COMBO II SNACK/BEVERAGE

Number One In Quality

MODEL: 3155B SERVICE MANUAL

TABLE OF CONTENTS

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

MODEL: 3155B   **SERIAL:**

INTRODUCTION

This manual contains service and installation instructions for the Combo II product line. All Combo II models are equipped with an electronic control system. All programming of vend functions, pricing and features are done on the controller. Changes can be made without any additional accessories or remote parts. Selections can be priced individually from $.05 to $999.95 in five cent increments (U.S. currency).

Features Include:

• Multi Drop Bus (MDB) coin handling mechanism

• Self-diagnostics and cash accountability

• Multi Vend, Free Vend, Bonus Vend and Promo Vend features

• Hermetically sealed refrigeration system with R-134a refrigerant

• Programmable electronic control of the refrigeration unit

• Motorized delivery, electronically controlled

• Visual feedback when a product has been vended or when an error condition exists

• No change or loss of program/memory because of power failure

CAUTION: This vendor utilizes DC motors. Do not attempt to turn augers by hand. Motor damage could occur.

Cash accountability records Total Cash transactions and Total Vend cycles performed by the vendor. Information for individual selections, complete range (rows) or total machine can be compiled and used for inventory and ordering records.

The vending sequence is "first-in, first-out" for each selection, eliminating the need for stock rotation to maintain fresh products in the vend area.

This manual should be read thoroughly to become familiar with the functions of all components, along with the features that are available. The initial set-up of a vending machine is very important in insuring trouble-free operation of the equipment. Following the instructions at the initial installation of the machine will avoid service problems and minimize set-up time.

If you have any questions, need additional information or need replacement parts then please contact your local distributor or:

VendNet™	**Parts:** (888) 259-9965	**Website:** www.vendnetusa.com
165 North 10th Street	**Service:** (800) 833-4411	**Email:** vendnet@vendnetusa.com
Waukee, IA 50263	**Parts Fax:** (515) 987-4447	
USA	**All Other:** (888) 836-3638	

SPECIFICATIONS

THIS VENDING MACHINE IS FOR INDOOR USE ONLY

| DIMENSIONS | • WIDTH: 42 In (106 cm) | • HEIGHT: 72 In (183 cm) |
	• DEPTH: 34-3/8 In (87 cm)	• WEIGHT: 963 lbs (437 kg)
ELECTRICAL	• 115V AC	• 230V AC	• 24V AC Transformer
	60 Hz, 7.0 A ±10%	50 Hz, 3.5 A ±10%	
REFRIGERATION	• 1/3 HP, Hermetically Sealed	• R-134a Refrigerant
	• Electronic Controls	• 8.65 Oz. Charge
COINAGE	MDB version - any MDB peripheral device	
CONFIGURATION	3 Wide Snack	3 Wide Beverage
	29 Select - Expandable to 42	6 Select

UNPACKING

This vendor was thoroughly inspected before leaving the factory and the delivering carrier has accepted responsibility for this vendor. Note any damage or irregularities at the time of delivery and report them to the carrier. Request a written inspection report from the claims inspector to file any claim for damage. File the claim with the carrier (not the manufacturer) within 15 days after receipt of the machine.

Carefully remove outside packing material to avoid damage to the finish or exterior of the machine. Remove adhesive residue with denatured alcohol or common household vinegar.

Inspect the machine for concealed shipping damage. Report any damage hidden by the shipping material directly to the delivering carrier on a hidden damage report.

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

Remove the Knock-Away Skids by placing a block spacer under the vendor. See Figure 1. Insert a screwdriver or prying tool into the groove and split the skid in two. Discard the slotted washers located on each side of the wooded skids. Turn the leveling screws in as far as possible.

INSERT SCREWDRIVER IN SLOT AND TWIST

USE A WOOD BLOCK TO PROP UP ONE SIDE

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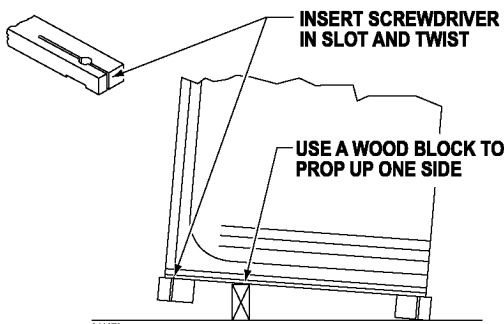
Figure 1. Removing
Knock-Away-Supports

INSTALLATION

Consult local, state and country codes and regulations before installing the vendor. Please refer also to the Safety Manual & Installation Guidelines (P/N 4206816) supplied with your vendor.

CAUTION: To insure reliability and maintain manufacturer's equipment warranty, vendor must **NOT** be placed in an environment where the temperature is greater than 90°F/32°C and the relative humidity is 65% or greater.

CAUTION: Do not block the vent openings 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.

WARNING: DO NOT USE EXTENSION CORDS. Extension cords can cause problems.

1. Position the vendor in its place of operation no further than 6 feet (2 m) from the power outlet or receptacle.
2. Leave at least 6 inches (15 cm) of space between the back of the vendor and any wall or obstruction for proper air circulation.
3. Retrieve the keys to the vendor from the coin return cup.
4. Open the vendor door and remove all internal packing material.
5. Check that the vendor door will open fully without interference.
6. Level the vendor. Make sure all levelers are touching the floor. The vendor must be level for proper operation and acceptance of coins through the coin mechanism.

GROUNDING (EARTHING) & ELECTRICAL

Please refer to the Safety Manual & Installation Guidelines (P/N 4206816) supplied with your vendor. Before connecting the vendor, the integrity of the main electrical supply must be checked for correct polarity, voltage, (earth) ground, and (amperage) circuit protection. The fuse or breaker protecting the circuit must be rated at 15 amps or greater.

It is recommended that these checks be repeated at 6 month intervals along with the routine safety electrical testing of the equipment itself. Consult a qualified electrician to correct negative voltage, amperage, polarity, or ground (earth) checks.

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

POWER SWITCH

Each vendor is equipped with a power switched located on the transformer panel along with a 3 amp breaker. The switch will shut-off the light and controller. See Figure 2. The 3 amp breaker is protection for the transformer.
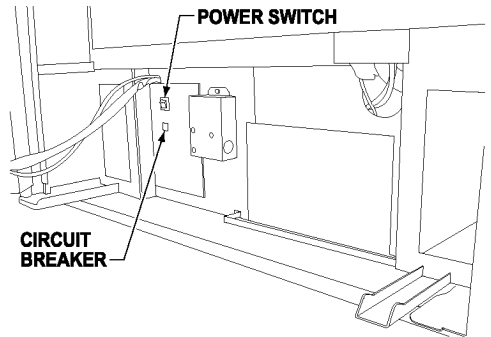
Figure 2. Power Switch

LOADING CANS & BOTTLES

VEND RACK

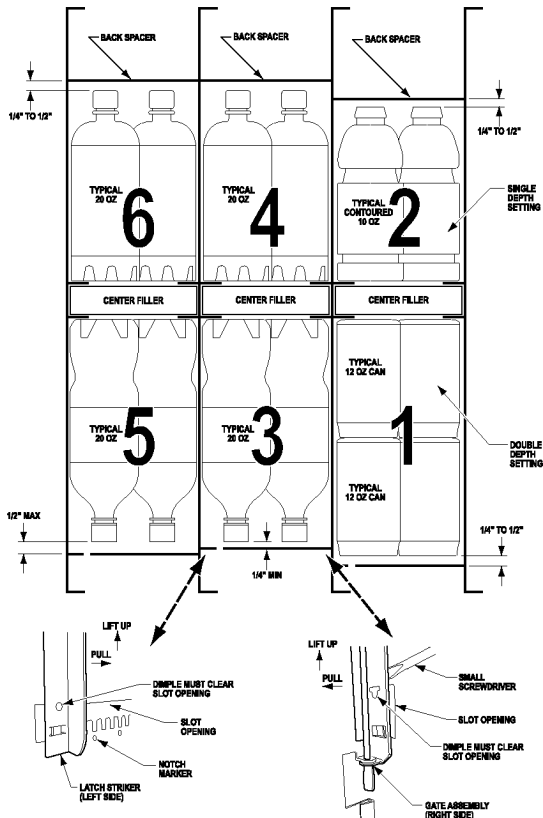**The vend rack has been factory set for most 20 oz bottles or 12 oz cans**
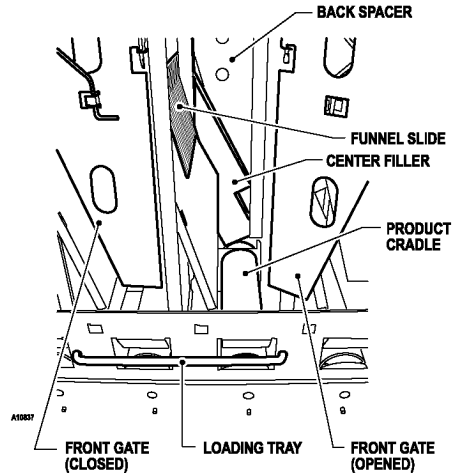
Figure 3a. Column Depth

IMPORTANT SUGGESTIONS

- **When loading, fill the rear selections first. This method makes it easier to load the rack.**
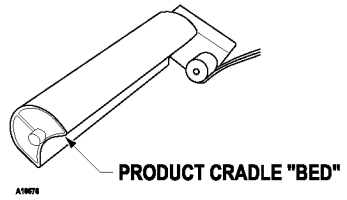- **Load the front rack with products that sell faster.**

1. Products featured in the Live Display must match the products being loaded.

2. The white composite Funnel Slides on each side of each product column must be clean. See **Figure 3b**. This assures that the product cannot "bridge", blocking delivery from the product column.

3. Product container bottoms must face towards the center of the rack as shown in **Figure 3a**.

4. Do not store bottles in "spare" space of the cabinet. The refrigeration unit could be damaged.

5. A loading chart has been provided on the inner door to make it easier to keep track of what types of products has been loaded into the Vend Rack (Can/Bottle compartment) of the Combo II. Use a dry erase marker to avoid making a permanent mark.

6. If refilling with the same product size into the same column, then load products into the columns. Skip steps 7 through 11.

7. If loading for the first time, or changing to a different product size, or to reset the product cradle (motor) to the correct position, then load one row of products in each column and test vend each column using real money.

Figure 3b. Vend Rack

PRODUCT CRADLE "BED"

Figure 3c. Delivery Mechanism

NOTE:	To prevent product jams, the "bed" area of the product cradle must be face down in each column before fully loading each with products. See Figure 3c.

CAUTION	Do not load dented or damaged cans or bottles in the columns. Possible jams could occur.

8. Add five (5) rows of products in each column to check product spacing. Products should have not more than 1/4" to 1/2" inches of free space at the front or back of the columns as shown on **Figure 3a**.

Adjust the back spacer, latch striker or gate assembly to achieve the required dimension. The Vend Rack has been factory set for most 20 oz. bottles or 12 oz. cans.

If vending 16.9 oz bottles, remove Filler (4211816) from the back of the inner door and install it in the Vend Rack. Follow instructions on the Filler decal.

TO ADJUST THE BACK SPACER:

Lift the back spacer and reposition it in the adjustment slots. Use notch markers as reference points to align it vertically. See **Figure 3a**.

TO ADJUST THE LATCH STRIKER AND GATE ASSEMBLY:

Pull and lift up on the lower end of gate assembly (or latch striker). Use a small screwdriver as a wedge to gently pry the dimple away from the slot opening. See **Figure 3a**. Reposition them in the adjustment slots. Use notch markers as reference points to align it vertically.

9. If product spacing is correct, then test vend each column using real money.

10. Load the columns to full capacity.

LIVE DISPLAY

The Live Display provides a full view of the products being dispensed along with the price and selection number of each item. To load the Live Display, simply snap the can or bottle into position from the rear. The product label must face outward toward the customer. Turn the price scroll to the correct price for each selection.

DROP SENSOR

The delivery chute uses a drop (vibration) sensor to detect if a product has vended after a selection is made. The sensor is attached to the underside of the delivery chute. The drop sensor sends a signal to the controller via the drop sensor box control board when a product hits the delivery chute.
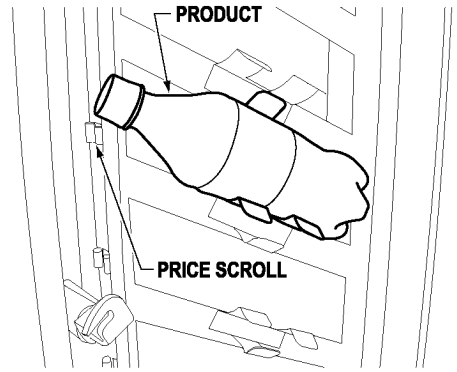

Figure 4. Load Live Display

The drop sensor sensitivity is factory calibrated and should not need adjustment.

DROP SENSOR FACTORY SETTING

1. Locate the sensor adjustment screw on the drop sensor board.

2. Use a small flat head screwdriver to slow turn the adjustment screw clockwise (increase sensitivity) and stop when the indicator light comes on.

3. Slowly turn the adjustment screw counter-clockwise (decrease sensitivity) and stop when the indicator light goes out. At this point begin to turn adjustment screw counter-clockwise four and a half (4-1/2) additional turns. Test the sensor for proper operation by tapping the delivery chute. The indicator light should blink when the chute is tapped.

4. Close the vendor door and perform several test vends.

5. If vending special products, the drop sensor may need the following additional adjustments:

- If machine is sending more than one product per vend request, open the vendor door and turn adjustment screw clockwise one quarter (1/4) turn (to increase sensitivity). Test vend. Repeat procedure if necessary.

- If machine fails to vend a product upon vend request, turn adjustment screw counter-clockwise (1/4) turn (to decrease sensitivity). Test vend. Repeat procedure if necessary.
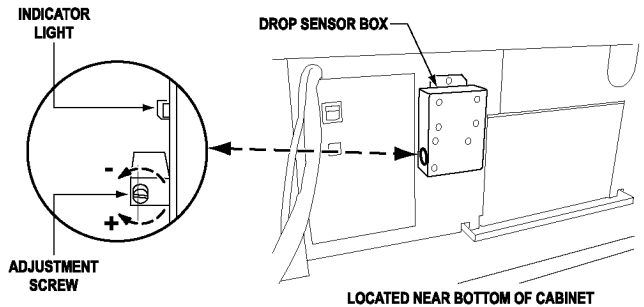

Figure 5. Drop Sensor Adjustment

SNACKS TRAYS

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

Load products from front to back, making sure all items fit freely between the augers. Do not attempt to force oversize items or packages into the spaces. Do not skip a space. Place the product on the bottom of the compartment on the product augers, with the label facing the front of the machine for easy identification by the customer. See **Figure** 6.

When finished loading each tray, lift and push it back into the cabinet. All trays must be pressed to the rear of the cabinet and properly seated in the detent position.

SANDWICH CRACKER / CANDY PRODUCT
SNACK PRODUCT

75 A5
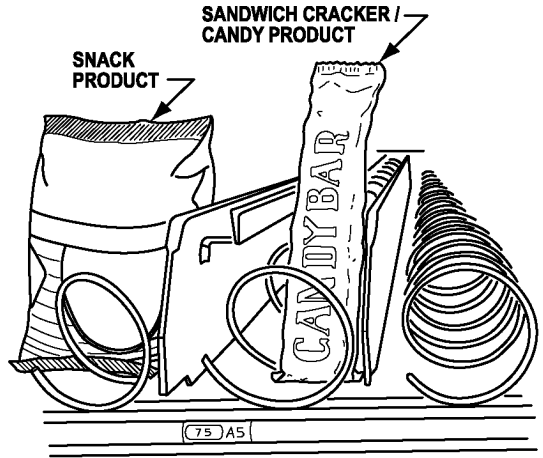
Figure 6. Loading Snacks

The size of the item being vended must be larger than the diameter of the auger being used. Undersize items could cause vend problems. If the product does not fit the auger properly, use a different pitched auger or appropriate product spacer. See the following table for augers available from your distributor or service entity.

Dual type selections require a pair of matching 2-3/8" diameter augers (CCW on the left and CW on the right. Please select matching auger from Candy type.

Available Augers

TYPE	COLUMN WIDTH	DIA	ROTATION	PRODUCT SPACE	COUNT	PART NUMBER
CANDY	2-3/4"	2-3/8"	CCW	.5"	24	4211397.006309
				.7"	18	4200272.112309
				.9"	15	4211397.004309
				1.0"	13	4200272.116309
				1.2"	11	4211397.002309
				1.4"	10	4211397.003309
				1.7"	8	4211397.001309
				2.0"	7	4200272.122309
				2.3"	6	4211397.023309
				2.9"	5	4200272.123309
				3.8"	4	4211397.015309
SNACK (CRISPS)	4-5/16"	2-25/32"	CCW	1.2"	11	4200272.114309
				1.6"	9	4200272.115309
				1.9"	8	4200272.119309
				2.0"	7	4211397.011309
DUAL	5-3/4"	2-3/8"	CW	.9"	15	4211398.004309
				1.4"	10	4211398.003309
				1.7"	8	4211398.001309
				2.0"	7	4211398.002309
				2.3"	6	4211398.013309
				2.9"	8	4211398.023309

PRODUCT EJECTORS

Product ejectors can be added to the end of the augers to help move the product out

PRODUCT PUSHER
P/N 4025748

A10085

AUGER AT 3 O'CLOCK
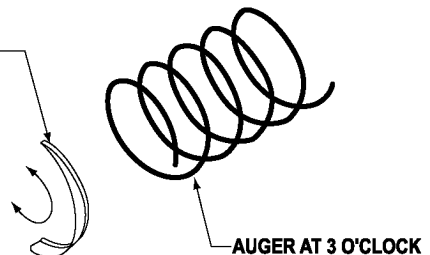
Figure 7. Product Ejectors

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AUGER TIMING

By retiming the augers, difficult-to-vend items can be dispensed more dependably

Each auger can be rotated in 20° degree increments, changing the auger position for a different "drop off" point at the front of the tray.

For dual drive augers, the ideal timing is for the auger ends to meet at the center of the tray: left auger at 3 o'clock, right auger at 9 o'clock.

If you have trouble vending odd sized or odd shaped items, auger retiming can be accomplished on a trial and error basis as follows:

1. Disconnect power before servicing.
2. Pull the tray containing the auger to be retimed forward to its stop.
3. Remove products from the tray.
4. Push down on the motor retaining tab to release the motor from the tray.
5. Tilt the motor back and lift up approximately 1/2" inch (1.3 cm) to disengage the auger hub from the retaining rib on in the bottom of the tray. See **Figure 8**.

Figure 8. Auger Timing

6. Separate the hub from the motor by pulling forward on the hub to disengage its spline from the motor's internal gear.
7. Rotate the hub (and attached auger) to the desired timing position. Reinstall by pushing the spline into the internal gear motor.
8. Replace the motor back to its original position on the rear of the tray while making sure that the hub is correctly installed behind the hub retaining rib.
9. Push the motor retaining tab into the slotted hole.
10. Load product and push tray into its vend position (locked onto its detent).
11. Reconnect power and test vend for proper operation.
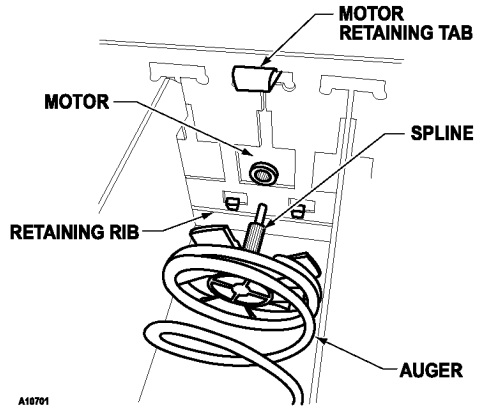
TRAY CONFIGURATION

By changing the tray configuration, different product mixes can be accommodated.

CANDY TO SNACK

1. Order the conversion kit from your local distributor or service entity.
2. Unplug and remove the tray assembly from the vendor. Place the tray harness in the tray before removal.
3. Remove existing tray divider and store for possible future use.
4. Remove existing auger assemblies and store for possible future use.
5. Remove the existing "even" number motor. This motor will not be needed.
6. Dress terminals removed from the motor around the tray harness and tape in place.
7. Mode the "odd" numbered motor to the center slot of the compartment.
8. Install the auger retainer (furnished as part of the conversion kit).
9. Install auger assembly (furnished as part of the conversion kit), making sure the motor coupling properly engages the motor and is securely snapped over the vertical rail or retaining rib on the tray. See **Figure 8**.
10. Replace the tray assembly into the vendor making sure that the tray is properly located and latched and connect the tray harness.
11. Set the selection to the desired vend price and adjust the price scroll to agree.
12. Test vend the converted selections for proper operation and price settings.

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

SNACK TO CANDY

1. Order the conversion kit from your local distributor or service entity.
2. Unplug and remove the tray assembly from the vendor. Place the tray harness in the tray before removal.
3. Remove the existing auger assembly and store for possible future use.
4. Remove the auger retainer and store for possible future use.
5. Move motor from the center slot to the left slot in the compartment.
6. Add the new motor (furnished as part of the conversion kit) in the right hand slot of the compartment.
7. Properly wire the motor and switch. Refer to schematic section for wire colors and locations.
8. Add the divider furnished as part of the conversion kit.
9. Install new auger assemblies (furnished in conversion kit), making sure the motor couplings properly engage with the motor and are securely snapped over the vertical rail (Figure ?) or retaining rib on the tray.
10. Replace the tray assembly into the vendor making sure that the tray is properly located and latched and connect the tray harness.
11. Set the selections to the desired vend price and adjust the price scrolls.
12. Test vend the converted selection for proper operation and price settings.

TRAY SPACING

By altering tray spacing, taller items can be vended. The trays can be raised or lowered in 1 inch (2.5 cm) increments to provide additional headroom for vending taller items. **When increasing the headroom between two trays, a corresponding decrease in headroom of an adjoining tray will result.**

CHANGE VERTICAL TRAY SPACING

1. Select the tray that needs adjusting. Remove any product from the tray.

2. Lift the front of the tray to expose the tray release levers located on the left and right tray rails. Swing the release levers all the way up to unlatch.

3. Lift up on the front of the tray and pull slightly forward approximately 1/2" inch (1.3 cm) to clear the tray stop.

4. Pull the tray out about halfway. Reach underneath the tray and squeeze the top and bottom of the tray harness plug (release tabs) and pull to disconnect it from the receptacle.

5. Pull the tray out until it tilts down. Lift the rear of the tray and remove it from the vendor.

6. Relocate both the left and right tray rails from the left and right side walls.

   a. Remove the tray rail mounting screws.

   b. Pull each rail forward to disengage its rear tab from the hole in the rear wall. See **Figure 9**.

   c. Insert rail to its new location by inserting the rear tab into the hole in the rear wall.

   d. **Rails must be level front to back and right side to left side.**

   d. Install the tray rail mounting screws.

7. Replace the tray by placing its rear rollers on the left and right rails. Connect the tray harness plug to its receptacle on the back of the cabinet by reaching underneath the tray.

8. Test vend the tray in its new position to assure that the tray plug is properly seated.
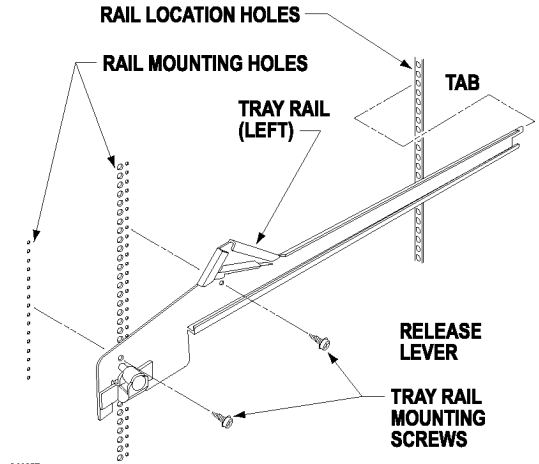

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Figure 9. Left Wall Tray Rail

RAIL LOCATION HOLES
RAIL MOUNTING HOLES
TRAY RAIL (LEFT)
TAB
RELEASE LEVER
TRAY RAIL MOUNTING SCREWS

COIN MECHANISM & BILL VALIDATOR

CAUTION: Do not plug in or unplug the coin changer with the power on!

The controller will monitor the condition of the coin changer at all times. Any activity (coins inserted) will be recorded and stored in the controller.

REMOVING ACCEPTED BILLS

Accepting bills may be removed by opening the "bill box" lid or by removing the bill box from the validator. (See manual from validator manufacturer).

If the bill box is removed, make sure that it is fully latched in place when it is returned to the validator.

CLEARING JAMS & CLEANING

Trapped bills, debris or dirt can result in poor bill acceptance or bill rejection. Remove the bill box and lower housing to clear trapped bills or debris. Clean the bill path plastic parts or belts with a cloth moistened with a mild soap and water solution. Clean the magnetic head and optic sensor using a swab and isopropyl alcohol. See manual from validator manufacturer.

CAUTION: Do not use any petroleum based cleaning solvents, scouring pads or stiff brushes for cleaning.

CONTROLLER

There are two modes of operation: **Sales Mode** and **Service Mode**.

SALES MODE

The vendor accepts deposits, pays out change, and dispenses products to customers. The 10 character scrolling display is used to communicate with the customer.

DISPLAY & VEND CYCLE

- When no credit has been established and a selection is made, the price for that selection displays for approximately one second.
- When credit is deposited, the amount displays. Five digits are available.
- After a selection is made, the controller will determine if sufficient credit is available. If the accumulated credit is greater than or equal to the price of the selection a vend attempt will take place. If credit is less than the selection price, the price will display and the display will scroll **"PLEASE INSERT MORE MONEY"**.
- After a successful vend, the amount of change to be returned will be displayed until all coinage is paid back.
- If a selection is made and a vend cannot take place, or the selection is empty (assuming that sufficient credit and change are available), then the **"MAKE ALTERNATE SELECTION"** message scrolls.
- If the payout tubes in the coin mechanism are below the low-level sensors, the **"USE CORRECT CHANGE"** message will scroll.
- If no motors have been assigned or if the motor has been recorded as faulty, the **"MAKE ALTERNATE SELECTION"** message scrolls.

JAMMED MOTOR CONDITION

The controller will not run motors that have been recorded as "jammed" or have not been assigned. A motor jam is detected when power is applied to a motor and the motor fails to return to the home position within about 9 seconds.

Motors recorded as inoperative can be reset by running a test vend of that particular selection. See the Test Vend Selections section of this manual.

VEND & CASH COUNTERS

Following a successful vend, the vend counter will be incremented by one (1) and the cash counter will be incremented by the price of the vended selection. The counter rollovers occur at 79,999,920 and $99,9999.95 respectively. **Test vends are not included in the counter totals**.

### RESETTABLE VEND AND CASH COUNTERS

The resettable counters track Total Vends dispensed and Total Cash collected since last reset. The vend count and cash totals will be available by individual selections, range (rows) and entire machine utilizing all the rows (i.e. row A to J for the combo vendor).

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

SERVICE MODE

The **SERVICE MODE** is used by the operator to change program settings and service the machine. The display is used to communicate with the operator.

Read the follow the basic programming instructions listed below to set prices, view and reset accounting records, display working motors, test selection motors, dispense coins from the coin mechanism and to set specific selections to vend bottles or cans. Please refer to the 120 Select Programming Manual (P/N 4212619) for additional programming instructions on how to access and use the various controller features.

BASIC PROGRAMMING INSTRUCTIONS

CONTROL COVER

SERVICE MODE BUTTON

POWER INDICATOR LIGHT

DEX PORT
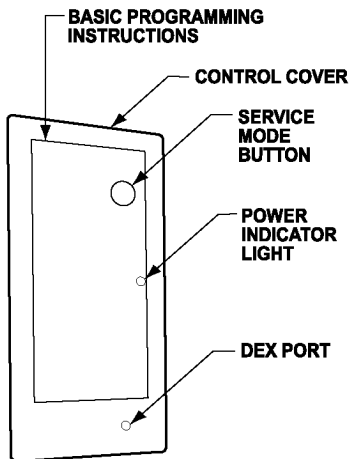
To enter the **SERVICE MODE**, push the red service mode button once (located on the control board). If credit exists when entering the **SERVICE MODE**, it will be restored when the machine is returned to the **SALES MODE**.

KEYPAD FUNCTIONS WHILE IN SERVICE MODE

A = ↑ Scrolls UP through a menu, sub-menu.

B = → Enters a menu, sub-menu or routine within a menu.

C = ↓ Scrolls down through a menu, sub-menu.

D = Saves a change within sub-menus or routines.

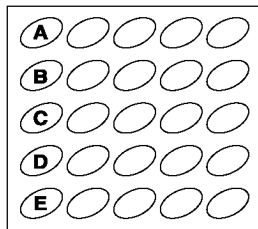E = Exits down a level from a menu, sub-menu or routine without making a change.

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Figure 11. Keypad in Service Mode

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Figure 10. Controller

SET PRICE

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓐ.	*MENU 2*
3	Press Ⓑ.	*SERV/CONTR*
4	Press Ⓒ.	*PRICE*
5	Press Ⓑ.	*ITEM(S)*
6	Press Ⓑ.	*SELECT --*
7	Press Ⓐ①1 for selection **A1**.	*SELECT A1*
8	Press Ⓓ.	
9	Input the desired price for selection **A1**.	*A1$000.50*
10	Press Ⓓ.	*SELECT --*
11	Repeat steps 7 through 10 for other selections.	
12	Press **Service Mode Button** ■.	(Sales Mode)

TEST VEND

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓐ.	*MENU 2*
3	Press Ⓐ.	*TEST*
4	Press Ⓑ.	*TEST VEND*
5	Press Ⓑ.	*SELECT --*
6	Press Ⓐ 1 for selection **A1**.	*SELECT A1*
7	Press Ⓓ. The selection and price will display with the test vend. A triple beep indicates that the selection did not properly vend.	*A1$000.50* / *SELECT --*
8	Repeat steps 6 through 7 for other selections.	
9	Press **Service Mode Button** ■.	(Sales Mode)

COIN PAY-OUT

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓒ.	*MOTOR*
3	Press Ⓒ.	*ACCOUNT*
4	Press Ⓒ.	*COIN*
5	Press Ⓑ.	*CPO*
6	Press Ⓑ.	*DISPENSE*
7	Press ①.	*DISPENSE*
8	Press ②.	*DISPENSE*
9	Press ③.	*DISPENSE*
10	Press ④.	*DISPENSE*
11	Press **Service Mode Button** ■.	(Sales Mode)

DISPLAY WORKING MOTORS

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓒ.	*MOTOR*
3	Press Ⓑ.	*MOTORS*
4	Press Ⓑ.	*MOTORS 000*
5	Press **Service Mode Button** ■.	(Sales Mode)

ACCOUNTING

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓒ.	*MOTOR*
3	Press Ⓒ.	*ACCOUNT*
4	Press Ⓑ.	*HIST SALES*
5	Press Ⓒ.	*MOTOR COUNT*
6	Press Ⓒ.	*RES SALES*
7	Press Ⓑ. Total Sales since last reset.	*$000000.00*
8	Press Ⓔ.	*RES SALES*
9	Press Ⓒ.	*RES COUNT*
10	Press Ⓑ. Total Vends since last reset.	*00000000*
11	Press Ⓔ.	*RES COUNT*
12	Press Ⓒ.	*RDR SALES*
13	Press Ⓒ.	*2ND VEND*
14	Press Ⓒ.	*SET RANGE*
15	Press Ⓒ.	*RANGE CASH*
16	Press Ⓒ.	*RANGEVENDS*
17	Press Ⓒ.	*CLEAR*
18	To clear all resettable values, press Ⓑ.	*CLEARED*
19	Press **Service Mode Button** ■.	(Sales Mode)

CAN/BOTTLE DEPTH

Can/Bottle must already be set to **ON** to access **DEPTH** setting. All can/bottle selections are factory set to **DOUBLE**; for vending 12 oz cans. Set selection to **SINGLE** is if vending 20 oz bottles.

STEP		DISPLAY
1	Press **Service Mode Button** ■.	*DIAGNOSE*
2	Press Ⓐ,Ⓑ,Ⓐ. Press Ⓑ,Ⓐ,Ⓐ,Ⓑ.	*MENU 3* / *ON*
3	Press Ⓐ.	*DEPTH*
4	Press Ⓑ.	*SELECT J1*
5	Press Ⓐ or Ⓒ. to scroll to another selection.	
6	Press Ⓑ.	*DOUBLE **
7	Press Ⓑ to change setting.	*SINGLE **
8	Press Ⓓ to save.	*SELECT J1*
9	Repeat **steps 5 through 8** for other can/bottle selections.	
10	Press Ⓔ to exit.	*DEPTH*
11	Press **Service Mode Button** ■.	(Sales Mode)

FOR ADVANCED PROGRAMMING ONLY

The following diagram illustrate the three main menu and sub-menu levels. Use the $\boxed{A}$ and $\boxed{C}$ keys to scroll through each menu or sub-menu. Use the $\boxed{B}$ key to move from menu to sub-menu levels. Refer to 120 Select Programming Manual (P/N 4212619) that shipped with your vendor for additional programming features.

SERVICE MODE BUTTON

DIAGNOSE — VMC CHECK & ERROR CODES
MOTOR — MOTORS / CONFIG
ACCOUNT — HIST SALES
COIN — CPO / TUBE FILL / UNCON ACCP / EXACT CHNG
TEST — TEST VEND / TEST RELAY
MENU 2

HIST SALES / HIST COUNT / RES SALES / RES COUNT / RDR SALES / 2ND SALES / SET RANGE / RANGE CASH / RANGEVENDS / CLEAR

A11221

MENU 1

MENU 2

SERV/CONTR
PRICE
OPTIONS
PROMO VEND
CONFIG — DEFAULT / MESSAGES / OPTIONS
MENU 3

BILL SCROW / FORCE VEND / MAX CHANGE / MULTI VEND / FREE PROD
OFF / RANGE

ITEM(S) / COMBO

DIAGNOSE / MOTOR / ACCOUNT / COIN / TEST / PRICE / OPTIONS / PROMO VEND / CONFIG / POS/AUX / TIME/DATE / SHUTDOWN / TEMPERATURE / DISCOUNT / AUTOREINST / COUPN/TOKN / CAN/BOTTLE / OPTIC

A11222

MENU 3

POS/AUX — POS / LANGUAGE / AUX
TIME/DATE — TIME / DATE / MONTH / YEAR / DAYLIGHT
SHUTDOWN — OFF / TIME / DAY / RANGE
TEMPERTURE — OFF / TIME / DAY / RANGE / VALUE
DISCOUNT
AUTOREINST — ON / RANGE
COUPN/TOKN — DEGREE F / SENSOR 1 / SENSOR 2 / SENSOR 3 / SENSOR 4 / PRIORITY
CAN/BOTTLE
OPTIC — OFF / RANGE — OFF / DEPTH — COUP VALUE / COUP RANGE / TOKN VALUE / TOKN RANGE

OFF / RANGE

A11223a

Figure 12. Program Menu Map

DEX/UCS

DEX/UCS or DEX stands for Data Exchange/Uniform Communications Standard. Within the vending industry, it defines the transfer of information/data between a Hand Held Computer (HHC) or data collector and the electronic vending machine. Please refer to DEX/UCS section of the 120 Select Controller Programming Manual (P/N 4212619) for the list of DEX/UCS field codes, descriptions and explanations.

TO INITIATE DATA EXCHANGE:

- The vending machine controller must be in Sales Mode.
- Use a connecting cable and plug in an HHC or data collector to the DEX port. The DEX port is located just below the instructional decal on the control board cover.
- The exchange of information will begin automatically. All resettable counters are automatically cleared (set to zero).

REFRIGERATION

REFRIGERATION CONTROL

When the temperature is above the cut-in setting, the unit is turned on. When the refrigeration unit reaches the cut-out setting, it is turned off. If the refrigeration unit runs for more than two hours without reaching the cut-out temperature, the unit is turned off for the programmed ten (10) minute defrost time. It will then be turned on automatically.

NOTE: **To prevent damage to the refrigeration unit when it is turned off or the power interrupted, the refrigeration unit will not restart for at least three minutes regardless of temperature.**

REFRIGERATION TROUBLESHOOTING

If the refrigeration unit is turned off or the power is interrupted, the refrigeration unit will not start for at least three minutes regardless of temperature to prevent damage to the refrigeration unit.

CAUTION: **Breaking the refrigerant joints or seals on the system voids the unit's warranty. Failure to keep the condenser coil clean and free of dirt, dust or other similar debris voids the unit warranty.**

Know and understand how the unit operates. Units may vary, but the operation is basically the same. Never guess at the problem. Find the symptom before attempting to repair. **Most refrigeration problems are electrical.**

The sealed hermetic system should not be worked on outside the Factory Service Center. There are three (3) things that can go wrong with a sealed system and should be repaired only at the Factory Service Center. These are the following:

1. **Low Charge** - usually caused by leaks. Look for oil around seals and welds. Unit will not cool properly. The capillary tube is frosted before it enters the evaporator inlet tube.

2. **Restriction in System** - unit frosts, then melts, not cooling properly.

3. **Bad Valves** - unit does not cool properly, noisy compressor.

COMPRESSOR WILL NOT START

Compressor has no power.
- Machine not plugged in.
- Tripped breaker or blown fuse.
- Faulty wall outlet.
- Short or open in power cord.
- Temperature sensor circuit is open (check with a Multi-Meter).
- Improper wiring.
- Low voltage: 5% below (check the power source with a Multi-Meter).
- Overload defective: Trips too fast (check overload with a Multi-Meter).

- Compressor has open windings (check windings with a Multi-Meter).
- Defective refrigeration relay.
- Unplug power to the machine. Remove the relay plate. Use an insulated jumper wire to short the wires on relay terminals 2 and 4, or 6 and 8, then restore power to the machine. The compressor should start, indicating a problem in the control circuit.
- Check relay terminals 1 to 0 with a Multi-Meter. Should have a 24VDC applied to them.
- No DC voltage (check control board output terminal or a loose connection).

COMPRESSOR TRIPS ON OVERLOAD

- Improper voltage: 5-10% above, 5% below (check power source with Multi-Meter).
- Overload defective. Trips too fast (check overload with Multi-Meter).
- Short in other component: Isolate and eliminate each electrical component until short is found.

- Compressor is too hot.
  › Dirty condenser.
  › Faulty condenser motor or blade.
  › Restricted airflow.

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

NOISY OR VIBRATING UNIT

- Components rubbing or touching each other.
  – Check fan blades and motor.
  – Loose shrouds and harness.
  – Copper tubing.
  – Loose or unsecured parts.
  – Dirty condenser fan blades.

- Worn or aged compressor grommets.
- Compressor
  – Bad valves.
  – Slugging.
  – Bad windings. (See schematic).
  – Low voltage

UNIT SHORT CYCLES

- Temperature sensor defective or not mounted in the return air duct.
- Defective control board
- Temperature setting set too warm. See Refrigeration Settings section of this manual.

UNIT OPERATES LONG OR CONTINUOUSLY

- Temperature sensor defective or not mounted in the return air duct.
- Refrigeration relay shorted.
- Air flow restricted.
  - Faulty evaporator motor or blades causing coils to ice.
  - Loose connections on evaporator motor (1 motor not running).
  - Airflow blocked by product in front of evaporator or air duct openings.
  - Exhaust area blocked (machine too close to wall).
- Gasket leak around door.
- Excessive load: After loading, unit runs longer to pull out excessive heat from product.
- Shortage of refrigerant or restriction.
- Bad controller.
- Ambient air temperature and relative humidity exceed manufacturer's operational standards.

REFRIGERATED SPACE TO COLD

- Temperature sensor defective (check with Multi-Meter).
- Refrigeration control setting too cold (see Refrigeration Settings section of this manual).
- Refrigeration relay bad (check with Multi-Meter).
- Faulty control board.

REFRIGERATED SPACE TOO WARM

- Temperature sensor defective (check with Multi-Meter).
- Refrigeration control setting too warm (see Refrigeration Settings section of this manual).
- Refrigeration relay bad.
- Faulty control board.
- 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.
  - Capillary tube will start frosting 8 to 10 inches (20-25 cm) past evaporator connection tube.
  - Check for oil around brazed connections.

TROUBLESHOOTING CIRCUITS WITH MULTI-METER

- To check the power source, use the voltage section of the Multi-Meter (should measure within 5-10% above, 5% below).
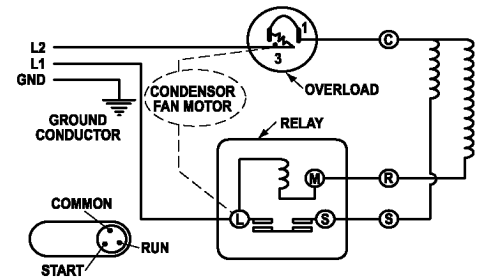- Check overload.

> **CAUTION: 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.

> **WARNING: Wiring diagrams must be followed as shown. Any Wrong wiring can cause serious electrical hazard and potential damage or rupture component electrical parts.**

APPROXIMATE WINDING RESISTANCE ACROSS TERMINALS

COMMON TO START	12 Ohms
COMMON TO RUN	2 Ohms
RUN TO START	14 Ohms
COMMON TO SHELL	No Continuity

- Check relay (see **Figure 13**). Unscrew lead terminals and remove relay from compressor.
  Keep relay upright.
- Check terminals 1 and S, or L and S with the Multi-Meter. Replace relay if continuity exists.
- Check temperature sensor with a Multi-Meter.
- Check compressor windings as shown in **Figure 13**.
- Check winding resistance with a Multi-Meter. If readings are not within 2 Ohms, the compressor is faulty. Use RX1 scale.

Figure 13. Compressor Schematic

CARE & CLEANING

> **CAUTION: Always disconnect power source BEFORE cleaning or servicing.**

ONCE A MONTH

- **Clean Cabinet Interior** - Wash with a cleaning solution of mild detergent and water, rinse and dry thoroughly. Odors may be eliminated by including baking soda or ammonia in the cleaning solution. Plastic parts may be cleaned with a quality plastic cleaner. Keep delivery slide area free of dirt and sticky substances. Remove and clean condensate drain hose to eliminate any deposits that my restrict condensate water flow.

> **WARNING: Do not get the cleaning solution on electrical components.**

- **Snack Compartment** - The vend mechanisms and trays must be wiped clean of dirt and sticky substance. Any build-up can cause the mechanisms to malfunction.
- **Can/Bottle Compartment** - The can/bottle racks must be wiped clean of dirt and sticky substances.
- **Clean Cabinet Exterior** - Wash with a mild detergent and water. Rinse and dry thoroughly. Clean occasionally with a quality car wax. Plastic exterior parts may be cleaned with a quality plastic cleaner.

EVERY 3 MONTHS

- Clean Refrigeration Intake Screen.
- Remove screen and clean dust and debris from screen using a soft bristle brush or a vacuum cleaner.

EVERY 6 MONTHS

- Clean The Condenser Coil and Rear Exhaust System.
- Remove the Cover Assembly and clean the condenser coil of the refrigeration unit using a soft bristle brush and/or vacuum cleaner.
- Pull the refrigeration unit and clean the rear exhaust screen of dirt and debris.
- Do not block the evaporator or any area of the airflow with product or supplies.

-13-

PARTS ORDERING PROCEDURE

PLEASE HAVE THE FOLLOWING INFORMATION:

- The model and serial numbers of the machine for which the parts are needed.

- The correct part number and description from the parts manual. If you do not have the parts manual for your machine, go online to www.vendnetusa.com or contact VendNet™ and we will be happy to assist you.

  NOTE: When right or left is used with the name of a part, it means the person is facing the machine with the door closed.

- Shipping address.
- Address where the invoice should be sent.
- The number of parts required.
- Any special shipping instructions.
- Specify the desired carrier: air or air special, truck, parcel post or rail.
- If a purchase order number is used, be sure that it is visible and legible.

PARTS ORDER OPTIONS:

- Website: **www.vendnetusa.com**. Browse the parts manuals. Place a secured order online using your credit card or VendNet™ account.

- Email: **vendnet@vendnetusa.com**. Please note that this is not as secure as placing an order online.

- Phone:
  USA & Canada .... (888) 259-9965
  International .... (515) 274-3641
- Fax: (515) 274-5775
- Mail: VendNet™
  165 North 10th Street
  Waukee, IA 50263
  USA

BEFORE CALLING FOR SERVICE

PLEASE CHECK THE FOLLOWING:

- Does your machine have at least 6 inches of clear 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: DO NOT use extension cords. Extension cords could cause problems.

- Is the evaporator coil free of dust and dirt?
- Is the condenser coil free of dust and dirt?

- Is the circuit breaker at the fuse box reset?

- Are evaporator fans running? To check if fans are running, take a small piece of paper in front of the evaporator coil and see if the evaporator fans will blow the paper away.

- 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 of tools, products or other air restricting items?

- Is the cold control set as specified?

  NOTE: Setting the temperature colder does not accelerate cooling of product.

TO CALL FOR SERVICE:

- Have model number and serial number.
- Call phone number listed below.

  USA & Canada .... (800) 833-4411
  International .... (515) 274-3641

Vend*net*
A WITTERN GROUP COMPANY

VendNet™
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Number One In Quality

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Parts	**(888) 259-9965**	
Email	**vendnet@vendnetusa.com**	
Web Site	**www.vendnetusa.com**	