Vendo®

V21

GENERAL INFORMATION SECTION

GENERAL INFORMATION

This manual contains programming, operation, and complete parts and electrical wiring diagrams.

The V21 controller is a microprocessor which will permit pricing per selection from 0.00 to 99.99. This machine also has space-to-sales programming as well as energy savings modes.

MODEL		V21 621	V21 721	V21 821
SELECTIONS		7-8	9-10	9-10
DIMENSIONS (HEIGHT X WIDTH X DEPTH)				
CURVED DOOR		72" x 32 1/2" x 34 3/4"	72" x 39 1/2" x 35"	79" x 39 1/2" x 35"
SINGLE COLUMNS		7-8	9-10	9-10
CAPACITY PER COLUMN	12 oz. CAN***	68	68	80
	16 oz. GLASS	28	28	34
	20 oz. **	30	30	36
SHIPPING WEIGHT		640 lbs	685 lbs	750 lbs
OPERATION VOTAGE		115V 60Hz.	115V 60Hz.	115V 60Hz.
AMP. RATING		10	10	10

REFRIGERATION VOLTAGE	115V 60Hz.	115V 60Hz.	115V 60Hz.

*Dimensions and shipping weight will vary slightly due to manufacturing tolerances, shipping boards and whether or not coinage is installed.

** 20 oz. PET capacity may vary based on the shape and size of the bottle.

***12 oz. can capacities are listed using a 4-deep set up.

INITIAL SET-UP

A. UNPACKING

Remove all plastic film, cardboard and tape from the outside of the vendor. Loosen any shipping devices used to secure interior parts during shipment (backspacer, shims or spacers).

To remove shipping boards from base, raise vendor on a well-stabilized lifting device. Remove the leveling bolts which hold the boards in place and remove the boards. Replace bolts to equal heights in the threaded holes. Another method to remove shipping boards is to split the boards apart. Using a pinch bar or a heavy screwdriver and hammer, insert tool into the slots and force the boards apart. **The leveling legs shall not raise the vendor more than 1 1/8 inch above the ground.**

B. POSITIONING IMPORTANT: PLACE THE VENDOR IN DESIRED LOCATION AT LEAST THREE TO FOUR INCHES (7.6CM TO 10.2CM) AWAY FROM ANY REAR OBSTRUCTION. This

is for proper air flow through the refrigeration compartment. The refrigeration system requires rear to front air circulation for proper operation.

C. POWER SUPPLY CONNECTION

CAUTION: DO NOT USE AN EXTENSION CORD!

The vendor's power requirements will vary depending upon the country it was purchased for. To verify the power requirements of the vendor, check the serial plate located on the hinged side of the outer door (see Figure 4 on page G-4). The power requirements are listed on the serial plate.

To insure safe operation of the vendor, the vendor's power supply must be a properly grounded and polarized outlet. Before plugging the vendor into the outlet, test the outlet to confirm it will meet the vendor's power requirements. If the power supply of the outlet is different from the power requirements of the vendor, a transformer may be necessary.

If the power requirements are not properly met, contact a licensed electrician and have the necessary correction made.

Should you require additional information, contact the Technical Services Department of the Vendo office in your area.
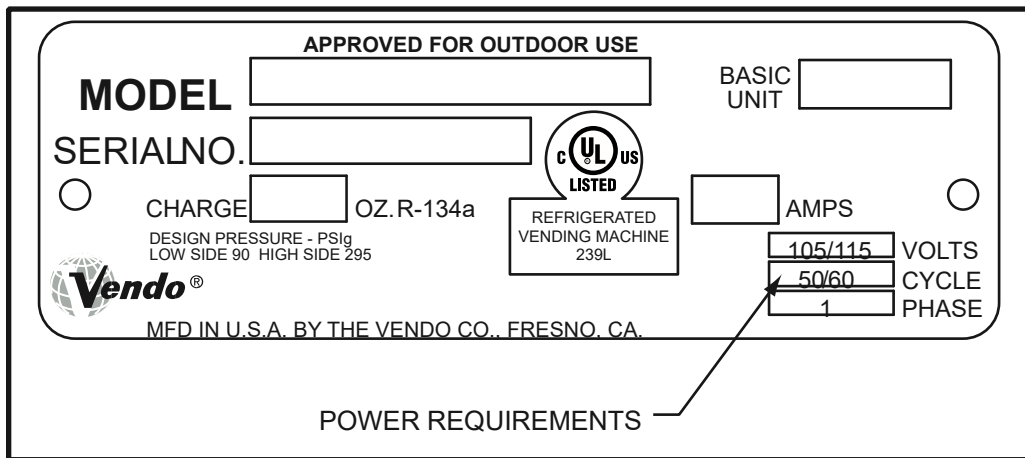
FIGURE 1

NOTE: *The **Model** number of the vending machine is located on the top, left hand corner of the serial plate.* **_Do Not use the "BASIC UNIT" number._** *The BASIC UNIT number is the cabinet size, which is used on a number of different machines. A typical model number could read "721TDD00029". The 721 is the model number, TDD represents the product line of the vendor, and the remaining digits tell what options are included.*
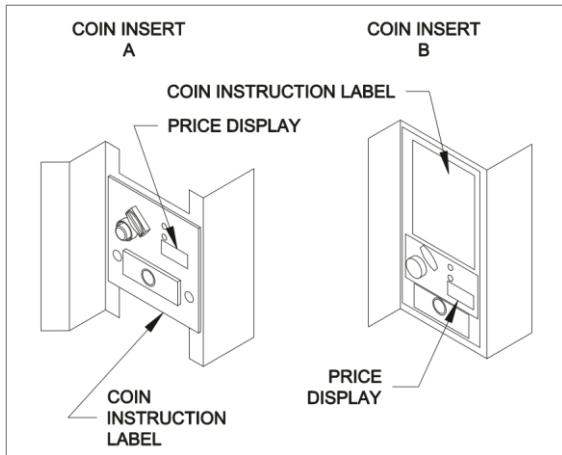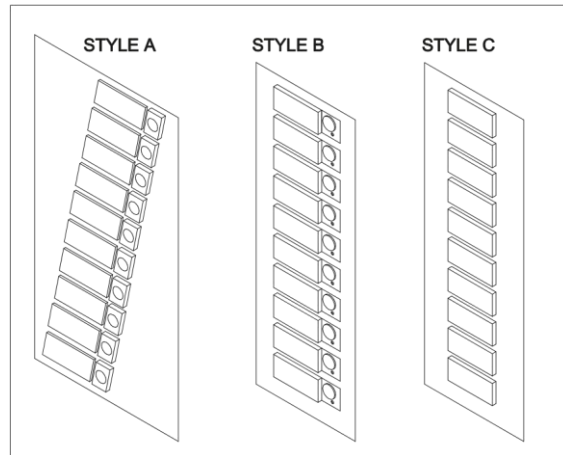
FIGURE 2

FIGURE 3

LABEL INSTALLATION

COIN INSTRUCTION LABEL & PRICE LABEL APPLICATION:
Apply labels to a clean and dry surface. Peel backing from label and apply with firm, even pressure.

INSTRUCTION LABEL
(Refer to Figure 2 for the following information.)
Coin insert "A" has a separate validator opening, and insert "B" shows the validator opening built into the coin insert. Apply instruction label to area shown (as needed by the vendor).

FLAVOR LABELS INSTALLATION:
In Figures 3 & 4, corresponding styles are indicated by A, B, C, D, or E notations. Insert flavor labels to the side or top of selection window or button depending on the style. See Figure 3 for selection style. Rear views of windows and buttons are shown in Figure 4. Arrows point the direction to insert labels.

Selection window and selection button labels identify product contained in columns.
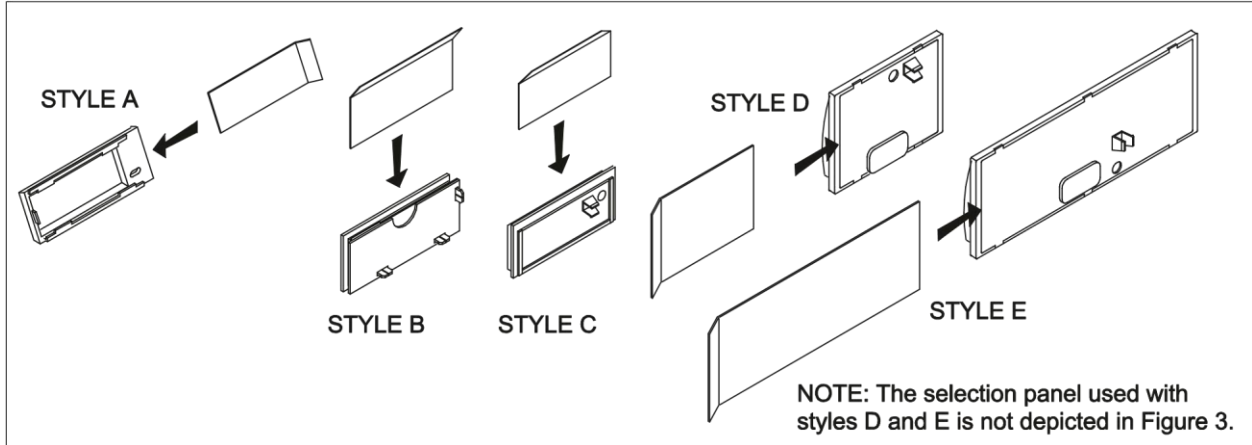
FIGURE 4
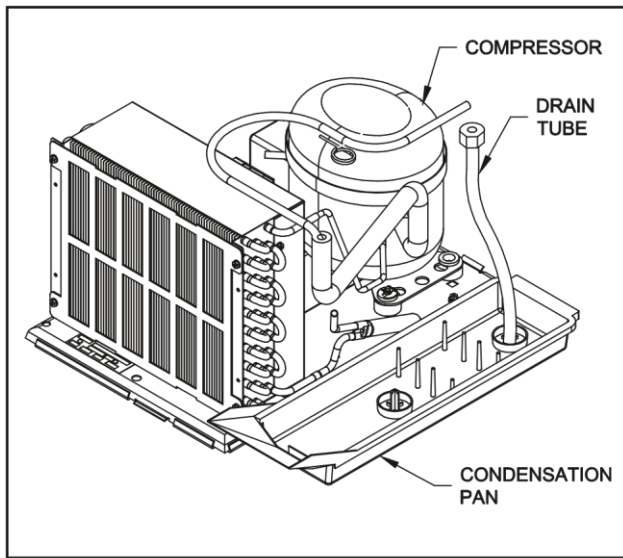
FIGURE 5

ALIGNMENT CHECKS

REFRIGERATION AREA CHECK:

Check the position of the condensation pan (see Figure 5). The correct position of the pan is on the right hand side of the vendor with the ramp of the pan just outside the right hand air dam. Be sure the drain tube is attached to the pan and is free of kinks. A water trap is installed into the condensation pan and will prevent warm, moist air from reaching the evaporator area.

Vendo®

LOADING INSTRUCTIONS

BASIC LOAD SET-UP (see Figure 6 on next page)**:**
The V21 machine is capable of vending a variety of products. For specific information, refer to the product set-up label on the machine inner door or contact the Technical Services Department of the Vendo office in your area.

Load product evenly. Product is to be loaded differently depending on the type of product being vended. Use the directions in Figure 6 in the PRODUCT LOADING section to determine how to load a specific product.

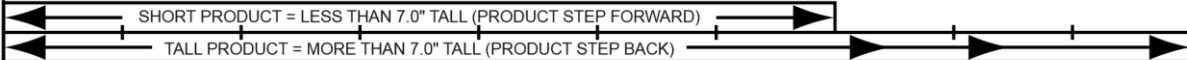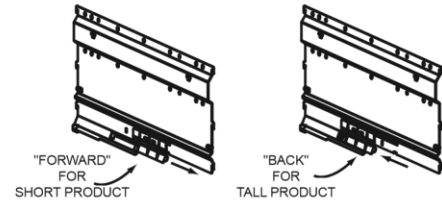To maintain the integrity of the stack, never move a vending machine when it is loaded.

01/2003

Vendo®

V21 PRODUCT SETUP AND LOADING INSTRUCTIONS
FOLLOW THE 3 STEPS BELOW WHEN SETTING VENDOR UP FOR A PRODUCT

1

BACK SPACER
Adjust the back spacer to provide approx. 1/4" to 1/2" gap between the front spacer, product and back spacer.

1/4" TO 1/2" GAP — FRONT — REAR — BACK SPACER — FRONT SPACER/RETAINER
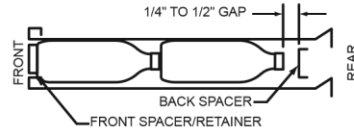
2

PRODUCT STEP
For short product vending, move the product step to the "FORWARD" position.
For tall product vending, move the product step to the "BACK" position.

"FORWARD" FOR SHORT PRODUCT — "BACK" FOR TALL PRODUCT

SHORT PRODUCT = LESS THAN 7.0" TALL (PRODUCT STEP FORWARD)
TALL PRODUCT = MORE THAN 7.0" TALL (PRODUCT STEP BACK)

3

DEPTH SETTING (ELECTRONIC CONTROL MODE)
The "DEPTH SETTING" for each column must correspond to the number of products in the column.
For example; the depth setting for a column vending double depth bottles must be set to "2", and a column set to vend quadruple depth cans must be set to "4".
Refer to the VEC 12 programming instructions for details on how to access and change the depth setting mode.

- 4 Deep: Cans between 4.50" and 4.85" tall.
- 3 Deep: Bottles or cans between 4.85" and 6.50" tall.
- 2 Deep: Bottles between 6.50" and 9.95" tall.
- 1 Deep: Bottles taller than 9.95".

MIN. PRODUCT HEIGHT — 4D — 3D — 2D
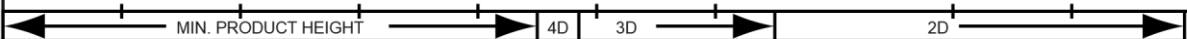
PRODUCT LOADING

- Single depth bottles should be loaded with cap toward the back.

- Double depth bottles may be loaded with caps toward the back, or butt to butt.

- Triple depth bottles must be loaded with caps toward the back.

- Quadruple depth cans may be loaded any direction.

FRONT OF VENDOR

1D
2D
2D
3D
4D
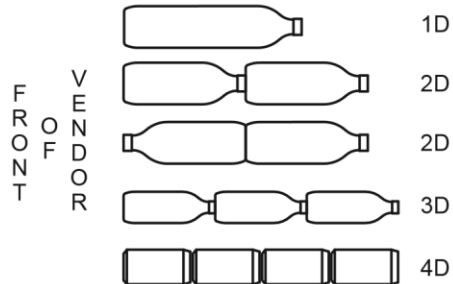
SMALL DIAMETER PRODUCT SETTING

- Small diameter products (less than 2.5" Ø) such as 500 ML water bottles require the use of side spacer PN 1122928.

  2.5" Ø OR LESS

- Small diameter 250 ML energy drink cans (2.1" Ø) require the use of conversion kit PN 1121638.

  2.1" Ø
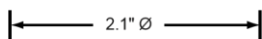
NOTES

- Side spacers **ARE NOT** required for 12 oz. can vending.

- Vend mechanism is self priming. No need to manually prime after initial load or reload.

- For questions regarding product settings, contact the Vendo Technical Services Department at 1-800-344-7216 ext.3368 (US/Canada) or 559-439-1770 ext.3368.

1124035

FIGURE 6

G-7

01/2003

VEND MECHANISM PARTS DESCRIPTION

The parts listed below are part of the vend motor mechanism (refer to Figure 7 on page G-9). One mechanism is required per column. The parts are interchangeable. Setting will differ between single, double, triple, and quadruple depth.

VEND MOTOR ASSEMBLY: P/N 1122820
The motor is attached to the mech plate by two screws.

VEND BUCKET: P/N 1122815
The vend bucket holds the product(s) in a "ready to vend" position at the base of each column.

MOTOR COUPLING CAM: P/N 1122817
The coupling cam couples the motor to the bucket. It is located behind the motor, on the motor shaft. It is also a means to provide feedback to the controller to determine when the motor has reached maximum clockwise and counterclockwise positions.

GATE: P/N 1122871
The gate holds product above the vend bucket.

GATE LINK: P/N 1122819
The rotation of the coupling cam moves the gate link. This opens the gate, allowing one layer of product to drop into the bucket.

CAN STEP: P/N 1122856
The can step is located at the bottom of the stack partition. It is pulled forward when vending cans and is moved back for bottle vending.

REAR BUSHING: P/N 1122816
The rear bushing provides a low friction pivot for the rear of the bucket.

FRONT SPACER: P/N 1122814
The front spacer helps to guide product into the bucket.
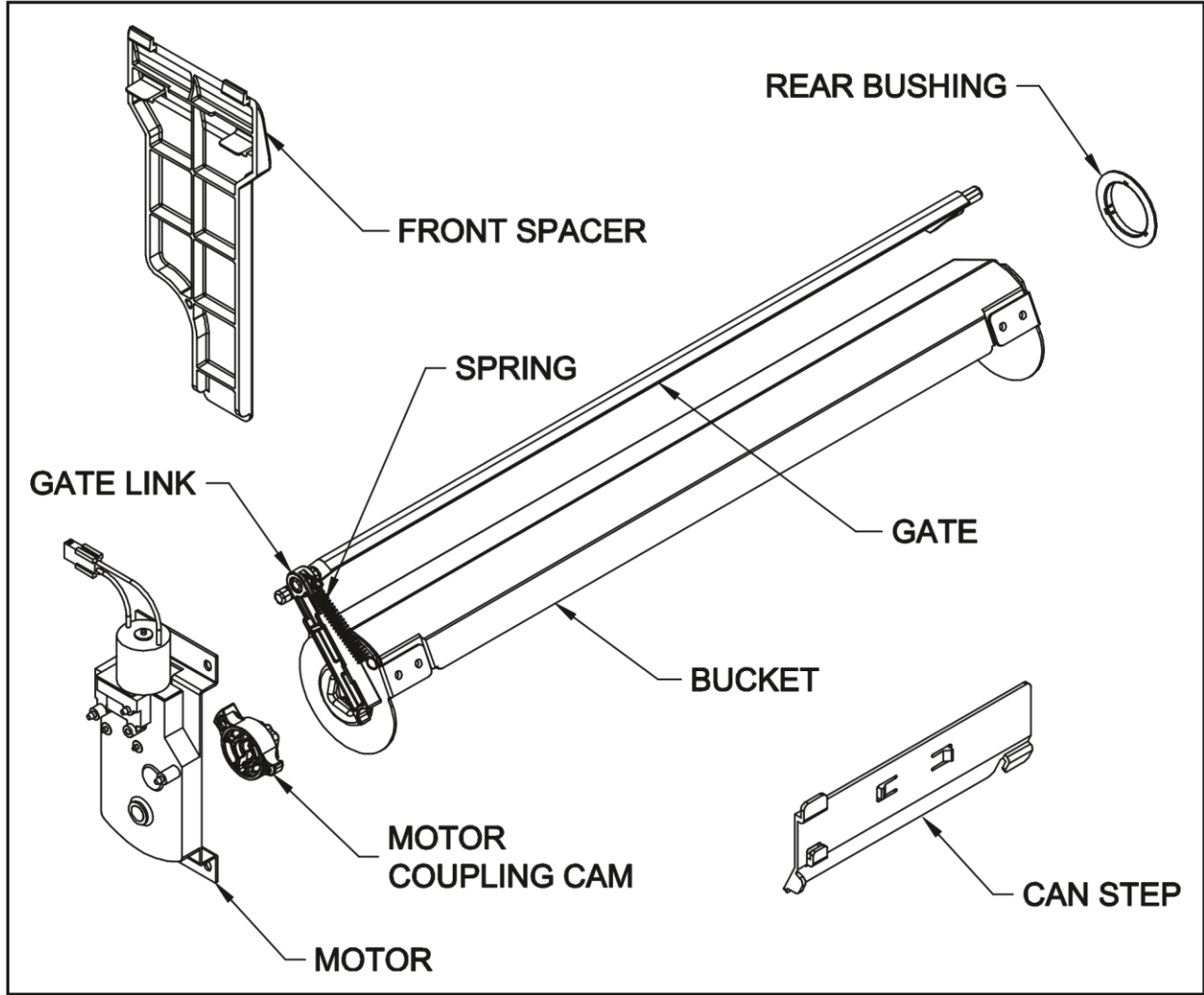
FIGURE 7
VEND CYCLE

Several operations take place during the vend cycle: When a selection is made, the coupler and bucket rotate, product is dispensed and the bucket is then reloaded. The sequence of these operations change slightly when the column's depth setting is changed. With the single depth setting, one purchase is made and the bucket is reloaded. With the double depth setting, two purchases are made before the bucket is reloaded. With the triple depth setting, three purchases are made before the bucket is reloaded. With the quadruple depth setting, four purchases are made before the bucket is reloaded. (See Figures 8 & 9)
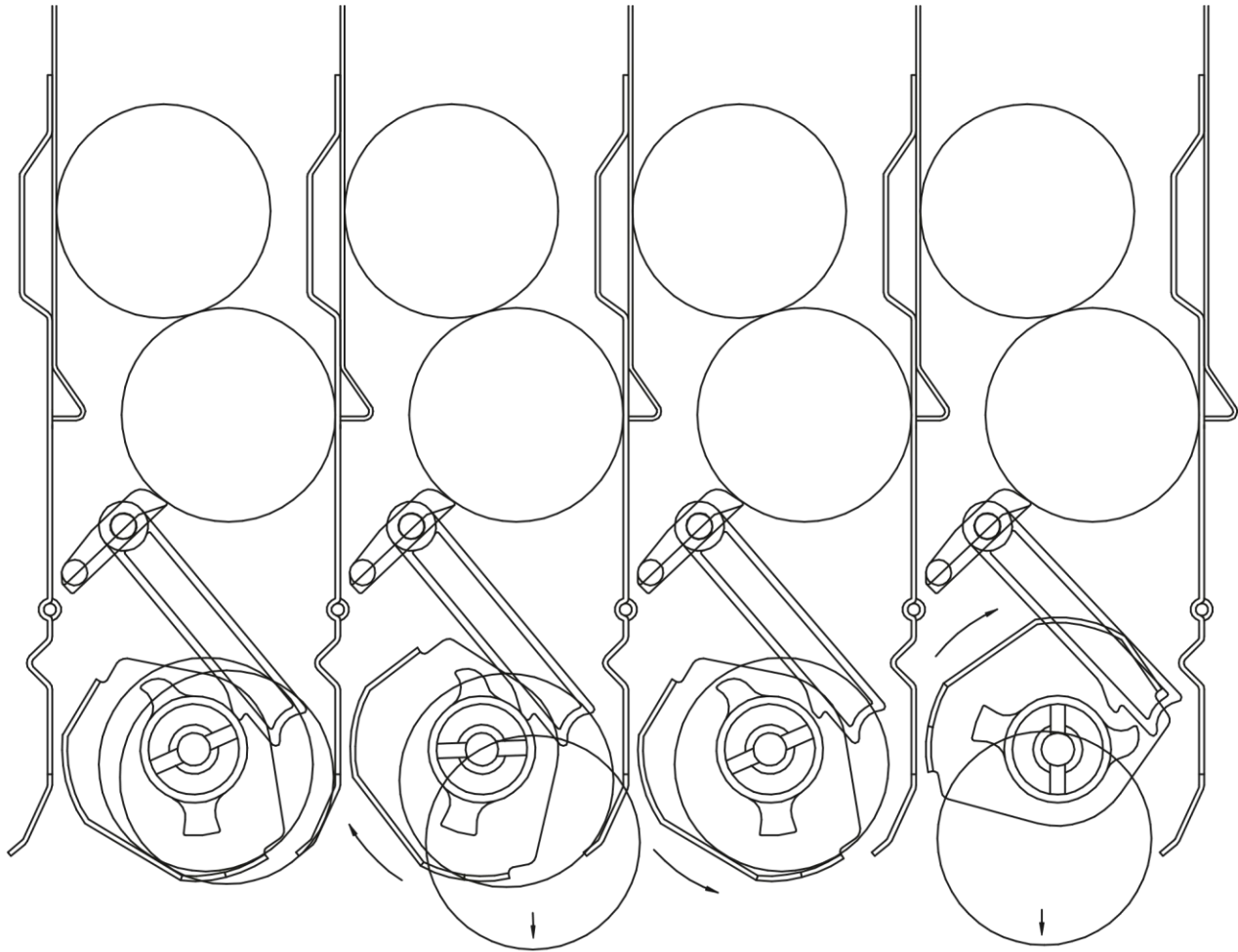
STANDBY POSITION
BUCKET LOADED

BUCKET ROTATES
CLOCKWISE
FIRST PRODUCT VENDS
BUCKETS STOPS

BUCKET RETURNS
TO STANDBY
POSITION

LAST PRODUCT VENDS
BUCKET CONTINUES
TO MAXIMUM
CLOCKWISE
ROTATION STOP

VEND SEQUENCE (DOUBLE DEPTH)

FIGURE 8
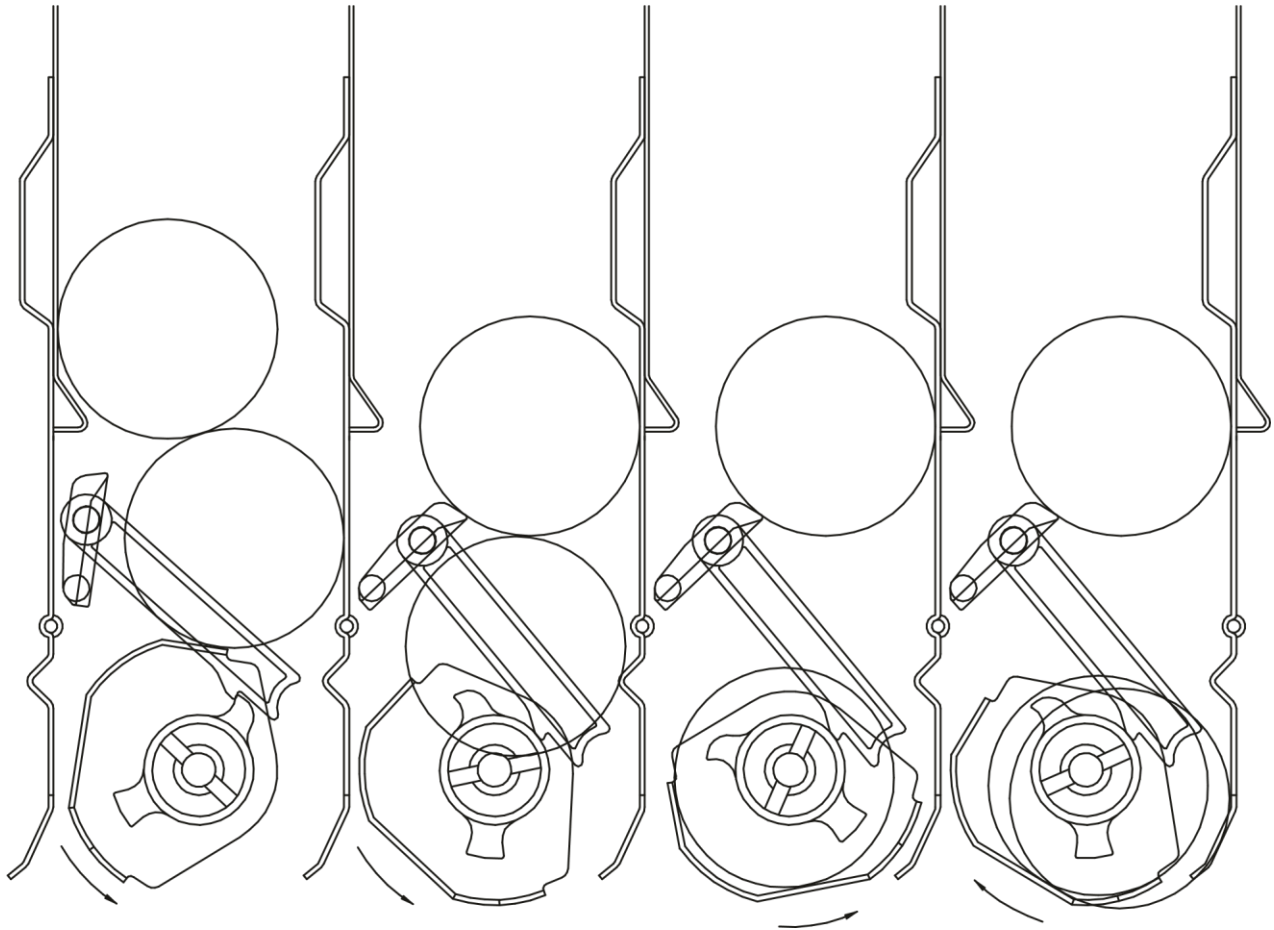
| BUCKET ROTATES COUNTERCLOCKWISE CAM PUSHES LINK LINK OPENS GATE | BUCKET CONTINUES COUNTERCLOCKWISE GATE CLOSES AS PRODUCT LOWERS INTO BUCKET | BUCKET REACHES MAXIMUM COUNTERCLOCKWISE ROTATION STOP | BUCKET ROTATES CLOCKWISE UNTIL IT REACHES STANDBY POSITION |

RELOAD SEQUENCE

FIGURE 9 NOTES

12.1 PROGRAMMING SECTION

All programming of the V21 is done in the service mode as indicated in the following steps below. The main service modes are indicated in white text and the sub-modes are indicated in black text.

Example: **Time/Date**

Setting Mode Year

Setting

Month Setting

Date Setting

Hour Setting

Daylight Saving Time

THREE-BUTTON PROGRAMMING

All programming of the V21 control board is done in the service mode. To enter the service mode open the vendor door, find the service mode button located on the control board, then press and release the service mode button. To scroll though all the service modes, use selection button one.

The first three selection buttons are used to navigate through the programming as follows:

Button	Description	Usage
Selection Button 1	Up/Down	Increase/Decrease, Next/Previous
Selection Button 2	Enter	Go to sub-level, activate function
Selection Button 3	Exit	Return to previous level, exit, save

FIGURE 1

The controller will automatically return to the Open-Door Sales Mode if:
1. No information from the selection switches is received within approximately 30 seconds.
2. The service mode button is pressed a second time.
3. The (Exit) button is pressed.

When the programming is entered, any established credit is returned. When and if the door is closed, the controller will exit the service mode and return to the sales mode.

MIS Data

As soon as the outer door is opened, the non-resettable MIS data will be displayed if no errors exist. "**C8n⁵** XXX" will flash for approximately 30 seconds, indicating the total number of units the machine has sold. After 30 seconds, "**C8⁵˪** XX.XX" will begin to scroll, indicating the total dollar amount the machine has accumulated. **NOTE:** Pressing selection button one will eliminate the 30-second wait time and advance you immediately to the "CASh XX.XX" scroll.

To access MIS data by individual selection, press selection button two during the "**C8n⁵** XXXX" or "**C8⁵˪** XX.XX" scroll. Use selection button one to advance forward or backward through the selections. Please see page PG-7 to choose between count by selection or count by price.

NOTE: The MIS data that is displayed when the outer door is opened ("**C8n⁵** XXXX" and "**C8⁵˪** XX.XX") is non-resettable. This data is accumulated over the life of the control board and can only be changed by replacing the control board.

SET-UP AND CODE DESCRIPTION

Eror   **Error Display Mode**

If selection button two is pressed at the "**Eror**" prompt, the controller will enter the Error Display Mode. If no errors have occurred, the display will show "**nonE**". If an error has been detected since the last error reset, the display will show the first error summary code that has occurred. If selection button three is pressed while displaying any summary code, the controller will return to the "**Eror**" prompt.

Note: See the Trouble Shooting section for errors and how to clear them.

EXAMPLE: "**CJ01**" *would indicate a column jam error in column 1.*

COin   **Coin Pay Out/Tube Fill Mode**

If selection button two is pressed at the "**COin**" prompt, the controller will enter the Coin Pay Out Mode. Pressing selection one will scroll through the denominations and pressing selection button two will start the denomination flashing. The display will indicate the denomination along with the number of that coin stored in the coin mechanism. If selection button two is pressed, a pay out of the displayed value will be made. Coins will continue to pay out as long as that selection button is held down.

EXAMPLE: *If selection button two is pressed while 5 cents is displayed it will pay out a nickel.*

When the controller enters the "**COin**" mode, the operator is allowed to deposit any coin into the coin changer's acceptor when that coin's tube is not full. The tube inventory level will be displayed after each coin is accepted.
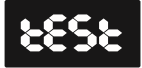
tESt   **Test Mode**

If selection button two is pressed at the "**tESt**" prompt, the controller will enter the Test Mode where you are able to test the motors, the display, the compressor, the lights, the evaporator fans and the heater.

UEnd   **Vend Testing**

Pressing selection button two at the test mode will enter the controller into the vend test mode. Upon entry into the vend test mode the display will show the first summary test, "**COU**" (column 1). Pressing selection button one will scroll through the column selections. Pressing selection button two will test vend the displayed column. In order to exit the setting, press selection button three.
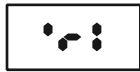
| `'r!` | `ノノ⌐` | **Jogging the Column** |

Pressing selection button two at the "**ノoC**" mode, will enter into the Jog test mode. Upon entry into the Jog test mode the display will show the first summary test, "**COし!**" (column 1). Pressing selection button one will scroll through the column selections. Pressing selection button two will access **Foⲅ** (forward) or **⌐Ⴞし** (reverse). Pressing selection button two again will move the motor in the desired direction. To exit the setting, press selection button three.

| `d:SP` | **Display Testing** |

Pressing selection button one at the Jog test mode will advance the controller to the Display test mode. Upon entry into the Display test mode the display will flash a series of lines and dashes if all characters in the display are operational. To exit the setting, press selection button three.

| `⌐ℰし4` | **Relay Testing** |

Pressing selection button one at the display test mode will advance the controller into the Relay test mode which allows the user to test the lights, compressor, evaporator fans or the heater. Upon entry into the rely test mode the display will read "**cⲅPC**" for the compressor test. To scroll through the components for testing, press selection button one. To activate the component, press selection button two and the '**C**' will begin to flash. Use selection button one to toggle between "**C**" (deactivate) and "" (activate). Pressing selection button two will activate the component if the display reads " 1". To exit the setting, press selection button three.

– Compressor test   `CⲅPC/`

– Light test   `Lit0/`

– Evaporator fan test   `FRⲅ0/`

– Heater testing   `Htⲅ0/`

| `cRSh` | **MIS Data – Cash Mode** |

If selection button two is pressed at the "**CRSℎ**" prompt, the display will show the nonresettable historical amount of money accepted by the machine. If selection button one is pressed, the display will show "**ξι** "(selection one) and the amount received for selection button one. Continue pressing selection button one to scroll through all of the selections. To exit the setting, press selection button three.

MIS Data – Sales Mode

If selection button two is pressed at the "**ξRしξ**" prompt, the display will show the non-resettable historical amount of units sold by the machine. If selection button one is pressed,

`F1` the display will show "`SL`" (selection one) and the units sold for selection button one. Continue pressing selection button one to scroll through all of the selections. To exit the setting, press selection button three.

`COSt` **Cost Setting Mode**

The purpose of this mode is to enable the controller to set the vend price for each of the selections. If selection button two is pressed at the "`COSt`" prompt, the display will indicate "`SL`".

Pressing selection button one will scroll through all of the selections or "`ALL`" to have all the vend prices set at the same price. Pressing selection button two will enter into the displayed selection button. Pressing selection button one will change the displayed vend price. Pressing selection button two again will save the price and selection button three will exit the mode.

`dCtr` **Discount Counter** (Only shows when discounts are used)

The discount counter allows you to access the sales and cash data for vends that have been discounted. Press selection button #2 when the display reads `dCtr`. The display will change to read `CASh`. Press selection button #2 when the display reads `CASh`. The display will change to read and XXXX.XX, where XXXX.XX is the value of all discounts towards paid sales. This total is non-resettable and begins when the discount feature is enabled. Pressing selection button #1 will scroll through all of the selection buttons and display the value of the discounts toward product sales. The amounts for the individual selections can be reset using the rules in the `oPtS` mode. To exit this mode, press selection button #3. The display will return to `CASh`. To advance to the sales information, press selection button #1. The display `CASh` will change to `SALE`. Press selection button #2 to access this information. The total number of discounted sales will be displayed. This total is non-resettable and begins when the discount feature is enabled. Pressing selection button #1 will scroll through all of the selection buttons and display each selection's number of discounted sales. The amounts for the individual selections can be reset using the rules in the `oPtS` mode.

`FCtr` **Free Counter** (Only show if free vends during closed-door sales mode have been made)

The free counter allows you to access the sales and cash data (loss) for vends that have been free. Press selection button #2 when the display reads `FCtr`. The display will change to read XXXX.XX, where XXXX.XX is the value of all lost money based on the price value setting. This total is non-resettable and begins when the free vend override feature is enabled. Pressing selection button #1 will change to the second screen. The display will change to read `SALE` XXX.XX. It will display the total number of free vends that have occurred. This total is nonresettable and begins when the free vend override feature is enabled. Press selection button #3 to exit the mode.

Depth Setting Mode

The purpose of this mode is to enable the controller to set the vending depth for each column. If selection button two is pressed at the "**dSEt**" prompt, the display will indicate "**O** ". Pressing selection button one will scroll through all of the columns. Pressing selection button two will enter into the displayed column. Pressing selection button one again will change the displayed depth settings from 1-4. Pressing selection button two will save the depth setting and selection button three will exit the mode.

Option Mode

If selection button two is pressed at the "**OPtS**" prompt, the controller will enter the Option mode. The purpose of this mode is to allow the controller to select the configuration options desired.

Display	Description	Meaning
FS	Force Select	Force select enabled (y) or disabled (n)
bE	Bill Escrow	Bill Escrow enabled (y) or disabled (n)
SE	Error/Sold Out Indicator	Error/Sold Out indicator "**o**" enabled (y) or disabled (n)
SP	Single Price	Single Price enabled (y)/Multi-Price enabled (n)
ct	Count by Price/Count by Selection	y = count by price n = count by selection
cc	Correct Change Light	Correct Change Light enabled (y)/Correct Change Light disabled (n)
OP	Allow Overpay	Allow overpay enabled (y)/Allow overpay disabled (n)
Sc	Save Credit	Credit will remain for 5 minutes (y)/ Credit will remain indefinitely (n)
nu	Multi Vend	Multi vend enabled, single vend disabled (y)/ Single vend enabled, multi vend disabled (n)
dL	Learning Mode*	Learning mode enabled (y)/Learning mode disabled (n)*
AR	Auto MIS reset	MIS data will reset with DEX read (y)/MIS data will not reset with DEX read (n)

F1 **FIGURE 2**

* The learning mode uses self • adaptive logic to "learn" what the depth setting of the column is, in the event that the control board depth setting isn't programmed properly.

Space-to-Sales Setting Mode

If selection button two is pressed at the " ⁻ StS " prompt, the controller will enter the Spaceto-Sales option. Upon entry into this setting the display will show the current option setting. Pressing selection button one will scroll through the various space to sales options as listed below. Pressing selection button two will change the current option and selection button three will save the desired option. ***For proper configuration settings refer to the label located on the inner door shear panel (See figure 3)***

SPACE-TO-SALES CONFIGURATIONS

SEL#	ST10 COL	STS9 COL	STS8 COL	STS7 COL	STS6 COL	STS5 COL	STS4 COL	STS3 COL	STS2 COL	STS1 COL
1	1	1,2	1	1	1,2,3	1,2	1	1,2	ALL	NONE
2	2	1,2	2	2	1,2,3	1,2	1	1,2	ALL	NONE
3	3	3	3	3	1,2,3	3	2	3	ALL	NONE
4	4	4	4	4	4	4	2	4	ALL	NONE
5	5	5	5	5	5	5	3	5	ALL	NONE
6	6	6	6	6	6	6	4	6	ALL	NONE
7	7	7	7	7	7	7	5	7	ALL	NONE
8	8	8	8	~	8	8	6	8	ALL	NONE
9	9	9	~	~	9	~	7	9	ALL	NONE
10	10	10	~	~	10	~	8	9	ALL	NONE
11*	~	~	~	~	~	~	9	10	ALL	NONE
12*	~	~	~	~	~	~	10	10	ALL	NONE

FIGURE 3 * Where available

Note: If none of the space-to-sales configurations are suitable, the operator can use the Custom Space-to-Sales Setting Mode.

Custom Space-to-Sales Setting mode

If selection button two is pressed at the "CStS" prompt, the controller will enter the Custom Space-to-Sales option. Upon entry into this setting the display will show the current selection setting followed by the columns connected to that selection button.

Programming Connection Option

If selection button two is pressed while "St " is displayed, the display will change to

"CO ".   Pressing selection button one will increase or decrease the column number displayed. Pressing selection • button two will actuate the changed connection status of the column number displayed. If the column number is flashing it is assigned to the selection that was entered. If the column number is steady, it is not assigned to the selection button.

To exit this mode, press selection button three.

Closed Door Data Retrieval Mode

If selection button two is pressed at the "**Cddr**" prompt, the controller will enter the Closed Door Data Retrieval Mode by displaying " " where "**XXXX**" is the password. Pressing selection button number one while the digits are flashing will change the current password. The available digits are 0-6. (**See note below**.) Pressing selection button two will save the change and advance to the next digit. In order to save the password and exit the mode, press selection button two while the last/fourth digit is flashing.

Note: If one of the digits in the password is "0" this feature will be disabled since selection button "0" does not exist.

Note: This feature is not available when the vend price is set to "0.00".

Language Mode

If selection button two is pressed at the **LAnG** prompt, the controller will enter the Language Mode by displaying the currently assigned language. The available languages are **–EnG** English, **Frn** – French, **GC** – German, **ItA** – Italian, **Port** – Portuguese, and **ESP** – Spanish. Pressing selection button one will toggle though the language options. If selection button two is pressed, the display will save the language change and return the display to **LAnG**.

Clock Setting Mode

If selection button two is pressed at the "**CLOC**" prompt, the controller will enter the Clock Mode which allows you to set the clock on the control board. This field must be set in order to operate any modes associated with the time. Pressing selection button two while any of the options are displayed will enter you in to the clock setting options. Pressing selection button one will toggle you through the options. Pressing selection button three will exit this mode.

CLOCK SETTING OPTIONS

ᴴᴱᴬʳ	Current Year (Example: 2002)
ᴰᴬᵗᴱ	Current Date (month, day)
Hour	Current Time (hours, minutes)
ᴰˢᵗ	Daylight Savings Time
ᶜᵗˡᶜ	Clock Control

Lighting Control Mode

If selection button two is pressed at the "ᴸⁱᶜᴱ" prompt, the controller will enter the Lighting Control Mode which allows you to have the lights turned off and on during specific time periods to conserve energy. Pressing selection button two while any of the settings are displayed will enter you in to the light control settings. Pressing selection button one will toggle you through the options. Pressing selection button three will exit this mode.

LIGHTING CONTROL SETTINGS	
Enb	Lighting control enabled (1)/disabled (0)
Stri	Start Time – Time lights shut off
ᴰᴬʸ	Days associated with start time
Hour	Hour associated with start time
Endi	End Time – Time lights turn back on
ᴰᴬʸ	Days associated with end time
Hour	Hour associated with end time
Str2	2nd Start time – time lights shut off
ᴰᴬʸ	Days associated with 2nd start time
Hour	Hour associated with 2nd start time
End2	2nd End Time – Time lights turn back on
ᴰᴬʸ	Days associated with 2nd end time
Hour	Hour associated with 2nd end time

Refrigeration Mode

If selection button two is pressed at the ʳᶠʳᶜ prompt, the controller will enter the Refrigeration Control Mode by displaying " ˢᴱᵗᴾ for set point temperature. Pressing selection button two again enters the temperature settings from "hhhh"(warmest) to "cccc"(coldest). Pressing selection

04/2005

ᶠᵒʳⁱ

SET-UP AND CODE
(CONTINUED)

button one will toggle through the settings. If selection button two is pressed, the display will return to "𝟛𝟪𝚝𝙿". Pressing • selection button one will change the display to "𝚝𝙽𝙿" for temperature. To view the temperature, press selection button two. To change the degree scale, press selection button two when the display reads " " for Fahrenheit or Celsius. To change the current degree scale, press selection button one to scroll between F and C.

Pressing selection button two will return the display to "   ".

Note: The displayed thermostat setting and the actual temperature sensor reading for refrigeration control are listed below in Figure 4:

Thermostat Setting Displayed	cccc	ccc	cc	c	norn	h	hh	hhh	hhhh
Cut-in Temperature (F)	34º	35º	36º	37º	38º	39º	40º	41º	42º
Cut-out Temperature (F)	30º	31º	32º	33º	34º	35º	36º	37º	38º
Nominal Temperature (F)	32º	33º	34º	35º	36º	37º	38º	39º	40º
Nominal Temperature (C)	0	0.6	1.1	1.7	2.2	2.8	3.3	3.9	4.4

FIGURE 4

There are two submodes within the refrigeration mode that can be activated to achieve energy conservation

The first submode, FAn , refers to an optional evaporator fan relay. When X =
   0 - the fan mode is disabled and the evaporator will turn on/off with the activation of the compressor
   1 - (Fan Mode 1) the evaporator fan will turn off 5 minutes after the compressor fan is turned off

The second submode, dEF , refers to the Periodic Defrost mode. If X =
   0 - the periodic defrost mode is disabled
   1 - the machine will defrost every 6 hours for 30 minutes - used in high humidity environments .

Within the refrigeration mode, there is also a refrigeration conservation mode which raises the cabinet temperature 18º F or 10º C during specified periods of time. Pressing selection button two while any of the settings are displayed will enter you in to the refrigeration control settings. Pressing selection button one will toggle you through the options. Pressing selection button three will exit this mode.

REFRIGERATION CONTROL SETTINGS	
Enb	Refrigeration control enabled (1)/disabled (0)
Stri	Start Time – Time temperature rises 18°F/10°C
dAy	Days associated with start time
Hour	Hour associated with start time

13

Endː	End Time – Time temperature returns
dAY	Days associated with end time
Hour	Hour associated with end time
Str2	2nd Start time – Time temperature rises 18°F/10°C
dAY	Days associated with 2nd start time
Hour	Hour associated with 2nd start time
End2	2nd End Time – Time temperature returns
dAY	Days associated with 2nd end time
Hour	Hour associated with 2nd end time

mno tuc uuc Thu Fri SAt Sun Aːː

"" – Monday " – Tuesday "" – Wednesday "" – Thursday " " – Friday "" – Saturday "" – Sunday "" – All Days

bLO   Block Selection Setting

This feature is used to choose a group of selections and the time when those selections will be blocked from vending product. If selection button two is pressed at the " " or " " prompt, the controller will enter the Selection Blocking Control Mode. Upon entry into this program, the display will show the first sub-mode " " or " " depending on which blocking mode you are using. Using selection button one will let the operator toggle between the following modes:

BLOCK SELECTION OPTIONS	
Ctlː	Controls blocking option
Sbtː	Set selection buttons – (y) assigned/(n) not assigned
Strː	Set time for machine to turn off
dAY	Set days for blocking to start
hour	Set hours for blocking to start
StPː	Set time for machine to turn back on
dAY	Set days for blocking to stop
hour	Set hours for blocking to stop

d:SC **Discount Setting Mode**

This feature is used to choose a group of selections that will be discounted, the amount of discount, and the time when the discount will occur. If selection button two is pressed at the "**d:SC**" prompt, the controller will enter the Discount Setting Mode. Upon entry into this program the display will show "**Ctl** selection button one is pressed it will toggle through the discount setting mode as listed below. Pressing selection button three will save the settings and return to the " " mode.**d:SC**

DISCOUNT SETTING OPTIONS	
Ctl **SdSC** **Strt** **dAY** **Hour**	Turns the discount setting On/Off Set selection buttons – (y) assigned/(n) not assigned Set time for discounting to begin Set days to discount Set time for discounting to begin
StoP **dAY** **Hour** **LESS**	Set time for discounting to stop Set days for discounting to stop Set time to start (24 hours) Set discount amount

OUEr **Over-Ride Mode (Units equipped with optional key switch)**

This feature is used to allow you to manually over-ride (via a key switch) pricing, blocking, low energy operation and discounting. If selection button two is pressed at the "**OUEr**" prompt, the controller will enter the Over-Ride Mode. Upon entry into this program the display will show "**FrEn**". If selection button one is pressed it will cycle through the override setting options as listed below. Pressing selection button three will save the currently displayed setting and return the operator to the "**OUE**" prompt.

OVER-RIDE SETTING OPTIONS	
FrEn **bLCn** **Litn** **rfGn** **dScn**	Enable/Disable free vend (Edit mode Y/N) Selection blocking over-ride Lighting over-ride Refrigeration over-ride Discounting over-ride

FrEn **Over-Ride Free Vend**

If selection button two is pressed at the "**FrEn**" prompt, the controller will enter the Free Vend Enable Option. Upon entry into this program the display will show the current setting

04/2005

"ꜰꞤΣᴎ". Press selection button two. Pressing selection button one will toggle between "y" for enabled and "n" for disable. Pressing selection button two will save the currently displayed setting. Pressing selection button three will return the operator to the "ꜰꞤΣᴎ" prompt.

"Y" = Enable free vend.
"N" = Disable free vend.

Over-Ride Selection Blocking

If selection button two is pressed at the "ᏏᎥᏟᴎ" prompt, the controller will enter the Selection Blocking Over-Ride Enable Option. Upon entry into this program the display will show the current setting "ᏏᎥᏟᴎ". Press selection button two. Pressing selection button one will toggle between "Y" for enable and "N" for disable. Pressing selection button two will save the currently displayed setting. Pressing selection button three will return the operator to the "ᏏᎥᏟᴎ" prompt.

"Y" = Enable selection blocking.
"N" = Disable selection blocking

Over-Ride Lighting

If selection button two is pressed at the "ᏞᎥᏔᴎ" prompt, the controller will enter the Lighting Over-Ride Option. Upon entry into this program the display will show the current setting "ᏞᎥᏔy" for enable and "ᏞᎥᏔᴎ" for disable. Pressing selection button one will toggle between "y" for enabled and "n" for disable. Pressing selection button two will save the currently displayed setting. Pressing selection button three will return the operator to the "ᏞᎥᏔᴎ" prompt.

"Y" = Enable Over-Ride Lighting blocking.
"N" = Disable Over-Ride Lighting blocking

Over-Ride Refrigeration

If selection button two is pressed at the "ꞤꜰᏟᴎ" prompt, the controller will enter the Refrigeration Over-Ride Option. Upon entry into this program the display will show the current setting "ꞤꜰᏟy" for enable and "ꞤꜰᏟᴎ" for disable. Pressing selection button one will toggle between "y" for enabled and "n" for disable. Pressing selection button two will save

the currently displayed setting. Pressing selection button three will return the operator to the "**˞ᵉᶜ˄**" prompt.

"Y" = Enable refrigeration over-ride.
"N" = Disable refrigeration over-ride.

dScn   **Over-Ride Discount**

If selection button two is pressed at the " " prompt, the controller will enter the Discounting Over-Ride Enable Option. Upon entry into this program the display will show the current setting "**ᵧScᵞ**" for enable and " " for disable. Pressing selection button one will toggle between "y" for enabled and "n" for disable. Pressing selection button three will save the currently displayed setting and return the operator to the "**dScn**" prompt.

"Y" = Enable discount over-ride.
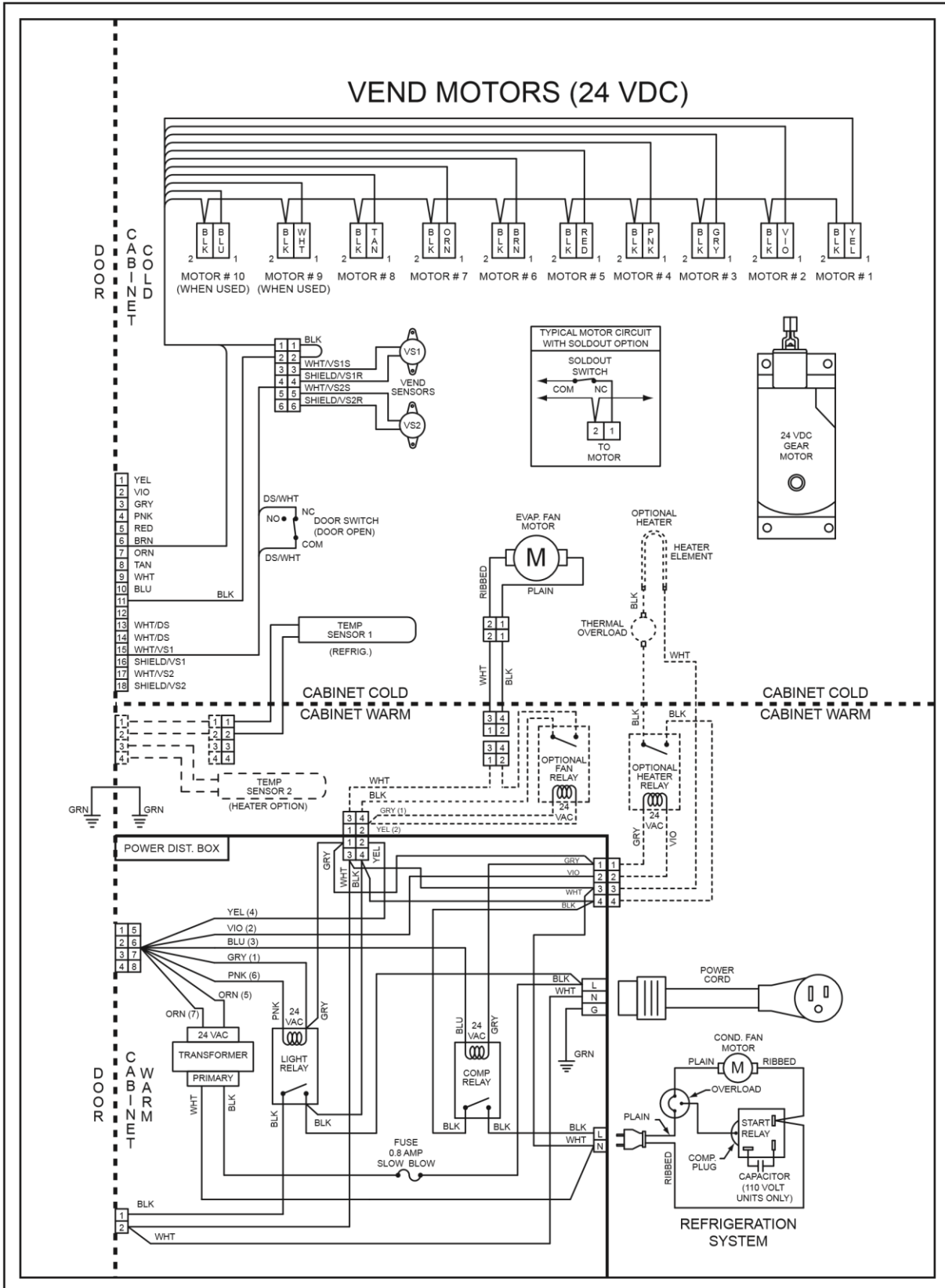"N" = Disable discount over-ride.

04/2005

04/2005

Vendo®

VEND MOTORS (24 VDC)

BLK	BLU	BLK	WHT	BLK	TAN	BLK	ORN	BLK	BRN	BLK	RED	BLK	PNK	BLK	GRY	BLK	VIO	BLK	YEL
2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1

MOTOR # 10 (WHEN USED) MOTOR # 9 (WHEN USED) MOTOR # 8 MOTOR # 7 MOTOR # 6 MOTOR # 5 MOTOR # 4 MOTOR # 3 MOTOR # 2 MOTOR # 1

DOOR

CABINET COLD

1 1 BLK
2 2 WHT/VS1S
3 3 SHIELD/VS1R
4 4 WHT/VS2S
5 5
6 6 SHIELD/VS2R

VS1

VS2

VEND SENSORS

TYPICAL MOTOR CIRCUIT
WITH SOLDOUT OPTION

SOLDOUT SWITCH

COM   NC

2 1
TO MOTOR

24 VDC GEAR MOTOR

1 YEL
2 VIO
3 GRY
4 PNK
5 RED
6 BRN
7 ORN
8 TAN
9 WHT
10 BLU
11
12
13 WHT/DS
14 WHT/DS
15 WHT/VS1
16 SHIELD/VS1
17 WHT/VS2
18 SHIELD/VS2

BLK

DS/WHT

NC

NO   DOOR SWITCH
(DOOR OPEN)

COM

DS/WHT

TEMP SENSOR 1
(REFRIG.)

EVAP. FAN MOTOR

M

RIBBED   PLAIN

OPTIONAL HEATER

HEATER ELEMENT

THERMAL OVERLOAD

BLK

WHT

WHT   BLK

CABINET COLD
CABINET WARM

CABINET COLD
CABINET WARM

1 1
2 2
3 3
4 4

TEMP SENSOR 2
(HEATER OPTION)

GRN   GRN

WHT
BLK
GRY (1)
YEL (2)

3 4
1 2

OPTIONAL FAN RELAY

24 VAC

BLK   BLK

OPTIONAL HEATER RELAY

24 VAC

GRY   VIO

POWER DIST. BOX

GRY
WHT
BLK

3 4
1 2

YEL

GRY
VIO
WHT
BLK

1 2
2 2
3 3
4 4

YEL (4)
VIO (2)
BLU (3)
GRY (1)
PNK (6)
ORN (5)

1 5
2 6
3 7
4 8

ORN (7)

24 VAC
TRANSFORMER
PRIMARY

WHT   BLK

PNK   24 VAC   GRY

LIGHT RELAY

BLK   BLK

BLU   24 VAC   GRY

COMP RELAY

BLK   BLK

GRN

BLK
WHT

L
N
G

POWER CORD

COND. FAN MOTOR

PLAIN   M   RIBBED

OVERLOAD

PLAIN

COMP. PLUG

RIBBED

START RELAY

CAPACITOR
(110 VOLT UNITS ONLY)

FUSE
0.8 AMP
SLOW BLOW

BLK
WHT

L
N

REFRIGERATION SYSTEM

DOOR

CABINET WARM

1
2

BLK

WHT

19

Vendo®

1. If the outer door is left open for over an hour, the lights, and compressor will become active. In order to over-ride this option, press the door switch one time.

Vendo®

V21

TROUBLESHOOTING SECTION

THE VENDO COMPANY
NEW EQUIPMENT WARRANTY
V-MAX & V21 VENDING MACHINES
Distributor North America/ Canada

I.   This warranty benefits each current owner of a V-Max or V21 vending machine, whether that owner is the original purchaser or a transferee.

II.   The Vendo Company warrants each part of each new vending machine for a period of fifteen (15) months from the date of shipment, to be free from defects in material and workmanship. This Warranty DOES NOT include light bulbs, fluorescent tubes, fuses, finish or operating supplies.

III.   The hermetically-sealed refrigeration system used in machines designed to vend bottles, cans, and aseptic cartons is warranted to be free from defects in materials and workmanship for six (6) years, provided the hermetically-sealed portion of the system has not been opened or damaged. This six (6) year warranty DOES NOT include fan motors, temperature controls, capacitors, overload switches or starting relays.

IV.   Electronic control boards, LED displays and Vend motors, are warranted against defects in material and workmanship for five (5) years.

V.   Return authorization is required to qualify for warranty replacement. All requests for returns must be in writing or via phone, within the warranty period, and accompanied by a record of the cabinet model and serial number of the machine. Freight carrier return tickets will only be issued to the machine owner for refrigeration system returns. This warranty is voided when the serial number of a machine is missing. If a return is found to be inoperative due to defects in material and/or workmanship, we will, at our option, make necessary repairs or furnish a reconditioned or new replacement part or refrigeration system at no charge.

VI.   "Return Material Tags" indicating cabinet model, machine serial number and explanation of defect must accompany all returned parts or machines. "Return Material Tags" will be furnished upon request. On-site

inspection of defective parts, at The Vendo Company's option, may be used to facilitate credit approval or the replacement of parts.

VII. The Vendo Company will pay normal transportation charges on refrigeration systems and parts replaced under this warranty. If special handling or premium transportation is requested, those charges will be assumed by the machine owner.

VIII. Any parts and/or refrigeration systems replaced during the warranty period are warranted for the remaining time on the original warranty

IX. This warranty DOES NOT apply to machines located outside the United States and Canada, reconditioned equipment, equipment sold "as is", or components designed to work on electric currents other than 110v/120hz 60 cycle or 208v/220hz 50 cycle, as specified on the serial tag.

X. Title and risk of loss pass to the machine owner on delivery of the vending machine, replacement parts and/or refrigeration system to the common carrier. All loss and damage claims are the responsibility of the machine owner and must be filed with the delivering carrier.

XI. This warranty DOES NOT include any service guarantee, either explicit or implied, nor will it extend to cover incidental or consequential damages resulting from purchaser or third party negligence, accident, vandalism, or an act of God.

XII. The Vendo Company reserves the right to make design changes, additions to, and improvements upon any of our product without incurring any obligation to incorporate same on any product previously manufactured.

XIII. This warranty is in lieu of all other express warranties or other obligations or liabilities on our part, and we neither assume nor authorize any person to assume for us, any other obligation for liability in connection with the sale of said machines or parts thereof. EXCEPT AS SPECIFICALLY PROVIDED HEREIN, THERE ARE NO WARRANTIES GIVEN, EITHER EXPRESS OR IMPLIED, AND ALL OTHER WARRANTIES, INCLUDING SPECIFICALLY BUT WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY AND FITNESS FOR PARTICULAR PURPOSE, ARE HEREBY EXPRESSLY DISCLAIMED.

PARTS RETURN PROCEDURES

1. All parts returned must be accompanied by a material return tags (P/N 1122825) Tag must clearly state the reason for the return and the Return Goods Authorization Number received from your Vendo Customer Service Rep at 1-800-344-7216. (Return tags are available from our parts department upon request).

2. All parts should be properly wrapped and packed securely to avoid further damage.

3. To replace an inoperative part, please use the following instructions

4. Complete the return tag making sure to fill in ALL requested information to ensure prompt processing. Keep top (white) copy for your records. Attach tag to inoperative part and send it by the most inexpensive method of transportation (Federal Express Ground or Overnight Transportation) **To: THE VENDO COMPANY, 4015 EAST RAINES ROAD, MEMPHIS, TENNESSEE 38118.**

5. Be sure to check (☑) the box marked "credit" <u>and</u> to fill in the invoice number covering the part sent to you or check the box marked "replace with like part".

6. If the box is marked for replace with like part, a like part will be shipped at no charge if our inspection shows that the inoperative part became defective during the warranty period.

7. If the box is marked for credit, a credit will be issued to cancel the invoice on which the replacement part was shipped. This credit will include any applicable prepaid transportation charges. To receive credit the inoperative part must be returned within 30 days from the date the replacement was shipped.

8. Vendo does not issue cash credit for the return of any part or accessory.

REFRIGERATION UNIT RETURN PROCEDURE

1. All refrigeration units returned must be accompanied by a material return tag (P/N 1122826). Tag must clearly state the reason for the return and the Return Goods Authorization Number received from your Vendo Customer Service Rep at 1-800-344-7216. (Return tags are available from our parts department upon request).

2. All refrigeration units should be properly wrapped and packed securely to avoid further damage.

3. To replace an inoperative part, please use the following instructions.

4. Complete the return tag making sure to fill in ALL requested information to ensure prompt processing. Keep top (white) copy for your records. Attach tag to inoperative part and send it by the most inexpensive method of transportation (Federal Express Ground or Overnight Transportation)   **To**: **THE VENDO COMPANY 7209 N. INGRAM AVE. FRESNO, CA. 93650**

5. Be sure to check (☑) the box marked "credit" <u>and</u> to fill in the invoice number covering the part sent to you or check the box marked "replace with like part".

6. If the box is marked for replace with like part, a like part will be shipped at no charge if our inspection shows that the inoperative part became defective during the warranty period.

7. If the box is marked for credit, a credit will be issued to cancel the invoice on which the replacement part was shipped. This credit will include any applicable prepaid transportation charges. To receive credit the inoperative part must be returned within 30 days from the date the replacement was shipped.

8. Vendo does not issue cash credit for the return of any refrigeration unit.

   *Canadian and International customers please contact your Customer Service Representative for return instructions

Trouble Shooting Guide

The V21 vendor provides self-diagnostics to aid you in the trouble shooting process. Error codes are stored in the controller's memory when a system error is sensed. These codes can be accessed by following the procedure listed below.

The trouble shooting guide below contains information on how to solve problems with the 1) Vend system; 2) Refrigeration system; 3) Peripherals; 4) Selection switches; and 5) Miscellaneous problems. The guide is divided into subsections with these headers. 1. When the door is opened, the machine goes into "Door Open Data Retrieval" mode. 2. If there are any error states, the display will show "Eror". If there are no recorded   errors, the display will show "none".

3. If "Eror" is displayed, press selection button two to enter the error diagnostics.

4. Pressing selection button one will scroll through the summary error codes (see appendix for detailed list).

5. To get greater detail on a particular error code, press selection button two.

6. While displaying a detailed error code, using selection button one (up/down), the controller shall cycle through all of the active detailed errors for the current summary level error code.

7. If selection button two (Enter) is pressed and held for 2 seconds during the display of any detailed error code, that detailed error code will be reset or cleared.

8. After clearing a displayed error code, either the next existing detailed error code, summary level error code, or the "nonE" message will be displayed, respectively. 9. If selection button three (Return) is pressed, the controller shall return to the summary level error code prompt.

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	Corrective Action
Vending Mechanism			
CJnn	Column jam - vend cycle for column "nn" did not start or complete.	Look in column to see if product is jammed against gate or bucket.	Clear jam, complete a test vend cycle.
		Insure can clip is in correct position (reference set-up diagram).	Correct clip position, complete vend test.
		Insure bottles are loaded as shown in the Product Setup and Loading label.	Load bottles correctly.
CSn	Chute sensor error.	No test available.	Replace chute sensor asembly.
Selection Switches			
SSnn	Bad Selection Switch - Selection switch nn is actuated for more than 15 seconds while in the Customer Mode or Door Open Sales Test Mode.	Check the selection switch number shown in the detailed error code "nn" to see if: 1) the button is sticking; 2) the switch is sticking/defective; 3) the harness is wired wrong/shorted.	Try to correct the problem if one of the three items is found. If you can't correct it, then replace the component in question.
Space to Sales			
Ucnn	Column nn is not assigned to a selection.	Access space-to-sales mode and go to custom space-to-sales.	Change space-to-sales setting as required. In some situations, it may be quicker to completely reset all space-to-sales.
		Check all selections for the column shown in the detailed error description (nn).	

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	Corrective Action
Usnn	Selection switch skipped - switch nn unassigned and a higher number switch is assigned.		Switch is assigned.
Coin Changer			
CC	Changer communication error - no changer communication for more than 2 seconds.	1) Check that red light is flashing on control board.	If light is not flashing, there is no power to board. Check and replug any unplugged connections. If fuse is blown replace it. Replace transformer.
		2) Defective acceptor.	Replace acceptor.
TtS	Tube sensor is defective -- reported by changer .	Check changer tubes for blockage.	Clear tube blockage. If no blockage is found, replace changer.

01/2003

IC	Changer inlet chute blocked - no coins sensed for over 96 hours by the changer.	Check inlet chute for blockage. Drop coins to test acceptance. Manually clear the error.	Clear inlet chute blockage. If no blockage found, replace changer. If acceptance rate is acceptable, system is OK. If acceptance rate is low or changer will not accept coins, replace changer.
tJ	Tube pay out jam -- reported by changer.	Check changer tubes and payout for blockage.	Clear blockage, if found. If no blockage is found, replace changer.
CrCH	Changer check sum incorrect -- reported by changer.	Turn power switch off, wait at least five seconds, then turn on. Manually clear the error.	If error does not clear, replace changer/acceptor.
			Replace changer.
EE	Excessive escrow requests -- more than 255 requests since the last coin was sensed.	Check escrow lever and associated mechanisms.	Manually clear the lever and error.
		Close door then reopen. Check to see if error still occurs.	Replace changer/acceptor.
nJ	Coin jam - reported by changer.	Check changer/acceptor for jammed coins or other obstructions.	If no obstructions are apparent, replace changer/acceptor.
LA	Low acceptance rate -- coin acceptance has fallen below 80%.	Check changer/acceptor for obstructions or dirt.	If no obstructions are apparent, and acceptance appears to be OK, this may be an indication of cheating attempts.
		Drop coins to test acceptance.	If no obstructions are apparent and coins do not accept, or acceptance rate is poor, replace changer/acceptor.
diS	Disconnected acceptor -- indicates that an acceptor is unplugged.	Check coin mechanism plugs. Check for faulty harness wiring (see wiring diagram for circuit).	Correct connections.
rout	Coin routing - indicates a coin was routed incorrectly.	Verify changer set-up using manufacturer's recommendations.	If acceptor was set up correctly, replace changer.

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	Corrective Action
Dollar Bill Validator			
bC	Bill validator communications - No bill validator communication for 5 seconds.	If changer or card reader is being used, check for "CC" or "rC" errors.	If there are no "CC" or "rC" errors: 1) Check bill validator harness; 2) Replace bill validator. If there is a "C" or "rC" error: 1) Check control board MDB harness.
		Turn off door switch and wait at least five seconds. Turn on door switch.	
bFUL	Bill validator full - reported by validator (STACKER command).	Insure bill cashbox is empty and that the cashbox is properly closed and in place.	If cashbox appears to be OK, replace bill validator.
biLL	Bill validator motor is reported as defective by validator.	No test available.	Replace bill validator.

bJ	Bill jammed -- reported by validator.	Check bill validator for obstructions or dirt.	If no obstructions are apparent, replace bill validator.
brCH	Bill validator check sum is incorrect.	Turn power switch off. Wait at least five seconds. Turn power switch on. Manually clear the error.	If error does not clear, replace bill validator.
bOPn	Bill validator is open.	Check that bill cashbox is closed and in correct position.	If cashbox appears to be OK, replace bill validator.
bS	Bill validator sensor is not functioning.	Check bill validator for obstructions or dirt.	If no obstructions are apparent, replace bill validator.
Card Reader			
CrC	There is no card reader communication for 5 seconds.	If card reader/bill acceptor is being used, check for "rC' or "bC" errors.	If there is no "rC" or "bC" error: 1) Check changer harness. 2) Replace changer.
		Turn power switch off. Wait at least five seconds. Turn power switch on.	If there is a "rC" or "bC" error: 3) Check control board MDB harness.
CrXY	Most recent "non-transient error" from the card reader.	No test available.	Refer to card reader manual for corrective action.
Refrigeration			
SENs	The temperature sensor is defective or unplugged.	Check to see that temperature sensor harness is plugged into door harness at air dam area.	If the sensor is unplugged, replug it.
		Check for temperature sensor connection J7 on control board is plugged in.	
CnPr	System has failed to decrease temperature 1° per hour while the compressor is running.	Access relay mode (refer to programming manual).	Refer to the refrigeration section on the following pages.
		Check refrigeration settings (refer to refrigeration section of programming manual).	Change settings as required.
Htr	Heater system has failed to increase temperature 1° per hour while heater is on.	Heater circuit not properly wired.	Check electrical connections.
		Bad sensor on heater circuit.	Replace sensor.
		Defective heating element.	Replace heating element.
Miscellaneous Problems			
ds	Door has been open for more than one hour.	Check the vendor's door switch to see if it's sticking or miswired.	Replace the door switch, if defective.
Ran	Ram check sum for service mode settings stored in non-volatile memory has been corrupted.	No test available.	If error shows up frequently, replace the control board.
ACLO	AC voltage to the controller is low for more than 30 seconds.	Check for low voltage at the wall outlet at unit start-up.	Contact a qualified electrician.

Error	DESCRIPTION OF ERROR CODE	CHECKING METHOD	Corrective Action
SF	Scaling Factor error - one of the credit peripherals has introduced a scaling factor that is not compatible with the current configuration.	Check the connections of changer harness; make sure changer is plugged in and working.	Make corrections to harness or replace the changer if necessary.
IS	Machine's coin inlet sensor is blocked for more than 1 minute.	Check changer harnessing for cut, pinched or crimped wires.	Replace harnesses or changer.

01/2003

| Ib | 3 successive coins are detected at the inlet but do not make it into the changer in 10 seconds. | Check inlet for blockage. If nothing is found, check changer harnessing for cut, pinched or crimped wires. | Clear blockage or replace harness or changer. |

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Coin Acceptance/Payout (Record all errors for reference if Vendo Technical Service is required)		
Coin mechanism will not accept coins.	No power to control board.	Check to make sure the red LED on the control board is flashing red. If flashing, check MDB harness connections. If connections are good, replace changer.
	Harness from coin mech to board is cut or disconnected.	Use a meter and check each wire for continuity and ground.
	Short in coin mechanism.	Replace coin changer/acceptor.
	Acceptor is dirty or other problem may exist (not tuned).	Clean acceptor or contact your local coin mech dealer.
	Defective control board.	Replace control board.
No acceptance or rejects a percentage of good coins.	Coin return lever pressing down on acceptor's coin plunger.	Make sure changer is mounted correctly and the coin return lever is in the proper position.
	Acceptor is dirty or foreign matter is in the path.	Clean acceptor or contact dealer.
	Coin changer is improperly tuned (if tunable).	Contact manufacturer for tuning.
	Defective control board.	Replace/test control board.
Always accepts coins but gives erratic/no credit.	If NO CREDIT: Defective harness between coin mech and control board (will have "CC" error).	Check harness for cut wires or wrong/bad connections. Test each wire for continuity or test to ground. If found to be defective, replace.
	If ERRATIC OR NO CREDIT: Acceptor or coin mech.	Replace coin mech and test.
	If NO CREDIT: Defective control board.	Replace/test control board.
Changer will not payout coins.	Defective harness between coin mech and control board.	Test vendor's manual coin payout. If vendor won't pay out using the COIN mode or during sales, check harness for cuts, bad continuity or wrong connections. If defective, replace and test.
	Defective coin mech.	Replace coin mech and test.
	Defective controller board.	If coin mech won't payout coins manually in the COIN mode or during the Sales Mode and the above two procedures have failed, replace the control board and test payout both in the COIN mode and during a sale.
	Changer payout buttons are disabled while door is closed or while in Open-Door Sales Mode.	Enter the Service Mode or access the Coin Payout Mode ("COIN").
BILL ACCEPTANCE		
Bill validator will not pull bill in.	No power to validator.	Turn off power switch. Wait for 10 seconds. Turn on power switch and see if bill validator cycles. If not, check validator harnessing or replace the bill validator.
	Acceptance disabled by coin mech (if present), or bad harnessing.	Make sure that the coin mech is plugged in (accepts coins) and that the coin tubes have enough coins to enable bill acceptance.
	Coin mech is not operative.	Make sure that the changer harnessing is correctly connected and has continuity. Repair or replace if necessary.
	Replace validator and test.	If validator accepts, bill validator was defective.

T-7

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Bill validator takes a bill but does not establish credit.	Defective validator harness (credit not getting from validator to control board through the harness).	Make sure that the validator and harnessing is correct for your style of validator and it is plugged in and wired properly.
	Defective validator.	Replace/test validator.
	Defective control board.	Replace/test control board.
Bill validator takes a bill and credits but not erasing credit.	Defective bill validator.	Replace validator and test acceptance and erasure of credit.
	Defective control board.	Replace/test control board for erasure of credit.
	Both vend sensors are defective.	Replace vend sensor.
Validator takes a bill and allows payback of coins without a selection.	Configurations not set properly in control board.	Access vendor configuration mode and check the "Force Vend" setting.
VENDING PROBLEMS		
Multiple vending (not canceling credit).	If multiple vending is from all selections, delivery sensor is cut, improperly grounded, or defective.	Replace sensors and test.
	NOTE: If both sensors are not present or are defective, the V21 will allow up to four products from each column to be vended before the column is determined to be sold out.	Replace sensors and test.
Wrong product vending upon selection.	Depth setting on partition not adjusted correctly.	Move can clip to proper position (refer to loading diagram on machine).
	Mechanical Error.	Check for correct operation of the motor, gate link, bucket and gate.
	Misload by vendor loader.	Ensure that all product within each column is the same.
	Space-to sales not set properly.	Look for StS error. Check or reset space-to-sales.
	Miswired selection.	Check the wiring from the controller to the selection switches. Test selection switches.
No vend upon selection.	Delivery sensor is malfunctioning or a column is jammed or sold out.	Check to see if the delivery chute sensor LED is constantly on. If so, replace vend sensor.
	Defective controller board.	Unplug the sensors connection from the control board. Watch LED. If the sensor LED stays on, replace the defective control board.
Dry Vend (No refund).	Premature vend detection.	Tap on chute and check for a green flashing light on the control board. If no light is flashing or light is constantly on, replace sensors.
Completely sold out.	Check to see if blocking is enabled.	Change time or turn off blocking.
	Check if vend sensor is unplugged.	Plug back in.
	Space to sales has been cleared.	Reinitiate space to sales.
MISCELLANEOUS PROBLEMS		
Display shows sold out	Door switch wired incorrectly or cut/pinched.	Manually press door switch. If lights and fan don't come on, check wiring or replace door switch.

immediately upon pressing selection button of full column (sold out not clearing).	Control board.	If door switch is replaced and still reading sold out, replace control board.
Vendor appears dead; no digital display and no lights.	Defective main harness or secondary power harness to the transformer.	Check transformer.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
No digital display; vendor lights on.	Defective display or display harness.	Check display and display harness. Replace if necessary.
	Check for a flashing red light on control board.	If no light, replace control board.
Vendor scrolls message on display but does not accept money.	Changer out of tune.	See "Tuning Changer".
	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts money but does not credit.	Defective changer.	Replace changer.
	Defective control board.	Replace control board.
Vendor accepts and credits money but does not vend (does not indicate a sold-out).	Defective selection switch	Replace switch
	Defective selection switch harness	Repair or replace harness.
	Defective control board.	Replace control board.
Vendor delivers wrong product.	Vendor loaded wrong.	Correct loading.
	Vendor space-to-sales set wrong.	See "StS".
	Defective control board.	Replace control board.
Flashing 8888's on the LED.	Chips on control board not seated properly.	Seat the chips down properly
	Bad LED connection.	Replace LED and/or harness.
	Defective control board.	Unplug everything from the board except the LED and power in. If the 8888's remain then replace the control board.
	Defective components.	If the 8888's have disappeared from the previous step, then begin plugging in harnesses one at a time. Replace whatever causes the 8888's to reappear. Be sure to power down each time you plug in a harness.
Solid 8888's on the LED.	Defective LED.	Replace LED and/or harness.
	Defective control board.	Replace control board.
Refrigeration		
Refrigeration unit will not run even at the specific temperature	No power or insufficient to refrigeration unit	Check power supply and connection to see if each component gets the specific voltage of power. Replace parts and line if necessary.
	Defective temperature sensor	Replace temperature sensor
	Defective relay	Replace the refrigeration relay
	Defective control board	Replace board
Unit will only run in the compressor test mode.	Defective door switch.	Open and close the door to make sure lights and fan come on. If not, then check the door switch.
	Defective temperature sensor	Follow the same steps detailed above about the temperature sensor.

T-9

(Located under tEST)	Wait the 3 minute delay once the door is closed	Wait to see if unit comes on.
	Defective control board	If unit still does not come on, then replace the control board
Unit will not run even in the compressor test mode. **NOTE: Leave the compressor test mode on in order to check for voltage.	Defective door switch.	Upon opening the door, the lights and condenser fan motors should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
Refrigeration unit runs constantly.	Defective door switch.	Upon opening the door, the lights and compressor should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
	Defective relay	Replace the refrigeration relay
Condenser fan motor doesn't run.	Defective condenser fan motor	Replace the motor
	Bad connection	Check the connection and lines
	Defective relay	Replace the condenser motor relay

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Compressor will not start, condenser fan motor running - unit hot (power to compressor)	Defective overload relay	Replace the overload relay.
	Compressor motor rocked	Replace the refer unit.
	Defective capacitor	Replace the capacitor.
	Defective PTC relay	Replace the PTC relay.
Compressor starts but doesn't run.	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings and capillary	Replace the refrigeration unit.
Compressor runs but cabinet temperature warm.	Defective overload relay	Replace the overload relay.
	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings	Replace the refrigeration unit.
	Defective drainage	Make sure the drain hose is not kinked or clogged.
	Defective temperature sensor	Replace the temperature sensor.
	Poor air flow	Make sure nothing is sitting in front of the evaporator.
	Defective control board	Replace the control board.
	Defective door seal	Make sure the vend flap and gasket are not open or damaged.
	Defective heat exchange on condenser/ Blocking air flow by dust, lint or fin damage	Clean the surface of the condenser fins or straighten the bent fins.
Evaporator frosted over	Loss of refrigerant	Replace the refrigeration unit.
	Smashed tubings	Replace the refer unit.
	Defective drainage	Make sure the drain hose is not kinked or clogged. Re-install hose correctly if kinked or clogged.
	Defective temperature sensor	Replace the temperature sensor.
	Defective control board	Replace the board.
	Poor sealing	Check gasket, vend flap, and permagum on the bulkhead.
Product freezing up (too cold)	Temperature setting too low.	Adjust set point in control board.
	Defective temperature sensor	Replace the temperature sensor.
	Defective control board	Replace the board.

T-10

Excessive noise	Fan blade hitting shroud or loose fitting	Replace the fan blade or re-install correctly.
	Defective fan motor	Re-install or replace the motor.
	Defective compressor	Replace the refrigeration unit.
	Referigeration base deformed	Re-install or replace the base and plastic trim.
Drain pan over flow	Poor sealing	Make sure the vend flap closes correctly and the gasket is sealing.
	Evaporation board (wick) dirty	Clean or exchange the evaporation board.
	Drain hose falls out from the stud of drain pan.	Install hose correctly .
	Defective condenser fan motor	Replace the motor.
	Abnormal amount of water goes into the pan at one time	Throw out the water and check periodically to make sure the problem is not still occurring.
Heater		
Heater will not run even at the specific ambient temperature	No power to refrigeration unit	Check power supply and connection. Replace if necessary.
	Defective temperature sensor	Replace temperature sensor.
	Defective relay	Replace the heater relay.
	Defective control board	Replace the control board
Refrigeration unit will not run even at the specific cabinet temperature	No power to refrigeration unit	Check power supply and connection. Replace if necessary.
	Defective temperature sensor	Replace temperature sensor.
	Defective control board	Replace the control board
Unit will only run in the heater test mode. (Located under tEST)	Defective door switch.	Open and close the door to make sure lights and fan come on. If not, then check the door switch.
	Defective temperature sensor	Follow the same steps detailed above about the temperature sensor.
	Defective control board	Replace the control board.

ERROR	PROBABLE CAUSE	CORRECTIVE ACTION
Unit will not run even in the heater test mode. **NOTE: Leave the compressor test mode on in order to check for voltage.	Defective door switch.	Upon opening the door, the lights and compressor should shut off. If they don't replace the door switch.
	Defective control board	Replace the board.
Heater runs but product freezing up.	Defective heater	Replace the heater assembly.
	Poor air flow	Make sure that nothing is sitting in front of the heater.
	Defective evap fan motor	Check the connection and installation of fan blade. Replace the motor if necessary.
	Defective temperature sensor	Replace the temperature sensor.
	Defective control board	Replace the board.
	Defective door seal	Make sure the vend flap and gasket are not open or damaged.

NOTES