nstruction Manual



400S

Serial No: 597-10101 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.
- 3. Do not move the equipment from the receiving area and keep all shipping materials until carrier "damage inspection" report is complete.
- 4. If possible, take photographs of the damage and keep them for your files. Photos could possibly prove a claim at a later time.
- 5. Keep a record of all expenses and be sure they are documented.
- 6. Repair damage in the field whenever possible. Carriers encourage this to keep expenses down.
- 7. You have nine (9) months to file a claim.

OPERATOR'S INSTRUCTION MANUAL METAL CUTTING BAND SAW

MODEL	FIRST SERIAL NO.	LAST SERIAL NO.
400S	597-10101	
MACHINE MODEL	DOALL	SERIAL NUMBER
TOTAL MACHINE	ELECTRICAL PC	WER INPUT DATA
VOLTAGE P	HASE HERT	Z FULL LOAD AMPS
LARGEST CONTROLI	LED MOTOR OV	ERCURRENT PROTECTION PROVIDED AT CHINE SUPPLY TERMINAL
FIELD ALIGN & ADJUS	ST SUMMARY	BAND LENGTH
HYDRAULIC SCHEMA	TIC NUMBER	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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How to read your serial number:

Example: 500-001234

Machine Prefix Year of Machine Number (3 or more digits)

MACHINE DIMENSIONS

INCHES: ±.03 (MILLIMETERS: ±1 mm)



FLOOR PLAN

MACHINE DIMENSIONS (Continued....)



MACHINE DIMENSIONS (Continued....)

INCHES: ±.03 (MILLIMETERS: ±1 mm)



TOP VIEW

MACHINE FEATURES



FRONT VIEW



REAR VIEW

INSTALLATION



All the "left", "right", "front", "rear" directions in this manual are as viewed by the operator when facing the control panel.



Inspect the machine for broken or damaged parts. Refer to this manual's inside front cover for damage claim procedures.

LOCATION

- 1. Plan the work area of the machine to allow adequate space for all your sawing needs with maximum convenience.
- Locate the machine to provide sufficient clearance for: (a) Material loading and unloading; (b) All door openings; (c) Head elevation; (d) Head swivel; (e) Maintenance and lubrication procedures; (f) Operation of any supplied machine accessories.
- 3. Approximate floor dimensions for the machine are shown on pages 1, 2 and 3.
- 4. Accessories such as roller stock conveyors will require additional working area.

UNPACKING

1. The machine plus other parts and supplies were fastened to a wooden skid before shipment.



DO NOT remove the the strapping holding the saw head to the base until the machine has been placed to its permanent location.

Remove all other protective covers, strapping, crating, etc. Then: (a) Remove wire if used to secure bandwheel doors; (b) Remove the screws attaching the machine to the shipping skid.

CLEANING

1. If necessary, use solvent to remove the rustpreventative coating applied to the machine's exposed bare metal surfaces before shipping.

LIFTING



Never lift the machine by its sawing head.

Use a overhead hoist to lift the machine to its permanent location. Net weight is approximately 1100 pounds (521.6 kg).



Lifting the Machine.

- 2. Place the straps or chains under the coolant pan as shown. If chains are used, be sure to position padding where the chains makes contact with the machine frame to protect the finish.
- Accessory roller stock conveyors can be lifted into position using a fork lift or other means that provides adequate safety precautions.

OSHA NOTICE!!



OSHA Regulation No. 1910.212 (5B). Machines designed for a fixed location shall be securely anchored to prevent walking or moving.

FLOOR INSTALLATION AND ALIGNMENT

- 1. Remove the machine from its shipping skid.
- 2. While the machine is suspended in the air, thread the provided leveling screws (M16-2.0) into each machine base foot pad and attach the jam nuts. Slowly lower the saw into desired position.
- Place a machinist's level on the vise bed. If the machine is not level, correct it by: (a) Adjusting the four (4) leveling screws in the base pads; (b) Tighten the jam nuts. Machine must rest evenly on all pads.
- 4. Place coolant in the base pan and check its flow to the right side base opening. If the coolant does not flow as desired. Raise the leveling screws on the left side or lower the right side leveling screws in half a turn intervals until desired flow is acheived.

FLOOR INSTALLATION AND ALIGNMENT (Continued....)

5. Install anchoring screws through the base pad holes next to the leveling screw locations.

ELECTRICAL INSTALLATION



Electrical installation must be made by an authorized electrical maintenance personnel!

- 1. Bring the incoming line circuit leads to the disconnect switch terminals in the electrical control box located on the lower right front of the machine base. Refer to the furnished electrical schematic, if necessary.
- 2. Press the "BAND/CYCYLE START" pushbutton. When the machine is correctly wired, the saw band will run left to right through the saw guides when viewed from the front.
- If saw band movement is reversed: (a) Push the "BAND/CYCLE STOP" pushbutton, turn the disconnect switch to "OFF" and remove power at the source of electrical supply; (b) Reverse the line leads leads to the disconnect switch; (c) Restore power and perform Step 2 again.

PLANT AIR INSTALLATION (If Required)

- 1. Plant air is required to operate the following optional equipment: vise clamp cylinder, head lift cylinder, full cycle operation and mist lubricator system.
- 2. Plant air is connected at the air filter located under the base pan on the right side of the machine. Air pressure should be in the range of 80 to 90 psi (5.6 and 6.3 kg/cm²).



DO NOT exceed 90 psi (6.3 kg/cm²).



Machine Right Side

LARGE DISCHARGE TRAY INSTALLATION

 Place the optional discharge tray onto the mounting angle and insert the three (3) flat head socket screws. and then tighten. Then: (a) Adjust the tray's leveling screw on each leg so the tray surface is flush with the machine's vise base, or no more than 0.031 inch (0.8 mm) below it; (b) Elevate the tray's right side slightly so used coolant will drain into the tray's coolant trough and then into the base pan.

PREPARATION FOR USE

- 1. All covers and guards must be in place, doors must be closed, and operator understands the safety rules and operation of the machine.
- 2. Fill coolant reservoir with coolant recommended in the Lubrication Chart.
- 3. Be sure that all other points listed in the Lubrication Chart have been checked and/or serviced.

Break-In Cut

- 1. The initial cut with a new machine should be made with a band speed at 105 fpm (32 m/min.) and a light feed rate.
- 2. When angle cutting, the saw band may be cutting partially into the discharge tray establishing a future kerf path.
- During the break-in cut, allow blade penetration into the discharge tray until the saw head reaches the factory set mechanical stop (horizontal position).



Be sure the saw head falls only enough to cut completely through the work. TOO LITTLE head fall will result in an incomplete cut through the workpiece. See the "MAINTENANCE" chaper under the heading "Counterbalance Spring" in this manual for instructions on adjusting the counterbalance spring mechanism.

Plant Air Connection For Optional Equipment.

OPERATION

SAFETY PRECAUTIONS



Warning Label - READ and UNDERSTAND.

USING THE SAW BAND SELECTOR

- 1. Refer to the Saw Band Selector escutcheon on the right front bandwheel door for information about blade choice and pitch, and suggested band speed for stock type and thickness. It also provides a handy sawing procedures checklist.
- For example, to cut low carbon steel which is two (2) inches (50.8 mm) thick, you would choose: (a) An Imperial Bi-Metal saw band with 8-10 pitch, and set the band speed for 275 fpm (84 m/min); or (b) A Dart saw band with 8-10 pitch, and set the band speed for 180 fpm (55 m/min).

	U.S.A. SYSTEM				METRIC SYSTEM		
	BAND SPEED (50 - 400 f/m) BI-METAL	PITCH	THICKNESS (INCHES)	MATERIAL	THICKNESS (mm)	рисн	BAND SPEED (15 - 122 m/m) BI-METAL
	345	5-8	UP TO 3	IO CARE FTER	UP TO 80	5-8	105
	275	4-6	OVER 3	LO CARD. SICCL	OVER 80	4-6	84
	250	5-8	UP TO 3		UP TO 80	5-8	75
	175	4-6	OVER 3	HI CARD. SICCL	OVER 80	4-6	53
	275	5-8	UP TO 3	MICKE CTER	UP TO 80	5-8	84
	250	4-6	OVER 3	MICKEL SIEEL	OVER 80	4-6	75
Saw Rand	275	5-8	UP TO 3	MOIN COM	UP TO 80	5-8	84
Jaw Danu	260	4-6	OVER 3	MOLT.SIEEL	OVER 80	4-6	80
0.1	275	5-8	UP TO 3	CURON CTTT	UP TO 80	5-8	84
Selector I	250	4-6	OVER 3	CHROM. SIEEL	OVER 80	4-6	75
	220	5-8	UP TO 3		UP TO 80	5-8	68
	170	4-6	OVER 3	SILICON SIEEL	OVER 80	4-6	53
	120	5-8	UP TO 3		UP TO 80	5-8	38
	105	4-6	OVER 3	TOOL SIEEL	OVER 80	4-6	32
CHECK LIST AND GUIDE FOR MACHINE OPERATOR	105	5-8	UP TO 3		UP TO 80	5-8	32
✓ READ and OBSERVE SAFE OPERATOR PRACTICES	85	4-6	OVER 3	STAINLESS STEEL	OVER 80	4-6	26
PEAD INSTRUCTIONS MANUAL RECORE OPERATION	250	5-8	UP TO 3		UP TO 80	5-8	75
COOPER DAME TENSION ADDI ITO	175	4-6	OVER 3	CASTIKON	OVER 80	4-6	53
 PROPER BAND TENSION APPLIED. 	325	8-12	TO 3/8 WALL		TO 10 WALL	8-12	99
 SAW GUIDE ARM CLAMPED IN PROPER POSITION. 	200	5-8	OVER 3/8	TUBING, MILD	OVER 10	5-8	60
SAW GUIDE INSERT ADJUSTMENT IS CORRECT.	200	8-12	TO 3/8 WALL	TIME ALLOY	TO 10 WALL	8-12	60
✓ WORK PIECE IS CLAMPED SECURELY.	175	5-8	OVER 3/8	IUBING, ALLOT	OVER 10	5-8	53
PROPER BAND SPEED KNOWN AND SET.	400	4-6	UP TO 3		UP TO 80	4-6	122
✓ COOLANT FLOW ADJUSTMENT IS CORRECT.	400	3-4	OVER 3	ALUMINUM	OVER 80	3-4	122
✓ FEED FORCE ADJUSTMENT IS CORRECT.	325	5-8	TO 3/8 WEB	CTORE CTURALS	TO 10 WEB	5-8	99
✓ PROPER BAND AND TOOTH FORM SELECTED.	250	4-6	OVER 3/8	SIKUCIUKALS	OVER 10	4-6	76
WHEN CUTTING STEELS CONTAINING MORE THAN ONE ALLOY USE LOWEST SP RECOMMENDED FOR ANY ONE COMPONENT.					EST SPEED		



Saw Band Selector recommendations are a general guide for correct sawing on a properly maintained DoALL saw. Values can be adjusted for special material applications.

CUTTING CAPACITY

- 1. Your machine is designed to cut retangular stock up to ten (10) inches (254.0 mm) high and 16 inches (406.4 mm) wide. It will also cut round stock up to 10-3/4 inches (273.0 mm) in diameter.
- With the saw head adjusted for 45° cutting, the machine will saw retangular stock up to 9 inches (228.6 mm) high and ten (10) inches (254.0 mm) wide. It will also cut round stock up to ten (10) inches (254.0 mm) in diameter.
- 3. Vise bed capacity is 1800 pounds (816.5 kg) evenly distributed with NO impact.

MACHINE CONTROLS

 The machine has two (2) significant control panels:
 (a) an electrical control panel mounted on the front of the electrical enclosure located to the right front of the machine or a remote console; (b) A hydraulic/ pneumatic control panel located between the right saw guide arm and right hand bandwheel door.



Typical Machine Control Panels.

Electrical Controls

1. **Band/Cycle Start.** Push this green pushbutton to start the band drive motor and saw band.



Be sure the saw band is properly tensioned before pushing this button.



Typical Electrical Control Panel.

- 2. Laser (Optional). This selector switch turns the laser line generator "ON" and "OFF". Turn the laser "OFF" when not in use.
- 3. Saw Head Control and Operation (Full Cycle Option). These controls are described in the *"ACCESSORIES"* chapter under the *"Full Cycle Option"* heading in this manual.
- 4. **Band/Cycle Stop.** Push this red pushbutton to stop the band drive motor. To restart the machine, this pushbutton must be reset by rotating the button head **clockwise** until the head pops up.
- 5. **Coolant.** Four (4) 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 mist lubrication system; (d) "OFF" turns either system off.
- 6. **Disconnect Switch.** Turns the incoming power "OFF" and "ON" and is located on the front of the control box enclosure.

Hydraulic/Pneumatic Controls

1. **Head Up (Pneumatic Head Lift Option).** This control is described in the "ACCESSORIES" chapter under the "Pneumatic Head Lift" heading in this manual.



Typical Hydraulic/Pneumatic Control Panel.

MACHINE CONTROLS (Continued....)

- 2. Head Feed Rate. Turning this knob regulates the pressure being applied by the saw head and saw band against the material being cut. Turn the knob counterclockwise to "INCREASE" the feed rate, clockwise to "DECREASE" it.
- 3. **Head.** This selector has "FEED" and "HOLD" and "RAPID" settings.
- The "FEED" setting is for actual cutting of the material. The cutting rate is set by the **Head Feed** control above.
- "RAPID" is for fast descent of the sawing head for positioning or moving the saw head to the complete down position. This setting is NOT for cutting the material.
- "HOLD" stops saw head movement.
- Vise (Pneumatic Vise Option). This control is described in the "ACCESSORIES" chapter under the "Pneumatic Vise" heading in this manual.

SAW BAND PREPARATION

Recommended Saw Band

1. The machine is shipped with an Imperial Bi-Metal Super Silencer saw band installed. Saw bands recommended for use with the machine should be 158 inches (4013.2 mm) long, one (1) inch (25.4 mm) wide, and have a 0.035 inch (0.89 mm) gage thickness.

Blade Guards

 The following blade guards are positioned to provide operator safety while the machine is running:

 (a) A top guard located above and between the bandwheel doors;
 (b) Two (2) guards mounted between the lower left saw guide arm and the left bandwheel door;
 (c) A guard between the lower right saw guide arm and the right bandwheel door. Blade guards (b) and (c) can be removed to facilitate saw band changing procedures.



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

Saw Guide Insert Adjustment

1. Adjustment screws for the saw guide inserts are located on the lower portion of each saw guide arm.

Follow these adjustment procedures: (a) Turn the adjustment screw clockwise until tight against the saw band (do not over tighten); (b) Turn each adjustment screw back counterclockwise 1/4 turn.



Saw Guide Detail.

Saw Band Removal



2.

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

- Push the Band Stop pushbutton. Then: (a) Turn the band tension handwheel counterclockwise (this moves the idler bandwheel to the right and loosens band tension); (b) Turn the Head control knob to the "HOLD" setting; (c) Grasp the band tension handwheel and lift the saw head to a position where there is space under the saw guide arms (approximately five (5) inches (127.0 mm).
- Open the right and left bandwheel doors. Then: (a) Remove or reposition the band brush, if necessary;
 (b) Loosen and remove the left blade guard;
 (c) Loosen the saw guide inserts by turning the adjusting screws counterclockwise.
- Place your gloved hand on the non-cutting edge of the saw band between the saw guide arms. Then:
 (a) Push the saw band downward to free it from the saw guide inserts; (b) Grasp the saw band near the idler bandwheel and remove it, then remove the saw band from around the drive bandwheel; (c) Move the saw band's upper strand out through the slot in the upper band guard and out form under both saw guide arms.



If possible, recoil the saw band into its original holder before storing or scrapping the band.

Saw Band Installation



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

- 1. Remove the saw band as described in the previous section. Clean metal chips and other foreign materials and debris from around the saw guides and both bandwheels. Remove the new saw band's protective cap if necessary.
- Form the saw band into a loop. Then: (a) Slip the saw band under the saw guide arms and into approximate position for placement; (b) With the saw band's teeth facing towards you, slip the looped saw band through the slot in the upper band guard and then around the drive and idler bandwheels.
- Twist the saw band 90° so that its teeth between the saw guide arms point down and to the right. Then:
 (a) Insert the saw band into the saw guide inserts and pull up against the back-up bearing; (b) Check the saw band's position around the bandwheels (its back edge must rest against each bandwheel's rear flange).
- Apply correct band tension by turning the band tension handwheel clockwise. Then: (a) Turn the saw guide insert adjustment screws clockwise until tight (do not over tighten); (b) Turn each adjustment screws back counterclockwise 1/4 turn.(c) Reposition or mount the band brush and blade guards(s); (d) Close both bandwheel doors.

Band Tension Handwheel

1. Band tension is applied by turning the handwheel which protrudes from the saw head's left side. Turn the handwheel **clockwise** to increase band tension; **counterclockwise** to decrease it.



Turn Handwheel to Set Band Tension.

- Correct band tension for the machine's standard one (1) inch (25.4 mm) wide by 0.035-inch (0.89 mm) gage saw band is 27,000 to 30,000 psi (1900 to 2100 kg/cm²) measured by a DoALL Tensigage. This tension setting is established when the preset stop bolt contacts the large washer. An escutcheon near the band tension handwheel describes the washer to stop bolt relationship in a setting of 30,000 psi (2100 kg/cm²).
- Important factors which influence band tension settings are the size of stock to be cut and desired band life. General rules-of-thumb are: (a) Lower tensions will increase saw band life; (b) Greater tension is required as spacing is increased between the saw guide arms; (c) Higher band speeds require greater tension.



DO NOT start the band drive motor unless the saw band has been properly tensioned.

BAND SPEED ADJUSTMENT



Change band speeds ONLY when the band drive motor is running. Be sure the saw band is correctly tensioned before starting the band drive motor.

 Band speed is infinitely variable between 105 and 275 fpm (32 and 85 m/min) for 60 Hz machine; 90 and 230 fpm (27 and 70 m/min) for 50 Hz machines. To adjust, turn the band speed adjusting handwheel clockwise to "INCREASE" band speed; counterclockwise to "DECREASE" it.



Band Drive Details.

2. Refer to the band speed escutcheon when setting or adjusting band speed.

SAW GUIDE ARM ADJUSTMENT

 The machine's right saw guide arm is fixed. The left saw guide arm can be adjusted as follows to accommodate varying stock widths: (a) Loosen the saw guide insert adjustment screw by turning counterclockwise; (b) Loosen the left arm's locking knob by turning it counterclockwise; (c) Move the arm along the slide bar until it is as close as possible to the stock; (c) Turn the locking knob clockwise to tighten; (e) Tighten the insert adjustment screw as previously instructed.



DO NOT move the left saw guide arm while the saw band is running.

2. The best cutting results are generally obtained when the saw guide arms are positioned as close as possible to the stock.

FEED RATE ADJUSTMENT

- 1. The **Feed Rate** knob regulates the amount of pressure being exerted by the falling saw head against the stock.
- When preparing to cut a piece of stock, turn the Head selector to "HOLD". Then: (a) Grasp the band tension handwheel and lift the saw head so it clears the stock; (b) Position the stock for a cut.
- Start the saw head's downward movement by pushing the Band/Cycle Start pushbutton. Then:
 (a) Turn the Head selector to the "FEED" setting; (b) Gradually turn the Feed Rate knob until the desired rate is obtained.

VISE JAW ADJUSTMENT

- The distance between the movable (left) and fixed (right) vise jaws can be adjusted to accommodate varying stock widths. To adjust: (a) Lift the pawl arm attached to the movable vise jaw from the rack; (b) Slide the pawl arm and movable vise jaw in the desired direction until the jaw contacts the positioned stock, or the opening between the vise jaws is judged sufficient; (c) Lower the pawl arm so its protruding end segment engages into the nearest rack notch.
- 2. Use the vise clamp adjustment handwheel (lower handwheel on the left side of the machine) to tighten the vise jaws securely. Turn the handwheel **clockwise** to tighten the vise jaws, **counterclockwise** to loosen the jaws.



Adjusting the Vise Jaws and Head Swivel.

SAW HEAD POSITIONING FOR ANGLE CUTS

- To position the saw head for angle cutting from 0° to 45°: (a) Loosen the clamping handle by turning it counterclockwise; (b) Pivot the saw head to the desired angle as indicated by the pointer located just above the clamping handle; (c) Turn the clamping handle clockwise to lock the saw head in place.
- 2. The 0° and 45° angle positions have been preset at the factory. If adjustment becomes necessary, it can be made with the screws and jam nuts located on the rear of the pivot weldment.
- 3. If desired, the operator can make a crop cut to check angle accuracy.

COOLANT SELECTION AND APPLICATION

Coolant Selection

- Choosing and using the proper cutting fluid is important to most cutting procedures. An operator's coolant choice will depend on such factors as: (a) The type of material being cut; (b) The material's machinability rating; (c) Band speed and feed rate to be used; (d) Saw band type to be used and its expected life; (e) The overall sawing operation.
- 2. When making a coolant choice, the operator will want to consider the following points:
- Excessive heat build-up is the main cause of blade tooth failure during band machining. Coolant has both lubricating and cooling properties. Its application does the following: (a) Helps reduce the heat generated during sawing; (b) Helps prolong blade life; (c) Generally promotes more efficient cutting rates.
- Using more than one (1) coolant variety may provide maximum sawing results and economy.

COOLANT SELECTION AND APPLICATION (Continued....)



DoALL has developed several cutting fluids specifically for band machining. A DoALL sales representative can provide complete information about all available coolant types and their recommended usages.

Coolant Application

 Coolant is supplied by means of a reservoir and pump to the cutting area through a valve and then the saw guide inserts on the left saw guide arm. Turn the valve **counterclockwise** until coolant completely covers both sides of the saw band.



Coolant Valve on the Saw Guide Arm.

- 2. Used coolant flows back to the reservoir through the open end of the base pan. The screening and straining within the reservoir removes metal particles and other impurities before the coolant is recirculated.
- 3. Coolant reservoir capacity is nine (9) gallons (34.1 liters). The pump will not operate correctly unless it is completely submerged in coolant.



Coolant Reservoir.

DRY CUTTING

1. The operator may find it desirable to cut some materials (such as cast iron, aluminum, magnesium, etc.) without coolant. When dry cutting these materials, follow the same operating procedures used when cutting with coolant.



Dry cutting will reduce saw band life.

BAND BRUSH AND CHIP REMOVAL

Band Brush

- 1. A powered band brush removes metal particles from the saw blade teeth. The band brush is located inside the right bandwheel door. It is attached to a bracket that is mounted to the saw head frame.
- The brush must be properly adjusted to clean blade tooth gullets if satisfactory sawing performance is to be obtained. As bristles wear down, adjust brush position by: (a) Loosening the bolts holding the brush assembly to the bracket on the saw head; (b) Move the brush to the correct cleaning position; (c) Retightening the bracket bolts.



Band Brush.



NEVER adjust the band brush while the saw band is running.

Chip Removal

1. Metal fragments removed from the band brush and from the stockpiece drop onto the base pan. The chips flow with the coolant and drop into a strainer above the coolant reservoir compartment. Chip collections should be removed from the tray when necessary.

BAND BRUSH AND CHIP REMOVAL (Continued....)

- In addition, the operator should check often for chip accumulations around such machine areas as: saw guides, vise bed, vise jaws, head feed cylinder, etc. These accumulations may affect machine performance if not removed. DoALL recommends removing chip accumulations at least twice per eight (8) hour shift and more often with heavier use.
- 3. Use a small shovel or rake to remove accumulated chips or other materials from the machine's operating areas.
- 4. Use the optional Flushing Hose to remove accumulated chips or other materials from the machine's operating areas.



Be sure the band drive motor and the saw band have STOPPED completely before cleaning the machine.

TYPICAL SAWING PROCEDURES

Preparation

 These operations assume that the machine is prepared as follows: (a) The band drive motor is "OFF"; (b) The saw band is properly installed and tensioned; (c) The bandwheel doors are closed; (d) All guards are in place and/or secured; (e) The coolant reservoir is full and all lubrication points are properly serviced; (f) The band brush is properly positioned.

Loading Stock

 Turn the Head control selector switch to "HOLD". Then: (a) Turn the Feed Rate knob clockwise to its maximum position; (b) Grasp the band tension handwheel and lift the saw head until it clears the stock to be cut; (c) Adjust the movable saw guide arm for stock width; (d) Adjust the saw head for angle cutting if necessary; (e) Adjust the vise jaws for stock width; (f) Load stock onto the machine and secure it in cutting position by turning the vise jaw clamping handwheel.

Starting the Cut

 Push the Band/Cycle Start pushbutton. Then: (a) Turn the band speed adjustment handwheel until the pointer is at the desired band speed; (b) Start the saw head movement downward by turning the Head control selector to "FEED"; (c) Turn the Coolant selector to "BAND ON".

- 2. Turn on the **Coolant** valve located on the left saw guide arm so coolant flow covers both sides of the saw band (**counterclockwise** to "INCREASE" coolant flow, **clockwise** to "DECREASE" it).
- 3. Turn the **Feed Rate** knob until the desired cutting rate is established (**counterclockwise** to "INCREASE" feed force, **clockwise** to "DECREASE" it). This setting can be adjusted as the cut progresses.
- 4. The operator can adjust band speed, feed rate and coolant volume rates as necessary during the sawing process.

After a Cut is Completed

 The machine will shut off with the saw head down following the completion of a cut. The operator should then: (a) Remove the cut-off piece; (b) Turn the Head control selector switch to "HOLD"; (c) Grasp the band tension handwheel and lift the saw head until it clears the stock; (d) Prepare for another cut or clean the machine if it is to remain idle for any period of time.



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 and coolant application settings for successful jobs.

FULL CYCLE SAWING OPERATION



See the "ACCESSORIES" chapter under the "Full Cycle Option" heading for explanation of controls and procedures before proceeding with these instructions.

Manual Operation

- Start the machine in the following conditions:

 (a) Band drive motor is "OFF";
 (b) Manual/Auto selector switch at "MANUAL";
 (c) Saw Head Control selector switch at "HOLD".
- With no stock between the vise jaws, proceed as follows: (a) Move the Saw Head Control selector switch to "DOWN/AUTO" and allow the saw head to lower completely; (b) Move the work height stop pin (located on top of the sawing head next to the band drive motor) to the desired work height position; (c) Raise the saw head completely by moving the Saw Head Control selector switch to "UP". The saw head will raise until it reaches the stop.

FULL CYCLE SAWING OPERATION (Continued....)



If the saw head does not move when the Saw Head Control selector switch is moved from "HOLD" to "DOWN/AUTO", move the selector switch from "HOLD" to "UP" and then to "DOWN/AUTO".

- 3. Place the stock in desired cutting position and clamp it between the vise jaws. Push the **Band/Cycle Start** pushbutton.
- 4. Move the Saw Head Control selector switch to "DOWN/AUTO" to start the saw head's downward motion. Adjust the Feed Rate knob as necessary as the saw head starts downward to make the cut. Move the selector to "HOLD" whenever you wish to stop saw head movement.

Full Cycle (Automatic) Operation

- 1. Use the above *"Manual Operation"* instructions to position and clamp the stock.
- Place the Saw Head Control selector switch at "HOLD" and move the Operation selector switch to "AUTO".
- Push the Band/Cycle Start pushbutton. Next:

 (a) Move the Saw Head Control selector switch to "DOWN/AUTO";
 (b) Adjust the Feed Rate knob as necessary as the saw head starts downward to make the cut.
- 4. After the saw head has completed the cut, the band drive motor will shut off and the saw head will raise to the position determined by the stop pin.



During automatic operation, the cut may be interrupted if necessary by moving the Saw Head Control selector switch to the "HOLD" or "UP" setting.

- 5. The operator can now remove the cut-off piece and position the stock for another cut.
- 6. After clamping the stock between the vise jaws, push the **Band/Cycle Start** pushbutton. The next cut will now be made. This procedure may be followed as many times as needed.

LUBRICATION

LUBRICATION CHART

LUBRICATION POINT NO.	LOCATION DESCRIPTION and SERVICE RECOMMENDATIONS	LUBRICATION INTERVAL*	RECOMMENDED LUBRICANT	
1	Band Tension Screw. Clean and apply grease.	MONTHLY	Premium quality, multi-purpose lithium- base. EP (extreme pressure) grease.	
2	Vise Clamp Screw. Clean and apply grease.	MONTHLY	NLGI No. 2.	
3	Drive Motor Slide. Clean and apply grease.	3 MONTHS	Union 76, UNOBA EP 2, or equivalent.	
4	Head Feed Cylinder. 1 pint (0.47 liter) capacity. Check oil level if head fall rate is not uniform. Add oil if necessary.	CHECK 6 MONTHS/ CHANGE YEARLY	Multi-purpose automatic transmission fluid. General Motors Dexron III, or equivalent.	
5	Saw Guide Arm Slide. Clean and apply oil.	MONTHLY	High guality, rust and oxidation-inhibited,	
6	Head Pivot Shaft Bearing Surfaces. Apply oil.	MONTHLY	medium hydraulic and general purpose industrial oil.	
7	Micellaneous: Vise Slide, Hinges, Pivot Points, etc. Clean and apply oil.	3 MONTHS	ISO-VG Grade 68 (Formerly ASTM Grade No. 315).	
8	Head Swivel Shaft Bearing Surfaces. Apply oil.	. MONTHLY	Union 76, UNAX RX 68, or equivalent.	
9	Electric Motor. Drive.	Lubricate (if any) per manufacturer's recommendations.		
10	Coolant Reservoir. Nine (9) gallon (34.1 liter) capacity. Drain, clean and refill as necessary.		Premium quality, saw band coolant and lubricant.	
10		AS REQUIRED	DoALL cutting fluids and/or oils (Kool ALL concentrate).	
11	Band Mist Lubricator (Optional). Sixteen (16) ounces (0.95 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).	

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



MAINTENANCE

SAW GUIDE INSERT REPLACEMENT

- 1. The saw band should be removed to replace the saw guide inserts. See the **"OPERATION"** section for saw band removal procedures.
- Remove the adjusting screw holding the spring washer housing and movable insert. Then: (a) Insert a screwdriver through the adjusting screw hole until it disengages the fixed insert screw slot; (b) Remove the fixed insert; (c) Remove the shoulder screw located above the adjusting screw on the saw guide arm; (d) Remove the two (2) ball bearings from their seat.



Saw Guide Detail.

- 3. Thoroughly clean the saw guide body and insert areas.
- Inspect the roller bearing's two (2) useable wear surfaces. If the surface last used is worn: (a) Reinsert the bearing into the saw guide with the unworn surface exposed to the back of the saw band; (b) Reinstall the two (2) ball bearings; (c) Reinsert the shoulder screw.
- 5. Install new fixed and movable inserts if worn.
- 6. To reassmble: (a) Install the fixed and movable inserts, plus spring washer housing; (b) Tighten the adjusting screw until its tight (do not over tighten);
 (c) Place the saw band between the inserts and follow the saw band installation procedures covered in the "OPERATION" section; (d) Turn each adjustment screw back counterclockwise 1/4 to 1/2 turn.

DRIVE BELT REMOVAL OR REPLACEMENT

- To install or remove the band drive belt, turn the disconnect switch to "OFF". Then: (a) Turn the band speed handwheel clockwise as far as possible; (b) Take off the drive cover by removing the screws holding it to the cover's back-up plate.
- Slip the old drive belt from around the driven pulley, then from around the variable speed pulley. Next:

 (a) Carefully place a new drive belt into the drive pulley groove;
 (b) Pull the belt around and into the variable speed pulley groove.
- Check the new belt's tracking in the pulley grooves by turning the band speed handwheel slowly counterclockwise. If tracking is correct, replace the drive cover.

BAND TENSION ADJUSTMENT

- 1. Tension adjustment of the saw band will be necessary from time to time. Adjustment is made by turning the upper handwheel extending from the machine's left side.
- Correct band tension will stress a high-speed steel saw band to 30,000 psi (2100 kg/cm²). This is comparable to a DoALL Tensigage reading of 27,000 to 30,000 psi (1900 to 2100 kg/cm²). Refer also to the band tensioning portion of the "Operation" section of this manual.



Using a DoALL Tensigage to Measure Band Tension.

COOLANT SYSTEM

1. Check the coolant often for signs of contamination or breakdown. Drain the entire system and clean it thoroughly when coolant becomes unsuitable for further use.

- 2. Empty the reservoir periodically and clean the coolant screens.
- 3. Flush the entire coolant system with DoALL's "Kleen Flush" when changing types of coolant used.

CHIP REMOVAL

Band Brush

- 1. The band chip brush should be positioned so that its bristles remove all metal chips from the blade tooth gullets, but do not touch the bottom of the gullets. Replace the brush if its bristles become too worn for proper blade cleaning. **DoALL replacement chip brushes are recommended.**
- To replace the brush or adjust it to a new position:
 (a) Loosen the bracket screws; (b) Replace the brush or move the unit toward the saw band; (c) Tighten the bracket.





Reservoir Chip Collection Tray

- 1. Most metal chips removed from the saw band and from the stock drop onto the base pan and into the reservoir collection tray at the machine's lower right side.
- 2. Remove this tray often to dispose of collected chips. Clean the coolant screens before reinserting the tray.

Machine Cleaning

1. During the sawing process, metal chips will accumulate below the band brush. These accumulations can affect machine performance and accuracy and should be removed as often as possible. **DoALL recommends removing chips at least twice per each eight (8) hour shift; more often with heavier use.**

- 2. A small shovel or rake can be used to remove chip accumulations and other materials from the machine's operating areas.
- Use the optional Flushing Hose to remove accumulated chips or other materials from the machine's operating areas.



Be sure the band drive motor and the saw band are STOPPED completely before cleaning the machine.

REPLACING VISE BED WEAR PLATES

- 1. The machine's vise bed is covered by two (2) steel plates. These must be replaced before their mounting screw heads become worn and damaged (making removal difficult).
- 2. The movable vise jaw assembly must be removed before the vise bed wear plates can be replaced.

BANDWHEELS

- 1. Remove the bandwheels every six (6) months to clean them and the surrounding machine areas.
- 2. Occasionally check each bandwheel's back-up flange and wheel tread for wear. Saw bands will not track properly if the wheel tread's taper is worn.



Bandwheel Flange and Tread.

HEAD FEED CYLINDER

- 1. Oil replenishment and/or air bleeding may be necessary over a period of time (such as replacement of the cylinder). This can be accomplished without removing the cylinder from the machine. Follow these procedures:
- Raise the saw head enough to remove the pipe plug from the cylinder's top end cap. Then: (a) Return the saw head to the down position; (b) Slowly pour hydraulic oil (see the Lubrication Chart for recommended oils) into the open port until overflow occurs; (c) Replace the pipe plug and turn the Feed Rate knob counterclockwise to the maximum.

HEAD FEED CYLINDER (Continued....)

- Raise and lower the saw head to its maximum limits several times. Then: (a) Once more remove the pipe plug; (b) Slowly pour hydraulic oil into the open port until overflow occurs (this should be done with the piston rod fully retracted); (c) Repeat this process several times, if necessary, to purge excess air from the cylinder.
- With the **Feed Rate** valve shut off, the piston should not sag more than 1/4 inch (6.3 mm) when the handwheel is released after full saw head raise and full extension of the head feed cylinder piston rod (measure the sag or piston rod retraction at the piston rod).

COUNTERBALANCE SPRING

- 1. After a period of time, the saw head may not cut through the stock or cuts too far into the receiving tray. To adjust, follow these procedures:
- There is no need to remove the counterbalance spring from the machine. (a) Loosen the threaded collar from the lower hex nut; (b) Adjust the lower hex nut up or down until the saw band teeth are approximately 0.06 inch (1.6 mm) below the work surface; (c) Turn the threaded collar down tightly on top of the hex nut and secure it.



Counterbalance Spring.



Be sure the saw head falls only enough to cut completely through the work. TOO LITTLE head fall will result in an incomplete cut through the workpiece.

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.

BAND 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/pneumatic schematics may be helpful.

MACHINE WON'T START

- 1. Check that the disconnect switch is in the "ON" position.
- 2. Make sure both bandwheel doors are closed.
- 3. The **Band/Cycle Stop** pushbutton needs to be reset (rotate the button head **clockwise**).
- 4. Circuit breakers or motor starter protectors have tripped. Wait several minutes for them to cool, then reset.
- 5. Check for broken belts and/or mechanical jamming.
- 6. Raise the saw head off the head down limit switch (1 LS).
- 7. Check for a burned out band drive motor.
- 8. Check the incoming leads, wiring, and control circuit breaker for possible malfuction.

SAW BAND RUNS IN WRONG DIRECTION

1. Switch the incoming electrical starter lines.

MACHINE STARTS, BUT WON'T CONTINUE RUNNING

1. Check for defective band drive motor contactor in the electrical control box.

INACCURATE CUT-OFF

- 1. Saw band teeth are dull or worn.
- 2. The chip brush needs adjustment or replacement.
- 3. Increase the band speed or decrease the feed rate.
- 4. Check for dirty coolant. Replace if necessary.

- 5. Coolant is not being supplied evenly to both sides of the saw band.
- 6. Stock is crooked. This usually results in straight, but not square cuts.
- Decrease the distance between the saw guide arms. Move the left arm as close as possible to the stock being cut.
- 8. Check for incorrect blade pitch being used.
- 9. Band tension is incorrect.
- 10. Check for incorrectly adjusted saw guide inserts and back-up bearing.
- 11. Check for machine misalignment (have a DoALL service representative check and/or adjust machine alignment.
- 12. Tighten the head swivel lock.
- 13. Make sure the optional workstop is set at desired scale setting.

VERTICAL CUT INACCURACY (Cut pieces are thicker at the top or bottom)

- 1. Check for loose or worn saw guide inserts. Tighten the inserts if loose, replace inserts if worn.
- 2. Reduce the feed rate being used.
- 3. Check for crooked stockand/or incorrect stock positioning between the vise jaws.
- 4. Move the left saw guide arm closer to the stock.
- 5. Check for incorrect band tension adjustment.
- 6. Check for a worn saw band.
- 7. Check for saw head vertical misalignment . Have a DoALL service representative check and/or adjust saw head alignment.

HORIZONTAL CUT INACCURACY (Cut pieces are thicker on one side)

- 1. Check for loose or worn saw guide inserts. Tighten the inserts if loose, replace inserts if worn.
- 2. Check for crooked stockand/or incorrect stock positioning between the vise jaws.

TROUBLE SHOOTING (Continued....)

3. Check for machine misalignment . Have a DoALL service representative check and/or adjust machine alignment.

BAND TEETH STRIPPING

- 1. Increase the band speed or decrease the feed rate.
- 2. Check for chip welding, or for a chipped blade tooth lodged in the cut.
- 3. Check for faulty stock: heavy scale, inclusions, hard spots, etc.
- 4. Band brush needs adjustment or replacement.
- 5. Blade pitch is too course if a thin stock section is being cut.
- 6. Check for vibration caused by stock not being held firmly between the vise jaws.
- 7. Check for worn saw guide inserts and/or back-up bearing.
- 8. Coolant is not adequately covering both sides of the saw band.
- 9. Check for incorrect band tension.
- 10. Check for an improperly adjusted saw head counterbalance spring.

PREMATURE SAW BAND BREAKAGE

- 1. Check for a poor weld in the saw band, or for incorrect band tension.
- 2. Saw band is being dropped into the stock. Make an adjustment with the **Feed Rate** Control.
- 3. Increase the band speed and/or decrease the feed rate.
- 4. Stock is not being held firmly between the vise jaws.
- 5. Check for improper adjustment of the saw guide inserts and back-up bearing.
- 6. Install a finer pitch saw band.
- 7. Increase the coolant volume being supplied.

BAND TOOTH GULLETS LOADING

- 1. Use a courser pitch saw band.
- 2. Increase the band speed or decrease the feed rate.
- 3. Band brush needs adjustment or replacement.
- 4. Check for incorrect coolant application.
- 5. Check for incorrect band tension adjustment.

PREMATURE BAND TEETH DULLING

- 1. Band speed and/or feed rate is too high.
- 2. Check for faulty stock: heavy scale, inclusions, hard spots, etc.
- 3. Stock analysis is incorrect. This can result in the wrong initial cutting recommendations.
- 4. Check for coolant not covering the saw band completely.
- 5. Check for saw band vibration or chip welding.
- 6. Check for a chipped blade tooth lodged in the cut.
- 7. Incorrect saw band is being used.
- 8. Check for incorrect band tension adjustment.
- 9. Incorrect coolant is being used, or the mixture is too weak.
- 10. Decrease the feed rate during the first few cuts to break-in the saw band if new.

SAW BAND STALLS DURING A CUT

- 1. Decrease the feed rate or increase the band speed.
- 2. Check for incorrect band tension adjustment.
- 3. Use a finer pitch blade -- at least three (3) teeth should be in the stock at all times.
- 4. Check for a worn or slipping drive motor belt.

SAW BAND VIBRATION (While Sawing)

- 1. Check for incorrect blade pitch choice.
- 2. Band speed being used is incorrect.
- 3. Check for a loose left saw guide arm.
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TROUBLE SHOOTING (Continued....)

- 4. Coolant choice is incorrect, or the mixture is too weak.
- 5. Make a feed rate adjustment.
- 6. Stock is not held firmly between the vise jaws.
- 7. Check for worn or improperly adjusted saw guide inserts.
- 8. Check for a worn saw guide back-up bearing.
- 9. Check for a dull or damaged saw band.
- 10. Check for incorrect band tension adjustment.

SAW BAND NOT RUNNING TRUE AGAINST SAW GUIDE BACK-UP BEARINGS (Vibration may result)

- Check for chipped or worn back-up bearings. Replace if chipped or worn more than 0.020-inch (0.5 mm).
- 2. Check for loose saw guide arms, or arms are not located close enough to the stock.
- 3. Check machine alignment (Call a DoALL service representative).

HIGH FREQUENCY SQUEAL DEVELOPS WHILE SAWING

- 1. Increase the feed rate (rate being used is not compatible with th size or type of material being cut).
- 2. Increase the coolant volume.
- 3. Use a courser pitch saw band.
- 4. Reduce or vary the band speed.
- 5. Check the band tension setting.

CUT-OFF PIECE SURFACE FINISH IS TOO ROUGH

- 1. Check for machine or saw band vibration.
- 2. Check for a dull or damaged saw band.
- 3. Use a finer pitch saw blade.
- 4. Check for worn saw guide back-up bearings. Replace if necessary.

- 5. Band tension setting is incorrect.
- 6. Increase the band speed or decrease the feed rate.
- 7. Check for incorrect coolant type being used.

CUTTING RATE IS TOO SLOW

- 1. Use a courser pitch saw blade.
- 2. Increase the band speed or feed rate.

NO COOLANT FLOW

- 1. Check for low coolant level in the reservoir.
- 2. Remove the coolant volume control valve and hose. Then use an air hose to clean out both units.
- 3. Clean the coolant pump intake screen.
- 4. Check for coolant pump failure.
- 5. Check for a faulty coolant pump circuit breaker.

SAW HEAD WILL NOT RAISE, OR RAISES SLOWLY

- 1. Check for mechanical obstructions.
- Check for low air system pressure. Pressure should be between 85 - 90 psi (5.8 - 6.2 bar or 6.0 - 6.3 kg/cm²).

SAW HEAD WON'T LOWER

- 1. The feed rate is too low.
- 2. Check for saw head obstructions.

SAW HEAD LOWERS ERRATICALLY

- 1. Check for mechanical obstruction or binding.
- 2. Check for worn or damaged head feed cylinder or head feed valve.
- 3. Check for air in the head feed cylinder.

SAW HEAD DROPS SLOWLY WHEN MACHINE IS SHUT OFF

- 1. Check for a worn head feed cylinder.
- 2. Check for faulty head feed control valve leakage.

INCOMPLETE CUT

- 1. Clear away build-up of chips or other debris on the vise bed (check also for build-up below the saw guides).
- 2. Check the counterbalance spring adjustment.

ACCESSORIES

ROLLER STOCK CONVEYORS

- 1. Your machine may be equipped with one of the following roller stock conveyors for moving long stock into cutting position (or as a staging table).
- The following conveyors are available: Five (5) feet or ten (10) (1524.0 mm or 3048.0 mm) long by 20 inches (508.0 mm) wide with a weight capacity of 750 pounds (340.2 kg) per roller.



Roller Stock Conveyor.

- 2. To install a stock conveyor: (a) Position conveyor behind the machine base; (b) Adjust the conveyor to the machine with the leveling screws on the conveyor legs. The forward conveyor roller should be inline to 0.010-inch (0.25 mm) above the vise bed wear plate. The remaining rollers should be within 0.010 inch (0.25 mm) per 24 inches (609.6 mm) of travel.
- 3. To add or remove a roller, depress the shaft of the roller for ease of installation or removal.



Anchor the conveyor to the floor after all leveling and adjustments are made.

VERTICAL GUIDE ROLLERS

- 1. Vertical guide rollers are effectively used to help maintain correct positioning of long stock on the conveyor.
- 2. These can be installed either on the front or rear of a conveyor or between conveyors (if more than one is supplied).



Vertical Guide Roller.

PNEUMATIC HEAD LIFT

1. This option includes an air cylinder with all of the necessary mounting hardware and controls. The cylinder mounts on machine base and head beam.



Pneumatic Head Lift Option.

2. Plant air supply is connected to the air filter under the base pan on the right side of the machine. Plant air supply should be 80 to 90 psi (5.6 to 6.3 kg/cm²) to operate this option.



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

- When this option is supplied, a pushbutton control appears on the hydraulic/pneumatic control panel. Push the **Head Up** button to raise the saw head after completion of a cut.
- A flow control valve located on the bottom port of the air cylinder regulates the saw head up speed. Turn the adjusting screw counterclockwise to "INCREASE" the head up speed, clockwise to "DECREASE" it.
- An approximate saw head raise time of one (1) to two (2) seconds is desirable (with a gentle cushioned effect at maximum head up position).



Individual machines may require slightly different adjustment to obtain the desired cushioned effect.

- To adjust the speed at which the saw head raises:
 (a) Turn the adjusting screw on the flow control valve of the air cylinder clockwise to close the valve completely, then give it one (1) counterclockwise turn; (b) With incoming pressure at 85 psi (6.0 kg/cm²), push the Head Up button on the control panel; (c) If the saw head raises too slowly, give the adjusting screw counterclockwise turns in 1/4 turn increments.
- 7. Raise the saw head after each 1/4 turn until the desired head raise time and cushioned effect is achieved.



The flow control valve must not be adjusted so far counterclockwise that the cushioned effect at the maximum head up position is eliminated.

8. If this option is not factory installed, follow the above adjustment procedures when raising the saw head for the first time.

PNEUMATIC VISE

1. This option includes an air cylinder with all of the necessary mounting hardware and controls. The cylinder mounts to the vise base weldment and connected to the vise rack.



Pneumatic Vise Option.

2. Plant air supply is connected to the air filter under the base pan on the right side of the machine. Plant air supply should be 80 to 90 psi (5.6 to 6.3 kg/cm²) to operate this option.



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

- 3. When this option is supplied, a pushbutton control appears on the hydraulic/pneumatic control panel and air regulator mounted on the base pan to the right of the electrical control box.
- 4. **Vise.** This pushbutton operator is operated by pulling the button head **out** to "OPEN" the movable vise jaw. Push the button head **in** to "CLAMP" the vise.
- Air Regulator (Variable Vise Pressure). Use this control to regulate vise clamping force against materials which cannot tolerate full vise clamping pressure such as thin-walled tubing, pipe, light structurals, etc. To operate: (a) Pull the knob up; (b) Turn the knob clockwise to "INCREASE" vise pressure, counterclockwise to "DECREASE" it; (c) Make sure the knob is down when adjustments are finished.

FULL CYCLE OPTION

- 1. This option allows the operator to select between manual and automatic operations of a cutting cycle. This option includes the **Pneumatic Head Lift** and **Pneumatic Vise** options described previously.
- 2. Plant air supply is connected to the air filter under the base pan on the right side 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 (6.3 kg/cm²) air pressure.

FULL CYCLE OPTION (Continued....)

3. When this option is supplied, two selector switches appears on the electrical control panel and a pushbutton control on the hydraulic/pneumatic control panel.

Electrical Control Panel

- Saw Head Control. This selector switch has "UP", "HOLD" and "DOWN/AUTO" settings. Move the selector switch to "UP" to raise the saw head; "HOLD" to stops the saw head at any position. The "DOWN/AUTO" setting is used to lower the saw head and to allow operation in the automatic full cycle mode.
- Operation. This selector switch allows the operator to choose between "MANUAL" or "AUTO" machine operation. Turn the selector to "MANUAL" for normal operation; "AUTO" for automatic operation of the full cycle.
- 3. See the **"OPERATION"** chapter under the "Full Cycle Sawing Operation" heading for step by step procedures for cutting in the **Full Cyle** mode.

BAND MIST LUBRICATOR

- 1. See the instructions sent with the unit for information on operation and adjustments.
- 2. Plant air supply is connected to the air filter under the base pan on the right side of the machine. Plant air supply should be 80 to 90 psi (5.6 to 6.3 kg/cm²) to operate this option.

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

FLUSHING HOSE

1. The flushing hose attaches to the coolant pump and delivers cutting fluid through a hand nozzle. It is used primarily for machine cleaning purposes.

LARGE DISCHARGE TRAY

- 1. This 24 inch (609.4 mm) long tray attaches to the outboard side of the saw band and is used as a helpful work area to catch cut parts, to inspect or clean parts and return coolant to the base pan.
- 2. This discharge tray replace can the standard 17.00 by 5.00 inch (431.8 mm by 127.0 mm) discharge tray.

WORKSTOP

1. This option, used with the optional large discharge tray only, proves helpful when several cuts of the same identical length are required. The workstop attaches to the edge of the discharge tray. A scale is mounted to the tray to adjust for lengths from 0 to 18 inches (0 to 455 mm).



Workstop.

- 2. The workstop slides along the edge of the discharge tray, then is secured at the desired length indicated by a locking knob. The distance is indicated by a scale with an attached pointer. The slide bar also pivots so the stop bar can be positioned to contact the stock at various heights. When not in use, the stop bar can be positioned so it does not interfere with stock movement, or can easily removed from the tray.
- To position stock with the workstop for a cut: (a) Move the workstop along the discharge tray edge until the distance between the lowered saw band and lowered stop bar is indicated on the scale; (b) Tighten the locking knob to secure the stop bar; (c) Move the stock to be cut through the opened vise jaws until the stock contacts the lowered stop bar; (d) Clamp the vise jaws; (e) Proceed with the cutting operations.

WORKLIGHT

1. The worklight illuminates the cutting area for better visibility and safety. It has its own "ON-OFF" switch mounted on the light.

3. This option will accept the optional workstop.

LASER LINE GENERATOR



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

- 1. A laser devise 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 devise is controlled by a selector switch with "ON" and "OFF" settings and is located on the control panel. Turn the laser to "OFF" when not in use.
- 3. The laser 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 takes 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 devise before operation.