

Instruction Manual

CONTINENTAL SERIES

By



SAWING PRODUCTS

Models:

DC-280NC

DC-330NC

DC-420NC

DC-460NC

DC-500NC

DC-560NC

Band Sawing Machine

DAMAGE CLAIM PROCEDURES

VISIBLE DAMAGE AT THE TIME OF DELIVERY:






1. Note damage on carrier's delivery receipt. Accept the shipment. It can be returned later if repairs are not possible in the field.
2. Request a "damage inspection" from the delivery carrier:
 - a. The carrier will send his own people or contract an independent agency to make the inspection.
 - b. The inspector will request a signature on the report and leave a copy.
 - c. The carrier "damage inspection" report is not final. If additional damage is found when repairs are started, contact the carrier for another inspection; or at least give them the details of the damage.
3. Do not move the equipment from the receiving area and keep all shipping materials until carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your files. Photos could possibly prove a claim at a later time.
5. Keep a record of all expenses and be sure they are documented.
6. Repair damage in the field whenever possible. Carriers encourage this to keep expenses down.
7. You have nine (9) months to file a claim.

CONCEALED DAMAGE:

1. You have fourteen (14) days to report damage not noted at time of delivery.
 - a. Report damage as soon as possible. This makes it easier to prove that it did not happen at cosignee's plant.
 - b. Inspect machine(s) carefully before moving from the receiving area. Again, if machine is not moved, it is easier to prove your case.
2. Request a "damage inspection" from the delivery carrier:
 - a. The carrier will send his own people or contract an independent agency to make the inspection.
 - b. The inspector will request a signature on the report and leave a copy.
 - c. The carrier "damage inspection" report is not final. If additional damage is found when repairs are started, contact the carrier for another inspection; or at least give them the details of the damage.
3. Do not move the equipment from the receiving area and keep all shipping materials until carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your files. Photos could possibly prove a claim at a later time.
5. Keep a record of all expenses and be sure they are documented.
6. Repair damage in the field whenever possible. Carriers encourage this to keep expenses down.
7. You have nine (9) months to file a claim.

OPERATOR'S INSTRUCTION MANUAL

METAL CUTTING BAND SAW

MACHINE MODEL				SERIAL NUMBER	
<input type="text"/>				<input type="text"/>	
TOTAL MACHINE ELECTRICAL POWER INPUT DATA					
VOLTAGE	PHASE	HERTZ	FULL LOAD AMPS		
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>		
V			A		
LARGEST CONTROLLED MOTOR			OVERCURRENT PROTECTION PROVIDED AT MACHINE SUPPLY TERMINAL		
<input type="text"/>			<input type="text"/>		
FIELD ALIGN & ADJUST SUMMARY			BAND LENGTH 		
<input type="text"/>			<input type="text"/>		
ELECTRICAL SCHEMATIC NUMBER			DATE OF MANUFACTURE		
<input type="text"/>			<input type="text"/>		
HYDRAULIC SCHEMATIC NUMBER			 SEE INSTRUCTION MANUAL FOR MACHINE OPERATION AND LUBRICATION DATA		
<input type="text"/>					

For your information and future reference, pertinent data concerning your machine should be written in the spaces provided above. This information is stamped on a plate attached to your machine. Be sure to provide machine model and serial numbers with any correspondence or parts orders.

Specifications contained herein were in effect at the time this manual was approved for printing. The DoALL Company, whose policy is one of continuous improvement, reserves the right, however, to change specifications or design at any time without notice and without incurring obligations.

PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATING THE MACHINE!

For Sales, Parts and Service, call 1-888-362-5572

For general information, visit our web site at: www.doallsawing.com



DoALL SAWING PRODUCTS
 2375B TOUHY AVENUE
 ELK GROVE, ILLINOIS 60007 U.S.A.

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 DoALL.

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SAFETY RULES



1. **CLOTHING.** To protect the operator from entanglement or being pulled by a clamped vise, the operator should not wear loose fitting clothing or wear gloves while operating the machine. Wear safety shoes to protect against foot injury.
2. **INSTALLATION.** The machine must be properly grounded to protect against electric shock. Use durable insulating material to protect power lines that lie on the floor.
3. **DO NOT** defeat the purpose of any guards or any other safety devices. **THEY ARE THERE FOR YOUR PROTECTION!**
4. Keep hands away from moving saw band while the machine is running.
5. If the operator needs to check the interior of the machine during operation, turn the machine off and wait until the machine come to a complete stop.
6. Do not enter the index vise moving area. Lifting of workpieces to the feeding table is done by overhead hoist.
7. Do not touch the circuit breakers, switches or buttons with wet hands.
8. Turn power off before servicing, cleaning or maintenance.
9. Wear gloves when replacing the saw band, removing chips, replacing cutting fluid and/or moving material.
10. Coolant is not edible. If swallowed, immediately spit it out and rinse the mouth thoroughly.
11. Do not operate, maintain or check the machine while under the influence of alcohol or medication.
12. The machine will stop when a door or guard is opened. Wait until the machine come to a complete stop before entering the area.
13. Do not stand on the front or rear supporting rollers.
14. Periodically perform a machine check before starting. After completing a job, clean both the machine and the work area thoroughly.
15. The machine operator must be trained and must understand the operation, lifting, saw band replacement and maintenance of the machine.
16. Maintenance personnel must be trained and knowledgeable of electrical controls systems.
17. This machine is designed to cut steel bars and profiled tubes only. Do not cut food, wood, plastic, poisonous material, magnesium or magnesium alloys.

MACHINE SPECIFICATIONS

English Std.
(Metric)

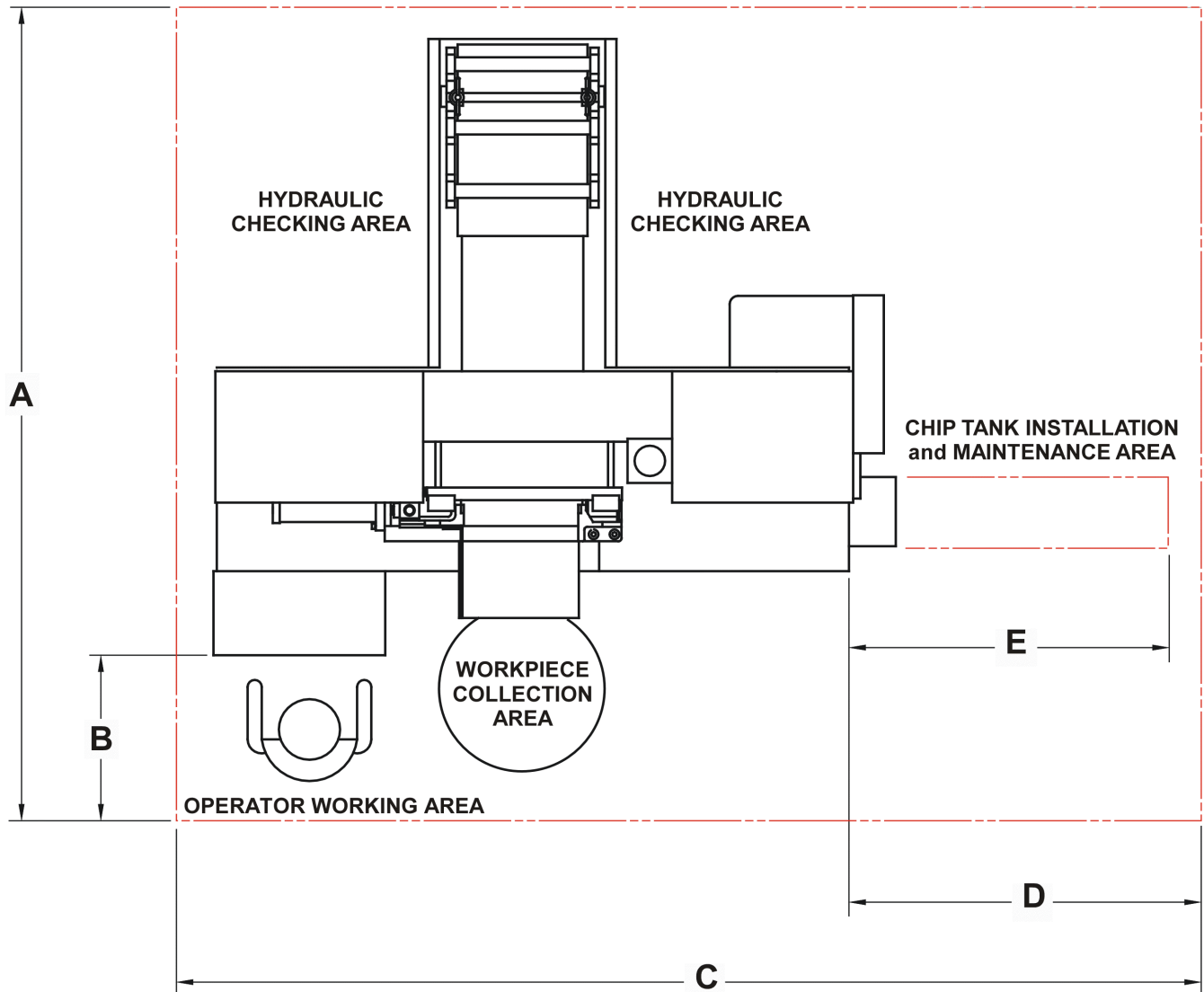
Specification		DC-280NC	DC-330NC	DC-420NC
Cutting Capacity	Rounds ●	.38 - 11.00" (10 mm - 280 mm)	.38 - 13.00" (10 mm - 330 mm)	.38 - 16.50" (10 mm - 420 mm)
	Rectangles (W x H) ■	11.75" x 11.00" (300 mm x 280 mm)	15.75" x 13.00" (400 mm x 330mm)	16.50" x 16.50" (420 mm x 420 mm)
Bundle Cutting	Minimum (W x H)	6.50" x .63" (165 mm x 15 mm)	6.50" x 2.00" (165 mm x 50 mm)	6.50" x 3.25" (165 mm x 80 mm)
	Maximum (W x H)	9.75" x 4.00" (250 mm x 100 mm)	14.50" x 6.63" (370 mm x 170 mm)	14.50" x 7.88" (370 mm x 200 mm)
Band Saw Blade		1.25" x 150" (32 mm x 3820 mm)	1.25" x 167" (32 mm x 4242 mm)	1.50" x 192" (38 mm x 4880 mm)
Band Speed		50 - 400 fpm (15 - 120 m/min.)	50 - 400 fpm (15 - 120 m/min.)	50 - 400 fpm (15 - 120 m/min.)
Band Drive Motor		5 HP (3.7 kW)	5 HP (3.7 kW)	7.5 HP (5.5 kW)
Hydraulic Pump Motor		1 HP (.75 kW)	1 HP (.75 kW)	2 HP (1.5 kW)
Coolant Pump Motor		1/6 HP (.12 kW)	1/6 HP (.12 kW)	1/4 HP (.2 kW)
Band Drive Gearbox Capacity		1.2 Gal. (4.5 liters)	1.9 Gal. (7 liters)	3.0 Gal. (11.5 liters)
Hydraulic Tank Capacity		16 Gal. (60 liters)	16 Gal. (60 liters)	22 Gal. (85 liters)
Coolant Tank Capacity		20 Gal. (80 liters)	24 Gal. (90 liters)	26 Gal. (100 liters)
Indexing Length	Single	15.75 (400 mm)	19.68 (500 mm)	19.68 (500 mm)
	Multiple	141.73 (3600 mm)	177.16 (4500 mm)	177.16 (4500 mm)
Net Weight		3859 lbs. (1750 kg)	4410 lbs. (2000 kg)	5402 lbs. (2450 kg)

Specification		DC-460NC	DC-500NC	DC-560NC
Cutting Capacity	Rounds ●	.38 - 18.00" (10 mm - 460 mm)	.38 - 19.50" (10 mm - 500 mm)	.38 - 22.00" (10 mm -560 mm)
	Rectangles (W x H) ■	19.50" x 18.00" (500 mm x 460 mm)	22.00" x 19.50" (560 mm x 500mm)	24.00" x 22.00" (610 mm x 560 mm)
Bundle Cutting	Minimum (W x H)	9.38" x 3.12" (240 mm x 80 mm)	9.38" x 3.12" (240 mm x 80 mm)	NA
	Maximum (W x H)	18.88" x 9.75" (480 mm x 240 mm)	18.88" x 9.75" (480 mm x 240 mm)	NA
Band Saw Blade		1.50" x 209" (41 mm x 5300 mm)	1.50" x 215" (41 mm x 5450 mm)	2.00" x 260" (54 mm x 6605 mm)
Band Speed		50 - 400 fpm (15 - 120 m/min.)	50 - 400 fpm (15 - 120 m/min.)	50 - 400 fpm (15 - 120 m/min.)
Band Drive Motor		7.5 HP (5.5 kW)	7.5 HP (5.5 kW)	10 HP (7.5 kW)
Hydraulic Pump Motor		2 HP (1.5 kW)	2 HP (1.5 kW)	3 HP (2.2 kW)
Coolant Pump Motor		1/4 HP (.2 kW)	1/4 HP (.2 kW)	1/4 HP (.2 kW)
Band Drive Gearbox Capacity		4.8 Gal. (18 liters)	6.1 Gal. (23 liters)	7.4 Gal. (28 liters)
Hydraulic Tank Capacity		22 Gal. (85 liters)	22 Gal. (85 liters)	34 Gal. (130 liters)
Coolant Tank Capacity		29 Gal. (110 liters)	29 Gal. (110 liters)	37 Gal. (140 liters)
Indexing Length	Single	19.68 (500 mm)	19.68 (500 mm)	15.75 (400 mm)
	Multiple	177.16 (4500 mm)	177.16 (4500 mm)	141.73 (3600 mm)
Net Weight		6284 lbs. (2850 kg)	6835 lbs. (3100 kg)	9923 lbs. (4500 kg)

MACHINE DIMENSIONS

INSTALLATION DIMENSIONS

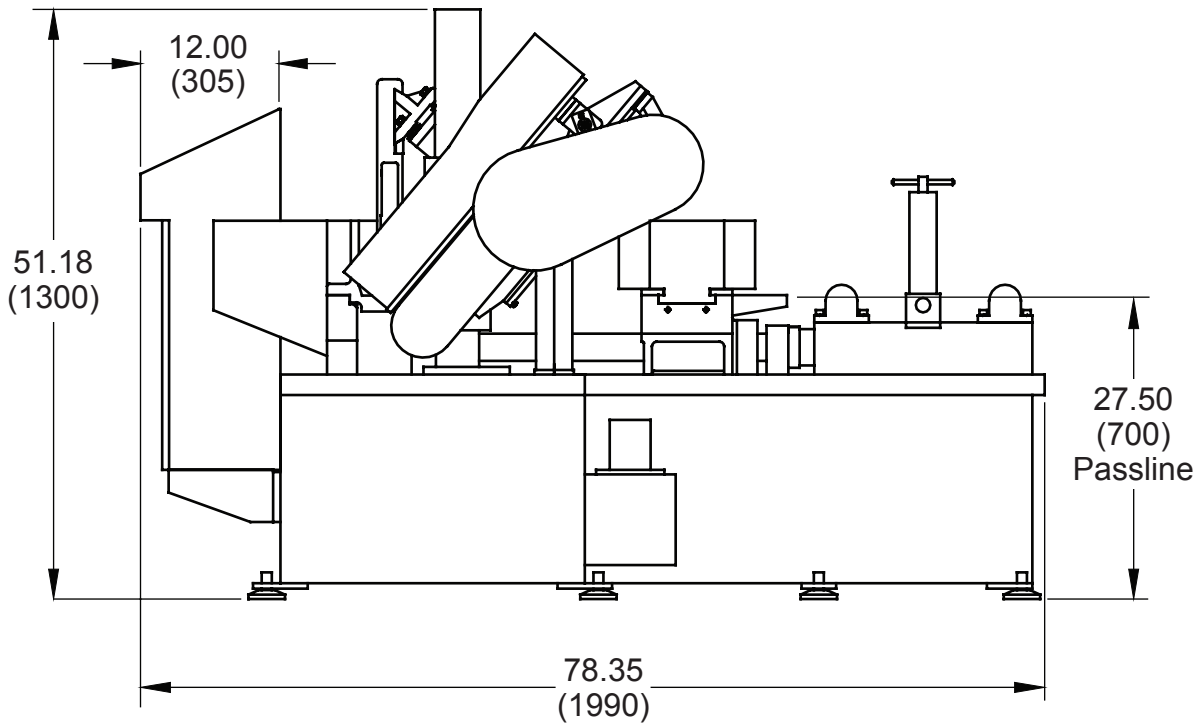
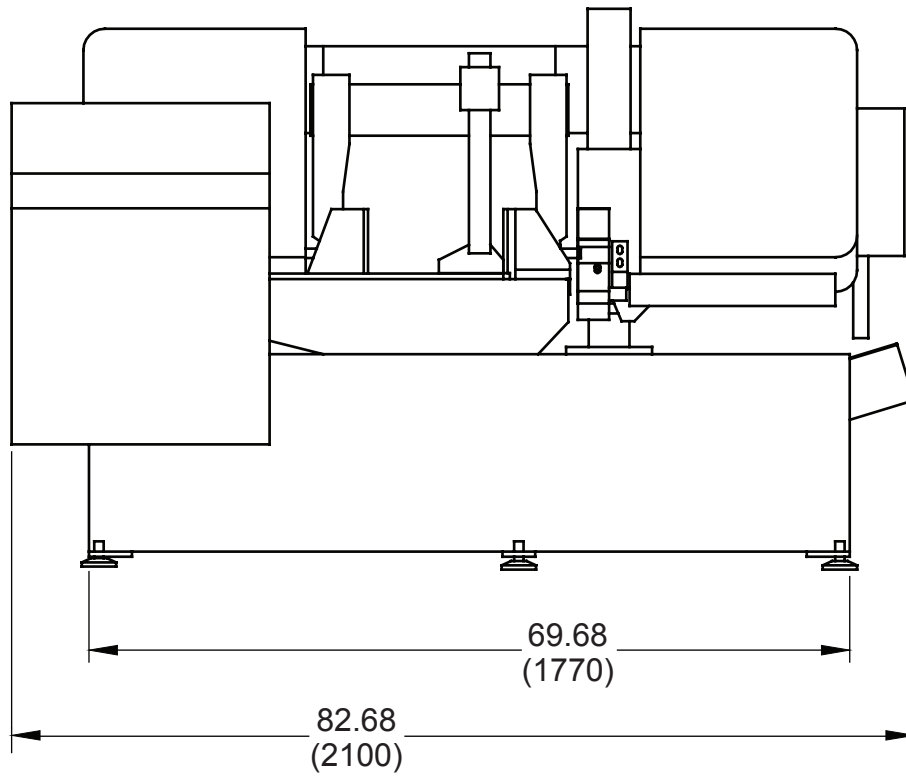
INCHES (± .03)
MILLIMETERS (± 1 mm)



Dimension	DC-280NC	DC-330NC	DC-420NC	DC-460NC	DC-500NC	DC-560NC
A	108.25" (2750 mm)	117.50" (2980 mm)	117.50" (2980 mm)	118.00" (3000 mm)	118.00" (3000 mm)	112.25" (2850 mm)
B	23.50" (600 mm)	23.50" (600 mm)	23.50" (600 mm)	23.50" (600 mm)	23.50" (600 mm)	23.50" (600 mm)
C	124.50" (3160 mm)	134.50" (3420 mm)	145.00" (3680 mm)	153.50" (3900 mm)	156.50" (3980 mm)	187.50" (4760 mm)
D	41.75" (1060 mm)	46.00" (1170 mm)	50.00" (1265 mm)	53.00" (1350 mm)	54.00" (1370 mm)	63.00" (1600 mm)
E	37.50" (950 mm)	41.25" (1050 mm)	45.00" (1150 mm)	49.25" (1250 mm)	49.25" (1250 mm)	57.00" (1450 mm)

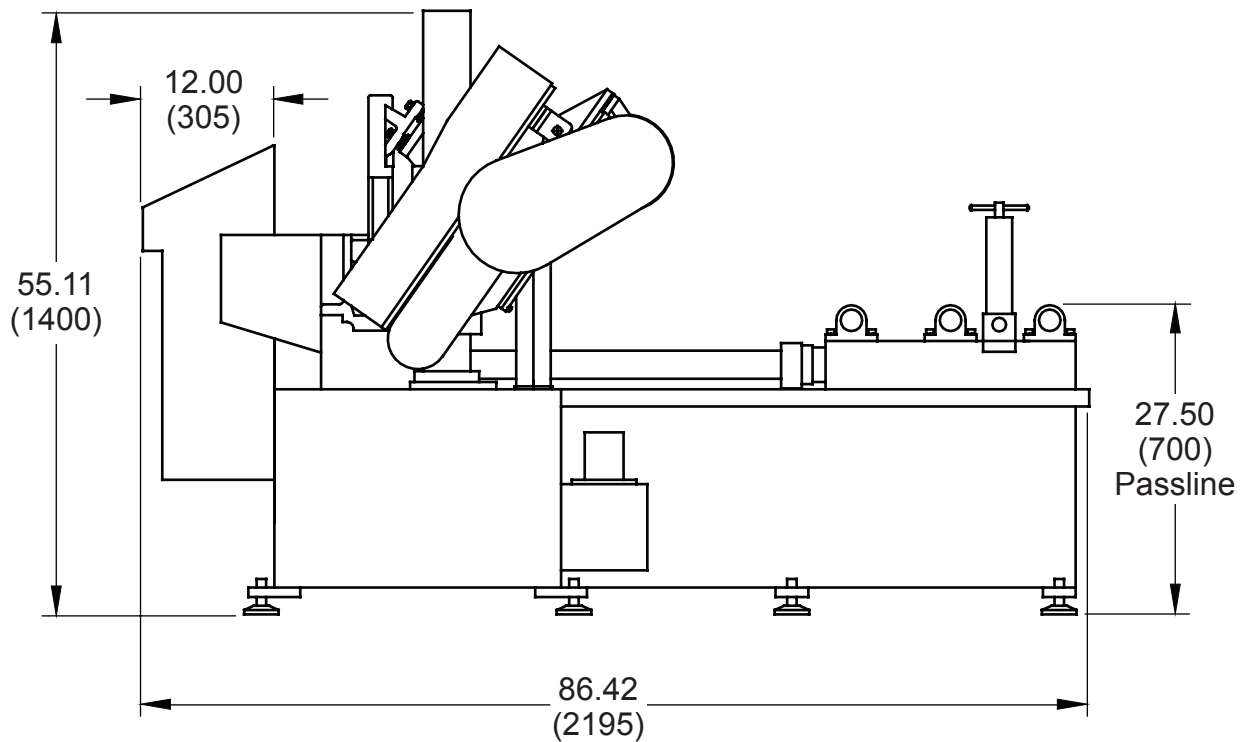
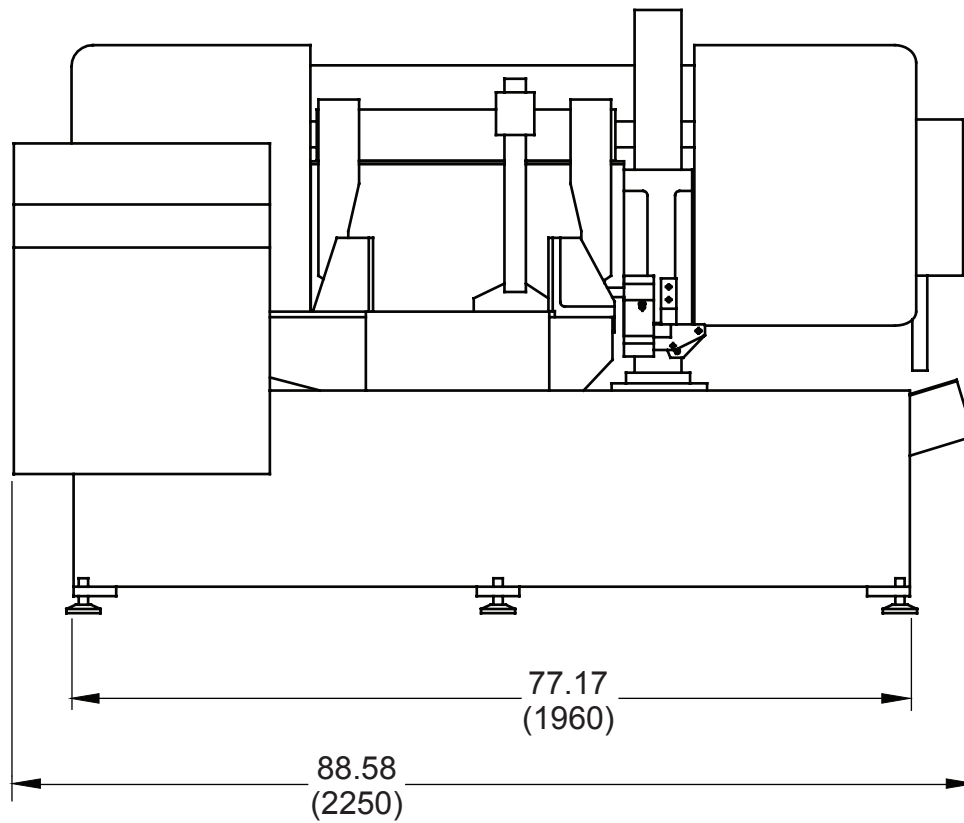
DC-280NC DIMENSIONS

INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



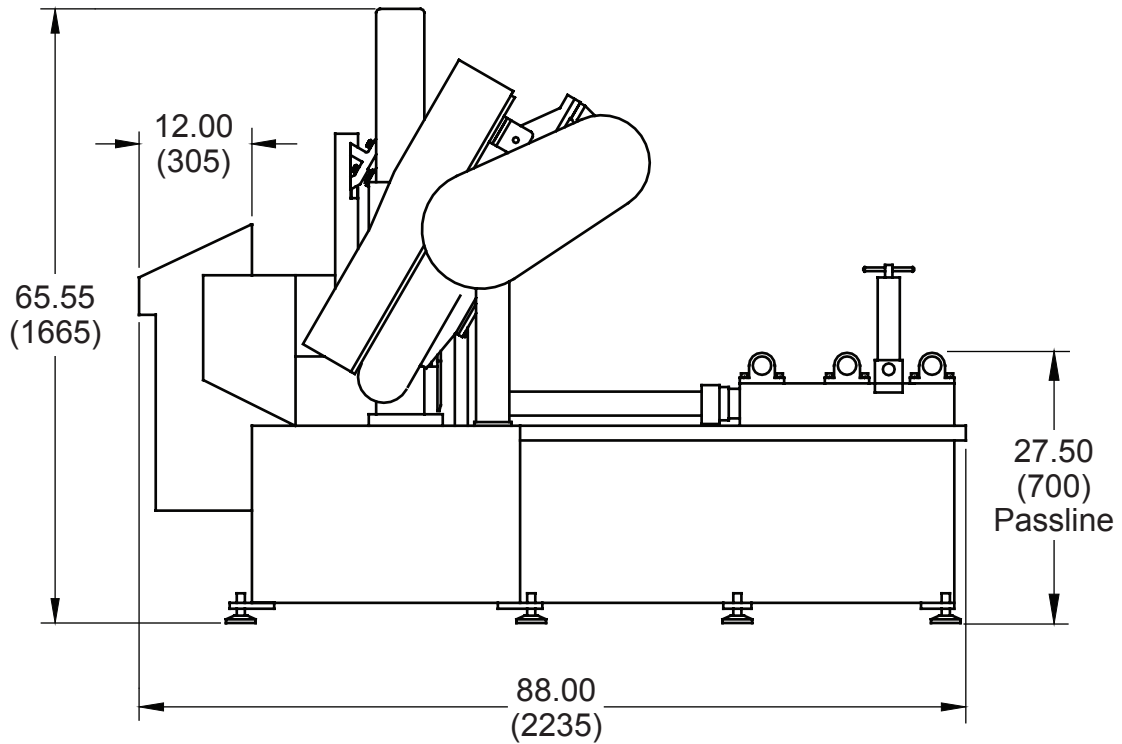
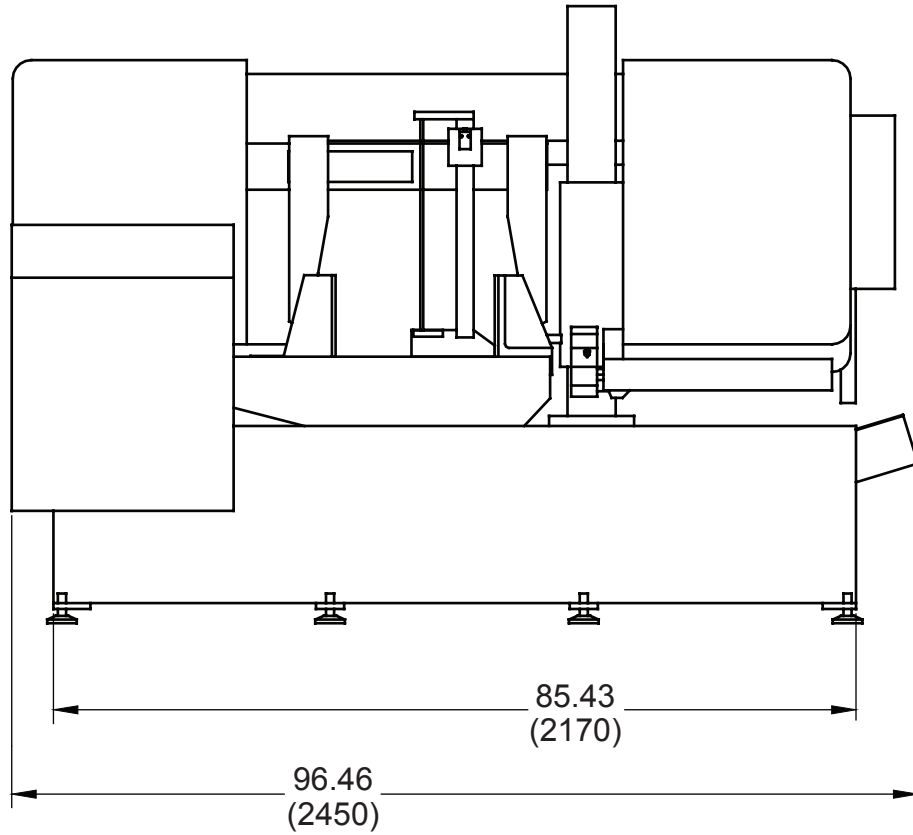
DC-330NC DIMENSIONS

INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



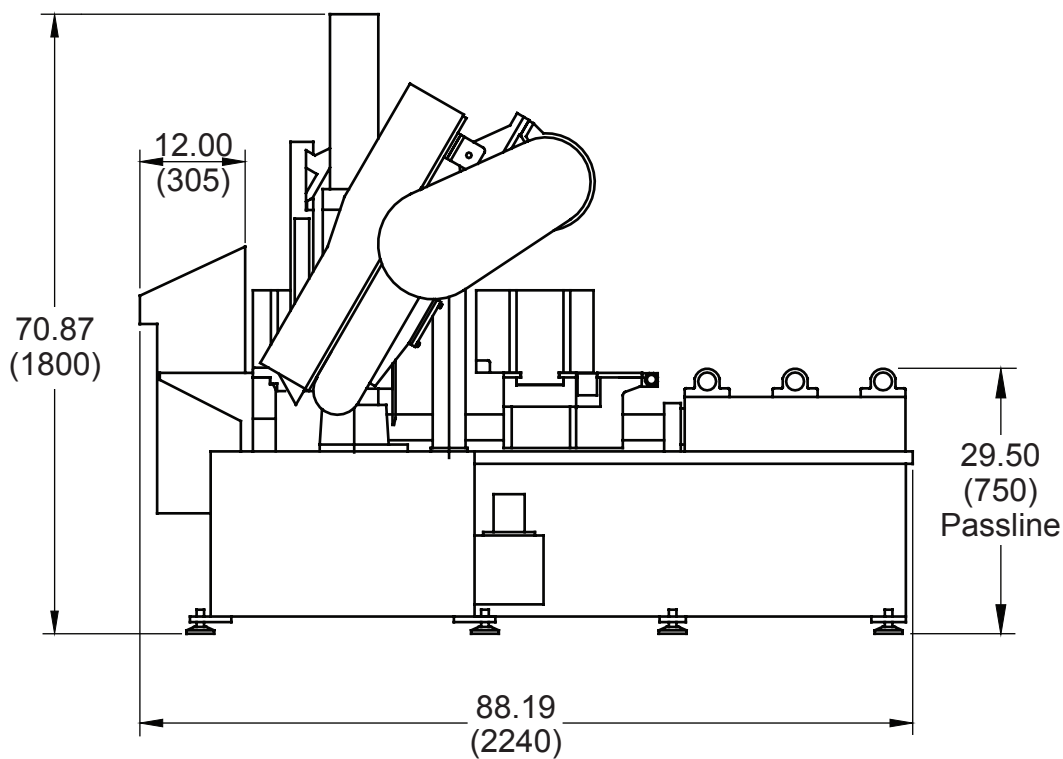
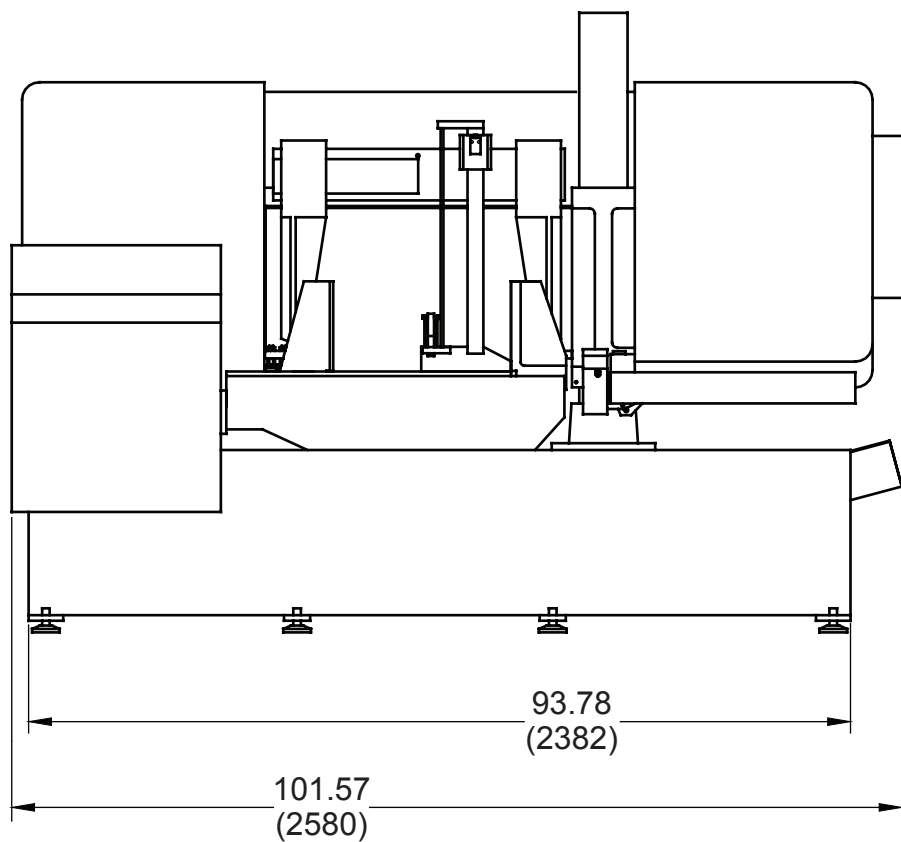
DC-420NC DIMENSIONS

INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



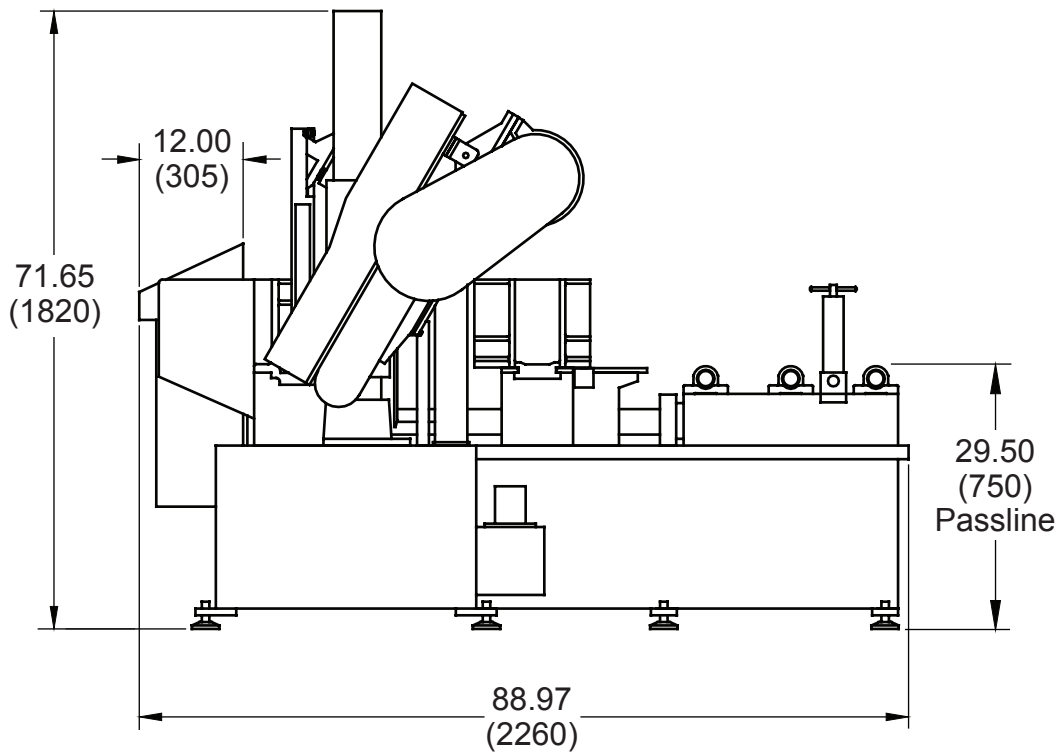
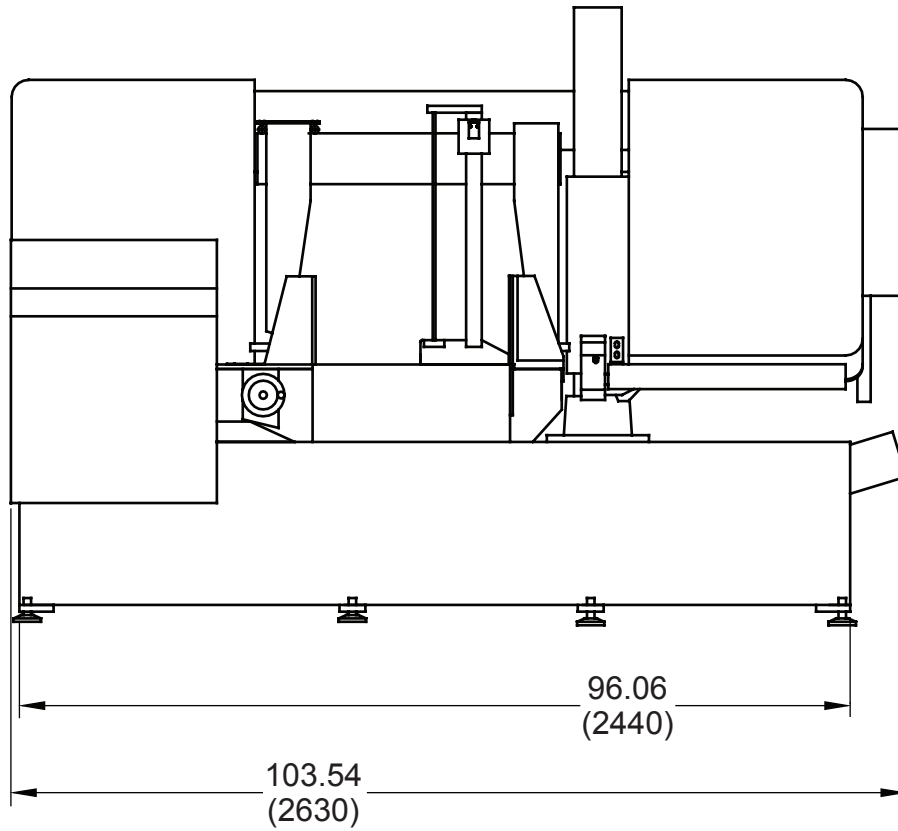
DC-460NC DIMENSIONS

INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



DC-500NC DIMENSIONS

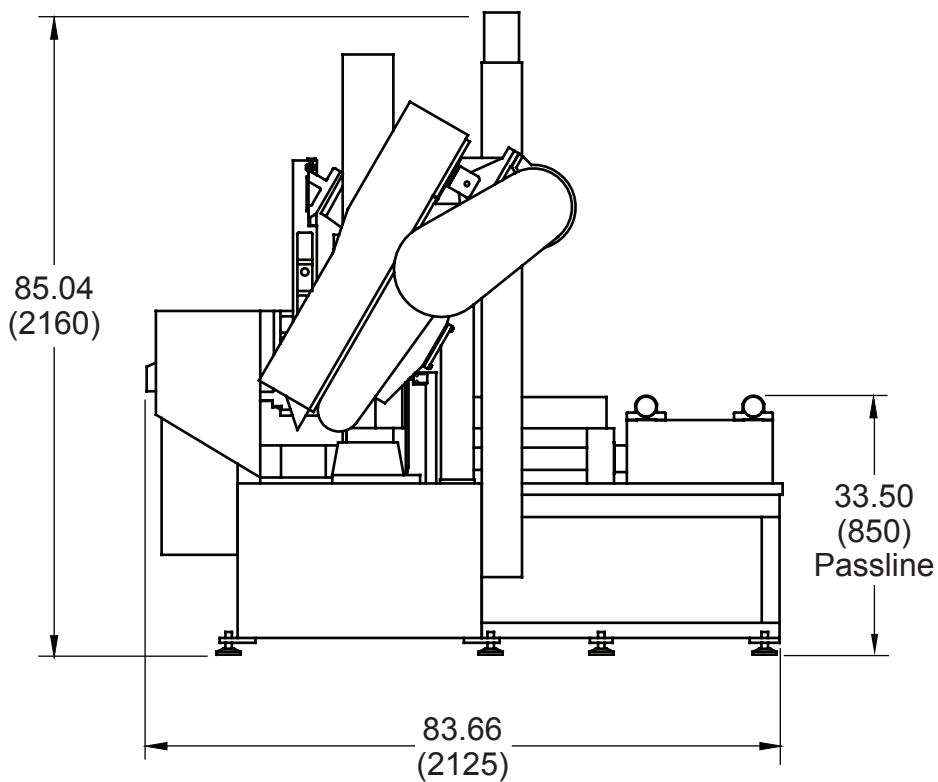
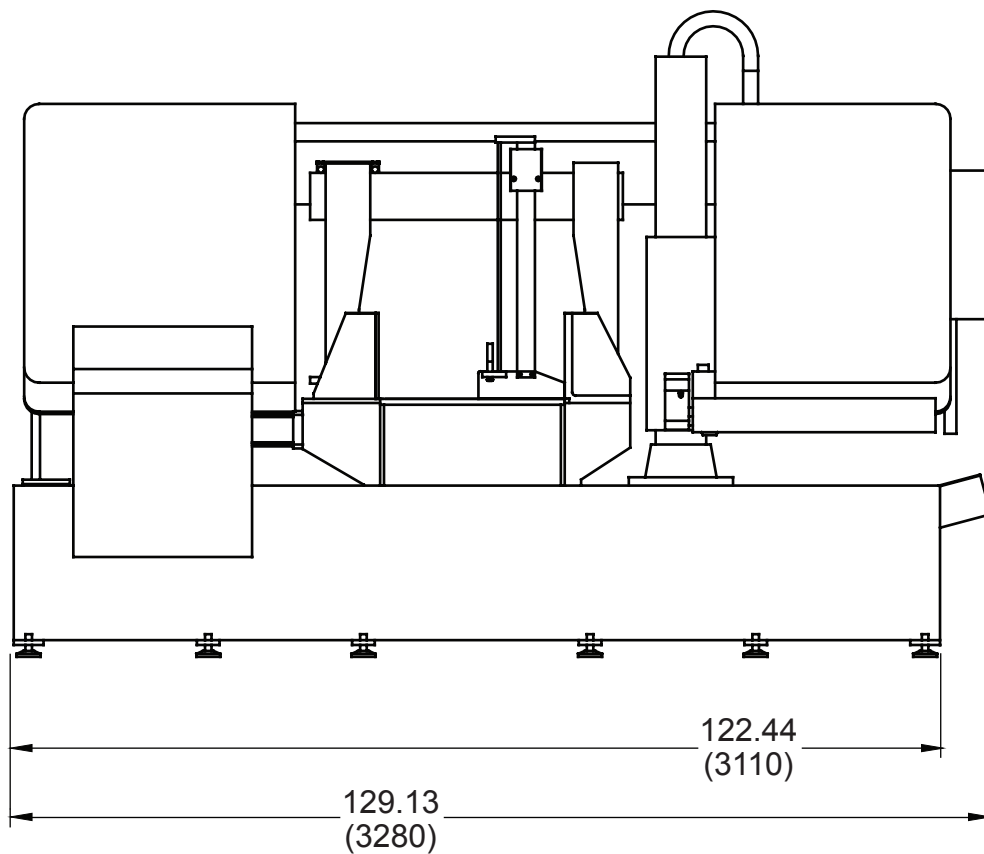
INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



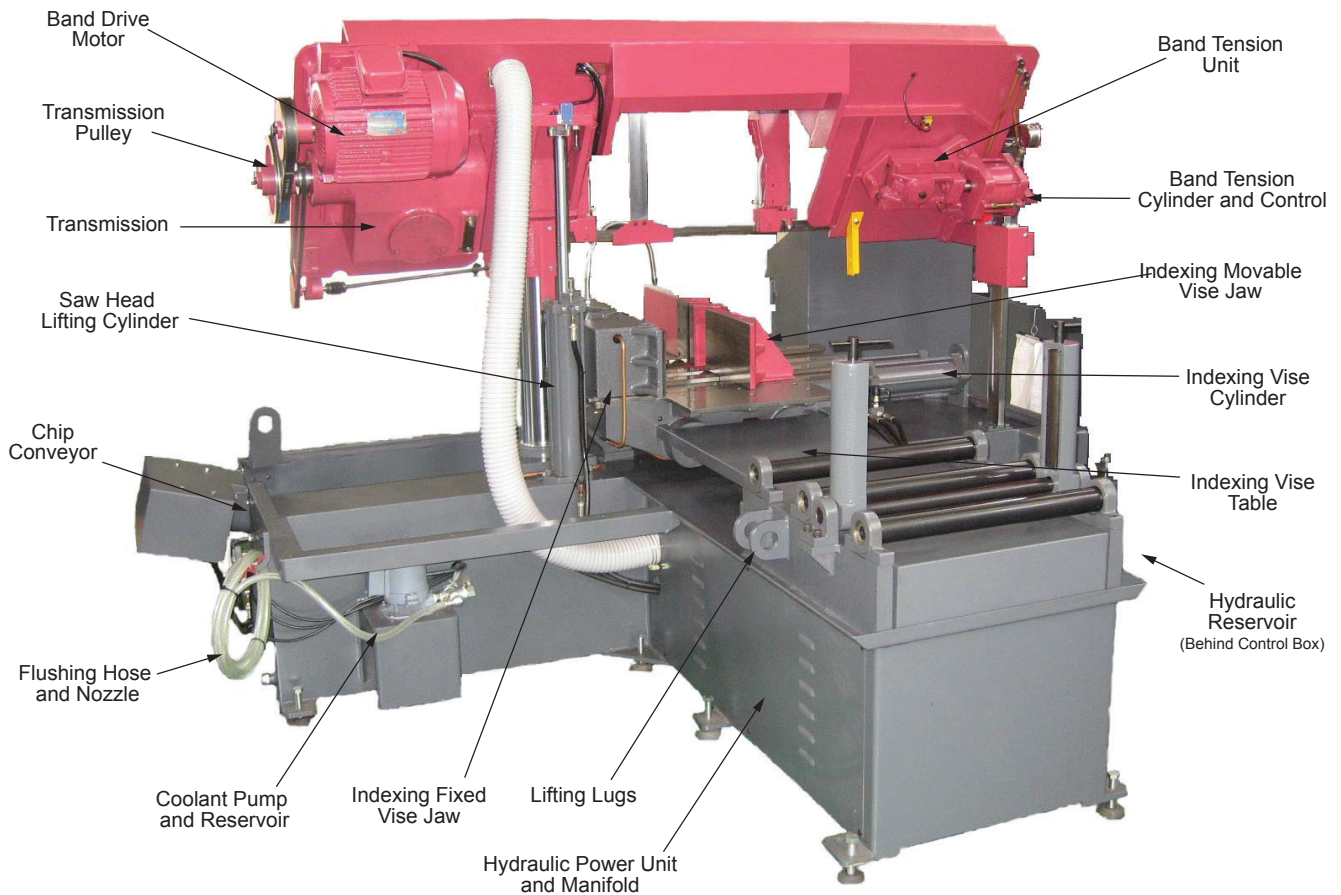
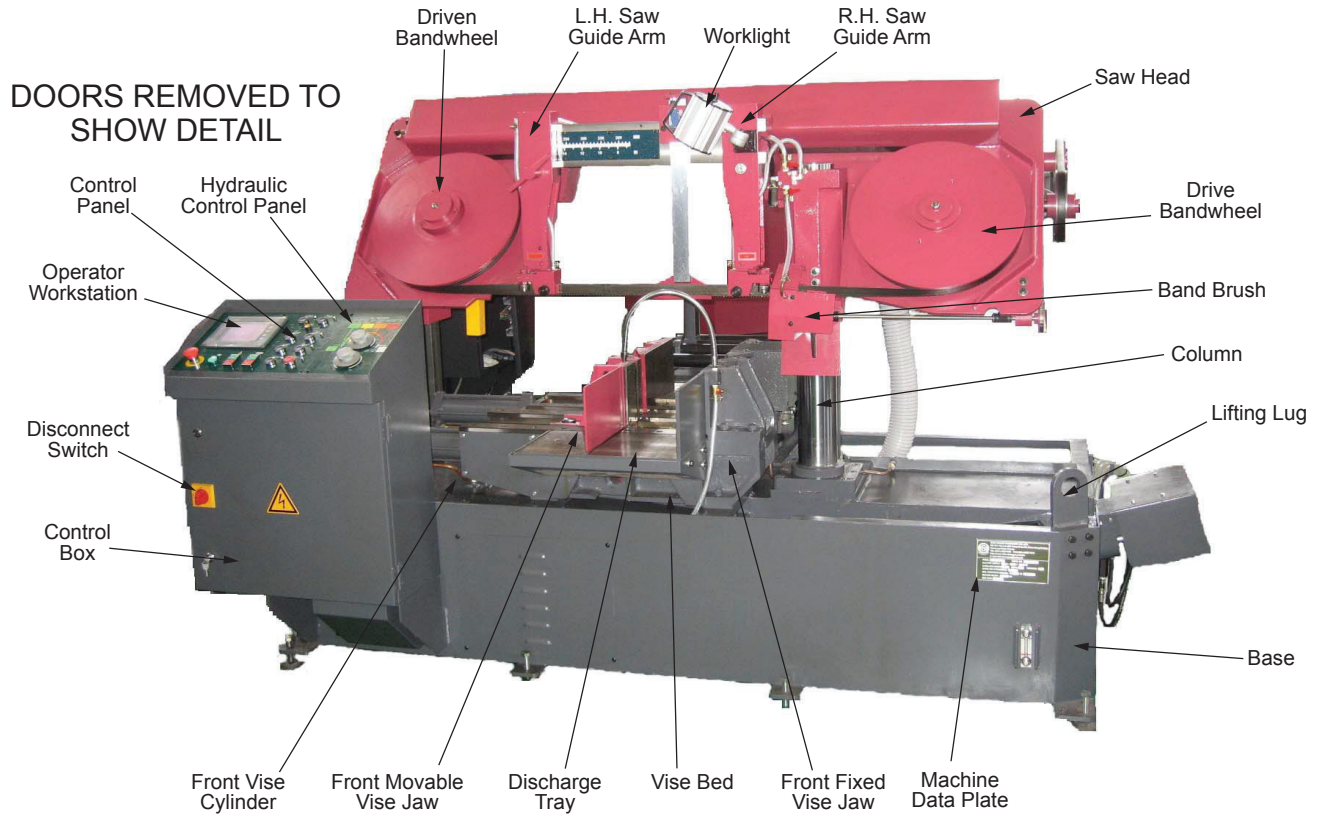
MACHINE DIMENSIONS (Continued...)

DC-560NC DIMENSIONS

INCHES ($\pm .03$)
MILLIMETERS (± 1 mm)



MACHINE FEATURES



INSTALLATION



All the “left”, “right”, “front” and “rear” designations in this manual are as viewed by the operator facing the control console.

LOCATION

1. Locate the machine to provide sufficient clearance for: (a) Material loading and unloading; (b) All door openings; (c) Head elevation; (d) Chip conveyor removal; (e) Maintenance and lubrication procedures; (f) Operation of the any supplied machine accessories.
3. Accessories such as roller stock conveyors will require additional work area.

OSHA NOTICE!!



OSHA Regulation 1910.212 (5B).
Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

UNPACKING

1. The machine is fastened to and shipped on a wooden skid. Overseas shipments are also crated.
2. Remove all protective covers, strapping, crating, etc. Then: (a) Remove all bolts which fasten the machine to the shipping skid; (b) **Do not remove the shipping bracket that attaches the saw head to the vise base yet;** (c) Remove any loose items and boxes that may have been placed on the machine; (d) Inspect the machine and all parts for shipping damage. Claim procedures are listed on this manual’s inside front cover.

LIFTING



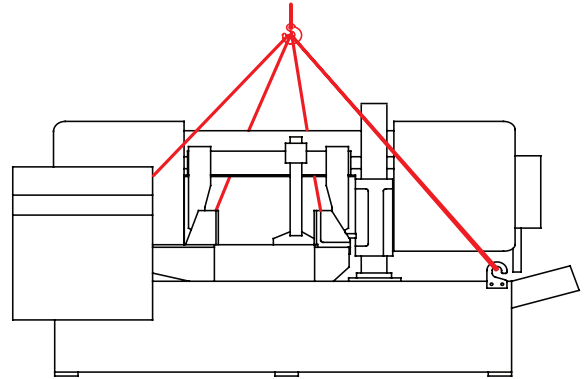
NEVER lift the machine by its sawing head.

1. The chart below shows the recommended capacities for lifting the machine.

	DC-280NC	DC-330NC	DC-420NC
Overhead Hoist	3 Ton	3 Ton	4 Ton
Fork Lift	3 Ton	3 Ton	4 Ton

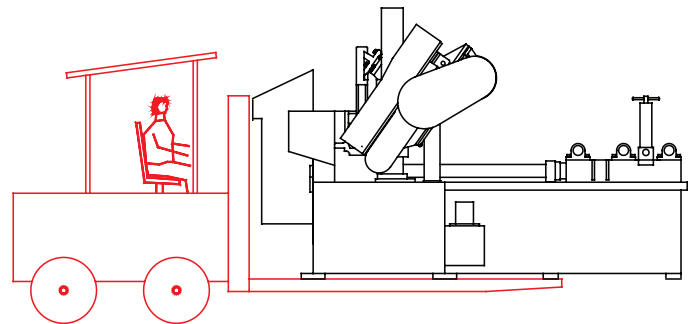
	DC-460NC	DC-500NC	DC-560NC
Overhead Hoist	5 Ton	5 Ton	6 Ton
Fork Lift	5 Ton	5 Ton	8 Ton

2. Six (6) permanent lifting eye lugs are provided for machine lifting purposes: (a) Two (2) pairs of lifting lugs are located at the rear of the index vise roller table; (b) Two (2) other lifting lugs are located on the machine’s front left and right corners.



Lifting By Overhead Hoist.

3. Using chains or heavy duty straps attached to the lifting lugs, it is recommended that lifting and transporting of the machine be done with an overhead hoist.
4. It is also recommended to protect painted surfaces from damage due to the lifting chains coming into contact with machine surfaces.
5. If a fork lift truck is used, make sure it has appropriate capacity to lift the machine safely. It is recommended that you lift the machine from the front as shown.



Lifting By Fork Lift Truck.

6. Roller stock conveyors can be lifted and transported by overhead hoist, fork lift, or by other means that provides adequate safety precautions.

CLEANING

1. If necessary, use a mild cleanser to remove rust-preventive coating applied to exposed bare metal surfaces.



Do not use volatile solvents such as gasoline or benzene.

FLOOR INSTALLATION

1. Before placing the machine down, install one (1) leveling screw and nut into each base foot pad. Then: **(a)** Adjust the leveling screws to extend an equal distance through the mounting pad - approximately one-half inch (13 mm); **(b)** Tighten the jam nuts; **(c)** Just before lowering to the floor, place a foot pad under each leveling screw. Now lower the machine in the desired location.
2. Place a machinist's level on the bracket in the front of the vise. Adjust the leveling screws until the machine is level and weight bears evenly on all mounting pads.
3. Place the level front to back on the fixed vise bed and adjust. Again, weight must bear evenly on all foot pads.
4. Now adjust the leveling screws to make the front of the machine .014 (.35 mm) lower than the rear. Then adjust the leveling screws to make the indexing vise .001 (.03 mm) higher than the front vise.
5. Install anchoring screws through the base pad holes (those pads that have a hole) next to the leveling screws.
6. Remove the protective shipping bracket installed to connect the saw head to the base frame during shipping. **Keep this bracket in case the machine needs to be moved at a later time.**
7. Install roller stock conveyor at the rear of the machine approximately three (3) feet (1 meter) from the machine. Anchor the conveyor to prevent moving.



Conveyors are not attached to the machine and should be anchored to the floor separately.

ELECTRICAL INSTALLATION



Electrical installation must be made by authorized electrical maintenance personnel only.

1. Refer to the machine specifications plate on the saw head frame to verify that the electrical supply circuit will meet the voltage/phase/frequency/amperage requirements listed. The basic data plate is reproduced on this manual's introductory page.
2. The electrical supply to this machine must be a dedicated circuit.

Electrical Enclosure

1. The main enclosure is combined with the operator's control panel on the front of the machine. Power is connected to this enclosure.
2. The following are important disconnect precautions:

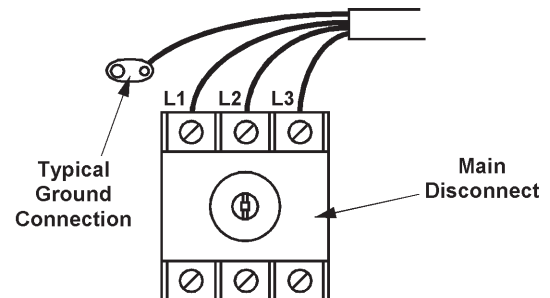


The disconnect switch must be in the "ON" position before the machine will operate. Turning "OFF" the disconnect will shut down the machine.



The enclosure must be closed and the appropriate securing screws must be in place before starting machine operation.

3. Turn the disconnect switch on the electrical cabinet to "OFF". Then: **(a)** Use the keys found in the box of extra parts and unlock the electrical cabinet at the left door edge and open the door; **(b)** Familiarize yourself with operation of the disconnect switch operating handle, door interlock function, switch drive dog and shaft/clamp operating positions.
4. Punch a one (1) inch (25 mm) diameter or larger hole in the side of the electrical cabinet. Then: **(a)** Bring power wiring (L1, L2, L3 and ground) through the hole (the cable and connector are to be supplied by the customer).



Electrical Connections to Disconnect Switch.

ELECTRICAL INSTALLATION (Continued...)

5. Bring the power cable leads up to the disconnect switch. Then: **(a)** Connect L1, L2 and L3 to their respective terminals; **(b)** Connect the ground wire to the ground terminal (refer to the electrical schematic if necessary).
6. Make sure to place the operating shaft and operating handle of the disconnect switch in the "OFF" position. Then: **(a)** Close the electrical cabinet door and secure with the keys; **(b)** Now turn "ON" the electrical supply and the disconnect switch (no action will occur until the **Hydraulic Start** button on the control console has been pushed).



DO NOT start machine hydraulics until the following "Preparation for Use" procedures have been performed.

PREPARATION FOR USE

1. Check the hydraulic reservoir fluid level. Capacity is between 16 and 34 gallons (60 and 130 liters) depending on machine model. **(See Machine Specifications Chart)**. If the reservoir level is low (or empty), check to see that the reservoir's drain plug is installed tightly.
2. Fill the coolant reservoir with oil or cutting fluid recommended by the Lubrication Chart (remove the splash guard and pour coolant slowly into the chip conveyor trough). **DO NOT let coolant spill over the trough end and onto the floor.** Capacity is between 20 and 37 gallons (80 and 140 liters) depending on machine model. **(See Machine Specifications Chart)**.
3. Check the band drive gearbox reservoir level gauge while the saw head is down. Capacity is between 1.2 and 8.2 gallons (4.5 and 28 liters) depending on machine model. **(See Machine Specifications Chart)**.
4. Check to see that all other points listed by the Lubrication Chart have been properly checked or serviced.

Hydraulic Start-Up

1. If the first motor to be checked (hydraulic power unit motor) rotates correctly, the band drive motor will do likewise.
2. All hydraulic and coolant system fluid connections were leak-tested at the factory. They should be rechecked as start-up proceeds.

3. Turn on the electrical supply and turn the machine disconnect switch to the "ON" position.



For information on using the controls for the following steps, see the "OPERATION" chapter under the heading "OPERATOR WORKSTATION".

4. Press the green **Hydraulic Start** pushbutton on the electrical control panel to start the hydraulic system. Then: **(a)** Press the "MANUAL" key; **(b)** Move the **Saw Head Up** pushbutton to raise the saw head; **(c)** If the hydraulic motor rotates correctly, the saw head will now raise from the down position.
5. If the saw head does not raise, it means that the hydraulic motor's rotation is reversed. **Hydraulic system operation cannot be maintained if the saw head is not raised.**
6. If the saw head does not raise: **(a)** Turn the disconnect switch to "OFF" and remove power at the source of electrical supply; **(b)** Interchange two (2) of the L1, L2, or L3 leads to the disconnect switch; **(c)** Restore power and perform Step 4 again.
7. As soon as hydraulic motor rotation is correct, jog the **Hydraulic Start** and **Hydraulic Stop** pushbuttons several times to make sure the hydraulic and coolant pumps are primed. Then allow the machine to run for several minutes to remove entrapped air.
8. If the hydraulic or band drive motor overloads open, the machine will shut down.

OPERATION

SELECTING BAND SPEEDS and CUTTING RATES



This chart is a guide only and the recommendations shown can be adjusted to meet special material requirements.

1. The chart below has information about the recommended band speeds and cutting rates according to the type of material to be cut.
2. To use, find the material to be cut in the first column. Then move to the right to find information on band speed recommendations and cutting rates.

CODE MATERIAL	JIS	AISI	DIN	BAND SPEED Feet/Min. (m/Min.)	CUTTING RATE Sq. Inches/Min. (cm²/min.)
Low Carbon Steel	SS41	A570	St44-2	200 - 230 fpm (60 - 70 m/min.)	7.8 - 9.3 in ² /min. (50 - 60 cm ² /min.)
	S10C	1010	C10	245 - 265 fpm (75 - 80 m/min.)	8.5 - 10.0 in ² /min. (55 - 65 cm ² /min.)
	S15C	1015	C15	245 - 265 fpm (75 - 80 m/min.)	8.5 - 10.0 in ² /min. (55 - 65 cm ² /min.)
Mild Carbon Steel	S45C	1045	C45	165 - 200 fpm (50 - 60 m/min.)	6.2 - 7.8 in ² /min. (40 - 50 cm ² /min.)
	S55C	1055	CK55	165 - 200 fpm (50 - 60 m/min.)	6.2 - 7.8 in ² /min. (40 - 50 cm ² /min.)
Cromolybedenum Steel	SCM440	4140	42CrMo4	150 - 165 fpm (45 - 50 m/min.)	4.6 - 6.2 in ² /min. (30 - 40 cm ² /min.)
Nickel Cromolybedenum	SNCM8	4340	34CrNiMo8	130 - 150 fpm (40 - 45 m/min.)	4.6 - 6.2 in ² /min. (30 - 40 cm ² /min.)
Cromolybedenum Steel	SCM21	4118	15CrMo5	165 - 200 fpm (50 - 60 m/min.)	5.4 - 7.0 in ² /min. (35 - 45 cm ² /min.)
Nickel Cromolybedenum	SNCM21	8620	21CrNiMo2	180 - 200 fpm (56 - 60 m/min.)	5.4 - 7.0 in ² /min. (35 - 45 cm ² /min.)
Tool Steel	SK2	W1C125W	C125W	100 - 150 fpm (30 - 45 m/min.)	4.6 - 5.4 in ² /min. (30 - 35 cm ² /min.)
Alloy Tool Steel	SKS3	D1	105WCr6	100 - 115 fpm (30 - 35 m/min.)	3.9 - 4.6 in ² /min. (25 - 30 cm ² /min.)
Alloy Tool Steel	SKD1	D3	X210Cr12	100 - 115 fpm (30 - 35 m/min.)	3.9 - 4.6 in ² /min. (25 - 30 cm ² /min.)
(15) Alloy Tool Steel	SKD11	D2	X155CrVMo121	100 - 115 fpm (30 - 35 m/min.)	3.9 - 4.6 in ² /min. (25 - 30 cm ² /min.)
Alloy Tool Steel	SKD61	H13	X40CrMoV51	65 - 100 fpm (20 - 30 m/min.)	1.2 - 1.9 in ² /min. (8 - 12 cm ² /min.)
Stainless Steel	SUS304	304	X5CrNi1810	115 - 130 fpm (35 - 40 m/min.)	3.9 - 4.6 in ² /min. (25 - 30 cm ² /min.)
	SUS316	316	X5CrNiMo17121	85 - 100 fpm (25 - 30 m/min.)	2.3 - 3.1 in ² /min. (15 - 20 cm ² /min.)
	SUS430	430	X6Cr17	100 - 115 fpm (30 - 35 m/min.)	3.1 - 3.9 in ² /min. (20 - 25 cm ² /min.)
Bearing Steel	SUJ2	52100	100Cr6	115 - 150 fpm (35 - 45 m/min.)	3.9 - 5.4 in ² /min. (25 - 35 cm ² /min.)

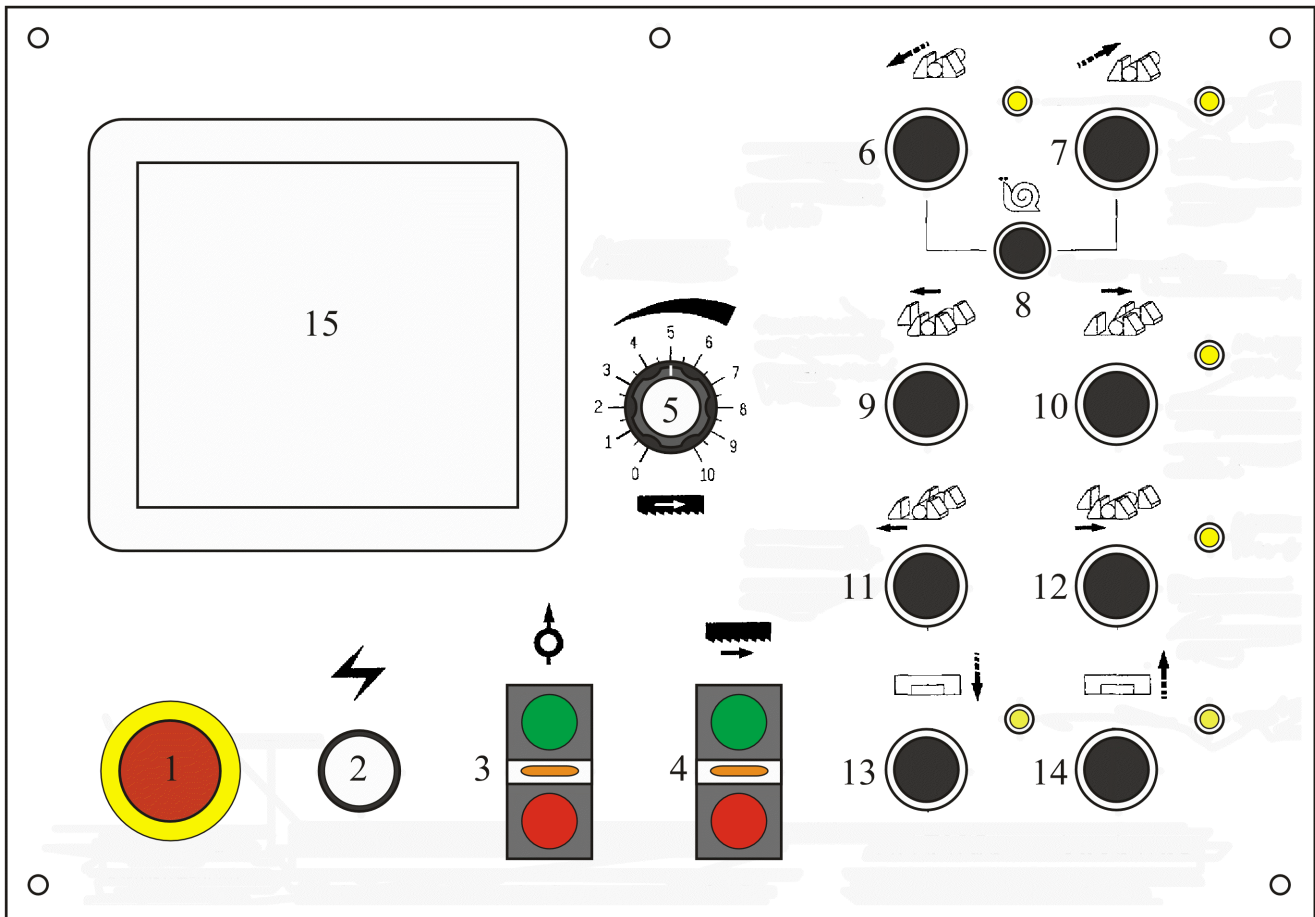
CONTROL CONSOLE

Pushbutton Panel



Number in text refers to identical number on illustration.

1. **Emergency Stop.** Except for damage to the machine or personal injury, pushing this red mushroom head pushbutton stops all machine motors simultaneously. This button must be released or reset before the machine can be restarted.
 - To reset, turn the button head **clockwise** until the head pops up. To reactivate machine motors:
 - To normally stop the machine in non-emergency situations, push the "SAW HEAD UP" pushbutton.
2. **Power On.** When the disconnect switch is turned to "ON", this lamp will glow indicating power is on.
3. **Hydraulic Start/Stop.** Push the upper **green** button to start the hydraulic system. Push the lower **red** button to stop the hydraulic system.
4. **Band Drive Start/Stop.** Push the upper **green** button to start the hydraulic system. Push the lower **red** button to stop the hydraulic system.
 - The following conditions must exist before pushing the **Band Start** button: (a) Hydraulics must be "ON"; (b) All doors and covers must be closed; (c) A saw band must be installed and the **Band Tension** selector must be at "ON".
 - In "MANUAL" mode, the index vise must be in the maximum "REAR" of "Forward" position.
 - In "AUTO mode, one the vises must be clamped.
5. **Band Speed.** Turn the knob **clockwise** to "INCREASE" the band speed, **counterclockwise** to "DECREASE" it.
 - The band speed is shown on the **VIEW Screen**.
6. **Index Forward.** Push and hold this button to move the index vise forward. Release the button to stop movement.
 - When the index vise reaches the front limit, the yellow light shines.



Pushbutton Panel.

CONTROL CONSOLE (Continued...)

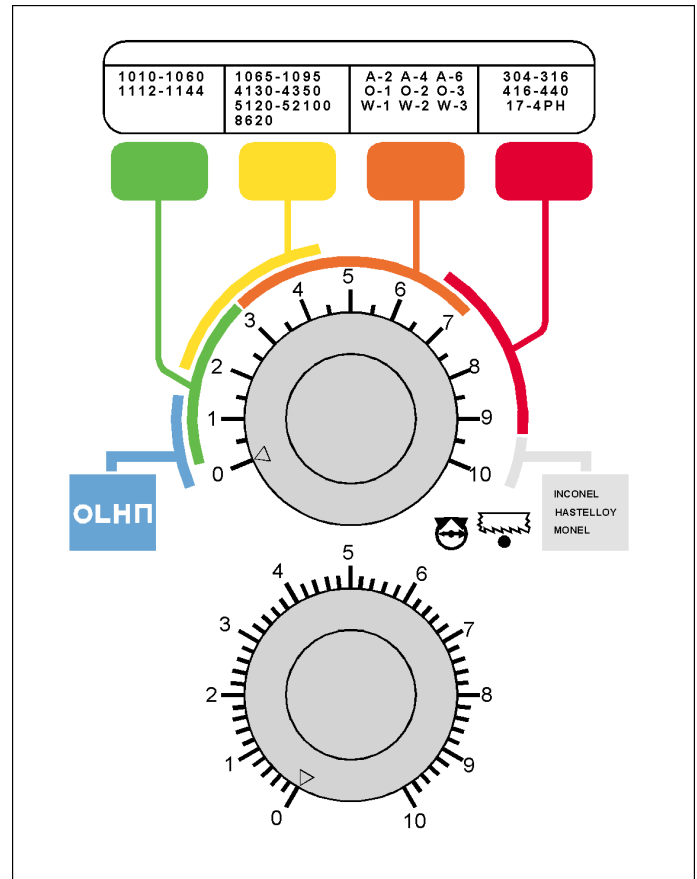
7. **Index Reverse.** Push and hold this button to move the index vise backwards. Release the button to stop movement.
 - When the index vise reaches the rear limit, the yellow light shines.
8. **Creep Speed.** When this button is pushed and held, the indexing vise speed is reduced to a slower speed in either forward or reverse direction. Release the button to return to normal speed.
9. **Indexing Vise Open.** When this button is pushed and held, the movable index vise jaw retracts from the fixed vise jaw. Release the button to stop movement.
10. **Indexing Vise Clamp.** When this button is pushed and held, the movable index vise jaw clamps towards the fixed vise jaw. Release the button to stop movement.
 - When the index vise is clamping, the yellow light shines.
11. **Front Vise Open.** When this button is pushed and held, the movable front vise jaw retracts from the fixed vise jaw. Release the button to stop movement.
12. **Front Vise Clamp.** When this button is pushed and held, the movable front vise jaw clamps towards the fixed vise jaw. Release the button to stop movement.
 - When the front vise is clamping, the yellow light shines.
13. **Saw Head Down.** When this button is pushed and held, the sawing head lowers. Release the button to stop movement.
 - When the sawing head reaches the down limit, the yellow light shines.
14. **Saw Head Up.** When this button is pushed and held, the sawing head raises. Release the button to stop movement.
 - When the sawing head reaches the upper limit, the yellow light shines.
15. **Operator Workstation.** The operator workstation has most of the controls to operate the machine. See the heading "**OPERATOR WORKSTATION**" later in this chapter for information on controls and their use.

Hydraulic Panel

1. **Feed Force.** Set the feed force by turning the upper knob to the material to be cut. The chart of material is color coded to give a feed force range the operator may choose from. Turn the knob **clockwise** to "INCREASE" pressure; **counterclockwise** to "DECREASE" it.



Turning the Feed Force control knob to zero (0) WILL NOT stop sawing head motion.



Hydraulic Panel.

2. **Feed Rate.** Turn the lower knob to the best suited cutting rate for the material being cut. Adjust the rate to fit your needs such as cut time or cut finish, etc. Turn the knob **clockwise** to "INCREASE" the feed rate; **counterclockwise** to "DECREASE" it.

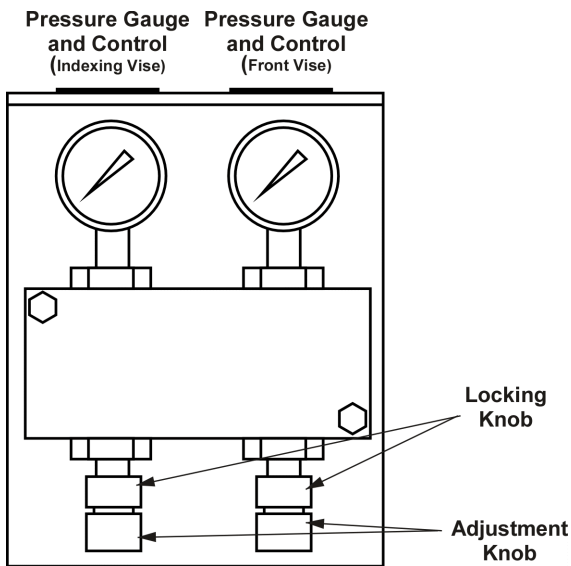


Turning the Feed Rate control knob to zero (0) WILL stop sawing head motion.

CONTROL CONSOLE (Continued...)

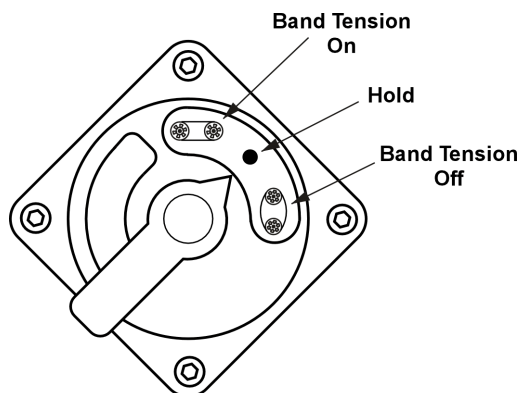
Other Controls

1. **Variable Vise Pressure.** Located on the left side of the machine behind the control console, these valves are used to adjust vise clamping force against materials which cannot tolerate full vise clamping pressure (examples are thin-walled tubing, pipe, light structurals, etc.). This control can be used with or without the optional Nesting Fixture.



Variable Vise Pressure Controls.

- Clamping pressure is set with the **Index Vise** and **Fixed Vise** adjustment knobs until the desired pressure is shown by the indicator gauges. Turn each knob **clockwise** to "INCREASE" the pressure; **counterclockwise** to "DECREASE" the pressure.
 - When the desired pressure has been reached, tighten the locking knob to hold the setting.
2. **Band Tension Control.** Located on the left side of the machine at the end of the band tension cylinder, this selector switch with "OFF", "HOLD" and "ON" settings is used when changing saw bands.



Band Tension Control.

- Turning the selector to "OFF" releases band tension and enables saw band removal or installation.
- The "HOLD" setting stops band tension cylinder movement and allows the operator to position the saw band over the bandwheels.
- The "ON" setting pressurizes the cylinder and establishes band tension required for cutting.



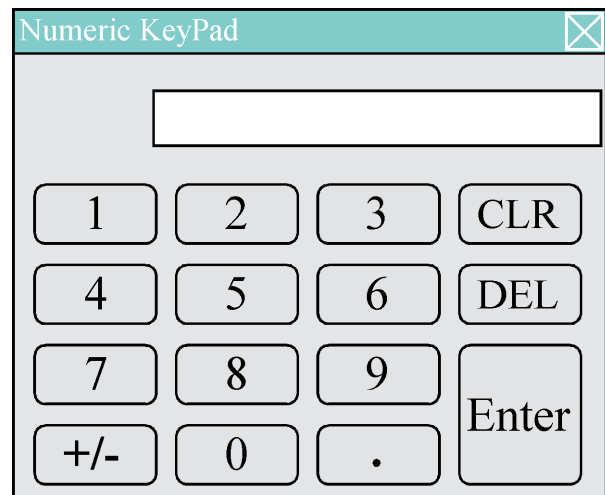
The Band Tension selector must be at "ON" before the saw head will descend or the band drive motor to start.

OPERATOR WORKSTATION

1. Most of the machine controls are on the operator workstation.
2. Most screens have a "FUN" or "FUNCTION" key in the upper right corner of the screen. Pressing this key gives the operator to view other screens and their controls.
 - "F1" - View Screen
 - "F2" - Run (Manual) Screen
 - "F3" - Alarm message Screen
 - "F4" - Error Message Screen
 - "SYS" - System Screen (hold key for 5 seconds)

Keypad

1. When the operator presses a key where data may be entered, a keypad will be displayed.



Keypad.

2. Features of the keypad include:
3. **Display Window.** Located at the top of the window, the display shows the values entered.

OPERATOR WORKSTATION (Continued...)

4. **Data Limits.** Below the display window will show a "LOW" and a "HIGH" value. These values are the low and high limits of the data that can be entered for that function.
5. **0 - 9, Decimal Point, + / -.** These keys are used to enter values for that function. Enter them in order including the decimal point.
6. **CLR (Clear).** This will clear the entry in the display.
7. **DEL (Delete).** Pressing this key will delete the last keystroke entered.



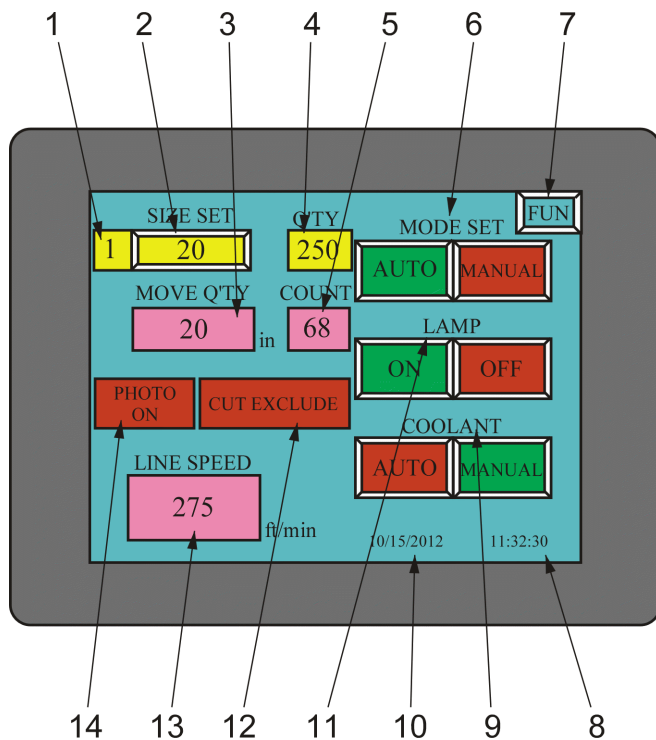
If you make an error in entering data, just press the "DELETE" or "CLEAR" key, correct or reenter you value and then press the "OK" key.

8. **Enter.** Pressing this key will enter the data into memory and then will return to the previous screen.

View Screen



Number in text refers to identical number on illustration.



View Screen.

1. Displays the current job number being performed.

2. **SIZE SET.** For displaying jobs and/or setting length of cut for jobs. When changing lengths are required, see the heading "SETUP FOR A JOB" later in this section.
 3. **MOVE Q'TY.** For displaying the position of the index vise.
 4. **Q'TY (Quantity).** Displays the number to be cut.
 5. **COUNT.** For displaying the quantity that has been cut.
 6. **MODE SET.** Used for selecting operation mode. Press the "MANUAL" key for entering into manual operation mode. Press the "AUTO" key for entering into automatic mode.
 7. **FUN (Function).** Press this key will take the operator to other screens as described earlier.
 8. Displaying the current date.
 9. **COOLANT.** When the machine is not in cutting operation, selecting "MANUAL" will start coolant flow. Press again to stop the flow. Press the "AUTO" button before cutting operation. The coolant will automatically flow when the saw blade is running. When the cutting finishes, the coolant flow will stop.
 10. Displaying the current time.
 11. **LAMP.** Switches to turn the worklamp "OFF" and "ON".
 12. **CUT EXCLUDE.** In automatic mode, if the front end of the material is poor, the first cutting is not counted or excluded. This function is preset. If the front end material is good, press the "CUT EXCLUDE" after cutting begins. It will display "COUNTED" for including in this job. This function is **effective only** when pressing "CUT EXCLUDE" after cutting begins.
 13. **LINE SPEED.** Displays the band speed.
 14. **PHOTO ON/OFF.** To turn the out of stock photo switch "OFF" and "ON".
- Press the "FUN" key and then press "F1" key will bring the operator back to the **Run Screen**.
 - Press the "FUN" key and then press "F2" key will bring the operator to the next screen.

OPERATOR WORKSTATION (Continued...)

Run (Manual) Screen

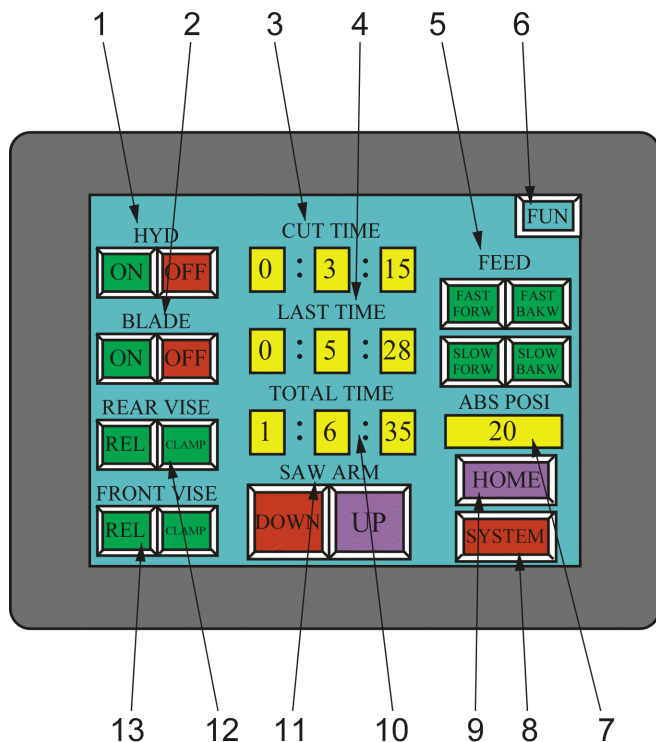


Number in text refers to identical number on illustration.



For most of these controls, the "MODE SET" key must be in "MANUAL".

1. **HYD (Hydraulics).** Switches to turn the hydraulic system "OFF" and "ON".
2. **BLADE (Band Drive).** Switches to turn the band drive motor "OFF" and "ON".
3. **CUT TIME.** Displays the current cut time.
4. **LAST TIME.** Displays the previous cut time.

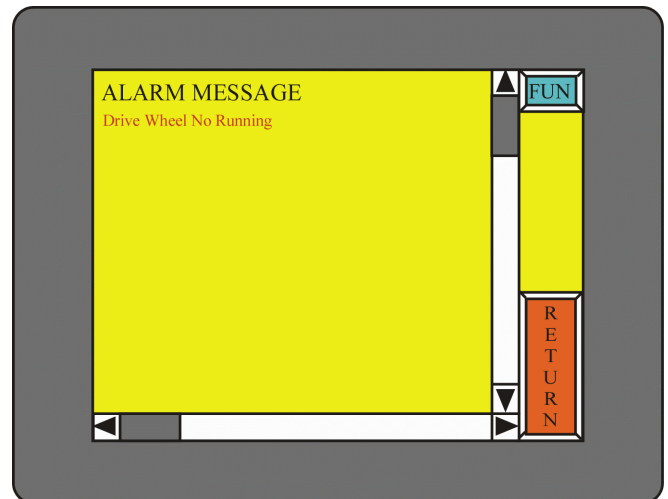


Run (Manual) Screen.

5. **FEED.** These set of keys control the indexing vise and gives the operator a choice of "FAST" or "SLOW" speed in either "FORWARD" or "BACKWARD" directions.
6. **FUN (Function).** Press this key will take the operator to other screens as described earlier.
7. **ABS POSI (Absolute Position).** For displaying the position of the index vise in relation to the "HOME" position.

8. **SYSTEM.** This key takes the operator to a screen to allow mode selections, diagnostics and certain parameters changes. See "**System Screen**" later in this chapter for information on this screen.
9. **HOME.** If power has been interrupted, cut lengths are inaccurate, an auto cycle alarm is indicated or auto cycle fails to initiate, the index vise may need to be "homed". When this button is pressed, the index vise is calibrated to the zero (0) point.
10. **TOTAL TIME.** Displays the total time of the job.
11. **SAWARM (Saw Head).** Push and hold the switches to move the sawing head "DOWN" or "UP".
12. **REAR VISE (Index Vise).** Push and hold the switches to "RELEASE" or "CLAMP" the vise.
13. **FRONT VISE.** Push and hold the switches to "RELEASE" or "CLAMP" the vise.
 - Press the "FUN" key and then press "F1" key will bring the operator back to the **Run Screen**.
 - Press the "FUN" key and then press "F3" key will bring the operator to the next screen.

Alarm Screen



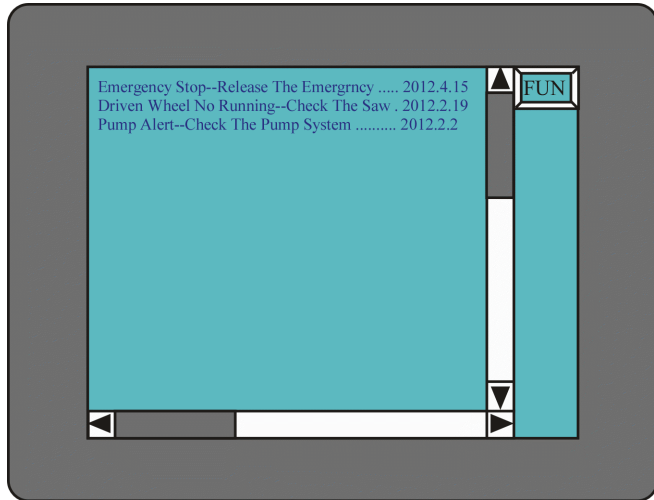
Alarm Screen.

1. In the case of machine malfunction, this screen will display the alarm message providing a starting point for troubleshooting.
 - Press the "FUN" key and then press "F1" key will bring the operator back to the **Run Screen**.
 - Press the "FUN" key and then press "F4" key will bring the operator to the next screen.

OPERATOR WORKSTATION (Continued...)

Error Message Screen

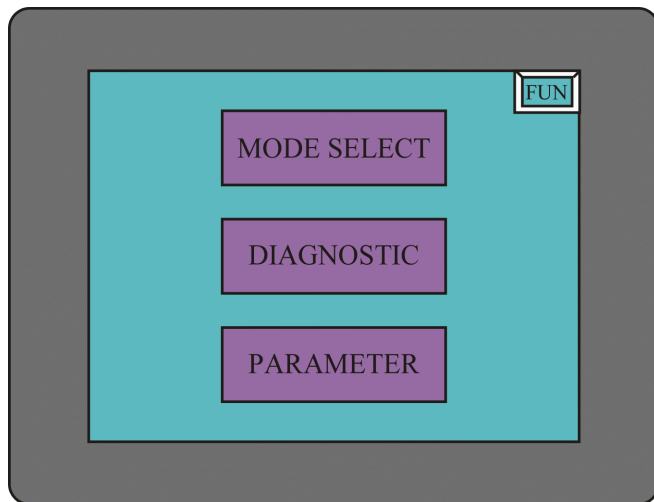
1. In the case of machine malfunction, this screen will display the error message providing a starting point for troubleshooting.
- Press the "FUN" key and then press "F1" key will bring the operator back to the **Run Screen**.



Error Message Screen.

System Screen

1. When the "SYSTEM" key on the **Run (Manual) Screen** is pressed, the following screen appears.



System Screen.

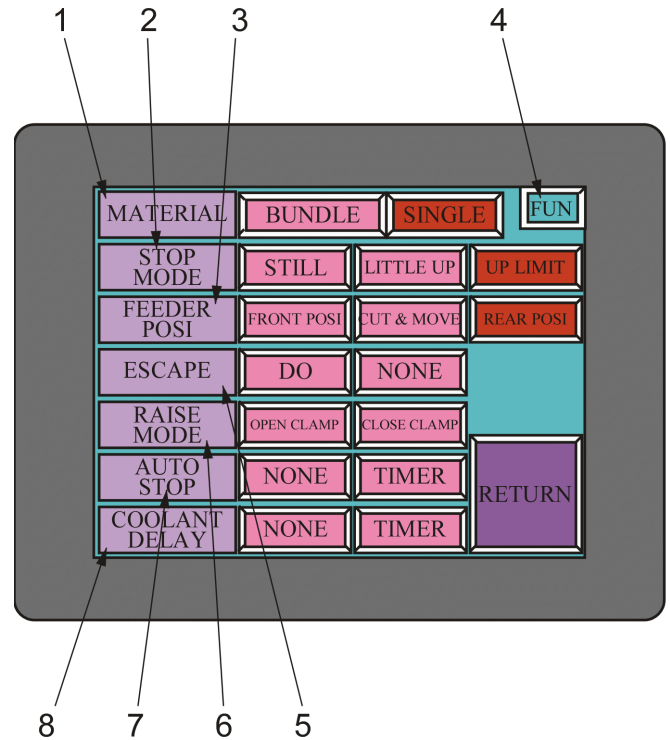
2. Pressing "MODE SELECT" brings the operator to a screen that gives choices to common settings for operation. See "**Mode Select Screen**" later in this section.

3. Pressing "DIAGNOSTIC" will show different PLC input and output modules and their status. These modules are for diagnostics and service only and needs NO interaction from the operator.
4. Pressing "PARAMETER" will give access to certain features that can be changed. See "**Parameter Screen**" later in this section.

Mode Select Screen



Number in text refers to identical number on illustration.



Mode Select Screen.

1. **Material.** Choose the material mode operation between "BUNDLE" and "SINGLE".
 - When "BUNDLE" is selected, the "CUT & MOVE" and "REAR POSI" keys are not available.
 - When "SINGLE" is selected, the "DO" key is not available.
2. **Stop Mode.** Choose how the machine will stop after the cut is completed.
 - "STILL" stops the saw band after the cut and then the machine stops.
 - "LITTLE UP" brings the saw band up .20 to .40 inch (5 to 10 mm) after the cut and then the machine stops.

OPERATOR WORKSTATION (Continued...)

- "UP LIMIT" allows the saw band to raise higher than the material and then the machine stops.
3. **Feeder Posi (Index Vise Position).** After material is been moved to cutting position, select the position of the index vise when cutting starts.
 - To leave the index vise in the forward position, select "FRONT POSI" (Position).
 - "CUT & MOVE" allows the index vise to move to the index setting while the machine is cutting. This key is non-functional when "BUNDLE" cutting is selected.
 - The index vise moves in the index setting position and then cutting begins, select "REAR POSI" (Position). This key is non-functional when "BUNDLE" cutting is selected.
 4. **FUN (Function).** Press this key will take the operator to other screens as described earlier.
 5. **Escape.** Choose how the index vise responds after one cut is completed.
 - "DO" allows the index vise to move back a little to avoid the saw band from touching the material as the saw band is raised. It is designed for bundle cutting.
 - Selecting "NONE" keeps the index vise stationary while the saw band is raised. It is designed for single cutting.
 6. **Raise Mode.** Select the front vise position when the saw band rises.
 - Select "OPEN CLAMP" to have the front vise open when the cut is complete and the saw band rises.
 - Select "CLOSE CLAMP" to have the front vise clamp when the cut is complete and the saw band rises.
 7. **Auto Stop.** Choose how the machine is left after cutting is finished.
 - "NONE" allows the machine to stay "ON" after cutting is complete.
 - If the operator desires the machine to turn "OFF" after a certain length of time, select "TIMER". The preset setting is 30 minutes. Maximum setting is 99 minutes. See the "**Parameters Screen**" to change to a different length of time.

8. **Coolant Delay.** Choose how the coolant system is left after cutting is finished.
 - "NONE" allows the coolant system to stay "ON" after cutting is complete.
 - If the operator desires the coolant system to turn "OFF" after a certain length of time, select "TIMER". The preset setting is 30 minutes. Maximum setting is 99 minutes. See the "**Parameters Screen**" to change to a different length of time.
- **Return.** Press this key to bring you back to the "**System Screen**".

Parameter Screen

1. Pressing "PARAMETER" will give access to certain features that can be changed. However, you must use a password to gain access to these parameters.



Use EXTREME CAUTION when changing any parameter on the list as undesirable results may occur.

2. Use the password "1111111" to gain access to the parameters list.
3. Be mindful that certain items have limits on the value you set. Trial and error may be necessary to find the right value.

SETUP FOR CREATING JOBS

Job Screen

1. Pressing "SIZE SET" on the "**View Screen**" will bring the operator to a screen where part parameters and jobs can be created.

EXEC	JOB	SIZE	Q'TY	COUNT	FUN
★	1	20 in	250	68	↑
	2	40 in	150	0	
★	3	50 in	55	0	↓
	4	62 in	200	0	
	5	85 in	250	0	

Job Screen.

SETUP FOR CREATING JOBS (Continued....)

2. The operator can program up to twenty (20) jobs in the library. Under each job number, you can enter the cut length, and quantity.
3. To enter data in the job list: **(a)** Press the key under the "SIZE" column next to the job number. The keypad will appear; **(b)** Enter the desired cut length and then press "ENTER"; **(c)** Press the key under the "QTY" column in the same job row and the keypad will appear; **(d)** Enter the desired number of cuts and then press "ENTER".
4. Make sure the "COUNT" column values are zero (0).
5. Go to row for job number 2 and proceed as before until the job list is completed.



Check and make any corrections/additions/deletions to the job list before exiting the "Jobs Screen".

6. Go to row for job number 2 and proceed as before until the job list is completed.
7. Pressing a square under the "EXEC" column next to a job number will be displayed on the "View Screen".
8. Each job selected will turn the key to red with a blue asterisk (*) in the "EXEC" column.
9. To skip a job or jobs in the list, set the size lengths to zero (0) or quantities to 0 (zero) on the jobs to be skipped.
10. **Operator notes about entering jobs into the list:** **(a)** The minimum automatic index length is .38 inch (10.0 mm); **(b)** The maximum index length that can be entered is 9999.99 inches; **(c)** The maximum quantity that can be entered is 9999.
11. In automatic mode, when the "COUNT" quantity reaches the programmed "QTY", the machine will automatically perform the next "EXEC" station until all selected jobs are done.

MACHINE PREPARATION

Saw Band Recommendations

1. A high-speed DoALL Imperial Bi-Metal 100 saw band with protective Saw Cap is supplied with the machine. Band length, width and recommended gage is dependent on machine model. **(See Machine Specifications Chart).**

2. A machine in correct adjustment, good operating condition and using proper cutting fluid is essential to efficient sawing.
3. Proper blade care should include: **(a)** Pushing uncut stock away from the saw band and lowering the saw head if the machine is to remain idle for a period of time; **(b)** Using correct band speed, feed force and cutting fluids during operation; **(c)** Removing scale from stock before sawing.

Blade Guards

1. The machine has two (2) blade-covering guards for operator safety. **All guards must be in place before any sawing procedure is started.**
 - **Left Guard.** This guard is attached to the left saw guide arm and extends toward the idler bandwheel.
 - **Right Guard.** This guard extends between the right saw guide arm and the drive bandwheel. **This is a fixed, integral part of the right bandwheel door.**



DO NOT defeat their purpose by operating the machine without these guards attached. THEY ARE THERE FOR YOUR PROTECTION!

Saw Guide Insert Adjustment

1. On each saw guide arm loosen the adjustment screw by turning it **counterclockwise**. Then: **(a)** Check that the saw band is up against the back-up insert; **(b)** Turn the insert adjustment screw **clockwise** until tight and then back off 1/4 turn.

Saw Band Removal



Always use extreme care when handling saw bands. Wear gloves.

1. Turn the band drive motor to "OFF" and then push the **Hydraulic Start** pushbutton. Then: **(a)** Push and hold the **Saw Head Up** button and allow the saw head to raise to its maximum height; **(b)** Turn the **Band Tension** selector to "OFF" (this moves the idler bandwheel to the right).
2. Open both bandwheel doors until they engage and stay open; Then: **(a)** Loosen the clamp handle on the band brush; **(b)** Push the band brush down away from the blade teeth.
3. Loosen the saw guide inserts on both saw guide arms by turning each adjustment screw **counterclockwise (do not allow the inserts to fall out)**. Next: **(a)** Loosen the left saw guide arm lock handle; **(b)** Slide the left saw guide arm to the right until it is about 10 inches (254.0 mm) from the right saw guide arm.

MACHINE PREPARATION (Continued....)

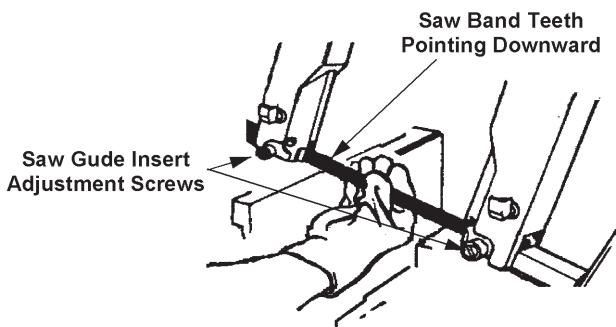
- Place a gloved hand on the back of the saw band portion between the saw guide arms; **(a)** Push the saw band down and out to disengage it from the saw guide inserts **(you will want to grip the saw band firmly as you manipulate it)**; **(b)** Remove the saw band from around the drive and idler bandwheels, then from the top channel.
- Maneuver the drive bandwheel end loop of the saw band outward and to the right while maneuvering the idler bandwheel end loop between the idler bandwheel and the left saw band guard. Then: **(a)** Manipulate the top part of the saw band out between the right saw band arm and the band brush deflector shield; **(b)** Recoil the saw band and store/dispose of it immediately.

Saw Band Installation



Always use extreme care when handling saw bands. Wear gloves.

- Carefully follow all "Saw Band Removal" procedures. Then use the **Flushing Hose** to clean areas around the saw guides and inserts, plus the drive and idler bandwheels.
- Slip the saw band under both saw guide arms by following the reverse procedure of step 4 in the "Saw Band Removal" section. Then: **(a)** Position the saw band around the drive and idler bandwheels.
- Slip the top portion of the saw band loop into the top channel. Then: **(a)** Grasp the saw band portion between the saw guide arms and twist it so the blade teeth are pointing downward; **(b)** Slip this twisted saw band portion up and between the saw guide inserts.



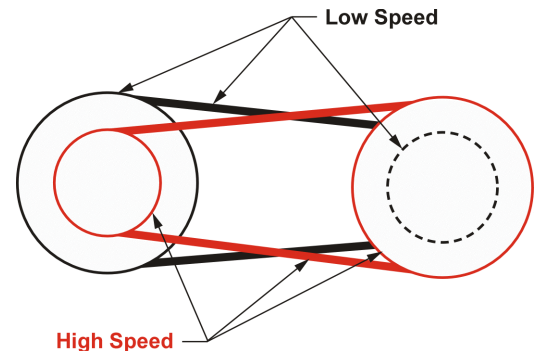
Placing the Saw Band Between the Saw Guide Inserts.

- Turn the **Band Tension** selector to "ON" and then to "HOLD" until the saw band is tensioned just enough to be held in place and adjustments can be made.

- Check the saw band's position around both bandwheels and make adjustments (its back edge must rest against each wheel's rear flange). When satisfied that saw band positioning is correct: **(a)** Turn the **Band Tension** selector to "ON"; **(b)** Move the left saw guide arm to the desired position; **(c)** Tighten both saw guide insert adjustment screws.
- Reposition the band brush and tighten the clamp handle (**brush bristles should clean the blade teeth gullets, but not contact the bottom of the gullets**). Then: **(a)** Lift the bandwheel doors to disengage the lock and then close both bandwheel doors; **(b)** Jog the band drive motor; **(c)** Open each bandwheel door to make certain that the saw band is against the bandwheel flanges; **(d)** Close each door when everything is satisfactory.

BAND SPEED RANGE

- The operator can select between "HIGH" and "LOW" band speed ranges by switching the drive belt from one set of pulleys to the other.
- "LOW" range is the front set of pulleys and the "HIGH" range is the rear set.



Band Speed Range.

- Band speed range is as follows:
LOW 50 - 280 fpm (15 - 85 m/min.)
HIGH 76 - 400 fpm (25 - 120 m/min.)
- To change the band speed range, open the right bandwheel door. Then: **(a)** Undo the guard clips and remove the screws; **(b)** Located in the rear of the machine between the band drive motor and the gearbox, turn adjustment knob **counterclockwise** to relax belt tension; **(c)** Install the belt to desired speed range set of pulleys.
- Turn adjustment knob **clockwise** to tension the belt. There should very little deflection at the center span of the belt.
- Flip the cover up and engage the clips and install the screws.

LEFT SAW GUIDE ARM ADJUSTMENTS



The right saw guide arm cannot be adjusted.

1. The left saw guide arm moves along the slide bar to accommodate various stock widths (the arm should be positioned as close as possible to the clamped stock).
2. Stock width settings are depicted by a slide bar scale with both inch and metric measurements.
3. To adjust the left saw guide arm according to stock width, the operator loosens the left insert adjustment screw and the guide arm locking handle. Next: **(a)** Line up the left saw guide arm's right edge with the proper inscribed scale line; **(b)** Secure the saw guide arm in the chosen location by tightening the guide arm handle; **(c)** Tighten the left insert adjustment screw.



DO NOT hammer the lobes of the locking handwheel. Hand tightening is adequate to lock the left saw guide arm in place.

FEED FORCE ADJUSTMENTS

1. Feed force is the pressure exerted by the workpiece against the saw band's cutting edge. It is controlled hydraulically and regulated with the **Feed Force** valve. Turn the valve **clockwise** to "DECREASE" pressure, **counterclockwise** to "INCREASE" it.
2. The following are important factors to consider when setting or adjusting the **Feed Force** valve:
 - Turn the **Feed Force** valve to a **low** setting if the correct feed force is not known. The operator can then increase or decrease pressure during operation to obtain the best cutting rate consistent with desired blade life and stock cut finish. **Always be sure to take a good chip.**
 - **Never** start a cut with the maximum **Feed Force** valve setting. Blade damage may occur.
 - Certain work-hardening materials will require a **moderately heavy** initial **Feed Force** valve setting to assure immediate penetration of blade teeth. Light feeds on these materials may cause the blade to slide over the stock resulting in saw band damage.
 - Generally, top performance from a sharp saw band results from **relatively low Feed Force** valve settings. It will be necessary to increase the setting as the saw band becomes duller. This will help keep the cutting rate constant throughout the life of the saw band.

- Feed force adjustments are not necessary for changing stock cross-sections. A balancing valve enables the saw band to maintain a uniform cutting rate.

Reducing Cutting Rate & Band Speed for Pipe, Tubing and Structural

1. Increasing loading per tooth occurs when sawing thin stock sections. Although the blade teeth can bear some overloading, a cutting rate reduction must be made.
2. When it becomes necessary to modify solid section sawing recommendations: **(a)** Measure the thinnest stock section to be cut; **(b)** Apply a percentage factor of 40% for thin material to up to 70% materials over 1.00 inch (25.4 mm); **(c)** Use a high band speed, but **never exceed the maximum speed recommended on the chart found at the beginning of "OPERATION" chapter) for stock sections of the same size.**

FEED RATE

1. Correct feed rate is important for helping: **(a)** Determine overall cutting accuracy and finish of cut; **(b)** Improve blade life by eliminating breakage and tooth strippage at the cut's start and break-out points.

HEAD ELEVATION and SENSING ARM

Head Elevation

1. Saw head elevation during automatic sawing cycle is initiated when the head down proximity switch is actuated. The saw head then raises to a height determined by the sensing arm.
2. After a cut has been made in the manual operating mode, the actuated head down proximity switch stops machine operation. To lift the saw head off the limit switch and resume operation, the operator must; **(a)** Push the **Hydraulic Start** pushbutton; **(b)** Push and hold the **Saw Head Up** button;

Sensing Arm

1. The sensing arm works in conjunction with the head clear proximity switch to assure that the saw head has raised sufficiently above existing stock so that automatic indexing or manual stock positioning can be accomplished safely.

Sensing Arm Operation When the Saw Head Raises

1. The saw head lifts the sensing arm above the stock at a rapid rate (there is no slow head raising rate) until it actuates the head clear proximity switch. This causes saw head upward movement to stop when the blade is approximately one (1) inch (25.4 mm) above the stock. This clearance anticipates potentially crooked and/or out-of-round stock being used.
2. If operating in automatic mode, the fixed vise then unclamps, the index vise clamps, and stock is indexed forward. Following the advance of stock, the fixed vise clamps and the index vise unclamps.
3. When the fixed vise unclamps prior to indexing, its jaws open just enough to allow stock advancement. The vise jaws can be opened wider only when the saw head has been manually raised to the full "UP" position to actuate the head up proximity switch: this assures that the left saw guide arm will clear the fixed vise when it opens to receive larger stock.



Left saw guide arm adjustment for stock width must be made manually by the operator.

Sensing Arm Operation When the Saw Head Lowers

1. The saw head lowers at the rapid approach rate until stock is contacted by the sensing arm. A feed rate is then established and cutting begins.
2. Sensing arm contact with the stock is maintained throughout the cut. After a cut has been finished: (a) The head down proximity switch is actuated; (b) The saw head raises.

MINIMUM BAR END

1. When the indexing vise is completely forward, both of its vise jaws extend toward the front vise jaws. This extension, together with the nesting design of the vises, permits automatic indexing of stock until a small butt end remains.

	DC-280NC	DC-330NC	DC-420NC
Minimum Bar End	3.75" (95)	4.33" (110)	4.33" (110)
	DC-460NC	DC-500NC	DC-560NC
Minimum Bar End	4.53" (115)	4.53" (115)	6.10" (155)

2. If the stock is shorter, it will not be stable in the index vise.

VERTICAL GUIDE ROLLERS

1. These rollers are mounted near the end of the index table and provides two (2) laterally adjustable vertical rollers.
2. When the vertical roller is not needed, it can be swiveled in the down position.

HYDRAULIC SYSTEM

1. The hydraulic and band drive systems operate independently. This allows the operator to perform the following tasks while the band drive motor is **not running**: (a) Change saw bands; (b) Raise or lower the sawing head; (c) Clamp or unclamp the vises; (d) Position stock manually.
2. The machine's hydraulic reservoir capacity depends on machine model. **(See Machine Specifications Chart)**. Refer to the Lubrication section of this manual for recommended oils.

COOLANT SYSTEM

Coolant Selection

1. The main cause of tooth failure during band machining is excessive heat build-up. Using the proper cutting fluid reduces the heat generated during operation. It also helps the machine take full advantage of its high-speed steel saw bands.

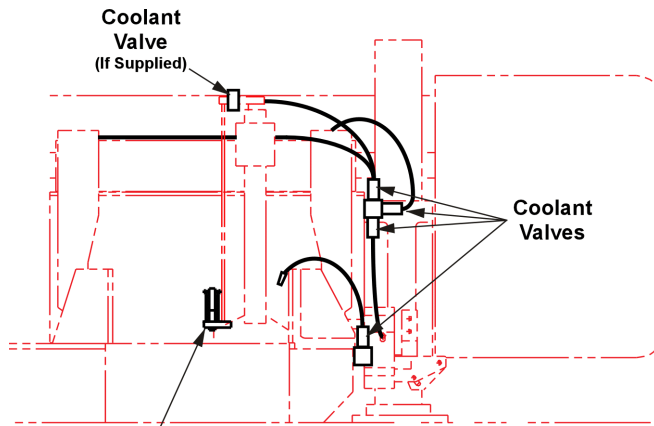


Literature describing these and other coolant types is available from a DoALL sales representative.

Coolant Application

1. Coolant is applied as follows during sawing:
 - To the saw band and cutting area through the saw guide inserts. Flow is regulated by a valve on each saw guide arm.
 - To the band brush cleaning area through a flushing nozzle. Flow from this point is controlled by a valve.
 - To the cutting area through a flushing nozzle. Flow from this point is controlled by a valve.
 - On some models, an additional flushing nozzle located between the two saw guide arms on top of the saw band to cool the cutting area.

COOLANT SYSTEM (Continued....)



Not Supplied on
DC-280NC, DC-330NC

Coolant Application Points.

2. Coolant flow is started by: (a) Pushing the **Hydraulic Start** pushbutton; (b) Turning the **Coolant** selector to "ON" or "BAND ON"; (c) Turn all the coolant valves on until fluid completely shrouds the saw band.



DO NOT start cutting until coolant is flowing adequately. Dry cutting will greatly reduce blade life.

3. Check the coolant reservoir level if flow is stopped or reduced. Reservoir capacity is dependent on machine model. (See **Machine Specifications Chart**). A coolant level sight gauge is located next to the coolant pump.

CHIP REMOVAL

1. Metal chips should be removed from the work area as soon as possible. They can be washed or scraped into the chip conveyor trough, or scooped out with the shovel and/or rake.



DO NOT shovel or rake chips while the saw band is running.

Band Brush

1. A covered, band drive motor driven band brush is located near the right saw guide arm. During machine operation, the brush bristles should be positioned so that the tips clean chips from the blade teeth gullets, but do not contact the bottom of the gullets. **DO NOT allow metal chips to accumulate on the brush.**

2. As the bristles wear, move the brush closer to the blade. To do so: (a) Open the right wheel cover; (b) Loosen the clamping handle; (c) Position the brush for correct blade cleaning; (d) Tighten the clamping handle and close the wheel cover.

Flushing Hose

1. Metal chips and other debris may accumulate over time around such machine areas as: saw guides, drive and idler bandwheels, vises, slides, brush housing, head lift cylinder, feed and discharge areas, etc.
2. The operator should check often for metal chip collections which can adversely affect machine performance. They should be removed with the Flushing Hose as soon as possible.



The DoALL Company recommends using the Flushing Hose to remove chips at least twice per each eight (8) hour shift, and more often with heavier use.

Chip Conveyor

1. During operation, metal chips and used coolant drop directly into a sloped trough, or flow into it from the machine's run-off surfaces. Coolant then flows down the trough and through a filtering screen before returning to the reservoir.
2. The chip conveyor motor operates simultaneously with the hydraulic pump motor. The conveyor screw rotates slowly at the bottom of the trough. Its movement carries metal chips to the opening at the machine's right side where chips empty into a customer-supplied container.
3. A needle valve located below the auger allows the chip auger motor to be adjusted for faster or slower operation.

NESTING FIXTURE

1. This feature is designed for high-production, multiple sawing of stacked bars, rounds and tubing.
2. Vertical nesting clamp cylinders are mounted to the machine's front and index vises. The cylinders operate simultaneously with the regular vise clamping cylinders.
3. Vise capacity is dependent on machine model. (See **Machine Specifications Chart**).

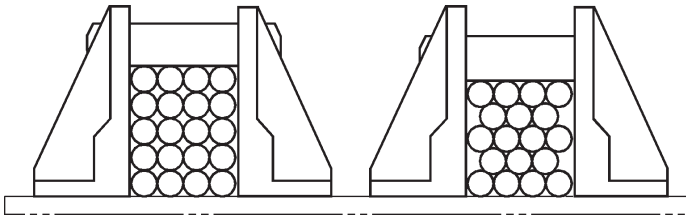


The hydraulically operated Nesting Fixture can also be used with the Variable Vise Pressure control.

NESTING FIXTURE (Continued....)

Stacking Stock

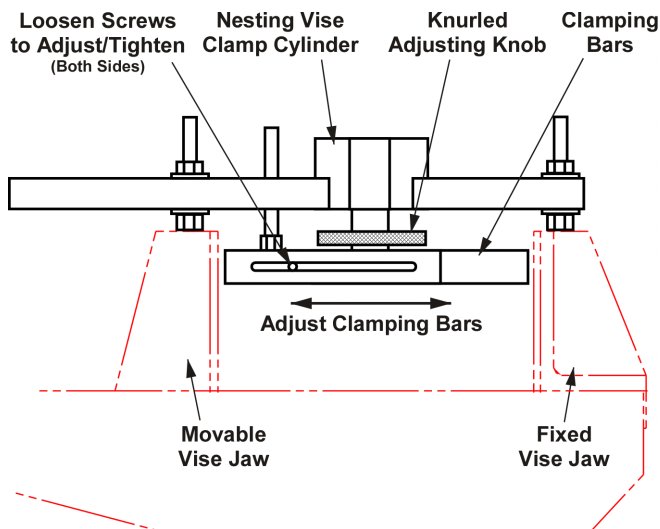
1. Correct stock nesting is essential for proper clamping of the vises and nesting fixture. It is important that nesting vise clamping pressure be transmitted to every stacked piece. Sometimes this can be more easily accomplished by manually jogging the stack.
2. Proper stacking of round stock is important because saw band breakage may occur if round nested pieces slip or spin during sawing.
3. Two (2) workable round stock stacking methods are shown in the next illustration (using the same number of rounds in each row usually provides the best sawing results, although the alternate method can be used if the material is not stacked too high).



Round Stock Stacking Methods.

5. Pieces should be stacked as closely together as possible. Metal chips lodged in open spaces between individual pieces will affect cutting accuracy.

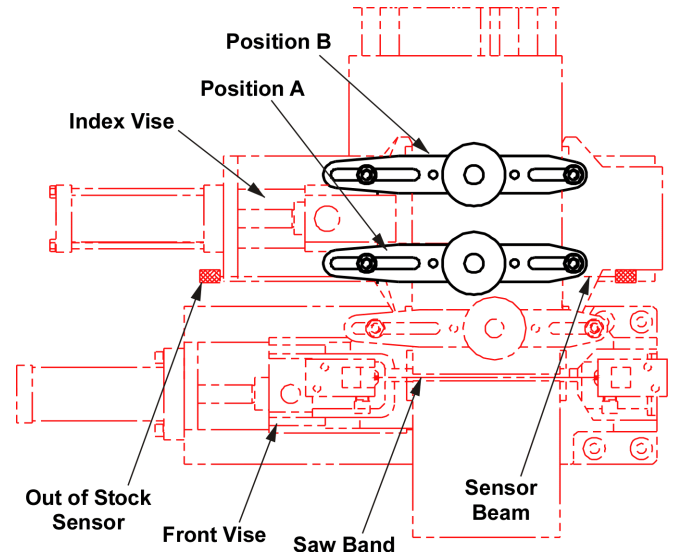
Vise Adjustment



Nesting Fixture Vise Adjustments.

1. Stack stock to be cut between the machine's vise jaws. Then: (a) Push the **Front Vise Rel (Release)** and **Rear (Index) Vise Rel (Release)** buttons; (b) Bolt the supporting bar tightly to the fixed vise jaw(s), but not to the movable vise jaw(s).

2. Loosen the screw on each side of the clamp bars adjust the clamp bars commensurate with the size of the nested stock. Then adjust the index table's vertical guide rollers so the stock will be guided correctly toward the saw band.
3. If the horizontal clamping vises and the vertical nesting clamp **do not** release at approximately the same time: (a) Adjust the hydraulic restrictor valve at the rod end of the front and/or index vise cylinders to achieve relatively equal release.



Nesting Fixture Positions on the Index Vise.

3. The indexing vise has two (2) positions to place the nesting fixture.
 - "POSITION A" is the forward position on the index vise.
 - "POSITION B" is the rear position on the index vise.
4. The remnant will change depending on the position the nesting fixture position. See chart below.

	DC-280NC	DC-330NC	DC-420NC
Position A	7.75" (190)	7.88" (200)	8.47" (215)
Position B	13.00" (330)	13.00" (330)	13.00" (330)
	DC-460NC	DC-500NC	DC-560NC
Position A	8.47" (215)	8.47" (215)	Not Applicable
Position B	14.75" (375)	14.75" (375)	Not Applicable

NESTING FIXTURE (Continued....)

Controls

1. Go to the "**MODE SELECT**" Screen.
2. Under "ESCAPE", choose how the index vise responds after one cut is completed.
 - "DO" allows the index vise to move back a little to avoid the saw band from touching the material as the saw band is raised. It is designed for bundle cutting.
 - Selecting "NONE" keeps the index vise stationary while the saw band is raised. It is designed for single cutting.

For Best Nesting Cutting Results

1. Stack the same number of stockpieces in each row.
2. The stack should always be higher than it is wide.
3. Increase the nesting vise clamping pressure will increase the holding load per piece.
4. Apply as much coolant as possible while cutting.
5. Replace wear plates on the movable vise jaw when they become worn.
6. Adjust the index table's vertical guide rollers to keep the stack from collapsing when the vises are unclamped.
7. Generally, reduced band speed and feed force are necessary when sawing stacked materials. This results in a lower cutting rate than possible when sawing solid stock.
8. In some instances, increased production and blade life may be obtained by nesting **fewer** pieces than maximum vise capacity permits.

TYPICAL OPERATING PROCEDURES

Preparation

1. These operation procedures assume that the machine is prepared as follows: **(a)** The band drive motor is "OFF"; **(b)** The saw band is properly installed and tensioned; **(c)** Both bandwheel doors are closed; **(d)** All guards are in place and/or secured; **(e)** The coolant reservoir is full and all lubrication points are properly serviced and if necessary, press the "COOLANT" key with the desired delivery mode; **(f)** The band brush is properly positioned.

Manual Operation

1. Turn the hydraulics on, raise the saw head and open both front and rear vises to accommodate the material to be cut.
2. Adjust the vise location pins accordingly for the size of the material to be cut.
3. Remove or add the fixed vise drop plates according to the size of material to be cut.
4. Verify or adjust variable vise pressure for the type of material to be cut.
5. Place material on the index vise bed.
6. Loosen the saw guide adjusting screws and adjust left movable saw guide arm to the size of the material to be cut. Tighten the saw guide arm and then tighten the saw guide adjusting screws.
7. Clamp both front and rear vises.
8. Check the band brush for correct positioning, verify that the chip conveyor is operating and choice of coolant flow has been selected.
9. Press the "BAND CYCLE START" button.
10. Saw head will lower cut through the material, energize head down limit switch, saw head will rise above the material and the blade will shut off.
11. The operator may adjust band speed, coolant flow, feed rate and feed force at any time during the sawing process.

Automatic Operation

1. Start the operation by following steps 1 through 8 from the preceding "*Manual Operation*" section.
2. If necessary, "HOME" the indexing vise. After homing, make sure the indexing vise is not at the "HOME" position. This is done in "MANUAL" mode and only when the front vise is clamped and the rear vise is opened.
3. Press "MODE SET" on the **View Screen** and enter your data for "EXEC", "SIZE", "QTY" and "BLADE SPEED" parameters for each job. Double check your data. Make any changes before starting.
4. Press "**F1**" to go to the "**View Screen**". Select "AUTO", "COOLANT AUTO" or "MANUAL" and choose between "CUTS EXCLUDED" or "COUNTED".

TYPICAL OPERATING PROCEDURES

(Continued....)

5. Press the **green** "BAND DRIVE ON" button on the control panel or the "BLADE ON" key on the **"Run (Manual)" Screen** of the workstation.
6. The saw head will lower cut through the material, energize head down limit switch, saw head will rise above the material, vise will transfer the material for the next cut, vise(s) will clamp and the saw head will lower and begin the process over again.
7. When all jobs entered have been completed, the saw band shut off.
8. The operator may adjust band speed, coolant flow, feed rate and feed force at any time during the sawing process.



DO NOT remove any cut-off pieces until they are away from the saw band or the saw band has stopped completely.



For future reference, keep a record of band speed, feed rate, feed force and coolant application settings for successful jobs.

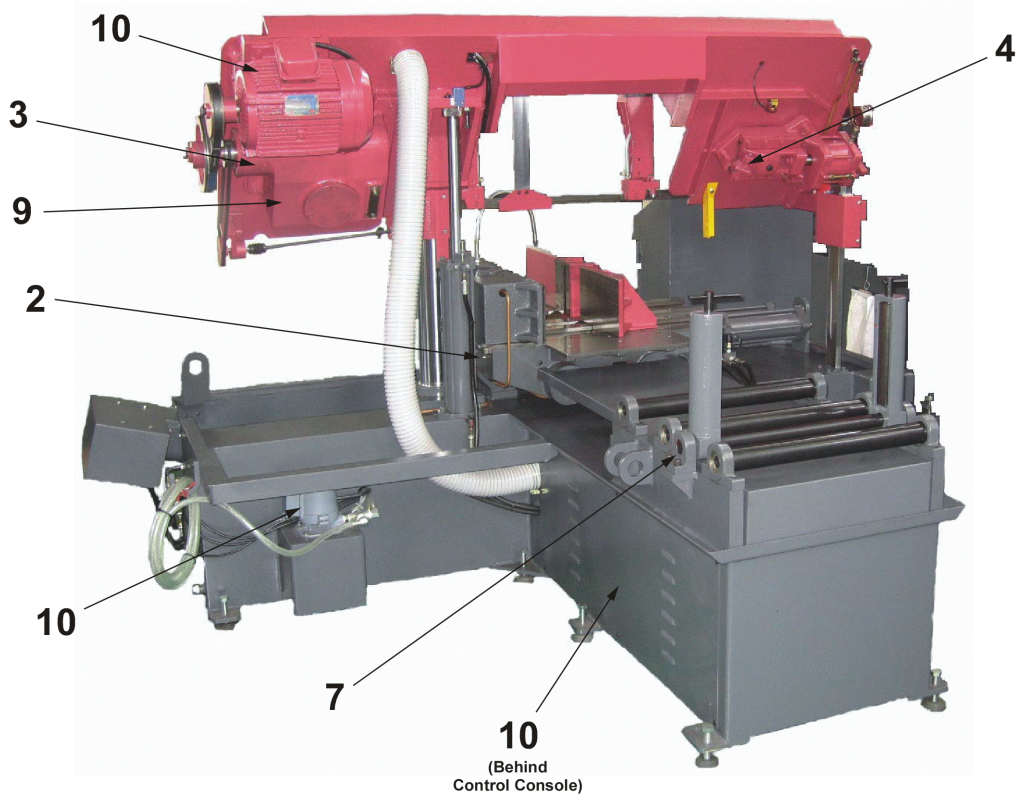
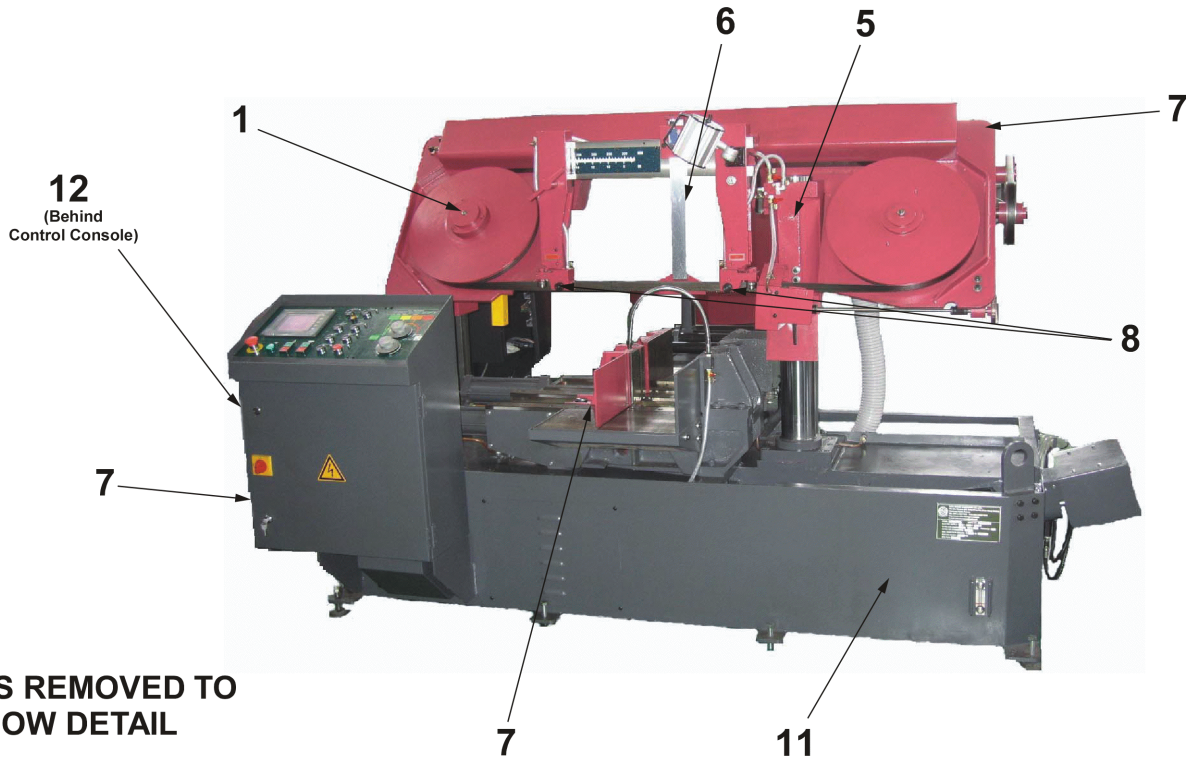
LUBRICATION

LUBRICATION CHART

LUBRICATION POINT NO.	LOCATION DESCRIPTION and SERVICE RECOMMENDATIONS	LUBRICATION INTERVAL*	RECOMMENDED LUBRICANT
1	Idler Bandwheel Bearings. One (1) grease fitting.	WEEKLY	Premium quality, multi-purpose lithium-base, EP (extreme pressure) grease. NLGI No. 2. Union 76, UNOBA EP 2, or equivalent.
2	Index Vise Movable Jaw Ways. Two (2) grease fittings.	WEEKLY	
3	Gearbox Shaft Bearings. Two (2) grease fitting.	WEEKLY	
4	Band Tension Slide. One (1) grease fitting.	WEEKLY	
5	Saw Head Tube. One (1) grease fitting.	MONTHLY	
6	Sensing Arm. Clean and apply oil.	MONTHLY	High quality, rust and oxidation-inhibited, medium hydraulic and general purpose industrial oil.
7	Miscellaneous: Vise Slide, Hinges, Pivot Points, Component Parts, Unpainted Surfaces, etc. To ensure function and maintain appearance while reducing wear, corrosion, rust, etc. Apply when and where needed in amounts required.	AS REQUIRED	ISO-VG Grade 68 (Formerly ASTM Grade No. 315).
8	Saw Guide Adjustment Screws. Clean and apply oil.	INSERT CHANGE	Union 76, UNAX RX 68, or equivalent.
9	Band Drive Gearbox. Capacity depending on model. See Specification Chart. Drain, change and refill after the first three (3) months; every six (6) months thereafter. Do not overfill. Fill until above the red line.	6 MONTHS	High quality, 4EP (extreme pressure) multi-purpose gear oil. Mobil Gear (629-YC1F4), Union Extra duty NL Gear Lube. S.A.E Grade No. 90.
10	Electric/Hydraulic Motors. Band Drive, Hydraulic Pump, Coolant Pump, Chip Auger.	Lubricate (if any) per manufacturer's recommendations.	
11	Coolant Reservoir. Capacity depending on model. See Specification Chart. Drain, clean and refill whenever coolant becomes undesirable for further use. Clean the mesh screen at the same time.	CHECK DAILY/ AS REQUIRED	Premium quality, saw band coolant and lubricant. DoALL cutting fluids and/or oils (Kool All).
12	Hydraulic Reservoir. Capacity depending on model. See Specification Chart. Check fluid level daily and keep the reservoir full. Drain, change the filter element and refill after the 1st month; every six (6) months thereafter.	CHECK DAILY/ AS REQUIRED	Multi-purpose automatic transmission fluid. General Motors Dexron III, or equivalent.

* Lubrication intervals are based on a 8-hour day, 40-hour week. Lubricate more often with heavier use.

LUBRICATION DIAGRAM



MAINTENANCE

REPLACING SAW GUIDE AND BACK-UP INSERTS



These instructions can be used to replace the saw guide inserts and back-up roller on both left and right saw guide arms.



The band drive motor **MUST NOT** be running when replacing saw guide and back-up inserts.

- Loosen the insert adjustment screw on each saw guide arm. Then: **(a)** Remove the left saw band guard (if necessary); **(b)** Remove the adjustment screw **being very careful not to drop or lose the front insert when it falls from the assembly**; **(c)** Loosen the socket cap screw from the rear side of the saw guide and remove the rear insert.
- Thoroughly clean the saw guide arm and inserts area. Then: **(a)** Check the back-up roller for wear and replace the roller if it has deteriorated (this will help prevent coolant leakage).
- Install the new fixed insert and tighten the screw. Then: **(a)** Thread the adjusting screw inward part way; **(b)** Install the adjustable insert; **(c)** Tighten the adjustment screw; **(d)** Replace the left saw band guard (if removed).

BAND DRIVE/BRUSH BELT REPLACEMENT



Check the status of the band brush belt at this time also. The band drive belts must be removed to access the band brush belt. Consider changing both belts at the same time.

- To change the band drive belt, open the right bandwheel door. Then: **(a)** Undo the guard clips and remove the screws; **(b)** Located in the rear of the machine between the band drive motor and the gearbox, turn adjustment knob **counterclockwise** to relax belt tension; **(c)** Remove the old belt and install the new belt by stretching the belt over the desired speed range set of pulleys.
- Turn adjustment knob **clockwise** to tension the belt. There should very little deflection at the center span of the belt.
- Flip the cover back up and engage the clips and install the screws.

HYDRAULIC SYSTEM

- The machine's hydraulic reservoir capacity depends on machine model. **(See Machine Specifications Chart)**. Check the reservoir oil level daily by referring to the sight gauge (located on the left side of the machine behind the control console).
- Before changing the hydraulic oil: **(a)** Lower the saw head completely; **(b)** Push the **Hydraulic Stop** pushbutton; **(c)** Remove the reservoir drain plug; **(d)** Allow the reservoir to drain completely.
- Drain, clean, refill the reservoir and change the oil filter after the first three (3) months of operation; every six (6) months thereafter. Clean the suction strainer and filler opening screen when necessary. Automatic transmission fluid is the recommended product.

System Pressure

- Hydraulic system pressure is correctly set at the factory and should not require adjustment for a considerable period of time.

	DC-280NC	DC-330NC	DC-420NC
System Pressure ± 10 psi (2 kg/cm ²)	425 psi (30 kg/cm ²)	425 psi (30 kg/cm ²)	570 psi (40 kg/cm ²)
	DC-460NC	DC-500NC	DC-560NC
System Pressure ± 10 psi (2 kg/cm ²)	570 psi (40 kg/cm ²)	570 psi (40 kg/cm ²)	640 psi (45 kg/cm ²)

COOLANT SYSTEM

- The machine's coolant reservoir capacity depends on machine model. **(See Machine Specifications Chart)**. A reservoir level sight gauge is located at the machine's right front side.
- Check the coolant often for signs of contamination or breakdown. The reservoir and coolant system should be drained and cleaned thoroughly when the cutting fluid becomes undesirable for further use. If another type of coolant is to be used, the entire coolant system must be flushed (use DoALL's Kleen Flush).
- To thoroughly clean the reservoir section below the conveyor trough, removal of the trough will be necessary.

4. Fill the reservoir with coolant through the tube breather opening until coolant is above the **red** line on the sight gauge.

BAND DRIVE GEARBOX

1. Gearbox replacement, repair, adjustment or alignment should be performed only by a DoALL service representative.
2. The machine's gearbox reservoir capacity depends on machine model. **(See Machine Specifications Chart)**. Check the reservoir oil level daily by referring to the sight gauge.
3. Before changing the gearbox oil, lower the saw head completely and then stop the hydraulics. **(a)** Remove the reservoir drain plug; **(b)** Allow the reservoir to drain completely; **(c)** Remove the tube breather at the top of the gearbox.
4. Place container under the gearbox and remove the reservoir drain plug. Allow the reservoir to drain completely. Then replace the drain plug making sure the plug is tight and sealed.
5. Fill the gearbox with oil through the tube breather opening until oil is above the **red** line on the sight gauge.
6. Change the oil after the first three (3) months of operation; every six (6) months thereafter.

MACHINE CLEANING

1. Keep the machine and its parts as clean as possible to prevent excessive wear and damage.
2. Use the Flushing Hose as soon as possible to remove metal chips and other waste materials which may collect around the saw guides, bandwheels, vises, slides, sensing arm, etc. The hose has a hand-operated valve and attaches to the coolant pump. **The DoALL Company recommends using the Flushing Hose to remove chips at least twice per each eight (8) hour shift, and more often with heavier use.**
3. Use a shovel, scoop or rake to remove accumulated metal chips or other waste materials from machine areas. **Be sure the band drive motor is stopped before cleaning.**

MACHINE ALIGNMENT

1. Misalignment of the machine's saw guide arms, slide bar, saw band, pivot points, gearbox, etc., will cause inaccurate sawing.



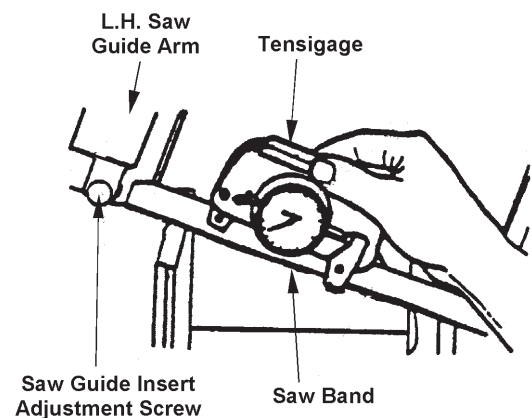
DO NOT attempt any alignment procedures not covered by this manual. Contact a DoALL service representative in such cases because special fixtures and techniques may be required.

BAND BRUSH

1. The band chip brush will wear and lose steel bristles over time. Check often to be sure the bristles are removing metal chips from the blade tooth gullets, but are not touching the bottom of the gullets.
2. Move the brush closer to the blade as normal wear occurs. Replace the brushes when necessary.

BAND TENSION MEASUREMENT

1. Band tension is factory set.
 - Band tension measurement can be made with the machine's hydraulics running and by using the **Band Tension** selector and a DoALL Tensigage.
2. Tension may be checked "reading up" or "reading down". To "read up": **(a)** Fix the Tensigage to a slack saw band; **(b)** Apply tension. To "read down": **(a)** Fix the Tensigage to a tensioned saw band; **(b)** Relax tension.
3. A correct DoALL Tensigage reading depends on machine model. **(See Machine Specifications Chart)**.



Using a Tensigage to Measure Band Tension.

WEAR PLATE REPLACEMENT

1. The removable vise jaw and vise guide bars must be replaced before excessive wear causes the mounting screw heads to become damaged and makes removal difficult.

Vise Jaw Plates

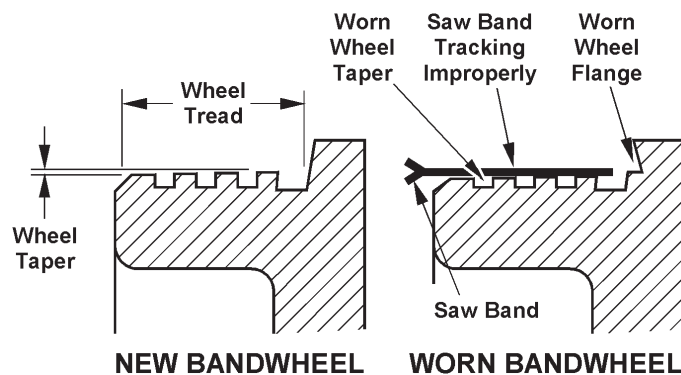
1. The machine has eight (8) vise jaw wear plates: four (4) on the front vise jaws and four (4) on the index vise jaws. All wear plates are mounted with low-head screws. **Be sure the vise jaws are separated and the machine turned off before trying to replace the wear plates.**

Vise Guide Rails

1. Each of the two (2) vise guide rails for both front and index vises has eight (8) mounting screws which must be removed. Replacement requires: **(a)** Removing the mounting screws; **(b)** Pulling the guide rails toward the left.

BANDWHEELS

1. Occasionally check each bandwheel's back-up flange and wheel tread for wear. Saw bands will not track properly if the taper is worn from the wheel tread.
2. Replace the entire bandwheel if the rim becomes badly worn.
3. Ideally, the saw band should be tracking on both wheels so that the back edge will just lightly contact the wheel flanges, or is not more than 0.005 inch (0.127 mm) away from the flanges.



Bandwheel Flange and Tread.

CLEANING CHIP CONVEYOR

1. To clean the chip conveyor, turn the machine off. Then: **(a)** Disconnect the hydraulic hoses; **(b)** Pull the auger from its cradled position in the base; **(c)** Clean the conveyor trough; **(d)** Clean the reservoir floor; **(e)** Reinstall the auger and cover.

TROUBLE SHOOTING



Repair and adjustment procedures should be made only by experienced maintenance personnel, or by a DoALL service representative. Reference to the machine's electrical and hydraulic schematics will be helpful.

ERROR MESSAGES

1. Follow the prompts when an error message appears.

MACHINE WILL NOT START

1. Check that the disconnect switch is in the "ON" position.
2. The **Emergency Stop** pushbutton needs to be reset (rotate the button head **clockwise**).
3. See if the main fuses and/or circuit breakers have tripped or burned out.
4. Make sure both bandwheel doors are closed or any interlock is engaged.
5. Push the motor starter overload reset buttons in the electrical cabinet. If overload tripping occurs, locate and correct the problem.
6. Check the control transformer for power.
7. Check the hydraulic motor and wiring.
8. Check the starter, relay coils and contacts for faulty operation.
9. Have an electrical service person check the continuity of the starting circuit.

MACHINE STARTS, BUT WON'T CONTINUE RUNNING

1. The saw band is broken or too long and is activating the band break proximity switch.
2. Check to see if the bandwheel doors are closed (the band drive motor will not start unless both doors are closed).
3. The saw head has not cleared the head down proximity switch. Push the **Saw Head Up** button.
4. The out of stock limit switch has been actuated.

SAW BAND STALLS DURING A CUT

1. Decrease saw head feeding pressure.
2. Check to see if drive belt tension is adequate to resist "cogging" underload.
3. Use a Tensigage to check for proper saw band tension.
4. Check for proper operation of the **Band Tension** selector.

BLADE TOOTH GULLETS ARE LOADING

1. Use a coarser pitch saw band.
2. Increase the band speed setting, or decrease the feed pressure setting.
3. Check for improper coolant application.
4. Check the positioning of the band brush. Replace the brush, if necessary.

SAW BAND SQUEAL

1. The lead-in/exit rollers are: **(a)** Not contacting the saw band; or **(b)** Positioned too tightly against the saw band.
2. Check for defective lead-in/exit roller bearings.

SAW BAND VIBRATION

1. Check for a dull or damaged saw band.
2. Incorrect band speed or feed pressure setting is being used.
3. Check for incorrect saw band pitch.
4. Coolant mixture is weak, or incorrect coolant is being used.
5. Stockpiece is not being firmly clamped by the vise jaws.
6. Check for worn or improperly-adjusted saw guide inserts.
7. Check for a worn saw guide back-up bearing or lead-in/exit roller bearing.
8. Check for incorrect saw band tension.

TROUBLE SHOOTING (Continued....)

PREMATURE BLADE TEETH DULLING

1. Band speed and/or feed rate is too high.
2. Check for faulty stock: Heavy scale, inclusions, hard spots, etc.
3. Stock analysis is incorrect. This can result in an incorrect cutting recommendation.
4. Coolant is not covering the saw band properly.
5. Check for saw band vibration.
6. Check for chip welding, or a chipped blade tooth lodged in the cut.
7. Saw band being used is incorrect.
8. Coolant mixture is too weak, or incorrect coolant is being used.
9. The saw band is not properly tensioned.
10. Decrease feed pressure to "break in" a new saw band on its first few cuts.

BLADE TEETH STRIPPING

1. Increase band speed or decrease feed pressure.
2. Check for chip welding, or for a chipped blade tooth lodged in the cut.
3. Faulty stock is being used: Check for heavy scale, inclusions, hard spots, etc.
4. Check for a worn, or improperly adjusted band brush.
5. Check for vibration caused by loose vise jaw clamping against the stockpiece.
6. Check for worn saw guide inserts and/or carbide back-up bearing.
7. Coolant is not being applied correctly.
8. Check for incorrect saw band tension being used.
9. Saw band pitch may be too coarse for thickness of the stock section.

SAW BAND BREAKAGE

1. The saw band is being dropped into the stockpiece due to incorrect saw head feeding rate.

2. Increase band speed being used and/or decrease feed force.
3. Check for stock not being held firmly by the vise jaws.
4. Check for incorrect adjustment of the saw guide inserts and carbide back-up guides.
5. Check for insufficient coolant flow.
6. Use a finer pitch saw band.
7. Check for incorrect saw band tension.

SAW BAND IS NOT RUNNING TRUE AGAINST THE SAW GUIDE BACK-UP BEARINGS (May Cause Vibration)

1. Examine the carbide back-up bearings. Replace them if they are chipped or worn more than 0.020-inch (0.5 mm).
2. Have a DoALL service representative check machine alignment.
3. Check for worn saw guide pivot bolts.
4. Left saw guide arm is loose, or not positioned close enough to the stock.

INACCURATE CUT-OFF

1. Check for worn or dull blade teeth.
2. Check for a hard spot in stock being cut.
3. Band brush is not properly cleaning the blade teeth.
4. Increase band speed being used and/or decrease feed force.
5. Check for dirty coolant. Replace if necessary.
6. Check for crooked stock (this can result in straight, but not square cuts).
7. Left saw guide arm is loose, or not positioned close enough to the stock being cut.
8. Saw band pitch choice is incorrect.
9. Check for incorrect saw band tension.
10. Check for incorrect adjustment of inserts, back-up bearing, or worn pivot bolts.

TROUBLE SHOOTING (Continued....)

11. Check machine alignment. Have a DoALL service representative check and/or adjust machine alignment.
12. Check for coolant not being supplied evenly to both sides of the saw band.

SURFACE FINISH OF CUT-OFF PIECE IS TOO ROUGH

1. Check for vibration while sawing.
2. Check for a damaged saw band.
3. Use a finer pitch saw band.
4. Increase band speed being used and/or decrease the feed rate.
5. Check the saw band back-up guides for wear. Replace them if necessary.
6. Check for incorrect saw band tension.

CUTTING RATE IS TOO SLOW

1. Increase the feed rate.
2. Increase band speed and/or feed force.
3. Use a courser pitch saw band.

STOCK FEEDS ERRATICALLY

1. Check for low hydraulic system oil level.

INDEX VISE WON'T MOVE FORWARD

1. Check to see if the vise solenoid is operating.

VICES WON'T TRANSFER AFTER AN INDEX

1. Check for faulty operation of the index forward proximity switch on the index vise base.
2. Check to see if the vise solenoid is operating.

INDEX WON'T RETURN

1. Check to see if the vise solenoid is operating.
2. Check for incorrect adjustment of the index forward proximity switch.

VICES WON'T TRANSFER and SAW HEAD STAYS DOWN

1. Check for faulty operation of the head down proximity switch.
2. Check to see if the vise solenoid is operating.
3. Check to see if the saw head solenoid is operating..

SAW HEAD WON'T LOWER

1. The feed rate setting is too low.
2. Check the head clear proximity switch for faulty operation.
3. Check to see if the saw head solenoid is operating.
4. Check for saw head obstruction.

SAW HEAD WILL NOT RAISE, OR RAISES SLOWLY

1. Check to see if the saw head solenoid is operating.
2. Check for low hydraulic system pressure caused by blockage, clogged oil filter cartridge, or pinched hose.

SAW HEAD LOWERS ERRATICALLY

1. Bleed air from the head lift cylinder. It may be necessary to raise and lower the saw head several times to thoroughly bleed the head lift cylinder.

SAW HEAD WON'T STOP AT THE CORRECT STOCK HEIGHT

1. Check the stock height sensing arm. Is it positioned correctly relative to the saw band?
2. Check to see if the sensing arm is properly actuating the head clear proximity switch.
3. Check to see if the saw head solenoid is operating.

SAW HEAD DOESN'T LOWER FOR REPEAT CUTS

1. Check to see if the saw head solenoid is operating.
2. Check adjustment of the head clear proximity switch.
3. Check the index forward proximity switch.

TROUBLE SHOOTING (Continued....)

SLUGGISH HYDRAULIC OPERATION

1. Check for low hydraulic system pressure or low reservoir level.
2. Check for air in the hydraulic system.
3. Check for a blocked or clogged hydraulic filter.
4. Check for faulty hydraulic pump operation.
5. Check for cold hydraulic oil.

BAND DRIVE TRANSMISSION GETS HOT

1. Check for low transmission fluid level.
2. Check for lubricant leakage.

NUISANCE OVERLOAD TRIPPING

1. Check to see if the overload relays are set too low. Increase the setting if necessary.

SENSING ARM HANGS UP

1. Check to see if the sensing arm is dirty.

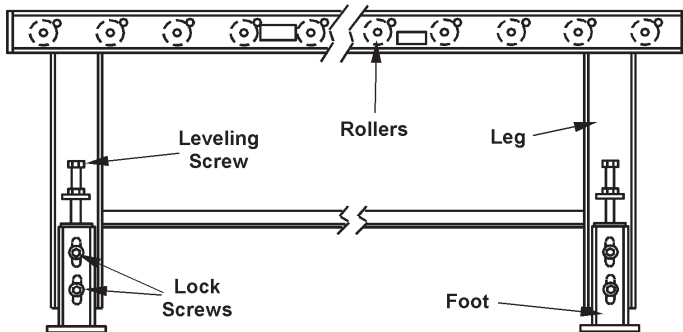
MALFUNCTIONING OPERATING SEQUENCE

1. EPROM memory pack is malfunctioning, or is not installed or is installed incorrectly.

ACCESSORIES

10" (3050.0 mm) ROLLER STOCK CONVEYOR

1. Your machine may be equipped with one of the following roller stock conveyors for moving long stock into cutting position (or as an unloading adjunct). The following conveyors are available:
 - The five (5) foot conveyor is standard.
 - Optional stock conveyor is ten (10) feet (3050.0 mm) long by 22 inches (558.8 mm) wide with a weight capacity of 800 pounds (362.9 kg) per roller.



Roller Stock Conveyor.

2. To install a roller stock conveyor: **(a)** Position the assembled conveyor(s) behind or in front of the machine base; **(b)** Adjust the conveyor to the machine with the leveling screws on the conveyor legs. The top of the front conveyor roller should be inline to 0.010-inch (0.25 mm) above the vise bed wear plate.
3. The remaining rollers must be parallel to, and in the same plane with the vise beds to within 0.010-inch (0.25 mm) per 24 inches (609.6 mm) of travel.
4. Depress the roller shafts for ease of installation or removal of rollers.



The conveyor DOES NOT attach to the machine base. Anchor the conveyor to the floor after all leveling and adjustments are made.