

MODEL W1805 16 $\frac{1}{2}$ " DOVETAIL MACHINE



OWNER'S MANUAL (FOR MODELS MANUFACTURED 7/15)

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WARNING: NO PORTION OF THIS MANUAL MAY BE REPRODUCED IN ANY SHAPE OR FORM WITHOUT

THE WRITTEN APPROVAL OF WOODSTOCK INTERNATIONAL, INC.



WARNING!

This manual provides critical safety instructions on the proper setup, operation, maintenance, and service of this machine/tool. Save this document, refer to it often, and use it to instruct other operators.

Failure to read, understand and follow the instructions in this manual may result in fire or serious personal injury—including amputation, electrocution, or death.

The owner of this machine/tool is solely responsible for its safe use. This responsibility includes but is not limited to proper installation in a safe environment, personnel training and usage authorization, proper inspection and maintenance, manual availability and comprehension, application of safety devices, cutting/sanding/grinding tool integrity, and the usage of personal protective equipment.

The manufacturer will not be held liable for injury or property damage from negligence, improper training, machine modifications or misuse.



WARNING!

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

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

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

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INTRODUCTION

Woodstock Technical Support

This machine has been specially designed to provide many years of trouble-free service. Close attention to detail, ruggedly built parts and a rigid quality control program assure safe and reliable operation.

Woodstock International, Inc. is committed to customer satisfaction. Our intent with this manual is to include the basic information for safety, setup, operation, maintenance, and service of this product.

We stand behind our machines! In the event that questions arise about your machine, please contact Woodstock International Technical Support at (360) 734-3482 Ext. 2 or send e-mail to: techsupport@woodstockint.com. Our knowledgeable staff will help you troubleshoot problems and process warranty claims.

If you need the latest edition, you can download it from <http://www.woodstockint.com/manuals>.
If you have comments about this manual, please contact us at:

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MACHINE SPECIFICATIONS



Phone #: (360) 734-3482 • Online Tech Support: tech-support@shopfox.biz • Web: www.shopfox.biz

MODEL W1805 16" PNEUMATIC CLAMPING DOVETAIL MACHINE

Motor

Type	TEFC Capacitor Start Induction
Horsepower	1 HP
Voltage	110V/220V
Prewired	220V
Phase	Single
Amps	10/5 A
Speed	3450 RPM
Cycle	60 Hz
Power Transfer	V-Belt Drive
Bearings	Sealed and Lubricated

Main Specifications

Cutting Capacities

Maximum Dovetail Height.....	³ / ₄ "
Minimum Dovetail Height	³ / ₁₆ "
Maximum Workpiece Thickness	2 ³ / ₈ "
Minimum Workpiece Thickness.....	¹³ / ₃₂ "
Maximum Workpiece Size	16 ¹ / ₂ " W x 59" L
Minimum Workpiece Size	2 ³ / ₈ " W x 7 ⁷ / ₈ " L

Spindle & Bit Information

Number of Spindles	1
Spindle Speed	18,500 RPM
Dovetail Shank Diameter.....	¹ / ₂ " (12mm)
Dovetail Bit.....	Angle 10° x ⁵ / ₈ " L, Single Cutter
Dovetail Templates	1", 1 ¹ / ₂ ", 2", 2 ¹ / ₂ "

Overall Dimensions

Machine Size	35 ⁵ / ₈ " W x 26 ¹ / ₂ " D x 56 ⁷ / ₈ " H
Machine Weight	440 Lbs.
Footprint	37" W x 21 ¹ / ₄ " L
Table Height.....	46 ⁷ / ₁₆ "
Table Size	24" W x 7 ³ / ₄ " L

Construction Materials

Cabinet	Pre-Formed Steel
Carriage	Aluminum
Slide Way.....	Hardened & Ground Chromed Steel
Table.....	Precision Ground Cast Iron
Sliding Guide	Ball Bearing Linear Guides
Paint	Powder Coated



Shipping Dimensions

Shipping Crate Size 42" W x 30" L x 64" H
 Shipping Weight 539 Lbs.

Electrical

Switch Magnetic Switch
 Cord Length 9 ft.
 Cord Gauge 14 gauge
 Recommended Circuit Size at 220V 15 amp
 Recommended Circuit Size at 110V 15 amp
 Recommended Plug Type for 220V 6-15
 Recommended Plug Type for 110V 5-15

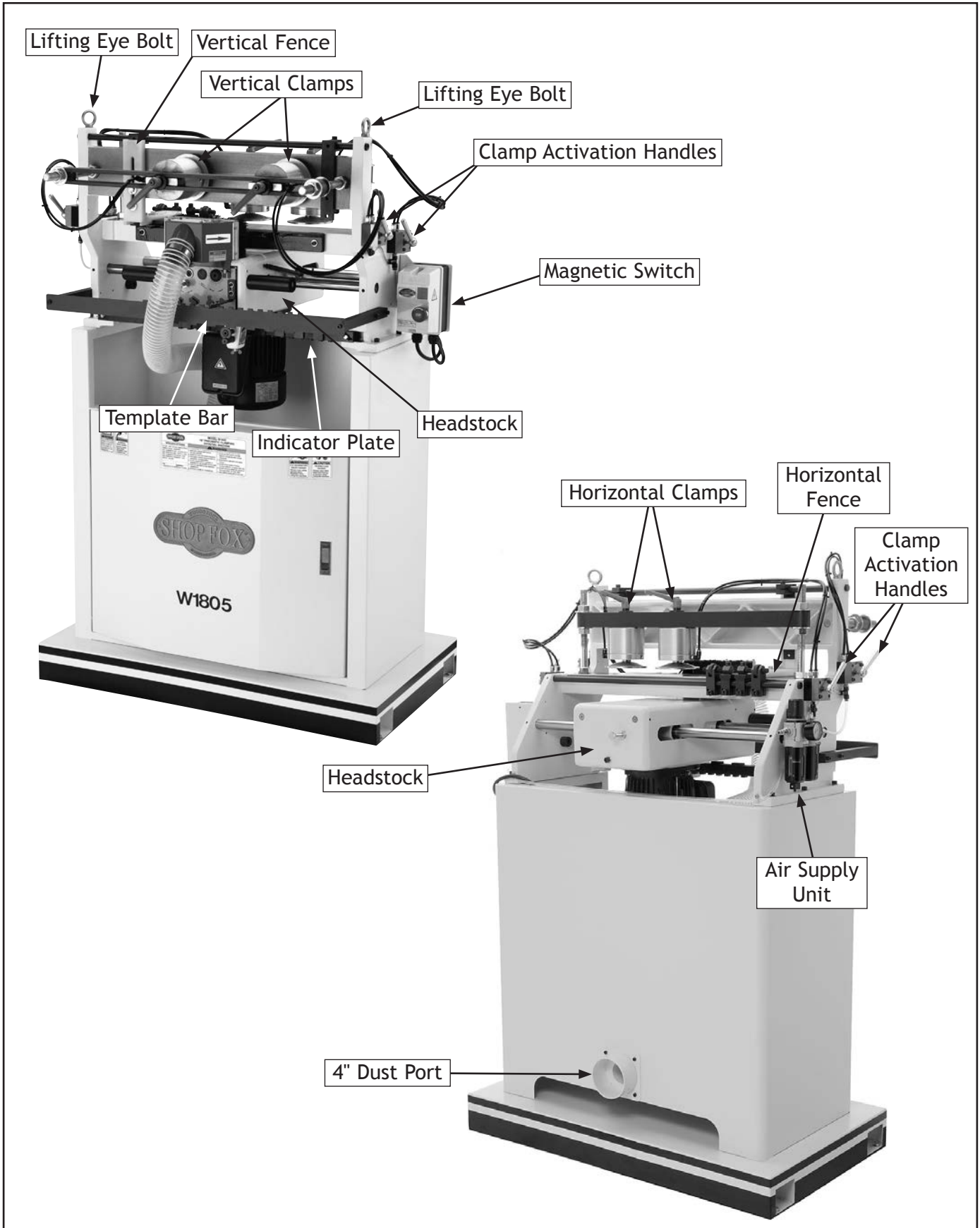
Other

Number of Dust Ports 1
 Dust Port Size 4"
 Approximate Assembly Time 15 Minutes
 Warranty 2 Year
 Country of Origin Taiwan

Machine Highlights

Dual pneumatic clamps for lightning-fast workpiece loading/unloading
 1HP, 110V/220V, Motor (prewired 220V)
 Included 1", 1½", 2", and 2½" dovetail templates
 Micro-adjustable cutter controls for precision-fit dovetails
 Handles workpieces as large as 2¾"H x 16½"W x 59"L
 Once setup, can create a dovetail joined box in under 40 seconds!

Controls & Features



SAFETY

For Your Own Safety, Read Manual Before Operating Machine

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words intended to convey the level of importance of the safety messages. The progression of symbols is described below. Remember that safety messages by themselves do not eliminate danger and are not a substitute for proper accident prevention measures—this responsibility is ultimately up to the operator!



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



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



Indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury.

NOTICE

This symbol is used to alert the user to useful information about proper operation of the equipment or a situation that may cause damage to the machinery.

Standard Machinery Safety Instructions

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

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

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

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

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

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

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

WEARING PROPER APPAREL. Do not wear clothing, apparel, or jewelry that can become entangled in moving parts. Always tie back or cover long hair. Wear non-slip footwear to avoid accidental slips, which could cause loss of workpiece control.

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

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

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

INTENDED USAGE. Only use machine for its intended purpose—never make modifications without prior approval from Woodstock International. Modifying machine or using it differently than intended will void the warranty and may result in malfunction or mechanical failure that leads to serious personal injury or death!

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

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

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

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

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

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

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

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

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

CHECK DAMAGED PARTS. Regularly inspect machine for any condition that may affect safe operation. Immediately repair or replace damaged or mis-adjusted parts before operating machine.

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

EXPERIENCING DIFFICULTIES. If at any time you experience difficulties performing the intended operation, stop using the machine! Contact Technical Support at (360) 734-3482.

Additional Safety for Dovetail Machines

SAFETY

!WARNING
 READ and understand this entire instruction manual before using this machine. Serious personal injury may occur if safety and operational information is not understood and followed. **DO NOT** risk your safety by not reading!

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

GUARD. The guard helps protect the operator from the spinning cutter and flying debris during operation. Never operate the dovetail machine or allow it to be connected to power when the guard is removed or serious personal injury may occur.

BOARD EJECTION. The machine may eject boards in the horizontal position if they are not clamped securely. Never allow others to stand directly behind the dovetail machine during operation or serious injury may occur.

SAFETY GLASSES. Even with the guard in place, occasional chips may be ejected from the machine. Operator and bystanders **MUST** wear ANSI approved safety glasses to prevent eye injuries.

CUTTER STARTING POSITION. Starting the machine with the cutter against a workpiece or fence may eject debris from the machine and most likely will ruin the workpiece or cutter. Move the cutter clear of any contact before starting the machine!

DISCONNECT POWER BEFORE ANY ADJUSTMENTS. This machine requires the operator to work near the exposed cutter during setup. Always disconnect power **BEFORE** making adjustments to the machine or serious personal injury may occur.

LOOSE CUTTER. Starting the machine with a loose cutter may eject the cutter from the machine at a high rate of speed, causing serious personal injury to the operator or bystanders. Always double-check that the cutter is tight after adjusting.

REMOVE ADJUSTMENT TOOLS. Starting the machine with a wrench left in the spindle adjustment screw can result in serious personal injury. Always remove any wrenches or other adjustment tools from the machine after adjustments have been made and before starting the machine.

DUST COLLECTION. Using dust collection when operating this machine greatly reduces flying debris and fine airborne dust, which reduces the risk of personal injury from these hazards. Always use a dust collection system when operating this machine.

ELECTRICAL

Circuit Requirements

This machine must be connected to the correct size and type of power supply circuit, or fire or electrical damage may occur. Read through this section to determine if an adequate power supply circuit is available. If a correct circuit is not available, a qualified electrician **MUST** install one before you can connect the machine to power.

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

Full-Load Current Rating

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

Full-Load Current Rating at 220V5 Amps
Full-Load Current Rating at 110V 10 Amps

Circuit Requirements for 220V (Prewired)

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

Nominal Voltage 208V, 220V, 230V, 240V
Cycle 60 Hz
Phase 1-Phase
Power Supply Circuit 15 Amps
Plug/Receptacle NEMA 6-15
Cord "S"-Type, 3-Wire, 14 AWG, 300 VAC


Circuit Requirements for 110V

This machine can be converted to operate on a power supply circuit that has a verified ground and meets the requirements listed below. (Refer to 110V Wiring Diagram on **Page 34** for details.)

Circuit Type 110V/120V, 60 Hz, Single-Phase
Circuit Size 15 Amps
Plug/Receptacle NEMA 5-15

⚠ WARNING
The machine must be properly set up before it is safe to operate. **DO NOT** connect this machine to the power source until instructed to do so later in this manual.

⚠ WARNING



Incorrectly wiring or grounding this machine can cause electrocution, fire, or machine damage. To reduce this risk, only an electrician or qualified service personnel should do any required electrical work on this machine.

NOTICE

The circuit requirements listed in this manual apply to 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 with an electrician to ensure that the circuit is properly sized for safe operation.

ELECTRICAL

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 to travel—in order to reduce the risk of electric shock.

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

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

For 220V Connection (Prewired)

The power cord and plug specified under “Circuit Requirements for 220V” on the previous page has an equipment-grounding wire and a grounding prong. The plug must only be inserted into a matching receptacle (outlet) that is properly installed and grounded in accordance with all local codes and ordinances (see figure).

For 110V Connection (Must be Rewired)

A NEMA 5-15 plug has a grounding prong that must be attached to the equipment-grounding wire inside the included power cord. The plug must only be inserted into a matching receptacle (see Figure) that is properly installed and grounded in accordance with all local codes and ordinances.

Extension Cords

We do not recommend using an extension cord with this machine. Extension cords cause voltage drop, which may damage electrical components and shorten motor life. Voltage drop increases with longer extension cords and smaller gauge sizes (higher gauge numbers indicate smaller sizes).

Any extension cord used with this machine must contain a ground wire, match the required plug and receptacle, and meet the following requirements:

- Minimum Gauge Size at 220V 14 AWG
- Maximum Length (Shorter is Better) 50 ft.

ELECTRICAL

⚠ WARNING

The machine must be properly set up before it is safe to operate. **DO NOT** connect this machine to the power source until instructed to do so later in this manual.

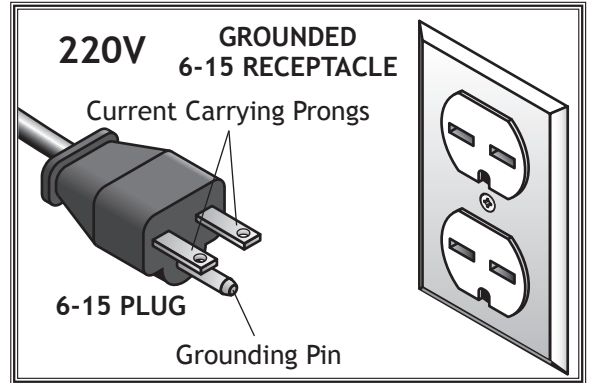


Figure 1. NEMA 6-15 plug & receptacle.

⚠ CAUTION

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

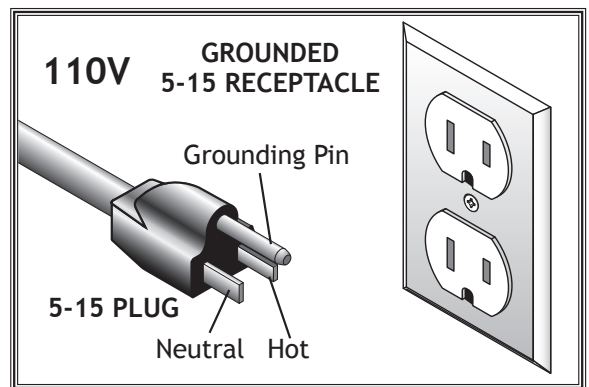


Figure 2. NEMA 5-15 plug & receptacle.

SETUP

Unpacking

This machine has been carefully packaged for safe transportation. If you notice the machine has been damaged during shipping, please contact your authorized Shop Fox dealer immediately.

Inventory

The following is a description of the main components shipped with the Model W1805. Lay the components out to inventory them.

Note: *If you can't find an item on this list, check the mounting location on the machine or examine the packaging materials carefully. Occasionally we pre-install certain components for safer shipping.*

Box Inventory: (Figure 3)	Qty
A. Hex Bolts M8-1.25 x 20	4
B. Flat Washers 8mm	4
C. Fixed Chaser 2 1/2"	1
D. Fixed Chaser 3"	1
E. Indicator Bar 1 1/2" and 2 1/2"	1
F. Hex Wrench Set (1.5-6mm)	1 Each
G. Combo Wrench Set (8-10, 11-13, 12-14, and 17-19mm)	1 Each
H. Extra Vertical HDPE Fence	1
I. Extra Horizontal HDPE Fence	1
J. Open-End Offset Wrench 30mm.....	1

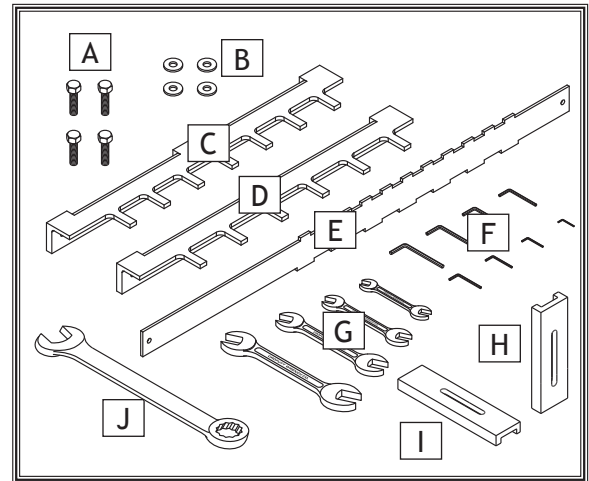
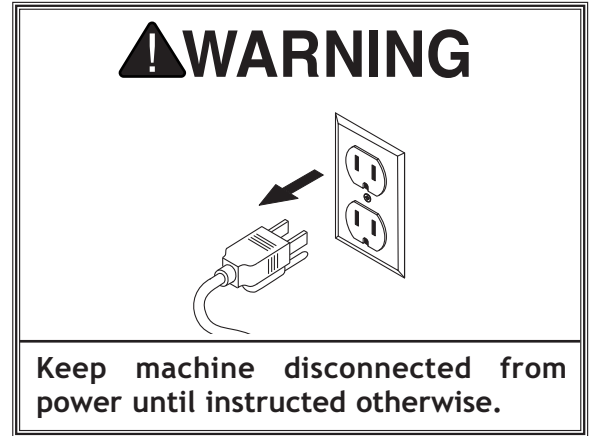


Figure 3. Model W1805 inventory.

SETUP

Machine Placement

- **Floor Load:** This machine distributes a heavy load in a small footprint. Some residential floors may require additional bracing to support both machine and operator.
- **Working Clearances:** Consider existing and anticipated needs, size of material to be processed through the machine, and space for auxiliary stands, work tables or other machinery when establishing a location for your machine.
- **Lighting:** Lighting should be bright enough to eliminate shadow and prevent eye strain.
- **Electrical:** Electrical circuits must be dedicated or large enough to handle amperage requirements. Outlets must be located near each machine, so power or extension cords are clear of high-traffic areas. Follow local electrical codes for proper installation of new lighting, outlets, or circuits.

	<p>⚠ WARNING USE helpers or power lifting equipment to lift this 16¹/₂" Dovetail Machine. Otherwise, serious personal injury may occur.</p>
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	<p>⚠ CAUTION MAKE your shop "child safe." Ensure that your workplace is inaccessible to children by closing and locking all entrances when you are away. NEVER allow untrained visitors in your shop when assembling, adjusting or operating equipment.</p>
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Cleaning Machine

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

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

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

Before cleaning, gather the following:

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

Basic steps for removing rust preventative:

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

<p style="text-align: center;">NOTICE</p> <p>Avoid chlorine-based solvents, such as acetone or brake parts cleaner, that may damage painted surfaces.</p>

SETUP

Lifting & Moving

The Model W1805 is designed to be lifted from two eye bolts mounted near the top of the machine, on both sides, using a forklift with lifting straps. The lifting straps can be connected to the eye bolts with metal shackles.

To lift the Model W1805 with a forklift, do these steps:

1. Unbolt the base of the dovetail machine from the shipping pallet (**Figure 4**), so it can be removed for placement.
2. Connect the lifting straps to the eye bolts, using shackles, as shown in **Figure 5**.
3. Lift the machine and place it in your desired location.
4. Remove the forklift straps.

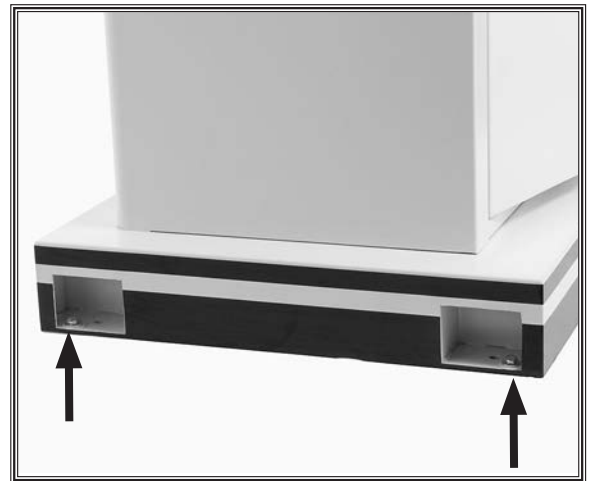


Figure 4. Example of where machine is bolted to the pallet (shows only one side; machine is also bolted on other side).

	<p>⚠ WARNING The Model W1805 is a heavy machine. Serious personal injury may occur if safe moving methods are not used. To be safe, get assistance and use power equipment to move the shipping crate and remove the machine from the crate.</p>
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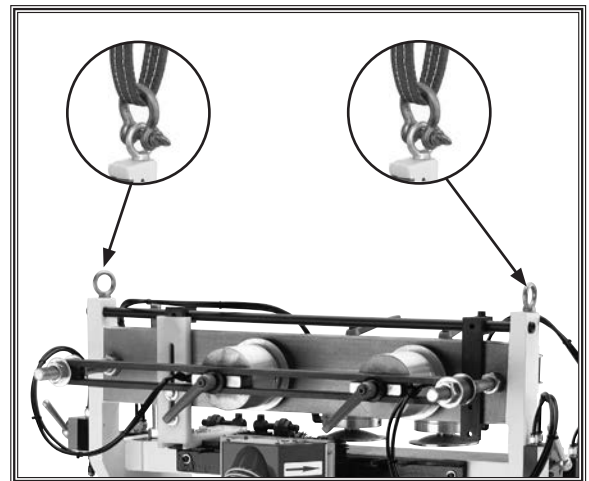


Figure 5. Lifting machine from eyes.

SETUP

Mounting to Shop Floor

Although not required, we recommend mounting your new machine to the floor. Since this is an optional step and floor materials may vary, floor mounting hardware is not included.

Bolting to Concrete Floors

Lag shield anchors used with lag bolts (Figure 6) and anchor studs (Figure 7) are two popular choices for anchoring an object to a concrete floor. We suggest you research the many options and methods for mounting your machine and choose the best that fits your specific application.

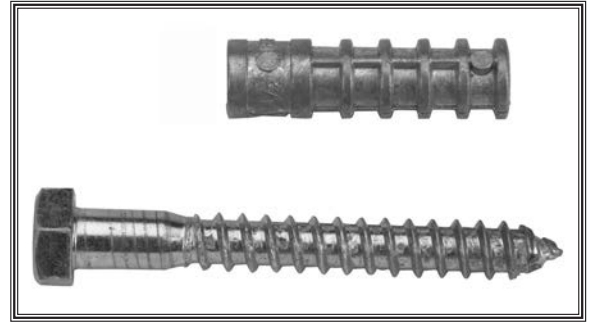


Figure 6. Typical lag shield anchor and lag bolt.

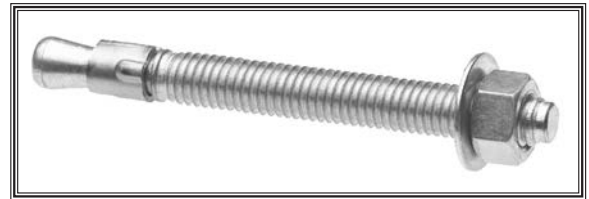


Figure 7. Typical anchor stud.

NOTICE

Anchor studs are stronger and more permanent alternatives to lag shield anchors; however, they will stick out of floor, which may cause a tripping hazard if you decide to move your machine at a later point.

Assembly

To assemble the dovetail machine, attach the dust hose to the guard, as shown in Figure 8.



Figure 8. Dust hose attached to guard.

Dust Collection

Attach the dust port to your dust collection system with a 4" hose, as shown in Figure 9.

Recommended CFM at Dust Port: 400 CFM

Do not confuse this CFM recommendation with the rating of the dust collector. To determine the CFM at the dust port, you must take into account many variables, including the CFM rating of the dust collector, the length of hose between the dust collector and the machine, the amount of branches or Y's, and the amount of other open lines throughout the system. Explaining this calculation is beyond the scope of this manual. If you are unsure of your system, consult an expert or purchase a good dust collection "how-to" book.



Figure 9. Dust collection hose attached to dust port.

SETUP

Air Connection

The air supply unit features a regulator, a filter, and a lubricator (Figure 10 & 11). Each of these components must be setup properly before operating the machine.

To prepare the air supply unit for operation, do these steps:

1. Connect your air hose to the air supply unit with a standard 1/4" NPT female quick-release coupler.
 - If air leaks from the bottom of the filter, the filter drain plug may be in "drain" mode. Move the adjustment at the bottom of the filter to the other side to put it in "plug" mode.
2. Check the air pressure reading on the gauge. The correct setting is 40 psi.
 - If the setting is correct, skip to **Step 4**.
 - If the setting is not correct, proceed to the next step.
3. Pull up on the regulator knob, rotate it in the direction necessary until the gauge reads 40 psi, then push the knob down to lock it.
4. Adjust the lubricator by turning the lubrication dial clockwise until it stops, then turning it counterclockwise one full turn. (Further adjustments can be made later as necessary.)

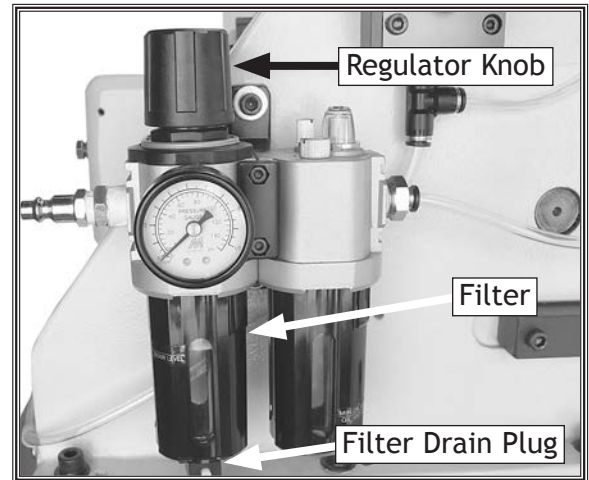


Figure 10. Air regulator and filter

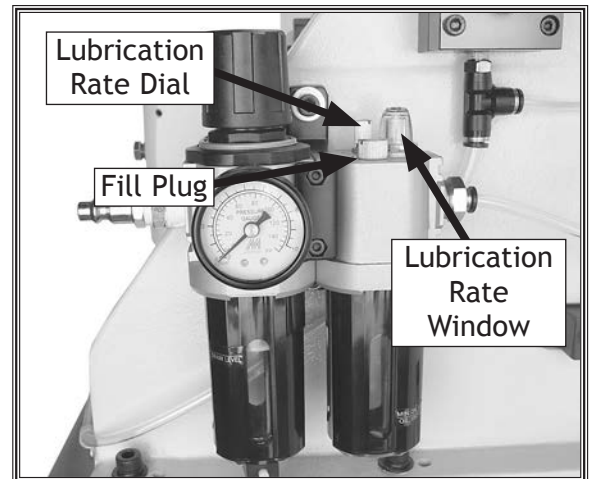


Figure 11. Air lubricator features.

SETUP

Test Run

Once the assembly is complete, test run your machine to make sure it runs properly and is ready for operation.

The test run consists of verifying the following: 1) The motor powers up and runs correctly, 2) the motor turns the correct direction (the motor included with this machine is bi-directional), and 3) the safety disabling mechanism on the switch works correctly.

If, during the test run, you cannot easily locate the source of an unusual noise or vibration, stop using the machine immediately, then review **Troubleshooting on Page 36**.

To test run the machine, do these steps:

1. Make sure you have read the safety instructions at the beginning of the manual and that the machine is setup properly.
2. Make sure all tools and objects used during setup are cleared away from the machine.
3. Connect the machine to the power source.
4. Push the stop button in, then twist it clockwise so it pops out.
5. Verify that the machine is operating correctly by turning it **ON**.
 - When operating correctly, the machine runs smoothly with little or no vibration or rubbing noises.
 - Investigate and correct strange or unusual noises or vibrations before operating the machine further. Always disconnect the machine from power before investigating or correcting potential problems.
6. Turn the machine **OFF**.
7. Push the STOP button in to make sure it is NOT popped out.
8. Press the green ON button.
 - If the machine starts, immediately stop it. The switch disabling feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support.

⚠️ WARNING

Projectiles thrown from the machine could cause serious eye injury. Wear safety glasses to reduce the risk of injury.

- If the machine does not start, the switch disabling feature is working as designed.
9. Verify that the cutter is turning the correct direction by starting the motor, then stopping the motor while watching the cutter through the guard window.
 - If the cutter turns counterclockwise, it is turning in the correct direction. Proceed to **Step 10**.
 - If the cutter turns clockwise, it is turning in the wrong direction. Contact our Technical Support for help.
 10. Test the clamps. The clamps should clamp down when the switch is turned ON and they should raise up when the switch is turned OFF.
 - If the clamps work as stated, no additional adjustments are necessary.
 - If the clamps do not work as stated, troubleshoot and correct the clamping system. Contact Technical Support for help.

SETUP

OPERATIONS

General

This machine will perform many types of operations that are beyond the scope of this manual. Many of these operations can be dangerous or deadly if performed incorrectly.

The instructions in this section are written with the understanding that the operator has the necessary knowledge and skills to operate this machine. **If at any time you are experiencing difficulties performing any operation, stop using the machine!**

If you are an inexperienced operator, we strongly recommend that you read books, trade articles, or seek training from an experienced *dovetail machine* operator before performing any unfamiliar operations. **Above all, your safety should come first!**

Dovetail Terminology

Take a moment to review the dovetail terminology shown in **Figure 12**. These terms will be used throughout this section and knowing their meaning is important to fully understand the controls of the machine.

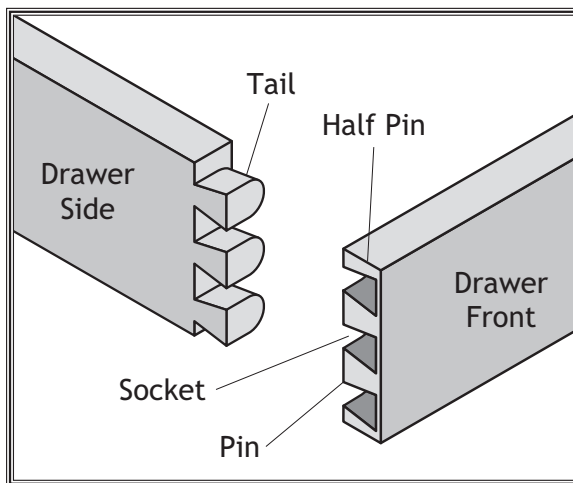


Figure 12. Dovetail terminology.

! WARNING

READ and understand this entire instruction manual before using this machine. Serious personal injury may occur if safety and operational information is not understood and followed. **DO NOT** risk your safety by not reading!

! WARNING

DO NOT investigate problems or adjust the machine while it is running. Wait until the machine is turned **OFF**, unplugged and all working parts have come to a complete stop before proceeding!

! WARNING

Always wear safety glasses when operating this machine. Failure to comply may result in serious personal injury.

OPERATIONS

Stock Preparation

Stock preparation is one of the most important steps for cutting dovetails. Stock must be properly squared up or the dovetails will not fit in the sockets tightly or evenly. With proper planning and preparation, you can achieve perfect results.

Stock Size

When selecting your stock, make sure that the stock size is within the minimum and maximum dimensions that this machine is capable of processing (see Figure 13).

The first consideration when preparing your stock is to determine the width (height of drawer). The dovetail machine includes a 4-sided template with the following sizes: 1", 1½", 2", and 2½".

To achieve perfect dovetail spacing from edge-to-edge, the stock width should be a multiple of the template size. For example, when using a 1½" template, the stock width should be divisible by 1½". Refer to Figure 14 for more examples.

Note: *If you do not have control over the stock width, you can still use the machine, but the half-pins on each edge will not be the same size.*

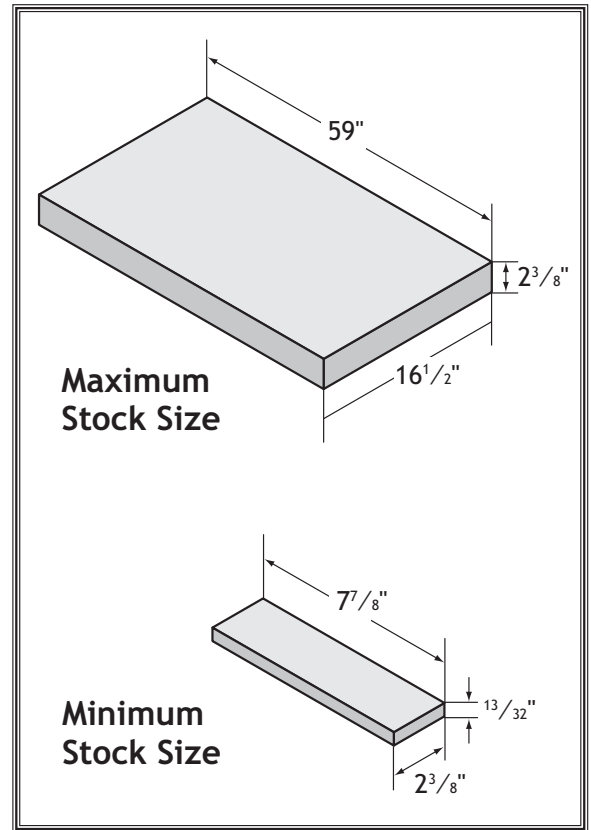


Figure 13. Model W1805 stock size limits.

Template Size	Common Stock Width used with Template Sizes			
1"	3"	4"	5"	6"
1½"	4½"	6"	7½"	9"
2"	4"	6"	8"	10"
2½"	5"	7½"	10"	

Figure 14. Common width sizes used with the available template sizes.

Dado Placement

The dado placement for a drawer bottom is dictated by the size of template you use. In order for the dado to be hidden when the dovetail joint is assembled, it must run through a socket. **Figure 15** illustrates this concept.

A general rule of thumb: Cut the center of the dado half the distance of the template size from the bottom edge of the stock.

For example, when using a 1" template, center the dado $\frac{1}{2}$ " from the bottom of all four pieces. This placement ensures that the dado will end up in the first socket and will not be visible when the drawer is assembled. **Figure 16** shows the ideal dado placement for each template size.

A general rule of thumb: Cut the center of the dado half the distance of the template size from the bottom edge of the stock.

For example, when using a 1" template, center the dado $\frac{1}{2}$ " from the bottom of all four pieces. This placement ensures that the dado will end up in the first socket and will not be visible when the drawer is assembled. **Figure 16** shows the ideal dado placement for each template size.

Note: If your stock width is not a multiple of the template size, this rule of thumb does not apply. Instead, just cut the dado where you need it and center the socket placement by eye when setting up the machine.

Layout

After you have dadoed and dimensioned your stock, layout and mark the drawer pieces as shown in **Figure 17**. This will help you keep track of the pieces as you cut the dovetails.

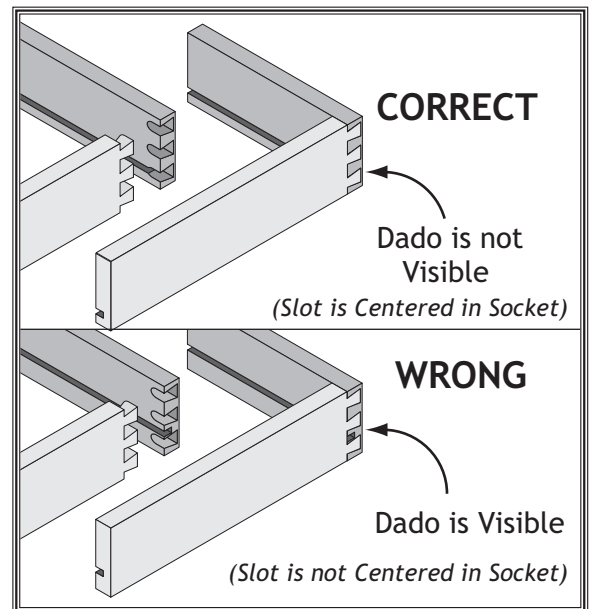


Figure 15. Correct dado placement so dado is not visible after assembly.

Template Size	Center of Dado from Bottom	EXAMPLE: 1" Template 1/2" on Center Dado Distance from Bottom
1"	$\frac{1}{2}$ "	
$1\frac{1}{2}$ "	$\frac{3}{4}$ "	
2"	1"	
$2\frac{1}{2}$ "	$1\frac{1}{4}$ "	

Figure 16. Dado placement for template sizes.

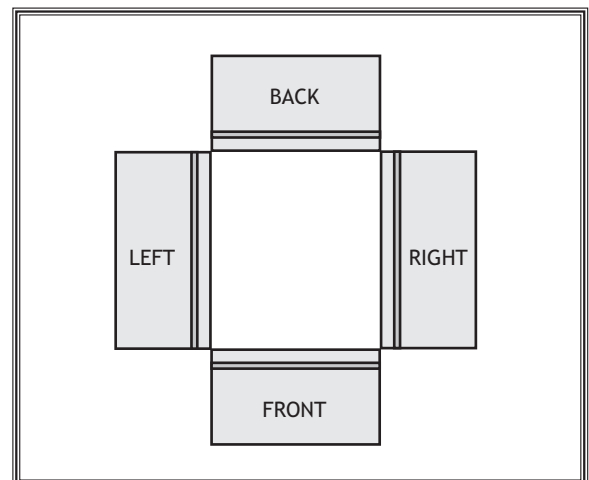


Figure 17. Drawer pieces laid out and marked; the inside of the drawer pieces are face up.

Dovetail Setup

Setting up the dovetail machine is a complex procedure that involves trial-and-error and may take a fair amount of time to complete.

Once you have the machine setup for a particular stock size, you can repeat dovetails for that size indefinitely without additional adjustments. However, if you change stock size, then you must repeat this entire setup section.

Before starting any setup, you must prepare workpieces for one drawer. These must be exactly the same size as the drawers you will make during your production run. Since trial-and-error is involved, this first drawer may end up as scrap; therefore, do not prepare ALL the drawer pieces for your production run until you have properly setup the machine and have achieved satisfactory dovetail joints on your test workpieces.


The setup procedures that follow refer to the drawer pieces by their position during cutting. To avoid confusion during the instructions, remember this:

Drawer Sides (L,R) = Vertical Workpiece
 Drawer Front/Back (B, F) = Horizontal Workpiece

Follow the procedures in this section in order to properly setup your machine for operation.

Setting Clamping Thickness

1. Check the current distance between the clamps and the tables in relation to your workpiece thickness.
 - If your workpiece fits between the clamps, then further adjustments are not necessary.
 - If your workpiece does not fit between the clamps, then proceed to **Step 2**.
2. Use an adjustable wrench to loosen the hex nuts shown in **Figure 18** away from the clamp mounting bracket.

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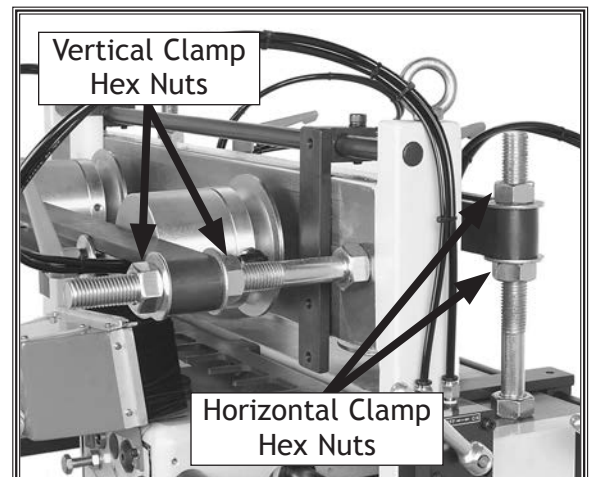


Figure 18. Hex nuts for adjusting clamping thicknesses (only one side shown).

- Slide the clamp mounting bracket so the clamps provide enough room to move workpieces in and out.

Note: Use a ruler to make sure that both sides are adjusted equally; otherwise, contact area of the clamp faces will not be uniform, which could result in the workpieces slipping during operation.

- Tighten the hex nuts against the clamp brackets to hold them in place.

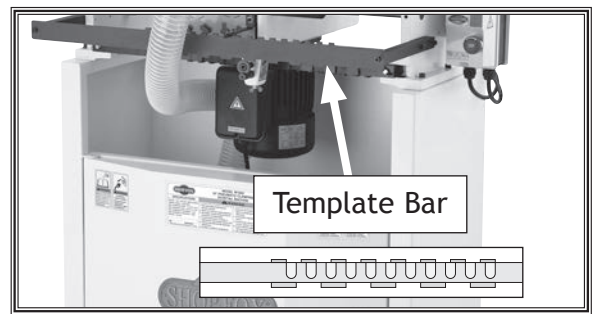


Figure 19. Template bar.

Changing Template Sizes

The template bar (Figure 19) has a different size dovetail template on each of the four sides. The size of each template is stamped into that side. The active template size is always the side that is facing down. A tracer pin connected to the headstock guides the cutter along the template profile when cutting.

The template works in tandem with the *indicator plate* and the *fixed chaser*.

Indicator Plate: Since the template bar is underneath the cutting area and away from immediate operator view, the top edge of the indicator plate mirrors the position of the tracer pin along the template bar to help the operator when cutting.

Each indicator plate has two patterns. When mounted, the top edge of the indicator plate must match the current side of the template bar that is being used. Whenever changing the template bar size, the indicator plate must also be changed. Use the two mounting cap screws to remove and change the indicator plate (see Figure 20).

Fixed Chaser: The fixed chaser supports the vertical workpiece, yet allows the cutter to cut the bottom of the vertical workpiece without hitting the metal fixed chaser. To prevent the cutter from contacting the fixed chaser, use the fixed chaser that corresponds to the template size shown in Figure 21.

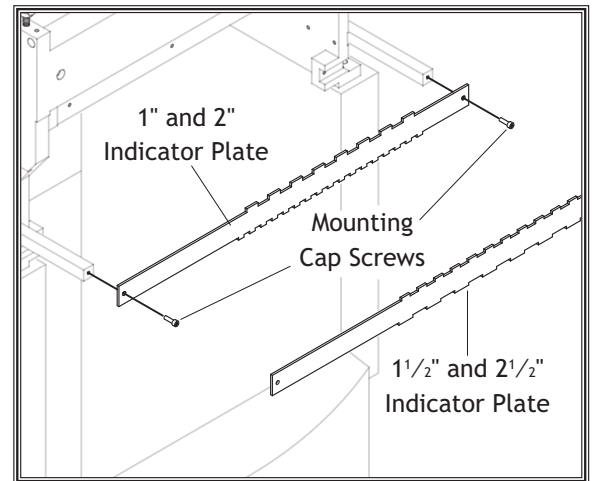


Figure 20. Indicator plate installation.

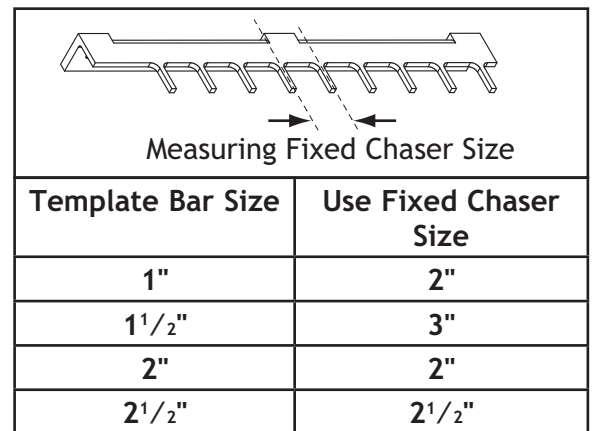


Figure 21. Determining correct fixed chaser.

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OPERATIONS

To change dovetail template size, do these steps:

1. Remove the extension spring shown in **Figure 22**, and pull the headstock backward (toward you) to clear the tracer pin of the template.
2. Remove the wing screw on each side of the template bar.
3. Slide the template bar out of the casting and reinstall it, as shown in **Figure 23**, so the desired template size is facing down.
4. Lock the template in place with the wing screws, then replace the extension spring.

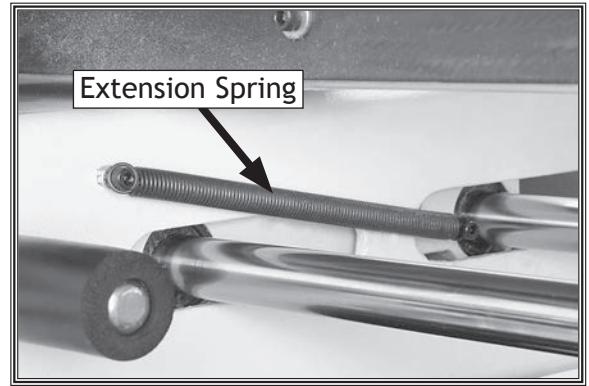


Figure 22. Extension spring (located on the right side of the headstock).

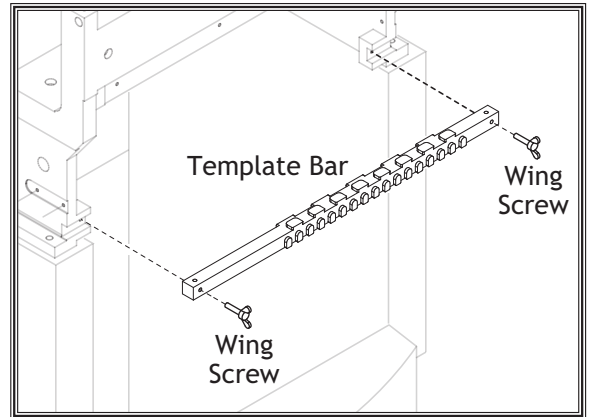


Figure 23. Template bar installation.

Setting Fences

The dovetail machine features HDPE (high density polyethylene) plastic fences for both the horizontal and vertical workpieces (see **Figure 24**). These fences are cut into during operation to reduce tear-out.

The fences should be set so that the dovetails are evenly distributed across the width of the workpiece. Setting the fences requires attention to the "in" and "out" positions of the tracer pin (see **Figure 25**). When the tracer pin is in the "in" position, the cutter is cutting the workpiece. When the tracer is in the "out" position, the cutter is outside of the workpiece.

To set the fences, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the guard.
3. Place the vertical workpiece on the support bar.

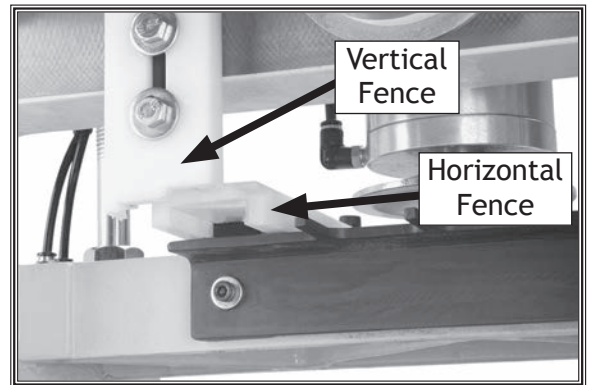


Figure 24. HDPE fences.

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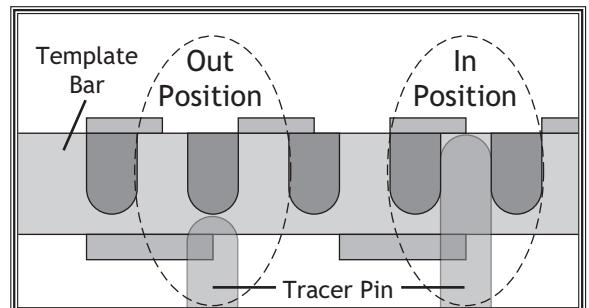


Figure 25. Tracer pin positions (as viewed from underneath template bar).

4. Loosen the cap screw on the vertical fence bracket shown in **Figure 26**.
5. Align the left-hand edge of the vertical workpiece with the centerline of the cutter when the tracer pin is in the "in" or cutting position. This position will make the first cut in the vertical workpiece half the width of the cutter. **Figure 27** illustrates this concept.

Note: If your workpiece width is not evenly divisible by the template size, then setting the fences for even cut distribution is a matter of judging the best possible position by eye.

6. Remember the position of the left-hand edge of the vertical workpiece on the vertical fence scale, and move the vertical workpiece out of the way.
7. Align the right-hand edge of the vertical fence with the same position on the scale from the previous step, then lock the vertical fence in place with the cap screw.
8. Familiarize yourself with the horizontal fence adjustment components in **Figure 28**.
9. Loosen both cap screws shown in **Figure 28**.

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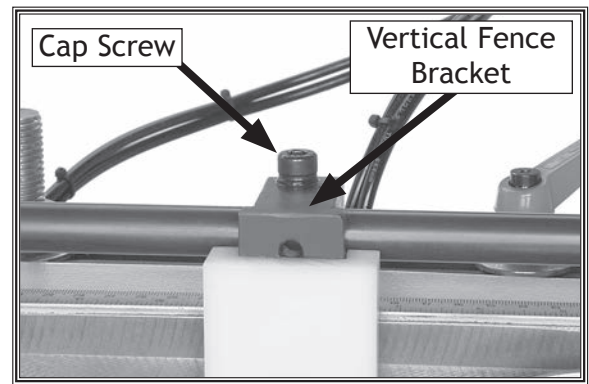


Figure 26. Vertical fence adjustment cap screw.

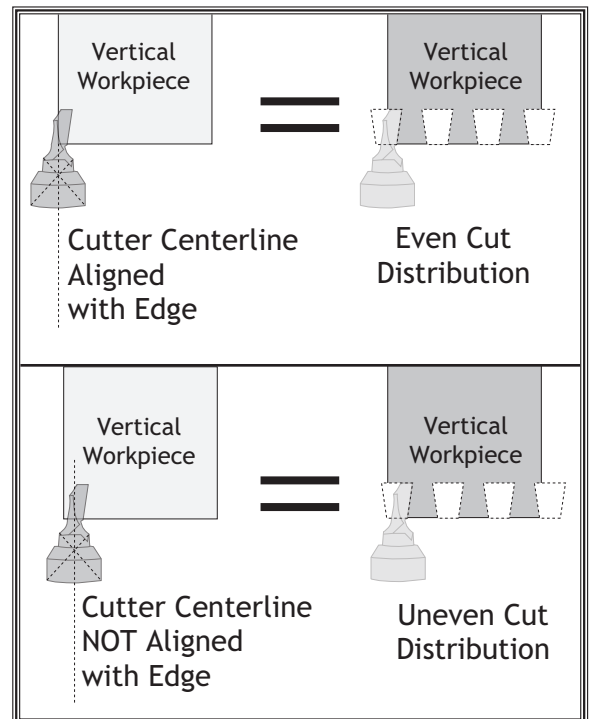


Figure 27. Aligning cutter start location with the vertical workpiece.

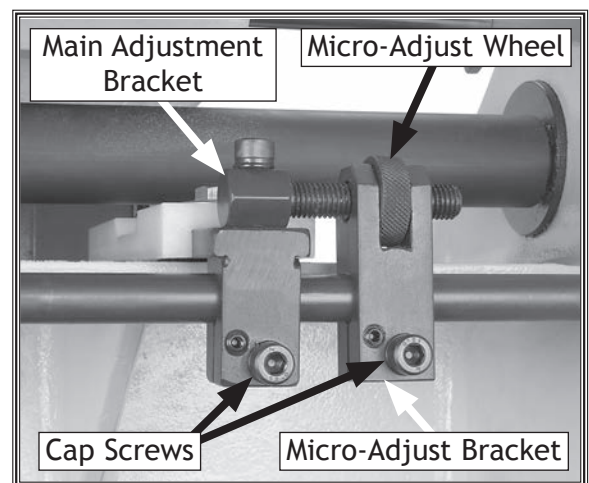


Figure 28. Horizontal fence adjustment components.

- Using the scale on each table as a guide, adjust the right-hand edge of the horizontal fence so it is offset half the amount of the template size being used.

For example, if the template size is 1", offset the right-hand edge of the horizontal fence 1/2" from the right-hand edge of the vertical fence, as shown in **Figure 29**.

- Lock the cap screw on the micro-adjust bracket, and use the micro-adjust wheel to set the horizontal fence in the exact position.
- Tighten the cap screw on the main adjustment bracket to lock the horizontal fence.

Cutter Height

The cutter height dictates the tail height on the vertical workpiece and the socket height on the horizontal workpiece (see **Figure 30**).

The cutter height range is restricted by the size of the cutter (see **Figure 31**). The lowest point of the cutting edge should never be set above the bottom of the workpiece.

A taller cutter height is stronger due to larger tails and pins, so maximizing the cutter height is preferred in most situations.

To set the cutter height, do these steps:

- DISCONNECT MACHINE FROM POWER!
- Place the horizontal workpiece on the horizontal table against the fence, and clamp the workpiece down.
- Remove one end of the headstock spring, and move the cutter in front of the horizontal workpiece.
- Use a 6mm hex wrench to loosen the cutterhead lock shown in **Figure 32**.
- Use a 6mm hex wrench to adjust the cutter up or down. Leave at least 1/8" of material between the bottom of the board and the bottom of the cutter.
- Tighten the cutterhead lock.

Template Size	Horz. Fence Offset Distance	Offset Example for 1" Template	
1"	1/2"		
1 1/2"	3/4"		
2"	1"		
2 1/2"	1 1/4"		

Figure 29. Fence offset sizes for each template size and example offset diagram for 1" template.

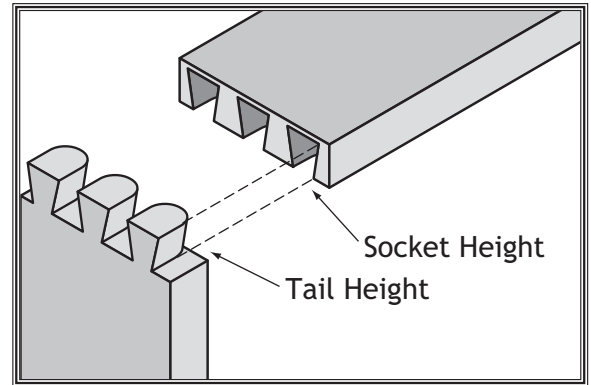


Figure 30. Example of cutter and socket height.

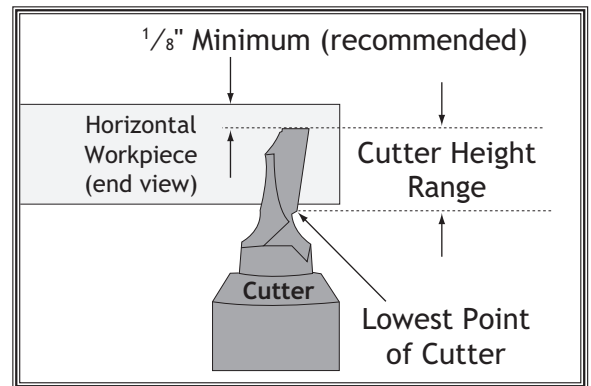


Figure 31. Understanding the cutter height range compared to the workpiece.

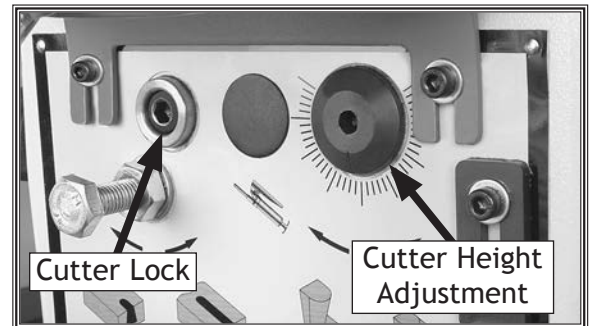


Figure 32. Cutter lock and adjustment height.

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Tail Thickness

Figure 33 shows the tail thickness.

The tail thickness is controlled by adjusting the tracer pin when it is in the "out" position on the template bar, as shown in Figure 34.

To set the tail thickness, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Draw a small pencil line on the edge of the vertical workpiece approximately $\frac{1}{16}$ " from the side of the workpiece (see Figure 35).
3. Install the vertical workpiece so the side of the board closest to the pencil line is facing out, as shown in Figure 35, and clamp the workpiece into position against the vertical fence.
4. Connect the spring to the headstock.
5. Move the headstock just to the right of the workpiece, and put the tracer pin in the "out" position on the template.
6. Stand to the right-hand side of the machine, and look across the table at the cutter relationship to the vertical workpiece. This viewing position will help you align the cutter with the workpiece during the next step.

Note: Familiarize yourself with the tracer pin controls shown in Figure 36 if this is the first time you have adjusted it.

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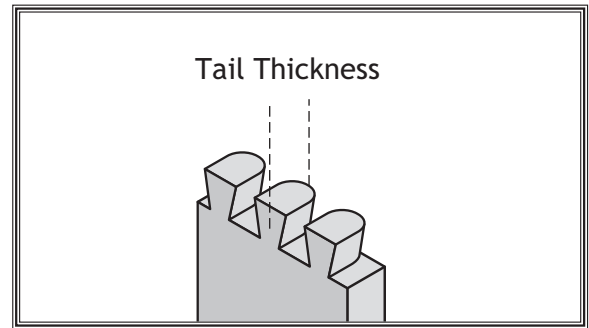


Figure 33. Example of tail thickness.

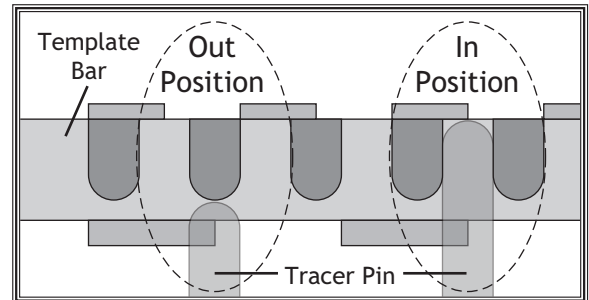


Figure 34. Tracer pin positions on template.

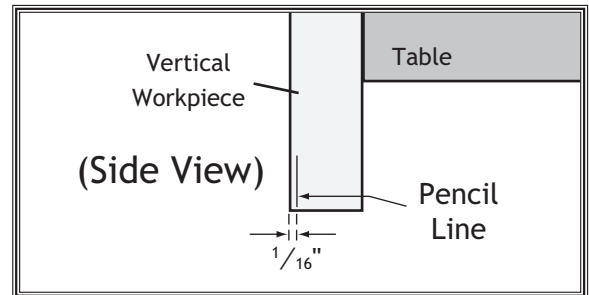


Figure 35. Pencil line location on vertical workpiece.

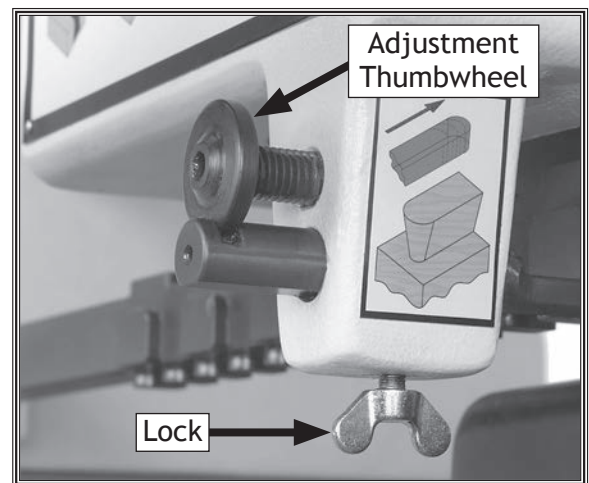


Figure 36. Tracer pin controls.


OPERATIONS

7. Unlock the tracer pin, and adjust the thumbwheel as necessary until the cutter is positioned as shown in **Figure 37**.
8. Lock the tracer pin.

Cutter Depth Stop

The cutter depth stop adjustment bolt (**Figure 38**) dictates the depth of the sockets (**Figure 39**) by controlling how far the cutter will cut into the horizontal workpiece.

The cutter depth should be the same as the tail thickness, so that when the joint is assembled the tails are flush with the pins (**Figure 40**).

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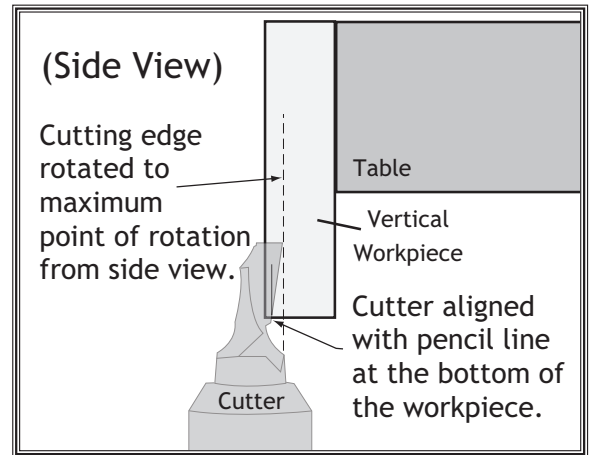


Figure 37. Cutter position for setting tail thickness (as viewed from the side).

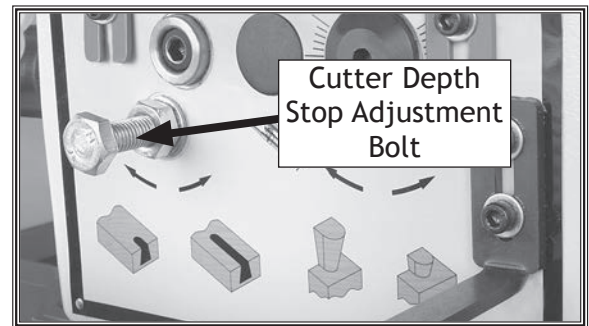


Figure 38. Cutter depth stop adjustment bolt.

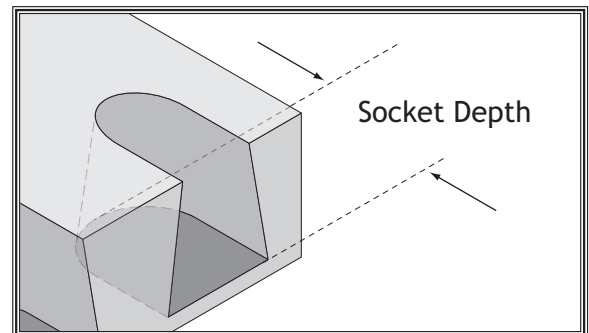


Figure 39. Socket depth.

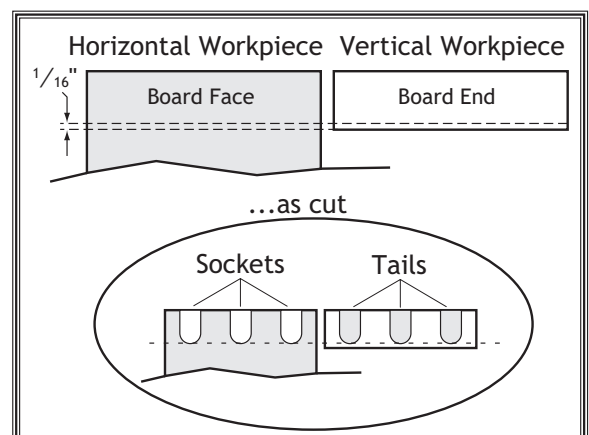


Figure 40. Understanding correct cutter depth.

To set the cutter depth stop, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. On a workbench, copy the "Tail Thickness" dimension from the vertical workpiece to the horizontal workpiece (**Figure 41**).
3. Clamp the vertical workpiece in position on the machine, then clamp the horizontal workpiece in place against the vertical workpiece.
4. Move the cutter to the right of the horizontal workpiece and make sure the tracer pin is in the "in" position.
5. Rotate the cutter until the leading edge is at the farthest point in rotation toward the rear of the machine.
6. From the right-hand side of the machine, look across the table at the cutter position in relation to the pencil line.
7. Adjust the cutter depth bolt until the tip of the cutter aligns with the pencil line (**Figure 42**), then tighten the hex nut.

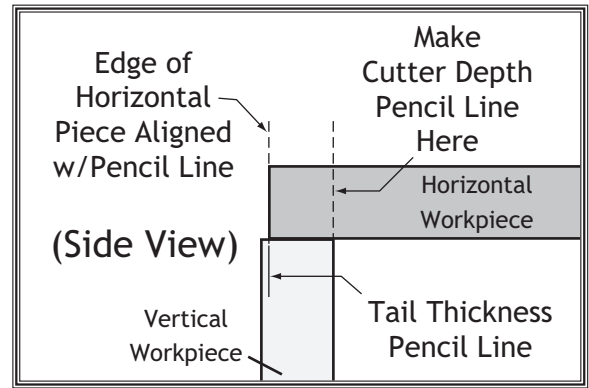


Figure 41. Marking horizontal workpiece to set the cutter depth.

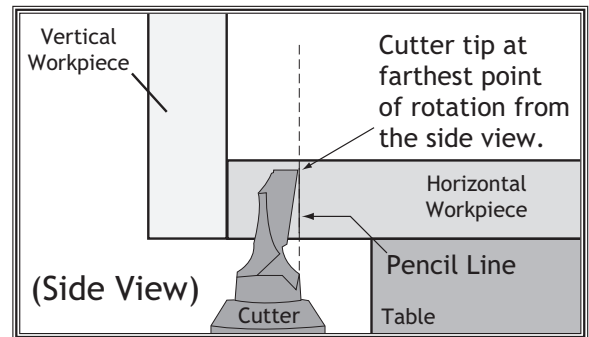


Figure 42. Cutter position to set cutter depth stop (viewed from the side).

Testing Machine Setup

Testing the setup requires you to make cuts and adjust the cutter until the dovetail fit is perfect. Be aware that the drawer you make during this procedure may end up as scrap. To achieve good dovetails, you must have prepared your stock as described in **Stock Preparation** on **Page 18**.

Continued on next page

The standard cutting order is shown in **Figure 43**. **Figure 44** shows the workpieces positioned with the dados close to or away from the fences.

To make a test cut, do these steps:

1. Position the RIGHT workpiece on the vertical support bar, as shown in the top illustration in **Figure 44** (with the dado positioned out and opposite the fence), then clamp down the RIGHT workpiece.
2. Place the BACK workpiece on the horizontal table, as shown in the top illustration in **Figure 44** (with the dado positioned down and opposite the fence), then clamp down the BACK workpiece. The bottom of both workpieces should be flush with each other and both workpieces should be firmly against their respective fences.
3. Position the cutter so it is not touching the fences or workpieces.
4. **INSTALL AND SECURE THE GUARD!**
5. Connect the machine to the power source.
6. Make the test cut as described below, but read all of the steps before starting, so you do not have to stop after you begin cutting:
 - a. Start the cut on the left-hand side of the vertical piece (half of the cutter will cut into the plastic fences), then carefully follow the template from left-to-right, making sure the tracer pin maintains contact with the template (otherwise unnecessary tear-out will occur).
 - b. After clearing the workpieces, do a cleanup pass by bringing the headstock back the opposite direction and following the template from right-to-left.
 - c. Turn the machine **OFF**, and position the cutter clear of the workpieces and fences.
7. Remove the workpieces from the machine and test fit the dovetail joint.
8. Carefully examine how the tails fit into the sockets. The tails should fit into the sockets tightly and both workpieces should be flush with each other. Typically, fine-tuning the dovetail joint fit requires balancing socket depth and the cutter adjustment, as follows:

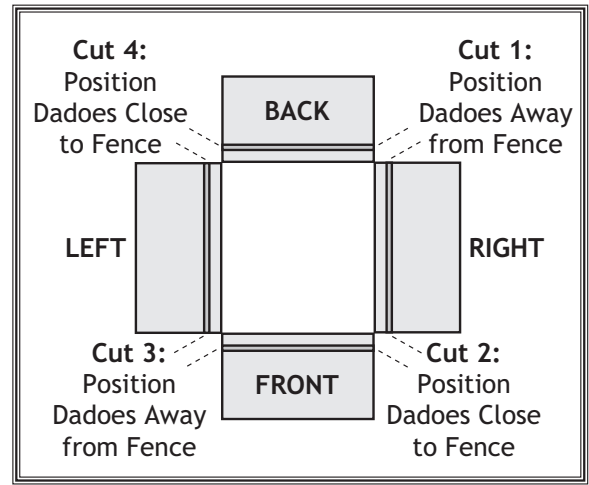


Figure 43. Drawer pieces laid out and marked inside face up; cutting order and workpiece position against fences also shown.

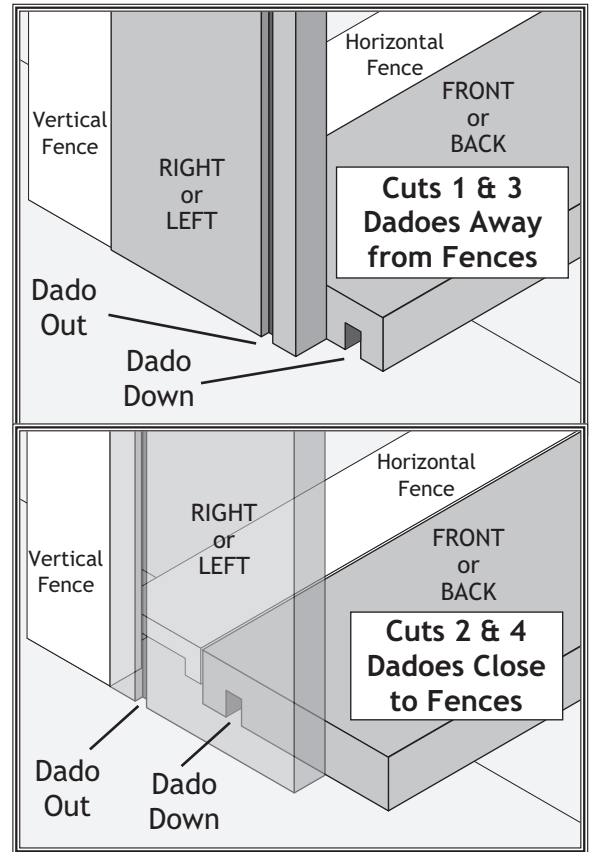


Figure 44. Workpiece positions for cuts.

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- If the workpieces do not fit together or if the fit is too tight, then adjust the cutter to take a larger cut and repeat "Cut 1."
- If the workpieces fit together too loosely, adjust the cutter to take a smaller cut and do "Cut 2."
- If the tails fit easily side-to-side into the sockets, but do not go down far enough, adjust the socket depth deeper.
- If the tails fit easily side-to-side into the sockets, but go too far down, adjust the socket depth shallower.

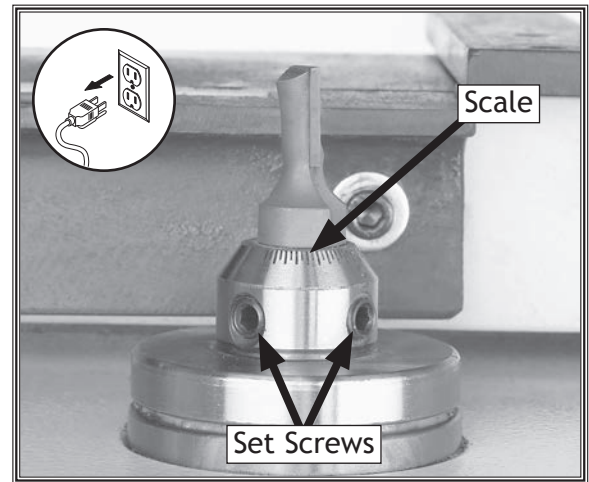


Figure 45. Cutter adjustment controls.

Adjusting Cutter

The cutter rotates eccentrically in the spindle, which allows it to be adjusted for control of the dovetail joint "fit" when assembled.

Two set screws hold the cutter in position and a spindle scale is provided for monitoring the cutter position during adjustments (Figure 45).

To adjust the cutter, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Remove the guard.
3. Use a 4mm hex wrench to loosen the two set screws on the spindle just enough to rotate the cutterhead. (Loosening the two set screws too much may cause the cutter to drop down in the spindle and throw off other adjustments.)
4. Rotate the cutter inside the spindle as necessary to take a smaller or larger cut (see Figure 46). Use the highest point in the cutter groove to keep track of the cutter position during adjustments.
5. Tighten the two set screws to secure the cutter in place.
6. Make sure the spring is connected to the headstock.
7. Install the guard.
8. Test the new cutter setting by making a cut.
9. Repeat cutter adjustment as necessary until the fit is satisfactory. ALWAYS DISCONNECT POWER BEFORE ADJUSTING CUTTER!

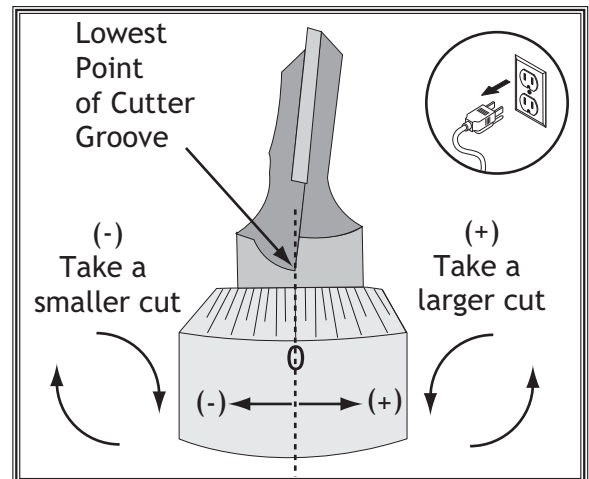


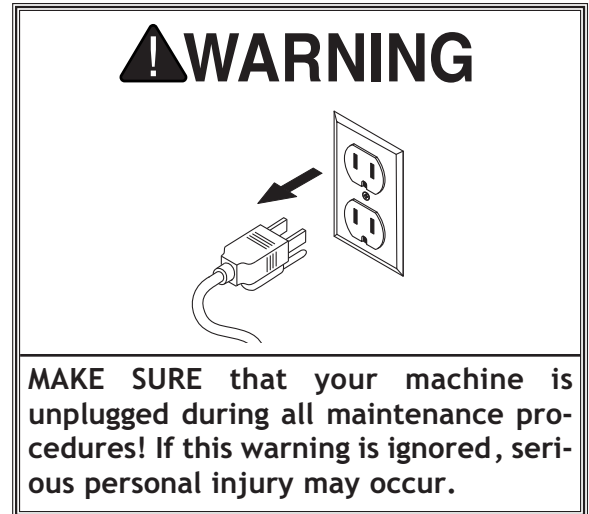
Figure 46. Understanding cutter adjustments.

MAINTENANCE

Schedule

Daily Maintenance (8 Hours)

- Check/tighten cutter set screws.
- Clean debris/sawdust from clamps to ensure that they do not interfere with the clamping ability.
- Clean/vacuum dust buildup off motor.
- Clean and lubricate unpainted cast iron portions of the table and the headstock travel rods with a light oil.
- Check/replace damaged power cords or wires.
- Check/add air tool oil to the air supply unit lubricator.
- Check/drain the air supply unit water filter. (Drain by sliding the white shaft to the other side.)



Weekly Maintenance (40 Hours)

- Grease spindle with multi-purpose lithium grease.

Monthly Maintenance (320 Hours)

- Belt tension, damage, or wear.

Cleaning

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

Protect the unpainted cast iron surfaces on the table by wiping the table clean after every use—this ensures that moisture from wood dust does not remain on bare metal surfaces. Tables can be kept rust-free with regular applications of a quality metal protectant/lubricant.

Lubrication

The bearings in the machine are sealed and lubricated for life. The spindle has one grease fitting that must be greased approximately every 40 hours or one week of regular use (refer to **Figure 47**). To grease the spindle, connect the fitting to a grease gun and give the spindle one pump of multi-purpose lithium grease.



Figure 47. Spindle grease fitting.

SERVICE

General

This section covers the most common service adjustments or procedures that may need to be made during the life of your machine.

If you require additional machine service not included in this section, please contact Woodstock International Technical Support at (360) 734-3482 or send e-mail to: techsupport@woodstockint.com.

Cutter Replacement

When the cutter gets dull, or if it gets damaged, it must be replaced. Dull cutters can be resharpened by a professional, but cutters are inexpensive and easily replaced.


Tools Needed	Qty
Hex Wrench 4mm	1

To replace the cutter, do these steps:

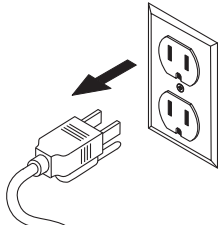
1. DISCONNECT MACHINE FROM POWER!
2. Remove the guard.
3. Loosen the two set screws that hold the cutter in the spindle. (The set screws must be backed out half-way before the cutter can be removed.)
4. Slide the cutter out and insert the new one.
5. Tighten the two set screws to secure the cutter in place.
6. Replace the guard.

Belt Tension

A flat belt transfers power from the motor to the cutter spindle. This belt stretches with use and periodically needs to be tensioned. If the cutter lacks power, stops spinning, or cuts slower than normal, then the belt may need to be tightened.

Continued on next page 

! WARNING



MAKE SURE that your machine is unplugged during all service procedures! If this warning is ignored, serious personal injury may occur.

Tools Needed	Qty
Hex Wrench 6mm	1

To tighten the belt, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Loosen the two motor mount cap screws shown in **Figure 48**.
3. Turn the belt tension bolt, shown in **Figure 49**, clockwise to tension the belt.

Note: Each time you adjust the belt tension, *only turn the bolt one full turn. This will prevent over-tightening the belt, which can lead to premature bearing failure in the motor and spindle.*

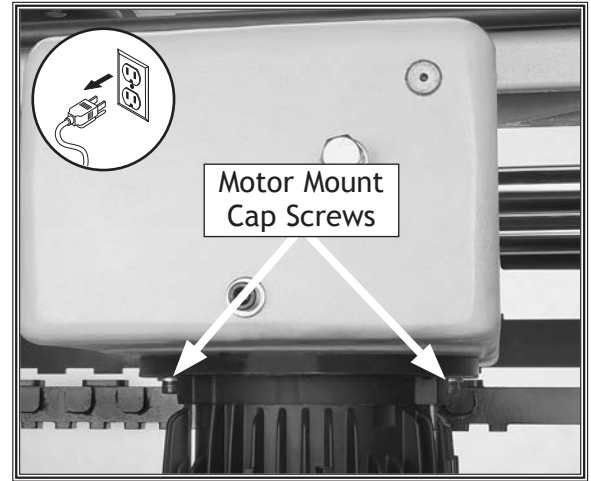


Figure 48. Motor mount cap screw locations.

Belt Replacement

If the belt is left loose, it can stop during operation while the pulley continues to spin. This scenario will burn the belt, which will create a horrible vibration and smell of burned rubber. If this ever happens, then the belt must be replaced before continuing operations.

Tools Needed	Qty
Hex Wrench 6mm	1

To replace the belt, do these steps:

1. DISCONNECT MACHINE FROM POWER!
2. Lower the cutter as far as it will go.
3. Remove the dust plug shown in **Figure 50** to access the top of the belt.
4. Loosen the two motor mount cap screws shown in **Figure 48**.
5. Turn the motor tension bolt, shown in **Figure 49**, counterclockwise to loosen the belt.
6. Slide the belt over the top of the spindle shaft and off of the motor pulley.
7. Reinstall and tension the new belt.
8. Replace the dust plug, and tighten the motor mount cap screws.

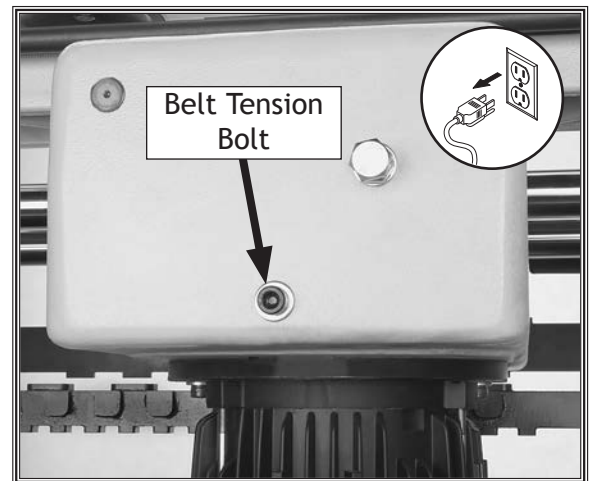


Figure 49. Belt tension bolt.

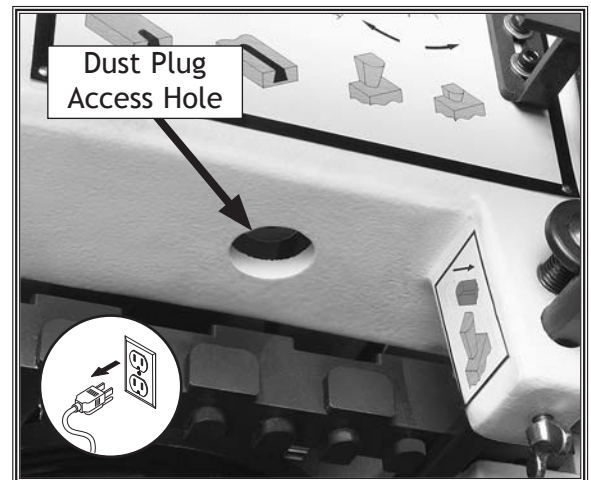


Figure 50. Dust plug removed to see top of cutter spindle for belt removal.

Electrical Safety Instructions

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

If there are differences between your machine and what is shown in this section, call Technical Support at (360) 734-3482 for assistance BEFORE making any changes to the wiring on your machine. An updated wiring diagram may be available. **Note:** Please gather the serial number and manufacture date of your machine before calling. This information can be found on the main machine label.

⚠ WARNING

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

QUALIFIED ELECTRICIAN. Due to the inherent hazards of electricity, only a qualified electrician should perform wiring tasks on this machine. If you are not a qualified electrician, get help from one before attempting any kind of wiring job.

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.

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.

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.

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.

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

EXPERIENCING DIFFICULTIES. If you are experiencing difficulties understanding the information included in this section, contact our Technical Support at (360) 734-3482.

NOTICE

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

WIRING DIAGRAM COLOR KEY

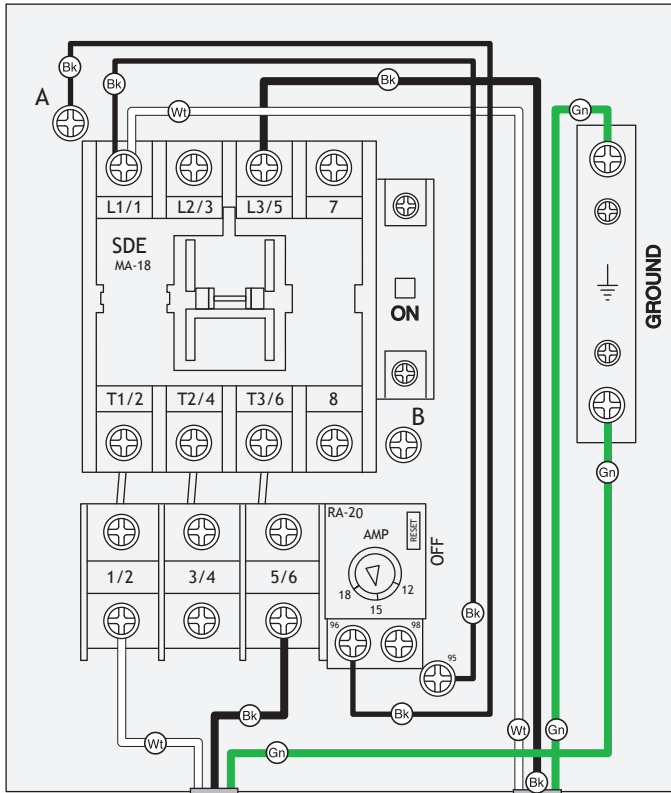
BLACK — Bk	BLUE — Bl	YELLOW — Yl	LIGHT BLUE — Lb
WHITE — Wt	BROWN — Br	YELLOW GREEN — Yg	BLUE WHITE — Bw
GREEN — Gn	GRAY — Gy	PURPLE — Pu	TUR-QUOISE — Tu
RED — Rd	ORANGE — Or	PINK — Pk	

SERVICE

110V Wiring Diagram

NOTICE

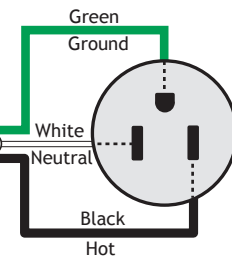
To convert to 110V, you must replace the magnetic switch assembly and rewire the motor.



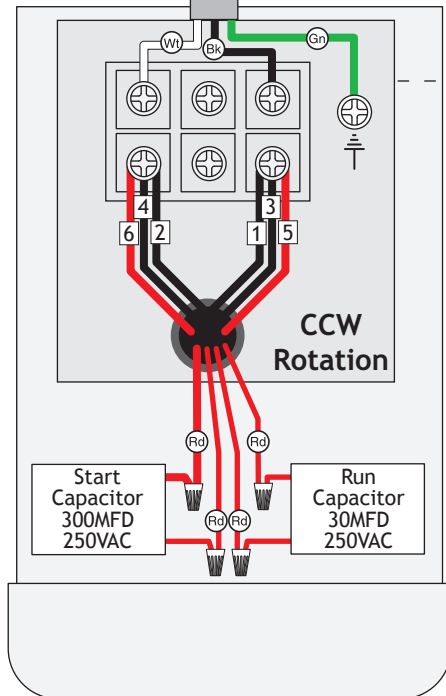
MAGNETIC SWITCH ASSEMBLY



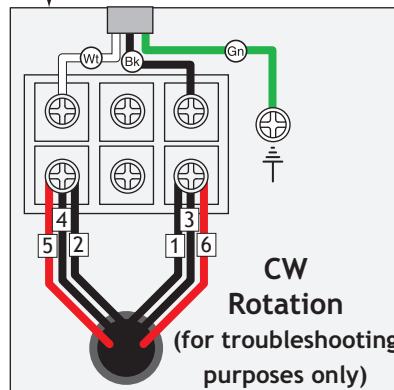
⚠ DANGER
Disconnect power before servicing electrical components. Electrical shock causes serious personal injury or even death!



5-15 Plug
110 VAC



MOTOR (Wired at 110V)



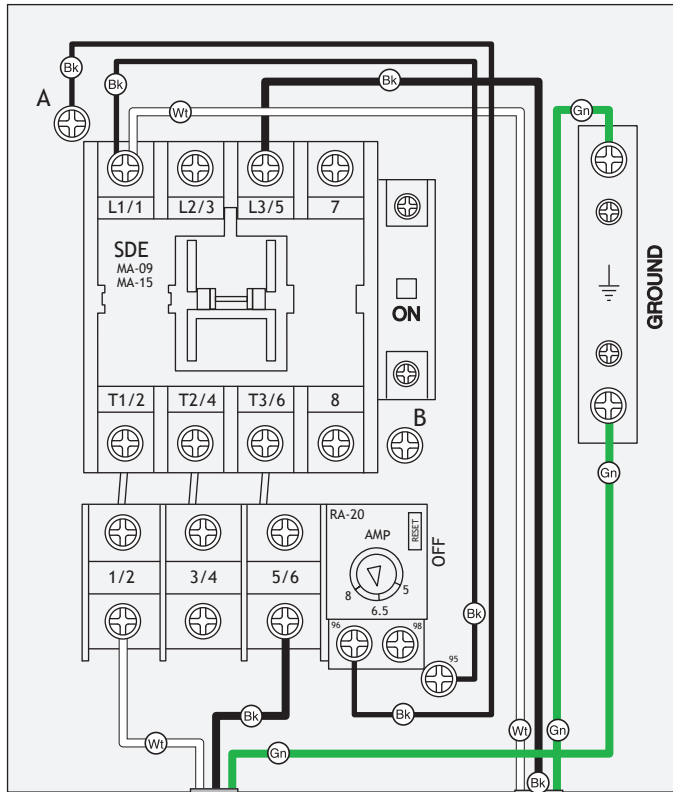
NOTICE

If your cutter rotates in the wrong direction, wire it for counterclockwise (CCW) rotation.

NOTICE

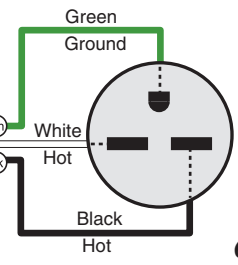
The motor wiring shown here is current at the time of printing; however, always use the diagram on the inside of junction box cover when rewiring your motor.

220V Wiring Diagram (Prewired)



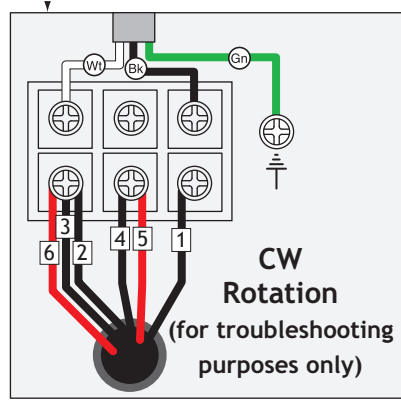
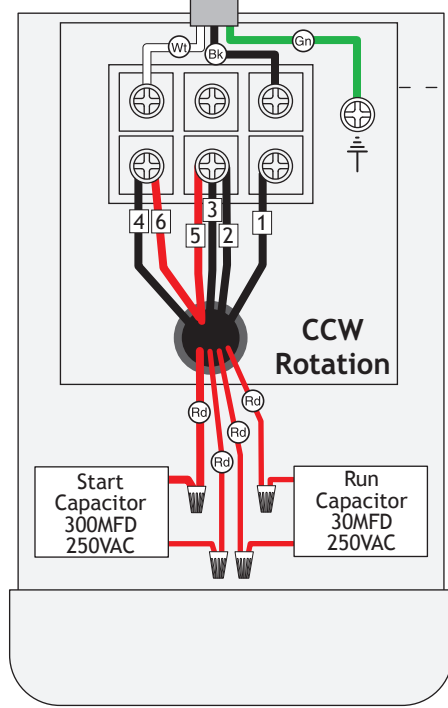
Read Page 33
STOP
Before Wiring

DANGER
Disconnect power before servicing electrical components. Electrical shock causes serious personal injury or even death!



220 VAC

6-15 Plug (As Recommended)



NOTICE
If your cutter rotates in the wrong direction, wire it for counterclockwise (CCW) rotation.

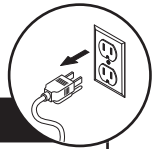
NOTICE
The motor wiring shown here is current at the time of printing; however, always use the diagram on the inside of junction box cover when rewiring your motor.

SERVICE

Troubleshooting

The following troubleshooting tables cover common problems that may occur with this machine. If you need replacement parts or additional troubleshooting help, contact our Technical Support.

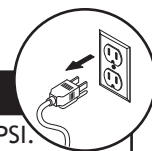
Note: Before contacting Tech Support, find the machine serial number and manufacture date, and if available, your original purchase receipt. This information is required to properly assist you.



Motor & Electrical

PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Machine does not start or a breaker trips.	<ol style="list-style-type: none"> 1. STOP button pushed in, disabling the switch. 2. Plug/receptacle is at fault or wired incorrectly. 3. Start capacitor is at fault. 4. Motor connection wired incorrectly. 5. Power supply is at fault/switched OFF. 6. Motor ON button or ON/OFF switch is at fault. 7. Motor centrifugal switch is at fault. 8. Emergency stop push-panel is stuck/switch is at fault. 9. Motor windings or motor is at fault. 	<ol style="list-style-type: none"> 1. Twist STOP button clockwise until it pops out to enable the switch. 2. Test for good contacts; correct the wiring. 3. Test/replace if faulty. 4. Correct motor wiring connections. 5. Ensure hot lines have correct voltage on all legs and main power supply is switched ON. 6. Replace faulty ON button or ON/OFF switch. 7. Adjust/replace the centrifugal switch if available. 8. Free push-panel from binding; replace faulty switch. 9. Replace motor.
Machine stalls or is underpowered.	<ol style="list-style-type: none"> 1. Wrong workpiece material (wood). 2. Feed rate too fast for task. 3. Run capacitor is at fault. 4. Belt slipping. 5. Motor connection is wired incorrectly. 6. Plug/receptacle is at fault. 7. Motor bearings are at fault. 8. Motor has overheated. 9. Motor is at fault. 10. Motor centrifugal switch is at fault. 	<ol style="list-style-type: none"> 1. Use wood with correct moisture content, without glues, and little pitch/resins. 2. Decrease feed rate. 3. Tighten/repair/replace. 4. Replace bad belt and re-tension (see Page 32). 5. Correct motor wiring connections. 6. Test for good contacts; correct the wiring. 7. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 8. Clean off motor, let cool, and reduce workload. 9. Test/repair/replace. 10. Adjust/replace centrifugal switch if available.
Machine has vibration or noisy operation.	<ol style="list-style-type: none"> 1. Motor or component is loose. 2. Belt(s) worn or loose. 3. Motor fan is rubbing on fan cover. 4. Pulley is loose. 5. Machine is incorrectly mounted or sits unevenly on floor. 6. Cast iron motor mount loose/broken. 7. Motor or spindle bearings are at fault. 8. Cutter is at fault. 9. Motor centrifugal switch is at fault. 	<ol style="list-style-type: none"> 1. Inspect/replace stripped or damaged bolts/nuts, and re-tighten with thread locking fluid. 2. Inspect/replace belts (refer to Page 32). 3. Replace dented fan cover; replace damaged fan. 4. Tighten pulley set screw. 5. Tighten/replace anchor studs in floor; relocate/shim machine. 6. Tighten/replace. 7. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 8. Replace warped, bent, or twisted cutter. 9. Adjust/replace centrifugal switch if available.

Cutting Operations & Results



PROBLEM	POSSIBLE CAUSE	CORRECTIVE ACTION
Workpiece slips or kicks out during operation.	<ol style="list-style-type: none"> 1. Low air pressure to clamps. 2. Clamps are adjusted too far away from the workpiece. 3. Clamp bracket is incorrectly adjusted, causing the clamps to make uneven contact with the workpiece. 	<ol style="list-style-type: none"> 1. Increase the air pressure to at least 40 PSI. 2. Adjust clamps closer to the workpiece (Page 20). 3. Adjust the both sides of the clamp bracket and even distance from the table (Page 20).
Cutter cuts slow or does not cut properly.	<ol style="list-style-type: none"> 1. Cutter is dull. 2. Belt is slipping on the pulley. 3. Cutter is rotating clockwise (motor is wired incorrectly). 	<ol style="list-style-type: none"> 1. Replace or sharpen the cutter (Page 31). 2. Tighten belt (Page 32) or replace belt (Page 32). 3. Wire motor so cutter rotates counterclockwise.
Dovetail joint fit is too tight.	<ol style="list-style-type: none"> 1. Cutter is not taking a large enough cut. 	<ol style="list-style-type: none"> 1. Adjust the cutter to take a larger cut (Page 29).
Dovetail joint fit is too loose.	<ol style="list-style-type: none"> 1. Cutter is taking too large of a cut. 	<ol style="list-style-type: none"> 1. Adjust the cutter to take a smaller cut (Page 29).
Tails fit too far into sockets.	<ol style="list-style-type: none"> 1. Sockets are cut too deep. 	<ol style="list-style-type: none"> 1. Adjust the cutter depth stop so the cutter will not cut as deeply into the horizontal workpiece (Page 26).
Tails will not fit completely into the sockets.	<ol style="list-style-type: none"> 1. Cutter is not taking a large enough cut. 2. Sockets are not cut deep enough. 	<ol style="list-style-type: none"> 1. Adjust the cutter to take a larger cut (Page 29). 2. Adjust cutter depth stop so the cutter will cut deeper into the horizontal workpiece (Page 26).
Tails sit flush with pins at one end but not the other.	<ol style="list-style-type: none"> 1. Horizontal workpieces were not positioned square when clamped. 2. Horizontal workpieces were not cut square or workpieces were not properly prepared. 	<ol style="list-style-type: none"> 1. Reclamp the workpiece with emphasis on keeping it square before and during clamping. 2. Cut new workpieces with emphasis on squaring up all the boards (Page 18). Check the saw or technique used to cut the boards to ensure squareness.
Gaps exist between tails and pins.	<ol style="list-style-type: none"> 1. Vertical workpieces were not positioned square when clamped. 2. The fixed chaser is not flush with the horizontal table. 3. Vertical workpieces were not cut square or workpieces were not properly prepared. 	<ol style="list-style-type: none"> 1. Reclamp the workpiece with emphasis on keeping it square before and during clamping. 2. Loosen the 3 cap screws securing the fixed chaser, adjust it flush with horizontal table, and tighten. 3. Cut new workpieces with emphasis on squaring up all the boards (Page 18). Check the saw or technique used to cut the boards to ensure squareness.
Dado or groove for drawer bottom visible on assembled joint.	<ol style="list-style-type: none"> 1. Dado cut in the wrong location for the template being used. 2. Fences set incorrectly. 	<ol style="list-style-type: none"> 1. Cut dados in the correct location (Page 19). 2. Reset the fences (Page 22).
Dovetails fit together correctly, but tops/edges of workpieces are not flush with each other.	<ol style="list-style-type: none"> 1. Fences were not offset by exactly half of the template size being used. 	<ol style="list-style-type: none"> 1. Set the fences so they are offset exactly half of the distance as the template size being used. For example, offset the fences 1/2" for 1" template, 3/4" for 1 1/2" template, etc. Refer to Page 22 for more details.
Distribution of dovetails across assembled joint is not symmetrical.	<ol style="list-style-type: none"> 1. Fences are not set correctly to allow the cutter to start in the proper location. 2. Workpiece width is not divisible by the template size being used. 	<ol style="list-style-type: none"> 1. Reset the fences, paying close attention to where the first cut will be made into the vertical workpiece (Page 22). 2. Cut new workpieces that are divisible by template size being used (Page 18); change template size to be divisible by workpiece (Page 21); or align cutter starting point by eye—results may not be truly symmetrical.

PARTS Table

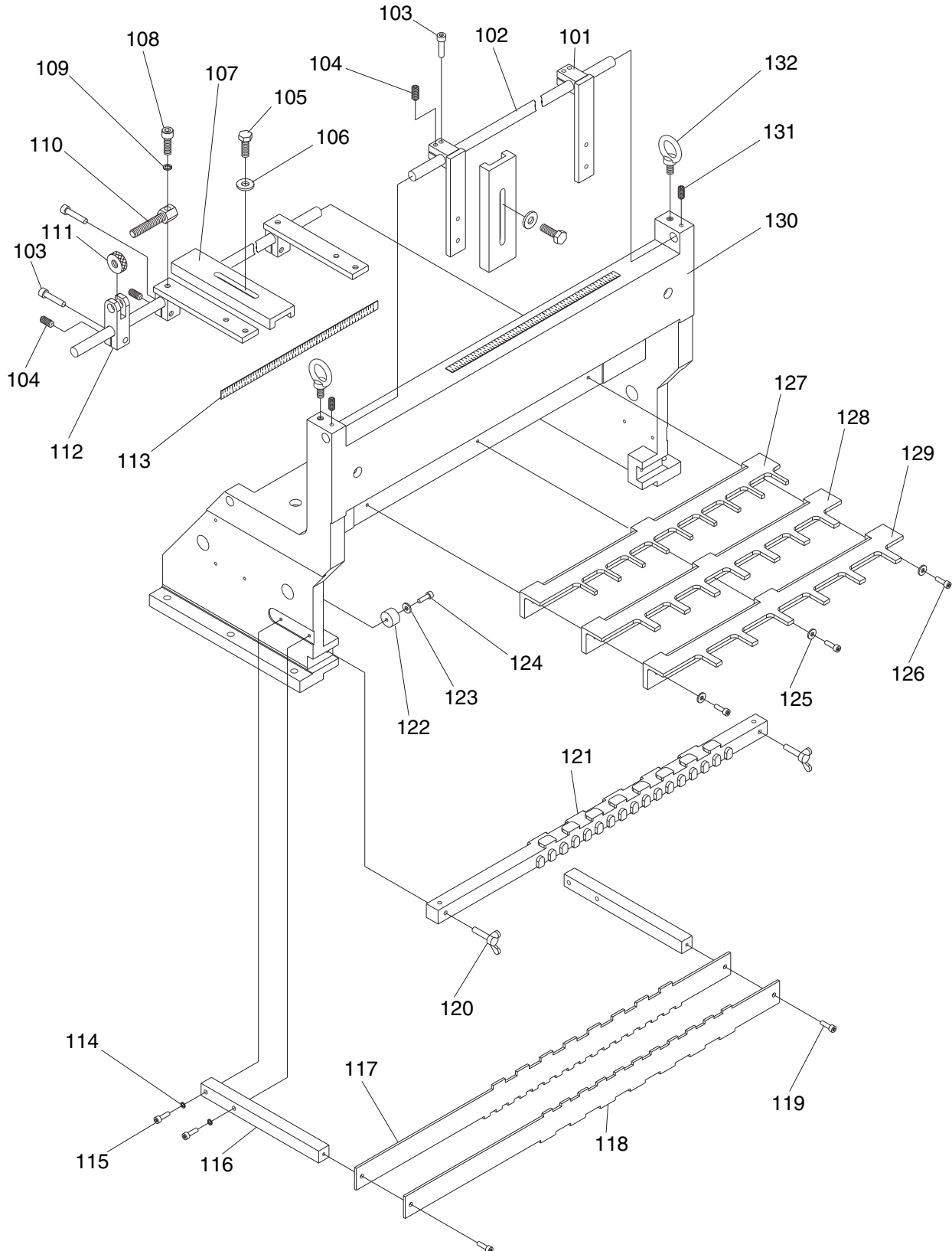
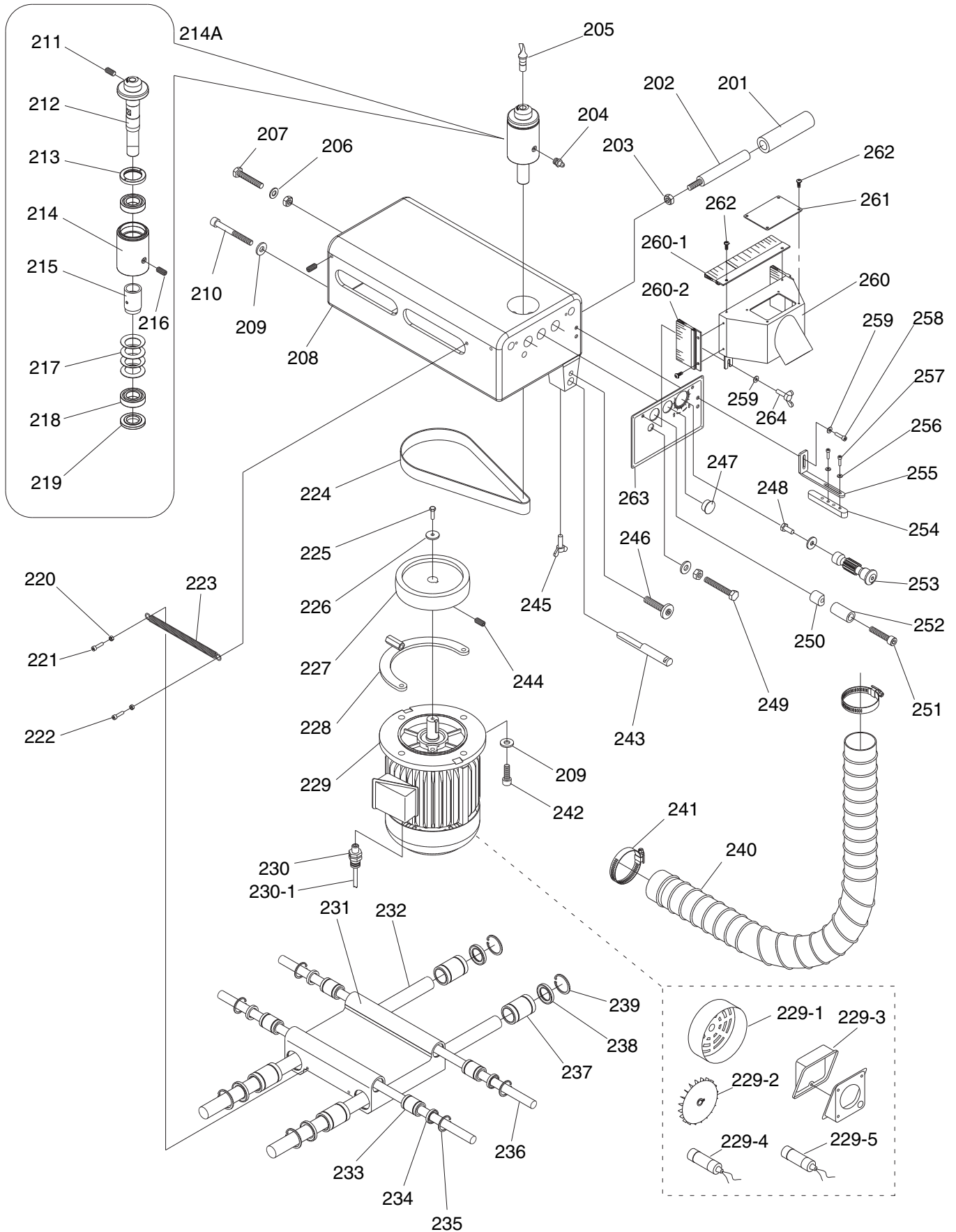


Table Parts List

REF	PART #	DESCRIPTION
101	X1805101	FENCE
102	X1805102	SLIDING ROD
103	X1805103	CAP SCREW M8-1.25 X 25
104	X1805104	SET SCREW M6-1 X 12
105	X1805105	HEX BOLT M8-1.25 X 20
106	X1805106	FLAT WASHER 8MM
107	X1805107	BUFFER PAD
108	X1805108	CAP SCREW M8-1.25 X 30
109	X1805109	LOCK WASHER 8MM
110	X1805110	ADJUSTMENT SCREW
111	X1805111	ADJUSTMENT NUT
112	X1805112	MICRO-ADJUSTMENT SEAT
113	X1805113	TABLE SCALE
114	X1805114	LOCK WASHER 6MM
115	X1805115	CAP SCREW M6-1 X 35
116	X1805116	INDICATOR MOUNTING BAR

REF	PART #	DESCRIPTION
117	X1805117	INDICATOR TEMPLATE 1" & 2"
118	X1805118	INDICATOR TEMPLATE 1-1/2" & 2-1/2"
119	X1805119	CAP SCREW M6-1 X 10
120	X1805120	WING SCREW M6-1 X 35
121	X1805121	TEMPLATE BAR
122	X1805122	BUFFER PAD
123	X1805123	FLAT WASHER 6MM
124	X1805124	CAP SCREW M6-1 X 20
125	X1805125	FLAT WASHER 6MM
126	X1805126	CAP SCREW M6-1 X 30
127	X1805127	FIXED CHASER 2"
128	X1805128	FIXED CHASER 3"
129	X1805129	FIXED CHASER 2-1/2"
130	X1805130	WORKTABLE
131	X1805131	SET SCREW M6-1 X 6
132	X1805132	EYE BOLT M10-1.5 X 15

Headstock



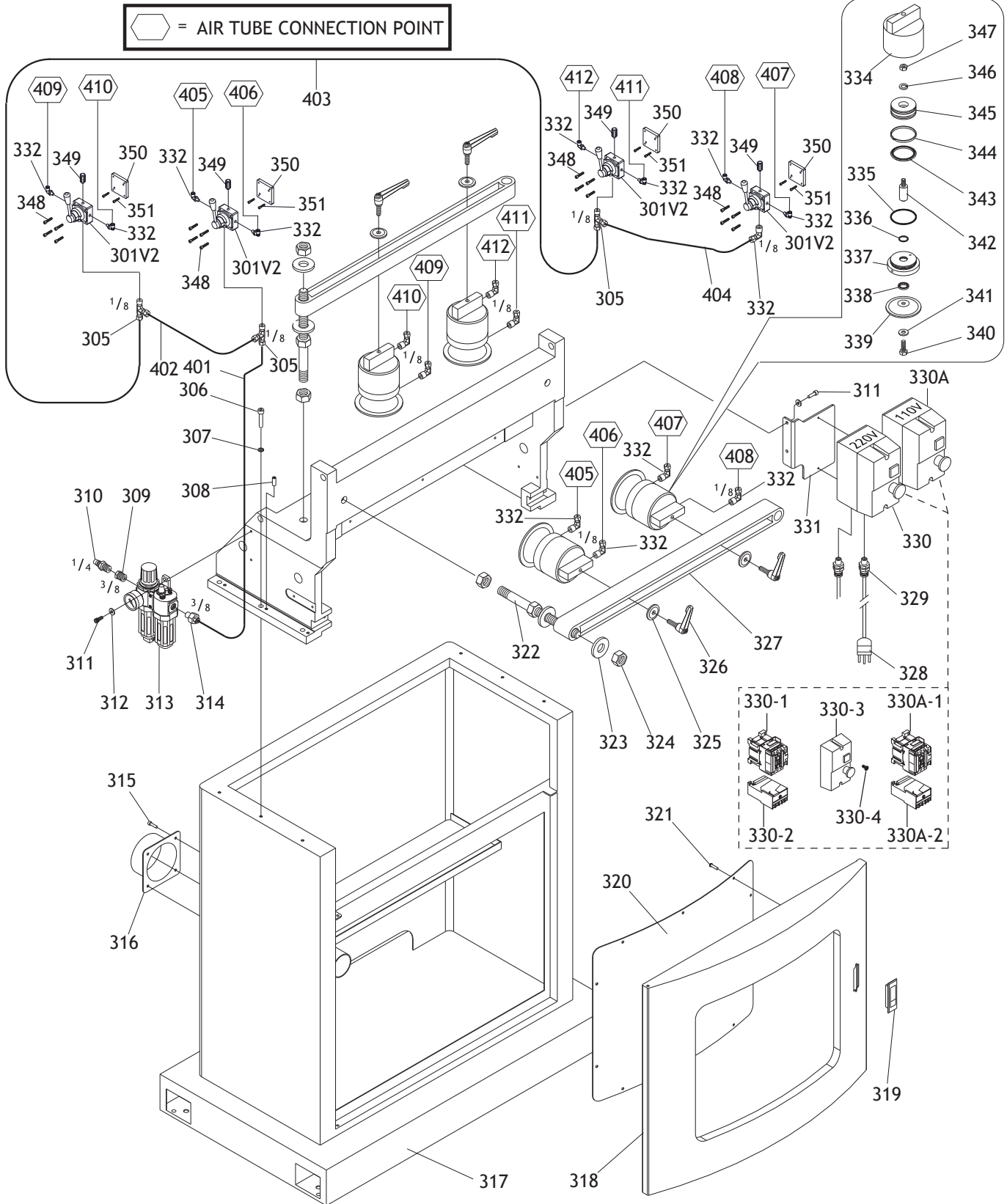
PARTS

Headstock Parts List

REF	PART #	DESCRIPTION
201	X1805201	SPONGE COATING
202	X1805202	HANDLE
203	X1805203	HEX NUT M10-1.5
204	X1805204	GREASE FITTING M6-1 x 5
205	X1805205	CUTTER
206	X1805206	FLAT WASHER 10MM
207	X1805207	HEX BOLT M10-1.5 X 80
208	X1805208	SPINDLE SLIDE SEAT
209	X1805209	FLAT WASHER 8MM
210	X1805210	CAP SCREW M8-1.25 X 100
211	X1805211	SET SCREW M8-1.25 X 10
212	X1805212	ECCENTRIC SPINDLE
213	X1805213	LOCK NUT
214	X1805214	SPINDLE BEARING HOUSING
214A	X1805214A	COMPLETE SPINDLE ASSY
215	X1805215	SPACER
216	X1805216	SET SCREW M5-.8 X 5
217	X1805217	COMPRESSION SPRING AK-6005
218	X1805218	BALL BEARING 6005
219	X1805219	FIXING NUT
220	X1805220	HEX NUT M5-.8
221	X1805221	CAP SCREW M5-.8 X 35
222	X1805222	CAP SCREW M5-.8 X 20
223	X1805223	EXTENSION SPRING
224	X1805224	FLAT BELT 670 X 25
225	X1805225	HEX BOLT M6-1 X 20
226	X1805226	FLAT WASHER 6MM
227	X1805227	MOTOR PULLEY
228	X1805228	MOTOR BRACKET
229	X1805229	MOTOR 1HP, 110V/220V
229-1	X1805229-1	MOTOR FAN COVER
229-2	X1805229-2	MOTOR FAN
229-3	X1805229-3	MOTOR JUNCTION BOX
229-4	X1805229-4	S CAPACITOR 300MFD 250VAC
229-5	X1805229-5	R CAPACITOR 30MFD 250VAC
230	X1805230	STRAIN RELIEF 11-10B
230-1	X1805230-1	MOTOR CORD

REF	PART #	DESCRIPTION
231	X1805231	CARRIAGE
232	X1805232	GUIDE ROD M25 X 750L
233	X1805233	LINEAR BUSHING 16UU
234	X1805234	SEAL 16 X 28 X 7 X 3
235	X1805235	INT RETAINING RING 28MM
236	X1805236	GUIDE ROD M16 X 459L
237	X1805237	LINEAR BUSHING 25UU
238	X1805238	SEAL 25 X 40 X 7 X 2
239	X1805239	INT RETAINING RING 40MM
240	X1805240	FLEXIBLE HOSE 2.5" X 63"
241	X1805241	HOSE CLAMP 2-3/4"
242	X1805242	CAP SCREW M8-1.25 X 35
243	X1805243	TRACER PIN
244	X1805244	SET SCREW M5-.8 X 12
245	X1805245	WING SCREW M6-1 X 20
246	X1805246	ADJUSTMENT SCREW
247	X1805247	PLASTIC PLUG 22MM
248	X1805248	HEX BOLT M8-1.25 X 16
249	X1805249	CAP SCREW M10-1.5 X 150
250	X1805250	CLAMP BUSHING
251	X1805251	CAP SCREW M8-1.25 X 65
252	X1805252	BUSHING
253	X1805253	GEAR SHAFT
254	X1805254	INDICATOR BAR
255	X1805255	INDICATOR BRACKET
256	X1805256	FLAT WASHER 4MM
257	X1805257	CAP SCREW M4-.7 X 10
258	X1805258	CAP SCREW M5-.8 X 12
259	X1805259	FLAT WASHER 5MM
260	X1805260	GUARD WITH BRUSH
260-1	X1805260-1	TOP GUARD BRUSH
260-2	X1805260-2	SIDE GUARD BRUSH
261	X1805261	WINDOW
262	X1805262	PHLP HD SCR M4-.7 X 6
263	X1805263	CONTROL PANEL LABEL
264	X1805264	WING SCREW M5-.8 X 15

Stand



Stand Parts List

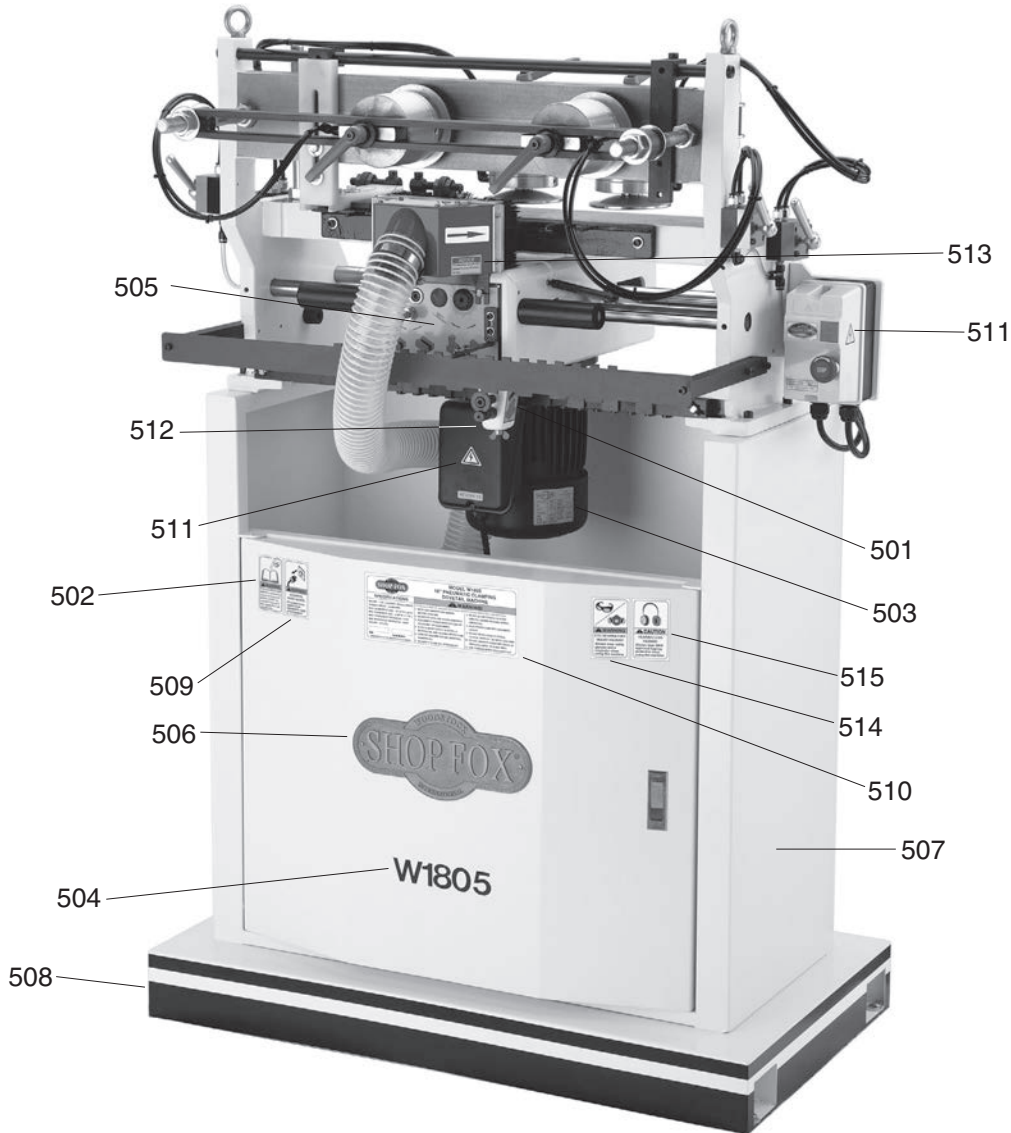
REF	PART #	DESCRIPTION
301V2	X1805301V2	CONTROL VALVE V2.07.15
305	X1805305	T-CONNECTOR PT-1/8" X 6MM X 6MM
306	X1805306	CAP SCREW M8-1.25 X 35
307	X1805307	LOCK WASHER 8MM
308	X1805308	SET SCREW M8-1.25 X 10
309	X1805309	ADAPTER 3/8" X 1/4"
310	X1805310	MALE COUPLING PT-1/4"
311	X1805311	CAP SCREW M6-1 X 16
312	X1805312	FLAT WASHER 6MM
313	X1805313	AIR SUPPLY UNIT MACP 300-10A
314	X1805314	MALE CONNECTOR PT-3/8" X 6MM
315	X1805315	CAP SCREW M5-.8 X 10
316	X1805316	DUST PORT 4"
317	X1805317	CABINET
318	X1805318	DOOR
319	X1805319	DOOR LATCH
320	X1805320	DOOR INSET
321	X1805321	PHLP HD SCR M5-.8 X 6
322	X1805322	STUD
323	X1805323	FLAT WASHER 20MM
324	X1805324	HEX NUT M20-2.5
325	X1805325	SPECIAL WASHER
326	X1805326	LOCKING HANDLE M10-1.5 X 35
327	X1805327	HOLDER BRACKET
328	X1805328	POWER CORD
329	X1805329	STRAIN RELIEF MGB20G-12B
330	X1805330	MAGNETIC SWITCH ASSY 220V
330A	X1805330A	MAGNETIC SWITCH ASSY 110V
330-1	X1805330-1	CONTACTOR 220V
330-2	X1805330-2	OVERLOAD RELAY FOR 220V
330-3	X1805330-3	MAG SWITCH COVER
330-4	X1805330-4	PLASTIC SCREW
330A-1	X1805330A-1	CONTACTOR 110V
330A-2	X1805330A-2	OVERLOAD RELAY FOR 110V

REF	PART #	DESCRIPTION
331	X1805331	SWITCH BRACKET
332	X1805332	MALE ELBOW PT1/8" X 6MM
333	X1805333	CAP SCREW M5-.8 X 50
334	X1805334	CYLINDER BODY
335	X1805335	O-RING G80
336	X1805336	O-RING P25
337	X1805337	CYLINDER END COVER
338	X1805338	LOCKING PIECE
339	X1805339	CLAMPING DISC
340	X1805340	HEX BOLT M8-1.25 X 16
341	X1805341	FLAT WASHER 8MM
342	X1805342	PISTON ROD
343	X1805343	PISTON BACKING 80 X 65 X 5.5
344	X1805344	WEARING 80 X 75 X 6
345	X1805345	PISTON
346	X1805346	LOCK WASHER 12MM
347	X1805347	HEX NUT M12-1.75
348	X1805348	CAP SCREW M5-.8 X 30
349	X1805349	AIR DIFFUSER 1/8" NPT
350	X1805350	MOUNTING PLATE
351	X1805351	CAP SCREW M5-.8 X 20
401	X1805401	PU TUBE 4 X 6 X 240MM
402	X1805402	PU TUBE 4 X 6 X 140MM
403	X1805403	PU TUBE 4 X 6 X 1360MM
404	X1805404	PU TUBE 4 X 6 X 140MM
405	X1805405	PU TUBE 4 X 6 X 790MM
406	X1805406	PU TUBE 4 X 6 X 730MM
407	X1805407	PU TUBE 4 X 6 X 790MM
408	X1805408	PU TUBE 4 X 6 X 730MM
409	X1805409	PU TUBE 4 X 6 X 790MM
410	X1805410	PU TUBE 4 X 6 X 730MM
411	X1805411	PU TUBE 4 X 6 X 790MM
412	X1805412	PU TUBE 4 X 6 X 730MM

Label Placement

⚠️ WARNING

Safety labels warn about machine hazards and how to prevent serious personal injury. The owner of this machine **MUST** maintain the original location and readability of all labels on this machine. If any label is removed or becomes unreadable, **REPLACE** that label before allowing machine to be operated again. Contact us at (360) 734-3482 or www.woodstockint.com to order new labels.



REF	PART #	DESCRIPTION
501	X1805501	TAIL SHORTER LABEL
502	X1805502	READ MANUAL LABEL
503	X1805503	MOTOR LABEL
504	X1805504	MODEL # LABEL
505	X1805505	CONTROL PANEL LABEL
506	X1805506	SHOP FOX LOGO PLATE
507	X1805507	SHOP FOX OFF-WHITE PAINT
508	X1805508	DECORATIVE STRIPE

REF	PART #	DESCRIPTION
509	X1805509	DISCONNECT POWER LABEL
510	X1805510	MACHINE ID LABEL
511	X1805511	ELECTRICITY LABEL
512	X1805512	TAIL LONGER LABEL
513	X1805513	GREASE SPINDLE LABEL
514	X1805514	RESPIRATOR/GLASSES LABEL
515	X1805515	EAR PROTECTION LABEL

WARRANTY

Woodstock International, Inc. warrants all Shop Fox machinery to be free of defects from workmanship and materials for a period of two years from the date of original purchase by the original owner. This warranty does not apply to defects due directly or indirectly to misuse, abuse, negligence or accidents, lack of maintenance, or reimbursement of third party expenses incurred.

Woodstock International, Inc. will repair, replace, or arrange for a dealer refund, at its expense and option, the Shop Fox machine or machine part proven to be defective for its designed and intended use, provided that the original owner returns the product prepaid to an authorized warranty or repair facility as designated by our Bellingham, Washington office with proof of their purchase of the product within two years, and provides Woodstock International, Inc. reasonable opportunity to verify the alleged defect through inspection. If it is determined there is no defect, or that the defect resulted from causes not within the scope of Woodstock International Inc.'s warranty, then the original owner must bear the cost of storing and returning the product.

This is Woodstock International, Inc.'s sole written warranty and any and all warranties that may be implied by law, including any merchantability or fitness, for any particular purpose, are hereby limited to the duration of this written warranty. We do not warrant that Shop Fox machinery complies with the provisions of any law, acts or electrical codes. We do not reimburse for third party repairs. In no event shall Woodstock International, Inc.'s liability under this limited warranty exceed the purchase price paid for the product, and any legal actions brought against Woodstock International, Inc. shall be tried in the State of Washington, County of Whatcom. We shall in no event be liable for death, injuries to persons or property or for incidental, contingent, special or consequential damages arising from the use of our products.

Every effort has been made to ensure that all Shop Fox machinery meets high quality and durability standards. We are committed to continuously improving the quality of our products, and reserve the right to change specifications at any time.

To register the warranty, go to <https://www.woodstockint.com/warranty>, or scan the QR code below. You will be directed to the Warranty Registration page on www.woodstockint.com. Enter all applicable production information.





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