123110-23	PHLP HD SCR M4-.7 X 10
110-24	PSB1123110-24	SET SCREW M5-.8 X 5

# Main Parts List (Cont.)

REF	PART #	DESCRIPTION
110-25	PSB1123110-25	FIBER WASHER 10MM
110-26	PSB1123110-26	BUSHING DU 10 X 12
110-27	PSB1123110-27	FLAT WASHER 5MM
111	PSB1123111	KNOB BOLT M10-1.5 X 25, 6-LOBE, D62
112	PSB1123112	HANDWHEEL TYPE-35 178D X 14B-S X M10-1.5
113	PSB1123113	FIXED HANDLE 24 X 90, M10-1.5 X 12
114	PSB1123114	FLAT WASHER 8MM
115	PSB1123115	BUTTON HD CAP SCR M8-1.25 X 30
116	PSB1123116	UPPER BLADE GUIDE ASSEMBLY
116-1	PSB1123116-1	UPPER BLADE GUIDE SUPPORT BASE
116-2	PSB1123116-2	HEX BOLT M6-1 X 16
116-3	PSB1123116-3	ADJUSTING SHAFT
116-4	PSB1123116-4	BLADE GUIDE SUPPORT
116-5	PSB1123116-5	BEARING SHAFT
116-6	PSB1123116-6	BALL BEARING 6201ZZ
116-7	PSB1123116-7	EXT RETAINING RING 12MM
116-8	PSB1123116-8	CAP SCREW M6-1 X 40
116-9	PSB1123116-9	BEARING BUSHING
116-10	PSB1123116-10	BALL BEARING 6202ZZ
116-11	PSB1123116-11	EXT RETAINING RING 15MM
116-12	PSB1123116-12	ECCENTRIC SHAFT
117	PSB1123117	LOWER BLADE GUIDE ASSEMBLY
117-1	PSB1123117-1	HEX BOLT M6-1 X 16
117-2	PSB1123117-2	CAP SCREW M6-1 X 16
117-3	PSB1123117-3	FLAT WASHER 6MM
117-4	PSB1123117-4	ADJUSTING SHAFT
117-5	PSB1123117-5	BLADE GUIDE SUPPORT
117-6	PSB1123117-6	ECCENTRIC SHAFT
117-7	PSB1123117-7	EXT RETAINING RING 15MM
117-8	PSB1123117-8	BALL BEARING 6202ZZ
117-9	PSB1123117-9	CAP SCREW M6-1 X 40
117-10	PSB1123117-10	BEARING BUSHING
117-11	PSB1123117-11	BALL BEARING 6201ZZ
117-12	PSB1123117-12	BEARING SHAFT
117-13	PSB1123117-13	SUPPORT BRACKET
117-14	PSB1123117-14	EXT RETAINING RING 12MM
118	PSB1123118	BLADE GUARD
119	PSB1123119	L-BRACKET
120	PSB1123120	CAP SCREW M6-1 X 12
121	PSB1123121	SLIDING PLATE
122	PSB1123122	SHOULDER SCREW M4-.7 X 5, 6 x 3
123	PSB1123123	FLAT WASHER 6MM PLASTIC
124	PSB1123124	PHLP HD SCR M5-.8 X 10

REF	PART #	DESCRIPTION
125	PSB1123125	HEIGHT POINTER
127	PSB1123127	HEX BOLT M10-1.5 X 50
128	PSB1123128	PLEXIGLASS WINDOW
129	PSB1123129	RIVET 3.2 X 10
130	PSB1123130	FLAT WASHER 5MM
137	PSB1123137	CAP SCREW M8-1.25 X 20
139	PSB1123139	EYE BOLT M12-1.75 X 22
180	PSB1123180	HEX NUT M6-1 NYLON
190	PSB1123190	KNOB 6MM, D60, 10-LOBE
200	PSB1123200	CAP SCREW M6-1 X 20
201	PSB1123201	UPPER WHEEL ASSEMBLY
201-1	PSB1123201-1	UPPER WHEEL 24"
201-2	PSB1123201-2	BALL BEARING 6306-2RS
201-3	PSB1123201-3	PHLP HD SCR M6-1 X 8
201-4	PSB1123201-4	BUSHING
201-5	PSB1123201-5	PRESS PLATE
202	PSB1123202	LOWER WHEEL ASSEMBLY
202-1	PSB1123202-1	LOWER WHEEL 24"
202-2	PSB1123202-2	BALL BEARING 6306-2RS
202-3	PSB1123202-3	PHLP HD SCR M6-1 X 8
202-4	PSB1123202-4	BUTTON HD CAP SCR M8-1.25 X 20
202-5	PSB1123202-5	BUSHING
202-6	PSB1123202-6	PRESS PLATE
202-7	PSB1123202-7	WHEEL PULLEY
205	PSB1123205	FENDER WASHER 9 X 40 X 3MM
206	PSB1123206	LOCK WASHER 8MM
207	PSB1123207	CAP SCREW M8-1.25 X 20
208	PSB1123208	SAW BLADE 181 X 1 X 0.35 HOOK
209	PSB1123209	V-BELT 17-340
211	PSB1123211	UPPER WHEEL COVER
212	PSB1123212	LOWER WHEEL COVER
217	PSB1123217	CAP SCREW M6-1 X 10
218	PSB1123218	HEX NUT M6-1
219	PSB1123219	ADJUSTABLE PLATE
220	PSB1123220	CAP SCREW M5-.8 X 12
221	PSB1123221	FLAT WASHER 5MM
226	PSB1123226	HEX NUT M8-1.25
227	PSB1123227	PHLP HD SCR M4-.7 X 10
238	PSB1123238	FLANGE NUT M4-.7
239	PSB1123239	WRENCH 17 X 19MM OPEN-ENDS
240	PSB1123240	WRENCH 10 X 13MM OPEN-ENDS
241	PSB1123241	HEX WRENCH 6MM
242	PSB1123242	HEX WRENCH 5MM

# Table, Tilt, Trunnion & Fence



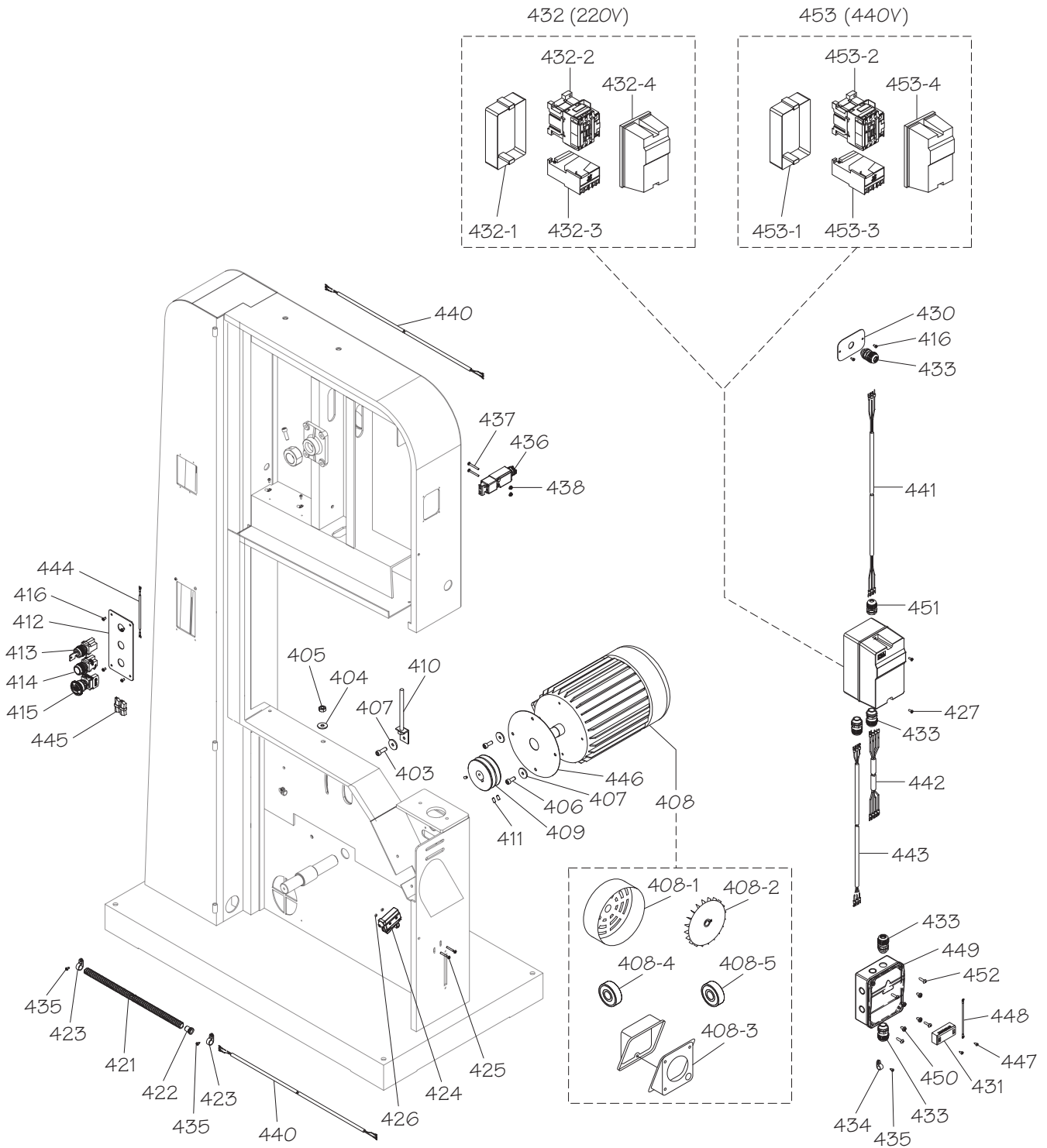
# Table, Tilt, Trunnion & Fence Parts List

REF	PART #	DESCRIPTION
301	PSB1123301	CAP SCREW M6-1 X 25
302	PSB1123302	FLAT WASHER 10MM
303	PSB1123303	LOCK WASHER 10MM
304	PSB1123304	BUTTON HD CAP SCR M8-1.25 X 20
306	PSB1123306	LOCK WASHER 8MM
307	PSB1123307	FLAT WASHER 8MM
308	PSB1123308	CAP SCREW M6-1 X 10
309	PSB1123309	HANDWHEEL TYPE-35 178D X 14B-S X M10-1.5
310	PSB1123310	FIXED HANDLE 24 X 90, M10-1.5 X 12
311	PSB1123311	CAP SCREW M10-1.5 X 35
312	PSB1123312	TABLE
313	PSB1123313	TABLE INSERT
314	PSB1123314	FENCE RAIL MOUNTING PLATE
315	PSB1123315	FENCE RAIL
316	PSB1123316	HEX BOLT M8-1.25 X 20
317	PSB1123317	FENCE ASSEMBLY
317-1	PSB1123317-1	FENCE
317-2	PSB1123317-2	POINTER
317-3	PSB1123317-3	PHLP HD SCR M5-.8 X 8
317-4	PSB1123317-4	PLATE SPRING
317-5	PSB1123317-5	PHLP HD SCR M4-.7 X 8
317-6	PSB1123317-6	LOCK CAM
317-7	PSB1123317-7	HEX ADAPTER M8-1.25 X 10, 1/4-20 X 9
317-8	PSB1123317-8	SHAFT
317-9	PSB1123317-9	SET SCREW M7-1 X 10
317-10	PSB1123317-10	NYLON PAD 10 X 28 X 1
317-11	PSB1123317-11	SET SCREW M8-1.25 X 12
317-12	PSB1123317-12	CAP SCREW M8-1.25 X 20
317-13	PSB1123317-13	HEX NUT M8-1.25
317-14	PSB1123317-14	KNOB M8-1.25, D30, TAPERED
317-15	PSB1123317-15	FLAT WASHER 5MM
317-16	PSB1123317-16	FLAT WASHER 4MM
318	PSB1123318	MITER GAUGE ASSEMBLY
318-1	PSB1123318-1	MITER BAR
318-2	PSB1123318-2	GUIDE DISC
318-3	PSB1123318-3	FLAT HD SCR M6-1 X 8
318-4	PSB1123318-4	POINTER
318-5	PSB1123318-5	PHLP HD SCR 3/16-24 X 3/8
318-6	PSB1123318-6	SHOULDER SCREW M6-1 X 10, 8 X 4
318-7	PSB1123318-7	MITER GAUGE BODY
318-8	PSB1123318-8	FLAT WASHER 8MM
318-9	PSB1123318-9	HEX ADAPTER 5/16-18 X 15, 1/4-20 X 9
318-10	PSB1123318-10	INDEXING BLOCK
318-11	PSB1123318-11	INDEXING PIN
318-12	PSB1123318-12	KNOB 5/16-18, D30, TAPERED
318-13	PSB1123318-13	HEX NUT M4-.7
318-14	PSB1123318-14	PHLP HD SCR M4-.7 X 16
318-15	PSB1123318-15	SCALE
319	PSB1123319	SUPPORT PLATE
320	PSB1123320	SLIDING PLATE
321	PSB1123321	CAP SCREW M8-1.25 X 30

REF	PART #	DESCRIPTION
322	PSB1123322	TABLE TILT ASSEMBLY
322-1	PSB1123322-1	GUIDE BRACKET
322-2	PSB1123322-2	WORM SHAFT
322-3	PSB1123322-3	HEX NUT M16-1.5
322-4	PSB1123322-4	BUSHING
322-5	PSB1123322-5	LOCK COLLAR
322-6	PSB1123322-6	SET SCREW M5-.8 X 5
322-7	PSB1123322-7	HEX NUT M5-.8
322-8	PSB1123322-8	LOCK WASHER 8MM
322-9	PSB1123322-9	CAP SCREW M8-1.25 X 16
322-10	PSB1123322-10	PHLP HD SCR M5-.8 X 10
322-11	PSB1123322-11	HOUSING COVER
322-12	PSB1123322-12	GEAR COVER
322-13	PSB1123322-13	PINION GEAR BOLT
322-14	PSB1123322-14	EXTENSION RACK
322-15	PSB1123322-15	FLAT HD SCR M4-.7 X 10
322-16	PSB1123322-16	RACK
322-17	PSB1123322-17	SQUARE TUBE
322-18	PSB1123322-18	PHLP HD SCR M4-.7 X 10
322-19	PSB1123322-19	HEX NUT M4-.7
322-20	PSB1123322-20	PINION GEAR 15T
322-21	PSB1123322-21	FIXED PLATE
322-22	PSB1123322-22	FIBER WASHER 10MM
322-23	PSB1123322-23	BUSHING DU 10 X 12
322-24	PSB1123322-24	FLAT WASHER 5MM
323	PSB1123323	FLAT WASHER 6MM
324	PSB1123324	HEX BOLT M8-1.25 X 55
325	PSB1123325	HEX NUT M8-1.25 NYLON
326	PSB1123326	HEX NUT M8-1.25
328	PSB1123328	CAP SCREW M8-1.25 X 50
329	PSB1123329	FLAT WASHER 8MM
330	PSB1123330	TRUNNION BLOCK ASSEMBLY
330-1	PSB1123330-1	TRUNNION HOUSING
330-2	PSB1123330-2	TRUNNION BLOCK
330-3	PSB1123330-3	PRESSBLOCK
330-4	PSB1123330-4	PRESS SHAFT
330-5	PSB1123330-5	MICRO ADJUSTMENT RING
330-6	PSB1123330-6	LOCK WASHER 8MM
330-7	PSB1123330-7	CAP SCREW M8-1.25 X 25
330-8	PSB1123330-8	ROLL PIN 6 X 36
331	PSB1123331	HANDLE SHAFT M12-2 90MM
332	PSB1123332	SLEEVE
333	PSB1123333	HEX NUT M12-1.75
334	PSB1123334	POINTER
335	PSB1123335	BLADE GUARD
336	PSB1123336	CAP SCREW M10-1.5 X 35
337	PSB1123337	PHLP HD SCR M6-1 X 10
338	PSB1123338	PHLP HD SCR M4-.7 X 10
343	PSB1123343	FLAT WASHER 10MM
344	PSB1123344	LOCK WASHER 10MM



# Motor & Electrical

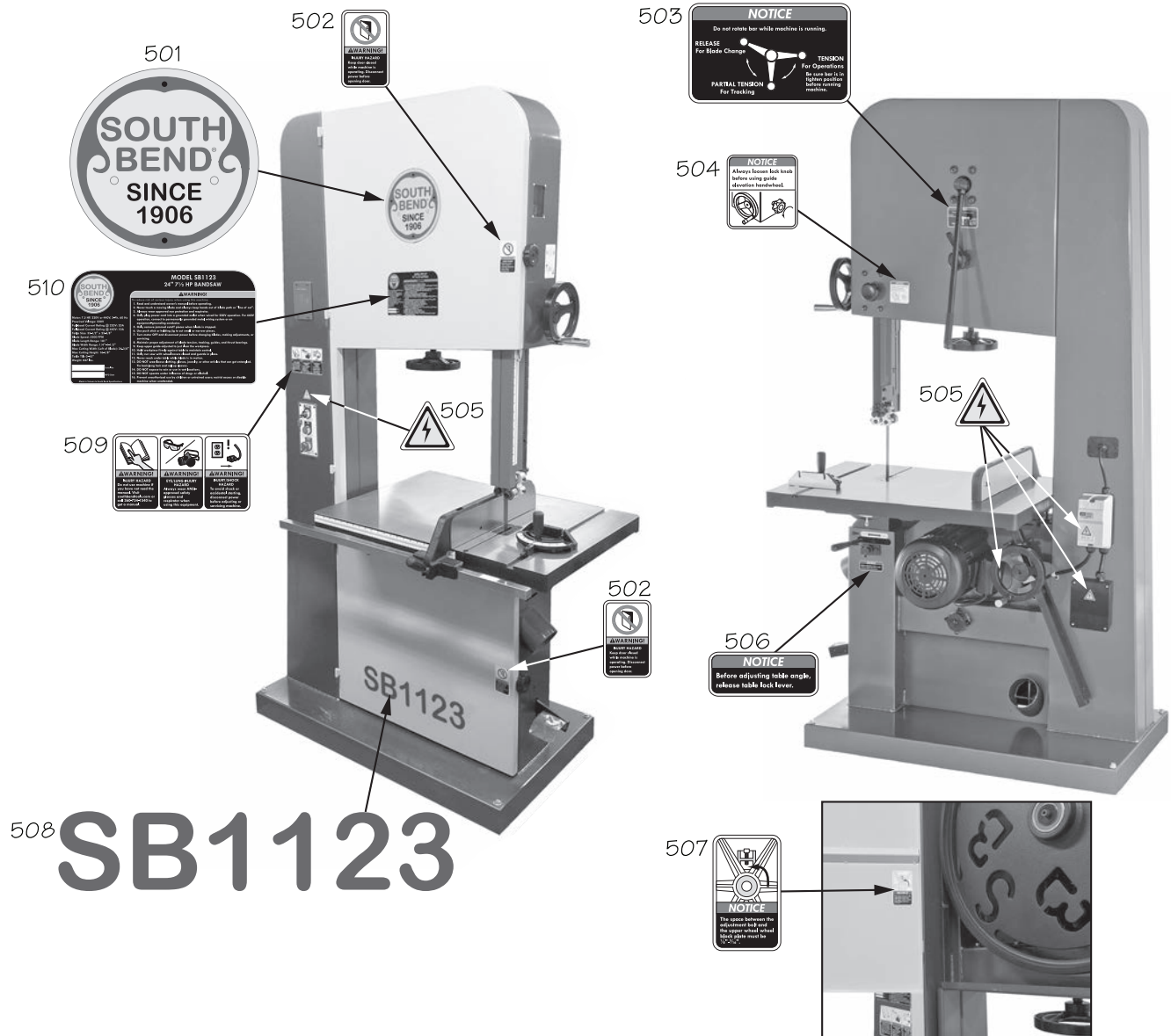


# Motor & Electrical Parts List

REF	PART #	DESCRIPTION
403	PSB1123403	CAP SCREW M8-1.25 X 25
404	PSB1123404	FLAT WASHER 10MM
405	PSB1123405	HEX NUT M10-1.5
406	PSB1123406	CAP SCREW M8-1.25 X 20
407	PSB1123407	FLAT WASHER 8MM
408	PSB1123408	MOTOR 7.5HP 220V/440V 3PH
408-1	PSB1123408-1	FAN COVER
408-2	PSB1123408-2	FAN
408-3	PSB1123408-3	JUNCTION BOX
408-4	PSB1123408-4	FRONT BEARING 6206-2RS
408-5	PSB1123408-5	REAR BEARING 6204-2RS
409	PSB1123409	PULLEY
410	PSB1123410	ADJUST BOLT
411	PSB1123411	SET SCREW M6-1 X 12
412	PSB1123412	SWITCH PLATE
413	PSB1123413	KEYED POWER SWITCH YK 22-1A1BG
414	PSB1123414	ON BUTTON YK 22-1A1B
415	PSB1123415	OFF BUTTON TAICHUAN TPB22-S01R
416	PSB1123416	TAP SCREW M4 X 10
421	PSB1123421	CONDUIT 1/2" X 43"
422	PSB1123422	CORD BUSHING
423	PSB1123423	CORD CLAMP 5/8"
424	PSB1123424	LIMIT SWITCH CANLIE KL7141
425	PSB1123425	PHLP HD SCR M4-.7 X 30
426	PSB1123426	HEX NUT M4-.7
427	PSB1123427	PHLP HD SCR M4-.7 X 10
430	PSB1123430	STRAIN RELIEF PLATE
431	PSB1123431	TERMINAL BLOCK
432	PSB1123432	MAG SWITCH ASSY 220V SDE MPE-18

REF	PART #	DESCRIPTION
432-1	PSB1123432-1	BACK COVER
432-2	PSB1123432-2	CONTACTOR SDE MA-18 600V
432-3	PSB1123432-3	OL RELAY SDE RA-30 18-26A
432-4	PSB1123432-4	FRONT COVER
433	PSB1123433	STRAIN RELIEF TYPE-3 M20-1.5
434	PSB1123434	CORD CLAMP 5/8"
435	PSB1123435	TAP SCREW M4 X 8
436	PSB1123436	LIMIT SWITCH CANLIE AZDS11
437	PSB1123437	PHLP HD SCR M4-.7 X 35
438	PSB1123438	FLANGE NUT M4-.7
440	PSB1123440	LIMIT SWITCH CORD 18G 2W 60"
441	PSB1123441	MAG SWITCH CORD 12G 4W 16"
442	PSB1123442	POWER SUPPLY CORD 12G 4W 18-1/2"
443	PSB1123443	MOTOR CORD 12G 4W 30"
444	PSB1123444	SWITCH CORD 16G 3W 36"
445	PSB1123445	CORD CONNECTOR 224-201
446	PSB1123446	MOTOR MOUNTING PLATE
447	PSB1123447	TAP SCREW M4 X 10
448	PSB1123448	GROUND WIRE
449	PSB1123449	JUNCTION BOX
450	PSB1123450	PHLP HD SCR M6-1 X 10
451	PSB1123451	STRAIN RELIEF TYPE-3 PG13.5
452	PSB1123452	PHLP HD SCR M5-.8 X 20
453	PSB1123453	MAG SWITCH ASSY 440V SDE MPE-18
453-1	PSB1123453-1	BACK COVER
453-2	PSB1123453-2	CONTACTOR SDE MA-18 600V
453-3	PSB1123453-3	OL RELAY SDE RA-20 8-12A
453-4	PSB1123453-4	FRONT COVER

# Machine Labels



REF	PART #	DESCRIPTION
501	PSB1123501	SOUTH BEND NAMEPLATE 203MM
502	PSB1123502	KEEP DOOR CLOSED LABEL
503	PSB1123503	BLADE TENSIONER LABEL
504	PSB1123504	ELEVATION LOCK KNOB LABEL
505	PSB1123505	ELECTRICITY LABEL

REF	PART #	DESCRIPTION
506	PSB1123506	TABLE LOCK LEVER LABEL
507	PSB1123507	UPPER WHEEL GUIDE NOTICE
508	PSB1123508	MODEL NUMBER LABEL
509	PSB1123509	COMBO WARNING LABEL
510	PSB1123510	MACHINE ID LABEL

**⚠ WARNING**

The safety labels provided with your machine are used to make the operator aware of the machine hazards and ways to prevent injury. The owner of this machine **MUST** maintain the original location and readability of these safety labels. If any label is removed or becomes unreadable, **REPLACE** that label before using the machine again. Contact South Bend Lathe Co. at (360) 734-1540 or [www.southbendlathe.com](http://www.southbendlathe.com) to order new labels.

# Warranty

This quality product is warranted by South Bend Tools to the original buyer for **2 years** from the date of purchase. This warranty does not apply to consumable parts, or defects due to any kind of misuse, abuse, negligence, accidents, repairs, alterations or lack of maintenance. We do not reimburse for third party repairs. In no event shall we be liable for death, injuries to persons or property, or for incidental, contingent, special or consequential damages arising from the use of our products.

We do not warrant or represent that this machine complies with the provisions of any law, act, code, regulation, or standard of any domestic or foreign government, industry, or authority. In no event shall South Bend's liability under this warranty exceed the original purchase price paid for this machine. Any legal actions brought against South Bend Tools shall be tried in the State of Washington, County of Whatcom.

This is the sole written warranty for this machine. Any and all warranties that may be implied by law, including any merchantability or fitness, for any purpose, are hereby limited to the duration of this warranty.

Thank you for your business and continued support.

To take advantage of this warranty, register 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.





[southbendtools.com](http://southbendtools.com)

