

PALMGREN®



9" x 16" Variable Speed Horizontal Bandsaw

Model 9683314

®

PALMGREN

**PLEASE READ AND SAVE
THESE INSTRUCTIONS.
READ CAREFULLY
BEFORE ATTEMPTING
TO ASSEMBLE, INSTALL,
OPERATE OR MAINTAIN THE
PRODUCT DESCRIBED.**

**PROTECT YOURSELF AND
OTHERS BY OBSERVING ALL
SAFETY INFORMATION. FAILURE
TO COMPLY WITH INSTRUCTIONS
COULD RESULT IN PERSONAL
INJURY AND/OR PROPERTY
DAMAGE! RETAIN INSTRUCTIONS
FOR FUTURE REFERENCE.**

**PLEASE REFER TO BACK COVER
FOR INFORMATION REGARDING
PALMGREN'S WARRANTY
AND OTHER IMPORTANT
INFORMATION.**

Model #: _____

Serial #: _____

Purch. Date: _____

© 2024 Palmgren Electric Manufacturing Co.
All Rights Reserved

GETTING STARTED

Save this manual

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

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



The power supply to the bandsaw must be 240 VAC, single-phase, 60 Hz. The standard allowable voltage variation is $\pm 10\%$.

Tools needed

Standard professional mechanic's hand tool set.

UNPACKING

Unpack

When the bandsaw is delivered, please check immediately that it has not been damaged during transport. Transport the bandsaw in its packing crate near its final installation site before unpacking it. If the packaging shows signs of possible transport damage, take the necessary precautions to avoid damaging the machine when unpacking.



Do not discard packing materials until after bandsaw has been inspected for damage and completeness. Locate loose parts and set aside.

Inspect



After unpacking, carefully inspect the bandsaw for any damage that may have occurred during transit. Check for loose, missing, or damaged parts. Notify the carrier immediately; shipping damage claims must be filed with the carrier. Immediately report any missing parts to the dealer.

- Be sure that the voltage labeled on the machine matches your power supply.
- Inspect the machine completely and carefully, making sure that all materials, such as shipping documents, manuals and accessories supplied with the machine have been received.
- Also check that no fastening screws have come loose. Compare the scope of delivery with the attached packing list.
- All tools should be visually inspected before use, in addition to regular periodic maintenance inspections.

Transport

▲ WARNING Severe or fatal injuries may occur if the machine is moved improperly. Follow the instructions and information on the transport crate. Check that the lifting and load suspension equipment has sufficient load capacity and that it is in perfect condition.

▲ WARNING The total weight of the bandsaw is 625 lb. Use only transport and load suspension devices that can hold the total weight of the bandsaw.

Fasten the load properly.

Never walk under suspended loads!

SAFETY RULES

Before repairs, powering on the machine or maintenance, the user must know and follow all safety guidelines.

Clothing and General Use

▲ WARNING

- For your own safety, read all of the instructions and precautions before operating tool.
- 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.
- 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.
- Work area should be properly lighted.
- 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.
- **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.

Installation Safety

▲ WARNING

- Ensure the installation location can support the weight of the machine and has adequate space, ventilation, and heat dissipation.
- Do not allow water or other liquids, dust, metal dust or other contaminants to enter the controls or electrical box, it may cause fires or damage to the machine and surroundings.
- Do not make any changes or modifications to the machine; this could cause an electric shock or personal injury and void the warranty.

▲ CAUTION

- When moving to the install location make sure the bandsaw is firmly secured to the lifting means. Use the appropriate means to place the machine in the desired location for use.
- Ensure the machine is level before using.

Electrical Safety

- Make sure wiring codes and recommended electrical connection instructions are followed and that machine is properly grounded.

▲ WARNING *Before connecting power source, check that the bandsaw power switch is off.*

Maintenance Safety

- Always ensure bandsaw is powered off prior to inspection, maintenance, or repair.
- Consult manual for specific maintaining and adjusting procedures.
- Only a qualified electrician should check the electric parts.
- Keep bandsaw lubricated and clean for safest operation.
- Remove adjusting tools. Form habit of checking to see that adjusting tools are removed before switching machine on.
- Keep all parts in working order. Check to determine that guards and 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.
- A guard or other part that is damaged should be properly repaired or replaced. Do not perform makeshift repairs. (Use parts list provided to order repair 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.
- Do not force tool. It will work most efficiently at the rate for which it was designed.
- Use of improper accessories may cause risk of injury to persons.

▲ CAUTION

Think safety! Safety is always a combination of operator common sense and alertness when tool is being used.

Operating Safety

▲ WARNING

Before starting machine check:

- KEEP GUARDS IN PLACE AND IN WORKING ORDER.
- KEEP WORK AREA CLEAN. Cluttered areas and benches invite accidents.
- NEVER USE IN DANGEROUS ENVIRONMENT. Do not use power tools in damp or wet locations, or where any flammable or noxious fumes may exist. Do not expose power tools to rain. Keep work area well lighted.
- NEVER FORCE TOOL. It will do the job better and safer at the rate for which it was designed.
- USE THE RIGHT TOOL. Do not force tool or attachment to do a job for which it was not designed.
- If you are not familiar with the operation of horizontal band saws, obtain advice from your supervisor, instructor or other qualified person before using saw.
- Always turn power off before making any adjustments.
- Adjust and position the blade guide before cutting.
- Ensure that blade tension is properly adjusted before cutting.
- Stop the saw before putting a workpiece in the vise. Ensure stock is firmly clamped in vise before cutting.
- Handle workpiece correctly. Protect hands from possible injury. Keep hands away from moving parts and surfaces.
- Never leave bandsaw running unattended. Turn 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.
- Clean dust/chips frequently. Stop the saw before cleaning. Before leaving the machine, make sure the work area is clean

▲ CAUTION

- Do not repeatedly turn the power switch on and off in a short amount of time. This will damage the machine.
- Please treat the debris generated during processing as industrial waste to prevent environmental pollution or personal injury.

SPECIFICATIONS

Description	Palmgren Variable Speed Horizontal Bandsaw 9" x 16"
Model number	9683314
Voltage	240V
Amperage	8A
HP	1.5 HP
Phase	Single
RPM	1725
Blade Dimensions	1" x 0.032" x 119.5"
Blade wheel Ø	13"
Blade speeds	80, 140, 200, 260 SFPM
Capacity: 90° Round	9"
Capacity: 90° Square	9" x 13.5"
Capacity: 90° Flat	1.5" x 16"
Capacity: 45° Round	6.5"
Capacity: 45° Square	9" x 6.5"
Coolant Volume	5.5 Gallons (22 quarts)
Height of Table Vise	24.8"
Machine Dimensions	67" W x 30" H x 43" L
Weight	625 lbs

Blade Selection

Never use a blade so coarse that less than 3 teeth are engaged in the workpiece at a time. Too few teeth causes teeth to strip out.

Never use a blade finer than needed to obtain a satisfactory surface finish or satisfactory flatness. Too many teeth prevent a satisfactory sawing rate; can cause premature blade wear; frequently produce "dished" cuts or cuts that are not square nor parallel.

The chart below is a general guide. Consult with your blade supplier or qualified engineers for information on saw blades.

HSS=High Speed Steel; **HCS**=High Carbon Steel

Sawblade	Material Shape	○	⊥	●	●	●	●
	Material Diameter	<0.12"	>0.2"	>2"	>4"	>6"	>8"
(HSS) 14T		●					
(HSS) 6/10T			●				
(HSS) 5/8T				●			
(HSS) 4/6T				●	●		
(HSS) 3/4T					●		
(HSS) 2/3T						●	●
(HSS) 1/2T							●
(HCS) 10T		●					
(HCS) 8T			●				
(HCS) 6T				●			
(HCS) 4T					●		
(HCS) 2T						●	●

INSTALLATION

Mounting and Leveling

Position the bandsaw in the desired location. Ensure there is access to the electrical panel and that the panel is located close to the 240VAC power source.

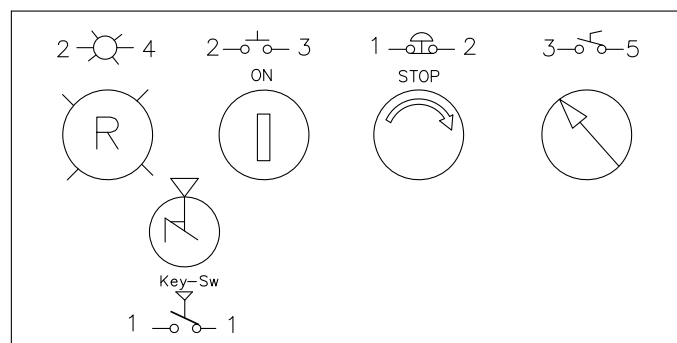
Secure the bandsaw in position by mounting it on pads or by anchoring it to the floor. Use the leveling adjustments at the base of the saw to level it before use.

Rust inhibitor was applied to the machined surfaces at the factory. Clean the rust inhibitor off using a soft cloth lightly dampened with WD-40.

Electrical Wiring

Connect the bandsaw to the electrical source as shown in Figure 1 and Figure 2 on page 6. Refer to the wiring diagram inside the electrical box for proper motor and transformer connections, lead selection and wiring connections from the motor to the power source for the voltage you are using.

Important: Immediately after wiring the machine, remove the drive belt, turn on the power and make sure the motor is running in the right direction (counter-clockwise when looking at the motor shaft.)



Electrical Panel Layout

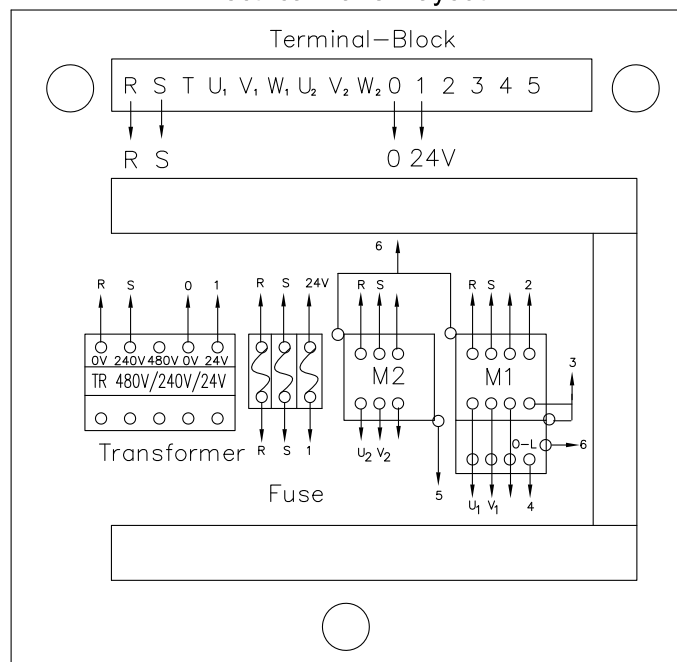


Figure 1. Electrical Panel Wiring, 1-Phase

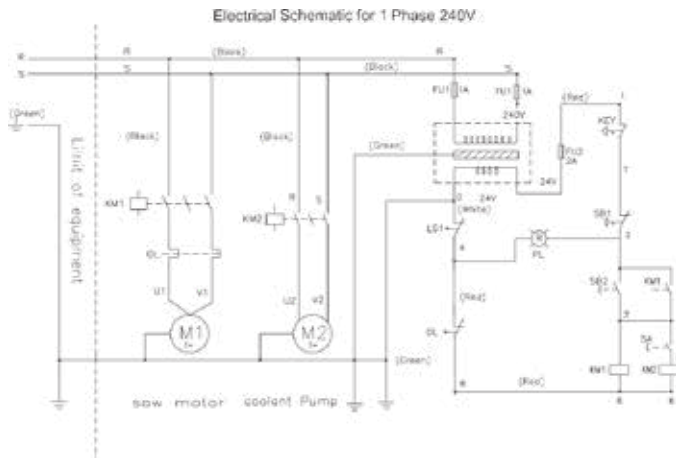


Figure 2. Schematic Diagram, 1-Phase

Coolant

Add 5.5 gallons (22 quarts) of water-soluble coolant/cutting fluid before operating bandsaw.

OPERATION

Setting Up the Machine for Operation

1. Check coolant and add if necessary.
2. Keep vise slides clean and oiled.
3. Clean chips from blade wheels and areas around wheels.
4. Ensure saw blade is sharp.
5. Check blade tension, particularly after initial cuts with a new blade.
6. Select the proper speed and blade for the type of material you are going to cut.
7. Turn hydraulic oil switch clockwise to raise the saw frame, then turn off the hydraulic oil switch (Figure 3, item C).
8. Place the stock between the vise jaws, set the stock for the desired width of cut, and tighten the vise.
9. Make sure the left blade guide bracket (A) is adjusted as close as possible to the left vise jaw (B). A loose blade guide will affect cutting accuracy.
10. Turn the hydraulic oil switch (C) counter-clockwise until the saw blade begins to lower at the desired rate.
11. Proceed to cut through the workpiece. The bandsaw will shut off upon completion of cut.

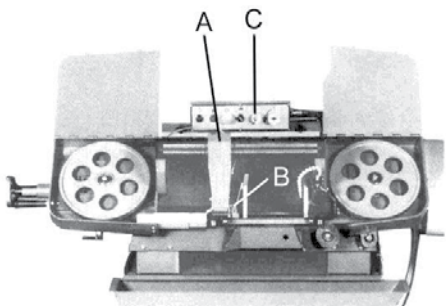


Figure 3. Operating Controls

Starting and Stopping the Bandsaw

The saw frame must be in the raised position before starting the machine. The machine is started by pushing the start button (A) Figure 4, and will continue to run until the saw frame is in the down position at the end of the cut, or when the stop button (B) is pushed.

Pushing the stop button (B) will stop the motor at any time.

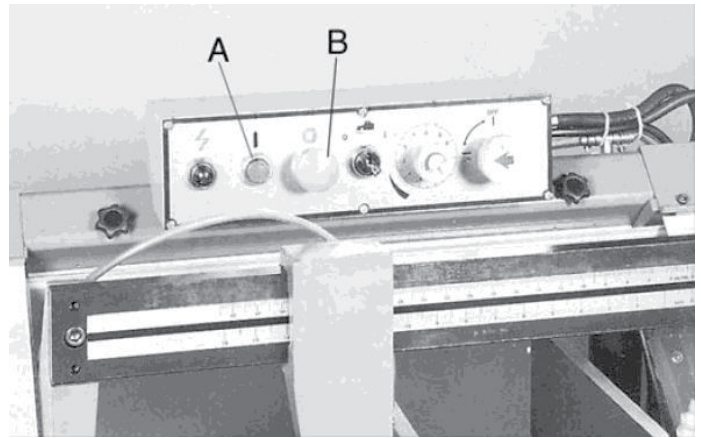


Figure 4. Start Button (A) and Stop Button (B)

Changing Speed

The bandsaw speed range is 80-260 RPM.

See Figure 5. To adjust speed while the saw is running, turn speed control knob A clockwise to increase speed or counterclockwise to decrease speed.

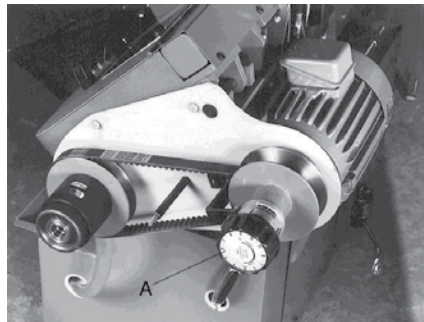


Figure 5. Speed Control Knob (A)

MAINTENANCE

Removing and Installing the Blade

A blade is installed in the saw at the factory. When selecting a new blade refer to the selection of sawblades. The bandsaw requires a blade 1" x 0.032" x 119-1/2".

To replace the blade:

1. Disconnect the power source.
2. Raise saw frame about 6" and close the feed control valve by turning it clockwise as far as it will go. (Do not overtighten.)
3. Open both wheel covers. Clean the chips from the machine.
4. Release blade tension by turning the blade tension handwheel (Figure 6, C) counterclockwise.

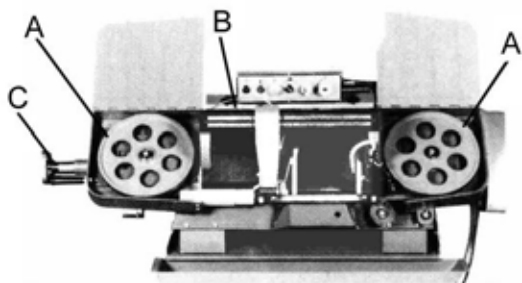


Figure 6. Blade Tensioning

5. Slide left blade guide arm to the right as far as possible.
6. Remove blade from both wheels and out of each blade guide.
7. Make sure the teeth of the new blade are pointing in the direction of travel. If necessary, turn the blade inside out.
8. Place the blade in place on the wheels (Figure 6, A) and through the upper blade guard (Figure 6, B).
9. Work the blade all the way up between the blade guide bearings with the back of the blade against the back-up bearing, as shown in Figure 7.



Figure 7. Blade Backup Bearing

NOTE: If bearings need adjustment, refer to the section adjusting blade guide roller bearings.

10. Put light tension on the blade and work it on both wheels, as shown in Figure 8. **IMPORTANT:** Ensure that the back of the blade is against the wheel flanges of both wheels.

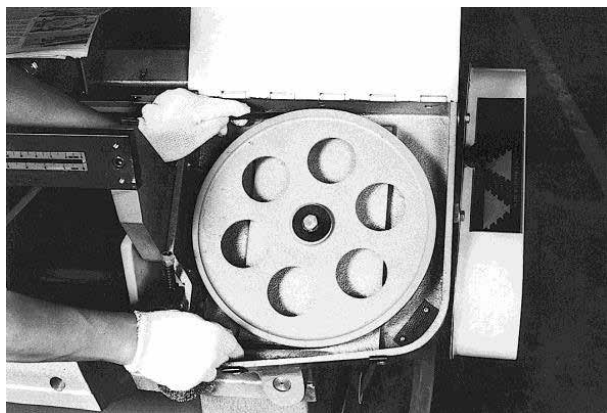


Figure 8. Working Blade Around Wheels

11. When you are sure the back of the blade is against the wheel flanges of both wheels and properly inserted into the

guides, finish putting tension on the blade. Proper tension is achieved when the pointer is on the left mark of the blade tension scale behind the driven wheel.

12. Reconnect the power source. Briefly turn the power "on" and "off" to be sure the blade is in place and tracking properly. If blade is not tracking properly refer to the section tracking the blade.

Blade Tracking Adjustment

Blade tracking has been set at the factory and should not require adjustment. If a tracking problem occurs, adjust the machine as follows:

▲ WARNING *Tracking adjustment is done with the wheel covers open to observe the blade. Use extreme caution so as not to come into contact with the blade while wheel covers are open.*

▲ WARNING *Never cut material when the wheel covers are open.*

Because tracking can only be adjusted while machine is running, it is suggested that this adjustment be accomplished by qualified personnel familiar with this type of adjustment and the dangers associated with it.

1. Disconnect machine from the power source.
2. Raise saw arm to its highest position and close cutting pressure control valve to hold saw arm in place.
3. Locate tracking adjustment plate on the back side of the driven blade wheel.
4. See Figure 9. Loosen the three bolts (A) located on the top of the tracking nuts. Tracking adjustment is accomplished by either loosening or tightening three adjusting nuts (B).
5. Tracking is set properly when the back of the blade slightly touches the wheel flange.

NOTE: Over-tracking (allowing blade back to rub hard against wheel flange) will damage blade wheels and blade.

6. Tighten locking bolts (A) once properly tracking is completed.
7. Reconnect machine to the power source.

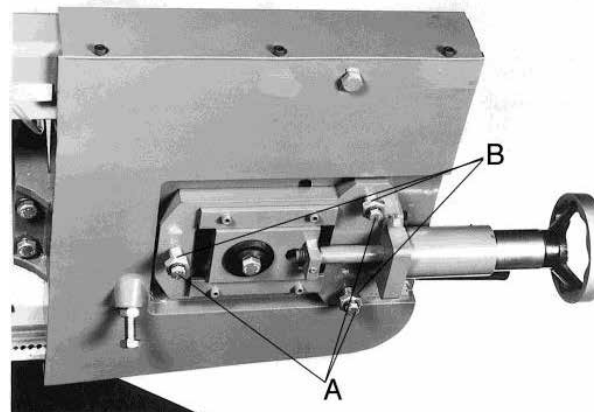


Figure 9. Blade Tracking Adjustment

Adjusting Feed Rate

When the hydraulic oil regulating micro switch (Figure 10, **A**) is turned all the way clockwise, the saw frame will not move down. By turning the feed control valve counter-clockwise, you regulate the flow of oil from the cylinder and determine the speed at which the saw frame will lower and the blade will feed through the work.

Too many factors are involved to make tabulated data practical on feed rates. As a general rule, an even pressure without forcing the blade gives the best results. Avoid forcing the blade at the start as this may shorten blade life and produce a bad cut. Inspecting the chips while the cut is being made will indicate whether the feed rate is correct.

- Fine powdery chips indicate a feed rate which is too light. The teeth are rubbing over the surface instead of cutting.
- Burned chips indicate excessive feed which causes the teeth to break off as the blade overheats.
- The ideal feed rate is indicated by chips that have a free curl. This provides the fastest cutting time and longest blade life.

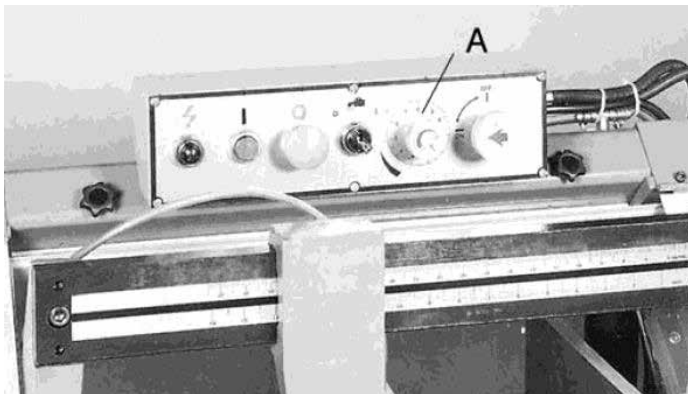


Figure 10. Oil Regulating Micro Switch (Feed Control)

Adjusting Blade Guide Brackets

The blade guides should be set as close to the vise jaws as possible. The right blade guide bracket is not adjustable and is set at the factory to clear the right hand vise jaw. The left blade guide bracket can be moved to the left or right depending on the position of the left hand vise jaw.

To move the left blade guide bracket (Figure 11, **A**), loosen hand knob (**B**), position blade guide bracket, and tighten hand knob (**B**).

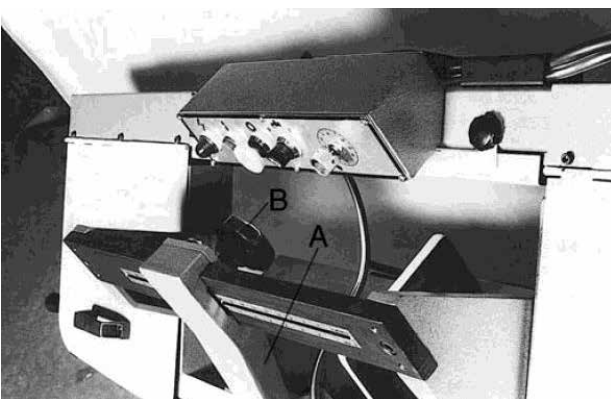


Figure 11. Left Blade Guide Adjustment

Automatic Shut-Off Adjustment

The motor should shut off immediately after the blade has cut through the material and just before the head comes to rest on the horizontal stop bolt. If the machine continues to run after the workpiece has been fully cut, locate and adjust the micro switch mounting plate down. If the machine shuts off before the workpiece has been completely cut, move the micro switch mounting plate up.

Thrust Roller Adjustment

1. Disconnect machine from the power source.
2. Loosen two hex socket cap screws (Figure 12, **A**).
3. Move guide seat (**B**) up or down until a clearance of 0.003" to 0.005" between back of blade and thrust roller is obtained.
4. Tighten two hex socket cap screws (**A**).
5. Repeat for other blade guide assembly.
6. Reconnect machine to power source.

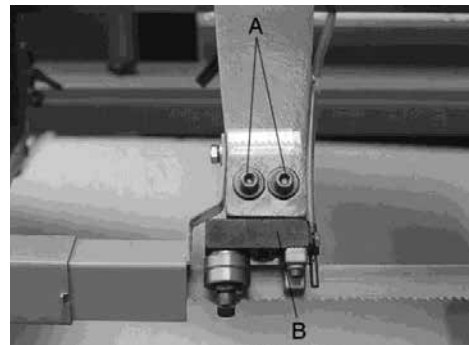


Figure 12. Thrust Roller Adjustment

Guide Roller Adjustment

1. Disconnect machine from the power source.
2. See Figure 13. Loosen blade guides (**A**) by loosening screws (**B**). Slide blade guides away from blade.
3. Use a hex wrench to loosen locking screws (**C**).
4. Adjust the eccentric bushings with a combination wrench until the ball bearings are snug to the blade.

NOTE: Blade should travel freely up and down between the ball bearings. Do not pinch the blade.

5. Tighten locking screws (**C**).
6. Slide blade guides back into contact with blade and tighten screws (**B**).
7. Reconnect machine to the power source.

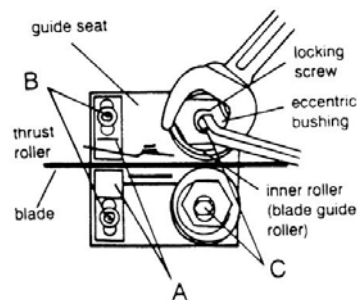


Figure 13. Guide Roller Adjustment

Vise Adjustment

To position the moveable vise jaw:

1. See Figure 14. Turn vise handwheel (A) 1/2 turn counter-clockwise.
2. Move rack block (B) to desired location by sliding along the bed. Place the rack block onto the rack.
3. Turn the handwheel to tighten the vise.

To adjust vise for angle cutting:

1. Loosen bolts and move vise jaw (C) to desired location.
2. Set the vise to desired angle, reinstall nuts and tighten the nut and bolt assemblies.
3. Adjust the movable vise parallel to the fixed vise by loosening bolt (D) adjusting to parallel and tightening bolt.

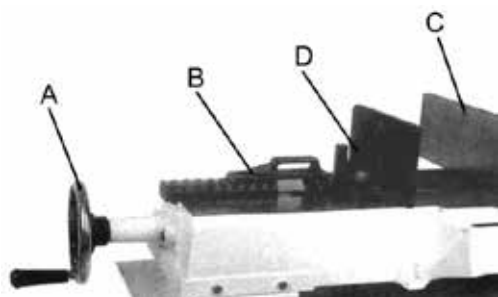


Figure 14. Vise Adjustments

Lubrication

The following lubricants are used with this bandsaw:

- Cutting oil: Use water-soluble cutting fluid
- Gear oil: HD-150
- Hydraulic system: #32 / #68

Changing Gear Box Oil

After the first 50 hours of use, drain and refill the gear box by doing the following:

1. See Figure 15. Place a collection contained below the drain plug.
2. Remove drain plug A, drain all oil from the gearbox, and replace plug.
3. Remove oil filler plug located beneath the right blade wheel and fill the gear box with 1.5 pints of MOBIL CYL. OIL # HD150 or equivalent.

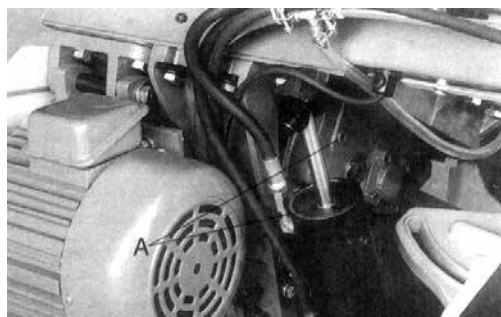


Figure 15. Gearbox Drain Plug Location (A)

TROUBLESHOOTING

⚠ WARNING *Make certain that the bandsaw is disconnected from power source before attempting to service or remove any component.*

Symptom	Possible Causes	Corrective Action
Foaming coolant, high blade temperature	Low coolant	Check coolant and add if necessary.
No coolant when cutting.	1. Low coolant or clogged pump 2. Pump motor not working	1. Add coolant to a level above the pump. 2. Remove coolant pump motor to clean/repair it.
Clogged pump	Dirty or weak coolant	Replace coolant.
Crooked cuts	Dirty or weak coolant	Replace coolant.
Slow cutting rate	Dirty or weak coolant. Dirty coolant may also cause the growth of bacteria with possible skin irritation resulting.	Replace coolant.

PARTS LIST

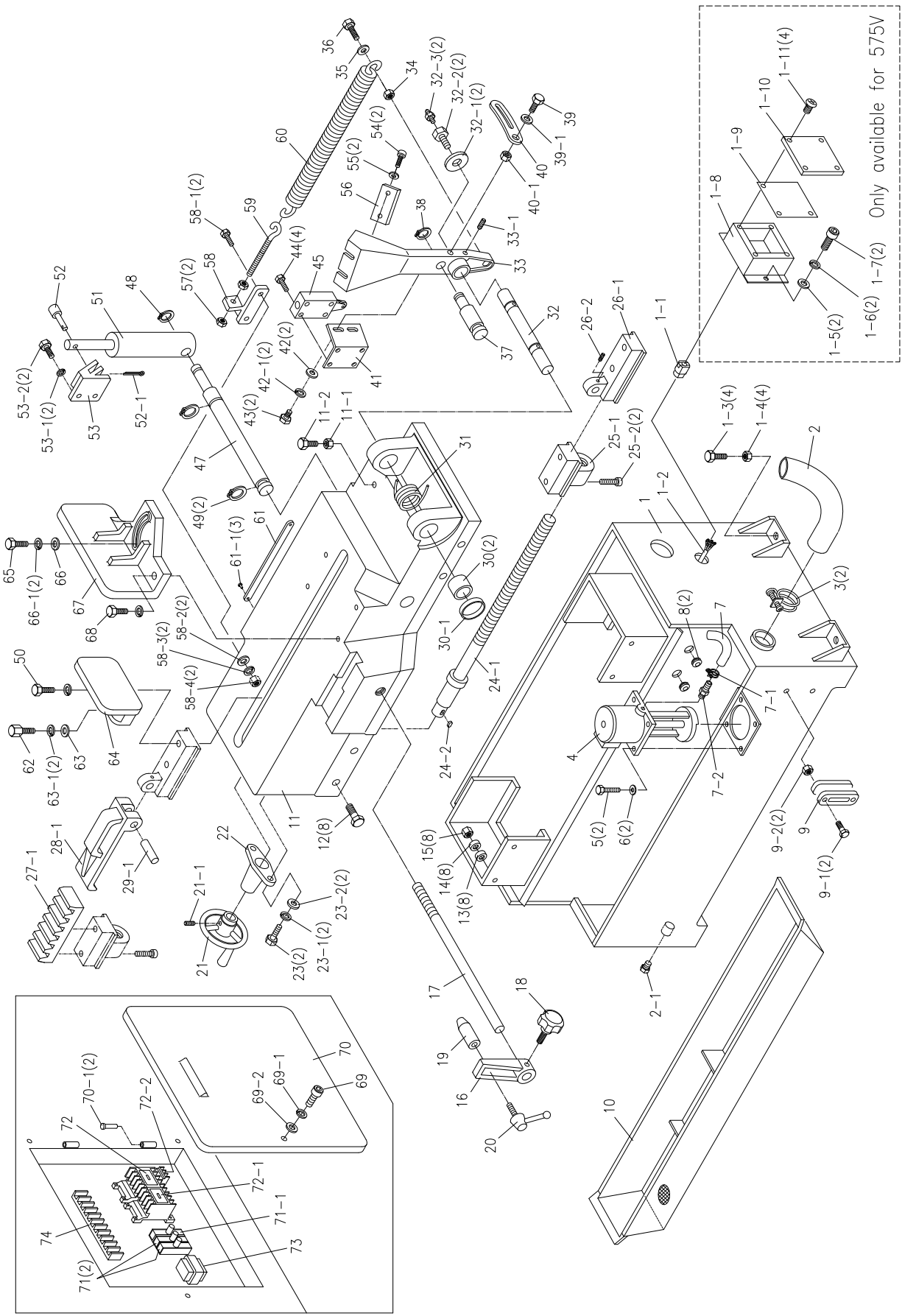


Figure 16. Parts Diagram - Sheet 1 of 2

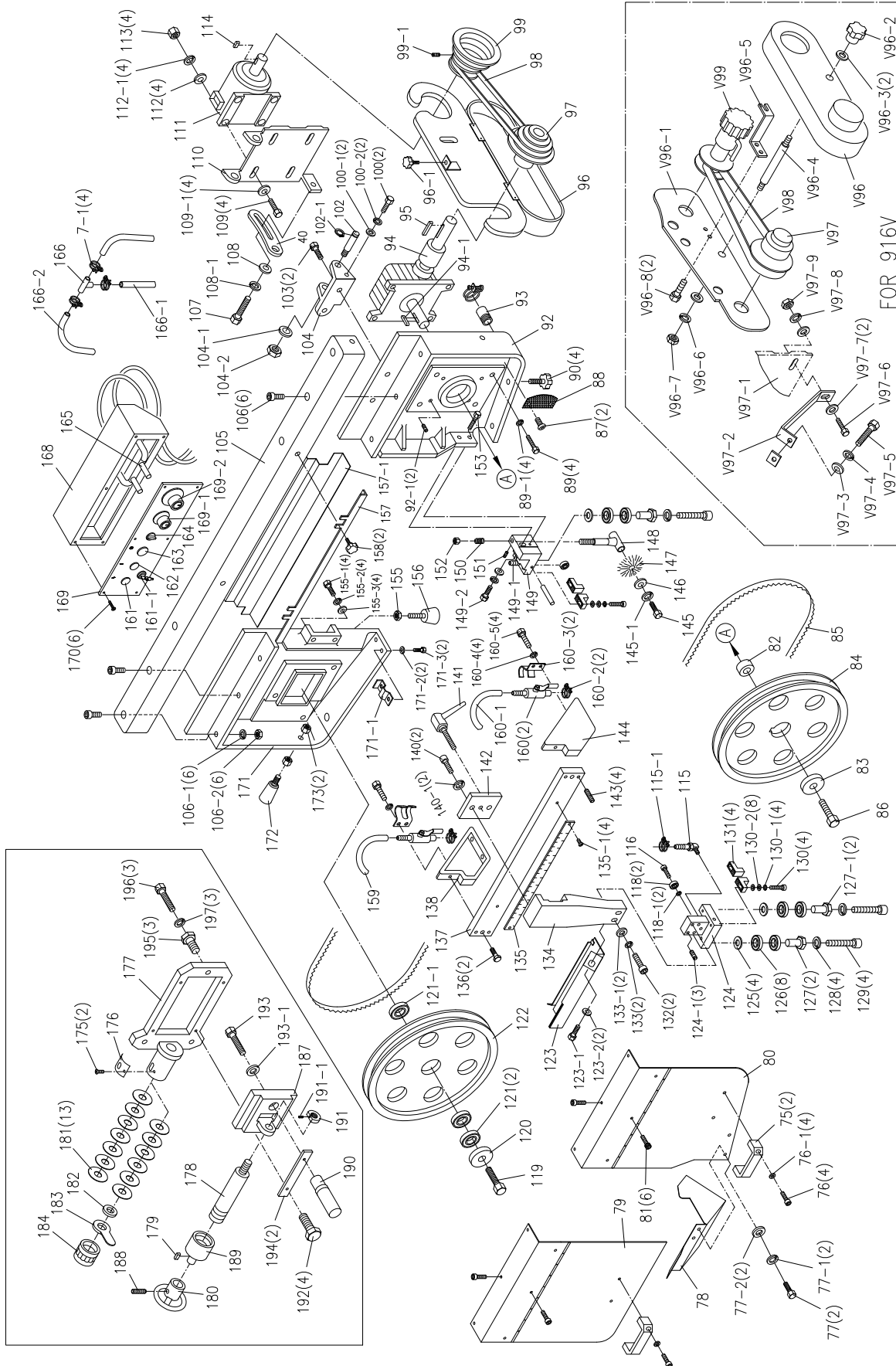


Figure 17. Parts Diagram - Sheet 2 of 2

Ref.	Description	Part No	Qty
1	Base	965102501	1
1-1	Wire Protector	965102601	1
1-2	Power Cord	965102701	1
1-3	Hex. Cap Bolt M12x65	*	4
1-4	Nut M12	*	4
1-5	Washer M6	*	2
1-6	Lock Washer M6	*	2
1-7	Hex. Socket Cap Screw M6x8	*	2
1-8	Conjunction Box	965102801	1
1-9	Rubber Plate	965102901	1
1-10	Cover	965103001	1
1-11	Round Head Screw M5x10	*	4
2	Hose 1"x50MM	965103101	1
2-1	Drain Plug 3/8 PT	965103201	1
3	Hose Clamp 35MM	965103301	2
4	Coolant Pump	965103401	1
5	Round Head Screw M6x16	*	2
6	Lock Washer M6	*	2
7	Hose 5/16"x1300MM	965103501	1
7-1	Hose Clamp 14MM	965103601	4
7-2	Hose Fitting 3/8PTx5/16H	965103701	1
8	Strain Relief	965103801	2
9	Coolant Gauge	965103901	1
9-1	Hex. Cap Bolt M10x30	*	2
9-2	Nut M10	*	2
10	Chip Tray	965104001	1
11	Bed	965104101	1
11-1	Nut M10	*	1
11-2	Hex. Cap Bolt M10x30	*	1
12	Hex. Cap Bolt M8x30	*	8
13	Washer M8	*	8
14	Lock Washer M8	*	8
15	Nut M8	*	8
16	Work Stop Bracket	965104201	1
17	Work Stop Rod	965104301	1
18	Lock Knob 3/8"x1-1/4	965104401	1
19	Work Stop	965104501	1
20	Lock Handle	965104601	1
21	Hand Wheel Assembly 5.5"	965104701	1
21-1	Set Screw 5/16"x3/8	*	1
22	Lead Screw Seat	965104801	1
23	Hex. Cap Bolt M8x30	*	2
23-1	Lock Washer M8	*	2
23-2	Washer M8	*	2
24-1	Lead Screw	965104901	1
24-2	Key 5x20	*	1
25-1	Lead Screw Bracket	965105001	1
25-2	Hex. Socket Cap Screw M8x25	*	2
26-1	Slide Bracket	965105101	1

Ref.	Description	Part No	Qty
26-2	Set Screw M6x8	*	1
27-1	Rack	965105201	1
28-1	Rack Block	965105301	1
29-1	Pin	965105401	1
30	Closed Bearing HK25 15	965105501	2
30-1	Bushing	965105601	1
31	Torsion Spring	965105701	1
32	Pivot Shaft	965105801	1
32-1	Washer	965105901	2
32-2	Hex. Cap Bolt M12x20	*	2
32-3	Grease Nipple 44942	965106001	2
33	Pivot Bracket	965106101	1
33-1	Set Screw M10x12	*	1
34	Nut M12	*	1
35	Washer M12	*	1
36	Hex. Cap Bolt M12x40	*	1
37	Torsion Spring Shaft	965106201	1
38	C-Ring S-22	965106301	1
39	Hex. Cap Bolt M8x30	*	1
39-1	Washer M8	*	1
40	Motor Tilt Plate	965106401	1
40-1	Nut M8	*	1
41	Limit Switch Plate	965106501	1
42	Washer M8	*	2
42-1	Lock Washer M8	*	2
43	Hex. Cap Bolt M8x20	*	2
44	Hex. Cap Bolt M6x12	*	4
45	Limit Switch	965106601	1
47	Cylinder Pin	965106701	1
48	C-Ring S-20	*	1
49	C-Ring S-25	*	2
50	Hex. Cap Bolt M12x40	*	1
51	Hydraulic Cylinder Assembly	965106801	1
52	Cylinder Pin-Top	965106901	1
52-1	Pin	965107001	1
53	Hydraulic Mounting Plate-Top	965107101	1
53-1	Lock Washer M10	*	2
53-2	Hex. Cap Bolt M10x30	*	2
54	Hex. Cap Bolt M12x50	*	2
55	Washer M12	*	2
56	Lock Plate	965107201	1
57	Nut 1/2"	*	2
58	Spring Bracket	965107301	1
58-1	Hex. Cap Bolt M8x30	*	2
58-2	Washer M8	*	2
58-3	Lock Washer M8	*	2
58-4	Nut M8	*	2
59	Spring Adjustable Rod 1/2"	965107401	1

* Hardware item, available locally

Ref.	Description	Part No	Qty
60	Spring	965107501	1
61	Angle Scale	965107601	1
61-1	Rivet	965107701	3
62	Hex. Cap Bolt M12x40	*	1
63	Washer M12	*	1
63-1	Lock Washer M12	*	2
64	Vise Jaw-Left	965107801	1
65	Hex. Cap Bolt M12x50	*	1
66	Washer M12	*	1
66-1	Lock Washer M12	*	2
67	Vise Jaw-Right	965107901	1
68	Hex. Cap Bolt M12x40	*	1
69	Hex. Socket Cap Screw M6x30	*	1
69-1	Lock Washer M6	*	1
69-2	Washer M6	*	1
70	Electrical Panel Cover	965108001	1
70-1	Pin	965108101	2
71	Fuse Block 1A	965108201	2
71-1	Fuse Block 2A	965108301	1
72	Contactora (main motor)	965108401	1
72-1	Contactora (pump)	965108501	1
72-2	Overload Relay	965108601	1
73	Transformer	965108701	1
74	Terminal Strip	965108801	1
75	Handle	965108901	2
76	Round Head Screw M6x12	*	4
76-1	Washer M6	*	4
77	Hex. Cap Bolt M6x10	*	2
77-1	Lock Washer M6	*	2
77-2	Washer M6	*	2
78	Wire Brush Guard	965109001	1
79	Blade Wheel Cover-Left	965109101	1
80	Blade Wheel Cover-Right	965109201	1
81	Hex. Socket Cap Screw M6x8	*	6
82	Bushing	965109301	1
83	Washer	965109401	1
84	Drive Wheel	965109501	1
85	Blade 3035MM	965109601	1
86	Hex. Cap Bolt M12x20	*	1
87	Round Head Screw M5x10	*	2
88	Filter Screen	965109701	1
89	Hex. Cap Bolt M12x35	*	4
89-1	Lock Washer M12	*	4
90	Lock Knob 1/4"x10	965109801	4
92	Blade Wheel Box-Right	965109901	1
92-1	Set Screw M10x12	*	2
93	Connector	965110001	1
94	Gear Box Assembly	965110101	1
94-1	Key 7MM	965110201	1

Ref.	Description	Part No	Qty
95	Key 7MM	965110301	1
96	Pulley Cover	965110401	1
96-1	Lock Knob 1/4"	965110501	1
97	Gear Box Pulley	965110601	1
98	Belt A.39	965110701	1
99	Motor Pulley	965110801	1
99-1	Set Screw M8x10	*	1
100	Hex. Cap Bolt M8x16	*	2
100-1	Washer M8	*	2
100-2	Lock Washer M8	*	2
102	Support Shaft	965110901	1
102-1	C-Ring S-19	*	1
103	Hex. Cap Bolt M12x35	*	2
104	Motor Mount Bracket	965111001	1
104-1	Washer M12	*	1
104-2	Nut 1/2"	*	1
105	Column	965111101	1
106	Hex. Socket Cap Screw M12x20	*	6
106-1	Lock Washer M12	*	6
106-2	Nut M12	*	6
107	Hex. Cap Bolt M8x25	*	1
108	Washer M8	*	1
108-1	Lock Washer M8	*	1
109	Hex. Cap Bolt M8x45	*	4
109-1	Washer M8	*	4
110	Motor Mount Plate	965111201	1
111	Motor	965111301	1
112	Washer M8	*	4
112-1	Lock Washer M8	*	4
113	Nut M8	*	4
114	Key 7MM	965111401	1
115	Connector (plastic)	965111501	1
115-1	Hose Clamp	965111601	1
116	Hex. Socket Cap Screw M8x20	*	1
118	Ball Bearing 608ZZ	*	2
118-1	Lock Washer M8	*	2
119	Hex. Cap Bolt M12x35	*	1
120	Washer M12	*	1
121	Ball Bearing 6205Z	*	2
121-1	Ball Bearing 6205	*	1
122	Idler Wheel	965111701	1
123	Blade Guard	965111801	1
123-1	Hex. Cap Bolt M8x16	*	1
123-2	Washer M8	*	2

* Hardware item, available locally

Ref.	Description	Part No	Qty
124	Guide Bracket-Left	965111901	1
124-1	Set Screw M8x16	*	3
125	Washer M8x25	*	4
126	Ball Bearing 6201LBZZ	*	8
127	Eccentric Sleeve	965112001	2
127-1	Centric Sleeve	965112101	2
128	Lock Washer M8	*	4
129	Hex. Socket Cap Screw M8x45	*	4
130	Hex. Socket Cap Screw M6x30	*	4
130-1	Lock Washer	*	4
130-2	Washer	*	8
131	Tungsten Carbide Blade Guide	965112201	4
132	Hex. Cap Bolt M8x40	*	2
133	Lock Washer M8	*	2
133-1	Washer M8	*	2
134	Adjustable Bracket	965112301	1
135	Scale	965112401	1
135-1	Round Head Screw	*	4
136	Hex. Socket Cap Screw M10x25	*	2
137	Slide	965112501	1
138	Blade Bracket-Left	965112601	1
140	Hex. Cap Bolt M8x25	*	2
140-1	Lock Washer M8	*	2
141	Lock Handle 3/8x30	965112701	1
142	Stationary Plate	965112801	1
143	Set Screw M8x10	*	4
144	Blade Bracket-Right	965112901	1
145	Hex. Cap Bolt M6x12	*	1
145-1	Lock Washer M6	*	1
146	Washer M6	*	1
147	Wire Brush	965113001	1
148	Wire Brush Rod	965113101	1
149	Guide Bracket-Right	965113201	1
149-1	Nozzle	965113301	1
149-2	Hex. Socket Cap Screw M8x50	*	1
150	Spring	965113401	1
151	Set Screw M6x8	*	1
152	Nut M10	*	1
153	Hex. Socket Cap Screw M8x45	*	1
155	Nut M12	*	1
155-1	Hex. Cap Bolt M12x30	*	4
155-2	Lock Washer M12	*	4

Ref.	Description	Part No	Qty
155-3	Washer M12	*	4
156	Stand Bolt M12x50	*	1
157	Blade Guard	965113501	1
157-1	Blade Guard-Down	965113601	1
158	Lock Knob 1/4x10	965113701	2
159	Hose 8x700MM	965113801	1
160	Adjusting Valve	965113901	2
160-1	Hose 8x320MM	965114001	1
160-2	Hose Clamp 14MM	965114101	2
160-3	Brace	965114201	2
160-4	Lock Washer M6	*	4
160-5	Hex. Cap Bolt M6x12	*	4
161	Power Indicator Light	965114301	1
161-1	Switch with Key	965114401	1
162	Start Switch	965114501	1
163	Emergency Stop Switch	965114601	1
164	Pump Switch	965114701	1
165	Speed Control Valve	965114801	1
166	Connection Tube	965114901	1
166-1	Hose 5/16"x400MM	965115001	1
166-2	Hose 5/16"x940MM	965115101	1
168	Control Box	965115201	1
169	Control Panel	965115301	1
169-1	Oil Regulating Micro Switch	965115401	1
169-2	On / Off Switch	965115501	1
170	Round Head Screw M5x8	*	6
171	Wheel Box-Left	965115601	1
171-1	Lock Plate	965115701	1
171-2	Washer M6	*	2
171-3	Hex. Cap Bolt M6x16	*	2
172	Handle M12	965115801	1
173	Nut M12	*	2
175	Round Head Screw M5x10	*	2
176	Indicator Scale	965115901	1
177	Slide Bracket	965116001	1
178	Tension Shaft	965116101	1
179	Key 5x15	965116201	1
180	Handwheel	965116301	1
181	Disc Spring	965116401	13
182	Flat Washer	*	1
183	Tension Indicator	965116501	1
184	Thrust Bearing 51104	965116601	1
187	Slide	965116701	1
188	Set Screw 5/16"x3/8	*	1
189	Extension Bar	965116801	1
190	Blade Wheel Shaft	965116901	1

* Hardware item, available locally

Ref.	Description	Part No	Qty
191	Nut M16	*	1
191-1	Set Screw M6x8	*	1
192	Hex. Socket Cap Screw M8x20	*	4
193	Hex. Socket Cap Screw M12x20	*	1
193-1	Washer	*	1
194	Gib	965117001	2
195	Hex. Cap Bolt M16x30	*	3
196	Hex. Cap Bolt M10x60	*	3
197	Lock Washer M10	*	3
V96	Pulley Cover	965117101	1
V96-1	Pulley Cover Plate	965117201	1
V96-2	Knob 3/8"	965117301	1
V96-3	Washer M10	*	2
V96-4	Support Shaft	965117401	1
V96-5	Support Rack	965117501	1
V96-6	Lock Washer M8	*	1
V96-7	Nut 5/16"	*	1
V96-8	Hex. Cap Bolt M6x12	*	2
V97	Gear Box Pulley	965117601	1
V97-1	Pulley Cover Fix Plate	965117701	1
V97-2	Fix Rod	965117801	1
V97-3	Washer M8	*	1
V97-4	Lock Washer M8	*	1
V97-5	Hex. Cap Bolt M8x20	*	1
V97-6	Hex. Cap Bolt M8x45	*	1
V97-7	Washer M8	*	2
V97-8	Lock Washer M8	*	1
V97-9	Nut M8	*	1
V98	Belt	965117901	1
V99	Variable Speed Adjustable	965118001	1

* Hardware item, available locally

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 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 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 related to the use or inability to use our products. This warranty gives you specific legal rights which may vary from state to state.

PALMGREN®

Palmgren - a C.H. Hanson Company
2000 N. Aurora Rd., Naperville, IL 60563 U.S.A.
or call 1-800-827-3398