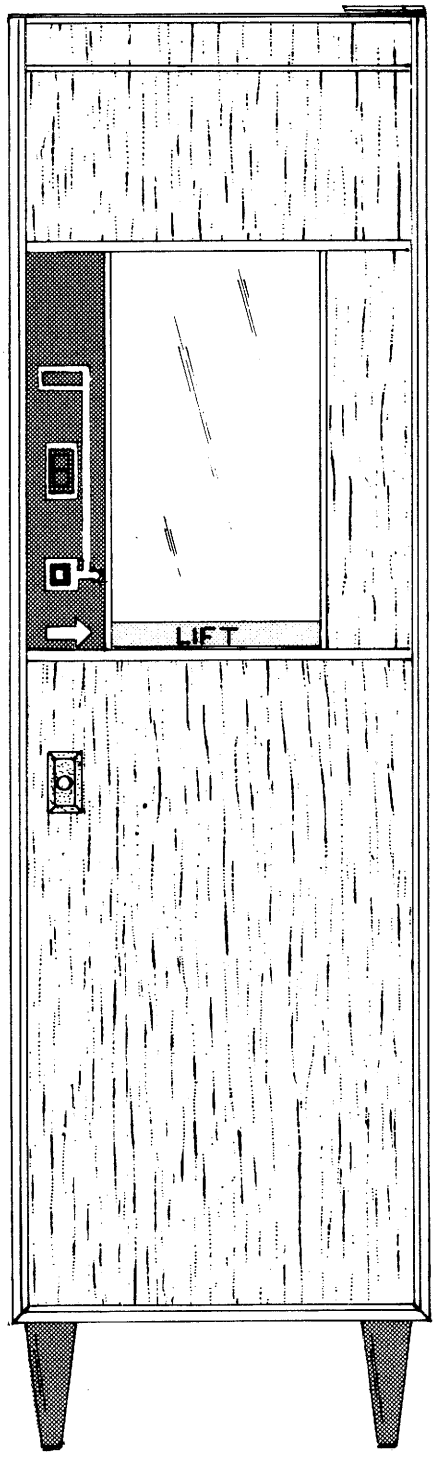
COLD FOOD MERCHANDISER

MODEL 3007



SERVICE MANUAL

JANUARY, 1990

P/N 4201245

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INTRODUCTION

The contents of this manual contains service and installation guidelines and instructions pertaining to the Cold Food Merchandiser along with various options and accessories that are offered within the product line.

The Cold Food Merchandiser is a refrigerated platter vending unit that must be connected to a Glassfront iMerchandiser. The Cold Food Merchandiser is a "satellite" type machine, utilizing the electronics of the Glassfront Merchandiser controller, coin mechanism and validator for all vend functions, pricing, accumulation of credits and other vend-related requirements.

Twenty (20) different items can be vended at ten (10) different vend prices, ranging from $.05 to $99.95 in five-cent increments. The vend or delivery mechanism is a "conveyor" type unit with twenty compartments. Each compartment on the conveyor is 10-3/8" wide, 9-3/8" deep and 3-15/16" high, capable of vending standard 9" diameter platters.

The Cold Food Merchandiser will be offered in the following basic configurations:

"SHOPPER" – This allows the buying customers to select a particular item they desire by operating a "shopper button" to move a selected item to the vend position.

"FIRST-IN"/"FIRST-OUT" – All items will be vended in a sequential order. After each vend the next item is advanced to the vend position.

To operate the Cold Food Merchandiser, money must be inserted into the connecting Glassfront Merchandiser until credit has equaled or exceeded the vend price of the item in the Cold Food Merchandiser. The vend switch on the Cold Food Merchandiser can now be operated, unlatching the vend door. This allows it to be moved upward, revealing the item selected. When the door is opened, a 10-second "time delay" will be activated which will keep the door solenoid energized. This is in case the door is accidentally closed before the product is removed, the door can be re-opened. Once the product has been removed and the door closed, the conveyor will advance the next compartment to the vend position.

The refrigeration unit in the Cold Food Merchandiser is a 1/4 H.P. unit. It is equipped with a health timer that will interrupt the power to the vending circuit of the Cold Food Merchandiser when the interior cabinet temperature rises above 45°. Before the vending circuit can be re-established, the timer must be reset. Opening and closing the outer door of the Cold Food Merchandiser will reset the timer for another 30 minutes. This allows ample time for the cabinet temperature to return to the normal 30° to 40° range.

SPECIFICATIONS

General Specifications:

Height	72 Inches
Width	21 Inches
Depth	30-5/8 Inches
Weight	500 Pounds

Electrical

Power Requirements	115 VAC 60 Hz
Operating Amps	10 Amps

Capacity:

Selections	20 Select
Pricing	10 Prices $.05 to $99.95

Coinage

Shared with "host" unit

Refrigeration

1/4 H.P. Unit

UNPACKING

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

Record the model number and serial number of the vendor for your records. These numbers can be found on the serial plate located on the rear of the cabinet. Refer to these numbers on all correspondence and inquiries pertaining to this vendor.

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

Carefully remove the shipping carton in a manner not to damage the finish or exterior of the machine. Inspect the machine for concealed shipping damage. Report any damage hidden by the shipping carton directly to the delivering carrier on a "hidden damage" report.

Remove the two (2) retaining blocks from the shipping pallet (see **Illustration #1**). Slide the vendor sideways on the shipping pallet until the side legs are clear of the pallet. Tilt the machine sideways until the rear legs are clear of the pallet and remove the pallet.

Position the vendor to the right of the Glassfront Merchandiser. Leave at least six (6) inches of space between the back of the Cold Food Merchandiser and any wall or obstruction for proper air circulation. Level the vendor making sure all levelers are touching the floor.

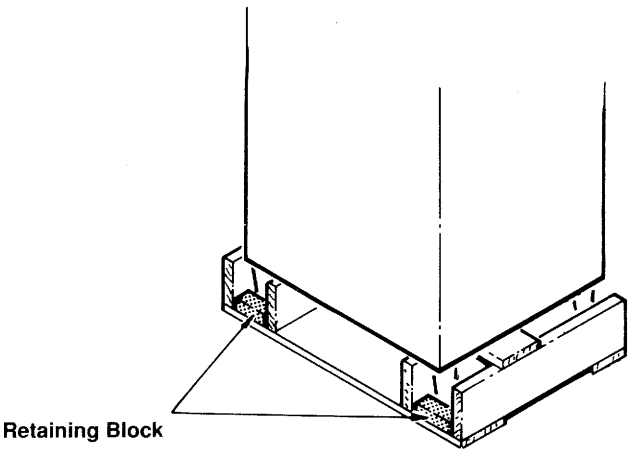


ILLUSTRATION #1A

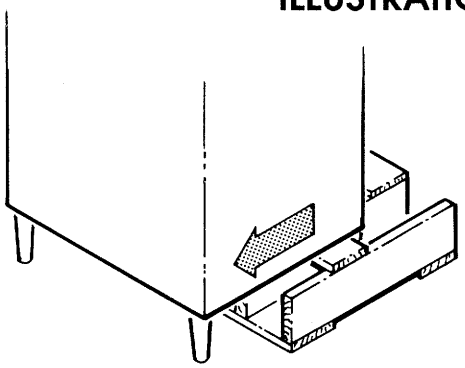


ILLUSTRATION #1B

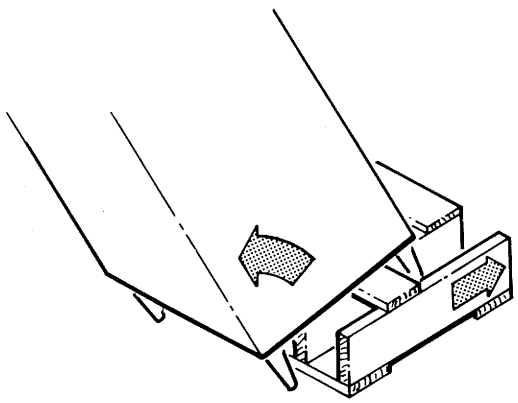


ILLUSTRATION #1C

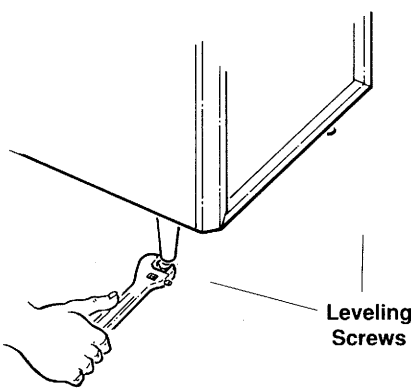


ILLUSTRATION #1D

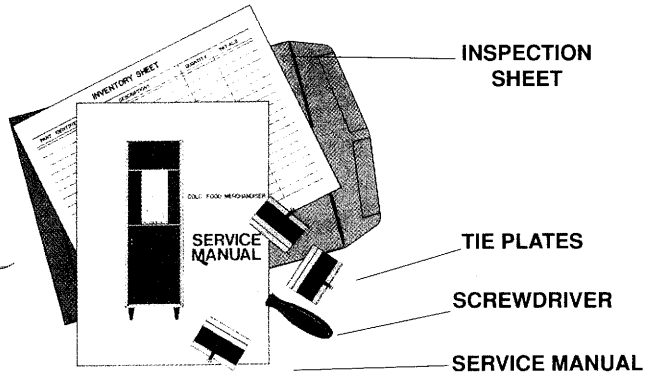
INSTALLATION

THE COLD FOOD MERCHANDISER MUST BE CONNECTED TO A GLASSFRONT MERCHANDISER. THE STEPS OUTLINED ON THE FOLLOWING PAGES ARE THE BASIC INSTRUCTIONS FOR INSTALLING THE COLD FOOD MERCHANDISER. REFER TO THESE INSTRUCTIONS ALONG WITH THE WIRING DIAGRAMS DURING INSTALLATION.

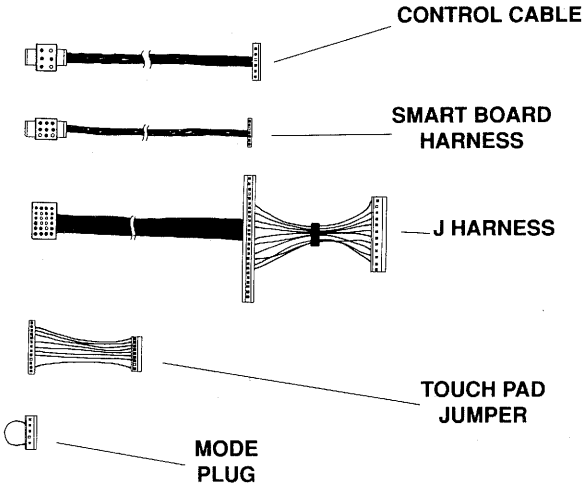
Loose parts boxes and service packet will contain the following parts necessary for this installation.

PART-NUMBER	QTY.	PART DESCRIPTION
4201733	1	INVENTORY SHEET
4020697	1	SERVICE ENVELOPE
1210809	3	TIE PLATE ASSY.
4201342	**	SCREWDRIVER
4201245	1	SERVICE MANUAL

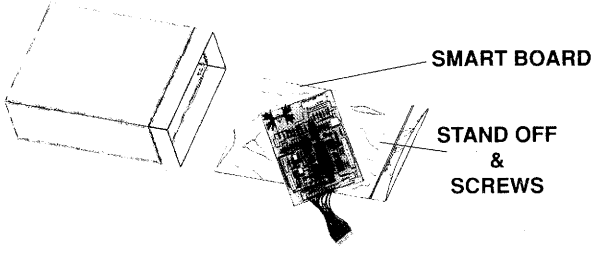
** ON REQUEST



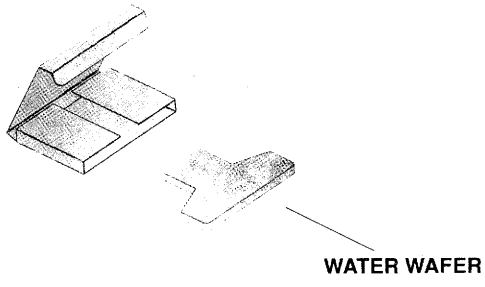
PART-NUMBER	QTY.	PART DESCRIPTION
4201353	1	CONTROL CABLE
4201406	1	SMART BOARD HARNESS
4200691-001	1	J-HARNESS
4201352	1	TOUCHPAD
4201418	1	MODE PLUG



PART-NUMBER	QTY.	PART DESCRIPTION
4201329	1	SMART BOARD
4025714	1	STANDOFF
4201523	2	SPACER
8801186	2	#6-32 x 1 1/4 SCREW



PART-NUMBER	QTY.	PART DESCRIPTION
4060045	1	WATER WAFER



GROUNDING & ELECTRICAL

For proper operation of any equipment utilizing electronic-controlled components, it is recommended that the equipment be placed on an isolated or individual circuit. The circuit should be a minimum 15 Amp, 115 Volt AC, 60 Hz, properly polarized and grounded. Shown in **Illustrations #2** and **#3** are two (2) properly-grounded and polarized wall outlets. **Illustration #2** is a three (3) wire grounding type wall outlet. **Illustration #3** is a two (2) wire outlet with a three (3) plug adaptor in place. To verify that the receptacle is properly grounded and polarized, insert one probe of a volt-ohm meter (set to check AC line voltage) or a neon test light in the ground terminal (hole) and the other probe into the "hot" terminal of the outlet. You should read 115 VAC on the volt-meter or the test light should light.

NOTE: The "hot" side of the outlet should always be counter-clockwise from the grounded terminal, with the terminal at the bottom.

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

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

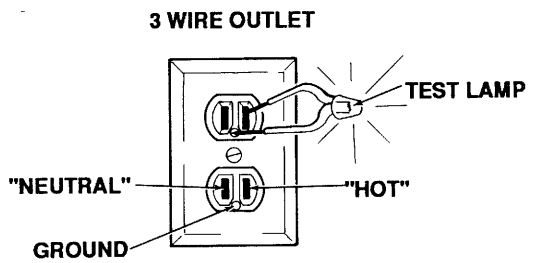


ILLUSTRATION #2

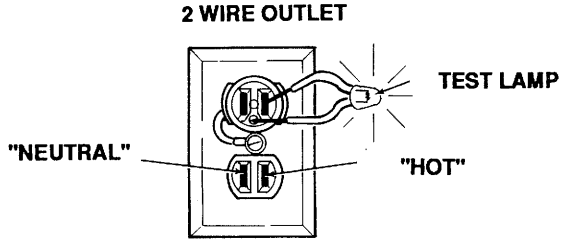


ILLUSTRATION #3

INSTALLATION INSTRUCTIONS

1. Unpack the Cold Food Merchandiser in a manner not to damage the finish or the exterior of the machine. Inspect for concealed shipping damage. Report any damage hidden by the shipping carton directly to the carrier.

2. Set and level the Cold Food Merchandiser to the right of the Glassfront Merchandiser "host machine" and connect the machines together with three (3) "tie plates" furnished in the Loose Parts Packet. See **Illustration #4** below for connecting the machines together.

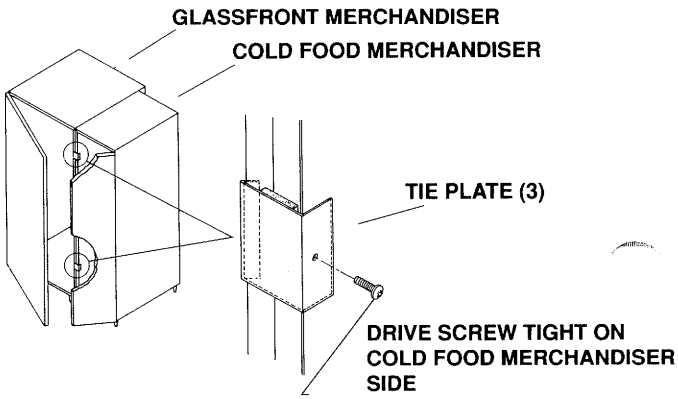


ILLUSTRATION #4

3. Unplug the Glassfront Merchandiser from the power supply.

4. Remove the coin mechanism from the Glassfront Merchandiser. Located behind the upper section of the coin mechanism is one (1) mounting screw. Unlatch the upper section, allowing it to pivot forward exposing the mounting screw and lift the coin mechanism upward and out. Retain the coin mechanism for future reassembly.

5. Remove the control board/motor harness from the Glassfront Merchandiser control board (connection "J4") and where it connects to the main cabinet harness. Discard this harness as it will not be used. (See **Illustration #7**)

6. Disconnect key pad harness from connection "J8" on the Glassfront Merchandiser control board. (See **Illustration #7**)

7. Install new "J" harness on Glassfront Merchandiser control board connection "J4" and connect to the main cabinet harness. The "J" harness is furnished in the Loose Parts Box. (See **Illustration #7**)

8. Remove the two (2) lower screws securing the Glassfront Merchandiser control board to the front panel and discard.

9. Install the Cold Food Merchandiser smart board to the Glassfront Merchandiser control board using one (1) plastic standoff, two (2) spacers and two (2) screws. These parts are furnished in the Loose Parts Packet. Install the standoff in the upper hole of the Cold Food Merchandiser smart board. Place the spacers between the two boards and using the two lower holes, secure the two boards using the screws. See **Illustration #5** for mounting the smart board to the Glassfront Merchandiser.

10. Plug the key pad harness from the Glassfront Merchandiser to the "pigtail" coming from the bottom of the Cold Food Merchandiser smart board "P5" connector. (See **Illustration #7**)

11. Plug the key pad jumper, furnished in the Loose Parts Packet, to "P2" connector on the Cold Food Merchandiser smart board and to the "J8" connector on the Glassfront Merchandiser control board. (See **Illustration #7**)

12. Connect the "J" harness, installed in **Step #7**, to the "P1" connector on the Cold Food Merchandiser smart board. (See **Illustration #7**)

NOTE: "J" harness should now be connected to "P1" on the Smart Board, "J4" on the Glassfront Merchandiser board and to the main cabinet harness of the Glassfront Merchandiser if the previous steps have been completed.

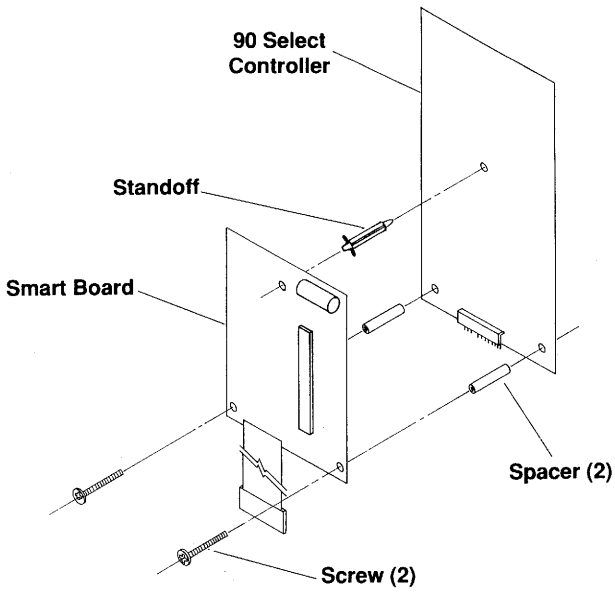


ILLUSTRATION #5

13. Plug power harness to Cold Food Merchandiser smart board "P6" connection. This is an existing three (3) pin connector with two (2) blue wires on the Glassfront Merchandiser harness. (See **Illustration #7**)

14. Install mode plug, furnished in the Loose Parts Packet, to "expansion J2" connector on the Glassfront Merchandiser control board. (See **Illustration #7**)

15. Install the control cables, furnished in the Loose Parts Packet, connect to "P3" and "P4" connections on the Cold Food Merchandiser smart board. (See **Illustration #7**)

16. Re-assemble the coin mechanism removed in **Step #4** using the existing hardware.

17. Remove the plate from the back of the Glassfront Merchandiser cabinet. Insert the "umbilical" cord from the Cold Food Merchandiser through the hole in the back of the Glassfront Merchandiser cabinet. Attach the plate furnished on the cord, to the Glassfront Merchandiser using the removed hardware. (See **Illustration #6**)

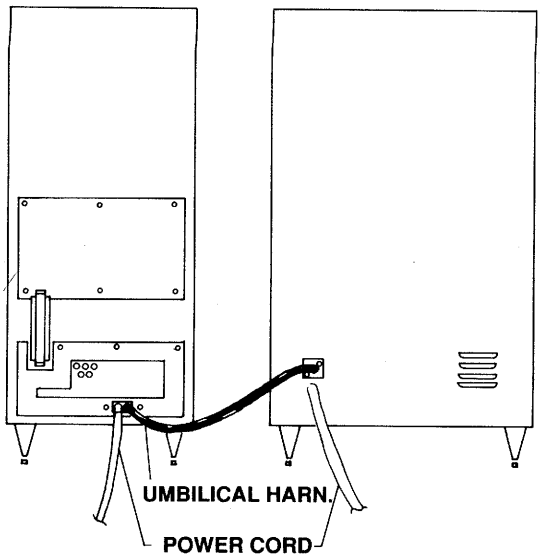


ILLUSTRATION #6

18. Connect the "umbilical" cord to the control cables of the Cold Food Merchandiser Smart Board, installed in **Step #5.**

19. Plug both the Glassfront Merchandiser and the Cold Food Merchandiser into the building power source.

20. Set prices in the Cold Food Merchandiser (see **Price Setting Instructions**) and test vend both machines for proper operation.

NOTE: The Cold Food Merchandiser is equipped with a health timer. The health timer will interrupt the power to the vending circuit if the interior temperature of the Cold Food Merchandiser is not below 45° within 30 minutes after the initial "power on". Opening and closing the outer door of the Cold Food Merchandiser will reset the timer for another 30 minutes.

Refer to wiring diagrams on both the Cold Food Merchandiser and Glassfront Merchandiser for proper identification of the connections and routing of the harnesses and cables.

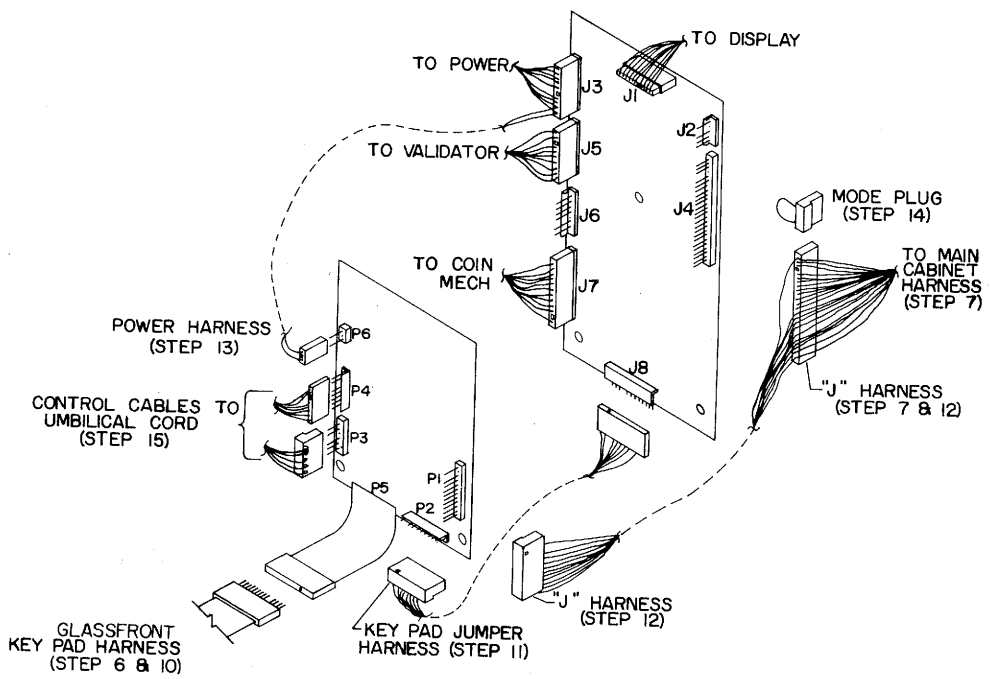


ILLUSTRATION #7

PRICE SETTING INSTRUCTIONS

ENTERING THE PRICING MODE

All pricing and programming is done at the Glassfront Merchandiser "Host Machine" key-pad. To set prices for the Cold Food Merchandiser selections, two (2) "service modes" must be entered. Both the Glassfront Merchandiser controller and the Cold Food Merchandiser control boards must be placed in the "service mode". To enter the "service modes", operate both service mode switches (The Glassfront Merchandiser and the Cold Food Merchandiser) located on the rear of the control boards. (The order in which these buttons are pushed is not critical). The display on the Cold Food Merchandiser will go blank when the service mode is entered. A key pad entry on the Glassfront Merchandiser must be made within 12 seconds upon entering these modes or the controller will return the Cold Food Merchandiser back into the "sales mode". Each key pad entry will reset the "time-out" period of the Cold Food Merchandiser to 12 seconds.

Once both "service modes" have been accessed, the Glassfront Merchandiser controller must be advanced to the "set price" mode. Depress key "5" on the Glassfront Merchandiser key pad. The Glassfront Merchandiser will indicate "make selection" and the Cold Food Merchandiser will indicate "LL". Both controllers are now in the price setting program mode.

The Cold Food Merchandiser selections are identified as "J1" through "J0" in the software of the Glassfront Merchandiser controller. All selections ("J1" through "J0") must be individually programmed. The "copy price" feature cannot be used when establishing prices for the Cold Food Merchandiser. The trays or compartments in the Cold Food Merchandiser are numbered from "1" through "0" to coincide with the "J" entries on the Glassfront Merchandiser key-pad.

Follow the steps outlined below to set prices in the Cold Food Merchandiser.

1. Operate "both" service mode switches.
2. Depress key "5" on the Glassfront Merchandiser key pad to enter the "set price" program mode. Make selection/LL.
3. Depress selection number on the Glassfront Merchandiser key-pad.
4. Enter the desired vend price for the selection entered.
5. Depress key "#" to store the vend price in memory. "-" will appear in the Cold Food Merchandiser display.
6. Enter the next selection number and follow **step #3** through **step #5** until all ten (10) selections have been priced.

NOTE: Selections "J1" through "J10" must be priced individually, "copy price" mode cannot be used when pricing the Cold Food Merchandiser selections.

Use the example explained below when pricing the Cold Food Merchandiser selections after the "service modes" have been accessed and the Glassfront Merchandiser controller has been advanced to the "set price" mode:

EXAMPLE: Selection "J1" vend price $1.75.

1. At the Glassfront Merchandiser key pad, enter "J" plus "1" to identify the selection.
2. At the Glassfront Merchandiser key pad, enter "1" plus "7" plus "5" which indicates that the vend price is $1.75.
3. At the Glassfront Merchandiser key pad, enter "#" to store the entry in memory. "-" appears in the Cold Food Merchandiser display. Pricing is complete for this selection.
4. Enter the next selection to be priced. Follow **step #1** through **step #3** until pricing is completed.
5. Operate "both" service mode switches to return the control systems to the "sales mode".

LOADING INSTRUCTIONS

GENERAL INFORMATION

When loading the Cold Food Merchandiser, 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 Cold Food Merchandiser consists of a control board mounted on the rear of the conveyor assembly. This board has a "sensor" device which then sends a signal to the Glassfront Merchandiser controller indicating which bucket is in front of the machine at the "vend position".

EXAMPLE: When bucket #1 is at the "sensor position", bucket #6 is actually at the "vend position".

The buckets are numbered from "1" through "0" to identify the bucket which is in the "vend position". These numbers will in turn coincide with the "J" entries on the Glassfront Merchandiser key pad.

See **Illustration #8** below showing the structure or position of the buckets on the conveyor assembly. As the conveyor is rotated, the sensor/vend position relation will change accordingly.

LOADING

Load the product in the bucket so that it is visible to the buying customer. Make sure that none of the product or container is protruding beyond the front edge of the bucket opening.

BUCKET NO. AT SENSOR	BUCKET NO. AT VEND POSITION
NO. 1	NO. 6
NO. 2	NO. 7
NO. 3	NO. 8
NO. 4	NO. 9
NO. 5	NO. 0
NO. 6	NO. 1
NO. 7	NO. 2
NO. 8	NO. 3
NO. 9	NO. 4
NO. 0	NO. 5

ILLUSTRATION #8

For ease of loading, the conveyor can be advanced, or rotated electrically, by operating the "load switch" located at the upper right of the conveyor assembly.

On machines that do not include the "shopper" option ("first-in"/"first-out") identify or "mark" the selection or product that is in the "vend position" when starting the loading process. Load the products in a counter-clockwise direction. Operate the "load switch" until the original tray is re-positioned at the "vend position". This will ensure that the oldest product will be vended first. Do not skip a bucket or compartment while loading. When the machine is partially loaded, all empty compartments must be below the "vend position".

NOTE: When loading the Cold Food Merchandiser, with the Glassfront Merchandiser door closed, the display on the Glassfront Merchandiser will indicate the vend price of the bucket at the vend position.

A tray angle is available which will allow for a better view of some products, and will also assist in retaining some products. This angle is not necessary for all products, however, if required it can be obtained through your local distributor or Selectivend Parts Department. (See **Illustration #9**)

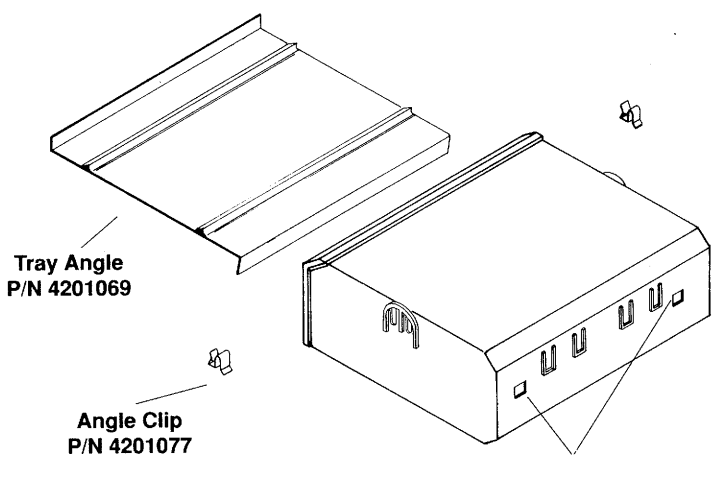


ILLUSTRATION #9

POSITIONING BUCKETS

If it becomes necessary to replace or change a bucket in the Cold Food Merchandiser, it is very important that the bucket be a duplicate of the one that was originally installed. The bucket will include a magnet or combination of magnets that must be properly positioned to enable the sensor board to determine the selection or bucket that is at the vend position.

The bucket in the vend position is controlled by magnets on a corresponding bucket at the sensor position. **Illustration #10** at the right shows the configuration of the conveyor with bucket "1" at the sensor and bucket "6" at the "vend position". As the conveyor is rotated, the sensor/vend position relation will change accordingly. (See **Illustration #10**)

The buckets are numbered to identify the bucket at the vend position. When replacing buckets, position the magnet and/or magnets at the location indicated. (See **Illustration #11**)

If the magnet or magnets are not positioned correctly, the sensor board and Glassfront Merchandiser controller will automatically configure the selections to agree with the magnet positions.

EXAMPLE: If the magnet located in position #4 on bucket #5 was omitted, the sensor board and the Glassfront Merchandiser board will identify the selection at the vend position as selection #1. With the magnet omitted, the bucket becomes a duplicate of bucket #6, thereby when the bucket is in the sensor position, the magnet configuration will identify selection #1 at the vend position.

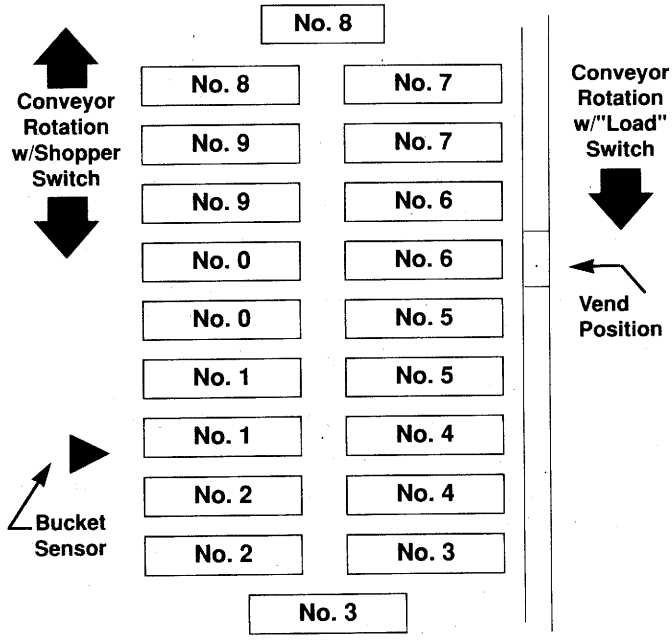
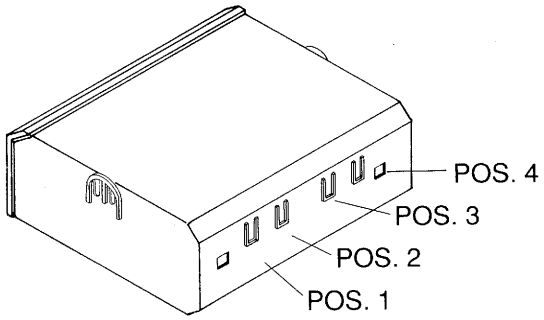


ILLUSTRATION #10

BUCKET POSITION

BUCKET NO. AT VEND POSITION	MAGNET POSITION			
	POS.1	POS. 2	POS. 3	POS. 4
NO. 6	X			
NO. 7		X		
NO. 8			X	
NO. 9				X
NO. 0	X	X		
NO. 1		X	X	
NO. 2		X		X
NO. 3	X		X	
NO. 4			X	X
NO. 5	X			X



MAGNET POSITION

ILLUSTRATION #11

OPERATIONAL SEQUENCE

All programming and vend functions are controlled at the Glassfront Merchandiser controller. All credits will be accumulated and stored within the Glassfront Merchandiser controller. Pay-out functions and "vend initiate" signals will be performed by the Glassfront Merchandiser.

The vend price of the tray or compartment in the "vend position" will be displayed in the Cold Food Merchandiser display at all times. To initiate a vend, the buying customer must deposit money into the Glassfront Merchandiser until the accumulated credit is greater than or equal to the selection in the "vend position". Credits deposited will be displayed in the "host" (Glassfront Merchandiser) machine's display. When adequate credit has been deposited, the electronics will supply a 24 Volt AC circuit to the Cold Food Merchandiser "vend switch". When the "vend switch" is operated, a 115 Volt circuit is transferred to the vend door to be opened. With the latch disengaged, the vend door can now be opened to its full position, exposing the product or item selected.

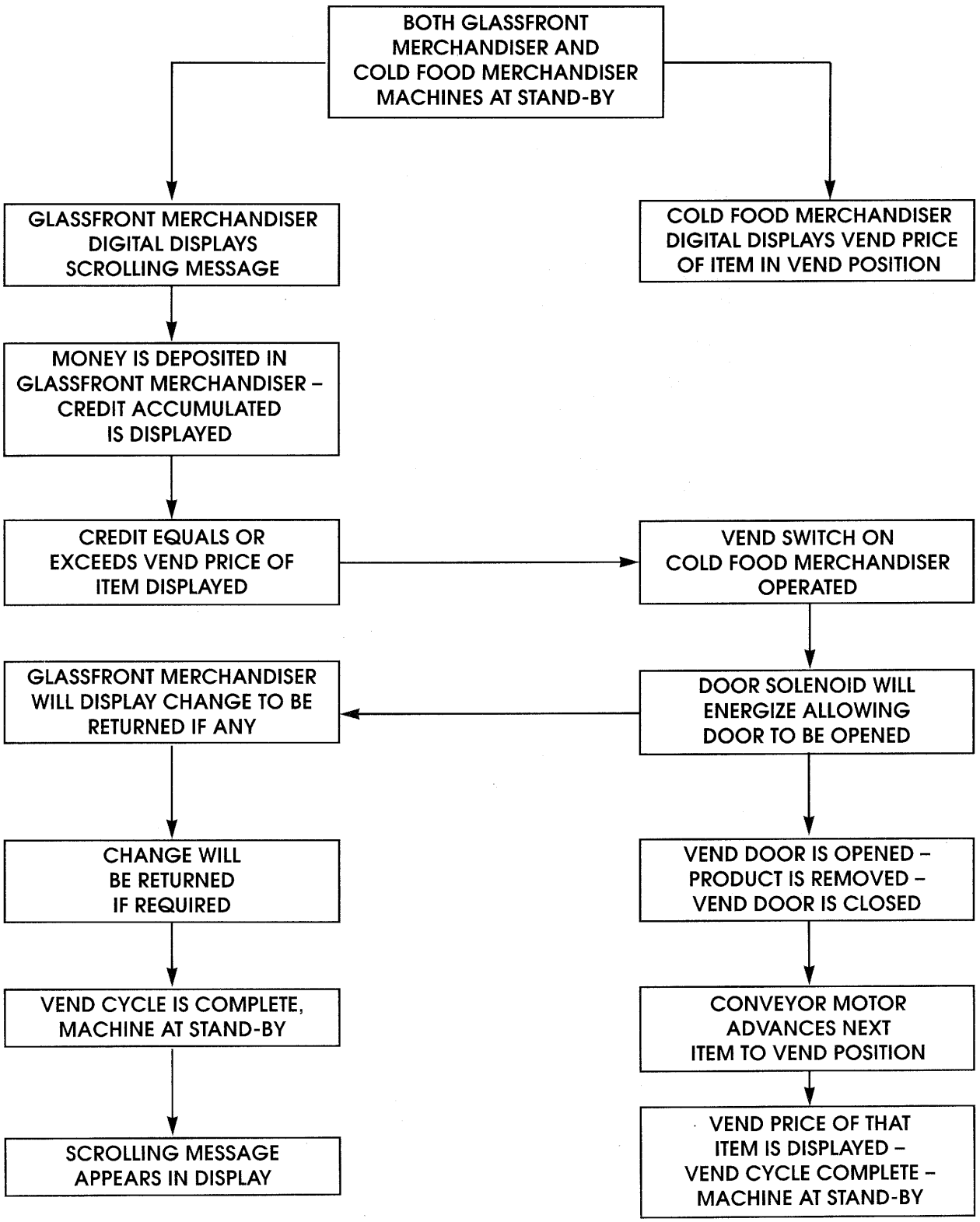
Once current has been detected, the Cold Food Merchandiser controller will activate a 10-second "time delay". This will keep the solenoid energized, in case the door is accidentally closed before the product has been removed. During this time period the door can be re-opened. At the end of the 10-second time interval with the vend door closed, the door solenoid will de-energize. This engages the door latch which prohibits re-opening the vend door. The conveyor motor will run, advancing the next product to the vend position. The vend price of that item will be displayed in the Cold Food Merchandiser display.

On an over-deposit (credit deposited exceeds the vend price of the item selected) the Glassfront Merchandiser controller will authorize the change return command three seconds after current has been detected to the solenoid.

Internal relay logic of the Cold Food Merchandiser control system will not allow movement of the tray carousel until the vend door has been closed. If the "shopper" option is evident the "shopper mode" cannot be accessed during the vend cycle. With the shopper mode option, the buying customer can advance a "desired" product to the vend position. The shopper button is active at any time prior to the "vend commitment" and immediately after a vend is completed. Items cannot be "shopped" during the vend cycle.

Machines without the shopper mode ("first-in"/"first-out") will vend the products in a sequential order.

VENDING SEQUENCE



FULL VIEW COMPONENTS:

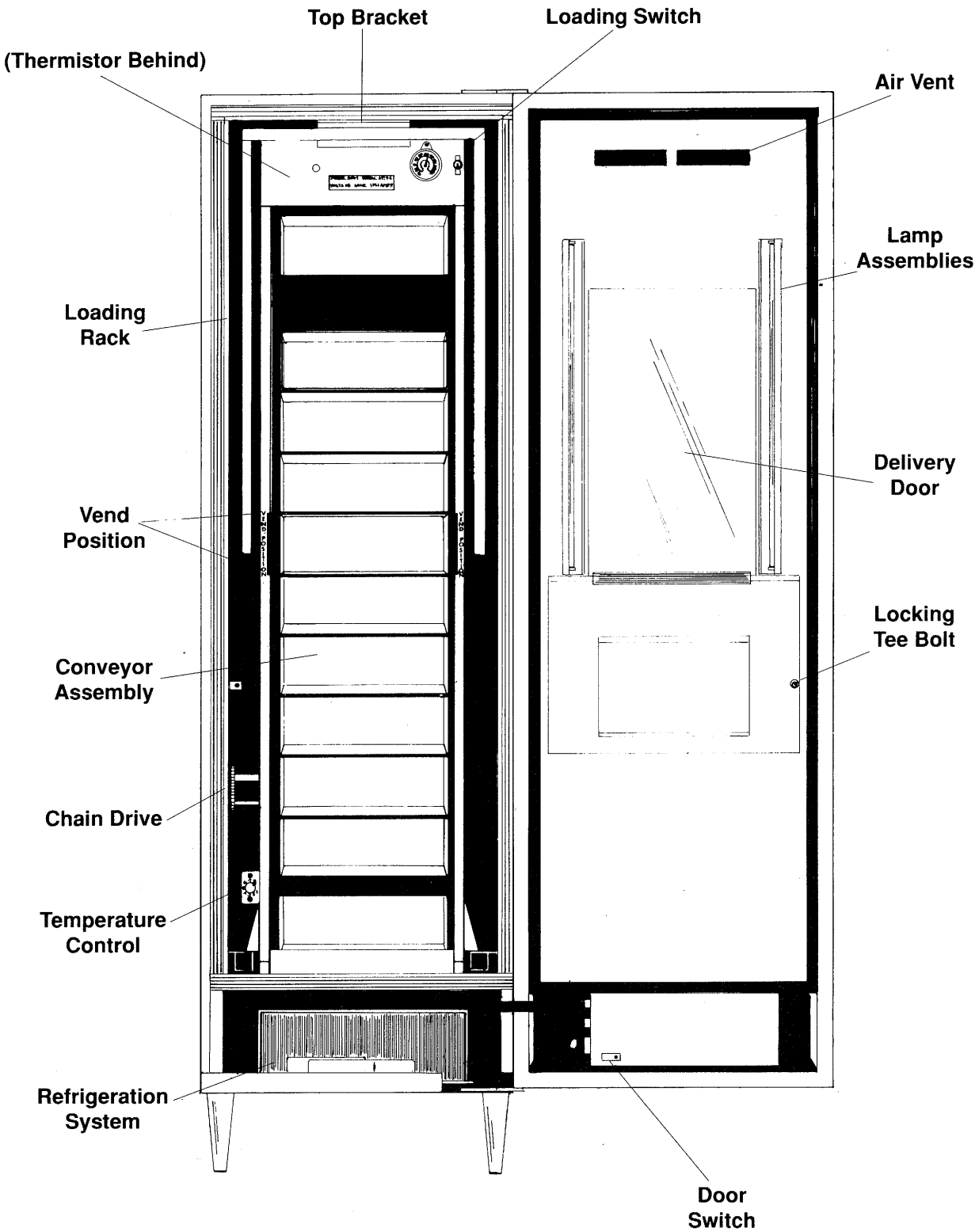
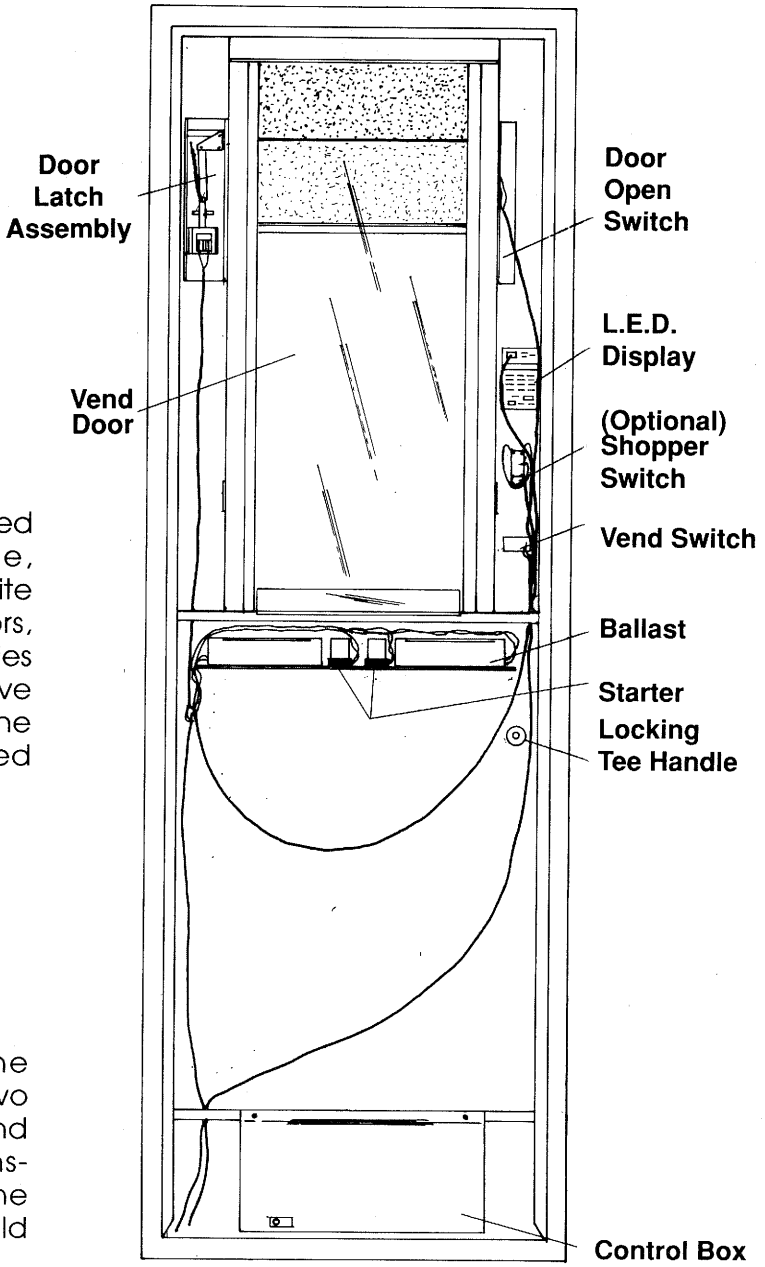


ILLUSTRATION #12

FULL VIEW COMPONENTS:
(Viewed with liner removed)



THERMISTOR

The thermistor (health control) is located bolted behind the conveyor frame, connected to yellow and yellow/ white wires. Thermistors are semi-conductors, the electrical resistance of which varies with temperature. It is extremely sensitive to small temperature changes but the resistance variation may be amplified through an electronic circuit.
(See **Illustration # 12**)

LIGHT ASSEMBLY

The light assembly mounted to the inside of the door is equipped with two F13T5 CW lamps, two FS-4 starters and two Type 1 thermal protected transformers. To gain access to either the starters or transformer the cover shield must be removed.
(See **Illustration #12).**

ILLUSTRATION #13

CONTROL BOX COMPONENTS

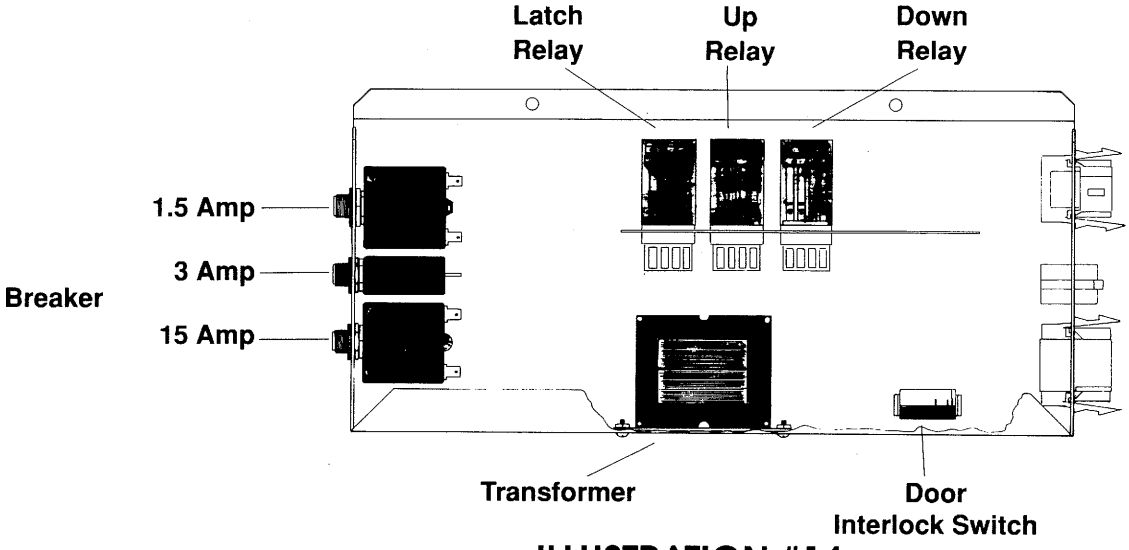


ILLUSTRATION #14

1.5 AMP CIRCUIT BREAKER

Protects the 24 VAC circuit to the selection switch, down relay, up relay, latch relay, and Smart Board P-3, Pin 4.

3 AMP CIRCUIT BREAKER

Protects the 115 VAC circuit to the two ballast transformers, sets contacts latch relay, unlatches solenoid, set contact up and down relay, and conveyor motor.

15 AMP CIRCUIT BREAKER

Protects the 115 VAC circuit to the evaporator fan, cold control, compressor, condenser fan and the 3 Amp circuit breaker.

TRANSFORMER

Receives 115 VAC power from main power supply through the 3 Amp circuit breaker. This is a split bobbin transformer which steps down the 115 VAC to 24 VAC for the machine.

RELAYS

There are three 4-pole relays, each being operated by 24 VAC. These relays are not energized when the machine is at stand-by or waiting to operate.

LATCH RELAY

This is energized by the Smart Board. There are four sets of contact points on this relay, with the relay de-energized and installed in the socket, the first contact set viewed left to right.

First Set – 115 VAC power to conveyor motor from vend door switch.
Second Set – 24 VAC power to shopper switch from transformer.
Third Set – Interrupts 115 VAC power to unlatch solenoid.
Fourth Set – Passes 24 VAC to shop lamp.

With relay energized:

First Set – Interrupts power to conveyor motor.
Second Set – Interrupts power to shopper switch.
Third Set – Passes power to unlatch solenoid.
Fourth Set – Interrupts power to shop lamp.

CONTROL BOX COMPONENTS

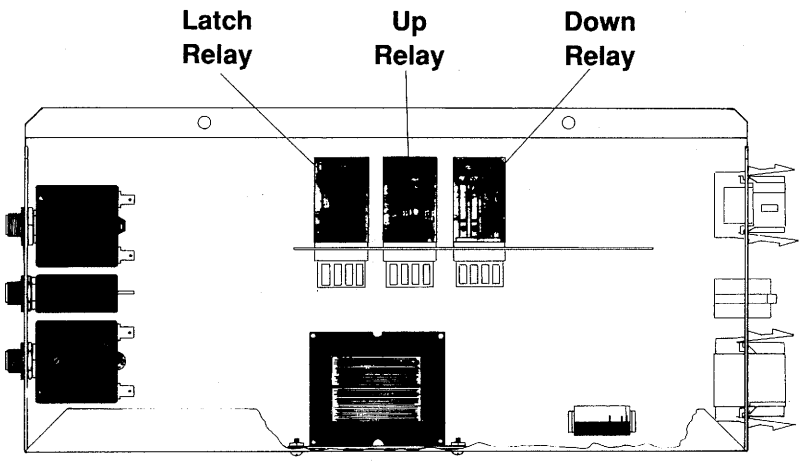


ILLUSTRATION #15

UP RELAY

This relay is energized by the shopper switch. The relay with machine plugged in and ready to operate is in the de-energized condition or no power to relay coil.

The four sets of contact points with the relay de-energized, or no power, (viewed left to right) are used for:

First Set – Interrupts power from shopper motor switch to relay holding contacts.
Second Set – Passes 115 VAC to the third set contact points relay "Down".
Third Set – Not used.
Fourth Set – Interrupts 24 VAC power to Smart Board.

The four sets of contact points with Power applied to "Up Relay" coil.

First Set – Receives 24 VAC power from the shopper motor switch passing to the relay holding contacts.
Second Set – Passes 115 VAC through to the shopper or conveyor motor.
Third Set – Not used.
Fourth Set – Passes power to the Smart Board to detect motor run.

DOWN RELAY

This relay is energized by the shopper or load switches. The relay with the machine plugged in and ready to operate is in the de-energized condition or no power to relay coil.

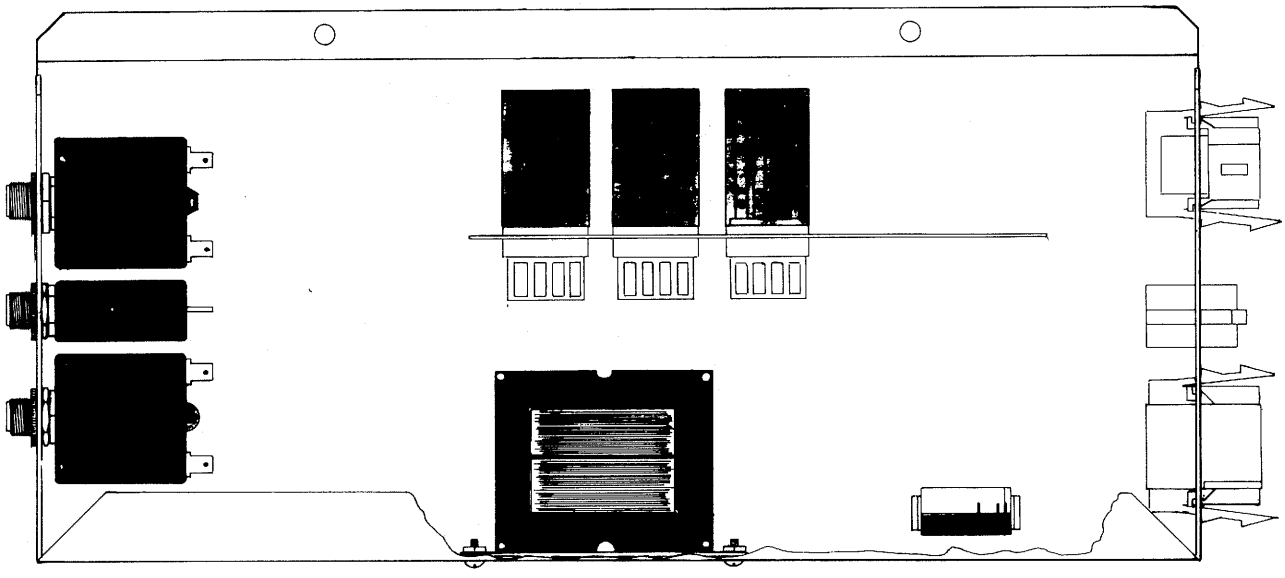
The four sets of contact points with the relay de-energized, or no power, (viewed left to right) are used for:

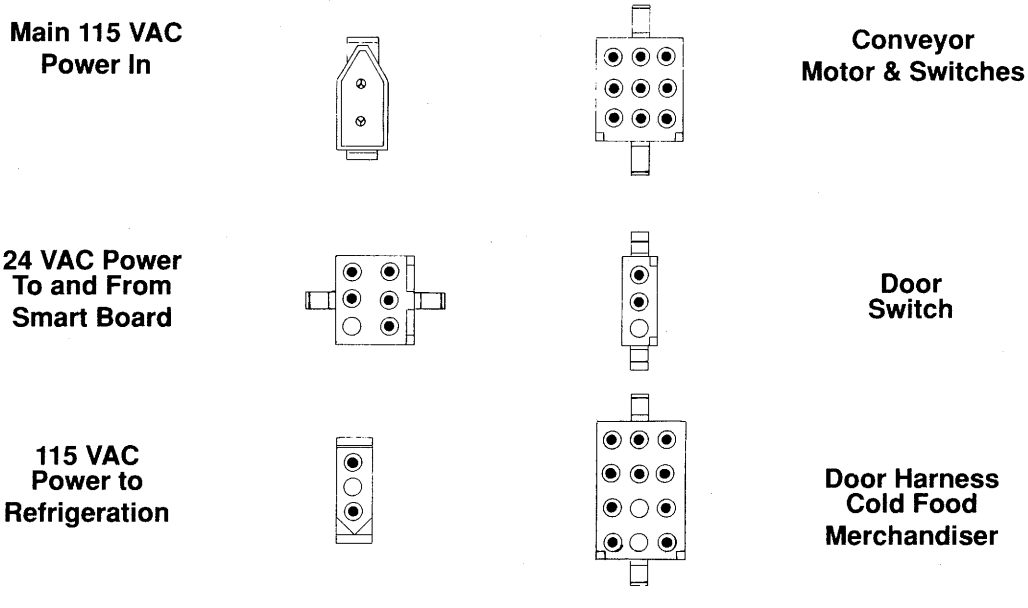
First Set – Interrupts 24 VAC from the shopper motor switch to relay holding contacts.
Second set – Not used.
Third Set – Interrupts power from the second set of contact "Up Relay" to the conveyor motor.
Fourth Set – Interrupts power to the Smart Board.

The four sets of contacts with Power applied to "Down Relay" coil:

First Set – Receives power from shopper motor switch passing to the relay holding contacts.
Second Set – Not used.
Third Set – Receives 115 VAC power from the second set contacts "Up Relay" passing to the conveyor motor.
Fourth Set – Passes power to the Smart Board to detect motor run.

CONTROL BOX COMPONENTS



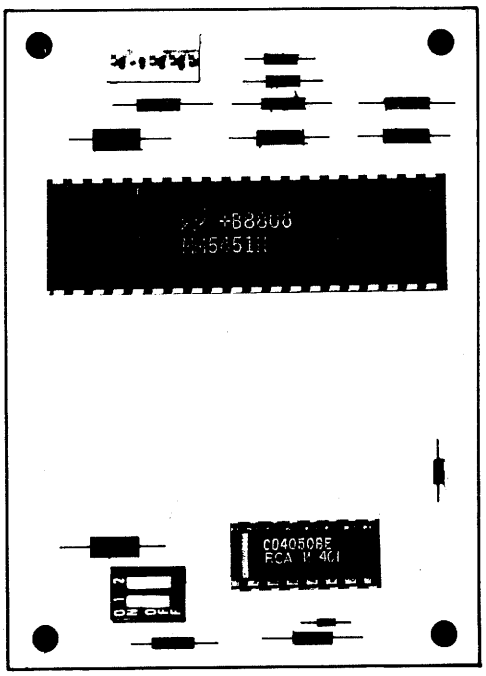


SIDE VIEW CONTROL BOX
HARNESS CONNECTIONS
ILLUSTRATION #16

L.E.D. DISPLAY

The L.E.D. display located inside of the outer door will display the vend price for the bucket in the vend position, a flashing call, or a steady call message. This display uses two D.I.P. switches to set the decimal point in the read-out.

To set the decimal point in the display, position the D.I.P. switch as follows (See **Illustration #18**):



SEE ILLUSTRATION # 17

SWITCH SETTING = DECIMAL POINT

1 on, 2 off = .00	1 on, 2 on = .0.0
2 on, 1 off = 0.0	1 off, 2 off = 000

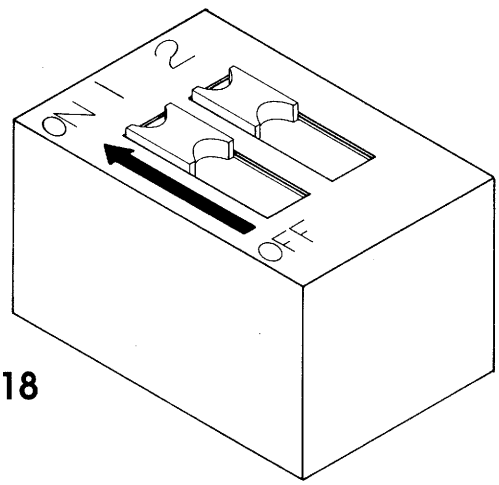


ILLUSTRATION #18

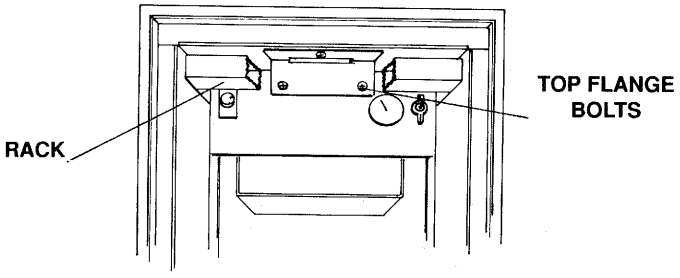
ADJUSTMENTS

CONVEYOR REMOVAL:

Conveyor removal may be necessary to perform the maintenance for the following:

- Position bucket to vend position
- Access to the sensor board
- Access to the evaporator assembly
- Replacing buckets
- Transport motor adjustment

To remove conveyor system proceed as follows:



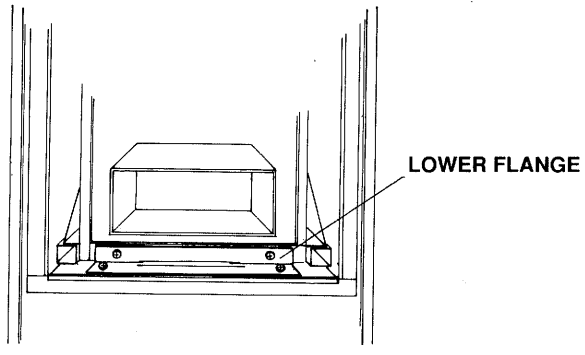


ILLUSTRATION #19

1. Loosen top flange bolts. (See **Illustration #19**)
2. Remove top flange bolt to top of cabinet. (See **Illustration #19**)
3. Remove lower flange completely. (See **Illustration #19**)
4. Take rack off top of conveyor.
5. Position rack with short leg on floor securing long side with pins to locking position. (See **Illustration #20**)

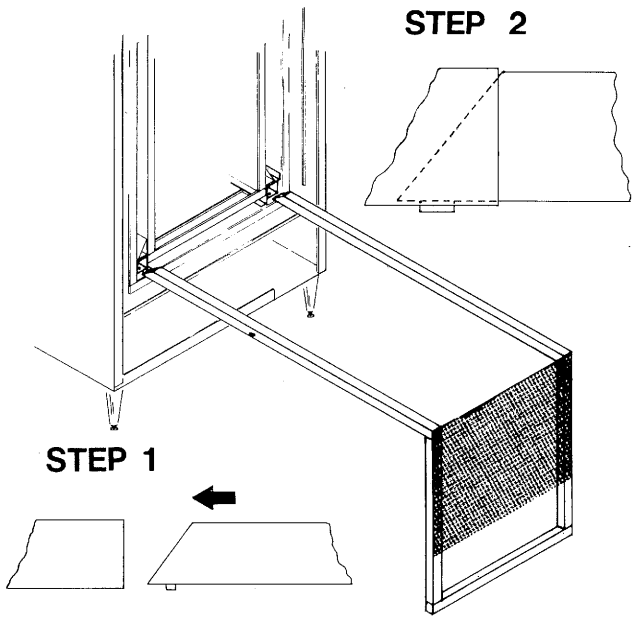


ILLUSTRATION #20

6. Lift up on conveyor and pull out of cabinet. (See **Illustration 21**).

NOTE: Conveyor will roll out to end of rack.

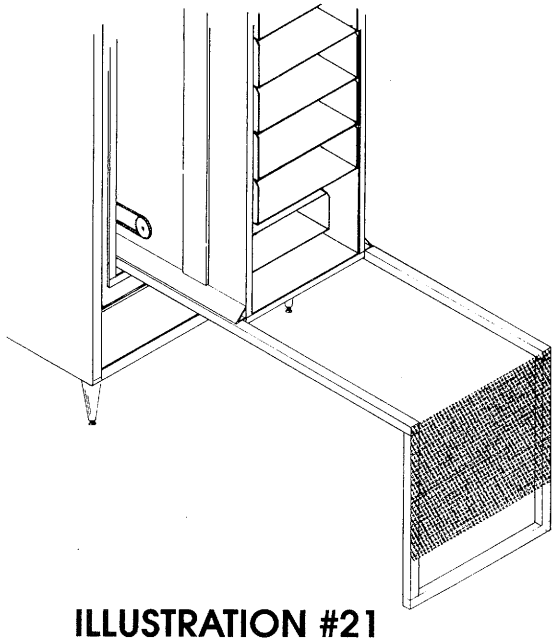


ILLUSTRATION #21

7. To replace conveyor reverse **steps 1 through 6.**

ALIGNING BUCKET TO VEND POSITION

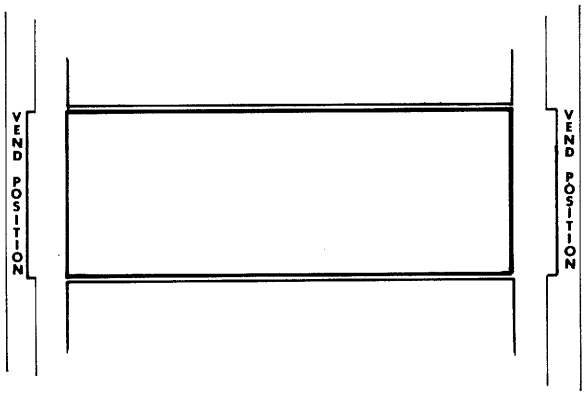


ILLUSTRATION #22

PROPER ALIGNMENT

The buckets should be aligned to the vend position, marked on the conveyor side plates. (See **Illustration 22**) Should alignment be necessary, proceed as follows:

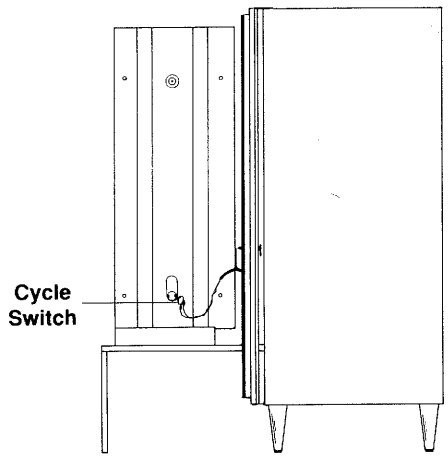


ILLUSTRATION #23

1. Remove conveyor as described in **"Conveyor Removal"**.

2. As viewed from the front of the conveyor, locate cycle switch on right side panel. (See **Illustration # 23**)

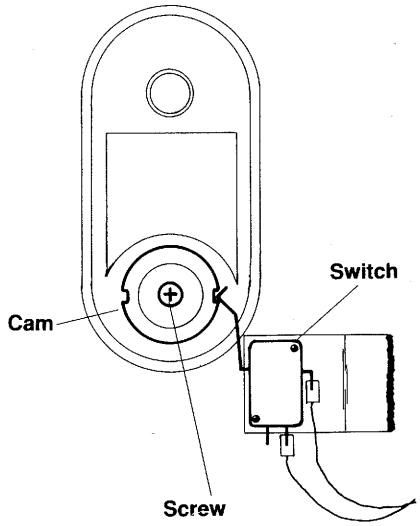


ILLUSTRATION #24

NOTE: Switch is activated by the white plastic cam (see **Illustration #24**) when switch activator is in the notch of the cam, the vend motor should stop.

3. To align bucket to vend position when bucket is too high. (See **Illustration # 24**)

   a. Loosen Philips head screw holding white cam to shaft.

   b. Rotate white cam counter-clockwise, secure with screw.

   c. Test run conveyor, checking stopping position of bucket. If not enough, repeat **Step 3 "b".**

4. To align bucket if bucket is lower than vend position (See **Illustration #24**):

   a. Loosen Philips head screw holding white cam to shaft.

   b. Rotate white cam clockwise, then secure with screw.

   c. Test run conveyor, checking stopping position of bucket. If not enough, repeat **Step 4 "b".**

5. If bucket is adjusted too far, repeat **Step 3 "b"** to lower, **Step 4 "b"** to raise.

6. Reposition conveyor to vend position and test vend.

7. Sensor Board may have to be re-adjusted if bucket position was moved a large amount.

TRANSPORT MOTOR ADJUSTMENT

To adjust the chain tension on transport motor proceed as follows:

1. Pull conveyor out as described in "**Conveyor Removal Procedure**".

2. As viewed from the front, left side panel, locate the transport motor and chain drive. (See **Illustration #25**)

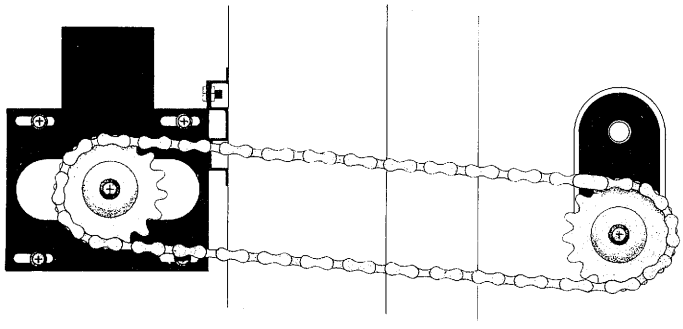


ILLUSTRATION #25

NOTE: The transport motor is adjustable forward and backward for tension of the chain drive.

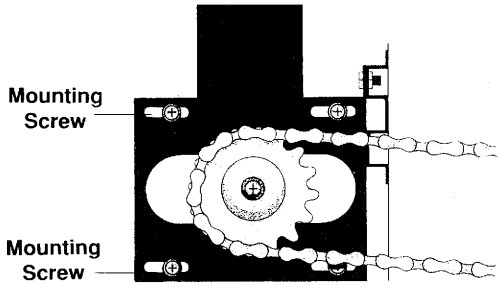


ILLUSTRATION #26

3. Loosen the four (4) Philips head screws securing the transport motor. (See **Illustration # 26**)

4. Chain tension should have less than 1/8 inch slack.

To adjust chain alignment with sprocket:

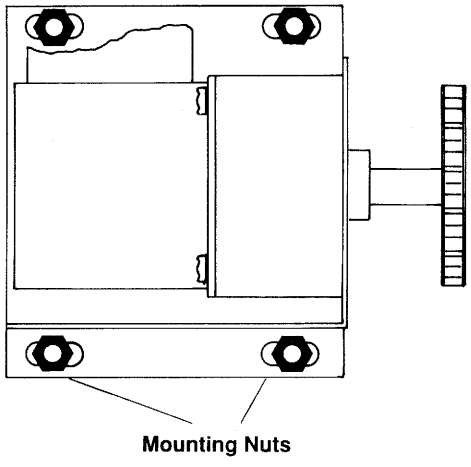


ILLUSTRATION #27

1. Pull conveyor out as described in **"Conveyor Removal Procedure"**.

2. As viewed from the back side of the conveyor, locate the transport motor and four (4) mounting bolts. (See **Illustration # 27**)

3. Loosen the four hex head mounting nuts by using a wrench or socket.

4. Slide the motor left or right depending on how the chain is lining up to both sprockets. (See **Illustration # 27**)

5. With chain aligned to sprocket, secure motor with bolts, loosen in **Step 3.**

6. Check chain tension, adjust if necessary as described in **"Transport Motor Adjustment"** and test cycle by using the loading switch.

7. Reassemble unit by reversing "**Conveyor Removal Procedure**".

COMPRESSOR

This unit uses 1/4 horsepower hermetically-sealed compressor. Access to the compressor unit is accomplished through the back of the Cold Food Merchandiser. For this unit to operate at peak efficiency, it is necessary to keep the condenser coil and air intake screens clean and free of any blockage. (See **Illustration #28**)

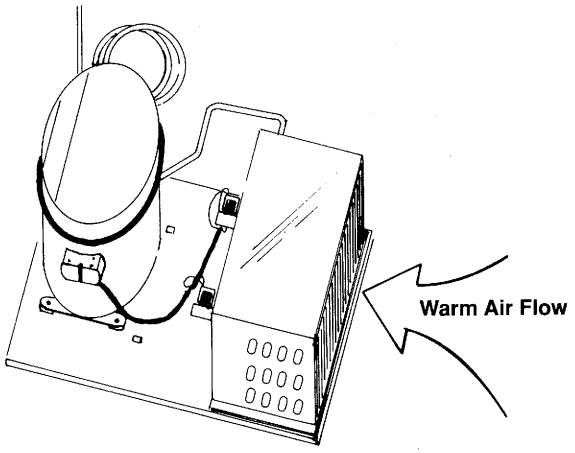


ILLUSTRATION #28

Power Supply:

A main power supply of 115 VAC, 60 Hz, with an operating amperage of 10 amps is the requirement to provide the power for this unit.

Starting Relay:

A current-dependent electromagnetic starting relay is used for cutting in and out the compressor motor start or main windings. When the relay coil and the main windings are subjected to the initial high start-up current, the relay contacts close. During the acceleration of the motor, the current through the main windings of the motor and the relay coil falls. When this current falls below a preset value, the relay contacts open and the start windings drop out of the circuit. The run windings, which are always in the circuit, continue to run the compressor efficiently until the cold control is satisfied and shuts off. Care must be taken in the replacement of the relay which is precisely sized to each compressor model. (See **Illustration #29**)

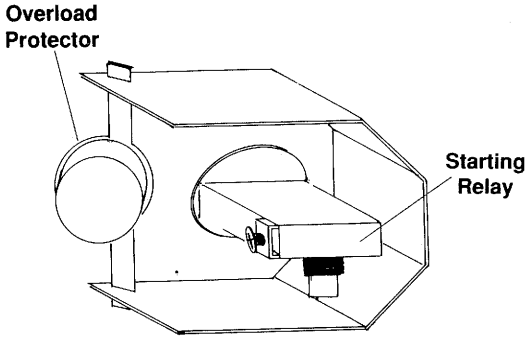


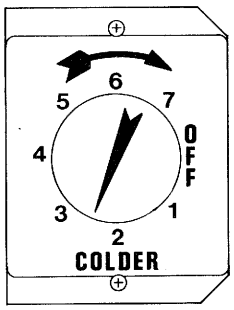
ILLUSTRATION #29

Overload Protector:

This bimetallic protector permits the compressor motor to perform beyond its normal duty up to a predetermined safe temperature limit without cutting off its power supply. The protector uses bimetallic discs to control a normally-closed switch. Heating of the bimetallic discs is a function of both temperature around the protector and the internal heat generated by the motor current through the discs. When the heat has reached the predetermined temperature, the bimetallic discs' contact will open causing the power to the compressor to stop. Once again care must be taken in the replacement of this device as it is sized precisely for each compressor model. (See **Illustration #29**)

Cold Control:

This device is the primary control which starts or stops the refrigeration unit. This control is adjustable and should be set normally between 2 and 3. As the temperature inside the insulated cabinet changes, the control will either turn on or shut off the refrigeration unit. (See **Illustration #30**)



COLD CONTROL SETTING	AVERAGE ROOM TEMPERATURE
1	
2	80°F to 110°F
3	65°F to 85°F
4	
5	
6	

ILLUSTRATION #30

Evaporator Fans:

There are two (2) 25-watt, clockwise rotation, 115 VAC, 60 Hz. fan motors mounted to the evaporative coil circulating air inside the insulated cabinet. These motors should both operate continually while there is power to the machine. (See **Illustration #31**)

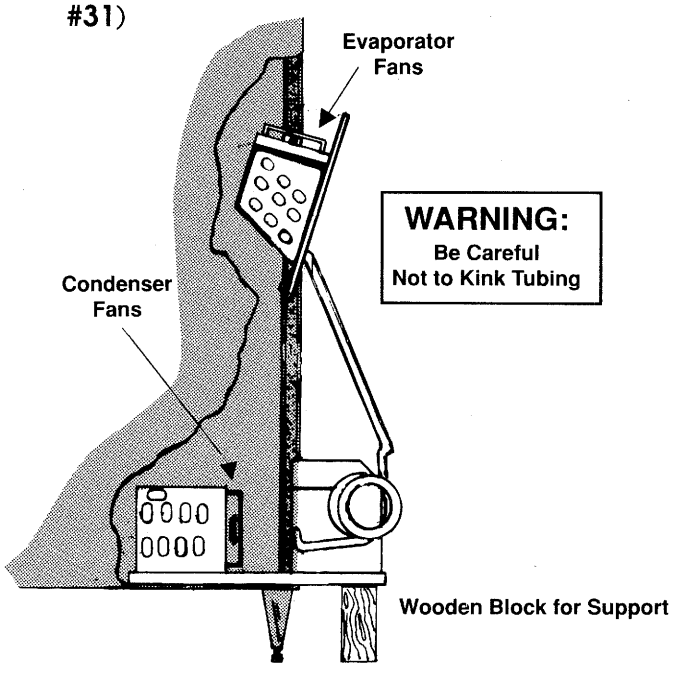


ILLUSTRATION #31

Condenser Fans:

There are two (2) 25-watt, clockwise rotation, 115 VAC, 60 Hz. fan motors mounted to the condenser coil, drawing air through the condenser. These fan motors will cycle with the compressor, which is controlled by the cold control. "**See Cold Control**" (see **Illustration #30**).

REFRIGERATION SYSTEM REMOVAL

To remove the refrigeration system, it is necessary to remove the evaporator assembly with the compressor assembly. Be careful not to kink or break the refrigeration tubing. To remove, proceed as follows:

1. Disconnect the electrical power to the machine.
2. Disconnect the electrical wiring from the temperature control inside the refrigeration cabinet.
3. From the back of unit, remove the two covers; the small cover protecting the tubing, and the large cover over the evaporator plate assembly. (See **Illustration #32**)

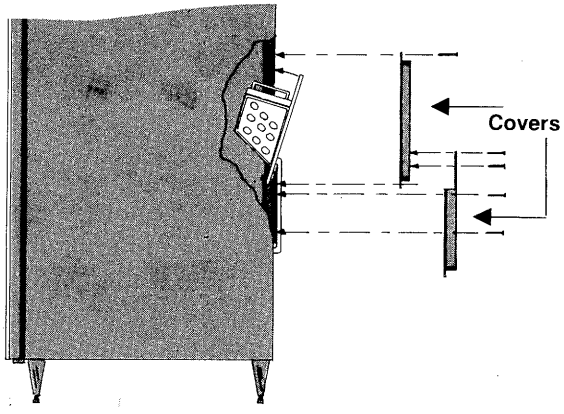


ILLUSTRATION #32

4. Remove two nuts and bolts holding compressor assembly into bottom of unit. (See **Illustration #33**)

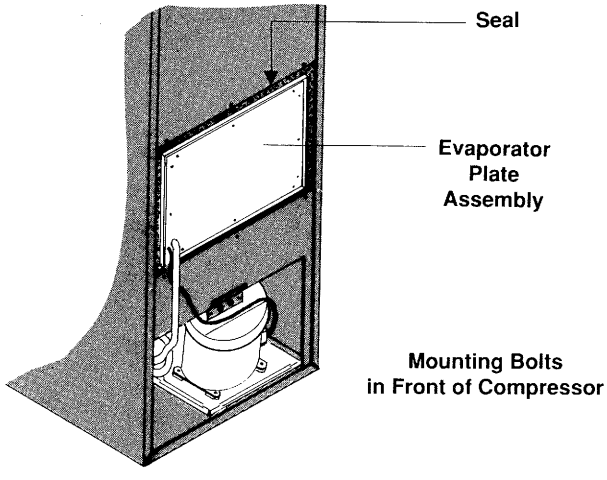


ILLUSTRATION #33

5. Remove the screws securing the evaporator plate assembly in place and pull back on plate assembly to loosen seal around plate assembly. (See **Illustration #33**)

CAUTION: Be careful to not kink or break the copper tubing.

6. Starting at the bottom of the compressor unit, lift up on base plate to clear leg mounting bolts and slide compressor unit out the back opening. (See **Illustration #31**)

7. Once unit is out of cabinet, lower to floor and remove evaporator plate assembly.

8. With total unit out, support the evaporator assembly (so not to damage tubing).

9. Re-install unit in reverse order. Again being careful not to damage unit.

10. Connect the system to electrical power, set temperature control and test run unit.

EVAPORATOR FAN REMOVAL

The evaporator fan motors should be running whenever the Cold Food Merchandiser is connected to 115 VAC power supply. If one or both fan motors should stop, it is possible to frost up the evaporator coil. To replace a fan motor or blade proceed as follows:

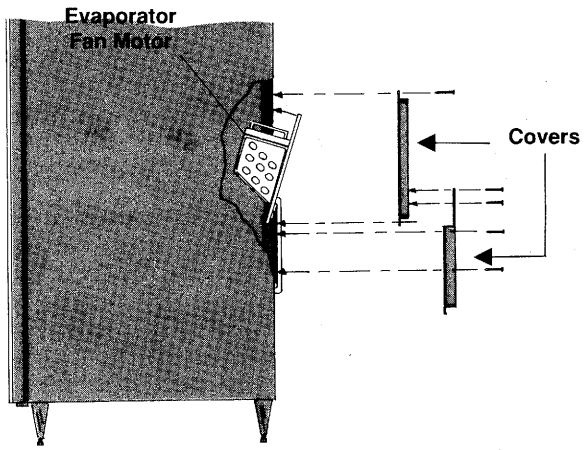


ILLUSTRATION #34

1. From the back of the machine, remove the two covers; the small cover protecting the refrigeration tubing and the large cover over the evaporator plate assembly (See **Illustration #34**).

2. Remove the screws securing the evaporator plate assembly. (See **Illustration #35**)

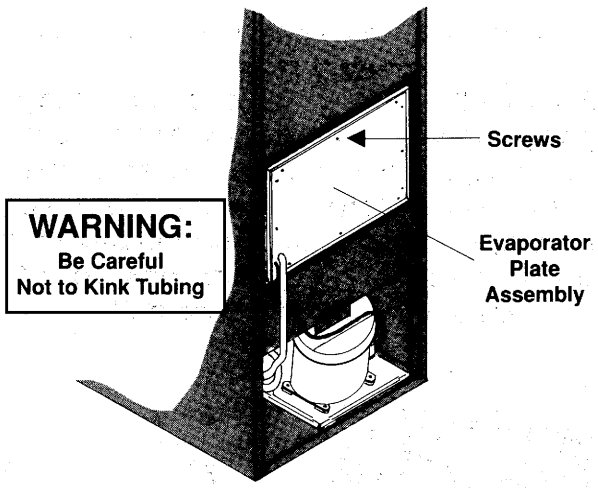


ILLUSTRATION #35

3. Pull back on the plate assembly to expose the evaporator fan motors and blades. (See **Illustration #34**)

NOTE: This plate is sealed in with a sealant between the plate and machine opening frame. Make sure when re-installing that this plate is properly sealed. Improper sealing could cause the evaporator coil to frost up. (See **Illustration #35**)

CAUTION: When pulling back on plate assembly, do not bend refrigeration tubing.

4. Remove broken fan blade or fan motor. Each motor has a separate connection. Install new blade or motor and re-install plate assembly.

CONDENSOR FAN BLADE OR MOTOR REMOVAL

The condenser fan motor assembly will energize each time the compressor cuts in. If a blade or motor fails, it is necessary to replace them or risk damage to the compressor unit. To replace the fan motor components, proceed as follows:

1. Disconnect the electrical power from unit.

2. Remove the small cover over the tubing going to the evaporator coil. Also remove the large cover that protects the evaporator plate assembly. Remove evaporator plate screws and tilt assembly back to allow for partial removal of condensing unit. (See **Illustration #36**)

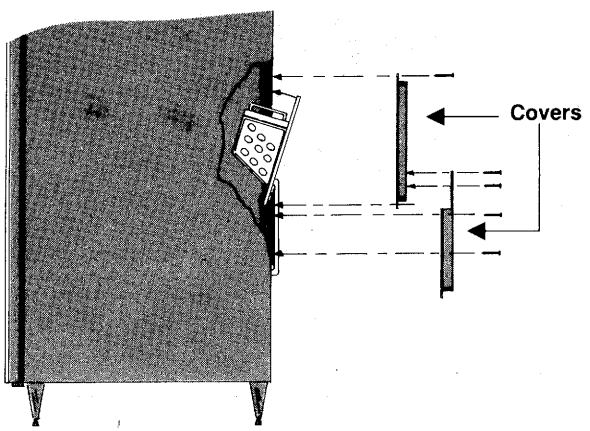


ILLUSTRATION #36

3. Unbolt compressor unit from cabinet base, two nuts and bolts. (See **Illustration #37**)

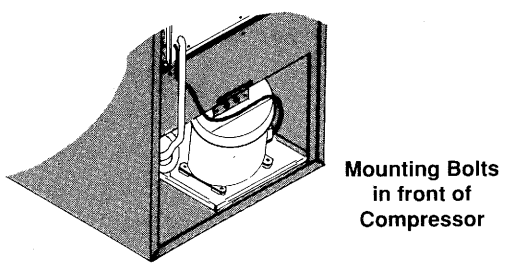


ILLUSTRATION #37

4. Lift up on compressor base to clear leg bolts and slide the unit out the back, enough only to gain access to motors. (See **Illustration #38**)

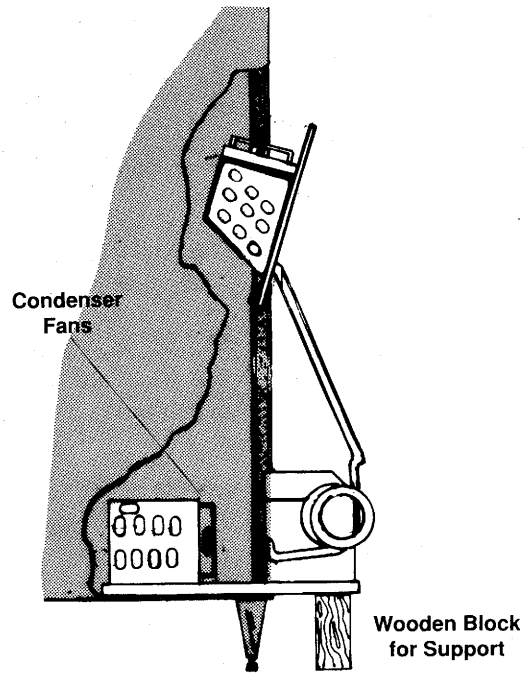


ILLUSTRATION #38

NOTE: Be careful not to kink or break copper tubing.

5. Once unit is out far enough to gain access to motor, support base off floor to prevent damage to tubing.

6. Remove old components from unit. Replace with new and re-install.

7. Reverse procedure to install unit and test.

TROUBLE-SHOOTING

Know and understand service units and how they operate. Units may vary, but the operation is basically the same.

Never guess at the problem; solve it by reading the symptoms.

I. COMPRESSOR WILL NOT START

A. Voltage (check to see if compressor has power)

1. Tripped breaker or blown fuse
2. Wall outlet faulty
3. Short or tear in power cord
4. Faulty cold control
   a) Unplug power supply, remove screws from thermostat. Use a jumper wire, or place screw through terminals; then restore power and check to see if the unit runs.
5. Check for improper wiring

II. COMPRESSOR TRIPS ON OVERLOAD

A. Improper voltage (115 AC normal)
- 5-10% above, 5% below

B. Overload defective
- See VIII, B

C. Relay defective
- See VIII, C

D. Compressor defective
- See VIII, D

E. Start capacitor defective
- See VIII, E

F. Short in other component
- Isolate and eliminate each electrical component until short is found.

G. Compressor is too hot

1. Dirty condenser

NOTE: Condenser must be kept clean of dirt and debris to allow for proper operation.

2. Faulty condenser motor or blade
3. Restricted air flow

REFRIGERATION SYSTEM TROUBLE-SHOOTING

III. NOISY OR VIBRATING UNIT

A. Components rubbing or touching each other
   1. Check fan blades and motor
   2. Loose shrouds and harness
   3. Copper tubing
   4. Loose or unsecured parts

B. Grommets
   1. Worn, aged

C. Compressor
   1. Bad valves
   2. Slugging
   3. Bad windings (see **Schematic #1**)

D. Relay
   1. Frozen in start position (see **Schematic #2**)

E. Low voltage

IV. UNIT SHORT CYCLES

A. Cold Control
   1. Differential set too close
   2. Probe in wrong area (i.e., touching evaporator)

V. UNIT OPERATES LONG OR CONTINUOUSLY

A. Thermostat faulty

B. Air flow restricted
   1. Faulty evaporator motor or blades causing coils to ice over
   2. Air flow blocked by product in front of evaporator

C. Gasket leak

D. Excessive load
   1. After loading, units run longer to pull out excessive heat from product

E. Shortage of refrigerant or restriction

VI. REFRIGERATED SPACE TOO WARM

A. Restricted evaporator air space

1. Evaporator motor or blades faulty. This causes the coils to ice over the evaporator.
2. Condenser air flow restricted
   a) Plugged or dirty condenser
   b) Condenser motor or blades bad
   c) Blade stuck
3. Condensing space restricted
   (a) Unit placed too close to a wall
4. Compressor – bad valves
5. Leak or restriction
   a) Cap tube will start frosting 8 to 10 inches past evaporator connection tube
   b) Check for oil around brazed connections
6. Thermostat improperly set

VII. 90% OF ALL REFRIGERATION PROBLEMS ARE ELECTRICAL

A. Rules for breaking into a sealed hermatic system:

1. **DON'T!** This system was not meant to be worked on outside the Factory Service Center.
2. The four things that can go wrong with a sealed system and should be repaired at the Factory Service Center are:
   a) **Low Charge –** low charges are caused usually by leaks; look for oil around seals and welds. Unit will not seal properly.
   b **Restriction in Systems (unit frosts, then melts) –** not cooling properly, low side in vacuum.
   c) **Bad valves –** unit does not cool properly; noisy compressor.
3. REMEMBER, **DO NOT** break into a sealed system for any reason – send the unit to the Factory Service Center.

VIII. TROUBLE-SHOOTING UNIT CIRCUITS USING OHM-VOLT METER

A. Using volt meter, check power source

REFRIGERATION SYSTEM TROUBLE-SHOOTING

B. Check overload (**NOTE:** power must be off and fan circuit open)

1. Using Ohm meter, check terminals 1 and 3 for continuity. If no continuity is measured (0 Ohms) overload may be tripped. Wait 10 minutes and try again. If still no continuity, overload is defective.

C. Checking Relay: (See **Schematic #2**)

1. Unscrew lead terminals and remove relay from the compressor. (NOTE: keep relay upright)
2. Check terminals 1 and S, or L and S; replace relay if there is continuity
3. Check terminals 1 and M, or L and M; replace relay if there is no continuity

D. Checking compressor: (See **Schematic #1**)

1. Check winding resistance with Ohm meter.
2. If readings are not within 2 Ohms, compressor is faulty.

FIELD TEST FOR ELECTRONIC TIMER

1. Open door and pull door switch to bypass position.
2. Remove thermistor retaining bolt and remove thermistor.
3. Warm thermistor using hand or external heat.
4. After a 1/2 hour, host vendor will not allow a Cold Food Merchandiser to vend and the Cold Food Merchandiser display will flash "CALL".
5. Replace thermistor and close door.
6. Vendor will return to standby condition.

CAUTION: Always disconnect power source BEFORE cleaning.

CABINET INTERIOR

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

CABINET EXTERIOR

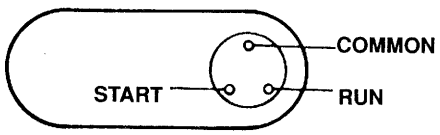
Wash with a mild detergent and water. Odors may be eliminated by including baking soda or ammonia in the cleaning solution. Remove and clean drain hose to eliminate any deposits that may restrict condensate water flow.

The vend mechanisms MUST be kept clean. Any build-up of syrup deposits can cause these mechanisms to malfunction. Use soap and water with great care so as not to get water into the electrical components.

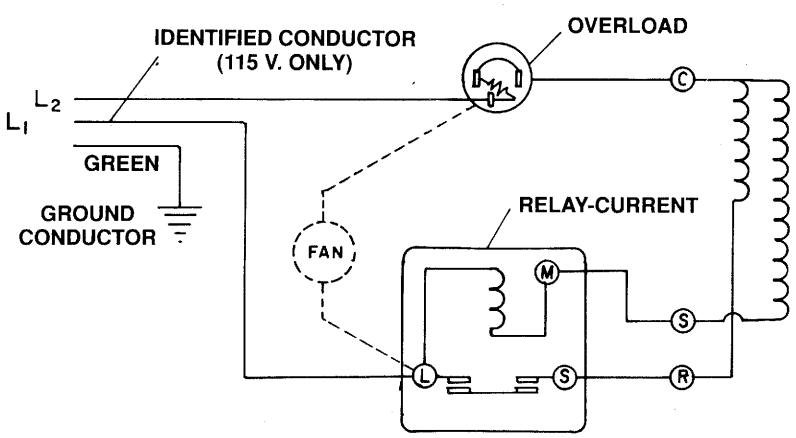
REFRIGERATION SYSTEM

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 condensor coil is not kept clean, the compressor will overheat or fail, voiding the sealed system warranty.** Clean the condensation pan.

WINDING RESISTANCE
Approximate Resistance
Reading Across Terminals
USE RXI SCALE
COMMON - Start 12 Ohms
COMMON - Run 2 Ohms
RUN - Start 14 Ohms
COMMON - Shell No
Continuity

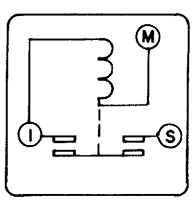


SCHEMATIC #1



WARNING

WIRING DIAGRAM MUST BE FOLLOWED AS SHOWN. ANY MISWIRING CAN CAUSE SERIOUS ELECTRICAL HAZARD AND POTENTIAL DAMAGE OR RUPTURE COMPONENT ELECTRICAL PARTS.

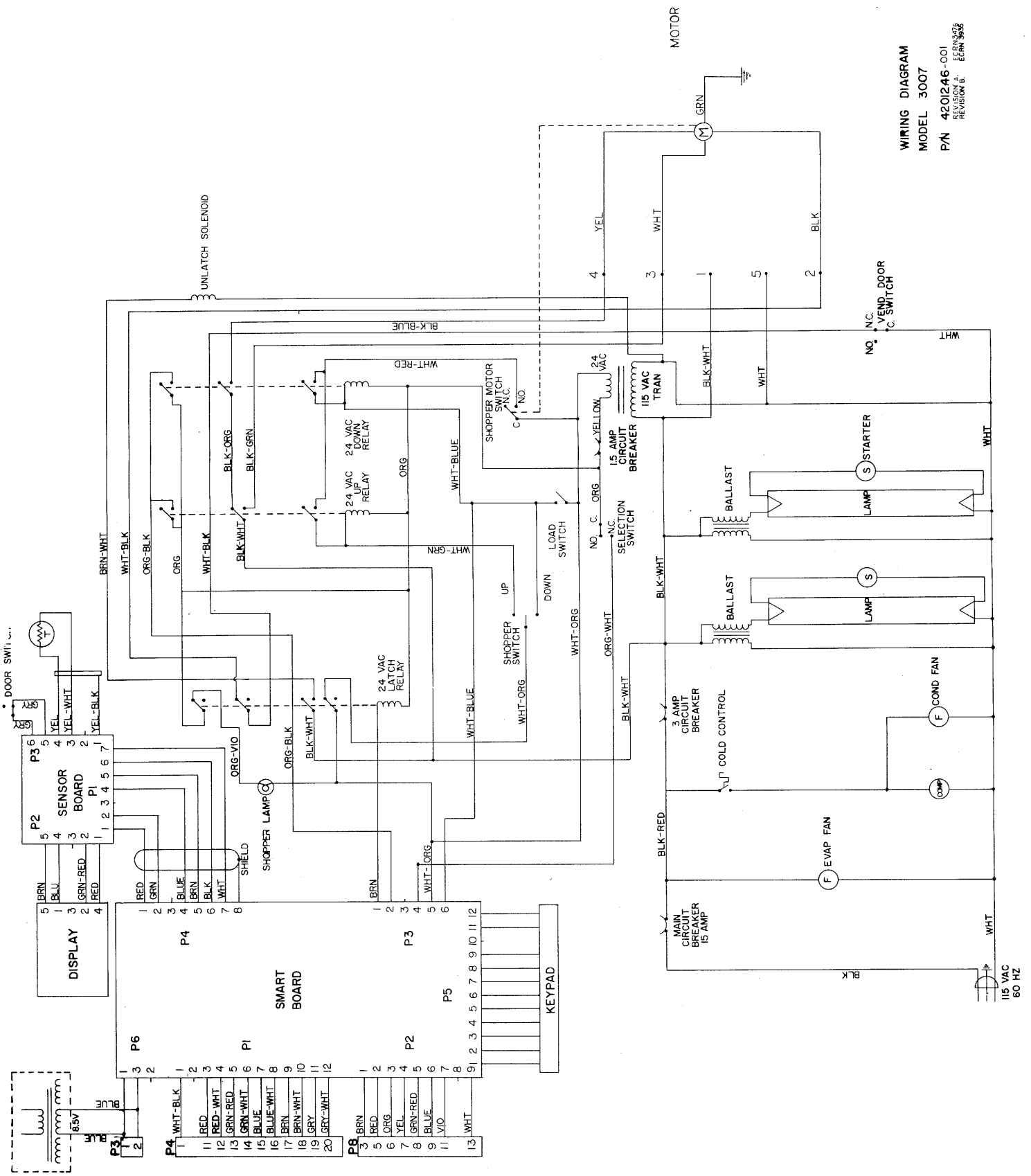


ALTERNATE NUMBERING

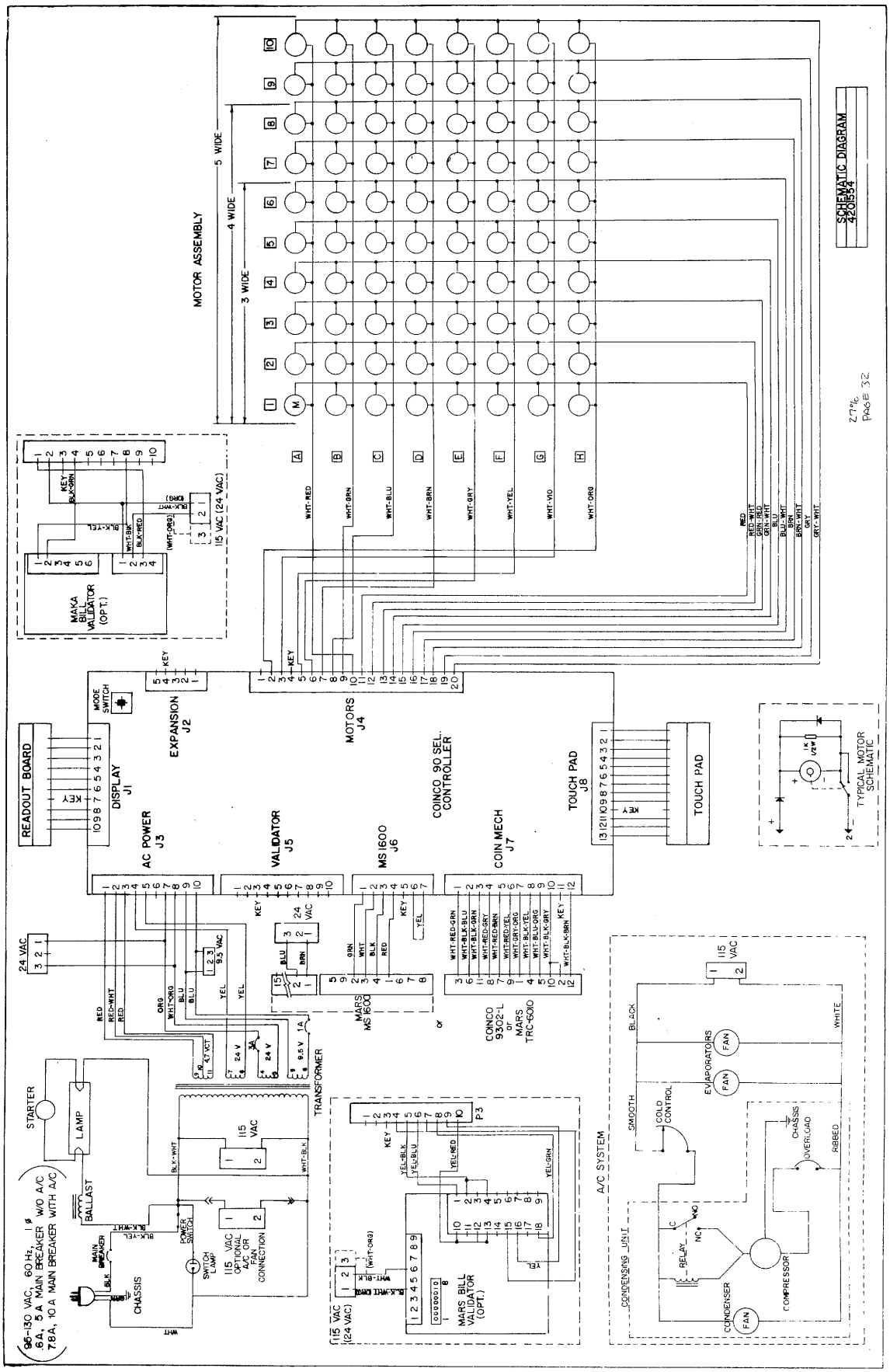
SCHEMATIC WIRING DIAGRAM - RSIR

1. When fan is used hookup as shown
2. Identified conductor maybe white or ribbed. (115 V. ONLY)
3. Assemble ports as shown if specified on Bill of Material.

SCHEMATIC #2


WIRING DIAGRAM
MODEL 3007
P/N 4201246-001
REVISION A. ECRN 3476
REVISION B. ECRN 3936
MOTOR
GRN
YEL
WHT
BLK
UNLATCH SOLENOID
BLK-BLUE
WHT-RED
BLK-ORG
BLK-GRN
24 VAC DOWN RELAY
24 VAC UP RELAY
ORG
WHT-BLUE
SHOPPER MOTOR SWITCH N.C.
N.O.
24 VAC
115 VAC TRAN
YELLOW
15 AMP CIRCUIT BREAKER
BLK-WHT
WHT
N.C.
VEND DOOR SWITCH
N.O.
STARTER
LAMP
BALLAST
LOAD SWITCH
SELECTION SWITCH
BRN-WHT
WHT-BLK
ORG-BLK
WHT-GRN
UP
DOWN
SHOPPER SWITCH
WHT-ORG
ORG-WHT
24 VAC LATCH RELAY
DOOR SWITCH
YEL-WHT
YEL-BLK
ORG-VIO
SHOPPER LAMP
SHIELD
3 AMP CIRCUIT BREAKER
COLD CONTROL
COND FAN
COMP
EVAP FAN
BLK-RED
MAIN CIRCUIT BREAKER 15 AMP
115 VAC 60 HZ
SENSOR BOARD
P1
P2
P3
DISPLAY
SMART BOARD
P4
P5
P6
P7
P8
KEYPAD
BRN
BLU
GRN-RED
RED
GRN
BLUE
BLK
WHT
8.5V
WHT-BLK
RED-WHT
GRN-RED
GRN-WHT
BLUE
BLUE-WHT
BRN
BRN-WHT
GRY
GRY-WHT
ORG
YEL
VIO

SCHEMATIC #3


SCHEMATIC DIAGRAM
420854
MOTOR ASSEMBLY
5 WIDE
4 WIDE
3 WIDE
READOUT BOARD
DISPLAY J1
MODE SWITCH
EXPANSION J2
MOTORS J4
AC POWER J3
VALIDATOR J5
MS1600 J6
COIN MECH J7
COINCO 90 SEL. CONTROLLER
TOUCH PAD J8
TOUCH PAD
MAKA BILL VALIDATOR (OPT.)
MARS BILL VALIDATOR (OPT.)
TRANSFORMER
STARTER
LAMP
BALLAST
MAIN BREAKER
POWER SWITCH
SWITCH LAMP
CHASSIS
A/C SYSTEM
CONDENSING UNIT
EVAPORATORS
COMPRESSOR
CONDENSER
RELAY
COLD CONTROL
OVERLOAD
TYPICAL MOTOR SCHEMATIC
96-130 VAC, 60 Hz, 1 ø
6A, 5A MAIN BREAKER W/O A/C
7.8A, 10A MAIN BREAKER WITH A/C

SCHEMATIC #4