

17" & 20"

DRILL PRESS



INSTRUCTION MANUAL

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Table Of Contents

| | PAGE |
|--|-------|
| 1. SAFETY | |
| SAFETY RULES FOR ALL TOOLS..... | 3 |
| ADDITIONAL SAFETY INSTRUCTIONS FOR DRILL PRESS | 4 |
| 2. CIRCUIT REQUIREMENTS | |
| GROUNDING | 5 |
| EXTENSION CORDS | 6 |
| 3. INTRODUCTION | |
| UNPACKING | 6 |
| PIECE INVENTORY | 6 |
| CLEAN UP..... | 7 |
| SITE CONSIDERATIONS | 7 |
| 4. ASSEMBLY | |
| BEGINNING ASSEMBLY | 8 |
| COLUMN/BASE..... | 8 |
| TABLE SUPPORT..... | 8 |
| HEADSTOCK | 9 |
| HANDLES | 10 |
| INSTALLING LIGHT BULB | 10 |
| DRILL CHUCK AND ARBOR | 10 |
| ARBOR REMOVAL | 11 |
| 5. ADJUSTMENTS | |
| SPEED CHANGES | 12 |
| DEPTH STOP | 12 |
| TABLE ADJUSTMENTS | 13 |
| 6. OPERATIONS | |
| TEST RUN..... | 14 |
| DRILL BIT CHANGES..... | 14 |
| 7. MAINTENANCE | |
| GENERAL | 15 |
| TABLES..... | 15 |
| LUBRICATION..... | 15 |
| V-BELT | 16 |
| WIRING DIAGRAM | 16 |
| 8. TECHNICAL DATA | 17 |
| 9. PARTS LISTS & EXPLODED VIEWS | 18-19 |

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1. SAFETY

Safety Instructions For Power Tools

For Your Own Safety Read Instruction Manual Before Operating This Equipment

The purpose of safety symbols is to attract your attention to possible hazardous conditions. This manual uses a series of symbols and signal words which are 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.

1. **KEEP GUARDS IN PLACE** and in working order.
2. **REMOVE ADJUSTING KEYS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from tool before turning on.
3. **KEEP WORK AREA CLEAN.** Cluttered areas and benches invite accidents.
4. **DO NOT USE IN DANGEROUS ENVIRONMENT.** Do not use power tools in damp or wet locations, or where any flammable or noxious fumes may exist. Keep work area well lighted.
5. **KEEP CHILDREN AND VISITORS AWAY.** All children and visitors should be kept a safe distance from work area.
6. **MAKE WORKSHOP CHILD PROOF** with padlocks, master switches, or by removing starter keys.
7. **DO NOT FORCE TOOL.** It will do the job better and safer at the rate for which it was designed.
8. **USE RIGHT TOOL.** Do not force tool or attachment to do a job for which it was not designed.
9. **USE PROPER EXTENSION CORD.** Make sure your extension cord is in good condition. Conductor size should be in accordance with the chart below. The amperage rating should be listed on the motor or tool nameplate. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Your extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords if they become damaged.

Minimum Gauge for Extension Cords

| AMP RATING | LENGTH | | |
|------------|--------|--------|---------|
| | 25 f t | 50 f t | 100 f t |
| 0---6 | 18 | 16 | 16 |
| 7---10 | 18 | 16 | 14 |
| 11---12 | 16 | 16 | 14 |
| 13---16 | 14 | 12 | 12 |
| 17---20 | 12 | 12 | 10 |
| 21---30 | 10 | 10 | No |

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10. **WEAR PROPER APPAREL.** Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
11. **ALWAYS USE SAFETY GLASSES.** Also use face or dust mask if cutting operation is dusty. Everyday eyeglasses only have impact resistant lenses, they are NOT safety glasses.
12. **SECURE WORK.** Use clamps or a vise to hold work when practical. It's safer than using your hand and frees both hands to operate tool.
13. **DO NOT OVERREACH.** Keep proper footing and balance at all times.
14. **MAINTAIN TOOLS WITH CARE.** Keep tools sharp and clean for best and safest performance. Follow instructions for lubricating and changing accessories.
15. **USE RECOMMENDED ACCESSORIES.** Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury.
16. **REDUCE THE RISK OF UNINTENTIONAL STARTING.** On machines with magnetic contact starting switches there is a risk of starting if the machine is bumped or jarred. Always disconnect from power source before adjusting or servicing. Make sure switch is in OFF position before reconnecting.
17. **MANY WOODWORKING TOOLS CAN "KICKBACK" THE WORKPIECE** toward the operator if not handled properly. Know what conditions can create "kickback" and know how to avoid them. Read the manual accompanying the machine thoroughly.
18. **CHECK DAMAGED PARTS.** Before further use of the tool, 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.
19. **NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF.** Do not leave tool until it comes to a complete stop.
20. **NEVER OPERATE A MACHINE WHEN TIRED, OR UNDER THE INFLUENCE OF DRUGS OR ALCOHOL.** Full mental alertness is required at all times when running a machine.
21. **NEVER ALLOW UNSUPERVISED OR UNTRAINED PERSONNEL TO OPERATE THE MACHINE.** Make sure any instructions you give in regards to machine operation are approved, correct, safe, and clearly understood.
22. **IF AT ANY TIME YOU ARE EXPERIENCING DIFFICULTIES** performing the intended operation, stop using the machine! Then contact our service department or ask a qualified expert how the operation should be performed.

Additional Safety Instructions For Drill Presses

1. **ALWAYS OPERATE YOUR DRILL PRESS AT SPEEDS** that are appropriate for the

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drill bit size and the material that you are drilling.

2. **FEED THE DRILL BIT EVENLY INTO THE WORKPIECE.** Back the bit out of deep holes and clear the chips with a brush after you have turned the machine off.
3. **MAKE SURE THE DRILL BIT YOU ARE USING IS TIGHTENED PROPERLY.** Use only round, hex or triangular shank drill bits.
4. **NEVER DO MAINTENANCE OR CHANGE SPEEDS WITH THIS MACHINE PLUGGED IN.**
5. **NEVER USE TOOLS THAT ARE IN POOR CONDITION.** Cutting tools that are dull or damaged are difficult to control and may cause serious injury.
6. **NEVER DRILL SHEET METAL UNLESS IT IS CLAMPED SECURELY TO THE TABLE.**
7. **WORK SHOULD BE POSITIONED IN SUCH A WAY AS TO AVOID DRILLING INTO THE TABLE.**
8. **A FACE SHIELD USED WITH SAFETY GLASSES IS RECOMMENDED.**
9. **ALWAYS CLAMP WORKPIECE SECURELY TO TABLE BEFORE DRILLING.** Never hold a work piece by hand while drilling.
10. **IF AT ANY TIME YOU ARE EXPERIENCING DIFFICULTIES** performing the intended operation, stop using the machine! Then contact our service department or ask a qualified expert how the operation should be performed.
11. **REMOVE ADJUSTING KEYS AND WRENCHES.** Before turning the machine on, make it a habit to check that all adjusting keys and wrenches have been removed.
12. **HABITS—GOOD AND BAD—ARE HARD TO BREAK.** Develop good habits in your shop and safety will become second-nature to you.

2.CIRCUIT REQUIREMENTS

Grounding

In the event of an electrical short, grounding reduces the risk of electric shock by providing electric current a path of least resistance. This tool is equipped with a power cord having an equipment-grounding conductor. **See Figure 1.** The outlet must be properly installed and grounded in accordance with all local codes and ordinances.

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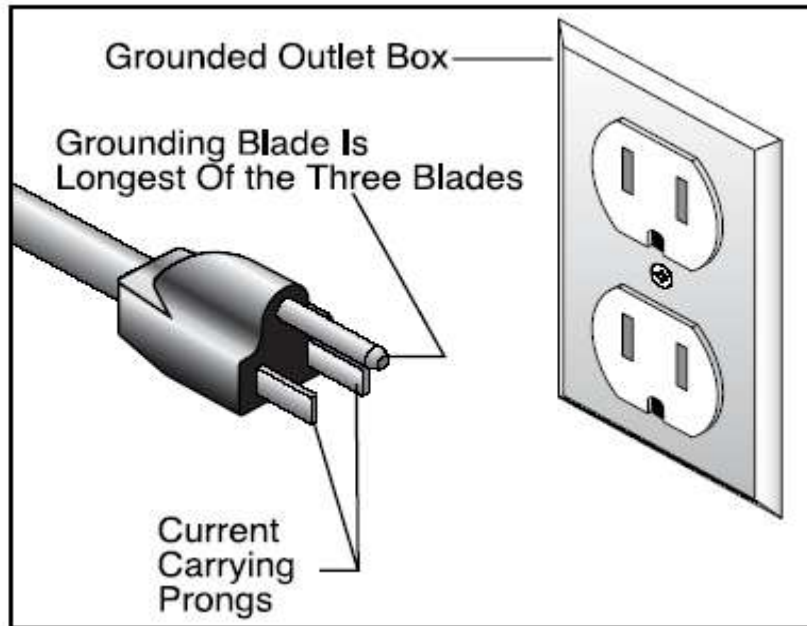


Figure 1

Extension Cords

If you find it necessary to use an extension cord with this drill press, make sure the cord is rated Hard Service (grade S) or better. Refer to the chart in the standard safety instructions to determine the minimum gauge for the extension cord. The extension cord must also contain a ground wire and plug pin. Always repair or replace extension cords when they become worn or damaged.

3. INTRODUCTION

Unpacking

If moving this machine up or down stairs, the machine must be dismantled and moved in smaller pieces. Make sure floor and stair structures are capable of supporting the combined weight of the machine parts and the people moving them

The Drill Press is shipped from the manufacturer in a carefully packed carton. If you discover the machine is damaged after you've signed for delivery, immediately call Customer Service for advice.

When you are completely satisfied with the condition of your shipment, you should inventory its parts.

Piece Inventory

A full parts list and breakdown can be found toward the end of this manual. For easier assembly, or to identify specific parts, please refer to the detailed illustrations at the end of the manual.

After all the parts have been removed from the carton, you should have:

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- Headstock
- Table Assembly
- Base
- Column Assembly
- Drill Chuck or Key
- Drift Key
- Hex Bolts

In the event that any nonproprietary parts are missing (e.g. a nut or a washer), we would be glad to replace them, or, for the sake of expediency, replacements can be obtained at your local hardware store.



Figure 2A



Figure 2B

Clean Up

The unpainted surfaces are coated with a waxy oil to protect them from corrosion during shipment. Remove this protective coating with a solvent cleaner or citrus-based degreaser. Avoid chlorine-based solvents as they may damage painted surfaces should they come in contact. Always follow the usage instructions on the product you choose for clean up.

Site Considerations

FLOOR LOAD

Your drill press represents a moderate weight load in a small footprint. Most commercial or home shop floors should be sufficient to carry the weight of the drill press. If you question the strength of your floor, you can opt to reinforce it. Ensure that the stand or bench you use with the drill press is capable of supporting the machine.

WORKING CLEARANCES

Working clearances can be thought of as the distances between machines and obstacles that allow safe operation of every machine without limitation. Consider existing and anticipated machine needs, size of material to be processed through each machine, and space for auxiliary stands and/or work tables. Also consider the relative position of each machine to one another for efficient material handling. Be sure to allow yourself sufficient room to safely run your machines in any foreseeable operation.

LIGHTING AND OUTLETS

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Lighting should be bright enough to eliminate shadow and prevent eye strain. Electrical circuits should be dedicated or large enough to handle combined motor amp loads. Outlets should be located near each machine so power or extension cords are not obstructing high-traffic areas. Be sure to observe local electrical codes for proper installation of new lighting, outlets, or circuits.

4: ASSEMBLY

Beginning Assembly

Most of your Drill Press has been assembled at the factory, but some parts must be assembled or installed after delivery. We have organized the assembly process into steps. Please follow along in the order presented here.

Column/Base

Drill press must be secured to the floor using anchor bolts, or the base should be secured to a piece of plywood.

1. Unplug machine before assembly.
2. Secure the base to the floor using the appropriate anchor bolts.
3. Place the column on the base and line up the mounting holes. Insert and tighten the hex head bolts with a wrench.

Table Support

1. Thread the 12mm table lock handle 3 turns into the table support bracket as shown in **Figure 3**.
2. Insert the pinion gear into the hole on the side of the table support bracket from the inside, starting with the pinion shaft as shown in **Figure 3**. Align setscrew in crank handle with flat on pinion gear shaft and secure using the 3mm Allen® wrench provided as shown in **Figure 4**.
3. Examine the rack and note that the gear teeth extend farther on one end than the other. The end of the rack where the gear teeth are closest to the end should be positioned down. Insert the rack into the table support bracket and align it with the pocket as shown in **Figure 4**. The gear teeth on the rack must also face out.
4. Slide the table support bracket onto the column while holding the rack in place. Allow the bracket to go down until the bottom of the rack contacts the shoulder on the column support as shown in **Figure 4**. Secure the table support bracket with the lock handle.

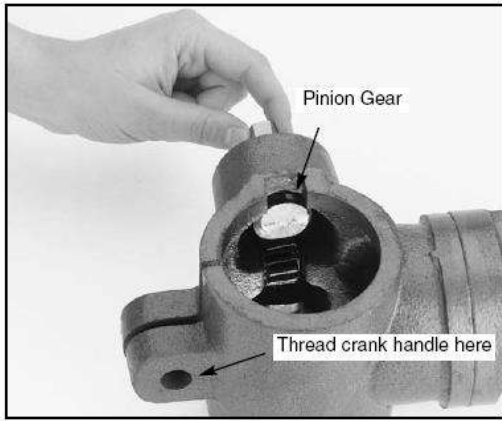


Figure 3

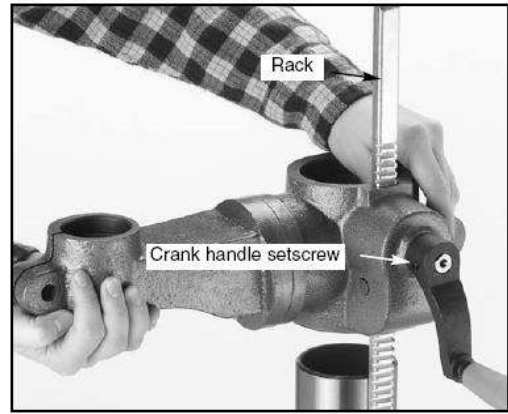


Figure 4



Figure 5

5. Slide the column ring onto the column with the inside bevel in the down position as shown in **Figure 5**. Adjust the ring until the tip of the rack fits inside the bevel. Tighten the setscrew on the ring.

Headstock

1. There is a pocket in the bottom of the headstock for the column to be placed. Seek assistance to help position the headstock over the column. Allow the headstock to slide down until it stops (approximately 4").
2. Position the headstock directly over the base by using a plumb bob. Use a measuring tape or ruler across the drill press base to find its center. Suspend the plumb line from the center of the headstock label and lower the bob until it is near the tape/ruler as shown in **Figure 6**. Adjust headstock from side to side until the tip is equidistant from both the left and right sides.
3. Tighten the two setscrews shown in **Figure 7** to secure headstock to the column.

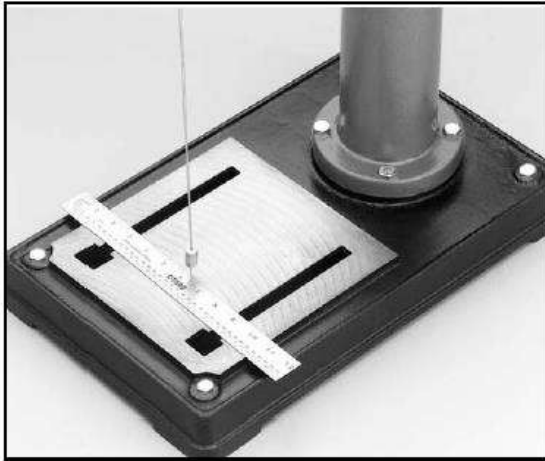


Figure 6



Figure 7

Handles

Three handles are supplied with the drill press. Thread them into the handle hub.

Installing Light Bulb (OPTIONAL)

The drill press has a light socket that utilizes standard sized 40watt bulbs. Before installing a light bulb, unplug the drill press. Secure bulb in opening behind the spindle.

Use only bulbs that are “safety coated” and shatter resistant. The bulb will be exposed at the bottom of the head casting which helps with illumination. Impacts with a bulb not “safety coated” may shatter, exposing the electrical filaments and creating an electrical shock hazard.

Drill Chuck and Arbor

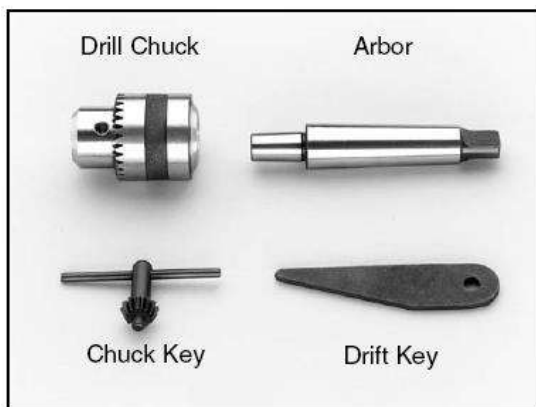


Figure8



Figure 9

The drill chuck attaches to the drill spindle by means of a drill chuck arbor. Matched tapers on the arbor and back of the chuck create an almost permanent assembly when properly joined. **Figure8** To assemble the drill chuck and mount it to the spindle, carefully follow

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the instructions below:

1. The drill chuck, arbor and spindle socket must be thoroughly cleaned and dried before assembly. It is recommended that mineral spirits be used for this task. Refer to the safety warnings on the container of the mineral spirits. **Failure to clean the mating surfaces may result in separation and an unsafe condition.** Separation is usually caused by oil or grease on the taper.
2. Use the provided chuck key to adjust the jaws of the chuck until they are well inside the drill chuck body.
3. Place the drill chuck on a workbench face down. The arbor has a short taper and a long taper. Place the short taper into the socket in the back of the drill chuck and tap with a rubber or wooden mallet as shown in **Figure 9**. If the chuck fails to remain secure on the arbor, repeat **step 1 and 2**.
4. Slide the arbor into the spindle socket while slowly rotating drill chuck. The socket has a rectangular pocket in which the tang (or flat portion of the arbor) fits into. Once the tang is oriented correctly the drill chuck will not rotate without turning the spindle.
5. Tap the end of the drill chuck with a rubber or wooden mallet to seat it as shown in **Figure 10**.



Figure 10

Arbor Removal

A drift key is included to aid in the drill chuck arbor removal.

1. Rotate the spindle handles until the slot is exposed in the side of the quill.
2. Rotate the spindle until the inner slot is aligned with the outer as shown in **Figure 11**. You will see through the spindle when the slot is properly aligned.
3. Insert the drift key into the slot and allow the quill to rise, trapping the drift key. Hold the drill chuck with one hand and tap on the drift key with a hammer as shown in **Figure 12**.

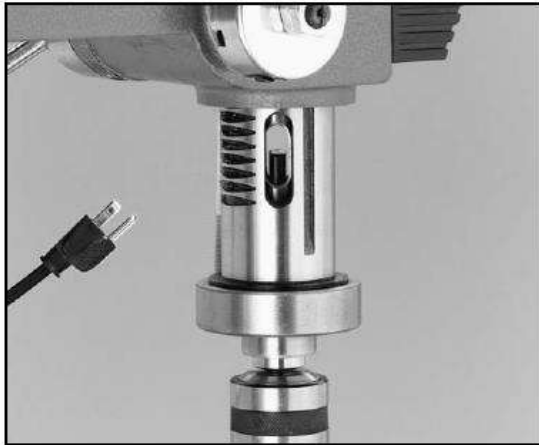


Figure 11



Figure 12

5: ADJUSTMENTS

Speed Changes

Unplug the drill press before changing speeds. The drill press has 12 speeds. There is a speed chart located under the belt guard. Refer to the chart while reading these instructions.

1. Loosen the belt tension lock knobs on both sides of the headstock by turning counterclockwise as shown in **Figure 13**.
2. The motor should be free to move. Rotate the belt tension lever counterclockwise to take tension off the V-belts as shown in **Figure 14**.
3. Locate the desired speed on the chart and move the V-belts to the desired V-grooves on the motor, idler and spindle pulleys.
4. Rotate the belt tension lever until the belts are tight. Tighten both lock knobs.
5. Close the cover.



Figure 13



Figure 14

Depth Stop

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Your drill press comes with a depth stop adjustment for use when drilling.

1. Loosen the depth collar lock knob as shown in **Figure 15**.
2. Secure the wood stock you will be drilling onto the drill press table.
3. With the desired bit installed, lower the spindle until the tip of the bit just touches the wood stock you will be drilling. Hold the spindle in this position.
4. Turn the depth collar to the desired depth indicated by the scale on the collar. Secure the collar by tightening the lock knob.
5. Remove the wood stock and test the depth stop by measuring how far the spindle travels when the handles are rotated as shown in **Figure 16**.



Figure 15



Figure 16

You can also lock the spindle in the down position for operations such as spindle sanding.

1. Loosen the depth collar lock knob as shown in **Figure 15**.
2. Rotate the spindle to the desired depth and hold it steady.
4. Rotate the collar clockwise until it stops, and tighten the lock knob.
5. Slowly release the drill press handle. The spindle should not move.

Table Adjustment

The table can be adjusted for height, rotation and angle.

1. Loosen the support bracket lock knob. Turn the table hand crank to lift or lower the table as shown in **Figure 17**.
2. Always lock the support bracket in place before operating the machine.

Adjust rotation:

1. Loosen the lock handle located under the table as shown in **Figure 18**. Rotate the table the desired amount.

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2. Always lock the table rotation in place before operating the machine.

Adjust angle:

1. Turn the nut indicated by the arrow in **Figure 17**, in a clockwise direction. This will draw the location pin out of the casting. Once loose, pull the pin and nut out, and set it in a safe place until needed.
2. Loosen the large bolt in the center of the support bracket.
3. Rotate the bracket to the desired angle. Use the scale on the side of the bracket or a protractor to set the angle. Lock in place by tightening the bolt.

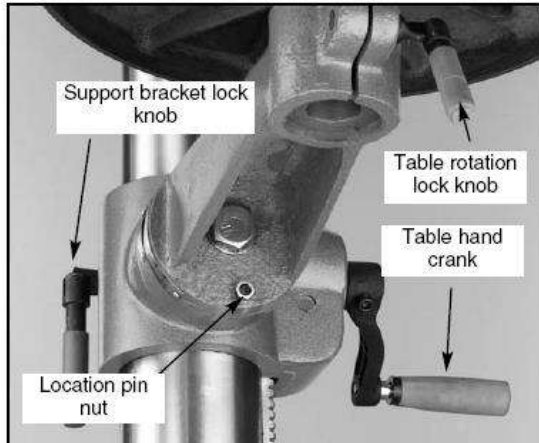


Figure 17

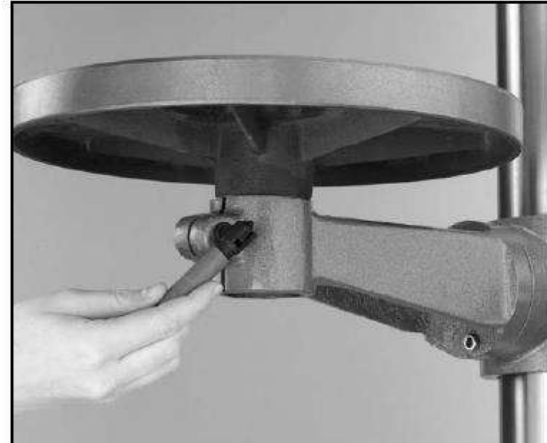


Figure 18

When repositioning the table to 0° position, loosen the large bolt in the center of the support casting. Rotate the support casting until the degree scale reads 0°. Carefully tap the location pin back into the hole from which it came until it stops. Unscrew the nut on the location pin until it is flush with the end of the threads. This will protect the threads when you tap it into place with a hammer. Turn the nut clockwise until it is snug against the casting and then tighten the large bolt in the center. The table is now set to the factory pre-set angle.

6: OPERATIONS

Test Run

Once assembly is complete and adjustments are done to your satisfaction, you are ready to test run the machine.

Turn on the power supply at the main panel. Flip the START button. Make sure that your finger is poised on the switch, just in case there is a problem. The drill press should run smoothly, with little or no vibration or rubbing noises. Strange or unnatural noises should be investigated and corrected before operating the machine further.

If you cannot easily locate the source of an unusual noise or vibration, contact our service department for help.

Drill Bit Changes

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Make sure to secure the bit firmly in place. When changing bits, proceed as follows:

1. Disconnect the machine from power source.
2. Open the chuck wide enough to accept a new bit.
3. Install the bit so the chuck jaws will grab as much of the bit shank as it can. Do not allow the chuck to grab the fluted body of the drill bit. Make sure small drill bits do not get trapped between the edges of two jaws.
4. Tighten the chuck with the chuck key using any of the three key end locations.
5. Remove the chuck key and reconnect power source.
6. Reverse steps to remove drill bit.

7: MAINTENANCE

General

Regular periodic maintenance on your drill press will ensure its optimum performance. Make a habit of inspecting your machine each time you use it. Check for the following conditions and repair or replace when necessary:

1. Loose mounting bolts.
2. Worn switch.
3. Worn or damaged cords and plugs.
4. Damaged V-belt.
5. Any other condition that could hamper the safe operation of this machine.

Tables

The nonpainted surfaces on the drill press should be protected against rust and pitting. Wiping the machine clean after every use ensures that wood dust will not trap moisture against bare metal surfaces.

Some woodworkers recommend using automotive paste wax on exposed steel and cast iron surfaces. The wax provides a layer of protection, as well as reducing friction between lumber and the table, making cuts faster and smoother. Avoid waxes that contain silicone or other synthetic ingredients. These materials can find their way into lumber that is being worked, and can make staining and finishing difficult. If you use paste wax, make sure that it is 100% Carnauba wax.

Lubrication

Since all bearings are shielded and permanently lubricated, simply leave them alone until

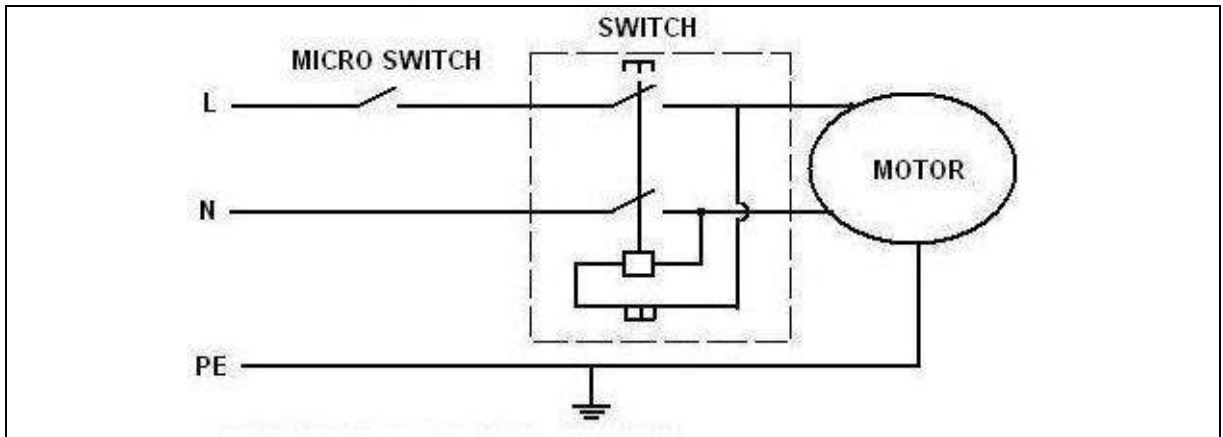
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they need to be replaced. Do not lubricate them.

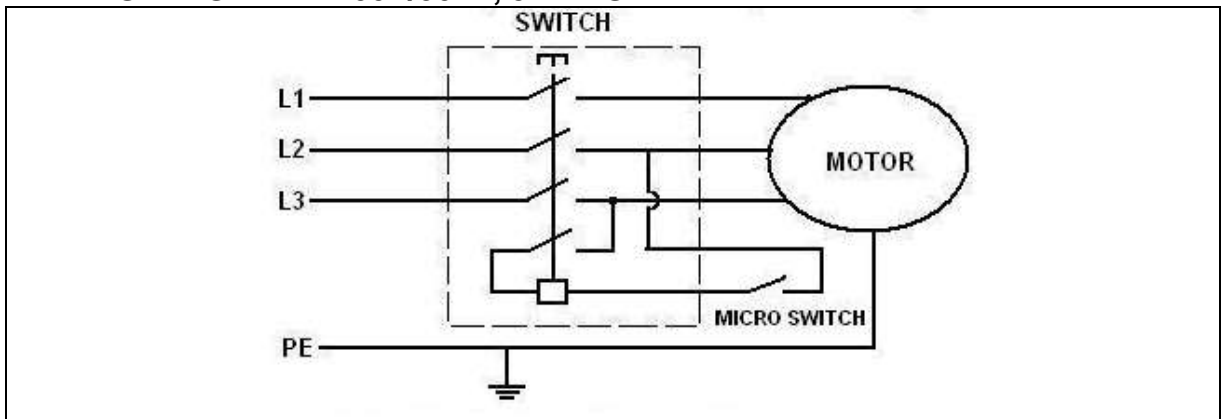
V-Belt

Inspect regularly for tension and wear. Check pulleys to ensure that they are properly aligned. See pulley/V-belt sections for proper tension and pulley alignment procedures.

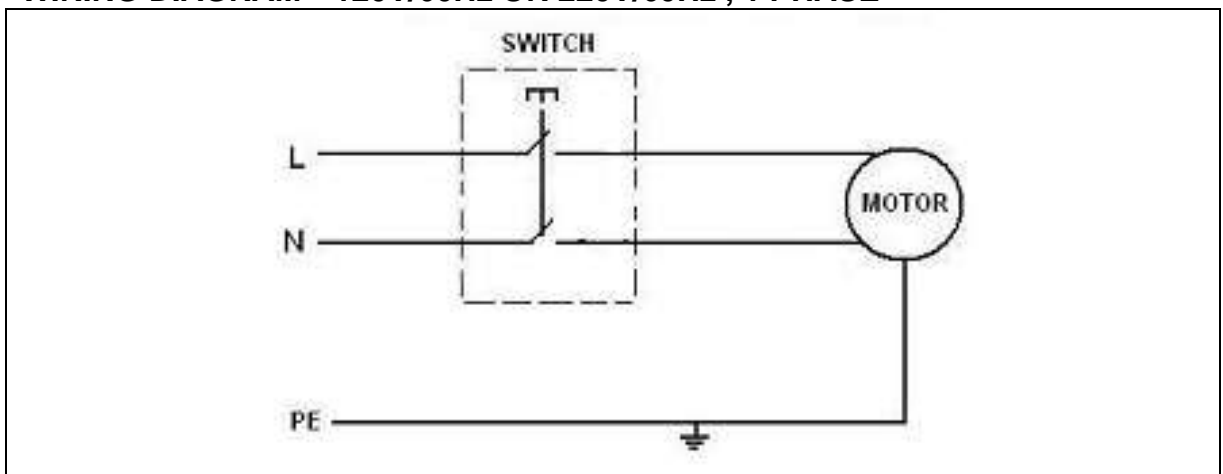
WIRING DIAGRAM 230V/50Hz, 1 PHASE



WIRING DIAGRAM 400V/50Hz, 3 PHASE



WIRING DIAGRAM 120V/60Hz OR 220V/60Hz, 1 PHASE



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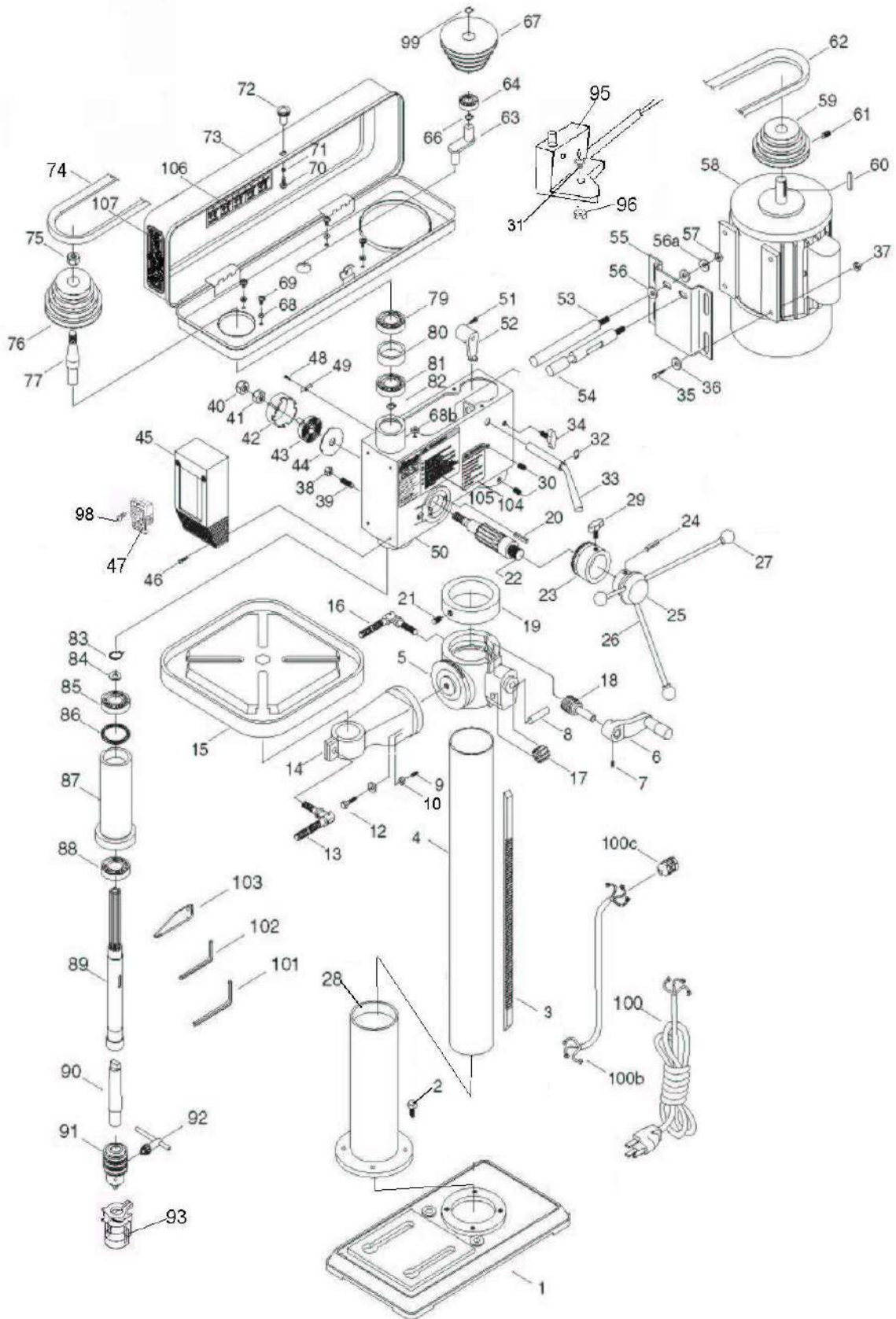
8: TECHNICAL DATA

| | | 17" | | 20" |
|----------------|-------|-----------|---------------|------------|
| Model | Bench | | | |
| | Floor | DP25 | DP32 | DP32K |
| Spindle Taper | | MT3 | MT4 | MT4 |
| Chuck (mm) | | | 3-16mm | |
| Spindle Travel | | 80mm | 120mm | 120mm |
| Swing(mm) | | 432mm/17" | 508mm/20 | 508mm/20" |
| Speeds | | 12s | 12s | 12s |
| Height | Bench | | | |
| | Floor | 1650mm | 1710mm | 1710mm |
| Motor | | | See Nameplate | |
| N.W./G. | Bench | | | |
| W. | Floor | 90/96kgs | 138/148kgs | 138/148kgs |

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9: PARTS LISTS & EXPLODED VIEWS

PARTS EXPLODED VIEW -,17",20" DRILL PRESS



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PARTS LIST-17",20"DRILL PRESS

| NO. | DESCRIPTION | Q'TY | NO. | DESCRIPTION | Q'TY |
|-----|-----------------------|------|------|-----------------------|------|
| 1 | BASE | 1 | 54 | SLIDE BAR | 1 |
| 2 | HEX BOLT | 4 | 55 | MOTOR BASE | 1 |
| 3 | LONG RACK | 1 | 56 | WASHER M12 | 1 |
| 4 | COLUMN | 1 | 56a | LOCK WASHER M12 | 1 |
| 5 | TABLE BRACKET | 1 | 57 | NUT M12 | 1 |
| 6 | HANDLE | 1 | 58 | MOTOR | 1 |
| 7 | SET SCREW | 1 | 59 | MOTOR PULLEY | 1 |
| 8 | SHAFT WORM GEAR | 1 | 60 | KEY 5 X 20 | 1 |
| 9 | PIN | 1 | 61 | SETSCREW M6X 6 | 1 |
| 10 | NUT | 1 | 62 | V-BELT | 1 |
| 11 | WASHER | 1 | 63 | CENTER SHAFT | 1 |
| 12 | HEX BOLT | 1 | 65 | BALL BEARING | 2 |
| 13 | TABLE BOLT | 1 | 66 | C-CLIP | 1 |
| 14 | TABLE ARM BRACKET | 1 | 67 | CENTER PULLEY | 1 |
| 15 | TABLE | 1 | 68 | WASHER M6 | 1 |
| 16 | CLAMP BOLT | 1 | 68b | WASHER M6 | 1 |
| 17 | GEAR | 1 | 69 | SCREW M6 X 10 | 1 |
| 18 | WORM GEAR | 1 | 70 | SCREW M5 X 12 | 1 |
| 19 | RACK RING | 1 | 71 | WASHER M6 | 1 |
| 20 | PIN STOP | 1 | 72 | KNOB | 1 |
| 21 | SET SCREW | 1 | 73 | PULLEY COVER | 1 |
| 22 | FEED SHAFT | 1 | 74 | V-BELT | 4 |
| 23 | DEPTH RING | 1 | 75 | PULLEY NUT | 4 |
| 24 | ROLL PIN | 3 | 76 | SPINDLE PULLEY | 1 |
| 25 | HANDLE BODY | 1 | 77 | INSERT PULLEY | 1 |
| 26 | HANDLE | 2 | 79 | BALL BEARING | 1 |
| 27 | KNOB | 1 | 80 | SPACER | 2 |
| 28 | COLUMN SHOULDER SHORT | 1 | 81 | BALL BEARING | 1 |
| 29 | COLUMN SHOULDER LONG | 1 | 82 | C-CLIP | 1 |
| 30 | SCREW M6 X 12 | 1 | 83 | C-CLIP | 1 |
| 31 | SCREW | 1 | 84 | WASHER | 1 |
| 32 | C-CLIP | 1 | 85 | BALL BEARING | 1 |
| 33 | SHIFTER BAR | 1 | 86 | RUBBER WASHER | 1 |
| 34 | SLIDE BAR BOLT | 1 | 87 | SPINDLE SLEEVE | 1 |
| 35 | HEX BOLT | 4 | 88 | BALL BEARING | 1 |
| 36 | WASHER | 4 | 89 | SPINDLE | 1 |
| 37 | NUT | 4 | 90 | ARBOR | 1 |
| 38 | NUT | 1 | 91 | CHUCK | 1 |
| 39 | WASHER | 2 | 92 | CHUCK KEY | 1 |
| 40 | NUT | 1 | 93 | CHUCK GUARD | 1 |
| 41 | NUT | 1 | 95 | MICRO SWITCH ASSEMBLY | 1 |
| 42 | SPRING CAP | 1 | 96 | NUT | 1 |
| 43 | TORSION SPRING | 1 | 98 | SCREW ST4.2 X 9 | 1 |
| 44 | SPRING COVER | 1 | 99 | C-CLIP | 1 |
| 45 | SWITCH BOX | 1 | 100 | POWER CORD | 1 |
| 46 | SCREW M5 X 12 | 1 | 100B | MOTOR CORD | 1 |
| 47 | SWITCH MOTOR | 1 | 100C | WIRE GASKET | 1 |
| 48 | SCREW M5 X 10 | 1 | 101 | WRENCH 5MM | 1 |
| 49 | CLAMP CORD | 1 | 102 | WRENCH 3MM | 1 |
| 50 | BODY | 1 | 103 | WEDGE | 1 |
| 51 | HEX BOLT M8 X 16 | 1 | 104 | WARNING LABEL | 1 |
| 52 | SHIFTER | 1 | 106 | SPEED CHART LABEL | 1 |
| 53 | SLIDE BAR | 1 | | | |

We reserve the right of the amendment addition and deletion of the specifications, explanatory wording, etc. printed in this manual