

# INSTRUCTION MANUAL

## AND PARTS LIST

BILL MILLER

312-965-2495

MORTON GROVE

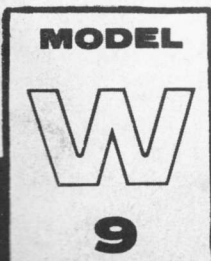
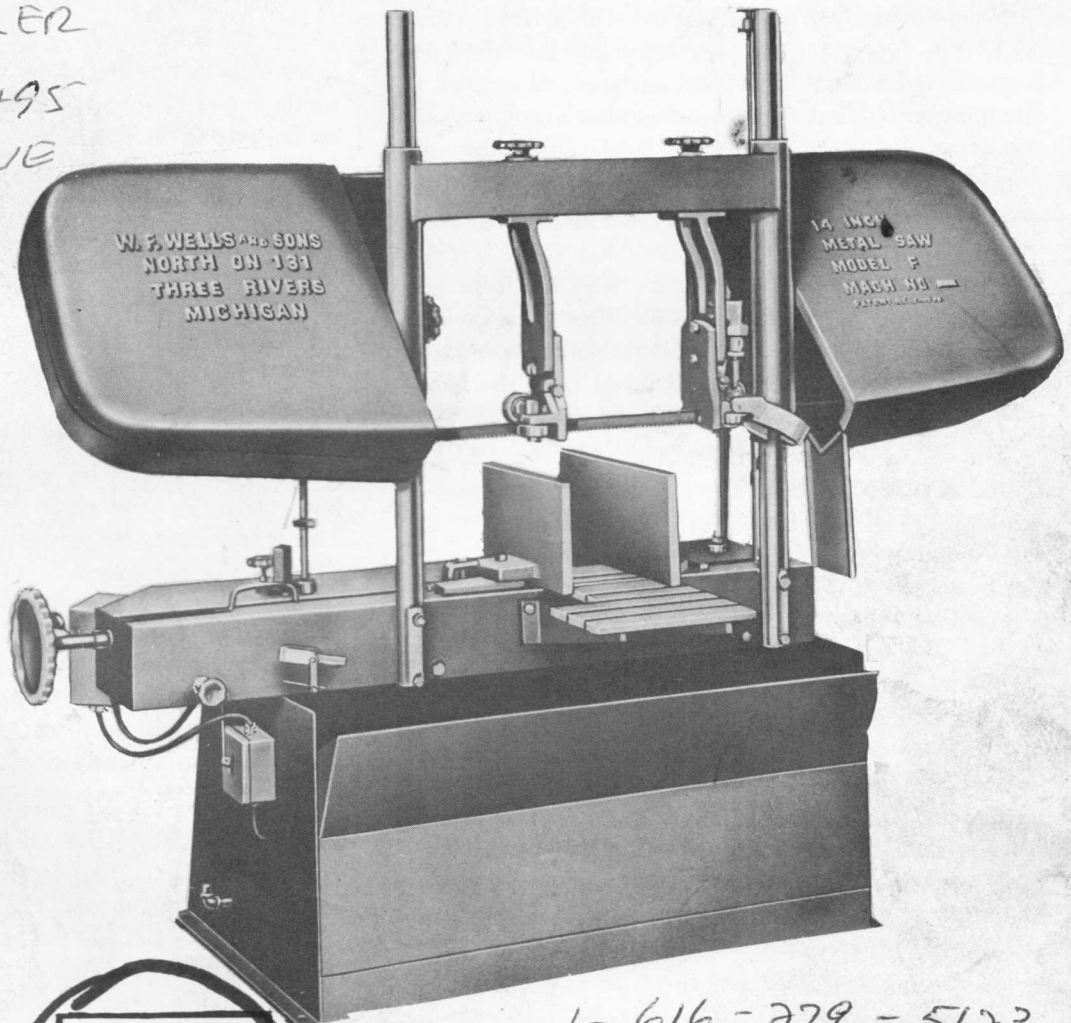
ILL.

### MODEL W-9

Capacity	9" x 18"
Capacity at 45°	9" x 10"
Blade motor	¾ HP
Hydraulic pump motor	⅓ HP
Blade speed	60 to 300 FPM
Blade size	11'6" x ¾" x .032
Weight	650 lbs.

### MODEL F-14

Capacity	14" x 18"
Capacity at 45°	10" x 14"
Blade motor	1½ HP
Pump motor	⅓ HP
Blade size	14'5" x 1" x .035
Blade speed	60 to 300 FPM
Max. clearance under blade	20"
Coolant capacity	7 gal.
Pump capacity	2½ gal.
Weight	1400 lbs.



1-616-279-5123  
DANA WELLS

W. F. WELLS & SONS, INC.

NORTH ON US - 131

THREE RIVERS, MICHIGAN

## YOUR MODEL W or F METAL CUTTING BAND SAW

### INSTALLATION INSTRUCTIONS

Your new W. F. Wells saw has been carefully designed and built to give you years of accurate, maintenance-free service. In order to insure maximum efficiency, we would like to suggest that the following installation procedure be carefully followed.

When the machine has been positioned, SHIM CAREFULLY to be certain that all four corners are firmly set to avoid a possible twist or bind in the machine. With a machinist level check both posts for true vertical. Reshim if necessary.

Install electrical wiring. Make certain the line voltages comply with ratings on motors. As motors are dual voltage, remove cap from drive motor and check wiring. Power line should be connected to drive motor switch only, to terminals L1, L2 and L3 for three phase power, and a check should be made to determine proper rotation of the motor. Blade should travel from the hand wheel end toward the motor end of the machine. If it is necessary to reverse the direction, reverse L2 and L3 wires of the power line only.

Check the oil level in the hydraulic system by removing the pipe plug located on end of base directly below the hand wheel. Oil level should be at top of the filler pipe with cutting head in the lowered position. CHECK CAREFULLY, as the pipe elbow may trap a small amount of oil and give the appearance of being nearly full when the reservoir is low. Use any good, clean light hydraulic oil.

Turn on hydraulic pump motor with knob beside the hand wheel. If the cutting head does not raise within 30 seconds, shut the motor off and check oil level and direction of rotation. On a three phase machine the pump motor can be reversed at the switch by reversing any two of the three wires rather than opening the base of the machine and rewiring the motor.

### BLADE INSTALLATION

Open both covers on the cutting head. Twist the blade and push beneath the blade brush and insert into the guides. Place the blade in the frame and around the blade wheels. Tighten the wheels enough to pull the blade out, but leave enough slack so the blade can be lifted up on the wheels against the flanges. After this is done, finish tightening. It should be reasonably, but not excessively tight. If the drive wheel slips, the blade needs to be further tightened. Blade will not cut straight when it is too loose . . . will put unnecessary overload on wheel bearings when too tight. An excessively tight blade will not cut more accurately than a properly tensioned blade.

It is impossible to tighten a blade enough to force a straight cut if it is overloaded or worn to the point of losing its set.

### OPERATING INSTRUCTIONS

With the cutting head raised and the work clamped in place, you are ready to begin cutting. The cutting head is lowered by opening either hand valve. One is located on the top of the bed at the hand wheel end, the other is on the side of the bed. Both valves serve the same function . . . determining the rate of speed the cutting head will descend. The valve on the top of the machine should automatically close at completion of the cut, allowing the cutting head to automatically raise and stop at any preset height. Height is controlled by the adjusting collars on the control rod located adjacent and parallel to the frame post. When this valve is not in use the trip block dog, located on the hydraulic piston rod should be tipped up to a vertical position to eliminate wear on the valve.

The machine can be set to continuously raise and lower with the hand valve on the side of the machine. This is very handy for production cutting of small pieces. The operator can loosen the vise, feed the work forward against the stop, and reclamp while the cutting head is continuously recycling. The adjusting collar, located immediately below the lower spring on the control rod, may be raised approximately 1/8". In this position the cutting head will raise before the blade motor is shut off and is used when cutting in continuous cycle.

The metering valve, located on the saw guide arm, determines the PRESSURE on the saw blade. Its proper use will result in cutting accuracy, longer blade life, and higher hourly production. The pressure adjusting nut is turned down to increase the pressure and up to decrease pressure. The upper edge of the pressure adjusting nut will give the operator a reading on relative blade pressure. It does not read directly in pounds of pressure, but permits quick setting to the point at which the best results are obtained for each type of work. Larger material will generally use more pressure. On channels, tubing and other thin walled sections, the metering valve should be used to determine the pressure through the larger areas. However, the rate of descent must be restricted for cutting thin sections, since there will not be enough area of contact for the blade. This could cause stripping of teeth.

Determine the proper blade speed in feet per minute before beginning the cut. Refer to cutting chart cast inside the door or published charts. The blade speed is con-

trolled by the crank located near the motor. The speed indicator reads in feet per minute of blade travel. The indicator is moved out to increase and in to decrease speed.

## LUBRICATION

MOTOR should have a few drops of light oil annually. WHEELS can be removed and repacked through the axle hole by sliding the bearing spacer to one side. Use a good grade of bearing grease.

GUIDE ROLLERS on the blade guides should be cleaned and oiled with a fairly light oil whenever they become dry or gummy.

WISE SCREW should be kept clean and greased with a good grade of medium grease. A few drops of machine oil should be used on the vise screw bearings.

RING GEAR *should not be greased or oiled*, as dust and foreign matter will accumulate that would otherwise fall free.

HYDRAULIC RESERVOIR . . . use a light grade of hydraulic oil. BE VERY CAREFUL TO KEEP DIRT OUT OF THE HYDRAULIC SYSTEM to prevent damaging the pump and valves.

FRAME POSTS should be wiped clean occasionally and a light machine oil applied.

MOTOR PULLEY should receive a few drops of machine oil monthly through hole drilled in motor mount.

VARIABLE SPEED DRIVE should be run throughout its entire range once weekly. This will eliminate possibility of the pulleys sticking or freezing in one position, and will lubricate dry spots that may have formed on the pulley hub. The pulley assembly should be completely disassembled, cleaned and repacked with a good grade of grease at least once a year.

## ADJUSTING BLADE GUIDES

Accuracy of cut depends on proper adjustment of the guide bearings. Check the condition for wear or any tendency towards sticking. They should be snug to the side of the blade. When the blade is moved sideways or with a twisting motion, movement should stop at the bearings and not be transmitted beyond this point.

They must be loose enough to permit the blade to slip in and out freely for blade changes, and for proper functioning of the metering valve. The guide bolt with the locking nut above is on an eccentric. By loosening the locking nut the bearing can be rotated in or out to decrease or increase the clearance as desired. When properly positioned, lock bearing in place by tightening the locking nut. By placing the thumb tightly against the bearing you should be able to just slip the bearing on the blade.

When aligning the blade parallel with the bed, the vise should be set at right angles to the bed. Then check the blade alignment with the vise by placing a square against the blade, being careful not to push the blade out of line. If the blade is not at right angles with the vise, the lower part of either guide may be moved in or out as desired . . . loosen the locking nut, turn the lower bolt that holds the guide and guide arm in assembly. This bolt is eccentric and will move the guide in or out as desired. After properly aligning the blade, tighten the nut to lock the guide in position.

Check the blade for vertical alignment by placing a scale across the bed and against the blade. Check the clearance both at top and bottom of blade to make certain it is vertical. This can be adjusted by the blade guide screw which rotates the lower part of the guide. When properly adjusted, a new blade will cut straight. As the blade wears, it will have a tendency to cut in or out. This is easily corrected by periodic adjustments, giving you longer blade life and greater accuracy of cut.

## METERING VALVE ADJUSTMENTS

To check this valve, raise the cutting head, then open either of the hand valves to a point at which the cutting head descends slowly. (2 or 3 inches a minute.) Place a screw driver under the valve bearing arm and force upward to close valve. This should hold the cutting head stationary. If it descends in excess of .020 or .030 per minute the machine will not function properly on large materials . . . the valve should be disassembled and cleaned. If it continues to leak after reassembly, it must be replaced. In closed position, the metering valve should hold the cutting head from descending when the valve bearing arm is raised about 1/16" from normal position. If the roller raises too high, the set of the blade will run between the rollers causing chipping of teeth, short blade life, and improper cutting.

This adjustment is made by loosening the lock nut directly on top of the saddle link, and turning the threaded pressure rod in or out as necessary to give proper movement to the bearing arm. Then lock the nut to saddle link and recheck.

To properly set the metering valve pressure adjustment, run the pressure adjusting nut completely up to its highest point. There should be a slight spring compression. If not, turn the self-locking nut on which the spring rests to put a slight pressure on the spring. If this compression is too light, the cutting head may not descend. This tension will be the lightest pressure that can be placed on the blade. If the compression is too great the saw may not function properly on tubing, structurals and thin sections.

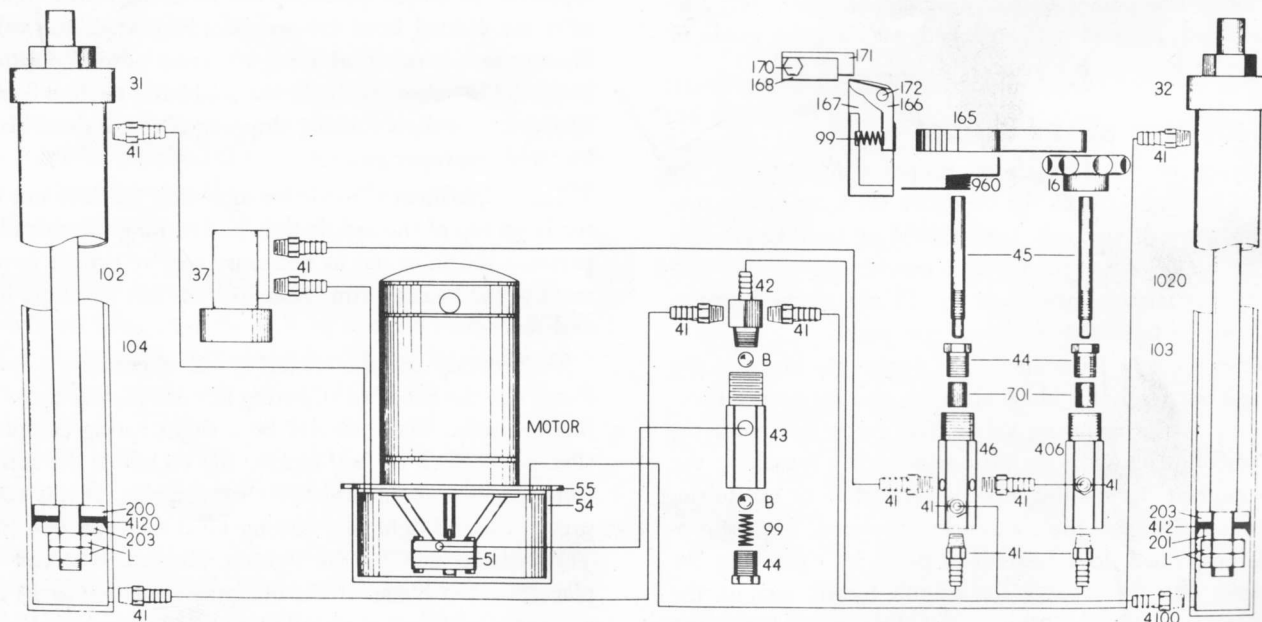


## HYDRAULIC SYSTEM ADJUSTMENTS

(See illustration below)

The hydraulic system consists of a gear type pump directly connected to the motor. The pump is mounted in the oil reservoir. The reservoir is filled by removing the pipe plug located below the hand wheel. Oil level should be at top of pipe with the cutting head in its lowest position. The pump forces oil through the check valve into the lower part of the hydraulic cylinders, which in turn raises the cutting head. When the motor is shut off, the check valve prevents oil from backing through the pump, locking the cutting head in position. If the cutting head creeps down with the hand valves closed, it is generally caused by one or both of the hydraulic cylinder leathers being worn. This can generally be detected by an excessive accumulation of oil film around the top of one or both cylinders. Most of the accumulation of oil can be removed from the top of the cylinders by running the saw to its uppermost position, leaving about 3 inches. Allow the machine to stand overnight with the cutting head raised. Then lower the cutting head completely, remove the cylinder caps and check for excessive oil above piston

16	Valve handle	104	Large cylinder
31	Large cylinder cap	165	Automatic valve handle
32	Small cylinder cap	166	Automatic valve trip dog
37	Metering valve	167	Automatic valve trip block
41	Hose fittings	168	Cylinder rod trip block
4100	Hose fittings	170	Trip block dog bolt
42	Check valve	171	Trip block dog
43	Relief valve	172	Trip block drive pin
44	Packing nut	200	Large cylinder washer
45	Valve needle	201	Small cylinder washer
46	Valve body	203	Cylinder washer
406	Valve body	412	Leather
51	Pump	4120	Leather
54	Oil pan	701	Packing
55	Oil pan lid	960	Control valve spring
99	Roller guide spring	L	Locknut
102	Piston rod	B	5/16" ball
1020	Piston rod (small)		Pump motor
103	Small cylinder	800	Hydraulic hose



**SPECIFY MODEL AND MACHINE NUMBER WHEN ORDERING PARTS**

in one or both cylinders. **CAUTION:** There will always be some oil above the cylinders, as no hydraulic cylinder ever seals 100%.

To check for leakage in the hand valves, reach up under the bed of the machine and tightly crimp the hydraulic hose that leads to the bottom of the automatic valve located on top of bed.

If this stops the cutting head from creeping down, one or both hydraulic valves are leaking. Crimping the hose leading to the bottom of the hand valve located on the side of the machine will determine if this valve is leaking. If valves are leaking around stem, the packing gland should be tightened or the packing replaced. If valves and cylinders are both holding tightly, the leak must be in the check valve. It should be disassembled and cleaned. Flush out and clean hydraulic system and reservoir, replace with clean oil. The hydraulic relief valve is set to give 250 pounds of pressure. If the cutting head does not raise properly with the reservoir filled, the pump is worn and should be replaced.

## SWITCH ADJUSTMENT

The cutting head should shut off the blade motor at the completion of a cut. If it is not functioning properly, lengthen the rod which runs from the switch through the bed and fastens to the switch trigger on the right hand side of the machine. This can be done by loosening the outside nut and tightening the inside one. If the switch shuts off before the cut is complete, loosen the inside nut and tighten the outside one.

The switch that controls the pump motor is located on the front end of the base beneath the bed. It can be controlled manually by the knob beside the hand wheel, or automatically by means of the rod running vertically beside the rear column.

A bracket on the top of the rear column supports this rod.

Stop buttons are provided on each side of the bracket allowing the rod to travel only the proper distance needed to operate the switch, and prevent damage.

For use on a repeat cycle or with a bar feed, the bottom button just below the spring should be raised about  $\frac{1}{8}$ " above the bottom fixed button. This will turn the pump motor on before the blade motor turns off.

### ADJUSTMENT OF BAND WHEELS

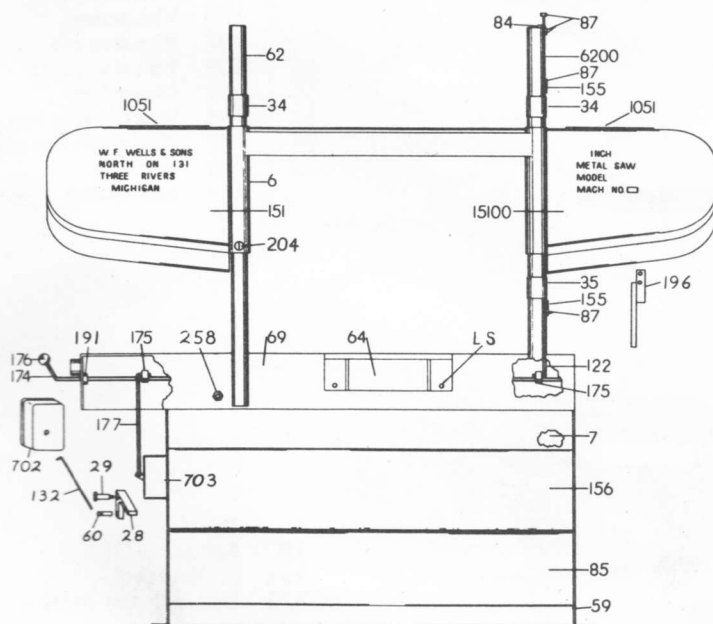
When the wheels on your machine are properly adjusted, the blade should run within  $\frac{1}{32}$ " from the flanges. Wheel adjustment is made by loosening the cap screws in the exterior end of the axle plate and adjusting the socket set screws. If the blade is running down away from the flanges, turn the set screws in. This will raise the back end of the wheel and make the blade run against the flanges. If the blade runs against the flanges and produces a "scrubbing" sound, turn the set screws out. This will let the outer end of the wheel down and the blade will run away from the flanges.

### RING GEAR AND PINION ADJUSTMENT

When it becomes necessary to adjust the ring gear and pinion, loosen the bearing flange and slide the lower end forward or backward to move the pinion in or out of the ring gear, but do not rotate the cam adjustment. The pinion should be set with a small amount of clearance, .010 to .015 inches. Always have a blade on the machine, and at normal tightness when adjusting gear and pinion.

### TIMING BELT ADJUSTMENT

The timing belt tension is adjusted by rotating the cam located on the bearing flange. This belt should be very slack. It does not require high tension such as a V belt or flat belt. When making this adjustment, be careful not to move the pinion adjustment by mistake.



### BLADE BRUSH CARE

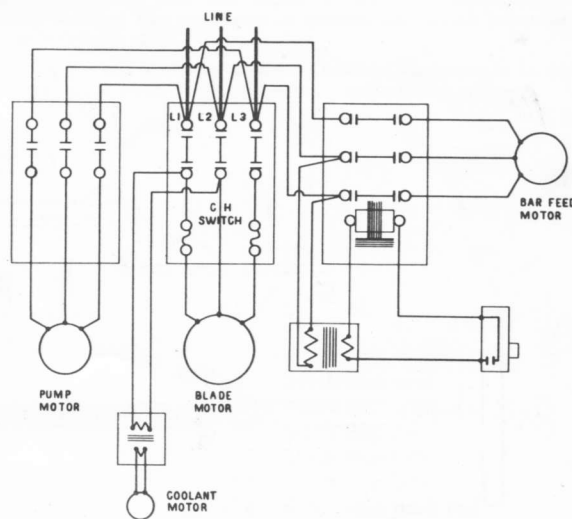
For best results and longer blade life, always keep the blade brush in good condition. It should be removed occasionally, washed in a good solvent, and blown out with an air line. Replace the brush reverse side up. It should not be adjusted too tight against the blade.

### TIP OFF BLOCK

The tip off block should be bolted to the blade side of the bed. For accurate cutting it should be level and flush with the top of the bed. Two leveling screws located on the adjoining face of the tip off block are used to bring the top surface into alignment with the bed.

### STOCK STOP BAR

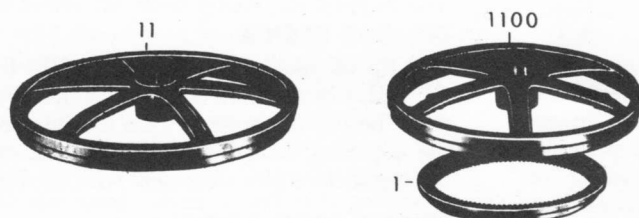
The stock stop bar should be inserted, slotted end first, in the hole in the bed directly behind the tip off block. It should slide completely through the bed and extend about  $\frac{1}{8}$ " at the other side. As it enters the far side, rotate the bar so that the notch in the end slides over the pin on the side of the bed. Place the stock stop push rod against the rear column. Hook the spring on the top bolt protruding through the column. As the cutting head is lowered it will push the stock stop rod down, causing the bar to rotate, raising the stop arm. The oblique slot in the end of the bar, in turning, will cause the bar to move up and away from the stock being cut, thereby eliminating any binding and jamming with the cut piece.



6	Frame	132	Stop control
7	Base side	151	Idler end lid
28	Switch trigger	15100	Drive end lid
29	Switch trigger bolt	155	Limit switch spring
34	Frame bearing	156	Coolant tray
35	Lower frame bearing	174	Torque switch rod
59	Base	175	Torque switch rod crank
60	Switch trigger pin	176	Plastic ball
62	Frame post	177	Control rod
6200	Frame post	191	Torque switch rod collar
64	Tipoff block	196	Splash guard
69	Bed	204	Post thrust screw
84	Control rod guide	258	Post aligning bolt
85	Coolant tank	702	Drive motor switch
87	Adjusting collar	703	Pump motor switch
122	Control rod	1051	Hinge
		LS	Tipoff block leveling screw

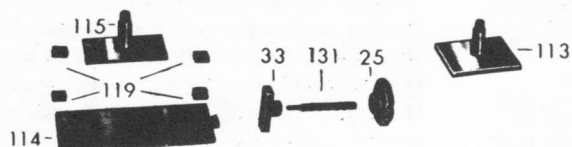
**SPECIFY MODEL AND MACHINE NUMBER WHEN ORDERING PARTS**

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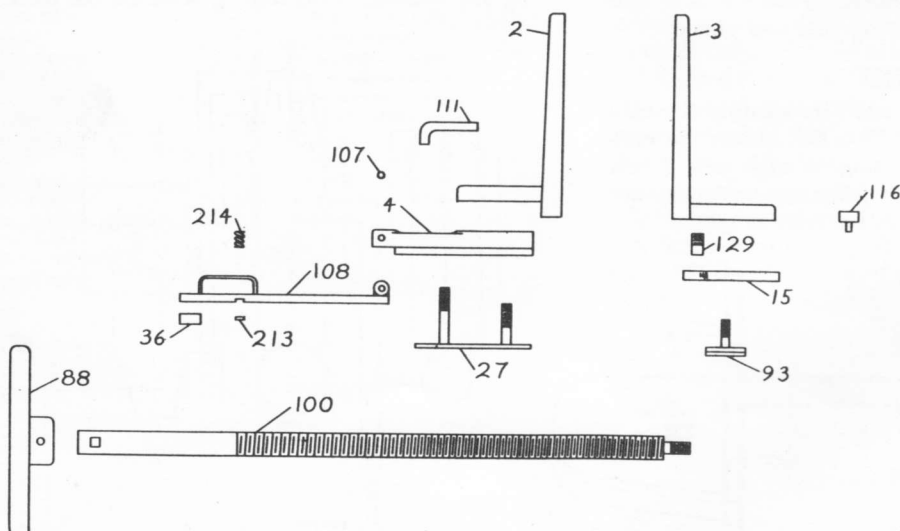


7504 -  
121 -  
7504 -

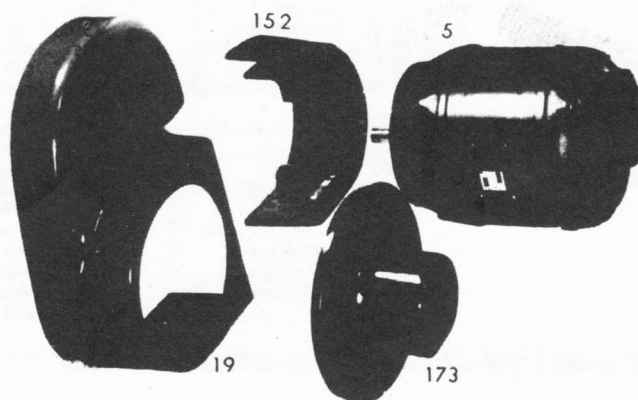
7504 -  
121 -  
7504 -



- 1 Ring gear
- 11 Idler wheel
- 1100 Drive wheel
- 25 Guide handle
- 33 Blade adjusting block
- 113 Drive axle plate
- 114 Slide bar
- 115 Idler axle
- 119 Slide bar clamp
- 121 Bearing spacer
- 131 Blade screw
- 7504 Wheel bearings

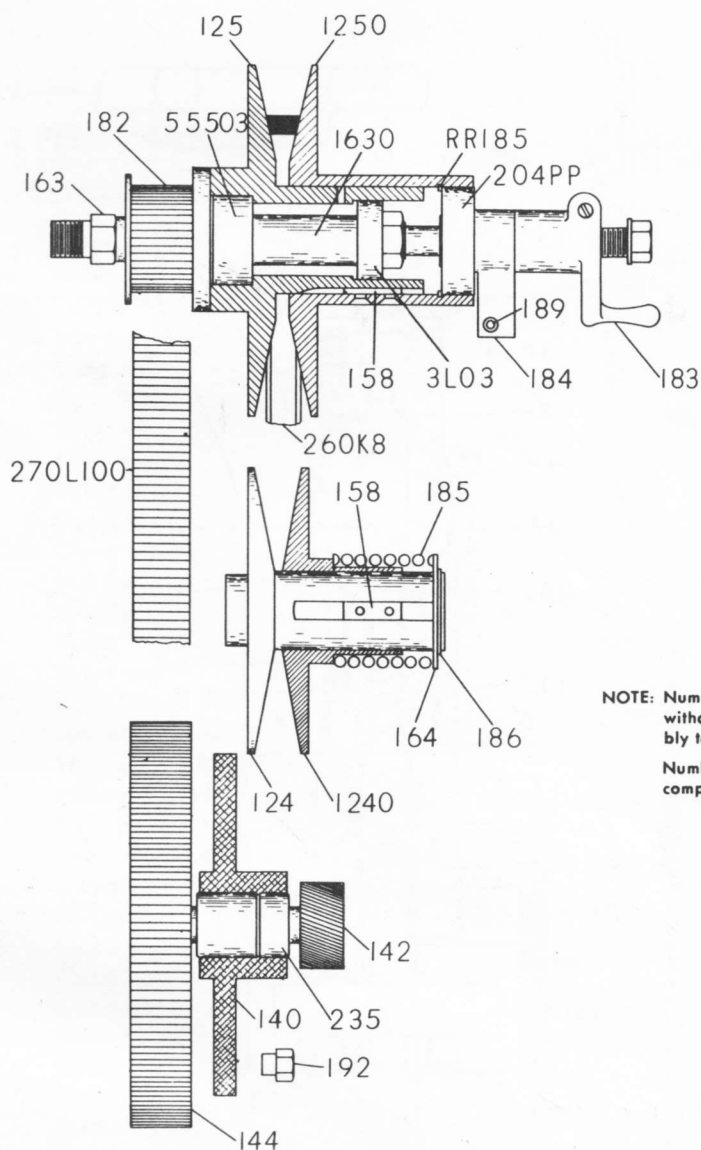


- 2 Vise jaw
- 3 Vise jaw
- 4 Slide block
- 15 Vise angle bar
- 27 Vise slide bar
- 36 Half nut
- 88 Hand wheel
- 93 Vise clamp bar
- 100 Vise screw
- 107 Vise dog pin
- 108 Vise dog pivot
- 111 Clamp bar
- 116 Vise backing bar
- 129 Vise angle bar pin
- 213 Arm lock
- 214 Lock spring



- 5 Drive motor
- 19 Belt guard
- 152 Motor mount
- 173 Dial indicator cover

# **SPECIFY MODEL AND MACHINE NUMBER WHEN ORDERING PARTS**

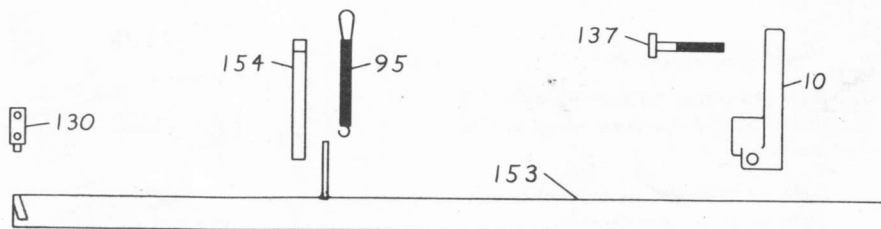


- 124 Motor pulley — inside
- 1240 Motor pulley — outside
- 125 Countershaft pulley — inside
- 1250 Countershaft pulley — outside
- 140 Bearing flange
- 142 Pinion
- 144 Timing belt gear
- 158 Pulley key
- 163 Countershaft
- 1630 Countershaft bearing spacer
- 164 Spring washer
- 182 Timing belt pinion
- 183 Crank
- 184 Indicator
- 185 Pulley spring
- RR185 Retaining ring — internal
- 186 Retaining ring — external
- 189 Indicator spring
- 192 Eccentric bushing
- 235 Bearing and shaft
- 3L03 Bearing
- 204pp Bearing
- 55503 Bearing
- 260K8 Variable speed belt
- 270L100 Timing belt

NOTE: Numbers 125 and 1250 must always be replaced together. Order with or without bearings. May be ordered as complete countershaft pulley and assembly to include all parts.

Numbers 124 and 1240 must always be replaced together, may be ordered as complete motor pulley to include springs, washers, keys and ring.

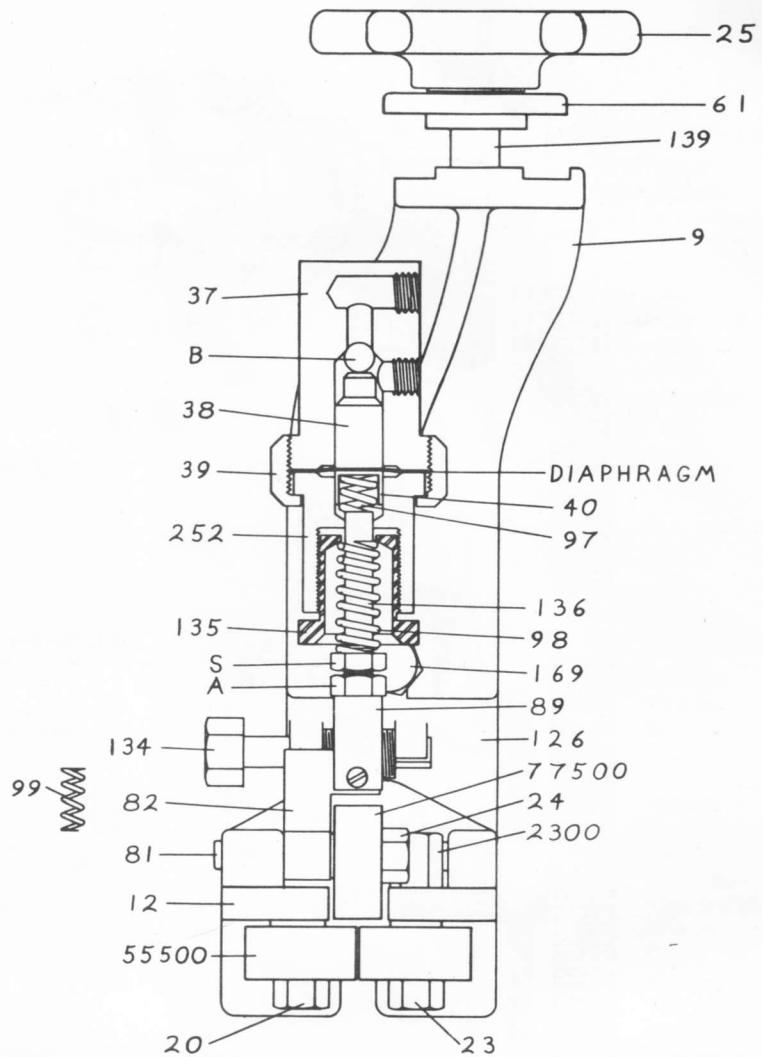
- 10 Stock stop arm
- 95 Stock stop spring
- 130 Stock stop pin
- 137 Stock stop bolt
- 153 Stock stop bar
- 154 Stock stop push rod



# **SPECIFY MODEL AND MACHINE NUMBER WHEN ORDERING PARTS**

- 9 Guide arm (right or left)
- 12 Blade guide
- 20 Bearing bolt
- 23 Cam bearing bolt
- 2300 Cam bolt nut
- 24 Backing bolt
- 25 Guide handle
- 37 Valve body
- 38 Plunger
- 39 Cap
- 40 Over ride spring housing
- 61 Guide clamp washer
- 81 Arm pin
- 82 Valve bearing arm (right or left)
- 89 Saddle link
- 97 Over ride spring
- 98 Metering valve spring
- 99 Bearing arm spring (left only)
- 126 Guide backing (right or left)
- 134 Blade guide screw
- 135 Pressure adjusting nut
- 136 Pressure rod
- 139 Guide stud
- 146 Brush housing
- 1460 Brush bolt
- 169 Guide eccentric
- 252 Shell
- 0200 Wire brush
- 55500 Bearing
- 77500 Bearing
- A Lock nut
- B  $\frac{5}{16}$ " ball
- S Self locking nut

Diaphragm

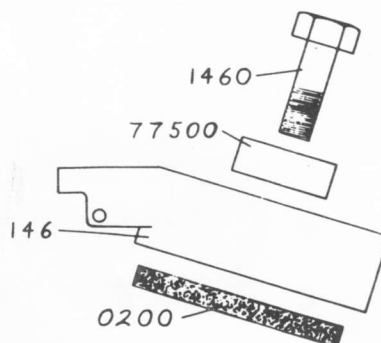


## **NOTE:**

Right end carries the metering valve, left end is toward the hand wheel end of machine.

Metering valve may be ordered as complete metering valve assembly.

Part numbers 12, 126 and 134 should be ordered as assembly, right or left, and can be ordered complete with bearings.

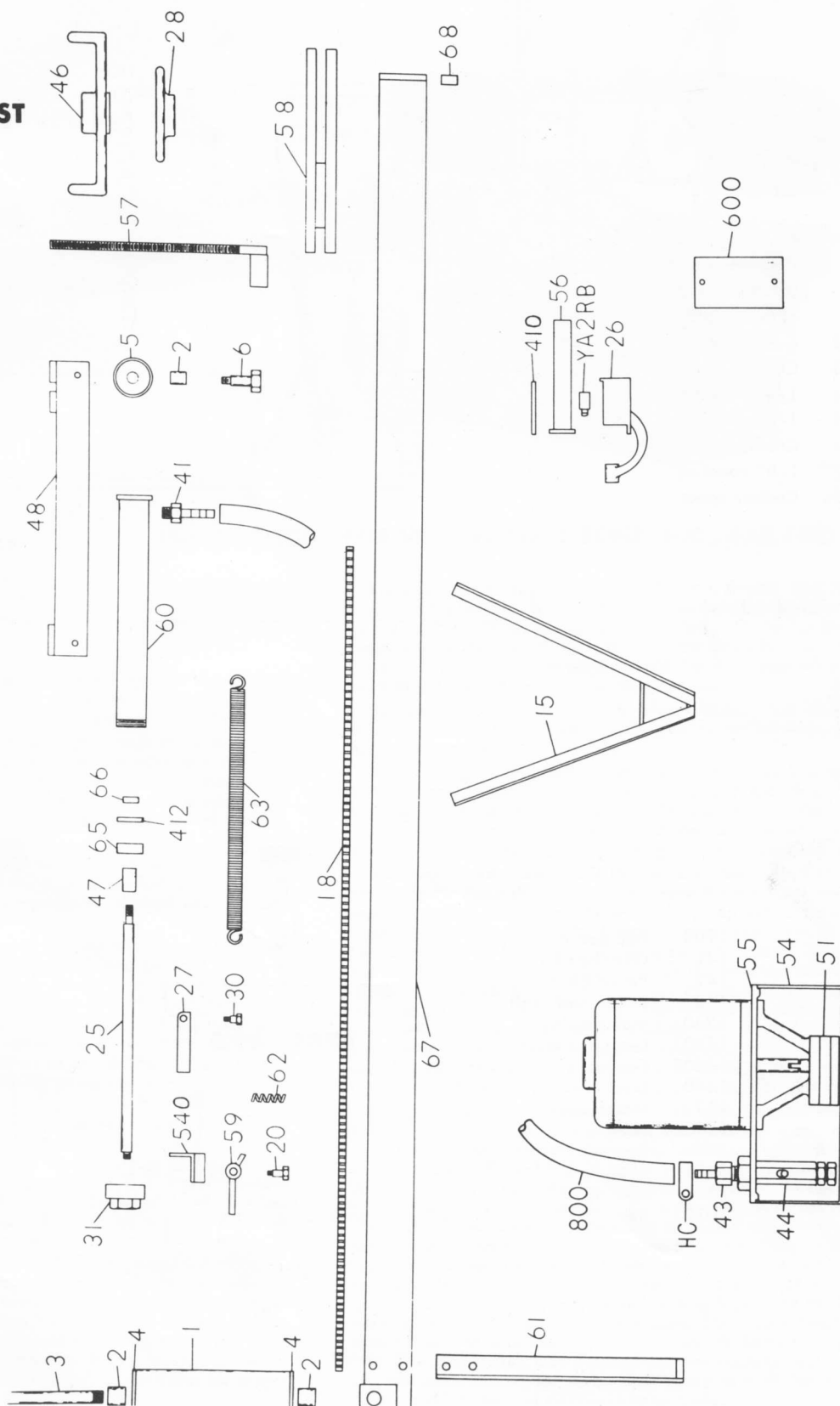




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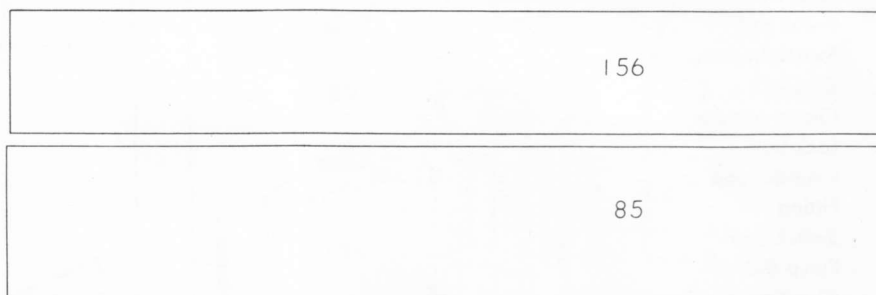
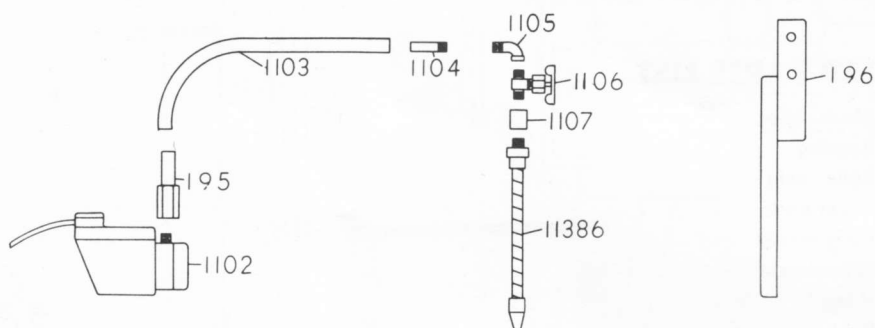
## BAR FEED PARTS LIST

- R1 Stock roller
- R2 Bearing
- R3 Roller axle
- R4 Roller ends
- R5 Dolly wheel
- R6 Wheel axle
- R15 V leg
- R18 Rack
- R20 Pivot bolt
- R25 Piston rod
- R26 Switch housing
- R27 Dog lock
- R28 Clamp handle
- R30 Lock bolt
- R31 Cylinder cap
- R41 Fitting
- R410 Switch cap
- R43 Pump fitting
- R44 Directional valve
- R46 Wing nut
- R47 Piston rod spacer
- R48 Dolly
- R51 Hydraulic pump
- R54 Oil pan
- R55 Oil pan lid
- R56 Switch trigger
- R57 Clamp post
- R58 Clamp bar
- R59 Ratchet dog
- R60 Cylinder
- R61 End leg
- R62 Ratchet spring
- R63 Return spring
- R65 Piston
- R66 Cylinder washer
- R67 Rail assembly
- R68 Header backing
- R412 Leather
- R540 Ratchet carrier
- R600 Relay
- R800 Hydraulic hose
- HC Hose clamp
- YA2RB Switch

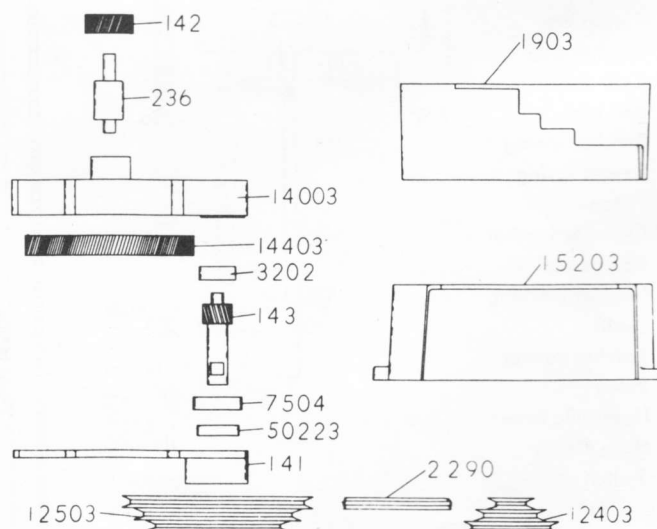


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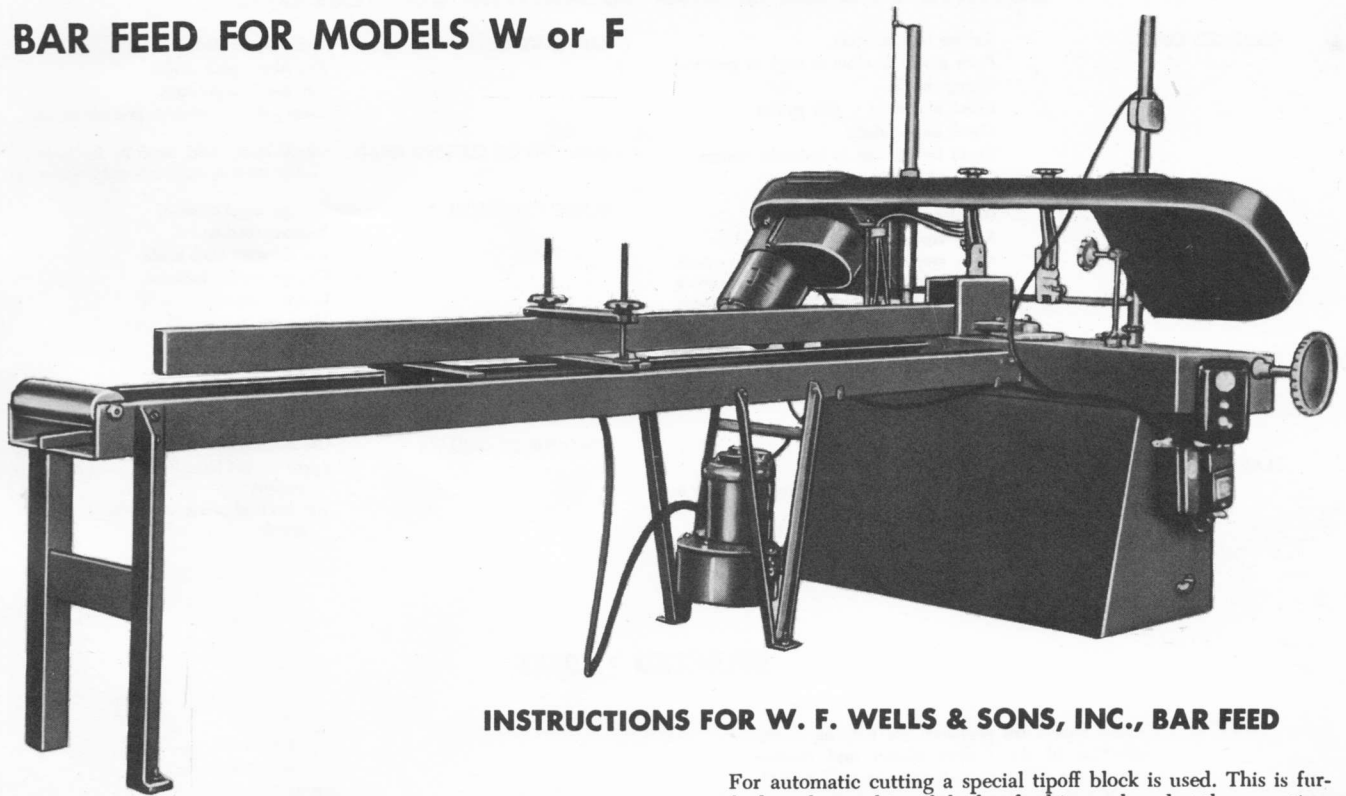
- 85      Coolant tank
- 156    Coolant tray
- 195    Pump fitting
- 196    Splash guard
- 1102   Coolant pump
- 1103   Coolant hose
- 1104   1/8" pipe nipple
- 1105   1/8" street ell
- 1106   Coolant valve
- 1107   1/8" coupling
- 11386   Coolant spout



- 1903    Belt guard
- 141    Gear box lid
- 142    Pinion gear
- 143    Pinion and shaft
- 12403   Motor pulley
- 12503   Gear box pulley
- 14003   Gear box
- 14403   Gear
- 15203   Motor mount
- 2290   Belt
- 236    Bearing
- 3202   Bearing
- 7504   Bearing
- 50223   Seal



## BAR FEED FOR MODELS W or F



### INSTRUCTIONS FOR W. F. WELLS & SONS, INC., BAR FEED

Bar Feed should be bolted to side of bed opposite tipoff block with  $\frac{1}{2}$ " cap screws  $\frac{3}{4}$ " long. Start cap screw but do not tighten them. Push dolly to foremost position against bed of machine.

Raise cutting head of machine up high enough to permit ample room for a straight bar to be placed across the roller on rear of bar feed and across the dolly leaving it project across the bed of the machine. Raise or lower the end of the bar feed that is against the bed until the bar when resting on the dolly clears the bed .010" to .015" on the edge next to bar feed.

Roller end of bar feed should be raised or lowered until the clearance between the bar and the edge of the bed, tipoff block is on, is the same. This is done by means of adjusted screws in the leg of the bar feed.

When bar and bed are properly aligned with proper clearance (.010" or .015") tighten cap screws which hold bar feed to side of bed. If extremely heavy bars are to be cut or if the possibility of dropping lighter ones on the bar feed is likely, drill two holes through the bar feed face plate and the side of bed and insert pins (one beneath each bolt). This will help keep bar feed from slipping down on side of bed, under severe impact or loads. (CAUTION: V legs in center of bar feed carrying pump and motor must be adjusted to carry their share of the load.)

With vise on the machine set at right angle to the blade. Bolt the threaded stud to the dolly with the carriage bolt so that it is flush to the rear vise jaw. Then when dolly is at rear of rail work is aligned simply by placing against threaded post. Remove bar, run dolly to rear of track. To do this flip lever which raises dog out of the rack teeth, when dolly is to the rear then flip lever back and dog will again engage teeth.

Place material to be cut on bar feed and if the end is to be trimmed slide it through for the proper amount to be cut off. Slide the rear of the bar up against the threaded post to insure proper alignment with the vise. Place clamp bar across the bar and tighten down with hand nuts. Vise jaw should be run up against the work and left loose enough for the material to feed through. Start blade motor and trim off the end of the bar. Adjust stock stop for proper length of piece to be cut.

For automatic cutting a special tipoff block is used. This is furnished on the machine if the bar feed is purchased at the same time as the machine. If not it is usually furnished with the bar feed. It projects from the side of the bed out to the blade and from there downward at a 45 degree angle toward the floor. This allows the work to fall clear of the machine after each cut.

Bar feed trigger switch should be placed on idler end column of the machine with trigger down, cord should be run between cutting head tube and the guide bars.

Raise cutting head until the blade just clears the work to be cut. Slide trigger switch down column until trigger just clears brass bushing on cutting head. Lower the collar that is above the frame, on the limit switch rod at the rear of the machine until it just comes in contact with the spring resting on the cutting head.

Start blade motor and crack the valve on the side of the bed about  $\frac{1}{8}$  turn. Raise the collar that is below the frame on the limit switch rod until it turns on the hydraulic pump before the frame turns off the blade motor. The hydraulic motor must turn on after the piece is cut off but before the blade motor is shut off. This then lets the blade motor run continuously all the time the machine is in operation. While adjusting this do not let machine raise against the push up trigger on the column. This is done by simply raising limit switch rod by hand before machine gets there. Now when these settings are obtained let machine raise against the collar. This will shut off hydraulic motor and also start bar feed motor because the brass bushing will push out the trigger on the bar feed switch.

When the bar to be cut comes in contact with the stock stop the pressure relief valve in the pump will automatically open and the stock will be held there until the cutting head drops sufficiently low enough to shut off the bar feed motor. As the valve on the side of the bed is open  $\frac{1}{8}$  turn the machine will start down. As the brass bushing comes out from beneath the trigger the bar feed motor shuts off. The duration of time which is desired to leave the bar feed motor on can be lengthened or shortened by raising or lowering the collar that is above the cutting head on the limit switch rod. As the blade comes in contact with the work it cuts it off and then turns on the limit switch raising the cutting head until the brass bushing turns on the bar feed motor again. The cutting head rises even though the hydraulic valve on the side of the bed is open  $\frac{1}{8}$  turn. The limit switch then shuts off and the machine starts down and will again cut off the piece. This continues until the dolly is up to the side of the bed and has to be set back.

## CUTTING PROBLEMS AND SUGGESTED CORRECTIONS

### CROOKED CUTS

Reduce feed pressure.  
Place guides as close to work as practical.  
Change blade.  
Check alignment of saw guides.  
Check blade brush.  
Check for leakage in hydraulic system.  
Check alignment of guide posts.

### SHORT BLADE LIFE

Use slower band speed.  
Apply coolant liberally.  
Apply ample pressure so teeth are continually cutting, not sliding through work, especially on work hardening material.  
Try different pitch blade.

### STRIPPING OF TEETH

Use finer pitch blade.  
If gullets are loading, use coarser pitch and ample coolant.  
Reduce cutting pressure.

### BLADE BREAKAGE

Blade tensioned too tight.  
Roller guides adjusted too tight, causing a high flexing of band.  
Check wheels for wear and defects.  
If saw is breaking at welds, use a longer annealing period with gradual decreasing of heat.

### CONCAVE CUTS

Increase the blade tension.  
Use coarse pitch blade.  
Use less feed pressure.  
Place guides as close as possible to work.

### JUMPING OF CUTTING HEAD

Check blade weld carefully for improper alignment in weld or improper grinding.

### BLADE VIBRATION

Change speed of band.  
Increase tension.  
Use different pitch blade.  
Change cutting pressure.  
Check clamping carefully.  
Move guides closer to work.

### CUTTING TOO SLOWLY

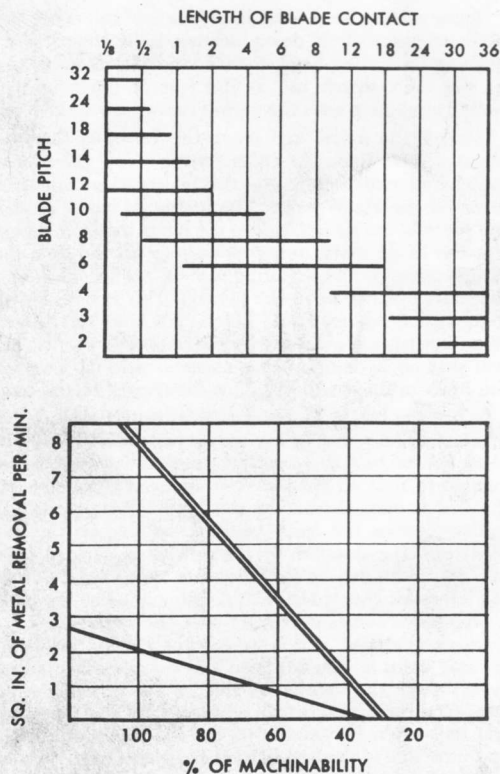
Increase blade speed.  
Use coarser pitch blade.  
Increase blade pressure.

### LOADING OF GULLETS

Use a coarser pitch blade.  
Apply coolant liberally or try different type coolant.  
Use less feed pressure with increased blade speed.

## SELECTED TABLES

These charts are prepared for helping in the selection of the proper blades and cutting speeds for different materials, as well as estimating production time required. These are approximate values and will vary depending on the condition of the material and condition of the machine, as well as operator efficiency. We will process samples of material furnished by customer and submit complete cutting results, data and recommendations.



MATERIAL	BLADE SPEED FEET PER MIN.					%
	100	150	200	250	300	
STEEL						
1010						72
1020						72
1113						100
1330						60
1340						57
2340						54
3150						60
4042						70
4140						66
4340						57
5120						76
52100						40
6150						60
9260						51
STAINLESS						
302						45
303						70
304						45
440						30
HIGH SPEED						
M-2						
T-1						
DIE STEEL						
D						
O						
BRONZE						
MANGANESE						
ALUMINUM						
PHOSPHOR						
MONEL						
TITANIUM						
KIRKSITE						
GRAY IRON						
NICKEL						
ARMOR PLATE						

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