WOODSTOCK

SHOP FOX®

INTERNATIONAL

MODEL W1668/W1848
13¼" OSCILLATING DRILL PRESS

OWNER'S MANUAL

(FOR MODELS MANUFACTURED SINCE 08/16)

Phone: (360) 734-3482 • Online Technical Support: tech-support@shopfox.biz

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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.

#18837MN V2.03.17 **Printed in China**

⚠ 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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USE THE QUICK GUIDE PAGE LABELS TO SEARCH OUT INFORMATION FAST!

INTRODUCTION

Contact Info

We are committed to customer satisfaction. If you have any questions or need help, use the information below to contact us.

IMPORTANT: Before contacting, please get the original purchase receipt, serial number, and manufacture date of your machine. This information is required for all Technical Support calls and it will help us help you faster.

Woodstock International Technical Support
Phone: (360) 734-3482
Email: techsupport@woodstockint.com

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

Technical Documentation Manager
P.O. Box 2309
Bellingham, WA 98227
Email: manuals@woodstockint.com

The W1668 is a benchtop drill press. The W1848 is a floor model drill press. With the exception of the base, column, and flange, these two machines are exactly the same.

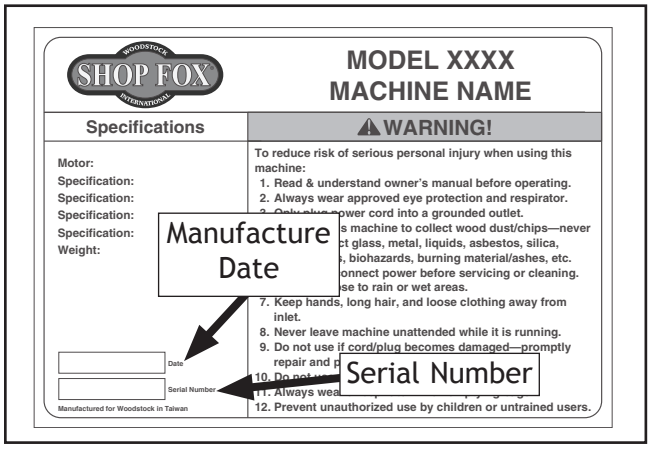
Manual Accuracy

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

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

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

Alternatively, you can call our Technical Support for help. Before calling, make sure you write down the **Manufacture Date** and **Serial Number** from the machine ID label (see below). Also, if available, have a copy of your **original purchase receipt** on hand. This information is required for all Tech Support calls.



MACHINE SPECIFICATIONS

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MODEL W1668
13-1/4" OSCILLATING BENCHTOP DRILL PRESS

Product Dimensions

Weight..... 113 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 15 x 24 x 38 in.
Footprint (Length x Width)..... 17-1/2 x 11 in.

Shipping Dimensions

Carton #1

Type..... Cardboard Box
Content..... Machine
Weight..... 61 lbs.
Length x Width x Height..... 25 x 16 x 10-3/4 in.
Must Ship Upright..... No

Carton #2

Type..... Cardboard Box
Content..... Base
Weight..... 62 lbs.
Length x Width x Height..... 32 x 18-3/4 x 8-1/2 in.
Must Ship Upright..... No

Electrical

Power Requirement..... 110V, Single-Phase, 60 Hz
Prewired Voltage..... 110V
Full-Load Current Rating..... 9A
Minimum Circuit Size..... 15A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 9 ft.
Power Cord Gauge..... 18 AWG
Plug Included..... Yes
Included Plug Type..... 5-15
Switch Type..... Paddle Safety Switch w/Removable Key

Motors

Main

Horsepower..... 3/4 HP
Phase..... Single-Phase
Amps..... 9A
Speed..... 1725 RPM
Type..... TEFC Capacitor-Start Induction
Power Transfer ..... V-Belt Drive
Bearings..... Shielded & Permanently Lubricated
Centrifugal Switch/Contacts Type..... External

Main Specifications

Operation Information

Type	Oscillating
Swing	13-1/4 in.
Spindle Taper	JT33
Spindle Travel	3-1/8 in.
Max. Distance From Spindle to Column	6-3/4 in.
Max. Distance From Spindle to Table	17-1/4 in.
Number of Spindle Speeds	12
Range of Spindle Speeds	250 – 3050 RPM
Max. Head Swivel	360 deg.
Drilling Capacity (Mild Steel)	5/8 in. in Steel
Drill Chuck Type	JT33 Key Chuck
Drill Chuck Size	1 – 16 mm
Oscillating Stroke Length	3/4 in.

Spindle Information

Distance From Spindle to Base	24 in.
Quill Diameter	1.565 in.

Table Information

Max. Table Tilt (Left/Right)	90 deg.
Table Swing	360 deg.
Table Swivel Around Center	360 deg.
Table Swivel Around Column	360 deg.
Max. Movement of Work Table	11-3/4 in.
Table Diameter	12-3/8 in.
Table Thickness	1 in.
Vertical Table Travel	Crank Handle Operation
Number of T-Slots	5
T-Slot Size	5/8 in.
T-Slot Centers	3 in.
Floor-To-Table Height	9-1/2 – 21-1/4 in.

Construction

Table	Precision-Ground Cast Iron
Column	Steel
Spindle Housing	Cast Iron
Head	Cast Iron
Base	Cast Iron
Paint Type/Finish	Enamel

Other Related Information

Base Length	17-1/2 in.
Base Width	11 in.
Column Diameter	2.79 in.
Depth Stop Type	Threaded Rod with Positive Stop
Number of Dust Ports	1
Dust Port Size	2 in.
Has Work Light	No

MACHINE SPECIFICATIONS

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MODEL W1848
13-1/4" OSCILLATING FLOOR DRILL PRESS

Product Dimensions

Weight..... 122 lbs.
Width (side-to-side) x Depth (front-to-back) x Height..... 15 x 24 x 63 in.
Footprint (Length x Width)..... 17-1/2 x 11 in.

Shipping Dimensions

Type..... Cardboard Box
Content..... Machine
Weight..... 138 lbs.
Length x Width x Height..... 58 x 22 x 11 in.
Must Ship Upright..... Yes

Electrical

Power Requirement..... 110V, Single-Phase, 60 Hz
Full-Load Current Rating..... 9A
Minimum Circuit Size..... 15A
Connection Type..... Cord & Plug
Power Cord Included..... Yes
Power Cord Length..... 6 ft.
Power Cord Gauge..... 18 AWG
Plug Included..... Yes
Included Plug Type..... 5-15
Switch Type..... Paddle Safety Switch w/Removable Key

Motors

Main

Horsepower..... 3/4 HP
Phase..... Single-Phase
Amps..... 9A
Speed..... 1725 RPM
Type..... TEFC Capacitor-Start Induction
Power Transfer ..... V-Belt Drive
Bearings..... Shielded & Permanently Lubricated
Centrifugal Switch/Contacts Type..... Internal

Main Specifications

Operation Information

Type	Oscillating
Swing	13-1/4 in.
Spindle Taper	JT33
Spindle Travel	3-1/8 in.
Max. Distance From Spindle to Column	6-5/8 in.
Number of Spindle Speeds	12
Range of Spindle Speeds	250 - 3050 RPM
Max. Head Swivel	360 deg.
Drilling Capacity (Mild Steel)	5/8 in.
Drill Chuck Type	JT33 Key Chuck
Drill Chuck Size	3/64 - 5/8 in.
Oscillating Stroke Length	3/4 in.

Spindle Information

Quill Diameter	1.565 in.

Table Information

Max. Table Tilt (Left/Right)	90 deg.
Table Swivel Around Center	360 deg.
Table Swivel Around Column	360 deg.
Max. Movement of Work Table	25-1/4 in.
Table Diameter	12-3/8 in.
Table Thickness	1 in.
Vertical Table Travel	Crank Handle Operation
Number of T-Slots	5
T-Slot Size	1/2 in.
T-Slot Centers	3 in.

Construction

Table	Precision-Ground Cast Iron
Column	Steel
Spindle Housing	Cast Iron
Head	Cast Iron
Base	Cast Iron
Paint Type/Finish	Enamel

Other Related Information

Depth Stop Type	Threaded Rod w/Positive Stop
Number of Dust Ports	1
Dust Port Size	2-1/4 in.
Has Work Light	No

Other

Country of Origin	China
Warranty	2 Years
Approximate Assembly & Setup Time	30 Minutes
Serial Number Location	ID Label
ISO 9001 Factory	Yes
Certified by a Nationally Recognized Testing Laboratory (NRTL)	No

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!

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

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

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

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 Drill Presses

Serious injury or death can occur from getting clothing, jewelry, or long hair entangled in rotating spindle or bit/cutting tool. Contact with rotating bit/cutting tool can result in severe cuts or amputation of fingers. Flying metal chips can cause blindness or eye injuries. Broken bits/cutting tools, unsecured workpieces, chuck keys, or other adjustment tools thrown from rotating spindle can strike nearby operator or bystanders with great force. To reduce the risk of these hazards, operator and bystanders MUST completely heed hazards and warnings below.

WEARING PROPER PPE. Flying chips created by drilling can cause eye injuries or blindness. Always wear a face shield in addition to safety glasses. Always keep hands and fingers away from drill bit/cutting tool. Avoid awkward hand positions, where a sudden slip could cause hand to move into bit/cutting tool.

AVOIDING ENTANGLEMENT. DO NOT wear loose clothing, gloves, or jewelry, and tie back long hair. Keep all guards in place and secure. Always allow spindle to stop on its own. DO NOT stop spindle using your hand or any other object.

REMOVING ADJUSTMENT TOOLS. Chuck key, drawbar wrench, and other tools left on machine can become deadly projectiles when spindle is started. Remove all loose items or tools used on spindle immediately after use.

SECURING BIT/CUTTING TOOL. Firmly secure bit/cutting tool so it does not fly out of spindle during operation or startup.

SECURING TABLE AND HEADSTOCK. To avoid accidental contact with tool/bit, tighten all table and headstock locks before operating drill.

CORRECT SPINDLE SPEED. Using wrong spindle speed can cause bits/cutting tools to break and strike operator or bystanders. Follow recommended speeds and feeds for each size/type of bit/cutting tool and workpiece material.

WORKPIECE PREPARATION. To avoid loss of workpiece control, DO NOT drill material with an uneven surface on the table, unless a suitable support is used. To avoid impact injuries, make sure workpiece is free of nails or foreign objects in area to be drilled.

WORKPIECE CONTROL. An unsecured workpiece may unexpectedly shift, spin out of control, or be thrown if bit/cutting tool "grabs" during operation. Clamp workpiece to table or in table-mounted vise, or brace against column to prevent rotation. NEVER hold workpiece by hand during operation. NEVER start machine with bit/cutting tool touching workpiece; allow spindle to gain full speed before drilling.

INSPECTING BIT/CUTTING TOOL. Damaged bits/cutting tools may break apart during operation and hit operator or bystanders. Dull bits/cutting tools increase cutting resistance and are more likely to grab and spin/throw workpiece. Always inspect bits/cutting tools for sharpness, chips, or cracks before each use. Replace dull, chipped, or cracked bits/cutting tools immediately.

MAINTAINING MACHINE. Keep machine in proper working condition to help ensure that it functions safely and all guards and other components work as intended. Perform routine inspections and all necessary maintenance. Never operate machine with damaged or worn parts that can break or result in unexpected movement during operation.

CLEANING MACHINE SAFELY. To avoid contact with tool/bit, never clear chips while spindle is turning. To avoid cuts and eye injuries, DO NOT clear chips by hand or with compressed air—use a brush or vacuum instead.

DISCONNECT POWER FIRST. To reduce risk of electrocution or injury from unexpected startup, make sure drill is turned OFF, disconnected from power, and all moving parts have come to a complete stop before changing bits/cutting tools or starting any inspection, adjustment, or maintenance procedure.

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 110V .....9 Amps

Circuit Requirements for 110V

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

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 instrtucted 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.

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.

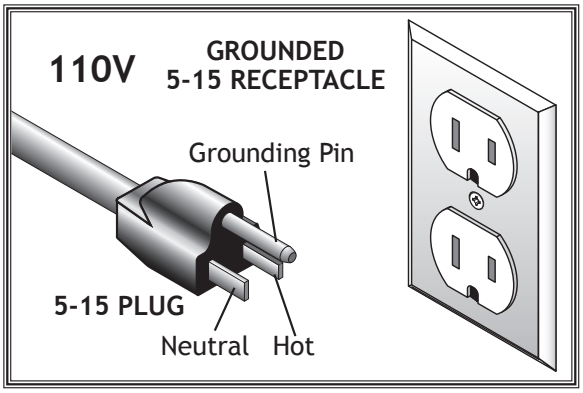
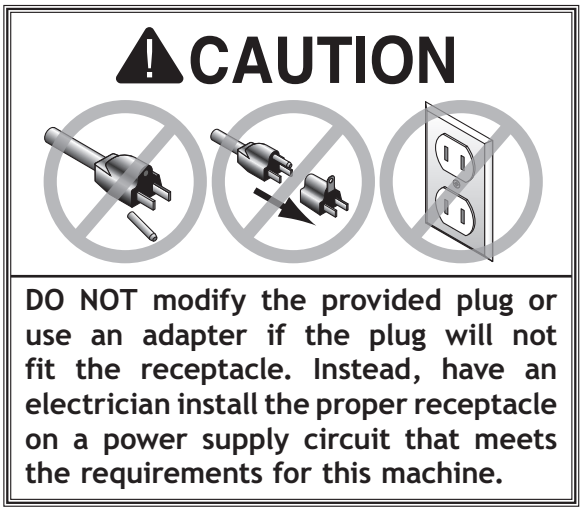


Figure 1. NEMA 5-15 plug & receptacle.



DO NOT modify the provided plug or use an adapter if the plug will not fit the receptacle. Instead, have an electrician install the proper receptacle on a power supply circuit that meets the requirements for this machine.

For 110V Connection

This machine is equipped with a power cord with an equipment-grounding wire and NEMA 5-15 grounding plug (see figure). The plug must only be inserted into a matching receptacle that is properly installed and grounded in accordance with 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 110V ..... 14 AWG
Maximum Length (Shorter is Better) ..... 50 ft.

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.

Items Needed for Setup

The following items are needed, but not included, to set up your machine.

Description	Qty
• Safety Glasses for Each Person	1
• Degreaser or Solvent for Cleaning	Varies
• Disposable Rags for Cleaning	Varies
• Straightedge	1
• Plumb Bob	1
• Dust Collection System	1
• Dust Hose 2"	1
• Hose Clamp 2"	1
• Phillips Head Screwdriver	1
• Hex Wrench 16mm	1
• Assistant for Lifting	1

⚠WARNING

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

⚠WARNING

Wear safety glasses during entire setup process!

⚠WARNING

USE helpers or power lifting equipment to lift this machine. Otherwise, serious personal injury may occur.

⚠WARNING

SUFFOCATION HAZARD!

Immediately discard all plastic bags and packing materials to eliminate choking/suffocation hazards for children and animals.

Inventory

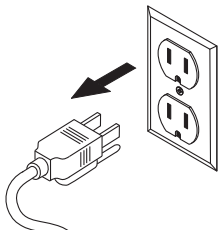
The following is a list of items shipped with your machine. Before beginning setup, lay these items out and inventory them.

Note: *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.*

Box Inventory (Figures 2 & 3)	**Qty**
A. Headstock Assembly	1
B. Table	1
C. Column	1
D. Rack	1
E. Table Bracket	1
F. Rack Ring	1
G. Base	1
H. Dust Port Halves	2
I. Depth Stop Bracket	1
J. Chuck Guard Assembly	1
K. Table Inserts (5/8", 1", 1 3/8", 1 7/8")	1 ea
L. Sanding Mandrel	1
M. Spindle Handles	3
N. Hand Crank Handle	1
O. Hand Crank	1
P. Lock Handle M12-1.75	1
Q. Lock Handle M10-1.5	1
R. Belt Cover Knob	1
S. Key	1
T. Drill Chuck JT33	1
U. Pinion Gear	1
V. Spindle Sander Set D2877 (not shown)	1
W. Motor Lock Screw M8-1.25 X 25 (not shown)	1

Tools and Fasteners (not shown)	**Qty**
—Special Wrench 25mm	1
—Open End Wrench 13 x 14	1
—Hex Wrenches 3, 4, 5mm	1 ea.
—Hex Nut M8-1.25 (Mandrel)	1
—Mandrel Washers 3/4" OD x 5/8" ID (Mandrel)	2
—Mandrel Washer 7/8" OD x 3/8" ID (Mandrel)	1
—Mandrel Washer 5/8" OD x 3/8" ID (Mandrel)	1
—Hex Bolts M10-1.5 x 25 (Colum/Base)	4
—Phillips Head Screws M4-.7 x 22 (Dust Port)	4
—Cap Screw M5-.8 x 20 (Chuck)	1

⚠WARNING



Keep machine disconnected from power until instructed otherwise.

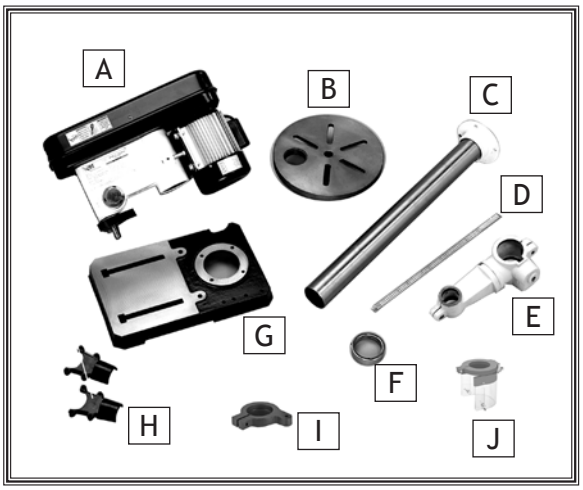


Figure 2. W1668/W1848 inventory.

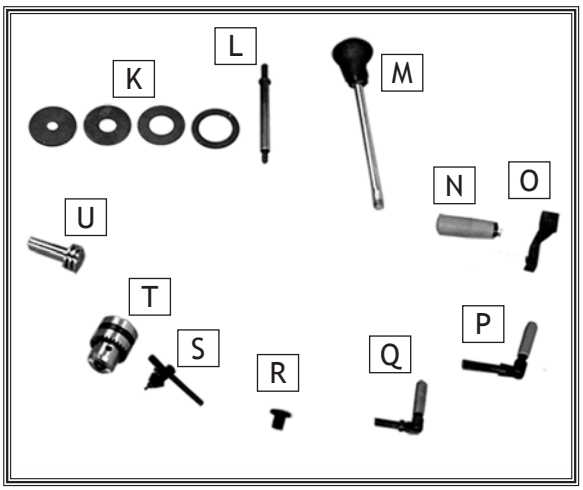


Figure 3. Additional W1668/W1848 inventory items.

Machine Placement

- **Floor & Workbench Load:** Refer to the **Machine Data Sheet** for weight and footprint specifications for your machine. Some residential floors (W1848) and workbenches (W1668) may require additional reinforcement to support the machine.

- **Working Clearances:** Consider existing and anticipated needs, size of material to be processed through each machine, and space for auxiliary stands, work tables, or other machinery when establishing a location for your machine. See Figure **4** for the minimum working clearances of the Model W1668/W1848.

⚠CAUTION

INJURY HAZARD! Untrained users can injure themselves with this machine. Restrict access to machine when you are away, especially if it is installed where children are present.

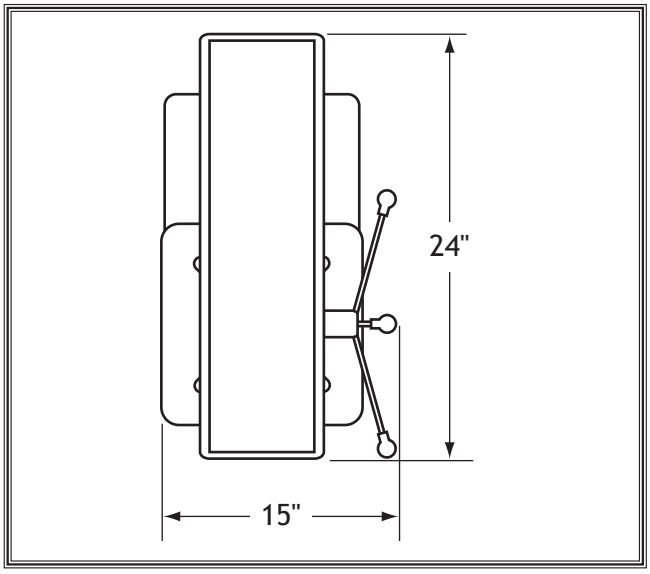


Figure 4. Working clearances.

Cleaning Machine

The table and other unpainted parts of your machine are coated with a waxy grease that protects them from corrosion during shipment. Clean this grease off with a solvent cleaner or citrus-based degreaser. DO NOT use chlorine-based solvents such as brake parts cleaner or acetone—if you happen to splash some onto a painted surface, you will ruin the finish.

⚠WARNING

NEVER clean with gasoline or other petroleum-based solvents. Most have low flash points, which make them extremely flammable. A risk of explosion and burning exists if these products are used. Serious personal injury may occur if this warning is ignored!

⚠CAUTION

ALWAYS work in well-ventilated areas far from possible ignition sources when using solvents to clean machinery. Many solvents are toxic when inhaled or ingested. Use care when disposing of waste rags and towels to be sure they DO NOT create fire or environmental hazards.

SETUP

Anchoring to Floor (W1848)

Number of Mounting Holes..... 8
Diameter of Mounting Hardware .....5/16" (6) & 1/2" (2)

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

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

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

Anchoring to Concrete Floors

Lag shield anchors with lag screws (see **Figure**) 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.

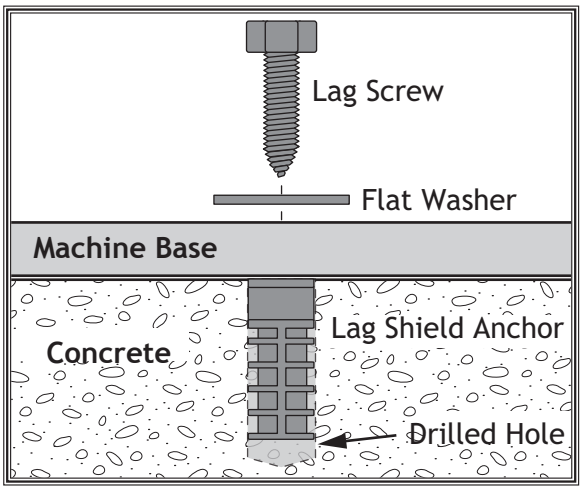


Figure 5. Popular method for anchoring machinery to a concrete floor.

Bench Mounting (W1668)

Number of Mounting Holes..... 8
Diameter of Mounting Hardware .....$^{5}/_{16}$" (6) & $^{1}/_{2}$" (2)

The base of this machine has mounting holes that allow it to be fastened to a workbench or other mounting surface to prevent it from moving during operation and causing accidental injury or damage.

The strongest mounting option is a "Through Mount" (see example) where holes are drilled all the way through the workbench—and hex bolts, washers, and hex nuts are used to secure the machine in place.

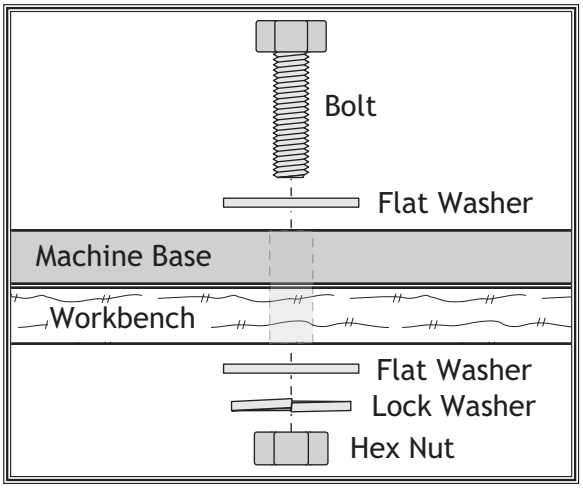


Figure 6. Typical "Through Mount" setup.

Another option is a "Direct Mount" (see example) where the machine is secured directly to the workbench with lag screws and washers.

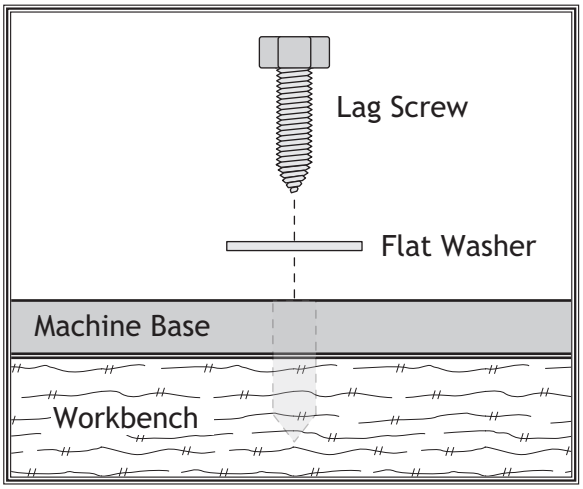


Figure 7. Typical "Direct Mount" setup.

Assembly

Before beginning the assembly process, refer to **Items Needed for Setup** and gather everything you need. Ensure all parts have been properly cleaned of the heavy-duty rust-preventative applied at the factory, if applicable. Be sure to complete all steps in the assembly procedure prior to performing the **Test Run**.

To assemble the drill press, do these steps:

1. Position the drill press base on a flat and stable surface.
2. Secure the base to the mounting surface (**Refer to Pages 8-9**).
3. Place the column on the base, line up the four mounting holes, and secure tightly with the four M10-1.5 x 25 hex bolts, using a 16mm wrench.

Figure 8. Using holes as a drill guide.

4. Bring the dust port halves together, align the mounting holes on the dust port and table, then secure with the four M4-.7 x 22 Philips head screws, as shown in **Figure 9**.

Figure 9. Installing the dust port.

7. Insert the 12mm lock handle into the table support bracket through the blind hole, into the threaded hole, and thread inward three turns, as shown in **Figure 10**.

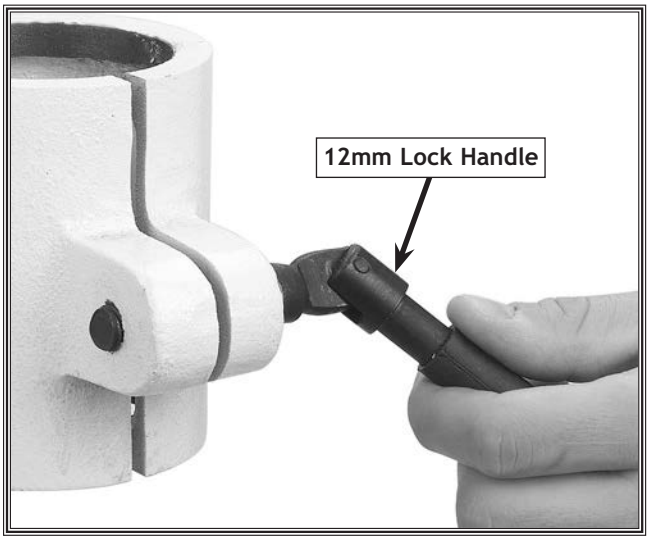


Figure 10. Loosely installing table lock lever.

8. If the pinion is not already installed, insert it shaft-end into the hole on the side of the table support bracket, as shown in **Figure 11**.

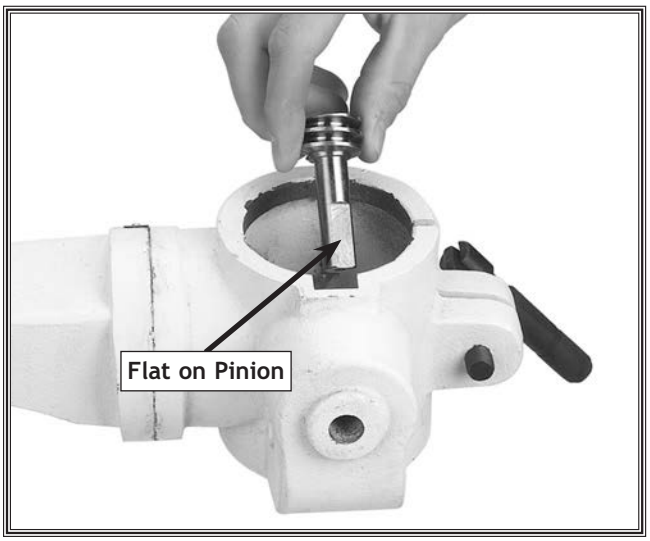


Figure 11. Pinion installation positioning.

9. Align the set screw in the crank handle with the flat on the pinion shaft and tighten, as shown in **Figure 12**.

10. Thread the handle into the crank handle (**Figure 12**).

11. If the column ring is installed on the colum, loosen the set screw on the ring and remove it.

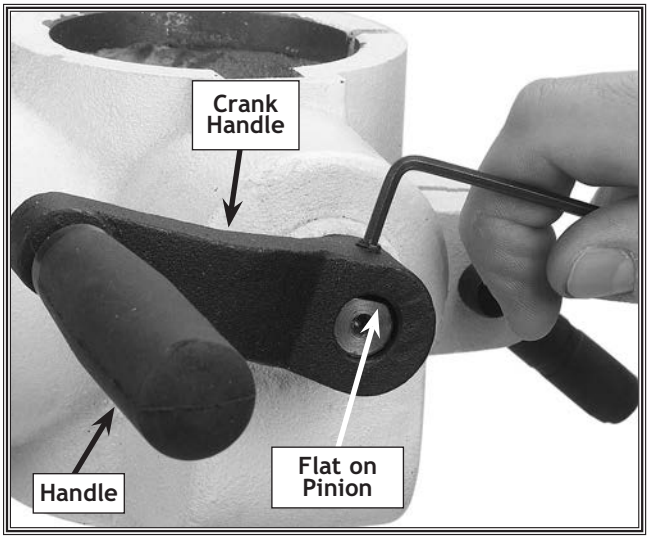


Figure 12. Crank and set screw positioning.

12. Position the rack so the long un-toothed end is facing upward (see **Figure 13**).

13. Insert the rack into the table support bracket so the teeth face out and mesh with the pinion (see **Figure 13**).

14. While holding the rack in place, slide the table support bracket onto the column.

15. Allow the bracket and rack to slide down until the bottom of the rack bevel slips into the tapered shoulder on the column support.

16. Slide the column ring onto the column with the inside bevel in the down position (see **Figure 14**).

17. Adjust the ring until the tip of the rack fits inside the bevel, and the rack rotates freely when you rotate the table support around the column.

18. Secure the table support with the table lock lever.

NOTICE

Use caution when tightening the set screw. Over tightening will split the column ring.

19. Carefully tighten the set screw on the ring.

20. Thread the 10mm lock handle into the table bracket through the blind hole, into the threaded hole, and thread inward three turns.

21. Align the shaft under the table with the hole on the end of the table support bracket and install (see **Figure 15**).

22. Tighten the table lock lever.

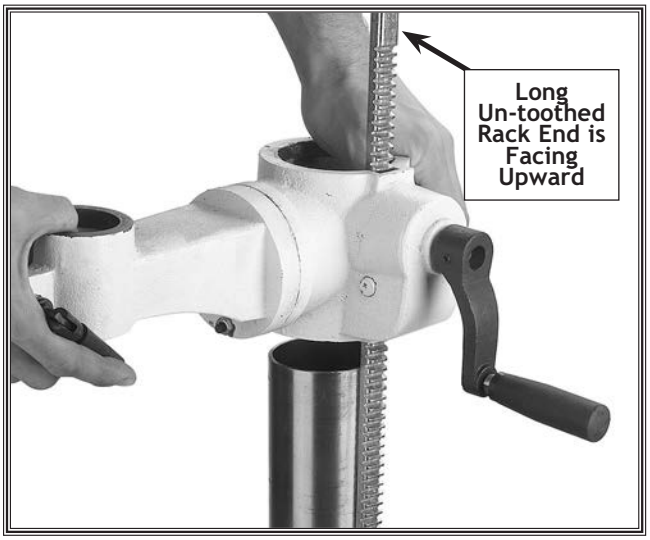


Figure 13. Rack, column, table support position.

Figure 14. Column ring bevel positioning.

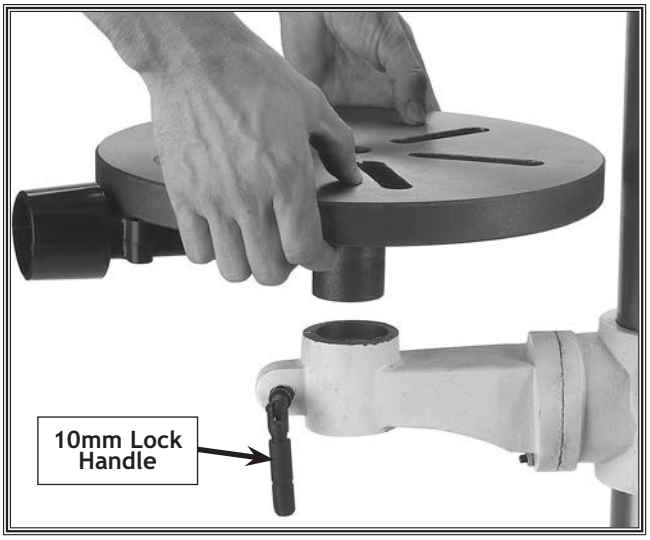


Figure 15. Table installation.

⚠CAUTION
DO NOT over tighten the set screws and strip the threads or bend the column.

23. With an assistant, position the pocket over the column (**Figure 16**) and allow the headstock to slide down until the column fully seats up and into the headstock (approximately 3 1/2").

Tip: *Place a few drops of multi-purpose grease on the column to help the headstock seat more easily.*

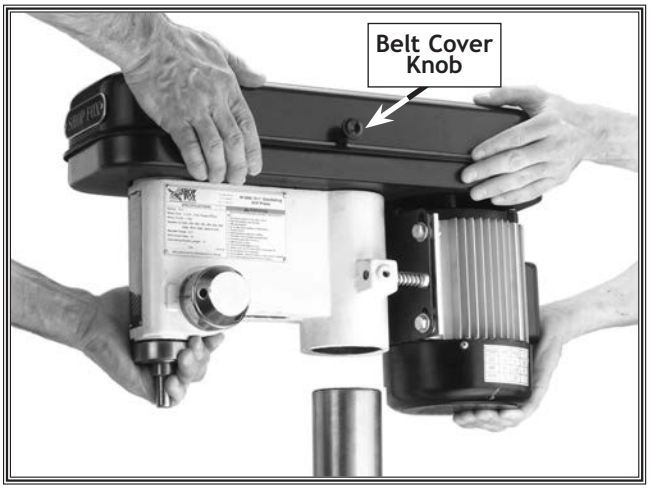


Figure 16. Aligning the pocket in the headstock with the column.

24. Align the headstock directly over the foot of the base as viewed from the front of the drill press and center it using a plumb bob and ruler (see **Figure 17**).

Figure 17. Aligning headstock with base.

25. Tighten the two set screws to secure the headstock to the column (see **Figure 18**).

26. Install the belt cover knob with the included Phillips head screw (see **Figure 16**).

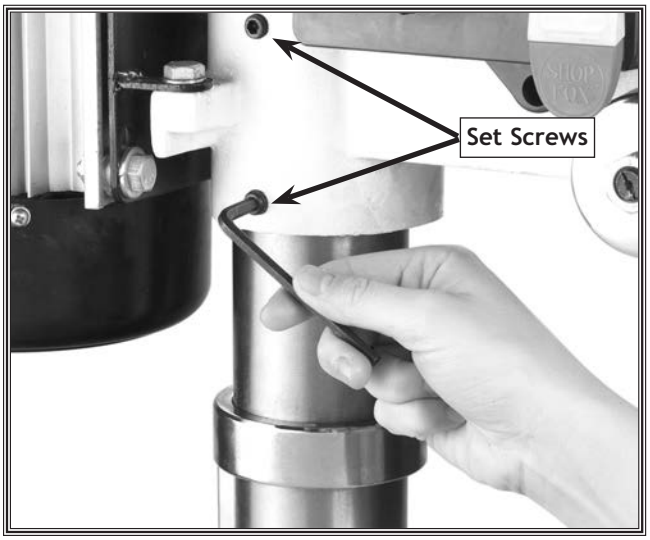


Figure 18. Securing the headstock to the column.

27. Clean the drill chuck and spindle with mineral spirits and follow all safety warnings on the container. Failure to clean the tapered-mating surfaces of the spindle and drill chuck will result in the chuck falling off during use.

28. Use the provided chuck key to adjust the jaws of the chuck until they are well inside the drill chuck body (see **Figure 19**).

Figure 19. Jaws adjusted inside chuck body.

29. Place the drill chuck on the spindle, and insert the capscrew into the hole of the drill chuck, as shown in **Figure 20**.

30. Tighten the screw so the drill chuck is seated securely on the spindle.

- If the chuck fails to remain secure on the spindle, repeat **Step 1, DO NOT use a hammer to seat the drill chuck onto the spindle!**

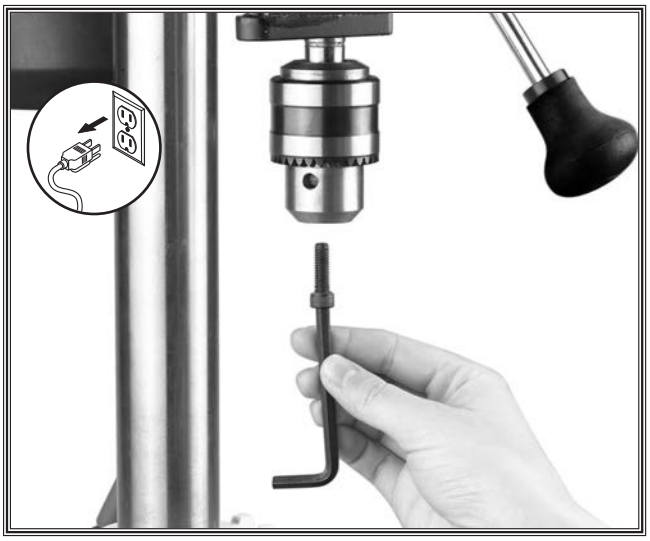


Figure 20. Inserting the hex cap screw.

31. Thread the handles into the hub, as shown in **Figure 21.**

32. Tighten the handles with the included wrench until they are snug, **DO NOT** overtighten.

Figure 21. Installing spindle handles.

33. Slide chuck guard onto bottom of depth stop bracket, as shown in **Figure 22**.

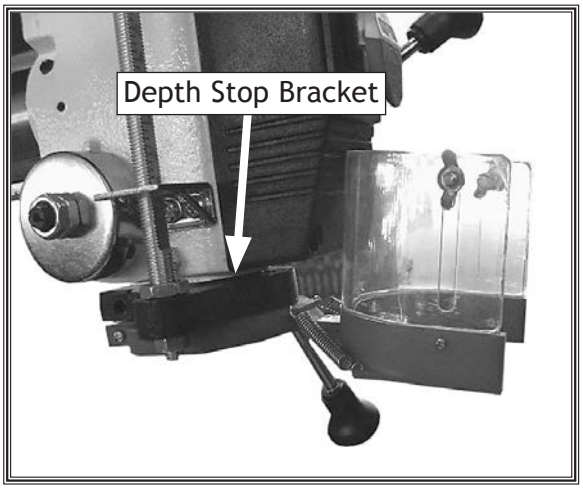


Figure 22. Chuck guard installed on depth stop bracket.

34. Secure chuck guard to bracket with four M4-.7 x 10 Phillips head screws and 4mm flat washers, as shown in **Figure 23**.

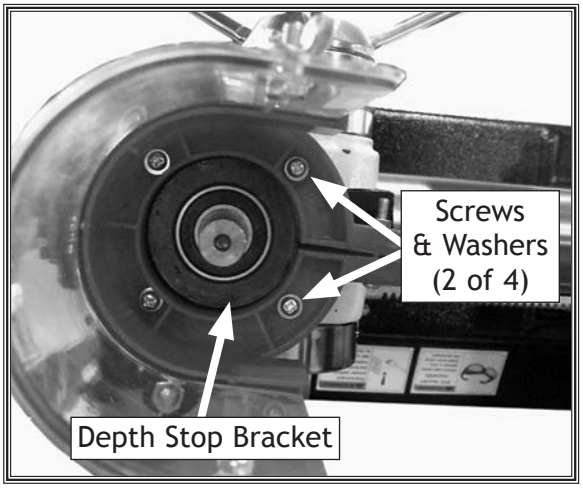


Figure 23. Chuck guard secured to depth stop bracket.

Dust Collection

Recommended CFM at Dust Port..... 150 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.

⚠CAUTION

This machine creates substantial amounts of 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.

Tools Needed	Qty
Dust Collection System	1
Dust Hose 2"	1
Hose Clamps 2"	2

To connect hose, do these steps:

1. Fit a 2" dust hose over the dust port, as shown in **Figure 24**, and secure it in place with a hose clamp.

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

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

Figure 24. Dust port connected to dust collection system.

Test Run

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

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

To test run the machine, do these steps:

1. Clear all setup tools away from machine.
2. Connect machine to power supply.
3. Turn machine ***ON***, verify motor operation, then turn machine ***OFF***.

   The motor should run smoothly and without unusual noises.
4. Remove switch disabling key (see example).
5. Try to start machine with paddle switch. The machine should not start.

   — If machine *does not* start, the switch disabling feature is working as designed.

   — If machine *does* start, immediately stop the machine. The switch disabling feature is not working correctly. This safety feature must work properly before proceeding with regular operations. Call Tech Support for help.

⚠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.

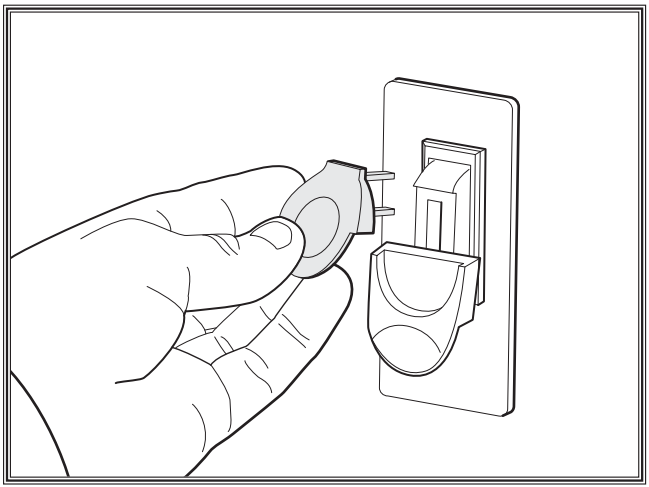


Figure 25. Removing switch key from paddle switch.

Spindle Break-In

The spindle break-in procedure distributes lubrication throughout the bearings to reduce the risk of early bearing failure if there are any "dry" spots or areas where lubrication has settled in the bearings. You must complete this procedure before placing operational loads on the spindle for the first time when the machine is new or if it has been sitting idle for longer than 6 months.

Always start the spindle break-in at the lowest speed to minimize wear if there are dry spots. Allow the spindle to run long enough to warm up and distribute the bearing grease, then incrementally increase spindle speeds and repeat this process at each speed until reaching the maximum spindle speed. Following the break-in procedure in this progressive manner helps minimize any potential wear that could occur before lubrication is fully distributed.

NOTICE

Complete the spindle bearing break-in procedure to prevent rapid wear and tear of spindle components once the drill press is placed into operation.

NOTICE

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

To perform spindle break-in:

1. Make sure machine has been properly lubricated. Refer to **Lubrication** on **Page 38**.

2. Make sure spindle area is free of obstructions.

3. Set spindle speed to the lowest RPM. Refer to **Adjusting Drill Speed** on **Page 31**.

4. Run spindle for 10 minutes at the slowest speeds, 5 minutes at each speed listed below, in progressive order.

   a. 250 RPM
   b. 640 RPM
   c. 1530 RPM
   d. 1870 RPM
   e. 3050 RPM

5. Turn machine ***OFF***.

Congratulations! Spindle break-in is now complete.

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!

The overview below provides the novice machine operator with a basic understanding of how the machine is used during operation, so the machine controls/components discussed later in this manual are easier to understand. Due to its generic nature, this overview is **NOT** intended to be an instructional guide.

To complete typical operation, operator does following:

1. Examines workpiece to make sure it is suitable for drilling.
2. Puts on required safety glasses and face shield.
3. Firmly secures workpiece to table using a vise or T-slot clamps.
4. Installs correct cutting tool for operation.
5. Adjusts table to correct height, then locks it in place.
6. Selects appropriate spindle speed according to V-belt configuration chart located inside belt cover.
7. Connects machine to power, and starts spindle rotation in proper direction for cutting tool installed.
8. Begins drilling.
9. When finished, stops spindle rotation and disconnects machine from power.

WARNING

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

WARNING

To reduce the risk of eye injury and long-term respiratory damage, always wear safety glasses and a respirator while operating this machine.

NOTICE

If you are an inexperienced operator, we strongly recommend that you read books or trade articles, or seek training from an experienced operator of this type of machinery before performing unfamiliar operations. Above all, safety must come first!

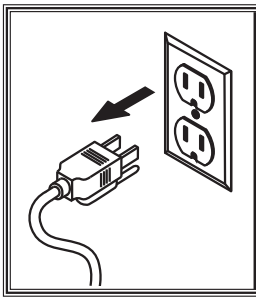
Tensioning Belt

The drill press main drive belts last a long time; however, during machine life, a belt may stretch slightly, which can cause the pulleys to slip under load. You will then need to adjust the motor-to-idler pulley belt tension to compensate for this normal stretching.

NOTE: *The spindle-to-idler pulley belt automatically adjusts to the correct tension when the motor-to-idler pulley belt tension is adjusted.*

NOTICE

The oscillator belt is not adjustable. If the belt shows cracks or is slipping, replace the belt with a new one.



⚠WARNING

MAKE SURE your machine is unplugged during all assembly, adjustments, or maintenance procedures. Otherwise serious personal injury may occur!

To adjust the drive belt tension, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!
2. Open the belt cover.
3. Loosen the motor lock screw at the side of the headstock, as shown in **Figure 26**.
4. Gently pivot the motor away from the push rod rubber until the belt is tight.
5. Hold the motor in position so the rubber pad is held against the motor.
6. Tighten the lock screw, and make sure the belt deflection gap is correct when pinched together between the pulleys (see **Figure 27**).
   - If the gap between both inner sides of the belt is greater or less than 1½", repeat **Steps 3** through **6** until the deflection gap is 1½".

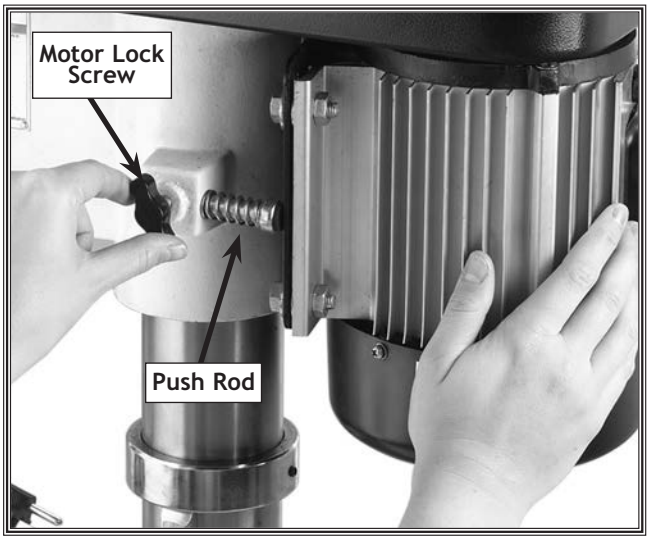


Figure 26. Motor lock screw.

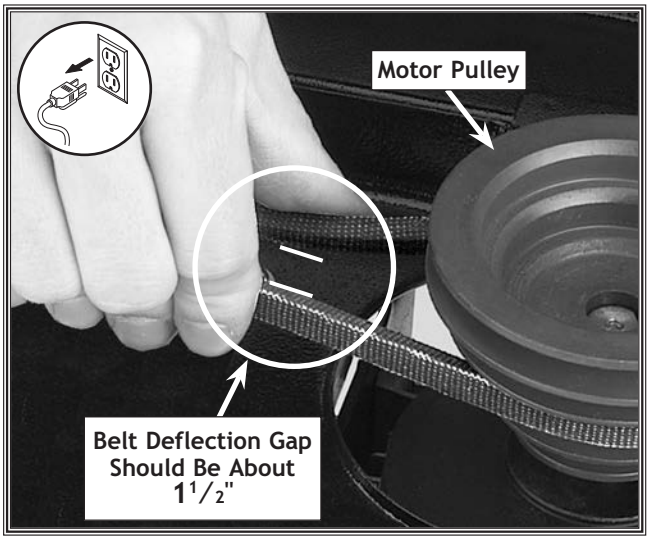
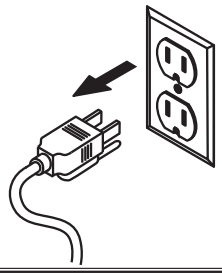


Figure 27. Measuring belt deflection.

Tensioning Feed Shaft Spring

The feed shaft return spring is adjusted at the factory; however, during the life of the drill press you may want to adjust the feed shaft return spring to a stronger return pressure.

To adjust the feed shaft spring tension, do these steps:



⚠WARNING

MAKE SURE your machine is unplugged during all assembly, adjustments, or maintenance procedures. Otherwise serious personal injury may occur!

⚠WARNING

WEAR safety glasses when adjusting springs. Serious injury may occur if this warning is ignored!

1. DISCONNECT THE MACHINE FROM POWER!
2. Wipe off any oil on the spring lock cover so it will not slip in your fingers when you hold the cover from spinning (see **Figure 28**).
3. Rotate the oscillator pulley so the depth stop reads "0" and the quill shaft is completely seated, as shown in **Figure 29**.
4. Put on thick leather gloves and hold the spring cover against the side of the headstock, so the cover stays splined with the locking lug, and remove the jam nut to loosen the cover nut approximately 1/4" (6.4mm).
5. Pull the cover outward just enough to disengage the spring-cover lock slot from the locking lug (see **Figure 30**).
6. Rotate the cover counterclockwise to increase spring tension, or let the cover slowly unwind in the clockwise direction to reduce spring tension (see **Figure 30**).

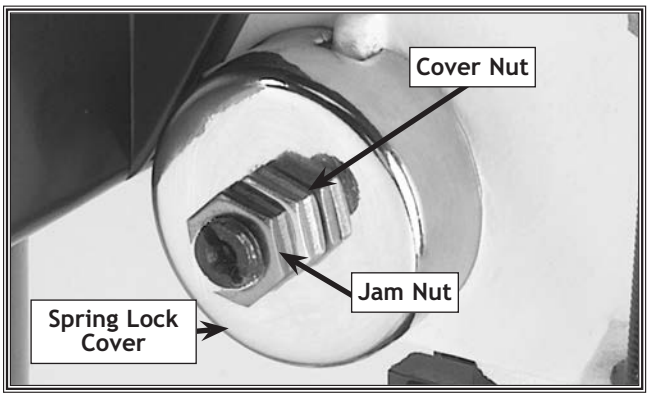


Figure 28. Typical feed shaft return spring assy.

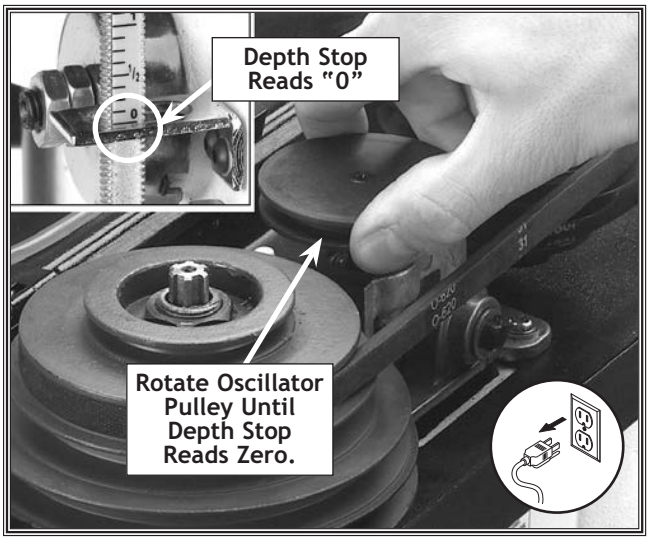


Figure 29. Fully seating quill shaft.

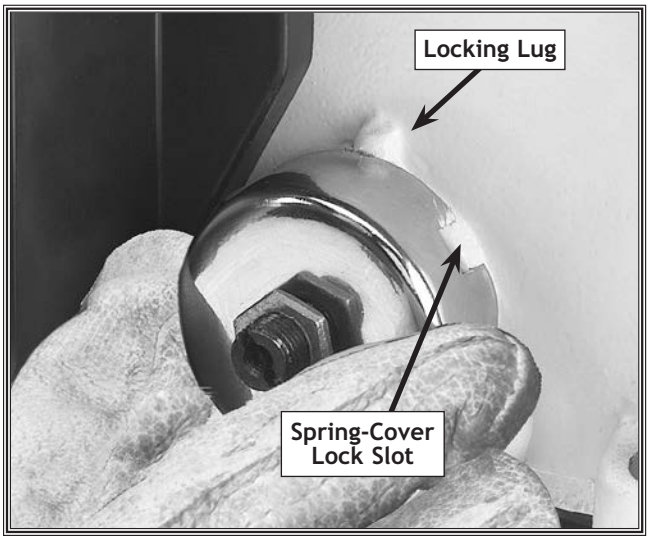


Figure 30. Typical spring cover lock slot and locking lug.

7. Engage the next available spring-cover lock slot with the locking lug, and hold the spring lock cover tightly against the side of the headstock (see **Figure 31**).

8. Snug the cover nut against the spring cover just until the nut stops, and then back-off the nut approximately 1/3 turn, or just enough so there is no binding anywhere along complete spindle travel.

9. Hold the cover nut and tighten the jam nut against the cover nut (see **Figure 31**).

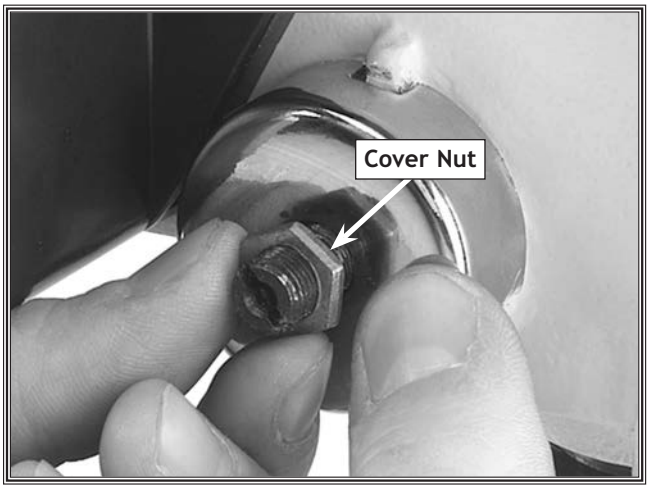


Figure 31. Hold the spring cover tightly.

Adjusting Quill Shaft Screw

While you may never have to adjust the quill shaft screw, you should understand its function and know how to adjust it should you ever need to remove the quill for cleaning. This screw prevents the quill from rotating during drilling and sanding procedures, and if adjusted incorrectly, the quill may have lash or bind.

To adjust the quill-shaft screw, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!

2. Clean and lubricate the quill shaft with a thin coat of light oil, and make sure the quill travels freely (see **Figure 32**).

Figure 32. Clean and oil quill shaft.

3. Loosen the jam nut shown in **Figure 33.**

4. Turn the quil shaft screw clockwise or counterclockwise to establish free, unbinding travel while moving the quill up and down through its entire range of travel.

5. When the quil shaft screw is screwed inward against the quill as far as the screw can go without binding the quill, hold the screw and tighten the jam nut.

6. Recheck for quill binding and looseness while moving the quill up and down through its entire range of travel and readjust as required.

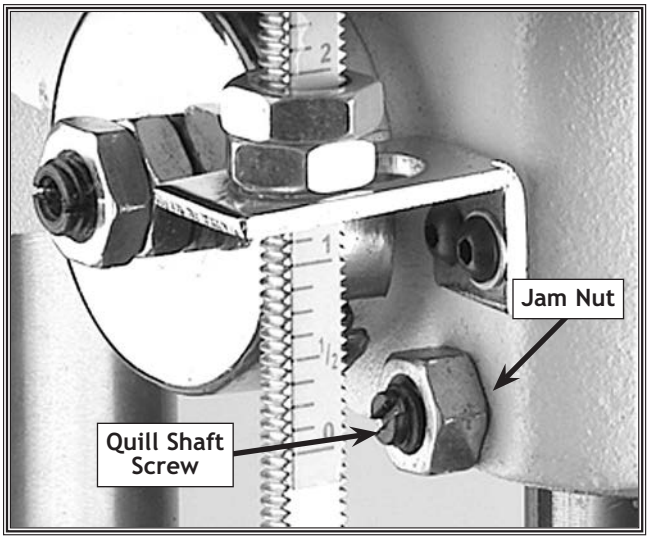


Figure 33. Typical quill-shaft screw and jam nut.

Adjusting Table Height & Tilt

You can adjust the table height and tilt to accommodate for workpiece height or achieve special drilling/sanding angles. You can also move the table out of the way and use the drill press base as a table for drilling/sanding.

To adjust the table, do these steps:

1. Loosen the table lock lever.
2. Turn the hand crank to raise or lower the table, as shown in **Figure 34**.
3. Position the table so the opening in the installed table insert is centered to the drill bit or sanding drum.

   NOTE: If the table is not needed, pivot the table to the back side of the column (**Figure 35**) so you can support the workpiece on the base (**drilling operations only).**
4. Tighten the table lock lever.
5. Loosen the table tilt lock bolt.
6. Turn the index pin jam nut clockwise and draw the index pin out of the casting until you can rotate the table to your desired angle, and use the tilt scale to find your desired drilling or sanding angle (see **Figure 36**).

   NOTE: Use this index pin only for indexing the table in the "Zero degree" position. (To index the table back to the zero position, turn the table to zero, tap the index pin back into the casting, snug the index pin jam nut, and tighten the table tilt lock bolt.)
7. Tighten the tilt table lock bolt, and double check your angle.

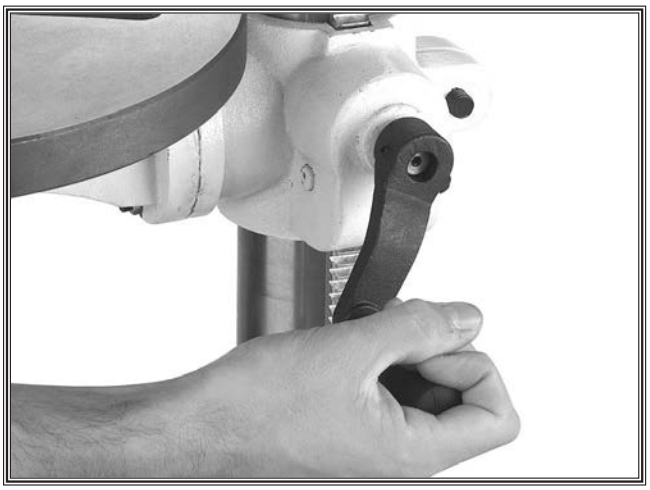


Figure 34. Raise or lower the table.

Figure 35. Table adjusted behind column.

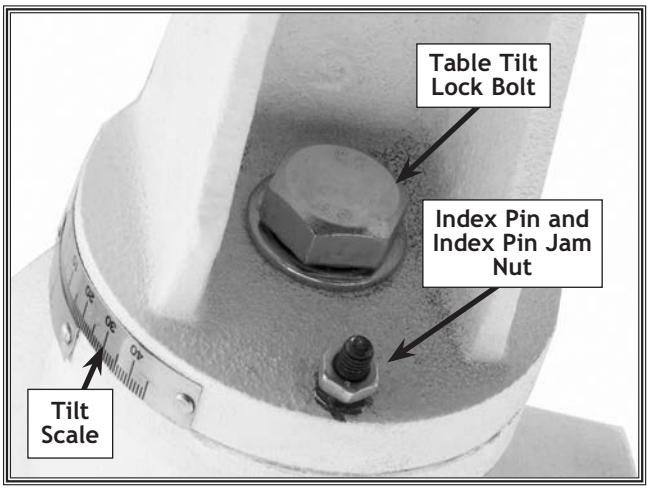
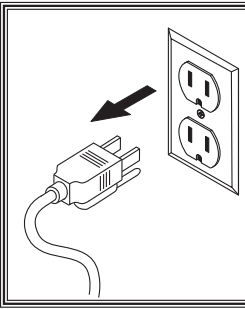


Figure 36. Table tilt lock bolt.

Changing Spindle Speeds

The Model W1668 13-1/4" Oscillating Drill Press has 12 speeds ranging from 250 to 3050 RPM. Refer to the speed charts located under the belt guard while following the instructions below.



⚠WARNING

UNPLUG the drill press before changing speeds to avoid accidental start up. Failure to do this may result in serious personal injury.

To change the drilling speed, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!
2. Refer to the speed chart located under the belt cover or refer to the "**Drill Press Speed" chart** on **Page 33,** and choose the desired speed.
3. Loosen the motor lock screw (see **Figure 37**).
4. Pull the motor toward the front of the drill press to remove tension from the V-belt.
5. Move the V-belt to the desired V-grooves on the motor and spindle pulleys (see **Figure 38**).
6. Push the motor toward the back of the headstock; the push rod is spring loaded and will follow the motor (see **Figure 37**).
7. Tighten the lock screw, and make sure the belt deflection is 1 1/2" between both inner sides when the belt is pinched together between the pulleys, as shown in **Figure 39**. Refer to "Belt Tension" in the ADJUSTMENTS section on **Page 15** for details.
8. Close the cover. **The motor will not start until the cover is closed.**

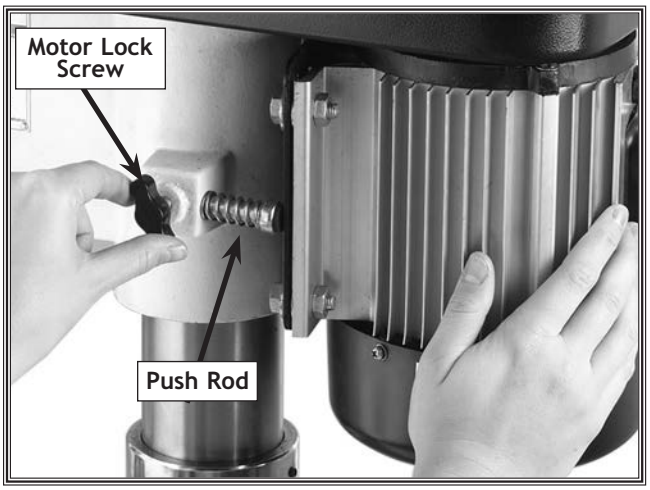


Figure 37. Loosening the lock knob.

Figure 38. Adjusting belt to desired speed.

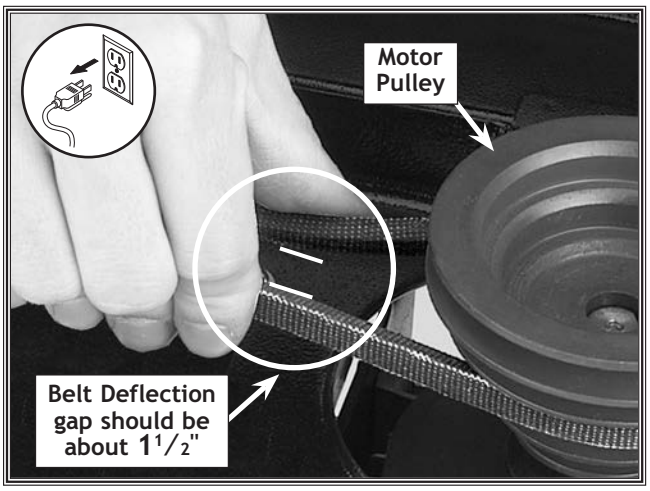
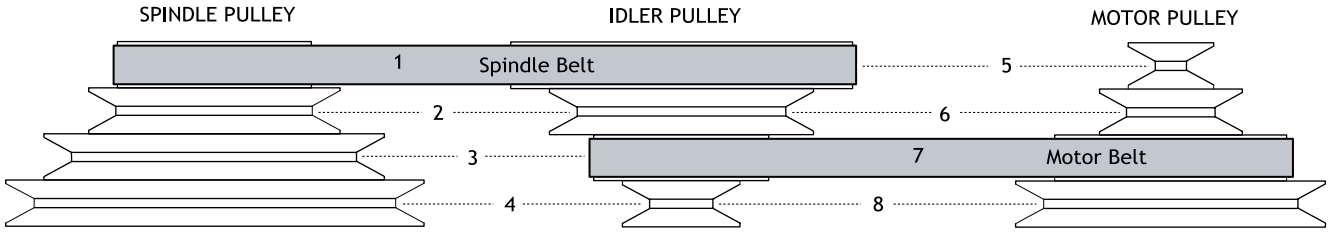


Figure 39. Measuring belt deflection.

Drill Press Speed Chart

Use **Figure 38** to select the optimum motor-to-spindle pulley ratio for drilling, cutting, and sanding operations. The belt setting in the example in **Figure 40** shows the spindle belt in the **#1** spindle pulley position and the motor belt in the **#7** motor pulley location. This will produce a speed of 1,870 RPM.



4-5 250	4-6 330	3-5 380	3-6 500
2-5 590	4-7 640	1-6 980	2-7 1530
3-8 1600	1-7 1870	2-8 2580	1-8 3050

Figure 40. Drill Press Speed Chart.

Adjusting Depth Stop

NOTICE

BACK-OFF the depth stop completely and secure the stop nuts before using the oscillating feature. If the depth stop is left adjusted for a shallow hole, or the nuts rattle down to the stop while in operation, the depth stop will bottom out and break the oscillator.

Your new drill press comes fitted with a depth stop that allows drilling holes at a preset depth.

To adjust the drilling depth, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!
2. Rotate the oscillator pulley until the depth stop reads "0" (see **Figure 41**).
3. Loosen the jam nut on the depth stop rod (see **Figure 42**).
4. Turn the stop nut to the desired depth as indicated by the depth stop scale (see **Figure 42**).
5. Tighten the jam nut against the stop nut while making sure the stop nut stays in position.
6. To make sure the depth has been set correctly, drill a hole into scrap stock before drilling into any workpiece, and readjust the depth stop if necessary.

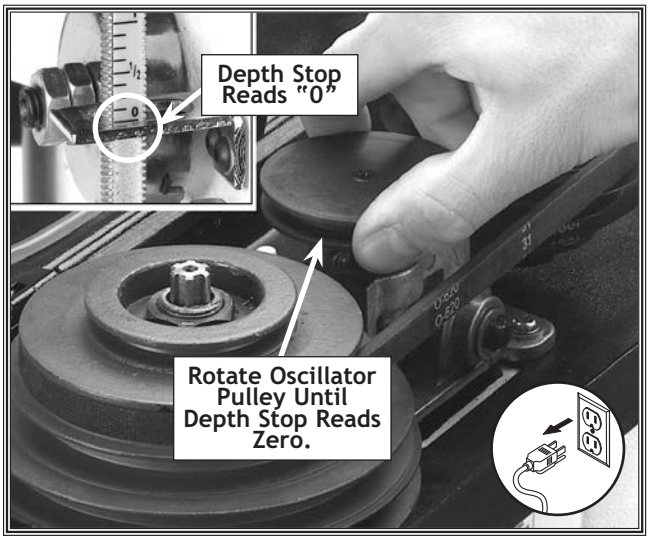


Figure 41. Retracting the oscillator for drilling.

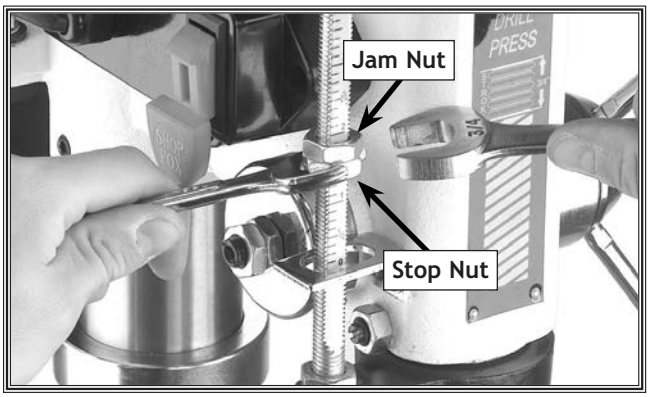


Figure 42. Actual stop depth being measured.

Calculating Spindle Speed for Drilling

Using the Drill Bit Speed Chart

The chart shown in **Figure 43** is intended as a guide only. Always follow the manufacturer's speed recommendations if provided with your drill bits, cutters, or hole saws. Exceeding the recommended speeds may be dangerous to the operator.

The speeds shown here are intended to get you started. The optimum speed will always depend on various factors, including tool diameter, drilling pressure, material hardness, material quality, and desired finish.

Often, when drilling materials other than wood, some type of lubrication is necessary.

Lubrication Suggestions

Wood ..... None
Plastics..... Soapy Water
Brass ..... Water-Based Lubricant
Aluminum.....Paraffin-Based Lubricant
Mild Steel.....Oil-Based Lubricant

⚠CAUTION

Larger bits turning at slower speeds tend to grab the workpiece aggressively. This can result in the operator's hand being pulled into the bit or the workpiece being thrown with great force. Always clamp the workpiece to the table to prevent injuries.

Twist/Brad Point Drill Bits	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/16" – 3/16"	3000	2500	2500	2500	3000	2500
13/64" – 3/8"	2000	1500	2000	1250	2500	1250
25/64" – 5/8"	1500	750	1500	750	1500	600
11/16" – 1"	750	500	1000	400	1000	350

Spade/Forstner Bits	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/4" – 1/2"	2000	1500				
9/16" – 1"	1500	1250				
1-1/8" – 1-7/8"	1000	750				
2–3"	500	350				

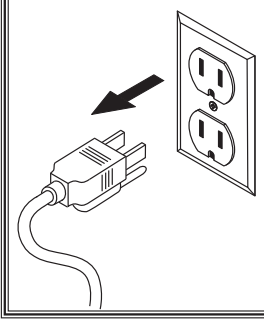
Hole Saws	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
1/2" – 7/8"	500	500	600	600	600	500
1" – 1-7/8"	400	400	500	500	500	400
2" – 2-7/8"	300	300	400	400	400	300
3" – 3-7/8"	200	200	300	300	300	200
4" – 5"	100	100	200	200	200	100

Rosette Cutters	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
Carbide Insert Type	350	250				
One-Piece Type	1800	500				

Tenon/Plug Cutters	Soft Wood	Hard Wood	Plastic	Brass	Aluminum	Mild Steel
3/8" – 1/2"	1200	1000				
5/8" – 1"	800	600				

Figure 43. Drill bit speed chart.

Changing Drill/Drum



⚠WARNING

NEVER troubleshoot or adjust the machine while it is running. Wait until the machine is turned off, unplugged and all working parts have come to a stop before proceeding!

To change drill bits and sanding drums, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!
2. Use the chuck key to open the chuck wide enough to accept the new bit or the sanding drum mandrel (see **Figure 44**).
3. Install the bit or mandrel so the chuck jaws will grab as much of the bit or mandrel shank as it can.
   - If you are installing a small drill bit, make sure it is held between three jaws instead of only two, and NEVER allow a chuck to grab the fluted body of drill bits.
   - If you are installing the sanding drum, install the paper and drum before installing the spindle into the drill chuck (contact your local SHOP FOX® dealer for drums and paper).
4. Tighten the chuck with the chuck key, using any of the three key end locations. (see **Figure 45**).
5. Choose the insert that has an opening which is approximately 1/4" bigger than the sanding drum chosen. For drilling, always use the table insert (see **Figure 46**) with the smallest opening. A table insert is not needed when a 2" drum is used.
6. Install the chosen table insert into the pocket in the top of the table.
7. Remove the chuck key and reconnect the power source.
8. Reverse these steps to remove the drill bit or sanding drum.

Figure 44. Installing bit.

Figure 45. Chuck key engaged.

Figure 46. Sanding drum table insert.

Using the Oscillator

⚠WARNING

UNPLUG the machine and remove all handles before using the oscillating feature. The handles swing during operation.

One of the great features of the Model W1668 13 1/4" Oscillating Drill Press is its sanding capability. The drill press can be converted from drilling operations to sanding operations in just a few steps.

To use the oscillating feature, do these steps:

1. DISCONNECT THE MACHINE FROM POWER!
2. Remove the spindle handles.
3. Lift the belt cover and remove the round belt located on the storage bracket under the speed chart, as shown in **Figure 47**.
4. Stretch the belt onto the top groove in the spindle and oscillating pulley, as shown in **Figure 48**.
5. Close the cover. The motor will not start until the cover is closed.
6. Loosen the jam nut for the depth stop and adjust both nuts until they are positioned at the top of the depth stop rod. Tighten the jam nut (see **Figure 49**).

NOTICE

ALWAYS back-off the depth stop completely and secure the depth stop nuts before using the oscillating feature. If the depth stop is left adjusted for a shallow hole, or the nuts rattle down to the stop while in operation, the depth stop will bottom out and break the oscillator.

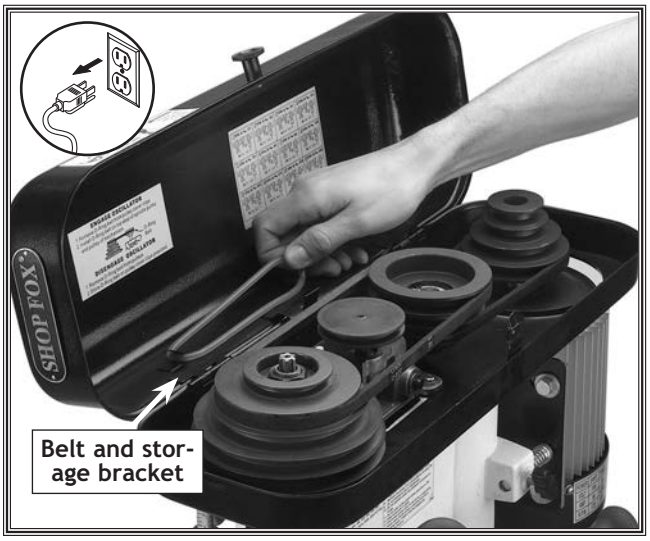


Figure 47. Oscillator belt on storage bracket.

Figure 48. Stretch the belt to fit on pulleys.

Figure 49. Back-off the depth stop nuts.

7. Remove the mandrel nut from the mandrel.

8. Install the sanding drum, sandpaper, and top and bottom mandrel washers on the mandrel, then secure with the mandrel nut, as shown in **Figure 50**.

9. Choose the insert that has an opening which is slightly bigger than the sanding drum chosen (see **Figure 50**).

- For general drill bits, small reamers, and miscellaneous small cutting and sanding bits, use the 5/8" and the 1" table inserts.
- For the 1" sanding drum, use the 1 3/8" table insert.
- For the 1 1/2" sanding drum, use the 1 7/8" table insert.
- For the 2" sanding drum, use no table insert.

10. Set the chosen table insert into the pocket in the top of the table, insert the sanding drum mandrel into the chuck, then tighten chuck (see **Figure 51**).

11. Loosen and pivot the table so the opening in the installed table insert is centered to the drill bit or sanding drum.

12. Adjust the table height to use all of the grit on the paper as the paper wears.

- If the thickness of the workpiece does not allow much table movement and the sanding drum paper is partially worn on one end, remove the drum from the sanding spindle, turn it end for end and replace it on the sanding spindle to use the newer part of the sandpaper.

13. Turn the drill press ***ON***, and begin sanding.

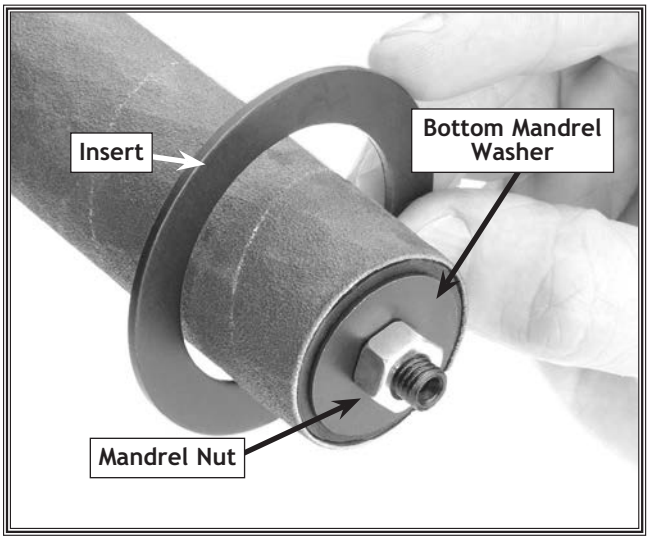


Figure 50. Sanding drum table insert.

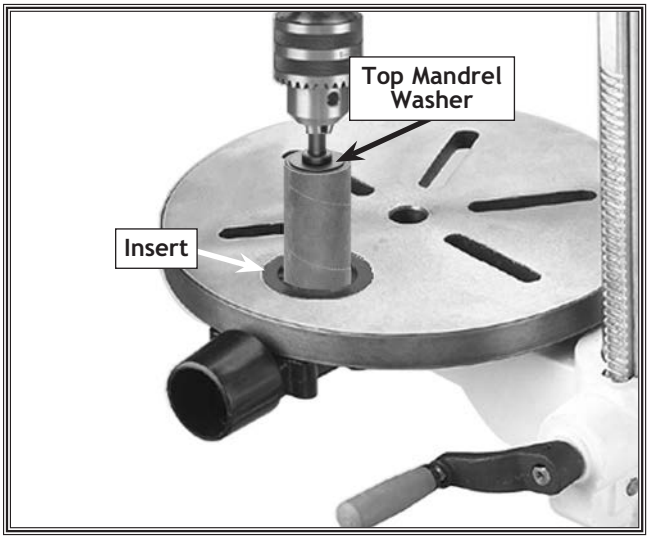


Figure 51. Sanding drum installed.

ACCESSORIES

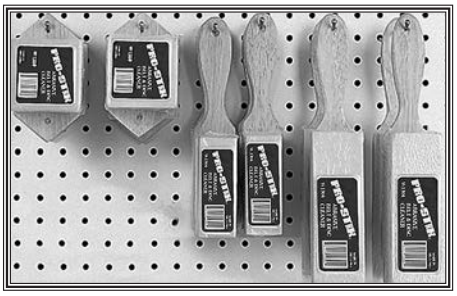
Drill Press Accessories

The following Drill Press accessories may be available through your local Woodstock International Inc. Dealer. If you do not have a dealer in your area, these products are also available through online dealers. Please call or e-mail Woodstock International Inc. Customer Service to get a current listing of dealers at: 1-800-840-8420 or at sales@woodstockint.com.

Sanding Sleeves are sized to fit the D2677 Drum Sander Set. These hard Sanding Sleeves are available in 60, 80, 100, 120, and 150 grits. Keep plenty of these consumable Sanding Sleeves on hand.

Sanding Sleeves					
Size (Dia. x Ht.)	60 Grit	80 Grit	100 Grit	120 Grit	150 Grit
1" X 1/4"	D2683	D2684	D2685	D2686	D2687
1 1/2" X 1/4"	D2688	D2689	D2690	D2691	D2692
2" X 4 1/4"	D2693	D2694	D2695	D2696	D2697

The 4" PRO-STIK® Stick with Handle is the easiest solution for increasing the life of sanding sleeves by removing pitch and sawdust particles from the abrasive pores, which later harden in place if not removed. Simply press the cleaner lightly against the moving abrasive surface to remove clogged-up pitch and sawdust. PRO-STIK® cleaners are available in other sizes for any cleaning application that would need cleaners with handles, as blocks, or as flat pads. (Not recommended for wide-belt sanders.)

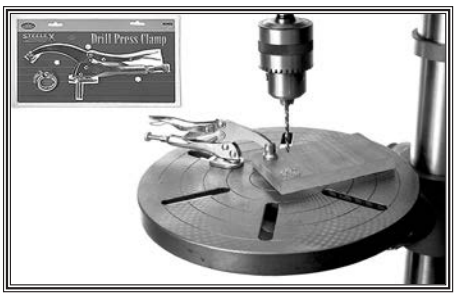


D2677 Drum Sander Set includes three rubber sanding drums 4 1/4" in length to accommodate 1", 1 1/2" and 2" diameter sanding sleeves. This kit also includes one 80 grit sleeve for each drum to get things started.

D2722 Mandrel is a 3/8" shank and is required to use our Drum Sander Set with any machine. Mandrel is included with the SHOP FOX® Oscillating Drill Presses featured above.

Drill Press Clamps adjust quickly and easily to lock your workpiece in any position. The clamping pad pivots to conform to any workpiece, ensuring uniform pressure.

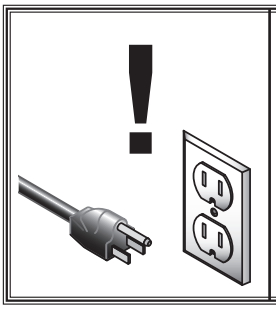
W1301 6" Drill Press Clamp (1 1/2" Capacity)
D2192 10" Drill Press Clamp (3" Capacity)
D2493 12" Drill Press Clamp (5" Capacity)



MAINTENANCE

General

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



⚠WARNING

Always disconnect power to the machine before performing maintenance. Failure to do this may result in serious personal injury.

Daily Check

- Make sure drill is disconnected from power when not in use.
- Check for loose mounting bolts.
- Make sure drill is clean and lubricated.
- Check for worn or damaged wires.
- Check for any other unsafe condition.
- Check belts for tension and wear.

Every 90 Days

- Lubricate quill and column racks.

Lubrication

For the quill, table, and column, an occasional application of light machine oil is all that is necessary. For the quill and column racks, lubricate with NLGI #2 grease every 90 days. Before applying lubricant, clean off any dust or metal chips.

Your goal is to achieve adequate lubrication. Too much lubrication will attract dirt and dust, which could cause various parts of your machine to lose their freedom of movement.

Table & Base

Keep the table and other unpainted surfaces rust-free with regular applications of products like Boeshield® T-9. For long term storage consider products like Kleen Bore's Rust Guardit™.

Sanding Sleeves

As sanding drums are used, the abrasive sleeve will quickly become "loaded" with sawdust. If not removed, this sawdust will harden on the abrasive surface, rendering the sleeve useless. Routinely clean the sanding sleeve with a rubber gum abrasive cleaner like the PRO-STIK® cleaners, as shown on **Page 30**.

Always discard worn sanding sleeves. As abrasive sleeves begin to wear, grit will begin to fall off and cause gouges in the workpiece. Glue used to hold the grit to the paper will rub off onto the workpiece interfering with the final finish.

Inspecting/Replacing Belts

Inspect regularly for tension and wear. Refer to **Figure 52** for proper belt tension. Belt deflection should be approximately 1-1/2" under moderate pressure. Check pulleys to ensure that they are properly aligned when installing V-belts.

To replace the V-belts, refer to **Adjusting Drilling Speed** on **Page 31** to loosen the belts. Remove them from the pulleys, then install new V-belts.

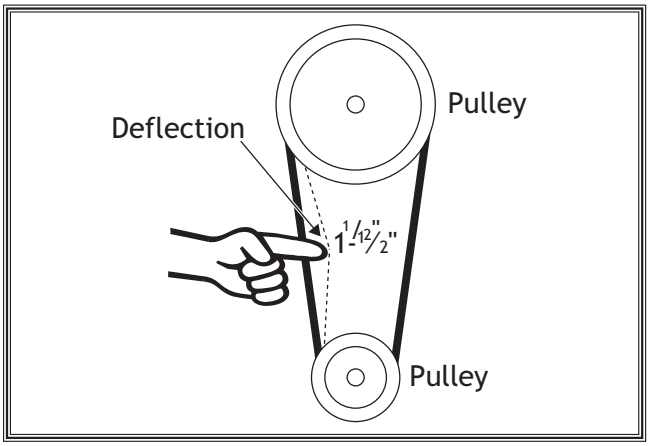


Figure 52. Belt tension.

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

Symptom	Possible Cause	Possible Solution
Machine does not start or a breaker trips.	1. Switch disabling key removed or at fault. 2. Incorrect power supply voltage or circuit size. 3. Power supply circuit breaker tripped or fuse blown. 4. Motor wires connected incorrectly. 5. Wiring open/has high resistance. 6. Start capacitor at fault. 7. Centrifugal switch at fault. 8. Motor at fault.	1. Insert disabling key or replace. 2. Ensure correct power supply voltage and circuit size. 3. Ensure circuit is sized correctly and free of shorts. Reset circuit breaker or replace fuse. 4. Correct motor wiring connections (**Page 40**). 5. Check/fix broken, disconnected, or corroded wires. 6. Test/replace. 7. Adjust/replace centrifugal switch if available. 8. Test/repair/replace.
Machine stalls or is underpowered.	1. Incorrect/dull cutter/bit for task. 2. Feed rate/cutting speed too fast. 3. Belt(s) slipping. 4. Machine undersized for task. 5. Motor overheated. 6. Pulley slipping on shaft. 7. Centrifugal switch at fault. 8. Motor at fault.	1. Use correct cutter/bit. 2. Decrease feed rate/cutting speed (**Page 31**). 3. Ensure belts are oil free, tension/replace belt(s); ensure pulleys are aligned (**Page 31**). 4. Perform operation with different machine. 5. Clean motor, let cool, and reduce workload. 6. Tighten loose pulley; replace broken/missing parts. 7. Adjust/replace centrifugal switch if available. 8. Test/repair/replace.
Machine has vibration or noisy operation.	1. Motor or other drive component loose. 2. V-belt(s) worn or loose. 3. Motor fan rubbing on fan cover. 4. Pulley loose. 5. Motor mount loose/broken. 6. Motor or spindle bearings at fault. 7. Chuck unbalanced or cutter dull.	1. Inspect/replace damaged bolts/nuts, and retighten with thread locking fluid, if necessary. 2. Inspect/replace belts with a new matched set (**Page 31**). 3. Fix/replace fan cover; replace loose/damaged fan. 4. Re-align/replace shaft, pulley set screw, and key. 5. Tighten/replace. 6. Test by rotating shaft; rotational grinding/loose shaft requires bearing replacement. 7. Replace chuck; replace/resharpen cutter.

Drill Press Operations

Symptom	Possible Cause	Solution
Tool loose/lack of power in spindle.	1. Tool incorrectly installed in spindle taper. 2. Debris on tool or spindle taper mating surfaces. 3. Taking too big of a cut. 4. V-belts are loose. 5. Wrong voltage.	1. Remove and re-install (**Page 34**). 2. Clean tool and spindle taper. 3. Lessen depth of cut and allow chips to clear (**Page 32**). 4. Properly tension V-belts (**Page 38**). 5. Correct voltage.
Workpiece or tool vibrates or chatters during operation.	1. Table locks not tight. 2. Workpiece not secure. 3. Spindle speed/feed rate is too fast. 4. Spindle or quill extended too far down. 5. Quill shaft screw not tight.	1. Tighten table locks (**Page 30**). 2. Properly clamp workpiece on table or in vise. 3. Set spindle speed correctly (**Page 31**) or use slower feed rate. 4. Fully retract spindle and lower headstock. This increases rigidity to decrease vibration. 5. Tighten quill shaft screw (**Page 29**).
Headstock is hard to raise.	1. Headstock lock nuts at fault. 2. Rack and pinion at fault or jammed with grime/debris.	1. Loosen/replace lock nuts. 2. Fix/replace broken or loose parts; clean and lubricate rack and pinion.
Bad surface finish.	1. Spindle speed too fast for workpiece material. 2. Dull or incorrect cutting tool. 3. Wrong rotation direction of cutting tool. 4. Workpiece not secure. 5. Spindle extended too far down during operation.	1. Set spindle speed correctly (**Page 31**). 2. Sharpen cutting tool or select one that better suits the operation. 3. Check for proper cutting tool rotation. 4. Properly clamp workpiece on table or in vise. 5. Fully retract spindle and lower headstock. This increases rigidity.
Spindle overheats.	1. Drill operated at high speeds for extended period.	1. Allow drill to cool.
Spindle does not return to highest position.	1. Poorly adjusted return spring. 2. Worn return spring.	1. Increase return spring tension (**Page 28**). 2. Replace return spring.
Depth stop producing inaccurate results.	1. Depth stop not calibrated.	1. Calibrate depth stop (**Page 32**).
Drill Press does not oscillate.	1. Oscillator belt is not installed properly, broken, slipping or otherwise at fault. 2. Oscillation mechanism is at fault.	1. Replace oscillator belt (**Page 31**). 2. Remove oscillating mechanism and replace broken parts.

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.

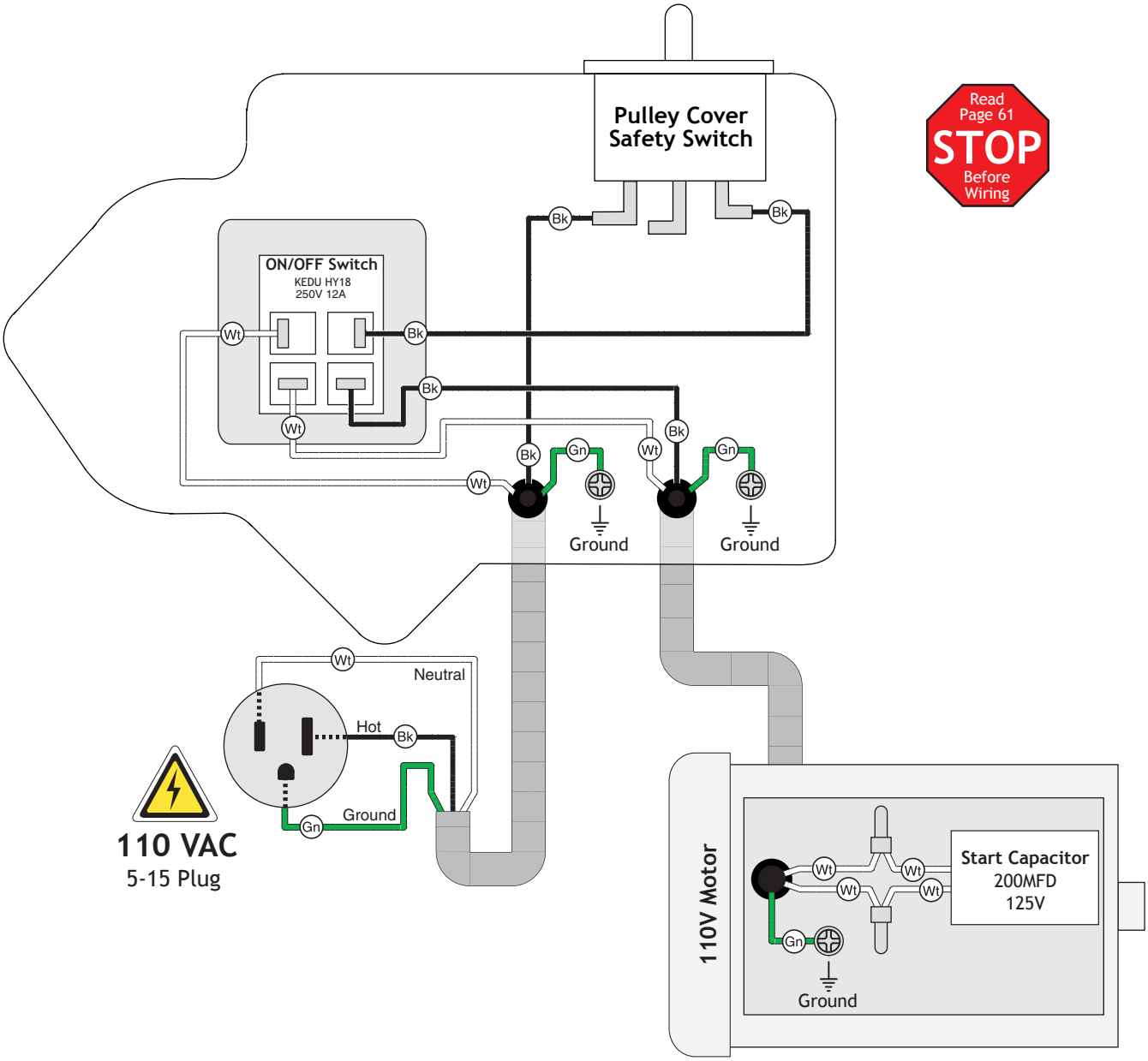
NOTICE

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		

Wiring Diagram



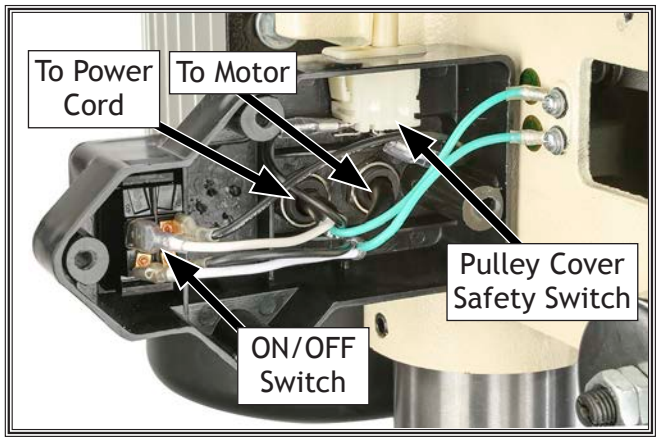
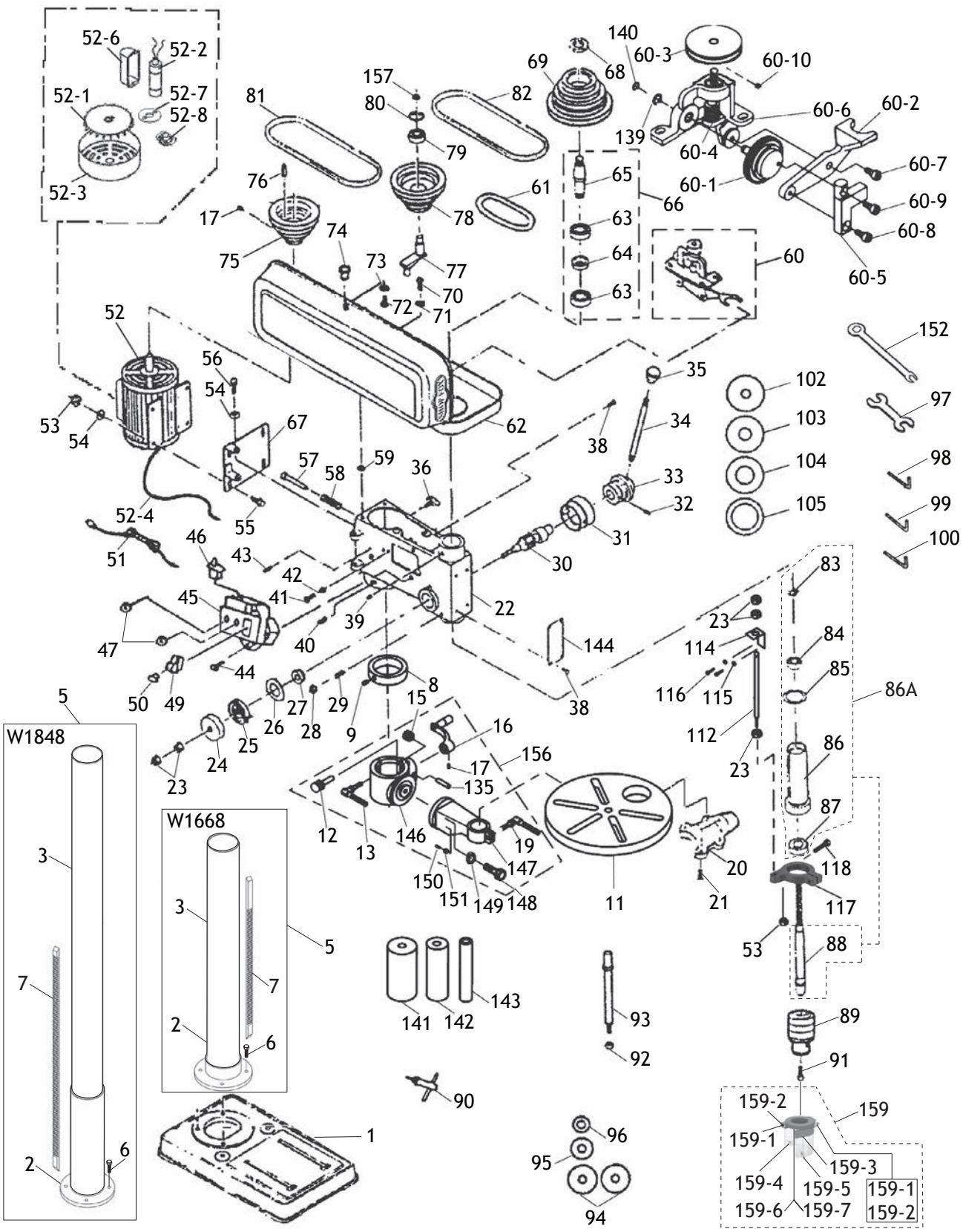


Figure 53. Headstock wiring.

Figure 54. Motor start capacitor wiring.

PARTS

Main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Main Parts List

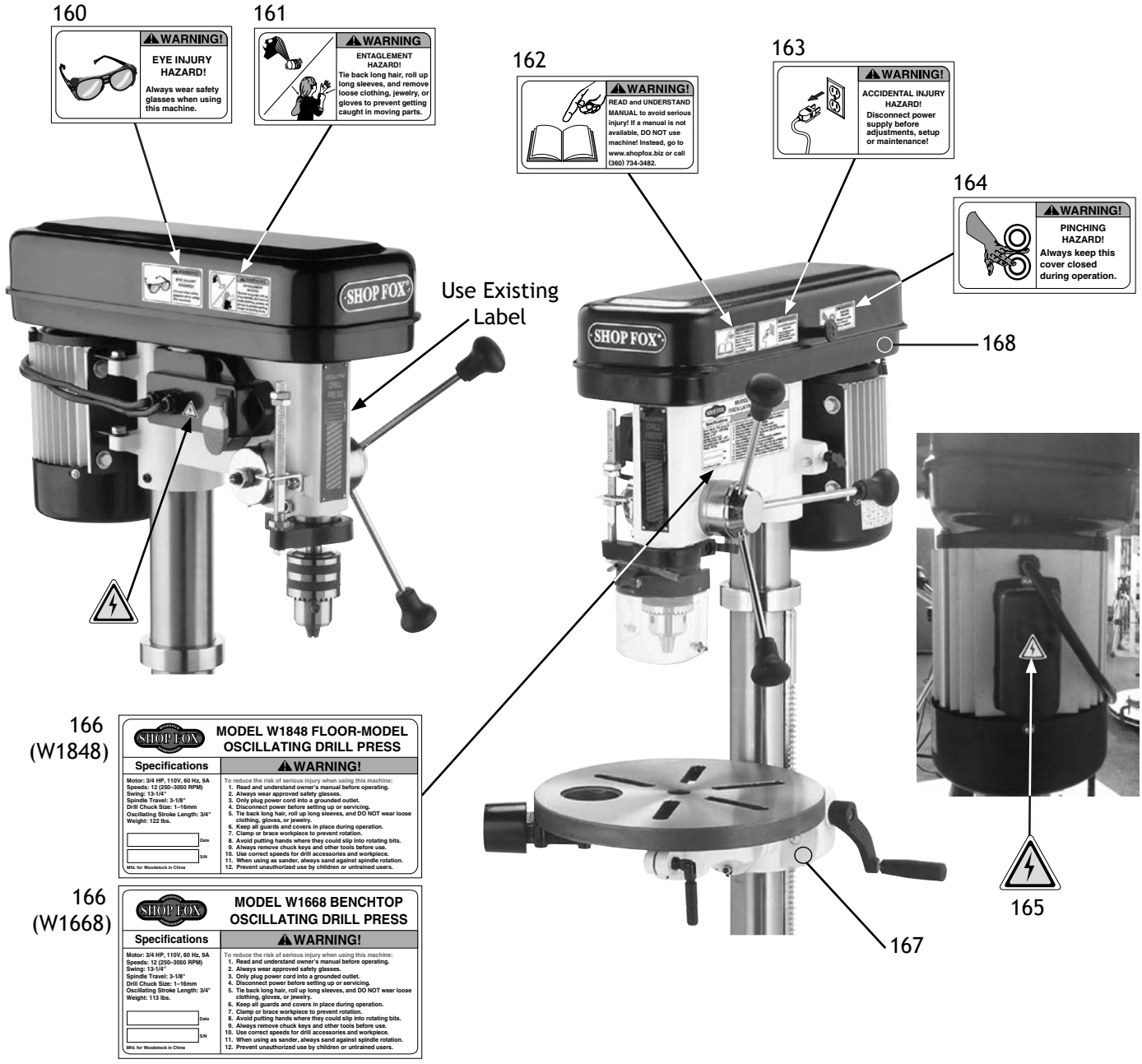
REF	PART #	DESCRIPTION
1	X1848001	BASE (W1848)
1	X1668001	BASE (W1668)
2	X1848002	COLUMN FLANGE (W1848)
2	X1668002	COLUMN FLANGE (W1668)
3	X1848003	COLUMN (W1848)
3	X1668003	COLUMN (W1668)
5	X1848005	COLUMN & COLUMN FLANGE ASSY (W1848)
5	X1668005	COLUMN & COLUMN FLANGE ASSY (W1668)
6	X1848006	HEX BOLT M10-1.5 X 35 (W1848)
6	X1668006	HEX BOLT M10-1.5 X 25 (W1668)
7	X1848007	RACK 31-1/2" (W1848)
7	X1668007	RACK 16-15/16 (W1668)
8	X1848008	COLUMN RING
9	X1848009	SET SCREW M6-1 X 10
11	X1848011	TABLE
12	X1848012	WORM PINION
13	X1848013	CLAMP BOLT M12-1.75 X 50
15	X1848015	WORM GEAR
16	X1848016	LIFT HANDLE
17	X1848017	SET SCREW M6-1 X 10
19	X1848019	CLAMP BOLT M10-1.5 X 30
20	X1848020	DUST PORT 2"
21	X1848021	PHLP HD SCR M4-.7 X 22
22	X1848022	HEAD CASTING
23	X1848023	HEX NUT M10-1.5
24	X1848024	SPRING COVER
25	X1848025	RETURN SPRING
26	X1848026	SPRING WASHER 10MM
27	X1848027	BUSHING
28	X1848028	HEX NUT M8-1.25
29	X1848029	SET SCREW M8-1.25 X 25 DOG-PT
30	X1848030	FEED SHAFT
31	X1848031	DEPTH COLLAR
32	X1848032	ROLL PIN 6 X 20MM
33	X1848033	FEED COLLAR
34	X1848034	HANDLE BAR M10-1.5, 155L
35	X1848035	KNOB M10-1.5
36	X1848036	LOCK KNOB M8-1.25
38	X1848038	RIVET
39	X1848039	SET SCREW M8-1.25 X 10
40	X1848040	SET SCREW M10-1.5 X 12
41	X1848041	PHLP HD SCR M4-.7 X 10
42	X1848042	EXT TOOTH WASHER 4MM
43	X1848043	ROLL PIN 6 X 20MM
44	X1848044	PHLP HD SCR M4-.7 X 10
45	X1848045	SWITCH BOX
46	X1848046	LIMIT SWITCH
47	X1848047	STRAIN RELIEF THREADED
49	X1848049	SHOP FOX PADDLE SWITCH 110V
50	X1848050	PADDLE SWITCH KEY
51	X1848051	POWER CORD 18G 3W 112" 5-15P
52	X1848052	MOTOR 3/4HP 110V 1-PH
52-1	X1848052-1	MOTOR FAN
52-2	X1848052-2	S. CAPACITOR 200M 125V
52-3	X1848052-3	MOTOR FAN COVER
52-4	X1848052-4	WIRING HARNESS
52-6	X1848052-6	CAPACITOR COVER
52-7	X1848052-7	CENTRIFUGAL SWITCH
52-8	X1848052-8	CONTACT PLATE
53	X1848053	HEX NUT M8-1.25
54	X1848054	FLAT WASHER 8MM
55	X1848055	HEX BOLT M8-1.25 X 25
56	X1848056	HEX BOLT M8-1.25 X 20
57	X1848057	PUSH ROD
58	X1848058	SPRING
59	X1848059	RUBBER WASHER
60	X1848060	OSCILLATING MECHANISM
60-1	X1848060-1	PLASTIC GEAR
60-2	X1848060-2	OSCILLATING MECHANISM ARM
60-3	X1848060-3	PULLEY
60-4	X1848060-4	WORM GEAR
60-5	X1848060-5	DRIVE ARM
60-6	X1848060-6	BODY
60-7	X1848060-7	OSC. MECH ARM BOLT M6-1 X 20
60-8	X1848060-8	CAP SCREW M5-.8 X 15
60-9	X1848060-9	CAP SCREW M5-.8 X 15
60-10	X1848060-10	SET SCREW M6-1 X 6
61	X1848061	OSCILLATOR BELT
62	X1848062	PULLEY COVER
63	X1848063	BALL BEARING 6203-2RS
64	X1848064	COLLAR
65	X1848065	INTERNAL SPLINE SLEEVE
66	X1848066	SPLINE SLEEVE ASSY
67	X1848067	MOTOR MOUNT
68	X1848068	LOCK NUT M18-1.5
69	X1848069	SPINDLE PULLEY
70	X1848070	PHLP HD SCR M6-1.0 X 20
71	X1848071	LOCK WASHER 6MM
72	X1848072	PHLP HD SCR M5-0.8 X 10
73	X1848073	FLAT WASHER 5MM
74	X1848074	KNOB
75	X1848075	MOTOR PULLEY
76	X1848076	KEY
77	X1848077	IDLER ARM
78	X1848078	IDLER PULLEY
79	X1848079	BALL BEARING 6202-2RS
80	X1848080	INT RETAINING RING 35MM
81	X1848081	V-BELT M20 3L200
82	X1848082	V-BELT M26 3L260
83	X1848083	EXT RETAINING RING 11MM
84	X1848084	BALL BEARING 6201-2RS
85	X1848085	RUBBER WASHER
86	X1848086	QUILL
86A	X1848086A	QUILL ASSY
87	X1848087	BALL BEARING 6202ZZ

Main Parts List (Cont.)

REF	PART #	DESCRIPTION
88	X1848088	SPINDLE, JT33 CHUCK
89	X1848089	CHUCK 1-16MM JT33
90	X1848090	CHUCK KEY
91	X1848091	CAP SCREW M5-0.8 X 20
92	X1848092	HEX NUT M8-1.25
93	X1848093	MANDREL
94	X1848094	MANDREL WASHER 1-3/4"
95	X1848095	MANDREL WASHER 7/8"
96	X1848096	MANDREL WASHER 5/8"
97	X1848097	WRENCH 14MM X 1/2"
98	X1848098	3MM HEX WRENCH
99	X1848099	4MM HEX WRENCH
100	X1848100	5MM HEX WRENCH
102	X1848102	TABLE INSERT 5/8" I.D.
103	X1848103	TABLE INSERT 1" I.D.
104	X1848104	TABLE INSERT 1 3/8" I.D.
105	X1848105	TABLE INSERT 1 7/8" I.D.
112	X1848112	DEPTH STOP ROD
114	X1848114	DEPTH STOP BRACKET
115	X1848115	FLAT WASHER 5MM
116	X1848116	CAP SCREW M5-0.8 X 12
117	X1848117	DEPTH STOP MOUNT
118	X1848118	CAP SCREW M8-1.25 X 20
135	X1848135	AXLE

REF	PART #	DESCRIPTION
139	X1848139	FLAT WASHER 8MM
140	X1848140	EXT RETAINING RING 8MM
141	X1848141	RUBBER DRUM 2" X 4-1/4"
142	X1848142	RUBBER DRUM 1-1/2" X 4-1/4"
143	X1848143	RUBBER DRUM 1" X 4-1/4"
144	X1848144	TRAVEL INDICATOR PLATE
146	X1848146	TABLE BRACKET N/S
147	X1848147	COLUMN SUPPORT N/S
148	X1848148	HEX BOLT M16-2 X 50
149	X1848149	FLAT WASHER 16MM
150	X1848150	COLUMN SUPPORT PIN
151	X1848151	HEX NUT M6-1
152	X1848152	OSCILLATING DRILL PRESS WRENCH
156	X1848156	TABLE BRACKET ASSY
157	X1848157	EXT RETAINING RING 15MM
159	X1848159	CHUCK GUARD ASSY
159-1	X1848159-1	PHLP HD SCR M4-.7 X 30
159-2	X1848159-2	HEX NUT M4-.7
159-3	X1848159-3	TAP SCREW M2.2 X 4.5
159-4	X1848159-4	HEX BOLT M5-.8 X 12
159-5	X1848159-5	WING NUT M5-.8
159-6	X1848159-6	PHLP HD SCR M4-.7 X 10
159-7	X1848159-7	FLAT WASHER 4MM

Labels



REF	PART #	DESCRIPTION
160	X1848160	EYE INJURY HAZARD LABEL
161	X1848161	ENTANGLEMENT HAZARD LABEL
162	X1848162	READ MANUAL LABEL
163	X1848163	DISCONNECT POWER LABEL
164	X1848164	PINCHING HAZARD LABEL

REF	PART #	DESCRIPTION
165	X1848165	ELECTRICITY LABEL
166	X1848166	MACHINE ID LABEL (W1848)
166	X1668166	MACHINE ID LABEL (W1668)
167	X1848167	TOUCH-UP PAINT, SHOP FOX WHITE
168	X1848168	TOUCH-UP PAINT, SHOP FOX BLACK

Warranty Registration

Name_____

Street _____

City _____ State_____ Zip_____

Phone #_____ Email_____ Invoice #_____

Model #_____ Serial #_____ Dealer Name_____ Purchase Date_____

The following information is given on a voluntary basis. It will be used for marketing purposes to help us develop better products and services. ***Of course, all information is strictly confidential.***

1. How did you learn about us?

_____ Advertisement _____ Friend ____ Local Store
_____ Mail Order Catalog _____ Website ____ Other:

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

_____ 0-2 Years _____ 2-8 Years ____ 8-20 Years _____ 20+ Years

3. How many of your machines or tools are Shop Fox?

_____ 0-2 _____ 3-5 ____ 6-9 _____ 10+

4. Do you think your machine represents a good value? _____ Yes ____ No

5. Would you recommend Shop Fox products to a friend? _____ Yes ____ No

6. What is your age group?

_____ 20-29 _____ 30-39 ____ 40-49
_____ 50-59 _____ 60-69 ____ 70+

7. What is your annual household income?

_____ $20,000-$29,000 _____ $30,000-$39,000 ____ $40,000-$49,000
_____ $50,000-$59,000 _____ $60,000-$69,000 ____ $70,000+

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

____ Cabinet Maker
____ Family Handyman
____ Hand Loader
____ Handy
____ Home Shop Machinist
____ Journal of Light Cont.
____ Live Steam
____ Model Airplane News
____ Modeltec
____ Old House Journal
____ Popular Mechanics
____ Popular Science
____ Popular Woodworking
____ Practical Homeowner
____ Precision Shooter
____ Projects in Metal
____ RC Modeler
____ Rifle
____ Shop Notes
____ Shotgun News
____ Today's Homeowner
____ Wood
____ Wooden Boat
____ Woodshop News
____ Woodsmith
____ Woodwork
____ Woodworker West
____ Woodworker's Journal
____ Other:

9. Comments:_____

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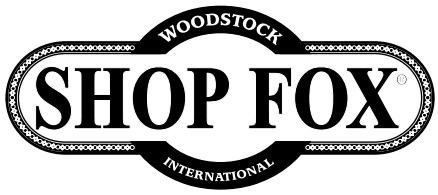

WOODSTOCK INTERNATIONAL INC.
P.O. BOX 2309
BELLINGHAM, WA 98227-2309

FOLD ALONG DOTTED LINE

TAPE ALONG EDGES--PLEASE DO NOT STAPLE

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 commited to continuously improving the quality of our products, and reserve the right to change specifications at any time.

High Quality Machines and Tools

Woodstock International, Inc. carries thousands of products designed
to meet the needs of today's woodworkers and metalworkers.
Ask your dealer about these fine products:

BROSEM® PRECISION STOP BLOCK

THE REBEL®

BOARD BUDDIES®

SLICKPLANE®

ACCU-SHARP®

JOINTER PAL®

STEELEX® FINE TOOLS

WOODSTOCK SHOP FOX® INTERNATIONAL

ROMAN CARBIDE®

Rotacator®

PLANER PAL®

PRO-STIK® ABRASIVE BELT & DISC CLEANER

STEELEX® PLUS

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PARROT VISE®

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