

 **CAUTION:** Read the instructions before using the machine. 



Vend-It®

Installation & Owner's Guide



INCREIBLY POWERFUL

INDUSTRIAL VACUUM SYSTEMS

www.IVS-Vacuum.com

800.968.8227



INDUSTRIAL VACUUM SYSTEMS

Thank You for your Purchase of an IVS Vend-it!®

Durable, secure, and easy to install... The Vend-It® 2000 is a profitable service addition to a variety of business models. Only the Vend-It® uses a patented (No. 6,994,230) rear load design, and coin pulse technology! With its high security construction, the Vend-It® 2000 delivers maximum profits, performance and security for your business.

Original Instructions follow for the IVS Vend-it® along with detailed safety, warranty and installation information.

Table Of Contents

IMPORTANT SAFETY INSTRUCTIONS	1
Limited Warranty	2
Introduction	3
Machine Specifactions	4 - 5
Unpacking the Unit	6
Mounting the Wall Flange	7 - 8
Mounting the Cabinet	9 - 10
Mounting the Front Door	11
Connecting the front door harnesses to the controls	12
Connecting the power	13
Mounting the Rear Door	14
Initialize the controls	15 - 16
Set-Up	17 - 20
- Currency	17
- Product Loading	18 - 19
- Pricing	20
Controls Definition	21 - 26
Cleaning and Care	27
Parts Break Down	28 - 42



IMPORTANT SAFETY INSTRUCTIONS

When using an electrical machine, basic precautions should always be followed, including the following:

READ ALL INSTRUCTIONS BEFORE USING THIS MACHINE

This machine is not intended for household use. It is intended for commercial use.

WARNING – To reduce the risk of fire, electric shock, or injury:

1. This machine must be connected to a permanent electrical power supply in full compliance with all applicable codes and ordinances by qualified personnel only. Read Grounding Instructions.
2. Do not allow to be used as a toy. Close attention is necessary when used by or near children.
3. Use only as described in this manual. Use only manufacturer's recommended attachments.
4. Do not operate or handle machine with wet hands.
5. Do not operate or handle machine with wet hands.
6. Keep hair, loose clothing, fingers, and all parts of the body away from openings and moving parts.

GROUNDING INSTRUCTIONS

This machine must be connected to a grounded metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the machine.

DANGER

This machine incorporates parts such as switches, motors, or the like that tend to produce arcs or sparks that can cause an explosion. When located in gasoline-dispensing and service stations, install and use at least 20 ft (6 M) horizontally from the exterior enclosure of any dispensing pump and at least 18 in (450 mm) above a driveway or ground level.

European Installations: Installation of this machine must incorporate and provide full disconnection of all poles in the event an overvoltage category III condition. Such incorporation to the fixed wiring must be in accordance with the wiring rules.

SAVE THESE INSTRUCTIONS



Limited Warranty

Industrial Vacuum Systems (Company) provides a limited one year warranty on components and piece of equipment produced by the Company to be free from defects in material and workmanship. Electrical assemblies see Appendix A, have a limited two year warranty on the controller to be free from defects in material and workmanship. This limited warranty does not cover equipment that has been damaged due to misuse, misapplication, modification, altered, neglected, attempted theft, vandalism, connection to improper voltage supply, modification, or such parts that are commonly recognized to be subject to wear in normal usage. Normal use products are, but not limited to, those listed on Appendix B; which are warranted for 90 days. Every component and piece of equipment is packaged to assist in safe handling of the product.

Claims must be submitted in writing within the appropriate coverage period as covered by this warranty, from date of shipment, to the Company's warranty/repair department. If the return is approved an RMA and labeling instructions will be issued and the product can be returned. Returned product without the appropriate RMA and label will be issued to scrap and all warranties/replacements will be considered null and void. If the product receiving the RMA is not returned within 20 days from date of issuing the RMA then any credit toward the product will be reduced by 25%. If the product is not returned within 30 days of issuing the RMA then any credit will be reduced by 50%. A testing fee of \$20.00 will be applied, if the product passes all tests related to the written claim, then the fee will be applied and paid prior to return of the product. If the product fails the test then the fee will not be applied. The Company may charge a 20% restocking fee for returned product and/or an order, which is canceled and/or material has already been ordered and/or received to fill such order.

The Company's warranty/repair department will inspect all components, submitted under warranty. Warranty replacement will be based solely on the analysis and confirmation that the product defect was caused by material and/or workmanship. The company reserves the right to change the design of the product without assuming any obligation to modify any product previously manufactured or to replace warranted product other than with redesigned product. In some cases it is easier for the customer to send a Company purchased product direct to the manufacturer for replacement. In those cases the customer will be notified that their product falls under that process and should work with that manufacturer directly. Appendix C shows the purchased parts that falls under this case.

This warranty covers the product replacement only; charges for damages, freight and/or labor will not be accepted. There are no warranties expressed or implied which extend beyond this Limited Warranty. The loss of use of the product, loss of time, inconvenience, commercial loss, incidental or consequential damages is not covered. The Company shall not be liable for incidental, special, or consequential damages including without limitation damages resulting from personal, bodily injury or death or damages to or loss of use of property.

APPENDIX A

2-Year Warranty Controllers
Sensortron, Multitron, Touchtron, Timers, Liberator

APPENDIX B

90-Day Warranty Components
Pressure Hoses, Swivels, Nozzles, Safety Shut-off Guns, Seals, O-Rings, Shop Vac

APPENDIX C

Purchased Products that are Handled Direct with the Manufacturer
Shop Vac, IDX Big Timer, Bill Acceptors, Compressors, Pump Motors



Introduction

This manual contains service and installation guidelines and instructions for the Vend-It vendors, models VR2000, VR2000BA, VR2001, and VR2001BA. It is recommended that you read and thoroughly understand the information in this manual before attempting to put these vendors in operation.

The Vend-It allows for up to 32 product selections on four shelves. Item positions are completely configurable with no tools required. Selections can be priced individually at various vend prices ranging from \$.25 to \$20.00 in twenty-five (25) cent increments.

Electrical malfunctions, service diagnostics and cash accountability are recorded by the control system and accessible when the machine is placed in the maintenance mode. Vend-It will provide convenient walk-by indication that a fault requires attention including low coin level in the hopper, bill acceptor out of service or motor fault.

Other features include:

- Provides individual testing of the coin mechanism, coin hopper and each motor.
- Full data log reset capability including total deposited, bills deposited by denomination, coins deposited, coins dispensed, quantity of each item vended.
- NEMA-4 waterproof enclosure for display and input keypads. Remotely mounted machine controller.
- Patented rear serviceable design.
- 12-gauge stainless steel wall mounting flange and powder-coated 12-gauge steel or optional 12-gauge stainless steel front door for superior security.
- Rear door is easily reversible.



Machine Specifications

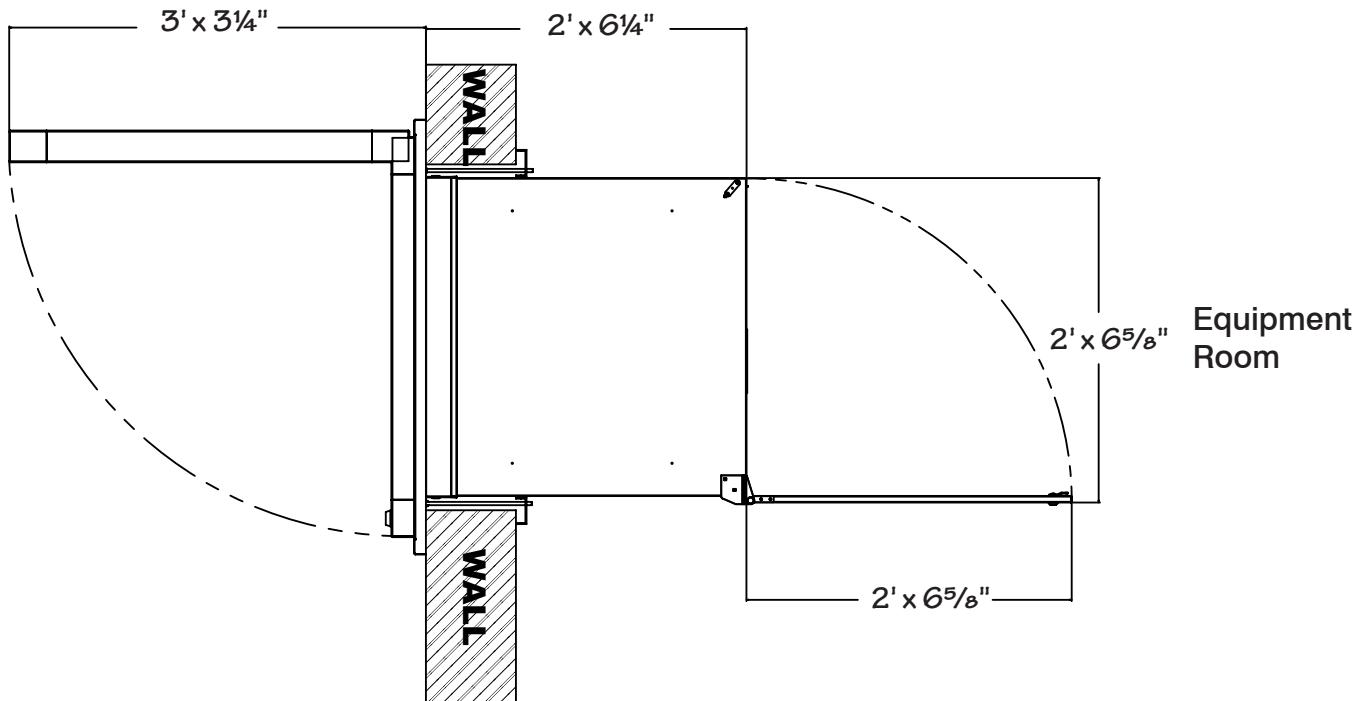
Vend-It is designed for outside access by the customer and inside access by the owner/operator. A contractor will need to cut a hole in the equipment room exterior wall for placement of the vendor. The hole will need to be 32 inches wide and 48 inches high to accommodate the vendor. In order to comply with ADA access requirements the bottom of the wall opening should be no higher than 18 inches above the base of the wall.

The equipment room external wall structure must be capable of supporting a 500 pound load. If the wall structure is not capable of supporting this load, add leg supports to the rear of the cabinet as needed.

The enclosed installation hardware will accommodate walls 6 inches to 9 inches thick. Any other wall depth will require local purchase of alternate bolts.

Please Note: This unit must be hardwired to the building's electrical service as indicated in the installation instructions. Also ventilation is not an issue – access to open the rear door and drawers are the issue.

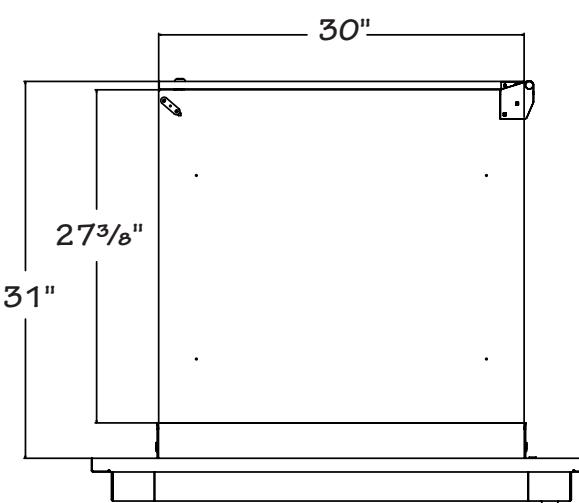
The machine is mounted through a wall --- the leveling of the unit takes place as the wall flange is installed in the wall.



Unit Measurements Continued and Misc
information on next page



Machine Specifications



Electrical Information:

- 120 Volt AC, 50/60 Hz, 3 amps

Weight

- 500 lbs (shipping weight – 550 lbs)

Capacities

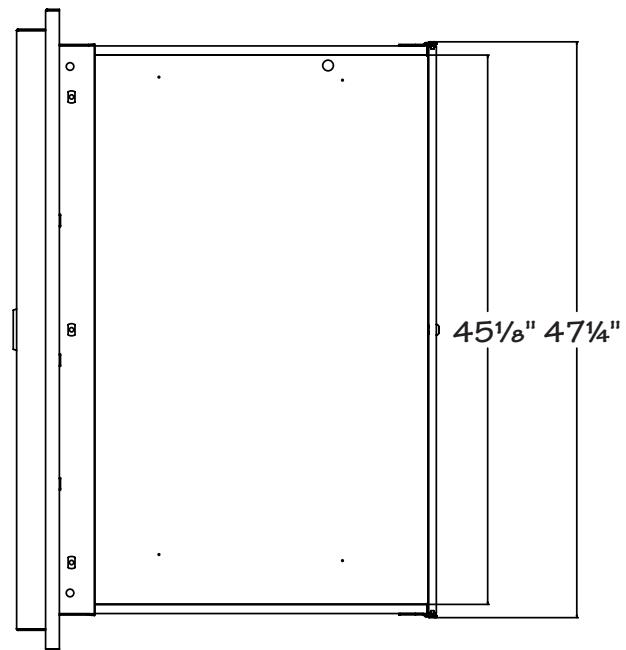
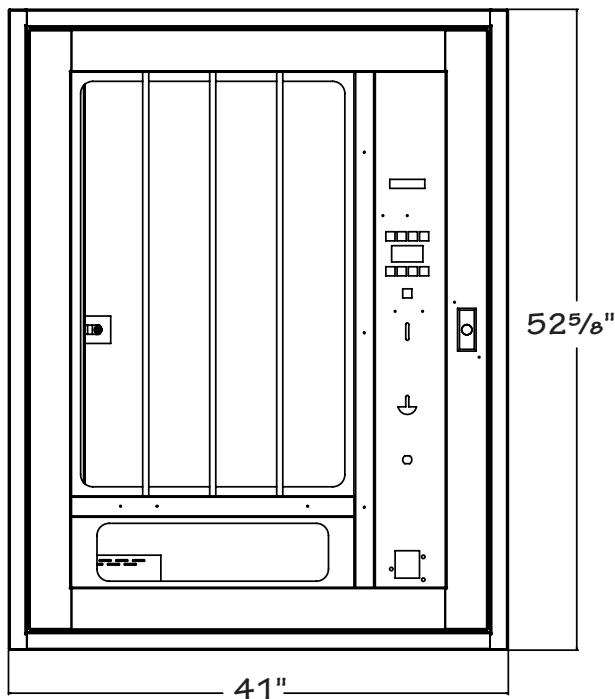
- 4 shelves
- 8 items per shelf maximum
- 32 maximum total products

Vend Prices

- \$0.25 - \$20.00 in \$.25 increments

Money Handling

- Standard Sensortron coin pulse coin acceptor
- Standard Mars AE2412 bill acceptor
- Change dispensed as Quarters only



Unpacking the Unit

Equipment is inspected prior to shipment and has been packed in a manner to prevent damage during transit.

Unpack vendor in the following manner:

1. Remove the master carton by removing the staples holding it to the skid.
2. With help, cut the banding securing the Wall Flange and Front Door cartons to the vendor body. Remove the 2 cartons from the pallet. Until ready to use these items, lay these cartons flat with the "Team Lift" printing up.
3. Open the Wall Flange carton and locate the hardware kit and two installation channels enclosed
4. When ready to install the Front Door, open that carton by cutting the banding securing the box and remove the door.
5. Cut and Remove the nylon cables securing the shelves inside the cabinet. Be careful to avoid cutting any wires in the process of cutting the cables.
6. Do not remove masking tape or rubber bands securing parts to the front and rear doors or shelves until instructed to do so during installation to prevent them becoming misplaced or damaged.



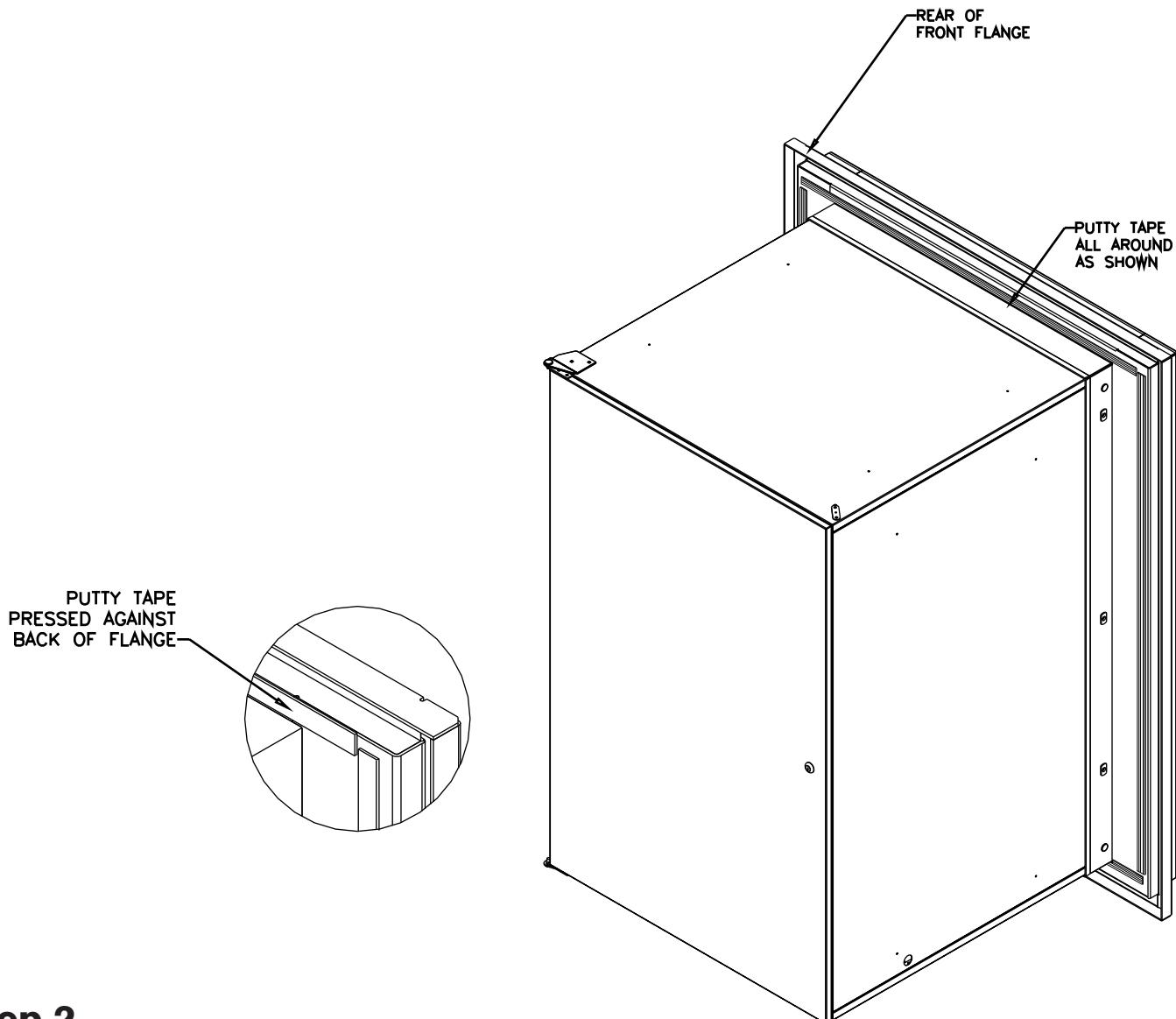
INSTALLATION

Mounting the Wall Flange

All installation hardware is packaged with the wall flange.

Step 1

Position the putty tape (included with installation hardware) on the back of the wall flange, as shown, along the top and then down both sides. If needed, use a few dots of adhesive caulk to temporarily hold the putty tape in place. Do not remove the paper backing from the putty tape until you are ready to place the wall flange in the wall.



Step 2

From the outside of the building, remove the backing paper from the putty tape and insert the wall flange into the wall opening.



INSTALLATION

Mounting the Wall Flange

Step 3

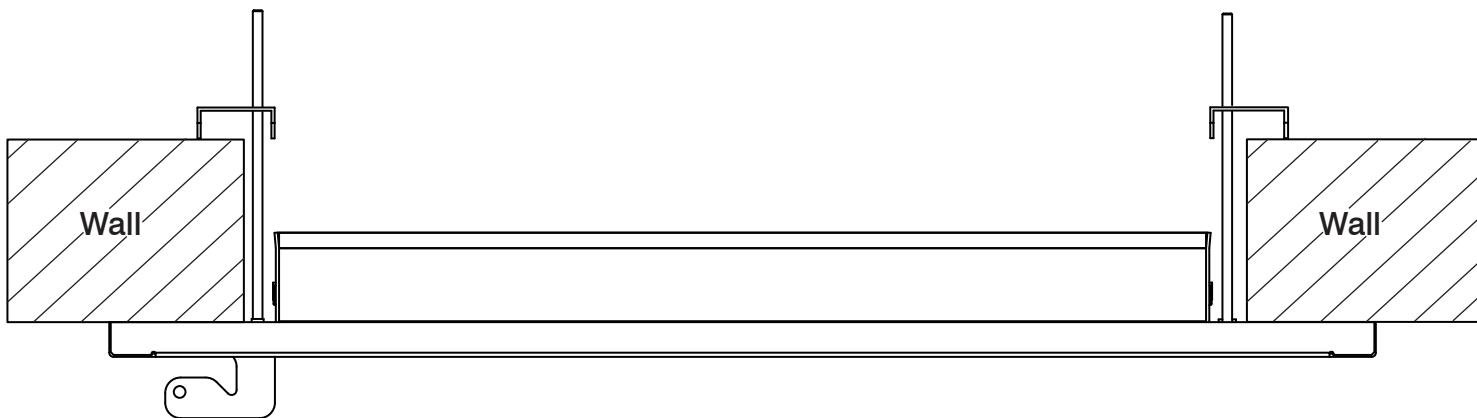
Insert the six 3/8 inch x 10 inch carriage bolts into the three square holes on each side of the wall flange.

Step 4

From the inside of the building, place an installation channel over the three bolts on each side of the wall flange.

Step 5

Put a 3/8 inch nut on each bolt and tighten only enough to keep the flange loosely in position. Do not fully tighten the nuts.



Step 6

Shim the bottom, outside edges of the wall opening to level and center the wall flange in the opening.

Step 7

Tighten the 3/8 inch nuts holding the installation channels. As you tighten the nuts, the channels may shift toward the center of the opening. If they move, be sure to maintain at least 30-1/2 inches between the channels so the cabinet will properly mount to the flange. You may choose to fully tighten the nuts after the cabinet is mounted.



Step 8

Thoroughly caulk the area between the wall flange and the building wall. The installer is responsible for adequately caulking the area around the wall flange. Use a high quality caulk suitable for this type of equipment and your location.



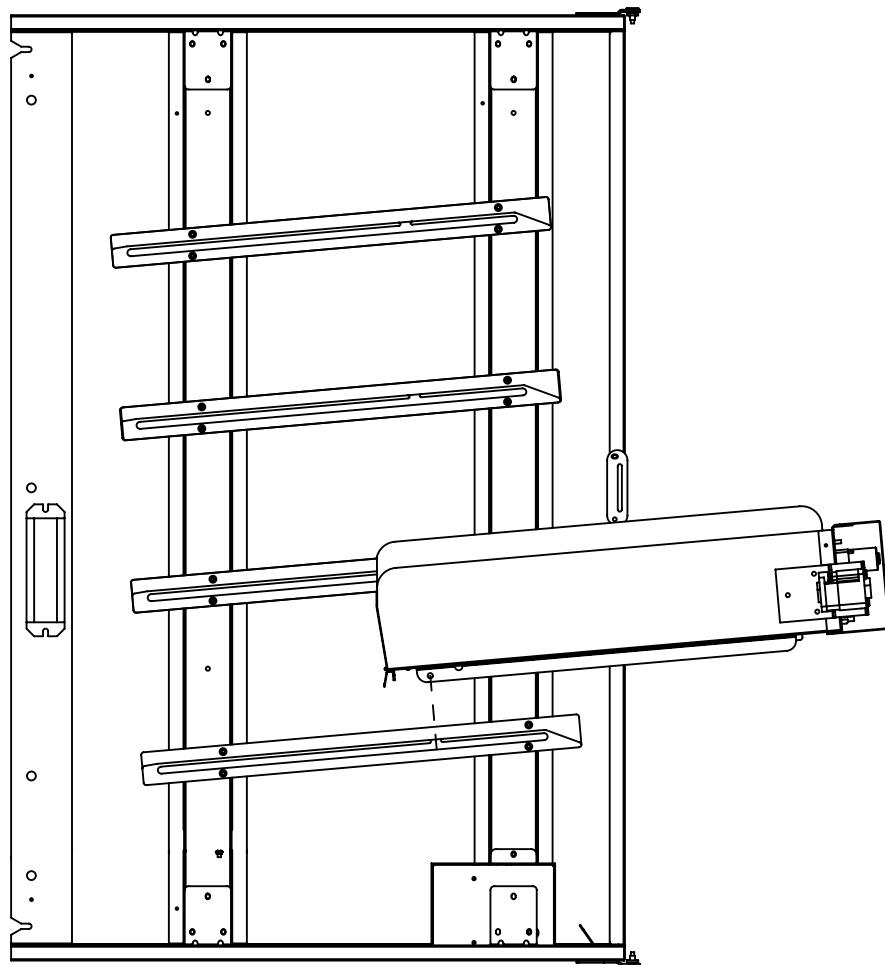
INSTALLATION

Mounting the Cabinet

Step 1

Remove the shelves from the cabinet as follows:

- a. While supporting the rear of the shelf, begin to slide it back while allowing it to pivot down.
- b. Pull the shelf about three quarters of the way back out of the cabinet to where a guide pin on each side aligns under a gap in the shelf guide.
- c. Place a hand under the body of the shelf and lift slightly to free it from the shelf guide and remove it from the cabinet.



INSTALLATION

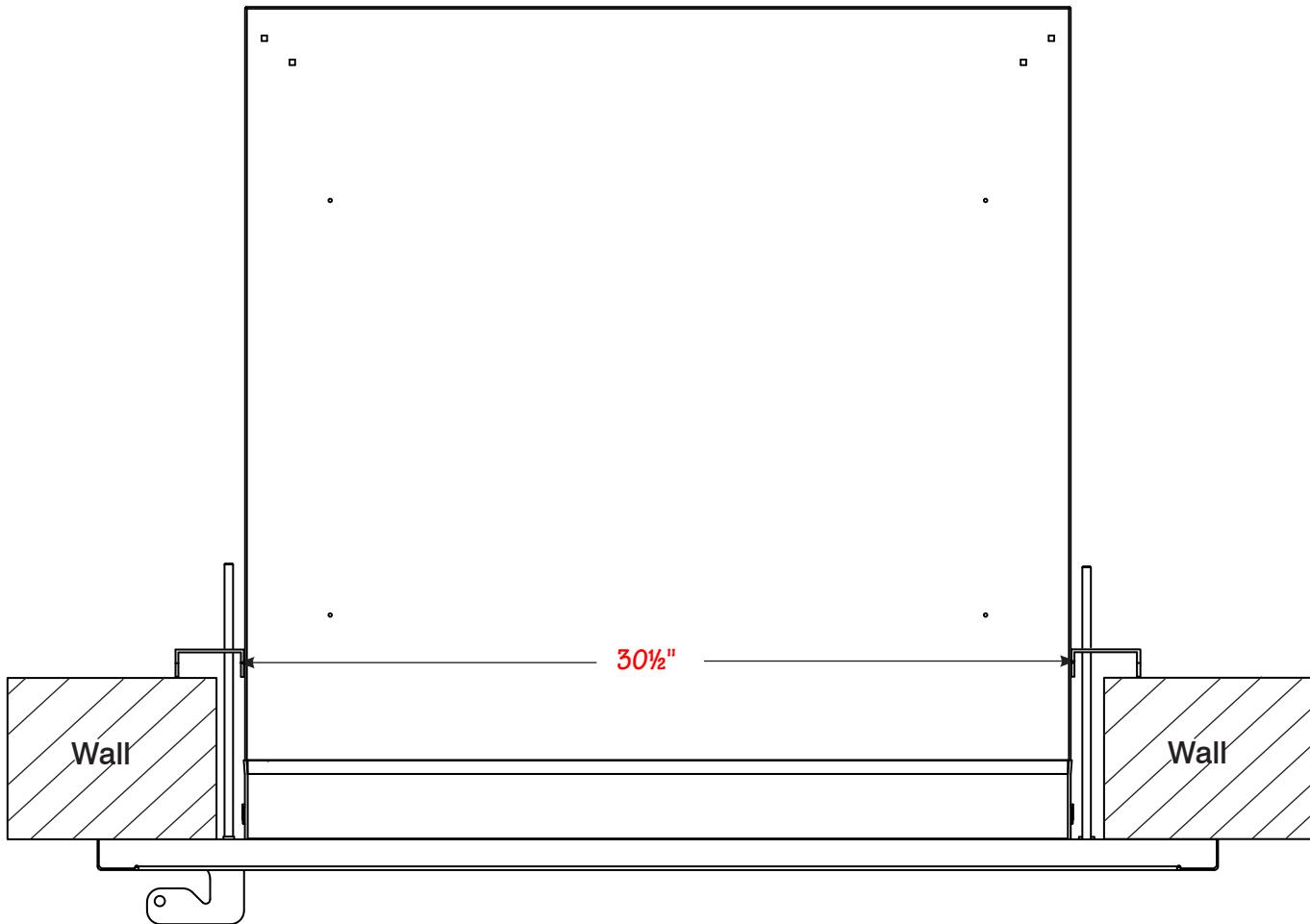
Mounting the Cabinet

Step 2

Mount the cabinet to the wall flange as follows:

Note - Examine the cabinet and wall flange and become familiar with the alignment pins and bolt holes before proceeding.

- a. From inside the building, lift the cabinet (requires two people) by gripping the top and bottom and line it up with the opening in the wall.
- b. Insert the cabinet into the wall opening and attach it to the wall flange by aligning the four notches in the cabinet with the four pins in the wall flange. All four pins must be positioned properly to allow insertion of retaining bolts.
- c. From outside the building, insert the four 3/8 x 3/4 inch retaining bolts. The cabinet must be supported while the retaining bolts are installed.
- d. Tighten the retaining bolts. The cabinet is now supported by the wall flange.



INSTALLATION

Mounting the Front Door

Please read and become familiar with this entire section before trying to install the front door.

The front door weighs more than 100 pounds.

Do not attempt to install it without assistance.

Doing so may result in personal injury or damage to the door.

Step 1

Remove the masking tape holding the two 1/2 inch long nylon bushings into the two hinge arms of the wall flange.

Step 2

Remove the masking tape securing the nylon shoulder washer to the lower hinge tab of the door.

Step 3

Lift the door so that the top hinge pin is positioned just above and to the left of the top hinge arm of the wall flange.

Step 4

With the door very close to the wall flange, carefully move the door straight into both hinge arms. It isn't necessary to rock or twist the door around the hinge arm.

Step 5

Place the top hinge pin of the door into the top hinge arm bushing of the wall flange. Make sure the door is aligned with both hinge arms of the wall flange before trying to lower the door.

Step 6

With the top hinge of the wall flange supporting the weight of the door, align the lower hinge hole and insert the 1/4 inch x 3/8 inch shoulder screw fully from the top.

Step 7

Secure the screw with a 10-24 nyloc nut.

Step 8

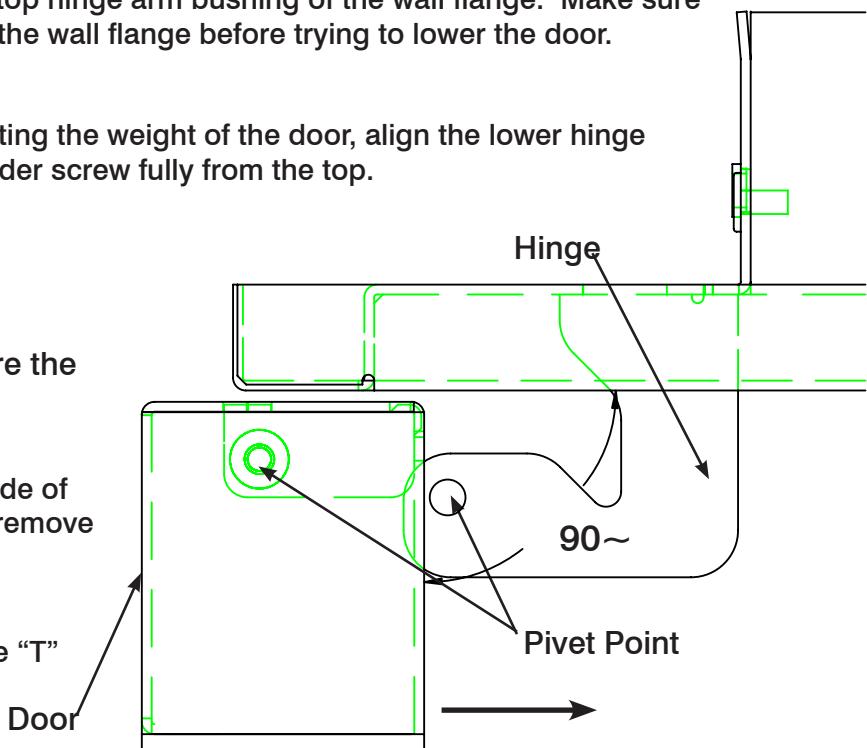
Remove the masking tape used to secure the two lamps during shipping.

Step 9

Turn the "T" handle lock on the front right side of the door counterclockwise to unlock it and remove the key.

Step 10

Close and latch the front door by turning the "T" handle clockwise until it stops.



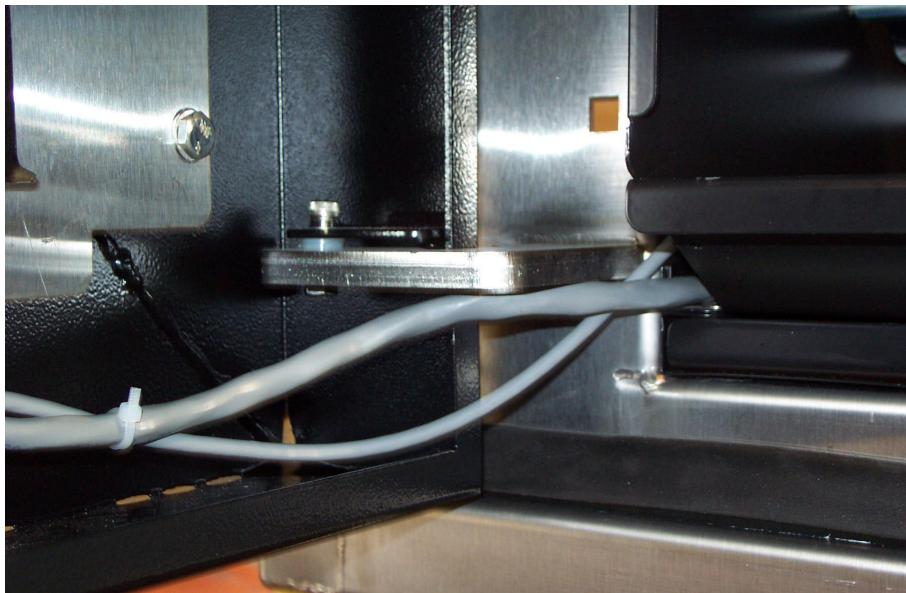
Connecting The Front Door Harnesses To The Controls

Step 1

Guide the harness cables coiled at the bottom of the door, along the left hand side of the delivery box at the bottom front of the cabinet back to the motor control located at the back of the cabinet. Provide the cables with minimal slack along the bottom hinge of the door.

Step 2

Guide the smaller diameter cable from the back of the delivery box to the motor control located at the back of the cabinet. Use preinstalled nylon retainers to secure the cable.

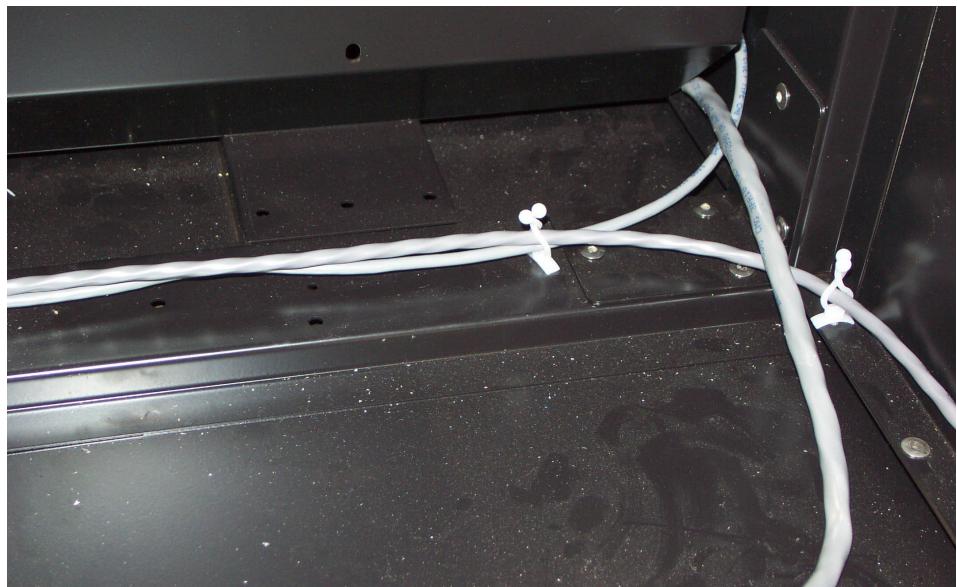


Step 3

Plug smaller diameter cable into the lowest connector on the left side of the motor control.

Step 4

Guide the larger diameter cable to the motor control located at the back of the cabinet. Use preinstalled nylon retainers to secure the cable.



Step 5

Plug the larger diameter cable into the top connector on the right side of the motor control.



Connecting The Power

Before connecting the vendor, the integrity of the electrical supply must be checked by a licensed electrician for correct polarity, voltage, ground and circuit protection. All electrical connections must be free of moisture before applying power. Electrical requirements are 120 volts, 50/60 Hz, 3 amps.

This machine is manufactured to UL Standard 751 and that standard requires the unit be hardwired into the buildings wiring. All electrical installation must be in compliance with all applicable codes and standards.



**CAUTION ELECTRICAL SHOCK
HAZARD - DISCONNECT POWER
PRIOR TO BEGINNING ANY SERVICE
OR INSTALLATION WORK. CONTACT
A TRAINED ELECTRICIAN IF YOU
ARE UNSURE OF THESE
PROCEDURES.**

Step 1

Remove the two screws securing the power supply.

Step 2

Install the appropriate conduit connector in the hole provided.

Step 3

Attach the supply ground to the ground stud on the cabinet wall.

Step 4

Connect the white and black wires of the vendor power supply.

Step 5

Reattach the power supply and secure it with the two sheet metal screws.



INSTALLATION

Mounting the Rear Door

Determine whether a right hinge or a left hinge door will work best for your installation. While the instructions and illustrations below show a left hinged door, they apply equally to a right hinged door.

Refer to the accompanying drawing to illustrate the hinge and cover locations. While the Top component is shown, the bottom component is typical.

Step 1

Attach the lower hinge plate to the outside of the cabinet by aligning the holes in the plate with the holes in the cabinet and inserting two #10-24 carriage screws.

Step 2

Tightly secure the screws with two #10-24 keps nuts.

Step 3

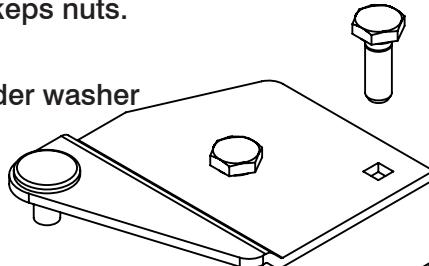
Attach the upper hinge plate to the outside of the cabinet by aligning the holes in the plate with the holes in the cabinet and inserting two #10 carriage screws.

Step 4

Very loosely secure the screws with two #10 keps nuts.

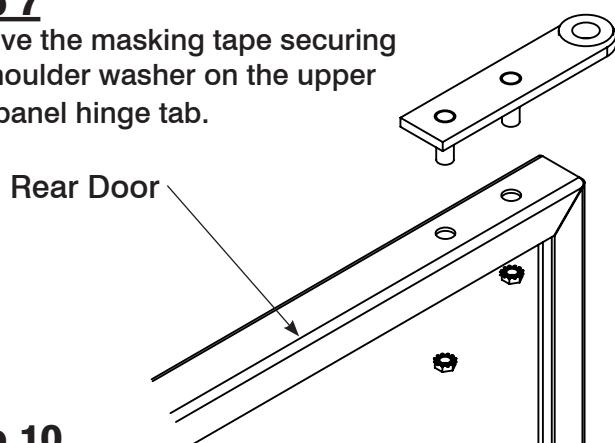
Step 5

Remove the masking tape securing the shoulder washer on the lower door panel hinge tab.



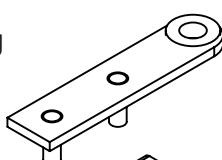
Step 6

Place the lower door panel hinge tab on the lower hinge plate pin.



Step 7

Remove the masking tape securing the shoulder washer on the upper door panel hinge tab.

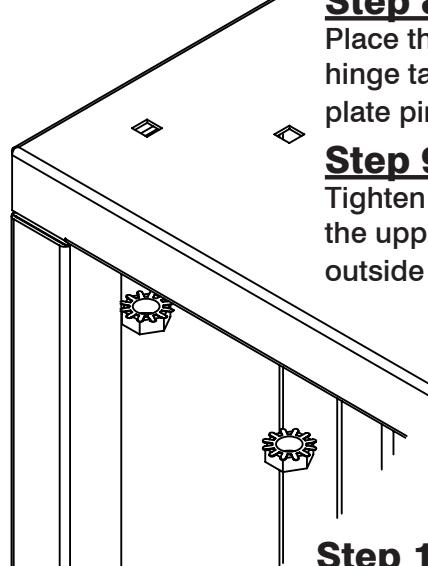


Step 8

Place the upper door panel hinge tab into the upper hinge plate pin.

Step 9

Tighten the nuts securing the upper hinge plate to the outside of the cabinet.



Step 10

Attach the lock strike plate to the cabinet side so that the lock cam slot is toward the rear door by aligning the holes in the plate with the holes in the cabinet and inserting two #8-32 x 1/2" screws.

Step 11

Secure the screws with two #8-32 keps nuts.

Step 12

Adjust the strike plate to produce a comfortable closure.

View of Upper Right hinge mount



Initialize the Controls

For a detailed description of the controls, please read Controls Definitions.

Step 1

Reinstall the shelves in the cabinet as follows:

- a. Place a hand under the body of the shelf and slide it into the cabinet from the rear, above the shelf guide rails, until the guide pins on each side of the shelf are positioned over the gap in the shelf guide rails.
- b. Allow both pins to drop through the gaps in the shelf guide rails so that the shelf is sitting level inside the cabinet.
- c. Slide the shelf the remaining distance forward in the cabinet until it reaches the limit of it's travel.
- d. The factory configuration of the unit is as follows

Top shelf	Five 4" diameter helixes
2nd & 3rd shelf	Three 4" and three 2-1/2" diameter helixes
Bottom shelf	Eight 2-1/2" diameter helixes

Step 2

Add quarters to the coin hopper as follows:

- a. From the rear of the cabinet, find the coin cup and coin hopper fastened to a tray in the lower left corner.
- b. To access the coin hopper, lift the spring plunger knob and pull the tray out far enough so that the coin hopper can be reached.
- c. Remove the shipping tape securing the overflow bucket.
- d. Add seven to ten rolls of quarters to the hopper. Without a minimum level of change, the bill accepter will be disabled.
- e. Slide the tray back into the cabinet until the spring plunger locks it into position.

Step 3

The Power switch is located on the Power Supply box located on the cabinet bottom at the right rear of the cabinet. Turn the power switch to the on position.

Step 4

The pilot lamp next to the power switch will indicate the line voltage power is on.

Step 5

When the controls have completed start up, the motor control display will alternate between the messages "Vending Mode" and "Press Exit for Maintenance".

Step 6

Press the <EXIT> button, the single button on the bottom of the keypad, to enter the Maintenance Mode. The display will read "Maintenance" and then change to "Coin Acceptor".

Step 7

As a test, deposit several quarters through the coin acceptor. The motor control display will indicate the value of the quarters deposited.

Step 8



Initialize The Controls

To test the bill acceptor, press the right <MENU> button once. The motor control display will read “Bill Acceptor”. Deposit a one dollar bill and a five dollar bill. The display will indicate the value of the bills deposited.

Step 9

Verify the coin hopper level by pressing the right <MENU> button once. The motor control display will read “Hopper Level” and will indicate if it is “OK” or “LOW”. If you have loaded the recommended seven to ten rolls of quarters, the hopper should be nearly half full and the display should read “Hopper Level OK”.

Step 10

To test the coin hopper, Press the right <MENU> button once. The motor control display will read:

“Coin Hopper>>?”
“1 2 ^ 4”

Press the button under the <1> to dispense one coin from the coin hopper into the change or refund cup on the front door. Press the button under the <2> to dispense two coins. Press the button under the <4> to dispense four coins.

Step 11

To Zero All Motors, press the right <MENU> button once. The display will read:

“Zero All Motors”
“Run”

Press the button under “Run” to sequentially “zero: each motor beginning with the motor in the shelf position A-1. A message in the upper right hand corner of the display will indicate which motor is in the “zero” process. If a motor fails to “zero”, the process will stop. Please refer to the Controls Definitions section for additional details.

Step 12

Press the <EXIT> button to return to the Vending Mode.

Step 13

The controls are now initialized.



Set-Up - Currency

Coin Acceptor

The standard coin acceptor included in the Vend-It, the Sensortron coin pulse coin acceptor, is shipped with a manufacturer's instruction sheet. Please refer to this instruction sheet for set up and operation.

Bill Acceptor

The standard bill acceptor included in the Vend-It is the Mars AE2412 bill acceptor. The bill acceptor is pre-programmed as follows:

- Accept \$1
- Accept \$2
- Accept \$5
- High Acceptance
- 4 way bill direction
- 4 pulses per dollar
- Long pulse
- Harness enabled

These parameters are set with the programming switches located on the left hand side of the bill acceptor. The factory settings are as follows:

- 1 On (4 way acceptance)
- 2 On (4 way acceptance)
- 3 Off (high acceptance)
- 4 On (accept \$1)
- 5 On (accept \$2)
- 6 On (accept \$5)
- 7 Off (1 pulse per dollar)
- 8 On (Harness enable)

Changing the parameters of these switches will change the operation of the bill acceptor. Switch 8 must be in the On position unless specifically instructed otherwise by factory personnel. For further information on the bill acceptor, refer to the enclosed manufacturer's documentation.



Set-Up - Product Loading

Shelf Configuration

- Vend motor locations are identified by shelf and position
- The identification of a given shelf is determined by its physical location in the machine. The top shelf is always "A", the second shelf from the top is always "B", the third shelf from the top is always "C", the bottom shelf is always "D".
- Shelf positions are numbered 1 (first position to the left) through 8 (last position to the right) when viewing the shelves from the front of the vendor.

Shelves can be reconfigured as follows

1. Remove motor cover by lifting top side corners to free (2) retaining rivets. One at a time. Then pull down on the bottom corners to release the cover. It is necessary to remove the motor cover in order to adjust or change a vending helix or move or change a motor.
2. To change a helix or reposition the free end position, pinch the split arrowhead protruding thru the back of the motor hub and pull the helix adapter out of the motor hub from the front. The helix can be rotated in 45-degree increments to change the free end or delivery end position of the helix to accommodate different vending needs. Once the desired position is reached re-insert the split arrowhead full into the motor hub until it locks.
3. To re-install the motor cover, ensure all wires are positioned so as not to be pinched, or damaged. Place the 2 top retaining rivets in the holes on the top of the shelf and pull the lower corners into position and insert those 2 rivets into their respective holes.
4. Each shelf can be configured with
 - 2 1/2 inch wide single helix columns
 - 4-inch wide single helix columns
5. Removing and re-installing shelf dividers. Push the dividers to the rear of the shelf to release the retainer tab hooks on the bottom of the divider and rotate the divider up and out of the shelf. If installing dividers in an offset helix configuration as is used on the inside 2 1/2 inch helix of the factory standard 6 column shelf, the extra space must be to the right of the helix as viewed from the rear.
6. Remove and re-install motors. Remove the harness wires from the motor terminals by grasping the terminal and pulling it free. Note: terminal is a high-pressure configuration and is very tight, DO NOT pull by the wires. Doing so will damage the harness. Use fingers only – DO NOT use tools doing so will damage the harness or motors. Vending motors are a one-piece assembly consisting off a gear case and an electric motor drive. The VR2000 series considers these units one piece. Release the motor from the shelf by depressing the snap tab at the top of the motor from inside the shelf and rotate the motor out and up to release the 2 lower retainers. Re-install the motor by reversing this process.

When reconfiguring motor locations, the motor must be connected to the correct wire. Remember motors are numbered left to right when viewed from the front of the machine.

- 1 black
- 2 red
- 3 orange
- 4 blue
- 5 brown
- 6 yellow
- 7 purple
- 8 gray

For single drive motors, these wires connect to the smaller or top terminal on the motor.



Set-Up - Product Loading

For dual drive motors these wires connect to the small terminal on the circuit board attached to the back of the motor.

On the shelf, the white wire connects to the larger or lower terminal on the single drive motor.

On dual drive motors the white wire connects to the terminal on the limit switch.

Loading Guidelines

Shelf configuration considerations

2 basic rules for helix vending

1. Helix pitch or space width and column width must be correct. If these two fits are too tight, the product will likely jam or get hung up in the helix as it is vended. When choosing a helix and column, the product should easily slip into and out of the helix with little or no friction. Binding a product in a helix or column may overload and damage the motor. You may also experience vending difficulties if the fits are too loose or sloppy as products may twist or roll over in the helix.
2. The free end position or vending end of the helix plays an important role in successful vending. The end position serves two functions keeping the product on the shelf until it is vended and ensuring the product leaves the shelf completely when vended. To adjust the location of the free end of the helix, refer to the section above regarding adjusting the shelf configuration.

Additional guidelines.

The most difficult items to vend are thin, light items with large surface areas. They tend to flutter rather than drop. Typically these are items like fragrance trees and foil pack wipes. Fragrance trees vend best from the bottom or "D" shelf, and should not be vended from the very outside columns. Bottles and other larger products can bounce, but typically aren't a problem to vend if the spiral fit is good and they are loaded so they lean slightly to the rear. Unwrapped folded towels can open when being vended or in the helix if the fit is too tight.

Dual drive columns are good for wider bulky items.

Column ramps are located at the front of the shelf on either side of the helix. They keep the helix in line with the motor output hub and also help lift products off the helix wire just before vending. However, some cellophane or foil wrapped products may not ride on them well. Column ramps can be swapped in and out of the shelves as needed.

Product loading

Support the shelf using the handle cut out of the motor cover on the back of the shelf and slide it back until it stops. Lower the rear of the shelf until it rests. Avoid dropping the shelf as doing so may cause damage. Ideally products are loaded so they lean back in the helix and rest on the shelf bottom rather than the helix wire. In order to get a good fit with the helix and column width, some products may need to sit on the helix wire. These products may be the ones that could be more difficult to vend.

If you have to fold a product's packaging in order to fit it into the helix or column, it will probably jam.

When loading a new product for the first time, it is recommended you test its vendibility using the "cycle" feature of the "Individual Motor Maintenance" motor control function. Sometimes you will need



Set-Up - Product Loading - Pricing

to observe the vending test from the front of the machine if you experience vending difficulties. Helix style vending machines will vend many different products. Successfully vending items from this type of vendor sometimes means experimenting until you get the right combination of helix and column position.

Product Pricing

This function is password protected. Unless the correct password is entered, the control options to change a price will not display.

A price of \$0.00 is not a valid price. Locations with a \$0.00 price will not appear on the front display as available selections for purchase.

1. Enter the password to set the price for each shelf location.
2. After the correct password is entered, the display will read:

“Motor: A-1 \$0.00”
“ - \$1 + -.25 +”

3. Use the <STEP> keys to select the motor location.
4. Find the current price setting for the selected location in the upper right hand corner of the display.
5. Change the current price setting as follows:
 - a. To reduce the price by \$1, press the button under “-\$1”
 - b. To increase the price by \$1, press the button under “\$1 +”
 - c. To reduce the price by \$.25, press the button under “-.25”
 - d. To increase the price by \$.25, press the button under “.25 +”
6. To save the displayed value as the current value for that location, press <STEP>, <MENU> OR <EXIT>.



Controls Definition

The motor controls display and keypad referred to in this section are located in the rear of the cabinet.

Press the <EXIT> key, the single button at the bottom of the keypad, to toggle between vending mode and maintenance mode. After pressing the <EXIT> key once, the display will read "Maintenance" and then change to "Coin Acceptor".

When in the Maintenance Mode, the front display will read "Out of Service". Also while in the Maintenance Mode, if there is no keypad activity for 2-1/2 minutes, the controls will return to the Vending Mode.

Move from menu to menu using the <MENU> Buttons. Use the <STEP> buttons to move from Step to Step within each menu function. See specific menu functions below for details.

Menu Functions are listed here in the sequence they appear when pressing the Right <MENU> button.

Coin Hopper Level

Press the Right <MENU> button once. The display will read "Hopper Level" and indicate if it is "OK" or "Low". If the coin hopper level is "Low", a fault condition will be set in the Fault Log. If the hopper level is low, the bill validator will be disabled by the controls. When sufficient coins are added, either by coins being deposited through the coin acceptor or by adding coins through the rear access, the display will change to indicate the hopper level is OK and the bill acceptor will be enabled. The fault log, however, will need to be cleared. Please see the Fault Log Section below for further important information.

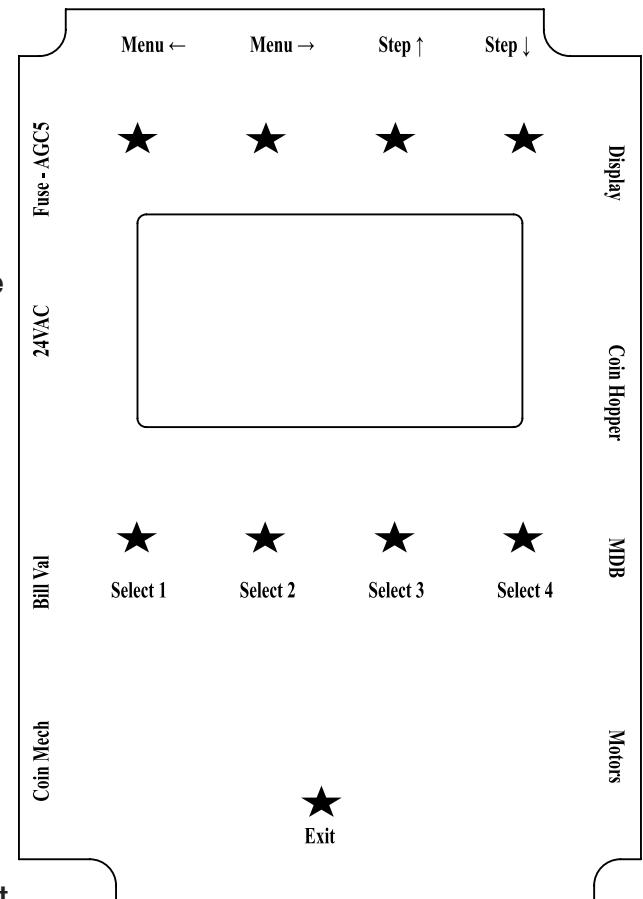
Coin Hopper

The display will read --

"Coin Hopper Crdt ?"

"1 2 ^ 4"

Press the button under the <1> and one coin will be dispensed from the coin hopper into the change or refund cup on the front door. Press the button under the <2> and two coins will be dispensed. Press the button under the <4> and four coins will be dispensed. The ">?" in the upper right corner of the display can be changed to any custom number of coins by pressing the <STEP UP> and <STEP Down> buttons. Once the desired number of coins is set, press the button under the < ^ > to dispense that number of coins into the coin refund cup. Please



Controls Definition

note the danger in setting this number too high. The coin refund cup can become so full that the flapper door will not open. If that happens, it is necessary to remove the coin refund cup from the front door and clear the coins from it.

Coin Diverter

Pressing the button under this setting will toggle the coin diverter solenoid between ON and OFF. When the coin hopper reaches a high level, the coin diverter solenoid will turn on. The diverter door will close and all deposited coins will route to the overflow bucket behind the coin hopper. When enough coins are dispensed as change or refunded for cancelled purchases, the solenoid will turn off, the diverter door will open and coins will be routed to the hopper. Because the diverter door opens by gravity, it may not open immediately when the solenoid turns off. If it does not open immediately, it will open when the next coin is deposited. This condition does not indicate a faulty diverter door or solenoid.

Please note that this function is for testing the action of the coin diverter only. It will not set a preferred condition for the solenoid. Returning to the vending mode causes the diverter solenoid to function as directed by the controls in response to the coin hopper level.

Zero All Motors

All motors must be zeroed. Motors that are not zeroed will cause vending problems. Under normal operating conditions, motors do not lose their zero.

Causes of lost zero are typically related to loss of power to a motor during the zero process or vending cycle. Once the power failure is resolved, the motor can be re-zeroed.

During the zero process, products in the vending helixes will be vended into the delivery box.

Depending on the motor revolution position at the start of the zero process, it may take up to 3 full revolutions for the motor to be zeroed.

The display will read--

“Zero All Motors”

“Run Stop”

Pressing the button under <Run> will sequentially “zero” each motor beginning with motor A-1. The location of the current motor being “zeroed” will be displayed in the upper right corner of the display. While the process is running, <STOP> will appear on the bottom line of the display. Pressing the button under <STOP> will immediately stop the process and the display will read – “Motor Zero Stopped”

“Try Again Exit”



Controls Definition

If the right hand button under <Try Again> is pressed, the controls will return to the beginning of the Zero All Motors function and allow you to start the process over beginning with motor A-1.

If the button under <EXIT> is pressed, the controls will move to the beginning of the individual motor maintenance function. Refer to that section for details on that function.

Please note that if the Motor Zero Function is “Stopped” the motor being zeroed at that time will not be in the “Zero” position. Unless that motor is “zeroed” it will cause vending problems.

If a motor fails to zero after four revolutions or approximately 30 seconds, the controls will exit the motor zero function and go to the individual motor maintenance function for that motor location. After resolving any mechanical faults – damaged wire, visibly faulty or jammed motor – zero that individual motor from this location or one of the other motor zero operations. If a motor fails to zero, it is not entered in the fault log as a motor fault. It will be necessary to complete the motor zero process for the remaining motors.

Zero Motor By Shelf

The display will read:

“Zero Motors Shelf A”

“Run Stop”

This menu item performs the same motor zero function as the Zero All Motors menu function but it performs them one shelf at a time beginning with the first motor on that shelf. Use the <STEP> keys to select the desired shelf.

When a shelf has finished the zero process, the controls will step to the next shelf and wait for the button under <RUN> to be pressed to start that shelf. Note that in this menu, shelves may be zeroed in any order desired by using the <STEP> keys to select the desired shelf.

Individual Motor Maintenance

The display will read:

“Motor: A-1”

“Zero Cycle Stop”

Use the <STEP> keys to select the desired motor location.

Pressing the key under <ZERO> will zero that motor in the same manner as the other motor zero functions.

Pressing the key under <CYCLE> will cause the motor to rotate one revolution to simulate a vend cycle. This function is very useful for testing the vendibility of a particular product loading.

If a particular motor location has no motor installed, the display will indicate this by reading “No Motor”. This indicates that the controls cannot electrically sense the presence of a motor at that



Controls Definition

location. If a motor is physically there, this is an indication of a wiring or electrical fault.

Product Pricing

See Product Loading section.

Fault Logs

These are machine or control faults that the controls have encountered that require the operator's attention.

The existence of an entry in the fault log will give two visual indications that a fault state exists.
#1-The front display will switch from:

“Buy Your
Detailing
Products
Here”

to:

“> Buy Your <
Detailing
Products
Here”

#2 – The motor controller display will switch from:

“VENDING MODE”

“ “ (The second line is empty.)

to:

“VENDING MODE”

“>CHECK ERROR LOG<”

These messages are cleared when the fault has been corrected and the log cleared.

Press the <STEP> keys to move from item to item.

Hopper Timeout Fault

This fault will be logged if the coin hopper fails to dispense a sufficient number of coins as either change or refunded money for a cancelled purchase. This condition may be the result of a coin jam or the hopper running out of coins.

This fault will place the machine in an “Out of Service” state until the fault is cleared. This is the only fault that will place the machine in an out of service state other than placing the motor control in the Maintenance Mode.



Controls Definition

This Fault will cause the front display to read “Out of Service!”.

The Motor Control display in the rear of the machine will read:

“Out of Service

Press Exit”

When the Exit button is pressed, the controls will go directly to this fault log. The display will read:

“Hopper Timeout Fault

FAULT \$X.XX Clear?”

Indicating the amount of change the hopper failed to dispense.

Pressing the <Select 4> key under the “Clear?” will reset the fault

Hopper Low

If the coin level in the hopper gets low enough that the two lower metal sensing plates do not have coins connecting them, the hopper will register a low coin level and log this fault. This fault will also cause the bill acceptor to be disabled as indicated by the “2 flash” code given by the red indicator light on the back of the bill accepter. When sufficient coins are added, either by coins being deposited through the coin acceptor or by adding coins through the rear access, the bill acceptor will be enabled automatically. The log will still need to be cleared since more coins should be added in order to provide an adequate change supply.

Pressing the <Select 4> key under the “Clear?” will reset the fault

Bill Acceptor Fault

If the bill acceptor internal diagnostics detect an internal fault and disable the bill acceptor, a bill accepter fault will be logged. Clearing this fault log does not return the bill acceptor to service. Clear the fault in the bill acceptor before clearing the fault log. Note that the “2 flash” error code given by the red light on the back of the bill acceptor means the bill acceptor has been disabled by the vending machine controls not the bill acceptor.

Pressing the <Select 4> key under the “Clear?” will reset the fault

Motor Fault

If a motor fails to complete a vend cycle, it will be logged as a faulty motor and removed from the controller’s list of valid motor locations. The location will not be available for purchase.

Pressing the <Select 4> key under the “Clear?” will reset the fault



Controls Definition

More than one motor may be logged as faults. After clearing a motor fault, press the <Exit> key to exit the Maintenance Mode. Press the <Exit> key a second time to re-enter the Maintenance Mode and return to the Motor Fault log and clear any additional motor faults.

Data Logs

This function is password protected. If the correct password is not entered, the stored value for that item will be displayed but the control input to reset that log to zero will not be displayed. The log for each item must be reset individually.

Press the <STEP> keys to move from item to item:

“Coins” The total number of coins deposited since the last reset.

“Bills” Value of the bills deposited since the last reset.

“Returned” The number of coins returned since the last reset as either change or refunded money due to cancellation.

“Motor A1” The number of items vended from that location since the last reset. (Applies for all motor locations A1 – D8).

Password

The display will read:

“Password _____”

“ 1 2 3 4 ”

Enter the correct 4 digit password in order to access password protected items by pressing the key under the appropriate numbers in the correct sequence. As the numbers are entered, they will be displayed in the upper right corner.

Factory default Password is “1234”.

When the correct password is entered, the display will change to:

“Password Valid”

“Change?”

If you do not wish to change the password, use the <MENU> buttons to navigate to the desired menu item. If you want to change the password, press the key under <Change?>, the display will then read:

“Change Password”

“ 1 2 3 4 ”

Enter the new four digit password. As the numbers are entered, they will be displayed in the upper right corner. The display will indicate it has been saved.

“Press EXIT for Vend Mode”

This screen gives the software version of the controller. Note that the <EXIT> key may be pressed at any time to return to the Vend Mode, not just at this screen.



Cleaning and Care

Cabinet Interior

- Use a dry cloth to wipe away dust.
- Use a mild detergent/water mixture, sprayed on a cloth, for general cleaning. Never spray liquids or cleaners directly on any part of this machine.
- Use a water-based degreaser to clean up any product spills (if needed).
- On textured surfaces, you can use a soft bristled brush to aid you in the cleaning process.

NEVER USE ANY PETROLEUM-BASED CLEANERS ON ANY SURFACE OF THIS VENDING MACHINE.

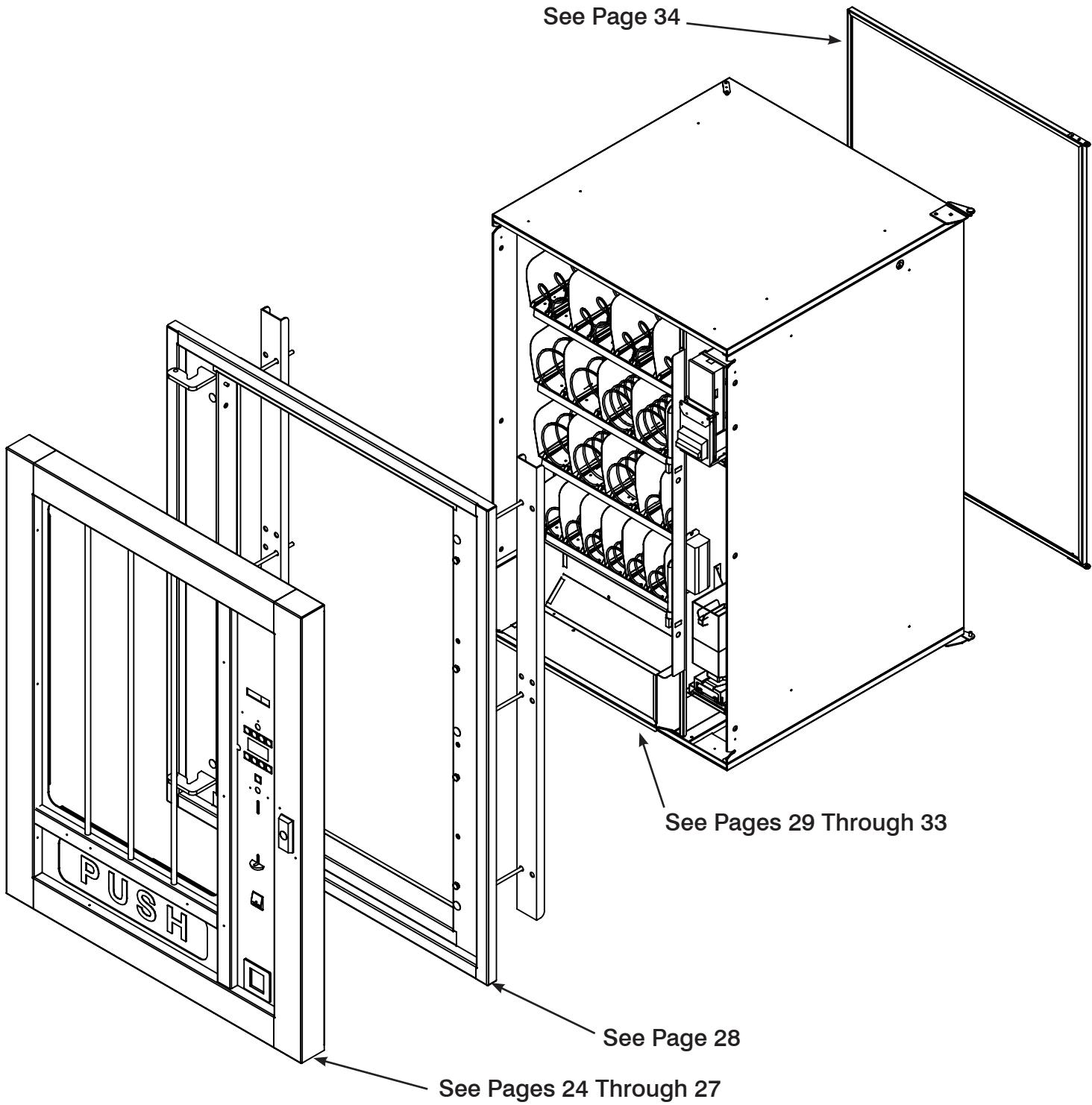
Cabinet Exterior

- Use a dry cloth to remove dust.
- Use a mild detergent/water mixture, or a water-based degreaser to clean surfaces.
- Use a soft-bristled brush to aid in the cleaning of textured surfaces.
- Use only water-based stainless steel cleaner, or a vinegar/water mixture to clean the stainless steel door (if so equipped).
- Use a mild soapy water mixture to clean the front door window.

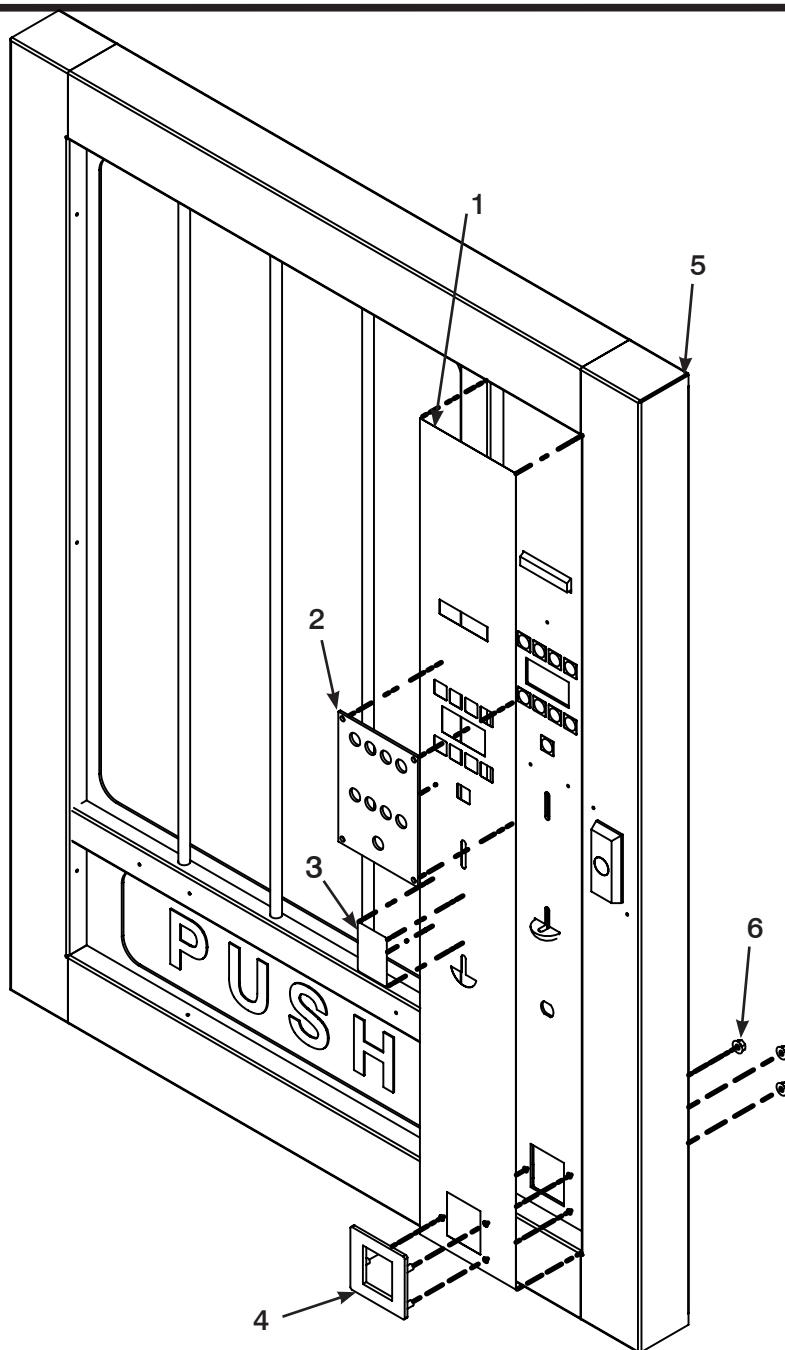
NEVER USE A PETROLEUM-BASED CLEANER ON ANY SURFACE OF THIS VENDING MACHINE.



Parts Break Down



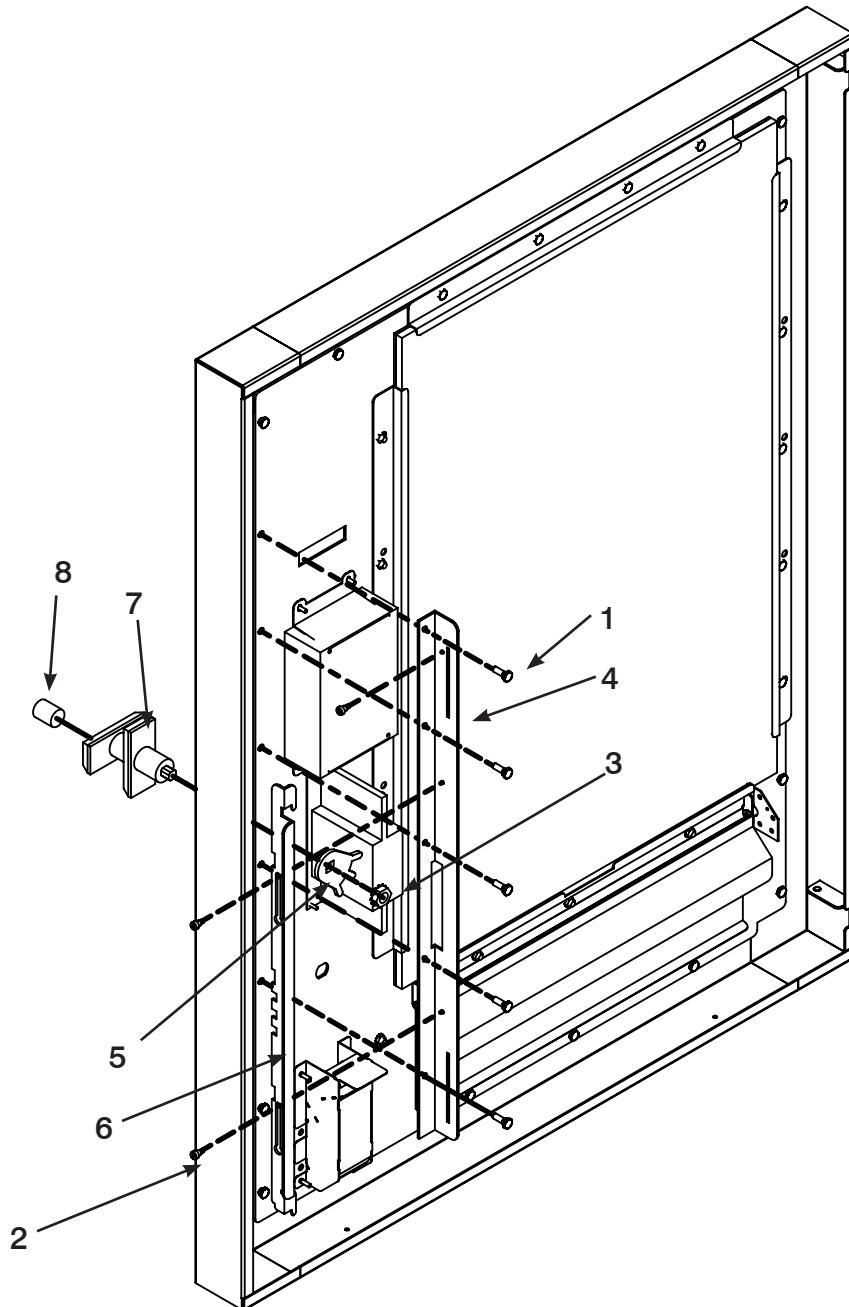
Front Door



ITEM	QTY	PART #	NAME
1	1	CONTACT SALES	DECAL
2	3	621060	DISPLAY LENS
3	1	CONTACT SALES	DECAL OVER LAY
4	1	6210260	KIT COIN RETURN CUP
5	1	CONTACT SALES	FRONT DOOR
6	1	6210260	KIT COIN RETURN CUP



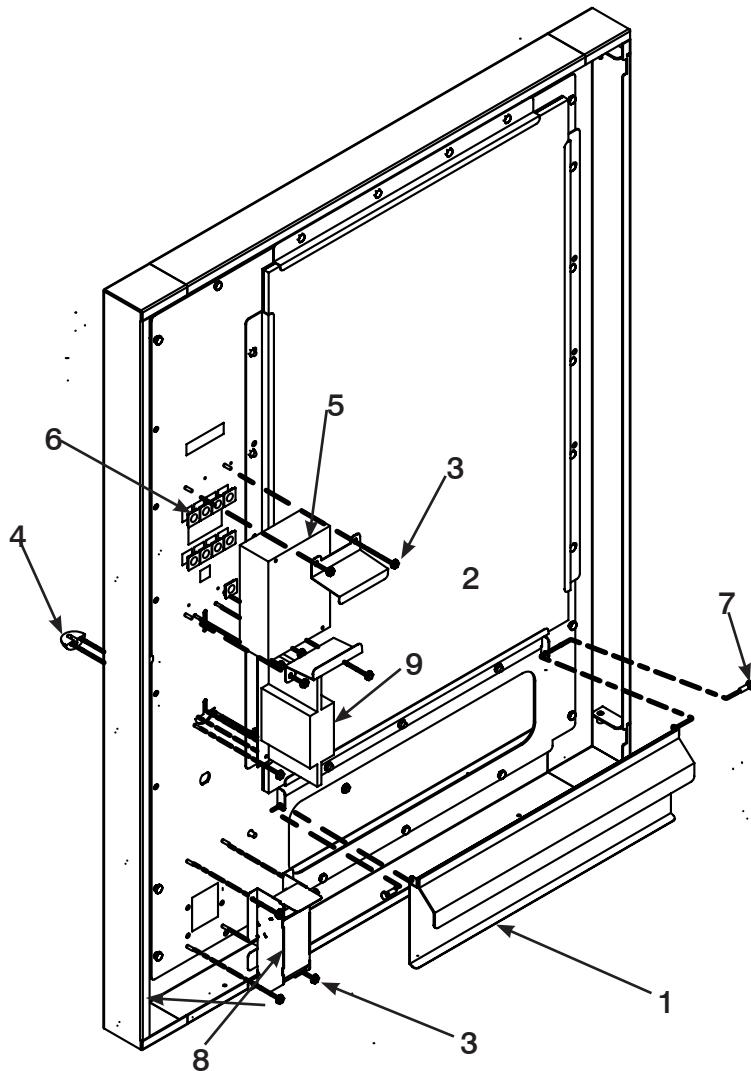
Front Door



ITEM	QTY	PART #	Name
1	5	106875	HEX SCREW 250-20X750 ZP
2	3	623008	250X188 SS SHOULDER SCREW
3	1	105350	NUT 250-20 KEPS ZP2
4	1	621020	LOCK BAR DOOR MOUNT
5	1	621023	LOCK BAR DRIVER
6	1	621022	LOCK BAR MOVING
7	1	1048450	T-LOCK HANDLE



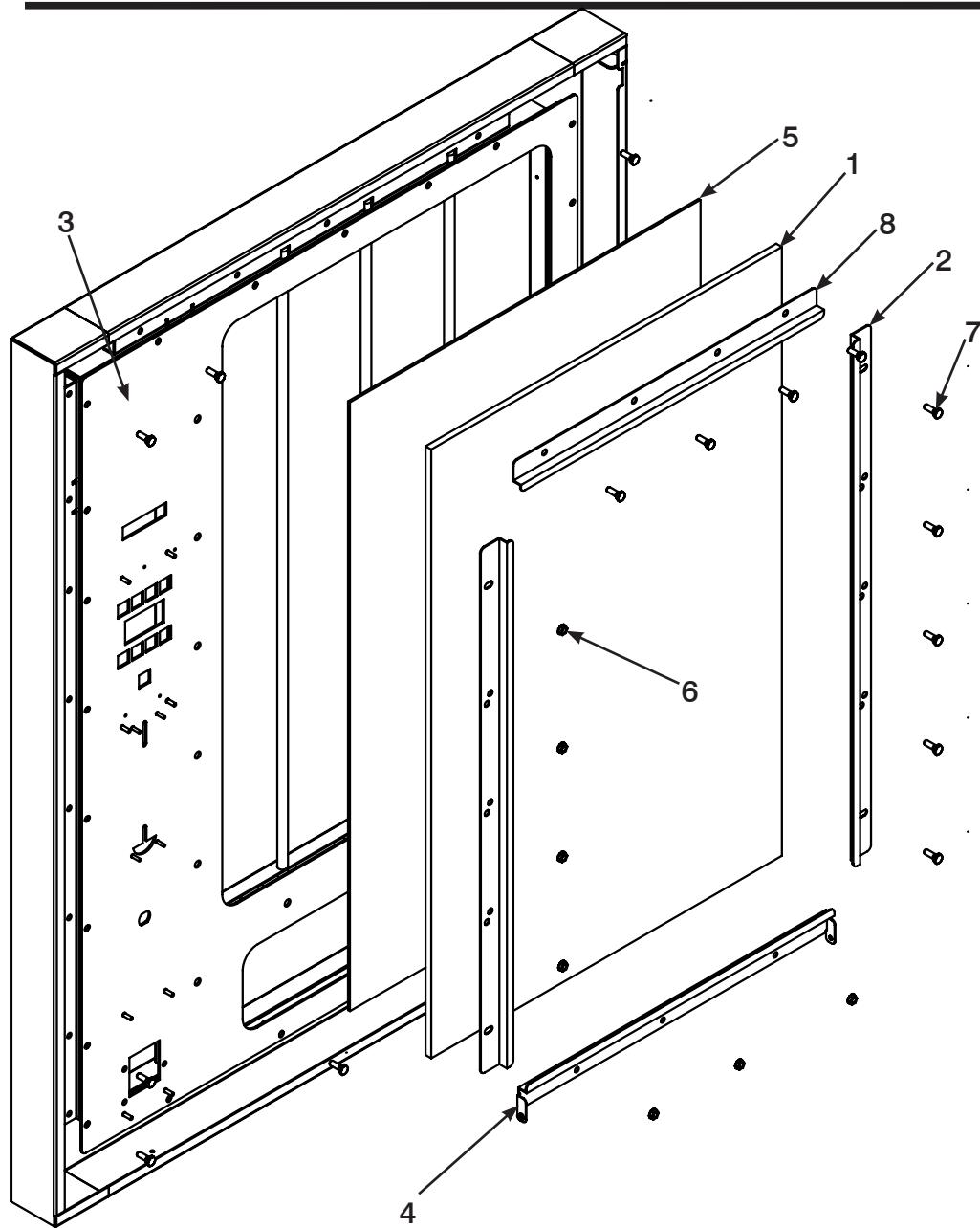
Front Door



ITEM	QTY	PART #	DESCRIPTION
1	1	6210300	PUSH DOOR ASSEMBLY
2	2	621051	DISPLAY RETAINER
3	12	105350	NUT 250-20 KEPS ZP
4	1	Contact Sales	COIN FRONT
5	1	6233020	FRONT DISPLAY UNIT
6	9	6009000	SELECTOR BUTTON (9 PACK)
7	2	106895	#8-32 x1.00" SCREW
8	1	6210260	KIT COIN RETURN CUP
9	1	1002650	MA820
		7704200	SENSORTRON
		7707700	MULTITRON



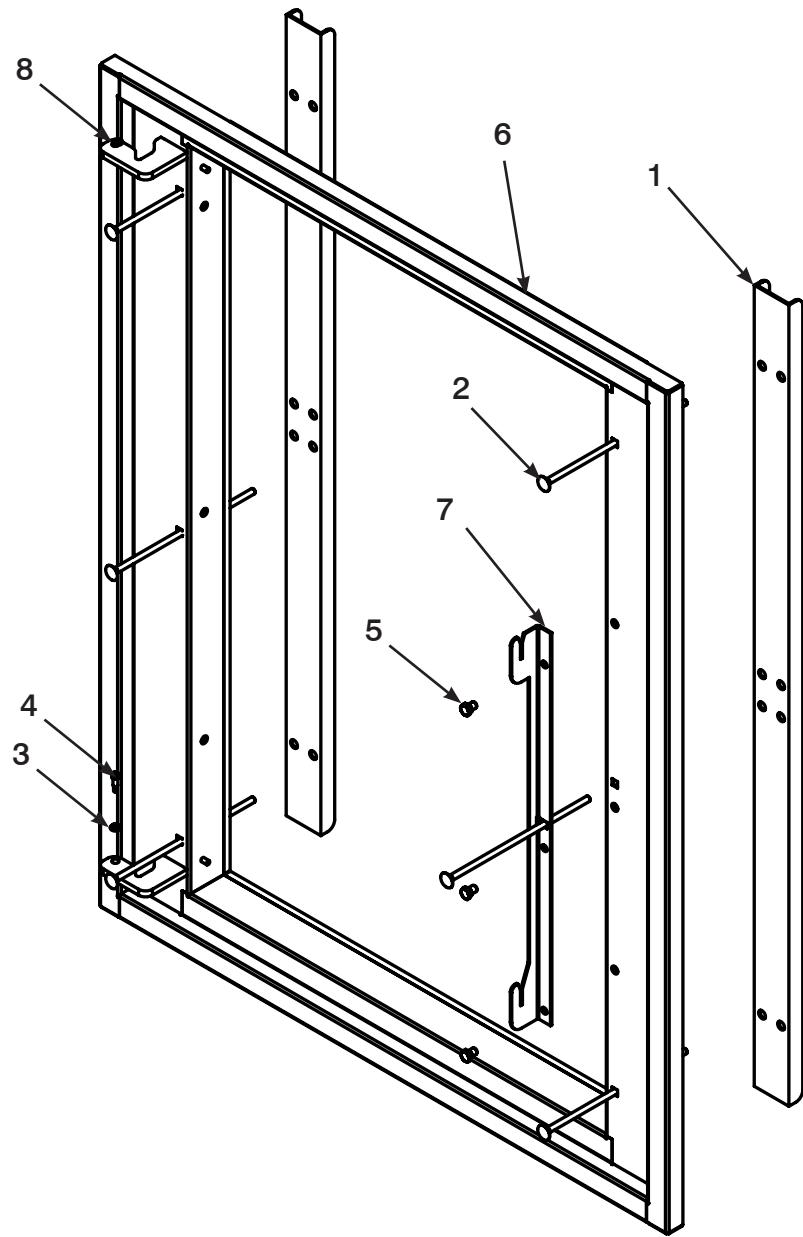
Front Door



ITEM	QTY	PART #	NAME
1	1	6288010	LEXAN WINDOW - 375
2	2	621029	SIDE GLASS RETAINER
3	1	621019	DOOR BACK PANEL
4	1	621027	LOWER GLASS RETAINER
5	1	6288030	LEXAN WINDOW - 125
6	7	105350	NUT 250-20 KEPS ZP
7	19	106875	HEX SCREW 250-20X750 ZP
8	1	621028	TOP GLASS RETAINER



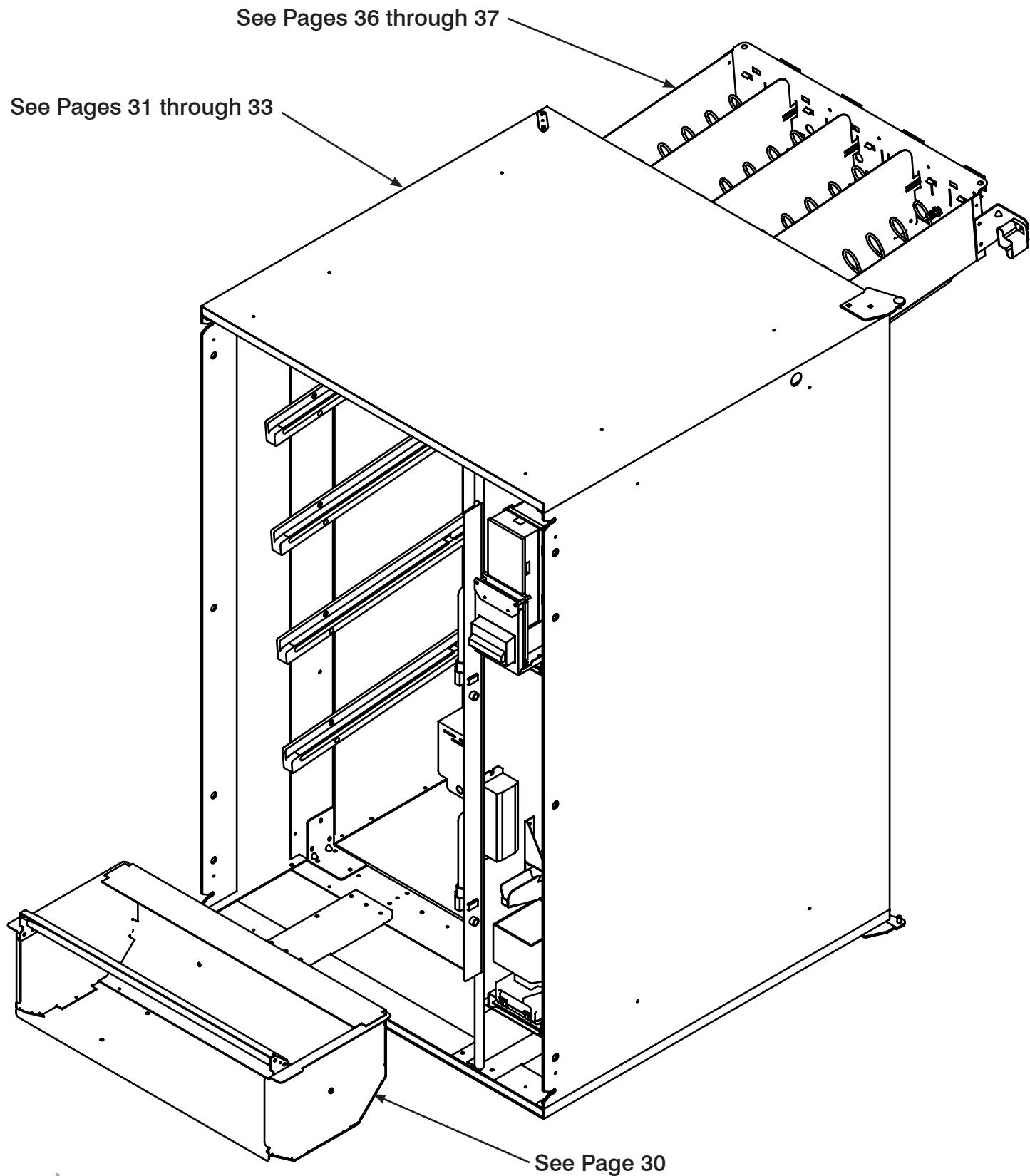
Wall Flange



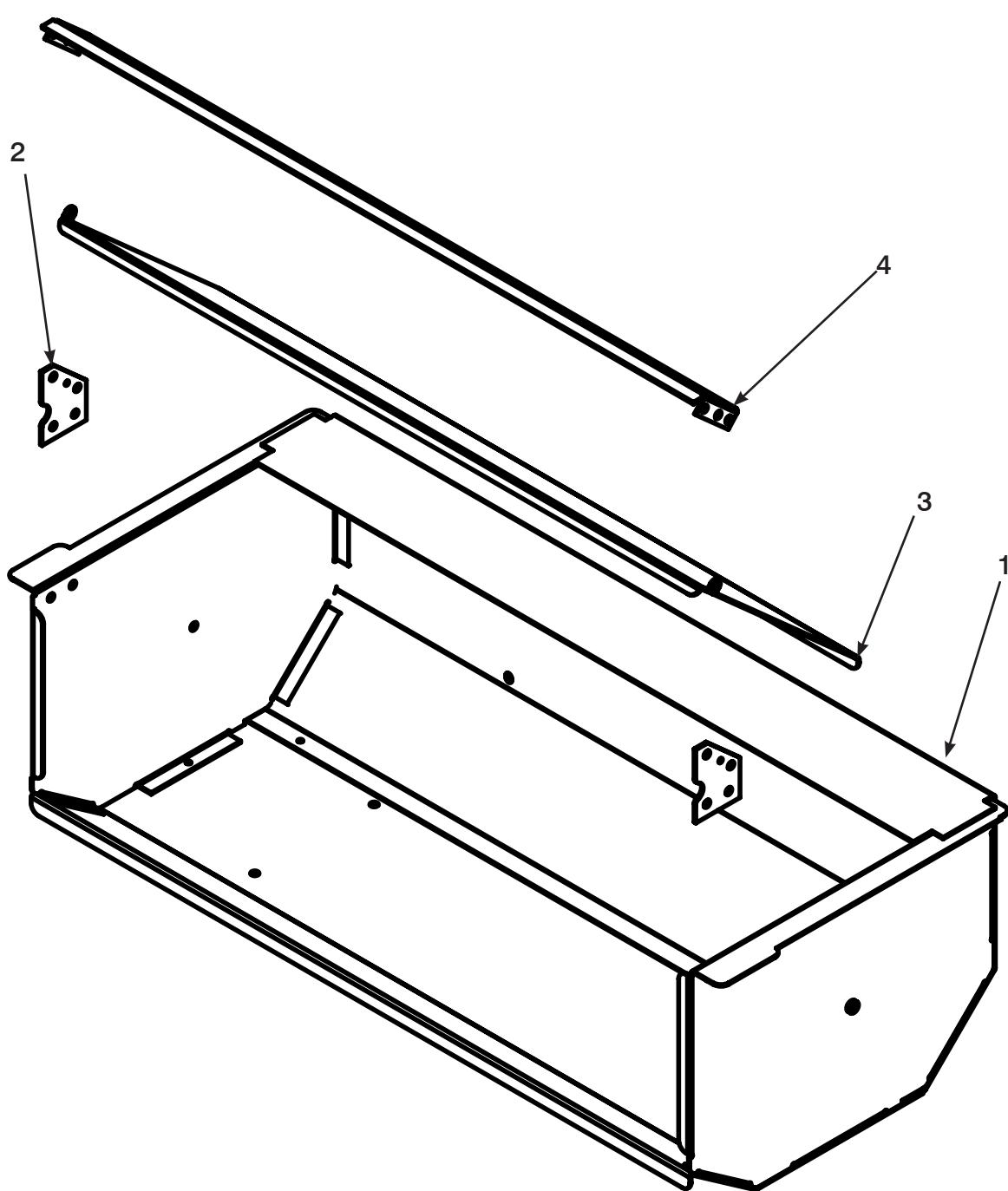
ITEM	QTY	PART #	Name
1	2	621057	INSTALLATION CHANNEL
2	6	106981	375X10 CARR BOLT
3	1	623007	NYLON BUSHING 250 ID 375 OD 375 LG
4	1	623006	250X500 SS SHOULDER SCREW
5	3	106874	HEX SCREW 375-16X500 ZP
6	1	621016	WALL FLANGE WMT
7	1	621021	LOCK BAR FLANGE MOUNT
8	1	108919	NYLON SHOULDER WASHER 250 ID 125 LG



Cabinet Section Break Down



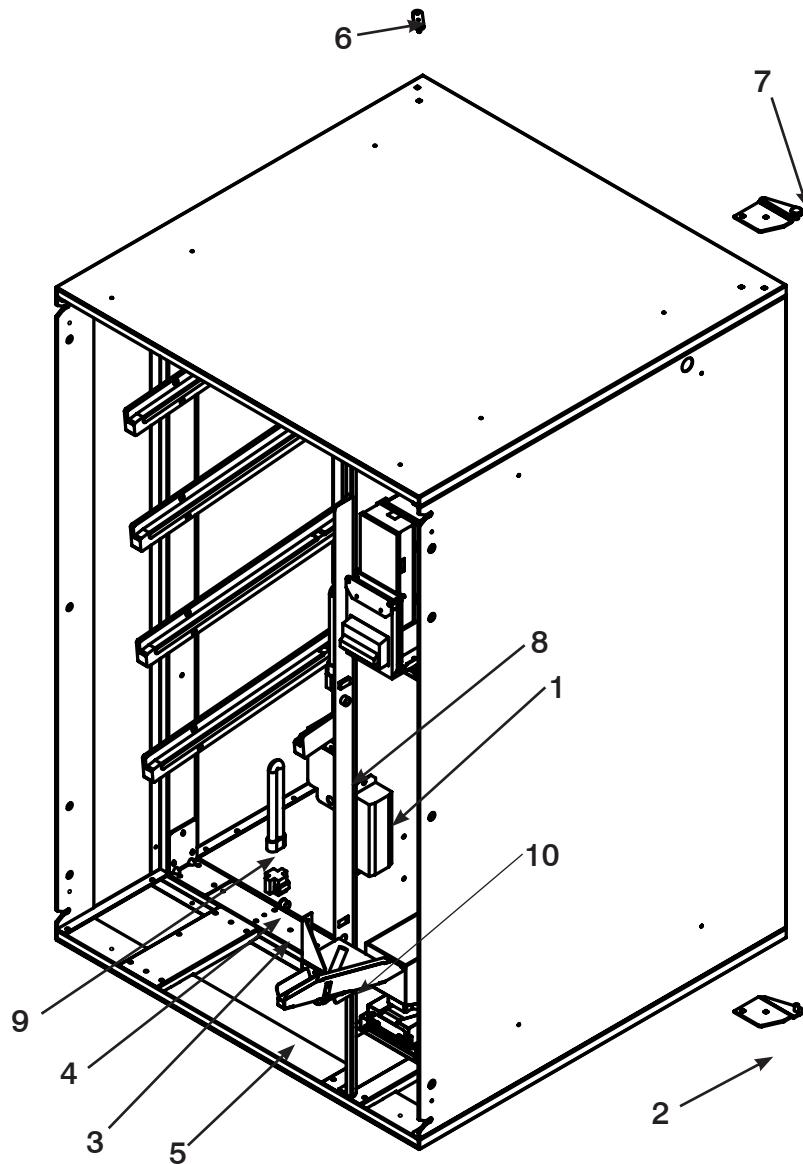
Delivery Box



ITEM	QTY	PART #	NAME
1	1	621032	VENDOR DELIVERY BOX WMT
2	2	621033	SHUTTER HINGE PLATE
3	1	621035	DELIVERY BOX SHUTTER
4	1	621034	SHUTTER BRIDGE



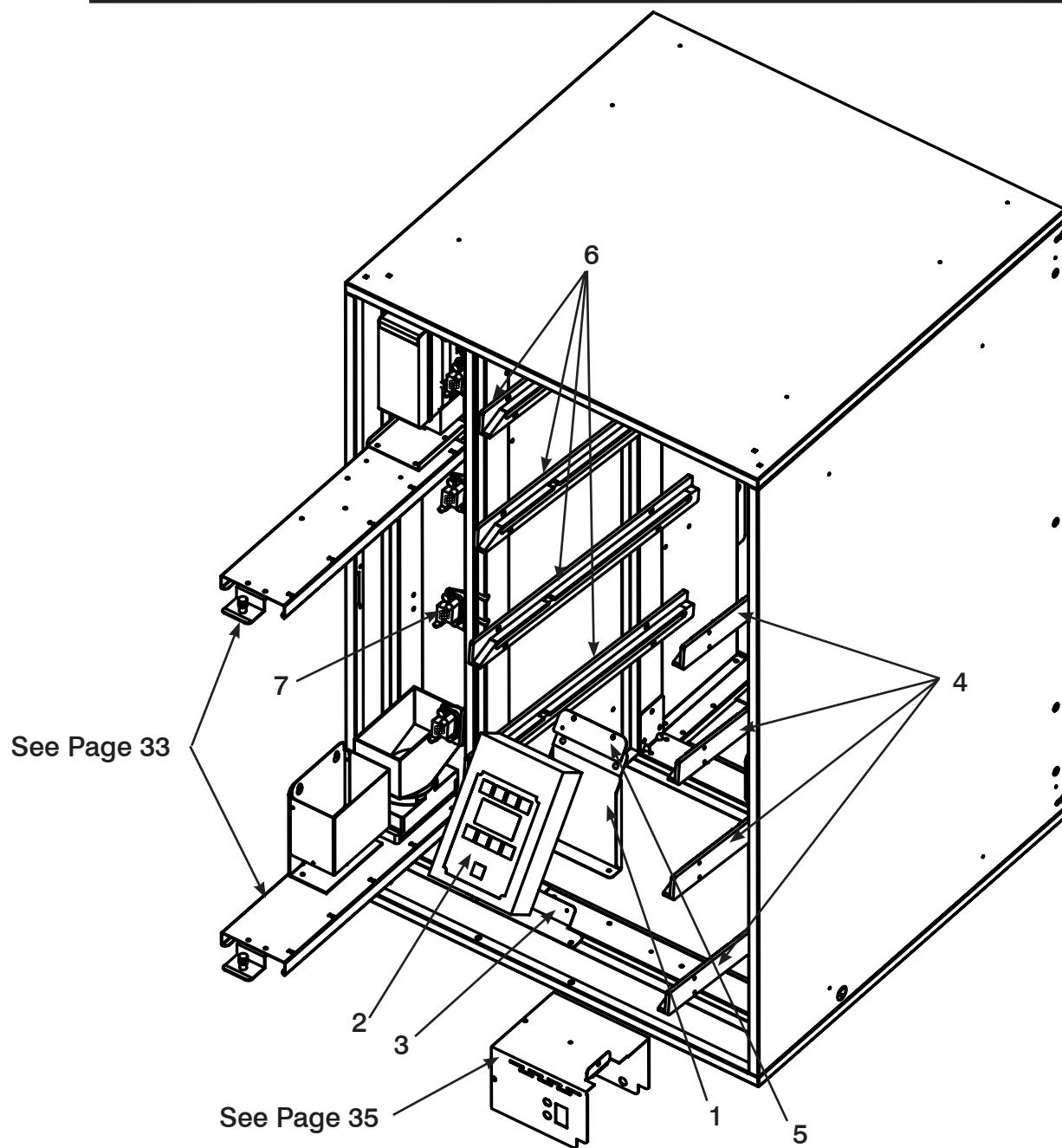
Cabinet



ITEM	QTY	PART #	NAME
1	1	6220050	COMPACT BULB DUAL BALLAST
2	1	621013	RH REAR DOOR HINGE PIVOT
3	2	106004	HEYCO BUSHING 500-6
4	2	622007	COMPACT BULB SOCKET
5	1	621056	COIN DIVERTER WMT
6	2	621010	HINGE HOLE COVER
7	1	621014	LH REAR DOOR HINGE PIVOT
8	1	621037	LIGHT MOUNT
9	2	6220060	COMPACT BULB
10	1	622004	COIN DIVERTER SOLENOID



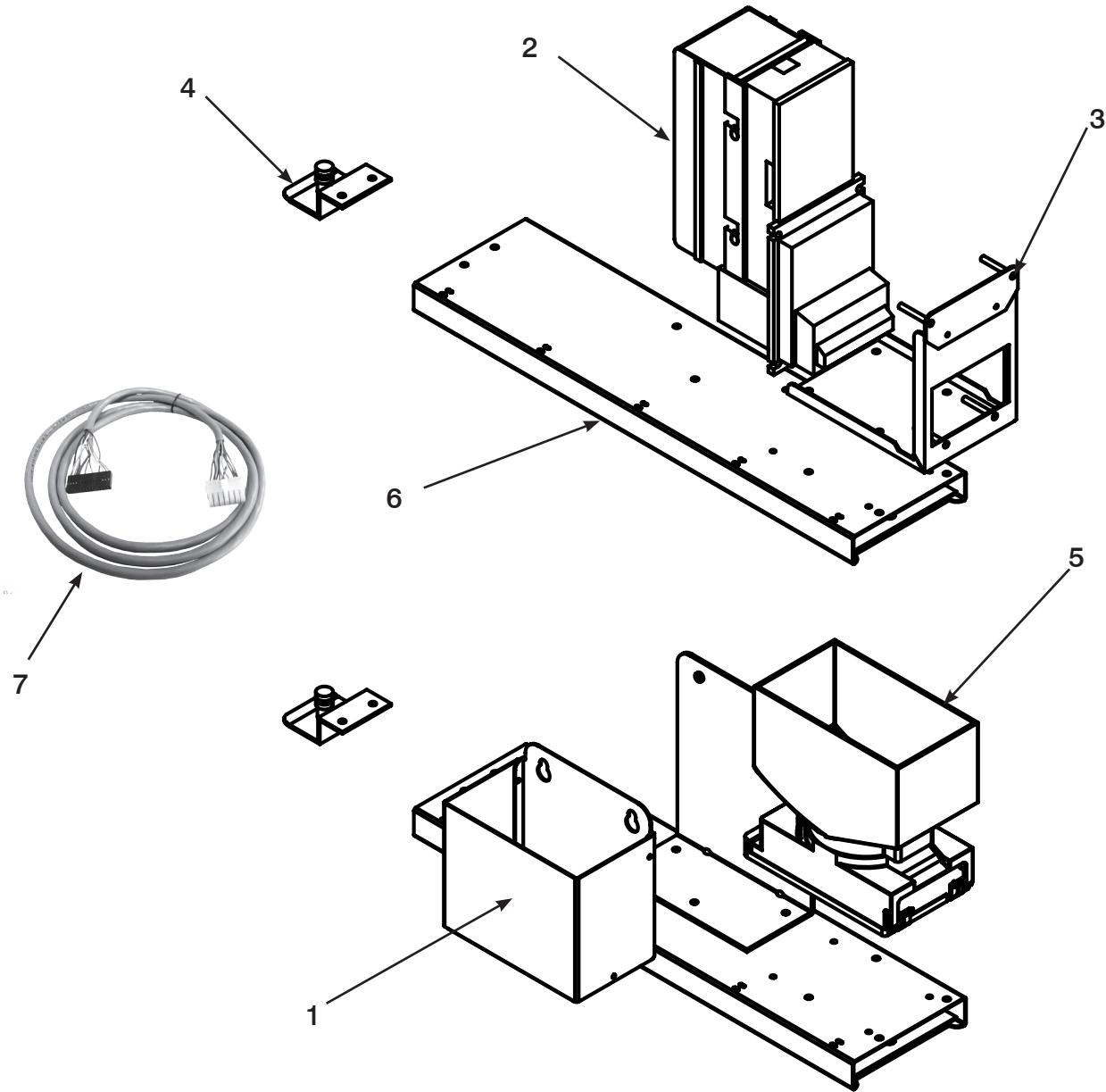
Cabinet



ITEM	QTY	PART #	NAME
1	1	621052	CONTROLS STAND
2	1	6233010	MOTOR CONTROLLER
3	1	621053	CONTROLS LOWER MOUNT
4	4	623005	LH SHELF GUIDE
5	1	621054	CONTROLS TOP RETAINER
6	4	623004	RH SHELF GUIDE
7	4	1018750	SHELF CONN PLUG-FLOAT HSG



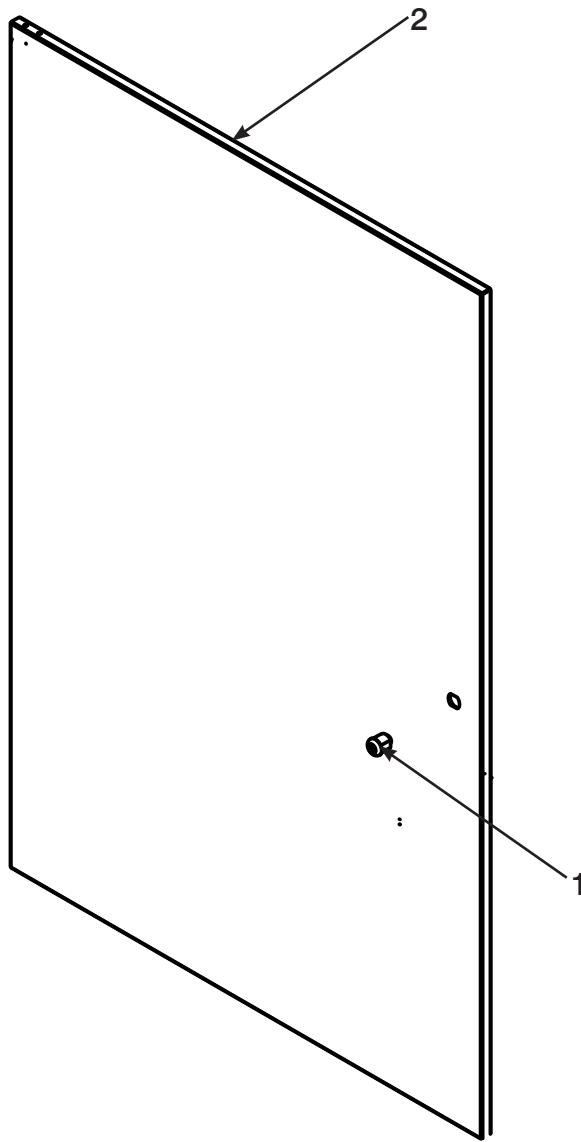
Commerce Trays



ITEM	QTY	PART #	NAME
1	1	6210460	COIN CUP WMT
2	1	283500	AE2412 BA
3	1	6210490	BA MOUNT WMT
4	2	6210420	PLUNGER TAB
5	1	6232010	COIN HOPPER
6	1	621041	BA & COIN HOPPER SLIDE
7	1	6291030	BILL ACCEPTOR HARNESS



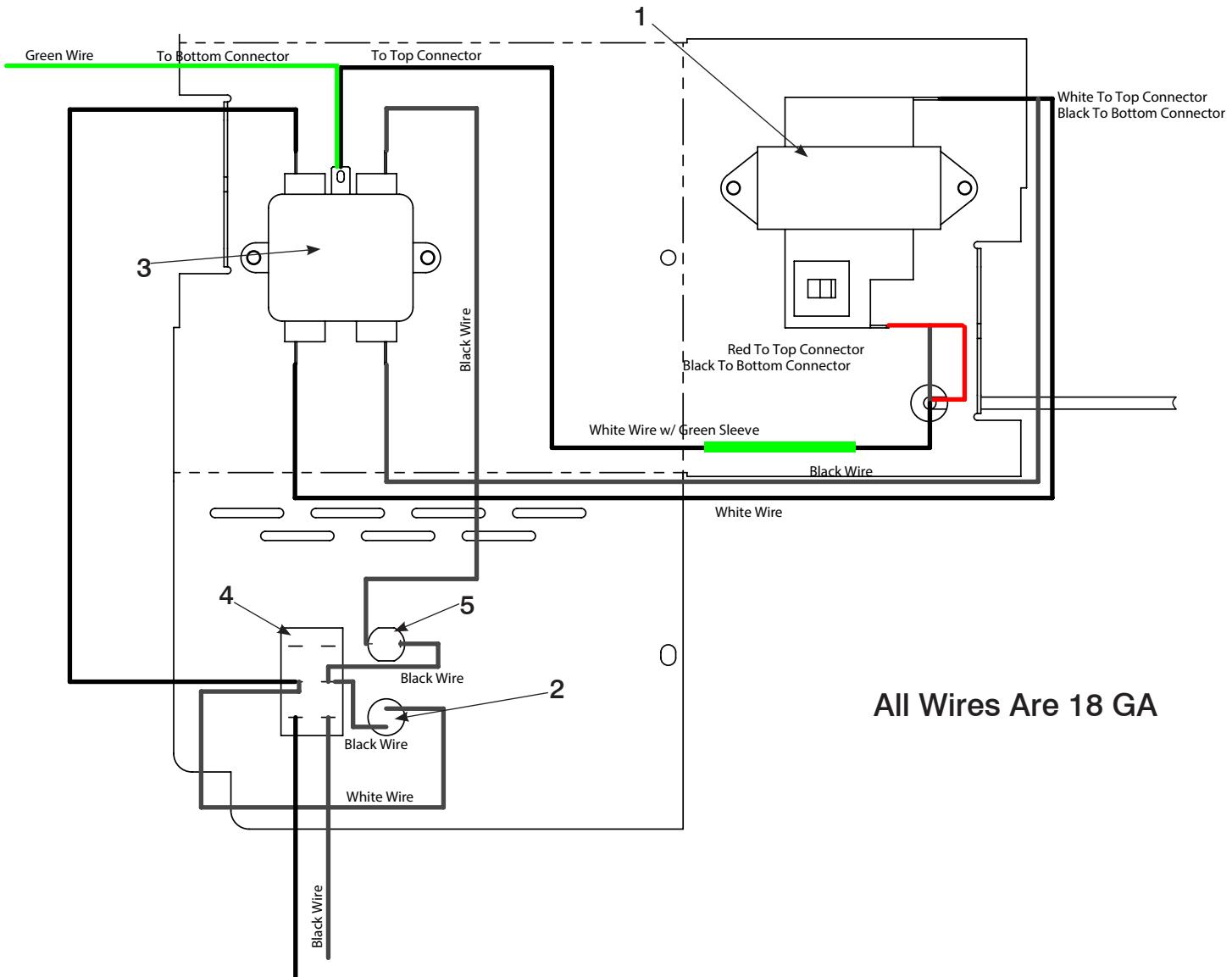
Rear Door



ITEM	QTY	PART #	NAME
1	1	2310000	AH01 METER PANEL LOCK
2	1	621005	REAR DOOR WMT



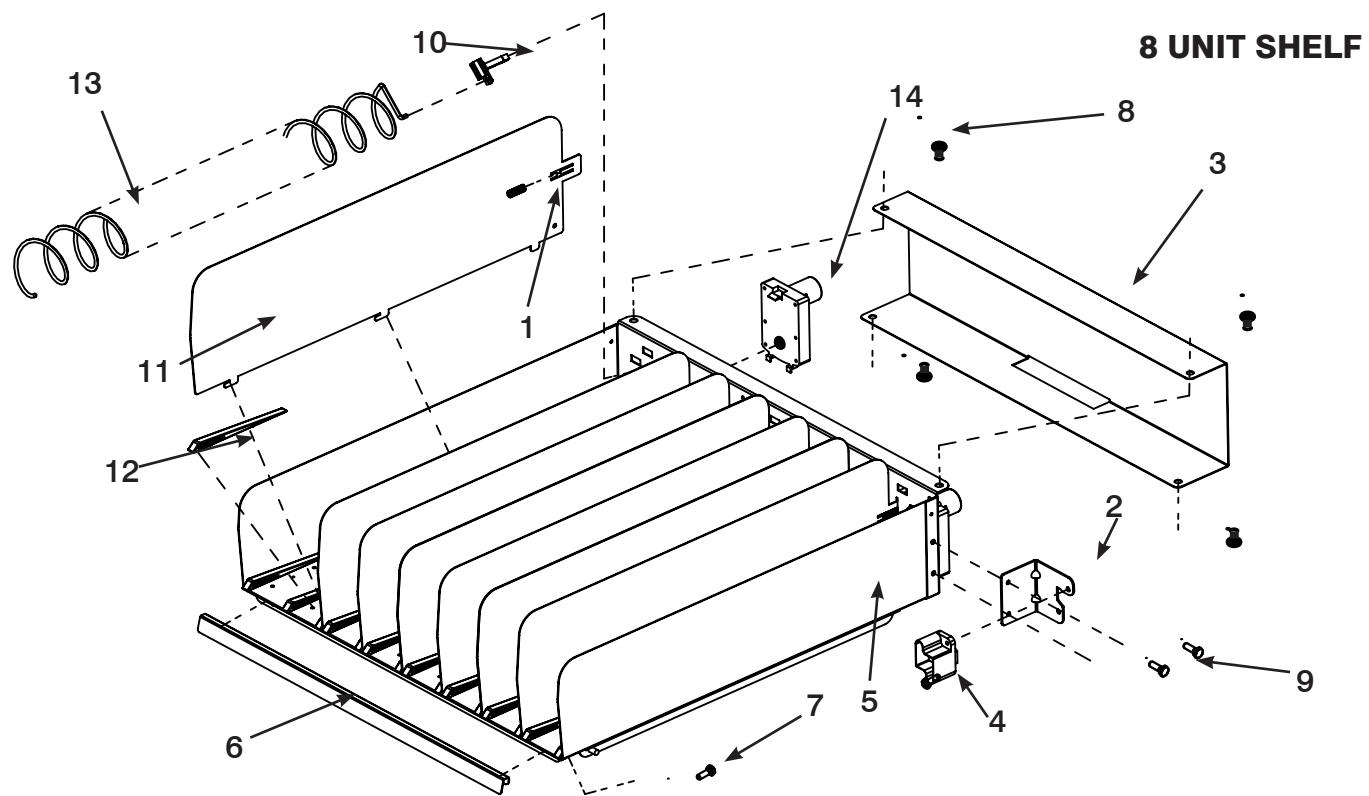
Power Supply Box



ITEM	QTY	PART #	NAME
1	1	1078110	BALSER 75VA TRANSFORMER
2	1	524605	INDICATOR LIGHT
3	1	602900	EMI FILTER
4	1	107707	ROCKER SWITCH
5	1	522712	4 AMP FUSE



Product Shelves



Product Shelves

ITEM	QTY	PART #	DESCRIPTION	PARTS TABLE
1	*	623001	SHELF DIVIDER SPRING	
2	1	621008	SHELF PLUG HSG MOUNT	
3	1	621007	MOTOR COVER	
4	1	101876	SHELF CONN RECEPT HSG	
5	1	621001	SHELF WMT	
6	1	621055	PRICE HOLDER	
7	2	106909	#8-32 X3/8" PHILPS HEAD	
8	4	623003	PLASTIC TREE REVIT	
9	4	106929	#8-32 X.500" PHILPS HEAD	
10	**	626002	HUB ADAPTER (1 per Helix)	
11	***	6210060	SHELF DIVIDER W/SPRING	
12	**	626001	COLUMN RAMP (2 per Helix)	
13			Helix - Helix type and QTY are based on shelf configuration. See Chart X for Helix Type Information.	
14	1	1051170	Product Delivery Motor	

Notes:

- * QTY is based of the number of Shelf Dividers used.
- ** QTY is based of the number of Helixes used.
- *** QTY is based of the number of Shelves Configuration

HELIX TABLE*

PART NUMBER	DIAMATER OF HELIX	COUNT OF PRODUCTS AND DIRECTION	SIZE OF SPACE FOR PRODUCT
6270010	2 1/2	8	2 5/8"
6270020	2 1/2	10	2"
6270040	2 1/2	12	1 5/8"
6270060	2 1/2	15	1 1/4"
6270080	2 1/2	24	3/4"
6270090	4	10	2"
6270100	4	12	1 5/8"
6270110	4	18	1"
6270120	4	24	3/4"

The Number of Helixes per shelf is based on the shelves configuration.

*Each of these includes 1 helix and 1 hub adaptor

