SNACK VENDING MACHINE
SERVICE MANUAL

AMBIENT & CHILLED
GVC1 CONTROLLER

Models:
3 Wide Ambient 3503/3503A
4 Wide Ambient 3504/3504A

INTRODUCTION

This manual contains instructions, service and installation guidelines for the Round Front Snack product line. All Round Front Snack models are equipped with an electronic control system. All programming of vend the vend functions, pricing and features are done at the controller Changes can be made without any additional accessories or remote parts. Selections can be priced individually from $.05 to $99.95 in five cent increments (US currency). When adapted to accept international or foreign currency, the maximum vend price will be 255 times the smallest denomination of coin being accepted. Cash accountability records Total Cash transactions and Total Vend cycles performed by the vending machine. Information for individual selections, complete rows or total machine can be compiled and used for inventory and ordering records. Electrical malfunctions are recorded and displayed when the machine is placed in Service Mode. Non-functional motors or selections are indicated. Each selection has an individual motor. Functional selections will continue to operate if other motors become non-functional. The vending sequence is "first-in, first-out" for each selection, eliminating the need for stock rotation to maintain fresh products in the vending area. The temperature is controlled electronically on models equipped with Chiller Option. The iVendÎ Optical Sensing Option assures that the customer receives a product or get their money back. Read this manual thoroughly. Become familiar with the machine's components and features. The initial set-up of a vending machine is a very important step of insuring that the equipment operates in a trouble-free manner. Follow the instructions for the initial installation of the machine to avoid service problems and minimize set-up time. Access to the service area of this machine should only be permitted to individuals having knowledge and practical experience of the machine, in particular as far as safety and hygiene are concerned.

UNPACKING

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

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

NOTE: If the power supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified individual in order to avoid hazard.

Remove the õKnock-A-Way support by placing a 2x6 under the vending machine. Insert a large screwdriver or prying tool into the groove and split it in two. Turn the leveling screws as far as possible. See FIGURE 1.
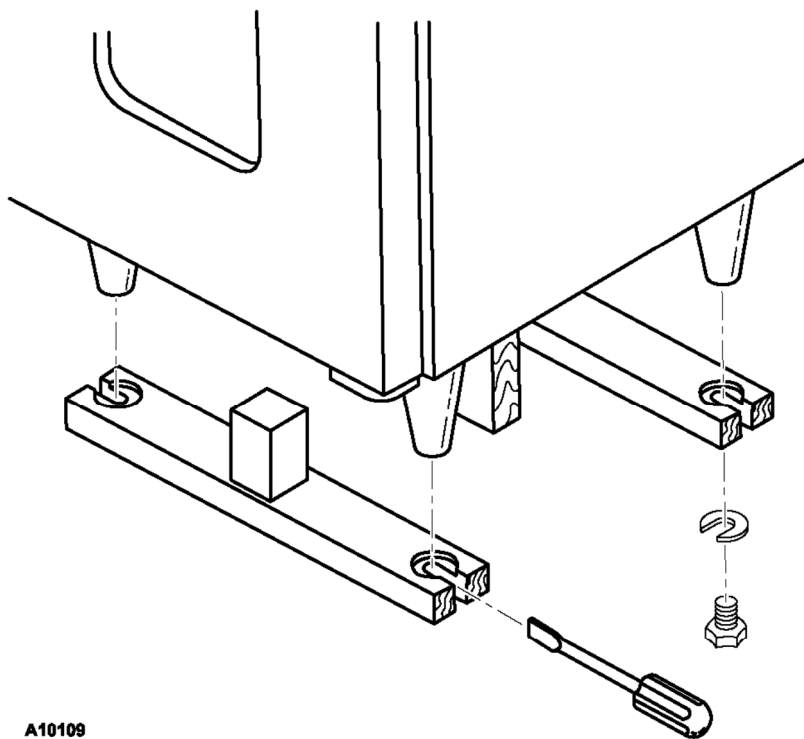
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FIGURE 1. REMOVE SHIPPING SKIDS

INSTALLATION

Position the vending machine in its place of operation no further than nine (9) feet from the power outlet or receptacle and check that the door will open fully without interference. Leave at least six (6) inches of space between the back of the machine and any wall or obstruction for proper air circulation. Level the vending machine, making sure all levelers are touching the floor. The vending machine must be level for proper operation and acceptance of coins through the coin changer. Retrieve the keys to the vending machine from the coin return cup. Open outer door and remove all internal packing material. Consult local, state and federal codes and regulations

before installation of the vending machine.

GROUNDING (EARTHING) & ELECTRICAL

Refer to the Safety Manual and Installation Guidelines manual (PIN 4206816) that shipped in the service package with your machine. Before connecting the vending machine, the integrity of the main electrical supply must be checked for correct polarity, presence of ground (earth) and correct voltage. These checks should be repeated at six (6) month intervals with the routine safety electrical testing of the vending machine itself. If the receptacle is not properly grounded or polarized, you should contact a licensed electrician to correctly polarize and/or ground the receptacle to ensure safe operation. A noise suppressor has been installed in this machine to compensate for any mains signal noise that could interfere with the normal operation of the controller. For proper operation of any equipment utilizing electronically controlled components, the equipment should be placed on an isolated or dedicated noise free circuit, properly polarized and grounded. Refer to Electrical Specifications on this sheet to determine circuit amperage and protection.

LOADING PRODUCTS

To load products, lift the tray slightly and pull forward until the tray stops. The uppermost trays tilt for easier loading. Load product from front to back making sure all items fit freely between the augers. Do no 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 2.
The size of the item being vending vended must be larger than the diameter of the auger being used to vend properly. Undersize items could cause vend problems. If the product does not fit the auger properly, use a different pitched auger. See Table I for augers available from your distributor or service entity.
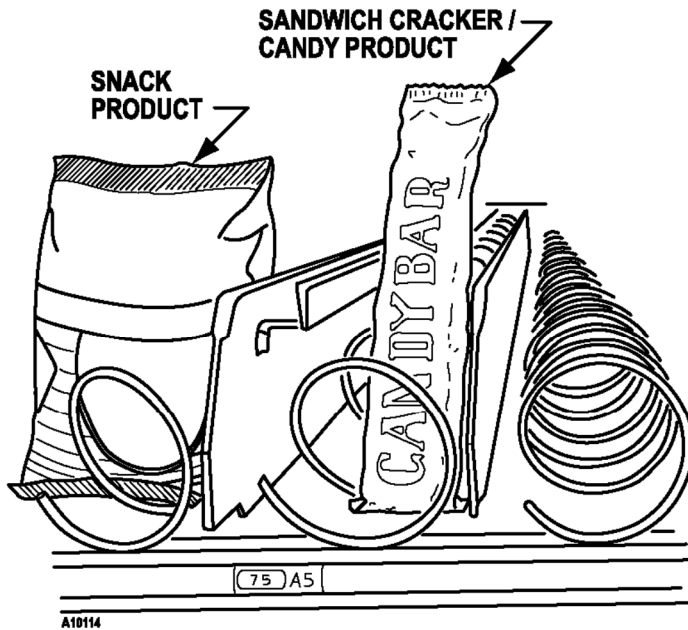
FIGURE 2. LOADING PRODUCTS

Table 1. Available Augers

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

TRAY ADJUSTMENTS

By re-timing the augers, difficult to vend items can be dispensed more dependably. By altering tray spacing, larger items can be vended. By changing the tray configuration, different product mixes can be accommodated.

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

o'clock position.
To change the auger end position:
1. Remove the motor cover. See FIGURE 3.
2. Raise the motor slightly and pull forward on the auger until it separates from the motor.
3. Rotate the auger to the desired position and re insert the auger coupling into the motor.
4. Make sure the auger coupling is seated over the vertical rail or retaining rib on the tray.
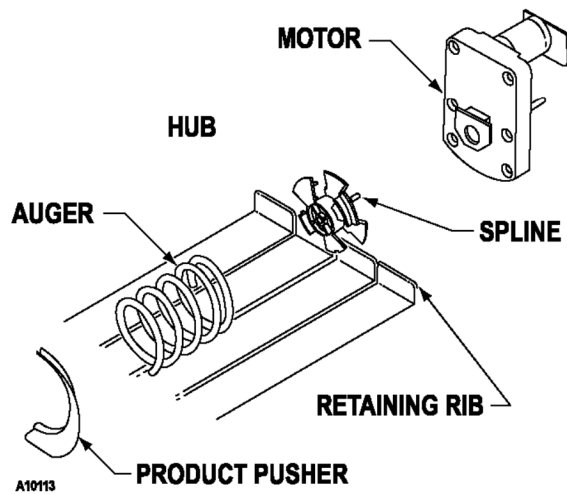5. Replace the motor cover making sure it is securely tightened.

FIGURE 3. MOTOR & AUGER

TRAY SPACING
The trays can be adjusted up or down in one inch increments to provide additional headroom for vending taller products. When increasing the height in one area, the same amount of room will be lost at the tray above or below the one being adjusted.

3 WIDE & 4 WIDE TRAY **SPACING ADJUSTMENTS**
1. Pull out the tray to be adjusted until it stops.
2. Disengage the tray harness from its snap-open harness clamp on the right side wall.
3. Disconnect the tray plug from its receptacle on the right side wall.
4. Lift up on the front of the tray and pull slightly approximately 1/2 inch (1 cm) forward to clear the tray stop.

5. Lift up on the rear of the tray and remove it from the vending machine.
6. Disengage both left and right tray rails from their corresponding slots on the left and right side walls by pulling inward on the bottom front of each rail and lifting its flange out of the slot.
7. Pull each rail forward to disengage its rear tabs from the hole in the rear wall.
8. Relocate both left and right rails by reversing steps 6 and 7.
9. Replace the tray by placing its rear rollers on the left and right rails and lift up on the front of the tray as it is pressed back.

10. Install the tray plug into its receptacle on the right side wall.
11. Reengage the tray harness into its harness clamp and snap the clamp closed.
12. Test vend the tray in its new position to assure that the tray plug is properly seated.
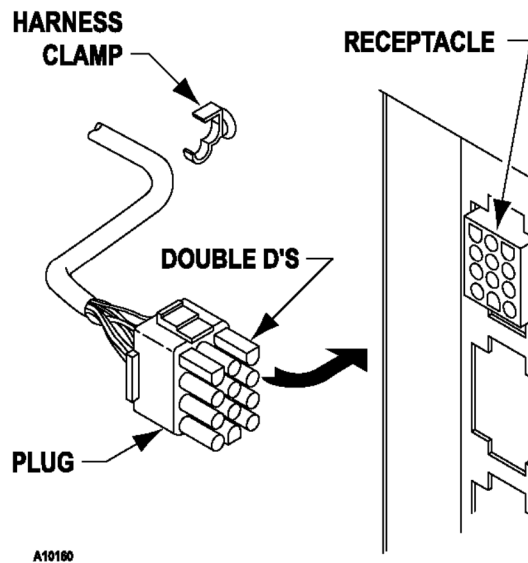
HARNESS CLAMP

RECEPTACLE

DOUBLE D'S

PLUG

A10160

FIGURE 4. TRAY HARNESS

5 WIDE TRAY SPACING ADJUSTMENTS

1. Pull out the tray to be adjusted until it stops.
2. Locate the harness clamp on the right side wall. See FIGURE 4.
3. Open the harness clamp by pressing up on the tab.
4. Unplug the "Double D" tray plug from its receptacle on the right side wall.
5. Lift up on the front of the tray and pull slightly approximately 1/2 inch (1.3 cm) forward to clear the tray stop.

6. Locate the release lever on the left and right tray rails. See FIGURE 4. Swing levers all the way up to
7. Lift up on the rear of the tray and remove it from the vending machine.
8. Relocate both left and right tray rails from the left and right side walls.
a. Remove tray mounting screws.
b. Pull each rail forward to disengage its rear tab from the hole in the rear wall. See FIGURE 5.
9. Relocate both left and right rails by reversing step 8. Rails must be level from front to back and right to left.
10. Replace the tray by placing its rear rollers on the left and right rails and lifting up on the front of the tray as you push it back.
11. Swing the tray release levers all the way down.

12. Install the tray plug into its receptacle on the right side wall.
13. Reengage the tray harness into its harness clamp and snap the clamp closed.
14. Test vend the tray in its new position to assure that the tray plug is properly seated.

RAIL LOCATION HOLES
RAIL MOUNTING HOLES
TRAY RAIL (LEFT)
TAB
RELEASE LEVER
TRAY RAIL MOUNTING SCREWS
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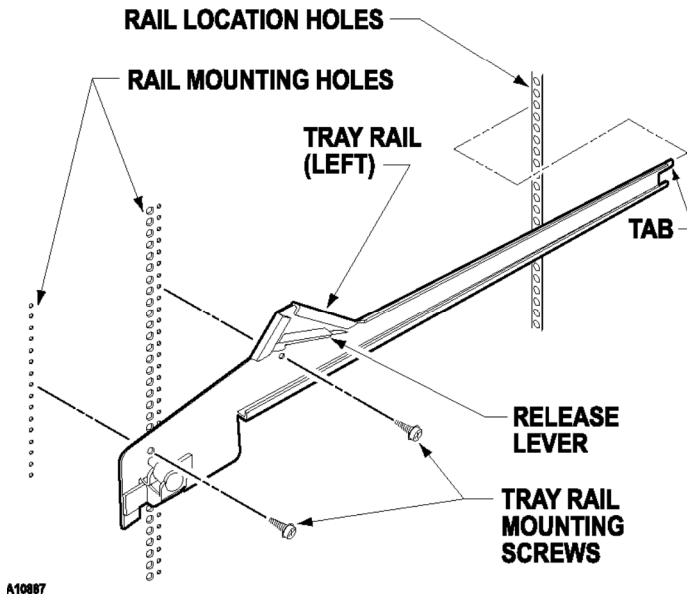
FIGURE 5. TRAY RAILS

CANDY TO SNACK

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

1. Order the conversion kit from your local distributor or service entity.
2. Unplug and remove the tray assembly from the vending machine. Place the tray harness in the tray before removal.
3. Remove the motor cover by pulling up on the front edge of the cover to clear the stop and then pull forward on the cover.
4. Remove existing ray divider and discard.
5. Remove existing auger assemblies and discard.
6. Remove the existing "even" numbered motor. This motor will not be needed.
7. Tape or secure the terminals removed from the motor out of your way.
8. Move the "odd" numbered motor to the center slot of the compartment.
9. Install the auger retainer furnished as part of the conversion kit.
10. Install the auger assembly furnished as part of the conversion kit, making sure the motor coupling properly engages the motor and is securely snapped over the vertical rail or retaining rig on the tray.
11. Re-assemble the motor cover removed in step 3.
12. Replace the tray assembly into the vending machine making sure that the tray is properly located and latched and connect the tray harness.
13. Set the selection to the desired vend price and adjust the price scroll to the same price. In large item selections, the selection numbers will be the "odd" numbers. For example, selections 23 and 24 are converted to a single selection, 23.
14. Test vend the converted selection for proper operation and price settings.

SNACK TO CANDY

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

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

CONTROLLER FUNCTIONS

This vending machine is equipped with a GVCI Controller
SALES MODE
The machine automatically defaults to Sales Mode after it is turned on. The vending machine accepts deposits, pays out change and dispenses product to the customer.
DISPLAY CREDIT
If credit has not been established and a selection is made, then the price for that selection is displayed briefly. When money or credit is accepted, then the amount of credit is displayed. If the payout tubes in the coin mechanism are below the low-level sensors, the indicator light "USE EXACT CHANGE" will light up.
MAKE SELECTION
If a selection is made and the accumulated credit is greater than or equal to the price of the selection, then a vend attempt will take place. If credit is less than the selection price, the price is displayed and will flash.
VEND CYCLE
If the machine is equipped with the iVendÎ Optical Sensor Option, then all selections have been assigned at the factory for optical sensing. These machines will have an associated vend operation that differs from the normal vend operation. At the start of a vend, the iVendÎ Optical Sensor will be checked for blockage. If iVendÎ sensors are blocked or if iVendÎ Option is not present - then the normal home-switch- vend cycle will be used and the optical sensors are ignored. Both the vend motor and a vend timer are started.
• The selection motor rotates to the home-switch position.
• If there is a home-switch signal, then the vend is considered successful.
• If there is no home-switch signal and the vend timer has expired, then the vend failed. The vend motor is shut down and "MAKE ANOTHER SELECTION" indicator light is turned on. The customer can press selection buttons to activate this or another

motor or they can press the coin return button. Force Vend is overridden.

If iVend™ sensors are not blocked - then the iVend™ Optical Sensors are used. The vend motor and a vend timer are started.
• The selection motor rotates to the home-switch position.
• If a product is detected during this time period, then the vend is considered successful.
• If after reaching the home-switch position and a product is not detected, then the vend motor will pause while the controller continues to monitor the optical sensor for the product delivery.
• If a product is detected during this pause, then the vend is considered successful.
• If a product is not detected, then the controller initiates a second vend cycle and vend timer while continuing to monitor the optical sensor.
• If a product is detected during the second vend cycle, the motor is stopped immediately. The vend is considered successful.
• If a product is not detected and the motor reaches the home-switch position or if the vend timer runs out, then the vend has failed or the selection is sold out. Such a state will turn on the "MAKE ANOTHER SELECTION" indicator light. The amount of credit is displayed. The customer can press selection buttons to activate this or another motor or they can press the coin return button.

CREDIT & COUNTERS
After a successful vend, the amount of remaining credit is displayed until all coinage is paid back. The total non-resettable vend count is incremented by one (1) and the total non-resettable cash value is incremented by the price of the vended selection. The counter rollovers occur at 999,999 and **$999,999.99** respectively. The re-settable vend count is incremented by one. The re-settable total cash value is incremented by the price of the vended selection. If never reset, the counter rollovers occur at **999,999** and **$999,999.99** respectively. Test vends are not included in the counter totals.

SERVICE MODE
The Service Mode is used to access the programming features of the controller: set price, test vend, retrieve accounting information or set custom program settings. If credit exists when entering the Service Mode, it will be restored when the machine is return to Sales Mode.

SERVICE MODE BUTTON
The Service Mode Button is located near the top right corner of the controller cover. Press the button to access the Service Mode programming features. Press the button again to exit and return to Sales Mode. If no key is pressed within 60 seconds while in Service Mode, then the controller automatically exits to the Sales Mode.

KEYPAD
While in Service Mode, the keypad is used to navigate between the menu features and is also used as an input device for keying in numerical values as required by the controller program.

DISPLAY

Watch the display after pressing the Service Mode Button and/or keypad buttons.

PROGRAMMING
Refer to the basic programming steps (on back page) or on the control cover label. Press the Service Mode Button, watch the Display and use the Keypad.
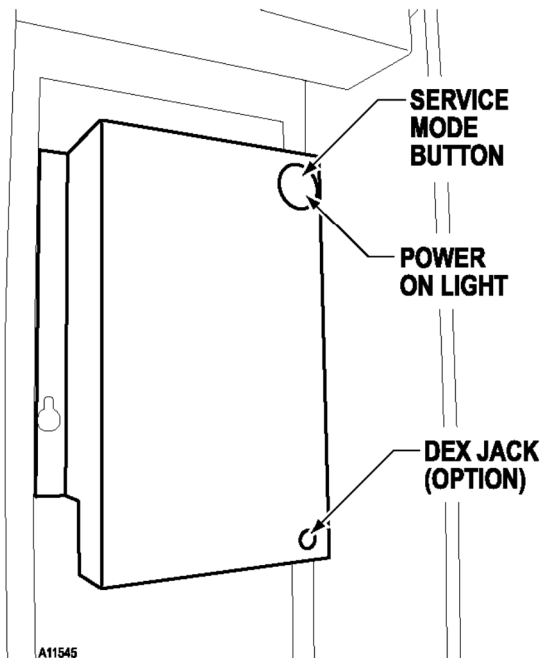
FIGURE 6. CONTROLLER COVER
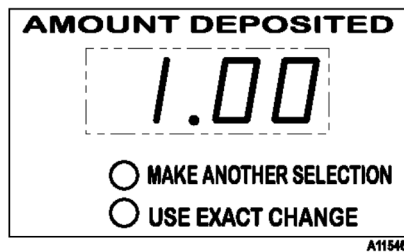
FIGURE 7. DISPLAY

DISPENSE COINS
Manually dispense coins from the coin mechanism.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 1.	Coin
3	Press 1 to dispense quarters (25¢).	
4	Press 2 to dispense quarters (10¢).	
5	Press 3 to dispense nickels (5¢).	
6	Press * twice to stop test and exit.	0.00

FORCE VEND
This feature would require the customer to purchase an item from the vendor once credit equal to or greater than the highest selection price has been deposited.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 1.	Frcn
4	Press 1 to toggle ON or OFF. Note: Frcn = NO (OFF), Frcy = YES (ON).	Frcy
5	Press * twice to exit.	0.00

MULTI VEND
Multi Vend feature will hold the change (credit), allowing the customer to make more than one vend provided there is sufficient credit remaining.

|	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 3.	NULn
4	Press 3 to toggle ON or OFF. Note: NULn = NO (OFF), NULy = YES (ON).	NULy
5	Press * twice to exit.	0.00

FAST CHANGE
Allows the vending machine to give change immediately after the customer makes a selection. If Fast Change is ON, it will override the Multi Vend feature.

|	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 5.	FChn
4	Press 5 to toggle ON or OFF. Note: FChn = NO (OFF), FChy = YES (ON).	FChy
5	Press * twice to exit.	0.00

SNACK CONFIGURATION
The controller has been factory configured to operate as a snack vending machine. Follow the steps below to restore the controller to snack machine operation.

|	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 4.	CbS
3	Press 3 to view setting.	ALL
4	Press 1 to toggle snack, bottle or can vendor. Note: CAn = Can, bott = bottle, SnAc = Snack.	SnAc
5	Press * three times to exit.	0.00

KEYPAD BACKLIGHT
This menu controls the intensity level of the keypad backlight.

|	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 9 to view the setting.	bL 3
4	Press 9 to again and again to change setting. Note: bL 0=OFF, bl 1= Low, bl 2=Med, bl 3=High, bL 4=Max.	bL 0
5	Press * twice to exit.	0.00

MOTOR COUNT
Displays the total count of working motors.

|	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 2 and wait a few seconds.	Cnt
		40
3	Press * to exit.	0.00

BILL ESCROW
This feature will hold a bill in escrow (mechanically) until either a vend is performed or the return credit lever is pressed. This prevents the customer from using the vending machine as a bill changer.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 2.	ESCy
4	Press 2 to toggle ON or OFF. Note: ESCn = NO (OFF), ESCy = YES (ON).	ESCn
5	Press * twice to exit.	0.00

FREE VEND
This feature allows the customer to vend any selection item for free.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 4.	FrEn
4	Press 4 to toggle ON or OFF. Note: FrEn = NO (OFF), FrEy = YES (ON).	FrEy
5	Press * twice to exit.	0.00

OPTICS
Optics must be ON if the machine is equipped with an optional iVend™ optical sensor system.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 6.	oPty
4	Press 6 to toggle ON or OFF. Note: oPtn = NO (OFF), oPty = YES (ON).	oPtn
5	Press * twice to exit.	0.00

POINT OF SALE MESSAGE
For Can/Bottle Machines Only. Turns OFF (or ON) the default flashing display message.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 7.	POSy
4	Press 7 to toggle ON or OFF. Note: POSn = NO (OFF), POSy = YES (ON).	POSn
5	Press * twice to exit.	0.00

TARGET TEMPERATURE
For snack machines with chiller option only.

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 3.	OPtn
3	Press 8.	36F
4	Press 8 to increase the temperature up to 62°F, then starts again at 34°F.	
5	Press * twice to exit.	0.00

SET PRICE
BY SELECTION

	STEP	DISPLAY
1	Press Service Mode Button ⬛.	40
2	Press 5.	Prc
3	Press 1.	EACH
4	Press selection number on keypad.	
5	Enter new price of selection.	.75
6	To erase, press * then go to step 5.	
7	Press # to accept price.	--
8	Repeat steps 4 thru 7 for other selections.	
9	Press * twice to exit.	0.00

SET PRICE
BY ROW (SHELF/TRAY)

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 5.	Prc
3	Press 2.	ro -
4	Press the row (shelf/tray) number. Example: Top row = 1, row below top row = 2, etc...	.75
5	Enter new price of each selection in row (shelf/tray).	
6	To erase, press * then go to step 5.	
7	Press # to accept new price.	ro -
8	Repeat step 4 thru 7 for other rows.	
9	Press * twice to exit.	0.00

SET COUPON VALUE

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 5.	Prc
3	Press 4.	CPn1
4	Press 1 thru 5 to select coupon number.	
5	Press # to view or set price (value) of coupon.	1.00
6	Enter new price (value) of coupon.	
7	To erase, press * and repeat step 6.	
8	Press # to accept coupon price.	CPn1
9	Repeat steps 4 thru 8 to set price values of other coupons.	
10	Press * twice to exit.	0.00

ACCOUNTING
TOTALS BY SELECTION

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 6.	Acct
3	Press 1.	EACH
4	Press the selection number.	
5	Press 1 for total non-resettable vend count.	
6	Press 2 for total non-resettable cash value.	
7	Press 3 for total resettable vend count.	
8	Press 4 for total resettable cash value.	
9	Press 5 # to clear the resettable counters.	Clr? Clrd
10	Press # for other selections and go to step 3.	Acct
11	Press * three times to exit.	0.00

ACCOUNTING
TOTALS OF ENTIRE MACHINE

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 6.	Acct
3	Press 3.	ALL
4	Press 1 for total non-resettable vend count.	
5	Press 2 for total non-resettable cash value.	
6	Press 3 for total resettable vend count.	
7	Press 4 for total resettable cash value.	
8	Press 5 # to clear the resettable counters.	Clr? Clrd
9	Press * three times to exit.	0.00

DIAGNOSTICS

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 0.	diaG
3	Press 1 to perform a self diagnostic test.	tESt 40
4	Press * twice to exit.	0.00

SET PRICE
OF ENTIRE MACHINE

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 5.	Prc
3	Press 3.	ALL
4	Enter new price on keypad.	.75
5	To erase, press * then repeat step 4.	
6	Press # to accept price.	40
7	Press * to exit.	0.00

SET TOKEN VALUE

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 5.	Prc
3	Press 5.	thn1
4	Press 1 thru 5 to select token number.	
5	Press # to view or set price/value of token.	1.00
6	Enter new price/value of token.	
7	To erase press * and repeat step 6.	
8	Press # to accept token price.	thn1
9	Repeat steps 4 thru 8 to set price values of other tokens.	
10	Press * twice to exit.	0.00

ACCOUNTING
TOTALS BY ROW

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 6.	Acct
3	Press 2.	ro
4	Enter the row (shelf/tray) number.	
5	Press 1 for total non-resettable vend count.	
6	Press 2 for total non-resettable cash value.	
7	Press 3 for total resettable vend count.	
8	Press 4 for total resettable cash value.	
9	Press 5 # to clear (reset) the resettable counters.	Clr? Clrd
10	Press # for other row and go to step 3.	Acct
11	Press * three times to exit.	0.00

COIN TUBE FILL

The coin mechanism will keep track of the exact number of each coin as coins are added through the coin insert. Denominations do not have to be added in order. The control board will keep track of each coin as it is paid out.

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 7.	tUFL
3	Add 5 coins of each through the coin insert: 25¢, 10¢ and 5¢.	
4	Press * twice to exit.	0.00

TEST SINGLE MOTOR

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 8.	SLct
3	Press selection number on keypad.	--
4	Repeat step 3 to test other selections.	
5	Press * twice to stop test and exit.	0.00

TEST ALL MOTORS

	STEP	DISPLAY
1	Press Service Mode Button ▣.	40
2	Press 9. Motor selection number will display while it is being tested.	All
3	Press * twice to stop test and exit.	0.00

CHILLER OPTION

OPERATION

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 the temperature. When the temperature is above the cut-in temperature programmed, the unit is turned on. When the refrigeration unit reaches the cut-out temperature, 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 (15) minute defrost time. It will be turned on again automatically.

TROUBLESHOOTING

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. This is done to prevent damage to the refrigeration unit. 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. This is done to prevent damage to the refrigeration unit. Know and understand how the unit operates. Units may vary, but the operation is basically the same. Never guess at the problem. Find the symptom before attempting any repair.

NOTE: Most refrigeration problems are electrical.

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:

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.

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

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. Press "0" on keypad. If error code "---F" or "---C" is displayed after pressing the "0" key on the keypad, then 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 the Multi-Meter.

• Overload defective: Trips too fast. Check overload with the Multi-Meter.

• Start relay defective. Check start relay with the Multi-Meter.

• Compressor has open windings. Check compressor windings with a Multi-Meter.

• Defective refrigeration relay.

• Unplug power to the machine. Remove the relay plate. Use an insulated jumper wire to short the wires on relay terminals 2 and 4 or 6 and 8, then restore power to the machine. The compressor should start, indicating a problem in the control circuit.

• Check relay terminals 1 to 0 with a Multi-Meter. Should have 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 airflow.

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

NOISY OR VIBRATING UNIT

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

2. Worn or aged compressor grommet.

3. Compressor
   • Bad valves.
   • Slugging.
   • Bad windings. See schematic. Figure 8.
   • Low voltage.

UNIT SHORT CYCLES

1. Temperature sensor defective or not mounted in the return air duct.

2. Defective control board.

3. Temperature setting too warm. See Refrigeration Settings section of this manual.

UNIT OPERATES LONG OR CONTINUOUSLY

1. Temperature sensor defective or not mounted in the return air duct.
2. Refrigeration relay shorted.
3. Airflow restricted.
   - Faulty evaporator motor or blades causing coils to ice.
   - Loose connections on evaporator motor. One motor not running.
   - Airflow blocked by product in front of evaporator or air duct openings.
   - Exhaust area blocked. Machine too close to the wall.

4. Gasket leak around door.
5. Excessive load: After loading, unit runs longer to pull out excessive heat from product.
6. Shortage of refrigerant or restriction.
7. Bad controller.
8. Ambient air temperature and relative humidity exceed manufacturer's operational standards.

REFRIGERATED SPACE TOO COLD

1. Temperature sensor defective. Check with Multi-Meter.
2. Refrigeration control setting too cold. See Temperature Mode section of this manual.

3. Refrigeration relay bad. Check with Multi-Meter.
4. Faulty control board.

REFRIGERATED SPACE TOO WARM

1. Temperature sensor defective. Check with Multi-Meter.
2. Refrigeration control setting too warm. See Temperature Mode section on this manual.
3. Refrigeration relay bad.
4. Faulty control board.
5. Restricted evaporator space.
   a. Evaporator motor blades faulty, causing the coils to ice over the evaporator.

   b. Condenser airflow restricted.
      - Plugged or dirty condenser.
      - Condenser motor blades bad.
      - Blade stuck.
   c. Condensing space restricted.
      - Unit placed too close to a wall.
   d. Compressor - bad valves.
      - Capillary tube will start frosting 8 to 10 inches (20-25 cm) past evaporator connection tube.
      - Check fro oil around brazed connections.

TROUBLESHOOTING CIRCUITS WITH MULTI-METER

1. To check the power source, use the voltage section of the Multi-Meter. Should measure within 5-10% above, 5% below.
2. Check overload. CAUTION: Power must be off and fan circuit open.

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

3. Check the relay. See FIGURE 8. Unscrew lead terminals and remove relay from compressor. Keep relay upright. Check terminals I and 5, or L and S with the Multi-Meter. Replace relay if continuity exists.
4. Check Temperature sensor with a Multi- Meter.
5. Check compressor windings as shown in FIGURE 8.
6. Check winding resistance with a Multi- Meter. Use RXI scale. If readings are not within 2 Ohms, the compressor is faulty.

WARNING: Wiring diagrams must be followed as shown. Any mis-wiring can

cause serious electrical hazard and potential damage or rupture component electrical parts.

Table 2. Winding Resistance

APPROXIMATE RESISTANCE ACROSS TERMINALS	
COMMON to START	12 Ohms
COMMON to RUN	2 Ohms
RUN to START	14 Ohms
COMMON to SHELL	No Continuity
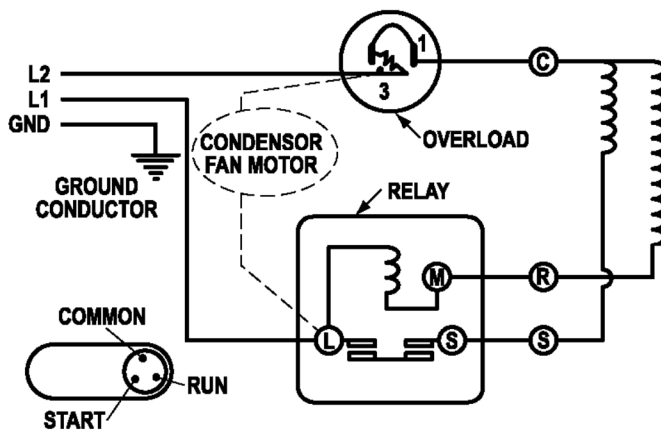
A10115   **FIGURE 8. COMPRESSOR SCHEMATIC**

PREVENTIVE MAINTENANCE

CAUTION: Always disconnect power source BEFORE cleaning or servicing.

WARNING: This vending machine must not be cleaned with a water jet.

ONCE A MONTH

CLEAN CABINET INTERIOR
Wash with a mild detergent and water, rinse and dry thoroughly. Odors may be eliminated by including baking soda or ammonia in the cleaning solution. Plastic parts may be cleaned with a quality plastic cleaner. Remove and clean Condensate Drain Hose to eliminate any deposits that may restrict condensate water flow. The vend mechanisms must be kept clean. Any build-up can cause the mechanisms to malfunction. Do not get the cleaning solution on electrical components. To insure proper vending keep delivery slide area free of dirt and sticky substances.

CLEAN CABINET EXTERIOR
Wash with a mild detergent and water, rinse and dry thoroughly. Clean occasionally

with a quality car wax. Plastic exterior parts may be cleaned with a quality plastic cleaner.

EVERY 60 DAYS
CLEAN CHILLER INTAKE SCREEN
Remove screen. Clean dust and debris from screen using a soft bristle brush or a vacuum cleaner.

EVERY 6 MONTHS
CLEAN CONDENSER COIL & EXHAUST SCREEN
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 tilt product or supplies.

PARTS ORDERING PROCEDURE

When ordering parts, include the following:

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

2. Shipping address.

3. Address where the invoice should be sent.

4. The number of parts required.

5. Always refer to the pertinent parts and/or parts manual for the correct part number and description of a specific part. When RIGHT or LEFT is used with the name of a part, it means the person is facing the machine with the door closed,

6. Any special shipping instructions.

7. Carrier desired: air or air special, truck, parcel post or rail.

8. Signature and date.

9. If a purchase order number is used, then be sure it is visible and legible.

Mail your order to:

VendNet

165 North 10th Street

Waukee, IA 50263
USA

All orders are carefully packed and inspected prior to shipment. Damage incurred during shipment should be reported at once and a claim filed with the terminating carrier. If you do not have the right parts manual, contact VendNet. If you have any questions, check out our website www.vendnetusa.com or call VendNet. Ask for the Parts Department. We will be happy to assist you. Email: vendnet@vendnetusa.com

BEFORE CALLING FOR SERVICE

Please check the following:
• Does your machine have at least 6 inches *(15.2* cm) of clear air space behind it?
• If the power is turned on at the fuse box, is the machine the only thing that does not work?
• Is the machine plugged directly into the outlet?

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

• Is the evaporator coil free of dust and dirt?
• Is the condenser coil free of dust and dirt?
• Is the compressor free of dust? A blanket of dust can prevent the compressor from cooling in between workouts.
• 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 from of the condenser coils and see if it draws paper to it.
• Is the shelf in front of the evaporator coil clear? No tools, product, or other air restricting items.
• Is the cold control set as specified? Setting the temperature colder does not accelerate cooling of product but may and may cause the product to freeze.

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