COLD FOOD MERCHANDISER MENU MART II

MODEL 3079-C

SERVICE MANUAL

TABLE OF CONTENTS

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

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

MODEL NUMBER: _____

SERIAL NUMBER: _____

INTRODUCTION

This manual contains service and installation guidelines and instructions pertaining to the Menu Mart II Cold Food Merchandiser. Also included are various options, features and accessories that are offered within the product line.

The Menu Mart II is a "satellite" refrigerated vending unit that must be connected to a host vending machine. The Menu Mart II uses the "host" vendor's controller and money handling components. All vend functions, pricing, accumulation of credits and other vend-related requirements are controlled by the host vendor.

All Menu Mart II vendors are capable of vending a "whole" bucket and/or "50/50" split. From the factory the Menu Mart II is configured with all buckets as 50/50 split.

Products are stored in a conveyor type unit with 20 buckets that can be split for a maximum of forty items.

Menu Mart II vendors adapted to the Snack Mart III or Snack Mart IIIA Merchandiser machines have ten (10) vend prices ranging from $.05 to $99.95 in increments of 5¢.

NOTE

Contact your local Sales or Service Representative for kits or instructions for connecting to other host venders.

The Menu Mart II is offered with the following basic features:

- **SHOPPER**: The customer can select a particular item by operating a "shopper switch" to move the item to the vend position.

- **DISPLAY BOARD**: A separate LED readout display board is used to display price and selection information for each compartment along with diagnostics information when in the *Service Mode*.

- **HEALTH SAFETY**: Electronic controlled thermistor determines cabinet conditions favorable to vend.

- **DIAGNOSTICS**: The controller monitors the operation of the vendor and records malfunctions, then displays to service personnel the problem area.

Each machine is identified by a model number and serial number. These identification numbers are given on the Serial Number Plate attached to the inside and rear of the vendor. Record these numbers for your records. All inquiries and correspondence pertaining to this vendor should reference the model and serial numbers.

It is recommended that this manual be read thoroughly to familiarize the service person with the functions of all components along with the features that are available. The initial set-up of a machine is a very important step of insuring that the equipment operates in a trouble-free manner. By following the instructions at the initial installation of the machine, service problems can be avoided and set-up time will be minimized.

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

VendNet™
P. O. Box 488
165 North 10th Street
Waukee, IA 50263-0488   USA

PHONE:		1-515-274-3641
	USA	1-800-833-4411
PARTS FAX:		1-515-987-4447
SALES FAX:		1-515-274-0390
EMAIL:	VendNet@Ecity.net	

SPECIFICATIONS

General Specifications

Height:	72-inches
Width:	25 5/8-inches
Depth:	34-inches
Weight:	535 pounds

Electrical

Power Requirement:	120 VAC, 60 Hz
Transformer:	24 VAC, 75 VA
Starting Amps:	10 Amps
Running Amps:	6 Amps

Pricing

10 Prices: $.05 to $99.95, controlled by host

Coinage

Shared with host

Refrigeration

Type:	1/4 HP Hermetically Sealed
Refrigerant:	R-134a
Charge:	8.0 ounces

Capacity

A combination of whole buckets and 50/50 splits can be used in a single machine:

Minimum:

    20 whole compartments:
      13 1/2" W x 9" D x 3 1/2" H

Maximum:

    40 50/50 split compartments:
      6 3/4" W x 9" D x 3 1/2" H

UNPACKING

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

This machine has been thoroughly inspected before leaving the factory. The delivering carrier has accepted this machine as its responsibility. Any damage or irregularities should be noted at the time of delivery and reported to the carrier. Request a written inspection report from the claims inspector to file any claim for damage. File the claim with the carrier (not the manufacturer) within 15 days after receipt of the 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.

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

Open the door and remove all packing material. When furnished with lock and keys, the lock & keys to the vendor are located in the service packet inside the vendor.

> **! WARNING:**
> Use caution when tipping machine from pallet. Machine is heavy and can fall causing serious injury. Removing pallet will require a second person.

Remove the two (2) retaining blocks from the shipping pallet (See figure 1). Slide the machine forward on the shipping pallet until the front legs are clear of the pallet. Tilt the machine forward until the rear legs are clear of the pallet and remove the pallet.

Retaining Block
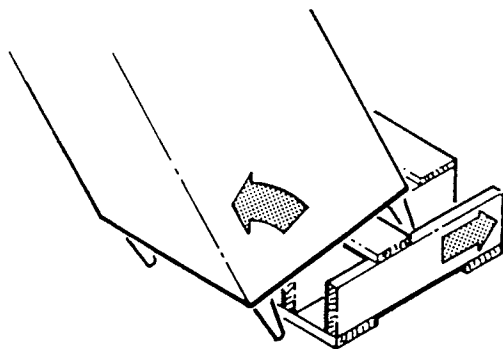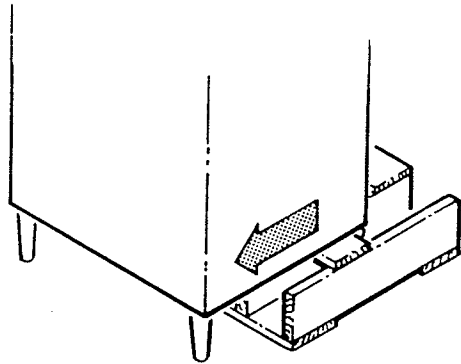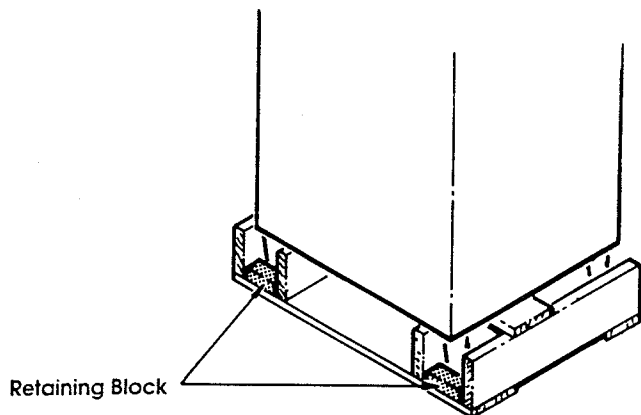
Figure 1. Removing Skid Boards

INSTALLATION

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

NOTE

The Menu Mart II must be connected to a glassfront merchandiser. The steps outlined on the following pages are the basic instructions for installing the Menu Mart II. Refer to these instructions along with the wiring diagrams during installation.

GROUNDING & ELECTRICAL

For proper operation of any equipment utilizing electronically controlled components, it is recommended that the equipment be placed on an isolated or dedicated "noise" free circuit, properly polarized and grounded. The circuit should be a minimum 15 Amp, 120 Volt AC, 60 cycle power source

NOTE

The "HOT" side of the outlet should always be counter-clockwise from the "GROUND" terminal, with the ground terminal at the bottom. The "NEUTRAL" terminal is clockwise from the "ground" terminal.

Electrical Check

1. **Voltage Check:** With a Volt-Meter set to check AC line voltage, insert one probe into the HOT terminal and the other probe into the NEUTRAL terminal. The volt-meter should indicate 108 to 132 Volts AC.

CAUTION:

If you find that 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.

2. **Polarity and Ground Check;** With a Volt-Meter set to check AC line voltage, insert one probe into the HOT terminal and the other probe into the GROUND terminal. The volt-meter should indicate 108 to 132 Volts AC.

3. **Amperage Check;** At the fuse box or circuit breaker panel, locate the proper circuit, and ensure that the amperage reading of the fuse or breaker protecting the circuit, is a minimum of that specified in the vendor Service Manual or greater.

INSTALLATION INSTRUCTIONS

NOTE

Refer to the Installation Instructions provided in kit when connecting to a host other than SMIII or SMIIIA.

Position the vendor to the right of the host machine in its place of operation, no further than six (6) feet from the power outlet or receptacle and 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. When the machine is level, the door can be opened to any position and not move by itself. Try the door half closed, straight out and in a wide open position.

1. Connect both machines together using the two (2) Tie Plates (P/N 1211234) furnished in the service packet. See Figure 2.
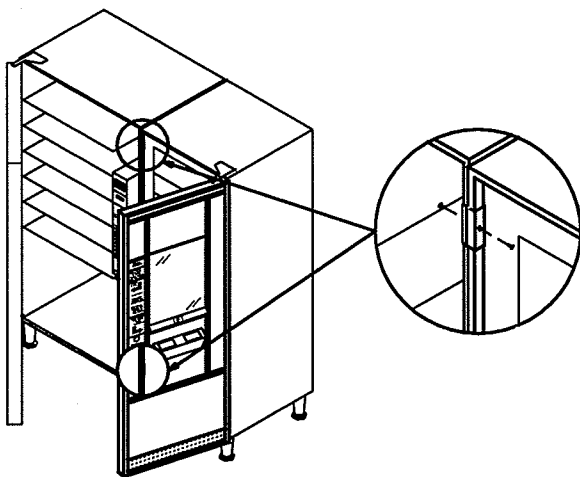
Figure 2. Connecting Menu Mart II to Host

NOTE

If the Menu Mart II must be positioned on the left of the host machine the instruction panel indicating the position of the host vendor must be modified. Furnished in the service packet is an arrow that is to be used indicating that the host is located on the right. Affix this arrow over the existing arrow on the instruction panel.

NOTE

If both a Menu Mart II and a Can Drink Merchandiser are to be connected to the host machine, the Menu Mart II should be positioned to the right of the host machine.

2. Unplug the host machine from the power source.
3. Remove the hole plug from the back of the host machine's cabinet.
4. Insert the "umbilical" cord from the Menu Mart II through the hole in the back of the host machine and secure the plate attached to the umbilical cord. See Figure 3.

UMBILICAL CORD

POWER CORDS
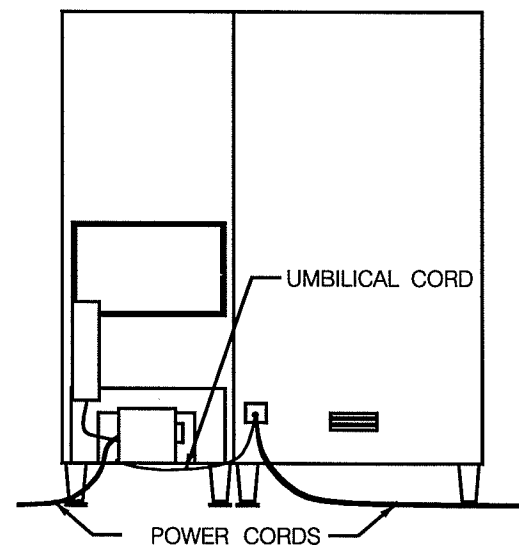
Figure 3. Cord Connections

5. Connect the umbilical cord from the Menu Mart II to the 12 pin connector on the "pigtail harness" from P4 connector on the host machine control board. See Figure 4.

4
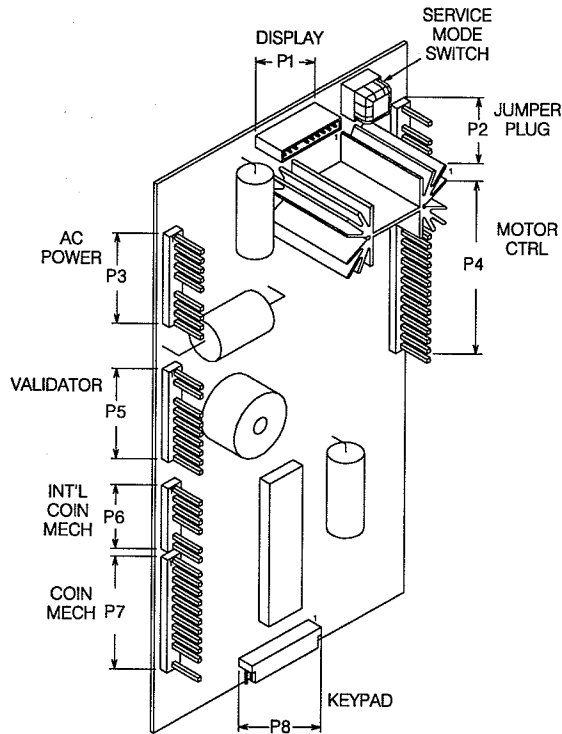
Figure 4. Host Control Board, Connector P4

6. Plug both the host machine and the Menu Mart II into the building power source. Close the door on Menu Mart II and wait for stack to rotate to home position. Open and close Menu Mart II door to reset health timer.

7. Place the host machine in the *Service Mode* and take a motor count (refer to the host service manual) to verify that proper connections have been made.

NOTE

> There should be ten more motors than available in the host machine.

8 Set vend prices. Vend prices must be set for both the host machine and for the Menu Mart II. Refer to the host machine Service Manual for price setting instructions on the host vendor. Refer to the Price Setting Instructions section in this manual for setting prices at the Menu Mart II vendor.

9 Test vend both machines for proper operation.

Refer to Wiring Diagrams on both the Menu Mart II and the host for proper identification of the connections and components.

INSTALLATION CHECK LIST

1. Adequate space has been allowed for proper air flow.
2. Menu Mart II has been properly connected to host machine and is functional. (Verify by test vending).
3. Compartments have been properly loaded. (Refer to Loading Instructions)
4. Vend prices have been properly set. (Refer to Price Setting.)

LOADING INSTRUCTIONS

When loading the Menu Mart II, be sure the correct bucket or compartment is identified and the vend price programmed for that particular bucket corresponds to the product being loaded. The buckets are priced in sets of four (i.e., there are four sets of each selection J0 through J9) and when a price is programmed into the controller for a specific selection it is applicable to four buckets or compartments.

There are a maximum of forty compartments (J0 - J9 times 4) with ten separate vend prices. Each selection (example, J6) is repeated four times around the carousel, see Figure 5. The price of the selections must match but the products can be different. The selection at the vend area is identified in the readout.

To load the product, open the door and push the load button, located at the top of the carousel. Shop the carousel to find the desired compartment for filling. Pushing the load button once will advance the buckets to the next selection. Holding the load button down will continue to advance the carousel until the load button is released. A label affixed to the side of each compartment identifies the selection. A matrix sheet is provided inside the outer door to record which products are to be loaded in each selection.

The Menu Mart II is equipped with a health safety timer to prevent the vending of warm or spoiled product.

When setting up the machine assure the internal cabinet temperature is below 45° F (7.2° C) prior to leaving the machine. The cabinet temperature will be monitored by the control board and displayed once every sixty seconds.

The length of time it takes the machine to cool back down to the 45° F (7.2° C) barrier depends upon how long the door was open and the locations outside (ambient) temperature.

The health safety timer alerts the control board to a problem if the temperature rises above 45° F (7.2 C) for a continuous time period of 5 minutes. The timer can be reset by opening and closing the machine door (activating the main door switch). Resetting the 30 minute timer by opening/closing the door prior to activating the health safety allows the machine an additional 30 minute time period with which to reduce the internal temperature below 45° F (7.2° C).

When loading the machine, assure the internal cabinet temperature is below 45° F (7.2° C) prior to leaving the machine. A good practice of loading the Menu Mart II first then loading the other machines at the location assures the operator of attaining the required 45° F (7.2° C) threshold prior to leaving the location. Load the food first and check the internal temperature prior to leaving.

If the machine does go out on health safety be sure the food is not warm or spoiled and the refrigeration/control boards are working properly prior to resetting the health safety function.

WARNING:
To avoid possible injury, make sure the stack has come to a complete stop before loading.

When loading product, load all items so that they are in full view of the buying customer. Product retainers are provided to assist in confining the product. See Figure 8.

BUCKET POSITIONING

Selection Position:

There are 20 buckets mounted on the conveyor assembly in the Menu Mart II. These buckets rotate on the conveyer assembly in one direction. See Figure 5.

The buckets can be configured as either a whole or split compartment. The compartments are identified as Selections "J0" through "J9" on the host machine. When the buckets are all configured as split compartments, a maximum of 40 items or compartments are available. Each time the Menu Mart II is powered up, the controller will advance the carousel to a "Home Position". The bucket located in the vend position will hold selections J0 and J1, the next bucket will hold selections J2 and J3, on through bucket J8/J9. The entire sequence will then be repeated three more times, so that there are four sets of each selection around the carousel. See Figure 5.

When a bucket is identified as a whole compartment, two selection numbers are used (example, J4/J5). The other buckets (i.e., selections J4/J5) around the conveyer, must have the same configuration. To establish a bucket as a "whole" bucket the odd number selection price must be set at $99.90. The even selection number is then used to price and vend the whole compartment.

ROTATION
ONE DIRECTION
ONLY

| JO | J1 |

J2	J3		J8	J9
J4	J5		J6	J7
J6	J7		J4	J5
J8	J9		J2	J3
JO	J1		JO	J1	VEND POSITION
J2	J3		J8	J9

HOME POSITION SENSOR ▶ | J4 | J5 | | J6 | J7 |

| J6 | J7 | | J4 | J5 |
| J8 | J9 | | J2 | J3 |

| JO | J1 | ROTATION ONE DIRECTION ONLY
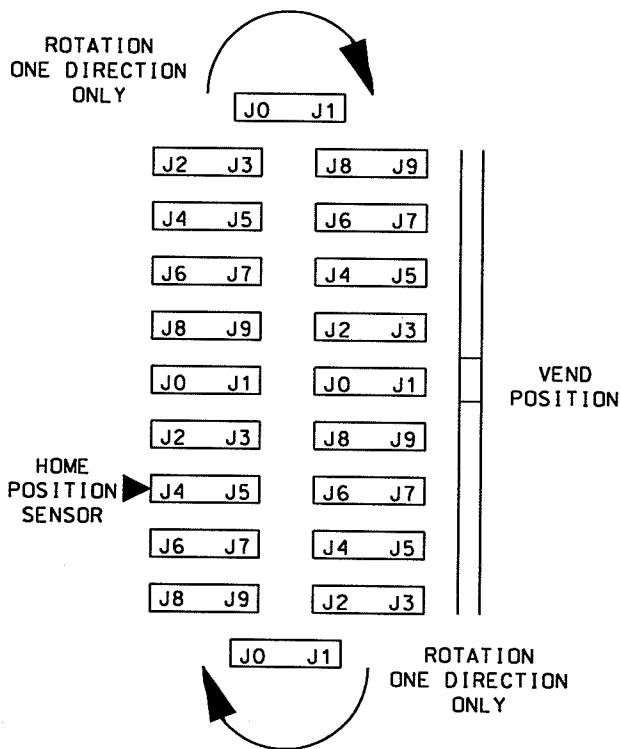
Figure 5. Conveyor Assembly Rotation

Home Position

The Menu Mart II establishes the "home position" of the carousel whenever power is applied. At the initial home position, selections J0/J1 will be located at the Vend Position. See Figure 7. A home flag (See Figure 6) is on the back of one bucket only. As the carousel is rotated, the Home Position Switch on the back of the conveyer assembly detects the home flag, establishing the home position. As the carousel rotates, the controller identifies the selection at the Vend Position by tracking its relationship to the home position at initial power-up. This sequence is repeated each time power is applied to the Menu Mart II.

NOTE

When loading compartments, make sure that items being loaded are clear of the holes in rear of each bucket so the product will not come in contact with the home position switch actuator.

If the machine is powered up and the home position switch is not detected after two complete revolutions of the conveyor assembly, error code **H** displays and the Menu Mart II is inoperable.

If **H** displays, the problem must be corrected and power reapplied to reset the Menu Mart II.
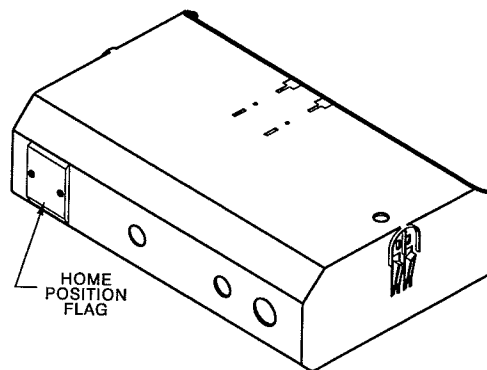
HOME POSITION FLAG

Figure 6. Home Position Flag

BUCKET CONFIGURATION

Each bucket can be configured as a whole or a 50/50 split compartment. All buckets are the split variation when shipped from the factory.

When a whole (no divider) bucket is configured, the selection number is displayed in the left display and the right display is blank.

To identify a bucket as whole the right (odd numbered) selection must be priced at $99.90. This price indicates the whole bucket configuration. When a vend is initiated, neither one of the split door motors run, allowing access to the entire bucket.

Product Dividers

A product divider is used for the split bucket configuration. To add or remove a bucket divider:

1. Use the load switch to rotate the bucket to the top of the carousel.

2. Remove the panel located at the top of the stack assembly by loosening the three screws and lifting the panel off of the keyhole slots.

3. Press the bucket upwards from within the bucket interior to release the locking tab located on the top of the divider and pull out the divider.

4. Reverse the steps to insert a divider. See Figure 7.
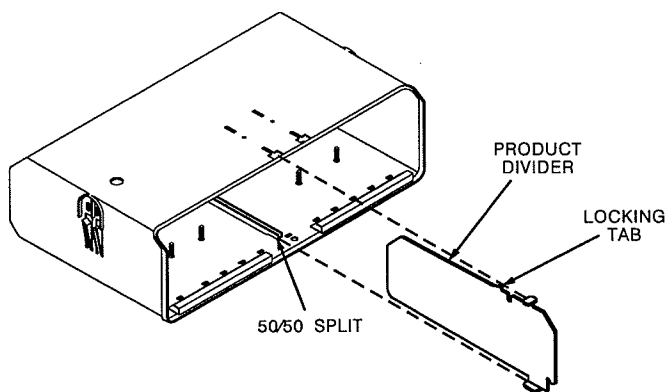
Figure 7. Product Divider

Product Retainers

The "Product Retainer" keeps the product from being tossed out during the rotation of the carousel. The product retainer is mounted on the front edge of the bucket with "Push In" type fasteners.

Products can be further restrained and displayed forward within the bucket by inserting "Pine Tree Clips" through the holes in the bottom of the bucket. The pine tree clips keep the product from rolling or sliding back into the bucket. See Figure 8. These parts are located in the service packet. Additional parts, if required, can be obtained from your local distributor or through VendNet™, Inc.
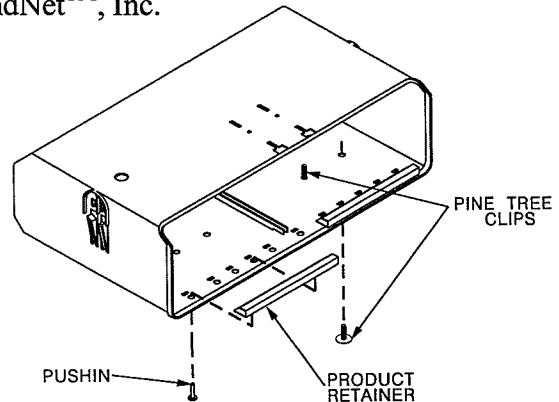
Figure 8. Product Retainers and Pine Tree Clips

CONTROLLER FUNCTIONS

The host control board is the central control system for all functions of both machines. The Menu Mart II has only a satellite controller used to display information such as selection numbers, prices of selections and service diagnostics during normal operation and requires the use of the host control board. The Menu Mart II control board (controller) is located in the bottom of the cabinet. It communicates the vend information through the umbilical harness to the host. The selections of the Menu Mart II are interpreted as an additional tray by the host controller. Refer to the Service Manual of the host machine for additional programming and controller functions.

Service Mode - Menu Mart II

To enter the *Service Mode* of the Menu Mart II controller, open the outer door and push the Shopper Button. **Ser** is displayed in the readout. Pressing the Shopper Button again will advance you through the following options or modes:

Prc	Pricing
tSt	Test Split Door Motors
Cold	Temperature Settings
Out	Exiting

Push the Load Button to enter the desired mode. Push the Shopper Button to advance through the options within each mode. Push the Load Button to accept the desired option.

SET PRICE

Prices must be set at both the host and the Menu Mart II. To change any pricing programs the controllers must be placed in the *Service Mode*. When the *service mode* is entered, machine diagnostics are displayed if any malfunctions or failures have been detected. Observe both displays on the vendor to see if any failures have been detected. Record any failures displayed immediately, any keypad entry will remove the failures in the display.

Set Price - Host Vendor

The following steps outline the procedure for setting the prices for the Menu Mart II selections of a SMIII or SMIIIA host machine.

NOTE

> Contact your local Sales or Service Representative for kits or instructions to set other types of host venders.

1. On the host vendor access the *service mode* by pushing the service mode button on the control board.
2. To enter the Set Price function press **[5]** on the host keypad. The host display will show **Enter Selection**.
3. Enter the Menu Mart II Selection number you wish to price on the host keypad (example, J4).
4. Enter the desired price for that selection.
5. To accept the price, press **[#]** on the host keypad.
6. To continue pricing the Menu Mart II selections repeat steps 3-5. Making sure you press **[#]** after each item.
7. Exit the *service mode* by pressing the service mode button on the host control board.

NOTE

> To copy a price to other selections follow the steps above through step 4. Then press [✳] for "copy" and press all the other selection's alphanumeric numbers that you want to copy the price to. Press [#] to accept after all selections are entered.

Set Price - Menu Mart II

Price changes to the Menu Mart II must be made while the Menu Mart II controller is in *Service Mode*. When in the *Service Mode*, the Load Button is used as an "enter" key and the Shopper Button is used to advance through the various options and steps. Place the Menu Mart II controller in the *Service Mode* by pushing the Shopper Button while the outer door is open. **SEr** is displayed in the Menu Mart II left display. The following steps outlines the procedure for setting prices in the Menu Mart II.

1. Advance to the Pricing Mode in the Main Menu by pressing the Shopper Button.

   PrC is flashing in the display
2. Push the Load Button to enter the Pricing Mode.

   PrC is displayed in a steady state.
3. Advance to the Selection to price by pushing the Shopper Button.

   The left display will show the selection plus a — (dash).

   The right display will show the current vend price for that selection.
4. To price a selection push the Load Button. The — will disappear.
5. Push and hold the Shopper Button to advance the price, release for three (3) seconds and push again, the price will be scrolled in the opposite direction.
6. When the desired vend price appears in the display, push the Load Button to accept the price.
7. The controller will advance to the next selection. Repeat steps 4, 5 & 6 to price additional selections.

When a bucket is identified as a whole compartment, two selection numbers are affected. All buckets with those selection numbers must have the same configuration. The price for the whole bucket is set for the even selection, while the odd selection is set to $99.90.

EXAMPLE

Set bucket J4/J5 to a whole bucket. The other buckets J4/J5 must have the same configuration. Set the vend price of J5 to $99.90. With the price set at $99.90, the controller will not recognize J5 and the right readout at the Menu Mart II is blank. J4 is then used to price and vend the whole compartment.

NOTE

Setting the price for a selection will establish the price for four (4) selections around the carousel.

TEST SPLIT DOOR MOTORS

Testing of the split door motors can be done while the Menu Mart II controller is in *Service Mode*. When in the *Service Mode*, the Load Button is used as an "enter" key and to operate the door motors. The Shopper Button is used to advance through the various options and steps. Place the Menu Mart II controller in the *Service Mode* by pushing the Shopper Button while the outer door is open. **SEr** is displayed in the left display. The following steps outlines the procedure for testing the split door motors in the Menu Mart II.

1. Advance to the Test Mode in the Main Menu by pressing the Shopper Button.
   tSt is flashing in the display
2. Push the Load Button to enter the Test Mode.
   tSt is displayed in a steady state.
3. Push the Shopper Button to step between the left and right door. The left display will show **L dr, r dr** or **out**.
4. With **L dr** in the display push the Load button to raise the left door. Push the Load button again to lower the door.

CAUTION:

The split doors **CAN NOT** both be **UP** at the same time. Be sure to lower the door that is up before raising the opposite door. The doors may jam or can cause damage to the mechanism plate.

5. After lowering the left door. Push the Shopper Button to change to the right door. **r dr** will show in the display.
6. Use the Load Button to raise and lower the right door.
7. After lowering the right door, push the Shopper Button to change the display to **out**.
8. Pushing the Load Button with the display showing **out** will take the Menu Mart II out of Test Mode to Set Price Mode. Push the Shopper Button until the display shows **out.** Pushing the Load Button again will take the MMII out of Service Mode.

VERIFYING VEND PRICES

The vend price of each selection can be verified at anytime while the host machine is in the *Sales Mode*. To verify the price programmed, press the specific selection number. The selection number and the current vend price display at the host machine for approximately three (3) seconds.

The price will also display on the Menu Mart II LED readouts for the selections in the vend position. The price programmed into both controllers must agree.

NOTE

When the host controller is in the *Discount Mode* and a time interval has been activated, the discounted price displays. If that selection has been recorded as a faulty motor or has been removed by the controller, **SELECT OTHER ITEM** displays, indicating that the selection is not functional.

ERROR CODES

There are two types of error codes for the Menu Mart II: the Menu Mart II Error Codes and the hosts Error Codes. The Menu Mart II Error codes are displayed at the Menu Mart II. The hosts Error Codes are displayed on the host when the controller is placed in the *Service Mode*. Any errors displayed should be recorded immediately.

NOTE

Refer to the Service Manual of the Host for other than SMIII or SMIIIA error codes.

Menu Mart II Error Codes

The Menu Mart II runs a self-diagnostic check during power up and during each vend cycle. If any malfunctions are detected the error codes are displayed on the Menu Mart II.

No pricing information will be displayed at the Menu Mart II and the Menu Mart II will not vend.

Code Displays

SC1   Displays in *Sales Mode*. One of the following errors has been detected and displays when outer door is opened.

 SC11 Split door motors are jammed or drew too much current.

 SC12 Vend Motor Home Switch is off. The switches or the motors to the split doors did not function properly to place the doors in the standby position and the carousel start routine was interrupted.

 SC13 Vend door mechanism switch is off. The Service Door Switch, Vend Door Switch or Latch Solenoid on the vend door was opened at the start of a carousel activation.

SC2   Displays in *Sales Mode*. Over current detected on Carousel Motor.

SC3   Displays in *Sales Mode*. Shopper Button stuck in the "on" condition.

SC4   Displays when outer door opened. Controller attempted to rotate stack, but bucket did not advance in the allotted time.

H   Displays *in Sales Mode*. Home Position Switch could not be detected after two revolutions of the Carousel. Or carousel did not rotate at all during homing process.

rrr   Displays in *Sales Mode*. Carousel Motor is rotating on its own.

Thr1 Displays when outer door is opened. Circuit for thermistor is open or cannot be detected.

Thr2 Displays when outer door is opened. Shorted or non-functional thermistor.

HF HC Temperature is above 67 degrees F. Machine does not know correct operating temperature and will run defrost cycle of 2 hours on /10 min.off.

CF-CC Temperature is below 19 degrees F. Possible problems, Same as HF HC or thermistor circuit is open or thermistor is disconnected.

EE   EPROM checksum error (bad controller).

.... 8 dots display in *Sales Mode* (four on each display). The cabinet temperature of the Menu Mart II has gone above the designated health limits for a sustained period of time. To display the current temperature, push the Shopper Button.

Additionally, a dash above each dot provides diagnostic information, see Table 1. Unless noted, the dashes are in the center position (vertically) of the display, see Figure 9.

Table 1. Temperature Diagnostic Codes

POSITION OF DASH	INDICATES
1st	Compressor running
2nd	Compressor running
3rd	Jumper connected to ignore refrigeration
4th	Temperature greater than 45° F (7.2° C).
5th	3-minute compressor Off Timer running
6th	10-minute compressor Defrost Timer running
7th	Health Safety failed the last time it powered up
8th	Health Safety failure: 30 minutes after door closed cabinet still above 45° F (7.2° C) OR above 45° F (7.2° C) for more than 5 minutes
8th Top	Temperature sensor is open
8th Bottom	Temperature sensor is shorted

DASHES   DOTS
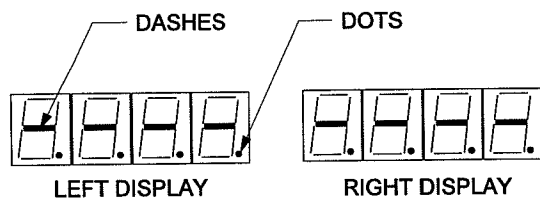
LEFT DISPLAY   RIGHT DISPLAY

Figure 9. Location of Dashes and Dots

Snack Mart Error Codes

If an **out of service** situation occurs at the Menu Mart II and any vend is attempted from the Snack Mart, the selection requested is recorded as inoperable at the Host Controller and **SELECT OTHER ITEM** displays. When the host is placed in the *Service Mode* these selections are displayed. The Menu Mart II errors are automatically cleared from the host controller upon exiting the *Service Mode*.

TEMPERATURE CONTROLS

As a cold food vendor the Menu Mart II has a refrigeration unit to maintain a certain temperature inside the cabinet. The temperature of the Menu Mart II is displayed, (on the door of the Menu Mart II), approximately once every 60 seconds or during every shopped rotation.

If the inside cabinet temperature goes above 45° F (7.2° C) for 5 minutes the Health Safety will shut down the Menu Mart II until the error is cleared. The Menu Mart II displays eight dots and a combination of dashes (see Table 1 and Figure 14) and all vending operations are shut down on the Menu Mart II. The host will still operate normally. The Health Safety Error can be cleared by opening and closing the outer door of the Menu Mart II. When a Health Safety Error is displayed, the host machine must be cleared also by entering and exiting the *service mode*

The cut-in temperature setting of the Menu Mart II compressor can be altered. The cut-in temperature range can be altered from 36° to 42° Fahrenheit (2.2° to 5.5° Celsius). The factory default setting is 38°F, (3.3°C), for the cut-in temperature. The cut-out temperature range is between 26° and 32°F (-3.3° to 0°C) and is not adjustable. The controller will automatically adjust the "cut-out" temperature to coincide approximately ± 6° with the "cut-in". The factory default setting is 32°F, (0°C), for the cut-out temperature.

CAUTION:
Adjusting the cut-in temperatures does not speed up the cooling process. Raising the temperature too high can result in inadvertent Health Safety failures (above 45° F (7.2° C) for too long). Adjusting temperature too low can result in icy or frozen product.

To alter the temperature controls: enter the *Service Mode* of the Menu Mart II controller by opening the outer door and pushing the Shopper Button

1. Advance to Temperature Setting in the Main Menu by pushing the Shopper Button. **COld** flashes in the display.

2. Push the Load Button to enter the Temperature Setting Mode. **COld** displays steadily.

3. Push the Shopper Button to advance to the desired temperature.

4. Push the Load Button to lock in the desired temperature.

NOTE

When the outer door of the Menu Mart II is opened, the compressor will run until door is closed. The evaporator fans will run continuously as long as the vendor is plugged in. There is a three-minute timeout before the compressor will come back on whenever the machine is powered back up.

COMPONENTS & FUNCTIONS

This section will describe the operation or function of various components within the structure of the Menu Mart II. See Figure 10 for the position or location of the components described. During normal operation of the Menu Mart II the controller will monitor the position and sequence of operation of these components. Any electronic failures detected are recorded by the controller and displayed in the readout on the front of the outer door. Refer to the Error Codes section for further information:
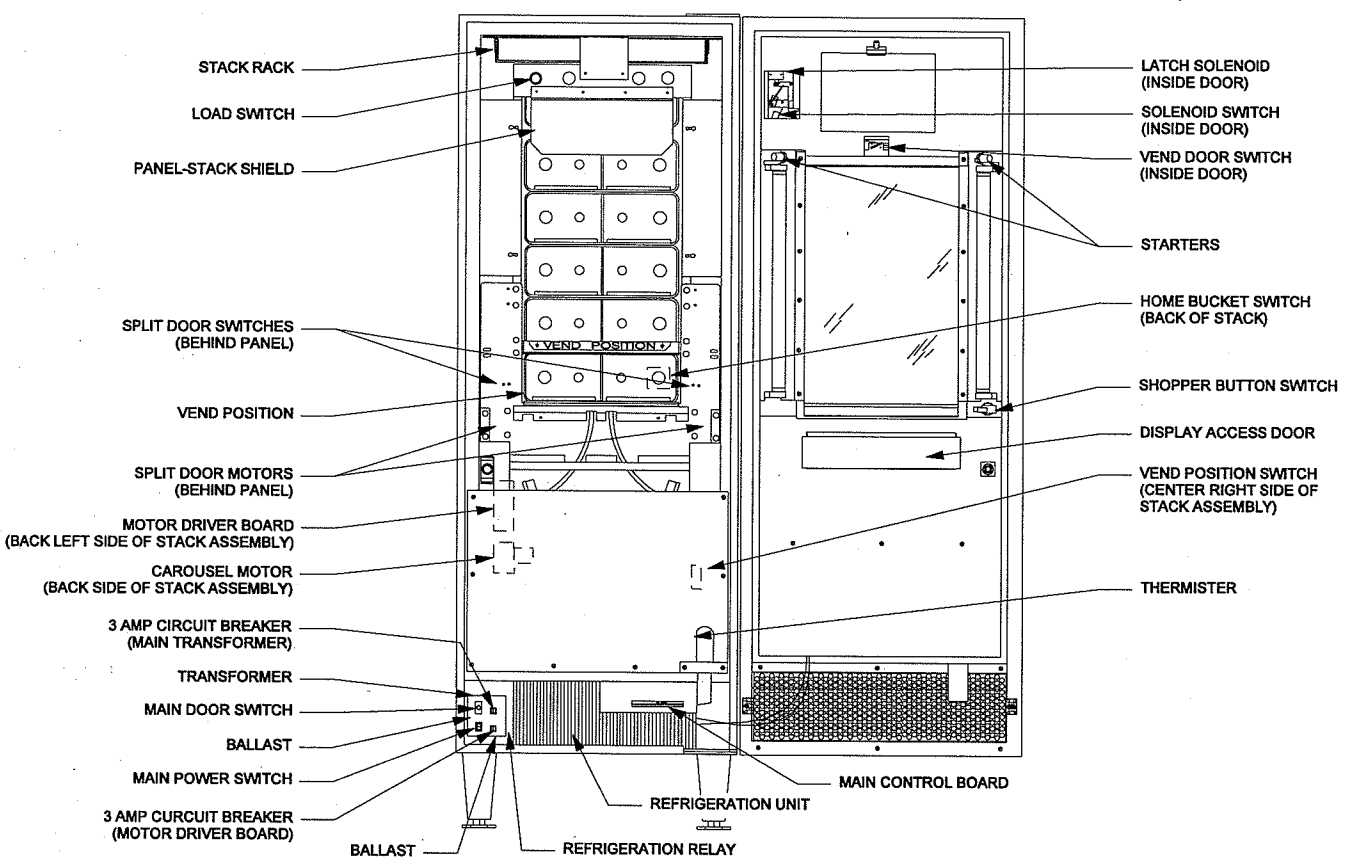

Figure 10. Component Locations

Main Control Board

The main control board is located inside of the Menu Mart II's lower cabinet below and outside the refrigerated compartment. The control board contains all electronics necessary to control the system and peripherals of the Menu Mart II. The control board software is programmed into a single EPROM, external from the microprocessor and removable from the controller for updates or software revisions.

Displays

Located on the front of the outer door is a printed circuit board housing two (2) four digit LED readout packages to display to the buying customer the selection number and the price of the item. The interior cabinet temperature will also be displayed approximately every 60 seconds. If errors are detected during operation, the error codes will also be displayed. Refer to the error codes section is this manual for a listing of the possible error codes.

Latch Solenoid

Located inside the door is a Latch Solenoid which controls the locking mechanism of the vend door. The Latch Solenoid is a 24 VDC continuous duty solenoid that will be energized when a vend has been initiated. This solenoid, when energized, unlocks the vend door latch mechanism, allowing the vend door to be opened. At the start of the vend cycle, the solenoid will be energized for 10 seconds. This will give the buying customer adequate time to open the main vend door of the Menu Mart II.

Solenoid Switch

Located inside the door is a Solenoid Switch which monitors the position of the solenoid latch to determine whether the main vend door is locked.

Vend Window Switch

Located inside the door is a Vend Door Switch that is operated by the Vend Door. The controller will monitor the position of this switch, both at standby and during a vend cycle. When the vend door is opened, this switch will be actuated to the normally closed (N.C.) position. When in this position all power is removed from the carousel motor and the display will read **SHut dOOr**. When the vend door is closed, the window switch is returned to the normally opened (N.O.) position.

Vend Door Motors

Two Vend Door Motors (24 VDC, 8 RPM) located on the Mechanism Plate mounted on the front of the carousel will control the positioning of the "split door" assemblies. When a vend is made, from a split compartment, the opposite motor will run 180°, moving that Split Door Assembly into a position to cover the opening. With the door in this position access to the product opposite the one that was vended is blocked. At the end of the vend cycle, the vend door motor will run 180°, returning the Split Door to its standby position. On initial power up, or if power is lost, the controller will sense the position of the split doors, through the "Split Door Switches", and if either door is not in the standby position, the controller will run that motor to the proper position.

NOTE

The motors are different for each side. The left motor turns clockwise and the right motor turns counterclockwise.

Split Door Switch

Two Split Door Switches, located on the Mechanism Plate mounted on the front of the carousel communicate to the controller the position of the Split Door Assembly. At standby, the switches are in the normally closed (N.C.) position. On initial power up, or if power is lost, the controller will sense the position of the split doors, through the "Split Door Switches", and if either door is not at the standby position, the controller will run that motor to standby, properly positioning the door.

Home Bucket Switch

The Home Bucket Switch is mounted on a bracket in the rear of the stack. The function of this switch is to communicate to the controller the position of the home flag during the homing cycle. On initial power up, or if power is lost, the controller will run the Carousel Motor until the Home Bucket is positioned at the Home Bucket Switch. The controller will then track the position of home position bucket to determine the selection at the vend area.

NOTE

> If the Vend Position Switch is adjusted, the Home Bucket Switch may also require adjustment.

Vend Position Switch

The Vend Position Switch is mounted on the lower right side of the stack and is operated by the cam protruding from the lower drive shaft. The function of this switch is to position the bucket or compartment to be vended within the vend area. At standby, this switch will be in the de-actuated position (N.C.), with the actuator in the valley of the cam. The bucket at the vend position can be repositioned, by loosing the screw and rotating the cam, changing the timing in relation to the carousel. See Figure 11.
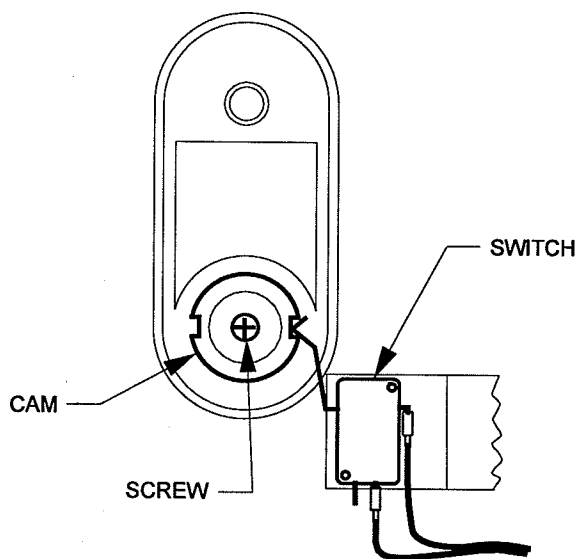

Figure 11. Cam Timing for Vend Position

NOTE

> If the Vend Position Switch is adjusted, the Home Bucket Switch may also require adjustment.

Carousel Motor

The Carousel Motor (Main Drive Motor) located on the left side of the stack assembly is a 24 VDC, 2A maximum, 5-7 RPM motor. The motor controls the rotation of the buckets or compartments and will be driven by the controller. The buckets will automatically advance 6 buckets every hour during the Sales Mode to rotate the temperature and marketability of the products.

Motor Driver Board

The Motor Driver Board (Main Drive Motor) is located on the left side, rear of the stack assembly. The motor driver board operates the carousel motor when it receives a signal to rotate the stack from the main control board.

Load Button

The Load Button is located inside the cabinet at the top of the carousel. The Load Button has two functions. During normal operation when the outer door is opened it is used as a Load Button to rotate the buckets to a position for easy access when loading products into the compartments. If the controller is placed in the *Service Mode*, this button becomes an "enter" prompt to enter the desired *Service Mode* or to accept the options displayed during programming.

Shopper Button Switch

The Shopper Button is located on the front of the main door. With the outer door closed, this button is used by the buying customer to rotate the bucket or compartments to the vend area for selecting items. When the outer door is open, pushing the Shopper Button will place the

controller in the *Service Mode*. In the *Service Mode* this button is used to advance through the options within each of the *Service Mode* menus.

Main Door Switch

The Main Door Switch is located in the lower cabinet area outside the refrigerated compartment. This is an interlock type switch that is operated by the main door, being held in an actuated position (N.O.) when the outer door is closed. When the outer door is open the Main Door Switch will return to the normally closed (N.C.) position. The controller will sense the position of this switch to allow certain functions to run or not run under certain conditions. The interlock design of the switch allows the switch to be pulled out by the operator to signify to the control board that the door is closed.

Main Power Switch

The Main Power Switch is located in the lower cabinet area outside the refrigerated compartment. This is a rocker type switch and when in the "OFF" position will remove power from all components in the Menu Mart II with the exception of Evaporator Fans in the Refrigeration Unit which will run as long as the machine is plugged in.

Circuit Breakers

Two 3 AMP Circuit Breakers are located next to the Main Power Switch. One Circuit Breaker is in the line between the Transformer and the Main Circuit Board. The other Circuit Breaker is in the line between the Transformer and the Motor Driver Board.

Thermistor:

A Thermistor, located inside the refrigerated area, will sense the temperature within the refrigerated compartment. The temperature signals will be interpreted by the control board to control both the Health Safety Timer function and compressor/refrigeration control.

VEND CYCLE

The buying customer shops the Menu Mart II (MMII) with the shopper button (if the vend door switch is in the open position, the main control board does not allow the carousel to operate and displays **SHut dOOr** to place the compartment of choice at the vend position

1. The MMII's LED displays alternate between price and selection identification (i.e. .95, J3) of the compartment in the vend position.
2. The host machine must be powered up and in sales mode
3. The customer deposits appropriate credit (bills/coins) into the host machine to accrue credit equal to or greater than the price of the desired selection.
4. The customer then presses the appropriate alpha numeric (i.e. J3) combination on the host's keypad that identifies the selection in the vend position.
5. The host machine verifies that the selection is active in the controller matrix, that sufficient credit has been deposited, and then sends a signal to the MMII to start the vend sequence.
6. The MMII starts the vend sequence by determining whether the selection is active and by checking the health parameters at the time.

   a. If the health parameters are violated, the MMII reports to the host that the selection is not active and should be out of service, the MMII displays will show eight dots with diagnostic dashes. The host displays to the customer in the host display **MAKE ANOTHER SELECTION**, and the vend does not take place.

b. If the health parameters are met then the MMII continues with the vend sequence.

7. The Host will wait approximately two (2) seconds and then return the appropriate change. The host then returns to sales mode.

8. The satellite determines whether a selection is a "full" compartment or a "split" compartment.

   a. If the compartment is a "full" compartment the MMII checks the status of the split doors through the split door switches and interprets whether either split door needs to be moved.

      a1. If either door is out of position (in the "up" position) the control board energizes the appropriate split door motor to properly position the door then after pausing one (1) second it energizes the vend door latch solenoid allowing the customer access to the full bucket selected.

      a2. If both split doors are in the proper position (down) the control board immediately energizes the vend door latch solenoid allowing the customer access to the full bucket selected.

NOTE

If the split doors cannot be properly positioned, the control board reports to the host that the selection is not active and should be out of service. (SC1 error code).

   b. If the compartment is a "split" compartment the MMII checks the status of the split doors through the split door switches and interprets whether either split door needs to be moved.

      b1. If either split door is out of position (up when it should be down etc.). The control board energizes the appropriate split door motor to correctly position the door, then after pausing one (1) second it energizes the vend door latch solenoid thus

allowing the customer access to the split bucket compartment selected.

      b2. If the split doors are positioned correctly the control board energizes the appropriate split door motor to its closed position then after pausing 1 second energizes the vend door latch solenoid thus allowing the customer access to the split compartment selected.

NOTE

If the split doors cannot be properly positioned, the control board reports to the host that that selection is not active and should be out of service. (SC1 error code).

NOTE

1. The split door closed is opposite the selection desired thus blocking access to the adjoining compartment.

2. The control board, after analyzing the position status of the split doors, must at no time close both doors into the vend area at the same time. The split doors are purposely designed to overlap and will interfere with one another if they are both closed at the same time. The split doors are both in the "open" position at the same time. The control board will move doors one at a time in succession assuring they never become closed simultaneously.

10. The vend sequence continues with the control board analyzing the position of the vend door by sensing the condition of the vend door switch.

   a If the vend door switch remains open (the vend door isn't lifted to remove the product) within a time period of ten (10) seconds, the MMII immediately releases the vend door latch solenoid to lock the vend door. If the door is open after the ten (10) seconds, the display shows **SHut dOOr** and suspends the vend sequence. At the same time, the MMII control board monitors the position of the vend door by

sensing the condition of the vend door switch. As soon as the vend door switch has been "opened" (vend door down) for a period of one (1) second (not accumulative) the MMII returns the appropriate split door to the down position and returns the machine to the Sales Mode.

b If the vend door switch "closes" (the vend door is lifted), the MMII pauses ten (10) seconds to allow the customer to retrieve the product before it releases the vend door solenoid. After the ten (10) seconds, the MMII control board monitors the position of the vend door by sensing the condition of the vend door switch. As soon as the vend door switch has been "opened" (vend door down) for a period of one (1) second (not accumulative) the MMII returns the appropriate split door to the down position and returns the machine to the Sales Mode.

11. The vend cycle is complete.

CAROUSEL REMOVAL

A Stack Rack is provided to support the Carousel during maintenance and servicing. The stack rack is stored above the carousel.

To remove the carousel:

WARNING:
To avoid injury to yourself or damage to the vendor, turn the power on and off only as directed.

1. Turn off power to the vendor and open the door.
2. If a cold shield covers the bottom of the stack assembly, remove the nine screws holding it and the harness shroud. Set aside. See Figure 10.
3. If there is no cold shield, remove the two screws holding the harness shroud (lower right-hand of cabinet).

4. If a ground wire is attached to the stack in the lower right-hand corner, remove the screw on the stack.
5. Remove the top and bottom stack retainer brackets and set aside with the eight screws.
6. Remove the stack rack from the top of the stack.
7. Unfold the rack bottom support.
8. Remove and retain the brace bolts from the center of the rack, see Figure 12.

WARNING:
Failure to install the braces properly may cause the stack to fall.

9. Fold down the braces to the holes in the bottom support and reinstall the brace bolts.
10. Remove the harness wires from the clip on the right side of stack.

WARNING:
To avoid injury to yourself or damage to the vendor, make sure that the rack is hooked into stack support properly. Verify the stability of the rack.

11. Hook the stack rack to the cabinet using the slots in the stack support. Verify the stability of the rack. See Figure 12.
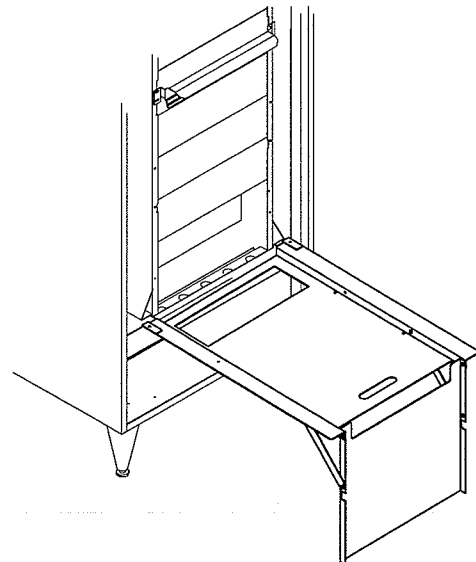

Figure 12. Stack Rack

12. Pull the stack carefully onto the rack, making sure that the harnesses do not catch on the door latch or door edge.

13. Verify that the Main (white) Door Switch is in the neutral position (off when door is open).

Replacing Stack Rack

1. Slide the stack into the cabinet. Reconnect wires and/or harnesses.

2. Reinstall the bottom retainer bracket with four screws.

3. Disassemble and fold the stack rack. Reinstall it over the stack.

4. Reinstall the top retainer bracket with four screws.

5. Reinstall the harness shroud and cold shield.

6. Plug in the vendor.

7. Turn the Main Power Switch on.

8. Close door.

9. Test vend.

NOTE

> The vendor is now warm. Be sure that it is monitored until it reaches below 45° F (7.2° C) to ensure no false health safety errors.

CARE & CLEANING

WARNING:

> When cleaning the interior of the machine power should be removed to avoid possible electrical shock or injury.

Cabinet Interior

CAUTION:

> Do not get the cleaning solution on electrical components.

Wash with a mild detergent and water, rinse and dry thoroughly. Adding baking soda or ammonia to the cleaning solution may eliminate odors. Plastic parts may be cleaned with a quality plastic cleaner.

Cabinet Exterior

Wash with a mild detergent and water, rinse and dry thoroughly. Clean occasionally with a quality car wax. Remove and clean Condensate Drain Hose to eliminate any deposits that may restrict condensate water flow.

Refrigeration System

Clean dust from condenser and screen in the front door with a soft bristle brush or a vacuum cleaner. Remove any dirt or debris from the refrigeration system compartment. If the condenser coil is not kept clean, the compressor will overheat or fail, voiding the sealed system warranty. Clean the condensation pan.

REFRIGERATION TROUBLESHOOTING

CAUTION:

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

NOTE

> If the refrigeration unit is turned off or the power is interrupted, the refrigeration unit will not start for at least three (3) minutes regardless of the temperature.

Know and understand how to service the unit and how it 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.

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

1. Low Charge - usually caused by leaks; look for oil around seals and welds. Unit will not cool properly. The capillary tube will be frosted before it enters the evaporator inlet tube.
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 breaker or blown fuse.
- Faulty wall outlet.
- Short or tear in power cord.
- Thermistor circuit is open. Check with the Multi-Meter.
- Improper wiring.
- Low voltage: 5 % below. Check the power source with the Multi-Meter.
- Overload defective: Trips too fast. Check overload with the Multi-Meter.
- Start relay defective: Check start relay with the Multi-Meter.
- Compressor has open windings. Check compressor windings with a Multi-Meter.
- Defective refrigeration relay.
- Unplug power to the machine; remove the relay plate. Use an insulated jumper wire to short the wires on relay terminals 2 and 4 or 6 and 8; then restore power to the machine. The compressor should start, indicating a problem in the control circuit.
- Check relay terminals 1 to 0 with a Multi-Meter. Should have 24VDC applied to them.
- No DC voltage: Check control board output terminal for a loose connection.

Compressor trips on Overload

1. Improper voltage: 5-10% above, 5% below. Check power source with Multi-Meter.
2. Overload defective: Trips too fast. Check overload with Multi-Meter.
3. Relay defective: Won't open after starting. Check relay with Multi-Meter.
4. Compressor has shorted windings: Check compressor windings with Multi-Meter.
5. Short in other component: Isolate and eliminate each electrical component until short is found.
6. Compressor is too hot.
   - Dirty condenser.
   - Faulty condenser motor or blade.
   - Restricted air flow.

CAUTION:

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

Noisy or vibrating unit

1. Components rubbing or touching each other.
   - Check fan blades and motor.
   - Loose shrouds and harness.
   - Copper tubing.
   - Loose or unsecured parts.
2. Worn or aged grommets.
3. Compressor
   - Bad valves
   - Slugging
   - Bad windings (See Schematic 1.)
   - Low voltage

Unit short cycles

1. Thermistor defective or not mounted in the return air duct.
2. Defective control board.
3. Temperature setting set too warm. See "Refrigeration Controls Mode" section of this manual.

Unit operates long or continuously

Thermistor defective or not mounted in the return air duct.

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

Refrigerated space too cold

- Thermistor defective. Check with Multi-Meter.
- Refrigeration control setting too cold. See "Refrigeration Controls Mode" section of this manual.
- Refrigeration relay bad. Check with Multi-Meter.
- Faulty control board.

Refrigerated space too warm

1. Thermistor defective. Check with Multi-Meter.
2. Refrigeration control setting too warm. See "Refrigeration Controls Mode" section of this manual.
3. Refrigeration relay bad
4. Faulty control board

5. Restricted evaporator space
   Evaporator motor or blades faulty, causing the coils to ice over the evaporator
   Condenser air flow restricted
   - Plugged or dirty condenser
   - Condenser motor or blades bad
   - Blade stuck
   Condensing space restricted
   - Unit placed too close to a wall.
   Compressor - bad valves
   - Capillary tube will start frosting 8 to 10 inches past evaporator connection tube.
   - Check for oil around brazed connections.

Troubleshooting circuits with Multi-Meter

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

NOTE

Power must be off and fan circuit open.

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

- Check relay, See Figure 13. Unscrew lead terminals and remove relay from compressor.

NOTE

Keep relay upright.

Check terminals 1 and S, or L and S with the Multi-Meter. Replace relay if continuity exists.

- Check thermistor with the Multi-Meter.
- Check compressor windings as shown in Figure 13.

  Check winding resistance with the Multi-Meter. If readings are not within 2 Ohms, (See Table 2) the compressor is faulty.

CAUTION:

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

Table 2. Winding Resistance

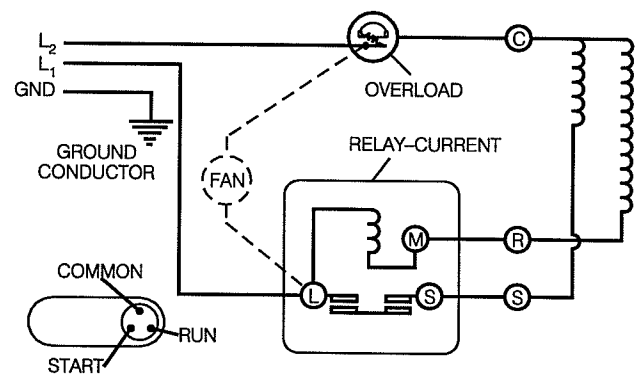| APPROXIMATE RESISTANCE READING ACROSS TERMINALS - USE RXI SCALE:	
COMMON to START:	12 Ohms
COMMON to RUN:	2 Ohms
RUN to START:	14 Ohms
COMMON to SHELL:	No Continuity

Figure 13. Compressor Schematic

If you have any questions: Call VendNet™ at 1-515-274-3641 or 1-800-833-4411 (USA)
Ask for the Service Department. We will be happy to assist you.
Send us email at VendNet@Ecity.net

SCHEMATIC FOR SNACK MART IIIA

GLASSFRONT MERCHANDISER
SNACK MART IIIA
SCHEMATIC 4202130 F
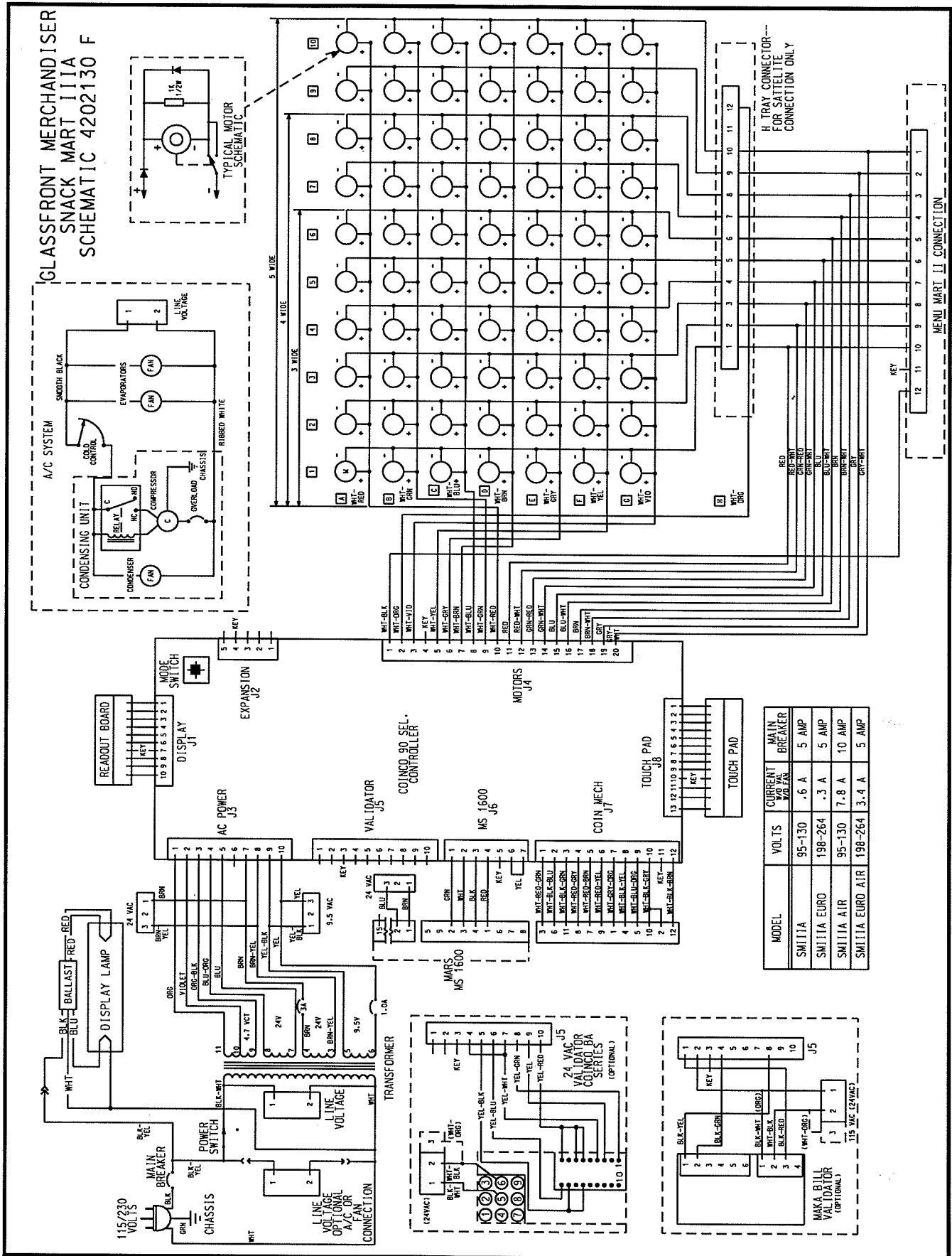
SCHEMATIC FOR MENU MART II
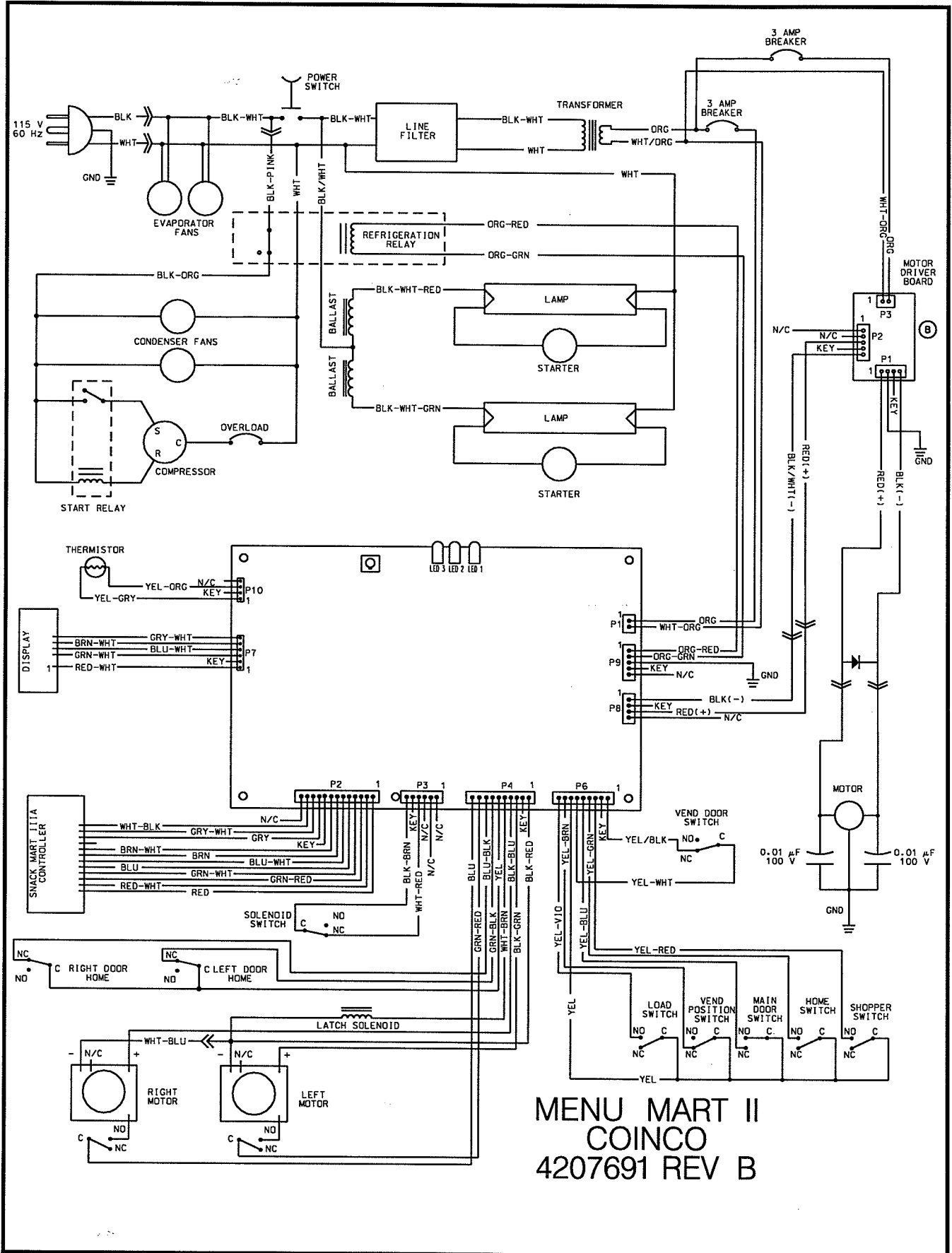
MENU MART II
COINCO
4207691 REV B