COLD/FROZEN
SATELLITE FOOD VENDOR
CF-1000/FF-2000

A10803

MODELS:

3162 - COLD FOOD
3182 - FROZEN FOOD

SERVICE
MANUAL

TABLE OF CONTENTS

Record the Model Number and Serial Number of your machine below.

The Model and Serial numbers are needed to obtain quick service and parts information for your machine. The numbers are available on the identification plate located on the backside of the cabinet of the machine.

MODEL NUMBER: _____

SERIAL NUMBER: _____

INTRODUCTION

This manual should be read thoroughly to become familiar with the functions and features of all components. The initial set-up of a vending machine is a very important step of insuring that the equipment operates in a trouble-free manner. Follow the instructions at the initial installation of the machine to avoid service problems and minimize setup time.

This service manual contains installation and service information on the **Model 3162 Cold Food Satellite Vendor** and **Model 3182 Frozen Food Satellite Vendor.** Both vendors **do not** have a controller and **must be connected to a host vendor** that is equipped with a controller with Health Safety Features.

NOTE:

> **Unless specified otherwise in this manual, the term** Satellite Food Vendor **refers to features and/or specifications for both the** Cold Food Satellite Vendor **and** Frozen Food Satellite Vendor.

Both models consist of six trays, are multiple select and operates on the "first-in, first-out" vending principle. The selections can be individually priced. Pricing is set at the host vendor controller. It utilizes the electronics of the host vendor for credit accumulation and refund of change when required.

The **Cold Food Satellite Vendor** is designed to vend cold food products that require storage temperatures of 41°F (5°C) or lower.

The **Frozen Food Satellite Vendor** is designed to for the following:

- Vend frozen foods that require storage temperatures of 0°F (-18°C) or lower.
- Vend slacking precooked frozen foods that require storage temperatures of 15°F (-9°C) or lower.
- Vend cold food products that require storage temperatures of 41°F (5°C) or lower.

Each machine has a model and a serial number given on the Serial Number Plate attached to the inside or back of the vendor. Record these numbers for your records in the space provided on the inside front cover. All inquires and correspondence pertaining to this vendor should reference the model and serial numbers.

Should you have any questions pertaining to the information in the manual, replacement parts or the operation of the vendor you should contact your machine supplier.

FOR U.S. UNITS:

VendNet™

165 North 10th Street
Waukee, Iowa 50263-0488

PHONE: 1-515-274-3641
US TOLL FREE: 1-800-833-4411
PARTS FAX: 1-515-987-4447
SALES FAX: 1-515-274-0390

SPECIFICATIONS

	INDOOR USE ONLY			
	CF1000 **COLD FOOD** **SATELLITE VENDOR**		**FF2000** **FROZEN FOOD** **SATELLITE VENDOR**	
MODEL	**3162**		**3182**	
FOOD TYPE / TEMPERATURE RANGE				
COLD FOOD	41°F/5°C or lower		41°F/5°C or lower	
SLACKING PRECOOKED FROZEN FOOD	Not Recommended		15°F/-9°C or lower	
FROZEN FOOD	Not Recommended		0°F/-18°C or lower	
REFRIGERATION				
UNIT SIZE	1/3 HP Hermetically Sealed		1/2 HP Hermetically Sealed	
REFRIGERANT	R-134a		R-404a	
CHARGE	5.9 Oz.		32 Oz. (Danfoss) 48 Oz. (Tecumseh)	
DESIGN PRESSURE	145HS/20LS PSIG		265HS/14LS PSIG	
ELECTRICAL				
VOLTAGE	115 VAC	230 VAC	115 VAC	230 VAC
HERTZ	60 Hz	50 Hz	60 Hz	60 Hz
PHASE	1 Ph	1 Ph	1 Ph	1 Ph
RUNNING AMPS	7 Amps		7 Amps	
GENERAL				
HEIGHT	72 inches (183 cm)			
WIDTH	22 inches (56 cm)			
DEPTH	33.5 inches (85 cm)		37 inches (94 cm)	
WEIGHT	513 pounds (233 kg)		523 pounds (237 kg)	
PRICING	**Multi-Pricing**			
SELECTIONS	**Factory Standard 16 Selections - Maximum 30 Selections**			

UNPACKING

This machine was thoroughly inspected before leaving the factory and the delivering carrier has accepted it as their responsibility. Any damage or irregularities should be noted at the time of delivery and reported to the carrier. Request a written inspection report from the claims inspector to file any claim for damage. File the claim with the carrier (not the manufacturer) within 15 days after receipt of the vendor. Carefully remove the outside packing material in a manner not to damage the finish or exterior of the machine. Inspect the machine for concealed shipping damage. Report any damage hidden by the shipping material directly to the delivering carrier on a Hidden Damage Report.

Record the model number and serial number of the vendor for your records. These numbers are on the Serial Number Plate on the back of the cabinet and/or inside the vendor. Refer to these numbers on all correspondence and inquiries pertaining to this vendor.

REMOVE SHIPPING PALLET

CAUTION

As a safety precaution, removing the vending machine from the shipping pallet may require at least two (2) persons. This is to prevent possible bodily injury and/or damage to vending equipment or property.

1. Remove all four (4) leg levelers. Discard the washers. See **Figure 3.1**.

2. Slide the vending machine towards the back of the shipping pallet so that the rear leg leveler mounting holes are exposed for easy access. Install both rear leg levelers. Keep the leg levelers slightly extended.

3. Continue to slide the vending machine to the rear and let the rear leg levelers touch the floor.

4. Tilt the vending machine back carefully. Slide the shipping pallet forward and use it to block the front of the vending machine. Install both front leg levelers.

5. Tilt the vending machine back and remove the shipping pallet. Adjust all four (4) leg levelers so that machine is level and stable.
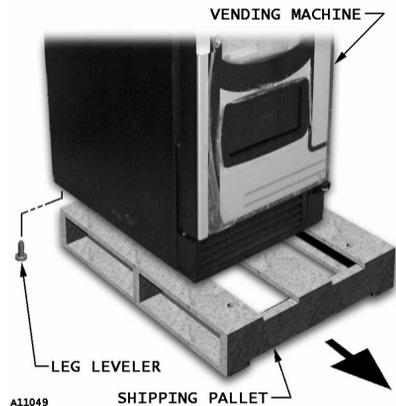

Figure 3.1. Remove the Shipping Pallet

INSTALLATION

CHECKLIST

❑ All shipping brackets, packing material and tape have been removed.

❑ Vendor has been properly leveled from left to right and front to back.

❑ Vendor is positioned no more than six feet from the power outlet.

❑ There is at least four inches of space between the back of the machine and any wall or obstruction for proper air circulation.

❑ Machine is plugged directly into a dedicated circuit properly polarized and grounded (earthed).

❑ Machine has been properly loaded.

❑ The correct vend prices have been programmed into the controller.

❑ Each price scroll agrees with the vend price.

❑ The vendor door is closed tightly and locked.

LOCATE NEXT TO THE HOST

Place the Satellite Food Vendor to the right side of the host vendor. If host vendor is to the right of the Satellite Food Vendor, then replace existing "left" label with "right" label. Refer to **Figure 4.1**.
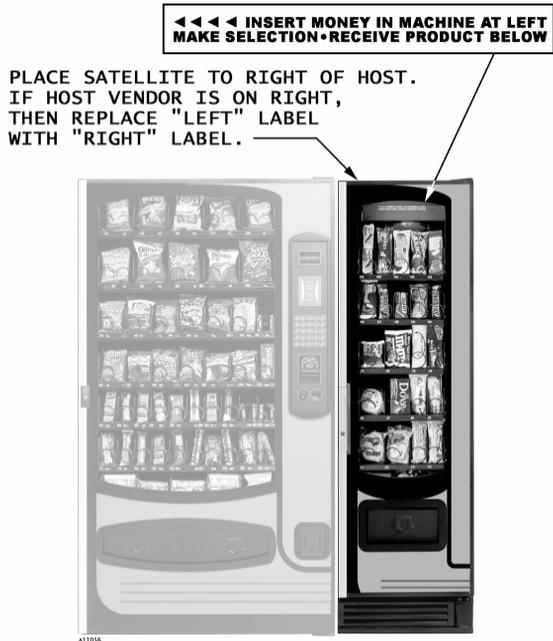
Figure 4.1. Suggested Placement

Consult local, state and federal codes and regulations before installation of the vendor.

To minimize installation time and to avoid service problems due to improper installation, follow the instructions outlined in this manual.

Position the vendor in its place of operation no further than six feet from the power outlet or receptacle and check that the door will open fully without interference. Leave at least four inches of space between the back of the machine and any wall or obstruction for proper air circulation.

> ### CAUTION:
> **Do not block the ventilating screens in front or in the rear of the vendor. Always allow free ventilation behind a bank installation, so that exhaust air is not trapped. Failure to do so could result in a refrigeration failure.**

Level the vendor, making sure all levelers are touching the floor. The vendor must be level for proper operation. If it is properly leveled, it should not "rock" or "teeter" on any of the levelers. When the vendor is level, the door can be opened to any position and not move by itself. Try the door half-closed, straight out and in a wide-open position before deciding that the machine is level.

Remove all shipping brackets, tape and inner packing material from the vendor. Operating the vendor without removing the tape and packing material could result in damage to the vendor.

GROUNDING (EARTHING) & ELECTRICAL

Before connecting the equipment, the integrity of the main electrical supply must be checked for correct polarity, presence of ground (earth) and correct voltage. Repeat these checks every six months with the routine safety electrical testing of the equipment itself. To correct negative voltage, amperage, polarity, or ground (earth) checks, consult a licensed electrician.

A noise suppresser has been installed in this machine to compensate for any mains signal noise that could interfere with the normal operation of the controller.
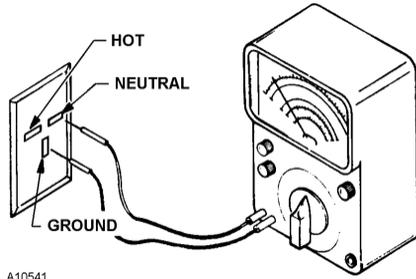
> ### WARNING:
> **Do not use extension cords.**

230 VOLT VENDORS

The power source must be 230 VAC (±10%), 50 cycle.

- **Voltage Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the neutral terminal. The Multi-Meter should indicate 216 - 264 VAC.

- **Polarity and Ground (Earth) Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the ground (earth) terminal. The Multi-Meter should indicate 216-264 VAC.

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Figure 4.2. 230V Terminal Location

- **Amperage Check**: At the fuse box or circuit breaker panel, ensure that the fuse or breaker protecting that circuit is rated at 8 amps or greater.
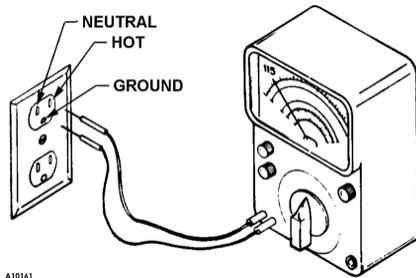

NOTE

The ground (earth) terminal is perpendicular to the other two terminals. See Figure 4.2.

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120 VOLT VENDORS

The power source must be 120 VAC (±10%), 60 cycle.

- **Voltage Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the neutral terminal. The Multi-Meter should indicate 108-132 VAC.

- **Polarity and Ground (Earth) Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the ground (earth) terminal. The Multi-Meter should indicate 108 – 132 VAC.

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Figure 4.3. 115V Terminal Location

- **Amperage Check:** At the fuse box or circuit breaker panel, locate the proper circuit, and ensure that the fuse or breaker protecting that circuit is rated at 16 amps or greater.

NOTE

The hot (live) terminal is always counter-clockwise from the ground terminal. The neutral terminal is clockwise from the ground (earth) terminal. See Figure 4.3.

CONNECTING TO THE HOST

1. Disconnect power to the host vendor. **<u>DO NOT</u>** connect power to the Satellite Food Vendor.

2. Find the umbilical harness inside the Satellite Food Vendor. Connect the 12-pin and 15-pin connectors to their respective sockets on the bottom back of the Satellite Food Vendor. See **Figure 4.4**.

3. Remove the hole plug on the back of the host cabinet. Insert the host end of the umbilical harness through the hole in the back of the host. See **Figure 4.5**.
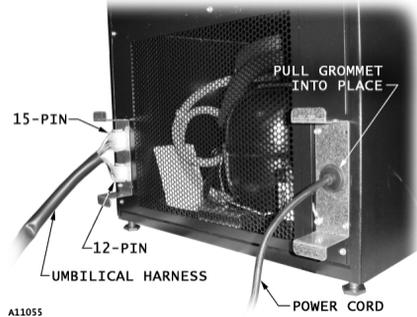
   Secure the umbilical harness to the host by installing screws through the attached strain relief plate. See **Figure 4.6**.

4. Loosen the four (4) screws and remove the Control Panel Cover. See **Figure 4.7**.

   Loosen the two (2) top screws of the Power Panel, lift up on the handle and carefully let it swing down to open. The Power Panel should remain attached and hinged to the cabinet. See **Figure 4.8.**

5. Route the umbilical harness to the control board. **Do not** route the harness through the Power Panel opening but use the opening to access the wire harness. See **Figure 4.8**.

Figure 4.4. Connect to Satellite Food Vendor

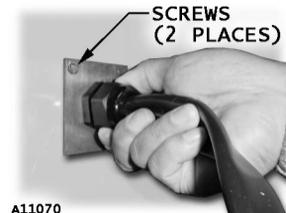**Figure 4.5. Insert Through Host Vendor Hole**

Figure 4.6. Install Screw and Tighten Strain Relief Nut

The umbilical harness must reach the top of the Control Board. See **Figure 4.9**. If more length is needed, then loosen the strain relief nut on the umbilical harness (see **Figure 4.6**). Carefully pull on the harness, then tighten the nut if enough length is achieved. Use the cable-tie (provided) to fasten the umbilical harness to the DEX bracket. Cut off excess cable-tie.

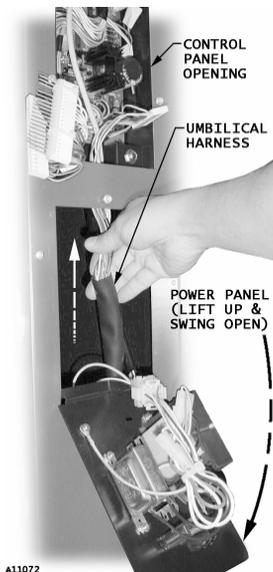Figure 4.7. Loosen Cover Screws
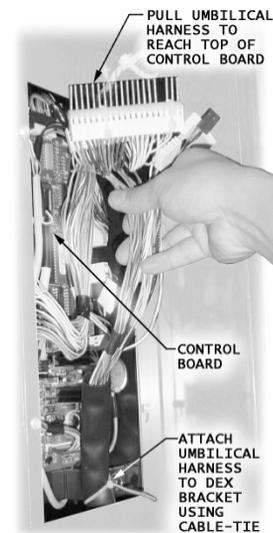
Figure 4.8. Route To Control Board

Figure 4.9. Pull Umbilical To Reach Top Terminals

6. Unplug the J-harness (P/N 4211433) from the control board terminal P6 and unplug its other end from the control harness. Discard the J-harness for now and store it for future use. Connect the control harness to the male terminals of the umbilical harness. Connect the female connector of the umbilical harness (Motor) connector to the control board terminal P6. See **Figure 4.10**.

7. Connect the umbilical harness (L Row) connector to control board terminal **P6A**. See **Figure 4.10**.

8. If iVend connector is already attached to control board terminal **P7**, then unplug the iVend™ connector from control board terminal **P7**. Install the Y-connector harness to **P7**. Connect the iVend™ harness to Y-connector harness. Connect the umbilical harness (Refrigeration) connector to other end of Y-connector harness. See **Figure 4.10**.

    If iVend™ connector is **not** attached to control board terminal **P7**, then connect umbilical harness (Refrigeration) connector to **P7**.

9. Connect the (Door Switch) connector to control board terminal **P8**. See **Figure 4.10**.

10. Go to the back of the Satellite Food Vendor. Find the power cord. Pull on the cord slightly to place the rubber grommet into proper position.

11. Re-install Control Panel Cover and close the Power Panel.

12. Plug the host vendor and the Satellite Food Vendor into their electrical power source and turn on power. The Satellite Food Vendor power switch is located on the bottom left behind the filter. Refer to **Figure 4.11**.

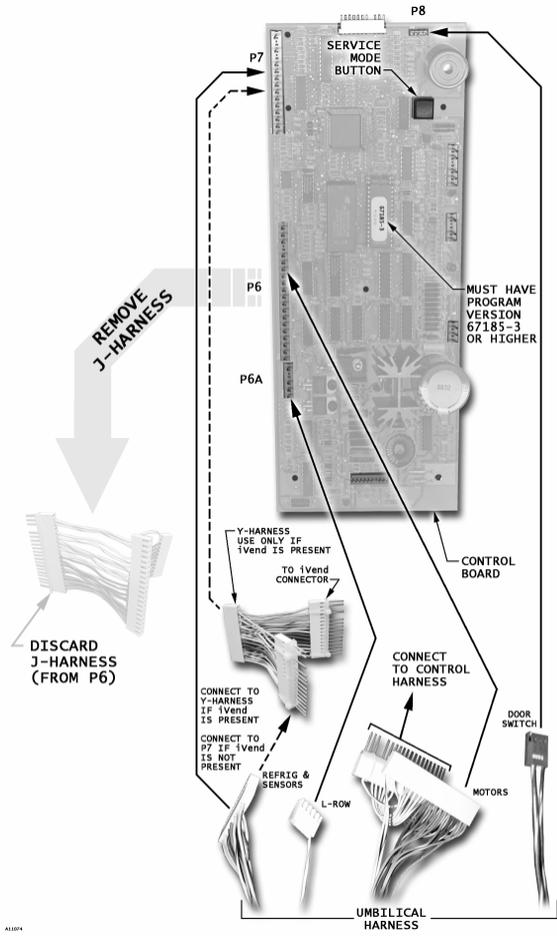13. Test the motors for proper operation. Refer to host vendor service manual for controller instructions.
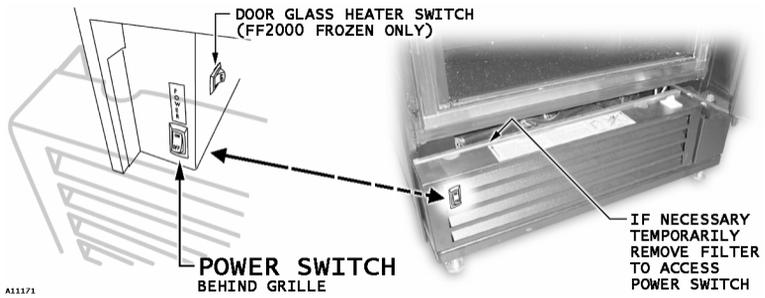

Figure 4.10. Controller Connections

Figure 4.11. Power Switch Located Behind Filter

ANCHOR PLATE INSTALLATION

1. Unplug both Satellite Food Vendor and host vendor from electrical outlet.

2. Anchor the Satellite Food Vendor to the host vendor. See **Figure 4.12.**

3. Plug in the host and the Satellite Food Vendor.
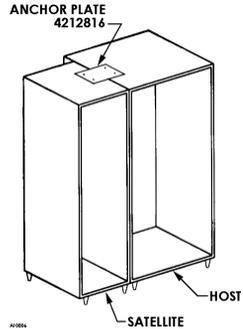
Figure 4.12. Anchor Plate Installation

LOADING INSTRUCTIONS

To load products, lift the tray slightly and pull forward until the tray stops and tilts down. All trays tilt down for easier loading.

Load products from front to back, making sure all items fit freely between the augers (also called helixes). See **Figure 5.1**.

When finished loading each tray, make sure the tray is returned to its proper position. All trays must be pushed to the rear of the cabinet and properly seated in the "detent" position.

SPECIAL PRODUCTS

Place special care products in tray 6 (bottom tray) so that they are closer to the delivery box, and orient the products so that they fall bottom first.

PRODUCT EJECTORS

Product ejectors can be added to the end of the augers to help move the product out of the tray area. See **Figure 5.2**.
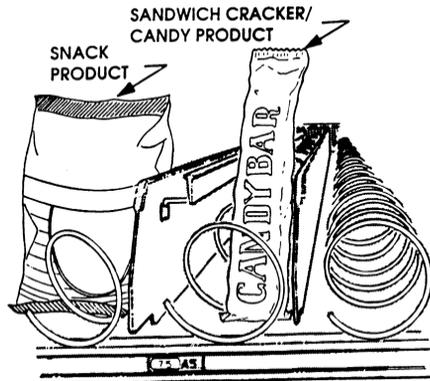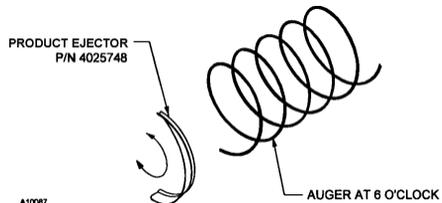
Figure 5.1. Product Loading

Figure 5.2. Product Ejectors

IMPORTANT:

Do not attempt to force over-size items or packages into the spaces. Do not skip a space.

AUGER TIMING

Each auger can be rotated in 20-degree increments, changing the auger position for a different "drop-off" point at the front of the tray.

For dual-drive augers, the ideal timing is for the auger ends to meet at the center of the tray (left auger at 3 o'clock, right auger at 9 o'clock).

Should you have trouble in vending odd-sized or odd-shaped items, auger re-timing can be accomplished on a trial and error basis as follows:

1. Disconnect power before servicing.
2. Pull the tray containing the auger to be re-timed forward to its stop.
3. Remove products from the tray.
4. Push down on motor retaining tab to release motor from tray.
5. Tilt motor back and lift up approximately 1/2" to disengage the auger hub from the retaining rib in the bottom of the tray. See **Figure 5.3.**
6. Separate the hub from the motor by pulling forward on the hub to disengage its spline from the motor's internal gear.
7. Rotate the hub and re-install by pushing the spline into the internal gear motor.

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Figure 5.3. Auger Timing

8. Replace the motor back to its original position on the rear of the tray while making sure that hub is correctly installed behind the hub retaining rib.
9. Push motor retaining tab into slotted hole
10. Load product and push tray into its vend position (locked onto its detent).
11. Re-connect power and test vend for proper operation.
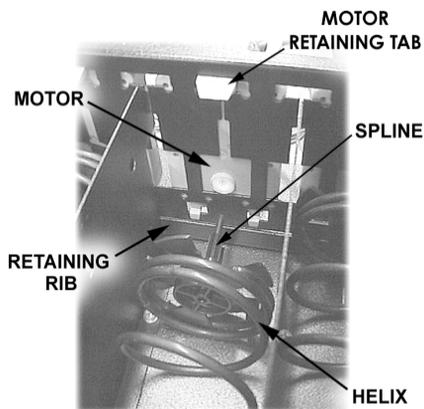
TRAY SPACING

The trays can be raised or lowered in 1/2-inch (12.7 mm) increments to provide additional headroom for vending taller items.

To change spacing, follow the steps outlined below:

1. Disengage the tray harness from the harness retaining clamp on the right side wall.

2. Disconnect the tray plug from its receptacle on the right side wall.

3. Lift up on the front of the tray and pull slightly forward (approximately 1/2-inch/13 mm) to clear the tray stop.

4. Pull the tray forward until it stops. Lift up on the rear of the tray and remove it from the machine.

5. Disengage both left and right tray rails from their corresponding slots on the left and right side walls; pull inward on the bottom front of each rail and pull its flange out of the slot.

6. Pull each rail forward to disengage its rear tab from the hole in the rear wall. See **Figure 5.4**.

7. Relocate both left and right walls by reversing steps 5 and 6.
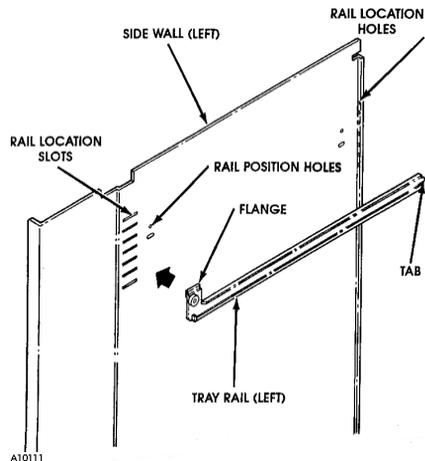
Figure 5.4. Changing Tray Spacing

8. Replace the tray by placing its rear rollers on the left and right rails and lifting up on the front of the tray as you push it back.

9. Install the tray harness plug into its receptacle on the right side wall.

10. Push the tray harness into its harness clamp.

11. Test vend the tray in its new position to assure that the tray harness plug is properly connected.

REFRIGERATION CONTROL

TEMPERATURE SENSORS

	SENSOR FUNCTION	
	COLD FOOD	FROZEN FOOD
SENSOR 1	Monitors air temperature on inlet (front) side of the evaporator.	Monitors air temperature on the inlet side of the evaporator.
SENSOR 2	None	Monitors temperature needed in the Defrost Cycle.

To display the temperature sensor readings see instructions in Table 1.

Table 1. Display Current Temperature Readings

STEP	ACTION	WILL DISPLAY
1	Go to keypad, press `0`.	*- 13F - 7F*
SENSOR2 is on the left, **SENSOR1** is on the right.		

HOST CONTROLLER PROGRAMMING

The **Frozen Food Satellite Vendor or Cold Food Satellite Vendor** requires connection to the controller of one of the following host vendors: **Snack Mart VI, SM5700** or **SM6 controller; and** the host controller must have program **67185-3** or higher to enable a compatible *HEALTH SAFETY* feature**.** The program number will display upon startup of the host vendor.

DEFAULT CONFIGURATIONS

If the host vendor has not been set to work with the **Satellite Food Vendor**, then the host vendor controller must be set to *FROZEN*, *SLACK*, or *FOOD* default configuration**.** Refer to **Table 9** on page 14 for step-by-step instructions.

IMPORTANT NOTE!

Using the default configuration resets the entire controller program to display <u>all menus,</u> and options are <u>reset to factory defaults</u>. All prices are set to $.50 (or 10 times least coin value). Verify that the health safety [selection] range is set correctly. If iVend™ is present, then *OPTIC* must be turned on and optic selection *RANGE* must be reset. *TIME/DATE* will need to be reset. sensor1 *PERIOD* and *DELAY* (temperature sensor1 defrost delay) will need to be reset. Refer to Table 6 and Table 7 for a listing of the factory default settings. Also refer to host vendor service manual or Addendum 4212619 for a complete list of default settings.

- CF-1000 Model 3162 can only be set to FOOD (32°F to 41°F).
- FF-2000 Model 3182 can be set to FOOD (32°F to 41°F), SLACK (15°F and below) or FROZEN (0°F and below).

Table 2. Default Configuration

STEP		DISPLAY
1	Press Service Button ▪	*DIAGNOSE*
2	Press A, B, A	*MENU 3*
3	Press A, B	*DEFAULT*
4	Press B	*SNACK * *
5	If CF-1000 Model 3162, then press A or C until *FOOD* is displayed. If FF-2000 Model 3182, then press A or C until *SLACK* or *FROZEN* is displayed.	*COMBO * * *CHILLED * * *CLO FRONT* * *FOOD * * *SLACK * * *FROZEN * *
6	Press D	*DEFAULT*
7	Press Service Button ▪	(Sales Mode)

Table 4. FF-2000 Model 3182 for Cold Food

Note: If **FF-2000 Model 3182** is for vending cold food (32°F to 41°F) products, then default configuration must be set to **FOOD** (32°F to 41°F) [see DEFAULT CONFIGURATION above] **and** set **SENSOR2** as follows:

STEP		DISPLAY
1	Press Service Button ▪.	*DIAGNOSE*
2	Press A, B, A.	*MENU 3*
	Press B, C, C.	*SHUTDOWN*
	Press C, B, C.	*SENSOR1*
	Press C.	*SENSOR2*
3	Press B.	*OFF*
4	If *ON* is displayed, go to step 6.	*ON * *
	If *OFF* is displayed, then press B twice.	
5	Press D to save.	*ON*
6	Press C.	*SET POINT*
7	Press B.	*33F*
8	Press C repeatedly until -*20F* is displayed.	-*20F*
9	Press D to save.	*SET POINT*
10	Press Service Button ▪	(Sales Mode)

Table 3. Optics

Note: Turn on OPTICS only if iVend™ product delivery system is already installed on host vendor.

STEP		DISPLAY
1	Press Service Button ▪.	*DIAGNOSE*
2	Press A, B, A.	*MENU 3*
	Press B, A.	*OPTIC*
3	Press B.	*OFF*
4	Press B.	*OFF * *
5	Press B.	*ON * *
6	Press D to save.	*ON*
7	Press C.	*RANGE*
8	Press B.	*SR/ER A-G*
9	Press staring row letter on keypad. Press ending row letter on keypad.	
10	Press D to save.	*RANGE*
11	Press Service Button ▪	(Sales Mode)

Table 5. Set Price

STEP		DISPLAY
1	Press Service Button ▪	*DIAGNOSE*
2	Press A, B, C	*PRICE*
	Press B, B	*SELECT --*
3	To set selection price, press selection letter and number on keypad. To set row price press starting row letter and ending row letter on keypad.	*SELECT A1*
4	Press D.	*A1$000. 50*
5	Press numbers on keypad to set the desired price for selection(s).	
6	Press D to save.	*SELECT --*
7	Repeat **steps 3** through **6** for other selections.	
8	Press Service Button ▪	(Sales Mode)

Table 6. Configuration Default Settings

DESCRIPTION	FOOD	SLACK[1]	FROZEN
Auto-Reinstatement Mode	ON	ON	ON
Auto-Reinstatement Range *(Starting Row - Ending Row)*	A - L	A - L	A - L
Temperature Units (*F* = Fahrenheit, *C* = Celsius)	F	F	F
Sensor1 Mode	ON	ON	ON
Sensor1 Set Point *(degrees)*	33F	5F	-12F
Sensor1 Delta *(degrees)*	5F	10F	10F
Sensor1 Defrost Duration *(minutes)*	15	30	30
Sensor1 Defrost Period *(hours)*	2	12	12
Sensor1 Defrost Delay *(hours)*	0	0	0
Sensor1 Manual Defrost	OFF	OFF	OFF
Sensor1 Health Safety Level *(Temperature Limits)*	COLD *(41°F / 5°C)*	SLACK *(15°F / -9°C)*	FROZEN *(0°F / -18°C)*
Sensor1 Health Safety Range *(Starting Row - Ending Row)*	H - L	H - L	H - L
Sensor2 Mode	OFF	ON	ON
Sensor2 Set Point *(degrees)*	33F	50F	50F
Sensor2 Delta *(degrees)*	10F	1F	1F
Sensor2 Defrost Duration *(minutes)*	15	*(Not available)*	*(Not available)*
Sensor2 Defrost Period *(hours)*	2	*(Not available)*	*(Not available)*
Sensor2 Defrost Delay *(hours)*	0	*(Not available)*	*(Not available)*
Sensor2 Manual Defrost	OFF	*(Not available)*	*(Not available)*
Sensor2 Health Safety *(Temperature Limits)*	*(Not available)*	*(Not available)*	*(Not available)*
Sensor2 Health Safety Range *(Starting Row - Ending Row)*	H - L	*(Not available)*	*(Not available)*
Can-Bottle Mode	OFF	OFF	OFF
Can-Bottle Range *(Starting Row - Ending Row)*	H - H	H - H	H - H
Can-Bottle Depth	Double	Double	Double
Prices	All set to 10 x least coin factor		
Motors	All motors configured with no errors		

1. *Slackening pre-cooked frozen food.*

Table 7. All Configuration Default Settings

DESCRIPTION	SETTING
Prices	All set to 10 x least coin factor
Motors	All motors configured with no errors
Point of Sale Message	"YOU ARE GETTING HUNGRY ITS TIME TO ENJOY A SNACK"
Service Menu Configuration	All menus restored
Diagnostic errors	Cleared
Accounting Reset-able Range	Start row = "A" and End Row = "L"
Exact change Value	0
Unconditional Acceptance Value	0
All Combo values	0
All Combo ranges	Start selection = "A1" and End selection = "A1"
Bill Escrowing	Enabled
Force Vending	Disabled
Multiple Vending	Disabled
Free Product	Disabled
Maximum change	Disabled
Maximum Change Value	200 * least coin factor
Promotional Vending	Disabled
Promotional Vend Range	Start row = "A" and End Row = "A"
Language	English
Time Hours value	0
Time Minutes value	0
Time Date value	1
Time Month value	1
Time Year value	0
Daylight Savings	North American Rules
Shutdown	Disabled
Shutdown Range	Start row = "A" and End Row = "A"
Shutdown Turn-on Times (1 through 4)	00:00 (hours : minutes)
Shutdown Turn-off Times (1 through 4)	00:00 (hours : minutes)
Shutdown Days (1 through 4)	All days are turned off
Discount	Disabled
Discount start time	00:00 (hours : minutes)
Discount end time	00:00 (hours : minutes)
Discount Days	All days are turned off
Discount Range	Start selection = "A1" and End selection = "A1"
Discount Value	0
All Coupon and Token values	0
All Coupon and Token ranges	Start selection = "A1" and End selection = "A1"
All Reset-able fields	Cleared

HEALTH SAFETY

The **HEALTH SAFETY** feature prevents the sale of perishable food if the air temperature inside the Satellite Food Vendor compartment rises above the health safety temperature limits (shown in **Table 6** on page 15) for more than 15 minutes. The factory defaults for health safety level and range are automatically set when the default configuration is set, but the health safety range must match the product selection range of the perishable products being vended. See **Default Configurations** on page 13.

NOTE:

> The time requirements for FROZEN or SLACK levels do not apply for a period of 75 minutes immediately following machine filling (door open state), servicing (service mode button pressed or door open detected), or a defrost cycle. The time requirements for the COLD setting do not apply for 30 minutes immediately following machine filling or servicing.

IMPORTANT NOTE!

> The operator is responsible for setting the health safety at the correct level and selection range for the product being vended.

HEALTH SAFETY TEST

1. **Disable Door Switch**

   If machine is connected to a SC100 Satellite Controller, then place removable tape over the door switch (to simulate closed door) at least 75 minutes before performing the test (step 3). The door switch is located on the bottom right front corner of the machine.

   REMOVEABLE TAPE OVER DOOR SWITCH
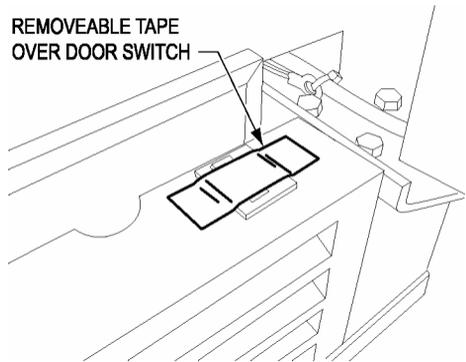
   If the machine is connected to a snack machine, then open the host vendor door. While host vendor is still in **Sales Mode**, remove controller cover. Locate door switch harness connected to terminal P8 (located on top right corner of the controller). Unplug door switch harness from the controller (to simulate closed door).

2. **Simulate Warm Temperature**

   Open the door of the Satellite Food Vendor. Locate **SENSOR1** on the back of the cabinet above the top tray. Remove the sensor and save mounting screws. Place the sensor in a cup of warm water and close door.

3. **Perform Test**

   Press **0** on the host keypad to check the temperature of **SENSOR1**. **SENSOR1** is displayed on the right side of the display. Wait for **SENSOR1** to get above health safety cut-out temperature: Frozen 0°F, Slacken 15°F, Cold 41°F. Wait 15 minutes and then vend a product from the cold/frozen food vendor. If health safety feature (**H/S**) is functioning properly it will lock out vending in preset range and instruct customer to make alternate selection. If this test was started following a defrost or entering service mode it will take 75 minutes to go out on health safety (**H/S**).

4. **After Test is Completed**

   Reinstall the sensor to its original place using the mounting screws saved from step 2.

   If machine is connected to a SC100 Satellite Controller, then remove the tape over the door switch.

   If machine is connected to a snack machine, then reconnect the door switch harness to terminal P8 of the controller.

TEMPERATURE MODE

The **TEMPERATURE MODE** is used to set the operating parameters of the sensors and the refrigeration unit.

To set the display temperature to Celsius or Fahrenheit, refer to instructions in **Table 8**.

Table 8. Celsius or Fahrenheit

STEP	ACTION	WILL DISPLAY
1	Press service button **■**.	*DIAGNOSE*
2	Press **A**, **B**, **A**.	*MENU 3*
	Press **B**, **C**, **C**, **C**.	*TEMPERTURE*
	Press **B**.	*DEGREE F*
3	Press **B** to change.	*DEGREE F **
4	Press **B** to toggle between °C or °F.	*DEGREE C **
5	Press **D** to save.	*DEGREE C*
6	Press service button **■**.	(Sales Mode)

FROZEN CYCLE

If the refrigeration unit is turned off or the power is interrupted, the refrigeration unit will start after three (3) minutes provided **SENSOR1** probe reading is greater than **SENSOR1 SET POINT** and ½ of **SENSOR1 DELTA**.

When the **DEFROST PERIOD (SENSOR2)** is reached the compressor and evaporator fans are turned off and the heater is turned on. **DEFROST PERIOD** is unaffected by compressor cycling.

If either the **DEFROST DURATION** or the temperature value of **SENSOR2** reaches **SET POINT**, the heater will turn off and the compressor will turn on. If the temperature value of **SENSOR2** is above 30°F, then the evaporator fans will remain off. If the temperature value of **SENSOR2** equals 30°F (-1.1°C) or below, then the evaporator fans turns on and they will remain on until the refrigeration time period has expired or the door is opened (door switch contacts closed).

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DOOR OPEN

When the service door is opened (door switch contacts closed) the compressor and evaporator fans are turned off. When the service door is closed (door switch contacts open) the compressor will turn on only if off time is greater than three (3) minutes. The evaporator fans will turn on if the temperature of **SENSOR2** is 30°F or below.

If the service door remains open (door switch contacts closed) for 30 minutes or more, then the controller will treat it as if the door is now closed and turn on the compressor and fans as according to the settings. An error message **DOOR OPEN ERROR** is set by the controller. This message is cleared when the door is closed (door switch contacts open). **HEALTH SAFETY** is reset to the standard after filling timing upon a door closure.
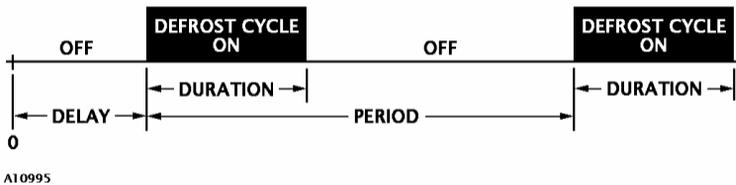
DEFROST CYCLE

Figure 6.1. Defrost Cycle

DURATION is the length of time of the defrost cycle. The compressor is off and the heater turns on to melt ice buildup. It can be adjusted in one (1) minute increments with a range of 10 to 60 minutes. Default setting is 10 minutes.

PERIOD is the time from the start of one defrost cycle to the start of the next defrost cycle, adjustable in half-hour increments (0.5) from 0 to 24 hours. Default setting is 12 hours.

DELAY is used to delay the start time of the first defrost cycle. **DELAY** default is 0 hours and is adjustable in half-hour (.05) increments from 0 to 24 hours. After the first defrost cycle the **PERIOD** time will control the defrost cycle. If low humidity conditions, defrost cycle every 24 hours is recommended.

Example:
- *The current time is 5:00 o'clock pm. Humidity is low so the machine will probably not get much frost. You decide that each defrost cycle should last 30 minutes.* **Duration=30**.
- *You decide to start the* <u>first defrost cycle</u> *at 2:00 o'clock am tomorrow morning. Since 2:00 am is 9 hours from 5 pm, then* **delay=9**.
- *And every 24 hours from the* <u>first defrost cycle</u> *and deciding that approximately 2:00 o'clock am is when few people will be using the machine.* **Period=24**.

MANUAL if turned on will start a defrost cycle. The length of time is determined by the **DURATION** setting. This will not effect affect the normal defrost period and the next defrost should occur as normal except if it is less than seventy-five (75) minutes after the manual cycle. If it is, then it is skipped for the period only.

REFRIGERATION

To change the refrigeration control settings see **Refrigeration Control** on page 12 of this manual. Also, refer to Health Safety feature on page 17 of this manual.

MOISTURE & LIQUID INDICATOR (FROZEN FOOD ONLY)

A sight glass (located on the rear of the FF2000 Frozen Food Model 3182) is used for viewing the condition of the liquid refrigerant. See **Figure 6.2**. In the center of the sight glass is a moisture indicator. The plastic cover is used to keep the sight glass free from dust, dirt and grease.

♦ Bubbles indicate shortage of refrigerant or a restriction in the liquid line.

♦ The moisture indicator within the sight glass is a porous filter paper impregnated with a chemical salt that changes color according to the moisture content (relative saturation) in the refrigerant. It is formulated so that it changes color at the moisture levels generally accepted as the safe operating range.

- A dark green color indicates the refrigerant is DRY.
- A chartreuse color indicates caution.
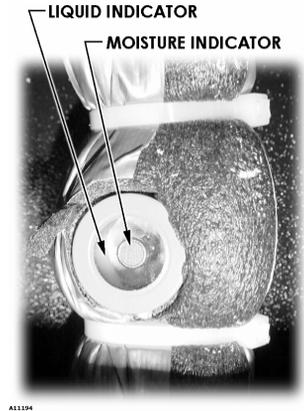- A yellow color indicates a WET condition.

Figure 6.2. Sight Glass

REFRIGERATION TROUBLESHOOTING

Know and understand how to service the unit and how it operates. Units may vary, but the basic operation is the same. Never guess at the problem; find the symptom before attempting any repair.

NOTE
Most refrigeration problems are electrical.

CAUTION:
Breaking the refrigerant joints or seals on this system voids the unit warranty. **Failure to keep the condenser coil clean and free of debris voids the unit warranty.**

The sealed hermetic system should not be worked on outside the Factory Service Center. The three things that can go wrong with a sealed system and should be repaired at the Factory Service Center are:

- <u>Low Charge</u> - usually caused by leaks; look for oil around seals and welds. Unit will not cool properly. The capillary tube will be frosted before it enters the evaporator inlet tube.

- <u>Restriction in Systems</u> (unit frosts, then melts) - not cooling properly.

- <u>Bad valves</u> **-** unit does not cool properly; noisy compressor.

COMPRESSOR WILL NOT START

Compressor has no power:

1. Machine not plugged in.
2. Tripped breaker or blown fuse.
3. Faulty wall outlet.
4. Short or tear in power cord.
5. Thermistor circuit is open. Check with the Multi-Meter.
6. Improper wiring.
7. Low voltage: 5 % below. Check the power source with the Multi-Meter.
8. Overload defective: Trips too fast. Check overload with the Multi-Meter.
9. Start relay defective: Check start relay with the Multi-Meter.
10. Compressor has open windings. Check compressor windings with a Multi-Meter.

11. Defective refrigeration relay.

   Unplug power to the machine; remove the relay plate. Use an insulated jumper wire to short the wires on relay terminals 2 and 4 or 6 and 8; then restore power to the machine. The compressor should start, indicating a problem in the control circuit.

   Check relay terminals 1 to 0 with a Multi-Meter. Should have 24VDC applied to them.

   No DC voltage: Check control board output terminal for a loose connection.

COMPRESSOR TRIPS ON OVERLOAD

1. Improper voltage: 510% above, 5% below. Check power source with Multi-Meter.
2. Overload defective: Trips too fast. Check overload with Multi-Meter.
3. Relay defective: Won't open after starting. Check relay with Multi-Meter.
4. Compressor has shorted windings: Check compressor windings with Multi-Meter.

5. Short in other component: Isolate and eliminate each electrical component until short is found.
6. Compressor is too hot.
   - Dirty condenser.
   - Faulty condenser motor or blade.
   - Restricted air flow.

CAUTION:

Condenser must be kept clean of dirt and debris to allow for proper air circulation.

NOISY OR VIBRATING UNIT

1. Components rubbing or touching each other.
   - Check fan blades and motor.
   - Loose shrouds and harness.
   - Copper tubing.
   - Loose or unsecured parts.
2. Worn or aged grommets.

3. Compressor
   - Bad valves
   - Slugging
   - Bad windings (See **Figure 7.1** and **Figure 13.1** schematics on pages 23 and 29 respectively**.**)
   - Low voltage

UNIT SHORT CYCLES

1. Thermistor defective or not mounted in the return air duct.
2. Defective control board.
3. Temperature setting set too warm. See "Temperature Mode" in the host vendor Service Manual. Also refer to Health Safety feature in this manual.

UNIT OPERATES LONG OR CONTINUOUSLY

1. Thermistor defective or not mounted in the return air duct.
2. Refrigeration relay shorted.
3. Air flow restricted.
4. Faulty evaporator motor or blades causing coils to ice over.
5. Loose connections on evaporator motor. (One motor not running.)
6. Air flow blocked by product in front of evaporator or air duct openings
7. Gasket leak around door.
8. Excessive load: After loading, unit will run longer to pull out excessive heat from product.
9. Shortage of refrigerant or restriction.
10. Bad controller.

REFRIGERATED SPACE TOO COLD

1. Thermistor defective. Check with Multi-Meter.
2. Refrigeration control setting too cold. See "Temperature Mode" in the host vendor service manual. Also refer to Health Safety feature in this manual.
3. Refrigeration relay bad. Check with Multi-Meter.
4. Faulty control board.

REFRIGERATED SPACE TOO WARM

1. Thermistor defective. Check with Multi-Meter.
2. Refrigeration control setting too warm. See "Temperature Mode" in the host vendor Service Manual. Also refer to Health Safety feature in this manual.
3. Refrigeration relay bad
4. Faulty control board
5. Restricted evaporator space
6. Evaporator motor or blades faulty, causing the coils to ice over the evaporator

7. Condenser air flow restricted
   - Plugged or dirty condenser
   - Condenser motor or blades bad
   - Blade stuck
     Condensing space restricted
   - Unit placed too close to a wall.
     Compressor - bad valves
   - Capillary tube will start frosting 8 to 10 inches past evaporator connection tube.

TROUBLESHOOTING CIRCUITS WITH MULTI-METER

See **Figure 7.1** (page 23) and **Figure 13.1** (page 29) for schematics and wiring diagrams.

> ### WARNING:
>
> **Wiring diagrams must be followed as shown. Any miswiring can cause serious electrical hazard and potential damage or rupture component electrical parts.**

- Check the power source.
- Use the voltage section of the Multi-Meter. Should measure within 5-10% above, 5% below.
- Check overload.

> ### NOTE
>
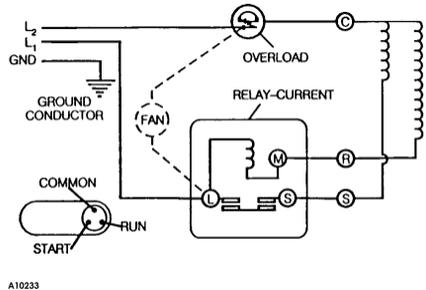> **Power must be off and fan circuit open.**

Figure 7.1. Compressor Schematic

Using the resistance section of the Multi-Meter, check terminals 1 and 3 for continuity. If no continuity is measured (infinity), overload may be tripped. Wait 10 minutes and try again. If still no continuity, overload is defective.

- Check relay (See **Figure 7.1**). Unscrew lead terminals and remove relay from compressor. (NOTE: keep relay upright).
- Check terminals 1 and S, or L and S with the Multi-Meter. Replace relay if continuity exists.
- Check thermistor with the Multi-Meter.
- Check compressor windings as shown in **Figure 7.1** and **Figure 13.1** schematics (pages 23 and 29).
- Check winding resistance with the Multi-Meter. If readings are not within 2 Ohms, the compressor is faulty.

Table 9. Winding Resistance

Approximate resistance reading across terminals - use RXI scale:	
MEASURE BETWEEN	**OHMS ?**
COMMON To START	12
COMMON To RUN	2
RUN To START	14
COMMON To SHELL	2 Meg

DOOR REMOVAL

1. Open the door until you can see all three (3) Allen Head Screws of the Top Hinge Door Plate (as viewed from the top of the machine). See **Figure 8.1**.

2. One person should hold on to the door to prevent it from tipping while another person removes all three (3) Allen Head screws from the Top Hinge Door Plate.

3. Swing the Top Hinge Door Plate out of the way.

4. Tilt door slightly and lift door up until Bottom Hinge Pin clears Bottom Hinge Bracket.

5. Carefully set door aside and protect it from damage.

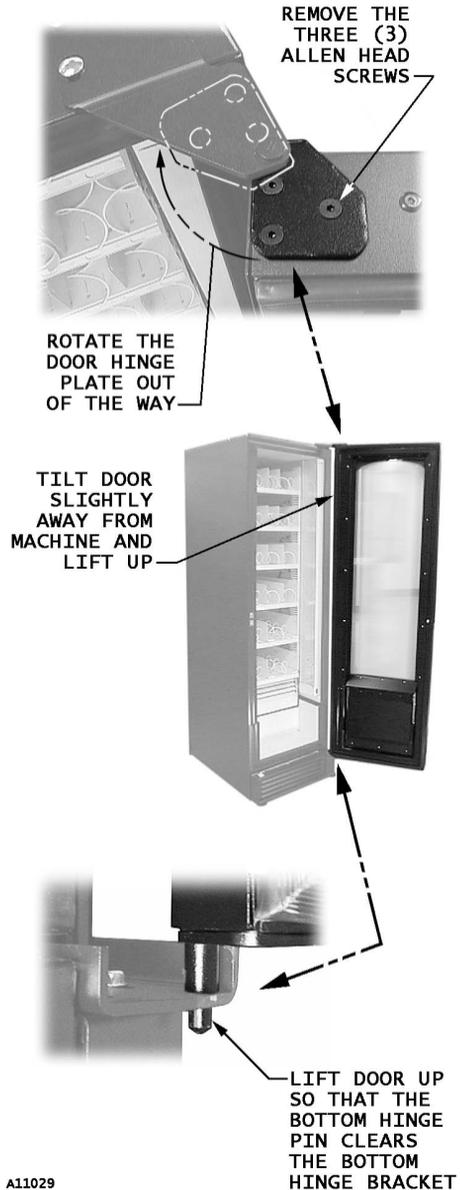6. Reverse the procedure when re-installing the door.

REMOVE THE THREE (3) ALLEN HEAD SCREWS

ROTATE THE DOOR HINGE PLATE OUT OF THE WAY

TILT DOOR SLIGHTLY AWAY FROM MACHINE AND LIFT UP

LIFT DOOR UP SO THAT THE BOTTOM HINGE PIN CLEARS THE BOTTOM HINGE BRACKET

A11029

Figure 8.1. Removing the door

REFRIGERATION UNIT REMOVAL (COLD FOOD ONLY)

The refrigeration unit is a hermetically sealed completely self-contained modular unit charged with ozone-friendly refrigerant. Only the refrigeration unit for the CF1000 Cold Food Model 3162 can be removed if there is a service problem. Removing the refrigeration unit for the FF2000 Frozen Food Model 3182 is not recommended.

CAUTION:
Do not place any object in the evaporator assembly area or inside the cabinet area that will block the airflow. This may damage the refrigeration system, which may void the refrigeration warranty.

1. Unplug the power cord.
2. Open the door. Refer to **Figure 9.1** on page 26.
3. Unplug the tray harnesses of the bottom two trays. Remove the bottom two trays.
4. Remove the **door**. Refer to instructions on page 23.
5. Remove the **dust filter** and **kick panel**.
6. Remove the **delivery/evap cover**.
7. Remove the **delivery box**.
8. Remove left and right **retainer brackets**.
9. Unplug the refrigeration harness on the right front side of unit.
10. Pull the refrigeration unit forward and lift out.

Make sure foam gaskets are correctly installed on refrigeration unit before reinstallation. To reinstall the unit, follow the preceding steps in reverse.
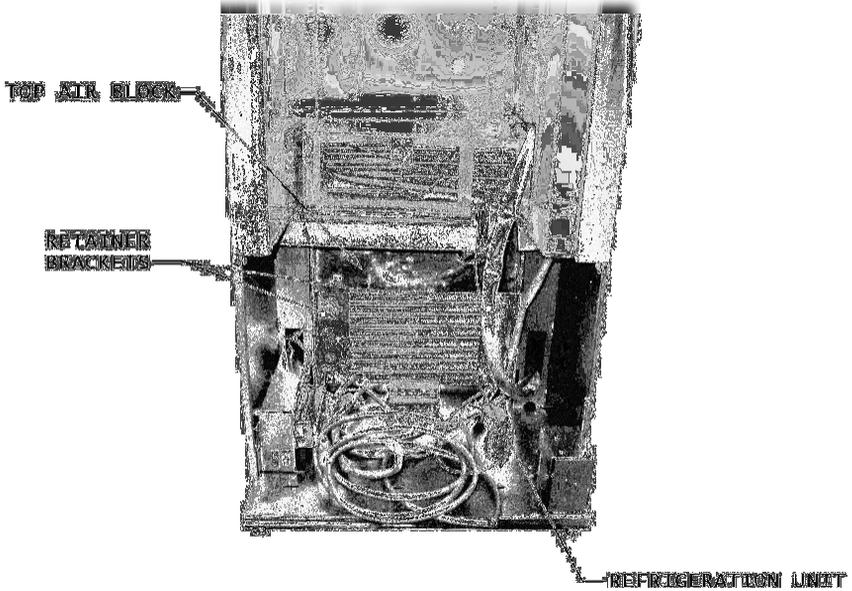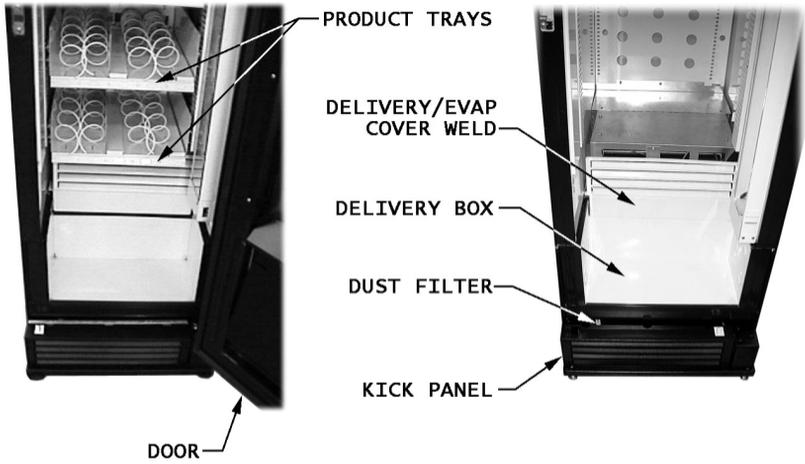
PRODUCT TRAYS

DELIVERY/EVAP
COVER WELD

DELIVERY BOX

DUST FILTER

KICK PANEL

DOOR

TOP AIR BLOCK

RETAINER
BRACKETS

REFRIGERATION UNIT

Figure 9.1. Refrigeration Unit Removal

CARE & CLEANING

CABINET EXTERIOR
Wash with a mild detergent and water, rinse and dry thoroughly. Wipe occasionally with a quality car wax. Plastic exterior parts may be cleaned with a quality plastic cleaner.

CABINET INTERIOR
Wipe clean with a cleaning solution of mild detergent and water. To eliminate odors, include baking soda or ammonia in the cleaning solution.

The vend mechanisms <u>must</u> be kept clean. Use soap and water with great care so as not to get water into the electrical components. To insure proper vending keep delivery slide area free of dirt and sticky substances.

All product contact surfaces must be sanitized once a month. Wipe clean using a 100 ppm chlorine solution or equivalent chemical sanitizer that is approved for use on food contact surfaces. Sanitizer/cleaner packets can be purchased from Vendnet parts department.

REFRIGERATION SYSTEM
Clean dust from condenser and screen in the front door with a soft bristle brush or vacuum cleaner. Remove any dirt or debris from the refrigeration system compartment. Remove and clean the condensation pan.

Do not block the evaporator or any area of the airflow with product or supplies.

STORING THE SATELLITE FOOD VENDOR

Before storing the Satellite Food Vendor:

- Clean and sanitize the interior of the vendor to prevent the possibility of bacterial growth and/or bad odor. See **Care & Cleaning** instructions above.
- Before closing the door, prop a block of wood or something similar against the front of the delivery door to keep the delivery door open. This allows for air to circulate inside the vendor to keep it dry.
- Use a drop cloth or tarp over the machine to keep it clean during storage.

BEFORE CALLING FOR SERVICE

Please check the following:

- Does your machine have at least 4" of clear air space behind it?
- If the power is turned on at the fuse box, is the machine the only thing that doesn't work?
- Is the machine plugged directly into the outlet?

WARNING:
Extension cords cause problems. **DO NOT USE EXTENSION CORDS.**

- Is the evaporator coil free of dust and dirt?
- Is the condenser coil free of dust and dirt?
- Is the compressor free of dust? (A blanket of dust can prevent the compressor from cooling off between workouts).
- Is the circuit breaker at the fuse box reset?
- Are evaporator fans running? Fold a sheet of 8 1/2" x 11" paper in half from top to bottom so it is now 8 1/2" x 5 1/2". Place the paper in front of the evaporator coil and see if the evaporator fans will blow the paper away.
- Is the condenser fan running? Fold a sheet of 8 1/2" x 11" paper in half. Place the paper in front of the condenser coils and see if it draws the paper to it.
- Is the shelf in front of the evaporator coil clear? (No tools or other air-restricting items placed on the shelf).

NOTE
Setting the cold control lower does not accelerate cooling of product.

If you have any questions, call **VendNet™**

Ask for the Service Department. We will be happy to assist you.

International Service & Parts 515-274-3641

USA & Canada: Service 800-833-4411 • Parts 888-259-9965

Email: vendnet@vendnetusa.com • Web Site: www.vendnetusa.com

SCHEMATIC
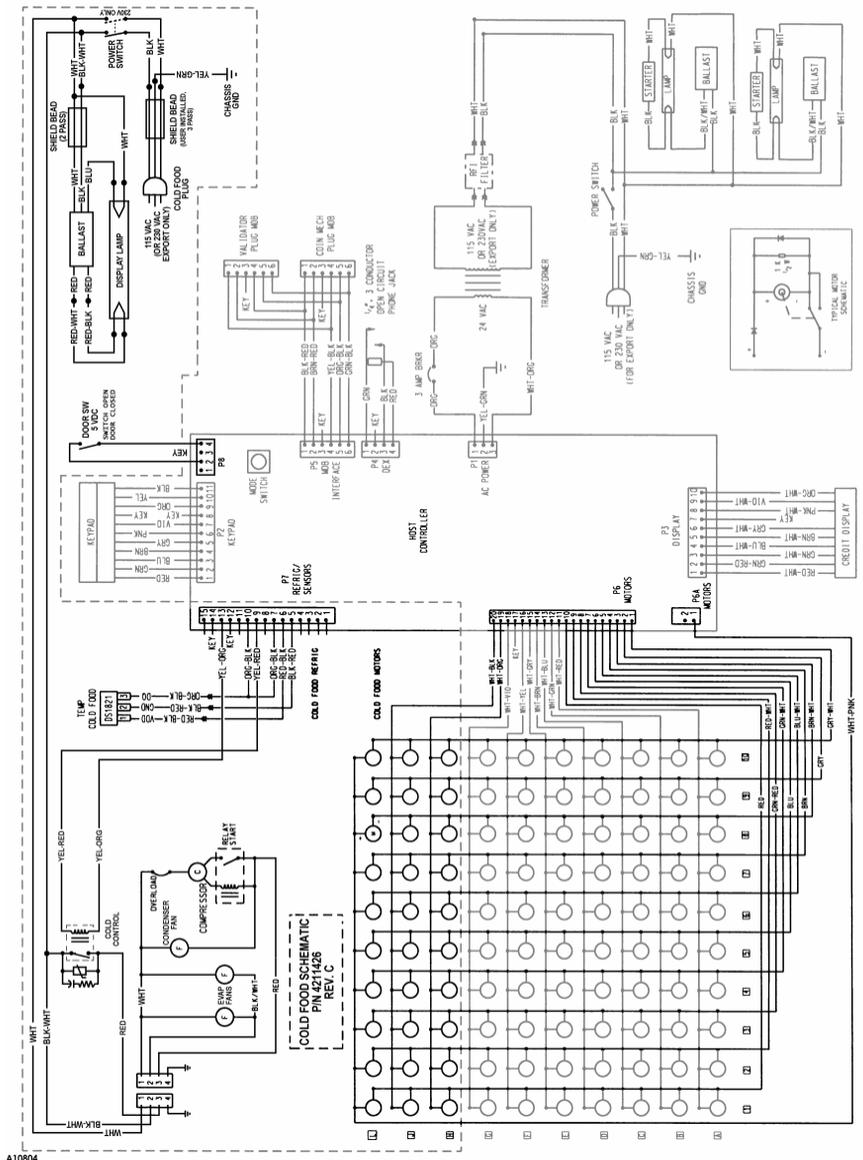
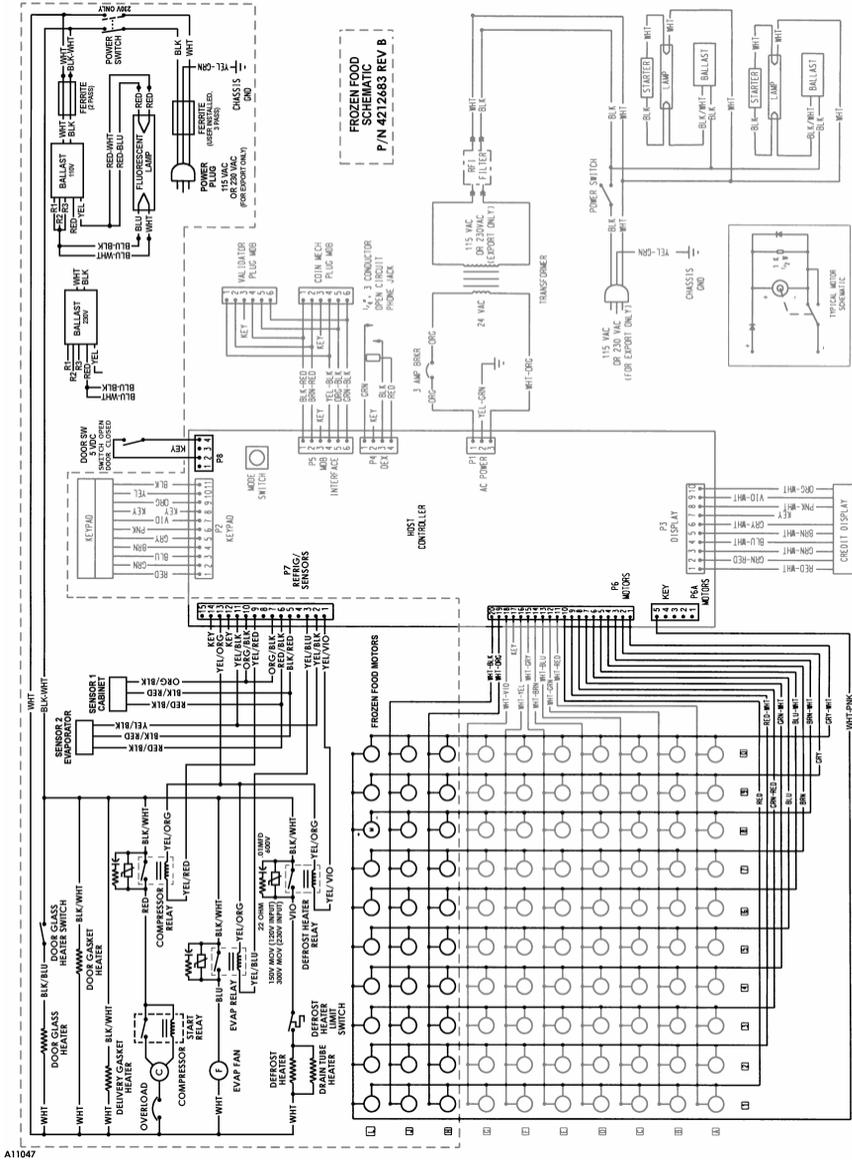**Figure 13.1. Cold Food Schematic**

SCHEMATIC

Figure 13.2. Frozen Food Schematic

NOTES

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NOTES

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	USA & Canada	International
Service	**(800) 833-4411**	**(515) 274-3641**
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Web Site	**www.vendnetusa.com**	

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