

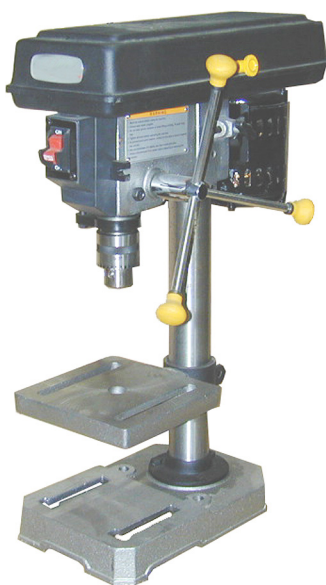
CENTRAL MACHINERY

®

8 INCH DRILL PRESS

MODEL 44506

ASSEMBLY AND OPERATING INSTRUCTIONS



Distributed Exclusively by

**HARBOR FREIGHT
TOOLS**

®

3491 Mission Oaks Blvd., Camarillo, CA 93011

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For technical questions and replacement parts, please call 1-800-444-3353.

Specifications

ITEM	DESCRIPTION
Motor	120 VAC, 60 Hz, 1/3 HP, 1750 RPM; 3.6 amps (with load)
Spindle Speeds	620, 1100, 1720, 2340, and 3100 RPM.
Spindle Stroke	2 inch
Column	1.89 (diameter) x 15-1/4 (H) inches
Base Dimensions	11-1/8 x 7 inches; Slot: 9/16 inch
Overall Dimensions	23 (H) x 15-5/8 (D) x 7-1/2 (W) inches
Throat Depth	4 inches (of 8 inch swing)
Chuck Capacity	Up to 1/2 inch
Table Slot	5/8 inches
Table Rotation	360°; Tilt: 45° (left and right)
Table Size	6-5/8 x 6-3/8 inches
Weight	40 lbs.



Save This Manual

You will need the manual for the safety warnings and precautions, assembly instructions, operating and maintenance procedures, parts list and diagram. Keep your invoice with this manual. Write the invoice number on the inside of the front cover. Keep the manual and invoice in a safe and dry place for future reference.

Safety Warnings and Precautions

WARNING: When using tool, basic safety precautions should always be followed to reduce the risk of personal injury and damage to equipment.

Read all instructions before using this tool!

1. **Keep work area clean.** Cluttered areas invite injuries.
2. **Observe work area conditions.** Do not use machines or power tools in damp or wet locations. Don't expose to rain. Keep work area well lighted. Do not use electrically powered tools in the presence of flammable gases or liquids.
3. **Keep children away.** Children must never be allowed in the work area. Do not let them handle machines, tools, or extension cords.
4. **Store idle equipment.** When not in use, tools must be stored in a dry location to inhibit rust. Always lock up tools and keep out of reach of children.
5. **Do not force tool.** It will do the job better and more safely at the rate for which it was intended. Do not use inappropriate attachments in an attempt to exceed the tool capacity.

6. **Use the right tool for the job.** Do not attempt to force a small tool or attachment to do the work of a larger industrial tool. There are certain applications for which this tool was designed. Do not modify this tool and do not use this tool for a purpose for which it was not intended.
7. **Dress properly.** Do not wear loose clothing or jewelry as they can be caught in moving parts. Protective, electrically nonconductive clothes and nonskid footwear are recommended when working. Wear restrictive hair covering to contain long hair.
8. **Use eye and ear protection.** Always wear ANSI approved impact safety goggles. Wear a full face shield if you are producing metal filings or wood chips. Wear an ANSI approved dust mask or respirator when working around metal, wood, and chemical dusts and mists.
9. **Do not overreach.** Keep proper footing and balance at all times. Do not reach over or across running machines.
10. **Maintain tools with care.** Keep tools sharp and clean for better and safer performance. Follow instructions for lubricating and changing accessories. Inspect tool cords periodically and, if damaged, have them repaired by an authorized technician. The handles must be kept clean, dry, and free from oil and grease at all times.
11. **Disconnect power.** Unplug when not in use.
12. **Remove adjusting keys and wrenches.** Check that keys and adjusting wrenches are removed from the tool or machine work surface before plugging it in.
13. **Avoid unintentional starting.** Be sure the switch is in the Off position when not in use and before plugging in.
14. **Stay alert.** Watch what you are doing, use common sense. Do not operate any tool when you are tired.
15. **Take caution as some woods contain preservatives such as copper chromium arsenate (CCA) which can be toxic.** When cutting these materials extra care should be taken to avoid inhalation and minimize skin contact.
16. **Check for damaged parts.** Before using any tool, any part that appears damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment and binding of moving parts; any broken parts or mounting fixtures; and any other condition that may affect proper operation. Any part that is damaged should be properly repaired or replaced by a qualified technician. Do not use the tool if any switch does not turn On and Off properly.
17. **Guard against electric shock.** Prevent body contact with grounded surfaces such as pipes, radiators, ranges, and refrigerator enclosures.
18. **Replacement parts and accessories.** When servicing, use only identical replacement parts. Use of any other parts will void the warranty. Only use accessories intended for use with this tool. Approved accessories are available from Harbor Freight Tools.

19. **Do not operate tool if under the influence of alcohol or drugs.** Read warning labels on prescriptions to determine if your judgment or reflexes are impaired while taking drugs. If there is any doubt, do not operate the tool.
20. **Use proper size and type extension cord.** If an extension cord is required, it must be of the proper size and type to supply the correct current to the tool without heating up. Otherwise, the extension cord could melt and catch fire, or cause electrical damage to the tool. This tool requires use of an extension cord of **0 to 12 amps** capability (up to 50 feet), with wire size rated at **16 AWG**. Longer extension cords require larger size wire (smaller AWG number). If you are using the tool outdoors, use an extension cord rated for outdoor use (signified by “WA” on the jacket).
21. **Secure Workpiece.** Use clamps or a vise to hold workpiece, if possible. Never hold workpiece with your hands.
22. **Never leave Drill Press running unattended.** Turn the power OFF.
23. **Maintenance.** For your safety, service and maintenance should be performed regularly by a qualified technician.

Note: Performance of this tool may vary depending on variations in local line voltage. Extension cord usage may also affect tool performance.

Warning: The warnings, cautions, 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.

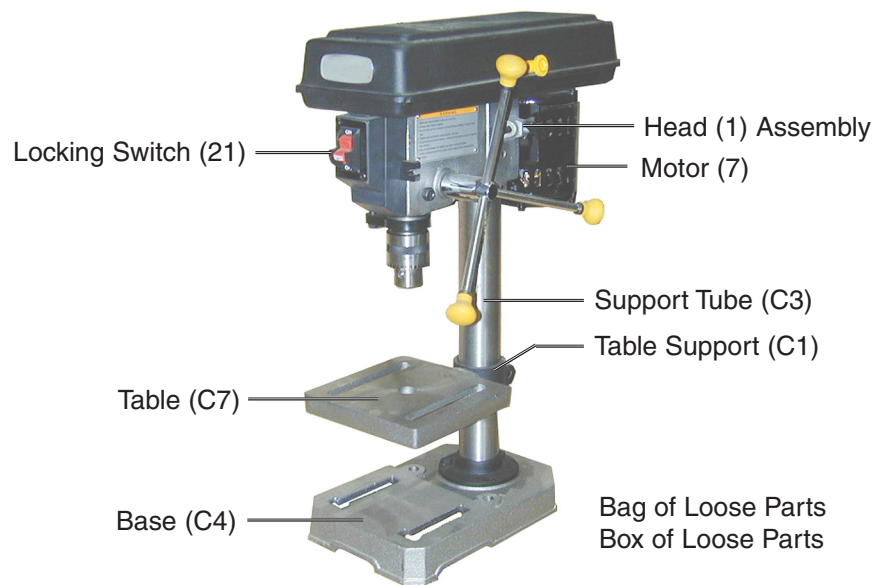
Drill Press Safety Warnings and Precautions

1. Secure the Drill Press Base to a table using Bolts (not supplied). The table must be appropriate for use with a drill press and be located on a hard, flat, level surface.
2. Locate the Drill Press in an area where you walk around it unhampered.
3. Avoid kickback and grabbing by clamping the workpiece to the table, or use a vise that is secured to the table. If the workpiece begins to spin, do not attempt to stop it with your hands. Turn the motor OFF, and wait until it stops spinning before attempting to remove it.
4. Avoid being caught and pulled into the spinning chuck. Do not wear gloves, long sleeve shirts, ties, or jewelry. Long hair must be bundled behind the head.
5. Never place hands and arms near the workpiece to avoid the possibility of the workpiece coming loose and striking you.
6. Before drilling, turn on the motor and check for bit wobble or machine vibration. If this is found, correct the problem before drilling.
7. Set the proper spindle speed for the specific drilling operation.
8. When finished with the Drill Press, always press the Switch to the OFF position.

9. Do not mount (or adjust) the workpiece on the Drill Press Table while the motor is running.
10. When drilling or cutting large holes, use the slower speeds and securely fasten the workpiece to the table using a mounted vise.
11. Do not use drill bits that extend more than six inches from the Chuck.
12. Do not use circle cutters, rotary planers, wire wheels, router bits, or shaper cutters on this Drill Press.

Unpacking

When unpacking, check to make sure the following parts are included. Refer to the Parts Lists and Assembly Drawings located at the end of this manual.



If any parts are missing or broken, please call Harbor Freight Tools at the number on the cover of this manual as soon as possible.

Assembly

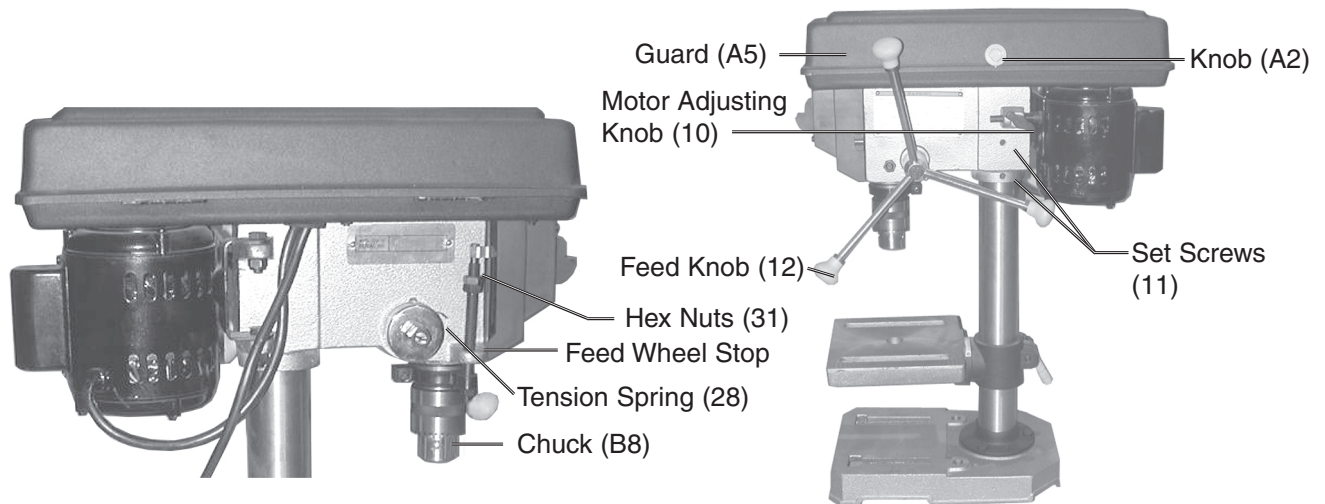
Assembly hardware is located in one box and one bag. Each contains the necessary parts for each assembly step. Remove all packing and protective material from the Drill Press components.

1. Position the **Base (C4)** on a level and sturdy table for mounting. It is recommended to bolt the Base to the table using appropriate hardware (not supplied).
2. Place the **Support Tube (C3)** on the Base, aligning the mounting holes.
3. Insert three large Hex Screws (C5) into the mounting holes and tighten with a wrench.

4. Install the **Table Support (C1)**, with attached Table (C7), over the Support Tube (C3) and slide it down. Hand Tighten the Lock Handle Support (C2).

CAUTION: Avoid injuries. The next step involves lifting the Head Assembly onto the Support Tube. The Head Assembly is heavy. Have someone help you lift this assembly into place.

5. Using two people, lift the **Head (1) Assembly** up and onto the Support Tube (C3). Slide it down on the Column Tube as far as it will go. Align it so that it faces straight forward, inline with the Base.
6. Screw in two Set Screws (11), into the side of the Head (1) and tighten with the Allen wrench.



7. Attach Knob (A2) to the (top) pulley Guard (A5) using Pan Head Screw (A3).
8. Adjust **Belt (A4) tension** or change speeds.
 - Open the pulley Guard (A5) to expose the Belt.
 - Turn the Motor Adjusting Knob (10) counterclockwise to loosen Belt Tension.
 - If necessary, move the Belt up or down on the pulleys to change the drill speed.
 - Push the Motor backward, tightening the Belt on the pulleys, and hold in place.
 - Turn the Motor Adjusting Knob clockwise to tighten the Belt in place.
 - Refer to the chart inside the Guard lid to select speed and belt locations.

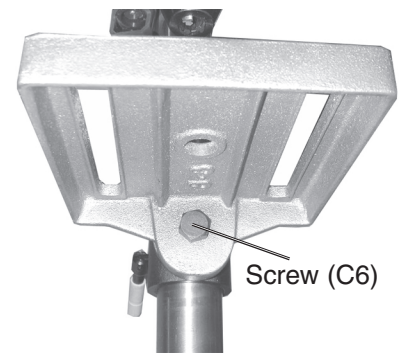
Note: To test the proper belt tension, push in on the center of each belt at its center. It should move only 1/2 inch (in or out).

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

9. Locate the **Feed Knobs (12)** and **Rods (13)** and screw onto the Pinion Shaft (14).
10. Install the **Chuck (B8)**.
 - Thoroughly clean the tapered hole in the Chuck and the Spindle Shaft (B7) of all dirt, grease, oil, and protective coatings (paint thinner may be necessary).

- Slide the Chuck onto the Spindle Shaft.
- Turn the Chuck sleeve clockwise and open the jaws completely.
- Tap the nose of the Chuck lightly with a piece of wood and a hammer to securely set the Chuck.

11. Verify that the Table (C7) is square (90 degrees) to the Head Assembly and drill bit.
 - 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 Screw (C6) with a wrench.
 - Rotate the Table until it is square to the bit.
 - Retighten the Screw (C6).



Operation

Warning: Avoid personal injuries. Before operating this machine, review all Safety Warnings and Precautions listed on pages 2 through 5.

1. Make sure the Drill Press is OFF and the Power Cord (33) is unplugged. Loosen the Lock Handle Support (C2) and adjust the Table height to accommodate the workpiece being drilled. Retighten Lock Support Handle.
2. Open the Chuck (B8) and insert the drill bit in the center. Tighten with the Chuck Key.
3. Secure the workpiece (and backup material) to the Table using a vise and/or clamp.
The workpiece sits on the backup material which is typically a scrap piece of wood used to stabilize the workpiece. It also helps the drill make a cleaner hole. To keep it from spinning, have it touching the left side of the Column.
4. Bring the drill bit down with the Feed Knob (12) to where the hole is to be drilled.
Make minor workpiece alignment adjustments.
5. Plug the Power Cord (33) into an electrical outlet.
6. Insert the Switch Key (24) into the Locking Switch (21).

Warning: Wear an ANSI approved, full face shield while drilling any type of material.

7. Push the Switch up to turn the Motor ON.
8. Pull down on the Feed Knob and slowly drill the hole into the workpiece.

Warning: If the drill bit grabs and spins the workpiece, do not attempt to stop the spinning with your hands. Step back, and push the Switch down to the OFF position. Wait for the spindle to stop turning before dislodging the workpiece.

9. When the drilling is complete, press the Switch to the OFF position and remove the Switch Key (Keep the Switch Key in a safe place).

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Setting the Depth Scale to Drill to a Specified Depth

During this procedure, refer to the left photo on page 6.

1. Make sure the Drill Press is OFF and Power Cord (33) is unplugged. Secure the workpiece to the Table.
2. Mark the desired hole depth on the side of the workpiece.
Also view the depth indicator Pointer (32) shown on page 9.
3. Loosen the Hex Nuts (31) and screw both toward the top of Stop Rod (B12).
4. Turn the Feed Wheel counterclockwise to bring the tip of the drill bit down, next to the hole depth mark.
5. Turn the Hex Nuts (31) down until they touch the Feed Wheel stop.
7. Turn the Drill Press ON and turn the Feed Handle counterclockwise until it drills the hole and stops at the set depth.
8. Turn the Drill Press OFF.

Tilting the Table

1. Loosen Screw (C6) under the Table assembly with a wrench.
2. Rotate the Table to the desired angle.
The scale can be used to approximate the angle.
3. Retighten the Screw.

Maintenance

Warning: Before performing any maintenance to this machine, remove the line cord from the electrical outlet.

Removing the Chuck and Spindle Shaft

During this procedure, refer to the Chuck and Spindle Assembly Drawing.

1. Pull the Feed Wheel counterclockwise and hold the Chuck at a depth of three inches.
2. Align the key holes in the Spindle Shaft (B7) and the Quill Tube (B3) by turning the Chuck by hand.
3. Insert a Wedge Drift Key (not supplied) into the key holes.
4. Lightly tap the Wedge Drift Key with a rubber mallet until the Spindle Shaft falls out of the Quill Tube.

Place a bundled cloth or basket below the Chuck to catch it when it falls.

Installing the Chuck and Spindle Shaft

1. Using a clean cloth, wipe the tapered surfaces on the Spindle Shaft (B7).

- Slide the Spindle Shaft and Chuck assembly up and into the Quill Tube (B3).
At the same time, turn the assembly until the rectangular end of the Spindle Shaft slips into the notch on the Quill Tube.

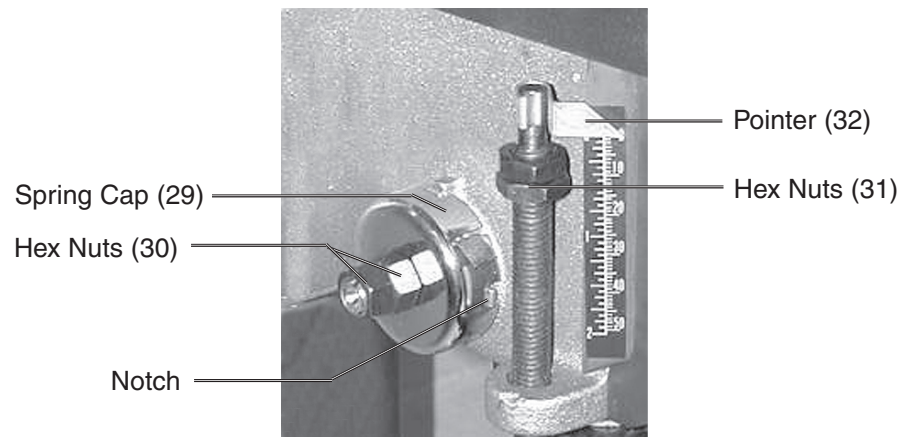
Warning: In the previous step, if the Spindle Shaft is not properly set in the Quill Tube notch, it may fly out during operation.

- Loosen the Lock Handle Support (C2) and raise the Table (C7) about three inches below the Chuck.
- Turn the Chuck sleeve clockwise to open the jaws completely.
- Pull the Feed Knob counterclockwise and force the Chuck against the Table until the Spindle Shaft is secure.

Adjusting the Feed Wheel Return Tension Spring

Caution: Wear a full face shield during this procedure.

- Move the Chuck to its uppermost position.
- Loosen Hex Nuts (31) and move both to the lowermost position.
This will keep the Chuck from falling during this adjustment.
- Insert a screwdriver in the lower-front notch of the Spring Cap (29).
Hold it in place and, using a wrench, remove the (outer) Hex Nut (30) only.
- With the screwdriver still in place, loosen the (inner) Hex Nut (30) until the Spring Cap notch disengages from the Spring Retainer (27) -- about 1/8 inch.



- Turn the screwdriver counterclockwise and engage the next Spring Cap notch.
Leave the screwdriver in place.
- Tighten the (inner) Hex Nut just enough to engage the notch.
If this Hex Nut is too tight, it will restrict (up and down) Chuck-Spindle movement.
- Loosen and screw the Hex Nuts (31) to the top of the Stop Rod (B12).

8. Pull the Feed Knob 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.
9. Replace the (outer) Hex Nut and tighten on top of the (inner) Hex Nut. Do not overtighten.
10. If the (up/down) movement is restricted, slightly loosen the (inner) Hex Nut, and retighten the (outer) Hex Nut.

General Maintenance

1. Using compressed air, blow clean the Table, Base, and Motor cooling vents of dirt and materials.
2. Apply paste wax to the Table and Column to enable movement and to help keep surfaces clean.
3. All bearings are factory lubricated and need no further attention.
4. Periodically, lubricate the Tube Column, Table, and Spindle upper teeth.
5. Monthly, check the tightness of all mounting screws and bolts in the Base, Column, and Head assemblies.
6. Check belt for wear and replace if frayed or damaged in any way.
7. Lubricate Spindle assembly with a light oil, weekly.
8. Store in a clean and dry location.

Troubleshooting

SYMPTOM	POSSIBLE CAUSE	SOLUTION
Drill bit burns or smokes	<ul style="list-style-type: none"> - Incorrect spindle speed - Dull drill bit - Drilling too slowly - Lacking lubrication 	<ul style="list-style-type: none"> - Change spindle speed - Replace with new bit - Drill faster - Lubricate cutting area
Makes unusual noise	<ul style="list-style-type: none"> - Belt tension set wrong - Spindle dry - Loose spindle pulley - Loose motor pulley 	<ul style="list-style-type: none"> - Adjust belt tension - Lubricate spindle - Check pulley nut - Tighten Set screws
Drill bit wobbles	<ul style="list-style-type: none"> - Bent bit - Worn Spindle Bearings - Drill bit not in Chuck correctly - Chuck not properly installed 	<ul style="list-style-type: none"> - Replace drill bit - Replace spindle bearings - Reinstall drill bit - Reinstall Chuck and Arbor assembly
Feed Wheel returns slowly, or too fast	<ul style="list-style-type: none"> - Tension Spring not in adjustment 	<ul style="list-style-type: none"> - Adjust Tension Spring. See page 9.
Drill bit binds	<ul style="list-style-type: none"> - Workpiece pinching drill bit - Dull drill bit - Feed pressure too hard - Belts loose 	<ul style="list-style-type: none"> - Reposition workpiece, lubricate drill - Replace drill bit - Pull Feed Handle slowly. - Adjust motor and spindle belt tension

Head Assembly Parts List

Item #	Description
1	Head w/ Roll Pin and Trim
2	Nut, Lock, M8x1.25-8
3	Washer, 5/16 x 11/16 x 1/16
4	Screw, Hex, M8x1.25-25
5	Pulley, Motor
6	Screw, Hex Soc. Set, M6x1.0-10
7	Motor
8	Stop, Motor
9	Spring, Motor Stop
10	Knob, Motor Adjusting
11	Screw, Hex Soc. Set, M8x1.25-8
12	Knob
13	Rod
14	Shaft, Pinion
15	Nut, Hex, M8x1.25
16	Screw, Flt. Sit. Set, M8x1.25
17	Lockwasher, Ext. 5mm

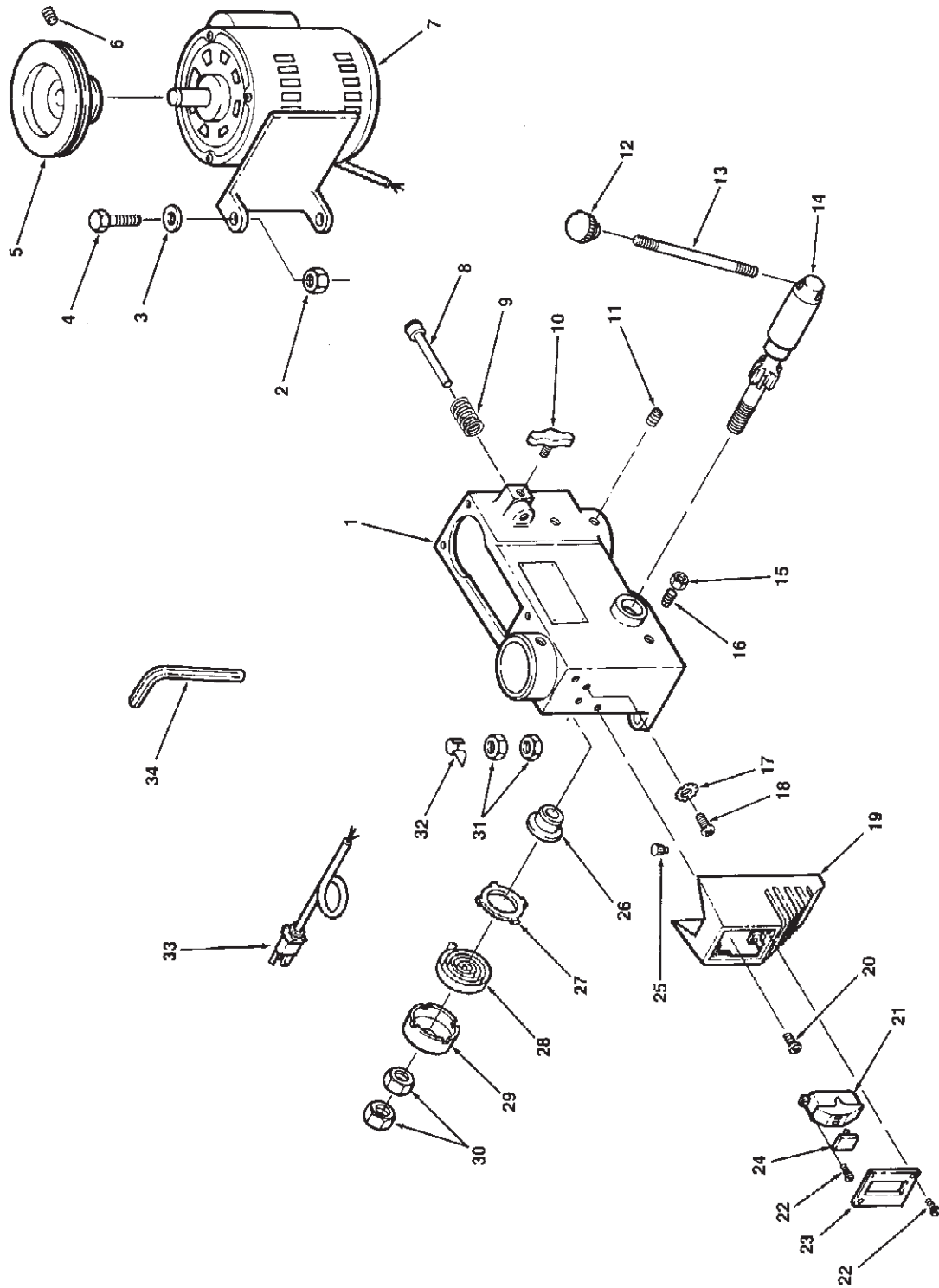
Item #	Description
18	Screw, Pan Hd. M5x0.8-8
19	Box, Switch w/ Depth Scale
20	Screw, Pan Cr., M5x0.8-12
21	Switch, Locking
22	Screw, Self Tap. Pan Hd. M4x16-8
23	Cover, Switch Plate
24	Key, Switch
25	Connector, Wire
26	Seat, Spring
27	Retainer, Spring
28	Spring, Tension
29	Cap, Spring
30	Nut, Hex, 3/8-24
31	Nut, Hex, M10x1.5
32	Pointer
33	Cord, Power
34	Wrench, Hex "L", 4 mm

NOTE: Some parts are listed in these Part Lists are shown for illustration purposes only and are not available individually as replacement parts.

PLEASE READ THE FOLLOWING CAREFULLY

THE MANUFACTURER AND/OR DISTRIBUTOR HAS PROVIDED THE PARTS DIAGRAM IN THIS MANUAL AS A REFERENCE TOOL ONLY. NEITHER THE MANUFACTURER NOR 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.

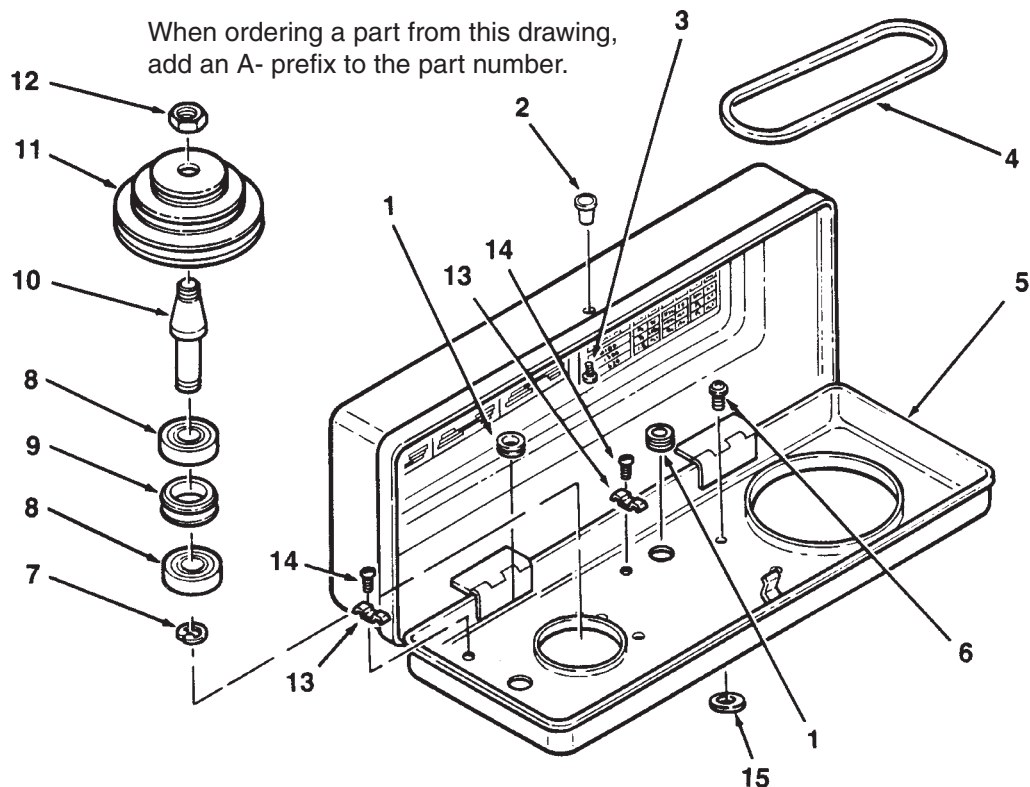
Head Assembly Drawing



Pulley and Spindle Assembly Parts List

Item #	Description
A1	Bushing, Rubber
A2	Knob
A3	Screw, Pan Hd., M5x0.8-12
A4	Belt, V5, 5/16x26
A5	Guard with Labels
A6	Screw-washer Hd., M6x10-16
A7	Ring, Retaining
A8	Bearing, Ball, 17 mm
A9	Spacer
A10	Insert, Pulley
A11	Pulley, Spindle
A12	Nut, Pulley
A13	Clamp, Cord
A14	Screw, Pan Hd., M5x0.8-16
A15	Washer, Foam

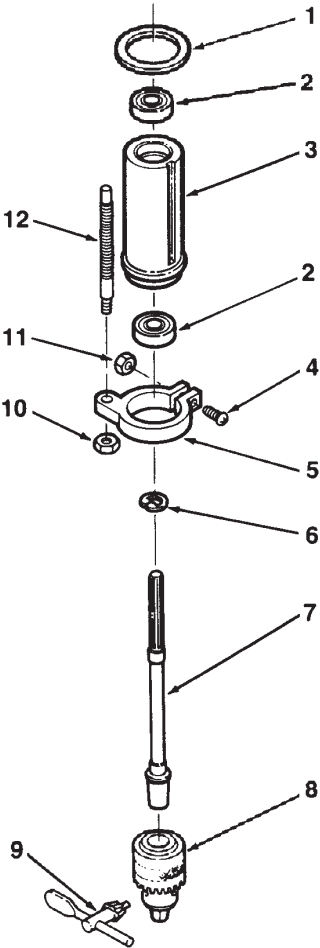
Pulley and Spindle Assembly Drawing



Chuck and Spindle Shaft Parts List

Item #	Description
B1	Gasket, Quill
B2	Bearing, Ball, 12 mm
B3	Tube, Quill
B4	Screw, Pan, M5x0.8-20
B5	Collar, Stop
B6	Ring, Retaining
B7	Shaft, Spindle
B8	Chuck
B9	Chuck Key
B10	Nut, Hex, M6x1.0
B11	Nut, Hex, M5x0.8
B12	Stop, Rod

Chuck and Spindle Shaft Assembly Drawing

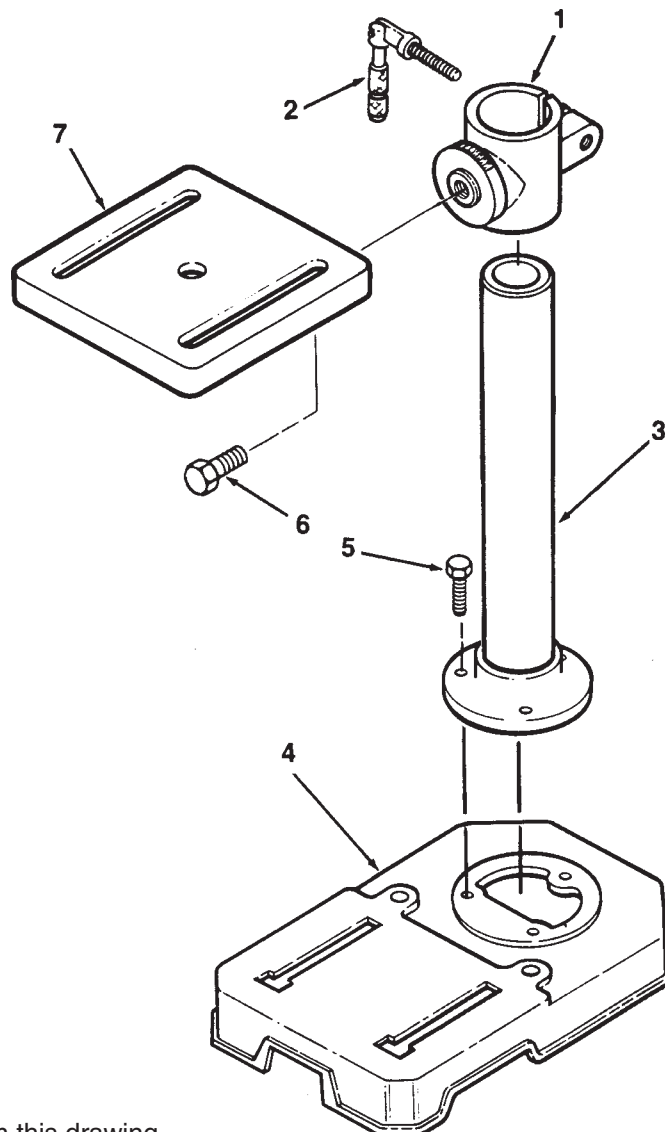


When ordering a part from this drawing, add a B- prefix to the part number.

Base and Table Assembly Parts List

Item #	Description
C1	Support, Table with Scale
C2	Support, Lock Handle
C3	Tube, Support
C4	Base
C5	Screw, Hex Hd., M8x1.25-20
C6	Screw, Hex Hd., 1/2-12x7/8
C7	Table

Base and Table Assembly Drawing



When ordering a part from this drawing,
add a C- prefix to the part number.