

**PART A: GENERAL INFORMATION**

**F820 ICE CREAM MACHINE  
INSTALLATION & SET-UP GUIDE**

**VERSION: 090903**



**FASTCORP®**  
FOOD AUTOMATION SYSTEMS AND TECHNOLOGIES

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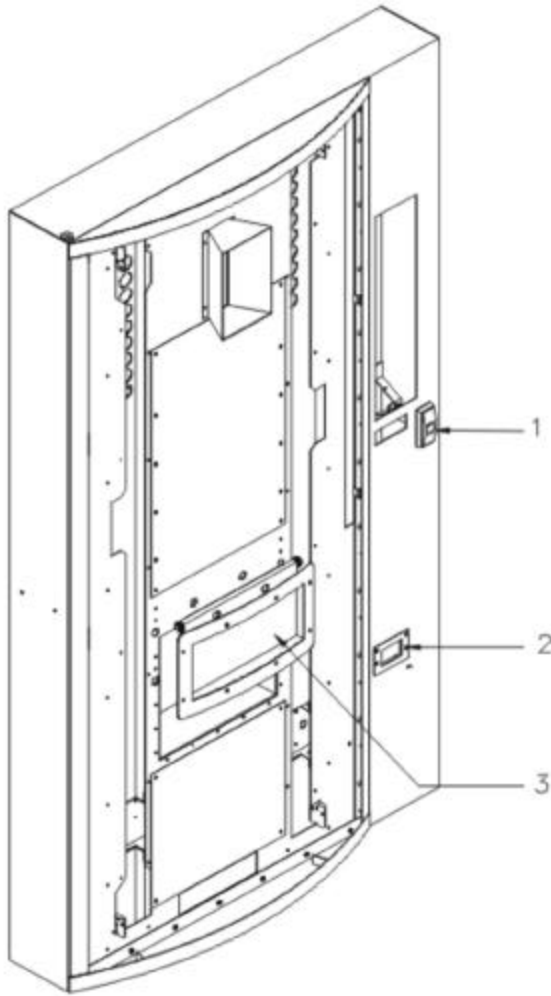
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## COMPONENT REFERENCE AND IDENTIFICATION

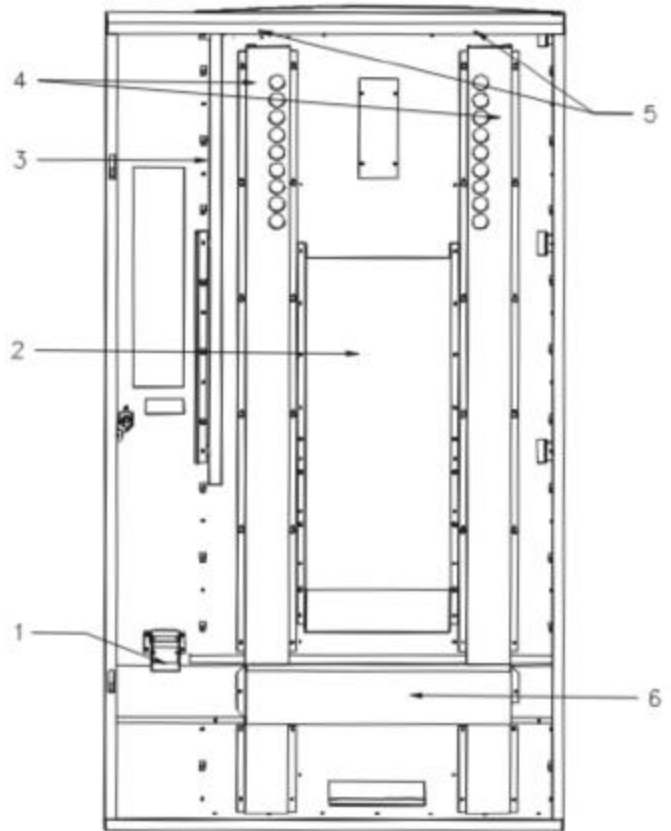
| <b>Fig. 1<br/>(Cabinet, Front)</b>          | <b>Fig. 2<br/>(Cabinet, Front/Left)<br/>No Freezer Chest</b>  |
|---|---|
|   |   |
| 1. Leg Levelers (48909107)                  | 16. Customer Keypad Assembly (49410500)                       |
| 2. Power Supply Assembly (PN 39410200)      | 17. Bill Acceptor Plate (upper) (19300375)                    |
| 3. Control Board Power Switch (19300545)    | 18. Bill Acceptor Plate (lower) (19300375)                    |
| 4. Light Switch (49105501)                  | 19. Coin Return Button, Coin Lever Return Assembly (19300271) |
| 5. Vacuum Box (49210110)                    | 20. Coin Slot (49400423)                                      |
| 6. Freezer, Complete Assembly (39610000)    | 21. Coin Mechanism (Located Behind Cover)                     |
| 7. Freezer Lid Actuator (39610500)          | 22. Coin Return Funnel (49400311)                             |
| 8. M-K Motor (49505555)                     | 23. Coin Chute (49410700)                                     |
| 9. Plastic Limit Switch (49500566)          | 24. Coin Box (49420910) & Coin Box Housing (49100484)         |
| 10. Freezer Chest Lid (Not sold separately) | 25. Service Switch (19300543)                                 |
| 11. Thermometer (19600738)                  | 26. Vacuum Breaker 10Amp                                      |
| 12. Carriage Assembly (39510100)            | 27. Main Breaker 15 Amp                                       |
| 13. Controller Board (19300529)             | 28. Main Power Switch   |
| 14. Controller Board Cover (49400295)       | 29. Freezer Lid Actuator Assembly (39610500)                  |
| 15. Digital Display (19300521)              | 30. Exhaust Fan (Optional Feature)                            |

**Fig. 3**  
**(Door, Front/Left)**



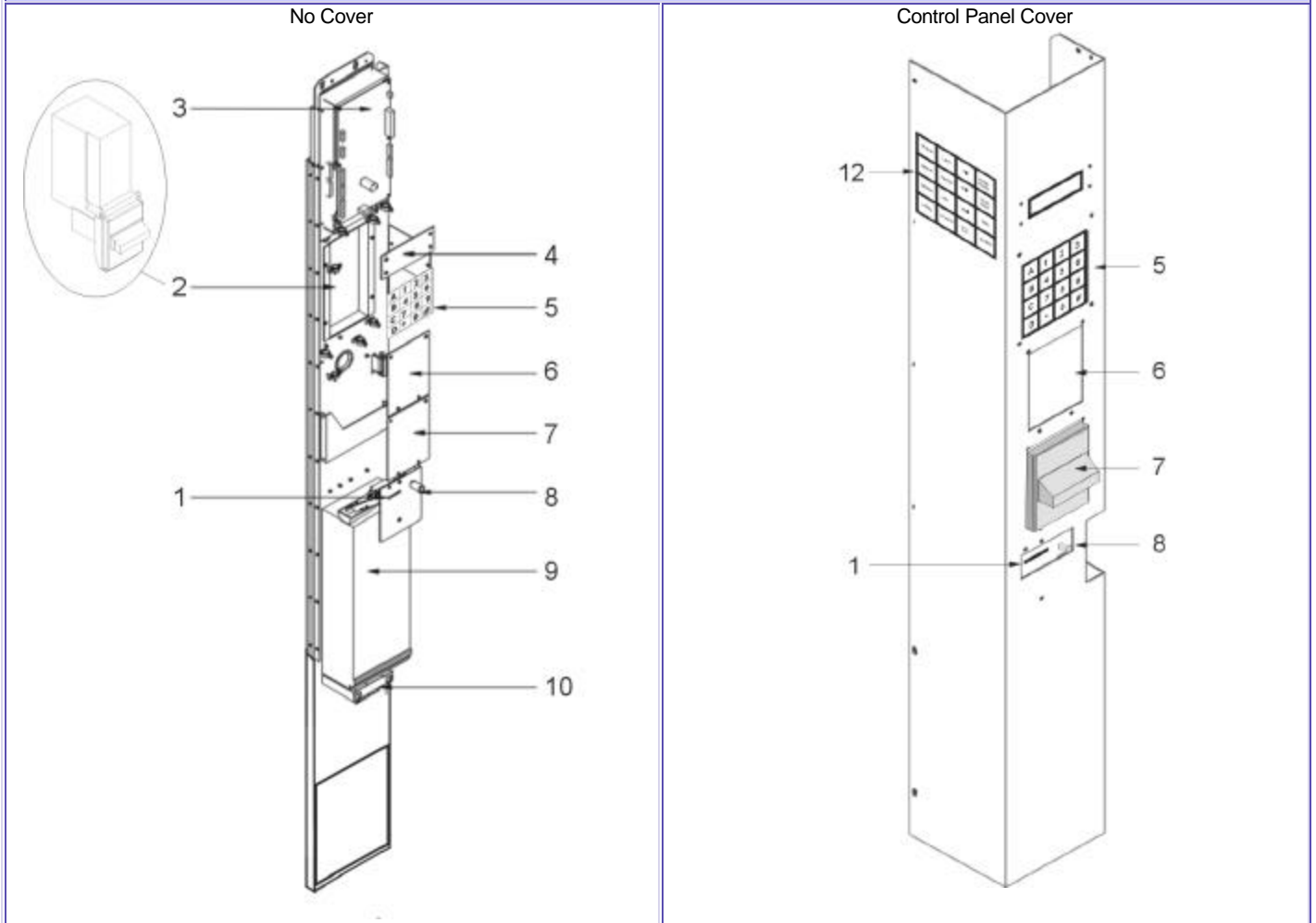
- 1. Door Lock (49300394)
- 2. Coin Return Bezel (49300309)
- 3. Customer Bin Bezel Weld Assembly (49330350)

**Fig. 4**  
**(Door, Back)**



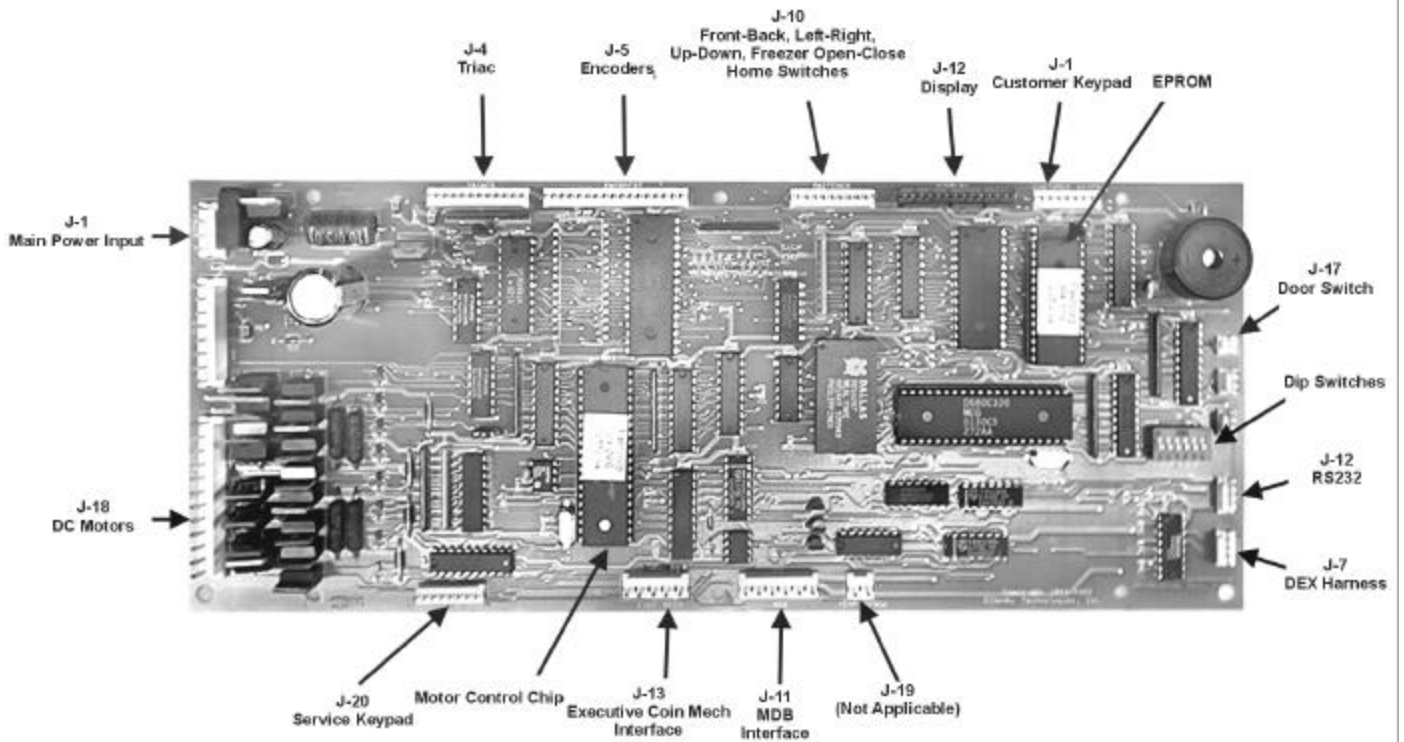
- 1. Coin Return Cup Assembly (49310800)
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- 4. Door Light Cover, Left (49300381), Right (49300382)
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**Fig. 3**  
**(Control Panel Interior & Exterior)**

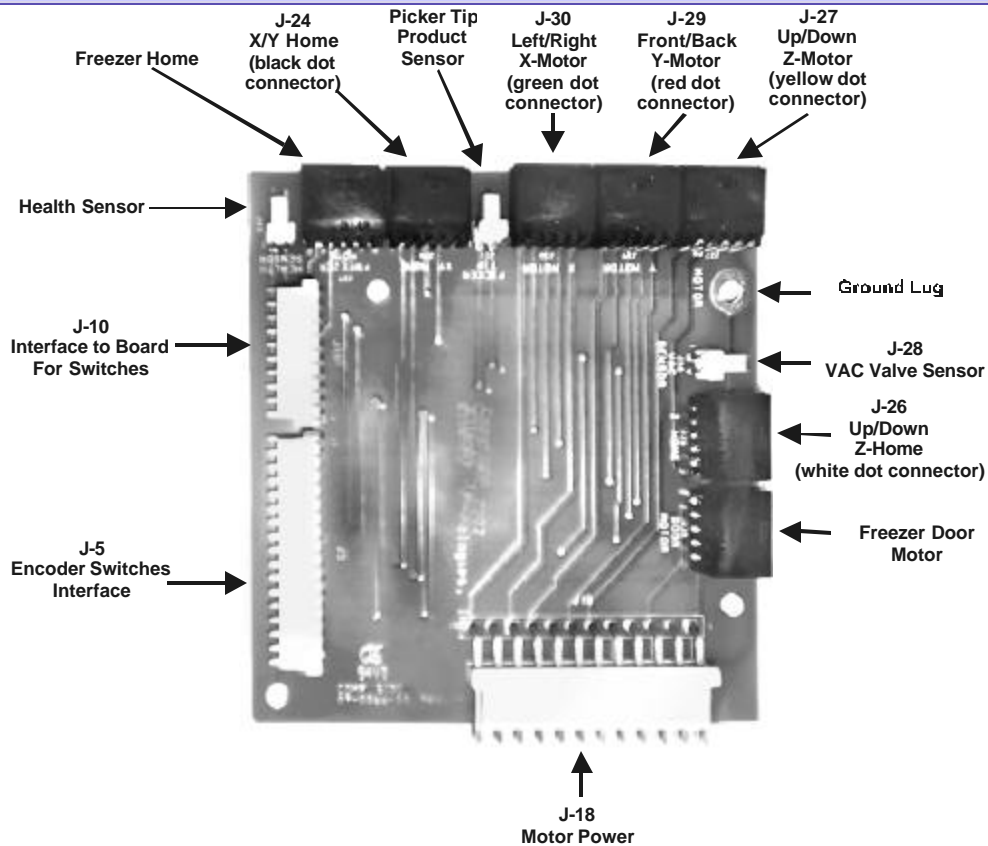


- |   |
|---|
| 1. Coin Slot (49400423) Coin Return Lever Assembly (49410610)           |
| 2. Bill Acceptor Extension Plate, For Up-Stacker Models (49400302)      |
| 3. Controller Board (19300529), Intermediate Board (49405540)           |
| 4. Digital Display (19300521)   |
| 5. Customer Keypad (49410500)   |
| 6. Blank Bill Acceptor Plate, Upper (19300375)                          |
| 7. Blank Bill Acceptor Plate, Lower (19300375)                          |
| 8. Coin Return Button (19300271), Coin Return Lever Assembly (49410610) |
| 9. Coin Mechanism, Refer To Specific Model                              |
| 10. Coin Return Funnel (49400311), Coin Chute (49420710)                |

**Fig. 4  
(Computer Board)**



**Fig. 5  
(Intermediate Board)**

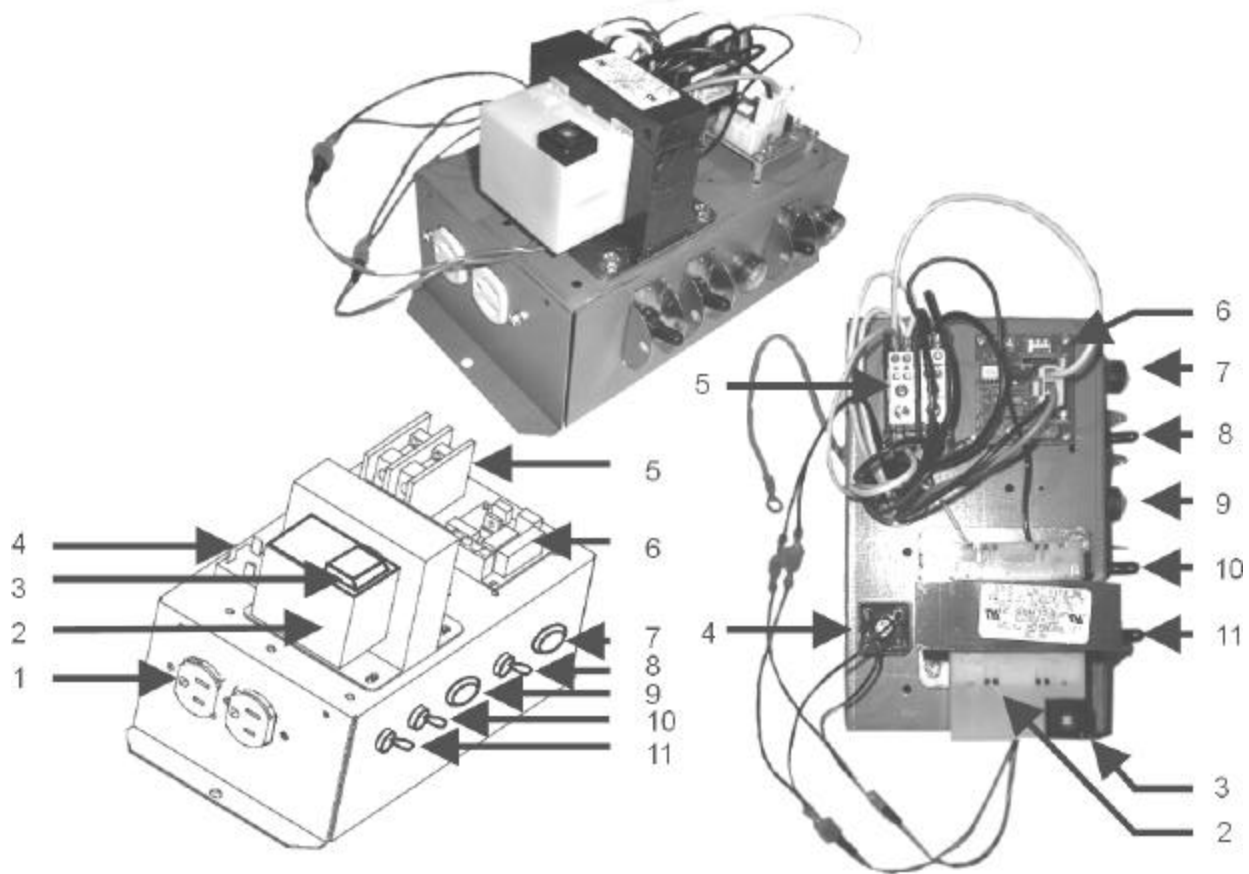




**Fig. 6  
(Service Keypad)**

|              |       |     |           |   |
|--------------|-------|-----|-----------|---|
| (PN19310500) |       |     |           | <b>RIGHT, LEFT, FRONT and BACK-</b> Moves robot in the respective direction.  |
| RIGHT        | LEFT  | 5¢  | FREE VEND | <b>UP and DOWN-</b> Drops or raises the picker head.  |
| BACK         | FRONT | 10¢ | TEST VEND | <b>LOAD and CLOSE-</b> Used to clear sold-out bins and bin errors (press Load then Close).  |
| DOWN         | UP    | 25¢ | VAC       | <b>5¢, 10¢, 25¢-</b> Releases coins of specified denomination from the coin tubes in the coin mechanism.  |
| LOAD         | CLOSE | □   | RESET     | <b>FREE VEND-</b> Allows vending without money; press once to enter, once to exit.  |
|              |       |     |           | <b>TEST VEND-</b> Allows test vending with money; money is not recorded in the vend meter and it is returned after the vend sequence is completed. Press once to enter, once to exit.   |
|              |       |     |           | <b>RESET-</b> Resets the machine in the event of an "OUT OF ORDER" condition.<br>The following errors can put the machine out-of-order:<br>a) Robot errors: motor, encoder or reed switch<br>b) Vacuum motor errors<br>c) Coin mechanism errors (coin mechanism not detected) |

**Fig. 7  
(Power Box)**

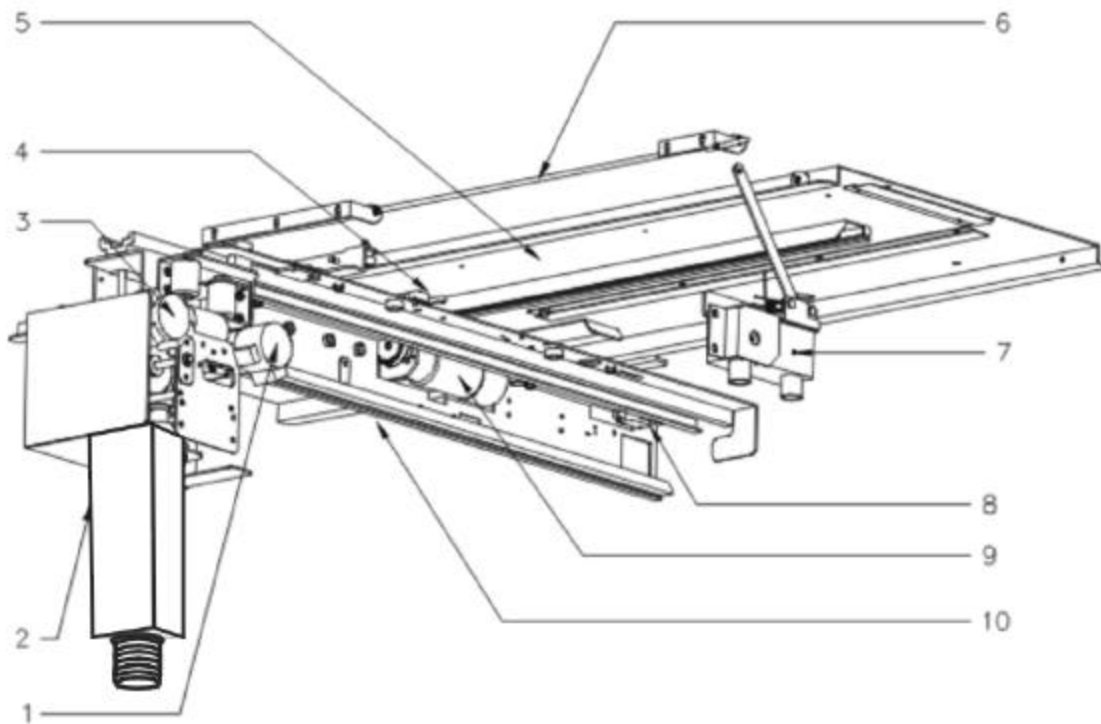


|                             |                                |
|-----------------------------|--------------------------------|
| 1. Duplex Receptacle        | 7. Main Breaker (15A)          |
| 2. Transformer (24V)        | 8. Main Power Switch           |
| 3. Transformer Reset        | 9. Vacuum Breaker (10A)        |
| 4. Bridge Rectifier (Fan)   | 10. Light Switch               |
| 5. Power Distribution Block | 11. Control Board Power Switch |
| 6. Single TRIAC Board       |                                |



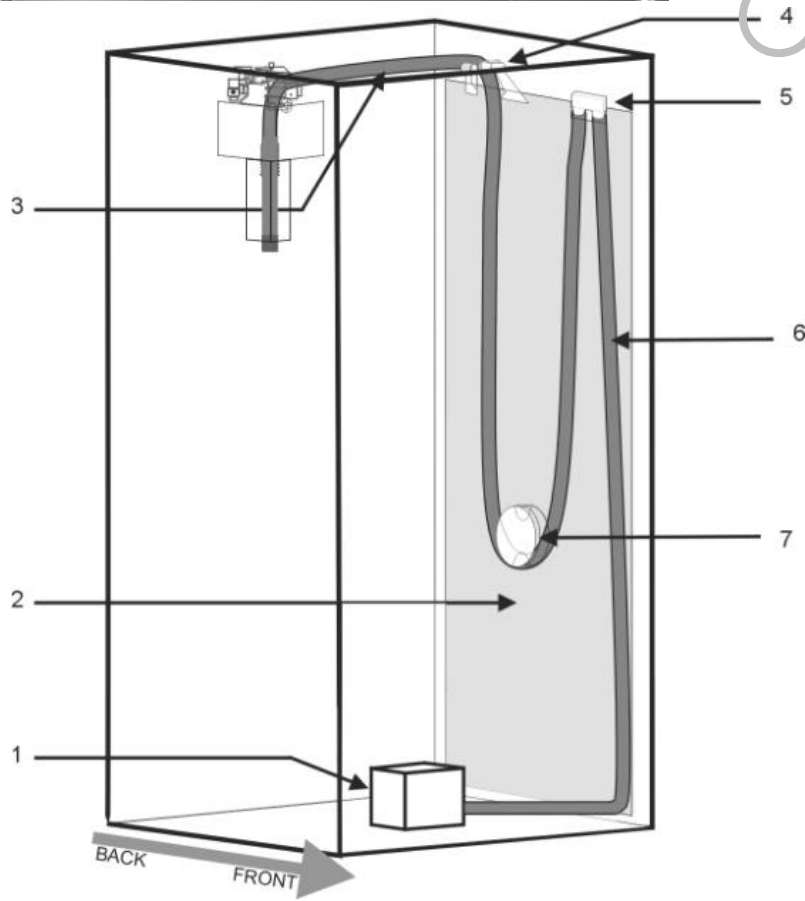
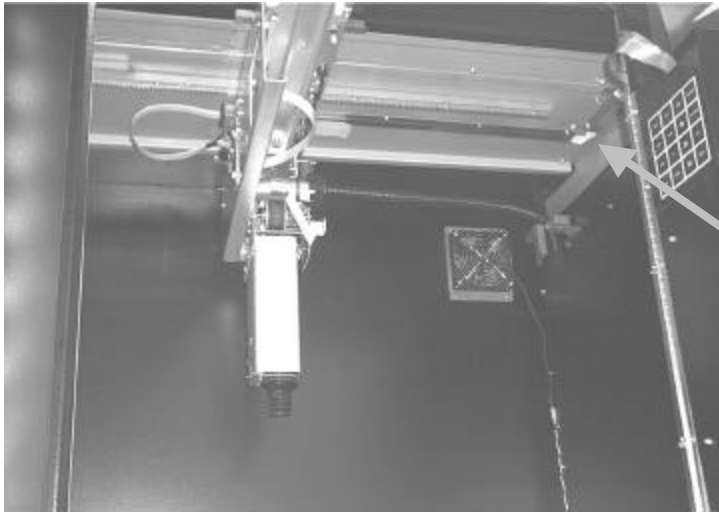
**Fig. 8**  
**(Robot Carriage-Rack Assembly)**

Front Right View



|  |   |
|--|---|
| 1. M-K Motor, Front/Back (49505555)                | 6. Crank Assembly, Crank Release (49200178)         |
| 2. Carriage Assembly, Robot (39510100)             | 7. Vacuum Valve Assembly (39210210)                 |
| 3. M-K Motor, Up/Down (49505555)                   | 8. Plastic Arm Limit Switch, Front/Back- (49500566) |
| 4. Plastic Arm Limit Switch, Left/Right (49500566) | 9. M-K Motor, Left/Right (49505555)                 |
| 5. Trolley Plate Assembly (39510300)               | 10. Beam Assembly (39510200)                        |

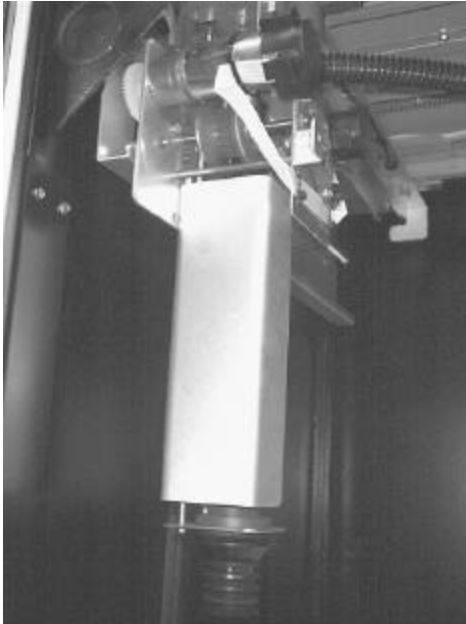
**Fig. 9**  
**(Robot Carriage-Rack Assembly & Hose System)**



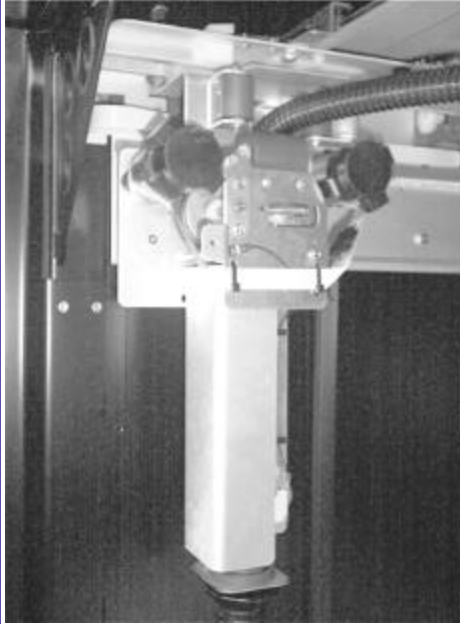
|   |                                     |
|---|-------------------------------------|
| 1. Vacuum Box (49210110)                              | 5. Vacuum Valve Assembly (39210210) |
| 2. Hose Panel (49100472)                              | 6. Hose, 88" (49200463)             |
| 3. Hose, 130" (49200130)                              | 7. Hose Weight (49200498)           |
| 4. Panel Rollers (Short: 49210410) & (Long: 49210420) |                                     |

**Fig. 10**  
**(Robot Up Position- Without Robot Cover)**

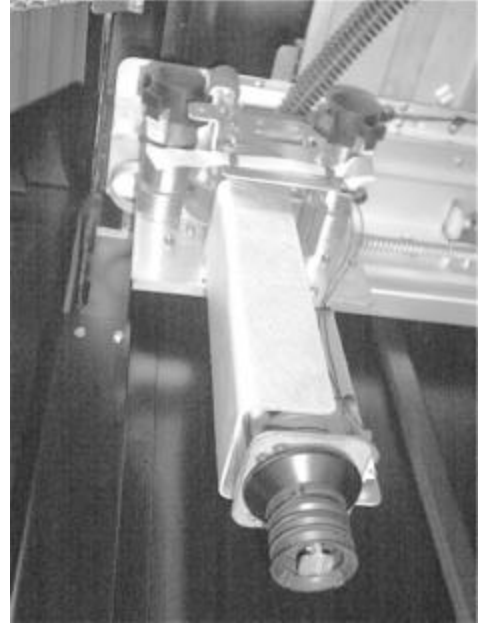
**A) Front-Right View**



**B) Right View**

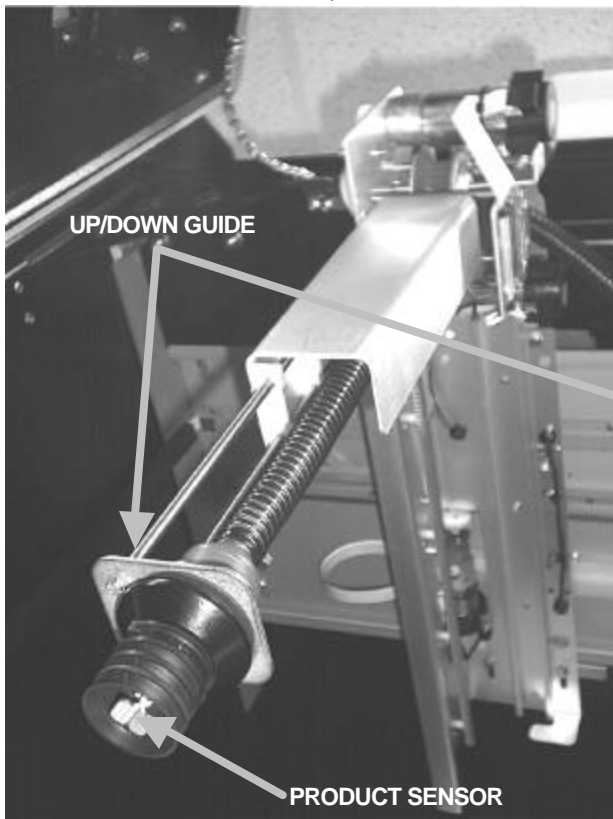


**C) Bottom-Right View**



**Fig. 11**  
**(Up/Down Guide In The Drop Position)**

**Bottom-Up View**

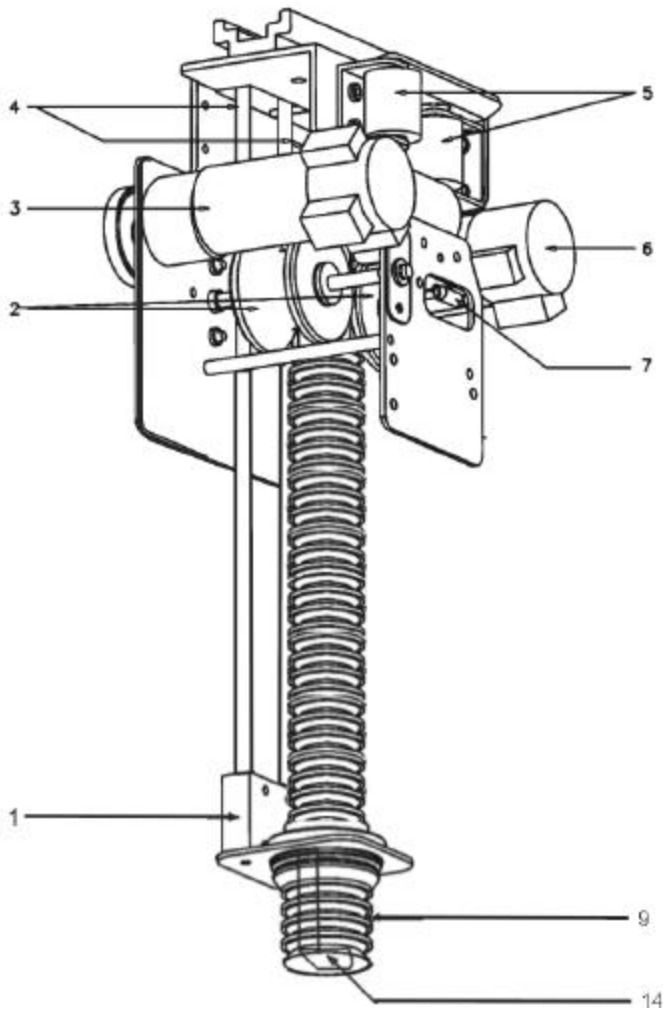


**Fig. 12**  
**(Up/Down Guide In The Drop Position)**

**Front View Over Product Bins**

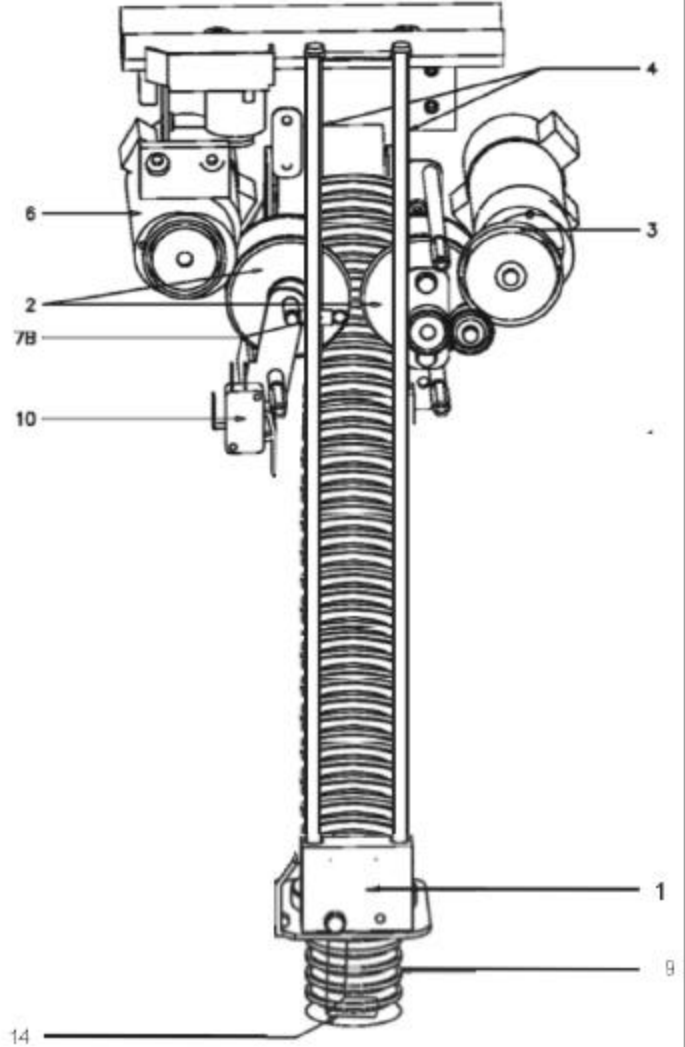


**Fig. 13**  
**(Robot Carriage Front/Right)**



**Fig. 14**  
**(Robot Carriage Left)**

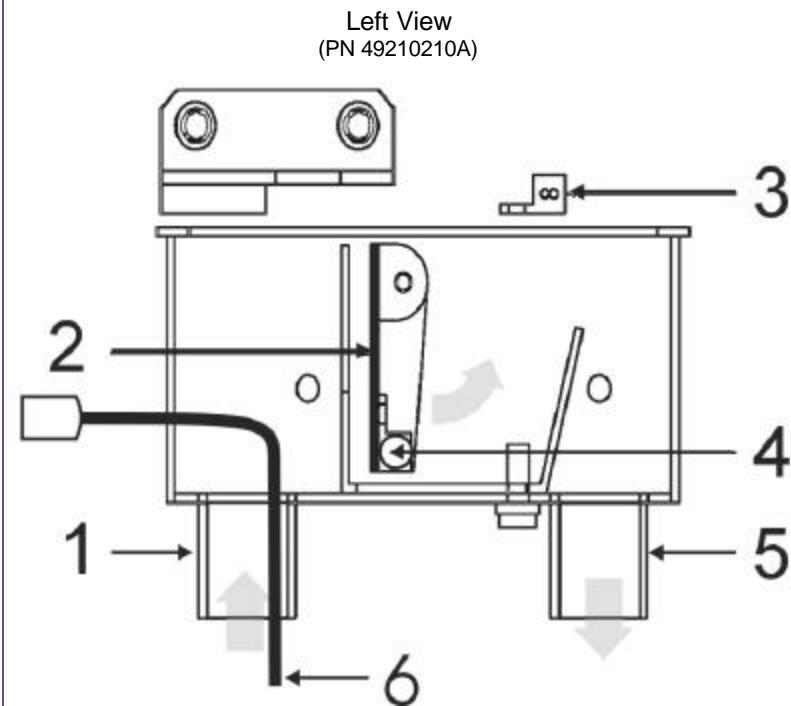
Left Carriage & Plate Not Seen



1. Up/Down Guide Block (39503431)
2. Rubber Wheels (49500484)
3. Up/Down M-K Motor (49505555)
4. Up/Down Guide Rods (39503432)
5. Vertical Rollers (49500452)
6. Front/Back M-K Motor (49505555)
7. Right Yoke Spring (48904026)
- 7B. Left Yoke Spring (48904026)

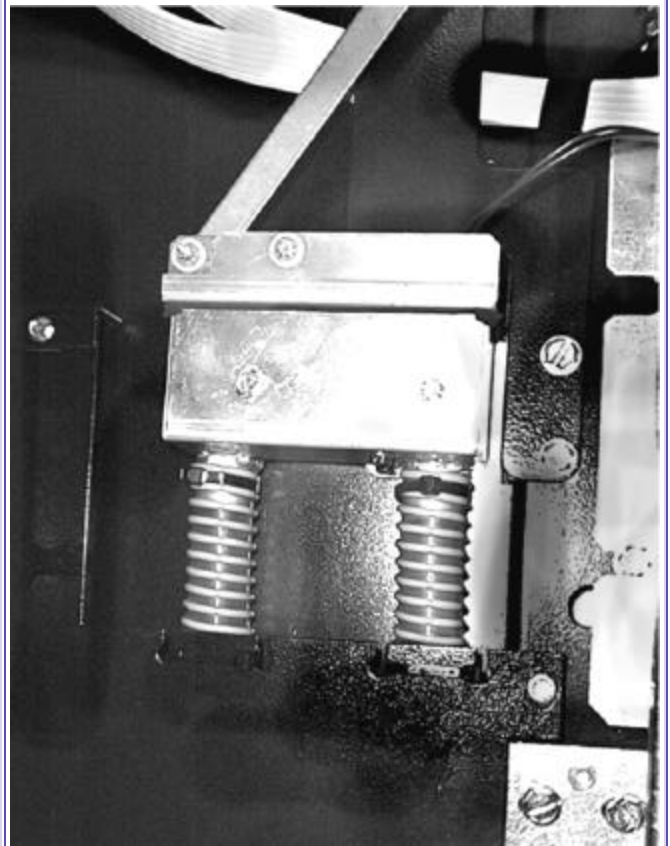
8. Picker Weight (39503410)
9. Suction Cup (49500461)
10. Plastic Arm Limit Switch, Up/Down (49500566)
11. Driven Gear 1 (49500405)
12. Driven Gear 2 (49500405)
13. Guide Plate (49500427)
14. Product Sensor (39900530)

**Fig. 15**  
**(Vacuum Valve Assembly)**



**Fig. 16**  
**(Vacuum Valve Assembly)**

Left View



1. Airflow Nozzle- Intake From Robot, Valve Box Weldment
2. Flap Valve (49200069)
3. Magnetic Reed Switch (19900518)
4. Magnet, Reed Switch (19900565)
5. Airflow Nozzle- Out To Vacuum Box, Valve Box Weldment
6. Product Sensor Harness (49500531)

# **SPECIFICATIONS / MAINTENANCE**

## **GENERAL SPECIFICATIONS**

| <b>GENERAL</b>   | <b>ELECTRICAL</b>  |
|--|--|
| <b>HEIGHT:</b> 72.0 in./182.9 cm.<br><b>WIDTH:</b> 39.0 in./90.20 cm.<br><b>DEPTH:</b> 34.5 in./87.70 cm.<br><b>WEIGHT:</b> 635-lbs./288 kg. | <b>VOLTAGE:</b> 110-115 A/C<br><b>FREQUENCY:</b> 60 Hz *<br><b>AMPERAGE:</b> 9Amps.<br><b>AMP DRAW:</b> 2.5Amps resting /9Amps operating |

\* This machine requires a 115V, 15 Amp dedicated circuit. Lower voltage may result in vacuum related problems and/or improper coin acceptance.

## **SAFETY CONSIDERATIONS**

- Only use a 110V 15 Amp electrical power supply with ground to power the machine.  
**Warning: To ensure safety and proper operation, the machine must be grounded. Do not attempt to remove ground pin from power plug.**
- Keep clear of robot path during vend cycles (inside cabinet or near robot carriage assembly). When vending product, the robot accelerates towards the front center section of the cabinet known as the “Drop Point”. Standing or looking inside the cabinet while the robot attempts to dispense product may result injury.

## **TRANSPORT CONSIDERATIONS**

- Laying the F820 on its side will create issues in the freezer compressor. If the machine must be laid down for delivery purposes, be sure the machine is upright for at least 24 hours before plugging and powering.
- Whenever the F820 is moved or transported, always use the shipping brackets provided when the machine was first delivered and new tie wraps. Refer to the uncrating instructions for tie wrap and shipping bracket installation.

## **LUBRICATION**

Do not use oil or other lubricants on any moving parts

## **GENERAL CLEANING CONSIDERATIONS**

- **Note:** Do not use water, soap or any other liquid to clean inside the machine.
- The outside of the machine can be cleaned with a mild detergent.



## **FREEZER MAINTENANCE**

Two or three hours after powering the machine, the freezer temperature should drop to -15°F/-26°C. Any temperature adjustment can be made using the thermostat, located in the back right side of the freezer. The freezer is set for -15°F/-26°C and may be adjusted using a standard screwdriver. Turn the screwdriver clockwise for colder and counter-clockwise for warmer. The range of operation temperature is -25°F/-31°C to 15°F/-9°C (at 70°F/21°C ambient).

The standard chest freezer inside the F820 does not self-defrost automatically. The freezer chest requires maintenance when ice begins to affect the vend cycle, product loading, or the closing of the freezer door. The refrigeration system does not require any maintenance. Depending on the location's moisture level (relative humidity) and frequency of operation, ice deposits will occur primarily around the top three to four inches of the freezer. It is not necessary to defrost the freezer every time there is ice build up. Ice can be chipped away as long as it does not make its way down along the walls or underneath the bins. Excessive ice build-up may require bin removal. The freezer does not have to be unplugged to perform this process.

*FASTCORP* recommends keeping a plastic ice scraper (provided with the machine), and a 9" by 11" piece of cardboard or plastic inside the machine. Place the plastic under the area to be scraped to catch the ice from falling in the bins. This entire process should only take only a few minutes.

Depending on usage, temperature and humidity, a full cleaning may be necessary. First, press the load button and remove all the bins and the bin matrix. Next, place the ice cream in a holding container. Scrape the ice and remove it from the basin. To rinse out the freezer chest, place a drain pan under the drain and remove the drain plugs. One is located on the inside left of the freezer and the other on the outside lower left (a standard screwdriver might be necessary). Finally, reload the old bins or replace with new ones. Run each selection to make sure the bins did not shift or were put in the wrong location. The freezer will take about 2-3 hours to get down to temperature.

Under normal conditions, the F820 can be unplugged with the door closed for up to 12 hours without harming the product. If freezer temperatures reach unsafe levels, the health switch (located on the step in the rear right corner of the freezer) will activate and the machine will be placed out of order. Your product must be discarded and proper cleaning procedures must be taken.

The screen will read "**Health Sensor Active**". It will not operate until both the RESET button is pressed and the freezer temperature has returned to safe levels. The machine is set not to accept money if the freezer has not reached proper operating temperatures. If the machine must be operated, even though the freezer is not at an acceptable temperature, you can bypass the health sensor. Covered in previous section "**PROGRAMMING / MENU ITEM PROGRAMMING SEQUENCE / HEALTH TIMER**".



# UNCRATING INSTRUCTIONS

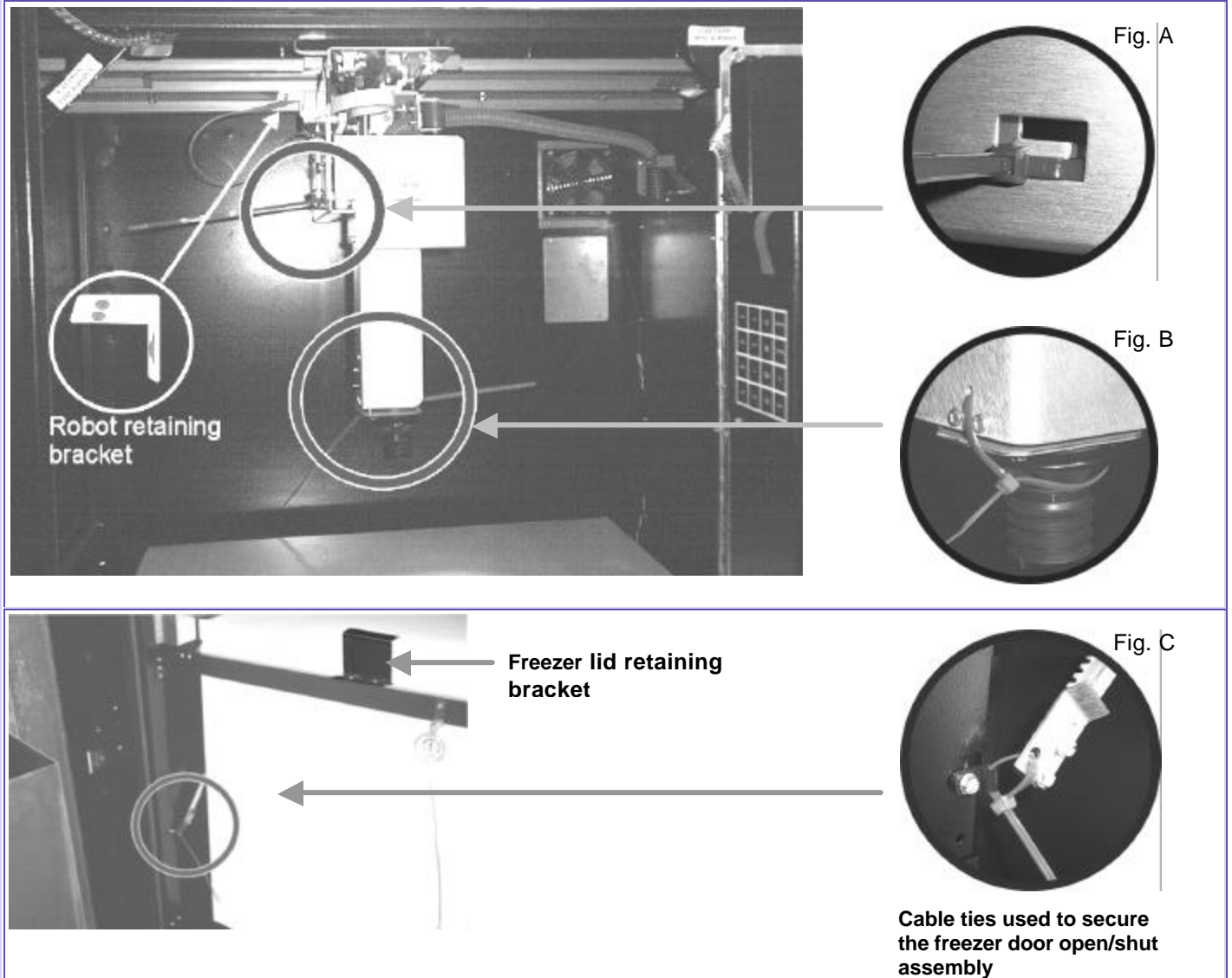
(A copy of these instructions are attached to the front glass panel of the machine)

This machine has been packed in order to protect its internal components during transportation and distribution. FASTCORP has also attempted to make unpacking and installation a quick and easy process. FASTCORP recommends the following steps be taken when unpacking the machine.

**Warning: Do not plug in the machine until all steps are completed in this section. The retaining brackets and the three red cable ties must be removed before powering up the machine to avoid damage to sensitive mechanisms.**

1. Inspect the exterior of the machine for any damage that may have occurred during shipping. The machine has been covered in shrink-wrap with cardboard corners and Styrofoam bumpers, so any external damage will be visible immediately. Remove packing materials from the exterior of the machine, open the door and inspect the inside of the cabinet for any internal damage. Report any external or internal damage to the delivering carrier and follow their claims procedure. Close the door and tighten the lock
2. To remove the shipping skids, use a forklift or pallet jack to raise the machine off the ground. With a 1 1/16" socket driver, loosen the leveler legs located in each of the four corners under the machine. Remove each shipping skid by sliding the skid back and out to the side. Lower the machine. Store the shipping skids and use them again if the machine is moved.
3. Adjust the leveler legs. Note that properly leveling the machine is **critical** to optimal performance and operation.
4. After the machine is set back on the ground, open the cabinet door and locate the retaining brackets and cable ties used to prevent internal components from shifting during transport. Remove the robot-retaining bracket located on the left side of the carriage by unscrewing three ¼-20 hex head screws. Two bolts are located on the top and screwed into the ceiling of the cabinet. One bolt is located on the side and is screwed into the robot. Remove the freezer lid-retaining bracket by removing two #8-32 X ½ slotted hex screws. Store the brackets and hardware in the cabinet door next to the bottom door hinge. The brackets must be used every time the machine is moved or shipped. Remove the three RED cable ties located on the robot and on the freezer door open/shut assembly arm.
5. Continue to the next section in the instruction manual: SETUP INSTRUCTIONS/ MONEY SYSTEMS & MONEY SYSTEM INSTALATION

**Fig. 17**  
**(Robot Retaining Bracket & Shipping Tie Wrap Locations)**



## TRANSPORT INSTRUCTIONS

1. Before re-securing internal components for transporting, turn the machine off. This will disable passive braking and allow the robot to be moved manually.
2. Unplug the main power cord from the wall and attach the cord to the plastic fastener on the back of the cabinet. If the fastener has been broken or removed, thread a wire tie or string through the vent holes on the back of the cabinet to tie the cord to the machine. This prevents the power cord from being damaged when the unit is moved.
3. Empty all money from the coin mechanism and bill acceptor. Remove the coin mechanism and bill acceptor (if necessary). (*Steps 3 - 8 can be performed at the warehouse. Steps 6 – 8 must be performed less than 12 hours after the machine is turned off.*)
4. Remove the lock cylinder from the T-handle assembly (if necessary).
5. Make sure that the customer (product) delivery bin is empty and clean.
6. Remove all bins and bin matrix pieces from the inside of the freezer. Remove all product from the bins and return all frozen product to the frozen truck/warehouse. Wipe down the inside and outside of each bin and all matrix pieces.
7. Defrost the freezer. Remove the inside and outside drain plugs and let any water run into a bucket in front of the freezer. Wipe the inside of the freezer down and clean any melted ice cream or debris from the inside of the freezer. Additional water or soapy water solution may be required to completely clean the freezer. Use paper towels to dry the inside of the freezer.
8. When the freezer is clean and dry, reinstall the ice cream bins and matrix. Replace any damaged or dirty bins.
9. Center the robot in the cabinet so that the robot-retaining bracket can be screwed on using the three 1/4 –20 hex bolts set aside in the cabinet door (refer to the F820 Uncrating Instructions). The robot-retaining bracket secures the robot beam to the trolley plate preventing it from moving left to right. Two bolts are screwed into the top of the cabinet and one bolt is screwed into the side of the robot.
10. Match up the T-slots located on the left side of the robot carriage and robot cover (see Fig. 17A Uncrating Instructions). Create a loop with the cable tie, insert through the T-slots, and tighten the cable tie. This cable tie secures the robot carriage to the robot beam preventing it from moving front to back.
11. A second cable tie is inserted into the slot on the robot located next to the picker head. Make sure that the picker head is fully retracted and insert the cable tie through the slot and around the base of the picker above the suction cup (see Fig. 17B Uncrating Instructions). Tighten the cable tie once the picker is secure.
12. The last cable tie secures the freezer lid actuator arm to the cabinet. Pull the arm forward, locate the hole on the base of the arm, and use the cable tie to secure it to the plastic wire clip on the side of the cabinet (see Fig. 17C Uncrating Instructions).
13. Install the freezer lid-retaining bracket with two #8-32 slotted hex screws.
14. Make sure that the Console Door is fully closed and has latched. Close the main outer door and screw in the T-Handle until the door is completely closed and secure.
15. Re-install the shipping skids to the bottom of the machine. Make sure that the leveler legs are screwed into the skids to firmly hold the skids in place.
16. Use cardboard or appropriate packing materials to protect the corners of the machine. Cover the machine with shrink-wrap or other protective material to prevent surface scratches or damage.
17. Move the machine using a pallet jack or forklift, taking care to always pick up the machine from the back. If the machine must be turned on its side refer to pg. A-11 in the F820 instruction manual for transport considerations

**NOTE: IF ANY OF THE RETAINING BRACKET(S), CABLE TIES, OR SHIPPING SKIDS ARE MISSING, PLEASE CONTACT THE FASTCORP PARTS DEPARTMENT TO PURCHASE REPLACEMENTS. IF THERE ARE ANY QUESTIONS REGARDING THESE INSTRUCTIONS, PLEASE CALL THE FASTCORP TECHNICAL SERVICE DEPARTMENT AT 1 (888) 441-3278.**

### REMOVING THE CONTROL CONSOLE

During initial placement or transporting, it may be necessary to remove the control console in order to fit the machine through narrow doorways.

1. Make sure that the power is off and the main power cord is unplugged before removing or reinstalling the control console.
2. The cover from the computer board can be removed one of two ways:
  - a. Loosen three ¼" head screws. Lift the cover up and off. Remove one of the two 3/8" head bolts holding the top of the console onto the cabinet.
  - b. Remove the top two 3/8" head bolts and loosen the bottom 1/4" head bolt. Lift the cover up and off. Reinstall one of the 3/8" head bolts. Leave one of the bolts in place to prevent the console from accidentally falling.
3. With a permanent marker, number each of the FFC cables with the corresponding connector number printed on the intermediate board (J-24, J-25....). Mark the three 2-pin connectors that plug into J-28 (VAC sensor, below the ground wire), J-21 (Picker Tip), and J-22 (Health Sensor), respectively. Remove the 2-pin connectors and all cables from the board.
4. Label and remove the following connectors from the computer board:
  - a. J-15 Door (2 pin, top left, twisted wires)
  - b. J-4 Triac (left side lower, 12 pin w/wires at location 1 and 12 only)
  - c. J-I Power (4 pin, bottom left)
  - d. J-11MDB (J11, 6 pin, right side, middle, white connector/white wires)
5. Remove the coin box and remove the bottom two 3/8" head bolts with 7/16" nuts that hold the console to the cabinet.
6. Pull the cables and wires through the holes, out the back of the console. Remove the wiring harness from the retainers on the back of the console. Cut cable ties as needed making note of their location so that they can be accurately replaced during reassembly.
7. Loosen the three bolts that hold the back of the console to the side of the cabinet. The holes are slotted and do not require complete removal.
8. While supporting the console, remove the top bolt (originally left in to prevent the console from accidentally falling). Remove the console.
9. To reinstall the console, reverse the steps. Make sure that wires, cables, and harnesses are properly connected. Replace the cable ties.

# SETUP INSTRUCTIONS

## ***MONEY SYSTEMS***

### ***TYPES OF MONEY INTERFACE SYSTEMS***

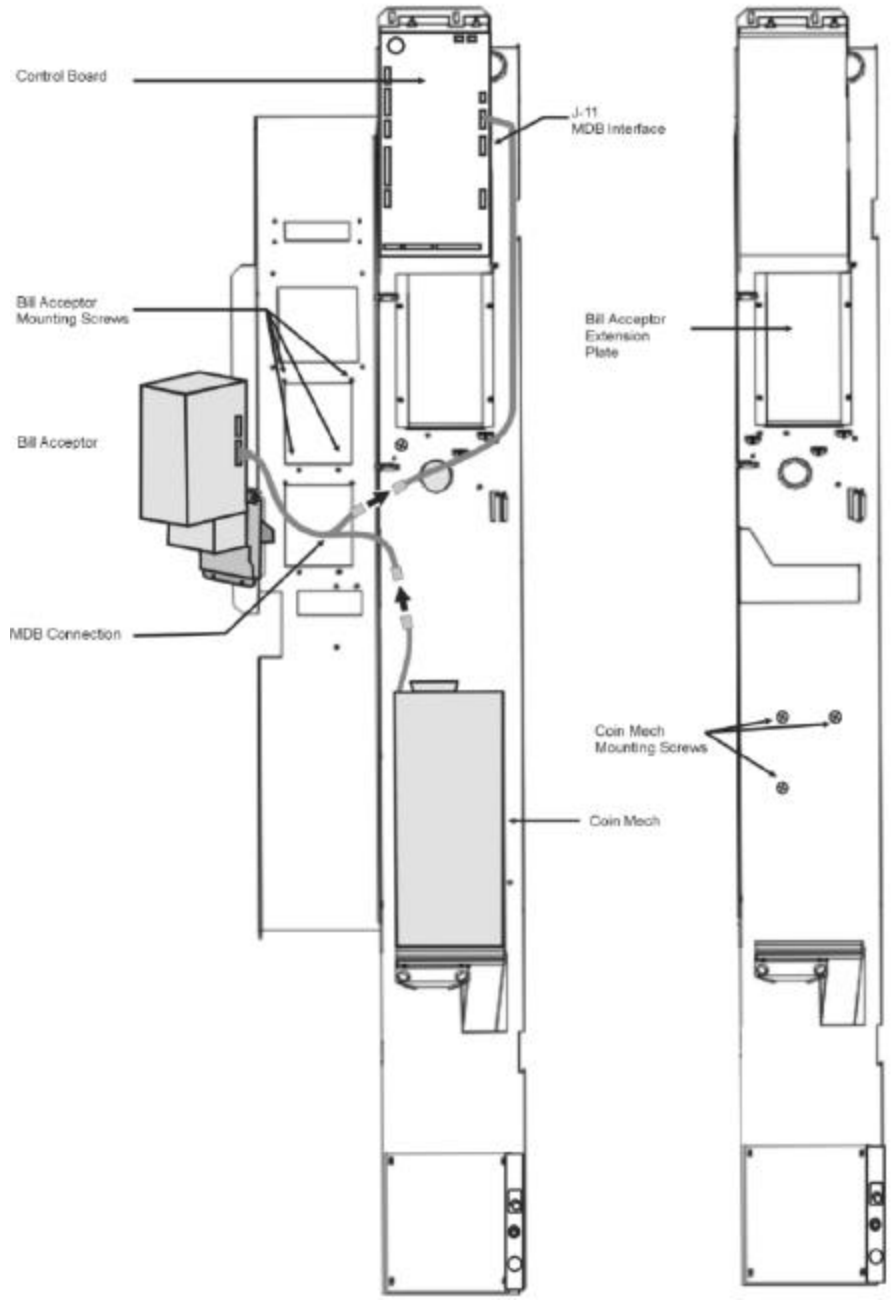
1. This machine supports ***ONLY*** MDB (Multi-drop Bus) Money systems.
2. This machine is compatible with any MDB compliant coin mechanism and bill acceptor.  
(Note: The machine is not compatible with the **COINCO 9302GX Coin Mechanism**)
3. A dollar coin block plate is provided to prevent dollar coins from being inserted. The plate can be removed to accept dollar coins.
4. The F820 comes pre-wired for a DEX port located on the inside of the control panel. To collect DEX data, insert the DEX plug into the phono jack and pull out the vend service interlock switch located at the bottom right of the cabinet.

**MONEY SYSTEM INSTALLATION**

Multi-Drop Bus (MDB) Interface

1. Open the control panel-cover using the release button located on the right side of the control panel.
2. Mount the coin mechanism using the three coin mech. mounting screws.
3. Mount the bill acceptor using the four mounting screws located on the control panel cover (top or bottom slot depending on type of acceptor used; for card readers, use top slot- MDB only)
4. Make all the connections shown in Fig. 18.

**Fig. 18**  
**(Multi-Drop Bus (MDB) Money System Connections and Installation)**



## INITIAL POWER UP

**Warning:** Before starting this section, make sure that all the other sections have been completed (Safety Specifications, Uncrating Instructions, Money System Setup). Do not power up if the robot-retaining bracket and shipping tie wraps have not been removed.

Plug the machine into the power source. To avoid the risk of injury, making sure that all body parts are clear of the cabinet before turning on the main power.

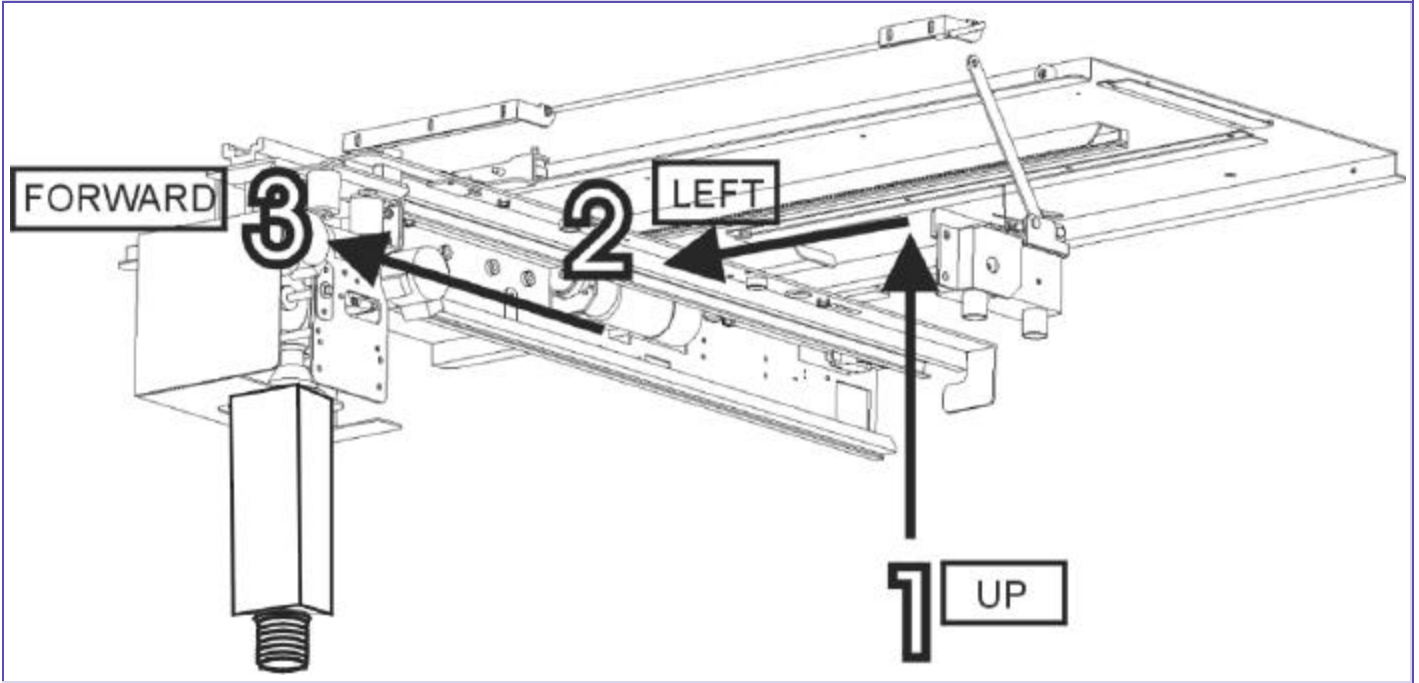
The robot should follow the initial power-up sequence:

1. Robot picker head moves UP.
2. Robot carriage moves towards the LEFT of the cabinet.
3. Robot carriage moves towards the FRONT of the cabinet (considered the HOME position).

If the robot does not move or follow the “Homing Sequence”:

1. There may be setup errors or shipping damage. Review all the previous sections and check for errors on the display. Press the # key for diagnosis.
2. Check the transformer reset breaker and make sure the power switch is on (refer to control panel diagram for location).
3. Perform a quick check to see if there are obstructions preventing the robot from moving freely on all axes.
  - a. Power the machine off to disable “dynamic breaking” features that make it hard to move the robot manually.
  - b. Manually move the robot to the left, right, front and back. Check for smooth travel. Note any obstruction or gear binding.
4. Refer to the Troubleshooting Guide section.

**Fig. 19**  
**(Power Up Homing Sequence)**

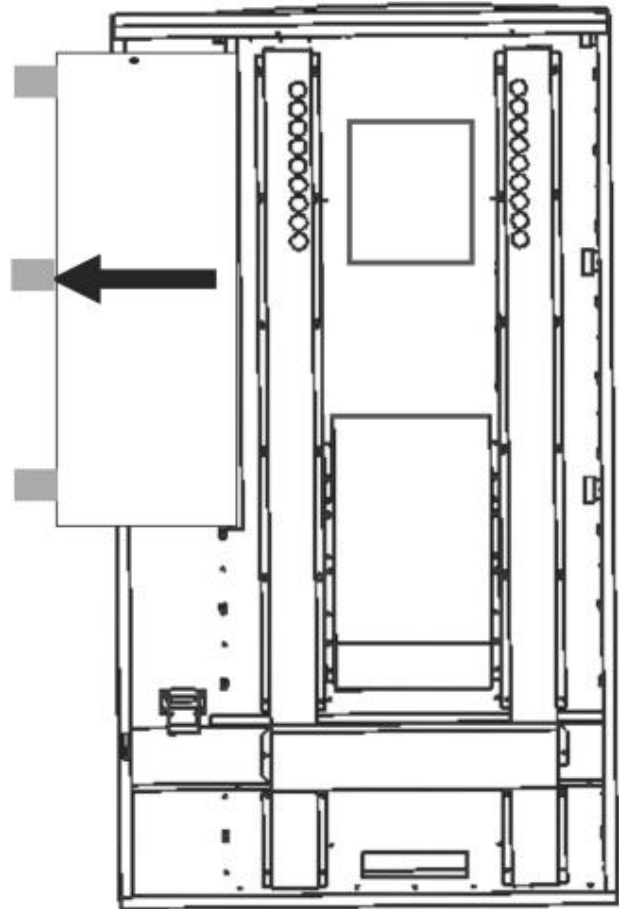
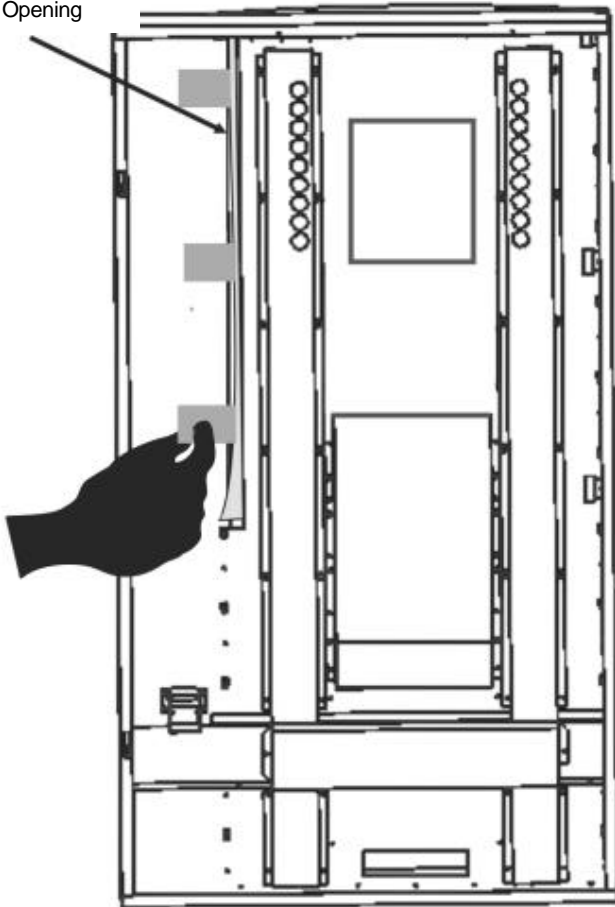


# PRODUCT DISPLAY SYSTEM

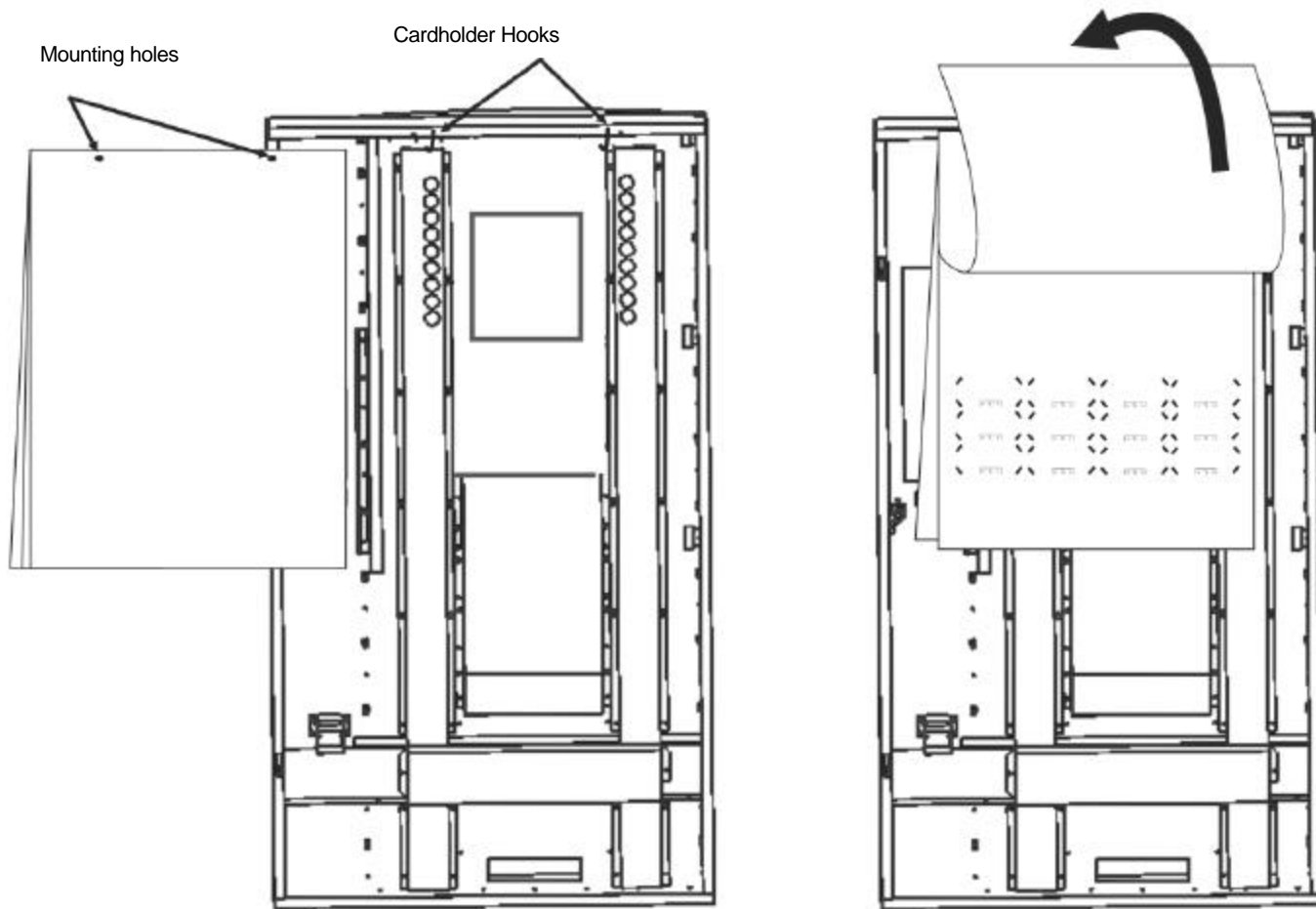
## INSTALLATION AND SETUP

1. Determine what products will be vended and locate the corresponding display card provided by the manufacturer.
2. Open the cabinet door and locate the cardholder display opening in the back cabinet door. Remove the cardholder from the door using the pull out tabs. Note: - The cardholder consists of 3 sheets, which are attached at the top with plastic grommets.
3. Slide the cardholder out of the door display.

Cardholder  
Opening

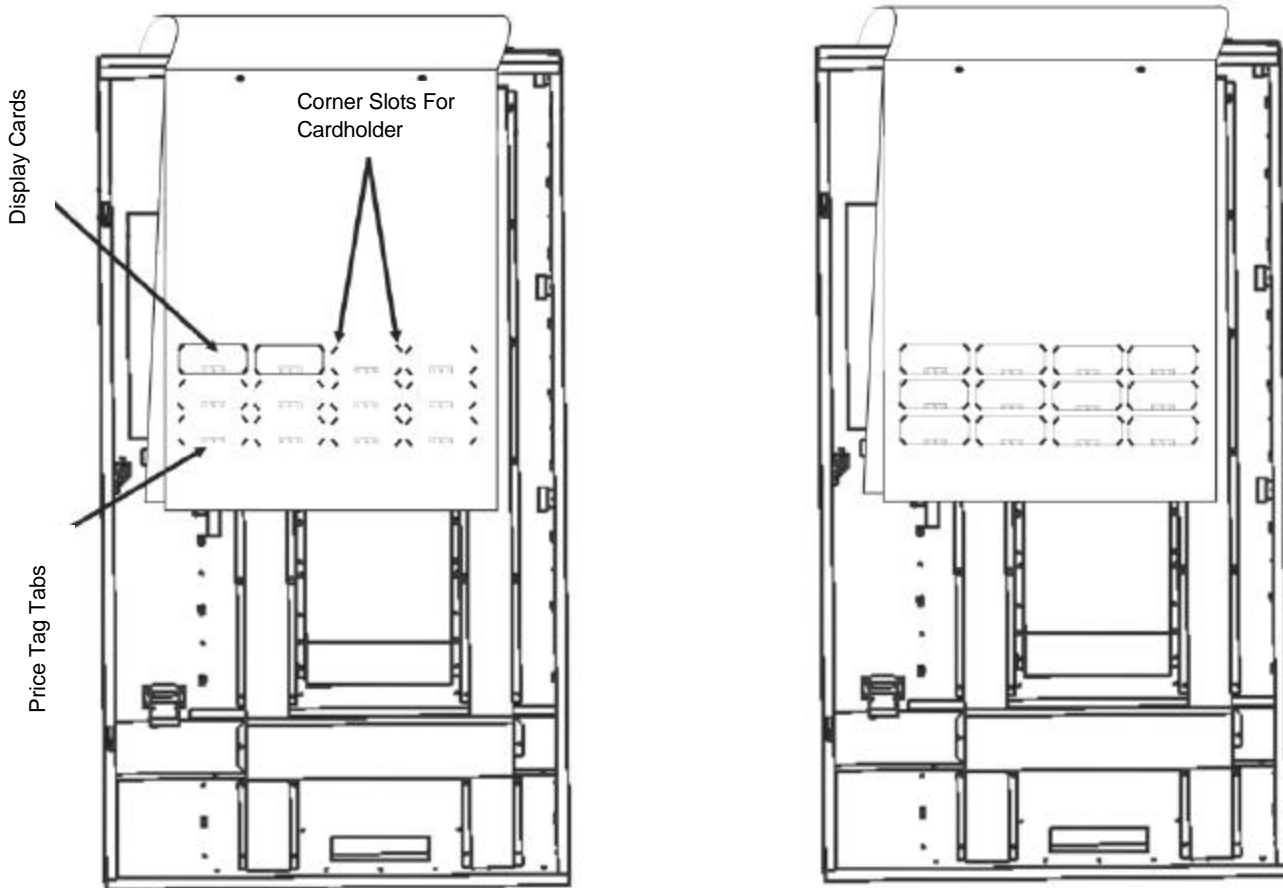


4. Hang the cardholder from the top of the cabinet door using the mounting holes located on the top of the display sheets and the mounting clips located on top of the door.
5. Lift the first sheet off the center cardholder sheet and drape over the cabinet door.





6. For each product, install the selection and price labels first. Both labels will be inserted into the selections perforated center tab. Install the selection number on the left and pricing on the right. The perforations are used to hold the corners of each label in place. A useful technique is to hold the label in place with one hand while the other pops each corner in place.
7. Install the display card behind the selection tab so that the selection number and price are in front.
8. Remove the cardholder from the mounting clips and reinstall. Secure the cardholder back in place by snapping the outer edge back into the cardholder slot.



## ***BIN SETUP / PRODUCT LOADING***

The F820 utilizes a bin system to hold product. The bin system is made up of a number of bins (various shapes and sizes), held together by a plastic bin matrix. The type and size of bin used depends on the size and shape of the product being vended. Every machine comes pre-configured with a specific bin layout or "Bin Plan-o-gram".

**Note: Please refer to the Bin Layout Guide (accompanying this manual) for plan-o-grams and instructions specific to your machine.**

### **GENERAL CONSIDERATIONS**

1. To keep track of products in a bin configuration, we recommend that the plan-o-gram form be filled out and attached to the inside of the machine. The product name, price and bin number can also be written directly on each bin. In addition, the computer is programmed to leave one product at the bottom of each bin allowing products to be matched by the service person for refilling.
2. Always keep a copy of each machine's specific bin plan-o-gram at a remote location (office) as a reference and backup copy.
3. Each bin size comes in two different bin heights: tall and short. Short bins are approximately ½ the size of the long bins and are located on the right side of the chest freezer above the compressor. In a typical configuration, there are a total of four short bins. Short bins do not have to be programmed and can be used for product overflow or storage.
4. Always load product from the bottom-up (so that product will be vended FIFO: First In, First Out).
5. The standard bin configuration holds a majority of all ice cream novelties. Spacers and inserts are provided for products such as ice cream cones, sandwiches and Snickers. However, if there are products that require special bins, contact the *FASTCORP* service dept. for alternative bin shapes and spacers. When reordering bins, refer to the bin part numbers detailed in the machine's bin plan-o-gram.
6. Always keep an extra set of bins and a plastic bin matrix on hand in the event of a meltdown. Bins can be removed quickly and new bins can easily be installed.
7. There should not be more than a ½ inch gap between the product and bin in any direction. Use smaller bins or the proper spacers to ensure product retrieval.
8. *FASTCORP* recommends placing the best selling items on the left side of the freezer. This shortens the distance the robot must travel, reducing cycle time.

# PREPROGRAMMING CONFIGURATION

## CONTROLLER BOARD DIPSWITCH OPTIONS

| SWITCH           | NAME              | OPTION   |
|------------------|-------------------|--|
| 1                | ESCROW :          | <b>ON</b> to enable bill acceptor escrow which prevents more than one bill to be inserted per vend; <b>OFF</b> to disabled escrow  |
| 2                | SELECTION DIGITS: | <b>ON</b> to make selection 2 characters; off 1 character  |
| 3                | FORCE VEND:       | <b>ON</b> to enable force vend (customer must make selection); prevents the unit from being used as a change machine. The machine will not advance further into the vend cycle until the customer makes a selection. <b>OFF</b> allows change to be dispensed using the coin return. |
| <b>Selection</b> |                   |  |
| 4                | NOT USED:         | No function  |
| 5                | AUTO-TEST:        | (Used only for factory testing)  |
| 6                | NOT USED:         | No function  |

### Clearing The Memory

Even after computer boards or chips have been changed, legacy selection numbers and bin locations may still exist in memory. To completely clear the machine's memory:

1. Power down the machine.
2. Turn all dipswitches to "on" on the computer board.
3. Power up the machine.
4. The screen will display "Factory Test Press Any Key". Press a key and the screen will change to "Testing External RAM" for about one second.
5. The screen will display "Checking Real Time Clock". Disconnect the power and return the dipswitch settings to normal.

# PROGRAMMING

## INTRODUCTION

The machine comes from the factory without any preset selection numbers or bin locations in memory. All information is entered during initial setup and programming. Programming is completely menu driven. Simply scroll through the menus until the desired function is reached. Once inside a menu function, the computer will prompt the user to enter the required information.

Programming Menus are accessed in Service Mode. The machine enters Service Mode every time the cabinet door is opened. The VAC button on the Service Keypad must be pressed to disable the security-locking feature, enabling the Customer Keypad. Once enabled, pressing the “\*Next” key on the Customer Keypad will list all the menu items on the digital display. In the event that there are bin and sold out errors in memory, the errors are displayed before the programming menus.

Note: if the machine is programmed in one location and transported to another, (for example in your warehouse) it is important to re-level the machine at the new location and perform test vends on each selection. Reprogram/edit bins where required.

Programming Menus (Software Version DC913)

|  |  |
|--|--|
| 1) <b><u>CHANGE PRICE:</u></b>           | Allows the price to be changed.  |
| 2) <b><u>SALES METERS:</u></b>           | Allows sales data to be viewed. The total sales meter is non-resetable, and offers a total sales and unit counter.   |
| 3) <b><u>EDIT SELECTION:</u></b>         | Allows existing selections to be edited: Price, Product Height (1-4 in.) and Bin (adjust bin location, add bins to the selection number or change bin height). |
| 4) <b><u>CREATE SELECTION:</u></b>       | Allows a selection to be created.  |
| 5) <b><u>DELETE SELECTION:</u></b>       | Allows a selection to be deleted.  |
| 6) <b><u>SELECTION NUMBERS:</u></b>      | Allows programmed selection numbers to be viewed.  |
| 7) <b><u>SET DATE:</u></b>               | Allows date to be set or viewed.   |
| 8) <b><u>SET TIME:</u></b>               | Allows time to be set or viewed.   |
| 9) <b><u>SERVICE PHONE #:</u></b>        | Allows service phone number to be set. The number is displayed when the machine is out-of-order.   |
| 10) <b><u>SALES PIN CODE:</u></b>        | Allows pin code to be set and viewed for machine auditing. Sales Meters can be viewed without opening the door.  |
| 11) <b><u>VEND BLOCK:</u></b>            | Allows the machine to be disabled for predetermined periods of time.   |
| 12) <b><u>VEND BLOCK PIN CODE:</u></b>   | Allows pin code to be set and viewed and allows access to the vend block times from outside the machine.   |
| 13) <b><u>HEALTH TIMER:</u></b>          | Allows the health sensor to be bypassed for up to 4 hours.   |
| 14) <b><u>PROGRAM VERSION:</u></b>       | Displays current version of operational software (e-prom).   |
| 15) <b><u>DISPLAY LANGUAGE:</u></b>      | Allows the programmer to choose the language displayed on the screen.  |
| 16) <b><u>LINE MODE:</u></b>             | Allows the machine to detect a customer line and shortens the vend time.   |
| 17) <b><u>MACHINE SERIAL NUMBER:</u></b> | Allows the programmer to program the serial number of the vendor for machine identification during DEXing.   |
| 18) <b><u>GROUP SALES OPTION:</u></b>    | Allows the programmer the ability to have up to four different metered accounts.   |
| 19) <b><u>TOKENS &amp; COUPONS:</u></b>  | Allows coupons and tokens to be recognized as free vends.  |
| 20) <b><u>FIELD TEST:</u></b>            | Allows the machine to run a self-diagnostic sequence for quick troubleshooting.  |

**GETTING STARTED: CREATING SELECTIONS**

1. Before creating a selection, the front product display must be setup. Product and bins must be preloaded in the machine.
2. In Service Mode, press the “\*Next” key and scroll to “4 CREATE SELECTION”. “4 CREATE SELECTION” allows new selections to be created (Note: do not start programming yet).
3. Menu item "4 CREATE SELECTION" will require the following information to be entered:

|  |  |
|--|--|
| <b>1. Enter a selection number:</b>                  | <b>01 to 99, AA To DD or A0 to D9</b>                              |
| <b>2. Enter the price:</b>                           | <b>\$.05-\$99.95</b>   |
| <b>3. Enter the height of the product:</b>           | <b>1-4 inches</b>  |
| <b>4. Move the robot over center of the product:</b> | <b>Controls on service keypad: front/back, left/right, down/up</b> |
| <b>5. Enter the length of the bin:</b>               | <b>Short/tall</b>  |
| <b>6. Add more than one bin for the selection:</b>   | <b>Yes/No</b>  |

4. In the Programming Menus section, locate the flow chart for the menu item "4 CREATE SELECTION" and follow the step-by-step instructions for programming new selections.
5. Once selections have been programmed, use the other available menu items to edit and select operating preferences. Refer to Menu Item Description for an overview of each menu item and its features.
6. Once programming is complete, it is important to perform a test to make sure that the machine was programmed correctly. By pressing “Free Vend” on the Service keypad, the machine will allow menu selections to be vended without money. Test each bin selection. Press “Free Vend” again to deactivate this feature.

“Test Vend” on the service keypad allows money to be inserted in order to test menu selections without affecting sales meters. Money deposited will be returned after each test vend. Press “Test Vend” again to deactivate this option.

**PROGRAMMING/EDITING AFTER THE MACHINE HAS BEEN OPERATING**

1. After the machine has been programmed and operating in the field, any sold out or bin errors that have occurred will be displayed once the door is opened (Service Mode). A bin error occurs if the robot has made three unsuccessful attempts to retrieve a product from a single bin. An “Out Of Product” is displayed when a bin is determined empty.
2. **Note: It is important to view all bin errors before loading or editing bin selections.** Do not press “\* Exit” before viewing all bin errors. To scroll through the list of all bin errors including selection and bin number, use the “#Next” key on the customer keypad.
3. Perform a “Free Vend” on these bins to verify that the robot was programmed over the center of the product and that product was loaded properly.
4. To clear all bin errors and “Out Of Product” bins, press “Load” and then “Close” on the service keypad.
5. The machine is ready to be edited and/or loaded with product.

**MENU ITEM PROGRAMMING SEQUENCE**

**1) CHANGE PRICE**

Changing the price of programmed selections.

| Display  | Programming Instructions                          |
|--|---|
| 1) CHANGE PRICE<br>*=Next      D=Back      #= <b>Yes</b>         | a) Press the #=Yes key.                           |
| Edit Selection #: <b>_ _</b><br>*=Exit                           | b) Enter the selection number.                    |
| A1 Price: \$ <b>1.00</b><br>*=Abort      #= <b>YES</b>           | c) Type over the price.                           |
| A1 Price: \$ <b>1.50</b><br>Accept?      *=No      #= <b>YES</b> | d) Press the #=Yes key to enter the price change. |

**2A) SALES METERS**

Choose from two types of sales meters: (a) Non-Resetable (total cash and unit meter that cannot be reset) and (b) Resetable (offers individual and total sales by product which can be cleared/reset).

| Display  | Programming Instructions                                      |
|--|---|
| 2) SALES METERS<br>*=Next      D=Back      #= <b>Yes</b> | a) Press the #=Yes key.                                       |
| Choose Meter Type<br>*= <b>Total</b> #= <b>Resetable</b> | b) The Total Meter is a non-resetable sales and unit counter. |
| Total = \$1575.30<br>Units = 975      #= <b>Exit</b>     | c) Press the #=Exit key to exit and return to SALES METERS.   |

**2B) RESETABLE SALES METERS**

|   |  |
|---|--|
| SALES METERS<br>*=Next      D=Back      #= <b>Yes</b>           | a) Press the #=Yes key.  |
| Choose Meter Type<br>*= <b>Total</b> #= <b>Resetable</b>        | b) Press the #=key to enter resetable meter.   |
| A1: \$50.00    25<br>*Scroll      #= <b>Next</b>                | c) Press the *=Scroll key to view each selection's sales or the #Next key to view total sales. |
| \$ 10,250    5,000<br>*= <b>Clr</b> 1/01/95      #= <b>EXIT</b> | d) Press the *=Clr key to clear the meter or the #=Exit key to save the information.           |
| Are You Sure?<br>*= <b>Yes</b> #= <b>Exit</b>                   | e) Press the *=Yes key to erase the meter.   |

**3) EDIT SELECTION**

Choose from three sub-menus: (a) Change Price, (b) Product Height, (c) Edit Bins- adjust bin location and add bins to a selection number.

| Display  | Programming Instructions  |
|--|---|
| 3) EDIT SELECTION<br>*=Next      D=Back      #= <b>Yes</b> | a) Press the #=Yes key.   |
| EDIT SELECTION # <b>_ _</b><br>*=EXIT                      | b) Enter the selection number that will be edited. Choose from three sub-menus. |
| Change Price (Sub-Menu)                                    | Edit selection prices.  |
| Change Price<br>*=Next      #= <b>Yes</b>                  | c) Press the #=Yes key or move to the next sub menu.                            |
| A1 Price: \$1.00<br>*=Abort      #= <b>Yes</b>             | d) Type over the price and press the #=Yes key.                                 |

|  |  |
|--|--|
| Accept? A1 Price: \$1.50<br>*No #=Yes        | e) Press the #=Yes key to enter the price. Next change product height.   |
| Product Height (Sub-Menu)                    | Enter the height of the product (1-4 inches). The robot will leave one product at the bottom of each bin so the service person only has to match the products.   |
| *=Next Product Height #=Yes                  | a) Press the #=Yes key to alter Product Height.  |
| *=Next A1 Height: 1inch (1-4) #=YES          | b) Press the *=Next key for heights 1-4 inches. Press #=Yes key to enter new product height.   |
| Accept? A1 Height: 3inches<br>*No #=YES      | c) Press the #=Yes key to enter the product's height.  |
| Edit Bins                                    | <b>Adjust bin location and add bins to a selection number.</b>   |
| *=Next Edit bins (Sub-menu) #=YES            | a) Press the #=Yes key to enter.   |
| *=Abort A1 Program bin #1? #=YES             | b) The robot will move to location of A1, bin one. Press the #=Enter key to verify location of bin 1, the robot will move to programmed location. You may accept the current location or make adjustments using the service keypad.              |
| *=Cancel A1 Move the Robot #=Accept          | c) (Refer to “ <b>4i) Create Selection</b> ”, for machine floor height adjustment options). Press the #=Accept key to store location of the robot.<br><b>Note: do not program selection on or near the home position, gussets and end zones.</b> |
| *=Next A1 Bin Height: Short? (Tall) #=Accept | d) Press the *=Next key to select tall or short bin, then press the #Accept key to store bin height.<br>Note: short bins are located on top of cash box and vacuum box.  |
| Accept? A1 Bin Height: Short<br>*No #=YES    | e) Press the #=Yes key.  |
| *=No More Bins? #=YES                        | f) Press the #=Yes key to program or edit additional bins #2, 3, or 4 for selection A1 or press the *=No key to store just one bin. (Program is stored).   |

#### 4) CREATE SELECTION:

Create up to eighteen brand new selections, with 1-4 bins per product display.

| Display                                    | Programming Instructions                               |
|--|--|
| 4) CREATE SELECTION<br>*=Next D=Back #=Yes | a) Press the #=Yes key to enter create selection menu. |
| #_ #=Exit                                  | b) Enter the selection number you wish to create.      |
| Create? Enter Selection #A1<br>*No #=YES   | c) Press the #=Yes key to enter the selection number.  |
| *=Abort A1 Price: \$0.00 #=Enter           | d) Type in the price and press the enter key.          |
| Accept? A1 Price: \$1.50<br>*No #=YES      | e) Press the #=Yes key to enter the price.             |



|   |   |
|---|---|
| <p>A1 Height: 1 inch (1-4 inches)</p> <p>*=Next <b>#=Accept</b></p> | <p>f) Press the *=Next key until you have selected the height of the product, then press the #=Accept key. If you have selected the proper product height the robot will leave one product at the bottom of the bin for the route driver to match the products when filling the machine.</p>  |
| <p>A1 Height: 2 inches</p> <p>Accept? *=No <b>#=YES</b></p>         | <p>g) Press the #=Yes key to enter the product's Height.</p>  |
| <p>A1 Program Bin #1</p> <p>*=Abort <b>#=Enter</b></p>              | <p>h) Press the #=Enter key to create a bin for the selection number.</p>   |
| <p>A1 Move Robot</p> <p>*=Cancel <b>#=Accept</b></p>                | <p>i) Go to the inside service keypad and move the robot over the center of product you have selected. Press the right button first. Hold the button down to accelerate, pulse your finger on the button to move in 1/16" increments. Move the robot forward and then drop the picker head to verify that is centered over the bin.<br/>         (After positioning the picker head 1 inch from the bottom of the freezer, a new floor height can be programmed for the entire machine by pressing the VAC button; if no floor height is programmed, a factory default height will be used).<br/>         Press the #=Accept key on the customer keypad to store the location of bin 1.<br/> <i>(An alternative to using the motion buttons is to move the robot by hand. However, before the robot can be moved manually, the "Right" and "Front" buttons must be used to move the robot off of the home switch positions. Once off the home switches, the robot can be centered over the desired bin. Attempting to manually move the robot while on the home switch positions may result in programming inaccuracies regarding bin coordinates.)</i></p> |
| <p>1 Bin Height: Short (Tall)</p> <p>*=Next <b>#=Accept</b></p>     | <p>j) Press the *=Next key to see Bin Heights. Press the #=Accept key to enter Bin Height.</p>  |
| <p>A1 More Bins?</p> <p>* =No <b>#=YES</b></p>                      | <p>k) Press the *=No key if only one bin is being programmed. The programming for that selection is complete. Simply repeat this process with another selection number. Press the #=Yes key if two or more bins are needed for that selection number. A total of four bins per one selection number are available.</p>  |
| <p>A1 Program Bin #2?</p> <p>*=Abort <b>#=Enter</b></p>             | <p>l) Press the #=Enter key to program a second bin for the selection number.</p>   |
| <p>A1 Move Robot</p> <p>*=Cancel <b>#=Accept</b></p>                | <p>m) Move the robot to the second bin. Press the #=Accept key to enter second bin location.</p>  |
| <p>A1 Bin Height: Tall (Short)</p> <p>*=Next <b>#=Accept</b></p>    | <p>n) Look inside freezer and verify if the bin is tall or short. Press the #=Accept key to enter bin height.</p>   |
| <p>Program Bin 3?</p> <p>*=No <b>#=YES</b></p>                      | <p>o) Enter selection.</p>  |

## 5) DELETE SELECTION

Delete the selection.

| Display   | Programming Instructions   |
|---|--|
| 5) DELETE SELECTION*<br>*=Next D=Back #=Yes                       | a) Press the #=Yes key to enter menu item.   |
| Delete Selection #: A1 (All selections)<br>D=Delete *=Exit #=Next | b) Press the #=Next key to list selection numbers. Press the D=Delete key to delete the selection. |
| Delete Selection # A5<br>OK? *=No #=YES                           | c) Press the #=Yes key to delete selection   |

## 6) SELECTION #S

View the current programmed selection numbers.

| Display                         | Programming Instructions                           |
|---------------------------------|--|
| *=Next D=Back #=Yes             | a) Press the #=Yes key to view selection numbers.  |
| Programmed: A1<br>*=Exit #=Next | b) Press the #=Next key to list selection numbers. |

## 7) SET DATE

Set or view the current date.

| Display                                    | Programming Instructions  |
|--|---|
| *=Next D=Back #=Yes                        | a) Press the #=Yes key to enter set date menu.                                |
| Enter Date: 01/01/96<br>*=Abort #=Enter    | b) Type in new date and press the #=Enter key to store. Date format: MM/DD/YY |
| Enter Date: 01/05/96<br>Accept? *=No #=YES | c) Press the #=Yes key to store new date.                                     |

## 8) SET TIME

Set or view the current time.

| Display   | Programming Instructions                          |
|---|---|
| *=Next D=Back #=Yes                                     | a) Press the #=Yes key to view menu selection.    |
| Enter Time: 15:30:00 (military time)<br>*=Abort #=Enter | b) Type current time and press the #=Enter key.   |
| Enter Time: 15:45:00<br>Accept? *=No #=YES              | c) Press the #=Yes key to store the current time. |

## 9) SET SERVICE PHONE #

Enter, update, or view the service phone number. The programmed number will appear on the display screen in the event that the machine goes out-of-order.

| Display  | Programming Instructions                        |
|--|---|
| *=Next D=Back #=Yes                                | a) Press the #=Yes key to enter menu selection. |
| Phone ( _ _ ) _ _ _ - _ _ _ _<br>*Abort            | b) Type in service phone number.                |
| Phone ( _ _ ) _ _ _ - _ _ _ _<br>Accept? *No #=Yes | c) Press the #=Yes key to store.                |

## 10) SALES PIN CODE

View or change the PIN code that can access sales information without opening the door; while in "Please Insert Money" mode, Press # \* and the four numbers you selected.

| Display  | Programming Instructions  |
|--|---|
| <b>SALES PIN CODE</b><br>*=Next      D=Back <b>#=Yes</b>   | a) Press the <b>#=Yes</b> key to view or change sales pin code. |
| Enter Pin: <b>#*1234</b><br>*=Abort                        | b) Type in new four-digit number.                               |
| Enter Pin: <b>#*1996</b><br>Accept?      *=No <b>#=Yes</b> | c) Press the <b>#=Yes</b> key to store pin number.              |

## 11) VEND BLOCK

Block out vending up to four times per day, seven days per week. Time and date must be entered correctly in SET TIME and SET DATE programming.

| Display  | Programming Instructions   |
|--|--|
| 11) <b>VEND BLOCK</b><br>*=Next      D=Back <b>#=Yes</b>   | a) Press the <b>#=Yes</b> key to enter menu selection.   |
| Vend Block: Off (On)<br>*=Scroll      A=Abort <b>#=Enter</b>   | b) Press the *=Scroll to turn vend block on and press the <b>#=Enter</b> key.  |
| Day: Sun      A=Abort      C=Copy<br>D=Delete      *=Scroll <b>#=Enter</b>                           | c) Press *Scroll to the day you wish to begin and press the <b>#=Enter</b> key.  |
| Mon Blk 1 on __: __<br>*=Abort <b>#=Enter</b>  | d) Type in the first time you would like the machine to be off and press the <b>#=Enter</b> key.   |
| Mon Blk 1 On 09:00 (military time)<br>Accept?      *=No <b>#=Yes</b>                                 | e) Press the <b>#=Yes</b> key to store the time.   |
| Mon Blk off __: __<br>*=Abort <b>#=Enter</b>   | f) Type the time you want the machine to turn on and press the <b>#=Enter</b> key  |
| Mon Blk 1 off 11:00<br>Accept?      *=No <b>#=Yes</b>  | g) Press the <b>#=Yes</b> key to store the time; repeat up to four blocks per day.   |
| Mon Blk 2 on __: __<br>*=Abort <b>#=Enter</b>  | h) Press the *=Abort key at the end of the needed blocks, or press enter to continue more blocks.  |
| Day: Mon A=Abort C=Copy (Copies information from day<br>to day) D= Delete<br>*=Scroll <b>#=Enter</b> | i) (C=Copy: copies information from day to day) To copy one day to another, press *=Scroll key to the day you want to copy, then press the <b>#=Enter</b> key. |
| Copy Mon to Tues<br>Accept?      *=No <b>#=Yes</b>   | j) Press the <b>#=Yes</b> key to copy.   |

## 12) VB PIN CODE

Set or alter the VEND BLOCK option from the outside of the machine without opening the door.

| Display   | Programming Instructions   |
|---|--|
| 12) <b>VB PIN CODE</b><br>*=Next      D=Back <b>#=Yes</b> | a) Press the <b>#=Yes</b> key to enter VB Pin code menu.   |
| VB PIN CODE: <b>#*5678</b><br>*=Abort <b>#=Yes</b>        | b) The vend block pin code is factory set at <b>#*5678</b> . Use the factory setting or type over four new digits and press the <b>#=Yes</b> key. Type this code when you are in the "Please Insert Money" mode to gain direct access to the VEND BLOCK menu item. |

**13) HEALTH TIMER** (Not used with the snack machine)  
Allows the health sensor to be bypassed for a short time.

| Display  | Programming Instructions   |
|--|--|
| 14) HEALTH TIMER<br>*=Next      D=Back <b>#=Yes</b><br><br>HEALTH TIMER: OFF (1hr, 2hr, 3hr)<br>*=Next                      #=Accept<br><br>HEALTH TIMER: 2hrs<br>Accept?      *=No      #=YES | a) Press the #=Yes key to display the health sensor options.<br><br>b) Press *=Next to select time.<br>c) Press #Accept to set timer.<br><br>d) Press #Yes to start timer. |

**14) PROGRAM VERSION**  
Shows the date and version of the E-prom.

| Display  | Programming Instructions                        |
|--|---|
| 14) PROGRAM VERSION<br>*=Next      D=Back <b>#=Yes</b> | a) Press the #=Yes key to view program version. |

**15) DISPLAY LANGUAGE**  
Allows the programmer to change the language of all external text; all programming will still be displayed in English.

| Display   | Programming Instructions  |
|---|---|
| 16) DISPLAY LANGUAGE<br>*=Next      D=Back <b>#=Yes</b> | a) Press the #=Yes key to display the current language.   |
| *=Scroll      English<br>"A"=Abort      #=Enter         | b) Press the "A" key to abort (or exit) menu.<br>Press the #=Enter key to reconfirm English.<br>Press the *=Scroll key to scroll to French, Portuguese, or Spanish and press the #=Enter key to confirm the change. |

**16) LINE MODE** (Not used with the snack machine)  
Line mode will allow the machine to detect a customer line and shortens the vend time (the default is ON).

| Display   | Programming Instructions  |
|---|---|
| 16) LINE MODE<br><br>*=Next      D=Back <b>#=Yes</b><br><br>LINE MODE: ON<br>*=Scroll      "A"=Abort      #=Enter | a) Press the #=Yes key.<br><br>b) Press the "*" key to select the desired option.<br>c) Press the "#" key to confirm the selection. |

**17) MACHINE SERIAL NUMBER**  
Program the serial number of the vendor into the computer so that an external data retrieval unit can include the serial number when downloading sales information. Program this feature only if an external data retrieval device will be used.

| Display  | Programming Instructions  |
|--|---|
| 17) MACHINE SERIAL NUMBER<br><br>*=Next      D=Back <b>#=Yes</b> | a) Press the #=Yes key.<br>b) Enter the serial number of the vendor, found on the inside of the door, being sure to add zero(s) if the number is less than six digits. Press the #=Enter key to accept. |

### 18) GROUP SALES OPTION

Vend sales can be recorded into 4 different accounts, each with specific vend times. Example: all sales between 7:00 A.M. and 1200 P.M. may be recorded into account "A"; sales between 12:00 P.M. and 2:00 P.M. may be recorded into account "B"; sales after 2:00 P.M. can go into a third account or back into account "A". All information recorded can be obtained by accessing "Sales Meters" once this option has been set.

Note: If a sale occurs outside of a metered block, it will be recorded into the main meter and not into one of the four accounts.

This feature is typically used in locations where commissions are divided based on time of operation. It is also used to record vend activity to determine what the busiest time of day are for a machine.

| Display   | Programming Instructions  |
|---|---|
| <p>18) GROUP SALES OPTION<br/>           *=Next      D=Back      #=Yes</p>                  | <p>a) Press to the #=Enter key to enter this menu.<br/>           b) Press the *=Scroll key to move forward.</p>  |
| <p>Day: SUN      A=ABT      C=CPY<br/>           D=Del      *=Scrl      #=Enter</p>         | <p>c) Press the *=SCRL key to scroll through the days of the week. For Sunday, (as pictured above) press the #=ENTR key to enter.</p>   |
| <p>SUN BLK 1 ON    _ : _<br/>           *=Abort                                  #=YES</p>  | <p>d) Enter the start of the desired meter time.<br/>           Note: All times must be listed in military time. If the time is before noon, you must enter a zero first.<br/>           e) Press the #=Yes key after the four digits have been entered.</p>  |
| <p>SUN BLK 1 OFF    _ : _<br/>           *=Abort                                  #=Yes</p> | <p>f) Enter the end of the desired meter time and press the #=Yes key.</p>  |
| <p>GROUP (A-D): A<br/>           *=Abort                                  #=Enter</p>       | <p>g) Press the letter of the account you wish the sales be recorded into (A, B, C, or D) and press the #=Enter key.<br/>           h) Enter additional blocks of time if desired; if not, press the *=Abort key to exit the screen. Press the "A" key to exit the next screen, and "A" once more to return to the main menu.</p> |

### 19) TOKENS & COUPONS

The machine will recognize coupons and tokens as free vends when the Promotional Vend feature is enabled. Item and price will be noted as a free vend in the DEX report.

| Display   | Programming Instructions   |
|---|--|
| <p>19) TOKENS &amp; COUPONS<br/>           *=Next      D=Back      #=Yes</p>  | <p>a) Press to the #=Yes key to enter this menu.</p>   |
| <p>Promotions:      Off<br/>           *=Scroll      A=Abort      #=Enter</p> | <p>b) Press the *=SCRL key to turn the Promotions feature off and on. Scroll to Yes and press the #=ENTR key to enter.</p> |
| <p>Promotions:      YES<br/>           Accept?      *=NO      #=Yes</p>       | <p>c) Press #=Yes to confirm selection</p>   |

## 20) FIELD TEST

The self-diagnostic feature allows for quick troubleshooting through a sequence of system checks. Press the VAC button on the service keypad and run Field Test if the machine goes into OOS (Out Of Service). This allows the suspected problem area to be tested. After the self-diagnostic sequence is complete, press any button to return to the error. Press RESET to clear any errors.

| Display   | Programming Instructions  |
|---|---|
| PROMOTIONS: YES<br>*=Next D=Back #=Yes  | Press #=Yes to begin diagnostics. Failures will be displayed after each failed test component.  |
| <b>Input Monitor.....</b><br>IG Ice Cream Machine   | a) The type of motor used in the machine is displayed. The original style motor is the MK DC Motor. The latest style motor is the IG DC Motor.  |
| <b>Input Monitor.....</b><br><br>Airflow Detect HIGH/LOW<br>Frnt/Bck Encoder HIGH/LOW<br>Lft/Rt Encoder HIGH/LOW<br>Up/Down Encoder HIGH/LOW<br>Left/Right Home HIGH/LOW<br>Frnt/Back Home HIGH/LOW<br>Up/Down Home HIGH/LOW<br>Freezer Close HIGH/LOW<br>Freezer Encoder HIGH/LOW<br>Freezer Open HIGH/LOW | b) Manually moving or engaging component parts activates the input monitor, displaying the component and corresponding sensor/switch state (LOW=Open/Positive, High=Closed/Negative).<br><br>Press the "VAC" button to test air flow in the vacuum valve<br>Move the robot in the Front/Back direction<br>Move the robot in the Left/Right direction<br>Move the robot in the Up/Down direction<br>Move the robot off the Left/Right Home position<br>Move the robot off the Front/Back Home position<br>Move the robot off the Up/Down Home position<br>Open and close the Freezer Lid<br>Move the Freezer Lid Actuator Arm<br>Move the Freezer Lid Actuator Arm in the full up position |
| Press Motor Keys<br>Or # To Continue  | c) Press Left, Right, Forward, Back, Up and Down on the Service Keypad to test Motor function   |
| Testing Real Time clock   | ---   |
| Keyboard/Buzzer Test<br>Press The A Key   | d) Press the "A" Key to test the Customer Keypad  |
| Keyboard/Buzzer Test<br>Press The 4 Key   | e) Press the "4" Key to test the Customer Keypad  |
| Keyboard/Buzzer Test<br>Press The 8 Key   | f) Press the "8" Key to test the Customer Keypad  |
| Keyboard/Buzzer Test<br>Press The # Key   | g) Press the "#" Key to test the Customer Keypad  |
| Keyboard/Buzzer Test<br>Press J20 RIGHT Key   | h) Press the "RIGHT" key to test the Service Keypad   |
| Keyboard/Buzzer Test<br>Press J20 FRONT Key   | i) Press the "FRONT" key to test the Service Keypad   |
| Keyboard/Buzzer Test<br>Press J20 25¢ Key   | j) Press the "25¢" key to test the Service Keypad   |
| Keyboard VAC Key  | k) Press the "VAC" key to test the Service Keypad   |
| Pull Door Switch  | l) Pull Door Switch to test   |
| Push Door Switch  | m) Push Door Switch to test   |
| Test DEX Connector<br>Jumper J7-3 4 #=Next  | n) Jump J7 Pins 3 and 4 with a paper clip or wire. Press #=Next to bypass.  |
| RS-232 Connector<br>Jumper J12-1, 2 #=Next  | o) Jump J12 Pins 1 and 2 with a paper clip or wire. Press #=Next to bypass.   |
| Checking Robot...   | p) Robot moves while diagnostics are performed.   |
| Checking Temp #=Skip  | q) Feature enabled in NAMA Machines with electronic temperature probe is installed. Press #=Skip to bypass temperature checks.  |
| Checking Temp #=Skip<br>Test Complete!  | r) Press #=Skip to return the Main Menu   |

**TESTING CONSIDERATIONS**

After programming is complete, it is important to perform a test to make sure that the machine is programmed correctly. Refer to pg. A-24: **GETTING STARTED; CREATING SELECTIONS, Step 6**

Refer to **PART B: TROUBLESHOOTING** in this manual for error information

***CONTINUE TO PART B: TROUBLESHOOTING***



**PART B: TROUBLESHOOTING**

**F820 ICE CREAM MACHINE  
INSTALLATION & SET-UP GUIDE**

**VERSION: 090903**



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## TROUBLESHOOTING

### GLOSSARY OF USEFUL TERMS

| Display   | Programming Instructions   |
|---|--|
| <b>Vacuum Valve</b>   | An assembly comprised of a valve with a magnetic reed switch that detects airflow and a vacuum seal; used to indicate whether the robot has made   |
| <b>Controller</b>   | The computer board.  |
| <b>Encoder &amp; Encoder Pulses</b>   | A device used to send a given number or pulses per gear rotation that can then be interpreted by software to determine distance and location; allows the controller to calculate position of any bin and product drop point relative to the True Home Position. Encoders are built into the L/R, F/B and U/D motors. |
| <b>Home on the X-axis</b>   | The relative Home Position indicated by the Left/Right Home Switch Trigger located at the left side of the cabinet.  |
| <b>Home on the Y-axis</b>   | The relative Home Position indicated by the Front/Back Home Switch located at the back of the cabinet.   |
| <b>Home on the Z-axis</b>   | The relative home position indicated by the Up/Down Home Switch; when the picker head is in the full up position.  |
| <b>Home Position or (True) Home Position</b>  | The home coordinate on all axes (X, Y and Z); located at the back left corner of the cabinet.  |
| <b>Product Drop Point</b>   | The range of coordinates on the X-axis and the coordinate on the Y-axis where the robot drops product into the product delivery chute; located in the  |
| <b>VAC Error &amp; VAC key</b>  | Log used by the computer to store fatal machine errors. Use the VAC key on the Service Keypad to view the VAC error log.   |
| <b>Fatal Errors &amp; Non-Fatal Errors</b>  | Fatal errors are errors that will put the machine out-of-order. Non-fatal errors will only put a specific bin out-of-order.  |
| *Left/Right, Front/Back and Up/Down Home Switches can be referenced as part: Plastic Arm Limit Switch (49500566A) |  |

## **ERROR REPORTING FEATURES**

Two types of errors:

| <b>1. Non-Fatal Errors</b>   |   |
|--|---|
| <p>Localized errors that put a specific bin out-of-order without taking the machine off line. Bin Errors, including bin and selection number, are listed on the Digital Display when the machine enters Service Mode (open door to enter Service Mode). The Customer Keypad functions “*=Exit” and “#-=Next” can be used to scroll through each error.</p>   |   |
| <b>Out Of Product</b>  | This error occurs when the robot reaches the “Virtual Bottom” of the bin (2 predetermined encoder distances on the Z-axis; one for tall and one for short bins).  |
| <b>Bin Error</b>   | This error occurs after the Robot makes 3 unsuccessful attempts to vend product (vacuum seal is lost/product dropped) and puts that bin out-of-order. 9 consecutive vacuum related Bin Errors became a VAC: “Vacuum Out Of Order”.                          |
| <p>*Note: It is important to view and check all <b>Out Of Product</b> and <b>Bin Load Errors</b>, and to check each problem bin by performing a free vend. Do not press “*=Exit” before viewing all Non-Fatal errors. To scroll through the list of all Bin Errors, including selection and bin number, use the “#-=Next” key on the Customer Keypad. Once viewed, these errors can be cleared by pressing “*=Exit” on the Service Keypad.</p> |   |
| <b>2. Fatal Errors</b>   |   |
| <p>Errors that put the entire machine out-of-order to prevent further component damage. Fatal Errors are stored in the VAC log. They can be viewed by pressing the VAC button on the Service Switch while in Service Mode. The Digital Display will list up to 4 VAC errors.</p>   |   |
| <b>Left/Right (L/R) Stuck Motor</b>  | The error that occurs when the Robot tries to home itself on the X-axis and times out before triggering the Left/Right Home Switch.   |
| <b>Front/Back (F/B) Stuck Motor</b>  | The error that occurs when the Robot tries to home itself on the Y-axis and times out before triggering the Front/Back Home Switch.   |
| <b>Up/Down (U/D) Stuck Motor</b>   | The error that occurs when the Robot tries to home itself on the Z-axis and times out before triggering the Up/Down Home Switch.  |
| <b>Freezer (Open/Close) Stuck motor</b>  | The error that occurs when the Controller fails to see encoder pulses on the X-axis after 3 unsuccessful tries. This error can occur from either the True Home Position to the bin, the bin to the Product Drop Point or the Product Drop Point to the bin. |
| <b>Left/Right (L/R) Encoder Error</b>  | The error that occurs when the Controller fails to see encoder pulses on the X-axis after 3 unsuccessful tries. This error can occur from either the Home Position to the bin, the bin to the Product Drop Point or the Product Drop Point to the bin.      |
| <b>Front/Back (F/B) Encoder Error</b>  | The error that occurs when the Controller fails to see encoder pulses on the Y-axis after 3 unsuccessful tries. This error can occur from either the Home Position to the bin, the bin to the Product Drop Point or the Product Drop Point to the bin.      |
| <b>Up/Down (U/D) Encoder Error</b>   | The error that occurs when the Controller fails to see encoder pulses on the Z-axis on the way down to the bin.   |
| <b>Freezer (Open/Close) Encoder Error</b>  | The error that occurs when the controller fails to see encoder pulses while opening or closing the freezer lid.   |
| <b>Health Sensor Error</b>   | The error that occurs when the freezer temperature rises above +10 degrees F.   |

|  |  |
|--|--|
| <b>Product Sensor Error</b>  | The error that occurs when the product sensor switch reads open during the vend cycle.   |
| <b>Vacuum Out Of Order</b>   | The error that occurs when the Robot makes 3 unsuccessful attempts to vend product (vacuum seal is lost/product dropped) on 3 consecutive bins (9 consecutive vacuum related Bin Errors= Vacuum Out of Order).   |
| <b>Out Of Product</b>  | The error that occurs when the Robot reaches the "Virtual Bottom" of every bin or selection in the entire machine indicating that there is no product. The Controller determines the "Virtual Bottoms" by calculating encoder pulses as the robot drops hose into the bin. |
| *Only one Fatal Error is logged in the VAC for any given vend cycle. The Fatal Error that initially puts the machine our-of-order is generally the error that is logged and displayed in the VAC (exception: Stuck Motor Errors will take precedence over Encoder Errors.) |  |

## ORDER OF OPERATIONS

| VEND CYCLE |   |
|------------|---|
| <b>1</b>   | <ul style="list-style-type: none"><li>▶ <b>Credits are calculated, registered and displayed.</b></li><li>▶ <b>Freezer door raises to its full open position.</b><ul style="list-style-type: none"><li>⇒ The Controller Board verifies that the Freezer Door is truly closed by monitoring both the Open and Closed Freezer Door Switches.</li><li>⇒ The Controller Board activates the motor in the Freezer Open-Shut Assembly opening the lid</li><li>⇒ When the freezer lid reaches the open position, the freezer open door switch is activated.</li></ul></li><li>▶ <b>A selection is accepted form the Customer Keypad.</b></li><li>▶ <b>Vend cycle starts from the Home Position or the Drop Point.</b></li></ul> |

| Robot Moves Back |  |
|------------------|--|
| <b>2</b>         | <ul style="list-style-type: none"><li>▶ <b>The F/B Motor moves the Robot Carriage back on the Y-axis.</b></li><li>▶ <b>As the Robot leaves the F/B Home Position, the Controller looks for the F/B Home Switch to open to begin counting encoder pulses relayed by the F/B Encoder Switch.</b><p><b>If:</b></p><ul style="list-style-type: none"><li>⇒ Encoder pulses are not seen for a period of time, the robot will attempt to return to the Home Position..</li><li>* The Robot moves to the Home Position on the X-axis then the Y-axis.</li><li>* The customer is prompted: "Make Another Selection".</li><li>* The next vend cycle starts form the Home Position.</li></ul></li><li>⇒ The Robot has 3 consecutive failed attempts at vending any selection(s)<ul style="list-style-type: none"><li>* The machine is put our-of-order with a F/B Encoder Error (VAC)</li></ul></li><li>⇒ Encoder pulses are not seen for a period of time and the Robot times out before reaching the Home Position.<ul style="list-style-type: none"><li>* The machine is put out-of-order with a F/B Stuck Motor (VAC)</li></ul></li><li>▶ <b>The Robot stops once it reaches the selection's Y-coordinate.</b></li></ul> |

|          |  |
|----------|--|
| <b>3</b> | <p><b>Robot Moves Right</b></p>  |
|          | <ul style="list-style-type: none"> <li>▶ <b>The L/R Motor moves the Robot to the right on the X-axis.</b></li> <li>▶ <b>As the Robot leaves the L/R Home Position, the Controller looks for the L/R Home Switch to open to begin counting encoder pulses relayed by the L/R Encoder Switch.</b> <ul style="list-style-type: none"> <li><b>If:</b> <ul style="list-style-type: none"> <li>⇒ Encoder pulses are not seen for a period of time, the Robot will attempt to return to the Home Position. <ul style="list-style-type: none"> <li>* The Robot moves to the Home Position on the X-axis then the Y-axis</li> <li>* The customer is prompted: "Make Another Selection".</li> <li>* The next vend cycle starts from the Home Position.</li> </ul> </li> <li>⇒ The Robot has 3 consecutive failed attempts at vending any selection(s). <ul style="list-style-type: none"> <li>* The machine is put out-of-order with a L/R Encoder Error (VAC)</li> </ul> </li> <li>⇒ Encoder pulses are not seen for a period of time and the Robot times out before reaching the Home Position <ul style="list-style-type: none"> <li>* The machine is put out-of-order with a F/B Stuck Motor (VAC)</li> <li>* The machine is put out-of-order</li> </ul> </li> </ul> </li> </ul> </li> <li>▶ <b>The Robot stops once it reaches the selection's X-coordinate.</b></li> </ul> |

|          |   |
|----------|---|
| <b>4</b> | <p><b>Picker Head Moves Down</b><br/>(Robot Is Over The Bin)</p>  |
|          | <ul style="list-style-type: none"> <li>▶ <b>The U/D Motor moves the Picker Head down the Z-axis.</b></li> <li>▶ <b>As the Robot leaves the U/D Home Position, the Controller looks for the U/D Home Switch to open to begin counting encoder pulses relayed by the U/D Encoder Switch.</b> <ul style="list-style-type: none"> <li><b>If:</b> <ul style="list-style-type: none"> <li>⇒ Encoder pulses are not seen for a period of time, the Robot will attempt to return to the Home Position. <ul style="list-style-type: none"> <li>* The machine is put out-of-order with an U/D Encoder Error (VAC).</li> </ul> </li> </ul> </li> <li>▶ <b>The Controller monitors for an signal from the Product Sensor (signifying contact with product)</b> <ul style="list-style-type: none"> <li><b>If:</b> <ul style="list-style-type: none"> <li>⇒ If the Controller does not detect the Product Sensor, the U/D Motor will continue to lower the Picker Head and unreal the Hose. <ul style="list-style-type: none"> <li>* The Controller counts encoder pulses on the way down to determine how far it is from the virtual "Bin Bottom"</li> <li>* If the "Bin Bottom" Z-coordinate is reached, the Robot will return to the Home Position</li> <li>* The bin is put our-of-order with and Out Of Product Error.</li> <li>* The customer is prompted: "Make Another Selections'.</li> <li>* If all bins in the machine are out of product, the machine will be put out-of-order with an Out Of Product Error (VAC).</li> </ul> </li> </ul> </li> </ul> </li> <li>▶ <b>Vacuum Motor turns on.</b> <ul style="list-style-type: none"> <li>* The Airflow Box Flap rises to the up position, closing the Reed Switch</li> </ul> </li> </ul> </li></ul> |

### **Picker Head Moves Up**

(Robot Retrieves Product/A Vacuum Seal Is Created)

- ▶ **The open Product Sensor indicates that the Robot has product and stops the U/D Motor from lowering the Picker Head and unreeling the Hose.**
- ▶ **The Controller sends a signal to the Triac Board turning on the Vacuum Motor and activates the U/D Motor, lifting the Picker Head up the Z-axis (after a 1 sec. delay)**
- ▶ **The Robot reaches the full up position causing the U/D Guide to collapse and trigger the Z-Home Switch.**

**If:**

- ⇒ The Controller times out before a closed U/D Home Switch signal is detected.
  - \* The Vacuum Motor is shut down.
  - \* The machine is put out-of-order with an U/D Motor Stuck Error (VAC)

- ▶ **The Controller monitors for a closed Reed Switch in the Vacuum Valve Assembly, indicating dropped product (Airflow Box Flap in the up position caused by a break in the vacuum seal).**

**If:**

- ⇒ Product is dropped, the robot returns to the Z-axis Home position and reattempts to complete the vend cycle up to 3 times.
  - \* The Robot will go to the home position before making the third attempt.
  - \* 3 unsuccessful attempts will put the bin out-of-order with a Bin Error.
  - \* The customer is prompted: "Make Another Selection".
  - \* The machine is put out-of-order with a Vacuum Out Of Order error (VAC), after 9 consecutive Vacuum Errors (3 bins out of order due to loss of product).

5



**Robot Moves Left/Right**  
(Robot is Centered in Cabinet)

- 6
- ▶ **The L/R Motor moves the Robot left or right towards the center of the cabinet (calculated Product Drop Point coordinate on the X-axis).**  
**If:**
    - ⇒ The bin location is located near the Gusset Zone (front left and right corners of the cabinet), the Robot will move back a default distance before continuing on the X-axis.
  
  - ▶ **The Controller counts encoder pulses relayed by the L/R Encoder Switch.**  
**If:**
    - ⇒ Encoder pulses are not seen for a period of time, the Robot will attempt to return to the Home Position.
      - \* The Robot moves to the Home Position on the Y-axis then the X-axis.
      - \* The customer is prompted: "Make Another Selection".
      - \* The next vend cycle starts from the Home Position.
    - ⇒ The Robot had 3 consecutive failed attempts at vending any selection(s).
      - \* The machine is put out-of-order with a L/R Encoder Error (VAC)
    - ⇒ Encoder pulses are not seen for a period of time and the Robot times out before reaching the Home Position.
      - \* The machine is put out-of-order with a L/R Stuck Motor (VAC).
  
  - ▶ **The Controller monitors for a closed Reed Switch indicating dropped product (Airflow Box Flap in the up position caused by a break in the vacuum seal).**  
**If:**
    - ⇒ Product is dropped, the Robot returns to the Z-axis Home Position and reattempts to complete the vend cycle up to 3 times..
      - \* The Robot will return to the bin and try to pick up product.
      - \* 3 unsuccessful attempts put the bin out-of-order with a Bin Error.
      - \* The customer is prompted: "Make Another Selection".
      - \* The machine is put out-of-order with a Vacuum Out Of Order Error (VAC), after 9 consecutive Vacuum Errors (3 bins out of order due to loss of product).
  
  - ▶ **The Robot stops once it reaches the calculated Product Drop Point coordinate on the X-axis.**

|   |  |
|---|--|
| 7 | <p style="text-align: center;"><b>Robot Carriage Moves Forward</b></p> <ul style="list-style-type: none"> <li>▶ <b>The F/B Motor moves the Robot towards the F/B Home Position on the Y-axis.</b></li> <li>▶ <b>The Controller monitors for a closed Reed Switch indicating dropped product (Airflow Box Flap in the up position caused by a break in the vacuum seal).</b><br/> <b>If:</b> <ul style="list-style-type: none"> <li>⇒ Product is dropped, the Robot returns to the Z-axis Home Position and reattempts to complete the vend cycle up to 3 times.. <ul style="list-style-type: none"> <li>* The Robot will return to the bin and try to pick up product.</li> <li>* 3 unsuccessful attempts will put the bin out-of-order with a Bin Error.</li> <li>* The customer is prompted: "Make Another Selections".</li> <li>* The machine is put out-of-order with a Vacuum Out Of Order Error (VAC), after 9 consecutive Vacuum Errors (3 bins out of order due to loss of product)</li> </ul> </li> </ul> </li> <li>▶ <b>As the carriage activates and moves past the F/B Home Switch, the Controller Board begins to count encoder pulses calculating the location of the Product Drop Point.</b><br/> <b>If:</b> <ul style="list-style-type: none"> <li>⇒ Encoder pulses are not seen for a period of time, the Robot will move straight back , returning to the Y-Home Position located at the back of the cabinet. <ul style="list-style-type: none"> <li>* The Robot will retry to deliver product up to 10 times in a row</li> </ul> </li> <li>⇒ The Robot has 10 unsuccessful attempts at reaching the Drop Point and completing the vend cycle <ul style="list-style-type: none"> <li>* The machine is put out-of-order with a F/B Encoder Error (VAC)</li> </ul> </li> </ul> </li> <li>▶ <b>Before reaching the Product Drop Point, the Robot Carriage mechanically triggers the Blow Off Valve Crank, releasing all the vacuum pressure form the system.</b></li> <li>▶ <b>The Robot stops once it reaches the calculated Product Drop Point coordinate on the X-axis (apProx. 5 1/2" beyond F/B Home Position).</b></li> <li>▶ <b>The Controller sends a signal to the Triac Board turning off the Vacuum Motor.</b></li> <li>▶ <b>Product is dropped into the Product Delivery Chute..</b></li> </ul> |
|---|--|

|   |   |
|---|---|
| 8 | <p style="text-align: center;"><b>The Vend Cycle is Complete</b><br/>(The Machine is Ready for Another Vend cycle)</p> <ul style="list-style-type: none"> <li>▶ <b>Any change owed to the customer is calculated and dispensed.</b></li> <li>▶ <b>If no more vends are made within the allotted time, the Controller Board verifies an open Freezer Door Switch then activates the Motor in the Freezer Open-Shut Assembly to close the lid.</b></li> <li>▶ <b>The Freezer Lid reaches the closed position activating the Freezer Closed-Door Switch.</b></li> <li>▶ <b>The vend sequence is complete and the machine is ready for another vend.</b> <ul style="list-style-type: none"> <li>* The next 3 vend cycles will be initiated from this Drop Point position</li> <li>* The Robot returns to true home after every 4 vends to reorient itself for accuracy..</li> </ul> </li> </ul> |
|---|---|

## TROUBLESHOOTING CHARTS

Always troubleshoot using logical, progressive steps so that the maintenance and repair procedure runs smoothly and efficiently. Most failures may have minor causes such as loose connectors or dirty contacts. Always check the following before replacing any parts:

- Check that all the plugs and connections are seated firmly in their receptacles (connector pins are not bent or broken).
- Check that there is continuity in the wires.
- Check that the connector pins are not bent or broken.
- Check the fuse(s).

### Left/Right Stuck Motor

Note: The machine has dynamic breaking features that make it difficult to move the Robot manually when power is on. To move the Robot, use the Left, Right Forward and back buttons on the Service Keypad or disable the dynamic breaking feature by shutting the machine off before attempting to move the Robot manually.

| Detail   | Possible Cause  | Action/solution  |
|--|---|--|
| Manually move the Robot to the right 6" and press the Reset Button.<br><br>If the Robot moves left towards the home position▶                | Faulty L/R Home Switch.   | The L/R Home Switch must be replaced.  |
|  | Loose or bad connection from the Controller Board to the /R Home Switch.                          | Perform a continuity check from the Controller Board J5 connector (pins 5 & 6) to the L/R Home Switch. Find the loose or bad connection. |
|  | Faulty Controller Board.  | Replace the Controller Board.  |
| Manually move the Robot to the right 6" and press the Reset Button.<br><br>If the Robot <b>does not</b> move left towards the home position▶ | Broken teeth or gear binding at the L/R Motor and Rack if it sound like it is attempting to move. | Fix the cause of the binding and/or replace broken gears.  |
|  | Loose or bad connection from the Power Board to the L/R motor                                     | Perform a continuity check from the Power Board J3 connector (pins 10, 11 & 12) to   |
|  | Blown or faulty fuse.   | Replace the fuse in the Power Box.   |
|  | Faulty Motor.   | Replace the L/R Motor.   |
|  | Faulty Power Board.   | Replace the Power Board.   |
|  | Faulty Controller Board.  | Replace the Controller Board .   |

### Front/Back Stuck Motor

| Detail  | Possible Cause  | Action/solution   |
|---|---|---|
| Manually move the Robot forward 6" and press the Reset Button.<br><br>If the Robot moves left towards the home position▶                | Faulty F/B Home Switch.   | The F/B Home Switch must be replaced.   |
|   | Loose or bad connection from the Controller Board to the F/B Home Switch.                         | Perform a continuity check from the Controller Board J10 connector (pins 5 & 6) to the F/B Home Switch. Find the loose or bad connection. |
|   | Faulty Controller Board .   | Replace the Controller Board .  |
| Manually move the Robot forward 6" and press the Reset Button.<br><br>If the Robot <b>does not</b> move left towards the home position▶ | Broken teeth or gear binding at the F/B Motor and Rack if it sound like it is attempting to move. | Fix the cause of the binding and/or replace broken gears.   |
|   | Loose or bad connection from the Power Board to the F/B Motor.                                    | Perform a continuity check from the Power Board J3 connector (pins 7, 8 & 9) to the F/B Motor. Find the loose or bad connection.          |
|   | Blown or faulty fuse.   | Replace the fuse in the Power Box.  |
|   | Faulty Motor.   | Replace the F/B Motor.  |
|   | Faulty Power Board.   | Replace the Power Board.  |
|   | Faulty Controller Board.  | Replace the Controller Board .  |

| Up/Down Stuck Motor  |   |  |
|--|---|--|
| Detail   | Possible Cause  | Action/solution  |
| Manually move the Hose down 6" and press the Reset Button.<br><br>If the Robot moves up towards the U/D home position▶             | Short bin programmed as a tall bin.   | The F/B Home Switch must be replaced.  |
|  | Faulty U/D Home Switch.   | The U/D Home Switch must be replaced.  |
|  | Loose or bad connection from the Controller Board to the U/D Home Switch.                         | Perform a continuity check from the Controller Board J5 connector (pins 2 & 7) to the U/D Home Switch. Find the loose or bad connection. |
|  | Faulty Computer Board.  | Replace the Computer Board.  |
| Manually move the Hose down 6" and press the Reset Button.<br><br>If the Robot <b>does not</b> move towards the U/D home position▶ | Broken teeth or gear binding at the F/B Motor and Rack if it sound like it is attempting to move. | Fix the cause of the binding and/or replace broken gears.  |
|  | Loose or bad connection from the Power Board to the U/D Motor.                                    | Perform a continuity check from the Power Board J3 connector (pins 4, 5 & 6) to the U/D Motor. Find the loose or bad connection.         |
|  | Blown or faulty fuse.   | Replace the fuse in the Power Box.   |
|  | Faulty Motor.   | Replace the U/D Motor.   |
|  | Faulty Power Board.   | Replace the Power Board.   |
|  | Faulty Controller Board .   | Replace the Controller Board .   |

| Left/Right Encoder Error   |   |  |
|--|---|--|
| Note: All Encoder Switches are connected to their respective motor. To replace a faulty Encoder Switch, the motor must also be replaced. |   |  |
| Detail   | Possible Cause  | Action/solution  |
| Initiate a vend cycle.<br><br>If the Robot moves to the right▶   | Loose or bad connection from the Controller Board to the L/R Encoder Switch. The Robot will typically jerk towards, the right if encoder pulses are not seen. | Perform a continuity check from the Computer Board J5 connector (pins 13,14 &15) to the L/R Encoder Switch in the L/R Motor. Find and fix the loose or bad connection.   |
|  | Faulty Encoder Switch in the L./R Motor.  | Replace the L/R Motor.   |
|  | Faulty Controller Board .   | Replace the Controller Board .   |
| Initiate a vend cycle.<br><br>If the Robot <b>does not</b> move to the right▶  | Loose or bad connection from the Power Board to the L./R Motor.   | Perform a continuity check from the Power Board J3 connector (pins 10,11 &12) to the L./R Motor. Find the loose or bad connection.                                       |
|  | Loose or bad connection form the Controller Board to the Power Board.   | Perform a continuity check from the Computer board J4 connector (pins 10 & 11) to the Power Board J1 connector (pins 10 & 11). Find and fix the loose or bad connection. |
|  | Blown or faulty fuse.   | Replace the fuse in the Power Box.   |
|  | Faulty Motor.   | Replace the L./R Motor.  |
|  | Faulty Power Board.   | Replace the Power Board.   |
|  | Faulty Controller Board .   | Replace the Controller Board .   |

| Front/Back Encoder Error   |   |  |
|--|---|--|
| Detail   | Possible Cause  | Action/solution  |
| Initiate a vend cycle.<br>If the Robot moves forward▶                | Loose or bad connection from the Controller Board to the F/B Encoder Switch. The Robot will typically jerk towards, the right if encoder pulses are not seen. | Perform a continuity check from the computer board J5 connector (pins 10,11 &12) to the F/B Encoder Switch in the L/R Motor. Find and fix the loose or bad connection. |
|  | Faulty Encoder Switch in the F/B Motor.   | Replace the F/B Motor.   |
|  | Faulty Controller Board.  | Replace the Controller Board .   |
| Initiate a vend cycle.<br>If the Robot <b>does not</b> move forward▶ | Loose or bad connection from the Power Board to the F/B Motor.  | Perform a continuity check from the Power board J3 connector (pins 7,8 & 9) to the F/ B Motor. Find the loose or bad connection.                                       |
|  | Loose or bad connection form the Controller Board to the Power Board.   | Perform a continuity check from the Controller Board J4 connector (pins 8 & 9) to the Power Board J1 connector (pins 8 & 9). Find and fix the loose or bad connection. |
|  | Blown or faulty fuse.   | Replace the fuse in the Power Box.   |
|  | Faulty Motor.   | Replace the F/B Motor.   |
|  | Faulty Power Board.   | Replace the Power Board.   |
|  | Faulty Controller Board .   | Replace the Controller Board .   |

| Up/Down Encoder Error   |   |  |
|---|---|--|
| Detail  | Possible Cause  | Action/solution  |
| Initiate a vend cycle.<br>If the Robot moves down▶                | Loose or bad connection from the Controller Board to the U/D Encoder Switch. The Robot will typically jerk towards, the right if encoder pulses are not seen. | Perform a continuity check from the Controller Board J5 connector (pins 10,11 &12) to the U/D Encoder Switch in the L/R Motor. Find and fix the loose or bad connection. |
|   | Faulty Encoder Switch in the U/D Motor.   | Replace the U/D Motor.   |
|   | Faulty Controller Board .   | Replace the Controller Board.  |
| Initiate a vend cycle.<br>If the Robot <b>does not</b> move down▶ | Loose or bad connection from the Power Board to the U/D Motor.  | Perform a continuity check from the Power Board J3 connector (pins 4,5 & 6) to the U/D Motor. Find the loose or bad connection.  |
|   | Loose or bad connection form the Controller Board to the Power Board.   | Perform a continuity check from the Controller Board J4 connector (pins 4 & 5) to the Power Board J1 connector (pins 4& 5). Find and fix the loose or bad connection.    |
|   | Faulty Motor.   | Replace the U/D Motor.   |
|   | Faulty Power Board.   | Replace the Power Board.   |
|   | Faulty Controller Board.  | Replace the Controller Board.  |

| Out Of Product         |   |                               |
|------------------------|---|-------------------------------|
| Detail                 | Possible Cause                          | Action/solution               |
| Initiate a vend cycle. | Tall bin was programmed as a short bin. | Reprogram and edit selection. |
|                        | Bin out of product.                     | Refill.                       |

**Vacuum Out Of Order**

| Detail   | Possible Cause  | Action/solution  |
|--|---|--|
| Initiate a vend cycle.<br>If the Vacuum turns on▶                | Not enough voltage going to the machine to pick up product.                   | Plug the machine into a better outlet or unplug anything that may be sharing the same outlet.  |
|  | The hose has a puncture.  | Locate and replace the damaged hose (88").   |
|  | Loose or bad connection from the Controller Board to the Vacuum Valve Switch. | Perform a continuity check from the Computer Board J5 connector (pins 4 & 7) to the Vacuum Valve Switch. Find and fix the loose or bad connection. |
|  | There is debris in the Vacuum Valve Assembly.                                 | Clear out any obstruction.   |
|  | Binding in the Vacuum Valve Assembly  | Open the Vacuum Valve Assembly and fix the cause of the binding.   |
|  | Faulty Vacuum Valve Reed Switch.  | Replace the faulty Vacuum Valve Reed Switch.   |
| Initiate a vend cycle.<br>If the Vacuum <i>does not</i> turn on▶ | Hole in the product bag   | Remove Product   |
|  | The hose has a puncture   | Locate and replace the damaged hose (88")  |
|  | Misshapen or hole in Picker Tip   | Check and reprogram bins so that the Robot drops straight down the center of the bin.  |
|  | Programming and/or bin alignment.   | Level the machine.   |
|  | Blow Off Flapper in a slightly open position                                  | Replace Neoprene Blow Off Valve Gasket.  |
|  | Binding in the Vacuum Valve Assembly  | Open the Vacuum Valve Assembly and fix the cause of the binding.   |

**Bin Errors**

| Detail                     | Possible Cause   | Action/solution   |
|----------------------------|--|---|
| Robot is dropping product▶ | Hole in the product bag  | Remove  |
|                            | The hose has a puncture.   | Replace hose  |
|                            | Misshapen or hole in Picker Tip  | Replace Picker Tip  |
|                            | Programming and/or bin alignment   | Check and reprogram bins so that the robot drops straight down the center of the bin. |
|                            | Machine is not level so the Picker Head is not centered on the product causing an improper vacuum seal | Level the machine   |
|                            | Blow off flapper in a slightly open position due to deformed gasket                                    | Replace neoprene blow off valve gasket  |
|                            | Binding in the Vacuum Valve Assembly   | Inspect the assembly and fix the cause of the binding.                                |

| Vacuum Problems   |  |  |
|---|--|--|
| Detail  | Possible Cause   | Action/solution  |
| Initiate multiple vend cycles.<br><br>Robot drops down approx 5", comes up without getting product and proceeds to the product drop point to complete the vend cycle. Acts as if there was a successful vend cycle▶ | Blockage or obstruction anywhere between the Picker Tip and the Vacuum Valve Assembly. | Remove blockage.   |
|   | Magnetic Reed Switch in the Vacuum Valve Assembly is faulty.                           | Replace the Magnetic Reed Switch   |
|   | Loose or bad connection from the Controller Board to the Vacuum Switch.                | Perform a continuity check from the Computer Board J5 connector (pins 4 & 7) to the Vacuum Switch in the Vacuum Valve. Find and fix the loose or bad connection. |

PART C: BIN SETUP/ BIN PLAN-O-GRAM

# F820 ICE CREAM MACHINE INSTALLATION & SET-UP GUIDE

VERSION:090903

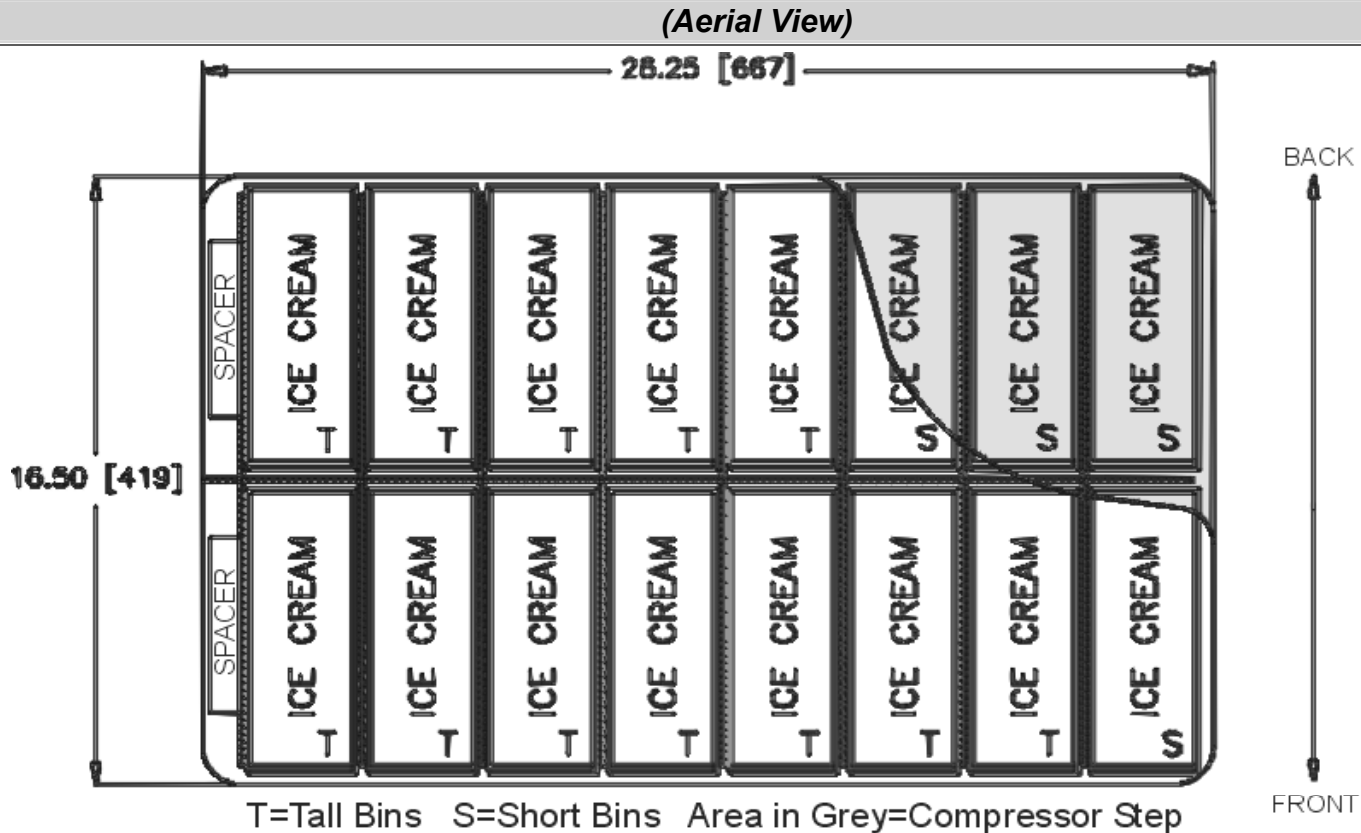


**FASTCORP®**  
FOOD AUTOMATION SYSTEMS AND TECHNOLOGIES

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## BIN SETUP/ PLAN-O-GRAM



# STANDARD RECTANGLE BIN LAYOUT

BIN CONFIGURATION LAYOUT DRAWING L0-BC01A

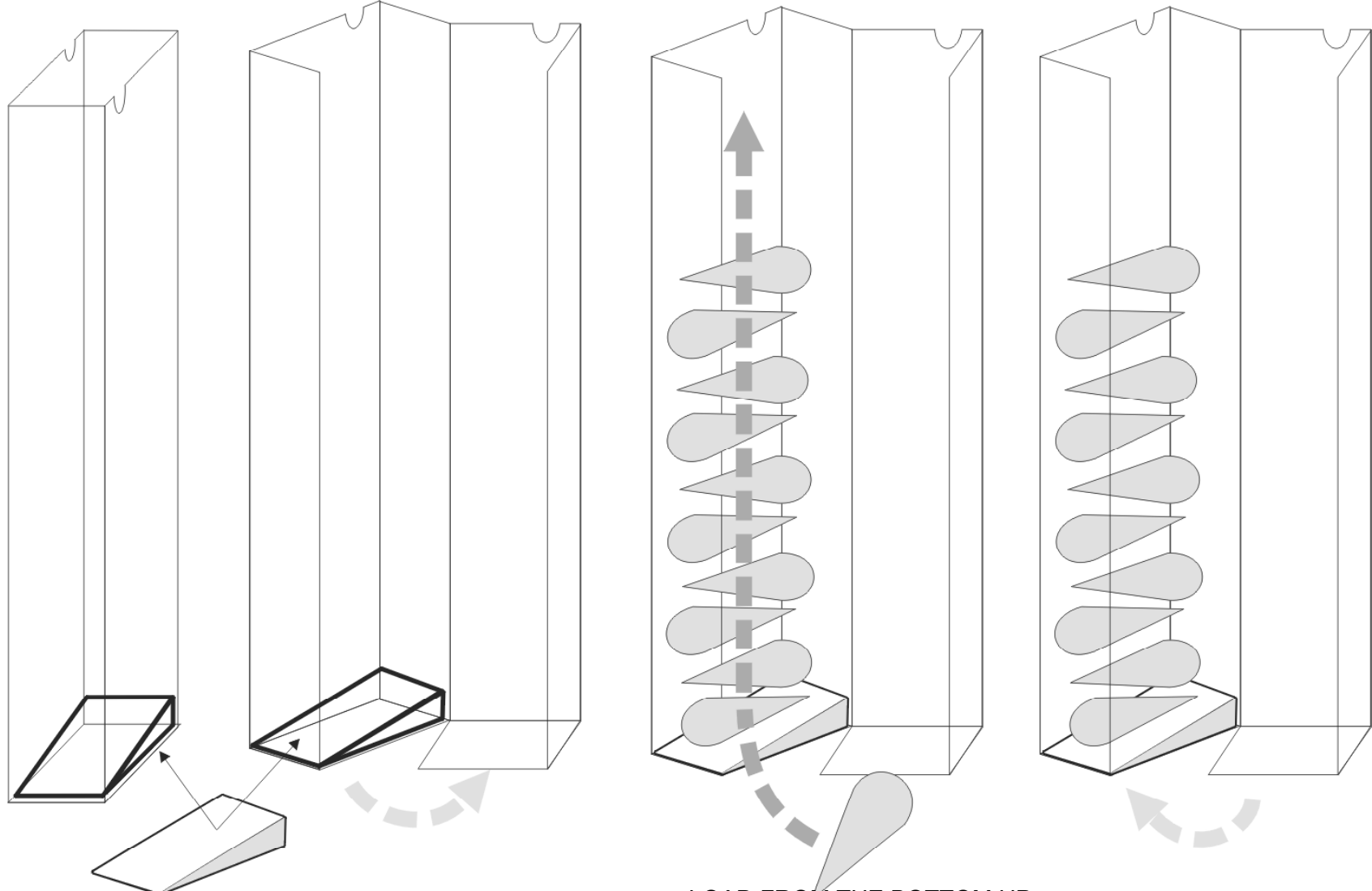
FASTCORP 3-10-03 RBL

Note: When programming, it is important to program the bin selections located at the back right and the front right corners as short bins; the rest are tall bins. If short bins are programmed as tall bins, the robot will make contact with the bottom of the bins and attempt to pull them out, resulting in possible machine failure (out-of-order). If tall bins are programmed as short bins, the machine will only vend product based on the height of a short bin. The robot will leave product at the bottom of the tall bin and flag it *Out-Of-Product*. Refer to *PART:A GENERAL INFORMATION, PRODUCT LOADING* and *PROGRAMMING* sections.

**BIN LOADING CONSIDERATIONS**

**Product Loading Example (w/Cone Bins)**

**PRODUCT MUST ALWAYS BE LEVEL IN BINS (ALTERNATE PRODUCT DIRECTION WHEN LOADING CONE BINS)**



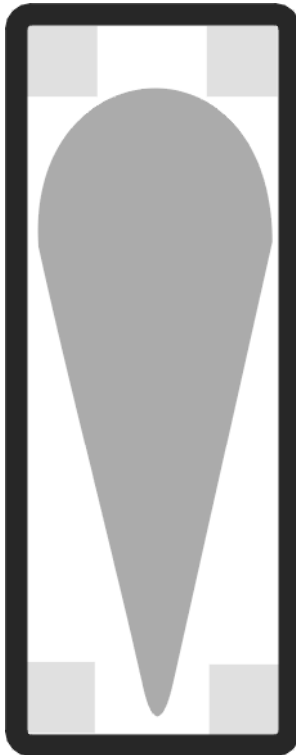
**BUILT-IN WEDGE INSERT FOR  
LEVELING CONE PRODUCTS**

**LOAD FROM THE BOTTOM UP  
(FIRST IN-FIRST OUT INVENTORY)**

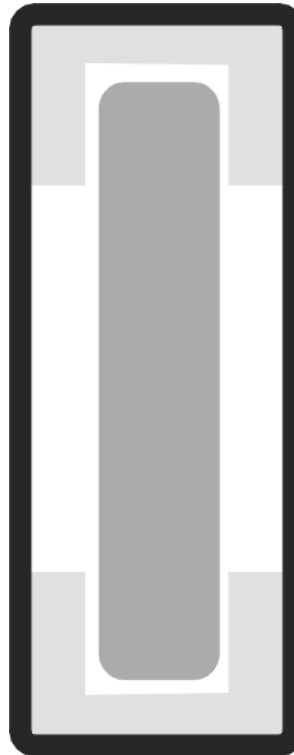
## **BIN SELECTION & MODIFICATION CONSIDERATIONS**

### ***Examples Of Bin Spacer Configurations (Aerial View)***

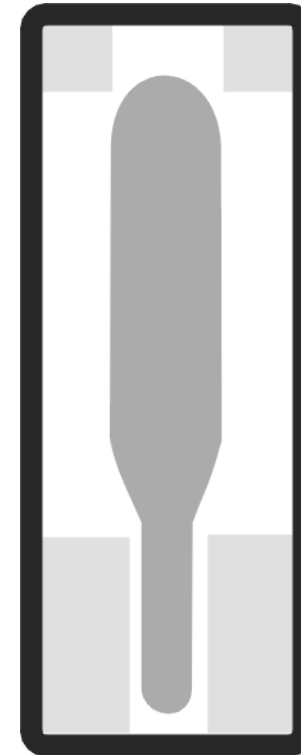
ALWAYS USE THE CORRECT BIN AND BIN SPACER FOR A PRODUCT.  
WHEN SELECTING A BIN OR MODIFYING A BIN WITH BIN SPACERS, MAKE SURE THAT THE BIN IS NOT TOO TIGHT WHERE PRODUCT CAN GET STUCK AND THAT PRODUCT CANNOT MOVE MORE THAN ¼ " ON ANY GIVEN SIDE.



CONE SPACERS



SNICKERS SPACERS



BOMBPOP SPACERS

Refer to **PART:A GENERAL INFORMATION, PRODUCT LOADING and PROGRAMMING** sections.