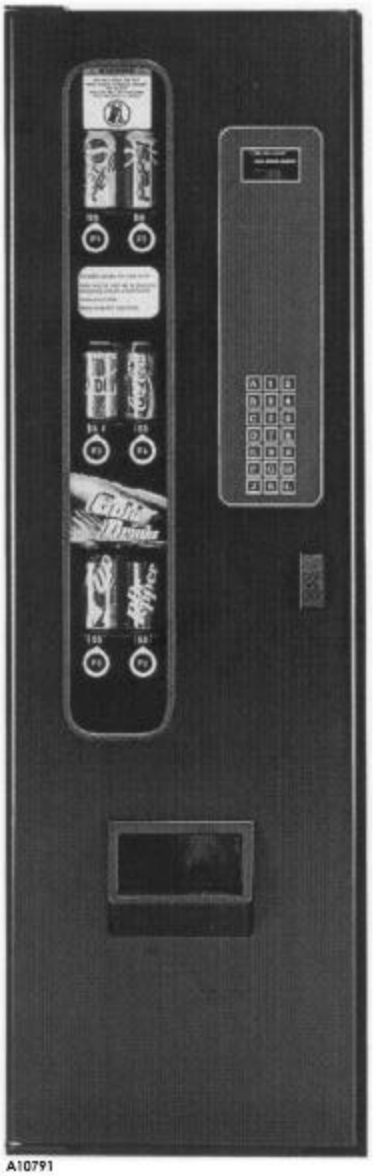
UNIVERSAL SATELLITE DEVICE MINI - CAN VENDOR



MODEL 3043-U

SERVICE MANUAL

July, 97

P/N 4208277
Rev. A

TABLE OF CONTENTS

Record the Model Number and Serial Number of your machine below. They are necessary 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 vendor.

MODEL NUMBER: _____

SERIAL NUMBER: _____

INTRODUCTION

This manual should be read thoroughly to familiarize you with the functions and features of all components. The initial set-up of a vending 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 can be minimized.

This service manual contains installation and service information on the **Model 3043-U, Universal Satellite Device (USD) Mini-Can Vendor**. This is a six (6) select, 330 ml can vendor that operates on the "first-in, first-out" vending principle for all selections.

This vendor has a USD controller and must be used with a host vendor that is equipped with a MDB (Multi-Drop Buss) controller. The Mini-Can utilizes the electronics of the host machine for credit accumulation and refund of change when required.

Cans are stored in serpentine-type storage areas. Each selection has a 24 volt motor-driven vend mechanism that consist of a "dual" cam arrangement. The front cam will hold the product to be vended at the "vend position", releasing it to the delivery area during the vend cycle. The rear cam will be advanced into the path of the cans during the vend cycle, holding them back until the vend cycle is complete. At the end of the vend cycle, the next can will be released to the vend position.

The six selections can be individually priced. The maximum vend price is 255 times the smallest denomination of coin accepted.

Each machine is identified by a model and a serial number given on the Serial Number Plate attached to the inside or back of the vendor. Record these numbers for your records in the space provided on the Table of Contents. All inquires and correspondence pertaining to this vendor should reference the model and serial numbers.

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

FOR U.S. UNITS:

VendNet™
165 North 10th Street
Waukee, Iowa 50263-0488

PHONE: 1-515-274-3641
1-800-833-4411
PARTS FAX: 1-515-987-4447
SALES FAX: 1-515-274-0390

FOR EUROPEAN UNITS:

SPECIFICATIONS

General

Height:	72 Inches	183 cm
Width:	21 Inches	53 cm
Depth:	30 1/8 Inches	77 cm
Weight:	360 Pounds	163.3 kg

Electrical

Power:	230 VAC	or	120 VAC
	50 Cycle		60 Cycle
Starting Amps:	3.5 Amps		
Running Amps:	1.7 Amps		

Capacity

6 Selections of 330 ml cans

Selections 1, 3 and 5	33
Selections 2, 4 and 6	35
Cans in Vend Area:	204
Cans in Pre-Cool Area:	6

Pricing

6 Prices: Based on host vendor

Refrigeration

Unit Size:	1/4 HP Hermetically Sealed
Refrigerant:	R-134a
Charge:	3.5 Oz.

UNPACKING

This machine was 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.

Carefully remove the outside packing material 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 material directly to the delivering carrier on a Hidden Damage Report.

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

Remove the "Knock-A-Way" support by placing a 2x4 under the vendor, inserting a screwdriver or prying tool into the groove of the Knock-A-Way and splitting it in two. Turn the leveling screws in as far as possible as shown in **Figure 1.**

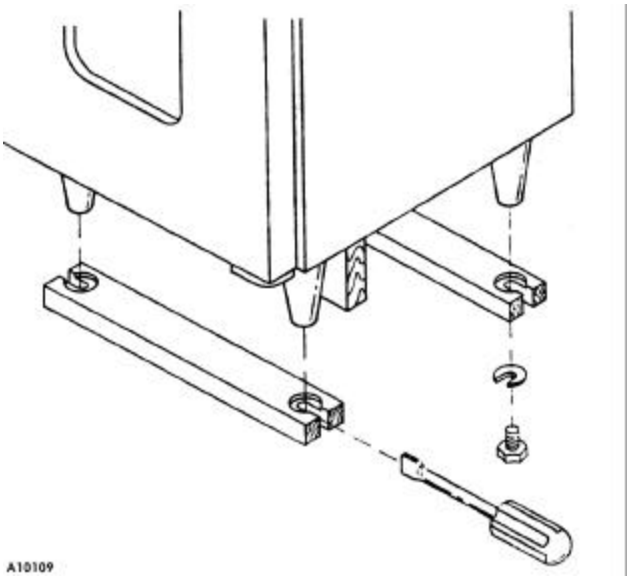


Figure 1

INSTALLATION

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

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

Position the vendor in its place of operation no further than six feet from the power outlet or receptacle and check that the door will open fully without interference. Leave at least four inches of space between the back of the machine and any wall or obstruction for proper air circulation.

CAUTION:

Do not block the ventilating screens in front or in the rear of the vendor. Always allow free ventilation behind a bank installation, so that exhaust air is not trapped. Failure to do so could result in a refrigeration failure.

Level the vendor, making sure all levelers are touching the floor. The vendor must be level for proper operation. If it is properly leveled, it should not "rock" or "teeter" on any of the levelers. When the vendor 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 before deciding that the machine is level.

Remove all shipping brackets, tape and inner packing material from the vendor. Operating the vendor without removing the tape and packing material could result in damage to the vendor.

Grounding (Earthing) & Electrical

Prior to connecting the equipment, the integrity of the main electrical supply must be checked for correct polarity, presence of ground (earth) and correct voltage. It is recommended that these checks be repeated at 6-month intervals with the routine safety electrical testing of the equipment itself.

To correct negative voltage, amperage, polarity, or ground (earth) checks, consult a licensed electrician.

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

Each vendor is equipped with a Door Interlock Switch. The switch is operated by the outer door.

When the door is closed, power is enabled to the vendor. When the door is opened, power is disabled.

To operate the machine with the door open, use the plastic, 'I' shaped key to depress the switch plunger. Lock it into place by turning the key 90°.

WARNING:

Do not use extension cords.

230 Volt Vendors

Power source must be 230 VAC (±10%) 50 cycle.

- **Voltage Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the neutral terminal. The Multi-Meter should indicate 216-264 VAC.
- **Polarity and Ground (Earth) Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the ground (earth) terminal. The Multi-Meter should indicate 216-264 VAC.
- **Amperage Check:** At the fuse box or circuit breaker panel, locate the proper circuit, and ensure that the fuse or breaker protecting that circuit is rated at 13 amps or greater.

NOTE:

The **ground (earth)** terminal is perpendicular to the other two terminals. In a standard 3-prong 230 V outlet the **neutral** terminal is counter-clockwise from the ground (earth) terminal and the **hot (live)** terminal is clockwise from the ground (earth) pin. See **Figure 2.**

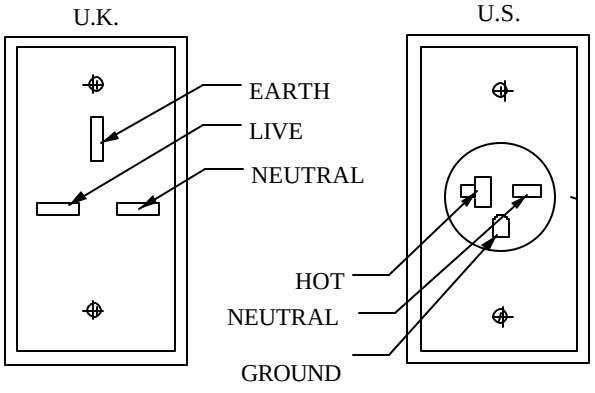


Figure 2

120 Volt Vendors

Power source must be 120 VAC (±10%) 60 cycle.

- **Voltage Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the neutral terminal. The Multi-Meter should indicate 108-132 volts AC.
- **Polarity and Ground (Earth) Check:** With a Multi-Meter set to check AC line voltage, insert one connector to the hot (live) terminal and the other connector to the ground (earth) terminal. The Multi-Meter should indicate 108-132 volts AC.
- **Amperage Check:** At the fuse box or circuit breaker panel, locate the proper circuit, and ensure that the fuse or breaker protecting that circuit is rated at 20 amps or greater.

NOTE:

The **hot (live)** terminal should always be counter-clockwise from the **ground** terminal. The **neutral** terminal is clockwise from the **ground (earth)** terminal. See **Figure 3.**

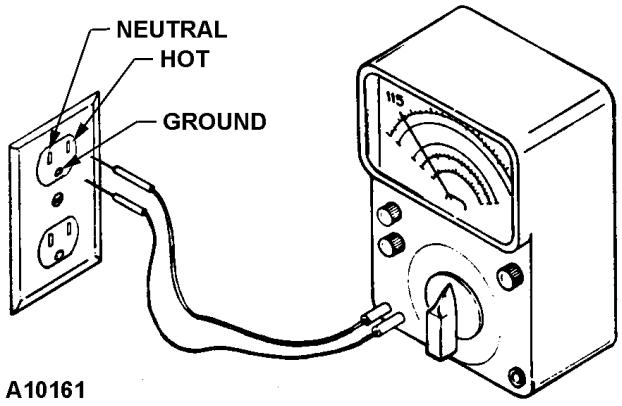


Figure 3

Connecting to the Host

1. Unplug the host machine from its power source.
2. Remove one plug on the back of the host cabinet.
3. Insert the umbilical harness from the Mini-Can through the hole in the back of the host. Secure with the flat bracket. See **Figure 4**.
4. Inside the host, loosen the screws holding the control board. Slide the control board off, without removing any wiring.
5. Pull the umbilical harness to the front of the host, and push it up behind the right panel until it reaches the opening for the control board. Connect the umbilical harness to the MDB adapter harness.

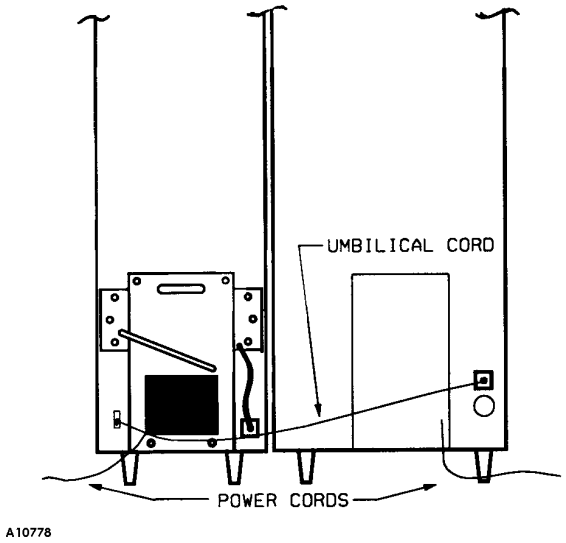


Figure 4

6. Connect the MDB adapter harness to the host control board. See **Figure 5** for the host Snack Mart Control Board.
7. Attach the green ground (earth) wire on the MDB harness to the satellite's exposed screw above the control board, first placing a lock washer against the panel. Reinstall the control board.
8. Plug the host and the Mini-Can into their electrical power source.
9. Test the motors for proper operation.

NOTE:

The Mini-Can must have at least two (2) cans in a selection before a test vend can be performed.

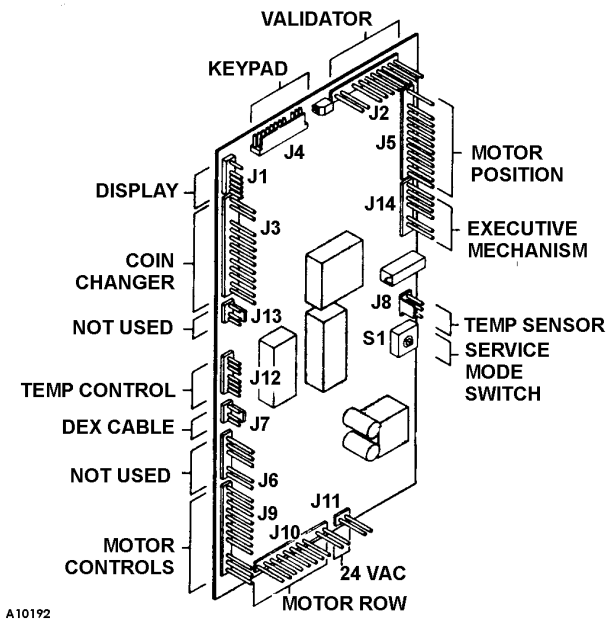


Figure 5

10. Anchor the Mini-Can to the host vendor. Remove the upper bracket on the host vendor, saving the three screws. Hook the Tie Plate furnished with the Mini-Can over the lip of the Mini-Can. Use the saved screws to attach it to the host vendor. See **Figure 6.**

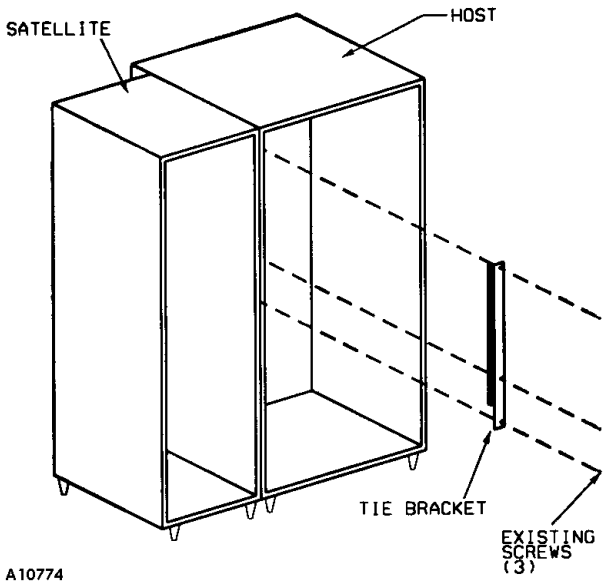


Figure 6

LOADING INSTRUCTIONS

Columns

There are six 330 ml selections in the vendor. Cans are stored in serpentine-type columns for easy loading and dispensing. The selections are numbered from top to bottom, left to right when facing the vendor.

- Selections 1, 3, and 5 hold 33 cans.
- Selections 2, 4, and 6 hold 35 cans

CAUTION:

When loading the columns, do not let the first cans being loaded strike the motor cams with full force. Do not load dented or damaged cans in the serpentine columns. Jams could occur.

When loading the columns, place the cans into the proper opening. See **Figure 7.** Lay the cans on their side and allow them to roll down the serpentine column to the ejector mechanism. Keep placing cans into the column until the compartment is full to the top opening.

Make sure that the product being loaded is placed in the proper opening and that it agrees with the product that is being displayed in the live display.

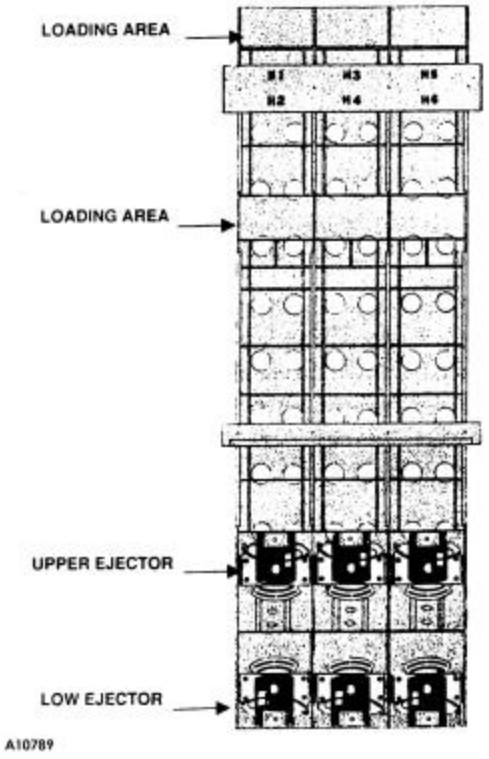


Figure 7

CAUTION:

Do not store product inside the cabinet area. It restricts the air flow and can cause the refrigeration unit to malfunction or possibly damage the unit.

Live Display

The live display provides a full view of each product along with its selection number and vend price.

To load the display, open the outer door and separate the inner door from the outer door. Place the product in the display window and secure in place with the retaining spring.

1. Make sure that the identification label is in plain view of the buying customer.
2. Verify that the product being displayed is the same as the product loaded in the serpentine columns.
3. Verify the vend price programmed into the controller. In the *Sales Mode*, depress the selection letter and number at the Mini-Can Vendor. The vend price will be displayed momentarily in the digital readout.
4. Adjust the price scroll to match the vend price.

INSTALLATION CHECKLIST

1. All shipping brackets, packing material and tape have been removed.
2. Vendor has been properly leveled from left to right and front to back.
3. Vendor is positioned no more than six feet from the power outlet.
4. There is at least four inches of space between the back of the machine and any wall or obstruction for proper air circulation.
5. Machine is plugged directly into a dedicated circuit properly polarized and grounded (earthed).
6. Machine has been properly loaded and all items in each selection corresponds to the live display.
7. The correct vend price has been programmed into the controller of the Mini-Can Vendor.
8. Each price scroll agrees with its vend price.
9. The vendor door is closed tightly and locked.

CONTROLLER FUNCTIONS

Sales Mode

The *Sales Mode* is the normal operating mode of the vendor. As money is deposited, the amount of credit displays at both the Mini-Can and the host.

Vend prices can be verified while in the *Sales Mode*. Press the selection letter and number at the Mini-Can Vendor. The vend price is displayed momentarily in the digital readout.

Typical Sales Vend Cycle

As money is deposited, the amount of credit displays at both the Mini-Can and the host. When a selection is made from the Mini-Can, the credit is compared with the vend price. If sufficient credit is available the vend cycle will start.

At the start of the cycle the controller applies a 24 VDC to the vend motor. The Motor Switch on the motor is actuated, signaling the controller that the motor has successfully started. As the motor rotates, the large cam rotates out of the path of the cans, releasing the front can to the delivery area. At the same time the small cam rotates into the path of the cans, in front of the second can, holding it back until the vend cycle is completed.

At the end of the vend cycle the Motor Switch is de-actuated, indicating to the controller that the cams have rotated 360°. At this time the controller will remove power from the motor. Both the large cam and the small cam will have been rotated to their normal standby position releasing the next can to the vend position.

At the end of the vend cycle, the Mini-Can will return a *Vend Complete* or *Failed* command to the host. The host will return any change or credit due to the buying customer.

Service Mode

To change any settings or programs in the vendor, the controller must be placed in the *Service Mode*.

Table 1: Service Mode Options

Press	Option	Display
<A>	Set Price	**Pric**
<B>	Test Motor	**tESt**
<C>	Change USD Address	**Addr**
<D>	Refrigeration Controls	**Frig**

To enter the *Service Mode*, open the door of the Mini-Can and separate the inner door from the outer door. Press the Service Mode Button. **SErV** displays.

To exit the *Service Mode*, press the Service Mode Button. The vendor will also exit the *Service Mode* if there is no key pressed for approximately one (1) minute.

If you are in the process of changing data when you exit the *Service Mode* (either by pressing the Service Mode Button or by allowing the system to time-out) then any unfinished changes will be ignored, leaving the data in its previous state.

Set Price Option

Enter the ***Service Mode***. **SErV** displays.

Press **<A>**. **Pric** displays.

Set Price - Single Selection

1. Press the selection letter and number of the selection you want to price. That selection's current price displays.
2. Press the desired price. Press all four digits of the price.

Example:

To set the price to .75, press the digits 0075. The price will be updated in the display.

3. Press **<L>** to accept the displayed price. **Pric** displays.
4. To set additional prices, repeat steps 1 through 3.
4. To exit the *Set Price* option, press <L> again. **SErV** displays.

Set Price - All Selections

To set all the selections in the Mini-Can to one price:

1. Press the selection letter used by the Mini-Can. Then press <L>. The price of the first selection in the Mini-Can displays.
2. Press the desired price from the numbers on the keypad. Press all four digits of the price. The new price displays.

Example:

Press the selection letter **<G>** and then **<L>**. Then press the four digits of the price.

3. Press **<L>** to accept the displayed price. **Pric** displays.
4. To exit the *Set Price* option, press <L> again. **SErV** displays**.**

Test Motor Option

Enter the *Service Mode*. **SErV** displays.

Press **<B>**. **tESt** displays.

NOTE:

There must be a minimum of two cans loaded in the selection to test the motor.

Test Motor - Single Selection

Press the selection letter and number of the selection to be tested. The motor for that selection will run one time.

Test Motor - All Selections

Press the selection letter for the Mini-Can. Then press **<L>**. Each motor will test vend one time starting with the first selection.

Example:

Press the selection letter **<G>** and then **<L>**. The selection motor for G1 will run, and then selection motor for G2 will run, and so on through G0.

Change USD Address Option

The host vendor supports two identification addresses. One satellite vendor is addressed as USD 1, and the other is addressed as USD 2.

Example:

In a configuration with a Mini-Snack and a Mini-Can, the Mini-Snack is addressed as 1, and the Mini-Can is addressed as 2

1. To change the USD address of the Mini-Can Vendor, enter the *Service Mode*. **SErV** displays.
2. Press **<C>. Addr** displays.
3. Press **<C>** to view the current address.
4. To toggle between the available addresses press **<C>** again.
5. To accept the displayed address, press **<L>**.

   To exit without saving any changes, press the Service Mode Button.

Refrigeration Controls Option

This setting is used to control the cut-in and cut-out points of the refrigeration system. The default setting is 35°F/2°C for the Mini-Can.

1. To change the refrigeration control setting, first enter the *Service Mode*. **SErV** displays.
2. Press **<D>**. **Frig** displays. After a short delay, **Cx** displays, where **x** indicates the current refrigeration point setting.

NOTE:

If **Sx** displays, press **<9>** to toggle the refrigeration control to **Cx**. The **S** option is not used in this application.

3. To return the refrigeration point to its default settings, press **<0>**. **C0** displays.

   To raise the refrigeration point, press **<1>**. The cabinet temperature will increase by approximately 2°F/1°C.

   To lower the refrigeration point, press **<2>**. The cabinet temperature will decrease by approximately 2°F/1°C.

NOTE:

Do not lower the refrigeration point beyond the **C-2** setting. This could cause the cans to freeze. A higher setting on the thermostat **does not** accelerate the cooling of the cans. It only maintains the inside of the cabinet at a colder temperature.

4. To save the setting, press **<L>** or exit from the *Service Mode* by depressing the Service Mode Button. All changes are saved.

UPPER EJECTOR MECHANISM REMOVAL

Before removing the Ejector Mechanisms, the product must be removed from the serpentine column and from the vending area. Can Stops are furnished in the service packet that can be used to hold the cans in the upper portion of the serpentine when removing the ejector mechanism in a full column.

The motors can be rotated clockwise slowly by hand to remove the cans that are not being held back by the can stop.

CAUTION:

Always rotate the motor in a clockwise direction. Damage to the motor could result if rotated too fast, or in the wrong direction.

To remove the motor or upper ejector mechanism:

1. Turn the power switch to the "OFF" position or unplug the vendor.
2. Loosen the latch screw so the latch drops and out of the way. See **Figure 8**.

NOTE:

To remove only the motor, skip to Step 7.

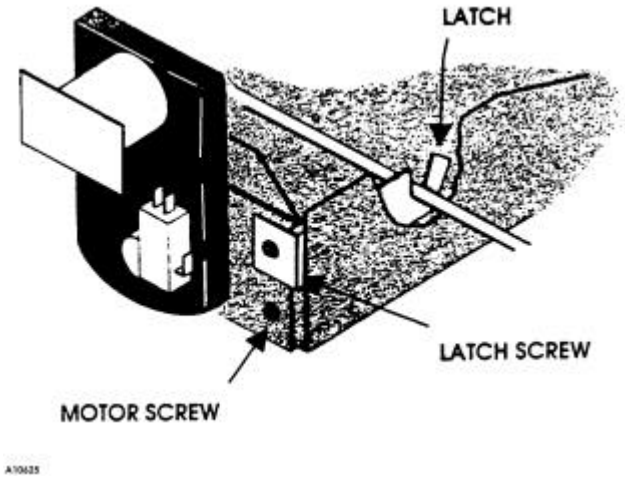


Figure 8

3. Insert the Upper Can Stop (P/N 1211018) by hooking it over the rod and clamping it down over the can. See **Figure 9**.
4. To remove the complete ejector mechanism without removing the motor, rotate the cam clockwise slowly by hand to remove all cans that are not being held back by the Can Stop installed in Step 3.
5. Unplug the ejector mechanism wiring harness from the main motor harness.
6. Push the ejector mechanism backward until it clears the retaining rod and drops down and out.
7. To remove the vend motor, remove the two motor screws on the motor bracket. See **Figure 8.**

   Remove the wire harness connections from the motor switch and circuit board tabs, noting which wire connects to which tab.

   If necessary, cut the plastic cable tie that straps the main harness to the motor cylinder and remove the motor.

NOTE:

After the motor screws have been removed, pressure will be needed to pull the motor off the cam drive shaft.

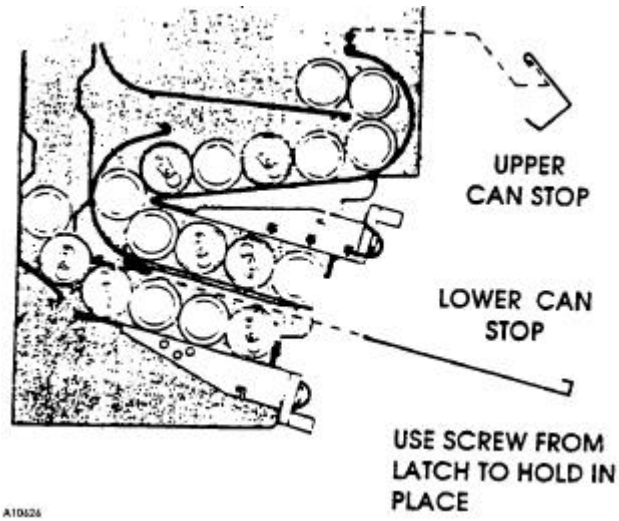


Figure 9

LOWER EJECTOR MECHANISM REMOVAL

Before removing the Ejector Mechanisms, the cans must be removed from the serpentine column and from the vending area. Can Stops are furnished in the service packet to be used to hold the cans in the upper portion of the serpentine when removing the ejector mechanism in a full column.

The motors can be rotated clockwise slowly by hand to remove the cans that are not being held back by the can stop.

CAUTION:

Always rotate the motor in a clockwise direction. Damage to the motor could result if rotated too fast, or in the wrong direction.

To remove the motor or the lower ejector mechanism:

1. Turn the power switch to the "OFF" position or unplug the vendor.
2. Remove the can chute assembly by removing the two screws on the side and one on the bottom.
3. Remove the latch screw and latch. See **Figure 10**.
4. Insert the Lower Can Stop (P/N 1200137-102). Slide the can stop all the way in and screwing down the fastener. See **Figure 11.**

NOTE:

To remove only the motor, skip to Step 8.

5. To remove the complete ejector mechanism without removing the motor, rotate the cam clockwise slowly by hand to remove the cans that are not being held back by the can stop. The cam must be pointing upward to enable the mechanism to be removed.
6. Unplug the ejector mechanism wiring harness from the main motor harness.
6. Push the ejector mechanism backward until it clears the rod and lift upward and out.

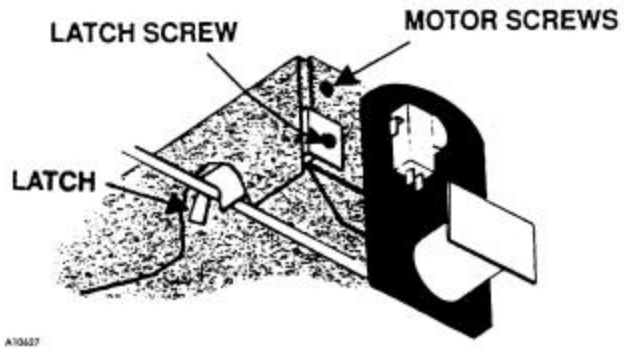


Figure 10

8. To remove the vend motor, remove the two screws on the motor bracket. See **Figure 10.**

   Remove the wire harness connections from the motor switch and circuit board tabs, noting which wire connects to which tab.

   If necessary, cut the plastic cable tie that straps the main harness to the motor cylinder and remove the motor.

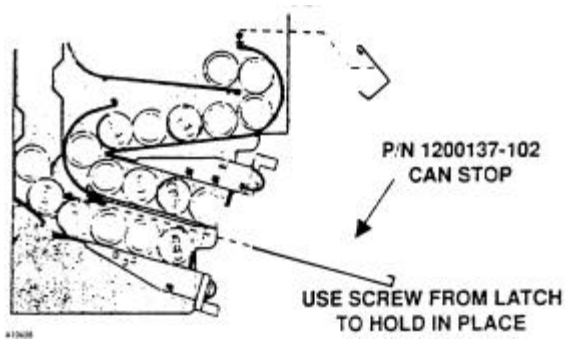


Figure 11

REFRIGERATION CONTROL

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.

The refrigeration control setting controls the cut-in and cut-out temperatures. When the temperature is above the programmed cut-in temperature, the unit will be turned on. When the refrigeration unit reaches the cut-out temperature it will be turned off.

To change the refrigeration control setting, see the "Refrigeration Controls Option" section of this manual.

Refrigeration Troubleshooting

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:

90% of refrigeration problems are electrical.

The sealed hermetic system was not meant to be worked on 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 frost, then melts) - not cooling properly.
3. Bad valves - unit does not cool properly; noisy compressor.

Compressor will not start

Compressor has no power:

1. Machine not plugged in.
2. Tripped breaker or blown fuse.
3. Faulty wall outlet.
4. Short or tear in power cord.
5. Thermistor circuit is open. Check with the Multi-Meter.
6. Improper wiring.
7. Low voltage: 5 % below. Check the power source with the Multi-Meter.
8. Overload defective: Trips too fast. Check overload with the Multi-Meter.
9. Start relay defective: Check start relay with the Multi-Meter.
10. Compressor has open windings. Check compressor windings with a Multi-Meter.
11. 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 Option" section of this manual.

Unit operates long or continuously

1. Thermistor defective or not mounted in the return air duct.
2. Refrigeration relay shorted.
3. 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
4. Gasket leak around door.
5. Excessive load: After loading, unit will run longer to pull out excessive heat from product.
6. Shortage of refrigerant or restriction.
7. Bad controller.

Refrigerated space too cold

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

Refrigerated space too warm

1. Thermistor defective. Check with Multi-Meter.
2. Refrigeration control setting too warm. See "Refrigeration Controls Option" 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
   - Cap 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 **Schematic 1**.) 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 **Schematic 1.**

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

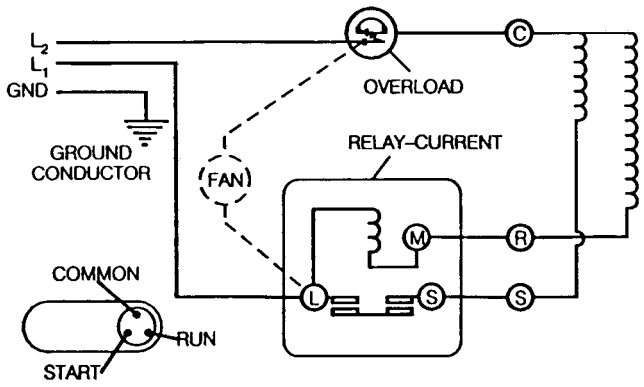
WARNING:

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

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



Schematic 1

REFRIGERATION UNIT REMOVAL

The refrigeration unit is a hermetically sealed completely self-contained modular 1/4 H.P. unit charged with 3.5 ounces of ozone-friendly R-134-a refrigerant. The complete refrigeration unit can be removed if there is a service problem.

CAUTION:

Do not place any object in the evaporator assembly area or inside the cabinet area that will block the air flow. This may damage the refrigeration system, which may void the refrigeration warranty.

1. Unplug the power cord.
2. Remove the two screws holding the suction line cover.
3. Remove only the ten screws holding the refrigeration unit to the cabinet as shown in **Figure 12.**
4. From the front, disconnect the green ground (earth) wire from the power switch plate.
5. From the front, unscrew the "P" clamp that holds the main motor harness and the power harness to the power switch plate.
6. From the back, pull the unit out a few inches. Remove the Mastic from where the main motor cord enters the cabinet. Slide the cord out of the two slots (one on the outside of the panel and the other on the inside of the panel).
7. Use the handle on the unit and pull straight back to remove.

To re-install the refrigeration unit, reverse the above procedures.

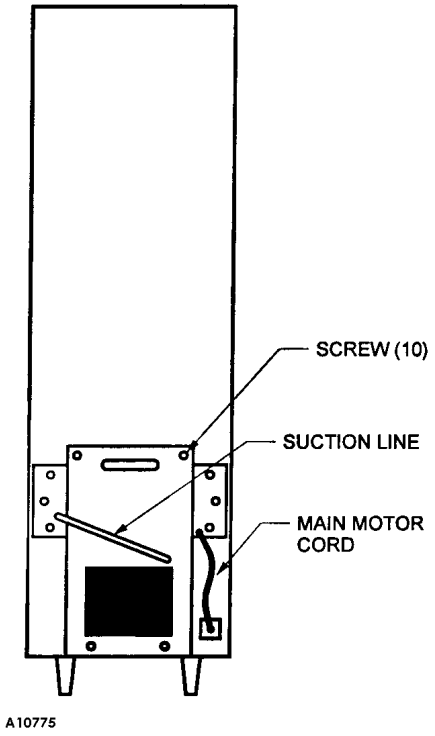


Figure 12

CARE & CLEANING

WARNING:

Always disconnect the power before cleaning.

Cabinet Exterior

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

Cabinet Interior

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 the mechanisms to malfunction. Use soap and water with great care so as not to get water into the electrical components.

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

Refrigeration System

Clean dust from condenser and screen in the front door with a soft bristle brush or vacuum cleaner. Remove any dirt or debris from the refrigeration system compartment. Remove and clean the condensation pan.

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

BEFORE CALLING FOR SERVICE

Please check the following:

- Does your machine have at least 4" of clear air space behind it?
- If the power is turned on at the fuse box, is the machine the only thing that doesn't work?
- Is the machine plugged directly into the outlet?

WARNING:

Extension cords cause problems.
DO NOT USE EXTENSION CORDS.

- Is the evaporator coil free of dust and dirt?
- Is the condenser coil free of dust and dirt?
- Is the compressor free of dust? (A blanket of dust can prevent the compressor from cooling off between workouts).
- Is the circuit breaker at the fuse box reset?
- Are evaporator fans running? Take a sheet of paper approx. 4" x 5" in size. Place the paper in front of the evaporator coil and see if the evaporator fans will draw the paper to the coil.
- Is the condenser fan running? Fold a sheet of 8 1/2" x 11" paper in half. Place the paper in front of the condenser coils and see if it draws the paper to it.
- Is the shelf in front of the evaporator coil clear? (No tools or other air-restricting items).
- Is the cold control set between 0 and 2?

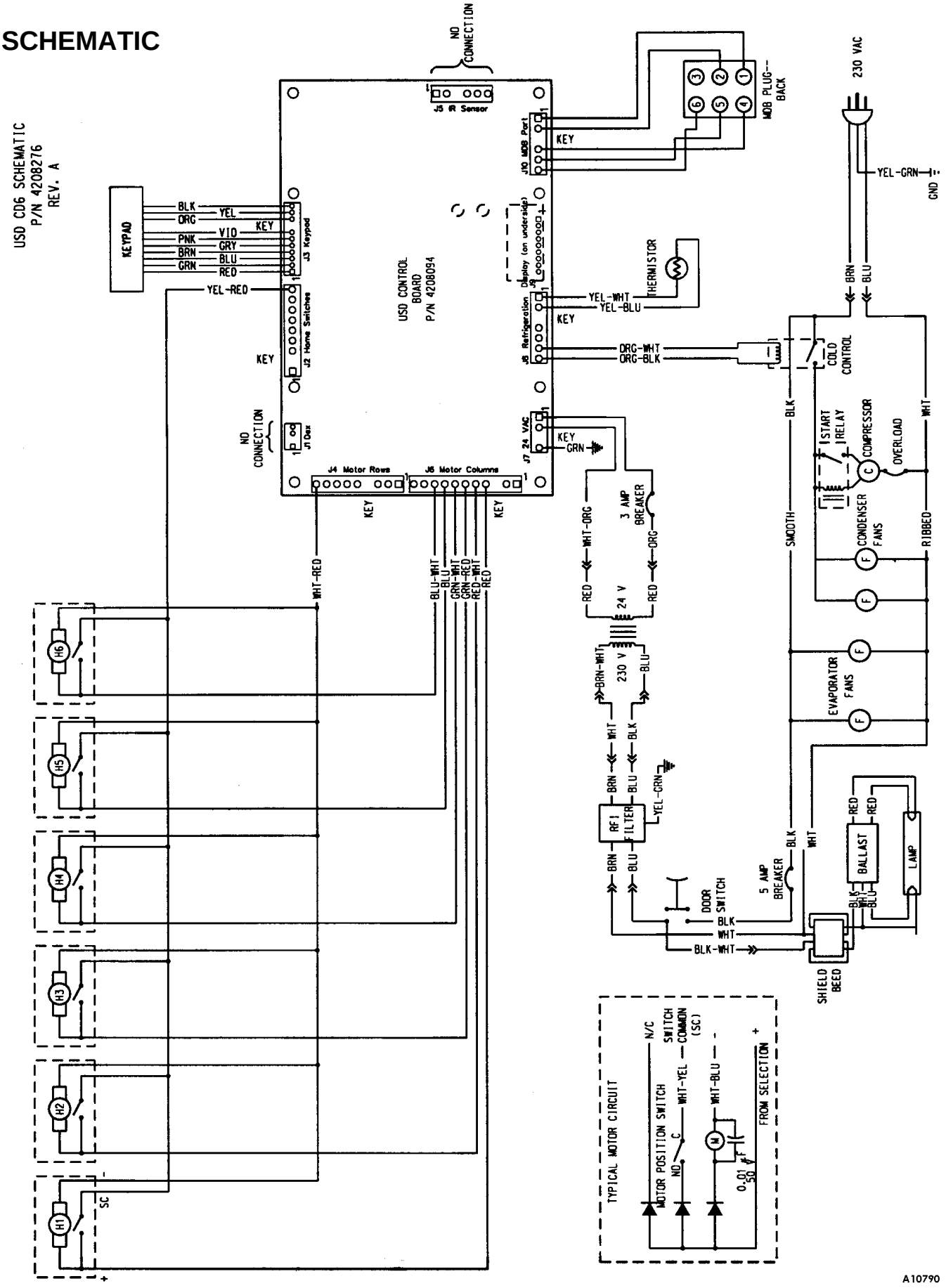
NOTE:

Setting the cold control higher does not accelerate cooling of product.

For additional information phone: 1-800-833-4411 or E-Mail: VendNet@Ecity.net

Include model number and serial number

SCHEMATIC


USD CD6 SCHEMATIC
P/N 4208276
REV. A
USD CONTROL BOARD
P/N 4208094
KEYPAD
J3 Keypad
J2 Home Switches
J1 Dex
J4 Motor Rows
J5 Motor Columns
J7 24 VAC
J8 Refrigeration
J9 Display (on underside)
J10 MDB Port
J5 IR Sensor
NO CONNECTION
MDB PLUG-BACK
230 VAC
YEL-GRN
GND
THERMISTOR
YEL-WHT
YEL-BLU
ORG-WHT
ORG-BLK
COLD CONTROL
START RELAY
COMPRESSOR
OVERLOAD
CONDENSER FANS
EVAPORATOR FANS
SMOOTH
RIBBED
3 AMP BREAKER
24 V
230 V
RFI FILTER
DOOR SWITCH
5 AMP BREAKER
BALLAST
LAMP
SHIELD BEED
H1
H2
H3
H4
H5
H6
SC
TYPICAL MOTOR CIRCUIT
MOTOR POSITION SWITCH
N/C
NO
C
SWITCH COMMON (SC)
WHT-YEL
WHT-BLU
FROM SELECTION
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