

Instruction Manual



SAWING PRODUCTS

C-305A

Serial No: 607-13101 to

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.
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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


MODEL

FIRST SERIAL NO.

LAST SERIAL NO.

C-305A

607-13101

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

For your information and future reference, pertinent data concerning your machine should be written in the spaces provided above. This information is printed on a label 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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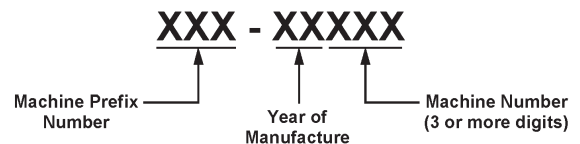
TROUBLE SHOOTING	30-33
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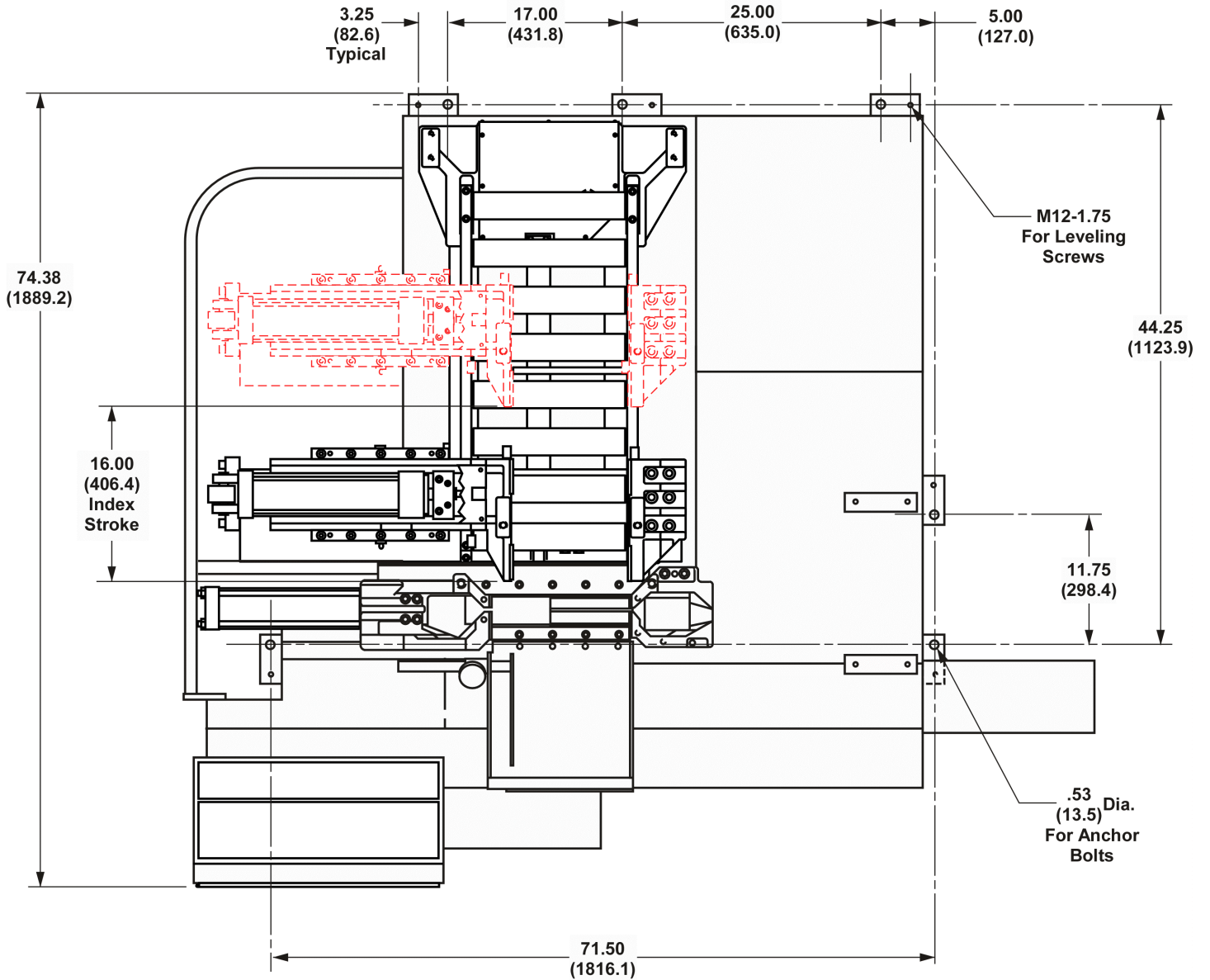
How to read your serial number:

Example: 500-001234



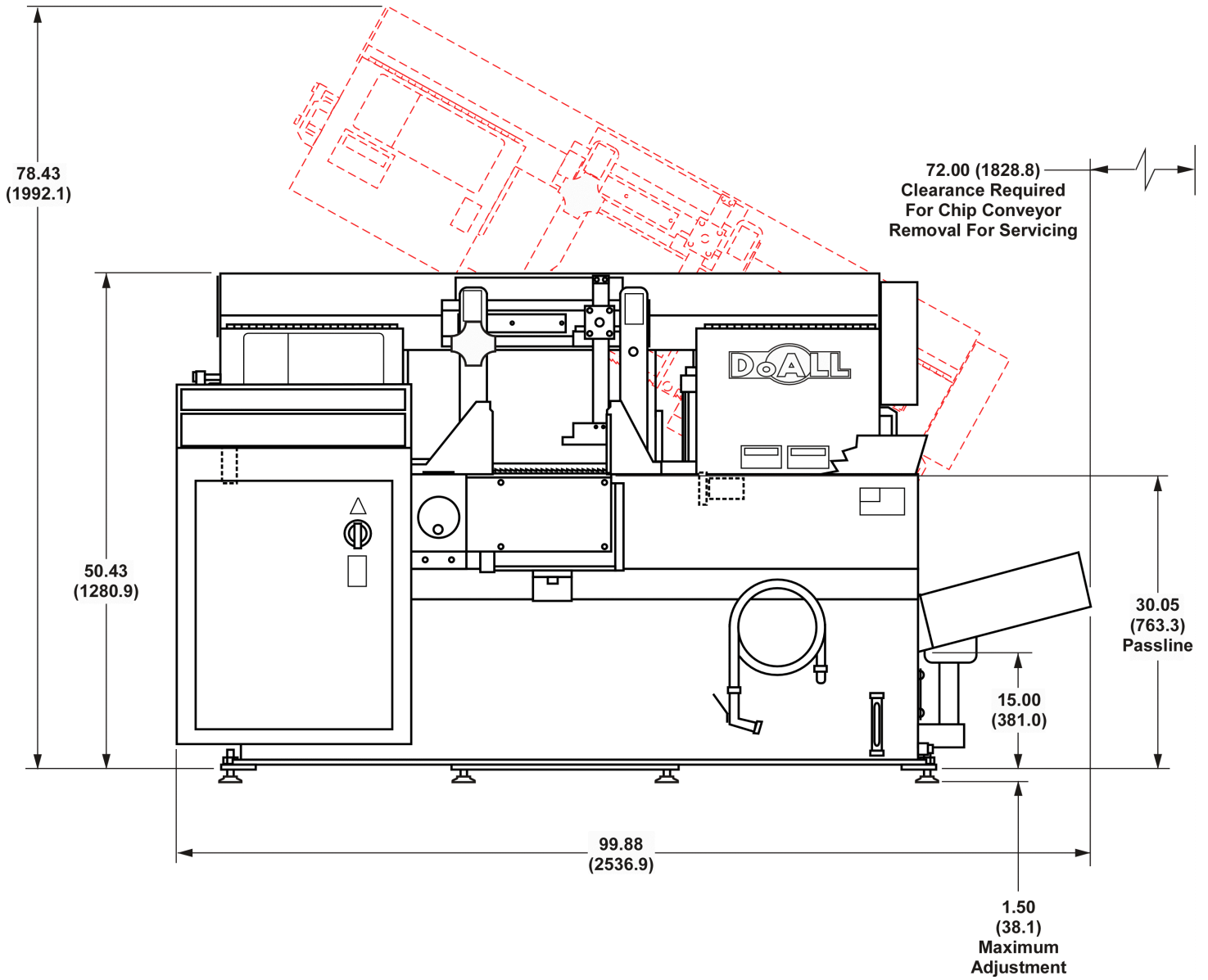
MACHINE DIMENSIONS

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



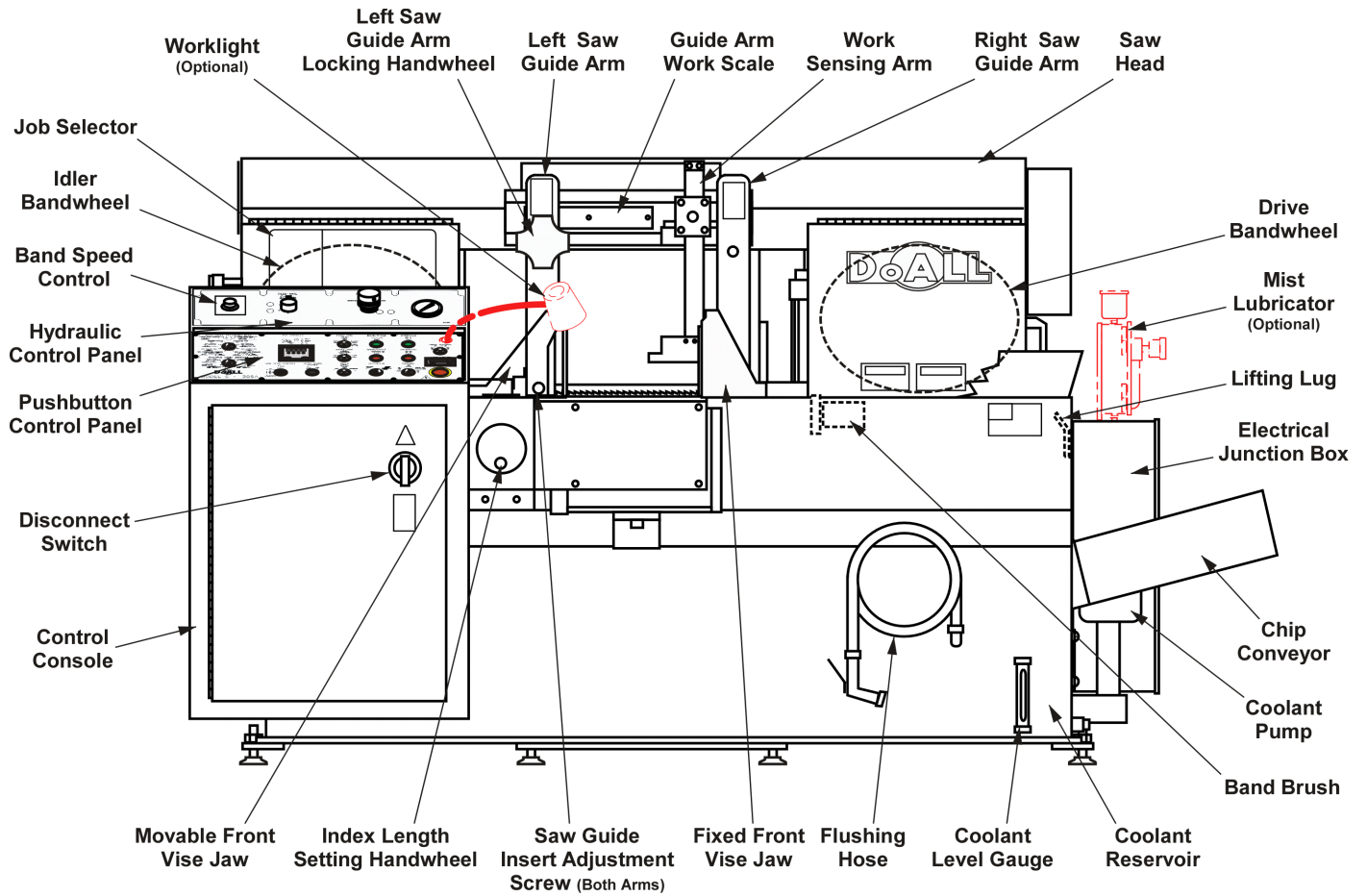
FLOOR PLAN/TOP VIEW

INCHES (± .03)
MILLIMETERS (± 1 mm)



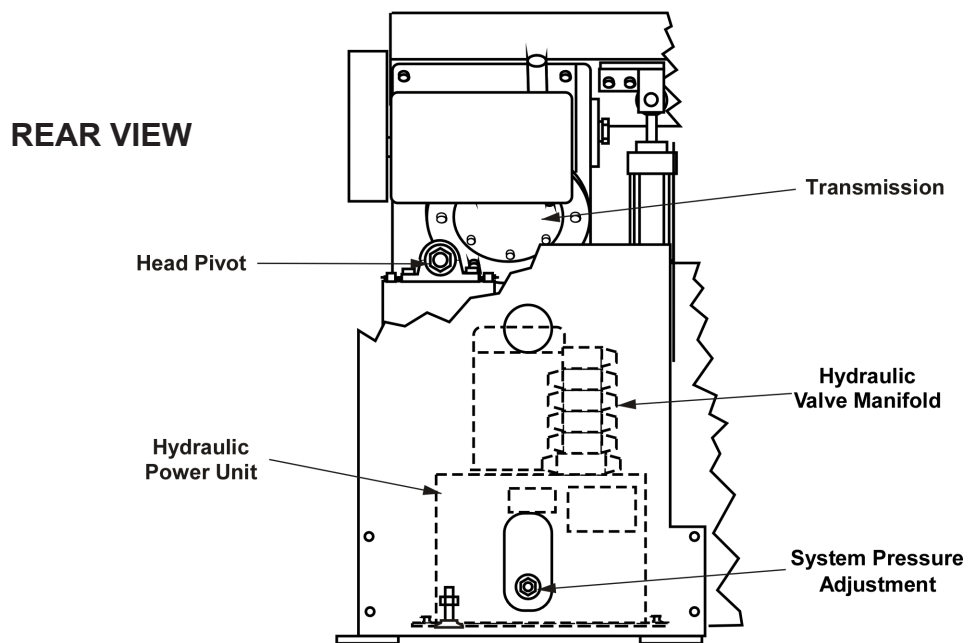
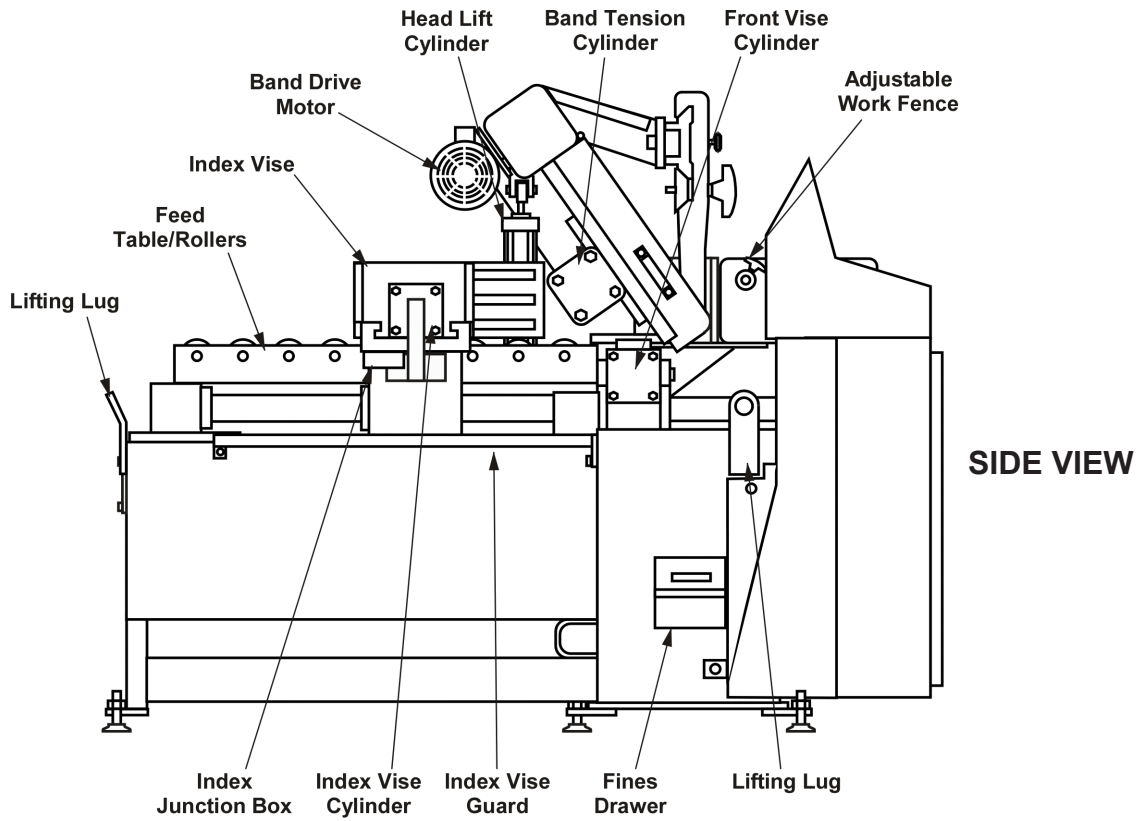
FRONT VIEW

MACHINE FEATURES

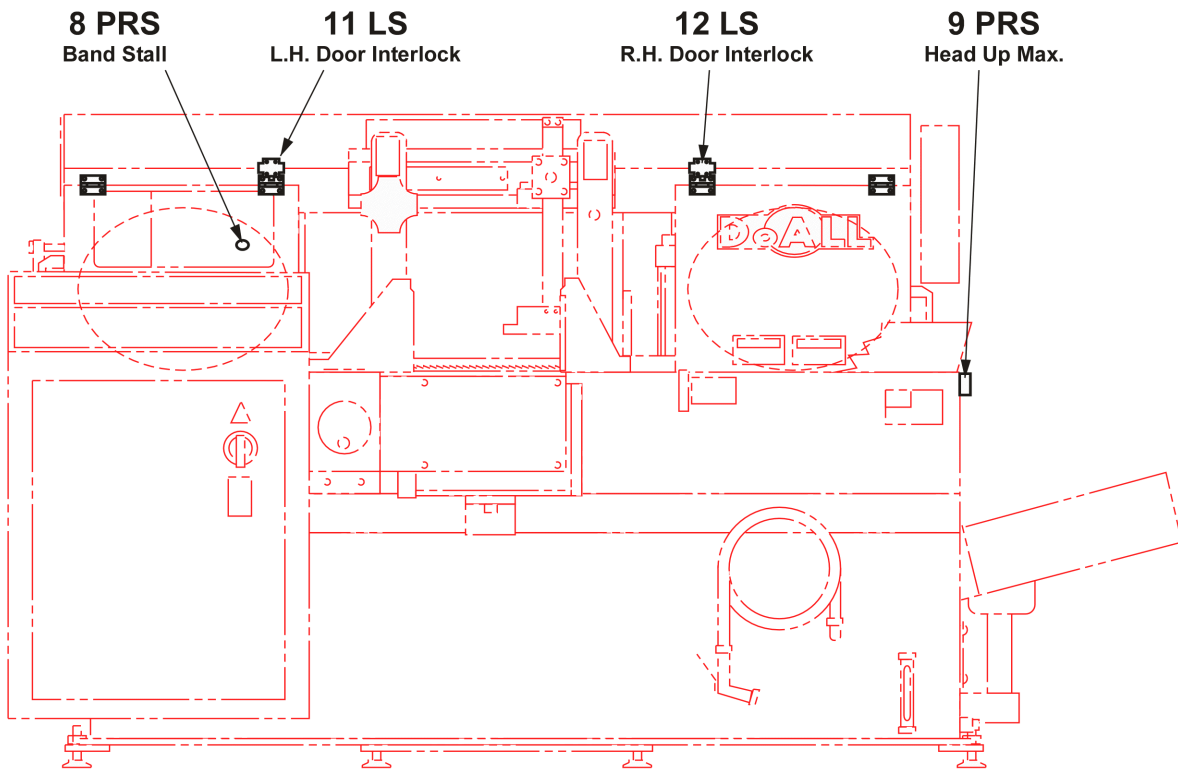


FRONT VIEW

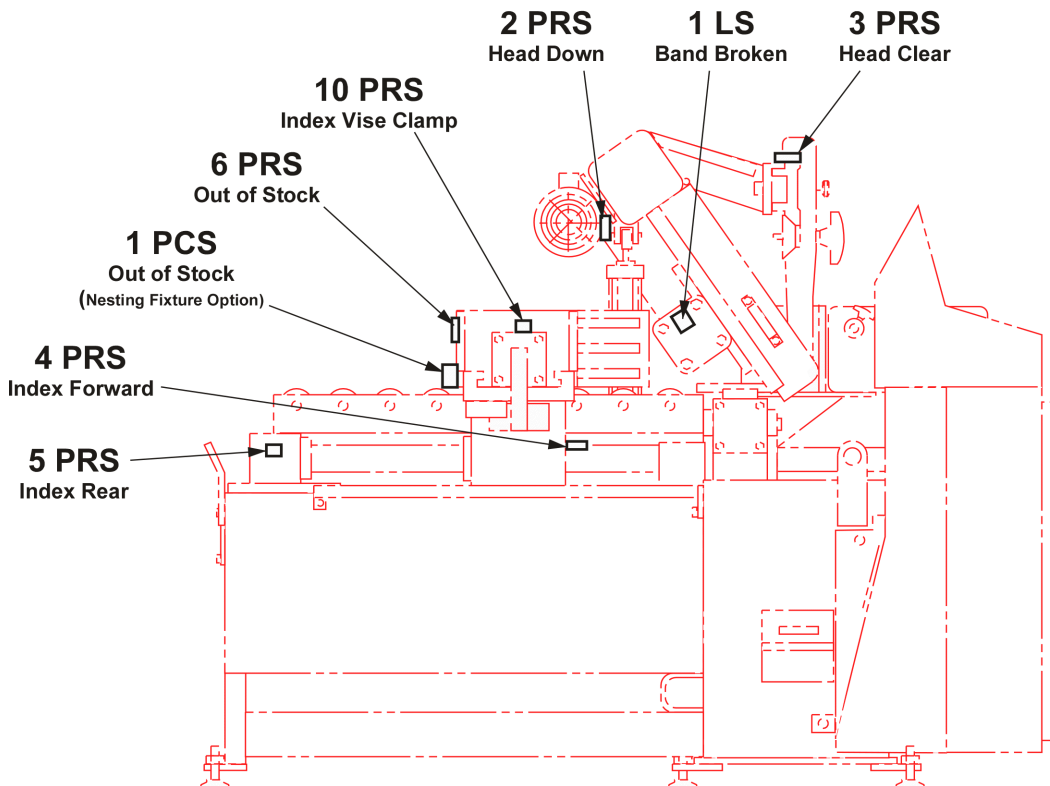
MACHINE FEATURES (Continued...)



PROXIMITY and LIMIT SWITCH LOCATIONS



FRONT VIEW



SIDE VIEW

INSTALLATION



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

LOCATION

1. The floor area required by the standard machine is approximately 100.00 inches (2540.0 mm) in width by 75.00 inches (1905.0 mm) in length. Machine height (with the saw head fully raised) is approximately 79.00 inches (2006.6 mm). Refer to pages 1 and 2 for further machine dimensions.
2. 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.
4. Accessories such as roller stock conveyors will require additional working 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 boxed items that may have been placed on the vise bed; **(d)** Inspect the machine and all parts for shipping damage. Claim procedures are listed on this manual's inside front cover.

CLEANING

1. If necessary, use solvent to remove rust-preventive coating applied to exposed bare metal surfaces for shipping purposes.

LIFTING

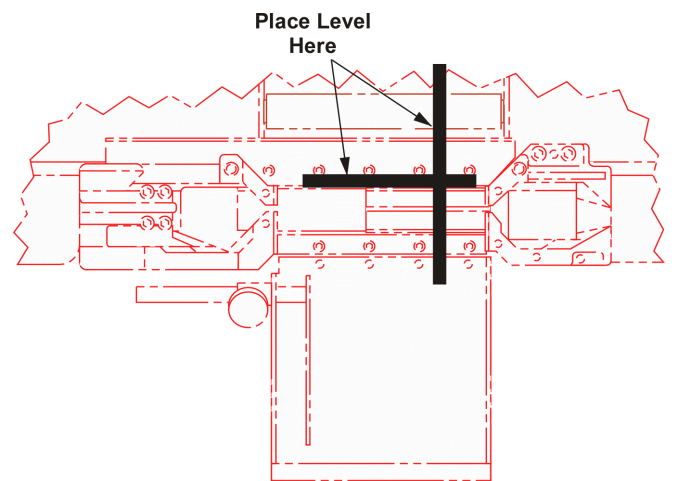


NEVER lift the machine by its sawing head.

1. Four (4) permanent lifting lugs are provided for machine lifting purposes: **(a)** Two (2) lifting lugs are located at the end of the feed table in the rear of the machine; **(b)** One (1) lifting lug is located on the right front corner; **(c)** One (1) lifting eye is located behind the control console.
2. Using chains attached to the lifting lugs, it is recommended that lifting and transporting of the machine be done with an overhead hoist. Net weight is approximately 4250 pounds (1927.8 kg).
 - It is recommended to protect painted surfaces from damage due to the lifting chains coming into contact with machine surfaces.
3. Roller stock conveyors (if supplied as optional equipment) can be lifted and transported by overhead hoist, fork lift, or by other means that provides adequate safety precautions.

FLOOR INSTALLATION

1. While the machine is suspended, thread the provided leveling screws into each machine base foot and attach the jam nuts. Slowly lower the saw into desired position.
2. Just prior to touching the ground, place a cast iron foot pad under each of the leveling bolts. Lower the saw completely onto the foot pads.
3. Place a machinist's level on the front vise bed and outboard roller of the index vise bed. Adjust the leveling screws until the machine is level and weight bears evenly on all mounting pads.



Leveling the Machine.

FLOOR INSTALLATION (Continued....)

4. Place the level front to back on the fixed vise rails and adjust. Again, weight must bear evenly on all foot pads.
5. The following are important dimensions to be obtained during leveling:
 - The roller and vise bed bearing surfaces are to be co-planar within 0.015 inch (0.38 mm) T.I.R., or 0.0004-inch per inch (0.01 mm per mm) measured from the plane of the saw band to the outboard roller.
 - The tensioned saw band between the saw guides is to be perpendicular to the fixed vise jaw faces within 0.000 to 0.008 inch (0.000 to 0.020 mm) at maximum guide arm spacing.
6. After the machine has been leveled, install anchoring screws through the base pad holes next to the leveling screws.
7. 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.**
8. Install roller stock conveyor(s) if supplied as optional equipment. **These do not attach 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 data label on the saw head frame to verify that the electrical supply circuit will meet the voltage/phase/frequency/ampere requirements listed. A basic data label is reproduced on this manual's introductory page.
2. The electrical supply to this machine must be a dedicated circuit.
3. Set the disconnect switch on the control console to "OFF". Then: **(a)** Loosen the screws at the right door edge and open the door; **(b)** Familiarize yourself with the operation of the disconnect switch operating handle, door interlock function, switch drive dog and shaft/clamp operating positions.

4. The following are important disconnect precautions:

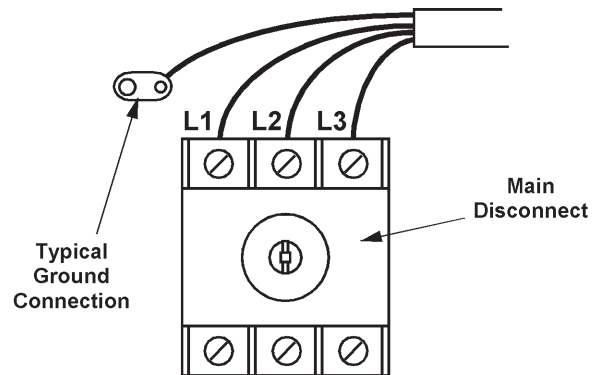


The disconnect switch must be "ON" before the machine will operate.



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

5. Punch a one (1) inch (25.4 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). **DO NOT bring the power cable through any holes in the back wall. These are for installation of future accessories.**
6. 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 grounding bus (refer to the electrical schematic if necessary).



Electrical Connections to Disconnect Switch.

7. Close the electrical cabinet door and secure its screws. Then: **(a)** Now turn on the electrical supply; **(a)** Turn the disconnect switch to "ON" (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 10 gallons (37.8 liters). If the reservoir level is low (or empty): **(a)** Check to see that the reservoir's drain plug is installed tightly; **(b)** Fill with multi-purpose automatic transmission fluid.

PREPARATION FOR USE (Continued....)

2. Fill the coolant reservoir with 20 gallons (75.7 liters) of 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.**
3. Check the band drive transmission reservoir level gauge while the saw head is down. Capacity is approximately eleven (11) quarts (10.4 liters).
4. Check to see that all other points listed by the Lubrication Chart have been properly checked or serviced.

Hydraulic Start-Up

1. All motors were installed and operated at the factory during assembly. 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.
4. Push the green **Hydraulic Start** button on the electrical pushbutton panel to start the hydraulic system. Then: **(a)** Turn the **Operation** selector switch to "MANUAL"; **(b)** Move the **Saw Head Control** selector joystick to "UP" 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** buttons 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.

Machine Start-Up



Always use extreme care when handling saw bands. DO NOT attempt to remove the saw band cap while the band drive motor is running.

1. To remove the protective Saw Cap (if supplied) from the shipped-in-place saw band, turn the hydraulic system on, if not already running. Then: **(a)** Move the **Saw Head Control** selector joystick to "UP" and raise the saw head to its maximum height; **(c)** If the saw head does NOT raise, make sure the **Operation** selector is in "MANUAL" mode; **(d)** Now move the **Saw Head Control** selector joystick to "UP" and raise the saw head to its maximum height.
2. Open both bandwheel doors and find the ends of the Saw Cap. Pull the cap off of the saw band. If the cap is pinched onto the bandwheel, relax the band tension by turning the **Band Tension** selector switch to "OFF". The cap now should come off.



After removal, check to be sure that the saw band rides properly on the bandwheels (the back of the saw band must be up against the wheel flange).

3. After removal of the Saw Cap, turn the **Band Tension** selector switch to "ON" to apply the correct band tension.



The band drive motor will not start unless: (a) Both bandwheel doors are closed; (b) The saw band has been tensioned; (c) Hydraulics are running.

OPERATION

SAFETY PRECAUTIONS

SUPERVISOR, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE FOLLOWING:

W A R N I N G

THESE PRECAUTIONS MUST BE FOLLOWED WHEN OPERATING OR SERVICING THIS MACHINE.

NEVER WEAR GLOVES WHILE OPERATING THIS MACHINE.
NEVER OPERATE MACHINE WITHOUT SAFETY GLASSES.
NEVER OPERATE MACHINE WITHOUT SAW BLADE GUARDS IN PLACE.
NEVER OPERATE MACHINE BEFORE CLOSING BAND WHEEL DOOR COVERS.
NEVER OPERATE MACHINE FROM REAR.
NEVER REMOVE CUT-OFF PIECES WHILE MACHINE IS RUNNING.

- READ INSTRUCTION MANUALS BEFORE OPERATING THIS MACHINE.
- AVOID CONTACT WITH COOLANT, ESPECIALLY GUARD YOUR EYES.
- BRING ADJUSTABLE SAW GUIDE AND GUARD AS CLOSE TO WORK AS POSSIBLE.
- DISCONNECT ALL ELECTRICAL POWER BEFORE SERVICING.
- DO NOT SERVICE, REPAIR OR ADJUST MACHINE WITHOUT PROPER INSTRUCTION FROM YOUR SUPERVISOR AND WITHOUT READING AND FULLY UNDERSTANDING THE INSTRUCTION MANUAL.
- SECURE BAND WHEEL COVER DOOR BEFORE CHANGING SAW BLADES OR REPAIRING MACHINE.
- CLOSE AND SECURE BAND WHEEL COVERS BEFORE TENSIONING BAND OR STARTING MACHINE.
- KEEP HANDS AWAY FROM MOVING SAW BLADES AND VISE AREA.
- USE EXTREME CARE IN HANDLING BLADES.
- DO NOT MEASURE, POSITION OR FEED MATERIAL WITH THE SAW BLADE RUNNING.

MAKE SAFETY THE RULE AND FOLLOW SAFE SHOP PRACTICES.
DO NOT REMOVE OR DEFACE THIS SIGN.

404478

Warning Label - READ and UNDERSTAND.

USING THE JOB SELECTOR

1. Refer to the Job Selector chart on the left bandwheel door for information about the recommended blade pitch, band speed, and cutting rate. This information is listed according to type of material to be cut and its thickness. The Job Selector also has a checklist for proper machine operation and saw band break-in procedures.
2. For example: If the material to be cut is low carbon steel which is two (2) inches (50.8 mm) thick, the Job Selector recommends using: (a) An Imperial Bi-Metal saw blade with 10-6 blade pitch; (b) Band speed of 315 fpm (90 m/min); and (c) A cutting rate of 13 square inches per minute (79 cm²/min).



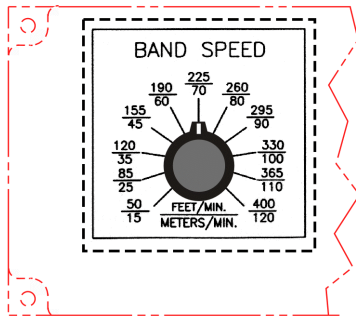
Job Selector recommendations are a general guide for correct power sawing on a properly-maintained DoALL saw. They are based on cutting five (5) inch (127.0 mm) round, annealed, scale-free stock using a 1-1/4 inch (31.7 mm) wide Imperial Bi-Metal saw blade.

U.S.A. SYSTEM (Imperial)				METRIC SYSTEM (Metric)			
CUTTING RATE (sq in/min)	BAND SPEED (fpm)	BLADE PITCH (degrees)	THICKNESS (inches)	MATERIAL AND	CUTTING RATE (cm ² /min)	BAND SPEED (m/min)	BLADE PITCH (degrees)
13	315	10-6	UP TO 2	LOW CARBON STEEL	79	90	16-3
13	315	10-6	UP TO 2	BI-METAL STEEL	79	90	16-3
13	315	10-6	UP TO 2	STAINLESS STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	COPPER	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
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13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	16-3
13	315	10-6	UP TO 2	BRASS	79	90	16-3
13	315	10-6	UP TO 2	CAST IRON	79	90	16-3
13	315	10-6	UP TO 2	STEEL	79	90	16-3
13	315	10-6	UP TO 2	ALUMINUM	79	90	

CONTROL CONSOLE

Band Speed

1. **Band Speed.** Located on the left end of the hydraulic control panel above the main electrical panel, the band speed can be varied between 50 and 400 fpm (15 and 120 m/min). Turn the control knob **clockwise** to "INCREASE" band speed, **counterclockwise** to "DECREASE" it.



Band Speed Control.

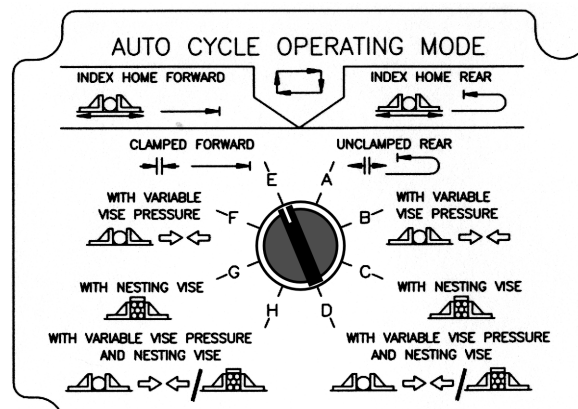
Auto Cycle Operating Mode

1. This selector switch can be positioned for eight (8) different automatic index cycles. To assist in this choice, the cycles have been separated into two (2) groupings: **(a)** "INDEX HOME REAR" on the right side (settings "A", "B", "C" and "D"); **(b)** "INDEX HOME FORWARD" on the left side (settings "E", "F", "G", and "H").
2. "INDEX HOME REAR" mode is suitable for most applications and has the fastest cycle time, but is the least accurate (because the vises do not overlap at the forward position). During this mode: **(a)** With the index forward, the fixed and index vises are both unclamped (no vise overlap) briefly so the material does not "climb" up the vise. **(b)** The index vise moves to the rear position and remains unclamped until the cut is completed. **(c)** The index vise clamps, the fixed vise unclamps and the material is moved forward.
3. The following "INDEX HOME REAR" selections are available:
 - **A - Unclamped Rear.** This is the fastest operating mode and is recommended for: **(a)** Initial operation unless the user has special needs; **(b)** When variable vise pressure and nesting fixture are not being used.

- **B - With Variable Vise Pressure.** Operation is identical to setting "A" except the machine control compensates for the slightly longer vise closing time required for operation with variable vise pressure. The operator must set the vise pressure.

- **C - With Nesting Vise.** Operation is identical to setting "A" except the machine control compensates for the slightly longer vise closing time required for operation with nesting. **The photoelectric out-of-stock sensor must be installed for operation.**

- **D - With Variable Vise Pressure and Nesting Vise.** This selection combines the functions of "A", "B" and "C". It's used when both variable vise pressure and nesting are needed. **The photoelectric out-of-stock sensor must be installed for operation.**

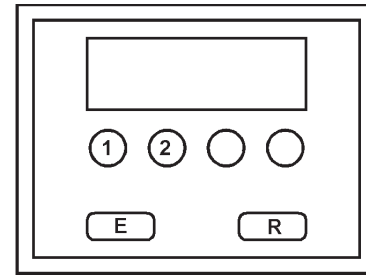


Auto Cycle Operating Mode Control.

4. Because the index moves after the cut is completed, the cycle time during "INDEX HOME FORWARD" is longer. With the index forward, this mode also provides vise overlap for single index cycles (multiple index cycles do not have vise overlap after the first cycle because the material tends to climb in the vise).
5. During "INDEX HOME FORWARD" mode, the index vise remains in the forward position with the vise jaws clamped during the cut. This provides additional clamping force to hold material steady while cutting thin wall tubing of round stock.
6. After the cut has been completed: **(a)** The index vise unclamps, moves to the rear and clamps on the material; **(b)** The fixed vise unclamps; and **(c)** The index moves the material forward.
7. The following **Index Home Forward** selections are available:
 - **E - Clamped Forward.** Use this setting when variable vise pressure or the nesting fixture are not being used.

CONTROL CONSOLE (Continued....)

- **F - With Variable Vise Pressure.** Operation is the same as setting "E" except: (a) The machine control compensates for the slightly longer vise closing time required for operation with variable vise pressure.
- **G - With Nesting Vise.** Operation is the same as setting "E" except: (a) The machine control compensates for the slightly longer vise closing time required for nesting fixture operation; (b) The photoelectric out-of-stock sensor (located just behind the nesting fixture in the index vise) stops rear index movement before the nest clears the nesting fixture. The photoelectric out-of-stock sensor must be installed for operation.
- **H - With Variable Vise Pressure and Nesting Vise.** This selection combines the functions of settings "E", "F" and "G". It is used when variable vise pressure and the nesting fixture features are both needed at the home forward position. The photoelectric out-of-stock sensor must be installed for operation.

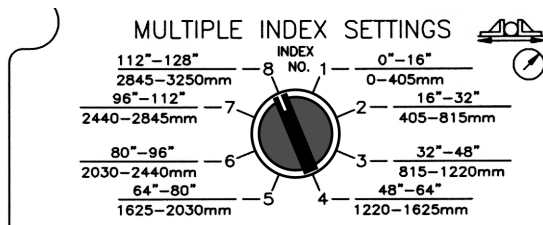


Cut Counter.

2. The counter will continue to count cuts from the displayed value when going from job to job unless it is reset to zero. The machine may be restarted and the number of cuts may be read from the counter. The counter may be reset and the same number of cuts made again.
3. Buttons on the cut counter perform as follows: (a) Push "1" (preset) to display the preset number of cuts. Set the button below each digit as needed; (b) Push "E" (Enter) to save the "Preset Number of Cuts"; (c) Push "R" (Reset) to reset the number of cuts made to zero; (d) The button below each digit sets that digit as necessary.
4. To set the **Cut Counter**: (a) Push the "1" (preset) button. This will display "Preset Number of Cuts". (b) Change each digit's value by pushing the button directly below it. Pushing and holding the button will scroll the digit from "0" through "9", then back to "0". Release the button when the desired value is reached. Do this for each digit to be changed. (c) Push the "E" (enter) button to enter the "Preset Number of Cuts" into the unit's memory. As soon as the "E" button is pushed, this new value is entered. (d) Push the "R" (reset) button to set the "Number of Cuts Made" counter to zero before starting your automatic cycling operation.

Multiple Index Settings Control

1. The "MULTIPLE INDEX SETTING" selector switch is used, along with the **Index Length Handwheel**, to allow the machine to cut material to desired length.



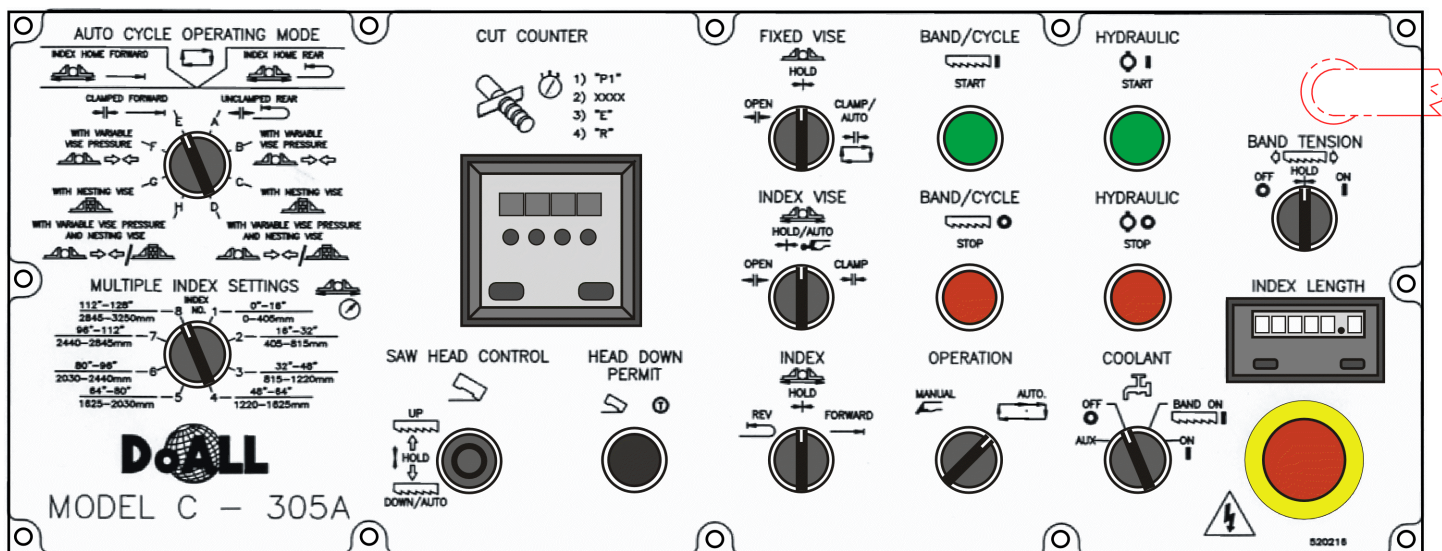
Multiple Index Settings Selector.

2. To set up multiple indexing, turn the selector switch to the cut length desired. Then: (a) Divide the cut length by the corresponding number for that selection; (b) Turn the **Index Length Setting Handwheel** so the result is shown on the **Index Length Readout**.
3. For Example: To cut a part which is 37 inches (939.8 mm) long: (a) Turn the **Multiple Index Setting** selector to "3"; (b) Divide 37 inches (939.8 mm) by "3"; (c) Turn the **Index Length Setting Handwheel** so the **Index Length Readout** indicates 12.333 inches (313.3 mm).
5. Helpful **Cut Counter** hints: (a) The number displayed after pushing "E" is the "Number of Cuts Made". (b) The "Preset Number of Cuts" may be viewed at any time by pushing "1". Pushing "E" will immediately change back to displaying "Number of Cuts Made". If no button is pushed for ten (10) seconds, the display will change to displaying "Number of Cuts Made". While viewing the "Preset Number of Cuts", the device is keeping track of the "Number of Cuts Made". (c) Push the "R" button at any time to reset the "Number of Cuts Made". (d) If you have completed a batch and wish to run the same size batch again, push the "R" button.

Cut Counter


1. This presettable electronic counter allows the operator to make from 1 to 9999 cuts during automatic cycle. The machine will shut down when the "Preset Number of Cuts" has been made.

CONTROL CONSOLE (Continued...)



Typical Pushbutton Panel.

Main Electrical Controls

1. **Saw Head Control.** This selector switch with "UP", "HOLD" and "DOWN/AUTO" settings regulates saw head movement.
 - Upward saw head movement can be executed at any time by moving the **Saw Head Control** selector to "UP".
 - Downward head movement can be executed as follows: (a) If the band drive motor is off, turn the **Saw Head Control** selector to "DOWN/AUTO", then push and hold the **Head Down Permit** button; (b) If the band drive motor is on, turn the **Fixed Vise** selector to "CLAMP/AUTO" before moving the **Saw Head Control** selector to "DOWN/AUTO".
 - When switching from automatic cycle to manual machine operation, move the **Saw Head Control** selector to "HOLD" and then to "DOWN/AUTO".
 2. **Head Down Permit.** Pushing and holding this button (during manual operation only) permits the saw head to move downward when: (a) The band drive motor is not running; (b) The **Saw Head Control** selector is at the "DOWN/AUTO" setting.
 3. **Fixed Vise.** This selector switch with "OPEN", "HOLD" and "CLAMP/AUTO" settings regulates fixed vise opening and closing. Stop the switch at "HOLD" if desiring to move from "OPEN" to "CLAMP/AUTO" (or vice versa).
 - The **Fixed Vise** "CLAMP" motion can be executed at any time.
- The following apply to the **Fixed Vise** "OPEN" setting:
 - (a) With the saw head clear of the workpiece, moving the selector to "open" allows the vise jaws to open only 1/4 to 1/2 inch (6.3 to 12.7 mm). No further opening will occur unless the selector is moved to the "CLAMP/AUTO" setting and then to "OPEN" setting.
- 

Moving the selector from "OPEN" to "HOLD" and back to "OPEN" will not create additional vise motion.
- When the saw head is completely raised, moving the **Fixed Vise** selector to "OPEN" causes the vise jaws to open completely.
 - 4. **Index Vise.** This selector with "OPEN", "HOLD/AUTO" and "CLAMP" settings regulates the opening and closing of the index vise *during manual operation only* (this selector does not operate during automatic cycle).
 - The index vise may be clamped at any time.
 - The index vise may be opened at any time, but the **Index Vise** selector must be held at the "OPEN" setting (it will spring to "HOLD" when released).
 - Following automatic cycle operation, this selector must pass through the "HOLD/AUTO" setting before manual operation can be enabled.

CONTROL CONSOLE (Continued....)

5. **Index.** This selector with "REVERSE", "HOLD" and "FORWARD" settings controls index vise movement along the feed conveyor. If released, the selector will spring to the "HOLD" setting and index movement will stop.

- The index can be moved at any time during manual mode if both vises are unclamped.
- If the index vise is clamped, the saw head must be positioned with the work sensing arm above the workpiece to enable vise movement.
- If the **Index** selector is held at "FORWARD" or "REVERSE" for approximately three (3) seconds, index vise movement will accelerate to full speed.

6. **Band Cycle Start.** Push this green button to start the band drive motor. The pushbutton shines when the band drive motor is running. **Before** the band drive motor can be started: **(a)** Hydraulics must be running; **(b)** The saw band must be installed and the **Band Tension** selector must be at "ON"; **(c)** The bandwheel doors must be closed; **(d)** There must be no band drive fault (malfunction or overload of the band drive circuit).

7. **Band Cycle Stop.** Push this red button to stop the band drive motor.

8. **Operation.** This selector with "MANUAL" and "AUTO" settings determines the machine's operating mode.

- Placing the **Operation** selector to "MANUAL" allows the operator to use the controls manually for material positioning and cutting.
- Placing the **Operation** selector at "AUTO" permits material to be automatically moved into position and cut to length for the set number of cuts.
- Saw head travel during automatic cycle can be stopped by: **(a)** Moving the **Saw Head Control** selector to "HOLD" (saw head fall will stop but the hydraulic and band drive motors will continue to run); or **(b)** Turning the **Operation** selector to "MANUAL" (the saw head will stop if traveling downward).

9. **Hydraulic Start.** Push this green button to start the hydraulic pump and chip conveyor motors (the button will be illuminated when the hydraulics are operating). The following conditions must exist before trying to start the hydraulics:

- The **Emergency Stop** button is reset (turn the button head **clockwise**).

- Disconnect switch on the control console is "ON".
 - The **Cut Counter** is set to a count greater than "0000".
 - The **Operation** selector is at the "MANUAL" setting.
 - If the **Operation** selector is at the "AUTO" setting and the **Auto Cycle Operating Mode** selector is at positions "C", "D", "G" or "H", the nesting option out-of-stock photoelectric sensor must be installed and there must be stock positioned on the vise bed so that the out-of-stock photoelectric line of sight is blocked.
10. **Hydraulic Stop.** Pushing this red button turns off the hydraulic pump, coolant pump, chip conveyor, and band drive motors.



Lower the saw head completely when the hydraulic pump is to be shut down for an extended period of time (such as overnight).

11. **Coolant.** Four position selector switch with "AUX", "OFF", "BAND ON" and "ON" settings.
- **(a)** "BAND ON" allows the flood coolant system to operate when the band drive motor is running; **(b)** "ON" allows the flood coolant system to operate without the band drive motor running; **(c)** "AUX" is used for the optional cutting lubrication system; **(d)** "OFF" turns off either system.



The hydraulic system must be operating before the coolant system can be used.

12. **Band Tension.** This selector switch with "OFF", "HOLD" and "ON" settings is used when changing saw bands.
- Turning the **Band Tension** selector to "OFF" releases band tension and enables saw band removal or installation.
 - The **Band Tension** "HOLD" setting stops band tension cylinder movement and allows the operator to position the saw band over the bandwheels.
 - The **Band Tension** "ON" setting pressures the cylinder and establishes band tension required for cutting.



DO NOT operate the band drive motor unless band tension has been activated.

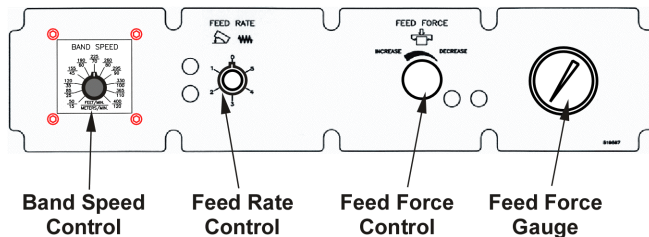
- The **Band Tension** selector must be at "ON" before the saw head will descend.

CONTROL CONSOLE (Continued....)

13. **Index Length Display.** This display shows the length settings (determined by turning the index length handwheel).
14. **Emergency Stop.** Pushing this red mushroom head button stops all machine motors (band drive, hydraulic pump, coolant pump and chip conveyor) simultaneously. To reactivate machine motors:
 - **If the machine was operating in manual mode** before the **Emergency Stop** button was pushed: (a) Reset the **Emergency Stop** button by turning the button head **clockwise** until it pops out; (b) Push the **Hydraulic Start** and **Band/Cycle Start** buttons in sequence.
 - **If the machine was operating in automatic mode** before the **Emergency Stop** button was pushed: (a) Reset the **Emergency Stop** button by turning the button head **clockwise** until it pops out; (b) Push the **Hydraulic Start** button; (c) Position the stock as necessary; (d) Push the **Band/Cycle Start** button.

Hydraulic Control Panel

1. **Band Speed.** This control is described at the beginning of this section.
2. **Feed Rate.** This valve regulates the saw head's descending rate. Turn the knob **counterclockwise** to "INCREASE" the velocity; **clockwise** to "DECREASE" it.



Hydraulic Control Panel.

3. **Feed Force.** This valve regulates the amount of pressure being placed by the saw band against the workpiece. Turn the knob **clockwise** to "DECREASE" pressure; **counterclockwise** to "INCREASE" it. The valve's lower locking knob helps maintain the setting.
4. **Feed Force Indicator.** This gauge shows the amount of pressure being placed by the saw band against the workpiece.

Other Controls

1. A power **Disconnect Safety Switch** is located on the front of the electrical box enclosure.



Do not try to open the control box unless this switch is turned off. Always disconnect power to the machine before opening the electrical control box.

2. **Coolant.** Coolant flow to the saw guides is initiated and controlled by a valve on each saw guide arm. A valve on the side of the transmission controls coolant flow to the band brush area.
3. **Sensing Arm.** This material height sensor located between the saw guide arms can be locked in the "UP" position when it is necessary to make machine adjustments. This is done by tightening the thumbscrew against the slide bar.
4. **Index Length Setting Handwheel.** See later in this section under the "INDEX LENGTH SETTING HANDWHEEL" heading of this manual for information on use of this control.
5. **Variable Vise Pressure.** See the "**ACCESSORIES**" section under the "VARIABLE VISE PRESSURE" heading of this manual for information on use of this option.

SAW BAND PREPARATION


Cutting Capacity and Saw Band Recommendations

1. The machine's standard cutting capacity for rectangular stock is 12 inches (305 mm) high by 12 inches (305 mm) wide. It will also cut round stock (solids, tubing, pipe, etc.) up to 12 inches (305 mm) in diameter. Cutting capacity may vary with the addition of accessories. Any variation will be noted when applicable.
2. A high-speed DoALL Imperial Bi-Metal 100 saw band with protective Saw Cap is supplied with the machine. Band length is 144 inches (3657.6 mm); width is 1.25 inches (31.7 mm).
3. A machine in correct adjustment, good operating condition and using proper cutting fluid is essential to efficient sawing.
4. 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; (d) Keeping the protective Saw Cap over blade teeth until installation time.

SAW BAND PREPARATION (Continued...)

Blade Guards

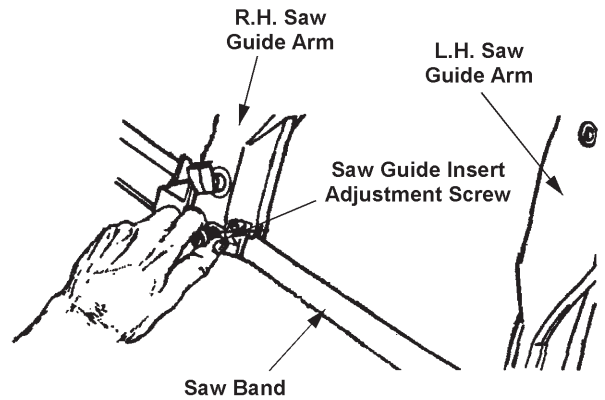
1. The machine has three (3) blade-covering guards for operator safety. **All guards must be in place before any sawing procedure is started.**
2. **Left Guard.** This guard is attached to the left saw guide arm and extends toward the idler bandwheel. The guard's floating front portion remains lowered to shield the saw band, but moves upward if it contacts anything when the saw head is completely lowered. Remove the left blade guard from the saw guide arm **ONLY** to replace the left saw guide inserts.
3. **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.**
4. **Top Channel Guards.** These guards are mounted on the head beam and located between the bandwheels doors.

 **DO NOT defeat the purpose of any guard or safety device. THEY ARE THERE FOR YOUR PROTECTION!**

Saw Band Removal

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

1. Push the **Hydraulic Start** button and move the **Saw Head Control** selector to "UP". Then: (a) Allow the saw head to raise to its maximum height; (b) Turn the **Saw Head Control** selector to "HOLD". (c) Turn the **Band Tension** selector to "OFF" (this moves the idler bandwheel to the right).
2. Open both bandwheel doors. Then: (a) Loosen the clamping handle on the powered band brush assembly; (b) Swing the band brush away from the blade teeth.
3. Loosen the saw guide inserts on both saw guide arms by turning each adjustment screw **counterclockwise**. Next: (a) Place a gloved hand on the back of the saw band portion between the saw guide arms; (b) 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**); (c) Remove the saw band from around the drive and idler bandwheels, then from its top channel guards.



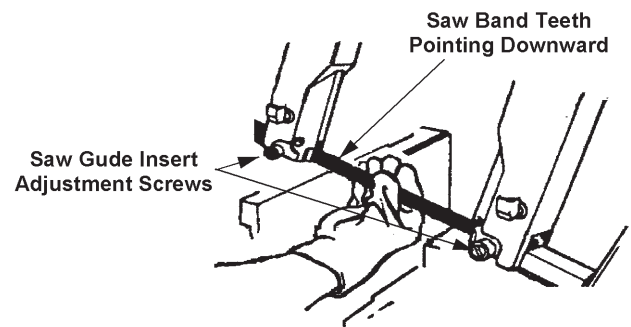
Adjusting Saw Guide Inserts.

4. Maneuver the upper saw band strand down behind and under the saw guide arms. Recoil the saw band and dispose of it immediately.

Saw Band Installation

 **Always use extreme care when handling saw bands. DO NOT attempt to change saw bands while the band drive motor is running.**

1. Carefully follow all "Saw Band Removal" procedures. Then: (a) Use the **Flushing Hose** to clean areas around the saw guides and inserts, plus the drive and idler bandwheels.
2. Loosen both saw guide insert adjustment screws. Next: (a) Remove the new saw band's protective Saw Cap; (b) Orient the saw band so that its back is facing toward you.
3. Slip the saw band under both saw guide arms and into the top channel guard. Then: (a) Position the saw band around the drive and idler bandwheels; (b) Grasp the saw band portion between the saw guide arms and twist it so the blade teeth are pointing downward; (c) Slip this twisted saw band portion up and between the saw guide inserts.



Placing the Saw Band Between the Saw Guide Inserts.

SAW BAND PREPARATION (Continued...)

4. Check the saw band's position around both bandwheels (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)** Hand tighten both saw guide insert adjustment screws, then back off a 1/4 turn.
5. Reposition the band brush and tighten its clamping handle (**brush bristles should clean the blade teeth gullets, but not contact the bottom of the gullets**). Then: **(a)** Reinstall the left blade guard; **(b)** Close both bandwheel doors; **(c)** Jog the band drive motor; **(d)** Open each bandwheel door to make certain that the saw band is against the bandwheel flanges.

LEFT SAW GUIDE ARM ADJUSTMENTS



The right saw guide arm cannot be adjusted.

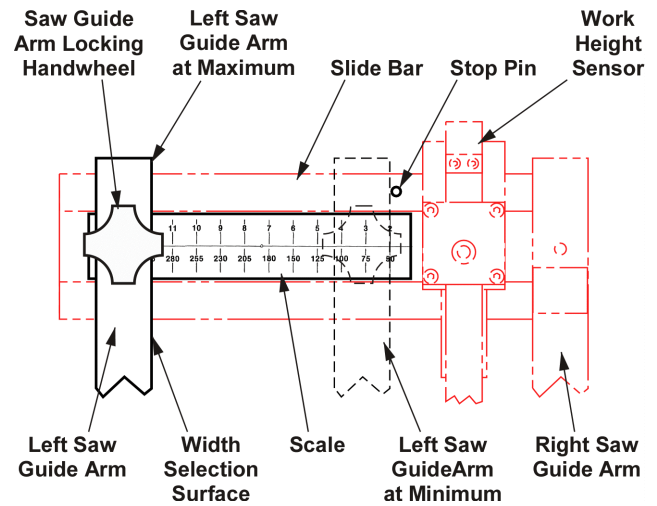
1. The left saw guide arm moves along the slide bar to accommodate various stock widths (the arm should be positioned as close as possible to the clamped stock).
2. Stock width settings are depicted by two (2) slide bar scales: **(a)** Use the upper scale for rectangle stock; **(b)** Use the lower scale for round and square stock 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 handwheel. 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 handwheel; **(c)** Hand tighten the saw guide insert adjustment screw, then back off a 1/4 turn.



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

Using the Slide Bar Scale

1. Use the lower portion of the slide bar scale to position the left saw guide arm for all stock sizes and figurations **except the maximum height rectangular configuration**.
2. Use the upper portion of the slide bar scale to provide necessary clearance at the stock's top left corner during the saw head's raising and lowering arc. This applies for all stock widths between 3-1/2 and 10 inches (88.9 and 254.0 mm).



Typical Slide Bar Scale.



Both saw guide arms must clear the loaded stock and vise jaws as the saw head raises and lowers. This is important when cutting maximum height rectangle stock.

FEED FORCE ADJUSTMENT

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 ADJUSTMENT (Continued...)

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

SAW HEAD POSITIONING and APPROACH

Head Positioning

1. Use the **Saw Head Control** selector to initiate vertical saw head movement in either direction during both manual and automatic sawing modes. Head movement during either mode can be stopped by moving the **Saw Head Control** selector to "HOLD". Moving the selector to "UP" will enable the saw head to be raised during either operating mode.
2. **Positioning the saw head during manual operation:** (a) Move the **Saw Head Control** selector to "DOWN/AUTO" when ready to begin cutting; (b) After a cut has been finished, the saw head actuates the head down proximity switch (**2 PRS**) and the band drive motor stops with the saw head completely down; (c) Raise the saw head to position stock by moving the **Saw Head Control** selector to "UP" and pushing the **Hydraulic Start** button.
3. **Positioning the saw head during automatic operation:** (a) Leave the **Saw Head Control** selector at the "DOWN/AUTO" setting until the required number of stock pieces has been cut, or until no indexable stock remains on the feed table.
4. Upward saw head movement during automatic cycle is made with the head down proximity switch (**2 PRS**) is initiated. At this point: (a) The saw head immediately raises to a height determined by the sensing arm position; (b) Another stock length is indexed; (c) The saw head lowers to start another cut.

Head Approach

1. After the stock has been positioned for cutting and the **Saw Head Control** selector is placed at the "DOWN/AUTO" setting, the saw head's approach (descending) rate is regulated by the **Head Approach** valve.
2. Correct head approach 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.

3. To lower the saw head if the band drive motor is not running: (a) Place the **Operation** selector to "MANUAL" operating mode; (b) Move the **Saw Head Control** selector to "DOWN/AUTO"; (c) Raise and lock the stock height sensing arm; (d) Push and hold the **Head Down Permit** button; (e) Make the desired **Head Approach** valve setting; (f) The stock height sensing arm can now be unlocked.



The Head Down Permit button is inoperative when the band drive motor is running.

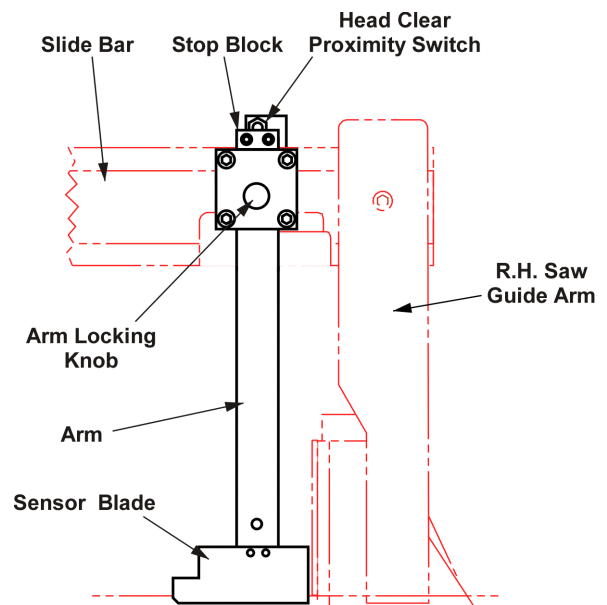
AUTOMATIC HEAD ELEVATION and SENSING ARM

Head Elevation

1. Saw head elevation during automatic sawing cycle is initiated when the head down proximity switch (**2 PRS**) 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 (**2 PRS**) stops machine operation. To lift the saw head off the limit switch and resume operation, the operator must; (a) Move the **Saw Head Control** selector to "UP"; (b) Push the **Hydraulic Start** button.

Sensing Arm

1. The sensing arm works in conjunction with the head clear proximity switch (**3 PRS**) to assure that the saw head has raised sufficiently above existing stock so that automatic indexing (or manual stock positioning) can be accomplished safely.



Head Elevation Mechanism.

SAW HEAD POSITIONING and APPROACH (Continued....)

2. The sensing arm can be moved horizontally by:
(a) Loosening the locking knob; **(b)** Sliding the arm up or down to desired position; **(c)** Tightening the locking knob.

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 (**3 PRS**). 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 (**9 PRS**). 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 approach 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 (**2 PRS**) is actuated; **(b)** The saw head raises.

INDEX LENGTH SETTING HANDWHEEL and READOUT

1. Automatic indexing of stock lengths from 0 to 16 inches (0 to 406.4 mm) is made possible with the index handwheel located at the machine front and readout unit mounted on the pushbutton panel. Minimum cut-off length is 0.25 inch (6.4 mm).
2. After setting the desired index length, tighten the locking knob under the handwheel to help prevent cut length drift.

3. Before placing the machine in automatic indexing mode, the operator may wish to take a trial cut and measure the resulting piece length. A handwheel adjustment can then be made to correct any slight inaccuracy.

Setting Index Length Before Loading Stock

1. Push the **Hydraulic Start** button. Then: **(a)** Turn the **Operation** selector to "MANUAL"; **(b)** Move the **Saw Head Control** selector to "UP" and allow the saw head to raise; **(c)** Turn the **Index** selector to "FORWARD".
2. Allow the index vise to move completely forward and stop. Then: **(a)** Turn the index handwheel to the desired cut length indicated in the readout window (turn the handwheel **clockwise** to obtain a lower reading; **counterclockwise** for a higher reading); **(b)** Tighten the index locking knob.

Setting Index Length After Loading Stock

1. Follow procedures of Step 1 from the previous section. Then: **(a)** Turn the **Fixed Vise** selector to "CLAMP/AUTO"; **(b)** Turn the **Index** selector to "FORWARD".
2. Allow the index vise to move completely forward and stop. Then: **(a)** Turn the index handwheel to the desired cut length indicated in the readout window; **(b)** Tighten the index locking knob.



Use the manual operating mode to cut stub ends of stock which are too short to be indexed automatically.

MINIMUM BAR END VISE

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 bar end remains.
2. The minimum bar end length of stock that can be indexed is 2.50 inches (63.5 mm). If the nesting fixture is used, the minimum indexable stock length is nine (9) inches (228.6 mm).

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.

AUTOMATIC HEAD ELEVATION & SENSING ARM (Continued....)

- The machine's hydraulic reservoir has a 10 gallon (37.8 liter) capacity. Refer to the "**LUBRICATION**" section of this manual for recommended oils.

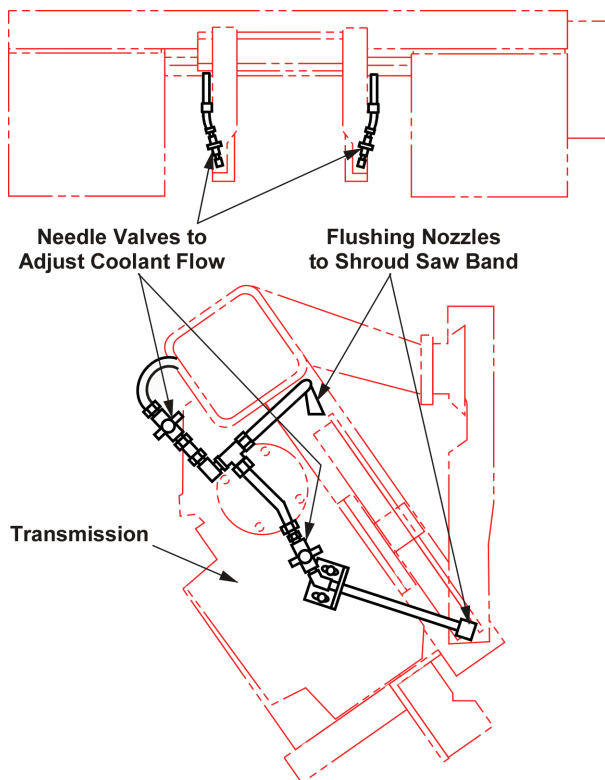
COOLANT SYSTEM

Coolant Selection

- 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 Points.

Coolant Application

- 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 needle valve and should shroud the saw band completely. If the valve orifice becomes clogged, clean it with a wire or small pin.
 - To the upper drive bandwheel area through a flushing nozzle. Coolant flow is controlled by a needle valve. If the valve orifice becomes clogged, clean it with a wire or small pin.
- Coolant flow from the upper nozzle also cools the transmission and is controlled by a needle valve in the rear by the transmission.
 - Coolant flow is started by: (a) Pushing the **Hydraulic Start** button; (b) Turning the **Coolant** selector to "ON" or "BAND ON"; (c) Turning the coolant valve on each saw guide arm **counterclockwise** until fluid completely shrouds the saw band.



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

- Check the coolant reservoir level if flow is stopped or reduced. Reservoir capacity is 20 gallons (75.7 liters). A coolant level sight gauge is located on the machine's lower right side of the base.

CHIP REMOVAL

- Metal chips should be removed from the work area as soon as possible. They can be washed or scraped into the right front pan opening, or scooped out with the supplied shovel-rake.

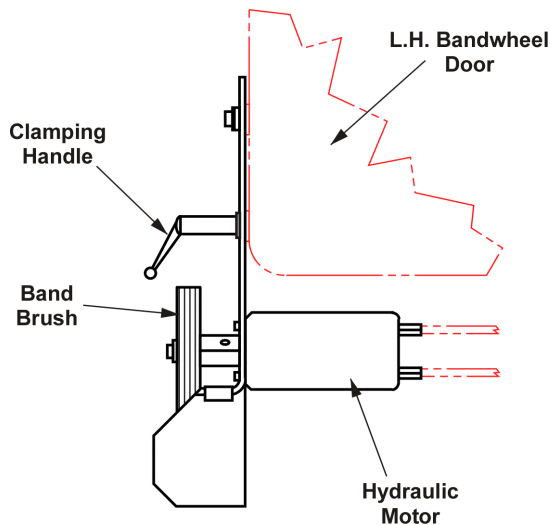


DO NOT shovel or rake chips while the saw band is running.

Band Brush

- A covered, hydraulic motor driven band brush is located near the drive bandwheel. 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.**
- As the bristles wear, move the brush closer to the blade. To do so: (a) Open the right bandwheel door; (b) Loosen the clamping handle; (c) Position the brush for correct blade cleaning; (d) Tighten the clamping handle and close the bandwheel door.

CHIP REMOVAL (Continued....)



Band Brush.

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 ram, 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.



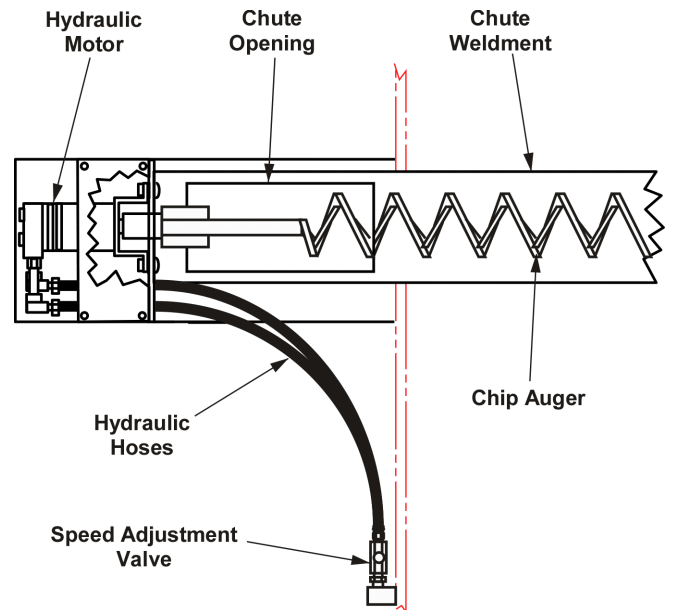
The DoALL Company recommends using the Flushing Hose to remove chips at least twice per each eight (8) hour shift, and more often with heavier use.

Fines Drawer

1. The fines drawer, located on the machine's left side behind the control console, should be checked regularly. Dispose of accumulated metal chips before the drawer becomes full. Conscientious machine operators will empty and clean the fines drawer at least once weekly. Doing so will substantially increase the life of the machine's coolant system.

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.



Chip Conveyor - Top View.

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 speed adjustment valve located in the hose path of the chip conveyor and used to increase or decrease the rotation of the chip conveyor auger.

IDLER WHEEL MOTION DETECTOR (8 PRS)

1. This safety device located on the saw head plate behind the idler bandwheel stops the machine if the saw band should break or stall in the workpiece. Always determine the cause of the stoppage and correct it before attempting to resume operation.

POSITIONING STOCK

1. The following is a sequence of steps recommended for manually placing stock in ready-to-cut position: Then: **(a)** Turn the **Operation** selector to "MANUAL"; **(b)** Move the **Saw Head Control** selector to "UP"; **(c)** Push the **Hydraulic Start** button; **(d)** Allow the saw head raise completely.
2. Turn the **Fixed Vise** and **Index Vise** selectors to "OPEN". Then: **(a)** Place stock on the feed conveyor and push it into position for a crop cut.
3. If no crop cut is necessary: **(a)** Push the stock directly into position for the first full cut; **(b)** Turn the **Fixed Vise** selector to "CLAMP/AUTO" and the **Index Vise** selector to "CLAMP".

POSITIONING STOCK (Continued....)



DO NOT let crooked stock hit the fixed vise jaws.

Power Feed (With Index Vise) Positioning

1. Power feeding functions are carried out with the **Index** and **Index Vise** selectors. Placing stock in ready-to-cut position with this method is done as follows:
2. Turn the **Operation** selector to "MANUAL" and move the **Saw Head Control** selector to "UP". Then: (a) Push the **Hydraulic Start** button. (b) Allow the saw head to raise sufficiently for the sensing arm to clear the stock; (c) Move the **Saw Head Control** to "HOLD"; (d) Turn the **Index** selector to "REVERSE" and move the index vise to its full rear position; (e) Unclamp the fixed and index vises.
3. Load stock onto the feed conveyor and position so it has started into the fixed vise. Then: (a) Turn the **Index Vise** selector to "CLAMP"; (b) Turn the **Index** selector to "FORWARD" and bring the clamped stock toward the saw band.



Be sure the saw head is sufficiently raised before operating the power feed. The sensing arm will be damaged if struck by forward moving stock.

4. When stock reaches position for the first full cut (or crop cut): (a) Turn the **Fixed Vise** selector to "CLAMP/AUTO"; (b) Turn the **Index Vise** selector to "CLAMP".

TYPICAL OPERATING PROCEDURES

Manual Operation

1. Starting machine conditions are: (a) Hydraulic and band drive motors are "OFF"; (b) Saw band is properly installed and tensioned; (c) Saw head is completely lowered; (d) Coolant is "OFF".
2. Position the left saw guide arm for stock width. Then: (a) Move the **Operation** selector to "MANUAL" and the **Saw Head Control** selector to "UP"; (b) Push the **Hydraulic Start** button (the saw head will lift from the head down proximity switch (2 PRS) and move to maximum raised position); (c) Move the **Saw Head Control** selector to "HOLD".
3. Turn the **Index** selector to "REVERSE" and move the index vise to its rear-most position on the feed conveyor.

4. Turn the **Index Vise** selector to "OPEN". Then: (a) Position stock so it extends approximately five (5) inches (127.0 mm) in front of the index vise jaw; (b) Turn the **Index Vise** selector to "CLAMP"; (c) Turn the **Fixed Vise** selector to "OPEN"; (d) Turn the **Index** selector to "FORWARD" to move the into initial cutting position.



If the operator wishes to manually push stock into cutting position, step 4 is eliminated.

5. Turn the **Fixed Vise** selector to "CLAMP/AUTO" (clamping the index vise jaws at this time is the operator's option).
6. Set the band speed.
7. With stock now in cutting position: (a) Push the **Band/Cycle Start** button; (b) Adjust the **Feed Force** and **Head Approach** valves; (c) Turn each coolant valve **counterclockwise** to adjust flow; (d) Move the **Saw Head Control** selector to "DOWN/AUTO".
8. The machine will shut off with the saw head down following a completed cut.

Automatic Operation

1. These procedures are based on the following preconditions: (a) Machine is not running; (b) The saw band is installed and tensioned correctly; (c) The saw head is activating the head down proximity switch (2 PRS).
2. Turn the **Operation** selector to "MANUAL". Then: (a) Move the **Saw Head Control** selector to "UP"; (b) Push the **Hydraulic Start** button to activate the hydraulic motor (the saw head lifts from the head down proximity switch (2 PRS) and raises to maximum height).
3. Turn the **Fixed Vise** selector to "OPEN". Then: (a) Turn the **Index** selector to "FORWARD" and allow the index to move to its full forward position; (b) Set the desired index length and tighten the locking knob; (c) Turn the **Multiple Index Setting** to the desired setting; (d) Turn the **Index** selector to "REVERSE" so the index vise will travel to the rear position determined by the index length setting; (e) Turn the **Index Vise** selector to "OPEN".
4. Manually position the stock so it extends approximately 2.25 inches (57.2 mm) beyond the index vise jaws. Then: (a) Turn the **Index Vise** selector to "CLAMP"; (b) Turn the **Index** selector to "FORWARD" and hold it there until the stock is fully advanced.

TYPICAL OPERATING PROCEDURES

(Continued....)

5. Turn the **Fixed Vise** selector to "clamp/auto". Then: (a) Release the sensing arm to its "down" (sensing) position; (b) Move the **Saw Head Control** selector to "DOWN/AUTO"; (c) Push the **Head Down Permit** button intermittently until the sensing arm barely contacts the stock (**do not** let the saw band teeth hit the stock while traveling rapidly); (d) Determine if the length of cut will be satisfactory.
6. Enter the number of cuts desired into the **Cut Counter**. Then: (a) Turn the **Index Vise** selector to "CLAMP/AUTO" (this allows the index vise jaws to unclamp); (b) Turn the **Operation** selector to "AUTO"; (c) Turn the **Auto Cycle Operating Mode** selector to the desired setting; (d) Push the **Band/Cycle Start** (or **Auto Cycle Start** if supplied) button; (e) The index vise will now return to the rear location determined by the index length setting.
7. To keep the index vise jaws forward and clamped against stock during the automatic sawing cycle: (a) Return the **Operation** selector to "MANUAL"; (b) Move the **Multiple Index Operating Mode** selector to a "FRONT" setting; and (c) Turn the **Operation** selector again to "AUTO".
8. Push the **Band/Cycle Start** (or **Band Start**) button. Then: (a) Turn the coolant valve on each saw guide arm **counterclockwise**; (b) Move the **Saw Head Control** selector to "DOWN/AUTO"; (c) Use the **Head Approach** valve to regulate the saw head's descending rate; (d) Adjust band speed, feed force, head approach and coolant flow as sawing progresses.
9. When a cut has been finished; (a) The saw head will actuate the head down proximity switch (**2 PRS**); (b) The saw head will raise until the sensing arm and saw band have cleared the stock; (c) Another stock index occurs and cutting resumes.



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
NEXT 2 PAGES!

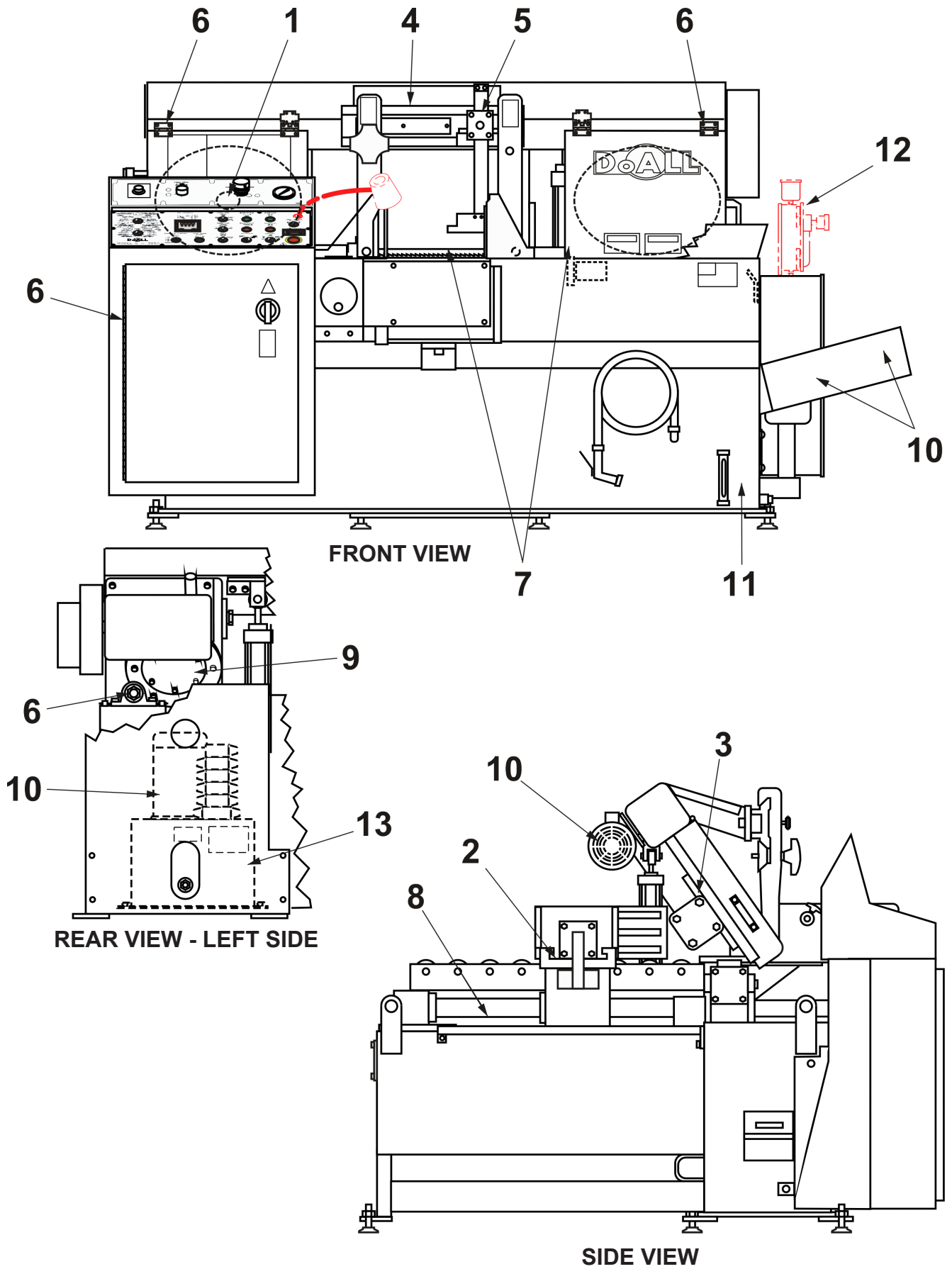
LUBRICATION

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. Four (4) grease fittings.	MONTHLY	
3	Idler Bandwheel Slide. Two (2) grease fittings.	6 MONTHS	
4	Saw Guide Arm Slide. Clean and apply oil.	MONTHLY	High quality, rust and oxidation-inhibited, medium hydraulic and general purpose industrial oil. ISO-VG Grade 68 (Formerly ASTM Grade No. 315). Union 76, UNAX RX 68, or equivalent.
5	Sensing Arm. Clean and apply oil.	MONTHLY	
6	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	
7	Saw Guide Adjustment Screws. Clean and apply oil.	INSERT CHANGE	
8	Index Lead Screw. Clean and then use oil to spray lightly over the entire length.	3 MONTHS	High quality, rust and oxidation-inhibited, medium hydraulic and general purpose industrial oil. ISO-VG Grade 46 (Formerly ASTM Grade No. 215). Union 76, UNAX RX 46, or equivalent.
9	Transmission. 11 quart (10.4 liter) capacity. Drain and refill every six (6) months. Do not overfill.	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. Drive, Hydraulic Pump, Band Brush, Chip Auger.	Lubricate (if any) per manufacturer's recommendations.	
11	Coolant Reservoir. 20 gallon (75.7 liter) capacity. 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	Band Mist Lubricator (Optional). Sixteen (16) ounces (.47 liter) capacity. Keep filled and hoses clear.	CHECK DAILY/ AS REQUIRED	Contact your DoALL sales representative for the best oils or fluids for your application. DoALL cutting fluids or oils (AL-2000).
13	Hydraulic Reservoir. Ten (10) gallon (37.8 liter) capacity. 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/BACK-UP INSERTS

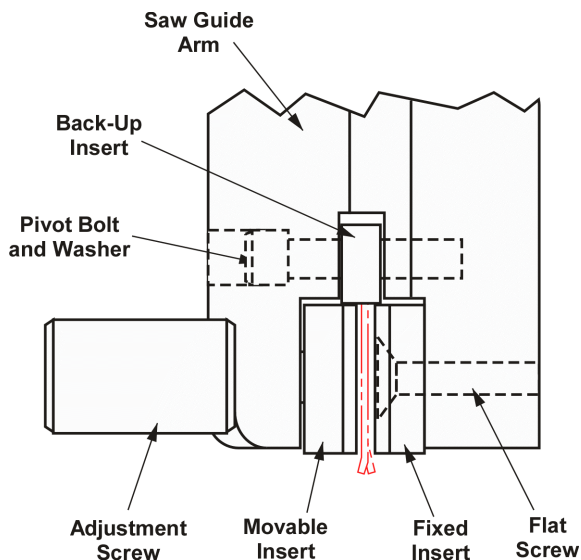


These instructions can be used to replace the saw guide and back-up inserts on both left and right saw guide arms.



Be sure the band drive motor is not running when replacing saw guide and back-up inserts or related saw guide items.

1. Loosen the insert adjustment screw on each saw guide arm. Then: **(a)** Remove the left saw band guard and saw band; **(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 flat head screw and remove the rear insert.

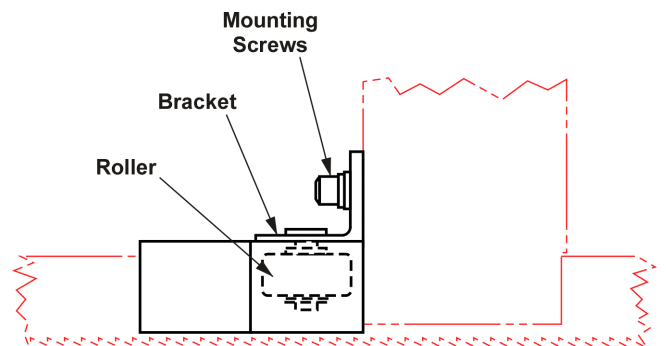


Typical Saw Guide Assembly (Both Arms).

2. Thoroughly clean the saw guide arm and inserts area. Then: **(a)** Reverse the carbide back-up insert (if worn); **(b)** Replace the rubber back-up insert if it has deteriorated (this will help prevent coolant leakage).
3. Install the new inserts. Then: **(a)** Thread the adjusting screw inward part way; **(b)** Place the saw band between the inserts; **(c)** Tighten the adjustment screw; **(d)** Replace the left saw band guard.

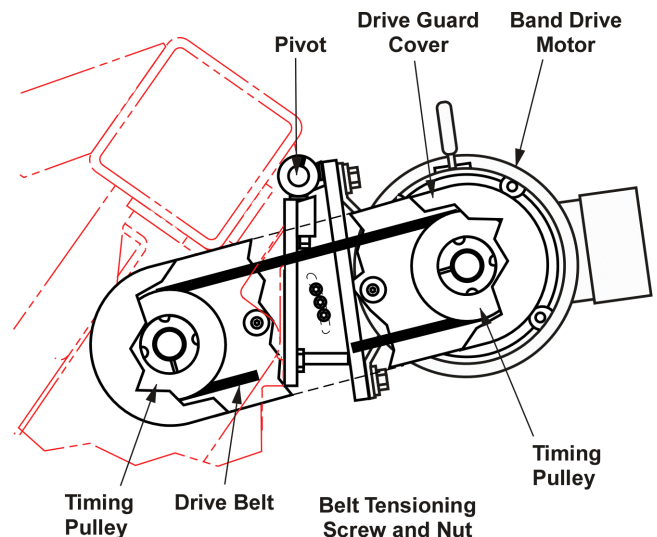
REPLACING SAW BAND ANTI-SQUEAL ROLLERS

1. To adjust and position the fixed spindles/rollers: **(a)** Raise the saw head until the saw band is above the front movable vise jaw; **(b)** Shut the machine and disconnect switch off; **(c)** Remove the saw guard and roller assembly from the saw guide arm; **(d)** Remove the C-clip retainer and roller from the shaft.
2. Install the replacement roller. Then: **(a)** Mount the entire assembly to the saw guide arm; **(b)** Position the roller firmly against the saw band; **(c)** Tighten the mounting screws; **(d)** Replace the saw guard.
3. Turn the disconnect switch and machine to "ON". Run the band drive motor while visually checking the roller's operation.



Saw Band Anti-Squeal Rollers.

BAND DRIVE BELT REPLACEMENT



Replacing the Band Drive Belt.

1. Turn the machine and disconnect switch to "OFF" and remove the band drive assembly cover;

BAND DRIVE BELT REPLACEMENT

(Continued....)

2. Loosen the nut and turn the belt tensioning screw **counterclockwise** to release the tension on the band drive belt.
3. Remove the broken drive belt and position the new drive belt over the timing pulley sheaves until the belt is seated on the both timing pulleys.
4. Turn the belt tensioning screw **clockwise** to tension the band drive belt. Tighten until there is very little deflection of the belt the center span. Tighten the nut to hold the tension.
5. Turn the disconnect switch and machine to "ON". Then: **(a)** Turn the hydraulic and band drive motors on; **(b)** Check the operation of the new drive belt; **(c)** If the operation is satisfactory, turn the band drive motor off and replace the band guard cover.



Be sure to check the tension of the belt occasionally for proper operation.

HYDRAULIC SYSTEM

1. Keep the reservoir filled at all times. Capacity is 10 gallons (37.8 liters). Check the reservoir oil level daily by referring to the sight gauge.
2. Drain, clean, refill the reservoir and change the oil filter after the first month of operation; every six (6) months thereafter. Clean the suction strainer and filler opening screen when necessary. Automatic transmission fluid is the recommended product.
3. Before changing the hydraulic oil: **(a)** Lower the saw head completely; **(b)** Push the **Hydraulic Stop** button; **(c)** Remove the reservoir drain plug; **(d)** Allow the reservoir to drain completely.

System Pressure

1. Hydraulic system pressure is correctly set at the factory and should not require adjustment for a considerable period of time. Correct system pressure is 400 psi (27.2 bar or 28.1 kg/cm²).
2. Pressure is adjusted by turning the screw extending outward from the hydraulic reservoir. Consult a DoALL service representative if assistance is needed.

Pump Repair & Replacement

1. **DO NOT attempt to repair the hydraulic pump.** Return it to the factory for repair or replacement. Be sure to specify the correct pump model and serial numbers when returning the unit.
2. Following a new pump installation: **(a)** Jog the **Hydraulic Start** and **Hydraulic Stop** buttons several times, on for two (2) seconds, off for three (3) seconds until the pump is primed; **(b)** Check for proper pump rotation while jogging; **(c)** Review wiring connections if the pump rotates in the wrong direction.



After the pump has been primed, run it for several minutes while operating the machine's controls to purge entrapped air from the pump and system. Check for oil leaks while the system is being operated.

Seals & Cups

1. Seals and cups used in DoALL hydraulic systems are compatible **ONLY** with hydraulic oils having an aniline point between 215° and 230° F. (102° and 111° C.).
2. If hydraulic oil having an aniline point not falling within the above range is used, the seals may either swell or shrink and harden. This causes machine malfunction and leakage.



DOALL hydraulic fluid with an aniline point of approximately 221° F. (106° C.) will not cause deterioration of component seals.

COOLANT SYSTEM

1. The machine's coolant reservoir has a 20 gallon (75.7 liter) capacity. A reservoir level sight gauge is located at the machine's right front side.
2. 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).
3. To thoroughly clean the reservoir section below the conveyor trough, removal of the trough will be necessary.

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 when necessary.**



Be sure the band drive motor is stopped before opening machine doors or covers.

MACHINE ALIGNMENT

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



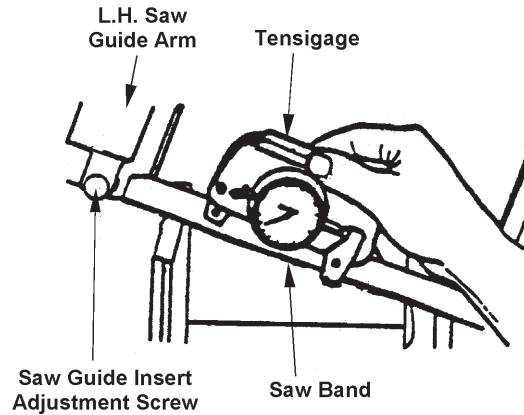
DO NOT attempt any alignment procedures not covered by this manual. Contact a DoALL service representative in such cases because special fixtures and techniques may be required.

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.



Using a Tensigage to Measure Band Tension.

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 DoALL Tensigage reading of 3.8 to 4.0 indicates correct saw 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 six (6) vise jaw wear plates — two (2) 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.**

Front Vise Guide Rails

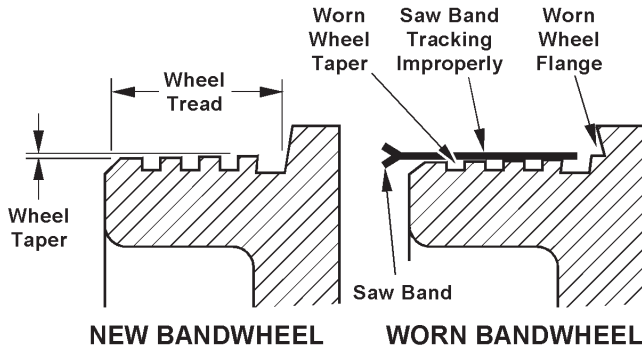
1. Each of the two (2) front vise guide rails has seven (7) mounting screws which must be removed. Replacement requires: **(a)** Removing the mounting screws; **(b)** Pulling the guide rails toward the left.

BAND DRIVE TRANSMISSION

1. Transmission replacement, repair, adjustment or alignment should be performed only by a DoALL service representative.

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.



Bandwheel Flange and Tread.

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.

CLEANING CHIP CONVEYOR

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

CUT COUNTER SELF-TEST

1. This unit has a built-in self-test feature which can be activated without losing counts, preset values, or interfering with control functions. With this test, all digits are cycled through, then the display will show "0000".
- If the display is not "0000", DIP switches 5, 6, 7, and 8 are not properly set. After an 18 second delay, the display will show the "Number of Cuts Made". It is suggested that the self-test be run about once a month as needed to verify unit operation.
2. To enter self-test, push the two upper right digit buttons simultaneously. At this time, whatever count value was displayed will be replaced by a string of four zeros. This will be shown for about half a second, then a string of ones will appear for about a half a second, followed by another string of ones for the same time duration.

- Next a string of twos will be displayed and so on to nines. After the nines are displayed, three decimal points will appear. After this portion, an interface pattern of the same numbers will be shown. First a combination of 1, 0, 1, 0, then 1, 2, 1, 2 and so on, until all digits from 0 to nine have been displayed.
3. The next portion of the self-test will display four zeros. If there is no zeros, DIP switches 5, 6, 7, and 8 on the back of the device are not set correctly. All four switches should be down.
 4. After 18 seconds the display will show the "Number of Cuts Made".



There is some features of this counter which are not used in this application (one of which is the display of decimal points). If you see a display of decimal points, it will not affect your count. To remove the decimal points, push the button under the right hand digit twice and wait 10 seconds.

ELECTRIC MOTORS

1. Follow the manufacturer's maintenance instructions for each electric motor. These instructions are located in the pocket inside the main electrical enclosure.

MIST LUBRICATOR

1. See the instructions sent with the unit for information on maintenance and adjustments. They are located in the pocket inside the main electrical enclosure.

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 may be helpful.

MACHINE WILL NOT START

1. Check that the disconnect switch is in the "ON" position.
2. The **All Stop** pushbutton needs to be reset (rotate the button head **clockwise**).
3. Close the bandwheel doors.
4. Check the circuit breakers for tripping.
5. Push the motor starter protectors 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 tripping the band tension limit switch (**1 LS**).
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 (**2 PRS**). Move the **Saw Head Control** selector to "UP".
4. The out of stock proximity switch (**6 PRS**) has been actuated.
5. Check the **Cut Counter** setting. The machine will not operate if the counter is set at "0", or if the preselected number of cuts have been counted.

SAW BAND STALLS DURING A CUT

1. Decrease saw head feeding pressure.
2. Check for a worn or slipping band drive belt. The belt must be dry and free of oil, grease and cutting fluid.
3. 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 anti-squeal roller bearings are: **(a)** Not contacting the saw band; or **(b)** Positioned too tightly against the saw band.
2. Check for defective anti-squeal 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 cutting 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 rate.
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 feed 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 the 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.
5. Check for a worn anti-squeal roller bearing.

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 to be 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. Use a coarser pitch saw band.
2. Increase band speed and/or feed force.

STOCK FEEDS ERRATICALLY

1. Check for low hydraulic system oil level.

INDEX VISE WON'T MOVE FORWARD

1. Check to see if **Solenoid 6** is energized.

VICES WON'T TRANSFER AFTER AN INDEX

1. Check for faulty operation of the index forward proximity switch (**4 PRS**) on the index vise base.
2. Check for faulty operation of **Solenoids 9 and 10**.

INDEX WON'T RETURN

1. Check for see if **Solenoid 5** is energized.
2. Check for incorrect adjustment of the index forward proximity switch (**4 PRS**).

VICES WON'T TRANSFER & SAW HEAD STAYS DOWN

1. Check for faulty operation of the head down proximity switch (**2 PRS**).
2. Check to see if the index vise is at its rear position and has actuated the index reverse proximity switch (**5 PRS**).
3. Check to see if **Solenoid 2** is energized.

SAW HEAD WON'T LOWER

1. The feed rate setting is too low.
2. Check the head clear proximity switch (**3 PRS**) for faulty operation.
3. Check **Solenoids 1 and 12** for incorrect operation.
4. Check for saw head obstruction.

SAW HEAD WILL NOT RAISE, OR RAISES SLOWLY

1. Check for faulty **Solenoid 2** operation.
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 PRS**).
3. Check for faulty **Solenoid 2** operation.

SAW HEAD DOESN'T LOWER FOR REPEAT CUTS

1. Check for faulty operation of **Solenoids 1 and 12**.

TROUBLE SHOOTING (Continued....)

2. Check adjustment of the head clear proximity switch **(3 PRS)**.
3. Check the index forward proximity switch **(4 PRS)**.

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.

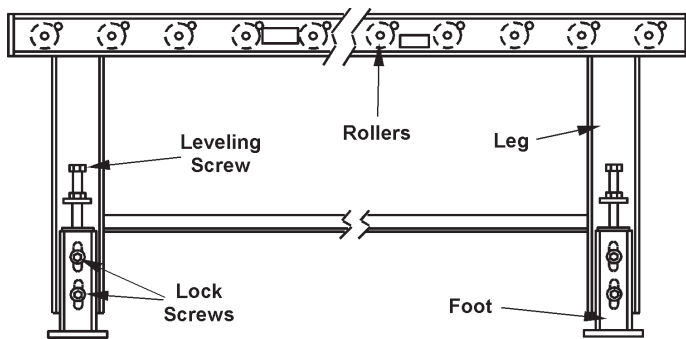
SENSING ARM HANGS UP

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

ACCESSORIES

ROLLER STOCK CONVEYORS

- Your machine may be equipped with one of the following roller stock conveyors for moving long stock into cutting position. The following conveyors are available:
 - Stock conveyor five (5) feet (1524.0 mm) long by 14 inches (355.6 mm) wide with a weight capacity of 800 pounds (362.9 kg) per roller.
 - Stock conveyor ten (10) feet (3048.0 mm) long by 14 inches (355.6 mm) wide with a weight capacity of 800 pounds (362.9 kg) per roller.



Roller Stock Conveyor.

- 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 in line to 0.010-inch (0.25 mm) above the vise bed wear plate.
- 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.
- Depress the roller shafts for ease of installation or removal of rollers.

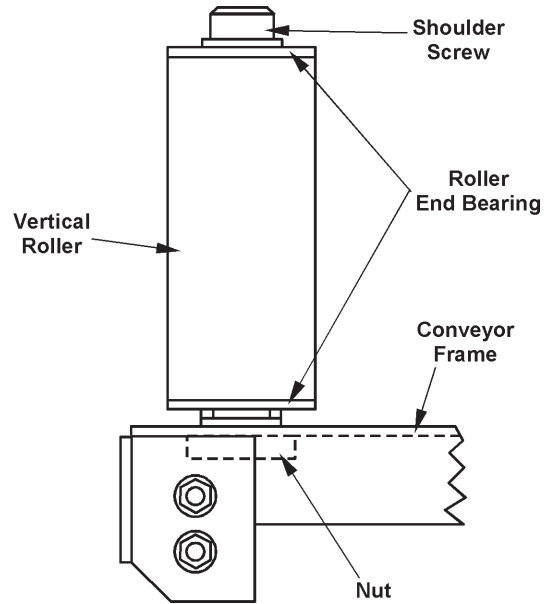


The conveyor DOES NOT attach to the machine base. Anchor the conveyor to the floor after all leveling and adjustments are made.

VERTICAL GUIDE ROLLERS (Conveyors)

- Vertical guide rollers are effectively used to help maintain correct positioning of long stock on the conveyor.

- These can be installed between the interface plate and conveyor or between conveyors (if more than one is supplied).



Vertical Guide Roller for Conveyors.

NESTING FIXTURE

- This optional feature is designed for high-production, multiple sawing of stacked bars, rounds and tubing. Its jaws have the capacity to hold stock from 5.50 to 11.50 inches (139.7 to 292.1 mm) wide, and from 2.50 to 4.75 inches (63.5 to 120.6 mm) high.
- Vertical nesting clamp cylinders are mounted to the machine's front and index vises. The cylinders operate simultaneously with the regular vise clamping cylinders.



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

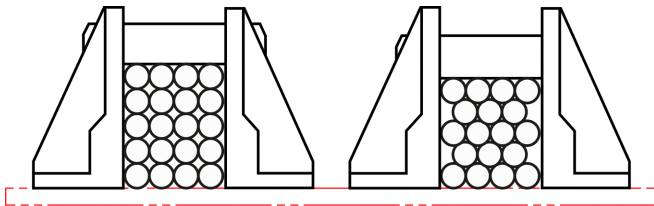
Control Console

- The **Auto Cycle Operating Mode** selector should be on a nesting vise setting in either "Index Home Forward" or "Index Home Rear" with or without variable vise pressure. This will provide vise overlap to prevent the possible separation of nested bundles.

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. Slippage can also be prevented by using polyurethane wear plates on both movable vise jaws.
4. 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).

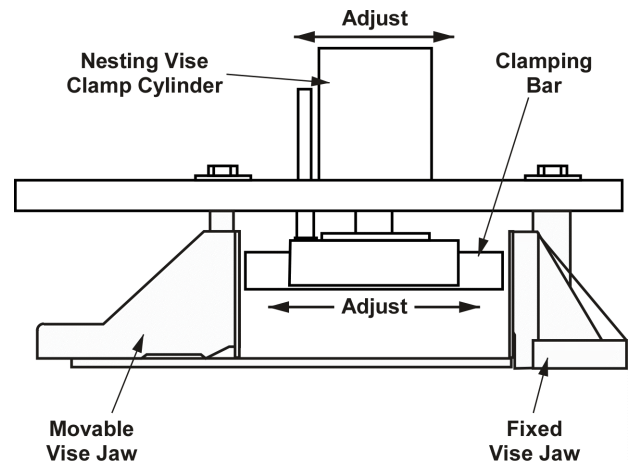


Round Stock Stacking Methods.

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

1. Stack stock to be cut between the machine's vise jaws. Then: **(a)** Push the **Fixed Clamp** and **Index Clamp** pushbuttons; **(b)** Center the nesting fixture's vertical clamping cylinder; **(c)** Bolt the supporting bar tightly to the fixed vise jaws, but not to the movable vise jaws.
2. Adjust the horizontal clamp bars commensurate with the size of the nested stock. Then adjust the feed table's vertical guide rollers (if supplied) so the stock will be guided correctly toward the saw band.



Nesting Fixture Vise Adjustments.

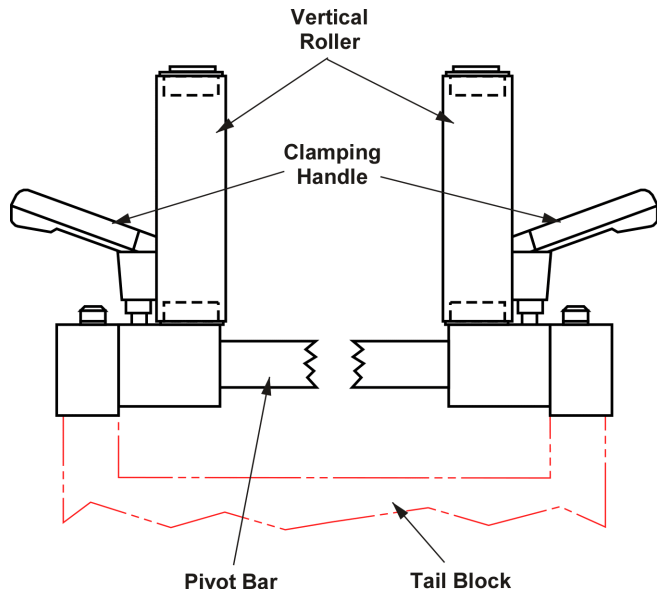
3. If the horizontal clamping vises and the vertical nesting clamp **do not** release at approximately the same time: **(a)** Adjust the hydraulic restrictor valve at the rod end of the front and/or index vise cylinders to achieve relatively equal release.

For Best Nesting Cutting Results

1. Total stack width should be no more than five (5) to six (6) inches (127.0 to 152.4 mm).
2. Stack the same number of stockpieces in each row.
3. The stack should always be higher than it is wide.
4. Apply as much coolant as possible while cutting.
5. Replace wear plates on the movable vise jaw and nesting fixture's vertical clamping jaw when they become worn.
6. Adjust the feed table's vertical guide rollers (if supplied) 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.

VERTICAL GUIDE ROLLERS (For Nesting)

1. These are mounted on the rear of the feed table's tail block to provide two (2) laterally adjusted vertical rollers.
2. Each vertical roller is adjustable along the pivot rod and clamps to a flat on the rod (note that the left vertical roller can be adjusted flush with the tail block roller's left end).



Vertical Guide Rollers For Nesting Fixture.

3. When the vertical rollers are not needed, their clamping handle can be released to swivel the roller rearward and down to a horizontal position.

BAND MIST LUBRICATOR

1. See the instructions sent with the unit for information on operation and adjustments. They are located in the pocket inside the main electrical enclosure.
2. Plant air supply is connected to the air filter to the right of the main electrical enclosure on the front of the machine. Plant air supply should be 80 to 90 psi (5.5 to 6.2 bar or 5.6 to 6.3 kg/cm²) to operate this option.

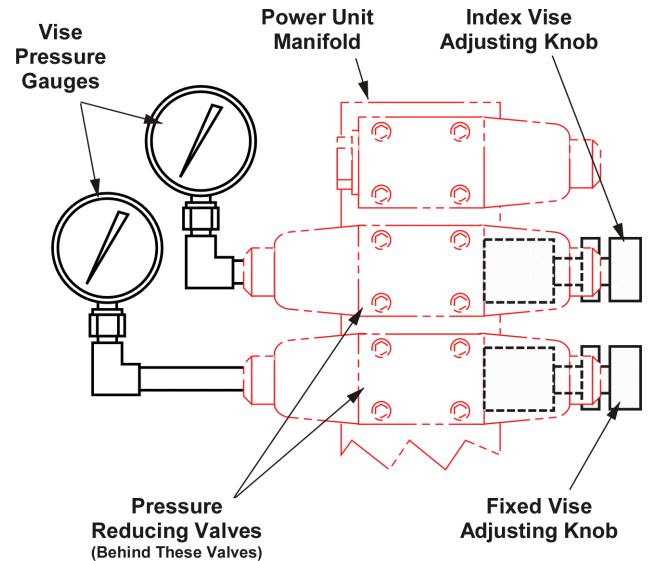


DO NOT exceed 90 psi (6.2 bar or 6.3 kg/cm²) air pressure.

VARIABLE VISE PRESSURE

1. The Variable Vise Pressure control valve is 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.

2. The controls for variable vise pressure are located in the hydraulic power unit enclosure. Clamping pressure is set by loosening the locknut and turn the adjustment knob until the desired pressure is shown by the indicator gauge. The lower the number, the lighter the pressure and vice versa.



Variable Vise Pressure.

LASER LINE OPTION



To avoid eye damage, DO NOT stare into the laser beam.

1. A laser device is used to emit a line on the material to be cut. This line shows the approximate spot where the cut will take place.
2. The device is controlled by a "ON" - "OFF" key on the **SETUP Screen**. Turn the laser "OFF" when not in use.
3. The laser is mounted on the saw guide arm and is adjustable to position the laser beam where desirable.
4. When the laser is turned on, a warm-up period of 3 to 5 seconds take place before a line appears. If the line is difficult to see, darken the work area to enhance the line.
5. Remove the protective shipping cap from the laser device before operation and replace the cap when not in use.

MATERIAL HANDLING EQUIPMENT

1. Special material handling equipment can enhanced the performance of your machine. Contact your DoALL sales representative for information on any material handling needs that could increase your productivity.