ST/VT

SINGLE TEMP/VARIABLE TEMP
GLASS FRONT VENDOR

MODELS:

3567 / 3567A – ST 3000 (3 WIDE)

3565 / 3565A – ST 5000 (5 WIDE)

3568 / 3568A – VT 3000 (3 WIDE)

3566 / 3566A – VT 5000 (5 WIDE)

SERVICE MANUAL

TABLE OF CONTENTS

The Model and Serial numbers are needed for you to obtain quick service and parts information for your vendor. The numbers are given on the identification plates located on the back or inside of the vendor. Write them into the spaces below for your records.

MODEL NUMBER: _____

SERIAL NUMBER: _____

If you have questions concerning the information in the manual, replacement parts, or the operation of the vendor, note your machine's Model and Serial Numbers before contacting:

VendNet™
8040 University Blvd
Des Moines, IA 50325 - USA
Parts: (888) 259-9965
Service: (800) 833-4411
Parts Fax: 515-271-8530
E-Mail: Vendnet@vendnetusa.com
www.vendnetusa.com

INTRODUCTION

This manual contains instructions, service and installation guidelines for the **Single Temp (ST) / Variable Temp (VT) Glass front Vendor**. Please read this manual thoroughly and follow the instructions. The initial set-up of a vendor is a very important step of insuring that the equipment operates in a trouble-free manner.

The **ST Vendor** is a single zone temperature vendor. All trays are held to a consistent set temperature. The vendor will maintain as low as 36°F (2°C) throughout … maintaining health safety for perishable products. The temperature and health safety settings can be adjusted within the control system (see programming manual).

The **VT Vendor** is a two zone/two temperature vendor. This provides for two temperature zones (top and bottom) in a single vendor. The zones are separated by a moveable air deflector and insulating barrier. The vendor has an air duct that runs up and down on the back inner wall of the cabinet. For example: In a 5 tray configured vendor the air deflector and insulating barrier can be moved to provide a refrigerated zone for the bottom two trays while providing a chilled top zone for the top three trays. Positioning of the air deflector and insulating barrier is adjustable in a range of 2 trays in the bottom zone/ 4 trays in the top zone, 3 & 3, or 4 & 2 ... dependent upon product height and tray spacing. The vendor will maintain 36°F (2°C) in the bottom zone while the top zone will be as high as 66°F (19°C) depending upon ambient conditions. The top compartment can be optionally equipped with a heater & blower system along with a separate temperature sensor & relay to maintain a constant and/or higher temperature across varying ambient temperatures.

Both vendors will operate within an ambient temperature range of 40°F-90°F (4°C-32°C).

The temperature setting for both compartments are set within the control system (see programming manual).

The bottom or single zone has a temperature sensor. The modular insulated refrigeration system draws air across the refrigeration system's evaporator coils up the back air duct and circulates down through the trays. There are openings in the bottom trays to allow air to circulate around the products.

All programming (pricing, vend functions and features) are also done within the control system. Changes can be made without any additional accessories or remote parts. Selections can be priced individually from $00.00 to $655.35 in five cent increments (US currency). Cash accountability records, total cash transactions, total vend cycles performed by the vendor, information for individual selections, complete rows or total vendor can be compiled and used for inventory and ordering records. Electrical malfunctions are recorded and displayed when the vendor is placed in the **Service Mode**. Non-functional motors or selections are indicated. Each selection has an individual motor. Functional selections will continue to operate if other motors become nonfunctional.

The vending sequence is "first-in, first-out" for each selection, permitting stock rotation to maintain fresh products in the vending area.

Each **ST / VT Glassfront Vendor** has the capability of supporting up to two USD satellite vendors such as a Cold Food (CF-1000) or Frozen Food (FF-2000). The satellite vendor utilizes the **host vendor's** control system, coin mechanism, bill validator and keypad to perform the vend functions they require. For details on the satellite vendor, refer to the Service Manual pertaining to the specific vendor for installation instructions. Satellite vendors may require optional kits for installation.

Access to the service area of this vendor should be permitted only to individuals having knowledge and practical experience in vendor setup and loading, especially in areas of safety and hygiene.

SPECIFICATIONS

DIMENSIONS & WEIGHTS

TYPE	ST/VT (3 WIDE)		ST/VT 5000 (5 WIDE)	
MODEL	3567/3568	3567A/3568A	3565/3566	3565A/3566A
WIDTH	29.5 in. (74.9 cm)		41.2 in. (104.6 cm)	
DEPTH	38 in. (96.5 cm)			
HEIGHT	72 in. (182.9 cm)			
ESTIMATED WEIGHT[1]	693 lbs (614 kg)		816 lbs (370 kg)	
EST. SHIPPING WT.[1]	722 lbs (327 kg)		846 lbs (384 kg)	

Note: [1] Weights will vary depending on tray configuration and optional equipment installed.

ELECTRICAL

	HORSPOWER	1/3 HP Embraco	
	VOLTAGE	115 VAC	230 VAC
	CYCLE	60 Hz	50 Hz
NOMINAL AMPS	HEATED GLASS	6.5	3.5
	NON HEATED GLASS	5.5	3.0
	TRANSFORMER	110/24 VAC	230/24 VAC

REFRIGERATION

MODEL	Embraco 1/3 HP
TYPE	Hermetically Sealed
CONTROLS	Electronic
REFRIGERANT	R-134a
CHARGE	16 oz

COIN CHANGER, BILL VALIDATOR, CARD READER

TYPE	MDB Coin Changer level II or III, Bill Validator Level I, Card Reader Level I or II

VENDOR OPERATION

| LOCATION	Suitable for indoor use only. This appliance is not suitable for installation in an area where a water jet could be used.
SOUND LEVEL	**PRODUCES LESS THAN 70 DBA DURING NORMAL OPERATION.**
RECOMMENDED OPERATING TEMPERATURE	Between 40°F and 100°F (4° and 38° Celsius)

UNPACKING

This vendor was thoroughly inspected before leaving the factory and the delivering carrier has accepted this vendor as their responsibility. Note any damage or irregularities at the time of delivery and report them 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 so as not to damage the finish or exterior of the vendor. Inspect the vendor 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 can be found on the serial plates on the rear of the cabinet and/or inside the vendor. Refer to these numbers on all correspondence and inquiries pertaining to this vendor.

Remove the shipping skids by supporting the vendor from below, inserting a large screwdriver or prying tool into the grove and splitting it in two. After removing the pieces, turn the leveling screws in as far as possible. (See Figure 1).

Figure 1

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FIG 1. : Remove Skid Boards
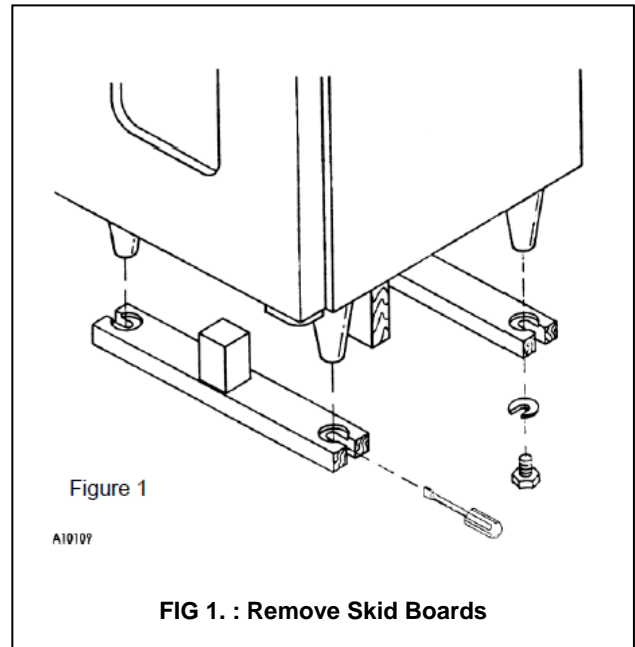
INSTALLATION

- Consult local, state and federal codes and regulations before installing the vendor.
- Retrieve the keys to the vendor from the coin return cup.
- Open outer door and remove all internal packing material.

Position and level vendor prior to connecting vendor to power. All set up must be completed prior to prevent harm to the installer or vendor.
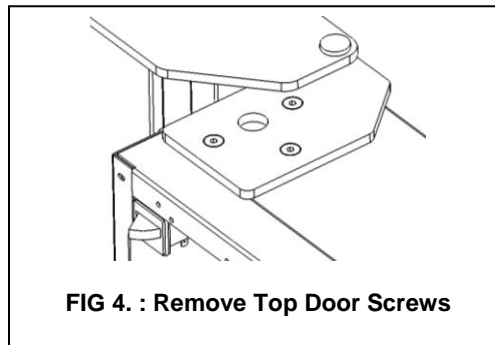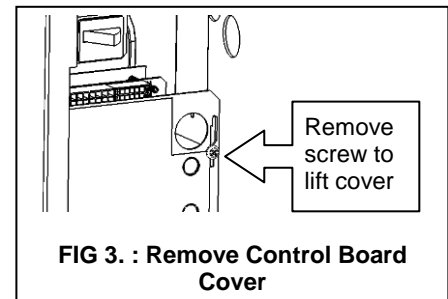
REMOVING THE DOOR

The vendor will fit through most doorways (34"+) by opening the vendor outer door and carefully walking the vendor door or cabinet thorough first and then moving the remaining portion of the vendor through. The vendor outer door may be temporarily removed to permit easier movement through a narrower door openings or hallways. To remove the outer door:

1. **Disconnect door harnesses:**
   - Loosen the nut and bolt attaching the harness retaining spring to the door harness and unhook the spring from the harness.
   - Unplug the door harness and glass heater harness (option) from the power panel. (See Figure 2).
   - Remove harness clamps and cable ties retaining door harness to door. Remove control system cover (see Figure 3) and disconnect door harness plugs from control board.
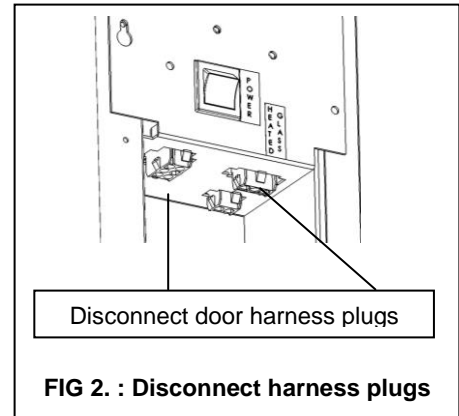
2. **Remove the door:** This requires a minimum of two people. Open the door at least 90 degrees. While someone holds the door in place to prevent bending or damage to the bottom pivot, remove the three (3) 5/32" hex socket/Allen screws fastening the top hinge assembly to the top of the door (see Figure 4). Once these screws are removed the door needs to be lifted vertically off the bottom hinge. The bottom hinge pin rests on top of nylon washers to provide proper door height and smooth operation … retain these washers for reassembly.

Disconnect door harness plugs

FIG 2. : Disconnect harness plugs

Remove screw to lift cover

FIG 3. : Remove Control Board Cover

FIG 4. : Remove Top Door Screws

REMOVING THE HINGES AND FRONT LEG MOUNTS

The cabinet depth can be narrowed to approximately 31" with the additional removal of the door hinges and front leg mounts. These may be temporarily removed to permit easier movement through a very narrow door openings (32") or narrow/angled hallways.

1. **Mark the Door Hinge locations:** Mark the location of the top and bottom hinges with a pencil for proper locating upon reassembly.
2. **Remove the Top Hinge:** Remove the two (2) small locating screws and four (4) large bolts and nuts holding the Top Hinge Plate to the cabinet (See Figure 5). Save the mounting hardware for reassembly.
3. **Remove the Front Leg Mounts:** From the underside of the cabinet remove the four (4) bolts that secure the front leg mounts. NOTE: Be sure to leave the two inside bolts on each cabinet leg. Pull the leg mounts out forward to remove. (See Figure 6.)
4. **Move machine in to final location**
5. **Reassemble in reverse order**
6. **Level vendor and check door handle closure**

FIG 5. : Remove Top Hinge

Remove these 4 bolts

Leave these 2 bolts

FIG 6. : Remove Leg Mounts
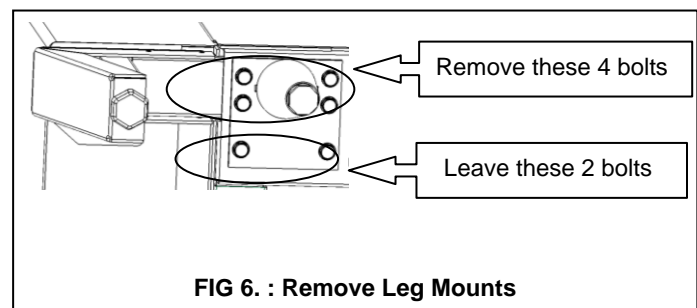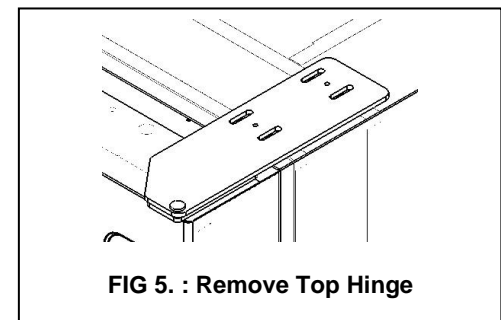
POWER CORD INSTALLATION

Remove the power cord from inside the vendor. Remove the connection box cover retaining screw and route the cord under the cover. Keep power cord secured on the center back of the cabinet until the vendor is placed into its final location to prevent damage to the cord.

INSTALL BACK SCREEN PROTECTOR

Fasten the Back Screen Protector in place with the screen screws included with protector. Protector should be placed so the air is forced upward. (See Figure 7).
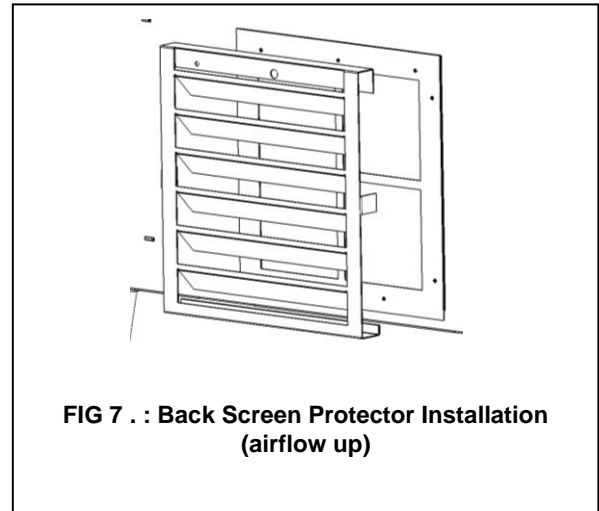
FIG 7 . : Back Screen Protector Installation (airflow up)

LEVEL THE VENDOR

Position the vendor in its place of operation no farther than nine feet from the power outlet or receptacle. Check that the door will open fully without interference.

Leave at least six (6") inches of space between the back of the vendor and any wall or obstruction for proper air circulation.

All levelers must touch the floor. The vendor **must** be level for proper operation, cabinet to door alignment, condensate drainage and for acceptance of coins through the coin mechanism. Adjust the four (4) leg levelers on the cabinet legs first to make the cabinet level front-to-back and left-to-right. After the cabinet is level adjust the front leg mount levelers to touch the floor surface. The front leg mount levelers should not support the weight of the cabinet.

GROUNDING (EARTHING) & ELECTRICAL

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

Refer to the Safety Installation Guidelines document found in the service package shipped with your vendor.

Before connecting the vendor, the integrity of the main electrical supply must be checked for correct polarity, presence of ground (earth) and correct voltage. These checks should be repeated at six-month intervals with the routine safety electrical testing of the vendor itself.

If the receptacle is not properly grounded or polarized, contact a licensed electrician to correctly polarize and/or ground the receptacle to ensure safe operation.

For proper operation of any equipment utilizing electronically controlled components, the equipment should be placed on an isolated, or dedicated, noise-free circuit properly polarized and grounded. Use of a surge suppressor is recommended for locations where electrical noise is present.
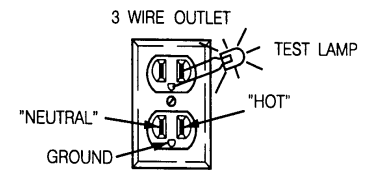
MAIN POWER SWITCH

Plug the power cord into a dedicated power outlet. Open the vendor door. Turn on the main power switch located on the Power Panel within the cabinet. See Figure 8.

DOOR GLASS HEATER HARNESS CONNECTION

The Door Glass Heater Harness Connection is normally disconnected to conserve energy. In environments where the humidity is above 70% the Glass Heater Harness should be connected to prevent water condensation from forming on the glass surface. When the ambient conditions are below 70% humidity the glass should be disconnected. See Figure 8.
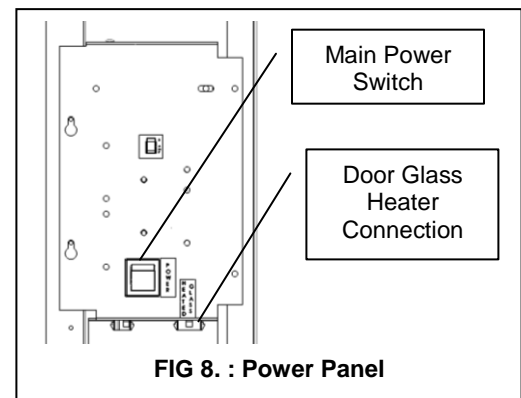
Main Power Switch

Door Glass Heater Connection

FIG 8. : Power Panel

ADVANCED POWER MANAGEMENT

The Vendor control system is capable of conserving energy by adjusting time periods and temperature for the refrigeration and lighting. (see programming manual).

LOADING PRODUCTS

Load products from front to back making sure all items fit freely between the spiral spaces. Do not attempt to force oversize items or packages into the spaces. Do not skip a space. Place the product on the bottom of the compartment on the product spirals with the label facing the front of the vendor for easy identification by the customer. See Figure 9.

SNACK/CANDY/FOOD TRAY OPTION

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

The size of the item being vended must be larger than the diameter of the spiral being used to vend properly.

Undersized items could cause vend problems. If the product does not fit the spiral properly, use a different pitched spiral. Call the number located within this manual for spirals available from your distributor or service entity.

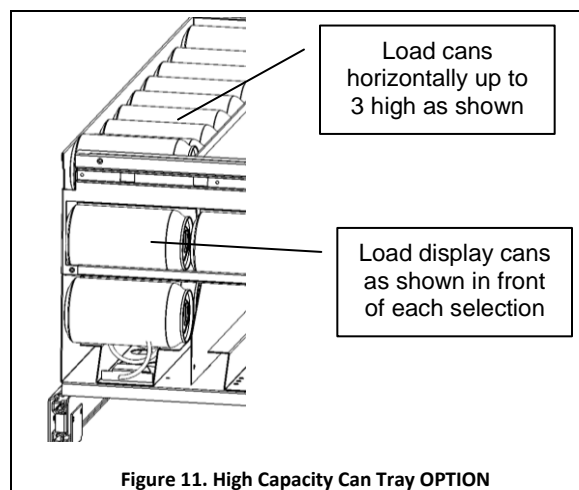

Figure 9. Loading Products
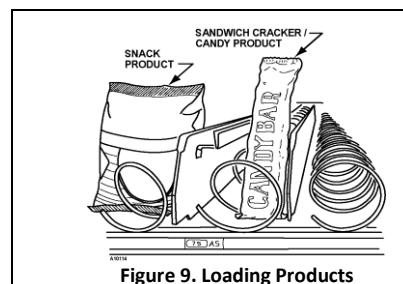
CAN/BOTTLE TRAY OPTION

To unlatch the Can/Bottle Trays place both hands with your palms up … then push out simultaneously with your thumbs depressing the slide left and right side latches and pullout as shown (See Fig 10). Carefully load products vertically as shown. Some bottle and/or can containers present and vend better by using the provided spiral risers. **If the product requires additional vertical space or presents/vends poorly remove the risers as necessary.**

Push out on latches with thumbs

Figure 10. Tray Latches

Pull out on tray to load

Spiral Risers
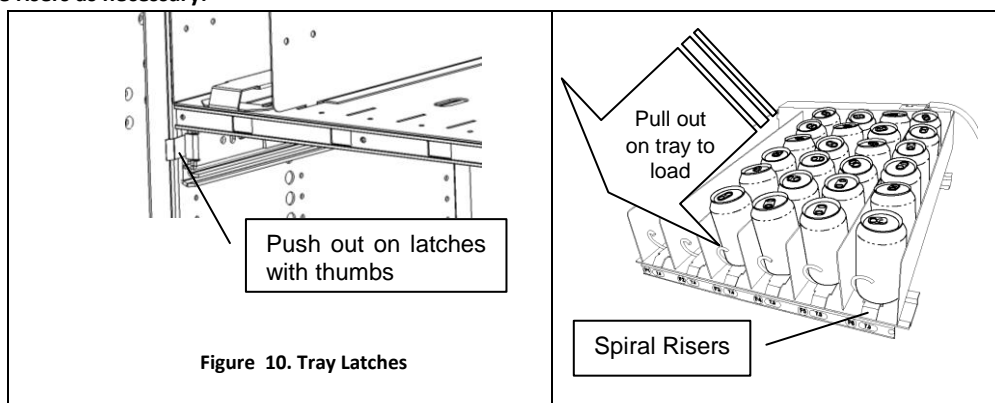
HIGH CAPACITY CAN TRAY (HCCT) OPTION

Some vendors come equipped with the HCCT option. There are two setups for the HCCT option … one for vending 355ml (12oz.) and one for 375ml (13oz.) cans. The HCCT option is only provided for these two can sizes with identical diameters. Load product horizontally from front to rear and stack a maximum of three (3) levels high. See Figure 11.

Install a display can in the area provided in front of each selection as shown. Adjust the price scrolls to the desired price.

Load cans horizontally up to 3 high as shown

Load display cans as shown in front of each selection

Figure 11. High Capacity Can Tray OPTION

TRAY ADJUSTMENTS

By re-timing the spirals, difficult-to-vend items can be dispensed more dependably. By altering tray spacing, larger items can be vended. By changing the tray configuration, different product mixes can be accommodated.

VERTICAL SPACING

The trays can be adjusted up or down in half-inch increments to provide additional headroom for vending taller products. When increasing the height in one area, the same amount of room will be lost in the tray above or below the one being adjusted.

SNACK/CANDY/FOOD TRAY REMOVAL AND REPOSITIONING

1. Pull out the tray to be adjusted until it stops.
2. Disengage the tray harness from its retainer on the right side wall. See Figure 12. Disconnect the tray plug from its receptacle the harness retainer on the right sidewall.
3. Lift up on the front of the tray and pull slightly (approximately 1.5 cm /.5 in) forward to clear the tray stop.
4. Locate the release lever on the left and right tray rails. (See Figure 13) Swing the release levers up to unlatch.
5. Lift up on the rear of the tray and remove the tray from the vendor.
6. Remove the two tray rail mounting screws to remove both the left and right tray rails from the left and right sidewalls. (See Figure 13)
7. Pull each rail forward to disengage its rear tab from the hole in the rear wall.
8. Relocate left and right rails by reversing step 6. **Rails must be level front to back and left to right.**
9. Place the tray rear rollers on the left and right rails and lifting up on the front of the tray and push it back.
10. Swing the tray rail release levers all the way down (this guides the tray for tilting when loading).
11. Re-install the tray plug into its receptacle on the right side wall.
12. Re-engage the tray harness into its harness retainer (See Figure 12).
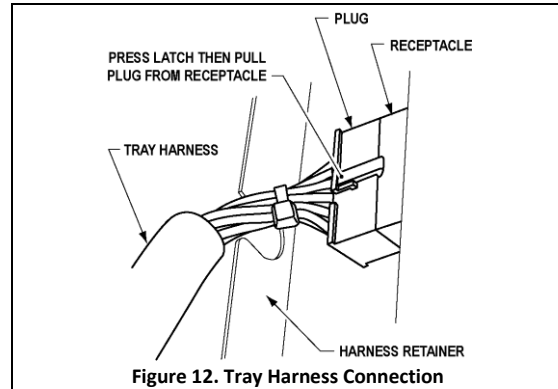13. Test-vend the tray in its new position to assure that the tray plug is properly seated.
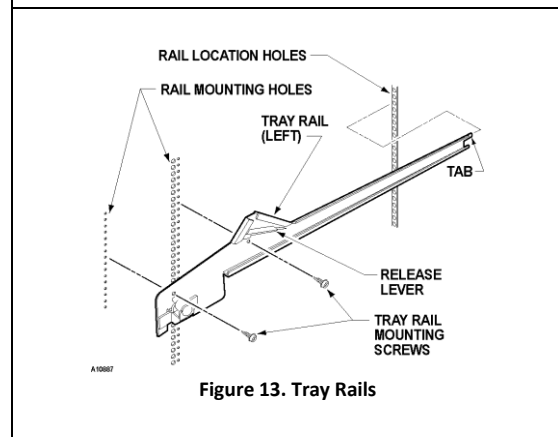

Figure 12. Tray Harness Connection

Figure 13. Tray Rails

CAN/BOTTLE TRAY REMOVAL

1. Unlatch the tray and pull it all the way out until it stops.
2. Disengage the tray harness from its harness retainer on the right side wall. See Figure 12. Disconnect the tray plug from its receptacle on the right side wall.
3. Remove and save the six (6) screws that fasten the tray to the left and right slides. Lift up and forward to remove the tray.
4. Pull out on slides and remove and retain the screws fastening the slides to the side walls (See Figure 15).
5. Relocate the slides and re-install with screws through the slides into the side walls. Assure slides are mounted level and in same location from left to right and front to back.
6. Reverse procedure to re-install tray.
7. Test-vend the tray in its new position to assure that the tray plug is properly seated.

HIGH CAPACITY CAN TRAY REMOVAL

1. Unlatch the tray and pull it all the way out until it stops.
2. Disengage the tray harness from its harness retainer on the right side wall. See Figure 12. Disconnect the tray plug from its receptacle on the right side wall.
3. Remove and save the four (4) nuts located near the corners of underneath the tray. (See Figures 14a & b). Lift up and forward to remove the tray.
4. Pull out on slides and remove and retain the screws fastening the slides to the side walls.
5. Relocate the slides and re-install with screws through the slides into the side walls. Assure slides are mounted level and in same location from left to right and front to back.

6. Reverse procedure to re-install tray.
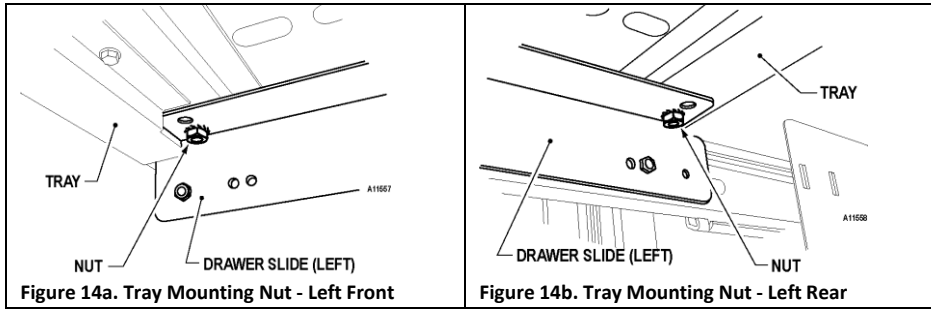7. Test-vend the tray in its new position to assure that the tray plug is properly seated.

Figure 14a. Tray Mounting Nut - Left Front   **Figure 14b. Tray Mounting Nut - Left Rear**
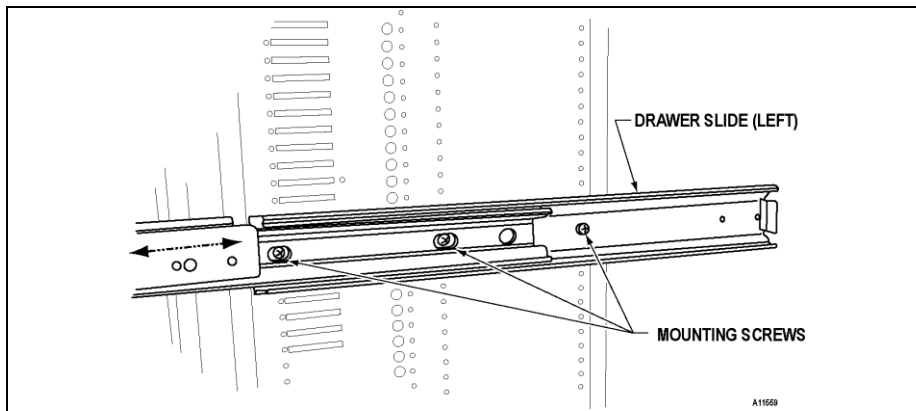
Figure 15. Drawer Slide Removal (Left Shown)

CANDY, SNACK, AND MEDIUM (3/4) SNACK TRAY ADJUSTMENTS

All of the Snack/Candy/Food/Beverage Trays have adjustable divider locations. By adding, removing, or relocating divider positions a wide variety of selection compartment widths can be obtained as required. (See Figure 16). The dividers can be located in every ½ Candy position. This adjustment provides for **CANDY** (candy bars, crackers), **MEDIUM SNACK** (small chip bags, cookies), and full sized **SNACK** (chips, pastries) width compartments. The divider adjustments also provide for compartments wider than a SNACK compartment width for larger items. Every tray provides motor connections for the maximum number of selections per tray. Additional parts (dividers, motors, spirals, and adapter kits) are available … For additional information refer to the Parts & Service portion of the website listed at the beginning and end of this manual.

FIG 16.: Divider Positions and Approximate Sizes
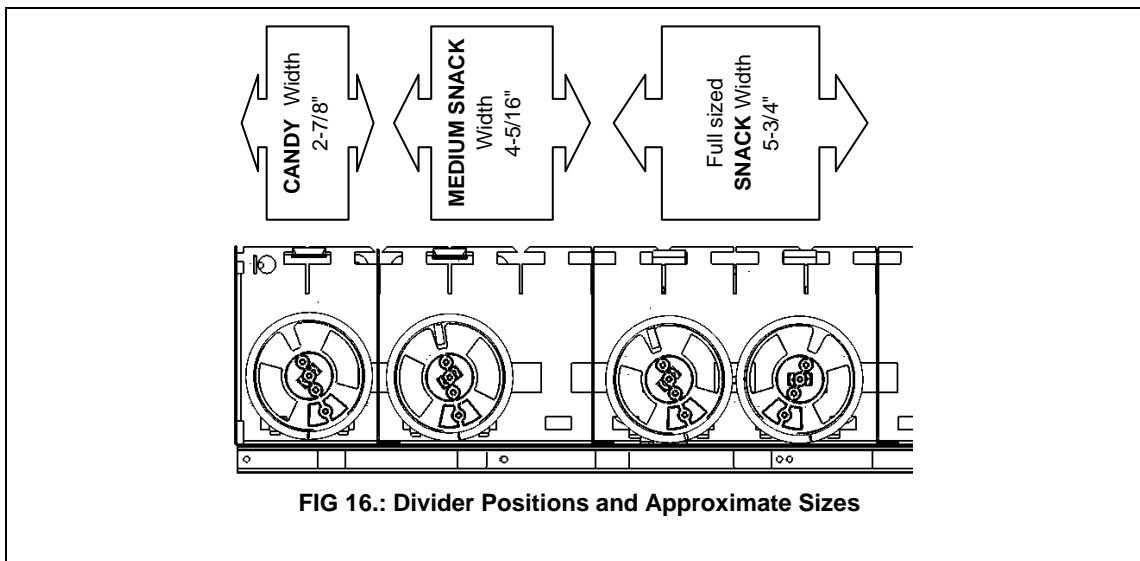
SPIRAL ADJUSTEMENT

The shape, size and thickness of a product affect how well it falls off the tray. Most products can be vended successfully when the spiral end is positioned at 6 o'clock. If vending problems occur with spiral ends at the standard 6 o'clock position, adjust the drop-off either by retiming the spiral or installing a Product Pusher.
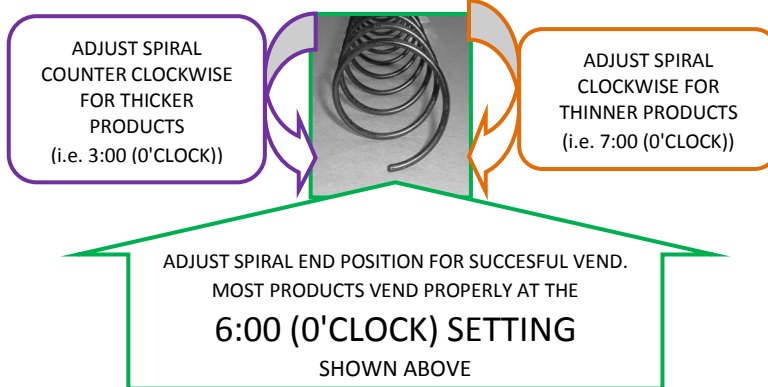
SPIRAL TIMING

SNACK/CANDY/FOOD TRAY

Each spiral can be rotated in 20º (degree) increments for a different drop-off point. Most products can be vended successfully when the spiral end is positioned at the 6 o'clock position.

The general rule is:

The narrower the product, the higher the timing.

- Thick Products - 4-6 o'clock
- Most products – 6 o'clock
- Thin Products - 6-8 o'clock

ADJUST SPIRAL COUNTER CLOCKWISE FOR THICKER PRODUCTS
(i.e. 3:00 (0'CLOCK))

ADJUST SPIRAL CLOCKWISE FOR THINNER PRODUCTS
(i.e. 7:00 (0'CLOCK))

ADJUST SPIRAL END POSITION FOR SUCCESFUL VEND.
MOST PRODUCTS VEND PROPERLY AT THE
6:00 (0'CLOCK) SETTING
SHOWN ABOVE

TO CHANGE SNACK/CANDY/FOOD SPIRAL TIMING:

1. Remove the motor cover.
2. Raise the motor slightly and pull forward on the spiral until it separates from the motor.
3. Rotate the spiral to the desired position and re-insert the hub (spiral coupling) into the motor. The hub must be seated over the vertical rail or retaining rib on the tray as shown (See Figure 17).
4. Replace the motor cover, making sure it is securely tightened.
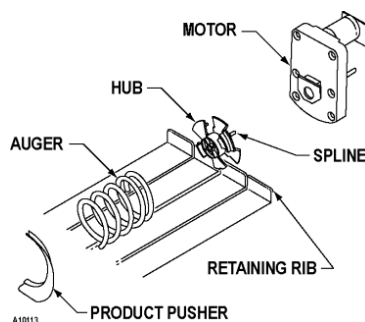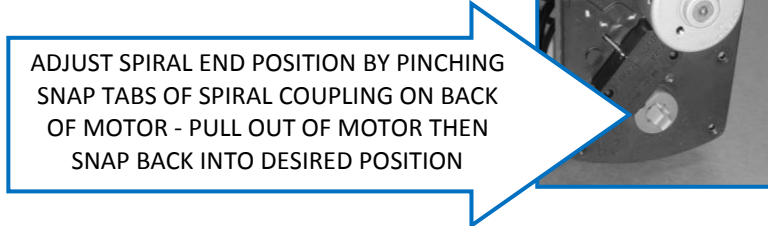5. Test-vend to make sure product vends properly.

FIG 17.: Spiral and Motor Connection

TO CHANGE CAN/BOTTLE/HCCT SPIRAL TIMING:

Each spiral can be rotated in 45º (degree) increments for a different drop-off point. Most products can be vended successfully when the spiral end is positioned at 6 o'clock.

1. Reach behind motor to release spiral coupling from motor. Pinch spiral coupling ends and pull forward on spiral to remove.
2. Rotate the spiral to the desired position and re-insert the spiral coupling into the motor. The spiral coupling must be fully seated into the motor.
3. Test-vend to make sure product vends properly.

ADJUST SPIRAL END POSITION BY PINCHING SNAP TABS OF SPIRAL COUPLING ON BACK OF MOTOR - PULL OUT OF MOTOR THEN SNAP BACK INTO DESIRED POSITION

Product Pushers

If the product still will not vend properly after re-timing of the spiral then install a Product Pusher. The Product Pushers are provided in the service package of the vendor. Snap onto spirals only as necessary as shown.

IF AFTER ADJUSTING THE SPIRAL END THE PRODUCT STILL DOESN'T FALL OFF TRAY ... SNAP PROVIDED PRODUCT PUSHERS ONTO END OF SPIRALS TO ENSURE PRODUCT WILL FALL

Loading Coin Mechanism

The Coin Mechanism must be loaded with some level of each coin in order for the vendor to operate properly. The coins need to be loaded into the coin mechanism by insertion into the front coin insert. First enter the SERVICE MODE then TUBE FILL MODE
(See SERVICE MODE instructions – COIN/TUBE FILL MODE

Each tube should be kept loaded with at least one roll of each coin to keep above the tube low level sensors. Once the tubes are loaded to these levels the Dollar Bill Validator will accept bills. If the coin tubes fall below this level the Dollar Bill Validator may stop accepting bills and the front display will indicate "EXACT CHANGE ONLY".

PRESS SERVICE MODE BUTTON AND PRESS 1 TO ENTER TUBE FILL MODE

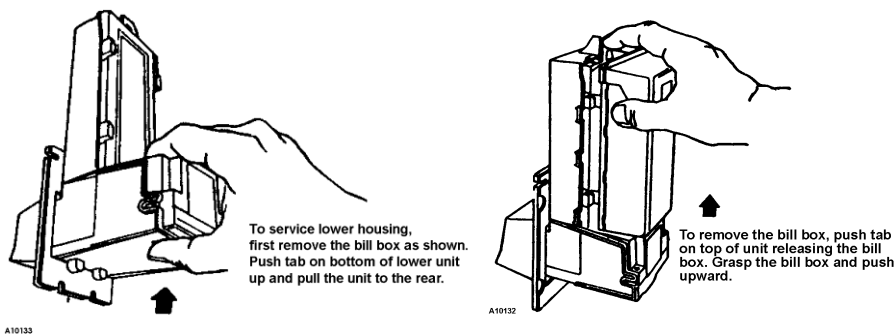INSERT COINS THROUGH FRONT DOOR COIN INSERT TO FILL COIN TUBES

Alternatively, you can load the coins into the slots above the respective coin tubes, making sure to load the correct coins into their correct tubes. This is not the preferred method. By using TUBE FILL mode the control board can then accurately determine coin levels.

On some Coin Mechanisms there are buttons above each tube to dispense the coins (may vary depending on which coin mechanism that is used). The coins can also be dispensed within the Service Mode described later.
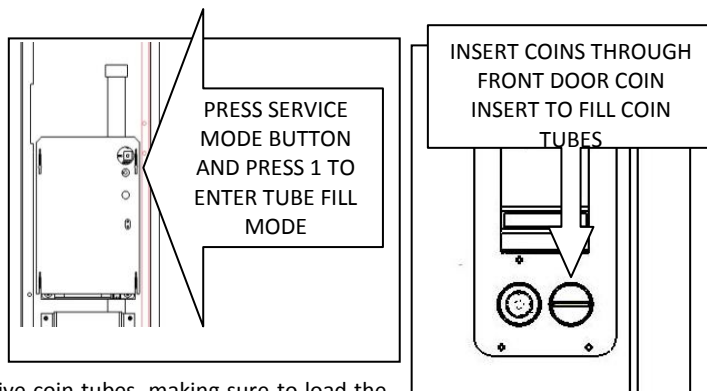
Bill Validator Operation (OPTIONAL)

To remove the bills from the Dollar Bill Validator push the tab on the top of the bill box and lift up. To clear jams or cleaning unlatch lower unit as shown. Dollar Bill Validator cleaning instructions as well as more advanced service information can be obtained on the Service portion of the website listed at the beginning and end of this manual.

To service lower housing, first remove the bill box as shown. Push tab on bottom of lower unit up and pull the unit to the rear.

A10133

To remove the bill box, push tab on top of unit releasing the bill box. Grasp the bill box and push upward.

A10132

AUTOMATIC DELIVERY LIFT (OPTIONAL)

This information is for machines with the GVC2 Control Board (part number 4214682.004) and software version V3.3.10177 and higher.

INTRODUCTION

The Automatic Delivery Lift system is designed to lift vended products to the 2012 American Disabilities Act (ADA) height requirement level from the locations floor. This same system can also provide an enhanced customer experience for those locations where an almost hands free vended product presentation is desirable.

The Delivery Lift system is an option that can be used on the line of Delivery Lift Ready Machines (also called ADA ready machines) and consists of an LED illuminated product delivery box with a motorized product lift plate, a set of product height sensors, a motorized delivery box door (Auto Door) and a Blue LED illuminated activation button.

The delivery lift system can be factory installed or provided as a retrofit kit for field ADA ready machines. See the list of ADA ready model numbers or contact a sales or service representative for more information.

INITIAL SETUP – SERVICE MODE

When an Automatic Delivery Lift system is installed in an ADA ready machine, it is automatically detected when a controller Service Mode Motor Count is done. The Motor Count will show the tray motor count briefly with the 3 additional delivery lift motors before returning to a tray motor count only. Once a Delivery Lift system is detected, it will complete a functional test at every Motor Count or at machine power on. When the Delivery Lift is moving, the Blue Delivery Lift Button on the front of the machine will flash and can be pressed to stop the Delivery Lift operation if necessary. Information on Service Mode Configuration menu and Diagnostic Mode menu options are listed on the following pages.

SALES MODE

When a product is selected and vended, the product drops into the Delivery Lift Box after it first passes by the iVend sensor to confirm that a product has been vended. Next, when the machine is using the default BUTTON configuration mode, the Blue Delivery Lift Button will be constantly illuminated for 10 seconds, during this period the Delivery Lift can be activated. When the illuminated button is pressed, the Delivery Door will open, the Delivery Lift will begin raising the vended product and the button will flash. The product will be raised until a

portion of the product package blocks the Delivery Lift sensors, indicating that the product has reached the ADA delivery height. The machine display will now show "Please Remove Your Product" and an audible beep will occur every 10 seconds until the product is removed or one minute has elapsed. After one minute, the Delivery Door will close and the "Please Remove Your Product" message will continue to be displayed. Once the product is removed and the Delivery Lift Sensors are no longer blocked, the Delivery Lift will return to the bottom of the Delivery Box and machine display will return to the sales mode message and is ready for the next vend.

NOTE: If a customer grabs the product while the Delivery Lift is in operation, the Delivery Lift Sensors may detect a sensor blockage and will stop the Delivery Lift at its current location. Pressing the flashing Blue Delivery Lift Button will also stop the Delivery Lift.

SERVICE MODE PROGRAMMING & TEST FUNCTIONS

Once in the service mode the control functions can be accessed and used, these are the service menus specific to the Automatic Delivery Lift functions.

- **Service Mode 2 – Motor Count**
  Motor count includes tray motors, changer escrow motor, delivery lift and auto door motors briefly (example – shows 40 and then goes back to 36d) to show the additional motors and then returns to show only tray count.
- **Service Mode 4 – Configuration**
  The Delivery Lift feature can be set to:
    1. Button Mode- The Delivery Lift Button will need to be pressed to activate the Lift.
    2. Automatic Mode – The lift will run after each vend.
    3. OFF
- **Service Mode 0 – Diagnostics**
  Contains functions for testing the Automatic Deliver Lift Door, Delivery Lift and Delivery Lift Sensors.

See the Basic Programming pages starting on page 15 for additional information on the Automatic Delivery Lift service modes.

VEND CYCLE - IVEND® EQUIPPED

All vendor selections have been assigned at the factory to be monitored for iVend® optical sensing.

For 5 milliseconds at the start of a vend, the iVend® optical sensor will be checked to make sure it is not blocked, damaged or disconnected.

> **If blocked, damaged or disconnected** - the normal home-switch-vend cycle will be used and the optical sensors will be ignored. Both the vend motor and a vend timeout timer are started.

- The selection motor rotates to the home-switch position.
- If there is a home-switch signal, then the vend is considered successful.
- If after 10 seconds there is no home-switch signal, the vend failed. The vend motor is shut down and $\boxed{\textit{MAKE ALTERNATE SELECTION}}$ is displayed. The customer can press selection buttons to activate another motor or press the coin return button.

> **If not blocked, damaged or disconnected - the iVend™ Sensor System is used**. The vend motor and a vend timeout timer are started.

- The selection motor rotates to the home-switch position.
- If a product is detected during this time period, then the vend is considered successful.
- If after reaching the home-switch position and a product is not detected, then the vend motor will pause for 1 second while the controller continues to monitor the optical sensor for product delivery.
  - If a product is detected during this pause, then the vend is considered successful.
  - If a product is not detected, then the controller initiates a second vend cycle and another vend timeout timer while continuing to monitor the optical sensor.
    - ✓ If a product is detected during this second cycle, the motor will be stopped immediately. The vend is considered successful. The **2ND VEND** accounting counter is increased by one.
    - ✓ If after reaching the home-switch position and a product is not detected, then the vend motor is stopped and for 2 seconds the controller continues to monitor the optical sensor for product delivery. If a product is detected, the vend is considered successful. The **2ND VEND** accounting counter is increased by one.
    - ✓ Otherwise, if no product is detected, the selection is sold out. Such a state will trigger the display of the $\boxed{\textit{MAKE ALTERNATE SELECTION}}$ message. The amount of credit is displayed. The customer can press selection buttons to activate this or another motor o͟r press the coin return button.
  - If after 10 seconds there is no home-switch signal and no product is detected, then the vend failed. The vend motor is shut down and $\boxed{\textit{MAKE ALTERNATE SELECTION}}$ is displayed. The customer can press selection buttons to activate another motor or press the coin return button.
    NOTE: Force Vend is disabled to permit customer to retrieve deposited money.

SALES MODE

The vendor automatically defaults to Sales Mode after it is turned on. In the Sales Mode, the vendor accepts money deposits, pays out change and dispenses product to the customer.

DISPLAY CREDIT - ELECTRONIC PRICING

This vendor is equipped with the Electronic Pricing feature. The customer may verify the price by pressing the selection number (i.e. 22) before inserting money. If a selection is made and credit has not been established, the price for that selection is displayed and "INSERT MORE MONEY" will be displayed. When money or credit is accepted, then the amount of credit is displayed.

"USE EXACT CHANGE ONLY" MESSAGE OPERATION

If the coin levels in the coin mechanism tubes are below the low-level sensors, "**USE EXACT CHANGE ONLY**" will be displayed. This indicates the Coin Mechanism does not have enough coins in the coin mech tubes to make change. This also indicates that the Dollar Bill Validator may be disabled until change can be made.

BASIC PROGRAMMING SETUP

This portion of the manual includes only basic Service Mode Programming functions. Refer to the CONTROL SYSTEM Programming Manual included with the vendor for more advanced description of all functions within the Service Mode.

KEYPAD

Use the buttons on the keypad as directed in the step-by-step instructions in this manual to program the vendor.

Entries from the keypad will be displayed on the front vendor display.

DISPLAY

Check the display after pressing the **Service Mode Button** and/or **Keypad Buttons** to make sure that the program is responding correctly.

Buttons 0-9 are used to move between the various modes, menus and sub-menus; while the #️ button is used to enter a menu, confirm or save a setting.
See Figure 18
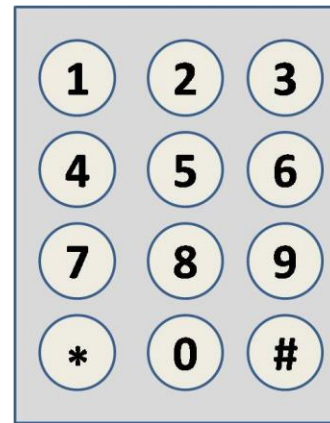
FIG 18.: Keypad Layout

SERVICE MODE

Use the **Service Mode** to program and service the vendor. Use the keypad as an input device. Watch the display for information while in Service Mode.

SERVICE MODE BUTTON

To enter **Service Mode**, press the **Service Mode Button** located on the top or upper right corner of the controller cover (See Figure 19). To exit Service Mode, press the Service Mode Button.

NOTE: If no key is pressed for approximately one minute while in Service Mode, the controller will automatically return to Sales Mode.
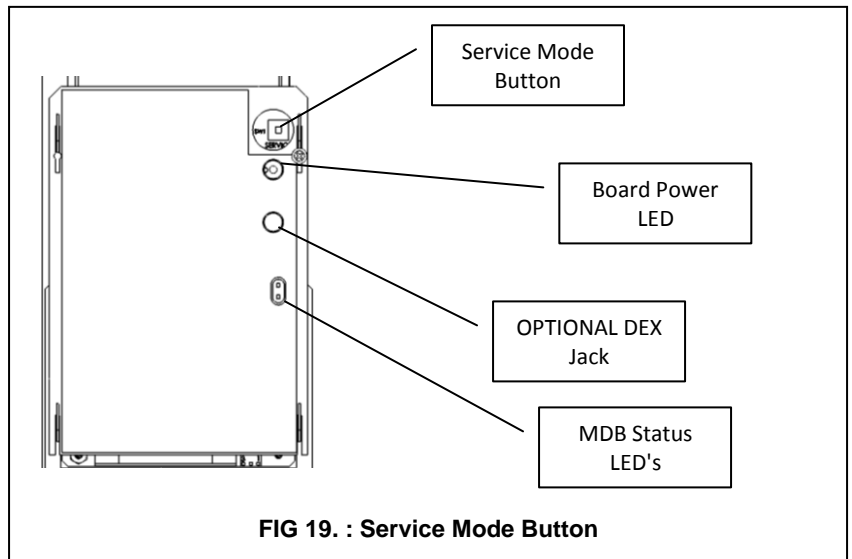

FIG 19. : Service Mode Button

SERVICE MODE FUNCTIONS

1 TUBE FILL/ DISPENSE COINS

TUBE FILL

Tube Fill counts coins as they are deposited and Shows the dollar amount.

	STEP	DISPLAY
1.	Press Service Mode Button ⬛	Motor Count 60
2.	Press ① and begin depositing coins	At least 15 of each denomination
3.	Press ✱ 2 times to exit	(Sales Mode)

TUBE DISPENSE

Tube Dispense

Pays out coins from the coin mech coin tubes.

This mode will also display the current quantity of coins in the coin mech tubes.

	STEP	DISPLAY
1.	Press ① to dispense dollar coin	$1.00/coins
2.	Press ② to dispense quarters	0.25/coins
3.	Press ③ to dispense dimes	0.10/coins
4.	Press ④ to dispense nickels	0.05/coins
5.	Press ✱ 2 times to exit	(Sales Mode)

Note: *For dispensing more than a 4 denomination coin mech use keys greater in the same sequence as shown above.*

2 MOTOR COUNT

Displays the total count of working motors.

	STEP	DISPLAY
1.	Press Service Mode Button ⬛	Motors (- -)
2.	Press ② then wait.	Motors (- -)
3.	Press ✱ to exit.	(Sales Mode)

3 OPTIONS
(See CONTROL SYSTEM Programming Manual for more information)

4 CONFIGURATION
(See CONTROL SYSTEM Programming Manual for more information)

4.0.0.2 AUTOMATED DELIVERY BOX

	STEP	DISPLAY
1.	Press the 'Service Mode' ⬛ button on the control board	(Motor Count)
2.	Press ④	Configuration
3.	Press ⓪	Password: Configuration
4.	Enter Password (default 2314)	Advanced Config
5.	Press ⓪	Peripherals * - exit

	STEP	DISPLAY
6.	Press (2) to see current auto lift setting. Default is BUTTON	Auto Lift BUTTON * - exit # - save
7.	Press (2) to turn the auto lift AUTO	Auto Lift AUTO * - exit # - save
8.	Press (2) to turn the auto lift OFF	Auto Lift OFF * - exit # - save
9.	Press (#) to save	Auto Lift OFF * - exit # - edit
10.	Press (*) 3 times to exit	Back to sales mode

5 PRICING

Price Setting - This menu allows these methods for assigning prices:
- ITEM — by individual selections
- ROW— by shelf or tray
- ALL ITEMS — by entire vendor.
- COUPONS — by Item, Row, or ALL
- TOKENS — by Item, Row, or ALL
- COMBO

The maximum price that can be set is $655.35.

5.1 ALL

This menu allows you to set the selection price of every item all at once.

Time Saving Suggestion: *Instead of setting the price of each item one at a time, it is much faster to set the common price of the entire vendor; then go back and set the price of each item or row.*

	STEP	DISPLAY
1.	Press Service Mode Button (■)	Motors (- -)
2.	Press (5)	Pricing
3.	Press (3) to enter price	ALL Items $0.50
4.	Press (#) to save.	ALL Items $0.50
5.	Press (*) 3 times to exit.	(Sales Mode)

5.2 ROW

Use this menu to set the price of a row (shelf) all at the same time.

Time Saving Suggestion: *Instead of setting the price of one item at a time, set the common price of a Row, then go back and set the price of each item.*

	STEP	DISPLAY
1.	Service Mode Button (■)	Motors (- -)
2.	Press (5)	Pricing
3.	Press (2)	Row: - - $0.00
4.	Enter row number and price *Example: Top row=01,* *row below top row=02, etc.* Program will automatically go to the next Row.	Row:01 $0.50
5.	Press (#) to save.	Row 01 $0.50
6.	Press (*) 3 times to exit	(Sales Mode)

5.3 ITEM

	STEP	DISPLAY
1.	Press Service Mode Button ⬛	Motors (- -)
2.	Press ⑤	Pricing
3.	Press ①	Item
4.	Enter Item and price	Item 010 $0.50
5.	Press # to save. The program will automatically go to the next selection number.	Item 010 $0.50
6.	Press ✱ 3 times to exit.	(Sales Mode)

5.4, COUPON, TOKEN, COMBO
(See CONTROL SYSTEM Programming Manual for more information)

6 ACCOUNTING

Use this menu to gain access to menus that display or reset data the various types of cash and vend totals. Counts can be viewed by individual items, rows or as the whole vendor.
(See CONTROL SYSTEM Programming Manual for more information)

7 ADVANCED OPTIONS
(See CONTROL SYSTEM Programming Manual for more information)

8 TEST VEND - SINGLE MOTOR

Use this menu to test vend individual motors. The selection will display with the test vend. If a test vend attempt on a particular motor fails, the controller will beep.

	STEP	DISPLAY
1.	Press Service Mode Button ⬛	Motors (- -)
2.	Press ⑧	Item - - -
3.	Press selection number on keypad and wait	Item 010
4.	Repeat step 3 for other selections.	
5.	Press ✱ 3 times to exit.	(Sales Mode)

9 TEST VEND ALL MOTORS

Use this menu to test vend all motors. The selection will display with the test vend. If a test vend attempt on a particular motor fails, the controller will beep. Satellite vendors will also be included in the test.

NOTE: *Pressing* ✱ *at any time will stop the test*

	STEP	DISPLAY
1.	Press Service Mode Button ⬛	Motors (- -)
2.	Press ⑨ and wait.	Item
	The motor selection number will display while it is being tested.	Item 010
3.	Press ✱ 3 times to exit.	(Sales Mode)

0 DIAGNOSTICS
(See CONTROL SYSTEM Programming Manual for more information)

0.0.2 AUTOMATED DOOR

Opens and closes the Delivery Lift box product door and indicates if the control board detects the motor cam switch to be in the correct position.

	STEP	DISPLAY
1	Press the 'Service Mode' ⬛ button on the control board.	(Motor count)
2	Press ⓪	Diagnostics
3	Press ⓪	Peripherals
4	Press ② to see current Auto Door position	Auto Door Closed 1-open 2-close * - exit
5	Press ① - OPEN DOOR , ② -CLOSE DOOR	Auto Door Closed 1-open 2-close * - exit
6	Press ✱ 3 times to exit	Back to sales mode

NOTE: The display will show the current "Open" or "Closed" position while the Auto Door is moving to a new position. If the control board can't determine an Auto Door motor position, the "Unknown" message will also appear.

<u>IMPORTANT:</u> If the control board cannot determine the Auto Door position when the sales mode is entered or while in the sales mode, the machine will be placed **Out of Service**.

0.0.3 DELIVERY LIFT TEST

Raises and lowers the Delivery Lift plate and indicates if the control board detects the motor cam switch to have the Delivery Lift in the correct position.

	STEP	DISPLAY
1	Press the 'Service Mode' ⬛ button on the control board.	(Motor count)
2	Press ⓪	Diagnostics
3	Press ⓪	Peripherals
4	Press ③	Lift Down 1 – up 2 – down *-- exit
5	Press ① - Raise the lift to top position , ② -Lower the lift to the bottom (Home) position	Lift Down 1-UP 2-DOWN * - exit
6	Press ✱ 3 times to exit	Back to sales mode

NOTE: The display will show "Lift Unknown" while the Delivery Lift is moving to the up or down position. If the control board can't determine a Lift motors cam position the "Lift Unknown" message will also appear and stay present.

<u>IMPORTANT:</u> **Do not attempt to run the Delivery Lift Test diagnostic if the Delivery Lift Plate may be jammed. Manually correct this issue before running test. Contact Vendnet Service at 1-800-833-4411 for assistance or more information.**

0.0.6 LIFT OPTICS ALIGN

This indicates if the Delivery Lift Sensors are functioning and aligned so that they can detect when a product is lifted to the correct height. The Green LED on the lift optics board (located behind the iVend Red LED sensor board) will also be illuminated when sensors are aligned.

	STEP	DISPLAY
1	Press the 'Service Mode' ⬛ button on the control board.	(Motor count)
2	Press ⓪	Diagnostics
3	Press ⓪	Peripherals
4	Press ⑥ Shows current state of sensors. OK is unblocked and ready . NO is blocked or not operational. The time counter allows for determining how long a product or object is blocking the sensors.	Lift Optics Align OK or NO 0000 ms
5	Press ✳ 3 times to exit	Back to sales mode

TEMPERATURE CONTROL

To prevent damage to the refrigeration unit when it is turned off or the power is interrupted, the refrigeration unit will not restart for at least three minutes regardless of the temperature.

SENSORS

Temperature sensor(s) are positioned to best represent the product temperature. The sensor(s) are monitored by the control system. The refrigeration and optional heater systems are activated depending on the target temperature setting or **SET POINT**. The total allowable temperature variation from the **SET POINT** is **DELTA**.

SENSOR1

Single Zone versions have **SENSOR1** located near the top-right of the vendor cabinet assembly. Dual Zone versions have **SENSOR1** located under the dual zone barrier on the right side of the cabinet assembly.

SENSOR2

Dual Zone versions may have an optional **SENSOR2** mounted near the top-right of the vendor cabinet assembly.
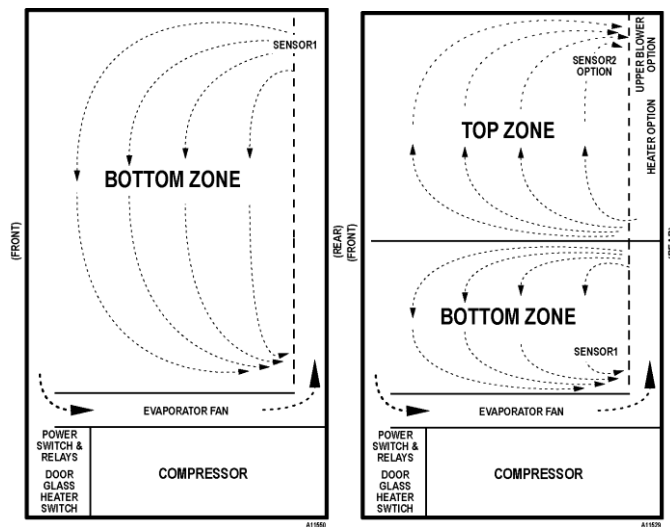
RELAYS

The control system controls up to three relays which then control the refrigeration and heating systems:
- **RELAY1**— Controls the compressor and the condenser fan (refrigeration system).
- **RELAY2**— Controls the evaporator fan (refrigeration system).
- **RELAY3 OPTION**— Controls the optional upper zone blower and heater system.

DOOR SWITCH

The door switch is located in the upper right corner of the vendor door assembly (See Figure 20). The door switch is monitored by the control system for evaluating when to run the refrigeration and evaporator systems as well as when to reset optional health safety.

If the vendor is plugged in and the power switch is on and the door is open, then the compressor, evaporator fan, heater and heater fan are all turned off. A 30 minute door timer starts and a compressor delay timer starts.
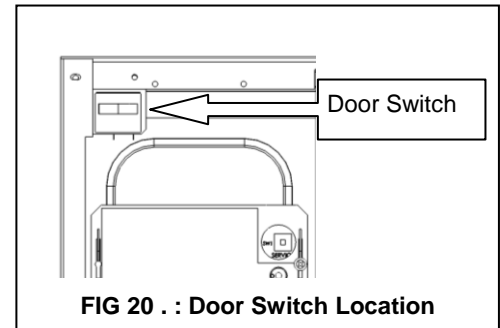- **If the door is open for more than 30 minutes**, the controller will resume *closed door* operation, the message **DOOR ALERT** is displayed and error code is set.
- **If the door is closed**, then evaporator fan is turned on. When the compressor delay timer expires, then the controller evaluates the zone sensor readings, relay states and timers.

FIG 20 . : Door Switch Location

FACTORY DEFAULT SETTINGS

NOTE: Please read and follow the step-by-step instructions in the Control System Programming Manual to change the factory default settings.

PROGRAM MODE		PROGRAM VERSION	PROGRAM VERSION
		ENGLISH	SPANISH
TEMPERTURE MODE	DEGREE	°F (Fahrenheit)	°C (Celsius)
		COLD	COLD
		OFF	OFF
PRICE • ITEM(S)		All selections set to .75	All selections set to 50.00
SENSOR1	SET POINT	36°F (2C)	39°F (4 C)
	DELTA	7°F	7°F (4 C)
	DEFROST DURATION	15 MIN	15 MIN
	DEFROST PERIOD (Comp Continuous Run Time)	2 HRS	2 HRS
	DEFROST DELAY (timer)	8 HRS	8 HRS
	HEALTH SAFETY	COLD	COLD
	RANGE (health/safety)	All	All
SENSOR2 OPTION	SET POINT	63°F	63°F (16 C)
	DELTA	5°F	5°F (3 C)

BOTTOM (COOL) ZONE

For a Single Zone vendor, the entire tray compartment is the Bottom (Cool) Zone. For a Dual Zone vendor, the product trays contained below the insulating barrier is the Bottom (Cool) Zone.

The evaporator is located between the lowest tray and the compressor. The evaporator fan distributes cold air to products in the bottom zone. The refrigeration compressor is fully insulated and is located below the bottom (cool) zone.

CUT-IN

The refrigeration system is turned on when the temperature reading of **SENSOR1** is greater than or equal to **SET POINT** plus half of **DELTA**.

CUT-OUT

The refrigeration system is turned off when the temperature reading of **SENSOR1** is less than or equal to **SET POINT** minus half of **DELTA**.
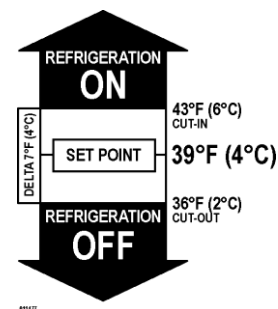
HEALTH SAFETY

The **HEALTH SAFETY** feature prevents the sale of perishable food if the air temperature inside the bottom zone (**SENSOR1**) rises above the health safety temperature limits for cold food products (41°F / 5°C) for more than 15 minutes. The **SZF/DZF Vendor** can vend cold food products that require storage temperatures in the range of 32°F to 41°F.

> NOTE: The time requirements for the COLD setting do not apply for 30 minutes immediately following vendor filling or servicing.

> IMPORTANT! The operator is responsible for enabling the health safety for vended product.

Refer to the CONTROL SYSTEM Programming Manual for additional instructions on how to set the **Health Safety** and **Health Safety Range**.

HEALTH SAFETY TEST

> IMPORTANT!   Before starting the Health Safety Test check to see which selections are protected by the Health Safety Alarm, this will minimize the time required to complete the test in the interest of preserving a safe storage temperature for the food. The entire procedure should take no longer than 4 minutes, typically less that 3 minutes.

1. Press "0" and note the internal temperature for reference.
2. Open the machine door to allow the internal temperature to rise, observe continuously by pressing the "0" key every 10 seconds.

> IMPORTANT! It should take no more than 1-3 minutes for the temperature to rise to 42°F, continue to monitor the temperature to reduce the time that the door has to remain open to an absolute minimum.

3. During the 1 to 3 minute period enter service mode and activate the Health Test Mode (see steps below), this will override the 15 minute delay that is normally imposed before activating the health alarm. The message "Health Test Mode" will be displayed.
4. Once the internal temperature has reached 42°F the display will show "Health Safety Alarm" for 10 seconds and there will be an intermittent audible beep during this period.
5. **Immediately** close the main door; the refrigeration unit and evaporator fan will not operate at this time. Make a test vend of an item known to be set up for Health Safety protection, verify that the attempt to vend is rejected.
6. Open the main door briefly and press the service mode button twice to cancel the "Health Test Mode" and then close the main door.
7. **IMPORTANT Check** that the machine display is not showing the message "Health Test Mode".
   FAILURE to cancel the "Health Test Mode" could result in all the perishable food in the machine to spoil.

   NOTE: If you have not completed step 6 above within 10 minutes of starting the "Health Test Mode", the test will be cancelled and the machine will revert back to normal operation i.e. as if the main door had been closed after servicing, the refrigeration system will operate normally and health safety alarm will be overridden for a period of 30 minutes.

TO ACTIVATE HEALTH SAFETY TEST MODE

	STEP	DISPLAY
1	Press Service Mode Button ⬛	Motors (- -)
2	Press **0**	Diagnostics
3	Press **7**	Password:
4	Enter Password (default-2314)	Log
5	Press **4**	HS Test (Current Status) *- exit 1- edit
6	Press **4** to toggle ON/OFF	HS Test (Choice Flashing) *- exit # - save
7	Press **#** to save	HS Test (New Status) *- exit 1- edit
8	Press **✱** four times to exit	(Sales Mode)

TOP (WARM) ZONE

If the vendor is a Dual Zone, then the trays above the barrier are in the Top (Warm) Zone. If the optional heater system is installed, then an optional temperature **SENSOR2** is also installed.

The optional heater is inside the air duct located on the back of the cabinet. An optional blower fan is located on the top corner above the heater. The blower is turned on if the temperature is outside of the setting (**SET POINT** plus or minus half of **DELTA**).

CUT-IN

The heater turns on when **SENSOR2** temperature is less than or equal to **SET POINT** minus half of **DELTA**.

CUT-OUT

The heater turns off if **SENSOR2** reading equals the **SET POINT** or if the compressor is on.
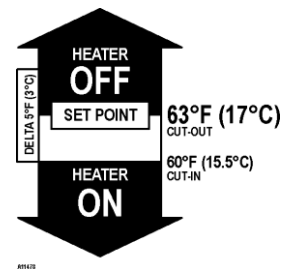
REFRIGERATION

To prevent damage to the refrigeration unit when it is turned off or the power is interrupted, the refrigeration unit will not restart for at least three minutes regardless of the temperature.

REFRIGERATION TROUBLESHOOTING

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

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

NOTE: MOST REFRIGERATION PROBLEMS ARE ELECTRICAL.

WARNING: Wiring diagrams must be followed as shown. Wrong wiring may cause serious electrical hazard and potential damage or rupture component electrical parts.

TABLE 1. APPROXIMATE WINDING RESISTANCE

Across Terminals	Embraco 1/3 HP
COMMON to START:	4.25 Ohms
COMMON to RUN:	1.10 Ohms
COMMON to SHELL:	No continuity

Figure 21a. Embraco Compressor

Figure 21c. Embraco 1/3 HP Compressor Schematic
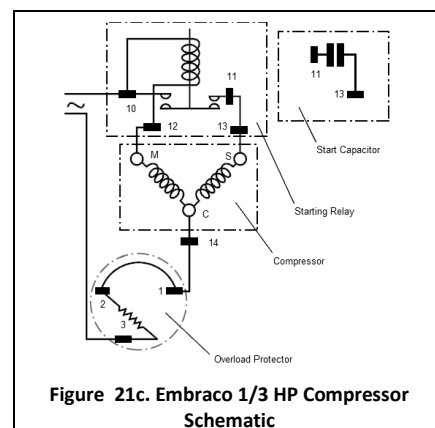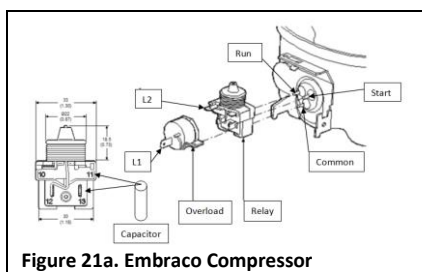
NOTE: **The sealed hermetic system should not be worked on outside the Factory Service Center**.

REFRIGERATION TROUBLESHOOTING

	COMPRESSOR WILL NOT START	
	Problem	**Possible Causes/Actions**
1.	Vendor not plugged in.	
2.	Tripped breaker or blown fuse.	
3.	Faulty wall outlet	
4.	Faulty (short or open) power cord.	Check power cord with a Multi-Meter.
5.	Improper wiring.	
6.	Low voltage	Check the power source with a volt meter. Minimum of 103VAC for 115VAC, 60HZ, Minimum of 195VAC for 230VAC, 50Hz.
7.	Overload defective	Overload is tripping to fast. Check overload with a Multi-Meter.
8.	Start relay defective	Check start relay with a Multi-Meter.
9.	Compressor has open windings	Check compressor windings with a Multi-Meter.
10.	Defective refrigeration relay	• Switch the controller to **Service Mode** then verify that the relay turns on by using the **Test Relay** menu. • With refrigeration relay turned on in the **Test Relay** menu. Check relay terminals 1 to 0 for 24VDC with a Multi-Meter. If power is present relay is bad.
11.	Defective control circuit	Unplug power to the vendor. Open the power panel. Use insulated jumper wires to short the wire terminals on **Relay 1**; between 2 and 4 and between 6 and 8. Restore power to the vendor. The compressor should start. If it does there is a problem in the control circuit.
12.	Defective door switch	Check for proper door switch operation.
	COMPRESSOR TRIPS ON OVERLOAD	
1.	Improper voltage	Check voltage for 5-10% above or 5% below machines rated voltage. Check power source with a Multi-Meter.
2.	Overload defective	Overload tripping to vast. Check overload with a Multi-Meter.
3.	Relay defective	Relay Won't open after starting. Check relay with a Multi-Meter.
4.	Compressor has shorted winding	Check compressor windings with a Multi-Meter.
	NOISY OR VIBRATING UNIT	
1.	Components rubbing or touching each other	• Check fan blades and motor. • Loose shrouds and harness. • Copper tubing rubbing. • Loose or unsecured parts. • Dirty condenser fan blades.
2.	Worn or aged grommets	Check grommets.
3.	Compressor	• Bad valves. • Slugging. • Bad windings (see Figure 21. Compressor Schematic). • Low voltage.
	UNIT SHORT CYCLES	
1.	Defective overload	Check overload with a Multi-Meter.
2.	Faulty condenser fan	
3.	Airflow restricted	• Dirty or blocked condenser coils • Dirty or blocked air filter • Dirty or blocked inlet or outlet screens

4.	Faulty temperature sensor or not mounted in the correct position.	
5.	Temperature setting to warm	See Temperature Control section and Factory Default Settings section of this manual.
6.	Defective control board	

UNIT OPERATES LONG OR CONTINUOUSLY

	Problem	Possible Causes/Actions
1.	Air flow restricted	• Clogged or blocked in inlet screen, air filter or outlet screen • Exhaust area blocked. Vendor too close to the wall. • Faulty evaporator motor or blades causing coils to ice over. • Loose connections on evaporator motor (motor not running). • Air flow blocked by product placed in front of evaporator or air duct openings.
2.	Gasket leak around door	
3.	Excessive load	After loading, the unit will run longer to pull out excessive heat from product.
4.	Refrigerant low or restriction in system	
5.	Refrigeration relay shorted.	Switch the controller to **Service Mode**, then use the **Test Relay** menu to verify that the relay turns off.
6.	Faulty controller	
7.	Ambient air temperature and relative humidity exceed manufacturer's operational standards.	
8.	Faulty temperature sensor or sensor has been moved or remounted to wrong position.	

REFREGERATED SPACE TO COLD

1.	Refrigeration setting to cold	See Refrigeration Setting instructions in machines programming manual
2.	Faulty refrigeration relay	• Switch the controller to **Service Mode**, and then verify that the relay turns on by using the **Test Relay** menu. • Check relay terminals for continuity with a Multi-Meter.
3.	Faulty controller	

REFRIGERATED SPACE TOO WARM

1.	Refrigeration setting to warm	See Refrigeration Setting instructions in host machines manual
2.	Faulty temperature sensor	If the temperature reading of **Sensor1** is "- - -", then check connections and the sensor harness.
3.	Faulty refrigeration relay	Switch the controller to **Service Mode** and verify that the **Relay1** turns on by using the **Test Relay** menu.
4.	Air flow restricted	• Faulty evaporator motor or blades causing coils to ice over • Loose connections on evaporator motor (motor not running)
5.	Faulty controller	
6.	Condenser air flow restricted	• Plugged or dirty condenser • Condenser motor or blades bad • Condenser fan blade stuck
7.	Condensing space restricted	Unit placed too close to a wall. Should be 4 to 6 inches of space between machine and the wall
8.	Compressor	• Bad valves • Low charge or restriction in tube capillary starts frosting 8 to 10 inches past evaporator connection tube • Check for oil around brazed connections

TROUBLESHOOTING CIRCUITS WITH MULTI-METER

Caution: Power must be disconnected and fan circuit open.

To check the power source, use the voltage section of the Multi-Meter. Acceptable range is 103-127VAC for 115V (60Hz), or 195-255VAC 230V (50Hz).

- **Check compressor starting relay.**

Embraco 1/3 HP – Remove relay from compressor. (Figure 21a and Figure 21c).

- Use ohmmeter to check for continuity between switch terminals.
- **Check temperature sensor harness** to control board for continuity using ohmmeter of Multi-Meter. Replace if there is no continuity.
- **Check compressor windings** using ohmmeter. Refer to TABLE 1, Figure 21a and Figure **21c**.
- **Check motor protector (overload).** Use the ohmmeter section of the Multi-Meter.
- **Embraco 1/3 HP** – Remove overload (Danfoss) Check between terminals 1 and 3 for continuity. If no continuity (infinity), overload may be tripped. Wait 10 min. and try again. If still no continuity, overload is defective.

PREVENTIVE MAINTENANCE

CAUTION: Always disconnect power source BEFORE cleaning or servicing.

ONCE A MONTH

CLEAN CABINET INTERIOR

Wash with a mild detergent and water, rinse and dry thoroughly. Odors may be eliminated by including baking soda or ammonia in the cleaning solution. Plastic parts may be cleaned with a quality plastic cleaner.

The vend mechanisms must be kept clean. Any build-up can cause the mechanisms to malfunction.

DO NOT GET THE CLEANING SOLUTION ON ELECTRICAL COMPONENTS.

To insure proper vending keep delivery box area free of dirt and sticky substances.

CLEAN CABINET EXTERIOR

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

EVERY 3 MONTHS

REPLACE AIR FILTER

The refrigeration air filter is to prevent dust from building up on the condenser coils and allows the refrigeration system to operate efficiently.

- Pull the filter holder and check the air filter.
- If filter is dirty, replace it with the same size and type of filter.
- Airflow arrow on the filter must point to the left (towards the inside of vendor).
- **On those vendors with air filter handle hook filter holder around filter edge and reinstall clip on opposite end.**

FILTER AIRFLOW
(CORRIENTE DE AIRE DEL FILTRO)
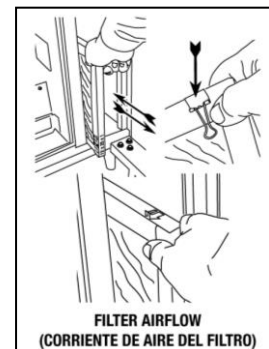
WARNING: Do not replace with a HEPA type filter. This may not allow the correct amount of air to flow through.

CLEAN BOTTOM INLET SCREEN

The inlet screen is a long narrow screen located on the bottom right side. It can only be accessed from underneath the cabinet. Remove dust and debris from the inlet screen to allow air to flow to the condenser coils.
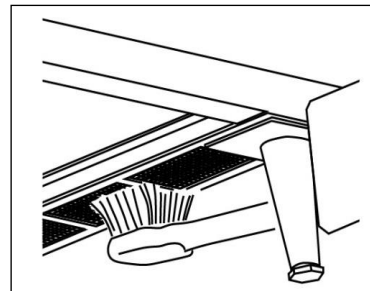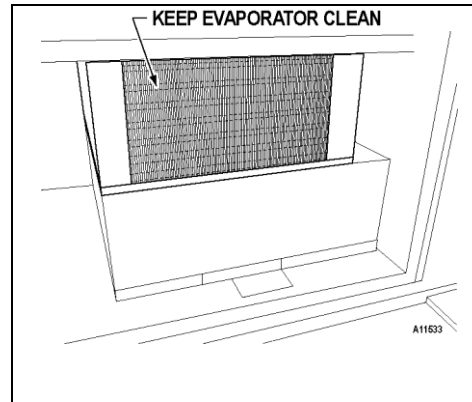
EVERY 6-MONTHS

CLEAN DOOR AND DELIVERY DOOR SEALS

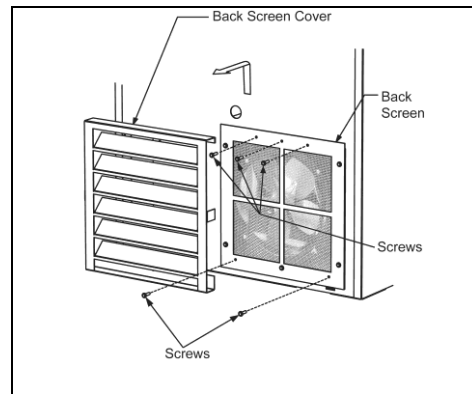Clean the door seals. Inspect them for any deformities or cracking.

CLEAN EVAPORATOR COIL

Open the door. Clean the evaporator coil of refrigeration unit using a soft bristle brush and/or vacuum cleaner.

CLEAN REAR SCREEN

Remove the **Back Screen Cover** from cabinet back. Clean dust and debris from screen using a soft bristle brush or a vacuum cleaner.

PARTS ORDERING PROCEDURE

When ordering parts, include the following:

1. The model and serial numbers of the vendor for which the parts are needed.
2. Shipping address.
3. Address where the invoice should be sent.
4. The number of parts required.
5. Always refer to the pertinent parts and/or part manual for the correct part number and description of a specific part.

> **NOTE**: **When RIGHT or LEFT is used with the name of a part, it means the person is facing the vendor <u>with the door closed</u>.**

6. Any special shipping instructions.
7. Carrier desired: air or air special, truck, parcel post or rail.
8. Signature and date.
9. Purchase order number, if used.

All orders are carefully packed and inspected prior to shipment. Damage incurred during shipment should be reported at once and a claim filed with the terminating carrier.

<u>If you do not have the right parts manual:</u> contact VendNet™.

If you have any questions, check out our Website www.vendnetusa.com or call VendNet™. Ask for the Parts Department. We will be happy to assist you. Email: vendnet@vendnetusa.com

BEFORE CALLING FOR SERVICE

Please check the following:

- Does your vendor have at least 6-inches of clear air space behind it?
- If the power is turned on at the fuse box, is the vending vendor the only thing that doesn't work?
- Is the vendor plugged directly into the outlet?

WARNING: Extension cords can 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 in between workout cycles.
- Is the circuit breaker at the fuse box reset?
- Is the evaporator fan working? To check if the fan is running take a small piece of paper in front of the evaporator coil and see if the evaporator fan will draw the paper.
- 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 coil inlet screen located on the bottom right side underneath the cabinet and see if it draws the paper to it.
- Is the shelf in front of the evaporator coil clear? (No tools, product, or other air-restricting items).
- Is the temperature setting set as specified? See **CONTROL SYSTEM Programming Manual.**

> **NOTE:** Setting the temperature colder does not accelerate cooling of product but may cause the product to freeze.

NOTES:

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