

Owner's Manual & Safety Instructions

Save This Manual Keep this manual for the safety warnings and precautions, assembly, operating, inspection, maintenance and cleaning procedures. Write the product's serial number in the back of the manual near the assembly diagram (or month and year of purchase if product has no number). Keep this manual and the receipt in a safe and dry place for future reference.

23h



16 SPEED HEAVY DUTY FLOOR DRILL PRESS



Visit our website at: <http://www.harborfreight.com>
Email our technical support at: productsupport@harborfreight.com

43389

When unpacking, make sure that the product is intact and undamaged. If any parts are missing or broken, please call 1-888-866-5797 as soon as possible.

Copyright© 2000 by Harbor Freight Tools®. All rights reserved.

No portion of this manual or any artwork contained herein may be reproduced in any shape or form without the express written consent of Harbor Freight Tools. Diagrams within this manual may not be drawn proportionally. Due to continuing improvements, actual product may differ slightly from the product described herein. Tools required for assembly and service may not be included.

⚠ WARNING

**Read this material before using this product.
Failure to do so can result in serious injury.
SAVE THIS MANUAL.**

Table of Contents

Safety	3	Maintenance	11
Specifications	6	Parts Lists and Diagrams	13
Setup	6	Warranty	16
Operation	9		



WARNING SYMBOLS AND DEFINITIONS

	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.
	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE CAUTION	Addresses practices not related to personal injury.

IMPORTANT SAFETY INFORMATION

General Tool Safety Warnings

⚠ WARNING

Read all safety warnings and instructions.

Failure to follow the warnings and instructions may result in electric shock, fire and/or serious injury.

Save all warnings and instructions for future reference.

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 it on.
3. KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
4. DON'T USE IN DANGEROUS ENVIRONMENT. Don't use power tools in damp or wet locations, or expose them to rain. Keep work area well lighted.
5. KEEP CHILDREN AWAY. All visitors should be kept safe distance from work area.
6. MAKE WORKSHOP KID PROOF with padlocks, master switches, or by removing starter keys.
7. DON'T FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
8. USE RIGHT TOOL. Don't 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. When using an extension cord, be sure to use one heavy enough to carry the current your product will draw. An undersized cord will cause a drop in line voltage resulting in loss of power and overheating. Table A shows the correct size to use depending on cord length and nameplate ampere rating. If in doubt, use the next heavier gauge. The smaller the gauge number, the heavier the cord.
10. WEAR PROPER APPAREL. Do not wear loose clothing, gloves, neckties, rings, bracelets, or other jewelry which may get caught in moving parts. Nonslip 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 it frees both hands to operate tool.
13. DON'T 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. DISCONNECT TOOLS before servicing; when changing accessories, such as blades, bits, cutters, and the like.
16. REDUCE THE RISK OF UNINTENTIONAL STARTING. Make sure switch is in off position before plugging in.
17. USE RECOMMENDED ACCESSORIES. Consult the owner's manual for recommended accessories. The use of improper accessories may cause risk of injury to persons.
18. NEVER STAND ON TOOL. Serious injury could occur if the tool is tipped or if the cutting tool is unintentionally contacted.
19. 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.
20. DIRECTION OF FEED. Feed work into a blade or cutter against the direction of rotation of the blade or cutter only.
21. NEVER LEAVE TOOL RUNNING UNATTENDED. TURN POWER OFF. Don't leave tool until it comes to a complete stop.

Table A: RECOMMENDED MINIMUM WIRE GAUGE FOR EXTENSION CORDS (120 VOLT)

NAMEPLATE AMPERES (at full load)	EXTENSION CORD LENGTH			
	25'	50'	100'	150'
0 – 6	18	16	16	14
6.1 – 10	18	16	14	12
10.1 – 12	16	16	14	12
12.1 – 16	14	12	Do not use.	

Grounding Instructions



⚠️ WARNING

TO PREVENT ELECTRIC SHOCK AND DEATH FROM INCORRECT GROUNDING WIRE CONNECTION
READ AND FOLLOW THESE INSTRUCTIONS:

110-120 VAC Grounded Tools: Tools with Three Prong Plugs

1. 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 tool is equipped with an electric cord having an equipment-grounding conductor and a grounding plug. The plug must be plugged into a matching outlet that is properly installed and grounded in accordance with all local codes and ordinances.

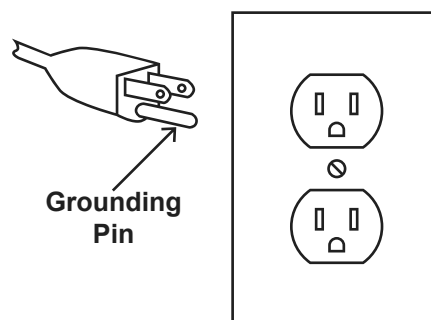
2. Do not modify the plug provided – if it will not fit the outlet, have the proper outlet installed by a qualified electrician.

3. 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.

4. 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.

5. Use only 3-wire extension cords that have 3-prong grounding plugs and 3-pole receptacles that accept the tool's plug.

6. Repair or replace damaged or worn cord immediately.



125 VAC 3-Prong Plug and Outlet
(for up to 125 VAC and up to 15 A)

7. This tool is intended for use on a circuit that has an outlet that looks like the one illustrated above in **125 VAC 3-Prong Plug and Outlet**. The tool has a grounding plug that looks like the plug illustrated above in **125 VAC 3-Prong Plug and Outlet**.

8. The outlet must be properly installed and grounded in accordance with all codes and ordinances.

9. Do not use an adapter to connect this tool to a different outlet.

Drill Press Safety Warnings

For Your Own Safety Read Instruction Manual Before Operating Drill Press

1. Wear eye protection.
2. Do not wear gloves, necktie, or loose clothing.
3. Clamp workpiece or brace against column to prevent rotation.
4. Use recommended speed for drill accessory and workpiece material.
5. The included chuck key is specially designed to be self-ejecting, reducing the risk of ejecting at high speed. Only use the included chuck key or an identical replacement key.

6. **DO NOT OPERATE WITH ANY GUARD DISABLED, DAMAGED, OR REMOVED. Moving guards must move freely and close instantly.**

7. The use of accessories or attachments not recommended by the manufacturer may result in a risk of injury to persons.

8. When servicing use only identical replacement parts.

9. Do not depress the spindle lock when starting or during operation.

10. Only use safety equipment that has been approved by an appropriate standards agency. Unapproved safety equipment may not provide adequate protection. Eye protection must be ANSI-approved and breathing protection must be NIOSH-approved for the specific hazards in the work area.

Drill Press Safety Warnings (cont.)

11. Stay alert, watch what you are doing and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol or medication. A moment of inattention while operating power tools may result in serious personal injury.
12. Industrial applications must follow OSHA guidelines.
13. Maintain labels and nameplates on the tool. These carry important safety information. If unreadable or missing, contact Harbor Freight Tools for a replacement.
14. Avoid unintentional starting. Prepare to begin work before turning on the tool.
15. People with pacemakers should consult their physician(s) before use. Electromagnetic fields in close proximity to heart pacemaker could cause pacemaker interference or pacemaker failure.
16. The warnings, precautions, and instructions discussed in this instruction manual cannot cover all possible conditions and situations that may occur. It must be understood by the operator that common sense and caution are factors which cannot be built into this product, but must be supplied by the operator.

Vibration Safety

This tool vibrates during use. Repeated or long-term exposure to vibration may cause temporary or permanent physical injury, particularly to the hands, arms and shoulders. To reduce the risk of vibration-related injury:

1. Anyone using vibrating tools regularly or for an extended period should first be examined by a doctor and then have regular medical check-ups to ensure medical problems are not being caused or worsened from use. Pregnant women or people who have impaired blood circulation to the hand, past hand injuries, nervous system disorders, diabetes, or Raynaud's Disease should not use this tool. If you feel any medical or physical symptoms related to vibration (such as tingling, numbness, and white or blue fingers), seek medical advice as soon as possible.
2. Do not smoke during use. Nicotine reduces the blood supply to the hands and fingers, increasing the risk of vibration-related injury.
3. Use tools with the lowest vibration when there is a choice between different processes.
4. Include vibration-free periods each day of work.
5. Grip tool as lightly as possible (while still keeping safe control of it). Let the tool do the work.
6. To reduce vibration, maintain the tool as explained in this manual. If any abnormal vibration occurs, stop use immediately.



SAVE THESE INSTRUCTIONS.

Specifications

Motor	120VAC, 60Hz, 13.5A 1720 RPM
Spindle Speeds	200, 290, 350, 430, 500, 580, 640, 720, 800, 870, 1440, 1630, 1820, 2380, 2540, and 3630 RPM
Spindle	Stroke: 3-1/8"; Taper: MT2
Column	Ø 3.15 (diameter) inches; Head to base: 50-3/4" Chuck to base: 45-1/2" Chuck to table: 25-1/4"
Base Dimensions	13-1/2" x 20-1/4"
Chuck Capacity	1/8" to 5/8"; Taper: JT3
Table Slot	1/2" x 4"
Table Rotation	360°; Tilt: 45° (left and right)
Table Size	14" x 14"
Features	Oiler with flex-tube, and lamp

Setup - Before Use:



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:

Turn the **Power Switch** of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

Note: For additional information regarding the parts listed in the following pages, refer to the Assembly Diagram near the end of this manual.

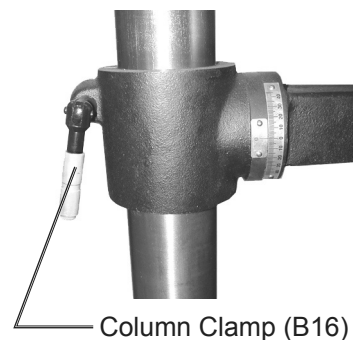
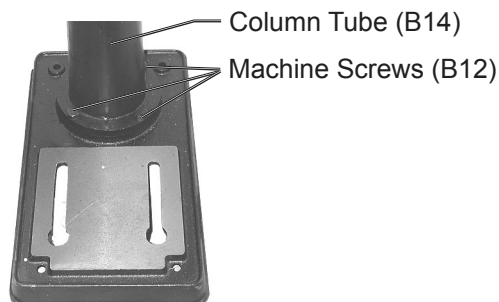
Mounting

Secure the tool to a supporting structure before use. Before assembly, bolt the Base to a flat, level, solid floor location capable of supporting the weight of the drill press and any workpieces.

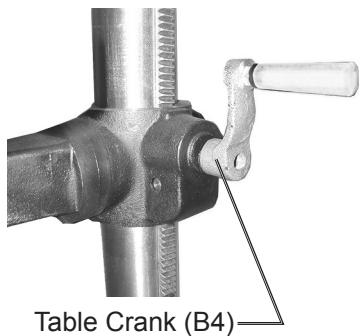
Verify that installation surface has no hidden utility lines before drilling or driving screws.

Assembly

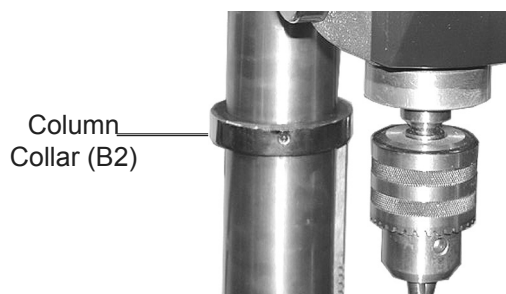
1. Place the **Column Tube** (B14) on the Base, aligning the mounting holes.
2. Insert four large Machine Screws (B12) into the mounting holes and tighten with a wrench.
3. Install the **Column Clamp** (B16) on the left side of the Table Support (B17). Hand Tighten.



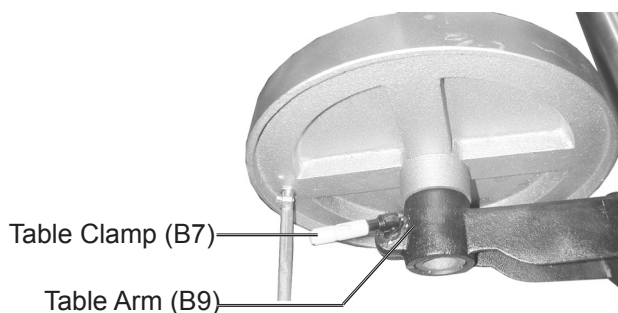
4. Mount the **Table Crank** (B4) onto the right side of the Table Support.
Tighten with the Hex Key. The set screw must be tightened against the flat portion of the screw shaft.



5. Verify that the **Column Collar** (B2) is square to the Column Tube and that the set screw is secure (but not overtightened).
The Column Collar should be positioned so that its rack will slide freely in the collar when the Table (B6) is rotated around the Column Tube.



6. Loosen the Table Clamp (B7) and insert the **Table** pivot into the Table Arm (B9).
It may be necessary to pry open the Table Arm opening with a large screwdriver since it is meant to be a tight fit. With the Table in place, retighten the Table Clamp.

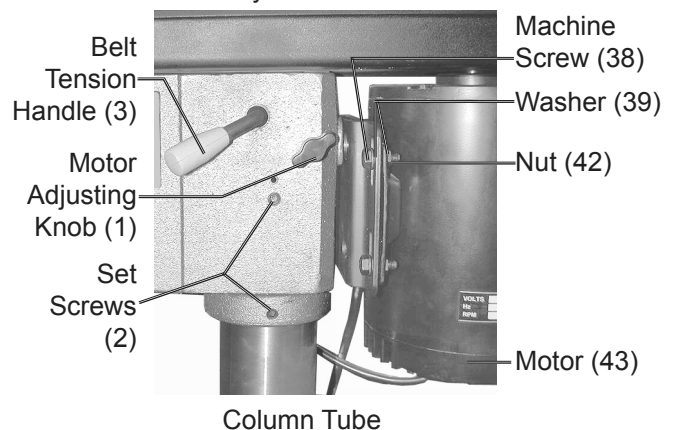


CAUTION! Avoid injuries. The next step involves lifting the Head Assembly onto the Column Tube. The Head Assembly weighs about 55 lb. Have someone help you lift this assembly into place.

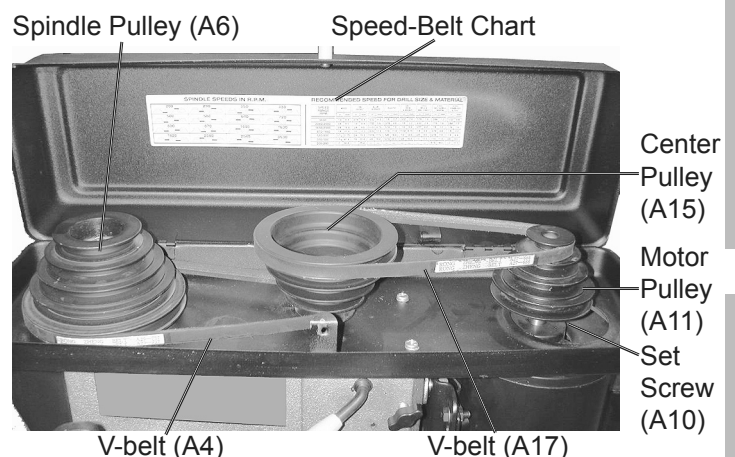
7. Using two people, lift the **Head Assembly** up and onto the Column Tube (B14).
It should slide down on the Column Tube as far as it will go. Align it so that it faces straight forward, inline with the Base.
8. Screw in two Set Screws (2), into each side of the Head (28) and tighten with the Hex Key.

9. Mount the **Motor** (43) onto the Head Assembly.
 - a. Place a Washer (39) on each of four Machine Screws (38).
 - b. Insert Machine Screws into the Motor Mount (40) (from left to right as shown above).
 - c. Position the Motor base slots over the Machine Screws.
 - d. Place a Washer (39) and Nut (42) on each Machine Screw (38). Hand tighten.
 - e. Position the Motor shaft at the center of the Pulley Guard (A8).

Head Assembly



10. Install the **Motor Pulley** (A11).
 - a. Slide the Motor Pulley onto the Motor shaft.
 - b. Line up the flat notch on the shaft with flat notch on the pulley.
 - c. The pulley should not touch the lower Pulley Guard (A8).
 - d. Tighten the Motor Pulley onto the shaft using the Hex Key and Set Screw (A10).



11. Adjust the height of the Motor Pulley.
 - a. Lay a straight edge across the two pulleys.
 - b. Push the Motor up until the top of the pulleys align. Hold Motor in place.
 - c. Using a wrench, tighten four Nuts (42) supporting the Motor.
 - d. Turn the Motor Adjusting Knob (1) counterclockwise to release belt tension.

12. Install **V-belts** (A4 and A17).

- Turn the Belt Tension Handle (3) and move the pulleys closer together.
- Place the Center Pulley (A15) on the Pivot Idler (A14), and into the Pulley Guard center hole (See the Pulley Assembly Drawing at the end of this manual).
- Place the longer V-belt (A4) between Spindle Pulley (A6) and the Center Pulley.
- Refer to the chart inside the Pulley Guard lid to select speed and belt locations.
- Place V-belt (A17) between the Motor Pulley and the Center Pulley.
- Turn the Belt Tension Handle to tighten the belts (moderately), and hold in place.
- Turn the Motor Adjusting Knob (1) clockwise to lock the belt tension.

Note: To test the proper belt tension, push in on the center of each belt at its center. It should move only 1/2" (in or out).

NOTICE: Overtightening the belts can cause the motor to bind, and not start. It can also damage Motor bearings.

13. Attach Knob (A12) to the Pulley Guard using Screw (A13).

WARNING! TO PREVENT SERIOUS INJURY: Do not plug power cord in yet.

14. Attach **Motor Cord** (41) to the Motor connector box.

- Open Motor connector box located under the motor.
- Remove green (ground) screw and connect the green wire round terminal to the screw and retighten.
- Insert terminal end of the white wire to spade terminal #4. Seat firmly.
- Insert terminal end of the black wire to spade terminal #1. Seat firmly.
- Set the cord strain relief in the center groove.
- Close Motor connector box.

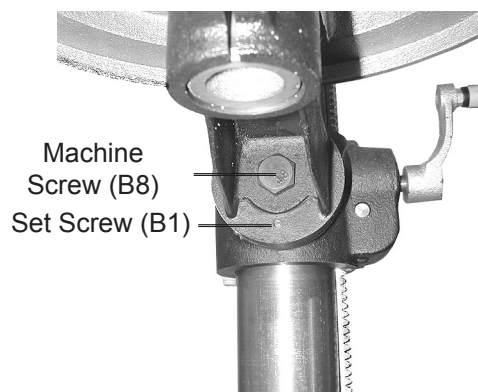
15. Mount the 3 Rods (10) to the Head Assembly Hub (7). Thread a Knob (9) onto the tip of each Rod.

16. Install the **Chuck** (C8).

- Thoroughly clean the tapered hole in the Chuck and the Arbor (C9) of all dirt, grease, oil, and protective coatings.
- Place a piece of scrap wood on the Table to protect the Chuck nose.
- Slide the Chuck onto the Arbor.
- Loosen the Column Clamp (B16) and turn the Table Crank (B4) to raise the Table so that it is about two inches from the Chuck.
- Turn the Chuck sleeve clockwise and open the jaws completely.
- Turn the Feed Handle counterclockwise and force the Chuck against the scrap wood until it is secure.

17. Verify that the Table is square (90°) to the Head Assembly and drill bit.

- Secure a three inches drill bit in the Chuck.
- Raise the Table to within four inches of the Chuck.
- Place the long side of a combination square on the Table.
- Align the short side of the square to the drill bit.
- If the Table is not square to the bit, loosen Set Screw (B1) with the Hex Key and the Machine Screw (B8) with the Wrench (B20).
- Rotate the Table until it is square to the bit.
- Retighten the Machine Screw, then the Set Screw.



18. Mounting the Oiler.

- Use the 4 Screws (51) to attach the 2 Brackets (50) to the tapped holes in the left side of the head casting.
- Carefully thread the Spigot Assembly (53) onto the Oil Bottle (52), then snap the bottle into the Brackets (50).
- Making sure that the brass spigot valve is closed first, remove the bottle cap and add your lubricant of choice.

Operating Instructions



Read the **ENTIRE IMPORTANT SAFETY INFORMATION** section at the beginning of this manual including all text under subheadings therein before set up or use of this product.

Tool Set Up

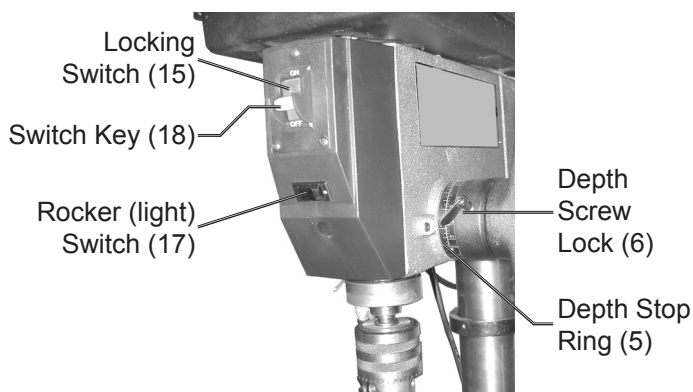
⚠ WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:

Turn the Power Switch of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

TO PREVENT SERIOUS INJURY: DO NOT OPERATE WITH ANY GUARD DISABLED, DAMAGED, OR REMOVED. Moving guards must move freely and close instantly.

Setting the Depth Scale to Drill to a Specified Depth



2. Mark the desired hole depth on the side of the workpiece.
3. Loosen the Depth Screw Lock (6).
4. Turn the Feed Handle counterclockwise to bring the tip of the drill bit down, next to the hole depth mark.
5. Turn the Depth Stop Ring (5) counterclockwise until it stops moving.
6. Tighten the Depth Screw Lock.

1. Secure the workpiece to the Table.

Locking the Chuck at a Specific Depth

1. Loosen the Depth Screw Lock.
2. Turn the Feed Handle counterclockwise to bring the Chuck to the desired depth.
3. Turn the Depth Stop Ring clockwise until it stops.
4. Tighten the Depth Screw Lock. The Chuck will be held at this position when the Feed Handle is released.

Tilting the Table

1. Loosen Set Screw (B1) with the Hex Key.
2. Loosen the Machine Screw (B8) with the Wrench (B20).
3. Rotate the Table to the desired angle. The scale can be used to approximate the angle.
4. Retighten the Machine Screw, then the Set Screw.

Using Cutting Oil Drip System

1. Add the desired cutting oil to the Oil Bottle (52).
2. Adjust the feed segments to allow the oil to drip onto the cutting area.
3. The used oil will collect in the Oil Bottle attached to the underside of the Table.
 - Before the Bottle is full, dispose of the used oil in accordance with local regulations.

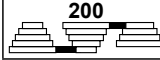
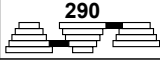


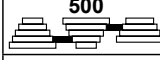
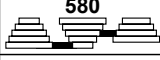

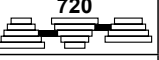



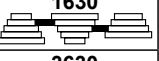

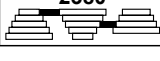


Bit Installation

1. Insert the bit into the jaws of the chuck approximately 1", ensuring that the jaws do not touch the flutes of the drill.
2. Ensure that the bit is centered within the jaws, then use the supplied chuck key to firmly tighten the chuck.

Changing Drill Speed

- WARNING! TO PREVENT SERIOUS INJURY:** Turn off and unplug the Drill Press before changing drill speed.
- Open the Pulley Cover.
- Loosen the Belt Tension Lock Knobs on both sides of the Head and turn the Belt Tension Lever clockwise. This will bring the Motor Pulley towards the Spindle Pulley, removing all tension from the drive Belts.
- Consult **Figure A** (or the chart inside the Pulley Cover) and install the Belts on the Pulleys in the positions that correspond to the required spindle/drill speed.
- When the Belts have been correctly positioned, tighten them by turning the Belt Tension Lever counterclockwise. The tension is correct when the belts deflect by approximately 1/2" at their centers of run when using reasonable thumb pressure. Lock this position in with the two Belt Tension Lock Knobs.

Note: If a belt is too long to be properly tensioned, it must be replaced.

 200	 290	 350	 430
 500	 580	 640	 720
 800	 870	 1440	 1630
 1820	 2380	 2540	 3630

A29 Left Belt

A27 Right Belt

Figure A: Belt Speed Settings

Workpiece and Work Area Set Up

- Designate a work area that is clean and well-lit. The work area must not allow access by children or pets to prevent distraction and injury.
- Route the power cord along a safe route to reach the work area without creating a tripping hazard or exposing the power cord to possible damage. The power cord must reach the work area with enough extra length to allow free movement while working.
- Secure loose workpieces using a vise or clamps (not included) to prevent movement while working.
- There must not be objects, such as utility lines, nearby that will present a hazard while working.
- Loosen the Column Clamp (B16) and adjust Table height to accommodate the workpiece being drilled.
- Secure the workpiece (and backup material) to the Table using a vise and/or clamp. The workpiece sits on the backup material. To keep it from spinning, have it touching the left side of the Column Tube.
- Adjust the height and left/right position of the Table. Tighten the Column Clamp.
- Bring the drill bit down with the Feed Handle to where the hole is to be drilled. Make minor workpiece alignment adjustments.

General Operating Instructions

- Plug the Power Cord into an electrical outlet.
- Insert the Switch Key (18) into the Locking Switch (15).

WARNING! TO PREVENT SERIOUS INJURY: Wear an ANSI-approved, full face shield while drilling any type of material.

- Push the Switch up to turn the Motor ON.

- Pull down on the Feed Handle and slowly drill the hole into the workpiece.

WARNING! TO PREVENT SERIOUS INJURY: If the drill bit grabs and spins the workpiece, do not attempt to stop the spinning with your hands. Step back, and turn the drill press off. Wait for the spindle to stop turning before dislodging the workpiece.

- To prevent accidents, turn off the tool and disconnect its power supply after use. Clean, then store the tool indoors out of children's reach.

Using the Depth Scale to Measure Depth While Drilling

- Secure the workpiece to the Table.
- Loosen the Depth Screw Lock.
- Adjust the Table height so that the tip of the drill bit is just above the workpiece.
- Turn the Depth Stop Ring clockwise to "0."
- Tighten the Depth Screw Lock.
- Turn the Drill Press ON and turn the Feed Handle counterclockwise to drill the hole. While drilling, watch the pointer and scale on the Depth Stop Ring. Stop turning the Feed Handle when the pointer and scale indicate the desired depth.
- Turn the Drill Press OFF.

Maintenance and Servicing



Procedures not specifically explained in this manual must be performed only by a qualified technician.

⚠ WARNING

TO PREVENT SERIOUS INJURY FROM ACCIDENTAL OPERATION:

Turn the Power Switch of the tool off and unplug the tool from its electrical outlet before performing any procedure in this section.

TO PREVENT SERIOUS INJURY FROM TOOL FAILURE:

Do not use damaged equipment. If abnormal noise or vibration occurs, have the problem corrected before further use.

Cleaning, Maintenance, and Lubrication

1. **BEFORE EACH USE**, inspect the general condition of the tool. Check for:
 - loose hardware,
 - misalignment or binding of moving parts,
 - cracked or broken parts,
 - damaged electrical wiring, and
 - any other condition that may affect its safe operation.
2. **AFTER USE**, wipe external surfaces of the tool with clean cloth.
3. Using compressed air, blow clean the Table, Base, and Motor cooling vents of dirt and materials.
4. Apply paste wax to the Table and Tube Column to enable movement and to help keep surfaces clean.
5. All bearings are factory lubricated and need no further attention.
6. Periodically, lubricate the Tube Column teeth, Table gears, and Spindle upper teeth.
7. **⚠ WARNING! TO PREVENT SERIOUS INJURY:** If the supply cord of this power tool is damaged, it must be replaced only by a qualified service technician.

Belt Inspection and Tensioning

1. Examine belt for cracks, tears in the backing, and other damage.
2. Replace belt if damaged, following the instructions under *Install V-belts (A4 and A17)* on page 8.

Removing the Chuck and Arbor

1. Adjust the Depth Stop Ring to hold the Chuck at a depth of three inches.
2. Align the key holes in the Spindle (C11) and the Quill Tube (C6) by turning the Chuck by hand.
3. Insert the Drift Key (C10) into the key holes.
4. Lightly tap the Drift Key with a rubber mallet until the Arbor falls out of the Spindle. Place a bundled cloth or basket below the Chuck to catch the Arbor when it falls.

Installing the Chuck and Arbor

1. Using a clean cloth, wipe the tapered surfaces on the Arbor and Spindle.
2. Slide the Arbor and Chuck assembly up and into the Spindle.
At the same time, turn the assembly until the rectangular end of the Arbor slips into the notch on the Spindle.
3. Loosen the Column Clamp and raise the Table about three inches below the Chuck.
4. Turn the Chuck sleeve clockwise to open the jaws completely.
5. Turn the Feed Handle counterclockwise and force the Chuck against the Table until the Arbor is secure.

⚠ WARNING! TO PREVENT SERIOUS INJURY: In the previous step, if the Arbor is not properly set in the Spindle notch, it may fly out during operation.

Adjusting the Feed Handle Return Torsion Spring

⚠ WARNING Wear a full face shield during this procedure.

1. Loosen the Depth Screw Lock.
2. Move the Chuck to its uppermost position.
3. Turn the Depth Stop Ring clockwise until it stops. Tighten the Depth Screw Lock to prevent the Chuck and Arbor assembly from dropping during Torsion Spring adjustment.
4. Insert a screwdriver in the lower-front notch of the Spring Cap (26). Hold it in place and, using a wrench, remove the (outer) Nut (27) only.
5. With the screwdriver still in place, loosen the (inner) Nut (27) until the Spring Cap notch disengages from the Spring Retainer (24) -- about 1/8 inch.
6. Turn the screwdriver counterclockwise and engage the next Spring Cap notch. Leave the screwdriver in place.
7. Tighten the (inner) Nut just enough to engage the notch. If this Nut is too tight, it will restrict (up and down) Chuck-Arbor movement.
8. Turn the Feed Handle and check the spring tension, making sure the up movement is smooth and complete. From one inch down, the Chuck should return to its uppermost position. If more tension is required, repeat steps 4 through 8.
9. Replace the (outer) Nut and tighten on top of the (inner) Nut. Do not overtighten.
10. If the up/down movement is restricted, slightly loosen the (inner) Nut, and retighten the (outer) Nut.

Troubleshooting

Problem	Possible Causes	Likely Solutions
Tool will not start.	<ol style="list-style-type: none">1. Cord not connected.2. No power at outlet.3. Tool's thermal reset breaker tripped (if equipped).4. Internal damage or wear. (Carbon brushes or switch, for example.)	<ol style="list-style-type: none">1. Check that cord is plugged in.2. Check power at outlet. If outlet is unpowered, turn off tool and check circuit breaker. If breaker is tripped, make sure circuit is right capacity for tool and circuit has no other loads.3. Turn off tool and allow to cool. Press reset button on tool.4. Have technician service tool.
Tool operates slowly.	Extension cord too long or wire size too small.	Eliminate use of extension cord. If an extension cord is needed, use one with the proper diameter for its length and load. See Table A on page 3.
Performance decreases over time.	<ol style="list-style-type: none">1. Accessory dull or damaged.2. Carbon brushes worn or damaged.	<ol style="list-style-type: none">1. Keep cutting accessories sharp. Replace as needed.2. Have qualified technician replace brushes.
Excessive noise or rattling.	<ol style="list-style-type: none">1. Internal damage or wear. (Carbon brushes or bearings, for example.)2. Belt (if equipped) too loose (slipping) or too tight (bearing damage).	<ol style="list-style-type: none">1. Have technician service tool.2. Properly tension belt.
Overheating.	<ol style="list-style-type: none">1. Forcing machine to work too fast.2. Accessory dull or damaged.3. Blocked motor housing vents.4. Motor being strained by long or small diameter extension cord.	<ol style="list-style-type: none">1. Allow machine to work at its own rate.2. Keep cutting accessories sharp. Replace as needed.3. Wear ANSI-approved safety goggles and NIOSH-approved dust mask/respirator while blowing dust out of motor using compressed air.4. Eliminate use of extension cord. If an extension cord is needed, use one with the proper diameter for its length and load. See Table A on page 3.

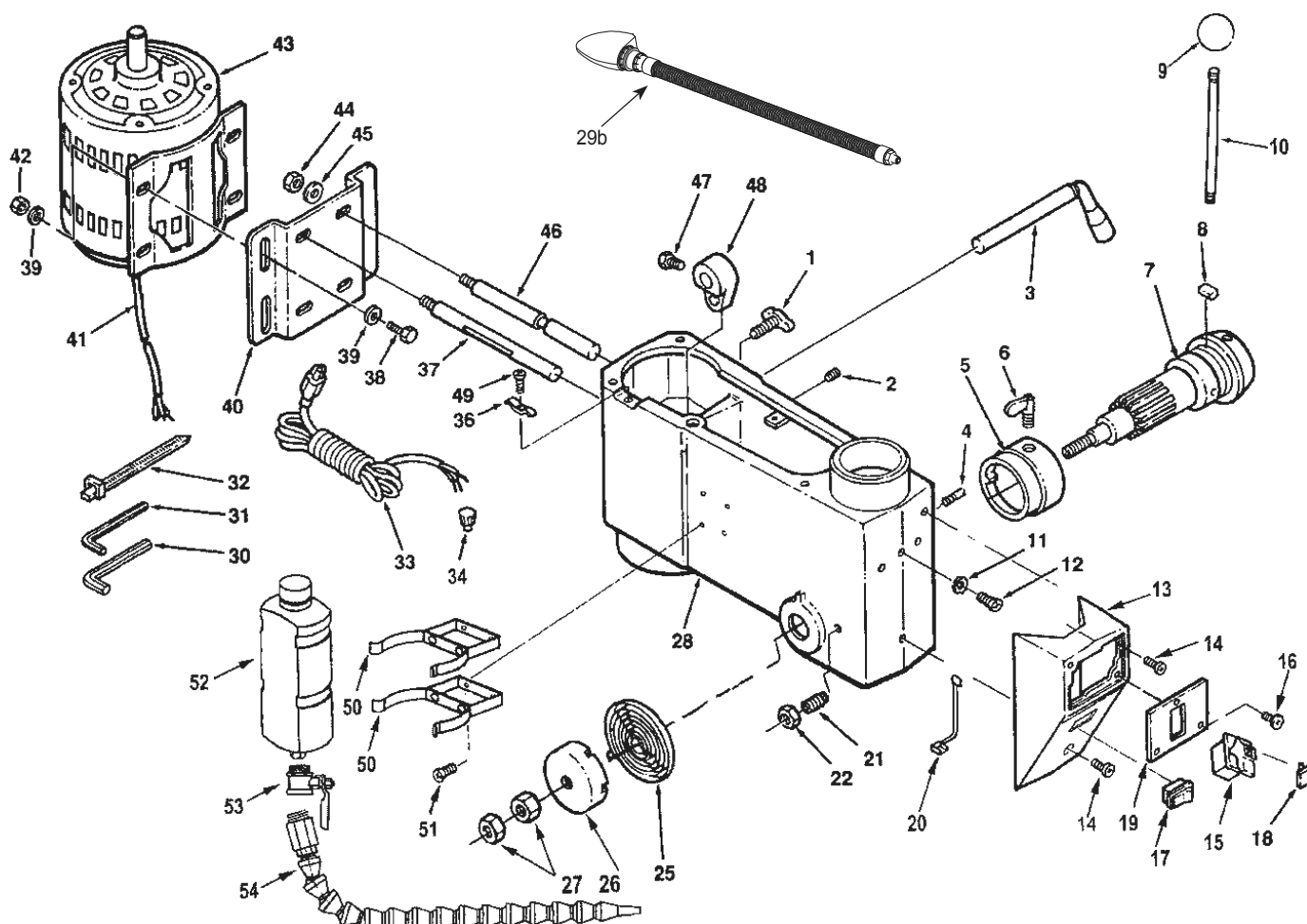


Follow all safety precautions whenever diagnosing or servicing the tool. Disconnect power supply before service.

Head Parts List and Diagram

Part	Description
1	Motor Adjusting Knob
2	Socket Set Screw
3	Belt Tension Handle
4	Stop Pin
5	Ring Depth Stop w/ Scale
6	Depth Screw Lock
7	Hub
8	Guide Scale
9	Feed Handle Knob
10	Feed Handle Rod
11	Lock Washer, Ext M5
12	Pan Head Screw, M5x0.8-8
13	Switch Box
14	Pan Head Screw, M5x0.8-16
15	Locking Switch
16	Pan Head Screw, M4.2x1.4-9.5
17	Rocker Switch
18	Switch Key
19	Switch Plate Cover
20	Lead Assembly, 3"
21	Screw, SL Special, 10x1.5-27
22	Nut, M10x1.5
25	Torsion Spring
26	Spring Cap
27	Nut, M12x1.5-8
28	Head w/ Pointer and Trim

Part	Description
29b	Lamp
30	Hex Key, L, M5
31	Hex Key, L, M3
32	Wire Tie
33	Power Cord w/ Plug
34	Wire Connector
36	Cord Clamp
37	Support Motor Bracket
38	Bolt, M8x1.25-20
39	Washer, 8x16x1.6
40	Motor Mount
41	Motor Cord
42	Nut, M8x1.25
43	Motor
44	Nut, M12x1.75
45	Lock Washer, 1/2
46	Motor Bracket Support
47	Screw, M8x1.25-16
48	Adjusting Lever
49	Pan Head Screw, M5x0.8-12
50	Oiler Bracket
51	Screw, 5mm x 8mm
52	Oil Bottle
53	Spigot Assembly
54	Tubing



SAFETY

SETUP

OPERATION

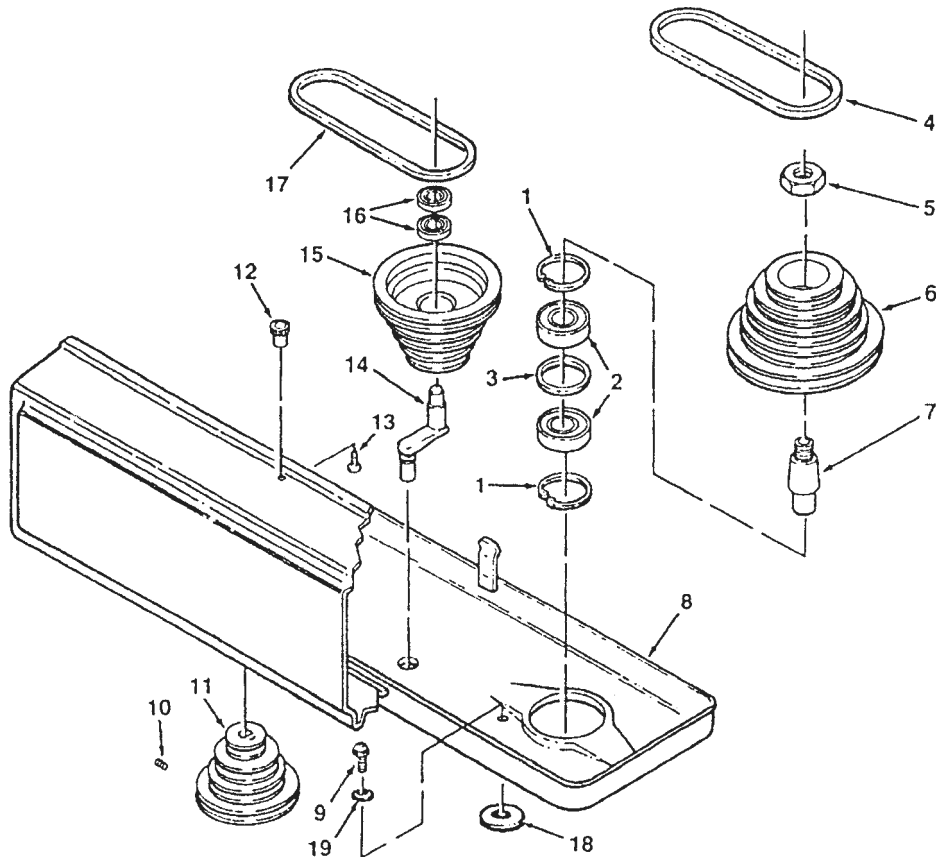
MAINTENANCE

Parts List and Diagram A - Pulley Guard

Note: All part numbers shown in this diagram have an "A" prefix.

Part	Description
A1	Retaining Ring
A2	Ball Bearing, 25mm
A3	Bearing Spacer
A4	V-Belt, 1/2 x 29
A5	Pulley Nut
A6	Spindle Pulley
A7	Pulley Insert
A8	Pulley Guard
A9	Roundhead Washer Screw, M6x1.0-12
A10	Set Screw, M10x1.5-12

Part	Description
A11	Motor Pulley
A12	Knob
A13	Panhead Screw, M5x0.8-12
A14	Idler Pivot
A15	Center Pulley
A16	Ball Bearing, 15mm
A17	V-Belt, 1/2x27
A18	Foam Washer
A19	Lockwasher, Ext., M6



PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS LIST AND ASSEMBLY DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER OR DISTRIBUTOR MAKES ANY REPRESENTATION OR WARRANTY OF ANY KIND TO THE BUYER THAT HE OR SHE IS QUALIFIED TO MAKE ANY REPAIRS TO THE PRODUCT, OR THAT HE OR SHE IS QUALIFIED TO REPLACE ANY PARTS OF THE PRODUCT. IN FACT, THE MANUFACTURER AND/OR DISTRIBUTOR EXPRESSLY STATES THAT ALL REPAIRS AND PARTS REPLACEMENTS SHOULD BE UNDERTAKEN BY CERTIFIED AND LICENSED TECHNICIANS, AND NOT BY THE BUYER. THE BUYER ASSUMES ALL RISK AND LIABILITY ARISING OUT OF HIS OR HER REPAIRS TO THE ORIGINAL PRODUCT OR REPLACEMENT PARTS THERETO, OR ARISING OUT OF HIS OR HER INSTALLATION OF REPLACEMENT PARTS THERETO.

Record Product's Serial Number Here: _____

Note: If product has no serial number, record month and year of purchase instead.

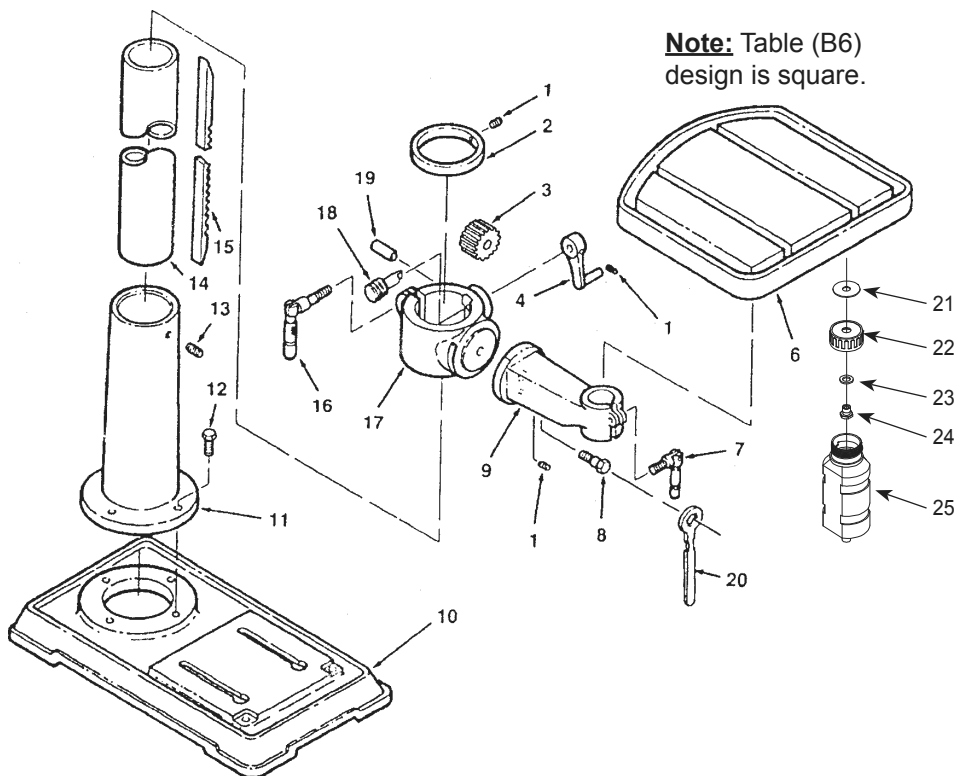
Note: Some parts are listed and shown for illustration purposes only, and are not available individually as replacement parts. Specify UPC 792363433891 when ordering parts.

Parts List and Diagram B - Arm and Column

Note: All part numbers shown in this diagram have a "B" prefix.

Part	Description
B1	Set Screw, M6x1.0-10
B2	Column Collar
B3	Helical Gear
B4	Table Crank
B6	Table
B7	Table Clamp
B8	Machine Screw, M16x2.0-35
B9	Table Arm w/ Scale
B10	Base
B11	Support Column
B12	Machine Screw, M10x1.5-40
B13	Set Screw, M10x1.5-12

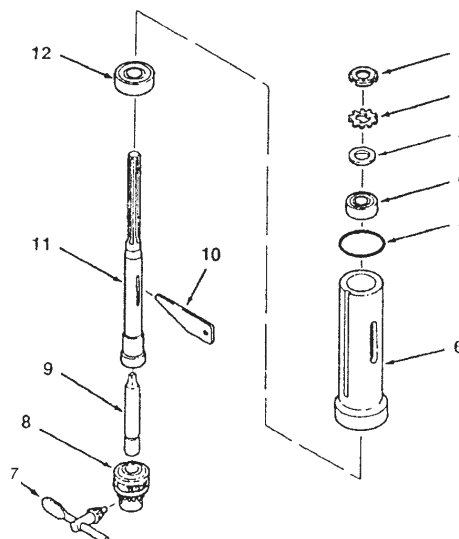
Part	Description
B14	Column Tube
B15	Rack
B16	Column Clamp
B17	Table Support w/ Indicator
B18	Elevation Worm
B19	Pin Gear
B20	Wrench, 24mm
B21	Sealing Gasket (B)
B22	Oil Bottle Top
B23	Sealing Gasket (A)
B24	Hollow Connecting Bolt
B25	Oil Bottle



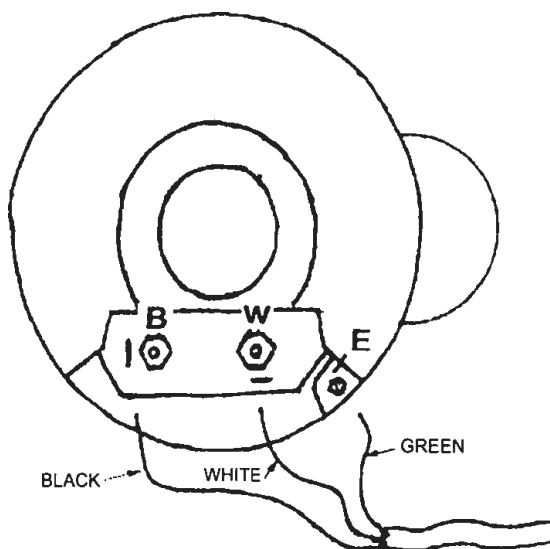
Parts List and Diagram C - Chuck and Arbor

Note: All part numbers shown in this diagram have a "C" prefix.

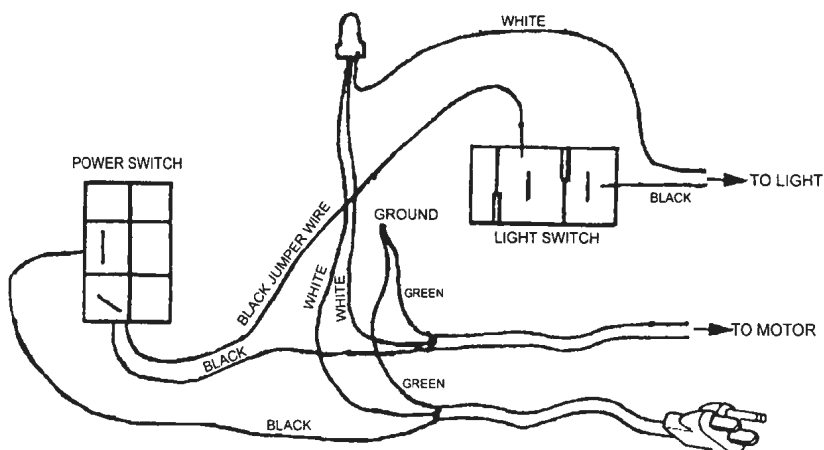
Part	Description
C1	Lock Nut
C2	Locking Ring
C3	Washer
C4	Ball Bearing, 17mm
C5	Rubber Washer
C6	Quill Tube
C7	Chuck Key
C8	Chuck
C9	Arbor
C10	Drift Key
C11	Spindle
C12	Ball Bearing, 25mm



Motor Wiring Diagram



Power and Light Switch Wiring Diagram



Limited 90 Day Warranty

Harbor Freight Tools Co. makes every effort to assure that its products meet high quality and durability standards, and warrants to the original purchaser that this product is free from defects in materials and workmanship for the period of 90 days from the date of purchase. This warranty does not apply to damage due directly or indirectly, to misuse, abuse, negligence or accidents, repairs or alterations outside our facilities, criminal activity, improper installation, normal wear and tear, or to lack of maintenance. 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 product. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation of exclusion may not apply to you. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS.

To take advantage of this warranty, the product or part must be returned to us with transportation charges prepaid. Proof of purchase date and an explanation of the complaint must accompany the merchandise. If our inspection verifies the defect, we will either repair or replace the product at our election or we may elect to refund the purchase price if we cannot readily and quickly provide you with a replacement. We will return repaired products at our expense, but if we determine there is no defect, or that the defect resulted from causes not within the scope of our warranty, then you must bear the cost of returning the product.

This warranty gives you specific legal rights and you may also have other rights which vary from state to state.



26677 Agoura Road • Calabasas, CA 91302 • 1-888-866-5797