

ABM INTERNATIONAL, INC.

XZR-7000 PANEL CUTTER

Manual ver: 1.0

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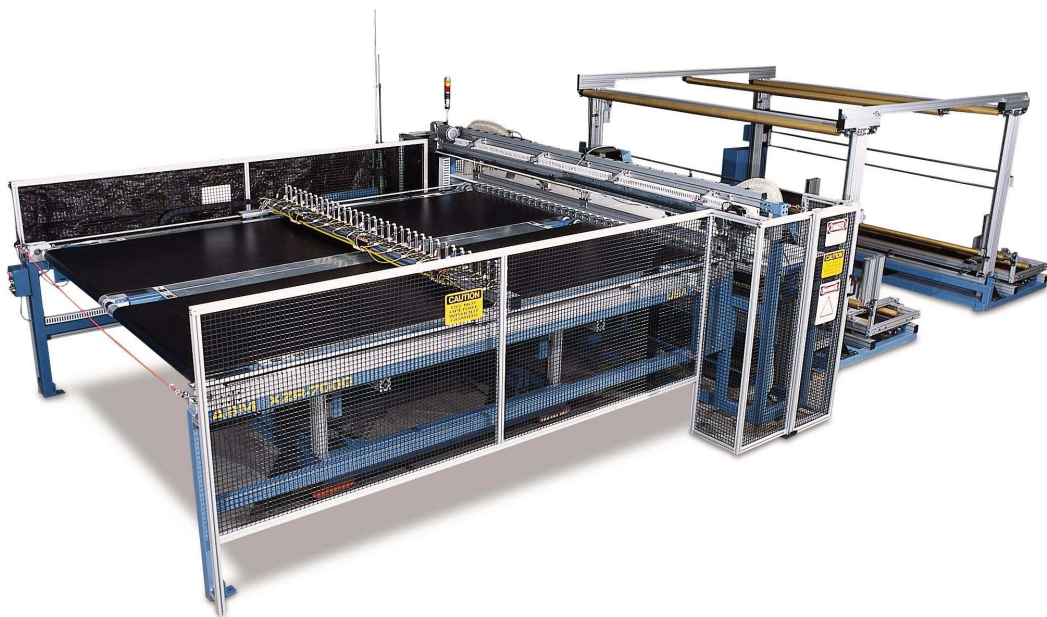


Figure 0.1 – XZR-7000

Introduction

ABM International would like to thank you for the purchase of an XZR-7000 Panel cutter. ABM is confident that this machine will meet or exceed your expectations for cost, speed and durability.

If at anytime you experience problems with any of your ABM machines we ask that you contact us - 24 hours a day by calling our service department at (281) 443-4440. We can help you solve the problem quickly, and correctly. Your calls, questions, and comments will in turn help us to perfect the quality of our products and services in the future.

Once again, we thank you for your purchase.

ABM International, Inc.

Joe Podolski
Vice President
Engineering Department

Section 1.0 - Safety

1.0 Safety Introduction

As with the operation of all machinery, safe operation of the XZR-7000 is a major concern of ABM International, Inc. The purpose of this section is to inform personnel of the safe and prudent operation of an XZR-7000.

We have attempted to recommend the most effective methods and calculations to warn against actions that could result in personal injury, or make equipment unsafe. It is important to understand that ABM cannot anticipate, or list all conceivable safety methods and warn of all the possible hazards. In the interest of promoting safety, ABM advises that the operating personnel should always make sure that personal safety and the safe operation of the machine will not be adversely affected by their actions.

It is imperative that the operating personnel of the XZR-7000 read and understand the information in this manual before operating the machine.

1.1 Safety Policy Statement

The conservation of the assets of any company, which include the buildings, equipment, supplies and inventories as well as personnel, must be and is the responsibility of all levels of management. The purpose of a personnel and property conservation program is to insure that all phases of management recognize that personnel and property conservation are both inseparable parts of a company's objective...to produce quality products at the lowest possible cost.

Safety of personnel in every aspect must be of first consideration. The implementation of a conservation program will eliminate human suffering and effectively lower the direct and indirect costs resulting from employee injury. It will substantially reduce the exposure and probability of damage and / or loss of company's physical assets.

1.2 Safety Practices

The safety factors must be observed to ensure safe operation of the XZR-7000.

1. Read and understand the operating instructions of the XZR-7000 before operating.
2. Use extreme caution when working around the XZR-7000 electrical controls.
3. Keep hands or other body parts away from the moving parts of the XZR-7000.
4. Wear appropriate personal safety protection.
5. Stop the XZR-7000 immediately at any sign of malfunction or danger.
6. Do not crawl under or into the XZR-7000 for any reason during the operation of the machine.
7. Do not reach into the XZR-7000 at any time during the operation of the machine.
8. Do not climb, walk, or stand on the XZR-7000 at any time.
9. Do not tamper with factory installed guards and or safety devices.

10. Never operate machinery without all ABM installed guards and safety devices intact, and in working order.
11. Before starting the XZR-7000, ensure that no loose tools, bars or parts are lying in or on any part of the machine.
12. Proper fire fighting equipment should be kept in good operating condition and kept near in the event of fire.
13. Never attempt to service any of the pneumatic components until the unit is relieved of all air pressure.
14. Do not wear loose clothing or jewelry when operating the XZR-7000.
15. Always keep hair from coming in contact with moving parts.

Section 2.0 – Machine Setup

2.0 Setup Instructions

The XZR-7000 is fully tested prior to breakdown and delivery to the customer. As a result, this manual provides a section on machine setup so that you can install the machine. Please read this manual in its' entirety and follow all ABM instructions, especially the inspections. Total setup time, less power and air hook-up, should take approximately 10-12 hours.

Upon receipt of the machine, check to ensure that there is no visible damage **Note: Some components may be in different locations depending on the version of the machine.**

2.1 Machinery Positioning

Determine the location in your facility for the panel cutter. Attach the four (4) machine legs supplied with the machine to the plates that were used to bolt the machine to its skid. Level and position the machine in the desired location. Though not required, ABM recommends that the machine be bolted to the floor.

Attach two (2) machine legs to the pull arm linear drive assemblies and loosely fasten the linear drives to the back mount plates on the main unit (See Figure 2.0). **NOTE: The linear drive assembly with the flexible wire duct must mount closest to the electrical cabinet.**

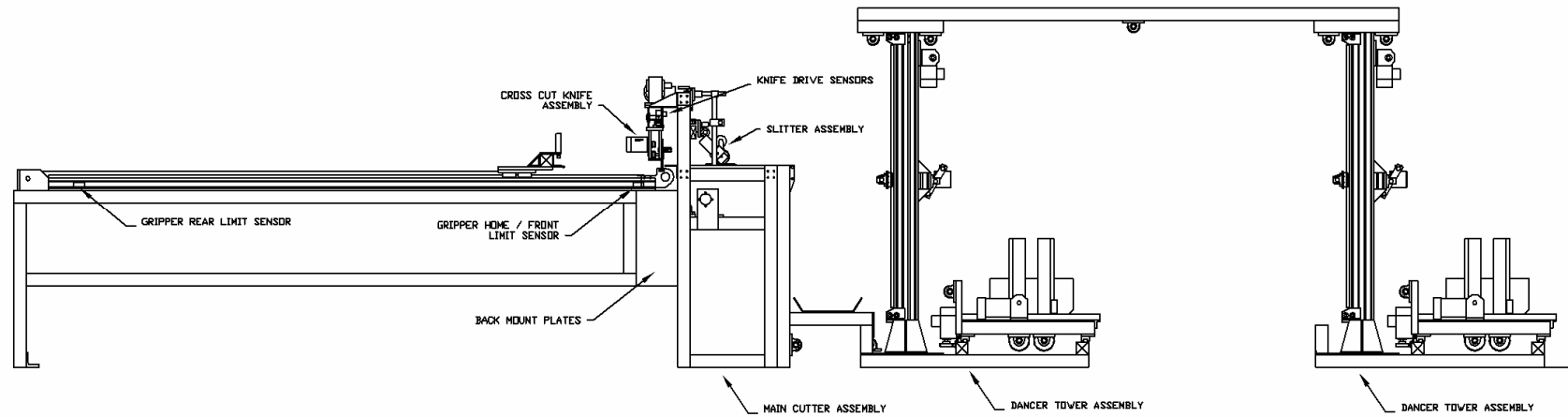


Figure 2.0: Machine layout

Install the #40 chains from the main servo drive shaft up to the two (2) linear pull drives and tighten the linear drive to back mount plate bolts (See Figure 2.1). If the chains are too loose or too tight the linear drives can slide along the welded rail assembly by loosening the side bolts. Adjust the chain tension if necessary and retighten the bolts.

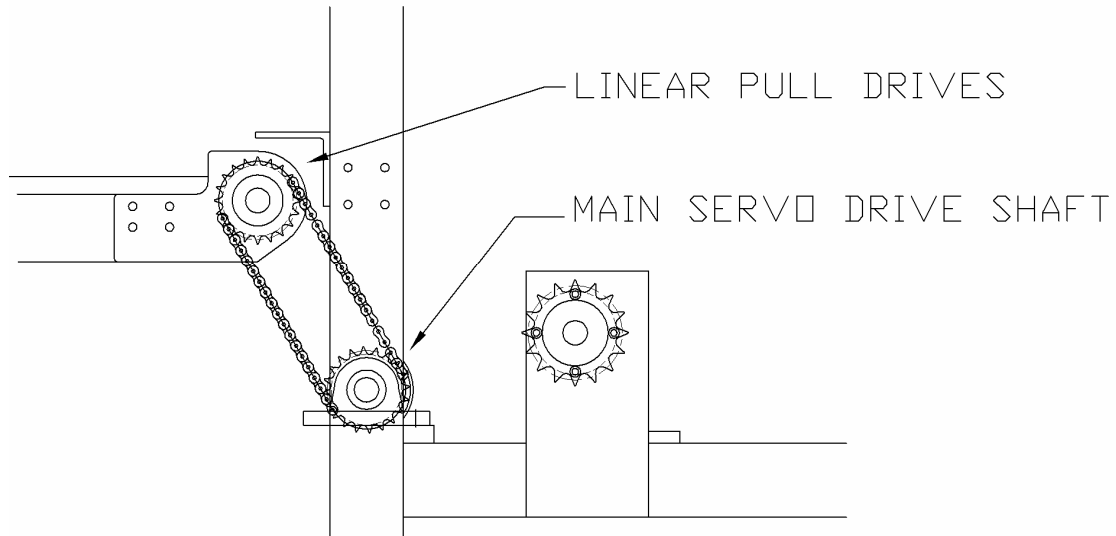


Figure 2.1 : Pull drive chain

Install the pneumatic gripper onto the linear rail assemblies. Manually jog the pneumatic gripper as close to the fingers as possible and align the gripper so that it is equidistant from the main unit on both ends. Also check for adequate clearance between the gripper fingers and main cutter fingers. If the gripper is misaligned, loosen one of the sprockets found on either end of the chain drive. Set the alignment and then re-tighten the taper-lock bushing in the sprocket.

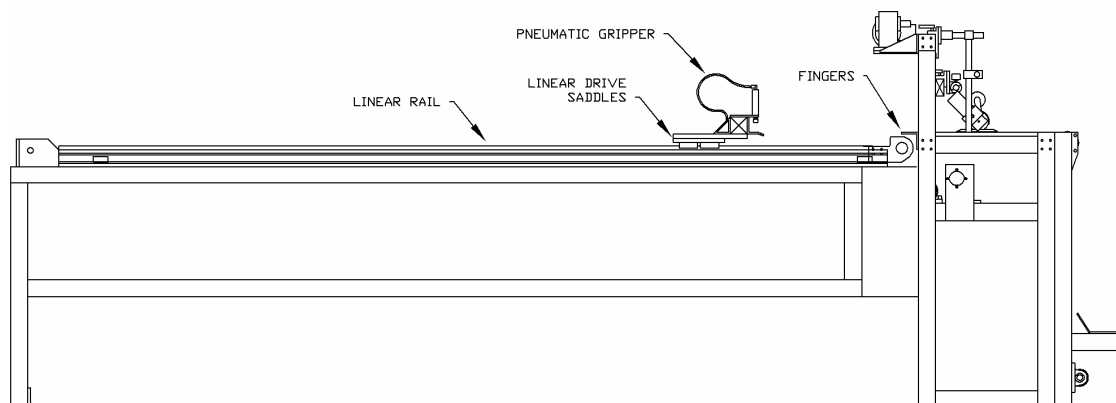


Figure 2.2 : Pneumatic gripper mounted on the linear rails.

If equipped, position the stacking table approximately 12” from the main unit. Center the table equally between the left and right linear drive assemblies. Connect the individual table lift motor, conveyor motor and limit switch plugs to the correct plug coming from the main electrical cabinet.

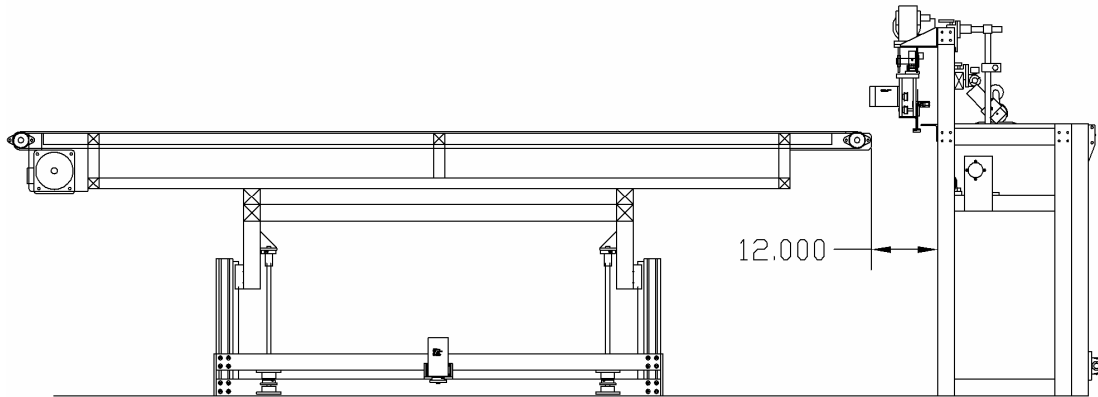


Figure 2.2 : Conveyor and Lift Table

Position the first dancer tower assembly approximately 17-24” from the front of the main unit. Install the 3” x 3” walkway support beams from the dancer tower to the main unit (See Figure 2.3). Install the walkway onto the support beams and position it such that the material will not rub on the walkway when wrapped around the bottom roller up to the top roller on the main unit. Connect the first dancer tower to the main electrical cabinet using the supplied electrical schematics.

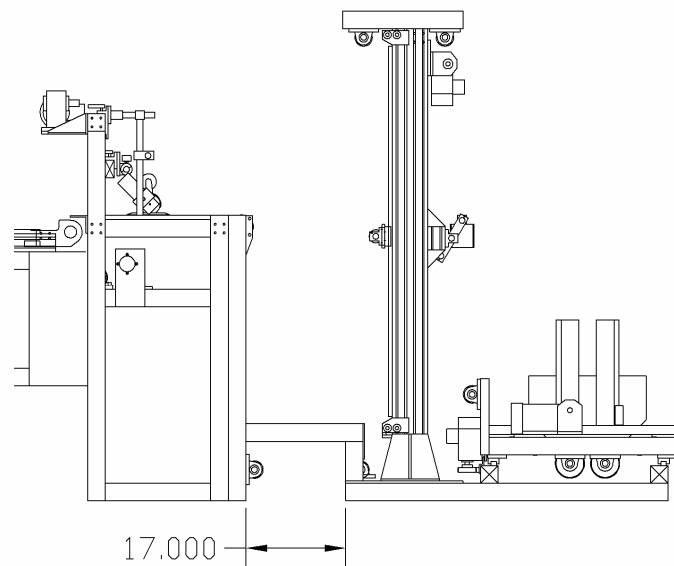


Figure 2.3 : First dancer tower with walkway support beam installed

Install any other dancer units. Make sure to allow for enough room for access with carts or other roll handling equipment. Install the upper 1-1/2" square beam connecting adjacent dancer units along with the material support roller(s). Connect the dancer tower into the electrical system following the electrical diagrams provided.

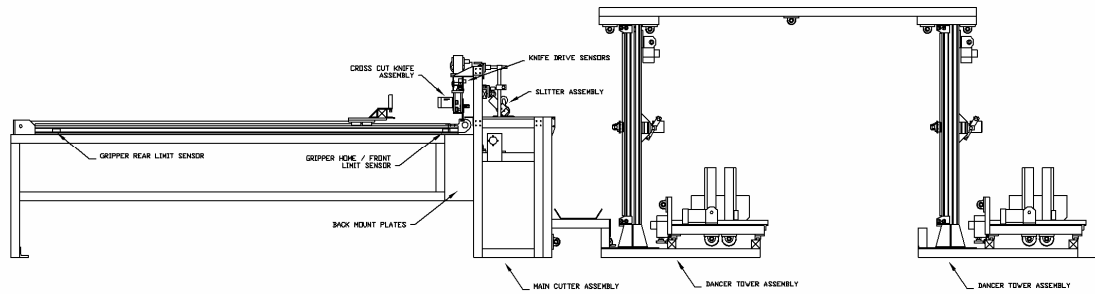


Figure 2.4 : Staged dancer tower assemblies with upper beam installed

Run a 220VAC, single phase, 20A line to the main cabinet location. Run additional 220VAC, single phase, 20A lines to the dancer units. As with any machine, power should be run through approved conduit and ducting with proper termination. ABM does not supply a main power disconnect with the machine and recommends that the customer install one. You may connect the power to the machine at this time.

Plumb the machine with an air line capable of at least 100psi. ABM recommends that an air line of no less than .5 inches diameter (3/4" recommended) be used for supply air.
NOTE: DO NOT CONNECT AIR TO MACHINE YET. UNTIL PROPER ELECTRICAL FUNCTION IS CONFIRMED. CONNECTING AIR AT THIS TIME CAN POSSIBLY RESULT IN INJURY.

2.2 Electrical Inspection – How the Control System Works

This section will confirm that the electronics of the panel cutter are functioning properly.

WARNING: ELECTRICAL SHOCK HAZARD. IF A PROBLEM IS FOUND, YOU SHOULD NOT ATTEMPT TO REPAIR IT WITH THE POWER ON. DISCONNECT THE MACHINE PRIOR TO ADJUSTING ANY COMPONENTS WITHIN THE ELECTRICAL CABINET.

Before testing the electronics of the panel cutter, the user must understand how the control system works. The panel cutter consists of machinery modules. The dancer towers control edge guiding and web control. The main cutter controls speed, distance and width of cut. The table, if equipped, controls the stack height in relation to gripper arm. These modules work together to perform a common task. The communication

between modules is limited to error reports and in some cases ready to run reports. The main cutter monitors the reports from the dancer towers and table and performs the job based on the status of the other modules. If a table or dancer tower encounters an error, the information is relayed to the main controller. The main controller stops production and informs the operator of the error condition. The communication is open loop, meaning one way. The main cutter knows the status of the other modules, but the table and dancer towers are only aware of their own status. If a problem is encountered with a module, that specific module must be corrected to return the machine to proper functioning.

2.2 Dancer Tower Inspection

The dancer towers perform three functions – material edge guiding, consistent web tension and end of roll sensing. The dancer towers can be checked for proper functioning with a few basic tests. All of these tests can be performed with the front panel pushbuttons, edge guide sensor array and the web tension roller.

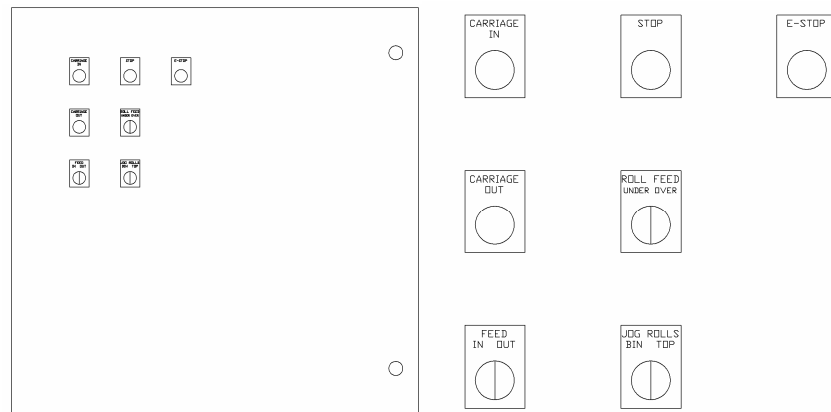


Figure 2.5: Dancer tower control panel, pushbuttons and toggle switches.

The front panel consists of 7 buttons and toggle switches. The buttons and functions of the buttons are as follows:

Carriage IN: Pressing and holding this button moves the roll carriage away from the electronics cabinet.

Carriage OUT: Pressing and holding this button moves the roll carriage towards the electronics cabinet.

Feed Roll IN/OUT: Moving this toggle to the IN or OUT position causes the roll carriage rollers and upper roller to feed material IN or pull material OUT of the dancer tower.

STOP: This button tells the entire panel cutter to stop its current cycle

Roll Feed UNDER/OVER: This toggle is used depending upon how the material is loaded. OVER is selected if the material is fed into the machine from the top side of the

roll in the cradle. UNDER is used if the material is fed into the machine from the bottom of the roll in the cradle.

Jog roll BIN/TOP: This toggles is used when the cradle or top feed roller need to be jogged separately. Selecting BIN jogs only the cradle. Selecting TOP jogs only the top feed roller.

E-STOP: This is an emergency stop that disconnects main power from all the modules of the machine. Any E-stop on the machine will disengage power to all modules.

With the power ON to all modules of the machine, press each of the buttons adjust the toggles to confirm that the machine functions as described above.

The edge guide sensor array consists of three sensors. The two sensors closest to the electrical cabinet control the edge guide. Positioning the sensors close to one another produces a tight edge tolerance. Positioning the sensors further apart produce a loose edge tolerance (see figure 2.6). Over adjustment of the sensor distance produces an inactive edge control. The third sensor in the array detects material. If the material detect sensor is not blocked by material for more than 5 seconds, the dancer tower shuts down the main cutter with an error signal.

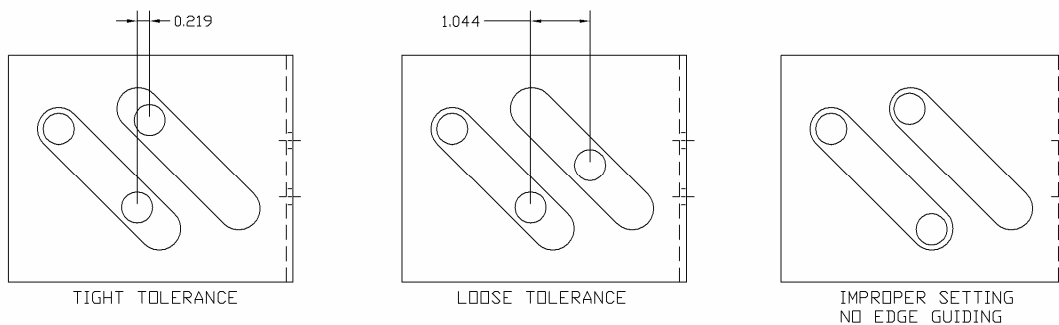


Figure 2.6: Edge sensor adjustment

To perform the final test, block the reflective tape on the sensor array so that none of the sensors see the tape. Manually lift up on the web tension roller, so that the roller comes off of the lower limit sensor. The roll cradle and top feed roller should start to turn and the edge guide should move the cradle away from electronics cabinet. Lower the roller onto the limit and the machine should come to a stop.

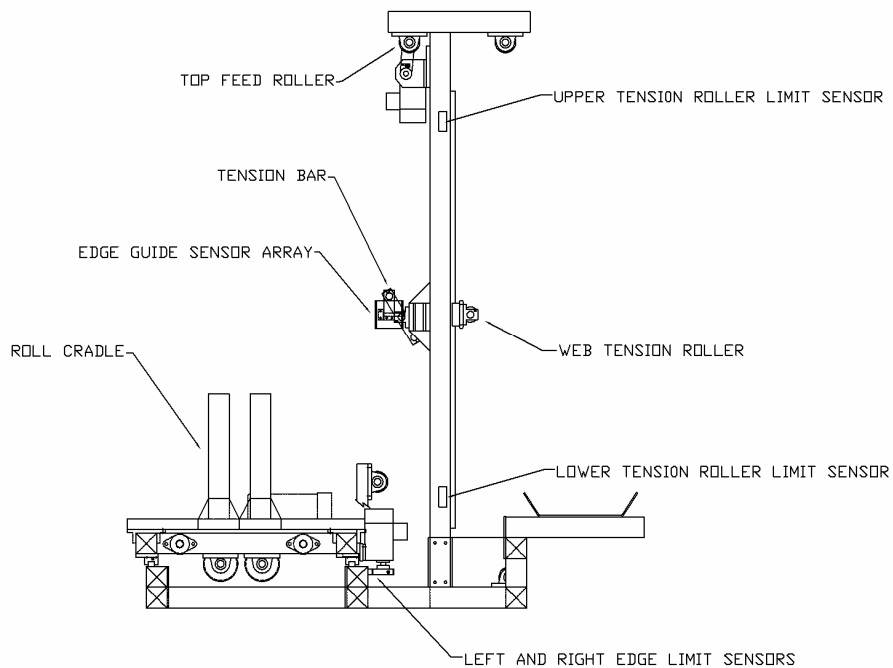


Figure 2.7: Dancer tower layout

Now unblock the edge guide sensor closest to the electronics cabinet. Again lift up on the web tension roller. The cradle and top roller should begin to move. The edge guide should not move left or right. Lower the tension roller on to the lower limit and the machine should come to a stop.

Finally, unblock both of the edge guide sensors but be sure to keep the material sensor blocked. Lift up on the web tension roller. The cradle rollers and top roller should begin to move. The edge guide should move the cradle toward the electronics cabinet. Lower the tension roller on to the lower limit and the machine should come to a stop.

If any of the above tests failed, consult the wiring diagrams and confirm that the sensors are communicating with the PLC in the cabinet. Perform these tests for all dancer tower assemblies connected to the machine.

2.3 Lift and Conveyor Table Inspection

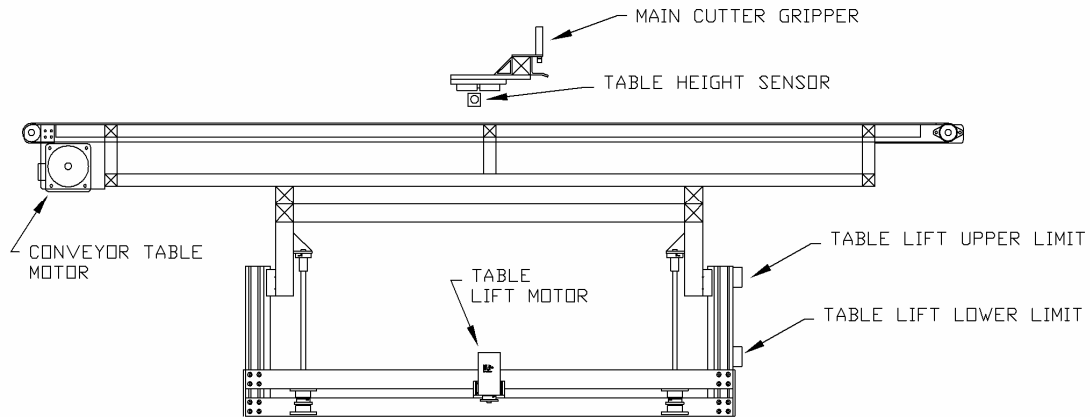


Figure 2.8: Lift and conveyor table assembly

The lift table and conveyor table (see figure 2.8) perform two functions. The conveyor allows the user to remove stacks of material that have accumulated on the machine. The lift table works with the main cutter to keep the stack in production at a consistent height so the material cross cuts and stacks properly.

Proper table function can be checked by using the pushbutton control box located on the left side of the main cutter assembly by the table access area (see figure 2.9). Pressing the Feed IN or Feed OUT buttons will run the conveyor table IN or OUT of the machine. Pressing the TABLE UP or TABLE DOWN buttons will jog the table UP and DOWN.

The table consists of three sensors, table height, table lift upper limit and table lift lower limit. These are the only sensors that control the table module. To test the table up limit, press and hold the TABLE UP button. When the table reaches the upper sensor, the table lift should stop regardless of the button. Repeat the same procedure for the lower limit sensor. These sensors should be adjusted so that the upper limit sensor keeps the table from colliding with the gripper or any other part of the main cutter. The lower limit should be adjusted so that it keeps the table from lowering so much that it jams.

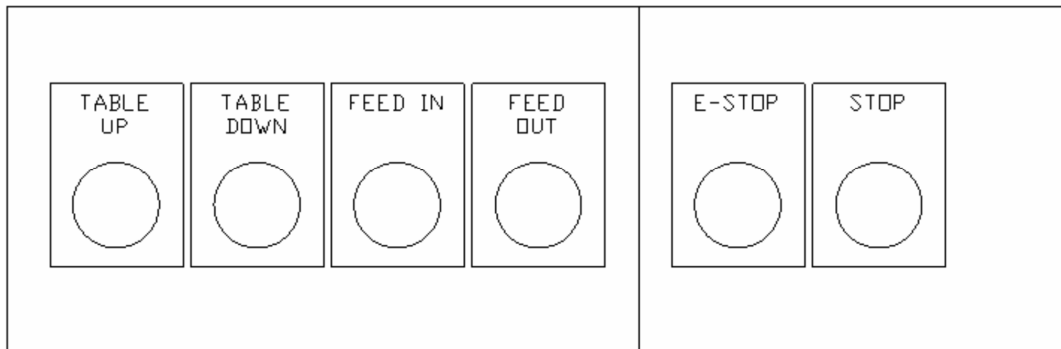


Figure 2.9: Table push button control

To check the table height sensors proper functioning, block the sensor or the reflector located on the opposite end of the pneumatic gripper. When the sensor is covered for more than 3-5 seconds, the table will lower. If the sensor is uncovered, the table will stop lowering. **NOTE: Some panel cutters will require the user to initialize the main cutter prior to testing the table height sensor. If the height sensor is unresponsive, initialize the main cutter and try again.**

2.4 Main Cutter Inspection

The main cutter is the most complex module of the panel cutter system (see figure 2.0). It consists of a cross cut knife assembly and servo controlled pneumatic gripper. Depending upon the options that were purchased with the machine the main cutter may also contain slitters and vacuum systems.

To test the main cutter, power and air must be applied to the main cutter and all of the modules, tables and dancer towers, must be powered ON as well.

First check the proper function of the E-stop button.

- Step 1: Depress any of the E-STOP buttons. All power to the machine and dancer towers should turn off.
- Step 2: Turn to release the E-STOP button and press the “ON” or “ENERGIZE” button Found on the main cabinet control panel. Power should be restored to the entire machine.
- Step 3: Confirm that all E-STOPS are in working order. Do not forget to check the E-STOPS found on the dancer units as well. See Figure 2.10 for E-STOP locations.

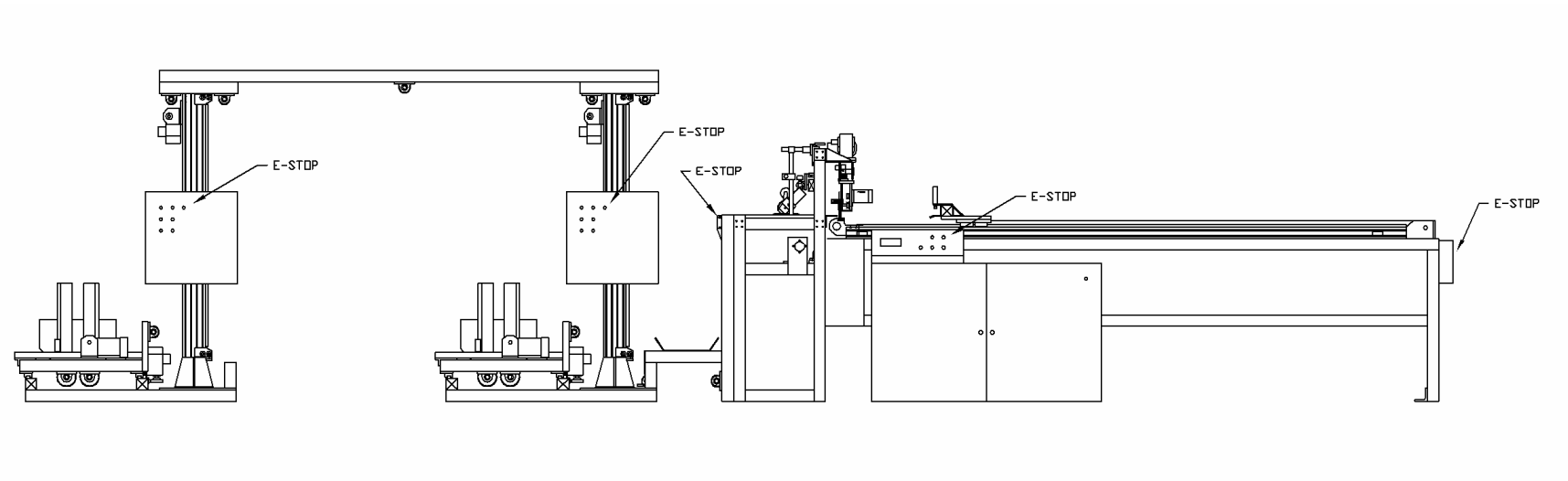


Figure 2.10: E-STOP Locations

If any of the E-STOPS fail to shut-down the entire machine, consult the wiring diagrams and repair the malfunctioning circuit or component. Once the E-STOP circuit has been verified, the main cutter can be tested. When the XZR-7000 is powered ON, the electronics run a communication diagnostic between the operator interface and the controller. During the communication diagnostic, the screen in figure 2.11 is displayed



Figure 2.11: Power up screen

Once communication is established, the machine proceeds to the Initialize screen seen in Figure 2.12. From the initialize screen the operator may access the maintenance menus or proceed with the initialization of the machine.



Figure 2.12: Initialize screen

The initialize menu allows the user to enter the maintenance menus of the controller. The maintenance menus allow the user to adjust parameters of the production cut sequence as well as troubleshoot machine problems. The maintenance menus are password protected to prevent unskilled users from entering the menu. To enter the maintenance screen, touch the password button, enter the correct 4-digit password (1221) with the on screen keyboard and press enter to set the password. An incorrect password will not allow the

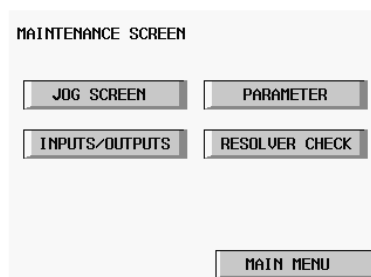


Figure 2.13: Maintenance screen

“maintenance” button to work. A correctly entered password will open the maintenance screen as seen in figure 2.13.

The maintenance screen is a link to the various windows that help maintenance troubleshoot problems with the machinery as well as adjust vital parameters for proper functioning.

The parameter screen (figure 2.14) allows maintenance to adjust the values critical to the production cycles of the machine. Maximum speed, acceleration, and deceleration rates will effect the gripper and how fast it pulls material. The “2nd pull” and “3rd pull” are values, in inches, that tell the machine how far to move the material after it has been cross cut. The second pull distance adjusts how far the gripper pulls the material onto the table or a-frame. The third pull distance adjusts how far the gripper moves to clear the material after it has been released onto the table.

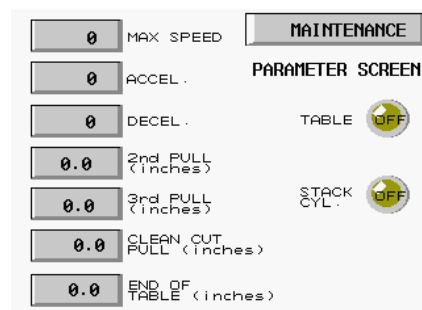


Figure 2.14: Parameter screen

The clean cut pull distance tells the controller how much material to pull and cut during a clean cut cycle in the operator screen. The end of table tells the controller the distance to move to drop off a clean cut cycle piece of material. The table and stack cylinder buttons allow maintenance to enable or disable these components for certain jobs.

For test purposes, set the MAX SPEED to 100, set the ACCEL and DECEL to 40, set the 2nd PULL to 6, set the 3rd PULL to 6, set the CLEAN CUT PULL to 24 and the END OF TABLE to 24 as well. If the machine is equipped with a table, turn the TABLE ON. Exit the parameter menu and enter the I/O menu and then the INPUTS menu.

The inputs and outputs can be viewed and effected in there respective menus. All of the inputs, as seen in figure 2.15, display an ON and OFF condition. A light green lamp next to the corresponding input signifies an ON condition. A dark green lamp signifies an OFF condition. Physically manipulating any of the sensors on the main cutter unit will record a change on the input screen. Confirm that all of the sensors and buttons are responding by manually tripping each one. Upon completion, press the I/O SCREEN button and then the OUTPUTS button. Proceed to test the outputs.

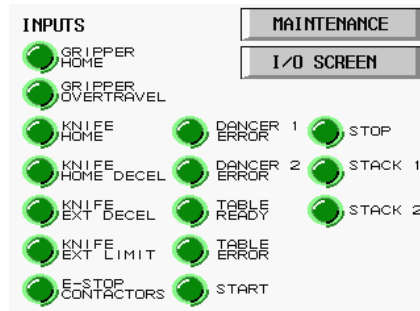


Figure 2.15: Input screen

All of the outputs, as seen in figure 2.16, display an ON and OFF condition. A light yellow lamp next to the corresponding input signifies an ON condition. A dark yellow lamp signifies an OFF condition. Pressing any of the lamps next to the corresponding output will cycle the output ON or OFF. Test each of the outputs to confirm the proper operation. After successful completion press the MAINTENANCE button and then the JOG SCREEN button. Check the proper functioning of the servo controller and motor.

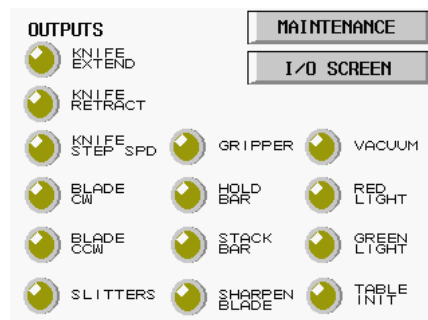


Figure 2.16: Output screen

The jog screen, figure 2.17, allows the user to extend the gripper away from or retract the gripper toward the cross cut knife of the panel cutter. The jog speed may be adjusted for fast (200-900) or slow (50-200) operation. Pressing and holding the “gripper retract” or “gripper extend” buttons cause the gripper to move. If the buttons are released, the machine decelerates and stops in position. Confirm the proper operation of the servo motor and proceed back to the INITIALIZE MENU.

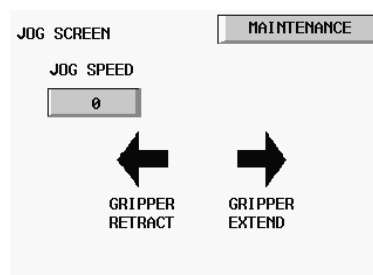


Figure 2.17: Jog screen

To continue with the initialization sequence, press the initialize button. The initialize in process screens appears (figure 2.18) and informs the operator of the order in which the machine is initialized. First the knife is brought to its home position then the gripper is brought into its home position, located closest to the cross cut. Finally, if equipped, the table runs through the initialize sequence.

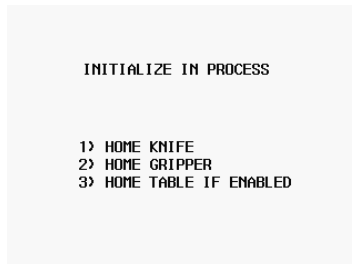


Figure 2.18: Initialize in process screen

Upon completion of initialization, the main menu screen appears (see figure 2.19). Please note that the main menu and initialize screen differ only by the button in the lower left corner of the screen.

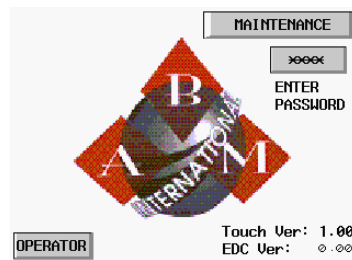


Figure 2.19: Main menu screen

The main menu allows the user to enter the operator screen (see figure 2.20). The operator screen provides all of the information necessary to perform the cut to length operations of the panel cutter. Touching the number window for “length” or “# of cuts” will bring up an on screen keyboard (figure 2.21) that allows the operator to enter the desired values.

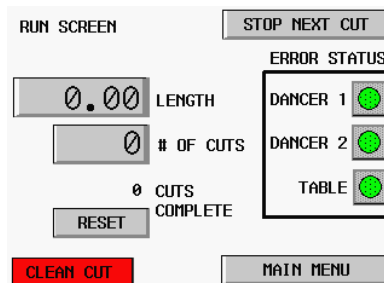


Figure 2.20: Operator Screen

Enter a value of 45 for the length and 10 for the # of cuts. Press the clean cut button. The gripper should clamp and pull back 24” the cross cut knife should traverse the machine. Then the gripper should move back 60” and release the clamps and return to home.

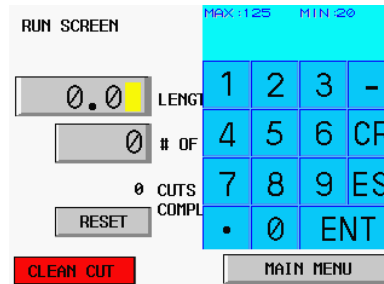


Figure 2.21: Operator screen with on screen keyboard

Now press the green START button on the main control panel. The gripper will clamp, the material hold down will release and the gripper will move 45” from the home position. The material hold down will clamp and the cross cut knife will traverse the machine. The gripper will then pull back 6” release the grippers and pause. Then the gripper will move back another 6” and fly forward back to the home position. The cuts complete counter on the display will increment +1 and the machine will continue until it has performed 10 cuts.

Setup and testing is now complete.

Section 3.0 – Operation

3.0 Dancer Tower Systems and Operation

The dancer towers perform three functions – material edge guiding, consistent web tension and end of roll sensing.

The front panel consists of 7 buttons and toggle switches. The buttons and functions of the buttons are as follows:

Carriage IN: Pressing and holding this button moves the roll carriage away from the electronics cabinet.

Carriage OUT: Pressing and holding this button moves the roll carriage towards the electronics cabinet.

Feed Roll IN/OUT: Moving this toggle to the IN or OUT position causes the roll carriage rollers and upper roller to feed material IN or pull material OUT of the dancer tower.

STOP: This button tells the entire panel cutter to stop its current cycle

Roll Feed UNDER\OVER: This toggle is used depending upon how the material is loaded. OVER is selected if the material is fed into the machine from the top side of the roll in the cradle. UNDER is used if the material is fed into the machine from the bottom of the roll in the cradle.

Jog roll BIN/TOP: This toggles is used when the cradle or top feed roller need to be jogged separately. Selecting BIN jogs only the cradle. Selecting TOP jogs only the top feed roller.

E-STOP: This is an emergency stop that disconnects main power from all the modules of the machine. Any E-stop on the machine will disengage power to all modules.

With the power ON to all modules of the machine, press each of the buttons adjust the toggles to confirm that the machine functions as described above.

The edge guide sensor array consists of three sensors. The two sensors closest to the electrical cabinet control the edge guide. Positioning the sensors closer to one another produces a tight edge tolerance. Positioning the sensors further apart produce a loose edge tolerance (see figure 3.1). Over adjustment of the sensor distance produces an inactive edge control. The third sensor in the array detects material. If the material detect sensor is not blocked by material for more than 5 seconds, the dancer tower shuts down the main cutter with an error signal.

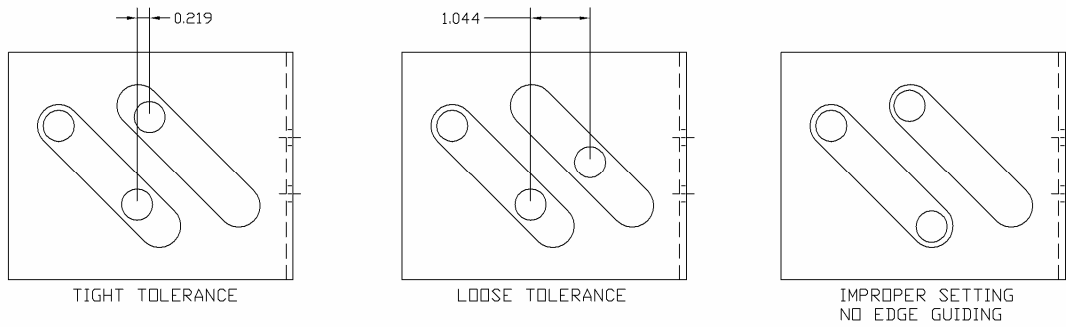


Figure 3.1: Edge sensor adjustment

When the gripper of the main cutter assembly pulls material the web tension roller (Figure 3.2) is lifted off of the lower limit sensor. The roll cradle and top feed roller start to feed more material to the web tension roller causing it to drop down to the lower limit position. While the rollers feed, the edge guide motor moves the cradle left and right to maintain a constant edge position. When the roller returns to bottom, the dancer tower stops feeding material.

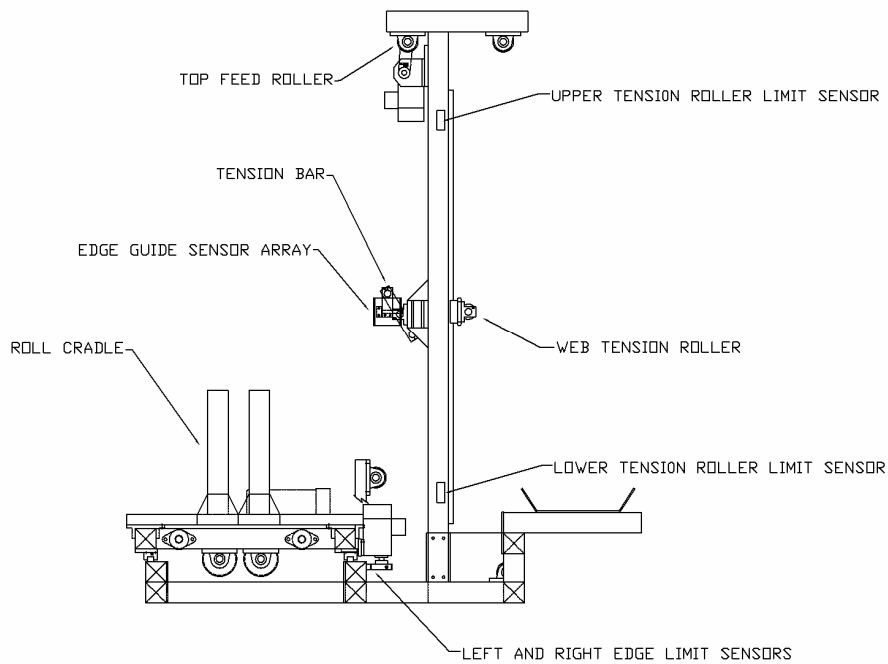


Figure 3.2: Dancer tower layout

The dancer tower is also fitted with a tension bar. This bar adjusts the tension coming off of the roll and feeding into the dancer tower. Adjustment to this bar can be made as seen in Figure 3.3.

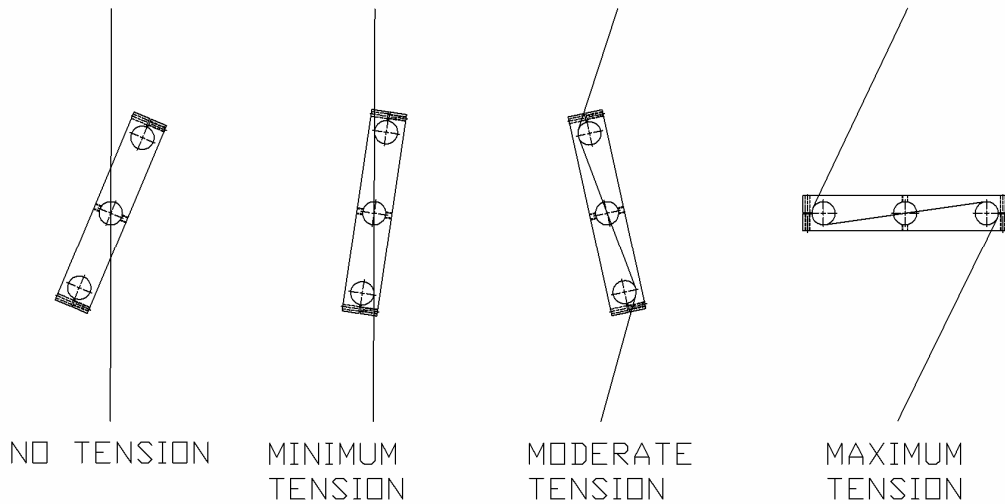


Figure 3.3: Dancer tension bar adjustment

Too much tension may cause inadequate feeding from the roll of material up to the top roller. Not enough tension may cause large bellows of material to form around the web tension roller creating inconsistent pull tensions. Every material and roll is different, but a moderate tension is the best for general purpose use. Tension of the material may also be adjusted by modifying the speed or frequency of the inverters that control the cradle rollers and the top roller. It is best to run the top roller faster than the cradle rollers. This will ensure that bellows of material do not form in the tension roller area. It may also be necessary to adjust acceleration and deceleration of the rollers. To perform this task, consult the provided inverter drive manual.

3.1 Lift and Conveyor Table Operation

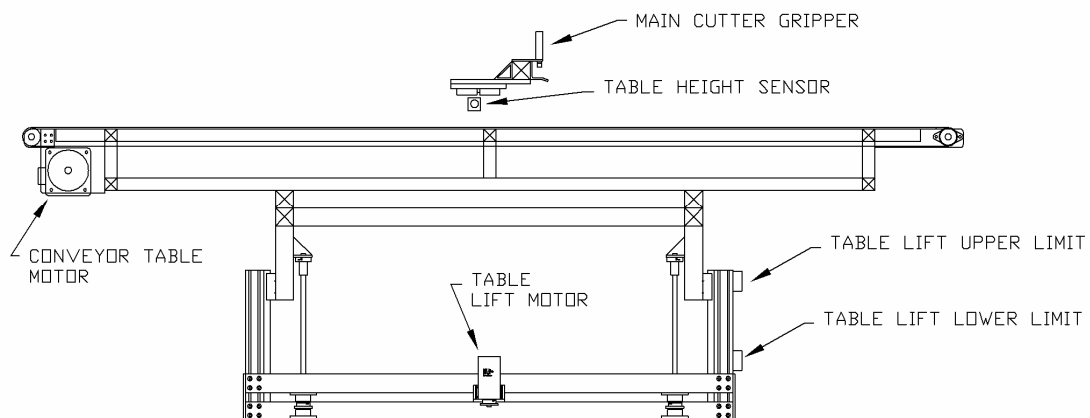


Figure 3.4: Lift and conveyor table assembly

The lift table and conveyor table (see figure 3.4) perform two functions. The conveyor allows the user to remove stacks of material that have accumulated on the machine. The

lift table works with the main cutter to keep the stack in production at a consistent height so the material cross cuts and stacks properly.

The table height sensor should be adjusted so that the gap between the pneumatic gripper and the table top or stack of material is as small as possible. This will ensure that the stack is as straight as possible and will help reduce binding of the cross cut knife due to material drape (see figure 3.5).

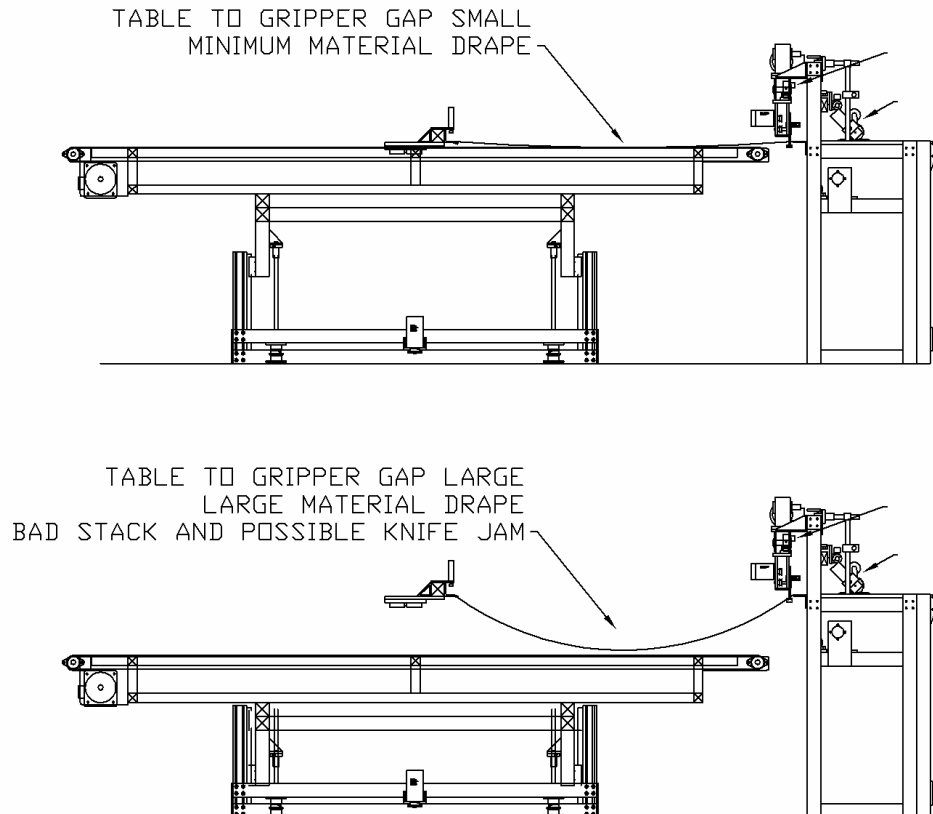


Figure 3.5: Material height sensor and table adjustment

3.2 Slitter and Vacuum Operation

Slitter systems are an optional feature of the machine that allows for the precise cutting of width in addition to the standard length cutting. Vacuum systems provide a means of removing selvage (1-2" maximum width) from slitting operations performed on the edges of product. Larger selvages are best handled by pulling through the machine with the pneumatic gripper and stacking them on the table.

Careful attention must be paid when operating a panel cutter with slitters and vacuum systems installed. The gripper can pull much faster than most materials can be slit. Because of this, the machine's maximum speed and acceleration should be modified to accommodate the slitters. Excessive speed will cause material tearing, slitter jams or

slitter failure. Also note that the minimum selvage cut width is approximately 1". Any less may cause slitter jams as well as inconsistent edge finish.

When using the vacuum system in conjunction with a slitter be sure to position the vacuum head appropriately. The best position for a vacuum head is the point furthest beyond the position where the slitter is cutting the selvage (see figure 3.6). Also, positioning the vacuum head as close to in-line behind the knife will reduce the side loading of material on the slitter blade thereby reducing the chance of jamming. Finally, the vacuum head intake should be positioned as close to the table top as possible, this will reduce lift off of the material and help to maintain proper tension of the material as it passes over the slitter base plate.

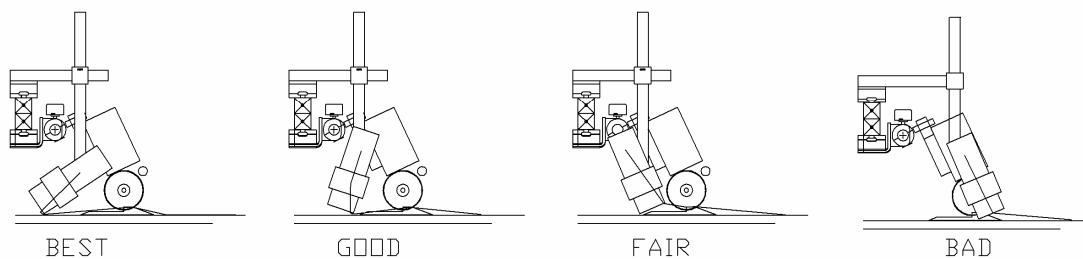


Figure 3.6 Slitter and vacuum positioning

3.3 Main Cutter Operation

When the XZR-7000 is powered ON, the electronics run a communication diagnostic between the operator interface and the controller. During the communication diagnostic, the screen in figure 3.7 is displayed



Figure 3.7: Power up screen

Once communication is established, the machine proceeds to the Initialize screen seen in Figure 3.8. From the initialize screen the operator may access the maintenance menus or proceed with the initialization of the machine.



Figure 3.8: Initialize screen

To continue with the initialization sequence, press the initialize button. The initialize in process screens appears (figure 3.9) and informs the operator of the order in which the machine is initialized. First the knife is brought to its home position then the gripper is brought into its home position, located closest to the cross cut. Finally, if equipped, the table runs through the initialize sequence.



Figure 3.9: Initialize in process screen

Upon completion of initialization, the main menu screen appears (see figure 3.10). Please note that the main menu and initialize screen differ only by the button in the lower left corner of the screen.

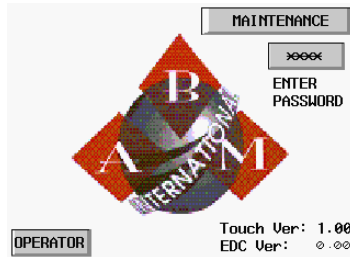


Figure 3.10: Main menu screen

The main menu allows the user to enter the operator screen (see figure 3.11). The operator screen provides all of the information necessary to perform the cut to length operations of the panel cutter. Touching the number window for “length” or “# of cuts” will bring up an on screen keyboard (figure 3.12) that allows the operator to enter the desired values.

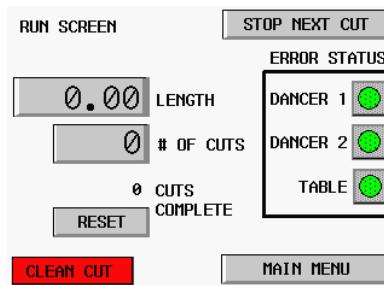


Figure 3.11: Operator Screen

The reset button returns the “cuts complete” counter to zero. The “cuts complete” stores the number of cuts made (up to 9999) and retains that value until it is reset. Pressing the “clean cut” button performs a one time cut of material to prepare the edge for production cutting. The “stop next cut” button signals the machine to finish its current cycle and return to home and wait for further instruction. The “error status” display helps keep the operator informed of issues with the table and the dancer towers. A green light signifies that the equipment is operating normally and a red light signifies that there is a problem that needs attention.

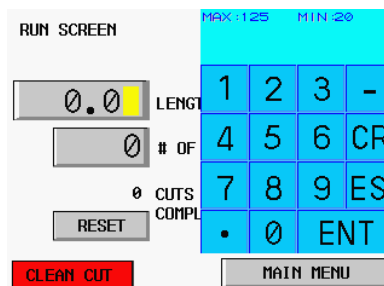


Figure 3.12: Operator screen with on screen keyboard

Pressing the “main menu” button in the operator screen returns the user to the main menu (see figure 3.10).

The main menu and the initialize menu allow the user to enter the maintenance menus of the controller. The maintenance menus allow the user to adjust parameters of the production cut sequence as well as troubleshoot machine problems. The maintenance menus are password protected to prevent unskilled users from entering the menu. To enter the maintenance screen, touch the password button, enter the correct 4-digit password with the on screen keyboard and press enter to set the password. An incorrect password will not allow the “maintenance” button to work. A correctly entered password will open the maintenance screen as seen in figure 3.13.

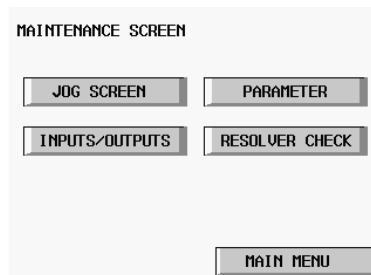


Figure 3.13: Maintenance screen

The maintenance screen is link to the various windows that help the maintenance troubleshoot problems with the machinery as well as adjust vital parameters for proper functioning.

The jog screen, figure 3.14, allows the user to extend the gripper away from or retract the gripper toward the cross cut knife of the panel cutter. The jog speed may be adjusted for fast (300-900) or slow (50-300) operation. Pressing and holding the “gripper retract” or “gripper extend” buttons cause the gripper to move. If the buttons are released, the machine decelerates and stops in position.

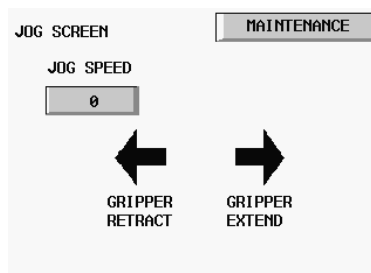


Figure 3.14: Jog screen

The resolver check screen (see figure 3.15) allows the user to confirm the proper functioning of the servo motor and the resolver feedback system. In this screen the user may enable or disable (kill) the servo motor. When the servo is disabled, the gripper can be moved manually. When the motor is enabled, the servo locks the movement of the

gripper and manual position change is impossible. The commanded, actual and follow error display the values of the grippers current location.

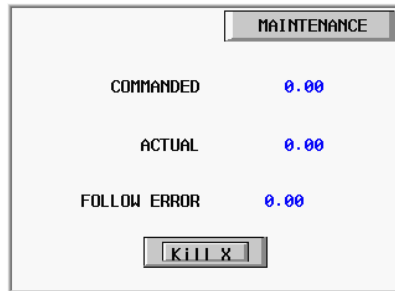


Figure 3.15: Resolver check screen

The parameter screen (figure 3.16) allows maintenance to adjust the values critical to the production cycles of the machine. Maximum speed, acceleration, and deceleration rates will effect the gripper and how fast it pulls material. The “2nd pull” and “3rd pull” are values, in inches, that tell the machine how far to move the material after it has been cross cut. The second pull distance adjusts how far the gripper pulls the material onto the table or a-frame. The third pull distance adjusts how far the gripper moves to clear the material after it has been released onto the table.

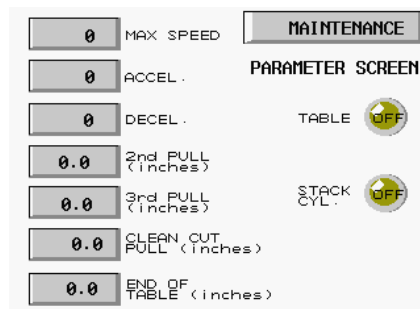


Figure 3.16: Parameter screen

The clean cut pull distance tells the controller how much material to pull and cut during a clean cut cycle in the operator screen. The end of table tells the controller the distance to move to drop off a clean cut cycle piece of material. The table and stack cylinder buttons allow maintenance to enable or disable these components for certain jobs.

The inputs and outputs can be viewed and effected in there respective menus. All of the inputs, as seen in figure 3.17, display an ON and OFF condition. A light green lamp next to the corresponding input signifies an ON condition. A dark green lamp signifies an OFF condition. Physically manipulating any of the sensors on the main cutter unit will record a change on the input screen.

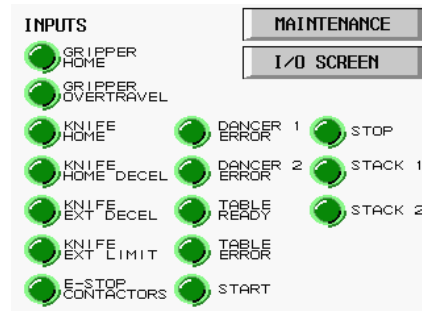


Figure 3.17: Input screen

All of the outputs, as seen in figure 3.18, display an ON and OFF condition. A light yellow lamp next to the corresponding input signifies an ON condition. A dark yellow lamp signifies an OFF condition. Pressing any of the lamps next to the corresponding output will cycle the output ON or OFF.

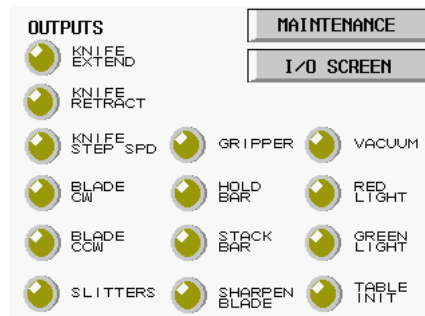


Figure 3.18: Output screen

The panel cutter can be forced to stop during normal operation by the tables or dancer towers that are connected to it. In most cases, these faults are recoverable and once the error is fixed, the user may return to normal production. When these errors occur, the machine will prompt the operator with a message that informs the operator of the trouble. The operator should investigate the problem, solve the problem and then clear the error on the screen. Once the error is cleared, the operator may return to normal operation. Figure 3.19 and 3.20 illustrate the standard error messages for the table and dancer towers.

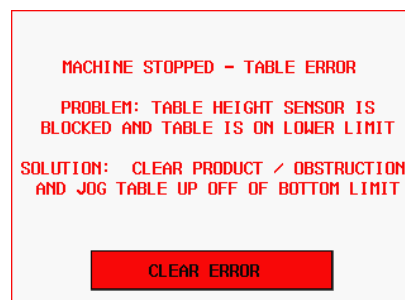


Figure 3.19: Table error message



Figure 3.20: Dancer tower error message.

In some instances, the machine may have a major fault (see figure 3.21). This can include limit switch activation, servo amplifier or motor failure or communication failure between the operator interface and controller. The fault screen will notify the user of the current fault and the type of fault that occurred. When these faults occur, the error is unrecoverable and the machine must be reset and power must be cycled OFF and ON once.



Figure 3.21: Major fault screen

Section 4.0 – Troubleshooting guide

This section is included to help diagnose and solve any problems that may occur with the XZR-7000. ABM has done its best to include as much information as possible. However, not all problems are listed, therefore ABM asks that whenever a problem occurs you contact a service technician at our home office. To reach service dial 281-443-4440 and ask for a service technician, they are on call 24 hours a day, seven days a week.

4.1 Electrical Power

The XZR-7000 runs on a 20 amp, 220VAC single phase supply line. Likewise, the dancer towers run on their own 20 amp, 220VAC single phase supply line. The servo controller, inputs (sensors) and outputs (valves) run on 24Vdc produced by the power supplies found in each of the cabinets.

4.2 Verifying Inputs and Outputs

Inputs and Outputs can be visibly verified for proper functioning. The dancer towers and table run off of programmable logic controllers (PLC). As inputs and outputs are turned on and off, the lights of the PLC will turn on and off. Similarly, the main cutter uses a controller with isolated I/O to control the machine. The inputs and outputs of the main unit will light as they turn on and off. All input and output troubleshooting should begin with a visible confirmation of proper functioning.

4.3 Pneumatic systems

The pneumatic system of an ABM XZR-7000 is very straightforward. The system consists of a valve block with four (4) valves, three (3) cylinders for material holding, forty to fifty (40-50) cylinders for gripping and pulling the product, one (1) cylinder for sharpening the blade, two (2) cylinders for table stacking (optional), two (2) hi-flo valves for the vacuum system (optional), and three (3) filter/regulator combo units.

Valve block: a device used to distribute air to multiple valves from a common location. The valve block on the XZR-7000 has four (4) valves and a 25-pin connector for communication to the controller.

Valve (individual): A valve is a device found on the valve block that is operated individually through the controller. It is possible to manually cycle an individual valve by depressing the small orange button located directly on the valve. A small screwdriver or a pen may be needed to depress the button properly. Removal of a valve for service is accomplished by loosening the small socket head cap screw located directly above the valve, and gently pulling the valve out away from the manifold. Installation is made by reversing the above procedure.

Cylinders: The cylinders are uneconomical to repair and thus any damage that may occur to a cylinder should be rectified by replacing the cylinder.

Quick exhaust valves (optional): These valve are mounted directly to the cylinder ports. They allow the cylinders to move more quickly by exhausting the air inside the cylinder faster than the main manifold can. The machine can operate normally with or without the valves installed.

Filter/regulator combo unit: The combo unit is the machines last line of defense against foreign materials (water, steel particles, etc.) found in a facilities pneumatic lines. The machine can be run without a combo unit but serious damage can occur to the valve block and cylinders. The combo unit also performs the task of regulating the incoming air pressure. Air pressure on both the hold down and sharpening cylinders is individually adjustable. Pressures should be set according to machine demand. Too low or too high a pressure may cause the machine to function improperly.

4.4 Troubleshooting notes

A few blank pages are provided so that you and your personnel can keep records and notes of machine problems. By using this section and keeping it attached to the manual, you will always have your own personalized quick reference repair section.

TROUBLESHOOTING NOTES:

Date	Problem	Solution

TROUBLESHOOTING NOTES:

Date	Problem	Solution

TROUBLESHOOTING NOTES:

Date	Problem	Solution

TROUBLESHOOTING NOTES:

Date	Problem	Solution

Section 5.0 – Parts List

This section lists the ABM part numbers needed to order any part on the XZR-7000. The section is divided into two lists. Both lists show the quantity, item description and ABM part number for all the components needed to completely rebuild a machine. ABM carries all of the components below in stock at all times. Any order placed before 6:00 P.M. CST can be shipped the same day for next day delivery. The parts/service department can be reached at (281)443-4440. As with any machine, buying the correct parts from the correct manufacturer will allow your machines to operate their best. Buying parts from sources other than ABM will void your warranty.

Main Cutter:

QTY	DESCRIPTION	ABM Part
1	Main cutting table assembly	A-2000-006
2	Main cutting table leg	A-2000-007
1	Main table drive roller assembly	A-2000-017
1	Main table bottom roller assembly	A-2000-018
2	Main cutting table gusset plate	M-2000-125
4	Main cutting table drive bearing plate	M-2000-126
2	Material carrier idler end cap	M-2000-137
1	Main table drive roller	M-2000-144
2	Main table end cap	M-2000-145
1	Main table drive roller shaft	M-2000-146
2	Main table drive roller plate	M-2000-147
1	Main table bottom roller	M-2000-148
1	Main table bottom roller shaft	M-2000-149
1	Servo feed drive plate	M-2000-152
1	Servo gripper drive bracket	M-2000-153
3	Main table compression bracket	M-2000-159
3	Compression cylinder mounting bracket	M-2000-160A
4	Cross knife mounting bracket	M-2000-161
1	Cross knife motor plate	M-2000-162
12	Linear actuator bearing plate	M-2000-163
6	Linear actuator end cap	M-2000-164
3	Linear actuator drive shaft	M-2000-165
3	Linear actuator idler shaft	M-2000-166
1	Cross knife actuator saddle	M-2000-168
6	Linear actuator belt cap	M-2000-169
1	Optional Cross knife motor plate - 7.25 BLADE	M-2000-170C
1	Optional Cross knife blade plate - 7.25 BLADE	M-2000-171C
1	Cross knife adaptor plate	M-2000-172
1	Main drive tension block	M-2000-176A
1	Main drive tension pulley	M-2000-177
1	Main drive tension shaft	M-2000-178
1	Knife blade shaft	M-2000-179A
1	Knife blade shaft spacer	M-2000-180A
1	Knife blade shaft collar	M-2000-181A

1	Optional Knife blade shearing bracket - 7.25 BLADE	M-2000-182A
2	Linear actuator saddle	M-2000-184
2	Linear actuator top plate	M-2000-185
40	Gripper air cylinder bracket	M-2000-193A
1	Gripper slow down sensor bracket	M-2000-194
2	Gripper proximity sensor bracket	M-2000-195
2	Main table top	M-2000-197
4	Knife proximity sensor bracket	M-2000-199
2	Gripper and Knife cable track support	M-2000-200A
1	Walk way panel	M-2000-203A
1	Knife sharpener plate	M-2000-204
1	Knife sharpening cylinder angle	M-2000-205
1	Knife sharpening push plate	M-2000-206
35	Product lead bracket	M-2000-207
1	Sensor reflective bracket	M-2000-213
1	Center control box bracket	M-2000-214
2	Light curtain sensor bracket	M-2000-218
1	Knife cable bracket	M-2000-219A
1	Table prox sensor bracket	M-2000-220
6	Linear actuator tensioning block	M-2000-221
6	Pull arm manifold bracket	M-2000-224
1	Push button station bracket	M-2000-228
1	Pull arm nylatrac bracket	M-2000-229
2	Safety fence door switch bracket A	M-2000-231
2	Safety fence door switch bracket B	M-2000-232
2	Rope pull sensor bracket	M-2000-233
1	7.25 Dia. Knife front guard	M-2000-234
2	Safety fence door hinge bracket	M-2000-235
2	Safety fence door spring bracket A	M-2000-236
2	Safety fence door spring bracket B	M-2000-237
1	Safety fence rear door switch bracket A	M-2000-238
1	Safety fence rear door switch bracket B	M-2000-239
1	Main roller finger guard A	M-2000-241
1	Main roller finger guard B	M-2000-242
1	Main roller finger guard C	M-2000-243
2	Safety fence door slide bracket	M-2000-244
1	Main drive roller belt guard	M-2000-245
2	Compression bar warning sign plate	M-2000-247
1	Main table drive shaft	M-2000-248
40	Inside gusset 4 hole must match 80/20 part exactly!!!	C-2000-066
2	5/16 x 3-1/4 Eyebolt	
10	Linear Drive drive/idler pulleys	M-2000-167
2	Knife drive timing puley	
4	Sprocket - Main Linear actuators	C-2000-024
2	Sprocket - Main drive	C-2000-019
1	Bushing - Gearbox	C-2000-021
5	Bushing - Main linear actuators/ Main Drive	C-2000-025
1	Bushing - Knife drive motor	
1	Bushing - Knife drive	

4	Roller end	
1	Sprocket - Blade 28 tooth, 25 pitch, 5/8 bore 7-1/2" BLADE ONLY	C-2000-027-1A
1	Sprocket - Blade Motor, 14 tooth, 25 pitch,(12mm ORI or .5 GRO bore) 5-1/2" and 7-1/2" BLADE	C-2000-027-1B
2	25 Chain	
4	40 Chain	
4	60 Chain	
12	Radial ball bearing 1 bore, shielded type	C-2000-037
1	Knife - Right angle brake gearmotor,1/2hp, 5:1, foot mount	C-2000-046
4	Red back, wht letters "STOP"	
1	Green back, wht letters "START"	
3	Red back, wht letters "E-STOP", .375" taller than std.	
1	Black back, wht letters "AUTOMATIC" / "OFF ON"	
1	Black back, wht letters "TRIM EDGE"	
1	Yellow back, blk letters "FEED IN"	
1	Yellow back, blk letters "FEED OUT"	
1	White back, blk letters "COMPRESSOR" / "BAR"	
1	Blue back, wht letters "TRIM" / "SUCTION"	
2	4 Hole push button enclosure, 22mm	C-2000-215
3	2 Hole push button enclosure, 22mm	C-2000-216
2	N.C. contact block	
4	N.O. Contact Blocks	
1	E-stop	
1	Red extend head push button (22mm) - Stop	C-2000-228
1	Green Button - Start	
1	Selector Switch - Trim/Vacuum ON/OFF	
1	Power on button	
1	Power on pilot light	
1	Pilot light body	
1	"ON" Legend Plate	
1	Black chrome push button (22mm) - Trim Edge	C-2000-225
8	N.O. Contact Blocks - Plastic enclosure	
6	N.C. contact block - Plastic enclosure	
3	E-stop - plastic enclosure	
3	Stop - plastic enclosure	
4	Yellow pbutton - plastic enclosure	
4	Black pbutton - plastic enclosure	
500	5/16-18 Economy T-nut	5/16ETN
250	1/4-20 Economy T-nut	1/4-20ETN
3	4 Norm. Open contactor 24VDC Coil, 23 amps	C-2000-255
3	Auxiliary contacts, 1 NO, 1 NC	C-2000-257
1	Circuit breaker 20Amp	C-2000-259
1	Circuit breaker 20Amp	
1	Circuit breaker 10 Amp	C-2000-260
2	Hi-volume air valve	C-1000-262
1	Long range retroreflective (NO) - Stack height sensor (banner 46159)	C-2000-282
1	10 meter 4 conductor cable	C-2000-284
1	PANEL CUTTER KIT #1	
2	#3030 extrusion x 149.500" length for linear actuator	C-2000-079

1	#3030 extrusion x 171.000" length for linear actuator	C-2000-080
1	#3030 extrusion x 145.000" length for gripper	C-2000-081
2	#3030 extrusion x 18.000" length w/ 5/16-18 tap ends	C-2000-083
2	#3030 extrusion x 49.000" length w/ 5/16-18 tap ends	C-2000-084
2	#3030 extrusion x 20.000" length w/ 5/16-18 tap ends	C-2000-085
2	#1515 lite extrusion x 144 length	C-2000-102
2	#1515 lite extrusion x 141 length	C-2000-103
2	#1515 lite extrusion x 46.50 length	C-2000-104
10	#1515 lite extrusion x 64.50 length	C-2000-105
4	#1515 lite extrusion x 66.00 length	C-2000-106
4	#1515 lite extrusion x 18.00 length	C-2000-107
2	#1515 lite extrusion x 43.00 length	C-2000-108
2	#1515 lite extrusion x 41.50 length	C-2000-109
2	#1515 lite extrusion x 15.00 length	C-2000-110
2	#1515 lite extrusion x 13.50 length	C-2000-111
4	#1515 lite extrusion x 3.00 length	C-2000-112
4	#1515 lite extrusion x 8.00 length	C-2000-113
2	#1515 extrusion x 17.250" long for valve manifold mount	
6	Black wire mesh panel 48 x 96	C-2000-117
1	#1530 extrusion x 139.000" long for compression bar	
4	Plastic door handle	C-2000-116
1	#3030 extrusion x 168.000" length for main weldment top beam	
1	#1530 extrusion x 168.000" length for finger support beam	
1	Power Distribution Block	C-2000-247
1	Power Distribution Block Cover	C-2000-248
7	Ice cube relay (Single Pull)	C-2000-261
7	Ice cube relay socket (Single Pull)	C-2000-262
1	Hole plug, black nylon	C-2000-213
1	.75"x.5" Write on laminating wire tabs (120/book)	
2	Write on laminating wire tabs (240/book)	
2	Labels, Self Lam, 10	
2	Labels, Self Lam, 11	
4	Fuse block 6.3 x 32mm fuse	C-2000-288
30	2 to 1 terminal block	C-2000-292
7	2 to 1 terminal block end plate	C-2000-293
38	3 level terminal block	C-2000-294
2	3 level terminal block end plate	C-2000-295
1	80 piece jumper pins red	C-2000-296
1	80 piece jumper pins blue	C-2000-297
2	80 piece jumper pins gray	C-2000-298
8	Din rail stops	C-2000-299
4	2 Meter din rail	C-2000-300
30	Ground block	C-2000-301
4	Blank Marking Tags	C-2000-303
6	2" wide x 2" high x 6 ft white wire duct	C-2000-203
6	2" wide x 6 ft white wire duct cover	C-2000-205
4	3" x 3" white wire duct	
4	3" white duct cover	
1	Photo sensor, retroreflective type, N.C.	C-5000-124

1	Main cross cut motor - GROSCHOPP	
1	Main cross cut motor - GROSCHOPP	
1	Main cross cut motor brushes - GROSHOPP	
2	Rope Pull Safety Switch	
1	Cable track - pull arm	
1	Cable track - knife and pull arm	
1	3/4" Flexible aluminum conduit (50'/spool)	C-2000-206
3	Aluminum ground terminal	C-2000-268
5	Linear bearing blocks 25 series	C-2000-057-1
2	Linear bearing rails length = 3645 mm for 25 SERIES	C-2000-060-1
1	Knife Linear bearing rail length = 4191 mm for 25 SERIES	
2	3/4" x 23-1/4 x 8' WHITE	
3	3/4" x 8' WHITE EDGING	
2	1/8 NPT Pipe Plug	
1	20A Emerald Controller	
1	2,200W Servomotor	
1	10m Motor Cable	
1	10m Encoder Cable	
2	I/O Expansion Rack	
2	1m I/O Expansion Cable	
1	Controller Connector Kit	
1	24V DC Power Supply, 6.5A	
1	5.7" Monochrome Touchscreen	
1	7' Communication Cable	
15	DC Input Module (10 - 32VDC)	
17	DC Output Module (5 - 60VDC)	
1	Disconnect Switch	
1	Disconnect	
100	2-cond Hi-flex cable	
30	Motor wire, 4 conductor wire, 16 gage (250' spool) quantity in feet	
8	Base mount pillow block bearing, 1 bore, two hole	C-2000-032
2	Extended ring radial ball bearing 5/8 bore	C-2000-038
1	Sharpening assembly	C-2000-051
0	Sharpening stone replacement	
1	36x60x12 Enclosure w/ Panel	C-2000-200
1	12x24x9-5/32 Consolet	C-2000-201
1	240/120 VAC fused transformer 1kVA w/ secondary fuse	C-2000-267-1
3	Safety Fence Switch	
3	Safety Fence Angled Interlocking Key	
1	Idec 3 stack light tower 24VDC Red, Amber, Green	C-2000-207

100	Linear drive timing belt (pull = 312.375" each, knife = ???)	
4	Manifold 10 station 3/8 NPT x 1/4 NPT	C-2000-007H
40	Round metal core bumper 5/16-24	C-2000-039C
1	Rubber Grip Tape 2'	
12	5/16-18 x 2" Set Screw	
4	1/8" Wire rope clamps w/ thimbles	
2	1/8" Red wire rope 15' long	
3	Class J fuses, 15 amp slow blow - Main power in	C-2000-270
2	Fuse for 120VAC transformer - Input Voltage - LP-CC-3-1/2	
1	Fuse for 120 VAC transformer - Voltage out FNM-7	
2	Fuse, GDC type (6.3mmx32mm), 1 Amp slow	C-2000-277
1	Fuse for 120 VDC line, 10 Amp - Knife Motor	
25	Wire mount - reuseable strap style	
25	Screw Straps	
4	7 x 10 DANGER DO NOT ENTER- AUTHORIZED PERS. ONLY	
4	7 x 10 DANGER THIS MACHINE STARTS AUTOMATICALLY	
4	7 x 10 CAUTION DO NOT OPERATE MACHINE W/O GUARDS	
2	10 x 12 DANGER OPEN MACHINERY	
2	7 x 10 CAUTION LOW HEAD ROOM	
6	5 x 3.5 DANGER KEEP HANDS CLEAR	
2	Knife motor relays Omron 25A	
3	4" Abrasive Anti-slip Tape	
2	Rectangular protective bumper	C-2000-039A
12	Electronic cabinet seal	
1	Standard inverter drive (.4kW)	C-2000-239
6	Leveling Feet	C-2000-065
1	Knife motor rectifier	
1	Gear reducer, ratio = 5	C-2000-008
2	USA STICKER	
2	ABM STICKER	
2	XZR-7000 STICKER HORIZONTAL	
2	Main cross cut flat blade with flange & two holes	C-2000-054
4	Material Hold down - Compact air cylinder 32mm bore, 75mm stroke	C-2000-001
45	Material arm gripper - Air cylinder 1-1/16 bore, 2" stroke	C-2000-002
1	Pneumatic manifold only - 4 station	P-1003-001-V01
4	Valve	P-1003-002
2	Material Compression clamp/Sharpener Pressure regulator	C-2000-005
1	Pressure regulator with filter combo	C-2000-006
1	Knife sharpening cylinder	
1	25 Pin manifold cable, 5 meters long	C-2000-280
1	1/4 Dia. Tubing x 500 feet x yellow color	C-2000-007F
1	1/2 Dia. Tubing x 100 feet x blue color	C-2000-007L

1	1/2 Dia. Tubing x 100 feet x yellow color	C-2000-007M
10	Male straight fitting 1/2 tube x 3/8 NPT	C-2000-007J
60	Male elbow fitting 1/4 tube x 1/8 NPT	C-2000-007
50	Male straight fitting 1/4 tube x 1/8 NPT	C-2000-007A
30	Male elbow fitting 1/4 tube x 1/4 NPT	C-2000-007B
40	Tee fitting 1/4 x 1/4	C-2000-007C
10	Elbow type flow control 1/4 tube x 1/8 NPT	C-2000-007D
1	1/4 Dia. Tubing x 500 feet x blue color	C-2000-007E
2	Male elbow fitting 1/2 tube x 3/8 NPT	C-2000-007K
2	3/8 NPT male to 1/8 NPT Female Bushing	
9	Mechanical roller switch	
9	Mini-Limit switch cable connector	
25	1/2" Single Tube Clamp	
25	3/8" Single Tube Clamp	
25	1/4" Double Tube Clamp	
4	Single unibearing	C-2000-115
1	Gripper Valve	
1	Main cross cut blade 7.25" Dia.	C-2000-053A

Dancer Tower:

Qty	Description	ABM Part No.
1	Material carrier base	A-2000-004
2	Drive roller assembly	A-2000-010
2	Idler roller assembly	A-2000-011
1	Material drive roller assembly	A-2000-012
1	Dancer bar roller assembly	A-2000-013
2	Dancer idler roller assembly	A-2000-014
1	Dancer drive roller assembly	A-2000-015
1	Electrical cut out	E-2000-002
2	Material carrier main gusset	M-2000-100
2	Dancer unit vertical beam	M-2000-101A
8	Dancer unit bearing plate	M-2000-102
6	Dancer unit idler shaft	M-2000-103
2	Dancer unit drive shaft	M-2000-104
2	Dancer unit #35 chain plate	M-2000-105
4	Dancer unit pillow block plate	M-2000-106
2	Dancer unit pillow block spacer	M-2000-107
2	Dancer unit top beam	M-2000-108
2	Dancer unit center beam	M-2000-109
2	Dancer unit tension shaft plate	M-2000-110
1	Dancer unit tension photo plate	M-2000-111
1	Dancer unit tension photo extension plate	M-2000-112
1	Dancer unit edge guide shaft	M-2000-114
2	Dancer unit edge guide main shaft	M-2000-115
1	Material carrier edge guide motor bracket	M-2000-116
4	Material carrier bearing plate	M-2000-117
2	Material carrier edge guide beam	M-2000-120C

2	Material carrier side beam	M-2000-121A
1	Dancer unit drive motor plate	M-2000-122
1	Dancer unit bottom beam	M-2000-123
1	Dancer unit support top beam	M-2000-124
2	Material carrier edge guide pin	M-2000-128
1	Material carrier motor plate	M-2000-129
3	Material carrier drive shaft	M-2000-130
2	Material carrier idler shaft	M-2000-131
1	Dancer unit drive shaft	M-2000-132
2	Dancer unit idler shaft	M-2000-133
2	Material carrier drive roller	M-2000-134
4	Material carrier drive end cap	M-2000-135
3	Material carrier idler roller	M-2000-136
12	Material carrier idler end cap	M-2000-137
1	Dancer bar roller	M-2000-138
2	Dancer bar end cap	M-2000-139
3	Dancer idler roller	M-2000-140
2	Gripper proximity sensor bracket	M-2000-195
2	Material carrier proximity sensor bracket	M-2000-196
2	Material carrier front beam	M-2000-198
1	Material carrier proximity sensing plate	M-2000-212
1	Dancer roller belt guard	M-2000-216A
1	Dancer bar motor cover	M-2000-215A
1	Carrier roller motor belt guard	M-2000-217A
4	Bearing transition block	M-2000-222
2	Dancer Unit Weight Block	M-2000-223
2	Dancer roller hard stop bracket	M-2000-227
4	Material carrier edge guide side plate hard stop	M-2000-240
2	Dancer bar warning sign plate	M-2000-246
1	Dancer unit tension photo bracket	M-2000-113
2	Material carrier edge guide side plate	M-2000-127
1	QD bushing for timing pulley C-2000-011, 7/8 bore	C-2000-012
1	QD bushing for timing pulley C-2000-011, 3/4 bore	C-2000-013
4	QD bushing for timing pulley C-2000-011, 1 bore	C-2000-015
16	Roller end	
1	Gear rack, length = 24", pitch =12, 3/4 face, 3/4 thick	C-2000-010
6	Sprocket	C-2000-011
6	40 Chain	C-2000-016
1	Right angle brake gearmotor, 1/4hp, 30:1, foot mount	C-2000-043
1	Right angle brake gearmotor, 1/10hp, 20:1, foot mount	C-2000-044
1	In-line brake gearmotor, 1/10hp, 240:1, foot mount	C-2000-045
7	N.O. Contact Blocks	
2	N.C. Contact Block	
1	E-stop	
1	Red extend head push button (22mm) - Stop	C-2000-228
2	Black chrome Arrow push button (22mm) - Carriage In/Out	C-2000-225
1	Black 2 position maintained	
1	Black 3 position maintained selector (22mm)	
1	Black 3 position spring return selector (22mm)	

1	Circuit breaker 20Amp	C-2000-259
1	4 Norm. Open contactor 24VDC Coil, 30 amps	C-2000-255
1	PLC 16 DIGITAL IN, 8 RELAY OUT	
3	10 meter 4 conductor cable	C-2000-284
1	Red back, wht letters "STOP"	
1	Black back, wht letters "CARRIAGE IN"	
1	Black back, wht letters "CARRIAGE OUT"	
1	Yellow back, blk letters "FEED" / "OUT IN"	
1	Yellow back, blk letters "ROLL FEED" / "UNDER OVER"	
1	White back, blk letters "JOG ROLLS" / "BIN TOP"	
2	#3030 extrusion x 153.000" length cradle lower beam	C-2000-086
2	#3030 extrusion x 147.000" cradle upper beam	C-2000-087
2	#3030 extrusion x 80.000" dancer tower beam	
2	#3030 extrusion x 20.500" top roller beam	
4	#3030 extrusion x 18.500" cradle roll guide beam B	
2	#1530 extrusion x 34.500" cradle roll guide beam A	
2	#1530 extrusion x 32.000" cradle end beam	
2	#1515 extrusion x 13.000" length carriage idler roller beam	C-2000-091
1	#1515 extrusion x 135.125" length dancer tower beam horizontal spacer	
100	5/16-18 Economy T-nuts	
50	1/4-20 Economy T-nuts	
1	3 Pole type FRN-R fuse block, 30 amp max	
1	Power Distribution Block	C-2000-247
1	Power Distribution Block Cover	C-2000-248
2	Fuse block 6.3 x 32mm fuse	C-2000-288
8	2 to 1 terminal block	C-2000-292
2	2 to 1 terminal block end plate	C-2000-293
12	3 level terminal block	C-2000-294
12	3 level terminal block end plate	C-2000-295
1	80 piece jumper pins red	C-2000-296
1	80 piece jumper pins blue	C-2000-297
1	80 piece jumper pins gray	C-2000-298
4	Din rail stops	C-2000-299
1	2 Meter din rail	C-2000-300
6	Ground block	C-2000-301
1	Blank Marking Tags	C-2000-303
1	Write on laminating wire tabs (240/book)	
2	2" wide x 2" high x 6 ft white wire duct	C-2000-204
2	2" DUCT COVER	C-2000-205
3	Photo sensor, retroreflective type, N.C.	C-5000-124
1	Cable track - edge guide	
1	Aluminum ground terminal	C-2000-268
4	Linear bearing blocks HIWIN HSR25 series	C-2000-055-1
4	Cradle - Linear bearing rails length = 820mm for #25	C-2000-058-1
2	Dancer bar - Linear bearing rails length = 1600mm for #25	C-2000-059-1
4	Linear bearing rails length = 457mm for HIWIN #25	C-2000-062-1
10	Linear bearing blocks 25 series	C-2000-057-1

1	Disconnect Switch	
1	Disconnect	
12	Base mount pillow block bearing, 1 bore,	C-2000-032
4	Flange mount pillow block bearing, 1 bore, two hole	C-2000-034
2	Idler roller Radial ball bearing 1 bore, shielded type	C-2000-037
1	24x24x8 Enclosure w/ Panel	
3	Standard inverter drive (.4kW)	C-2000-239
2	Rectangular protective bumper	C-2000-039A
3	Rubber Grip Tape 2"	
3	Fuse, Class RK5, 15 Amp	
2	Fuse, GDC type (6.3mmX32mm), 1 Amp slow	C-2000-277
2	DANGER EQUIPMENT STARTS AUTOMATICALLY	
75	Wire rope - 1/16 x 5/32 coated (7x19)	
8	Wire rope pulley	
4	Eye bolt	
4	Wire rope clamp	
6	Shoulder bolt - 3/8 x 3/4 long	
2	Reflectors	
1	Throw weight bag	
30	Motor wire, 4 conductor wire, 16 gage (250' spool) quantity in feet	
1	Spur gear, 36 teeth, 3/4 bore, pitch =12, 14.5 deg	C-2000-009
4	Leveling Feet	C-2000-065
2	USA STICKER VERTICAL	
2	ABM STICKER VERTICAL	
2	XZR-7000 STICKER VERTICAL	
4	Double flange linear bearing	C-2000-072
4	Handle for linear bearings	C-2000-073
4	Double horizontal base	C-2000-074
2	Steel tube, polished finished, 7.500" length - Dancer bar drive shaft	C-2000-077
20	3/8" Single Tube Clamp	
20	1/4" Double Tube Clamp	
4	Mechanical roller switch	
4	Mini-Limit switch cable connector	

Lift Table:

Qty	Description	ABM Part No.
1	Lift bottom table	A-2000-008
1	Lift top table	A-2000-009
1	Lift table motor bracket	M-2000-202

5	Sprocket - Table lift Sprocket,	C-2000-030
4	Bushing - Table lift screw	C-2000-031
1	Bushing - Table lift motor	
30	#40 Roller Chain	
1	Table lift - In-line brake gearmotor, 1/10hp, 30:1, foot mount	C-2000-048
4	3030 x 24.500	
2	3030 x 129.500	
50	5/16-18 Economy T-nuts	
1	PLC	
4	Linear bearing blocks 25 series	C-2000-056-1
4	Linear bearing rails length = 600mm	C-2000-061-1
30	2-cond Hi-Flex	
15	4-cond 16ga Hi-flex	
8	Ball screw support Flange mount pillow block bearing, 3/4 bore, two hole	C-2000-035
1	Standard inverter drive (.4kW)	C-2000-239
8	3/4" Clamptite collar 2 pc.	
4	Acme screw - 3/4-6 x 36" cut to 27-1/4"	
4	Acme machinable bronze nut - 3/4-6	
2	Mechanical roller switch	
2	Mini-Limit switch cable connector	
5	3/8" Single Tube Clamp	
5	1/4" Double Tube Clamp	

Conveyor Table:

Qty	Description	ABM Part No.
2	Conveyor Left/Right Frame	A-2000-019
2	Conveyor idler roller	A-2000-020
1	Conveyor drive roller assembly	A-2000-021
1	Conveyor drive roller assembly left side	A-2000-022
4	Conveyor bearing plate	M-2000-183
1	Table prox sensor bracket	M-2000-220
1	Conveyor motor guard	M-2000-225
8	Roller end	
2	Sprocket - Conveyor motor/drive shaft	C-2000-031A
1	Bushing - Conveyor motor	C-2000-014
1	Bushing - Conveyor drive shaft	
2	Flexible shaft coupling hub, 1 bore	C-2000-039D
1	Flexible shaft coupling spider	C-2000-039E
2	#40 Roller Chain	

1	Conveyor - In-line gearmotor, 1/2hp, 30:1, flange mount	C-2000-047
10	5/16-18 Economy T-nuts	
1	Retroreflective sensor (NO)	C-2000-283
1	10 meter 4 conductor cable	C-2000-284
6	Reflective tape roll 3" wide	
30	Motor wire, 4 conductor wire, 16 gage (250' spool) quantity in feet	
8	Flange mount pillow block bearing, 1 bore, two hole	C-2000-034
1	Standard inverter drive (.4kW)	C-2000-239
10	3/8" Single Tube Clamp	
2	Conveyor belt, 50" width x 307.50" length White	C-2000-042

Slitters:

Qty	Description	ABM Part No.
ONE TIME PURCHASE ITEMS (UP TO 10 SLITTERS)		
2	Side trim beam mounting plate	M-2000-158
2	#1515 extrusion with guide x 174.000"	C-2000-084A
1	Fuse block 6.3 x 32mm fuse	C-2000-288
15	Motor wire, 4 conductor wire, 16 gage (250' spool) quantity in feet	
2	Outlet strip for trim knife 60" length, 5 outlets, Black	C-2000-049A
1	Fuse, GDC type (6.3mmX32mm), 2 Amp slow	C-2000-278
1	Solid state relay, din mount (25A)	C-2000-269
ITEMS PURCHASED PER SLITTER		
1	Trim knife slide mounting plate	M-2000-154
1	Trim knife slide mounting flange	M-2000-155
1	Trim knife mounting handle	M-2000-156
1	Trim knife shaft	M-2000-157
0.5	linear bearing upper	
1	linear bearing lower	
1	Handle for linear bearings	C-2000-073
1	Curly-Q 3-COND. Cable for slitter motor	

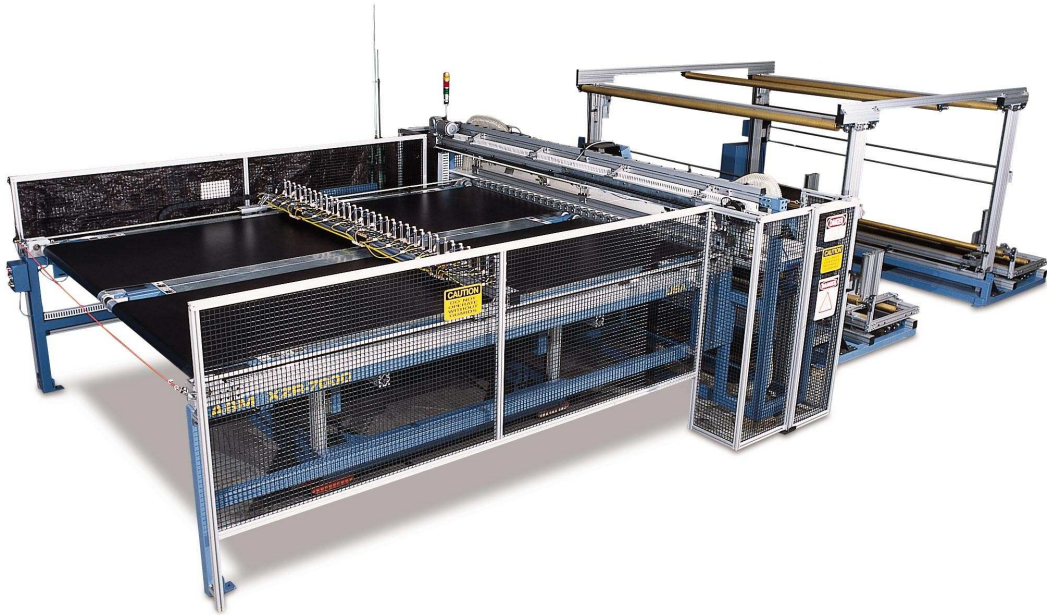
3	1" Clamptite collar	
1	Trim sides motor blade assembly - 3-1/2"	C-2000-049
1	Trim sides motor blade assembly - 4"	
1	Replacement blade	
1	3/8" Single Tube Clamp	

Vacuum:

Qty	Description	ABM Part No.
1	Vacuum handle	M-2000-211
1	Vacuum tube adapter bushing	M-2000-230
1	linear bearing upper	
2	linear bearing lower	
1	Vacuum generator - for side trimmers (1 per trimmer)	C-2000-007G
12	Clearview thermoplastic urethane hose 4" ID, 4.41" OD	
1	Hose connector	
1	Hose clamp	
1	Handle for linear bearings	C-2000-073
1	Shaft clamp-on collar 3.25" bore	C-2000-039
2	Stanchion cross clamp	C-2000-076
1	Steel tube, polished finished, 7.50" length	C-2000-077
1	Steel tube, polished finished, 17.75" length	C-2000-078
1	1/2 Dia. Tubing x 100 feet x blue color	C-2000-007L
1	ON/OFF Valve	
1	Gripper Valve	

Stack Cylinder Assembly:

Qty	Description	ABM Part No.
1	Stack cylinder clamptite	
1	Stack cylinder clevis mount	
2	Stack cylinder beam	
12	Electronic cabinet seal	
1	Stack cylinder	C-2000-076
1	Stack cylinder clevis	C-2000-077

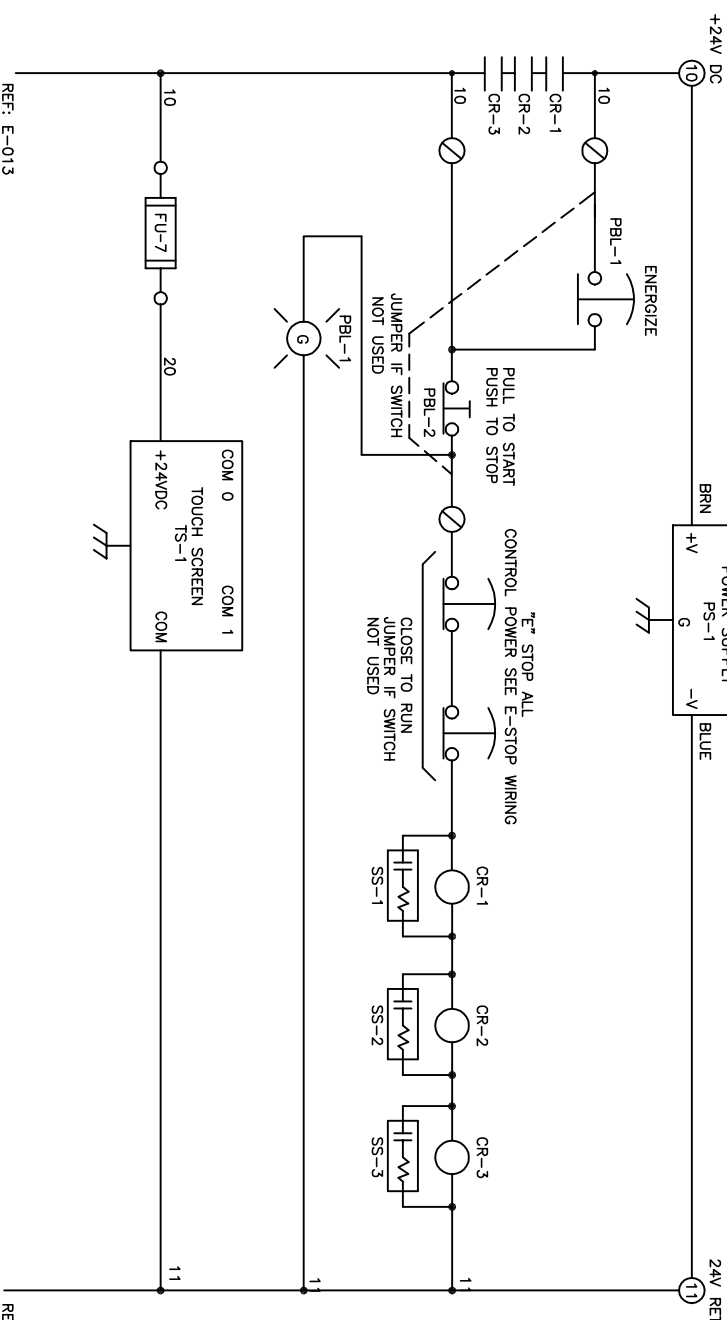
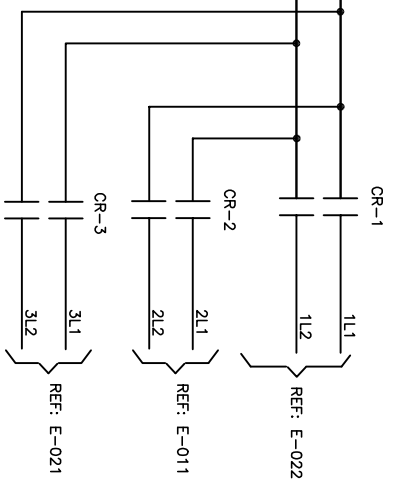
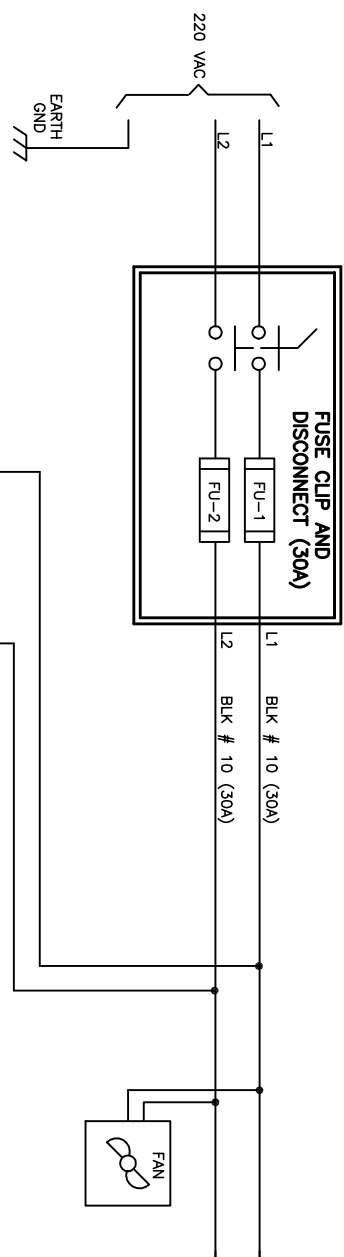


Appendices

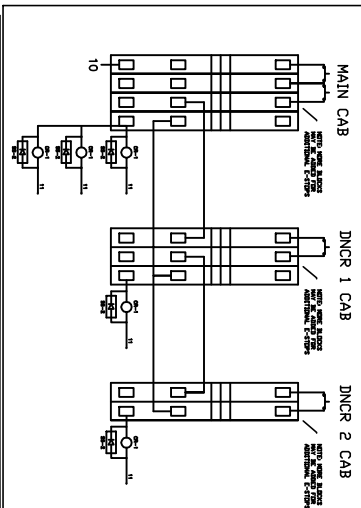
The following pages provide technical information with regards to the electronics located within the machinery.

NOTES:

1) CONNECT H1 TO H3 AND H2 TO H4 FOR 230 VAC LINE.



NOTE: E-STOP WIRING



REF: E-013

REF: E-013

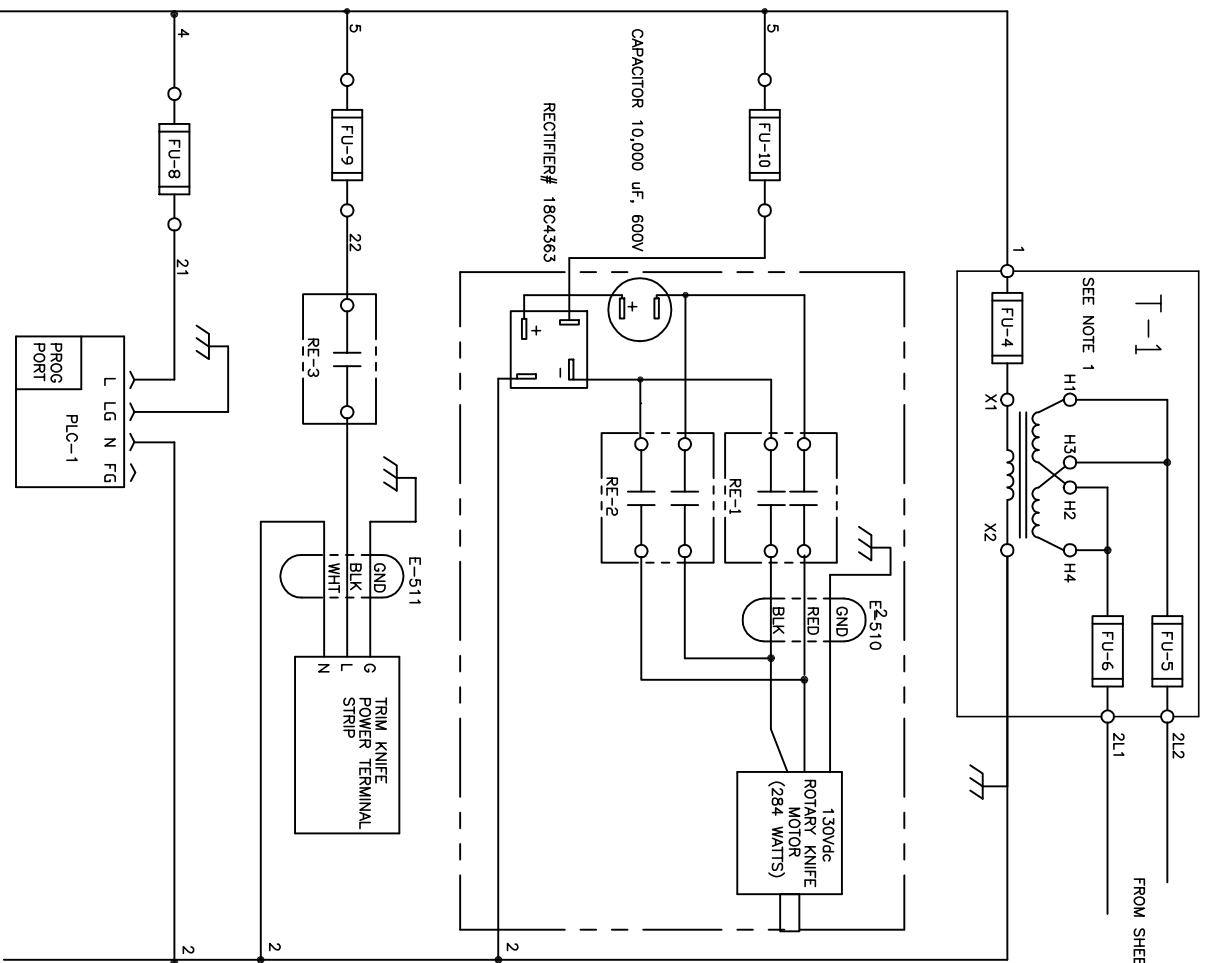
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UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SIZZERS AVE.
EATON GROVE, ILL. 60007

SCHEMATIC WIRING
MASTER PANEL
PANEL CUTTER

DATE: 3-17-00
DRAWN BY: SCOTT WILK
CHECKED BY: []
TOTAL SHEETS: 1
SHEET NO.: 1
SCALE: FULL
DRAWING NO.: E-2000-010

B SIZE



INCHES
UNLESS OTHERWISE SPECIFIED

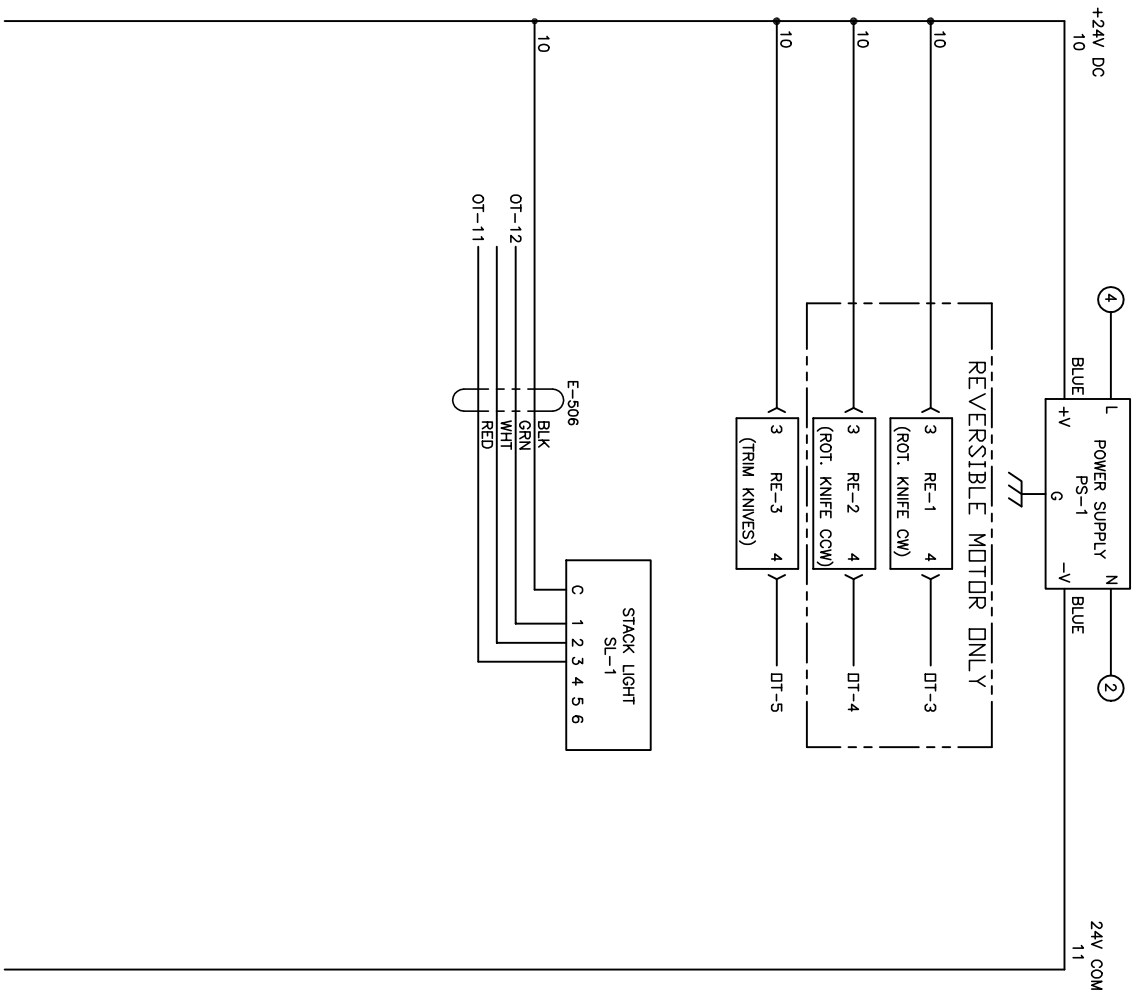
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INTERNATIONAL
211 SEEVERS AVE.
ELK GROVE VILLAGE, IL 60007

SCHEMATIC WIRING
MASTER PANEL
PANEL CUTTER

DATE: 3-17-90

DESIGNED BY: —	SCALE: FULL
DRAWN BY: SCOTT WILK	DRAWING NO. —
CHECKED BY: —	DATE: —
SHEET NO. 1	TOTAL SHEETS 1
NO. 2000	PROJECT NO. E-2000-011

B SIZE



INCHES
UNLESS OTHERWISE SPECIFIED

DO NOT SCALE DRAWING DIMENSIONS

ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED

ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED

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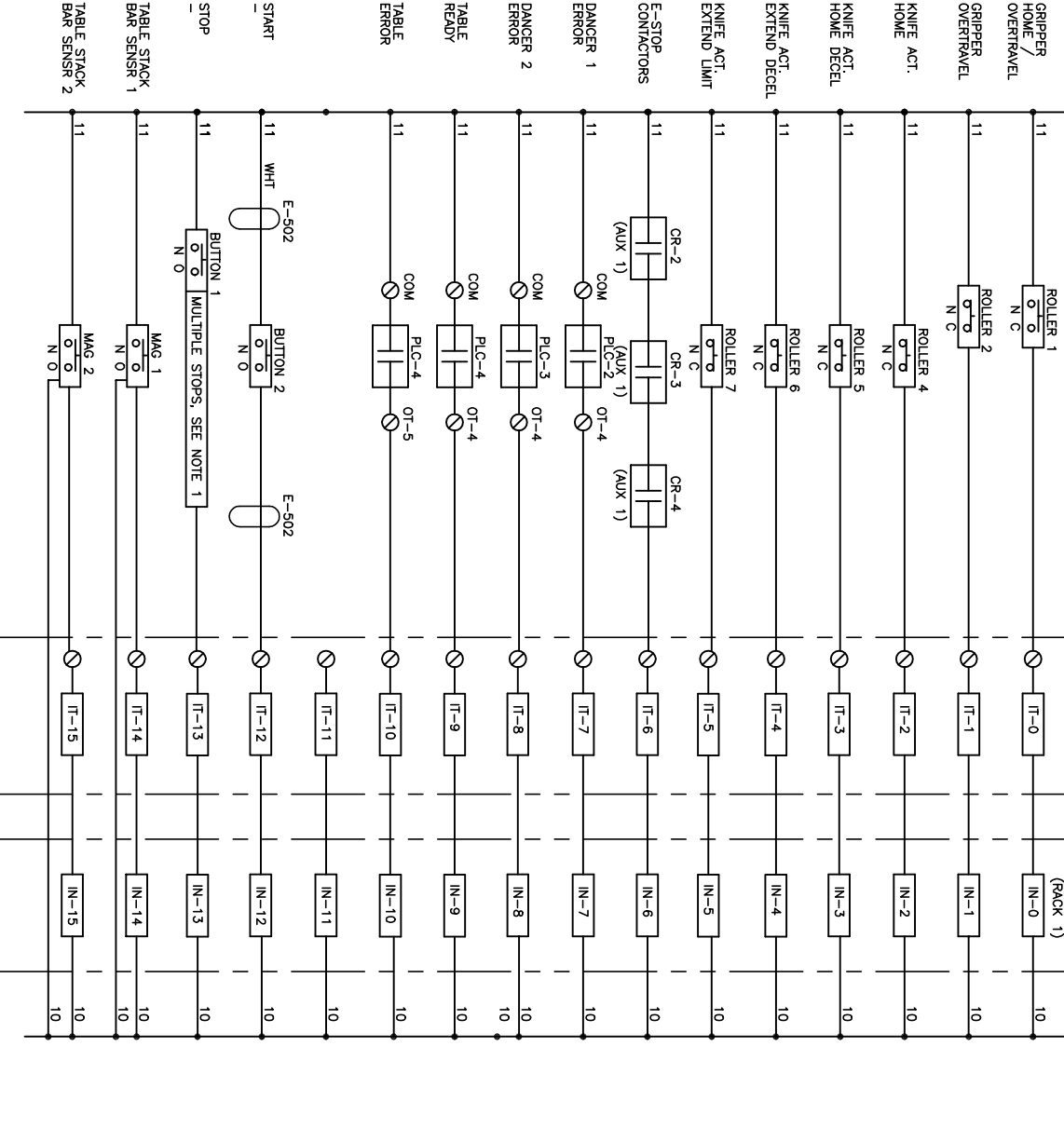
ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED

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<p>SCHEMATIC, WIRING MASTER PANEL, PANEL CUTTER</p>	
<p>DATE: 10-09-00</p>	<p>SCALE: FULL</p>
<p>DESIGNED BY: SCOTT, WILL</p>	<p>DRAWN BY: SCOTT, WILL</p>
<p>SHEET NO. 1</p>	<p>TOTAL SHEETS 1</p>
<p>NO. 2000</p>	<p>NO. E-2000-013</p>

B SIZE

24V COM FROM: SHT 5 11

+24V FROM: SHT 5



NOTES:

INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SEASONS AVE.
EVA GROVE VALLEY, IL 60007

SCALE FULL
DATE: 7-26-00

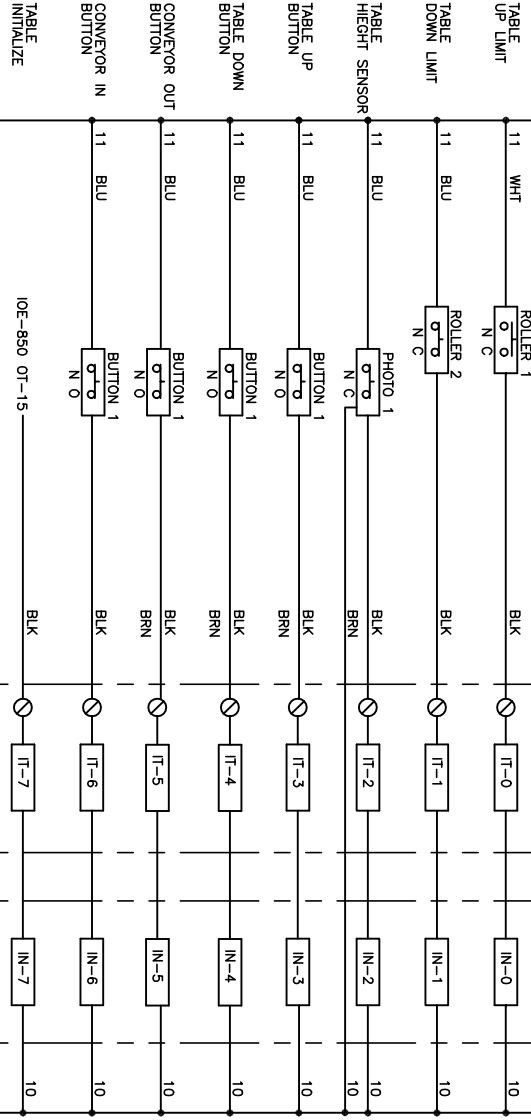
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DRAWN BY: SCOTT WILL
SHEET NO. 1 OF 1
TOTAL SHEETS 1

SCALE FULL
DATE: 7-26-00

1 1 E-2000-016

24V COM FROM: SHT 5 11

+24V FROM: SHT 5 10



NOTES:

INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SEASONS AVE.
ELK GROVE VILLAGE, IL 60007

SCHEMATIC WIRING INPUTS
MASTER PANEL
PANEL CUTTER

DATE: 7-26-00

DESIGNED BY: SCOTT WILL

SCALE: FULL

TOTAL SHEETS: 1

SHEET NO.: 1

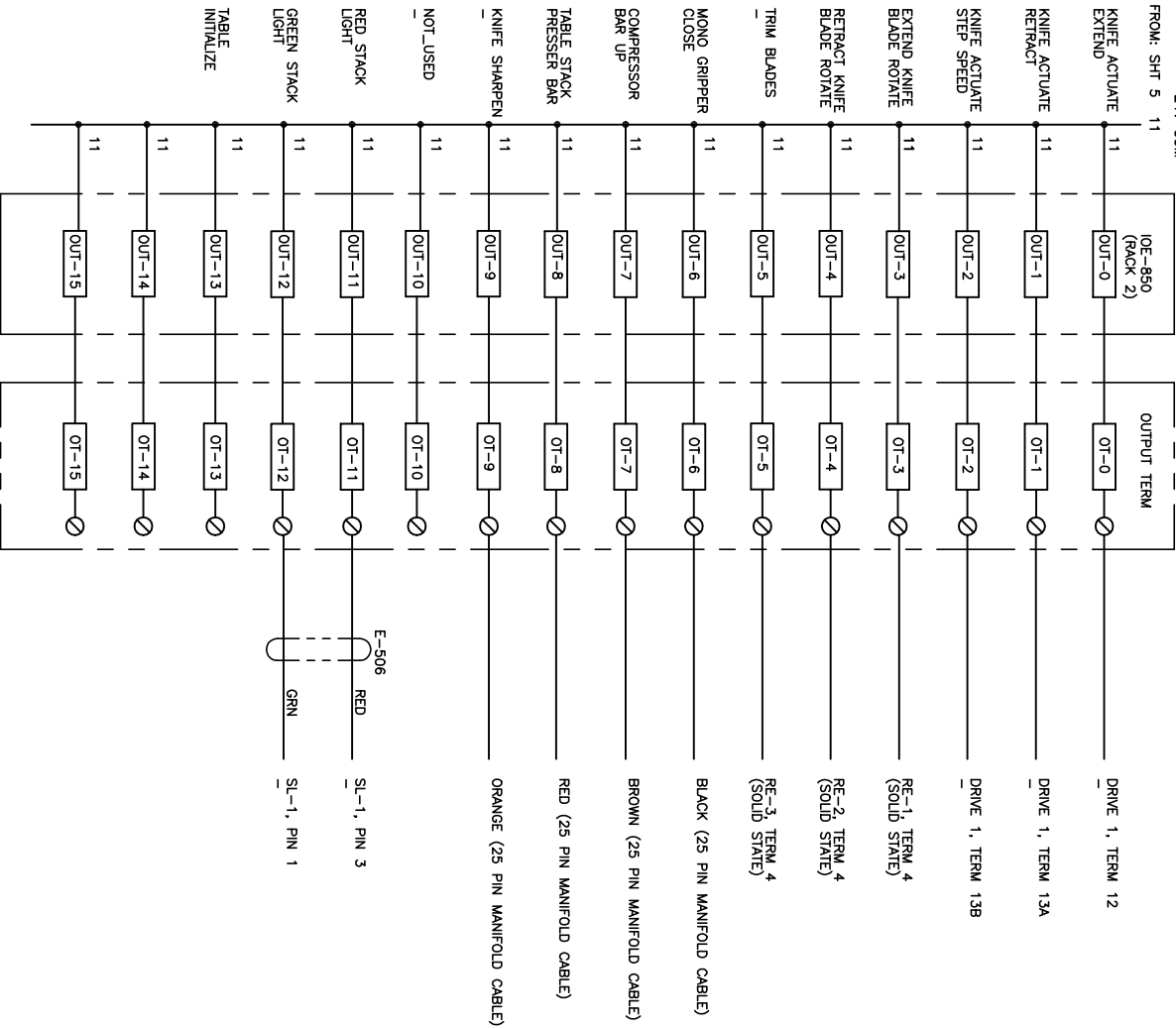
NO. 2000

DATE: E-2000-026

B SIZE

24V COM

FROM: SHT 5 11



NOTES:

NOTE: ORANGE W/ RED DOTS ON 25 PIN CABLE MUST GO TO 10 (+24VDC)

INCHES
UNLESS OTHERWISE SPECIFIED

ABM INTERNATIONAL
211 SEASONS AVE.
ELK GROVE VILLAGE, IL 60007

THIS SCHEMATIC, WIRING, OUTPUTS MASTER PANEL PANEL CUTTER

DATE: 3-17-00

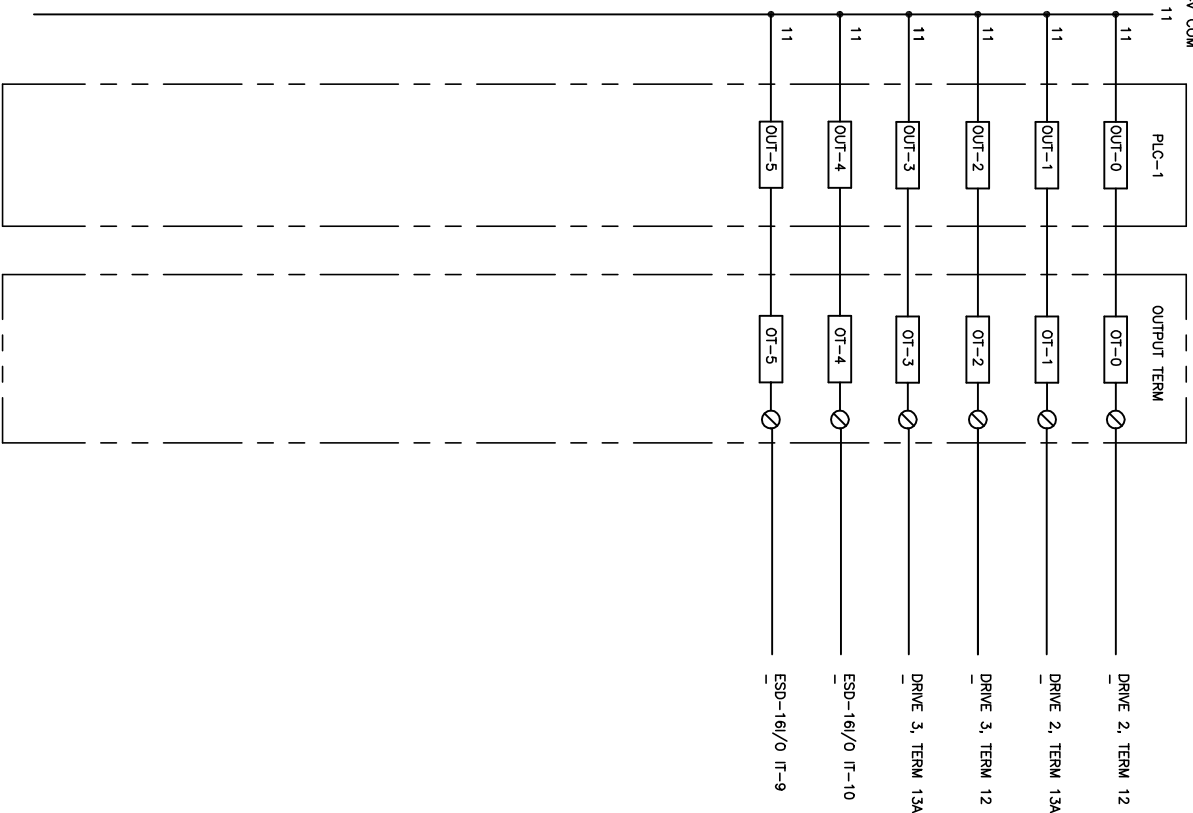
DESIGNED BY: SCOTT WILLIAMS
DRAWN BY: SCOTT WILLIAMS

CHANGED BY: -
SHEET NO. 1 TOTAL SHEETS 1

SCALE: FULL
PART NO. E-2000-019

B SIZE

FROM: SHIT 5 11
 24V COM
 11
 11
 11
 11
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 11
 11



NOTES:

INCHES
 UNLESS OTHERWISE SPECIFIED

ABM
 INTERNATIONAL
 211 SASSERS AVE.
 ELK GROVE VALLEY, IL 60007

DATE: 3-17-00
 JOB: E-2000-029

ENGINEER: SCOTT WILLIAMS
 DRAWING NO. E-2000-029

SCALE: FULL

TOTAL SHEETS: 1

SHEET NO.: 1

ISSUED BY: 1

DATE: 3-17-00

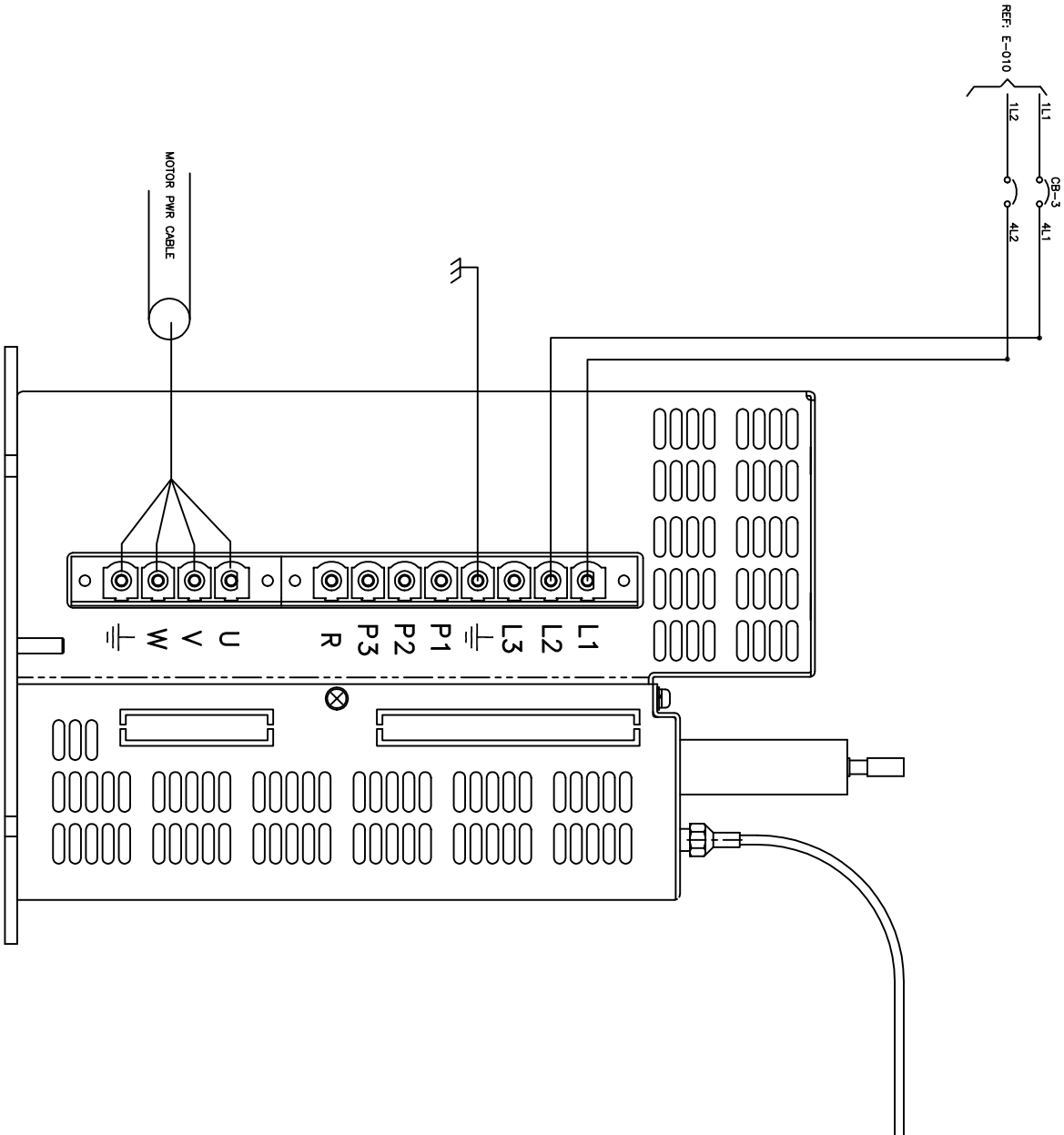
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DATE: 3-17-00

SCALE: FULL

DATE: 3-17-00

B SIZE



INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SEEVERS AVE.
ELK GROVE VILLAGE, IL 60007

SCHEMATIC: WIRING, BRASS
DRAWN: JAMES
CHECKED: JAMES

DATE: 08/22/00

SCALE: FULL

SHEET NO. 1 TOTAL SHEETS 2000-022

REVISIONS:

NO. DATE BY

1 08/22/00 JAMES

2 08/22/00 JAMES

3 08/22/00 JAMES

4 08/22/00 JAMES

5 08/22/00 JAMES

6 08/22/00 JAMES

7 08/22/00 JAMES

8 08/22/00 JAMES

9 08/22/00 JAMES

10 08/22/00 JAMES

11 08/22/00 JAMES

12 08/22/00 JAMES

13 08/22/00 JAMES

14 08/22/00 JAMES

15 08/22/00 JAMES

16 08/22/00 JAMES

17 08/22/00 JAMES

18 08/22/00 JAMES

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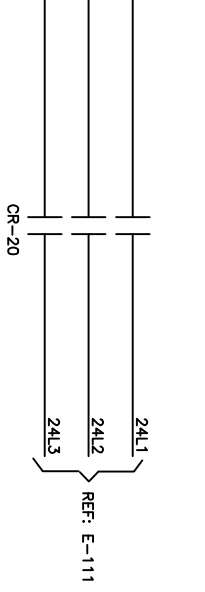
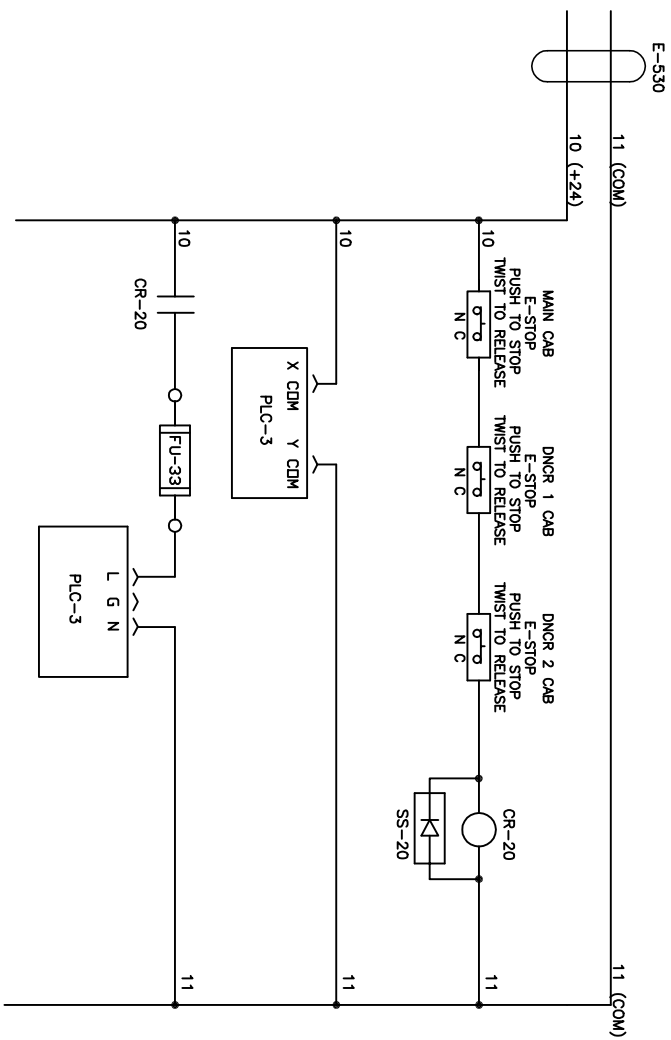
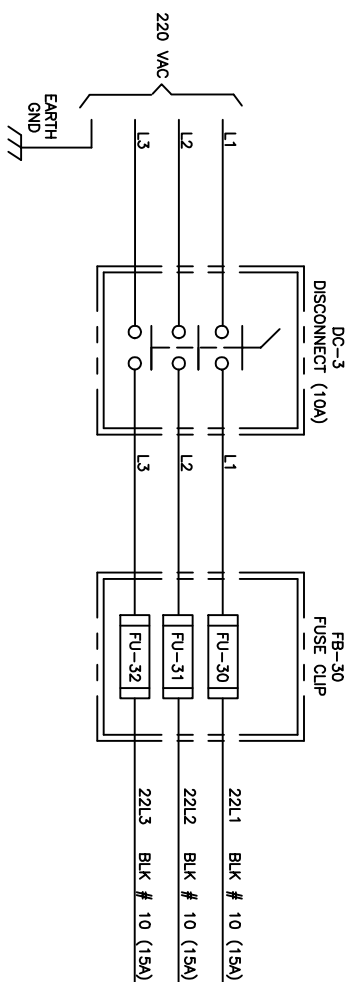
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99 08/22/00 JAMES

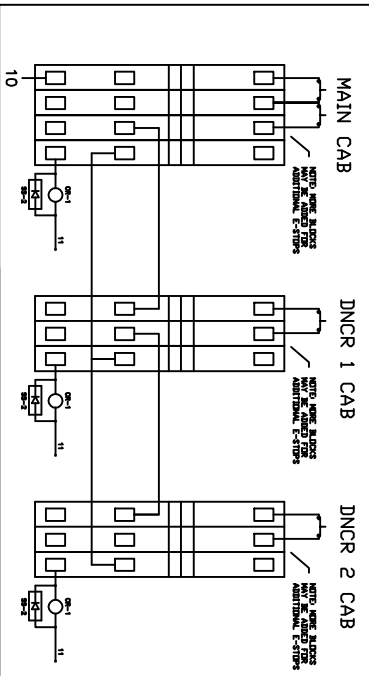
100 08/22/00 JAMES

NOTES:

1) CONNECT H1 TO H3 AND H2 TO H4 FOR 230 VAC LINE.



NOTE: E-STOP WIRING



INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SEIZERS AVE.
BIRK GROVE VALLEY, PA 15007

SCHEMATIC WIRING
DANCER 2
PANEL CUTTER

DESIGNED BY: JOE PODOLSKI
DRAWN BY: JOE PODOLSKI
DATE: 3-17-00

TITLE: SCHEMATIC WIRING

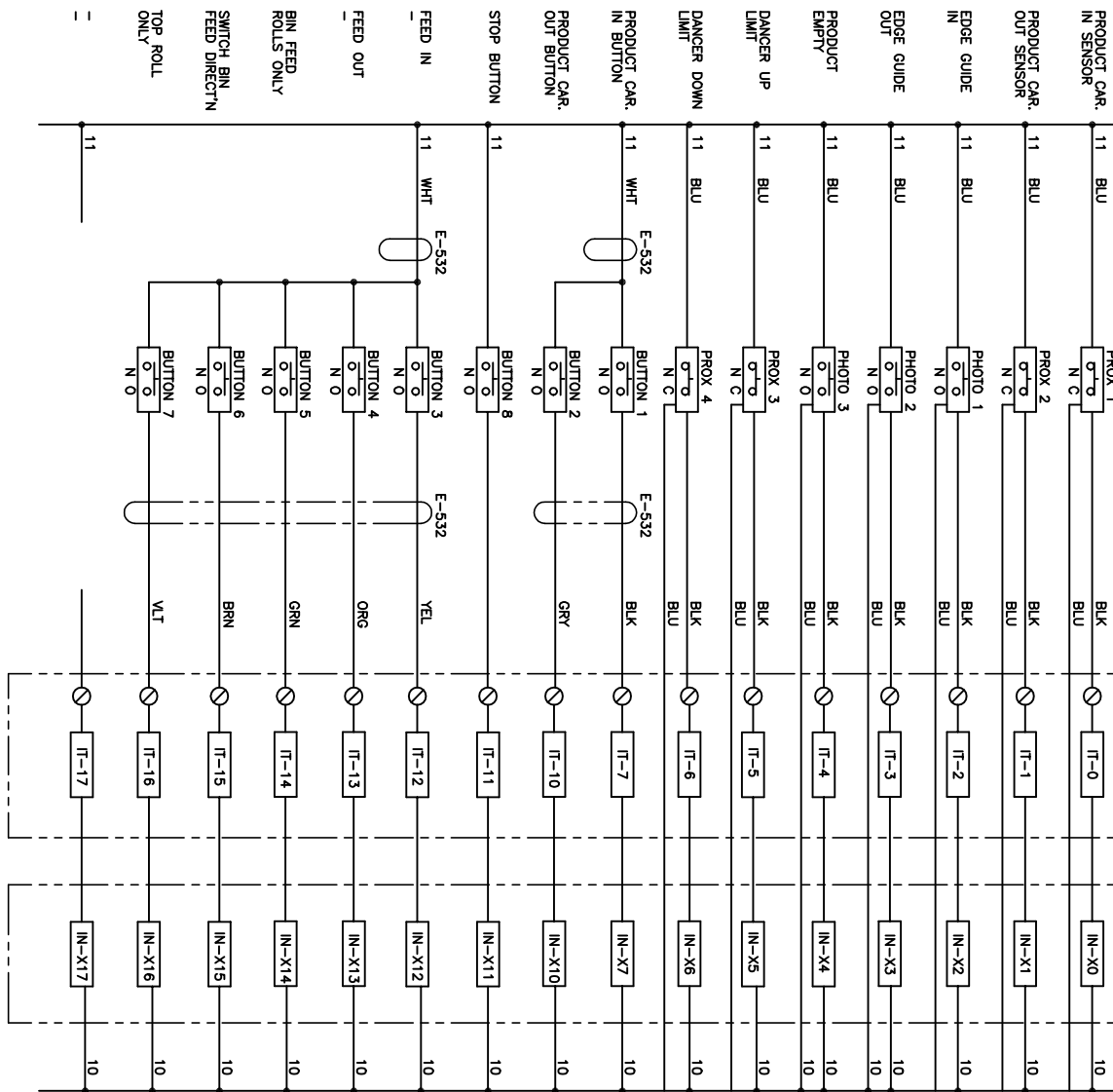
SCALE: FULL

SHEET NO. 1 OF 1

PROJECT NO. E-2000-210A

24V COM
FROM: SHT 5 11

+24V
10 FROM: SHT 5



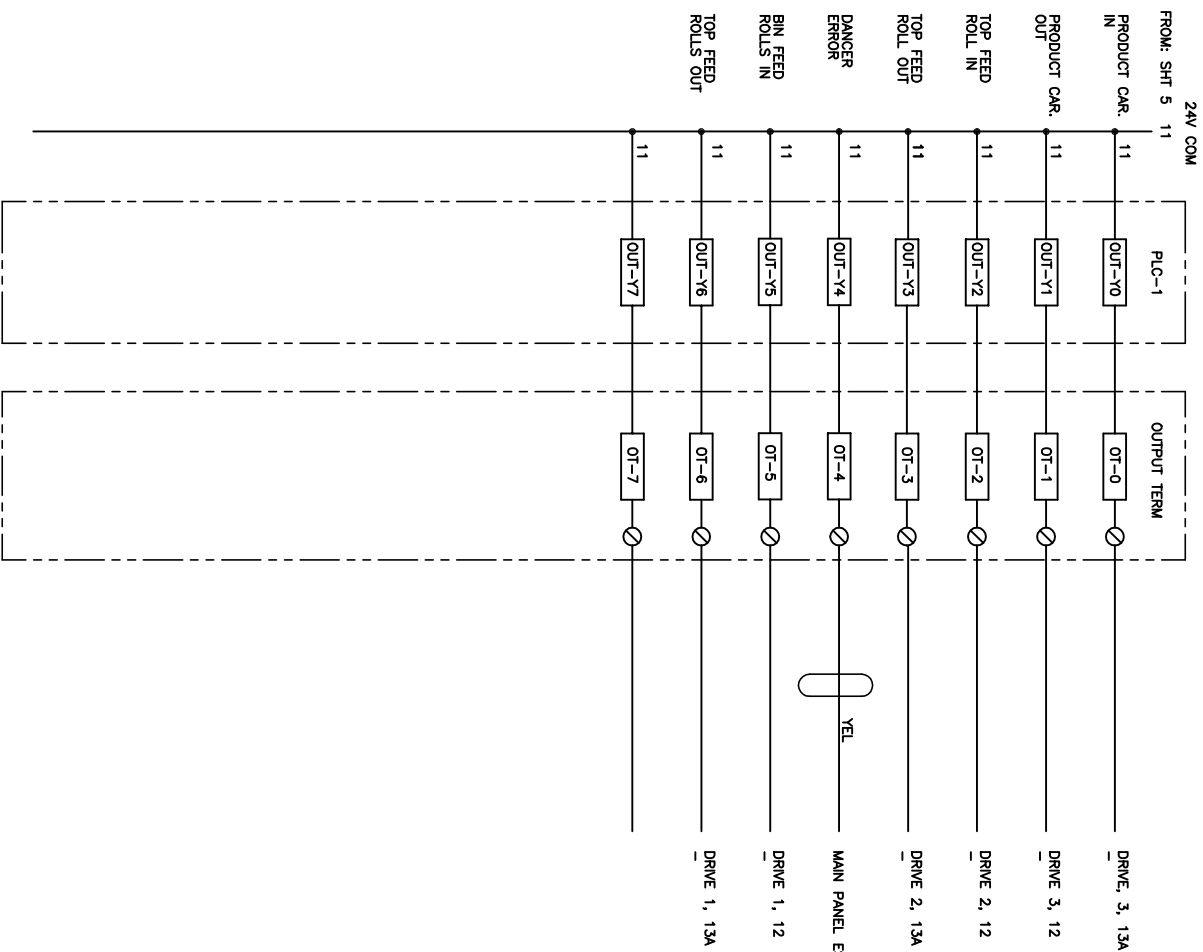
INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL
211 SEIZERS AVE.
BLK GROVE VALLEY, IL 60007

THIS SCHEMATIC, WIRING, INPUTS
DANGER 2
PANEL CUTTER

DESIGNED BY: JOE FODORSKI
DATE: 7-26-00

TOTAL SHEETS: 1
SHEET NO.: 1
SCALE: FULL
DRAWING NO.: E-2000-212A



NOTES:

INCHES
UNLESS OTHERWISE SPECIFIED

ABM
INTERNATIONAL

211 SEASONS AVE.
ELK GROVE VILLAGE, IL 60007

DATE: 7-25-00

DESIGNED BY: JOE FODOLSKI
DRAWN BY: JOE FODOLSKI

SCALE: FULL

NO. OF SHEETS: 1
TOTAL SHEETS: 1

PROJECT NO.: E-2000-213A

DATE: 7-25-00

BY: [Signature]

IN ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED:
ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTERLINE OF ALL HOLES AND PIPES UNLESS NOTED OTHERWISE.
ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTERLINE OF ALL HOLES AND PIPES UNLESS NOTED OTHERWISE.
ALL DIMENSIONS ARE TO BE TAKEN FROM THE CENTERLINE OF ALL HOLES AND PIPES UNLESS NOTED OTHERWISE.
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