PALMGREN

9683110

20in Vertical Wood/Metal Band Saw

Unpacking

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

The band saw comes assembled as one unit.

IMPORTANT: Table is coated with a protectant. To ensure proper fit and operation, remove coating. Coating is easily removed with mild solvents, such as mineral spirits, and a soft cloth. Avoid getting solution on paint or any of the rubber or plastic parts. Solvents may deteriorate these finishes. Use soap and water on paint, plastic or rubber components. After cleaning, cover all exposed surfaces with a light coating of oil. Paste wax is recommended for table top.

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 which comply 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 cutting 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 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 outlet should be available for tool. Three-prong 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 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 the habit of checking to see that adjusting tools are removed before switching 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, breakage, mounting and any other condition that may affect a tool's operation.
- Damaged parts should be properly repaired or replaced. Do not perform makeshift repairs. (Use the parts list provided to order replacement parts.)

KNOW HOW TO USE TOOL

- Use the right tool for the job. Do not force tool or attachment to do a job for which it was not designed.
- Disconnect tool when changing blade.
- Avoid accidental start-up. Make sure that the tool is in 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 cutting 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 cutter is unintentionally contacted.
- Know your tool. Learn its operation, application and specific limitations.
- Use recommended accessories (Refer to page 13). Use of improper accessories may cause risk of injury to persons.
- Handle workpiece correctly. Protect hands from possible injury.
- Turn the machine off if it jams. Blade jams when it digs too deeply into the workpiece. (The motor force keeps it stuck in workpiece). Do not remove jammed or cut off pieces until the saw is turned off, unplugged and the blade has stopped.

WARNING: The operation of any power tool can result in foreign objects being thrown into the eyes, which can result in severe eye damage. Always wear safety goggles complying with United States ANSI Z87.1 before commencing power tool operation.

SPECIFICATIONS

Model	9683110
Description	20" wood/metal band saw
Throat	20"
Max workpiece height	13.5"
Table size	21.5" x 23.5"
Table tilt	0° L - 45° R
Wheel diameter	21.25"
Blade length	162"
Blade width	1/4" - 1"
Blade speeds	Low speeds (metal): 100, 185, 290 FPM High speeds (wood): 1500, 2800, 4350 FPM
Overall dimensions	38" x 25" x 78"
Weight	660 lbs
Dust collection port	3.75" and 4"
Phase	1~
HP	2.5 HP
Motor RPM	1720 RPM
Voltage	230V
Amps	14A
Crate size	41" x 32" x 85"
Shipping weight	740 lbs

Assembly

Install or replace blade

The machine arrives with a blade already installed, but to cut wood or metal, the proper blade type must be installed. To install a new blade, follow these instructions.

1. Open both the top and bottom cabinets

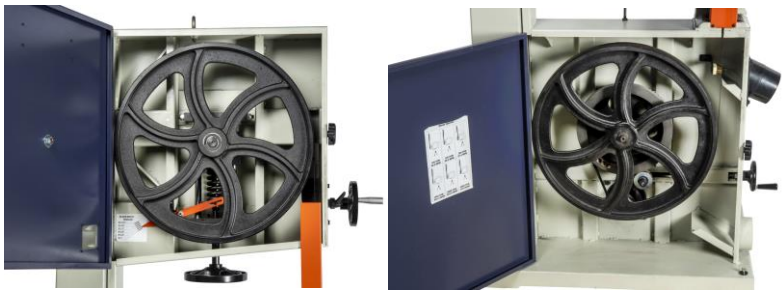


Figure 1, Open cabinets, top(left) and bottom (right)

2. Remove the orange upper and lower guards, two screws on the side of the top guard; and two screws on the front of the bottom guard. And remove the pin, found in the slot on the side of the table.

Figure 2: Blade guide screws

3. Loosen both top and bottom blade guides, if necessary. And loosen the blade tension, using the handwheel.

Figure 3: Blade tension

4. Using work gloves, remove the current blade from around the blade wheels, and feed the blade through the provided gaps in the table and frame.
5. Place a new blade around the wheels and through the provided gaps, making sure the teeth face downward.
6. Replace removed pins, guards, blade guides, and screws.
7. Tighten the blade tensioner wheel, and close cabinet doors.
8. If switching from wood to metal, or vice-versa, make sure to change the speed selector found on the gear box behind the machine.

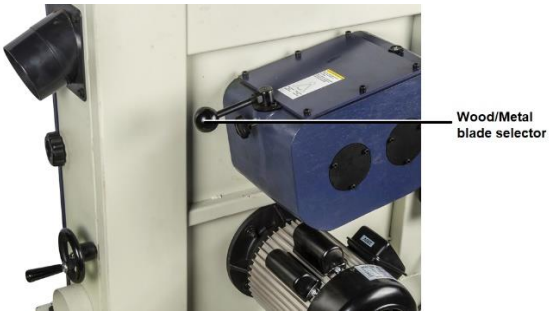


Figure 4: Wood/Metal selector switch

INSTALLATION

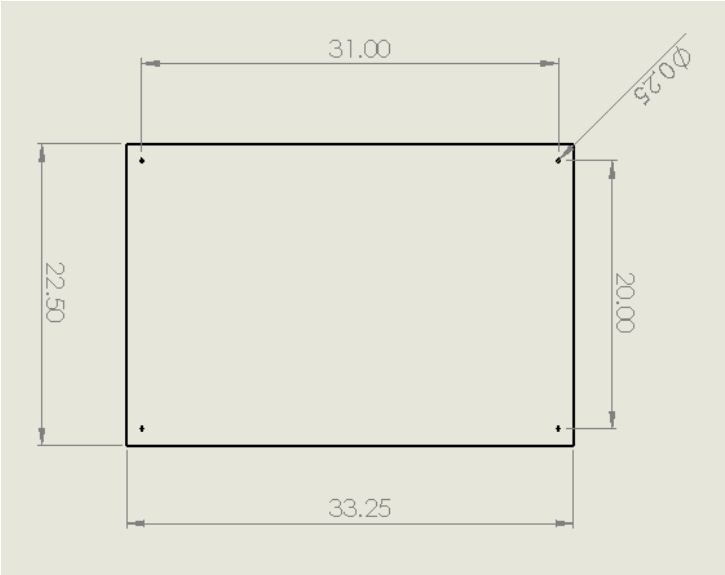


Figure 5: Base dimensions and mounting holes

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. Power supply to the motor is controlled by a double pole locking rocker switch. Remove the key to prevent unauthorized use.

Motor specifications: 2.5 HP, 60Hz, 230V, 14A, 1720RPM, 1 Phase

WIRING DIAGRAM

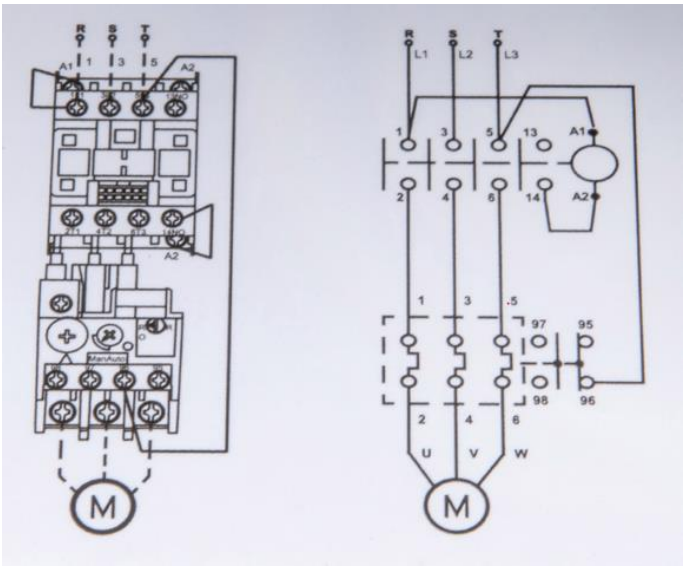


Figure 6: Wiring diagram

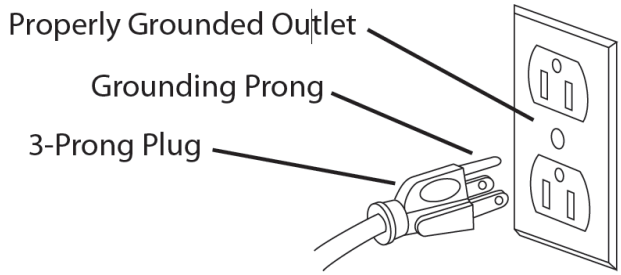
GROUNDING INSTRUCTIONS

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 three prong grounding type plug for your protection against shock hazards.

Grounding plug should be plugged directly into a properly installed and grounded 3- prong grounding-type receptacle (Figure 3).



Do not remove or alter the 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.

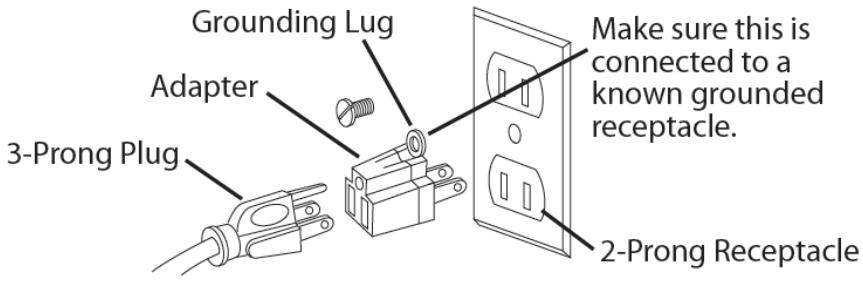
Inspect tool cords periodically, and if damaged, have them repaired by an authorized service facility.

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 (Figure 4) is available for connecting plugs to a two pole outlet if it is properly grounded.



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 ±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	

OPERATION

CAUTION: Always observe the following safety precautions:

- Make sure that blade guides and thrust bearings are positioned and adjusted correctly to prevent sideways and rearward movement of the blade. Adjust upper guide to just clear workpiece.
- Check to make sure blade is tensioned and tracking properly. Do not over tension the blade in order to prevent premature blade wear and breakage. Avoid under tensioning to eliminate back and forth, side to side blade movement as it cuts.
- Use proper blade and speed for the cutting operation.
- After turning saw on, allow blade to come to full speed before attempting any cutting operation.
- Support workpiece properly and use a smooth steady feed to guide work through the cut. Use push sticks or push blocks when required.
- Keep hands away and out of line with moving parts.
- Always wear eye protection.

BLADE GUIDES

NOTE: The band saw can arrive with the blade guides adjusted either too tight or too loose.Adjust blade guides only after blade has been properly tensioned and tracked.

- Blade guides support blade at sides and rear of blade, and prevent twisting or deflection.
- Blade guides should not touch blade when no workpiece is in contact with blade. Adjust guides as described in following sections.

UPPER BLADE GUIDES

- Upper blade guides employ guide pins for side support and a ball bearing on an adjusting pin at rear.
- Upper guide bracket should be positioned so guide on either side of blade will support as much of blade width as possible without interfering with the tooth set.
- Adjust bracket depth by loosening bolts and sliding brackets into position. Secure position of upper guide casting by tightening bolts.
- Loosen set screws and adjust guide pins to side of blade. Use a feeler gauge to check that guide pins are .002″ away from blade.
- Lock adjustment by tightening set screws.
- Adjust thrust bearing at rear of blade by loosening set screw.
- Position thrust bearing .002″ away from back of blade.
- Secure position of thrust bearing by tightening set screw.
- Adjust the height of upper guide casting to clear the workpiece by 1/4″. Loosen knob and rotate height adjustment knob until upper blade guide bracket clears workpiece by 1/4″. Tighten knob.

LOWER BLADE GUIDES

- Lower blade guides employ two guide blocks for side support. Lower guide bracket is spaced close to table surface to minimize unsupported length of blade.
- Loosen screw and remove blade guard.
- Loosen bolt to position lower guide bracket on alignment block. Adjust lower guide bracket so guide blocks do not interfere with blade set. Loosen set screws for guide blocks and adjust guide blocks to .002″ from each side of blade.
- Adjust thrust bearing at rear of blade by loosening set screw. Position thrust bearing .002″ away from back of blade. Secure position of thrust bearing by tightening set screw.
- Replace blade guard and secure in position.

Figure 7: Handwheels and knob descriptions

Speed Selection

- The amount of force with which the blade cuts is determined by speed.
- High cutting speeds are used on soft materials where less force is needed and a high rate of material removal is desired.
- Low cutting speeds are used on hard materials when more force is required.
- To change blade speed, position V-belt in proper configuration, as shown in Figure 7. Note, that high speeds have the speed selector lever RIGHT, and low speeds have it LEFT. RIGHT for wood, LEFT for metal.

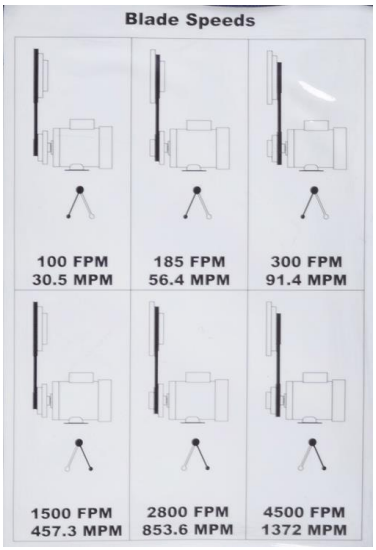


Figure 8: Blade speeds guide

To change the pulley v-belt tier, follow these instructions:

WARNING: Before changing speeds or wood/metal selector, ensure the band saw is powered off and unplugged.

1. Open the lower cabinet door.
2. Loosen the blade tension handwheel.
3. Reach through or around the wheel, and move the v-belt to the speed required.
4. Retention the belt with the handwheel, and close the cabinet door.
5. If switching from high to low speeds, or vice-versa, move the lever behind the machine, found on top of the gearbox.

Figure 9: Blade tensioning

Maintenance

WARNING: Make certain that unit is disconnected from power source before attempting to service or remove any component.

CLEANING

- Keep machine and workshop clean. Do not allow sawdust to accumulate on band saw.
- Keep wheels clean. Debris on wheels will cause poor tracking and blade slippage.
- Keep mechanisms and threaded or sliding surfaces clean and free of foreign particles.
- Operate band saw with a dust collector to minimize clean up.

LUBRICATION

- The shielded ball bearings are permanently lubricated and require no further lubrication.
- Small amounts of machine oil can be applied to belt tension mechanisms and threaded or sliding surfaces.
- Occasionally apply a coat of paste wax to table top to keep it slick and corrosion free.

KEEP BAND SAW IN REPAIR

- If power cord is worn or cut in any way, have it replaced.
- Replace V-belt and blade when they are worn. Replace any damaged or missing parts.
- Use parts list to order parts.

Troubleshooting

SYMPTOM	POSSIBLE CAUSE(S)	CORRECTIVE ACTION
Excessive blade breakage	1. Material not secure on table	1. Squarely place work on table
	2. Incorrect speed or feed	2. Check Blade Speed (Figure 6, page 7)
	3. Blade too coarse for material	3. Use finer pitch blade
	4. Incorrect blade tension	4. Tension blade properly; see "Operation"
	5. Teeth in contact with work before sawing	5. Place blade in contact with work after saw is started and has reached full speed
	6. Blade rubs on wheel flange	6. Adjust wheel alignment properly
	7. Misaligned guides	7. Adjust blade guides properly
	8. Blade too thick for wheel diameter	8. Use thinner blade
	9. Cracking at weld	9. Replace blade
Premature blade dulling	1. Blade too coarse	1. Use finer tooth blade
	2. Excessive blade speed	2. Try lower speed
	3. Inadequate feed pressure	3. Gently increase pressure
	4. Hard spots or scale in or on material	4. Reduce speed; increase rate of feed for scale and change blades for hard spots
	5. Work hardening of workpiece	5. Increase rate of feed
	6. Blade installed backwards	6. Remove blade, twist inside out and reinstall blade
	7. Insufficient blade tension	7. Tension blade properly; see "Operation"
Crooked cuts	1. Work not square	1. Use rip fence; adjust tilt of table at 90° to blade
	2. Rate of feed too great	2. Reduce rate of feed
	3. Blade guides not adjusted properly	3. Move both guide blocks within .002" from blade (use gauge)
	4. Insufficient blade tension	4. Tension blade properly; see "Operation"
	5. Upper blade guide too far from workpiece	5. Adjust upper guide to just clear workpiece by 1/4"
	6. Dull blade	6. Replace blade
	7. Incorrect speed	7. Check Blade Speed; see Figure 6, page 7 for recommended speeds
	8. Blade guide assembly loose or blade thrust bearing loose	8. Tighten blade thrust bearing within .002" behind blade back
Rough cuts	1. Too much speed or feed	1. Reduce speed or feed
	2. Blade too coarse	2. Replace with finer blade
Blade is twisting or unusual wear on side/back of blade	1. Cut is binding blade	1. Decrease feed pressure
	2. Blade guides or bearing worn	2. Replace
	3. Blade guides or bearings not adjusted properly	3. Adjust blade guides; see "Operation"
	4. Blade guide brackets loose	4. Tighten properly
Teeth ripping from blade	1. Teeth too coarse for work	1. Use blade with finer teeth
	2. Rate of feed too great	2. Decrease feed rate
	3. Vibrating workpiece	3. Hold workpiece firmly
	4. Teeth filling with material	4. Use blade with coarser teeth
Motor running too hot	1. Blade tension too great	1. Reduce tension on blade
	2. Blade too coarse for work (typical when cutting pipe)	2. Use blade with finer teeth
	3. Blade too fine for work (typical when cutting slick or soft material)	3. Use blade with coarser teeth
	4. Excessive dirt and chips	4. Clean thoroughly; vacuum motor and speed change mechanism
Saw will not start	Loose electrical connections	Have qualified electrician check electrical connections

PALMGREN WARRANTY

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 is 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 vises, clamps, positioning tables, arbor presses, 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 elated to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

PALMGREN®

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