

POWERMATIC[®]

Operating Instructions and Parts Manual Single End Dovetailer Model DT45



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Warranty and Service

Powermatic warrants every product it sells against manufacturers' defects. If one of our tools needs service or repair, please contact Technical Service by calling 1-800-274-6846, 8AM to 5PM CST, Monday through Friday.

Warranty Period

The general warranty lasts for the time period specified in the literature included with your product or on the official Powermatic branded website.

- Powermatic products carry a limited warranty which varies in duration based upon the product. (See chart below)
- Accessories carry a limited warranty of one year from the date of receipt.
- Consumable items are defined as expendable parts or accessories expected to become inoperable within a reasonable amount of use and are covered by a 90 day limited warranty against manufacturer's defects.

Who is Covered

This warranty covers only the initial purchaser of the product from the date of delivery.

What is Covered

This warranty covers any defects in workmanship or materials subject to the limitations stated below. This warranty does not cover failures due directly or indirectly to misuse, abuse, negligence or accidents, normal wear-and-tear, improper repair, alterations or lack of maintenance.

Warranty Limitations

Woodworking products with a Five Year Warranty that are used for commercial or industrial purposes default to a Two Year Warranty. Please contact Technical Service at 1-800-274-6846 for further clarification.

How to Get Technical Support

Please contact Technical Service by calling 1-800-274-6846. **Please note that you will be asked to provide proof of initial purchase when calling.** If a product requires further inspection, the Technical Service representative will explain and assist with any additional action needed. Powermatic has Authorized Service Centers located throughout the United States. For the name of an Authorized Service Center in your area call 1-800-274-6846 or use the Service Center Locator on the Powermatic website.

More Information

Powermatic is constantly adding new products. For complete, up-to-date product information, check with your local distributor or visit the Powermatic website.

How State Law Applies

This warranty gives you specific legal rights, subject to applicable state law.

Limitations on This Warranty

POWERMATIC LIMITS ALL IMPLIED WARRANTIES TO THE PERIOD OF THE LIMITED WARRANTY FOR EACH PRODUCT. EXCEPT AS STATED HEREIN, ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

POWERMATIC 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. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

Powermatic sells through distributors only. The specifications listed in Powermatic printed materials and on the official Powermatic website are given as general information and are not binding. Powermatic reserves the right to effect at any time, without prior notice, those alterations to parts, fittings, and accessory equipment which they may deem necessary for any reason whatsoever.

Product Listing with Warranty Period

90 Days – Parts; Consumable items
1 Year – Motors, Machine Accessories
2 Year – Woodworking Machinery used for industrial or commercial purposes
5 Year – Woodworking Machinery

NOTE: Powermatic is a division of JPW Industries, Inc. References in this document to Powermatic also apply to JPW Industries, Inc., or any of its successors in interest to the Powermatic brand.

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Warnings

1. Read and understand the entire owner's manual before attempting assembly or operation.
2. Read and understand the warnings posted on the machine and in this manual. Failure to comply with all of these warnings may cause serious injury.
3. Replace the warning labels if they become obscured or removed.
4. This dovetailer is designed and intended for use by properly trained and experienced personnel only. If you are not familiar with the proper and safe operation of a dovetailer, do not use until proper training and knowledge have been obtained.
5. Do not use this dovetailer for other than its intended use. If used for other purposes, Powermatic disclaims any real or implied warranty and holds itself harmless from any injury that may result from that use.
6. Always wear approved safety glasses/face shields while using this dovetailer. Everyday eyeglasses only have impact resistant lenses; they are not safety glasses.
7. Before operating this dovetailer, remove tie, rings, watches and other jewelry, and roll sleeves up past the elbows. Remove all loose clothing and confine long hair. Non-slip footwear or anti-skid floor strips are recommended. Do **not** wear gloves.
8. Wear ear protectors (plugs or muffs) during extended periods of operation.
9. Some dust created by power sanding, sawing, grinding, drilling and other construction activities contain chemicals known to cause cancer, birth defects or other reproductive harm. Some examples of these chemicals are:
 - Lead from lead based paint.
 - Crystalline silica from bricks, cement and other masonry products.
 - Arsenic and chromium from chemically treated lumber.Your risk of exposure 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 face or dust masks that are specifically designed to filter out microscopic particles.
10. Do not operate this machine while tired or under the influence of drugs, alcohol or any medication.
11. Make certain the switch is in the **OFF** position before connecting the machine to the power supply.
12. Make certain the machine is properly grounded.
13. Make all machine adjustments or maintenance with the machine unplugged from the power source.
14. Remove adjusting keys and wrenches. Form a habit of checking to see that keys and adjusting wrenches are removed from the machine before turning it on.
15. Keep safety guards in place at all times when the machine is in use. If removed for maintenance purposes, use extreme caution and replace the guards immediately.
16. Check damaged parts. Before further use of the machine, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced.
17. Provide for adequate space surrounding work area and non-glare, overhead lighting.
18. Keep the floor around the machine clean and free of scrap material, oil and grease.
19. Keep visitors a safe distance from the work area. **Keep children away.**
20. Make your workshop child proof with padlocks, master switches or by removing starter keys.

Warnings

21. Give your work undivided attention. Looking around, carrying on a conversation and “horse-play” are careless acts that can result in serious injury.
22. Maintain a balanced stance at all times so that you do not fall or lean against the cutter or other moving parts. Do not overreach or use excessive force to perform any machine operation.
23. Use the right tool at the correct speed and feed rate. Do not force a tool or attachment to do a job for which it was not designed. The right tool will do the job better and safer.
24. Use recommended accessories; improper accessories may be hazardous.
25. Maintain tools with care. Keep cutters sharp and clean for the best and safest performance. Follow instructions for lubricating and changing accessories.
26. Make sure the work piece is securely attached or clamped to the table. Never use your hand to hold the work piece.
27. Turn off the machine before cleaning. Use a brush or compressed air to remove chips or debris — do not use your hands.
28. Do not stand on the machine. Serious injury could occur if the machine tips over.
29. Never leave the machine running unattended. Turn the power off and do not leave the machine until cutter comes to a complete stop.
30. Remove loose items and unnecessary work pieces from the area before starting the machine.

Familiarize yourself with the following safety notices used in this manual:

CAUTION This means that if precautions are not heeded, it may result in minor injury and/or possible machine damage.

WARNING This means that if precautions are not heeded, it may result in serious injury or possibly even death.

- - SAVE THESE INSTRUCTIONS - -

Introduction

This manual is provided by Powermatic covering the safe operation and maintenance procedures for a Model DT45 Single End Dovetailer. This manual contains instructions on installation, safety precautions, general operating procedures, maintenance instructions and parts breakdown. This machine has been designed and constructed to provide years of trouble free operation if used in accordance to instructions set forth in this manual. If there are any questions or comments, please contact either your local supplier or Powermatic. Powermatic can also be reached at our web site: www.powermatic.com.

Description

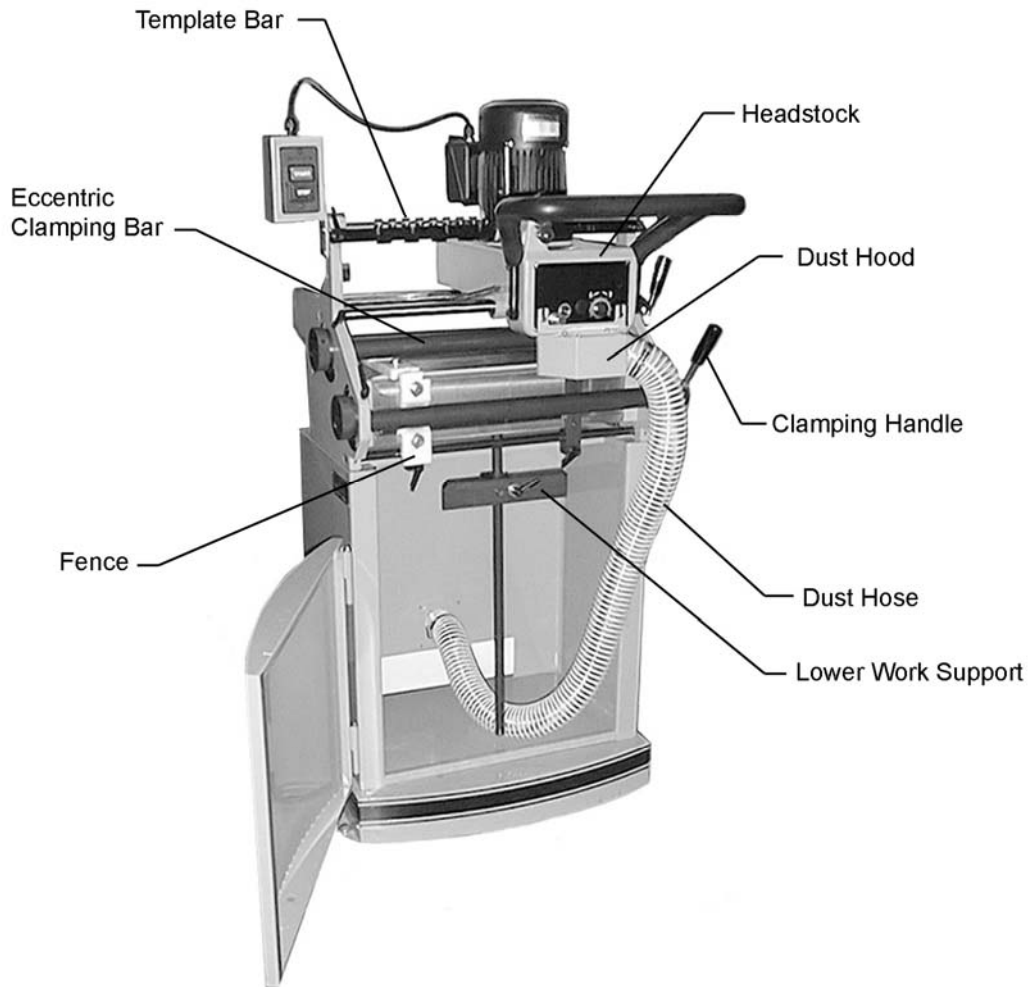
The Model DT45 Dovetailer will make cleanly cut half-blind dovetails for drawer or box construction. A four-sided template allows any of four pitches, from 1" up to 2-1/2". The use of different dovetail pitches will give a unique custom appearance to your work. The cutter is carbide-tipped. The machine is built to last with cast iron and steel construction. The manual clamping system is quick and easy to use.

Specifications

Model Number.....	DT45
Stock Number.....	1791304
Minimum work piece size (in.).....	7-7/8 x 2-3/8
Maximum work piece size (in.).....	31 x 11
Minimum dovetail height (in.).....	3/16
Maximum dovetail height (in.).....	3/4
Minimum front thickness (in.).....	9/32
Maximum front thickness (in.).....	1-3/4
Minimum side thickness (in.).....	9/32
Maximum side thickness (in.).....	1-3/16
Number of spindles.....	1
Spindle speed (RPM).....	18,500
Center-to-center dovetail spacing (in.)	1, 1-1/2, 2, and 2-1/2
Table height from floor (in.).....	35
Overall dimensions (L x W x H) (in.).....	33 x 33 x 61
Motor.....	TEFC, 1HP, 1Ph, 115/230V (prewired 115)
Dust collection ports diameter (in.).....	front 2-1/2, rear 4
Dust collection minimum CFM required.....	500
Approximate Weight, Shipping/Net (lbs.).....	447/345

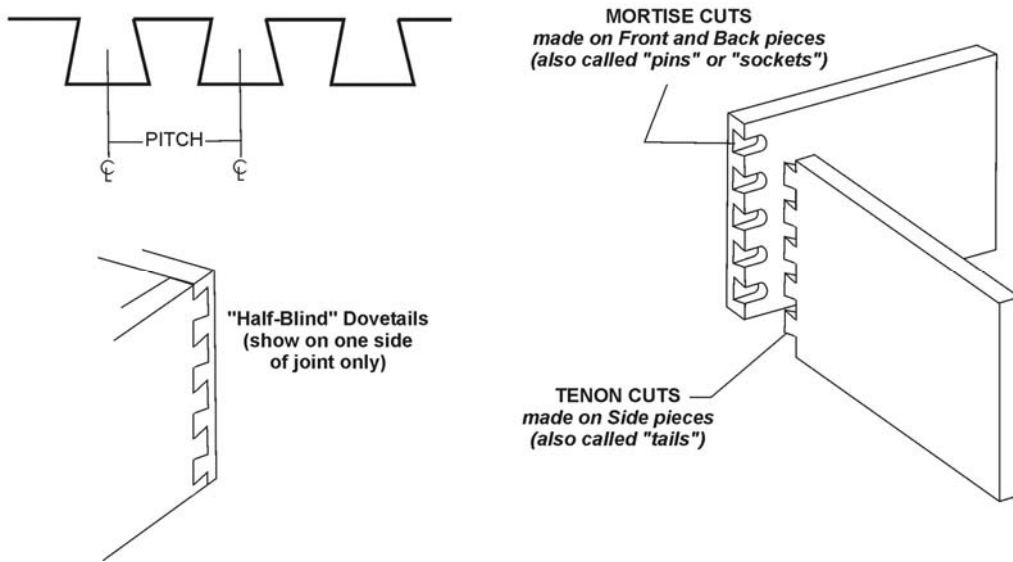
The above specifications were current at the time this manual was published, but because of our policy of continuous improvement, Powermatic reserves the right to change specifications at any time and without prior notice, without incurring obligations.

Features of the DT45 Dovetailer



Terminology

Below are the terms used in this manual to identify types of cuts and measurements.



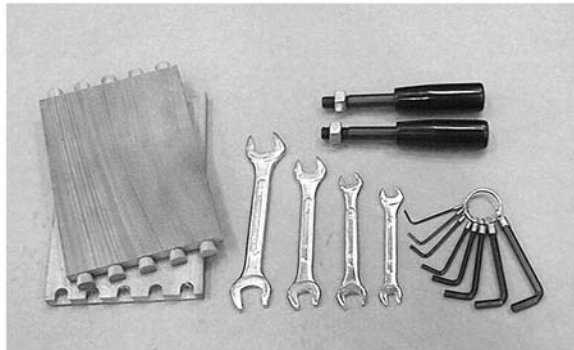
Unpacking

Open shipping container and check for shipping damage. Report any damage immediately to your distributor and shipping agent. Do not discard any shipping material until the dovetailer is assembled and running properly.

Remove the box from inside the cabinet. Compare the contents of your container with the following parts list to make sure all parts are intact. Missing parts, if any, should be reported to your distributor. Read the instruction manual thoroughly for assembly, maintenance and safety instructions.

Contents of the Shipping Container

- 1 Dovetail Machine
- 2 Clamping Handles (with hex nuts)
- 1 Set of Open-Ended Wrenches (8-10, 11-13, 12-14 and 17-19mm)
- 1 Set of Hex Wrenches (1.5 to 6mm)
- 2 Sample Dovetailed Boards
- 1 Owner's Manual
- 1 Warranty Card



⚠ WARNING

Read and understand the entire contents of this manual before attempting set-up or operation! Failure to comply may cause serious injury.

Installation & Assembly

Tools required for assembly

forklift or hoist with straps/slings
11mm wrench (provided)

[NOTE: A socket set with ratchet wrench may speed assembly]

4 and 5mm hex wrenches (provided)
knife or wire cutter

1. Remove the four screws and flat washers holding the machine to the pallet with an 11mm wrench, as shown in Figure 1.
2. Place lifting straps through the two eyebolts at the top of the machine (Figure 2). Using a forklift or hoist, lift the machine off the pallet and into its desired location. The Dovetailer should be located in a dry area with sufficient lighting. Leave plenty of space around the machine for operations and routine maintenance work.
3. When the machine is situated, the eyebolts (Figure 2) can be left on the machine, or unscrewed and removed, if so desired. Be sure to retain the eye bolts for future use.
4. If desired, the Dovetailer can be further stabilized by securing it to the floor, using lag screws through the four holes at the bottom of the cabinet.

⚠WARNING The dovetailer should be unplugged from the power source during assembly procedures.

5. A cord holds the headstock secure to an eyebolt to prevent the headstock from moving during shipping. This cord should now be cut and removed.
6. Exposed metal areas of the dovetailer (such as the table, template bar, clamp bars, rods, etc.) have been factory coated with a protectant. This should be removed with a soft cloth dampened with kerosene or mineral spirits. Do not use an abrasive pad. Do not let solvent contact plastic or rubber parts as it may damage them.

Installing Handle

The rubber-covered handle (Figure 3) has been placed backwards for shipping purposes, and must be reversed before operating the machine.

1. Remove the four socket head cap screws from the headstock (two of them are holding the handle), and turn the handle around as shown in Figure 3.
2. Secure the handle to the headstock with all four socket head screws.

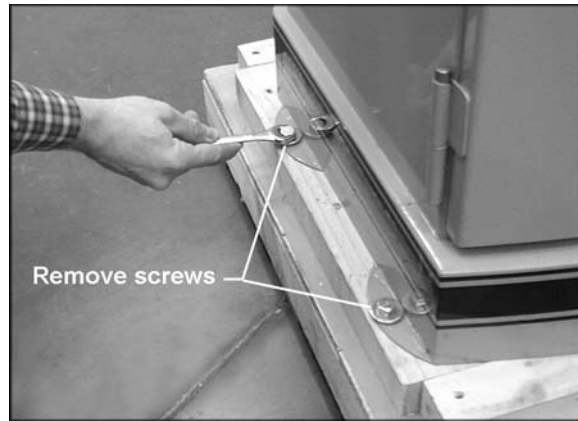


Figure 1

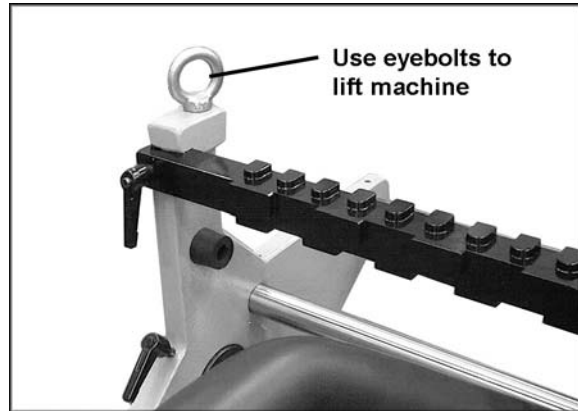


Figure 2

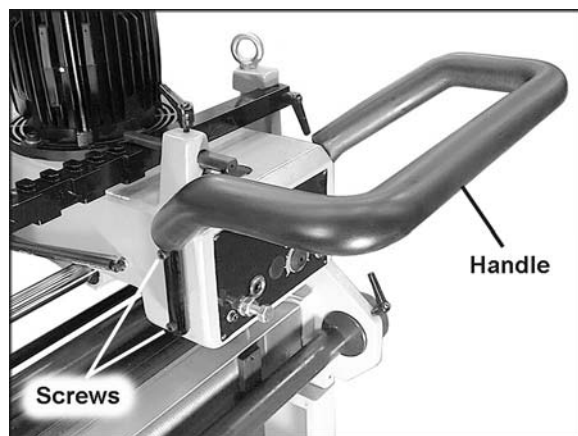


Figure 3

3. Tighten the four socket head cap screws.

Installing Switch

1. Remove any protective wrapping from the switch.
2. Remove the two socket head cap screws from their holes on the left side of the frame with a 5mm hex wrench. See Figure 4.
3. Place the flange of the switch box over the holes, and re-insert the two socket head cap screws, as shown in Figure 4.
4. Tighten both socket head cap screws.

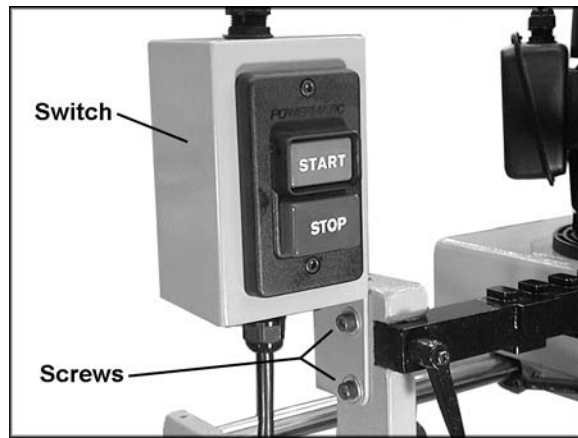


Figure 4

Installing Dust Hood

1. Open the cabinet door and pull out the dust hood, which is connected to a hose.
2. Loosen the two socket head cap screws on the front of the headstock (Figure 5) with a 4mm hex wrench.
3. Slide the flanges of the dust hood behind the screws and flat washers as shown.
4. Tighten both socket head cap screws.



Figure 5

Installing Clamping Handles

There are two hubs at the right side of the machine which are used for clamping (Figure 6). Screw one clamp handle into a threaded hole on each hub. (Each hub has three such holes – choose one that will prevent the clamping handles from conflicting with each other.)

When the clamping handles are screwed in completely, tighten the hex nuts against the hubs with a 19mm wrench.

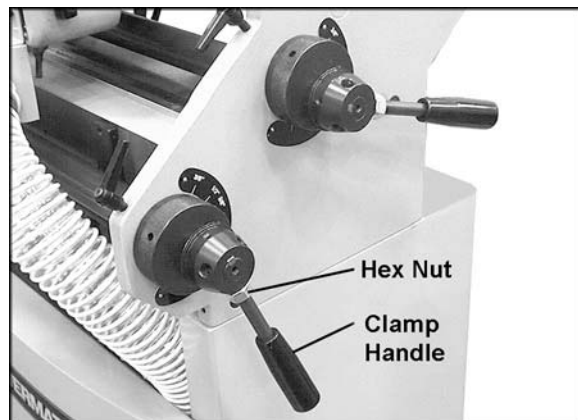


Figure 6

Dust Collection

The use of a dust collection system is recommended for this machine. It will help keep your shop clean as well as minimize any health risks caused by wood dust. Make sure your dust collector has a capacity of at least 500 CFM. Connect the intake hose of your dust collector to the 4" diameter port at the back of the cabinet. See Figure 7.

NOTE: A variety of dust collection systems are available from Powermatic. Call customer service at 1-800-274-6848 or visit our website for more information.

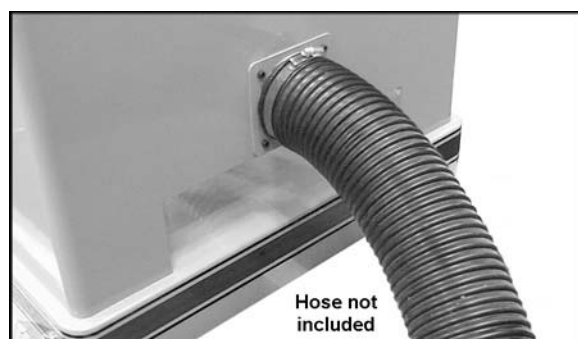


Figure 7

Grounding Instructions

⚠WARNING Electrical connections must be made by a qualified electrician in compliance with all relevant codes. This machine must be properly grounded to help prevent electrical shock and possible fatal injury.

This machine must be grounded. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electric current to reduce the risk of electric shock. This dovetailer is equipped with an electric cord having an equipment-grounding conductor and a grounding plug similar to the one illustrated in Figure 8. The plug must be inserted into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

Do not modify the plug provided. If it will not fit the outlet, have the proper outlet installed by a qualified electrician.

Improper connection of the equipment-grounding conductor can result in a risk of electric shock. The conductor, with insulation having an outer surface that is green with or without yellow stripes, is the equipment-grounding conductor. If repair or replacement of the electric cord or plug is necessary, do not connect the equipment-grounding conductor to a live terminal.

Check with a qualified electrician or service personnel if the grounding instructions are not completely understood, or if in doubt as to whether the tool is properly grounded. Use only three wire extension cords that have three-prong grounding plugs and three-pole receptacles that accept the tool's plug.

Repair or replace a damaged or worn cord immediately.

Make sure the voltage of your power supply matches the specifications on the motor plate of the machine.

115 Volt Operation

As received from the factory, your dovetailer is ready to run at 115 volt operation. This dovetailer, when wired for 115 volts, is intended for use on a circuit that has an outlet and a plug that look like the ones illustrated in Figure 8. A temporary adapter, which looks like the adapter as illustrated in Figure 9, may be used to connect this plug to a two-pole receptacle, as shown in Figures 8 and 9, if a properly grounded outlet is not available.

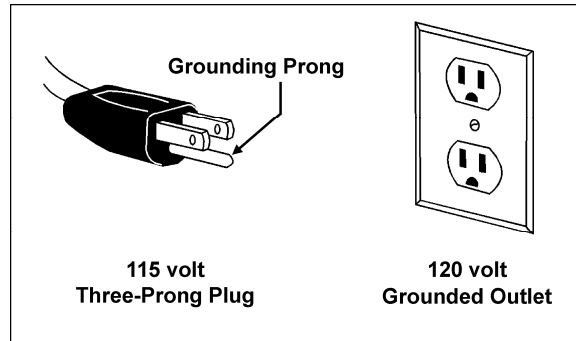


Figure 8

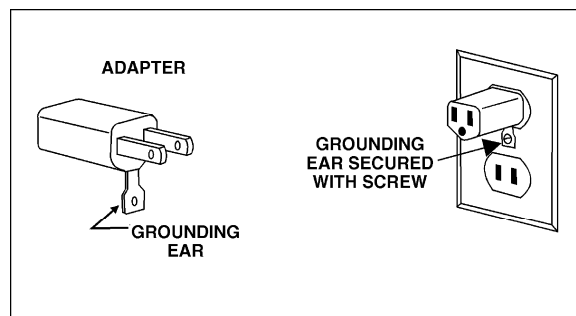


Figure 9

The temporary adapter should only be used until a properly grounded outlet can be installed by a qualified electrician. **This adapter is not applicable in Canada.** The green colored rigid ear, lug, or tab, extending from the adapter, must be connected to a permanent ground such as a properly grounded outlet box, as shown in Figure 9.

230 Volt Operation

If 230 volt, single-phase operation is desired, the following instructions must be followed to convert from 115 to 230:

1. Disconnect machine from power source.
2. This dovetailer is supplied with six motor leads that are connected for 115 volt operation, as shown in Figure 10. Reconnect these six motor leads for 230 volt operation, also shown in Figure 10.
3. The 115 volt attachment plug (Figure 8), supplied with the dovetailer, must be replaced with a UL/CSA listed plug suitable for 230 volt operation, similar to the one illustrated in Figure 11. Contact your local authorized WMH Tool Group service center or qualified electrician for proper procedures to install the plug. The dovetailer must comply with all local and national codes after the 230 volt plug is installed.
4. The dovetailer with a 230 volt plug should only be connected to an outlet having the same configuration. No adapter is available or should be used with the 230 volt plug.

Important: In all cases (115 or 230 volts), make certain the receptacle in question is properly grounded. If you are not sure, have a registered electrician check the receptacle.

Extension cords

If an extension cord is necessary, make sure the cord rating is suitable for the amperage listed on the machine's motor plate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating.

Use the chart in Figure 12 as a general guide in choosing the correct size cord. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.

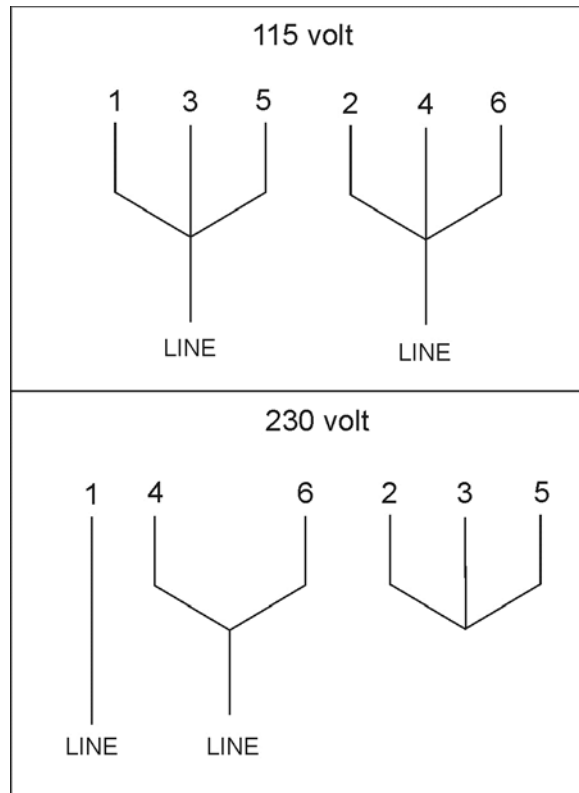


Figure 10

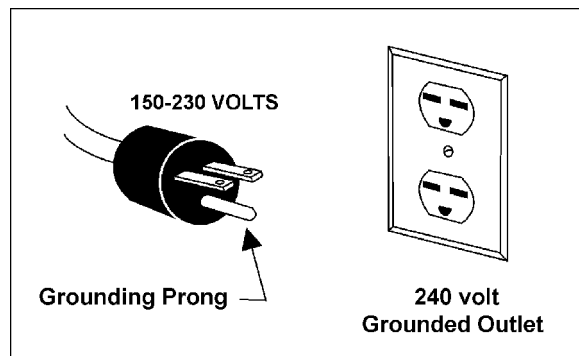


Figure 11

Cord Length	AWG (American Wire Gauge)	
	240 Volt Lines	120 Volt Lines
0-50 Feet	No. 16	No. 16
50-100 Feet	No. 14	No. 14
Over 100 Feet	No. 14	No. 12

Figure 12

Adjustments

⚠WARNING Disconnect machine from power source before making adjustments. Failure to comply may cause serious injury.

Lower Work Support

Inside the cabinet is a lower work support (Figure 13) which is used to support work pieces in the vertical position. To move this support up or down, loosen the locking handle (A, Figure 13). Tighten locking handle when finished.

To set the work support at level position, loosen the socket head cap screw (B, Figure 13) with a 6mm hex wrench, and loosen the locking handle (C, Figure 13). When finished adjusting, tighten locking handle (C, Figure 13) and socket head cap screw (B, Figure 13).

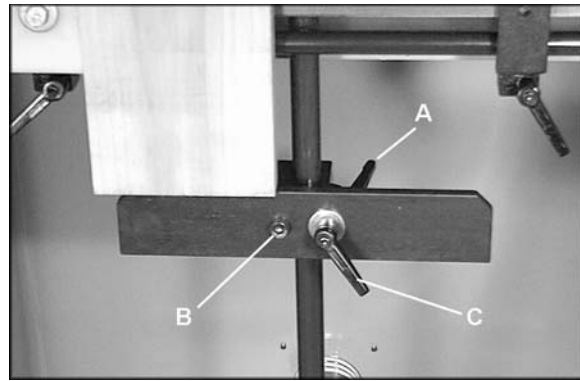


Figure 13

Locking Handles

All locking handles (such as C, Figure 13) can be rotated if they are in the way of other machine parts. Simply lift straight out on the locking handle and rotate it, then release, making sure it seats properly.

Clamping Bars

The workpieces are clamped to the table by eccentric bars. Simply rotate the handle (A, Figure 14) until the workpiece is secured. Do not overtighten the clamping bars to prevent denting the workpiece.

Both upper and lower clamping bars must be adjusted to match the thickness of your workpieces. Thickness is indicated on the adjoining scales mounted to the machine frame.

1. Loosen the two locking handles on the front edge of the frame (B, Figure 14).
2. Rotate the knurled adjustment pieces (C, Figure 14) **on both sides** of the machine until the indicator line on the adjustment piece matches the desired thickness on the adjoining scale. It is important that both knurled adjustment pieces be rotated the same to ensure the clamping bar is parallel to the table.
3. Tighten locking handles (B, Figure 14).

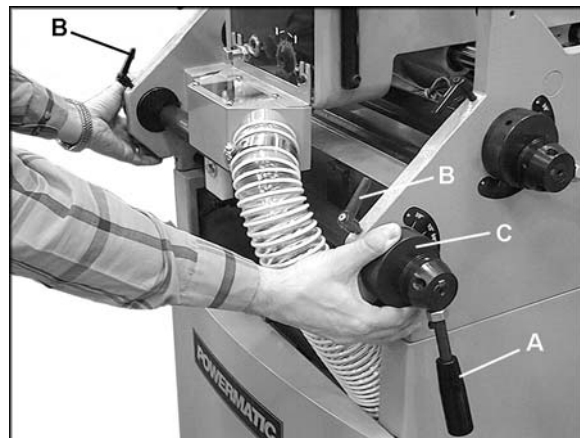


Figure 14
(shows adjustment of lower clamping bar)

Template Bar

The four-sided template bar, shown in Figure 16, will allow you to create “half-blind” dovetails, where the dovetails are visible on only one side of the joint. It will create dovetails in one of four different “itches” or centerlines. The available pitches are 1”, 1-1/2”, 2” and 2-1/2”. To change the pitch of a dovetail cut, proceed as follows:

1. Release one end of the spring on the left side of the headstock (Figure 15) and pull the headstock toward the front of the machine until the tracer pin is clear of the template bar as shown in Figure 16.
2. Loosen and remove the locking handle on each end of the template bar.
3. Pull out the template bar as shown in Figure 16, flip it to the desired side, then re-install it. NOTE: The pitch dimension is inscribed on each side of the template bar.
4. Insert and tighten both locking handles.
5. Push the headstock back and re-connect the spring (Figure 15).

Horizontal and Vertical Fences

The workpieces will lie flush against the fences during cutting to ensure squareness. Two buffer pads made of polyethylene material are mounted to the fences – these provide a “chipbreaker” effect to prevent chip-out on the left edges of the workpieces. They are designed so the cutter can bite into them without any damage to the cutter.

To adjust these fences, proceed as follows:

1. Place your FRONT/BACK workpiece on the horizontal table and against the fence. Move the headstock to the left edge of the workpiece, then slide it to the right, allowing the tracer pin to slide just a little into the template recesses. This will give you an idea where the cuts will be made and how they will be spaced across the width of the workpiece.
2. For broad movement of the horizontal fence, loosen both locking handles on the horizontal fence (A and B, Figure 17) and slide the horizontal fence into position. There is also a micro adjustment on the horizontal fence; loosen locking handle (A, Figure 17), but leave locking handle (B) tight. Loosen the screw (C, Figure 17) with a 6mm hex wrench and rotate the knurled knob (D, Figure 17) as needed for precise positioning of the horizontal fence. When finished, tighten screw (C, Figure 17) and locking handle (A, Figure 17).



Figure 15

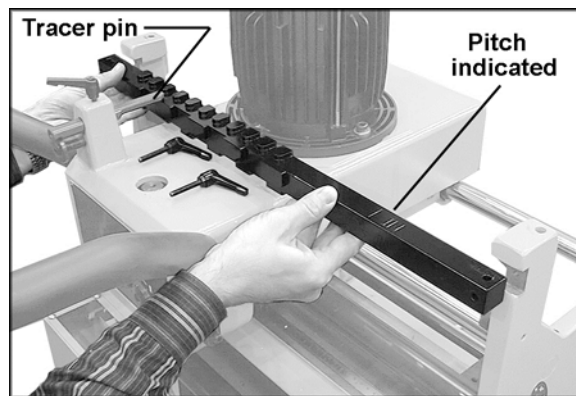


Figure 16

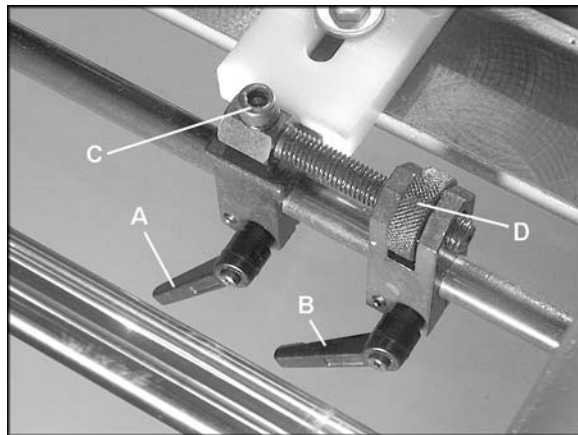


Figure 17

3. Continue to check the spacing by sliding the headstock across, until the dovetail cuts will be distributed evenly across the width of the workpiece. NOTE: This is an approximate method of determining by eye where to place the workpiece. A scale in inches and millimeters is mounted to the table if you need more precise measurements for the location of the dovetail cuts.
4. As noted, the position of the horizontal fence will affect the position of the vertical fence. Therefore, if you are making a drawer that has a bottom groove, the vertical fence should be set so that the bottom groove in the drawer piece will go through the center of a dovetail. That means the bottom groove of the mortised piece will go through the center of a mortise. This will prevent the groove from being visible on the outside of the assembled drawer. See Figure 18 and 19.
5. Tighten the locking handles on the horizontal fence to secure it in position. The position of the horizontal fence will be used as the basis for locating the vertical fence.
6. Loosen the locking handle on the vertical fence.

Important: To make proper dovetail cuts, the two fences must always be offset from each other by half the pitch of the template bar. That is, offset 1/2" when using the one-inch template; 3/4" when using the 1-1/2 inch template; 1" when using the two-inch template, and 1-1/4" when using the 2-1/2 inch template. The measuring scales on the table are marked in 1/16" increments.

7. Line up the vertical fence with the horizontal fence, then offset the vertical fence by exactly half the pitch of the template. See Figure 20.
8. This adjustment will cause the vertical work piece to be slightly offset to the right of the horizontal piece, thus ensuring the dovetails will correspond when the two pieces are assembled.
9. Tighten the locking handle on the vertical fence.

There are a total of four fences on the DT45 Dovetailer – two vertical and two horizontal. These allow two sets of workpieces to be cut at the same time. If this is desired, position the other two fences in the same manner as the first two fences, remembering again to offset the vertical fence by half the pitch.

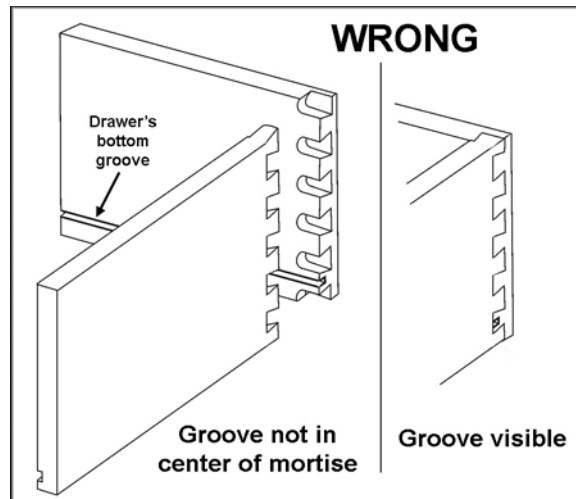


Figure 18

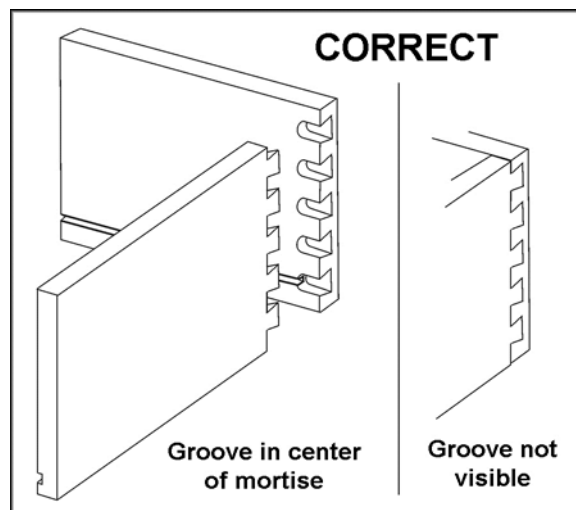


Figure 19

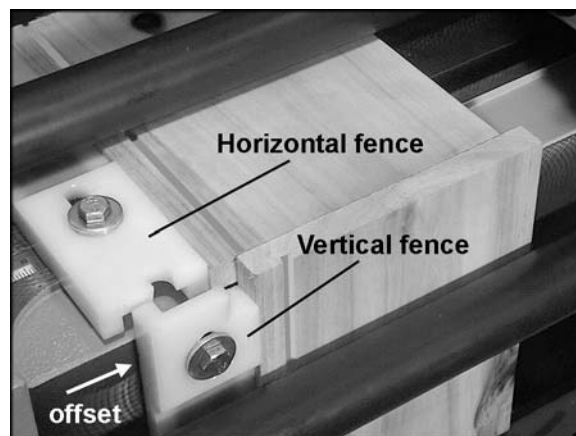


Figure 20

Buffer Pads

The polyethylene buffer pads (shown in Figure 20) have slots through which they are secured to the fences by screws. These buffer pads at times may need to be re-positioned; for example, if a clamping bar is adjusted for a different thickness of workpiece, the buffer pad may need to be adjusted out of the way to prevent obstructing the clamping bar.

To adjust a buffer pad, loosen the two hex cap screws (Figure 20) with a 13mm wrench. Slide the buffer pad as necessary. Retighten both hex cap screws when finished.

Cutter Height

This adjustment will change the height of the tails on the tenon (male) cut, and how deep the mortise (female) cut goes into the thickness of the workpiece.

1. Disconnect machine from power source.
2. Loosen the spindle lock screw (Figure 21) by turning it counterclockwise with a 6mm hex wrench.
3. Turn the spindle height adjust screw (Figure 19) with a 5.5mm hex wrench, either clockwise to raise the cutter (decrease the cutter depth), or counterclockwise to lower the cutter (increase the cutter depth).
4. Tighten spindle lock screw by turning it clockwise.

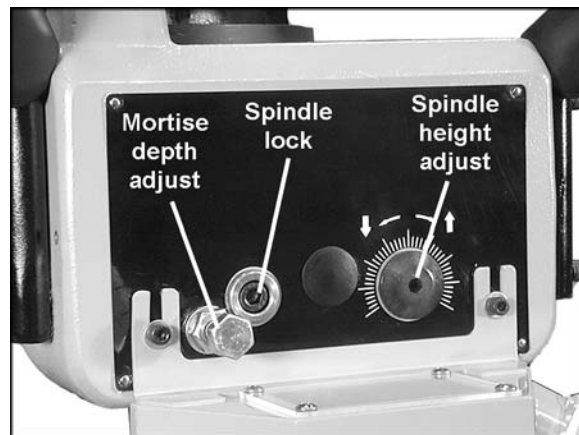


Figure 21

Mortise Depth

This adjustment ensures that the side pieces of your drawer will remain flush with the front and back pieces of the drawer. The correct fit will have the sides flush with the front and back of the drawer, without showing any of the mortise cut on the inside of the drawer.

The mortise depth adjust bolt, shown in Figure 19, limits how far forward the cutting unit will go, and thus limits the length of your mortise cut.

1. Disconnect machine from power source.
2. Loosen the hex nut on the mortise depth adjust bolt (Figure 21) by turning the hex nut counterclockwise with a 17mm wrench.
3. To decrease the depth of the mortise (female) cut, turn the bolt clockwise. To increase the depth of the mortise cut, turn the bolt counterclockwise.
4. Re-tighten the hex nut.

Thickness of Tenon Cut

To adjust the thickness of the tenon (male) cuts, you will change the depth of the tracer pin (Figure 22).

1. Disconnect machine from power source.
2. Loosen the locking handle on top the tracer pin (Figure 22) by turning it counter clockwise.
3. Insert a 5.5mm hex wrench into the end of the adjustment screw (Figure 22) and turn the adjustment screw as needed. To decrease the thickness of the tenon cut, turn the adjustment screw counterclockwise. To increase the thickness of the tenon cut, turn the adjustment screw clockwise.
4. Tighten locking handle.

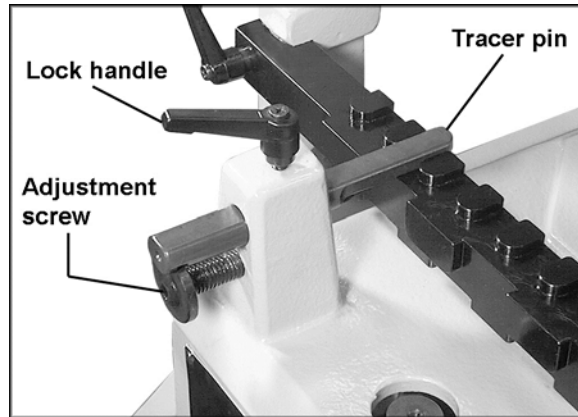


Figure 22

Tightness of Mortise/Tenon Fit

A proper dovetail fit should be snug with no gaps showing, but not overly tight as glue must later fill the joints. If the cuts seem correct, but the joint is simply too tight, or the joint is too loose, proceed as follows.

1. Disconnect machine from power source.
2. Remove the dust hood from the front of the machine.
3. You will notice the cutter, shown in Figure 23, is slightly off center of the spindle. The spindle is eccentric and allows the cutter to be turned to a different position on the spindle.

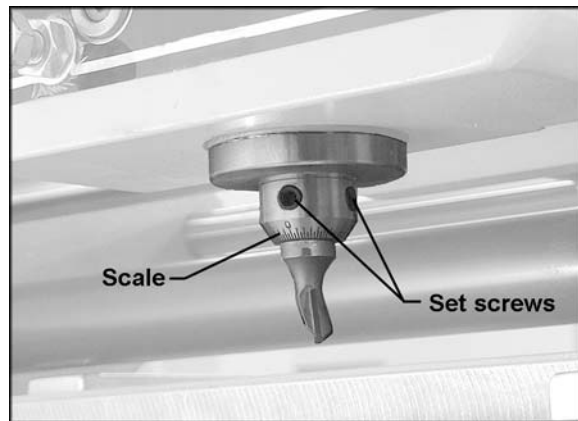


Figure 23

⚠WARNING The cutter is very sharp! Use caution when working with or around it.

4. Loosen both set screws on the spindle (Figure 23) by turning them counterclockwise with a 4mm hex wrench.
5. A scale is located just above the cutter, with a plus (+) and minus (-) sign. Moving the cutting edge of the cutter toward the plus (+) side of the scale will increase the size of the mortise cut and decrease the size of the tenon cut. Moving the cutting edge of the cutter toward the minus (-) side will decrease the size of the mortise cut and increase the size of the tenon cut.
6. With your fingers on the shank portion of the cutter, carefully rotate the cutter toward the plus (+) or minus (-) position as needed.
7. When satisfied with the adjustment, tighten both set screws firmly.
8. Re-attach the dust hood.

Drive Belt Tension

The tightness of the belt that drives the spindle has been adjusted at the factory. Further adjustment may be necessary after the machine receives some use, as the belt may stretch slightly during the “breaking in” process.

Belt tension can be adjusted by a socket head cap screw at the rear of the headstock (Figure 24) which slides the motor toward or away from the spindle. To tighten the belt, rotate this cap screw clockwise with a 6mm hex wrench. To loosen the belt, rotate the cap screw counterclockwise. The belt should be just tight enough to prevent it slipping on the spindle during operation.

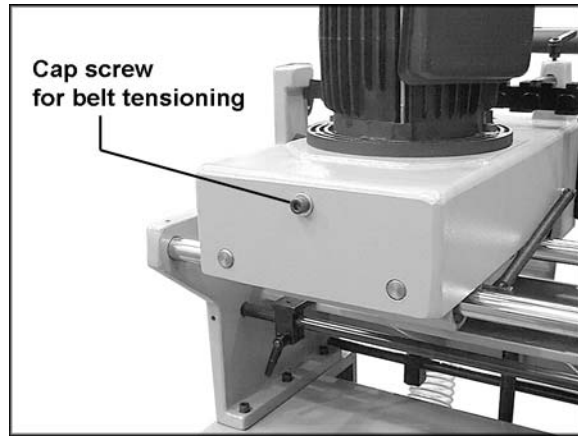


Figure 24

Replacing Cutter

⚠WARNING The cutter is very sharp; use caution when working with or around cutter. Disconnect machine from power source! Failure to comply may cause serious injury.

To replace the cutter, loosen both set screws (Figure 23) and carefully pull down on the cutter until it is free from the spindle. Place the new cutter in the spindle and tighten both set screws.

Operation

NOTE: The following are basic dovetailing procedures as they apply to this machine, and are not intended to be a full course of instruction in making dovetails. Refer back to the terminology on page 7 if needed.

The Dovetailer can be used to make joints in drawers, boxes, cabinets, etc. Instructions in this manual are based upon making a drawer consisting of FRONT and BACK pieces, and two SIDE pieces. FRONT and BACK pieces are placed horizontally on top the machine’s table; SIDE pieces are placed vertically in front of the machine’s table. The insides of the boards always face outward when they are placed on the machine.

No matter the project, prevent mistakes by laying out the pieces beforehand according to how they will be assembled. Place them with the inside facing up, and label the mating edges, as shown in Figure 25.

Before cutting on what is to be the finished piece, the operator should make test cuts on scrap wood to make sure all settings and adjustments are correct.

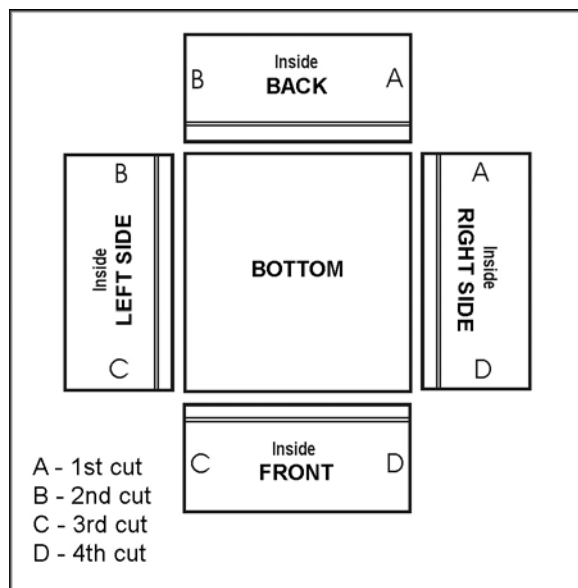


Figure 25

IMPORTANT: Make sure the workpiece has been cut square before making dovetails. An out-of-square workpiece will result in poor dovetail joints.

1. Set the appropriate template size, fence positions, clamping bar thickness, and cutter depth for your particular job. Refer to "Adjustments" section starting on page 13.
2. Move the headstock all the way to the right and out of the way.
3. Place the drawer **BACK** on top the table and flush against the fence, with the bottom groove facing up and toward the fence. See Figure 26.
4. Place the drawer **RIGHT SIDE** in the vertical position on top the lower work support and against the fence. Adjust the lower work support as necessary. The bottom groove on the **RIGHT SIDE** should be toward the fence and facing the operator, as shown in Figure 26.
5. Make the **BACK** butt against the **RIGHT SIDE** so they are flush, with the **RIGHT SIDE** overlapping the edge of the **BACK**. See Figure 26. Both pieces should be firmly and evenly against the fences with their edges flush as shown. You may need to loosen and tighten each clamping bar several times as you adjust the two drawer pieces into position. When the drawer pieces are positioned correctly, tighten upper and lower clamping bars. Do not overtighten the clamping bars.
6. Slide the headstock all the way to the left. Turn on the machine and move the cutter in sequence, left to right, allowing the tracer pin to move in and out of the template slots. See Figure 27. You can watch the progress of the cut through the window of the dust hood. **NOTE:** Do not rush the cut; allow the cutting unit to do the work.
7. When finished, slide the headstock out of the way and unclamp the workpieces.
8. Fit the **BACK** and **RIGHT SIDE** together and examine the joint. If the joint is not satisfactory, make any needed corrections to your settings as explained under "Adjustments." If the joint is satisfactory, proceed with the next cut as follows.
9. Turn the **BACK** 180 degrees and clamp it in the horizontal position against the fence.

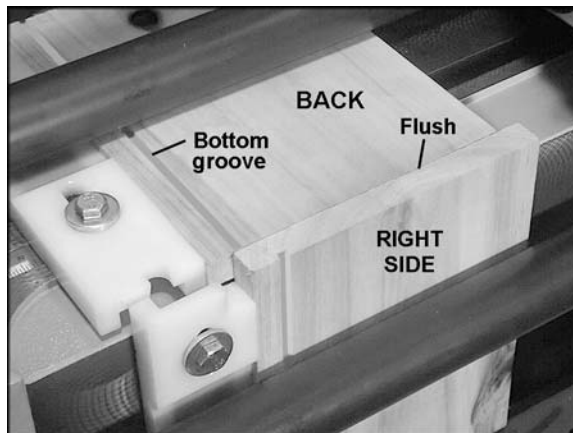


Figure 26



Figure 27

(Dust hood removed for clarity only; **always** use dust hood when operating dovetail machine.)

10. Insert the LEFT SIDE piece and clamp it in vertical position on the lower work support and against the fence. (NOTE: The bottom grooves on both pieces will be face up, but will now be opposite the fences.) Again, make sure the edges are flush with the LEFT SIDE overlapping the edge of the BACK.
11. Continue the dovetailing procedure with the FRONT piece, making cuts “C” and “D” (Figure 25) until all four joints of the drawer have been cut.

TIP: When using drawer side widths that are not “whole inch” sizes, you may wish to gauge off the top of the drawer rather than the bottom when placing workpieces in the machine. Doing this will improve the look of the drawer by providing a full tenon near the top of the drawer and the half-tenon will end up at the bottom. See Figure 28.

Preventing Chip Out

As noted previously, when the SIDE and FRONT/BACK pieces are inserted into the machine, they are offset a bit so they’ll match correctly when assembled. In other words, the SIDE will rest slightly to the right of the FRONT/BACK in the machine. This leaves the right edge of the SIDE exposed without the “chipbreaker” effect that the FRONT/BACK provides for the rest of the SIDE (see Figure 29). This may result in an unsatisfactory cut at the edge of the SIDE.

This problem is resolved simply by taking a 2-inch-plus wide “back-up” board, of the same thickness as your workpiece, and clamping it horizontally next to the FRONT/BACK piece so that it backs up the exposed edge of the SIDE, as shown in Figure 29. You can use this piece over and over again.

Dovetails in Plywood

Because plywood handles a bit differently than solid stock, here are some tips to follow:

1. When using plywood, the layers tend to be more fragile. Therefore, the operator should keep the movement of the cutting unit consistent and proceed relatively slowly.
2. On the rounded arcs of the tenon cuts, you may lose a bit of the top layer. This is to be expected with plywood, and does not affect either the look or the strength of the assembled dovetail joint. Rather, the strength of the dovetailed corner comes from the flat side of the tenons.

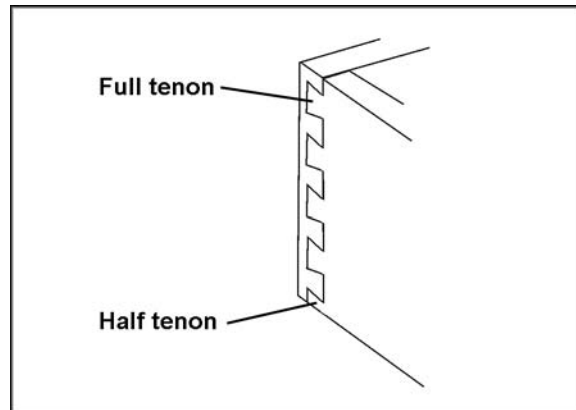


Figure 28

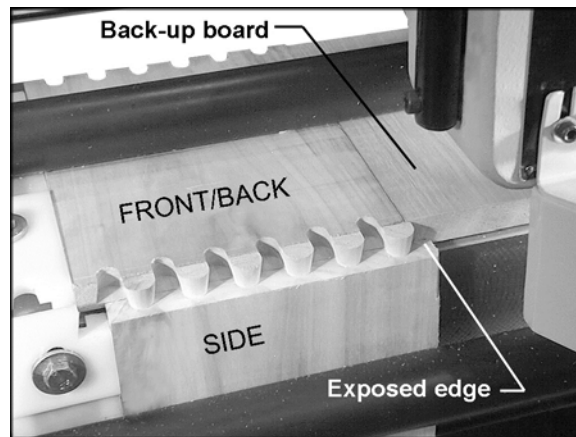


Figure 29

3. Plywood has a tendency to chip out on exposed edges. A back-up board should be used as needed (see Figure 29).

Maintenance

⚠WARNING Before doing maintenance on the machine, disconnect it from the electrical supply. Failure to comply may cause serious injury.

If the power cord is worn, cut, or damaged in any way, have it replaced immediately.

The table and other exposed metal parts should be kept clean and free of rust. A coat of paste wax will help protect the table from tarnishing.

After each day's use, brush or blow out dust and debris from the cutter, table, motor, etc.

Keep the clamping bars clean to prevent debris adhering to them, which can scar workpieces.

Keep clean the travel rods upon which the headstock slides.

Lubrication

The linear bushings by which the headstock travels on the rods are pre-lubricated and sealed; they do not require additional lubrication.

The spindle bearing should be lubricated as needed, according to machine usage. Apply VG-120 grease through the grease nipple on the spindle (#10 in the exploded view on page 27).

Troubleshooting the DT45

Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breakers or blows fuses.	Machine not plugged in.	Verify machine is connected to power.
	Fuse blown, or circuit breaker tripped.	Replace fuse, or reset circuit breaker.
	Cord damaged.	Replace cord.
	Overload automatic reset has not reset.	If the Dovetailer overloads on the circuit breaker built in to the motor starter, it takes time for the machine to cool down before restart. Allow unit to adequately cool before attempting restart. If problem persists, check amp setting on the motor starter inside the electrical box.
	Dovetailer frequently trips.	Check the amp setting on the overload relay. Match the full load amps on the motor as noted on the motor plate. If amp setting is correct then there is probably a loose electrical lead or a failed component. See below.
	Building circuit breaker trips or fuse blows.	Verify that dovetailer is on a circuit of correct size. If circuit size is correct, there is probably a loose electrical lead. Check amp setting on motor starter.
	Loose electrical connections.	Go through all of the electrical connections on the dovetailer including motor connections, verifying the tightness of each. Look for any signs of electrical arcing which is a sure indicator of loose connection or circuit overload.
	Motor starter failure.	If you have access to a voltmeter, you can separate a starter failure from a motor failure by first, verifying incoming voltage at 220+/-20 and second, checking the voltage between starter and motor at 220+/-20. If incoming voltage is incorrect, you have a power supply problem. If voltage between starter and motor is incorrect, you have a starter problem. If voltage between starter and motor is correct, you have a motor problem.
	Motor failure.	If electric motor is suspect, you have two options: Have a qualified electrician test the motor for function or remove the motor and take it to a qualified electric motor repair shop and have it tested.
Miswiring of the unit.	Check to make certain all electrical connections are correct and properly tight. The electrical connections other than the motor are preassembled and tested at the factory. Therefore, the motor connections should be checked as the highest probability for error. If problems persist, double check the factory wiring.	

Trouble	Probable Cause	Remedy
Machine will not start/restart or repeatedly trips circuit breakers or blows fuses. (continued)	On/off switch failure.	If the on/off switch is suspect, you have two options: Have a qualified electrician test the switch for function, or purchase a new on/off switch and establish if that was the problem on changeout.
Cutter not cutting properly.	Cutter in wrong position.	Turn cutter towards the (+) or (-) mark [page 17].
	Cutter dull or damaged.	Sharpen or replace cutter.
Dovetailed parts fit too tightly.	Cutter not adjusted properly.	Loosen set screws and turn cutter toward the (+) mark. Retighten set screws [page 17].
Dovetailed parts fit too loosely.	Cutter not adjusted properly.	Loosen set screws and turn cutter toward the (-) mark. Retighten set screws [page 17].
Cutter sometimes slips and misses revolutions.	Spindle belt tension incorrect.	Adjust spindle belt tension [page 18].
Dovetailed parts fit side to side, but have depth gaps between the mortise and tenon cuts.	The mortise depth or tenon thickness is set incorrectly.	Change depth of mortise cut or thickness of tenon cut by using the adjustment screw [pages 16 & 17].
A gap between mortise and tenon cuts increases along the dovetailed corner.	Boards not square when clamped.	Make sure the initial cuts on the board (ripping and/or crosscutting) have been done squarely, and that the board is flush against the stop before clamping.
Side piece edge is not aligned with front/back piece edge.	Fences not set correctly.	Offset the vertical fence from the horizontal fence by half the pitch of the cut.
Workpiece slips during the cut.	Clamping bar not properly adjusted for thickness of workpiece.	Position clamping bar according to workpiece thickness. Make sure both ends of clamping bar have been adjusted equally.

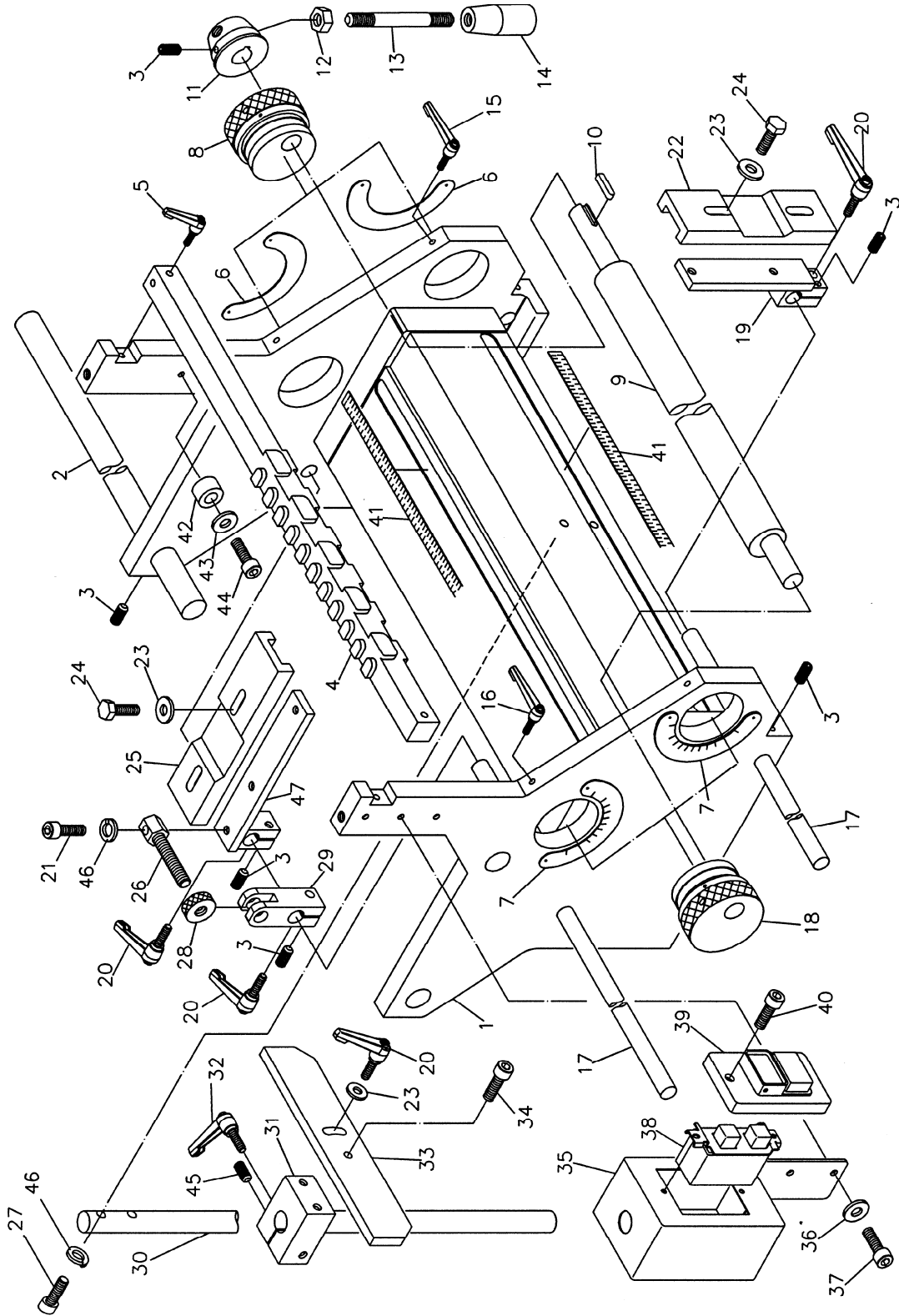
Replacement Parts

Replacement parts are listed on the following pages. To order parts or reach our service department, call 1-800-274-6848, Monday through Friday (see our website for business hours, www.powermatic.com). Having the Model Number and Serial Number of your machine available when you call will allow us to serve you quickly and accurately.

Parts List: Base Assembly

Index No.	Part No.	Description	Size	Qty
1	DT45-101	Worktable		1
2	DT45-102	Base Guide Rod		2
3	TS-1523041	Socket Set Screw	M6x12	15
4	DT45-104	Copying Template		1
5	DT45-105	Locking Handle	M6x35	2
6	DT45-106	Scale		2
7	DT45-107	Scale		2
8	DT45-108	Adjustment Piece		2
9	DT45-109	Clamp Bar		2
10	DT45-110	Key	6x6x30	2
11	DT45-111	Hub		2
12	TS-1540081	Hex Nut	M12	2
13	DT45-113	Lever		2
14	DT45-114	Handle		2
15	DT45-115	Locking Handle	M6x25	2
16	DT45-116	Locking Handle	M6x45	2
17	DT45-117	Sliding Rod		2
18	DT45-118	Adjustment Piece		2
19	DT45-119	Fence		2
20	DT45-120	Locking Handle	M8x25	6
21	TS-1504061	Socket Head Cap Screw	M8x30	1
22	DT45-122	Buffer Pad		2
23	TS-1550061	Flat Washer	M8	9
24	TS-1490031	Hex Cap Screw	M8x20	8
25	DT45-125	Buffer Pad		2
26	DT45-126	Adjustment Screw		1
27	TS-1504071	Socket Head Cap Screw	M8x35	2
28	DT45-128	Knurled Knob		1
29	DT45-129	Adjustment Seat		1
30	DT45-130	Guide Rod		1
31	DT45-131	Clamping Seat		1
32	DT45-132	Locking Handle	M8x35	1
33	DT45-133	Adjustment Plate		1
34	TS-1504041	Socket Head Cap Screw	M8x20	1
35	DT45-135	Switch Box		1
36	TS-1550041	Flat Washer	M6	2
37	TS-1503041	Socket Head Cap Screw	M6x16	2
38	DT45-138	Contact		1
39	DT45-139	Switch Cover		1
40	TS-1502031	Socket Head Cap Screw	M5x12	2
41	DT45-141	Scale		2
42	DT45-142	Buffer Pad		2
43	TS-1550041	Flat Washer	M6	2
44	TS-1503051	Socket Head Cap Screw	M6x20	2
45	TS-1524041	Socket Set Screw	M8x16	1
46	TS-2361081	Lock Washer	M8	3
47	DT45-147	Fence		2

Base Assembly

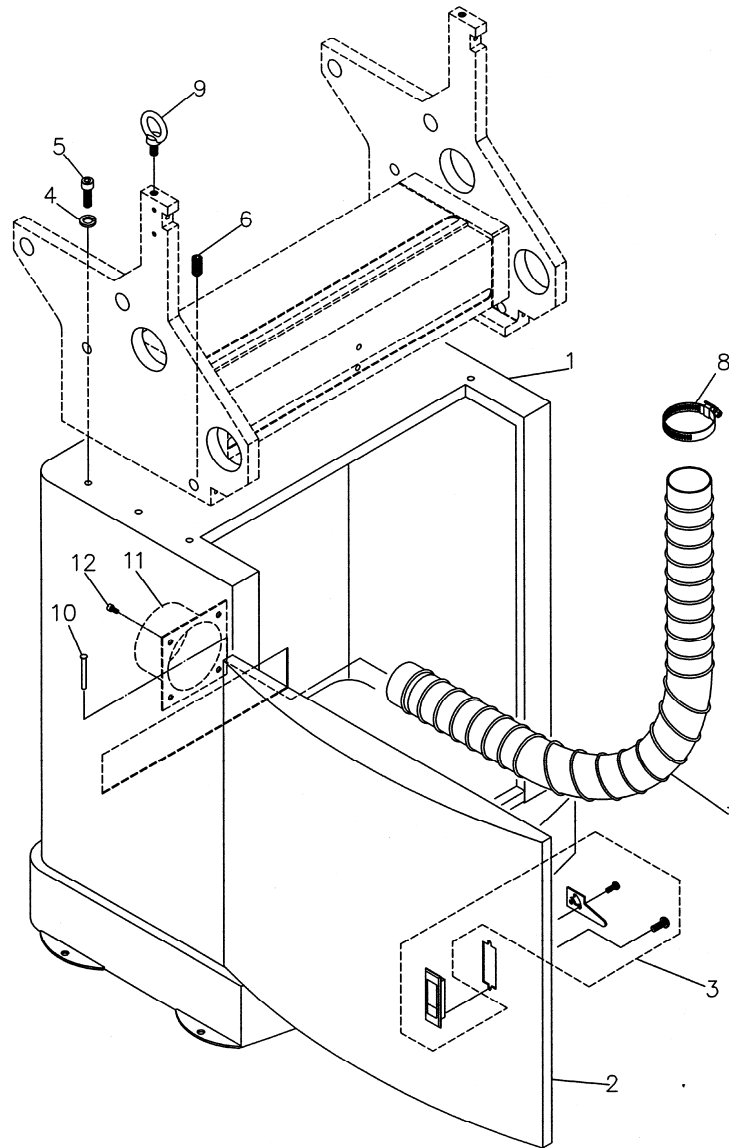


Parts List: Headstock Assembly

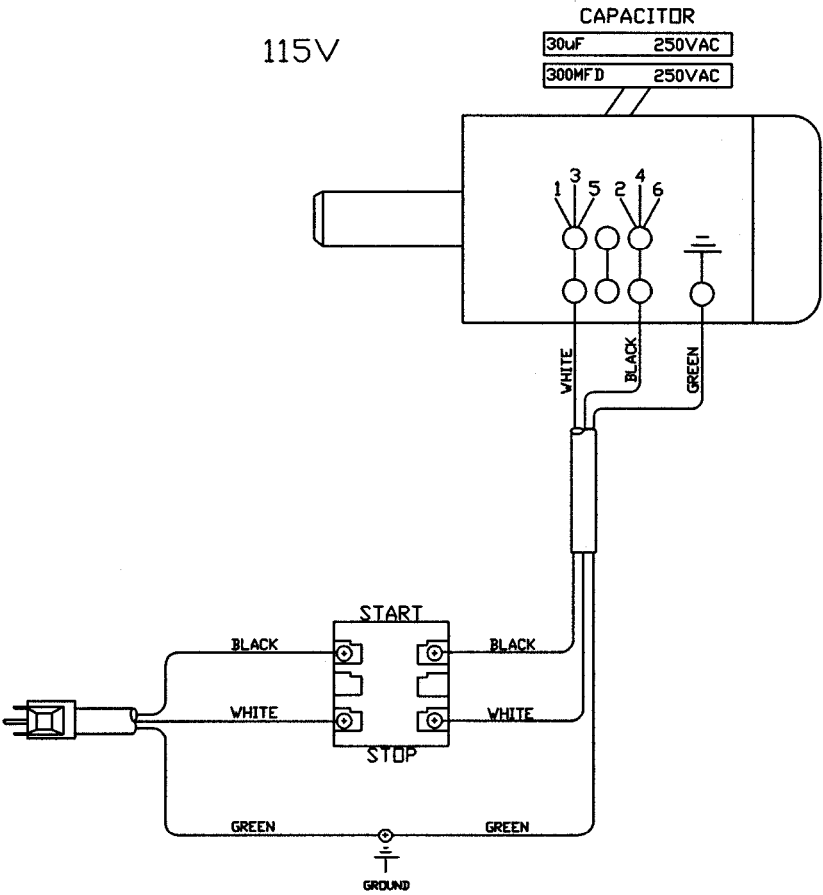
Index No.	Part No.	Description	Size	Qty
1	DT45-201	Spindle Assembly (Index #2 thru #10)		1
2	DT45-202	Spindle Bearing Housing		1
3	DT45-203	Ball Bearing (special)	6005 B.P63	2
4	DT45-204	Fixing Nut		1
5	DT45-205	Eccentric Spindle		1
6	TS-1524021	Socket Set Screw	M8x10	2
7	DT45-207	Spacer		1
8	DT45-208	Disc Spring		4
9	DT45-209	Fixing Nut		1
10	DT45-210	Grease Nipple		1
11	DT45-211	Spindle Slide Seat		1
12	DT45-212	Gear Shaft		1
13	TS-1550061	Flat Washer	M8	1
14	TS-1490031	Hex Cap Screw	M8x20	1
15	DT45-215	Clamping Piece		1
16	DT45-216	Bushing		1
17	TS-1504121	Socket Head Cap Screw	M8x60	1
18	DT45-218	Panel		1
19	DT45-219	Plug		1
20	TS-1550071	Flat Washer	M10	1
21	TS-1540071	Hex Nut	M10	1
22	DT45-222	Hex Head Bolt	M10x185	1
23	DT45-223	Guide Rod		2
24	TS-1523041	Socket Set Screw	M6x12	4
25	DT45-225	Carriage		1
26	DT45-226	Linear Bushing	LM16UU	4
27	DT45-227	Seal	16x28x7	4
28	DT45-228	Retaining Ring	R28	4
29	DT45-229	Linear Bushing	LM25UU	4
30	DT45-230	Seal	25x40x7	4
31	DT45-231	Retaining Ring	R40	4
32	TS-1540031	Hex Nut	M5	2
33	TS-1502051	Socket Head Cap Screw	M5x20	1
34	DT45-234	Spring		1
35	DT45-235	Motor		1
36	DT45-236	Motor Pulley		1
37	DT45-237	Fixing Washer		1
38	TS-1482041	Hex Cap Screw	M6x20	1
39	TS-1522031	Socket Set Screw	M5x10	1
40	DT45-240	Flat Belt	670-25	1
41	DT45-241	Belt Tension Adjustment Holder		1
42	TS-1550061	Flat Washer	M8	3
43	TS-2361081	Lock Washer	M8	2
44	TS-1504071	Socket Head Cap Screw	M8x35	2
45	TS-2238911	Socket Head Cap Screw	M8x100	1
46	DT45-246	Locking Handle	M6x20	1
47	DT45-247	Tracer Pin		1
48	DT45-248	Adjustment Screw		1
49	DT45-249	Handle		1
50	DT45-250	Sponge Coating		1
51	TS-1503071	Socket Head Cap Screw	M6x30	4
52	DT45-252	Dust Hood		1
53	TS-1550031	Flat Washer	M5	2
54	TS-1502031	Socket Head Cap Screw	M5x12	2
55	DT45-255	Window		1
56	TS-2171012	Machine Screw	M4x6	4
57	DT45-257	Cutter		1
58	TS-1502081	Socket Head Cap Screw	M5x35	1

Parts List: Cabinet Assembly

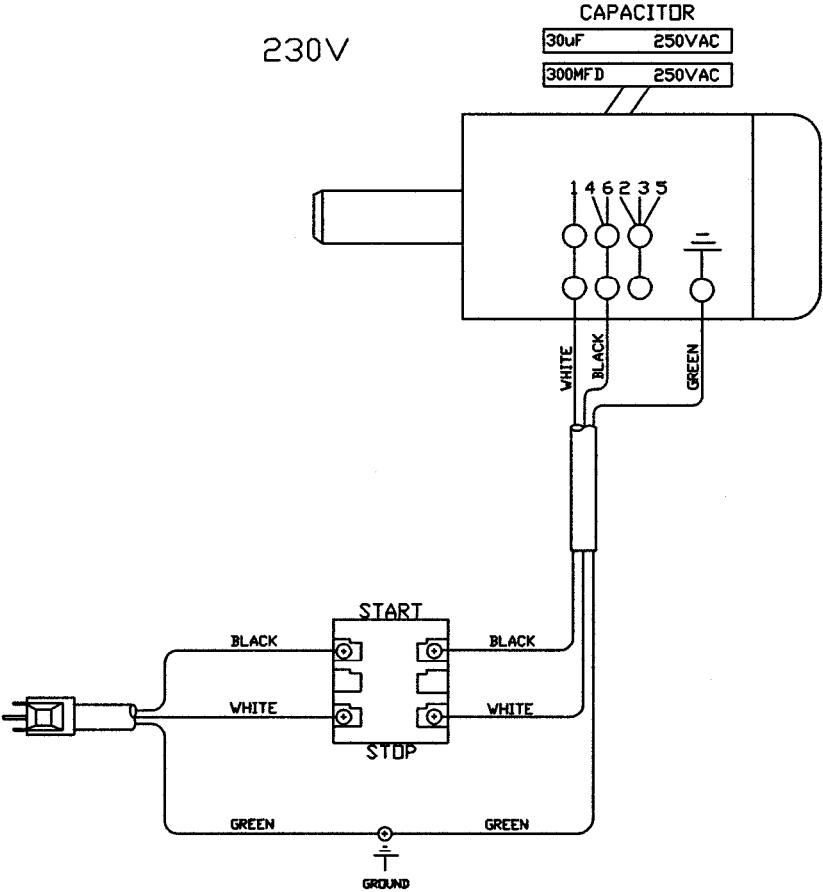
Index No.	Part No.	Description	Size	Qty
1	DT45-301	Cabinet		1
2	DT45-302	Door		1
3	DT45-303	Door Latch		1
4	TS-2361081	Lock Washer	M8	6
5	TS-1504061	Socket Head Cap Screw	M8x30	6
6	TS-1524021	Socket Set Screw	M8x10	6
7	DT45-307	Flexible Hose	2-1/2"	1
8	DT45-308	Hose Clamp	2-1/2"	2
9	DT45-309	Eye Bolt	M10	2
10	DT45-310	Pin		2
11	DT45-311	Dust Chute		1
12	TS-1502031	Socket Head Cap Screw	M5x12	4



Electrical Connections – 115 volt



Electrical Connections – 230 volt





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