



OPERATION & SERVICE MANUAL

VC1100 SERIES: MDB-70
115 Volts, 60 Hz
67105 Software

Seaga Manufacturing, Inc. 700 Seaga Drive, Freeport IL 61032 USA
Phone: 815-297-9500 Fax: 815-297-1700
www.vendtronics.com www.seagamfg.com
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1. GENERAL

Dimensions: 41" W x 32 1/8" D x 72" H
Weight: 650 lbs.
Construction: Heavy gauge steel and plastic
Finish: Powder coated paint
Number of Trays: 5
Available Column Configurations: 3 thru 9 (adjustable)
Machine Capacity: 60 to 450
Available Coil Sizes: 4, 5, 6, 7, 8, 10,12, and 16

2. POWER REQUIREMENTS

115 Volts, 15 Amps, 60 Hz

3. OVERLOAD & SHORT CIRCUIT PROTECTION

Control Transformer: 2 Amp fuse
Fluorescent Lamp Transformer 1/2 Amp fuse
Heated Glass Window Ground fault interrupter

4. REFRIGERATION

Compressor: 1/2 hp.
Refrigerant Charge: R404a; 1.8 lbs. (See product label on machine)
Evaporator: Forced air with electric defrost

5. OPERATING TEMPERATURES

Range: (based on a 72°F room ambient) -20°F to +40°F
Turn On/Turn Off Differential: Factory set for 5°F

6. ENVIRONMENT

Operating Ambient Temperature: 50°F to 100°F
Location Environment: Indoors

7. HEALTH SAFETY PROTECTION

Activation Temperature:
Frozen Foods: +10°F or higher if more than 15 minutes
Slack Frozen: +25°F or higher if more than 15 minutes
Refrigerated: +45°F or higher if more than 5 minutes

Upon initial receipt from the factory, allow the unit to set at room temperature for at least 24 hrs. before operation. Also, the unit should be stored vertical at all times. When relocating the unit, it should not be tipped at extreme angles. If the unit is relocated, it is strongly recommended that a similar 24 hr. non-operating period be observed.

If the unit was in an operating mode prior to relocation, the inside of the freezer compartment should be allowed to rise to room temperature and completely dry out before placing back into service.

The unit requires an independent 15 amp earth grounded circuit.

The back of the unit must be located at least 6 inches from any obstruction to ensure proper air flow in the compressor area.

After plugging the unit into the proper wall outlet open the Service Door and turn the main power switch on. The display on the front panel should become active after approximately 20 seconds. Set the desired temperature on the thermostat control and place the Refrigerator/Freezer Mode Switch in the appropriate position. When operating in the frozen or slack frozen modes, the Glass Panel Heater switch should be in the ON position and in the OFF position for the refrigerated mode. Please note that the resolution of the thermostat dial setting is wider for temperatures below 0°F. It may be necessary to make slight adjustments to achieve the desired temperature. The actual freezer temperature can be monitored via the two-digit display located on the Vend Enable Board.

Ensure unit has reached the required temperature setting before loading product. When the unit is used in the frozen food or slacked frozen mode of operation, all food items should be frozen prior to stocking the unit.

Refrigeration System

This system is comprised of the evaporator, condensing unit and the thermostat control. The system becomes functional as soon as the main power switch is turned on.

Defrost System

Defrost of the evaporator is initiated by a timer every 12 hours of operation. The defrost period lasts for approximately 21 minutes during which time the compressor is off and the heaters in the evaporator are on. While in the defrost mode it is common to see the temperature in the freezer compartment rise rapidly.

Vending System

Vending operations, such as, setting prices, changing the message on the front display, accepting user selections, handling bills and coins, counting escrow balances, making change and operating vend motors are handled by the System Control Board which is mounted on the inside of the service door.

Vend Enable Monitoring System

The function of this system is to provide additional user protection by disabling vending operations in the event freezer temperatures rise above a preset temperature for an extended period of time.

Activation Temperature:

Frozen Foods: +10°F or higher if more than 15 minutes

Slack Frozen: +25°F or higher if more than 15 minutes

Refrigerated: +45°F or higher if more than 5 minutes

Refrigeration Control

The temperature is thermostatically controlled and adjusted via the thermostat which is mounted on the power panel located behind the Service Door. It is important to remember that the compressor turns off at the thermostat setting, however, the turn on point is based on the thermostat's differential setting. (The differential setting as shipped from the factory will be 5°F, however, this may be adjusted if you determine that a longer cycling period would be more satisfactory.)

The evaporator in the ceiling of the freezer compartment has no user settings or adjustments. The evaporator fans are activated via the Freezer Door Reset Switch, which is mounted on the upper portion of the center wall panel. When the Freezer Door is closed, or when the switch's plunger is pulled out, the fans will be operational. A fan control thermostat is mounted on the evaporator coil, that turns the fans ON at 35°F, and OFF at 55°F. As the freezer compartment cools down from a warm temperature condition it is normal for the fans to cycle off and on several times before reaching a stable mode.

When operating the unit in a refrigerated mode, please keep in mind that the temperature range is somewhat narrow (33°F to 45°F). With a differential setting of 5°F you would be limited to adjusting the thermostat setting between 33°F and 40°F in order to stay within the temperature boundaries.

In order to make differential adjustments, the cover to the thermostat must be removed. If you are not familiar with this procedure, please have a trained service technician make the initial adjustment. There are potentially dangerous voltages under this cover and, therefore, main power to the unit should be removed before attempting adjustments.

Defrost System

The electric defrost is automatic and is initiated by the defrost timer which is mounted on the power panel located behind the service door. The timer runs whenever the main power switch is on. A defrost period is initiated every 12 hours and runs for approximately 21 minutes. During this period the compressor and evaporator fans are turned off. Please note that it is not unusual for the temperature being displayed on the health board to increase rather dramatically and although the food temperature is also rising, it is doing so at a much slower rate and will remain safe for consumption.

The unit is shipped with the timer set to allow a full 12 hour period of operation before the initial defrost period begins. The timer can be manually set at any time by simply turning the dial in a clockwise rotation; a complete rotation represents 12 hours.

System Control Board

The System Control Board controls the message on the front display, the bill acceptor, the coin changer, the accumulation and display of escrow, the making of change payments, keypad selection, setting of price and operates the vend motors.

Before defaulting to the sales mode of operation after powering on, the controller will restore the vend options to their state at power off, define the motor configuration, calculate the maximum price, reset the display and flash “—” if it takes a long time to determine the type of changer and bill acceptor attached. If a vend was in progress at the time of the power loss, the credit will be lost and the motor will be halted off of the home position, therefore the next vend of this motor may be either shorter or longer than normal.

The sales mode is the normal mode of operation. The controller will always default to the sales mode under the absence of keypad input. While in this mode the controller shall function as described below.

Idle condition

The controller will monitor the changer and bill acceptor for customer input while waiting for a keypad generated interruption. If no action is taken, then the programmable point of sales message will be scrolled on the display unless the force vend option is enabled. If this is the case, either the programmable point of sales message or the “PLEASE INSERT EXACT MONEY” message will be scrolled on the display, depending on the status of the changers inventory tubes.

When credit has been established, the amount of credit will be displayed instead of either message, otherwise the controller will continue as above until a vend sequence is initiated or an escrow request is made. If an escrow request is received and the force vend feature is disabled, the deposited credit will be returned in a “like coin” fashion.

Coin acceptance

The controller will allow acceptance of all coins as long as the accumulated credit is less than the maximum price of any selection in the current configuration.

Coin acceptance will be disabled during all vends, while coins are being paid out, and while in the service mode of operation.

First bill acceptance

The first bill will be accepted if the quarter tube is above the low indicator, or if the dime and nickel tubes are both above the low indicators. If the accumulated credit is greater than or equal to the maximum price, then bill acceptance will be disabled. If the bill acceptor offers escrow and acceptance is disabled because of the maximum price, the bill will be kept in the escrow position, otherwise the bill will go straight into the bill stacker. If the bill acceptor does not offer escrow, or bill escrow is disabled, the bill will go straight to the bill stacker.

The above rules apply to the MDB changer and Validator, plus the bill will be accepted if the tube cash is greater than or equal to the established credit plus the bill value.

Additional bill acceptance

Additional bills will be accepted if the dime and quarter tubes are both above the low indicators. If the accumulated credit is greater than or equal to the maximum price, then bill acceptance will be disabled. If the bill acceptor offers escrow and acceptance is disabled because of the maximum price, the bill will be kept in the escrow position, otherwise the bill will go straight into the bill stacker. If the bill acceptor does not offer escrow, the bill acceptor will be disabled after the second bill has been sent to the stacker unless the Force vend feature is enabled.

Selection vending

When an alpha character is depressed on the keypad, a beep will be issued while the alpha is displayed for up to 5 seconds. If a number is depressed within that 5 seconds, a beep will acknowledge the entry and one of the following series of events will occur:

If there has not been enough credit deposited, the selection's character, number, and price will be displayed for approximately 1 second with three beep tones followed by the "PLEASE INSERT MORE MONEY" message being scrolled one time. Then the credit, or the point of sales message if no credit has been established, will be displayed again.

If there has been enough credit deposited (see note #1 below), the selection's character, number, and price will be displayed while the controller determines if the exact amount of change can be paid to the customer. If it can not be returned, the vend sequence is halted and the deposited credit is returned in a "like coin" fashion, three beep tones will be issued, the "PLEASE INSERT EXACT MONEY" message will be scrolled one time, and the idle condition of the sales mode will be resumed. If the exact amount of change can be returned, then the controller will calculate a check sum of the MIS and pricing information, this will then be compared to the checksum determined when the controller last changed a MIS or price location. If the two checksums are different, the vend will not be allowed, the deposited credit will be returned in a "like coin" fashion, and the "PLEASE CALL SERVICE" message will be scrolled on the display until the service mode is entered. If the two check sums are the same, then the selection will be vended and the amount of change will be displayed while it is returned using a "least coins" algorithm. If for some reason the exact amount of change cannot be returned, as much as possible will be paid out and the remaining amount will be retained as credit toward another vend. If the correct change is returned, the "THANK YOU" message will be displayed for 0.8 seconds, followed by the idle condition of the sales mode. If the motor is not allowed to complete a full cycle, or if after twelve seconds the motor has not yet returned to a home position, the controller will beep three times while the "MAKE ALTERNATE SELECTION" message is scrolled one time, this will be followed by the amount of accumulated credit. If it is enabled, the force vend feature will be overridden for approximately 25 seconds after a faulty vend.

Selection vending (continued)

If a selection not in the configuration, or one with a bad motor (see note #2 below) is selected, that selection's character, number, and price will be displayed for approximately 1 second. Then the controller will beep three times while the "MAKE ALTERNATE SELECTION" message is displayed one time. The credit or point of sales message will be displayed again following the above message.

Note #1: An item price of \$0.00 is allowed as a valid vend while in the sales mode of operation.

Note #2: A bad motor is defined as a motor location requiring more than 12 seconds before detecting a home position signal or an electrically open motor circuit. Once a bad motor has been detected it can not be vended until it is cleared by performing a free vend from within the service mode of operation.

Note #3: If the machine shuts down due to 'Timed Shut Down Intervals' the deposited money will be automatically returned to the customer.

Note #4: If a Promotional item (in response to purchase of another item) failed to be vended the vend is considered good. The failed motor is flagged and displayed in service mode.

The service mode of operation

The service mode is to be entered by depressing the red “mode” button located on the component side of the controller board. The controller automatically returns to the sales mode if no input from the keypad is received in approximately 25 seconds or if the “mode” button is pressed a second time within this period.

Upon entering the service mode, a beep will be issued to recognize the transition and diagnostics will be displayed until a function key is pressed. The diagnostics will include which motors in the configuration have been flagged as bad motors and an error code as to why, as well as the loss of changer communications or an NOVRAM checksum error. If credit exists upon entry to the service mode, it will be restored when the sales mode is re-invoked.

ERROR CODE	ERROR DESCRIPTION
1	Too little motor current (under 20 mA) display shows for example “A1 1”
2	Too much time to complete vend (12 seconds) display shows for example “C2 2”
3	Loss of changer communications display shows “ERROR 3”
4	NOVRAM checksum error “ERROR 4”

Performing a Free Vend on the failed selection will clear error Codes 1 & 2.

Coin dispensing

To dispense a coin from the inventory tubes, while in the service mode, press “1”. The controller will display “DISPENSE” and wait for one of the following letters. The corresponding coins will continue to be paid out until the letter is released.

- A = Most significant coin
- B = Next significant coin
- C = Next significant coin
- D = Least significant coin

To exit this mode, press “13” or exit the service mode.

Motor count

To display the total number of functioning motors, while in the service mode, press “2”. The controller will test each motor drive in the current configuration to determine if a valid motor is connected at that instant. The message “MOTORS” and the number of motors responding will then be displayed. To exit this mode, press “13” or exit the service mode.

Downward configuration

To remove undesired motor selections from the configuration, enter the service mode and press “3”, the controller will reconfigure to the currently functioning motors and display “CONFIGURED”. This is the only means of removing motors from the configuration. This function should be performed whenever a motor has been added or removed. To exit this mode, press “13” or exit the service mode.

Accountability

To display the stored accountability, while in the service mode, press “4”. The controller will display “ACCOUNTING” and wait for one of the following inputs:

- A = Display value of all paid sales since initialization (VA101), which will rollover after \$99,999.95
- B = Display total bills to the stacker since initialization (no corresponding DEX field), which will rollover after \$99,999.00
- C = Display total number of products vended since initialization (sum of PA201 fields), which will roll over after 79,999,920
- D = Display total number of products vended since the last reset (sum of PA203 fields), which will roll over after 79,999,920.
- E = Display “RESET?” and wait for next entry. If “F” is entered, it will reset all Resettable values.
- G = Display “FILL COINS” it will then show zero credit. As coins are entered the display will note the total value of the coins entered. If a credit exists from the sales mode this feature will be inhibited in the service mode. When returning sales the credit from this mode will be zero.
- 12 = Display “DEX/UCS” and wait up to 25 seconds while allowing a DEX/UCS dump session to be initiated. The DEXIUCS subset to be used is listed in appendix 4.

To exit any of these modes, press “13” or exit the service mode.

Price setting

While in the service mode, press, “5”, the controller will display “SELECTION”. Enter the desired selections letter followed by the number, these will be displayed with the current price until the desired price is entered using the numeric keys. The most significant digit followed by lesser significant digits. It is not necessary to enter leading zeros and only the first four numbers will be used.

To save a price for a **single selection**, press “10”.

To save a price for an **entire row** of selection motors, press “11”

To save a price for the entire machine, press “12”

To cancel an unwanted setting before saving, press “13”.

To exit this mode; before entering a selection, press “13”

Free vend selection

To free vend a single selection motor, while in the service mode, press “6”, the controller will display “SELECTION”. Enter the desired selection letter followed by the number, these will be displayed with the selection price while a vend of the motor is attempted. If the vend is successful the display will blank. If the vend is not successful the controller will beep three times before blanking.

To exit this mode, before entering a selection, press “13” or exit the service mode.

Free vend row

To free vend an entire row of selection motors, while in the service mode, press “7”, the controller will display “SELECTION”. Enter the letter of the desired row. The controller will display the selections number and price as the corresponding vend is attempted. If the vend is successful the controller will continue with the next motor. If the vend is not successful the controller will beep three times and continue with the next motor. This will repeat until vends on all motors in the row have been attempted, and then the display will blank.

To exit this mode; before entering a row, press “13” or exit the service mode; after entering a row, press “13” and hold until the current vend is completed.

Free vend entire machine

To free vend the entire machine of selection motors, while in the service mode, press “8”, the controller will display the selections number and price as the corresponding vend is attempted. If the vend is successful the controller will continue on with the next motor. If the vend is not successful the controller will beep three times and continue with the next motor. This will repeat until vends on all motors in the machine have been attempted, and then the display will blank.

To exit this mode press “13” and hold until the current vend is completed .

The free vend by selection, row or machine is considered as test vend

Point of sales message programming

To exit this mode; before starting a new message press “13”; after starting a message, the new message length must be saved before exiting this mode

To enter a new point of sales message, while in the service mode, press “9”, the controller will display “MESSAGE”. Using the keypad and the following keypad definitions, entering in the new message will over write the old message. Menu I is the default menu, after each keypad entry, from either menu, the keypad will return to Menu 1. To use Menu 2, the “SHIFT” key must be depressed prior to the Menu 2 key. To save the length of the message the “ENTER” button must be pressed from within the Menu 2. If the maximum limit of 55 characters is entered, the message length is automatically saved.

KEYPAD		
A	0	1
B	2	3
C	4	5
D	6	7
E	8	9
F	10	11
G	12	13

MENU 1		
A	G	M
B	H	N
C	I	O
D	J	P
E	K	Q
F	L	R
SPACE	SHIFT	BACK SPACE

MENU 2		
S	Y	4
T	Z	5
U	0	6
V	1	7
W	2	8
X	3	9
*	ENTER	\$

Sample
ENJOY A SNACK TODAY

DISPLAY	E	N	J	O	Y	SPACE	A	SPACE	S	N	A	C	K	SPACE
KEYPAD	E	3	6	5	12-0	G	A	G	12-A	3	A	C	8	G

DISPLAY	T	O	D	A	Y	SPACE	SPACE	SPACE	SPACE	SAVE
KEYPAD	12-B	5	D	A	12-0	G	G	G	G	12-12

Language selection

To select the message language, while in the service mode, press “10”. The controller will display “LANGUAGE” and wait for the appropriate letter as defined below. After the letter has been depressed, the nationality of the language selected will be displayed.

- A = Italian
- B = Dutch
- C = Spanish / English
- D = Danish
- E = English
- F = French / English
- G = German
- 11 = Auxiliary See appendix for message translations

If “11” is pressed for the auxiliary language, the controller will display “MESSAGE n” and wait for a message to be entered. This is done in the same fashion as the Point of Sales message. Pressing “13” while “MESSAGE n” is displayed will advance to message “n+1” and use the previously saved message “n”. After starting a new message, the message must be saved before starting another function. Each message length limit is listed in appendix 1.

Vend options

To program the vend options, while in the service mode, press “11”, the controller will display “OPTIONS”. Pressing one of the appropriate letters as defined below will enter into that menu, and the current ON/Off state will be displayed, pressing the same letter again will toggle the ON/OFF state.

- A = Bill Escrow**
- B = Force Vend
- C = Max Change
- D = Time and Date
- E = Timed Shut Down Intervals
- F = One Free Product
- G = Promotional Vend

Bill escrow

This option will allow the last bill accepted to be returned, provided the bill acceptor is capable of such a feature.

To access this option press the letter “A” after the “11”. The current on/off state will be displayed as “ESCROW xxx”. Pressing “A” again will toggle the on/off state.

To save & exit this mode, press “13” or exit the service mode.

Force Vend

This option will force the customer to complete a purchase once they have deposited money of any form. If a vend is attempted and the motor fails during this vend, the customer will be allowed to escrow the credit for up to 25 seconds, regardless of the force vend status.

To access this option press the letter “B” after the “11”. The current on/off state will be displayed as “F VND -xxx”. Pressing “B” again will toggle the on/off state.

To save & exit this mode, press “13” or exit the service mode.

Max. Change

This option will prevent change from being returned to the customer until the credit amount is less than or equal to the programmed maximum change limit.

To access this option press the letter “C” after the “11”. The current on/off state will be displayed as “MX CHG xxx”. Pressing “C” again will toggle the on/off state.

To program the maximum change limit, after enabling the option as above, wait for 1 second and the currently programmed limit will be displayed. This limit may now be modified in the same manner as described in the price setting procedure

To cancel an unwanted setting before saving, press “13”.

Set time and date

This option will allow the controller to set the time and date for timed operations.

To access this option press the letter “D” after the “11”. The current time of day will be displayed in a 24 hour format as “TIME hh.mm”. A new time may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digits. It is not necessary to enter leading zeros and only the first four numbers will be used. To save, press “10”. The current month will be displayed in a numeric format as “MONTH mm”. A new month may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digit. It is not necessary to enter leading zeros and only the first two numbers will be used. To save, press “10”. The current date (1 - 31) will be displayed in a numeric format as “DATE dd”. A new date may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digit. It is not necessary to enter leading zeros and only the first two numbers will be used. To save, press “10”. The current day (1 = Sunday ... 7 = Saturday) will be displayed in a numeric format as “DAY d”. A new day may be entered by pressing the numeric keys, this will be displayed as it is entered. Only the first number will be used. To save, press “10”. The current year will be displayed in a numeric format as “YEAR yy”. A new year may be entered by pressing the numeric keys, these will be displayed as they

are entered. The most significant digit followed by lesser significant digit. It is not necessary to enter leading zeros and only the first two numbers will be used.

To save, press “10”.

To cancel an unwanted setting before saving, press “13” or exit the service mode.

Timed Shut Sown Intervals

This option will allow the controller to shut down the entire machine based on four, time of day intervals. During these time intervals the display will read, "VENDING OPERATION TO RESUME AT hh.mm ".

To access this option press the letter "E" after the "11". The current on/off state will be displayed as "TIMES xxx". Pressing "E" again will toggle the on/off state.

To program the start, stop, and active day times, after enabling the option as above, wait 1 second and the display will continue to "1STRT hh.mm". A new start time for this interval may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digits. It is not necessary to enter leading zeros and only the first four numbers will be used. To save, press "10". The display will continue to "1 STOP hh.mm". A new stop time for this interval may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digits. It is not necessary to enter leading zeros and only the first four numbers will be used. To save, press "10". The display will continue to the daily on/off status as "1 DYxxxxxxx". The 'x's will be either a '0' for off, or a '1' for on. The first 'x' will show the status of Sunday, the next Monday, and so on, until Saturday. The daily status may be changed by pressing the "0" or "1" keys, each digit will be rotated in from the left side, it is not necessary to enter leading zeros and only the first seven numbers will be used. To save, press "10". The display will continue by increasing the leading "1" in the above examples to show the next shut down time. When all four intervals have been programmed the controller will return to the service mode.

To cancel an unwanted setting before saving, press "13" or exit the service mode.

One free product

This option will allow a free product to be given to the customer at a preprogrammed interval. When enabled, every nTH product will be vended at no cost, all accumulated credit will be returned, and the message "FREE ON US" will be displayed during the vend process. Setting this interval to '1' provides a free vend at every transaction, '0' disables the option, and the maximum valid interval is 255.

To access this option press the letter "F" after the "11". The current interval will be displayed as "FREE xxx". A new interval may be entered by pressing the numeric keys, these will be displayed as they are entered. The most significant digit followed by lesser significant digits. It is not necessary to enter leading zeros and only the first four numbers will be used. To save, press "10".

To cancel an unwanted setting before saving, press "13" or exit the service mode.

Promotional vend

This option will allow a promotional product to be given to a customer for free in response to their purchase of another product. When enabled, purchasing selection '1-1' from one of the two possible promotional rows will result in both selection '1-1' and '2-2' of that row to vend sequentially.

To access this option press the letter "G" after the "11". The current on/off state will be displayed as "PROMO xxx". Pressing "G" again will toggle the on/off state.

To program the promotional rows, after enabling the option as above, wait 1 second and the display will continue to "ROWS X X". X will represent the promotional rows to be programmed (row A, row B...etc.). If the promotional rows were never selected before the X's will show "-" (blank row). New rows may be entered by pressing the alphabetic keys. The first entry will effect the center character and the second will effect the right most character. To save, press "10" after each entry. Pressing "12" before "10" will clear both entries
ROWS - -".

To cancel an unwanted setting before saving, press "13" or exit the service mode.

Continuous free vend by machine

To free vend the entire machine configuration of selection motors continuously, while in the service mode, press "12" three consecutive times, the controller will display the selections number and price as the corresponding vend is attempted. If the vend is successful, the controller will pause for approximately 400 mS, then continue on with the next motor. If the vend is not successful the controller will stop free vending motors and flash the failed motors selection number. When all motors have been attempted, the controller will pause for 15 seconds and then the cycle will be restarted. To exit this mode, press "13" and hold until the current vend is completed, or exit the service mode.

DEFAULT SETTINGS

All accountability will be set to \$00.00

All of the prices will be set to \$0.50

The point of sales message will be preprogrammed to: "Standard Lance message"

The language will be set to English and all Auxiliary messages will be blank

All vend options will be turned off with their parameters as follows;

The maximum change limit will be set to \$1.00

The time and date will be initialized to zero.

The timed shut down intervals will be blank.

The promotional rows will be blank (no rows selected) the display will show "—".

Health Safety Monitoring System

The primary purpose of this system is to prevent the vending of products that are or have been subjected to excessive temperatures for a specific period of time. Sensors inside the freezer compartment constantly update the Vend Enable Board's computer with temperature readings to ensure the integrity of this safety feature. The freezer temperature can be monitored via a two digit display located on the Vend Enable Board. Please note that directly to the left of the left most digit is a red L.E.D. that, when lit, denotes when freezer temperatures go below zero.

The Vend Enable Board is capable of monitoring freezer temperatures based on three operating ranges:

1. Refrigerated Foods (45°F or colder)
2. Soft Frozen or Slacked Frozen Foods (25°F or colder)
3. Frozen Foods (10°F or colder)

The particular range is selected via a miniature two position slide or rocker switch located at approximately the center of the board (See illustration below). Each switch section has only two positions, OFF and ON. The various switch setting combinations determine which temperature range the computer will be monitoring. The various combinations for ranges are:

Switch #1	Switch #2	Range
OFF	OFF	Frozen
OFF	ON	Soft or Slacked Frozen
ON	OFF	Refrigerated
ON	ON	Used for factory test

In order to maintain proper health safeguards and unit operation, you must ensure the Vend Enable Board's range switch is set to correspond with the desired freezer temperature operating range.

Associated with the Vend Enable Board is an interlock switch, referred to as the Freezer Door Reset Switch, which is mounted on the upper portion of the center wall panel. Whenever the Freezer Door is opened and subsequently closed, the switch initializes a timer that allows a sixty minute period to elapse before the board's computer starts monitoring the freezer temperature for abnormal operation. This time period ensures there will be ample time for restocking of the trays. Also, the computer creates a similar time delay immediately following the defrost cycle to ensure the freezer has time to recover to its normal operating temperature.

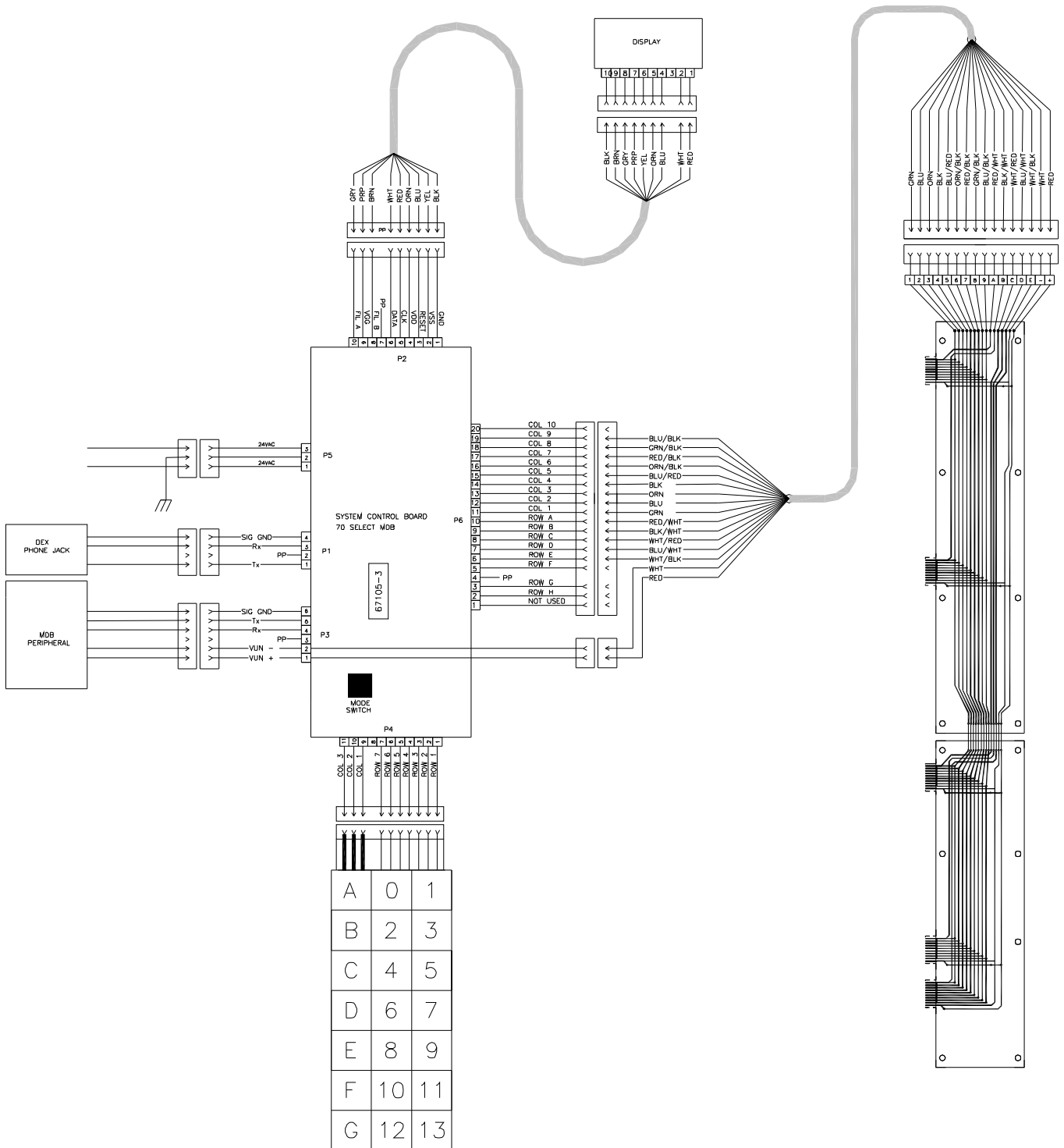
Health Safety Monitoring System (continued)

When a power outage or a unit malfunction occurs which allows the freezer temperature to rise above preset limits for a specific period of time, the front panel display will become blank and the board's temperature display will flash alternately between the letters H-H or H-I and the current temperature inside the freezer. The H-H signifies that the freezer temperature had gone above the maximum limit for refrigerated food of 45°F for a time period greater than 5 minutes. The H-I indicates the temperature had risen above the upper limit of either the frozen or slack frozen operating range and was above this limit for a period greater than 15 minutes

When the unit is initially powered-up, or if a power outage occurs for a period greater than four hours, the display will alternate between the letters OP and the current cabinet temperature.

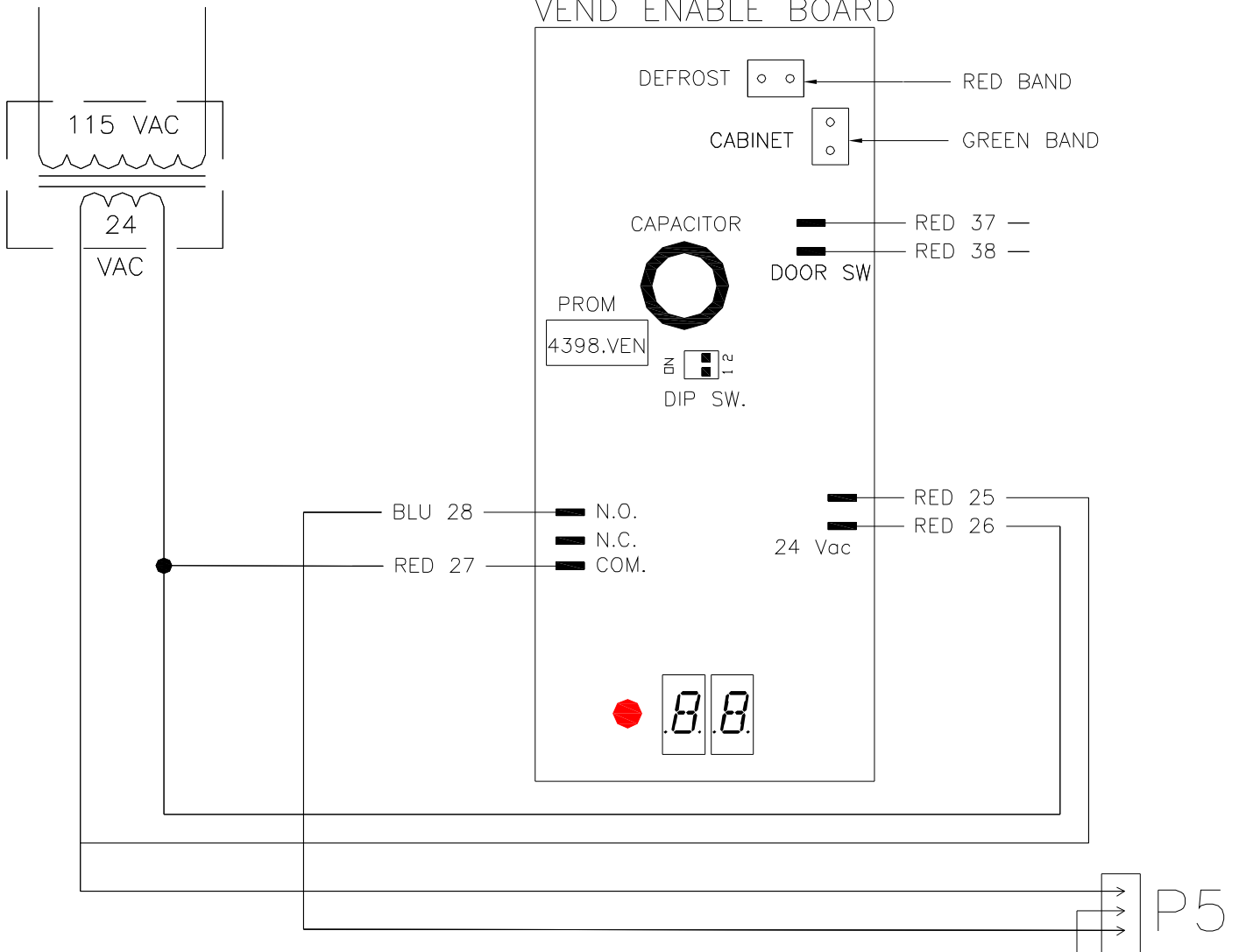
When any of these conditions occur all vending functions will be disabled. This intentional interruption is to allow the operator an opportunity to determine the reason for the abnormal freezer temperature and to likewise examine the quality of the food products. The system can be reset to again perform all vending functions as well as restoring the front panel display by performing a vend reset. To initiate a reset simply open the Freezer Door for approximately 5 seconds and close again. A good indication that a reset has occurred is the sound of the bill acceptor restarting.

Controller



Vend Enable Board

EL803
VEND ENABLE BOARD



LED INDICATES NEGATIVE TEMPERATURE

.0.P.

POWER OUTAGE



FROZEN = 10°F FOR MORE THAN 15 MINUTES

.H.1.

EXCEEDED FORZEN OR SLACK TEMP LIMIT



SLACK = 25°F FOR MORE THAN 15 MINUTES

.H.H.

EXCEEDED COLD TEMP LIMIT



COLD = 45° FOR MORE THAN 5 MINUTES

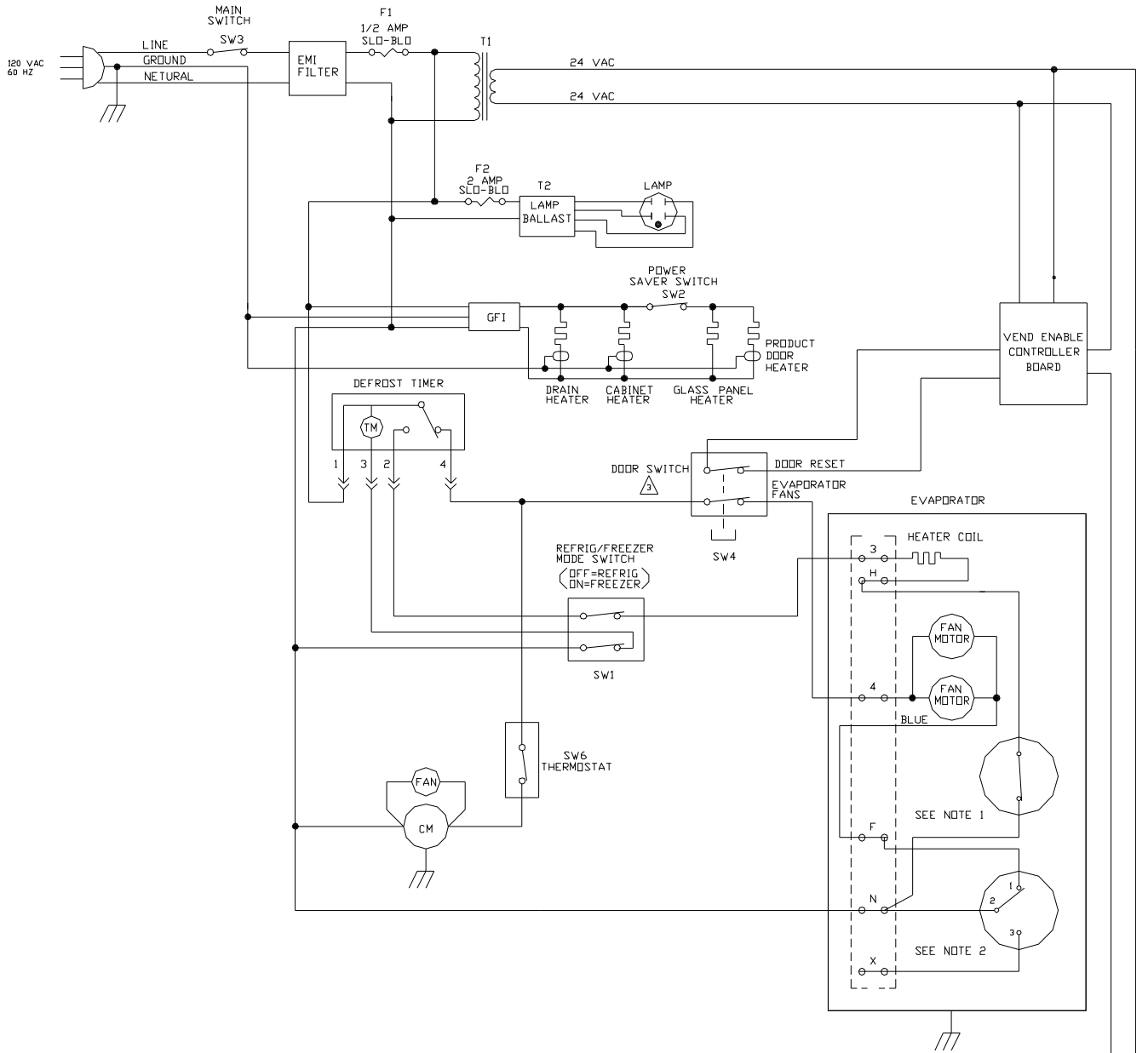


TEST

.9.2.

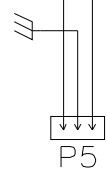
DEFECTIVE CABINET SENSOR

115 Vac/ 60Hz SCHEMATIC



NOTES:

1. SWITCH OPENS ABOVE 75 °F.
2. TERMINALS 2 & 3 SHORTED WHEN COIL IS GREATER THAN 55 °F.
1 & 2 SHORTED WHEN TEMP. FALLS BELOW 35 °F.
3. SWITCH CONTACTS SHOWN IN A CLOSED DOOR POSITION.



SECTION 6**PARTS**

PART NO.	DESCRIPTION
DE727	LABEL,TRAY,PROD PRICING
DE728	LABEL,TRAY,PRODUCT LOCATION,A1-K9
EL734	DISPLAY BOARD
EL740	DISPLAY CABLE
EL742	TRAY CABLE
EL744	MDB PERIPHERAL CABLE
EL761	LAMP,35W PHILLIPS
EL778	TRANSFORMER
EL801	VEND MOTOR
EL803	VEND ENABLE BOARD
EL813	CONTROLLER,70 MDB,67105
EL840	KEYPAD,70MDB,0-13
FA754	MOTORMOUNT,RUBBER STOPPERS
FA763	TRAY DIVIDER LOCK,RUBBER
FA778	PIN,CLEVIS,VEND MOTOR MOUNT, ALUMINUM
GL720	GLASS,3 PANE HEATED
HA247	T-HANDLE
PL339	SHAFT ADAPTER,VEND MOTOR
PL724	LINER,TRAY,7.75INCH,3 COLUMN TRAY
PL730	RETAINER HUB,VEND MOTOR
PL743	PRODUCT PUSHER,COIL,LARGE,BLACK
RE724	EVAPORATOR,1600BTU,115V
RE726	EXPANSION VALVE,1/4TON,ADJUSTABLE
RE739	MOTOR,FAN,COND,1/2HP,115V,TEC
RE745	THERMOSTAT, HEAT LIMITER (2 WIRES)
RE747	THERMOSTAT, FAN DELAY (3 WIRES)
RE748	MOTOR,FAN, EVAP, 115V
RE749	TIMER,DEFROST,115V,GEMLINE
RE753	THERMOSTAT,JOHNSON CONTROLS
RE756	COMPRESSOR, 1/2 HP, 115Vac, R404a,
SA166	COIN RETURN ASSEMBLY
ST750	DIVIDER,TRAY,VC1100
ST768	COIN OVERFLOW BOX
ST781	PLUNGER,COIN RETURN
ST801	COIN RETURN DOOR
ST802	COIN RETURN CUP
WF720	COIL,LEFT HAND,10VEND,2.50DIA
WF721	COIL,LEFT HAND,10VEND,3.00DIA
WF722	COIL,LEFT HAND,8VEND,3.00DIA
WF723	COIL,LEFT HAND,6VEND,3.00DIA
WF724	COIL,LEFT HAND,4VEND,3.00DIA
WF728	COIL,LEFT HAND,5VEND,3.00DIA
WF729	COIL,LEFT HAND,8VEND,2.50DIA
WF730	COIL,LEFT HAND,7VEND,3.00DIA
WF734	COIL,LEFT HAND,12VEND,3.00DIA
WF736	COIL,LEFT HAND,16VEND,3.00DIA

Tray Adjustment

Each tray has column divider slots which are numbered to provide an even number of spaces across the width of the tray. You may position a motor anywhere deemed necessary to accommodate a particular package geometry, however, centered within the column spacing is the normal position.

Motors can be added, removed or re-positioned by following the below procedure while referring to the tray diagrams.

1. To move a motor to a new position, remove the rubber retainer from the motor mounting pin and from the column divider locking bar. Remove the appropriate column divider and move the motor to its new location, insert the mounting pin, position divider locking bar and re-apply rubber retainers.
2. To remove motors follow step 1 and also disconnect the connector located at the back of the motor — (CAUTION: Do not pull on the connector wires to remove the connector from the mating plug but, rather, clasp the sides of the connector.) Disengage the coil drive wheel from the motor by pulling straight outward on the front of the coil.
3. When installing additional motors attach the next numbered connector from the spare connectors located at the back of the tray.

Note: Refer to the specific manufacturer's troubleshooting guide for the coin changer and bill acceptor.

Message Display on Front Panel Not Lit but Compressor Runs.

1. Vend Enable Board interrupted vend functions as a result of high freezer temperatures.
2. Freezer Door is open but Reset Switch's plunger is not pulled out.
3. Transformer fuse blown.
4. Vend Enable Board defective.
5. Display Board defective.
6. System Control Board defective.

Selection Will Not Vend.

1. Product jammed.
2. Tray or motor connector unplugged or faulty connection.
3. Bad motor.
4. System Control Board defective.

Multiple Vends from One Coil.

1. Ice build-up on the cam or switch at the back of the motor.
2. System Control Board defective.
3. Defective motor switch.

More than one coil spins simultaneously

1. Damaged or worn tray cable
2. Poor connection at motor interface board

Unit Will Not Accept Money.

1. All prices are set to zero.
2. Will not accept bills if coins in coin changer below minimum.
3. Will not accept more than one bill if bill equals or exceeds the highest priced item.
4. No power to System Control Board.
5. Vend Enable Board defective.
6. Coin mechanism or bill acceptor defective.
7. Unit must be in the Force Vend mode to accept more than two bills.

Improper or No Change.

1. Out of coins.
2. Bent coins or slugs in coin acceptor.
3. Vend Enable Board defective.
4. Coin mechanism defective.
5. System Control Board defective.

Compressor Does Not Run When Main Power Switch is Turned On.

1. Unit not plugged in wall outlet.
2. Defrost timer currently in defrost mode.
3. Building circuit breaker tripped.
4. Defective compressor.
5. Significant loss of refrigerant gas.

Freezer Will Not Cool to Operating Temperature.

1. Dirty condenser filter.
2. Dirty condenser.
3. Evaporator fan not working. Ensure freezer door interlock switch is functioning.
4. Air leakage.
5. Loss of refrigerant gas.

Very Rapid Rise in Freezer Temperature.

1. Unit in defrost mode.

The following messages will be affected by the language selection and will be stored in the controller memory to be displayed as described in section 5.

Message #1:

English: "PLEASE INSERT EXACT MONEY"
Italian: "PER FAVORE INTRODURRE I PRECISI SOLDI"
Dutch: "AFGEPAST GELD IN WERPEN"
Spanish: "POR FAVOR DEPOSITE CANTIDAD EXACTA PLEASE INSERT EXACT MONEY"
Danish: "INDKAST AFTALTE PENGE"
French: "FAITES L'APPOINT PLEASE INSERT EXACT MONEY"
German: "ABGEZAHLTES GELD EINWERFEN"

Message #2:

English: "PLEASE INSERT MORE MONEY"
Italian: "PER FAVORE INTRODURRE PIU SOLDI"
Dutch: "MEER GELD IN WERPEN"
Spanish: "POR FAVOR DEPOSITE MAS DINERO PLEASE INSERT MORE MONEY"
Danish: "INDKAST FLERE PENGE"
French: "MONTANT INSUFFISANT INTRODUISEZ D'AUTRES PIECES PLEASE INSERT MORE MONEY"
German: "MEHR GELD EINWERFEN"

Message #3:

English: "MAKE ALTERNATE SELECTION"
Italian: "FARE UNA ALTRE SCELTA"
Dutch: "ANDERE KEUZE MAKEN"
Spanish: "SELECCIONE OTRO PRODUCTO MAKE ALTERNATE SELECTION"
Danish: "VAELG ANDEN VARE"
French: "FAITES UNE AUTRE SELECTION MAKE ALTERNATE SELECTION"
German: "ANDERE WARE WAHLEN"

Message #4:

English: "PLEASE CALL SERVICE"
Italian: "PER FAVORE CHIAMARE SERVIZIO"
Dutch: "SERVICEDIENST BELLEN"
Spanish: "POR FAVOR LLAMAR MANTENIMIENTO PLEASE CALL SERVICE "
Danish: "TILKALD SERVICEMONTOR"
French: "DEMANDEZ LE RESPONSABLE PLEASE CALL SERVICE "
German: "BITTE KUNDENDIENST RUFEN"

Message #5:

ENGLISH: "VENDING OPERATION TO RESUME AT hh.mm "
Italian: "VENDING OPERATION TO RESUME AT hh.mm "
Dutch: "VENDING OPERATION TO RESUME AT hh.mm "
Spanish: "VENDING OPERATION TO RESUME AT hh.mm "
Danish: "VENDING OPERATION TO RESUME AT hh.mm "
French: "VENDING OPERATION TO RESUME AT hh.mm "
German: "VENDING OPERATION TO RESUME AT hh.mm "

Message #6:

English: "MAKE SNACK SELECTION ONLY"
Italian: "DISPONIBILI SOIO LE SELEZIONI SNACK"
Dutch: "ALLEEN SNACK KEUZES"
Spanish: "SOLO DISPONIBLE PRODUCTOS EN ESPIRAL MAKE SNACK
SELECTION ONLY "
Danish: "KUN VALG AF KONFEKTURE MULIGT"
French: "CHOISISSEZ UNIQUEMENT LES CONFISERIES MAKE SNACK
SELECTION ONLY "
German: "NUR AUSGABE VON SUSSWAREN MOGLICH"

Message #7:

English: "THANK YOU"
Italian: "GRAZIE"
Dutch: "DANK U"
Spanish: "GRACIAS"
Danish: "TAK"
French: "MERCII"
German: "VIEL. DANK"

Message #8:

English: "FREE ON US"
Italian: " FREE *"
Dutch: " FREE *"
Spanish: " FREE *"
Danish: " FREE *"
French: " FREE *"
German: " FREE *"

APPENDIX 2**DEX/UCS**

ID101	MACHINE SERIAL NUMBER
ID102	MACHINE MODEL NUMBER
VA101	VALUE OF ALL PAID SALES SINCE INITIALIZATION
VA102	NUMBER OF ALL PAID VENDS SINCE INITIALIZATION
VA103	VALUE OF ALL PAID SALES SINCE LAST RESET
VA104	NUMBER OF ALL PAID VENDS SINCE LAST RESET
CA301	VALUE OF CASH IN SINCE LAST RESET (CA302+CA303+CA304*BILL SCALE FACTOR)
CA302	VALUE OF CASH TO COIN BOX SINCE LAST RESET
CA303	VALUE OF CASH TO TUBES SINCE LAST RESET
CA304	VALUE OF BILLS IN SINCE LAST RESET (IN WHOLE UNITS, NO DECIMAL PLACES)
CA401	VALUE OF CASH DISPENSED SINCE LAST RESET
CA402	VALUE OF CASH MANUALLY DISPENSED SINCE LAST RESET
CA801	VALUE OF CASH OVERPAY SINCE LAST RESET
CA1001	VALUE OF CASH FILLED SINCE LAST RESET
CA1401	BILL VALUE,(\$1, 2, 5, 10, & 20)
CA1403	NUMBER OF BILLS TO STACKER SINCE LAST RESET
TA203	VALUE OF VEND TOKEN SALES SINCE LAST RESET
TA204	NUMBER OF VEND TOKEN VENDS SINCE RESET
PA101	PRODUCT NUMBER
PA102	PRODUCT PRICE
PA201	NUMBER OF PRODUCTS VENDED SINCE INITIALIZATION
PA203	NUMBER OF PRODUCTS VENDED SINCE LAST RESET
PA204	VALUE OF PAID PRODUCT SINCE LAST RESET
PA303	NUMBER OF TEST VENDS SINCE LAST RESET
EA201	EVENT IDENTIFICATION; ONE FREE PRODUCT VENDS
EA202	NUMBER OF EVENTS SINCE LAST RESET
EA204	USER DEFINED FIELD; VALUE
EA201	EVENT IDENTIFICATION; PROMO VENDS
EA202	NUMBER OF EVENTS SINCE LAST RESET
EA204	USER DEFINED FIELD; VALUE
EA201	EVENT IDENTIFICATION; TUBE VALUE (.05,.10,.25, 1.00)
EA204	USER DEFINED FIELD; VALUE
EA201	EVENT ID; VALUE OF BILLS & CASH BOX SINCE LAST RESET
EA204	USER DEFINED FIELD; VALUE
EA301	NUMBER OF READS SINCE INITIALIZATION
EA302	DATE OF THIS READ OUT
EA303	TIME OF THIS READ OUT
EA304	THIS TERMINAL/INTERROGATOR IDENTIFICATION
EA305	DATE OF LAST READ OUT
EA306	TIME OF LAST READ OUT
EA307	LAST TERMINAL/INTERROGATOR IDENTIFICATION
EA501	DATE OF PRICE SETTING
EA502	TIME OF PRICE SETTING