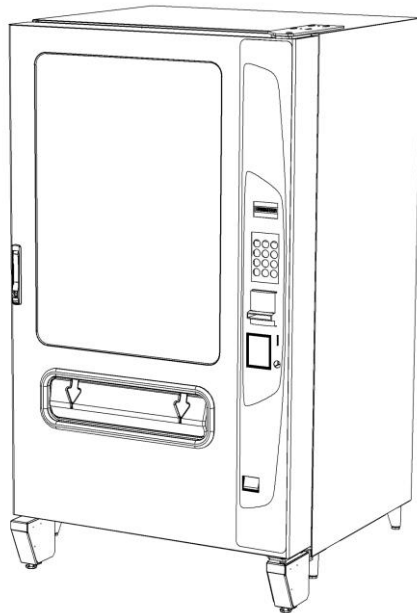




Elevator ST/VT

SINGLE TEMP & VARIABLE TEMP
GLASSFRONT VENDOR



MODELS:

3561/3561A – ST 5000 (5 WIDE)

3563/3563A – VT5000 (5 WIDE)

SERVICE MANUAL

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The Model & Serial Numbers are needed to obtain quick service and parts information for your vendor. The numbers are given on the identification plates located on the back or inside the lower refrigeration compartment of the vendor. Record these below:-

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™
 165 North 10th Street
 Waukee, Iowa 50263 - USA
 Parts: (888) 259-9965
 Service: (800) 833-4411
 Parts Fax: 515-987-4447
 All Other: (888) 836-3638
 E-Mail: Vendnet@vendnetusa.com

SAFETY WARNINGS & SPECIFICATIONS

1. The Earth Permanent Magnets used for the tray detection are extremely strong; ENSURE that these magnets are never brought into close proximity to credit, debit, access cards etc. which can cause permanent damage.
2. In cases where there is no fuse in the plug of the power cord, the primary over-current electrical protection is provided by the buildings power distribution board.
3. This vendor is not intended for use by young children or the infirm unless aided or supervised by an adult or an abled-bodied person.
4. This vendor must be level for proper operation, cabinet to door alignment, condensate drainage and for acceptance of coins through the coin mechanism see Installation section pg. 9
5. This vendor is designed to dispense pre-packaged products for hygiene & safety purposes and no surfaces should ever come into direct contact with the food to be consumed.
6. For the purposes of food handling, replenishing and hygiene maintenance operating personnel should have received the required training and instruction as mandated by the local authority responsible.
7. This vendor is designed for indoor use and must not be installed in a location where a water hose/jet could be used.

DIMENSIONS & WEIGHTS

TYPE	ST/VT 5000 (5 WIDE)	
MODEL	3561/3563	3561A/3563A
WIDTH	41.2 in. (104.6 cm)	
DEPTH	38 in. (96.5 cm)	
HEIGHT	72 in. (182.9 cm)	
ESTIMATED WEIGHT ¹	820 lbs (370 kg)	
EST. SHIPPING WT. ¹	850 lbs (384 kg)	

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

MANUAL REVISION HISTORY

REV	DATE	REASON
A	09/01/2011	Initial release
B	10/01/2011	Additions/Corrections
C	11/01/2011	Additions/Corrections
D	11/01/2012	Corrections/Clarifications

ELECTRICAL

MODEL		Panasonic Super 1/3 Hp	
VOLTAGE		115 VAC	230 VAC
CYCLE		60 Hz	50 Hz
NOMINAL AMPS	HEATED GLASS	8.1 Amps	4.1 Amps
	NON HEATED GLASS	7.1 Amps	3.1 Amps
TRANSFORMER		110/24 VAC	230/24 VAC

REFRIGERATION

HORSEPOWER	Panasonic Super 1/3 Hp
TYPE	Hermetically Sealed
CONTROLS	Electronic
REFRIGERANT	R-134a
CHARGE	20 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
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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 90°F (4° and 32° Celsius)
CLIMATIC CLASS	SN (Sub-Normal)

INTRODUCTION

This manual contains instructions, service and installation guidelines for the **Single Temp (ST) / Variable Temp (VT) Glassfront 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.

ST VENDOR/VT VENDOR

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 2°C (36°F) 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 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 vending vendor will maintain 2°C (36°F) in the bottom zone while the top zone will be as much as high 19°C (66°F) depending upon ambient conditions. The top compartment can be optionally equipped with a heater & blower system along with a separate temp sensor & relay to maintain a constant and/or higher temperature across varying ambient temperatures.

The bottom or single zone has a temperature sensor. The modular insulated refrigeration system draws air across the refrigeration system's evaporator coils up and blows the air up and out of the top of the back duct and which then circulates down through the trays. There are openings in the bottom trays to allow air to circulate around the products. Both vendors will operate within an ambient temperature range of 4°C-32°C (40°F-90°F).

AMERICANS WITH DISABILITIES ACT (ADA)

Vending operators serving "public entities," meaning government locations and locations accessible to the public, must meet new reach requirements of the law beginning March 15, 2012, under the Americans with Disabilities Act (ADA). The regulations establish side reach regulations requiring that all operable parts of the vending machine be no higher than 48 inches and no lower than 15 inches. This differs from the 1991 standards which have controls at 54 inches high and nine inches low. The Elevator ST/VT fully complies with these regulations.

GENERAL

All programming (pricing, vend functions and features) is set-up 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 on 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 vending 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.

ELEVATOR SYSTEM

The elevator mechanism comprises of the following sections:

- 1) The Elevator Controller
- 2) The Elevator Frame Assembly
- 3) The Security Baffle Assembly
- 4) The Delivery Door Lock Slide
- 5) The Delivery Door Optical Sensor

1) THE ELEVATOR CONTROLLER (EC)

The Elevator Control board is located above the GVC main control board. The EC controls the Elevator & Baffle motor outputs and monitors the inputs associated with the elevator control system, these are as follows:

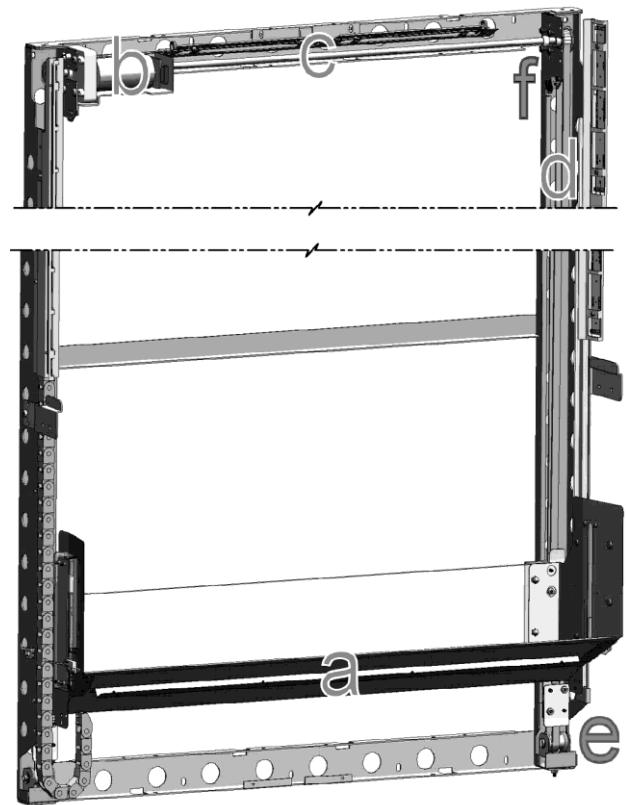
- i) Dual Stage Magnetic Encoder (mounted to the Elevator Motor drive shaft)
- ii) Top Limit Detector (at the top door lock side of the frame)
- iii) Delivery Door Lock Slide Detectors 1 & 2 (located inside the base of the main door)
- iv) Delivery Door Open/Closed Optical Sensor
- iv) Shelf Detect Reed Switch (mounted on the hinge side of the elevator tray)
- v) Main Door Switch (top hinge side corner of door)
- vi) Security Baffle 'Open' & 'Closed' Detectors (Top side, front & rear of baffle motor mounting plate)

The GVC & EC controllers communicate with each other using the DEX serial bus, the GVC board is the master that issues the various command instructions for the EC controller to execute and report back with a status. See the Elevator schematic circuit in the Appendix.

2) THE ELEVATOR FRAME

The welded frame has all the elevator moving parts assembled onto it, comprising:-

- a. The elevator tray with the I-vend sensors and shelf sensor. The I-Vend sensors detect when a product is successfully dispensed onto the elevator tray and detect when larger items are removed from the elevator tray when in the 'vend' position. The shelf sensor located on the side of the elevator tray detects the shelf position indicators that are adjacent to each shelf.
- b. The elevator motor & gearbox mounted at the top with a drive pulley fixed to the one side (1 x 3/32" Hex Set Screws) of the output shaft together with an integrated dual magnetic encoder which senses speed & direction.
- c. The drive axle, one end of which is fixed to the elevator motor output shaft with a coupler (2 x 3/32" Hex Set Screws) the other end has the other drive pulley affixed to it.
- d. A pair of notched type belts to which the elevator tray is affixed and is driven up & down by the two pulleys at the top.



- e. A pair of plain pulleys, one either side at the base of the frame, the tension of the belt is adjusted by means of the No.8 nyloc nut (11/32" wrench) on the underside of each pulley mount.
- f. A Top Limit Switch – Each time the main door is closed the elevator goes through an initializing routine and the elevator tray actuates the top limit switch at the top of its travel. When the switch is actuated the motor immediately stops and reverses into a downward direction.

3) THE SECURITY BAFFLE

Is located in the cabinet under the lower most tray and above the refrigeration module.

In principle the security baffle replaces the traditional 'anti-theft' flap found in most delivery boxes. Vended items are retrieved directly from the elevator tray, but to prevent additional items being knocked off trays using wires/sticks etc. without paying for them the security baffle closes off access to the cabinet space prior to the delivery door being unlocked. However it is also important to provide free airflow to facilitate good refrigeration performance, hence the security baffle must remain open whilst the machine is in standby sales mode.

The security baffle will always be in the 'closed' position when the delivery door is unlocked. The security baffle will remain closed until the delivery door has been locked, which occurs by virtue of the elevator tray being moved to the 'standby' position.

4) THE DELIVERY DOOR LOCK SLIDE

The lock slide performs 3 functions:

- a) Locks/unlocks the delivery door flap.
- b) Operates Detector Switch 1 (Lower).
- c) Operates Detector Switch 2 (Upper).

The lock slide is operated by the elevator tray, an extension spring will ensure the lock slide returns to the upper position if it is not being pressed down by the underside of the elevator tray.

Note: For the sequence of operation see the Appendix at the end of the manual.

5) THE DELIVERY DOOR OPTICAL SENSOR

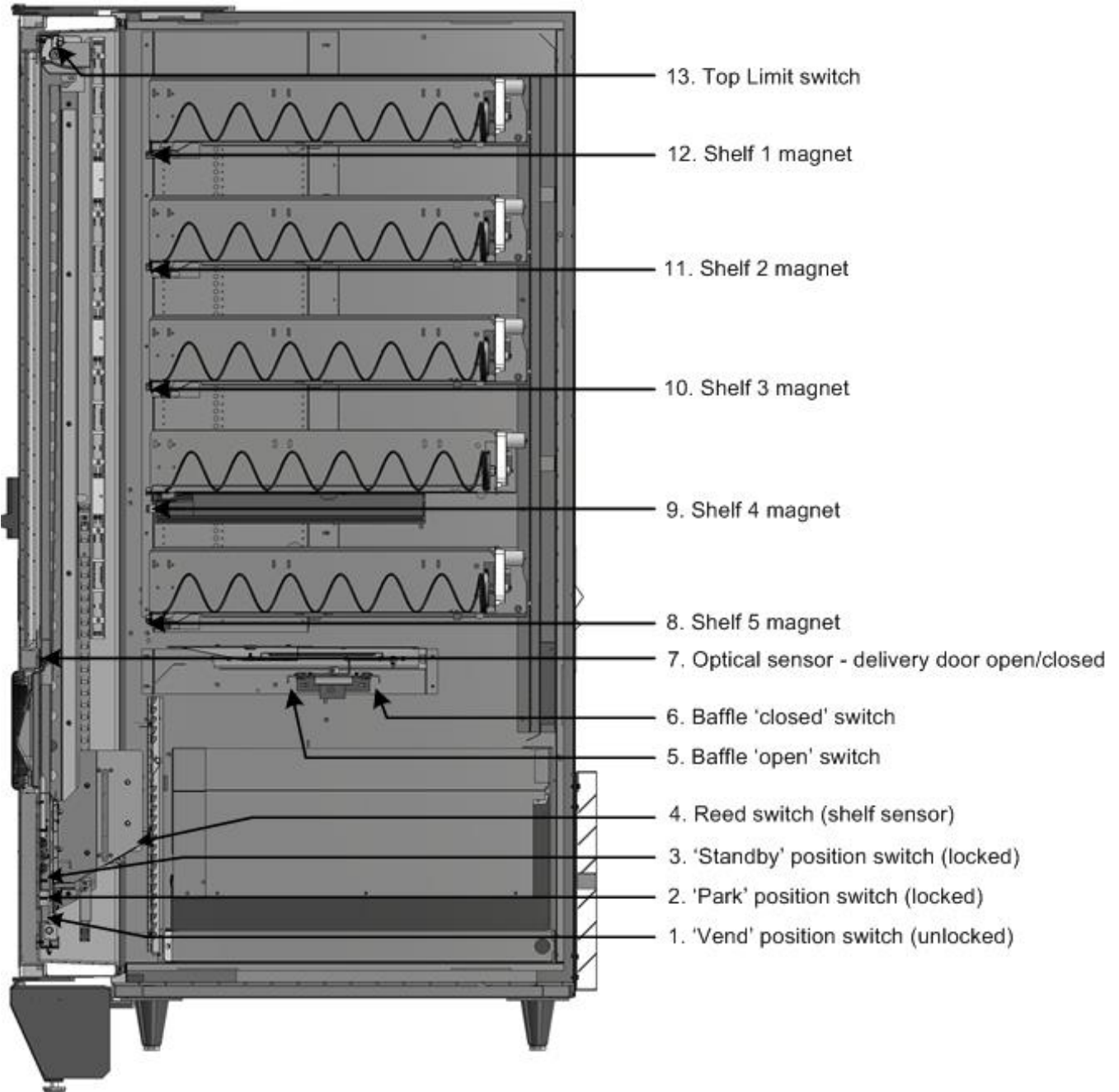
This safety sensor is located above the hinge of the delivery door nearest to the payment system/s. The actuator plate is attached to the door itself and this blocks the optical light path when the door is opened approx. ¼". At any time that the delivery door is open none of the elevator moving part will operate.

The delivery door is monitored during the vend cycle to determine whether the delivery door has been opened/closed. If the delivery door is left open for any reason a message will appear on the user display prompting the door to be closed.

If an attempt is made to cheat the door the security baffle will immediately be closed and the elevator tray will sent to the 'vend' (delivery door unlocked) position.

Should the delivery door be cheated/opened whilst a vend is in progress the system will be rendered out of service and an 'ELF98' error code will be reported when entering service mode (command out of sequence).

LOCATIONS OF THE ELEVATOR SENSORS/SWITCHES



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 vending vendor.

Carefully remove the outside packing material so as not to damage the finish or exterior of the vending vendor. Inspect the vending 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 in all correspondence and inquiries pertaining to this vendor.

Remove the leg covers by removing the screws fastening the covers to the skid boards at all four corners of the vendor. Remove the shipping skids by placing a 2x6 under the vendor, inserting a large screwdriver or prying tool into the groove and splitting it in two. Turn the leveling screws in as far as possible (See Figure 1).

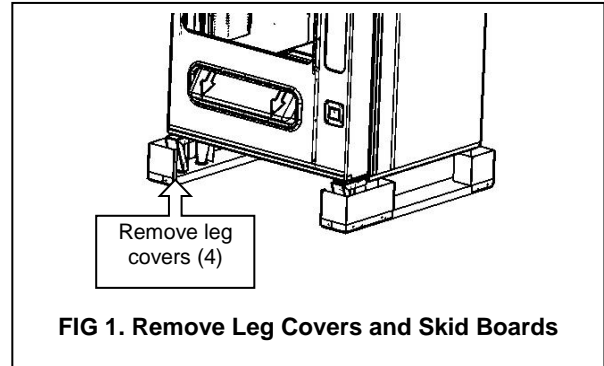


FIG 1. Remove Leg Covers and Skid Boards

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.

WARNING: Position and level the vendor prior to connecting vendor to power. All set up steps 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.

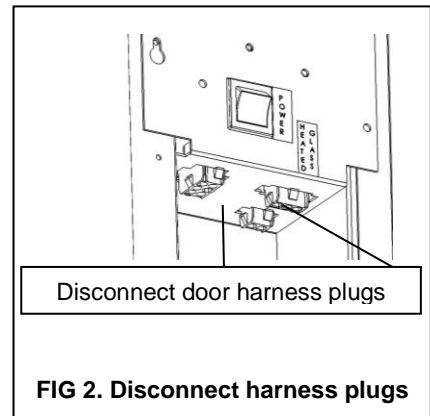


FIG 2. Disconnect harness plugs

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.

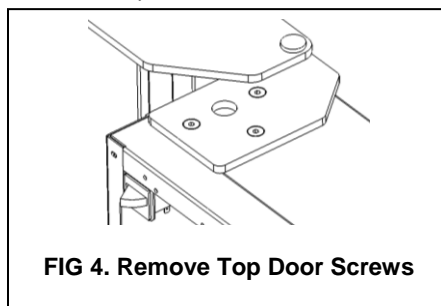


FIG 4. Remove Top Door Screws

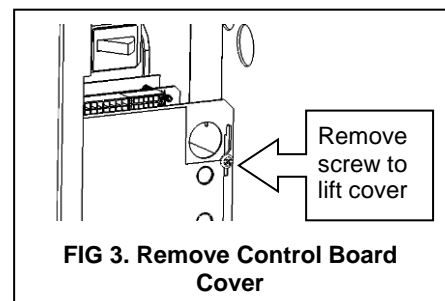
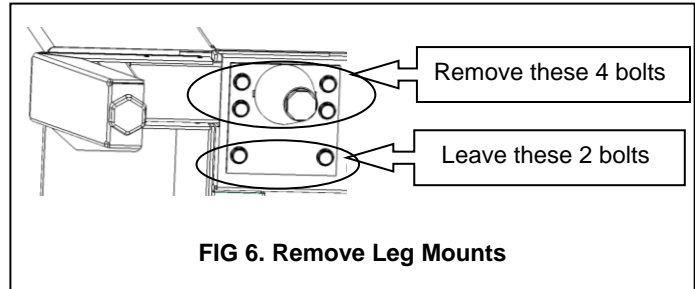
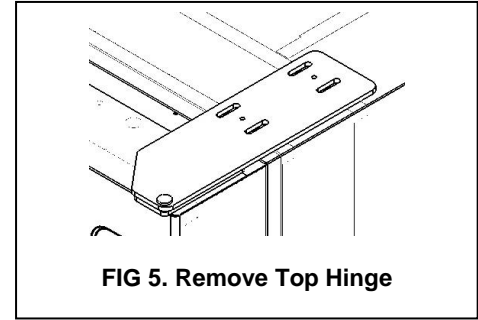


FIG 3. Remove Control Board Cover

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**

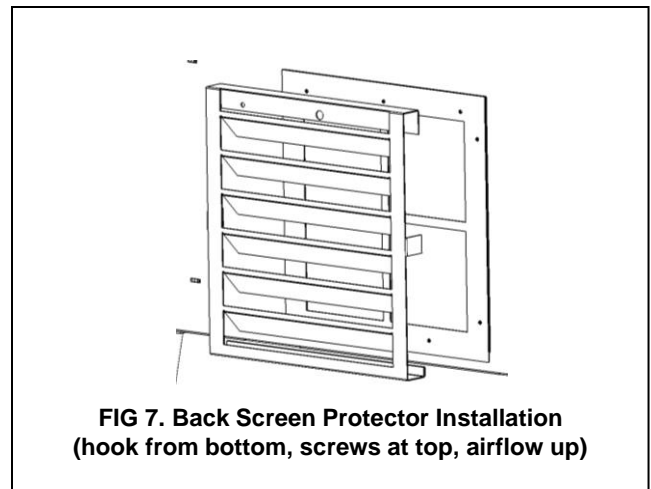


POWER CORD INSTALLATION

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

Remove the screws holding the top screws from the screen on the back of the vendor. Hook the small flange of the Back Screen Protector under the bottom of the screen. Fasten the Back Screen Protector in place with the screen screws removed previously (See Figure 7).



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 four (4") 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 for the weight of the cabinet.

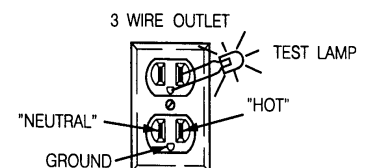
GROUNDING (EARTHING) & ELECTRICAL

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.



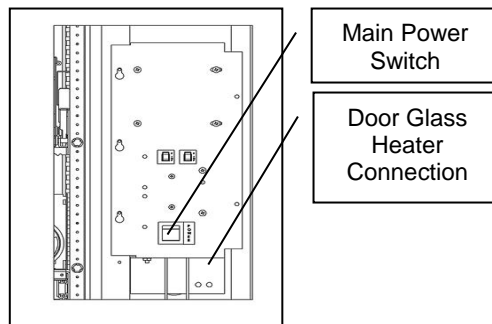
For proper operation of any equipment utilizing electronically controlled components, the equipment should be placed on an isolated, or dedicated, noise-free circuit properly polarized and grounded. Use of a surge suppressor is recommended for locations where electrical noise is present.

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.



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 vending vendor for easy identification by the customer. See Figure 9.

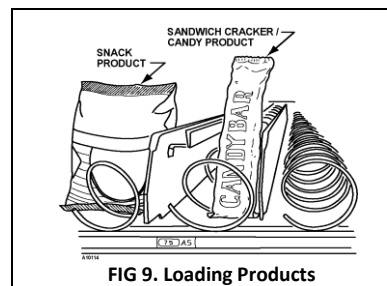
IMPORTANT: No item/product should overhang the front edge of the trays; this will result in a clash with the elevator and will severely affect the machine's performance.

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.

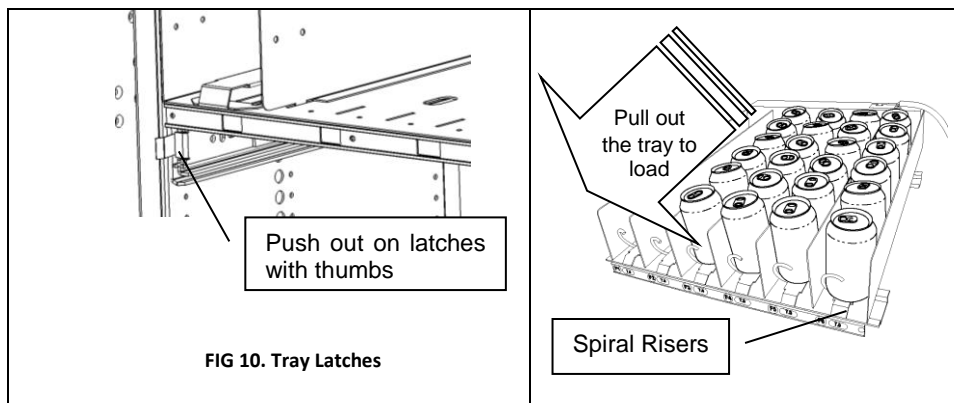
The size of the item being vended must be larger than the diameter of the spiral being used to vend properly.

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.



CAN/BOTTLE TRAY OPTION

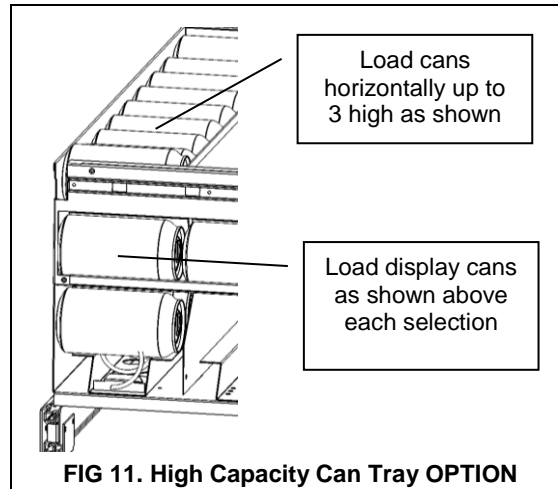
To unlatch the Can/Bottle Trays place both hands with your under palms up ... then push out simultaneously with your thumbs depressing the slide left and right side latches and pullout as shown (See Fig 10). Carefully load products vertically as shown. Some bottle and/or can containers present and vend better by using the provided spiral risers. If the product requires additional vertical space or presents/vends poorly remove the risers as necessary. Some bottle beverages may require an optional kit for proper vending – call the number located within this manual for further information.



HIGH CAPACITY CAN TRAY (HCCT) OPTION

Some vendors come equipped with the HCCT option. There are two setups for the HCCT option ... one for the 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 an empty display can in the areas provided above each selection as shown. Adjust the price scrolls to the desired price.



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.

NOTE: Whenever a tray is repositioned (moved up or down) the corresponding magnet/holder must also be realigned with the tray:-

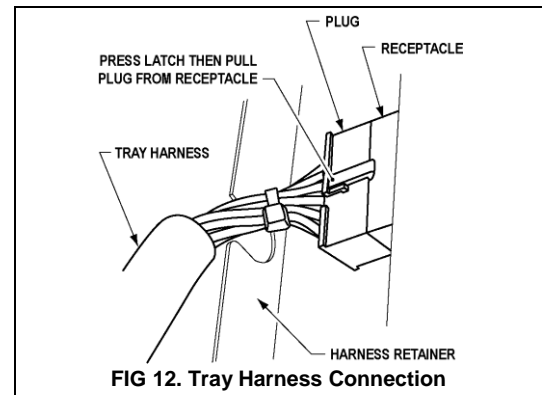
Food/Snack Tray: The magnet/holder is aligned with the center of the tray base

Can & Bottle Tray: The magnet/holder is position one hole above the centerline of the tray base

HCCT: The magnet/holder is located on the telescopic slide and moves with it.

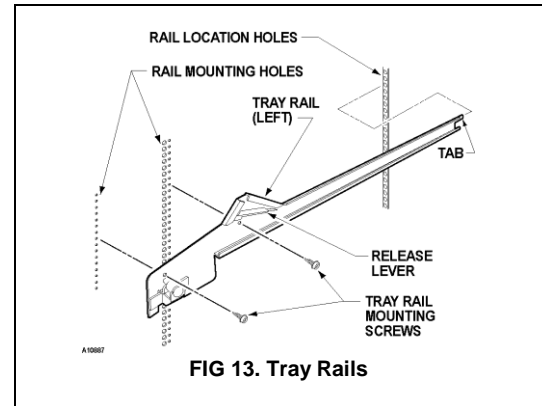
5 WIDE FOOD/SNACK/CANDY TRAY REMOVAL AND REPOSITIONING

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. Unscrew the two screws to remove both left and right tray rails from the left and right sidewalls.
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-vent the tray in its new position to assure that the tray plug is properly seated.

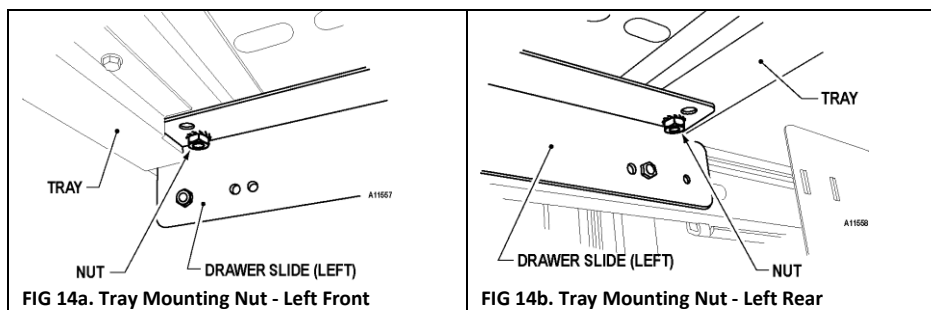


CAN/BOTTLE TRAY REMOVAL

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-vent 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 FIG Figures 14a&b). Lift up and forward to remove the tray. 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.
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-vent the tray in its new position to assure that the tray plug is properly seated.



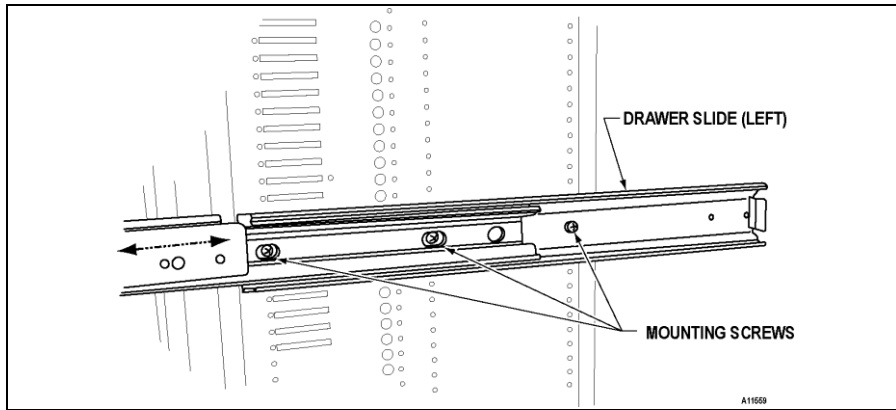


FIG 15. Drawer Slide Removal (Left Shown)

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 1/2 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.

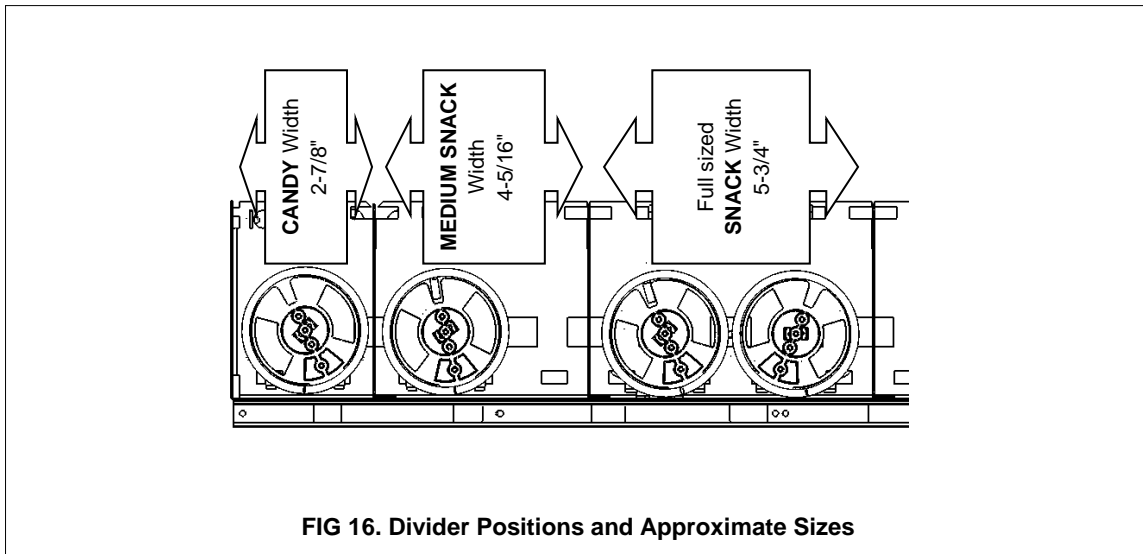


FIG 16. Divider Positions and Approximate Sizes

SPIRAL ADJUSTMENT

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.

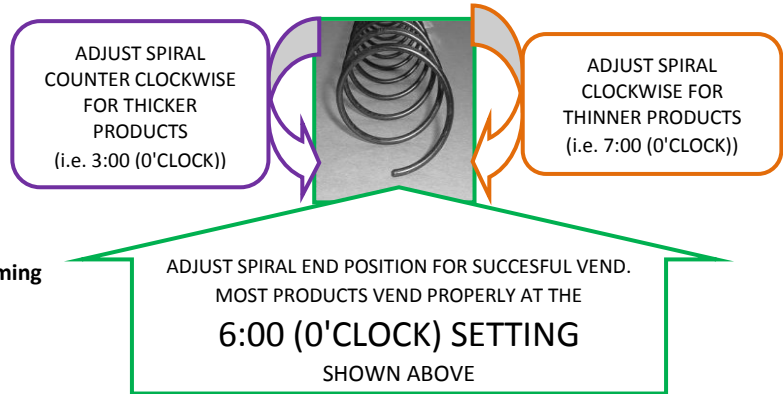
SPIRAL TIMING

SNACK/CANDY/FOOD TRAY

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

The narrower the product, the higher the timing number.

- Thick Products - 3-6 o'clock
- Most products – 6 o'clock
- Thin Products - 6-8 o'clock



IMPORTANT:

1. Ensure the spirals are positioned to prevent the item/product from overhanging the front edge of the tray.
2. Product pushers cannot be used on the ends of the spirals as they will clash with the elevator.

TO CHANGE SNACK/CAN/BOTTLE/HCCT SPIRAL TIMING:

Each spiral can be rotated in 25° (snack) or 45° (can/bottle) 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

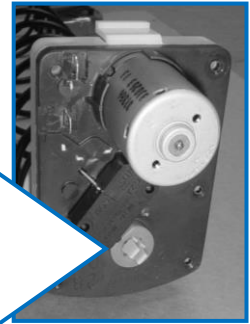


FIG 17: Spiral and Motor Connection

MOTOR PAIRING

The 'motor pairing' feature facilitates the ganging together of 2 individual motors, so that when a single selection code is entered both motors will operate together; when looking into the machine the LH motor will rotate CCW and the RH motor will rotate CW, the corresponding spirals also have to be CCW & CW.

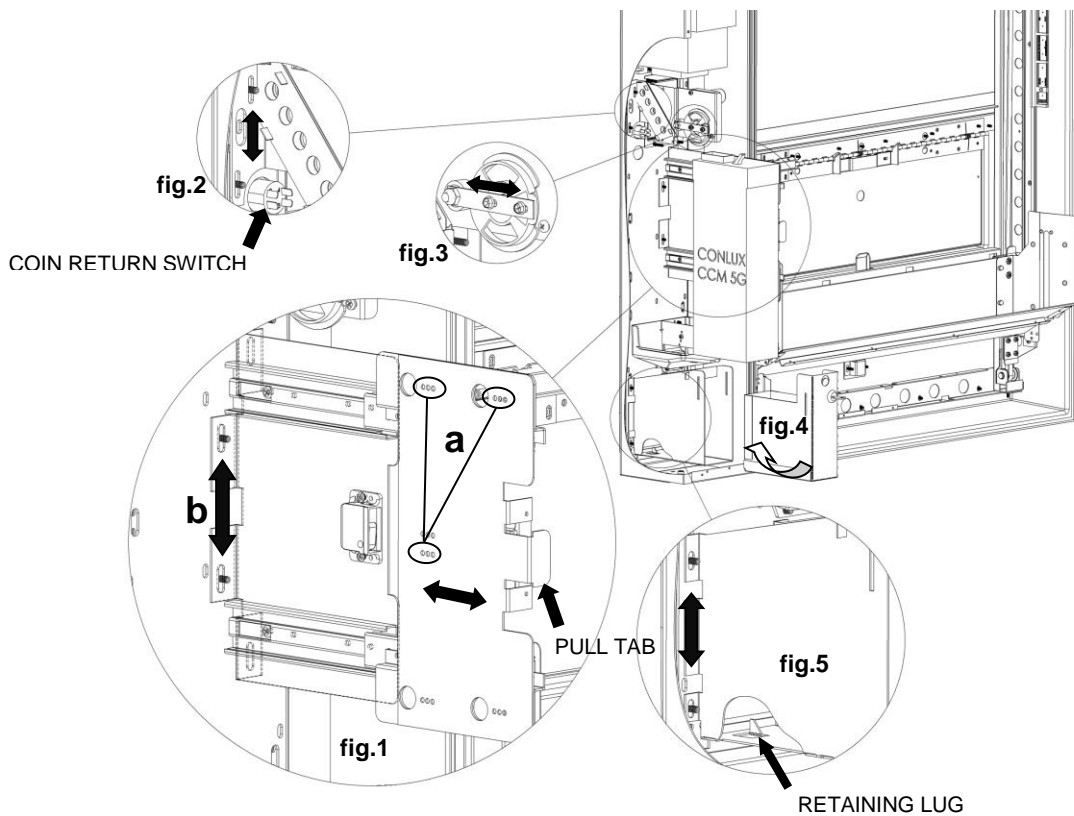
This feature allows the 2 motors to be spread apart from each other to suit the width of the item to be vended. The selection width can be as little as 5 3/4" wide (standard snack width) e.g. ganging selection motors 46 & 47 together, or the paired motors/spirals can span the entire width of the shelf e.g. ganging selection motors 40 & 49.

The 2 'paired motors' have to be wired-up in accordance with the physical span between them.

See the SERVICE MODE section 7.0 for the programming instructions for setting-up 'paired motors'. Note: the 1st motor should always be an even number, the 2nd motor must be odd.

PROCEDURE FOR INSTALLING A COIN CHANGER

1. Mount the changer unit onto the 3 screws provided (see **fig.1a**) and then secure.
NOTE: Most units should be mounted using the center set of holes. Check the alignment between the coin entry chute and the entry hopper on the unit to determine the best alignment, use the LH or RH mounting holes if needed.
2. Check the relationship between the underside of the coin changer and the top surface of the coin cup area, ensure there is clearance of approximately 3/16" between them; pull/push the coin unit out/in several times to ensure there is no interference between the underside of the coin mechanism and the coin cup deflector. Adjust the coin unit mounting assembly up/down by slackening/tightening the nuts shown in **fig.1b**.
3. Check the relationship between the underside of the coin entry chute and the top surface of the coin entry hopper to ensure there is minimum clearance between them. Insert the largest and smallest physical coins to verify there is clear passage. Adjust the coin entry chute up/down by slackening/tightening the nuts shown in **fig.2**. Also consider the adjustment in Step 1 which may provide a better solution.
4. With the machine switched ON and the coin changer housing pushed firmly home, push the coin return button to check the operation of the coin return motor (see **fig.2**). ensure that the reject lever on the coin mechanism is actuated sufficiently to clear bent coins, if the stroke of the coin return crank arm needs to be increased/decreased, adjust by slackening/tightening the screws shown in **fig.3**.



CASH BOX

1. To remove the cash box tilt the box slightly upwards (see **fig.4**) at the front to disengage it from the retaining lug on the floor (see **fig.5**) of the housing before attempting to slide it out.
2. When returning the cash box again tilt it slightly upwards at the front and when pushed full-in allow the cash box to sit down and ensure the retaining lug has engaged by pulling/tugging on the box without lifting.

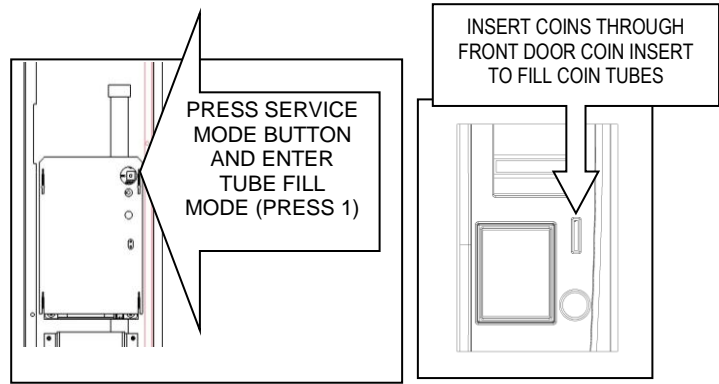
IMPORTANT:

1. Ensure that the coin unit is pushed fully home after servicing, a positive 'click' will be felt when this is achieved. Failure to do this will result in coins becoming jammed etc.
2. DO NOT attempt to close the main door whilst the coin unit is pulled-out.
3. Ensure that the cash box is located fully into its housing before closing the main door

LOADING THE COIN MECHANISM

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

Make sure to load the correct coins into their correct tubes. 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".



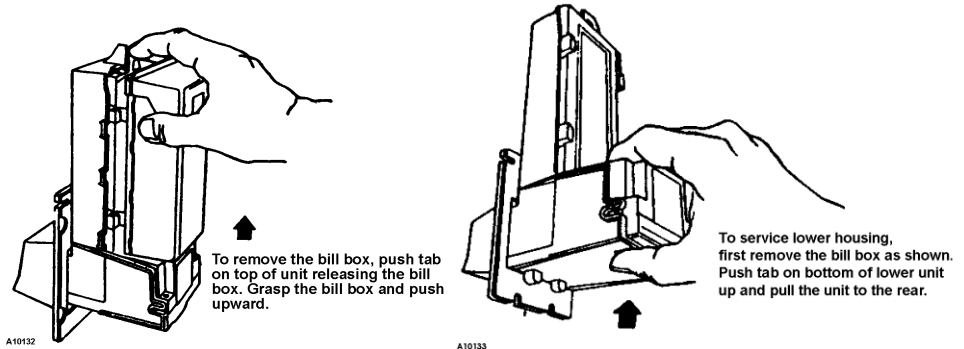
Alternatively, the coins can be manually loaded into the slots above the respective coin tubes; however this is not the recommended method.

IMPORTANT: It is highly recommended to utilize the TUBE FILL mode to be sure that the control board can accurately determine coin counts/levels to avoid 'Exact Change' conditions e.g. no bill acceptance

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. More advanced and brand specific Coin Mechanism operating instructions can be obtained in the Service portion of the website listed at the beginning and end of this manual

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.



VEND CYCLE - IVEND™ EQUIPPED

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

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 elevator will not be able to move, I-Vend must be operational for the Elevator to function.

The vend motor and a vend timeout timer are started:

- The selection motor/s rotate/s a full turn (360°) to the home-switch position.
- If a product is detected passing onto the elevator the vend is considered successful.
- If reaching the home-switch position and a product has not been detected, then the vend motor will pause for 1 second while the controller continues to monitor the optical sensor for product delivery and then:
 - If a product is detected during this pause the vend is considered successful.
 - If a product is not detected, then the controller initiates a second motor cycle 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 has not been 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 logged as 'sold out'. Such a state will trigger to display the **MAKE ANOTHER SELECTION** message. The original credit remains and is displayed, the customer can press selection buttons to activate this or another motor or press the coin return button.
 - If after 10 seconds there is no home-switch signal and no product is detected, then the vend is 'failed'. The vend motor is shut down and **MAKE ANOTHER SELECTION** is displayed. The customer can press selection buttons to activate another motor or press the coin return button.

NOTE: In this case 'Force Vend' (if enabled) is disabled to permit the customer to retrieve the 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 in programming 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

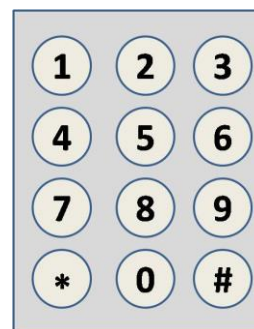


FIG 18. Keypad Layout

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.

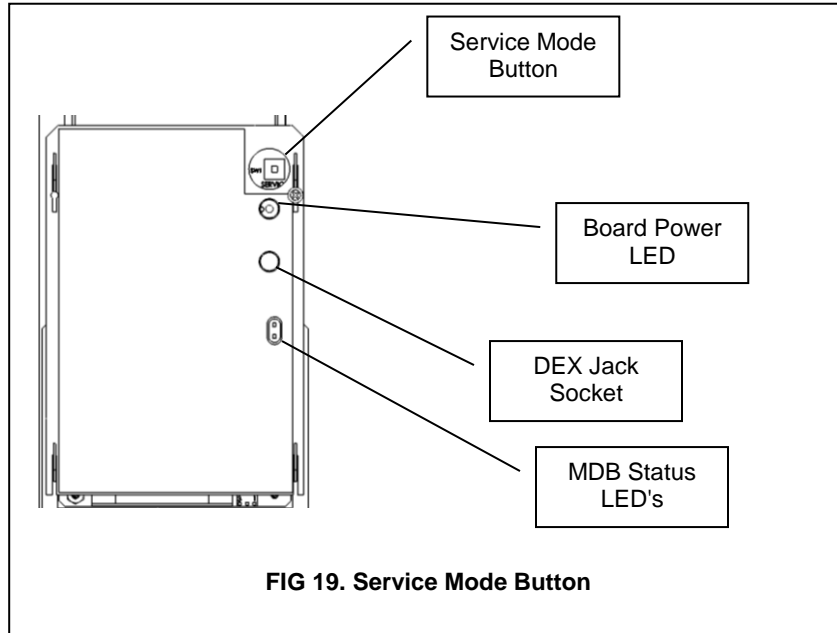


FIG 19. Service Mode Button

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  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)

4.0.0.1.1 ENABLING ELEVATOR FUNCTIONALITY

STEP		DISPLAY
1	Press Service Mode Button 	Motors (- -)
2	Press  for Configuration menu	Configuration
3	Press  for Password menu	Password:
4	Enter Password (default-2314)	Advanced Config
5	Press  for Peripherals menu	Peripherals
6	Press  for Elevator menu	Elevator Enable (Current Setting) *-exit 1-edit
7	Press  to toggle the setting ON/OFF	Elevator Enable (Choice Flashing) *-exit #-save
8	Press  to save the setting	Elevator Enable (New Setting) *-exit 1-edit
9	Press  five times to exit	(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.

5.3 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	Press Service Mode Button 	Motors (- -)
2	Press 5	Pricing
3	Press 2	Row: - - \$0.00
4	Enter row number and price <i>Example: Top row=01, row below top row=02, etc.</i> 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)

5.1 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)

7.0 MOTOR PAIRING

This feature is so that two motors on the same shelf can be ganged and operate together at the same time. This feature facilitates the vending of wide or bigger items.

Example for setting-up a 'Pair' of Motors:


STEP		DISPLAY
1	Press Service Mode Button 	Motors (- -)
2	Press 7	Password
3	Enter Password (default - 2314)	Advanced
4	Press 0	Pair - - - * -exit
5	Enter number of Even Motor to Pair - 4 (e.g. 46)	Pair 04 - *del
6	Enter 6 (e.g. 46)	Pair 046 to - - - * - exit # Add
7	Press # to confirm 'Add'	Pair 046 to - - - * - exit
8	Enter number of Odd Motor to Pair - 4 (e.g. 47)	Pair 046 to 04 - * - del
9	Enter 7	Pair 046 to 047 * - exit # - Save
10	Press # to confirm 'Save'	Pair 046 to 047 *exit # Clear
11	Press * to exit 4 times	(Sales Mode)

The first motor should be 'even' and 2nd motor should be odd. In the example above Motors 46 and 47 will turn at the same time to vend a large product. Motor 46 will turn CCW, motor 47 will turn CW when viewed from the front. The corresponding CCW & CW spirals will also be needed. Both motors have to be on same shelf.

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.

Note: The main door must be closed to operate the elevator for the 'single motor test vend'


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: The elevator does not operate for the purposes of the ‘test vend all motors’


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)

0.0.1.1 VIEW ELEVATOR CONTROLLER SOFTWARE REVISION

STEP		DISPLAY
1	Press Service Mode Button 	Motors (- -)
2	Press 0 for Diagnostics menu	Diagnostics
3	Press 0 for Peripherals menu	Peripherals
4	Press 1 for Elevator menu	Elevator
5	Press 1 for Software Version	SW vEC 4218988.XXX *-exit
6	Press * four times to exit	(Sales Mode)

0.0.1.2 SEARCH FOR TRAYS/NUMBER OF TRAYS FOUND









NOTE: The main door must be closed to perform this function.

STEP		DISPLAY
1	Press Service Mode Button 	Motors (- -)
2	Press 0	Diagnostics
3	Press 0	Peripherals
4	Press 1	Elevator
5	Press 2	e.g. Found 5 Rows *-exit 1-start
6	Press 1 to start – the elevator will search for trays.	e.g. Finding 5 Rows *-exit
7	At Completion	e.g. Found 5 Rows *-exit 1-start
8	Press * 3 times to exit	(Sales Mode)

0 DIAGNOSTICS CONTINUED

0.0.1.3 MANUALLY OPERATE THE BAFFLE OPEN/CLOSE FUNCTION

NOTE: The main door must be closed to perform this function.

STEP		DISPLAY
1	Press Service Mode Button 	Motors (- -)
2	Press  for Diagnostics menu	Diagnostics
3	Press  for Peripherals menu	Peripherals
4	Press  for Elevator menu	Elevator
5	Press  for Baffle status	Baffle (Current Status) 1-open 2-closed *-exit
6	Press  to close the baffle	2 – Closing (Flashes)
7	At completion	Baffle Closed 1-open 2-closed *-exit
8	Press  to open the baffle	1 – Opening (Flashes)
9	At completion	Baffle Open 1-open 2-closed *-exit
10	Press  3 times to exit	(Sales Mode)

TEMPERATURE CONTROL

NOTE: To prevent damage to the refrigeration compressor when it is turned OFF or if the power is interrupted, the unit will not be switched back ON regardless of temperature for at least 3 minutes to allow the internal pressure to drop.

REFRIGERATION

SENSORS

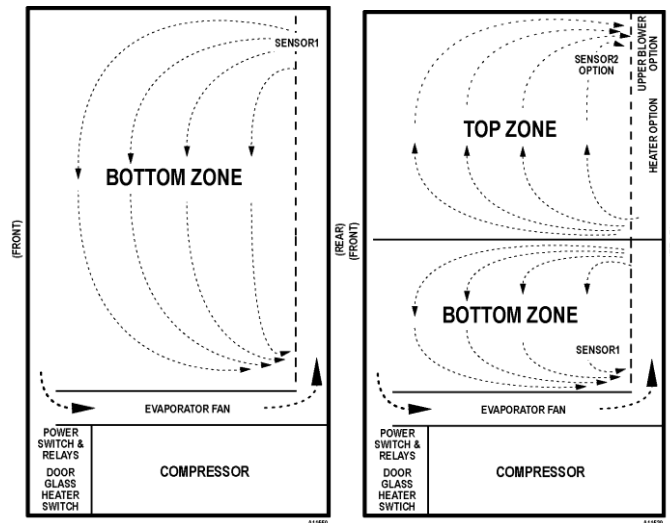
The temperature sensor(s) is/are positioned to best represent the product temperature and is/are monitored by the control system. The refrigeration system is activated depending on the target temperature setting or **SET POINT**. The total allowable temperature variation from the **SET POINT** is **DELTA**.

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

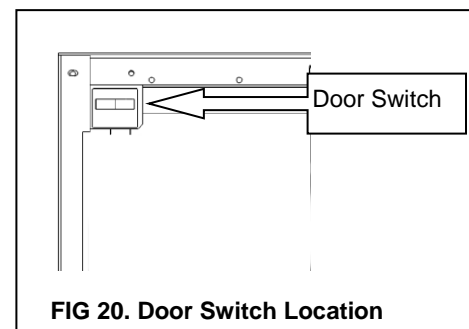
The control system controls up to three relays which then control the refrigeration and heating systems:

- **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 GVC control system and the Elevator Controller for evaluating when to run the refrigeration/evaporator systems, when to reset the optional health safety and when to reset the elevator to check all is clear after filling and to learn the tray positions that may have been moved.

- **If the Vendor is plugged in and the power switch is on and the door is open**, the compressor, evaporator fan, heater/fan (if applicable) are all turned OFF.
- **If the door is open for more than 15 minutes**, the controller will resume 'closed door' operation, the message "VMC DOOR SWITCH" is displayed and an error code is logged and displayed the next time service mode is entered.



- **If the door is closed**, the evaporator fan will be turned ON. When the **5 minute** compressor delay timer expires, the controller evaluates the zone sensor temperature and will operate the refrigeration system as required to maintain the set temperature

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
TEMPERATURE MODE	DEGREES	°F (Fahrenheit)	°C (Celsius)
		COLD FOOD	COLD FOOD
		OFF	OFF
PRICE • ITEM(S)		All selections set to 1.00	All selections set to 50.00
SENSOR1	SET POINT	38°F (3 C)	39°F (4 C)
	DELTA	7°F (4 C)	7°F (4 C)
	DEFROST DURATION	15 MIN	15 MIN
	DEFROST INTERVAL (Comp Continuous Run Time)	2 HRS	2 HRS
	DEFROST DELAY (timer)	8 HRS	8 HRS
	HEALTH SAFETY	COLD	COLD
	RANGE (health/safety)	All	All
SENSOR 2 OPTION	SET POINT	63°F	63°F (16 C)
	DELTA	5°F	5°F (3 C)

BOTTOM (COOL) ZONE

In the case of a Single Zone vendor, the entire tray compartment is the Bottom (Cool) Zone.

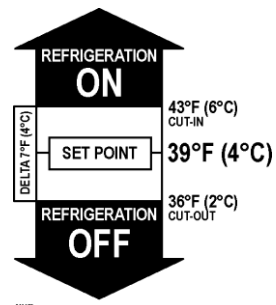
The evaporator is located between the lowest tray and the compressor. The evaporator fan distributes cold air to products in the bottom zone. The refrigeration compressor is fully insulated and is located below the bottom tray.

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: After filing the machine the health alarm is overridden for 30 minutes following the door closure

WARNING: The operator is responsible for enabling the health safety alarm for perishable products. Check local codes to see which products require the protection of the health safety alarm.

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

HEALTH SAFETY (HS) TEST

The **HEALTH SAFETY** feature prevents the sale of perishable food if the air temperature inside the food compartment rises above the Health Safety temperature limit for more than 15 minutes. The factory default for health safety limit is automatically set when the refrigeration configuration is set. The perishable products being vended must match the refrigeration configuration.

Important Note: Make sure that the **Health Safety** setting is enabled prior to starting this test. See Service Mode 4.9.1 below.

1. Simulate a Warm Temperature
 - a. Open the door
 - b. Locate the sensor towards the back of the cabinet at the right side of the top tray.
 - c. Remove the mounting screw; place the sensor in a vessel/cup of warm water.
 - d. Enable **HS Test software setting** in control board service mode - see below.
 - e. Close the door.

2. Perform Test
 - a. Press **0** on the host machine numerical keypad to check the temperature.
 - b. Wait until the temperature is above the upper health safety limit of 41°F for 15 minutes.
 - c. Attempt to vend a product from the machine that you know is protected by health safety (see menu 4.9.1).
 - d. If the health safety is working properly the vend should fail; the machine should have automatically been disabled by the controller board.


3. After Test is Completed
 - a. Remove the sensor from the cup of water and put the sensor back in place.

HS TEST SOFTWARE SETTING

Service Mode 0.7.4

When HS test ON (HS Door switch override ON) is saved in Service mode, and the machine door is closed the Health Safety Activation Delay Time is set to 15 minutes (Door Closed Operation) rather than the extended 30 minutes that is allowed after a door closure due to service or product refill. To allow for possible multiple door open/close cycles the HS test mode is active starting 3 minutes after "HS test ON" is set in Service Mode. Once the door is closed Health Safety feature now functions as if the machine door had been closed for a long period of time and any temperature value over the HS limit, for the refrigeration mode in use. The 15 minute HS limit timer starts a count and if the temperature limit is exceeded for 15 minutes it disables vending from the machine.












Note: Make sure that the Health Safety setting is enabled prior to start this test. See Service Mode 4.9.1 below.

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)
Press 0 in Sales Mode to see current temperatures and "HS Test" message		

HEALTH SAFETY (HS) TEST

Health Safety - All Items

Service Mode 4.9.1

STEP		DISPLAY
1	Press Service Mode Button 	Motors (--)
2	Press 	Configuration
3	Press 	Health Safety
4	Press 	All Items (Current Status) *- exit 3- edit
5	Press  to toggle ON/OFF	All Items (Choice Flashing) *- exit # - save
6	Press  to save	All Items (New Status) *- exit 3- edit
7	Press  to exit	Health Safety
8	Press 	Enable (Current Status) *- exit 9- edit
9	Press  to toggle ON/OFF	Enable (Choice Flashing) *- exit # - save
10	Press  to save	Enable (New Status) *- exit 9- edit
11	Press  four times to exit	(Sales Mode)

REFRIGERATION

WARNINGS:

1. 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.
2. Failure to keep the condenser coil clean and free of dirt and dust and other similar debris voids the unit warranty.
3. Wiring diagrams must be followed as shown below.
4. Breaking the refrigerant joints or seals on the system voids the warranty.
5. Incorrect wiring may pose a serious electrical hazard and cause damage or rupture electrical component parts.
6. The sealed hermetic system should not be worked on outside the authorized service center.

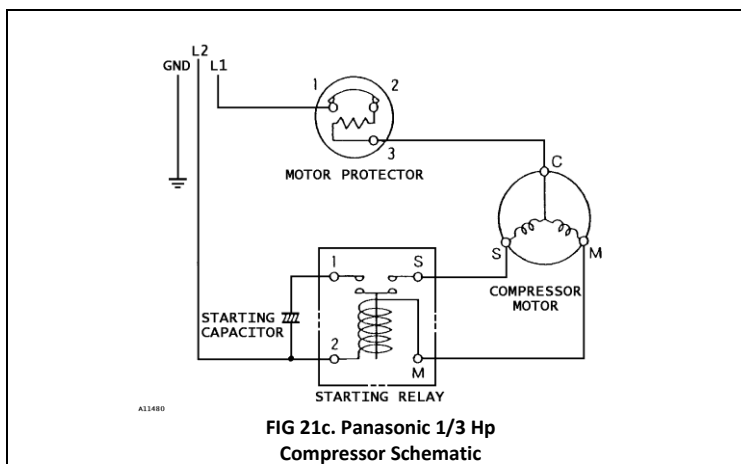
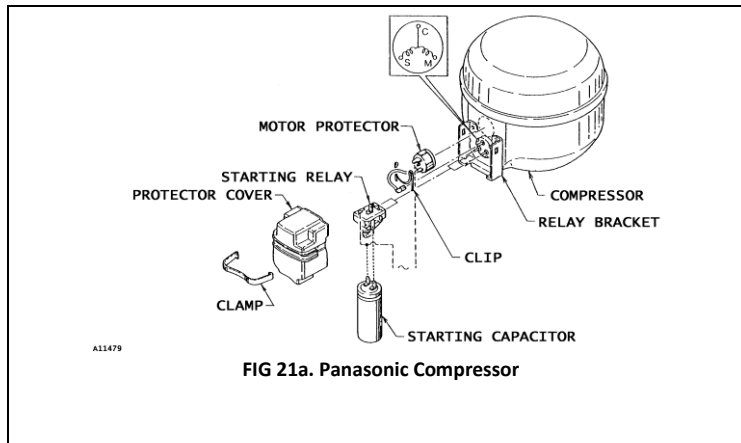
REFRIGERATION TROUBLESHOOTING

REMEMBER: MOST REFRIGERATION PROBLEMS ARE ELECTRICAL

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

TABLE 1. APPROXIMATE WINDING RESISTANCE

Across Terminals	Panasonic 1/3 HP
COMMON to START:	7.53 Ohms
COMMON to RUN:	1.06 Ohms
COMMON to SHELL:	No continuity



COMPRESSOR WILL NOT START

Compressor has no power:

- Vendor not plugged in.
- Tripped circuit breaker or blown fuse.
- Faulty wall outlet or improper wiring.
- Faulty (short or open) power cord.
- Low voltage. Check the power source with a volt meter. Minimum 103V for 115VAC, 60Hz. Minimum 195V for 230VAC, 50 Hz.
- Check motor protector (overload).
- Troubleshooting Circuits with Multi-Meter.
- Check compressor starting relay.
- Troubleshooting Circuits with Multi-Meter.
- Check compressor winding.
- Troubleshooting Circuits with Multi-Meter.
- Defective refrigeration relay. Switch the controller to **Service Mode** then verify that the relay turns on by using the **TEST RELAY** menu.
- Unplug power to the vending vendor. Open the power panel. Use insulated jumper wires to short the wire terminals on **RELAY1**; between 2 and 4 and between 6 and 8. Restore power to the vending vendor. 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.
- Check the door switch operation.

WARNING: Replace the air filter every 3 months to maintain proper air circulation to the condenser and to prevent dirt and debris from clogging up the condenser – FAILURE TO DO SO WILL INVALIDATE ANY WARRANTY

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.
 - Dirty condenser fan blades.
2. Worn or aged compressor grommets.
3. Compressor.
 - Bad valves.
 - Slugging.
 - Bad windings (Refer to TABLE 1 and schematic).
 - Voltage too low.

UNIT SHORT CYCLES

- Defective condenser fan.
- Dirty or blocked condenser coils.
- Dirty or blocked air filter.
- Dirty or blocked inlet or outlet screens.
- Defective overload (motor protector).
- Temperature sensor is defective or not mounted in the correct spot.
- Temperature setting set too warm. See Temperature Control section and Factory Default Settings section of this manual.
- Defective control board.

UNIT OPERATES LONG OR CONTINUOUSLY

1. Airflow restricted.
 - Clogged or blocked inlet screen, air filter, or outlet screen.
 - Exhaust area blocked. Vendor too close to wall.
 - Airflow blocked by product in front of evaporator or air duct openings.
 - Coils icing due to faulty evaporator motor or blades.
 - Loose connections on evaporator motor. Motor not running.
2. Refrigeration relay shorted. Switch the controller to **Service Mode**, and then use the **TEST RELAY** menu to verify that the relay turns off.
3. Gasket leak around door.
4. Excessive load: After loading, unit runs longer to pull out excessive heat from product.
5. Shortage of refrigerant or restriction.
6. Faulty controller.
7. Ambient air temperature and relative humidity exceed manufacturer's operational standards.
8. Defective temperature sensor or sensor has been moved or remounted to wrong spot.

REFRIGERATED SPACE TOO COLD

1. Refrigeration control setting too cold.
2. See **Troubleshooting Circuits with Multi-Meter**.
3. Troubleshooting Circuits with Multi-Meter check the program **DIAGNOSTICS** and look for error codes.
4. Refrigeration relay bad. Switch the controller to **Service Mode**, and then verify that relay turns on by using the **TEST RELAY** menu. Check relay terminals for continuity with an ohmmeter.
5. Faulty controller.

REFRIGERATED SPACE TOO WARM

1. Refrigeration control setting too warm.
 2. Check temperature sensor. If the temperature reading of **SENSOR1** is “- - -”, then check connections and sensor harness. See **Troubleshooting Circuits with Multi-Meter**
 3. Refrigeration relay bad. Switch the controller to **Service Mode** and verify that the **RELAY1** turns on by using the **TEST RELAY** menu.
 4. Faulty control board.
 5. Restricted evaporator space.
 - Evaporator motor or blades faulty, causing the coils to ice over the evaporator.
- Condenser airflow 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.
 - Low charge or restriction in tube if capillary tube starts frosting 8 to 20-25 cm (10 inches) past evaporator connection tube.
 - Check for oil leaks 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.**
 - A. **Panasonic.1/3 HP** - Unscrew lead terminals and remove relay from compressor. (FIG 21a and FIG 21c).
 - Keep relay upright. Use ohmmeter to check for continuity between switch terminals 1 and S. Replace relay if continuity exists.
 - Use ohmmeter to check for continuity across coil terminals 2 and M. If open then replace the starting relay.
 - 1 and 2. Replace if continuity exists.
 - Use ohmmeter to check for continuity between coil terminals 5 and 2.
- **Panasonic1/3 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, ELEVATOR TRAY & FRONT PANEL

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

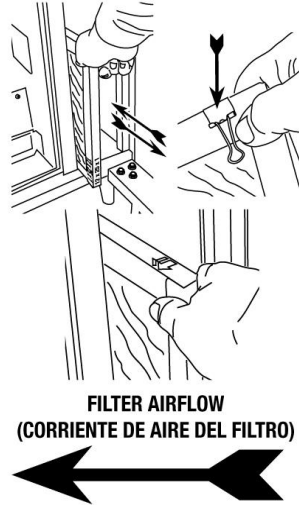
REPLACE AIR FILTER

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 filter.
- Airflow arrow on filter must point to the left (towards the inside of vending vendor).
- On those vendors with air filter handle hook filter holder around filter edge and reinstall clip on opposite end.

WARNING: Do not replace with a HEPA type filter. This type may not allow the correct amount of air to flow through.

EVERY 3 MONTHS / CADA 3 MESES



REPLACE WITH NON-HEPA AIR FILTER 12"X25"X1'.
(SUBSTITUYA POR EL FILTRO DE AIRE 12"X25"X1" NO DE TIPO HEPA.)

BE SURE TO REINSTALL CLIPS ON OPPOSITE END.
(ESTÉ SEGURO DE REINSTALAR LOS CLIPS EN EXTREMOS CONTRARIO/OPUESTO)

BE SURE ARROWS ON FILTER POINT TO THE LEFT-DIRECTION OF AIRFLOW
(ESTÉ SEGURO QUE LAS FLECHAS EN EL FILTRO SEÑALAN A LA IZQUIERDA-DIRECCIÓN DE LA CORRIENTE DE AIRE)

FILTER AIRFLOW
(CORRIENTE DE AIRE DEL FILTRO)

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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.

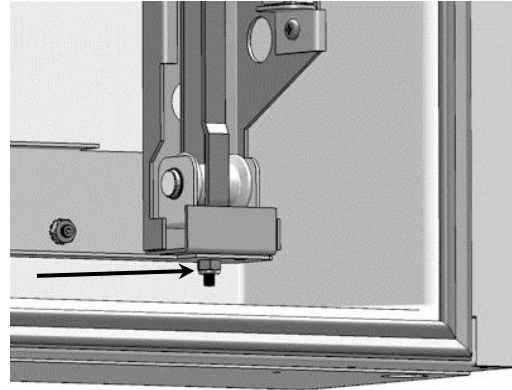
EVERY 6 MONTHS

CLEAN DOOR AND DELIVERY DOOR SEALS

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

CHECK THE TENSION OF ELEVATOR DRIVE BELTS

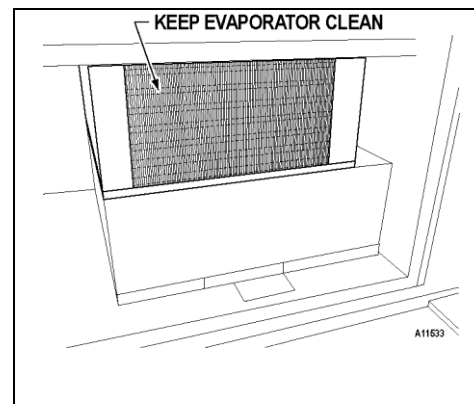
With the machine switched OFF, lift the elevator tray, if the belt jumps on the drive pulleys without much effort the belt tension will need to be increased. Adjust the tensioning nuts using an open ended $1\frac{1}{32}$ " wrench in $\frac{1}{2}$ turn steps; check the tension after each step.



Note: If the belt tension is too high, the elevator motor will stall at the upper end of its travel before reaching the top limit switch. If the elevator does stall in this way, then back-off the tension nut one $\frac{1}{2}$ turn CCW and make the test again.

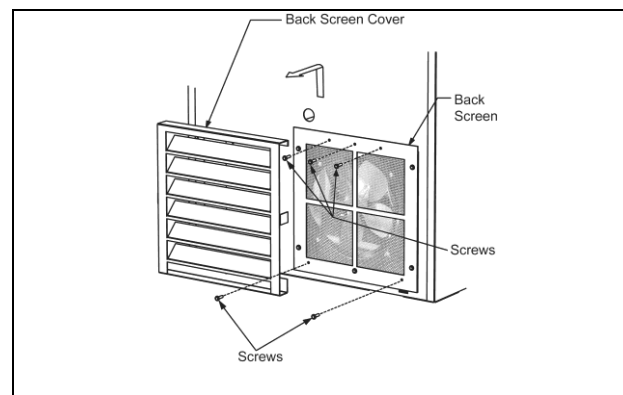
CLEAN EVAPORATOR COIL

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 vending 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 vending vendor with the door closed

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.

Mail your order to:

VendNet™
165 North 10th Street
Waukee, IA 50263 USA

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.

If you do not have the right parts manual: 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 vending 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 vending vendor plugged directly into the outlet?

WARNING: Extension cords can cause problems; check the reset button on the GFCI unit

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**.

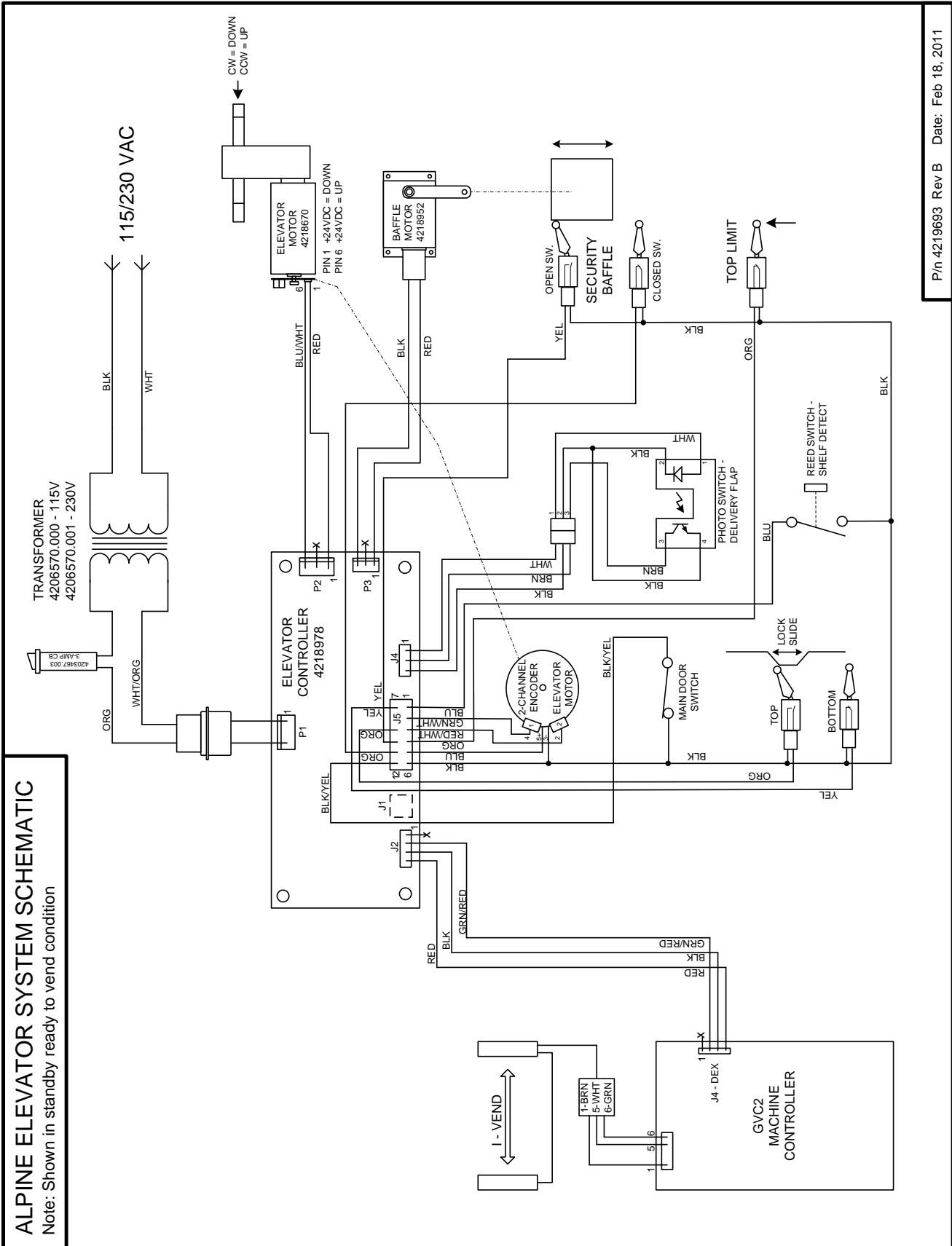
NOTE: Setting the temperature colder does not accelerate cooling of product but may cause the product to freeze.

APPENDIX

ELEVATOR MOTOR CONTROLLER FAULT CODES

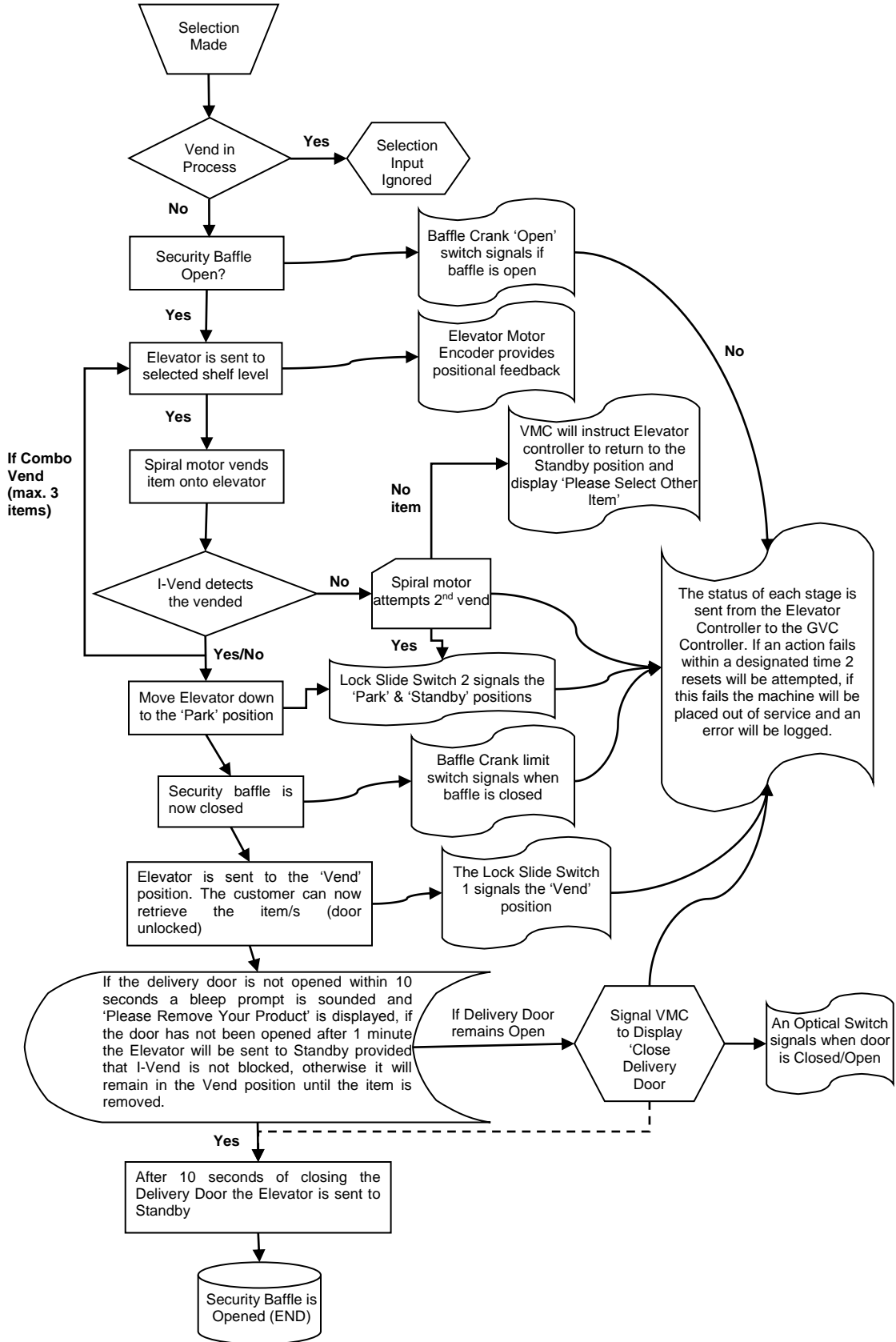
Code	Title	Description
ELF1	Elevator Position Vend (EPVD) failed	Failed to get to the Vend position following a position Vend command
ELF2	Lock switch 1 and 2 both high (Invalid Condition)	Logically both slide switches can never be operated at the same time
ELF3	Baffle close (EBCL) failed to complete	Failed to close the security baffle following a 'close baffle' command
ELF4	Baffle open (EBOP) failed to complete	Failed to open the security baffle following an 'open baffle' command
ELF5	Elevator Position Standby (EPSB) failed	Failed to get to the Standby position following a 'Position Standby' command
ELF6	Elevator Shelf Position (ESELx) failed	Failed to get to the required shelf position following a position shelf command
ELF7	Motor Fails to Move	No motor movement for a period of 1 second, as determined by the dual encoder signals
ELF8xy	Shelf Number Mismatch	A mismatch of shelf numbers between the VMC controller & Elevator controller after a reset sequence (ERST) e.g. EFL8-04_05 = 4 shelves were identified by the Elevator controller when it was told there are 5. Both numbers will always be 2 digit. EFL8-00_05, would mean no shelves were identified which would indicate there is a sensor or wiring failure.
ELF9	Delivery Door Opens Unexpectedly	Should the delivery door be opened outside of a vend cycle the elevator will be immediately be sent to the 'Vend' position and an ELF9 will be reported. The VMC controller will then issue a go to Standby command once the delivery door has been closed.
ELF98	Command out of Sequence	Will be returned as part of the elevator status reply if any other command is issued other than a 'Reset' or 'Position Standby' command at power-up.
ELF99	At Top Limit Switch.	Will be returned as part of the elevator status reply if a command is issued if the elevator is stationary at the top limit for any reason

ELEVATOR SYSTEM SCHEMATIC

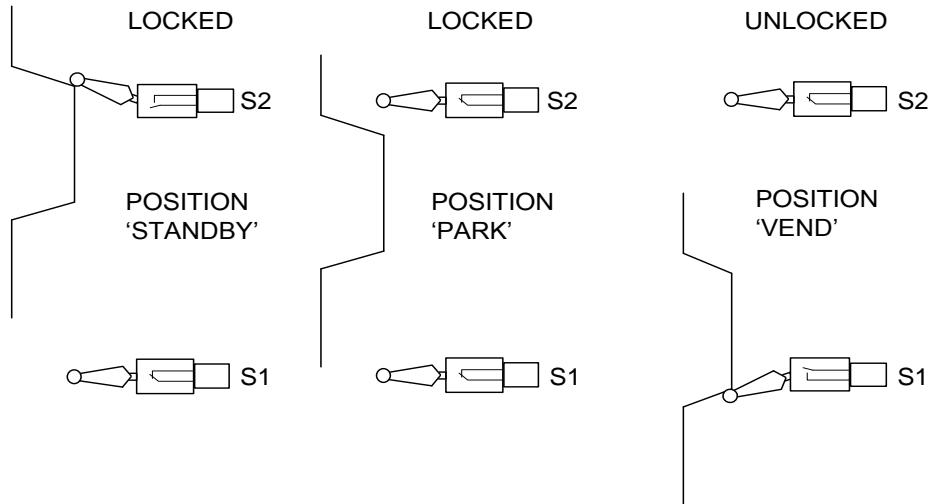


P/n 4218693 Rev B Date: Feb 18, 2011

VEND CYCLE FLOW CHART



THE 3 STATES OF THE LOCKING SLIDE & SWITCH LOGIC



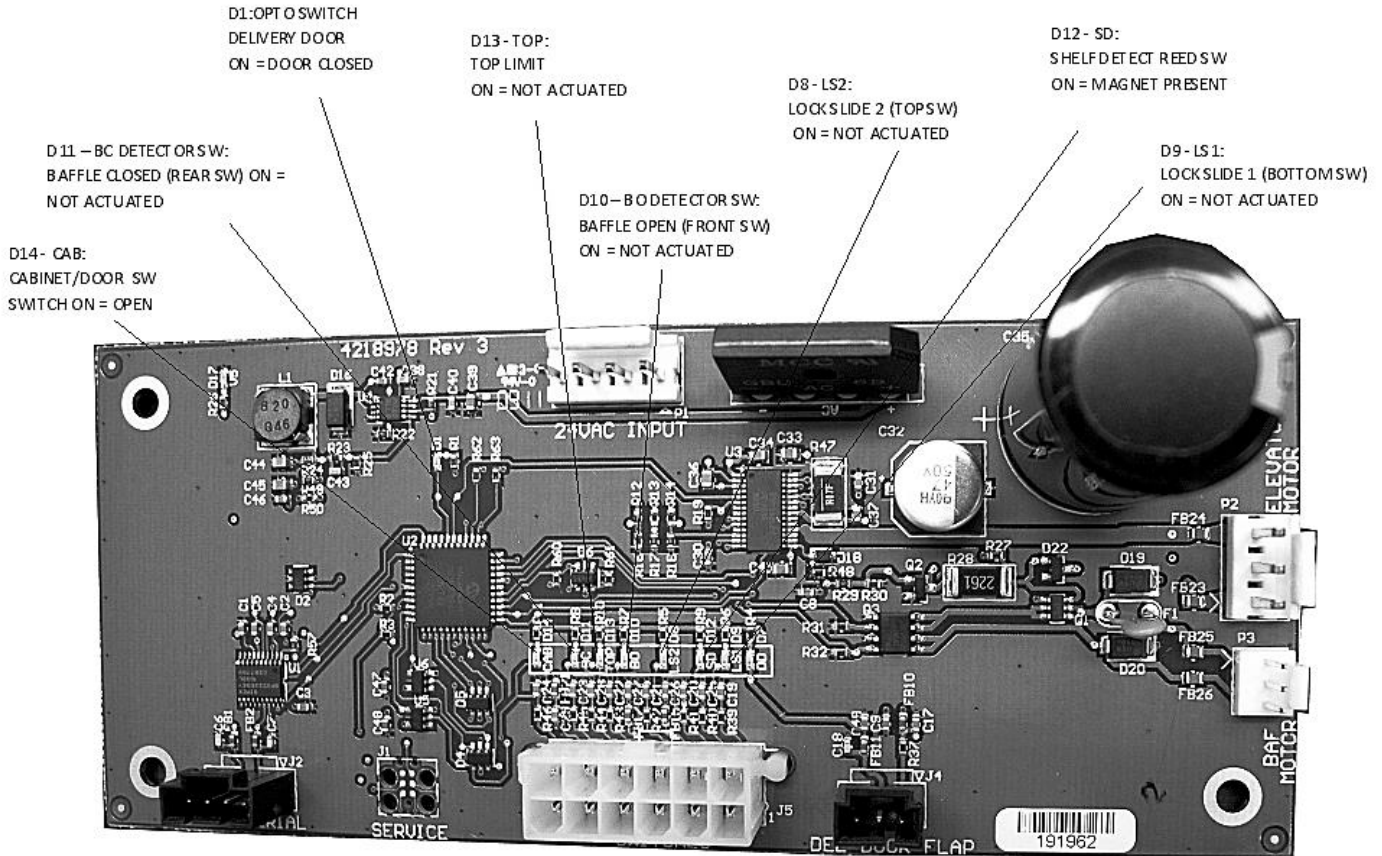
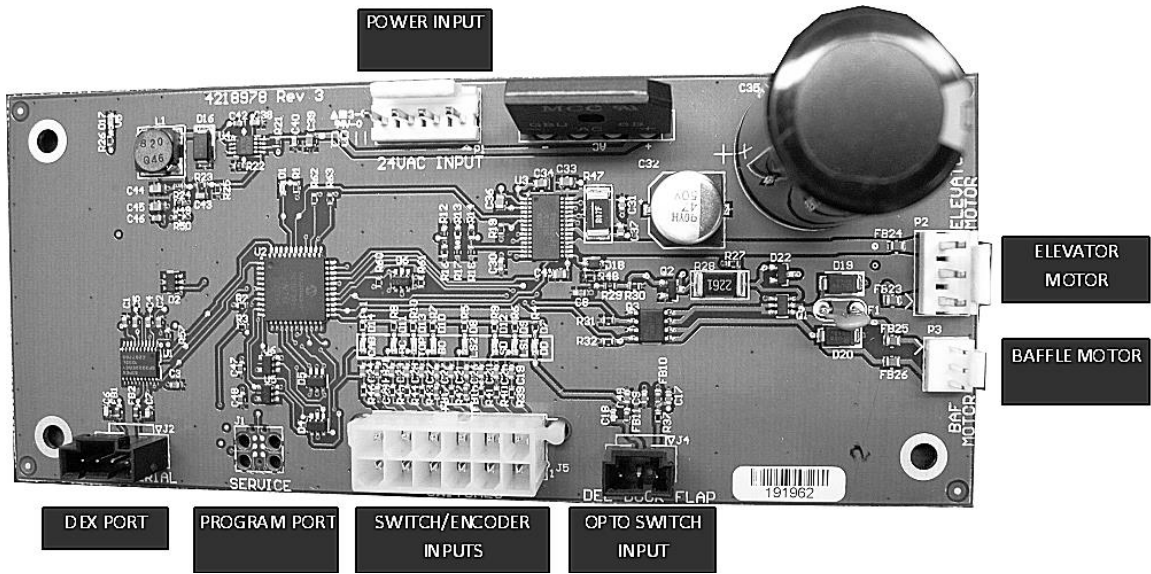
The Vend Sequence

Note: There are 3 logical states to support the vend sequence:-

- VEND - the Delivery Door is unlocked to allow vended items to be retrieved
- PARK - is used when the elevator is traveling in a downward direction, this position allows the security baffle to be closed prior to moving down the 'vend' position and unlocking the delivery door flap.
- STANDBY - is used when the elevator is traveling in an upward direction, the delivery door flap is locked and the security baffle can be opened.

- A valid selection code is made with the required credit
- Selection code is sent to motor controller
- Elevator is driven up to desired shelf
- Product is vended onto elevator tray (seen by I-vend)
- VMC controller communicates to proceed to 'Vend' position
- Elevator is driven down to the 'Park' position and stops
- Security Baffle is driven to the 'Closed' position
- Elevator is then driven down to the 'Vend' position and the delivery door is unlocked
- Elevator will remain in the 'Vend' position for up to 1 minute until the Delivery Door is opened/closed
- Elevator is then driven up to the 'Standby' position and the Security Baffle is opened.

ELEVATOR MOTOR CONTROLLER INPUT/OUTPUT DETAIL



NOTES:

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