



DUAL ZONE SNACK



5w2z

MODEL:

3193, 3193A - DZ3000

3195, 3195A - DZ5000

SERVICE MANUAL

TABLE OF CONTENTS

SPECIFICATIONS	1	TEMPERATURE CONTROL	13
Dimensions & Weight	1	Sensors	13
Factory Configuration	1	Relays.....	13
Electrical.....	1	Door Switch.....	14
Refrigeration	1	Factory Default Settings	14
Coin Changer, Bill Validator, Card Reader	1	Bottom (Cool) Zone	15
Vendor Operation	1	Cut-In.....	15
INTRODUCTION	2	Cut-Out.....	15
UNPACKING	3	Top (Warm) Zone	15
INSTALLATION	4	Cut-In.....	15
Grounding (Earthing) & Electrical	4	Cut-Out.....	15
LOADING PRODUCTS	4	Priority	16
TRAY ADJUSTMENTS	5	Sensor1.....	16
Tray Spacing.....	5	Sensor2.....	16
5 Wide Tray Spacing Adjustments.....	6	ANTI-CONDENSATION	16
Candy to Snack	7	REFRIGERATION	17
Snack to Candy	8	Refrigeration Troubleshooting	17
Auger Timing	8	Compressor will not start.....	19
CONTROLLER FUNCTIONS	9	Compressor trips on overload	19
Sales Mode	9	Noisy or vibrating unit	20
Display Credit	9	Unit short cycles.....	20
Make Selection.....	9	Unit operates long or continuously.....	20
iVEND™ Cycle.....	9	Refrigerated space too cold.....	20
Credit & Counters.....	10	Refrigerated space too warm.....	21
Service Mode	11	Troubleshooting circuits with MultiMeter	21
Service Mode Button.....	11	PREVENTIVE MAINTENANCE	22
Keypad.....	11	Once a Month	22
Display.....	11	Clean Cabinet Interior.....	22
BASIC PROGRAMMING	12	Clean Cabinet Exterior.....	22
		Every 30 -days	22
		Clean Refrigeration Intake Screen.....	22
		Every 6 -months	23
		Clean Condenser Coil.....	23
		Clean Rear Exhaust Screen.....	23
		PARTS ORDERING PROCEDURE	24
		BEFORE CALLING FOR SERVICE	25

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

MODEL NUMBER: _____

SERIAL NUMBER: _____

SPECIFICATIONS

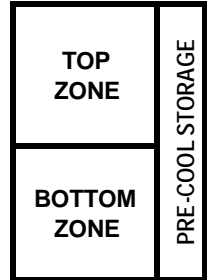
DIMENSIONS & WEIGHT				
TYPE	DZ3000 (3 WIDE)		DZ5000 (5 WIDE)	
MODEL	3193	3193A	3195	3195A
WIDTH	29-5/16 in. (74.4 cm)		41 in. (104 cm)	
DEPTH	35 in. (89 cm)			
HEIGHT	72 in. (183 cm)			
WEIGHT	598 lbs (271 kg)		730 lbs. (331 kg)	
SHIPPING WEIGHT	623 lbs (283 kg)		760 lbs (345 kg)	
FACTORY CONFIGURATION				
SELECTION	40 Select - Expandable to 60			
ELECTRICAL				
MODEL	3193	3195	3193A	3195A
VOLTAGE	115 VAC		230 VAC	
CYCLE	60 Hz		50 Hz	
AMPS	8.5 Amps (Nominal)		4.2 Amps (Nominal)	
TRANSFORMER	24 VAC			
REFRIGERATION				
HORSEPOWER	Super 1/3 Hp			
TYPE	Hermetically Sealed			
CONTROLS	Electronic			
REFRIGERANT	R-134a			
CHARGE	5.6 Ounces			
COIN CHANGER, BILL VALIDATOR, CARD READER				
TYPE	Level 1 MDB Peripheral Device			
VENDOR OPERATION				
SOUND LEVEL	Produces less than 70dBA during normal operation			
RECOMMENDED OPERATING TEMPERATURE	Between 0° and 37.8° Celsius (32° and 100° Fahrenheit)			

INTRODUCTION

This manual contains instructions, service and installation guidelines for the **Dual Zone Snack**. Please read this manual thoroughly and follow instructions. The initial set-up of a vending machine is a very important step of insuring that the equipment operates in a trouble-free manner.

The **Dual Zone Snack** has two temperature zones in a single machine separated by insulating barriers: A top zone and a bottom zone. The machine has an air duct that runs up and down on the right side of the trays and an adjustable baffle to direct air into the bottom zone.

The top zone includes a thermostatically controlled heater to provide for further temperature separation across varying ambient temperatures. It has two air circulating fans to provide consistent temperatures to products in the top zone trays.



The bottom zone contains the refrigeration system's evaporator coil and fan. There are openings in the bottom trays to allow air to circulate around the products. The trays include transparent air curtains to assist in retaining the colder temperatures. There is also a separate pre-cool storage compartment to the right of the trays. This area is insulated to maintain a cool storage for pre-cooling products for the next machine refill.

The temperature settings for both zones are done at the machine controller (program). The machine will maintain up to 13°C (23°F) of separation between the zones at an ambient range of 4.4°C-37.8°C (40°F-100°F). All programming of the pricing, vend functions and features are also done at the controller. Changes can be made without any additional accessories or remote parts. Selections can be priced individually from \$.05 to \$999.95 in five cent increments (US currency). When adapted to accept international or foreign currency, the maximum vend price will be 255 times the smallest denomination of coin being accepted. Cash accountability records, total cash transactions, total vend cycles performed by the vendor, information for individual selections, complete rows or total machine can be compiled and used for inventory and ordering records. Electrical malfunctions are recorded and displayed when the machine 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 **Dual Zone Snack** vendor has the capability of supporting a "satellite" vending machine, such as a CB300-SAT, Can Vendor or Food Merchandiser (Menu Mart II). The satellite vendor utilizes the **Dual Zone Snack** vendor's existing controller, 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.

If you have any questions pertaining to information in the manual, replacement parts or the operation of the vendor, then you should contact your local distributor or:

VendNet
165 North 10th Street
Waukee, Iowa 50263
Phone: (888) 259-9965
Parts Fax: (515) 274-5775
Sales Fax: (515) 274-0390
E-mail: vendnet@vendnetusa.com

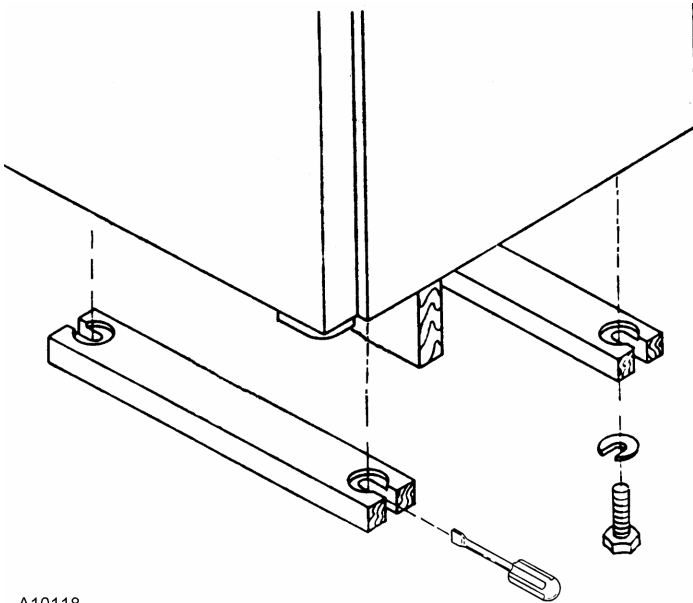
UNPACKING

This machine 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 machine.

Carefully remove the outside packing material so as not to damage the finish or exterior of the machine. Inspect the machine for concealed shipping damage. Report any damage hidden by the shipping material directly to the delivering carrier on a hidden damage report.

Record the model number and serial number of the vendor for your records. These numbers can be found on the Serial Plate 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 placing a 2x6 under the vendor, inserting a screwdriver or prying tool into the groove and splitting it in two. Turn the leveling screws in as far as possible. See Figure 1.



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Figure 1. Remove shipping skids

INSTALLATION

Position the vendor in its place of operation no further 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 machine and any wall or obstruction for proper air circulation. Level the vendor, making sure all levelers are touching the floor. The vendor **must** be level for proper operation and acceptance of coins through the coin mechanism.

Retrieve the keys to the vendor from the coin return cup. Open outer door and remove all internal packing material.

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

GROUNDING (EARTHING) & ELECTRICAL

Before connecting the vendor, the integrity of the main electrical supply must be checked for correct polarity, presence of ground (earth) and correct voltage. Please refer to the **Safety Manual and Installation Guidelines Manual** (P/N 4206816) that shipped in the service package with your machine. These checks should be repeated at six (6) month intervals with the routine safety electrical testing of the vendor itself.

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

A noise suppressor has been installed in this machine to compensate for any mains signal noise that could interfere with the normal operation of the controller.

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.

Refer to **Electrical Specifications** on page 1 to determine circuit amperage and protection.

LOADING PRODUCTS

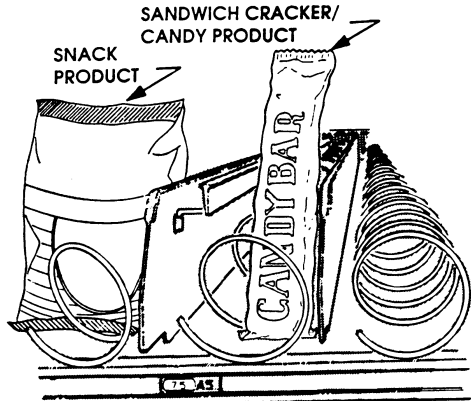
The lower compartment trays are designed for can/bottle or food products requiring cool temperatures when vended. The upper compartment trays are designed for snacks, chips and chocolates products not requiring the cool temperatures.

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

Load product from front to back making sure all items fit freely between the auger 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 augers with the label facing the front of the machine for easy identification by the customer. See Figure 4.

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

Undersize items could cause vend problems. If the product does not fit the auger properly, use a different pitched auger. See Table 1 for augers available from your distributor or service entity.



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Figure 4. Loading Products

Table 1. Available Augers

PRODUCT				PART NUMBER
TYPE	WIDTH (INCH)	THICK (INCH)	QTY	
CANDY	2.75	0.50	30	4200272.103309
		0.66	24	4200272.102309
		0.94	18	4200272.101309
		1.19	15	4200272.100309
		1.50	12	4200272.104309
		2.03	9	4200272.105309
		3.09	6	4200272.106309
(CAN/BOTTLE)		3.09	6	4200272.106309
SNACK	5.50	1.19	15	4200272.109309
		1.50	12	4200272.108309
		1.81	10	4200272.107309
		2.62	8	4200272.111309
		2.69	7	4200272.110309

TRAY ADJUSTMENTS

By re-timing the augers, 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.

TRAY SPACING

The trays can be adjusted up or down in one-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 at the tray above or below the one being adjusted.

5 WIDE TRAY SPACING ADJUSTMENTS

1. Pull out the tray to be adjusted until it stops.
2. Locate the harness retainer on the right side wall. See Figure 5. Pull the tray harness out of the harness retainer.
3. Unplug the "Double D" tray plug from its receptacle on the right side wall.
4. Lift up on the front of the tray and pull slightly (approximately 1.5 cm (.5 in) forward to clear the tray stop.
5. Locate the release lever on the left and right tray rails. See Figure 6. Swing the release levers all the way up to unlatch.

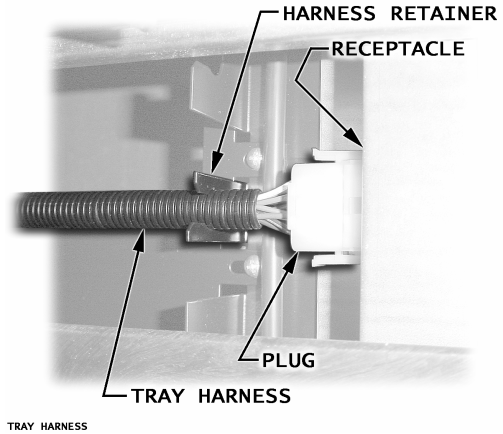


Figure 5. Tray Harness

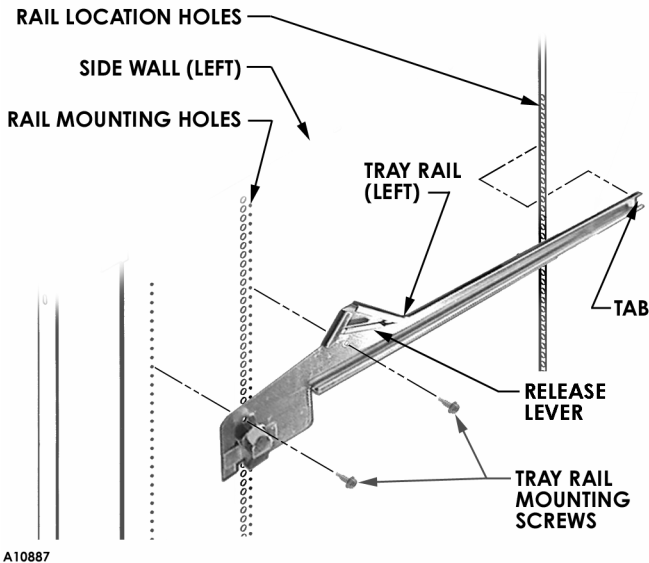


Figure 6. Tray Rails

6. Lift up on the rear of the tray and remove it from the vendor.
7. Relocate both left and right tray rails from the left and right side walls.
 - A. Remove tray rail mounting screws.
 - B. Pull each rail forward to disengage its rear tab from the hole in the rear wall. See Figure 6.

9. Relocate both left and right rails by reversing step 8.

NOTE:

Rails must be level front to back and left to right.

10. Replace the tray by placing its rear rollers on the left and right rails and lifting up on the front of the tray as you push it back.
11. Swing the tray rail release levers all the way down.
12. Install the tray plug into its receptacle on the right side wall.
13. Re-engage the tray harness into its harness retainer.
14. Test vend the tray in its new position to assure that the tray plug is properly seated.

CANDY TO SNACK

To change the tray configuration, order a conversion kit. See the Parts Ordering Procedure section of this manual.

1. Order the conversion kit from your local distributor or service entity.
2. Unplug and remove the tray assembly from the vendor. Place the tray harness in the tray before removal.
3. Remove the motor cover by pulling up on front edge of the cover to clear the stop and then pull forward on cover.
4. Remove existing tray divider and discard.
5. Remove existing auger assemblies and discard.
6. Remove the existing "even" numbered motor. This motor will not be needed.
7. Tape or secure the terminals removed from the motor out of your way.
8. Move the "odd" numbered motor to the center slot of the compartment.
9. Install the auger retainer furnished as part of the conversion kit.
10. Install auger assembly furnished as part of the conversion kit, making sure the motor coupling properly engages the motor and is securely snapped over the vertical rail or retaining rig on the tray.
11. Re-assemble the motor cover removed in step 3.
12. Replace the tray assembly into the vendor making sure that the tray is properly located and latched and connect the tray harness.
13. Set the selection to the desired vend price and adjust the price scroll to agree.

NOTE:

In large item selections, the selection numbers will be the "odd" numbers. For example, selections C3 and C4 are converted to a single selection, C3.

14. Test vend the converted selection for proper operation and price settings.

SNACK TO CANDY

To change the tray configuration, order a conversion kit. See Parts Ordering Procedure section of this manual.

1. Order the conversion kit from your local distributor or service entity.
2. Unplug and remove the tray assembly from the vendor. Place the tray harness in the tray before removal.
3. Remove the motor cover by pulling up on front edge of the cover to clear the stop and then pull forward on cover.
4. Remove the existing auger assembly and discard.
5. Remove the auger retainer and discard.
6. Move motor from the center slot to the left slot in the compartment.
7. Add the new motor furnished as part of the conversion kit in the right hand slot of the compartment.
8. Properly wire the motor and switch. Refer to the "Schematic" section for wire colors and locations.
9. Add the divider furnished as part of the conversion kit.
10. Install new auger assemblies furnished as part of the conversion kit, making sure the motor couplings properly engage with the motor and are securely snapped over the vertical rail or retaining rib on the tray.
11. Re-assemble the motor cover removed in step 3.
12. Replace the tray assembly into the vendor making sure that the tray is properly located and latched and connect the tray harness.
13. Set the selections to the desired vend price and adjust the price scrolls to agree.
14. Test vend the converted selections for proper operation and price settings.

AUGER TIMING

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

To change the auger end position:

1. Remove the motor cover. See Figure 7
2. Raise the motor slightly and pull forward on the auger until it separates from the motor.
3. Rotate the auger to the desired position and re-insert the spiral coupling into the motor.
4. Make sure the auger coupling is seated over the vertical rail or retaining rib on the tray.
5. Replace the motor cover making sure it is securely tightened.

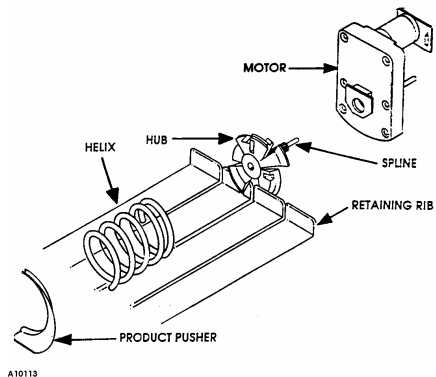


Figure 7. Motor & Auger

CONTROLLER FUNCTIONS

SALES MODE

This is the normal mode when the machine is turned on. The vendor accepts money, pays out change, and dispenses product to the customer.

While in Sales Mode, press **0** to display the current temperature readings of each zone and the status of the compressor and heater relays. Bottom zone (**SENSOR1**) temperature is displayed on the left side as `| Bxxx* |` where B=bottom, xxx=temperature°C, *=compressor relay is on. Top zone (**SENSOR2**) is displayed on the right side as `| Tyyy* |` where T=top, yyy=temperature°C, *=heater relay is on. The temperature display reading can be set to Celsius or Fahrenheit within the Service Mode functions.

DISPLAY CREDIT

The 10-character scrolling display is also used to communicate with the customer. If credit has not been established and a selection is made, then the price for that selection displays for approximately one second. When money or credit is accepted, then the credit amount displays.

If the payout tubes in the coin mechanism are below the low-level sensors, the `[USE CORRECT CHANGE]` message will scroll.

MAKE SELECTION

If a selection is made and the accumulated credit is greater than or equal to the price of the selection, then a vend attempt will take place. If credit is less than the selection price, the price will be displayed and the message `[PLEASE INSERT MORE MONEY]`.

iVEND™ CYCLE

Selections A thru G have been assigned at the factory to be monitored for iVend™ optical sensing. They will have an associated vend operation that differs from the normal vend operation.

For 5 milliseconds at the start of a vend, the iVend™ optical sensor will be checked for blockage.

If blocked - the normal home-switch-vend cycle will be used and the optical sensors will be ignored. Both the vend motor and a 9 second 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 9 seconds and there is no home-switch signal, then the vend failed. The vend motor is shut down and `[MAKE ALTERNATE SELECTION]` is displayed. The customer can press selection buttons to activate this or another motor or press the coin return button.

NOTE: Force Vend is overridden under this vend cycle.

If not blocked - the iVend™ Sensor System is used. The vend motor and a 9 second 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 a 9 second 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** counter is increased by one.
 - If a product is not detected and the motor reaches the home-switch position or if a 9 second timer runs out, then the vend has failed or the selection is sold out. Such a state will trigger the display of the [MAKE ALTERNATE SELECTION] message. The amount of credit is displayed. The customer can press selection buttons to activate this or another motor or press the coin return button.

CREDIT & COUNTERS

After a successful vend, the amount of remaining credit will be displayed until all coinage is paid back.

Following a successful vend, the **HIST COUNT** (total vends count) will be incremented by one (1) and the **HIST CASH** (total cash count) will be incremented by the price of the vended selection. The counter rollovers occur at 79,999,920 and 99,999.95 respectively. If a product is detected during the second vend cycle, then the **2ND VEND** record counter is increased by one. The counters are viewable in the accounting menu as well as through a DEX/UCS download. Refer to the 120 Select Programming Manual (p/n 4212619) for additional information on DEX/UCS fields.

Following a successful vend, the **RES COUNT** (resettable vend count) will be incremented by one (1). The **RES SALES** (resettable total cash value) counter will be incremented by the price of the selection vended. The counter rollovers occur at 79,999,920 and \$99,999.95 respectively if never reset.

NOTE

Test vends are not included in the counter totals.

SERVICE MODE

The **Service Mode** is used to access the menus for testing, retrieving accounting information or creating custom program settings.

Refer to the **Basic Programming** steps in this manual or on the **Control Cover**.

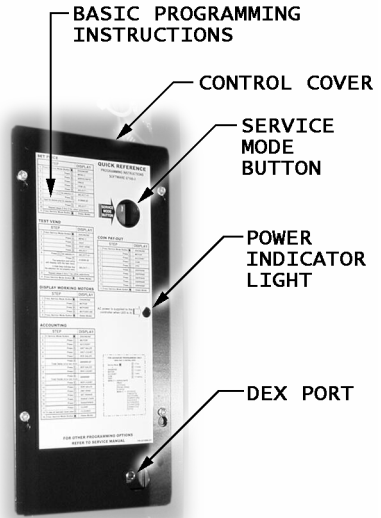
Press the **Service Mode Button** and then the **Keypad** and watch the feedback from the **Display** to navigate the menus.

If credit exists when entering the **Service Mode**, it will be restored when the machine is returned to the **Sales Mode**.

SERVICE MODE BUTTON

The **Service Mode Button** is located near the top right corner of the control cover.

Press the button to access the **Service Mode** features. Press the button again to exit and return to **Sales Mode**.



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Figure 8. Controller Cover

If no key is pressed within 25 seconds while in **Service Mode**, then the controller automatically exits to the **Sales Mode**.

KEYPAD

While in **Service Mode**, keys **A** through **E** are used to navigate between the modes, menus and sub-menus.

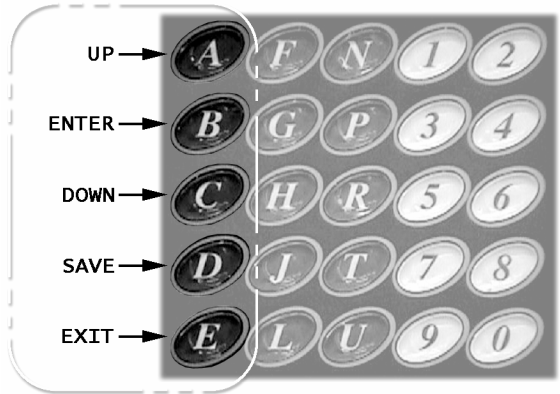
A = Scroll UP.

B = ENTER a menu.

C = Scrolls DOWN.

D = SAVES a setting.

E = EXITS down a level from a menu, sub-menu or routine without making a change.



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Figure 9. Key Functions in Service Mode

DISPLAY

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

BASIC PROGRAMMING

The diagram (Figure 10) illustrates the basic programming menus available on the control cover decal. Refer to **120 Select Controller Programming Manual** (p/n 4212619) for additional programming instructions.

FIJE EL PRECIO

PASO	APARECE
1 Presione el botón de Modo de Servicio [M]	DIAGNOSE
2 Presione [A]	MENU 2
3 Presione [B]	SERV/CONTR
4 Presione [C]	PRICE
5 Presione [B]	ITEM(S)
6 Presione [B]	SELECT --
7 Presione [A] [1] para la selección A1.	SELECT A1
8 Presione [D]	AL\$000.00
9 Entre el precio deseado para la selección A1.	
10 Presione [D]	SELECT --
11 Repita los pasos 7 a 10 para otras selecciones.	
12 Presione el botón de Modo de Servicio [M]	(Modo de Ventas)

PRUEBE LA VENTA

PASO	APARECE
1 Presione el botón de Modo de Servicio [M]	DIAGNOSE
2 Presione [A]	MENU 2
3 Presione [A]	TEST
4 Presione [B]	TEST VEND
5 Presione [B]	SELECT --
6 Presione [A] [1] for selection A1.	SELECT A1
7 La selección y el precio aparece con la prueba de venta. Tasa beep señal indica que la selección no vende correctamente.	AL\$000.00 SELECT --
8 Repita los pasos 7 a 10 para otras selecciones.	
9 Presione el botón de Modo de Servicio [M]	(Modo de Ventas)

MOTORES DE TRABAJO DE LA EXHIBICIÓN

PASO	APARECE
1 Presione el botón de Modo de Servicio [M]	DIAGNOSE
2 Presione [C]	MOTOR
3 Presione [B]	MOTORS
4 Presione [D]	MOTORS 000
5 Presione el botón de Modo de Servicio [M]	(Modo de Ventas)

REFERENCIA RÁPIDA INSTRUCCIONES DE PROGRAMACIÓN VERSIÓN 67185-4

BOTÓN DE MODO DE SERVICIO

PAGO DE MONEDA

PASO	APARECE
1 Presione el botón de Modo de Servicio [M]	DIAGNOSE
2 Presione [C]	MOTOR
3 Presione [C]	ACCOUNT
4 Presione [C]	COIN
5 Presione [B]	CPO
6 Presione [B]	DISPENSE
7 Presione [1]	DISPENSE
8 Presione [2]	DISPENSE
9 Presione [3]	DISPENSE
10 Presione [4]	DISPENSE
11 Presione el botón de Modo de Servicio [M]	(Modo de Ventas)

La corriente alterna se provee al regulador cuando es el LED se encendió.

CONTABILIDAD

PASO	APARECE
1 Presione el botón de Modo de Servicio [M]	DIAGNOSE
2 Presione [C]	MOTOR
3 Presione [C]	ACCOUNT
4 Presione [B]	HIST SALES
5 Presione [C]	HIST COUNT
6 Presione [C]	RES SALES
7 Ventas Totales desde el realista pasado.	\$000000.00
8 Presione [E]	RES SALES
9 Presione [C]	RES COUNT
10 Cuenta Total desde el realista pasado.	00000000
11 Presione [E]	RES COUNT
12 Presione [C]	RDR SALES
13 Presione [C]	2ND VEND
14 Presione [C]	SET RANGE
15 Presione [C]	RANGE CASH
16 Presione [C]	RANGEVENDS
17 Presione [C]	CLEAR
18 Al claro todos los valores reprogramables.	CLEARED
19 Presione el botón de Modo de Servicio [M]	(Modo de Ventas)

PARA LA PROGRAMACIÓN AVANZADA SOLAMENTE
DESP. DEL MODO Y LLAVE DE CONTROL.

Modo de Ventas **[M]** **[A]** = + Veys para arriba
[B] = - Entre
[C] = + Abajo
[D] = Abajo
[E] = + Abajo

DIAGNOSE
MOTOR
ACCOUNT
COIN
TEST
MENU 2 → SERV/CONTR
PRICE
OPTIONS
PRND VEND
CONFIG
MENU 3 → POS/AUX
TIME/DATE
SHUTDOWN
TEMPERATURE
DISCOUNT
AUTOREINST
COUN/TORN
CAN/BOTTLE
OPTIC

**PARA OTRAS OPCIONES DE PROGRAMACIÓN
REFIERA AL MANUAL DE REPARACIONES**

PIN 4210989.002 B

Figure 10. Basic Programming

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. The top fan in the top zone is always on if the machine is powered up.

SENSORS

Each zone has a temperature sensor (**SENSOR1** and **SENSOR2**) monitored by the program. Refer to Sales Mode section on page 9 to view the current temperatures readings.

Within the program, each zone has a target temperature or **SET POINT** and a **DELTA**. **DELTA** is the total allowable temperature variation from the **SET POINT**. The program calculates when to activate the refrigeration and heater systems to achieve the **SET POINT** temperatures for each zone.

The maximum temperature difference (**SENSOR2 SET POINT** minus **SENSOR1 SET POINT**) that can be set between the zones is 13°C (23°F). This means that if you are changing **SENSOR2 SET POINT**, the program will automatically adjust **SENSOR1 SET POINT** if the difference between set points is greater than 13°C (23°F).

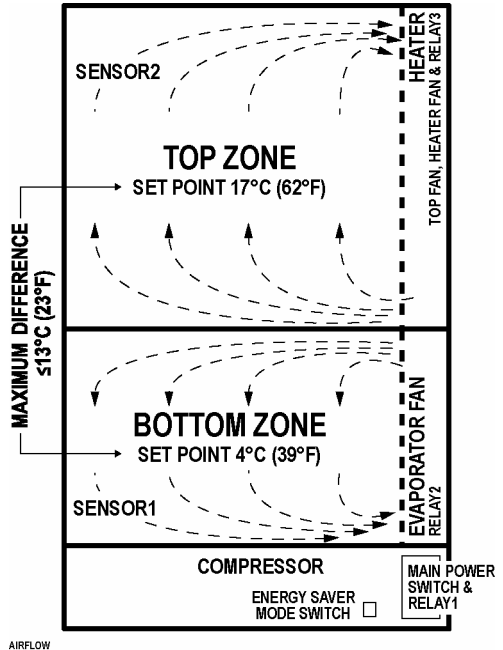


Figure 11. Airflow

RELAYS

The program controls three relays which then control the refrigeration and heating systems:

- **RELAY1** – controls the compressor and the condenser fan (refrigeration system). There is an energy saver mode switch for the condenser fan. This switch is to the left of the main power switch (located on the bottom right of the cabinet).
 - **ENERGY SAVER MODE ON** – Normal mode from the factory. Condenser fan is connected to **RELAY1**.
 - **ENERGY SAVER MODE OFF** - Allows the condenser fan to run continuously when the machine is powered up. This mode can be used if the machine is operating in a high ambient temperature environment.
- **RELAY2** - controls the evaporator fan (refrigeration system).
- **RELAY3** - controls the heater and heater fan (heating system).

DOOR SWITCH

- If the machine is plugged in and the power switch is on and the door is open, then the top fan is on while the compressor, evaporator fan, heater and heater fan are all turned off. A 30 minute door timer starts and a compressor delay timer starts. The condenser fan is off only if the Energy Save Mode switch is on. If Energy Save Mode switch is off, then the condenser fan remains on.

If the door is open for more than 30 minutes, then the controller will resume closed door operation, the message [DOOR OPEN] is displayed and error code (VMC 7) is set. The DIAGNOSE menu will also display the current state of the door switch after all other messages (if any) are displayed. !DOOR! is displayed if the door switch is in the “door open position” and no message is displayed if the door switch is in the “closed door position”.

If a defrost cycle is in progress (compressor off and defrost DURATION timer on) and the door is opened, then the DURATION timer continues while the door is open.

The PERIOD timer is reset if the compressor was on and the door was opened for more than 95% of the defrost DURATION timer setting. If the door was opened briefly (less than 95% of the defrost DURATION timer setting), then the PERIOD timer continues even though the compressor is off.

- If the door is closed, then evaporator fan is turned on. When the compressor delay timer (defrost DELAY) expires, then the controller evaluates the priority, zone sensor readings, relay states and timers.

FACTORY DEFAULT SETTINGS

PROGRAM MODE		PROGRAM VERSION	
		67232-5	67234-1
TEMPERATURE (display)		°C (Celsius)	°F (Fahrenheit)
PRIORITY		SENSOR1	
PRICE • ITEM(S)		All selections set to 50	All selections set to 1.00
SENSOR1	SET POINT	4°C (39.2°F)	39°F (3.9°C)
	DELTA	4°C (39.2°F)	39°F (4°C)
	DURATION	10 MIN	
	DEFROST PERIOD (timer)	2.5 HRS	
	DEFROST DELAY (timer)	3 MIN	
	H/S LEVEL (health/safety)	NONE	
	RANGE (health/safety)	SR/ER D-F (selections D thru F)	
SENSOR2	SET POINT	17°C (62.6°F)	63°F (17.2°C)
	DELTA	3°C (37.4°F)	37°F (3°C)

NOTE:

Please read and follow the step-by-step instructions in the 120 Select Programming Manual (p/n 4212619) to change the factory default settings.

BOTTOM (COOL) ZONE

SENSOR1 temperature sensor is located near the lower trays and positioned to best represent the product temperature.

The refrigeration system's compressor is located outside and below the bottom zone. The evaporator (cooler) is located on the bottom right of the bottom zone. A long transverse fan on the evaporator is designed to efficiently distribute cold air to products in the bottom zone.

CUT-IN

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

CUT-OUT

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

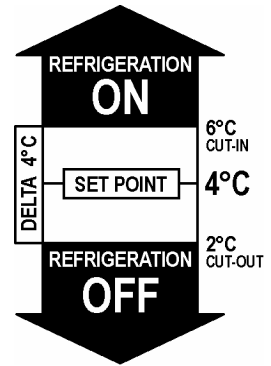


Figure 13.
Refrigeration Set Point

TOP (WARM) ZONE

SENSOR2 temperature sensor is located near the upper trays and positioned where it best represents the product temperature.

The heater is located on the right side. There are two (2) fans located above the heater. The top fan in the top zone is always on if the machine is powered up to distribute the temperature controlled air evenly to all the products in the top zone. The heater fan turns on only if the heater is turned on. This fan is designed to quickly circulate heated air around the products.

CUT-IN

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

CUT-OUT

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

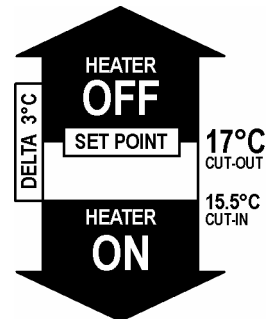


Figure 14.
Heater Set Point

NOTE:

The compressor (refrigeration system) and the heater will not run at the same time.

PRIORITY

SENSOR1

The program's factory default **PRIORITY** setting is **SENSOR1** (bottom zone). This means that the temperature requirements of the bottom zone must be satisfied first before it can activate and satisfy the temperature requirements of the top zone. If it is not cold enough in the lower zone (regardless of the temperature in the upper zone), then the heater is shut off and the compressor is turned on. If the lower zone temperature is cold enough, then the compressor is shut off and only then can the heater turn on to warm the upper zone.

SENSOR2

If the priority setting is changed to **SENSOR2** (top zone), then the temperature of the top zone takes precedence over the bottom zone. If it is not warm enough in the upper zone (regardless of the temperature in the lower zone), then the compressor is shut off and the heater is turned on. If the upper zone is warm enough, then the heater is shut off and only then can the compressor be turned on to cool the lower zone.

NOTE:

Please refer to the 120 Select Programming Manual (p/n 4212619) for detailed description of the **PRIORITY** setting and how it affects the operation of the refrigeration and heating systems, and its associated setpoints and timing sequences. The program's priority setting can be changed from **SENSOR1** (bottom zone) to **SENSOR2** (top zone) by activating the **Service Mode** feature of the control board. Read and follow instructions in the 120 Select Programming Manual.

ANTI-CONDENSATION

The **Dual Zone Snack** is equipped with anti-condensation heaters (installed on the cabinet and door) to reduce water condensation on the outside of the vending machine when the machine is installed in humid locations.

If water condensation due to humidity is not a problem, then disconnecting the anti-condensation heaters can reduce the amount of energy used by the machine.

DISCONNECT ANTI-CONDENSATION:

CAUTION:

Always disconnect power source BEFORE cleaning or servicing.

1. Unlatch and open the Power Panel. See Figure 15.
2. Locate and remove the jumper. See Figure 16.

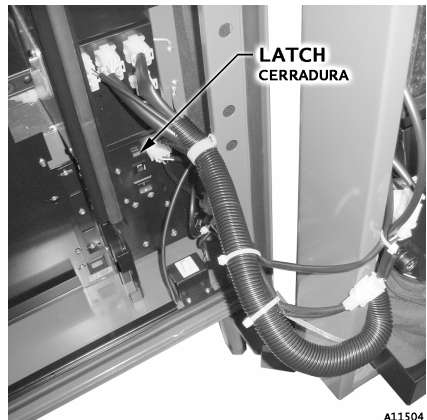


Figure 15. Power Panel Latch

A11504

Save the jumper for future use. Use a wire tie to attach the jumper to a harness near the Power Panel.

3. Close the Power Panel.
4. Plug power cord to wall outlet and turn on power switch.

CONNECT ANTI-CONDENSATION:

CAUTION:

Always disconnect power source BEFORE servicing.

1. Have jumper ready.
2. Unlatch and open the Power Panel.
3. Locate the open connector and install jumper.
4. Close the Power Panel.
5. Plug power cord to wall outlet and turn on power switch.

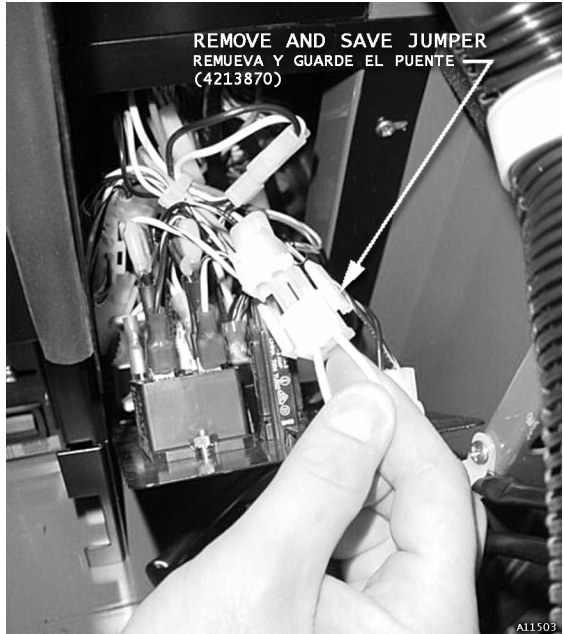


Figure 16. Anti-Condensation Jumper

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.

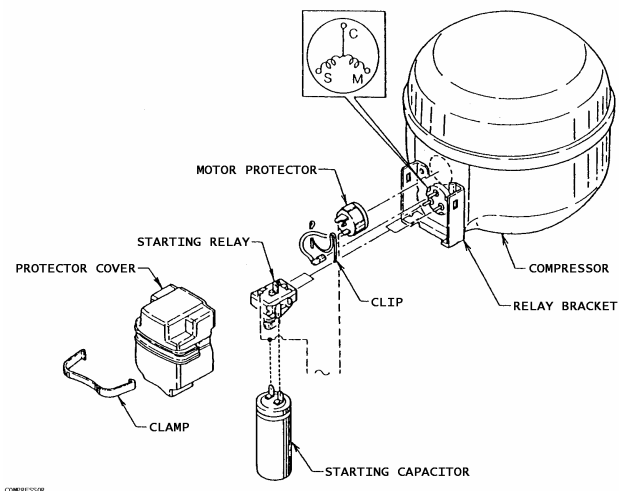


Figure 17. Compressor

WARNING:

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

Table 2. Winding Resistance

APPROX. RESISTANCE ACROSS TERMINALS	
COMMON to START:	7.53 Ohms
COMMON to RUN:	1.06 Ohms
COMMON to SHELL:	No Continuity

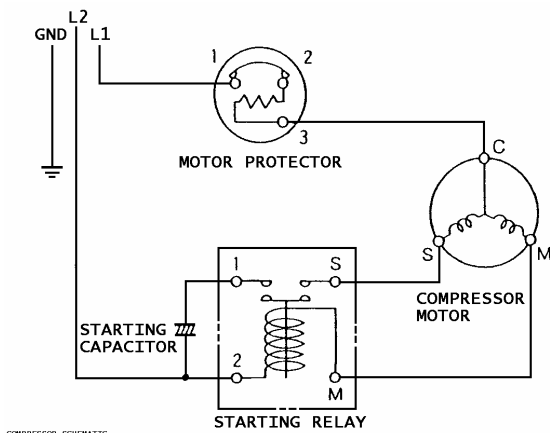


Figure 18. Compressor Schematic

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

1. **Low Charge** - usually caused by leaks; look for oil around seals and welds. Unit will not cool properly. The capillary tube is frosted before it enters the evaporator inlet tube.
2. **Restriction in Systems** (unit frosts, then melts) - not cooling properly.
3. **Bad valves** - unit does not cool properly-- noisy compressor.

COMPRESSOR WILL NOT START

Compressor has no power:

- Machine not plugged in.
- Tripped circuit breaker or blown fuse.
- Faulty wall outlet or improper wiring.
- Faulty (short or open) power cord.
- Temperature sensor circuit is open. If temperature reading of **SENSOR1** is 111°F (44°C) then check sensor harness to control board for continuity with an ohmmeter.
- Low voltage. Check the power source with a volt meter. Minimum 103V for 115VAC, 60Hz. Minimum 195V for 230VAC, 50 Hz.
- Defective overload (motor protector). Wait 10 minutes. Check across overload terminals 1 and 3 for continuity with the ohmmeter. Refer to Figure 18 on page 18.
- Defective start relay. Use an ohmmeter to check continuity across coil terminals 2 and M. Refer to Figure 18 on page 18.
- Compressor has open windings. Check compressor windings with an ohmmeter. Refer to Figure 18 schematic on page 18.
- Defective refrigeration relay.
- Unplug power to the machine. 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 machine. The compressor should start, indicating a problem in the control circuit.
- Check relay terminals 1 to 0 with a Multi-Meter. Should have 24VDC applied to them.
- No DC voltage. Check control board terminals P7-9, P7-13 for a loose connection.

COMPRESSOR TRIPS ON OVERLOAD

1. Improper voltage: Check power source with volt meter. Acceptable range is 103-127VAC for 115V (60Hz), or 195-255VAC 230V (50Hz).
2. Defective starting relay: Won't open after starting. Check across relay terminals with ohmmeter. Terminals 1 to S should be open (have no continuity).
3. Compressor has shorted windings. Check compressor winding resistance values with Multi-Meter. Refer to Table 2 on page 18.
4. Short in other component: Isolate and eliminate each electrical component until short is found.
5. Compressor is too hot.
 - ◆ Dirty condenser.
 - ◆ Faulty condenser motor or blade.
 - ◆ Restricted airflow.
6. Defective or worn out overload: Trips too fast or too often.

CAUTION:

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

NOISY OR VIBRATING UNIT

1. Components rubbing or touching each other.
 - ◆ Check fan blades and motor.
 - ◆ Loose shrouds and harness.
 - ◆ Copper tubing.
 - ◆ Loose or unsecured parts.
 - ◆ Dirty condenser fan blades.
2. Worn or aged compressor grommets.
3. Compressor.
 - ◆ Bad valves.
 - ◆ Slugging.
 - ◆ Bad windings (Refer to Table 2 and schematic on page 18.).
 - ◆ Voltage too low.

UNIT SHORT CYCLES

- Defective condenser fan.
- Dirty or blocked compressor coils.
- 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.
 - ◆ Faulty evaporator motor or blades causing coils to ice.
 - ◆ Loose connections on evaporator motor. Motor not running.
 - ◆ Airflow blocked by product in front of evaporator or air duct openings.
 - ◆ Exhaust area blocked. Machine too close to wall.
2. Refrigeration relay shorted. Switch the controller to Service Mode, then verify that relay turns off by using the **TESTRELAY** menu.
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. See **TEMPERATURE CONTROL** section on page 13 of this manual.
2. Check temperature sensor. If temperature reading of **SENSOR1** is 44°C (111°F) then check sensor harness to control board for continuity with an ohmmeter. Check the program **DIAGNOSTICS** and look for error codes.
3. 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.
4. Faulty controller.

REFRIGERATED SPACE TOO WARM

1. Refrigeration control setting too warm. See TEMPERATURE CONTROL section on page 13 of this manual.
 2. Check temperature sensor. If temperature reading of **SENSOR1** is 111°F (44°C) then check sensor harness to control board for continuity with an ohmmeter.
 3. Refrigeration relay bad. Switch the controller to Service Mode and verify that the relay turns on by using the **TESTRELAY** 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.

1. 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).
2. To check relay (see Figure 18), unscrew lead terminals and remove relay from compressor. Keep relay upright. Check between terminals 1 and S. Replace relay if continuity exists.
3. Check temperature sensor harness to control board for continuity using ohmmeter section of Multi-Meter. Replace if there is no continuity.
4. Check compressor windings using ohmmeter section. Refer to Table 2 and Figure 18.
5. Check motor protector (overload). Using the ohmmeter section of the Multi-Meter. Check between terminals 1 and 3 for continuity. If no continuity is measured (infinity), overload may be tripped. Wait 10 minutes and try again. If still no continuity, overload is defective.

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. Remove and clean Condensate Drain Hose to eliminate any deposits that may restrict condensate water flow.

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

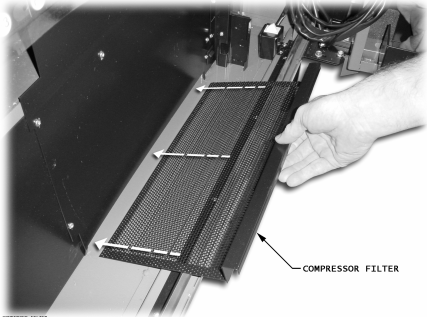
Wash with a mild detergent and water, rinse and dry thoroughly. Clean occasionally with a quality car wax. Plastic exterior parts may be cleaned with a quality plastic cleaner.

EVERY 30-DAYS

CLEAN REFRIGERATION

INTAKE SCREEN

Remove screen and clean dust and debris from screen using a soft bristle brush or a vacuum cleaner.



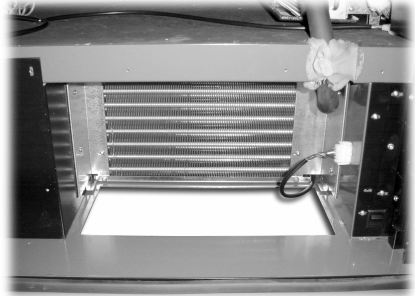
EVERY 6-MONTHS

CAUTION

Power must be off and fan circuit open.

CLEAN CONDENSER COIL

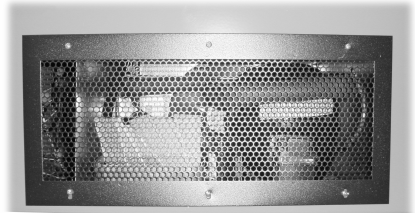
Remove the condenser cover. Clean the condenser coil of refrigeration unit using a soft bristle brush and/or vacuum cleaner.



CONDENSER

CLEAN REAR EXHAUST SCREEN

Remove the rear exhaust screen from cabinet back. Clean dust and debris from screen using a soft bristle brush or a vacuum cleaner.



REAR SCREEN

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



EVAPORATOR

PARTS ORDERING PROCEDURE

When ordering parts, include the following:

1. The model and serial numbers of the machine 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 machine 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 machine have at least 6-inches of clear air space behind it?
- If the power is turned on at the fuse box, is the machine the only thing that doesn't work?
- Is the machine plugged directly into the outlet?

WARNING:

**Extension cords 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 workouts 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 coils 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 cold control set as specified? See TEMPERATURE CONTROL on page 13 or refer to 120 Select Programming Manual (p/n 4212619).

NOTE:

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

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