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MODEL CPO-315-RFA TOUCH SCREEN COLD SAW

S/N B2053RFA0522 and up

PRINTED SEPTEMBER 2022

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1.0 INTRODUCTION

The CPO-315 RFA Fully Automatic Cold Saw is designed to cut solids, tubes, flats and other profiles in grades of material that range from hot and cold rolled steel, annealed tool steels, stainless, aluminum, brass, copper, synthetics and extrusions.

Cold sawing is a process similar to a milling process. In most cases, this, combined with the variable speed feature, gives a finished cut that does not require any secondary machining or de-burring. Since milling spindle speeds are used in cold sawing, there are several things that are required to achieve quality results. The selection of the proper pitch (number of teeth) on the blade and the proper spindle speed for the type of material being cut are critical. Proper material clamping and a good quality coolant are also important.

Cold saws have several advantages over band saws and abrasive saws. Besides the mill quality cut, cold saws have the ability to generate faster cutoff times than band saws. There are no sparks and excessive noises that are associated with abrasive cutoff saws. There is also no work hardening of the material. Cold saws also offer the advantage of blades that can be re-sharpened until the diameter of the blade will no longer cut through the material. The vise allows for easy changeover to special clamping jaws for profiles and extrusions. Having a motor variable speed control enables the user to cut a wide range of materials.

2.0 SAFETY PRECAUTIONS

- 1. The operators of this machine must be qualified and well trained in the operation of this machine. The operators must be aware of the capacities and the proper use of this machine.
- 2. This manual is not intended to teach untrained personnel how to operate equipment.
- 3. NEVER OPERATE THIS MACHINE WITH ANY OF THE PROTECTIVE GUARDS OR HOODS OPEN OR REMOVED!
- 4. Wear the appropriate personal protective equipment. Safety glasses are required at all times when operating or observing this machine in operation.
- 5. Never place any part of your body into the path of the saw blade, material vise or roller feed assemblies.
- 6. Do not wear loose fitting clothing, gloves or jewelry when operating this machine.
- 7. All electrical connections shall be made by a qualified electrician. This machine must be grounded in accordance with the National Electric Code.
- 8. Disconnect the machine from the power source before performing maintenance or changing blades.
- 9. Strictly comply with all of the warning labels and decals on the machine. Never remove any of the labels. Replace worn or damaged labels promptly.
- 10. Practice good housekeeping. Keep the area around the machine clean and dry. Do not obstruct the operator's position by placing anything around the machine that would impede the operator's access to any of the machine's functions.
- 11. When sawing, always support long pieces and make sure that the material is properly clamped.
- 12. Keep the guards, as well as all other parts of the saw, in good working condition. Replace worn parts promptly.
- 13. Do not alter or modify this machine in any way without written permission from the manufacturer.
- 14. Set up a program of routine inspections and maintenance for this machine. Make all repairs and adjustments in accordance with the manufacturer's recommendations.

3.0 WARRANTY

Scotchman Industries, Inc. will, within 2 years of date of purchase, replace F.O.B. the factory or refund the purchase price for any goods which are defective in materials or workmanship, provided that the buyer returns the warranty registration card within thirty (30) days of purchase date and, at the seller's option, returns the defective goods, freight and delivery prepaid, to the seller, which shall be the buyer's sole and exclusive remedy for defective goods.

This warranty does not apply to machines or components which have been altered, changed or modified in any way or subjected to abusive or abnormal use, inadequate maintenance or lubrication or subjected to use beyond the seller's recommended capacities and specifications.

In no event shall seller be liable for labor costs expended on such goods or consequential damages. The seller shall not be liable to the purchaser or any other person for loss or damage directly or indirectly arising from the use of the goods or from any other cause.

No officer, employee or agent of the seller is authorized to make any oral representations or warranty of fitness or to waive any of the foregoing terms of sale and none shall be binding on the seller.

Any electrical changes made to the standard machine to comply with local electrical codes must be paid by the purchaser.

As we constantly strive to improve our products, we reserve the right to make changes without notification.

4.0 INSTALLATION AND SET-UP

CAUTION: THIS SECTION DISCUSSES INSTALLATION AND SET-UP PROCEDURES. PLEASE READ ALL SECTIONS OF THIS MANUAL THOROUGHLY BEFORE OPERATING THIS MACHINE.

4.1 PHYSICAL DIMENSIONS

SEE FIGURE 1 ON THE FOLLOWING PAGE.

	DIMENSIONS	INCHES	СМ
A	HEIGHT	67	170
B	FLOOR TO VISE	38.5	98
С	BASE HEIGHT	35	89
D	VISE OPENING	3-5/8	9.2
E	VISE DEPTH	2-1/4	5.7
F	BASE WIDTH	61	155
G	BASE DEPTH	25	64
Н	OVERALL WIDTH	384	975
I	DEPTH	46	112
K	WIDTH OF SUPPLY TABLE	258	655
L	WIDTH OF DISCHARGE ASSEMBLY	65	165
	WEIGHT	2,170 LB.	986 KG
	OPTIONAL BUNDLE LOADER	1,660 LB.	755 KG



FIGURE 1 Page 9

4.2 MACHINE INSTALLATION

SEE FIGURE 2 ON THE FOLLOWING PAGE.

This machine is shipped with the discharge assembly attached to the saw.

➢ CAUTION: THIS MACHINE IS TOP HEAVY AND MUST BE MOVED WITH CARE, ON HARD, FLAT SURFACES, ONLY.

USE THE FOLLOWING STEPS TO INSTALL THE MACHINE:

- 1. Select a location for the machine that allows adequate room for any length of material that you may want to cut. Leave adequate space behind the machine and on either end for set-up and maintenance.
- 2. Place the machine in its final location and level it and the discharge track, using the leveling pads. For this machine to function properly, it is very important that it is level.
- 3. Attach the supply table to the machine and make sure that it is square to the machine and level with the roller feed assembly.
- 4. Connect the main air and electrical supply lines to the machine. To connect the air, slide the shuttle valve (A) down to the closed position and connect the incoming supply line. (DO NOT TURN THE AIR ON YET.) The electrical supply lines must be connected by a qualified electrician. The supply lines connect to the top of the main disconnect switch (B) located in the lower base cabinet. Make sure that your plant phase and voltage correspond to the phase and voltage of the machine before connecting the electrical supply.

CAUTION: DO NOT POWER THE MACHINE UNTIL THE MACHINE INSTALLATION IS COMPLETE AND YOU HAVE READ ALL SECTIONS OF THIS MANUAL!



4.3 ELECTRICAL REQUIREMENTS

➢ <u>CAUTION</u>: TO PREVENT DAMAGE TO THE MACHINE AND DANGER TO THE OPERATOR, ALL ELECTRICAL CONNECTIONS MUST BE MADE BY A QUALIFIED ELECTRICIAN. THIS MACHINE OPERATES WITH LIQUID COOLANT AND MUST BE GROUNDED IN ACCORDANCE WITH NATIONAL ELECTRIC CODES. THIS MACHINE MUST HAVE A CONTINUOUS GROUND TO YOUR POWER SUPPLY. GROUNDING THROUGH METAL CONDUIT OR METAL BUILDING STRUCTURES IS NOT SUFFICIENT.

To insure satisfactory performance, the supply voltage should be (+ or -) 10% of the motor voltage rating. Check the motor data tag for full load current requirements. Single phase motors are not available.

THE ELECTRICAL DIAGRAMS FOR THIS MACHINE ARE IN SECTION 14.0.

For supply lines ten feet (304 cm) or shorter, we recommend 12 gauge wire. For lines longer than ten feet (304 cm), we recommend 10 gauge wire. We do not recommend supply lines over twenty feet (609 cm) in length.

CPO-315-RFA TOUCH SCREEN (11-177 RPM)

MOTOR VOLTAGE	FULL LOAD CURRENT	HORSEPOWER
208	18	5
230	17.3	5
460	10	5

5.0 MACHINE START-UP

Before starting this machine, take the time to review the operator's manual thoroughly, to familiarize yourself with all of the functions of the machine.

We strongly urge you to follow OSHA directive CFR-1910.147 (effective 09-09-90) regarding lock-out, tag-out procedures.

Keep in mind that the directive refers to all hazardous energy sources, not just electrical.

The air supply must also be disconnected and locked or tagged.

Do not install a blade on the saw until after it has been powered and cycled several times.

To power the motor, go to the manual operation screen and press the BLADE START button.

Once the machine has been powered, check the rotation of the spindle. On the guard, there is an arrow

showing the proper rotation. If the rotation is not correct, the electrician will have to switch two of the

three line wires.

5.1 CONTROL PANEL FUNCTIONS

The following section gives a brief description of the touch screen and its functions. Before powering the machine, please familiarize yourself with the location and the function of each of these items. SECTION 7.0 will describe how to set the machine up for an operation. SEE FIGURE 3 BELOW.



5.1 A MAIN POWER SWITCH

This is the main power disconnect switch for the machine and it should be locked or tagged in the OFF position any time maintenance or service work is being performed. Maintenance or service work on the electrical controls must be performed by qualified personnel. This switch must be in the ON position to operate any of the other control panel functions. The control panel will light up on the home screen when the power switch (A) is on. With the hood switch open, cycle (D) stopped will appear on the control panel screen. Scroll across the top of the screen, close the hood and push to continue. When the E-Stop button (B) is pushed, the emergency stop will scroll across the top of the control panel screen. Turn the E-Stop clockwise to re-set it.

CAUTION: THIS SWITCH DOES NOT DISCONNECT THE AIR SUPPLY TO THE MACHINE. ANY TIME MAINTENANCE OR SERVICE WORK IS PERFORMED ON THE MACHINE, THE AIR SUPPLY MUST ALSO BE DISCONNECTED AND TAGGED OR LOCKED OUT.



5.1 B EMERGENCY STOP SWITCH

This switch stops the saw motor and allows the head to return to the up position. The emergency stop switch also applies the material vise air pressure. Once this switch has been used, the operator must restart the machine. This is a maintained switch. Once it is depressed, you must manually turn it clockwise to re-start the machine.

5.1 C FEED RATE CONTROL

This valve controls the down feed rate of the saw head and is used in the set-up of the up and down stroke control of the saw head. The down feed rate is determined by the material being cut. Small sized material, thin wall tube, and some plastics can be cut quickly. Larger solid materials require a slower feed rate. Always start with a slower feed rate and gradually increase it until the ideal setting is determined.

Selecting the proper blade (size and number of teeth) and the rpm of the blade are very important factors. The blade <u>must have the correct pitch</u> (tooth size) for the material. This saw is equipped with a variable speed drive so the blade rpm can be adjusted to suit the material being cut. Hard material generally needs a lower rpm and softer material a higher rpm.

The condition of the blade will affect the down feed rate dramatically. <u>Never use a dull blade!!</u> It will need increased down force and take longer to cut and will leave a poor finish on the cut. Send your blades to our <u>Blade Department</u> for professional resharpening on CNC machines.

5.1 D HOOD SAFETY SWITCH

This is the hood safety switch that turns the saw motor off when the hood is opened. Do not raise the hood when the saw is making a cut. If you have to stop the saw in mid-cycle, press the head up button if you are in the manual operation screen or the cycle stop button if you are in the automatic screen or the emergency stop. <u>DO NOT DISABLE THIS SWITCH!!</u>

5.1F CUT PROFILES

This is the CUT PROFILES MENU. Before performing any operation, you need to set up a cut profile operation. The only profiles that come with the machine are the general or metric profile. You can store up to 100 profiles. Press the recipe screen and name the profile. You can use any combination of numbers or letters that you want for each particular profile.

Once you have named the profile, you need to set the parameters, starting with the FEED SPEED. This setting is in inches per second and is the rate that the material feeds into the saw from the supply table. For lighter materials, such as tubing, 25 is a good starting point. If your profile is heavier solid material, start at 12.

The SAW SPEED is the RPM of the blade. The saw has an RPM range from 11 to 177. A good rule of thumb here is the lighter material, the higher the RPM; the heavier the material, the lower the RPM.

TRIM LENGTH is the amount you want to trim off of the material before you start cutting actual parts. The minimum trim length is ³/₄ inch.

The BRAKE POINT is the distance from the hard stop that the material feed starts to slow down. This distance is also determined by the material that you are cutting. The heavier the material, the longer the braking distance; the lighter the material, the shorter the distance.



FIGURE 5

5.1G MANUAL OPERATION MENU

This is the MANUAL OPERATION MENU. The manual operation mode is used to calibrate the stop, make sample cuts and set the stroke and other settings of the machine. All of the functions in the manual menu will function when the saw hood is open, except the START blade function, the head up and the head down buttons.

You have to have a profile selected in order to use the manual operation. The indicator lights on the screen will tell you whether the vise is open or closed and what position the head is in.

The functions of this screen will be covered in each of the operations it is used for in more detail throughout this manual.



5.1H CUSTOMER CALIBRATION & SET-UP

This is the CALIBRATION SCREEN. This screen is used to calibrate the length stop on the saw. Just follow the instructions on the screen to calibrate the stop. Set your stop 3 to 4 inches from the saw blade.

The part count direction will either count parts up to your pre-set number on the counter or down from the pre-set number.



5.11 DESIRED LENGTH SCREEN

This is the DESIRED LENGTH SCREEN. Any time you move the stop, this screen will open. Move the stop until the desired length appears on the screen. The stop has a fine adjustment knob on it that you can fine tune the length with when you are close to your desired length.

The screen reads in .004 increments but, the fine adjustment can be set in between .004 values on the screen.



FIGURE 8

5.1J FACTORY SET-UP SCREEN

This is the FACTORY SET-UP SCREEN. These settings are pre-set at the factory and should not need to be changed. The vise release setting chooses whether the vise opens when the blade is down or up. Having the vise release in the down position will speed up the cutting operation. This works well for most operations; however, if you are cutting short pieces that may get caught by the blade on the upstroke, you need to choose vise release up.



5.1K MODEL & SERIAL NUMBER MENU

This is the MODEL AND SERIAL NUMBER MENU. You will need the information on the screen when contacting the manufacturer for replacement parts or troubleshooting assistance.



5.1L MAINTENANCE MENU

This is the MAINTENANCE MENU. The PLC menu is used for most troubleshooting problems. The VFD menu is used for the same. Each menu will be covered on the following pages.

MAINTENAN	MAINTENANCE MENU					
MACHINE RUN TIME 123456 HRS. 12 MIN. BLADE RUN TIME	MACHINE CYCLE COUNTER 1234567890 COUNT CUTS ON BLADE					
1234 HRS. 12 MIN. RESET BLADE PLC INPUT/OUTPUTS MENU	1234567 COUNT BLADE					

5.1M TIMER SCREEN

This is the TIMER SCREEN. This screen is used to set the times for all functions of the saw.

ESET TI	ME		ACTUAL TI	ME
123	TENTHS OF A SECOND	LOAD MATERIAL TIMER	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	FEED STOP DELAY	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	TABLE RETURN HOME	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	TRIM DUMP GATE DELAY	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	TABLE MOVE OUT DELAY	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	PART CLEARS TABLE DELAY	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	DUMP CYCLE RESET	123	TENTHS OF A SECON
123	TENTHS OF A SECOND	FEED START DELAY	123	TENTHS OF A SECON
123	SECONDS	MATERIAL LOAD WATCHDOG	123	SECONDS
123	TENTHS OF A SECOND	HARD STOP RETRACT DELAY	123	TENTHS OF A SECON
123	SECONDS	MATERIAL FEED WATCHDOG	123	SECONDS
123	SECONDS	HEAD WATCHDOG	123	SECONDS
123	TENTHS	ROCKER DEBOUNCE	123	TENTHS OF A SECON

EXII

5.1N PLC MAINTENANCE SCREEN

This is the PLC MAINTENANCE SCREEN. This screen can be used to diagnose most problems with the machine if a fault code does not appear on the screen.

For example, if the machine won't start an operation and you come to this screen and the saw head up light is not lit, this means that the saw head is either not all the way up or the proximity switch is bad or not properly aligned.



5.10 HOOD OPEN SCREEN

This is the HEAD OPEN SCREEN. This just means that the cycle has been stopped because the hood is open. If this screen appears and the hood is not open, there is a problem with the hood safety switch.



FIGURE 14

5.1P BATCH COMPLETE

This is the BATCH COMPLETE SCREEN. This means

that the machine has reached the cut count that you had

pre-set on the machine's counter.



FIGURE 15

5.1Q FEED FAILURE SCREEN

This is the FEED FAILURE SCREEN. If this screen pops up, you could have one of several problems.

- 1. The infeed rate on your profile is set too slow and the cycle times out before the material reaches the stop. You can increase the feed rate in the profiles screen.
- 2. The material is slipping in the feed rollers or is bound up somehow on the supply table, causing the machine to time out.
- 3. You may have the brake distance set to where the brake cycle starts too soon, causing the cycle to time out.
- 4. If you are cutting a longer piece, you may need to just increase the material feed watchdog in the timers set-up menu.



FIGURE 16

5.1R LOAD FAULT SCREEN

This is the LOAD FAULT SCREEN. This tells you that the bundle loader failed to properly load the next part. Check the loader to correct the problem and then, press the push to continue button.



5.1S CUT FAIL SCREEN

This is the CUT FAIL SCREEN. This means that the cut cycle timed out before the head reached the down position. You will need to increase the down feed rate or edit the material feed watchdog in the timer menu.



FIGURE 18

5.1T ALARMS HISTORY MENU

This is the ALARMS HISTORY MENU.

Message	Time	
 3000000000000000000000000000000000000	12.0ecotram	*
X000000x	12:00:00am	
X000000x	12:00:00am	
5		
2 - 42		
5 88		
	62	
2-32	<i>a</i>	
5 85		
5 - 26	26	
t di		
		V
		¥
		10-0
	T FAULT WITH ARROW AND PRESS TO CLEAR FROM HISTORY	
		EXIT

5.1U AUTO OPERATION MENU

This is the AUTO OPERATION MENU. In order for the machine to operate in the auto mode, there must be a profile loaded. Make sure that you have the correct profile for the job you are running. There must be a value on the parts counter. The value on the parts counter must be higher than the actual count number.

Make sure that the up and down stroke of the head is properly set for the material that you are cutting and that the vise is properly adjusted.

Start the coolant system and press the cycle start to start the operation. The machine will run until the pre-set quantity on the counter is reached or the machine runs out of material.



6.0 MACHINE OPERATION

6.1 SELECTING THE PROPER BLADE AND CUTTING SPEED

In cold sawing, there is no such thing as a general purpose blade. To achieve the best results from your saw, proper blade selection is important. Each saw is shipped with a pitch (number of teeth) calculator, which will help to determine the proper blade for your application.

When sawing flat stock or rectangular solid sections, determine the thickest section that will be cut and use the equivalent square size on the pitch calculator to determine the proper blade.

The CPO-315-RFA is designed to use a maximum 12-1/2 inch (315mm) diameter blade. 10-3/4 inch blades are also available for this machine. Special blades are available for certain applications. For further information, contact your dealer or the factory.

The chart below gives the surface feet per minute for the various spindle RPM'S.

BLADE DI	AMETER					
INCH	MM	BLADE RPM	11	35	88	176
10-3/4	275	SFM	30	98	247	495
12-1/2	315	SFM	36	114	287	576

6.2 BLADE INSTALLATION

SEE FIGURE 21 BELOW.



FIGURE 21

CAUTION: USE ONLY HIGH SPEED STEEL BLADES DESIGNED FOR THIS MACHINE. DO NOT MODIFY ANY BLADE TO FIT THIS MACHINE. DO NOT USE BLADES DESIGNED FOR THIS MACHINE ON ANY OTHER EQUIPMENT. THE MAXIMUM RPM'S FOR THESE BLADES ARE 600 FOR THE 12-1/2 INCH (315 MM) AND 700 FOR THE 10-3/4 INCH (275 MM).

The CPO-315-RFA saw is designed to use a maximum 12-1/2 inch (315mm) diameter blade. The arbor size is 40mm with four 12mm pins spaced at 65mm.

BEFORE INSTALLING THE BLADE, make sure that the power to the machine is off.

USE THE FOLLOWING STEPS TO INSTALL A BLADE:

An 8mm hex key wrench (D), shipped with each machine, is required to change blades.

- 1. Raise the movable hood guard to the open position.
- 2. Release the upper stroke control stop (H) and allow the head to travel to its full up position.
- 3. Back off the blade guide bolts (G) and slide them out to the end of the slots.
- 4. Remove the blade bolt (B) and the blade flange (C).
- 5. Check the blade flange, the blade and the saw spindle for any chips or nicks that will affect the way the blade seats.
- 6. Install the blade. Make sure that the pin holes in the blade line up to the holes in the spindle.
- 7. Replace the blade flange (C) and start the bolt (B) into the spindle.
- 8. Before locking the blade into position, the back lash must be taken up. To take up the back lash, rotate the bottom of the blade toward you until it seats against the drive pins.
- CAUTION: THE BLADES ARE VERY SHARP AND CARE MUST BE TAKEN WHEN REMOVING THE BACK LASH. DO NOT GRIP THE CUTTING EDGE OF THE BLADE BARE HANDED. THE BACK LASH MUST BE TAKEN UP EVERY TIME THAT A BLADE IS CHANGED.
- 9. After taking up the back lash, tighten the blade bolt (B).
- 10. The blade guide bolts (G) do not have to be used if the squareness of the cut, using an off the shelf blade, is adequate for your operation. If you wish to use this feature, adjust the blade guide bolts (G). Adjust the inside, or right hand, bolt first. The bolt should be adjusted up to where it just touches the blade as close to the teeth as possible and then, lock the retaining nut. Do not adjust the bolt to where it deflects the blade. Over adjustment of the guide bolt will cause the blade not to run true and cause excessive wear. After the inside bolt is adjusted, move the outside bolt to where it is straight across from the inside one. Adjust the outside bolt up to where it just touches the blade and then, lock the retaining nut.
- 11. Reset the upper stroke control and return the movable hood guard to the down position.
- 12. Break in the saw blade. The teeth on new or re-sharpened blades have a very sharp edge and should be fed through the first three or four cuts, very slowly, before starting normal cutting. Besides taking up the back lash and breaking in the blade, it is very important to keep the blade flange, the spindle and the blade clean and free from nicks. Failure to do these things will result in broken or damaged blades.

<u>6.3 SAW CAPACITIES</u>

SEE FIGURE 22 BELOW.

Figure 22 below is a chart showing the maximum capacities of this machine in various materials.

CAPACITIES WITH HFA RFA/ST RFA/ST				
		90° ONLY	90° ONLY	BUNDLE FEED
BLADES 315 MM				
	INCHES	Ø3-1/2	Ø3	Ø3
	MM	Ø89	Ø76	Ø76
	INCHES	3-1/8 X 3-1/8	2-1/2 X 2-1/2	2-1/2 X 2-1/2
	MM	79 X 79	63 X 63	63 X 63
	INCHES MM	3-1/8 X 3-1/8 79 X 79	2-1/2 X 2-1/2 63 X 63	N/A
	INCHES MM	3-1/8 X 3-1/8 79 X 79	2-1/2 X 2-1/2 63 X 63	N/A
	INCHES	3-1/2 X 2-3/4	3 X 2-1/2	3 X 2-1/2
	MM	89 X 70	76 X 63	76 X 63
FERROUS	INCHES	Ø1-3/4	Ø1-3/4	Ø1-3/4
	MM	Ø44	Ø44	Ø44
FERROUS	INCHES	1-1/2 X 1-1/2	1-1/2 X 1-1/2	1-1/2 X 1-1/2
	MM	38 X 38	38 X 38	38 X 38
NF	INCHES	Ø3-1/2	Ø3	Ø3
	MM	Ø89	Ø76	Ø76
NF	INCHES	3-1/8 X 3-1/8	2-1/2 X 2-1/2	2-1/2 X 2-1/2
	MM	79 X 79	63 X 63	63 X 63

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6.4 MATERIAL MAIN VISE

SEE FIGURE 23 BELOW.

The following are set-up and maintenance instructions for the material main vise.

- **1.** Make sure that the filter/lubricating device (A) is full of oil. Use a quality (ISO 22) air line lubricant designed for automatic oilers.
- 2. Slide the shuttle valve (F) on the filter/lubricator device down to the closed position.
- **3.** Connect the air supply to the shuttle valve. Make sure that the vise is clear and that the head is in the UP position.
- 4. Slide the shuttle valve up to open the valve. Whenever the shuttle valve is closed, it bleeds the air pressure out of the system automatically.



- 5. Adjust the air pressure regulator (C). 90 PSI (6.2 BAR) is the minimum operating pressure. 105 PSI (7.2 BAR) is the maximum.
- 6. The vise is activated by the top proximity switch on the saw head.
- 7. The lubricating device (A) should release one drop of oil every 5 to 10 cycles. On top of the lubricating device is a clear plastic dome with a small tube inside. The oil should drop out of the tube. The lubricating device is adjusted by turning the knob (B) on the top of the lubricator.
- 8. To add oil to the lubricating device, disconnect the air supply and remove the plastic bowl. The bowl is threaded and is removed by turning the threaded collar (G). Fill the bowl approximately 3/4 full of a quality (ISO 22) air line lubricant designed for automatic oilers and screw it back onto the lubricator.

TO ADJUST THE VISE TO THE SIZE OF MATERIAL BEING CUT:

- 1. Open the vise, using the positioning handle (E), and place the material in the vise.
- 2. Crank the vise closed to within approximately 3/16 of an inch (4mm) from the material. The power vise has approximately 1/4 of an inch (6mm) of stroke. Proper clamping is very important and special jaws may be required for some materials.

FOR EXAMPLES, REFER TO FIGURE 24 BELOW.


6.5 POWER DOWN FEED

REFER TO FIGURE 25 BELOW.



➢ <u>CAUTION</u>: <u>ALWAYS DISCONNECT THE AIR SUPPLY</u> BEFORE REMOVING THE FILLER PLUG FROM THE RESERVOIR. IF THE FILLER PLUG IS REMOVED WHILE THE MACHINE IS CONNECTED TO AIR PRESSURE, <u>THE FLUID IN THE</u> <u>TANK WILL BE PURGED THROUGH THE OPENING UNDER PRESSURE</u>.

- BEFORE POWERING THE SAW, CHECK THE OIL LEVEL IN THE RESERVOIR (A). It should be approximately 2-1/2 inches below the top of the reservoir when the saw head is in the UP position. Over filling the reservoir will cause hydraulic oil to be forced into the air system. Use a SAE 10W (ISO 32) non-foaming hydraulic oil, such as Mobil DTE 10 or equivalent
- 2. Slide the shuttle valve (C) to its CLOSED position and connect the air supply.
- 3. Slide the shuttle valve to its OPEN position and shut the flow control valve (B) off. Then, open it one turn.
- 4. The down feed rate is adjusted using the flow control valve (B). The down feed rate should be set during the set up of an operation while the AUTOMATIC/MANUAL switch is in the MANUAL position. The setting of the down feed rate is done by sound. Slowly adjust the rate as the saw makes a cut. Once the blade starts to chatter or the saw starts to load up, back the rate off by 1/4 of a turn. Many things, including the type of material being cut, the blade RPM and the condition of the blade, will affect the down feed rate.

6.6 MATERIAL CLAMPING

All work-pieces must be clamped securely in the vise. Any slippage of the material can result in broken or damaged blades. The material should be clamped so that the contact surface between the material and the blade is as small as possible. For this reason, when cutting flat stock material, we recommend standing it up and cutting it through the thinnest section, whenever possible. We also recommend cutting square tubing through the diagonal section and angle iron with the web up. FOR EXAMPLES, SEE FIGURE 24 ON PAGE 35. Some thin walled round sections and profiles will require special jaws to hold them.

6.7 STROKE CONTROL ADJUSTMENT

NOTE: WHEN SWITCHING TO A LARGER BLADE OR BIGGER MATERIAL, THE UPPER STOP (C) MAY NEED TO BE RAISED TO GAIN CLEARANCE.

SEE FIGURE 26 ON THE FOLLOWING PAGE.

- 1. Make sure the shuttle valve (G) is open (air is on) and place a piece of material that you are going to cut in the vise. Make sure that it does not extend past the blade's down path.
- 2. Close the flow control valve (F) and then, open it one turn.
- 3. Go to the manual operation screen (A) and press the head down button.
- 4. When the blade is about 3/8 of an inch above the material, close the flow control valve; this will stop the down movement of the head.
- 5. Loosen the bolt on the upper stroke (C) and adjust the upper stroke down to the head and lock it in position.
- 6. Open the flow control and allow the head to travel on down to a point where the blade will have just cut completely through the material.
- 7. Close the flow control and loosen the bolt on the lower stroke control (B) adjust the lower stroke up to the head and lock it in position.
- 8. Open the flow control and press the head up button.
- 9. Check to make sure that the blade is about 3/8 of an inch above the material. Press the head down button and make sure that the head travels far enough to cut all the way through the material.



FIGURE 26

7.0 MACHINE AUTOMATIC OPERATION (SET-UP)

- 1. Load the material on the supply table. Load one layer only; do not stack material on the supply table. Stacking material will cause the machine to load more than one part and the machine will fault out.
- 2. Adjust the supply table material guides (T). The distance between the bar and the table arm (U) must be just a little larger than the thickness of the material. Failure to adjust this will allow the machine to load more than one part at a time. Set the material diameter adjustments.
- 3. Place the main disconnect switch in the on position and press the manual operation button in the main menu.
- 4. Make sure that the hood is closed and the e-stop is out.
- 5. Make sure that you have the correct profile loaded for the part that you are going to cut.
- 6. Press the load part button.
- 7. Make sure that the vise is open and has been adjusted to the size of material that you are going to cut and that all in feed adjustment rollers are set to material size.



FIGURE 27

- 8. Press the feed advance button and feed the material to the stop. You may have to press the rocker forward button if the rocker feed rollers are not in the correct position.
- 9. Press the vise close button.
- 10. Press the coolant start button and blade start button.
- 11. Press the head down button and make a cut. Press the manual eject dump button.
- 12. Press the head up button and the vise open button.
- 13. Check the part that you have cut. If it is the correct length, press the auto button on the screen. This will take you to the auto operation screen.
- 14. Make sure that the correct profile is loaded on this screen, that there is a value entered in the part count field and actual count is re-set.
- 15. Press the coolant start button and the cycle start button. The machine will run in auto mode until it runs out of material or reaches the count set in the part count field.



8.0 MAINTENANCE

8.1 LUBRICATION

SEE FIGURE 29 BELOW.

Grease the head pivot pin (C), the spindle shaft and the feed roller bearings (A) with a high pressure, high temperature bearing grease, daily.

Clean the chips out of the vise at least once a day; more often, if needed. Apply penetrating oil to the spindle and guide pins. Clear the chips with a brush or similar device. DO NOT use compressed air.

Check the oil level in the air lubricator device daily. Use a quality (ISO 22) air line lubricant.



8.2 CUTTING OILS AND LUBRICANTS

SECTION 12.1 lists Scotchman.s parts numbers for cutting oils and lubricants. Using high quality lubricants and oils will greatly increase the life of this equipment.

Use only pure, synthetic, water soluble, cutting oil for coolant. We recommend our P/N 075751 saw coolant.

For the saw head, use a non-EP additive ISO-460 gear oil specified for worm gears. Oils containing EP additives may degrade or damage bronze gears and must be avoided. Mobile 600WSuper Cylinder Oil is highly recommended and available from the factory under P/N 075758.

For the power down feed reservoir, use a SAE 10W (ISO 32) non-foaming hydraulic oil, such as Mobil DTE 10 or equivalent.

For the air lubricator, use a quality (ISO 22) air line lubricant designed for automatic oilers.

8.3 SCHEDULED MAINTENANCE

A program of scheduled maintenance should be set up and documented according to your application and the frequency you use this machine. The following is a list of some important things that should be included in a scheduled maintenance program.

1. EVERY 250 HOURS OR 3 MONTHS:

Drain the coolant reservoir and flush it out. Refill the coolant reservoir with new coolant. We recommend our P/N 075751 saw coolant mixed in a ratio of one part coolant to seven parts water. Check the level of the hydraulic fluid in the power down feed reservoir. Use a SAE 10W (ISO 32) non-foaming hydraulic oil, such as Mobil DTE 10 or equivalent.

CAUTION: <u>ALWAYS DISCONNECT THE AIR SUPPLY</u> BEFORE REMOVING THE FILLER PLUG FROM THE RESERVOIR. IF THE FILLER PLUG IS REMOVED WHILE THE MACHINE IS CONNECTED TO AIR PRESSURE, <u>THE FLUID IN THE</u> <u>TANK WILL BE PURGED THROUGH THE OPENING UNDER PRESSURE</u>.

2. EVERY 750 HOURS OR 6 MONTHS:

Drain the gear oil from the saw head and flush with a petroleum product. Refill the saw head with a non-EP additive ISO-460 gear oil specified for worm gears. Oils containing EP additives may degrade or damage bronze gears and must be avoided. Mobile 600WSuper Cylinder Oil is highly recommended and available from the factory under P/N 075758.

Check the condition of the pivot pins on the head and on the guard. Check the complete saw for loose connections in the electrical and air systems. Since every application is different, each user must design and implement a scheduled maintenance program that fits his applications.

8.4 GEAR REPLACEMENT (SAW HEAD)

REFER TO FIGURE 30 BELOW.



1.	Remove the drain plug (A	A) from the head casting and allow the fluid t	o drain.
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- 2. Remove the motor from the head.
- 3. Remove the four bolts (E) from the bearing retainer (F).
- 4. Remove the worm shaft assembly (J). The worm shaft has a 10mm threaded hole in the end of it for a slide hammer. This is the preferred method of removing the shaft.
- 5. Inspect the worm shaft, drive gear and bearings for wear.
- 6. After the worm shaft has been removed, remove the three bolts (M) from the bearing housing (O).
- 7. Remove the spindle shaft (N) with a slide hammer.
- 8. Remove the snap ring (R).
- 9. The brass worm gear (Q) can now be pressed off of the shaft.
- 10. Check the condition of the bearings and seals before re-assembling the head.
- 11. Check the condition of the key (P) and the key way in the gear and spindle shaft.

8.5 SPINDLE REPLACEMENT (MAIN VISE)

SEE FIGURE 31 BELOW.



1.	Disconnect the machine's power and the air supply.
2.	Remove the spindle shield (XX) and the spring (Y) and ball (HH).
3.	Remove the bolts (A & B) and the retainer (D).
4.	Remove the clevis pin (F) and remove the clevis (E) and the forks (CC).
5.	The spindle can now be removed from the machine.
6.	If the spindle is locked up in the machine, remove the bolts (II) and the side plate (GG).
7.	The vise block (L) and the spindle can now be removed as one piece.
8.	Install the new spindle and reassemble the vise, reversing the above steps.

8.6 SEAL REPLACEMENT (MAIN VISE)

SEE FIGURE 31 ON THE PRECEDING PAGE.

- 1. Make sure that the power and air supply to the machine are both off.
- 2. Remove the bolts (A & B) and the retainer (D).
- **3.** Remove the clevis pin (F) and the cylinder clevis (E) and the forks (CC).
- 4. Remove the two lower bolts (C) and remove the cylinder (H) from the machine.
- 5. Place the cylinder in a vise and remove the snap ring from the front of the cylinder.
- 6. Pull the cylinder apart and remove all of the old seals. Check the end casting, cylinder tube and piston for nicks or scratches.
- 7. Install the new seals and reassemble the vise, reversing the above procedures.

8.7 COOLANT PUMP MAINTENANCE

(OPTIONAL FLOOD COOLANT)

SEE FIGURE 32 ON THE FOLLOWING PAGE.

IF YOUR COOLANT PUMP IS LEAKING OR LACKS POWER, USE THE FOLLOWING STEPS:

<u>NOTE</u>: WE RECOMMEND REPLACING THE PUMP SEAL ANYTIME THE PUMP IS DISMANTLED. A SEAL KIT IS AVAILABLE.

FOR PART IDENTIFICATION, SEE THE FOLLOWING PAGE

- 1. Make sure that the power to the machine is off.
- 2. Remove the four bolts (J) and remove the pump from the machine.
- 3. Remove the coolant line (H) and the fitting (K). Clean any sludge out of the line and fittings.
- 4. Remove the three bolts (F) and remove the end plate (C).
- 5. Remove the screw (E), washer (D) and the impeller (B) from the pump.
- 6. Clean the sludge out of the impeller, end cap and passage way from the bottom of the pump to the outlet port.
- 7. Reassemble the pump, reversing the above steps.
- 8. Clean out the reservoir and fill with new coolant. We recommend our P/N 075751 saw coolant mixed in a ratio of one part coolant to seven parts water. The capacity is 8 gallons.



FIGURE 32

9.0 OPTIONAL EQUIPMENT

9.1 SPECIAL VISE JAWS

Special vise jaws for holding thin wall round tubes and profiles are available on a made-to-order basis. For prices and delivery on special jaws, contact your local dealer or the factory.

9.2 OPTIONAL DISCHARGE LENGTHS

There are optional ninety inch and one hundred and twenty (120) inch discharge assemblies available for this machine. For part numbers, REFER TO SECTION 12.5. These options are provided with complete installation instructions.

9.3 FLOOD COOLANT SYSTEM

The coolant reservoir has a capacity of eight (8) gallons (30.3 liters). One gallon of coolant is shipped with the saw. For normal cutting, it should be mixed in a ratio of one part coolant to seven parts water. Pour in the (1) gallon of coolant, and then add (7) gallons of water to achieve the proper amount and ratio. In conditions of heavier cutting, the ratio of water should be reduced to 5 parts.

We recommend using only pure, synthetic, water soluble cutting fluids, such as our P/N 075751 saw coolant.

We recommend pre-mixing the coolant before adding it to the saw, if possible.

When cutting alloy steels such as stainless steel, we recommend a special mix coolant designed for these applications such as our P/N 075756 or P/N 075757 - 1 or 5 gallons stainless coolant, respectively.

FOR ADDITIONAL INFORMATION ON AVAILABLE COOLANTS, SEE SECTION 12.1

9.4 OVERTURN DEVICE

This option is used in conjunction with our square tube jaws. This device is used to position square tubing as it comes off the supply table, so that it will feed properly into the jaws. REFER TO SECTION 12.3

9.5 VISE REGULATOR

This is an optional regulator for the material vise. It allows for fine adjustment of the vise clamping pressure and may be necessary in some applications of very thin walled tube or profiles. REFER TO SECTION 12.4

10.0 TROUBLE SHOOTING GUIDE

10.1 ELECTRICAL TROUBLE SHOOTING

1. THE MOTOR WILL NOT RUN

- A. The main disconnect switch in the base cabinet must be on and the emergency stop switch must be pulled out.
- B. Also, check the supply voltage to the saw to make sure that it is the same as the motor voltage. If the supply voltage is correct and the switch energizes and the motor still will not run, contact your dealer or the factory.

2. THE SAW MOTOR RUNS BUT DOES NOT HAVE ADEQUATE POWER.

- A. Make sure that the supply voltage and phase correspond to the saw motor's voltage and phase.
- B. Disconnect the machine from the power source and check for any loose or disconnected wires.
- C. The supply lines to the machine must be of adequate size to handle the load FOR RECOMMENDED SIZES AND LENGTHS, SEE SECTION 4.3
- D. The worm gears in the head may be damaged. With the power to the machine disconnected, check the blade spindle for any free travel. If free play is present, drain the oil from the head and remove the motor. Check both worm gears for wear and replace if necessary. We recommend replacing the worm gears as a set, if either shows wear. Use a non-EP additive ISO-460 gear oil. Oils containing EP additives may degrade or damage bronze gears and must be avoided. Mobile Super 600 Cylinder Oil is highly recommended and available from the factory undder P/N 075758.

FOR REPLACEMENT INSTRUCTIONS. SEE SECTION 8.4

3. THE MACHINE WILL NOT RUN IN THE AUTOMATIC MODE.

- A. The counter must have a pre-set quantity displayed. If the counter reads zero, the machine will not run in the automatic mode.
- **B.** There must be material in the machine.
- C. Both the break counter and the trim counter must read 0 on the top row before starting the AUTOMATIC operation.

10.2 BREAKAGE OR EXCESSIVE DULLING OF BLADES

- 1. Select the proper blade and spindle speed for the material being cut. FOR RECOMMENDATIONS, REFER TO SECTION 6.1
- 2. Always break in the blade before you start normal cutting.
- 3. Do not apply excessive down pressure on the workpiece. Excessive down pressure will cause the teeth to remove too large of a chip, resulting in premature dulling or breakage.
- 4. Use a good quality, synthetic coolant and maintain the proper ratio of coolant to water. We recommend our P/N 075751 saw coolant.
- 5. Have your blades re-sharpened by someone who has the right equipment for circular cold saw blades. Improper re-sharpening is one of the most common problems encountered in cold sawing.
- 6. Keep the blade flange, the face of the blade spindle and the blade clean and free from nicks. Any contamination or nicks on the flange, spindle, or blade will cause the blade to run out of alignment.
- 7. Always remove the backlash when installing a blade. FOR INSTRUCTIONS, REFER TO SECTION 6.2. Also, check the condition of the drive pins when replacing the blade. If the drive pins are broken or worn, replace them.
- 8. Any of the above problems may cause a condition known as pick-up. Pick-up is caused when small pieces of the material being cut adhere themselves to the side of the blade. When pick-up is present, you'll notice a jerking or jumping motion in the saw head while cutting. This is caused by the blade being pinched as it goes through the material where the pick-up is present.

Pick-up can be removed by using a fine honing stone or very fine file. Never use power tools!! While removing pick-up, care must be taken not to remove any part of the blade. If the coating on the blade is compromised, it will get pick-up in the same spot again. The best way to get rid of pick-up is to have the blade resharpened. After pick-up has been removed, review the above items to determine what caused the problem.

10.3 FLOOD COOLANT SYSTEM (OPTIONAL)

1. IF THE COOLANT WILL NOT FLOW

- A. Make sure that the coolant switch on the control panel is on.
- B. Check the wiring connections to the pump and make sure that the pump is running.
- C. Check the level of the coolant in the reservoir. If there is less than three inches of coolant in the reservoir, the pump will not work.
- D. Check the reservoir for contamination or sludge build-up that may be blocking the pump inlet. You may need to drain and clean the reservoir and pump. If so, we recommend our P/N 075751 saw coolant when refilling the reservoir mixed in a ratio of one part coolant to seven parts water.
- E. Remove the coolant line from the guard and make sure that it's clear. Also, make sure that the valve on the guard is open.

FOR PART NUMBERS, SEE SECTION 12.2

10.4 PNEUMATIC SYSTEM

REFER TO FIGURE 34 ON THE FOLLOWING PAGE.

THE MOST COMMON PNEUMATIC/HYDRAULIC PROBLEMS ARE:

A. Low levels of fluid in the reservoir: The fluid level in the power down feed reservoir should be approximately 2-1/2 inches below the top of the reservoir when the head is in the up position.

▷ CAUTION: THE AIR SUPPLY TO THE MACHINE MUST BE DISCONNECTED BEFORE YOU REMOVE THE FILLER PLUG FROM THE RESERVOIR. FAILURE TO DISCONNECT THE AIR WILL CAUSE THE FLUID TO BE PURGED OUT THROUGH THE OPENING UNDER PRESSURE!

- B. Worn seals in the vise, supply table or discharge assembly cylinders: For seal kit installation instructions, REFER TO SECTION 8.5.
- C. Loose connections in the air lines. All of the air lines on this machine are the snap in connector type. <u>See FIGURE 33 below</u>. To remove the hose, push in on the slide connector while pulling out on the hose. To reconnect the hose, simply push the hose into the connector as far as it will go. If there are any questions about where the hoses connect, REFER TO FIGURE 34 ON THE FOLLOWING PAGE.





- 1A-5/16" BLACK TO BACK OF VISE CYLINDER
- 1B-5/16" BLACK TO FRONT OF VISE CYLINDER
- 2A-1/4" RED TO TOP OF POWER-DOWN OIL TANK
- 2B-1/4" GREEN THRU TEE TO THE REGULATOR ON BACK OF CYLINDER, SIDE OF TEE THRU 12# REG., 5/16" BLACK TO MISTER
- 3A-1/4" YELLOW TO BACK OF LOAD CYLINDER
- **3B-1/4" BLUE TO FRONT OF LOAD CYLINDER**
- 4A-1/4" BLACK TO BACK OF MATERIAL STOP CYLINDER
- 4B-1/4" RED TO FRONT OF MATERIAL STOP CYLINDER
- 5A-1/4" RED TO BACK OF EJECT/DUMP CYLINDER
- 5B-1/4" BLUE TO FRONT OF EJECT/DUMP CYLINDER
- 6A-1/4" YELLOW TO FRONT OF DUMP ACTUATOR
- 6B-1/4" BLACK TO BACK OF DUMP ACTUATOR
- 7A-1/4" GREEN TO LEFT SIDE OF TEE TO INFEED ACTUATOR
- 7B-1/4" GREEN TO RIGHT SIDE OF TEE TO INFEED ACTUATOR
- 8A-1/4" GREEN TO BACK OF STOP CLAMP
- 8B-1/4" BLUE TO FRONT OF STOP CLAMP
- 9A-1/4" YELLOW TO FRONT OF SORTING TABLE DUMP ACTUATOR
- 9B-1/4" GREEN TO BACK OF SORTING TABLE DUMP ACTUATOR

3/8" BLACK - BACK OF VALVE BANK FROM AIR SUPPLY

FIGURE 34

FOR BEST RESULTS, USE ONLY SCOTCHMAN COLD SAW BLADES AND COOLANT. SEND YOUR BLADES BACK TO THE FACTORY FOR PROFESSIONAL RESHARPENING ON MODERN CNC EQUIPMENT.

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11.0 PARTS LIST

THE FOLLOWING SECTIONS CONTAIN THE SAW AND OPTIONAL EQUIPMENT PARTS LISTS AND DRAWINGS. FOR YOUR CONVENIENCE, ALWAYS GIVE YOUR COMPLETE SERIAL

NUMBER WHEN ORDERING PARTS.

<u>11.1 SAW HEAD</u>

ITEM	PART #	DESCRIPTION
Α	077150	Needle Bearing
В	077322	Worm Shaft
С	077323	Pivot Bearing
D	077324	Spacer Ring
Ε	077325	Bearing
F	077330	Hub
G	077326	Spacer Ring
Н	077321	Lock Nut
Ι	077328	Gear Wheel
J	060250	M-10 SHCS
K	075080	Key 8 x 7 x 32
L	073696	Plug
Μ	077630	Vent
Ν	077860	Head Gasket
0	077152	Sight Gauge
Р	077153	Drain Plug
Q	045380	Head Casting
R	045328	Spacer
S	045326	Shield
S1	045324	Chip Shield Assembly (Includes S, JJ, MM)
Т	073326	M-8 SHCS
U	077333	Worm Wheel
V	077334	Bushing
W	075076	Bearing
X	075075	Seal
Y	077628	Bearing Housing
Z	077624	Saw Spindle
AA	077626	Saw Flange (Includes DD)
BB	221212	M-10 x 30 SHCS
	080193	Wrench (Blade Flange)

CC	073110	M-10 Lock Washer
DD	073920	Dowel Pins
EE	073641	M-10 SHCS
FF	077335	Snap Ring
GG	077337	O-Ring
HH	077340	Key 10 x 8 x 32
II	075081	Snap Ring
JJ	045327	Straps
KK	201120	M-6 x 20 HHCS
LL	201135	M-6 x 35 HHCS
MM	154004	Rivet
	045382	Complete Head Assembly



<u>11.2 MAIN VISE ASSEMBLY</u>

PART #	DESCRIPTION
221245	10 x 160 MM SHCS
221240	10 x 140 MM SHCS
221235	10 x 100 MM SHCS
045311	Clevis Guide
045312	Clevis
045317	Clevis Pin
046655	Snap Ring
045630	Cylinder
045631	Cylinder Seal Kit
045313	Cylinder Mount
045301	Vise Body
045302	Push Block
045306	Hold Down Plate
221210	M-10 x 25 SHCS
045304	Vise Side Plate
221412	M-16 x 35 SHCS
045307	Upper Wear Plate
230005	M-6 x 12 FSHCS
077100	M-10 Dowel Pin
045303	End Plate
201620	M-16 x 65 HHCS
045308	Lower Wear Plate
073458	M-6 x 10 SHCS
045325	Lead Screw Cover
045602	Spring
201160	M-8 x 60 HHCS
045314	Detent Block
045309	Lead Screw
045198	Drive Forks
045310	Boss
077121	M-20 Jam Nut
045030	1169 x 5 x 65 Ninety Degree Elbow
045305	Guide Plate
046652	Detent Ball
221210	M-10 x 25 SHCS
	PART # 221245 221240 221235 045311 045312 045317 046655 045630 045630 045631 045303 045306 221210 045304 221412 045307 230005 077100 045303 201620 045303 201620 045308 073458 045325 045602 201160 045314 045309 045198 045310 077121 045030 045305 046652 221210

JJ	219047	M-10 x 12 Set Screw
KK	077798	Vise Jaws
LL	203212	M-10 x 30 HHCS
MM	045224	Strike Plate
NN	060270	Covering Cap
QQ	114020	Flat Washer
RR	210012	M-10 JM Nut
	045300	Complete Vise Assembly



11.3A INFEED ROLLER ASSEMBLY

ITEM	PART #	DESCRIPTION
Α	042036	Drive Roller (Urethane)
В	220020	Button Head
С	046130	Retainer
D	046003	Upper Roller Bearing
Ε	042018	Drive Roller Sleeve
F	043156	Roller Shaft
G	045178	Pivot Plate
Н	077189	M-20 Hex Nut
Ι	043082	Idler Sprocket
J	221317	M-12 SHCS
Κ	218022	M-6 Set Screw
L	042045	Drive Sprocket Assembly
Μ	046048	M-35 Snap Ring
Ν	101412	1/2-13 x 1 HHCS
0	208014	M-12 Hex Nut
Р	046120	# 35 Chain (47 Links)
Q	046110	# 35 Chain (43 Links)
Q1	046033	#35 Chain Conn. Link (not shown)
R	218022	M-6 Set Screw
S	043050	Bearing Spacer
Т	045618	Keeper
U	112014	1/2" Lock Washer
V	044124	Key
X	221115	M-8 x 20 SHCS
Y	043082	Idler Sprocket
Z	212014	M-12 Washer

BB



<u>11.3B INFEED DRIVE ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045279	Support Leg
В	043003	Guide Roller
С	046024	Bearing and Retainer
D	079213	Roller
Ε	045234	Front Side Plate
F	045236	End Plate
G	043082	Idler Sprocket
Н	045244	Feed Roller
Ι	042024	Drive Roller
J	045243	Guide Plate
K	045235	Rear Side Plate
L	045237	Sensor Mount
Μ	077794	Proximity Switch
Ν	221120	M-8 SHCS
0	221210	M-10 x 25 SHCS
Р	221317	M-12 SHCS
Q	208014	M-12 Hex Nut
R	229220	M-10 Shoulder Bolt
S	047643	Coupler
Τ	047644	5/8 Flange
U	047650	3/4 Flange
V	046563	Drive Wheel
V1	044410	Drive Wheel Cover
W	045580	Drive Motor
X	045566	Pulley
Y	045570	Belt
Z	045565	Pulley
AA	045595	Encoder (500 Pulse)
	045567	Encoder (Cord)

212014	M-12 Lock Washer
112014	1/2 Lock Washer
101412	1/2 x 13 x 1-1/2 HHCS
141511	Roll Pin
229225	M-10 Shoulder Bolt
114020	Washer
	212014 112014 101412 141511 229225 114020



<u>11.3C ROLLER DRIVE ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045242	Valve Bracket
В	045614	Rotary Actuator
B1	045619	Seal Kit
С	121205	3/8 x 1 SHCS
D	043082	Sprocket
Ε	101412	1/2-13 x 1-1/2 HHCS
F	221230	M-10 x 60 SHCS
G	045139	Sprocket Mount
Н	046120	# 35 Chain (47 Link)
H1	046033	#35 Connecting Link
I	042051	Drive Sprocket
J	043078	Space Block
K	046240	Infeed Guard
L	121205	3/8 x 1 SHCS
М	045295	Roller Cover
N	077746	Fittings
0	044124	Kev
P	221222	M-10 x 45 SHCS
0	112017	1/2" Look Washer
R R	212014	M-10 Lock Washer
S	208012	M-10 Hex Nut



<u>11.3 D INFEED GUIDE ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045245	Platform Assembly
В	079213	Vertical Guide Roller
С	229220	M-12 x 20 x 50 Shoulder Bolt
D	045279	Roller Mount
Ε	043003	Nylon Roller
F	229225	M-10 x 12 x 70 Shoulder Bolt
G	221210	M-10 x 25 SHCS
Н	114020	Hardened Washer
I	043020	Double Roller Mount
J	045426	Vertical Mount
Κ	080061	Handle
L	221212	M-10 x 30 SHCS



11.4 MATERIAL GUIDE ASSEMBLY

ITEM	PART #	DESCRIPTION
Α	103213	3/8 x 16 x 1-1/4 BHCS
В	045564	Bearing
С	045262	Short Adjustment Rod
D	044263	Adjustment Block
Ε	221210	M-10 x 25 SHCS
F	219047	M-10 x 12 SS
G	044265	Upper Clamp
Н	044269	Material Guide Lower Clamp
Ι	229225	M-10 x 12 x 70 Shoulder Bolt
J	043003	Nylon Roller
Κ	044250	Complete Assembly (I & J not inc.)


<u>11.5 ENCODER ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045572	Spring
С	210012	M-10 Jam Nut
D	045293	Mounting Plate
Ε	045292	Spacer
F	045563	Rubber Wheel
F1	044410	Abrasive Band
F2	046563	Sales Wheel Assembly (Includes F, F1, G & J)
G	046046	Snap Ring
Н	045564	Bearing
I	045291	Hub Bolt
J	045290	Wheel Insert
K	045566	Wheel Pulley
L	045570	Belt
Μ	073605	6 x 32 x 5/8 SHCS
Ν	045321	Brass Bushing
0	229415	M-10 x 12 x 16 Shoulder Bolt
Р	045595	Encoder (500 Pulse)
Q	045565	Encoder Pulley
	045567	Cord



<u>11.6 60" DISCHARGE TABLE ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045138	Leg Assembly
В	049330	Foot Clamp
С	049217	Leveling Pads
C1	208024	Nut
D	045146	Support Assembly
Ε	221210	M-10 x 25 SHCS
F	045611	Rotary Actuator
FA	045622	Seal Kit
F1	077746	Fitting
G	045454	Left End Plate
Н	221220	M-10 x 40 SHCS
Ι	045167	Wire Channel
J	073420	M-8 x 16 SHCS
K	045453	Right End Plate
L	045542	Coupler
L1	118045	3/8 x 16 x 1/2 Set Screw
Μ	045160	Adjustable Cylinder Mount
Ν	046585	Cylinder
N1	045656	Seal Kit
0	045154	Slide W/Cylinder Mount
Р	229225	Shoulder Bolt
Q	043003	Guide Roller
R	230207	M-10 x 20 FSHCS
S	045165	Table
Т	045158	Table Slide
U	026746	Retainer
V	073458	M-6 x 10 SHCS
W	046702	Bearing
X	016402	Snap Ring
Y	045164	Table Side Rail
AA	114020	Washer
BB	221212	M-10 x 30 SHCS
CC	219047	M-10 x 12 Set Screw
DD	045581	Clevis

EE	045582	Clevis Pin
FF	077142	Grease Zerk
	FOR 90 AND 120 INCH DISC	HARGE TABLES, SEE SECTION 12.5.



<u>11.7 STOP FINE ADJUSTMENT ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045472	Stop Nut
В	043108	Fine Adjustment
С	045287	Stop Adjustment Rod
D	141619	1/8 x 7/8 Roll Pin
Ε	073458	M-6 x 10 SHCS
F	046029	Spring
G	042034	Material Stop
Н	141215	3/16 x 1-1/2 Roll Pin
I	047601	Stop Cylinder
I1	045601	Seal Kit
J	045286	Stop Guide
Κ	047170	60" Proximity Switch
K1	047171	90" Proximity Switch
K2	047172	120" Proximity Switch
L	218022	M-6 x 6 Set Screw
Μ	045288	Stop Block
Ν	130515	1/2-20 x 1-1/4 FSHCS
0	045607	Spring
Р	141220	7/32 x 1-3/4 Roll Pin
Q	077156	M-6 x 8 x 12 Shoulder Bolt
R	045289	Bumper
S	077743	1/8 NPT x 1/4 Plastic Ninety Degree
Τ	073455	M-5 x 20 SHCS
U	044289	Material Stop Probe (Optional)
V	218023	M-6 x 12 Set Screw
W	218010	M-5 x 10 Set Screw



<u>11.8 STOP ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	044222	Aluminum Rail
В	045453	End Plate
С	073624	M-8 x 25 FSHCS
D	044238	T-Nut
Е	130105	5/16 x 18 x 3/4 FSHCS
F	044212	T-Rail
G	044139	Stop Shaft
Н	044218	Collet Holder
Ι	073617	M-6 x 12 BHC
J	044137	Bracket Mount
K	044285	Collet Cover
L	220014	M-6 x 10 BHCS
Μ	104240	3/8 x 24 x 4 HHCS
Ν	044130	Trigger Stud
0	045454	End Plate
Р	221120	M-8 x 25 SHCS
Q	044140	Shaft Support
R	221212	M-10 x 30 SHCS
S	044167	Collet Mount
Τ	045602-046652-218048-210012	Spring-Ball-M-10 Set Screw & Jam Nut
U	044136	Scale Pointer
V	044135	Detent Holder
W	221310	M-12 x 25 SHCS
X	044172	Base Plate
Y	044232	Linear Bearing
Z	073450	M-4 x 16 SHCS
AA	073626	M-10 x 20 SHCS
BB	208020	Nut
CC	077746	1/4 x Ninety Degree Elbow
DD	077002	Trigger

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EE	077001	Switch
FF	041030	Shim
GG	029220	Scale
HH	214012	M-10 Flat Washer



<u>11.9 DUMP TABLES</u>

ITEM	PART #	DESCRIPTION
Α	044307	Actuator Cover
В	220014	M-6 x 10 BHCS
С	044320	Dump Table
D	230005	M-6 x 12 FSHCS
Ε	044163	Table Support
F	221220	M-10 x 40 SHCS
G	230005	M-6 x 12 FSHCS
Н	044340	Short Dump Table
I	044235	Bushing
J	044150	Dump Shaft
K	043035	Coupler
L	041015	Flow Control Valves
Μ	041000	Rotary Actuator
Ν	044156	Left Support
0	044154	Actuator Support
Р	221120	M-8 x 25 SHCS
Q	114020	Flat Washer
R	221210	M-10 x 25 SHCS



11.10 SUPPLY TABLE ASSEMBLY

ITEM	QTY	PART #	DESCRIPTION
2	6	045101	Guide Assembly
3	6	045126	Material Guide
4	6	045131	Adj. Guide Arm
5	5	045123	Guide Mount
6	5	045129	Roller Block
7	5	043003	Guide Roller
8	1	045145	20' Carrier Beam
9	1	045405	Stand Assembly Top
10	3	045383	Cyl. Mtg. Block
11	6	045385	Bearing Mount
12	6	049321	Fafnir Bearing SCJT 1
13	4	045366	Lift Connecting Rod 10'
14	6	044100	Lifting Arm
15	12	045384	Lifting Arm Lock
16	18	221215	ISO 4762 - M-10 x 35
17	3	229211	M-8 x 10 x 20 Shoulder Bolt
18	31	214012	M-10 Flat Washer
19	24	208012	M-10 x 1.5 Din934 Hex Nut
20	41	221210	M-10 x 25 SHCS
21	6	221220	M-10 x 40 SHCS
22	17	221212	M-10 x 30 SHCS
23	42	073619	M-6 x 20 SHCS
24	3	045407	Cylinder
25	3	045402	Cylinder Clevis
26	5	229225	M-10 x 12 x 70 SB912
27	2	049300	1.0" Coupler
28	2	045134	Guide Rod
29	1	045540	3/4" Coupler
30	17	114020	3/8 Flat Washer
31	11	080061	M-10 x 81 Str. Adj. Handle
32	1	045044	Manifold Mtg. Bracket
33	2	078192	6 Station Manifold
34	4	073331	M5 X 45MM DIN912 SHCS
35	8	077777	3/8 NPT Plug
36	6	077746	1/4 NPT x 1/4 90 (Elbow)
37	2	077771	3/8 x 1/4 NPT Red. Bush.
38	2	677728	1/4 NPT x 1/4 Str. Fitting



<u>11.10A</u> SUPPLY TABLE LEG ASSEMBLIES

ITEM	Ι QTY	PART #	DESCRIPTION
1	1	079210	Horizontal Roller
2	2	079221	Nice Bearing
3	1	079211	Roller Shaft
4	2	214016	M-16 Washer
5	1	079212	Roller Stand
6	1	079213	Vertical Roller
7	1	229220	M-10 x 12 x 50 SH Bolt
8	1	219047	M-10 x 12 SS
9	1	045105	Stand Ass'y
10	1	114020	3/8 Flat Washer
11	1	201232	M-10 x 80 HHCS
12	2	208024	M-24 Hex Nut
13	1	049217	Foot Ass'y
14	1	049330	Foot Clamp





FIGURE 48

11.11 POWER DOWN FEED ASSEMBLY

ITEM	QTY	PART #	DESCRIPTION
1	1	045230	Power Down Bracket (Upper)
2	1	045425	Power Down Reservoir
*3	1	045692	CPO315 PD Cylinder Assembly (Includes Items 3-14)
4	1	045031	3/8" NPT X 1/4" 90° Swivel
5	1	045054	3/8" NPT X 1/2" 90° Swivel
6	1	045593	PIvot Pin (Includes Items 6-7)
7	2	016402	Snap Ring
8	1	045594	PD Clevis Drill
9	1	045693	Bellow Clamp For 045697
10	1	045696	Bellow Retainer
11	1	045697	Bellow For *045699
12	1	077715	Cylinder Pivot Bolt (2)
13	2	218022	M6 X 6MM DIN916 Set Screw
14	2	220014	M6 X 10MM DIN BN19 BHCS
15	1	045698	Cylinder Seal Kit For *045699
16	2	077211	Return Spring
17	8	221210	M10 X 25MM DIN912 SHCS

*P/N 045699 Cylinder- Only available as 045692 Assembly



<u>11.11A POWER DOWN FEED VALVES</u>

ITEM	PART #	DESCRIPTION
Α	077746	1/4" NPT x 169PL
В	077701	Baffle
С	077777	3/8" NPT Plug
D	045054	90 Degree Swivel
Ε	077536	Check Valve
F	045042	Fitting
J	047535	Flow Control Valve
Κ	045054	1/2 x Ninety Degree Swivel
L	077779	1/4 NPT Close Nipple
Μ	045041	Brass Three-Way
0	078455	Sight Glass
Р	077771	Reducer



<u>11.11B AIR CONTROLS</u>

ITEM	PART #	DESCRIPTION
Α	N/A	Provided by Customer
В	077719	Shuttle Valve
С	077737	1/4 NPT Brass Street Elbow
D	077780	Brass NPT Coupler
E	077779	1/4" NPT Nipple
F	045604	Complete Filter/Regulator/Lubricator
G	045605	Mounting Brackets
н	077738	90 Degree Fitting
I	045609	Replacement Bowls
K	045612	Regulator Seal Kit
L	045613	Lubricator Seal Kit
Μ	045176	Shroud
Ν	045606	Gauge
0	201130	M-6 x 30 HHCS
Р	073206	M-6 Nut
Q	077157	M-6 Greer Nut

SEE SECTION 12.4A FOR THE POWER DOWN FEED REGULATOR.



<u>11.12</u> AIR VALVE ASSEMBLY

ITEM	PART #	DESCRIPTION
Α	045560	Cable End
В	077774	Fitting
С	077777	Plug (3/8 NPT)
Ε	077740	90 Degree Elbow
F	045650	Solenoid
G	045655	Valve
Н	677728	Fitting
Ι	077930	Coolant Regulator
J	045666	Complete Valve Assembly
K	077741	Ninety Degree Swivel
L	077750	Brass Nipple



<u>11.13 BLADE GUARD ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045267	Guard Shell
В	073641	M-10 SHCS
С	040087	M-10 Brass HHCS
D	208012	M-10 Jam Nut
E	026621	M-10 Tee Nut
F	660145	Coolant Line
G	046272	Hose Barb
Н	073415	M-4 x 25 SHCS
I	076835	Mister Unit
J	676842	Ninety Degree Hose Barb
K	077926	Coolant Line
L	060501	Air Line
Μ	676844	Fitting
Ν	073095	M-4 Washer
0	073415	M-4 SHCS
Р	046274	Elbows
Q	660145	Coolant Line
R	046273	T-Mount
S	026619	M-10 Tee Nut



<u>11.14 MOTOR ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	046358	Special Fan Cover (90 Degree Blower)
В	073440	M-4 x 6 SHCS
С	N/A	Fan
D	N/A	End Casting
Е	N/A	Motor Bearing (6206 ZZ)
F	N/A	Snap Ring
G	N/A	Key
Н	203210	M-10 SHCS
Ι	077370	Key 6 x 4 x 32mm
J	N/A	Seal
K	N/A	Spacer Washer
L	N/A	Snap Ring
Μ	N/A	End Casting (Front)
Ν	077375	Pinion Gear
0	077189	Lock Nut
Р	077860	Motor Gasket
	COMPL	ETE MOTORS
AA	076993	11-177 RPM/230/460 Volt

(H, N & O Not Included)



11.15 ELECTRICAL UNIT - LINE CIRCUIT

ITEM #	PART #	DESCRIPTION
Α		230V 1/2 HP VFD Programmed
A1		460v 1/2 HP VFD Programmed
В	045495	15A Breaker 230V
B1	045530	8A Breaker 460V
С	045496	30A Breaker 230V
C1	045529	15A Breaker 460V
D	078285	5HP 230V VFD-Programmed
D1	078286	5HP 460V VFD-Programmed
Ε	045497	Comm. Module
F	045338	30A Disconnect
G	045498	Black Terminal
Н	045499	Crossover Cable (Not Shown)
I	045500	PLC RFA Touch Screen
J		Disconnect Shaft Kit - <u>obsolete</u>
K	045502	PLC Battery RFA Touch Screen
L	045503	PLC Memory RFA Touch Screen
Μ	045504	Power Supply
Ν	045505	Slim Interface Relay 24VDC
0	011835	Secondary Fuse 2 AMP
Р	045507	Ground Bar

ITEM #	PART #	DESCRIPTION
Q	045508	9A DC Contactor
R	045509	Starter Auxilary
S	045510	Manual Starter
Т	045511	2P Relay Base
U	045512	24 VDC Relay
V	045514	Tan Terminal
W	045515	White Terminal
X	045516	Ground Terminal
Y	045517	Terminal Barrier
Z	045518	Terminal Anchor
AA	045519	2P Fuse Holder
BB	045521	1P Mini Fuse Holder
CC	045522	Terminal Jumper
DD	045523	1A Fuse
EE	045524	3A Fuse
FF	045525	Patch Cable
GG	045527	Relay Jumper
нн	045528	Disconnect Handle
II	045531	HMI Screen (Not Shown)

<u>NOTE</u>: S/N B2053RFA0522 and up - All RFA saws have this update after this S/N. However, two earlier 480Vsaws (S/N B2047RFA1220 & B2050RFA0621) also received these changes.

F, **J**, **& HH**₇



FIGURE 55

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11.16 BASE ASSEMBLY WITH OPTIONAL FLOOD COOLANT

ITEM	PART #	DESCRIPTION
Α	045171	Base Cabinet
В	045411	Base Casting
С	045735	Lower Enclosure
D	073617	M-6 x 12 BHCS
Ε	045257	Screen (For Coolant Pump)
E1	045260	Screen (Without Coolant Pump)
F	060150	230/460 Coolant Pump
FA	060160	575 Volt Coolant Pump
G	049217	Leveling Pads
G1	208024	M-24 Hex Nut
Н	073350	M-10 x 100 HHCS
Ι	216015	M-10 Flange Nut
K	203235	M-10 x 90 HHCS
L	045052	Chip Bucket
Μ	220010	M-4 x 12 BHCS
0	060149	Screen
Р	046018	Handle
Q	049330	Foot Clamp
Т	221010	M-6 x 16 SHCS
U	114020	Hard Washer
V	045395	Swing Arm & Stand
W	221210	M-10 x 25 SHCS
X	045398	End Guide Base
Y	073660	M-8 x 12 SHCS
Z	045399	End Guide Assembly
AA	080061	Handle
BB	114020	Washer
CC	026619	Tee Nut



<u>11.17 MIST COOLANT SYSTEM</u>

ITEM	PART #	DESCRIPTION
Α	677728	1/4 NPT x 1/4 Hose
В	677745	1/4 Brass Tee
С	077721	1/4 To 1/8 NPT Reducer
D	077750	1/8 x 2-1/2 Pipe Nipple
E	077930	Mister Regulator
F	677933	Mister Reservoir
G	077779	1/4" Brass Nipple
Н	077741	5/16 Elbow
I	045740	Check Valve
J	077926	Mister Line
K	046669	Line Clip
L	077157	M-6 Greer Nut
Μ	213007	M-6 Large Flat Washer
Ν	073615	M-6 x 20 BHCS
0	060501	5/16" Au Line



<u>11.18 STROKE CONTROL ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	045253	Stroke Adjustment Plate
В	045249	Stroke Control Stand
С	045299	Stop Block
D	045320	Stroke Sensor Mount
E	045330	Stop Guide
F	220010	M-4 x 12 BHCS
G	203212	M-10 x 30 HHCS
Н	114020	M-10 Hardened Washer
Ι	077795	Proximity Sensor
J	221212	M-10 x 30 SHCS
K	221210	M-10 x 25 SHCS
L	221120	M-8 x 25 SHCS
Μ	158202	Bumper
Ν	073095	M-4 Washer


<u>11.19 HOOD ASSEMBLY</u>

ITEM	PART #	DESCRIPTION
Α	203217	M-10 x 45 HHCS
В	045196	Pedestal
С	045285	Pivot Pin
D	046018	Hood Handle
F	045322	Sight Glass
G	046645	Sight Glass Seal
J	229415	M-10 x 12 x 16 Shoulder Bolt
K	045255	Hood
L	077142	Grease Nipple
Μ	077100	M-10 Dowel Pin
Ν	073617	M-6 x 12 BHCS
0	040012	Bumpers
Р	047110	Hood Safety Switch
P1	047115	Switch Mount
P2	220010	M-4 BHCS
Р3	215000	M-4 Nylon Lock Nut
Q	047160	Complete Hood Assembly (Includes D, F, G, K, N, O, P & R)
R	215013	M-8 Nylon Lock Nut



<u>11.20 DIGITAL SENSOR</u>

ITEM	PART #	DESCRIPTION
В	220105	M-3 x 16 SHCS
С	044091	Vertical Bracket
D	073400	M-5 x 30 SHCS
E	044092	Scale Assembly
F	220100	M-3 x 10 SHCS
G	208010	M-8 Hex Nut
Η	026504	M-8 x 16 Brass S.S.
Ι	044090	Horizontal Mount
J	073605	6 x 32 x 5/8 SHCS
K	046652	Detent
L	045602	M-8 Ball Spring
Μ	218048	M-10 x 20 S.S.
Ν	210012	M-10 Jam Nut
0	045335	Sensor
Р	073095	M-4 Washer
Q	046094	Nylon Clamp Nut
R	047096	Magnetic Tape (Not Shown)



12.0 OPTIONAL EQUIPMENT PARTS LIST

12.1 COOLANTS AND LUBRICANTS

UNIT	PART	DESCRIPTION
1 Gal.	075751	Saw Coolant
5 Gal.	075752	Saw Coolant
55 Gal.	075754	Saw Coolant
1 Gal.	075756	Stainless Coolant
5 Gal.	075757	Stainless Coolant
1 Qt.	075753	Air Line Lubricant
1 Gal.	075759	Air Line Lubricant
1 Gal.	075758	Gear Oil - Head

<u>12.2 OPTIONAL COOLANT PUMP</u>

ITEM	PART #	DESCRIPTION
Α	060150	230 Volt Pump
A1	060158	460 Volt Pump
A2	060160	575 Volt Pump
D	060151	Seal Kit
G	046271	Elbow
Н	660145	Coolant Line
I	060095	Pump Cable
J	221010	M-6 x 16 SHCS
Κ	073322	Valve Assembly
L	077774	Nipple
Μ	072354	Hose Barb
Ν	060149	Pump Screen



<u>12.3 OVERTURN DEVICE</u>

ITEM	PART #	DESCRIPTION
Α	045344	Slider
В	229212	M-8 x 10 x 60 Shoulder Bolt
С	045346	Roller
D	045348	Roller Bracket
Ε	045347	Roller Bracket
F	073420	M-8 x 16 SHCS
G	221120	M-8 x 25 SHCS
Н	221215	M-10 x 35 SHCS
I	114020	Washer
J	080061	Handle
К	045123	Mounting Bracket
L	045429	Turning Block
Μ	043003	Nylon Rollers
Ν	229225	M-10 x 70 x 12 SB



12.4 VISE REGULATOR

ITEM	PART #	DESCRIPTION
Α	078190	Regulator
A1	077538	Gauge
B `	677934	Wall Mount
С	077864	M-5 x 12 SHCS
D	077742	1/4 Male Swivel x 169PL
E	077744	1/4 x 5/16 NPT Fitting
F	060501	5/16 Black Hose
	047250	Complete Regulator Assembly

12.4A POWER DOWN FEED REGULATOR

Α	078190	Regulator
В	677934	Mount
С	077864	M-5 x 12 SHCS
D	077746	1/4 x 90 Swivel
E	077746	1/4 x 90 Swivel
F	073758	Air Line



12.5 90 & 120 INCH DISCHARGE TABLE ASSEMBLIES

SEE SECTION 11.6 FOR PARTS THAT ARE COMMON TO ALL DISCHARGE TABLES.

ITEM]	PART #	DESCRIPTION	
	90	120		
Α	044321	044319	Table (Short)	
С	N/A	044163	Table Support (Long)	
D	N/A	044235	Bushing	
E	N/A	043035	Coupler	
F	N/A	044350	Dump Shaft EXT	
G	047332	047232	Wire Channel	
Н	047336	047236	Table Slide Rail	
I	047330	047230	Dump Table	
J	047220	047220	Slide Rail Support	
K	047208	047208	Support Block	
L	044214	044216	T-Rail	
Μ	221210	221210	M-10 x 25 SHCS	
M1	114020	114020	Hard Flat Washer	
Ν	N/A	044200	Center Leg	
0	221210	221210	M-10 x 25 SHCS	
Р	047326	047226	Rail Support Assembly	
Q	044224	044226	Alum Beam	
Т	044153	044150	Short Dump Table Shaft	
U	044156	044156	Support	
V	044320	044320	Short Dump Table	
W	044239	044339	Stop Shafts	
X	N/A	047241	Guide Strip	
Y	220014	220014	M-6 x 10 BHCS	
Z	N/A	047239	Brackets	
Z1		220010-215000	M-4 x 12 BHCS	
AA	121110	N/A	5/16 x 18 x 3/4 SHCS	
BB	047430	N/A	Hex Shaft Support	
CC	044238	N/A	T-Nut	
DD	243102	243102	Angled Grease Zerk	



13.0 STOCK BLADES

315 MM - 12-1/2 INCH

ITEM	PART #	DESCRIPTION
Α	074355	90 Tooth 12-1/2" (315mm) Dia.
В	074356	100 Tooth 12-1/2" (315mm) Dia.
С	074357	110 Tooth 12-1/2" (315mm) Dia
D	074345	120 Tooth 12-1/2" (315mm) Dia.
Ε	074348	150 Tooth 12-1/2" (315mm) Dia.
F	074350	180 Tooth 12-1/2" (315mm) Dia.
G	074352	220 Tooth 12-1/2" (315mm) Dia.
Н	074354	280 Tooth 12-1/2" (315mm) Dia.
	275 MM - 10-3/4 INC	Ή
Α	074309	90 Tooth 10-3/4" (275mm) Dia.
В	074308	100 Tooth 10-3/4" (275mm) Dia.
С	074310	120 Tooth 10-3/4" (275mm) Dia.
D	074311	150 Tooth 10 3/4" (275mm) Dia.
Е	074312	180 Tooth 10-3/4" (275mm) Dia.
F	074313	220 Tooth 10-3/4" (275mm) Dia.
G	074314047230	260 Tooth 10-3/4" (275mm) Dia.

THERE ARE THREE STYLES OF BLADES AVAILABLE:

STYLE 2: Has a round backed tooth with a square face and top. This style is designed for thin wall nonferrous tubes, plastics and synthetics.

STYLE 2A: Is an alternate top bevel grind. This grind is used on blades that have 240 teeth or more. Applications for this style are thin wall tubes, profiles with thin cross sections and nonferrous applications that require 240 teeth or more.

STYLE 3: Is a triple chip grind with a high/low tooth form. This grind is used on blades that have 220teeth or less. This style is used for a wide range of materials from solid sections of nonferrous materials to heavy wall tubes and solid sections of steel and alloys.

The stock blades listed above are oxide coated high speed steel. 12-1/2 inch (315mm) blades and 10-3/4 (275mm) are commonly used and provided with any number of teeth from 50 to 280. Our Power 2000 blades have a notch grind and have a titanium coating. We recommend them for cutting thin-walled tubing. Please call us for saw blade recommendations or go to www.scotchman.com for more information.

SEND YOUR BLADES BACK TO THE FACTORY FOR PROFESSIONAL RESHARPENING

TYPES OF BEVELS, NOTCHES, AND WHERE USED

ALTERNATE

Teeth are the same Height. All the Teeth have a Bevel. Every Other Tooth is Beveled on Every Other Side. Used on Blades with a 4.5 Pitch or Less, Generally, 220 Teeth or more. More Teeth = Smaller Pitch Used on thinner walled Tube & Angle and Small Solids.

TRIPLE CHIP

Every other Tooth is Taller. Often said to have a "High-Low". The High-Tooth has a Bevel on Both Sides. The Low Tooth has NO Bevel at all. Hi-Tooth cuts the Middle out of the Cut and Low Tooth is the Tooth that leaves Finish. Generally used on Blades with a 4.5 Pitch or more. Less Teeth = Larger Pitch. Best for Solids and Thick Wall Tube.

NOTCH GRIND

Teeth are the same Height. All the Teeth have a Notch. Notches are Offset from Each Other and breaks up the Chip made during the Cut. Typically used on Blades with a 4.5 Pitch or Less, Generally, 220 Teeth or more. More Teeth = Smaller Pitch Best for thinner walled Tube & Blade RPM should be increased.

ROUND GRIND

Teeth are the same Height. There is No Bevel. Typically used on Blades with a 3.5 Pitch or Less, as Teeth this small are extremely difficult to bevel. This works best for thinner walled Tube . Also used for soft materials such as Nylon, Plastic, PVC, etc. in most any shape or size and with whatever tooth size works the best.



Triple Chip and Alternate Grinds are by far the most common. Power 2000 Blades have the Notch Grind & Titanium Coating.

SCOTCHMAN INDS. - 180 E US HWY 14 - PO BOX 850 - PHILIP, SD 57567 Phone: 1-800-843-8844

14.0 WIRING DIAGRAMS - S/N B2053RFA0522 and up

Scotchman Industries Cold Saw RFA 240V POWER CONNECTIONS



Scotchman Industries Cold Saw RFA <u>480V</u> POWER CONNECTIONS*



FROM PAGE 1

FIELD CONNECTION WIRES



FROM PAGE 2 FROM PAGE 2 24V YELLOW/RED GCC1 **0**V -CJ3FU +24YELLOW/BLACK **TM221CE40T** AIN FROM CR1 ON PG 2 43 44 45 46 -O 24VDC сомО V0+ RED О сом RED BLU YELLOW/BLACK PUR EN1 %Q0.0.0 O SAW RUN CMD O(R11)O O %10.0.0 "A" PUL WHL ENC A1 $/_{A2}$ GRY/WHT (R16)O %Q0.0.1 O n, RED EN2 ·O %1001 'A2 A1 "B" PUL WHL ENC **GRY/YEI** %Q0.0.2 O **R1** SHL BARE LOAD PART O %10.0.2 A1 A2 BLU/YELL YELLOW/BLACE CANNOT USE %Q0.0.3 🔿 \bigcirc R2 \cap ROCKER A1 'A2 O %10.0.3 CANNOT USE O %10.04 CANNOT USE 0 %10.0.5 V0-0 CANNOT USE SHLBARE BLU/RED O YELLOW/BLACK RED R3 EN3 %Q0.0.4 O O %10.0.6 \cap "A" PUL FINAL ENC HEAD DOWN RED A1 A2 R4 %00.0.5 O $\overline{}$ BLUE EN4 ○ %1007 VISÈ REL. 'A2 A1 RED/WHT "B" PUL FINAL ENC YELLOW/RED 3MPS R5 %Q0.0.6 🔿 EJECT **GRAY/WHITE** 14 $\frac{1}{21}$ A2 O %10.0.8 A1 BLU/BLK YELLOW/BLACK MPS FAULT PUMP %Q0.0.7 O **R6** С 39 BLU/YELL DUMP A2 A1 %10.0.9 Ο SAW HEAD UP 40 BLU/RED ∩ %10.0.10 SAW HEAD DOWN 61 YEL/WHT 0 %10.0.11 SPARE RED 45 O %10.0.12 V1+ RED RED STOP RELAY 37 RED/WHT RED/YEL YELLOW/BLACK %Q0.0.8 O **R7** \cap \sim \bigcirc %10.0.13 ROLLER SEN. 1 BRW/WHT A1 A2 **R8** 38 BLK/WHT %Q0.0.9 O-PART LENG STOP γ \cap -O %10.0.14 ROLLER SEN. 2 A2 A1 RED/BLk %Q0.0.10 OFEED FWD CMD O(R12)С 60 YELL/BLU A1 'A2 O %10.0.15 GRY/BLK (R13)() REMOTE PB START SW. %Q0.0.11 O FEED REV CMD Ю 41 RED/BLU A1 $/_{A2}$ O %10.0.16 MATERIAL HARD STOP 42 RED/YEL O %I0.0.17 ARD STOP RELEASE SW. 36 BRW/WHT O %10.0.18 SAW HOOD SW. YELLOW/RED 3M YELLOW/BLACK ORN/WHT О V1-- 14 13 14 O %10.0.19 COOLANT RUNNING BRW/YEL %Q0.0.12 O-FEED LOW SPD 1 ORN -O(R14 56 O %10.0.20 NF BRAKE OVER TEMP GRY/RED A1 A2 R15 %Q0.0.13 O-FEED LOW SPD 2 \neg 57 ORN/BLK \sim O %10.0.21 'A2 A1 WORK CELL STOP SW GRAY %Q0.0.14 O -O(R9 58 ORN/BLU A1 'A2 ·O %10.0.22 OYELLOW/BLACK ORN WORK CELL START SW %Q0.0.15 O DUMP GATE R10 59 ORN/WHT A1 'A2 REMOTE PB STOP SW. INPUTS OUTPUTS ETHERNET O ₋∟ SLOT 0 шшш **IP ADDRESS 192.168.1.2** DRAWING SYMBOL KEY SD CARD TMASD1 # SOFT START PANEL TERMINAL (#) PLC PANEL TERMINAL 🛕 SOFT START TERMINAL

> TO HMI HMIGTO5330 IP ADDRESS 192.168.1.13

FIELD CONNECTION WIRES



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FIGURE 70

FIELD CONNECTION WIRES



FIELD CONNECTION WIRES



VFD CONNECTIONS



DRAWING SYMBOL KEY
SOFT START PANEL TERMINAL
PLC PANEL TERMINAL
SOFT START TERMINAL
FIELD CONNECTION WIRES