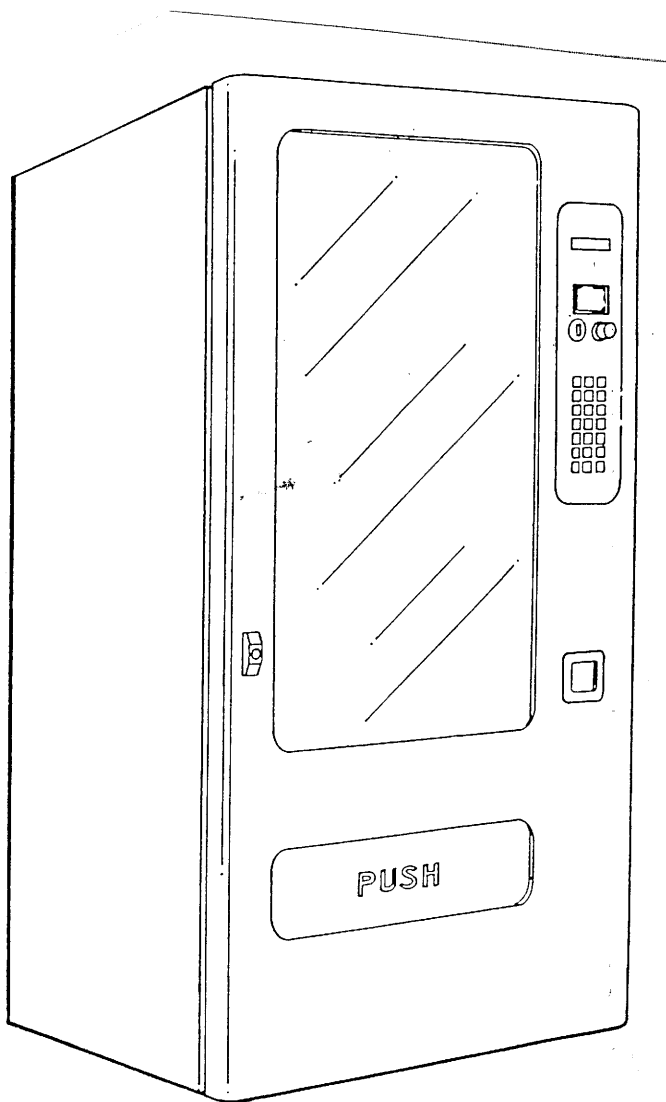




HORIZON

MODELS: 3084 and 3085



SERVICE MANUAL

APR 30 1997

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INTRODUCTION

This manual contains instructions, service and installation guidelines pertaining to the Horizon Series Glass Front Merchandiser Vendors. Models 3084 and 3085.

All Horizon Glass Front Merchandiser models are equipped with an electronic control system, which includes a wide variety of features that can be programmed into the logic of the controller and used by the customer as needs arise for specific locations. Some of the features are "Programmable Message Center", Cash and Vend Accountability, Multi-pricing, Service Diagnostics, along with other features that allow the customer to maintain important records. Details of each feature, along with the settings are explained within this manual.

The electronics within the controller allow all selections to be priced separately at various vend prices ranging from \$.05 to \$99.95 in five cent increments. All programming of the vend functions, pricing and features is done at the controller/keypad and changes can be made without the need of any additional accessories or remote parts.

Cash accountability provisions allow the owner/operator to retrieve information such as "Total Cash" transactions and "Total vend" cycles that have been performed by the vendor. Information for individual selections, complete rows or total machine can be compiled and used for inventory and ordering records.

Electrical malfunctions are recorded by the controller and are displayed to service personnel when the machine is placed in the *Service Mode*.

The vending sequence of these vendors is "first-in, first-out" for each selection, eliminating the need for stock rotation to maintain fresh products in the vend area. Each selection has an individual motor. Functional selections will continue to operate if other motors become nonfunctional.

A model number and a serial number identify each machine. These identification numbers

appear on the serial number plate attached to the inside and rear of the vendor. Record these numbers for your records. All inquiries and correspondence pertaining to this vendor should reference the model number and serial number.

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

Each vendor can support a "Satellite" Can Vendor. Refer to the Service Manual for the specific Can Vendor for installation instructions.

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

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

SPECIFICATIONS

	Model 3085	Model 3084
Number of Selections	24	36
Height	68 inches	68 inches
Width	29 1/4 inches	35 1/8 inches
Depth	34 1/8 inches	34 1/8 inches
Shipping Container Size	45.9 cubic feet	54.4 cubic feet
Shipping Weight	445 pounds	520 pounds
Electrical:		
Line Voltage	115 Volt AC, 60 cycle	115 Volt AC, 60 cycle
Current Draw	1.2 amp	1.2 amp
Money Handling:		
Coin Changer		
Bill Validator		
Product Pricing Range	\$0.05 to \$99.95	\$0.05 to \$99.95
HELIX CAPACITIES		
Row "A" Snacks and Chips (Medium Snack)	12 count	12 count
Row "B" Snacks and Chips (Medium Snack)	12 count	12 count
Row "C" Sandwich Cracker & Candy (Small Snack)	18 count	
Row "C" Snacks and Chips (Medium Snack)		12 count
Row "D" Sandwich Cracker & Candy (Small Snack)	18 count	18 count
Row "E" Snacks and Chips (Medium Snack)	12 count	
Row "E" Sandwich Cracker & Candy (Small Snack)		18 count
Row "F" Snacks and Chips (Medium Snack)		12 count
Total Capacity	360	528
Gum and Mint (Split Helix) Optional	40 count	40 count

UNPACKING

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

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 carton 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 Plate located on the rear of the cabinet. Refer to these numbers on all correspondence and inquiries pertaining to this vendor.

Remove the "Knock-A-Way" Support by placing a 2 X 4 under the vendor, inserting a screwdriver into the groove of the "Knock-A-Way" and splitting it in two. Turn the leveling screws in as far as possible. See Figure 1.

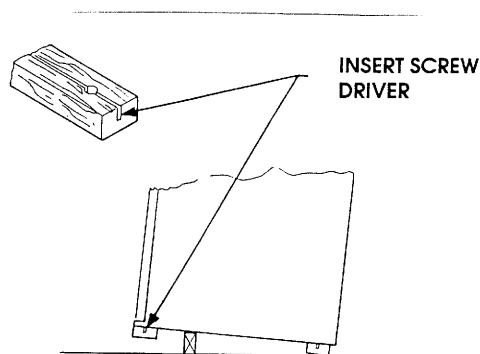


Figure 1

Position the vendor in its place of operation. Leave at least six (6) inches of space between the back of the machine and any wall or

obstruction for proper air circulation. Level the vendor, making sure all levelers are touching the floor. The vendor must be level for proper operation and acceptance of coins through the coin mechanism.

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 six 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 & Electrical

Prior to connecting the equipment, the integrity of the main electrical supply must be checked for correct polarity, presence of ground 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 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.

WARNING:

Do not use extension cords.

Testing the Power Source

Power Requirements

230 Volt	120Volt
230 VAC ($\pm 10\%$) 50 cycle	120 VAC ($\pm 10\%$) 60 cycle.

Voltage Check: With a Multi-Meter set to check AC line voltage, insert one connector to the hot terminal and the other connector to the neutral terminal.

216 - 264 VAC	108 - 132 VAC
---------------	---------------

Polarity and Ground Check: With a Multi-Meter set to check AC line voltage, insert one connector to the hot terminal and the other connector to the ground terminal.

216 - 264 VAC	108 - 132 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 *a appropriately*.

13 Amp	20 Amp
--------	--------

NOTE:

230 Volt Vendors: The **ground** terminal is perpendicular to the other two terminals. In a standard 3-prong 230 V outlet the **neutral** terminal is located counter-clockwise from the ground terminal and the **hot** terminal is located clockwise from the ground pin.

120 Volt Vendors: The **hot** terminal should always be counter-clockwise from the **ground** terminal. The **neutral** terminal is clockwise from the **ground** terminal. See **Figure 2**.

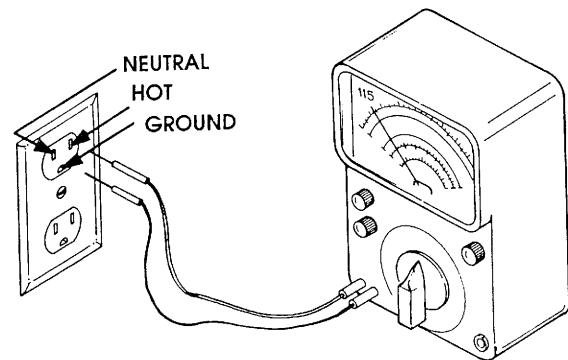


Figure 2

Power Switch

Each Horizon is equipped with a "Power Switch" located above the control panel, operated by the outer door. See **Figure 3**.

When the outer door is closed, the switch will be actuated to the N.O. ("ON") position, placing the vendor in the *Sales Mode*. When the outer door is opened, the switch will be deactuated to the N.C. ("OFF") position, removing all power to the controller, Selection Buttons, complete vending circuit and light. To turn on the main power pull out on the switch plunger. See **Figure 3**. The product display light will come on, the validator motors will cycle and the display will scroll the Point of Sales message.

cabinet and properly seated in the "detent" position.

The size of the item being vended must be larger than the diameter of the auger being used to vend properly.

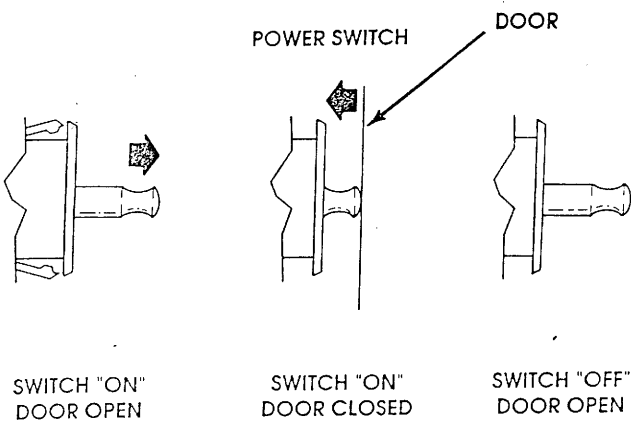
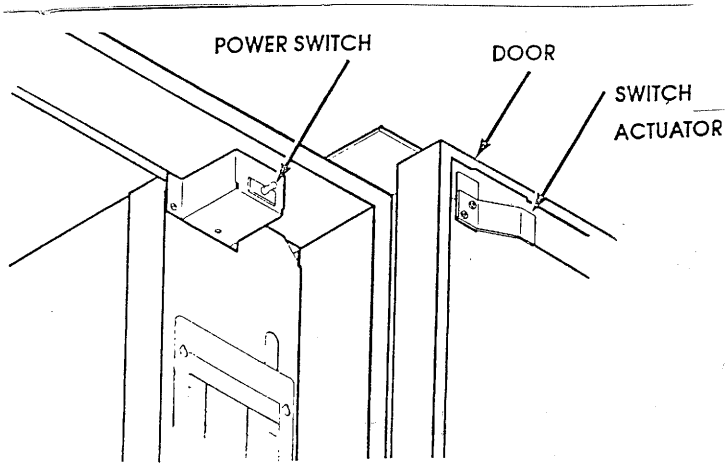


Figure 3

Loading Products

To load products, lift the tray slightly and pull forward until the tray stops. The upper-most trays will tilt for ease of 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. All spaces must have a product loaded into them; do not skip a space. The package should be placed on the bottom of the compartment, above the product augers, with the label facing the front of the machine for easy identification. See Figure 4.

When finished loading each tray, make sure the tray is returned to its proper standby position. All trays must be pushed to the rear of the

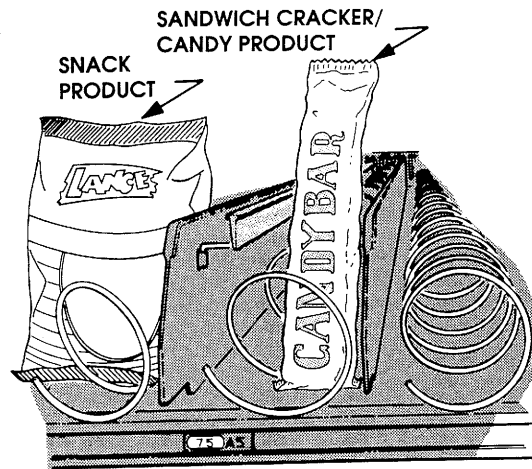


Figure 4

Table ... Maximum Product Size

HELIX	PRODUCT SIZE (Inches)
Large Snack	5 27/32 x 1 1/2 x 9
Medium Snack	4 3/8 x 1 1/2 x 7
Sandwich Cracker	2 15/16 15/16 x 5 1/2
Gum/Mint Split	1 x 13/16 x 5 1/2

Undersize items could cause vend problems. If the product does not fit the auger properly, it is recommended that a differently pitched auger be used. Contact your local distributor for the various augers and sizes that are available for this product line.

CONFIGURATION

Adjustments to tray spacing, tray configuration and helix timing are provided to enhance the merchandising features of the Horizons. By altering the tray spacing, larger items can be vended. By changing the tray configuration, different product mixes can be accommodated. By re-timing the helixes, difficult to vend items can be delivered more dependably.

Changing Tray Spacing

The trays can be raised or lowered in one-inch increments within a four-inch range to provide additional headroom for vending larger items.

NOTE:

When increasing the headroom between two trays, a corresponding decrease in headroom of an adjacent tray will result.

To change tray spacing, follow the steps outlined below:

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 hand sidewall. See Figure 5.

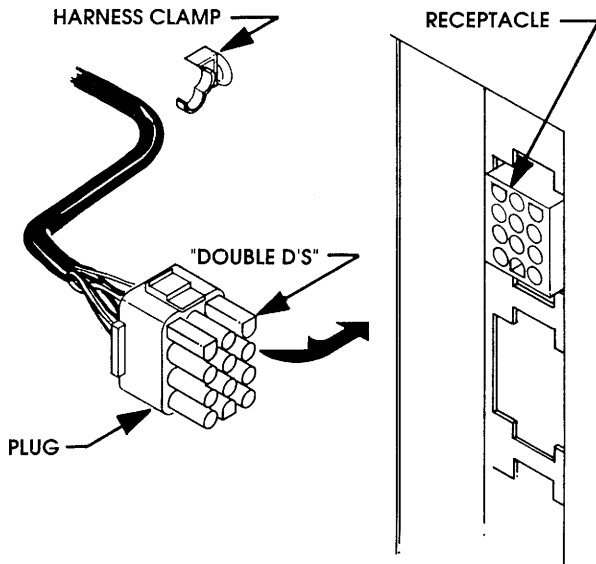


Figure 5

3. Disconnect the tray plug from its receptacle on the right hand sidewall. See Figure 5.
4. Lift up on the front of the tray and pull slightly (approximately 1/2") forward to clear the tray stop.
5. Lift up on the rear of the tray and remove it from the vendor.
6. Disengage both left and right tray rails from their corresponding slots on the left and right sidewalls by pulling inward on the

bottom front of each rail and pulling its flange out of the slot. See Figure 6.

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 5 and 6.

The rails must be level from front to back and evenly spaced from top to bottom on each side.

9. Replace the tray by placing its rear rollers on the left and right rails and lifting up on the front of the tray as it is pushed back.
10. Re-connect the tray plug to its receptacle.

For proper plug to receptacle orientation the two flat sided connectors (Double "D's") on the plug should be "up". See Figure 5.

11. Secure the tray harness with the harness clamp and snap it closed.
12. Test vend the tray in its new position to assure that the tray plug is properly connected.

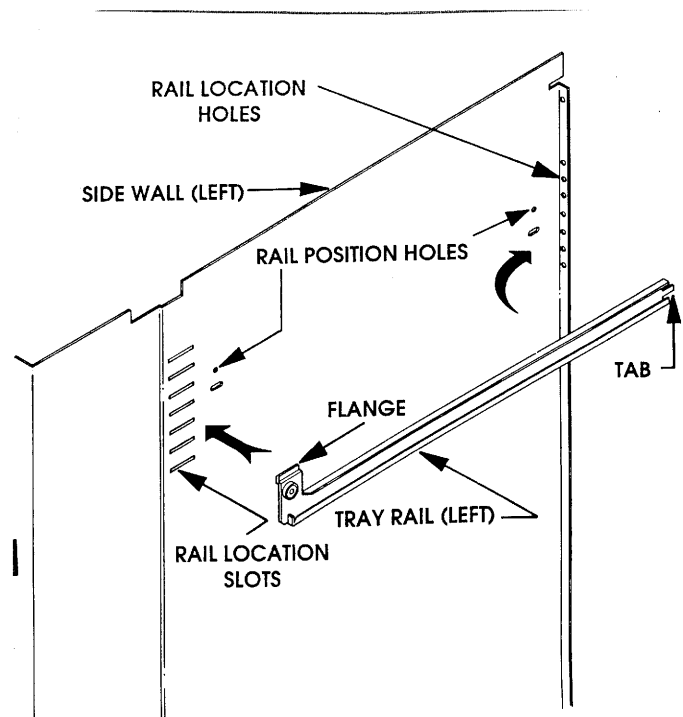


Figure 6

Changing Tray Configuration

When necessary, product mix can be changed by reconfiguring trays. One Large Snack Helix can be converted to two Sandwich Snack helixes. Two Sandwich Snack helixes can be converted to one Large Snack helix.

Changing Helix Timing

The helix is connected to the motor via an 18-tooth helix hub spline into an 18-tooth internal gear in the motor gear case. This relationship provides a timing adjustment in 20-degree increments to alter the product drop-off point at the front of the tray.

Research and testing have determined that most products will vend successfully with the leading edge of the helix set at approximately 6 o'clock.

Adjustments can be made in either direction. All helixes have been factory-set to agree with Horizon specifications.

Should you experience difficulty in vending odd size or shaped items, the helix can be re-timed by following the steps outlined below. The positioning of the helix is on a trial and error basis.

1. Pull the tray containing the helix to be re-timed forward to its stop.
2. Remove all product from the compartment.
3. Push on the motor cover latch and remove the motor cover. See Figure 7.
4. Lift the helix and motor slightly (approximately 3/4") to disengage the helix hub from its retaining rib in the bottom of the tray. See Figure 8.
5. Separate the hub from the motor slightly (approximately 1") by pulling forward on the hub to disengage its spline from the motor's internal gear.
6. Rotate the hub in either direction and re-install by pushing the spline into the internal gear of the motor.
7. Push down on the motor and hub to re-seat the hub onto its retaining rib in the bottom of the tray.

8. Replace the motor cover by hooking the left end into its retainer on the tray and snapping the right end into the motor cover latch. See Figure 7.
9. Load the helix with the appropriate product for testing.
10. Push the tray back to its normal position making sure it is properly seated.
11. Test vend product and re-adjust if necessary.

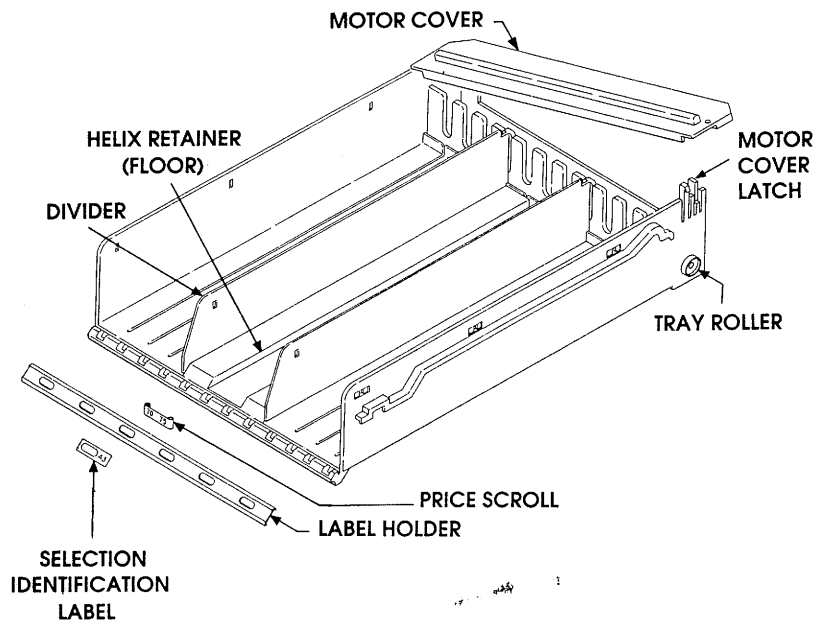


Figure 7

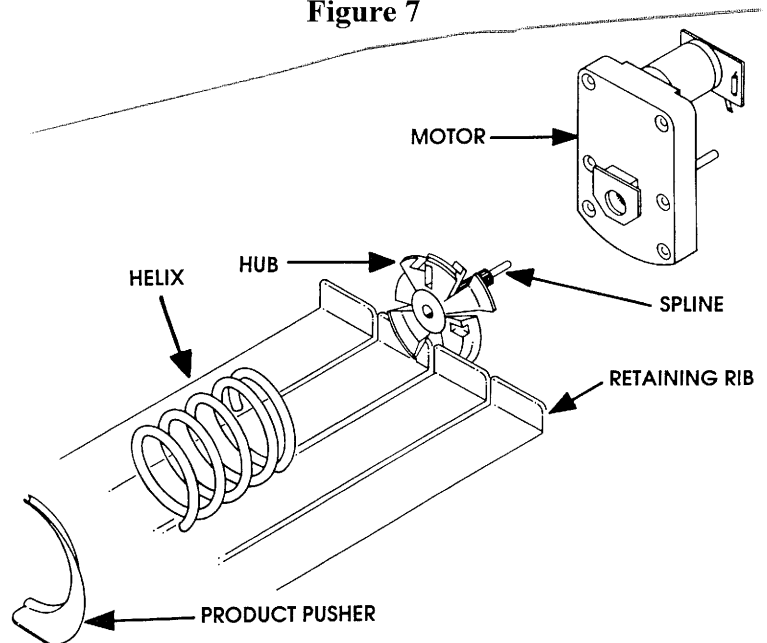


Figure 8

CONTROLLER FUNCTIONS

Sales Mode

The *Sales Mode* is the normal operating mode of the vendor. When in the *Sales Mode* the controller will communicate with the buying customer with instructions pertaining to the vend requirements along with displaying necessary steps to accomplish the vend.

During normal operation, the following messages are displayed while the vendor is in the *Sales Mode*.

Point of Sales Message

This message scrolls continuously while the machine is in the *Sales Mode* and the coin mechanism has an adequate supply of coins in the change tubes. If the change supply of the Coin Mechanism falls below the "low level" sensors in the payout tubes, **EXACT CHANGE ONLY** displays.

The Point of Sales (POS) message is a programmable 130-character message and is usually an encouragement to the buying customer to purchase the products.

EXACT CHANGE ONLY Message

This message displays when the change supply in the coin mechanism is below the "low level" sensors in the change tubes. When the payout tubes are low, the **EXACT CHANGE ONLY** message takes priority over the POS message and the **DISCOUNT AVAILABLE NOW** message.

DISCOUNT AVAILABLE NOW Message

This message displays when the discount feature has been programmed into the controller and the feature becomes active. Refer to Discount Feature Section for instructions on setting the discount and activating this feature. When the Discount Mode becomes active, the POS or the **EXACT CHANGE ONLY** message will also be displayed along with the discount message.

Service Mode

The *Service Mode* enables access to the programming functions of the controller. The

controller must be placed in the *Service Mode* to alter any programming, to establish a new program, and to retrieve diagnostic information.

To place the controller in the *Service Mode*, press the Service Mode Button on the control board. See Figure 9.

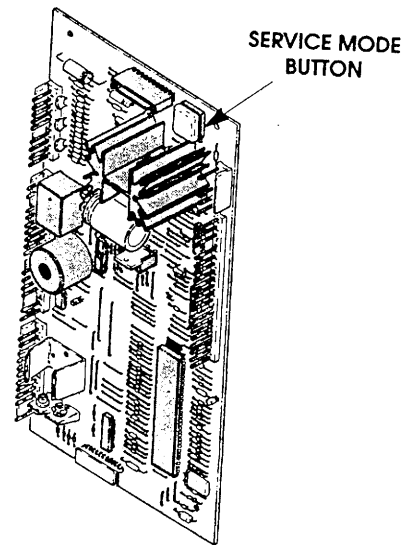


Figure 9

The *Service Mode* is automatically exited after approximately 25 seconds if no keypad input is detected.

Keypad Overlay

In the *Service Mode* the keys on the keypad perform different functions, depending on the requirements of the program to be accomplished. The key functions are defined in detail under each mode description in this manual.

Furnished in the Service Packet is an overlay that can be placed over the keypad. It indicates the *Service Mode* functions of individual keys. See Figure 10.

NOTE:

Each key can be used to input two different characters. To enter the "upper" character, press the appropriate key. To enter the "lower" character, press key <NEXT MENU>, then the appropriate key.

A	G	N
K	Y	4
B	H	O
Q	Z	5
C	I	P
U	0	6
D	J	R
V	1	7
E	L	S
W	2	8
F	M	T
X	3	9
SPACE	NEXT MENU	BACK SPACE
*	ENTER	\$

Figure 10

Diagnostics

Each time the controller is switched between the *Sales Mode* and the *Service Mode*, the motor circuits are scanned to determine the number of active or operational motors and any electrical circuit failures of the vend motors are displayed.

If more than one motor failed, faulty motor selection numbers are displayed in sequence. The selection number indicates the area where the problem was detected and will assist service personnel in isolating the source or cause of the problem.

If an item was selected and the vendor was unable to complete the vend cycle, **MAKE OTHER SELECTION** displayed, and that selection was flagged as faulty. The faulty selection remains inoperative until cleared or repaired.

Any information displayed in the digital display should be recorded immediately. Any key input

will remove this information from memory and the failure will not be displayed again until that specific failure has been repeated during normal vend cycles. See the Troubleshooting Section for further details pertaining to motor failures.

NOTE:

Exiting the *Service Mode* or pressing a key will remove the diagnostics from the controller's memory.

Coin Dispense Mode

In the *Coin Dispense Mode*, coins stored in the coin mechanism payout tubes can be removed. To access the *Coin Dispense Mode*:

1. Enter the *Service Mode* by pressing the Service Mode Button.
2. Press key <1> **-DISPENSE COINS** displays.
3. Press key <A> - The Nickel payout tube in the coin mechanism is activated.
4. Press key - The Dime payout tube in the coin mechanism is activated.
5. Press key <C> - The Quarter payout tube in the coin mechanism is activated.

Pressing a payout key once will pay out one coin. Pressing and holding a payout key will continuously coin dispense from the corresponding payout tube. Coins will continue to be dispensed from the payout tubes as long as its activating key is pressed.

To exit back to the *Sales Mode* press the Service Mode Button once.

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Motor Count Mode

The *Motor Count Mode* displays the total number of functional motors configured within the machine. This number should agree with the total number of selections in the machine. Only the total number of functional motors displays; individual selection numbers are not displayed.

To enter the *Motor Count Mode*:

1. Place the Controller in the *Service Mode* by pressing the Service Mode Button.
2. Press key <2> - The number of functional motors displays for approximately three seconds. This number should agree with the total number of selections in the machine.

If the number displayed does not agree with the total number of selections in the machine, that the electrical circuit of all motors is not complete. Determine what motor(s) are not functioning:

1. Were faulty motors displayed when placed in the service mode?

A motor fault occurred during an attempted vend.

2. Test vend all selections.

Faulty selections will not vend

Refer to the Troubleshooting section of this manual for further assistance.

To exit back to the *Sales Mode* press the Service Mode Button once.

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Vend Options Mode

The *Vend Option Mode* enables the machine to function as a changer without making a purchase, make multiple selections with single deposits, or vend a free item when selecting another product.

When using any of the vend options, a battery back-up is required to maintain the setting. See the Battery Backup Option section.

Force Vend Option

To set the "Force Vend" options, the controller must be placed in the *Service Mode*.

1. Press the Service Mode Button.
2. Press <3> to enter the *Vend Option Mode*.
3. Press <A> to toggle the setting between ON and OFF.

ON: The buying customer must make a purchase when a dollar bill is inserted, overriding the "coin return" command. When in the "Force Vend On Mode", coin return of 5¢, 10¢, and 25¢ coins is not affected.

OFF (Non-Escrowing Validator): The buying customer may receive change from a dollar bill insertion when the coin return button is pressed. A purchase is not necessary.

OFF (Escrowing Validator): The maximum vend price within the machine dictates the behavior:

Maximum Vend Price set at 95¢ or less: Dollar bill is returned when the coin the return button is pressed. A purchase is not necessary

Maximum Vend Price set at \$1.00 or more: The customer may receive change from a dollar bill insertion when the coin return button is pressed. A purchase is not necessary. This vend price must be set on an active motor.

Multi Vend Option

To set the Multi Vend option:

1. Press the Service Mode Button.
2. Press <3> to enter the *Vend Option Mode*.
3. Press to toggle the setting between ON and OFF.

ON: The credit is flashed in the display at all times. If the vend price of a selection is less than the established credit and that selection is vended, no change is paid out. The customer can use the remaining credit to purchase other items, or push the Coin Return Button to receive the balance. Multiple vends can be made as long as adequate credit is available. To receive change on over-

deposit the Coin Return Button must be pushed.

OFF:

NOTE:
If the credit displays, the Multi-Vend option is ON. Any deposited credit is refunded by pressing the Coin Return Button.

Promo Vend Option

The Promo Vend option allows the customer to receive an additional item "free" when purchasing another.

Item "A3" is vended "free" each time item "A1" is selected, and item "B3" is vended "free" each time item "B1" is selected. Other selections in the machine operate normally. Individual vends from items "A3" and "B3" can be obtained while in "Promo Vend" if these selections are pressed with adequate credit inserted.

To set the Promo Vend option:

1. Press the Service Mode Button.
2. Press <3> to enter the *Vend Option Mode*.
3. Press <C> to toggle the setting between ON and OFF.

ON: Item A3 is vended "free" when item "A1" is selected and item "B3" is vended "free" when "B1" is selected.

OFF: All selections operate normally.

To exit back to the *Sales Mode* press the Service Mode Button once.

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Language Option

All machines shipped from the factory are programmed in the English language, unless otherwise specified on the initial order.

To change the display language:

1. Press the Service Mode Button.

2. Press <4> to enter the *Language Option Mode*.

3. Press the appropriate key:

Language	Key
English	<E>
French	<F>
Italian	<G>
Spanish	<D>

4. Press the Service Mode Button. The POS message displays in the desired language.

Set Price

All pricing must be programmed into the controller memory while in the *Service Mode*.

A vend price must be established for each selection. On items that are vended at the same vend price, the *Copy Price Mode* can be used to duplicate the vend prices.

To establish vend prices:

1. Place the controller in the *Service Mode* by pressing the Service Mode Button.
2. Enter the *Set Price Mode* by pressing <5>. **MAKE SELECTION** displays.
3. Press the selection letter and number of the item to be priced. The selection number and current vend price of that selection display.
4. Enter the desired vend price using the number keys on the keypad.

EXAMPLE:
If the numbers 1, 2 and 5 are pressed, that item would have a vend price of \$1.25.

5. Store the price in memory by pressing <#> on the keypad, or use the *Copy Price Mode*.
6. Continue setting prices for other selections by repeating Steps 3 through 5 or by using the *Copy Price Mode* instructions.
7. When finished, press the Service Mode Button. The POS message displays. The machine is now in the *Sales Mode*.

Check prices of items programmed by pressing the selection numbers in the *Sales Mode*. The vend price displays.

IMPORTANT:

When establishing vend prices, make sure the price labels on the product shelves agree with the vend prices programmed into the controller and that they are properly located below the item they are identifying.

Copy Price Mode

When there is more than one selection to be vended at the same vend price, the *Copy Price Mode* can be used to duplicate prices for these selections. To enter the *Copy Price Mode*:

1. Place the controller in the *Service Mode* by pressing the Service Mode Button.
2. Enter the *Price Mode* by pressing <5>. **MAKE SELECTION** displays.
3. Enter the selection letter and number to be priced. The selection number and current vend price display.
4. Enter the desired vend price using the number keys on the keypad.

EXAMPLE:

If the numbers 6 and 0 are pressed, that item will have a vend price of \$0.60.

5. Press <*> on the keypad.
6. Enter the desired selections to receive the same vend price.
7. Store the prices in memory by pressing <#> on the keypad.
8. To copy another price, repeat Steps 3 through 7.
9. When finished, press the Service Mode Button. The POS message displays. The machine is now in the *Sales Mode*.

Verifying Vend Prices

The vend price for each selection can be verified at any time while the machine is in the *Sales Mode*. To verify the price programmed into the controller, press the specific selection letter and

number. The current vend price is displayed for approximately three seconds.

The price for each selection must agree with the price label on the tray under the selection. Make sure the price programmed in to the controller agrees with the label affixed to the tray for each selection.

Point Of Sales Message Mode

The POS message that displays to the buying customer can be used as advertising or an encouragement to purchase the products. The POS message appears continuously while the machine is in standby as long as the coin mechanism has adequate supply of coins in the payout tubes. If the change supply in the coin mechanism is below the low-level sensor in the payout tubes, the **EXACT CHANGE ONLY** message displays.

POS messages can include up to 130 characters including spaces. While in this mode the keypad will function similar to a typewriter keyboard. A keypad overlay is furnished in the service packet. By placing the overlay over the selection panel, you can "type" the new message into the controller's memory.

To enter the *Point of Sales Message Mode*:

1. Enter the *Service Mode* by pressing the Service Mode Button.
2. Enter the *Point of Sales Message Mode* by pressing key <7>.
3. Type in the new message (maximum of 130 characters, including spaces) using the keypad overlay for location of characters on the keypad.
4. Enter the message into the controller's memory by pressing the <Next Menu> key twice.

NOTE:

If <Next Menu> key is not entered properly when the programming of the new message is complete, portions of the previous message may appear.

When exiting the *POS Message Mode*, the POS message displays if adequate change is in the coin mechanism payout tubes.

To exit back to the *Sales Mode* press the Service Mode Button once.

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

NOTE:
Use the Keypad Overlay to input the message To enter the upper character, press the appropriate key. To enter the lower character, press key <NEXT MENU>, then the appropriate key.

A	G	N
K	Y	4
B	H	O
Q	Z	5
C	I	P
U	0	6
D	J	R
V	1	7
E	L	S
W	2	8
F	M	T
X	3	9
SPACE	NEXT MENU	BACK SPACE
*	ENTER	\$

Figure 11

Test Vend Modes

The machine can be tested by individual selection, complete rows, or all selections. When the test command is entered, the motor(s)

will be run through one complete vend cycle if the circuit is complete and the motor(s) are functional.

If the motor circuit is not complete or the motor is not functional on a selection or row, the test will not be run.

These modes do not affect the accounting records maintained in memory.

The *Test Vend Modes* are very useful for identifying faulty motors or motor circuits and, when used in tandem with the Troubleshooting section, can quickly point a service technician to the problem area.

Test Vend Single Selection

To test vend a single selection:

1. Place the controller in the *Service Mode* by pressing the Service Mode Button.
2. Press <8>. The machine will “beep” and **MAKE SELECTION** displays.
3. Press the letter and number of the selection to be tested.
4. If the vend cycle is successful: A single beep acknowledges the input. The vend price of the selection and the selection number display, and a single product is dispensed.

NOTE:
If the test vend is successfully completed, the display will blank and the system will remain in the *Service Mode* until the next service command.

If the vend cycle is unsuccessful, the display will remain blank, three "beeps" will sound and the system will remain in the *Service Mode* until the next service command.

5. To test vend another selection, repeat steps 2 and 3.

To exit the *Service Mode*, press the Service Mode Button. To enter another function mode, press that particular function mode button

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Test Vend Complete Row

The controller will check the motor circuits and run each selection in a single row, starting with the number "1" selection, if the circuit is complete and the motors are functional.

Each motor is run through a complete vend cycle and a functional selection is indicated with a single beep. A non-functional selection is indicated by three beeps, and the controller will continue to the next selection.

NOTE:

You must observe the testing of the selections to verify the operation, as the controller will skip any motor(s) not sensed in the motor circuit prior to beginning the row test.

To test vend a complete row of motors:

1. Place the controller in the *Service Mode* by pressing the Service Mode Button.
2. Press key <9>. The message **MAKE SELECTION** displays.
3. Pressing a row (alpha) letter will start the test vend sequence, beginning with the first motor of that row. As each motor runs in sequence, the display will show the number of the selection being tested along with the vend price for that selection.

NOTE:

If the product dispense cycle is successful, the display will remain blank and the system will remain in the *Service Mode* waiting for the next input.

To test vend another row, repeat steps 2 and 3. Remember than any motor that will not function properly, due to a fault or a bad connection, is skipped by the test procedure.

To exit the *Service Mode*, press the Service Mode Button. To enter another function mode, press that particular function mode button

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Test Vend Complete Machine

The controller will check the motor circuits and run every selection, starting with the first motor in the first row, if the circuit is complete and the motors are functional.

NOTE:

You must observe the testing of the selections to verify the operation, as the controller will skip any motor(s) not sensed in the motor circuit prior to beginning the test.

To test vend the machine:

1. Place the controller in the *Service Mode* by pressing the Service Mode Button.
2. Press key <0>. The machine test will begin immediately starting with selection "A1".

NOTE:

All functional selections are run through one complete vend cycle and a product is dispensed. The machine test may be stopped at any time by pressing any alpha key, otherwise all selections are cycled.

6. If a vend cycle is successful: A single beep indicates success, the vend price of the selection and the selection number display, and a single product is dispensed.

If a vend cycle is unsuccessful, the display will remain blank, three "beeps" will sound and the test will continue to the next selection.

NOTE:

When the entire machine has been tested, the display will blank and the system will remain in the *Service Mode* until the next input.

To exit the *Service Mode*, press the Service Mode Button. To enter another function mode, press that particular function mode button

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Cash Accountability

The total amount of cash transactions and the total number of vend cycles performed by the vendor are recorded in memory and can be displayed.

These amounts are cumulative and recorded in a running total and are not resettable.

NOTE:

The *Test Vend Modes* do not affect the accounting records maintained in memory.

To retrieve this information:

1. Set the controller in the *Service Mode* by pressing the Service Mode Button.
2. Enter the *Vend Count Mode* by pressing key <6>. **ENTER (A) FOR TOTAL VENDS OR (B) FOR TOTAL CASH** displays.
3. Press key <A>. The total number of vends displays.
4. Press key . The total amount of accumulated cash displays.

To exit the *Service Mode*, press the Service Mode Button. To enter another function mode, press that particular function mode button

The Service Mode is automatically exited after approximately 25 seconds if no keypad input is detected.

Set Time Mode

(Battery Backup Required) The controller contains a clock to control the start and stop times of the discount program. Three time intervals may be selected during a 24-hour day.

Time is indicated in 24-hour increments; i.e. 10:00 am is entered as 1,0,0,0, and 10:15 pm is entered as 2,2,1,5. All four digits must be entered.

To set the clock:

1. Press the Service Mode Button.
2. Press <*> to enter the *Set Time Mode*. **SET TIME MODE** displays.
3. Press <A>. The current setting displays.

4. Enter the current time in military format. After the fourth digit is pressed, **SET TIME MODE** displays.

5. Press <#> to store the time.

To check the clock setting:

1. Press the Service Mode Button.
2. Press <*> to enter the *Set Time Mode*. **SET TIME MODE** displays.
3. Press <A>. The current setting displays.
4. Press <#> to exit without changing the time.

A battery backup must be used to retain the programming in the event of a power outage.

Discount Programming

If discount intervals are specified, the price of indicated items is reduced only during the specified intervals. **“Discount Available Now”** displays during the discount intervals.

Three time intervals must be specified during a 24-hour period. These intervals are repeated each day when the *Discount Mode* is ON. The intervals can be changed as often as needed and can be switched ON or OFF as required.

The machine is sent from the factory with the *Discount Mode* OFF.

To use the discount function, you must specify the current time, the three time intervals, the discount amount and the items to be discounted.

Set Start/Stop Times

1. Press the Service Mode Button.
2. Press <*>. **SET TIME MODE** displays.
3. Press the appropriate key for the desired interval and start/stop time:

Press	To	Interval
	Start	1
<C>	Stop	1
<D>	Start	2
<E>	Stop	2
<F>	Start	3
<G>	Stop	3

4. The current setting will display in military format. To change the time, enter the four-digit time.
5. Press <#> to store the time
6. Repeat steps 3, 4 and 5 until all three intervals have been specified.
7. Exit this mode by pressing the Service Mode Button.

Set Discount Amount

1. Press the Service Mode Button.
2. Press <#>.
3. Press . The current discount amount displays.
4. Enter the discount amount.
5. Press <#> to store the input.
6. Exit this mode by pressing the Service Mode Button.

Set Discount Row

All items in the selected row and following rows will be discounted during the time intervals. When the discount is in effect, **DISCOUNT AVAILABLE NOW** displays.

1. Press the Service Mode Button.
2. Press <#>. **DISCOUNT MODE** displays.

3. Press <C>. **SELECT ROW** displays.
4. Press the alpha key corresponding to the row to discount. That row and all following rows will be discounted.

EXAMPLE:

Press <F>, and rows F, G, H and J are discounted during the discount intervals.

5. Press <#> to store the input.
6. Exit this mode by pressing the Service Mode Button.

INSTALLATION CHECKLIST

1. All shipping brackets, packing material and tape have been removed from the vendor.
2. Vendor is level and properly located for access to power source outlet.
3. Service cord plug-in-receptacle is properly grounded.
4. All components are installed on the vendor and are in good condition.
5. All vend prices have been set correctly.
6. All selections have been properly loaded and all items in each selection correspond to the vend price scrolls.
7. All options and features offered have been properly programmed into the controller:

FORCE VEND OPTION

PROMO VEND OPTION

LANGUAGE

TIME

BATTERY BACKUP OPTION

A battery backup option can be added to maintain the time-related discount programs in case of power interruption or failure.

The battery is a rechargeable 9-Volt nickel-cadmium (transistor style). It is capable of maintaining programmed functions for approximately 12 hours. A charging circuit is supplied on the control board and will recharge the battery when AC power is restored to the vendor.

The battery backup is necessary for the following features:

- Real Time Clock
- Discount Sales Programs
- Force Vend Options
- Multi Vend Options
- Promo Vend Options

If the power to the vendor is interrupted or fails:

- Clock settings will be lost
- Discount Sales Programs will be lost and default to OFF
- Force Vend Option will default to OFF
- Multi Vend Option will default to OFF
- Promo Vend Option will default to OFF

All other settings will be retained in the controller memory in the event of a power interruption or failure.

Battery Installation

To install the battery:

1. Remove power from the vendor.
2. Place the battery in the provided clip on the control board with the battery connections aligned to the mating connectors on the circuit board. See Figure 12.
3. While supporting the control board terminal bracket, press on the battery until the connectors lock together.

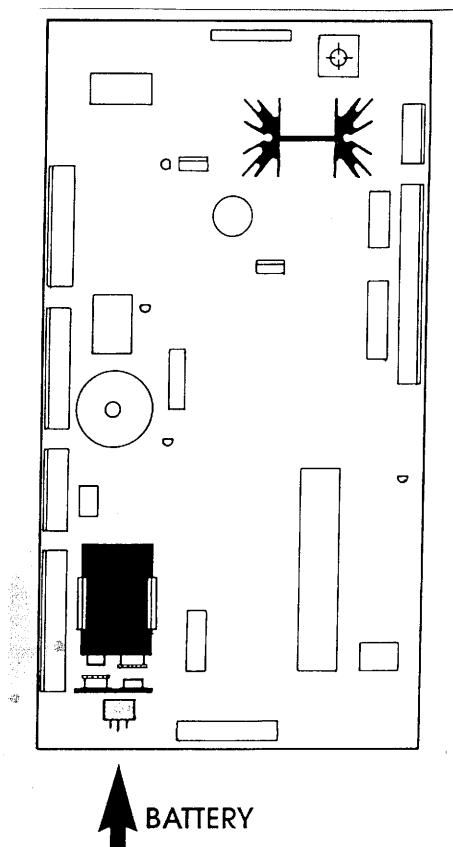


Figure 12

CAUTION:

Be careful not to damage the power component on the circuit board.

COMPONENTS

Coin Mechanism

The Coin Mechanisms utilized in these machines are "controller controlled", with all logic and commands being supplied by the Controller. The following coin mechanisms have been approved for use in standard applications:

- Coinco 9302L
- Mars TRC6010

These are 24 VDC Coin Changers, accepting U.S. nickels, dimes, quarters and dollar coins. The nickels, dimes and quarters that are accepted are stored in "self loading" coin tubes and used to refund change on over deposit. All change refunded is in the least number of coins available.

CAUTION:

Do not plug or unplug changer with power ON.

Option Switch Setting

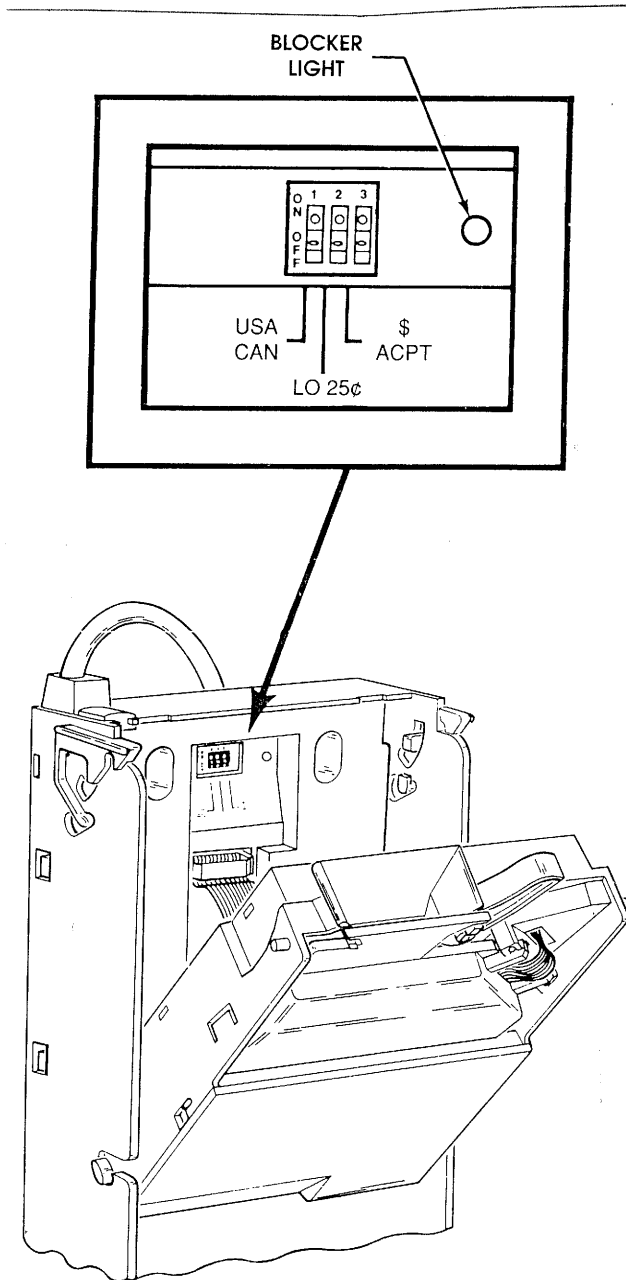
The coin mechanism option switches have been factory set to OFF.

Should a different setting be desired, or a new changer installed, the following switch setting instructions are provided:

1. Open the main door to turn the power "OFF" to the Controller
2. Remove the coin acceptor (upper section) portion of the coin mechanism. See Figure 13.
3. Locate the coin changer option "dip" switches and select from the following optional settings:

Table 2. Coin Mech Option Switches

Switch		Set	Means
1	USA/CAN	ON	U.S. and Canadian coins are accepted
		OFF	Canadian coins are rejected
2	LO 25¢	ON	Quarters are diverted to the cash box once the change tube has inventoried approximately 8 quarters
		OFF	Quarters are diverted into the change tube until the change tube is full
3	\$ ACPT	ON	Dollar coins are accepted
		OFF	Dollar coins are rejected

**Figure 13**

Dollar Bill Validator

The coin mechanism must have adequate change in the payout tubes before the validator will accept a dollar bill. Both the nickel and quarter low-level sensors must be covered to enable the validator. Without an adequate supply of nickels and quarters, the validator motor will not run. When the supply of coins drops below the low-level sensor, **EXACT CHANGE ONLY** displays and bills are not accepted.

Orientation or direction of the bill being inserted is critical. The bill must be inserted properly for the "photo sensors" to detect the information required.

When a bill is inserted, the carrier motor rotates and the bill is drawn in on a belt past the photo sensors. The information detected by the photo and magnetic sensors is sent to the control board for discrimination.

If the bill is authentic, a vend signal is output to the controller and the bill is accepted by the validator and stacked in the stacker.

If the bill is counterfeit, the carrier motor will rotate in reverse and the bill is returned to the buying customer. No signal is sent to the controller.

Option Switches

The BA32SA bill validator contains an option switch module allowing the unit to be customized to the requirements of an individual account.

All validators are factory-set with switches 3 and 8 ON. All other switches will be set OFF.

To change a switch setting:

1. Remove power from the validator by turning the main power switch OFF.
2. Remove the retaining screw that secures the logic board and strain relief. See Figure 14.
3. Slide the logic board downward to expose the option switch module.
4. Set the option switches to the desired setting.

5. Reassemble the bill validator in reverse order of disassembly.
6. Reapply power, the stacker motor should cycle.

Table 3. Option Switch Settings

SWITCH	ON	OFF
1	High Security	Standard Acceptance
2	Accepts bills in one direction only (face up, green seal first)	Accepts bills in both directions (face up)
3	Serial or Parallel Interface	Pulse interface
4	\$20 Accept	\$20 Reject
5	\$10 Accept	\$10 Reject
6	\$5 Accept	\$5 Reject
7	\$2 Accept	\$2 Reject
8	\$1 Accept	\$1 Reject

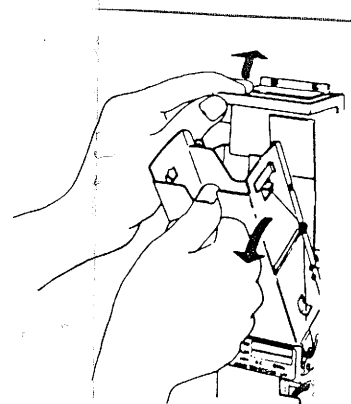


Figure 14

Removing Accepted Bills

Accepted bills may be removed by opening the stacker lid or by removing the stacker from the validator. See Figure 15.

NOTE:

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

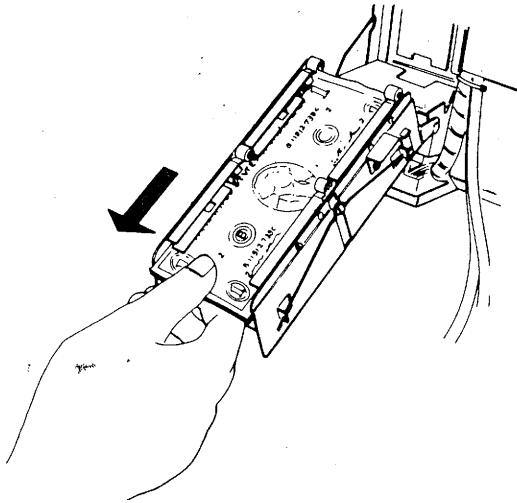


Figure 15

Push up on the latch and pull down on the stacker. Take hold of the bills and pull them out of the stacker. Return the stacker to its original position, pushing in on the stacker firmly until it latches.

Inspection and Cleaning

WARNING:

Open the main door to turn the main power switch to OFF and disconnect the bill validator from the power harness

The bill validator must be free of dust and/or dirt to operate properly. Remove or disconnect the power to the validator prior to disconnecting or removing any parts from the validator.

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. See Figure 16. 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 sensors using a swab and isopropyl alcohol.

CAUTION:

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

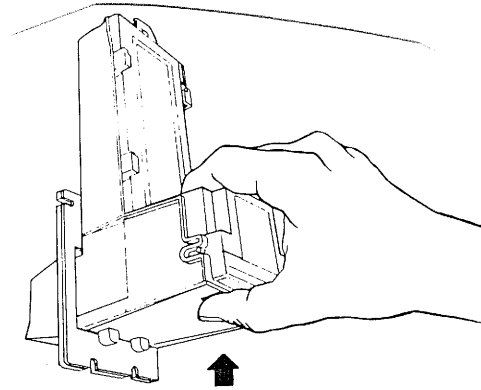


Figure 16

1. Clean the bill insertion opening with a mild detergent and a soft cloth.
2. Clean the magnetic heads and photo sensor by using a cotton applicator and a small amount of denatured alcohol.
3. Wipe the chute roller and belt with a soft cloth.
4. Use a soft brush to remove any loose foreign matter from inside the validator.
5. Inspect latches and levers for smooth operation.

Reconnect the validator to the vendor, restore power and test the unit.

Troubleshooting

If authentic \$1 bills are not accepted or are rejected after insertion, push up the latch and pull down the stacker. If it is full of bills, remove them. Remove any bills or foreign matter clogging the stacker.

Troubleshooting can be achieved by reading flashes or blinks of light from the (red) LED located on the side of the logic board cover. These flashes can be seen through the grey smoked cover. (See Figure 17.) During normal operation the LED will be a steady or constant red.

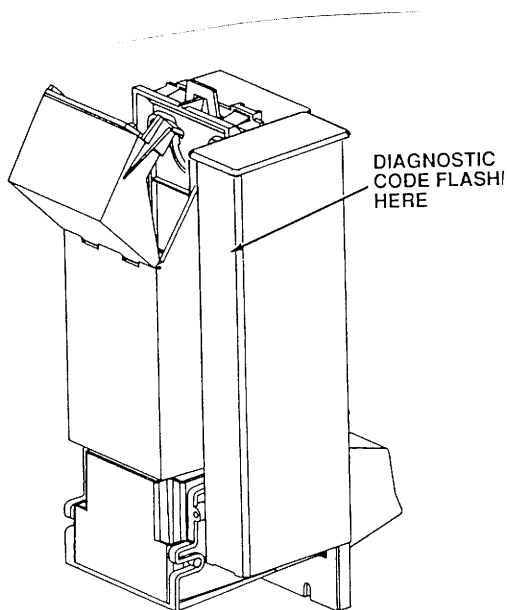


Figure 17

Table 4. Diagnostic Codes

NO. OF FLASHES	DESCRIPTION
No Flashes	Check Power and Harnessing to Validator
1	Bill Box Full
2	Bill Box Lid is open or not latched in place.
3	Check Bill Path
4	All Bill Accept Switches are Off
5	Bill Jam or Sensor Error
6 or more	Reset (Remove and Apply Power) or service required.

CARE & CLEANING

CAUTION:

Always disconnect power source before cleaning.

Cabinet Exterior

Wash with warm water and a mild detergent, rinse thoroughly and dry with a non-abrasive, lint free cloth. Wax occasionally with a quality grade liquid or paste auto wax. Minor scratches can be smoothed with rubbing compound, but deep scratches should be touched up with paint to prevent rust. Plastic parts should be cleaned with non-abrasive plastic cleaner. Jewelers "rouge" can sometimes be used to polish out scratches in plastic.

Cabinet Interior

Remove power from vendor. Wash with warm water and a mild detergent, rinse thoroughly and dry with a non-abrasive, lint free cloth. Eliminate offensive odors by adding baking soda or ammonia to the cleaning solution. Use paint brushes to clean hard to reach areas such as cabinet and delivery box corners. A damp sponge will pick up loose particles from the delivery box. The delivery box drain tube is equipped with a screen, which can be removed for cleaning.

The vend motors and helixes in the Horizons require no lubrication.

CAUTION:

Spray cleaners, lubricants or silicone may damage these moving parts.

The nylon tray-rollers need no lubrication but do require occasional cleaning for smooth operation. The vend door and anti-cheat moving parts also require cleaning without lubrication. The main door hinges should require no lubrication, provided the cabinet is installed level. Occasional lubrication of the main door lock screw and lock nut with a quality lubricant, such as lithium grease, will allow the locking mechanism to function more smoothly.

The electronic coin changer is designed to operate without lubrication and minimal cleaning. Occasionally open the coin acceptor portion and wipe the exposed surfaces with a damp cloth.

For cleaning and caring for the bill validator see the Dollar Bill Validator section of this manual.

CAUTION:

Electronic or electrical components should be kept free of water or other conductive liquids. Should any of these components be exposed to liquids, rinse and dry thoroughly with forced air, heat or time before restoring power to the vendor.

BEFORE CALLING FOR SERVICE

Please check the following:

- Does your machine have at least 6” 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 circuit breaker at the fuse box reset?

PARTS ORDERING PROCEDURE

When ordering parts, include the following:

1. Shipping address.
2. Address where the invoice should be sent.
3. The number of parts required.
4. The model number and serial number of the machines.
5. Any special shipping instructions.
6. Carrier desired: air or air special, truck, parcel post, or rail.
7. Signature and date.
8. Purchase order number, if used, is legible and visible.
9. Correct part number and description from the pertinent parts and/or parts manual.

NOTE:

When “Right” and “Left” are used with a part name, it is taken to mean that the person is facing the machine with the door closed.

10. Mail your order to: **VendNet™**
P. O. Box 488
165 North 10th Street
Waukee, Iowa 50263-0488

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 the above address. They will provide a copy for you.

Do not wait to order until you receive the parts manual; instead use the most accurate description you can. Include the model number and serial number of the machine, the name of the assembly in which the part is used, and if practical, a sample part. Furnish any information which will enable our Parts Department to pinpoint the exact part needed.

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

Please have your Model and Serial Numbers

SCHEMATIC

