DEPARTMENT OF THE ARMY TECHNICAL MANUAL

OPERATOR'S MANUAL

SAW, BAND, METAL CUTTING, FLOOR

MOUNTING, 16 INCH THROAT DEPTH, SAW

BLADE OR FILE BAND, 24 X 24 TABLE

ANGLE ADJUSTING, 208-VOLT, 60-CYCLE

3-PHASE (DO ALL COMPANY MODEL 1612-OM)

(3419-294-9591)

This copy is a reprint which includes current pages from Changes 1 and 2.

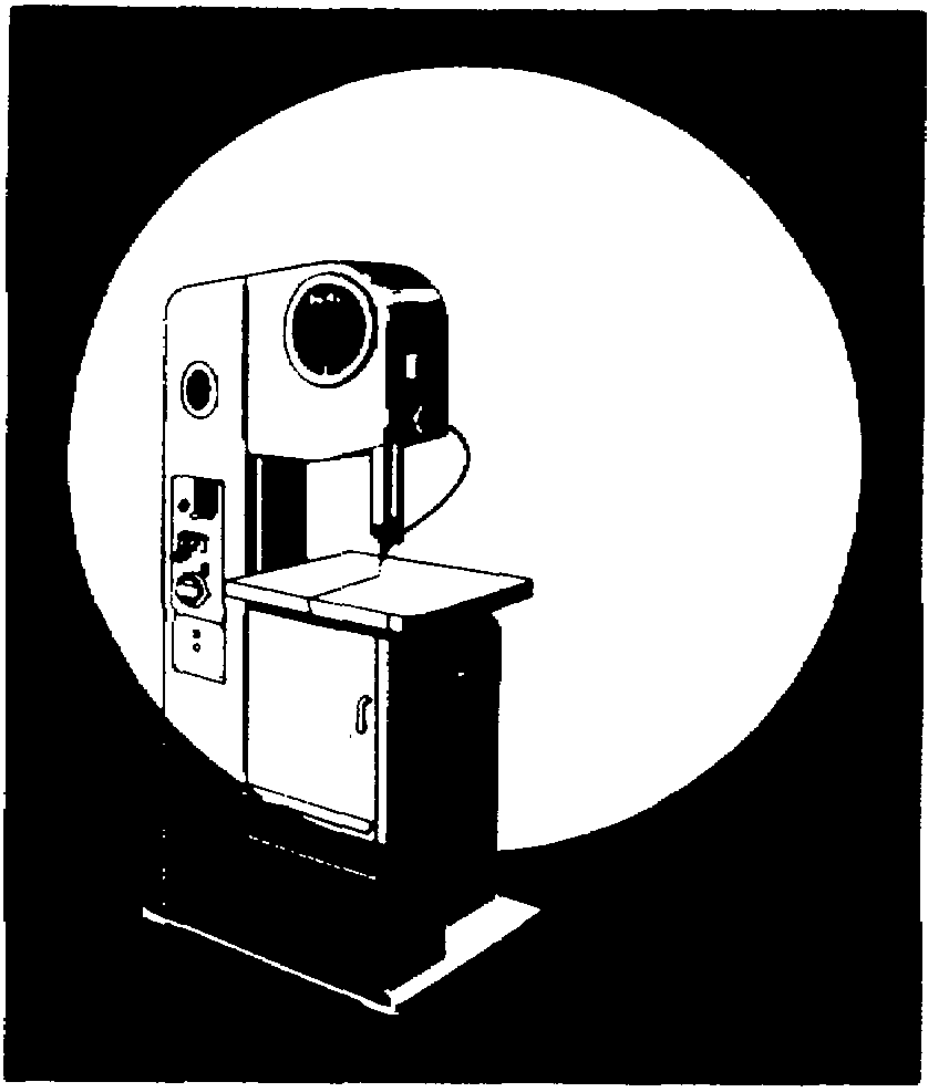
HEADQUARTERS, DEPARTMENT OF THE ARMY
JANUARY 1966

TAGO 6262B

OPERATOR/S INSTRUCTION MANUAL

DoALL

MODEL 1612-0



Changes in force: C 1 and C 2

CHANGE NO. 2

**HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, *21 October 1974***

Operator's Manual: SAW, BAND, METAL CUTTING, FLOOR MOUNTING, 16-INCH THROAT DEPTH, SAW BLADE OR FILE BAND, 24X24 TABLE ANGLE ADJUSTING, 208-VOLT, 60-CYCLE 3-PHASE (DO ALL COMPANY MODEL 1612-OM) (3419-00-294-9591)

TM 9-3419-227-10, 14 January 1966, is changed as follows:

***Page 27*, chapter 4, index No. 14, line 5. Delete the words "gasoline or."**

By Order of the Secretary of the Army:

FRED C. WEYAND
General, United States Army
Chief of Staff

Official:

VERNE L. BOWERS
Major General United State Army
The Adjutant Genera

Distribution:

Active Army:

DCSLOG (3)
CNGB (1)
TSG (1)
COE (5)
AMC (5)
ARADCOM (2)
ARADCOM RGN (2)
Armies (3) except:
7th USA (5);
8th USA (5).
OS Maj Comd (2)
LOGCOMD (2)
ARMCOM (10)
4th USASA Fld Sta (1)
Ft. Knox FLDMS(10)
LEAD (2)
USARADBD (1)
USA Armor Bd (2)
USAAVNTBD (1)
USA Arty Bd (1)
USAREUR (10)
USARSO (5)
USASETAF (6)
Div. (2)
Ft. Story (1)
USAQMS (2)
USAARMS (2)
Arsenals (2)
Units org under fol TOE:
9-57 (2).
Instl (2) except:
Ft. Monmouth (5).

NG: State AG (3)

USAR: None

For explanation of abbreviations used, see AR 310-50.

Changes in force: C 1

Change No. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, DC, *29 June 1973*

Operator's Manual
SAW, BAND, METAL CUTTING, FLOOR MOUNTING, 16 INCH THROAT DEPTH, SAW BLADE OR FILE BAND, 24 X 24 TABLE ANGLE ADJUSTING, 208-VOLT, 60-CYCLE 3-PHASE (DO ALL COMPANY MODEL 1612-OM) (341 9-294-9591)

TM 9-3419-227-10, 14 January 1966 is changed as follows:

Page 48. Add the following paragraphs:

Recommendations for Maintenance Publications Improvements.

You can improve this manual by calling attention to errors and by recommending improvements using DA Form 2028 (Recommended Changes to Publications) or by a letter and mailing direct to Commander, US, Army Weapons Command, ATTN: AMSWE-MAS-SP, Rock Island, IL 61201. A reply will be furnished direct to you.

Components of the End Item.

Parts included with the end item and considered as components of the end item configuration are listed in the following table:

Table 1. Components of the End Item

Components	Part No.	(FSCM)	Qty
ADAPTER, GUIDE:	1371	(18056)	1
ATTACHMENT, MITER:	50710	(18056)	1
BACK-UP FILE GUIDE:	34-09312	(18056)	2
BACK-UP POLISHING GUIDE:	34-10402	(18056)	2
BAND, POLISHING:	101490	(18056)	12
BAND, POLISHING:	101491	(18056)	12
BLADE, BAND SAW:	306-084	(18056)	12
BLADE, BAND SAW:	306-100	(18056)	1
BLADE, BAND SAW:	306-126	(18056)	1

Table 1. Components 0f the End Item--Continued

Components	Part No.	(FSCM)	Qty
BLADE, BAND SAW:	306-167	(18056)	1
BLADE, BAND SAW:	306-183	(18056)	1
BLADE, BAND SAW:	306-225	(18056)	1
BLADE, BAND SAW:	306-308	(18056)	1
BLADE, BAND SAW:	306-324	(18056)	1
BLADE, BAND SAW:	306-365	(18056)	1
BLADE, SAW: carbon S,1/2, 6 teeth	306-381	(18056)	100 ft
BLADE, SAW: carbon S,1/2, 10 teeth	306-407	(18056)	100 ft
BLADE, SAW: carbon S, 1/2, 14 teeth	306-423	(18056)	100 ft
BLADE, SAW:	306-480	(18056)	100 ft
BLADE, SAW:	306-506	(18056)	100 ft
BLADE, SAW:	306-563	(18056)	100 ft
BLADE, SAW:	306-803	(18056)	100 ft
BLOCK, ANGLE:	27596	(18056)	1
BLOCK, ANGLE:	27597	(18056)	1
BRACKET, UTILITY SAW:	29584	(18056)	1
BRACKET, UTILITY SAW:	29538	(18056)	1
COLLAR, STOP:	11-28109	(18056)	1
CLAMP, GUIDE:	31449	(18056)	1
DISC CUTTER:	40044	(18056)	1
ELBOW, PIPE:	WWP521	(81348)	1
FEED SCREW:	11-03007	(18056)	1
FENCE, RIP:	46897	(18056)	1
GUIDE, BAND:	16686	(18056)	1
GAGE, INSERT:	34-08320	(18056)	3
GAGE, INSERT:	13-08303	(18056)	3
GRAPHITE. POWERED:	458-140613	(18056)	1
GUIDE BLOCK, SAW:	11507	(18056)	1
GUIDE BLOCK, SAW:	11519	(18056)	1
GUIDE BLOCK, SAW:	11543	(18056)	1
GUIDE BLOCK, SAW:	11528	(18056)	1
GUIDE, FILE:	27487	(18056)	1
GUIDE, FILE:	27488	(18056)	1
GUIDE, FILE:	27489	(18056)	1
HOLDER, POST:	35-7329	(18056)	1
INSERT, SAW GUIDE:	4499	(18056)	2
INSERT, SAW GUIDE:	4498	(18056)	2
INSERT, SAW GUIDE:	4497	(18056)	2
INSERT, SAW GUIDE:	4496	(18056)	2
INSERT, SAW GUIDE:	4495	(18056)	2
INSERT, SAW GUIDE:	3960	(18056)	2
INSERT, SAW GUIDE:	3959	(18056)	2
INSERT, SAW. GUIDE:	3958	(18056)	2
INSERT, SAW GUIDE:	3957	(18056)	2
JAW, HOLDING:	34-03107	(18056)	2
NIPPLE, PIPE:	WWN351	(81348)	1
PLATE, CENTER:	10627	(18056)	1
PLATE, CENTER:	10570	(18056)	1
PLATE, CENTER:	29261	(18056)	1
ROD, SLIDE:	20401	(18056)	1
SCREW, BACK UP:	34-09001	(18056)	2

Table 1. Component of the End Item-Continued

Components	Part No.	(FSCM)	Qty
SCREW, BACK UP:	18500	(18056)	2
WRENCH, BOX:	20308	(18056)	1
WRENCH, TABLE TRUNION:	18053	(18056)	1

Page 49. Appendix I is superseded as follows:

APPENDIX I

BASIC ISSUE ITEMS LIST

AND

ITEMS TROOP INSTALLED OR AUTHORIZED LIST

Section I. INTRODUCTION

1. Scope.

This appendix lists basic issue items and items troop installed or authorized required by the crew/operator for operation of the SAW, BAND, METAL CUTTING, FLOOR MOUNTING.

2. General.

This Basic Issue Items List and Items Troop Installed or Authorized List is divided into the following sections:

a. Basic Issue Items List-Section II. A list in alphabetical sequence of items which are furnished with, and must be turned in with, the end item.

b. Items Troop Installed or Authorized List. Not applicable.

3. Explanation of Columns.

The following provides an explanation of columns found in the tabular listings:

a. Federal Stock Number. Indicates the Federal Stock number assigned to the item and will be used for requisitioning purposes.

b. Description. Indicates the Federal item name and a minimum description required to identify the item. The last line indicates the reference number followed by the applicable Federal Supply Code for Manufacturer (FSCM) in parentheses. The FSCM is used as an element in item identification to designate manufacturer or distributor or Government agency, etc., and is identified in SB 708-42.

Items that are included in kits and sets and listed below the name of the kit or set with quantity of each item in the kit or set indicated in front of the item name.

c. Unit of Measure (U/M). Indicates the standard or basic quantity by which the listed item is used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation, e.g., ea., in., pr, etc., and is the basis used to indicate quantities. When the unit of measure differs from the unit of issue, the lowest unit of issue that will satisfy the required units of measure will be requisitioned.

d. Quantity Furnished with Equipment (Basic Issue Items Only). Indicates the quantity of the item furnished with the equipment.

e. Quantity Authorized (Items Troop Installed or Authorized Only). Indicates the quantity authorized to be used with the equipment.

f. Illustration (Basic Issue Items Only). This column is divided as follows:

(1) Figure Number. Indicates the figure number of the illustration in which the item is shown.

(2) Item Number. Indicates the item number used to identify each item called out in the illustration.

Section II. BASIC ISSUE ITEMS LIST

(1) Federal Stock No.	(2) Description Reference Number & Mfr. Code / Usable on Code	(3) Unit of Meas	(4) Qty Inc in Unit	(5) Illustration	
				(a) Fig No.	(b) Item No.
5120-198-5392	KEY, SOCKET HEADSCREW: hex type, 5/32 across f1, L-type hdl, 2 1/2 nom lg arm lg	EA	1	11	31

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
General, United States Army
Chief of Staff

Official:
VERNE L. BOWERS
Major General, United States Army
The Adjutant General

Distribution:

Active Army:

DCSLOG (3)
CNGB (1)
TSG (1)
COE (5)
OCC-E (1)
CONARC (2)
AMC (5)
ARADCOM (2)
ARADCOM RGN (2)
Armies (3) except
7th USA (5)
8th USA (5)
OS Maj Comd (2)
LOGCOMD (2)
WECOM (10)
4th USASA Fld Sta (1)
Ft. Knox FLDMS (10)
LEAD (2)
Instl (2) except
Ft Monmouth (5)
USARADBD (1)
USA Armor Bd (2)
USAAVNTBD (1)
USA Arty Bd (1)
USAREUR (10)
USARSO (5)
IUSASETAF (6)
USARYIS (5)
USACDCEC (10)
Div (2)
Ft Story (1)
USAQMS (2)
USAARMS (2)
Arsenals (2)
Units org under fol TOE:
9-57 (2)

NG: State AG (3)

USAR: None

For explanation of abbreviations used, see AR 310-50.

Section I. BAND SAW

TABLE OF CONTENTS

Section II. BUTT WELDER

CHAPTER 1

INSTALLATION

LOCATION

The type of work to be done will determine machine location. The machine should be located so work can be fed and removed easily. Refer to the accompanying dimension drawings (fig. 1 & 2) for the overall machine dimensions and required clearances. Be sure to allow sufficient clearance for opening doors or removing panels for maintenance, lubrication, repair, etc.

UNCRATING

Carefully remove all protective coverings, crating, etc. A rust preventive coating has been applied to all exposed bare metal surfaces. Remove this coating with solvent. Inspect the machine for broken or damaged parts.

LIFTING INSTRUCTIONS

A 3/4-in. N C tapped hole is provided in the upper surface of the machine head. Use a forged 3/410 N C eye-bolt screwed into this hole for lifting the machine. Net weight of the complete machine is approximately 1,050 lb; for the machine on skids it is 1,100 lb.

ELECTRICAL INSTALLATION

Bring the leads of the line circuit to the electrical enclosure on the machine column. Refer to the wiring diagram furnished with the machine. Jog the start button intermittently, shift the machine into low gear, and open the door over the lower saw wheel. Check to see if the wheel is turning clockwise. If it is turning counterclockwise, reverse any two of the connections.

Overload protection is provided on some models by a magnetic switch. Under ordinary conditions this will be ample protection. If the machine is started and stopped a number of times in rapid succession, the overload will kick out. Let the relay cool for a few minutes before starting the machine again.

Provisions for connecting the line circuit of each purchaser are made at the factory. A transformer within the machine supplies the current for the lights.

PREPARATION FOR USE

(1) Check the transmission oil level and fill if necessary. See Lubrication, Chapter 4.

(2) Fill the coolant tank (drip type or mist type, if used) with the coolant recommended in Chapter 3, Operation.

(3) Check to see if all other points listed in the Lubrication Chart, Chapter 4, have been serviced.

(4) Unfasten all shipping clamps such as the one on the power feed weight.

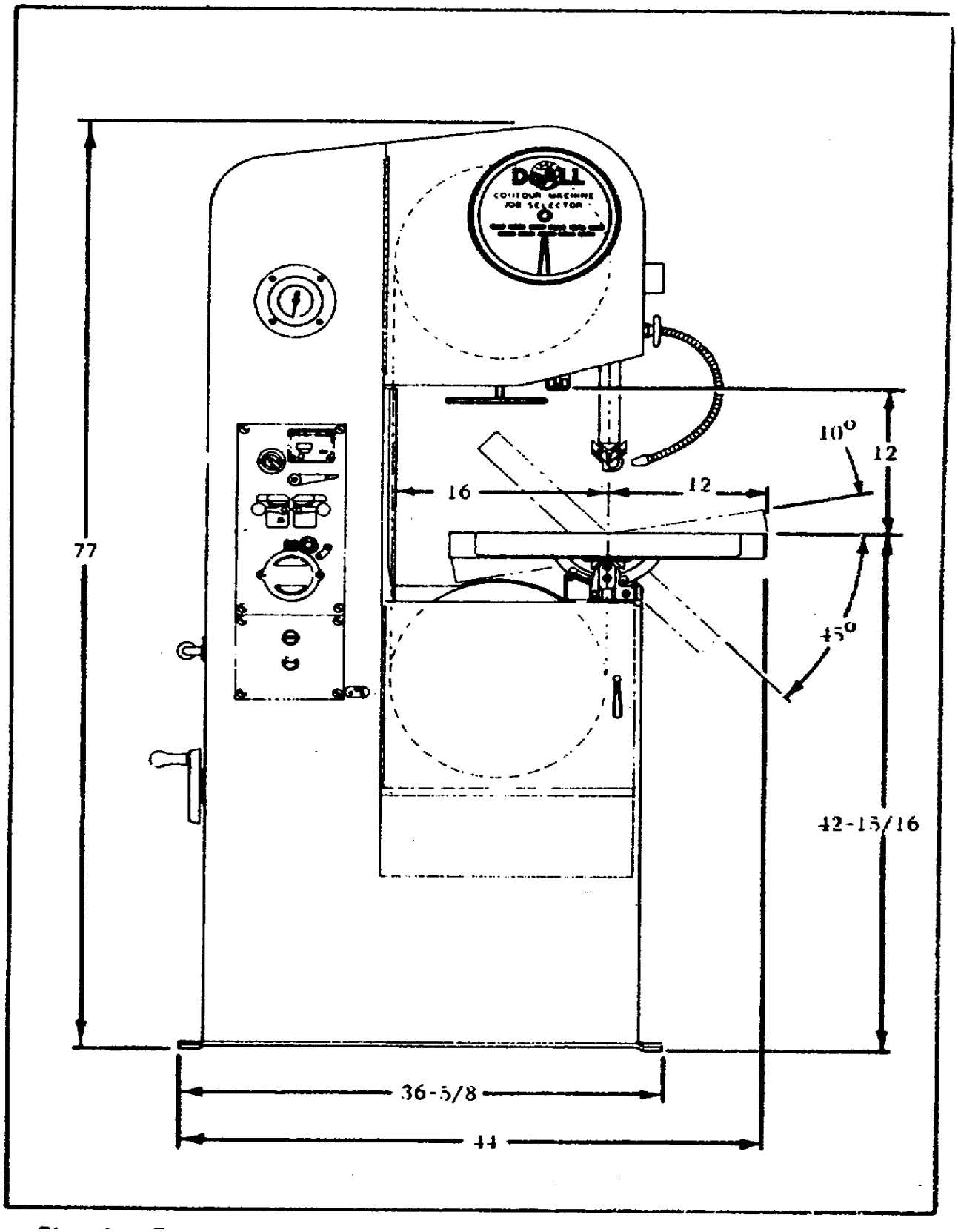


Fig. 1 - Front view of the Model 1612-0, showing overall dimensions.

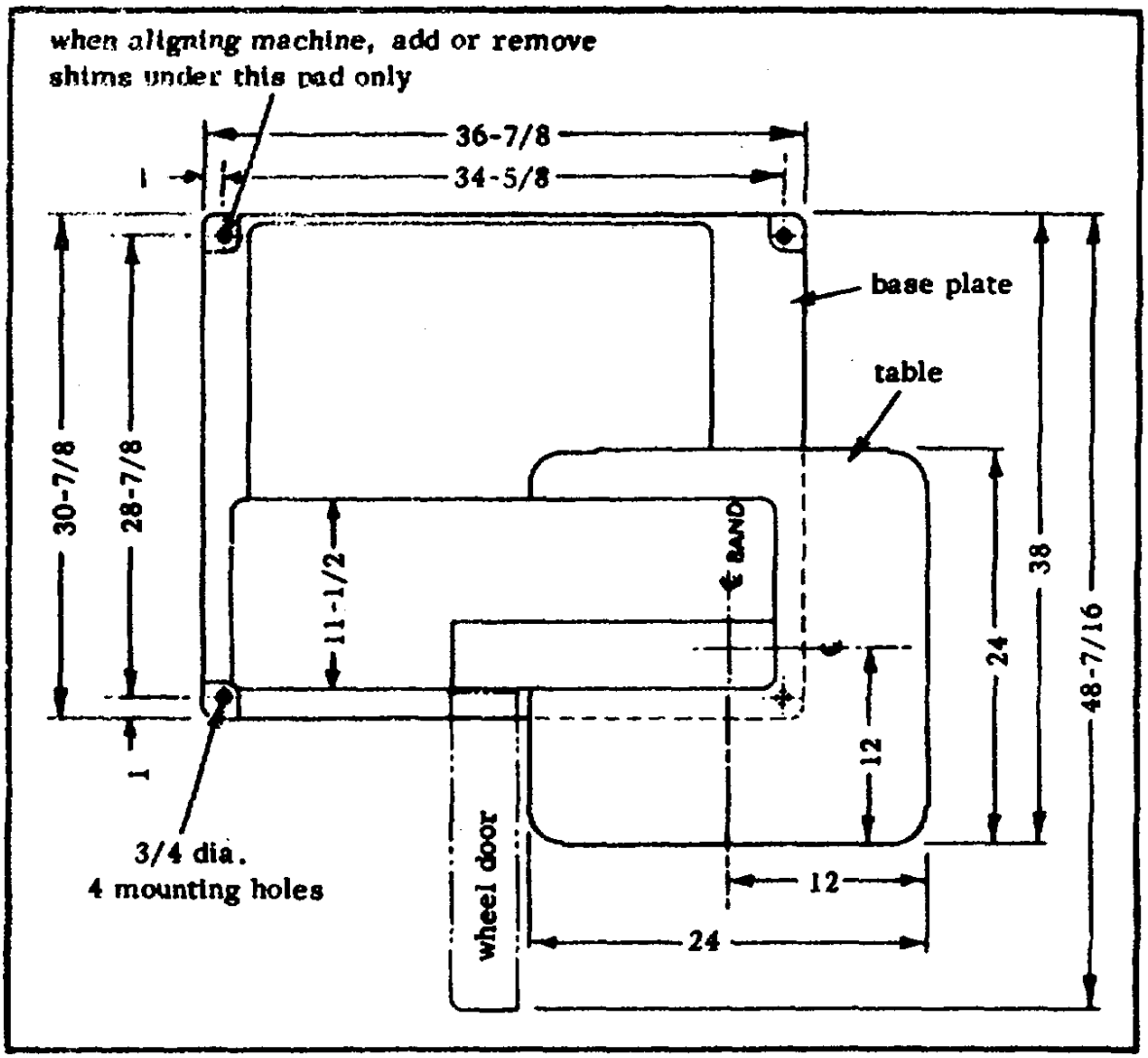


Fig. 2 - Top view, showing dimensions and mounting bolt holes.

ALIGNMENT

Before the machine is bolted into position, or whenever the machine is moved, the alignment should be checked and the machine shimmed.

(1) Place machine in desired location. Use 1/4-in. spacers between the floor and the base mounting pads of the machine.

(2) Shim under the pads as required until the machine is level and bears evenly on all pads. Uniformity of bearing can be checked by tapping on the spacers with a bar or hammer.

(3) Install a 1/2-in. wide saw band and apply correct band tension. Remove table center plate and post saw guard.

(4) Clamp or hold a straight edge (fig. 3) to the front face of the post and the face of the lower saw guide keeper block.

(5) The post should be parallel with the machined saw guide mounting recess in the lower keeper block. As shown in fig. 3, this parallelism is checked by placing a spacer block (ground to exactly .250" thickness) in the keeper block.

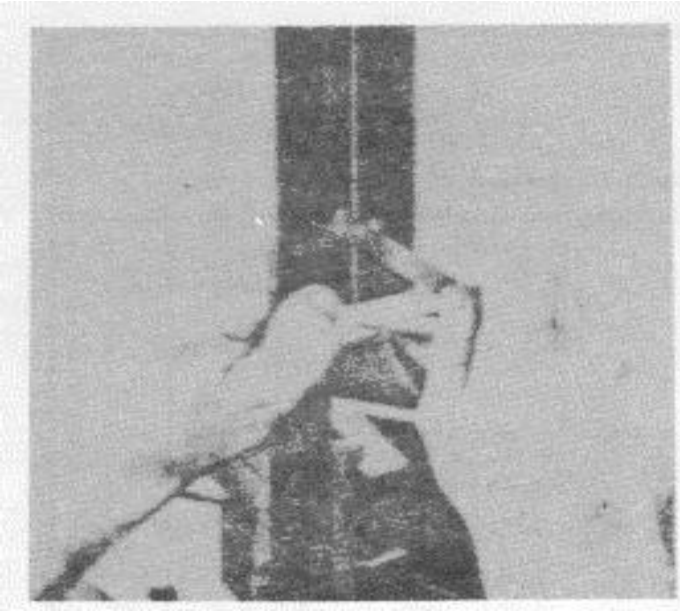


Fig. 3 - Checking alignment of post to lower saw guide keeper block by means of a straight edge and feeler gage.

Then place an accurate straight edge against this spacer block and the post. Using a feeler gage, check the clearance and parallelism of the post to the straight edge. A clearance of .004" or less is necessary.

(6) Adjust the gap by adding shims (to increase gap) or removing shims (to decrease gap) under only the mounting bolt location shown in fig 2.

(7) Replace table center plate and post saw guard.

(8) Loosen table tilt trunnion lock nut with the wrench furnished with the machine. Square the table to the post and check as shown in fig. 4 and 5. Tighten the trunnion lock.

(9) If necessary, adjust the trunnion pointer to zero.

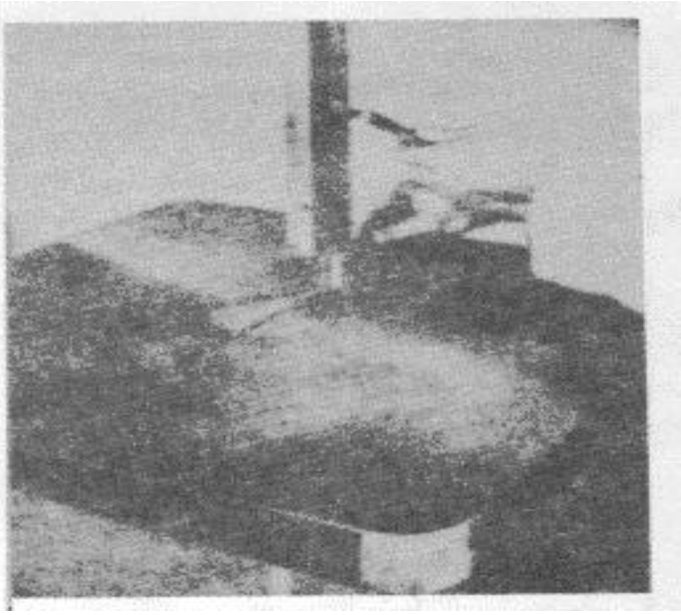


Fig. 4 - Checking squareness of table to post.

(10) The center of the band should ride directly on the center crown of the wheel tire with the back edge of the saw band just touching the saw guide back-up bearings. Adjust upper wheel tilt if necessary so that the band will track properly, (see the tracking adjustment in the Operation Chapter).

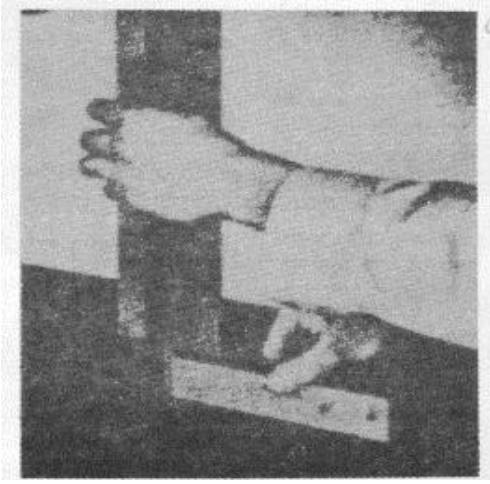


Fig. 5 - Checking squareness.

CHAPTER 2

OPERATING FEATURES

JOB SELECTOR

This dial, mounted on the upper frame at eye level, enables the operator to quickly select the correct saw bands, file bands, speeds and feeds used in the machining of basic materials. A study of this dial's information on contour sawing, filing, polishing, high-speed sawing and friction sawing will familiarize the operator with the machine's different working capacities.

WORK TABLE

The 1612-0 has a heavy, ribbed, cast iron 24 in. by 24 in. work table. The table is mounted upon a trunnion, allowing a tilt of 10 deg. to the left or 45 deg. to the right. The table is provided with tapped holes to receive the accessories described in Chapter 7. A removable, circular filler plate is located at the center of the table. The angle of table tilt is shown on a graduated scale attached to the trunnion. The table can be locked at any angle by means of a trunnion locking clamp.

BAND WHEELS

The saw band carrier wheels are made of cast aluminum. They are 16-1/4 inches in diameter and are equipped with replaceable, crowned shaped, rubber tires. The wheels are balanced to provide vibration free operation a. all speeds. The upper wheel incorporates a tilt control with lock for band tracking adjustment. Wheel bearings are sealed and lubricated-for-life.

The wheel tires are made of oil resistant rubber to eliminate wear on the band teeth.

SAW GUIDE POST

The saw guide post acts as a backup support for the upper saw guide. The post is adjusted manually and held in place by means of a hand lock. Holes are provided in the post for mounting saw guides, file guides, polishing guides and accessories such as the Disk Cutter (described in Chapter 7).

PRECISION INSERT GUIDES

Precision insert guides are furnished with the machine to cover all sizes of saw band from 1/16 to 3/4 inch. Each guide block has accurately machined slots for mounting the inserts. An adjusting gage is furnished with the inserts. The saw blade back-up consists of a permanently greased anti-friction bearing with a thrust roller cap of wear resistant hardened steel.

Each guide block and insert is marked to indicate what size band they are to be used with. Different sets of guide blocks must be used for band sizes 1/16 in. to 1/2 in., and 5/8 in. to 3/4 in.

DRIVE SYSTEM

Power is transmitted from the drive motor to the SPEEDMASTER variable speed pulley, then to the

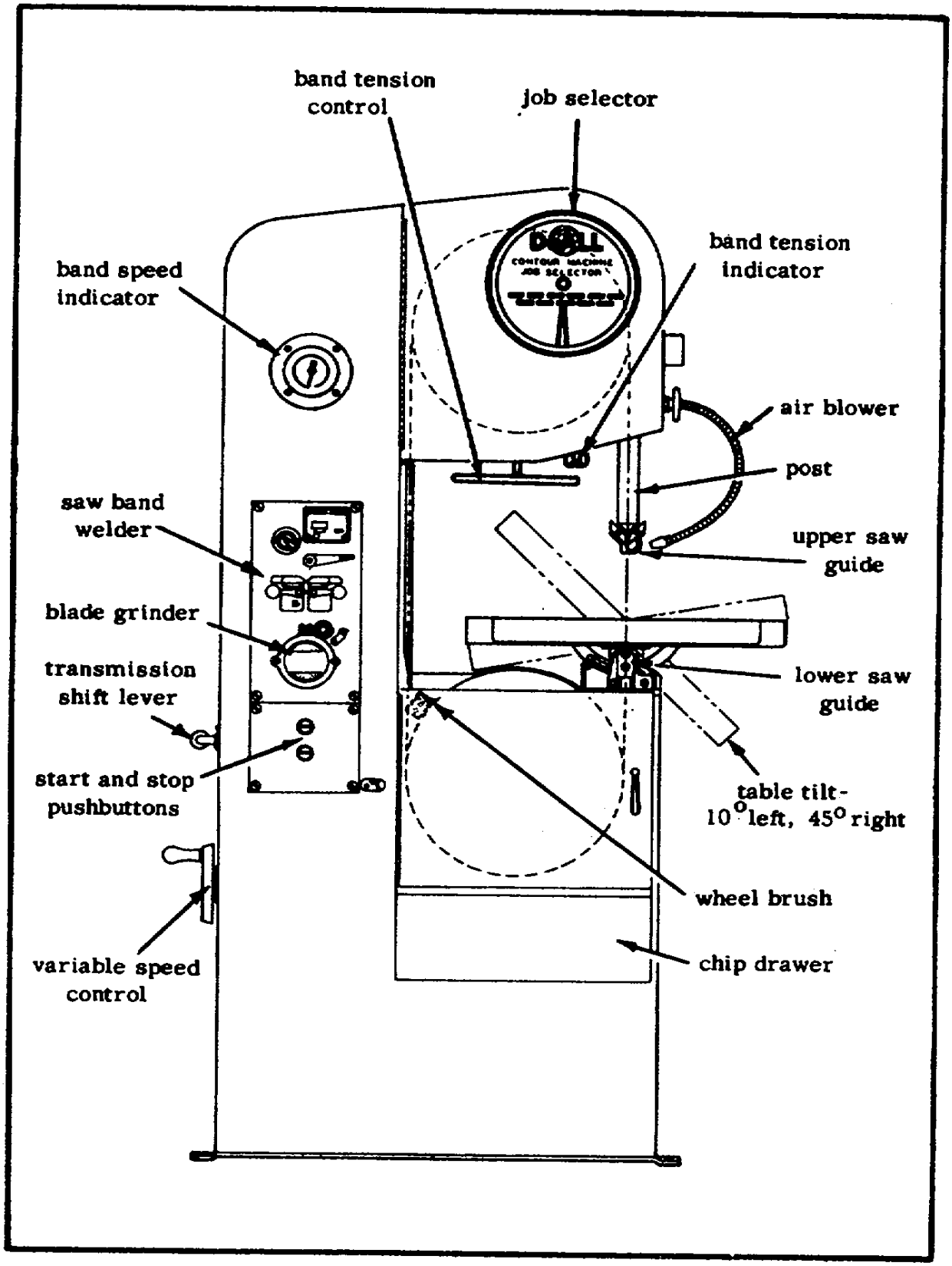


Fig. 6 - Features of the Model 1612-0.

two-speed transmission which in turn drives the lower saw band wheel. The stretch of the drive bests is automatically taken up by the counter-balancing weight of the motor on its mounting-plate.

The SPEEDMASTER is a variable speed pulley with a floating center sheave.

An interlock mechanism, located on the shift linkage and variable pulley bracket, prevents shifting gears when the variable pulley is in its high speed position. Speed ranges are:

Low speed - 50 - 350 fpm
High speed - 250 - 1500 fpm

AIR SYSTEM

An air pump, continuously belt driven by the band drive motor, is mounted on the motor mounting plate. It provides a constant air supply to the adjustable, flexible, chip-blowing nozzle mounted on the head above the work table.

CHIP REMOVAL

An easily removable chip drawer is located below the lower drive wheel. A replaceable chip brush is provided to clean chips from the lower wheel tire.

SAW BLADE WELDER

A saw blade welder with grinder is mounted in the machine column. A separate instruction manual is provided for the welder.

CHAPTER 3

OPERATION

HOW TO SELECT BLADE TOOTH FORM, PITCH, WIDTH, GAGE AND SET

NOTE

Refer to the DoALL Handbook "'How To Select Band Saw Blade" and handbooks on individual blade types. When selecting the best blade for the job, keep these things in mind:

A. Tooth Form Selection

(1) For finer than 6 pitch, Precision is only choice.

(2) For 6 pitch and coarser, Claw Tooth usually gives best tool life and fastest cutting rate.

(3) For best finish, Precision and Buttress are usually preferred.

B. Pitch Selection

Select best pitch from information on Job Selector and DoALL Handbook. If this pitch is not available in desired width:

(1) For thick materials, choose the nearest pitch.

(2) For thin materials, reduce width until pitch is found.

(3) Have at least two teeth in work at all times. It is recommended that about six teeth be in the work during hand or power feeding.

C. Width Selection

Always use the widest blade available:

(1) In desired pitch (thin work only).

(2) That will cut the smallest radius required.

(3) That the machine can handle.

D. Gage Selection

Use recommended gage except when increased work thickness decreases accuracy and blade width cannot be increased to compensate. For example, use a heavier gage:

(1) When radius cutting in thick materials.

(2) When maximum width blade which can be used on the machine does not provide sufficient beam strength.

E. Set Selection

Always use raker set except::

(1) For work of varying cross section use wave set

(2) When one band must be used for a range of material sizes use wave set.

Available Sets are:

Standard Carbon - raker, wave
Dart- - - - - - - - - - - raker, wave

HOW TO SELECT THE BEST COOLANT

The choice of the type of coolant to be used depends upon the particular application involved. Literature is available from the DoALL Company giving complete descriptions of the recommended types of coolant and their applications. A cutting fluid or coolant will greatly improve performance by cooling and lubricating the saw band.

If your machine is not equipped with coolant applicators, use a lubricant such as Saw-Eez. Saw-Eez is a lubricant specially prepared for contour sawing. It is packaged in four ounce tubes. Saw-Eez is supplied directly to both sides of the saw band, through the saw guide, while the band is moving.

Drip and spray type coolant applicators are available as accessories. Coolants which can be used with these applicators on the 1612-0 are:

(1) Kleen-Kool (mix with water according to instructions on the container label).

(2) #470 Soluble Cutting Oil- This is an all-purpose, water-soluble oil for general shop use (see container label for mixing instructions).

NOTE

Cutting oil must be applied sparingly as a drip or a very light mist. If the oil accumulates on the rubber surface of the band wheels, it may cause the saw band to slip and slide off the wheels.

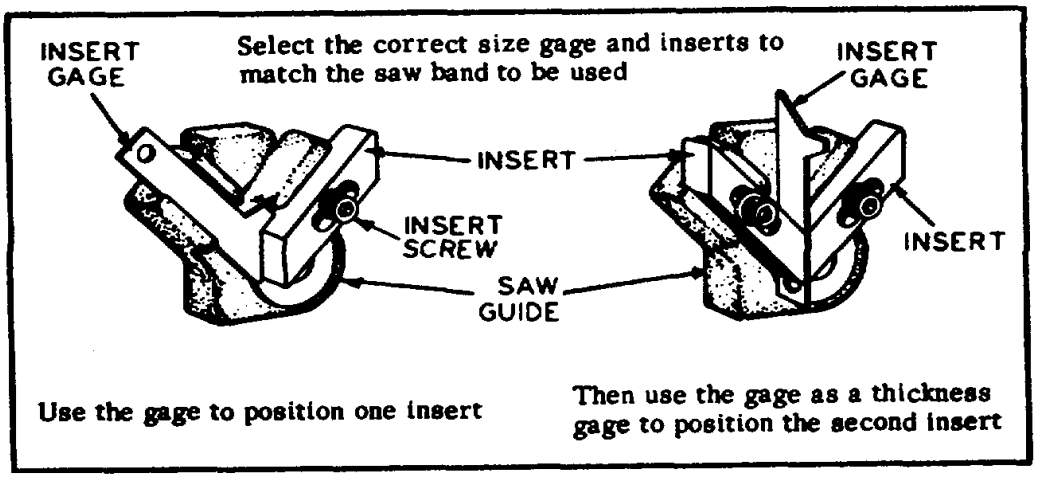


Fig. 7 - How to adjust saw guide inserts.

HOW TO ADJUST INSERT-TYPE SAW GUIDES

(1) Select the set of inserts marked for the width of saw band being used.

(2) Place the right-hand insert in the milled slot (fig. 7), and tighten the screw lightly so that while the insert will slide in the slot, it will still hold its position when released.

(3) Select the proper insert gage for the gage of saw band being used.

(4) Place the gage in the opposite slot and adjust the insert so that it meets the two gaging edges (fig. 7). Then tighten the insert securely in place.

(5) Place the left-hand insert In the slot and tighten the screw lightly.

(6) Place the gage edgewise between the two inserts (fig. 7), Then bring the left-hand insert down so that it rests against the gage. When the gage is removed, the gap left

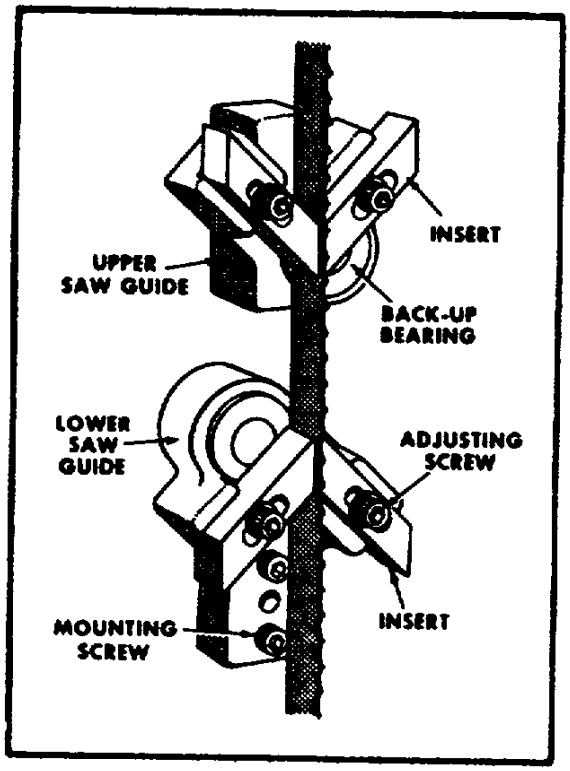


Fig. 8 - Completely assembled upper and lower insert-type saw guides for the Model 1612-0.

will be the proper thickness for the saw band. The upper and lower saw guides are shown assembled in fig. 8.

HOW TO INSTALL A SAW BAND

(1) Open both saw wheel doors (fig. 9)..

(2) Remove the band guard mounted on the post.

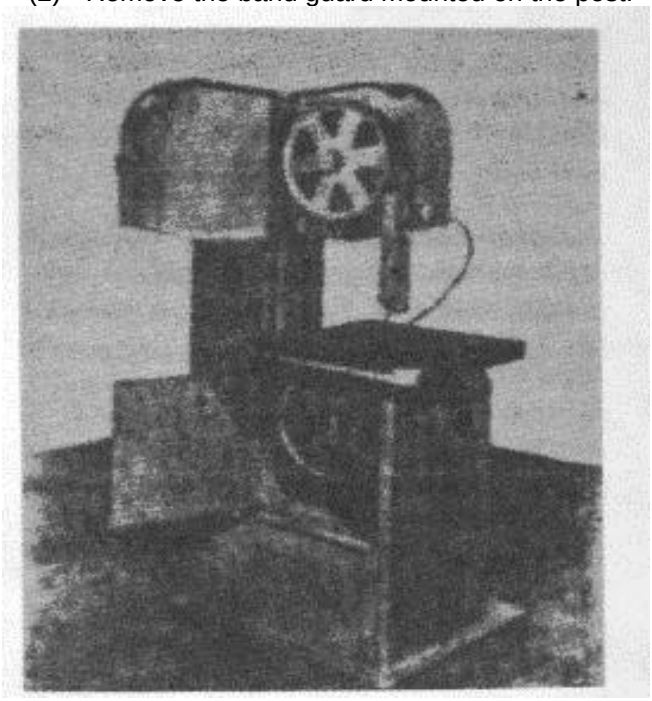


Fig. 9 - Installing a saw band. Open the doors, slip band under column guard and fit over wheels.

(3) Remove the bar which crosses the saw slot (fig. 11) just below the front edge of the table.

(4) Using gloves to handle the band, place it carefully over the wheels and between the saw guide inserts (or rollers, if used) so that the band is centered on the crown face of the wheels.

(5) Replace the band guard. Replace the bar over the table slot. Close the wheel doors.

(6) Next, tension the band and check the tracking adjustment as described in the following sections.

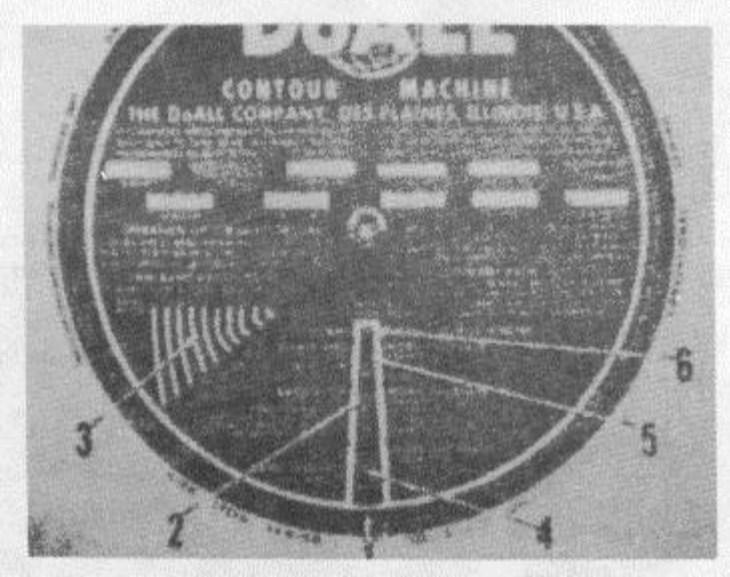


Fig. 10.

TO USE THE JOB SELECTOR, FOLLOW THESE STEPS:

(1) Turn the dial until the material to be cut is directly below the window in the cover. (see above)

(2) Locate the recommended pitch and blade type listed next to the work thickness.

(3) If a radius is being cut, locate the correct blade width on the radius chart. Having determined the width, pitch and tooth type, refer to the saw blade specification table (page 50) to determine the gage and set. If the desired pitch is not available in the width needed, a compromise must be made. In thick materials, if the desired pitch is coarser than that available, the nearest pitch should then be chosen for the width needed. In thin materials, if a finer pitch is indicated than that available, reduce the width until the optimum pitch is found.

(4) Locate the recommended band speed for the work thickness and blade type used.

(5) Note the recommended feed force to be used for the work thickness.

(6) Note the recommended method of coolant application (if your machine is equipped with drip or spray coolant applicators). This completes the choice of blade and sets up requirements for the optimum sawing job. However, these recommendations can be adjusted to meet particular requirements of the sawing job.

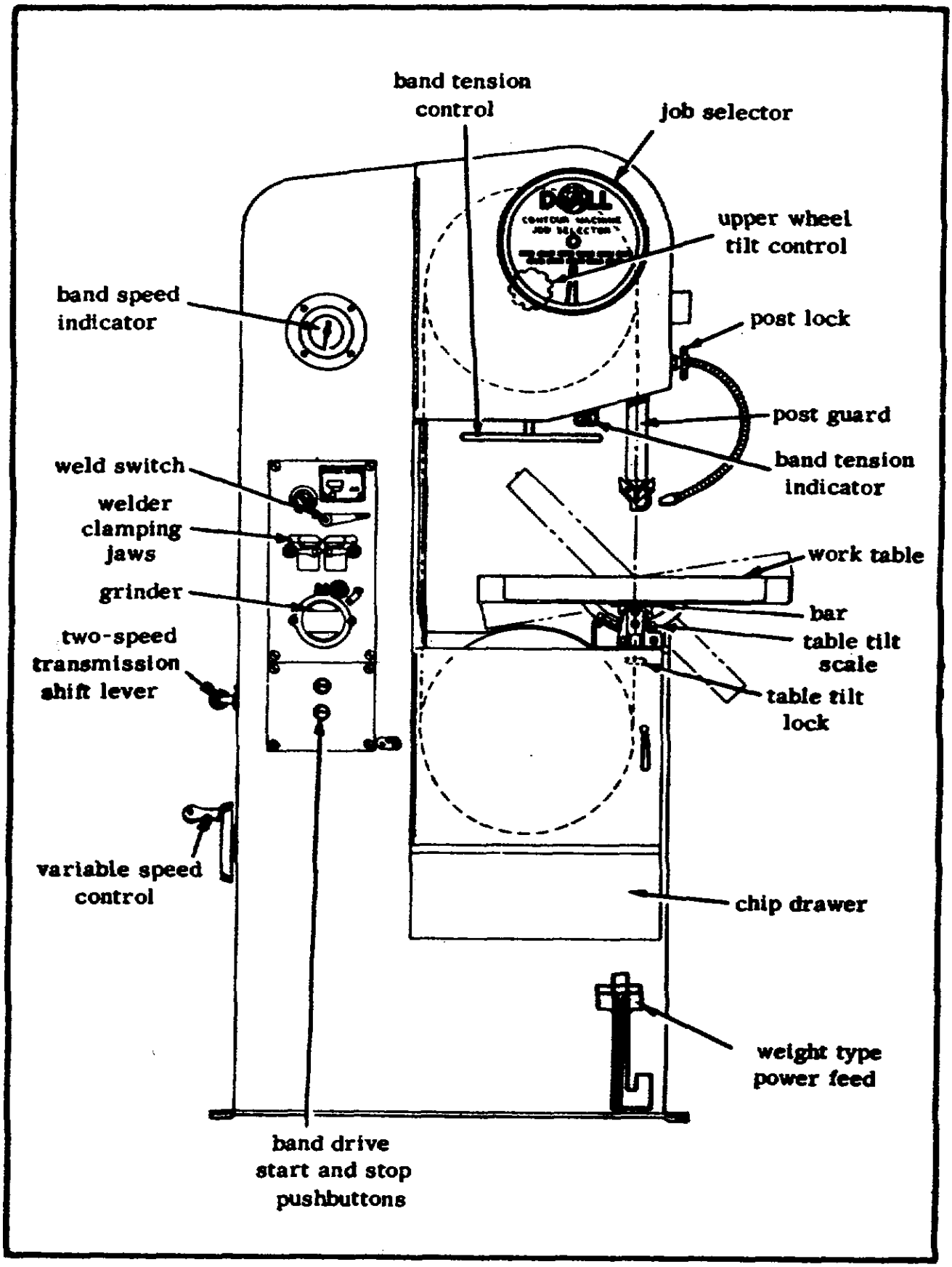


Fig. 11 - Showing location of all operation and alignment controls.

HOW TO TENSION A SAW BAND

Band tension is applied by turning the (tension) handle (fig. 11) located below the saw head. Tighten the band to the proper tension indicated on the band tension scale mounted next to the control. The figures on this scale are recommended tensions and are based on the most common gages and pitches used. When using bands with coarser pitch or lighter gage, reduce tension. Increase the tension when using heavier bands. Note that Dart saw band requires more tension than Standard Carbon.

A new band may stretch slightly as it is being used. It is important to check the tension of the band so that it does not become too slack.

HOW TO TRACK THE BAND

The upper wheel must be adjusted so that the band tracks correctly on both wheels. A hand control with lock is provided on the upper wheel for tilting the wheel on its axis.

Assuming that a saw band has been correctly installed and tensioned, the tracking adjustment is as follows:

(1) With the wheel doors open, press the start button and observe how the band tracks.

(2) Use the tilt control (fig. 12) to adjust upper wheel tilt. Turning the tilt handwheel clockwise moves the band into the saw guide bearings and turning it counter-clockwise pulls the band away from the bearing. The back edge of the band should just touch the insert-type

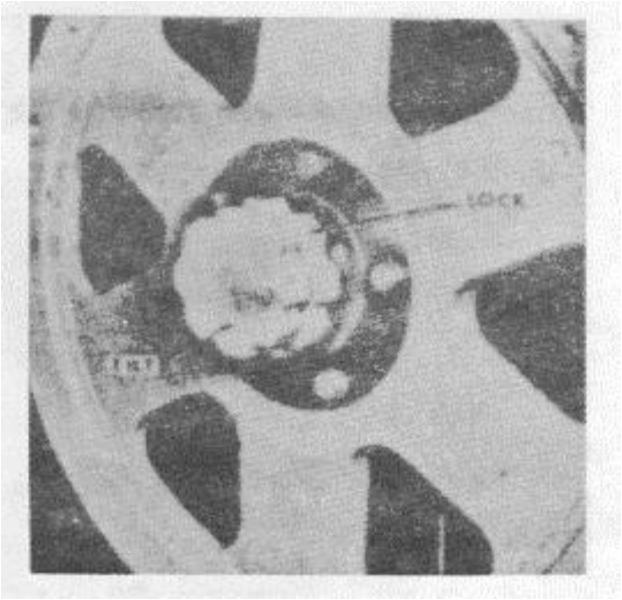


Fig. 12 - Showing upper wheel tilt and LOCK controls for band tracking.

saw guide back-up bearing (or backup flange of roller-type saw guide, if used) and should ride near the center of the face of the crowned wheel tire.

(3) If the band starts turning the bearings, or if there is an excessive gap between the band and bearings, use the tilt control to bring the band into correct position.

(4) tighten tilt-screw lock when properly tracked. If the teeth of the saw band run so far in the saw guide slot that a clicking noise is heard, or if the band does not run deep enough in the slot to be guided perfectly, an incorrect width of Insert is being used for that particular width of blade.

SAFETY PRECAUTIONS

(1) Always close saw wheel doors before tensioning band or starting the band in motion.

(2) Make sure that saw band guard on post is locked in place.

(3) Wear safety glasses when operating the machine.

(4) Step to one side and away from the welding unit before welding a saw band.

(5) Check coolant lines for loose connections. Avoid splashing coolant. Some types of coolant contain chemicals injurious to the eyes.

(6) If a small work piece is to be sawed, use a pushing stick if at all possible.

(7) Friction sawing produces sharp burr on work - handle carefully.

(8) Keep the drive system enclosure in place at all times except when servicing the machine.

(9) Disconnect the power supply before removing the panels covering electrical components.

(10) Always wear gloves when handling saw bands.

(11) High speed sawing when coolant is not used may produce explosive or toxic dust. Provision must be made to dispose of this dust.

HOW TO USE THE SPEED CONTROLS

With the gear shift control(fig. 11) the operator can select either one of two transmission speed ranges. Each speed range can be infinitely varied by the speed change control (fig. 11)which changes the position of the variable pulley. Band speed is shown on the speed

indicator dial. Good practice recommends the following three precautions:

(1) Always allow the machine to come to a complete stop before shifting gears. If the gears are not in a position to mesh, start and stop the machine intermittently until they do. Another method would be to turn the drive band wheel by hand until the gears engage. Do not attempt to force the shift control into place.

(2) Before stopping the machine, always turn the variable speed control to "slow". An interlock mechanism prevents shifting gears when the variable pulley is in its high speed position.

COOLANT APPLICATORS: DRIP TYPE

These applicators (fig. 13) are designed to deliver a controlled flow of coolant directly to the saw blade at the point of work.

This will increase the saw blade life and speed of cutting, and give a finer finish.

A bracket is provided for mounting the one-quart container which holds the coolant. This bracket should be installed on the panel at the rear of the machine.

The lubricator is fastened to the post by means of a set screw. The slide rod on the lubricator is adjustable for all blade widths.

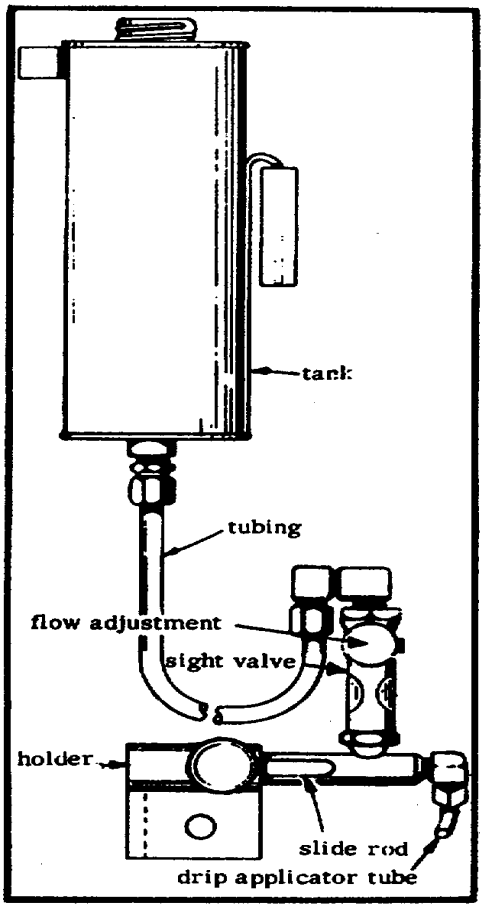


Fig. 13 - Drip coolant applicators.

The drip-type applicator should be adjusted so that the copper tube outlet is just touching the edge of the saw teeth. This will assure lubricant flowing on both sides of the saw. Adjust the sight feed valve to deliver not more than 10 drops per minute.

NOTE

Excessive use of a comparitively slippery coolant will cause the saw band to slip off the crowned rubber tire wheels.

HOW TO ADJUST TABLE TILT

Table tilt is used primarily when sawing compound angles. To tilt the table, loosen the lock nut with the wrench provided (fig. 14) and tilt the table manually until it is at the desired angle. The amount of table tilt (maximum: 10 deg. left and 45 deg. right) is shown by the pointer and calibrated scale mounted on the trunnion. Next, lock the table in position.

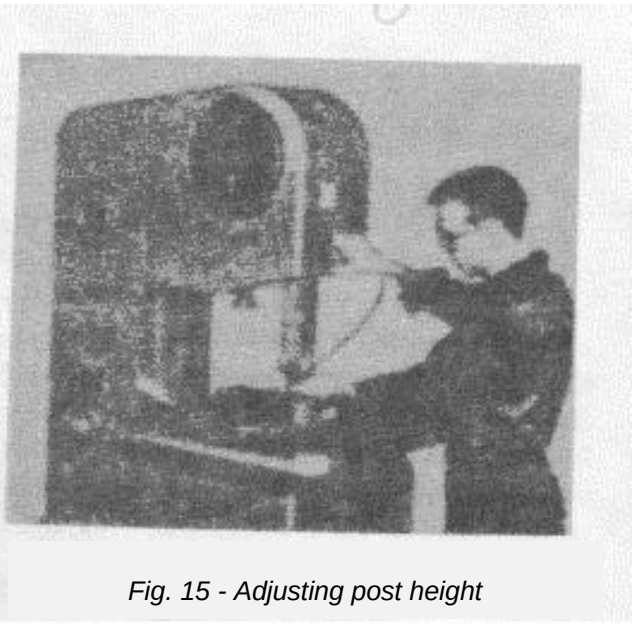


Fig. 15 - Adjusting post height

CONTOUR SAWING

Use hand feed, screw feed or ratchet feed (fig. 16) for sawing intricate contours. The weight-type power feed accessory can be used for contour sawing

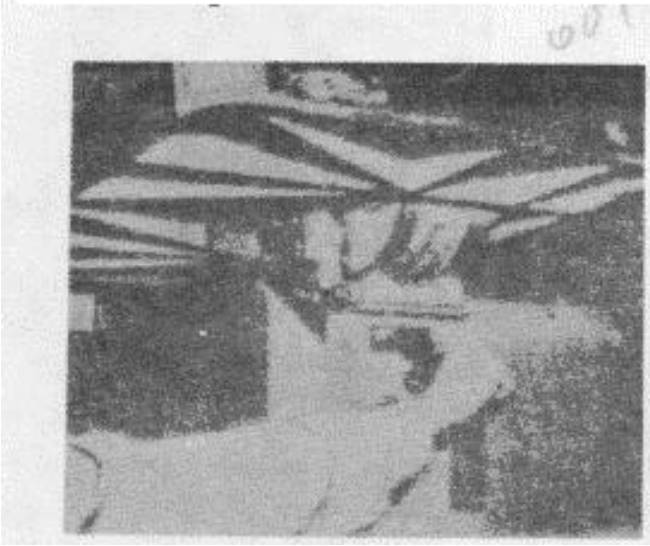


Fig. 14 - locking table tilt.

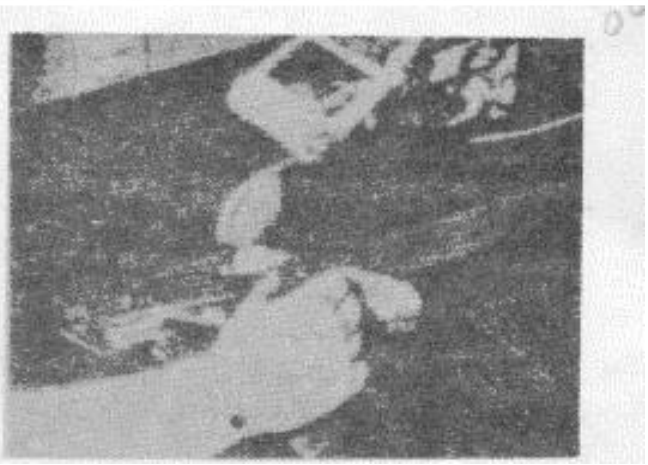


Fig. 16 - Using magnifier to follow layout lines.

HOW TO ADJUST THE POST

The post is adjusted manually and locked in place with the hand control (fig. 15). Always keep the post and saw guide as close as possible to the workpiece. This win provide maximum support for the saw band and increase accuracy.

of large, heavy parts. When cutting into an opening, reduce the feed force to prevent damage which might result when the blade enters the opening suddenly. Do not feed the work so rapidly that the saw band twists or bows. Follow the recommendations on the Job Selector for band speed, feed pressure and coolant application.

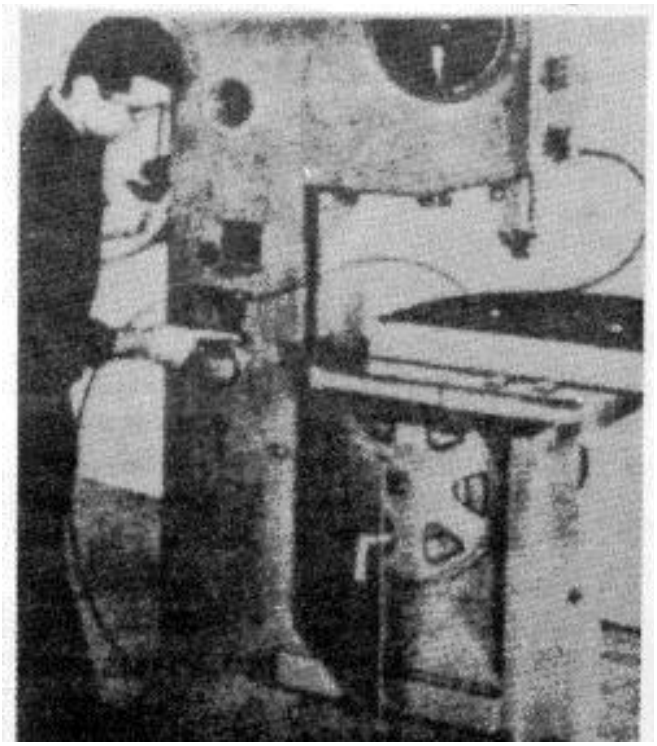


Fig. 17 - For internal contour sawing, run the band through a starting hole and weld.

A hole is usually drilled when there is a sharp corner to be cut, but this is not always true. A corner may be by-passed with a curve and the remainder notched out later. To saw an internal contour, first drill a starting hole, then run the saw band through the hole and weld (fig. 17). If the contour is a radius, use the Disk Cutting Accessory as shown in fig. 18.

The diameter of the drilled starting hole is determined by the size of the saw band. The widest possible saw band is used for the curve to be cut, but attempting to cut too small a radius with too wide a saw band will bind the band and cause the lower wheel tire to become grooved. See the radii chart (fig. 19) for minimum radii possible with various saw band widths. Use a heavy gage blade for contour sawing of heavy work pieces.

Fig. 18 - Here, the disk cutting accessory was used to saw part of the internal contour.

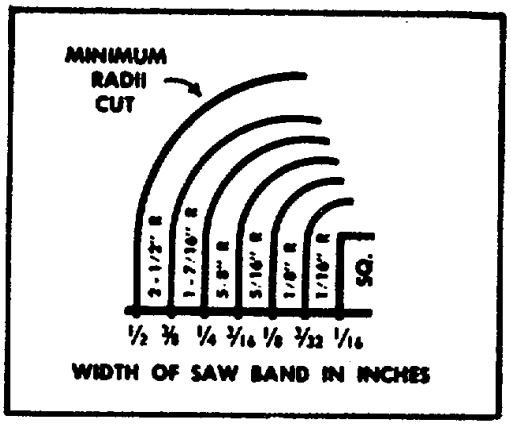


Fig. 19 - Radii Chart. The minimum cutting radius possible is shown above each saw band width.

NOTE

The recommendations in the radii chart are based on sawing relatively thin stock. Use a narrower saw band than recommended when sawing stock more than one inch thick.

USING THE WEIGHT-TYPE POWER FEED

The weight-type power feed is an accessory (described in Chapter 7). Use of a feed assist is very helpful for efficient band machining, both for straight cuts and contour cuts.

The mechanism for this system is contained within the machine. A weight on a beam pulls the work holding chain which, in turn, pulls the work into the blade.

The chain and cable pulley system permits rotating the work to follow curved layout lines while still using power feed, (fig. 20).

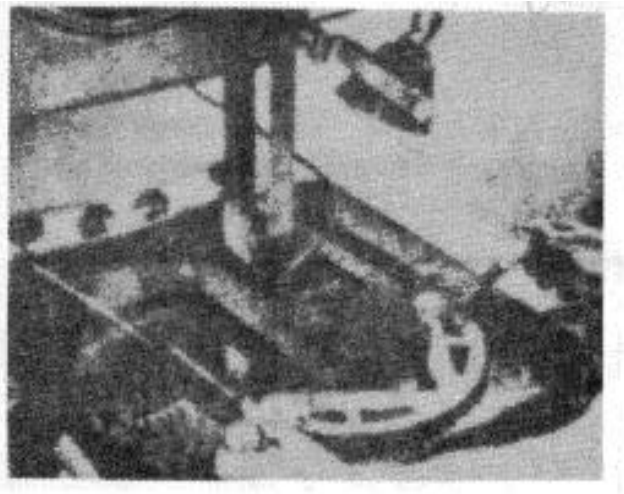


Fig. 20. The power feed chain can be looped around the work holding jaw as shown here.

The beam is raised initially by a pedal on the front of the machine (fig. 21). The position of the weight on the beam determines both the rate and force of the feed. This position is set by a hand wheel on the side of the machine.

NOTE: In order to obtain a maximum 200 lbs. feed force, the equalizer pulley clevis should be moved to the hole in the cable beam nearest the feed handwheel. Use heavy feed force for sawing with wide blade, lighter feed forces for narrow blade.

Feed force less than 10 lbs. is achieved by partially restraining the pedal. Lighter feed forces are also required if the work piece is significantly thicker. Example: 1/4 in. band in 1 in. thick 1020 HRS use maximum feed force; but In 6 in. thick 1020 HRS use light feed force.

On large work where the cut is longer than the 10-in. maximum feed distance, the weight is brought back into position by pressing the pedal into the notch at the bottom of its stroke and then taking up the slack in the work-holding chain.

WARNING
When not in use the pedal should be left in the upper position. This guards against injury to the operator and machine if it should accidentally become dislodged.

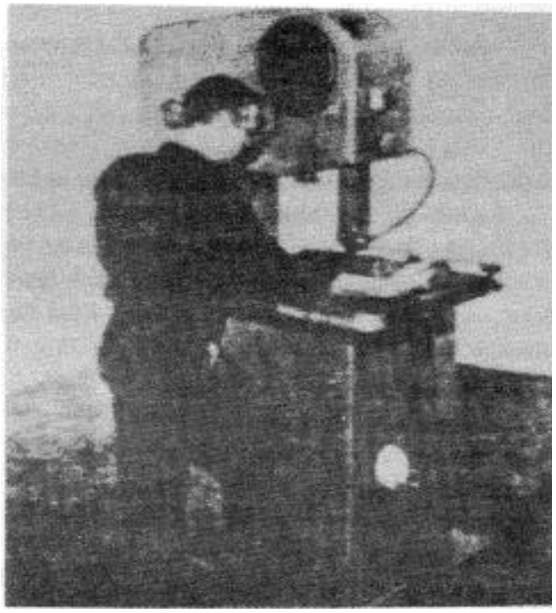


Fig. 21. Set the weight for the power feed by pressing down on the foot pedal.

PREPARATION FOR OPERATION CHECK LIST:

(1) Plan sequence of cuts and lay out job.

(2) Select correct saw blade type, pitch, width, etc. for material (see job selector).

(3) Install saw guides.

(4) Install and tension saw band. Check band tracking and adjust post.

(5) Select and install accessories such as ratchet feed, rip fence, screw feed, miter bar, disk cutter, etc.

(6) Consult job selector and select correct band speed, feed force, and coolant type and application (if used). See Operation Recommendations Chart.

TIPS FOR GENERAL SAWING

(1) Use a feed assist of some kind whenever possible. The weight-type power feed can be used for contour sawing of heavy parts. The screw feed with work holding jaw may be used for delicate contour sawing. It attaches to the table with a bracket. The screw feed permits the operator to feel the feeding force as it is applied to the work.

(2) Use magnifier for following layout lines.

(3) Keep work lite and work area clean.

(4) Use coolant whenever possible.

(5) Use the rip fence or miter bar accessories when needed for ripping or making angle cuts.

(6) Use wide gage blade for heavy cuts on contour work.

(7) Wear safety glasses when sawing. Brush chips away frequently from work table. Use a pushing stick or work holding jaws on small work pieces.

TYPE OF WORK	MATERIAL (AISI Code numbers)	BAND SPEED RANGE (fpm) work thickness		RECOMMENDED SAW BAND OR BAND TOOL
		under 1/2"	over 3"	
Light-duty sawing Free-machining metals	1112, 1212 & 1213	175	150	DoALL Standard Carbon or Dart (performance will be improved if coolant is used with Dart) See saw blade specification chart for selection of width, gage, type, set and pitch
Light-duty sawing Low carbon steel	1015 to 1030	175	145	
Light-duty sawing Medium carbon steel	1035 to 1050	150	100	
Light-duty sawing High carbon steel	1060 to 1095	125	80	
Light-duty sawing Alloy steels	Ni, Cr, Mo, Mn, Ni-Cr, Ni-Mo	125	70	
High-speed sawing	Al, Mg	4500	3000	DoALL Standard Carbon or Dart
High-speed sawing	Cu, bronze, brass	2750	800	
High-speed sawing	Zinc, lead	2750	1000	
High-speed sawing	Wood	3000	5200	Woodworking or carbon
High-speed sawing	Thermo-plastic	2300	1200	Carbon or Dart
High-speed sawing	Thermo-setting plastic	5500	3000	Carbon or Dart
Light-duty sawing	Cast iron	150	100	Carbon or Dart
Band Filing	Brass, Al, Mg, Cu, Zn	230	150	10 teeth, flat or oval short angle, coarse cut
Band Filing	Mild, Carbon steel	145	80	Flat or oval bastard, medium cut, 14 or 16 teeth
Band Filing	Tool, Alloy steel	90	50	Flat or oval bastard, medium cut, 16, 20, 24 teeth
Band Filing	Cast iron	150	80	Flat or oval short angle, coarse cut, 10 teeth
Band Polishing	Al, Mg, Cu	1900	1500	DoALL Abrasive bands alum. oxide or silicon carbide, 3 grit sizes, all bands are 1 in. wide
Band Polishing	Carbon steel, stainless	3300	2000	
Contour sawing	All materials	Low speeds as required		Carbon or Dart, find band width in radius chart
Contour sawing intricate shapes, small radius	Metals, woods and plastics	Low or medium speeds as required		Spiral saw band, four diameters available
Slicing cloth, rubber, paper, etc.	Cloth, rubber, paper, cork, leather, felt, etc.	High speeds		Special DoALL Knife-edge band
Friction sawing	Thin ferrous materials (16 ga.)	Highest speed possible		Special DoALL Friction saw band

Fig. 22 - Operation Recommendations Chart.

RECOMMENDED SAW GUIDE AND INSERTS	RECOMMENDED COOLANT	COOLANT MIXING INSTRUCTIONS	METHOD OF COOLANT APPLICATION
Insert type - use correct size insert and guide block for width of saw band.	DoALL Coolants such as: Kleen-Kool concentrate or #470 soluble oil concentrate if your machine has drip or mist coolant applicators. If not, use Saw-Eez or saw dry.	Follow mixing instructions on container for Kleen-Kool. Mix 30 parts water with 1 part #470 soluble oil concentrate.	Apply drip or very light mist to saw band where it enters work. Apply Saw-Eez through upper saw guide fitting. Too much coolant will cause band to slip off wheels.
Roller type recommended, insert type can be used.			
	None	None	None
Insert or roller type	None	None	None
Insert type	None	None	None
Special file guides for each size file band. Use special table center disk also.	Kleen-Kool or none	Mix per instructions on container	Light mist or dry
	None	None	None
Special polishing guides. Use special table center disk also.	None	None	None
Insert type	Kleen-Kool or #470	See above for mixing instructions	See above
Special DoALL Spiral band guides	None	None	None
Insert-type saw guides	None	None	None
Roller-type saw guides	None	None	None

Fig. 22 - Operation Recommendations Chart.

BAND FILING

A. Setting Up The Machine For Filing For both internal and external filing, perform the following steps:

(1) If the machine is set up for sawing, remove the saw band.

(2) Remove the table center disk and post saw band guard.

(3) Remove the saw guides from the machine.

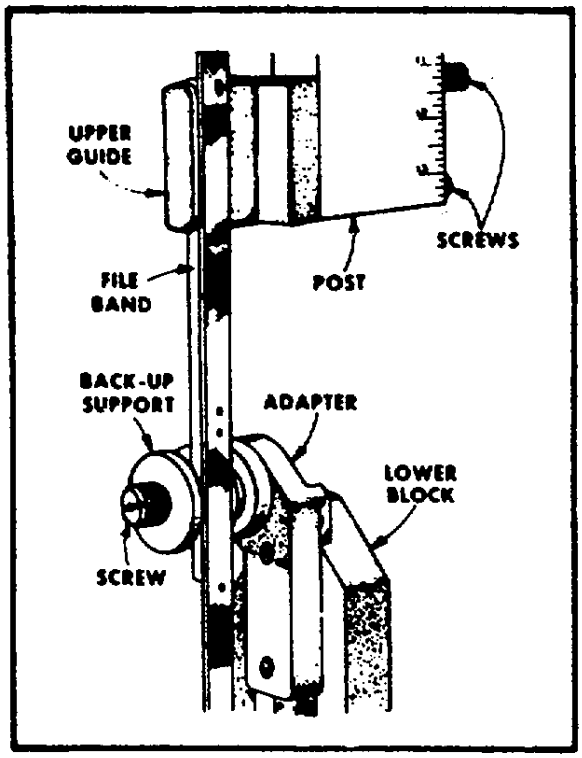


Fig. 23 - File guides.

(4) Mount the file guide support (fig. 23) on the lower keeper block, making sure the proper width of slot for the file band is being used.

(5) Lower the upper post to the proper work thickness. This thickness should not exceed 2 in. for 1/4 in. file band and 4 in. for 3/8 and 1/2 In. bands. Longer guides are available that will permit filing of 7-in.. thicknesses with the 1/4-in. band and 8-in. with the 3/8-in. and 1/2-in. bands.

(6) Install the upper file guide, locking it firmly to the post with the knurled thumb screws.

(7) Install the special table center disk for filing (fig. 25).

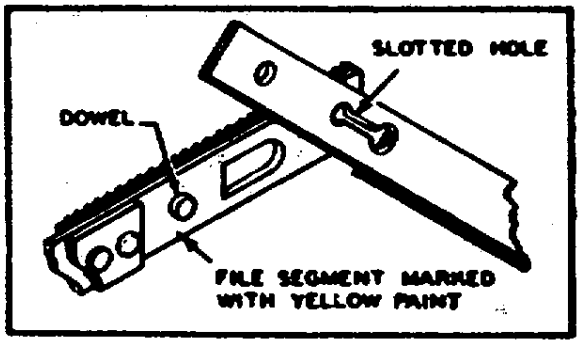


Fig. 24 - How to join the file band.

B. Joining The File Band

(1) With one end of the file band in each hand, (the yellow painted end in the left hand) hold the file ends at right angles with the filing surface up (fig. 24).

(2) Depress the tip of the spring steel band held in the right hand with the lock rivet of the yellow segment held in the left hand.

(3) Allow the rivet head to slip into the slotted hole. Slide the rivet head into the small end of the slot.

(4) Straighten the file band, allowing the spring steel end to snap over the dowel.

(5) Make sure the ends of the band are flush before running.

C. Tracking and Tensioning the File Band

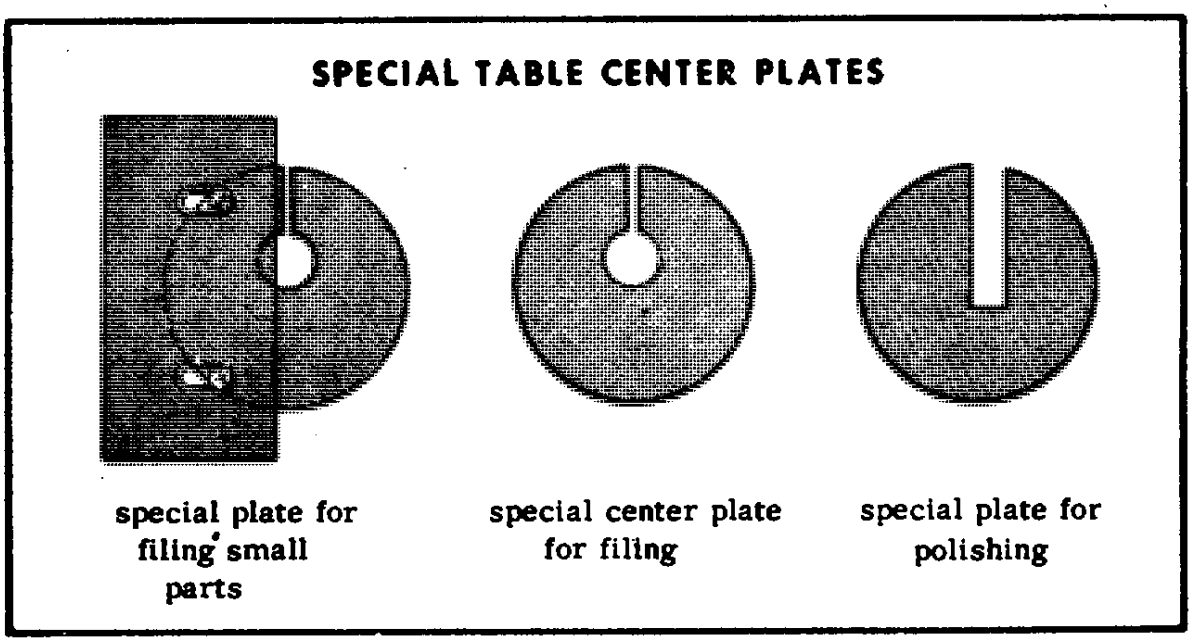


Fig. 25 - Special must be used for filing and polishing.

The file bands are aligned on the wheels in the same manner as used in tracking the saw bands. Fig. 26 shows a file band mounted and properly tracked on a rubber-tire, center-crowned wheel. The band can be made to run on the crown of the wheel by tilting the upper wheel with the tilt control. The file band should run freely in the file guide channel when properly tracked.

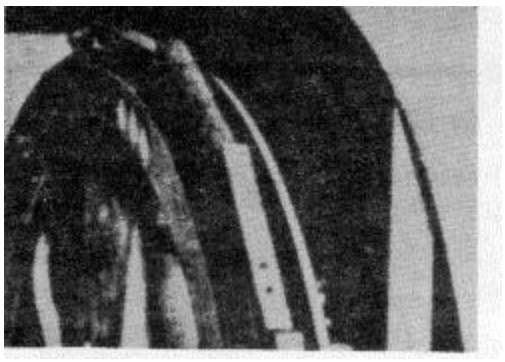


Fig. 26 - The file band should track on the wheel as shown.

Adjust the tension of the file band to the same tension as that used for a 1/8 in. wide carbon saw band. Too much tension will cause the file segment rivets to break when heavy filing pressure is applied. While at first it might seem that with excess tightening of the file band better filing results are obtained, this is not the case. Most accurate filing can be obtained with the light band tension.

Check the file band to see that it is in alignment and will pass freely over the channel in the file guide. Then shift the machine into low gear and start the drive motor. Observe how the file band tracks.

D. Filing Operation
(see fig. 22).

Work pressure on the file band should not be excessive. Light pressure may cause the file band to break or stall, resulting in a grooved lower wheel tire. It may also prevent the file from cutting because its tooth gullets will become loaded.

The correct combination of speed and pressure will produce curled chips. The best filing speeds are between 80 and 150 fpm.

Turn the Job Selector Dial to the section on "Band Filing". Correct file band velocity and feed pressure for the work thickness are listed for many different metals. For internal filing, (fig. 27) unlock the band and run it through the opening in the work piece, then assemble.

Keep the files clean. Do not file when the teeth are loaded. Loaded files cause bumpy filing and scratch the work. Excessive filing pressures when the file segments are clogged with chips will cause the file teeth to strip out. Use a file card to clean the band before returning any file band to the storage cabinet.

A coolant such as Kleen Kool by DoALL can be used to cool the work and keep the file clean. Mix the coolant per container instructions and apply in the form of a light mist. If any difficulty is encountered in seeing layout lines, band filing can be performed dry.

E. Removing the File Band

To remove the file band, release the tension by lowering the upper wheel, and slip the band off the wheels. To separate the band after it has been removed from the wheels, proceed as follows:

Fig. 27 - Internal band filing.

(1) Hold band at joint with both hands, the yellow segment being held-with the left hand.

BAND FILING CHECK LIST

(1) Consult job selector and literature for correct type of file band to be used for the material involved.

(2) Select file band.

(3) Install file guides.

(4) Install and tension file band (same tension as for 1/8 in. Carbon band).

(5) Select speed by consulting job selector.

(6) Determine best feed pressure and filing method by experience. Use Kleen-Kool or file dry.

(2) Bend the joint to not more than a 12-in. radius, exposing the joint slot.

(3) Using the forefinger of the left hand depress the front end of the yellow file band. With the thumb and forefinger of the right hand disengage the dowel.

(4) Slide the lock rivet to the open end of the slot and lift off.

F. File Band Storage

The file band should not be. Coiled into more than three loops. By far the best means of storing file bands is in the DoALL Supply Cabinet described in Chapter 7. Here the bands are looped over in a 16-in. radius and the ends hang in a compartment.

BAND POLISHING

DoALL abrasive bands are manufactured to withstand high finishing and polishing temperatures. Abrasive bands are 1 in. wide. These bands are mounted over the saw carrier wheels in the same manner as saw bands; however, a rigid backup support is used which has a graphite impregnated facing. This backup support is mounted to the saw post in place of the saw guides (fig. 28).

A. Set Up for Band Polishing as Follows:

(1) Remove the table center disk.

(2) Mount the polishing band guide back-up support to the lower adapter as for filing (fig. 28).

(3) Lower the post to 4-in. from the table and mount the band-polishing guide on the post with the two thumb screws.

(4) It would be well at this point to rub graphite powder into the guide fabric to lubricate and increase the life of the polishing bands.

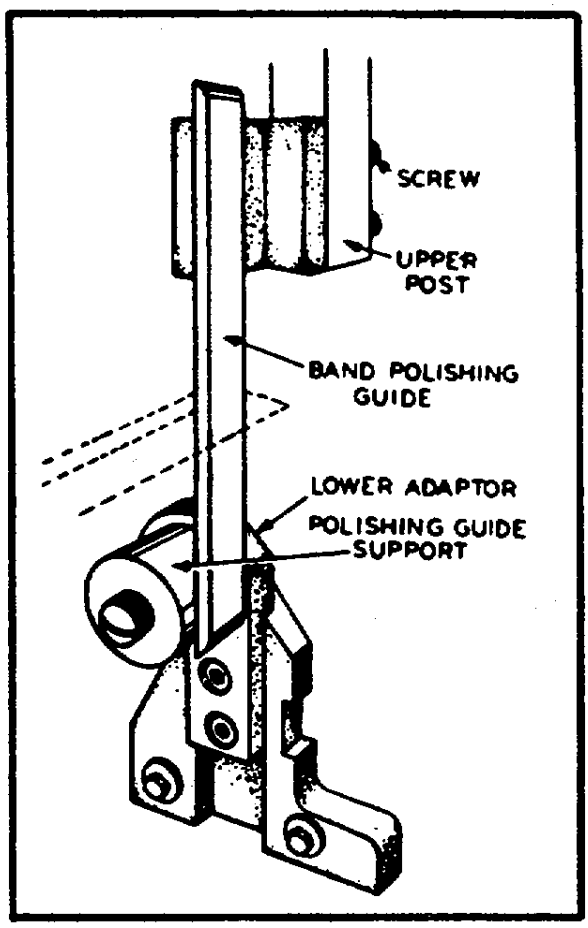


Fig. 28 - Upper and lower polishing guides.

(5) Mount and track the polishing band on the wheels in the same manner as the file bands. The correct polishing band tension is the same as that used for a 1/16-in. wide carbon saw band.

(6) Install the special center adapter plate in the table (fig. 29).

(7) Do not use coolant with the polishing band.

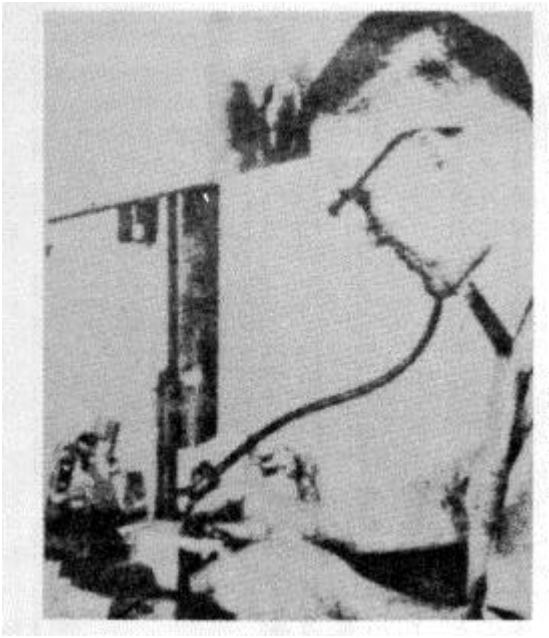


Fig. 29 - Band polishing on the 1612-0. Note the special guides and table center plate. Adjust the air nozzle to blow away dust.

Polishing bands are available in aluminum oxide or silicon carbide, and in three grain sizes. Use No. 50 (coarse) for heavy stock removal and soft materials, No. 80 (medium) for general surface finishing, and No. 150 (fine) for high polish and light stock removal.

Application	Cutting Speeds	Grit
Grinding	50-300 fpm	50
Polishing -coarse	850-1000 fpm	80
Polishing -fine	850-1500 fpm	150

CORRECT BAND LENGTHS

Minimum saw band length for the Model 1612-0 is 116-1/2 inches. Maximum length is 122-1/2 inches. Starting with the maximum length of 122-1/2 inches, the band can be cut and welded a number of times before the six inches have been consumed by welding.

Correct file band and polishing band lengths are both 120 inches.

BAND POLISHING CHECK LIST

(1) Consult job selector and DoALL literature for best type of polishing band to use for the material involved.

(2) Select polishing band.

(3) Install special band polishing guides on machine.

(4) Tension and track the band. (same tension as for 1/16 in. Carbon band) Install center disk for polishing.

(5) Select best band speed see job selector and Operation Recommendations Chart.

(6) Begin polishing (do not use coolant) and check to see if polishing band is the correct type for the material. Determine, by experience, best feed pressure and technique.

CHAPTER 4

LUBRICATION

INDEX NO.	INTERVAL	LOCATION AND HOW SERVICED	LUBRICANT
1 (fig. 30)	weekly	Variable speed pulley oil cup in end of shaft. Do not over-oil.	SEA #10 oil
2	monthly	Speed change bracket screw and linkage.	SEA #20 oil
3	monthly	Transmission shift linkage.	SAE #20 oil
4	check monthly	Transmission fill pipe. See instructions in Maintenance, Chapter 5. Fill to level of plug in pipe elbow.	SAE #20 oil
5	monthly	Drive motor pivot oil lightly.	SAE #20 oil
6	monthly	Table trunnion slide oil lightly.	SAE #20 oil
7	monthly	Contour accessory oil rollers and gears.	SAE #20 oil
8	monthly	Post wipe oil on post and work into block.	SAE #20 oil
9	monthly	Miscellaneous door hinges, etc.	SAE #20 oil
10	monthly	Band tension screw and bearing oil lightly.	SAE #20 oil
11	monthly	Upper wheel slide oil lightly.	SAE #20 oil
12	Drive motor follow manufacturer's instructions.		
13	Butt welder - (not shown) See separate manual for complete lubrication instructions.		
14	Air pump - Do not oil the rotary air pump. Use powdered graphite very sparingly. This graphite is forced into the pump through the air inlet while the pump is in motion. The vanes are made of plastic and oil tends to destroy them. Remove air cleaner and wash in gasoline or solvent monthly.		
15	When necessary	Chip drawer-Clean out chips.	

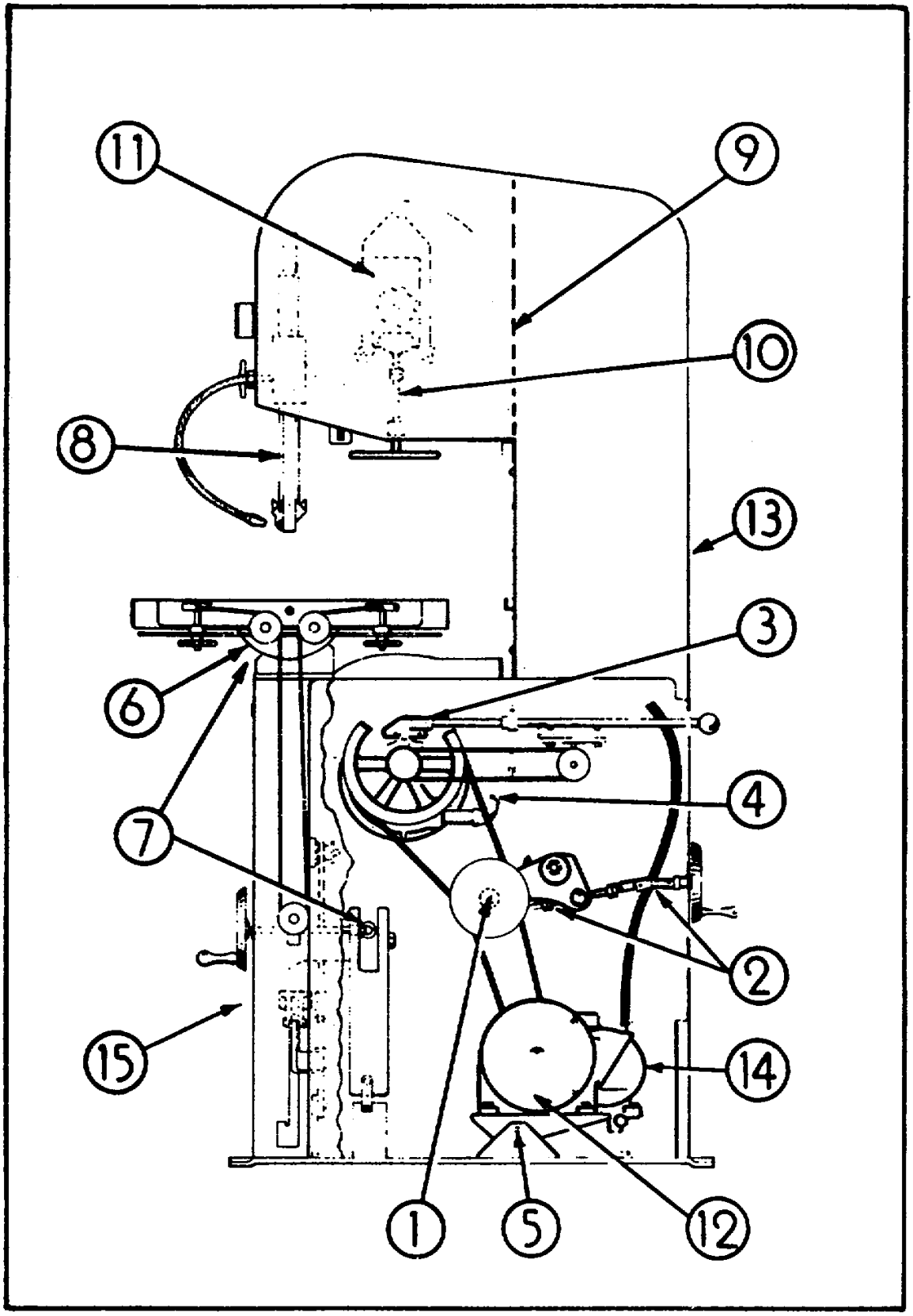


Fig. 30 - Pear view of Model 1612-0, showing lubrication and service locations.

CHAPTER 5

MAINTENANCE

REPLACING WHEEL TIRES

When the tires are completely worn out, replace them by loosening the tire with a screwdriver or other flat tool and stretching it until it can be taken off. Scrape the wheel clean, and apply new cement before installing new tire.

WHEEL BRUSHES

Check the wheel brush occasionally. If it is worn so that it is no longer contacting the wheel face, loosen the adjusting screws and move the brush up to the wheel. Replace as required.

DRIVE BELTS

The belts driving the SPEEDSTER and input sheave will stretch slightly after initial use. The stretch of the belts is automatically taken up by the counterbalancing weight of the drive motor on its mounting hinge (fig. 32).

The belts can be easily replaced by lifting up the drive motor and blocking it in place. Then slip the belts off their pulleys and install new belts.

The bracket shown in fig. 32 is adjusted to control "hopping" or climbing of the drive motor on its belt. Adjust the bracket to just clear the motor plate when at its highest position during operation.

HEAD ASSEMBLY

Details of the head assembly are shown in fig. 31. Wipe oil on the post occasionally and run the post up and down through the slide block several times. The upper wheel slide and band tension screw should be oiled monthly. The wheel bearings are sealed and lubricated for life at assembly.

The upper wheel can be easily removed by lifting it up and out of the bracket on the slide assembly (as shown in fig. 31).

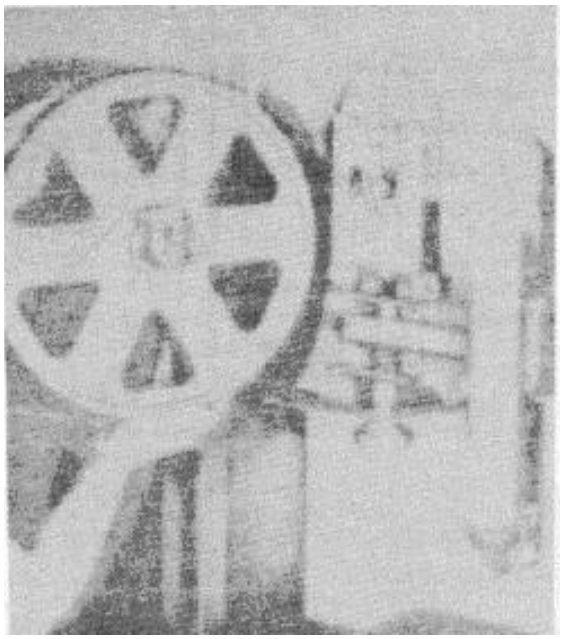


Fig. 31 - Upper wheel removed, showing details of head assembly.

ELECTRIC MOTOR

Main Drive Motor Follow the manufacturer's instructions (see tag attached to motor).

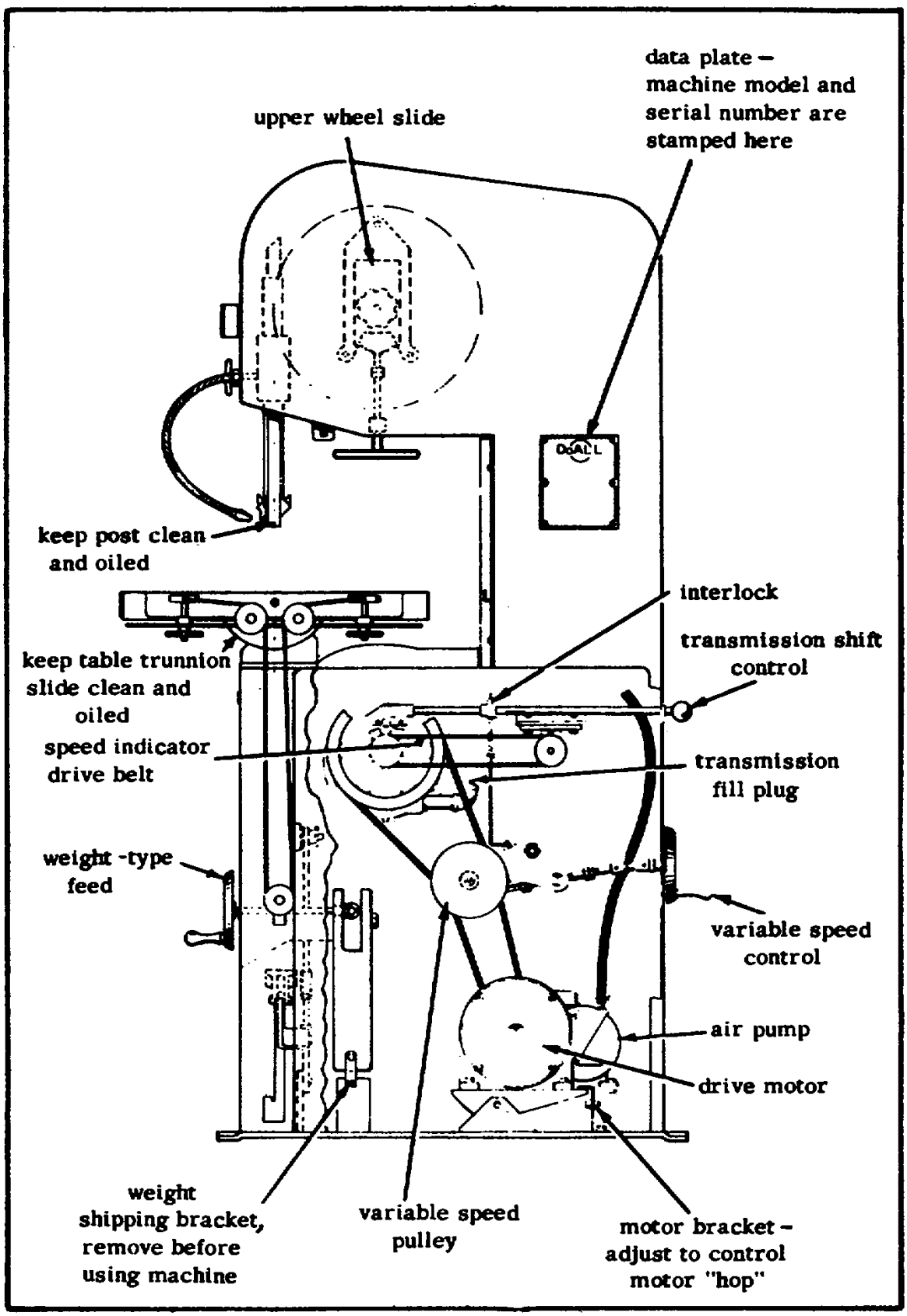


Fig. 32 - Rear view of Model 1612-0, showing maintenance and service locations.

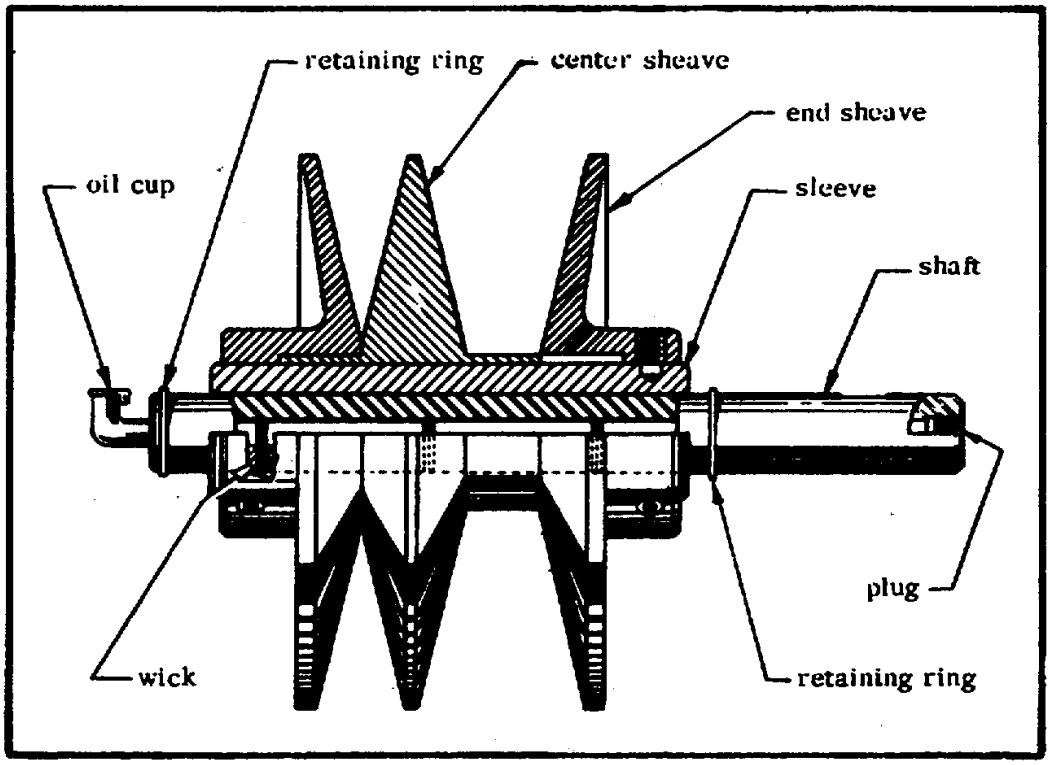


Fig. 33 - Sectional view of variable speed pulley.

SPEEDMASTER VARIABLE SPEED PULLEY

Every six months remove the pulley unit, and wash and clean with solvent. Reoil and install. Check to see if center sheave of pulley is free to shift sideways. As shown in the section drawing, (fig. 33) the variable shaft bearings are lubricated from an oil cup in the shaft end. The center sheave, which floats sideways as well as rotates, is lubricated by a wick which is immersed in oil. This oil travels through the hollow shaft from the oil cup located at one end. Check the variable pulley faces for scoring which could damage the belts.

CAUTION

Do not over-lubricate, oil will coat the belts and cause slippage.

SAW GUIDES

When the saw guide back-up bearing caps become worn or grooved they should be replaced. On the 1/16 to 1/2 inch guides the bearings, caps and shaft are replaced as a unit. Loosen the set screw holding the bearing assembly and replace the complete assembly. On the 5/8 to 3/4 inch guides the bearing cap and shaft is replaced by removing the snap ring and pulling out the bearing cap and shaft. The bearings are installed with a light press fit and can be easily replaced. Both types of bearings are permanently lubricated and need no further lubrication.

CHAPTER 6

TROUBLE SHOOTING

When trouble occurs because of the failure of a mechanical or electric component, a thorough study of the following paragraphs will usually locate the trouble and cause. Following is a partial list of troubles and their causes. The remedy in each case is usually self-evident, i.e., checking and replacement of the malfunctioning component.

MACHINE WILL NOT START:

(1) Check main fuses and control circuit fuse.

(2) Check reset on band drive motor starter (if used). Starting and stopping the machine a number of times in quick succession or an overload will trip the starter heater. After locating and correcting the trouble, push in the reset button. If the heater relay has been set for automatic operation, it will not be necessary to push the reset button, but only to wait for the relay to cool.

(3) Check transformer.

SEVERE MACHINE VIBRATION:

(1) Band wheels not balanced.

(2) Variable pulley components not balanced.

(4) Variable drive belts are unbalanced.

SAW BAND VIBRATION
(while sawing)

(1) Incorrect band speed.

(2) Incorrect choice of saw band pitch.

(3) Incorrect choice of coolant.

(4) Incorrect feed pressure.

(5) Work piece not firmly clamped to table.

(6) Worn or improperly adjusted saw guide inserts.

(7) Worn saw guide backup bearing.

(8) Special support not used under work when using Heavy Work Slide or Heavy Work Clamp.

NO COOLANT FLOW:

(1) Coolant applicator nozzle jammed.

(2) Coolant hose clogged or kinked.

(3) Coolant reservoir empty.

TRANSMISSION WILL NOT STAY IN GEAR:

(1) Worn gears.*

TRANSMISSION WILL NOT SHIFT INTO GEAR:

(1) Check shift linkage for loosened set screws or broken rollpins.

(2) Shift mechanism in transmission may be jammed.*

(3) Sliding clutch jaws in transmission may be jammed or damaged.*

*Call your DoALL Serviceman for transmission repairs.

SAW BAND CUTTING INACCURATELY:

(1) Worn blade teeth.

(2) Scale on workpiece not removed.

(3) Workpiece hardened by grinding to remove scale.

(4) Blade too wide for radius being cut.

(5) Incorrect saw band or insert alignment.

(6) Post not square to table.

(7) Incorrect feed force used.

(8) Incorrect band speed used.

(9) Coolant is not applied evenly to both sides of saw band.

(10) Saw guide on upper post not located close enough to workpiece.

(11) Incorrect choice of saw band.

(12) Incorrect saw band tension. (use more tension for Dart blade).

SURFACE FINISH ON WORK TOO ROUGH:

(1) Saw guide inserts worn. Readjust.

(2) Saw band speed too low.

(3) Saw band pitch too coarse.

(4) Feed too heavy.

(5) Vibration.

SAW BAND TEETH STRIPPING:
(usually caused by chip welding)

(1) Saw band pitch too coarse for thin work section.

(2) Work not held firmly to stop vibration.

(3) Feed pressure too high.

(4) Band speed too low.

PREMATURE SAW BAND BREAKAGE:
(usually caused by teeth stripping)

(1) Saw band speed too low.

(2) Feeding force too high.

(3) Pitch of saw band too coarse. Use finer pitch.

(4) Saw guide inserts and backup bearings not properly guiding band.

(5) Wrong type coolant.

(6) Band tension too high.

(7) Defective weld, see welder manual.

PREMATURE DULLING OF SAW BAND TEETH:

(1) Not breaking in saw band on first few cuts. Reduce feed pressure and speed on first cuts.

(2) Band speed too high, causing abrasion. Reduce speed.

(3) Saw band pitch too coarse.

(4) Wrong type coolant or no coolant used.

(5) Feed pressure too light. Increase feed.

(6) Coolant not covering saw band.

(7) Cutting rate too high.

(8) Faulty material such as heavy scale, inclusions, hard spots, etc.

(9) Material analysis incorrect.

(10) Saw band vibration.

(11) Chipped tooth lodged in cut.

(12) Chip welding.

(13) Operator's error.

(14) Inserts too large for blade width, allowing inserts to hit set teeth.

MOTOR RUNS BUT BAND DOES NOT MOVE:

(1) Broken drive belts or belts off pulleys.

(2) Over-oiling of variable pulley, excess oil has coated pulley and belts.

(3) Drive belt tension too low.

(4) Wrong size drive belts.

(5) Band tension incorrect.

BAND SLIPS OFF WHEELS:

(1) Upper wheel not aligned correctly, band does not track on center of wheel tire.

(2) Too much coolant used or wrong type coolant used, causing band to slip off wheel tires.

(3) Initial machine alignment wrong, see Chapter 1.

EXCESSIVE INSERT AND BLADE WEAR:

(1) Inserts adjusted too tight on blade.

(2) High band speed causes friction, use Saw-Eez or coolant to lubricate band. Use roller guides, if possible.

(3) Rollers on roller guides adjusted too tight on blade.

(4) Chip brush worn or not adjusted properly, allowing chips to stay on wheel.

FILE BAND BREAKS:

(1) Feed force too high.

(2) Wrong type file band being used. See DoALL literature for file band shapes, widths, and number of teeth to use for various materials.

POOR FINISH FROM BAND FILING:

(1) Feed force too high.

(2) File band not assembled correctly.

(3) Band tension too high, set for same tension as used on 1/8 in. wide carbon band.

FILE BAND TEETH BECOME LOADED:

(1) File band teeth are loaded, clean immediately.

(2) Feed force too high.

(3) No coolant used, use coolant (Kleen Kool), if possible, to improve finish.

(4) Wrong shape file or wrong number of teeth for material.

CHAPTER 7

ACCESSORIES

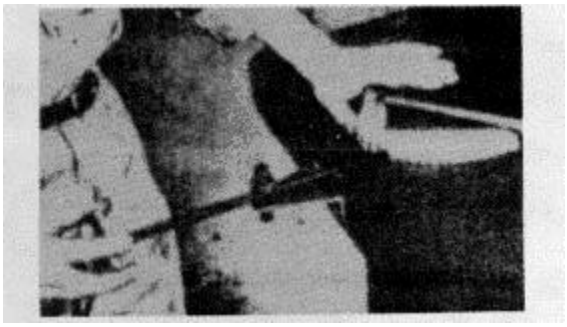


Fig. 34 - The hand-operated screw feed.

SCREW FEED

The Screw Feed Accessory is used for precision contour sawing of heavy work. The 1/2" Acme-thread screw has a hardened point. The swivel is mounted in a hole in the bracket attached to the table front. The screw is quickly adjusted to any point within its 12 inch movement simply by lifting the knob in the top of the swivel.

WORKLIGHT

The worklight (fig. 37)is mounted on a flexible arm attached to the machine head above the table. It is provided with a plastic reflector and an on-off switch.

SUPPLY CABINET

The supply cabinet (fig. 37) provides for orderly; safe storage of saw band coils, welded saw bands, file bands, and polishing bands as well as the component parts and accessories when they are not being used on the machine.

Fig. 37 shows the proper method of storing various items. Sawbands may be looped into a triple coil, but the file bands should be hung over the appropriate hanger in one loop.

ILLUMINATED MAGNIFIER

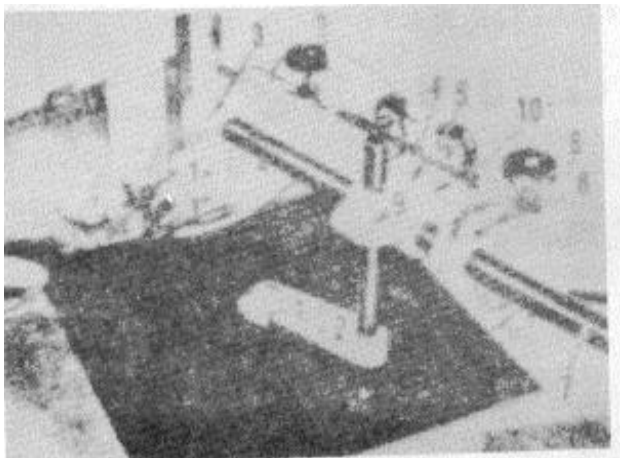
This accessory consists of a 3-in. rectangular lens mounted in a frame and lamp housing (fig. 37). The housing contains a light socket and a 15-watt lamp. The lens and light are supported on a swivel-joint arm secured to the post by means of a "C" type clamp. The glass can be adjusted to any position for both sawing and filing. The lamp has no switch and is "on" when plugged into the outlet. This outlet should not be used for any other light extension where more than 15 watts will be consumed.

ETCHING PENCIL

The etching pencil is used with the butt welder to mark tools, jigs, fixtures, templates, etc. Instructions for the use of the etching pencil are included in the separate Welder Manual.

DISK CUTTING ACCESSORY

The disk cutting accessory (fig. 35) permits the cutting of true circles, either internally or externally of any diameter from 2-1/2 in. to 30 in. This attachment is bolted to the post with the cap screws and washers furnished. Place the flat washers under the screws and bolt the bracket (No. 3, fig. 35) to the post.



(1) centering pin
(2) arm
(3) mounting bracket
(4) height adjustment
(5) radius arm clamp
(6) fine adjustment wheel
(7) radius arm
(8) clamping bolt
(9) clamping bolt
(10) clamping bolt

Fig. 35 - The Disk Cutting Accessory

Lower the post until the saw guides are approximately 3/8 in. above the table. Loosen the bolts (No. 8 and 10, fig. 35)and move the center pin (1) to approximately the distance of radius to be cut. Tighten the bolt (8).

The center of the centering pin (1) must be directly in line with the cutting edge of the saw band. To accomplish this, place a square against the side of the saw slot with the blade of the square against the tip of the saw tooth. Loosen the clamp bolt (9) and line up the centering pin with the edge of the square's blade; then clamp tight. Make final radius adjustments with the fine adjustment wheel (6) and tighten bolt (10). Tighten the bolt (9) on the radius arm clamp (5), making sure the center pin is square to the table. Adjust the unit for work thickness by raising or lowering the saw guide post.

NO. 2 "SIDE-MOUNTING" MITERING ACCESSORY.

Set up this attachment as shown in fig. 36, making sure that the mitering bar is in even contact with the table surface. Use a combination square in the table slot as a basis for alignment and setting the mitering bar at various angles.

When not in use, swing the attachment on the slide rod so that it hangs below the table.

(1) slide rod
(2) arm
(3) adjustable stop
(4) miter bar
(5) miter hand lock
(6) gage rod lock
(7) age rod
(8) angle scale on miter head

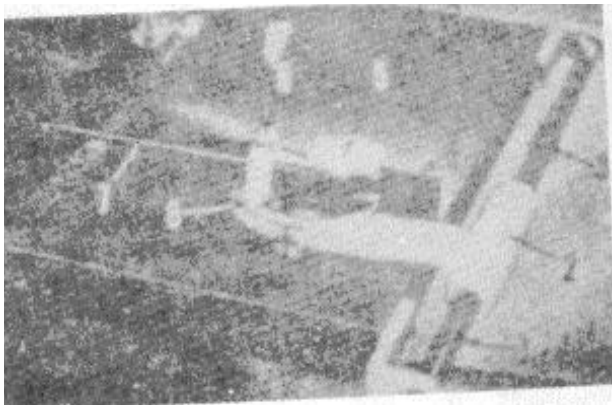


Fig. 36 - No. 2 "Side-Mounting" Miter

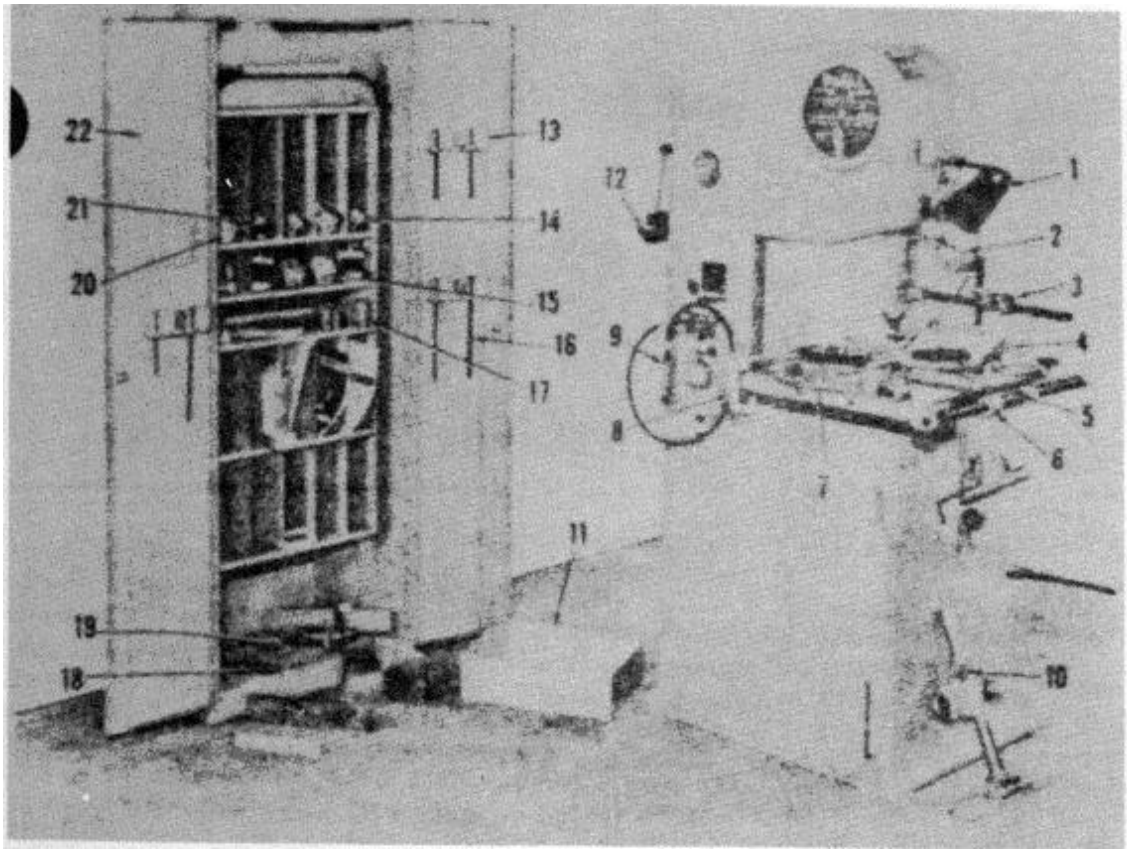


Fig. 37 - Model 1612-0 with accessories and Supply Cabinet.

(1) Work light
(2) Illuminated Magnifier
(3) Disk Cutter
(4) Workholding Jaw with handles
(5)
(6) No. 2 side-mounted miter
(7) Ratchet Feed
(8) Rip Fence
(9) Etching Pencil
(10)
(11)
(12) Blade Shear
(13) Standard File Guides
(14) Precision Saw Guides
(15)
(16)
(17) 90 deg. Angle Brackets
(18) Band Polishing Guide
(19) Screw Feed
(20)
(21)
(22) Supply Cabinet

Items 5, 10, 11, 15, 16, 20 & 21 not included with this machine

(1) guide bolted to table
(2) clamping knob
(3) body
(4) rip fence

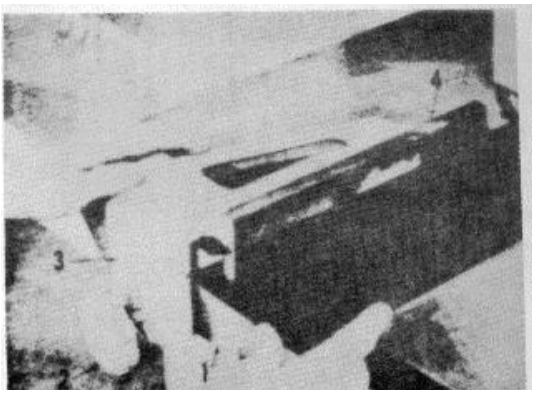


Fig. 38 - Rip fence

RIP FENCE

Setup this accessory as shown in fig. 38 and square the fence so that it is inline with the table slot. Also make sure that the machine is in proper alignment as described in Installation, Chapter 1.

In making a long cut be sure that the saw band used is not worn on one side. This will cause the work to wander relative to the rip fence guide.

90° SAW GUIDE BRACKETS

The use of the 90-deg. saw guide brackets permits heavy duty cutoff work of material greater in length than the throat capacity of the machine. The 90-deg. brackets (fig. 39) are mounted on the post and lower keeper block. The saw guides are then mounted on the brackets. The saw band is twisted 90 deg. as it travels through the saw guide inserts.

The brackets cane used with any width saw band (use the correct size saw guides and inserts for the width of the saw band). Operate the machine at speeds under 1500 fpm. High speeds will cause excessive insert wear and shorten band life.

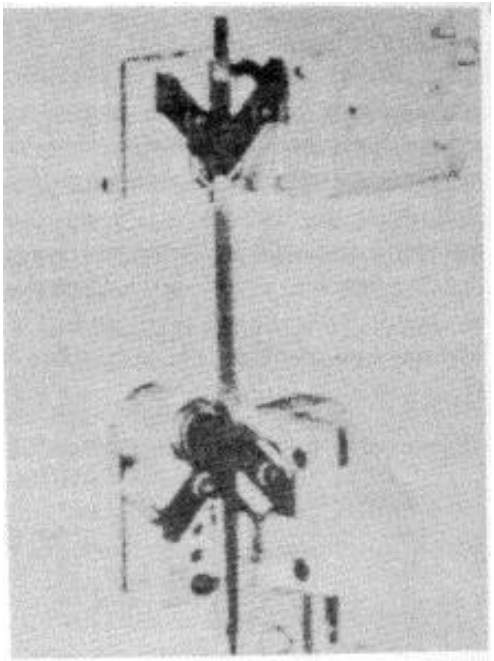


Fig. 39 - Upper and lower 90-deg. saw guide brackets and saw guides.

Section II. BUTT WELDER

TABLE OF CONTENTS

OPERATING FEATURES

A. GENERAL DESCRIPTION

The DoALL Model DBW #1A is a resistance butt welder. This Model is designed for machine installation or as a portable welder, complete with cover and electric cord.

The two clamping jaws of the welder hold the butted band ends together. When the welding switch lever is pressed, an electric current is induced through the butted ends creating enough heat to soften them.

Pressing the welding switch lever also releases a spring which causes the jaws to squeeze the band ends together. When the movable jaw has moved .063 inches toward the stationary jaw the electric current is automatically cutoff. The spring pressure on the jaws is released when the welding lever is released.

Wider saw bands need greater pressure between the jaws than narrow bands and, since too much pressure on small bands will cause climbing or lapping of the

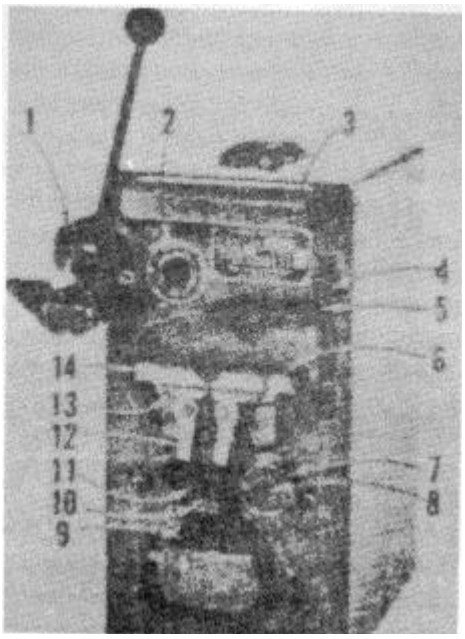


Figure 1 - Control components

(1) Blade shear.
(2) Jaw pressure selector.
(3) (4) Anneal clip.
(5) Weld switch lever.
(6) Movable jaw.
(7) Etching clamp.
(8) Anneal-etch button.
(9) Grinder wheel.
(10) Saw band gage.
(11) Grinder switch.
(12) Clamping handles.
(13) Removable lower jaw.
(14) Stationary jaw.

LEGEND FOR FIGURE 1

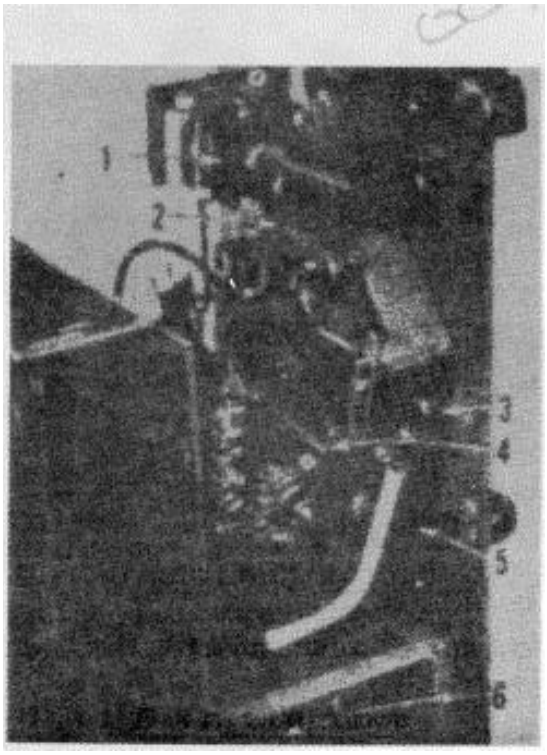
ends, a jaw pressure switch, located directly above the stationary jaw, provides variable pressure control.

Below the movable jaw is the annealing switch. When the band is heated up in the butt welding process, the steel at the point of weld air hardens and is brittle. It is necessary to anneal the weld by reheating and allowing it to cool slowly. This returns the band to an approximation of its original temper.

The welding switch is a two circuit switch in which the annealing circuits normally closed and the welding circuit normally open. This prevents shorting the transformer or blowing out fuses, should the annealing switch accidentally be pressed while the welding lever is held down. An etching clamp holds the annealing switch down to supply current for the etching pencil.

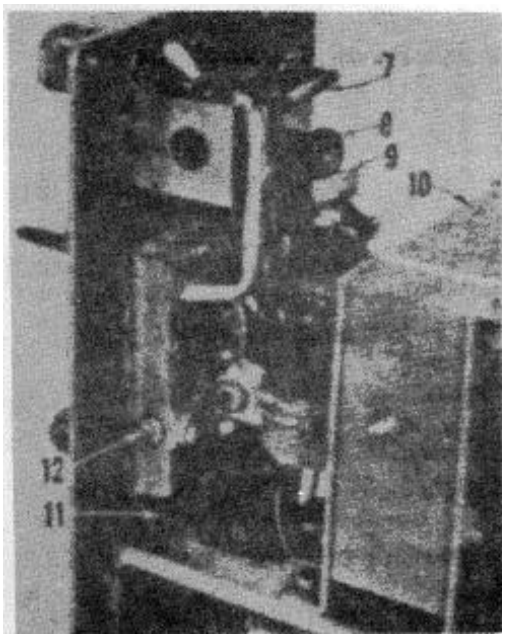
At the bottom of the panel is a grinding wheel for removing flash from the weld. The wheel guard is exposed at both top and bottom to permit grinding both sides of the weld. The gage at the top of the wheel guard is used to check for complete removal of the flash. The weld should pass freely through this gage after grinding.

The grinder circuit is coupled through the annealing side of the welder switch. When the welding lever is pressed, the circuit to both the annealing switch and the grinder is open. If the grinder motor is running while a weld is being made, it will momentarily shutoff when the welding lever is pressed.



(1) Weld switch.
(2) Weld switch arm.
(3) Grinder switch.
(4) Movable jaw spring.
(5) Timing cut-off switch.
(6) Grinder motor.

Left Rear View



(7) Lever return spring.
(8) Jaw pressure cam.
(9) Tension adjusting lever.
(10) Transformer.
(11) Etching switch.
(12) Slide rod.

Right Rear View

Figure 2 - Component parts

LEGEND FOR FIGURE 2

OPERATION

A. PREPARATION OF BAND

(1) Cut the band to length. Using the band shear will

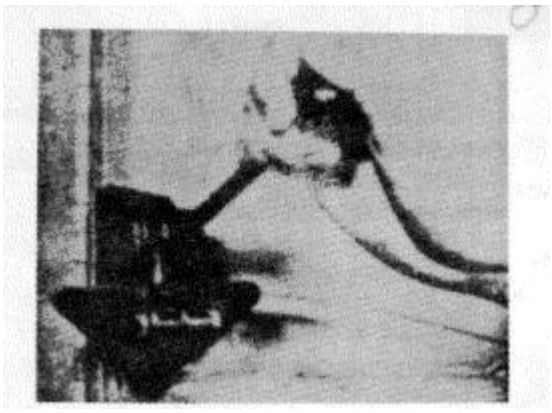


Figure 3 - Using Band

insure that the band ends are flat, square and smooth.

If saw snips have been used to cut the band, square the ends before

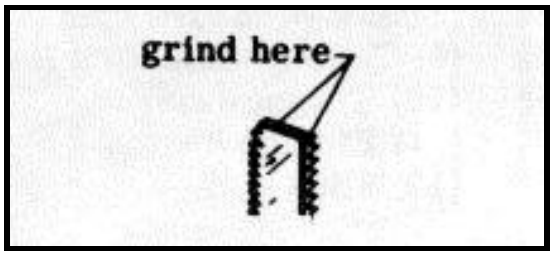


Figure 4 - Positioning of Band

welding. Grind both ends of the saw band in one operation as shown in Figure 4. Hold the ends so that the teeth point in opposite directions. Regardless of the angle of grinding, the two ends will match perfectly when turned over.

(2) Clean the band with a #120 grit emery cloth or equivalent. The part of each band that comes into contact with the welder jaws must be sanded. Be careful not to damage the set or sharpness of the band teeth. Any oxide or oil which is not removed will prevent good electrical contact.

B. PREPARATION OF WELDER

(1) Clean the welder jaws.

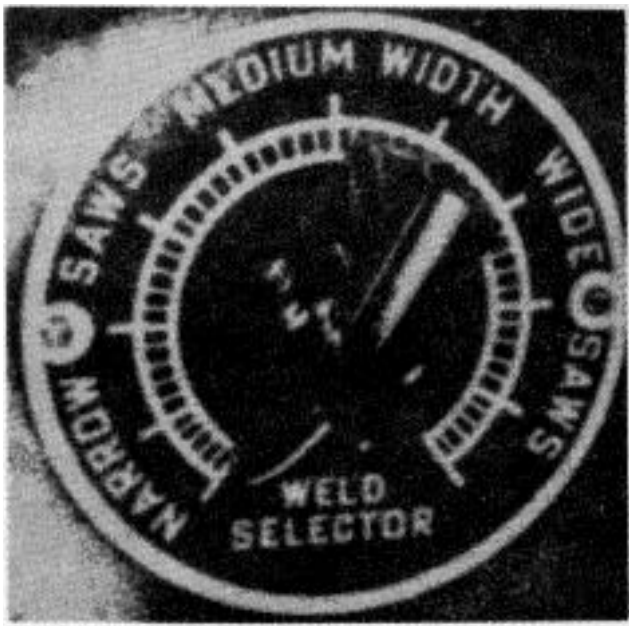


Figure 5 - Jaw Pressure Control

(2) The Jaw Pressure control switch should be set to the correct position for the width of saw band being welded, as shown in Figure 5.

C. SAW BAND ALIGNMENT BEFORE WELDING

(1) If internal sawing is to be done, the band is .inserted through the starting hole in the work with teeth pointing down. The ends of the saw band are then ready to be clamped into the jaws of the butt welder.

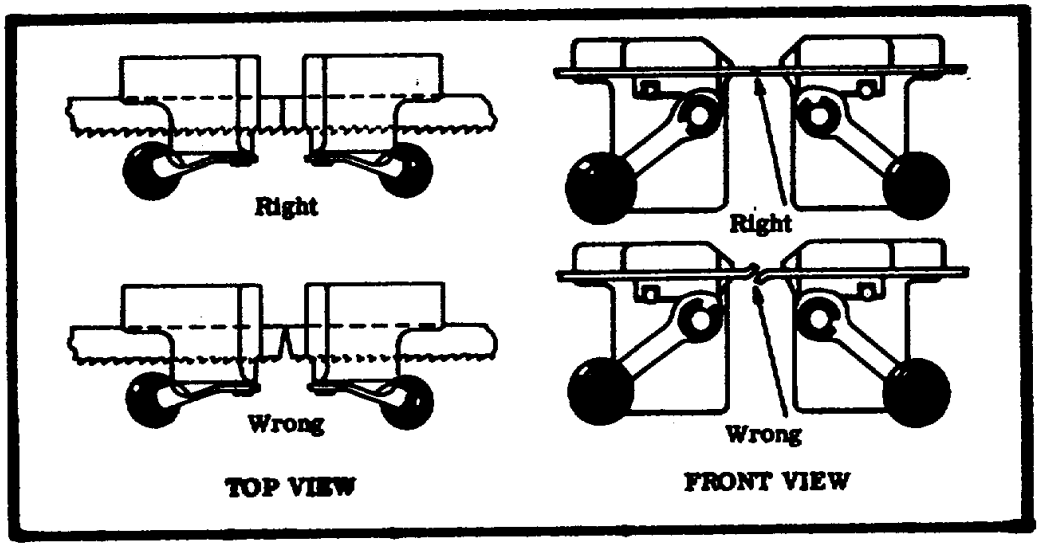


Figure 6 - How to clamp Band in Jaws

(2) Insert the saw band between the jaws with the back of the band against the back of the jaws as shown in Figure 6. This lines up the band so that it will be straight after welding.

The ends of the band should meet at the center of the welding gap without any overlap either in thickness or across the width as shown in Figure 6. If the ends are clamped in an offset manner an overlapping weld will result which will have to be ground too much, making the band weak at the weld. If the contact across the width is not complete when the ends are clamped in the jaws, remove one end and recut it. An incorrect joint will cause an incomplete weld.

(3) After the saw ends are lined up, clamp them securely (but not so tightly as to injure the saw set) between the welder jaws.

D. MAKING THE WELD

(1) Press and hold down the weld switch lever to make the weld. The lever should be held down until the weld has cooled.

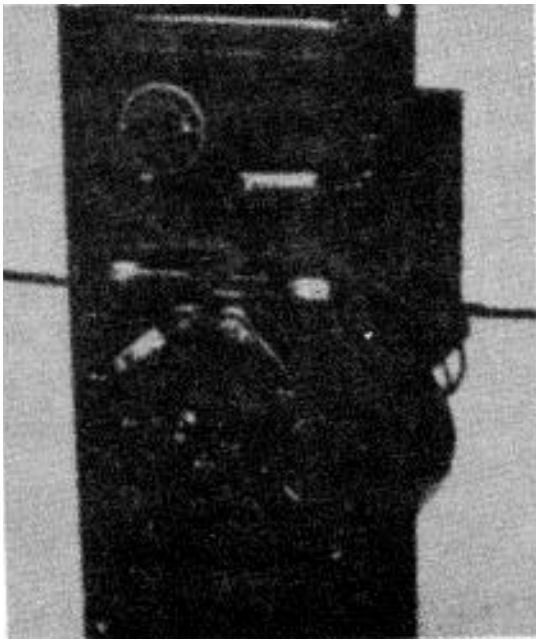


Figure 7 - Welding Band

(2) Release the stationary Jaw before releasing the weld lever.

This will prevent scoring the welder jaw surface.

(3) Release the weld lever. When the lever is released, the butt welder mechanism and electrical switches are automatically recocked and the band is then ready for grinding and annealing.

(4) Remove the welded saw band. Inspect the weld. If weld is poor, see Trouble Shooting Chart.

One weld only in a saw band is recommended. Cutout the old weld as each new weld is made. Use the band shear to cut away the small portion of the ends which become brittle during the butt welding process. Since the welding operation uses up no more than 1/16 in. of the band it will not shorten appreciably even after several welds have been made. Starting with a full size saw band, approximately 3 in. of band can be used in making welds before it will be too short to fit over the saw wheels.

If it is found after making a weld that the teeth of the band point in the Wrong direction, it can be reversed by turning the band inside out.

E. GRINDING THE WELDED BAND

After welding, the band must be dressed to remove excess metal or flash from the weld. Grind the welded area down to the same thickness as the rest of the band. With the teeth facing out, grind the weld as shown in Figure 8.

CAUTION

Use care in handling the band; the weld is brittle because it has not yet been annealed. It may be advisable to anneal the band before as well as after grinding the flash.

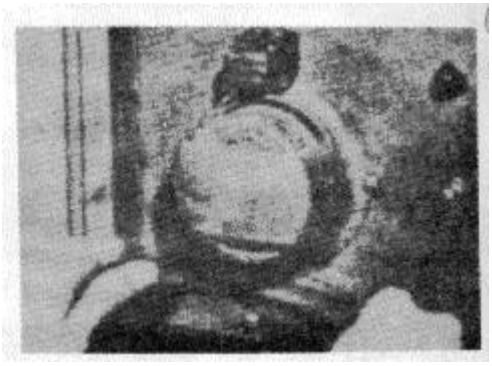


Figure 8 - Grinding the Weld

Care must be taken during grinding so as not to hit the teeth, grind deeper than the thickness of the band, or burn or overheat the weld area. The weld should pass freely through the gage above the grinding wheel.

F. ANNEALING THE WELDED BAND

(1) Clean the welder jaws. To anneal the weld, depress anneal clip behind welding switch lever and move the lever to its highest position. Clamp the band just back of the saw teeth.

(2) Then jog the annealing switch button until the weld comes up to a dull cherry red color. It is important that the weld be annealed properly or it will be too brittle to flex over the wheels. If the weld is allowed to get beyond

dull cherry red color, it will harden, causing the joint to be brittle.

(3) Allow weld to cool slowly. Jog the annealing button to prevent rapid air cooling.

G. WELDER ADJUSTMENTS

1. CUT-OFF TIMING ADJUSTMENT

Before servicing the butt welder, be sure to disconnect from the electric power.

The most important adjustment on the welder is the adjustment of the length of time the current flows through the jaws.

The moving welder jaw is rigidly mounted on a rod which slides in the welder frame. Viewed from the rear of the panel the slide rod carries a switch cut-off knob at its right end. This knob is mounted on a socket head set screw so that it can be adjusted in or out, thus regulating the timing of the weld. The cut-off knob, operating against the leaf of the cut-off switch, opens the circuit when the moving jaw is in the timing position.

"Incomplete" and "burned out" welds are a result of incorrect timing adjustments. f the weld cycle is cut off too soon, the weld will be incomplete (low heat produces a weak weld which may be only partly joined). Too long a weld cycle will produce excessive heat which will result in a "burned out" weld (excess molten metal around a poor joint).

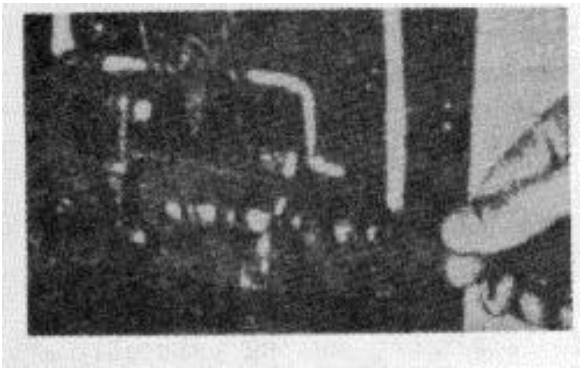


Figure 9 - Cut-Off Timing Adj.

A hole in the outside leaf of the cut-off switch permits insertion of an Allen wrench into the end knob of the slide rod (see Figure 9). A clockwise rotation of this knob produces a slower breaking of the welder circuit. This will produce more heat at the point of the weld. A counter-clockwise adjustment will allow less heat to prevent "burning of"' of the weld.

To adjust the timing proceed as follows:

(a) Disconnect electric power cable.

(b) Remove the welder from the case or machine frame.

(c) Press the welding lever and check the cut-off switch. There should be a gap between the contact points of 1/32 in. to 3/64 in. Adjust with the Allen wrench if necessary (see Figure 9).

(d) Make a sample weld. A "burned out" weld indicates

that the adjusting screw should be turned out. An "incomplete" weld indicates that the screw should be turned in. Use 1/2 inch saw band for sample welds.

2. WELDER JAW ALIGNMENT

The importance of accurate jaw alignment cannot be overemphasized. The jaws have been carefully aligned during assembly at the factory; however, it may be necessary to align the jaws if they are refaced or are bumped or damaged. The easiest and most effective way to see if misalignment exists is to actually inspect the welded joint. A misaligned weld is usually caused by worn or dirty welder jaws.

(a) Check with a straight edge to see if the jaws are in alignment with each other with respect to elevation, inclination and twist.

(b) To adjust for elevation and inclination, the stationary jaw can be moved slightly on its mounting screws by loosening the screws and tapping the jaw.

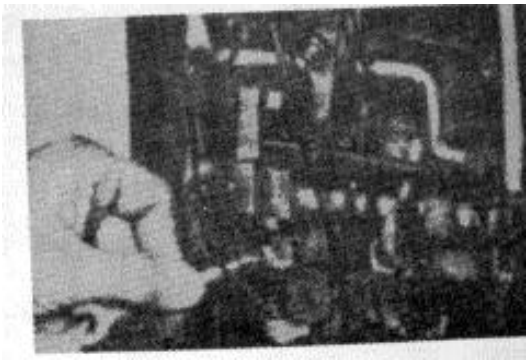


Figure 10 - Movable Jaw Adj.

(c) The movable jaw is adjusted with two set screws as shown in Figure 10. Loosen the lock nuts on the screws before turning them. To adjust for twist, the movable jaw can be moved up or down in a vertical arc by adjusting the set screws. These set screws also position button bearings in back of the movable jaw; consequently, if the position of the jaw is moved, care must be taken that the bearings are not set up too tight. If the position of the stationary jaw is changed, make certain that the gap or opening between the jaw is 9/64 inch in the open position.

SYMPTOM	CAUSE	REMEDY
Misalignment overlapped, resulting in poor welds.	1. Dirty jaws. 2. Worn jaws. 3. Misaligned jaws. 4. Wrong jaw pressure setting.	1. Wipe or scrape flash particles from jaws. 2. Replace or reface jaws - See Maintenance. 3. See Section "G"-2, Welder Adjustments. 4. Make proper settings.
Too much flash or upset formed when welding 1/16 inch to1/8 inch bands.	Jaw travel too great for small bands.	When clamping narrow saw bands in jaws, leave a 1/64 inch gap between the band ends. This gap will cut down jaw travel.
Weld "burns out" (joint is not complete, excess metal around joint).	1. Cut-off switch not adjusted correctly. 2. Defective cut-off switch may not break the circuit at end of welding operation. 3. Points of cut-off switch welded together.	1. Adjust-see -section "G"-1 in Operation, 2. Replace cut-off switch. 3. Replace switch.
"Incomplete" weld (weld is not completely joined and is weak).	1. Cut-off switch improperly adjusted. 2. Slide rod sticking because of rust or dirt. 3. Slide rod movement obstructed be cause socket type set screw too tight on rod. 4. Jaw movement obstructed by kinked jaw cable or tangled wires. 5. Movable jaw binding on jaw bearings (6-06417) because of tilt adjustment screw turned in too far.	1. Adjust - see Section "G"-1 in Operation, 2. Clean and oil rod-see Maintenance 3. Stop screw should be turned in tight, then backed off 1/2 to 3/4 turn. 4. Bend cable and untangle wires. 5. See "Welder Jaw Alignment"

A. LUBRICATION

(1) GRINDER MOTOR Remove two plug buttons at top of case. Use 6 to 10 drops of SAE #20 oil every 30 to 60 days.

(2) SLIDE ROD Keep slide rod clean and oiled to prevent sticking.

(3) Oil lightly all moving parts at pivot points.

B. SLIDE ROD MAINTENANCE

The slide rod should be kept clean and oiled. Rust or dirt may cause the rod to stick, thus causing an "incomplete" weld. Check to se, e that the movable jaw has a free movementof.0631nch. A drop of oil on the slide rod worked along by repeated pressing of the lever may correct this trouble. If it does not, remove the slide rod and clean it. Before removing the slide rod, clamp a piece of saw band securely between the welder jaws to maintain the 3/16 inch spacing between them.

C. WELDER JAWS

To secure consistent results, the welder jaws must be kept clean. During the welding cycle, excess metal in the form of incandescent particles is blown out of the weld, causing a scale or flash to build up on the welder jaws. THE WELDER WILL NOT WELD PROPERLY UNLESS THE JAWS ARE WIPED CLEAN AFTER EVERY WELD.

Misalignment of the weld is usually caused by worn or dirty jaws. However, if the welder jaws are clean and not worn and the welds are out of line, then the jaws are not aligned properly. This misalignment can be determined by inspection of the weld after the flash has been removed. After determining which jaw is not in alignment, the jaws can be adjusted as desired. See "Welder Jaw Alignment" in Section "G" in Operation. Replace lower jaws that are worn excessively.

APPENDIX I

BASIC ITEMS ISSUE LIST

Section I. INFORMATION

1. General

This appendix is a list of basic items. It is composed of those items which make up the major end item of equipment and the operator's tools and equipment that are issued with the equipment and are required for stockage.

2. Requisitioning a part to which FSN has not been assigned

When requisitioning a C source (local procurement) item identified only by a manufacturer's part number, it is mandatory that the following information be furnished the supply officer:

a. Manufacturer's code number (5 digit number preceding the colon in the descriptive column).

b. Manufacturer's part number (the number, and sometimes letters, following the colon, ((1) above). Dashes, commas, or other marks must be included exactly as listed.

c. Nomenclature exactly as listed herein including dimensions if necessarily.

d. Name of manufacturer of end item (from cover of TM or manufacturer's name plate).

e. Federal stock number of end item (from TM).

f. Manufacturer's model number (from TM or name/data plate, preferably name/data plate).

g. Manufacturer's serial number (from name/data plate).

h. Any other information such as type, frame number, and electrical characteristics, if applicable.

i. If DD Form 1348 is used, fill in all blocks except 4, 5, 6, and Remarks field in accordance with AR 725-50. Complete form U follows:

(1) In blocks 4, 5, and 6, list manufacturer's code and manufacturer's part number (as listed in description column).

(2) In Remarks field, list noun name (repair part), end item application (FSN of end item), manufacturer, model number (end item) serial number (end item), and any other pertinent information such as frame number, type, etc.

3. Explanation of columns

a. Source, Maintenance, and Recoverability Code (Col. 1).

(1) *Materiel numerical codes (col. 1a).* This column is not required.

(2) *Source (col. 1b)*. This column indicates the selection status and source for the listed item. Source code used in this list is:

Code	*Explanation*
C	Obtain through local procurement. If not obtainable from local procurement, requisition through normal supply channels with a supporting statement of nonavailability from local procurement.

(3) *Maintenance level (col. 1c).* This column indicates the category of maintenance authorized to install the listed item Maintenance level code used in this list is:

Code	*Explanation*
O/C	Operator or crew maintenance.

(4) *Recoverability (col. 1d).* This column indicates whether unserviceable items should be returned for recovery or salvage. When no code is indicated, the item will be considered expendable. Recoverability code used in this list is:

Code	*Explanation*
R	Items which are economically repairable at direct and general support maintenance activities and are normally furnished by supply on an exchange basis.

b. Federal Stock Number (Col. 2). Self explanatory.

c. Description (Col. 3). This column indicates the Federal item name (shown in capital letters) and any additional description required for supply operations The manufacturer's code and part number are also included for reference.

Code	*Explanation*
18056:	DoAll Company

d. Unit of Issue (Col. 4), Quantity Authorized (Col. 5), and Illustrations (Col. 6). Self explanatory.

4. Abbreviations

Abbreviations	*Explanations*
adj	adjust(able)(ing)
c	cycle(s)
deg	degree(s)
fl	flat
givd	galvanized
hdl	handle(d) (s)
mtg	mounting
nom	nominal

Abbreviations	*Explanations*
o/s	overall
p/h	phase
S	steel
sp	special
v	volt(s)

5. Errors, Comments, and/or Suggestions

Reports of errors, comments, and/or suggestions are encouraged. They should be submitted on DA Form 2028 and forwarded direct to: Commanding General, Headquarters, U.S. Army Weapons Command, ATTN: AMSWESMM-P, Rock Island Arsenal, Rock Island, Ill. 61202.

Section II. BASIC ISSUE ITEMS LIST

(1) Source maintenance, and recoverability code				(2)	(3)	(4)	(5)	(6) Illustration	
(a) Mat. code	(b) Srce	(c) Maint level	(d) Recov	Federal stock No.	Description	Unit of issue	Qty auth.	(a) Fig. No.	(b) Item No.
					MAJOR COMBINATION				
	.....	.....	R	3419-294-9591	SAW, BAND, METAL CUTTING: floor mtg, 16 in. throat depth, saw blade or file band, 3/4 max w of band saw, 1/2 max w of file band, table 24 lg x 24 w, angle adj, 220-v, 60-c, 3-ph (DoAll Company Model 1612-OM) (3419-294-9591).	.....	.....		
					COMPONENTS OF MAJOR COMBINATION				
					None authorized.				
					SPARE PARTS				
					None authorized.				
					TOOLS AND EQUIPMENT FOR:				
					SAW, BAND, METAL CUTTING (18056:1612-OM)				
	C	O/C	.....	.....	ADAPTER, GUIDE: file (18056:1371)	ea	1	11	18
	C	O/C	R	.....	ATTACHMENT, MITER: 0 to 90 deg (18056:50710)	ea	1	11	7
	C	O/C	.....	3419-867-8614	BACKUP, FILE GUIDE: (18056:34-09312)	ea	2	11	15
	C	O/C	.....	.....	BACKUP, POLISHING GUIDE: (18056:8410402)	ea	2	11	33
	C	O/C	.....	.....	BAND, POLISHING: cloth, al-oxide, 150 grit (18056:101490	ea	12	11	20
	C	O/C	.....	.....	BAND, POLISHING: cloth, al-oxide, 80 grit (18056:101491)	ea	12	.....	.....
	C	O/C	.....	.....	BAND, POLISHING: cloth, al-oxide, 150 grit (18056:101490)	ea	12	.....	.....

	C	O/C	.....	3455-277-3540	BLADE, BAND SAW: flex. back, raker set, 1/8 w, 0.025 thk, 18 teeth per in., 100 ft coil (18056: 306-084).	ea	1	.....	.....
	C	O/C	.....	3455-277-3542	BLADE, BAND SAW: flex. back, raker set, 1/8 w, 0.025 thk, 14 teeth per in, 100 ft coil (18056: 306-100).	ea	1	.....	.....
	C	O/C	.....	3455-224-3591	BLADE, BAND SAW: flex. back, raker set, 1/8 w, 0.025 thk, 18 teeth per in., 100 ft coil (18056: 306-126).	ea	1	.....	.....
	C	O/C	.....	3455-277-3544	BLADE, BAND SAW: flex. back, racker set, 3/16 w, 0.025 thk, 10 teeth per in., 100 ft coil (18056: 306-167).	ea	1	.....	.....
	C	O/C	.....	3455-277-3545	BLADE, BAND SAW: flex. back, raker set, 3/16 w, 0.026 thk, 14 teeth per in., 100 ft coil (18056: 306-183).	ea	1	.....	.....
	C	O/C	.....	3455-277-3546	BLADE, BAND SAW: flex. back, raker set, 1/4 w, 0.025 thk, 10 teeth per in., 100 ft coil (18056:306-225).	ea	1	.....	.....
	C	O/C	.....	3455-277-3552	BLADE, BAND SAW: flex. back, raker set, 3/8 w, 0.025 thk, 8 teeth per in, , 100 ft coil (18056: 306-308).	ea	1	.....	.....
	C	O/C	.....	3455-277-3553	BLADE, BAND SAW: flex. back, raker set, 3/8 w, 0.025 thk, 10 teeth per in., 100 ft coil (18056: 306-324).	ea	1	.....	.....
	C	O/C	.....	3455-244-3595	BLADE, BAND SAW: flex. back, raker set, 3/8 w, 0.025 thk, 18 teeth per in., 100 ft coil (18056: 306-365).	ea	1	.....	.....
	C	O/C	.....	3455-236-8890	BLADE, BAND SAW: flex. back, raker set, 1/2 w, 0.025 thk, 6 teeth per in., 100 ft coil (18056: 306-381).	ea	1	.....	.....
	C	O/C	.....	3455-204-1671	BLADE, BAND SAW: flex. back, raker set, 1/2 w, 0.025 thk, 10 teeth per in., 100 ft coil (18056: 306-407).	ea	1	.....	.....
	C	O/C	.....	3455-204-1668	BLADE, BAND SAW: flex. back, raker set, 1/2 w, 0.025 thk, 14 teeth per in., 100 ft coil (18056: 306-423).	ea	1	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 1/2, 6 teeth (18056: 306-381)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 1/2, 10 teeth (18058: 306-407)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 1/2, 14 teeth (18056: 306-423)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 5/8, 10 teeth (18056: 306-430)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 5/8, 14 teeth (18056: 306-506)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 3/4, 8 teeth (18056: 306-563)	ft	100	.....	.....
	C	O/C	.....		BLADE, SAW: carbon S, 1 in., 6 teeth (18056: 306-803)	ft	100	.....	.....
	C	O/C	.....		BLOCK, ANGLE: lower (18056: 27596)	ea	1	11	9

(1) Source maintenance, and recoverability code				(2)	(3)	(4)	(5)	(6) Illustration	
(a) Mat. code	(b) Srce	(c) Maint level	(d) Recov	Federal stock No.	Description	Unit of issue	Qty auth.	(a) Fig. No.	(b) Item No.
	C	O/C			BLOCK, ANGLE: upper (18056: 27597)	ea	1	11	11
	C	O/C			BRACKET, UTILITY SAW: front (18056: 29584)	ea	1	11	26
	C	O/C			BRACKET, UTILITY SAW: rear (18056: 29538)	ea	1	11	27
	C	O/C			COLLAR, STOP: utility saw (18056: 11-28109)	ea	1	11	28
	C	O/C			CLAMP, GUIDE: rip fence (18056: 31449)	ea	1	11	21
	C	O/C	R		DISK CUTTER: (18056: 40044)	ea	1	11	3
	C	O/C		4730-249-1474	ELBOW, PIPE: malleable iron, galvanized, 90 deg 300 psi, stght	ea	1	11	32
	C	O/C			FEED SCREW: work (18056: 11-03007)	ea	1	11	19
	C	O/C	R		FENCE, RIP: (18056: 46897)	ea	1	11	1
	C	O/C			GUIDE, BAND: polishing (18056: 16686)	ea	3	11	37
	C	O/C			GAGE, INSERT: 1/16 to 1/2 saws, 0.025 thk (18056: 34-08320)	ea	3	11	38
	C	O/C			GAGE, INSERT: 5/8 to 3/4 saws, 0.032 thk (18056: 13-08303)	ea	1	11	10
	C	O/C			GRAPHITE, POWDERED: 16 oz aerosol can (18056: 458-140613)	ea	1	11	24
	C	O/C			GUIDE BLOCK, SAW: lower, 1/4 in. (18056: 11507)	ea	1	11	16
	C	O/C			GUIDE BLOCK, SAW: upper 3/4 in. (18056: 11519)	ea	1	11	17
	C	O/C			GUIDE BLOCK, SAW: lower, 3/4 in. (18056: 11543)	ea	1	11	14
	C	O/C			GUIDE BLOCK, SAW: upper, 3/4 in. (18056: 11528)	ea	1	11	13
	C	O/C			GUIDE, FILE: 1/4 x 6 3/4 (18056: 27487)	ea	1	11	22
	C	O/C			GUIDE, FILE: 3/8 x 8 5/8 (18056: 27488)	ea	1	11	23
	C	O/C			GUIDE, FILE: 1/2 x 8 5/8 (18056: 27489)	ea	1	11	12
	C	O/C			HOLDER, POST: (18056: 35-7329)	ea	1	11	25

C	O/C		INSERT, SAW GUIDE: 1/16 thk (set of 4) (18056: 4499)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/32 thk (set of 4) (18056: 4498)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/8 thk (set of 4) (18056: 4497)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/16 thk (set of 4 (18056: 4496)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/4 thk (set of 4) (18056: 4495)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/8 thk (set of 4) (18056: 3960)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/2 thk (set of 4) (18056: 3959)	set	2		
C	O/C		GUIDE, FILE: 1/2 x 8 5/8 (18056: 27489)	set	2		
C	O/C		HOLDER, POST: (18056: 35-7329)	ea	1	11	12
C	O/C		INSERT, SAW GUIDE: 1/16 thk (set of 4) (18056: 4499)	ea	1	11	25
C	O/C		INSERT, SAW GUIDE: 3/32 thk (set of 4) (18056: 4498)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/8 thk (set of 4) (18056: 4497)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/16 thk (set of 4) (18056: 4496)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/4 thk (set of 4) (18056: 4495)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/8 thk (set of 4) (18056: 3960)	set	2		
C	O/C		INSERT, SAW GUIDE: 1/2 thk (set of 4) (18056: 3959)	set	2		
C	O/C		INSERT, SAW GUIDE: 5/8 thk (set of 4) (18056: 3958)	set	2		
C	O/C		INSERT, SAW GUIDE: 3/4 thk (set of 4) (18056: 3957)	set	2		
C	O/C		JAW, HOLDING: feed screw (18056: 34-03107)	ea	1	11	34
C	O/C	5120-198-5392	KEY, SOCKET HEAD SCREW: hex type, 5/32 across fl, L-type hdl, 2 1/2 nom lg arm lg.	ea	1	11	31
C	O/C	4730-196-1481	NIPPLE, PIPE: galvanized, plain, std wt, 2 lg	ea	1	11	30
C	O/C		PLATE, CENTER: band filing (18056: 10627)	ea	1	11	8
C	O/C		PLATE, CENTER: band polishing (18056: 10570)	ea	1	11	6
C	O/C		PLATE, CENTER: band saw (18056: 29261)	ea	1	11	5
C	O/C		ROD, SLIDE: miter attachment (18056: 20401)	ea	1	11	2
C	O/C		SCREW, BACKUP: polishing band plate (18056: 34-09001)	ea	2	11	35
C	O/C		SCREW, BACKUP: saw band upper (18056: 18500)	ea	2	11	36
C	O/C	5120-357-8388	WRENCH, BOX: special, band saw attachment, triple opng offset, 1/2, 9/16, and 7/8 opng (18056: 20308).	ea	1	11	29
C	O/C		WRENCH, TABLE TRUNION: special, 45 deg bent hdl (18056: 10853)	ea	1	11	4

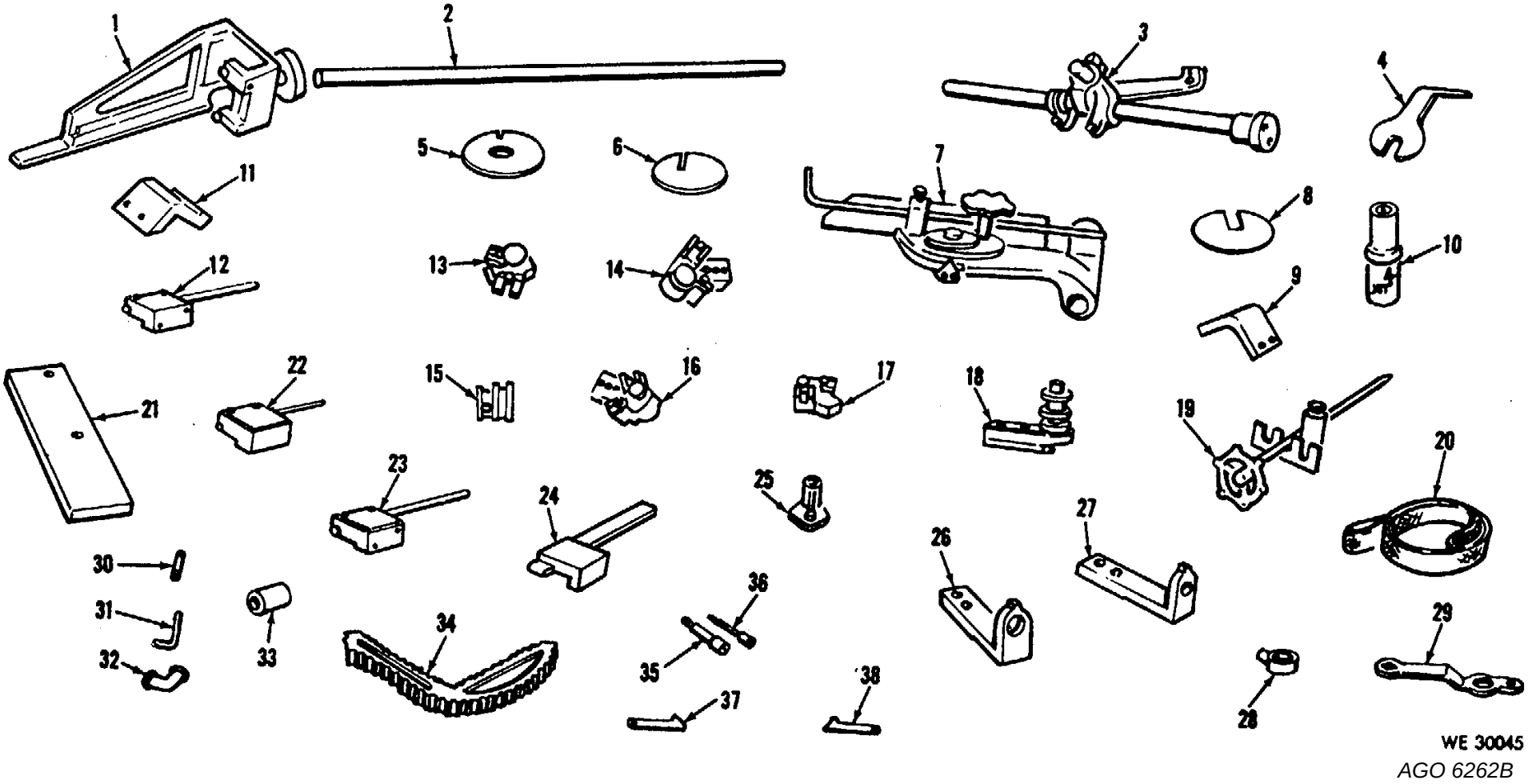


Figure 11. Tools and equipment.

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON D. C., *14 January 1966*

TM 9-3419-227-10 is published for the use of all concerned.

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EUSA (5)
Div (2)
Ft Monmouth (2)
Ft Story (1)
USMA (2)
USAAMS (2)
USAQMS (2)
USAARMS (2)
Army Dep (3) except
Mt Rainier (5)
LEAD (5)
Arsenals (2)
USAMEC (2)
Ft Knox FLDMS (10)
4th USA Fld Sta (10)
USA Rsch Spt Gp (2)
Units org under fol TOE:--
2 ea.
3-47
3-147
3-500 (FD, EB)
9-9
9-11
9-17
9-17
9-227
9-357
9-367
55-457
55-458

NG: Same as Active Army except allowance is one (1) copy for each unit.
USAR: None.
For explanation of abbreviations used, see AR 320-50.

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