



PALMGREN®

20" FLOOR MODEL DRILL PRESS



Read carefully and follow all safety rules and operating instructions before first use of this product.





GETTING STARTED

STRUCTURAL REQUIREMENTS

Make sure all supporting structures and load attaching devices are strong enough to hold your intended loads. If in doubt, consult a qualified structural engineer.

ELECTRICAL REQUIREMENTS

Refer to Specifications on page 3 for the tools electrical requirements. The standard allowable voltage variation is plus or minus 10%.

TOOLS NEEDED:

Standard mechanic's hand tool set.

DESCRIPTION

Palmgren 20" Floor Model Drill Press features a heavy cast iron base, column collar, work table and head. Work table height is adjustable using rack and pinion. Table can be tilted 45° both right and left, and rotates 360° on a vertical axis. Work table surface is precision ground which features T-slots for secure, accurate mounting of workpiece and a coolant trough. Other features of the Palmgren drill press are an enclosed ball bearing quill assembly, quick belt change and tension mechanism, positive quick-adjust feed depth stop and a 1½ HP, 1725 RPM motor. A chuck and chuck arbor are included.

Palmgren drill presses are ideal for use in home shops, maintenance shops and light industrial applications. Spindle speeds are adjustable for drilling steel, cast iron, aluminum, wood and plastic.

UNPACKING

Refer to Figure 1.

WARNING: Be careful not to touch overhead power lines, piping, lighting, etc., if lifting equipment is used. Drill press weighs up to 300 lbs. Proper tools, equipment and qualified personnel should be employed in all phases of unpacking and installation.

Carton should be handled with care to avoid damage from dropping, bumping, etc. Store and unpack carton with correct side up. After unpacking drill press, inspect carefully for any damage that may have occurred during transit. Check for loose, missing or damaged parts. If any damage or loss has occurred, claim must be filed with carrier immediately. Check for completeness. Immediately report missing parts to dealer.

Check for shipping damage. If damage has occurred, a claim must be filed with the carrier immediately. Check for completeness. Immediately report missing parts to dealer.

Locate and identify the following assemblies and loose parts:

- A Head assembly (1)
- B Table assembly with locking handle (1)
- C Feed handle assembly (feed handle, three handle caps, hub cover, pan head screw) (1)
- D Base with four hex head screws (4)
- E Chuck (1)
- F Chuck key (1)
- G Arbor (1)
- H Drift key (1)
- I Table adjusting handle (1)
- J Column assembly (1)
- * Hex wrench (3, 4, 5, 6mm) (4) (not shown)

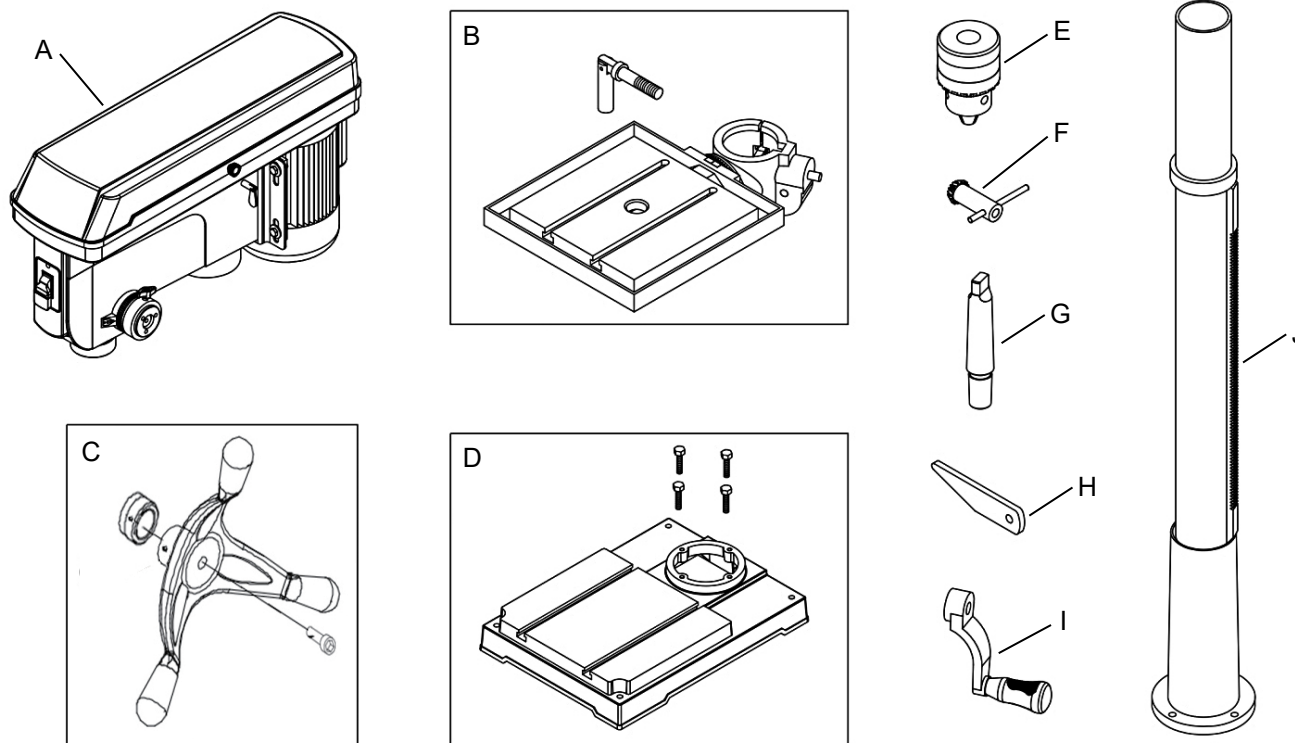


Figure 1 - Loose parts.



UNPACKING (CONTINUED)**UNPACK:**

Do not discard packing materials until after machine has been inspected for damage and completeness. Locate loose parts and set aside. Refer to Unpacking on page 1 for contents list.

INSPECT:

- After unpacking the unit, carefully inspect for any damage that may have occurred during transit. Check for loose, missing or damaged parts. Shipping damage claims must be filed with the carrier.
- All tools should be visually inspected before use, in addition to regular periodic maintenance inspections.
- Be sure that the voltage labeled on the unit matches your power supply.

SAFETY RULES

WARNING: For your own safety, read operating instructions manual before operating tool.

PROPOSITION 65 WARNING: Some dust created by using power tools contain chemicals known to the state of California to cause cancer, birth defects or other reproductive harm.

Some examples of these chemicals are:

- Lead from lead-based paints
- Crystalline silica from bricks and cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals; work in a well ventilated area and work with approved safety equipment. Always wear **OSHA/NIOSH** approved, properly fitting face mask or respirator when using such tools.

WARNING: Always follow proper operating procedures as defined in this manual even if you are familiar with the use of this or similar tools. Remember that being careless for even a fraction of a second can result in severe personal injury.

BE PREPARED FOR JOB

- Wear proper apparel. Do not wear loose clothing, gloves, neckties, rings, bracelets or other jewelry which may get caught in moving parts of machine.
- Wear protective hair covering to contain long hair.
- Wear safety shoes with non-slip soles.
- Wear safety glasses complying with United States ANSI Z87.1. Everyday glasses have only impact resistant lenses. They are **NOT** safety glasses.
- Wear face mask or dust mask if operation is dusty.
- Be alert and think clearly. Never operate power tools when tired, intoxicated or when taking medications that cause drowsiness.

PREPARE WORK AREA FOR JOB

- Keep work area clean. Cluttered work areas and work benches invite accidents.
- Do not use power tools in dangerous environments. Do not use power tools in damp or wet locations. Do not expose power tools to rain.
- Work area should be properly lighted.
- Proper electrical plug should be plugged directly into properly grounded, three-prong receptacle.

- Extension cords should have a grounding prong and the three wires of the extension cord should be of the correct gauge.
- Keep visitors at a safe distance from work area.
- Keep children out of the workplace. Make workshop childproof. Use padlocks, master switches or remove switch keys to prevent any unintentional use of power tools.

TOOL SHOULD BE MAINTAINED

- Always unplug tool prior to inspection.
- Consult manual for specific maintaining and adjusting procedures.
- Keep tool lubricated and clean for safest operation.
- Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before turning machine on.
- Keep all parts in working order. Check to determine that the guard or other parts will operate properly and perform their intended function.
- Check for damaged parts. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other condition that may affect a tool's operation.
- A guard or other part that is damaged should be properly repaired or replaced. Do not perform makeshift repairs. (Use the parts list to order replacement parts.)

KNOW HOW TO USE TOOL

- Use right tool for job. Do not force tool or attachment to do a job for which it was not designed.
- Disconnect tool from power when changing drill bit or cutter.
- Avoid accidental start-up. Make sure that the switch is in the OFF position before plugging in.
- Do not force tool. It will work most efficiently at the rate for which it was designed.
- Keep hands away from moving parts and grinding surfaces.
- Never leave a tool running unattended. Turn the power off and do not leave tool until it comes to a complete stop.
- Do not overreach. Keep proper footing and balance.
- Never stand on tool. Serious injury could occur if tool is tipped or if drill bit is unintentionally contacted.
- Know your tool. Learn the tool's operation, application and specific limitations.
- Use recommended accessories. Understand and obey all safety instructions supplied with accessories. The use of improper accessories may cause risk of injury to persons.
- Turn machine off if it jams. Drill bit jams when it digs too deeply into workpiece. (Motor force keeps it stuck in the work.)
- All work shall be secured using either clamps or a vise to the drill press table. It is unsafe to use your hands to hold any workpiece being drilled.
- Feed work into a bit or cutter against the direction of rotation of bit or cutter.
- Use recommended speed for drill accessory and workpiece material.
- Keep guards in place and in proper working order. Do not operate the machine with guards removed.
- Always be sure the machine is securely anchored to the floor or the workbench.
- Make certain table locks and head locks are tightened before starting machine.

CAUTION: Think safety! Safety is a combination of operator common sense and alertness at all times when tool is being used.



SPECIFICATIONS

Chuck size	5-20mm, JT3
Spindle taper	JT3/MT3
Spindle travel	120mm
Quill diameter	2.44"
Quill collar diameter	2.95"
Column diameter	3.62"
Speeds	12
RPM	240 – 2400
Swing	20"
Table size	475mm x 425mm
T-slots	3mm x 14mm
Base size	600mm x 400mm
Base working surface	13" x 16"
Drilling capacity (cast iron)	1 1/4"
Distance, spindle to table	4 3/4" – 25 1/4"
Distance, spindle to base	43 3/8"
Overall height	68"
Weight	265 lbs
Shipping weight	285 lbs
Motor	1 1/2 HP, 120V, 1725 RPM, 11 A, 60 Hz, 1 PH

ASSEMBLY

Refer to Figures 2 through 12.

WARNING: Do not attempt to operate tool until it is completely assembled according to the instructions.

1. Position the base on floor. Attach the column assembly to base using four M12x40 hex head screws (Figure 2).

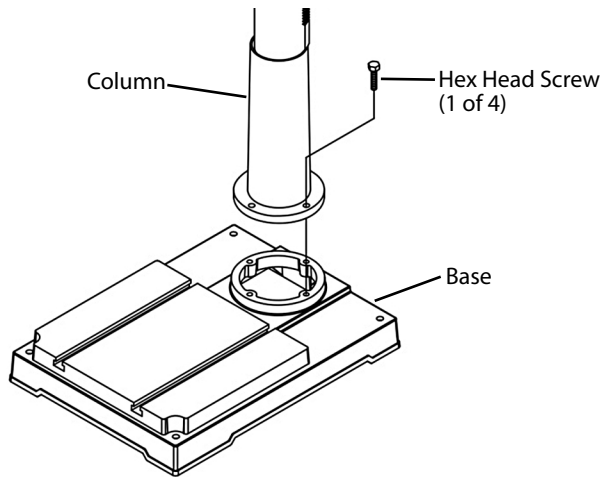


Figure 2 - Attach column assembly to base.

2. Loosen the set screw, remove column collar and gear rack from the column. Place rack inside table bracket; slide the table assembly with rack down together onto the column. Place the column collar down over the rack. Tighten the set screw with hex wrench to hold the rack in position (Figure 3).
3. Attach table adjusting handle to worm gear. Secure handle with set screw (Figure 4).
4. Attach the table locking handle (Figure 5).

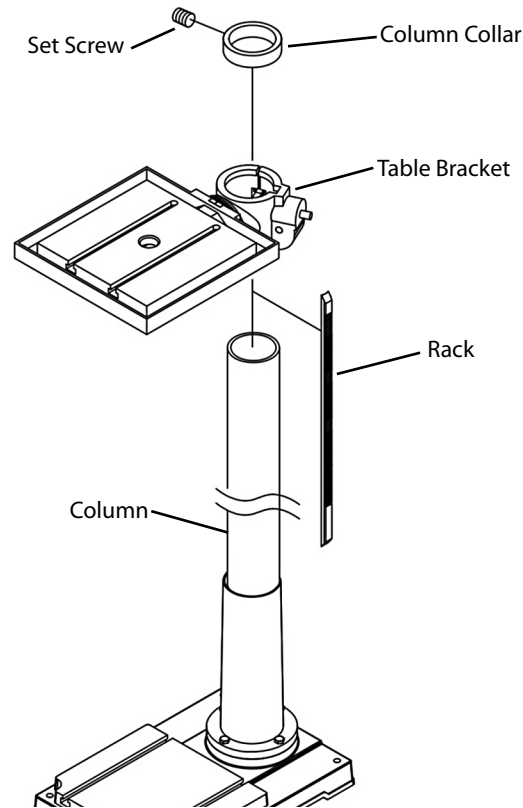


Figure 3 - Mount table assembly to column.

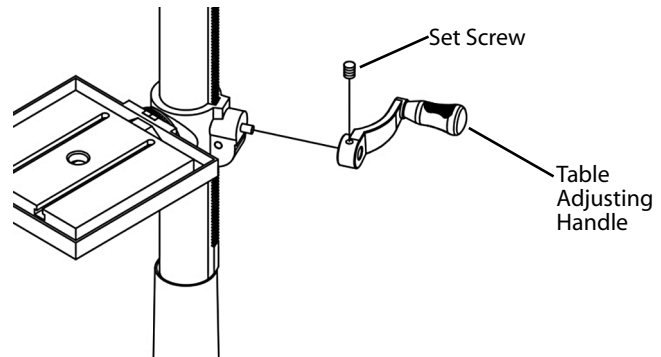


Figure 4 - Attach table adjusting handle to worm gear.

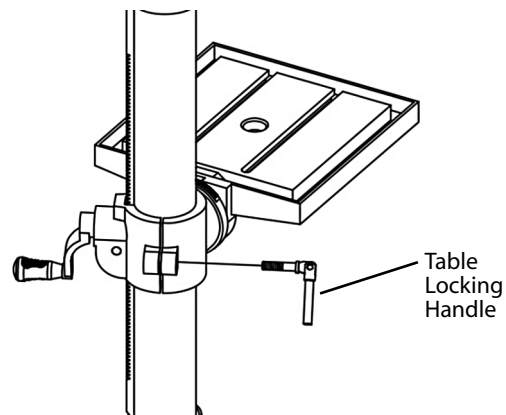
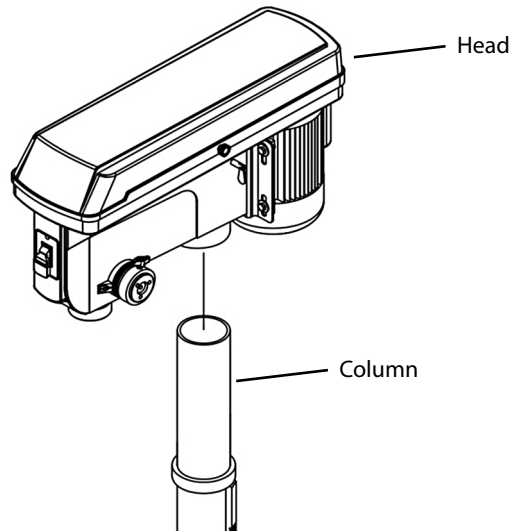
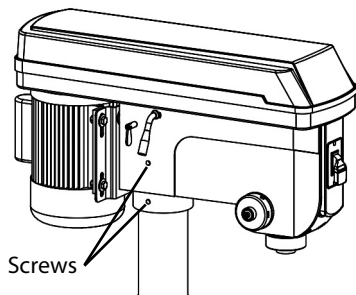


Figure 5 - Attach the table locking handle.

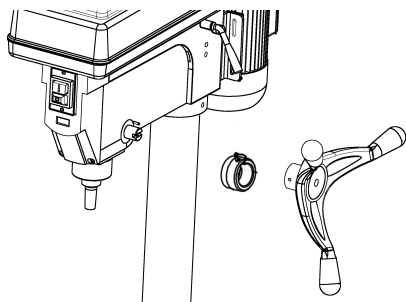
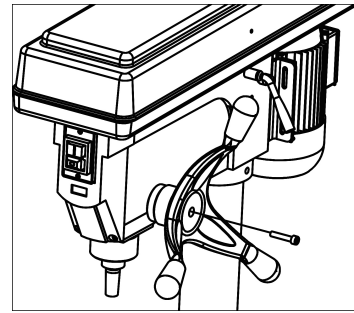


**ASSEMBLY (CONTINUED)**

5. Install head assembly (Figures 6 and 7).
 - a) Carefully lift the head above the column and slide it onto the column. Make sure the head slides down over the column as far as possible. Align the head with the base.
 - b) Using the hex wrench, tighten the set screws on the left side of head.

**Figure 6 - Position head onto column.****Figure 7 - Tighten screw on left side of head.**

6. Install feed handle (Figures 8, 9 and 10).
 - a) Insert the #42 depth stop ring to the handle.
 - b) Make the 2 roll pins (#44) on the handle just clip into the slot of the gear shaft.
 - c) Fixed the handle with a M8X40 pan screw to the gear shaft.

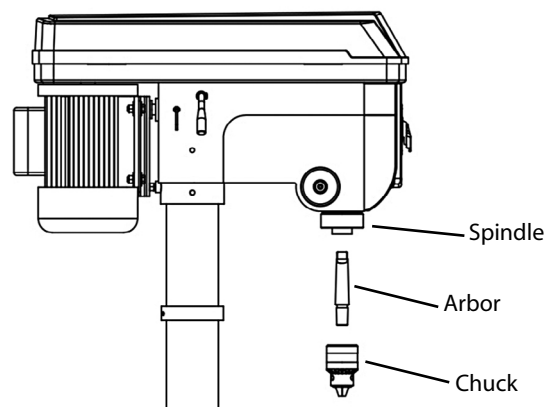
**Figure 8 - Position feed handle and attach.****Figure 9 - Position hub cover and attach.**

7. Install the chuck (Figures 11 and 12, pages 5 and 6).

WARNING: Before any assembly of the chuck and arbor to the drill press head, clean all mating surfaces with a non-petroleum based product; such as alcohol or lacquer thinner. Any oil or grease used in the packing of these parts must be removed; otherwise the chuck may come loose during operation.

- a) Push the arbor onto the spindle.
- b) Push the chuck onto the arbor.
- c) Using a wood mallet, firmly tap the chuck upward into position on the spindle shaft.

NOTE: Open chuck completely so you are not striking chuck jaws with the wooden mallet.

**Figure 11 - Position arbor and chuck.**

ASSEMBLY (CONTINUED)

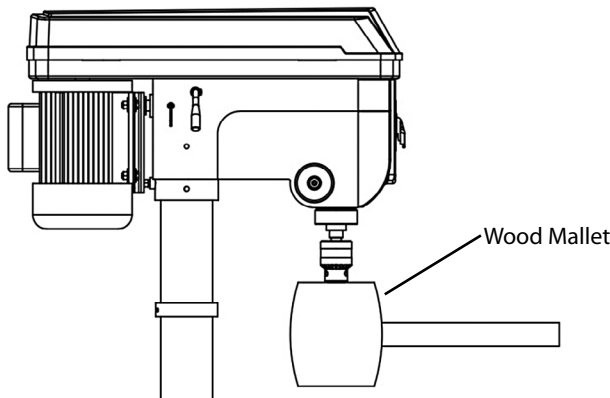


Figure 12 - Firmly tap chuck with wood mallet.

INSTALLATION

Refer to Figures 13 through 15.

POWER SOURCE

The motor is designed for operation on the voltage and frequency specified. Normal loads will be handled safely on voltages not more than 10% above or below the specified voltage.

Running the unit on voltages which are not within the range may cause overheating and motor burn-out. Heavy loads require that the voltage at motor terminals be no less than the voltage specified.

GROUNDING INSTRUCTIONS

WARNING: Improper connection of equipment grounding conductor can result in the risk of electrical shock. Equipment should be grounded while in use to protect operator from electrical shock.

Check with a qualified electrician if grounding instructions are not understood or if in doubt as to whether the tool is properly grounded.

This tool is equipped with an approved 3-conductor cord rated at 300V and a 3-prong grounding type plug (See Figure 13) for your protection against shock hazards.

Grounding plug should be plugged directly into a properly installed and grounded 3-prong grounding-type receptacle, as shown in Figure 13.

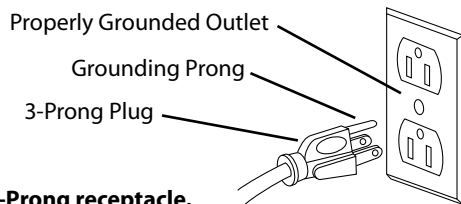


Figure 13 - 3-Prong receptacle.

Do not remove or alter grounding prong in any manner. In the event of a malfunction or breakdown, grounding provides a path of least resistance for electrical shock.

WARNING: Do not permit fingers to touch the terminals of plug when installing or removing from outlet.

Plug must be plugged into matching outlet that is properly installed and grounded in accordance with all local codes and ordinances. Do not modify plug provided. If it will not fit in outlet, have proper outlet installed by a qualified electrician.

Inspect tool cords periodically, and if damaged, have repaired by an authorized service facility.

Green (or green and yellow) conductor in cord is the grounding wire. If repair or replacement of the electric cord or plug is necessary, do not connect the green (or green and yellow) wire to a live terminal.

Where a 2-prong wall receptacle is encountered, it must be replaced with a properly grounded 3-prong receptacle installed in accordance with National Electric Code and local codes and ordinances.

WARNING: This work should be performed by a qualified electrician.

A temporary 3-prong to 2-prong grounding adapter (See Figure 14) is available for connecting plugs to a two pole outlet if it is properly grounded.

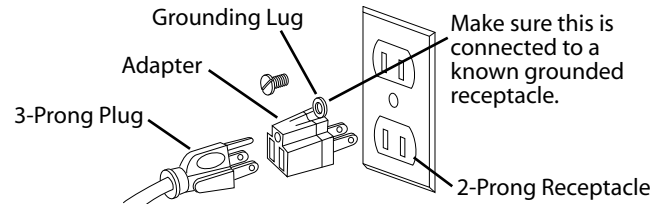


Figure 14 - 2-Prong receptacle with adapter.

Do not use a 3-prong to 2-prong grounding adapter unless permitted by local and national codes and ordinances.

(A 3-prong to 2-prong grounding adapter is not permitted in Canada.) Where permitted, the rigid green tab or terminal on the side of the adapter must be securely connected to a permanent electrical ground such as a properly grounded water pipe, a properly grounded outlet box or a properly grounded wire system.

Many cover plate screws, water pipes and outlet boxes are not properly grounded. To ensure proper ground, grounding means must be tested by a qualified electrician.

EXTENSION CORDS

- The use of any extension cord will cause some drop in voltage and loss of power.
- Wires of the extension cord must be of sufficient size to carry the current and maintain adequate voltage.
- Running the unit on voltages which are not within $\pm 10\%$ of the specified voltage may cause overheating and motor burn-out.
- Use the table to determine the minimum wire size (A.W.G.) extension cord.
- Use only 3-wire extension cords having 3-prong grounding type plugs and 3-pole receptacles which accept the tool plug.
- If the extension cord is worn, cut or damaged in any way, replace it immediately.

		Extension Cord Table				
		Volts	Total Length of Cord in Feet			
Ampere Rating		120	25	50	100	150
More Than	Not More Than	240	50	100	150	300
		Minimum Gage for Cord				
0	6		18	16	16	14
6	10		18	16	14	12
10	12		16	16	14	12
12	16		14	12	Not Recommended	

INSTALLATION (CONTINUED)**ELECTRICAL CONNECTIONS**

Refer to Figure 15.

WARNING: All electrical connections must be performed by a qualified electrician.

WARNING: Make sure tool is off and disconnected from power source while motor is mounted, connected, reconnected or any time wiring is inspected.

- The motor should be wired for 120 volts and clockwise rotation as viewed from shaft end of motor.
- A label on the motor describes the possible wiring configurations. There are many different possible combinations, so only the diagram provided with the motor should be used.
- The motor cord must be secured to protect the wiring connections from possible strain.
- The power supply to motor is controlled by a push button switch. Power lines are connected to the quick connect terminals of the switch.
- The green ground line must remain securely fastened to the motor ground terminal to provide proper grounding.

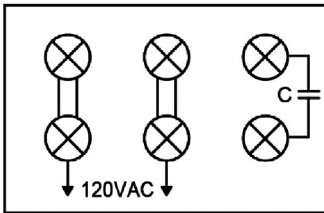


Figure 15 - Wiring Schematic for Motor

OPERATION

Refer to Figures 16 through 24.

STARTING AND STOPPING THE DRILL PRESS

Refer to Figure 24, page 12.

WARNING: Be sure drill bit is not in contact with workpiece when motor is started. Start motor and allow bit to come up to full speed before drilling.

1. The ON/OFF switch (Ref. No. 31) is located on the front of the head casting.
2. To turn the drill press on, push green ON button. Always allow drill bit to come up to speed before drilling.
3. To turn the drill press off, press the large red OFF paddle or lift the paddle and press directly on the red OFF button. Do not leave drill press until the bit has come to a complete stop.

TABLE ADJUSTMENT

1. Height adjustment (Figure 16).
 - Loosen the table bracket locking handle then adjust table to the desired position by turning the table adjusting handle.
2. Tilt adjustment (Figures 17 and 18).
 - Loosen the hex bolt. Rotate the table to desired angle left or right. Tighten the hex bolt to secure table tilt.
3. Swing 360° (Figures 16 and 19).
 - Loosen table bracket locking handle then swing table to appropriate position and retighten the locking handle.

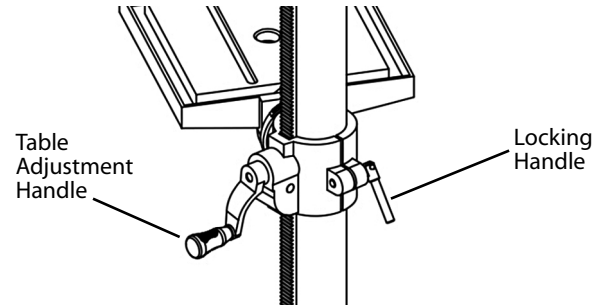


Figure 16 - Height adjustment.

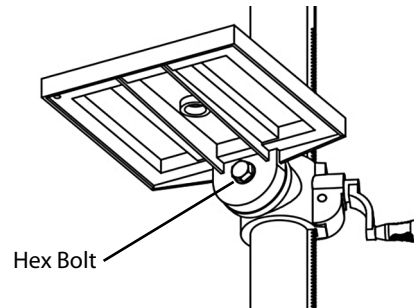


Figure 17 - Tilt adjustment hex bolt.

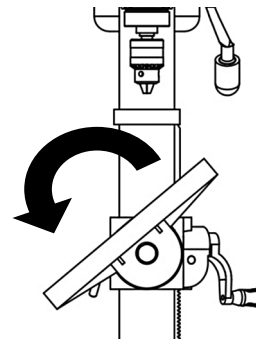


Figure 18 - Rotate table to desired angle.

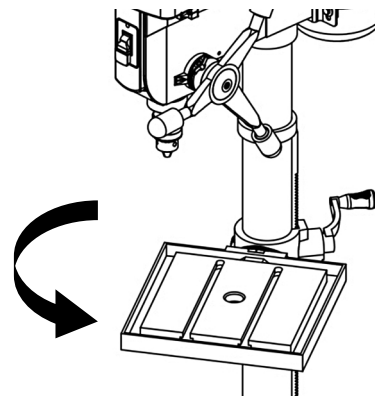


Figure 19 - Swing table to desired position.

OPERATION (CONTINUED)

FEED DEPTH ADJUSTMENT

- Turn the depth scale ring to the desired depth, lock the scale ring in place with the depth knob (Figure 20).
- The drill bit will stop after traveling the distance selected on the depth scale.

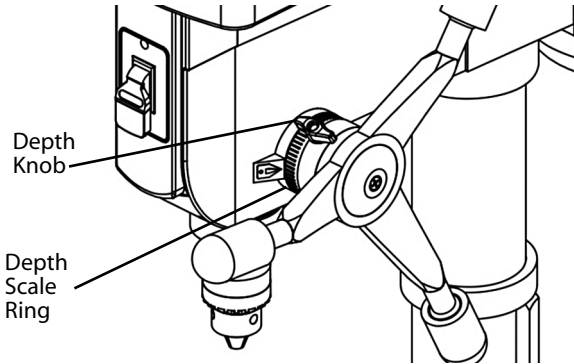


Figure 20 - Feed depth adjustment.

SPEED ADJUSTMENT

Refer to Figure 21, Spindle Speed, and Recommended Speed Based on Material and Drill Bit Size.

WARNING: Be sure drill press is turned off and is disconnected from power source before adjusting speeds.

This drill press has 12 speeds. The speed can be changed by changing the belt locations on the pulleys as shown.

1. Open the belt cover.
2. Loosen the wing screw and the nut on the motor support plate.
3. Turn the belt tension adjusting handle to loosen belt tension.
4. Change the belt location as shown in Spindle Speed.
5. Check belt for proper tension and make any final adjustment. A belt is properly tensioned when light pressure applied to midpoint of the belt produces about 1/2" deflection.

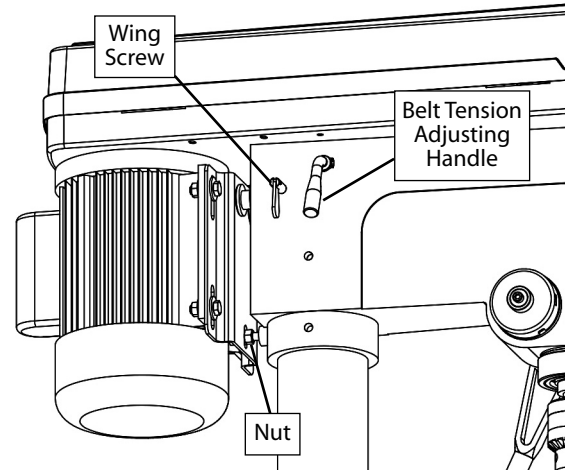


Figure 21 - Speed adjustment.

SPINDLE SPEEDS IN R.P.M.

240	360	420	480
580	650	1050	1110
1400	1500	1870	2400

RECOMMENDED SPEED BASED ON MATERIAL AND DRILL BIT SIZE

RECOMMENDED SPEED FOR DRILL SIZE & MATERIAL

SPEED RANGE (R.P.M.)	WOOD		ZINC DIECAST		ALUM & BRASS		PLASTIC		CAST IRON & BRONZE		STEEL MILD & MALLEABLE		STEEL CAST & MED CARBON		STEEL STAINLESS & TOOL	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
2400	3/8	9.5	1/4	6.4	7/32	5.6	3/16	4.8	1/8	3.2	3/32	2.4	1/16	1.6	3/64	1.2
1400-1870	5/8	16.0	3/8	9.5	11/32	8.75	5/16	7.9	1/4	6.4	5/32	4.0	1/8	3.2	1/16	1.6
1050-1110	7/8	22.0	1/2	12.5	15/32	12.0	7/16	11.0	11/32	8.75	1/4	6.4	3/16	4.8	1/8	3.2
580-650	1-1/4	31.75	3/4	19.0	11/16	17.5	5/8	16.0	1/2	12.5	3/8	9.5	5/16	7.9	1/4	6.4
420-480	1-5/8	41.4	7/8	22.0	3/4	19.0	13/16	20.5	5/8	16.0	1/2	12.5	7/16	11.0	3/8	9.5
240-360	2	50.8	1	25.4	-	-	-	-	-	-	-	-	9/16	14.5	1/2	12.5

OPERATION (CONTINUED)**QUILL SPRING ADJUSTMENT**

Refer to Figure 22.

The quill return spring may need adjustment if the tension causes the quill to return too rapidly or too slowly.

1. Loosen the screw and nut, make sure that the spring housing remains engaged with head casting.
2. While firmly holding the spring housing, pull out the housing and rotate it (counter-clockwise to increase or clockwise to decrease the spring tension) until the set screw is engaged with the next notch on the housing.
3. Turn the nut until it contacts the spring housing, then tighten the screw against the nut to hold the housing in place.

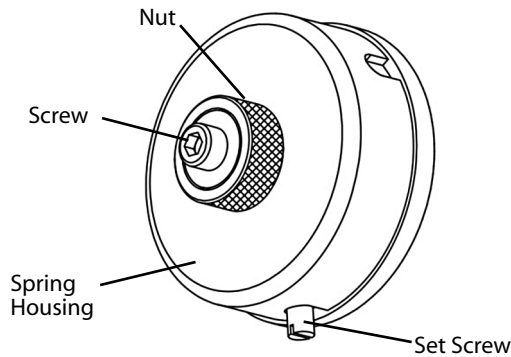


Figure 22 - Spring quill adjustment.

INSTALLING DRILL BIT

Refer to Figure 23.

For key type drill chuck.

- With the switch "OFF", open the chuck jaws using the chuck key. Turn the chuck key counterclockwise to open the chuck jaws.
- Insert the drill bit into the chuck far enough to obtain maximum gripping by the jaws, but not far enough to touch the spiral grooves (flutes) of the drill bit when the jaws are tightened.
- Make sure that the drill is centered in the chuck.
- Turn the chuck key clockwise to tighten the jaws.

WARNING: To avoid injury or accident by the chuck key ejecting forcibly from the chuck when the power is turned ON, always recheck and remove the chuck key before turning the power on.

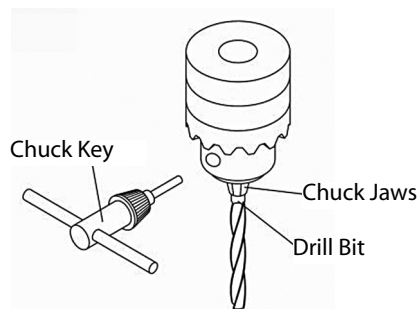


Figure 23 - Installing drill bit.

POSITIONING WORKPIECE

WARNING: To prevent the workpiece or back-up material from being torn from your hands while drilling, you must position it against the LEFT side of the column. Failure to do this could result in personal injury.

USING VISE

For small workpiece that cannot be clamped to the table, use a drill press vise. The vise must be clamped or bolted to the table.

WARNING: The drill press vise must be clamped or bolted to the table to avoid injury from a spinning workpiece, or damaged vise or bit parts.

REMOVING THE CHUCK

Refer to Figure 24, page 12.

1. Rotate feed handle (Ref. No. 97) until slot is exposed in the side of the quill (Ref. No. 20). Lock quill in position.
2. Rotate spindle until inner slot is aligned with outer slot. You will see through spindle when slots are properly aligned.
3. Insert the drift key (Ref. No. 90) into the slots and tap lightly with hammer. The arbor and chuck will drop from spindle.

MAINTENANCE

WARNING: Turn switch OFF and remove plug from outlet before maintaining or lubricating your drill press.

- Replace worn drive belt when needed.

LUBRICATION

Refer to Figure 24, page 12.

The ball bearings are lubricated at the factory and need no further lubrication. Using 20 wt. non detergent oil, periodically lubricate the splines (grooves) in the spindle and the rack (teeth on the quill) as follows:

1. Lower quill assembly (Ref. No. 20–25) all the way down.
2. Apply lubricant around the inside of the hole in the spindle pulley (Ref. No. 73) .
3. Apply lubricant to rack (teeth) on quill (Ref. No. 20) while extended below drill press head.
4. Apply lubricant to rack and pinion gear (Ref. Nos. 5 and 13) on column and table assembly.
5. Frequently blow out any dust that may accumulate inside the motor. If the power cord is worn, cut, or damaged in any way, have it replaced immediately. For motor lubrication, follow instructions on motor plate.

**TROUBLESHOOTING**

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Noisy operation	<ol style="list-style-type: none"> 1. Incorrect belt tension 2. Dry spindle 3. Loose spindle 4. Loose motor pulley 	<ol style="list-style-type: none"> 1. Adjust tension 2. Lubricate spindle (See Lubrication) 3. Tighten pulley nut 4. Tighten set screw in pulley
Bit burns or smokes	<ol style="list-style-type: none"> 1. Incorrect belt speed 2. Chips not coming out of hole 3. Dull bit 4. Feeding too slow 5. Bit not lubricated 6. Bit running backwards 	<ol style="list-style-type: none"> 1. Change speed 2. Retract bit frequently to clear chips 3. Sharpen or replace bit 4. Feed faster; enough to allow drill to cut 5. Lubricate bit 6. Check motor rotation to be sure it is clockwise facing shaft end
Excessive drill runout or wobble	<ol style="list-style-type: none"> 1. Bent bit 2. Bit not properly installed in chuck 3. Chuck not properly installed 4. Worn spindle bearings 	<ol style="list-style-type: none"> 1. Replace bit 2. Install bit properly 3. Install chuck properly 4. Replace bearings
Drill bit binds in workpiece	<ol style="list-style-type: none"> 1. Workpiece pinching bit or excessive feed pressure 2. Improper belt tension 3. Workpiece not supported or clamped properly 	<ol style="list-style-type: none"> 1. Support or clamp work, decrease feed pressure 2. Adjust tension 3. Support or clamp workpiece securely
Spindle does not turn	<ol style="list-style-type: none"> 1. No power to drill press 2. Defective switch 3. Defective motor 	<ol style="list-style-type: none"> 1. Check wiring, fuse or circuit breaker 2. Replace switch 3. Replace motor
Noisy spindle	Defective bearings	Replace bearings



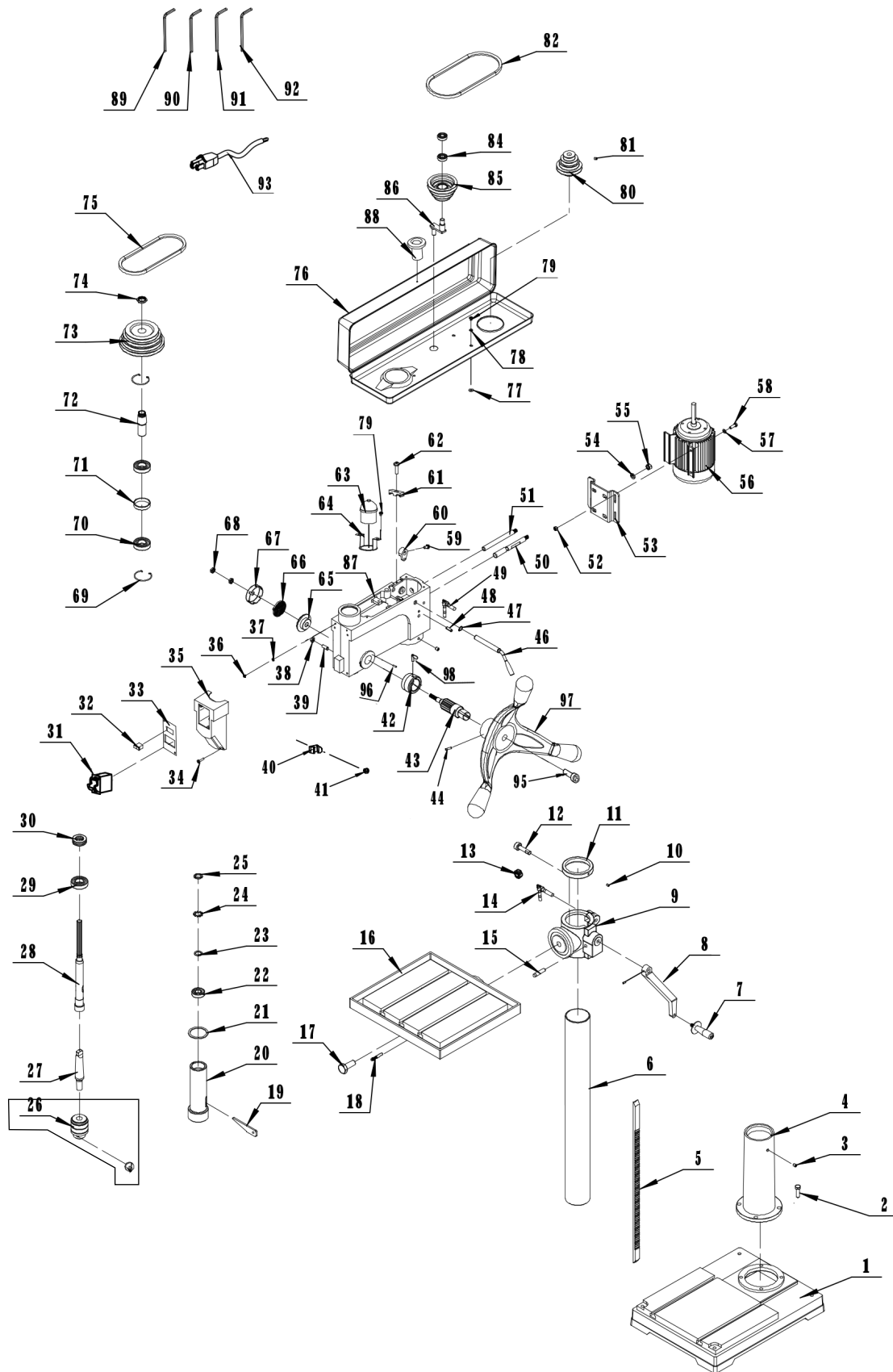


Figure 24 - Parts illustration for 20" Floor Model Drill Press.

**REPLACEMENT PARTS LIST FOR 20" FLOOR MODEL DRILL PRESS**

Ref. No.	Description	Part No.	Qty.	Ref. No.	Description	Part No.	Qty.
1	Base	964957001	1	49	Motor Adjust Knob	964960201	2
2	Hex.Hd Screw M12x40	*	4	50	Motor Support (R)	964960301	1
3	Hex.Soc Screw M10x12	*	2	51	Motor Support (L)	964960401	1
4	Support Column	964957101	1	52	Nut-Hex M8	*	4
5	Rack	964957201	1	53	Motor Mount Plate	964960501	1
6	Column Tube	964957301	1	54	Lock Washer M12	*	2
7	Handgrip	964957401	1	55	Nut-Hex M12	*	2
8	Crank	964957501	1	56	Motor	964960601	1
9	Table Support	964957601	1	57	Washer M8	*	8
10	Hex.Soc Screw M6x10	*	2	58	Hex.Hd Screw M8x25	*	4
11	Collar-Rack	964957701	1	59	Hex.Hd Screw M8x16	*	1
12	Worm Gear	964957801	1	60	Adjusting Lever	964960701	1
13	Pinion Gear	964957901	1	61	Cord Clamp	964960801	1
14	Table Clamp	964958001	1	62	Screw Pan GB818-85	*	1
15	Gear Pin	964958101	1	63	Socket Bulb	964960901	1
16	Table	964958201	1	64	Bracket Bulb Socket	964961001	1
17	Hex.Hd Screw M20x50	*	1	65	Seat Spring	964961101	1
18	Alignment Pin	964958301	1	66	Spring Tension	964961201	1
19	Drift Key	964958401	1	67	Retainer Spring	964961301	1
20	Quill	964958501	1	68	Nut-Hex GB6172-86	*	2
21	Gasket	964958601	1	69	Ring Retaining	964961401	2
22	Ball Bearing 80204	*	1	70	Bearing Ball GB276-89	*	2
23	Washer	964958701	1	71	Spacer	964961501	1
24	Locking Ring	964958801	1	72	Pulley Insert	964961601	1
25	Lock Nut	964958901	1	73	Pulley Spindle	964961701	1
26	Chuck And Key 5-20mm/JT3	964959001	1	74	Left-Nut	964961801	1
27	Arbor MT3/JT3	964959101	1	75	V-Belt,A33	964961901	1
28	Spindle Shaft	964959201	1	76	Guard	964962001	1
29	Ball Bearing 80206	*	1	77	Circle-Rubber	964962101	4
30	Thrust Bearing 8706	*	1	78	Washer GB97.2-85	*	4
31	Switch	961608000	1	79	Screw,Pan M6x8	*	6
32	Switch Rocker	964959301	1	80	Motor Pulley	964962201	1
33	Switch Plate	964959401	1	81	Hex.Hd Screw M8x12	*	1
34	Screw Pan M5x16	*	4	82	V-Belt, A29	964962301	1
35	Switch Box	964959501	1	84	Ball Bearing 60202	*	2
36	Screw,Pan Hd. M5x6	*	2	85	Transmitting Pulley	964962401	1
37	Star Washer M5	*	2	86	Transmitting Axle	964962501	1
38	Nut-Hex M10	*	1	87	Head	N/A	1
39	Socket Set Screw	964959601	1	88	Knob	964962601	1
40	Nip-Key	964959701	1	89	Wrench Hex M3	*	1
41	Screw Pan Hd.M5x10	*	1	90	Wrench Hex M4	*	1
42	Depth Stop Ring	964959801	1	91	Wrench Hex M5	*	1
43	Pinion Shaft	964959901	1	92	Wrench Hex M6	*	1
44	Roll Pin M6x16	*	2	93	Cord And Plug	9624962701	1
45	Handle	964960001	1	95	Screw Pan M8x40	*	1
46	Belt Tension Handle	964960101	1	96	Stop Pin	*	1
47	Retaining Ring M115	*	1	97	Feed Handle	964962801	1
48	Roll Pin M6x25	*	2	98	Set-depth Locking Screw	964962901	1
					Owner's Manual	964963101	1

(*) Standard hardware item, available locally. (+) Individual part not available. Sold as assembly only.
(N/A) Not available as replacement part. (Δ) Not shown.





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C.H. Hanson / Palmgren warrants their products to be free of defects in material or workmanship. This warranty does not cover defects due directly or indirectly to misuse, abuse, normal wear and tear, failure to properly maintain the product, heated, ground or otherwise altered, or used for a purpose other than that for which it was intended.

The warranty does not cover expendable and/or wear part (i.e. v-belts, screws, abrasives, jaws), damage to tools arising from alteration, abuse or use other than their intended purpose, packing and freight. The duration of this warranty is expressly limited to the terms noted below beginning from the date of delivery to the original user.

The Palmgren branded items carry the following warranties on parts:

All arbor presses, vises, clamps, positioning tables, tombstones, jack screws and vise accessories - LIFETIME.

All bench grinders, drill presses, tapping machines, band saws, lathes, milling machines, abrasive finishing machines and work stands - 3 YEARS.

The obligation of C.H. Hanson / Palmgren is limited solely to the repair or replacement, at our option, at its factory or authorized repair agent of any part that should prove inoperable. Purchaser must lubricate and maintain the product under normal operating conditions at all times. Prior to operation become familiar with product and the included materials, i.e. warnings, cautions and manuals.

Failure to follow these instructions will void the warranty.

This warranty is the purchaser's exclusive remedy against C.H. Hanson for any inoperable parts in its product. Under no circumstances is C.H. Hanson liable for any direct, indirect, incidental, special or consequential damages including loss of profits in any way related to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

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