READ THIS FIRST

MODEL SB1118
IMPORTANT UPDATE

Applies to Models Mfd. Since 10/21
and Owner's Manual Printed 12/21

The following changes were recently made since the owner's manual was printed:

- Wiring diagrams and electrical photos have changed.

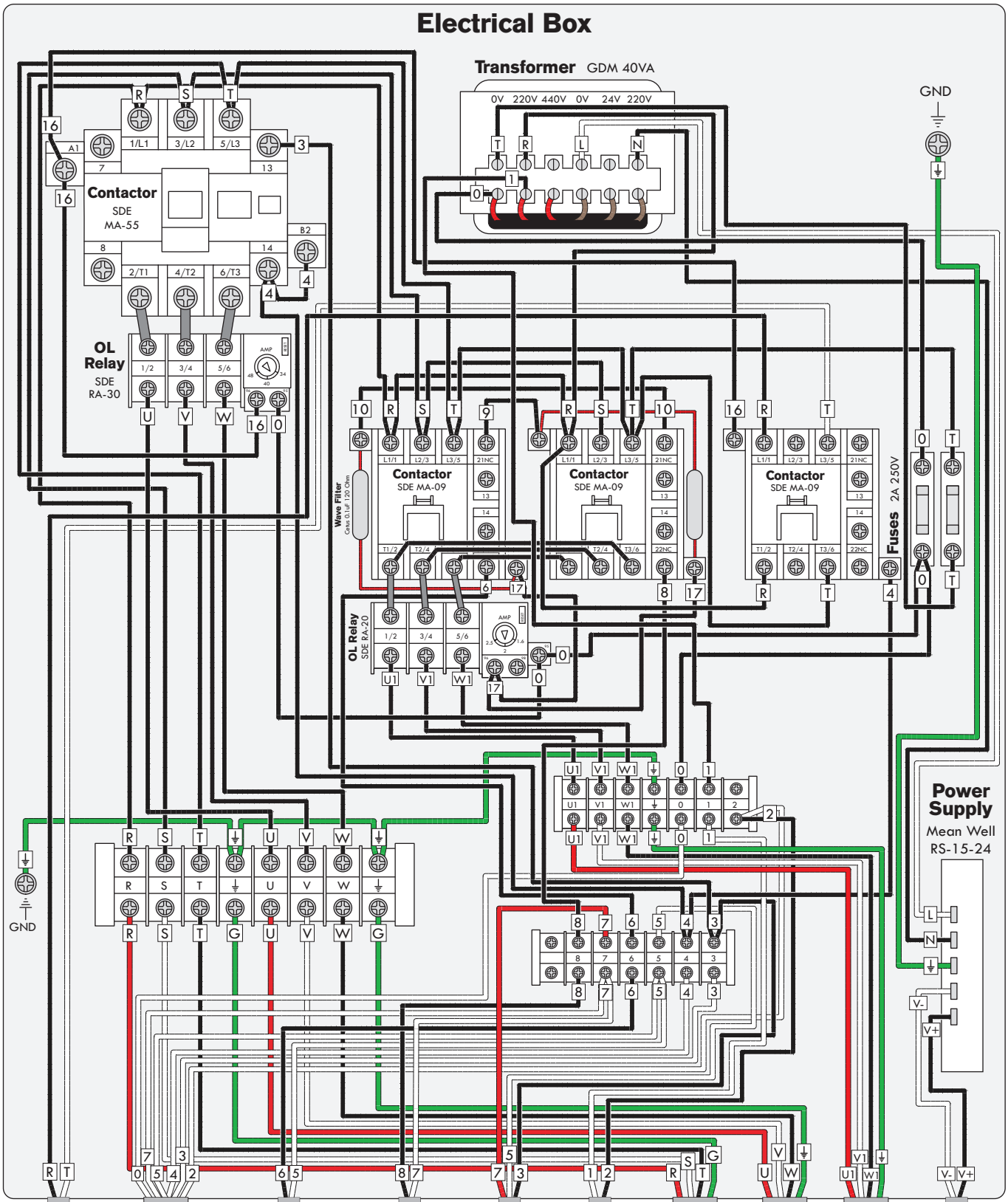
Aside from this information, all other content in the owner's manual applies and MUST be read and understood for your own safety. **IMPORTANT: Keep this update with the owner's manual for future reference.**

If you have any further questions about this manual update or the changes made to the machine, contact our Technical Support at (360) 734-1540 or email www.southbendtools.com.

#JP22720 Printed in Taiwan

(Replaces Page 62 in Owner's Manual)

Electrical Box Wiring Diagram



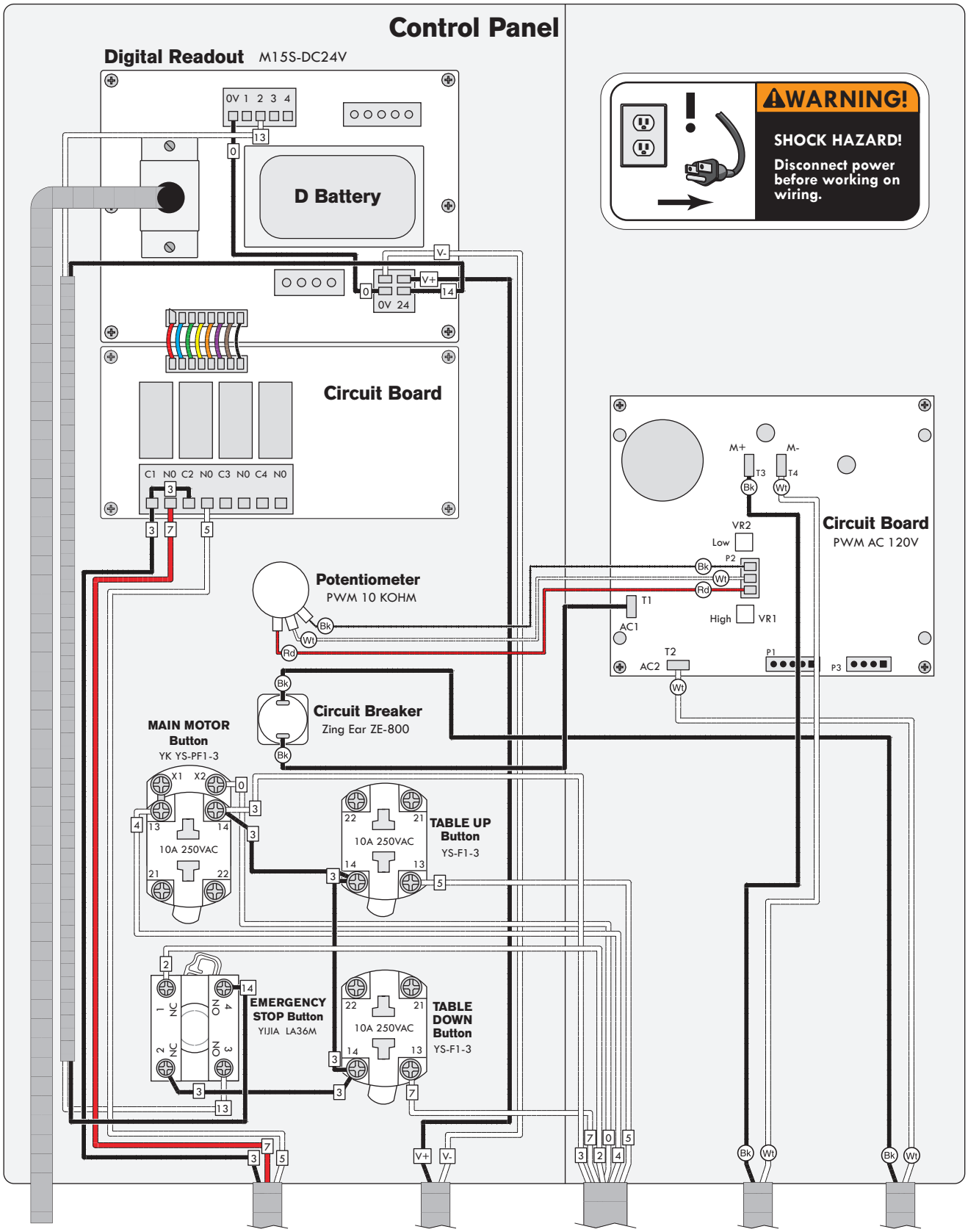
(Replaces Page 63 in Owner's Manual)

Control Box

Figure 77. Control box wiring.

(Replaces Page 64 in Owner's Manual)

Control Box Wiring Diagram



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READ THIS FIRST

MODEL SB1118
IMPORTANT UPDATE

Applies to Models Mfd. Since 03/23 and Owner's Manual Printed 12/21

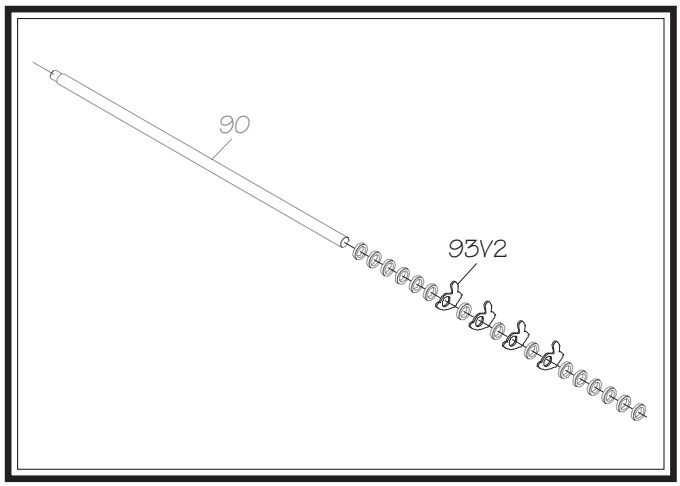
The following change was recently made since the owner's manual was printed:

- Anti-kickback pawl has changed.

Aside from this information, all other content in the owner's manual applies and MUST be read and understood for your own safety. **IMPORTANT: Keep this update with the owner's manual for future reference.**

If you have any further questions about this manual update or the changes made to the machine, contact our Technical Support at (360) 734-1540 or email www.southbendtools.com.

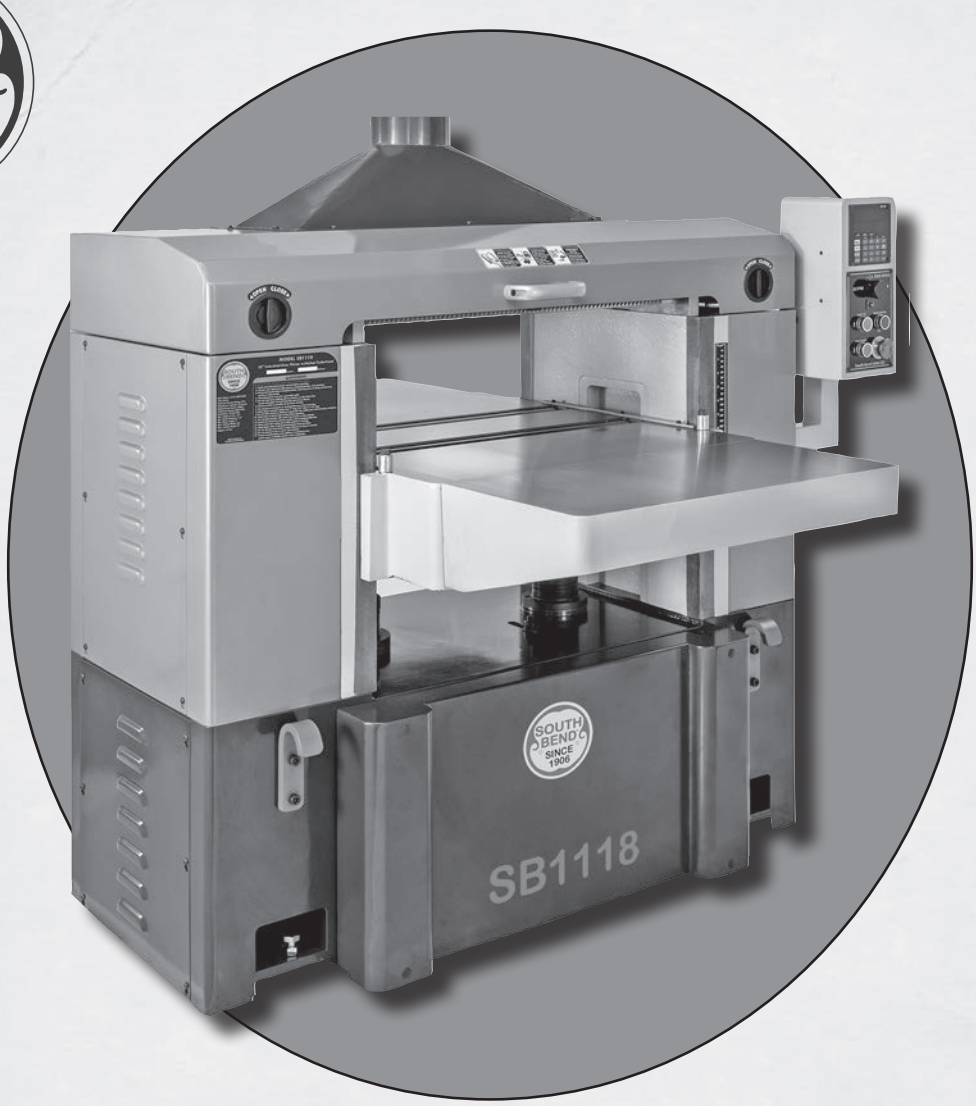
Revised Parts



REF	PART #	DESCRIPTION
93V2	PSB1118093V2	ANTI-KICKBACK PAWL V2.03.23

25" EXTREME-SERIES PLANER

MODEL SB1118



****Keep for Future Reference****

OWNER'S MANUAL

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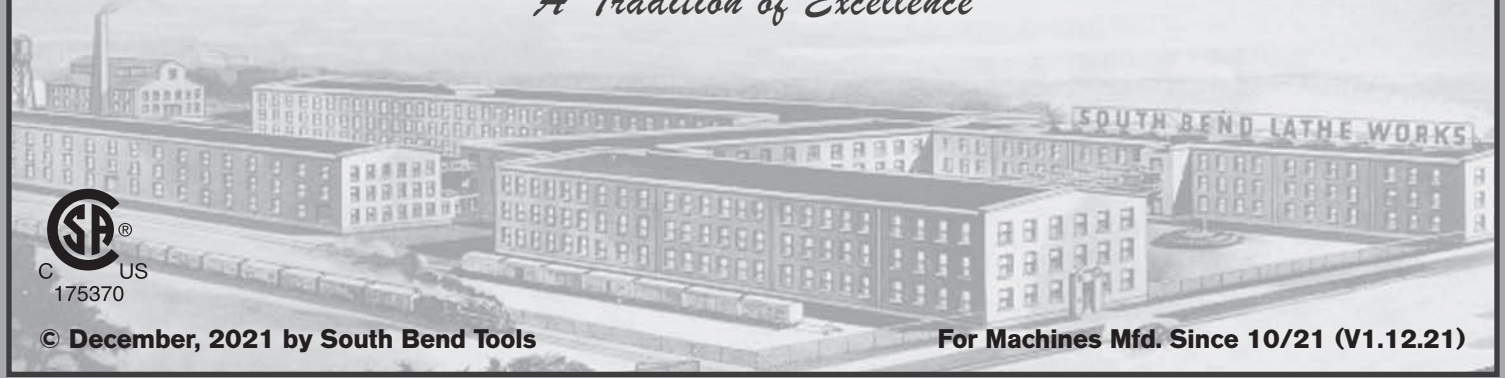

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For Machines Mfd. Since 10/21 (V1.12.21)

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?

South Bend Tools
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P.O. Box 2027
Bellingham, WA 98227
Email: manuals@southbendtools.com

Updates

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

www.southbendtools.com

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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Fax: (360) 676-1075 (International)
Fax: (360) 734-1639 (USA Only)
Email: sales@southbendtools.com

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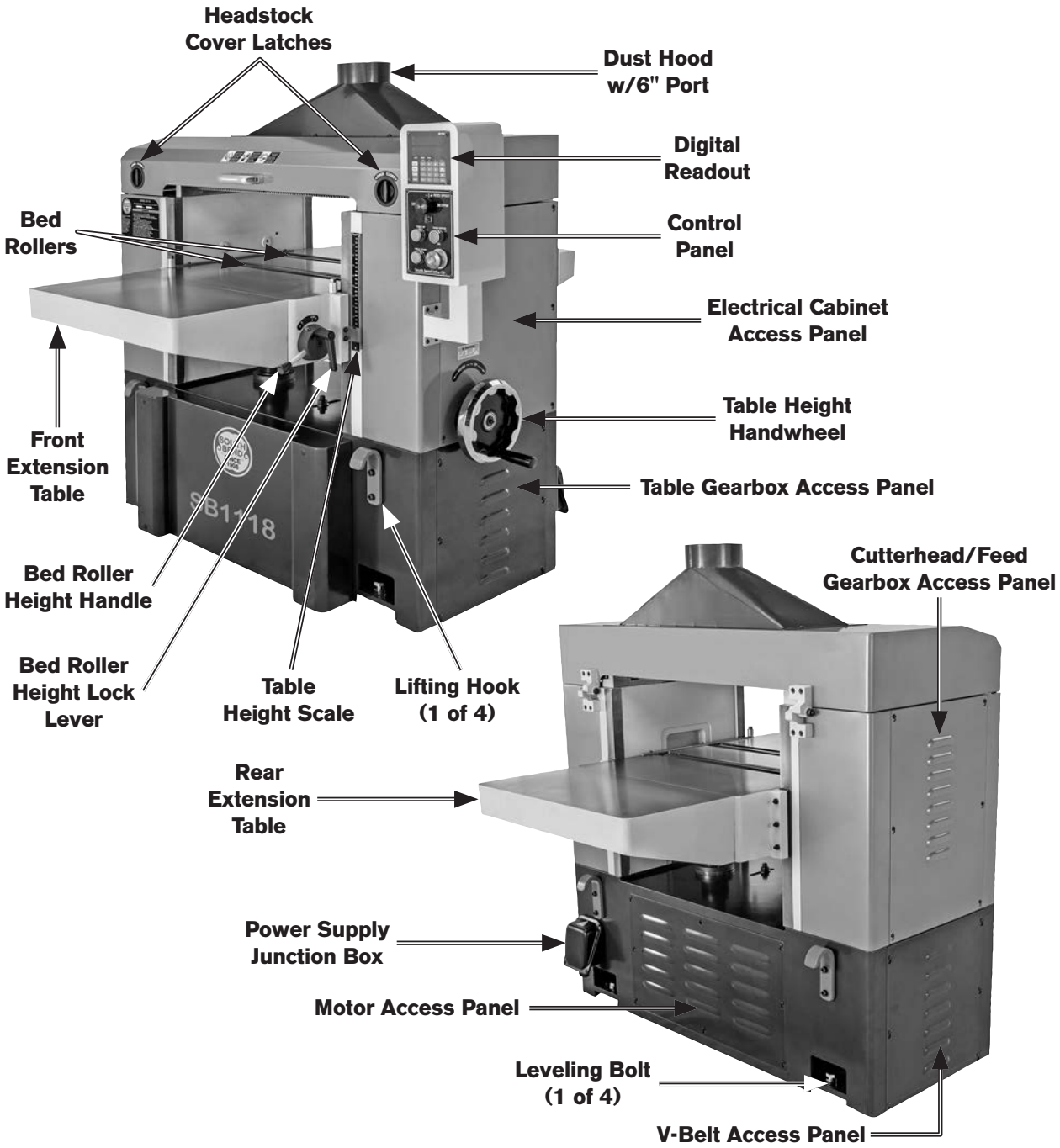
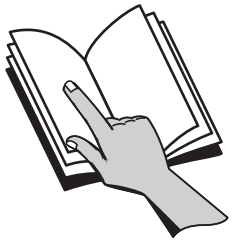
Identification





⚠WARNING

Incorrect use of this machine can result in death or serious injury. For your own safety, read and understand this entire document before using.

Description of Controls & Components

Refer to **Figures 1–3** 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. FEED SPEED Control Knob: Controls speed at which workpiece moves past cutterhead. Turn clockwise to increase speed; turn counterclockwise to decrease speed.

B. Circuit Breaker: Stops motor function if motor overheats. Allow motor to cool, then move switch up to reset.

C. TABLE UP Button: Raises table when pressed. When used in conjunction with digital readout, will raise table to a pre-set elevation.

D. TABLE DOWN Button: Lowers table when pressed. When used in conjunction with digital readout, will lower table to a pre-set elevation.

E. MAIN MOTOR/ON Button: Turns cutterhead and feed motors ***ON***. Illuminates when machine is connected to power.

F. EMERGENCY STOP Button: Stops all machine functions when pressed. Twist clockwise to reset.

Digital Readout

Figure 2. Digital readout.

G. Target Window: Shows target table position value entered on keypad.

H. Actual Window: Shows current actual table position value.

I. Keypad: Used to enter table elevation and digital commands.

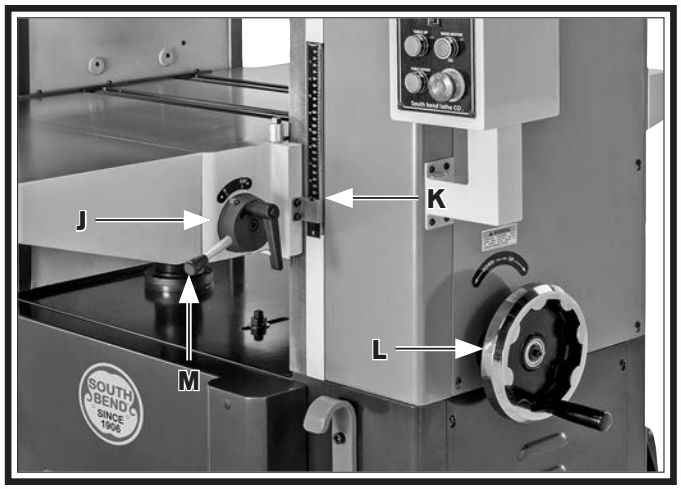


Figure 3. Table controls.

J. Bed Roller Height Handle: Adjusts height of bed rollers from 0.002"–0.050".

K. Table Height Scale: Shows elevation of table beneath cutterhead. The measurement indicated along top edge of red indicator shows effective thickness of workpiece *after* planing.

L. Table Height Handwheel: Raises and lowers table. One full revolution moves table approximately 1/32".

M. Bed Roller Height Lock Lever: Secures bed rollers in position.

Internal Components

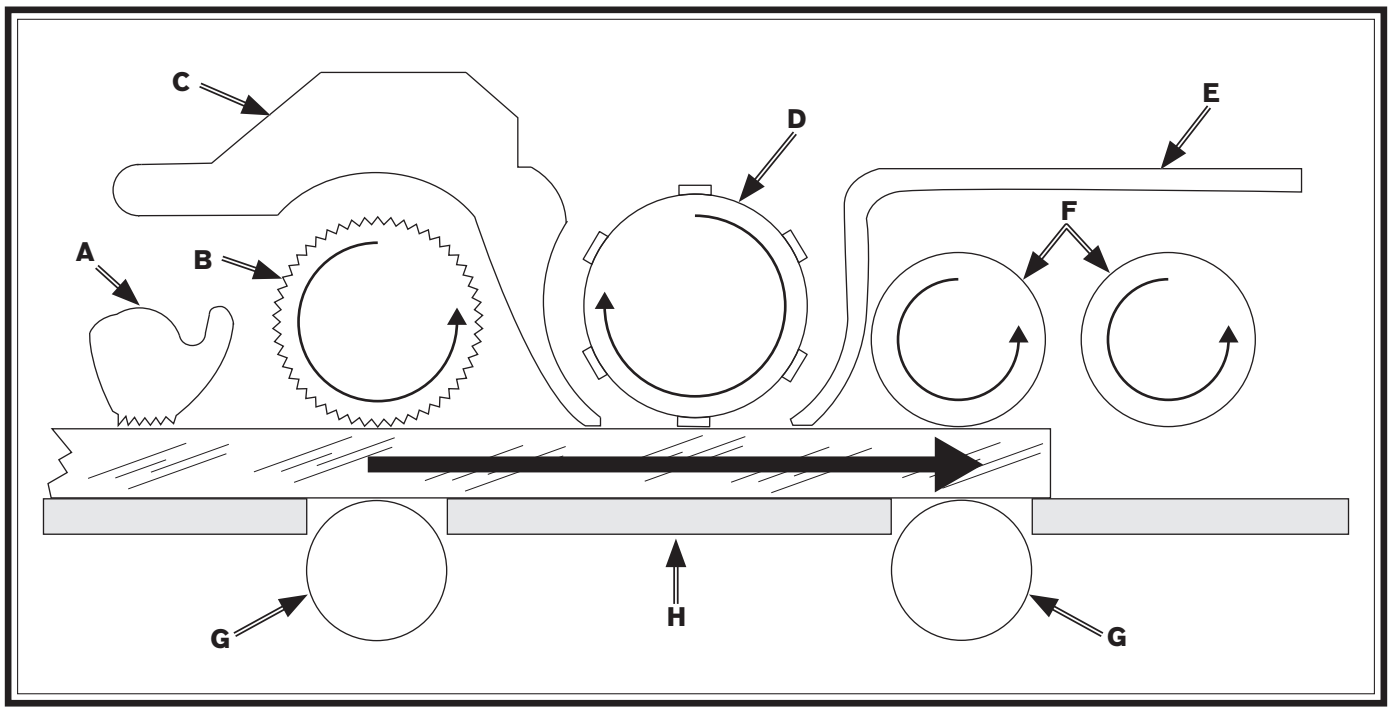


Figure 4. Workpiece path and major planing components (side cutaway view).

A. Anti-Kickback Fingers: Provide additional safety for operator.

B. Serrated Infeed Roller: Pulls workpiece toward cutterhead.

C. Chip Breaker: Breaks off chips created by cutterhead to prevent tearout and diverts chips to dust hood.

D. Helical Cutterhead: Holds indexable carbide inserts that remove material from workpiece.

E. Pressure Bar: Stabilizes workpiece as it leaves cutterhead and assists in deflecting wood particles toward dust hood.

F. Outfeed Rollers: Pull workpiece through the planer.

G. Bed Rollers: Provide upward pressure on workpiece, enabling feed rollers to pull the workpiece along.

H. Planer Table: Provides a smooth and level path for workpiece as it moves through planer.

⚠WARNING

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

⚠CAUTION

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

SOUTH BEND SINCE 1906

Product Specifications

P.O. Box 2027, Bellingham, WA 98227 U.S.A.
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SOUTH BEND SINCE 1906

Model SB1118
Extreme-Series Planer

Product Dimensions

Weight..... 1870 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 54-1/2 x 57 x 54-1/2 in.
Footprint (Length x Width)..... 47-1/2 x 24-1/2 in.

Shipping Dimensions

Type..... Wood Crate
Content..... Machine
Weight..... 2057 lbs.
Length x Width x Height..... 59 x 38 x 63 in.
Must Ship Upright..... Yes

Electrical

Power Requirement..... 220V or 440V, 3-Phase, 60 Hz
Prewired Voltage..... 220V
Full-Load Current Rating..... 45A at 220V, 26.5 at 440V
Minimum Circuit Size..... 50A at 220V, 30A at 440V
Connection Type..... Permanent (Hardwire to Shutoff)
Switch Type..... Control Panel w/Magnetic Switch Protection

Motors

Main

Horsepower..... 15 HP
Phase..... 3-Phase
Amps..... 37A/18.5A
Speed..... 3420 RPM
Type..... TEFC Induction
Power Transfer ..... Belt
Bearings..... Shielded & Permanently Lubricated

Table Elevation

Horsepower..... 1/2 HP
Phase..... 3-Phase
Amps..... 2A/1A
Speed..... 1720 RPM
Type..... TEFC Induction
Power Transfer ..... Chain
Bearings..... Sealed & Permanently Lubricated

Feed

Horsepower	3/4 HP
Phase	Single-Phase
Amps	8A
Speed	2500 RPM
Type	DC Motor
Power Transfer	Belt
Bearings	Sealed & Permanently Lubricated

Main Specifications

Main Specifications

Planer Size	25 in.
Max. Cut Width	25 in.
Min. Stock Length	10 in.
Min. Stock Thickness	1/4 in.
Max. Stock Thickness	9 in.
Number of Cuts Per Inch	245 - 82
Number of Cuts Per Minute	29,400
Cutterhead Speed	4900 RPM
Planing Feed Rate	10 - 30 FPM
Max. Cut Depth Planing Full Width	1/8 in.
Max. Cut Depth Planing 6-Inch Wide Board	1/4 in.

Cutterhead Info

Cutterhead Type	Helical
Cutterhead Diameter	3-1/2 in.
Number of Cutter Rows	6
Number of Indexable Cutters	174
Cutter Insert Type	30 deg. Indexable Carbide
Cutter Insert Size Length	15mm
Cutter Insert Size Width	15mm
Cutter Insert Size Thickness	2.5mm

Table Info

Table/Headstock Movement	9 in.
Table Bed Size Length	57 in.
Table Bed Size Width	25 in.
Table Bed Size Thickness	2 in.
Number of Bed Rollers	2
Floor-to-Table Height	30 - 38 in.
Table Wings Size Length	12-5/8 in.
Table Wings Size Width	25-1/8 in.

Construction

Table	Precision-Ground Cast Iron
Body	Cast Iron
Stand	Steel
Cutterhead Assembly	Steel
Infeed Roller	Serrated Steel
Outfeed Roller	Smooth Steel
Paint Type/Finish	Powder Coated

Other

Measurement Scale	Inch & Metric
Number of Dust Ports	1
Dust Port Size	6 in.

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:

DANGER	***Death or catastrophic harm WILL occur.***	**CAUTION**	***Moderate injury or fire MAY occur.***
WARNING	***Death or catastrophic harm COULD occur.***	***NOTICE***	***Machine or property damage may occur.***

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-lighted 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 Planer Safety

⚠WARNING

Amputation, serious cuts, entanglement, or death can occur from contact with rotating cutterhead or other moving parts! Flying chips can cause eye injuries or blindness. Workpieces or knives thrown by cutterhead can strike nearby operator or bystanders with deadly force. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

Kickback: Know how to reduce the risk of kickback and kickback-related injuries. "Kickback" occurs during the operation when the workpiece is ejected back from the infeed side of the machine at a high rate of speed. Kickback is commonly caused by poor workpiece selection, unsafe feeding techniques, or improper machine setup/maintenance. Kickback injuries typically occur as follows: (1) operator/bystanders are struck by the workpiece, resulting in impact injuries (i.e., blindness, broken bones, bruises, death); (2) operator's hands are pulled into the machine from the outfeed side, resulting in amputation or severe lacerations.

Avoid Contact with Moving Parts: Never remove guards/covers or reach inside the planer during operation or while connected to power. You could be seriously injured if you accidentally touch the spinning cutterhead or get entangled in moving parts. If a workpiece becomes stuck or sawdust removal is necessary, turn planer **OFF**, allow cutterhead to stop, and disconnect power before clearing.

Dull/Damaged Knives/Inserts: Only use sharp, undamaged knives/inserts. Dull or damaged knives/inserts increase the risk of kickback.

Inspecting Stock: To reduce the risk of kickback injuries or machine damage, thoroughly inspect and prepare the workpiece before cutting. Verify workpiece is free of nails, staples, loose knots, or foreign material. Workpieces with minor warping should be jointed first or planed with the cupped side facing the table.

Body Placement: Stand to one side of planer during the entire operation to avoid getting hit if kickback occurs.

Grain Direction: Planing across the grain is hard on the planer and may cause kickback. Plane in the same direction or at a slight angle with the wood grain.

Planing Correct Material: Only plane natural wood stock with this planer. DO NOT plane MDF, OSB, plywood, laminates or other synthetic materials that can break up inside the planer and be ejected towards the operator.

Looking Inside Planer: Wood chips fly around inside the planer at a high rate of speed during operation. To avoid injury from flying material, DO NOT look inside planer during operation.

Cutting Limitations: To reduce the risk of kickback hazards or damage to the machine, do not exceed the maximum depth of cut or minimum board length and thickness found in the **Data Sheet**. Only feed one board at a time.

Infeed Roller Clearance: The infeed roller is designed to pull material into the spinning cutterhead. To reduce the risk of entanglement, keep hands, clothing, jewelry, and long hair away from the infeed roller during operation.

Feed Workpiece Properly: To reduce the risk of kickback, never start planer with workpiece touching cutterhead. Allow cutterhead to reach full speed before feeding, and do not change feed speed during cutting operation.

Workpiece Support: To reduce the risk of kickback, always make sure workpiece can move completely across table without rocking or tipping. Use auxiliary support stands for long stock.

Secure Knives/Inserts: Loose knives or improperly set inserts can become dangerous projectiles or cause machine damage. Always verify knives/inserts are secure and properly adjusted before operation.

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 using the pre-installed machine 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.

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.
- Lifting straps or chains (rated for at least 2500 lbs.)

For Power Connection

- A power source that meets the minimum circuit requirements for this machine. (Refer to the **Power Supply Requirements** on **Page 12** for details.)

For Assembly

- Safety Glasses (for each person)
- Straightedge 4'
- Dust Collection System
- 6" Dust Hose
- 6" Hose Clamp
- Disposable Rags
- Disposable Gloves
- Cleaner/Degreaser
- Electrical Tape
- Assistant
- Phillips Head Screwdriver #2
- Open-End Wrenches 19, 24mm
- Hex Wrenches 2.5, 6mm
- Level
- D Battery
- ISO 150 Gear Oil
- Wrench or Socket 10mm

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.

⚠WARNING

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.

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..... 45 Amps
Full-Load Rating at 440V..... 26.5 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.)

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.

⚠CAUTION

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

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..... 50 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..... 30 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 5**), 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.

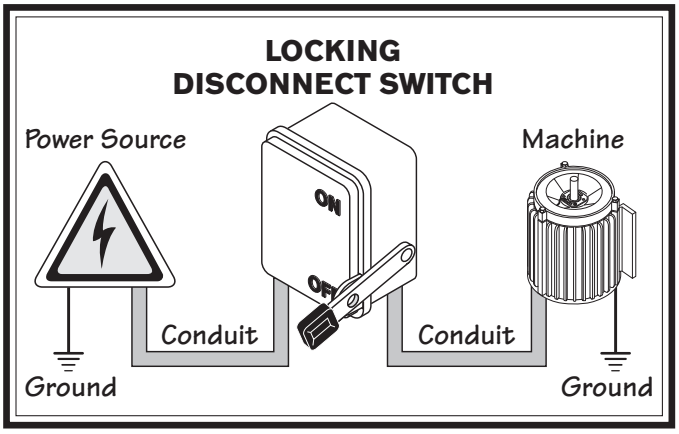


Figure 5. Typical setup of a permanently connected machine.

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 SB1118 can be converted to 440V operation. This conversion consists of: 1) Disconnecting the planer from power, 2) rewiring the transformers, 3) replacing the overload relays, and (4) rewiring the table and cutterhead motors 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	Qty
Phillips Head Screwdriver #2	1
Hex Wrenches 4, 5mm	1 Ea
Overload Relay SDE RA-30	1
Overload Relay SDE RA-20	1
Electrical Tape	As Needed

To convert SB1118 to 440V operation:

1. DISCONNECT MACHINE FROM POWER!

2. Remove electrical cabinet access panel on right-hand side of machine.

3. Locate transformer (see **Figure 6**) mounted outside electrical box.

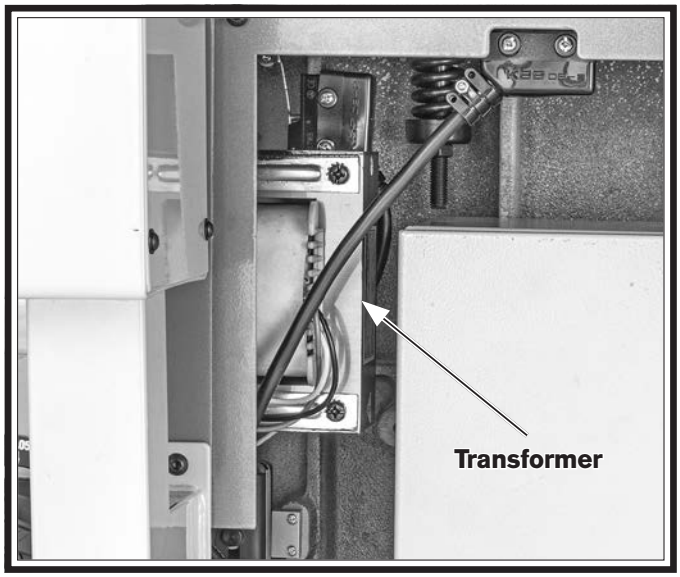


Figure 6. Location of transformer mounted outside electrical box.

4. Loosen two wire nuts indicated in **Figure 7**.

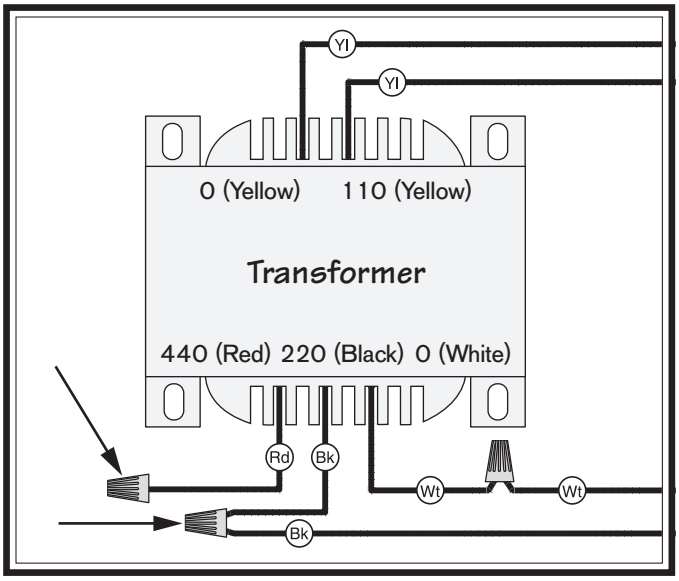


Figure 7. Location of transformer wire nuts.

5. Move black wire as indicated in **Figure 8**, then tighten both wire nuts and wrap with electrical tape.

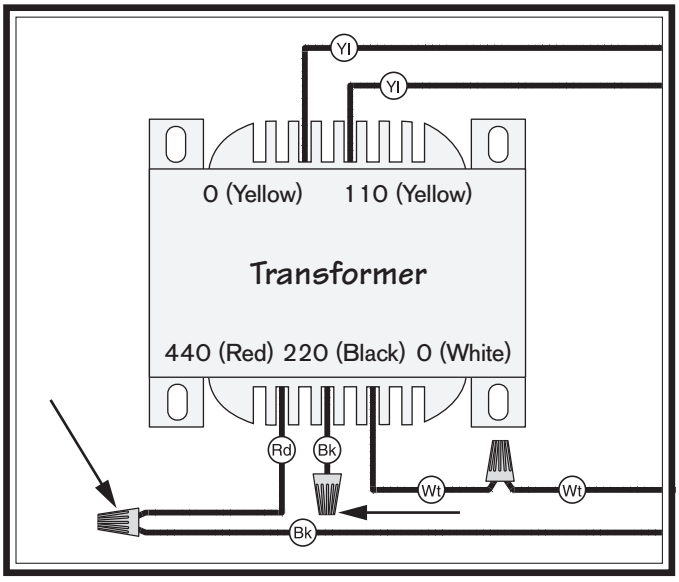


Figure 8. New location of black wire on transformer.

6. Open electrical box and locate transformer (see **Figure 9**).

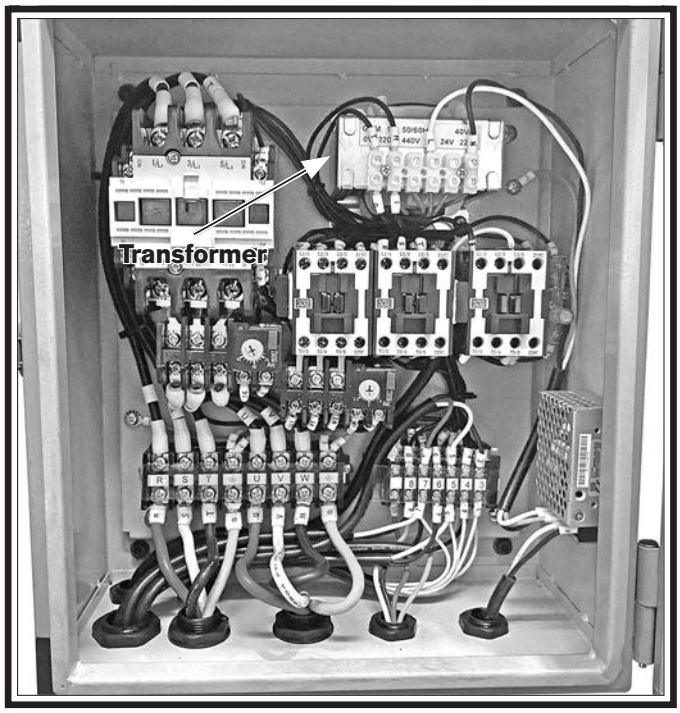


Figure 9. Location of transformer inside electrical box.

7. Move R wire from 220V terminal to 440V terminal (see **Figure 10**).

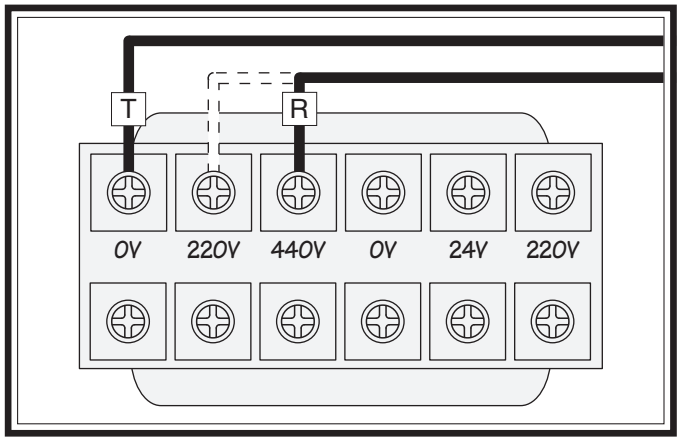


Figure 10. Moving R wire to 440V terminal.

8. Remove cutterhead overload relay (see **Figure 11**) and replace with SDE RA-30 overload relay. Set amperage dial to 18.5A.

9. Remove table overload relay (see **Figure 11**) and replace with SDE RA-20 overload relay. Set amperage dial to 1.2A.

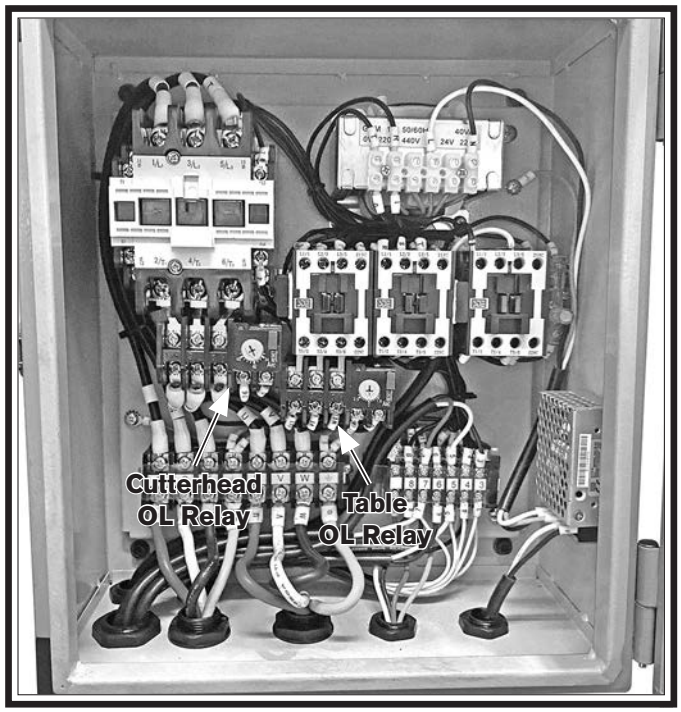


Figure 11. Location of cutterhead and table overload relays.

10. Close electrical box, and replace access panel removed in **Step 2**.

11. Remove front access panel and motor access panel, and rewire main motor and table motor for 440V operation (refer to motor wiring diagrams on **Page 65**).

12. Replace access panels removed in **Step 11**.

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 take pictures and save all the containers and packing materials for possible inspection by the carrier or its agent.

Inventory

Inventory (Figure 12)		Qty
A.	Planer (Not Shown)	1
B.	Extension Tables	2
C.	Machine Mounting Feet	4
D.	T-Handle Torx Wrenches T-25	2
E.	Flat Head Screwdriver ¼"	1
F.	Bed Roller Height Handle	1
G.	Indexable Carbide Inserts 15 x 15 x 2.5mm	10
H.	Flat Head Torx Screws #10-32 x ½"	10
I.	Spare Fuses 2A 250V	2
J.	Open-End Wrenches	
	–12/14, 17/19, 22/24mm	1 Ea
K.	Hex Wrenches 3, 4, 5, 8mm	1 Ea
L.	Hex Bolts M12-1.75 x 50 (Ext. Tables)	6
M.	Flat Washers 12mm (Ext. Tables)	6
N.	Set Screws M10-1.5 x 20 (Ext. Tables)	6

NOTICE

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

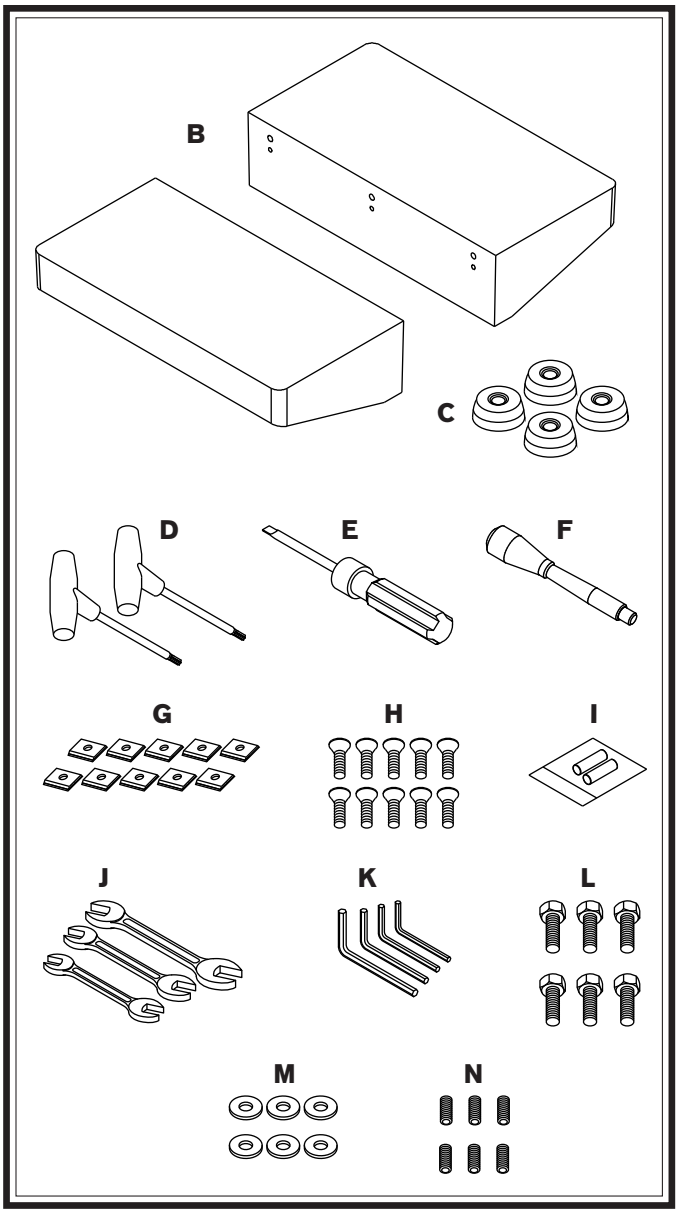


Figure 12. Loose inventory.

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.*

⚠WARNING

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.

⚠CAUTION

Many cleaning solvents are toxic if inhaled. Minimize your risk by only using these products in a well ventilated area.

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.

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

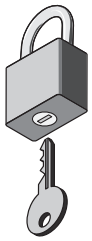
Lighting around the machine must be adequate enough to perform operations safely. Shadows, glare, or strobe effects that may distract or impede the operator must be eliminated.

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.



⚠CAUTION

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

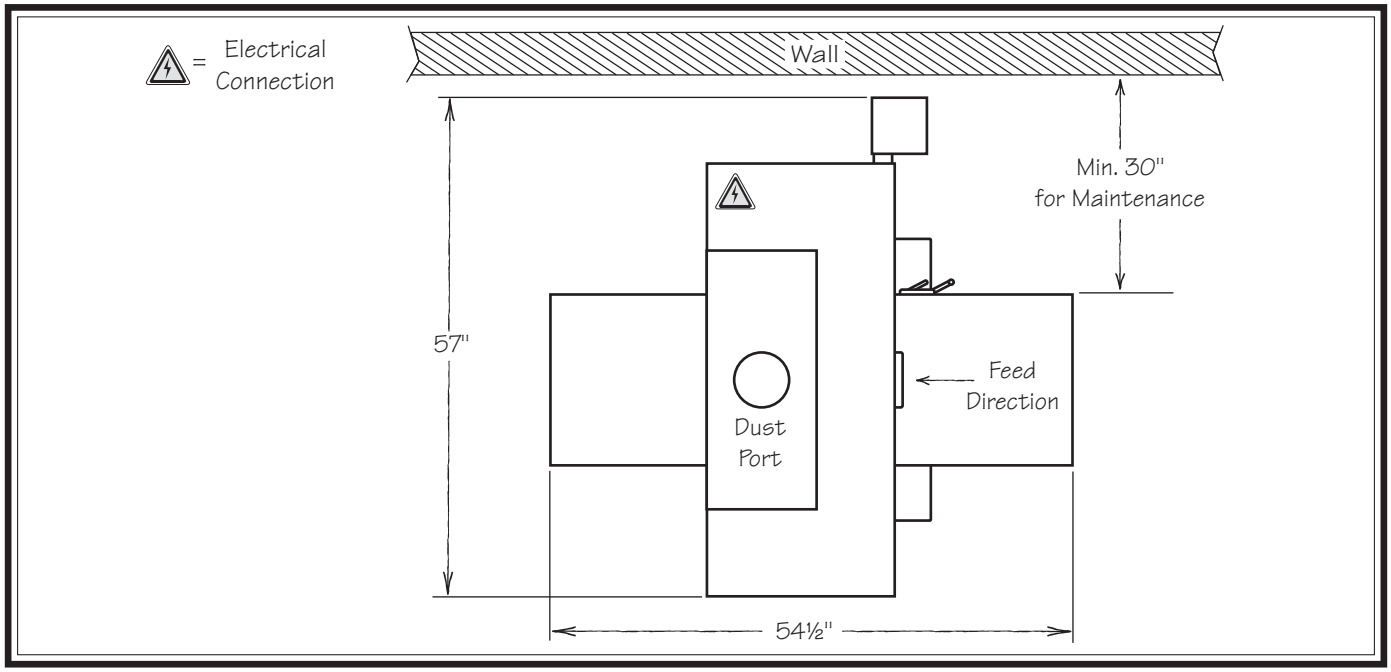
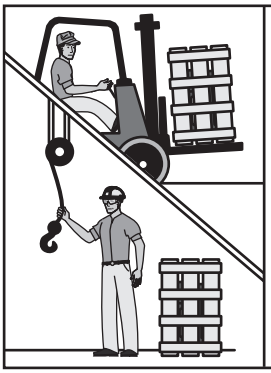


Figure 14. Minimum working clearances.

Lifting & Moving



⚠WARNING

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

The Model SB1118 requires the use of lifting equipment such as a forklift, engine hoist, or boom crane. DO NOT attempt to lift or move the planer without necessary assistance from other people. Each piece of lifting equipment must be rated for **at least 2500 lbs**. to support dynamic loads that may be applied while lifting.

To lift and move planer:

1. Remove sides and top of shipping crate.

2. Place lifting straps under lifting hooks (see **Figure 15**). Make sure straps are not in contact with any controls or handles.

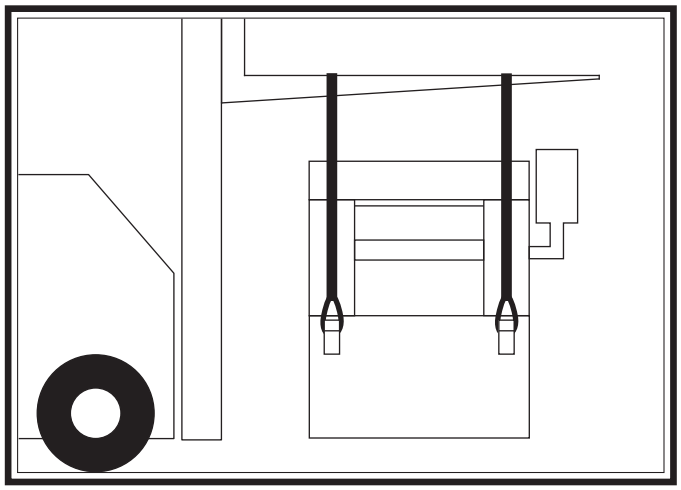


Figure 15. Example of lifting planer with forklift.

3. Unbolt planer from pallet.

4. Slowly raise planer, and move to prepared location.

Leveling

The SB1118 comes with four cast-iron feet and four pre-installed hex bolts and hex nuts at each corner of the base for leveling the machine.

This type of mount offers certain advantages, such as ease of installation and easy leveling. It also makes it easier to move the machine later.

The disadvantage of this type of mount is that the machine can shift or move over time. For this reason, electrical codes in your region may limit their use since the machine must be hardwired to the power source. Consult a qualified electrician to determine local requirements.

Tools Needed	**Qty**
Open-End Wrenches 24mm	2
Machinist's Level	1

To level machine:

1. Ensure (4) pre-installed M16-2 x 55 hex bolts and M16-2 hex nuts (see **Figure 16)** are threaded into base approximately the same amount.

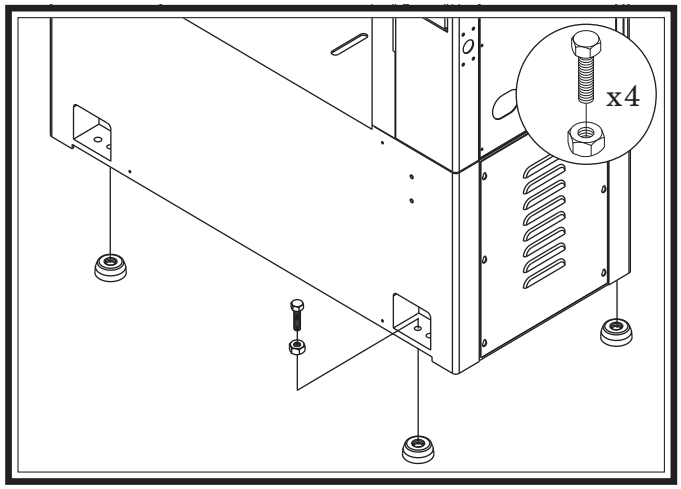


Figure 16. Location of mounting feet and fasteners (shown with front cover removed for clarity).

2. With machine raised off floor, position (4) cast-iron feet beneath hex bolts and slowly lower machine onto feet.

3. Level machine front to back and side to side, then tighten hex nuts to secure position.

Anchoring to Floor

Number of Mounting Holes 4
Size of Mounting Hardware..... ½"

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.

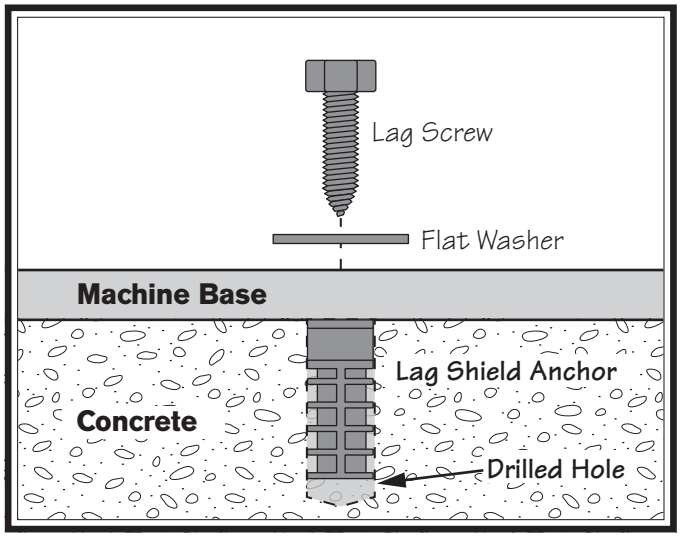


Figure 17. Popular method for anchoring machinery to a concrete floor.

NOTICE

Shims may be required when mounting the planer to the floor. If the floor is uneven and you tighten the mounting bolts without shims, you can crack the cast-iron base. Shim any gaps between the base and the floor before fully tightening the mounting bolts.

Assembly

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

⚠WARNING

Straining or crushing injury may occur from improperly lifting extension tables. To reduce this risk, get help from other people or use lifting equipment rated for weight of these tables.

To assemble machine:

1. Attach each extension table to planer table with (3) M12-1.75 x 50 hex bolts and 12mm flat washers, as shown in **Figure 18**. Hand-tighten for now.

2. Thread (3) M10-1.5 x 20 set screws into each extension table (see **Figure 18)**.

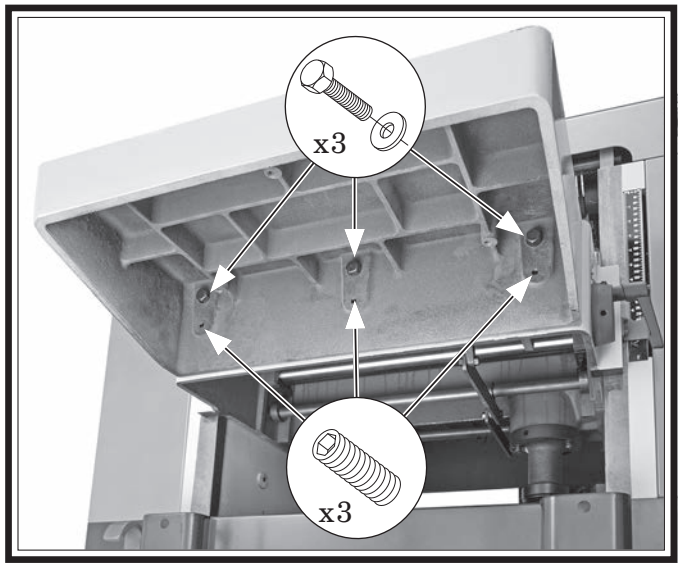


Figure 18. Extension table attached to planer table.

3. Using a straightedge as a guide (see **Figure 19**), rotate set screws installed in **Step 2** until extension tables are level and flush with planer table.

Figure 19. Leveling extension table.

4. Install bed roller height handle (see **Figure 20**) in hub on right side of front extension table.

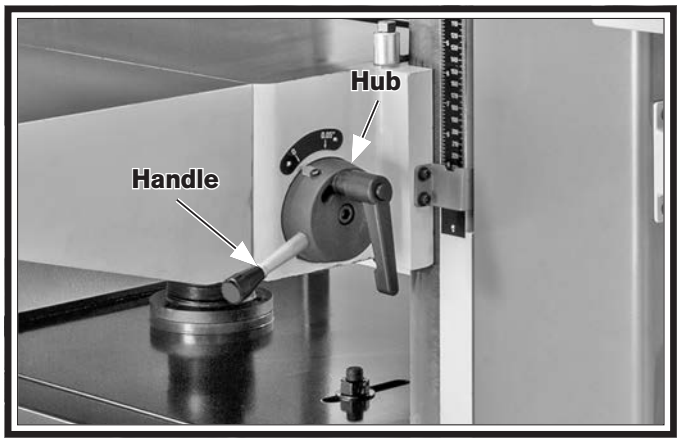


Figure 20. Bed roller height handle installed in hub.

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 Dust Port: 600 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 machine to a dust collector:

1. Fit a 6" dust hose over dust port (see **Figure 21**), and secure in place with a hose clamp.

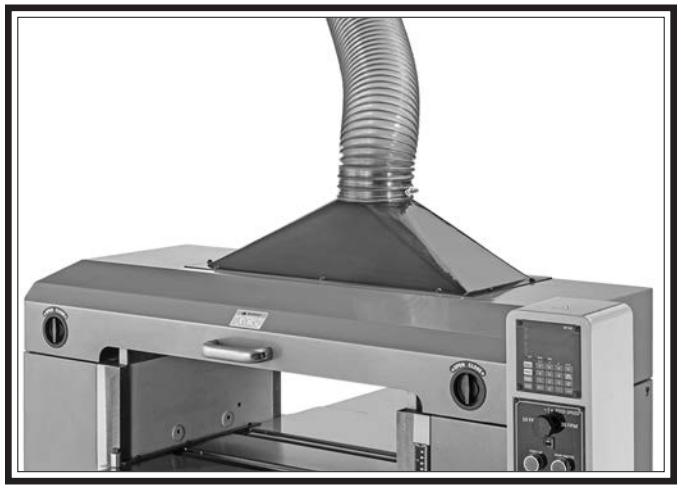


Figure 21. Dust hose attached to dust port.

2. Tug hose to make sure it does not come off.

Note: *A tight fit is necessary and ensures proper performance during operation.*

Checking Gearbox Oil Levels

Before starting the machine for the first time, check the oil level in the cutterhead/feed gearbox and the table gearbox. See **Gearbox Oil** on **Page 41** for more information. DO NOT mix oil types.

Items Needed	Qty
Open-End Wrench or Socket 14mm	1
Hex Wrenches 4, 6mm	1 Ea
Gear Oil 150 ISO	As Needed

Cutterhead/Feed Gearbox

The gearbox has the proper amount of oil when the sight glass is filled approximately halfway.

To check gearbox oil level:

1. Remove upper access panel on left-hand side of machine.

2. Locate sight glass on front of gearbox (see **Figure 22**).

   — If sight glass *is* filled approximately halfway, then gearbox oil level is okay.

   — If sight glass *is not* filled approximately halfway, then you need to add more oil. Refer to **Gearbox Oil** on **Page 41**.

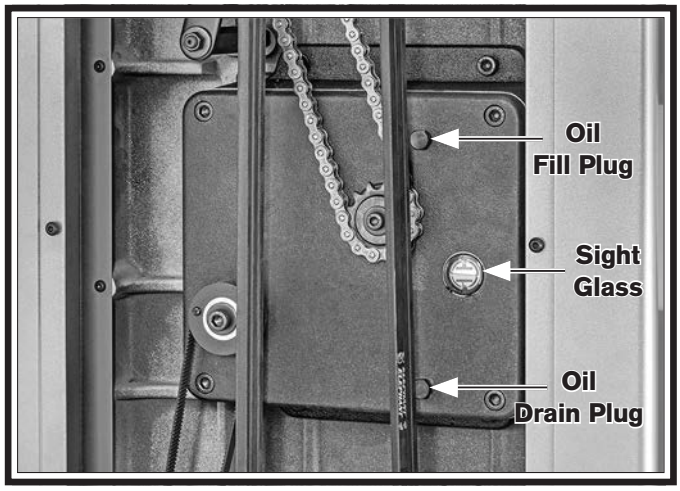


Figure 22. Location of oil plugs and sight glass on cutterhead/feed gearbox.

Table Gearbox

1. Remove lower access panel on right-hand side of machine.

2. Remove gearbox oil fill plug (see **Figure 23**).

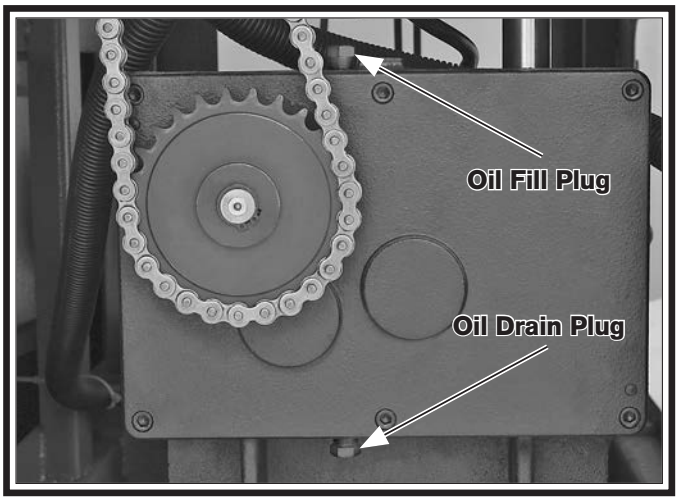


Figure 23. Location of oil plugs in table gearbox.

3. Wipe clean 6mm hex wrench and insert short end inside oil fill hole with inserted end pointing down, then remove it.

   — If end of hex wrench *is* coated with oil, then gearbox oil level is okay. Replace fill plug and continue setup.

   — If end of hex wrench *is not* coated with oil, then you need to add more oil. Refer to **Gearbox Oil** on **Page 41** for instructions on how to do this.

Note: *We recommend that you replace the oil in both gearboxes after the first 20 hours of operation. This is a normal break-in procedure and will help maximize the service life of the machine by flushing away any particles from the break-in and manufacturing process.*

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

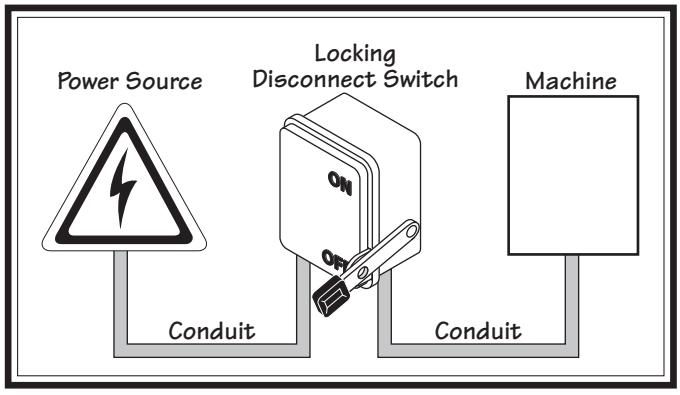


Figure 24. Typical hardwire setup with a locking disconnect switch.

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 25**) at bottom of junction box, connect wires to terminals shown below, tighten strain relief, 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 25**). 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.*

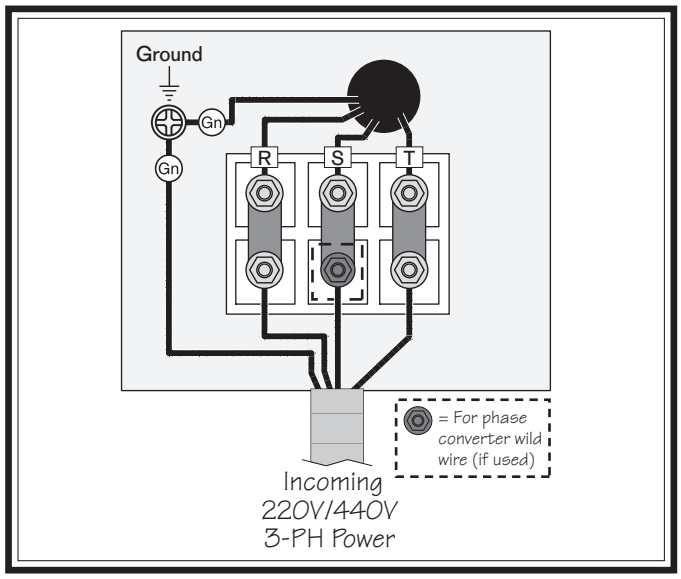


Figure 25. Terminal box connections.

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 56*** *for solutions to common problems. If you need additional help, contact our Tech Support or (360) 734-1540.*

The test run consists of verifying the following:

- Power supply polarity is correct.
- Motors power up and run correctly.
- EMERGENCY STOP button works correctly.
- Headstock cover safety switch works correctly.
- Table limit switches work correctly.

⚠WARNING

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

⚠WARNING

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

To test run machine:

1. Clear all setup tools away from machine.
2. Push EMERGENCY STOP button.
3. Connect machine to power supply.
4. Twist EMERGENCY STOP button clockwise until it pops out (see **Figure 26**). This resets switch so machine can start.

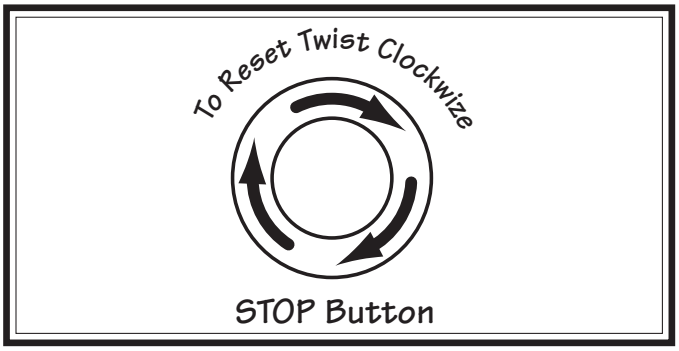


Figure 26. Resetting EMERGENCY STOP button.

5. Verify power supply is connected to machine with correct polarity by pressing TABLE UP and TABLE DOWN buttons (see **Figure 27**).

Figure 27. Control panel.

— If table moves in *same* direction as button description, power supply polarity is correct.

— If table moves in *opposite* direction as button description, stop machine and DISCONNECT FROM POWER! Swap "R" and "T" wire positions in power supply junction box (see **Figure 28**), and reconnect machine to power.

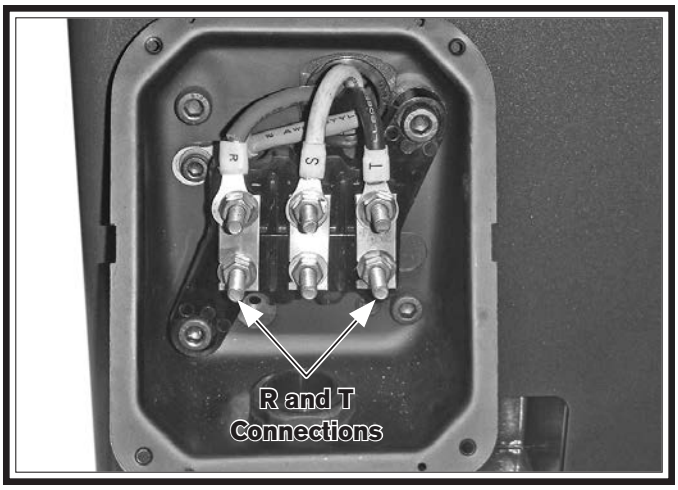


Figure 28. Power supply terminals inside junction box.

⚠WARNING

You MUST verify that table moves in expected direction according to buttons pressed on control panel, otherwise all controls will function in reverse. Cutterhead and feed rollers MUST rotate in correct direction or serious personal injury and machine damage could occur.

6. Press MAIN MOTOR button (see **Figure 27**) to turn cutterhead motor and feed motor ***ON***. Verify motors start up and run smoothly without any unusual vibrations or noises.

7. Slowly rotate FEED SPEED knob (see **Figure 27**) back and forth to test variable feed speed function.

8. Press EMERGENCY STOP button (see **Figure 27**) to turn cutterhead motor and feed motor ***OFF***.

9. WITHOUT resetting EMERGENCY STOP button, try to start machine by pressing MAIN MOTOR button. The motors should not start.

— If machine *does not* start, the EMERGENCY STOP button safety feature is working correctly.

— If machine *does* start (with EMERGENCY STOP button pushed in), immediately disconnect power to machine. EMERGENCY STOP button safety feature is not working correctly and must be replaced before further using the machine. Call Tech Support for help.

10. Reset EMERGENCY STOP button.

11. Raise headstock cover approximately 4" and press MAIN MOTOR button.

— If machine *does not* start, the headstock cover safety switch is working correctly.

— If machine *does* start, immediately disconnect power to machine. The headstock cover safety switch is not working correctly and must be replaced before further using the machine. Call Tech Support for help.

12. Press and hold TABLE UP button. The table should stop just before making contact with the headstock.

— If table *does* stop, the upper table limit switch is working correctly.

— If table *does not* stop, immediately disconnect power to machine. The upper table limit switch is not working correctly and must be replaced before further using the machine. Call Tech Support for help.

13. Perform **Step 12** on the TABLE DOWN button.

Congratulations! **Test Run** is complete!

Inspections & Adjustments

The following list of adjustments were performed at the factory before your machine was shipped:

Be aware that machine components can shift during the shipping process. Pay careful attention to these adjustments as you test run your machine. If you find that the adjustments are not set according to the procedures in this manual or your personal preferences, re-adjust them.

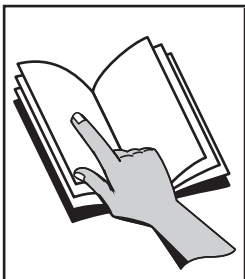
NOTICE

After approximately 16 hours of operation, V-belts will stretch and seat into pulley grooves and need to be properly tensioned to ensure good power transfer from motor and avoid severely reducing life of V-belts. Refer to Tensioning/Replacing V-Belts on Page 44 for detailed instructions.

Operation Overview

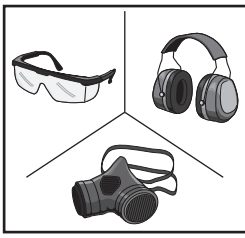
The purpose of this overview is to provide the novice machine operator with a basic understanding of how the machine is used during operation, so they can more easily understand the controls discussed later in this manual.

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 short and long term injury, wear eye, ear, and lung protection when using this machine.

NOTICE

If you are not experienced with this type of machine, WE STRONGLY RECOMMEND that you seek additional training outside of this manual. Read books/magazines or get formal training before beginning any projects. Regardless of the content in this section, South Bend Tools will not be held liable for accidents caused by lack of training.

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

1. Examines workpiece to make sure it is suitable for planing.

2. Puts on safety glasses or face shield, a respirator, and hearing protection.

3. Places workpiece on table with flat side down and correctly adjusts bed roller height and table elevation for workpiece thickness and depth of cut.

   — If workpiece is bowed, operator surface planes workpiece on a jointer, with cupped side facing down, until one side is flat. Doing so ensures that it sits solidly on planer table during operation.

4. When all safety precautions have been taken, starts dust collector, then turns planer ***ON***.

5. Stands to one side of planer path to reduce risk of kickback injuries, then feeds workpiece into planer until infeed roller grabs it.

   Note: *Infeed and outfeed rollers control feed rate of workpiece as it passes through planer. Operator does not push or pull on workpiece.*

   — If cut is too deep and bogs down planer, operator immediately reduces depth of cut.

6. Once workpiece is clear of outfeed roller and stops moving, operator removes workpiece from outfeed table and measures workpiece thickness. If further planing is required, operator raises table slightly, then feeds workpiece into front of planer again.

7. Operator continues process until desired workpiece thickness is achieved, then turns planer ***OFF***.

Stock Inspection & Requirements

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

- **Material Type:** This machine is only intended for workpieces of natural wood fiber Attempting to use workpieces of any other material that may break apart during operation could lead to serious personal injury and property damage.
- **Foreign Objects:** Inspect lumber for defects and foreign objects (nails, staples, embedded gravel, etc,). If you have any question about the quality of your lumber, DO NOT use it. Remember, wood stacked on a concrete floor can have small pieces of stone or concrete pressed into the surface.
- **Large/Loose Knots:** Loose knots can become dislodged during operation. Large knots can cause kickback and machine damage. Always use workpieces that do not have large/loose knots.
- **Wet or "Green" Stock:** Avoid using wood with a high water content. Wood with more than 20% moisture content or wood exposed to excessive moisture (such as rain or snow), will cut poorly and cause excessive wear to the machine. Excess moisture can also hasten rust and corrosion of the machine and/or individual components.
- **Excessive Warping:** Workpieces with excessive cupping, bowing, or twisting are dangerous to cut because they are unstable and often unpredictable when being cut. DO NOT use workpieces with these characteristics!
- **Minor Cupping:** Though it is always best to flatten the cupped side on a jointer before planing, workpieces with slight cupping can be safely supported if the cupped side is facing the table. On the contrary, a workpiece supported on the bowed side will rock during operation and could cause severe injury from kickback.

Wood Types

The species of wood, as well as its condition, greatly affects the depth of cut the planer can effectively take with each pass.

The chart below shows the Janka Hardness Rating for a number of commonly used species. The larger the number, the harder the workpiece, and the less material should be removed in any one pass for good results.

Note: *The Janka Hardness Rating is expressed in pounds of force required to embed a 0.444" steel ball into the surface of the wood to a depth equal to half the ball's diameter.*

Species	Janka Hardness
Ebony	3220
Red Mahogany	2697
Rosewood	1780
Red Pine	1630
Sugar Maple	1450
White Oak	1360
White Ash	1320
American Beech	1300
Red Oak	1290
Black Walnut	1010
Teak	1000
Black Cherry	950
Cedar	900
Sycamore	770
Douglas Fir	660
Chestnut	540
Hemlock	500
White Pine	420
Basswood	410
Eastern White Pine	380
Balsa	100

Planing Tips

- Inspect your lumber for twisting or cupping, and surface cupped side on a jointer if necessary before planing workpiece.
- Scrape off all glue when planing glued-up panels. Dried glue can quickly dull inserts.
- DO NOT plane more than one piece at a time side by side.
- Never remove more than the recommended amount of material on each pass. Only remove a small amount of material on each pass when planing wide or dense stock.
- Support the workpiece on both ends. Get assistance from another person if you are planing long lumber, or use roller stands to support the workpiece.
- Measure the workpiece thickness with calipers to get exact results.
- Use a jointer on one side of the workpiece and the planer for the other.
- Use the entire width of the planer to wear knives/inserts evenly. With narrow workpieces, alternate between far left, far right, and the middle of the table. Your knives/inserts will remain sharp much longer.
- To avoid "chip marks", always plane WITH the grain direction of the wood. Never plane cross-grain or end-grain.
- Plane ONLY natural wood fiber. Do not plane wood composites or other materials that could break up in the planer and cause operator injury or damage to planer.
- Always true cupped or warped stock on a jointer before planing.

Common Cutting Problems

Below is a list of wood characteristics you may encounter when planing. The following descriptions of defects will give you some possible answers to problems you may encounter while planing different materials. Possible solutions follow the descriptions.

Chipped Grain

Problem: Usually a result of cutting against the grain, planing lumber with knots or excessive amount of cross grain, or using dull knives/inserts.

Note: *Some amount of chipping is normal with highly figured wood.*

Solution: Decrease the depth of cut. Reduce the feed rate. Inspect your lumber and determine if its grain pattern is causing the problem. If the lumber does not show substantial crossgrain, inspect your knives/inserts.

Fuzzy Grain

Problem: Usually caused by surfacing lumber with too high of a moisture content. Sometimes fuzzy grain is an unavoidable characteristic of some woods, such as basswood. Fuzzy grain can also be caused by dull knives/inserts.

Solution: Check the lumber with a moisture meter. If moisture is greater than 20%, sticker the lumber and allow it to dry. Otherwise, inspect the knife/insert condition.

Pitch & Glue Build-up

Problem: Glue and resin buildup on the rollers and cutterhead will cause overheating by decreasing cutting sharpness while increasing drag in the feed mechanism. The result can include scorched lumber, uneven knife/insert marks, and chatter.

Solution: Clean the rollers and cutterhead.

Chip Marks or Indentations

Problem: Chip indentation or chip bruising is the result of wood chips not being thrown away from the cutterhead and out of the machine. Instead they are carried around the cutterhead, deposited on the planed surface and crushed by the outfeed roller. Some of the causes of chip indentation are:

- Wood chips/sawdust not being properly expelled from the cutterhead.
- The type of lumber being planed. Certain species have a tendency to chip bruise.
- Dull knives/inserts.
- Excessive depth of cut.

Solution:

- Use a proper dust-collection system; adjust chip deflector in or out as necessary.
- Lumber must be completely dry, preferably kiln-dried (KD). Air-dried (AD) lumber must be seasoned properly and have no surface moisture. DO NOT surface partially-air-dried (PAD) lumber.
- Make sure planer knives/inserts are sharp.
- Reduce depth of cut.

Snipe

Problem: Occurs when board ends have more material removed than the rest of the board. Usually caused when the workpiece is not properly supported as it goes through the machine. In many cases, however, a small amount of snipe is inevitable and cannot be completely prevented.

Solution: Hold workpiece up slightly as it leaves the outfeed end of the planer. The best way to deal with snipe is by planing lumber longer than your intended work length and then cutting off the excess after planing is completed.

Rippled Cut

Problem: Regularly spaced indentations across face of workpiece are caused by excessive outfeed roller pressure or excessive feed rate.

Solution: Reduce outfeed roller pressure; reduce feed rate.

Depth of Cut

Material Thickness Range
Minimum – Maximum Stock Thickness ..... ¼"– 9"

The depth of cut on a planer means the amount of material that is removed from the top of the workpiece as it passes underneath the cutterhead.

The depth of cut is set by adjusting the distance of the table below the cutterhead. This distance is the thickness of the workpiece minus the depth of cut. The planing depth of cut is controlled by adjusting the height of the table using the table height handwheel, the TABLE UP/DOWN buttons, or the digital readout (see **Figure 29**).

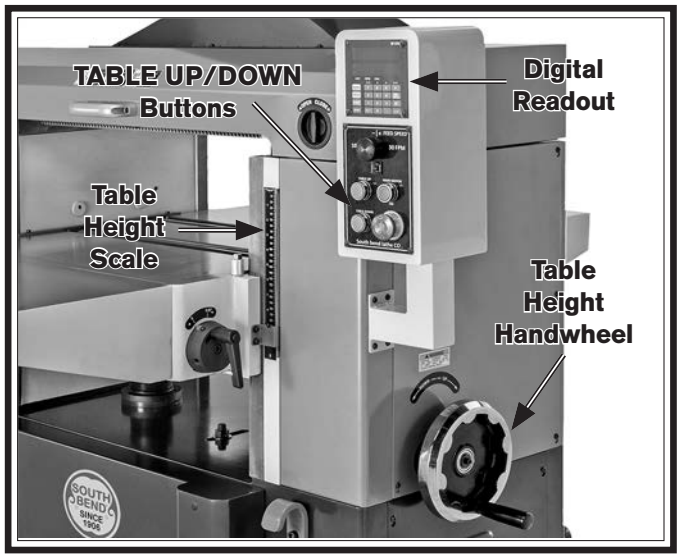


Figure 29. Location of table controls.

Although the correct depth of cut varies according to wood hardness and workpiece width, we recommend the maximum depth of cut (per pass) be no more than 1/16". A series of light cuts will give better end results and put less stress on the planer than trying to take off too much material in a single pass.

The depth of cut can be referenced directly from the scale on the front of the planer, as shown in **Figure 29**.

Note: *The scale functions as a general guide only, and is not intended for low-tolerance, precision results. To ensure accuracy, use a tape measure or caliper to measure your workpiece thickness after each pass.*

Using Table Height Handwheel

The table height handwheel is located on the right-hand side of the machine and can be used to manually raise and lower the table.

Table Movement
One Full Revolution of Handwheel ..... 1/32"

To use table height w/handwheel:

1. Push in handwheel and rotate slowly until it engages with indented shaft located behind it.

2. Rotate handwheel clockwise to raise table; rotate handwheel counterclockwise to lower table. Stop when scale indicates desired elevation.

3. Pull handwheel out to disengage it from the adjusting mechanism.

   Note: *Any time you change directions with the handwheel, there will be a small amount of backlash. So the first crank of the handwheel after changing directions will be slightly less than 1/32". However, as long as you move the handwheel in the same direction during operations, backlash will not be a factor.*

Using TABLE UP/ DOWN Buttons

The TABLE UP/DOWN buttons are located on the control panel and can be used to electronically raise and lower the table. When the digital readout is in MANUAL mode, the movement of the table will be displayed in the actual window of the digital readout.

To use TABLE UP/DOWN buttons:

1. Press and hold TABLE UP button (see **Figure 30**) to raise table. Release button to stop movement.

2. Press and hold TABLE DOWN button (see **Figure 30**) to lower table. Release button to stop movement.

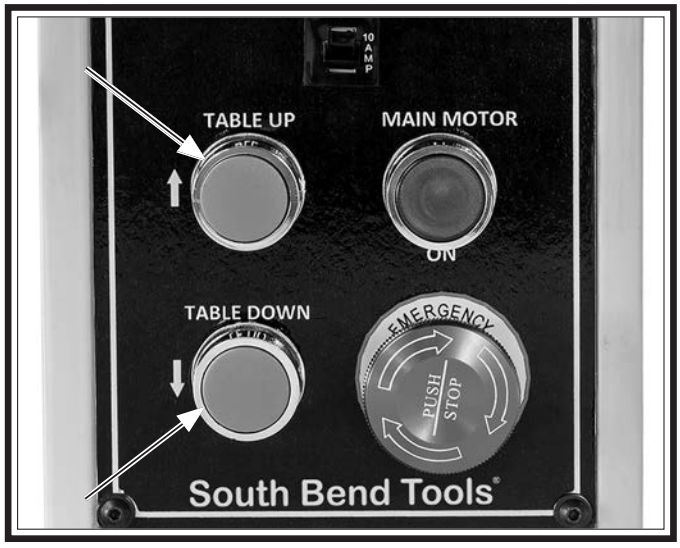


Figure 30. Location of table control buttons.

⚠CAUTION

The handwheel should be disengaged when using the TABLE UP/DOWN buttons or the digital readout. Otherwise, the rapid rotation of the handwheel could cause personal injury or machine damage.

Using Digital Readout

The digital readout can be used to store up to ten preset table positions, move the table to a preset position, and add and subtract distances from a current table position.

The digital readout features two windows (see **Figure 31**). The top window shows the target position value *intended* for the table (if one has been entered), and the bottom window shows the *actual* position of the table.

Figure 31. Digital readout windows and keypad.

The digital readout has two modes of operation: MANUAL and SINGLE.

In MANUAL mode, the table can be moved with the TABLE UP/DOWN buttons (refer to **Page 33**) or the digital readout keypad.

In SINGLE mode, the digital readout provides access to a variety of controls for making precise table movements.

⚠CAUTION

The handwheel should be disengaged when using the TABLE UP/DOWN buttons or the digital readout. Otherwise, the rapid rotation of the handwheel could cause personal injury or machine damage.

Changing Digital Readout Values

The digital readout values can be expressed either in millimeters or inches with the MM/INCH key (see **Figure 31**). The light on this key will show which measurement is active each time the key is pressed.

Moving Table in MANUAL Mode

In MANUAL mode, the table can be moved with the digital readout keypad.

To move table in manual mode:

1. Press MANUAL/SINGLE key to select MANUAL mode. Light on key will blink.
2. Press and hold "9" key to move table up; release key to stop movement.
3. Press and hold 8 key to move table down; release key to stop movement.

Moving Table in SINGLE Mode

In SINGLE mode, the table can be moved to a target position with the digital readout keypad.

To move table in SINGLE mode:

1. Press MANUAL/SINGLE key to select SINGLE mode. Light on key will *not* illuminate.
2. Press PROGRAM key. Light will blink in target window.
3. Use keypad to enter target value for table position.
4. Press ENTER key. Light on START key will blink.
5. Press START key to move table to target position.

Note: *To stop table movement before table has reached target value, press STOP key. To restart, perform* ***Steps 1–5****.*

Adding/Subtracting Distances

In SINGLE mode, distances can be added to or subtracted from the current position of the table.

To add/subtract distances:

1. Press MANUAL/SINGLE key to select SINGLE mode. Light on key will *not* illuminate.
2. Press +/- key. Light in target window will blink.

   — To *add* distance to current table position, enter value using keypad.

   — To *subtract* distance from current table position, press +/- key again. A minus sign will appear on left edge of target window. Enter value using keypad.
3. Press ENTER key. Light on START key will blink.
4. Press START key to move table to new location.

Note: *To stop table movement before table has reached new target value, press STOP key.* *To restart, perform* ***Steps 1–4****.*

Saving Preset Table Positions

Up to ten preset table positions can be stored in permanent memory. On the keypad, these positions are associated with the "0" through "9" keys.

To save preset table positions:

1. Press MANUAL/SINGLE key to select SINGLE mode. Light on key will not illuminate.
2. Press the following keys one at a time: "F" key, "5" key, "5" key.
3. Press ENTER key. Light in top and bottom windows will blink, and "ProG" will appear in target window.

4. Press any key from "0" to "9" to store target value. The number of key pressed will appear to right of "ProG" in target window.

5. Enter table position to be saved, then press ENTER key.

6. Repeat **Steps 4–5** to save additional values.

7. When finished, press EXIT key. Windows will return to normal.

Note: *Cancel and exit this procedure at any time by pressing EXIT key.*

Moving Table to Preset Position

1. Press MANUAL/SINGLE key to select SINGLE mode. Light on key will not illuminate.

2. Press key on numeric keypad that corresponds to table position value you wish to use. This value will appear in target window, and light on START key will blink.

3. Press START key to move table to preset position.

Note: *To cancel procedure, press STOP key any time while START key light is blinking.*

Setting Feed Rate

Feed Rate.....10–30 FPM

The infeed and outfeed rollers move the workpiece through the planer while keeping it flat and providing a consistent rate of movement. The speed that these rollers move the workpiece through the planer is the feed rate.

Generally, low feed rates are used for dimensioning passes, while higher feed rates are used for finishing passes.

Use the FEED SPEED control knob (see **Figure 32**) to adjust the feed rate according workpiece type and desired results.

Figure 32. Location of feed speed control knob.

Bed Roller Height

The correct height of the bed rollers will vary, depending on the type of material you intend to plane. However, as a general rule, keep the bed roller height range within the listed range above the table surface, as illustrated.

Bed Roller Height Range ..... 0.002"–0.050"

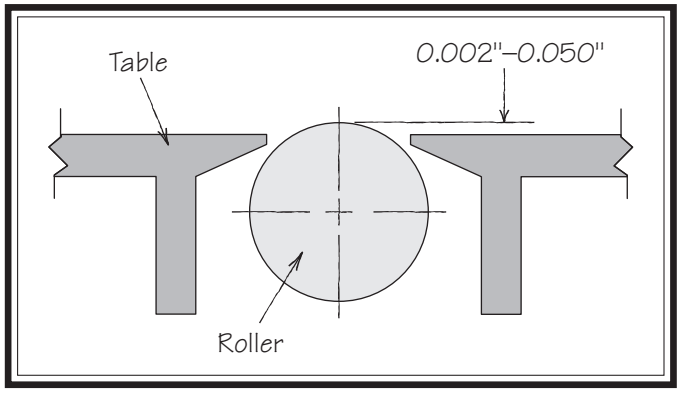


Figure 33. Bed roller height range.

When planing rough stock, set the rollers high to keep the lumber from dragging along the bed. When planing milled lumber, set the rollers low to help minimize snipe.

To ensure accurate results and make the adjustment process quicker and easier, we recommend using a Rotacator (refer to **Accessories**) to gauge the bed roller height from the table surface. If a Rotacator is not available, a straightedge and feeler gauges can be used, but care must be taken to achieve accurate results.

NOTICE

Bed rollers that are not adjusted to the correct height or out of alignment with each other can cause poor finishes, inconsistent planing thickness, and other undesirable results.

To adjust bed roller height:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen adjustable handle on hub (see **Figure 34**).
3. Rotate hub to desired bed roller height.

   Note: *This can be loosely gauged by the scale (see **Figure 34**) located above the hub. For more accurate results, use a Rotacator to precisely determine bed roller height.*

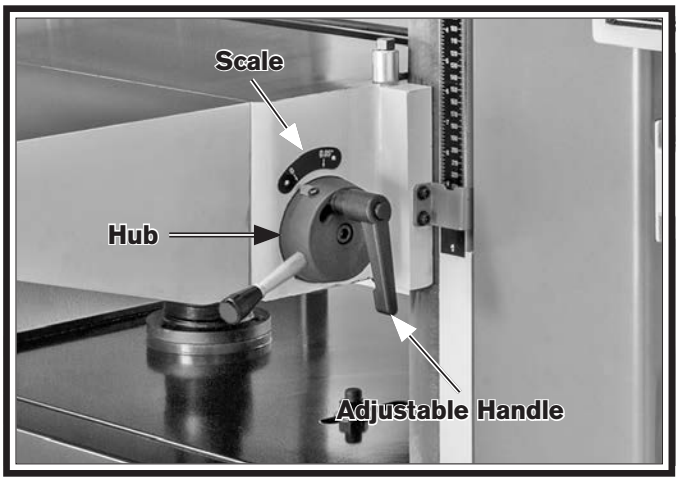


Figure 34. Location of bed roller height controls.

4. Tighten adjustable handle.

Rotating/Replacing Cutterhead Inserts

The spiral cutterhead is equipped with 4-sided indexable carbide inserts. Each insert can be removed, rotated, and re-installed to use any one of its four cutting edges. Therefore, if one cutting edge becomes dull or damaged, simply rotate it 90° (as shown below) to use a sharp cutting edge.

The inserts have a reference dot on one corner. The position of the reference dot on installed inserts can be used to track which edges are sharp/unused and which edges are dull or damaged. Replace inserts once the reference dot has been rotated back to its original position.

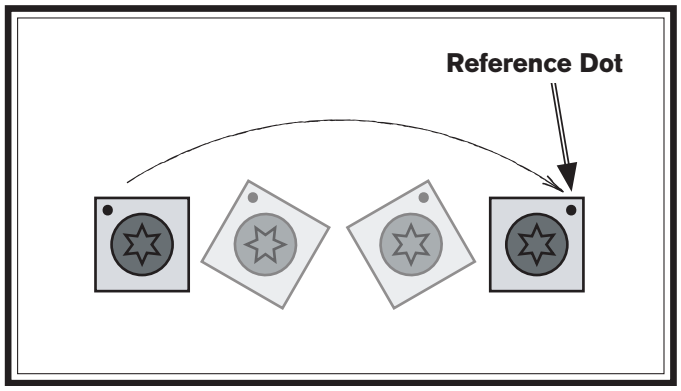


Figure 35. Insert rotating sequence.

Items Needed	Qty
Hex Wrench 4mm	1
T-25 Torx Bit and Driver	1
Carbide Cutterhead Inserts	As Needed
Rags	As Needed
Light Machine Oil	As Needed

⚠CAUTION

The carbide inserts are very sharp and can quickly cut your hands. ALWAYS use caution when handling these parts to reduce the risk of personal injury.

To rotate or replace a helical cutterhead insert:

1. DISCONNECT MACHINE FROM POWER!

2. Raise headstock cover, and remove upper left-hand side panel.

3. Remove any sawdust or debris from head of insert, Torx screw, and surrounding area (see **Figure 36**).

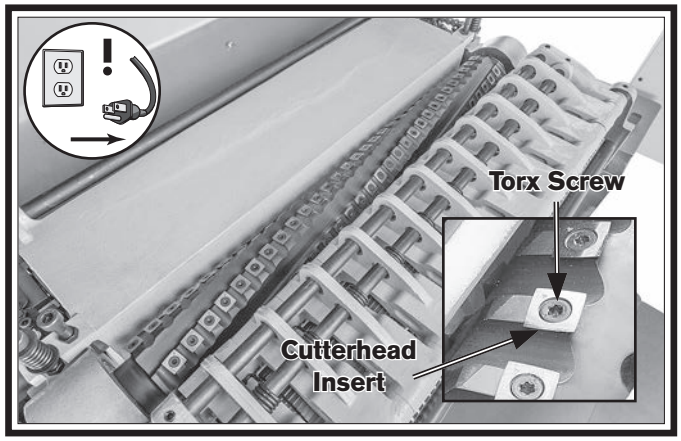


Figure 36. Example of cutterhead inserts and Torx screws.

4. Remove Torx screw and insert, then clean all dust and debris from both parts and cutterhead pocket.

   Note: *Proper cleaning of insert, Torx screw, and cutterhead pocket is critical to achieving a smooth finish. Dirt or dust trapped between insert and cutterhead will raise insert, and make marks on your workpiece when planing.*

   Tip: *Use low-pressure compressed air or a vacuum nozzle to clean out cutterhead pocket.*

5. Replace insert so that a fresh cutting edge faces outward.

   — If all four insert cutting edges have been used, replace insert with a new one. Always position insert reference dot in same position when installing a new insert to aid in rotational sequencing.

6. Lubricate Torx screw threads with a very small amount of light machine oil, wipe excess off, and torque screw to 48–50 inch/pounds.

   Note: *If too much oil is applied to the threads, excess oil will attempt to squeeze out of the threaded hole and raise insert during installation, bringing it out of height alignment.*

Accessories

This section includes the most common accessories available for your machine through our exclusive dealer, Grizzly Industrial, Inc., at **grizzly.com**.

⚠WARNING

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

NOTICE

Refer to Grizzly's website or latest catalog for additional recommended accessories.

W1218A—Rotacator Precision Planer Tool
The Rotacator is a dial indicator on a magnetic base, designed for quickly and accurately setting the critical tolerances needed when making planer adjustments. Perfect for adjusting infeed/outfeed rollers, pressure bars, chip breakers, and bed rollers. Also a great setup tool for other machines! Accurate to 0.001". Indicator rotates 360°.

Figure 37. W1218A Rotacator® Precision Planer Tool.

SB1094—5 HP Cyclone Dust Collector
The Model SB1094 features a 5 HP motor, a whopping 2399 CFM of airflow capacity, and a 72-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 38. SB1094 5 HP Cyclone Dust Collector.

H9893—Indexable Carbide Inserts, 10-Pack
These indexable carbide inserts are designed for use in spiral or helical cutterhead systems and made to last up to 10 times longer than a set of HSS steel straight blades. Made of solid carbide. Size: 15 x 15 x 2.5mm.

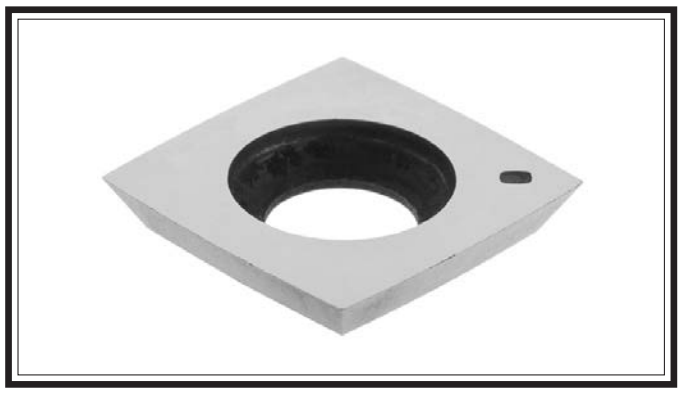
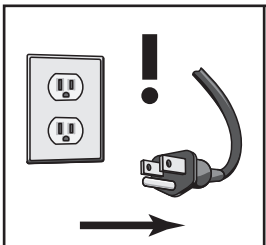


Figure 39. H9893 Indexable Carbide Inserts.

Maintenance Schedule



⚠WARNING

Always disconnect machine from power before performing maintenance or serious personal injury may result.

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:
- Clean machine and protect unpainted cast iron.
- Lubricate feed roller blocks (**Page 39**).
- Tighten loose mounting bolts.
- Check/rotate/replace damaged or worn inserts (**Page 36**).
- Check/repair/replace worn or damaged wires.
- Resolve any other unsafe condition.

Every 40 Hours of Operation:
- Clean cutterhead and inspect inserts (**Page 36**).
- Lubricate table elevation leadscrews (**Page 39**).
- Lubricate table ways (**Page 41**)
- Inspect/clean anti-kickback fingers (**Page 43**).

Every 160 Hours of Operation:
- Check/tension/replace belts (**Page 44**).
- Clean/vacuum dust buildup from inside cabinet and off motor.
- Lubricate table height chain and sprockets (**Page 40**).
- Lubricate drive chain and sprockets (**Page 40**).

Yearly:
- Change gearbox oil (**Page 41**).

Cleaning

Cleaning the Model SB1118 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. Treat all unpainted cast iron and steel with a non-staining lubricant after cleaning.

Unpainted Cast Iron

Protect the unpainted cast iron surfaces on the table by wiping the table clean after every use—this ensures moisture from wood dust does not remain on bare metal surfaces. Keep tables rust-free with regular applications of products like G96® Gun Treatment, SLIPIT®, or Boeshield® T-9 (see **Figure 40**).

G5562—SLIPIT® 1 Qt. Gel
G5563—SLIPIT® 12 Oz. Spray
G2871—Boeshield® T-9 12 Oz. Spray
G2870—Boeshield® T-9 4 Oz. Spray
H3788—G96® Gun Treatment 12 Oz. Spray
H3789—G96® Gun Treatment 4.5 Oz. Spray

Figure 40. Recommended products for protecting unpainted cast iron/steel parts on machinery.

Bare metal surfaces can quickly develop surface rust if not coated. Machinery stored near windows in direct sunlight or where paints, thinners, or certain gasses are open to the air can experience bleaching, discoloring of paint or yellowing of clear plastic guards.

Lubrication

NOTICE

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

Since all bearings on the Model SB1118 are sealed and permanently lubricated, simply leave them alone until they need to be replaced. DO NOT lubricate them.

Follow the maintenance schedule on **Page 38** and the procedures outlined below to properly lubricate the planer components, which are essential for long life and trouble-free operation of your planer.

Feed Roller Blocks

Oil Type .....SB1365 or ISO 68 Equivalent
Oil Amount ..... 2–3 Drops
Frequency ..... Every 8 Hours of Operation

The infeed and outfeed rollers rotate inside bearing blocks on both ends of the rollers. Add 2–3 drops of ISO 68 machine oil to the oil cups on each side of the head casting, as shown in **Figure 41**.

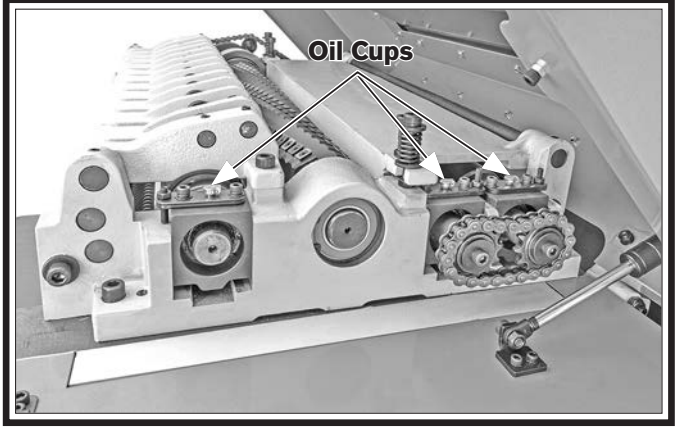


Figure 41. Oil cup locations for feed roller bushings (right-hand side shown).

Table Elevation Leadscrews

Grease Type..... T26419 or NLGI#2 Equivalent
Amount ..... Thin Coat
Frequency ..... Every 40 Hours of Operation

Items Needed	Qty
Phillips Screwdriver #2	1
Open-End Wrench 19mm	1

The table rides on two leadscrews that are protected by dust boots. Raise the table all the way up, and loosen the dust boots to access the leadscrews (see **Figure 42**). Use shop rags and mineral spirits to clean away any debris and grime, then brush a light coat of multi-purpose grease onto the leadscrew threads. Move the table up and down to distribute the grease.

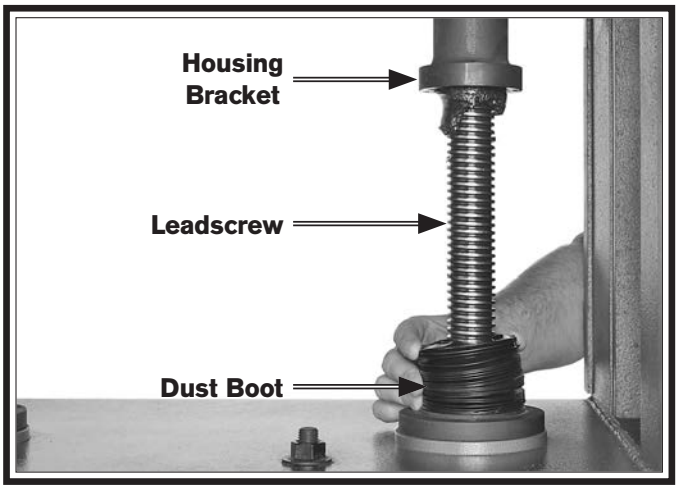


Figure 42. Holding down dust boot to reveal table elevation leadscrew.

Drive Chains & Sprockets

Grease Type..... T26419 or NLGI#2 Equivalent
Amount ..... Thin Coat
Frequency ..... Every 160 Hours of Operation

The infeed and outfeed rollers receive the transferred power from the cutterhead through the drive chain system on the left side of the machine, as shown in **Figure 43**.

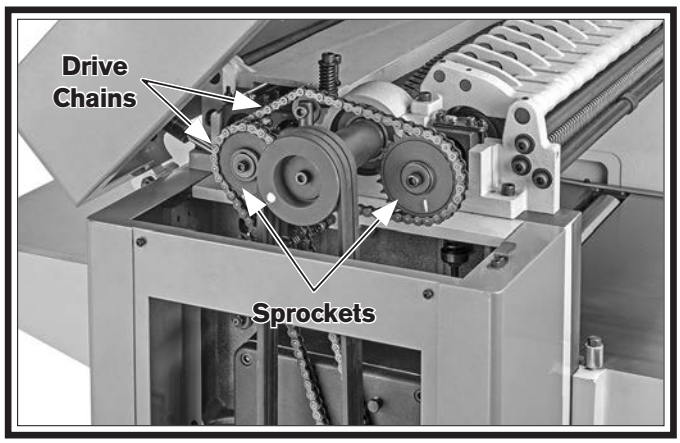


Figure 43. Headstock cover raised and upper left-hand panel removed to expose drive chains and sprockets.

On the right-hand side of the headstock, the outfeed roller chain ensures synchronous movement of both rollers (see **Figure 44**).

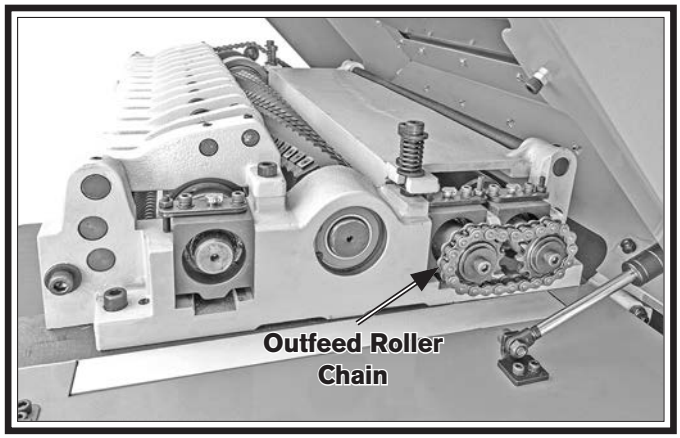


Figure 44. Location of outfeed roller chain.

Use shop rags and mineral spirits to clean away any debris and grime, then brush a light coat of multi-purpose grease onto the chains and sprockets.

Table Height Chains & Sprockets

Grease Type..... T26419 or NLGI#2 Equivalent
Amount ..... Thin Coat
Frequency ..... Every 160 Hours of Operation

The table leadscrews are adjusted by the drive chain and synchronized by the table height chain and sprockets located underneath the planer base (see **Figures 45–46**). Use shop rags and mineral spirits to clean away debris and grime, then brush a light coat of multi-purpose grease onto the chains and sprockets.

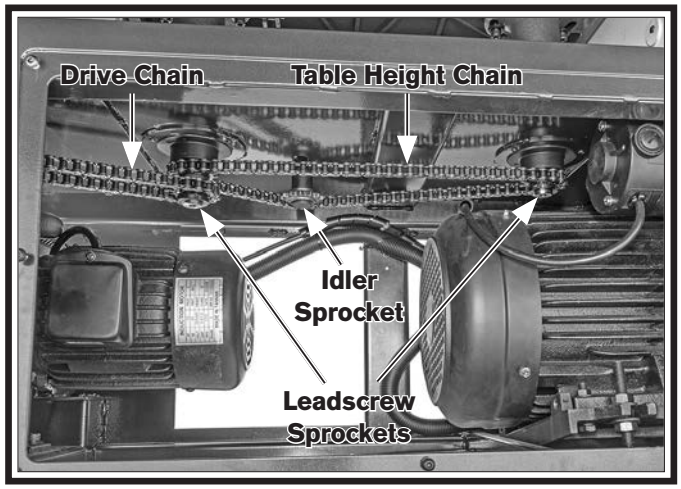


Figure 45. Location of table height chains and sprockets.

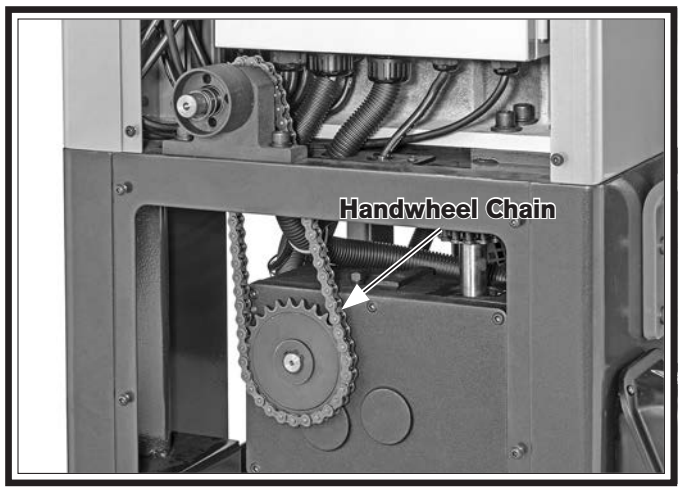


Figure 46. Location of handwheel chain.

Gearbox Oil

Oil Type ..... T28088 or ISO 150 Equivalent
Oil Amount (Cutterhead/Feed Gearbox)..... 65 Oz.
Oil Amount (Table Gearbox) ..... 45 Oz.
Frequency ..... After First 20 Hours, Then Yearly

Note: *SAE 60W-90W gear oil may also be used. DO NOT mix oil types!*

Note: *We recommend that you replace the gearbox oil after the first 20 hours of operation. This is a normal break-in procedure and will help maximize the service life of the machine by flushing away any particles from the break-in process.*

Replace gearbox oil with ISO 150 or equivalent oil.

Cutterhead/Feed Gearbox

Remove the upper access panel on the left-hand side of the machine. Remove the oil fill plug (see **Figure 47**), then remove the drain plug and drain the old oil into a pan. Re-install the drain plug, then refill the gearbox with ISO 150 or equivalent oil. The gearbox has the proper amount of oil when the sight glass is filled approximately halfway. When finished, re-install the fill plug and the side access panel.

Figure 47. Location of oil plugs in cutterhead/feed gearbox.

Table Gearbox

Remove the upper access panel on the right-hand side of the machine. Remove the oil fill plug (see **Figure 48**), then remove the drain plug and drain the old oil into a pan. Re-install the drain plug, then refill the gearbox with ISO 150 or equivalent oil until it just reaches the fill plug. When finished, re-install the fill plug and the side access panel.

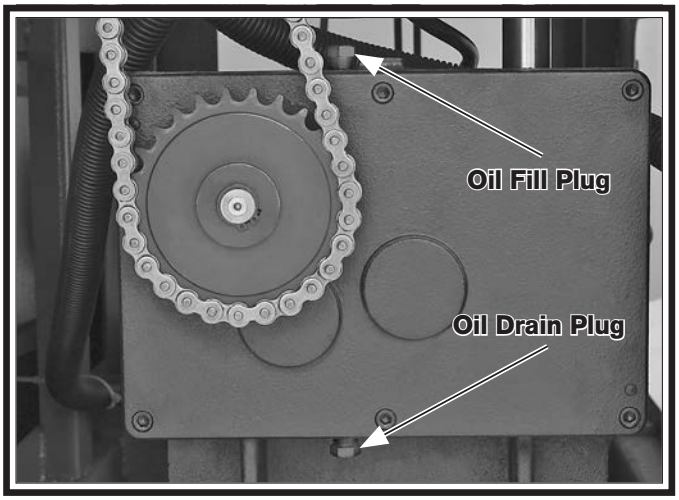


Figure 48. Location of oil plugs in table gearbox.

Table Ways

Oil Type .....SB1365 or ISO 68 Equivalent
Oil Amount ..... Thin Coat
Frequency ..... Every 40 Hours of Operation

Items Needed	Qty
Shop Rags	As Needed

The table slides along the ways (see **Figure 49**) on the front and back of the machine. Use lightly oiled shop rags to remove dust buildup.

Figure 49. Location of table ways (front).

Replacing Digital Readout Battery

If the digital readout stops operating correctly, the D battery must be replaced.

Items Needed	Qty
Hex Wrench 2.5mm	1
D Battery	1

To replace digital readout battery:

1. Remove (4) button head cap screws from digital readout faceplate, remove old battery (see **Figure 50**), and install new battery.

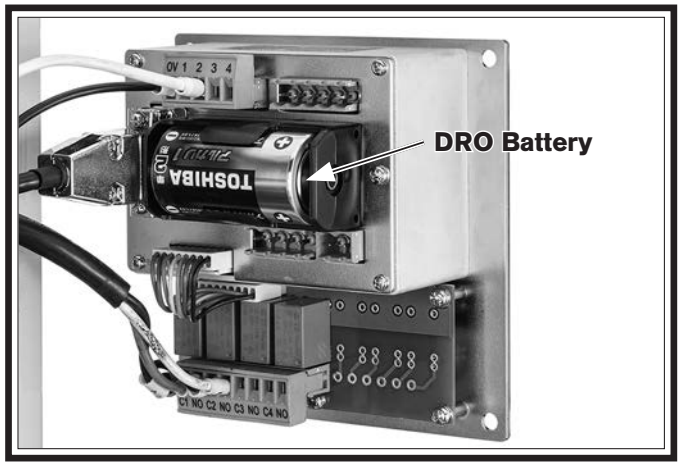


Figure 50. Location of battery in digital readout.

2. Install digital readout faceplate and secure with screws removed in **Step 1**.

Anti-Kickback Fingers

The anti-kickback fingers are an important safety feature of your planer. The fingers hang from a rod suspended across the head casting and in front of the infeed roller, as shown. This design allows the workpiece to easily enter the planer but reduces the risk of kickback by digging into the workpiece if it moves backward.

Figure 51. Location of anti-kickback fingers.

Check the anti-kickback fingers regularly to ensure they swing freely and easily. If the fingers do not swing freely and easily, first clean them with a wood-resin solvent, then inspect them for damage. If any of the fingers are damaged, the device must be replaced before using the machine.

Do not apply oil or other lubricants to the anti-kickback fingers that will attract dust and restrict free movement of the fingers.

⚠WARNING

Proper operation of anti-kickback fingers is critical for safe operation of this planer. DO NOT operate planer if anti-kickback fingers are not operating correctly. Failure to heed this warning could result in serious personal injury.

Tensioning/Replacing Belts

Three V-belts transfer power from the motor to the cutterhead, and then to the infeed and outfeed rollers with the use of the drive chain system. To ensure efficient transfer of power to these systems, make sure the V-belts are always properly tensioned and in good condition.

If the V-belts are worn, cracked, or damaged, replace them. Always replace all V-belts at the same time with a matched set of three, or belt tension may not be even among the belts, causing premature belt failure or weakened power transfer.

⚠CAUTION

Belts and pulleys will be hot after operation. Allow them to cool before handling.

Tensioning/Replacing V-Belts

Items Needed	Qty
Hex Wrench 4mm	1
Open-End Wrench 19mm	1
Replacement V-Belts (PSB1118216)	3

To tension/replace V-belts:

1. DISCONNECT MACHINE FROM POWER!

2. Open headstock cover and remove upper and lower side panels on left-hand side of machine (see **Figure 52**).

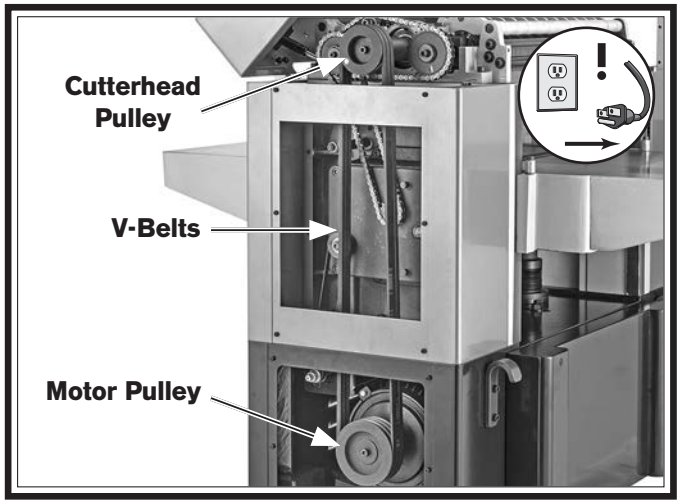


Figure 52. Location of V-belts and pulleys.

3. Remove lower rear panel to access motor mount hex nuts (see **Figure 53**).

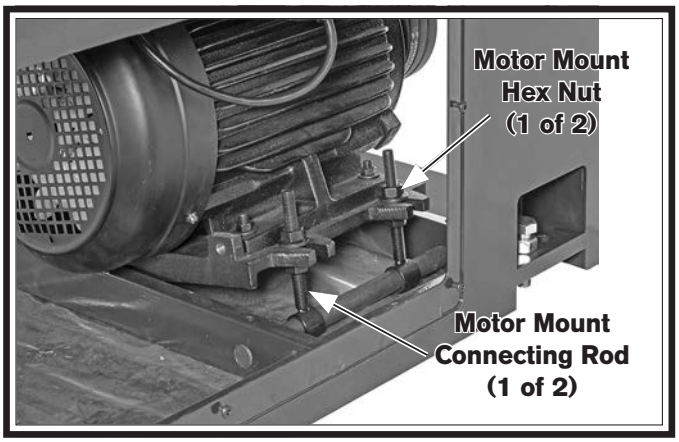


Figure 53. Location of motor mount components.

4. If V-belts need to be replaced, raise motor to release belt tension, roll belts off pulleys, then replace with a matched set of three.

5. To adjust V-belt tension, loosen top motor mount hex nuts (see **Figure 53**), then adjust bottom hex nuts to raise or lower motor.

   Note: *V-belts are properly tensioned when there is approximately 3/4" deflection when moderate pressure is applied to them midway between pulleys, as illustrated in* ***Figure 54****.*

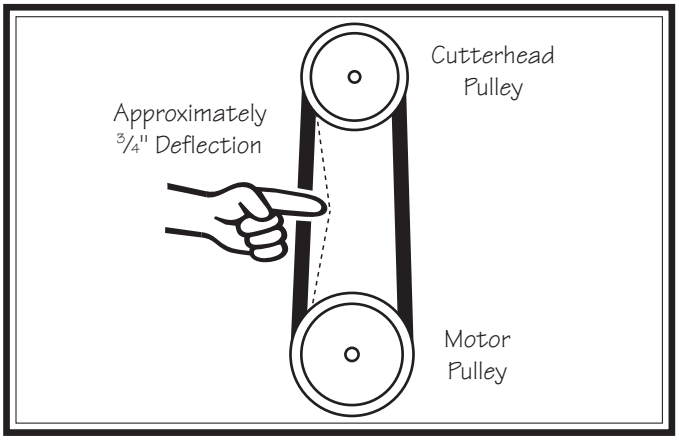


Figure 54. Checking V-belt deflection.

6. After V-belts are properly tensioned, tighten top motor mount hex nuts, then install lower rear panel and upper and lower side panels, and close headstock cover.

Tensioning/Replacing Timing Belt

Items Needed	Qty
Hex Wrenches 4, 5mm	1 Ea

To tension/replace timing belt:

1. DISCONNECT MACHINE FROM POWER!

2. Open headstock cover and remove upper and lower side panels on left-hand side of machine (see **Figure 55**).

3. Loosen (4) cap screws (see **Figure 55**) securing feed motor to mounting plate.

4. If timing belt needs to be replaced, gently lift feed motor output shaft (see **Figure 55**) to release belt tension, roll belt off pulleys, then replace with new belt.

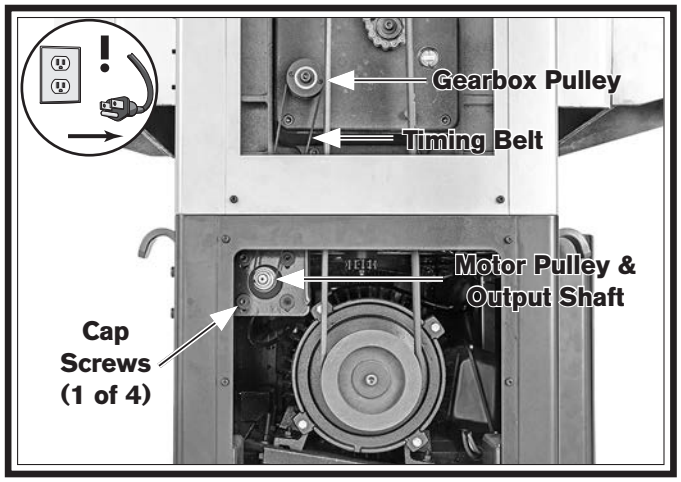


Figure 55. Location of timing belt and pulleys.

5. To adjust timing belt tension, gently press on feed motor output shaft (see **Figure 55**), and tighten cap screws when tension is correct.

Note: *Timing belt is properly tensioned when there is approximately ¼" deflection when moderate pressure is applied to them midway between pulleys, as illustrated in* ***Figure 56****.*

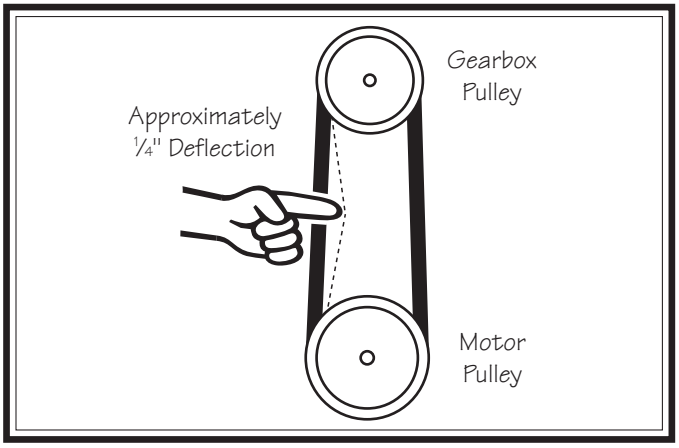


Figure 56. Checking timing belt deflection.

Setting Feed Rollers, Chip Breaker & Pressure Bar Heights

It is essential that the feed rollers, chip breaker, and pressure bar are set at the correct distance below the cutterhead inserts at BDC (bottom dead center) to ensure that the workpiece moves through the planer evenly and the correct distance from the cutterhead inserts.

To ensure accurate results and make the adjustment process quicker and easier, we recommend using a Rotacator for these adjustments (refer to **Page 37**).

If a Rotacator is not available, a 6' 2x4 cut into two even-sized pieces and a feeler gauge set can be used, but care must be taken when jointing the wood to achieve accurate results and ensure both boards are the exact same height.

Dist. Below Cutterhead Insert at BDC (Figure 57)

A. Infeed Roller.....0.020"
B. Chip Breaker.....0.020"
C. Pressure Bar.....0.00"
D. Outfeed Roller.....0.020"

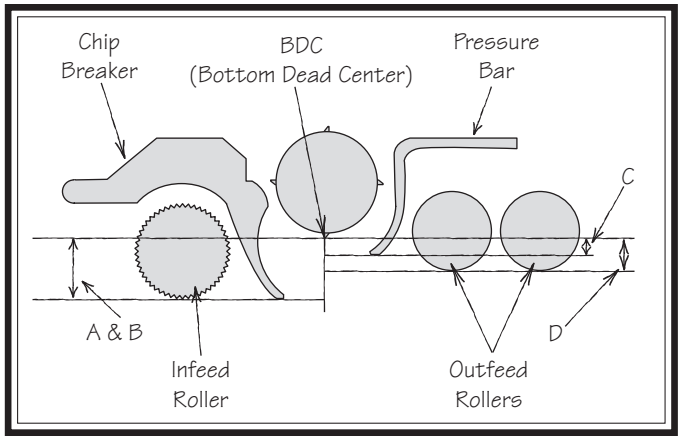


Figure 57. Planer component recommended clearances.

Using a Rotacator

Items Needed	Qty
Hex Wrench 3mm	1
Open-End Wrench 10mm	1
Metal Shims	As Needed
Rotacator (see **Page 37**)	1

To use a Rotacator to check/adjust heights:

1. DISCONNECT MACHINE FROM POWER!
2. Make sure all inserts are properly installed (refer to **Rotating/Replacing Cutterhead Inserts** on **Page 36**) and table is parallel to cutterhead (refer to **Adjusting Table Parallelism** on **Page 52**).
3. Lower table at least 4" below headstock casting using handwheel.
4. Raise headstock cover.
5. Using Rotacator, find bottom dead center (BDC) of any insert edge by slowly rocking cutterhead pulley back and forth, then set Rotacator dial to "0" (see **Figure 58**).

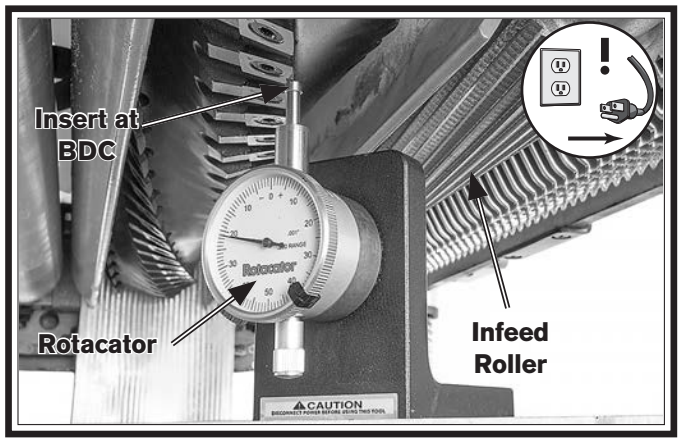


Figure 58. Example of using a Rotacator to find BDC.

6. Keeping Rotacator dial at "0", position it under right-hand side of infeed roller and find BDC of a serrated edge by rocking infeed roller back and forth.

7. Loosen jam nuts and use set screws (see **Figure 59**) on each side of infeed roller to adjust height of infeed roller bushing block until Rotacator dial shows 0.020", which is the recommended distance for infeed roller below the cutterhead.

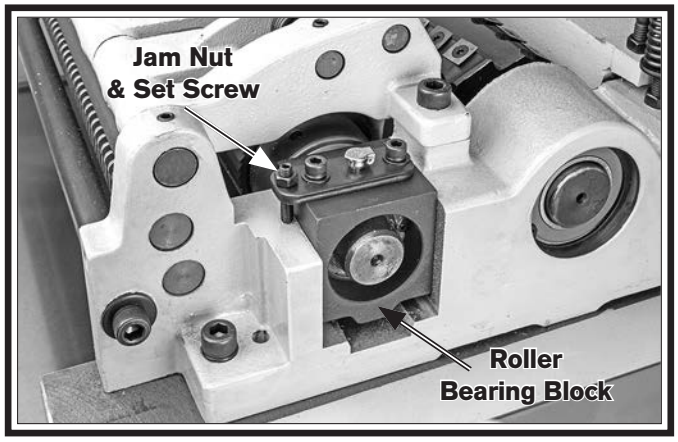


Figure 59. Location of infeed roller bearing block and height adjustment controls (right side).

8. Check both sides of infeed roller and, if necessary, make further adjustments until infeed roller height from side to side is 0.020" below BDC of cutterhead insert, then tighten both jam nuts.

9. Keeping same "0" reference on Rotacator dial from **Step 5**, repeat **Steps 7–8** for outfeed rollers (see **Figure 60**).

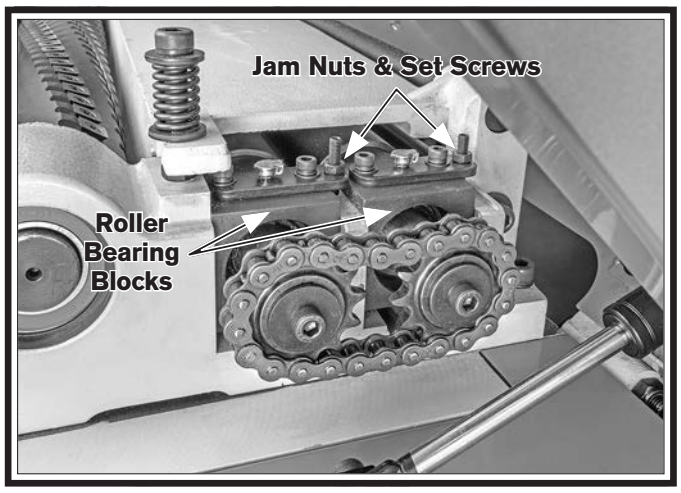


Figure 60. Location of outfeed roller bearing blocks and height adjustment controls (left side).

10. Using same "0" reference on Rotacator dial from **Step 5**, perform similar steps as described previously to adjust height of pressure bar (see **Figure 61**) to its recommended specification given at beginning of this subsection.

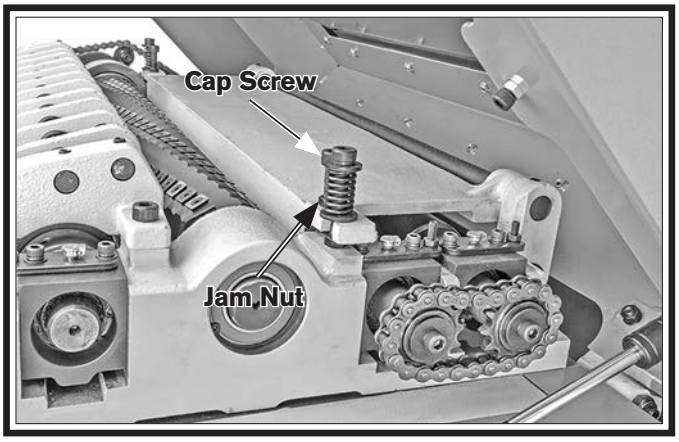


Figure 61. Height adjustment controls for pressure bar (right side).

11. Repeat **Step 10** for chip breaker height adjustment using controls shown in **Figure 62**. If necessary to achieve correct height adjustment, remove both caps screws and insert metal shims between chip breaker and headstock casting, then re-install cap screws.

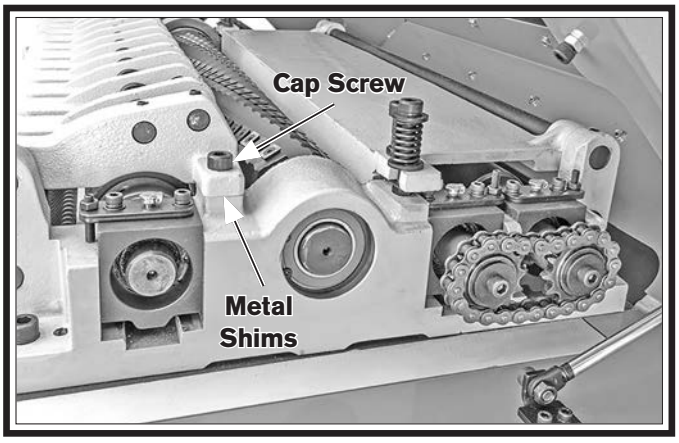


Figure 62. Location of height adjustment controls for chip breaker (right side).

12. Lower headstock cover.

Using Wood Blocks

Items Needed	Qty
Hex Wrench 3mm	1
Open-End Wrench 10mm	1
2x4 6' Long	1
Feeler Gauge Set	1
Metal Shims	1

To use wood blocks to check/adjust heights:

1. Build wood blocks by cutting a *straight* 6-foot-long 2x4 in half.

   Note: *Having the wood blocks at an even height is critical to the accuracy of your overall adjustments. For best results, make the 2x4 square with a jointer and table saw before cutting it in half.*

2. Make sure all inserts are properly installed (refer to **Rotating/Replacing Cutterhead Inserts** on **Page 36** for detailed instructions).

3. DISCONNECT MACHINE FROM POWER!

4. Lower table at least 4" below head casting.

5. Lower bed rollers below table surface (refer to **Bed Roller Height** on **Page 35**).

6. Place wood blocks along sides of table, as illustrated in **Figure 63**.

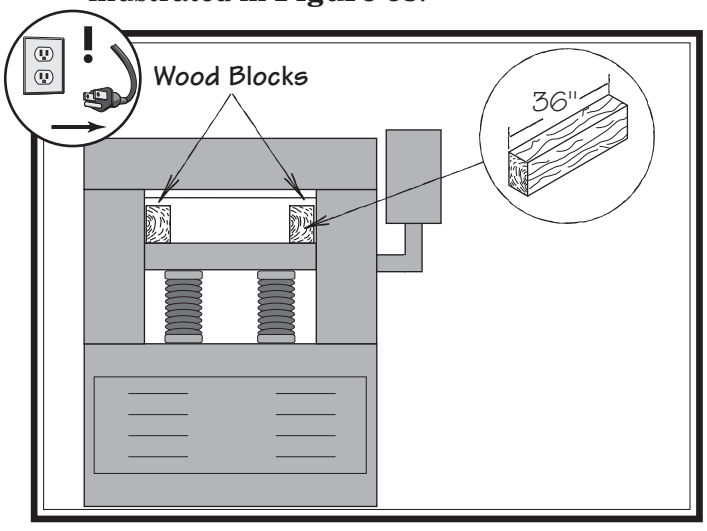


Figure 63. Wood blocks properly positioned on the planer table.

7. Raise the headstock cover.

8. Use handwheel to adjust table height until there is a 0.020" gap between edge of a carbide insert at BDC and wood blocks, as measured with a feeler gauge.

   Note: *The wood blocks will now hold infeed and outfeed rollers, chip breaker, and pressure bar at same level as insert at BDC.*

9. Loosen infeed roller jam nuts (see **Figure 59** on **Page 47**) and turn set screw on each end of the infeed roller to raise it above the wood blocks.

10. Turn set screws back down so infeed roller just touches wood blocks on both sides.

11. Tighten jam nuts, making sure set screws do not move.

12. Without moving table, adjust outfeed rollers, pressure bar, and chip breaker (**Figures 60–62** on **Page 47**) in the same manner, using wood blocks as reference point.

    Note: *The pressure bar should be at the same height as the cutterhead. You will need the feeler gauge with the wood blocks to ensure that it is at the same height as the cutterhead with the carbide insert at BDC.*

Adjusting Feed Roller Spring Tension

The infeed and outfeed rollers keep the workpiece moving through the planer. Springs exert downward pressure on the feed rollers while allowing them to raise with an uneven workpiece surface. Proper spring tension is crucial to keep the workpiece moving through the planer during operation without pulling from one side to the other.

The amount of tension on the infeed roller needs to be enough to push the workpiece into the cutterhead but not enough to gouge or bind the workpiece.

The amount of tension on the outfeed rollers needs to be enough to pull the workpiece along the planing path without binding and prevent snipe at the end of the workpiece. The ideal feed-roller spring tension varies depending upon the type of wood you plane. When adjusting spring tension, keep the following in mind:

- If you are planing milled lumber with a consistent surface, use less spring tension to reduce the risk of marring the workpiece.
- If you are planing rough lumber with inconsistent surfaces, use greater spring tension to keep the stock moving through the planer.
- If the workpiece consistently stops feeding during operation, the spring tension may need to be increased.

Tools Needed	**Qty**
Hex Wrench 4mm	1
Open-End Wrench 14mm	1

To adjust feed roller spring tension:

1. DISCONNECT MACHINE FROM POWER!
2. Raise headstock cover and remove upper side panels on both sides of machine.
3. Tighten hex nut at base of tension spring (see **Figure 64**) to increase tension; loosen hex nut to decrease tension.

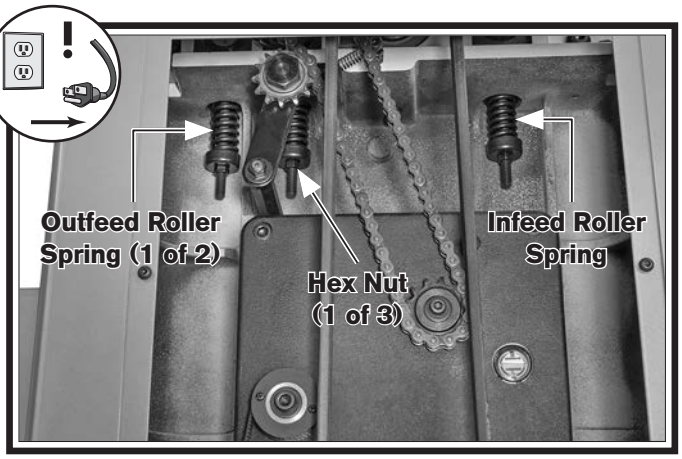


Figure 64. Location of feed roller springs (left side)

4. When finished, re-installed side panels and close headstock cover.

Calibrating Table Height Indicator

The indicator on the depth scale should match the value shown in the bottom window of the digital readout.

Items Needed	Qty
Hex Wrench 4mm	1

To calibrate table height scale:

1. Raise table all the way up.
2. Loosen (2) cap screws shown in **Figure 65**.
3. Adjust scale pointer to ¼" mark on scale, then tighten cap screws (see **Figure 65**).

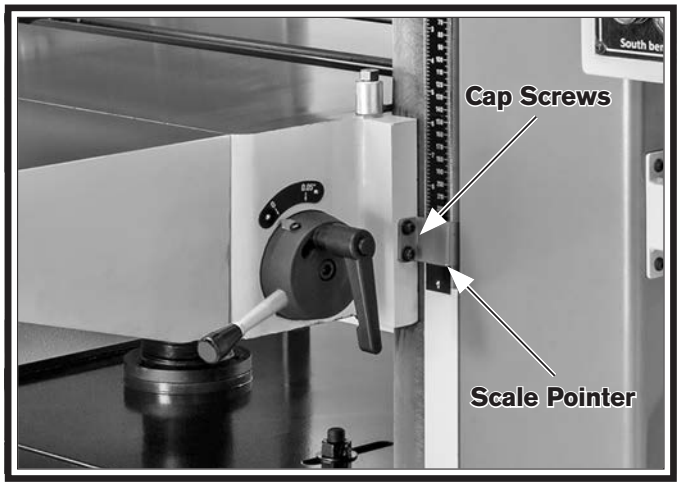


Figure 65. Location of adjustment screws for table height scale.

Replacing Feed Motor Brushes

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

Replace the carbon brushes at the same time when the motor no longer reaches full power, or when the brushes measure less than ¼" long (new brushes are ⅝" long).

Items Needed	Qty
Hex Wrench 4mm	1
Flat Head Screwdriver	1
Motor Brushes (SB1118380-3)	1 Set

To replace feed motor brushes:

1. DISCONNECT MACHINE FROM POWER!
2. Remove rear access panel.
3. Remove brush caps and worn brushes, (see **Figure 66**).

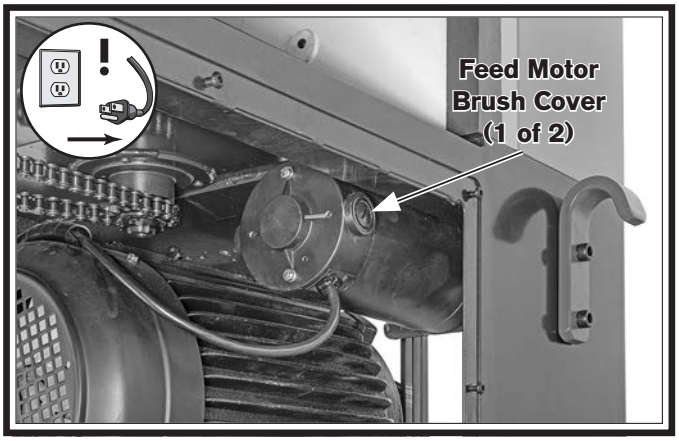


Figure 66. Feed motor brush location.

4. Replace both motor brushes, then install brush caps.
5. Install rear access panel.

Checking Pulley Alignment

Proper pulley alignment prevents premature V-belt wear and proper power transfer from the motor. The pulleys are properly aligned when they are parallel and in the same plane as each other.

Items Needed	Qty
Straightedge 48"	1
Open-End Wrenches 14, 17mm	1 Ea
Hex Wrench 4mm	1

To check/re-align pulleys:

1. DISCONNECT MACHINE FROM POWER!

2. Raise headstock cover, and remove upper and lower access panels on left side of machine.

3. Use straightedge to check pulley alignment (see **Figure 67**).

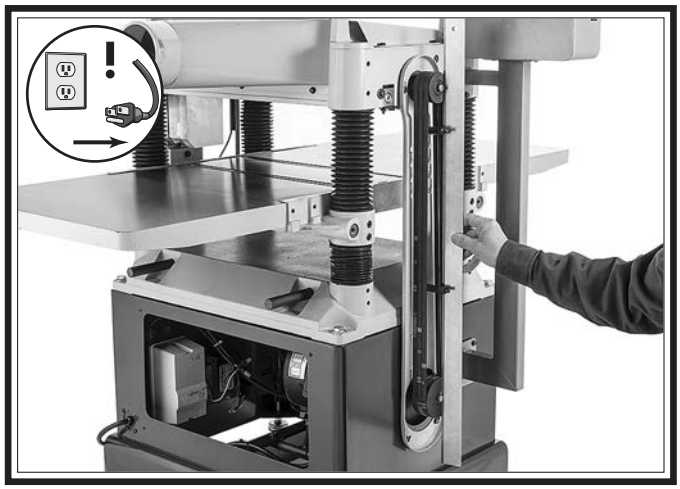


Figure 67. Example of checking pulley alignment.

— If pulleys *are* parallel and in the same plane, no adjustment is necessary.

— If pulleys *are not* parallel or in the same plane, remove rear access panel, then proceed to **Step 4**.

4. Loosen (4) hex nuts that secure motor to mounting plate (see **Figure 68**), shift motor until pulleys are aligned, then tighten hex nuts.

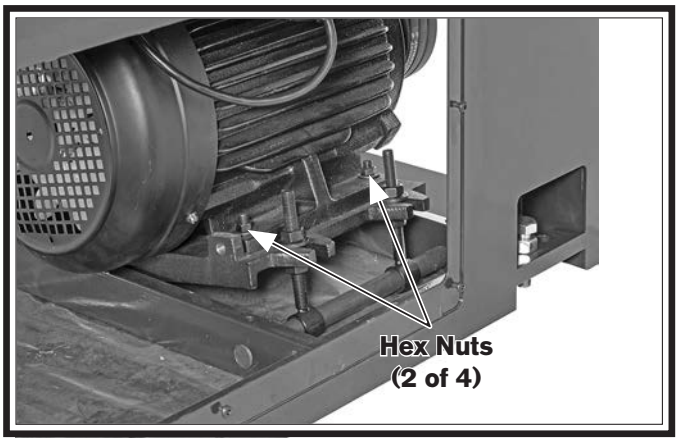


Figure 68. Location of motor fasteners.

5. Check pulley alignment, and repeat **Step 3** as necessary until you are satisfied with results.

6. Tighten all fasteners, then check V-belt tension (refer to **Tensioning/Replacing V-belts** on **Page 44**).

7. Install rear and side access panels, and close headstock cover.

Adjusting Table Parallelism

Maximum Allowable Tolerances
Cutterhead/Table Side-to-Side .....0.003"

Tools Needed	Qty
Rotacator	1
Hex Wrenches 6, 10mm	1 Ea

Table parallelism is critical to the operation of the machine. As such, it is essential that the table is adjusted parallel with the cutterhead (within 0.002") from side-to-side, as illustrated in **Figure 69**.

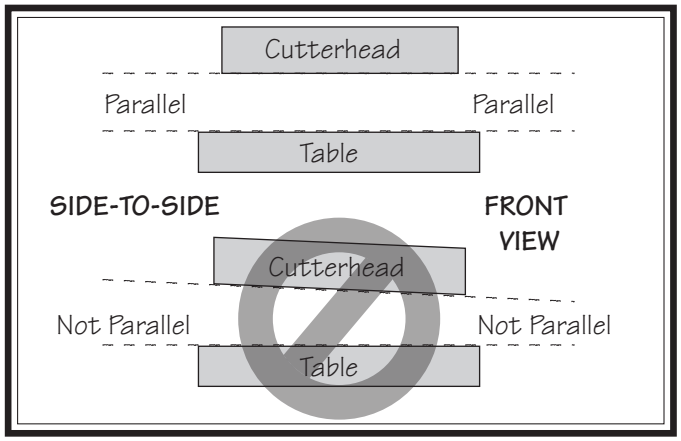


Figure 69. Side-to-side parallelism of table and cutterhead.

Table Parallelism Inspection

The easiest way to determine if your head casting has a parallelism problem is to plane a workpiece and measure the thickness in multiple locations. If the workpiece is tapered from left-to-right or from front-to-back, then parallelism may be a problem.

Use your Rotacator (refer to **Page 37**) to further inspect the table parallelism. If you do not have a Rotacator, a wood block and feeler gauges may be used, but extra care must be taken to ensure accuracy. If the table is not within the maximum allowable tolerances, it must be adjusted.

Table Parallelism Adjustments

The table is adjusted by turning the elevation leadscrew housing brackets underneath the table.

To adjust table parallelism:

1. DISCONNECT MACHINE FROM POWER!
2. Make sure all inserts are properly installed (refer to **Rotating/Replacing Cutterhead Inserts** on **Page 36**).
3. Lower table at least 4" below headstock casting using handwheel.
4. Raise headstock cover.
5. On left-hand edge of cutterhead, find bottom dead center (BDC) of any carbide insert (see **Figure 70**).

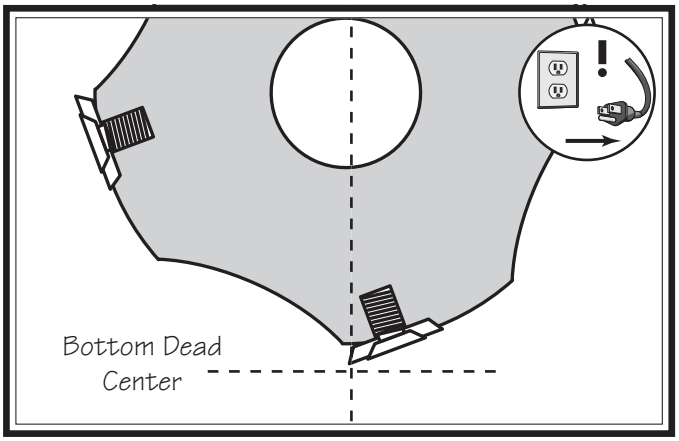


Figure 70. Determining bottom dead center.

— If using a Rotacator, find BDC of carbide insert by slowly rocking cutterhead pulley back and forth, and set Rotacator dial to "0".

— If a Rotacator is not available, use a wood block and a feeler gauge. Slowly rock cutterhead pulley back and forth so carbide insert just makes contact as it passes feeler gauge.

6. Keeping Rotacator dial at "0", position it under right-hand edge of cutterhead and find bottom dead center (BDC).

   — If value of measurement on right-hand side of table differs *less than* 0.003" from left-hand side, then parallelism is within tolerance and no adjustment is necessary.

   — If value of measurement on right-hand side of table differs *more than* 0.003" from left-hand side, then parallelism is out of tolerance and must be adjusted. Proceed to **Step 7**.

7. Determine which side of table to adjust to bring table parallel with the cutterhead to within 0.003".

8. On that side of table, loosen (2) cap screws on leadscrew housing bracket (see **Figure 71**).

9. Insert long end of 10mm hex wrench into leverage hole (see **Figure 71**), and turn bracket until table is parallel with cutterhead from side to side.

   Note: *The slight deformation of the rubber elevation screw cover is normal and will not affect table movement.*

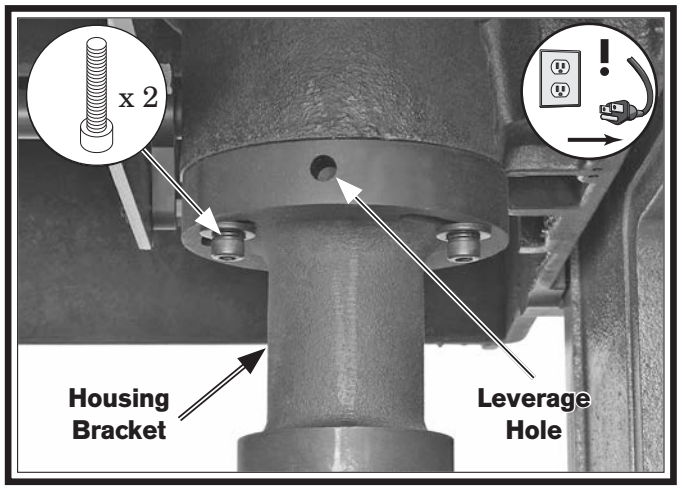


Figure 71. Leadscrew housing bracket.

10. Tighten cap screws loosened in S**tep 8**.

Tensioning Table Height Chain

The table height chain is located beneath the table, and it transfers movement from the table gearbox to the leadscrews that control table height. The chain can be adjusted to remove slack if the chain stretches over time or is loosened during table leveling procedures.

Tools Needed	**Qty**
Hex Wrench 4mm	1
Wrench or Socket 24mm	1

To tension table height chain:

1. DISCONNECT MACHINE FROM POWER!

2. Remove rear access panel.

3. Loosen idler assembly hex nut (see **Figure 72**), push idler sprocket (see **Figure 45** on **Page 40**) against chain with moderate pressure to eliminate slack, then tighten hex nut while maintaining pressure on idler assembly.

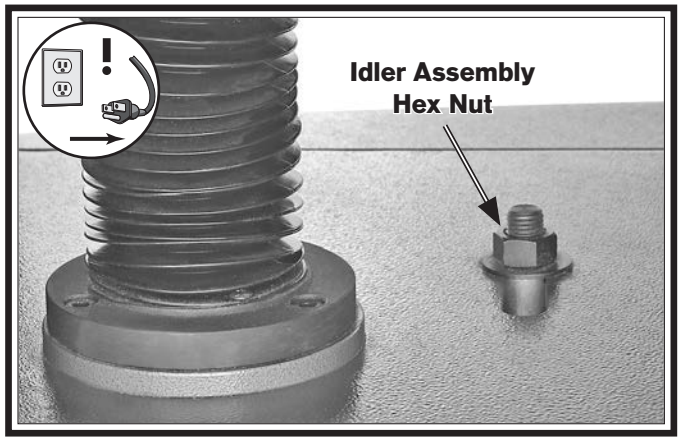


Figure 72. Location of idler assembly hex nut.

4. Clean and lubricate chain and sprockets (refer to **Table Height Chain & Sprockets** on **Page 40** for detailed instructions), then re-install rear access panel.

NOTICE

DO NOT let chain fall off sprockets. It can be very difficult to return chain to its proper location on sprockets without changing table adjustments.

Adjusting Table Gibs

The function of the table gibs is to eliminate excessive play in the table movement. Tight gibs make table movement more accurate but stiff. Loose gibs make moving the table sloppy but easier. The goal of gib adjustment is to remove unnecessary sloppiness without causing the ways to bind.

Tools Needed	Qty
Hex Wrench 4mm	1
Open-End Wrench or Socket 13mm	1

To adjust table gibs:

1. DISCONNECT MACHINE FROM POWER!

2. Loosen jam nuts on gib set screws (see **Figure 73**) on both sides of table.

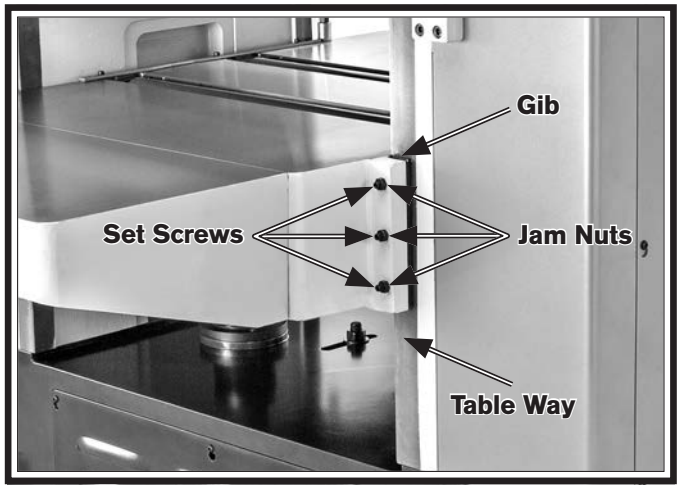


Figure 73. Location of table gibs (right side).

3. Evenly tighten gib set screws a small amount, then check table by moving it up and down with handwheel. Adjust set screws as needed until friction of table movement is balanced between minimal play and ease of movement.

4. When satisfied with results, tighten jam nuts on all set screws, being careful not to let the set screws move.

Calibrating Bed Rollers

The bed rollers provide even planing pressure from side to side and front to back by pushing the workpiece up against the feed rollers. The height of the table rollers can be adjusted according to the type of material being planed.

Tools Needed	Qty
Open-End Wrenches 14, 17mm	1 Ea
Straightedge 36"	1

To calibrate table roller scale:

1. DISCONNECT MACHINE FROM POWER!

2. Rotate bed roller hub to "0" setting.

3. Place straightedge across bed rollers on left side of table. Rollers should just touch straightedge.

   — If rollers *do* just touch straightedge, they are level with table. Proceed to **Step 5**.

   — If rollers *do not* just touch straightedge, they are not level with table. Proceed to **Step 4**.

4. Loosen jam nut (see **Figure 74**), adjust hex bolt so roller just touches straightedge, then tighten jam nut.

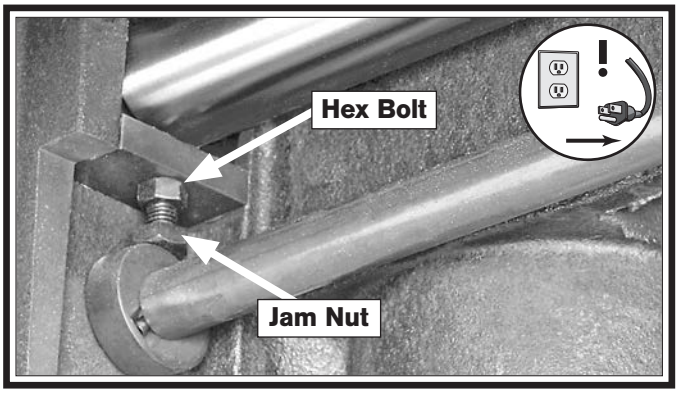


Figure 74. Bed roller adjustment components.

5. Repeat **Steps 3-4** on right side of table.

   Note: *Repeat adjustments side to side until roller height is correct.*

6. Repeat **Steps 1-5** on second roller.

Calibrating Digital Readout

The value shown in the actual (bottom) window of the digital readout should be precisely equal to the actual distance from the table to BDC of the cutterhead inserts.

Tool(s) Needed	Qty
Calipers	1 Pr

To calibrate digital readout:

1. Ensure table is parallel with cutterhead (refer to **Adjusting Table Parallelism** on **Page 52**).

2. Plane a wide piece of stock, making sure that top and bottom of workpiece are as parallel as possible.

3. Use calipers to measure workpiece thickness in multiple places, and record average value of these measurements.

4. On digital readout (see **Figure 75**) press "F" key [F], then press "2" key [2].

Figure 75. Digital readout screen and keypad.

5. Press ENTER key [↵]. A light in (top) target window will blink, and "OriGin" will appear.

6. Enter value recorded in **Step 3**, then press ENTER key [↵] to save actual table position value in digital readout memory.

7. To load actual table position value for operational use, press "F" key [F], then press "0" key [0].

8. Press ENTER key [↵]. A light will blink in both windows, then "CHAnGE" will appear in top window, and "OrG??" will appear in bottom window.

9. Press ENTER key [↵] again to load and use stored value for actual distance from table to cutterhead insert.

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.

Symptom	Possible Cause	Possible Solution
Machine does not start or power supply breaker immediately trips after startup.	**1.** EMERGENCY STOP button depressed/at fault.	**1.** Rotate EMERGENCY STOP button head to reset. Replace if at fault.
	2. Machine circuit breaker tripped or at fault.	**2.** Reset circuit breaker on switch.
	3. Blown fuse.	**3.** Replace fuse/ensure no shorts.
	4. Incorrect power supply voltage or circuit size.	**4.** Ensure correct power supply voltage and circuit size.
	5. Motor speed potentiometer at fault.	**5.** Test/replace if at fault.
	6. Power supply circuit breaker tripped or fuse blown.	**6.** Ensure circuit is free of shorts. Reset circuit breaker or replace fuse.
	7. Motor wires connected incorrectly.	**7.** Correct motor wiring connections.
	8. Thermal overload relay has tripped/ at fault.	**8.** Reset. Adjust or replace if at fault.
	9. Contactor not energized/at fault.	**9.** Test all legs for power; replace if necessary.
	10. Wiring broken, disconnected, or corroded.	**10.** Fix broken wires or disconnected/corroded connections.
	11. Motor brushes worn out.	**11.** Remove/replace brushes (**Page 50**).
	12. MAIN MOTOR button or circuit breaker switch at fault.	**12.** Replace switch/circuit breaker.
	13. Circuit board at fault.	**13.** Inspect/replace if at fault.
	14. Headstock cover safety switch engaged/at fault.	**14.** Close headstock cover; replace switch.
	15. Motor or motor bearings at fault.	**15.** Replace motor.
Feed motor does not start or stalls.	**1.** Motor brushes worn out.	**1.** Replace motor brushes (**Page 50**).
Machine stalls or is underpowered.	**1.** Workpiece material unsuitable for machine.	**1.** Only cut wood/ensure moisture is below 20% (**Page 28**).
	2. Feed rate/cutting speed too fast.	**2.** Decrease feed rate/cutting speed.
	3. Machine undersized for task.	**3.** Use correct blade/reduce feed rate or depth of cut.
	4. Circuit board at fault.	**4.** Inspect and replace if at fault.
	5. Motor speed potentiometer at fault.	**5.** Test and replace if at fault.
	6. Belt(s) slipping/pulleys misaligned.	**6.** Clean/tension/replace belt(s) (**Page 44**); ensure pulleys are aligned (**Page 51**).
	7. Feed motor wired incorrectly.	**7.** Wire motor correctly.
	8. Feed motor brushes worn out.	**8.** Replace motor brushes (**Page 50**).
	9. Pulley/sprocket slipping on shaft.	**9.** Tighten/replace loose pulley/shaft.
	10. Motor overheated, tripping machine circuit breaker.	**10.** Clean motor, let cool, and reduce workload. Reset breaker.
	11. Contactor not energized/at fault.	**11.** Test all legs for power; repair/replace if at fault.
	12. Feed motor or motor bearings at fault.	**12.** Replace motor.

Symptom	Possible Cause	Possible Solution
Table moves up when it should move down.	**1.** Power connections wired out of phase.	**1.** Correct phase polarity (**Page 24**).
Table will not move.	**1.** Limit switch engaged/at fault. **2.** Blown fuse. **3.** Thermal overload relay has tripped/at fault. **4.** Contactor not energized/at fault. **5.** Table motor at fault.	**1.** Inspect/replace if at fault. **2.** Replace fuse/ensure no shorts. **3.** Reset. Adjust or replace if at fault. **4.** Test all legs for power (A1, A2); repair/replace if at fault. **5.** Inspect/replace if at fault.
Machine has vibration or noisy operation.	**1.** Motor or component loose. **2.** Feet not adjusted properly. **3.** V-belt(s) worn, loose, pulleys misaligned or belt slapping cover. **4.** Pulley loose. **5.** Motor mount loose/broken. **6.** Motor fan rubbing on fan cover. **7.** Bed rollers protruding unevenly. **8.** Cutterhead bearings at fault. **9.** Motor bearings at fault.	**1.** Replace damaged or missing bolts/nuts or tighten if loose. **2.** Adjust machine feet to stabilize machine (**Page 19**). **3.** Inspect/replace belts with a new matched set (**Page 44**). Realign pulleys if necessary (**Page 51**). **4.** Secure pulley on shaft. **5.** Tighten/replace. **6.** Fix/replace fan cover; replace loose/damaged fan. **7.** Adjust bed rollers (**Page 35**). **8.** Replace bearings. **9.** Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement.
Excessive snipe (gouge at the end of workpiece that is uneven with the rest of cut). **Note:** *A small amount of snipe is inevitable with all types of planers–the key is to minimize it.*	**1.** One or both bed rollers are set too high. **2.** Rear extension table slopes down or is not level with main table. **3.** Chip breaker, feed roller, or pressure bar set too low. **4.** Workpiece is not properly supported as it leaves planer.	**1.** Lower height of bed rollers (**Page 35**). **2.** Adjust rear extension table set screws to make extension table level with main table (**Page 20**). **3.** Adjust height of chip breaker, feed roller, or pressure bar (**Page 46**). **4.** Use an assistant or roller beds/stands to properly support workpiece as it leaves planer.
Workpiece stops/slows in the middle of cut.	**1.** Depth of cut too deep. **2.** Pitch and glue build-up on planer components. **3.** One or both bed rollers are set too low. **4.** Chip breaker or pressure bar set too low. **5.** Feed rollers set too low or too high. **6.** Timing belt worn/loose. **7.** Feed motor brushes worn out.	**1.** Reduce depth of cut (**Page 31**). **2.** Clean planer components with a pitch/resin dissolving solvent (**Page 38**). **3.** Raise height of bed rollers (**Page 35**). **4.** Raise height of chip breaker or pressure bar (**Page 46**). **5.** Adjust feed rollers to correct height (**Page 46**). **6.** Inspect/replace belt (**Page 45**). **7.** Replace motor brushes (**Page 50**).
Inconsistent chip marks.	**1.** Chips are not being properly expelled from around cutterhead.	**1.** Use an adequate dust collection system; adjust chip deflector in or out, depending on your setup (**Page 46**).

Symptom	Possible Cause	Possible Solution
Consistent chipping pattern.	**1.** Knots or conflicting grain direction in workpiece. **2.** Nicked, chipped, or dull insert. **3.** Feed rate too fast. **4.** Depth of cut too deep. **5.** Bed rollers set too high or low; not even with each other. **6.** Misaligned chip breaker.	**1.** Inspect workpiece for knots and grain direction; use only clean stock (**Page 28**). **2.** Rotate/replace insert (**Page 36**). **3.** Reduce feed rate (**Page 34**). **4.** Reduce depth of cut (**Page 31**). **5.** Properly adjust bed roller height (**Page 35**). **6.** Adjust both sides of chip breaker to correct height (**Page 46**).
Fuzzy grain.	**1.** Workpiece has high moisture content or surface wetness. **2.** Dull inserts.	**1.** Allow workpiece to dry if moisture content is over 20% or has high surface wetness. **2.** Rotate/replace inserts (**Page 36**).
Long lines or ridges that run the length of workpiece.	**1.** Nicked or chipped inserts.	**1.** Rotate/replace inserts (**Page 36**).
Uneven cutting marks, wavy surface, or chatter marks across face of workpiece.	**1.** Feed rate too fast. **2.** Chip breaker or pressure bar set unevenly. **3.** Bed rollers set too high or low; not even with each other. **4.** Insert(s) not properly installed. **5.** Worn cutterhead bearings.	**1.** Reduce feed rate (**Page 34**). **2.** Adjust height of chip breaker or pressure bar (**Page 46**). **3.** Properly adjust bed roller height (**Page 35**). **4.** Remove insert(s), then properly clean and re-install (**Page 36**). **5.** Check/replace cutterhead bearings.
Glossy surface.	**1.** Inserts are dull. **2.** Feeding workpiece too slow. **3.** Cutting depth too shallow.	**1.** Rotate/replace inserts (**Page 36**). **2.** Increase feed rate (**Page 34**). **3.** Increase depth of cut (**Page 31**).
Workpiece twists in machine.	**1.** Pressure bar set unevenly. **2.** Bed rollers not parallel with table.	**1.** Adjust height of pressure bar (**Page 46**). **2.** Adjust bed roller height (**Page 35**).
Infeed/outfeed rollers not rotating.	**1.** Chain and sprockets are worn, misadjusted, disconnected, or broken.	**1.** Adjust chain and sprockets; replace if necessary.
Vibration when running or cutting.	**1.** Loose/damaged insert(s). **2.** Damaged V-belt(s). **3.** Worn cutterhead bearings. **4.** Loose/damaged cutterhead.	**1.** Tighten/replace insert(s) (**Page 36**). **2.** Replace V-belt(s) (**Page 44**). **3.** Check/replace cutterhead bearings. **4.** Tighten/replace cutterhead.
Fine serration on workpiece. (A certain amount of serration is inevitable with steel outfeed rollers.)	**1.** Excessive outfeed roller spring pressure.	**1.** Reduce outfeed roller spring pressure (However, if reduced too much, workpiece may stop in middle of cut) (**Page 46**).

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.

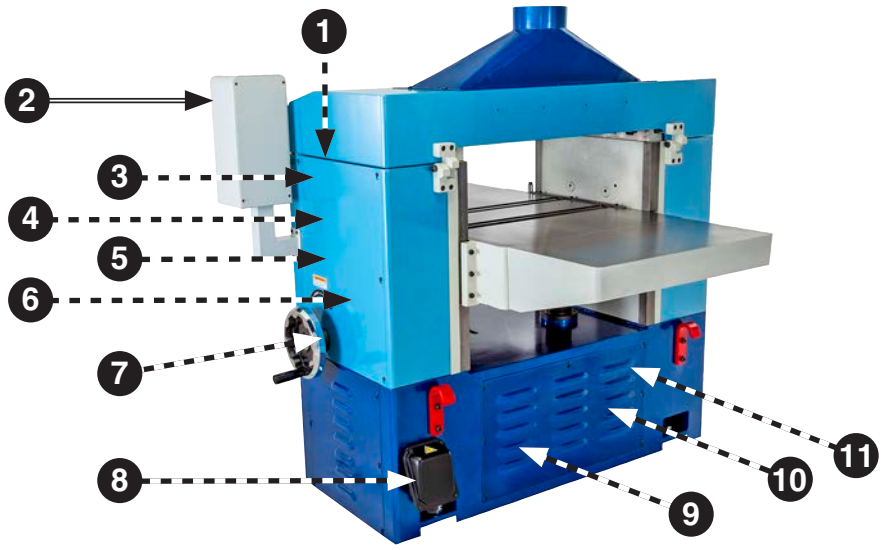
Experiencing Difficulties: If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (360) 734-1540.

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)	TURQUIOSE (Tu)	YELLOW (Yl)

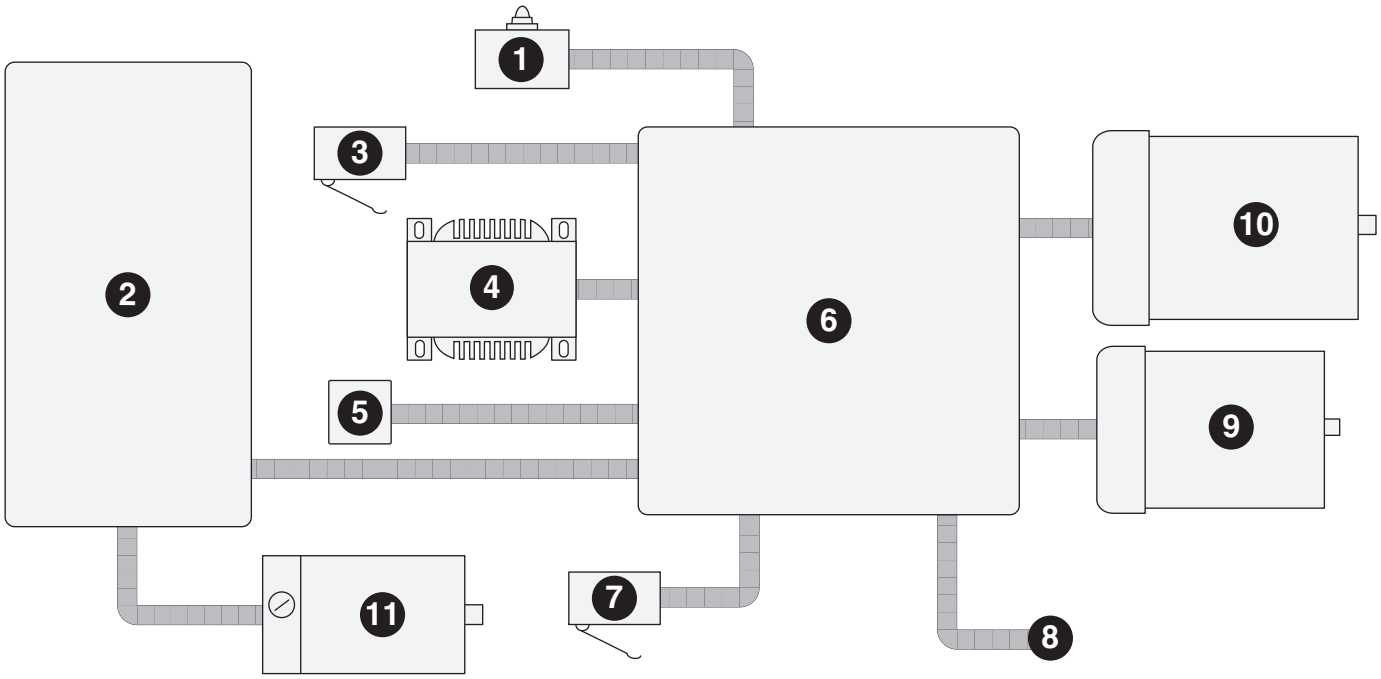
NOTICE: **The photos and diagrams included in this section are best viewed in color. You can see them in color at www.southbendtools.com.**

Electrical Overview



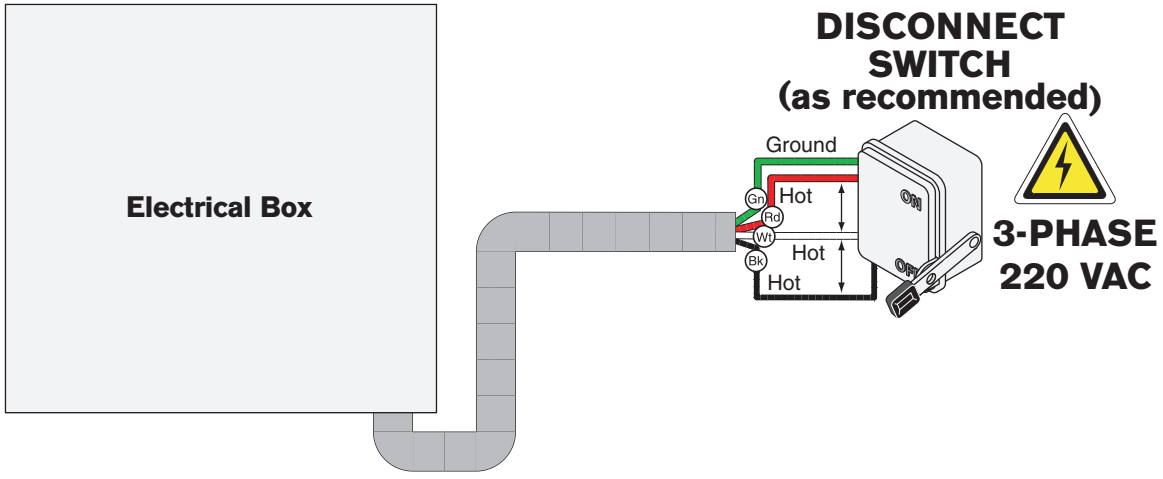
1	Headstock Cover Safety Switch (**Page 66**)
2	Control Panel Box (**Page 64**)
3	Table Upper Limit Switch (**Page 66**)
4	Transformer (**Page 66**)
5	Table Magnetic Sensor (**Page 67**)
6	Electrical Box (**Page 62**)

7	Table Lower Limit Switch (**Page 66**)
8	Power Supply Junction Box (**Page 67**)
9	Table Motor (**Page 65**)
10	Main Motor (**Page 65**)
11	Feed Motor (**Page 67**)

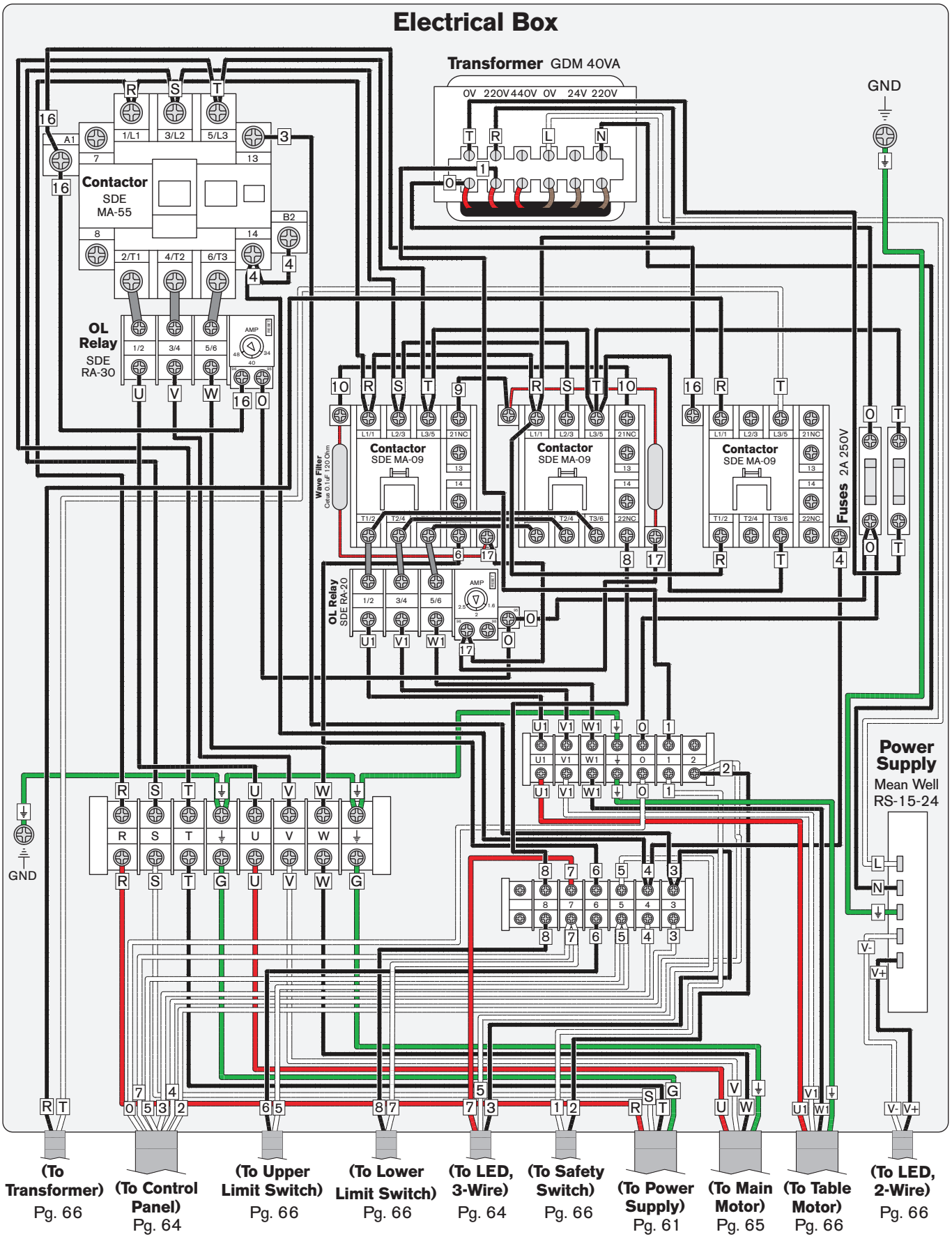


Electrical Box

Figure 76. Electrical box components.



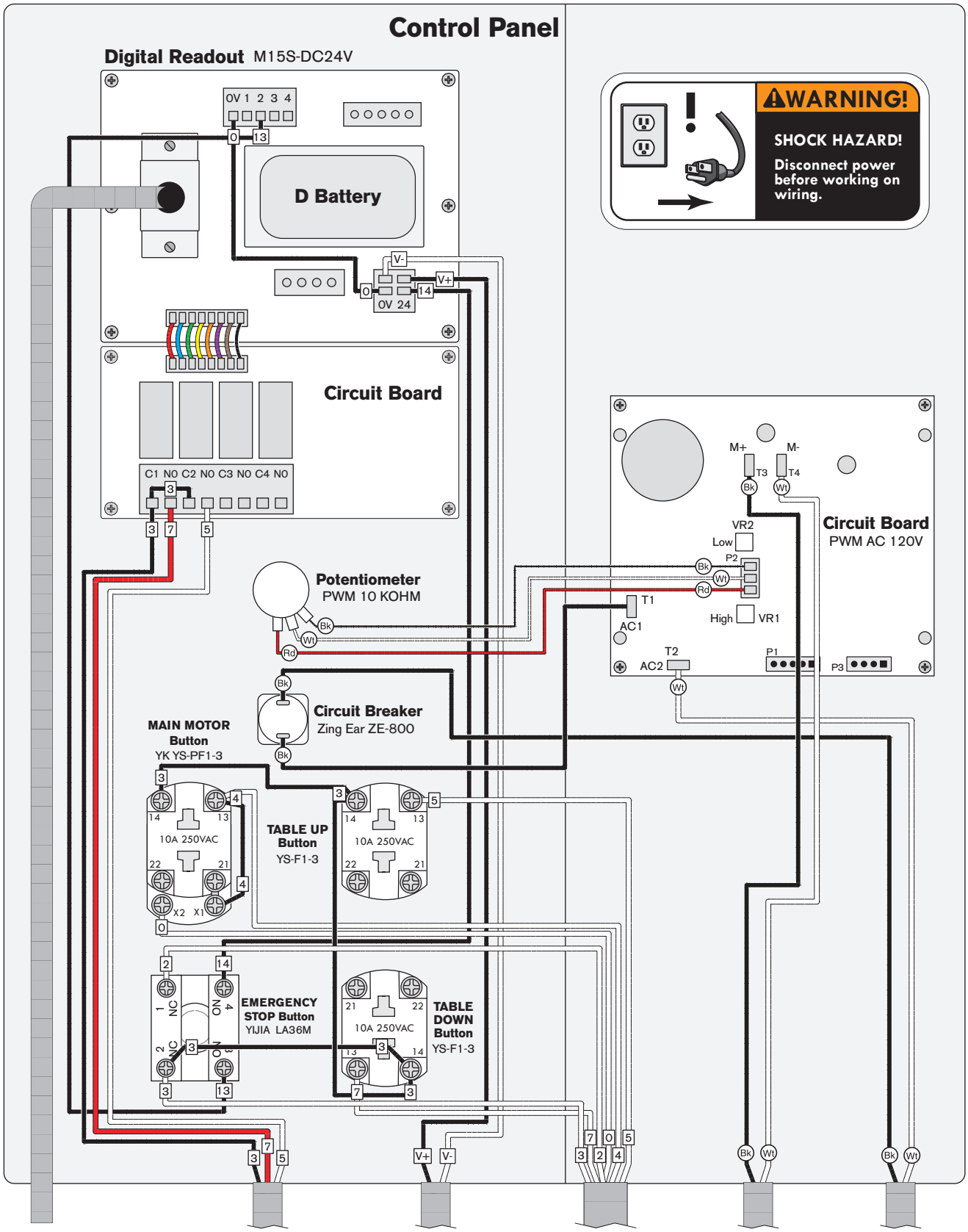
Electrical Box Wiring Diagram



Control Box

Figure 77. Control box wiring.

Control Box Wiring Diagram



To Magnetic Sensor
Pg. 67

To Electrical Box (7-Post Terminal Bar)
Pg. 62

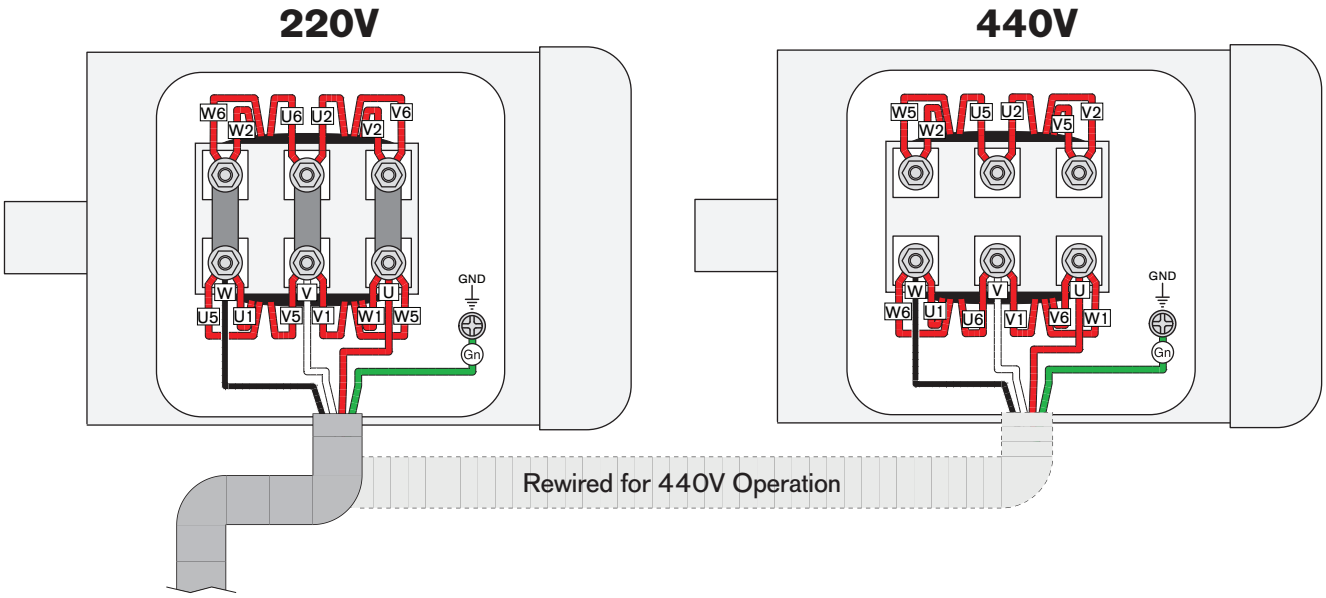
To Power Supply
Pg. 62

To Electrical Box (7-Post Terminal Bar)
Pg. 62

To Feed Motor
Pg. 60

To Transformer
Pg. 66

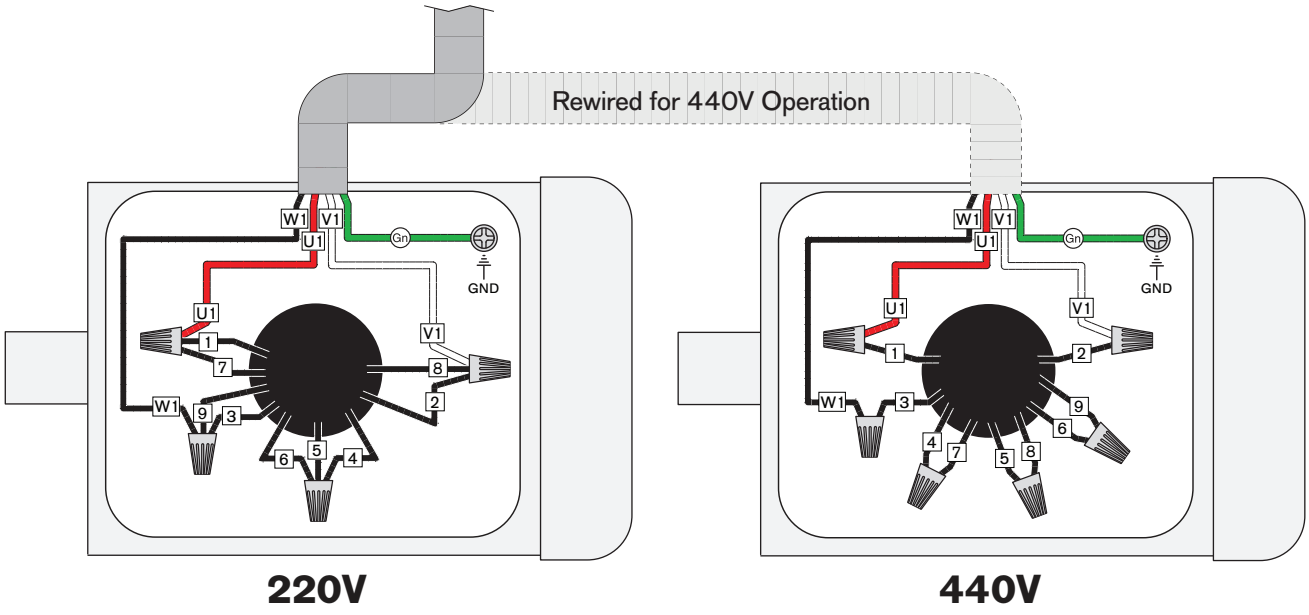
Main Motor Wiring Diagrams



To Electrical Box (Pg. 62)

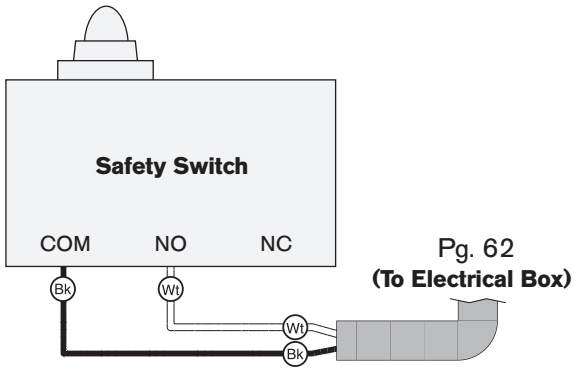
Table Motor Wiring Diagrams

To Electrical Box (Pg. 62)



Electrical Component Wiring Diagrams

Figure 78. Headstock cover safety switch.



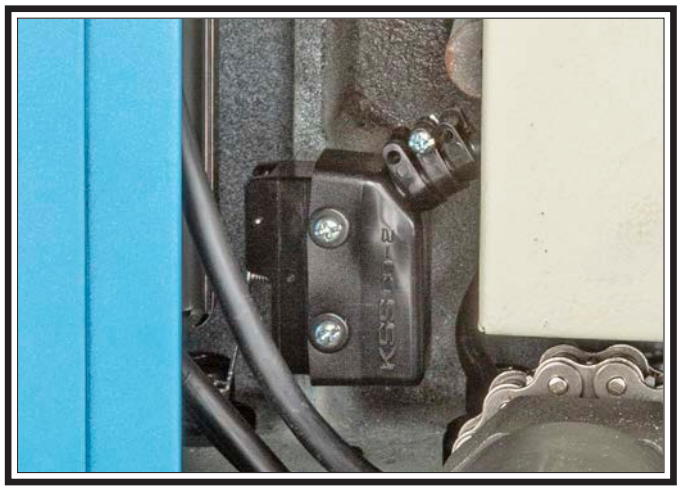
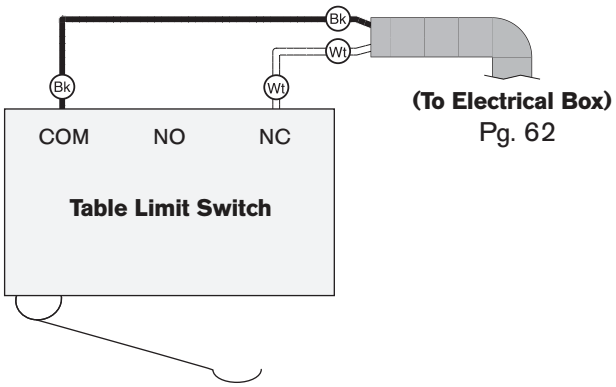


Figure 79. Table limit switch wiring.



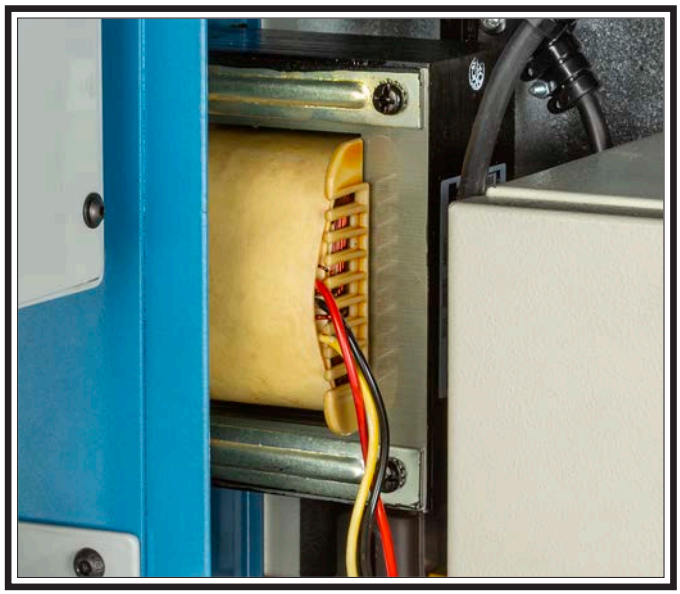
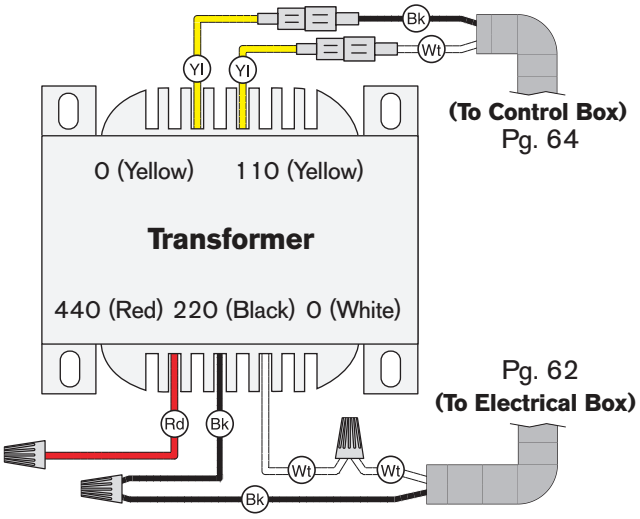


Figure 80. Transformer wiring (220V).



Electrical Component Photos

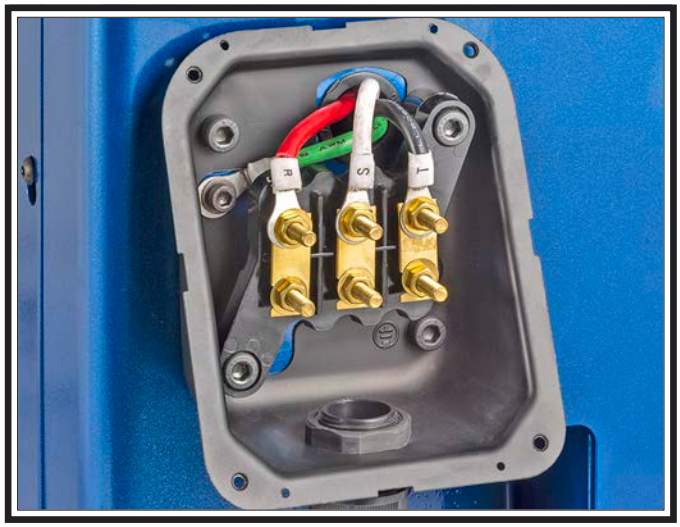


Figure 81. Power supply junction box (220V).

Figure 82. Main motor wiring (220V).

Figure 83. Table motor wiring (220V).

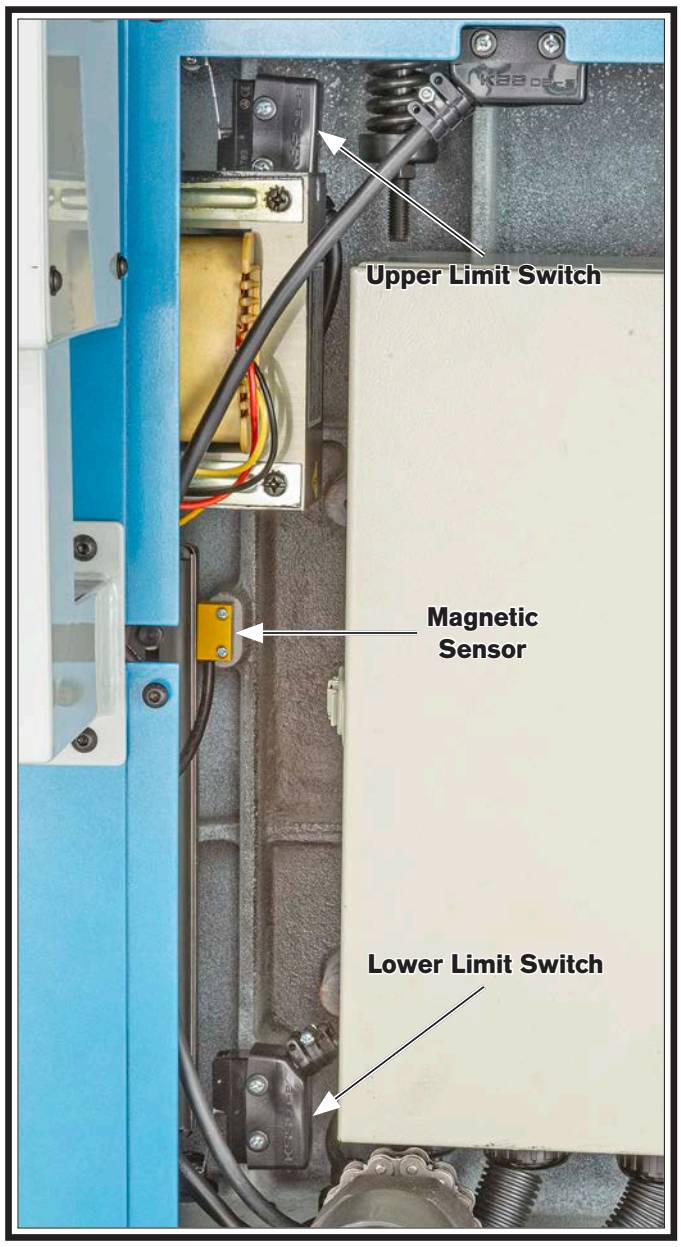
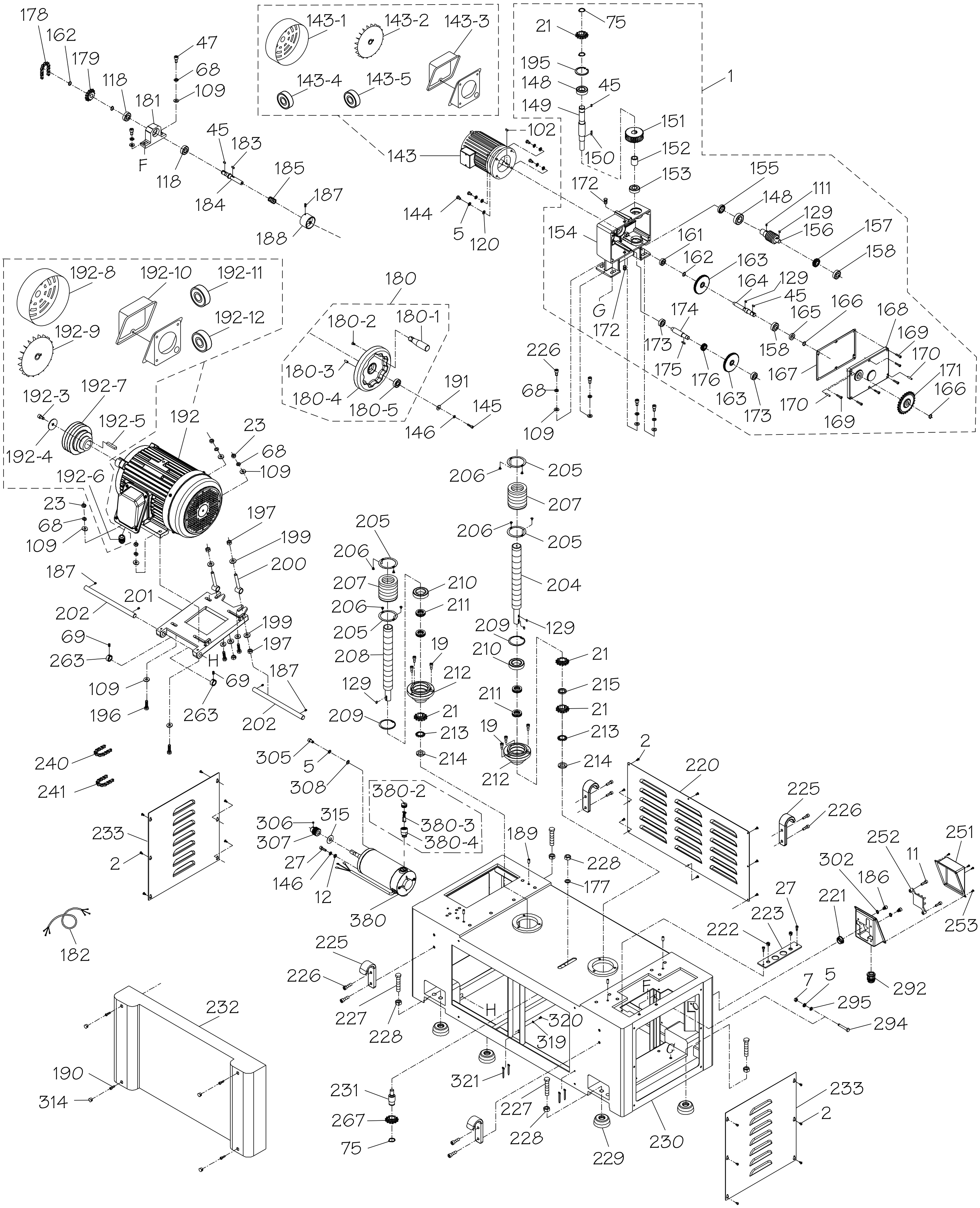


Figure 84. Table limit switches and magnetic sensor.

Figure 85. Feed motor.

Base & Motors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Base & Motors Parts List

REF	PART #	DESCRIPTION
1	PSB1118001	WORM GEARBOX ASSEMBLY
2	PSB1118002	BUTTON HD CAP SCR M6-1 X 10
5	PSB1118005	LOCK WASHER 8MM
7	PSB1118007	HEX NUT M8-1.25
11	PSB1118011	CAP SCREW M8-1.25 X 25
12	PSB1118012	FLAT WASHER 6MM
19	PSB1118019	CAP SCREW M8-1.25 X 20
21	PSB1118021	SPROCKET 13T
23	PSB1118023	HEX NUT M10-1.5
27	PSB1118027	CAP SCREW M6-1 X 16
45	PSB1118045	KEY 5 X 5 X 12 RE
47	PSB1118047	CAP SCREW M10-1.5 X 20
68	PSB1118068	LOCK WASHER 10MM
69	PSB1118069	SET SCREW M8-1.25 X 10
75	PSB1118075	EXT RETAINING RING 25MM
102	PSB1118102	KEY 5 X 5 X 20 RE
109	PSB1118109	FLAT WASHER 10MM
111	PSB1118111	SET SCREW M8-1.25 X 10
118	PSB1118118	BALL BEARING 6203-2NSE
120	PSB1118120	FLAT WASHER 8MM
129	PSB1118129	KEY 5 X 5 X 10 RE
143	PSB1118143	ELEVATION MOTOR 1/2HP 220/440V 3-PH
143-1	PSB1118143-1	MOTOR FAN COVER
143-2	PSB1118143-2	MOTOR FAN
143-3	PSB1118143-3	JUNCTION BOX
143-4	PSB1118143-4	BALL BEARING 6203ZZ (FRONT)
143-5	PSB1118143-5	BALL BEARING 6202ZZ (REAR)
144	PSB1118144	HEX BOLT M8-1.25 X 25
145	PSB1118145	CAP SCREW M6-1 X 20
146	PSB1118146	LOCK WASHER 6MM
148	PSB1118148	BALL BEARING 6205ZZ
149	PSB1118149	GEAR SHAFT
150	PSB1118150	KEY 5 X 5 X 22 RE
151	PSB1118151	WORM GEAR
152	PSB1118152	BUSHING
153	PSB1118153	BALL BEARING 6204ZZ
154	PSB1118154	WORM GEARBOX
155	PSB1118155	OIL SEAL TC 25 X 40 X 8
156	PSB1118156	WORM SHAFT
157	PSB1118157	GEAR 24T
158	PSB1118158	BALL BEARING 6203ZZ
161	PSB1118161	BALL BEARING 6201ZZ
162	PSB1118162	EXT RETAINING RING 16MM
163	PSB1118163	GEAR 60T
164	PSB1118164	GEAR SHAFT
165	PSB1118165	OIL SEAL SC 17 X 30 X 8
166	PSB1118166	EXT RETAINING RING 17MM
167	PSB1118167	GASKET
168	PSB1118168	GEARBOX COVER
169	PSB1118169	CAP SCREW M6-1 X 26

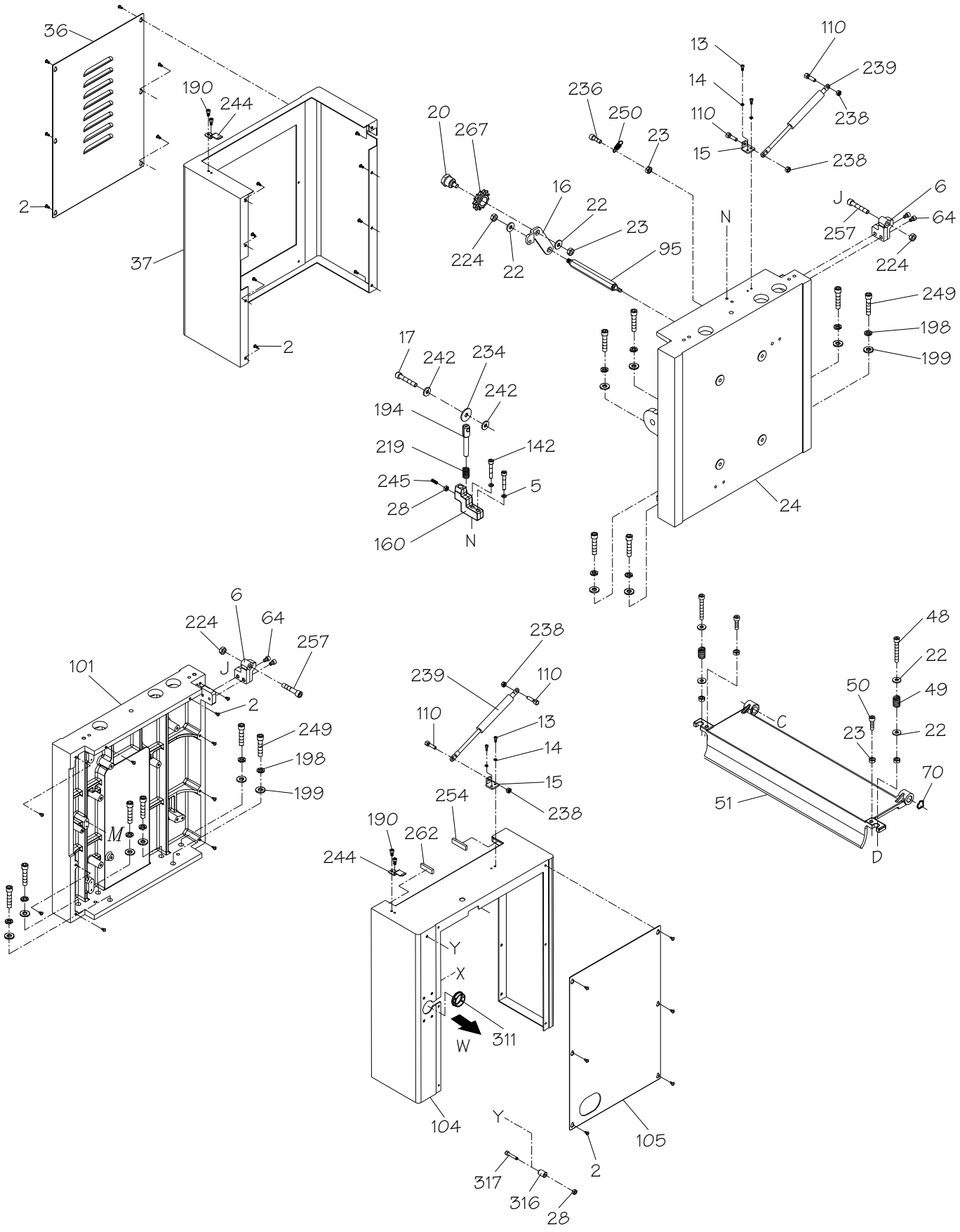
REF	PART #	DESCRIPTION
170	PSB1118170	ROLL PIN 6 X 25
171	PSB1118171	SPROCKET 26T
172	PSB1118172	OIL PLUG 1/4" NPT
173	PSB1118173	BALL BEARING 6202ZZ
174	PSB1118174	GEAR SHAFT
175	PSB1118175	KEY 5 X 5 X 20 RE
176	PSB1118176	GEAR 20T
177	PSB1118177	FLAT WASHER 17 X 35 X 2
178	PSB1118178	CHAIN #40 X 58P
179	PSB1118179	SPROCKET 13T
180	PSB1118180	HANDWHEEL ASSEMBLY
180-1	PSB1118180-1	FOLDING HANDLE 28 X 90, M6-1
180-2	PSB1118180-2	FLAT HD SCR M6-1 X 12
180-3	PSB1118180-3	ROLL PIN 8 X 18
180-4	PSB1118180-4	HANDWHEEL TYPE-13 200D X 20B X M6-1
180-5	PSB1118180-5	BALL BEARING 6004ZZ
181	PSB1118181	HANDWHEEL BRACKET
182	PSB1118182	MAIN MOTOR CORD 8G 4W 60"
183	PSB1118183	KEY 5 X 5 X 15 RE
184	PSB1118184	HANDWHEEL SHAFT
185	PSB1118185	COMPRESSION SPRING 1.2 X 23.4 X 40
186	PSB1118186	CAP SCREW M8-1.25 X 12
187	PSB1118187	SET SCREW M6-1 X 16
188	PSB1118188	HANDWHEEL CONNECTOR
189	PSB1118189	ROLL PIN 8 X 20
190	PSB1118190	CAP SCREW M6-1 X 10
191	PSB1118191	FLAT WASHER 6MM
192	PSB1118192	MAIN MOTOR 15HP 220/440V 3-PH
192-3	PSB1118192-3	CAP SCREW M10-1.5 X 20
192-4	PSB1118192-4	FENDER WASHER 11 X 53 X 3
192-5	PSB1118192-5	KEY 10 X 8 X 56 RE
192-6	PSB1118192-6	GROMMET 24MM
192-7	PSB1118192-7	MOTOR PULLEY
192-8	PSB1118192-8	MOTOR FAN COVER
192-9	PSB1118192-9	MOTOR FAN
192-10	PSB1118192-10	JUNCTION BOX
192-11	PSB1118192-11	BALL BEARING 6208ZZ (FRONT)
192-12	PSB1118192-12	BALL BEARING 6206ZZ (REAR)
195	PSB1118195	INT RETAINING RING 52MM
196	PSB1118196	HEX BOLT M10-1.5 X 50
197	PSB1118197	HEX NUT M12-1.75
199	PSB1118199	FLAT WASHER 12MM
200	PSB1118200	ADJUSTING SHAFT
201	PSB1118201	MOTOR MOUNTING PLATE
202	PSB1118202	SHAFT
204	PSB1118204	LEADSCREW (RIGHT)
205	PSB1118205	MOUNTING RING
206	PSB1118206	FLANGE BOLT M4-.7 X 8
207	PSB1118207	DUST BOOT
208	PSB1118208	LEADSCREW (LEFT)

Base & Motors Parts List (Cont.)

REF	PART #	DESCRIPTION
209	PSB1118209	INT RETAINING RING 68MM
210	PSB1118210	BALL BEARING 6008-2NSE
211	PSB1118211	THRUST BEARING 51105
212	PSB1118212	BUSHING
213	PSB1118213	EXT TOOTH WASHER 25MM
214	PSB1118214	LEADSCREW NUT M25-1.5
215	PSB1118215	SPROCKET PLATE
220	PSB1118220	BASE COVER, REAR
221	PSB1118221	GROMMET 24MM
222	PSB1118222	GROMMET 16MM
223	PSB1118223	PLATE
225	PSB1118225	LIFTING HOOK
226	PSB1118226	CAP SCREW M10-1.5 X 30
227	PSB1118227	HEX BOLT M16-2 X 55
228	PSB1118228	HEX NUT M16-2
229	PSB1118229	FOOT
230	PSB1118230	BASE
231	PSB1118231	SPROCKET SHAFT
232	PSB1118232	BASE COVER, FRONT
233	PSB1118233	BASE COVER, SIDE
240	PSB1118240	CHAIN #40 X 54P
241	PSB1118241	CHAIN #40 X 84P

REF	PART #	DESCRIPTION
251	PSB1118251	POWER SUPPLY JUNCTION BOX
252	PSB1118252	TERMINAL BLOCK
253	PSB1118253	BUTTON HD CAP SCR M5-.8 X 10
263	PSB1118263	SPACER
267	PSB1118267	IDLER SPROCKET 13T
292	PSB1118292	STRAIN RELIEF TYPE-3 PGA21
294	PSB1118294	HEX BOLT M8-1.25 X 50
295	PSB1118295	FLAT WASHER 8MM
302	PSB1118302	EXT TOOTH WASHER 8MM
305	PSB1118305	CAP SCREW M8-1.25 X 16
306	PSB1118306	SET SCREW M5-.8 X 5
307	PSB1118307	PULLEY
308	PSB1118308	FLAT WASHER 8MM
314	PSB1118314	PLUG 13MM
315	PSB1118315	FLAT WASHER 14 X 35 X 1
319	PSB1118319	EXT TOOTH WASHER 4MM
320	PSB1118320	BUTTON HD CAP SCR M4-.7 X 8
321	PSB1118321	CABLE TIE 300MM
380	PSB1118380	FEED MOTOR 3/4HP 220V 1-PH
380-2	PSB1118380-2	BRUSH CAP
380-3	PSB1118380-3	BRUSH
380-4	PSB1118380-4	BRUSH HOLDER

Column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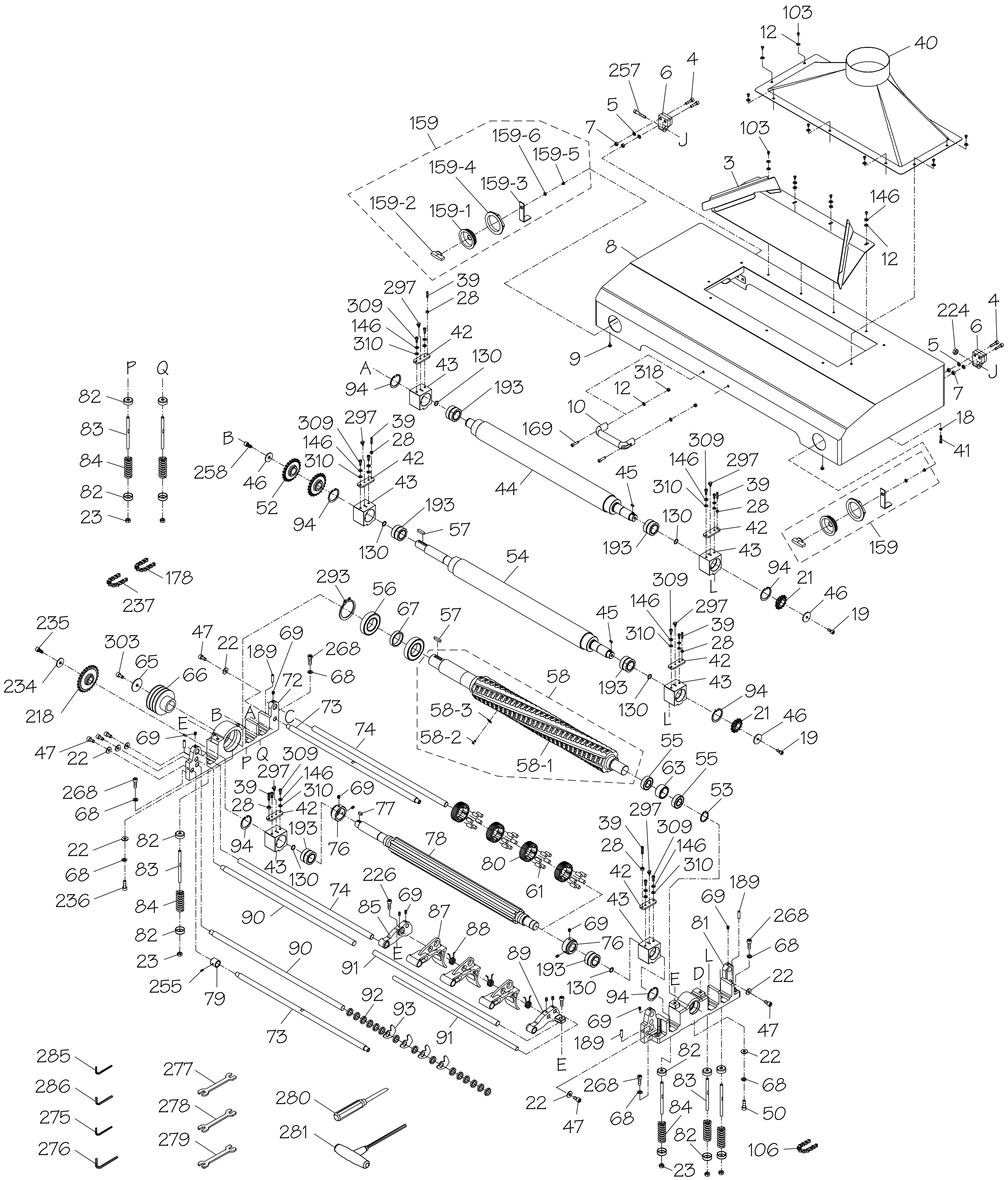
Column Parts List

REF	PART #	DESCRIPTION
2	PSB1118002	BUTTON HD CAP SCR M6-1 X 10
5	PSB1118005	LOCK WASHER 8MM
6	PSB1118006	HINGE
13	PSB1118013	CAP SCREW M5-.8 X 12
14	PSB1118014	LOCK WASHER 5MM
15	PSB1118015	GAS SPRING MOUNT
16	PSB1118016	SPROCKET MOUNT
17	PSB1118017	CAP SCREW M10-1.5 X 35
20	PSB1118020	SPROCKET BOLT
22	PSB1118022	FLAT WASHER 10MM
23	PSB1118023	HEX NUT M10-1.5
24	PSB1118024	LEFT COLUMN
28	PSB1118028	HEX NUT M6-1
36	PSB1118036	ACCESS PANEL, UPPER LEFT
37	PSB1118037	HOUSING, UPPER LEFT
48	PSB1118048	CAP SCREW M10-1.5 X 75
49	PSB1118049	COMPRESSION SPRING 3 X 20 X 35.5
50	PSB1118050	CAP SCREW M10-1.5 X 40
51	PSB1118051	PRESSURE BAR
64	PSB1118064	CAP SCREW M8-1.25 X 35
70	PSB1118070	WAVY WASHER 6MM
95	PSB1118095	STANDOFF-HEX MM M10-1.5 X 20, 175
101	PSB1118101	RIGHT COLUMN
104	PSB1118104	HOUSING, UPPER RIGHT
105	PSB1118105	ACCESS PANEL, UPPER RIGHT

REF	PART #	DESCRIPTION
110	PSB1118110	CAP SCREW M8-1.25 X 25
142	PSB1118142	CAP SCREW M8-1.25 X 40
160	PSB1118160	STEP BRACKET
190	PSB1118190	CAP SCREW M6-1 X 10
194	PSB1118194	SHAFT
198	PSB1118198	LOCK WASHER 12MM
199	PSB1118199	FLAT WASHER 12MM
219	PSB1118219	COMPRESSION SPRING 2 X 17.6 X 44
224	PSB1118224	LOCK NUT M10-1.5
234	PSB1118234	FENDER WASHER 11 X 53 X 3
236	PSB1118236	CAP SCREW M10-1.5 X 45
238	PSB1118238	HEX NUT M8-1.25
239	PSB1118239	GAS SPRING 20KG 292L
242	PSB1118242	FLAT WASHER 10MM
244	PSB1118244	PLATE
245	PSB1118245	SET SCREW M6-1 X 20
249	PSB1118249	CAP SCREW M12-1.75 X 40
250	PSB1118250	EXTENSION SPRING 1.2 X 11.5 X 34.2
254	PSB1118254	PAD 40 X 10 X 2
257	PSB1118257	HEX BOLT M10-1.5 X 70
262	PSB1118262	PAD 33 X 10 X 2
267	PSB1118267	IDLER SPROCKET 13T
311	PSB1118311	GROMMET 38MM
316	PSB1118316	SPACER 6.5 X 15 X 20
317	PSB1118317	CAP SCREW M6-1 X 35

Headstock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Headstock Parts List

REF	PART #	DESCRIPTION
3	PSB1118003	DEFLECTION PLATE
4	PSB1118004	CAP SCREW M8-1.25 X 30
5	PSB1118005	LOCK WASHER 8MM
6	PSB1118006	HINGE
7	PSB1118007	HEX NUT M8-1.25
8	PSB1118008	TOP COVER
9	PSB1118009	PAD
10	PSB1118010	HANDLE
12	PSB1118012	FLAT WASHER 6MM
18	PSB1118018	HEX NUT M5-.8
19	PSB1118019	CAP SCREW M8-1.25 X 20
21	PSB1118021	SPROCKET 13T
22	PSB1118022	FLAT WASHER 10MM
23	PSB1118023	HEX NUT M10-1.5
28	PSB1118028	HEX NUT M6-1
39	PSB1118039	SET SCREW M6-1 X 30
40	PSB1118040	DUST PORT 6"
41	PSB1118041	HEX BOLT M5-.8 X 25
42	PSB1118042	PLATE
43	PSB1118043	BEARING BLOCK
44	PSB1118044	REAR ROLLER
45	PSB1118045	KEY 5 X 5 X 12 RE
46	PSB1118046	FENDER WASHER 8.5 X 30 X 3.3
47	PSB1118047	CAP SCREW M10-1.5 X 20
50	PSB1118050	CAP SCREW M10-1.5 X 40
52	PSB1118052	SPROCKET 22T
53	PSB1118053	EXT RETAINING RING 62MM
54	PSB1118054	LONG REAR ROLLER
55	PSB1118055	BALL BEARING 6007-2NSE
56	PSB1118056	BALL BEARING 6010-2NSE
57	PSB1118057	KEY 8 X 7 X 35 RE
58	PSB1118058	HELICAL CUTTERHEAD ASSEMBLY
58-1	PSB1118058-1	HELICAL CUTTERHEAD 25"
58-2	PSB1118058-2	FLAT HD TORX SCR #10-32 X 1/2
58-3	PSB1118058-3	CARBIDE INSERT 15 X 15 X 2.5MM
61	PSB1118061	RUBBER PIN
63	PSB1118063	COLLAR
65	PSB1118065	FENDER WASHER 11 X 53 X 3
66	PSB1118066	CUTTERHEAD PULLEY
67	PSB1118067	BUSHING
68	PSB1118068	LOCK WASHER 10MM
69	PSB1118069	SET SCREW M8-1.25 X 10
72	PSB1118072	MOUNTING BRACKET, LEFT
73	PSB1118073	SHAFT
74	PSB1118074	SHAFT
76	PSB1118076	COLLAR
77	PSB1118077	KEY 8 X 7 X 16 RE
78	PSB1118078	SHAFT
79	PSB1118079	BUSHING
80	PSB1118080	INFEED ROLLER
81	PSB1118081	MOUNTING BRACKET, RIGHT
82	PSB1118082	PLATE

REF	PART #	DESCRIPTION
83	PSB1118083	SHAFT
84	PSB1118084	COMPRESSION SPRING 5 X 29 X 90
85	PSB1118085	BRACKET LEFT
87	PSB1118087	PRESSURE ARM
88	PSB1118088	TORSION SPRING
89	PSB1118089	BRACKET RIGHT
90	PSB1118090	SHAFT
91	PSB1118091	SHAFT
92	PSB1118092	COLLAR
93	PSB1118093	ANTI-KICKBACK PAWL
94	PSB1118094	INT RETAINING RING 47MM
103	PSB1118103	BUTTON HD CAP SCR M6-1 X 12
106	PSB1118106	CHAIN #40 X 24P
130	PSB1118130	EXT RETAINING RING 30MM
146	PSB1118146	LOCK WASHER 6MM
159	PSB1118159	KNOB ASSEMBLY
159-1	PSB1118159-1	BEZEL
159-2	PSB1118159-2	DIAL
159-3	PSB1118159-3	BRACKET
159-4	PSB1118159-4	BEZEL NUT
159-5	PSB1118159-5	BUTTON HD CAP SCR M6-1 X 10
159-6	PSB1118159-6	FLAT WASHER 6MM
169	PSB1118169	CAP SCREW M6-1 X 26
178	PSB1118178	CHAIN #40 X 58P
189	PSB1118189	ROLL PIN 8 X 20
193	PSB1118193	BALL BEARING 6906ZZ
218	PSB1118218	SPROCKET 26T
224	PSB1118224	LOCK NUT M10-1.5
226	PSB1118226	CAP SCREW M10-1.5 X 30
234	PSB1118234	FENDER WASHER 11 X 53 X 3
235	PSB1118235	CAP SCREW M10-1.5 X 20
236	PSB1118236	CAP SCREW M10-1.5 X 45
237	PSB1118237	CHAIN #40 X 74P
255	PSB1118255	SET SCREW M4-.7 X 6
257	PSB1118257	HEX BOLT M10-1.5 X 70
258	PSB1118258	CAP SCREW M8-1.25 X 20
268	PSB1118268	CAP SCREW M10-1.5 X 50
275	PSB1118275	HEX WRENCH 5MM
276	PSB1118276	HEX WRENCH 8MM
277	PSB1118277	WRENCH 12 X 14MM OPEN-ENDS
278	PSB1118278	WRENCH 17 X 19MM OPEN-ENDS
279	PSB1118279	WRENCH 22 X 24MM OPEN-ENDS
280	PSB1118280	FLAT SCREWDRIVER #1
281	PSB1118281	TORX DRIVER T-25
285	PSB1118285	HEX WRENCH 3MM
286	PSB1118286	HEX WRENCH 4MM
293	PSB1118293	EXT RETAINING RING 90MM
297	PSB1118297	OIL CUP 3/16"
303	PSB1118303	CAP SCREW M10-1.5 X 20
309	PSB1118309	CAP SCREW M6-1 X 20
310	PSB1118310	FLAT WASHER 6MM
318	PSB1118318	LOCK NUT M6-1

Table

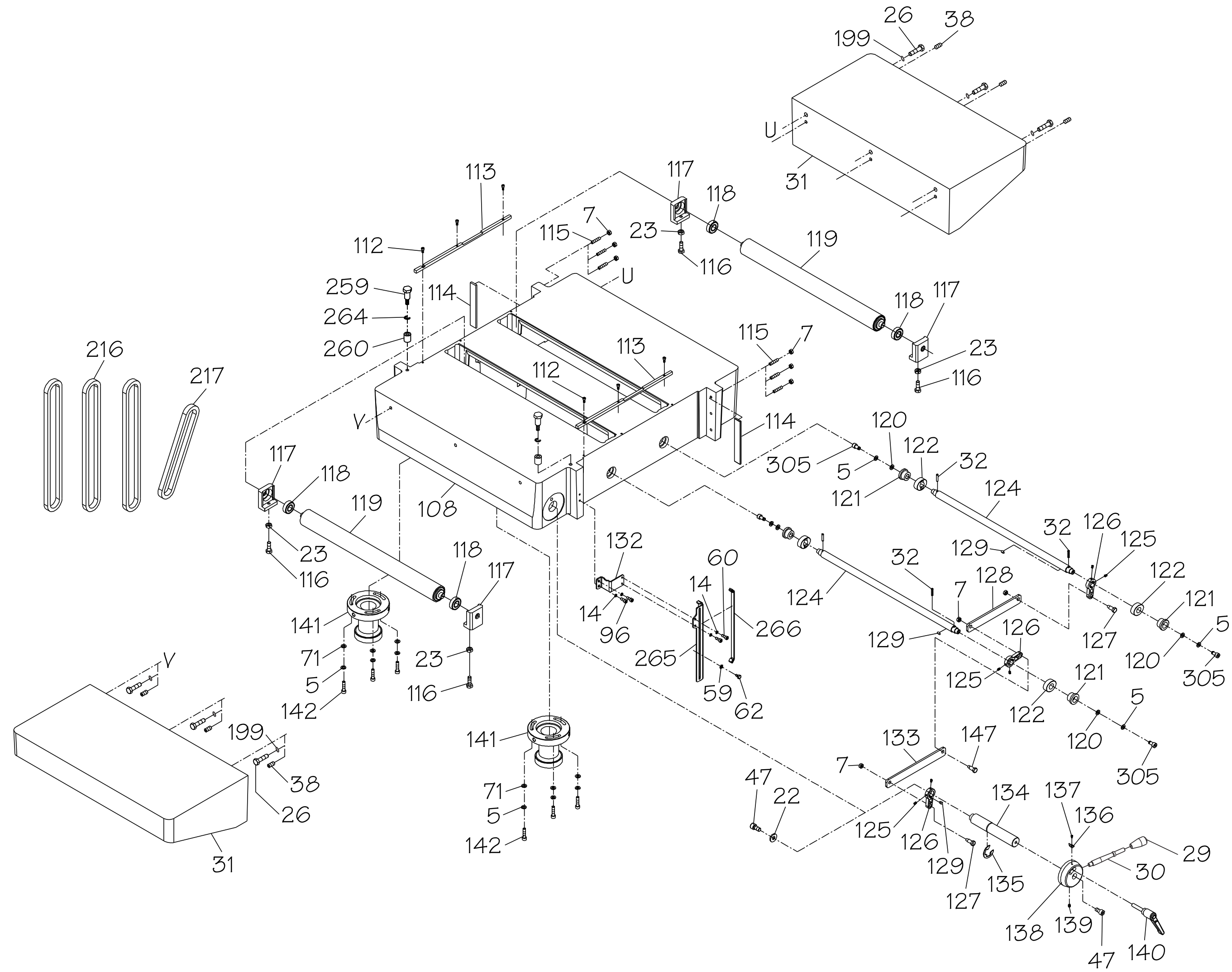
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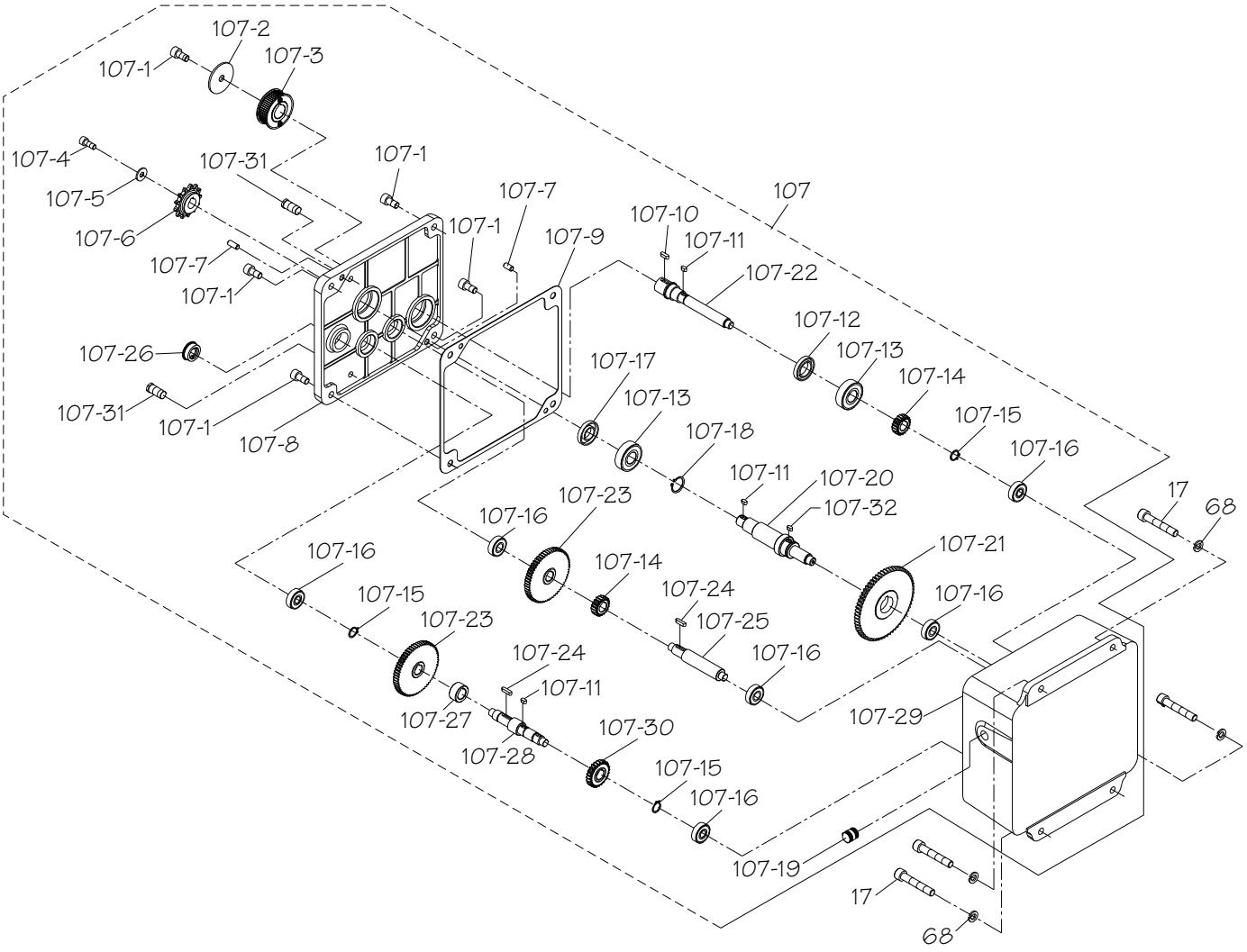
Table Parts List

REF	PART #	DESCRIPTION
5	PSB1118005	LOCK WASHER 8MM
7	PSB1118007	HEX NUT M8-1.25
14	PSB1118014	LOCK WASHER 5MM
22	PSB1118022	FLAT WASHER 10MM
23	PSB1118023	HEX NUT M10-1.5
26	PSB1118026	HEX BOLT M12-1.75 X 50
29	PSB1118029	KNOB 3/8-16, D1-1/4, TAPERED
30	PSB1118030	SHAFT 3/8-16, 5-7/8L
31	PSB1118031	EXTENSION TABLE
32	PSB1118032	ROLL PIN 5 X 25
38	PSB1118038	SET SCREW M10-1.5 X 20
47	PSB1118047	CAP SCREW M10-1.5 X 20
59	PSB1118059	WAVY WASHER 6MM
60	PSB1118060	CAP SCREW M5-.8 X 10
62	PSB1118062	SHOULDER BOLT M5-.8 X 7, 10 X 4
71	PSB1118071	FLAT WASHER 8MM
96	PSB1118096	CAP SCREW M5-.8 X 10
108	PSB1118108	MAIN TABLE
112	PSB1118112	CAP SCREW M5-.8 X 16
113	PSB1118113	GUIDE PLATE
114	PSB1118114	GIB
115	PSB1118115	SET SCREW M8-1.25 X 40
116	PSB1118116	HEX BOLT M10-1.5 X 30
117	PSB1118117	ROLLER BRACKET
118	PSB1118118	BALL BEARING 6203-2NSE
119	PSB1118119	ROLLER
120	PSB1118120	FLAT WASHER 8MM
121	PSB1118121	SHAFT

REF	PART #	DESCRIPTION
122	PSB1118122	CAM
124	PSB1118124	ROLLER
125	PSB1118125	SET SCREW M5-.8 X 8
126	PSB1118126	PLATE
127	PSB1118127	SHOULDER BOLT M8-1.25 X 8, 14 X 18
128	PSB1118128	BRACKET
129	PSB1118129	KEY 5 X 5 X 10 RE
132	PSB1118132	SCALE BRACKET
133	PSB1118133	BRACKET
134	PSB1118134	HUB SHAFT
135	PSB1118135	E-CLIP 24MM
136	PSB1118136	POINTER
137	PSB1118137	BUTTON HD CAP SCR M4-.7 X 6
138	PSB1118138	HUB
139	PSB1118139	SET SCREW M6-1 X 8
140	PSB1118140	ADJ HANDLE M10-1.5 X 50, 75L
141	PSB1118141	HOUSING BRACKET
142	PSB1118142	CAP SCREW M8-1.25 X 40
147	PSB1118147	SHOULDER BOLT M8-1.25 X 8, 14 X 24
199	PSB1118199	FLAT WASHER 12MM
216	PSB1118216	V-BELT A81
217	PSB1118217	V-BELT 3GT-720-15
259	PSB1118259	SHOULDER BOLT M10-1.5 X 20, 16 X 22
260	PSB1118260	SPACER 26 X 20 X 12
264	PSB1118264	E-CLIP 8MM
265	PSB1118265	BRACKET
266	PSB1118266	MAGNETIC STRIP
305	PSB1118305	CAP SCREW M8-1.25 X 16

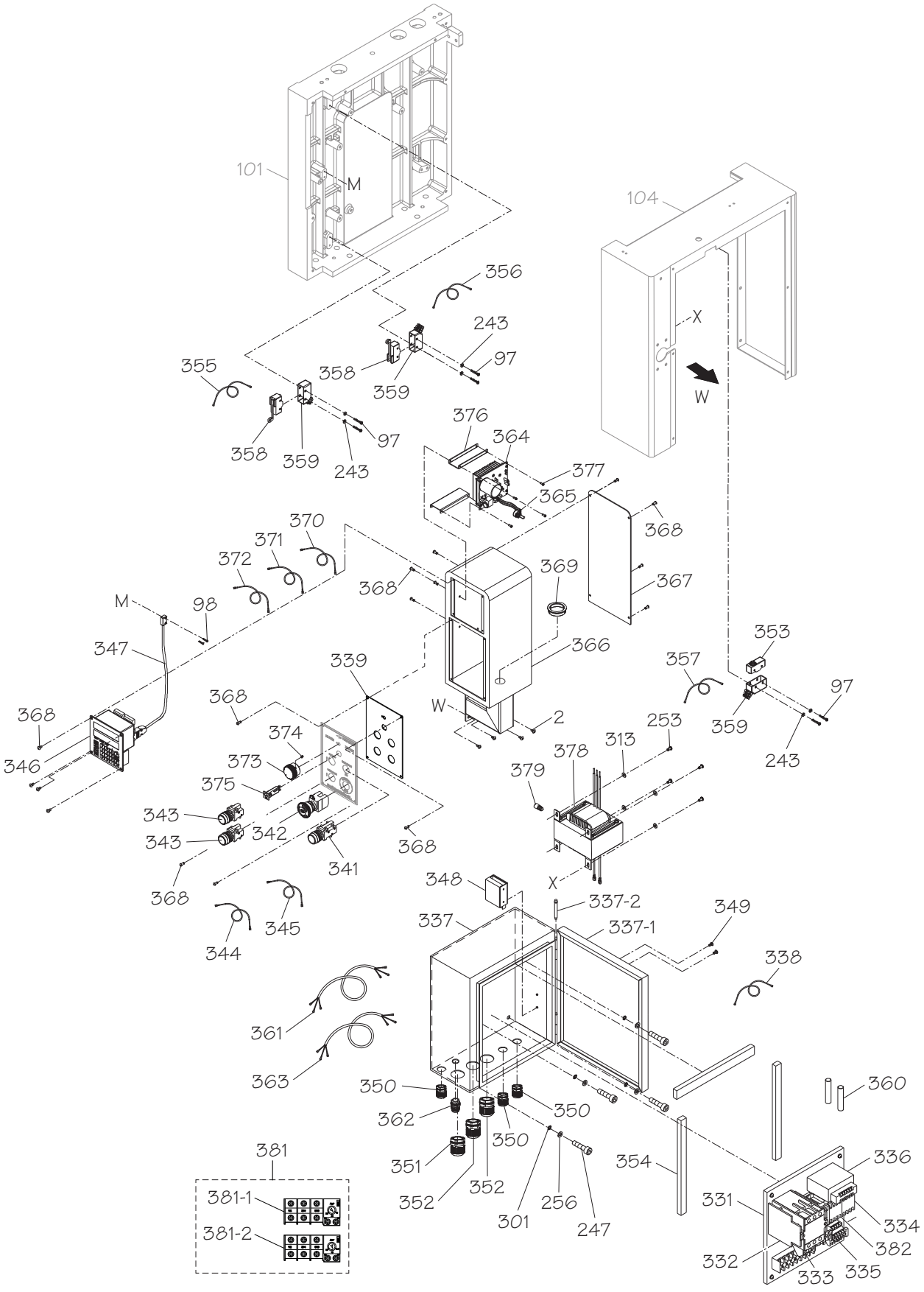
Gearbox



REF	PART #	DESCRIPTION
17	PSB1118017	CAP SCREW M10-1.5 X 35
68	PSB1118068	LOCK WASHER 10MM
107	PSB1118107	GEARBOX ASSEMBLY
107-1	PSB1118107-1	CAP SCREW M10-1.5 X 20
107-2	PSB1118107-2	FLAT WASHER 10 X 25 X 3
107-3	PSB1118107-3	PULLEY
107-4	PSB1118107-4	CAP SCREW M8-1.25 X 20
107-5	PSB1118107-5	FLAT WASHER 8MM
107-6	PSB1118107-6	SPROCKET 13T
107-7	PSB1118107-7	ROLL PIN 8 X 18
107-8	PSB1118107-8	GEARBOX COVER
107-9	PSB1118107-9	GASKET
107-10	PSB1118107-10	KEY 5 X 5 X 16 RE
107-11	PSB1118107-11	KEY 5 X 5 X 10 RE
107-12	PSB1118107-12	OIL SEAL TC 24 X 40 X 7
107-13	PSB1118107-13	BALL BEARING 6204-2NSE
107-14	PSB1118107-14	GEAR 20T
107-15	PSB1118107-15	EXT RETAINING RING 16MM

REF	PART #	DESCRIPTION
107-16	PSB1118107-16	BALL BEARING 6201-2NSE
107-17	PSB1118107-17	OIL SEAL TC 20 X 40 X 7
107-18	PSB1118107-18	EXT RETAINING RING 25MM
107-19	PSB1118107-19	PLUG 16MM
107-20	PSB1118107-20	GEAR SHAFT
107-21	PSB1118107-21	GEAR 64T
107-22	PSB1118107-22	GEAR SHAFT
107-23	PSB1118107-23	GEAR 60T
107-24	PSB1118107-24	KEY 5 X 5 X 20 RE
107-25	PSB1118107-25	GEAR SHAFT
107-26	PSB1118107-26	OIL SIGHT GLASS 29MM
107-27	PSB1118107-27	BUSHING
107-28	PSB1118107-28	GEAR SHAFT
107-29	PSB1118107-29	GEARBOX
107-30	PSB1118107-30	GEAR 24T
107-31	PSB1118107-31	OIL PLUG 1/4" NPT
107-32	PSB1118107-32	KEY 5 X 5 X 8 RE

Electrical Components

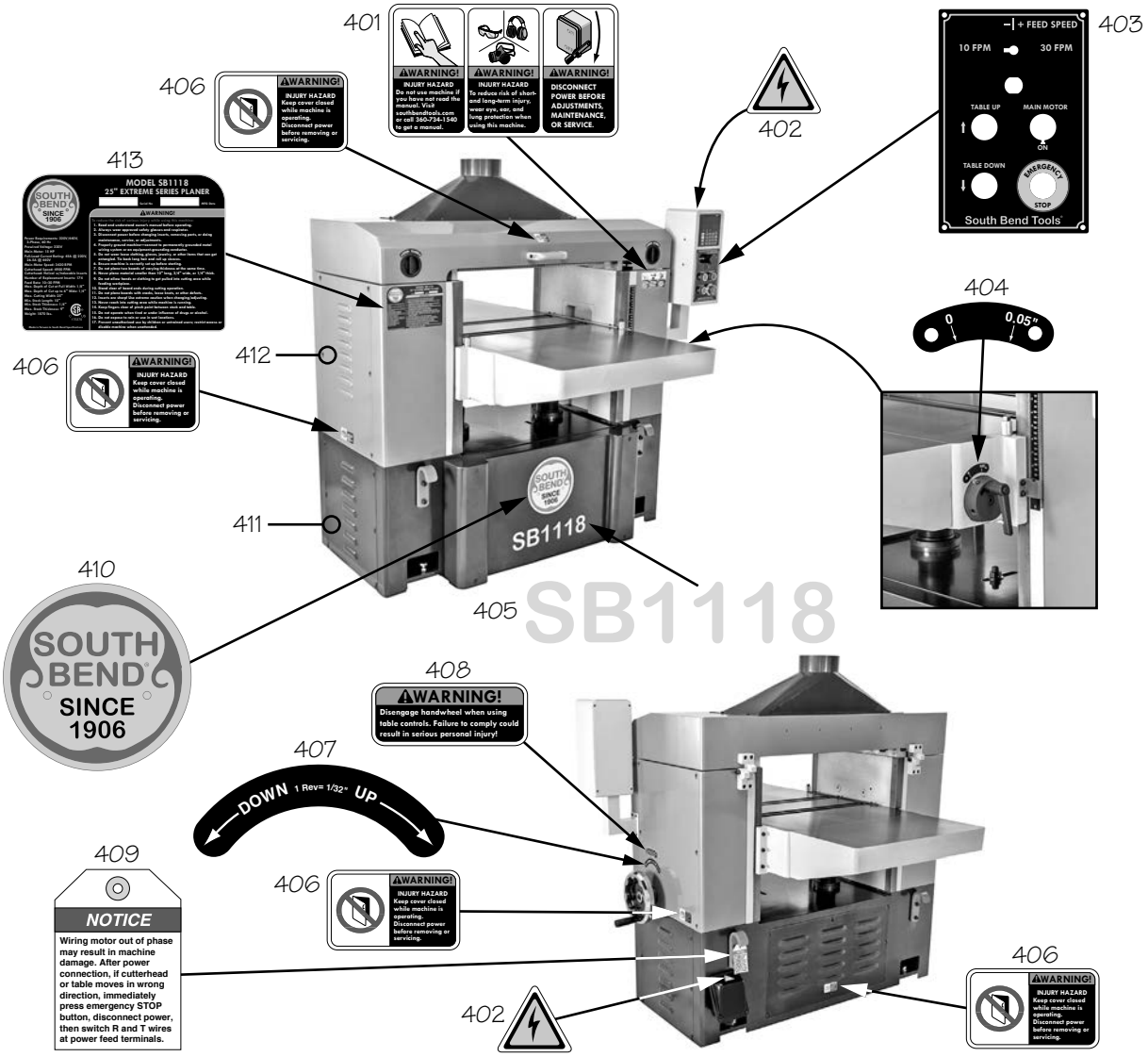


Electrical Components Parts List

REF	PART #	DESCRIPTION
2	PSB1118002	BUTTON HD CAP SCR M6-1 X 10
97	PSB1118097	PHLP HD SCR M4-.7 X 30
98	PSB1118098	BUTTON HD CAP SCR M3-.5 X 15
243	PSB1118243	FLAT WASHER 4MM
247	PSB1118247	CAP SCREW M6-1 X 12
253	PSB1118253	BUTTON HD CAP SCR M5-.8 X 10
256	PSB1118256	FLAT WASHER 6MM
301	PSB1118301	EXT TOOTH WASHER 6MM
313	PSB1118313	FLAT WASHER 5MM
331	PSB1118331	ELECTRICAL PANEL
332	PSB1118332	CONTACTOR SDE MA-55 220V
333	PSB1118333	OL SDE RA-30 34-48A
334	PSB1118334	CONTACTOR SDE MA-09 220-240V
335	PSB1118335	OL SDE RA-20 1.6-2.5A
336	PSB1118336	TRANSFORMER GDM 40VA 230/460V 24/220V
337	PSB1118337	ELECTRICAL BOX
337-1	PSB1118337-1	ELECTRICAL BOX DOOR
337-2	PSB1118337-2	HINGE PIN
338	PSB1118338	CONTROLLER CORD
339	PSB1118339	COVER PLATE
341	PSB1118341	MOTOR ON BUTTON YK YS-PF1-3 10A 250V
342	PSB1118342	E-STOP BUTTON YIJIA LA36M 10A 660V
343	PSB1118343	START BUTTON YK YS-F1-3 10A 250V
344	PSB1118344	CORD 18G 2W 12-5/8" CSA
345	PSB1118345	CORD 18G 7W 55-1/8" CSA
346	PSB1118346	KEYPAD ASSY & DIGITAL READOUT M155 DC24V
347	PSB1118347	SENSOR CABLE
348	PSB1118348	POWER SUPPLY MEAN WELL RS-15-24
349	PSB1118349	BUTTON HD CAP SCR M3-.5 X 6
350	PSB1118350	STRAIN RELIEF TYPE-3 PG13.5
351	PSB1118351	STRAIN RELIEF TYPE-3 PG21
352	PSB1118352	STRAIN RELIEF TYPE-3 M25 X 1.5

REF	PART #	DESCRIPTION
353	PSB1118353	LIMIT SWITCH MJ2-1307 15A 125V
354	PSB1118354	COVER PAD
355	PSB1118355	CORD 18G 2W 23-5/8" CSA
356	PSB1118356	CORD 18G 2W 37-3/8" CSA
357	PSB1118357	CORD 18G 2W 38-1/4" CSA
358	PSB1118358	LIMIT SWITCH MJ2-1703 15A 125V
359	PSB1118359	LIMIT SWITCH HOUSING KSSCB-2
360	PSB1118360	FUSE 2A 250V
361	PSB1118361	CORD 16G 4W 34-5/8" CSA
362	PSB1118362	STRAIN RELIEF TYPE-3 M16-1.5
363	PSB1118363	CORD 16G 2W 43-5/16" CSA
364	PSB1118364	CIRCUIT BOARD PWM (AC 120V)
365	PSB1118365	POTENTIOMETER PWM 10 KOHM
366	PSB1118366	CONTROL PANEL BOX
367	PSB1118367	CONTROL PANEL BOX REAR COVER
368	PSB1118368	BUTTON HD CAP SCR M4-.7 X 10
369	PSB1118369	GROMMET 45MM
370	PSB1118370	CORD 16G 1W 11-3/4"
371	PSB1118371	CORD 16G 2W 63" CSA
372	PSB1118372	CORD 16G 2W 43-5/16" CSA
373	PSB1118373	POTENTIOMETER KNOB
374	PSB1118374	SET SCREW M4-.7 X 4
375	PSB1118375	CIRCUIT BREAKER ZING EAR ZE-800 10A 125V
376	PSB1118376	MOUNTING PLATE
377	PSB1118377	BUTTON HD CAP SCR M3-.5 X 8
378	PSB1118378	TRANSFORMER SL SP-CL-20660 220V/440V
379	PSB1118379	PAD
381	PSB1118381	440V CONVERSION KIT
381-1	PSB1118381-1	OL SDE RA-30 18-26A
381-2	PSB1118381-2	OL SDE RA-20 0.9-1.5A
382	PSB1118382	WAVE FILTER CETUS 0.1UF 120 OHM

Machine Labels



REF	PART #	DESCRIPTION
401	PSB1118401	COMBO SAFETY LABEL
402	PSB1118402	ELECTRICITY LABEL
403	PSB1118403	CONTROL PANEL LABEL
404	PSB1118404	TABLE ROLLER LABEL
405	PSB1118405	MODEL NUMBER LABEL
406	PSB1118406	KEEP DOOR CLOSED LABEL
407	PSB1118407	TABLE ELEVATION LABEL

REF	PART #	DESCRIPTION
408	PSB1118408	DISENGAGE HANDWHEEL LABEL
409	PSB1118409	MOTOR PHASE NOTICE
410	PSB1118410	SOUTH BEND NAMEPLATE 203MM
411	PSB1118411	TOUCH-UP PAINT, SB DARK BLUE
412	PSB1118412	TOUCH-UP PAINT, SB LIGHT BLUE
413	PSB1118413	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 Tools at (360) 734-1540 or www.southbendtools.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.

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