



# INSTRUCTION MANUAL

**MODEL: 2012-2A**

**SERIAL NO: 389-77101 to 389-86419**

**BAND SAWING MACHINE**

# DAMAGE CLAIM PROCEDURE

## VISIBLE DAMAGE AT 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 the carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your file. 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 cosignee's plant.
  - b. Inspect machines 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 the carrier "damage inspection" report is complete.
4. If possible, take photographs of the damage and keep them for your file. 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

## MANUALLY-CONTROLLED BAND MACHINE

MACHINE MODEL <input style="width: 90%;" type="text"/>		SAW BAND LENGTH <input style="width: 90%;" type="text"/>	
MACHINE SERIAL NO. <input style="width: 90%;" type="text"/>		FILE BAND LENGTH <input style="width: 90%;" type="text"/>	
<b>TOTAL MACHINE ELECTRICAL POWER INPUT DATA</b>			
VOLTAGE <input style="width: 90%;" type="text"/>	PHASE <input style="width: 90%;" type="text"/>	HERTZ <input style="width: 90%;" type="text"/>	NORM. AMPS <input style="width: 90%;" type="text"/>
LARGEST CONTROLLED MOTOR F.L.A. <input style="width: 90%;" type="text"/>		INT. RATE AMPS RMS SYM. A.C. <input style="width: 90%;" type="text"/>	
OVERCURRENT PROTECTION PROVIDED AT MACHINE SUPPLY TERMINAL			
<b>BELT NUMBERS</b>			
MOTOR-TRANSMISSION <input style="width: 90%;" type="text"/>			
AIR PUMP-COMPRESSOR <input style="width: 90%;" type="text"/>		HYDRAULIC PUMP <input style="width: 90%;" type="text"/>	
ELECTRICAL SCHEMATIC NUMBER <input style="width: 90%;" type="text"/>		HYDRAULIC SCHEMATIC NUMBER <input style="width: 90%;" type="text"/>	
ADJUSTMENT SUMMARY NUMBERS			
<input style="width: 90%;" type="text"/>		<input style="width: 90%;" type="text"/>	
SEE INSTRUCTION MANUAL FOR MACHINE OPERATION AND LUBRICATION DATA			

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

The 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.**

**The following registered trademarks of the DoALL Company are used in this manual: DoALL, Imperial Bi-Metal.**



**DoALL COMPANY**  
254 NORTH LAUREL AVENUE  
DES PLAINES, ILLINOIS 60016 U.S.A.

# TABLE OF CONTENTS

<b>MACHINE DIMENSIONS</b> .....	1
---------------------------------	---

<b>MACHINE FEATURES</b> .....	2-3
-------------------------------	-----

## INSTALLATION

Location .....	4
OSHA Notice .....	4
Uncrating .....	4
Cleaning .....	4
Lifting .....	4
Alignment .....	4-5
Electrical Installation .....	5
Preparation For Use .....	5

## OPERATION

Safety Precautions .....	6
Using The Job Selector .....	6
Electrical Controls .....	7
Band Speed Controls .....	7
Saw Band Selection .....	7
Insert-Type Saw Guide Adjustment .....	7
Band Installation .....	8
Band Removal .....	8
Band Tensioning .....	8
Band Tracking .....	8
Post Adjustment .....	8-9
Air-Powered Work Table .....	9
Chip Brush & Chip Removal .....	10
Welding Saw Bands .....	10
Mist Coolant Applicator .....	10
Oil Mist Lubricator .....	10-11

## LUBRICATION

Lubrication Diagram .....	12
Lubrication Chart .....	13

## MAINTENANCE

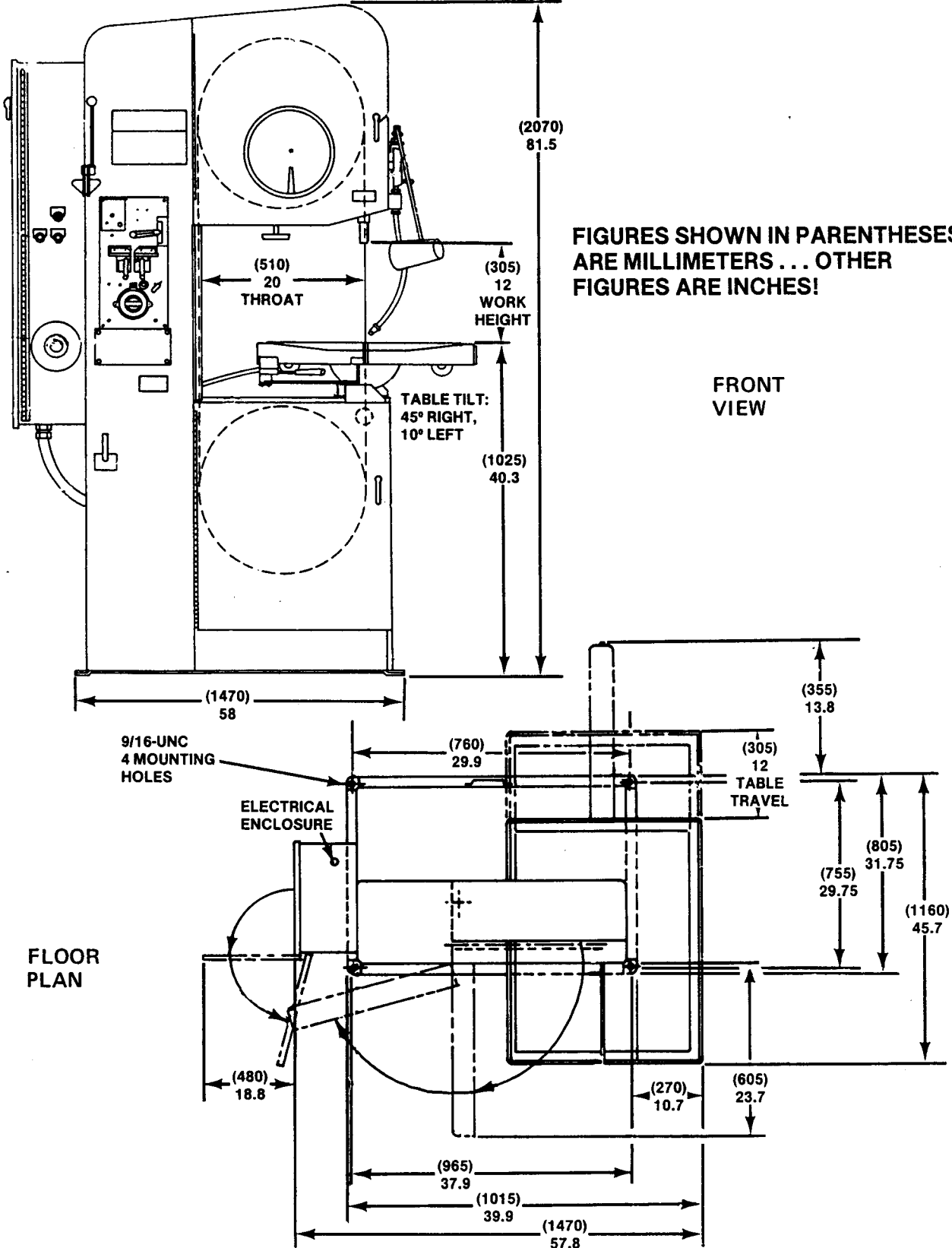
Head Assembly .....	14
Chip Brush & Chip Removal .....	14
Machine Cleaning .....	14
Drive Belts .....	14
Electric Motors .....	14
Transmission .....	15
Mist Coolant Applicator .....	15
Insert-Type Saw Guides .....	15
Replacing Crowned Wheel Tires .....	15
Band Wheels with Replaceable Flange Segments .....	15
Replacing Flanged Wheel Tires .....	16

<b>TROUBLE SHOOTING</b> .....	17-18
-------------------------------	-------

## ACCESSORIES

Contour Sawing Procedures .....	19-20
Disk Cutting .....	20
Universal Vise .....	20
Universal Calibrated Work Fixture .....	21
Adjustable Workholding Jaw .....	21
Protractor Workstop & Aligning Gage ...	21
Table Extension Bars .....	22
Ball Transfer Strips .....	22
Heavy Work Clamps .....	22
Heavy Work Slides .....	22
Work Light & Magnifier .....	23
Spark Guard .....	23
Extra Work Height .....	23
Wheel Brakes .....	23
Dust Spout .....	23
Etching Pencil .....	23
Supply Cabinet .....	23
90° Band Guide Brackets .....	24
File Guides .....	24
Band Filing .....	24-25
Band Polishing .....	26
Accessory Saw Guide Block Selection .	26-27

# MACHINE DIMENSIONS



FIGURES SHOWN IN PARENTHESES ARE MILLIMETERS ... OTHER FIGURES ARE INCHES!

FIGS. 1 & 2. MACHINE DIMENSIONS - FRONT VIEW & FLOOR PLAN.

# MACHINE FEATURES

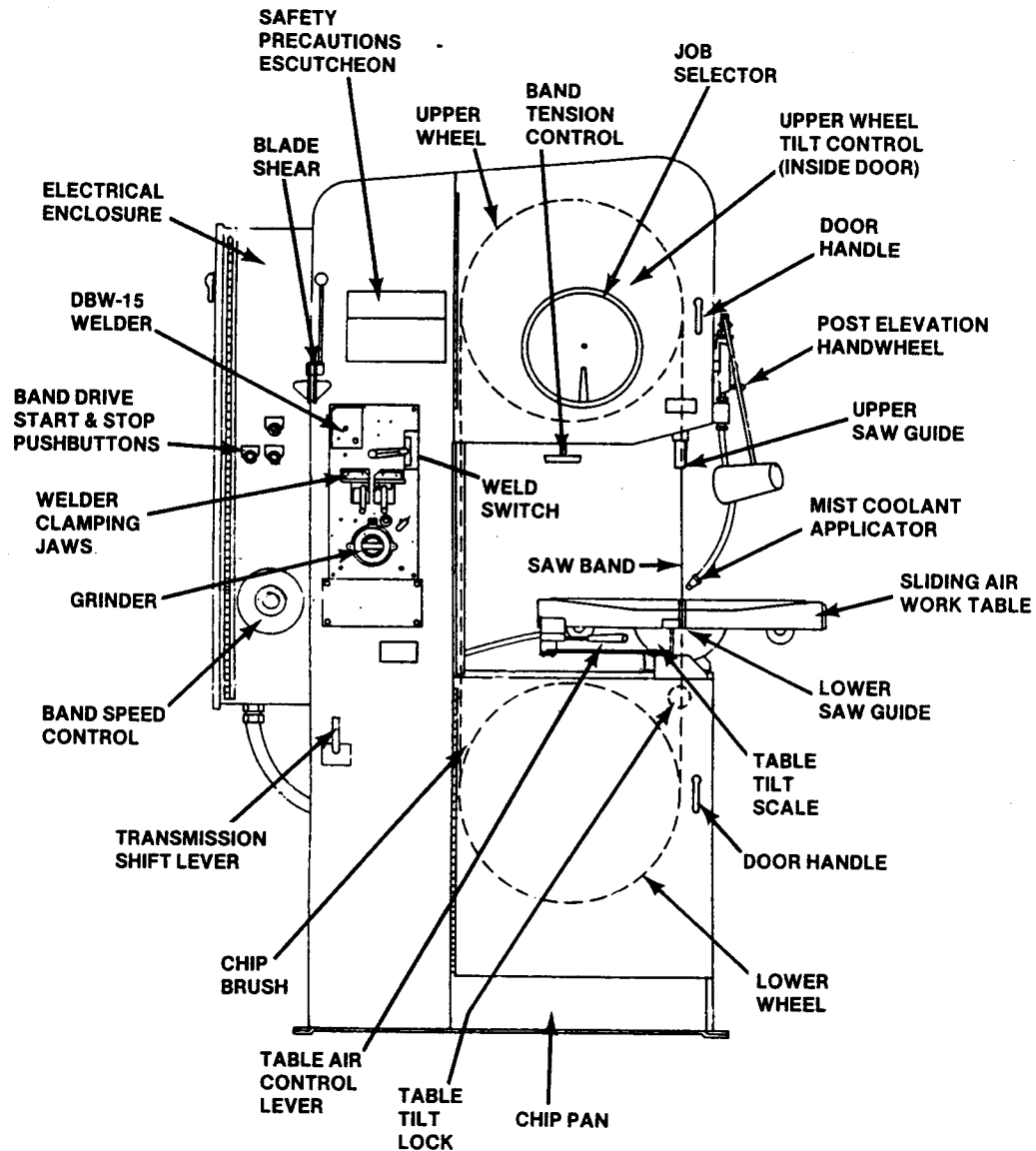
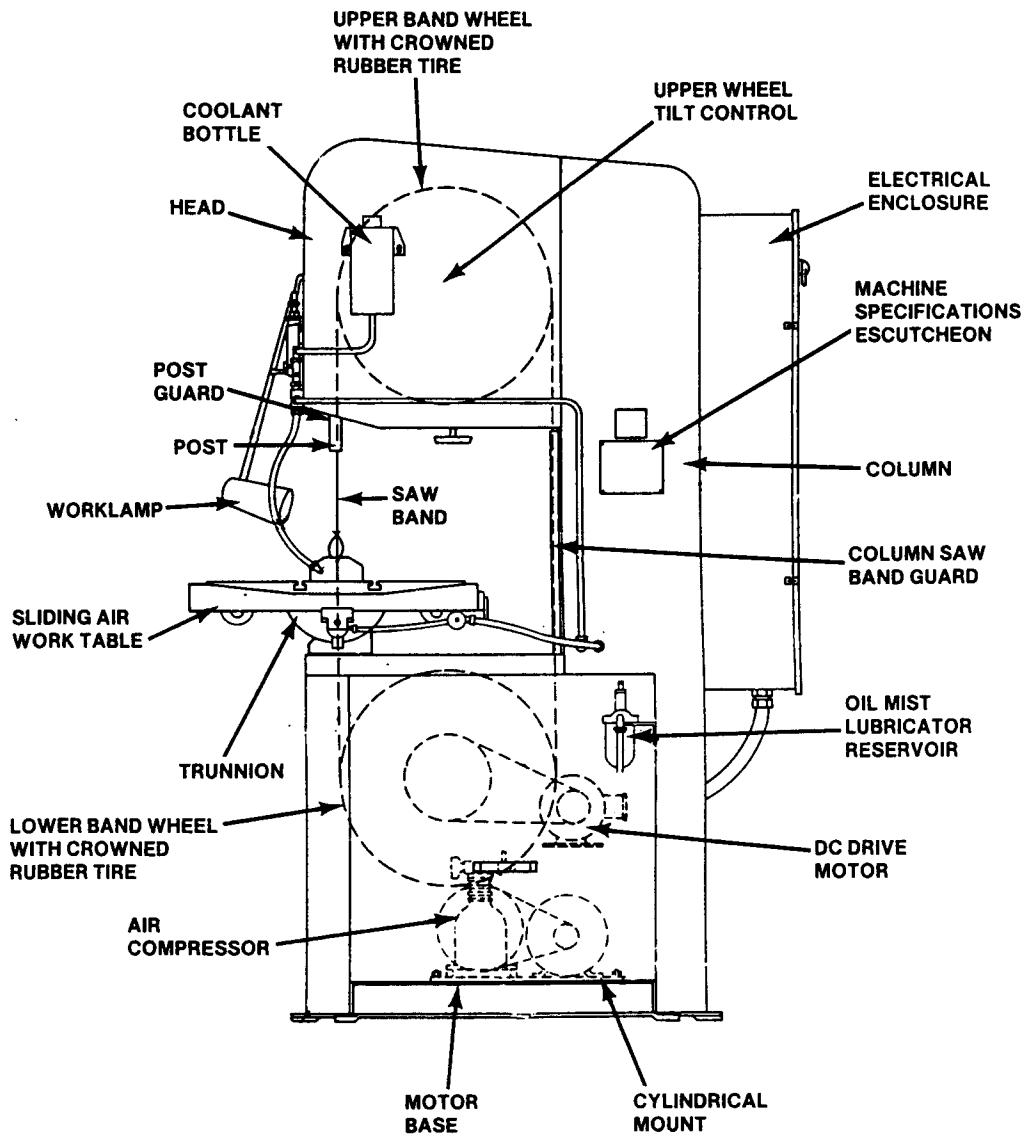


FIG. 3. MACHINE FEATURES - FRONT VIEW.

*MACHINE FEATURES (Continued)*



**NOTE:** Air compressor shown in this illustration is obsolete beginning with machine serial no. 389-84389. Replaced with unit requiring no lubrication.

FIG. 4. MACHINE FEATURES – REAR VIEW.

# INSTALLATION

## LOCATION

Locate machine to provide adequate space for your cutting needs. You will want to provide sufficient clearance around the machine for maintenance and lubrication procedures, plus machine accessory operations.

Required machine base floor area is 55 inches (1395 mm) by 58 inches (1470 mm). Maximum machine height is 81-1/2 inches (2070 mm). See Figs. 1 & 2 on page 1 for further dimensions.

## OSHA NOTICE

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

## UNCRATING

Carefully remove all protective coverings, strappings, hold-down brackets, and skid. Check inside rear drive housing cover for other removeable brackets, extra machine parts, or supplies placed there for shipment.

## CLEANING

Use solvent to remove rust-preventive coating applied to all exposed bare metal surfaces before shipment. Inspect machine for broken or damaged parts. See inside front cover of this manual for damage claim procedures.

## LIFTING

There is a tapped hole in the machine head's top surface. Screw a forged 3/4-10 UNC eye-bolt into this hole for lifting machine into position, or if later moving it to a different location. Lifting by overhead hoist is recommended. Machine net weight is 1600 pounds (720 kg).

## ALIGNMENT

Machine must be properly aligned before being bolted into position. To do this:

- (1) Release band tension. Remove trunnion guard, post saw guard, table center disk. Remove saw band from around each wheel; then remove upper and lower saw guides. See "Band Removal" section, if necessary.

**CAUTION: Always wear gloves when handling saw bands.**

- (2) Remove band's protective plastic cap and re-install it over each wheel. Tension to maximum indicator reading. Refer to "Band Tensioning" section, if necessary.
- (3) Shim between base mounting pads and floor until machine is level, with weight resting evenly on all pads. Check by tapping with bar or hammer. See Fig. 5.

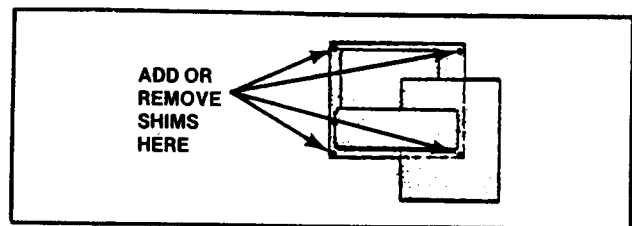


FIG. 5. SHIMMING LOCATIONS - TOP VIEW.

- (4) Post front should be parallel with lower keeper block's machined saw guide mounting recess. Check by placing a spacer block -- ground to exactly 0.250-inch (6.35 mm) thickness--in keeper block. Next, place an accurate straight edge against spacer block and post. Use a feeler gage to check clearance and parallelism to straight edge. Clearance should not be greater than 0.004-inch (0.1 mm). See Fig. 6.



## ALIGNMENT (Continued)

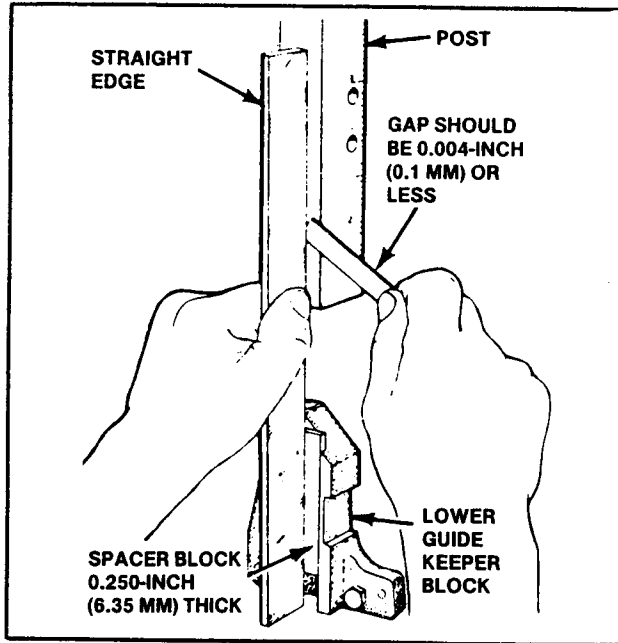


FIG. 6. ALIGN POST TO LOWER SAW GUIDE KEEPER BLOCK.

- (5) Clearance **greater** than 0.004-inch (0.1 mm) should be corrected by shimming under one or more machine base pads.
- (6) Square table to post side by loosening table tilt lock nut and adjusting. Place tilt angle pointer at "zero" on scale, if necessary. Then tighten tilt lock nut. See Fig. 7.

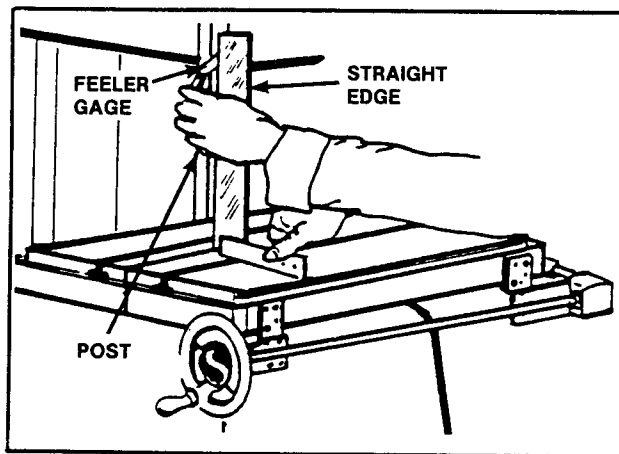


FIG. 7. SQUARING TABLE TO POST.

- (7) Install trunnion guard, post saw guard, upper and lower saw guides, saw guide inserts, and table center disk.

**CAUTION:** Bolt machine to floor for table loads exceeding 100 pounds (45 kg).

## ELECTRICAL INSTALLATION

**ELECTRICAL INSTALLATION MUST BE MADE BY AUTHORIZED ELECTRICAL MAINTENANCE PERSONNEL!**

Bring line circuit leads into column electrical enclosure. Refer to furnished electrical diagram, if necessary.

Overload protection is provided. Overload relay may kick-out if machine is started and stopped numerous times in rapid succession. Let relay cool a few minutes before starting machine.

## PREPARATION FOR USE

- (1) Transmission oil should be at elbow plug level. Capacity is 1-quart (0.95-liter). If necessary, fill with product recommended by Lubrication Chart (Fig. 21, page 13).
- (2) Fill mist coolant bottle attached to outside rear head. Capacity is 1-quart (0.95-liter). Check Lubrication Chart for recommended product.
- (3) Fill oil mist lubricator at machine rear with 1/2-pint (0.24 liter) of product recommended by Lubrication Chart.
- (4) Fill air compressor with 1/4-pint (0.12-liter) of recommended lubricant.

**NOTE:** Air compressors beginning with machine serial no. 389-84389 require no lubrication.

- (5) Check all other points listed by Lubrication Chart for proper servicing.

# OPERATION

## SAFETY PRECAUTIONS

# WARNING

**TO AVOID POTENTIAL HAZARDS, OBSERVE THESE PRECAUTIONS WHEN OPERATING OR SERVICING THIS MACHINE-OPERATOR MUST:**

- WEAR SAFETY GLASSES.
- WEAR GLOVES WHEN HANDLING SAW BAND.
- NOT WEAR GLOVES WHEN OPERATING MACHINE.
- SET SAW GUIDES AS CLOSE TO WORK AS POSSIBLE.
- CLOSE BAND WHEEL COVERS BEFORE TENSIONING BAND OR STARTING MACHINE.
- CLOSE DOORS, REPLACE ALL COVERS AND SAFETY GUARDS BEFORE OPERATING MACHINE.
- USE A FIXTURE TO FEED WORK PIECE AND KEEP HANDS AWAY FROM MOVING SAW BAND.
- AVOID CONTACT WITH COOLANT. ESPECIALLY GUARD YOUR EYES.
- STEP TO ONE SIDE AND AWAY FROM WELDING UNIT BEFORE WELDING A SAW BAND.
- INSTALL FRICTION BAND AND SPARK SHIELD BEFORE FRICTION SAWING.
- USE A DUST COLLECTOR WHEN SAWING GENERATES DUST.
- DISCONNECT ELECTRICAL SUPPLY BEFORE REMOVING PANELS OR DRIVE COVERS.

**MAKE SAFETY THE RULE AND FOLLOW SAFE SHOP PRACTICES. ALWAYS CONSULT THE OPERATOR'S MANUAL PRIOR TO SERVICING.**

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### USING THE JOB SELECTOR

- (1) Turn dial until material to be cut is directly below cover window as shown in Fig. 8.
- (2) Locate recommended pitch and blade type listed next to work thickness.
- (3) Locate correct blade width on a radius chart if a radius is to be cut. Refer to Fig. 31 on page 20. Determine band width, pitch, and tooth type. Determine gage set by referring to a saw blade specification table.
- (4) Locate recommended band speed for work thickness and blade type.
- (5) Note feed power recommended for use with work thickness.
- (6) Note recommended coolant application. Your machine has standard mist coolant application.

These recommendations can be adjusted to meet particular sawing requirements.

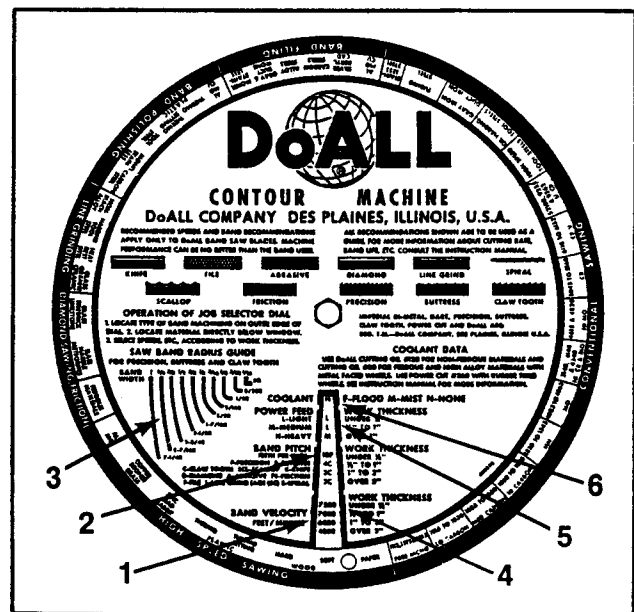


FIG. 8. JOB SELECTOR NUMBERS REFER TO STEPS AT LEFT.

## ELECTRICAL CONTROLS

Band drive motor "start" and "stop" pushbuttons are located on the electrical enclosure's front side. The panel also has a work lamp "on-off" switch.

DBW-15 Welder and Grinder controls are described in a separate instruction manual.

## BAND SPEED CONTROLS

The transmission shift lever is used to select between low and high band speed ranges. Low range covers 5-300 fpm (.19-92 m/min); high runs from 850-5200 fpm (259-1585 m/min). Use the dial to control speeds within each range.

The following band speed and shifting precautions must be observed during machine operation:

- (1) Before shifting between speed ranges: Turn band speed dial to lowest speed within its operating range. Push drive motor "stop" button (this releases solenoid interlock). Wait 10-12 seconds. Then move shift lever to speed range desired.

**NOTE:** If your machine is equipped with a band speed control that has a "Transmission Shift Point" indicated on its speed escutcheon, turn dial to that reading. Then proceed as described above.

- (2) Never attempt to force shift lever into place.

## SAW BAND SELECTION

Your machine is equipped with an Imperial Bi-Metal 100 saw band 154 inches (3910 mm) long. Band width capacity ranges from 1/16-inch (1.5 mm) to 1-inch (25 mm).

The following is also standard equipment:

- (1) One set of high-speed, insert-type saw guide blocks for bands 1/8-inch (3.2 mm) through 1/2-inch (12.5 mm) wide.
- (2) One set of steel guide inserts for bands 1/8-inch (3.2 mm) through 1/2-inch (12.5 mm) wide.

Information about all DoALL saw bands is available from a DoALL Industrial Supply Center representative.

## INSERT-TYPE SAW GUIDE ADJUSTMENT

**NOTE:** These instructions can be used to adjust upper or lower insert-type saw guides.

- (1) Select guide blocks and inserts marked for band width to be used. Place right insert in milled slot. Tighten screw lightly so insert will slide in slot, and hold its correct position when released. See Fig. 9.

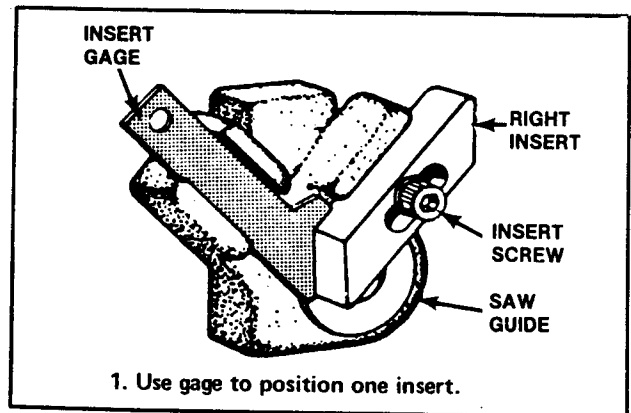


FIG. 9. POSITIONING RIGHT INSERT. UPPER GUIDE BLOCK SHOWN.

- (2) Select insert gage matching saw band. Place gage in slot. Adjust insert to fit exactly into gage notched end. Tighten insert screw.
- (3) Place left insert in slot. Tighten screw lightly. Place gage edgewise between both inserts. Lower insert until it rests against gage. Tighten screw. See Fig. 10.

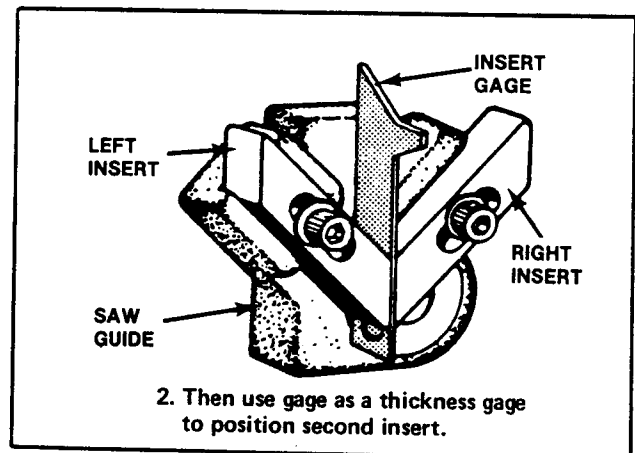


FIG. 10. POSITIONING LEFT INSERT. UPPER GUIDE BLOCK SHOWN.

**NOTE:** Insert-type guides are recommended for maximum band speeds of 1300 fpm (390 m/min) for production sawing, or up to 5000 fpm (1500 m/min) for occasional sawing. Use roller guides for continuous sawing over 1300 fpm (390 m/min).

## BAND INSTALLATION

**CAUTION:** Always wear gloves when handling saw bands.

- (1) Release band tension. Remove post band guard. Open wheel doors. Loosen saw guide inserts.
- (2) Unlock saw slot cover bar located below front table edge. Move bar away from slot. Remove new band's protective tooth guard.
- (3) Place band carefully over wheel and between saw guide inserts. Band should center on wheel's crowned rubber tires. Apply proper band tension. Tighten saw guide inserts.
- (4) Move slot bar back into position and lock. Re-install post band guard and close wheel doors.

## BAND REMOVAL

**CAUTION:** Always wear gloves when handling saw bands.

Release band tension. Open wheel doors. Remove post band guard. Loosen screws locking saw slot cover bar in place. Move bar away from slot. Loosen saw guide inserts. Carefully free band from between inserts and remove from wheels.

## BAND TENSIONING

Apply band tension by turning hand knob below saw head. A tension scale is located to right of handwheel. See Fig. 11.

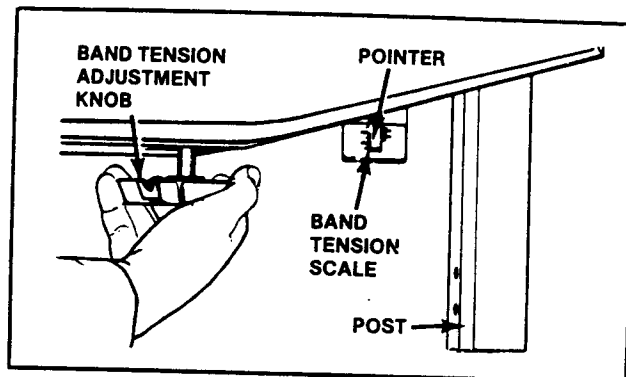


FIG. 11. ADJUSTING BAND TENSION.

Scale numbers represent recommended tensions based on most common gages and pitches used. Reduce tension when using bands with coarser pitch or lighter gage. Increase tension when using heavier bands.

## BAND TRACKING

The upper wheel can be tilted forward and backward a maximum of 3 inches (75 mm) to aid band tracking. A band tracking properly will have its center following crowned rubber tire centers. Check tracking with drive "off", and transmission in "neutral". Follow these procedures:

- (1) Open wheel doors. Rotate wheels by hand and observe how band tracks on tires. Adjust wheel tilt if band center does not track along tire centers.
- (2) The wheel tilt adjustment knob and lock are located on upper wheel hub. Loosen lock nut and turn tilt knob until band rides tires correctly. The band's back edge should just touch saw guide back-up bearings. Tighten lock nut when correct tracking has been achieved. See Fig. 12.

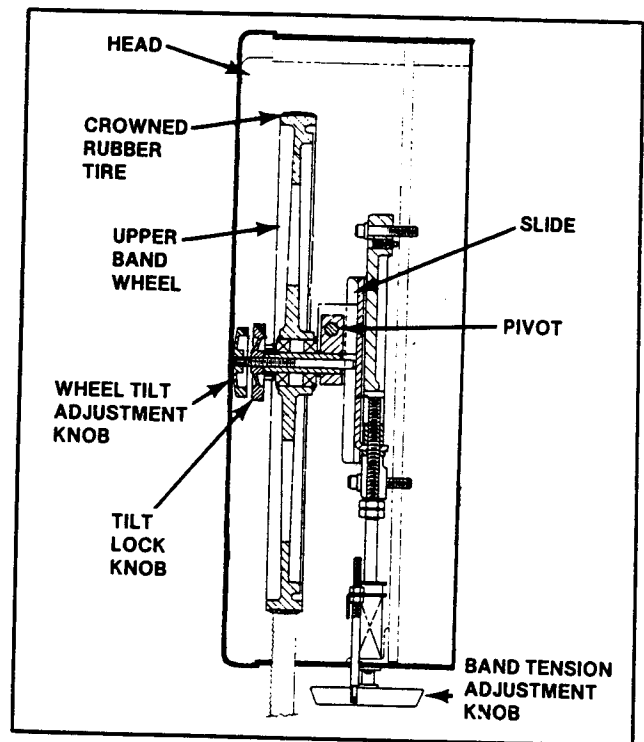


FIG. 12. WHEEL TILT ADJUSTMENT - HEAD SIDE VIEW.

## POST ADJUSTMENT

Post and upper saw guide elevation are adjusted by turning handwheel on saw head. Turn wheel clockwise to lower post and upper saw guide; raise by turning counter-clockwise. Always keep post and upper saw guide as close as possible to workpiece while sawing. See Fig. 13.

## POST ADJUSTMENT (Continued)

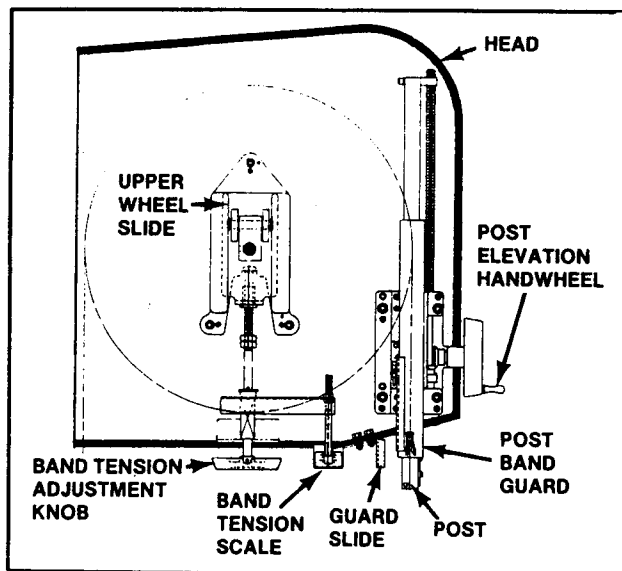


FIG. 13. POST ELEVATION & BAND TENSION CONTROLS - HEAD FRONT VIEW.

**CAUTION:** Keep post band guard locked in place at all times during sawing.

## AIR-POWERED WORK TABLE

The table measures 26-1/2 inches (675 mm) by 33-1/2 inches (850 mm), and has a 12-inch (305 mm) feed stroke. It has two 1/2-inch (12.5 mm) T-slots for tool attachment purposes. Capacity is 500 pounds (227 kg).

Maximum table tilt of 10 degrees left and 45 degrees right is indicated by a pointer and trunnion-mounted calibrated scale. Use the provided wrench to loosen tilt lock nut, position table at desired angle, then tighten the nut. The table tilting capacity is especially useful when sawing compound angles. See Fig. 14.

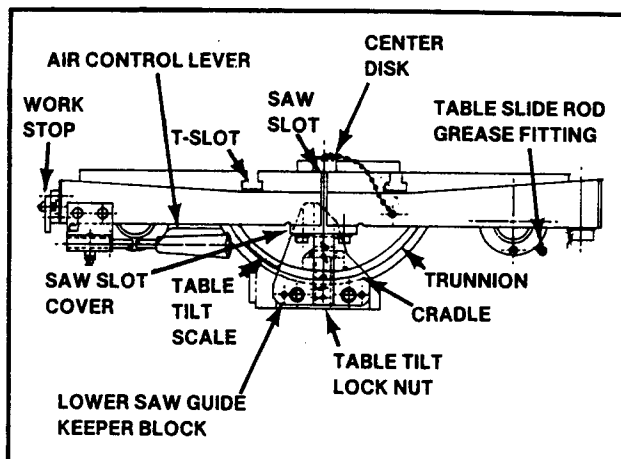


FIG. 14. AIR-POWERED WORK TABLE - FRONT VIEW.

Two work stops which limit table travel are located on table's left side. They are positioned by loosening lock nuts and sliding to desired location. The front stop controls depth duplication; rear stop minimizes unnecessary table travel.

For production sawing, insert pin work rest into top table hole to act as a work stop. Place squaring bar in a table T-slot to serve as a workpiece holder. See Fig. 15.

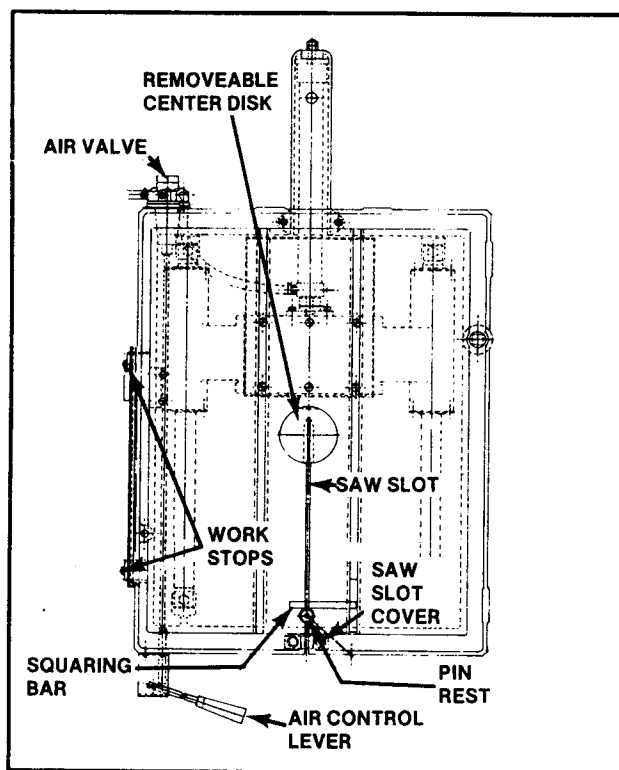


FIG. 15. AIR-POWERED WORK TABLE - TOP VIEW.

**NOTE:** Remove pin work rest and squaring bar for manual contour sawing.

Set workpiece on table with pin work rest inserted in table top, or squaring bar placed in T-slot and bearing against pin rest. Then:

- (1) Move table forward manually until cut is started.
- (2) Press air control lever on left table front to obtain desired feed force.

Feed force returns to "zero" when lever is released. When lever has been released, the table can be moved forward or backward easily for loading or fixturing.

## CHIP BRUSH & CHIP REMOVAL

A brush above lower wheel cleans chips from the band. Chips are directed into a collection pan below the lower wheel door. This pan should be removed and emptied when necessary. See Fig. 16.

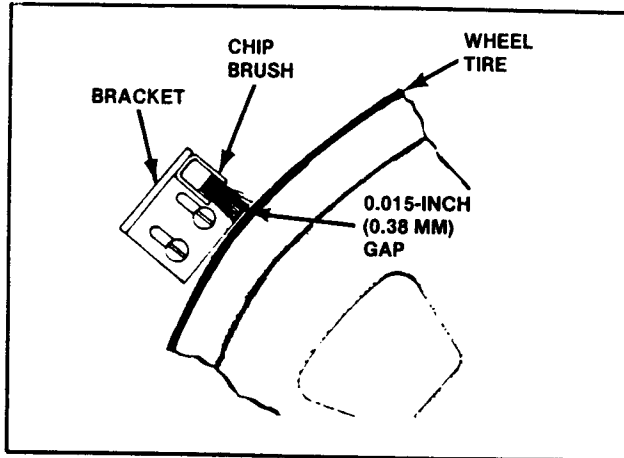


FIG. 16. LOWER WHEEL CHIP BRUSH.

Chips may accumulate around such machine areas as saw guides, table top, T-slots, wheels, vises, slides, etc. Remove these chips as soon as possible and keep areas clean.

**CAUTION:** "STOP" band movement before opening machine doors or covers.

**NOTE:** The DoALL Company recommends removing chip collections at least twice per each 8-hour shift, and more often when necessary.

## WELDING SAW BANDS

Complete instructions covering blade welding, operation and maintenance of your machine's DBW-15 welder with flash grinder and blade shear are provided in a separate instruction manual. See Fig. 17.

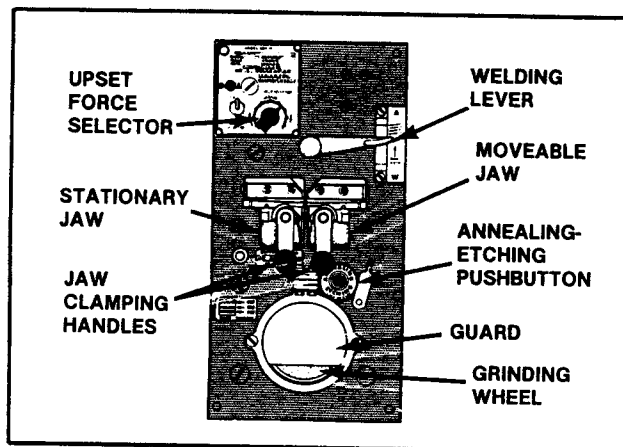


FIG. 17. DBW-15 BUTT WELDER & GRINDER.

## MIST COOLANT APPLICATOR

Air and coolant are mixed at nozzle end to form a fine mist. Bend applicator tube to direct mist stream onto blade teeth and work. Regulate mist adjustment to produce approximately one coolant drop per second. See Fig. 18.

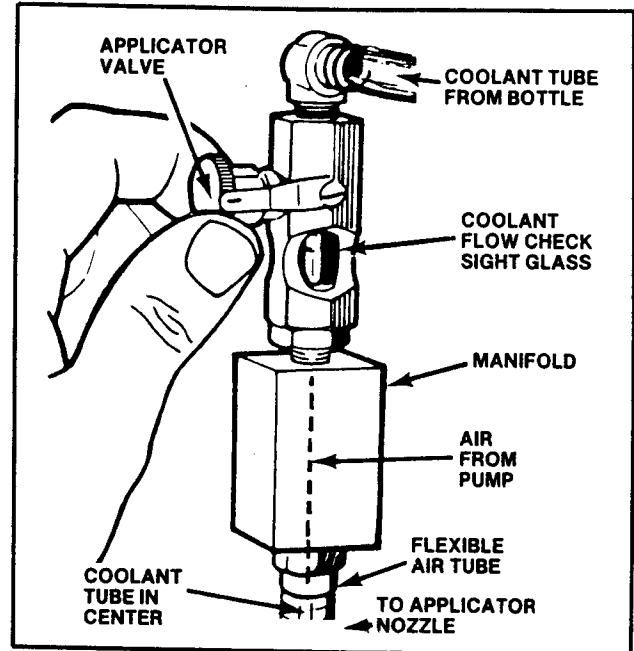


FIG. 18. ADJUSTING MIST COOLANT.

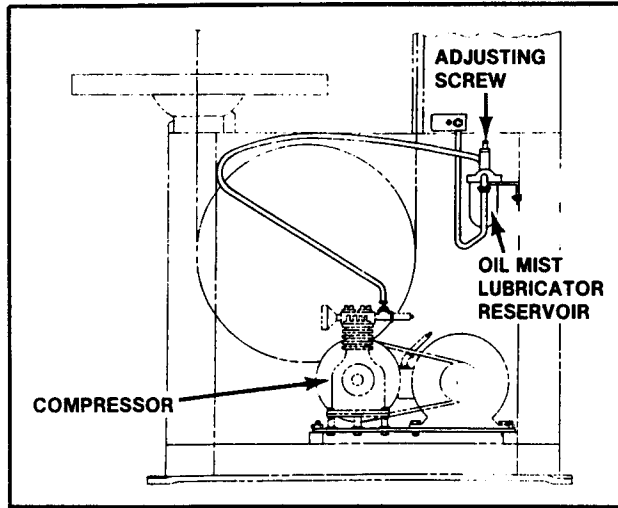
Check for a fine, consistent mist by directing coolant stream onto a metal surface. An intermittent stream with coolant spurts generally indicates a manifold air leak. Check all joints if this occurs.

See the Lubrication Chart for recommended coolant products. Clogging may occur if wax-based, or other coolants are used. Your DoALL Industrial Supply Center representative can provide complete coolant information.

## OIL MIST LUBRICATOR

Furnishes lubrication to internal table cylinder parts to prevent rust caused by moisture in air lines. Oil flow is controlled by an adjustment screw at lubricator top. Tighten screw finger tight to provide a periodic drip through sight feed chamber. See Fig. 19.

**OIL MIST LUBRICATOR (Continued)**



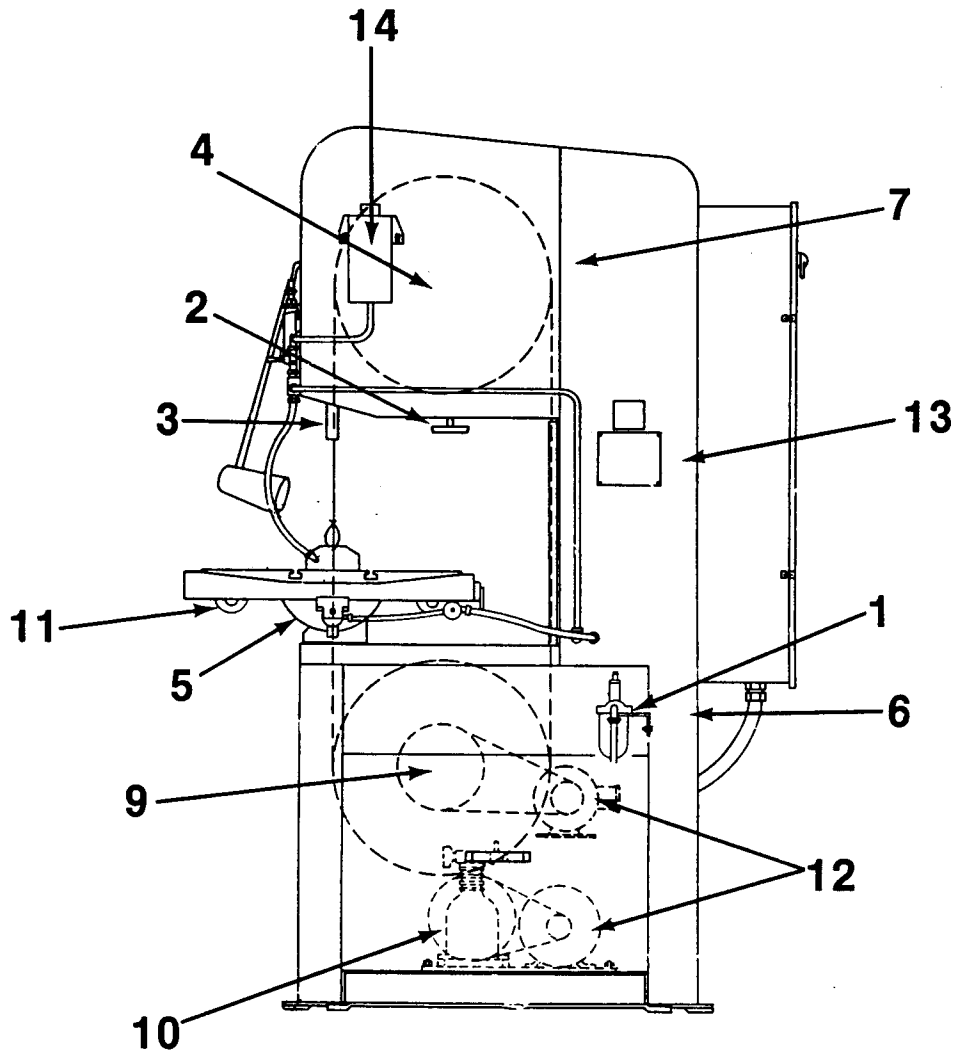
**FIG. 19. OIL MIST LUBRICATOR SYSTEM.**

**NOTE: Air compressor shown in above illustration is obsolete beginning with machine serial no. 389-84389. Replaced with unit requiring no lubrication.**

# LUBRICATION

## LUBRICATION DIAGRAM

**NOTE:** Air compressor shown in this illustration is obsolete beginning with machine serial no. 389-84389. Replaced with unit requiring no lubrication.



**NOTE:** Lubrication Chart No. 8 Not Shown On Diagram.

FIG. 20. LUBRICATION DIAGRAM.



# LUBRICATION CHART

LUBRICATION POINT NUMBER	LOCATION DESCRIPTION & SERVICE RECOMMENDATIONS	LUBRICATION INTERVAL *	RECOMMENDED LUBRICANT
1	Oil Mist Lubricator. 0.5-pint (0.24-liter) capacity. Keep filled.	CHECK DAILY/ AS REQUIRED	High quality, rust & oxidation inhibited, medium hydraulic & general purpose industrial oil.  ISO-VG Grade 68 (Formerly ASTM Grade No. 315).  Union 76, UNAX RX 68, or equivalent.
2	Band Tension Screw & Bearing. Clean & apply oil.	MONTHLY	
3	Post, Post Elevation Screw & Gears. Clean & apply oil.	MONTHLY	
4	Upper Wheel Slide, Hinge & Tilt Screw. Clean & apply oil.	MONTHLY	
5	Table Trunnion. Oil tilt surfaces.	MONTHLY	
6	Transmission Shift Linkage & Interlock. Clean & apply oil as required.	AS REQUIRED	
7	Miscellaneous, Hinges, Pivots, etc. Clean & apply oil as required.	CHECK MONTHLY	
8	Accessory Equipment As Supplied. Keep clean & apply oil as required to maintain proper function & reduce wear, corrosion, etc.	CHECK MONTHLY	
9	Transmission. 1-quart (0.95-liter) capacity. Proper oil level must be maintained. Drain and refill yearly, or when required.	AS REQUIRED	High quality, EP (extreme pressure), multi-purpose gear oil.  SAE Grade No. 90.  Union 76, MP Gear Lube 90, or equivalent.
10	Air Compressor. Proper oil level must be maintained. Drain & refill every 3 months. Keep crankcase & air intake filter clean.  <b>NOTE: Air compressor beginning with machine serial no. 389-84389 replaced with unit requiring no lubrication.</b>	CHECK WEEKLY	(For 32° to 80°F.--0 to 27°C.--ambient temperature), use ISO-VG Grade 68.  (For over 80°F.--27°C.--ambient temperature), use high quality, rust & oxidation inhibited, medium hydraulic & general purpose industrial oil.  ISO-VG Grade 100 (Formerly ASTM Grade No. 465).  Union 76, UNAX RX 100, or equivalent.
11	Table Slide Rods. 2 grease fittings.	MONTHLY	Premium quality, multi-purpose, lithium base, EP (extreme pressure) grease.  NLGI Grade No. 2.  Union 76, UNOBA EP 2, or equivalent.
12	Electric Motor(s).	Lubricate as required per manufacturer's recommendations.	
13	DBW-15 Welder.	Lubricate as required per DBW-15 Instruction Manual.	
14	Mist Coolant Bottle. 1-quart (0.95-liter) capacity. Keep filled.	CHECK DAILY/ AS REQUIRED	Premium quality, saw band coolant & lubricant.  DoALL cutting fluids and/or oils.

\* Lubrication intervals are based on an 8-hour day, 40-hour week. Lubricate more often when required.

FIG. 21. LUBRICATION CHART.

# MAINTENANCE

## HEAD ASSEMBLY

Wipe oil on post occasionally. Then run post up and down through slide block several times. Upper wheel slide and band tension screw should be oiled monthly. Wheel bearings are sealed and lubricated for life. See Fig. 22.

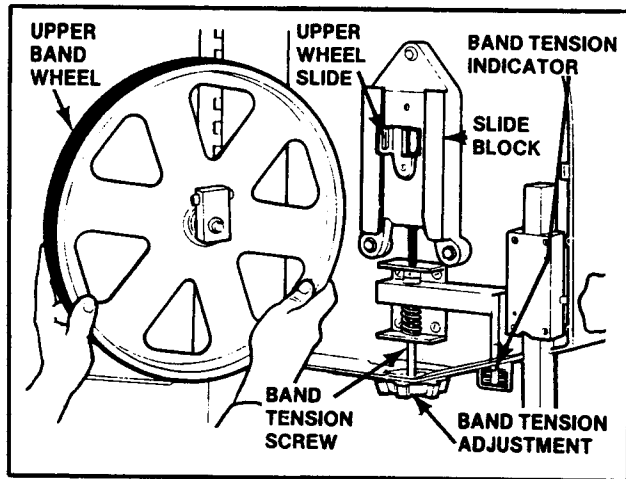


FIG. 22. UPPER WHEEL REMOVED TO SHOW HEAD ASSEMBLY DETAIL - FRONT VIEW.

## CHIP BRUSH & CHIP REMOVAL

Check lower wheel chip brush occasionally. If worn, and gap between brush and wheel tire is greater than 0.015-inch (0.38 mm), loosen adjustment screws and move brush closer to wheel. Replace when required. Chips removed by brush fall into the removeable chip pan. Clean pan when necessary. Refer to Fig. 16 on page 10.

## MACHINE CLEANING

Keep your machine and its parts as clean as possible to prevent excessive wear and damage. Chips removed by brush fall into a removeable collection pan which should be removed and emptied when necessary.

Chips and other waste materials may collect around saw guides, table top, T-slots, wheels, vises, slides, etc. Remove these materials as soon as possible.

**CAUTION:** "STOP" band movement before opening machine doors or covers.

**NOTE:** The DoALL Company recommends removing chip collections at least twice per each 8-hour shift, and more often when necessary.

## DRIVE BELTS

Drive belts on the transmission and compressor pulleys may stretch slightly after initial use. Tighten transmission belt by loosening drive motor foot bolts. Slide motor to tension belt; then tighten bolts. Tighten compressor belt in similar fashion. See Figs. 23 & 24.

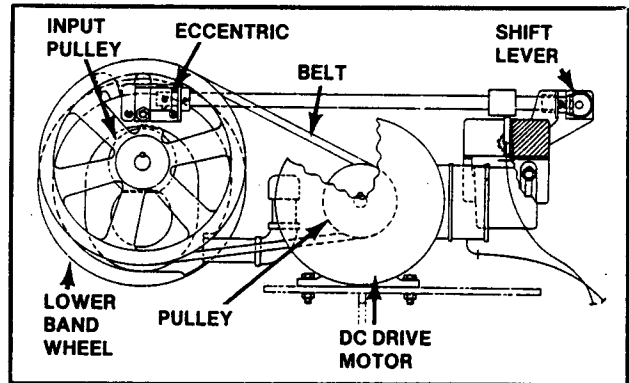


FIG. 23. DRIVE ASSEMBLY.

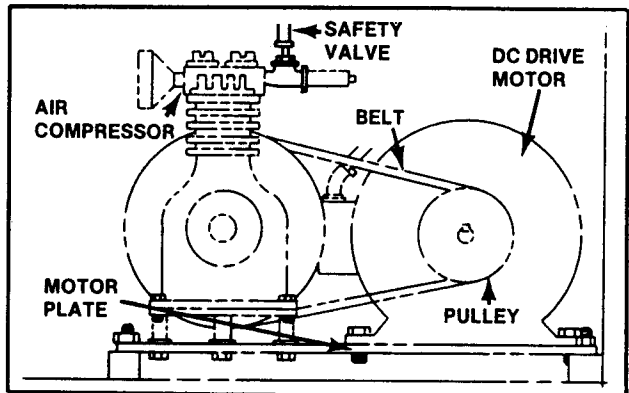


FIG. 24. AIR COMPRESSOR ASSEMBLY.

**NOTE:** Air compressor shown in above illustration is obsolete beginning with machine serial no. 389-84389. Replaced with unit requiring no lubrication.

## ELECTRICAL MOTORS

Follow manufacturer's maintenance instructions for each electric motor.

## TRANSMISSION

Drain, flush and refill transmission after first month; at least every six months thereafter. Fill to pipe top with oil recommended in Lubrication Chart. See Fig. 25.

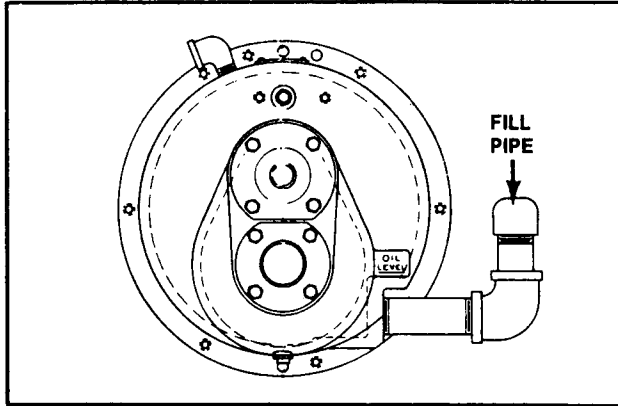


FIG. 25. TWO-SPEED TRANSMISSION - END VIEW.

Any rough operation, vibration, loud or unusual noises should be investigated immediately. Check for seal leaks around shafts. It is recommended that a faulty transmission be returned to factory for repair. Correct new transmission installation is extremely important because careful alignment is necessary. Installation by a DoALL Industrial Supply Center serviceman is recommended.

## MIST COOLANT APPLICATOR

Keep mist applicator nozzle and filter clean. If center nylon coolant tube needs replacement, remove the entire applicator tube. Insert new nylon tubing and trim off excess flush with nozzle. Make sure all joints are sealed and tight after the applicator tube is re-connected. See Fig. 26.

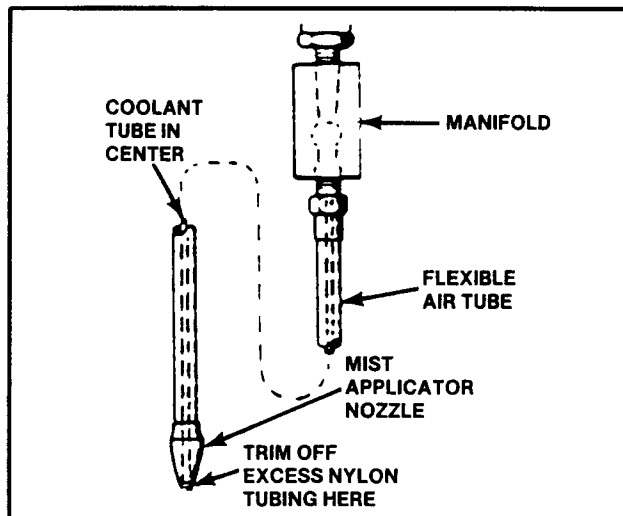


FIG. 26. ADJUSTING MIST COOLANT.

## INSERT-TYPE SAW GUIDES

### Pivot Back-Up

Reverse pivot back-up inserts for additional wear life. Replace them when all surfaces are worn.

### Roller Back-Up Bearing

Bearings are sealed and packed for life with a special lubricant. They are replaced by removing the snap ring; then pulling out bearing and shaft. New bearings are easily installed with a light press fit.

## REPLACING CROWNED WHEEL TIRES

- (1) Loosen worn tire from wheel with a screw driver, or other flat tool.
- (2) If necessary, stretch tire to remove.
- (3) Scrape wheel until clean. Apply fresh cement before installing a new tire.

## BAND WHEELS WITH REPLACEABLE FLANGE SEGMENTS (If Supplied)

Remove worn or damaged flange segments by:

- (1) Removing wheel from machine.
- (2) Removing damaged segments.
- (3) Installing new flanged segments with their chamfered edge toward the tire. See Fig. 27.

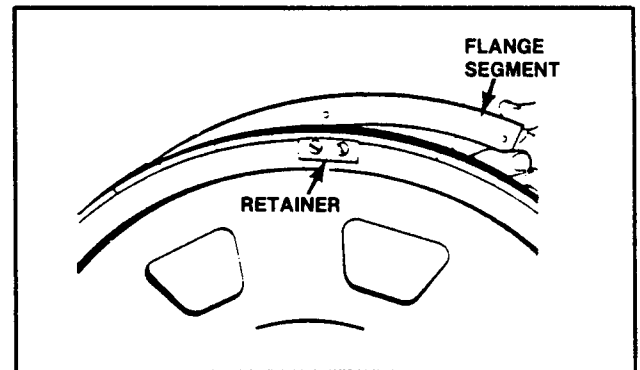


FIG. 27. REPLACEABLE FLANGE WHEEL SEGMENTS.

## **REPLACING FLANGED WHEEL TIRES (If Supplied)**

- (1) Remove retainers from wheel front.
- (2) Remove tire from wheel. It may be necessary to cut it off.
- (3) Mount new tire with steel backing notches in alignment with retainers.
- (4) Install tire by tapping it lightly with a soft hammer. Rotate wheel about 30° as each tap is made -- until tire rests against flange.
- (5) Replace retainers as shown in Fig. 27 on page 15.

# TROUBLE SHOOTING

## MACHINE WILL NOT START

- (1) Check band tension limit switch (if provided).
- (2) Check band drive motor starter reset. Starting and stopping machine a number of times in quick succession will cause an overload to trip starter heater. Push reset button after locating and correcting trouble.
- (3) Check fuse located behind DC circuit board. Replace with **identical fuse**, if necessary.
- (4) Check main fuses and control circuit fuse.

## MACHINE VIBRATION

- (1) Band wheels have become unbalanced.
- (2) Drive belt is unbalanced.
- (3) Machine base is not properly shimmed.

## EXCESSIVE INSERT AND BLADE WEAR

- (1) Inserts adjusted too tightly on blade.
- (2) High band speed is causing friction. Use Saw-Eez or mist coolant to lubricate band. Use roller saw guides, if possible.
- (3) Roller guides adjusted too tightly on blade.
- (4) Back-up bearing needs replacement.
- (5) Chip brush worn or not properly adjusted. This allows chips to stay on wheel.

## BAND VIBRATION

- (1) Worn blade teeth. Inserts too wide for blade will damage tooth set.
- (2) Workpiece scale not removed.
- (3) Blade too wide for radius being cut.
- (4) Incorrect band or insert alignment.
- (5) Incorrect band speed or feed force.
- (6) Coolant not being applied evenly to band sides.

(7) Workpiece is not held firmly. Upper saw guide may not be close enough to workpiece. Clamp workpiece firmly to table.

(8) Incorrect band tension.

(9) Check for loose post. Adjust cover plate, if necessary.

(10) Incorrect band pitch choice.

(11) Worn or improperly adjusted saw guide inserts.

(12) Worn saw guide back-up bearing.

## BAND CUTTING INACCURATELY

(1) Worn blade teeth. Inserts too wide for blade will damage tooth set.

(2) Workpiece scale not removed.

(3) Blade is too wide for radius being cut.

(4) Incorrect band or insert alignment.

(5) Incorrect band speed or feed force being used.

(6) Mist coolant not being properly applied.

(7) Upper saw guide is not positioned close enough to workpiece.

(8) Incorrect band tension.

(9) Saw guide inserts worn or adjusted too loosely.

## PREMATURE BAND DULLING

(1) Band not being properly "broken in" on first few cuts. Reduce feed pressure on first cuts.

(2) Band speed is too high. This causes abrasion.

(3) Band pitch is too coarse.

(4) Feed pressure is too light.

(5) Coolant is not covering band properly.

(6) Cutting rate is too high.

(7) Faulty material being used: heavy scale, inclusions, hard spots, etc.

## **TROUBLE SHOOTING (Continued)**

- (8) Band vibration.
- (9) Chipped tooth lodged in cut.
- (10) Chip welding.
- (11) Inserts too wide for blade width, allowing them to hit tooth set.

## **WORK SURFACE FINISH TOO ROUGH**

- (1) Saw guide insert is worn. Adjust or replace.
- (2) Band speed is too low.
- (3) Band pitch is too coarse.
- (4) Feed pressure is too heavy.
- (5) Machine vibration.

## **BAND SLIPS FROM WHEELS**

- (1) Upper wheel not correctly aligned. Band should track at wheel tire's center.
- (2) Too much coolant, or slippery coolant, is being used.
- (3) Initial machine alignment is incorrect.
- (4) Incorrect guide blocks being used.
- (5) Chip brush is worn or not properly adjusted. This allows chips to remain on wheels.

## **FILE BAND BREAKS**

- (1) Feed force is too high.
- (2) Wrong type file band being used.
- (3) Band tension is too high.

## **POOR BAND FILING FINISH**

- (1) Feed force is too high.
- (2) File band is assembled incorrectly.
- (3) Band tension is too high. Set for same as 1/8-inch (3.2 mm) wide carbon band.

## **NO COOLANT FLOW**

- (1) Applicator nozzle is clogged.
- (2) Coolant hoses are clogged or kinked.
- (3) Coolant control valve is clogged or damaged.

# ACCESSORIES

## CONTOUR SAWING PROCEDURES

The contour sawing handwheel permits operator to guide workpieces through intricate contours. Handwheel controls a gear train, sprocket, chain, and work holding fixture. Work is turned by the sprocket and chain. See Fig. 28.

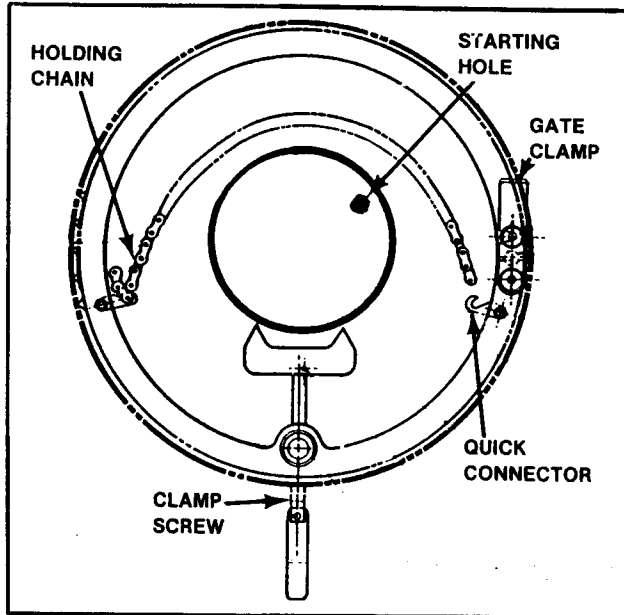


FIG. 28. SPROCKET WORK HOLDING FIXTURE.

The work holding fixture will accept round stock to 11-1/4 inches (285 mm) in diameter, or rectangular shapes measuring to 8 inches (205 mm) by 11 inches (280 mm).

Begin contour sawing operation by placing workpiece in fixture center. Hook holding chain into chain connectors. Tighten clamp screw to hold work solidly. Place drive chain around rear sprocket and work fixture. Connect chain with quick lock. This shortens chain loop and brings work into sawing position.

Follow these contour sawing procedures:

- (1) Use Job Selector recommendations for band selection, band speed, feed pressure, and coolant application.
- (2) Reduce initial feed force to prevent blade damage when it suddenly enters an opening. Any band twisting or bowing means work is being fed too rapidly.

## Internal Contour Sawing

Saw an internal contour by cutting band, drilling starting hole, running band through hole, then welding band. Use Disk Cutting accessory (if supplied) if contour is a radius. See Fig. 29.

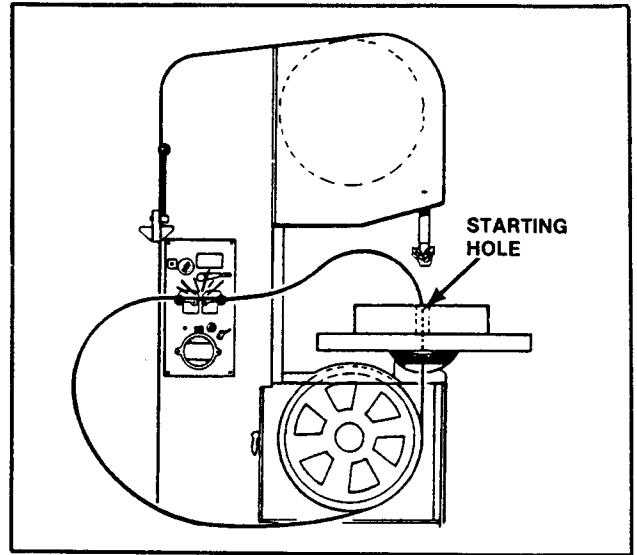


FIG. 29. INSULATE SAW BAND BEFORE WELDING.

**NOTE:** You will insure a better band weld by insulating band from contact with workpiece or table.

A hole is usually drilled in workpiece when a sharp corner is to be cut. See Fig. 30.

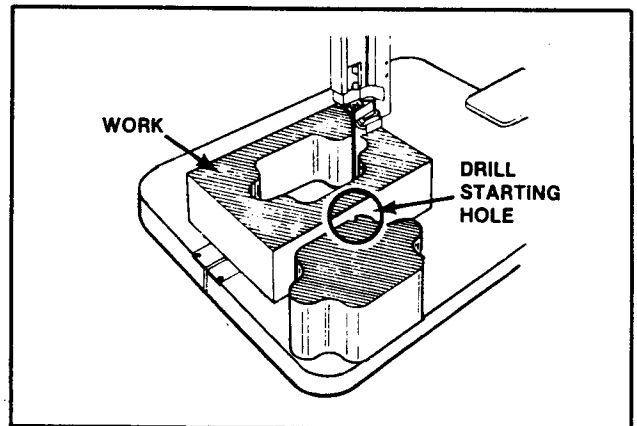


FIG. 30. STARTING HOLE FOR SHARP CONTOUR SAWING.

The operator can also by-pass the corner with a curved cut, and leave remaining stock to be notched out later. Drilled starting hole's diameter is determined by band size. Widest possible band should be used for curve cutting.

## CONTOUR SAWING PROCEDURES (Continued)

The radii chart shows minimum possible radii cuts which can be made with varying band widths. See Fig. 31.

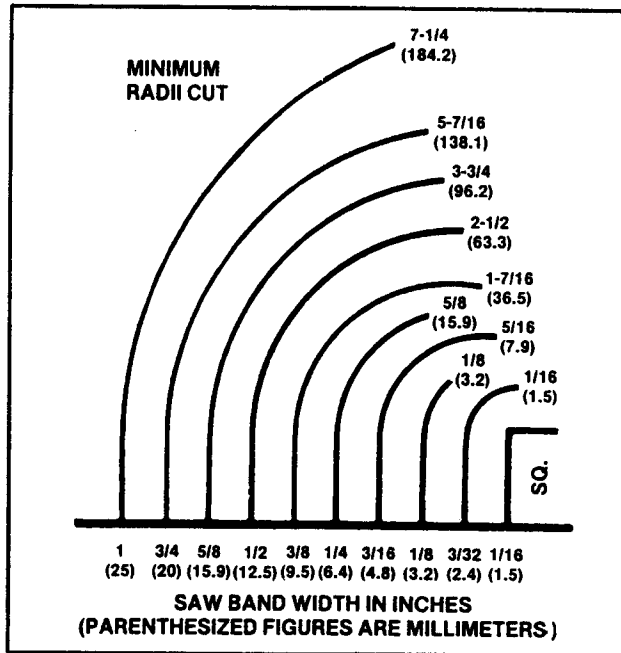


FIG. 31. MINIMUM RADII CUT CHART.

Use a heavy gage blade for heavy workpiece sawing. Radii chart recommendations are based on sawing relatively thin stock. Use a narrower saw band than recommended when sawing stock more than 1 inch (25 mm) thick. Attempting to cut too small a radius with too wide a band will cause it to bind. It may also cause lower wheel tire grooving due to band stalling.

### DISK CUTTING

This attachment is used to cut internal or external true circles from 2-1/2 inches (65 mm) to 30 inches (760 mm) in diameter. To set up:

- (1) Place flat washers under screws. Bolt bracket to post. Lower post until upper saw guide is approximately 3/8-inch (10 mm) above table. Loosen fine adjustment and arm clamp bolts. Move center pin to approximate distance or radius to be cut. Tighten fine adjustment clamp bolt. See Fig. 32.

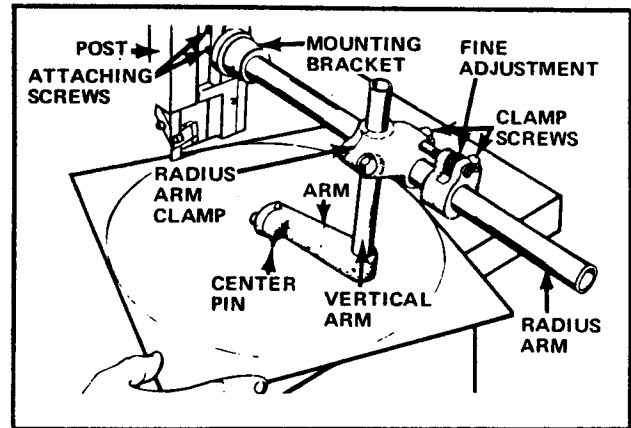


FIG. 32. CUTTING A RADIUS WITH DISK CUTTER.

- (2) Centering pin's center must be perpendicular to band cutting edge. Position by placing a square against saw tooth tip. Loosen vertical adjustment clamp bolt. Line up centering pin with square's blade edge. Clamp tight.
- (3) Make final radius adjustments with fine adjustment wheel. Tighten arm and radius arm clamp bolts while making sure center pin is square to table. Adjust unit for work thickness by raising or lowering post.

### UNIVERSAL VISE

Used for accurate production cut-off work. The cut-off angle is adjustable between 0-45 degrees by using a protractor and pointer. Vise jaws are clamped in right table T-slot and a cut-off gage is mounted in left T-slot. See Fig. 33.

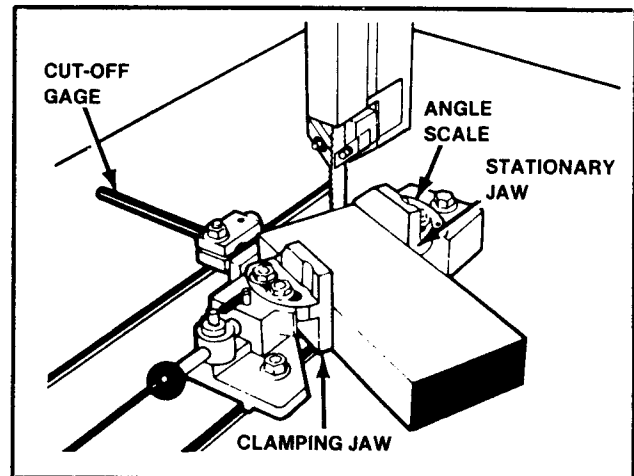


FIG. 33. UNIVERSAL VISE JAWS CLAMPED IN TABLE T-SLOT.



## UNIVERSAL CALIBRATED WORK FIXTURE

### Set-Up For Straight Cut-Off

- (1) Place fixture on table at required distance from band. Loosely install T-nuts and screws. If necessary, align scale's "zero" mark with saw band; then "zero" pointer.
- (2) Square fixture to table by lining up one moveable stop edge with one table T-slot edge. Tighten to allow cutting completely through workpiece. Set table stops to prevent sawing into work bar. See Fig. 34.

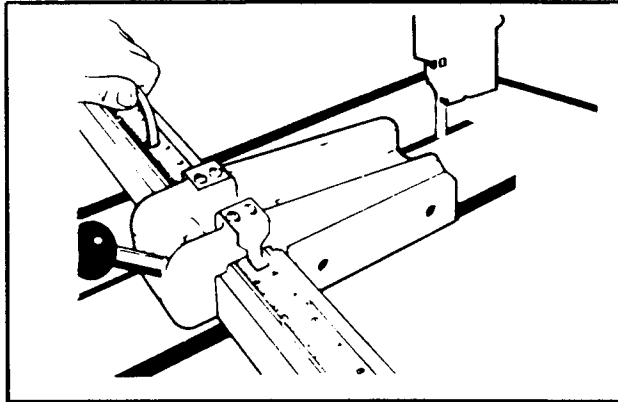


FIG. 34. UNIVERSAL CALIBRATED WORK FIXTURE SET UP FOR STRAIGHT CUT-OFF.

### Set-Up For Angle Cut-Off

- (1) Remove right T-nut and screw from bar. Loosen left screw.
- (2) Turn fixture to desired angle and tighten left screw. Mount collar against bar. Tighten right T-nut and screw. See Fig. 35.

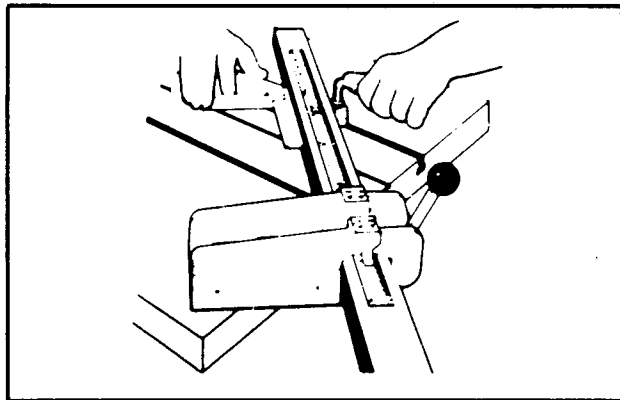


FIG. 35. UNIVERSAL CALIBRATED WORK FIXTURE SET UP FOR ANGLE CUT-OFF.

## ADJUSTABLE WORKHOLDING JAW

Option used for off-hand and contour sawing. Most often used with manual contour sawing accessory. Set up by looping power feed chain around workholding jaw. This permits operator to use cable pulley system to rotate work while following contour layout lines. Be sure to use correct band width for radius to be cut. See Fig. 36.

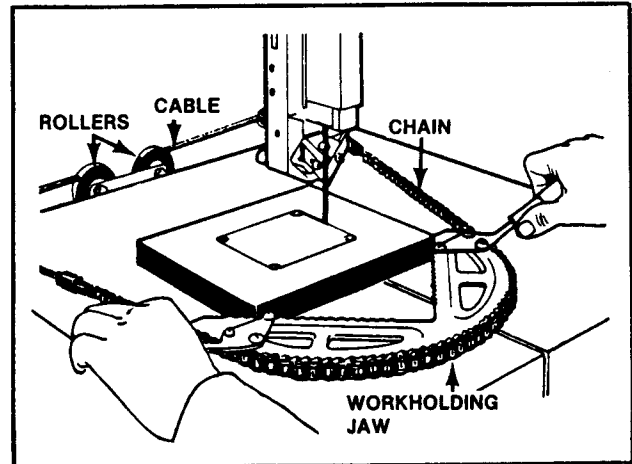


FIG. 36. ADJUSTABLE WORK HOLDING JAW.

## PROTRACTOR WORKSTOP & ALIGNING GAGE

Set up by locking slide in table T-slot. The table slide bar should be set so miter head clears saw band. Adjust miter head for angle cutting (0-45 degrees) by releasing clamp stud. Set desired cut length by loosening thumb screw holding gage rod. Slide rod to position and tighten thumb screw. See Fig. 37.

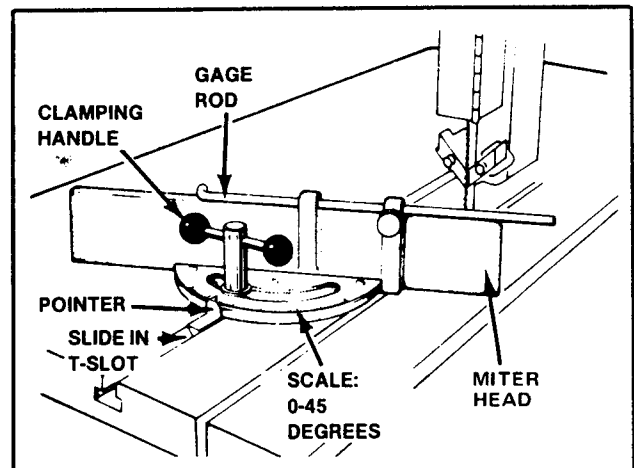


FIG. 37. PROTRACTOR WORKSTOP & ALIGNING GAGE.

## TABLE EXTENSION BARS

These two bars can be locked into any table T-slot to provide adjustable outboard support for stock larger than the table itself. Bar and studs backstop straight or irregular stock pieces at any angle. See Fig. 38.

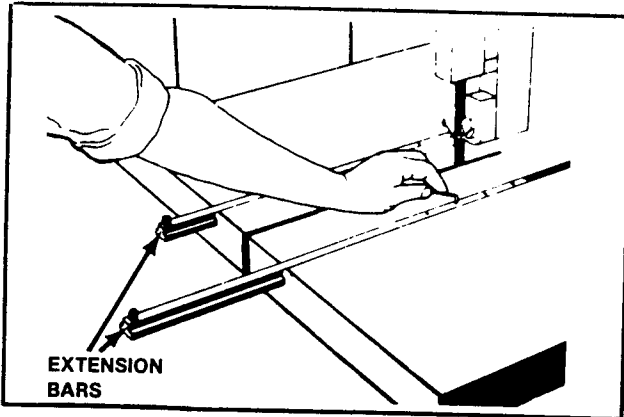


FIG. 38. TABLE EXTENSION BARS.

## BALL TRANSFER STRIPS

These 6 detachable strips make heavy workpiece moving easier. The 2 dowelled center strips attach to table with socket head screws. The other 4 strips can be moved about as required by the sawing operation. See Fig. 39.

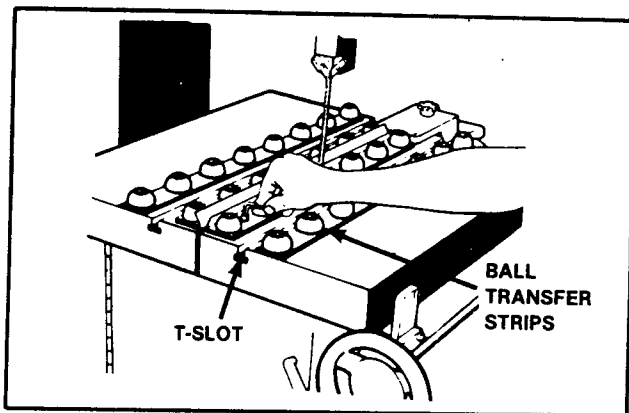


FIG. 39. BALL TRANSFER STRIPS.

**CAUTION:** Using ball transfer strips reduces work height capacity by 1-1/2 inches (40 mm).

## HEAVY WORK CLAMPS (If Supplied)

Used when contour sawing heavy materials and stacked parts. Clamps have a 4-inch (100 mm) height clamping capacity. Insert provided special table center block and saw it to leave a kerf path for saw band travel. This is especially important when cutting stacked parts.

Tighten clamps holding material to table surface. Square workpiece with blade by tilting table. Connect power feed chain so it meshes with clamp gear teeth. See Fig. 40.

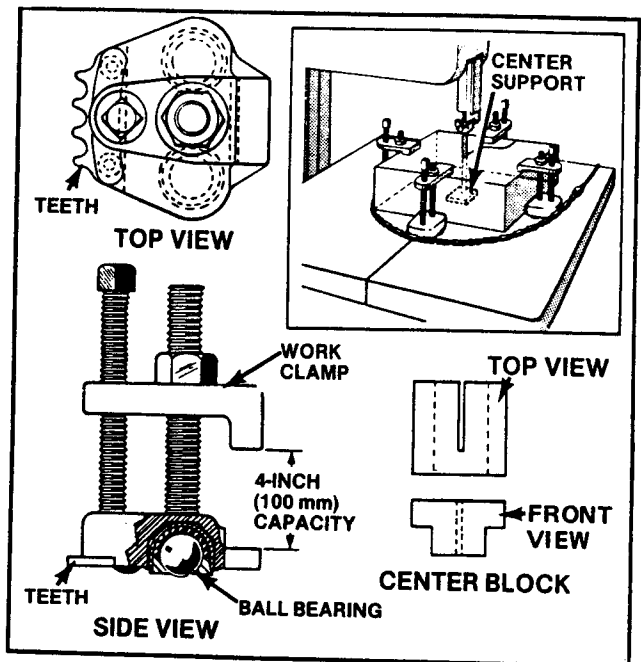


FIG. 40. HEAVY WORK CLAMPS.

## HEAVY WORK SLIDES

Place slides between table and workpiece to reduce friction when heavy material is being moved toward the blade. Material moves over slide ball bearings.

Use a separate center block to support material at initial blade entry point. Insert block in table's center disk hole. Saw into block to establish a kerf or blade travel path. See Fig. 41.

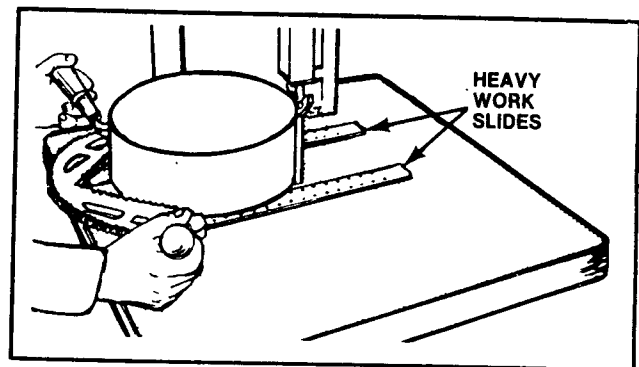


FIG. 41. HEAVY WORK SLIDES.

## WORK LIGHT & MAGNIFIER

Magnifying the cutting area may prove helpful during delicate sawing procedures. This is done by placing a magnifying lens over the work light's front portion. A protective lens cover which prevents scratching should be placed around the magnifier when not being used. See Fig. 42.

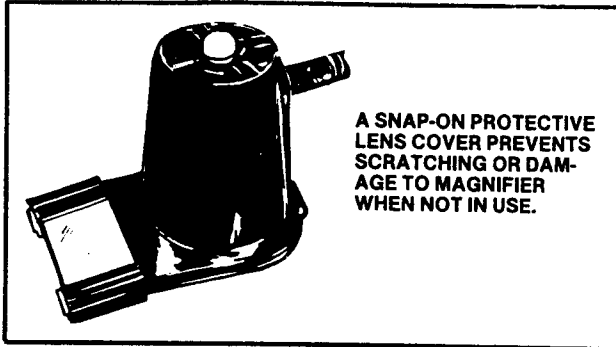


FIG. 42. WORKLIGHT & MAGNIFYING LENS.

## SPARK GUARD (If Supplied)

The spark guard attaches to post band guard with a machine bolt. Always use it when friction sawing. See Fig. 43.

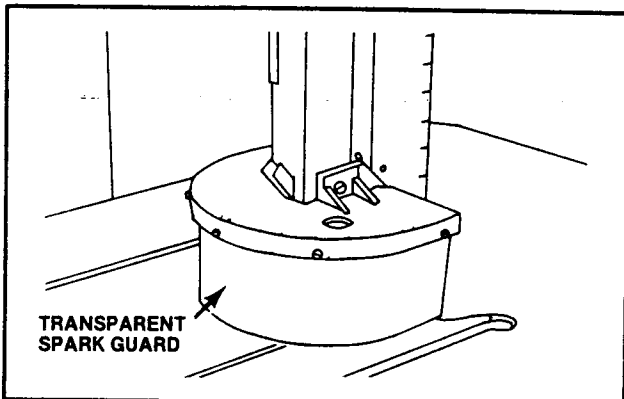


FIG. 43. SPARK GUARD.

## EXTRA WORK HEIGHT (If Supplied)

Your machine may be equipped with a factory-installed extra work height assembly which allows cutting of materials 18 inches (460 mm), 24 inches (610 mm), or 30 inches (760 mm) high, depending on the option chosen.

These machines have a slightly different frame weldment, post guard slide, auxiliary post, post support, post elevating and saw band guard assemblies from those described earlier in this manual.

## WHEEL BRAKES (If Supplied)

The Dynamic lower wheel brake option is activated by a limit switch located behind the upper wheel door.

## DUST SPOUT (If Supplied)

A dust spout may be located on your machine just under the lower saw guide. If desired, a dust-collection tube can be attached to this opening.

## ETCHING PENCIL

The etching pencil (if supplied) is used along with the butt welder to mark tools, jigs, fixtures, templates, etc. Instructions for its use are part of the enclosed DBW-15 Welder instruction manual.

## SUPPLY CABINET (If Supplied)

The supply cabinet provides orderly, safe storage for saw band coils, welded saw bands, file bands, and polishing bands. It is also useful for storing component parts and removeable machine accessories. See Fig. 44.

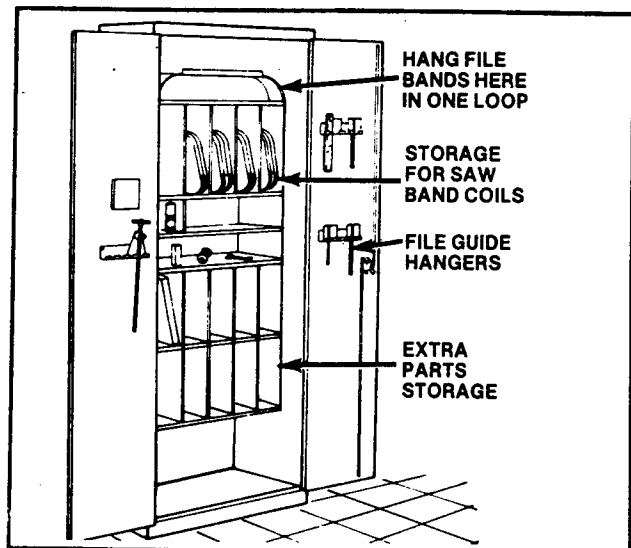


FIG. 44. SUPPLY CABINET.

## 90° BAND GUIDE BRACKETS (If Supplied)

**NOTE:** This accessory is not available with models manufactured at the time this manual was printed. It may, however, have been offered on models manufactured earlier.

These brackets permit cutting materials longer than the machine's regular throat capacity. Mount upper and lower brackets as shown in Fig. 45.

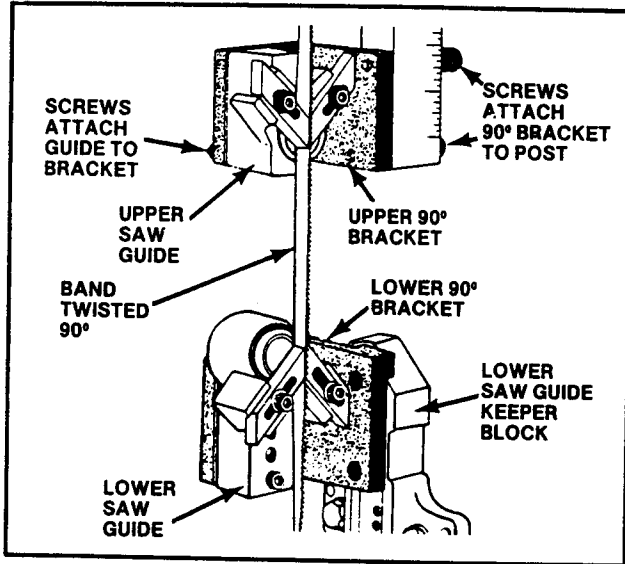


FIG. 45. 90° BAND GUIDE BRACKETS.

Install correct-size saw guides. Install band so it is twisted 90° when passing through saw guide inserts. Operate machine at speeds under 1500 fpm (450 m/min).

## FILE GUIDES

Standard and long file guide sets are available. Each set consists of a file guide back-up assembly, plus 1/4-inch (6.4 mm), 3/8-inch (9.5 mm), and 1/2-inch (12.5 mm) guides.

## BAND FILING

**NOTE:** This band filing section applies only to machines having crowned center rubber wheels.

### Set-Up

- (1) Remove saw band, saw guides, table center disk, and post band guard. Mount file guide back-up support to lower keeper block. Install upper guide to post. See Fig. 46.

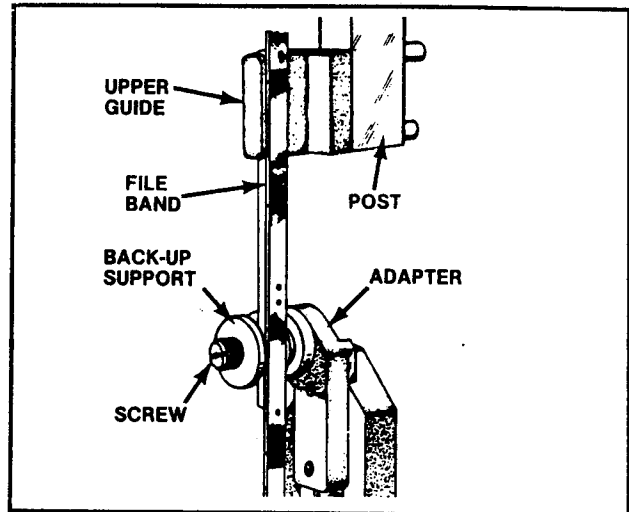


FIG. 46. FILE GUIDE INSTALLATION.

- (2) Lower post to proper work thickness: not over 2 inches (50 mm) for a 1/4-inch (6.4 mm) band, or 4 inches (100 mm) for either 3/8-inch (9.5 mm) and 1/2-inch (12.5 mm) bands. Longer file guides permit filing 7-inch (180 mm) thicknesses with 1/4-inch (6.4 mm) band, or 8-inch (200 mm) thicknesses with 3/8-inch (9.5 mm) and 1/2-inch (12.5 mm) bands.
- (3) Install upper file guide and lock it firmly to post with knurled thumb screws. Insert special filing center plate. Adjust plate to within 1/16-inch (1.5 mm) of band cutting surface. See Figs. 47 & 48.

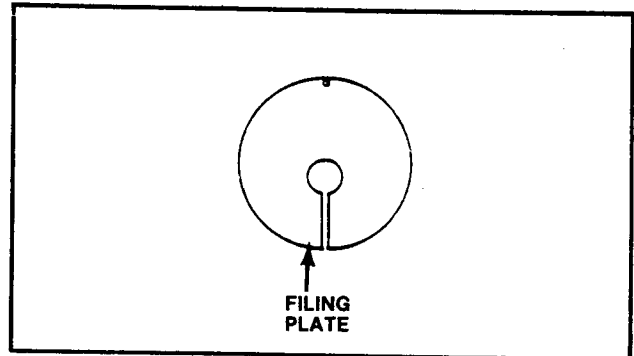


FIG. 47. TABLE CENTER FILING PLATE.

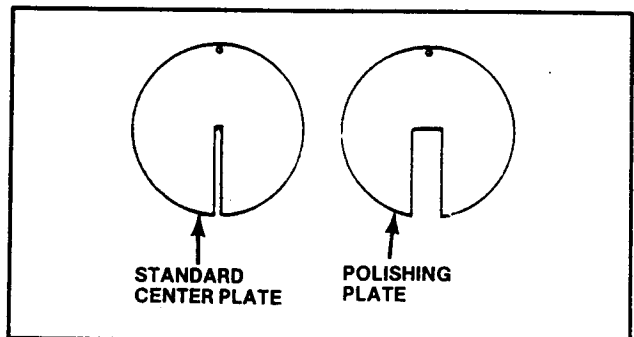


FIG. 48. STANDARD TABLE CENTER PLATE & POLISHING PLATE.

## BAND FILING (Continued)

### File Band Joining

- (1) Place band on wheels and insert one end through table center plate. Cutting edges should point down.
- (2) Hold yellow lock rivet segment in left hand. Depress spring steel band tip held in right hand.
- (3) Allow rivot head to slip into slotted hole and slide into slot's small end.
- (4) Straighten band to allow spring steel end to snap over dowel. See Fig. 49.

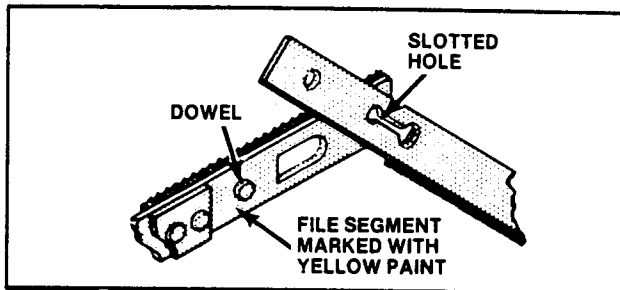


FIG. 49. JOINING THE FILE BAND.

### File Band Tracking & Tensioning

- (1) Adjust upper wheel tilt angle (if necessary) so band tracks on tire center. Check to see that band is in alignment and passing freely over file guide supports. Tension band same as for a 1/8-inch (3.2 mm) wide carbon saw band. See Fig. 50.

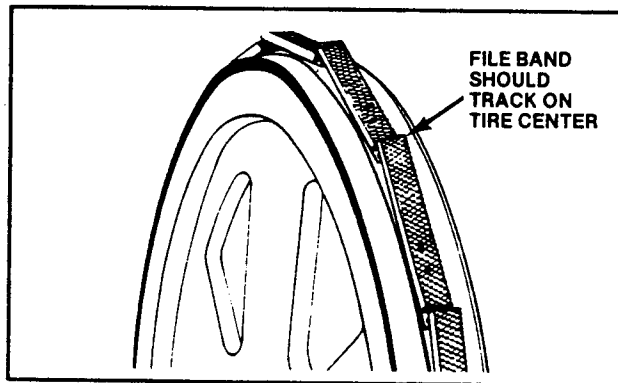


FIG. 50. TRACKING THE FILE BAND.

**NOTE: Avoid excessive band tightening.**

### Filing Operation

- (1) Turn Job Selector dial to "Band Filing" area. Note band velocity and feed pressure recommended for material and thickness. Check coolant recommendation.

- (2) Keep files clean. Do not file when teeth are loaded. Filing can be performed without coolant if it makes seeing layout lines difficult.
- (3) Place transmission shift lever in "low" range and "start" drive motor.

### Internal Filing

- (1) Release band tension. Remove band from wheels and separate it by bending joint to approximately 12 inches (300 mm) radius.
- (2) Use left forefinger to depress yellow segment front end. Use right thumb and forefinger to disengage dowel. Slide lock rivet to slot open end and remove.
- (3) Run band through workpiece and re-assemble. Place band over wheel tires, apply tension, and check alignment. See Fig. 51.

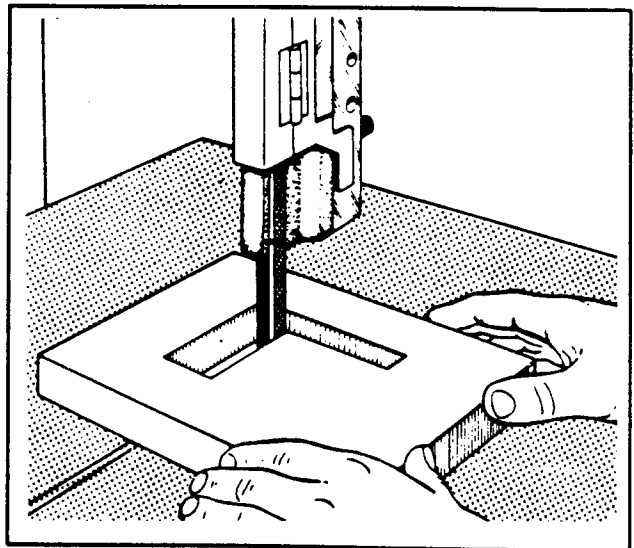


FIG. 51. INTERNAL BAND FILING.

Clean band with file card and coil into no more than 3 loops before storing, preferable in a DoALL Supply Cabinet. Here bands can be looped in a 16-inch (405 mm) radius with ends hanging in compartment. Refer to Fig. 44 on page 23.

## BAND POLISHING

**NOTE: Band polishing section is applicable only to machines having crowned center wheels.**

Three polishing band grain cloth belts are available in aluminum oxide. See Fig. 52.

APPLICATION	CUTTING SPEEDS	GRIT
Grinding	50-300 fpm (15-90 m/min)	50
Polishing -- Coarse	850-1000 fpm (260-305 m/min)	80
Polishing -- Fine	850-1500 fpm (260-450 m/min)	150

FIG. 52. POLISHING APPLICATION, SPEED & GRAIN RECOMMENDATIONS.

### Set-Up

- (1) Remove table center disk.
- (2) Mount band guide back-up support to post, replacing the saw guides. See Fig. 53.

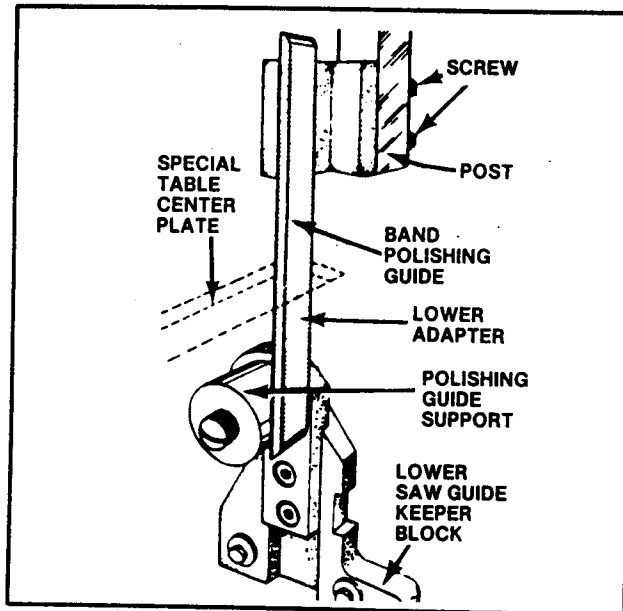


FIG. 53. POLISHING GUIDE INSTALLATION.

- (3) Install lower adapter to lower saw guide keeper block.
- (4) Lower post to approximately 4 inches (100 mm) above table.
- (5) Mount and track polishing band in same manner as file bands.
- (6) Tension same as a 1/16-inch (1.5 mm) wide carbon saw band.

- (7) Install special table center adapter plate as shown in Fig. 48 on page 24.

Occasionally rub graphite powder into guide fabric to lubricate and increase band life. Use air nozzle to blow away dust. See Fig. 54.

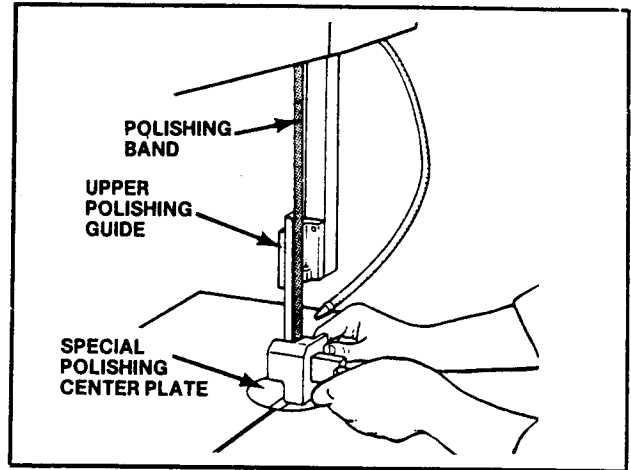


FIG. 54. BAND POLISHING OPERATION.

**NOTE: Do not use coolant with polishing bands.**

## ACCESSORY SAW GUIDE BLOCK SELECTION

It is possible to equip your machine with precision, heavy-duty, high-speed, or roller saw guide blocks for various types of sawing applications. Precision guide blocks are for band speeds up to 2000 fpm (608 m/min). High-speed, heavy-duty, and Type I roller guide blocks are for speeds up to 6000 fpm (1824 m/min).

### Insert-Type Saw Guides

Choose between steel and carbide-faced inserts. See Figs. 9 & 10 on page 7 for steel insert guide instructions. See page 15 for back-up bearing replacement instructions. Instructions for adjusting carbide-faced back-up bearings are shown below in Fig. 55.

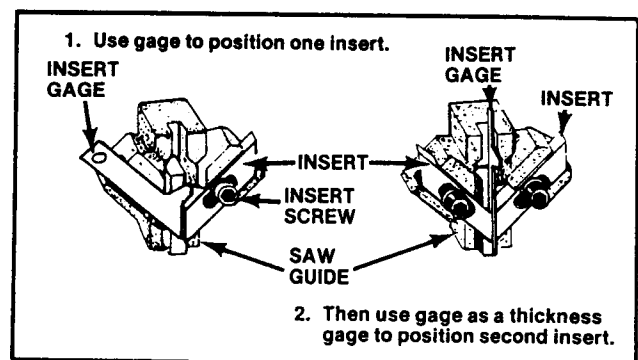


FIG. 55. ADJUSTING CARBIDE-FACED INSERTS - UPPER GUIDE BLOCK SHOWN.

## ACCESSORY SAW GUIDE BLOCK SELECTION (Continued)

### Roller Saw Guides

Use roller guides for continuous high-speed sawing. Adjust them as follows:

- (1) Select rollers which match band width to be used.
- (2) Place one back-up roller and one side roller in each guide block. See Fig. 56.

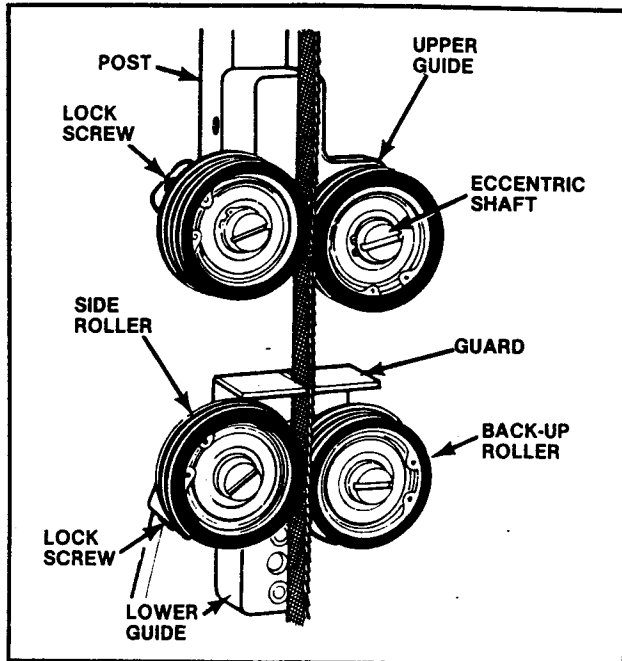


FIG. 56. ROLLER SAW GUIDES.

- (3) Attach guides to post and keeper block.
- (4) Place saw band over upper and lower machine wheels. Adjust tension.
- (5) Loosen lock screw. Bring rollers toward band by turning eccentric bearing shaft with a screwdriver. Rollers should be just free enough to turn without moving the band.

**CAUTION:** Bearings will overheat if roller fits too tightly against band. Loose rollers may cause band wobble and affect cutting accuracy.

- (6) Tighten roller lock screws to prevent eccentric shaft from turning and changing the adjustment.

**NOTE:** Roller saw guides are recommended for continuous sawing at speeds over 1300 fpm (390 m/min).

