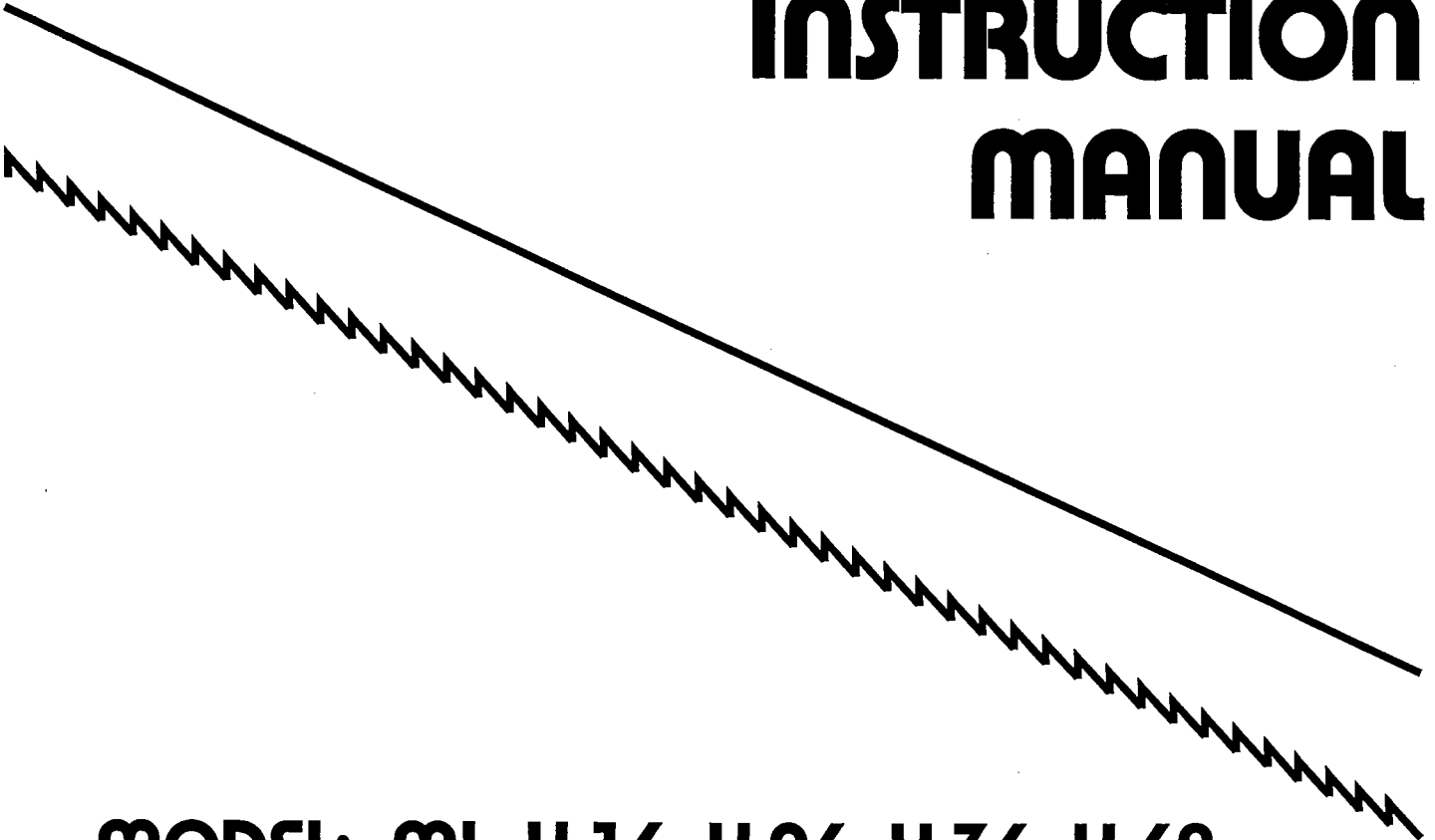




# INSTRUCTION MANUAL



**MODEL: ml, V-16, V-26, V-36, V-60**

**BAND SAWING MACHINE**

# DAMAGE CLAIM PROCEDURE

## VISIBLE DAMAGE AT TIME OF DELIVERY:

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

## CONCEALED DAMAGE:

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

Contour  
Contour-Matic  
Utility

# WARNING

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

READ INSTRUCTION MANUAL BEFORE OPERATING THIS MACHINE.

WEAR SAFETY GLASSES.

WEAR GLOVES WHEN HANDLING SAW BAND.

NOT WEAR GLOVES WHEN OPERATING MACHINE.

SET SAW GUIDES AS CLOSE TO WORK AS POSSIBLE.

CLOSE BAND WHEEL COVERS BEFORE TENSIONING BAND OR STARTING MACHINE.

CLOSE DOORS, REPLACE ALL COVERS AND SAFETY GUARDS BEFORE OPERATING MACHINE.

USE A FIXTURE TO FEED WORK PIECE AND KEEP HANDS AWAY FROM MOVING SAW BAND.

AVOID CONTACT WITH COOLANT. ESPECIALLY GUARD YOUR EYES.

STEP TO ONE SIDE AND AWAY FROM WELDING UNIT BEFORE WELDING A SAW BAND.

INSTALL FRICTION BAND AND SPARK SHIELD BEFORE FRICTION SAWING.

USE A DUST COLLECTOR WHEN SAWING GENERATES DUST.

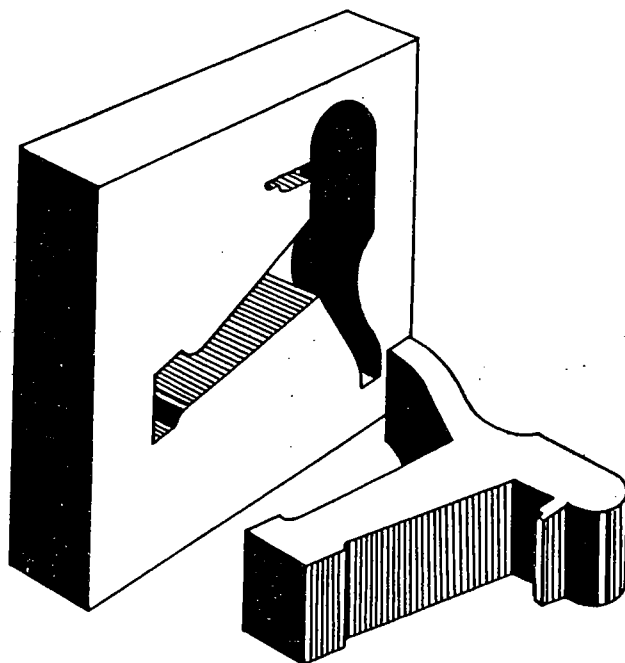
DISCONNECT ELECTRICAL SUPPLY BEFORE REMOVING PANELS OR DRIVE COVERS.

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

# OPERATOR'S INSTRUCTION MANUAL



## CONTOUR MACHINES



**THE DoALL COMPANY**

254 N. Laurel Ave., Des Plaines, Ill., U.S.A.

Cable Address, DoALL, Des Plaines, Ill.

PB-31  
REV. 11-64

PRINTED IN UNITED STATES OF AMERICA

# MACHINE SPECIFICATIONS

MODEL  SERIAL NO.

VOLTAGE  CYCLE  PHASE

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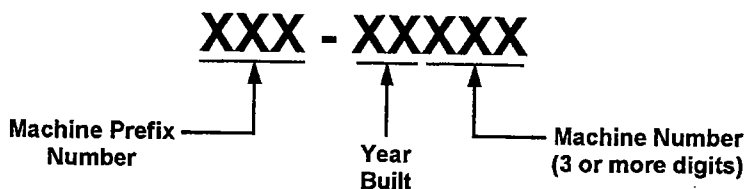
For your information and future reference, insert pertinent data concerning your machine in the spaces provided above. This information is stamped on the data plate attached to the machine frame.

Always specify machine model and serial number on all parts orders and correspondence concerning your machine. This will help avoid unnecessary delays and inconvenience during processing.

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

How to read your serial number:

Example: 500-001234



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

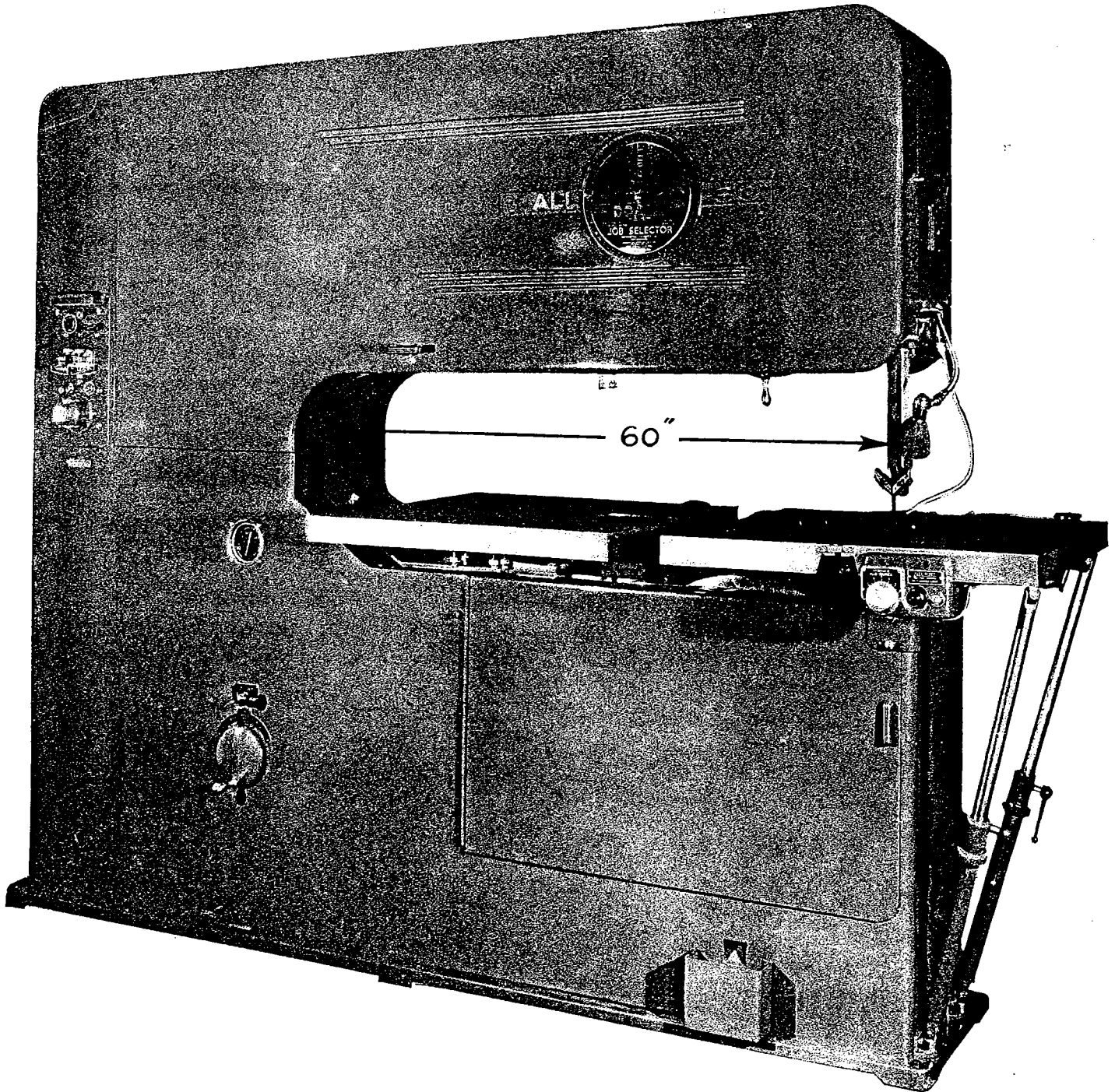
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**YOUR SERVICE REPRESENTATIVE:**

# Large Capacity Heavy Duty DoALL V-60

DoALL CONTOUR SAWING and FILING MACHINE



## FOREWORD

This manual has been prepared to act as a guide to the owner and operator of DoALL Band Machines.

In order to attain the maximum life and efficiency from your DoALL we suggest reading this manual thoroughly and following all instructions carefully.

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

### TRADEMARKS

The following trade names are registered trademarks of The DoALL Company, Des Plaines, Illinois.

DoALL	Dart	POWER-CUT
Contour	Precision	Saw EEZ
SPEEDMASTER	Buttress	
Demon	Claw Tooth	

## CUSTOMER SERVICES

### LABORATORY SERVICE

If you have a difficult cutting job, we would be glad to have you send samples of the material to our Saw-File Research Laboratories located at The DoALL Company, 254 North Laurel Ave., Des Plaines, Illinois. A research report will be sent you at the completion of the sawing or filing tests on the material. This report will show the proper saw or file to be used along with recommended feeds and speeds. The material tests will be returned to you for your inspection of the finished results obtained on the test. This

free service can easily be arranged through your local DoALL representative.

### EXTRA WORK HEIGHT MODIFICATIONS

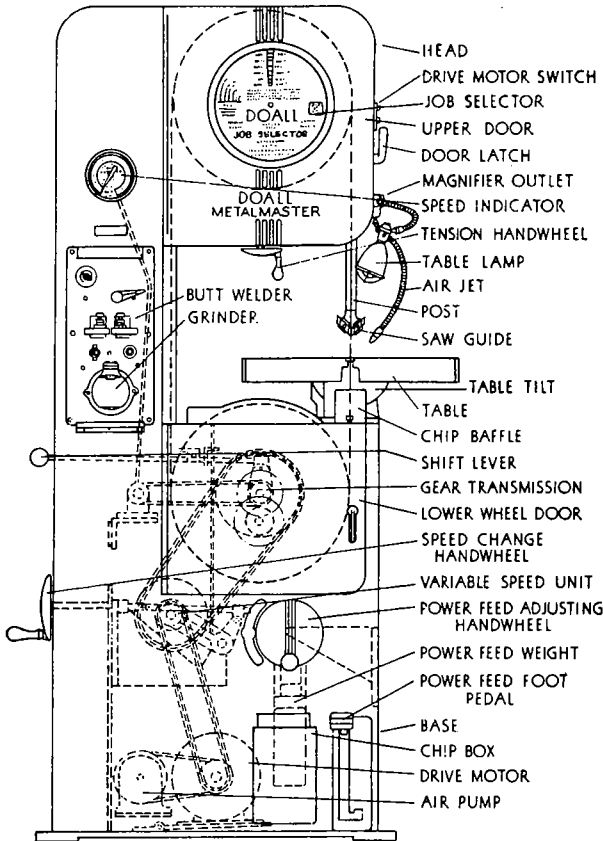
While standard Contour machines are assembly line produced using interchangeable components, modifications can be made to provide extra work height capacities. Special frames and posts are available which will increase the work height capacity from the standard 13 inches up to a maximum of 30 inches. These modifications are ordered as a factory-installed option.

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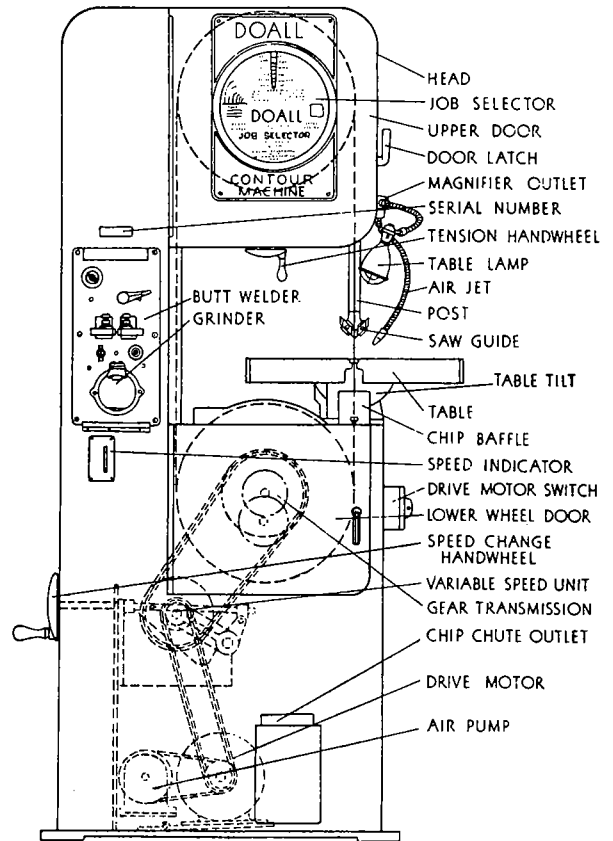
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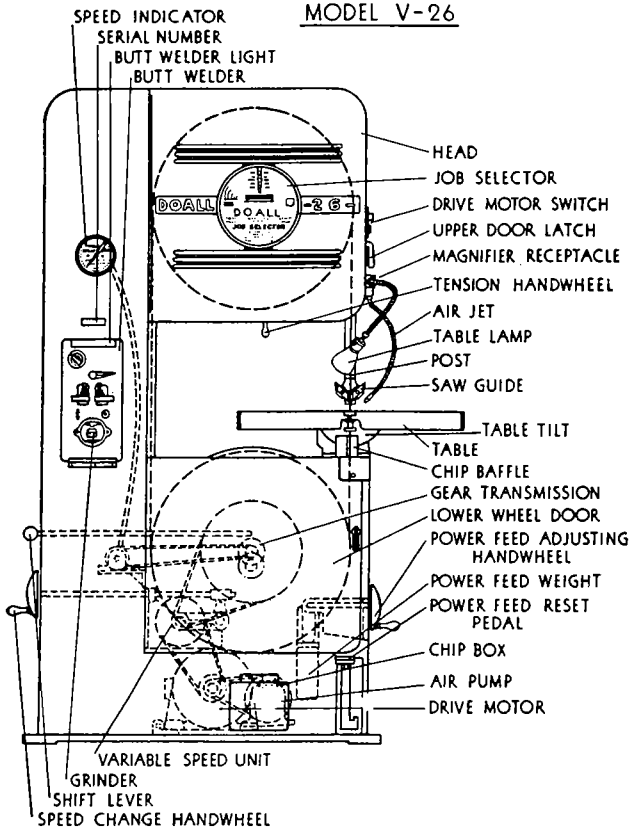
MODEL M1



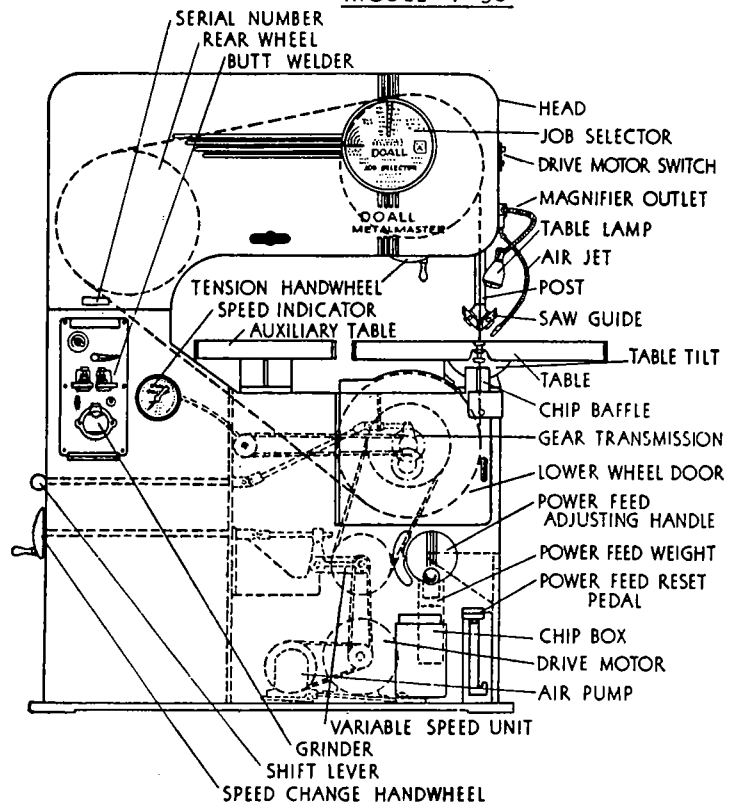
MODEL V-16



MODEL V-26



MODEL V-36



## INSTALLATION

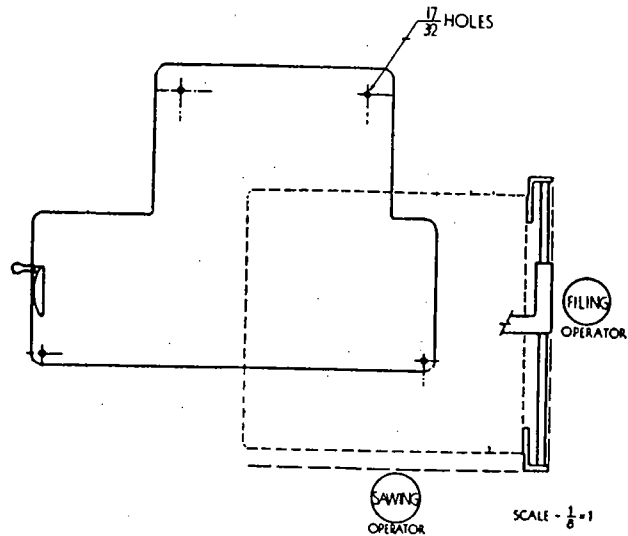
## Uncrating

Your DoALL Machine is shipped in a strong wooden crate or box to insure every protection against damage while in transit. The DoALL is securely bolted to the bottom of the crate. Careful removal of this crate will permit its re-use at a later date.

## Placement

The DoALL should be placed so that the light source will strike the table over the operator's right shoulder when he is in position for sawing, and over his left shoulder when in the filing position. When used for tool making, the machine should be located as near to the toolmakers' benches as possible. When placed in this position, it will lend itself readily to many smaller jobs such as cutting off small parts, cutting templates, developing blanks, etc. Where large work is to be machined, be sure and provide sufficient clearance around the machine.

The DoALL should be bolted rigidly to a level floor to insure against springing the frame out of alignment. Four  $17/32''$  holes are located on the flanged base of the machine for this purpose.



## Correcting for True Alignment

For precision sawing and filing operations, the DoALL must be in true alignment at the point of work.

This alignment is inspected and is in absolute alignment when your DoALL machine is shipped.

However, where the floor is rough and unlevel it is possible to throw the Post and Keeper Block surfaces to which the Saw Guide Blocks are mounted out of alignment.

The method of aligning the Post and Keeper Block surfaces by shimming under the base of the machine is done as follows:

- (1) Tightening the nut holding the table to the table tilt. This nut is located on the back of the table cradle.
- (2) Remove the two bolts holding the Keeper Block and remove. (See Fig. A.)
- (3) Remove nut tightened in (1) and pull off the table.

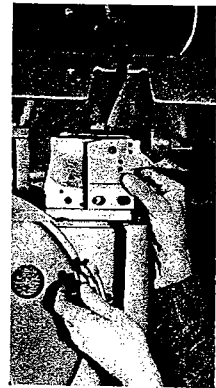


Fig. A

- (4) Replace Keeper Block and align with the Post using a straight edge and feeler gauge. Shim the base of the DoALL until alignment is within .0015" on the front side and right side of Post and Keeper Block. (See Fig. B.)
- (5) When true alignment has been made, remove Keeper Block, replace table and then Keeper Block.

When the floor is unstable true alignment of the saw, file or polishing band to the Table must be made by squaring same to the Table through use of the Table Tilt.

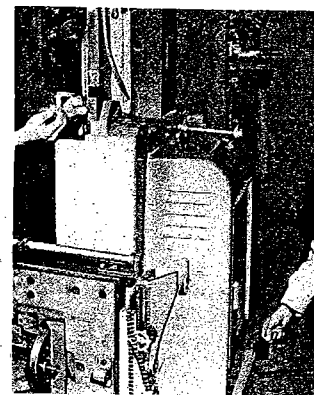


Fig. B

### Electrical Equipment

The machine is installed for your line current. A wiring diagram of the machine circuit is located in the cover of the terminal box shown in the illustration below.

To connect the machine, bring the leads of your line circuit to the machine and connect to the outlet wires from the outlet box. Follow the wiring diagram. Full line voltage at the machine is necessary for efficient operation of the machine. Be sure your lines are not overloaded and are heavy enough to carry 20 amps. at 220 volts.

**ALTERNATING CURRENT MACHINES**—220 volts, 60 cycle machines are standard. For voltages other than 220 volts a transformer located in the rear of the base furnishes the 220 volt current required for the welding unit. This transformer is in the line circuit and will be warm (through current losses) even when the machine is not operated. This does not injure the transformer. If the transformer heats up beyond 160° Fahrenheit, it should be removed and checked for a short circuit in the coils. The transformer consumes about 10 watts.



**DIRECT CURRENT**—Machines are equipped with a drive motor having a converter unit to furnish the alternating current required for the butt welder transformer. This converter supplies 140 volt, 60 cycle current and cannot be used from a circuit of different characteristics. **The drive motor must be running when a weld is to be made to supply the welding circuits.**

**ODD CYCLE CIRCUITS**—All provision for odd cycle installations have been taken care of at the factory. Follow the same procedure as outlined under Alternating Current Machines.

**FUSE PROTECTION**—All machines are completely fused with 30 amp. fuses. The motor starting switch is equipped with voltage overload protection on the ML, V-26, V-36, and V-60 models only.

### Initial Lubrication

The transmission in the DoALL is splash lubricated. However, the oil is drained from the transmission before shipment. Therefore, it is essential that the transmission be filled with oil before the machine is operated. A quart of SAE-40 transmission oil is included

with the parts shipped with your V-16, ML and V-36 **DoALLS**. Two quarts of EP 90 Hypoid grease are included with the V-26 and V-60 **DoALLS**.

The transmission is full when the oil begins to appear in the filler pipe elbow. This will eliminate any oil overflow noticed under the input shaft or under the lower wheel of machine.

If overflow is noticed and shop temperature is cold, drain No. 40 SAE oil and replace with No. 20 SAE oil, on V-16, ML and V-36 only.

It is a good idea to drain this oil, using the plug at the bottom of the transmission, after about one month's operation and replace with either fresh SAE-40 transmission oil or EP 90 Hypoid grease as specified.

### INITIAL OPERATION

When you receive your DoALL, it will be set up with a saw band.

Remove the block of wood under the drive motor. This block of wood has been placed under the motor to relieve the tension of its weight on the V-belts while in transit.

The weight type power feed is standard on ML, V-36 and V-26 **DoALLS**. If your machine has a weight type power feed, you must remove the bracket that secures the power feed weight to the base of the machine, before the power feed can be used. To get at this bracket, remove the entire rear cover which encloses the drive.

### OPERATION

The following operations cover sawing, filing, band polishing, butt welder, and power feeds together with attachments. An understanding of these operations and their application to the machining of material will bring out the finest performance of the **DoALL**.

#### Job Selector Dial

The Job Selector Dial is mounted on the upper door of the **DoALL**, giving a ready reference to the correct saw and file bands to be used in the machining of various basic materials along with correct operating speeds. Study this dial along with each of the following operations.

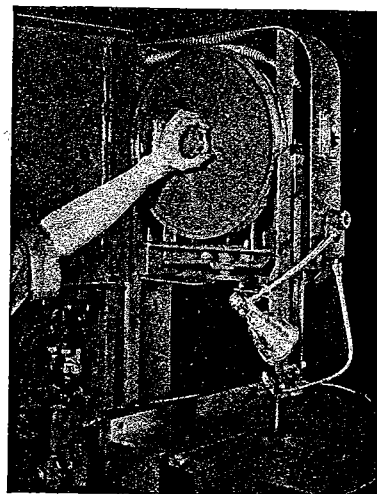
#### Table Tilt

The Work Table is mounted on a double trunnion providing adjustment forward or backward and to either side. Viewed from the sawing position the backward tilt is 10° maximum; the forward tilt is 10°; the lateral tilt is 10° to the left and 45° to the right of center. The "T"-handled socket wrench supplied is for locking the table trunnion at the desired angle. Pointers and degree segments are attached directly to the trunnions indicating the angle at which the table is set, 0° to 45° laterally and 0° to 10° backward or forward. On the V-26 and V-60 **DoALLS** the lateral tilt to left and right is controlled by a handwheel at the front of the machine. Loosen the nut at the back of the trunnion before tilting.

The lateral right tilt on the Model V-36 **DoALL** is limited to 35°.

## Saw Wheels

The saw carrier wheels are accurately balanced and centered and are arranged with a crown face; that is, the center of the rim of the wheel is higher than the outside edges. This construction causes the saw or file band to be tracked properly in the guides. The wheels are covered with tires of neoprene rubber impregnated on a fabric back. These tires eliminate wear on the saw teeth, and will last for a considerable time with proper care. (See instructions TENSION OF THE BLADE.) When the surface of the rubber wheel cover becomes worn, it is a good idea to turn these tires inside out. In this way, additional life can be had from the rubber tires. However, tracking of smaller width saws will be a little difficult because of the grooved condition of the tires. When the tires are completely worn out, it is necessary to replace them with new tires. This is done by removing the tire with a screw driver or other flat tool and stretching the band until it can be taken off. These tires are held on by rubber cement, but are easily removed and replaced.



Tilting adjustment is simple and provided with a simple means of locking it. Two special sealed precision bearings are used in this wheel.

## Tracking the Band

Models V-16, ML and V-26—(To adjust wheel so saw tracks on wheels in correct alignment to saw guides.) To facilitate changing the tracking of the blade, the upper saw wheel is tiltable in and out as well as adjustable up and down. The adjusting handwheel at the center of the upper wheel allows very close and accurate tilting of the wheel. On all models except the V-16, the tension handwheel for adjusting the wheel up or down is located below the wheel. The handle of this handwheel can be removed by pulling it out when using the full thickness capacity of the machine.

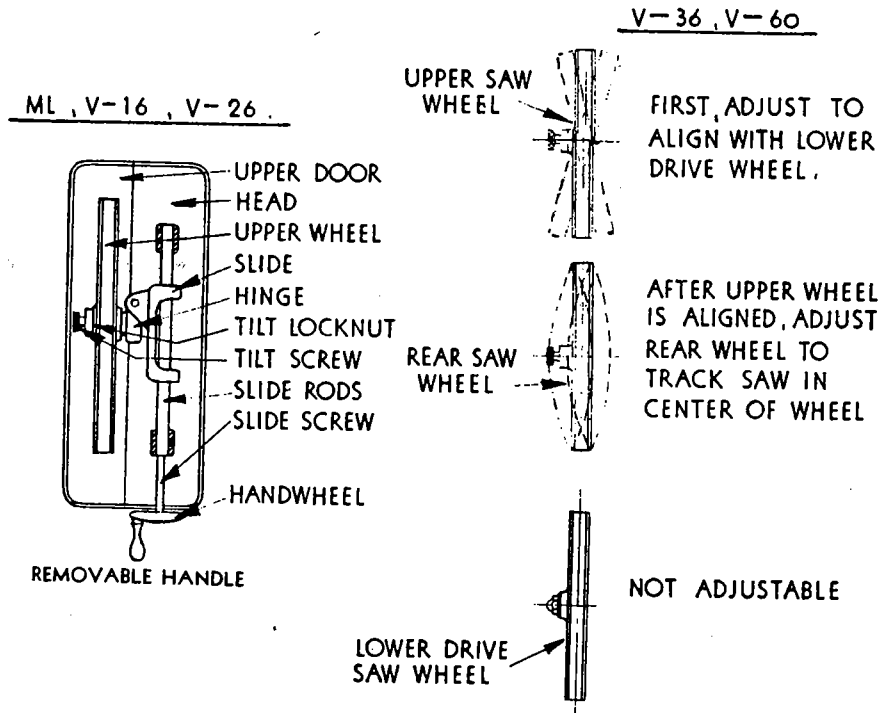
Models V-36 and V-60—Both the upper saw wheel and rear saw wheel are adjustable on these models. The upper idler wheel has been carefully aligned at the factory and needs no further adjustment. If the adjustment of this wheel is changed it can be relocated by using a two-wheel saw length, operating over the drive wheel and upper idler wheel. With two-wheel operation, the saw is tracked in the same manner as the V-16, ML and V-26 Models. Once this adjustment is made, it should be locked in position using the fluted lock nut. Tracking the blade can then be made by adjusting the angle of tilt of the rear saw wheel. A clockwise adjustment of the tilt screw causes the saw to run toward the inside of the saw wheel face. See illustration.

Tracking of the saw band is correct when the saw tracks on the crown of the wheels and the back of the saw just touches the thrust bearings on the saw guides.

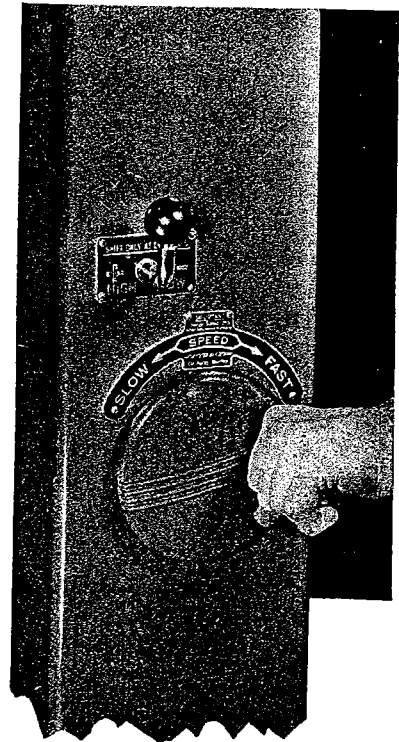
## Operating Speeds

The ML, V-26, V-36 and V-60 machines have a speed range of 50 feet per minute to 1500 feet per minute (band saw travel) (50 feet per minute to 375 feet per minute on Model V-16). Change the speed with the handwheel at the rear of the machine with motor running.

Watch the dial speed indicator on the Models ML, V-26, V-36, and V-60, and the pointer indicator on the Model V-16 until it is at the correct operating speed. With a file band on the machine, most metal filing operations will be between 50 feet and 100



feet per minute and for band sawing on metals, most of the cutting is between 50 and 400 feet per minute. Consult the **JOB SELECTOR DIAL** on the outside of the upper door of the machine. Proper cutting speeds are important in conserving the saw band. Using incorrect speed tends to wear out the band saw, and slows down the cutting. If the correct speed is maintained, the saw will cut fast and do clean work. The pressure exerted on the work depends on the condition of the saw, the stock thickness, and the skill of the operator. The stock can be fed as fast as the saw will cut without putting undue pressure on the saw and saw guides. The transmission in the Models ML, V-26, V-60 and V-36 has two speed ranges. The low range gives saw speeds from 50 to 375 feet per minute. The high speed range gives saw speeds from 200 to 1500 feet per minute. The infinitely variable speed sheaves allow selection of any speed from 50 to 1500 feet per minute through the two-speed transmission. The transmission clutch is so arranged that it can be shifted only when the machine is running at the slowest speed. To shift from high to low or from low to high, be sure that the variable speed handwheel, located below the clutch lever at the rear of the machine, is set for the lowest speed possible shown on the Speed Indicator Dial, i.e., 50-200. On the Models ML, V-26, V-60, and V-36 machines, the high speed range overlaps the low speed range. We recommend the high speed range for all speeds over 275 feet per minute; quieter operation will result.

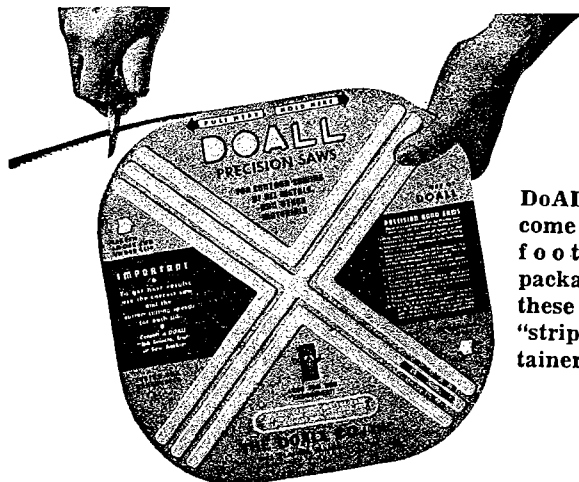


### Belt Take-up

The V-belts driving the transmission will stretch slightly after initial use. The stretch of both belts is automatically taken up by the hinged motor mounting. Belt tension can be regulated by adjusting the nut on the motor base equalizer spring. Do not run the belts too tight.

## SAWING

### Selection of the Saw



DoALL saws come in 100 foot coils packaged in these handy "stripit" containers.

The DoALL is very simple to operate, but to make the saw follow to within a few thousandths of an inch from the line, requires some experience. We recommend that the operator practice on sample blocks of steel before attempting to do actual work on the machine. Hand feeding is best for small dies, templates and light work, and also on cutting all small curves. Use the power feed for production work wherever possible.

### Saw lengths used on different model DoALLS:

ML—120" or 5 lengths of work table.

V-16—120" or 6 lengths of work table.

V-36—2 wheel, 120"—3 wheel, 162" or 3-4/5 lengths of work table and 5½ lengths respectively.

V-26—177" or 5-4/5 lengths of work table.

V-60—2 wheel, 177"—3 wheel, 254" or 5-4/5 lengths of work table and 8½ lengths respectively.

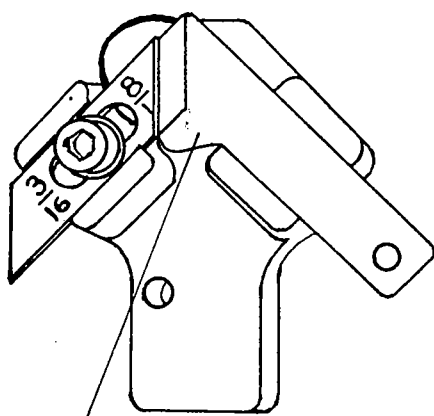
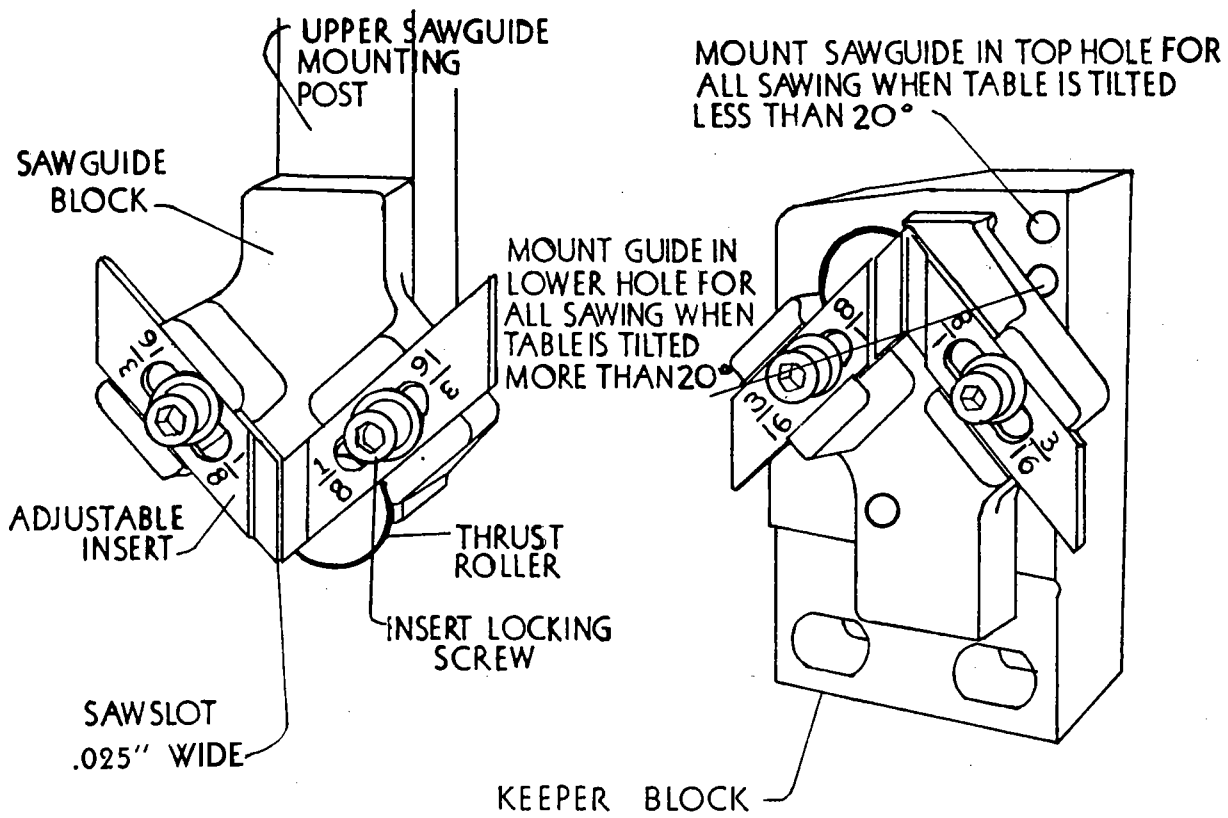
NOTE:—When cutting these saw lengths with the saw snips, start the cut on the back or non-cutting edge of the blade. This will keep the saw snips sharp longer.

In general the coarser pitches are used on soft or thick materials at slow speed. The finer pitches are used on hard or thin materials at higher speeds. There should be at least two teeth in the material at all times.

These many factors make proper selection of the BAND SAW important. The JOB SELECTOR DIAL on the machine will serve to guide you in making this selection. EXPERIENCE with the DoALL on various materials will show the correct blade to use.

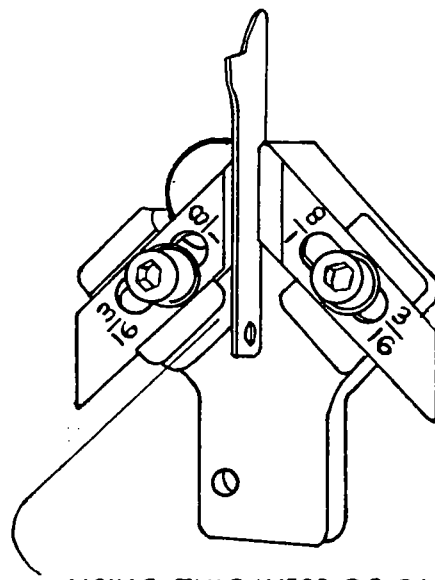
SAW GUIDE SET UP—To set up the guides for any width of saw from 1/16" to 1" wide:

1. Remove both top and bottom guides from the machine.
2. Select the set of inserts corresponding to the width of saw to be used.
3. Place left hand insert in the milled slot as shown in Fig. 1, and tighten the screw lightly so that the insert will slide in the slot, but will hold its position.
4. Insert gauge in the opposite slot as shown in Fig. 1 and adjust the insert so that



POSITION OF GAGE FOR LOCATING FIRST INSERT

FIG. 1



USING THICKNESS OF GAGE FOR DETERMINING WIDTH OF SLOT

FIG. 2

USE .035 GAGE FOR 1" SAWS  
 USE .032 GAGE FOR 5/8" & 3/4" SAWS  
 USE .025 GAGE FOR 1/16" to 1/2" SAWS



- it meets the two gauging edges. Then securely tighten the insert in place.
5. Remove gauge from block and mount the right hand insert.
  6. Adjust the right hand insert to give a slotted width the thickness of the gauge. (Fig. 2)

The inserts are extremely hard and will give considerable service before grinding becomes necessary. When the insert is worn so that the saw slot is not parallel it should be reground on a true 45° angle. Do not grind the flat or notched surfaces. They are accurately determined at the factory and are not subject to wear. Stone the point of the saw guide inserts after grinding so that there is a slight radius on the point and point edge.

**ADJUSTING THE BLADE**—After the saw guides are mounted on the machine and the saw band has been placed on the wheels, the saw should align directly in the .025 slot (ML, V-16, and V-36), or .025, .032 and .035 slot (V-26 and V-60), between the saw guide inserts. The machine should then be started and the upper wheel adjusted until the saw runs in the guides with the back edge of the saw just barely touching the roller when it is running free. The thrust wheels should come to play only under pressure of cutting. If the teeth of saw run so far in the saw guide slot that a clicking noise is heard or if the saw does not run deep enough in the slot to guide the saw perfectly, the cause is due to having the incorrect insert for that particular width of blade. After the band is tracking on the upper wheel so that the saw runs freely in the guides, the machine is ready to operate. The upper saw guide should be lowered as close to the work as possible to give the maximum guiding of the saw as it passes through the kerf. **REPLACE THE THRUST ROLLER CAPS BEFORE THEY WEAR THROUGH TO THE BEARING.**

**TENSION OF THE BLADE**—Tension of the saw is adjusted through the upper saw wheel actuated by a handwheel. This handwheel will allow a 6" adjustment to the wheel. There is no hard and fast rule by which the correct blade tension can be obtained. In general, tighten new band saws enough to do the work without twisting or wavering in the kerf. After they have been used a little, they will have stretched slightly. Then re-adjust the tension to take up this slack. Blades  $\frac{1}{8}$ " or less require less tension to hold them in line while cutting is being done. A taut blade gives the best sawing results, keeping the saw in its true cutting path. Correct tension on the saw blade can only be applied through experience on the part of the operator. It is better to err on the side of too much tension than too little. A new blade will stretch slightly after it has been used. In making a long cut with a new blade, it is important to watch the tension of the saw so that it does not become too slack, due to the slight stretching it undergoes when it is first used.

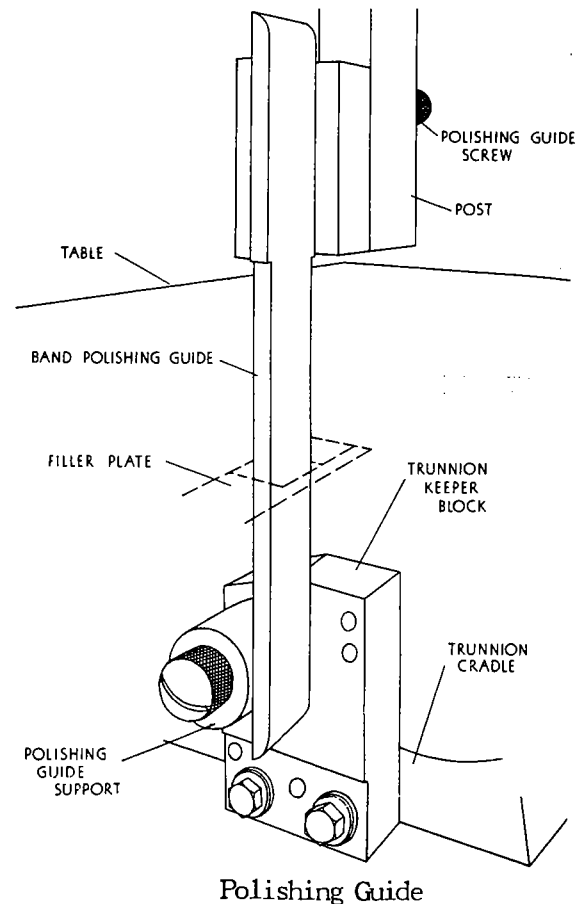
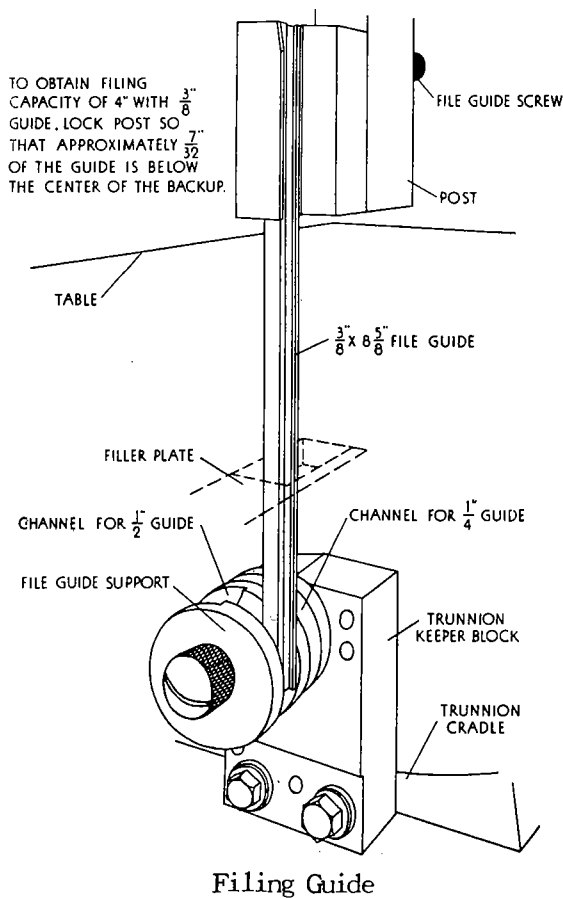
## FILING

### General

File bands for the Models ML and V-16 are one continuous length of fine spring steel. See file price list at the rear of this book for widths, sizes and types of **DoALL** Continuous File Bands. The V-36 and V-26 file band is in two sections, each joined with the regular snap-lock joint. The V-60 file band is in three sections. The full length band (two or three joined sections) is for three wheel operation where a large depth of throat is required. By unjoining the band, the 114" length on the V-36 or 114"+57" lengths on the V-60 can be used over the two vertically spaced wheels. This setup gives a 16" or 26" throat capacity on the V-36 and V-60 **DoALLS** respectively. An auxiliary guard is supplied for the V-36 and V-60 to guard the portion of the file band between the vertically spaced wheels when set up with the 114" or 114"+57" length files.

Keep the files clean. Do not file when the teeth are clogged. 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, damaging the band. Use a file card to clean the band. To facilitate this carding —

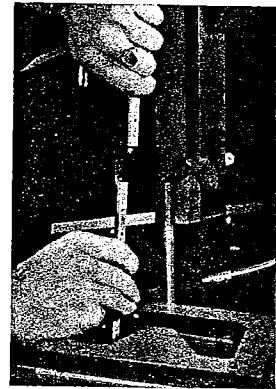
Start the motor and set the **DoALL** running at its slowest speed. Then shift the machine into neutral position (see operating speeds under operation). This will release the transmission so that the file band can be easily hand moved in locating clogged spots.



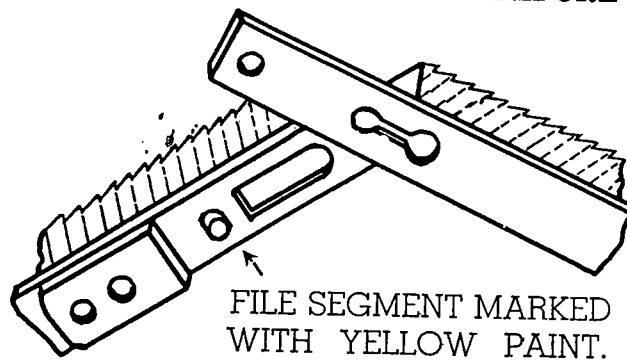
When you receive your DoALL, it is set up with a file band. The DoALL file bands have a special spring steel backing, on which are mounted three-inch tool steel file segments. An extra file segment and rivets for repairs are to be found in the bag attached to the file band. To remove the file band from the machine, remove the filler plate from the table, raise the post to the top position; release the tension on the file band by lowering the upper wheel, and slip it off the wheels. It can be stored in a coil; but do not coil it into more than three loops. By far the best means of storing file bands is in the DoALL Supply Cabinet. Here the bands are looped over in a 16" radius and the ends hang in a compartment. Thus, they are kept clean and are not likely to be kinked. Another satisfactory means for storing the bands is to support them suspended vertically from a pin, which fits through the tail gate rivet hole.

**TO JOIN BAND BEFORE MOUNTING ON THE DoALL**

1. Hold one end of the file band in each hand (the end painted yellow should be in the left hand.)
2. The file ends should be held at right angles with the filing surface up.
3. 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.
4. Allow the rivet head to slip into the SLOTTED hole. Slide the rivet head into the small end of the slot.
5. Straighten file band, allowing spring steel end to snap over the dowel.



**BE SURE ENDS OF BAND ARE FLUSH BEFORE RUNNING**



**TO UNJOIN BAND AFTER REMOVAL FROM THE DoALL**

1. Hold band at joint with both hands, the yellow segment being held with the left hand.
2. Bend the joint to not more than a 12-inch 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, disengaging the dowel.
4. Slide the lock rivet to the open end of the slot and lift off.



### IMPORTANT

Do not bend the band more than necessary. This band is made of the finest special spring steel obtainable, but it is possible to put a kink in it if not properly cared for.

#### Set Up for Filing

For internal or external set up of the machine for filing, use the following steps:

1. If the machine is already set up for sawing, remove the top and bottom saw guides from the post and keeper block respectively. Also remove the saw filler plate.
2. Set the machine in neutral.
3. Join the file band selected. Then mount the file band on the wheels, giving the band a loose tension and track to center of upper wheel.
4. Mount the File Guide Support, as shown on the opposite page, on the keeper block, making sure that the proper slot for the file band you are using is facing towards the outside end and parallel to the file band.
5. Lower the post of the machine to the proper work thickness capacity for filing. This thickness is not to exceed two inches when using the  $\frac{1}{4}$ -inch file bands and not over four inches when using  $\frac{3}{8}$ -inch or  $\frac{1}{2}$ -inch file bands.
6. Mount the proper File Guide for the file band to be used as shown on the opposite page locking it firmly to the post with the knurled thumb screws.
7. Adjust the tension of the file band to SNUG. This tension is always less than the saw band tension as too much tension on the file band will exert undue pressure on the file segment rivets causing them to break when heavy filing pressure is applied. At first it might seem that by excess tightening of the file band better filing results can be obtained. This is not the case. Actually most accurate filing can be obtained only by operating the band in a slack condition. (SNUG.)
8. Check the file band to see that it is in alignment and passing freely over the channel in the file guide. This can be accomplished by hand movement of the upper wheel. Then start up the motor and shift the machine into low gear, so that the band will run slowly while it is properly tracked on the wheels. Then insert the File Filler Plate in the table slot.

#### Tracking the File Band

The file bands are properly aligned on the wheels in the same manner as used in tracking the saw bands.

The band will run on the crown of the wheel by turning the thumb screw located at the center of the upper wheel. A clockwise rotation of the tilting screw will make the band run to the inside. The file band should run freely in the file guide channel when properly tracked.

Tracking the file band on the V-36 or V-60 machine when set up for three wheel operation is accomplished by turning the knurled thumb screw at the center of the rear idler wheel. A clockwise rotation causes the file to run toward the inside of the wheel face.

#### Pressure on File Band

Work pressure on the file band should not be excessive. In general, a medium pressure should be used for roughing and a light pressure for finishing. Heavy 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 clog.

The correct combination of speed and pressure will produce curled chips. The best filing speeds are between 50 and 100 feet per minute. Use the Job Selector Dial for complete information on filing speeds.

**General**

**BAND POLISHING AND GRINDING**

This simple unit permits excellent polishing and finishing of the parts previously sawed and filed and is an excellent means of quickly removing burrs. It makes your DoALL machine a three-in-one machine tool. The unit is set up in the same manner as the file band.

Mount the polishing band guide support in the keeper block as shown on the opposite page. Then lower the post to the four-inch thickness capacity mark and mount the Band Polishing guide on the post. 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.

The polishing band is then mounted and tracked on the wheels the same as for the file bands. Tension should be "snug" with the polishing band traveling at 1500 F.P.M.

Emery cloth bands are available in the following sizes and grits:

Application	Cutting Speeds	Grit
Grinding	375-700	50
Polishing Coarse	500-1000	80
Polishing Fine	800-1500	150

Aloxite Grade—General purpose steel, etc.

Corundum Grade—For brass, copper, bronze, and other tough metals.

**Screw Feed**

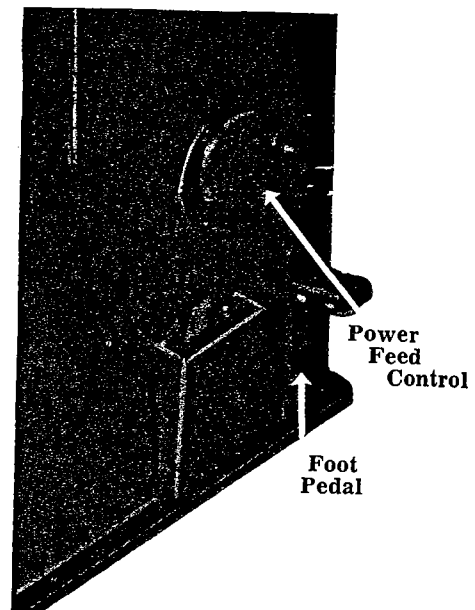
**ATTACHMENTS**

For sawing large sections where manual feeding of the work is likely to be tiring, the screw feed should be used. This feed is an Acme Thread, 1/2" screw, the point of which is hardened: The screw swivels in its housing so that curves can readily be navigated. This attachment is mounted directly on the filler plate by means of a stud and locking nut. The filler plate can be extended 2 1/2" from the edge of the table to allow the use of the screw feed on cuts greater in length than the distance from the saw to the edge of the table.

The screw can readily be adjusted from one position to another, by lifting the key in the slot of the swivel and sliding the screw to position. The key is then dropped into place. The work holding jaw to hold the work block when using the screw feed facilitates in keeping the work in correct alignment with the saw.

**Power Feed**

The weight type power feed is an automatic feed which allows the operator to use both hands in guiding the work without exerting any sawing pressure manually. This feed is actuated by a gravity fed weight carried along a beam. The position of this weight along the beam simultaneously determines the rate of feed and the pressure at the point of sawing. By turning the handwheel on the side of the base, the position of the weight is varied. In turning the handwheel clockwise, it reduces the pressure and rate of feed, while counter-clockwise increases the pressure and the rate of feed. At the maximum rate of feed, or when the handwheel is in the farthest counter-clockwise position, the weight exerts a pressure or pull of 75-80 pounds.



This setting should be used only for sawing at high speeds on wood or other fast cutting materials, and only when using saws  $\frac{1}{4}$ " or wider. For all regular work on steel and non-ferrous metals, a pressure of from 35 to 45 pounds should be used. When using the power feed with saws  $\frac{1}{8}$ " wide or less, the pressure should be reduced to a minimum. Straight line cutting allows a greater speed to be used than in cutting curves. Adjust the feed to give maximum cutting speed for each particular job without overstraining the saw blade.

The foot pedal at the bottom of the right hand side of the base is used to release the pressure and stop the feed without the operator removing his hand from the work block. When a cutting speed less than the minimum allowed by the weight is required, it can be controlled by putting pressure on the foot lever to the required amount. This can be regulated from 0 up to 25 pounds pressure. On large work where the length of cut exceeds the distance of the maximum feed, (10"), the weight is brought back into starting position by pressing the foot pedal down, securing it in the notch at the bottom of the foot pedal slot, and taking up the slack in the work holding chain. The foot pedal should be left in the upper position when the power feed is not in use to guard against injury to operator and machine should the foot pedal be accidentally dislodged from the notch.

### Hydraulic Controlled Contour Feed

Standard equipment on the Model V-60 DoALL and optional on the Models ML, V-36 and V-26 DoALLS is a hydraulic contour power feed. This unit provides automatic power feeding of the work to be cut into the saw for all types of sawing. The unit also consists of a handwheel control which enables the operator to cut practically any shape by merely operating the handwheel (Fig. 3) located on the table.

Referring to the power feed guide roller bar is drawn by a hydraulic piston actuated by oil pressure. By setting the control valve handle in the feed position the rate of feed can be varied from 0 to 15 FPM. The number one position on the valve gives the slowest feed. The feed increases when the pointer of the handle is turned to the right until a maximum speed of 15 FPM is reached. This is at the No. 8 position on the valve. To reverse the guide roller bar turn the handle back to the "return" position. Always put the valve in the "stop" position when the hydraulic system is not in operation. This bypasses the oil through the valve and decreases the load on the motor.

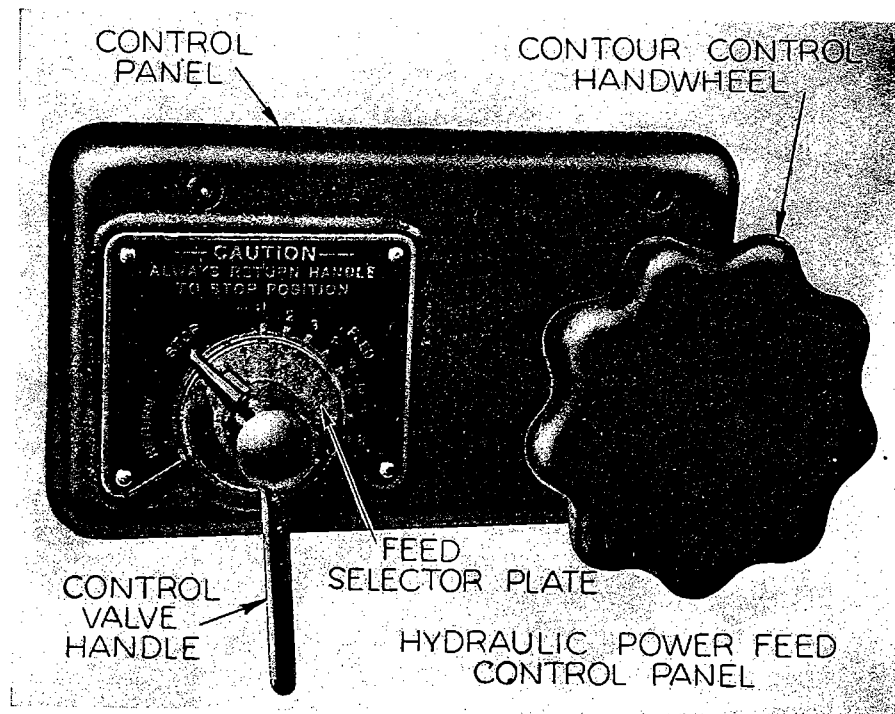


Fig. 3

### Set Up and Operation

When you receive your hydraulic V-26 or V-60, the hydraulic contour power feed mechanism is mounted on the table.

After placing the table in position on its trunnion and locking the trunnion nut, connect the flexible hose lines to the frame manifold (Fig. 5) located on the frame of the machine below the table. Then fill the hydraulic tank (Fig. 5) with  $2\frac{1}{2}$  gallons of Valvoline SAE-10 oil or equivalent. Put the control valve in the "stop" position, and start the hydraulic pump motor. Be sure the motor is running in the correct rotation. The rotation must be in the same direction as shown by the arrow on the motor. (See Fig. 5.) This may be changed by reversing the leads to the machine. Operate the guide roller bar connected to the piston rod, back and forth by turning the control valve handle from the feed position to the return position until the system is completely filled with oil and free of air pockets. The hydraulic system is then ready for operation.

With the control valve handle in the "stop" position, feed the chain around the sprocket in the center of the table bracket and around the two horizontal rollers at the ends of the guide roller bar. Connect the ends of the chain using the quick-lock provided. Take up all the slack in the chain before locking the chain together. This must be done when the guide roller bar is in the reverse position. The power feed is then ready for operation. To start the feed, turn the control valve handle to the right to the desired rate of feed.

For contour work turn the control handwheel at the front of the table, which drives the chain sprocket which in turn drives the work being cut. If the curve to be cut is too small for the saw to navigate at the speed used for straight cutting, reduce the feed intermittently while the curve is being navigated. Do not feed the work into

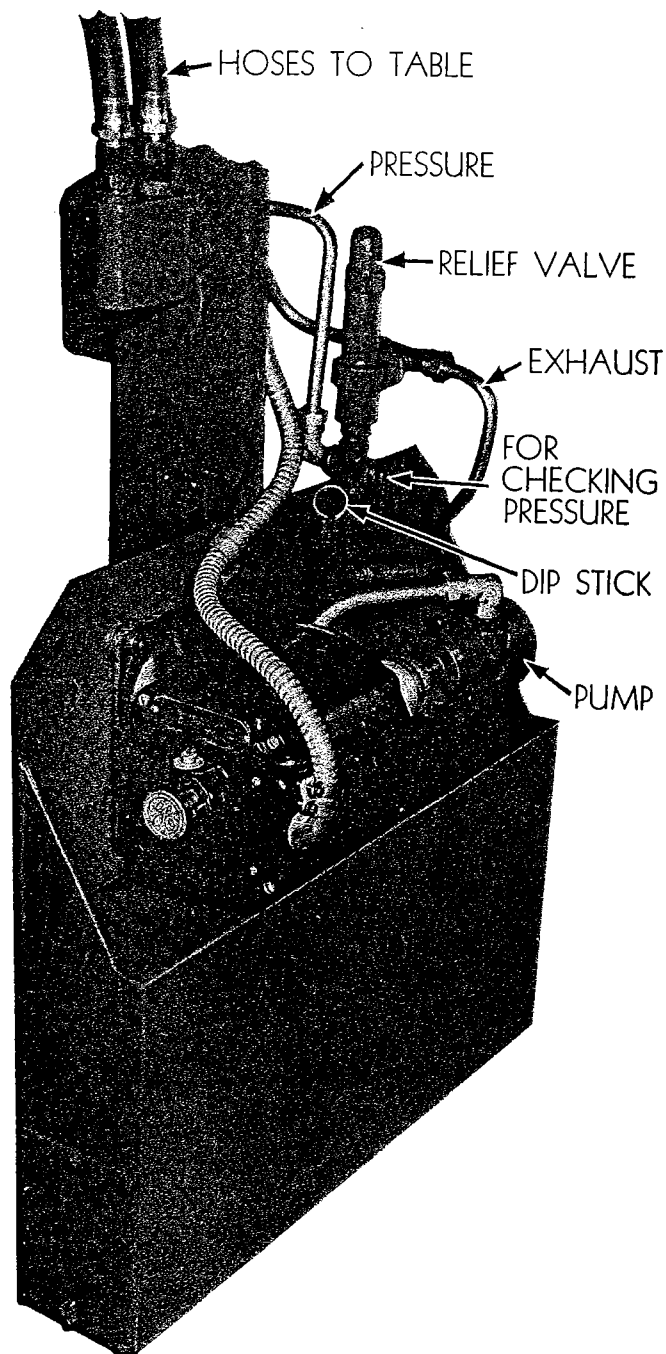


Fig. 5—Tank for Hydraulic Power Feed

the saw too rapidly. The saw should at all times be cutting at its fullest capacity, but do not overload to the extent that it causes the saw to twist or bow. For cutting heavy work use the Work Holding Clamps. Place the Work Holding Clamps on the table, mount the center support block in place in the filler plate slot, and clamp the work to be sawed in the four clamps.

When cutting into an opening, use the control valve to reduce the speed thus preventing damage to the saw and work being cut.

For straight cut-off work where no curves are to be cut, set up the horizontal pulley, sprocket and chain.

### **Maintenance and Care of Hydraulic Power Feed**

1. Always be sure there is enough oil in the tank. Check oil with the dip stick provided on the tank as shown (Fig. 5). Oil change use 2½ gallons of Valvoline SAE-10 oil or equal.

2. Clean the tank and oil filter every six months. The oil filter is located inside of the tank and may be serviced by removing the cover plate at the front end of the tank.

3. If the pressure drops—dirt may be lodged in the piston type relief valve (Fig. 5) or the relief valve spring may have to be replaced. The relief valve is set at 100 pounds pressure when it leaves the factory. In special cases it may be necessary to set it up to 200 pounds pressure. To increase the pressure remove the cap on the top of the relief valve and turn the adjustment screw clockwise. Check the pressure with the pressure gage at the point designated (Fig. 5). If the pressure is high enough and the pulling power is still insufficient, the piston cups may have to be replaced as the oil pressure goes by the piston cups into the exhaust end of the cylinder.

4. If the control valve does not operate properly there may be dirt between the disc and the face of the valve. If so the valve should be taken apart and the faces cleaned or lapped if necessary.

5. If the feed is bumpy or uneven, it is caused by air in the cylinder. This air may be removed by running the piston rod back and forth the full length of the cylinder a number of times. This condition usually occurs when a new machine is installed and started for the first time, or when the system has been drained, cleaned, and refilled with oil.

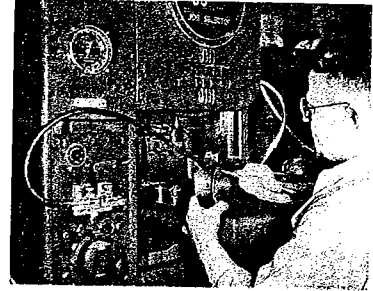


### Etching Pencil

The Etching Pencil is used with the butt welder to mark the jobs finished on the DoALL or any tools, jigs, fixtures, templates, etc.

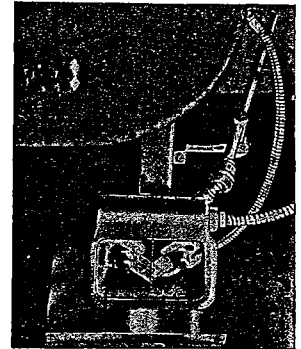
Instructions for applying the etching pencil are as follows:

1. Clamp the terminal strip of the etching pencil in the stationary jaw.
2. Depress the anneal and etching switch and clamp the button down with the etching pencil clamp. This closes the circuit through the welder and also grounds the etching current through the machine.
3. Place the work to be marked on the table of the machine. Since the machine is "grounded" there is no second lead required to the work.
4. Etch with sufficient pressure to prevent the point from arcing, but not great enough to destroy the copper point.
5. The copper point should be kept sharp to secure best results.

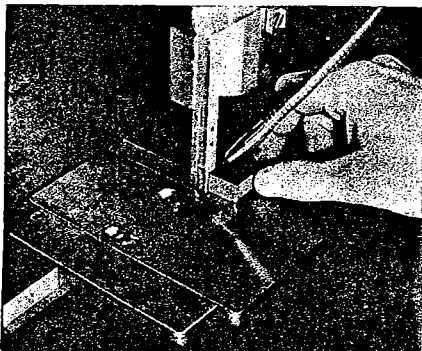


### Magnifying Attachment

This attachment consists of a 3" rectangular lens mounted in a flanged housing. The housing contains a light socket for a 15-watt candelabra type lamp. The lens and light are supported on a universal jointed 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. A special plug connector on the extension cord connects with the outlet cap located on the front of the machine, above the table light outlet. 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.



### File Adapter Plate



By using this File Adapter Plate, accurate filing of small work is possible. It also acts as a safety device as it prevents jamming of the work between the table slot and the face of the file band.

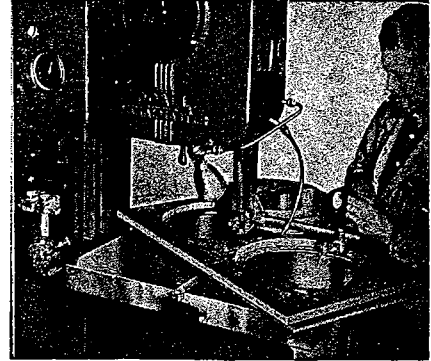
Place the File Adapter Plate around the file band as shown in the accompanying picture, but first remove the filler plate handwheel and insert it on the underside of the File Adapter Plate.

The slotted end of the File Adapter Plate should be within 1/16 of an inch from the cutting surface of the file band, then lock the plate in place by tightening the filler plate handwheel.

### Disc Cutting Attachment

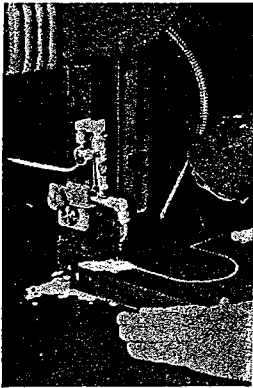
The Disc Cutting Attachment permits the cutting of true circles, either internal or external, of any diameter from 2½" to 30" on the V-36 and V-26 DoALLS, and from 2½" to 25" on the ML and V-16 DoALLS. The attachment clamps rigidly to the saw guide post and has an adjustable arm that can be set for any radius. This attachment is also used in filing and polishing operations.

Mount the attachment on the post with the centering pin resting squarely on the table surface. The center of the centering pin must be lined up directly opposite the cutting edge of the saw at a distance equal to the radii of the disc to be cut. In order to accomplish this, remove the filler plate from the machine and place a combination square against the side of the table slot with the blade of the square against the tip of the saw tooth. Then line up the centering pin with the edge of the square's blade.



The machine must also be in alignment as given in the section under "Installation" in order to give extreme accuracy with the Disc Cutting Attachment.

### DoALL Saw Lubricator



The DoALL Saw Lubricator is designed to give a controlled flow of lubricant at the point of work so as to increase the saw life, speed of cutting and give a finer finish.

A bracket is provided for mounting the one quart container which holds the lubricant. This bracket should be installed on the panel of the post adjusting side of the machine.

The lubricator is fastened to the post by means of the thumb set screw. The slide rod on the lubricator is adjustable for all saw widths and should be adjusted so that the copper tube outlet is just touching the edge of the saw teeth.

This will assure lubricant flowing on all sides of the saw. Adjust the sight feed valve to deliver not more than 10 drops per minute. Too much oil will cause the saw to slip off lower wheel. Soluble oil and water or kerosene solutions are recommended.

It is not good practice to use lubricant on cast iron, fibers and plastics.

### DoALL Saw EEZ

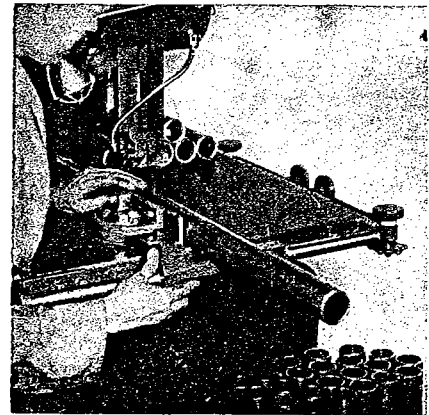
As a substitute for the DoALL saw lubricator, we recommend DoALL Saw EEZ which has been prepared especially for contour sawing. This Saw EEZ comes in four ounce tubes. It is applied directly to both sides of the saw band while it is in motion. Apply only enough Saw EEZ to maintain a protective film on the saw. This will require a

new application after four or five inches of contour cutting. The Saw EEZ keeps "scoring" of the narrow band saws to the minimum. In most cases it increases saw life four times and leaves a smoother, cleaner sawed surface.

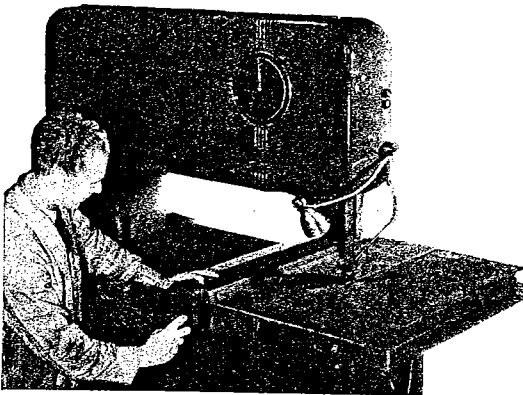
### Cut-off and Mitering Attachment

Set up this attachment as shown in the accompanying picture 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.

The bolt at the top of the attachment is used when a power feed is to be applied. The gage rod directly below the above bolt is used as a measuring cut-off guide.



### Rip Fence



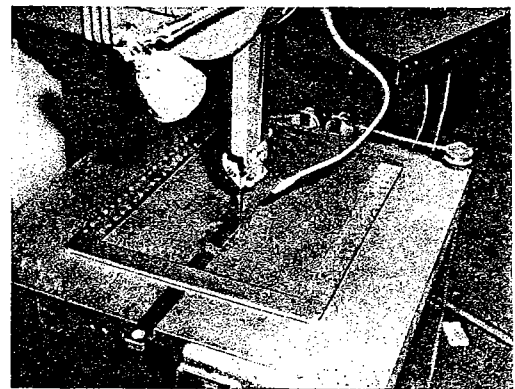
Set up this attachment as shown on the accompanying illustration and square the fence so that it is in line with the table slot. Also make sure that the machine is in proper alignment as given under "Installation".

In making a long cut be sure that the saw used is not worn on one side as this will cause the work to wander away from the rip fence guide.

### Heavy Work Slide

The function of the Heavy Work Slide is to permit easy movement to heavy parts that would otherwise be difficult to feed into the saw. The bar is ball bearing equipped and has a separate center support to support the material at the point of cutting.

Insert center support in the table slot ahead of the filler plate. The center support should then be sawed so that a path or a kerf is made for the saw to travel in. This will allow a solid contact between the work and feed table surface at the sawing point.



### Heavy Work Clamps

The Heavy Work Clamps, are used in the contour sawing of particularly heavy material as well as stacked parts to produce multiple parts in one operation. These clamps have a ball bearing base and have a standard clamping capacity of four inches.

As in the case of the heavy work slide, there is a center support provided which should be inserted ahead of the filler plate and sawed so as to leave a path or kerf for the

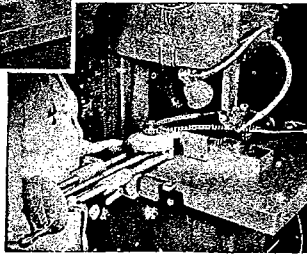
saw to travel in. It is important that this center support be used when cutting stacked parts as it will prevent the bottom pieces from bending downward or vibrating which causes excessive wear on the saw set. Clamp the four work-holding clamps on the material and square the work with the saw through the use of the table tilting device.

Each clamp is provided with gripping teeth so that the power feed can be applied in moving the material into the saw.

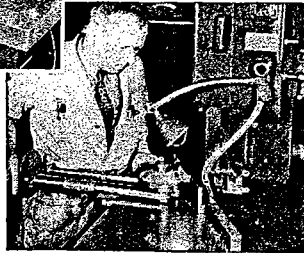
### "All Purpose" Mitering Attachment



1. Ripping



2. Cutting off



3. Mitering

Three operations are performed on this single unit. It may be attached to the automatic or hydraulic power feed of the machine for automatic ripping, cutting off and mitering operations. Rods, tubes, bars, channels, rails and irregular shapes can be notched, squared, ripped or mitered with accuracy.

This attachment is mounted on the sawing side of the table. First mount the table guide and guide spacer, then slide the attachment along this table guide squaring up the miter bar with the table slot and check the graduation plate for a "zero marking." Use an open end wrench on the set screw when locking the attachment in the position desired. The attachment has an adjustable work stop on the mitering bar and a lock screw on the miter head so that the attachment can be set for any angle cutting.

To prevent binding mitering rods when using power feed, remove mitering head and adjust bearing under mitering head.

For manual operation, the attachment is operated by use of the handwheel at the front of the unit.

When changing from manual to automatic feeding, disengage the feed screw by use of the split nut lever at the right side of the unit. Fasten the power feed chain around the collar at the top of the miter head. Then operate as previously outlined for power or hydraulic feeding.

## MAINTENANCE OF MACHINE

### Preventive Maintenance

Avoid attempting to cut too small a radius with too wide a saw. This will bind the saw causing the lower drive wheel band to become grooved.

Card out all loaded spots in the files before returning the file band to the storage cabinet.

Light pressure on all filing gives better finish and files just as fast. Tighten band only enough to assure tautness for precision work. This will prevent excessive wear of the gate rivets in the files and produce more accurate results.

Avoid dropping heavy loads on the ends of work table.

Avoid dropping the saw guide inserts as they are extremely hard for long wear and hence are brittle.

When sawing, keep the Post as close to the work as possible.

If the post cannot be raised, the trouble may be corrected by retightening the two set screws on the rack gear. If the Post keeps dropping after its lock has been released, the spring tension in the cored area of the Post Block should be removed and reformed to the desired tension.

### Drive Motor

The drive motor is spring tension counter balanced on its mounting hinge. Insufficient counter balance will cause unnecessary wear on the speedmaster sheaves bearings and shaft.

Too much counter balance will cause the motor to "climb the belts" or "hop" excessively. Adjust the tension of the motor so that the mounting base just touches the base of the machine when allowed to drop from a height of one inch.

### Lubrication

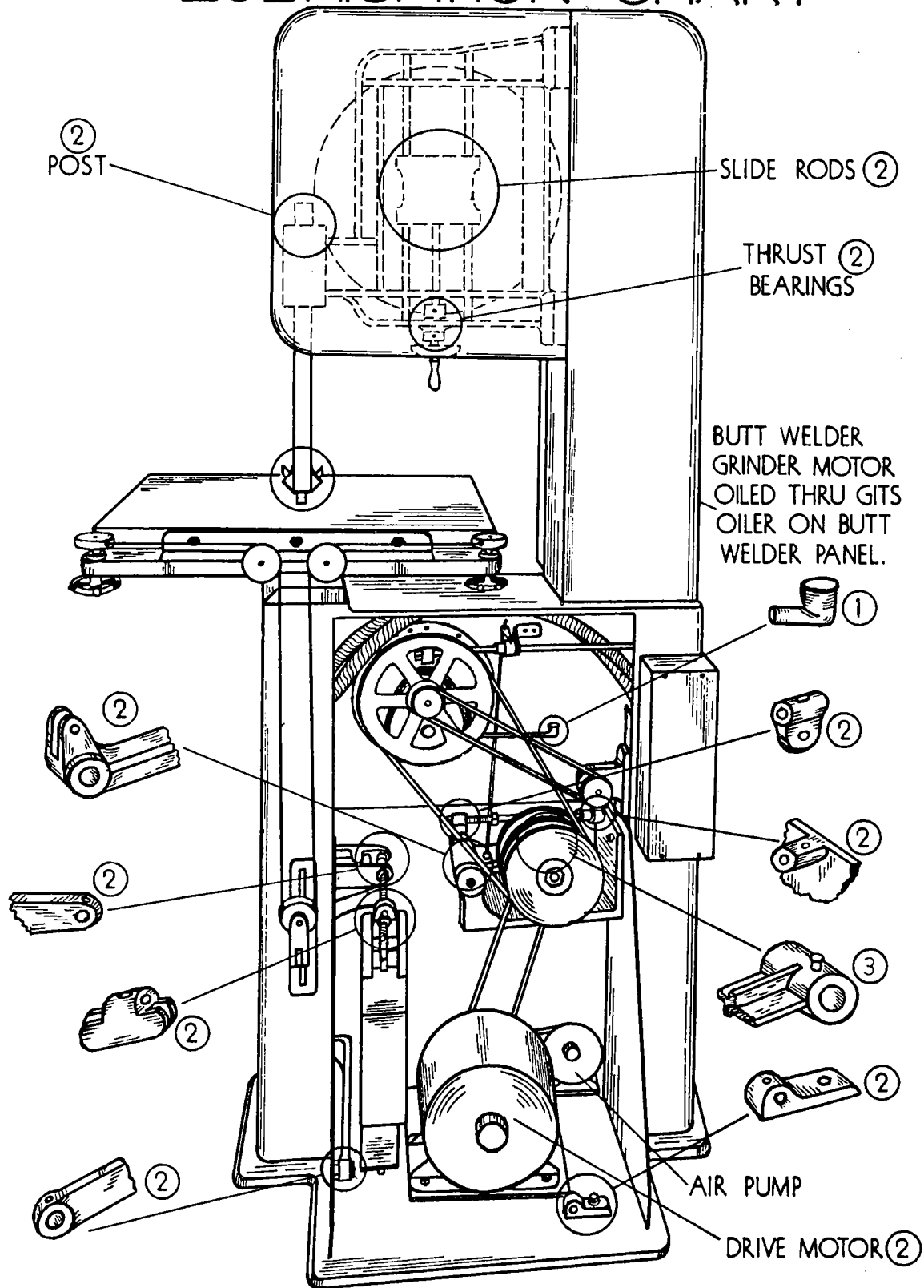
The points of lubrication are clearly shown on the diagram. The **DoALL** is completely equipped with sealed roller bearings which are lubricated at the factory and will require no further lubrication except for the parts listed below.

- (1) The "Speedmaster" Variable Speed Pulley which is mounted in the base should be lubricated once a month, using a good grade of Spindle oil of about 100 seconds Saybolt viscosity at 100 degrees Fahrenheit. Use about one teaspoonful. Do not over-oil the Variable Speed Pulley as the excess will coat the belts causing slippage.
- (2) The Drive Motor has wool packed sleeve bearings and should be oiled at least once a month using SAE No. 20 machine oil.
- (3) The Grinder Motor located on the butt welder panel and the Hydraulic Pump Motor for Hydraulic Power Feed Machines located under the rear cover of the machines should be oiled at least every 30 to 60 days using 6 to 10 drops of machine oil.
- (4) The Gear Reduction Transmission on V-16, ML and V-36 machines should be oiled monthly, using a good grade of SAE No. 40 transmission oil filling the case just so the oil will appear in filler pipe elbow. On the V-26 and V-60 **DoALLS** use EP 90 Hypoid grease.
- (5) Occasionally lubricate the Post to prevent rust and protect the fit into the Post Block.

Do not oil the Rotary Air Pump. Use powdered graphite very sparingly. This graphite is entered into the pump through the air inlet while the pump is in motion. Oiling the pump will cause the vanes to stick in their slots and since the vanes are made of plastics, the oil tends to destroy them.

Occasionally lubricate the slide rod, slide screw and thrust bearings of the upper wheel using an SAE No. 20 oil. The upper wheel bearings are packed with ball bearing grease which should be checked occasionally.

# LUBRICATION CHART



① USE NO. 40 S.A.E. OIL

② USE MACHINE OIL NO. 20 S.A.E.

③ USE SPINDLE OIL NO. 3 OR NO. 4