

**You have downloaded
a manual for our
MODEL CPO-315-RFA-NF
COLD SAW**

**Please read the manual
before operating this saw!!**



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MODEL
CPO-315-RFA-NF
COLD SAW

S/N B2057 RFA & AFTER

FEBRUARY 2024

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1.0 INTRODUCTION

The CPO-315 RFA-NF Fully Automatic Cold Saw is a high speed saw designed to cut solids, tubes, flats and other profiles in grades of nonferrous material that range from aluminum, brass, copper, synthetics and extrusions.

Cold sawing is a process similar to a milling process.

In most cases, this gives a finished cut that does not require any secondary machining or de-burring.

The high spindle speed of this saw makes it ideal for extrusions with varying cross section thicknesses.

To achieve the best results from this machine, choose the proper spindle speed. Proper material clamping and a good quality coolant are also important. We recommend our P/N 075760 coolant (SYNCON-2) straight and not diluted.

Cold sawing has 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.

The vise allows for easy change over to special clamping jaws for profiles and extrusions.

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 24 months 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.

Hydraulic and electrical components are subject to their respective manufacturer's warranties.

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. Seller shall not be liable to 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 | CM |
|----------|------------------------------------|---------------|-------------------------|
| A | HEIGHT | 67 | 170 |
| B | FLOOR TO VISE | 38.5 | 98 |
| C | BASE HEIGHT | 35 | 89 |
| D | WISE OPENING | 3-5/8 | 9.2 |
| E | WISE DEPTH | 2-1/4 | 5.7 |
| F | BASE WIDTH | 61 | 155 |
| G | BASE DEPTH | 25 | 64 |
| H | 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. |

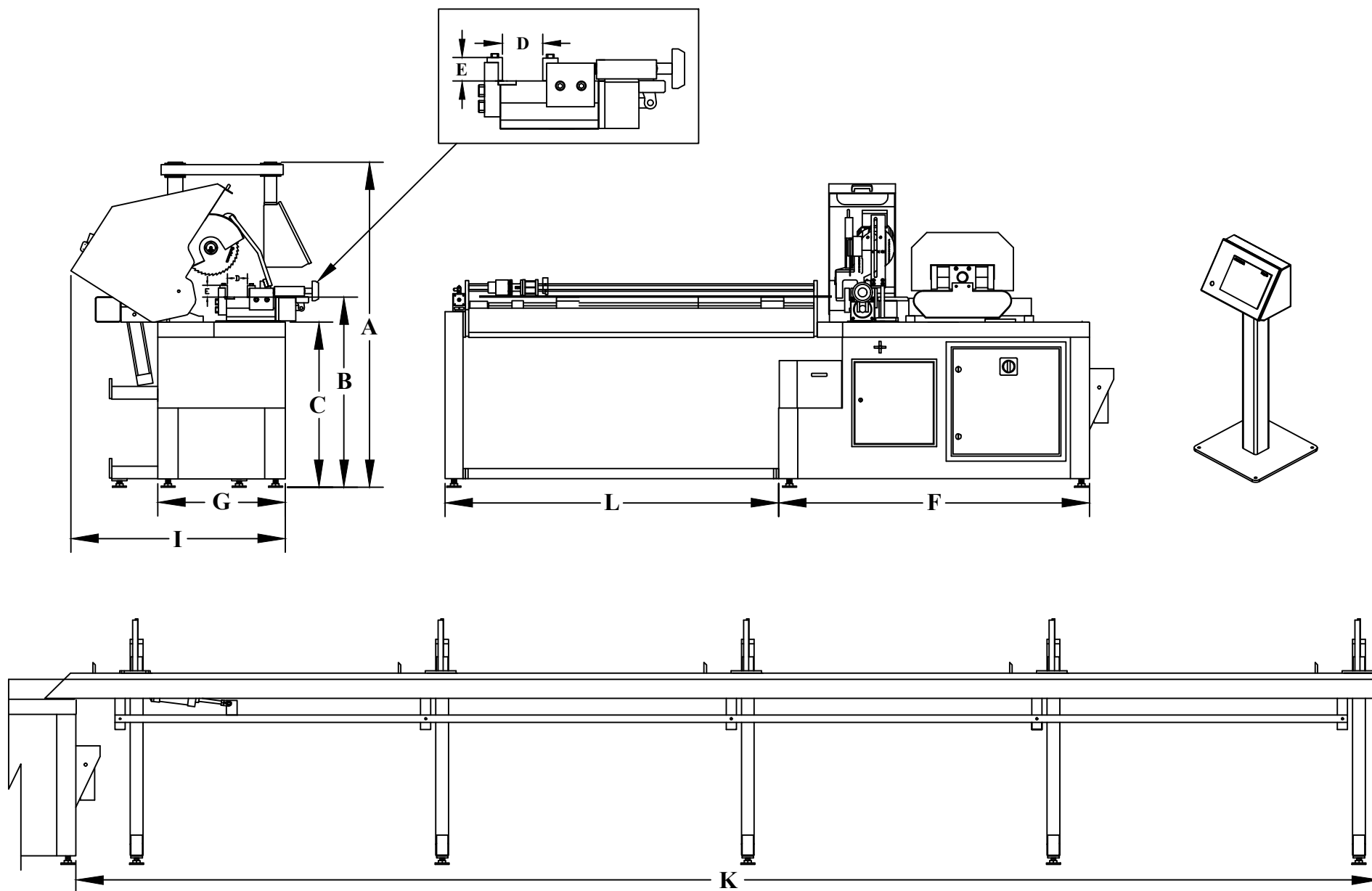


FIGURE 1
Page 9

4.2 MACHINE INSTALLATION

SEE FIGURE 2 ON THE FOLLOWING PAGE.

This machine is shipped on a pallet with the 60 inch discharge assembly attached to the saw. If the optional 90 or 120 inch discharge assemblies are ordered, they are packaged separately and must be assembled when they arrive. The material supply table is shipped disassembled.

⊠ **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 you may want to cut. Leave adequate space behind the machine and on either end for set-up and maintenance.
2. Lift the machine off of the shipping pallet, using a fork lift.
3. 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.
4. Assemble the supply table following the instructions in SECTION 4.3 ON PAGE 12. Attach the supply table to the machine and make sure that it is square to the machine and level with the roller feed assembly.
5. 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 OF THE SECTIONS OF THIS MANUAL!**

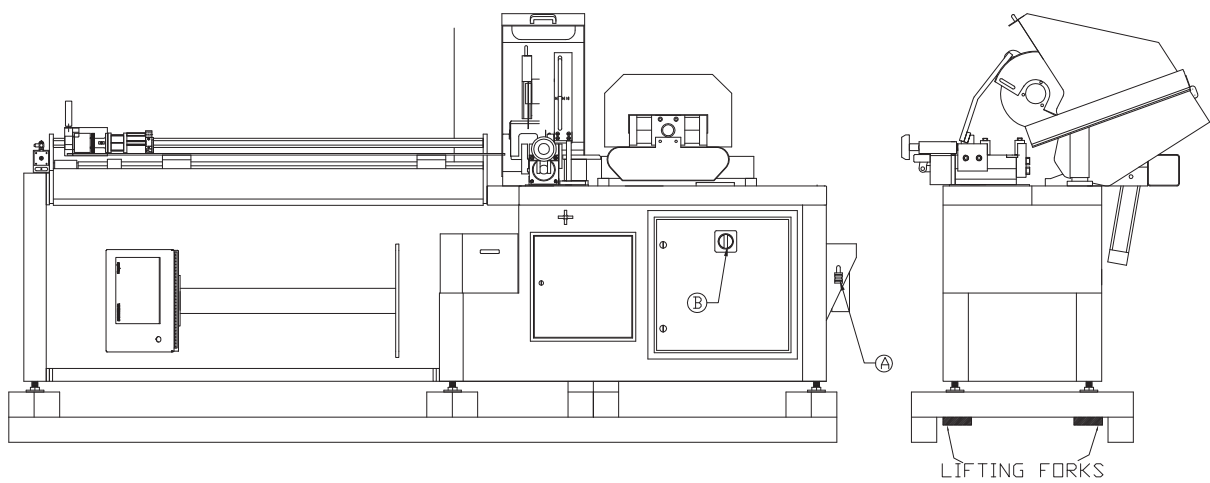


FIGURE 2

4.3 ELECTRICAL REQUIREMENTS



CAUTION: 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.

If the machine is not the same voltage as your plant voltage, you will have to rewire the motor and the transformer. 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 DIAGRAM FOR THIS MACHINE IS IN SECTION 14.0 ON THE LAST TWO PAGES OF THIS MANUAL.

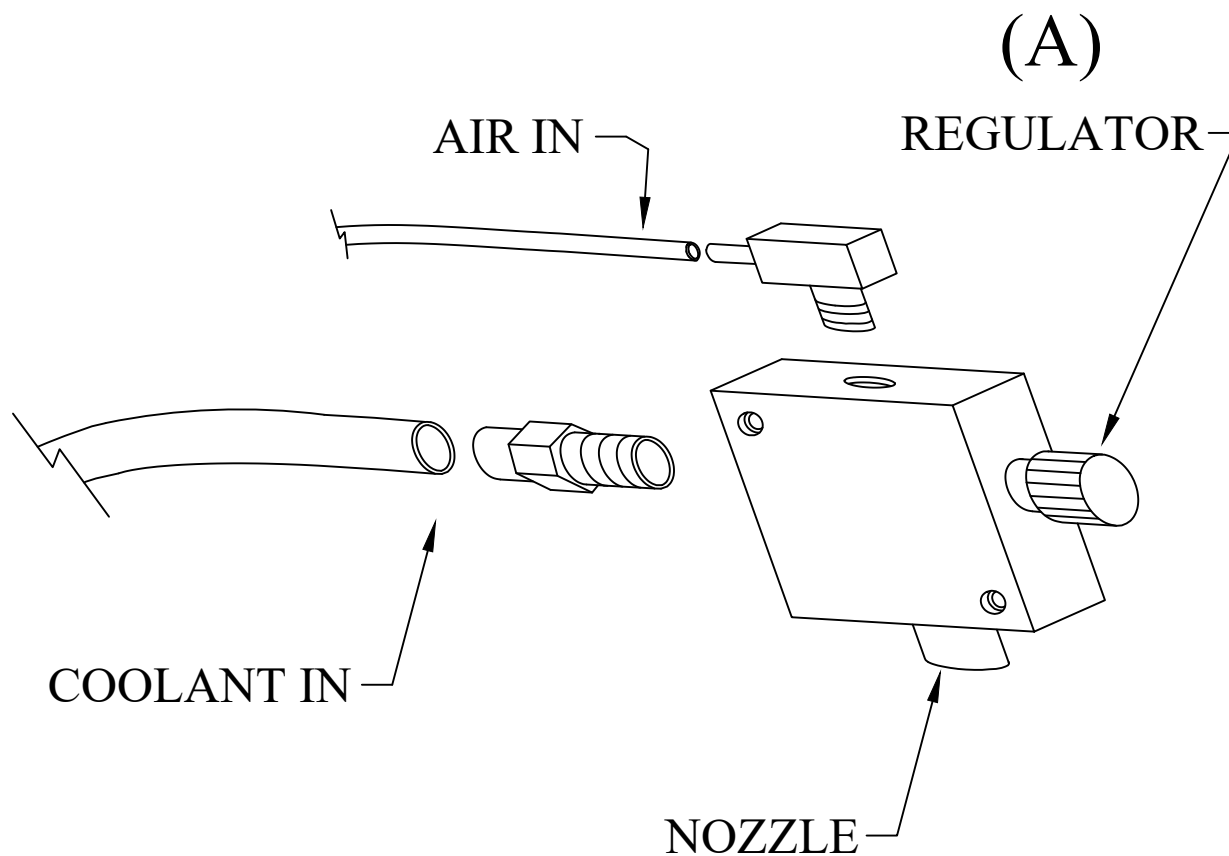
For supply lines ten feet (304 cm) or shorter, we recommend 12 gauge wire. For lines longer than ten feet (304 cm), we recommend 10 gauge wire. We do not recommend supply lines over twenty feet (609 cm) in length.

CPO-315-RFA-NF (3,000 RPM)

| MOTOR VOLTAGE | FULL LOAD CURRENT | HORSEPOWER |
|----------------------|--------------------------|-------------------|
| 208 | 16.4 | 5 |
| 230 | 15 | 5 |
| 460 | 7.5 | 5 |

4.4 MIST COOLANT SYSTEM

The coolant system on this machine is a pneumatic mist type. We recommend using only our P/N 075760, SYNCON-2 coolant in this saw. One gallon of coolant is shipped with the saw. For the best results, we recommend that it is used straight and not diluted. The NF coolant reservoir has a capacity of (5) quarts (4.7 liters). The pressure regulator for the mister should be set at 15 PSI (1 BAR). The amount of air is regulated by the adjustment knob (A) on the end of the mister unit. The mist spray should be evenly distributed on both sides of the blade.



MISTER UNIT

FIGURE 3

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 4 BELOW.

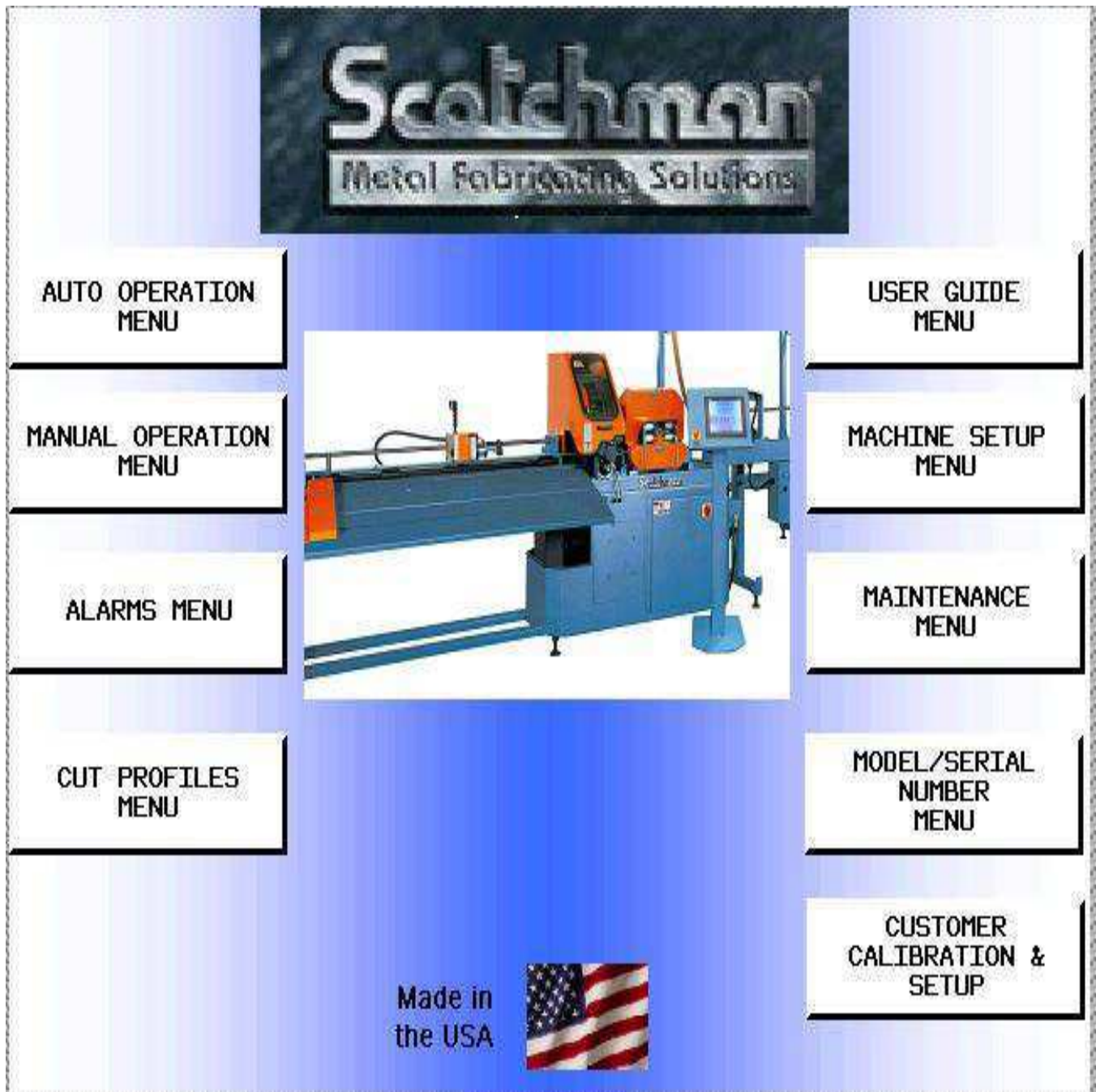


FIGURE 4

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.**

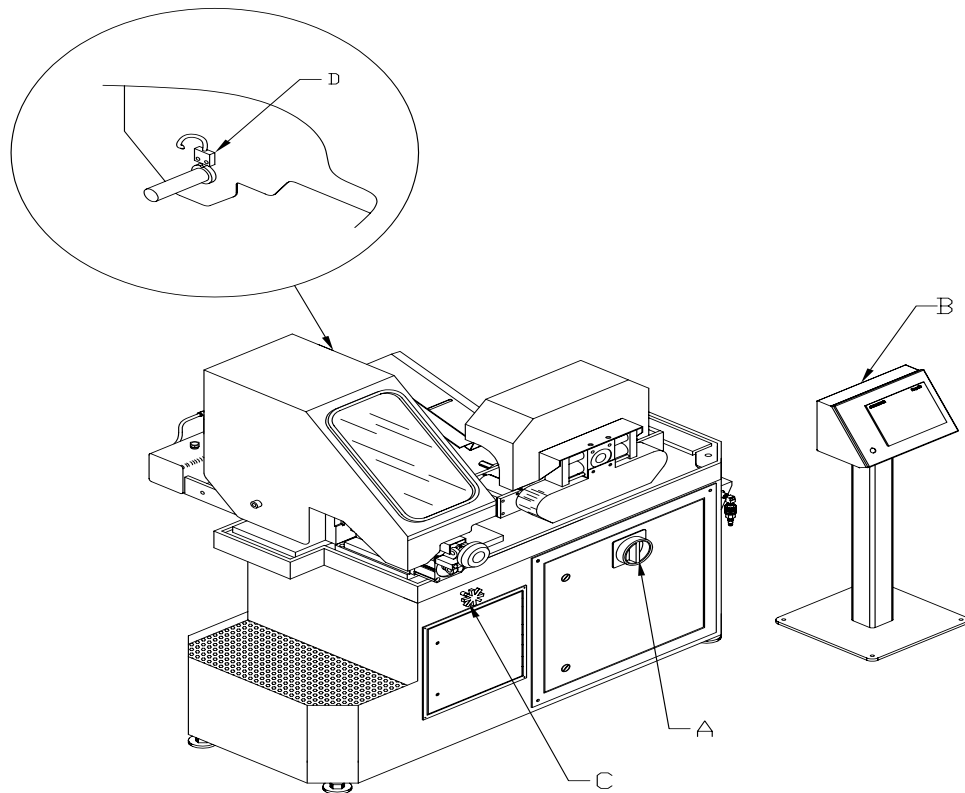


FIGURE 5

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 and the condition of the blade will affect the down feed rate dramatically. Never use a dull blade!! It will need increased down force and take longer to cut and will leave a poor finish on the cut and cause other problems.

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. DO NOT DISABLE THIS SWITCH!!

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 $\frac{3}{4}$ 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.

The screenshot displays the 'CUT PROFILES' menu on a light blue background. On the left side, there are three vertically stacked buttons: a green 'NEW PROFILE' button, a red 'DELETE' button, and a grey 'SAVE' button. To the right of these buttons is a white rectangular box labeled 'Recipes' with a black downward-pointing arrow on its right side. Below the 'Recipes' box, there are four rows of settings, each consisting of a label, a numerical input field, and a unit selection box. The first row is 'FEED SPEED' with the value '123456' and the unit 'IPS'. The second row is 'SAW SPEED' with the value '1234.1' and the unit 'RPM'. The third row is 'TRIM LENGTH (ACTUAL TIMMED AMOUNT)' with the value '1.123' and the unit 'IN'. The fourth row is 'BRAKE POINT (FROM THE HARD STOP)' with the value '12.123' and the unit 'IN'. In the bottom right corner of the menu, there is a red 'EXIT' button.

| Parameter | Value | Unit |
|------------------------------------|--------|------|
| FEED SPEED | 123456 | IPS |
| SAW SPEED | 1234.1 | RPM |
| TRIM LENGTH (ACTUAL TIMMED AMOUNT) | 1.123 | IN |
| BRAKE POINT (FROM THE HARD STOP) | 12.123 | IN |

FIGURE 6

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.

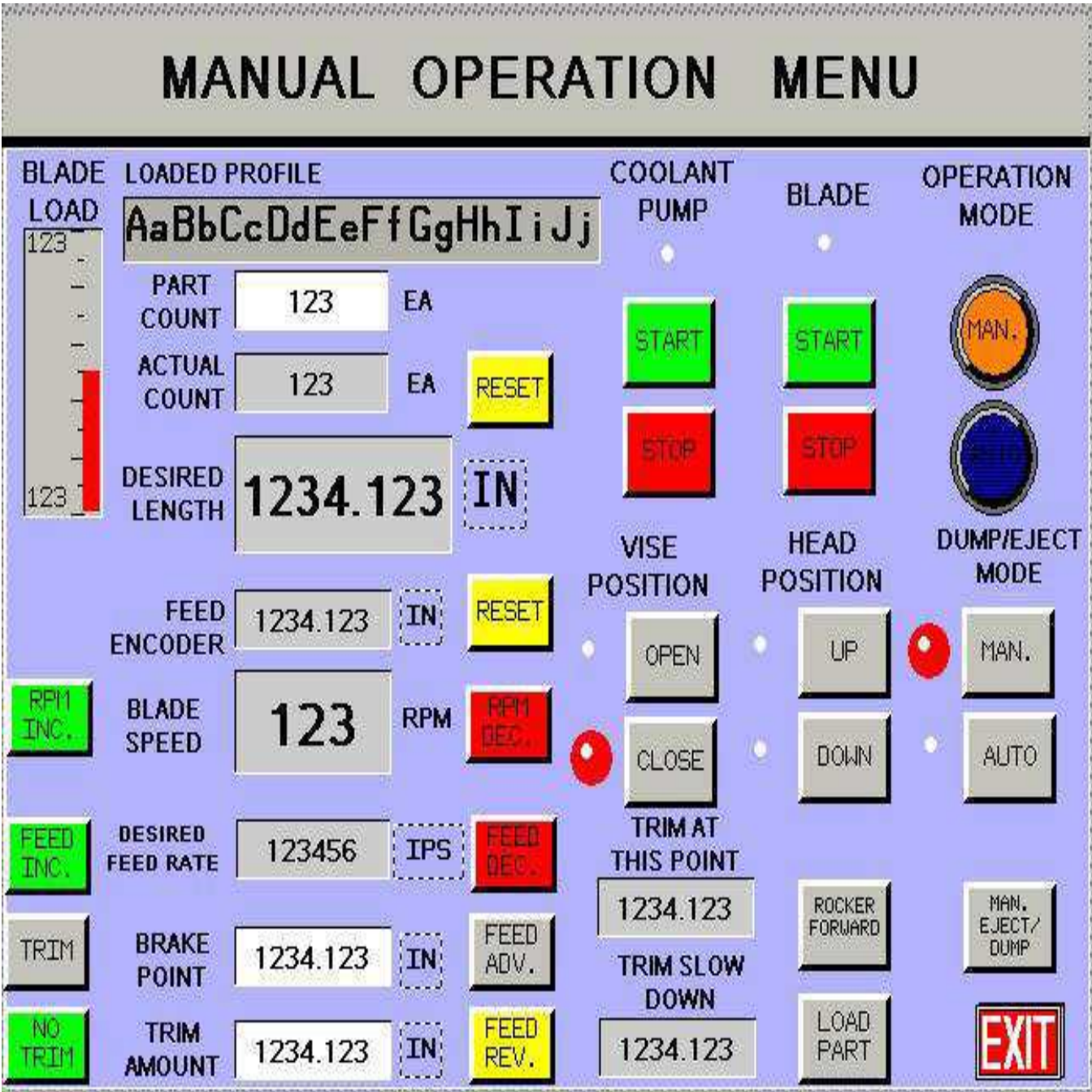


FIGURE 7

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.

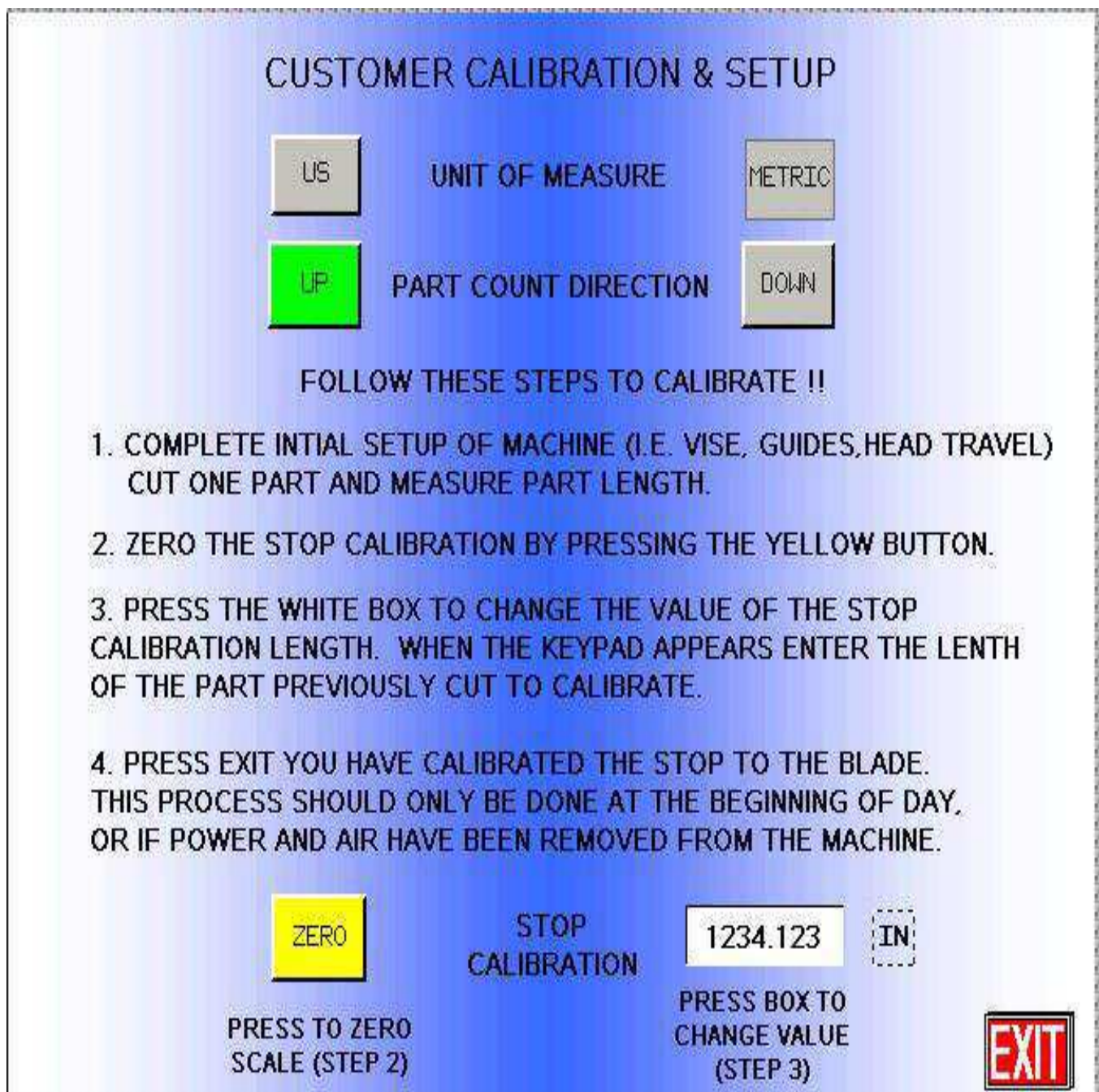


FIGURE 8

5.1I 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.

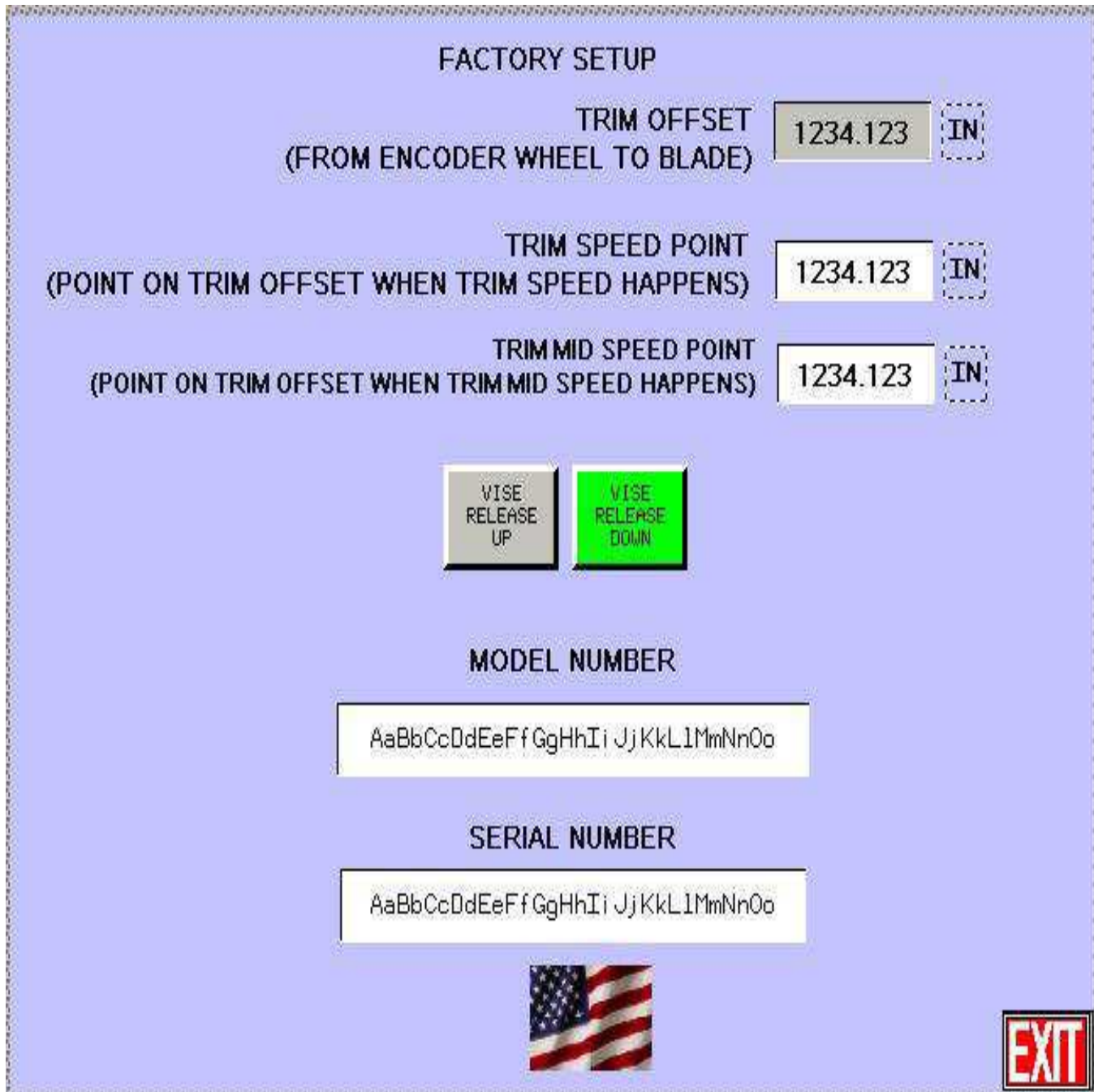
The screen reads in .004 increments but, the fine adjustment can be set in between .004 values on the screen.



FIGURE 9

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.



The screenshot displays the 'FACTORY SETUP' screen with a light blue background. At the top, the title 'FACTORY SETUP' is centered. Below it, three settings are listed, each with a text label, a numerical input field, and a selection button. The first setting is 'TRIM OFFSET (FROM ENCODER WHEEL TO BLADE)' with a value of '1234.123' and an 'IN' button. The second is 'TRIM SPEED POINT (POINT ON TRIM OFFSET WHEN TRIM SPEED HAPPENS)' with a value of '1234.123' and an 'IN' button. The third is 'TRIM MID SPEED POINT (POINT ON TRIM OFFSET WHEN TRIM MID SPEED HAPPENS)' with a value of '1234.123' and an 'IN' button. Below these, there are two buttons: 'VISE RELEASE UP' (grey) and 'VISE RELEASE DOWN' (green). Further down, the 'MODEL NUMBER' section features a text input field containing 'AaBbCcDdEeFfGgHhIi JjKkLlMmNnOo'. The 'SERIAL NUMBER' section has a similar text input field with the same alphanumeric string. At the bottom center is a small image of the American flag, and at the bottom right is a red 'EXIT' button.

FACTORY SETUP

TRIM OFFSET
(FROM ENCODER WHEEL TO BLADE) 1234.123 IN

TRIM SPEED POINT
(POINT ON TRIM OFFSET WHEN TRIM SPEED HAPPENS) 1234.123 IN

TRIM MID SPEED POINT
(POINT ON TRIM OFFSET WHEN TRIM MID SPEED HAPPENS) 1234.123 IN

VISE RELEASE UP VISE RELEASE DOWN

MODEL NUMBER

AaBbCcDdEeFfGgHhIi JjKkLlMmNnOo

SERIAL NUMBER

AaBbCcDdEeFfGgHhIi JjKkLlMmNnOo

EXIT

FIGURE 10

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.



FIGURE 11

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.

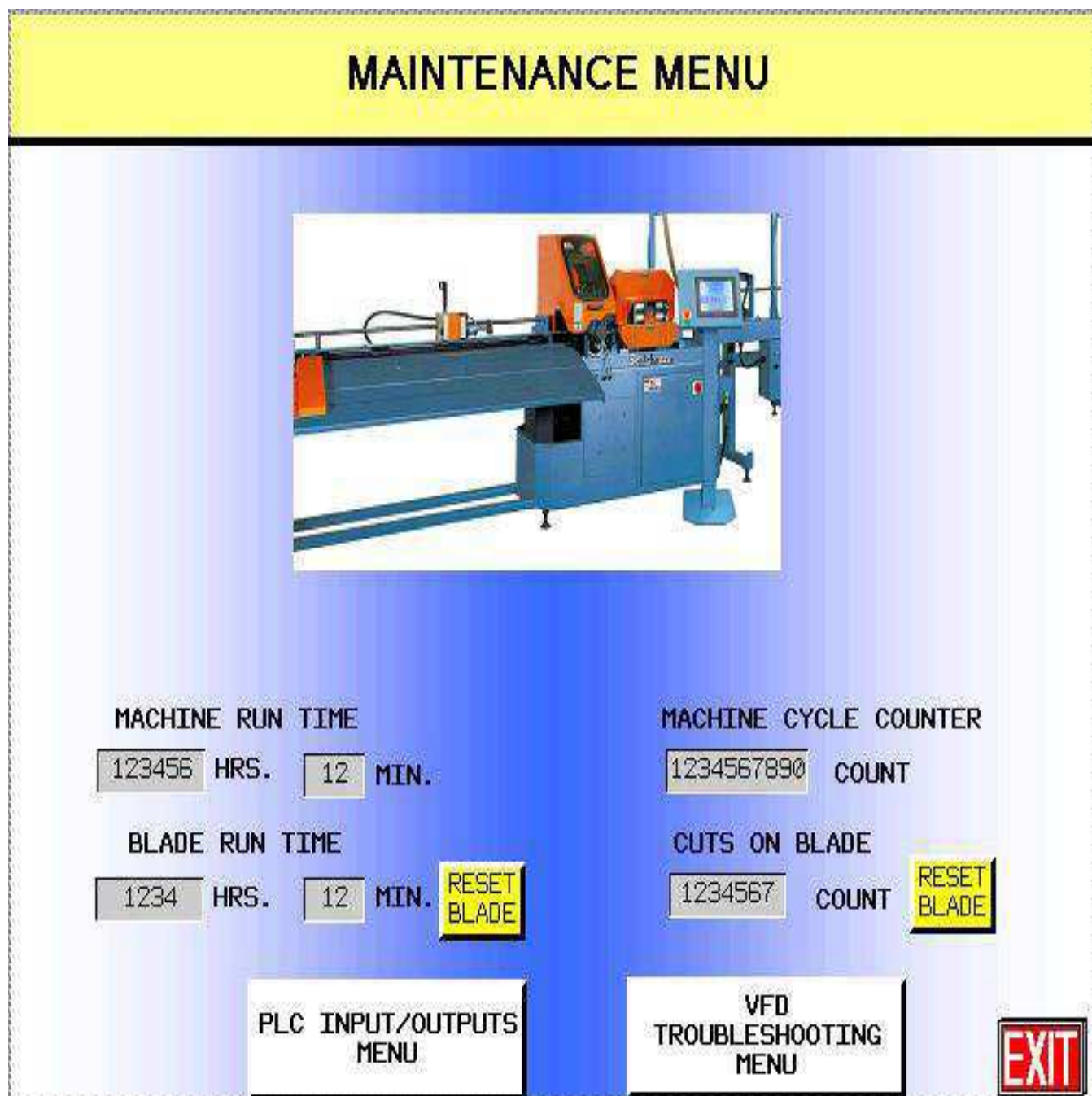


FIGURE 12

5.1M TIMER SCREEN

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

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






























FIGURE 13

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.

| <u>PLC INPUT STATUS</u> | | <u>PLC OUTPUT STATUS</u> | |
|-----------------------------------------------------------------------------------------------------------|--------|-----------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------|
|  FEED ENC. INPUT | | | BLADE RUN  |
| COOLANT MPS FAIL  | |  FEED RUN FWD | |
|  STOP ENC. INPUT | | | FEED RUN REV  |
| SAW HEAD UP  | |  FEED TRIM SPEED | |
|  SAW HEAD DOWN | | | FEED BRAKE SPEED  |
| ROLLER #1  | |  ROCKER FWD | |
|  ROLLER #2 | | | WISE RELEASE  |
| COOLANT PUMP "ON"  | |  HEAD DOWN | |
|  MATERIAL STOP | | | TABLE MOVE OUT  |
| MATERIAL STOP RELEASE  | |  TABLE DUMP | |
|  HOOD CLOSED | | | HARD STOP RETRACT  |
| ESTOP OK  | |  MATERIAL STOP RELEASE | |
| TABLE WHEEL | 123456 | | COOLANT PUMP  |
| | 123456 |  DUMP GATE | |
| | | | LOAD PART  |

EXIT

FIGURE 14

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 15

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 16

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 17

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.



FIGURE 18

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.

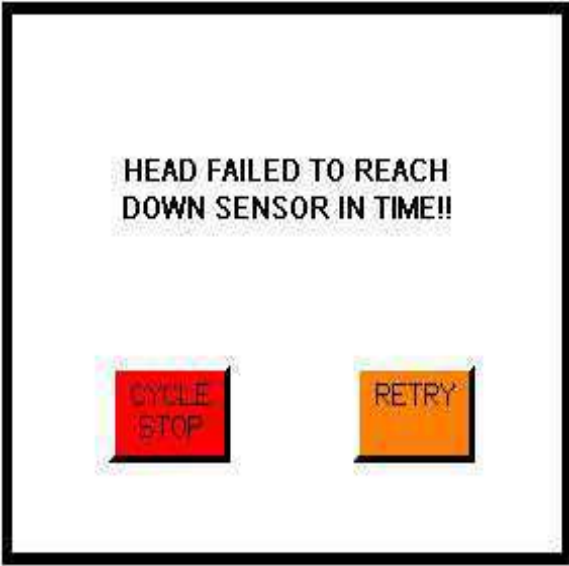


FIGURE 19

5.1T ALARMS HISTORY MENU

This is the ALARMS HISTORY MENU.

[illegible]

FIGURE 20

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.










| AUTO OPERATION MENU | | | | | | | | | |
|-------------------------------------------------------------------------------------|----------------------|----------|-----|-------------------------------------------------------------------------------------|--------------|-------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|--|
| BLADE LOAD | LOADED PROFILE | | | | COOLANT PUMP | AUTO CYCLE | OPERATION MODE | | |
| 123 - - - - - - - - - - 123 | AaBbCcDdEeFfGgHhIiJj | | | | | |  | | |
| | DESIRED LENGTH | | | | START | CYCLE START | | | |
| | 1234.123 | | | | STOP | CYCLE STOP |  | | |
| | IN | | | | | | | | |
| | PART COUNT | 123 | EA | | | | DUMP/EJECT MODE | | |
| | ACTUAL COUNT | 123 | EA | RESET | | |  | | |
|  | BLADE SPEED | 123 | RPM |  | | |  | | |
| | BRAKE POINT | 1234.123 | IN |  | | | | | |
| | TRIM AMOUNT | 1234.123 | IN |  | FEED ENCODER | 1234.123 | IN |  | |

FIGURE 21

6.0 MACHINE OPERATION

6.1 BLADE INSTALLATION

SEE FIGURE 22 BELOW.

- ⊠ **CAUTION: THIS MACHINE IS DESIGNED TO USE CARBIDE TIPPED BLADES, ONLY. USE ONLY 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 4,000.**

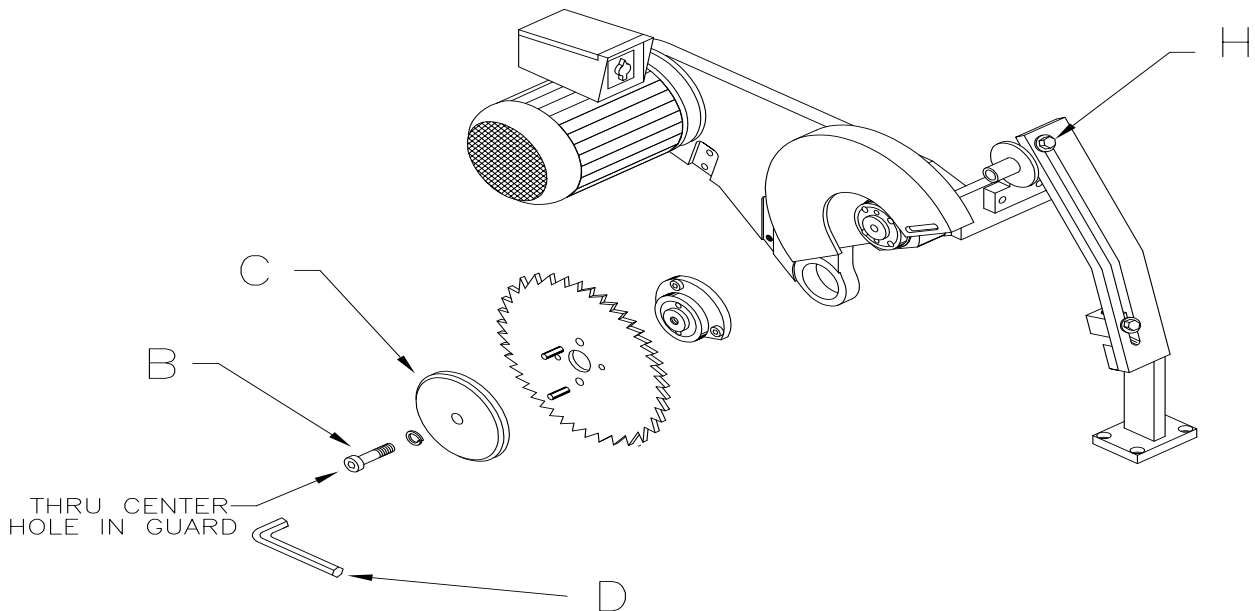


FIGURE 22

The CPO-315-RFA-NF saw is designed to use a maximum 12 inch (300mm) diameter blade. The arbor size is 40mm with four 12mm pins spaced at 64mm. We offer 72 tooth and a 120 tooth saw blades for this saw. The 120 works well with thin wall tube or material with a thin cross section. The 72 tooth blade works well with solids and heavy walled tube. **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. Remove the blade bolt (B) and the blade flange (C).

NOTE : THE BLADE BOLT IS LEFT HAND THREADED AND MUST BE TURNED CLOCKWISE TO REMOVE IT.

4. Check the blade flange, the blade and the saw spindle for any chips or nicks that will affect the way the blade seats.
5. Install the blade. Make sure that the pin holes in the blade line up to the holes in the spindle.
6. Replace the blade flange (C) and start the bolt (B) into the spindle.
7. Before locking the blade in position, the back lash must be taken up. To take up the backlash, rotate the bottom of the blade toward you until it seats against the drive pins.

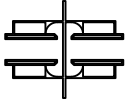
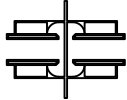
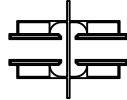









⊗ **CAUTION: THE BLADES ARE VERY SHARP AND CARE MUST BE TAKEN WHEN REMOVING THE BACK LASH. DO NOT GRIP THE CUTTING EDGE OF THE BLADE BARE HANDED. THE BACK LASH MUST BE TAKEN UP EVERY TIME THAT A BLADE IS CHANGED.**

8. After taking up the back lash, tighten the blade bolt (B).
9. 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.
10. Reset the upper stroke control and return the movable hood guard to the down position. 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.

6.2 SAW CAPACITIES

SEE FIGURE 23 BELOW.

Figure 23 is a chart showing the maximum capacities of this machine in various materials.

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

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FIGURE 23

6.3 MATERIAL MAIN VISE

SEE FIGURE 24 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.**

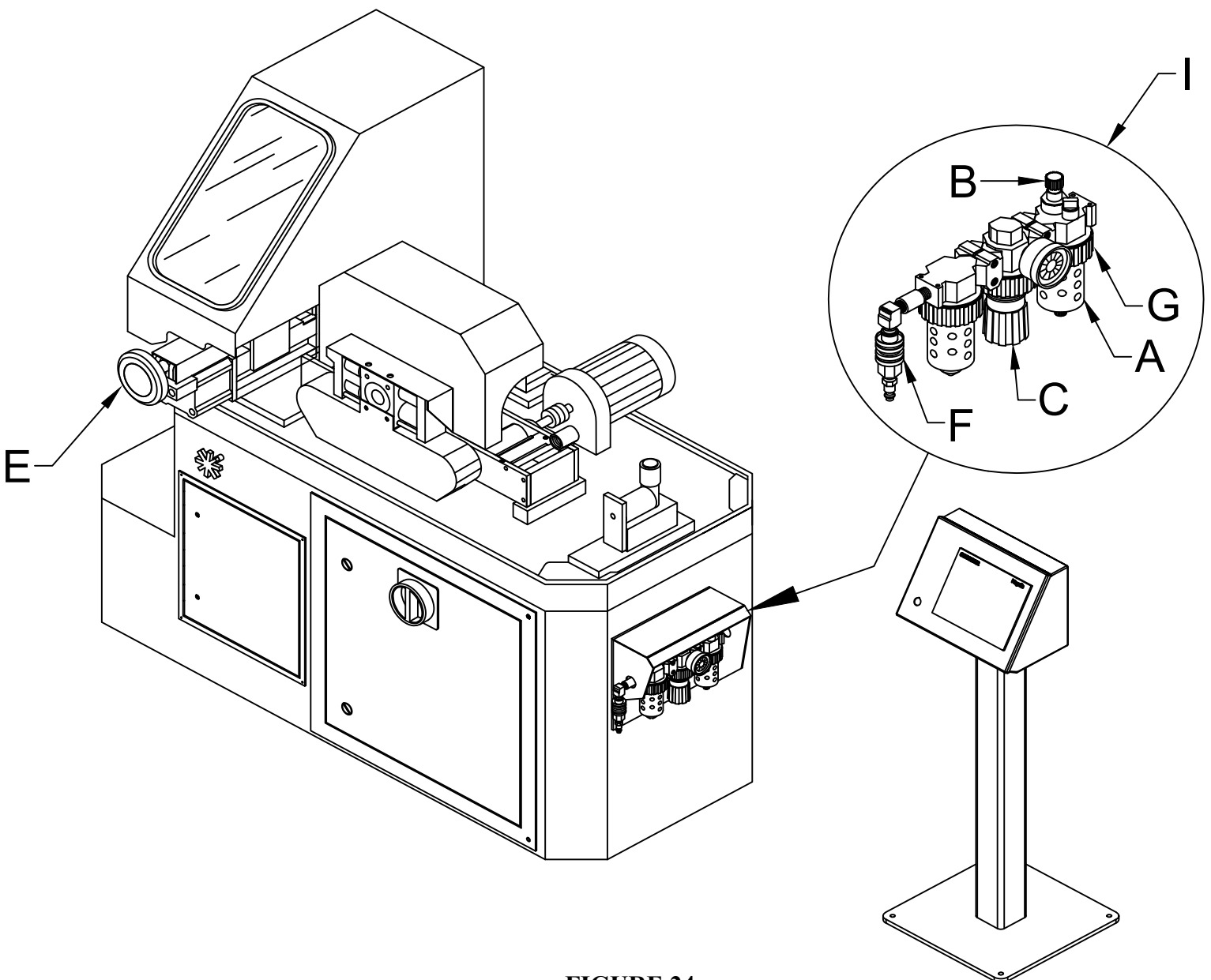


FIGURE 24

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 25 BELOW.

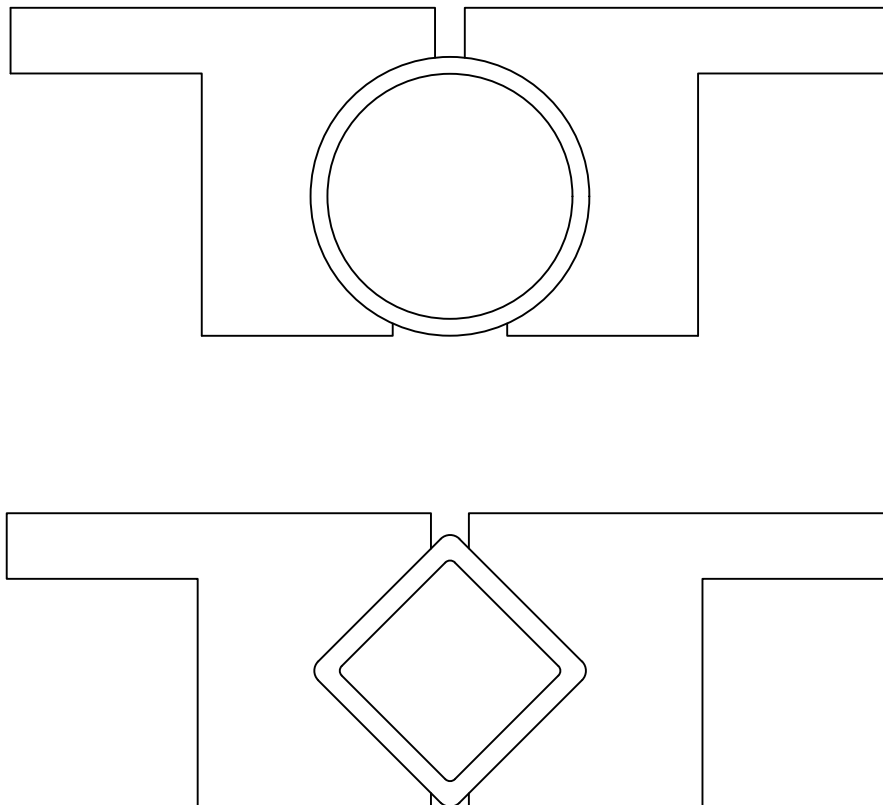


FIGURE 25

6.4 POWER DOWN FEED

REFER TO FIGURE 26 BELOW.

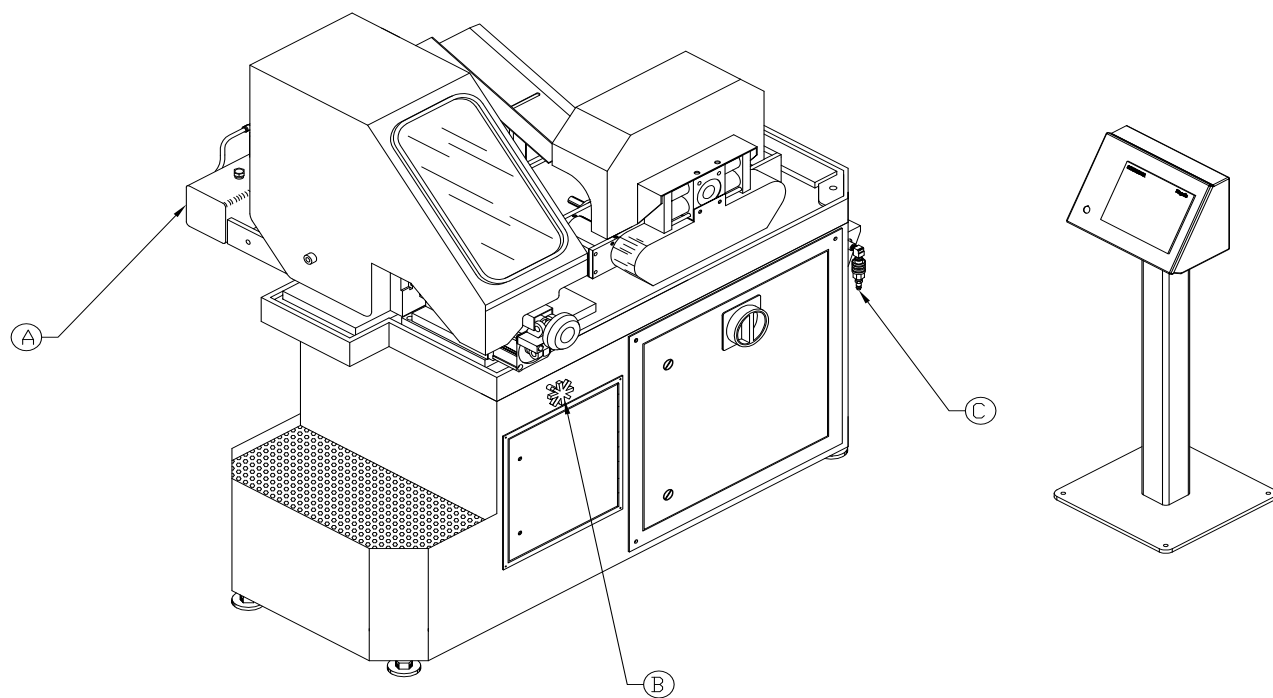


FIGURE 26



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

- 1. 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.**

6.5 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 25 ON PAGE 35. Some thin walled round sections and profiles will require special jaws to hold them.

6.6 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 27 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 the material sits just next to the blade and not under it.**
- 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.**

**NOTE: HOOD AND BLADE GUARD ARE
NOT SHOWN FOR CLARITY**

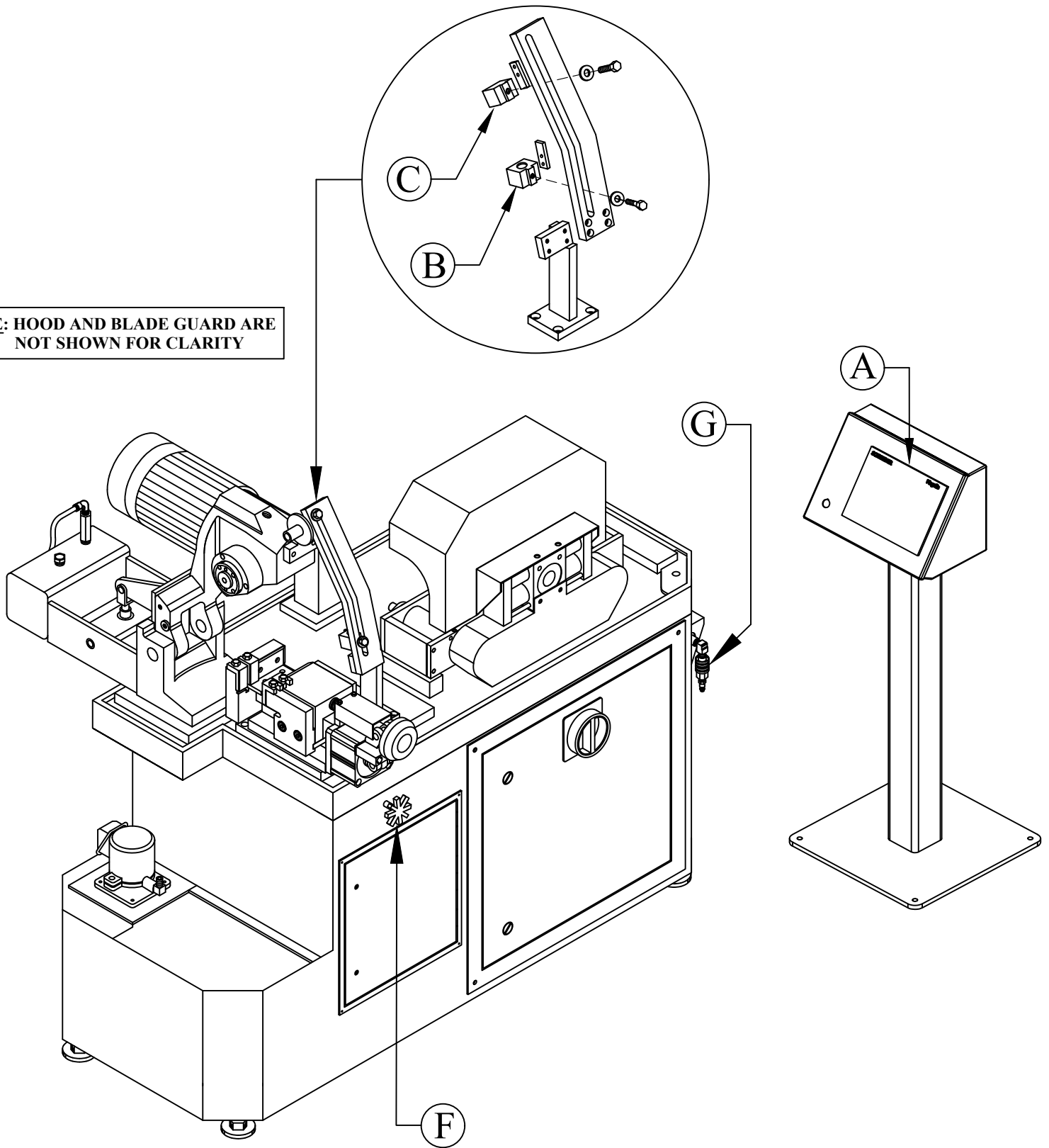


FIGURE 27

6.7 STOP DIGITAL READOUT SET-UP

1. **SET COUNTER:** It is possible to alter the indicated value by using the front located keys: Re-set Counter: Press F + RE-SET at the same time. Pre-Set Datum: Press F + SET at the same time.

The indicator begins to count up (adding) at three progressive speed rates:

| | | |
|---------|----|---------------------------------------------|
| Rate 1: | at | 1 Hz for 10 sec. |
| Rate 2: | at | 10 Hz for 10 sec. |
| Rate 3: | at | 1000 Hz as long as pushbutton is depressed. |

It is necessary, shortly before the desired value is reached, to release the button and reactivate, so as to approach position at the slowest rate.

2. **PARAMETER SETTING:** The registers of the indicator will be programmed with the buttons located on the front. To enter the set-up mode, all buttons have to be pressed simultaneously, for five seconds.

The keypad has the following functions:

| | |
|--------|-------------------------------------------------------------------|
| F | entry in to parameter-selection and parameter-end of programming. |
| RE-SET | select digit to be changed. |
| SET | increment a digit between 0 and 9. |

| REGISTERS: | N | FUNCTION | RANGE |
|------------|----|--------------------|------------------------------------|
| | 03 | Decimal point | 0...3 |
| | 07 | Sign | 0 = +/- active 1 = +/- inactive |
| | 08 | Pulse factor | 0.0001...9.9999 |
| | 14 | Display brightness | 0...9 = dark |

PROGRAMMING EXAMPLE:

Modification of pulse factor: 1. Press button F/RE-SET/SET simultaneously for approximately 3 seconds. 2. Press F button. 3. Press RE-SET button to select digit 1 for alteration. 4. Press SET button 8 times to get parameter #8 in the display. 5. Press F button to select parameter value. 6. Press RE-SET button to select the digit to be changed.

The parameters are pre-set at the factory. If, for any reason, they need to be re-set, use the following settings:.

| | | | | | |
|--------|--------|--------|--------|--------|--------|
| 01 → 1 | 02 → ∅ | 03 → 3 | 04 → 1 | 05 → ∅ | 06 → ∅ |
| 07 → ∅ | 08 → ∅ | 14 → 9 | 15 → 0 | 16 → 0 | |

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.**

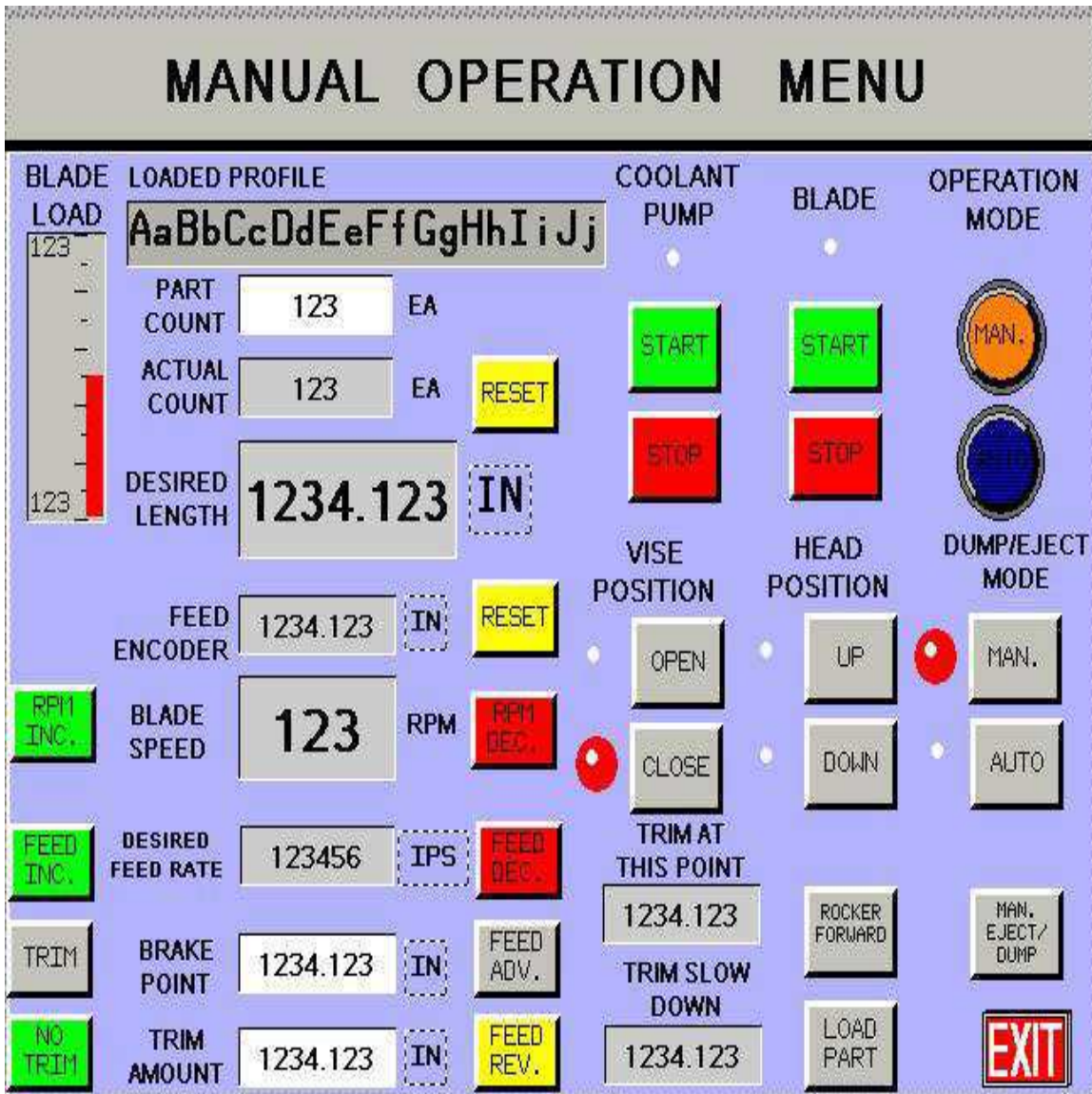


FIGURE 28

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.

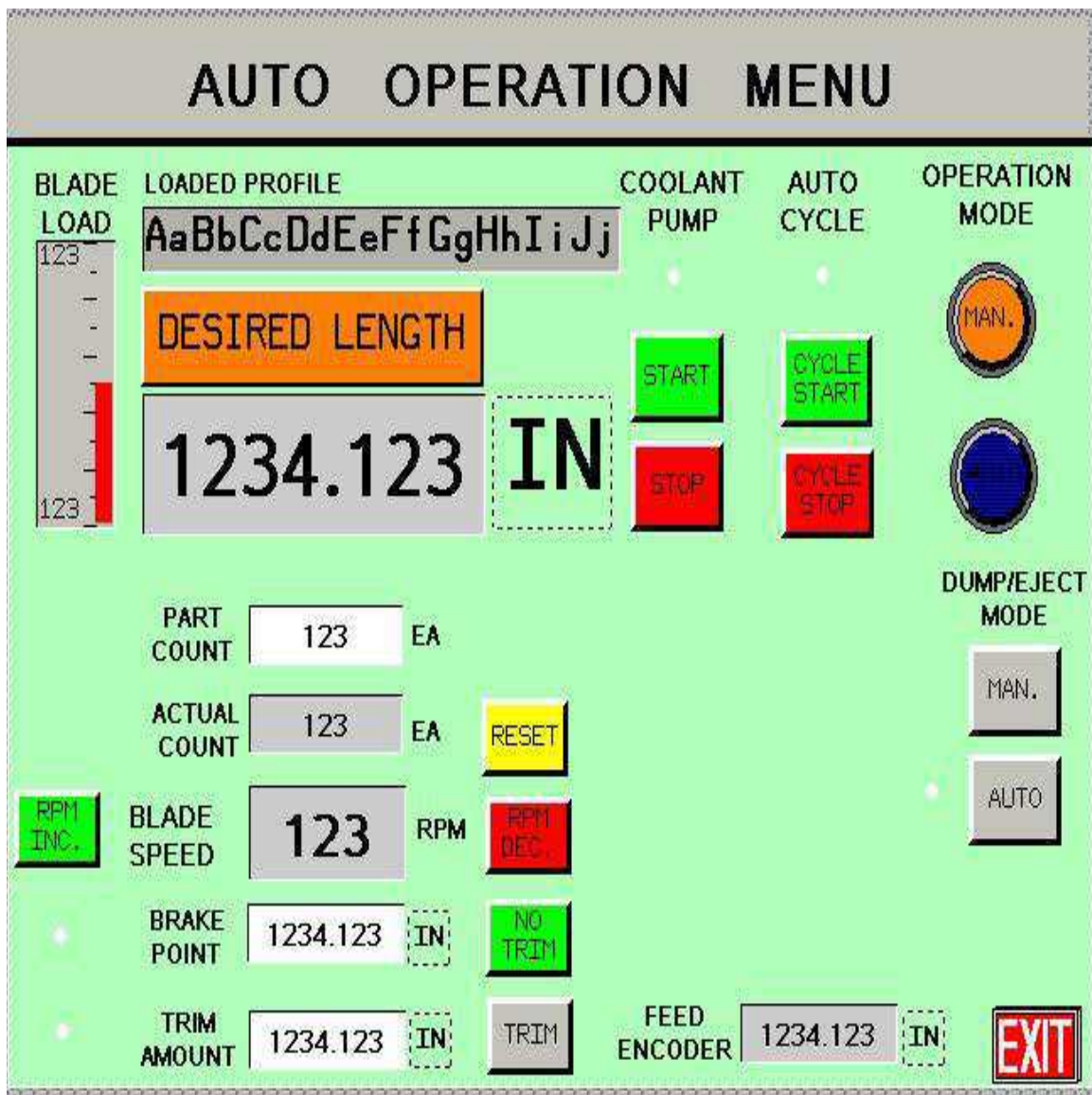


FIGURE 29

8.0 MAINTENANCE

8.1 LUBRICATION

SEE FIGURE 30 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.

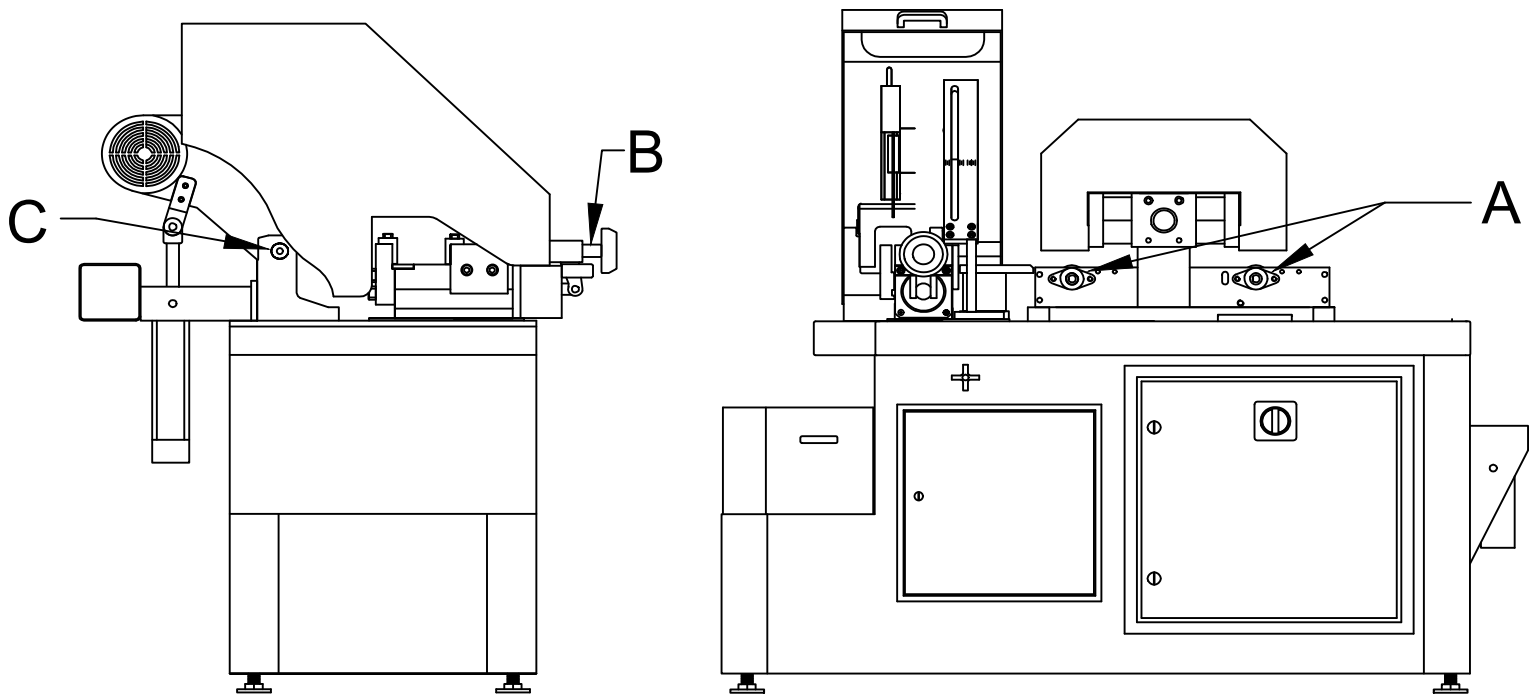


FIGURE 30

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.

We recommend our P/N 075760 coolant (SYNCON-2) straight and not diluted.

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 075760 coolant (SYNCON-2) straight and not diluted. 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: ALWAYS DISCONNECT THE AIR SUPPLY BEFORE REMOVING THE FILLER PLUG FROM THE RESERVOIR. IF THE FILLER PLUG IS REMOVED WHILE THE MACHINE IS CONNECTED TO AIR PRESSURE, THE FLUID IN THE TANK WILL BE PURGED THROUGH THE OPENING UNDER PRESSURE.

2. EVERY 750 HOURS OR 6 MONTHS:

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 SPINDLE BEARING REPLACEMENT

REFER TO FIGURE 31 BELOW.

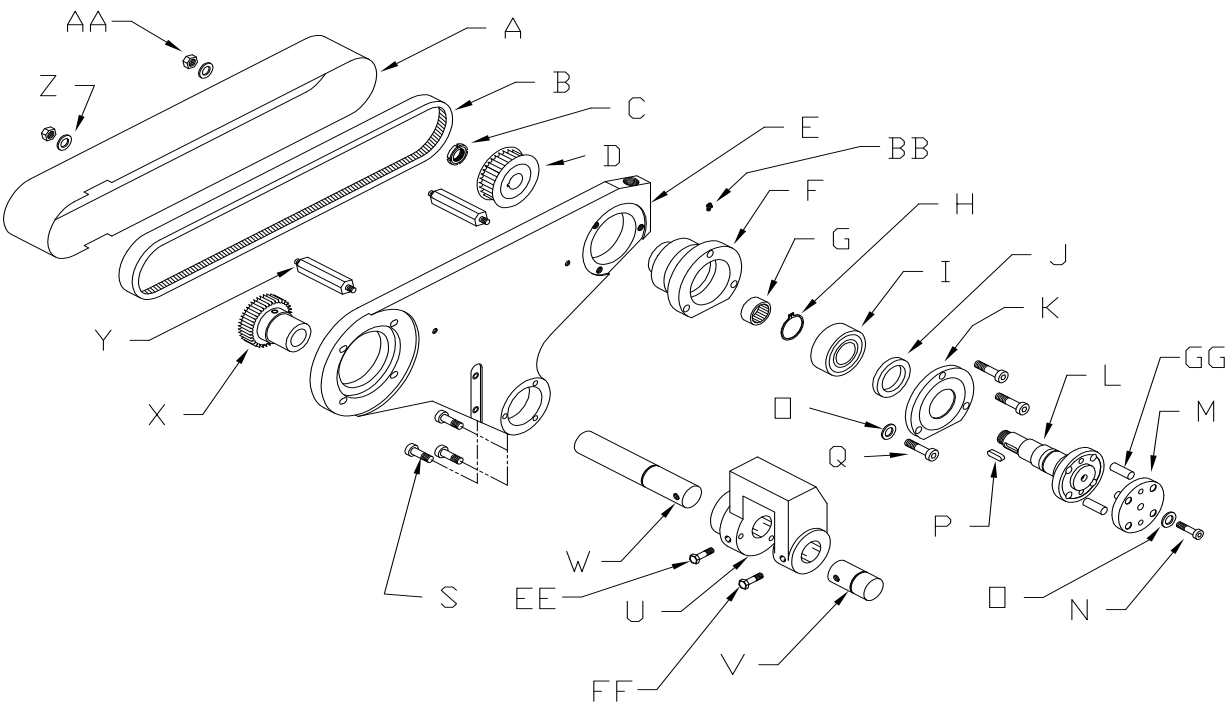


FIGURE 31

Replacing the spindle or spindle bearings on this machine is not an easy task. You may want to consider ordering the spindle shaft assembly which includes parts F, G, H, I, J, K, L and P.

TO REMOVE THE SPINDLE, USE THE FOLLOWING STEPS:

- 1. Remove the lock nut (C) and pull the belt sprocket (D) off the end of the shaft.**
- 2. Remove the three bolts (Q) and remove the blade guard. Remove the spindle shaft assembly from the saw. The housing (F) fits snugly in the frame (E) and may have to be tapped out with a hammer.**
- 3. Gently tap two steel wedges opposite of each other between the housing (F) and the bearing retainer (K).**
- 4. Place the assembly in a press, resting on the steel wedges, and press the spindle and bearing out of the housing (F).**
- 5. Remove the snap ring (H) and press the bearing (I) off the spindle shaft (L).**
- 6. Press the needle bearing (G) out of the spindle housing (F).**
- 7. Reassemble the spindle assembly, reversing the above steps.**
- 8. Be sure to grease the assembly with a high temperature bearing grease before operating the machine.**

8.5 SPINDLE REPLACEMENT (MAIN VISE)

SEE FIGURE 32 BELOW.

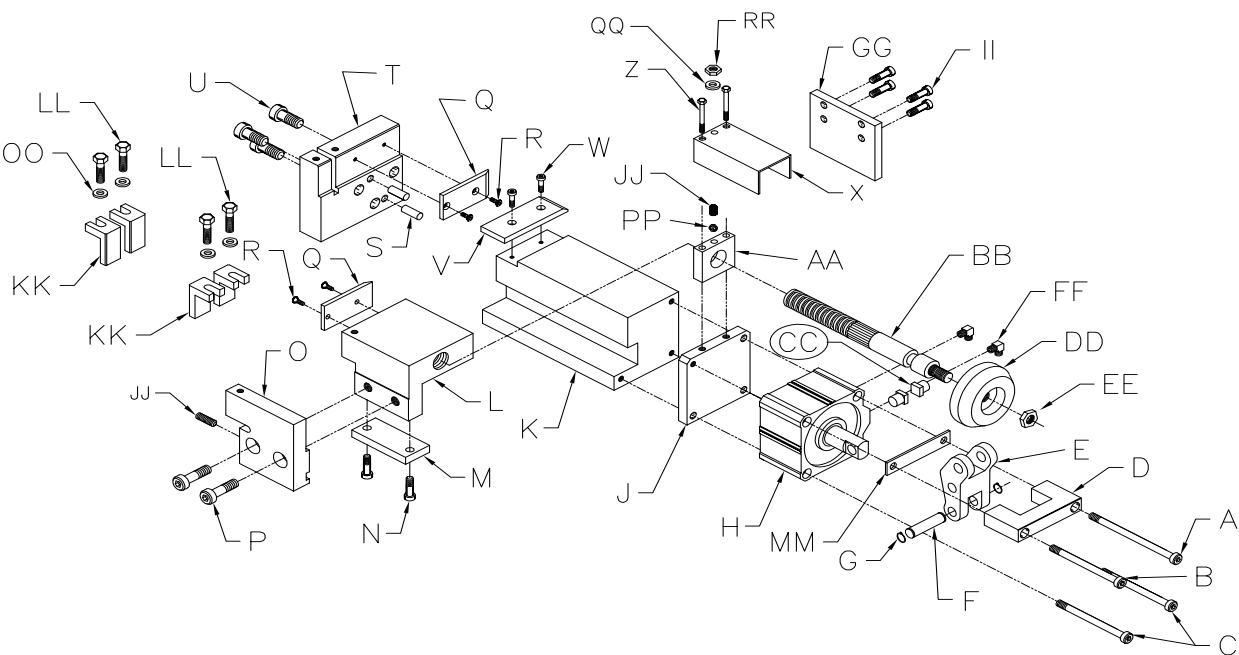


FIGURE 32

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 32 ON PAGE 48.

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.**

9.0 OPTIONAL EQUIPMENT

9.1 SPECIAL VISE JAWS

Special vise jaws for holding thin wall round tubes, profiles and bundles are available on a made-to-order basis. For prices and delivery on special jaws, contact your local dealer or the factory. For examples, REFER TO FIGURE 25 ON PAGE 35.

9.2 OPTIONAL DISCHARGE LENGTHS

There are optional ninety (90) inch and one hundred and twenty (120) inch discharge assemblies available for this machine. For part numbers, REFER TO SECTION 11.5.

These options are provided with complete installation instructions.

9.3 DIGITAL READOUT

A digital readout for the stop assembly on this machine is available. It is used as the length stop for the machine. For parts identification, REFER TO SECTION 12.2.

9.4 OVERTURN DEVICE

This option is used in conjunction with the square tube jaws. This device is used to position square tubing as it comes off of 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 fine adjustment of the clamping pressures and may be necessary in some applications of very thin walled tubes 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. The saw hood must be closed for the motor to run.**
- B. The MOTOR CONTROL switch must be in the ON position to start the saw motor.**
- C. The MANUAL/AUTO switch must be in the MANUAL position to start the machine.**
- D. 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 4.4.**

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

- A. If the counter reads zero, the machine will not run in the automatic mode. The counter must have a pre-set quantity displayed.**
- 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.**

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. We recommend our P/N 075760 coolant (SYNCON-2) straight and not diluted.**
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 the blade will cause the blade to run out of alignment.**
7. **Always remove the back lash 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 the material being cut adheres to the teeth on the blade. A very rough finish on the cut is an indication the blade has pick-up. Also, when pick-up is present, you will 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 sometimes be removed by using a fine honing stone or a very fine file. When removing pick-up, care must be taken not to remove any part of the blade. After the pick-up has been removed, review the above items to determine what caused the problem.**

10.3 COOLANT SYSTEM

1. IF COOLANT WILL NOT FLOW:

- A. Check the suction line between the reservoir and the mister unit. If there are any cracks or poor connections on the line, it will not siphon the coolant out of the reservoir.**
- B. Check the level of the coolant in the reservoir. We recommend our P/N 075760 coolant (SYNCON-2) straight and not diluted.**
- C. Check the reservoir for contamination or sludge buildup that may be blocking the inlet.**
- D. 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.**

SEE SECTION 11.11 & 11.15 for coolant system parts

10.4 PNEUMATIC SYSTEM

REFER TO FIGURE 34 ON THE FOLLOWING PAGE.

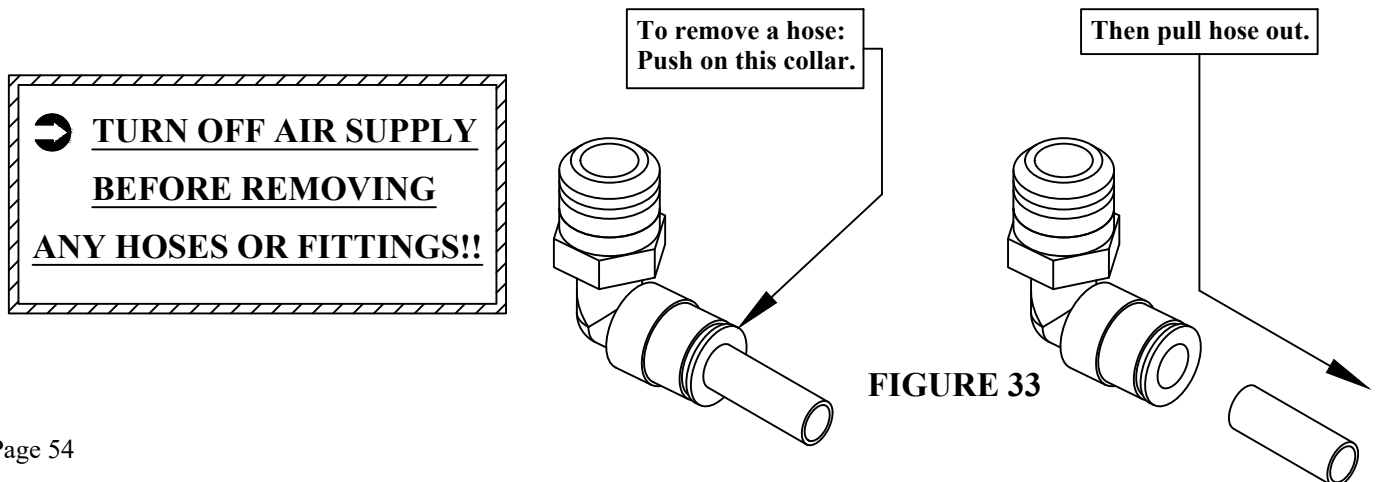
THE MOST COMMON PNEUMATIC/HYDRAULIC PROBLEMS ARE:

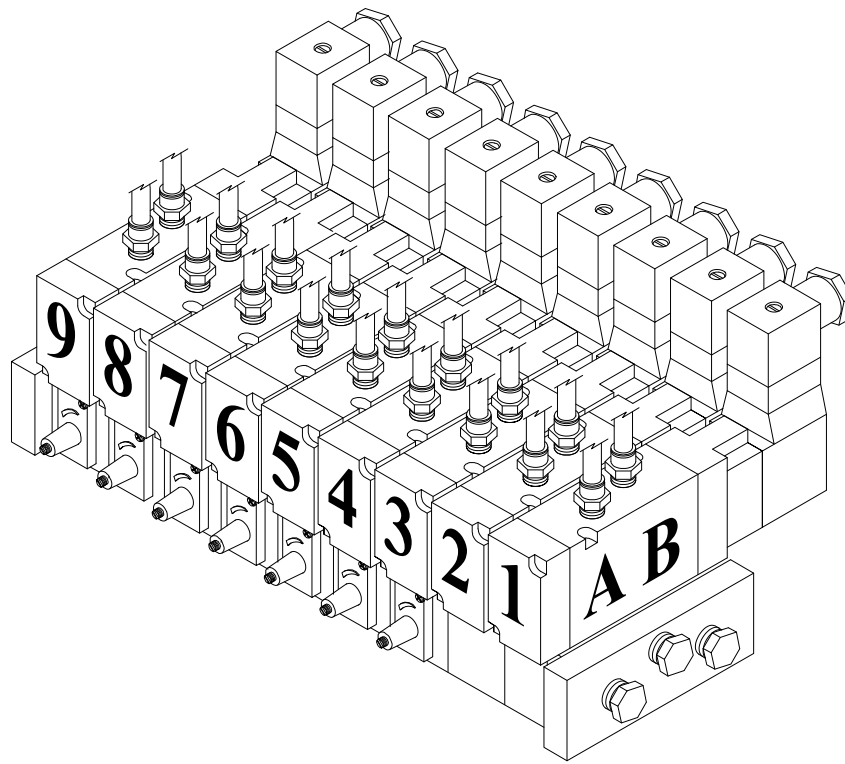
- A. Low levels of fluid in the reservoir: The fluid level in the power down feed reservoir should be approximately 2-1/2 inches below the top of the reservoir when the head is in the up position.

⊗ **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. See FIGURE 33 below. 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

Scotchman

MADE IN USA



WWW.SCOTCHMAN.COM

SCOTCHMAN CPO-315-RFA-NF SAW



WWW.SCOTCHMAN.COM

SCOTCHMAN INDS. - 180 E US HWY 14 - PO BOX 850 - PHILIP, SD 57567 Call: 1-605-859-2542

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!**

11.1 DRIVE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|------------------------------|
| A | 677912 | Belt Guard |
| B | 077915 | Belt |
| C | 077189 | Lock Nut |
| D | 077898 | Belt Sprocket |
| E | 047913 | Pivot Frame |
| F | 077900 | Bearing Housing |
| G | 077909 | Needle Bearing |
| H | 077897 | Snap Ring (33mm) |
| I | 075077 | Bearing |
| J | 075075 | Seal |
| K | 077896 | Seal Flange |
| L | 077894 | Spindle Shaft |
| M | 077626 | Saw Flange |
| N | 077908 | M-10 Bolt (Left Hand) |
| N1 | 080193 | Wrench (Blade Flange) |
| P | 077902 | Key 8 x 25 |
| Q | 677901 | M-10 SHCS |
| R | 046094 | Wire Clip |
| S | 221120 | M-8 x 25 SHCS |
| T | 077864 | M-5 x 12 SHCS |
| U | 077912 | Pivot Shaft Housing |
| V | 077329 | Pivot Pin (Short) |
| W | 077341 | Pivot Pin (Long) |
| X | 077906 | Motor Sprocket |
| Y | 677904 | Guard Mount Studs |
| Z | 077160 | M-8 Plastic Washer |
| AA | 677936 | M-8 Dome Nut |
| BB | 243102 | Grease Nipple |

| | | |
|----|--------|--------------------------------------------------|
| EE | 073328 | M-8 x 40 HHCS |
| FF | 073326 | M-8 x 25 HHCS |
| GG | 073920 | M-10 Dowel Pin |
| | 077929 | Spindle Assembly (Includes F, G, H, I, J, K & L) |

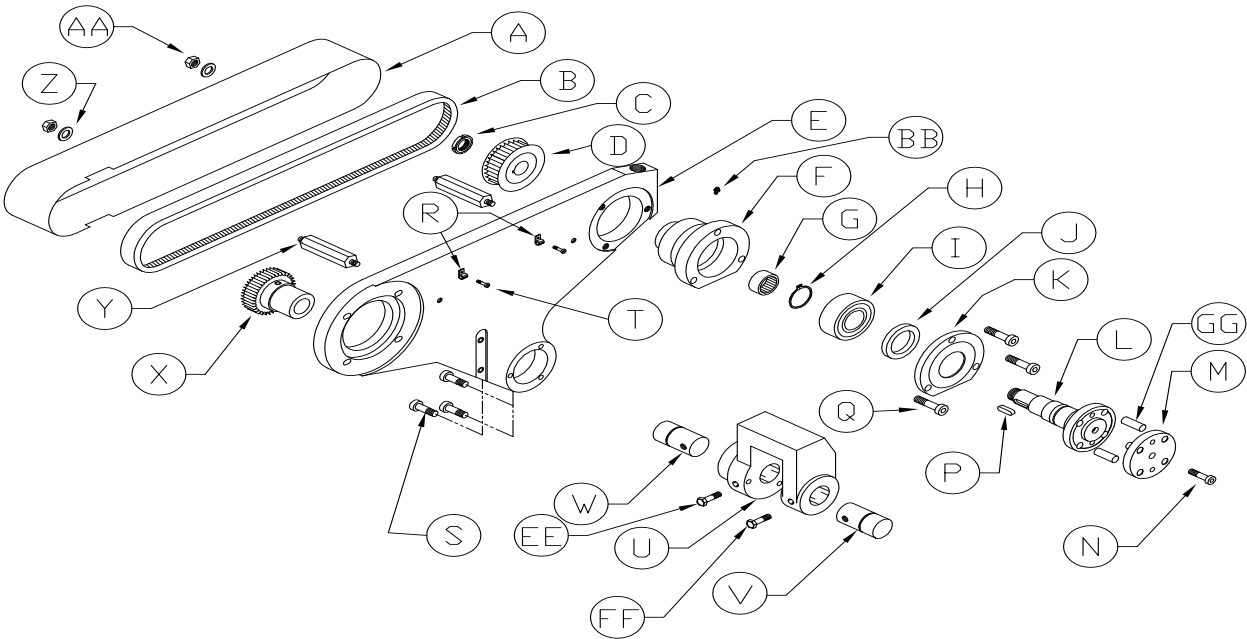


FIGURE 35

11.2 MAIN VISE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|------------------------------------------|
| A | 221245 | 10 x 160 MM SHCS |
| B | 221240 | 10 x 140 MM SHCS |
| C | 221235 | 10 x 100 MM SHCS |
| D | 045311 | Clevis Guide |
| E | 045312 | Clevis |
| F | 045317 | Clevis Pin |
| G | 046655 | Snap Ring |
| H | 045630 | Cylinder |
| I | 045631 | Cylinder Seal Kit |
| J | 045313 | Cylinder Mount |
| K | 045301 | Vise Body |
| L | 045302 | Push Block |
| M | 045306 | Hold Down Plate |
| N | 221210 | M-10 x 25 SHCS |
| O | 045304 | Vise Side Plate |
| P | 221412 | M-16 x 35 SHCS |
| Q | 045307 | Upper Wear Plate |
| R | 230005 | M-6 x 12 FSHCS |
| S | 077100 | M-10 Dowel Pin |
| T | 045303 | End Plate |
| U | 201620 | M-16 x 65 HHCS |
| V | 045308 | Lower Wear Plate |
| W | 073458 | M-6 x 10 SHCS |
| X | 045325 | Lead Screw Cover |
| Y | 045602 | Spring |
| Z | 201160 | M-8 x 60 HHCS |
| AA | 045314 | Detent Block |
| BB | 045309 | Lead Screw |
| CC | 045198 | Drive Forks |
| DD | 045310 | Boss |
| EE | 077121 | M-20 Jam Nut |
| FF | 045030 | 1169 x 5 x 65 Ninety Degree Elbow |
| GG | 045305 | Guide Plate |
| HH | 046652 | Detent Ball |
| II | 221210 | M-10 x 25 SHCS |

| | | |
|-----------|---------------|-------------------------------|
| JJ | 219047 | M-10 x 10 Set Screw |
| KK | 077798 | Vise Jaws |
| LL | 203212 | M-10 x 30 HHCS |
| MM | 045224 | Strike Plate |
| NN | 060270 | Covering Cap |
| OO | 114020 | Washer |
| PP | 210012 | M-10 Jam Nut |
| | 045300 | Complete Vise Assembly |

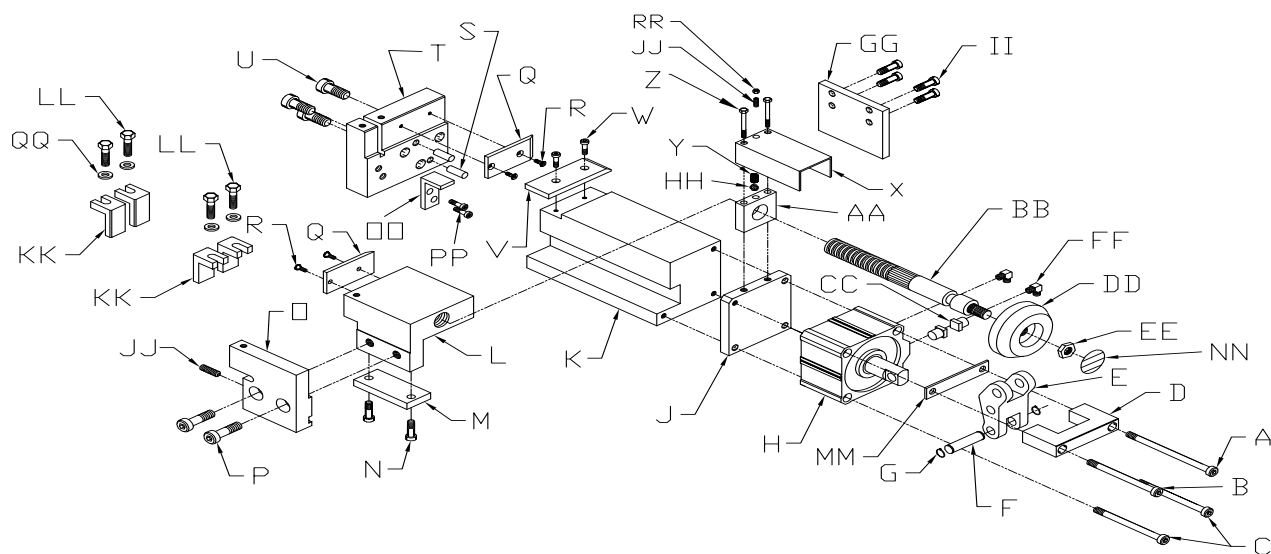


FIGURE 36

11.3A INFEEED ROLLER ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-----------------------------------------|
| A | 042036 | Drive Roller (Urethane) |
| B | 220020 | Button Head |
| C | 046130 | Retainer |
| D | 046003 | Upper Roller Bearing |
| E | 042018 | Drive Roller Sleeve |
| F | 043156 | Roller Shaft |
| G | 045178 | Pivot Plate |
| H | 077189 | M-20 Hex Nut |
| I | 043082 | Idler Sprocket |
| J | 221317 | M-12 SHCS |
| K | 218022 | M-6 Set Screw |
| L | 042045 | Drive Sprocket Assembly |
| M | 046048 | M-35 Snap Ring |
| N | 101412 | 1/2-13 x 1 HHCS |
| O | 208014 | M-12 Hex Nut |
| P | 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 |
| T | 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 |

AA
BB

077191
046006

Snap Ring
Drive Sprocket Bearing

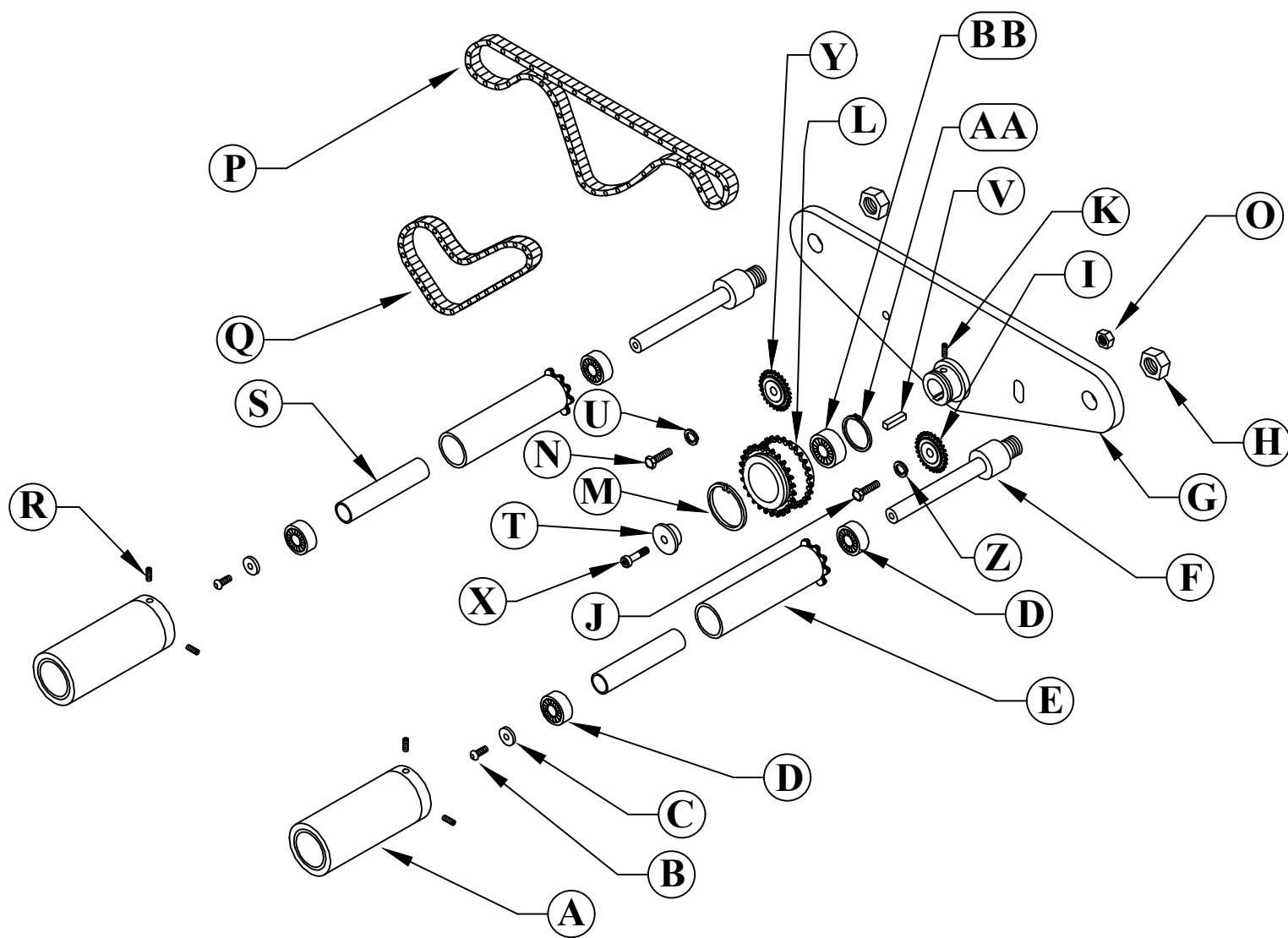


FIGURE 37

11.3B INFEED DRIVE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-----------------------------|
| A | 045279 | Support Leg |
| B | 043003 | Guide Roller |
| C | 046024 | Bearing and Retainer |
| D | 079213 | Roller |
| E | 045234 | Front Side Plate |
| F | 045236 | End Plate |
| G | 043082 | Idler Sprocket |
| H | 045244 | Feed Roller |
| I | 042024 | Drive Roller |
| J | 045243 | Guide Plate |
| K | 045235 | Rear Side Plate |
| L | 045237 | Sensor Mount |
| M | 077788 | Proximity Switch |
| N | 221120 | M-8 SHCS |
| O | 221210 | M-10 x 25 SHCS |
| P | 201417 | M-12 SHCS |
| Q | 208014 | M-12 Hex Nut |
| R | 229220 | M-10 Shoulder Bolt |
| S | 047643 | Coupler |
| T | 047644 | 5/8 Flange |
| U | 047650 | 3/4 Flange |
| V | 046563 | Drive Wheel |
| V1 | 044410 | Abrasive Wheel Cover |
| W | 045580 | Drive Motor |
| X | 045566 | Pulley |
| Y | 045570 | Belt |
| Z | 045565 | Pulley |
| AA | 045595 | Encoder |
| | 045567 | Encoder (Cord) |
| BB | 212014 | M-12 Lock Washer |

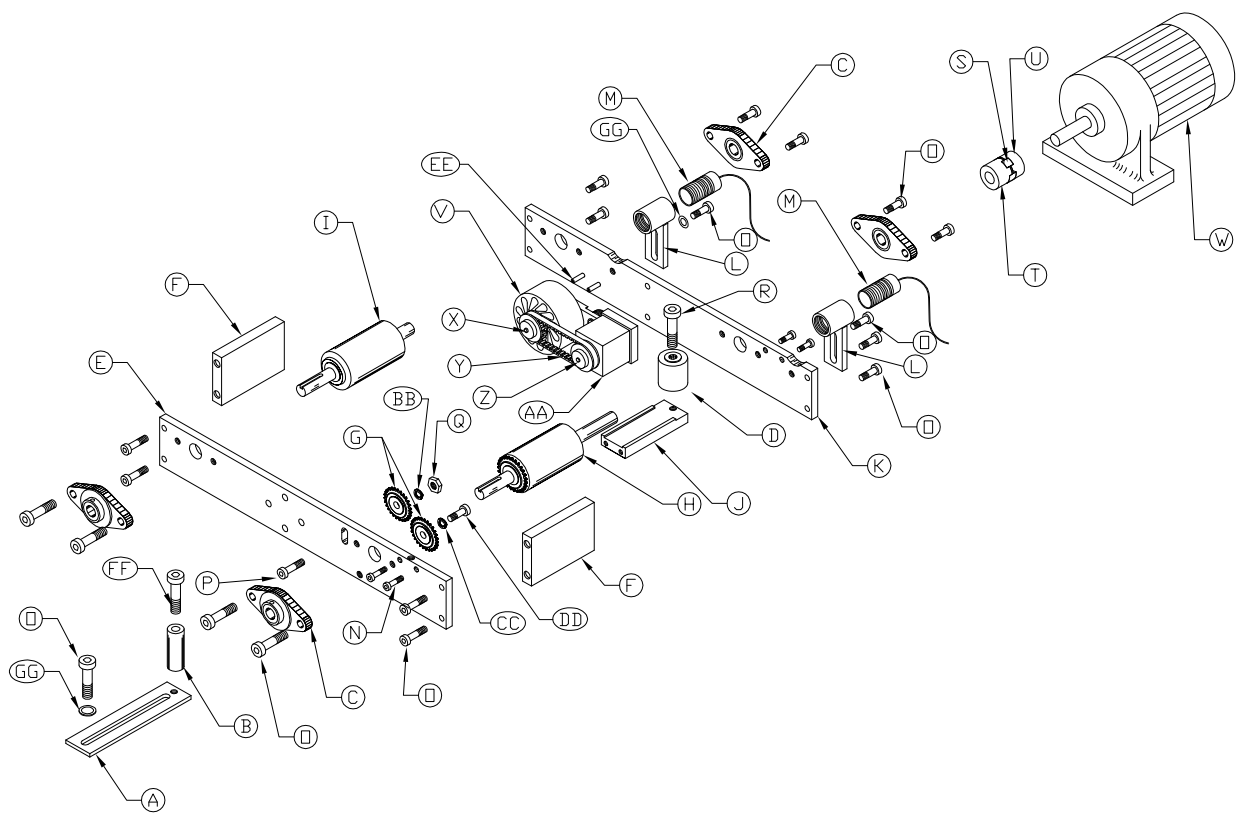


FIGURE 38

11.3C ROLLER DRIVE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|------------------------------|
| A | 045242 | Valve Bracket |
| B | 045614 | Rotary Actuator |
| C | 121205 | 3/8 x 1 SHCS |
| D | 043082 | Sprocket |
| E | 101412 | 1/2 x 13 x 1-1/2 HHCS |
| F | 221230 | M-10 x 60 SHCS |
| G | 045139 | Sprocket Mount |
| H | 046115 | #35 Chain (46 Link) |
| H1 | 046033 | Connecting Link |
| I | 042051 | Drive Sprocket |
| J | 043078 | Space Block |
| K | 046240 | Infeed Guard |
| L | 121205 | 3/8 x 1 SHCS |
| M | 045295 | Roller Cover |
| N | 077746 | Fittings |
| O | 044124 | Key |
| P | 221222 | M-10 x 45 SHCS |
| Q | 112014 | 1/2 Lock Washer |
| R | 212012 | M-10 Lock Washer |
| S | 208012 | M-10 Nut |

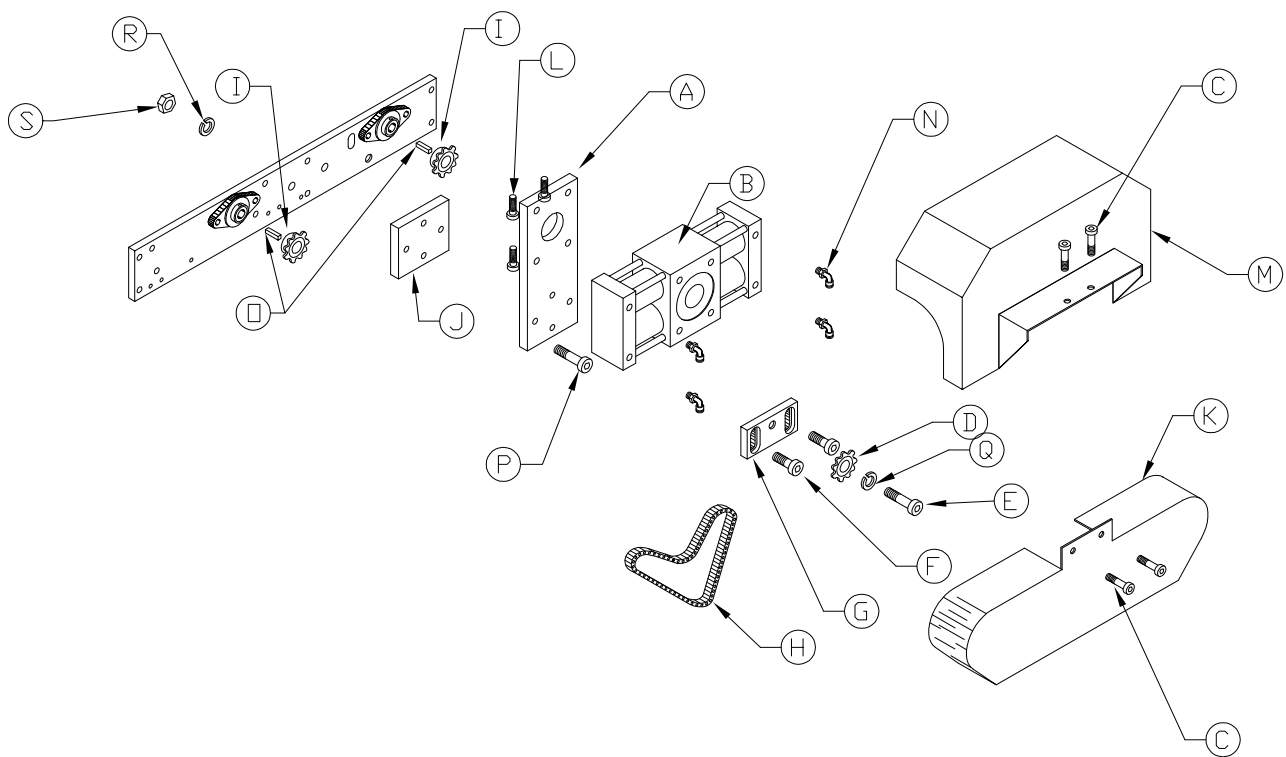


FIGURE 39

11.3 D INFEED GUIDE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-------------------------------------|
| A | 045245 | Platform Assembly |
| B | 079213 | Vertical Guide Roller |
| C | 229220 | M-12 x 20 x 50 Shoulder Bolt |
| D | 045279 | Roller Mount |
| E | 043003 | Nylon Roller |
| F | 229225 | M-10 x 12 x 70 |
| G | 221210 | M-10 x 25 SHCS |
| H | 114020 | Hardened Washer |
| I | 043018 | Roller Mount |
| J | 045426 | Vertical Mount |
| K | 080061 | Handle |
| L | 221212 | M-10 x 30 SHCS |

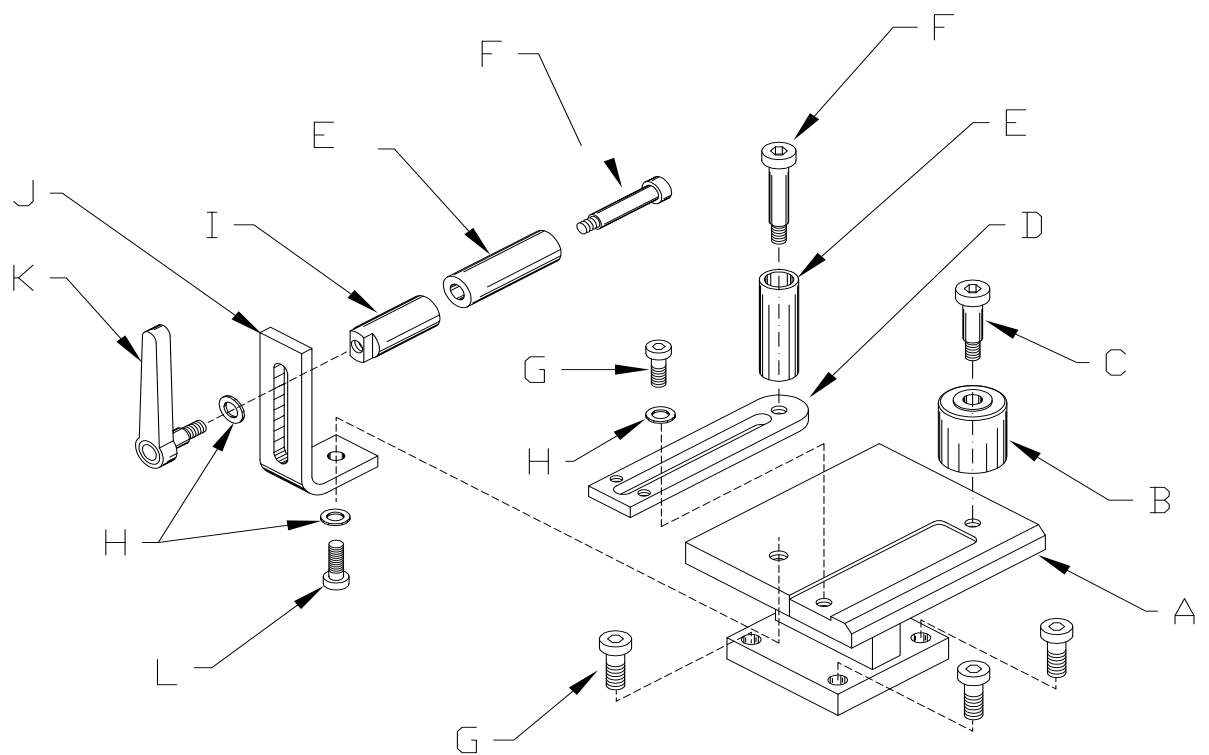


FIGURE 40

11.4 ENCODER ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-------------------------------------|
| A | 045572 | Spring |
| C | 210012 | M-10 Jam Nut |
| D | 045293 | Mounting Plate |
| E | 045292 | Spacer |
| F | 046563 | Rubber Wheel |
| F1 | 044410 | Abrasive Band |
| G | 046046 | Snap Ring |
| H | 045564 | Bearing |
| I | 045291 | Hub Bolt |
| J | 045290 | Wheel Insert |
| K | 045566 | Wheel Pulley |
| L | 045570 | Belt |
| M | 073605 | 6 x 32 x 5/8 SHCS |
| N | 045321 | Brass Bushing |
| O | 229415 | M-10 x 12 x 16 Shoulder Bolt |
| P | 045595 | Encoder (500 Pulse) |
| Q | 045565 | Encoder Pulley |
| | 045567 | Encoder Cord |

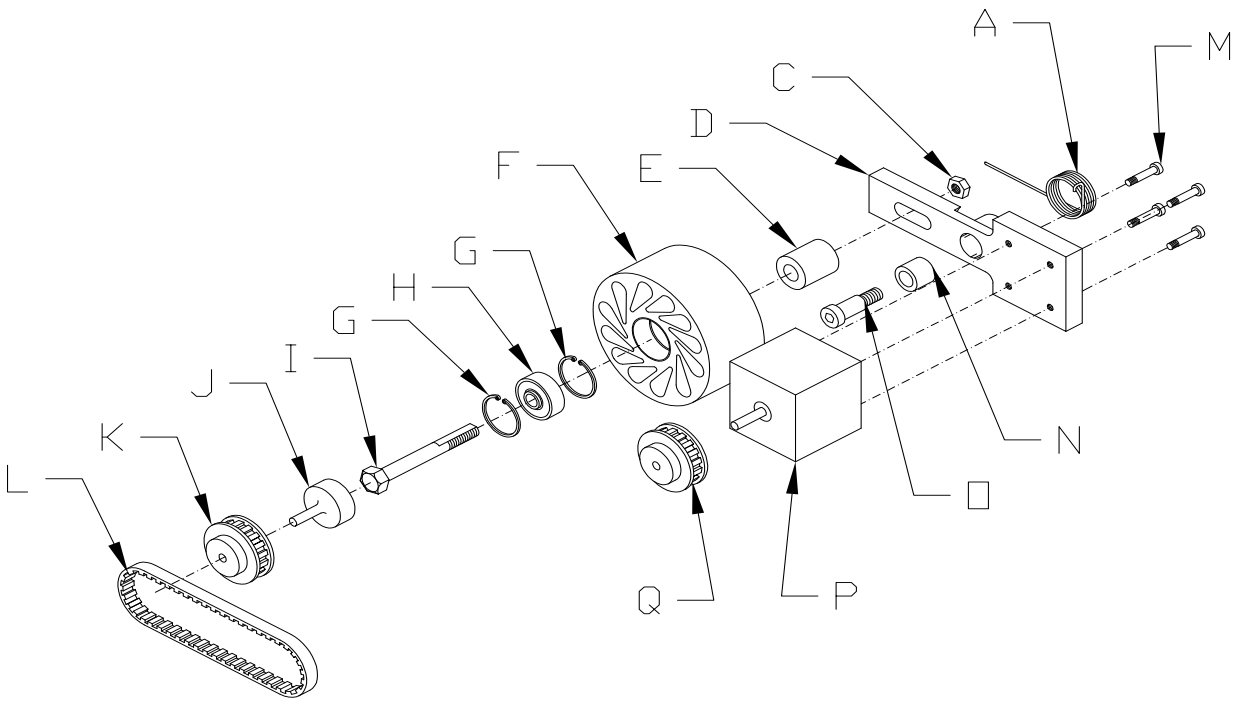


FIGURE 41

11.5 60" DISCHARGE TABLE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|----------------------------------|
| A | 045138 | Leg Assembly |
| B | 049330 | Foot Clamp |
| C | 049217 | Leveling Pads |
| D | 045146 | Support Assembly |
| E | 221210 | M-10 x 25 SHCS |
| F | 045611 | Rotary Actuator |
| F1 | 077746 | Fitting |
| G | 045454 | Left End Plate |
| H | 221220 | M-10 x 40 SHCS |
| I | 045167 | Wire Channel |
| J | 073420 | M-8 x 16 SHCS |
| K | 045453 | Right End Plate |
| L | 045542 | Coupler |
| M | 045160 | Adjustable Cylinder Mount |
| N | 046585 | Cylinder |
| N1 | 045654 | Cylinder Seal Kit |
| O | 045154 | Slide W/Cylinder Mount |
| P | 229225 | Shoulder Bolt |
| Q | 043003 | Guide Roller |
| R | 230207 | M-10 x 20 FSHCS |
| S | 045165 | Table |
| T | 045158 | Table Slide |
| U | 026746 | Retainer |
| V | 073458 | M-6 x 10 SHCS |
| W | 046702 | Bearing |
| X | 016402 | Snap Ring |
| Y | 045164 | Table Slide Rail |
| Z | 114020 | Washer |
| AA | 221212 | M-10 x 30 SHCS |
| BB | 077746 | 1/4 x 90 Swivel Fitting |
| CC | 045581 | Cylinder Clevis |
| DD | 045582 | Clevis Pin |

FOR 90 AND 120 INCH DISCHARGE TABLES, SEE SECTION 12.5.

| | | |
|-----------|---------------|--------------------------------|
| Y | 045164 | Table Slide Rail |
| Z | 114020 | Washer |
| AA | 221212 | M-10 x 30 SHCS |
| BB | 077746 | 1/4 x 90 Swivel Fitting |
| CC | 045581 | Cylinder Clevis |
| DD | 045582 | Clevis Pin |

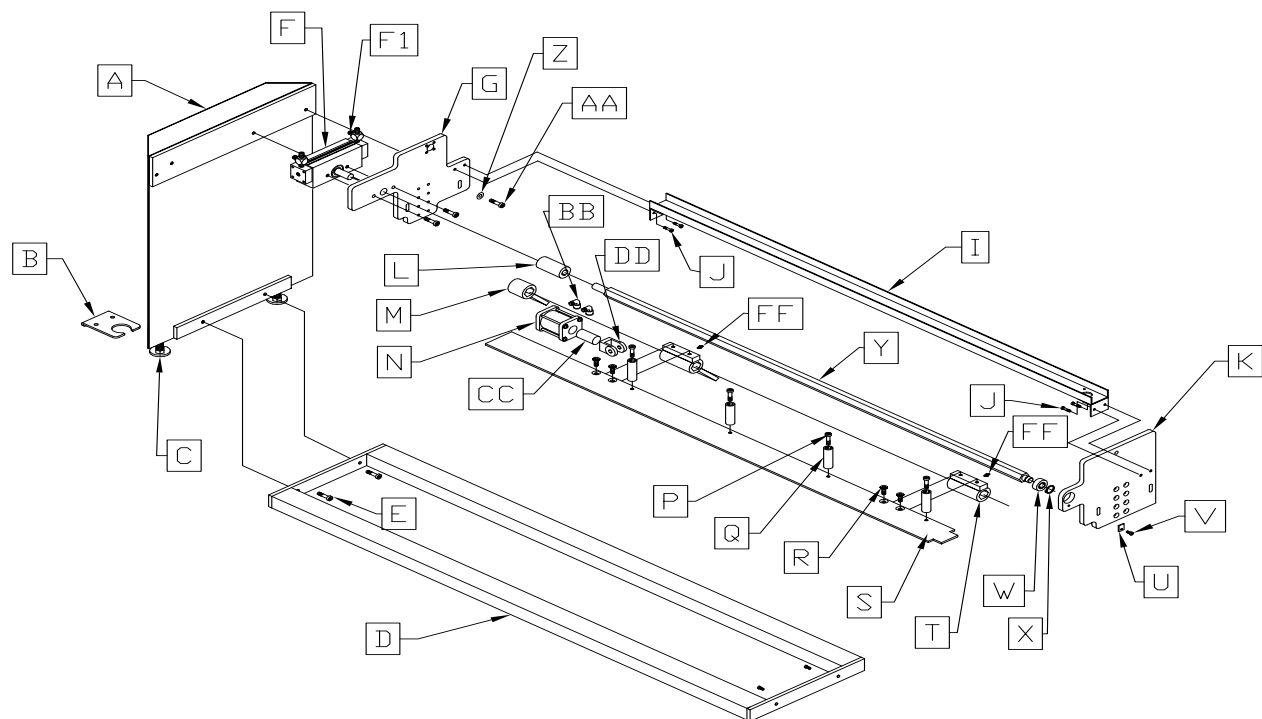


FIGURE 42

11.6 STOP ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|-----------------------------|----------------------------------------|
| A | 044222 | Aluminum Rail |
| B | 045453 | End Plate |
| C | 073624 | M-8 x 25 FSHCS |
| D | 044238 | T-Nut |
| E | 130105 | 5/16 x 18 x 3/4 FSHCS |
| F | 044212 | T-Rail |
| G | 044139 | Stop Shaft |
| H | 044218 | Collett Holder |
| H1 | 044228 | Collett |
| I | 220014 | M-6 x 10 BHCS |
| J | 044137 | Shaft Support |
| K | 044282 | Collett Cover |
| L | 220014 | M-6 x 10 BHCS |
| M | 104240 | 3/8 x 24 x 4 HHCS |
| N | 044130 | Trigger Stud |
| O | 045454 | End Plate |
| P | 221120 | M-8 x 25 SHCS |
| Q | 044140 | Shaft Support |
| R | 221212 | M-10 x 30 SHCS |
| S | 044167 | Collett Mount |
| T | 045602-046652-218048 | Spring-Ball-M-10 Set Screw |
| 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 169PL Ninety Degree Elbow |
| DD | 077002 | Trigger |
| EE | 077701 | Switch |
| FF | 041030 | Shim |
| GG | 041018 | Scale |

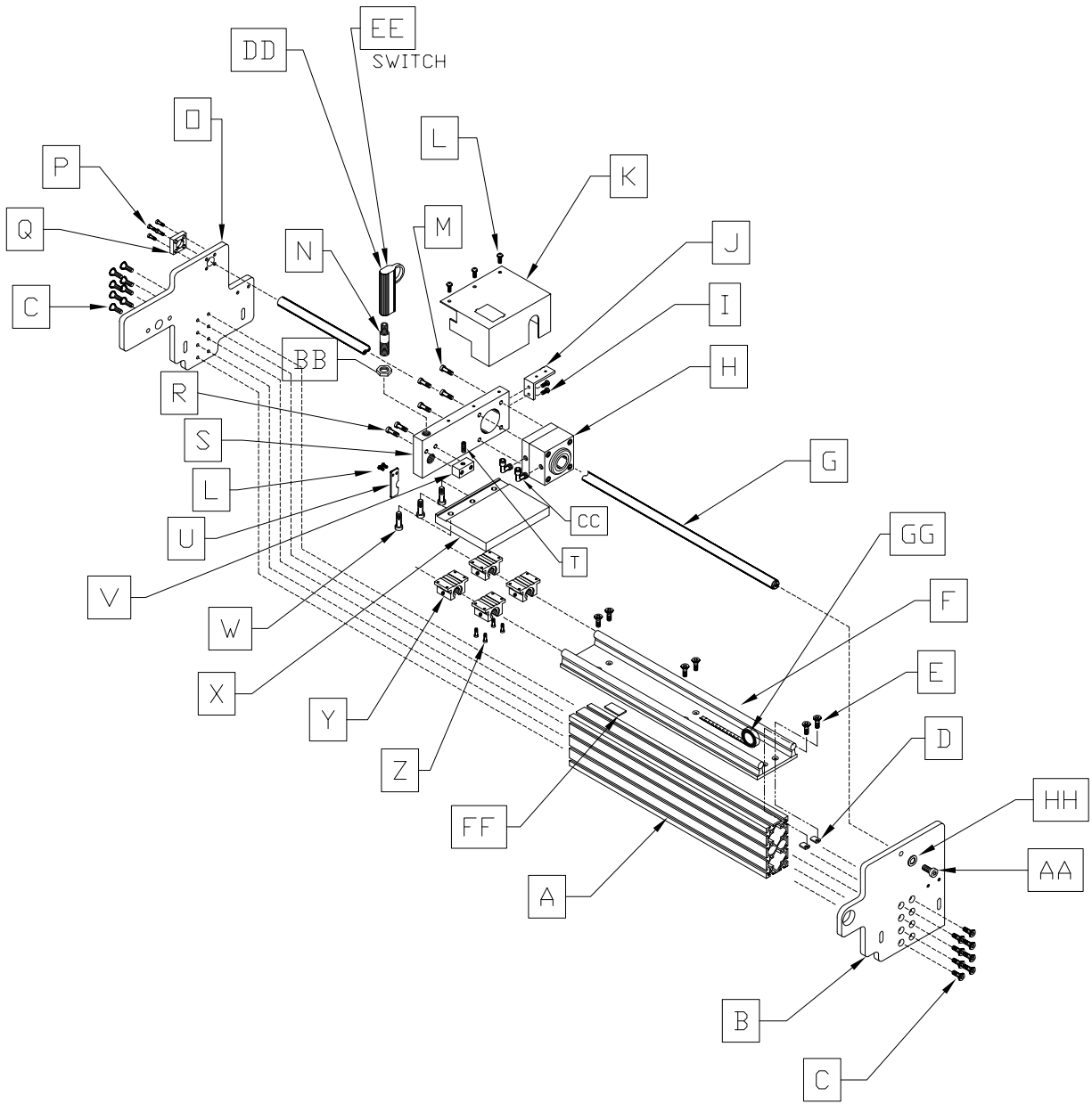


FIGURE 43

11.7 STOP ADJUSTMENT ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|--------------------------------------------|
| A | 045472 | Stop Nut |
| B | 043108 | Fine Adjustment |
| C | 045287 | Stop Adjustment Rod |
| D | 141619 | 1/8 x 7/8 Roll Pin |
| E | 073458 | M-6 x 10 SHCS |
| F | 046029 | Spring |
| G | 042034 | Material Stop |
| H | 141215 | 3/16 x 1-1/2 Roll Pin |
| I | 047601 | Stop Cylinder |
| J | 045286 | Stop Guide |
| K | 077795 | 60" Proximity Switch |
| K1 | 047172 | 90" Proximity Switch |
| K2 | 047172 | 120" Proximity Switch |
| L | 218022 | M-6 x 6 Set Screw |
| M | 045288 | Stop Block |
| N | 130520 | 1/2-20 x 1-1/2 FSHCS |
| O | 045607 | Spring |
| P | 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 |
| T | 073455 | M-5 x 20 SHCS |
| U | 044289 | Material Stop Probe |

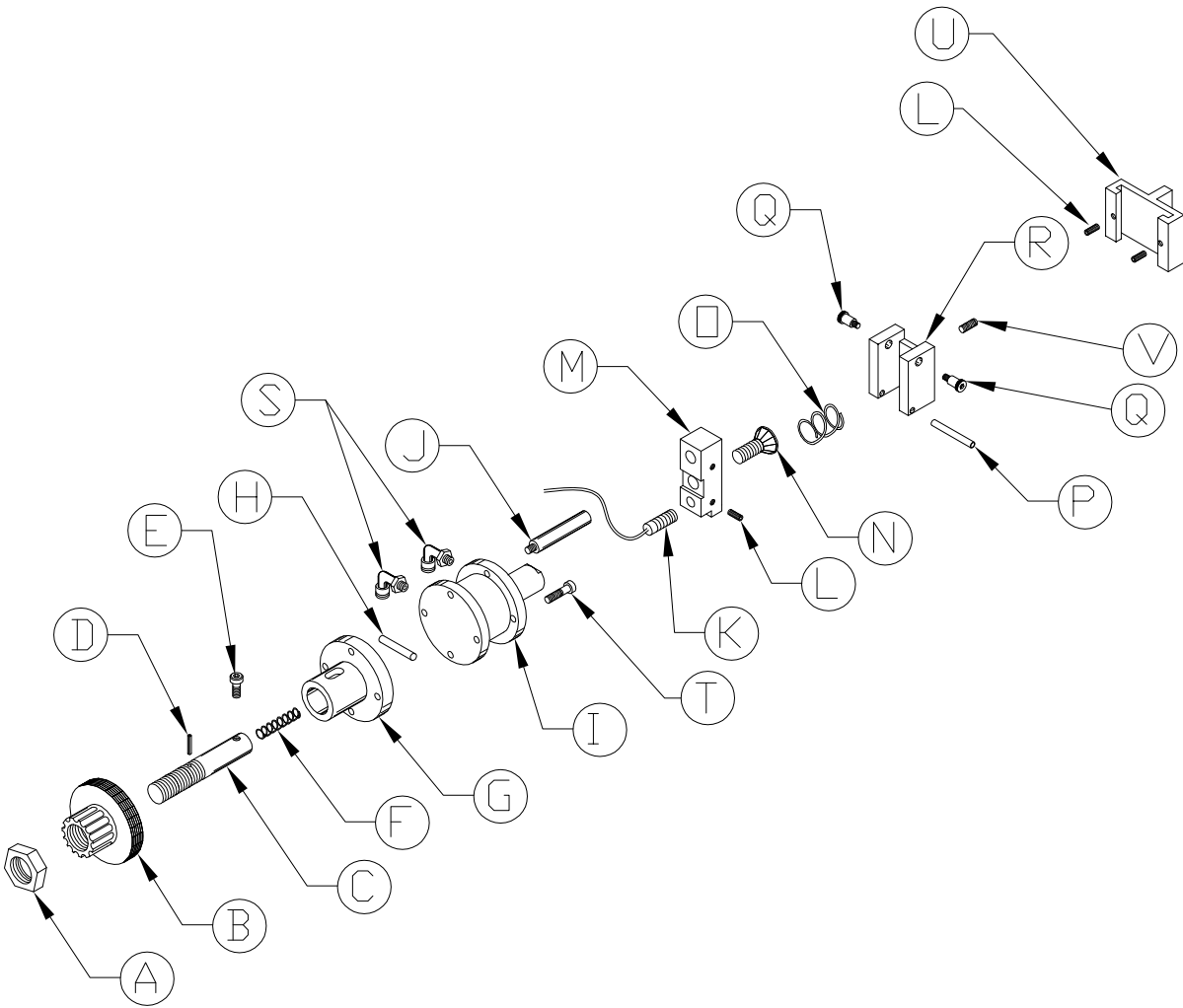
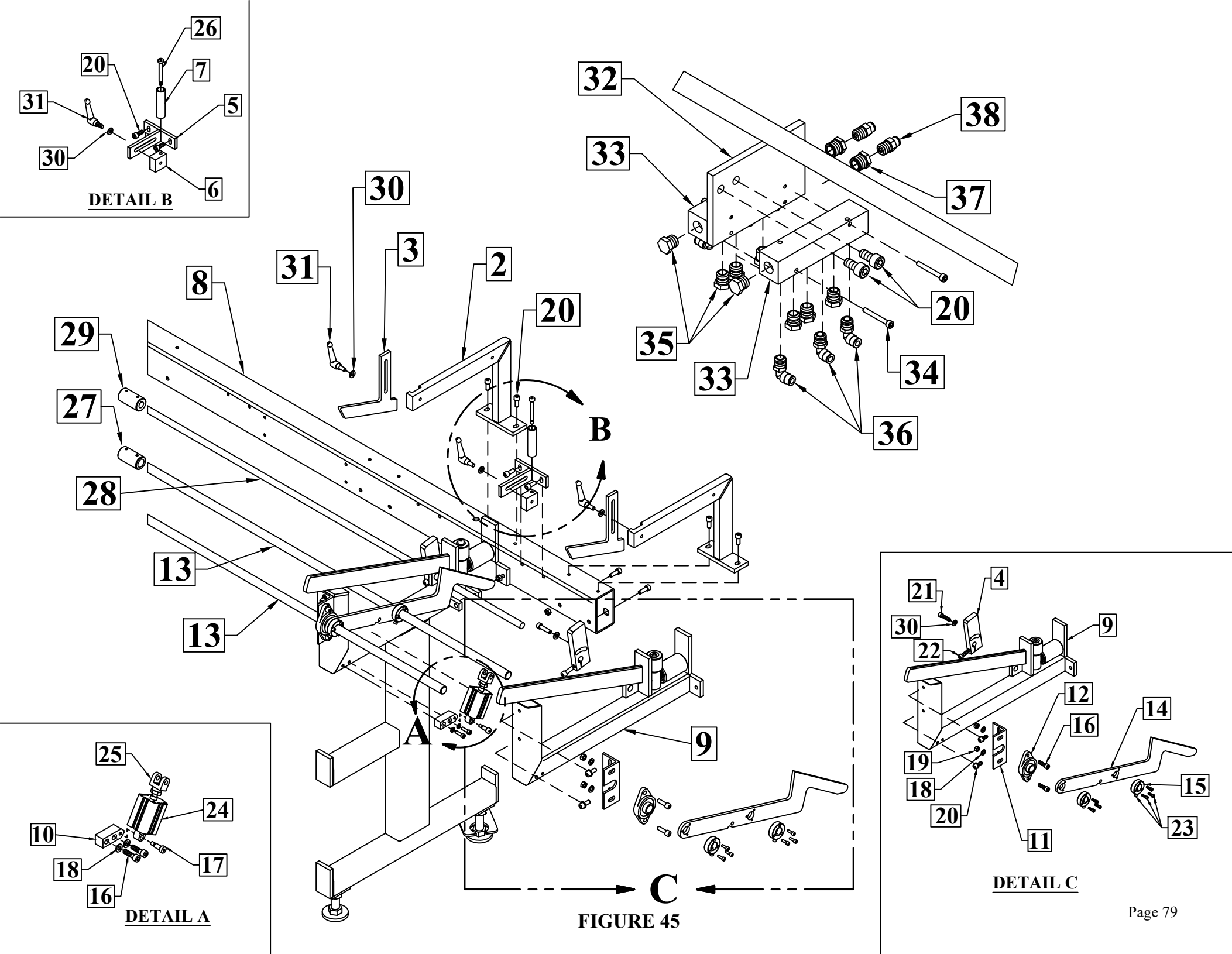


FIGURE 44

11.8 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 ELL |
| 37 | 2 | 077771 | 3/8 x 1/4 NPT Red. Bush. |
| 38 | 2 | 677728 | 1/4 NPT x 1/4 Str. Fitting |



11.8A SUPPLY TABLE LEG ASSEMBLIES

| ITEM 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 |

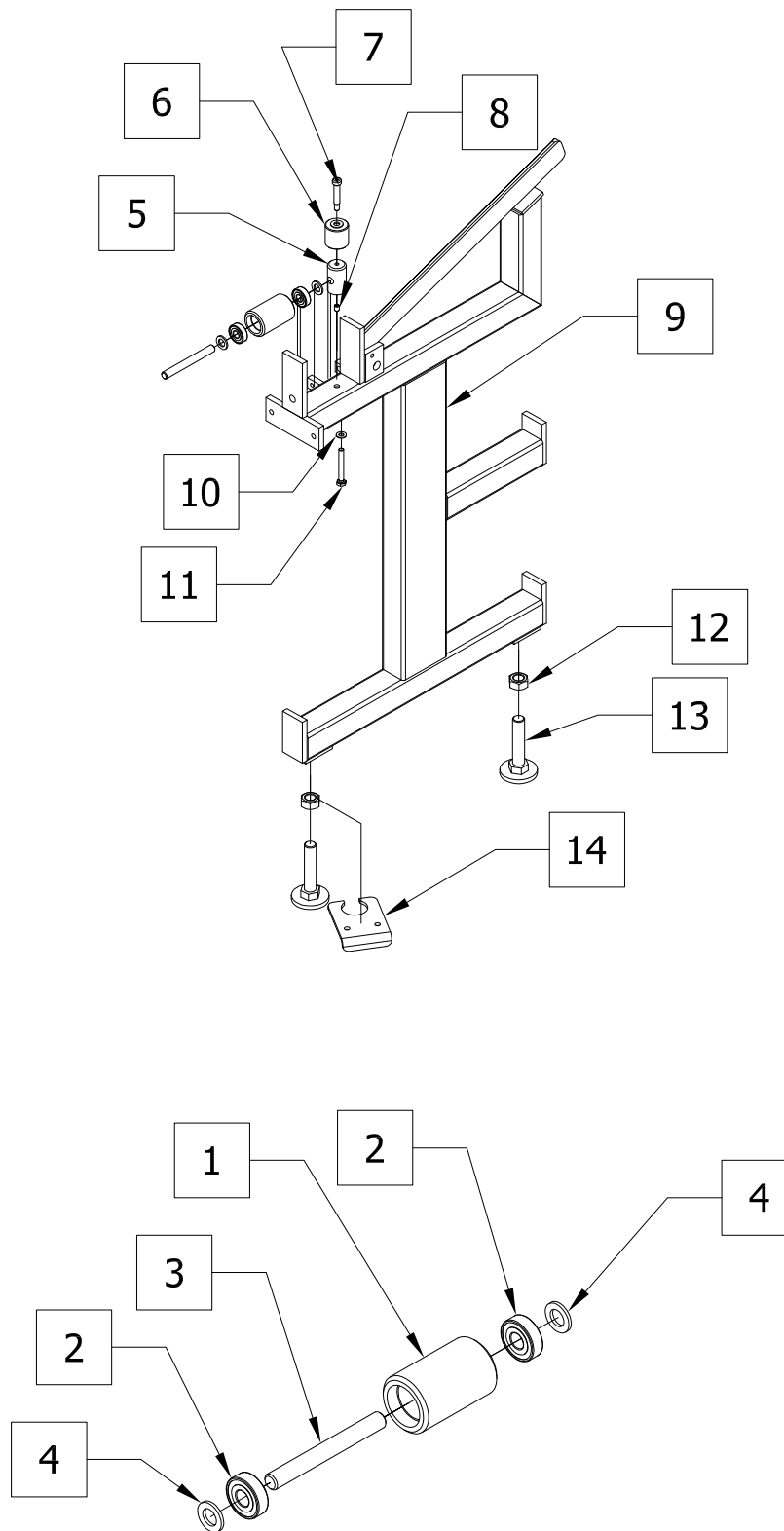


FIGURE 46

11.9 POWER DOWN FEED ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|---------------------------------------------------------------------------------------|
| A | 077671 | Sales Cylinder Festo NF Metric Includes A, E, J, K, K1, L, N, O, P & Q |
| B | 045425 | Reservoir |
| C | 077715 | Pivot Bolt - Package of (2) |
| D | 045232 | Cylinder Bracket |
| E | 077512 | TPC Cyl. Nut-Machined |
| F | 041015 | Right Angle Flow Control |
| G | 221212 | M10 x 30 SHCS |
| H | 047100 | Upper Bracket Assembly |
| I | 221210 | M10 x 25 SHCS |
| J | 077663 | 1/2" Elbow 90° |
| K | 077664 | 3/8 MBSPP TO 1/8 FNPT Adapter |
| K1 | 077665 | 3/8 BSPP Bonded Seal |
| L | 077578 | M16 x 1.5 Cylinder Clevis (Includes R) |
| M | 078455 | Sight Glass |
| N | 077700 | Bellow |
| O | 077505 | Bellow Clamp |
| P | 660505 | Black Zip Tie |
| Q | 210017 | M16 X 1.5 Jam Nut |
| R | | Included with L |

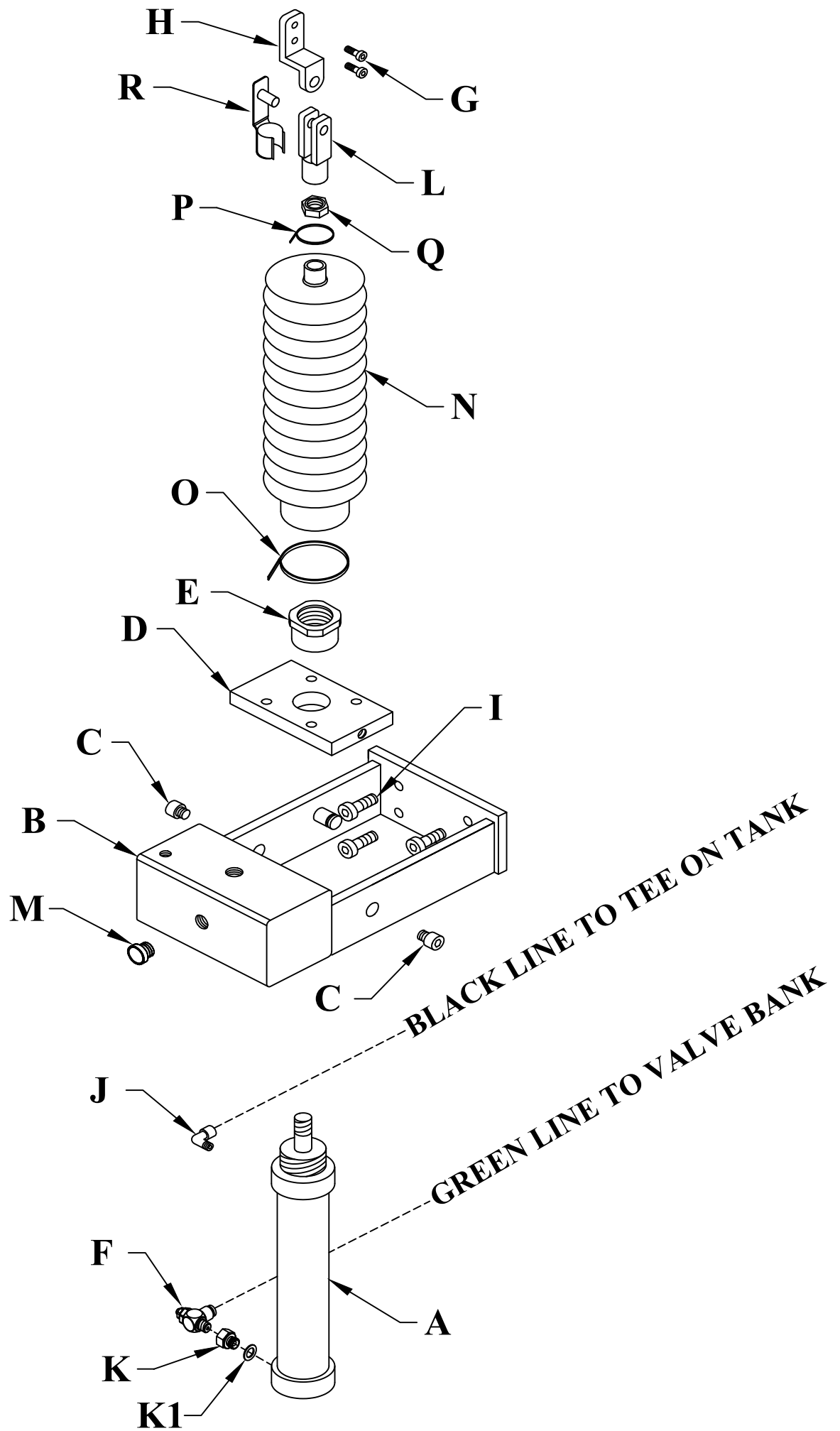


FIGURE 47

11.9A POWER DOWN FEED VALVES

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-------------------------------------------|
| A | 077746 | 1/4" NPT x 169PL |
| B | 077701 | Baffle |
| C | 077777 | 3/8" NPT Plug |
| D | 045054 | 1/2 x Ninety Degree Swivel x 169PL |
| E | 077536 | Check Valve |
| F | 045042 | 1/2" Straight Fitting |
| J | 047535 | Flow Control Valve |
| K | 045054 | 1/2 x Ninety Degree Swivel x 169PL |
| L | 077779 | 1/4 NPT Close Nipple |
| M | 077771 | Reducer |
| N | 045041 | Brass Tee |
| O | 078455 | Sight Glass |

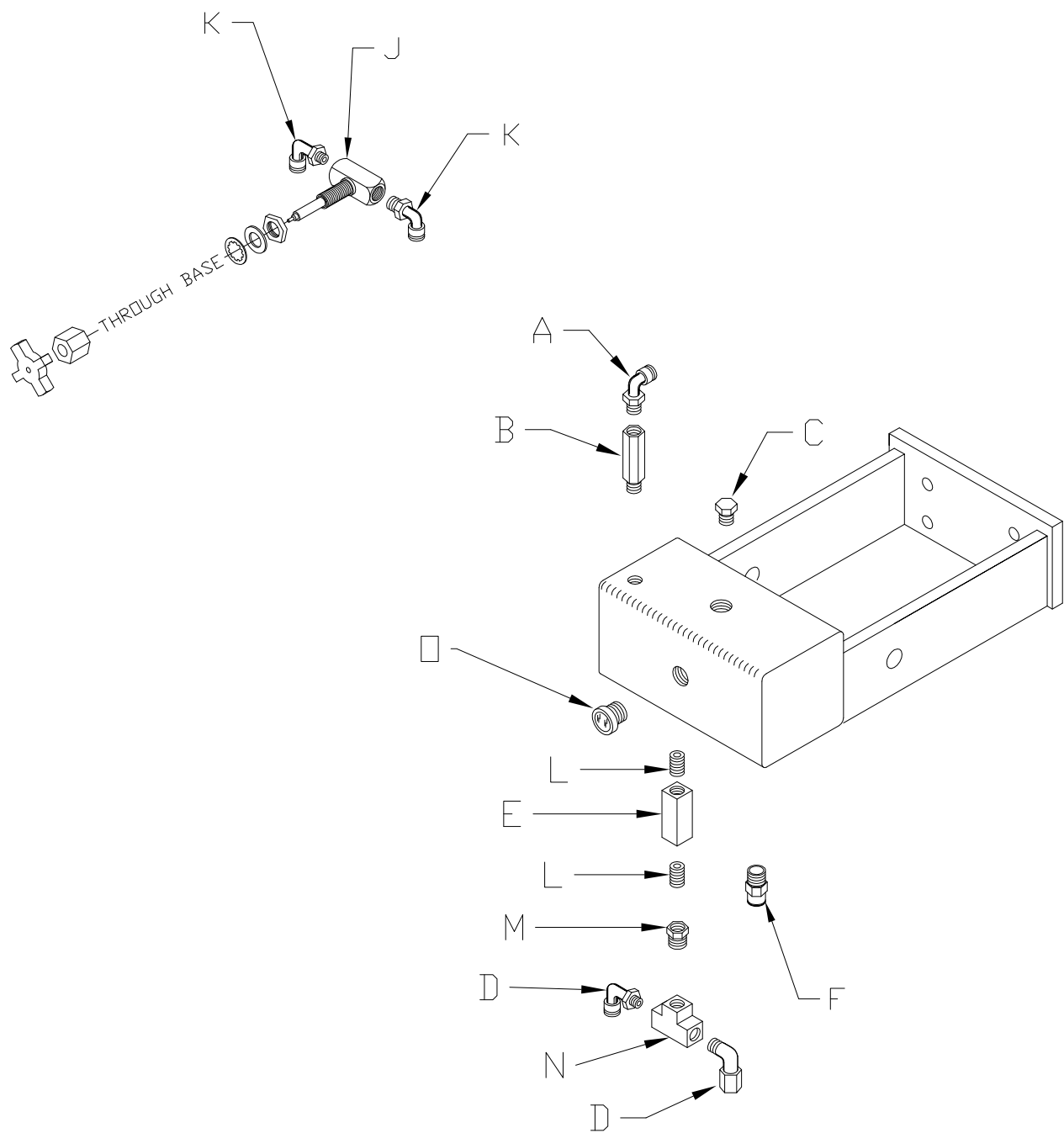


FIGURE 48

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**

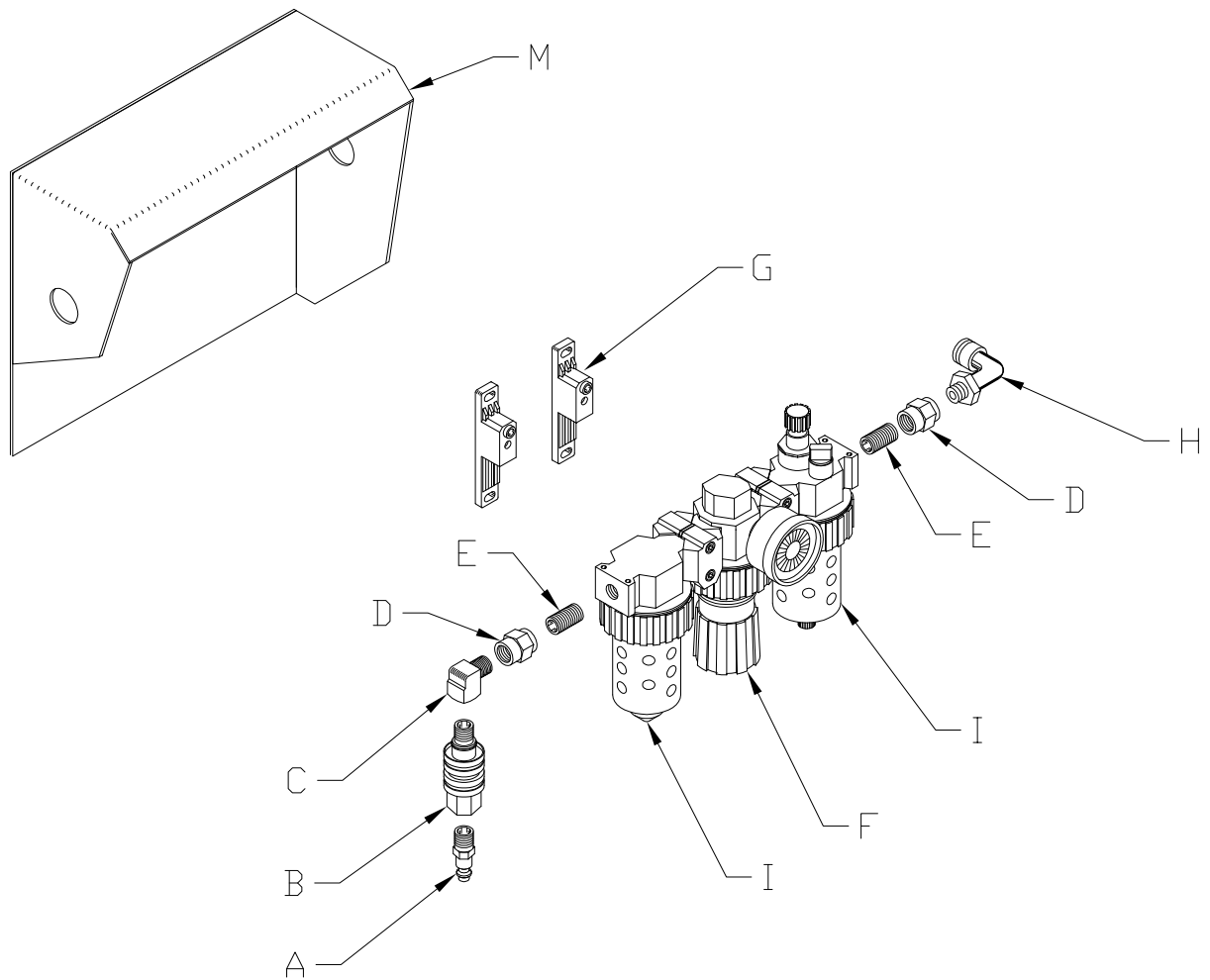


FIGURE 49

11.10 AIR VALVE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|--------------------------------------|
| A | 045560 | Cable End |
| B | 677728 | Fitting (1/4 NPT to 1/4 ITOS) |
| C | 077777 | Plug (3/8 NPT) |
| D | 045045 | Vent (3/8) |
| E | 077738 | 90 Degree Elbow |
| E1 | 077771 | Bushing |
| F | 045650 | Solenoid |
| G | 045655 | Valve |
| H | 077744 | Fitting |
| I | 077930 | Coolant Regulator |
| J | 045603 | Complete Valve Assembly |

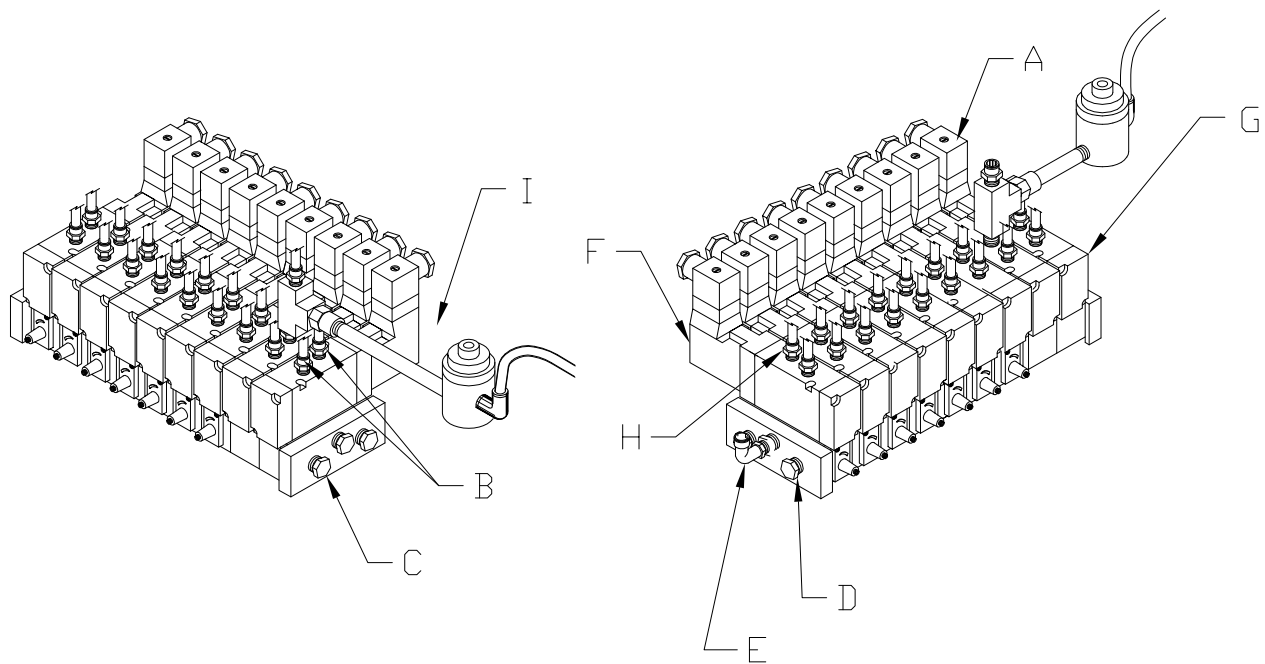


FIGURE 50

11.11 BLADE GUARD ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|---------------------|
| A | 045267 | Guard Shell |
| B | 677901 | M-10 SHCS |
| I | 076839 | Mister Unit |
| J | 676842 | Fitting |
| K | 077926 | Coolant Line |
| L | 060501 | Air Line |
| M | 676844 | Hose Barb |
| N | 073095 | M-4 Washer |
| O | 073415 | M-4 SHCS |

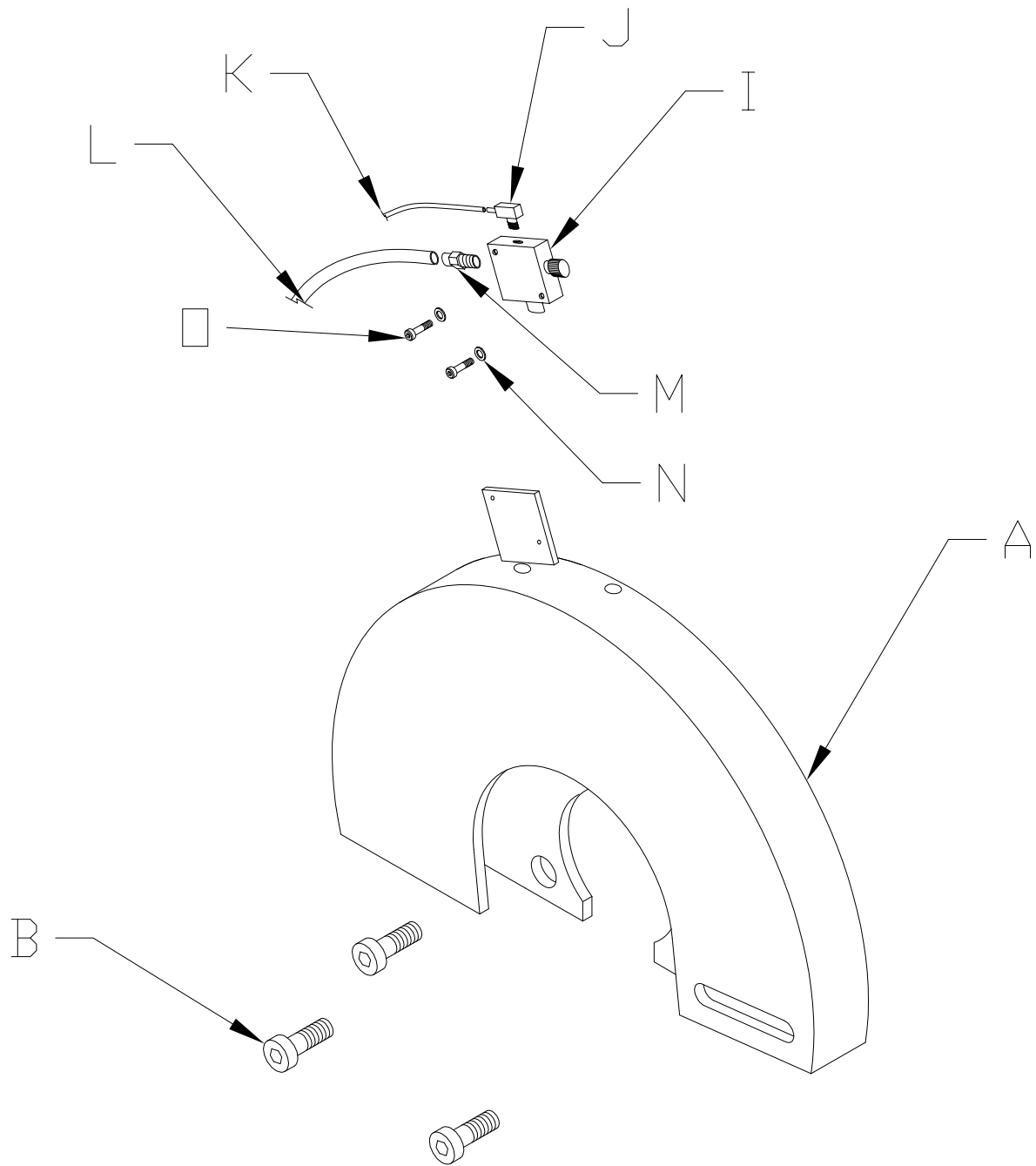


FIGURE 51

11.12 MOTOR ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-------------------------------------|
| A | 076883 | Fan Cover |
| B | 073407 | M-5 x 8 SHCS |
| C | 076881 | Fan (25mm Bore) |
| CA | 076884 | Fan (30mm Bore) |
| D | 077380 | End Casting (25mm Bore) |
| DA | 077381 | End Casting (30mm Bore) |
| E | 075049 | Motor Bearing (6205Z) (25mm) |
| EA | 077325 | Motor Bearing (6206) (30mm) |
| F | 077191 | Snap Ring |
| G | 076369 | Key |
| H | 203210 | M-10 SHCS |
| I | 077370 | Key 6 x 4 x 32mm |
| J | 077376 | Seal |
| K | 075050 | Spacer Washer |
| L | 076556 | Snap Ring (30mm Only) |
| M | 077378 | End Casting (Front) |

COMPLETE MOTORS

| | | |
|----------|---------------|-----------------|
| A | 076986 | 230 Volt |
| B | 076985 | 460 Volt |
| C | 076988 | 575 Volt |

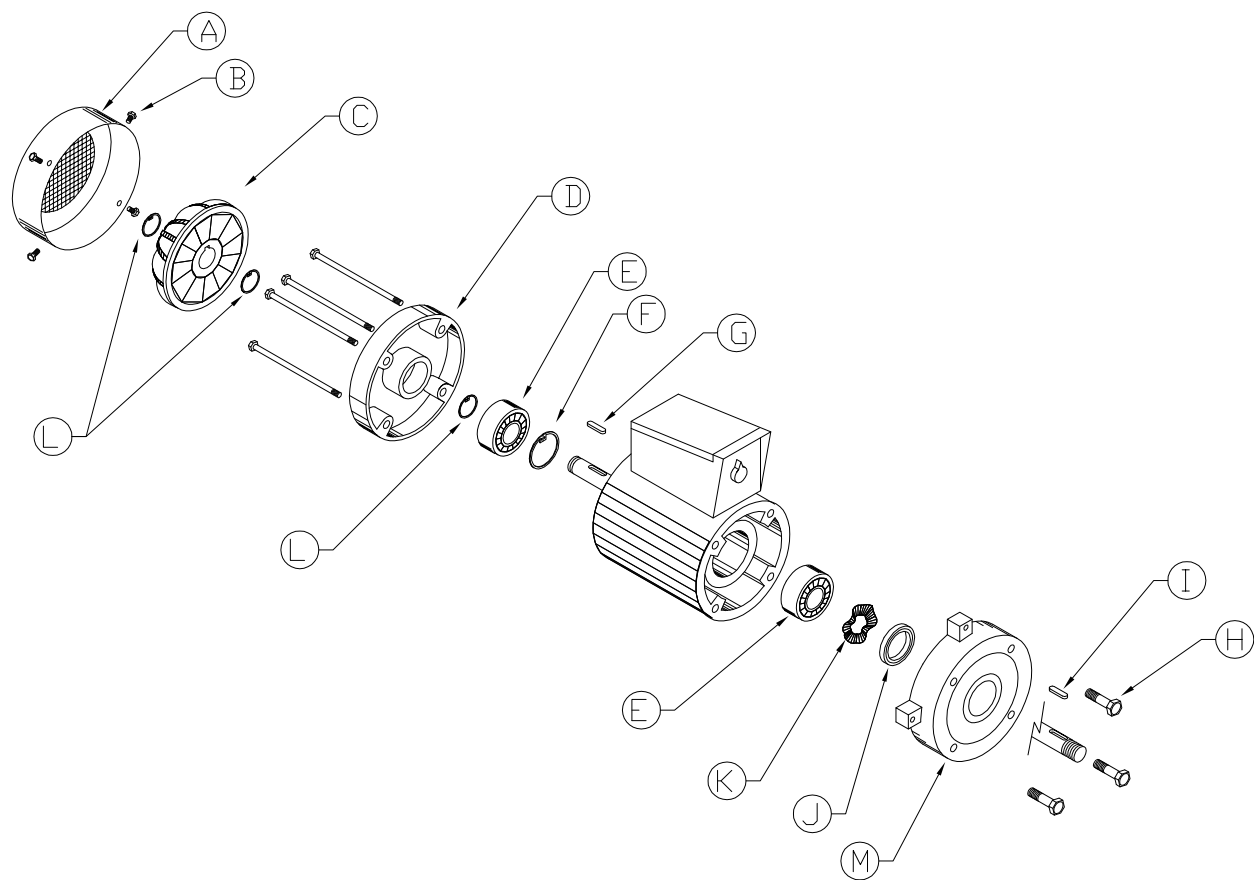


FIGURE 52

11.13 ELECTRICAL UNIT - LINE CIRCUIT

| ITEM # | PART # | DESCRIPTION |
|---------------|---------------|-----------------------------------------------|
| A | | 230V 1/2 HP VFD Programmed |
| A1 | | 460v 1/2 HP VFD Programmed |
| B | 045495 | 15A Breaker 230V |
| B1 | 045530 | 8A Breaker 460V |
| C | 045496 | 30A Breaker 230V |
| C1 | 045529 | 15A Breaker 460V |
| D | 078285 | 5HP 230V VFD-Programmed |
| D1 | 078286 | 5HP 460V VFD-Programmed |
| E | 045497 | Comm. Module |
| F | 045338 | 30A Disconnect |
| G | 045498 | Black Terminal |
| H | 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 |
| M | 045504 | Power Supply |
| N | 045505 | Slim Interface Relay 24VDC |
| O | 011835 | Secondary Fuse 2 AMP |
| P | 045507 | Ground Bar |

| ITEM # | PART # | DESCRIPTION |
|---------------|---------------|-------------------------------|
| Q | 045508 | 9A DC Contactor |
| R | 045509 | Starter Auxiliary |
| S | 045510 | Manual Starter |
| T | 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 |
| HH | 045528 | Disconnect Handle |
| II | 045531 | HMI Screen (Not Shown) |

NOTE: 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.

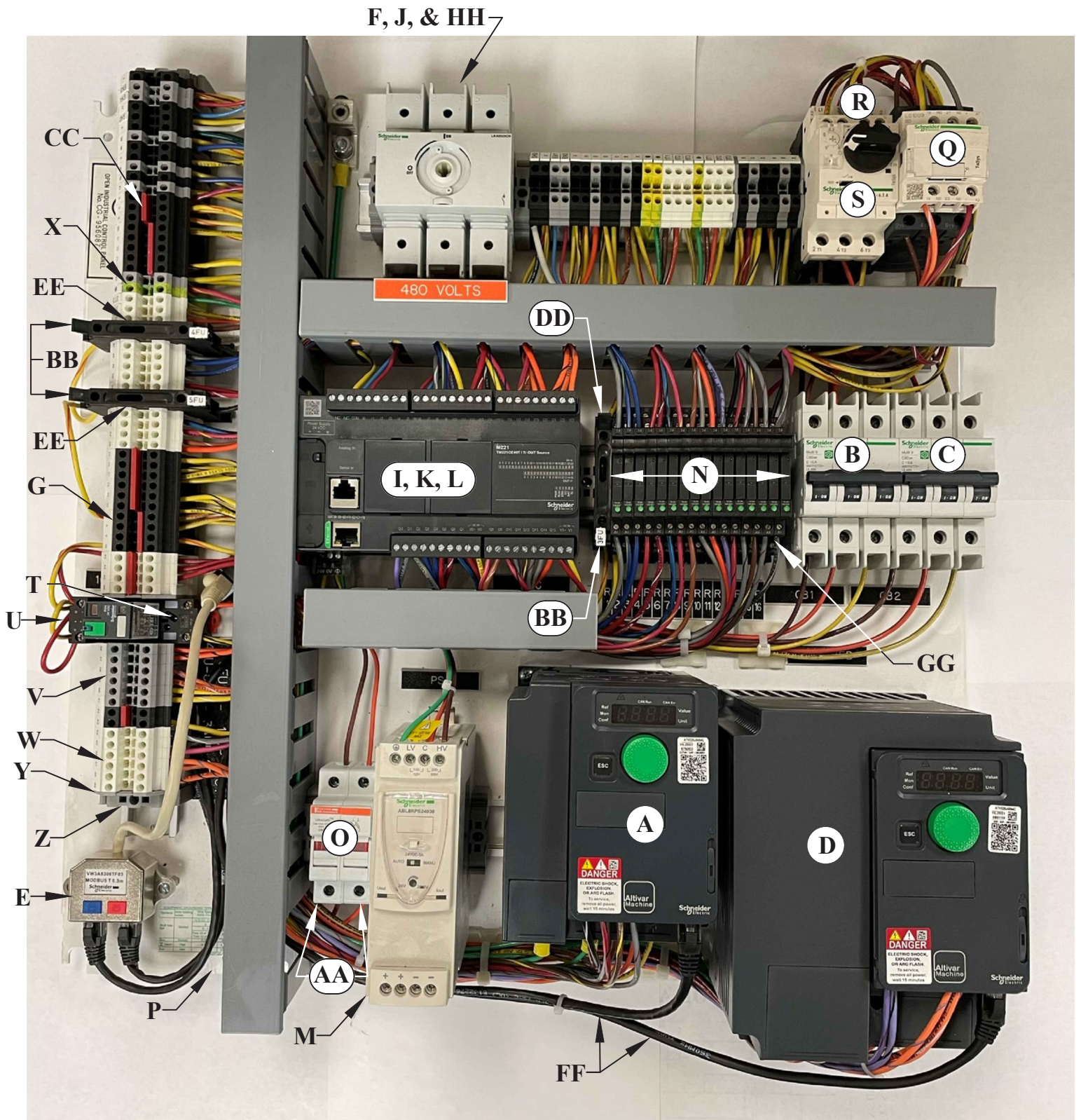


FIGURE 53

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11.14 BASE ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|-------------------------|
| A | 203235 | M-10 x 90 HHCS |
| B | 045411 | Base Casting |
| C | 216015 | M-10 Flange Nut |
| D | 045171 | Base Cabinet |
| E | 045735 | Lower Enclosure |
| G | N/A | |
| H | 046642 | Door Assembly |
| I | 049217 | Leveling Pads |
| II | 208024 | M-24 Nut |
| J | 049330 | Foot Clamp |
| K | 073617 | M-6 x 12 BHCS |
| L | 046018 | Handle |
| M | 045052 | Chip Bucket |
| N | 045257 | Reservoir Screen |
| O | 046640 | Access Cover |
| P | 220010 | M-4 x 12 BHCS |
| Q | 073350 | M-10 x 100 HHCS |
| R | 114020 | Hard Washer |

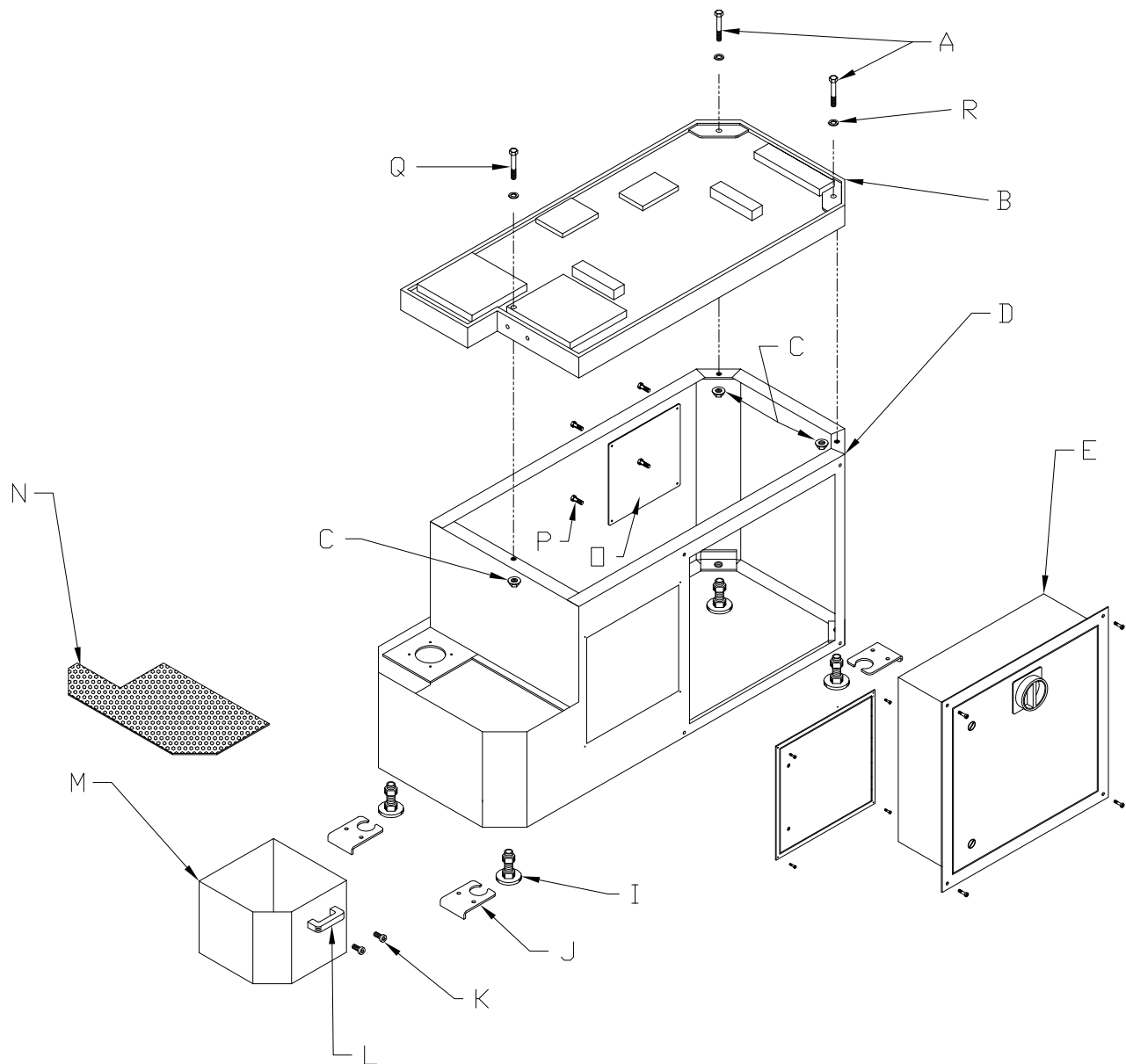


FIGURE 54

11.15 MIST COOLANT SYSTEM

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|--------------------------------|
| A | 677728 | 1/4 NPT x 1/4 Hose |
| B | 677745 | 1/4 Brass Tee |
| C | 077748 | 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 |
| H | 077741 | 5/16 Elbow |
| I | 045740 | Check Valve |
| J | 077926 | Mister Line |

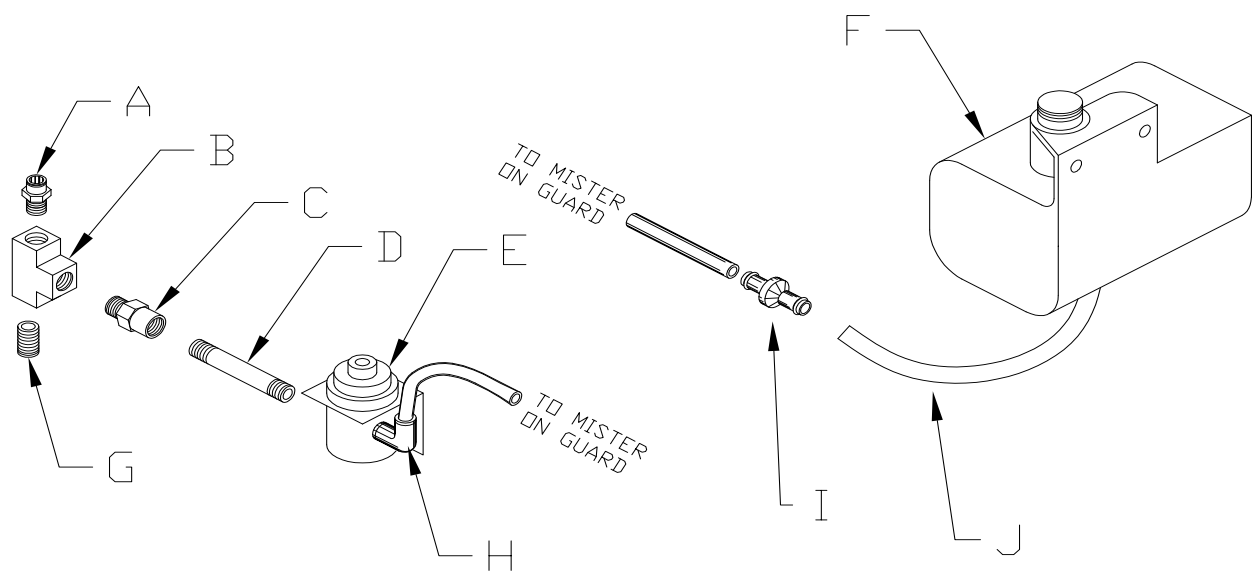


FIGURE 55

11.16 STROKE CONTROL ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|--------------------------------|
| A | 045253 | Stroke Adjustment Plate |
| B | 045249 | Stroke Control Stand |
| C | 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 |
| H | 114020 | M-10 Flat Washer |
| I | 077796 | Proximity Switch |
| J | 221212 | M-10 x 30 SHCS |
| K | 221210 | M-10 x 25 SHCS |
| L | 221120 | M-8 x 25 SHCS |
| M | 158202 | Bumper |
| N | 047104 | Stroke Control Plate |
| O | 221212 | M-10 x 30 SHCS |
| P | 073095 | M-4 Washer |

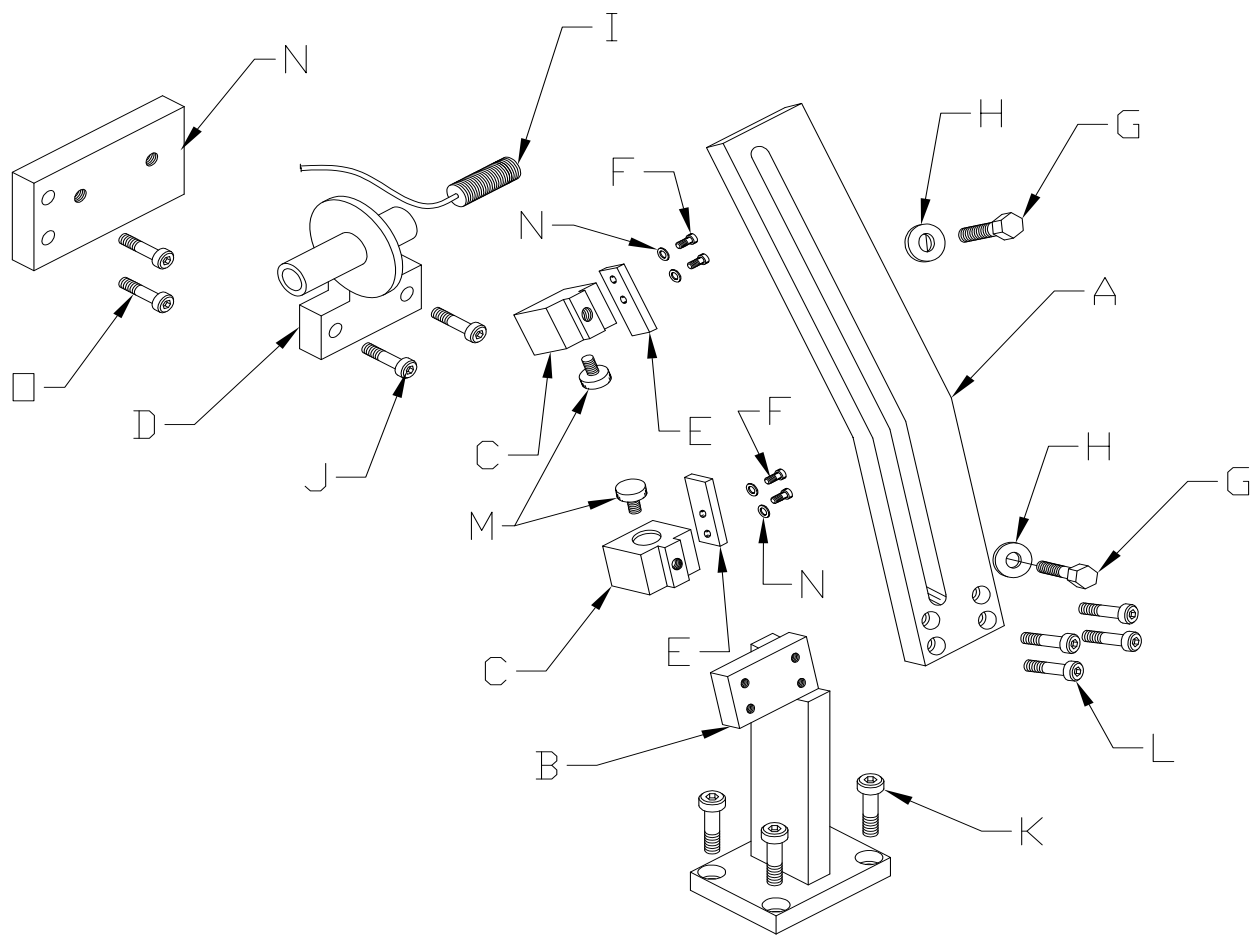


FIGURE 56

11.17 HOOD ASSEMBLY

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|--------------------------------------------------------------------|
| A | 203217 | M-10 x 45 HHCS |
| B | 045196 | Pedestal |
| C | 047180 | Chip Chute |
| D | 046018 | Hood Handle |
| F | 045322 | Sight Glass |
| G | 046645 | Sight Glass Seal |
| J | 229415 | M-10 x 12 x 16 Shoulder Bolt |
| K | 047151 | Hood (Painted) |
| L | 077142 | Grease Nipple |
| M | 077100 | M-10 Dowel Pin |
| N | 073617 | M-6 x 12 BHCS |
| O | 040012 | Bumpers |
| P | 047110 | Hood Safety Switch |
| P1 | 047115 | Switch Mount |
| P2 | 220010 | M-4 BHSC |
| P3 | 215000 | M-4 Nylon Lock Nut |
| Q | 215013 | M-8 Nylon Lock Nut |
| R | 077329 | Short Pivot Pin |
| S | 077341 | Long Pivot Pin |
| T | 047155 | Complete Hood Assembly (Includes D, F, G, K, N & O) |

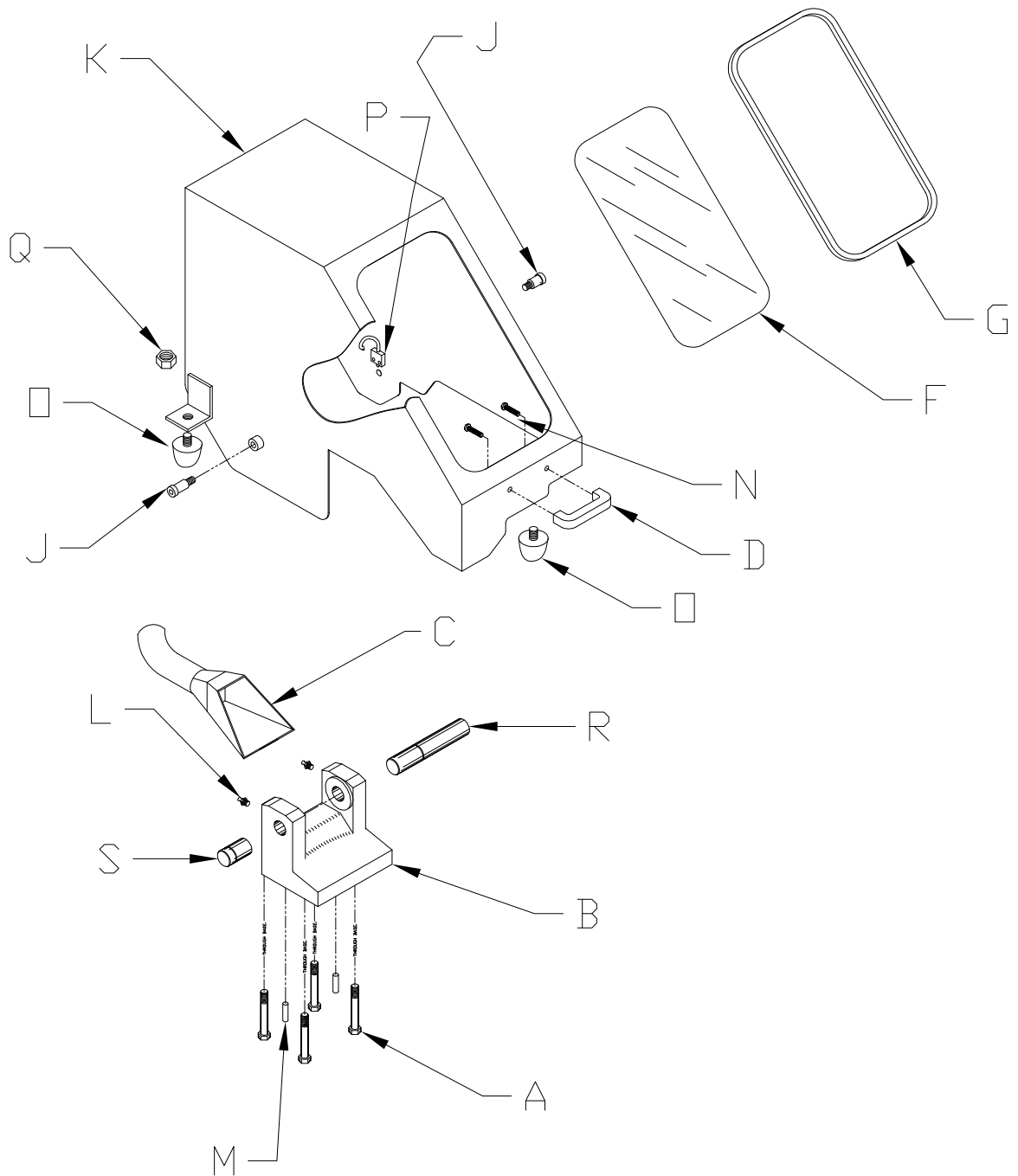


FIGURE 57

12.0 OPTIONAL EQUIPMENT PARTS LISTS

12.1 CUTTING COOLANTS AND LUBRICANTS

| UNIT | PART | DESCRIPTION |
|----------------|---------------|---------------------------------------------|
| 1 Gal. | 075760 | 1 GAL. SYNCON-2 (do not dilute) |
| 55 Gal. | 075761 | 55 GAL. SYNCON-2 (do not dilute) |
| 1 Qt. | 075753 | Air Line Lubricant |
| 1 Gal. | 075759 | Air Line Lubricant |

12.2 DIGITAL READOUT

| ITEM | PART # | DESCRIPTION |
|------|--------|---------------------|
| A | 047090 | Axis Display |
| B | 220105 | M-3 x 16 SHCS |
| C | 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 |
| H | 026504 | M-8 x 16 Brass S.S. |
| I | 044090 | Horizontal Mount |
| J | 073605 | 6 x 32 x 3/4 SHCS |
| K | 046652 | Detent |
| L | 045602 | M-8 Ball Spring |
| M | 218048 | M-10 x 10 S.S. |
| N | 210012 | M-10 Jam Nut |
| O | 047095 | PEM Sensor |
| P | 073095 | M-4 Washer |
| Q | 046668 | Wire Clamp |

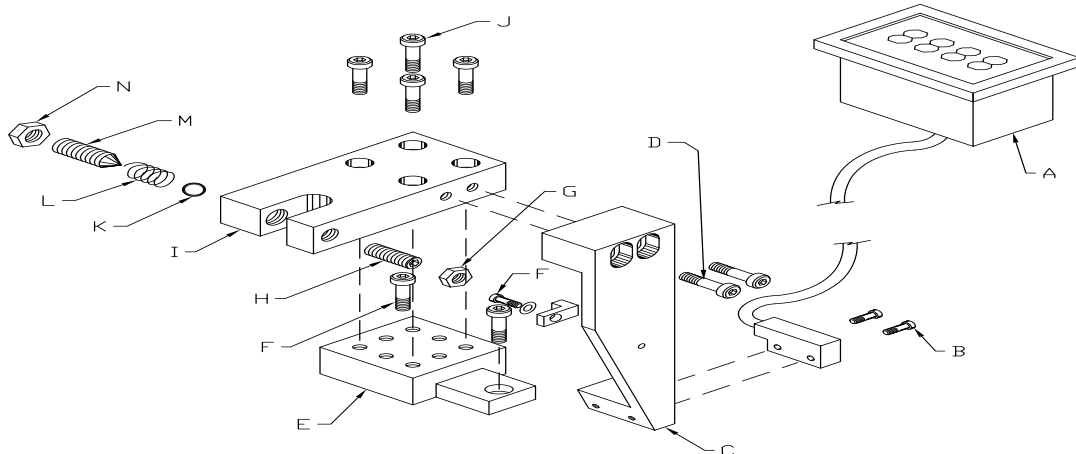


FIGURE 58

12.3 OVERTURN DEVICE

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|------------------------------------|
| A | 045344 | Slider |
| B | 229212 | M-8 x 10 x 60 Shoulder Bolt |
| C | 045346 | Roller |
| D | 045348 | Roller Bracket |
| E | 045347 | Roller Bracket |
| F | 073420 | M-8 x 16 SHCS |
| G | 221120 | M-8 x 25 SHCS |
| | 045352 | Overturn Device |

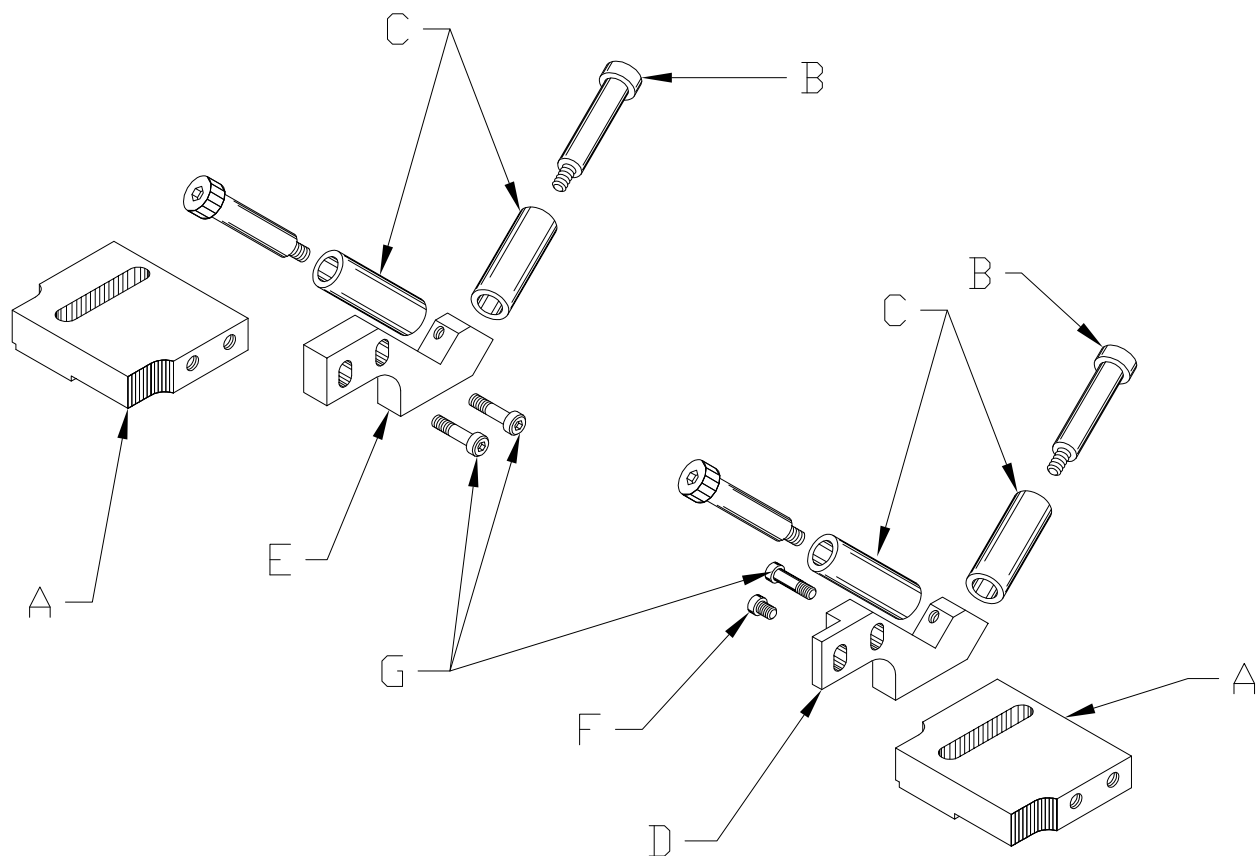


FIGURE 59

12.4 VISE REGULATOR

| ITEM | PART # | DESCRIPTION |
|-------------|---------------|------------------------------------|
| A | 078190 | Regulator |
| A1 | 077538 | Gauge |
| B | 677934 | Wall Mount |
| C | 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 |
| G | 047250 | Complete Regulator Assembly |

12.4A POWER DOWN FEED REGULATOR

| | | |
|----------|---------------|------------------------|
| A | 078190 | Regulator |
| B | 677934 | Mount |
| C | 077864 | M-5 x 12 SHCS |
| D | 077746 | 1/4 x 90 Swivel |
| E | 077746 | 1/4 x 90 Swivel |
| F | 073758 | Air Line |

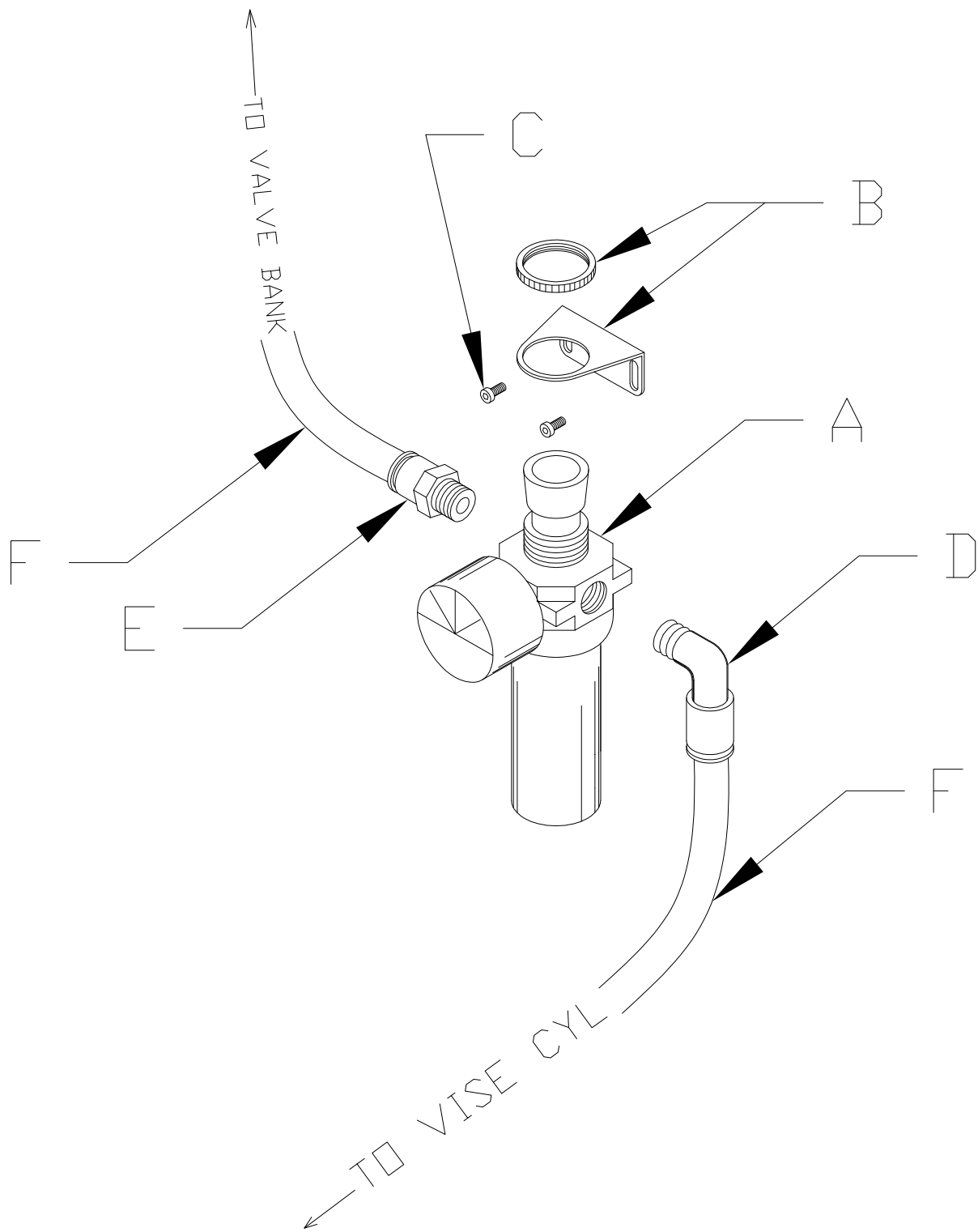


FIGURE 60

12.5 90 & 120 INCH DISCHARGE TABLE ASSEMBLIES

SEE SECTION 11.5 FOR PARTS THAT ARE COMMON TO ALL DISCHARGE TABLES.

| ITEM | PART # | | DESCRIPTION |
|------|--------|--------|------------------------|
| | 90 | 120 | |
| A | 044321 | 044319 | Table (Short) |
| B | 044323 | 044317 | Table (Long) |
| C | 044161 | 044161 | Table Support (Long) |
| D | 044235 | 044235 | Bushing |
| E | 043035 | 043035 | Coupler |
| F | 044351 | 044350 | Dump Shaft EXT |
| G | 047332 | 047232 | Wire Channel |
| H | 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 |
| M | 221210 | 221210 | M-10 x 25 SHCS |
| N | 047430 | 044200 | Center Leg |
| O | 221210 | 221210 | M-10 x 25 SHCS |
| P | 047326 | 047226 | Rail Support Assembly |
| Q | 044224 | 044226 | Alum Beam |
| R | 044330 | 044330 | Long Dump Table |
| S | 044152 | 044152 | Dump Table Shaft |
| T | 044153 | 044153 | Short Dump Table Shaft |
| U | 044158 | 044158 | Support |
| V | | | Short Dump Table |
| W | 044239 | 044339 | Stop Shafts |
| X | 047241 | 047241 | Guide Strip |
| Y | 220014 | 220014 | M-6 x 10 BHCS |
| Z | 047239 | 047239 | Brackets |
| AA | 012100 | N/A | 5/16 x 18 x 3/4 SHCS |
| BB | 047430 | N/A | Hex Shaft Support |
| CC | 044238 | N/A | T-Nut |

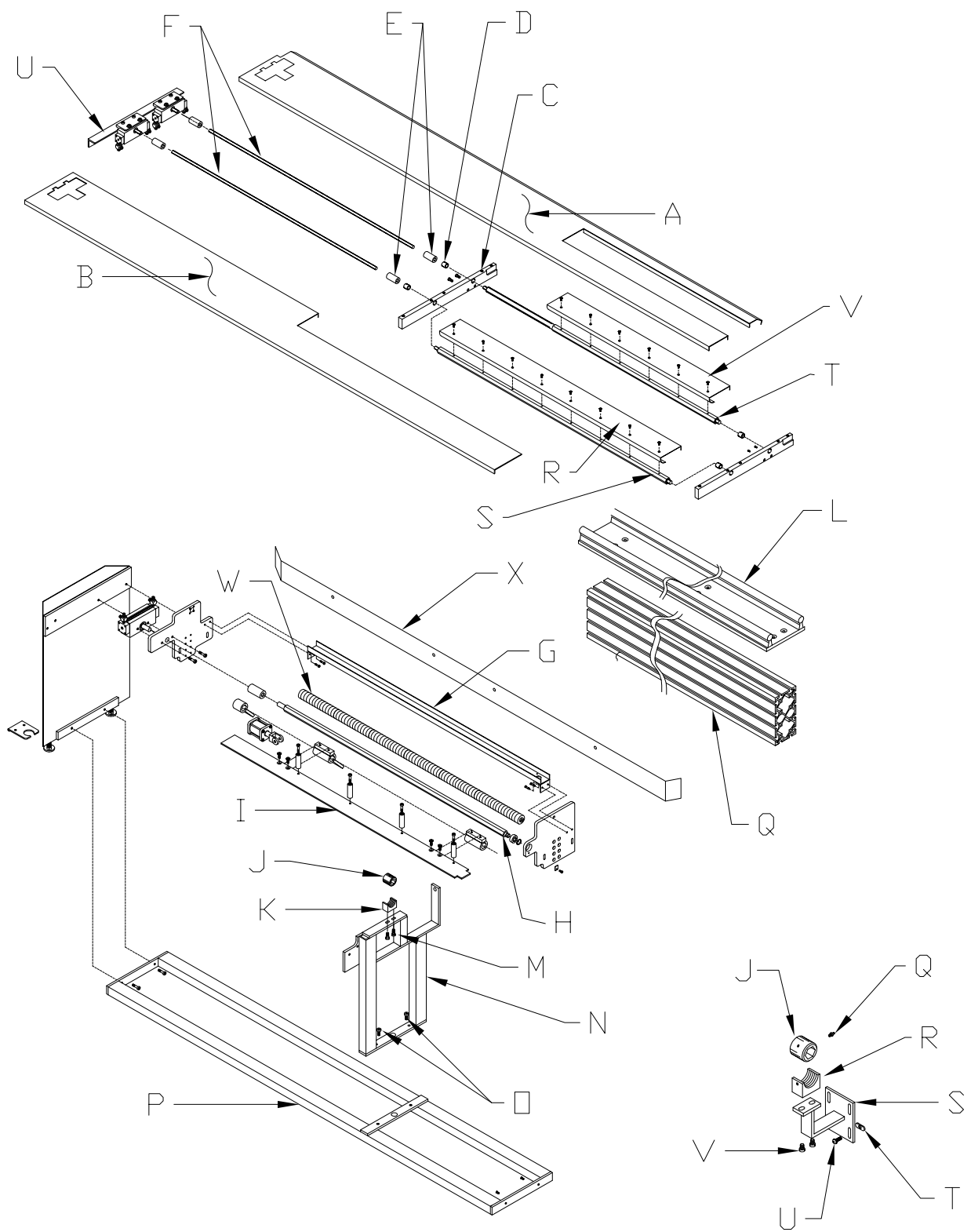


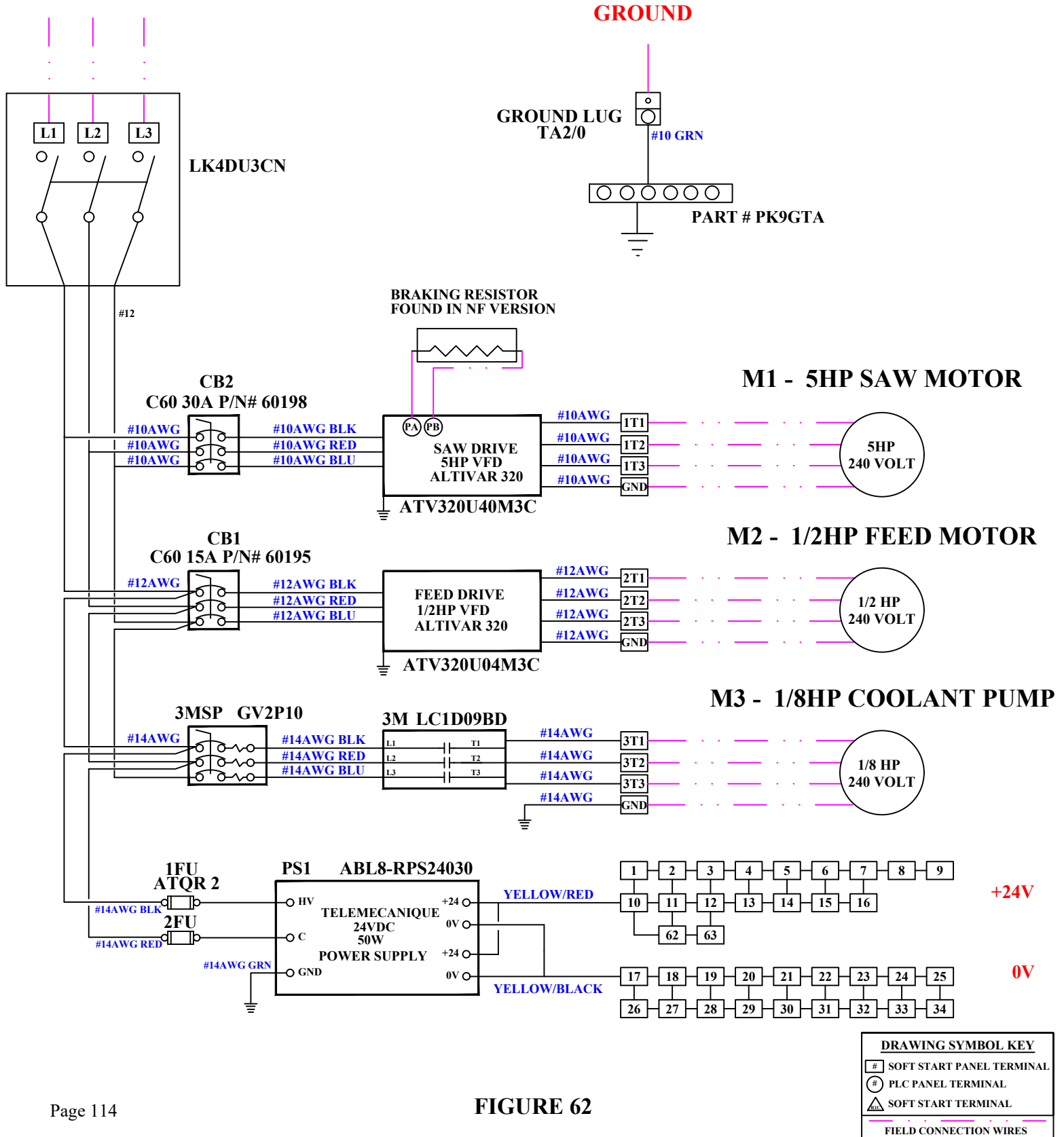
FIGURE 61

13.0 WIRING DIAGRAMS - S/N B2053RFA0522 and up

Scotchman Industries Cold Saw RFA 240V POWER CONNECTIONS

TO 240 Vac
UL FUSE OR CB
RATED AT 30A #10AWG

FIELD WIRING TO BE INSTALLED BY
INSTALLING ELECTRICIAN

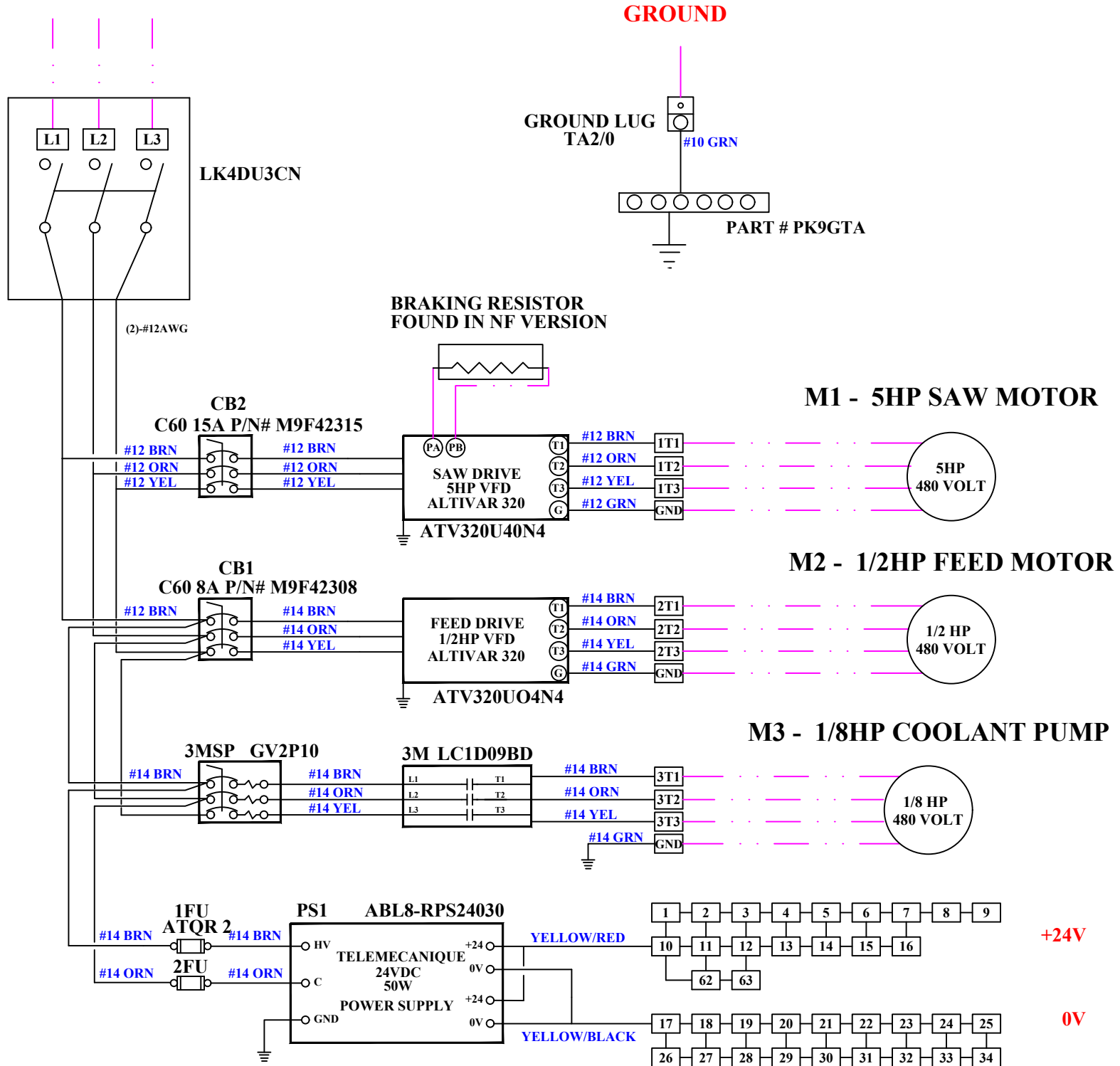


Scotchman Industries Cold Saw RFA

480V POWER CONNECTIONS*

TO 480 Vac
UL FUSE OR CB
RATED AT 20A #10AWG

FIELD WIRING TO BE INSTALLED BY
INSTALLING ELECTRICIAN

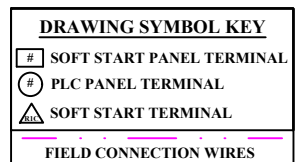


| DRAWING SYMBOL KEY | |
|------------------------|---------------------------|
| # | SOFT START PANEL TERMINAL |
| ⊕ | PLC PANEL TERMINAL |
| △ | SOFT START TERMINAL |
| FIELD CONNECTION WIRES | |

*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.

FIGURE 63

FROM PAGE 1



FROM PAGE 2

FROM PAGE 2



- TO HMI HMIGTO5330
IP ADDRESS 192.168.1.13

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Scotchman Industries Cold Saw RFA

FROM PAGE 3

FROM PAGE 3

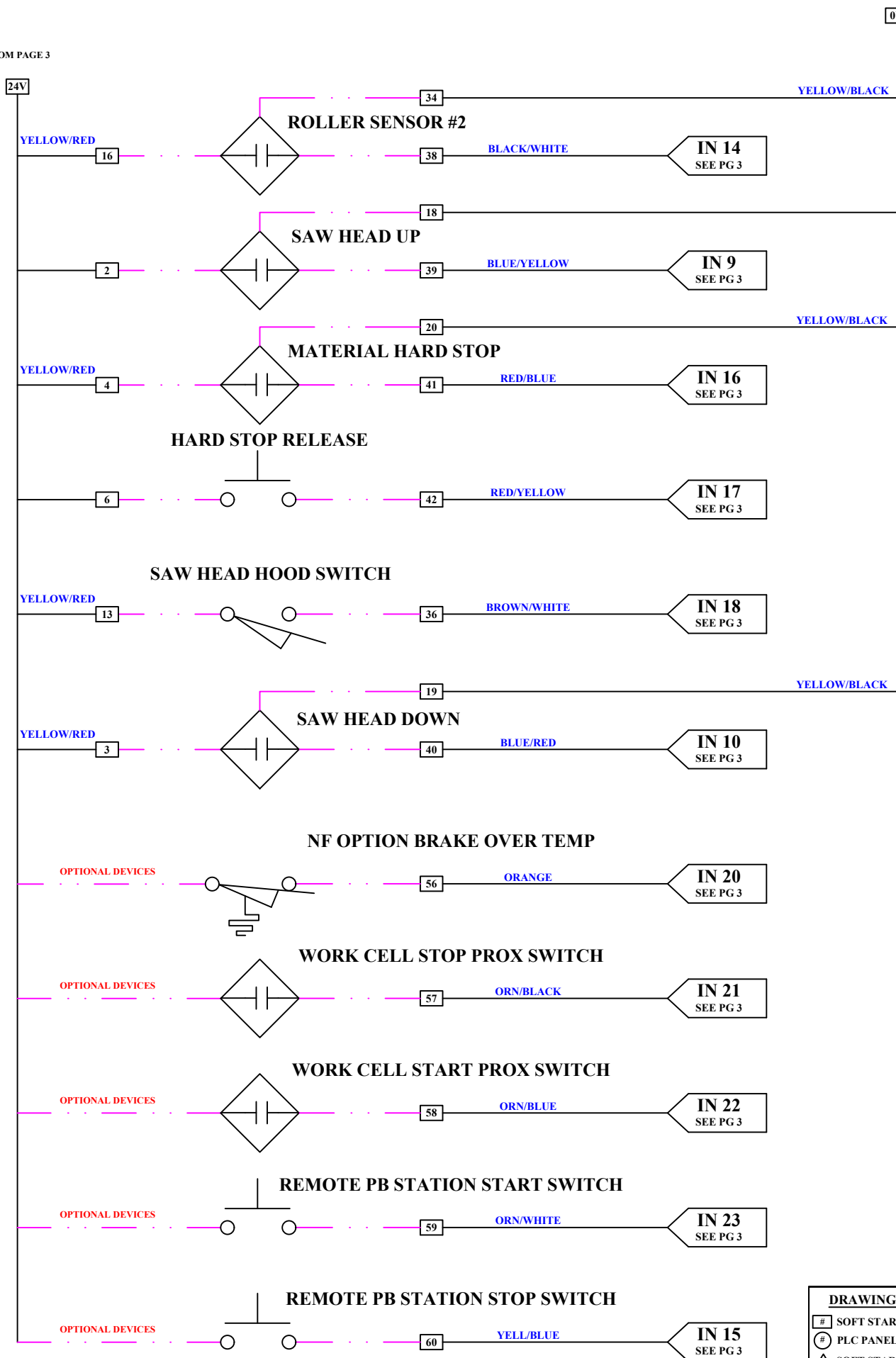


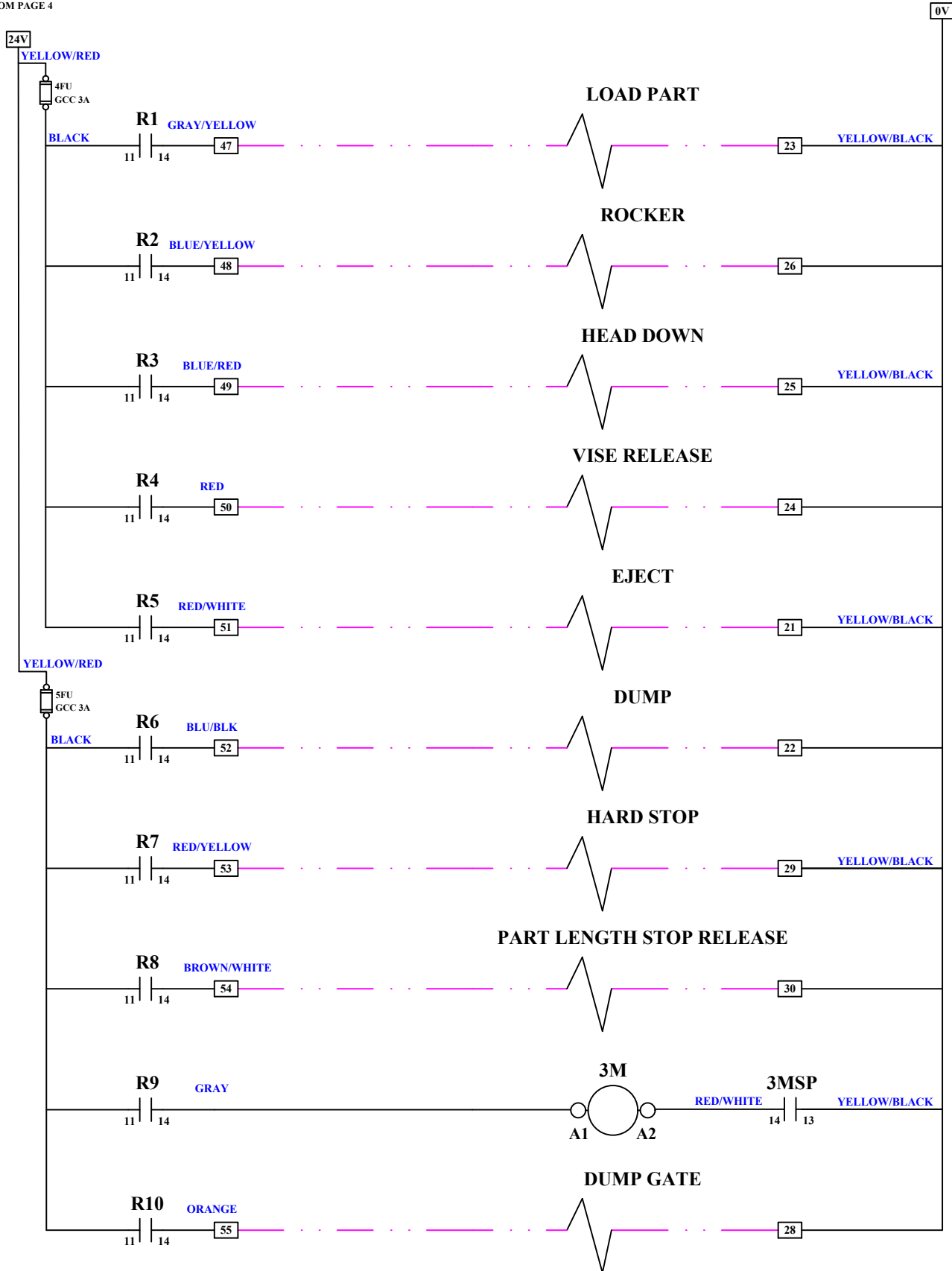
FIGURE 66

| DRAWING SYMBOL KEY | |
|--------------------|---------------------------|
| # | SOFT START PANEL TERMINAL |
| # | PLC PANEL TERMINAL |
| △ | SOFT START TERMINAL |
| --- | FIELD CONNECTION WIRES |

Scotchman Industries Cold Saw RFA

FROM PAGE 4

FROM PAGE 4

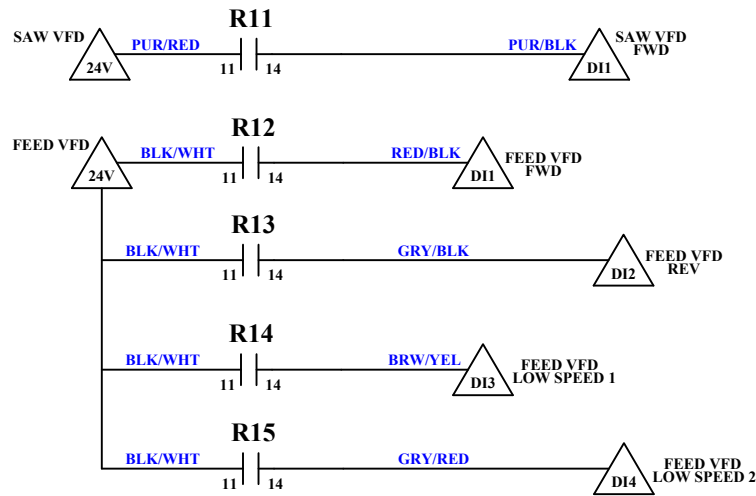


| DRAWING SYMBOL KEY | |
|--------------------|---------------------------|
| # | SOFT START PANEL TERMINAL |
| ⊕ | PLC PANEL TERMINAL |
| △ | SOFT START TERMINAL |
| --- | FIELD CONNECTION WIRES |

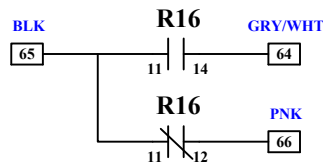
FIGURE 67

Scotchman Industries Cold Saw RFA

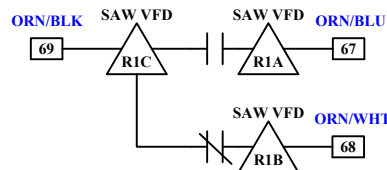
VFD CONNECTIONS



SPECIAL OPTION



NOTE: THIS RELAY IS ENERGIZED WHEN SAW HAS A FAULT OCCUR OR REACHES END OF BATCH.



NOTE: THIS RELAY IS ENERGIZED WHEN SAW VFD HAS RUN COMMAND PRESENT ON THE DRIVE.

| DRAWING SYMBOL KEY | |
|--------------------|---------------------------|
| # | SOFT START PANEL TERMINAL |
| # | PLC PANEL TERMINAL |
| △ | SOFT START TERMINAL |
| --- | FIELD CONNECTION WIRES |