

MODELS BD, BW & MB

INSTRUCTIONS - PARTS

CONSULT INSTRUCTION BOOK BEFORE MAKING ANY CHANGES IN FACTORY SETTING

WHEN ORDERING PARTS

- GIVE COMPLETE SERIAL NUMBER OF MACHINE
- GIVE PART NUMBER AND NAME
- GIVE AMOUNT REQUIRED

Unless the above Data is included we cannot fill your order.

Machine Model and Serial Number _____
Insert Here

DAKE
Johnson

Horizontal Bandsaw Machines

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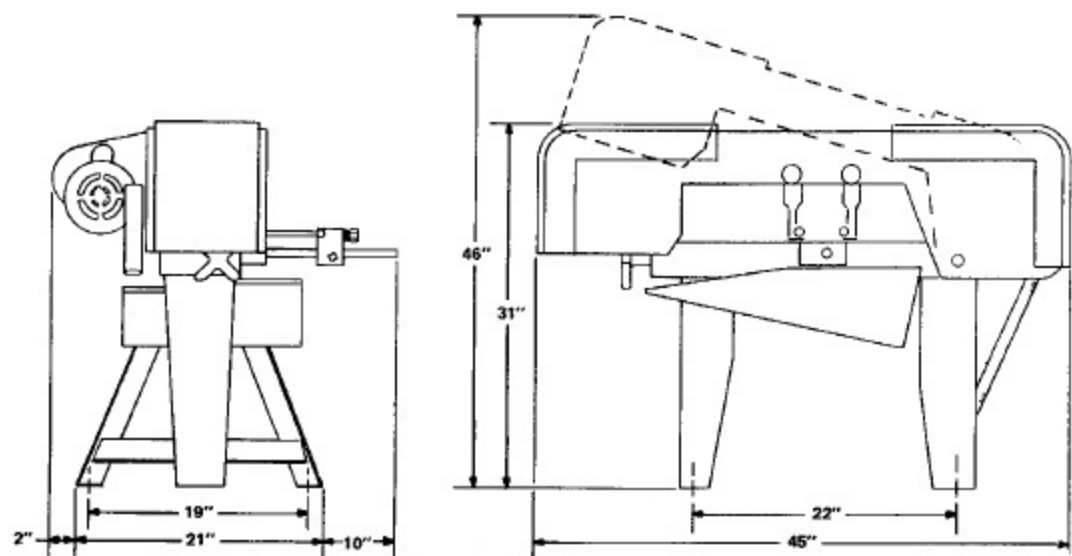
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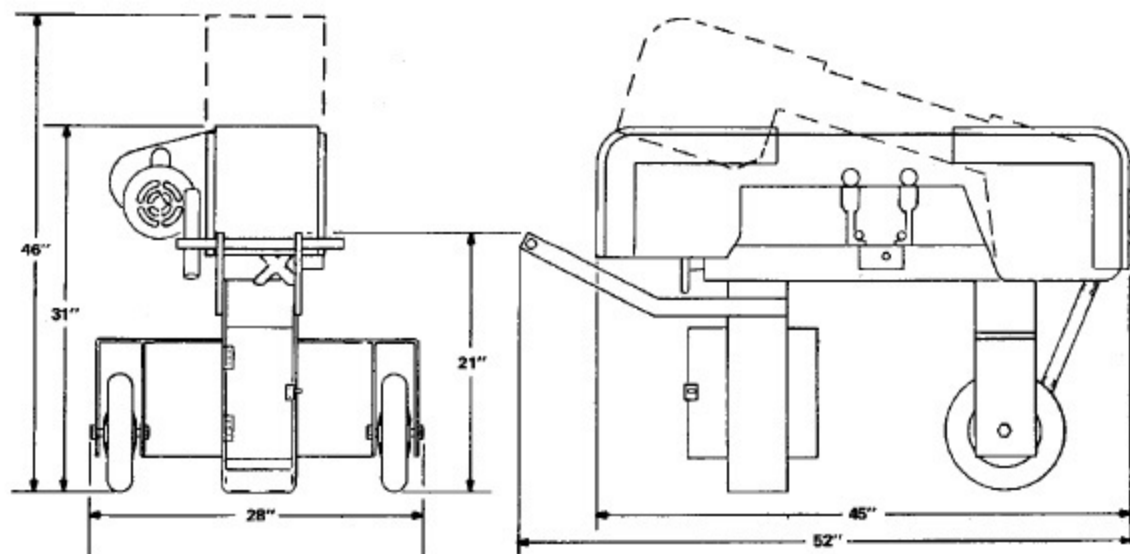
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Johnson Band Saws
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FOUNDATION DRAWING



BD AND BW DIMENSIONS



MB DIMENSIONS

Figure 1

FUNCTIONAL DIAGRAM

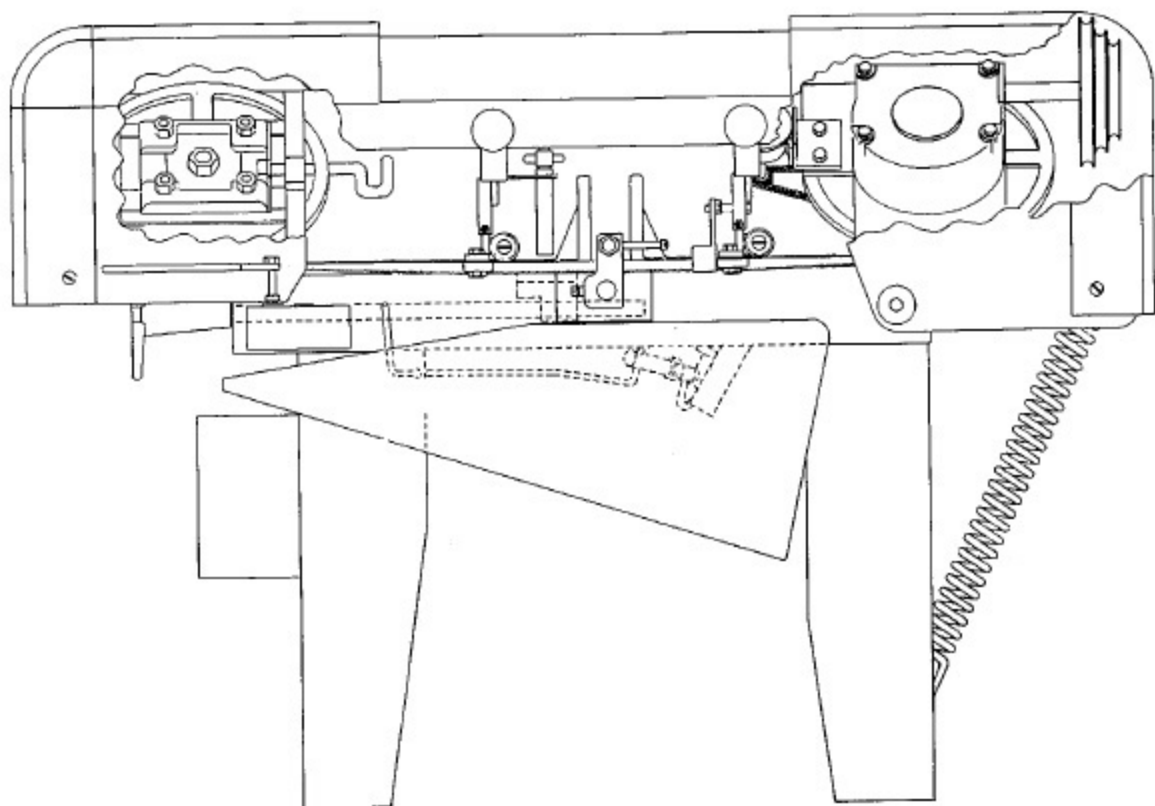


Figure 2

INSTALLATION

UNCRATING

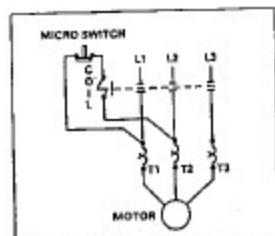
Remove crating carefully. For ease in handling do not remove from skid until machine has been moved to its approximate location.

CAUTION: BE SURE ELECTRICAL CHARACTERISTICS OF MOTOR AND SWITCH CORRESPOND WITH ELECTRICAL POWER SUPPLY.

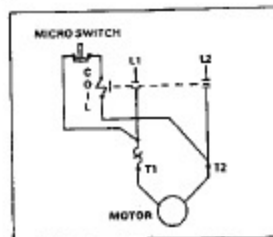
LEVELING

Position machine reasonably level, shim under legs if necessary. Wet machines should be more carefully leveled to be certain that the coolant intake remains submerged.

CONNECT INCOMING POWER TO THE STARTER PER APPLICABLE DIAGRAM, AND IN ACCORDANCE WITH ALL LOCAL CODES.



WIRING DIAGRAM - 3 PHASE STARTER



WIRING DIAGRAM - 1 PHASE STARTER

SPECIFICATIONS

Capacity	5" rounds, 10" flats
Blade Size	½" x 89"
Blade Speed.....	45, 90, 150 FPM
Bed Work Area	7" x 10"
Vise Size	3¾" x 7½"
Drive Motor	½ HP
Electrical System (BDI, BWI, MBI)	115/230V, 1 PH, 60 Hz.
(BD3, BW3)	208/230/460V, 3 PH, 60 Hz.
Floor Space	24" x 45"
(MBI only)	28" x 52"
Height Closed*.....	31"
Height Open*	46"
Floor to Bed*	21"
Net Weight	235 lbs.
(MBI only).....	300 lbs.
Gross Weight	280 lbs.
(MBI only).....	350 lbs.

**Add 4 inches to BD and BW machines if equipped with casters.*

CONTROLS AND OPERATION

OFF/ON SWITCH

All "B" machines are equipped with a manual starter with low voltage drop-out protection and a limit switch mounted in the top of the starter. When the machine frame reaches the end of its down travel, it contacts the limit switch, turning off the machine.

HYDRAULIC CONTROL

The hydraulic control mounted on the rear of the machine is operated by a hand protruding from the front of the bed. The handle is connected to a valve at the base of the hydraulic cylinder. To close valve turn to right. When completely closed the frame will remain stationary at the desired position. To open valve turn control to left. Opening valve controls the speed of descent of frame (or head) and does not control frame weight. This control is mainly used in cutting pipe or thin walled tubing, structurals, etc., to prevent plunging of saw blade.

WISE

The vise can be positioned straight for 90° cut or at any angle to 45°. For angles other than 90° loosen the two capscrews in stationary vise jaw and set jaw at desired angle; retighten the capscrews. The vise movable jaw adjusts automatically to any position of the stationary jaw.

WISE HANDWHEEL

Used to open and close the vise jaws . . . turn wheel counterclockwise to open, clockwise to close.

BLADE TENSION SCREW

Turn screw clockwise to apply blade tension. As the tension screw is turned watch the section of blade along back of machine above the rear blade guard. Blade will move downward as screw is tightened until blade is parallel with top of wheels. When blade stops moving, note position of tension screw handle and rotate handle one more complete turn. Check every eight operating hours to compensate for possible stretching of blade.

GUIDE ARMS

Turn knob on left guide arm to slide arm along the frame. Guide arms should be set as close to work as possible without interfering.

COOLANT NOZZLE VALVE (BW machines only).

Coolant nozzle is located on left guide arm. Turn valve counterclockwise to open.

STOCK STOP GAUGE

Consists of a stock stop assembly and a mounting bar installed in the tip-off block on front of machine. The stop assembly can be moved along the bar to indicate correct length for duplicate cuts. Stock stop rod has a capscrew in the end for making fine adjustments. Turn rod to extended position (rotated to the right) when measuring stock and retract the rod (rotate to left) when cutting.

OPERATING INSTRUCTIONS

1. Raise frame and close feed cylinder valve to hold frame in elevated position.
2. Open vise and place work in vise. Clamp work securely.
3. Slowly open feed cylinder valve and lower the frame until blade almost touches the work.

CAUTION

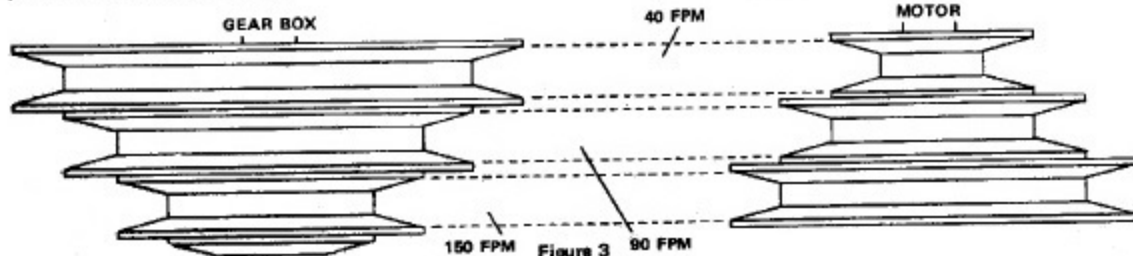
IF BLADE SHOULD REST UPON THE WORK BEFORE MOTOR IS STARTED, BLADE TEETH CAN BE DAMAGED . . . IF BLADE IS DROPPED ONTO THE WORK, THE BLADE MIGHT BE BROKEN.

4. Move adjustable guide arm as close as possible to the work to provide maximum blade rigidity.
5. Check blade tension.
6. Turn coolant valve on (BW machines only).

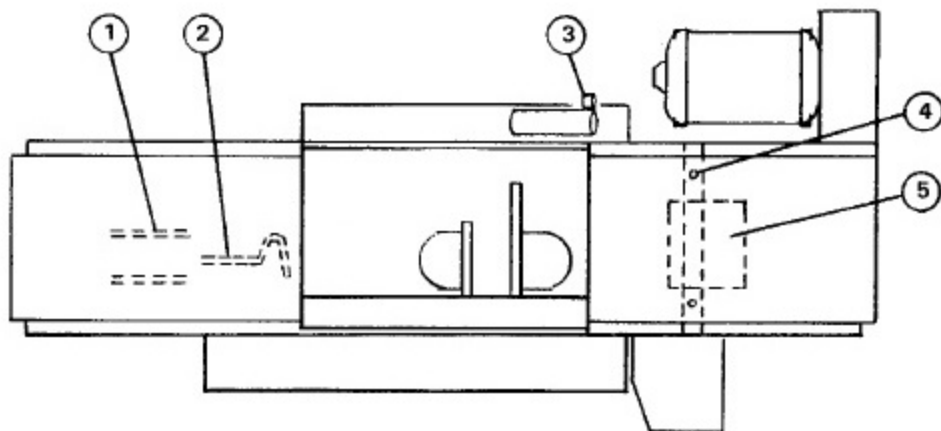
CAUTION

DO NOT OPERATE MACHINE WITHOUT SUFFICIENT COOLANT IN TANK; COOLANT PUMP SPROCKET OR DRIVE CHAIN MUST BE REMOVED IF MACHINE IS TO BE OPERATED DRY.

7. Open the cover on right end of machine.
8. Move drive belt to proper grooves in both pulleys for desired blade speed, see Figure 3. Replace cover.
9. Start motor.
10. Open feed cylinder valve to the proper setting. "Proper" setting depends upon type of material, hardness and thickness of stock and desired accuracy and finish. Soft materials require less feed than hard materials. Thin cross-sections require less feed than solid cross-sections. Generally, reduced feed pressure will result in a straighter more accurate cut.



LUBRICATION



LUBE POINT	DESCRIPTION	INTERVAL	LUBRICANT	INSTRUCTIONS
1	Idle Wheel Slide Ways	6 Months	C	Clean thoroughly before lubricating.
2	Tension Screw	6 Months	C	Clean threads before lubricating.
3	Feed Cylinder	Maintain Level	A	Maintain level near top of oil cup.
4	Pivot Bar (2 fittings)	Monthly	C	Use grease gun.
5	Gear Box	Maintain Level	B	Maintain level at 2 to 3 ounces. Drain and refill yearly. Capacity 3 ounces.

RECOMMENDED LUBRICANTS

- A — Anti-Wear Oil. Viscosity Range 310 SSU @ 100°F.
- B — Extreme Pressure Gear Oil, Lithium Base. Viscosity Range SAE 90.
- C — General Purpose Grease. Viscosity Range NLGI-2.

TROUBLESHOOTING

TROUBLE	POSSIBLE CAUSE	CORRECTION
BLADE NOT CUTTING STRAIGHT	Insufficient blade tension.	Adjust tension handle.
	Excessive feed rate.	Turn cylinder control handle to decrease head descent speed and/or move slide weight to right.
		Adjust frame balance spring.
	Guide arms too far from work.	Move guide arm.
	Blade cleaning brushes not making proper contact with blade.	Clean brushes and adjust holder . . . replace brushes if worn out.
	Damaged or worn blade.	Replace blade.
	Material not held securely in vise.	Adjust vise handwheel.
	Improper guide roller adjustment.	Readjust rollers.
	Blade cleaning brushes not making proper contact with blade.	Clean brushes and adjust holder . . . replace brushes if worn out.
BLADE BREAKAGE AND/OR TEETH STRIPPING	Material not held securely in vise.	Adjust vise handwheel . . . be sure all pieces are clamped securely if cutting multiples.
	Head approaching work too fast.	Turn cylinder control handle to decrease head descent speed.
	Excessive feed rate.	Decrease head descent speed and/or move slide weight to right.
		Adjust frame balance spring.
	Blade too coarse.	Install proper blade.
	Excessive blade tension.	Readjust blade tension.
	Improper guide roller adjustment.	Readjust guide rollers.
PREMATURE BLADE DULLING	Blade too coarse.	Replace blade.
	Insufficient feed pressure.	Turn cylinder control handle to increase head descent speed and/or move slide weight to left.
		Adjust frame balance spring.
BACK OF BLADE SWAGING OVER	Improper blade tension.	Adjust tension handle.
	Guide arms too far apart or cutting pressure all on one guide.	Move guide arm.
	Soft blade.	Replace blade.
	Excessive cutting pressure.	Turn cylinder control handle to decrease head descent speed and/or move slide weight to right.
		Adjust frame balance spring.
PIECES BREAKING AWAY FROM BACK OF BLADE	Blade tracking too high on wheels.	Adjust drive and idle wheels for proper blade tracking.

MAINTENANCE AND ADJUSTMENTS

BLADE SELECTION

1. Saw blades should be selected by choosing the blade that will give best results at lowest cost. Type of material and the speed at which it must be sawed determine the choice. Listed below are general factors affecting blade selection.
2. Blade Type.
 - a. Carbon Steel — Can be used to cut all types of ferrous, non-ferrous and composition materials except alloys containing high percentage of chrome and nickel. Limiting factor: low resistance to heat.
3. Tooth Style.
 - a. Standard — Zero degree rake angle and full round gullets. Best suited for cutting ferrous and non-ferrous materials.
 - b. Skip Tooth — Basically the same as standard except for more widely spaced teeth. Provides added chip room when cutting non-ferrous metals.
 - c. Hook Tooth — Similar to skip tooth except teeth have positive rake. Effective in sawing non-ferrous metals and large ferrous sections where heavy feed pressure is required. Fast cutting.
4. Tooth Spacing.

Tooth spacing is determined by hardness of material and/or the cross section. The harder the material, the more teeth per inch. Thin cross-sections require more teeth to avoid straddle. *Rule: at least 3 teeth in contact with work.*
5. Tooth Set.
 - a. Raker — Most widely used. Consists of a repeated pattern of one tooth set left, one right and one tooth straight. Recommended for production cutting where material is of uniform size, shape and type.
 - b. Wavy — Has groups of teeth set alternately to the left and to the right forming a wave-like pattern. Used for cutting thin stock or where the work varies such as in pipe, angles, channels and extrusions.

BLADE REMOVAL

1. Raise frame a few inches above bed and close feed cylinder valve to hold frame up.
2. Remove blade cleaning brushes.
3. Back off blade tension screw and pull idle wheel toward center of machine.
4. Push blade down out of guides and remove from machine.

BLADE INSTALLATION

1. Raise frame a few inches above bed and close cylinder valve to hold frame up.
2. Remove blade cleaning brushes and L.H. blade guard.
3. Back off blade tension screw and pull idle wheel toward center of machine.
4. Grasp blade in center forming two loops. From rear of machine place blade loops under wheels and rest the rear portion on rear blade guard.
5. Push blade up into blade guides.
6. Fit blade up against flanges of the idle and drive wheels and tighten tension screw enough to hold blade in place. Depress side of blade near rear blade guard to hold blade on wheels while tightening tension screw.
7. Check to see blade is positioned correctly and tighten tension screw to proper blade tension.
8. Install blade cleaning brushes and blade guard.

BLADE TRACKING ADJUSTMENT

1. Saw blade should track on each wheel with back of blade up to, but not riding on, wheel flange. Adjust as follows:

2. Idle Wheel.

Lower the cover on left end of frame to gain access to idle wheel. Wheel is mounted on a slide block which contains the blade height adjustment screws. To raise the blade, loosen the two screws toward center of machine (A, Figure 4) one-half turn and tighten the other two screws (B) one-half turn. Be sure tension screw (C) is properly tightened. Reverse procedure to lower blade. Care must be taken not to overadjust. Check by running machine after each adjustment.

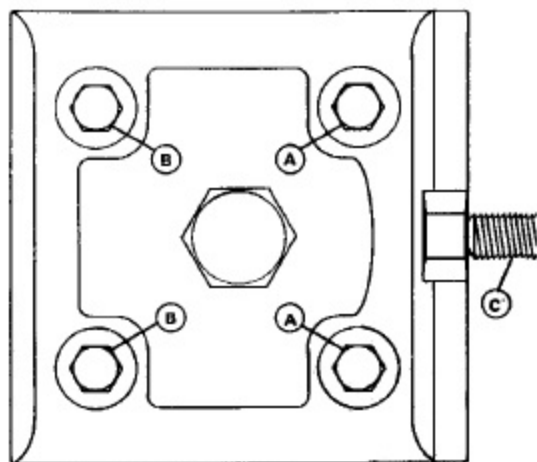


Figure 4

3. Drive Wheel.

- a. Open the cover on right end of frame to gain access to underside of drive wheel.

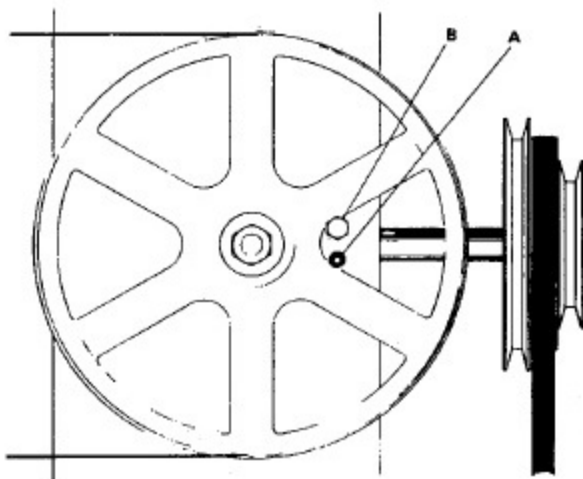


Figure 5

Rotate drive wheel exposing the cap screw and set screw as shown in Figure 5.

- b. To raise blade, loosen set screw (A) and tighten cap screw (B). The screws must be turned equally and in increments of $\frac{1}{2}$ turn to avoid over-adjustment. Check by running machine after each adjustment.
- c. Reverse procedure to lower the blade: loosen cap screw (B) and tighten set screw (A).

BLADE GUIDE ADJUSTMENT

NOTE: THE FOLLOWING INSTRUCTIONS ARE FOR ONE GUIDE ARM, PROCEDURE IS SAME FOR BOTH. LEFT HAND GUIDE ARM IS SHOWN IN FIGURE 6.

1. Loosen nut (A, Figure 6) and turn eccentric axle (B) until there is no light gap between rollers and blade... do not pinch the blade. Tighten nut (A).
2. Loosen two screws (C) and move guide link (D) until blade is square with bed and blade is in natural line between the drive and idle wheels. Adjust height of guide link (D) so upper roller just touches back of blade.
3. Place a machinist's square on bed and against the

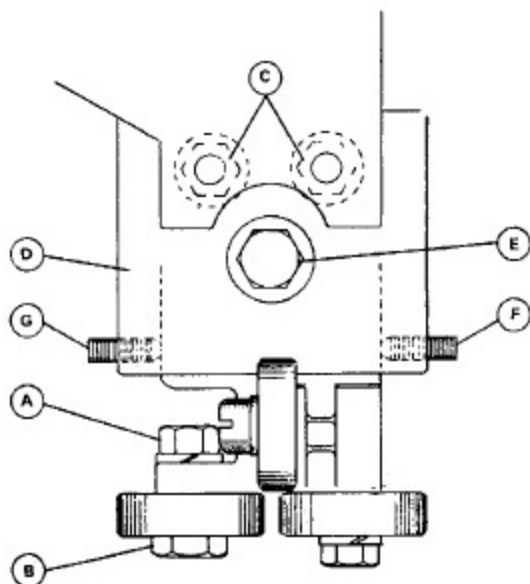


Figure 6

saw blade near guide arm, loosen screw (E) slightly and adjust as follows:

- a. If bottom edge of blade is inclined toward the bed, back inner set screw (F) out a few turns. Turn set screw (G) in until blade is perpendicular. Tighten set screw (F).
 - b. If top edge of blade is inclined toward bed, back outer set screw (G) out a few turns. Turn set screw (F) in until blade is perpendicular. Tighten set screw (G).
4. Tighten screw (E) securely.

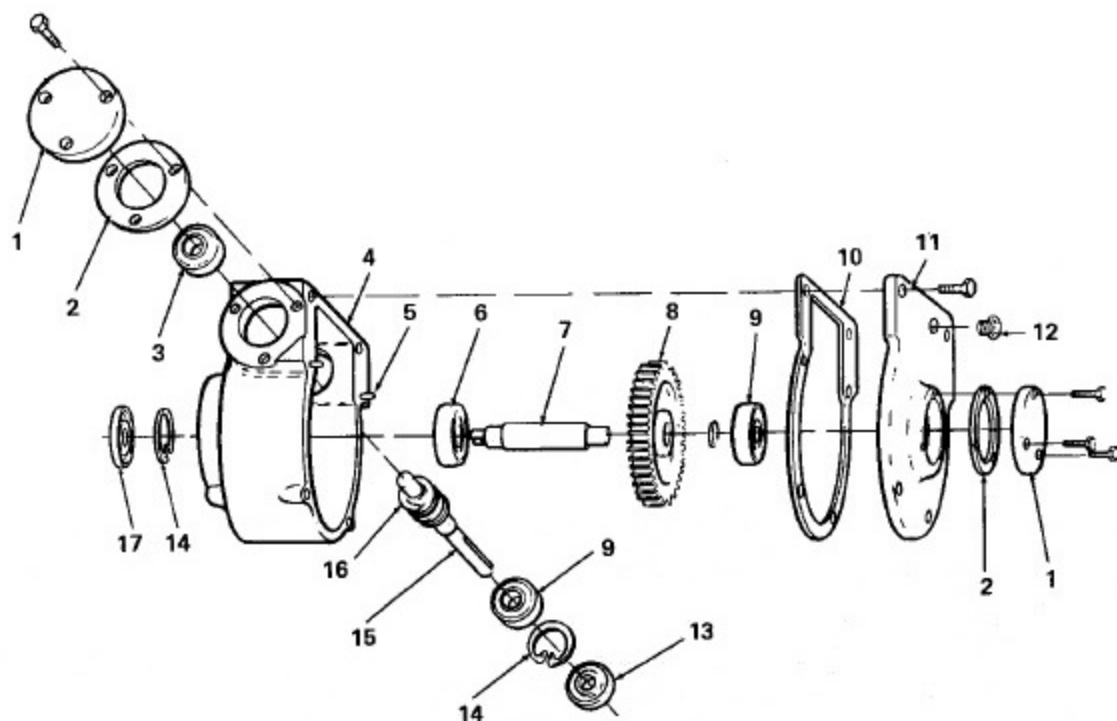
FRAME BALANCE SPRING ADJUSTMENT

To check for proper balance spring adjustment, move the sliding weight all the way to the left and lift frame, at handle, with an extension type scale. Frame should weigh 7 pounds, if not, adjust by turning nut on the tension screw at top of spring.

HYDRAULIC CYLINDER BLEEDING

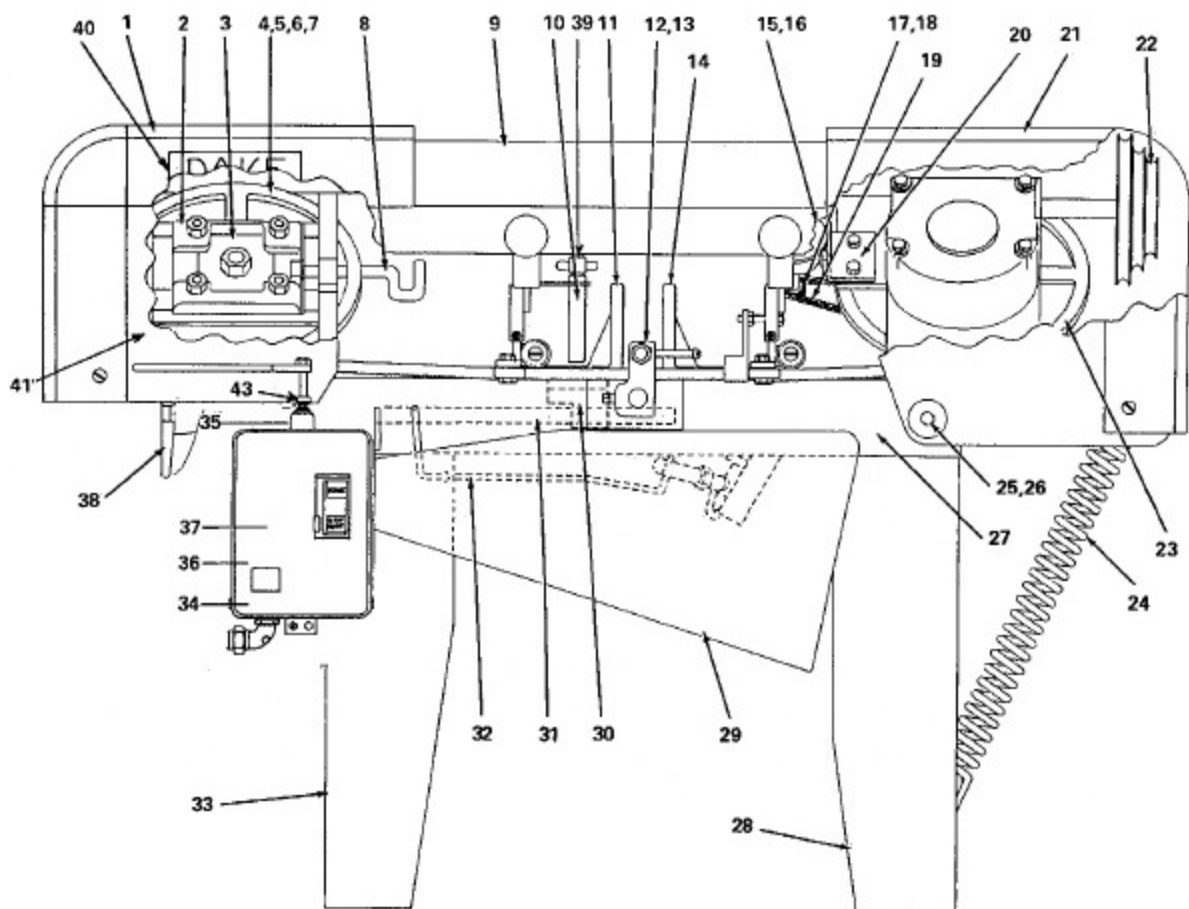
1. Air trapped in the hydraulic cylinder can cause down speed of machine frame to be erratic or "bouncy". Bleed hydraulic cylinder as follows:
2. Remove cylinder from machine.
3. With cylinder in upright position fill to top with proper oil and then pull piston rod out at least 4 inches.
4. Open valve at bottom of cylinder, hold oil fill cup cover shut and invert the cylinder. With unit inverted push piston rod all the way into cylinder.
5. Install cylinder on machine and add oil as needed.

GEAR BOX ASSEMBLY



ITEM	PART NO.	DESCRIPTION	QTY.
	5544-00	Gear Box Assembly	
1	5047-00	Bearing Cap	2
2	5138-00	Cap Gasket	2
3	5073-00	Bearing	1
4	5044-00	Gear Case	1
5	5142-00	Dowel Pin	2
6	5074-00	Bearing	1
7	5049-00	Spur Gear Shaft	1
8	5051-00	Bronze Gear	1
9	5072-00	Bearing	2
10	13080-01	Cover Gasket	1
11	5045-00	Gear Case Cover	1
12	13080-04	Breather Vent	1
13	5137-02	Oil Seal	1
14	5136-00	Snap Ring	2
15	5048-00	Worm Shaft	1
16	5050-00	Steel Worm	1
17	5137-22	Oil Seal	1
18	26189	Woodruff Key (not shown)	2
	5544-01	Worm & Shaft Assembly (Includes Items 15, 16 & 18)	
	5544-02	Worm Gear & Shaft Assembly (Includes Items 6, 7, 8 & 18)	
	714706	Bearings & Seal Repair Kit (Includes Items 2, 3, 6, 9, 10, 13, 14 & 17)	

MACHINE, Front View



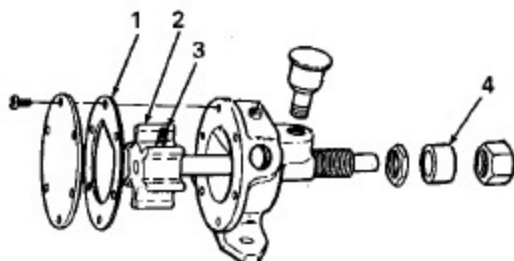
MACHINE, Front View

ITEM	PART NO.	DESCRIPTION	QTY.
1	5126-01	Front Cover Assembly	1
2 & 3	5011-01	Slide Block and Rocker Assembly	1
4	5010-02	Idle Wheel	1
5	5062-00	Idle Wheel Axle	1
6	5071-00	Idle Wheel Bearing	1
7	5136-00	Snap Ring	1
	5510-00	Idle Wheel Assembly (Items 4, 5, 6, 7)	1
8	5125-00	Tension Screw	1
9	5126-03	Side Rail	2
10	5391-00	Coolant Nozzle	1
11	5008-00	Movable Vise Jaw	1
12	5527-00	Stock Stop Assembly	1
	5027-00	Holder Casting	1
	5213-00	Rod	1
	5028-00	Spring	1
	5200-00	Handle	1
13	5027-01	Stock Stop Mounting Bar	1
14	5009-00	Stationary Vise Jaw	1
15	5288-00	Coolant Pump	1
16	5278-01	Pump Elbow	2
17	5389-00	Sprocket, Small	1
18	5388-00	Sprocket, Large	1
19	5390-00	Chain	1
20	5290-00	Coolant Pump Bracket	1
21	5126-02	Rear Cover Assembly	1
22	5043-00	Drive Pulley	1
23	5010-01	Drive Wheel	1
24	5070-00	Balance Spring	1
25	5066-00	Pivot Bar	1
26	5202-00	Pivot Bar Collar	2
27	5001-00	Bed	1
28	5004-00	Back Leg	1
29	5269-00	Reservoir Pan	1
30	5007-00	Vise Nut and Hold Down Block	1
31	5015-00	Vise Screw	1
32	10115-01*	Hydraulic Control Rod	1
33	5005-00	Front Leg	1
34	10591-00	Starter, 115V — 1 PH	1
	10591-01	Starter, 230V — 1 PH	1
	10591-02	Starter, 208V — 3 PH	1
	10591-03	Starter, 230V — 3 PH	1
	10591-04	Starter, 460V — 3 PH	1
35	10190-06	Microswitch, BZ-2RQ77 with IPA2	1
36	68919	Overload Heater, 115V — 1 PH — 1/2 HP	1
	70477	Overload Heater, 230V — 1 PH — 1/2 HP	1
	70461	Overload Heater, 208V — 3 PH — 1/2 HP	3
	74061	Overload Heater, 230V — 3 PH — 1/2 HP	3
	10190-12	Overload Heater, 460V — 3 PH — 1/2 HP	3
37	10190-01	Low Voltage Protection Coil, 120V	1
	10190-02	Low Voltage Protection Coil, 208V	1
	10190-03	Low Voltage Protection Coil, 230V	1
	10190-04	Low Voltage Protection Coil, 460V	1
38	5014-00	Vise Handwheel	1
39	7278-02	Coolant Shutoff Valve	1
40	5162-00	Name Plate	1
41	5002-00	Frame	1
42	5161-22	Striker Plate	1
PARTS NOT ILLUSTRATED			
	5079-01	Motor, 115/230V, 60 Hz, 1 Ph.	1
	5079-02	Motor, 208/230/460V, 60 Hz, 3 Ph.	1
	5042-00	Motor Pulley	1
	5077-00	Drive Belt, V-type — 30 inch	1
	5107-00	Motor Hanger Base	1
	5106-03	Motor Mounting Pin	1
	5233-01	L.H. Movable Blade Guard	1
	5233-02	R.H. Fixed Blade Guard	1
	5268-00	Right Leg Coolant Pan	1
	5002-09	Bar Slide	1
	5211-00	Slide Weight Rod	1
	5104-00	Slide Weight	2
	5229-00	Brush Holder Guard	1

*5115-00 on older models with short rod

Note: Refer to price list for other electrical parts not listed here.

COOLANT PUMP ASSEMBLY



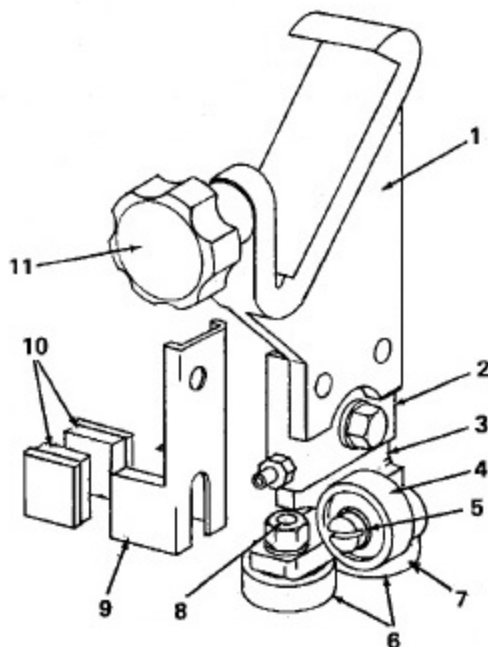
ITEM	PART NO.	DESCRIPTION	QTY.
	5288-00	Mechanical Coolant Pump Assembly	1
1		Gasket	
2		Impeller	
3		Screw	
4		Packing	
	5288-12	Pump Repair Kit (Includes Items 1, 2, 3 & 4)	1
PARTS NOT ILLUSTRATED			
	5293-00	Coolant Pump Strainer Housing	1
	5294-00	Strainer Screen	1
	5285-00	Strainer Fitting	1
	5136-00	Snap Ring	1
	10293-00	Strainer Assembly (Complete)	1
	5588-01	Imperial Eastman Valve	1

GUIDE ARM ASSEMBLY

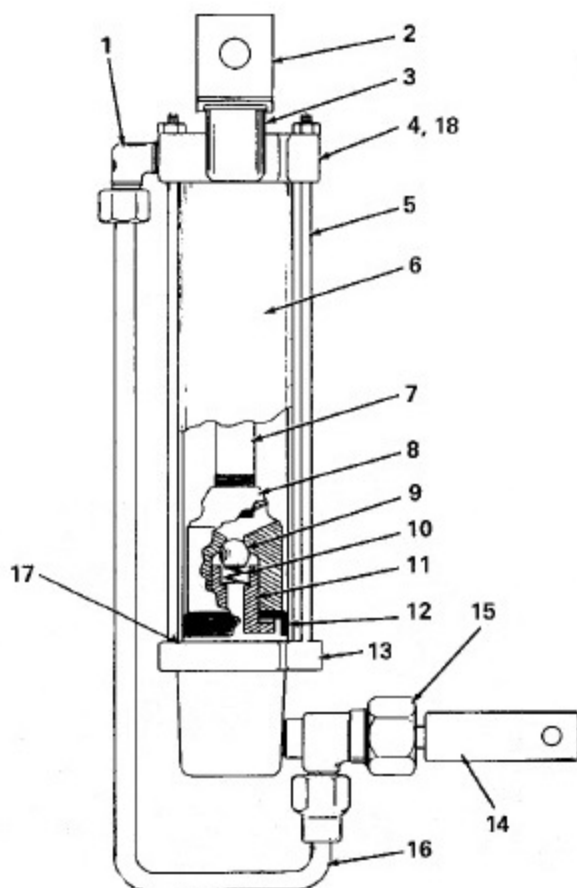
ITEM	PART NO.	DESCRIPTION	QTY.
	5519-00	Guide Arm Assembly	2
1	5019-00	Guide Arm	1
2	5021-00	Guide Link	1
	5520-00*	Guide Holder Assembly	1
3	5020-00	Guide Holder	1
4	5026-00	Upper Roller	1
5	5023-01	Upper Roller Bushing	1
6	5025-00	Side Roller	2
7	5075-00	Rear Side Roller Bushing	1
8	5022-01	Eccentric Axle	1
9	5122-00	Brush Holder	1
10	5133-01**	Brush	2
11	5084-00	Knob	2

*Includes Items 3, 4, 5, 6, 7 & 8

**Sold only as a set of 6 pairs, part #5133-S



HYDRAULIC CYLINDER ASSEMBLY



ITEM	PART NO.	DESCRIPTION	QTY.
	5530-00	Hydraulic Cylinder Assembly	1
1	5132-00	Elbow	1
2	5013-00	Angle	1
3	5032-00	Oil Fill Cup	1
4	5030-00	Cylinder Head	1
5	5205-00	Tie Rod	3
6	5203-00	Cylinder	1
7	5204-00	Piston Rod	1
8	5119-00	Piston	1
9	17817	Steel Ball, 3/8 dia.	1
10	5129-00	Spring	1
11	5120-00	Piston Nut	1
12	5130-00	Cup Leather	1
13	5031-00	Cylinder Base	1
14	5207-00	Valve Coupling	1
15	5131-00	Valve	1
16	5206-00	Return Line	1
17	10203 03	Seal	2
18	10115 02	Head Seal (O-Ring)	1
19	10115-03	Garlock Shaft Seal (Older Models Not Shown)	
	714717	Hydraulic Cylinder Repair Kit (Includes Items 9, 10, 12, 17 & 19)	
	5530 01	Rod & Piston Assembly (Includes Items 7, 8, 9, 10, 11 & 12)	